Dear GOES HRIT/EMWIN Users,

NOAA's next generation of geostationary satellites, the [GeoXO Satellite System](#), is currently defining requirements with the expectation of finishing in August 2022. The provision of HRIT/EMWIN data to users is foreseen to be through commercial cloud and satellite broadcast services. Continuity of service to users is a requirement. Your experience with the GOES HRIT/EMWIN direct broadcast, and the impact of broadcast changes on your program, are touchstones in planning GeoXO.

The HRIT User survey in 2020, and recent meetings such as the DCS Users open meetings and the GRB/HRIT quarterly meeting, have helped us understand the HRIT community's use cases and requirements. As reflected in the survey responses, a large part of the HRIT community uses it as backup reception for DCS messages related to critical infrastructure responsible for protecting life and property. Users also make clear that HRIT direct satellite reception has been an important capability during terrestrial internet outages.

Users of Imagery and EMWIN data products, for example emergency managers, businesses, and amateurs/hobbyists have concerns about portability, ease of setup, and bandwidth. The hobbyist community plays an important role during emergencies, for example through the [SKYWARN](#)program, and in advancing the use of GEOS imagery.

What would be most helpful for GeoXO in evaluating future scenarios is, along with an explanation of the latency and availability requirements for your situation, a *quantified impact* on your mission if the customary HRIT/EMWIN reliability isn't met. As examples:
- The USACE operates several dozen HRIT stations to receive DCS messages and provide situational awareness to facility operators in times of emergency. They have a direct impact on flood prevention and safe navigation, and billions of dollars in transported goods. An availability of 99.99% is required for their mission.
- The NOS maintains coastal tide and water level sensors for preparedness and risk mitigation. During several large-scale terrestrial internet outages on the east coast, HRIT preserved data collection.

It may be difficult to quantify the impact of an HRIT/EMWIN change, but if the size of the community served or the value of assets protected can be counted, it will help the GeoXO team to set requirements for the HRIT/EMWIN service.
- Is critical infrastructure protected by timely weather information or data collection for which HRIT/EMWIN is a primary or backup channel?
- Are lives and property protected by timely weather information or data collection provided by HRIT/EMWIN?
- If HRIT/EMWIN is a secondary channel to terrestrial internet, how often has it been relied upon during a terrestrial outage?
- Is the impact of a data outage multiplied by the number of downstream data users?

As I think about the future of HRIT and how it might improve, some questions that come to mind are

1) Is there a potential benefit in moving to Ku-band receivers, for example in station expansion or maintenance costs?
2) Is L-band Radio Frequency Interference a growing problem?
3) GeoXO will produce ~10 times the data of GEOS-R. Would programs benefit from an expanded HRIT service making use of new data products?
4) Have the potential issues with a move to the cloud and Ku-band been scoped?
    a) Due to climate change, are impactful events increasing over the next 10-15 years, implying more stringent HRIT reliability requirements?
    b) Will rain-fade at Ku band affect HRIT availability?
    c) At geographic locations of current or future users, will a commercial satellite footprint offer reliable coverage?
    d) Can HRIT station size and portability be maintained at Ku-band?

We will hold several webex meetings to collect your input. Connection information will follow.
1. Tuesday 17 May 2022 14:00 EDT (16:00 UTC)
2. Thursday 19 May 2022 14:00 EDT (16:00 UTC)

Feel free to contact the HRIT/EMWIN Program manager directly with any input or questions.

Yours,
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