

A Guide to Space Law Terms

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I. INTRODUCTION

This document is a step to developing an accurate and usable guide to space law words, terms, and phrases. The project developed from misunderstandings and difficulties that graduate students in our classes encountered listening to lectures and reading technical articles on topics related to space law. The difficulties are compounded when students are not native English speakers.

Because there is no standard definition for many of the terms and because some terms are used in many different ways, we have created seven categories of definitions. They are:

- I. A simple definition written in easy to understand English
- II. Definitions found in treaties, statutes, and formal regulations
- III. Definitions from legal dictionaries
- IV. Definitions from standard English dictionaries
- V. Definitions found in government publications (mostly technical glossaries and dictionaries)
- VI. Definitions found in journal articles, books, and other unofficial sources
- VII. Definitions that may have different interpretations in languages other than English

The source of each definition that is used is provided so that the reader can understand the context in which it is used.

The Simple Definitions are meant to capture the essence of how the term is used in space law. Where possible we have used a definition from one of our sources for this purpose. When we found no concise definition, we have drafted the definition based on the more complex definitions from other sources. In addition, for those not familiar with basic legal terms, we have provided a short list of definitions of common legal terms in Appendix A. Because many of the terms are closely related, we have also provided a grouping of selected terms in Appendix B.

We would also like to recognize the important contributions of those who have commented on preliminary versions, and especially to Tiffany Chow of the Secure World Foundation who was the project manager for this effort.

This document is the beginning of a process to develop a useful and comprehensive guide to terms commonly used in space law. All readers are invited to comment and suggest both corrections and revisions to these definitions as well as additional words, terms and phrases to be included in future editions.

Please send all suggestions to Professor Henry Hertzfeld: hhertzfeld@law.gwu.edu

II. CATEGORIES OF DEFINITIONS

- I. **Simple Definition**
Short, easy to understand; either: a concise definition from a published source or a summarized definition taken from multiple sources.
- II. **Definitions Found in Treaties, Statutes, Regulations, etc.**
U.N. Treaties; U.S. Legislation; Non-U.S. Laws; Agency Regulations implementing national laws; other official international organization or governmental documents; judicial opinions.
- III. **Legal Dictionary Definition**
All definitions are reproduced for each word or term.
- IV. **Standard English Dictionary Definition**
The American English definition closest to the meaning for law and/or security concern; also includes word derivation and type.
- V. **Other U.S. Government Definitions, etc.**
NASA Thesaurus; DOD Dictionary of Terms, and other government publications
- VI. **Other Definitions Found in Articles, Journals, Glossaries, Books, etc.**
Only includes definitions that differ from those in other categories.
- VII. **Language Sensitive Definitions**
Important space terms or phrases that may have different meanings or nuances in different languages or translations—specific focus is on U.N. languages [English, French, Spanish, Russian, Chinese, Arabic].
- VIII. (Note that there are limited entries in this category in this first edition of the Guide.)

For Reference Purposes, the full citations for the five United Nations Space Treaties are:

- *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, opened for signature Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [Outer Space Treaty or OST].*
- *Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, opened for signature Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [Rescue and Return Agreement or ARRA].*
- *Convention on International Liability for Damage caused by Space Objects, opened for signature Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [Liability Convention].*
- *Convention on the Registration of Objects Launched into Outer Space, opened for signature Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S.15 [Registration Convention].*
- *Agreement Governing the Activities of States on the Moon and Outer Space, UN Doc. A/34/664, opened for signature Nov. 1979; UN Doc. A/34/20, Annex 2; UN Doc. A/RES/34/68; 1363 UNTS (1979) ILM 1434 [Moon Agreement].*

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ALPHABETICAL TABLE OF DEFINITIONS

(If using the electronic version, click on a term to be directed to that definition.)
 (X—an entry for a definition; N/A—a definition is not applicable for this category)

TERM	I. Simple Definition	II. Laws & Treaties	III. Legal Dictionary	IV. Standard English Dictionary	V. Other U.S. Government Documents	VI. Other Sources	VII. Language and Translation Differences
Abnormally Dangerous (Ultrahazardous Activities)	X	X	X	X	X	X	
Absolute Liability (Strict Liability)	X	X	X	X	X	X	
Aeronautics	X	X	X	X	X	X	
Aerospace	X			X	X		
Aerospace Vehicle	X	X		X	X	X	
Air Traffic Control	X	X	X	X	X	X	
Aircraft	X	X	X	X	X	X	X
Airspace	X	X	X	X	X	X	X
Astronaut	X	X		X	X	X	X
Astronaut Wings	X	N/A			X	X	
Climate	X			X	X		
Commercial	X	X	X	X	X	X	X
Commercialization	X			X	X	X	
Common Heritage of Mankind (Humankind)	X	X	X		N/A	X	X
Compensation	X	X	X	X	X	X	
Component	X			X	X	X	
Component Part	X	X	X	X		X	
Consultation (Diplomatic)	X	X	X	X			
Crew	X	X	X	X			
Customary International Law	X	X	X	X		X	
Damage	X	X	X	X	X	X	

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Fault	X	X	X	X		X	
Fault-Based Liability	X	X	X	X	X	X	X
Geostationary Orbit (GEO)	X	X	N/A	X		X	
Geosynchronous Orbit (GSO)	X	X	N/A	X	X	X	
Gross Negligence	X	X	X	X		X	
Intelligence	X			X	X	X	
International Cooperation	X	X	N/A	X	X		X
International Liability	X	X	N/A			X	X
International Responsibility	X	X	N/A			X	X
International Waters / High Seas	X	X	X	X		X	
Jamming	X			X	X	X	
Joint and Several Liability	X	X	X	X	X		
Launch	X	X	X	X	X		X
Launch Vehicle	X	X		X	X	X	
Launching State	X	X	N/A		X	X	X
Liability	X		X	X	X	X	X
Low-Earth Orbit (LEO)	X	N/A	N/A	X	X	X	
Medium-Earth Orbit (MEO)	X	N/A	N/A	X		X	
Near-Earth Objects (NEO)	X	N/A	N/A	X	X	X	
Negligence	X		X	X	X	X	
Non-Governmental Entity	X	X	X	X	X		
Nuclear (Reaction)	X	X	X	X	X	X	
Orbit	X	X		X	X	X	
Outer Space	X	X	X	X		X	X
Passenger	X	X	X	X			
Payload	X	X		X	X	X	

Peaceful	X	X	X	X	X	X	
Personnel of Spacecraft	X	X	N/A	X	X	X	
Planetary Protection	X	X	N/A		X	X	
Privatization	X	X		X	X	X	
Province of All Humankind (Mankind)	X	X	X	X		X	
Registration	X	X	X	X		X	
Remote Sensing System	X	X	X		X	X	
Responsibility	X		X	X	X		
Satellite	X	X		X	X	X	
Satellite System	X	X	N/A			X	
Security	X	X	X	X	X	X	
Sovereignty	X	X	X	X	X	X	
Space Adventurism	X	N/A	X				
Space Debris	X		N/A	X	X	X	
Space Debris Mitigation	X	X	X	X	X	X	
Space Flight Participant	X	X	X	X		X	
Space Law	X	X			N/A	4	X
Space Object	X	X	X	X	X	X	X
Space Situational Awareness (SSA)	X	N/A	N/A	X	X	X	
Space Surveillance Network (SSN)	X		N/A		X	X	
Space Tourism	X	N/A	X	X	N/A	X	
Space Traffic Management	X	N/A	X	X		X	
Space Weapon	X	X	N/A	X		X	
Space Weather	X	N/A	N/A	X	X	X	
Spacecraft	X	X		X	X	X	
Spaceport	X			X	X	X	

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Spectrum	X	X		X		X	
Suborbital	X	X		X			
Sustainable	X		X	X	X	X	
Telecommunication	X	X		X	X	X	
Third Party	X	X	X	X	X		
Ultrahazardous Activities	X	X	X	X	X	X	
Weapon	X	X	X	X		X	
Weapons of Mass Destruction	X	X		X	X	X	
Weather	X		X	X	X		

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III. TERMS & DEFINITIONS

	Abnormally Dangerous (also Ultrahazardous Activities)	Source
I. Simple Definition	Acts or events that are not ordinary for the community in question and risk serious harm regardless of any precautions; often leads to strict liability. Related Term: Strict Liability.	Compiled by Authors of this Report.
II. Laws & Treaties	<u>Example of Usage in U.S. Law:</u> The U.S. Government will indemnify a contractor against claims or losses if the risks are directly related to the contracts and are defined as “unusually hazardous or nuclear in nature.”	See Pub. L. No. 85-804, § 1, 72 Stat. 972 (1958) (50 U.S.C. §§ 1431-1435 (2006)); Exec. Order No. 10789, 23 Fed. Reg. 8897 (Nov. 14, 1958).
III. Legal Dictionary	“An undertaking that necessarily carries with it a significant risk of serious harm even if reasonable care is used, and for which the actor may face strict liability for any harm caused; esp., an activity (such as dynamiting) for which the actor is held strictly liable because the activity (1) involves the risk of serious harm to persons or property, (2) cannot be performed without this risk, regardless of the precautions taken, and (3) does not ordinarily occur in the community.” “Fraught with peril not necessarily or inherently connected with the place or thing. Employees act within their rights in quitting work on the ground that the premises have become ‘abnormally dangerous,’ where an accumulation of dust, grit, and dangerous abrasives is consequent upon the failure of a blower.” Ultrahazardous Activity: “An activity which necessarily involves a risk of serious harm to the person, land or chattels of others which cannot be eliminated by the exercise of the utmost care, and is not a matter of common usage. Anno: 54 ALR2d 776.”	<i>Definition of Abnormally Dangerous Activity</i> , Black’s Law Dictionary 2 (3d Pocket ed. 2006). <i>Definition of Abnormally Dangerous</i> , Ballentine’s Law Dictionary 4 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011) (citations omitted). <i>Id.</i> at 1309.
IV. Standard English Dictionary	“ <i>noun</i> : an activity esp. that is not common in or appropriate to an area, that creates a high degree of risk of harm to someone or something despite the exercise of due care, and whose value to the community in the area is outweighed by the risk of harm —compare Ultrahazardous Activity. <i>NOTE: Abnormally dangerous activities are subject to strict liability. Abnormally dangerous activity and ultrahazardous activity are sometimes used interchangeably.</i> ”	<i>Definition of Abnormally Dangerous</i> , Dictionary.com, http://dictionary.reference.com/browse/abnormally%20dangerous%20activity (last visited Nov. 15, 2011).
V. Other	Abnormally Dangerous Activities: “Those activities which	U.S. Department of

<p>U.S. Gov't</p>	<p>can be subject to strict liability, even though they could possibly be made safe (see <i>ultrahazardous activities</i>).”</p> <p>Ultrahazardous Activities: “Those activities with a risk of serious harm, which cannot be eliminated by exercise of the utmost care (see <i>abnormally dangerous activities</i>).”</p>	<p>Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> 12-1 (April 2002).</p> <p><i>Id.</i></p>
<p>VI. Other Sources</p>	<p>“An activity is abnormally dangerous if: (1) the activity creates a foreseeable and highly significant risk of physical harm even when reasonable care is exercised by all actors; and (2) the activity is not one of common usage.”</p> <p>“An actor who carries on an abnormally dangerous activity is subject to strict liability for physical harm resulting from the activity.”</p> <p>Factors to consider: “(1) the degree of risk of harm; (2) the magnitude of that harm; (3) the inevitability of some risk irrespective of precautionary measures that might be taken; (4) the ordinary or unusual nature of the activity; and (5) the activity’s value to the community in comparison to the risk of harm created by its presence.” Also, whether the activity is “a matter of common usage.”</p>	<p>Restatement (Third) of Torts: Liability for Physical and Emotional Harm § 20(b) (2010).</p> <p><i>Id.</i> § 20(a).</p> <p>Restatement (Second) of Torts § 519 (1977).</p>
<p>VII. Language</p>		

	Absolute Liability (Strict Liability)	Source
I. Simple Definition	<p>Liability (i.e., a legal obligation to pay claims for bodily injury or property damage) imposed without regard to fault.</p> <p>Related Terms: Liability, Fault-Based Liability, and Abnormally Dangerous.</p>	<p><i>Derived From Definition of Strict Liability</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/strict%20liability (last visited Sept. 7, 2011).</p>
II. Laws & Treaties	<p><u>Example of Usage in the Space Treaties:</u></p> <p>“A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft flight.”</p>	<p>Liability Convention Art. II.</p>
III. Legal Dictionary	<p>“1. Liability for an injury resulting to another where no account is taken of the standard of care exercised, often called insurer’s liability. 38 Am J1st Negl § 4. Criminal liability of which intent not an element. 21 Am J2d Crim L § 91. Liability of a principal as distinguished from that of a guarantor or surety.”</p> <p>Strict Liability: “Liability that does not depend on actual negligence or intent to harm, but that is based on the breach of an absolute duty to make something safe. Strict liability most often applies either to ultrahazardous activities or in products-liability cases. –Also termed <i>absolute liability</i>; <i>liability without fault</i>.”</p>	<p><i>Definition of Absolute Liability</i>, Ballentine’s Law Dictionary 7 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p> <p><i>Definition of Liability, Strict Liability</i>, Black’s Law Dictionary 998 (9th ed. 2009).</p>
IV. Standard English Dictionary	<p>Strict Liability: “[L]iability imposed without regard to fault.”</p>	<p><i>Definition of Strict Liability</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/strict%20liability (last visited Sept. 7, 2011).</p>
V. Other U.S. Gov’t	<p>Strict Liability: “Liability without proof of fault (responsibility is assigned regardless of how careful the parties).”</p>	<p>U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study</i></p>

	<p>“By making the actor strictly liable . . . we give him an incentive, missing in a negligence regime, to experiment with methods of preventing accidents that involve not greater exertions of care, assumed to be futile, but instead relocating, changing, or reducing (perhaps to the vanishing point) the activity giving rise to the accident . . . [t]he greater the risk of an accident and the costs of an accident if one occurs, the more we want the actor to consider the possibility of making accident-reducing activity changes; the stronger, therefore, is the case for strict liability.”</p> <p>“The ‘strict liability’ standard is less strict than that of absolute liability, although the two terms are frequently used interchangeably. Under the regime of strict liability, there may be several affirmative defenses a defendant may offer which may mitigate or even excuse liability. For example, if a plaintiff knowingly assumes the risk, either as a participant in the dangerous activity, or as an uninvolved party who deliberately moves into harm’s way, the defendant may escape liability.”</p>	<p><i>and Analysis, Ch. 12-1</i> (April 2002).</p> <p><i>Id.</i>, Ch. 5.2.</p> <p><i>Id.</i>, Ch. 2.1.</p>
<p>VI. Other Sources</p>	<p>“Strict liability is liability imposed without regard to the defendant’s negligence or intent to cause harm . . . Strict liability does not signify absolute liability. Even in cases covered by this Section, various limitations on liability apply and various defenses are available[.]”</p> <p>Under the Liability Convention Article II, a launching State is absolutely liable for direct damages as well as all consequential damages that are proximately caused.</p>	<p>Restatement (Third) of Torts: Liability for Physical and Emotional Harm § 20 Scope Note, cmt. a (2010).</p> <p><i>See Carl Q. Christol, Space Law: Past, Present and Future</i> 222-23 (1991).</p>
<p>VII. Language</p>	<p><u>Example of Usage in the Space Treaties (French):</u></p> <p>“Un État de lancement a la responsabilité absolue de verser réparation pour le dommage causé par son objet spatial à la surface de la Terre ou aux aéronefs en vol.” (Compare with English version with respect “verser reparation” and “pay compensation for damage.”)</p>	<p>Liability Convention, Art. II</p>

	Aeronautics	Source
<i>I. Simple Definition</i>	“The science and art of flight.”	See 49 U.S.C. § 40102(a)(1) (2008).
<i>II. Laws & Treaties</i>	<p>“[T]he science and art of flight.”</p> <p>Aeronautical and Space Activities: “(A) research into, and the solution of, problems of flight within and outside the Earth's atmosphere, (B) the development, construction, testing, and operation for research purposes of aeronautical and space vehicles, (C) the operation of a space transportation system including the Space Shuttle, upper stages, space platforms, and related equipment, and (D) such other activities as may be required for the exploration of space.”</p>	<p>49 U.S.C. § 40102(a)(1) (2008).</p> <p>National Aeronautics and Space Act, 51 U.S.C. § 20103(1) (2010).</p>
<i>III. Legal Dictionary</i>	“The art or practice of sailing in or navigating the air.”	<i>Definition of Aeronautics</i> , Ballentine's Law Dictionary 43 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).
<i>IV. Standard English Dictionary</i>	“1: a science dealing with the operation of aircraft; 2: the art or science of flight.”	<i>Definition of Aeronautics</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/aeronautics (last visited Aug. 30, 2011).
<i>V. Other U.S. Gov't</i>	“[T]he study of the science of flight . . . the method of designing an airplane or other flying machine.”	NASA Ultra-Efficient Engine Technology, Kid's Page, http://www.ueet.nasa.gov/SimpleDefinitionSite/aeronautics.html (last visited Sept. 1, 2011).
<i>VI. Other Sources</i>	“The science and art of flight, encompassing the functioning and ownership of aircraft vehicles from balloons to those that travel into space.”	<i>Definition of Aeronautics</i> , West's Encyclopedia of American Law (2005), available at http://www.encyclopedia.com/topic/Aeronautics.aspx (last visited Nov. 26, 2011).

	<p>“For FAI purposes, aerial activity, including all air sports, within 100 kilometers of the earth’s surface.”</p>	<p>Federation Aeronautique Internationale, Terms and Definitions, at 1 (2011), available at http://www.fai.org/system/files/nav_airspace_IGC_paper_annexB.pdf (last visited Oct. 4, 2011).</p>
<p>VII. Language</p>		

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	Aerospace	Source
<i>I. Simple Definition</i>	“Space comprising the earth’s atmosphere and the space beyond.”	<i>Definition of Aerospace</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/aerospace (last visited Aug. 30, 2011).
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>		
<i>IV. Standard English Dictionary</i>	“Space comprising the earth’s atmosphere and the space beyond.”	<i>Definition of Aerospace</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/aerospace (last visited Aug. 30, 2011).
<i>V. Other U.S. Gov’t</i>	<p>“Of, or pertaining to, Earth’s envelope of atmosphere and the space above it; two separate entities considered as a single realm for activity in launching, guidance, and control of vehicles that will travel in both entities.”</p> <p>“1. Of or pertaining to both the earth’s atmosphere and space, as in aerospace industries; 2. Earth’s envelope of air and space above it; the two considered as a single realm for activity in the flight of air vehicles and in the launching, guidance, and control of ballistic missiles, earth satellites, dirigible space vehicles, and the like.”</p>	<p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p> <p><i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7 (1965)</i> (last modified Nov. 15, 2001), available at http://er.jsc.nasa.gov/seh/a.html.</p>
<i>VI. Other Sources</i>		
<i>VII. Language</i>		

	Aerospace Vehicle	Source
I. Simple Definition	“A vehicle capable of flight within and outside the sensible atmosphere.”	<i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7 (1965)</i> (last modified Nov. 15, 2001), available at http://er.jsc.nasa.gov/seh/a.html .
II. Laws & Treaties	<p>Experimental Aerospace Vehicle: “[A]n object intended to be flown in, or launched into, orbital or suborbital flight for the purpose of demonstrating technologies necessary for a reusable launch vehicle, developed under an agreement between the Administration and developer.”</p> <p>Aeronautical and Space Vehicle: “[A]ircraft, missiles, satellites, and other space vehicles, manned and unmanned, together with related equipment, devices, components, and parts.”</p>	<p>National Aeronautics and Space Act, 51 U.S.C. § 20139(c)(2)(A)(i) (2010).</p> <p><i>Id.</i> § 20103(2).</p>
III. Legal Dictionary		
IV. Standard English Dictionary	“A vehicle capable of flight both within and outside the sensible atmosphere.”	<i>Definition of Aerospace Vehicle</i> , The Free Dictionary Online, http://encyclopedia2.thefreedictionary.com/aerospace+vehicle (last visited Oct. 4, 2011).
V. Other U.S. Gov’t	“A vehicle capable of flight within and outside the sensible atmosphere.”	<i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7 (1965)</i> (last modified Nov. 15, 2001), available at http://er.jsc.nasa.gov/seh/a.html .
VI. Other Sources	<p>“[V]ehicles which can function in both sensible atmosphere and the space environment.”</p> <p>Aeroplane: “[A]n engine-driven fixed-wing aircraft heavier than air that is supported in flight by the dynamic reaction of the air against its wings.”</p>	<p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 86 (2d ed. 1997) (citation omitted).</p> <p>Annexes to the Draft Commission Regulation on ‘Air Operations—OPS,’ at 2, available at http://easa.europa.eu/agency-</p>

	<p>Aeroplane: “A power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.”</p>	<p>measures/docs/opinions/2011/04/Annexes%20to%20Regulation.pdf (last visited Oct. 24, 2011).</p> <p>Aviation Glossary of ICAO Definitions, available at http://aviationglossary.com/icao-definition/aeroplane-icao-definition/ (last visited Oct. 4, 2011).</p>
<p>VII. Language</p>		

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	Air Traffic Control	Source
I. Simple Definition	The rules governing “the operation of aircraft in the air or in landing and takeoff.” Related Term: Space Traffic Management.	<i>Definition of Air Traffic Rules</i> , Ballentine’s Law Dictionary 56 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).
II. Laws & Treaties	“[A] service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.” Aerial Navigation: “[A] method of navigation that permits aircraft operations on any desired flight path.”	Federal Aviation Regulations, 14 C.F.R. § 1.1 (2011). <i>Id.</i>
III. Legal Dictionary	Air Traffic Rules: “Statutes, rules and regulations prescribed by federal and state authority, or developed by way of application of common-law principles, which govern the operation of aircraft in the air or in landing and takeoff.”	<i>Definition of Air Traffic Rules</i> , Ballentine’s Law Dictionary 56 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).
IV. Standard English Dictionary	“[A] government service that facilitates the safe and orderly movement of aircraft within and between airports by receiving and processing data from radar and devices that monitor local weather conditions and by maintaining radio contact with pilots.”	<i>Definition of Air Traffic Control</i> , Dictionary.com, http://dictionary.reference.com/browse/air-traffic+control (last visited Oct. 4, 2011).
V. Other U.S. Gov’t	“A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic.” Air Traffic Control Section: “In amphibious operations, the section of the Navy tactical air control center designed to provide initial safe passage, radar control, and surveillance for close air support aircraft in the operational area.”	1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 22 (2011). <i>Department of Defense Dictionary of Military and Associated Terms</i> , Nov. 8, 2010 (as amended through May 15, 2011).
VI. Other Sources	“[P]reventing collisions between aircraft, preventing collisions on manoeuvring areas between aircraft and obstructions on the ground, and expediting and maintaining the orderly flow of air traffic.” Air Traffic Control Service: “A service provided for the purpose of: a. preventing collisions: 1. between aircraft; and	International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management</i> 51 (2006). ICAO Recommended Practices and Procedures

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	<p>2. on the maneuvering area between aircraft and obstructions; and b. expediting and maintaining an orderly flow of air traffic.”</p>	<p>(Nov. 28, 2008), available at http://www.jepesen.com/documents/aviation/notices-alerts/change-sets/Air-Traffic-Control.pdf.</p>
<p>VII. <i>Language</i></p>		

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	Aircraft	Source
<i>I. Simple Definition</i>	“[A] device that is used or intended to be used for flight in the air,” as distinguished from a Spacecraft.	Federal Aviation Regulations, 14 C.F.R. § 1.1 (2011).
<i>II. Laws & Treaties</i>	<p>“Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth’s surface.”</p> <p>“[M]eans aircraft as defined for the purposes of the Chicago Convention which are either airframes with aircraft engines installed thereon or helicopters.”</p> <p>“[A]ny contrivance invented, used, or designed to navigate, or fly in, the air.”</p> <p>“[A] device that is used or intended to be used for flight in the air.”</p> <p>Airplane: “[A]n engine-driven fixed-wing aircraft heavier than air, that is supported in flight by the dynamic reaction of the air against its wings.”</p> <p><u>Example of Usage in the Space Treaties:</u></p> <p>“A launching State shall be absolutely liable to pay compensation for damage cause by its space object on the surface of the earth or to an aircraft in flight.”</p>	<p>Convention on International Civil Aviation Annex 1, Annex 6 Part I, <i>opened for signature</i> Dec. 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295 (Chicago Convention).</p> <p>Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Aircraft Equipment, Art. 1(2)(a), <i>entered into force</i> Jan. 3. 2006.</p> <p>49 U.S.C. § 40102(a)(1) (2008).</p> <p>Federal Aviation Regulations, 14 C.F.R. § 1.1 (2011).</p> <p><i>Id.</i></p> <p>Liability Convention Art. II.</p>
<i>III. Legal Dictionary</i>	<p>“Any contrivance used, or designed for navigation of or flight in the air, except a parachute or other contrivance designed for such navigation but used primarily as safety equipment. . . . [I]ncludes balloon, airplane, hydroplane and every other vehicle used for navigation through the air.”</p> <p>“Any contrivance now known or hereafter invented which is used, or designed for navigation of or flight in the air.”</p>	<p><i>Definition of Aircraft</i>, Black’s Law Dictionary 92 (4th ed. Rev. 1968).</p> <p><i>Definition of Aircraft</i>, Ballentine’s Law Dictionary 55 (3d ed. 1969), <i>available at</i></p>

	Airplane: “An aircraft.”	<p>http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p> <p><i>Id.</i> at <i>Definition of Airplane.</i></p>
IV. Standard English Dictionary	“[A] vehicle (as an airplane or balloon) for traveling through the air.”	<p><i>Definition of Aircraft</i>, Merriam-Webster’s Online Dictionary, http://www.merriam-webster.com/dictionary/aircraft (last visited Aug. 26, 2011).</p>
IV. Other U.S. Gov’t	“Any structure, machine, or contrivance, especially a vehicle, designed to be supported by the air, being borne up either by the dynamic action of the air upon the surfaces of the structure or object, or by its own buoyancy; such structures, machines, or vehicles collectively, as, fifty aircraft. Aircraft, in its broadest meaning, includes fixed-wing airplanes, helicopters, gliders, airships, free and captive balloons, ornithopters, flying model aircraft, kites, etc., but since the term carries a strong vehicular suggestion, it is more often applied, or recognized to apply, only to such of these craft as are designed to support or convey a burden in or through the air.”	<p><i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7 (1965)</i> (last modified Nov. 15, 2001), available at http://er.jsc.nasa.gov/seh/a.html.</p>
VI. Other Sources	<p>Aircrafts exercise aeronautical capabilities while spacecrafts exercise astronautical capabilities.</p> <p>However, hybrid “aerospace vehicles” are possible; spaceplanes may have dual character as a space object and as an aircraft.</p> <p>Alternatively, an aircraft may be defined as a vehicle within airspace.</p> <p>Airplane: “[A] fixed wing aircraft that contains at least one engine and whose primary function is sustained powered flight. Airplane is an aircraft sub category.”</p>	<p>See Marietta Benkö, Willem de Graff & Gijsbertha C.M. Reijnen, <i>Space Law in the United Nations</i> 121-122 (1985).</p> <p>See Ricky J. Lee, <i>Reconciling International Space Law with the Commercial Realities of the Twenty-First Century</i>, 4 <i>Sing. J. Int’l & Comp. L.</i> 194, 211 (2000).</p> <p>See Dean N. Reinhardt, <i>The Vertical Limit of State Sovereignty</i>, 72 <i>J. Air L. & Com.</i> 65, 120-22 (2007).</p> <p>Aviation Glossary of ICAO Definitions, available at http://aviationglossary.co</p>

		m/icao-definition/airplane-icao-definition/ (last visited Oct. 4, 2011).
VII. <i>Language</i>		

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	Airspace	Source
I. Simple Definition	<p>The Earth's atmosphere below the point where outer space begins; often measured up to 90-110 kilometers above mean sea level.</p> <p>Related Term: Outer Space.</p>	Compiled by Authors of this Report.
II. Laws & Treaties	<p>Navigable Airspace: "[A]irspace above the minimum altitudes of flight prescribed by regulations . . . Including airspace needed to ensure safety in the takeoff and landing of aircraft."</p> <p><u>Example of Usage in International Law:</u></p> <p>"The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory."</p>	<p>49 U.S.C. § 40102(a)(1) (2008).</p> <p>Convention on International Civil Aviation, Art. 1, <i>opened for signature</i> Dec. 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295 (Chicago Convention).</p>
III. Legal Dictionary	<p>"The space that extends upward from the surface of land, esp. so far as is necessary for the owner or possessor to have reasonable use and enjoyment of the incidents of its ownership or possession."</p> <p>"That part of space extending upward from the surface of land which is necessary for the full use of the land and enjoyment of the incidents of its ownership."</p>	<p><i>Definition of Airspace</i>, Black's Law Dictionary 82 (9th ed. 2009).</p> <p><i>Definition of Airspace</i>, Ballentine's Law Dictionary 56 (3d ed. 1969), <i>available at</i> http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
IV. Standard English Dictionary	<p>"[T]he space lying above the earth or above a certain area of land or water; <i>especially</i>: the space lying above a nation and coming under its jurisdiction."</p>	<p><i>Definition of Airspace</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/airspace (last visited Aug. 30, 2011).</p>
V. Other U.S. Gov't	<p>"Specifically, the atmosphere above a particular portion of the earth, usually defined by the boundaries of an area on the surface projected upward."</p>	<p><i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7 (1965)</i> (last modified Nov. 15, 2001), <i>available at</i> http://er.jsc.nasa.gov/seh/a.html.</p>

