NOAA, 2012 Climate Prediction Applications Science Workshop (CPASW), Climate Services for National Security Challenges: Abstract Submission

Presentation Title:
Integration of Historical Climate Data and Climate Change Projections: Assessing National Security Implications and Impacts on Water and Natural Resources

Presenters:
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Presentation Abstract:
In 2009 the National Association of Clean Water Agencies and Association of Metropolitan Water Agencies reported to Congress that climate change adaptation costs could range from $448 to $944 billion for drinking water and wastewater services. Their report, “Confronting Climate Change: An Early Analysis of Water and Wastewater Adaptation Costs,” noted that failure to provide a timely and planned response will have serious consequences.

In its 2007 publication “National Security and the Threat of Climate Change,” the CNA Corporation identified that “Climate change acts as a threat multiplier for instability in some of the most volatile regions of the world. The consequences will likely foster political instability where societal demands exceed the capacity of governments to cope.”

In November 2011, the IPCC Special Report “Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation” (SREX) addressed historical and projected extremes in temperature, precipitation, drought, cyclones, and sea level changes. The report states that “extreme events will have greater impacts on sectors with closer links to climate, such as water, agriculture and food security, forestry, health, and tourism.” Recent extreme rainfall events in Chicago, Nashville, Louisville, Atlanta, and multi-day cumulative rainfall events in the Northeast and Ohio River Basin have taxed existing infrastructure designs and provide an opportunity to integrate climate change projections to assess the vulnerability and risk of updated designs.

Climate vulnerability, risk, and resource security can be quickly evaluated using SimCLIM, an application that seamlessly integrates historical station records with general circulation model (GCM) results and greenhouse gas (GHG) emissions scenarios to meet specific client needs. SimCLIM has been used to assess projected changes in sea level, precipitation intensity, duration, and frequency, and to produce “climate change perturbed” time series of climate parameters that integrate with natural resource models. This presentation highlights examples of how the SimCLIM tool can guide water managers and planners when confronting climate-related resource security problems.