

# Realizing Resiliency in Space Systems Working Group

Radio Frequency Interference Monitoring System (RFIMS)

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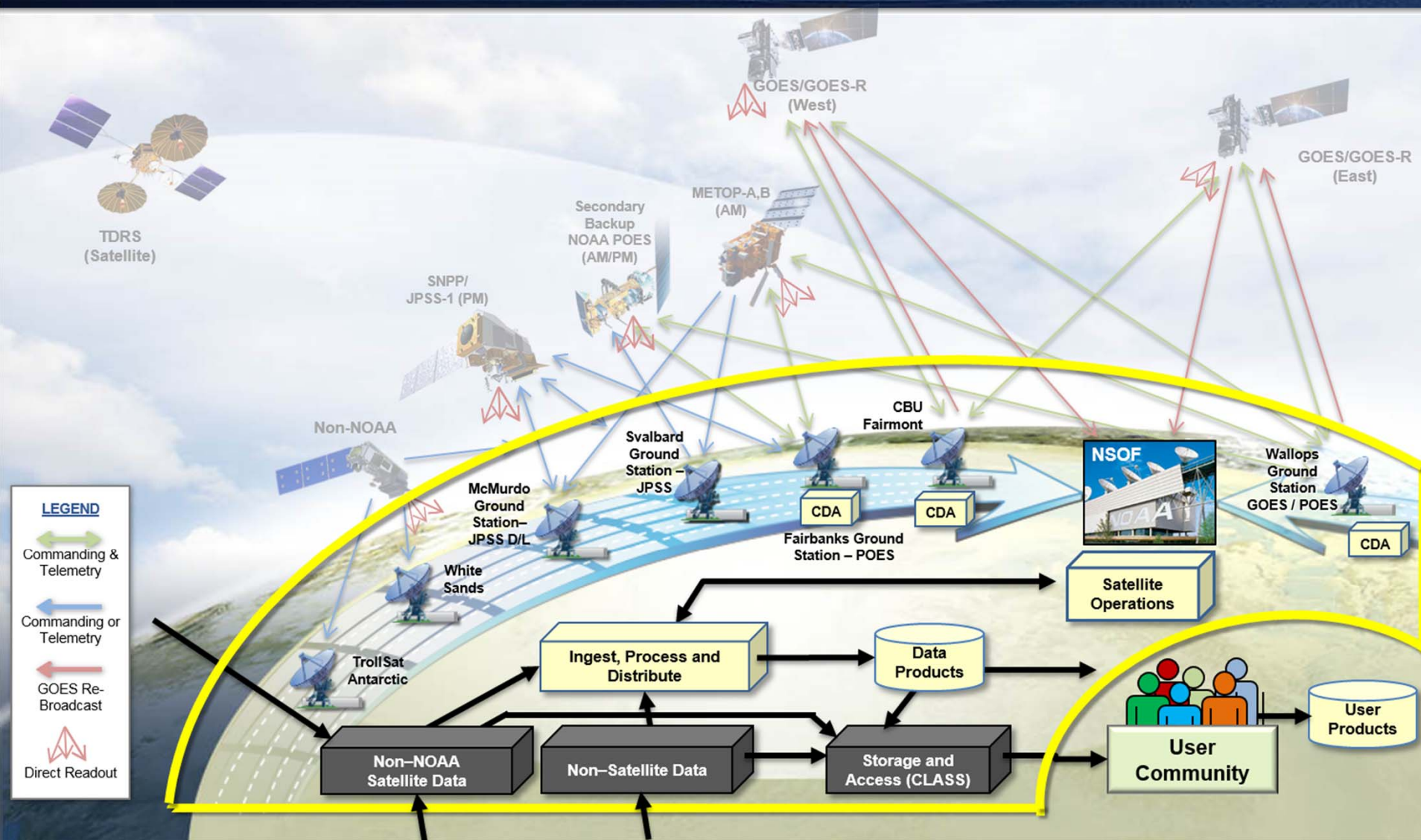
*28 February 2018*