<p>VI. Other Sources</p>	<p>“[T]he space above a particular national territory, treated as belonging to the government controlling the territory. It does not include outer space, which, under the Outer Space Treaty of 1967, is declared to be free and not subject to national appropriation. The treaty, however, did not define the altitude at which outer space begins and air space ends.”</p> <p>The “Outer Space Treaty of 1967 established a new and quite different international legal status for ‘outer space’ based upon freedom of nonappropriation, without any definition of that term . . . The three-mile limit in traditional international law was based on the effective distance which could be covered by the normal cannon . . . As in maritime law, it has been suggested by the functionalists that only that area which can be effectively policed can be claimed to be subject to a country’s sovereignty, i.e., the air space currently exploited and used by aircraft. This could mean that the air space up to sixty miles, or so, over a country can be claimed[.]”</p> <p>“[C]onsensus may be gradually arising that . . . an altitude at 100 kilometers would be an appropriate altitude at which to separate the legally distinct areas.”</p>	<p><i>Definition of Airspace</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/10839/air-space (last visited Oct. 24, 2011).</p> <p>P. Meredith, et. al, 1 <i>American Enterprise, the Law, and the Commercial Use of Space: An Analysis of Treaties, Legislation, Regulation and the Political Scenario</i> 92 (1986).</p> <p>Frans G. von der Dunk, <i>Passing the Buck to Rogers: International Liability Issues in Private Spaceflight</i>, 86 Neb. L. Rev. 400, 525-27 (2007).</p>
<p>VII. Language</p>	<p><u>Derivation of Definition From Latin Phrase:</u></p> <p>Latin maxim: <i>cujus est solum, ejus est usque ad coelum [et ad inferos]</i>. The Chicago Convention of 1944, which recognized “‘complete’ and ‘exclusive’ national sovereignty over air space,” effectively differed from the Roman idea of <i>usque ad coelum</i>.</p>	<p>P. Meredith, et. al, 1 <i>American Enterprise, the Law, and the Commercial Use of Space: An Analysis of Treaties, Legislation, Regulation and the Political Scenario</i> 92 (1986).</p>

	Astronaut	Source
I. Simple Definition	<p>“A person trained to travel and work in space.”</p> <p>Related Terms: Astronaut Wings, Personnel of a Spacecraft, and Space Flight Participant; also (not included in Guide) Cosmonaut and Taikonaut.</p>	<p><i>Definition of Astronaut</i>, NASA For Students, http://www.nasa.gov/audience/forstudents/k-4/dictionary/Astronaut.html (last visited Sept. 22, 2011).</p>
II. Laws & Treaties	<p><u>Examples of Usage in the Space Treaties:</u></p> <p>“States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle.”</p> <p>Although the Rescue and Return Agreement refers to “Personnel of a Spacecraft” in Articles 1-4, the Preamble states that the Agreement is designed to give further concrete expression to the duties of “rendering of all possible assistance to astronauts in the event of accident, distress or emergency landing, [and] the prompt and safe return of astronauts[.]”</p> <p>States “shall regard any person on the moon as an astronaut within the meaning of Article V of” the Outer Space Treaty and the Rescue and Return Agreement.</p>	<p>Outer Space Treaty Art. V.</p> <p>Rescue and Return Agreement Preamble.</p> <p>Moon Agreement Art. 10(1).</p>
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“[A] person who travels beyond the earth’s atmosphere; <i>also</i>: a trainee for spaceflight.”</p>	<p><i>Definition of Astronaut</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/astronaut (last visited Aug. 30, 2011).</p>
V. Other U.S. Gov’t	<p>“1. A person who rides in a space vehicle; 2. Specifically, one of the test pilots selected to participate in Project Mercury, Project Gemini, Project Apollo, or any other United States program for manned space flight.”</p> <p>“[A] person trained to travel and work in space . . . In Greek, astro means star and naut means sailor. An astronaut is someone who sails among the stars.”</p>	<p><i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7 (1965)</i> (last modified Nov. 15, 2001), available at http://er.jsc.nasa.gov/seh/a.html.</p> <p><i>Definition of Astronaut</i>, NASA For Students, http://www.nasa.gov/audience/forstudents/k-</p>

		4/dictionary/Astronaut.html (last visited Sept. 22, 2011).
<p>VI. Other Sources</p>	<p>“[D]esignation, derived from the Greek words for ‘star’ and ‘sailor,’ commonly applied to an individual who has flown in outer space. More specifically, astronauts are those persons who went to space aboard a U.S. spacecraft.”</p> <p>“Astronauts are specifically selected and trained to achieve scientific, engineering, or political space goals. Like all professionals working for their national governments, they are also paid employees.”</p> <p>“Any definition of an ‘astronaut’ for legal purposes would appear to require two elements, an element of training and an element of altitude. Correlatively there must also be an element of selection.”</p> <p>“‘Astronaut’ cannot easily fit the non-professional that is likely to enter space in the coming years whether on a limited flight or in a space-hotel. We do not consider all those on a cruise-liner to be sailors, or passengers on aircraft to be pilots, flight engineers or cabin staff and there is a clear parallel between such cases and touristic space-flight.”</p> <p>“The term ‘astronaut’ is already used colloquially and by the media for orbital tourists. However, it could be argued that a passenger in a spacecraft is not one of its personnel or that the proposed sub-orbital experiences do not qualify.”</p> <p>Contrast: “W.D. Reed and R.W. Norris, <i>Military Use of the Space Shuttle</i> (1980) 13 Akron L. Rev. 665, 686-87 are [] of the view that all on-board a space vehicle are astronauts, pointing out also that the term ‘personnel’ does not distinguish between civilian and military.”</p> <p>Astronauts “will not be treated as diplomatic envoys with governmental immunity. If they are forced down in foreign territory or on the high seas they will have a temporary diplomatic immunity until they are returned[.]” The same is true for seamen who are “wards of the admiralty.”</p>	<p><i>Definition of Astronaut</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/40000/astronaut (last visited Aug. 4, 2011).</p> <p>Joanne Irene Gabrynowicz, <i>One Half Century and Counting: The Evolution of U.S. National Space Law and Three Long-Term Emerging Issues</i>, 37 J. of Space Law 41, 58 (Spring 2011).</p> <p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 131 (2009).</p> <p><i>Id.</i> at 129.</p> <p><i>Id.</i> at 132 n.14.</p> <p><i>Id.</i> at 133 n.15.</p> <p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 33 (2d ed. 1997).</p>

<p>VII. Language</p>	<p><u>Example of Term in Different Languages:</u></p> <p>“Those individuals who first traveled aboard a spacecraft operated by the Soviet Union or Russia are known as cosmonauts (from the Greek words for ‘universe’ and ‘sailor’); China designates its space travelers taikonauts (from the Chinese word for ‘space’ and the Greek word for ‘sailor’).”</p>	<p><i>Definition of Astronaut,</i> Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/40000/astronaut (last visited Aug. 4, 2011).</p>
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	Astronaut Wings (see Outer Space)	Source
<i>I. Simple Definition</i>	<p>United States award given to pilots and crew who travel to 50 miles above mean sea level.</p> <p>Related Terms: Astronaut, Crew, Passenger, Personnel of a Spacecraft</p>	Compiled by Authors of this Report.
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>		
<i>IV. Standard English Dictionary</i>		
<i>V. Other U.S. Gov't</i>	<p>“DOT/FAA Commercial Astronaut Wings are awarded to pilots and flight crew on board an AST-licensed launch vehicle on a flight that exceeds 50 miles.”</p>	<p>Remarks by Patricia Grace Smith, June 21, 2004, available at http://www.faa.gov/about/office_org/headquarters_offices/ast/media/PGS_Melvill_wings_2004-06-21.pdf.</p>
<i>VI. Other Sources</i>	<p>The U.S. Army, Navy, Air Force, Marine Corps and Coastguard, as well as the U.S. FAA, have given out astronaut awards (silver on completion of training and gold following a space mission).</p>	<p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 134 n.17 (2009).</p>
<i>VII. Language</i>		

	Climate	Source
<i>I. Simple Definition</i>	<p>“Generally prevailing weather conditions of a region, throughout the year, averaged over a series of years.”</p> <p>Related Term: Weather.</p>	National Oceanic and Atmospheric Administration’s Glossary, <i>available at</i> http://www.nws.noaa.gov/glossary/index.php?letter=c (Sept. 14, 2011).
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>		
<i>IV. Standard English Dictionary</i>	<p>“1: a region of the earth having specified climatic conditions; 2a: the average course or condition of the weather at a place usually over a period of years as exhibited by temperature, wind, velocity, and precipitation.”</p>	<i>Definition of Climate</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/climate (last visited Aug. 30, 2011).
<i>V. Other U.S. Gov’t</i>	<p>“The composite or generally prevailing weather conditions of a region, throughout the year, averaged over a series of years.”</p> <p>“The difference between weather and climate is a measure of time. Weather is what conditions of the atmosphere are over a short period of time, and climate is how the atmosphere ‘behaves’ over relatively long periods of time. When we talk about climate change, we talk about changes in long-term averages of daily weather.”</p>	<p>National Oceanic and Atmospheric Administration’s Glossary, <i>available at</i> http://www.nws.noaa.gov/glossary/index.php?letter=c (last visited Sept. 14, 2011).</p> <p>NASA Climate & Global Change Webpage, http://www.nasa.gov/mision_pages/noaa-n/climate/climate_weather.html (last visited Aug. 30, 2011).</p>
<i>VI. Other Sources</i>		
<i>VII. Language</i>		

	Commercial	Source
I. Simple Definition	<p>“Relating to or connected with trade and traffic or commerce in general.”</p> <p>Related Terms: Commercialization and Privatization.</p>	<i>Definition of Commercial</i> , Black’s Law Dictionary 337 (4th ed. Rev. 1968).
II. Laws & Treaties	<p>Commercial Provider: “[A]ny person providing space transportation services or other space-related activities, primary control of which is held by persons other than Federal, State, local, and foreign governments.”</p> <p>Commercial Operator: “[A] person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier or foreign air carrier or under the authority of Part 375 of this title. Where it is doubtful that an operation is for ‘compensation or hire’, the test applied is whether the carriage by air is merely incidental to the person’s other business or is, in itself, a major enterprise for profit.”</p> <p>"commercial agreement" means an agreement, other than an agency agreement, made between carriers and relating to the provision of their joint services for carriage of passengers by air;</p>	<p>National Aeronautics and Space Act, 51 U.S.C. § 50101(1) (2010).</p> <p>Federal Aviation Regulations, 14 C.F.R. § 1.1 (2011).</p> <p>Montreal Convention Article 33 – Jurisdiction. Section 3(a) (1999).</p>
III. Legal Dictionary	<p>“Relating to or connected with trade and traffic or commerce in general.”</p> <p>“Pertaining to the purchase and sale or exchange of goods and commodities and connoting as well forms of, and occupations in, business enterprises not involved in trading in merchandise; in a broad sense, embracing every phase of commercial and business activity and intercourse.”</p>	<p><i>Definition of Commercial</i>, Black’s Law Dictionary 337 (4th ed. Rev. 1968).</p> <p><i>Definition of Commercial</i>, Ballentine’s Law Dictionary 222 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
IV. Standard English Dictionary	Commerce: “[T]he exchange of buying and selling of commodities on a large scale involving transportation from place to place.”	<i>Definition of Commerce</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/commerce (last visited Aug. 30, 2011).
V. Other U.S. Gov’t	“[S]pace goods, services, or activities provided by private sector enterprises that bear a reasonable portion of the investment risk and responsibility for the activity, operate in accordance with typical market-based incentives for	National Space Policy of the United States of America 3, 10 (June 28, 2010), available at

	<p>controlling cost and optimizing return on investment, and have the legal capacity to offer these goods or services to existing or potential nongovernmental customers.”</p> <p>Commercial Items: “Articles of supply readily available from established commercial distribution sources which the Department of Defense or inventory managers in the Military Services have designated to be obtained directly or indirectly from such sources.”</p> <p>Commercial Spacecraft: “Commercial satellites and other spacecraft operated by the private sector.”</p> <p>Commercial provider: “...[A]ny person or entity providing commercial reusable in-orbit space transportation services or systems, primary control of which is held by persons other than the Federal Government, a State or local government, or a foreign government.”</p>	<p>http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf.</p> <p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p> <p>1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 182 (2011).</p> <p>51 U.S.C § 503 (1) (2010)</p>
<p>VI. Other Sources</p>	<p>“In the United States, one historically is encultured with the principle that the word <i>commercial</i> usually relates to the economic business of the private sector, and the tendency is to view commercialization from that perspective. But in space commercialization, or the commercial exploitation of space, we see a second type of participant—the government entrepreneur.”</p> <p>“For a launch to be considered commercial at least one of the payload’s launch contracts must be subject to international competition; thus, in principle, a launch opportunity is available to any capable launch services provider.”</p>	<p>George S. Robinson and Pamela L. Meridith, 1 <i>Domestic Commercialization of Space: the Current Political Atmosphere, American Enterprise</i> 1 (1986).</p> <p><i>Space Security 2011</i>, at 99, 102 (Cesar Jaramillo ed. 2011), available at http://www.spacesecurity.org/space.security.2011.revised.pdf.</p>
<p>VII. Language</p>	<p><u>Comparison Between the European and U.S. Definitions:</u></p> <p>“European governments have commonly engaged in commercial aerospace activities . . . By contrast, in the United States, commercial activities are synonymous with the private sector[.]”</p>	<p>Joanne Irene Gabrynowicz, <i>One Half Century and Counting: The Evolution of U.S. National Space Law and Three Long-Term Emerging Issues</i>, 37 J. of Space Law 41, 67 (2011).</p>

	Commercialization	Source
<i>I. Simple Definition</i>	The process of managing on a business basis for profit or developing commerce or trade in a business environment. Related Terms: Commercial and Privatization.	<i>See Definition of Commercialize</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/commercialize (last visited Nov. 14, 2011).
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>		
<i>IV. Standard English Dictionary</i>	Commercialize: “1a: to manage on a business basis for profit; b: to develop commerce in; 2: to exploit for profit []; 3: to debase in quality for more profit—commercialization <i>noun</i> .”	<i>Definition of Commercialize</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/commercialize (last visited Nov. 14, 2011).
<i>V. Other U.S. Gov’t</i>	Space Commercialization: “For profit activities in space or prefatory to space activity.” Shuttle Commercialization: “Occurs when the private sector assumes full responsibility and accountability for the Space Shuttle program, including asset ownership and liability.” (cited by John M. Logsdon, Ray A. Williamson & Henry R. Hertzfeld, <i>Privatizing the Space Shuttle: Issues and Approaches</i> 51 (March 17, 2000) as an example of the misuse and confusion between “commercialization” and “privatization”). <u>Example of Usage in U.S. Policy:</u> “To promote a robust domestic commercial space industry, departments and agencies shall . . . Pursue potential opportunities for transferring routine, operational space functions to the commercial space sector where beneficial and cost-effective, except where the government has legal, security, or safety needs that would preclude commercialization.”	1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 905 (2011). NASA Office of Policy and Plans Policy Review on Space Transportation Implementation Plan (Nov. 1998). National Space Policy of the United States of America 10 (June 28, 2010), <i>available at</i> http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf .
<i>VI. Other Sources</i>	“Marketization, which is sometimes called ‘commercialization,’ is a management strategy that attempts	Kevin R. Kosar, <i>CRS Report: Privatization and</i>

	<p>to make a government agency perform better rather than replacing it with a private firm. . . . [T]his report uses the term ‘marketization’ to refer to <i>the redesign of a government agency in order to make it provide goods and services in the manner of a private firm</i>. Typically, marketization involves altering the incentive structures facing a government agency in order to make it operate more efficiently.”</p>	<p><i>the Federal Government</i> 23-24 (Dec. 28, 2006).</p>
<p>VII. Language</p>		

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	Common Heritage of Mankind (Humankind)	Source
I. Simple Definition	<p>“The parts of the earth and cosmos that can be said to belong to all humanity . . . and that should be protected and administered for its benefit. The term embraces the ocean floor and its subsoil, and outer space.” <i>See also</i> Province of all Humankind</p> <p>Related Terms (not in Guide): common heritage; common interest of all mankind; world heritage; common heritage of humanity; global commons; benefits to all mankind; benefits to all nations; equitable sharing; tragedy of the commons; common-pool resource.</p>	<i>Definition of Common Heritage of Mankind</i> , Black’s Law Dictionary 313 (9th ed. 2009).
II. Laws & Treaties	<p><u>Examples of Usage in the Space Treaties:</u></p> <p>“The moon and its natural resources are the common heritage of Mankind.”</p> <p>“<i>Recognizing</i> the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes . . .”</p> <p>“The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries . . . And shall be the province of all mankind . . . [and] shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality[.]”</p> <p>“The Area and its resources are the common heritage of mankind.” The Area “means the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction.”</p>	<p>Moon Agreement Art. 11.</p> <p>Outer Space Treaty Preamble.</p> <p><i>Id.</i> Art. I.</p> <p>U.N. Convention on the Law of the Sea, Art. 136 para. 1(1), Dec. 10, 1982, 1833 U.N.T.S. 397.</p>
III. Legal Dictionary	<p>“The parts of the earth and cosmos that can be said to belong to all humanity, without regard for geographic location, and that should be protected and administered for its benefit. The term embraces the ocean floor and its subsoil, and outer space.”</p>	<i>Definition of Common Heritage of Mankind</i> , Black’s Law Dictionary 313 (9th ed. 2009).
IV. Standard English Dictionary		
V. Other U.S. Gov’t		
VI. Other Sources	Under natural law, space belongs to no one, but is presumably subject to claims; under positive law, there is an implied right for all to regulate and reap the benefits of	Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law</i>

	<p>spaceflight.</p> <p>The phrase “common heritage of mankind” has origins in the Law of the Sea Treaty, but experts have found that the phrase should be interpreted as within the treaty alone. It reflects merely “the commitment to engage in good faith negotiations to establish a mutually acceptable international regime to govern the exploitation of natural resources . . . It seems clear that the contention that the Outer Space Treaty has established the <i>whole</i> of outer space as the common heritage of mankind is untenable.”</p> <p>The near-Earth orbit is a “common-pool resource,” which Ostrom defined as “referring to a natural or man-made resource system that is sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use.” However, “hesitation comes from the linking of the term ‘global commons’ with the concept of ‘Common Heritage of Mankind’ . . . In particular, the CHM concept of redistribution of economic benefits from space activities among all states was a major primary reason why the Moon Treaty failed [.]”</p> <p>Compare Law of the Sea: Romans “characterized the sea as <i>commune omnium</i>, the common property of all, both as to ownership and use, and they considered it as <i>usus publicus</i>, as a public utility . . . [Then the] early politics of freedom—not sovereignty—shaped the English concept . . . It was also established, even though never universally agreed, that all states possessed sovereign rights in those parts of the sea that touched their shores . . . a three-mile limit was regarded as the most practical extent.”</p> <p>“The LOS common heritage principle differs from its space law cousins in these respects: [] The UNLOS common heritage principle applies only to the Area . . . means the equitable exploitation of Area resources for the benefit of all States, with especial concern for developing States . . . further subject to rules in UNCLOS . . . States cannot unilaterally appropriate . . . A common management system . . . Universal participation . . . [and] Resource conservation and protection of the marine environment[.]”</p>	<p><i>and Policy</i> 7 (2d ed. 1997) (citation omitted).</p> <p><i>Id.</i> at 78, 94, 110, 113, 127, 136 (citation omitted).</p> <p>Joan Johnson-Freese & Brian Weeden, <i>Application of Ostrom’s Principles for Sustainable Governance of Common-Pool Resources to Near-Earth Orbit</i>, 2:3 <i>Global Policy</i> 3 (Oct. 2011).</p> <p>George P. Smith II, <i>Restricting the Concept of Free Seas: Modern Maritime Law Re-Evaluated</i> 13, 19 (1980).</p> <p><i>Proceedings of the American Branch of the International Law Association: 2009-2010</i> 316 (Jeffery Atik, ed. Nov. 2010) (citation omitted).</p>
<p>VII. Language</p>	<p><u>Example of Translation From China’s White Paper:</u></p> <p>China’s 2006 White Paper translates (perhaps mistakenly) the phrase as follows: “outer space is the common wealth of all mankind.” This may enlarge China’s rights and obligations because “common wealth” likely means “joint possession.”</p>	<p>Guoyu Wang, <i>The Sixth Eilene M. Galloway Symposium on Critical Issues in Space Law</i> (Dec. 1, 2011).</p>

	Compensation	Source
I. Simple Definition	“An appropriate and usually counterbalancing payment.”	<i>Definition of Compensate</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/compensate (last visited Sept. 29, 2011).
II. Laws & Treaties	<p><u>Examples of Usage in the Space Treaties and ICJ:</u></p> <p>“A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft flight.”</p> <p>“The compensation which the launching State shall be liable to pay for damage under this Convention shall be determined in accordance with international law and the principles of justice and equity, in order to provide such reparation in respect of the damage as will restore the person, natural or juridical, State or international organization on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred.”</p> <p>In the <i>Chorzów Factory</i> case, the Permanent Court of International Justice found that compensation (“reparation”) should be made to return an injured party to a position it was in prior to the wrongful act.</p>	<p>Liability Convention Art. II.</p> <p><i>Id.</i> Art. VII.</p> <p><i>Factory at Chorzów</i> (Ger. v. Pol.), 1928 P.C.I.J. (ser. A) No. 17 (Sept. 13).</p>
III. Legal Dictionary	<p>“n. 1. Remuneration and other benefits received in return for services rendered; esp., salary or wages. 2. Payment of damages, or any other act that a court orders to be done by a person who has caused injury to another. In theory, compensation makes the injured person whole.”</p> <p>“A return for a benefit conferred or promised, that is, a consideration. <i>Searcy v Grow</i>, 15 Cal 117; a remuneration for services, whether in the form of a fixed salary, fees, commissions, or perquisites of whatever character. 43 Am J1st Pub Of § 340; redress for property taken or injury caused by the taking of property under the power of eminent domain. <i>Symonds v Cincinnati</i>, 14 Ohio 147. A set-off in the Scottish law; redress in damages for injuries generally; the payment made to an injured employee by the employer under a workmen’s compensation act.”</p>	<p><i>Definition of Compensation</i>, Black’s Law Dictionary 122 (3d Pocket ed. 2006).</p> <p><i>Definition of Compensation</i>, Ballentine’s Law Dictionary 233 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 30, 2011).</p>

<p>IV. Standard English Dictionary</p>	<p>Compensate: “<i>transitive verb</i> 1: to be equivalent to: counterbalance; 2: to make an appropriate and usually counterbalancing payment <<i>compensate</i> the victims for their loss>.”</p>	<p><i>Definition of Compensate</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/compensate (last visited Sept. 29, 2011).</p>
<p>V. Other U.S. Gov’t</p>		
<p>VI. Other Sources</p>	<p><u>Examples of Usage in Other Sources:</u></p> <p>“1. The State responsible for an internationally wrongful act is under an obligation to compensate for the damage caused thereby, insofar as such damage is not made good by restitution. 2. The compensation shall cover any financially assessable damage including loss of profits insofar as it is established.”</p> <p>“Full reparation for the injury caused by the internationally wrongful act shall take the form of restitution, compensation and satisfaction[.]” Restitution: “[T]o re-establish the situation which existed before the wrongful act was committed.” Satisfaction “may consist in an acknowledgement of the breach, an expression of regret, a formal apology or another appropriate modality.”</p> <p>“In calculating the compensation claimed, Canada has applied the relevant criteria established by general principles of international law according to which fair compensation is to be paid, by including in its claim only those costs that are reasonable, proximately caused by the intrusion of the satellite and deposit of debris and capable of being calculated with a reasonable degree of certainty.”</p>	<p>Responsibility of States for Internationally Wrongful Acts, Art. 36, G.A. Res. 56/83 Annex (Dec. 12, 2001).</p> <p><i>Id.</i> arts. 34-35, 37.</p> <p>Settlement of Claim between Canada and the Union of Soviet Socialist Republics for Damage Caused by ‘Cosmos 954’ ¶ 23 (Released on April 2, 1981), <i>available at</i> http://www.jaxa.jp/library/space_law/chapter_3/3-2-2-1_e.html (last visited Sept. 29, 2011).</p>
<p>VII. Language</p>		

	Component	Source
<i>I. Simple Definition</i>	<p>“Constituent part of a device which cannot be physically divided into smaller parts without losing its particular function.”</p> <p>Related Terms: Component Part and Space Object.</p>	<p>Electropedia: The World’s Online Electrotechnical Vocabulary, http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=151-11-21 (last visited Sept. 13, 2011).</p>
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>		
<i>IV. Standard English Dictionary</i>	<p>“[A] constituent part: ingredient.”</p>	<p><i>Definition of Component</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/component (last visited Aug. 30, 2011).</p>
<i>V. Other U.S. Gov’t</i>	<p>“An article which is a self-contained element of a complete operating <i>unit</i> and performs a function necessary to the operation of that unit.”</p> <p>“1. One of the subordinate organizations that constitute a joint force. Normally a joint force is organized with a combination of Service and functional components. (JP 1) 2. In logistics, a part or combination of parts having a specific function, which can be installed or replaced only as an entity.”</p>	<p><i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7 (1965)</i> (last modified Nov. 15, 2001), available at http://er.jsc.nasa.gov/seh/a.html. And also found in: <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 185 (2011).</p> <p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p>
<i>VI. Other Sources</i>	<p>“[C]onstituent part of a device which cannot be physically divided into smaller parts without losing its particular function.”</p>	<p>Electropedia: The World’s Online Electrotechnical Vocabulary, http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=151-11-</p>

		21 (last visited Sept. 13, 2011).
<i>VII. Language</i>		

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	Component Part	Source
<i>I. Simple Definition</i>	<p>“An indivisible item.”</p> <p>Related Terms: Component and Space Object.</p>	<p>Electropedia: The World’s Online Electrotechnical Vocabulary, http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=426-15-04 (last visited Sept. 13, 2011).</p>
<i>II. Laws & Treaties</i>	<p><u>Examples of Usage in the Space Treaties:</u></p> <p>“Each State Party to the Treaty that launches or procures the launching of an object into outer space . . . is internationally liable for damage . . . by such object or its component parts[.]”</p> <p>“The term ‘space object’ includes component parts of a space object as well as its launch vehicle and parts thereof.”</p>	<p>Outer Space Treaty Art. VII.</p> <p>Liability Convention Art. 1(d); Registration Convention Art. I(b).</p>
<i>III. Legal Dictionary</i>	<p>Divisible: “Susceptible of being divided or separated into component parts.”</p>	<p><i>Definition of Divisible</i>, Ballentine’s Law Dictionary 364 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
<i>IV. Standard English Dictionary</i>	<p>Part: “[O]ne of the often indefinite or unequal subdivisions into which something is or is regarded as divided and which together constitute the whole; [] an essential portion or integral element.”</p>	<p><i>Definition of Part</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/part (last visited Aug. 30, 2011).</p>
<i>V. Other U.S. Gov’t</i>		
<i>VI. Other Sources</i>	<p>“[A]n indivisible item.”</p>	<p>Electropedia: The World’s Online Electrotechnical Vocabulary, http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=426-15-04 (last visited Sept. 13, 2011).</p>
<i>VII. Language</i>		

	Consultation (Diplomatic)	Source
I. Simple Definition	“The interactive methods by which states seek to prevent or resolve disputes.”	<i>Definition of Consultation</i> , Black’s Law Dictionary 358 (9th ed. 2009).
II. Laws & Treaties	<p><u>Examples of Usage in the Space Treaties:</u></p> <p>“If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment.”</p> <p>“If, owing to accident, distress, emergency or unintended landing, the personnel of a spacecraft land in territory under the jurisdiction of a Contracting Party, it shall immediately take all possible steps to rescue them and render them all necessary assistance. . . . Such operations shall be subject to the direction and control of the Contracting Party, which shall act in close and continuing consultation with the launching authority.”</p> <p>“States Parties shall report to other States Parties and to the Secretary-General concerning areas of the moon having special scientific interest in order that, without prejudice to the rights of other States Parties, consideration may be given to the designation of such areas as international scientific preserves for which special protective arrangements are to be agreed upon in consultation with the competent bodies of the United Nations.”</p>	<p>Outer Space Treaty Art. IX.</p> <p>Rescue and Return Agreement Art. 2.</p> <p>Moon Agreement Art. 7(3).</p>
III. Legal Dictionary	<p>. . . 2. A meeting in which parties consult or confer. 3. <i>Int’l law</i>. The interactive methods by which states seek to prevent or resolve disputes.”</p> <p>“The deliberation of two or more persons on some matter; a council or conference to consider a special case.”</p>	<p><i>Definition of Consultation</i>, Black’s Law Dictionary 358 (9th ed. 2009).</p> <p><i>Definition of Consultation</i>, Ballentine’s Law Dictionary 257 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
IV.	Consult: “1: to have regard to: consider; 2 a: to ask the advice	<i>Definition of Consult</i> ,

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Standard English Dictionary	or opinion of; b: to refer to.”	Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/consulting (last visited Aug. 28, 2011).
V. Other U.S. Gov’t		
VI. Other Sources		
VII. Language		

