

Workshop on Metrics, Post-Processing, and Products for Subseasonal to Seasonal

Emphasizing, but not restricted to, S2S

28 February - 2 March 2018

National Center for Weather and Climate Prediction

College Park, Maryland

Purpose:

The recent Weather Act directs and authorizes NOAA to improve temperature and rainfall prediction as well as impacts, such as drought, sea-ice extent etc. at two weeks to two years, defined in the Act as sub-seasonal to seasonal (S2S). The act also directs NOAA define operational goals and objectives for these improvements and to reach out to other Agencies, academia and the private sector to help in defining the forecast, observing, monitoring, and research needs to meet these goals and objectives. This workshop is an initial meeting for a broad enterprise discussion of user needs, agency capabilities and products, gaps between needs and capabilities, and potential operational and technological solutions to address those gaps, especially potential post-processing solutions, developer metrics and reliability metrics. Metrics can be categorized in the following groups:

1. Input: observations, their quality, quantity, distribution etc.
2. Process: measuring characterization of physical processes. Can range from detailed (moisture, interface fluxes) to collective (el Nino, TC genesis)
3. Output: specific forecast variables, to include thresholds such as drought, flood, frost, monsoon, TC genesis)
4. Outcome: improved forecasts, increased reliability
5. Impact: user/customer benefit from decisions based on forecasts (safety, economy, preparedness).

This workshop will focus on (2) through (4).

This workshop will also provide an initial opportunity for community input to the draft S2S prediction report that NOAA is preparing in response to the Weather Act of 2017.

Attendance is by broad invitation with representation from all Federal agencies participating in FCMSSR and appropriate representatives from the science and commercial communities.

Expected results:

- Identification of current agency operational capabilities for S2S prediction and how the agencies evaluate them (current metrics they are using)
- Identification of user data (parameters, frequency, availability, reliability) and product needs
- Gaps between current capabilities and needs
- Potential operational solutions to gaps (i.e., more frequent NWP runs, more ensemble members, more output parameters, better product design, etc.)
- Potential technological solutions to gaps (i.e., post processing, analog, statistical/dynamical methods, AI, etc.)
- Discussion of usability, reliability and improved metrics (developer metrics and reliability metrics)
- Identification of required additional research

Key workshop output:

How to define a better approach to address needs of broader user community in support of usability, reliability, and timeliness of S2S products?

Post-workshop: (1) S2S plan outlining post processing and metrics to support the research and operational communities, etc; (2) Communicate to upper management direction for improvement to S2S prediction, and, (3) Identify additional research needed to provide effective S2S products.

Conference Center Connectivity:

WiFi: NOAAGuest

Type your email into browser

If you have difficulty with a particular browser, log in on Internet Explorer or Safari. You may use any browser after login is complete.

Remote Access:

Please register for Workshop on Metrics, Post-Processing, and Products for S2S on Feb 28, 2018 8:00 AM EST at:

<https://attendee.gotowebinar.com/register/1510760150751971073>

After registering, you will receive a confirmation email containing information about joining the webinar.

