557 WW Center Update

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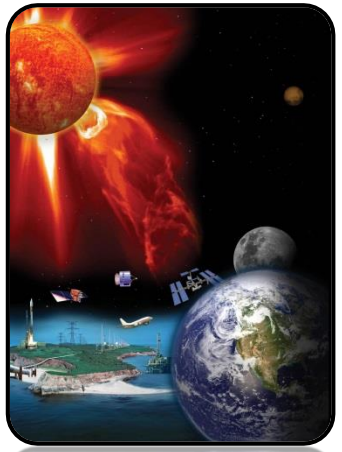
Technical Director

Mission / Vision

Mission: ***Maximize America's Power*** **through the Exploitation of Timely, Accurate, and** ***Relevant Weather Information*****; Anytime, Everywhere**

Air & Space Superiority

Rapid Global Mobility



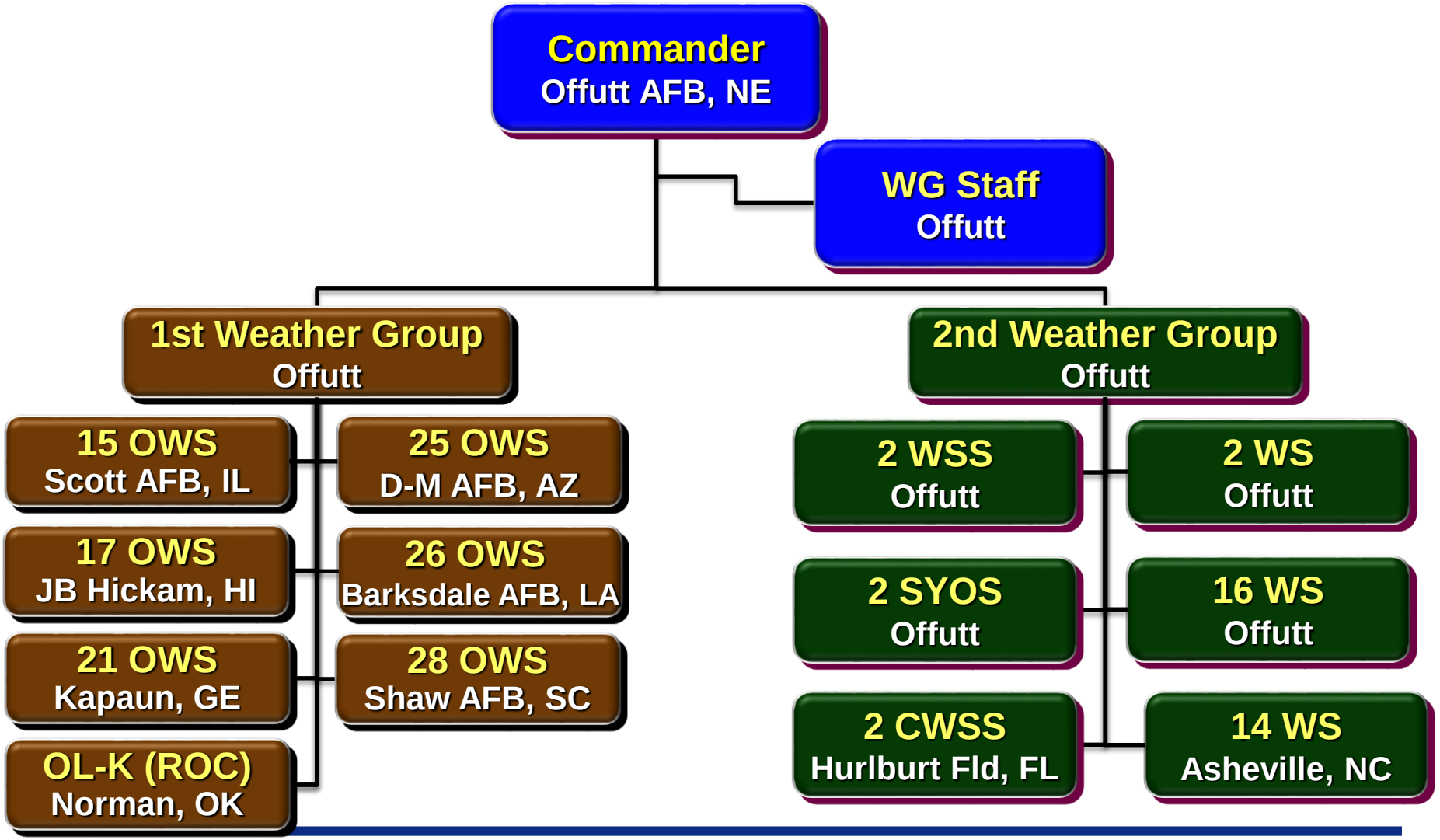
Command & Control

ISR

Global Strike

Vision: ***World-class Airmen…the DoD's provider of choice for innovative, actionable, and authoritative terrestrial and space weather information to win the fight...today and tomorrow.***

Organizational Structure



Team 557:
Global Footprint for Global Vigilance

Team 557:
Global Synergy

1 WXG Operational Weather Squadron (OWS) AORs align with specific Geographical CCMDS

Unique Missions

- **Global:**
  - Cloud analysis and forecast modeling