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	Crew	Source
<i>I. Simple Definition</i>	<p>“Any employee or independent contractor. . . who performs activities in the course of that employment or contract directly relating to the launch, reentry, or other operation of or in a launch vehicle or reentry vehicle.”</p> <p>Related Terms: Personnel of a Spacecraft and Space Flight Participant.</p>	<p><i>Derived From</i> Federal Aviation Regulations, 14 C.F.R. § 401.5 (2009) (see below for full text).</p>
<i>II. Laws & Treaties</i>	<p>“[A]ny employee of a licensee or transferee, or of a contractor or subcontractor of a licensee or transferee, who performs activities in the course of that employment directly relating to the launch, reentry, or other operation of or in a launch vehicle or reentry vehicle that carries human beings.”</p> <p>“[A]ny employee or independent contractor of a licensee, transferee, or permittee, or of a contractor or subcontractor of a licensee, transferee, or permittee, who performs activities in the course of that employment or contract directly relating to the launch, reentry, or other operation of or in a launch vehicle or reentry vehicle that carries human beings. A crew consists of flight crew and any remote operator.”</p> <p>“<i>Crewmember</i> means a person assigned to perform [a] duty in an aircraft during flight time.”</p> <p>“<i>Flightcrew member</i> means a pilot, flight engineer, or flight navigator assigned to duty in an aircraft during flight time.”</p> <p><u>Example of Usage in International Law:</u></p> <p>The Chicago Convention distinguishes between “crew members” and “passengers.” (compare “Every aircraft of a contracting State, engaged in international navigation, shall carry the following documents”...”c) The appropriate licenses for each member of the crew”... “f) If it carries passengers, a list of their names and places of embarkation and destination;”</p>	<p>National Aeronautics and Space Act, 51 U.S.C. § 50902(2) (2010).</p> <p>Federal Aviation Regulations, 14 C.F.R. § 401.5 (2009).</p> <p><i>Id.</i> § 1.1.</p> <p><i>Id.</i></p> <p><i>See</i> Convention on International Civil Aviation Art. 29, <i>opened for signature</i> Dec. 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295 (Chicago Convention).</p>
<i>III. Legal Dictionary</i>	<p>“See Seaman.”</p> <p>“The seamen manning a ship, including, for some purposes, the officers, even the master . . .”</p>	<p><i>Definition of Crew Member</i>, Black’s Law Dictionary 426 (9th ed. 2009).</p> <p><i>Definition of Crew</i>, Ballentine’s Law Dictionary 289 (3d ed. 1969), <i>available at</i> http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>

<p>IV. Standard English Dictionary</p>	<p>“[A] group of people associated together in a common activity or by common traits or interests[;] a company of people working on one job or under one foreman or operating a machine[;] the whole company belonging to a ship . . . the persons who have duties on an aircraft in flight.”</p>	<p><i>Definition of Crew,</i> Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/crew (last visited Aug. 30, 2011).</p>
<p>V. Other U.S. Gov’t</p>		
<p>VI. Other Sources</p>		
<p>VII. Language</p>		

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	Customary International Law	Source
I. Simple Definition	“A general and consistent practice of States followed by them from a sense of legal obligation.”	Restatement (Third) of Foreign Relations Law § 102(2).
II. Laws & Treaties	<p>The substance of customary international law must be “looked for primarily in the actual practice and <i>opinio juris</i> of States.”</p> <p>“[I]nternational customary and treaty law does not contain any specific prescription authorizing the threat or use of nuclear weapons or any other weapon in general.”</p> <p>New practices are not customary law until they are “extensive and virtually uniform,” especially with respect to States whose interests are specifically affected.</p> <p>International custom is not lightly regarded as having been attained.</p> <p><u>Example of Usage in International Law:</u></p> <p>The International Court of Justice shall apply international conventions, “international custom as evidence of a general practice accepted as law,” general principles of law recognized by civilized nations, and judicial decisions and teachings of the most highly qualified publicists.</p>	<p><i>Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion</i>, 1996 I.C.J. 226, 253 (July 8) (citation omitted).</p> <p><i>Id.</i></p> <p><i>North Sea Continental Shelf</i> (F.R.G. v. Den./F.R.G. v. Neth.), 1969 I.C.J. 3, 41-43 (Feb. 20).</p> <p><i>Military and Paramilitary Activities</i> (Nicar. v. U.S.), 1986 I.C.J. 14, 43.</p> <p>Statute of the International Court of Justice, Art. 38(b), June 26, 1945, 59 Stat. 1031.</p>
III. Legal Dictionary	<p>Customary Law: “Law consisting of customs that are accepted as legal requirements or obligatory rules of conduct; practices and beliefs that are so vital and intrinsic a part of a social and economic system that they are treated as if they were laws.”</p> <p>Customary: “<i>n.</i> A record of all the established legal and quasi-legal practices within a community.”</p> <p>Custom: “<i>n.</i> [] A practice that by its common adoption and long, unvarying habit has come to have the force of law.”</p> <p>Custom: “A practice which has by its universality and antiquity acquired the force and effect of law in a particular place or country, in respect of the subject matter to which it relates. 21 Am J2d Cust & U § 1.”</p>	<p><i>Definition of Customary Law</i>, Black’s Law Dictionary 172 (3d Pocket ed. 2006).</p> <p><i>Id.</i> at <i>Definition of Customary</i>.</p> <p><i>Id.</i> at <i>Definition of Custom</i>.</p> <p><i>Definition of Custom</i>, Ballentine’s Law Dictionary 300 (3d ed. 1969), available at</p>

		http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).
IV. Standard English Dictionary	Custom: “a) usage or practice common to many or to a particular place or class or habitual with an individual; b) long-established practice considered as unwritten law.”	<i>Definition of Custom</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/custom (last visited Sept. 30, 2011).
V. Other U.S. Gov’t		
VI. Other Sources	<p>A “general and consistent practice of States followed by them from a sense of legal obligation.”</p> <p>“Custom, whose importance reflects the decentralized nature of the international system, involves two fundamental elements: the actual practice of states and the acceptance by states of that practice as law . . . Once a practice becomes a custom, all states in the international community are bound by it whether or not individual states have expressly consented—except in cases where a state has objected from the start of the custom, a stringent test to demonstrate.”</p>	<p>Restatement (Third) of Foreign Relations Law § 102(2).</p> <p><i>Definition of Custom</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/291011/international-law/233498/Sources-of-international-law (last visited Sept. 30, 2011).</p>
VII. Language		

	Damage	Source
<i>I. Simple Definition</i>	“Loss or injury to person or property.”	<i>Definition of Damage</i> , Black’s Law Dictionary 174 (3d Pocket ed. 2006).
<i>II. Laws & Treaties</i>	<p>“[L]oss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations.”</p> <p><u>Examples of Usage in the Space Treaties:</u></p> <p>“Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air or in outer space, including the moon and other celestial bodies.”</p> <p>“A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft flight.”</p> <p>“In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.”</p> <p>“A State which suffers damage, or whose natural or juridical persons suffer damage, may present to a launching State a claim for compensation for such damage.”</p> <p>“States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment.”</p>	<p>Liability Convention Art. I(a).</p> <p>Outer Space Treaty Art. VII.</p> <p>Liability Convention Art. II.</p> <p><i>Id.</i> Art. III.</p> <p><i>Id.</i> Art. VIII(1).</p> <p>U.N. Convention on the Law of the Sea, Art. 194(2), Dec. 10, 1982, 1833 U.N.T.S. 397.</p>
<i>III. Legal Dictionary</i>	<p>“<i>adj.</i> Of or relating to monetary compensation for loss or injury to a person or property; <i>n.</i> Loss or injury to person or property.”</p> <p>“The loss, hurt or harm which results front the injury consequent upon the illegal invasion of a legal right. 22 Am J2d Damg § 1. Although the words, ‘damage,’ ‘damages,’ and ‘injury,’ are sometimes treated loosely as synonyms, there is a material distinction between them. Injury is the illegal invasion of a legal right; damage is the loss, hurt, or</p>	<p><i>Definition of Damage</i>, Black’s Law Dictionary 174 (3d Pocket ed. 2006).</p> <p><i>Definition of Damage</i>, Ballentine’s Law Dictionary 303 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last</p>

	harm which results from the injury; and damages are the recompense or compensation awarded for the damage suffered. 22 Am J2d Damg § 1.”	visited Sept. 2, 2011).
IV. Standard English Dictionary	“[L]oss or harm resulting from injury to person, property, or reputation.”	<i>Definition of Damage</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/damage (last visited Sept. 29, 2011).
V. Other U.S. Gov’t	Damage Assessment: “Estimate of injury or loss to components, subsystems, or entire systems, as well as the cost of repairs or replacement to restore serviceability.”	1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 238 (2011).
VI. Other Sources	<p>“(1) bodily injury to, or other impairment of health or, or death of, any person; (2) damage to, loss of, or loss of use of any property; (3) loss of revenue or profits; or (4) other direct, indirect or consequential damage.”</p> <p>“Damage” covers all proximately caused indirect damages.</p> <p><u>Example of Usage in the Other Sources:</u></p> <p>Subscribing States will “refrain from any intentional action which will or might bring about, directly or indirectly, the damage or destruction of outer space objects unless such action is conducted to reduce the creation of outer space debris and/or justified by imperative safety consideration.”</p>	<p>Space Station Agreement Between the USA and Other Governments, Art. 16, para. 2(c), Jan. 29, 1998.</p> <p>See Carl Q. Christol, <i>Space Law: Past, Present and Future</i> 222-23 (1991).</p> <p>Draft EU Code of Conduct for Outer Space Activities 17175/08, ¶ 4.2 (Dec. 17, 2008), available at http://apps.stimson.org/space/pdf/EU_Code_of_Conduct.pdf.</p>
VII. Language		

	Fault	Source
I. Simple Definition	Deserving of blame; responsible for harm to others.	Compiled by the Authors of this Report
II. Laws & Treaties	<p>“In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.”</p> <p>“[I]f the collision is accidental, it is caused by force majeure, or if the cause of the collision is left in doubt, the damages are borne by those who have suffered them.”</p> <p>"[I]f the collision is caused by the fault of one of the vessels, liability to make good the damages attaches to the one which has committed the fault"</p>	<p>Liability Convention, Art. 3</p> <p><i>International Convention for the Unification of Certain Rules to Govern the Liability of Vessels When Collisions Occur Between Them</i> Art. 2 (signed Brussels, 1910).</p> <p><i>Id.</i> Art. 3</p>
III. Legal Dictionary	<p>“Fault is a negligent or intentional failure to act reasonably or according to law or duty. It is an improper act or omission causing injury to another and arising from ignorance, carelessness, or negligence.”</p> <p>“Under law of tort, fault takes the form of malice, intention and negligence. The plaintiff would have to prove fault on the part of the alleged tortfeasor, failing which the claim for damages fails.”</p>	http://definitions.uslegal.com/f/fault/
IV. Standard English Dictionary	<p>“responsibility for wrongdoing or failure”</p> <p>“open to blame: Responsible.”</p>	http://www.merriam-webster.com/dictionary/fault
V. Other U.S. Gov’t		
VI. Other Sources	"[There are] four main categories of fault: intentional harm, intentional conduct, negligence and responsibility within the definition of a strict liability tort."	<i>Clerk & Lindsell on Torts</i> 20th ed, edited by Michael A. Jones, Anthony M Dugdale (2010)
VII. Language		

	Fault-Based Liability	Source
I. Simple Definition	<p>Liability (i.e., a legal obligation to pay claims for bodily injury or property damage) based on some degree of blameworthiness.</p> <p>Related Terms: Liability, Absolute Liability, and Negligence.</p>	<i>Derived From Definition of Liability, Fault Liability, Black's Law Dictionary 426 (9th ed. 2009).</i>
II. Laws & Treaties	<p><u>Examples of Usage in the Space Treaties:</u></p> <p>“In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.” Note: exoneration limits in Article VI.</p> <p>“In all cases of joint and several liability . . . the burden of compensation for the damage shall be apportioned between the first two States in accordance with the extent to which they were at fault.”</p>	<p>Liability Convention Art. III.</p> <p><i>Id.</i> Art. IV(2).</p>
III. Legal Dictionary	<p>“Liability based on some degree of blameworthiness.”</p> <p>Fault: “1. An error or defect of judgment or of conduct; any deviation from prudence or duty resulting from inattention, incapacity, perversity, bad faith, or mismanagement. See Negligence. Cf. Liability. 2. <i>Civil law.</i> The intentional or negligent failure to maintain some standard of conduct when that failure results in harm to another person.”</p> <p>Fault: “A wrongful act, omission, or breach. UCC § 1-201(16). An error or defect of judgment or conduct; any deviation from prudence, rectitude, or duty; any shortcoming or neglect of care or performance, resulting from inattention, incapacity, or perversity; a wrong tendency, course, or act; including but not limited to negligence; not necessarily imputing moral delinquency. <i>Louisville, Evansville & St. Louis Railroad Co. v Berry</i>, 2 Ind App 427, 431.”</p>	<p><i>Definition of Liability, Fault Liability, Black's Law Dictionary 426 (9th ed. 2009).</i></p> <p><i>Id.</i> at 683.</p> <p><i>Definition of Fault, Ballentine's Law Dictionary 460 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</i></p>
IV. Standard English Dictionary	Fault: “[R]esponsibility for wrongdoing or failure.”	<i>Definition of Fault, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/fault (last visited Aug. 30, 2011).</i>

<p>V. Other U.S. Gov't</p>	<p>“In tort law, the general rule of liability is fault-based; that is, negligence must be proved.”</p>	<p>U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> ¶ 5.2.3 (April 2002).</p>
<p>VI. Other Sources</p>	<p>Fault: “Failure to exercise the degree of prudence considered reasonable under the circumstances.”</p> <p>A State is at fault when it violates an internationally recognized legal obligation.</p> <p>“Space debris resulting from hostilities in space causing damage to a neutral in space would be subject to [the Outer Space Treaty Article III,] as the deliberate action would establish fault (<i>dolus</i>).”</p> <p>“For the purposes of principle 3, the terms ‘foreseeable’ and ‘all possible’ describe a class of events or circumstances whose overall probability of occurrence is such that it is considered to encompass only credible possibilities for purposes of safety analysis.”</p>	<p>Bruce A. Hurwitz, <i>State Liability for Outer Space Activities in Accordance with the 1972 Convention on International Liability for Damage Caused by Space Objects</i> 33 (1992).</p> <p>Ian Brownlie, <i>Principles of Public International Law</i> 436-37 (6th ed. 2003).</p> <p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 311 (2009).</p> <p>Principles Relevant to the Use of Nuclear Power Sources in Outer Space, G.A. Res. 47/68, Principle 2 (Dec. 14, 1996).</p>
<p>VII. Language</p>		

	Geostationary Orbit (GEO)	Source
I. Simple Definition	Having an orbit above the equator at an altitude of approximately 22,240 miles (35,786 kilometers) such that the satellite will appear stationary from the ground.	Compiled by the authors of this report.
II. Laws & Treaties	Geostationary-Satellite Orbit: “The <i>orbit</i> of a <i>geosynchronous satellite</i> whose circular and direct <i>orbit</i> lies in the plane of the Earth’s equator.”	ITU Radio Regulation 1.190.
III. Legal Dictionary		
IV. Standard English Dictionary	“[B]eing or having an equatorial orbit at an altitude of about 22,300 miles (35,900 kilometers) requiring an angular velocity the same as that of the earth so that the position of a satellite in such an orbit is fixed with respect to the earth.”	http://www.merriam-webster.com/dictionary/geostationary (last visited Oct. 26, 2011).
V. Other U.S. Gov’t		
VI. Other Sources	<p>“Earth orbit having zero inclination and zero eccentricity, whose orbital period is equal to the Earth’s sidereal period. The altitude of this unique circular orbit is close to 35,786 km.”</p> <p>“[A] special case of GSO when the inclination is zero . . . It is understood that <i>the sense of orbiting is the same as the sense of rotation of the Earth, i.e., anticlockwise if viewed from the North.</i>”</p> <p>Many states view the geostationary orbit as a limited resource to be taken up by a “first-come, first-served” basis. However, seven equatorial states disagreed in the Bogota Declaration of 1976. The Declaration stated that the geostationary synchronous orbit “must not be considered part of the outer space.” Nonetheless, “in practice, the Bogota claim to sovereignty is overstated and unhelpful.”</p>	<p>IADC, <i>Space Debris Mitigation Guidelines</i>, ¶ 3.3.3, IADC Doc. 02-01 (Sept. 2, 2007).</p> <p>International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management 22</i> (2006).</p> <p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 253-55 (2009).</p>
VII. Language		

	Geosynchronous Orbit (GSO)	Source
I. Simple Definition	<p>“An orbit with a period equal to the period of rotation of the Earth (23h 56m 04s) about its axis.”</p> <p>Related Term: Orbit, Geostationary Orbit (GEO).</p>	International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management 22</i> (2006).
II. Laws & Treaties	Geosynchronous satellite: “An earth <i>satellite</i> whose period of revolution is equal to the period of rotation of the Earth about its axis.”	ITU Radio Regulation 1.188.
III. Legal Dictionary		
IV. Standard English Dictionary	“[B]eing or having an orbit around the earth with a period equal to one sidereal day; <i>specifically</i> : geostationary.”	<i>Definition of Geosynchronous</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/geosynchronous (last visited Oct. 26, 2011).
V. Other U.S. Gov’t	“A satellite or other object orbit which is 22,300 miles directly over the Earth’s equator such that its period of rotation is exactly equal to that of the Earth. Also identified by the term, <i>geosynchronous Earth orbit</i> .”	U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> ¶ 12-1 (April 2002).
VI. Other Sources	<p>“[A]n orbit with a period equal to the period of rotation of the Earth (23h 56m 04s) about its axis.”</p> <p>“Orbits taking exactly twenty-four hours for a circuit (which requires an altitude of approximately 22,400 miles).”</p> <p>“[A] segment of the spherical shell defined by the following: lower altitude = geostationary altitude minus 200 km[;] upper altitude = geostationary altitude plus 200 km[;] -15 degrees ≤ latitude ≤ +15 degrees[;] geostationary altitude (Z GEO) = 35,786 km (the altitude of the geostationary Earth orbit).”</p>	<p>International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management 22</i> (2006).</p> <p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 15 (2d ed. 1997).</p> <p>IADC, <i>Space Debris Mitigation Guidelines</i>, ¶ 3.3.3, IADC Doc. 02-01 (Sept. 2, 2007).</p>
VII. Language		

	Gross Negligence	Source
<i>I. Simple Definition</i>	<p>Falling far below the ordinary standard of care. Indifference to the consequences for others.”</p> <p>Related Terms: Negligence, Absolute Liability.</p>	Compiled by Authors of this Report.
<i>II. Laws & Treaties</i>	<p><u>Example of Usage in the Space Treaties:</u></p> <p>“[E]xoneration from absolute liability shall be granted to the extent that a launching State establishes that the damage has resulted either wholly or partially from gross negligence or from an act or omission done with intent to cause damage on the part of a claimant State or of natural or juridical persons it represents.”</p> <p>“This hold-harmless arrangement shall not apply if the loss or damage arises out of gross negligence or a willful act or deliberate omission on the part of the French Government or of persons acting on its behalf” (unofficial translation, spelling corrected)</p>	<p>Liability Convention Art. VI(1).</p> <p>Agreement between the French Government and the European Space Agency concerning the Guiana Space Centre (1993) <i>available at</i> http://www.unoosa.org/oosa/SpaceLaw/multi_bj/france_esa_001.html (last visited October 29, 2012)</p>
<i>III. Legal Dictionary</i>	<p>“The intentional failure to perform a manifest duty in reckless disregard of the consequences as affecting the life or property of another; such a gross want of care and regard for the rights of others as to justify the presumption of willfulness and wantonness.”</p> <p>“1. A lack of slight diligence or care. 2. A conscious, voluntary act or omission in reckless disregard of a legal duty and of the consequences to another party, who may typically recover exemplary damages.”</p> <p>“A classification as difficult as any classification according to degrees of negligence. 38 Am J1st Negl § 43. Negligence characterized by the want of even slight care. Acting, or omitting to act in a situation where there is a duty to act, not inadvertently but willfully and intentionally with a conscious indifference to consequences so far as other persons may be affected. 38 Am J1st Negl § 47.”</p>	<p><i>Definition of Gross Negligence</i>, Black’s Law Dictionary 1185 (4th ed. Rev. 1968).</p> <p><i>Definition of Gross Negligence</i>, Black’s Law Dictionary 480 (3d Pocket ed. 2006).</p> <p><i>Definition of Gross Negligence</i>, Ballentine’s Law Dictionary 537 (3d ed. 1969), <i>available at</i> http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
<i>IV. Standard English Dictionary</i>	<p>“[N]egligence marked by total or nearly total disregard for the rights of others and by total or nearly total indifference to the consequences of an act.”</p>	<i>Definition of Gross Negligence</i> , Merriam-Webster Online Dictionary,

		http://www.merriam-webster.com/dictionary/gross%20negligence (last visited Nov. 15, 2011).
V. Other U.S. Gov't		
VI. Other Sources	<p>“[T]he failure to exercise even that care which a careless person would use.”</p> <p>"This [gross negligence] is very great negligence, or the want of even scant care. It has been described as a failure to exercise even that care which a careless person would use. Many courts, dissatisfied with a term so devoid of all real content, have interpreted it as requiring willful misconduct, or recklessness, or such utter lack of all care as will be evidence of either—sometimes on the ground that this must have been the purpose of the legislature. But most courts have considered that 'gross negligence' falls short of a reckless disregard of consequences, and differs from ordinary negligence only in degree, and not in kind. So far as it has any accepted meaning, it is merely an extreme departure from the ordinary standard of care."</p>	<p>Dan B. Dobbs, Robert E. Keeton & David G. Owen, <i>Prosser and Keeton on the Law of Torts</i> 211-12 (W. Page Keeton 5th ed. 1984).</p> <p>Prosser, <i>Handbook of the Law of Torts</i> (1941), p. 260</p>
VII. Language		

	Intelligence	Source
<i>I. Simple Definition</i>	Information, news.	<i>See Definition of Intelligence</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/intelligence (last visited Aug. 30, 2011).
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>		
<i>IV. Standard English Dictionary</i>	“a: information, news; b: information concerning an enemy or possible enemy or an area.”	<i>Definition of Intelligence</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/intelligence (last visited Aug. 30, 2011).
<i>V. Other U.S. Gov’t</i>	“The product resulting from the collection, processing, integration, evaluation, analysis, and interpretation of available information concerning foreign nations, hostile or potentially hostile forces or elements, or areas of actual or potential operations. The term is also applied to the activity which results in the product and to the organizations engaged in such activity.”	<i>Department of Defense Dictionary of Military and Associated Terms</i> , Nov. 8, 2010 (as amended through May 15, 2011).
<i>VI. Other Sources</i>	“Information about objects in orbit (images, signals, capabilities, behavior) collected on objects in orbit.”	<i>Space Situational Awareness: The Big Picture</i> , European Space Surveillance Conference Madrid, Spain, June 7-9, 2011, available at http://swfound.org/media/42072/SSA_The_Big_Picture-BW-2011.pdf .
<i>VII. Language</i>		

	International Cooperation	Source
<i>I. Simple Definition</i>	Sovereign nations working together in the pursuit of mutual benefit. (This term may also refer to individuals, companies, non-governmental organizations, and others from different nations working together.)	Compiled by Authors of this Report.
<i>II. Laws & Treaties</i>	<p><u>Examples of Usage in International Law and the Space Treaties:</u></p> <p>Goal: “To achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character, and in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion.”</p> <p>“<i>Desiring</i> to contribute to broad international co-operation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes, <i>Believing</i> that such co-operation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples[.]”</p> <p>“There shall be freedom of scientific investigation in outer space . . . and States shall facilitate and encourage international co-operation in such investigation.”</p> <p>“In the exploration and use of outer space, including the moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space, including the moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty.”</p> <p>“In order to promote international co-operation in the peaceful exploration and use of outer space, States Parties . . . conducting activities in outer space . . . agree to inform the Secretary-General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results of such activities.”</p> <p>“Reaffirming the importance of international cooperation in the field of the exploration and peaceful uses of outer space . . .”</p> <p>“A claim for compensation for damage shall be presented to a launching State through diplomatic channels.”</p>	<p>U.N. Charter Art. 1, para. 3.</p> <p>Outer Space Treaty preamble; <i>see also</i> Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, 1962 (XVIII) (Dec. 13, 1963).</p> <p>Outer Space Treaty Art. I.</p> <p><i>Id.</i> Art. IX.</p> <p><i>Id.</i> Art. XI.</p> <p>Liability Convention Preamble.</p> <p><i>Id.</i> Art. IX. Note: Use of Claims Commission in arts. XIV-XX.</p>

	<p>“If the damage caused by a space object presents a large-scale danger to human life or seriously interferes with the living conditions . . . the States Parties . . . shall examine the possibility of rendering appropriate and rapid assistance[.]”</p> <p>“States Parties shall be guided by the principle of cooperation and mutual assistance in all their activities concerning the exploration and use of the moon.”</p> <p>“Activities in the Area [i.e., the ocean beyond national jurisdiction] shall, as specifically provided for in this Part, be carried out in such a manner as to foster healthy development of the world economy and balanced growth of international trade, and to promote international cooperation for the overall development of all countries, especially developing States[.]”</p>	<p><i>Id.</i> Art. XXI.</p> <p>Moon Agreement Art. 4(2).</p> <p>U.N. Convention on the Law of the Sea, Art. 150, Dec. 10, 1982, 1833 U.N.T.S. 397.</p>
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“The interaction of persons or groups of persons representing various nations in the pursuit of a common goal or interest.”</p> <p>Cooperation: “1: the action of cooperating: common effort; 2: association of persons for common benefit.”</p>	<p><i>Definition of International Cooperation</i>, Webster’s Online Dictionary, http://www.websters-online-dictionary.org/definitions/International+Cooperation (last visited Nov. 14, 2011).</p> <p><i>Definition of Cooperation</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/cooperation (last visited Aug. 30, 2011).</p>
V. Other U.S. Gov’t	<p>Cooperating Agency: “An agency that provides technical and resource support (including planning, training, and exercising), at the request of the coordinating agency, to conduct operations using their own authorities, subject-matter experts, capabilities or resources (i.e., personnel, equipment, or other resource support).”</p> <p>U.S. Space Policy: To “[e]xpand international cooperation on mutually beneficial space activities to: broaden and extend the benefits of space; further the peaceful use of space; and enhance collection and partnership in sharing of space-derived information.”</p>	<p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p> <p>National Space Policy of the United States of America (June 28, 2010), <i>available at</i> http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf.</p>

VI. Other Sources		
VII. Language		

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	International Liability	Source
I. Simple Definition	<p>A State Party's obligation to compensate another State for any injury that it caused to the people or property of the latter nation.</p> <p>Related Terms: International Responsibility and Liability.</p>	Compiled by Authors of this Report.
II. Laws & Treaties	<p><u>Examples of Usage in the Space Treaties:</u></p> <p>“Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air or in outer space[.]”</p> <p>“A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to an aircraft in flight.” Note: exoneration for gross negligence or national victims.</p> <p>“In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.”</p>	<p>Outer Space Treaty Art. VII.</p> <p>Liability Convention arts. II, IV.</p> <p><i>Id.</i> Art. III.</p>
III. Legal Dictionary		
IV. Standard English Dictionary		
V. Other U.S. Gov't		
VI. Other Sources	<p>States are, under Article VII of the Outer Space Treaty, “liable for damage caused to another state through its own space activities or of those subject to its jurisdiction, licensing and supervision. Such an extension of responsibility and liability of a state to damage caused by its non-state entities is unusual in international law.”</p> <p>“[T]he <i>Trail Smelter Arbitration</i>, the <i>Corfu Channel Case</i> and the <i>Chorzow Factory Case</i> establish that a state may be</p>	<p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 66 (2009).</p> <p><i>Id.</i> at 103.</p>

	<p>liable to another state for damage caused to that other state, and that the obligation requires that reparation is made for that damage.”</p> <p>International liability with respect to space debris arises when a State “complies with its international obligations and the risks related to space debris materialize nonetheless.” Compare: International responsibility (in addition to international liability) arises when a State is in breach of its international obligations. “It is important to note that international responsibility under Article VI [of the] Outer Space Treaty is born for ‘national activities in outer space’ while the matter of international liability is tied to ‘space objects.’ Arguably, only the latter may raise the definitional issue of whether space debris is or is not a ‘space object.’”</p>	<p>Comm. on the Peaceful Uses of Outer Space, Scientific & Tech. Subcomm, Rep. on its 48th Sess., Feb. 7-18, 2011, U.N. Doc. A/AC.105/C.1 (Feb. 3, 2011).</p>
<p>VII. Language</p>	<p><u>Example of Usage in the Space Treaties (French):</u></p> <p>“Tout État partie au Traité qui procède ou fait procéder au lancement d’un objet dans l’espace extra-atmosphérique, y compris la Lune et les autres corps célestes, et tout État partie dont le territoire ou les installations servent au lancement d’un objet, est responsable du point de vue international des dommages causés par ledit objet ou par ses éléments constitutifs, sur la Terre, dans l’atmosphère ou dans l’espace extraatmosphérique[.]”</p>	<p>Outer Space Treaty Art. VII.</p>

	International Responsibility	Source
<i>I. Simple Definition</i>	<p>A State Party's obligation to supervise all space activities that are carried out by that nation, or anyone under its legal structure, in accordance with international law.</p> <p>Related Terms: Responsibility and International Liability.</p>	Compiled by Authors of this Report.
<i>II. Laws & Treaties</i>	<p><u>Examples of Usage in the Space Treaties and International Law:</u></p> <p>“States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space . . . shall require authorization and continuing supervision by the appropriate State Party to the Treaty.”</p> <p>“1) States Parties to this Agreement shall bear international responsibility for national activities on the moon, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in this Agreement. States Parties shall ensure that non-governmental entities under their jurisdiction shall engage in activities on the moon only under the authority and continuing supervision of the appropriate State Party. 2) States Parties recognize that detailed arrangements concerning liability for damage . . . may become necessary[.]”</p> <p>“[F]ailure to reach agreement on reference to the International Court shall not absolve parties to the dispute from the responsibility of continuing to seek to resolve it by any of the various peaceful means,” such as “negotiation, inquiry, mediation, conciliation, arbitration [or] judicial settlement[.]”</p> <p>“The flag State shall bear international responsibility for any loss or damage to the coastal State resulting from the non-compliance by a warship or other government ship operated for non-commercial purposes with the laws and regulations of the coastal State concerning passage through the territorial sea or with the provisions of this Convention or other rules of international law.”</p> <p>“States Parties shall have the responsibility to ensure that activities in the Area [i.e., the ocean beyond national</p>	<p>Outer Space Treaty Art. VI.</p> <p>Moon Agreement Art. 14.</p> <p>Antarctic Treaty, Art. XI, Dec. 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 71.</p> <p>U.N. Convention on the Law of the Sea, Art. 31, Dec. 10, 1982, 1833 U.N.T.S. 397.</p> <p><i>Id.</i> Art. 139(1).</p>

