



## Summer WAS\*IS Workshop Agenda

July 13–21, 2006

Workshop objectives:

1. Learn new social science concepts and tools
2. Discuss integration of these concepts and tools into meteorology
3. Look to the future of **WAS\*IS** and continue moving toward **IS**

### Thursday, July 13, 2006

- 6:00 p.m. Start of reception at NCAR, Center Green, Building 1 (3080 Center Green Drive)
- Get some pizza, dessert, and drinks
- 6:15 p.m. Welcome to **WAS\*IS**
- Hellos and introductions from all the **WAS\*IS** gang and some **WAS\*IS** veterans — [Eve Gruntfest](#), [Julie Demuth](#), [Linda Mearns](#), [Sheldon Drobot](#), [Tanja Fransen](#), [Rebecca Morss](#)
- 6:30 p.m. Participants' 1-minute introductions
- Brief description of relevant research/work experience
  - What intrigued you about applying to **WAS\*IS**
  - What you hope **WAS\*IS** will mean to you
- 7:00 p.m. **Why we're all here: Sharing stories about the importance of integrating social science and talking to your friends, family members, and/or congressperson about the importance of social science**
- Why **WAS\*IS** now? ([Eve](#))
    - **WAS\*IS** up to now: how it's evolving and future prospects
    - Mission, objectives, expected outcomes, measurements of success
    - What distinguishes **WAS\*IS** from other efforts
    - Course ground rules
  - Report from Hayman Fire flooding this week: Integration of life and work ([Tanja](#))
  - Experiences and perspectives from everyone
  - Being proactive (in a positive way) about your **WAS\*IS** enlightenment!
- 8:30 p.m. Adjourn

### Friday, July 14, 2006

- 8:20 a.m. Quick discussion of logistics and day's activities ([Jean Renz](#), [Eve](#), & [Julie](#))
- ☛ Daily theme: Laying the Foundation for WAS\*IS Success ☛**
- 8:30 a.m. **A WAS\*IS success story: The joys of collaboration** ([Sheldon](#) & [Eve](#))
- How **WAS\*IS** fostered collaborations and improved the research of a National Science Foundation study of short-fuse weather warning perceptions in Denver, CO, and Austin, TX

- 8:45 a.m. **Culture change underway: Tales and news from WAS\*IS veterans** (Sheldon Drobot, Gina Eosco, Tanja Fransen, Rebecca Morss, & Olga Wilhelmi)
- Why **WAS\*IS** is important in the bigger picture and implications **WAS\*IS** has had for them
  - New projects and other news (e.g., Tanja's work on development of a cold weather index for livestock in MT, **WAS\*IS** session at annual American Meteorological Society, annual American Geophysical Union meeting session on connecting science and societal needs)
- 9:45 a.m. Break
- 10:15 a.m. **The importance of problem definition** (Rebecca)
- Reading: **Morss, 2005** – Problem definition in atmospheric science public policy
- Group discussion about the article
  - Break into small groups to discuss "problems" we pose and then report back
- 11:45 a.m. **The Weather and Society Road Map (WSRM)** (Gina)
- Reading: **Weather and Society Road Map** (available online at [http://www.sip.ucar.edu/wasis/wasis\\_cycle/index.html](http://www.sip.ucar.edu/wasis/wasis_cycle/index.html))
- Brief background on why and how the WSRM was developed
  - Discussion about the nodes, links, and the bigger weather and society picture!
- 12:30 p.m. Lunch from NCAR Cafeteria (grab extras!)
- 1:30 p.m. **Speaking the same language: Challenges of interdisciplinary work** (Julie, Sheldon, and Sarah)
- Reading: **Bialik, 2005** – In hurricane forecasting, science is far from exact
- The dangers of making assumptions about what and how people (both within and outside your disciplines!) think
  - How jargon is exclusionary and impedes collaboration
  - Common verbiage but different/inaccurate interpretations and unfamiliar terminology
- 2:45 p.m. **Open Discussion – The Summer WAS\*IS Impacts**
- Recorders: Julie and Sheldon**
- **WAS\*ISers** to pose questions and topics they want to discuss and/or want feedback on throughout the week
  - Where do we want to be on Friday afternoon ... short- and long-term outcomes of Summer **WAS\*IS**?
- 3:30 p.m. Break
- 4:00 p.m. **Panel Discussion – The value of WAS\*IS movement and how to keep WAS\*IS on the funding radar screens of Washington** (SIP Advisory Board Members – Bill Hooke, American Meteorological Society & Rodney Weiher, National Oceanic and Atmospheric Administration)
- Moderator: Eve**
- 5:00 p.m. Adjourn
- 7:00 p.m. Group dinner at Casa Alvarez (3161 Walnut Street)