# NESDIS Ground Enterprise

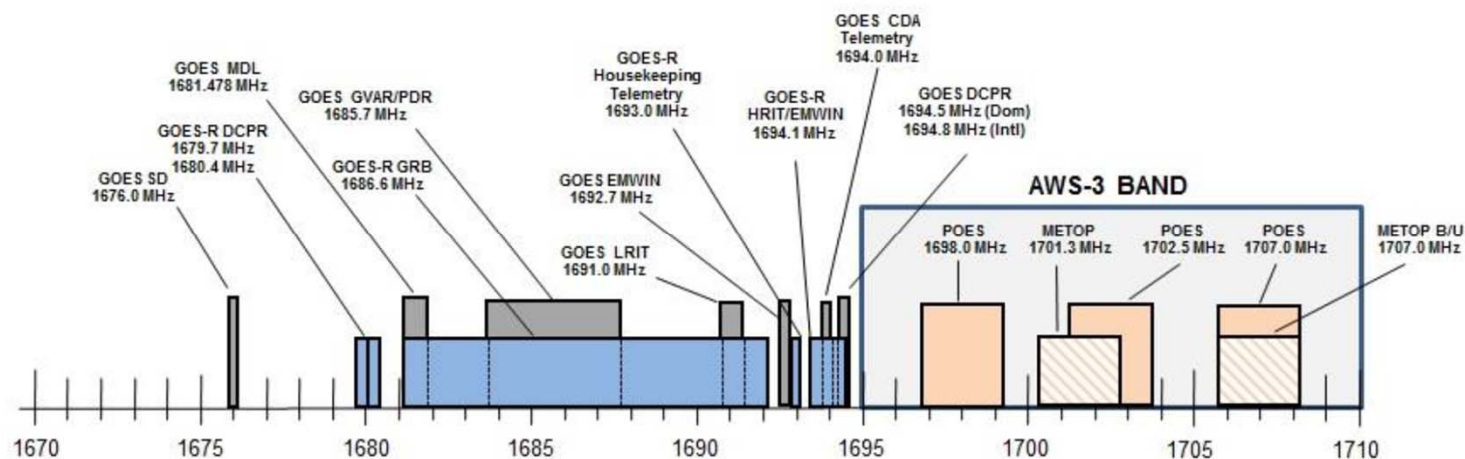




# Resiliency Challenges in NOAA



- 2012 Middle Class Tax relief Act and the ensuing FCC AWS-3 Auction, NOAA Radio Frequency Spectrum between 1695 – 1710 MHz will now be shared with Wireless Carriers
- This will be a challenge as a previously dedicated government resource will now be made available to commercial entities
- Understanding this sharing model, NOAA identified 17 meteorological satellite Federal satellite earth stations, within 15 Protection Zones that will require protection and coordination



***NOAA has taken an active role in coordinating with Wireless Carriers as well as industry for solutions to this challenge***