	<p>jurisdiction], whether carried out by States Parties, or state enterprises or natural or juridical persons which possess the nationality of States Parties or are effectively controlled by them or their nationals, shall be carried out in conformity with this Part. The same responsibility applies to international organizations[.]”</p> <p>Minefields in Albania’s territorial waters caused deaths, injuries, and property damage. “It cannot be concluded from the mere fact of the control exercised by a State over its territory and waters that that State necessarily knew, or ought to have known, of any unlawful act perpetrated therein, nor yet that it necessarily knew, or should have known, the authors. This fact, by itself and apart from other circumstances, neither involves <i>prima facie</i> responsibility nor shifts the burden of proof.” However, the Court concluded that Albania was aware of the minefields and “nothing was attempted by the Albanian authorities to prevent the disaster. These grave omissions involve the international responsibility of Albania. The Court therefore reaches the conclusion that Albania is responsible under international law for the explosions which occurred [] in Albanian waters, and for the damage and loss of human life which resulted from them, and that there is a duty upon Albania to pay compensation to the United Kingdom.”</p> <p>If a State is “under international law responsible” for damage, “it follows from the establishment of responsibility that compensation is due[.]”</p> <p>“As Professor Eagleton puts [it] in (<i>Responsibility of States in International Law</i>, 1928, p. 80) : ‘A State owes at all times a duty to protect other States against injurious acts by individuals from within its jurisdiction.’”</p> <p>“[N]o State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence. . . . [T]he Tribunal holds that the Dominion of Canada is responsible in international law for the conduct of the Trail Smelter . . . The indemnity for such damage should be fixed in such manner as the Government . . . should agree upon.”</p> <p>A State must retain “effective control” over individuals to be responsible for their actions.</p>	<p><i>Corfu Channel (Merits)</i> (U.K. v. Alb.), 1949 I.C.J. 10, 18, 22-23 (Apr. 9).</p> <p><i>Id.</i> at 23-24.</p> <p><i>Trail Smelter</i> (U.S. v. Can.), 3 R. Int’l Arb. Awards 1963 (U.S.-Can. Arb. Trib. 1941).</p> <p><i>Id.</i> at 1965-66.</p> <p><i>See Military and Paramilitary Activities</i> (Nicar. v. U.S.), 1986 I.C.J. 14, 43 (June 27).</p>
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III. Legal Dictionary		
IV. Standard English Dictionary		
V. Other U.S. Gov't		
VI. Other Sources	<p>The Responsibility of States: “The rights accorded to states under international law imply responsibilities. States are liable for breaches of their obligations, provided that the breach is attributable to the state itself. A state is responsible for direct violations of international law—e.g., the breach of a treaty or the violation of another state’s territory. A state also is liable for breaches committed by its internal institutions, however they are defined by its domestic law; by entities and persons exercising governmental authority; and by persons acting under the direction or control of the state. These responsibilities exist even if the organ or entity exceeded its authority. Further, the state is internationally responsible for the private activities of persons to the extent that they are subsequently adopted by the state. In 1979, for example, the Iranian government officially supported the seizure of the U.S. embassy by militants and the subsequent holding of diplomats and other embassy staff as hostages. A state is not internationally responsible if its conduct was required by a peremptory norm of general international law, if it was taken in conformity with the right to self-defense under the UN Charter, if it constituted a legitimate measure to pressure another state to comply with its international obligations, if it was taken as a result of a force majeure (French: “greater force”) beyond the state’s control, if it could not reasonably be avoided in order to save a life or lives, or if it constituted the only means of safeguarding an essential interest of the state against a grave and imminent peril, where no essential interest of the states toward which the obligation exists (or of the international community) was impaired. A state must make full reparation for any injury caused by an illegal act for which it is internationally responsible.”</p> <p>“Every internationally wrongful act of a State entails the international responsibility of that State.”</p> <p>“Although the terms ‘authorization’ and ‘continuing supervision’ are open to different interpretations, it would appear that Article VI requires a certain minimum of</p>	<p><i>Definition of Responsibility of States</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/291011/international-law/233508/The-responsibility-of-states (last visited Nov. 4, 2011).</p> <p>Responsibility of States for Internationally Wrongful Acts, Art. 1, G.A. Res. 56/83 Annex (Dec. 12, 2001).</p> <p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law</i></p>

	<p>licensing and enforced adherence to government-imposed regulations.”</p> <p>“[T]he [Outer Space] treaty does not equate Article 6 responsibility with legal liability.”</p>	<p><i>and Policy 74</i> (2d ed. 1997) (citation omitted).</p> <p><i>Legal Framework for Commercial Launch and Associated Services 64</i> (2000).</p>
<p>VII. Language</p>	<p><u>Example of Usage in the Space Treaties (French):</u></p> <p>“Les États parties au Traité ont la responsabilité internationale des activités nationales dans l’espace extra-atmosphérique, y compris la Lune et les autres corps célestes, qu’elles soient entreprises par des organismes gouvernementaux ou par des entités non gouvernementales, et de veiller à ce que les activités nationales soient poursuivies conformément aux dispositions énoncées dans le présent Traité. Les activités des entités non gouvernementales dans l’espace extra-atmosphérique, y compris la Lune et les autres corps célestes, doivent faire l’objet d’une autorisation et d’une surveillance continue de la part de l’État approprié partie au Traité.”</p>	<p>Outer Space Treaty Art. VI.</p>

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	International Waters / High Seas	Source
I. Simple Definition	“The seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction.”	U.N. Convention on the Law of the Sea, Art. 1 para. 1(1), Dec. 10, 1982, 1833 U.N.T.S. 397.
II. Laws & Treaties	<p>“[T]he seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction” (refers to term “Area”).</p> <p>“Every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baselines determined in accordance with this Convention.”</p>	<p>U.N. Convention on the Law of the Sea, Art. 1 para. 1(1), Dec. 10, 1982, 1833 U.N.T.S. 397.</p> <p><i>Id.</i> Art. 3.</p>
III. Legal Dictionary	High Seas: “Rough water. The waters of the oceans and the arms thereof beyond the territorial jurisdiction of any nation. Including waters on the sea coast without the boundaries of low-water mark, such as the waters of the port of Yokohama. <i>Ross v McIntyre</i> , 140 US 453, 471, 35 L Ed 581, 588, 11 S Ct 897. Also including any large body of navigable water other than a river, which is of an extent beyond the measurement of one’s unaided vision, and is open and unconfined, and not under the exclusive control of any one nation or people, but is the free highway of adjoining nations or people. <i>United States v Rodgers</i> , 150 US 249, 259, 37 L Ed 1071, 1075, 14 S Ct 109.”	<i>Definition of High Seas</i> , Ballentine’s Law Dictionary 559 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Oct. 17, 2011).
IV. Standard English Dictionary	“High sea: The open seas of the world outside the territorial waters of any nation.”	<i>Definition of International Waters</i> , WordNet Glossary, http://wordnetweb.princeton.edu/perl/webwn?s=international%20waters (last visited Oct. 17, 2011).
V. Other U.S. Gov’t		
VI. Other Sources	Compare: “The terms, ‘territorial seas,’ ‘territorial waters,’ ‘jurisdictional sea,’ and ‘marginal or littoral sea’ have been used interchangeably over the years to denote ‘all waters within three marine miles of low water mark off the coast, including ports and harbors.’”	George P. Smith II, <i>Restricting the Concept of Free Seas: Modern Maritime Law Re-Evaluated</i> 20 (1980).
VII. Language		

	Jamming (electromagnetic)	Source
I. Simple Definition	“Deliberate interference, caused by emissions intended to render unintelligible or falsify the whole or part of a wanted signal.”	Electropedia: The World’s Online Electrotechnical Vocabulary, http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=713-11-23 (last visited Sept. 13, 2011).
II. Laws & Treaties	“Harmful Interference: Interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with these regulations.”	ITU Radio Regulations, Art. 1.169, 2008 Edition.
III. Legal Dictionary		
IV. Standard English Dictionary	Jamming: “[T]o make unintelligible by sending out interfering signals or messages” (radio) interference: “any undesired signal that tends to interfere with the reception of radio waves.”	<i>Definition of Jam</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/jam (last visited Oct. 19, 2012). Collins English Dictionary, Complete and Unabridged 10 th Edition 2009
V. Other U.S. Gov’t	“Intentional transmission or reradiation of radio signals in such a way as to interfere with reception of desired signals by the intended receiver.” Electromagnetic Jamming: “The deliberate radiation, reradiation, or reflection of electromagnetic energy for the purpose of preventing or reducing an enemy’s effective use of the electromagnetic spectrum, and with the intent of degrading or neutralizing the enemy’s combat capability.”	1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 508 (2011). <i>Department of Defense Dictionary of Military and Associated Terms</i> , Nov. 8, 2010 (as amended through May 15, 2011).
VI. Other Sources	“[D]eliberate interference, caused by emissions intended to render unintelligible or falsify the whole or part of a wanted signal.”	Electropedia: The World’s Online Electrotechnical Vocabulary, http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=713-11-

	<p>Interference, either intentional or accidental, “of communication links between the satellite and the ground.”</p> <p>“The term “harmful interference” is not generally definable in a precise quantitative manner and therefore an assessment of harmful interference must be construed in the light of the nature of the operations and the safety environment. This leads directly to the conclusion that the determination of quantitative threshold levels of harmful interference for the various aeronautical mobile radiocommunication services requires the examination of the appropriate safety criteria.”</p> <p>Jamming is the emission of noise-like signals to mask or prevent reception of signals.</p>	<p>23 (last visited Sept. 13, 2011).</p> <p>Laura Grego and David Wright (UCS), <i>Securing the Skies: Ten Steps the U.S. Should Take to Improve the Security and Sustainability of Space</i> 23 (2010).</p> <p>General Considerations Relative to Harmful Interference from the Viewpoint of the Aeronautical Mobile Service and the Aeronautical Radionavigation Service. Report 927-2. Questions 1/8 and 62/8 and Study Programme 21A/8. 1990. Retrieved April 28, 2012 at http://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-M.927-2-1990-PDF-E.pdf</p> <p><i>Critical Infrastructure Protection: Commercial Satellite Security Should Be More Fully Addressed</i>. US General Accounting Office (GAO), GAO-02-781 (August 2002). p. 29, available at http://www.defensedaily.com/reports/101102fully.pdf</p>
<p>VII. Language</p>		

	Joint and Several Liability	Source
I. Simple Definition	<p>“Liability that may be apportioned either among two or more parties.”</p> <p>Related Term: Liability.</p>	<i>Derived From Definition of Liability, Joint and Several Liability, Black’s Law Dictionary 426 (3d Pocket ed. 2006).</i>
II. Laws & Treaties	<p><u>Examples of Usage in the Space Treaties:</u></p> <p>“In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, and of damage thereby being caused to a third State or to its natural or juridical persons, the first two States shall be jointly and severally liable to the third State . . . the burden of compensation for the damage shall be apportioned between the first two States in accordance with the extent to which they were at fault[.]”</p> <p>“Whenever two or more States jointly launch a space object, they shall be jointly and severally liable for any damage caused.”</p>	<p>Liability Convention arts. IV(1)-(2).</p> <p><i>Id.</i> Art. V.</p>
III. Legal Dictionary	<p>“Liability that may be apportioned either among two or more parties or to only one or a few select members of the group, at the adversary’s discretion.”</p> <p>“The liability of joint tortfeasors. 52 Am J1st Torts § 110. The liability of the two or more contracting parties on one side under an agreement in such terms as to engage the two or more jointly and each one individually.”</p>	<p><i>Definition of Liability, Joint and Several Liability, Black’s Law Dictionary 426 (3d Pocket ed. 2006).</i></p> <p><i>Definition of Joint and Several Liability, Ballentine’s Law Dictionary 676 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</i></p>
IV. Standard English Dictionary	<p>“[J]oint liability imposed on joint tortfeasors that allows enforcement of the entire judgment against any one of the tortfeasors.”</p>	<p><i>Definition of Joint and Several Liability, Dictionary.com, http://dictionary.reference.com/browse/liability?d=b=legal&q=liability (last visited Sept. 30, 2011).</i></p>

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<p>V. Other U.S. Gov't</p>	<p>“A legal term which, as applied, allows full financial responsibility to be assigned to one party, even though other parties are responsible for some or all the damage.”</p>	<p>U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> ¶ 12-1 (April 2002).</p>
<p>VI. Other Sources</p>	<p>“The real reason for the rule that each joint tortfeasor is responsible for the whole damage is the practical unfairness of denying the injured person redress simply because he cannot prove how much damage each did, when it is certain that between them they did all; let them be the ones to apportion it among themselves.”</p>	<p>Summers v. Tice, 33 Cal.2d 80, 199 P.2d 1 (1948) pp. 85-86.</p>
<p>VII. Language</p>		

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	Launch	Source
I. Simple Definition	“To place, or attempt to place, a launch vehicle and its payload, if any, in a suborbital trajectory, in Earth orbit in outer space, or otherwise in outer space.”	National Aeronautics and Space Act, 51 U.S.C. § 50501(5) (2010).
II. Laws & Treaties	<p>“The term ‘launching’ includes attempted launching[.]”</p> <p>“[T]o place, or attempt to place, a launch vehicle and its payload, if any, in a suborbital trajectory, in Earth orbit in outer space, or otherwise in outer space.”</p> <p>“[T]o place or try to place a launch vehicle or reentry vehicle and any payload, crew, or space flight participant from Earth—(A) in a suborbital trajectory; (B) in Earth orbit in outer space; or (C) otherwise in outer space, including activities involved in the preparation of a launch vehicle or payload for launch, when those activities take place at a launch site in the United States.”</p> <p>“[T]o place or try to place a launch vehicle or reentry vehicle and any payload from Earth in a suborbital trajectory, in Earth orbit in outer space, or otherwise in outer space, and includes preparing a launch vehicle for flight at a launch site in the United States. Launch includes the flight of a launch vehicle and includes pre- and post-flight ground operations . . .”</p> <p>“[T]he initial motion and subsequent flight of an ICBM or [Submarine Launched Ballistic Missile].”</p>	<p>Liability Convention Art. I(b).</p> <p>National Aeronautics and Space Act, 51 U.S.C. § 50501(5) (2010).</p> <p><i>Id.</i> § 50902(4).</p> <p>Federal Aviation Regulations, 14 C.F.R. § 401.5 (2009).</p> <p>Protocol to START, ¶ 38, signed July 31, 1991, available at http://www.state.gov/documents/organization/140047.pdf.</p>
III. Legal Dictionary	<p>“The movement of a vessel from the land into the water.”</p> <p>“Verb: To start an enterprise. To let a newly-constructed vessel slide from the way to the water.”</p>	<p><i>Definition of Launch</i>, Black’s Law Dictionary 962 (9th ed. 2009).</p> <p><i>Definition of Launch</i>, Ballentine’s Law Dictionary 711 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>

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<p>IV. <i>Standard English Dictionary</i></p>	<p>“[T]o release, catapult, or send off (a self-propelled object).”</p>	<p><i>Definition of Launch</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/launch (last visited Aug. 30, 2011).</p>
<p>V. Other U.S. Gov’t</p>	<p>Launch Time: “The time at which an aircraft or missile is scheduled to be airborne.”</p>	<p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p>
<p>VI. Other Sources</p>		
<p>VII. Language</p>		

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	Launch Vehicle	Source
I. Simple Definition	“A vehicle built to operate in, or place a payload or human beings in, outer space.”	National Aeronautics and Space Act, 51 U.S.C. § 50902(8) (2010).
II. Laws & Treaties	<p>“(A) a vehicle built to operate in, or place a payload or human beings in, outer space; and (B) a suborbital rocket.</p> <p>“[A]ny vehicle constructed for the purpose of operating in or placing a payload in outer space or in suborbital trajectories, and includes components of that vehicle.”</p> <p>(A) a vehicle built to operate in, or place a payload in, outer space; and (B) a suborbital rocket</p>	<p>National Aeronautics and Space Act, 51 U.S.C. § 50902(8) (2010).</p> <p><i>Id.</i> § 70103(a)(1).</p> <p>Federal Aviation Regulations, 14 C.F.R. Part 401, § 401.5 (2009).</p>
III. Legal Dictionary		
IV. Standard English Dictionary	“[A] rocket used to launch a satellite or spacecraft.”	<i>Definition of Launch Vehicle</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/launch%20vehicle (last visited Aug. 30, 2011).
V. Other U.S. Gov’t	“A rocket or other vehicle used to launch a probe, satellite, or the like.”	<i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7</i> (1965) (last modified Nov. 15, 2001), available at http://er.jsc.nasa.gov/seh/a.html .
VI. Other Sources	<p>“[A]ny vehicle constructed for ascent to outer space, and for placing one or more objects in outer space, and any sub-orbital rocket.”</p> <p>“[A]n object (or any part thereof) intended for launch, launched from Earth, or returning to Earth which carries payloads or persons, or both.</p> <p>“[A] rocket-powered vehicle used to transport a spacecraft beyond Earth’s atmosphere, either into orbit around Earth or to some other destination in outer space . . . in order to reach</p>	<p>IADC, <i>Space Debris Mitigation Guidelines</i>, ¶ 3.2.2, IADC Doc. 02-01 (Sept. 2, 2007).</p> <p>Space Station Agreement Between the USA and Other Governments, Art. 16, para. 2(d), Jan. 29, 1998.</p> <p><i>Definition of Launch Vehicle</i>, Encyclopedia Britannica Online:</p>

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	<p>Earth orbit, a launch vehicle must accelerate its spacecraft payload to a minimum velocity of 28,000 km (17,500 miles) per hour, which is roughly 25 times the speed of sound. To overcome Earth's gravity for travel to a destination such as the Moon or Mars, the spacecraft must be accelerated to a velocity of approximately 40,000 km (25,000 miles) per hour.”</p>	<p>Academic Edition 2011, http://www.britannica.com/EBchecked/topic/332323/launch-vehicle (last visited Aug. 4, 2011).</p>
<p>VII. <i>Language</i></p>		

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	Launching State	Source
I. Simple Definition	“(i) A State which launches or procures the launching of a space object; (ii) A State from whose territory or facility a space object is launched.”	Liability Convention Art. I(c); Registration Convention Art. I(a).
II. Laws & Treaties	<p>“(i) A State which launches or procures the launching of a space object; (ii) A State from whose territory or facility a space object is launched . . . The term ‘launching’ includes attempted launching[.]”</p> <p>Launching Authority: “[T]he State responsible for launching, or, where an international intergovernmental organization is responsible for launching, that organization[.]”</p> <p>State of Registry: “[A] launching State on whose registry a space object is carried in accordance with article II.”</p> <p>State of Registry: “[M]eans, in respect of an aircraft, the State on the national register of which an aircraft is entered or the State of location of the common mark registering authority maintaining the aircraft register.”</p> <p>For the purpose of these Principles, the terms "launching State" and "State launching" mean the State which exercises jurisdiction and control over a space object with nuclear power sources on board at a given point in time relevant to the principle concerned.</p> <p><u>Examples of Usage in the Space Treaties:</u></p> <p>“Each State Party to the Treaty that launches or procures the launching of an object into outer space . . . and each State Party from whose territory or facility an object is launched, is internationally liable . . .”</p> <p>“A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object.”</p> <p>“When a space object is launched into earth orbit or beyond, the launching State shall register the space object[.]”</p> <p>“A State which suffers damage . . . may present to a launching State a claim for compensation[.]”</p>	<p>Liability Convention Art. I(b)-(c); <i>see also</i> Registration Convention Art. I(a).</p> <p>Rescue and Return Agreement Art. 6.</p> <p>Registration Convention Art. I(c).</p> <p>Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Aircraft Equipment, Art. 1(2)(p), <i>entered into force</i> Jan. 3. 2006.</p> <p>Principles on Nuclear Power Sources, G.A. Res. 47/68, Principle 2, U.N. Doc. A/RES/47/68 (Dec. 14, 1992).</p> <p>Outer Space Treaty Art. VII.</p> <p><i>Id.</i> Art. VIII.</p> <p>Registration Convention Art. II.</p> <p>Liability Convention Art. VIII(1).</p>

III. Legal Dictionary		
IV. Standard English Dictionary		
V. Other U.S. Gov't	<p>“A state which launches or procures the launch of a space object or a state from whose territory or facility a space object is launched. Liability Convention, Article I.”</p>	<p>U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> ¶ 12-1 (April 2002).</p>
VI. Other Sources	<p>“For the purposes of these [Nuclear] Principles, the terms ‘launching State’ and ‘State launching’ mean the State which exercises jurisdiction and control over a space object with nuclear power sources on board at a given point in time relevant to the principle concerned.”</p> <p>Procure “was essentially indented to mean: 1. exceptional arrangements in which a state might induce another . . . ; or 2. typical cases in which the state arranging the launch plays a ‘substantial’ role in the project The Japanese delegation interpreted the ‘procure’ [as] consist[ing] of two requirements mentioned in the United States draft convention . . . namely ‘actively and substantially participate.’”</p> <p>“[T]he growing number of private commercial actors undertaking space launches is blurring the definition of the term ‘launching state,’ since a satellite operator may be officially registered in one state, have operations in another, and launch spacecraft from the territory of a third country.”</p>	<p>Principles on Nuclear Power Sources, G.A. Res. 47/68, Principle 2, U.N. Doc. A/RES/47/68 (Dec. 14, 1992).</p> <p><i>Legal Framework for Commercial Launch and Associated Services</i> 67 (2000).</p> <p><i>Space Security 2010</i>, at 61 (Cesar Jaramillo ed., 2010), available at http://www.spacesecurity.org/space.security.2010.educed.pdf.</p>
VII. Language	<p><u>Examples of Usage in the Space Treaties (Netherland)</u></p> <p>The Netherlands does not consider itself a launching state under the Dutch Act interpretation of “procuring” a launch unless the state procures the launch (rather than a private party). This may be counterintuitive to the Outer Space Treaty Article VI.</p>	<p>Tanja Masson-Zwaan, <i>The Sixth Eilene M. Galloway Symposium on Critical Issues in Space Law</i> (Dec. 1, 2011).</p>

	Liability	Source
I. Simple Definition	<p>“The legal obligation to pay claims for bodily injury or property damage from any activity, including licensed launch or reentry activities.”</p> <p>Related Terms: Absolute Liability, Fault-Based Liability, International Liability, and Joint and Several Liability.</p>	U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> ¶ 12-1 (April 2002).
II. Laws & Treaties	Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the Moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the Moon and other celestial bodies.	Outer Space Treaty, Article VII
III. Legal Dictionary	<p>“1. The quality or state of being legally obligated or accountable; legal responsibility to another or to society, enforceable by civil remedy or criminal punishment <liability for injuries caused by negligence>. –Also termed <i>legal liability</i>. [] 2. [] A financial or pecuniary obligation; debt[.]”</p> <p>“Legal responsibility, either civil or criminal. The condition of being bound in law and justice to pay an indebtedness or discharge some obligation. <i>Feil v Coeur D'Alene</i>, 23 Idaho 32, 129 P 643. The state or condition of a person after he has breached his contract or violated any obligation resting upon him. <i>Lattin v Gillette</i>, 95 Cal 317, 30 P 545. A word of different meanings, the pertinent one to be gathered from the context in which it appears, construed in the light of surrounding circumstances. <i>Evans v Kroh</i> (Ky) 284 SW2d 329, 58 ALR2d 1446. Sometimes synonymous with ‘debt.’ Anno: 58 ALR2d 1453. Within the meaning of a statute of limitations:–under one view, a contract obligation; under another view, responsibility, embracing tort liability as well as contract liability. 34 Am J1st Lim Ac § 94. As the word appears in a limitation on the creation of debt or liability of a state in excess of a prescribed amount: a term having special reference to the warrant and legislative authority on which a state contract must rest, and on which alone a public debt must find its sanction in order to obligate the state. 49 Am J1st States § 66.”</p>	<p><i>Definition of Liability</i>, Black’s Law Dictionary 997 (9th ed. 2009).</p> <p><i>Definition of Liability</i>, Ballentine’s Law Dictionary 732 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
IV. Standard English Dictionary	“[S]omething for which one is liable; <i>especially</i> : pecuniary obligation: debt.”	<i>Definition of Liability</i> , Merriam-Webster Online Dictionary, http://www.merriam-

		webster.com/dictionary/liability (last visited Oct. 30, 2011).
V. Other U.S. Gov't	“The legal obligation to pay claims for bodily injury or property damage from any activity, including licensed launch or reentry activities.”	U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> ¶ 12-1 (April 2002).
VI. Other Sources	“[I]n law, a broad term including almost every type of duty, obligation, debt, responsibility, or hazard arising by way of contract, tort, or statute.”	<i>Definition of Liability</i> , Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/338763/liability (last visited Aug. 4, 2011).
VII. Language	<p><u>Example of Usage in the Space Treaties (French):</u></p> <p>“Tout État partie au Traité qui procède ou fait procéder au lancement d’un objet dans l’espace extra-atmosphérique, y compris la Lune et les autres corps célestes, et tout État partie dont le territoire ou les installations servent au lancement d’un objet, est responsable du point de vue international des dommages causés par ledit objet ou par ses éléments constitutifs, sur la Terre, dans l’atmosphère ou dans l’espace extraatmosphérique[.]”</p> <p><i>French Definition of Liability: equates Liability with Responsibility; Compare the English to French Definition): Liability: “Jur responsabilité.”</i></p>	English-French Translation, http://www.wordreference.com/enfr/liability (last visited Sept. 20, 2011).