## Saturday, July 15, 2006

8:20 a.m. Follow-up from first day and logistics for the day

### ☞ Daily theme: Communication ☞

8:30 a.m. **Case study – Different “languages” in Northeast Brazil** ([Karen Pennesi](#))

**Moderator: Eve**

- Problems when groups have different objectives or communicate knowledge in different ways
- What is/isn't salient among groups
- Tools and strategies for identifying communication problems and ways to create shared understandings among diverse groups

9:00 a.m. **Panel discussion – Communicating to national lay-publics: Perspectives from the private and public sectors** ([Melissa Tuttle Carr](#), [Kevin Barjenbruch](#), [Ernie Ostuno](#), [Michael Stavish](#), [Britt Westergard](#), & [Ray Wolf](#))

**Moderator: Julie**

- What key challenges do you face trying to effectively communicate weather information to a broad, diverse audience?
- What lessons have you personally learned (e.g., about communicating better, about what your audience wants or understands)?
- What do you see as the main opportunities or needs for change (especially if there's something **WAS\*ISers** can do!)?

10:45 a.m. Break

11:15 a.m. **Panel discussion – Communicating to targeted publics**

**Moderator: Sheldon**

- Communicating weather information in ways that empower the public to make their own decisions ([Neil Lareau](#))
- Communicating emergency services information ([Christina Peters](#))
- Communicating hurricane forecast information and uncertainty to local officials and working with county officials to develop disaster mitigation plans ([Pam Shrauger](#))
- A non-weather example of assessing and communicating users' environmental justice needs ([Emily Laidlaw](#))

12:15 p.m. Ordering in lunch from Deli Zone

1:15 p.m. **Brainstorming session – New and non-traditional ways to communicate information and educate the publics**

**Recorders: Julie and Sheldon**

- Breakout groups to brainstorm and then report back

2:00 p.m. Group discussion

**Recorders: Julie and Sheldon**

- What can we take out of all these discussions on communication?
- What other pressing questions do we have?
- Where might there be opportunities for research and collaboration?

3:15 p.m. Break

🌀 **Late-afternoon theme: Forecasting 101** 🌀

- 3:45 p.m. **Panel discussion – The process of issuing forecasts, watches, and warnings** (Kevin, Ernie, Michael, Britt, & Ray)  
**Moderator: Julie**
- How do data, models, local knowledge, and more all play into creating a forecast?
  - What decisions go into whether or not to issue watches and warnings?
  - What are the considerations and objectives when disseminating forecasts, watches, and warnings?
  - What are among the biggest challenges and frustrations of forecasting?
  - What are the differences in the roles of the Meteorologist-in-Charge, Science and Operations Officer, Warning Coordination Meteorologist, Service Hydrologist, and the forecasters?
  - What do we want to get out of the trip to the NWS office?
- 5:00 p.m. Adjourn
- 7:00 p.m. Group dinner at The Taj (2630 Baseline Rd)

## Sunday, July 16, 2006

**Morning and early afternoon off for WAS\*ISers to sleep in, hike around Boulder, shop around Boulder, and/or RELAX!**

- 3:30 p.m. Leave Residence Inn for NWS
- 4:00 p.m. **Arrive at National Weather Service Denver/Boulder Forecast Office**
- Hear from Larry Mooney, Meteorologist in Charge
  - Have some of the NWS **WAS\*ISers** use consoles to walk us through the forecasting process

**NO organized group dinner**

## Monday, July 17, 2006

- 8:20 a.m. Follow-up from previous day

🌀 **Daily theme: More Communication, Perception, & Decision Making** 🌀

- 8:30 a.m. **Thinking about the end-to-end-to-end process** (Rebecca and Eve)  
 Reading: **Morss et al., 2005** – Flood risk, uncertainty, and scientific information for decision making: Lessons from an interdisciplinary project
- Group discussion about the article

