American Geophysical Union
2000 Florida Avenue, NW
Washington, DC 20009

American Meteorological Society
45 Beacon Street
Boston, MA 02108

National Weather Association
3100 Monitor Avenue, #123
Norman, OK 73072

May 24, 2021

The Honorable Gina Raimondo
Department of Commerce
1401 Constitution Ave NW
Washington, DC 20230

Dear Secretary Raimondo,

Thank you for your voice of leadership on weather, climate and oceans that you have brought to your new role as Secretary of Commerce during the past few months. We represent some of the leading Earth science and weather organizations in the U.S. and world. We appreciated your testimony at recent hearings of the House and Senate Appropriations Committees noting the important investments in NOAA weather and climate observations in the Biden Administration's FY 2022 budget request. As we approach the start of the 2021 hurricane season and continue through a damaging spring of severe weather in the southeast U.S., these investments continue to be extremely important to protect life, property and the economy.

We are writing today to share our concern about the increasing threats to environmental satellite observations for weather predictions due to increasing demand for spectrum. The past few years have been challenging as the weather and water communities have worked to defend our spectrum assets that are crucial to the operation of critical environmental sensors operated by the private sector, academia and federal agencies like NOAA, NASA and the Department of Defense.

These concerns were also raised in your nomination hearing with the Senate Commerce, Science and Technology Committee in January, when in her opening remarks Chair Cantwell (D-WA) noted the need to safeguard critical spectrum assets to enable continued weather forecasting, water management and environmental modeling. We recently wrote to her about these topics and have attached that letter.

We welcome your leadership as the new Secretary of Commerce and encourage you to advance environmental forecasting and hazard prediction, which can only happen if existing spectrum assets in the L-Band and key passive bands are protected from interference. We are looking for your support in the following areas:

- Safeguard real-time environmental information for severe weather, wildfire prediction and marine transportation provided by NOAA's geostationary weather satellites (GOES) as well as the GPS and satellite communications assets relied upon by numerous industries to keep people safe and informed of hazards. It is critical for NTIA to continue to support the reversal of the FCC's April 2020 L-Band GPS decision and prevent any further consideration of Ligado's other proposal directly impacting NOAA's GOES and its reliance on 1675-1680 MHz.
- Protect information from passive microwave sensors that provide crucial inputs to weather models. The spectrum adjoining 24 GHz, 50 GHz and 90 GHz, provides important information

ranging from hurricane forecasting to precipitation estimates to improve forecasts. These measurements are unique to these spectral areas and cannot be obtained elsewhere.

- Prior to any further auctions, there must be further research and balanced dialogue across the public and private sectors and academia to find reasonable solutions that value the full economic significance and impact of weather forecasting and water resources management.[1]
- In addition, there is a need for federal funding and technology development to detect contamination in the passive bands and the full impact of growing terrestrial operations on these crucial microwave observations as a result of the FCC's spectrum allocation actions.

A nationwide survey indicated that weather forecasts generated $35 billion in economic benefits to U.S. households in 2016.[2] Since this only addresses households and weather, the value of this spectrum-reliant environmental information is likely far more vast. The spectrum for these systems also support weather forecasts and warnings more broadly that contribute to a range of economic activity from local governments making evacuation decisions to grocery stores planning their supply schedules and routes.

Weather apps are some of the most used in the world, so we directly recognize the value of expanding 5G technologies across the U.S.[3] But we believe that such growth must be balanced to ensure other critical national assets such as environmental satellites and other weather and water technologies be safeguarded since their failure will cost the nation in both lives and local economies. For spectrum sharing to work, greater investment in innovation is required across disciplines, including engineering and economics, to enable these technologies to safely coexist. Right now, spectrum sharing initiatives have not yet proven sufficient to support weather forecasting, which is highly time sensitive and cannot tolerate interference.[4] The wireless industry has not been open to dialogue about possible technologies and techniques they could employ to address weather enterprise concerns, especially related to passive microwave observations for modeling.

We have requests in two areas:

1) We hope that you, together with the current and future leadership of NTIA, will have consistent, productive and transparent dialogue with the FCC and relevant White House offices to ensure uses of spectrum for life and safety functions like weather forecasting are fully valued and decisions to auction are not made until sound technologies to mitigate interference are deployed.
2) We would like to meet with you and have a continued dialogue about these important issues, in supplement to our strong relationship and continued dialogue with the nominee for NOAA Administrator, Dr. Rick Spinrad.

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[1] In addition, while the 24 GHz band was controversially auctioned by the FCC in 2019, those proceedings need to be updated to reflect the more stringent rules set by the World Radiocommunications Conference-19 (WRC-19) in November 2019, and NOAA's voice will be important to this (via NTIA).