	Low-Earth Orbit (LEO)	Source
I. Simple Definition	<p>“Orbits below about 2,000 km above Earth’s surface.”</p> <p>Related Term: Orbit.</p>	International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management 21</i> (2006).
II. Laws & Treaties		
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“[U]sually circular orbit from about 90 to 600 miles (about 140 to 970 kilometers) above the earth.”</p>	<i>Definition of Low-Earth Orbit</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/low%20earth%20orbit (last visited Oct. 26, 2011).
V. Other U.S. Gov’t	<p>“An orbit of between 100 and 1,000 miles above the Earth’s surface for a satellite or an object. To maintain this orbit, a speed of 17,500 miles per hour must be maintained; the Earth can be circled in 90 minutes.”</p>	U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> ¶ 12-1 (April 2002).
VI. Other Sources	<p>“[A] spherical region that extends from the Earth’s surface up to an altitude (Z) of 2,000 km.”</p> <p>“[O]rbits below about 2,000 km above Earth’s surface, with periods of 127 minutes or less. Orbits at altitudes below 500 km are frequently used for crewed space activities. Launch vehicles are able to place large payloads, often used in human space flight, into these orbits. The low altitude also greatly simplifies the return of crews to Earth. Low orbits are also used by launch vehicle stages, which are often left in low orbits when upper stages carry payloads into higher altitudes.”</p>	<p>IADC, <i>Space Debris Mitigation Guidelines</i>, ¶ 3.3.2(1), IADC Doc. 02-01 (Sept. 2, 2007).</p> <p>International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management 21</i> (2006).</p>
VII. Language		

	Medium-Earth Orbit (MEO)	Source
<i>I. Simple Definition</i>	<p>“An orbit between LEO and GSO.”</p> <p>Related Terms: Low-Earth Orbit (LEO), Geosynchronous Orbit (GSO), and Orbit.</p>	International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management 21</i> (2006).
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>		
<i>IV. Standard English Dictionary</i>	<p>“[T]he region of space around the Earth above low Earth orbit (altitude of 2,000 kilometres (1,243 mi)) and below geostationary orbit (altitude of 35,786 kilometres (22,236 mi)). The most common use for satellites in this region is for navigation . . . Communications satellites that cover the North and South Pole are also put in MEO.”</p>	<i>Definition of Medium Earth Orbit</i> , The Free Dictionary Online, http://encyclopedia.thefreedictionary.com/Medium+earth+orbit (last visited Nov. 1, 2011).
<i>V. Other U.S. Gov't</i>		
<i>VI. Other Sources</i>	<p>“[A]n orbit between LEO and GSO. In particular, the two existing constellations of navigation satellites, GPS and GLONASS, use inclined orbits with periods of 12 hours and 11 hours 15 minutes respectively.”</p>	International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management 21</i> (2006).
<i>VII. Language</i>		

	Near-Earth Object (NEO)	Source
<i>I. Simple Definition</i>	“Asteroids and periodic comets (both active and inactive) whose motions can bring them into the Earth’s neighborhood.”	Study to Determine the Feasibility of Extending the Search for Near-Earth Objects to Smaller Limiting Diameters, NASA Rep., Aug. 22, 2003, <i>available at</i> http://neo.jpl.nasa.gov/neo/neoreport030825.pdf .
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>		
<i>IV. Standard English Dictionary</i>	“A small comet or asteroid with an orbit that crosses or comes near Earth’s orbit.” (Earth orbit definition in “Orbit”).	<i>Definition of Near Earth Object</i> , The Free Dictionary Online, http://www.thefreedictionary.com/near+Earth+object (last visited Sept. 21, 2011).
<i>V. Other U.S. Gov’t</i>	<p>“Asteroids, meteoroids, or short-period comets having trajectories that intersect the orbit of Earth or that are within 0.3 Astronomical Units (AU) of Earth. Asteroids and comets with perihelion distance less than 1.3 AU.”</p> <p>“[C]omets and asteroids that have been nudged by the gravitational attraction of nearby planets into orbits that allow them to enter the Earth’s neighborhood. Composed mostly of water ice with embedded dust particles, comets originally formed in the cold outer planetary system while most of the rocky asteroids formed in the warmer inner solar system between the orbits of Mars and Jupiter. The scientific interest in comets and asteroids is due largely to their status as the relatively unchanged remnant debris from the solar system formation process some 4.6 billion years ago. The giant outer planets (Jupiter, Saturn, Uranus, and Neptune) formed from an agglomeration of billions of comets and the left over bits and pieces from this formation process are the comets we see today. Likewise, today’s asteroids are the bits and pieces left over from the initial agglomeration of the inner planets that include Mercury, Venus, Earth, and Mars.”</p> <p>“[A]steroids and periodic comets (both active and inactive) whose motions can bring them into the Earth’s neighborhood.”</p>	<p>1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 650 (2011).</p> <p>NASA’s Near-Earth Object Program, Introduction and Overview, <i>available at</i> http://neo.jpl.nasa.gov/neo/#intro (last visited Sept. 21, 2011).</p> <p>Study to Determine the Feasibility of Extending the Search for Near-Earth Objects to Smaller</p>

		Limiting Diameters, NASA Rep., Aug. 22, 2003, <i>available at</i> http://neo.jpl.nasa.gov/neo/neoreport030825.pdf .
VI. Other Sources	“[A]steroids and comets whose orbits bring them in close proximity to the Earth or intersect the Earth’s orbit. NEOs are subdivided into Near Earth Asteroids (NEAs) and Near Earth Comets (NECs). Within both groupings are Potentially Hazardous Objects (PHOs), those NEOs whose orbits intersect that of Earth and have a relatively high potential of impacting the Earth itself.”	<i>Space Security 2011</i> , at 42 (Cesar Jaramillo ed. 2011), <i>available at</i> http://www.spacesecurity.org/space.security.2011.revised.pdf .
VII. Language		

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	Negligence	Source
I. Simple Definition	<p>“The failure to exercise the standard of care that a reasonably prudent person would have exercised in a similar situation.”</p> <p>Related Terms: Liability, Fault-Based Liability, and Gross Negligence.</p>	<i>Definition of Negligence</i> , Black’s Law Dictionary 408 (3d Pocket ed. 2006).
II. Laws & Treaties		
III. Legal Dictionary	<p>“n. 1. The failure to exercise the standard of care that a reasonably prudent person would have exercised in a similar situation; any conduct that falls below the legal standard established to protect others against unreasonable risk of harm, except for conduct that is intentionally, wantonly, or willfully disregarding of others’ rights. 2. A tort grounded in this failure, usu. expressed in terms of the following elements: duty, breach of duty, causation, and damages.”</p> <p>“A word of broad significance which may not readily be defined with accuracy. <i>Jamison v Encarnacion</i>, 281 US 635, 74 L Ed 1082, 50 S Ct 440. The lack of due diligence or care. A wrong characterized by the absence of a positive intent to inflict injury but from which injury nevertheless results. <i>Haser v Maryland Casualty Co.</i> 78 ND 893, 53 NW2d 508, 33 ALR 1018. In the legal sense, a violation of the duty to use care. <i>Fort Smith Gas Co. v Cloud</i> (CAS Ark) 75 F2d 413, 97 ALR 833. The failure to perform an established duty which proximately causes injury to the plaintiff. <i>Northern Indiana Transit v Burk</i>, 228 Ind 162, 89 NE2d 905, 17 ALR2d 572. The failure to exercise the degree of care demanded by the circumstances; the want of that care which the law prescribes under the particular circumstances existing at the time of the act or omission which is involved. The omission to do something which a reasonable man, guided by those considerations which ordinarily regulate human affairs, would do, or doing something which a prudent and reasonable man would not do. 38 Am J1st Negl § 2. More particularly, the failure of one owing a duty to another to do what a reasonable and prudent person would ordinarily have done under the circumstances, or doing what such person would not have done, which omission or commission is the proximate cause of injury to the other. 28 Am J1st Negl § 2. A negligent act is one from which an ordinarily prudent person would foresee such an appreciable risk of harm to others as to cause him not to do the act, or to do it in a more careful manner. <i>Haralson v Jones Truck Lines</i>, 223 Ark 813, 270 SW2d 892, 48 ALR2d 248.”</p>	<p><i>Definition of Negligence</i>, Black’s Law Dictionary 408 (3d Pocket ed. 2006).</p> <p><i>Definition of Negligence</i>, Ballentine’s Law Dictionary 840 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>

IV. Standard English Dictionary	“[F]ailure to exercise the care that a reasonably prudent person would exercise in like circumstances.”	<i>Definition of Negligence</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/negligence (last visited Sept. 20, 2011).
V. Other U.S. Gov’t	“Three elements are usually required to sustain a finding of negligence: a legal duty to a standard of due care; a breach of that duty; and legal causation of harm resulting from the breach. The standard of proof for negligence is ‘preponderance of the evidence,’ that is, the defendant is presumed to not have been negligent until the plaintiff proves he is more likely negligent than not.”	U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> ¶ 5.2.3 (April 2002).
VI. Other Sources	<p>“A person acts negligently if the person does not exercise reasonable care under all the circumstances. Primary factors to consider in ascertaining whether the person’s conduct lacks reasonable care are the foreseeable likelihood that the person’s conduct will result in harm, the foreseeable severity of any harm that may ensue, and the burden of precautions to eliminate or reduce the risk of harm.”</p> <p>“[C]onduct which involves creating a risk of harm to others. Stated another way, negligence is conduct which fails to protect other people against an unreasonable risk of harm. Thus negligence is essentially a breach of the duty of due care. It is a failure to observe that degree of care, precaution, and vigilance which the circumstances demand, the failure to observe the ordinary degree of care which people of ordinary prudence would use under the same circumstances . . . [Also, the] common law doctrine of <i>res ipsa loquitur</i> is fully applicable in admiralty . . . [but] assumption of risk is not a defense.”</p>	<p>Restatement (Third) of Torts: Liability for Physical and Emotional Harm § 3 (2010).</p> <p>Thomas J. Schoenbaum, <i>Admiralty & Maritime Law</i>, 113-14, 158 (2004).</p>
VII. Language		

	Non-Governmental Entity	Source
I. Simple Definition	“Any scientific, professional, business, or public-interest organization that is neither affiliated with nor under the direction of a government; an international organization that is not the creation of an agreement among countries, but rather is composed of private individuals or organizations.”	<i>Definition of Nongovernmental Organization</i> , Black’s Law Dictionary 1154 (9th ed. 2009).
II. Laws & Treaties	<u>Example of Usage in the Space Treaties:</u> “States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities[.]”	Outer Space Treaty Art. VI.
III. Legal Dictionary	Nongovernmental Organization: “Any scientific, professional, business, or public-interest organization that is neither affiliated with nor under the direction of a government; an international organization that is not the creation of an agreement among countries, but rather is composed of private individuals or organizations.”	<i>Definition of Nongovernmental Organization</i> , Black’s Law Dictionary 1154 (9th ed. 2009).
IV. Standard English Dictionary	Nongovernmental: “ <i>adj.</i> not Related to government affairs or procedures.” Entity: <i>n.</i> “Something that exists as a particular and discrete unit: Persons and corporations are entities under the law.”	<i>Definition of Nongovernmental</i> , The Free Dictionary, http://www.thefreedictionary.com/nongovernmental (last visited Oct. 5, 2011). <i>Id.</i> at <i>Definition of Entity</i> .
V. Other U.S. Gov’t	Nongovernmental Organization: “A private, self-governing, not-for-profit organization dedicated to alleviating human suffering; and/or promoting education, health care, economic development, environmental protection, human rights, and conflict resolution; and/or encouraging the establishment of democratic institutions and civil society.” Private Sector: “An umbrella term that may be applied in the United States and in foreign countries to any or all of the nonpublic or commercial individuals and businesses, specified nonprofit organizations, most of academia and other scholastic institutions, and selected nongovernmental organizations.”	<i>Department of Defense Dictionary of Military and Associated Terms</i> , Nov. 8, 2010 (as amended through May 15, 2011). <i>Id.</i>
VI. Other Sources		
VII. Language		

	Nuclear (Reaction)	Source
I. Simple Definition	<p>“The reaction consequent to the fission or fusion of atoms.”</p> <p>Related Terms: Space Weapon, Weapon, and Weapon of Mass Destruction.</p>	<p><i>Definition of Nuclear Reaction</i>, Ballentine’s Law Dictionary 870 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
II. Laws & Treaties	<p><u>Examples of Usage in the Space and Other Treaties:</u></p> <p>“States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.”</p> <p>“Each of the Parties to this Treaty undertakes to prohibit, to prevent, and not to carry out any nuclear weapon test explosion, or any other nuclear explosion, at any place under its jurisdiction or control [] in the atmosphere; beyond its limits, including outer space; or under water, including territorial waters or high seas.”</p>	<p>Outer Space Treaty Art. IV.</p> <p>Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, Art. I para. 1(a), <i>opened for signature</i> Aug. 5, 1963.</p>
III. Legal Dictionary	<p>“The reaction consequent to the fission or fusion of atoms.”</p>	<p><i>Definition of Nuclear Reaction</i>, Ballentine’s Law Dictionary 870 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
IV. Standard English Dictionary	<p>Nuclear: “b : used in or produced by a nuclear reaction (as fission) <nuclear fuel> <nuclear waste> <nuclear energy>; c (1) : being a weapon whose destructive power derives from an uncontrolled nuclear reaction (2) : of, produced by, or involving nuclear weapons <the nuclear age> <nuclear war> (3) : armed with nuclear weapons <nuclear powers>; d : of, relating to, or powered by nuclear energy <a nuclear submarine> <the nuclear debate> <a nuclear plant>.”</p>	<p><i>Definition of Nuclear</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/nuclear (last visited Oct. 6, 2011).</p>
V. Other U.S. Gov’t	<p>Nuclear Devices: “Devices whose explosive potency is derived from nuclear fission of atoms of fissionable material with the consequent conversion of part of their mass into energy.”</p> <p>Nuclear Energy: “All forms of energy released in the course of a nuclear fission or nuclear transformation.”</p>	<p>1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 658 (2011).</p> <p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as</p>

		amended through May 15, 2011).
VI. Other Sources	<p>Nuclear Weapon: “A nuclear reactor used as the source of a radiation beam differs from the usual nuclear weapon in that it does not explode. While it is nuclear and a weapon, it is not necessarily therefore a weapon of mass destruction.”</p> <p>Some view Article IV as prohibiting both nuclear weapons <i>and</i> weapons of mass destruction. Others, looking at the Treaty language (prohibiting “nuclear weapons or any other kinds of weapons of mass destruction”), view the Treaty as limiting nuclear weapons only if they “can cause mass destruction.”</p> <p>“It may be presumed that all arms which utilize atomic energy in accomplishing their intended purpose, irrespective of their size or destructive force, would be regarded as nuclear weapons. As the same time, it may also be assumed that conventional weapons do not come under the category[.]”</p>	<p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 88 (citation omitted).</p> <p><i>Id.</i> at 89 (citing Gorove).</p>
VII. Language		

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	Orbit	Source
I. Simple Definition	<p>The “path of a body revolving around an attracting center of mass, as a planet around the Sun or a satellite around a planet.”</p> <p>Related Terms: Suborbital (also note that there are many different types of orbits such as GEO, GSO, MEO, LEO, etc.)</p>	<p><i>Definition of Orbit</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/431123/orbit (last visited Oct. 20, 2011).</p>
II. Laws & Treaties	<p>“The path, relative to a specified frame of reference, described by the centre of mass of a satellite or other object in space subjected primarily to natural forces, mainly the force of gravity.”</p>	ITU Radio Regulation 1.184.
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“a: a path described by one body in its revolution about another (as by the earth about the sun or by an electron about an atomic nucleus); <i>also</i>: one complete revolution of a body describing such a path; b: a circular path.”</p>	<p><i>Definition of Orbit</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/orbit (last visited Aug. 30, 2011).</p>
V. Other U.S. Gov’t	<p>“1. The path of a body or particle under the influence of a gravitational or other force. For instance, the orbit of a celestial body is its path relative to another body around which it revolves. <i>Orbit is commonly used to designate a closed path and trajectory to denote a path which is not closed. Thus, the trajectory of a sounding rocket, the orbit of a satellite</i>; 2. To go around the earth or other body in an orbit, sense 1.”</p> <p>“The paths of bodies or particles under the influence of a gravitational or other force. Used for orbital motion and periodic orbits.”</p>	<p><i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7 (1965)</i> (last modified Nov. 15, 2001), available at http://er.jsc.nasa.gov/seh/a.html.</p> <p>1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 692 (2011).</p>
VI. Other Sources	<p>“[I]n astronomy, path of a body revolving around an attracting centre of mass, as a planet around the Sun or a satellite around a planet.”</p> <p>“The path, relative to a specified frame of reference, described by the centre mass of a satellite or other object in</p>	<p><i>Definition of Orbit</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/431123/orbit (last visited Oct. 20, 2011).</p> <p>Rec. ITU-R V. 573-4-1, available at</p>

	<p>space, subjected solely to forces of natural origin, mainly the force of gravity. 2. By extension, the path described by the centre of mass of a body in space subjected to forces of natural origin and occasional low-energy corrective forces exerted by a propulsive device in order to achieve and maintain a desired path.”</p> <p>“Because of its forward velocity, a spacecraft in orbit is in a sort of never ending circular fall, in which the surface of the earth curves away as fast as the spacecraft approaches it.”</p> <p>“Below an altitude of approximately 69 miles, sustained orbit is practically impossible.”</p>	<p>www.itu.int/terminology/index.html (last visited Sept. 21, 2011).</p> <p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 15 (2d ed. 1997).</p> <p><i>Id.</i> at 11.</p>
<p>VII. Language</p>		

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	Outer Space	Source
I. Simple Definition	<p>“The known and unknown areas of the universe beyond airspace. The boundary between airspace and outer space is not fixed or precise.”</p> <p>Related Term: Aerospace, Airspace.</p>	<i>Definition of Outer Space</i> , Black’s Law Dictionary 1212 (9th ed. 2009).
II. Laws & Treaties	<p>Space Environment: “[T]he environment beyond the sensible atmosphere of the Earth.”</p> <p>Space Station: A “station which is located on an object which is beyond, is intended to go beyond, or has been beyond the major portion of the Earth’s atmosphere.”</p> <p>“[T]he space above the surface of the earth from a height at which it is in practice possible to operate an object in an orbit around the earth”</p> <p><u>Examples of Usage in the Space and Nuclear Treaties:</u></p> <p>“Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”</p> <p>Parties undertake “to prohibit, to prevent, and not to carry out any nuclear weapon test explosion, or any other explosion, at any place under its or control...in the atmosphere, and beyond its limits including outer space.”</p>	<p>National Aeronautics and Space Act, 51 U.S.C. § 40302(5) (2010).</p> <p>ITU Radio Regulation 1.64, <i>available at</i> www.itu.int/terminology/index.html (last visited Sept. 21, 2011).</p> <p>SPACE AFFAIRS ACT (South Africa, 1993) <i>available at</i> http://www.oosa.unviena.org/oosa/en/SpaceLaw/national/south_africa/space_affairs_act_1993E.html (last visited November 1, 2012)</p> <p>Outer Space Treaty Art. II.</p> <p>Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, Art. 1.1, Aug. 5, 1963, 480 UNTS 43; 14 UST 1313.</p>
III. Legal Dictionary	<p>“1. The known and unknown areas of the universe beyond airspace. The boundary between airspace and outer space is not fixed or precise. Cf. Airspace. 2. <i>Int’l law</i>. The space surrounding the planet that by United Nations treaty is not subject to claim of appropriation by any national sovereignty.”</p> <p>Space: “The distance between things. Room for persons or</p>	<p><i>Definition of Outer Space</i>, Black’s Law Dictionary 1212 (9th ed. 2009).</p> <p><i>Definition of Space</i>,</p>

	things. The boundless expanse in all directions from the earth.”	Ballentine’s Law Dictionary 1196 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).
IV. Standard English Dictionary	“Space immediately outside the earth’s atmosphere. Interplanetary or interstellar space.”	<i>Definition of Outer Space</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/outer%20space (last visited Aug. 30, 2011).
V. Other U.S. Gov’t		
VI. Other Sources	<p>“Outer space lies beyond the currently undefined upper limit of a state’s sovereign airspace. It was declared free for exploration and use by all states and incapable of national appropriation by a 1963 UN General Assembly resolution.”</p> <p>“The dominant view is that space begins at 100 km above the Earth, but some states continue to disclaim the need for the establishment of such a boundary.”</p> <p>“The so-called von Karman line set the boundary at the point at which a vehicle traveling seven kilometers a second loses aerodynamic lift and becomes a ‘spacecraft.’ Such an event would occur about fifty-three miles up. Cooper and common law [] indicated that space simply stopped at that point below which an orbit could not be sustained.”</p> <p>“The basic division is between theories which concentrate on physical elements—the ‘spatial’ or ‘spacialist’ approach—and the idea that altitude is less important than the purpose or ‘function’ of the instrumentality involved—the ‘functional’ approach.”</p> <p>“One [spacialist] possibility is to consider ‘effective control.’”</p> <p>“Above some 100 km/62 miles (275,000 ft) [the Von Karman Line] an aeroplane cannot derive any ‘lift’ from its wing but has to travel so fast that it exceeds escape velocity.”</p>	<p><i>Definition of Space Law</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/557401/space-law (last visited Aug. 4, 2011).</p> <p><i>Space Security 2010</i>, at 60 (Cesar Jaramillo ed., 2010), available at http://www.spacesecurity.org/space.security.2010.educated.pdf.</p> <p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 5 (2d ed. 1997).</p> <p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 163 (2009).</p> <p><i>Id.</i> at 165.</p> <p><i>Id.</i> at 167-68.</p>

	<p>“The remaining suggestion for a space/air boundary defined in physical terms is that an arbitrary altitude should be selected[.]”</p> <p>In Australia, the Space Activities Act only requires a license for launches of vehicles or payloads that are intended to reach more than 100 km above mean sea-level.</p> <p>Under the functional view, “air law should apply to aviation and space law to activities directed towards the use of space. Under such a view, space law would apply to a space launch which is aborted without reaching orbit, because it is a space activity, and air law would apply to the carriage of a Space Shuttle on the back of a Boeing 747.”</p>	<p><i>Id.</i> at 169.</p> <p><i>Id.</i></p> <p><i>Id.</i> at 170.</p>
<p>VII. <i>Language</i></p>		

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	Passenger	Source
I. Simple Definition	<p>“One riding in a conveyance, as distinguished from one in control of the operation of the vehicle.”</p> <p>Related Terms: Crew, Space Flight Participant, and Personnel of a Spacecraft.</p>	<p><i>Definition of Passenger</i>, Ballentine’s Law Dictionary 921 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
II. Laws & Treaties	<p><u>Example of Usage in International Law:</u></p> <p>The Chicago Convention distinguishes between “crew members” and “passengers.”</p>	<p>Convention on International Civil Aviation, arts. 13, 30, opened for signature Dec. 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295.</p>
III. Legal Dictionary	<p>“One riding in a conveyance, as distinguished from one in control of the operation of the vehicle. One who travels in a public conveyance by virtue of contract, express or implied, with the carrier as to payment of fare or that which is accepted as the equivalent of a cash fare. A person whom a common carrier has contracted to carry from one place to another, and has in the course of the performance of that contract received under his care, either upon the means of conveyance, or at the point of departure of that means of conveyance. 14 Am J2d Car § 740. One transported for hire or under a contract with the carrier as distinguished from one riding a train or other conveyance for the purpose of rendering service in connection with the journey . . .”</p>	<p><i>Definition of Passenger</i>, Ballentine’s Law Dictionary 921 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
IV. Standard English Dictionary	<p>“[A] traveler in a public or private conveyance.”</p>	<p><i>Definition of Passenger</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/passenger (last visited Sept. 8, 2011).</p>
V. Other U.S. Gov’t		
VI. Other Sources		
VII. Language		

	Payload	Source
I. Simple Definition	“The load carried by an aircraft or spacecraft consisting of things (as passengers or instruments) necessary to the purpose of the flight.”	U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> ¶ 12-1 (April 2002).
II. Laws & Treaties (see also definition of “Crew”)	<p>“[A]nything that a person undertakes to transport to, from, or within outer space, or in suborbital trajectory, by means of a space transportation vehicle, but does not include the space transportation vehicle itself except for its components which are specifically designed or adapted for that payload.”</p> <p>“[A]n object that a person undertakes to place in outer space by means of a launch vehicle or reentry vehicle, including components of the vehicle specifically designed or adapted for that object.”</p> <p>“[A]n object that a person undertakes to place in outer space by means of a launch vehicle, including components of the vehicle specifically designed or adapted for that object.”</p>	<p>National Aeronautics and Space Act, 51 U.S.C. § 50101(2) (2010).</p> <p><i>Id.</i> § 50902(10).</p> <p>Federal Aviation Regulations, 14 C.F.R. § 401.5 (2009).</p>
III. Legal Dictionary		
IV. Standard English Dictionary	“[T]he load carried by a vehicle exclusive of what is necessary for its operation; especially the load carried by an aircraft or spacecraft consisting of things (as passengers or instruments) necessary to the purpose of the flight.”	<i>Definition of Payload</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/payload (last visited Aug. 30, 2011).
V. Other U.S. Gov’t	<p>“1. Originally, the revenue-producing portion of an aircraft’s load, e.g., passengers, cargo, mail, etc.; 2. By extension, that which an aircraft, rocket, or the like carries over and above what is necessary for the operation of the vehicle for its flight.”</p> <p>“The load carried by a vehicle exclusive of what is necessary for its operation; <i>especially</i>: the load carried by an aircraft or spacecraft consisting of things (as passengers or instruments) necessary to the purpose of the flight. Also, the weight of a payload.”</p>	<p><i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7 (1965)</i> (last modified Nov. 15, 2001), available at http://er.jsc.nasa.gov/seh/a.html.</p> <p>U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space</i></p>

	<p>“...(2) Payload. - The term "payload" means anything that a person undertakes to transport to, from, or within outer space, or in suborbital trajectory, by means of a space transportation vehicle, but does not include the space transportation vehicle itself except for its components which are specifically designed or adapted for that payload.”</p>	<p><i>Transportation: Study and Analysis</i> ¶ 12-1 (April 2002).</p> <p>“Space Commerce” 51 USC § 501(2) (2012)</p>
<p>VI. Other Sources</p>	<p>“Revenue passengers and/or cargo, or more specifically their combined weight.”</p> <p>“[A]ll property to be flown or used on or in a launch vehicle or the Space Station.”</p> <p>“The object(s) within a payload fairing carried or delivered by a launch vehicle to a desired location or orbit; a generic term that applies to all payloads that may be delivered to or from the Eastern or Western Ranges; includes but is not limited to satellites, other spacecraft, experimental packages, bomb loads, warheads, reentry vehicles, dummy loads, cargo, and any motors attached to them in the payload fairing.”</p>	<p>Glossary of Civil Aviation and Air Travel Terminology, available at http://airodyssey.net/reference/glossary/.</p> <p>Space Station Agreement Between the USA and Other Governments, Art. 16, para. 2(e), Jan. 29, 1998.</p> <p><i>Air Force Space Command Manual 91-710</i>, Vol. 7, (Jul. 1, 2004) p. 44. (Certified Current Jan. 4, 2011) available at http://www.e-publishing.af.mil/shared/media/epubs/A_FSPCMAN91-710V7.pdf.</p>
<p>VII. Language</p>		

	Peaceful	Source
<i>I. Simple Definition</i>	Untroubled by conflict, agitation, or commotion; peaceful in a space law context implies non-aggressive behavior.	Compiled by Authors of this Report.
<i>II. Laws & Treaties</i>	<p><u>Examples of Usage in the Space Treaties:</u></p> <p>“Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes.”</p> <p>“States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction . . . The moon and other celestial bodies shall be used . . . exclusively for peaceful purposes . . . The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited.”</p> <p>“Reaffirming the importance of international cooperation in the field of the exploration and peaceful uses of outer space . . .”</p> <p>“1. The moon shall be used by all States Parties exclusively for peaceful purposes. 2. Any threat or use of force or any other hostile act or threat of hostile act on the moon is prohibited. It is likewise prohibited to use the moon in order to commit any such act or to engage in any such threat in relation to the earth, the moon, spacecraft, the personnel of spacecraft or man-made space objects. 3. States Parties shall not place in orbit around or other trajectory to or around the moon objects carrying nuclear weapons or any other kinds of weapons of mass destruction or place or use such weapons on or in the moon. 4. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military man[e]uvres on the moon shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration and use of the moon shall also not be prohibited.”</p> <p>“The Area [i.e., the ocean beyond national jurisdiction] shall be open to use exclusively for peaceful purposes by all States[.]”</p> <p>“States Parties shall settle any dispute between them concerning the interpretation or application of this [Law of the Seas] Convention by peaceful means.”</p> <p>“All Members shall refrain in their international relations</p>	<p>Outer Space Treaty Preamble.</p> <p><i>Id.</i> Art. IV.</p> <p>Liability Convention Preamble.</p> <p>Moon Agreement Art. 3.</p> <p>U.N. Convention on the Law of the Sea, Art. 141, Dec. 10, 1982, 1833 U.N.T.S. 397.</p> <p><i>Id.</i> Art. 279.</p> <p>U.N. Charter Art. 2, para.</p>

	<p>from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations.”</p> <p>“All Members shall settle their international disputes by peaceful means in such a manner that international peace and security, and justice, are not endangered.”</p> <p>“Nothing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member[.]”</p>	<p>4.</p> <p><i>Id.</i> Art. 2, para. 3.</p> <p><i>Id.</i> Art. 51.</p>
III. Legal Dictionary	<p>Peace: “The tranquility enjoyed by members of a community where good order reigns. 12 Am J2d Breach P § 4. That invisible sense of security which every person feels so necessary to his comfort, and for which all governments are instituted. Miles v State, 30 Okla Crim 302, 236 P 57, 44 ALR 129. The termination of a war, of hostilities between nations. 56 Am J1st War § 13.”</p>	<p><i>Definition of Peace</i>, Ballentine’s Law Dictionary 926-27 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
IV. Standard English Dictionary	<p>“[U]ntroubled by conflict, agitation, or commotion[.]”</p>	<p><i>Definition of Peaceful</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/peaceful (last visited Dec. 13, 2011).</p>
V. Other U.S. Gov’t	<p>“All nations have the right to explore and use space for peaceful purposes, and for the benefit of all humanity, in accordance with international law. Consistent with this principle, ‘peaceful purposes’ allows for space to be used for national and homeland security activities.”</p>	<p>National Space Policy of the United States of America 3 (June 28, 2010), available at http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf.</p>
VI. Other Sources	<p>“The interpretation initially favored by Soviet officials viewed peaceful purposes as wholly non-military. However, space assets have been developed extensively to support terrestrial military operations, and the position maintained by the US, that ‘peaceful’ in the context of the OST means ‘non-aggressive,’ has generally been supported by state practice.”</p> <p>Military presence (i.e., reconnaissance satellites) may be allowed under the Outer Space Treaty. “[I]t is only when such devices are <i>intentionally</i> used for aggressive purposes that they lose their peaceful status.”</p>	<p><i>Space Security 2010</i>, at 58 (Cesar Jaramillo ed., 2010), available at http://www.spacesecurity.org/space.security.2010.educed.pdf.</p> <p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 8, 91, 129 (2d ed. 1997) (citation omitted).</p>

	<p>“The US and other Western states interpret ‘peaceful use’ as ‘non-aggressive use’. This is in line with the UN Charter division of disputes into pacific dispute to be settled under its Chapter IV, and actions with respect to threats to peace, breaches of the peace and acts of aggression under Chapter VII. Others would adopt (or would have adopted) a broader definition of ‘peace’ so as to outlaw all military uses of space. The issue remains important because weapons technology continues to develop[.]”</p> <p><u>Example of Usage in the General Assembly:</u></p> <p>“Recognizing that all States, in particular those with major space capabilities, should contribute actively to the goal of preventing an arms race in outer space as an essential condition for the promotion and strengthening of international cooperation in the exploration and use of outer space for peaceful purposes.”</p>	<p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 524 (2009).</p> <p>G.A. Res. 60/99, U.N. Doc. A/RES/60/475 (Jan. 6, 2006).</p>
<p>VII. Language</p>		

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	Personnel of Spacecraft	Source
I. Simple Definition	<p>Any person aboard a spacecraft (astronaut, cosmonaut, taikonaut, pilot, passenger, mission specialist, crew, tourist, etc.).</p> <p>Related Terms: Astronaut, Crew, Passenger, and Space Flight Participant.</p>	Compiled by Authors of this Report.
II. Laws & Treaties <i>(see also definitions of “Passengers” and “Crew”)</i>	<p>Parties should regard any person on the moon as “part of the personnel of a spacecraft” within the meaning of the Rescue and Return Agreement.</p> <p><u>Examples of Usage in the Space Treaties:</u></p> <p>“If, owing to accident, distress, emergency or unintended landing, the personnel of a spacecraft land in territory under the jurisdiction of a Contracting Party or have been found on the high seas or in any other place not under the jurisdiction of any State, they shall be safely and promptly returned to representatives of the launching authority.”</p> <p>“Any threat or use of force . . . is prohibited. It is likewise prohibited to use the moon in order to commit any such act or to engage in any such threat in relation to the earth, the moon, spacecraft, the personnel of spacecraft or man-made space objects.”</p>	<p>Moon Agreement Art. 10.1.</p> <p>Rescue and Return Agreement Art. 4.</p> <p>Moon Agreement Art. 3.2.</p>
III. Legal Dictionary		
IV. Standard English Dictionary	Personnel: “[A] body of persons usually employed (as in a factory or organization).”	<i>Definition of Personnel</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/personnel (last visited Sept. 6, 2011).
V. Other U.S. Gov’t	Personnel: “Those individuals required in either a military or civilian capacity to accomplish the assigned mission.”	<i>Department of Defense Dictionary of Military and Associated Terms</i> , Nov. 8, 2010 (as amended through May 15, 2011).
VI. Other Sources	“The title and text of the US FAA rules [] differentiate between ‘crew’ and ‘space flight participants’ but both might be the personnel of a spacecraft in terms of [the Rescue and Return Agreement], were one to assume that the vehicle of a	Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 132-33 n.15 (2009).

