

NOAA Perspectives on VOCALS

Kea Duckenfield

**ACC Program Manager
NOAA Climate Program Office**

VOCALS Workshop
Boulder, CO
June 11-12, 2007



Climate Prediction Program for the Americas (CPPA)

Mission: Improve operational intra-seasonal to interannual hydroclimatic predictions for the Americas with quantified uncertainties sufficient for making informed decisions

CPPA Air-Sea Interaction Objectives:

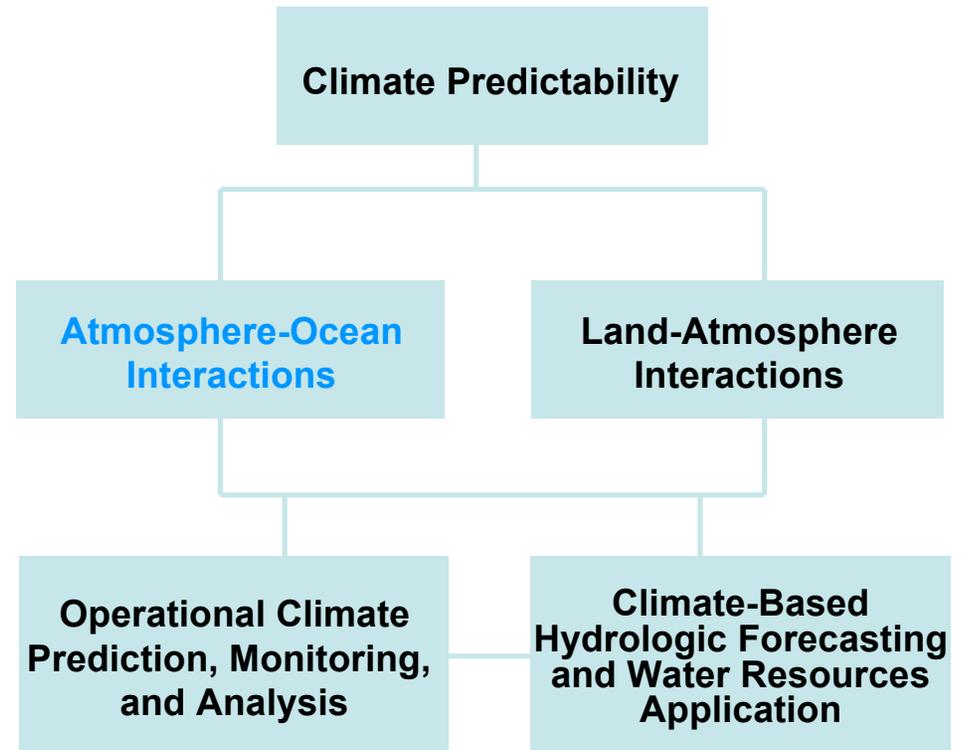
- Identify and understand the physical processes that produce the relevant ocean variability and those that link the ocean variability to regional climate variability
- Ensure that coupled climate models correctly capture the physical processes and phenomena that are critical for simulating the linkages and transient variability
- Focus on air-sea interactions in the Eastern Pacific, Intra-American Seas, and tropical Atlantic.

Strategies:

- Field experiments
- Data analysis and diagnostic studies
- Modeling



CPPA Research Components





CPPA Interest in VOCALS



- to study the climate of Americas as an integrated system
 - Equatorial Pacific: EPIC (2001)
 - Northern American: NAME (2004)
 - Southeastern Pacific: VOCALS (2008)
- to improve process understanding and model representations of key processes
- to transfer improved climate models to NOAA operations

CPPA investment on VOCALS (\$4-5M during FY07-FY10)

- Rex: NOAA Research Vessel Ronald Brown
- Data Collection, Analysis and Modeling studies
- Post-doc at NCEP during the field phase?

VOCALS is one of CPPA FY08 research priorities



CPPA Funded VOCALS Projects



Fairall, Y.Wang and S-P Xie (FY07-FY10): “Evaluation and Improvement of NOAA Climate GCM Air-Sea Interaction Physics” (total \$518K)

Mechoso and Pan (FY07-FY09): “Impacts on the Regional and Global Climate of Cloud Macrophysical and Microphysical Processes in the Southeast Pacific” (total \$662K)

P. Xie and W. Wang (FY06): ”Assessing the NCEP CFS Model Bias over the Tropical Eastern Pacific Stratus Deck and its Impact on the Simulation of Climate”

ATMOSPHERIC COMPOSITION AND CLIMATE

Scope: radiatively active atmospheric constituents
outside the global carbon cycle

GOAL:

Predictive understanding of radiative forcing;
hence to inform climate modeling;
ultimately to enable better decision-making

Primary emphasis: process research

Atmospheric Composition and Climate Program

ACC in VOCALS

- Aerosol/cloud/climate interactions:
 - Aerosol processes and cloud dynamics studied together
 - Measurements designed to inform models (data, processes)
 - Modeling designed to capitalize on field results
- Currently supported/committed: \$830K
 - Wood et al., “Lagrangian Satellite Observations and Modeling of Aerosol-Cloud Interactions” (FY07-09): \$366K
 - Bates et al., Aerosol physical, chemical, optical and cloud nucleation properties from the Brown (FY08-09): \$464K
- Planned (estimate): \$900K
 - FY08 competition, measurements (FY08-10): \$450K
 - FY09 competition, data analysis/modeling (FY09-11): \$450K



NOAA Interests in VOCALS



- CPPA and ACC will have call for proposals for VOCALS in FY08
- NCEP Climate Test Bed:
 - CTB may support Research-to-Operation (R2O) transition proposals in VOCALS area in FY09 or FY10
 - NOAA's Operations-to-Research (O2R) view: funding opportunities ramp up
- Questions from NOAA Climate Program Office:
 - how to measure the program success?
 - how applicable of results from VOCALS to other climate regimes?
 - any experience or lesson to learn from NAME?
- Data management requirements?
- NOAA is interested in VOCALS Outreach and Education component