Overview

- USAF Space Weather Services
- Space Weather Application
- Space Weather Observing
- Space Weather Community
- Why DoD Space Weather: Sensor-to-Operator
- Summary
Chairman of the Joint Chiefs of Staff Instruction

Chief of Staff, U.S. Air Force is responsible for: Space weather research, operations, and capabilities in support of all elements of the Department of Defense

HQ AF/A3W delegated space weather operational responsibility
Space Weather Application

- 557th Weather Wing Space Weather Operations Center (SpaceWOC)
  - Mission-tailored unclassified and classified analysis, forecasts, warnings
  - Disseminate system-impacting space weather
    - DoD operators and decision makers
    - National agencies
  - Anomaly assessment support

- Joint Space Operations Center (JSpOC)
  - C2 system executing USSTRATCOM space control mission
  - Focal point for space force integration & employment in military ops
  - Detect, track, and identify all artificial objects in Earth orbit

Mission Focused, Operational Support to DoD & National Agencies
Space Weather Observing
Future

DMSP: F16, F17, F18
COSMIC-2: Low & High Inclination
All AF Space-based Platforms (2022)

Relevant, Reliable, Responsive Obs Feeding Sensor-to-Operator Chain
Space Weather Community

- DoD actively engaged in global community

- Training
  - Offer space weather course (1 week) at 557 Weather Wing
  - Students from Italy, France, Netherlands, Germany – working to bring in Japan and South Korea

- Cooperating in operations
  - NOAA SWPC – analysis and forecasting
  - Engaging with UK, South Korea on Ops Centers stand-up
  - Data sharing via web services – national & international partners

- Energizing research and development relationships
  - Government Labs
  - Academia
  - Commercial Sector
Why DoD Space Weather: Sensor-to-Operator

SOON – Hα

Sensor Operator

SpaceWOC forecast

Uninterrupted RPA SATCOM data link to CAOC

ISTO – Radio Frequency
Beacon over flight signals

Combined Air Operations Center
Theater ISR collection

Uninterrupted RPA SATCOM

data link to CAOC

NEXION
– derived profiles

Impact products
– HF illumination

Naval Special
Warfare RHIB C2
via HF Comm

Models – Global Assimilation of
Ionospheric Measurements (GAIM)

Why DoD Space Weather:
Sensor-to-Operator

SENSEOR

SPACE WEATHER DATA & PRODUCTS

OPERATOR

20th Space Control Sq
alerted to space object
tracking impacts

combined Air Operations Center
Theater ISR collection

Uninterrupted RPA SATCOM
data link to CAOC

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Impact products
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Summary

- Air Force committed to space weather enterprise…now & future
- Team with national & international community for DoD Support
- Sensor-to-Operator – accurate, timely, relevant impacts delivered

“Air Force weather enables Joint Warfighters to anticipate and exploit the weather...for air, ground, space, cyberspace and intel operations.”
– AFW Mission