	<p>sub-orbital flight is a spacecraft . . . Cf. the view expressed by . . . the ‘Report of the UN/Republic of Korea Workshop on Space Law on the theme ‘United Nations treaties on outer space: action at national level’, Daejon, Korea, 2003, A/AC.105/814, that under [the Treaty] the term ‘personnel’ on a spacecraft should be construed to ‘encompass all persons on board’.”</p> <p>During treaty discussions, the drafters only envisioned the term “personnel” as applying to spacecraft crew members. The treaties might need to be amended or differently construed to include “persons other than members of the crew.”</p>	<p><i>See Bin Cheng, Studies in International Space Law 232 (1997).</i></p>
<p>VII. Language</p>		

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	Planetary Protection	Source
I. Simple Definition	<p>“[T]he practice of protecting solar system bodies (<i>i.e.</i>, planets, moons, comets, and asteroids) from contamination by Earth life, and protecting Earth from possible life forms that may be returned from other solar system bodies.”</p> <p>Related Terms: Near-Earth Object and Planetary Defense.</p>	NASA Office of Planetary Protection: About Website, planetaryprotection.nasa.gov/about/ (last visited Dec. 13, 2011).
II. Laws & Treaties	<p><u>Example of Usage in the Space Treaties:</u></p> <p>“States Parties to the Treaty shall . . . conduct exploration [] so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose.”</p>	Outer Space Treaty Art. IX.
III. Legal Dictionary		
IV. Standard English Dictionary		
V. Other U.S. Gov’t	<p>“Technological and legal measures taken to prevent biological cross-contamination between Earth and other planets as a result of solar system exploration missions. Also includes safeguards imposed on the handling, distribution, and analysis of material samples returned to Earth.”</p> <p>“[T]he practice of protecting solar system bodies (<i>i.e.</i>, planets, moons, comets, and asteroids) from contamination by Earth life, and protecting Earth from possible life forms that may be returned from other solar system bodies.”</p>	<p><i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 742 (2011).</p> <p>NASA Office of Planetary Protection: About Website, planetaryprotection.nasa.gov/about/ (last visited Dec. 13, 2011).</p>
VI. Other Sources	<p>“[T]he protection of the Earth from asteroids, meteors and comets.”</p> <p>“Planetary protection policy stems from international treaty, but it is implemented through practices within the national agencies that deploy probes to Mars.”</p> <p>COSPAR maintains and promulgates this planetary protection policy for the reference of spacefaring nations, both as an international standard on procedures to avoid organic-constituent and biological contamination in space exploration, and to provide accepted guidelines in this area to</p>	<p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 275 (2009).</p> <p>National Research Council, <i>Preventing the Forward Contamination of Mars</i> 22 (2006).</p> <p>COSPAR Planetary Protection Policy. Oct. 20, 2002, amended Mar. 24, 2011. Available at</p>

	guide compliance with the wording of this UN Space Treaty and other relevant international agreements	http://cosparhq.cnes.fr/Scistr/Pppolicy.htm .
VII. Language		

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	Privatization	Source
I. Simple Definition	<p>The process of transferring “activities and assets out of direct government management, control, and ultimately ownership.”</p> <p>Related Term: Commercialization.</p>	John M. Logsdon, Ray A. Williamson & Henry R. Hertzfeld, <i>Privatizing the Space Shuttle: Issues and Approaches</i> 10 (March 17, 2000).
II. Laws & Treaties	<p>“[T]ransferring ownership of the Corporation to private investors.”</p> <p>“[T]he disposition or transfer of an infrastructure asset, such as by sale or by long-term lease, from a State or local government to a private party. [] Infrastructure asset means any asset financed in whole or in part by the Federal Government and needed for the functioning of the economy.”</p>	<p>Amendments to the Atomic Energy Act of 1954, 42 U.S.C. § 1501(a) (2011) (cited in John M. Logsdon, Ray A. Williamson & Henry R. Hertzfeld, <i>Privatizing the Space Shuttle: Issues and Approaches</i> 48 (March 17, 2000)).</p> <p>31 U.S.C. § 501 (1999).</p>
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“[T]o make private; <i>especially</i>: to change (As a business or industry) from public to private control or ownership—privatization <i>noun</i>.”</p>	<p><i>Definition of Privatize</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/privatize (last visited Sept. 22, 2011).</p>
V. Other U.S. Gov’t	<p>Shuttle Privatization: “The process by which NASA transfers to a private sector entity the responsibility, accountability and authority for providing the operational aspects of the Shuttle program. Under a fully privatized Shuttle, NASA continues in an oversight role as to Shuttle safety, liability and Shuttle utilization while the private entity assumes operational management of Shuttle assets and requirements.”</p>	<p>NASA Office of Policy and Plans Policy Review on Space Transportation Implementation Plan (Nov. 1998) (cited in John M. Logsdon, Ray A. Williamson & Henry R. Hertzfeld, <i>Privatizing the Space Shuttle: Issues and Approaches</i> 51 (March 17, 2000)).</p>

<p>VI. Other Sources</p>	<p>“The process of applying a market-oriented approach to government programs, with the object of moving the program’s activities and assets out of direct government management, control, and ultimately ownership.”</p> <p>“ “[P]rivatization is a concept that covers a wide variety of approaches to involving the private sector in the delivery of services and the development of projects intended to benefit the general public. It applies to everything from outright turnover of government functions to the private sector—getting out of the business—to cooperative efforts between the public and private sectors—public-private partnerships.””</p> <p>“The breadth of activities covered by the term ‘privatization’ varies greatly. The Congressional Budget Office (CBO), for example, has defined ‘privatization’ narrowly to refer to activities that ‘involve a genuine sale of assets and termination of a federal activity.’ The <i>Oxford English Dictionary</i>, meanwhile, defines the term more broadly to mean ‘the policy or process of making private as opposed to public.’ Perhaps most commonly, ‘privatization’ is used to refer to ‘any shift of activities or functions from the state to the private sector.’ . . . Arguably, though, it may be possible to define privatization more precisely. Privatization might be defined as <i>the use of the private sector in the provision of a good or service, the components of which include financing, operations (supplying, production, delivery), and quality control.</i>”</p>	<p>John M. Logsdon, Ray A. Williamson & Henry R. Hertzfeld, <i>Privatizing the Space Shuttle: Issues and Approaches</i> 10 (March 17, 2000).</p> <p>National Council for Public-Private Partnerships, <i>The Privatization Primer</i> 2 (1995).</p> <p>Kevin R. Kosar, <i>CRS Report: Privatization and the Federal Government</i> 2-3 (Dec. 28, 2006).</p>
<p>VII. Language</p>		

	Province of all Humankind (also see "Common Heritage of all Mankind)	Source
I. Simple Definition	Currently not clearly defined in formal documents.	
II. Laws & Treaties	<p><u>Example of Usage in the Space Treaties:</u></p> <p>“The exploration and use of the moon shall be the province of all mankind and shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development. Due regard shall be paid to the interests of present and future generations[.]”</p>	Moon Agreement Art. 4(1)
III. Legal Dictionary	Province: “[A]n administrative district into which a country has been divided”	BLACK’S LAW DICTIONARY 1345 (9th ed. 2009)
IV. Standard English Dictionary	Province: “[A]n administrative district or division of a country.”	<i>Definition of Province</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/province (last visited October 20, 2012).
V. Other U.S. Gov’t		
VI. Other Sources	<p>“The U.S.S.R. never accepted the common heritage concept, objecting to its roots in bourgeois Roman, and later came to distinguish between it and the "province of all mankind" concept”</p> <p>“[A] strategic distinction does exist between the two concepts. Specifically, it is that the "province of all mankind" provision contained in the Outer Space Treaty refers to "activities (exploration and use)" and that the "common heritage" provision as contained in the Moon Treaty refers to "material objects"--i.e., the former relates to, but is not the same as, the latter”</p>	<p>Gabrynowicz, J. G., <i>The "Province and "Heritage of Mankind Reconsidered: A New Beginning"</i> 2nd Conference on Lunar Bases and Space Activities (1992).</p> <p><i>See also</i> Maiorsky B. A <i>Few Reflections on the Meaning and the Interrelation of "Province of All Mankind" and "Common Heritage of Mankind" Notions</i>. Proceedings of the Twenty-Ninth Colloquium on the Law of Outer Space (1986)</p> <p><i>Id.</i></p>

	<p>“the entire area beyond the atmosphere would have to be considered free territory both on technical grounds founded on the law of nature and for reasons of legal construction and policy.”</p> <p>“[T]he OST in essence sets outer space aside as an extra-jurisdictional territory and no State can exercise any sovereign rights over it.”</p>	<p>Heinrich, W., <i>Air Law and Space</i>. Reprinted in <i>Space Law: A Symposium</i>, prepared at the request of Lyndon B. Johnson, Chairman, Senate Special Committee on Space and Astronautics, 85th Cong., 2nd Sess., Committee Print, GPO, Wash., DC, December 31, 1958. p. 74.</p> <p>Marchisio, Sergio. <i>National Jurisdiction for Regulating Space Activities of Governmental and Non-Governmental Entities</i> United Nations/Thailand Workshop on Space Law (2010). p. 2.</p>
<p>VII. Language</p>		

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	Registration	Source
<i>I. Simple Definition</i>	The obligation of a State to have a registry of space objects it has launched coupled with the obligation to regularly update and transmit that registry to the Secretary General of the UN in a timely fashion.	Complied by Authors of this Report.
<i>II. Laws & Treaties</i>	<p>State of Registry: A “launching State on whose registry a space object is carried in accordance with article II.”</p> <p><u>Examples of Usage in the Space Treaties:</u></p> <p>“When a space object is launched into earth orbit or beyond, the launching State shall register the space object by means of an entry in an appropriate registry which it shall maintain.”</p> <p>Astronauts “shall be safely and promptly returned to the State of registry of their space vehicle.”</p> <p>“A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object[.]”</p>	<p>Registration Convention Art. I(c).</p> <p><i>Id.</i> Art. II(1).</p> <p>Outer Space Treaty Art. V.</p> <p><i>Id.</i> Art. VIII.</p>
<i>III. Legal Dictionary</i>	<p>“The act of recording or enrolling.”</p> <p>“The act of registering.”</p>	<p><i>Definition of Registration</i>, Black’s Law Dictionary 1397 (9th ed. 2009).</p> <p><i>Definition of Registration</i>, Ballentine’s Law Dictionary 1078 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
<i>IV. Standard English Dictionary</i>	Registering: “[T]o make or secure official entry [] in a register.”	<i>Definition of Registering</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/registering (last visited Aug. 30, 2011).
<i>V. Other U.S. Gov’t</i>		
<i>VI. Other Sources</i>	“When an object is launched into space, it should be registered on at least two of three registers. It should be	Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 84-88 (2009).

	<p>entered on a register maintained by the state of launching as defined in the Registration Convention (Art. I). In addition it should be entered on one of two registers maintained by the IJN Office for Outer Space Affairs (OOSA), the one a listing of launches provided to COPUOS under IJN Res. 1721 (XVI) 1961, and the other maintained in terms of the Registration Convention itself. Internationally this last is the most important, allowing the identification of at least one of the states involved in the launch of a space object. It has other purposes, but this entry is important for grounding responsibility, for 'ownership', for the exercise of control and in the worst case, for liability . . . The basic information which has to be sent to the UN registry comprises (a) the name of the launching state or states; (b) an appropriate designator of the space object or its registration number; (c) the date and territory or location of the launch; (d) the basic orbital parameters including (i) the nodal period, (ii) the inclination, (iii) the apogee and (iv) the perigee of the orbit; and (e) the general function of the space object."</p>	
<p>VII. <i>Language</i></p>		

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	Remote Sensing System	Source
I. Simple Definition	<p>A system “of satellites to observe various characteristics of Earth’s land and water surfaces.”</p> <p>Related Terms: Satellite and Satellite System, Remote Sensing Operation.</p>	<p><i>Definition of Remote Sensing</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/557348/space-exploration/237076/Remote-sensing (last visited Aug. 4, 2011).</p>
II. Laws & Treaties	<p>Land remote sensing: “The collection of data which can be processed into imagery of surface features of the Earth from an unclassified satellite or satellites, other than an operational United States Government weather satellite.”</p> <p>“<i>Remote sensing space system, Licensed system, or System</i> means any device, instrument, or combination thereof, the space-borne platform upon which it is carried, and any related facilities capable of actively or passively sensing the Earth’s surface, including bodies of water, from space by making use of the properties of the electromagnetic waves emitted, reflected, or diffracted by the sensed objects. For purposes of the regulations in this part, a licensed system consists of a finite number of satellites and associated facilities, including those for tasking, receiving, and storing data, designated at the time of the license application. Small, hand-held cameras shall not be considered remote sensing space systems.”</p>	<p>51 U.S.C. § 60101(4) (2011).</p> <p>15 C.F.R. § 960.3 (2006).</p>
III. Legal Dictionary	<p>Remote: “At a distance; afar off; inconsiderable; slight.”</p>	<p><i>Definition of Remote</i>, Black’s Law Dictionary 1459 (4th ed. Rev. 1968).</p>
IV. Standard English Dictionary		
V. Other U.S. Gov’t	<p><u>Example of Usage in U.S. Policy:</u></p> <p>“In support of these critical needs, the Secretary of the Interior, through the Director of the USGS, and the NASA Administrator shall work together in maintaining a program for operational land remote sensing observations.”</p>	<p>National Space Policy of the United States of America 13 (June 28, 2010), <i>available at</i> http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf.</p>

<p>VI. Other Sources</p>	<p>“Remote sensing is a term applied to the use of satellites to observe various characteristics of Earth’s land and water surfaces in order to obtain information valuable in mapping, mineral exploration, land-use planning, resource management, and other activities. Remote sensing is carried out from orbit with multispectral sensors; i.e., observations are made in several discrete regions of the electromagnetic spectrum that include visible light and usually other wavelengths.”</p> <p>“The term ‘remote sensing’ means the sensing of the Earth’s surface from space by making use of the properties of electromagnetic waves emitted, reflected or diffracted by the sensed objects, for the purpose of improving natural resources management, land use and the protection of the environment.”</p> <p>Remote Sensing Satellite: “[A] satellite, the purpose of which is remote observation by reception of electromagnetic waves using active or passive sensors.”</p> <p>“[R]emote sensing satellites have numerous important civil, scientific, and military applications. They make it possible to view a house on Google Earth, forecast the path of potential hurricanes, study the environmental impact of animal migrations over time, track enemy movements on the battlefield, and provide key data for first responders in areas affected by natural disasters. In 2010, 20 remote sensing or meteorological satellites were launched on behalf of 12 different countries or international organizations.”</p>	<p><i>Definition of Remote Sensing</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/557348/space-exploration/237076/Remote-sensing (last visited Aug. 4, 2011).</p> <p>Principles on Remote Sensing, G.A. Res. 41/65, Principle I(a), U.N. Doc. A/RES/41/65 (Dec. 3, 1986).</p> <p>Electropedia: The World’s Online Electrotechnical Vocabulary, http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=725-12-55 (last visited Sept. 13, 2011).</p> <p><i>The Space Report 2011</i>, at 87 (2011).</p>
<p>VII. Language</p>		

	Responsibility	Source
I. Simple Definition	<p>“Moral, legal, or mental accountability.”</p> <p>Related Terms: International Responsibility, Liability, International Liability.</p>	<p><i>Definition of Responsibility</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/responsibility (last visited Aug. 30, 2011).</p>
II. Laws & Treaties	<p>Antarctica Treaty</p> <p>2. Any dispute of this character not so resolved shall, with the consent, in each case, of all parties to the dispute, be referred to the International Court of Justice for settlement; but failure to reach agreement on reference to the International Court shall not absolve parties to the dispute from the responsibility of continuing to seek to resolve it by any of the various peaceful means referred to in paragraph 1 of this Article.</p> <p>UNCLOS, Section 5: Responsibility and Liability</p> <p>1. States and competent international organizations shall be responsible for ensuring that marine scientific research, whether undertaken by them or on their behalf, is conducted in accordance with this Convention.</p> <p>2. States and competent international organizations shall be responsible and liable for the measures they take in contravention of this Convention in respect of marine scientific research conducted by other States, their natural or juridical persons or by competent international organizations, and shall provide compensation for damage resulting from such measures.</p> <p>3. States and competent international organizations shall be responsible and liable pursuant to article 235 for damage caused by pollution of the marine environment arising out of marine scientific research undertaken by them or on their behalf.</p>	<p>Art. XI(2) Antarctic Treaty, Dec. 1, 1959, [1961] 12 U.S.T. 794, T.I.A.S. No. 4780</p> <p>Section 5, Article 263, United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397</p>
III. Legal Dictionary	<p>“1. Liability []. 2. <i>Criminal law</i>. A person’s mental fitness to answer in court for his or her actions.”</p> <p>“Duty; bounden duty. Obligation; liability.”</p>	<p><i>Definition of Responsibility</i>, Black’s Law Dictionary 1427 (9th ed. 2009).</p> <p><i>Definition of Responsibility</i>, Ballentine’s Law Dictionary 1106 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>

<p>IV. Standard English Dictionary</p>	<p>“1: the quality or state of being responsible: as [] moral, legal, or mental accountability.”</p>	<p><i>Definition of Responsibility</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/responsibility (last visited Aug. 30, 2011).</p>
<p>V. Other U.S. Gov’t</p>	<p>“1. The obligation to carry forward an assigned task to a successful conclusion. With responsibility goes authority to direct and take the necessary action to ensure success. 2. The obligation for the proper custody, care, and safekeeping of property or funds entrusted to the possession or supervision of an individual. See also accountability.”</p> <p>Accountability: “The obligation imposed by law or lawful order or regulation on an officer or other person for keeping accurate record of property, documents, or funds. The person having this obligation may or may not have actual possession of the property, documents, or funds. Accountability is concerned primarily with records, while responsibility is concerned primarily with custody, care, and safekeeping.”</p>	<p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p> <p><i>Id.</i></p>
<p>VI. Other Sources</p>		
<p>VII. Language</p>	<p><i>See supra</i>, Liability (VII. Language).</p>	

	Satellite	Source
I. Simple Definition	<p>“A natural object (moon) or spacecraft (artificial satellite) orbiting a larger astronomical body.”</p> <p>Related Term: Satellite System.</p>	<p><i>Definition of Satellite</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/1469543/satellite (last visited Dec. 12, 2011).</p>
II. Laws & Treaties	<p>“A body which revolves around another body of preponderant mass and which has a motion primarily and permanently determined by the force of attraction of that other body.”</p> <p><u>Example of Usage in the Space Treaties:</u></p> <p>“Recognizing that the moon, as a natural satellite of the earth, has an important role to play in the exploration of outer space.”</p>	<p>ITU Radio Regulation 1.179.</p> <p>Moon Agreement Preamble.</p>
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“a: a celestial body orbiting another of larger size; b: a manufactured object or vehicle intended to orbit the earth, the moon, or another celestial body.”</p>	<p><i>Definition of Satellite</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/satellite (last visited Aug. 30, 2011).</p>
V. Other U.S. Gov’t	<p>“Any objects, man-made or natural, that orbit celestial bodies.”</p>	<p>1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 858 (2011).</p>
VI. Other Sources	<p>“[A] body which revolves around another body of preponderant mass and which has a motion primarily and permanently determined by the force of attraction of that other body.”</p> <p>“[A] natural object (moon) or spacecraft (artificial satellite) orbiting a larger astronomical body. Most known natural satellites orbit planets; the Earth’s Moon is the most obvious example . . . Artificial satellites can be either unmanned (robotic) or manned. The first artificial satellite to be placed</p>	<p>Electropedia: The World’s Online Electrotechnical Vocabulary, http://www.electropedia.org/iev/iev.nsf/display?op=enform&ievref=713-11-23 (last visited Sept. 13, 2011).</p> <p><i>Definition of Satellite</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com</p>

	<p>in orbit was the unmanned Sputnik 1, launched October 4, 1957, by the Soviet Union. Since then, thousands have been sent into Earth orbit.”</p> <p>Communications satellites foster communication between distant points on the earth, weather satellites (metstats) generate data on cloud cover and temperature, and navigation satellites allow one to find his position on Earth.</p> <p>Active Satellite: “A satellite carrying a station intended to transmit or retransmit radiocommunication signals.”</p> <p><u>Example of Usage in the General Assembly:</u></p> <p>“Every State has an equal right to conduct activities in the field of international direct television broadcasting by satellite and to authorize such activities by persons and entities under its jurisdiction. All States and peoples are entitled to and should enjoy the benefits from such activities. Access to the technology in this field should be available to all States without discrimination on terms mutually agreed by all concerned.”</p>	<p>m/EBchecked/topic/1469543/satellite (last visited Dec. 12, 2011).</p> <p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 19 (2d ed. 1997).</p> <p>Rec. ITU-R V.573-4, available at www.itu.int/terminology/index.html (last visited Sept. 21, 2011).</p> <p>G.A. Res. 37/92, U.N. Doc. A/RES/37/92 (Dec. 10, 1982).</p>
<p>VII. Language</p>		

	Satellite System	Source
I. Simple Definition	<p>“A space system using one or more artificial earth satellites.”</p> <p>Related Term: Satellite.</p>	ITU Radio Regulation 1.111, <i>available at</i> www.itu.int/terminology/index.html (last visited Sept. 21, 2011).
II. Laws & Treaties	“A space system using one or more artificial earth satellites.”	ITU Radio Regulation 1.111, <i>available at</i> www.itu.int/terminology/index.html (last visited Sept. 21, 2011).
III. Legal Dictionary		
IV. Standard English Dictionary		
V. Other U.S. Gov’t		
VI. Other Sources	As “defined by the ITU (term S.1.111) [] a <i>space system using satellites</i> . It can be specified as Satellite System of Radio Stations. In common usage, Satellite System is, of course, a system of satellites having radio stations among its many components.”	International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management 21</i> (2006).
VII. Language		

	Security	Source
I. Simple Definition	“The state of being secure, especially from danger or attack.”	<i>Definition of Security</i> , Black’s Law Dictionary 1476 (9th ed. 2009).
II. Laws & Treaties	<p><u><i>Example of Usage in the U.N. Charter:</i></u></p> <p>U.N. Purpose: “To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of threats to the peace, and for the suppression of acts of aggression or other breaches of the peace, and to bring about by peaceful means, and in conformity with the principles of justice and international law, adjustment or settlement of international disputes or situations which might lead to a breach of the peace.”</p>	U.N. Charter Art. 1, para. 1.
III. Legal Dictionary	“The state of being secure, esp. from danger or attack.”	<i>Definition of Security</i> , Black’s Law Dictionary 1476 (9th ed. 2009).
IV. Dictionary	“[T]he quality or state of being secure: as a: the freedom from danger: safety[;] b: freedom from fear or anxiety[;] c: freedom from the prospect of being laid off.”	<i>Definition of Security</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/security (last visited Aug. 30, 2011).
V. Other U.S. Gov’t	“1. Measures taken by a military unit, activity, or installation to protect itself against all acts designed to, or which may, impair its effectiveness. (JP 3-10) 2. A condition that results from the establishment and maintenance of protective measures that ensure a state of inviolability from hostile acts or influences. (JP 3-10) 3. With respect to classified matter, the condition that prevents unauthorized persons from having access to official information that is safeguarded in the interests of national security.”	<i>Department of Defense Dictionary of Military and Associated Terms</i> , Nov. 8, 2010 (as amended through May 15, 2011).
VI. Other Sources	<p>Space Security: “The secure and sustainable access to, and use of, space and freedom from space-based threats.”</p> <p>“In this report, increasing ‘space security’ means reducing threats to satellites—including military attacks, collisions</p>	<p><i>Space Security 2010</i>, at Introduction (Cesar Jaramillo ed., 2010), available at http://www.spacesecurity.org/space.security.2010.reduced.pdf. Also at http://www.spacesecurity.org/spacesecurityindexfactsheet.pdf</p> <p>Laura Grego and David Wright (UCS), <i>Securing</i></p>

	with other satellites or space debris, or electromagnetic interference—and lowering the risk of arms races or conflicts, whether in space or on the ground.”	<i>the Skies: Ten Steps the U.S. Should Take to Improve the Security and Sustainability of Space 2</i> (2010).
VII. Language		

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	Sovereignty	Source
<i>I. Simple Definition</i>	“The right of a state to self-government; the supreme authority exercised by each state.”	<i>Definition of State Sovereignty</i> , Black’s Law Dictionary 1541 (9th ed. 2009).
<i>II. Laws & Treaties</i>	<p>1. The sovereignty of a coastal State extends, beyond its land territory and internal waters and, in the case of an archipelagic State, its archipelagic waters, to an adjacent belt of sea, described as the territorial sea.</p> <p>2. This sovereignty extends to the air space over the territorial sea as well as to its bed and subsoil.</p> <p>3. The sovereignty over the territorial sea is exercised subject to this Convention and to other rules of international law.</p> <p>Nothing in this Convention and no acts or activities taking place while the present Convention is in force shall:</p> <p>(a) constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in the Antarctic Treaty area or create any rights of sovereignty in the Antarctic Treaty area</p> <p>“This right (sovereignty) excludes . . . not only the usurpation and exercise of sovereign rights (of another State) . . . but also an actual encroachment which might prejudice the natural use of the territory and the free movement of its inhabitants.”</p> <p><u>Examples of Usage in the Space Treaties and International Law:</u></p> <p>“The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory.” A State also has sovereignty over its land and territorial waters.</p> <p>Compare: “Outer space . . . is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”</p> <p>“The moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means.”</p> <p>“No State shall claim or exercise sovereignty or sovereign rights over any part of the Area [i.e., the ocean beyond</p>	<p>United Nations Convention on the Law of the Sea Part II</p> <p>Antarctic Treaty, Art. IV, Dec. 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 71.</p> <p><i>Trail Smelter</i> (U.S. v. Can.), 3 R. Int’l Arb. Awards 1963 (U.S.-Can. Arb. Trib. 1941).</p> <p>Convention on International Civil Aviation, arts. 1-2, <i>opened for signature</i> Dec. 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295 (Chicago Convention).</p> <p>Outer Space Treaty Art. II.</p> <p>Moon Agreement Art. 11(2).</p> <p>U.N. Convention on the Law of the Sea, Art. 137(1) Dec. 10, 1982,</p>

	national jurisdiction] or its resources, nor shall any State or natural or juridical person appropriate any part thereof.”	1833 U.N.T.S. 397.
III. Legal Dictionary	<p>“Supreme dominion, authority, or rule.”</p> <p>State Sovereignty: “The right of a state to self-government; the supreme authority exercised by each state.”</p> <p>Territorial Property: “Land and water over which a state has jurisdiction and control, whether the legal title is held by the state itself or by a private individual or entity.”</p> <p>“The power to govern; supreme political authority. That public authority which commands in civil society, and orders and directs what each citizen is to perform to obtain the end of its institution.”</p>	<p><i>Definition of Sovereignty</i>, Black’s Law Dictionary 1524 (9th ed. 2009).</p> <p><i>Id.</i> at 1541.</p> <p><i>Id.</i> at 1611.</p> <p><i>Definition of Sovereignty</i>, Ballentine’s Law Dictionary 1196 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
IV. Standard English Dictionary	“a: supreme power especially over a body politic; b: freedom from external control: autonomy; c: controlling influence.”	<i>Definition of Sovereignty</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/sovereignty (last visited Aug. 30, 2011).
V. Other U.S. Gov’t	<p>Air Sovereignty: “A nation’s inherent right to exercise absolute control and authority over the airspace above its territory.”</p> <p>“As established in international law, there shall be no national claims of sovereignty over outer space or any celestial bodies. The United States considers the space systems of all nations to have the rights of passage through, and conduct of operations in, space without interference. Purposeful interference with space systems, including supporting infrastructure, will be considered an infringement of a nation’s rights.”</p> <p>Overflight: The “specific path of an entering spacecraft or braking stage that results in a trajectory over the heritage site (D/L boundary).”</p> <p>Keep-Out Zone: The “recommended boundary areas into which visiting spacecraft should not enter. It is desirable to isolate certain locations relative to the C/L, AB and VVSMB</p>	<p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p> <p>National Space Policy of the United States of America 3 (June 28, 2010), available at http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf.</p> <p>NASA’s Recommendations to Space Faring Entities: How to Protect and Preserve the Historic and Scientific Value of U.S. Government Lunar</p>

	from visiting spacecraft. A particular zone's radius will vary as a function of the artifact and site location.”	Artifacts 8-9 (July 20, 2011). <i>Id.</i>
VI. Other Sources	<p>“The sovereignty of a state is confined to a defined piece of territory, which is subject to the exclusive jurisdiction of the state and is protected by international law from violation by other states Under the UN Charter, sovereign title to territory cannot be acquired purely and simply by the use of force.”</p> <p>“A state exercises sovereignty in a three-dimensional quasi-cone. This comprises in the horizontal plane the land territory of a state together with its territorial sea should there be one. Historically state sovereignty extends downwards in the vertical plane <i>usque ad inferos</i>—down to Hell. Upwards in the vertical plane a state is sovereign over the air-space above its land territory and territorial sea— <i>usque ad coelem</i>—up to Heaven.”</p> <p>“The intrusion of the Cosmos 954 satellite into Canada's air space and the deposit on Canadian territory of hazardous radioactive debris from the satellite constitutes a violation of Canada's sovereignty. This violation is established by the mere fact of the trespass of the satellite, the harmful consequences of this intrusion, being the damage caused to Canada by the presence of hazardous radioactive debris and the interference with the sovereign right of Canada to determine the acts that will be performed on its territory. International precedents recognize that a violation of sovereignty gives rise to an obligation to pay compensation.”</p>	<p><i>Definition of Territory</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/291011/international-law/233509/Spatial-definition-of-states (last visited Oct. 24, 2011).</p> <p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 153 (2009).</p> <p>Settlement of Claim between Canada and the Union of Soviet Socialist Republics for Damage Caused by ‘Cosmos 954’ (Released on April 2, 1981), <i>available at</i> http://www.jaxa.jp/library/space_law/chapter_3/3-2-2-1_e.html (last visited Sept. 29, 2011).</p>
VII. Language		

