Topics to Address

1. Update on SWAG activities
2. Membership transition issues
3. Coordination concerns or suggestions for Space Weather Council
# Committee Members

## SWAG Nongovernmental End-User Representatives
- **Tamara Dickinson**, SWAG Chair  
  Science Matters Consulting
- **Rebecca Bishop**  
  Aerospace Corp.
- **Craig Fugate**  
  One Concern (former FEMA Adm)
- **Mark Olson**  
  North American Electric Reliability Corporation
- **Michael Stills**  
  United Airlines (retired)

## SWAG Commercial Sector Representatives
- **Nicole Duncan**  
  BAE Systems
- **Jennifer Gannon**  
  Computational Physics, Inc.
- **Seth Jonas**  
  Lockheed Martin
- **Conrad Lautenbacher**  
  GeoOptics, Inc. (former NOAA Adm)
- **Kent Tobiska**  
  Space Environment Technologies

## SWAG Academic Community Representatives
- **Heather Elliott**  
  Southwest Research Institute
- **Tomas Gombosi**  
  University of Michigan, Ann Arbor
- **George Ho**  
  Southwest Research Institute
- **Delores Knipp**  
  University of Colorado, Boulder
- **Scott McIntosh**  
  National Centers for Atmospheric Research
Advise White House SWORM Subcommittee on:

- Facilitating advances in the space weather enterprise of the US
- Improving the ability of the US to prepare for, mitigate, respond to, and recover from space weather phenomena
- Enabling the coordination and facilitation of R2O2R
- Developing and implementing the integrated strategy for coordinated observation

Conduct a comprehensive user needs survey of space weather products
Findings and Recommendations to Successfully Implement PROSWIFT and Transform the National Space Weather Enterprise (www.weather.gov/swag)

Structure:
- 25 findings with 56 recommendations
- 11 priority recommendations

Audience:
- SWORM, Congress, Space Weather Enterprise
User Survey Requirements:

1. Assess the adequacy of Federal Government goals for lead time, accuracy, coverage, timeliness, data rate, and data quality for space weather observations and forecasting;

2. Identify options and methods to advance the above goals;

3. Identify opportunities for collection of data to address the needs of space weather users;

4. Identify methods to increase coordination of space weather R2O2R;

5. Identify opportunities for new technologies, research, and instrumentation to aid in understanding, monitoring, modeling, prediction, and warning of space weather; and

6. Identify methods and technologies to improve preparedness for space weather.
Sectors for User Survey

2023-2024
• Electric Power Grid
• Space Situational Awareness/
  Space Traffic Coordination
• Emergency Management
• Human space flight
• Aviation
• Research
• GNSS

2024+
• Satellite
• National Security
• Radio Frequency Application
  (comms and Radar)
• GNSS
User Survey Process

- Science and Technology Policy Institute (STPI) helped conduct the survey
- Virtual and/or in-person focus groups
- Chatham House Rules
- High-level anonymized summary created by STP for the SWAG
- Results including recommendations will be compiled into a report that will be delivered to Congress and made public
User Survey Questions

1. Current use of space weather observations, information, and forecasts
2. Current technological systems, components or elements affected by space weather
3. Current risk reduction and resilience activities
4. Future needs of space weather observations, information and forecasts
5. Future risk reduction and resilience activities
6. New or non-traditional sources of Space Weather Data
7. Next generation technologies, research, instrument, and models to address Space Weather
Sector Co-Chairs

- Electric Power Grid - Mark Olson and Jenn Gannon
- Aviation - Mike Stills and Kent Tobiska
- Human Space Flight - Kent Tobiska, George Ho, and Jenn Gannon
- Space Traffic Management/Coordination - Delores Knipp and George Ho
- Research - Scott McIntosh and Heather Elliott
- GNSS - Rebecca Bishop and George Ho
Status of User Survey

- GNSS sector continuing online survey and then will conduct focus groups. This sector is expected to run over 2 years.
- Completed the other in-person and virtual focus groups
- Townhall at AGU to discuss first impressions/common themes
- Session at AMS to discuss first impressions/common themes
- Started drafting the report
- Public meeting to discuss the report March 26
- Roll out scheduled for April 16 at Space Weather Workshop
What is Next for SWAG?

- What issue/activity will SWAG undertake next?
  - SWORM/STPI Scales initiative
  - Request from SWORM
  - Initiated by SWAG
- In person meeting (likely in DC) later this year
Membership Transition Issues

- PROSWIFT Act guidance on membership
  - Composed of not more than 15 members appointed by SWORM
  - 5 representatives each from academia, commercial space sector, and end user community
  - Chair appointed by NOAA Administrator
  - 3 year terms beginning when appointed
  - Members may not serve more than 2 consecutive terms
  - Chair may not serve as chair for more than 2 terms regardless of whether they are consecutive
Membership Transition Issues

- Current members were selected in September 2021
- New members will be selected by SWORM
- **My assumptions:**
  - Process will be similar to that used in 2021
  - Some members may be asked to remain on SWAG
  - Some new members may be added
  - Nomination announced in Federal Register
  - Community can apply if you fall into one of the three categories of members
Coordination/Collaboration

- Overlapping membership
  - Personal view is this is working
  - Official updates though should be done by Chair or their delegate
- Invite Roundtable and Council to give updates at SWAG public meetings
- Coordination calls with chairs/handlers of SWAG, Roundtable, Council
- Sessions at meetings/workshops (e.g. SWW 2023, AMS 2024)
- Still confusion in community about roles of SWAG, SWORM, Roundtable, and Council
- Still confusion on role of federal agencies even though this has been spelled out in Executive Orders and PROSWIFT Act
THANKS!

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www.weather.gov/SWAG
Broad Set of Space Weather Topics Covered

- Overarching Recommendations
- Ground-Based and Airborne Sensors and Networks
- In-Space Architectures and Space-Based Observations
- Data and Computing Infrastructure for Space Weather Operations
- Improving Benchmarks, Metrics, and Scales for Space Weather End-Users
- Space Weather Risk to Evolving Infrastructure Systems and Services
- Economic Assessments on The Costs of Space Weather and the Value Of Forecasting and Mitigation
- Promote Focused and Continued Engagement Across Industry and Government Space Weather Stakeholders
- Additional Findings and Recommendations
- Next Steps
1. Fund the Federal Space Weather Enterprise. (R.1.1)
2. 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. (R.2.1)
3. Ensure OSTP staffing and White House led prioritization and coordination across the national space weather enterprise. (R.3.1 and more)
4. Protect space weather sensors from spectrum interference. (R.5.1)
5. Provide long-term support for operational ground-based and airborne sensors and networks. (R.6.2)
6. Provide and fund critical operational space weather services beyond near-Earth. (R9.2)
7. Fund NASA missions that advance fundamental science to support space weather research. (R.10.1)

8. Coordinate benchmark development or improvement with industry. (R.14.1)

9. Quantify the societal benefits for addressing risk from space weather by performing national-level and industry-wide economic assessments and consider space weather in the context of broader national risk. (R.18.1. and R.4.1)

10. Support coordinated applied research within the thermosphere (above 100 km altitude) which is critical for space traffic coordination. (R.24.1-3)

11. Foster and lead a global space weather enterprise. (R. 25.1-4)