  - Numerical weather prediction for USAF & US Army ops
  - Climate monitoring, analysis & prediction
  - Snow cover/snow depth analyses
  - Solar Monitoring (24/7 DoD ground-based solar observatory network)
- 24/7 National Intelligence Community (IC) operational support
- 24/7 mission-tailored space-environmental analyses, alerts, forecasts, & warnings for JSpOC, NORAD, Space Operators, DoD HF/GPS users
- 24/7 center for airborne volcanic ash dispersion products
- Weather Center for American Forces Network (AFN)
  - Produce shows tailored to DoD & DoS deployed or stationed OCONUS
- Backup for Aviation Weather Ctr, Storm Prediction Ctr, Space Weather Prediction Ctr (SWPC) & DC Volcanic Ash Advisory Ctr (VAAC)

DMSP Status

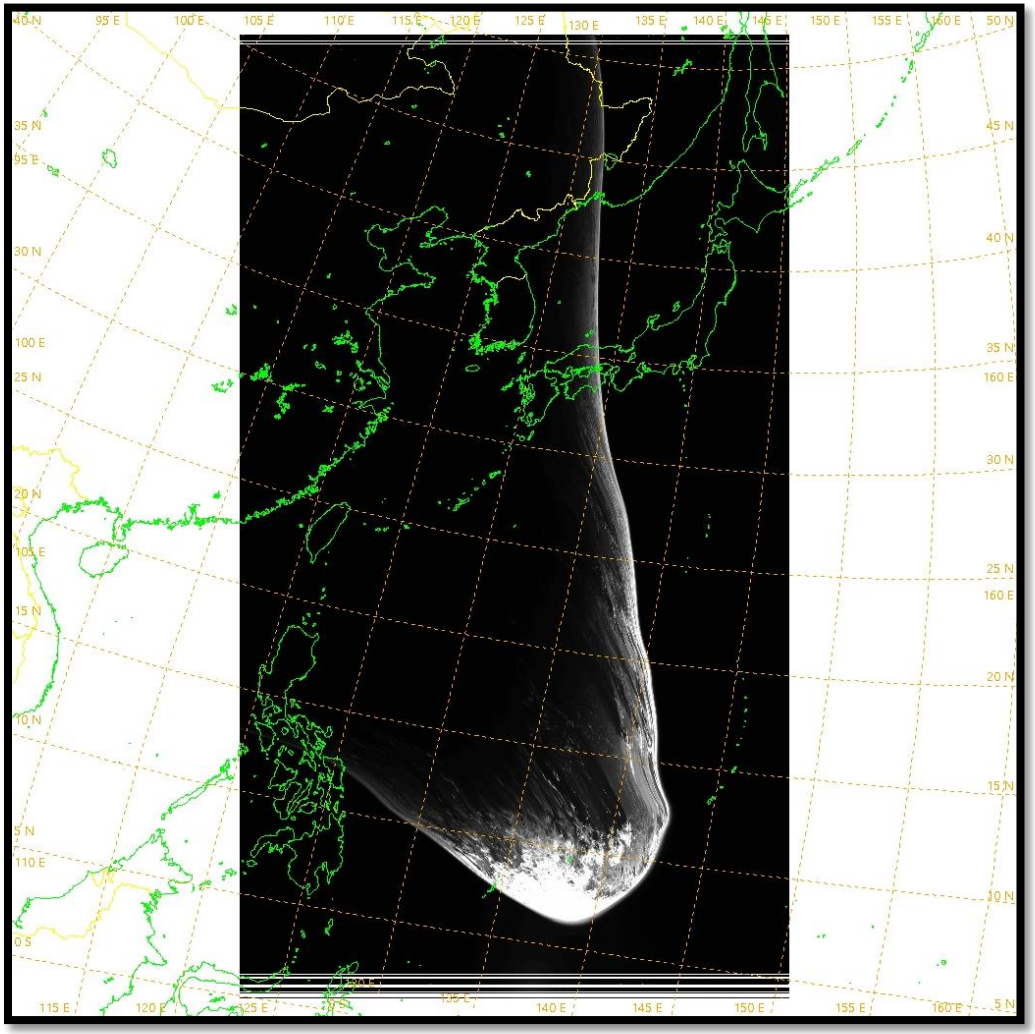
- **Constellation**
  - Primary Ops: F17 & F18
  - Secondary Ops: F16 & F15
  - Tactical Ops (direct readout only): F14

