Assuring Better Implementation of Space Situational Awareness in China

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Outline

1. China's Progress in Space Sustainability

2. SSA: Where Does China Stand Now?

3. Preliminary Considerations for SSA Program in China: What Can Be Expected?

1. China's Progress in Space Sustainability

- Space-faring country; comprehensive engagement in outer space activities
  - New-generation launch vehicles
  - High-resolution Earth observation system
  - Satellite navigation and positioning system
  - Lunar exploration
  - Human spaceflight
- Space law & space policy: not in place
- White paper on space activities (2000, 2006, 2011)
  - Review & forward-looking
  - Industry plan (five-year); carries policy orientations

-- 2011 vs. 2006 (in relation to space sustainability)

- Importance acknowledged; reiterated the concept “to develop a ‘comprehensive, coordinated and **sustainable**’ space industry”;
- New term: “harmonious outer space”, “rule of law” and “inclusive development”
- A sub-section devoted to space debris

Debris mitigation and removal

--Progress in last 5 years

- Inactivated Long March rockets
- Moved a few aging GEO satellites out of orbit
- Protected manned spaceship from space debris

-- Plan for next 5 years

- Develop technology in monitoring space debris and pre-warning of collision; design and assess system of space debris mitigation
- Take measures to reduce space debris left by post-task spacecraft and launch vehicles
- Experiment with digital simulation of space debris collisions
- Build a system to protect spacecraft from space debris

-- Interim Instrument of Space Debris Mitigation and Management; issued by State Bureau of Science, Technology and Industry for National Defense (SBOSTIND), 2010

- Limitations: department regulation; interim document
- Positive side:

  Covers supervision, management and coordination;

  Aspirations to be a responsible space actor

2. SSA: Where Does China Stand Now?

- 2006 white paper:
  - Conduct research into space environment monitoring and forecasting, with the ability to make forecasts of the space environment **on a trial basis**
  - Aim to **set up** a space environment monitoring and warning **system**
- 2011 white paper: not dealt with specifically
- Comments:
  - On the agenda; not initiated as a concrete program; no specific plan
  - Importance not being fully acknowledged
  - Lower priority

- Regional collaboration: Asia-Pacific Ground Based Optical Space Objects Observation System (APOSOS)
  - Undergoing project, led by China

-- But,

- Focus on optical telescope
- Not complementary observation capabilities among participating states
- Possible financial difficulties faced by cooperating sates in building new supporting facilities

-- **Grounds for prioritizing SSA in China**

- Space-faring country; more dependent on outer space; growing volume of space assets; increase of risk and vulnerabilities
- Potential to be developed into a productive space segment; SSA-PP of EU (Space Situational Awareness Preparatory Program)

-- **Preferential parameters for developing SSA in China**

- Budget difficulties unlikely to happen, compared to SSA-PP phase 2
- “National prestige” proved to be less influential

Q: Will SSA come into scene in next white paper (2016)?

3. Preliminary Considerations for SSA Program in China: What Can Be Expecte

-- Administration scheme

-- Correlation with disarmament effort

-- Administration scheme

- Operated by military force; applied to civil& commercial area

  i.e. US Department of defense

- Smooth procedure for interagency coordination of SSA data access domestically
- Similarity to Beidou/Compass

Correlation with disarmament effort

- Multiple use of SSA
  - Positive: possible contributions to transparency and confidence in space
  - Negative: used for defensive and offensive operations
-- No global SSA without cooperation on distribution of sensors and data sharing
- Draft Treaty on the Prevention of Placement of Weapons in Outer Space and the Threat or Use of Force against Space Objects (PPWT)
  - Introduced by China & Russia
  - First legislative proposal made by China
  - No negotiations conducted yet

--- EU Draft Code of Conduct for Outer Space Activities

- Sustainability, safety & security
- SSA in recent working document:

Article 8.2: “The Subscribing States **may** also **consider providing timely information** on outer space environmental conditions and forecasts **to** the governmental agencies and the relevant non-governmental entities of all space faring nations, **collected through their space situational awareness capabilities**.”

- China’s attitude: will not join the negotiations;

  leading role to be played by COPUOS to promote space sustainability

Brief conclusion

-- Formation of internationally shared space surveillance capability and data:

- Partly subject to the bottom of line in disarmament
- More patience and efforts needed
- Proliferation of surveillance network may weaken the military leverage; i.e. GPS's promise

-- Capability building of China carries broad implications:

- Favor its national space activities; beneficial for international space community
- Potential to proactively push emergence of good common practices in SSA
- From a rule& policy taker to a rule& policy maker

Thank you!

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