Update on NOAA Climate Program

- **CPPA Update**
- **NOAA CPO Program Restructuring**
- **NOAA Climate Service**

Jin Huang

NOAA Climate Program Office
July 29, 2010
Buenos Aires, Argentina

NOAA's Climate Mission Goal

Understand and describe climate variability and change to enhance society's ability to plan and respond

Program	Performance Objective	Outcomes
 Climate Observations and Monitoring	Describe and understand the state of the climate system through integrated observations, monitoring, and data management	A predictive understanding of the global climate system on time scales of weeks to decades to a century with quantified uncertainties sufficient for making informed and reasoned decisions.
Program Lead: David Goodrich (NOAA Climate Program Office)		
 Climate Research and Modeling	Understand and predict climate variability and change from weeks to decades to a century	
Program Lead: V. Ramaswamy (NOAA Geophysical Fluid Dynamics Laboratory)		
 Climate Service Development	Improve the ability of society to plan for and respond to climate variability and change	Climate-sensitive sectors and the climate-literate public effectively incorporating NOAA's climate products into their plans and decisions.
Program Lead: Margaret Davidson (NOAA Coastal Services Center)		

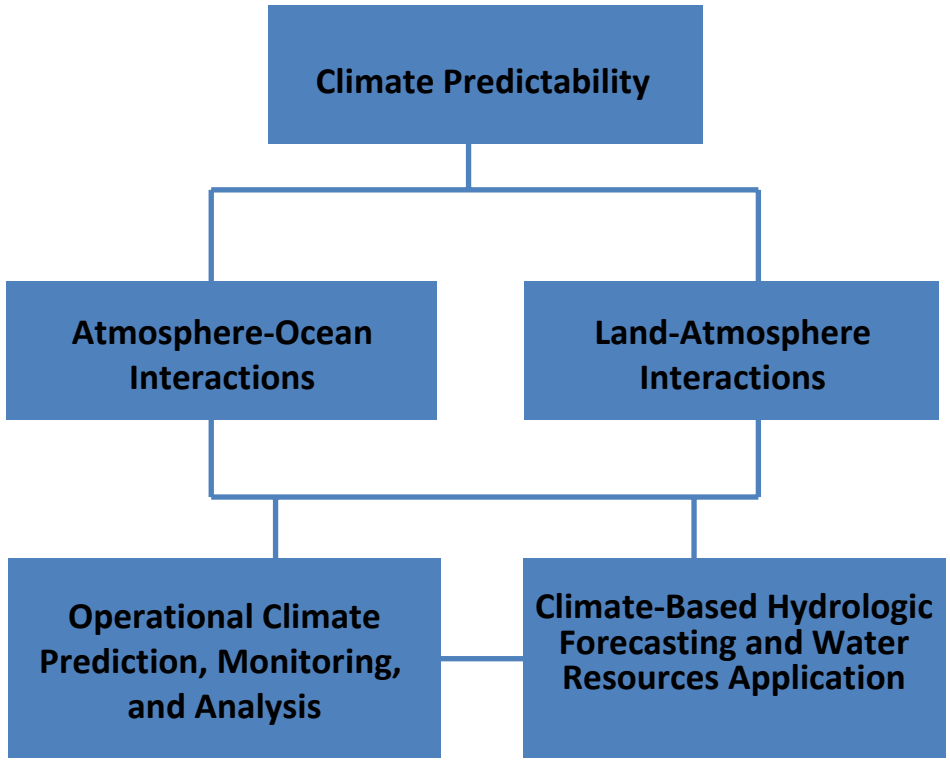
Climate Prediction Program for the Americas (CPPA)

Mission: Improve operational intra-seasonal to interannual hydroclimatic predictions for the Americas

CPPA Objectives:

- Quantify the sources and limits of predictability of climate variations on intra-seasonal to interannual time scale
- Improve predictive understanding and model simulations of ocean, atmosphere and land-surface processes, including the ability to quantify uncertainty
- Advance NOAA's operational climate forecasts, monitoring, and analysis systems by transferring research to operation
- Develop climate-based hydrologic forecasting capabilities for decision support and water resource applications

Research Components



CLIMATE PREDICTION PROGRAM FOR THE AMERICAS
CPPA

CPPA Funded Major Activities ($9.15M/year; ~60 active projects)

- Predictability of Phenomena
  - ENSO, drought/extremes, monsoons, intraseasonal variability

- Process and Modeling Studies
  - air-sea interaction: e.g., EPIC, NAME, VOCALS
  - land-atmosphere interactions: soil moisture, vegetation, snow, topography

- Improving Climate Models and Predictions
  - Development of Land Data Assimilation System (LDAS) and Noah Land model in NCEP CFS
  - Evaluation and model improvement of CFS
  - Multi-regional model downscaling using multi-GCMs seasonal predictions