- **Aging Constellation (Design Life: 5 yrs)**
  - Youngest Primary: F18 (8yr, 1mo)
  - Oldest: F14 (20yr, 7 mo)

- **Real-Time Mission Sensor (RTMS) Data via MIVB**
  - Captured, relayed to FNMOC (F16-F18)

F-19 Status

- Command access lost: **February 2016**
- Attitude control lost: **October 2017**



DoD Follow-on Efforts

- **Weather System Follow-on (WSF)**
  - Electro-Optical/IR Polar (WSF-E); ILC: FY24
  - Geo (WSF-G); Identifying residual GOES to relocate to IO region [mitigates Met 8 (EOL in 2019)] and planning ground station options
  - Microwave (WSF-M); Energetic Charged Particle Sensor as a GFE; ILC: FY23
- **ORS-6 Tech Demo**
  - Ocean Wind Vector Radiometer; ILC 4QFY18
- **ORS-8 Ops Prototype**
  - Interim capability btn DMSP & WSF-E (Combat Cmd Urgent Need)
  - RFP Released
  - Early Morning Polar; ILC: FY21

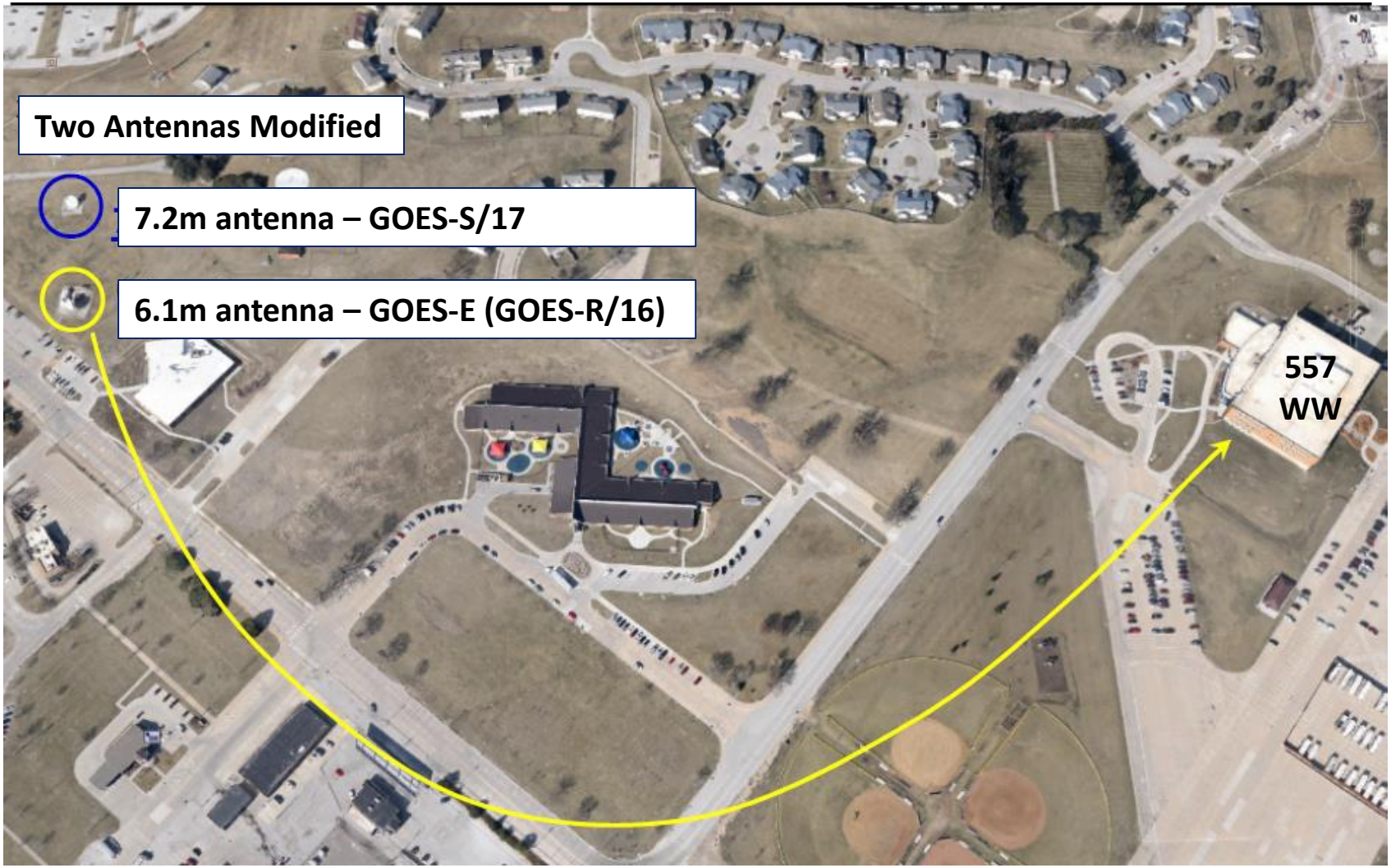
Mapping to AoA

	Gaps				
	1	2	3	8	11
Satellite	Cloud Characterization	Theater Weather Imagery	Ocean Surface Vector Winds	Tropical Cyclone Intensity	LEO ECP Characterization
WSF-E	X	X			
WSF-G	X (FY20)	X (FY23)			
WSF-M			X	X	X
ORS-6			X	X	
ORS-8	X	X			

557 WW Updates

- **JPSS-1**
  - Ingest via NESDIS PDA; pass to FNMOC
