

**Space Weather Advisory Group (SWAG)**

Public Meeting

In-person and via gotowebinar

Embassy Suites Boulder

Boulder, CO

*Meeting Minutes*

Monday, April 17, 2023

9:00 AM – 5:00 PM MT

**Meeting Attendees**

**Committee**

***Nongovernmental End User Representatives***

Dr. Tamara Dickinson, Committee Chair, Science Matters Consulting

Mr. Mark Olson, North American Electric Reliability Corporation

Mr. Michael Stills, United Airlines (retired)

Mr. Craig Fugate, Bent Ear Solutions

Dr. Rebecca Bishop, Aerospace Corp.

***Commercial Sector Representatives***

Dr. Jennifer Gannon, Computational Physics, Inc.

Dr. Conrad Lautenbacher, GeoOptics, Inc.

Dr. Seth Jonas, Lockheed Martin

Dr. W. Kent Tobiska, Space Environment Technologies

Dr. Nicole Duncan, BAE Systems

***Academic Community Representatives***

Dr. Tamas Gombosi, University of Michigan, Ann Arbor

Dr. Delores Knipp, University of Colorado, Boulder

Dr. Scott McIntosh, National Center for Atmospheric Research

Dr. Heather Elliott, Southwest Research Institute

Dr. George Ho, Johns Hopkins University Applied Physics Laboratory

***Designated Federal Officer***

Dr. Jennifer Meehan, National Space Weather Program Manager, National Weather Service

**Invited Guests Present**

Ms. Amy Macpherson, National Weather Service

Dr. Valerie Were, CIRA/National Weather Service

**Members of the Public Present**

Chris Cannizzaro

Joe Kunches

Alan Phung

Michael Stills

Sarah Swiersz

Sharon Williams

## Meeting Minutes

### **9:00-9:05: Welcome (Dr. Jennifer Meehan, SWAG DFO)**

Dr. Meehan welcomed everyone to the sixth Space Weather Advisory Group (SWAG) meeting, in which SWAG continued discussion on how best to implement Section 60601 of the Promoting Research and Observations of Space Weather to Improve the Forecasting of Tomorrow (PROSWIFT) Act. Dr. Meehan thanked the committee members, chair and Dr. Val Were, NWS social scientist, for joining today.

Members present stated their names and institutions.

### **9:05-9:15: Opening Remarks, Progress Since and Recap of Meeting 5 (Dr. Tamara Dickinson, Science Matters Consulting, and Chair, SWAG)**

Dr. Dickinson gave an overview of what was discussed at the March 2023 meeting, which focused on finalizing the recommendations report.

Progress since meeting 5:

- Final editing of report
- Transmitted to Jinni, SWORM co-chairs
- Posted on [weather.gov/SWAG](https://weather.gov/SWAG)

Pivot to User Needs Survey (Mandated by U.S. Congress)

- Worked on User Survey with Val, Jinni
- Focus groups
- STPI support
- Results (partial or complete) by AGU/AMS

### **9:15-9:20: Overview of today's meeting (Dr. Tamara Dickinson, Science Matters Consulting, and Chair, SWAG)**

Dr. Dickinson discussed the agenda and how the SWAG will step through a mock focus group.

Agenda:

- Opening Remarks, Progress since and Recap of Meeting 5
- Overview of Today's Meeting
- Status of User-Need Survey
- Conducting Focus Groups 101
- Break
- Mock Focus Group
- Committee Discussion
- Public Comments
- Lunch
- Focus Group 1 (Research Sector) - INVITE ONLY
- Focus Group 2 (Human Space Flight Sector) - INVITE ONLY
- Focus Group 3 (SSA sector) - INVITE ONLY
- Break
- Lessons Learned from Afternoon Focus Groups
- Next Steps and Closing Remarks
- Adjourn

## 9:20-9:30: Status of User-Need Survey (Dr. Tamara Dickinson, Science Matters Consulting, and Chair, SWAG)

Dr. Dickinson discussed the status of the user-needs survey, the developed survey questions, and the sector groups the SWAG will survey.

User Survey Requirements:

- Assess the adequacy of Federal Government goals for lead team, accuracy, coverage, timeliness, data rate, and data quality for space weather observations and forecasting.
- Identify options and methods, in consultation with the academic and commercial space weather sectors, to advance and above goals.
- Identify opportunities for collection of data to address the needs of space weather users.
- Identify methods to increase coordination of space weather R2O2R.
- Identify opportunities for new technologies, research, and instrumentation to aid in understanding, monitoring, modeling, prediction, and warning of space weather.
- Identify methods and technologies to improve preparedness for space weather.

Baseline topics for the survey:

1. Current space weather observations, information, and forecasts utilized
2. Current technological systems or components affected by space weather
3. Current risk reduction and resilience activities
4. Future space weather information required (communications methods, observations, and forecast products (format, etc.))
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

Sectors for the first survey:

- Electric Power Grid
- Global Navigation Satellite System
- Aviation
- Emergency Management
- SSA/STM-C
- Human Space Flight
- Research

Next round of surveys

- *National Security*
- *Radio Frequency Application (Comms and Radar)*
- *Satellite*

Dr. Dickinson went over the incredible response received from invitations sent to participate in focus group surveys, specifically in aviation, electric power grid, SSA/STM-C, human space flight and research.

