



June 15, 2016

Secretary Marlene Dortch
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Dear Secretary Dortch:

I am writing regarding radio spectrum sharing, on behalf of the American Geophysical Union (AGU), whose mission is to promote discovery in Earth and space science for the benefit of humanity, and its more than 60,000 Earth and space scientist members. AGU's membership consists of both public and private end users of the geoscience data that is collected by our nation's satellites, including the current Geostationary Environmental Operational Satellites Data Collection System (GOES DCS) and the upcoming GOES-R DCS. The quality of this important data relies on uninterrupted spectrum use, and potential interference of these signals will have a wide ranging impact on a variety of users.

As such, AGU has concerns regarding the Federal Communication Commission's plan to share 1675-1680 Megahertz radio spectrum with a new terrestrial broadband wireless provider. This band of the spectrum, which is used by long-established government geoscience data providers, is critical to our nation's public health, security, economic vitality, and hazards risk reduction.

Public Health

Severe weather watches and warnings like those issued by NOAA's National Weather Service (NWS) are based on data that is collected by the GOES DCS. These accurate and timely warnings are often the difference between life and death. Weather, water, and climate events cause an average of approximately 650 deaths and \$15 billion in damages per year. They are also responsible for almost 90 percent of all presidentially declared disasters. In 2005, Hurricane Katrina broke records as the United States' costliest natural disaster and the deadliest since 1928. At the time, GOES data provided images of the hurricane every five minutes. With the launch of GOES-R, scientists will be able to view images of hurricanes taken every 30 seconds, significantly improving hurricane forecasting and tracking. Life-saving technologies such as these rely on the uninterrupted use of the 1675-1680 MHz band of spectrum.

National Security

GOES and GOES-R provide monitoring capabilities for space weather – the coronal mass ejections and other solar storms that have the potential to disable global positioning-navigation systems, power grids, and commercial and military aviation operations. Additionally, a large coronal mass ejection could cost the United States from \$2-3 trillion in economic damages. Interference within the 1675-1680 MHz band will increase our nation's vulnerability to such solar storms.

Economic Vitality

Every day, millions of people, businesses, and communities rely on an uninterrupted 1675-1680 MHz band of the spectrum. Drought forecasts created from this data are worth up to \$8 billion per year to the farming, transportation, tourism, and energy sectors. In 2015 alone, there were 10 weather and climate disasters with losses exceeding \$1 billion across the United States. The forecasts provided from GOES and GOES-R DCS allow decision makers, businesses, and the American public to prepare for high impact events that will affect their properties and livelihoods.

Hazards Risk Reduction

Forecasting for volcanoes, wildfires, and floods also relies on GOES DCS data. In the event of a wildfire, GOES and GOES-R provide uninterrupted data that allow emergency managers to evacuate homes, coordinate response crews, and forecast wildfire movement – an invaluable tool for the nation's 70,000 communities located within or adjacent to forests and rangelands. Additionally, U.S. Geological Survey (USGS) streamgages measure stream levels, streamflow, water quality, and rainfall, which is relayed through the GOES satellites to offices where the information is stored, processed, and typically available online within minutes. This allows forecasters to warn communities about impending flooding, which is responsible for an average \$7.96 billion in damages per year.

Conclusion

Appropriate and thoughtful spectrum allocation is an important issue to AGU's member scientists. Sharing portions of the spectrum or reallocating federal use of the spectrum will disrupt crucial current and next-generation environmental technologies that have required billions of dollars in investments. The bandwidth currently being allocated to these services is already limited, and scientific use of the spectrum is constricted not only by the laws of physics, but by technology and cost restraints. Certain data points can only be measured on certain bands, and large investments have been made in infrastructure and instruments that only function on particular bandwidths.

Several of our nation's priorities rely on the reliable and uninterrupted signal in the 1675 – 1680 MHz range of the spectrum. Maintenance of strong and robust satellite data acquisition is vital to saving lives, maintaining national security, ensuring a strong economy, and mitigating hazards. These applications are simply too important to be put in jeopardy should signals experience interference due to spectrum sharing.

We are concerned that any actions to share the 1675-1680 MHz will put American lives and property at risk.

Thank you for the opportunity to comment on this important issue, and we look forward to continuing to work with you in strengthening our nation's capacity for technological innovation and success.

Sincerely,

A handwritten signature in black ink that reads "Christine W. McEntee". The signature is written in a cursive style with a horizontal line extending from the end of the name.

Christine W. McEntee
Executive Director/CEO
American Geophysical Union