



Legal and Policy Aspect of Space Situational Awareness

Chen Ling

Beihang University School of Law

Email: chenling1126@foxmail.com



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AN OVERVIEW OF SSA

What is SSA?

- ◆ It was initiated by the U.S. Air Force in 2001, it appeared in the Rumsfeld report on space.
- ◆ The current U.S. Air Force defines it as “the result of sufficient knowledge about space-related conditions, constraints, capabilities, and activities in, from, toward, or through space.”
- ◆ SSA is broadly defined as characterizing the space environment and its effects on activities in space.(Brian Weeden, Space Situational Awareness Fact Sheet)
- ◆ SSA is “comprehensive knowledge of the population of space objects, of existing threats and risks, and of the space environment”(User Expert Group of ESA SSA Requirement Study)



AN OVERVIEW OF SSA

Current and Planned SSA

- ◆ A plenty of countries hold their own satellite technology in hand while most of them aren't capable of tracking satellite orbits.
- ◆ The United States and Russia possess the most capable SSA systems around the world at present.
- ◆ Europe's Space Situational Awareness Preparatory Program (SSA-PP) was authorized at the November 2008 ESA Ministerial Council and formally launched 1 January 2009.
- ◆ In China, the National Space Weather Monitoring and Forecasting Center is dedicated at planning for the establishment of ground- and space-based stations and the real-time monitoring data collection and processing system which releases current, alarming and forecasting reports of space weather.



SSA UNDER DOMESTIC POLICIES AND LAWS

The United States

◆ National Space Policy

2006

- ◆ It provides the responsibility of the Secretary of Defense for SSA.
- ◆ The Director of National Intelligence is also supposed to support SSA with providing intelligence collection and analysis of space related capabilities.
- ◆ This policy mentions the potential international cooperation in space surveillance data sharing on the premise that national security and foreign space interests concerns are ensured.



SSA UNDER DOMESTIC POLICIES AND LAWS

The United States

◆ National Space Policy

2010

- ◆ One-way, non-cooperative → more bilateral cooperative
- ◆ SSA is noted in the *intersector guidelines* for departments and agencies, they shall identify space surveillance for debris monitoring awareness as a potential area for international cooperation.
- ◆ The *sector guidelines* specify the respective responsibility for the Secretary of Defense and the Director of National Intelligence, they shall consult with other appropriate heads of departments and agencies.



SSA UNDER DOMESTIC POLICIES AND LAWS

The United States

◆ The SSA Services and Information Law

10 U.S.C. § 2274 formulates general rules to govern SSA services and information provided to non-United States Government entities.

Authority

The Secretary of Defense is delegated the discretion to determine whom they will provide SSA data to and whether obtaining SSA data from other non-United States Government entities is allowable.

Eligible Entities

A state, a political subdivision of a State, a United States commercial entity, the government of a foreign country and a foreign commercial entity.



SSA UNDER DOMESTIC POLICIES AND LAWS

The United States

◆ The SSA Services and Information Law

Agreements

The Secretary of Defense may provide SSA services and information to eligible entities through signing agreements. However, the entity shall agree to pay an amount charged by the Secretary and not to transfer the received data or information without the permission of the Secretary.

Charges

If the entity is the government of a State, or of a political subdivision of a State, charges may be exempted. If the entity belongs to non-United States Government entities, it may be required to reimburse the costs.



SSA UNDER DOMESTIC POLICIES AND LAWS

The United States

◆ The SSA Services and Information Law

Immunity

Under subsection (g), “The United States, any agencies and instrumentalities thereof, and any individuals, firms, corporations, and other persons acting for the United States, shall be immune from any suit in any court for any cause of action arising from the provision or receipt of space situational awareness services or information, whether or not provided in accordance with this section, or any related action or omission”.



SSA UNDER DOMESTIC POLICIES AND LAWS

China

- ◆ Does not have an instrument of SSA in the legislative level.
- ◆ **China's Space Activities (White Paper)**

2006

- ◆ *In the progress made in the past five years, “China has conducted research into space environment monitoring and forecasting, and made important progress in the observation, reduction and forecasting of space debris. It now has the ability to make forecasts of the space environment on a trial basis.”*
- ◆ *With respect to the development targets and major tasks for the next five years, one major task is “to strengthen the ability to monitor the space environment and space debris, and initially set up a space environment monitoring and warning system”.*



SSA UNDER DOMESTIC POLICIES AND LAWS

China

◆ China's Space Activities (White Paper)

2011

- ◆ “space environment research” is replaced by “space environment exploration and forecasting”.
- ◆ “Using Shenzhou and other spacecraft, China has explored the space environment's major parameters and effects, worked on space environmental monitoring and forecasting, and studied space environmental effects.”
- ◆ For space science in *the future five years*, “It will also conduct scientific experiments on microgravity and space life science, explore and forecast the space environment and study their effects”.



SSA UNDER DOMESTIC POLICIES AND LAWS

Europe

- ◆ Although Europe's self-owned SSA system is still under construction, it has corresponding instruments to provide policy support.
- ◆ **Council Resolution Taking forward the European Space Policy (The Council of European Union, 2008)**
- ◆ “Highlights the need to ... develop a capacity to meet European user needs for comprehensive situational awareness of the space environment through a coordinated activity within Europe, and possibly with other partners” .
- ◆ “Takes note of the intention of the ESA DG to submit a proposal for a programme on space situational awareness, for subscription at the ESA Council at Ministerial level in November 2008, setting the basis for the operational capability and respecting the roles of the European Defence Agency and of the EU and ESA Member States”.



SSA UNDER DOMESTIC POLICIES AND LAWS

Europe

- ◆ **Towards a Space Strategy for the European Union That Benefits its Citizens (The European Commission, 2011)**
- ◆ To make space infrastructure secure, the Union needs to play an active role in the implementation of the SSA system and its governance mechanisms.
- ◆ “The Union should define the organization and governance of such a system taking into account its dual nature and the need to ensure its sustainable exploitation.”



SSA UNDER DOMESTIC POLICIES AND LAWS

Europe

◆ International Code of Conduct for Outer Space Activities

SSA is mentioned in their cooperation mechanisms. The 2008 version provides what kind of notification of outer space activities the Subscribing States would commit, then the 2010 version specifies it and adds more, and it also provides the notification channels.

2008

◆ “The Subscribing States may also consider providing timely information on space environmental conditions and forecasts to other Subscribing States or private entities through their national space situational awareness capabilities.”

2010

◆ The “Subscribing States or private entities” who receive the SSA data → “governmental agencies and the relevant nongovernmental entities of all space faring nations”.



SSA AND INTERNATIONAL SPACE LAW

The Outer Space Treaty

- ◆ Article V addresses the responsibility of States Parties to inform others of dangers in outer space.
- ◆ Article VI affirms the international responsibility of States Parties for their outer space activities and the next article holds the launch state is internationally liable for damage to another State Party.

The Liability Convention

- ◆ Article II and Article III conclude two liability scopes, absolute liability and fault liability.



SSA AND INTERNATIONAL SPACE LAW

The Registration Convention

- ◆ It formulates a binding obligation for the State Parties to identify objects in space and to hold state responsibility for such objects.
- ◆ Article IV requires each State of registry to inform the Secretary-General of the United Nations of its information about space objects and their change.
- ◆ Article VI is a requirement of particular States possessing space monitoring and tracking facilities to render assistance to other State Parties without such capabilities.



WHAT WE CAN DO TO SSA?

Strengthen International Cooperation

Convention or Bilateral and Multilateral Agreements?

An Alternative Solution: Domestic Legislation



Thank you!