



***Pacific Northwest Weather and Climate Outlook Forum
Dealing with Extreme Events: The Pacific Northwest
April 3-4, 2012 • The Edgewater Hotel, Seattle, Washington***

Meeting Summary and Follow-Up Notes

Summary

The Pacific Northwest Weather and Climate Outlook Forum was the first in a series of regionally focused summits hosted by WGA and NOAA to bring together leading practitioners and policy makers to address weather and climate risk. Weather events and climate trends – like droughts, floods, storms, and heatwaves – affect health and safety of citizens, food and water supply, transportation, and the economy of the West. These events are heavily dependent on regional variations in weather patterns and climate conditions that determine the location and strength of extreme events across the West. Decision-makers need information across a continuum spanning hours, days, seasons, and years, as well as longer timescales of decades and centuries. Meeting participants agreed on the need to build knowledge, tools, and communication networks to empower decision-makers to reduce risk and make smart decisions in the face of uncertainty: we need to build “knowledge-to-action networks,” as one forum participant described it. Meeting participants identified several specific activities to advance the purpose of the MOU, as described at the end of this summary.

Follow-Up

Throughout the course of the event, several key themes emerged for continued work under the WGA-NOAA MOU. These steps are more fully explained on Page 4 of this document.

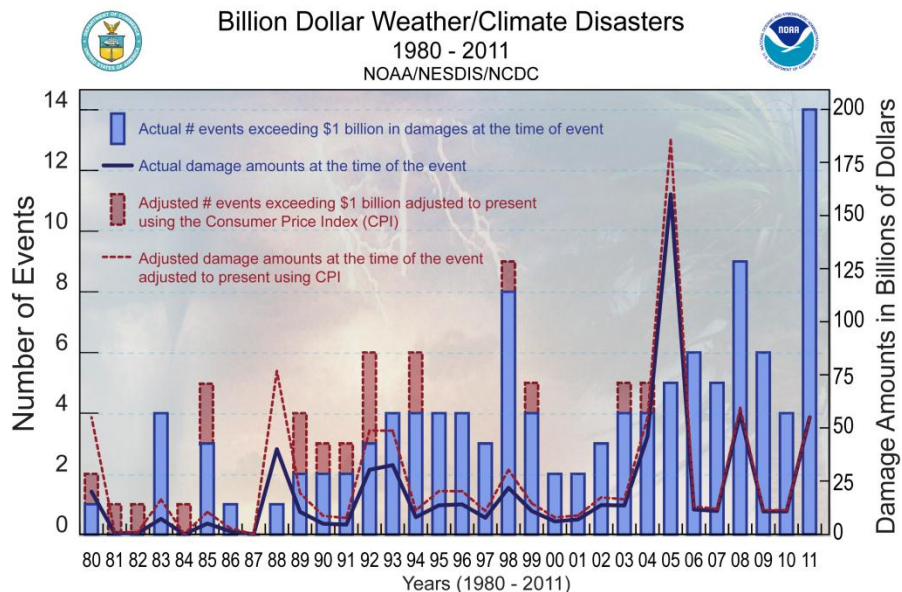
- 1) Promote basic coordination to address weather events, climate variability and trends.
- 2) Explore an ‘early warning information system’ for weather and climate extremes in the Pacific Northwest
- 3) Export lessons to other parts of the West

Recap

The forum was oriented around three primary themes: *'What's at Stake?'*, *'Connecting Science and Management'*, and *'Looking to the Future'*.

What's at Stake? Governor Gregoire hosted a panel of business and community leaders to discuss how weather and climate affect the Pacific Northwest. Governor Gregoire noted that she has had to declare 20 emergency proclamations due to weather and climate over the 7 years of her administration. NOAA Assistant Administrator Detrick observed that there were a record fourteen billion-dollar weather events in 2011 (see Figure 1). Panelists from the transportation, hydropower, and insurance sectors, as well as Columbia River tribes, reinforced these statistics with on-the-ground examples of how weather and climate affect their operations and businesses. A case study on 'The Great Coastal Gale of 2007' underscored the significant and widespread impacts of a single event, and demonstrated how we can take lessons and apply them to how we communicate, respond, and rebuild to be more resilient in the future.