- 9:15 a.m.      **Communicating uncertainty and using probabilistic information**  
Readings: (1) **AMS, 2002** – Enhancing weather information with probability forecasts (text available online at [http://www.ametsoc.org/POLICY/enhancingwxprob\\_final.html](http://www.ametsoc.org/POLICY/enhancingwxprob_final.html)); (2) **Gigerenzer et al., 2005** – A 30% chance of rain tomorrow: How does the public understand probabilistic weather forecasts?; (3) **Capital Weather blog forecast confidence** ([www.capitalweather.com](http://www.capitalweather.com))
- Group discussion and breakout groups?
- 10:15 a.m.      Break
- 10:45 a.m.      **Risk communication, public perception, mental models, and public response**
- Perception, warning, and response as a function of culture types ([Ashley Coles](#))
  - Group discussion
- 11:45 a.m.      **U.S. Geological Survey and National Weather Service inter-agency development of a debris-flow warning system** ([Sue Cannon, U.S. Geological Survey](#))
- 12:30 p.m.      Lunch from NCAR cafeteria (grab extras!)
- 1:30 p.m.      **Case study – A flash flood risk assessment of the Colorado Front Range using GIS** ([Olga Wilhelmi](#))
- Overview of GIS and its applicability for societal impacts work
  - Breakout groups to do conceptual exercise on GIS layers
- 2:45 p.m.      **Vulnerability**  
Readings: (1) **Cutter, 2005** – The geography of social vulnerability: Race, class, and catastrophe; (2) **Seager, 2005** – Natural disasters expose gender divides; (3) **Montz and Tobin, 2005** – Snowbirds and senior living developments: An analysis of vulnerability associated with Hurricane Charley;  
Also suggested but not required **Peek and Fothergill, 2006** – Reconstructing childhood: An exploratory study of children in Hurricane Katrina (available online at <http://www.colorado.edu/hazards/qr/qr186/qr186.html>)
- Lessons from Hurricane Charley ([Burrell Montz](#))
  - Group discussion
- 3:45 p.m.      Break
- 4:00 p.m.      **Developing decision-support systems in NCAR's Research Applications Laboratory** ([Bill Mahoney, NCAR Research Applications Laboratory](#))
- What is a decision support system and how is it developed in RAL to meet stakeholders' needs?
  - How are relationships with users initiated and built?
- 4:45 p.m.      **Integrating decision-support applications into NWS operations** ([Greg Stumpf](#))
- 5:30 p.m.      Adjourn
- 7:00 p.m.      Group dinner at Dushanbe Teahouse ([1770 13th Street](#))

**Tuesday, July 18, 2006****☛ Daily theme: Real-Life Examples of Colorado Floods ☛**

- 7:00 a.m. Leave from NCAR for Fort Collins (everyone to ride on bus)
- Discuss the chronology, synoptic conditions, and experiences of the Fort Collins flood the night of July 28, 1997 ([Matt Kelsch, UCAR/Cooperative Program for Operational Meteorology, Education, and Training](#))
- 8:00 a.m. Arrive at site of Fort Collins flood
- Discuss what happened before, during, and after the flood, including meteorology, hydrology, land use regulations, and emergency response ([Matt](#))
- 9:30 a.m. Arrive at Fort Collins Storm Water Utility ([700 Wood St.](#))
- **The 1997 Fort Collins Flood: Putting the Stormwater System to the Test** ([Marsha Hilmes-Robinson, Fort Collins Storm Water Utility](#))
    - Discuss the actions of the City of Fort Collins during and after the flood
  - **City of Fort Collins: Regulatory changes after a natural disaster** ([Susan Hayes, Fort Collins Storm Water Utility](#))
    - Discuss the local floodplain regulations before, immediately following, and nine years after the flood
- 10:45 a.m. Bathroom breaks and then leave for site of Big Thompson flood of July 31, 1976
- 11:30 a.m. Arrive at Viestenz-Smith park just above the narrows in the canyon
- Hear from a Big Thompson survivor and author of the book "Reflections on the River" ([Shar Wamsley](#))
  - Have Silver Mine subs for lunch!
- 12:30 p.m. Reminders of the past and the current state
- Matt will lead the class on a walking tour to look at tree scars from the flood and observe engineering of the river
  - Take the self-guided tour around the ruins of the power plant that was destroyed by the Big Thompson flood
- 1:15 p.m. Continue up the canyon
- Point out evidence of the flood
  - Talk about Olympus dam upon arriving in Estes Park
- 2:00 p.m. Arrive at Rocky Mountain National Park to visit scar of Lawn Lake flood of July 15, 1982
- Look at the topographic replica of the park at the visitor's center and Matt will explain where Lawn Lake is
- 2:30 p.m. Arrive at the Lawn Lake Alluvial Fan
- Matt explains the timeline of the 1982 flood
  - Explore the rocks and waterfalls ... take photos!
- 3:30 p.m. Depart for Boulder
- 7:00 p.m. Dinner at Boulder Beer Brewery – bring cash ([2880 Wilderness Place](#))

