Spectrum Allocation and NOAA Satellite Downlinks: Sharing Weather Spectrum

David G Lubar
The Aerospace Corporation / Civil Systems Group

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Data Services: GOES-16 Downlinks & Spectrum

1675-1680 MHz Proposed For Auction

- Flood and Tsunami warning
  - River & Coastal Gages
- Wildfire weather sensors
- Inland river navigation
- Drought management

- All GOES-R Imagery (L1b)
- All science data
- Space weather data

- Reduced data set
- Emergency Managers
  Near-real time NWS data accessible by transportable, battery powered receiving systems

GOES Broadcasts In Spectrum That Is Less Degraded By Weather Effects In Order to Provide Consistent Service
Satellite Data Sources For Weather Enterprise
Users Have Choices In How To Obtain Operational Data

- Users access operational NOAA satellite data from different sources:
  - By direct reception from GOES / GOES-R with GVAR or GRB antenna
  - Obtaining data from another parties GVAR or GRB antenna
  - By terrestrial access to NOAA’s PDA dissemination server
  - By accessing available information from NOAAPort / Satellite Broadcast Network (SBN), which is used primarily for NOAA Weather Forecast Offices and other users of AWIPS

- Fastest access is by receiving the direct broadcast from GOES or GOES-R
  - PDA has no backup site for GOES-R L2 data; any failure at primary site would result in the loss of GOES-R data by a user dependent upon PDA
  - NOAAPort has sectorized imagery data, and degrades some of the science data resolution to allow transmission via NOAAPort.
  - Only GRB and PDA feature full L1b dataset

Fastest, Full Resolution GOES-R Level 1b Data Available From GRB
User’s Who Benefit From GOES/GOES-R Dissemination Via the Radio Spectrum

Federal & Local Users

Private Weather Enterprise

Academia & Cooperative Institutes

Industry Segments

Equipment Manufacturers

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Smallsats and GOES DCP Sharing UHF Band

Aggregate Interference Potential Unknown

- River, Stream & Coastal Gages – Some of the Data Collection Platforms Uplinking at 401-402 MHz [NOAA]

- Spire’s LEMUR satellite constellation, with current uplinks in 401-402 MHz [Graphic Source: Aerospace Corp.]

Pre-Coordination Allows Analysis & Investigation into New Uplink Frequency Choices for Smallsat Constellation, If Available
Topic Summary
Spectrum Is Essential For Transmission of Weather and Water Data

• Multiple Proposals Are Underway Regarding the Sharing of Weather Satellite and Water Dissemination Spectrum
• User Awareness of These Proposals is Important
• Spectrum Can Play an Important Role in the Dissemination of Information

Terrestrial Interference to NOAA Imagery Reception
August 17, 2015 GOES
Source: NOAA
https://www.nesdis.noaa.gov/content/noaa's-environmental-observations-spectrum-matters

User’s of Satellite Data or Products Derived From Such Data Should Understand Spectrum Proceedings and Impacts