	Space Adventurism	Source
<i>I. Simple Definition</i>	Sometimes used as a synonym for Space Tourism. Related Term: Space Tourism.	Compiled by Authors of this Report.
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>	Adventure: “A commercial undertaking that has an element of risk; a venture.”	<i>Definition of Adventure</i> , Black’s Law Dictionary 22 (3d Pocket ed. 2006).
<i>IV. Standard English Dictionary</i>		
<i>V. Other U.S. Gov’t</i>		
<i>VI. Other Sources</i>		
<i>VII. Language</i>		

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	Space Debris	Source
<i>I. Simple Definition</i>	Non-functional man-made objects in Earth Orbit	Heiner Klinkrad & Ulrike M. Bohlmann, <i>Requirements on Space Debris Mitigation for ESA Projects</i> , Presentation to the 48th Session of the Legal Subcommittee of the UN Committee on the Peaceful uses of Outer Space at 3, available at http://www.unoosa.org/pdf/pres/lsc2009/pres-07.pdf
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>		
<i>IV. Standard English Dictionary</i>	Debris: “1: the remains of something broken down or destroyed; 2: an accumulation of fragments of rock; 3: something discarded: rubbish.”	<i>Definition of Debris</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/debris (last visited Nov. 4, 2011).
<i>V. Other U.S. Gov’t</i>	<p>“[A]ny object placed in space . . . by humans that remains in orbit and no longer serves any useful function or purpose. Objects range from spacecraft to spent launch vehicle stages to components and also include materials, trash, refuse, fragments, or other objects which are overtly or inadvertently cast off or generated.”</p> <p>Orbital Debris: “[A]rtificial objects orbiting the Earth that are not functional spacecraft. It consists of a wide range of non-functioning man-made objects that have been placed into the Earth’s orbit, both accidentally and on purpose. Orbital debris ranges in size from small objects, such as paint flakes, solid rocket motor slag, and break-up debris, to larger objects, such as discarded lens caps or ejected bolts. The largest items, in terms of mass, include spacecraft, rocket bodies, and the largest pieces of debris from exploded spacecraft and rocket bodies.”</p>	<p>NASA Office of Safety & Mission Assurance, NPR 8715.6A, ¶ 1.2.1 (May 14, 2009), <i>expiration</i> May 14, 2014.</p> <p><i>Mitigation of Orbital Debris</i>, FCC 04-130, ¶ 2 (June 9, 2004) (second rep. & order), available at http://hraunfoss.fcc.gov/e/docs_public/attachmatch/FCC-04-130A1.pdf.</p>
<i>VI. Other Sources</i>	“[A]ll man made objects including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non functional.”	IADC, <i>Space Debris Mitigation Guidelines</i> , ¶ 3.1, IADC Doc. 02-01

	<p>“[A]ll man-made objects, including their fragments and parts, whether their owners can be identified or not, in Earth orbit or re-entering the dense layers of the atmosphere, that are non-functional with no reasonable expectation of their being able to assume or resume their intended functions or an[y] other functions for which they are or can be authorized.”</p> <p>“[H]uman-generated, non-functional objects in Earth orbit or re-entering the atmosphere. . . . Approximately 60 per cent of the catalogued [space debris] objects are from break-ups or fragmentation of spacecraft and rocket bodies . . . the primary sources of space debris are: Satellites that have reached their end-of-life and been left in orbit; Upper states of launchers which had been used to place satellites in orbit; operational debris, which are objects intentionally released during a mission. These include casings needed to protect instruments during the launch phase, mounting systems for solar panels or antennas before their deployment in orbit, and release mechanisms; The result of fragmentation, either by a collision between two objects in orbit or from a space object accidentally or intentionally exploding; Propellant residues . . . ; and Ageing of materials in space due to the extremely hostile environment that leads to production of large quantities of debris (e.g. heat shield covers flaking, paintwork peeling off, etc.).”</p> <p>“Space debris, also called space junk[:] man-made material that is orbiting Earth but no longer functional. This material can be as large as a discarded rocket stage or as small as a microscopic chip of paint. Much of the debris is in low Earth orbit, within 2,000 km (1,200 miles) of Earth’s surface; however, some debris can be found in geostationary orbit 35,786 km (22,236 miles) above the Equator. As of 2011, the United States Space Surveillance Network was tracking more than 12,500 pieces of space debris larger than 10 cm (4 inches) across. It is estimated that there are about 200,000 pieces between 1 and 10 cm (0.4 and 4 inches) across and that there could be millions of pieces smaller than 1 cm. How long a piece of space debris takes to fall back to Earth depends on its altitude. Objects below 600 km (375 miles) orbit several years before reentering Earth’s atmosphere. Objects above 1,000 km (600 miles) orbit for centuries.”</p>	<p>(Sept. 2, 2007).</p> <p>International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management 21</i> (2006) (citing the IAA and UN Technical Rep.)</p> <p>Comm. on the Peaceful Uses of Outer Space, Scientific & Tech. Subcomm, Rep. on its 48th Sess., Feb. 7-18, 2011, U.N. Doc. A/AC.105/C.1 (Feb. 3, 2011).</p> <p><i>Definition of Space Debris</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/1519020/space-debris (last visited Nov. 9, 2011).</p>
<p>VII. <i>Language</i></p>		

	Space Debris Mitigation	Source
I. Simple Definition	All legal, regulatory, technical, and other efforts to reduce debris in space and to make space activities more sustainable. Related Terms: Space Debris and Sustainable.	Compiled by Authors of this Report.
II. Laws & Treaties	<u>Example of Usage in the Space Treaties:</u> State parties must “avoid harmful contamination” of outer space.	Outer Space Treaty Art. IX.
III. Legal Dictionary	Mitigate: “To make less severe or intense . . . mitigation, <i>n.</i> ”	<i>Definition of Mitigate</i> , Black’s Law Dictionary 1093 (9th ed. 2009).
IV. Standard English Dictionary	Mitigate: “1: to cause to become less harsh or hostile: mollify; 2: to make less severe or painful: alleviate”	<i>Definition of Mitigate</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/mitigate (last visited Nov. 8, 2011).
V. Other U.S. Gov’t	“The United States shall seek to minimize the creation of orbital debris by government and non-government operations in space in order to preserve the space environment for future generations . . . Compliance with this NPR meets the guidelines and intent of . . . the U.S. Government Orbital Debris Mitigation Standard Practices and the IADC-0201, Space Debris Mitigation Guidelines.” <i>See also</i> NASA Management Instruction (NMI) 1700.8, <i>Policy to Limit Orbital Debris Generation</i> (Apr. 1993) (specific guidelines). U.S. Government Guidelines: 1. Control of debris released during normal operations; 2. Minimizing debris generated by accidental explosions; 3. Selection of safe flight profile and operational configuration; 4. Postmission disposal of space structures.	NASA Office of Safety & Mission Assurance, NPR 8715.6A, ¶¶ P.1.2, 1.1.3 (May 14, 2009), <i>expiration</i> May 14, 2014. U.S. Government Orbital Debris Mitigation Standard Practices (2007), <i>available at</i> http://orbitaldebris.jsc.nasa.gov/library/USG_OD_Standard_Practices.pdf (last visited Nov. 10, 2011).

<p>VI. Other Sources</p>	<p>Guidelines: Limit debris released during normal operations; Minimize the potential for on-orbit break-ups; Minimize the potential for post mission break-ups resulting from stored energy and during operational phases; Avoidance of intentional destruction and other harmful activities; Post mission disposal in the Geosynchronous region, LEO region, and other orbits; Prevention of on-orbit collisions.</p> <p>“Space debris mitigation measures can be divided into two broad categories: those that curtail the generation of potentially harmful space debris in the near term and those that limit their generation over the longer term. The former involves the curtailment of the production of mission-related space debris and the avoidance of break-ups. The latter concerns end-of-life procedures that remove decommissioned spacecraft and launch vehicle orbital stages from regions populated by operational spacecraft.”</p> <p>“Reduce the creation of new debris.” Compare Active Debris Removal: “Reduce the growth in the debris population.”</p> <p>“[V]arious space debris mitigation guidelines indicate that other satellites and launch vehicles should be de-orbited once their operational phase is complete or else their orbits relocated so as to avoid the LEO region. However, such satellites and objects are not debris. They remain identifiable space objects which are the responsibility of (as well as being under the jurisdiction) of their state of registry The point about much space debris is that it is not always readily identifiable, and certainly is not really under the control of whichever state was responsible for the initial launch that produced it. There can be exceptions: spent boosters, spent maneuvering stages, launcher cones and shrouds, for example A ‘space object’ such as a glove, a camera, a tool bag, even a golf ball, retains some identifiably, but <i>ex natura</i> most space debris is fragmentary and hence responsibility for it is indeterminate.”</p>	<p>IADC, <i>Space Debris Mitigation Guidelines</i>, ¶¶ 5.1-5.4, IADC Doc. 02-01 (Sept. 2, 2007).</p> <p>Comm. on the Peaceful Uses of Outer Space, Scientific & Tech. Subcomm, Rep. on its 44th Sess., Feb. 12-23, 2007, U.N. Doc. A/AC.105/890 (March 6, 2007).</p> <p><i>Space Situational Awareness: The Big Picture</i>, European Space Surveillance Conference Madrid, Spain, June 7-9, 2011, available at http://swfound.org/media/42072/SSA_The_Big_Picture-BW-2011.pdf</p> <p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 304 (2009).</p>
<p>VII. Language</p>		

	Space Flight Participant	Source
I. Simple Definition	<p>“An individual, who is not crew, carried within a launch vehicle or reentry vehicle.”</p> <p>Related Terms: Crew, Passenger, Personnel of a Spacecraft, and Astronaut; also (not included in Guide) Taikonaut and Cosmonaut.</p>	National Aeronautics and Space Act, 51 U.S.C. § 50902(17) (2010).
II. Laws & Treaties	<p>“[A]n individual, who is not crew, carried within a launch vehicle or reentry vehicle.”</p>	National Aeronautics and Space Act, 51 U.S.C. § 50902 (17) (2010)., also, Federal Aviation Regulations, 14 C.F.R. § 401.5 (2009).
III. Legal Dictionary	<p>Participate: “To receive or have a part or share of; to partake of; experience in common with others; to have or enjoy a part or share in common with others; partake . . .”</p>	<i>Definition of Participate</i> , Black’s Law Dictionary 1275 (4th ed. Rev. 1968).
IV. Standard English Dictionary	<p>Participates: “1: to possess some of the attributes of a person, thing, or quality; 2a: to take part <always participates in class discussions> b: to have a part or share in something.”</p>	<i>Definition of Participates</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/participates (last visited Oct. 6, 2011).
V. Other U.S. Gov’t		
VI. Other Sources	<p>“Customers” who “are not entitled to the benefits of liability insurance coverage.” Further, “because of SFPs’ likely deep pockets, ‘it is not unreasonable to expect that a wealthy space fight participant would be named as a defendant in the event of damage claims brought by an injured third party.’”</p>	Joanne Irene Gabrynowicz, <i>One Half Century and Counting: The Evolution of U.S. National Space Law and Three Long-Term Emerging Issues</i> , 4 Harv. L. & Pol’y Rev 405 (2012) quoting Timothy Robert Hughes & Esta Rosenberg, <i>Space Travel Law (and Politics): The Evolution of the Commercial Space Launch Amendments Act of 2004</i> , 31 J. SPACE L. 1, 3 (2005).

	<p>“A ‘space flight participant’ is required to waive all claims and assume personal responsibility for participation in a flight. [] Basically the requirements for ‘tourist flight’ crew are rigorous while those for the ‘participants’ are largely good health coupled with rudimentary training as to safety and escape procedures[.]”</p> <p>“Individuals (e.g. commercial, scientific and other programs; crewmembers of non-partner space agencies, engineers, scientists, teachers, journalists, filmmakers or tourists) sponsored by one or more partner(s). Normally, this is a temporary assignment that is covered under a short-term contract.”</p>	<p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 132 n.13 (2009) (citing the Fed. Reg. and C.F.R.).</p> <p><u>ISS Crew Criteria Document, (2001) p. 4 available at http://esamultimedia.esa.int/docs/isscrewcriteria.pdf (last visited October 29, 2012)</u></p>
<p>VII. <i>Language</i></p>		

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	Space Law	Source
I. Simple Definition	“[S]pace law comprises all the law that may govern or apply to outer space and activities in and relating to outer space.”	Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise 2</i> (2009).
II. Laws & Treaties	<p><u><i>Examples of Usage in the Space Treaties:</i></u></p> <p>“Outer space . . . shall be free for exploration and use by all States . . . in accordance with international law.”</p> <p>“States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law.”</p>	<p>Outer Space Treaty Art. I.</p> <p><i>Id.</i> Art. III.</p>
III. Legal Dictionary		
IV. Standard English Dictionary		
V. Other U.S. Gov’t		
VI. Other Sources	<p>“[T]he body of regulations in international law that governs conduct in and related to areas of space above Earth’s lower atmosphere.”</p> <p>“At its broadest space law comprises all the law that may govern or apply to outer space and activities in and relating to outer space . . . ‘Space law’ is the Law of Space, and can range from the terms of an insurance contract in respect of a particular space launch to the broadest of principles that govern how states act in outer space. Some ‘space law’ is therefore simply the application of the principles of existing domestic law such as contract to a new field activity. ‘Space law’ is particulate law, developed to deal with the practical problems of the use and exploration of outer space.”</p>	<p><i>Definition of Space Law</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/557401/space-law (last visited Aug. 4, 2011).</p> <p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise 2</i> (2009).</p>
VII. Language		

	Space Object	Source
<i>I. Simple Definition</i>	<p>“The term ‘space object’ includes component parts of a space object as well as its launch vehicle and parts thereof.”</p> <p>Related Term: Liability, Registration.</p>	Liability Convention Art. 1(d); Registration Convention Art. I(b).
<i>II. Laws & Treaties</i>	<p>“The term ‘space object’ includes component parts of a space object as well as its launch vehicle and parts thereof.”</p> <p>Compare Space Asset: “(i) any separately identifiable asset that is in space or that is intended to be launched and placed in space or has been returned from space; (ii) any separately identifiable component forming a part of an asset referred to in the preceding clause or attached to or contained within such asset; (iii) any separately identifiable asset or component assembled or manufactured in space; and (iv) any launch vehicle that is expendable or can be reused to transport persons or goods to and from space. As used in this definition, the term ‘space’ means outer space, including the Moon and other celestial bodies.”</p> <p>"any object launched or destined to be launched into outer space"</p> <p><u>Examples of Usage in the Space Treaties:</u></p> <p>“Each State Party to the Treaty that launches or procures the launching of an object into outer space . . . is internationally liable for damage . . . by such object or its component parts[.]”</p> <p>“Each Contracting Party which receives information or discovers that a space object or its component parts has returned to Earth in territory under its jurisdiction or on the high seas or in any other place not under the jurisdiction of any State, shall notify the launching authority and the Secretary- General of the United Nations.”</p> <p>“Whenever a space object launched into earth orbit or beyond is marked with the designator or registration number . . . the State of registry shall notify the Secretary-General of this fact when submitting the information regarding the space object in accordance with article IV.”</p>	<p>Liability Convention Art. 1(d); Registration Convention Art. I(b).</p> <p>Draft Protocol to the Convention on International Interest in Mobile Equipment on Matters Specific to Space Assets, Art. I(2)(f), <i>opened to signature</i> Nov. 16, 2001.</p> <p>Netherlands Space Activities Act [NOTE: English version of this text provided by the Netherlands]</p> <p>Outer Space Treaty Art. VII.</p> <p>Rescue and Return Agreement Art. 5.</p> <p>Registration Convention Art. 5.</p>
<i>III. Legal Dictionary</i>	Object: “A person or thing to which thought, feeling, or action is directed.”	<i>Definition of Object</i> , Black’s Law Dictionary 1177 (9th ed. 2009).

	Object: “Noun: A material thing. Any tangible thing, visible, or capable of discernment by the senses.”	<i>Definition of Object</i> , Ballentine’s Law Dictionary 876 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).
IV. Standard English Dictionary	Object: “something material that may be perceived by the senses.”	<i>Definition of Object</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/object (last visited Dec. 13, 2011).
V. Other U.S. Gov’t	<u><i>Example of Usage in U.S. Policy:</i></u> “The Secretary of Defense . . . may collaborate with industry and foreign nations to: maintain and improve space object databases; pursue common international data standards and data integrity measures; and provide services and disseminate orbital tracking information to commercial and international entities, including predictions of space object conjunction.”	National Space Policy of the United States of America 8 (June 28, 2010), available at http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf .
VI. Other Sources	<p>A space object is anything created, fabricated, or launched in any manner from Earth that enters outer space. This includes the entire launch vehicle and payload, as well as any part or parts thereof, whether attached or separated. It also shall include anything that human beings have modified or moved in space and/or brought back to Earth and re-launched into space.</p> <p>Space object has a “very broad” meaning; “[t]erms like vehicle were [] considered and not adopted”; it includes “any tangible, physical thing,” such as an extravehicular suit, life support equipment, oxygen supplying equipment, human beings etc.</p> <p>“The term ‘space object’ is defined to include the component parts of a space object as well as its launch vehicles and parts thereof ([Registration Convention] Art. 1(b)). This latter definition is important since it means that debris may be included within the compass of the Convention . . . It is commonly accepted that ‘parts thereof’ may include debris caused by the break up of a launch vehicle.”</p> <p>Spacialist experts rationalize that a space object should be</p>	<p>H. Hertzfeld, “A Roadmap toward a Sustainable Legal Space Regime,” Naples Italy, IISL, October 2012.</p> <p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 349-51 (2d ed. 1997) (citing Mr. Kempf’s statement).</p> <p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 86, 107 (2009).</p> <p>Carl Q. Christol, <i>The Modern International</i></p>

	defined as an object capable of achieving at least one orbit, which can be achieved at 100 kilometers.	<i>Law of Outer Space</i> 109 (1982).
VII. Language	<p><u>Comparison of Different Languages in the Space Treaties (English and French) (Note: the French (Spanish and Russian) translation has an additional comma after the phrase “includes component parts of a space object”; the English version does not include that comma:</u></p> <p>“The term ‘space object’ includes component parts of a space object as well as its launch vehicle and parts thereof.”</p> <p>“L’expression ‘objet spatial’ désigne également les éléments constitutifs d’un objet spatial, ainsi que son lanceur et les éléments de ce dernier.”</p>	<p>Hertzfeld, H.R., <i>A Roadmap for a Sustainable Space Legal Regime</i>, IISL Proceedings, 2012, (forthcoming)</p> <p>Liability Convention Art. I(d); Registration Convention Art. I(b).</p> <p>Liability Convention Art. I(d); Registration Convention Art. I(b).</p>

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	Space Situational Awareness (SSA)	Source
I. Simple Definition	“The requisite current and predictive knowledge of the space environment and the operational environment upon which space operations depend — including physical, virtual, and human domains — as well as all factors, activities, and events of friendly and adversary space forces across the spectrum of conflict.”	<i>Department of Defense Dictionary of Military and Associated Terms</i> , Nov. 8, 2010 (as amended through May 15, 2011).
II. Laws & Treaties		
III. Legal Dictionary		
IV. Standard English Dictionary	“The requisite current and predictive knowledge of the space environment and the operational environment upon which space operat[es.]”	<i>Definition of Space Situational Awareness</i> , Dictionary.net, http://www.definitions.net/definition/space%20situational%20awareness (last visited Oct. 6, 2011).
V. Other U.S. Gov’t	<p>“The requisite current and predictive knowledge of the space environment and the operational environment upon which space operations depend — including physical, virtual, and human domains — as well as all factors, activities, and events of friendly and adversary space forces across the spectrum of conflict.”</p> <p><u>Example of Usage in U.S. Policy:</u></p> <p>“[It is U.S. policy to] develop, maintain, and use space situational awareness (SSA) information from commercial, civil, and national security sources to detect, identify, and attribute actions in space that are contrary to responsible use and the long-term sustainability of the space environment.”</p>	<p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p> <p>National Space Policy of the United States of America 7 (June 28, 2010), <i>available at</i> http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf.</p>
VI. Other Sources	“[I]nformation, data and services regarding the space environment, and particularly regarding hazards to infrastructure in orbit and on the ground. . . . The bulk of SSA is derived from radars and optical telescopes located on the Earth’s surface or in orbit.”	Joan Johnson-Freese & Brian Weeden, <i>Application of Ostrom’s Principles for Sustainable Governance of Common-Pool Resources to Near-Earth Orbit</i> , 2:3 <i>Global Policy</i>

	<p>“SSA was born during the Cold War as part of protecting the US and USSR from nuclear attacks”; it is “still done primarily for military/national security purposes by the military”; its importance includes “predicting and preventing collisions in orbit, space traffic management, diagnosing spacecraft failures and malfunctions, calculating the risk to spacecraft due to environmental threats, detecting launches of new space objects, predicting atmospheric re-entry of space objects, monitoring behavior of spacecraft, and detecting threats and attacks on spacecraft.” Chart shows SSA as a combination of: active debris removal, debris mitigation, and space traffic management.</p> <p>“SSA refers to the process of tracking and monitoring objects in near-Earth orbit, including space assets, such as the International Space Station and commercial satellites, and orbital debris, such as defunct satellites and launch stage remnants. SSA is maintained to provide information about space activities and to enable safe operations in space, whether by preventing collisions or attributing misbehavior.”</p> <p>“SSA is essential for space security and sustainability. SSA allows for the coordination of space traffic, and it is necessary for understanding what other actors are doing in space and whether their actions comply with their stated intentions and agreements.”</p>	<p>8 (Oct. 2011).</p> <p><i>Space Situational Awareness: The Big Picture</i>, European Space Surveillance Conference Madrid, Spain, June 7-9, 2011, available at http://swfound.org/media/42072/SSA_The_Big_Picture-BW-2011.pdf.</p> <p>Tiffany Chow, <i>Glossary of Terms: Space Security Community</i> (Sept. 2011 Draft).</p> <p>Laura Grego and David Wright (UCS), <i>Securing the Skies: Ten Steps the U.S. Should Take to Improve the Security and Sustainability of Space</i> 30 (2010).</p>
<p>VII. Language</p>		

	Space Surveillance Network (SSN)	Source
I. Simple Definition	<p>The United State’s Space Situational Awareness system involving “the observation of space and of the activities occurring in space.”</p> <p>Related Term: Space Situational Awareness.</p>	<i>Department of Defense Dictionary of Military and Associated Terms</i> , Nov. 8, 2010 (as amended through May 15, 2011).
II. Laws & Treaties		
III. Legal Dictionary		
IV. Standard English Dictionary		
V. Other U.S. Gov’t	<p>“[A] worldwide network of 29 space surveillance sensors (radar and optical telescopes, both military and civilian) to observe the [man-made] objects [in Earth orbit].”</p> <p>Space Surveillance: “The observation of space and of the activities occurring in space. This mission is normally accomplished with the aid of ground-based radars and electro-optical sensors. This term is separate and distinct from the intelligence collection mission conducted by space-based sensors which surveil terrestrial activity.”</p>	<p>United States Strategic Command, USSTRATCOM Space Control and Space Surveillance Factsheet, http://www.stratcom.mil/factsheets/USSTRATCOM_Space_Control_and_Space_Surveillance/ (last visited Sept. 9, 2011).</p> <p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p>
VI. Other Sources	<p>The United States military operates the SSN, which is the most comprehensive network for SSA. However, the “SSN does not have any sensors over Asia or the entire northern hemisphere.”</p> <p>“The SSN allows this country to keep a current inventory of space objects (satellites and debris), as well as timely and accurate information about their orbits. Precise orbital information makes it possible to predict satellites’ future</p>	<p>Joan Johnson-Freese & Brian Weeden, <i>Application of Ostrom’s Principles for Sustainable Governance of Common-Pool Resources to Near-Earth Orbit</i>, 2:3 <i>Global Policy</i> 8 (Oct. 2011).</p> <p>Laura Grego and David Wright (UCS), <i>Securing the Skies: Ten Steps the U.S. Should Take to</i></p>

	<p>positions, which is important for avoiding interference (both physical and electronic) between satellites; for predicting and avoiding collisions with space debris; and for assessing collisions that do occur. Another important use of the SSN is to determine the operational status, purposes, and capabilities of satellites not owned by the United States.”</p> <p>“[T]oday, the U.S. Department of Defense (DOD) is using the Space Surveillance Network to catalog more than 15,000 objects approximately 10 centimeters (cm) in diameter or larger.”</p>	<p><i>Improve the Security and Sustainability of Space</i> 31 (2010).</p> <p><i>Space Security 2011</i>, at 11 (Cesar Jaramillo ed. 2011), available at http://www.spacesecurity.org/space.security.2011.revised.pdf.</p>
<p>VII. Language</p>		

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	Space Tourism	Source
I. Simple Definition	<p>People traveling in, to, or from a spacecraft, or space vehicle, or destination in space who have no operational responsibilities or employment relationship with the owner of the vehicle or the space object.</p> <p>Related Terms: Space Adventurism, Suborbital, Passenger.</p>	Compiled by the authors.
II. Laws & Treaties		
III. Legal Dictionary	Tourist: "One who makes a tour; one who travels from place to place for pleasure or culture."	<i>Definition of Tourist</i> , Black's Law Dictionary 1662 (4th ed. Rev. 1968).
IV. Standard English Dictionary	Tourism: "[T]he practice of traveling for recreation."	<i>Definition of Tourism</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/tourism (last visited Nov. 10, 2011).
V. Other U.S. Gov't		
VI. Other Sources	<p>"[R]ecreational space travel, either on established government-owned vehicles such as the Russian Soyuz and the International Space Station (ISS) or on a growing number of vehicles fielded by private companies. Since the flight of the world's first space tourist, American businessman Dennis Tito, on April 28, 2001, space tourism has gained new prominence as more suborbital and orbital tourism opportunities have become available."</p> <p>"Space tourism, as it is colloquially called, currently consists of a number of activities. They range from \$7,000 rides on a modified Boeing 727 that performs parabolic arcs to create a weightless environment, to \$20 million orbital trips. Suborbital flights, though yet to occur, are the most well-known type of space tourism and are offered by a number of companies."</p> <p>"[P]rivate and commercial passengers [engaging] in space travel." Note: the 2004 Amendments to the Commercial Space Launch Act established "licensing of private sector spacecraft to bring paying passengers on sub-orbital flights."</p>	<p><i>Definition of Space Tourism</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/1007468/space-tourism (last visited Aug. 4, 2011).</p> <p>Joanne Irene Gabrynowicz, <i>One Half Century and Counting: The Evolution of U.S. National Space Law and Three Long-Term Emerging Issues</i>, 37 J. of Space Law 41, 58 (Spring 2011).</p> <p>Joanne Irene Gabrynowicz, <i>The Sixth Eilene M. Galloway Symposium on Critical Issues in Space Law</i> (Dec. 1, 2011).</p>
VII. Language		

	Space Traffic Management	Source
I. Simple Definition	<p>“The set of technical and regulatory provisions for promoting safe access into outer space, operations in outer space and return from outer space to Earth free from physical or radio-frequency interference.”</p> <p>Related Term: Air Traffic Control, Space Traffic Control.</p>	International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management</i> 17 (2006).
II. Laws & Treaties		
III. Legal Dictionary	Traffic Regulations: “Prescribed rules of conduct to promote the orderly and safe flow of traffic.”	<i>Definition of Traffic Regulations</i> , Black’s Law Dictionary 1667 (4th ed. Rev. 1968).
IV. Standard English Dictionary	Traffic Management: “The direction, control, and supervision of all functions incident to the procurement and use of freight and passenger transportation services.”	<i>Definition of Traffic Management</i> , The Free Dictionary, http://www.thefreedictionary.com/traffic+management (last visited Oct. 6, 2011).
V. Other U.S. Gov’t		
VI. Other Sources	<p>“[T]he set of technical and regulatory provisions for promoting safe access into outer space, operations in outer space and return from outer space to Earth free from physical or radio-frequency interference.”</p> <p>“Space traffic comprises two dimensions. These are the scientific and technical area and the regulatory field.”</p> <p>A “proper” space traffic management system “would have several aspects. First . . . the transit of spacecraft through state air-space on launch or re-entry would require coordination with relevant air-traffic control. Second, above controlled air-space measures would be required to ensure the safe launch and re-entry through areas used by LEO communications satellite systems such as Iridium and others. Finally, there is the question of the use of orbits.”</p>	<p>International Academy of Astronautics (IAA), <i>Cosmic Study on Space Traffic Management</i> 17 (2006).</p> <p><i>Id.</i> at 19.</p> <p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 300 (2009).</p>
VII. Language		

	Space Weapon	Source
I. Simple Definition	<p>Weapons that can disrupt space systems in orbit, that target destinations on the Earth from space, or that disable missiles traveling through space.</p> <p>Related Term: Weapon.</p>	Compiled by Authors of this Report.
II. Laws & Treaties	<p><u>Examples of Usage in the Space Treaties and U.S. Law:</u></p> <p>“States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner. . . . The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden.”</p> <p>No authorized space station may “carry or place in orbit any nuclear weapon or any other weapon of mass destruction[.]”</p>	<p>Outer Space Treaty Art. IV.</p> <p>National Aeronautics and Space Act, 51 U.S.C. § 70901 (2011).</p>
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“[W]eapons used in space warfare. They include weapons that can attack space systems in orbit (i.e. anti-satellite weapons), attack targets on the earth from space or disable missiles travelling through space. In the course of the [militarization] of space, such weapons were developed mainly by the contesting superpowers during the Cold War, and some remain under development today. Space weapons are also a central theme in military science fiction and sci-fi video games.”</p>	<p><i>Definition of Space Weapons</i>, The Free Dictionary, http://encyclopedia.thefreedictionary.com/space+weapon (last visited Nov. 6, 2011).</p>
V. Other U.S. Gov’t		
VI. Other Sources	<p>“(1) Any weapons (whether land-, sea-, or air-based) able to damage a satellite or interfere with its functioning—i.e., ASAT weapons. Technologies that interfere with a satellite’s ground stations or communications receivers are typically not considered ASAT weapons. (2) Any space-based weapons intended to attack targets in space or on the ground. These technologies include space-based ballistic missile defense interceptors and ground-attack weapons.”</p>	<p>Laura Grego and David Wright (UCS), <i>Securing the Skies: Ten Steps the U.S. Should Take to Improve the Security and Sustainability of Space</i> 7 n.10 (2010).</p>
VII. Language		