The 3 sectors that will be focused on today are SSA/STM-C, Human Space Flight, and Research. Focus groups will continue over the next several months, many virtual across all the sectors.

## 9:30-10:00: Conducting Focus Groups 101 (Dr. Valerie Were, CIRA/National Weather Service)

Dr. Were supports the NWS social sciences program.

Dr. Were discussed how to successfully conduct a focus group to obtain optimal survey results as well as the roles and responsibilities of the moderator and note takers.

Status of User Survey:

- OMB Paperwork Reduction Act Notice has been submitted to the NOAA PRA office for clearance, required by Congress. No issues foreseen. Focus groups completed today are part of the SWAG public meeting.
- Each focus group facilitator will have a specific script to follow.
- Science, Technology, Policy Institute will assist in completing notes for focus group sessions, and provide write-ups for analysis.

What is a Focus Group?

- Facilitated, group-based discussion to gather information
  - 6-10 participants per group ideally
- Discussion is around a clearly defined topic
  - Information used to understand perspectives and experiences on the issue

GOAL: To learn about people's knowledge, attitudes, beliefs, and experiences. You are not a part of the focus group, you are an observer and info gatherer. Do not add personal experiences.

Key/Moderator/Facilitator Concepts

- Be a neutral party
- Guide the conversation
- Control the environment

Advantages of a Focus Group

- Influence of the group context - answers and energy
- Variety of opinions - supporting or contrary
- Depth of responses
- Great for exploratory initiatives

Disadvantages of a Focus Group

- Time and effort
- Complexity of analyzing qualitative data
- Management of group dynamics
- Dishonesty due to group influence

It is perfectly ok to call on someone if they haven't contributed to the conversation. Can we follow up with them later on a 1 on 1? Wait until the PRA is cleared, then yes.

Dr. Knipp asks if there are sensitive vulnerabilities that would prevent them from sharing, how do we get them to share openly? Follow ups are fine 1 on 1.

Dr. Tobiska asks if these comments will be public? No they are not. No one will be identified. We also will follow Chatham House rules of everything that is said in the room, remains in the room.

#### Roles of the Moderator/Facilitator

- Introduce other involved in the focus group
- Ask the questions
- Guide the conversation
- Listen!

#### Role of the Notetaker

- Record
  - Key quotes
  - Common themes
  - Group dynamics (body language)

#### Focus Group Agenda

- Welcome
- Introductions
- Purpose of the Focus Group - including consent to recording
- Ground Rules
- Questions

#### Facilitator Tips

- Build rapport early on
- Never be judgemental or stifle opinion - watch body language
- Allow for conversation, but keep things moving
- Don't be afraid of silence
- Summarize the discussion at the end of each question

Dr. Dickinson notes that men and women tend to speak in groups differently in that women don't tend to talk over others as much as men. Try to encourage women to participate if they haven't contributed.

- Useful phrases to generate conversation
  - Tell me more about that idea
  - Can you give me an example? OR Can you elaborate?
  - Does anyone have anything to add to that?
  - Does anyone have a different opinion or experience?

Dr. Bishop asks if the conversation is going well at the 60 minutes mark, do we cut them off or keep it going? In general, if there is time, keep it going with those that can stay. But remember it's good practice to keep to the schedule as much as possible.

Dr. Gannon asks what the second facilitator does today? Dr. Dickinson said to have them help ask the questions and take notes. Everyone should get some experience today.

Virtual focus groups are fine if in-person isn't possible or funds/time don't allow.

#### Focus Group Data Analysis

- Develop transcripts from recording
- Identify major themes and subthemes within groups and among groups
- List key words and phrases

- Summarize insights

Dr. Were went over the example of the aviation protocol for the focus group, including the script, ground rules, questions, and wrap up. Every sector has their own questions. Stick to the script as close as possible. Try not to improvise too much or take too much time to set the context.

**10:00-10:15: Break**

**10:15-11:15: Mock Focus Group (Dr. Valerie Were, CIRA/National Weather Service)**

Dr. Were then had SWAG members conduct a mock focus group for training purposes.

Dr. Bishop was the facilitator for this mock focus group:

- Mock introduction
- Introduction of Nicole Duncan as co-facilitator and note-taker
- Purpose of the focus group
- Ground Rules
- Mock questions were asked and fielded, including difficult questions
- Mock wrap up, follow-up information

**11:15-11:45: Committee Discussion**

The SWAG members discussed lessons learned from the mock group and prepared for the upcoming trial focus groups with public members attending the Space Weather Workshop.

Dr. Dickinson asked if we would allow a prepared statement to be read...typically no. Be careful also not to state that the SWAG will follow up with participants. STPI will be the curator of the notes.

Dr. Were: If a question has already been fully answered before it is asked, there is no need to ask that question again.

