

The NEWS Extreme Group Summary (Dec. 2-3, 2009)

By Xiquan Dong and John Albertson, Co-Chairs
And Extreme Working group members.

A: Working Group Vision/Goals

- 1) To understand the mechanisms responsible for regional water and energy extremes.
- 2) To investigate their relationships with continental and global scale processes.
- 3) To assess their predictability and feedbacks in the context of bridging climate and weather scale.
- 4) This group places a high priority to enhance, reconcile, and share novel datasets to diagnose the above issues

B: Research highlights and progress

- 1) John Albertson: Drought Persistence in the Southwestern US: A preliminary Analysis.
- 2) Yi Deng, Large-scale impact on the 2006 drought event over the SGP region
- 3) Zhe Feng and Xiquan Dong et al.: Precipitation Characteristics in Summer 2007 Oklahoma Extreme Events Observed by NEXRAD and MESONET
- 4) Bing Lin: Clouds and radiation variations during the two golden years.
- 5) Di Wu and Xiquan Dong et al.: Investigation of 2007 summer extreme precipitation events using an integration of observations and WRF simulations.
- 6) Joe Satallo and Christa Peters-Lidard: LIS-WRF experimental design for the 2006-2007 period.
- 7) Adam Schlosser: Spearhead efforts to diagnose predictability and feedbacks of these extremes, drawing data from MERRA and (hopefully) GMAO archived seasonal hindcast experiments.
- 8) Aaron Kennedy and Xiquan Dong et al.: Comparison of ARM observations, NARR, and MERRA over the SGP region during the period 1999-2001.
- 9) Behn Zib and Xiquan Dong et al.: Comparison of two extreme minimum Arctic Sea-ice extents: the record high during 1996 and record low during 2007.
- 10) Bisher Iman, Extreme event analysis using Satellite Precipitation
- 11) Tim Liu: SST variation related to the drought and flood?

C: Successful integration examples

Dong et al., Investigation the 2006 Drought and 2007 Flood Extreme Events at the SGP using an Integrative Analysis of Observations

D: Summary of brainstorming and Potential achievements over next 5 years

- 1) How do the regional extreme events (like the two golden years at SGP) link with continental (Bing Lin) and global scale (Yi Deng) processes?
- 2) How to assess the predictability and feedbacks of these regional extreme events (Adam Schlosser)?
- 3) The minimum Arctic ice extent during Summer, and its seasonal variation (Xiquan Dong, Yi Deng)
- 4) Drought persistence over California (Soroosh Sorooshian, Son V Nghiem, Yi Deng)

E: Outline of paper(s) including responsibilities, implementation plan, timelines

- 1) To investigate the two golden years using integrated observations:
Investigation the 2006 Drought and 2007 Flood Extreme Events at the SGP using an Integrative Analysis of Observations. X. Dong, B. Xi, A.D. Kennedy, Z. Feng, J.K. Entin, P.R. Houser, R.A. Schiffer, T. L'Ecuyer, W.S. Olson, K Hsu, T. Liu, B. Lin⁸, and Y. Deng. In preparation for JGR-atmosphere, 2010.
- 2) To investigate the two golden years using both model and observations:
LoCo Diagnostics and LIS-WRF Experimental Design for the 2006-7 Period. J. Satanello, C. Peters-Lidard, A. D. Kennedy, and X. Dong. In Preparation for XXXXX, 2010.
- 3) To investigate the linkage between local extremes with continental and global scale processes.
To what extent do the regional extremes link with continental and global scale processes?
Y. Deng, B. Ling, B. Iman, A. Nune, and X. Dong. In Preparation for J of XXXXX, 2010.
- 4) New effort or collaboration
Validation of Satellite-retrieved extreme precipitation using ground-based Observations.
Bisher Imam, Zhe Feng, Eyal Amitai, and Xiquan Dong. In Preparation for J of XXXXX, 2010.

F: Obstacles

Man Power, continuous funding support, modeling support.....?

G: Working group collaboration strategy (telecoms, collaboration tools, etc.)

We will continuously use the Google groups (<http://www.nasa-news.org/integration/>) to share some documents and presentations. We will have plan for future working group meetings as follows:

1. Telecom once per month, starting January 2010.
2. Soroosh and others suggested to have a working group meeting during late spring or early Summer at either CA or North Dakota.