Agenda

Day 1	28 Feb 2018	
8:00	Check-in	
	<i>Opening Session</i>	
9:00	Welcome and Purpose	Jessie Carman, National ESPC
9:15	Next Generation Earth System Prediction: Strategies for S2S Forecasts	Raymond Ban, National Academy of Sciences
9:45	The Weather Act/NOAA S2S Report	David DeWitt, NOAA/CPC
10:15	Discussion of Purpose	Assembly
10:45	Morning Break	
	Agency capabilities (Products, Post-processing, and Metrics)	
11:00	CPC Current Capabilities and Metrics and Key Science Challenges to Improving S2S Forecast Skill	Dave DeWitt, NOAA/CPC
11:15	14 WS (USAF) Capabilities	Lt Col Rob Branham, USAF Air Staff
11:30	FNMOCC Current S2S Capabilities	Charles Skupniewicz, Navy
11:45	NOAA MAPP Program S2S Activities	Annarita Mariotti, NOAA/CPO
12:00	DOE Modeling Predictability Interests and Activities	Dorothy Koch, DOE
12:15	NASA	Andrea Molod, NASA
12:30	Lunch	
	<i>Afternoon Session</i>	
	User needs	
1:00	Next Generation Earth System Prediction: Recommendations of the Role of Forecast Users	Scott Sandgathe, APL Univ. of Washington
1:10	Regional Services: Moving into R2S for NOAA's Product Lines	Ellen Mecray, NOAA/NESDIS
1:20	AF Weather Interest in S2S Climate Prediction	Lt Col Rob Branham, USAF Air Staff
1:30	User Needs: US National Ice Center	CDR Ruth Lane, NIC
1:40	DHS and FEMA Use of Weather Forecasts	Michael Hurick, FEMA
1:50	Earth Observations and Diplomacy	Fernando Echavarria, DoS
2:00	User Needs: The U.S. Department of Agriculture	Mark Brusberg, USDA
2:10	Improving S2S Precip Forecasting for Water Supply Management	Jeanine Jones, Western States Water Council & CDWR
2:20	Transforming Risk Management with Probability Forecasts: Weeks to a Season or More	John Dutton, Prescient Weather Ltd
2:30	S2S Weather Forecast Data Needs and Climate FieldView	Ricardo Lemos, The Climate Service
2:40	Afternoon Break	
2:55	Breakout Sessions: Capabilities vs. Needs	
	Identification of gaps	Breakout Groups A, B, and C
4:25	Discussion: The Capability-Needs Gap	
	Breakout Sessions Review	Session Chairs/Rapporteurs
5:00	Adjourn Day 1	
6:30	No-host Dinner @ Franklins 5123 Baltimore Ave, Hyattsville, MD 20781	

Day 2		1 Mar 2018	
<i>Morning Session</i>			
8:30	Day 1 Review/Day 2 Goals	Jessie Carman, National ESPC	
8:40	Operational and Technological Solutions		
	Potential Operational Capability for S2S Prediction	Yuejian Zhu, NOAA/EMC	
8:50	FNMOCC Future S2S Capabilities	Charles Skupniewicz, Navy	
9:00	Developments Needed to Generate High-quality S2S Products through Statistical Postprocessing	Tom Hamill, NOAA/ESRL	
9:10	S2S Technological Improvement: Issues to Consider	Ben Kirtman, Univ. of Miami	
9:20	Weather-to-Decadal Timescales: Enhancing Modeling for Predictions	V. Ramaswamy, NOAA/GFDL	
9:30	SubX	Dan Barrie, NOAA/CPO	
9:40		Robin Kovach, NASA	
9:50	General discussion		
10:00	Morning Break		
10:15	S2S Opportunities		
	Research Opportunities for Advancing S2S Forecast	Chidong Zhang, NOAA/PMEL	
10:45	S2S research opportunities	Annarita Mariotti, CPO/MAPP	
11:00	Breakout Sessions: Solutions		
	Group D: Operational solutions and pros/cons		
	Group E: Technological solutions and pros/cons		
	Group F: Research solutions and pros/cons		
12:15	Lunch		
<i>Afternoon Session</i>			
12:45	Discussion: Summary of Solutions	Session Chairs/Rapporteurs	
	Summarize and map against identified gaps	Scott Sandgathe, APL Univ. of Washington	
1:45	Reliability and potential metrics for impact events		
	Short-term Climate Extremes: Probabilistic Forecasts from a Multi-model Ensemble	Emily Becker	
2:00	S2S Verification Topics at the NOAA Environmental Modeling Center	Jason Levit, NOAA/EMC	
2:15		Kathy Pegion, George Mason Univ.	
2:30	Afternoon Break		
2:45		Dan Collins, NOAA	
3:00	Convectively Coupled Equatorial Waves and the MJO in Subseasonal Forecasts	Matthew Janiga, NRL-MRY	
3:15	S2S Verification Approaches: The Challenge to Provide Meaningful Information	Barbara Brown, NCAR	
3:30		Caren Marzban, Univ. of Washington	
3:45	S2S Metrics Issues	Ben Kirtman, Univ. of Miami	
4:00	Recommendations on metrics and further work needed to improve them		
	Discussion		
5:00	Adjourn		

Day 3 (half day)	2 Mar 2018	
<i>Closing Session</i>		
8:30	Workshop Summary/Next Steps	David McCarren, Navy Oceanography
9:30	Development of an S2S Validation/Verification plan for the needed capability	
	Review of gaps	
	Review of most fruitful leads	
	List of potential operational initiatives	
	List of potential research initiatives	
	Inputs/comments to draft NOAA S2S plan	
12:00	Adjourn	