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
  - 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 states 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 Expected

-- 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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