Figure 1: Billion Dollar Weather and Climate Disasters



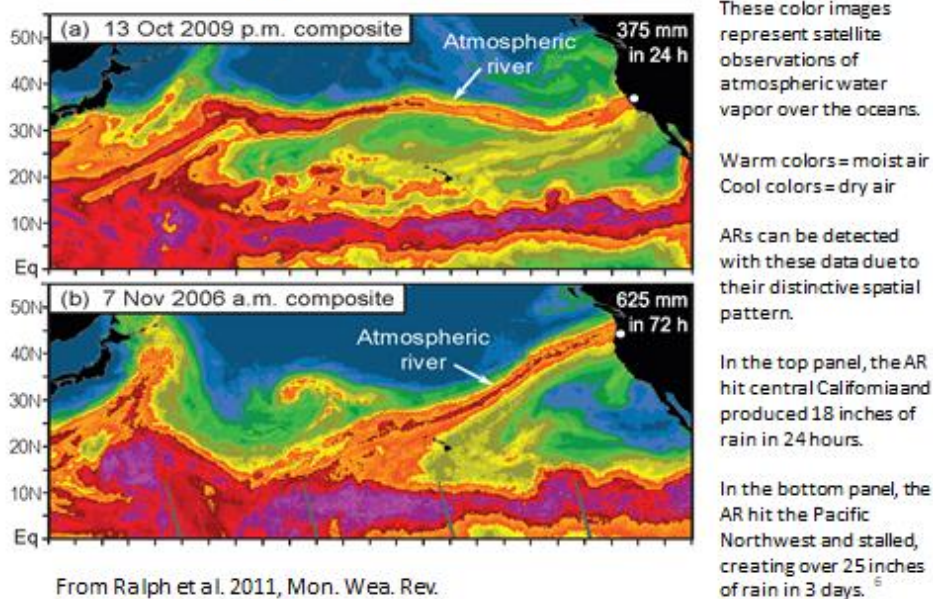
Connecting Science and Management: NOAA provided a regional outlook forum where the Climate Prediction Center shared the seasonal forecast for the US and the Pacific Northwest and the Northwest River Forecast Center described runoff projections for river basins in the region. A panel on 'regional climate information assets' highlighted the wealth of existing weather and climate resources in the Pacific Northwest and the services they can provide to policy makers and resource managers. Finally, a panel of resource managers described how they use weather and climate information to conduct planning and to manage water supply, fisheries, and coastal resources. Panelists

described innovative ways to incorporate risk and uncertainty into forward-looking decisions.

Looking to the Future: The forum then turned to opportunities to strengthen extreme weather and climate preparedness and to reduce disaster risk, as contemplated under the WGA-NOAA MOU. Forum participants discussed ways to raise awareness and engage the public, to coordinate and respond across institutions and geographies, and to develop regional early warning information systems for droughts and flooding. (See Figure 2 for image of Atmospheric River events in the Pacific Northwest.)

Figure 2: Atmospheric Rivers (Ralph, et al.)

Atmospheric rivers: Two recent examples that produced extreme rainfall and flooding



Deputy Assistant Secretary John Tubbs of the Department of the Interior reminded meeting participants that we are here to serve communities and citizens, and given the risks associated with weather and climate it is incumbent on us to get this right. He noted that water is a delivery mechanism for weather and climate impacts, in terms of droughts and floods.

Ted Sturdevant, Director of the Washington Department of Ecology, closed the event with encouragement and appreciation for the scientists and practitioners who work on these issues every day. He urged more honest conversations to connect science and policy, the development of 'knowledge-to-action' networks, and continued practice so we can best respond to weather and climate events.

Follow-Up

Throughout the course of the event, several key themes emerged for continued work under the WGA-NOAA MOU:

- 4) Promote basic coordination to address weather events, climate variability and trends: Participants observed that this forum provided a unique opportunity for collaboration – for states to share information and strategies, for climate researchers to coordinate with one another to deliver information services to the management community, and for states to partner with federal agencies, including NOAA and US DOI. WGA will explore the development of an inventory of institutional resources for climate and weather information and the specific services and suite of tools they provide. WGA will consider mechanisms to strengthen coordination between the science and management communities and to identify entry points for climate information users.
- 5) Explore an ‘early warning information system’ for weather and climate extremes in the Pacific Northwest: Participants were particularly interested in early warning for extreme hydrologic events, including extended droughts and floods caused by atmospheric rivers. These events have impacts to agriculture, transportation, power generation, water supply and ecosystems. WGA and NOAA will seek specific input from decision makers on the parameters of interest, lead time, and temporal and spatial scales. The project will require observation networks for key variables, analytic, forecast and decision-support tools, and periodic forums to disseminate information. The project will also require the development of design and performance metrics. This effort would build off and complement existing ‘knowledge-to-action’ networks in the PNW, as featured in the session on ‘Regional Climate Information Assets.’ WGA and NOAA will be soliciting meeting participants, including for the transboundary perspective, to join a core group on the development of early warning information systems for drought and floods in the Pacific Northwest. If participants agree on a path forward, NOAA will provide resources and expertise to support the effort.
- 6) Export lessons to other parts of the West: Under their agreement, WGA and NOAA will conduct similar efforts in other parts of the West. The parties are currently examining flooding in the Upper Missouri River Basin, drought in the Southwest, and forests and fire risk in the inter-mountain West. WGA will discuss opportunities at its upcoming annual meeting in Cle Elum, WA on June 9-12. Implementation efforts will occur over the next 6-12 months. Based on initial feedback from this meeting, future forums will build in more time for structured, interactive discussion among meeting participants.

Presentations, session highlights, a list of meeting attendees, and other meeting materials are available online at: westgov.org/initiatives/397