**Wednesday, July 19, 2006**

8:20 a.m. Follow-up from previous day

**☞ Morning theme: Warnings and Verification ☞**

8:30 a.m. **Research findings and myths about warnings and false alarms** (Eve & Lindsey Barnes)

Readings: (1) **Sorensen, 2000** – Hazard warning systems: Review of 20 years of progress; (2) **Barnes, 2004** – Conceptual model of false alarms and close calls

- Group discussion and breakout groups

9:45 a.m. **Case study – Public response and reaction to an historic F5 tornado in Western Michigan** (Ernie Ostuno)

10:15 a.m. Break

10:45 a.m. **Forecast verification challenges and opportunities**

- User-focused verification (Barb Brown)
- The NWS performance and verification databases (Brent MacAloney)

12:15 p.m. Follow-up discussion

12:30 p.m. Ordering in lunch from Chipotle

**☞ Afternoon theme: More Research and Analysis Tools ☞**

1:30 p.m. **Economics** (Jeff Lazo)

- Importance of economics to weather
- Some examples of SIP research (OUSSSA, Storm)

2:30 p.m. **More economics** (Steve Stewart)

- More on non-market valuation and other economic tools
- Some examples of current and past research

3:00 p.m. **Case study – The “cost” of time spent during tornado warnings** (Somer Erickson)

3:30 p.m. Break

4:00 p.m. Continue brainstorming new questions, approaches, methods, etc.

- **WAS\*ISers'** questions and priorities
- Also SIP summer survey; second phase of Warning Project; SIP information coordination and educational outreach; **WAS\*IS** future
- Possibly continue discussions over dinner

5:30 p.m. Adjourn

**NO organized group dinner**

## Thursday, July 20, 2006

- 8:20 a.m. Follow-up from previous day
- ☞ Morning theme: More Research and Analysis Tools ☞**
- 8:30 a.m. **Qualitative research methods** ([Mary Hayden](#))
- 9:15 a.m. **Survey research methods** ([Jeff](#))
- 10:00 a.m. Short break
- 10:15 a.m. **Qualitative research on weather and society: Two example projects** ([Rebecca](#))
- 11:00 a.m. **Integrating quantitative and qualitative research methods** ([Mary Hayden, University of Colorado-Colorado Springs & Roger Pulwarty, NOAA Climate Diagnostics Center](#))
- Noon Long lunch with Climate and Health folks from NCAR cafeteria (grab extras!)
- 1:30 p.m. **Societal risks and responses: Putting health, weather, and climate change into a risk assessment framework** ([Jonathan Patz, University of Wisconsin-Madison](#))
- 2:45 p.m. Short break
- 3:00 p.m. Continued brainstorming – Summer **WAS\*IS** legacies
- 5:30 p.m. Adjourn for dinner
- 7:00 p.m. Final group celebratory dinner at Carelli's ([645 30<sup>th</sup> Street](#))

## Friday, July 21, 2006

### ☞ Morning theme: Making WAS\*IS Live On ☞

- 8:20 a.m. Follow-up from previous day
- 8:30 a.m. **Looking forward: Next steps to getting to IS**  
 Reading: (1) [Mervis, 2006](#) – Senate panel chair asks why NSF funds social sciences; (2) [Lane, 2006](#) – Alarm Bells Should Help Us Refocus
- Revisit discussion from reception about the importance of integrating social science and talking with friends and colleagues
  - Feedback on project discussions
  - Future of **WAS\*IS**
- 10:45 a.m. **After the WAS\*IS ecstasy, the laundry** ([Julie & Sheldon](#))
- 11:30 a.m. Ciao, ciao and wrap-up from Eve, Julie, and Jeff
- Noon **WAS\*IS** celebration and lunch and reflecting on what **WAS\*IS** meant to everyone
- 1:00 p.m. Adjourn