- Applications of Climate Predictions
  - Drought monitor and prediction products
  - Seasonal hydrological prediction in NWS/OHD and River Forecast Centers (RFCs)
  - Applications of climate information for ecosystem prediction

- Transitioning Research to NWS Operations
  - CPPA Core Project (focus on land & hydrology)
  - joint university-NCEP competitive projects on CFS improvement

CPPA FY10 New Projects relevant to VAMOS

1. Predictability and prediction of ISI climate and impacts over the Americas

- **IAS**
  - **Karnauskas**, Seager, Busalacchi: mid-summer drought
  - **Liebmann**, Vera: contributions of organized transient disturbances to ISI rainfall
- **Evaluate the ability of IPCC-AR5 class models to simulate and predict ISI climate, and to examine ISI climate variability and its impacts over the Americas under a warming climate.**
  - **Ruiz-Barradas**, Nigam: hydroclimate in central US. in warm season
  - **Cavarlho**, Jones: an integrated view of the American Monsoon Systems
  - **Fu**, Mo: changes in Pan American ISI climate and their impacts on extremes
  - **Serra**: Evaluation of the Tropical Storm Track in IAS region in IPCC AR5 Models

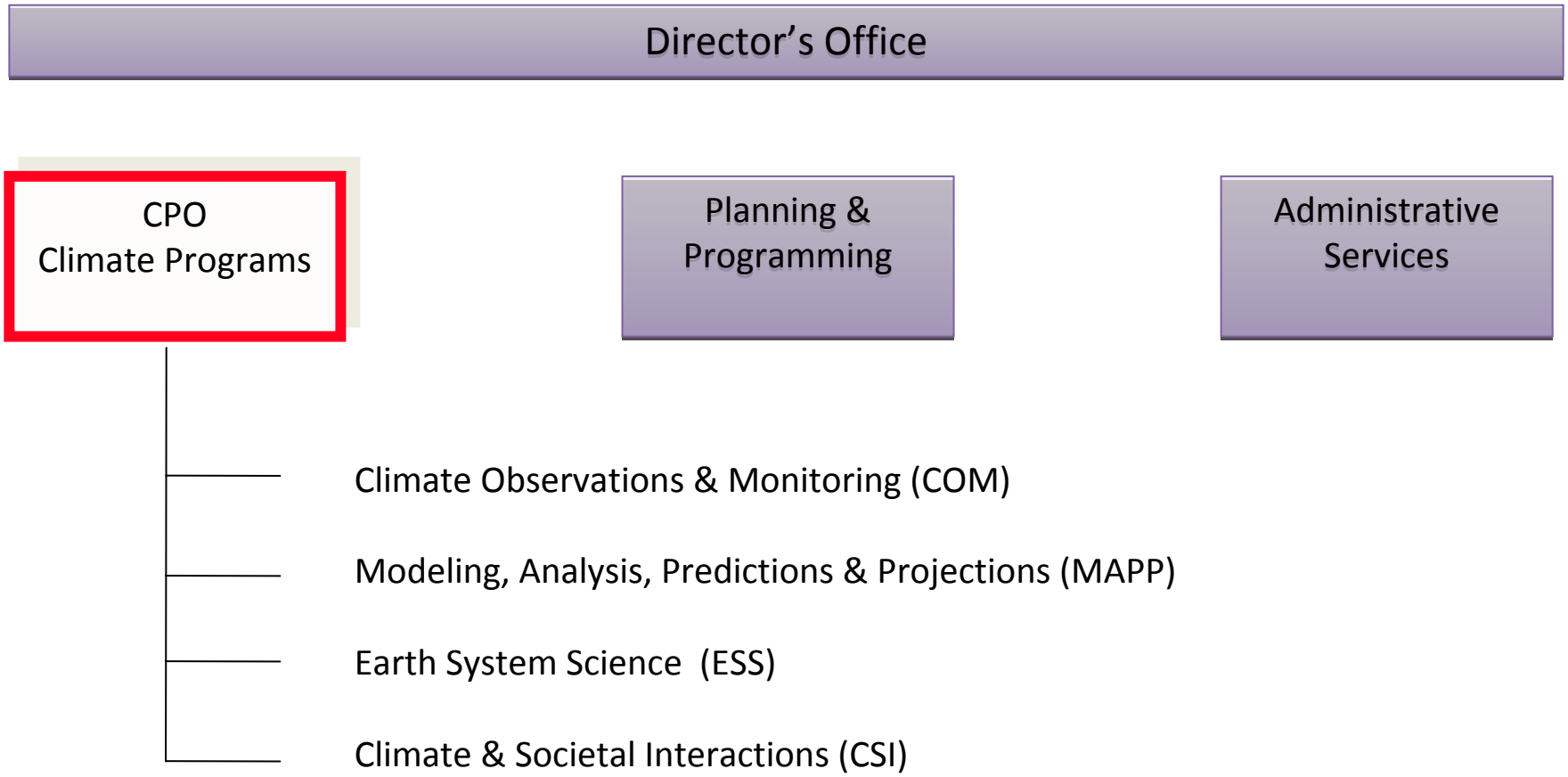
2. VOCALS post-campaign data and process modeling