  - Model Uses: NWP, Cloud Analysis/Forecast, Land Information, Snow Depth
- **GOES-16 Direct Readout**
  - Antenna modifications and MIVB servers installed at Offutt AFB
  - Preparing 557 WW processes for mid-Dec 17 activation as GOES-E
- **Himawari-8**
  - 14-channels via MIVB
  - Integrating 5 channels into cloud forecasting processes (more in 2018 timeframe)

OAFB GOES-R/S East and West Antenna Upgrades



557 WW Updates

- **Global Air Land Weather Exploitation Model (GALWEM)**
  - Running at 17 km resolution and migrating to 10 km
  - Organic 4DVAR DA at 557 WW in 2018
  - Working hand-in-hand with UKMO experts on dust improvements
- **Global Assimilation of Ionospheric Measurements-Full Physics (GAIM-FP) Model**
  - Include FNMOC in Tech Interchange Meetings
  - OT&E in Jan/Feb 18 within SWAFS program
  - Risk mitigation: GAIM-FP output in both new format and re-gridded to legacy GAIM format
- **Cyber Security Posture**
  - 557 WW vulnerable to “no-notice” at any time

HPC

Operational: 23 Aug 17, 12Z

First GALWEM Production Cycle

***Nodes*: 896 compute, 6 I/O, 4 login, 38 misc**

***Computing Power*: 896.6 TFLOPS**

***Storage*: 1.1 Petabytes**

Questions?