Dr. Dickinson: You'll need approval before soliciting participants for focus groups in various announcements. STPI can help compile lists of potential participants.

Dr. Tobiska: Can participants participate in more than one focus group?

Dr. Were: No, but they can follow-up with you if needed.

Dr. Elliott: You can have colleagues participate in other groups.

Dr. Duncan: Concerning because many have multiple sector expertise.

Dr. Were: We're trying to get as broad participation as we can. We don't want them to answer the same question twice...that is poor data collection. They can certainly broaden their answer given their expertise.

Dr. Dickinson: we need to be sure that it's clear that participants can only participate in one focus group. There can be no observers in the focus groups. They have to be willing to participate. The report data may be aggregated across sectors.

Dr. Duncan: Will there be a master scheduling spreadsheet?

Dr. Dickinson: STPI will be able to help us with scheduling and coordination. The schedule should be kept on Google Drive.

Dr. Tobiska: If people want to contribute input to a different sector, could they through the public comment section?

Dr. Dickinson: There is no public comment meeting during the focus groups, however they could give input to a public SWAG meeting.

Dr. Elliott: People might try to contribute to more than one sector anyway.

Dr. Were: They are allowed to give their points of view, but only in one focus group. We are only counting their data once. Record their feedback in their particular focus group.

Dr. Dickinson: What is the minimum number of participants in a focus group?

Dr. Were: 5 should be the minimum and the ideal number of participants.

### **11:45-11:55: Public Comment**

One public comment to read in from email: Clive Cook from Precursor, SWAG would benefit from a briefing on real-time space weather nowcasting

In-person public question: Korea meteorological demonstration: How is the threshold for MeV determined for users?

Dr. Tobiska (responding in his own capacity): We may get more questions like this during the user surveys. While we can't answer that right here, we could possibly make recommendations in the report.

Mr. Stills: There is no specificity for parameters for communication.

Dr. Elliott: Some of that could be captured under the research group as well.

Alec: Chat GPT is a useful tool to use to analyze survey results. I will share it with the SWAG.

### **12:00-1:00: Lunch Break**

#### **1:00-2:00: Trial Focus Group 1 - INVITE ONLY (separate link will be emailed directly to participants)**

Dr. Kent Tobiska and Dr. Jennifer Gannon facilitated a focus group on the human space flight sector.

#### **2:00-2:15: Break**

#### **2:15-3:15: Trial Focus Group 2 - INVITE ONLY (separate link will be emailed directly to participants)**

Dr. Scott McIntosh and Dr. Heather Elliott facilitated a focus group on the research sector.

#### **3:15-3:30: Break**

#### **3:30-4:30: Trial Focus Group 3 - INVITE ONLY (separate link will be emailed directly to participants)**

Dr. Delores Knipp facilitated a focus group on the space situational awareness sector.

#### **4:30-4:40: Lessons Learned from Afternoon Focus Groups (Dr. Valerie Were, CIRA/National Weather Service)**

Dr. Dickinson discussed the lessons learned from the focus groups:

- SWAG members are natural facilitators
- Time constraints - hard to get through all the questions
  - Can one focus group go longer than others?
  - Do they all need to be the same length?

- Should include in the invite what the expectation is - we ask them questions, no slides needed, no prep needed...
- If all virtual, can we see raised hands on gotomeeting?
- Which questions are critical and must be answered?
- We weren't expecting so many registrants. We could only accommodate 15-20 and we needed to pick a good mix of people.
- SWAG members are not to provide personal opinions and information in focus groups

Dr. Were discussed first impressions of the 3 focus groups providing feedback to SWAG members.

- Getting people to sign up for more than 60 minutes might be problematic.
  - Recommend scheduling 60 minutes and then asking if they would like to continue.
- Be sure to ask priority questions first to ensure we meet any time constraints.
- Sector to sector can have different questions.
- Everyone did a really good job with the first round of focus groups; including engaging online participants
- Think about how you build a focus group

Dr. Knipp commented that managing time of participants can be difficult.

Dr. Gannon commented that some participants were confused on what to expect. Some thought they were just there to listen. Some participants may not have spoken up because of others in the room.

Dr. Tobiska commented that some participants were more vocal than others. It was useful to have the timer to reference for time management. Some participants were reluctant to speak because of who was in the room.

Dr. McIntosh commented that time felt short and virtual participants were more difficult to manage. We had too many questions for the time block, but we got to hear all opinions.

#### **4:40-5:00: Next Steps and Closing Remarks (Dr. Tamara Dickinson, Science Matters Consulting and Chair, SWAG)**

Dr. Dickinson discussed next steps and provided closing remarks.

- Use your networks to get the word out about our report
- Each sector should be compiling the names/contacts for future focus groups
- If your focus groups will be in conjunction with a workshop or meeting, please provide me with the dates and locations ASAP
- Need to get SWAG members engaged with STPI
  - I will work with Chris to see how to best do that
- THANKS!!! For the big lift over the past few months

#### **5:00: Adjourn**

Dr. Meehan thanked the entire SWAG committee, Val Were, Amy Macpherson, and adjourned the meeting at 5:00pm.