



*Promoting Cooperative Solutions for Space Sustainability*

# **The role of Space Situational Awareness (SSA) in Space Security and Sustainability**

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# “Flying” blind



- Space situational awareness (SSA) is information about the space environment and activities in space that can be used to:
  - Operate safely and efficiently
  - Avoid physical and electromagnetic interference
  - Detect, characterize and protect against threats
  - Understand the evolution of the space environment
  - Provide awareness and transparency of space operations

“Civilian”

## – Metric Data (Catalog)

- Data on space objects’ orbits and trajectories that allows for predictions of where objects were in the past and will be in the future

## – Space Weather

- Measurement, warning, and forecasting of the effects of Solar activity on objects in orbit

## – Space Object Status

- Health, telemetry, planned maneuvers (usually provided by owner/operator)

“Military”

## – Intelligence

- Characterization of objects in orbit (shape, design, capabilities, weaknesses)
- Assessment of behavior, intentions, and potential threats

# Sharing and cooperation is key to SSA

- Most space actors do not have the resources or capacity to provide their own SSA
- Many States have some national capability that they can contribute to a broader effort
- Achieving “good’ SSA requires a large network of geographically distributed sensors **and** information from satellite owner/operators
  - Cannot be done by any one country working alone
  - Needs government and private sector cooperation

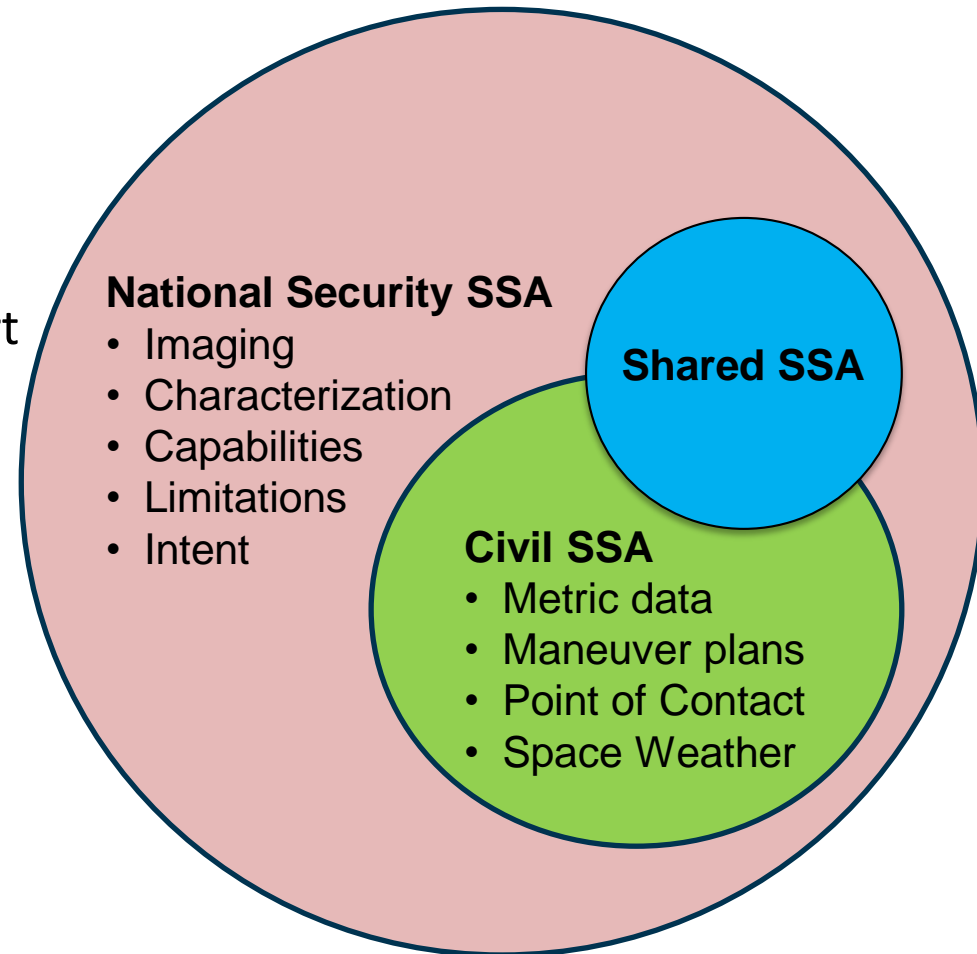
**SSA collaboration, cooperation, and sharing is necessary for space security and sustainability**

# Enhancing security & stability

- Incidents in space could be a flash point for conflict on Earth
  - Growing number of States relying on space capabilities for national security
  - Anomaly resolution is “long distance detective work”
  - Did my satellite cease operations because of debris, space weather, manufacturing defect, or a deliberate attack?
- “Shared monitoring” through SSA is essential to establishing responsible behavior and detecting/attributing irresponsible behavior in space
- SSA can also lay the foundation for verification of future legally-binding agreements

**Shared SSA is likely a prerequisite for future  
“hard” and “soft” political agreements**

- Core set of SSA services to support all users
  - Maintain catalog of space objects
  - Conjunction assessment warnings
- Specialized capabilities to support national security
  - Threat assessment
  - Determining object capabilities
- Sharing on multiple levels
  - Sharing between allies
  - Sharing between gov'ts and commercial
  - Sharing publicly





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# Thank You

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