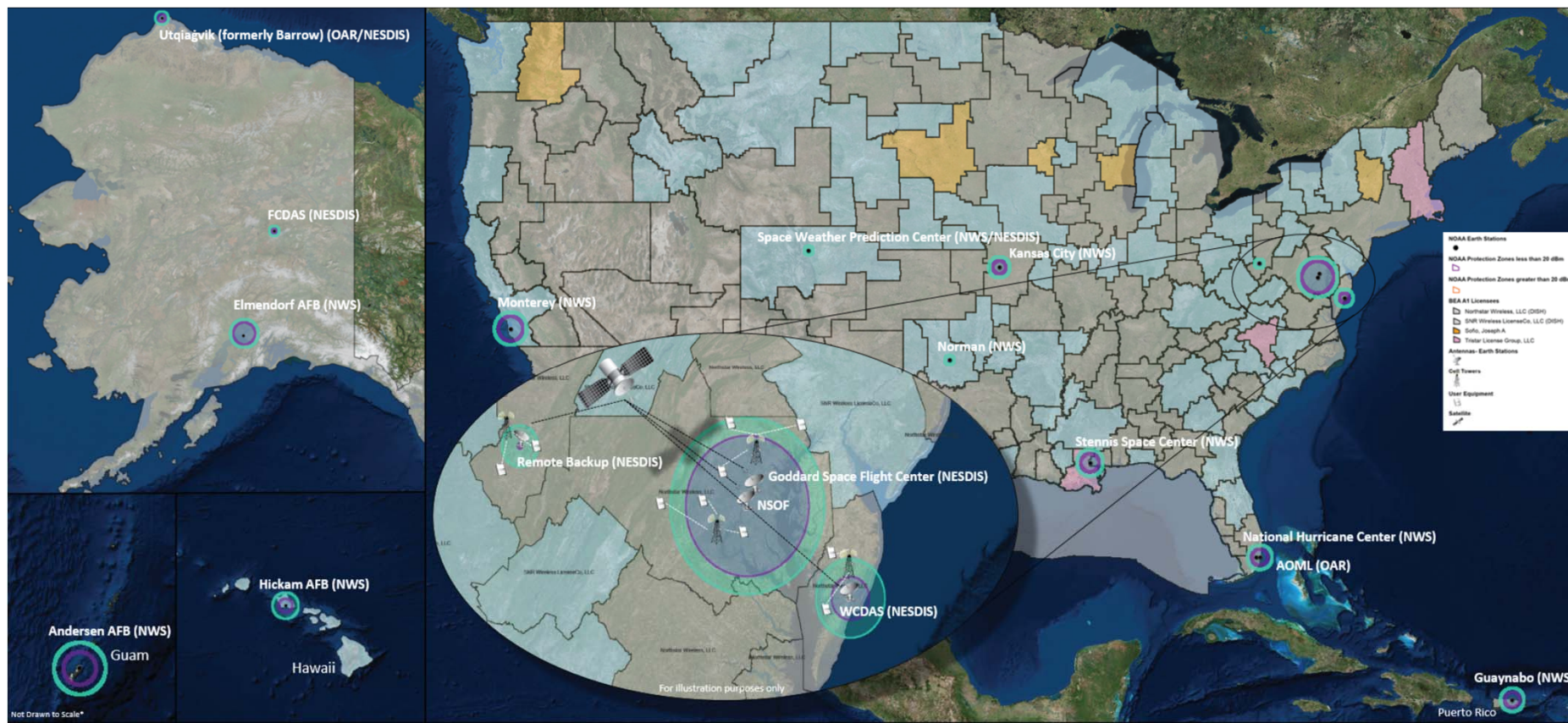




# Resiliency Challenges in OSGS



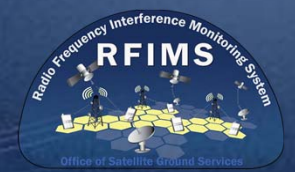
- 17 Satellite Earth Station in 15 Protection Zones
  - Areas of economic interest to Wireless Carriers



*How do we address the interests of both parties?*



# Addressing the Spectrum Resiliency Challenge



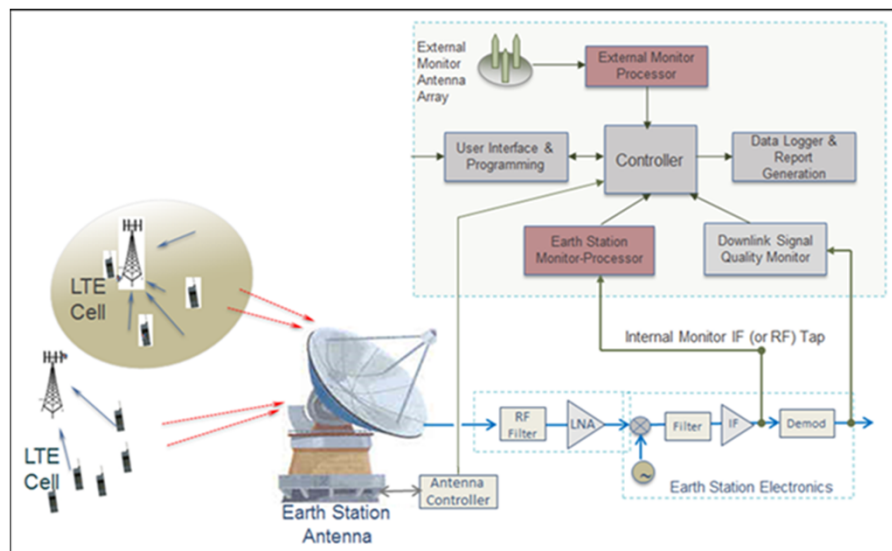
- **NOAA initiated the development of a monitoring system**
  - NOAA has stood up the RFIMS project, the purpose of which is to design and deploy a **Radio Frequency Interference Monitoring System (RFIMS)** for these 17 NOAA ground stations that will facilitate sharing of spectrum
- **Resiliency risk approach**
  - Spectrum sharing introduced a risk to interrupt NOAA satellites downlink
  - In response to this risk, NOAA embraced a “win-win” approach that allows wireless careers to maximize economic advantage (building towers in protection zones) while also protecting NOAA downlink



# RFIMS CONOPS



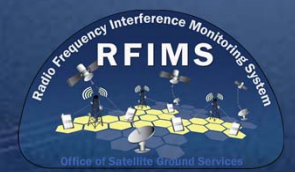
- **RFIMS will be a monitoring system that can detect and classify RF interference to satellite earth stations in real-time, identify the source(s) of interference, and notify operators of interference**
- **Specifically, the RFIMS will have the following functions:**
  - **Detection** - The system will detect interference events at or above a given threshold in real-time
  - **Classification** - The system will classify the types of RF interference it detects (e.g. LTE vs. Non-LTE)
  - **Identification** - The system will identify the wireless carrier(s) responsible for the UE(s) causing the interference in real-time
  - **Notification** - The system will notify NOAA operators and the wireless carriers, that wireless carriers are creating interference to NOAA



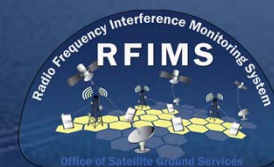




# Achieving Resiliency Success



- **With the development of the RFIMS, NOAA is maintaining resiliency and ensuring commercial access to a previously dedicated government resource**
- **NOAA expects this trend of spectrum sharing to continue and is setting the foundation for future cooperation with the commercial sector**



# Questions?