

SWAG Recommendations Call For Strategic and New Activities Across the Space Weather Enterprise

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In October 2020, Congress passed the Promoting Research and Observations of Space Weather to Improve the Forecasting of Tomorrow (PROSWIFT) Act. The Space Weather Advisory Group (SWAG) was chartered, pursuant to PROSWIFT, to advise the Space Weather Operations, Research and Mitigation Subcommittee (SWORM) on a variety of space weather issues including the development and implementation of an integrated strategy for space weather (i.e., the National Space Weather Strategy and Action Plan). The SWAG is comprised of 15 non-government members from academia, the commercial space weather sector, and end users. In June 2022, the SWAG was tasked to provide input to the SWORM for their update of the National Space Weather Strategy and Action Plan. To accomplish this, SWAG sought broad input from the national space weather enterprise through multiple open meetings and structured panel sessions with community stakeholders.

The SWAG report, *Findings and Recommendations to Successfully Implement PROSWIFT and Transform the National Space Weather Enterprise* (SWAG, 2023), notes that since the publication of the first National Space Weather Strategy in 2015, the national space weather enterprise has made noteworthy progress in several areas. These include raising awareness of space weather and its effects, improving understanding and forecasting of space weather, and enhancing the Nation's preparedness for space weather events. However, substantial investments are still needed to build resilience and ensure space weather services can continue to improve and meet the growing and changing needs of the Nation.

To address these issues, SWAG identified 25 findings with 56 recommendations. Eleven of the recommendations were designated as highest-priority by the SWAG. They call for coordination across the entire space weather enterprise (including government, academic, and commercial sectors). One of the highest priority recommendations is the urgent need to adequately fund the space weather enterprise. The report recognized that the "Federal space weather enterprise is insufficiently funded to implement PROSWIFT actions, perform the codified roles and responsibilities, or appropriately address the risk space weather poses to the Nation".

Other high-priority recommendations point to improvements and changes needed in the National Oceanic and Atmospheric Administration (NOAA) and National Aeronautics and Space Administration (NASA), to accomplish the following operational and scientific goals:

- "Create and fund an applied research program office for space weather within NOAA to coordinate, facilitate, promote, and transition applied research across the national space weather enterprise",
- "Provide long-term support for operational ground-based and airborne sensors and networks",
- "Provide and fund critical operational space weather services beyond near-Earth", including "meeting near-Earth operational needs and expanding support and funding for space weather services in medium-

Earth orbit, geostationary Earth orbit, geostationary transfer orbit, cis-Lunar, and eventually Martian environments”,

- “Fund NASA missions that advance fundamental science to support space weather research“, and
- “Support coordinated applied research within the thermosphere (above 100 km altitude) which is critical for space traffic coordination”.

The goals outlined in the report are ambitious. They call for the funding, processes, and structure needed to foster transformative change across the national space weather enterprise . The PROSWIFT Act authorizes many of the actions needed to improve national response to threats from space weather. It must now be followed with sufficient new appropriations to ensure that space weather is supported at a level commensurate with the increasing risks that it poses to the Nation and society.

SWAG looks forward to opportunities to engage the community on these findings and recommendations and evaluate the implementation and evolution of the national space weather enterprise, across all segments—Federal, academic, and commercial.

**The members of the SWAG are Dr. Tamara Dickinson, Mr. Mark Olson, Mr. Michael Stills, Mr. Craig Fugate, Dr. Rebecca Bishop, Dr. Jennifer Gannon, Dr. Conrad Lautenbacher, Dr. Seth Jonas, Dr. Kent Tobiska, Dr. Nicole Duncan, Dr. Tamas Gombosi, Dr. Delores Knipp, Dr. Scott McIntosh, Dr. Heather Elliott, Dr. George Ho, Dr. Jinni Meehan (for more information and member bios, see www.weather.gov/swag).*

References

S.881 - 116th Congress (2019-2020): PROSWIFT Act, Library of Congress, 21 October 2020, <http://www.congress.gov/>, accessed June 18, 2022.

SWAG (2023), Findings and Recommendations to Successfully Implement PROSWIFT and Transform the National Space Weather Enterprise, <https://www.weather.gov/swag>, accessed June 13, 2023.