	Space Weather	Source
I. Simple Definition	<p>“The conditions and phenomena in space and specifically in the near-Earth environment that may affect space assets or space operations.”</p> <p>Related Terms: Weather and Climate.</p>	<i>Department of Defense Dictionary of Military and Associated Terms</i> , Nov. 8, 2010 (as amended through May 15, 2011).
II. Laws & Treaties		
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“[T]he concept of changing environmental conditions in near-Earth space. It is distinct from the concept of weather within a planetary atmosphere, and deals with phenomena involving ambient plasma, magnetic fields, radiation and other matter in space. ‘Space weather’ often implicitly means the conditions in near-Earth space within the magnetosphere and ionosphere, but it is also studied in interplanetary (and occasionally interstellar) space.”</p>	<i>Definition of Space Weather</i> , The Free Dictionary, http://encyclopedia.thefreedictionary.com/Space+weather (last visited Oct. 6, 2011).
V. Other U.S. Gov’t	<p>“The conditions and phenomena in space and specifically in the near-Earth environment that may affect space assets or space operations. Space weather may impact spacecraft and ground-based systems. Space weather is influenced by phenomena such as solar flare activity, ionospheric variability, energetic particle events, and geophysical events.”</p> <p>“The dynamic, highly variable conditions of the geospace environment that encompasses the sun, the interplanetary medium, and the Earth magnetosphere-ionosphere-thermosphere system. Major contributing factors include variations in the solar wind, solar flares, and solar mass ejections. Effects of space weather phenomena include performance degradation of communication, navigation, and power systems on both spacecraft and ground-based systems; and potential health hazards during extravehicular activity.”</p>	<p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p> <p>1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 925 (2011).</p>
VI. Other Sources	<p>“Measurement, warning, and forecasting of the effect of Solar activity on objects in orbit.”</p>	<i>Space Situational Awareness: The Big Picture</i> , European Space Surveillance Conference Madrid, Spain, June 7-9, 2011.
VII. Language		

	Spacecraft	Source
I. Simple Definition	<p>“A vehicle or device designed for travel or operation outside the earth’s atmosphere.”</p> <p>Related Term: Aircraft.</p>	<p><i>Definition of Spacecraft</i>, Merriam-Webster Dictionary Online, http://www.merriam-webster.com/dictionary/spacecraft (last visited Aug. 30, 2011).</p>
II. Laws & Treaties	<p>“[A] man-made vehicle which is intended to go beyond the major portion the Earth’s atmosphere[.]”</p> <p>Space Transportation Vehicle: “[A]n object intended for launch, launched, or assembled in outer space, including the space shuttle and other components of a space transportation system, together with related equipment.”</p> <p><u>Example of Usage in the Space Treaties:</u></p> <p>“Threats or hostile acts are forbidden in relation to spacecraft.”</p>	<p>ITU Radio Regulation 1.178.</p> <p>National Aeronautics and Space Act, 51 U.S.C. § 50101(5) (2010).</p> <p>Moon Agreement Art. 3.2.</p>
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“[A] vehicle or device designed for travel or operation outside the earth’s atmosphere.”</p>	<p><i>Definition of Spacecraft</i>, Merriam-Webster Dictionary Online, http://www.merriam-webster.com/dictionary/spacecraft (last visited Aug. 30, 2011).</p>
V. Other U.S. Gov’t	<p>“Devices, manned and unmanned, which are designed to be placed into an orbit about the earth or into a trajectory to another celestial body.”</p>	<p><i>Dictionary of Technical Terms for Aerospace Use: NASA SP-7 (1965)</i> (last modified Nov. 15, 2001), available at http://er.jsc.nasa.gov/seh/a.html; 1 <i>NASA Thesaurus: Hierarchical Listing With Definitions</i> 925 (2011).</p>
VI. Other Sources	<p>“[A]n orbiting object designed to perform a specific function or mission (e.g. communications, navigation or Earth observation). A spacecraft that can no longer [fulfill] its intended mission is considered non-functional. (Spacecraft in reserve or standby modes awaiting possible reactivation are considered functional).”</p> <p>“[A] vehicle designed to operate, with or without a crew, in a</p>	<p>IADC, <i>Space Debris Mitigation Guidelines</i>, ¶ 3.2.1, IADC Doc. 02-01 (Sept. 2, 2007).</p> <p><i>Definition of Spacecraft</i>,</p>

	<p>controlled flight pattern above Earth’s lower atmosphere . . . Most spacecraft are not self-propelled; they depend on the initial velocity provided by a launch vehicle, which separates from the spacecraft when its task is done.”</p> <p>“[A] space object capable of carrying an astronaut[.]”</p> <p>“The so-called von Karman line set the boundary at the point at which a vehicle traveling seven kilometers a second loses aerodynamic lift and becomes a ‘spacecraft.’ Such an event would occur about fifty-three miles up.”</p> <p>“The key to defining the spacecraft for transport [or space vehicle] is navigability. . . . Navigate has been defined as steering or directing a ship or aircraft”; space vehicles are thus distinguishable from satellites and other space objects.</p>	<p>Encyclopedia Britannica Online: Academic Edition, http://www.britannica.com/EBchecked/topic/557506/spacecraft (last visited Aug. 30, 2011).</p> <p>Francis Lyall & Paul B. Larsen, <i>Space Law: A Treatise</i> 98 (2009).</p> <p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 5 (2d ed. 1997).</p> <p><i>Id.</i> at 29.</p>
<p>VII. Language</p>		

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	Spaceport	Source
<i>I. Simple Definition</i>	A launch and/or landing site for spacecraft, as well as all associated facilities.	Compiled by Authors of this Report.
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>		
<i>IV. Standard English Dictionary</i>	<p>“[A]n installation for testing and launching spacecraft.”</p> <p>Compare Airport: “[A] place from which aircraft operate that usually have paved runways and maintenance facilities and often serves as a terminal[.]”</p>	<p><i>Definition of Spaceport</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/spaceport (last visited Aug. 30, 2011).</p> <p><i>Id.</i> at <i>Definition of Airport</i>.</p>
<i>V. Other U.S. Gov’t</i>	Launch and reentry site.	FAA Report 2010, <i>US Commercial Slack Transportation Developments and Concepts: Vehicles, Technologies, and Spaceports</i> 61 (2010).
<i>VI. Other Sources</i>	“Initially, states are analogizing spaceports to airports.”	Joanne Irene Gabrynowicz, <i>One Half Century and Counting: The Evolution of U.S. National Space Law and Three Long-Term Emerging Issues</i> , 37 J. of Space Law 41, 63 (Spring 2011).
<i>VII. Language</i>		

	Spectrum (electromagnetic / radiofrequency)	Source
I. Simple Definition	<p>“A range over which some measurable property of a physical phenomenon, such as the frequency of sound or electromagnetic radiation, or the mass of specific kinds of particles, can vary.”</p> <p>Related Term: Telecommunication.</p>	<p><i>Definition of Spectrum</i>, Your Dictionary Online Science Definition, http://science.yourdictionary.com/spectrum (last visited Nov. 10, 2011).</p>
II. Laws & Treaties	<p><u><i>Example of Usage in the ITU:</i></u></p> <p>“Members shall endeavour to limit the number of frequencies and the spectrum used to the minimum essential to provide in a satisfactory manner the necessary services. To that end, they shall endeavour to apply the latest technical advances as soon as possible[.]”</p>	<p>ITU Radio Regulations 0.2.</p>
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“[A]ny of various continua that resemble a color spectrum in consisting of an ordered arrangement by a particular characteristic (as frequency or energy): as (1) : electromagnetic spectrum (2) : radio spectrum (3) : the range of frequencies of sound waves (4) : mass spectrum.”</p>	<p><i>Definition of Spectrum</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/Spectrum (last visited Oct. 26, 2011).</p>
V. Other U.S. Gov't		
VI. Other Sources	<p>“[R]epresentation of a real or complex quantity as a function of frequency . . . The word ‘spectrum’ is also used to denote the frequency band where some phenomenon occurs, e.g. acoustic spectrum, visible spectrum.”</p> <p>“A range over which some measurable property of a physical phenomenon, such as the frequency of sound or electromagnetic radiation, or the mass of specific kinds of particles, can vary. For example, the spectrum of visible light is the range of electromagnetic radiation with frequencies between 4.7×10^{14} and 7.5×10^{14} hertz.”</p>	<p>Electropedia: The World’s Online Electrotechnical Vocabulary, http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=725-12-55 (last visited Nov. 1, 2011).</p> <p><i>Definition of Spectrum</i>, Your Dictionary Online Science Definition, http://science.yourdictionary.com/spectrum (last visited Nov. 10, 2011).</p>
VII. Language		

	Suborbital	Source
I. Simple Definition	<p>“Being or involving less than one orbit (as of the earth or moon).”</p> <p>Related Term: Orbit.</p>	<p><i>Definition of Suborbital</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/suborbital (last visited Aug. 30, 2011).</p>
II. Laws & Treaties	<p>Suborbital Trajectory: “[T]he intentional flight path of a launch vehicle, reentry vehicle, or any portion thereof, whose vacuum instantaneous impact point does not leave the surface of the Earth.”</p> <p>“[T]he trajectory of any object which leaves the surface of the earth due to a launch, but returns to the surface of the earth without completing an orbit around the earth”</p>	<p>National Aeronautics and Space Act, 51 U.S.C. § 50902(20) (2010).</p> <p>SPACE AFFAIRS ACT (South Africa, 1993) <i>available at</i> http://www.oosa.univie.ac.at/oosa/en/SpaceLaw/national/south_africa/space_affairs_act_1993E.html (last visited November 1, 2012)</p>
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“[B]eing or involving less than one orbit (as of the earth or moon)[.]”</p> <p>“A sub-orbital space flight is a spaceflight in which the spacecraft reaches space, but its trajectory intersects the atmosphere or surface of the gravitating body from which it was launched, so that it does not complete one orbital revolution.”</p>	<p><i>Definition of Suborbital</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/suborbital (last visited Aug. 30, 2011).</p> <p><i>Definition of Sub-Orbital Spaceflight</i>, The Free Dictionary, http://encyclopedia.thefreedictionary.com/Suborbital (last visited Oct. 6, 2011).</p>
V. Other U.S. Gov’t		
VI. Other Sources		
VII. Language		

	Sustainable	Source
<i>I. Simple Definition</i>	“Using a resource so that the resource is not depleted or permanently damaged.”	<i>Derived From Definition of Sustainable</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/sustainable (last visited Aug. 30, 2011).
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>	Sustain: “1. To support or maintain, esp. over a long period <enough oxygen to sustain life>. 2. To nourish and encourage; lend strength to <she helped sustain the criminal enterprise> sustainable, <i>adj.</i> ”	<i>Definition of Sustain</i> , Black’s Law Dictionary 1585 (9th ed. 2009).
<i>IV. Standard English Dictionary</i>	“[O]f, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged.”	<i>Definition of Sustainable</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/sustainable (last visited Aug. 30, 2011).
<i>V. Other U.S. Gov’t</i>	<p>Sustainment: “The provision of logistics and personnel services required to maintain and prolong operations until successful mission accomplishment.”</p> <p><u>Example of Usage in U.S. Policy:</u></p> <p>“Fifty years after the creation of NASA, our goal is no longer just a destination to reach. Our goal is the capacity for people to work and learn and operate and live safely beyond the Earth for extended periods of time, ultimately in ways that are more sustainable and even indefinite.”</p>	<p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p> <p>National Space Policy of the United States of America (June 28, 2010), <i>available at</i> http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf.</p>

<p>VI. Other Sources</p>	<p>Space Sustainability: “[E]ncompass[es] the issue of preventing overexploitation of the near-Earth [common resource pool]. Sustainability inherently has two main components, environmental (management of space debris and electromagnetic spectrum) and political (promoting stability and preventing conflict).</p> <p>“Increasing ‘space sustainability’ means protecting the future space environment by controlling the growth of space debris and more generally by managing activities in space so as to ensure countries’ ability to use it in beneficial ways.”</p> <p>Ensuring that all humanity can continue to use outer space for peaceful purposes and socioeconomic benefit. This will require international cooperation, discussion, and agreements designed to ensure that outer space is safe, secure and peaceful.</p>	<p>Joan Johnson-Freese & Brian Weeden, <i>Application of Ostrom’s Principles for Sustainable Governance of Common-Pool Resources to Near-Earth Orbit</i>, 2:3 <i>Global Policy</i> 3 (Oct. 2011).</p> <p>Laura Grego and David Wright (UCS), <i>Securing the Skies: Ten Steps the U.S. Should Take to Improve the Security and Sustainability of Space</i> 2 (2010).</p> <p>http://swfound.org/space-sustainability-101/ (accessed 12/18/2012)</p>
<p>VII. Language</p>		

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	Telecommunication	Source
I. Simple Definition	“Communication by wire, radio, optical or other electromagnetic systems.”	Rec. ITU-R V.662-3, available at www.itu.int/terminology/index.html (last visited Sept. 21, 2011).
II. Laws & Treaties	“Any transmission, emission or reception of signs, signals, writings, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems.”	Constitution of the International Telecommunication Union, Annex CS 1012 (Geneva, 1992); ITU Radio Regulation 1.3.
III. Legal Dictionary		
IV. Standard English Dictionary	“[C]ommunication at a distance (as by telephone).”	<i>Definition of Telecommunication</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/telecommunication (last visited Aug. 30, 2011).
V. Other U.S. Gov’t	“Any transmission, emission, or reception of signs, signals, writings, images, sounds, or information of any nature by wire, radio, visual, or other electromagnetic systems.”	<i>Department of Defense Dictionary of Military and Associated Terms</i> , Nov. 8, 2010 (as amended through May 15, 2011).
VI. Other Sources	“Communication by wire, radio, optical or other electromagnetic systems.” “1. communication by wire, radio, optical or other electromagnetic systems; 2. any transmission, emission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems.” <i>International Telecommunication Convention (Nairobi, 1982)</i> .	Rec. ITU-R V.662-3, available at www.itu.int/terminology/index.html (last visited Sept. 21, 2011). Electropedia: The World’s Online Electrotechnical Vocabulary, http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=701-01-05 (last visited Sept. 13, 2011).
VII. Language		

	Third Party	Source
I. Simple Definition	A party other than the principle parties to the cause of action.	Compiled by Authors of this Report.
II. Laws & Treaties	<p><u>Example of Usage in the Space Treaties:</u></p> <p>“In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, and of damage thereby being caused to a third State or to its natural or juridical persons, the first two States shall be jointly and severally liable to the third State.”</p>	Liability Convention Art. IV(1).
III. Legal Dictionary	<p>“n. A person who is not a party to a lawsuit, agreement, or other transaction but who is usu. somehow implicated in it; someone other than the principal parties.”</p> <p>“All persons who are not parties to the contract, agreement, or instrument of writing, by which their interest in the thing conveyed is sought to be affected. <i>Morrison v Trudeau</i> (La) 1 Mart NS 384, 387. Persons other than original plaintiff or defendant but brought into the action.”</p> <p>Third Person: “One not involved. A bystander.”</p>	<p><i>Definition of Third Party</i>, Black’s Law Dictionary 718 (3d Pocket ed. 2006).</p> <p><i>Definition of Third Parties</i>, Ballentine’s Law Dictionary 1274 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p> <p><i>Id.</i> at <i>Definition of Third Person</i>.</p>
IV. Standard English Dictionary	“[A] person other than the principals.”	<i>Definition of Third Party</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/third%20party (last visited Sept. 30, 2011).
V. Other U.S. Gov’t	Third Party Liability: “Liability for damages to persons, entities, or property not associated with the parties participating in the licensed activity. (For purposes of Federal Aviation Administration regulations, 14 CFR parts 440 and 450, Government personnel are deemed third parties.)”	U.S. Department of Transportation, Federal Aviation Administration, <i>Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis</i> ¶ 12-1 (April 2002).
VI. Other Sources		
VII. Language		

	Weapon	Source
<i>I. Simple Definition</i>	<p>“Any mechanism or any device that, when directed against any target, is designed to damage or destroy it.”</p> <p>Related Terms: Space Weapon and Weapon of Mass Destruction.</p>	<p>See Protocol to START, ¶ 90, signed July 31, 1991, available at http://www.state.gov/documents/organization/140047.pdf.</p>
<i>II. Laws & Treaties</i>	<p>“[A]ny mechanism or any device that, when directed against any target, is designed to damage or destroy it.”</p> <p><u>Examples of Usage in the Space Treaties and U.S. Law:</u></p> <p>States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner. . . . The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden.”</p> <p>No authorized space station may “carry or place in orbit any nuclear weapon or any other weapon of mass destruction[.]”</p>	<p>Protocol to START, ¶ 90, signed July 31, 1991, available at http://www.state.gov/documents/organization/140047.pdf.</p> <p>Outer Space Treaty Art. IV.</p> <p>National Aeronautics and Space Act, 51 U.S.C. § 70901 (2011).</p>
<i>III. Legal Dictionary</i>	<p>“An instrument used or designed to be used to injure or kill someone.”</p> <p>“Anything used or designed to be used in destroying, defeating, or injuring an enemy; an instrument of offensive or defensive combat. 56 Am J1st Weap § 2. Something with which to fight. Harris v Cameron, 81 Wis 239, 51 NW 437.”</p>	<p><i>Definition of Weapon</i>, Black’s Law Dictionary 1730 (9th ed. 2009).</p> <p><i>Definition of Weapon</i>, Ballentine’s Law Dictionary 1364 (3d ed. 1969), available at http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).</p>
<i>IV. Standard English Dictionary</i>	<p>“[S]omething (as a club, knife, or gun) used to injure, defeat, or destroy.”</p>	<p><i>Definition of Weapon</i>, Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/weapon (last visited Aug. 30, 2011).</p>
<i>V. Other</i>		

<i>U.S. Gov't</i>		
VI. Other Sources	<p>“Phillip Baines, a Canadian diplomat, has suggested that a weapon, including one orbited in space or used against a satellite, be defined as ‘a device, based on any physical principle, specially designed or modified for military use, to injure or a kill a person, damage or destroy an object, or render any place unusable.’”</p>	<p>Laura Grego and David Wright (UCS), <i>Securing the Skies: Ten Steps the U.S. Should Take to Improve the Security and Sustainability of 20</i> n.23. (2010).</p>
VII. Language		

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	Weapons of Mass Destruction	Source
I. Simple Definition	<p>“Weapons capable of a high order of destruction or causing mass casualties.”</p> <p>Related Term: Weapon.</p>	<p><i>Derived From Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p>
II. Laws & Treaties	<p><u>Examples of Usage in the Space Treaties and U.S. Law:</u></p> <p>“States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.”</p> <p>No authorized space station may “carry or place in orbit any nuclear weapon or any other weapon of mass destruction[.]”</p>	<p>Outer Space Treaty Art. IV.</p> <p>National Aeronautics and Space Act, 51 U.S.C. § 70901 (2011).</p>
III. Legal Dictionary		
IV. Standard English Dictionary	<p>“[W]eapons, like nuclear weapons, which cause a lot of damage and kill many people.”</p>	<p><i>Definition of Weapon of Mass Destruction</i>, Cambridge Dictionaries Online, http://dictionary.cambridge.org/dictionary/british/weapons-of-mass-destruction (last visited Nov. 1, 2011).</p>
V. Other U.S. Gov’t	<p>“Chemical, biological, radiological, or nuclear weapons capable of a high order of destruction or causing mass casualties and exclude the means of transporting or propelling the weapon where such means is a separable and divisible part from the weapon. Also called WMD.”</p>	<p><i>Department of Defense Dictionary of Military and Associated Terms</i>, Nov. 8, 2010 (as amended through May 15, 2011).</p>
VI. Other Sources	<p>“[W]eapon with the capacity to inflict death and destruction on such a massive scale and so indiscriminately that its very presence in the hands of a hostile power can be considered a grievous threat. Modern weapons of mass destruction are either nuclear, biological, or chemical weapons—frequently referred to collectively as NBC weapons.”</p>	<p><i>Definition of Weapon of Mass Destruction</i>, Encyclopedia Britannica Online: Academic Edition 2011, http://www.britannica.com/EBchecked/topic/917314/weapon-of-mass-destruction-WMD (last visited Oct. 26, 2011).</p>

	<p>“While there is no indication in the Treaty as to how many people must be affected to constitute a weapon of mass destruction, a group of 20 to 30 people or less probably would not constitute such a mass. If on the other hand, bacteriological and chemical weapons were used, even against a small group, then these weapons would seem to fall under the category of weapons of mass destruction.”</p>	<p>Glenn H. Reynolds & Robert P. Merges, <i>Outer Space: Problems of Law and Policy</i> 86 (2d ed. 1997) (citing Gorove).</p>
<p>VII. <i>Language</i></p>		

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	Weather	Source
<i>I. Simple Definition</i>	<p>“The state of the atmosphere with respect to wind, temperature, cloudiness, moisture, pressure, etc. Weather refers to these conditions at a given point in time (e.g., today’s high temperature).”</p> <p>Related Terms: Space Weather and Climate.</p>	National Oceanic and Atmospheric Administration’s Glossary, <i>available at</i> http://www.nws.noaa.gov/glossary/index.php?letter=w (last visited Sept. 14, 2011).
<i>II. Laws & Treaties</i>		
<i>III. Legal Dictionary</i>	<p>“Noun: The manifestation of nature in warmth or coldness of the atmosphere, rain, snow, sunshine, or cloudiness. Verb: To wear away or disintegrate through exposure to the atmosphere.”</p>	<i>Definition of Weather</i> , Ballentine’s Law Dictionary 1364 (3d ed. 1969), <i>available at</i> http://www.citizenlaw.com/legaldict.htm (last visited Sept. 2, 2011).
<i>IV. Standard English Dictionary</i>	<p>“[T]he state of the atmosphere with respect to heat or cold, wetness or dryness, calm or storm, clearness or cloudiness.”</p>	<i>Definition of Weather</i> , Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/weather (last visited Dec. 12, 2011).
<i>V. Other U.S. Gov’t</i>	<p>“The state of the atmosphere with respect to wind, temperature, cloudiness, moisture, pressure, etc. Weather refers to these conditions at a given point in time (e.g., today’s high temperature), whereas Climate refers to the ‘average’ weather conditions for an area over a long period of time (e.g., the average high temperature for today’s date).”</p>	National Oceanic and Atmospheric Administration’s Glossary, <i>available at</i> http://www.nws.noaa.gov/glossary/index.php?letter=w (last visited Sept. 14, 2011).
<i>VI. Other Sources</i>		
<i>VII. Language</i>		

IV. APPENDIX A: DEFINITIONS OF COMMON LEGAL TERMS

Below are short and simple definitions to provide a general understanding of legal terms that are not directly space-related, but are often referred to in space documents; the definitions are not from a formal legal dictionary and are not meant to be authoritative for formal citations. They are included in this volume for non-lawyers to better understand the terms in this Guide.

Code of Conduct

“A set of conventional principles and expectations that are considered binding on any person who is a member of a particular group.”ⁱ Ex: The Draft EU Code of Conduct is a draft of principles that would be binding on subscribing States.

Convention

“A formal meeting of members, representatives, or delegates [or]. . . An agreement between states, sides, or military forces, especially an international agreement dealing with a specific subject, such as the treatment of prisoners of war.”ⁱⁱ Ex: The Chicago Convention is an international agreement that establishes rules for signatories regarding aircraft and air travel.

International Court of Justice (ICJ)

“A court established to settle disputes between members of the United Nations.”ⁱⁱⁱ The ICJ is the successor to the Permanent Court of International Justice.

Jurisdiction

“The right, power, or authority to administer justice by hearing and determining controversies.”^{iv}

Keep Out Zone

“The recommended boundary areas into which visiting spacecraft should not enter. It is desirable to isolate certain locations relative to the C/L, AB and VVSMB from visiting spacecraft. A particular zone’s radius will vary as a function of the artifact and site location.”^v

Overflight

“The specific path of an entering spacecraft or braking stage that results in a trajectory over the heritage site (D/L boundary).”^{vi}

Law

“The principles and regulations established in a community by some authority and applicable to its people, whether in the form of legislation or of custom and policies recognized and enforced by judicial decision.”^{vii} Ex: The United States Code and Federal Aviation Regulations provide part of the U.S. law regarding outer space.

Regulation

“A rule or order issued by an executive authority or regulatory agency of a government and having the force of law.”^{viii} Ex: The Federal Aviation Administration prescribes regulations (rules) that govern U.S. aviation activities.

Resolution

“A formal expression of opinion or intention made, usually after voting, by a formal organization, a legislature, a club, or other group.”^{ix} Ex: The United Nations passes General Assembly resolutions regarding space law that are “soft-law,” *i.e.*, non-binding on member States.

Statute

“A law enacted by the legislative branch of a government.”^x

Territory

“The land and waters belonging to or under the jurisdiction of a state, sovereign, etc.”^{xi}

Treaty

“A formal agreement between two or more states in reference to peace, alliance, commerce, or other international relations.”^{xii} In the U.S., the Senate approves, by a two-thirds vote, treaties made by the President. Ex: Many States have signed and are bound by the Outer Space Treaty.

United Nations

“An organization of independent states formed in 1945 to promote international peace and security.”^{xiii}

United States Code

“The codification by subject matter of the general and permanent laws of the United States.”^{xiv}

ⁱ *Definition of Code of Conduct*, The Free Dictionary Online, <http://X.thefreedictionary.com/code+of+conduct> (last visited Nov. 7, 2011).

ⁱⁱ *Definition of Convention*, The Free Dictionary Online, <http://X.thefreedictionary.com/convention> (last visited Nov. 7, 2011).

ⁱⁱⁱ *Definition of International Court of Justice*, The Free Dictionary Online, <http://X.thefreedictionary.com/International+Court+of+Justice> (last visited Nov. 7, 2011).

^{iv} *Definition of Jurisdiction*, Dictionary.com, <http://dictionary.reference.com/browse/jurisdiction> (last visited Nov. 7, 2011).

^v NASA’s Recommendations to Space Faring Entities: How to Protect and Preserve the Historic and Scientific Value of U.S. Government Lunar Artifacts 8-9 (July 20, 2011).

^{vi} *Id.*

^{vii} *Definition of Law*, Dictionary.com, <http://dictionary.reference.com/browse/law> (last visited Nov. 7, 2011).

^{viii} *Definition of Regulation*, Merriam-Webster Online Dictionary, <http://X.merriam-webster.com/dictionary/regulation> (last visited Nov. 7, 2011).

^{ix} *Definition of Resolution*, Dictionary.com, <http://dictionary.reference.com/browse/resolution> (last visited Nov. 7, 2011).

^x *Definition of Statute*, Merriam-Webster Online Dictionary, <http://X.merriam-webster.com/dictionary/statute?show=0&t=1320335799> (last visited Nov. 7, 2011).

^{xi} *Definition of Territory*, Dictionary.com, <http://dictionary.reference.com/browse/territory> (last visited Nov. 7, 2011).

^{xii} *Definition of Treaty*, Dictionary.com, <http://dictionary.reference.com/browse/treaty> (last visited Nov. 7, 2011).

^{xiii} *Definition of International Court of Justice, United Nations*, The Free Dictionary Online, <http://X.thefreedictionary.com/International+Court+of+Justice> (last visited Nov. 7, 2011).

^{xiv} *United States Code: Main Page*, GPO Access Webpage, <http://www.gpoaccess.gov/uscode/> (last visited Nov. 7, 2011).

V. APPENDIX B: (PRELIMINARY) GROUPING OF SELECTED TERMS

- Airspace + Aerospace
 - Aeronautics
 - Aerospace
 - Aerospace Vehicle
 - Air Traffic Control
 - Aircraft
- Astronaut
 - Astronaut
 - Astronaut Wings
 - Space Flight Participant
 - Passenger
 - Personnel of Spacecraft
 - Crew
 - Space Adventurism
 - Space Tourism
- Common Heritage
 - Common Heritage of Mankind
 - Benefits to all Mankind
 - Benefits to all Nations
 - Province of Mankind
 - World Heritage Sites
 - International
 - International Cooperation
 - Customary International Law
 - International Waters/High Seas
- Economics
 - Commercial
 - Non-Governmental Entity
 - Commercialization
 - Privatization
- Liability + Responsibility
 - Responsibility
 - Liability
 - International Responsibility
 - International Liability
 - Abnormally Dangerous
 - Absolute Liability
 - Fault
 - Fault-Based Liability
 - Joint and Several Liability
 - Negligence
 - Gross Negligence
 - Third Party
 - Damage
 - Compensation
- Orbit
 - Suborbital
 - Orbit
 - LEO
 - MEO
 - GEO
 - GSO
 - Space Traffic Management
- Security and Sustainability
 - Peaceful
 - Security
 - Sustainable
 - Consultations
 - Intelligence
 - Jamming
 - Nuclear
 - Sovereignty
 - Weapon
 - Space Weapon
 - Weapons of Mass Destruction
 - Near-Earth Objects
 - Planetary Protection
 - Space Situational Awareness
 - Space Surveillance Network
 - Sustainable
 - Climate
 - Weather
 - Space Weather
- Space Objects + Debris
 - Launch
 - Launch Vehicle
 - Component
 - Component Part
 - Launching State
 - State of Authorization
 - Outer Space
 - Payload
 - Registration
 - Space Debris
 - Space Debris Mitigation
 - Space Object
 - Spacecraft
 - Spaceport
- Telecommunications
 - Remote Sensing System
 - Satellite
 - Satellite System
 - Spectrum
 - Telecommunication