[2] Lazo, J. K., Morss, R.E. and Demuth, J.L. (2009). 300 billion served: Sources, perceptions, uses, and values of weather forecasts. Bulletin of the American Meteorological Society 90(6), 785-798. *Updated for inflation by NOAA in 2016.*

[3] Recognizing 5G is much more of an issue related to passive microwave observations near 24, 50 and 90 GHz, since L-band spectrum has not been internationally harmonized as an area for 5G deployment.

[4] This is particularly because terrestrial signals for wireless services are so much stronger than signals from environmental satellites. (March 2019 filing by meteorological experts in IB 16-185 on recommendations approved prior to WRC-19: https://ecfsapi.fcc.gov/file/103190617326602/Final%20-%20response%20to%20FCC%20CITEL%20WRC-19.pdf)

Once again, thank you for your voice on these important matters and we look forward to working with you on these critical issues to weather forecasting moving forward.

Sincerely,

Lexi Shultz	Keith Seitter	Janice Bunting
VP, Science Policy & Govt Relations	Executive Director	Executive Director
American Geophysical Union	American Meteorological Society	National Weather Association

Attachment
20 May 2021 Letter to Chair Cantwell from AGU, AMS and NWA

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Washington, DC 20009

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Boston, MA 02108

National Weather Association
3100 Monitor Avenue, #123
Norman, OK 73072

May 20, 2021

The Honorable Maria Cantwell
Chair
Committee on Commerce, Science and Transportation
United States Senate
Washington, DC 20510

Dear Chair Cantwell,

Thank you for your voice of leadership to preserve diverse spectrum resources to sustain and advance crucial environmental information and forecasting. We appreciated your remarks during now Secretary of Commerce Gina Raimondo's nominating hearing in January supporting the need to safeguard critical spectrum assets to enable continued weather forecasting, water management and environmental modeling, and your comments during the executive session of the committee on May 12, 2021 on weather and federal spectrum coordination. The co-signers of this letter, who are some of the leading Earth science and weather organizations in the U.S. and world, are grateful for your leadership in this area.

The past few years have been challenging as the weather and water communities have worked to defend our spectrum assets that are crucial to the operation of critical environmental sensors and GPS dependent technologies operated by the private sector, academia and federal agencies like NOAA, NASA and the Department of Defense.

We welcome your leadership as Chair of the U.S. Senate Committee on Commerce, Science and Transportation to advance environmental forecasting and hazard prediction, which can only happen if existing spectrum assets in the L-Band and key passive bands are protected from interference. We are looking to you for continued support in the following areas:

- Safeguard real-time environmental information for severe weather, aviation, wildfire prediction and marine transportation provided by NOAA's geostationary weather satellites (GOES) as well as the GPS and satellite communication assets relied upon by numerous industries to keep people safe and informed of hazards. It is critical for the FCC to reverse its April 2020 L-Band GPS decision and prevent any further consideration of Ligado's other proposal directly impacting GOES and its reliance on 1675-1680 MHz.
- Protect information from passive microwave sensors that provide crucial inputs to weather models. The spectrum adjoining 24 GHz, 50 GHz and 90 GHz, provides important information ranging from hurricane forecasting to precipitation estimates to improve forecasts. These measurements are unique to these spectral areas and cannot be obtained elsewhere.
    - Prior to any further auctions, there must be further research and balanced dialogue to find reasonable solutions that value the full economic significance and impact of weather forecasting and water resources management.[1]

[1] In addition, while the 24 GHz band was controversially auctioned by the FCC in 2019, those proceedings need to be updated to reflect the more stringent rules set by the World Radiocommunications Conference-19 (WRC-19) in November 2019.

- In addition, there is a need for funding and technology development to detect contamination in the passive bands and the full impact of growing terrestrial operations on these crucial microwave observations as a result of the FCC's spectrum allocation actions.

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We have requests in two areas:

1) We ask that you continue to ask questions of future nominees to the FCC and the Department of Commerce, especially NTIA, encouraging them to fully account for the threat to life, property, and the economy of interference to weather information when making decisions about spectrum allocation.
2) We request that you work in partnership with the leadership of the Senate Armed Services Committee to encourage the FCC to reverse its decision on Ligado related to GPS and satellite communications, and to deny the Ligado proposal to share spectrum with NOAA's GOES satellites.

Once again, thank you for your voice on these important issues and we look forward to working with you on these critical issues to weather forecasting moving forward.

Sincerely,

Lexi Shultz	Keith Seitter	Janice Bunting
VP, Science Policy & Govt Relations	Executive Director	Executive Director
American Geophysical Union	American Meteorological Society	National Weather Association

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