- **Shinoda**: atmosphere-ocean coupled processes in the SE Pacific
- **Mechem**: drizzle and cloudiness transitions in SE pacific marine stratocumulus
- **Bretherton**, Mechoso, Teixeira, Park, Lord: **Climate Process Team** on stratocumulus to cumulus transition (jointly funded with CTB Program)

3. One-year fund for M. Douglas to develop int'l collaboration for IASCLIP

NOAA Climate Program Office

New Program Structure



NOAA Climate Program Office

http://climate.noaa.gov/cpo_pa/

COM activities:

- Build and sustain a global climate observing system according to climate monitoring principles
- Develop and maintain long time-series indicators of climate variability and change
- Develop and maintain standard data sets for initialization and evaluation of climate forecast models, assessments of climate change, and informed risk management
- Perform diagnostic studies of observed patterns of climate variability and change on global to regional scales

ESS activities:

- Elucidating the physical climate mechanisms involving land-atmosphere-ocean-ice interactions responsible for intraseasonal to multi-centennial climate variability, including abrupt climate change
- Identifying the location, magnitude, dynamics, and variability of global carbon sources and sinks; understanding how ecosystems are impacted by changes in carbon cycling and associated changes in climate
- Improving understanding of the role of aerosols and chemically-active greenhouse gases in the global climate system

NOAA Climate Program Office

http://climate.noaa.gov/cpo_pa/

MAPP activities:

- Improving Earth system models
- Supporting an Earth System Integrated Analysis capability
- Improving methodologies for global and regional-scale analysis, predictions, and projections
- Developing integrated assessment and prediction capabilities relevant to decisionmakers based on climate analyses, predictions, and projections

CSI activities:

- Identification and articulation of user-community requirements in multiple sectors, initially with regard to water resources and the coastal zone then branching to related sectors
- Research and development of innovative and broadly applicable approaches to support decision-making, especially for risk characterization, both through a broad network of regionally scoped, long-term efforts and stakeholder-specific efforts
- Promotion of the transfer of knowledge, tools, and products across climate service development efforts (within NOAA, across the federal government, nationally, and internationally).

MAPP FY11 Research Priorities
($3.5M / year)

1. **Advances in Regional-Scale Climate Predictions and Projection**

1a) Support the development of next-generation global climate models

1b) Evaluate uncertainties in regional-scale climate predictions and projections

2. **Develop an Integrated Drought Prediction Capability**

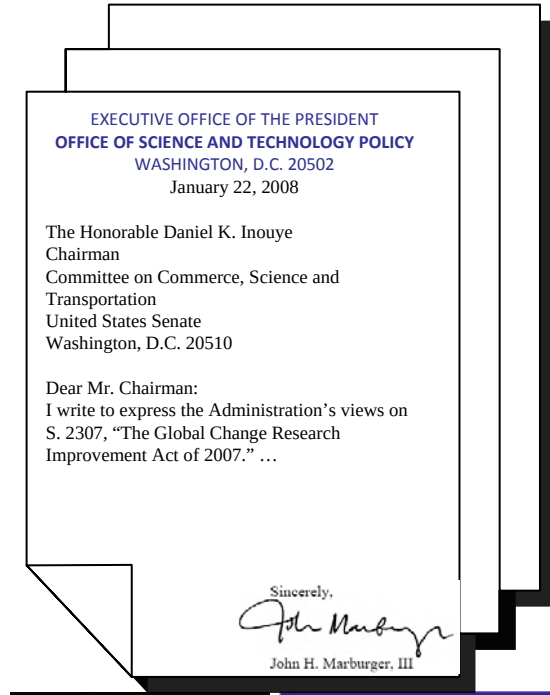
2. **Evaluate Recently Developed Reanalysis Products**

ESS FY11 Research Priorities
($4.0M / year)

- ***Decadal Climate Variability and Predictability***
  - ***AMOC***
- ***Understanding and Improving Prediction of Tropical Convection***
  - ***DYNAMO***
- ***Improving the Understanding and Modeling of Land Surface Processes***
- ***The Global Carbon Cycle***
- ***Aerosols, Atmospheric Chemistry and Climate***
  - ***Analysis of CalNex Study***

NOAA Climate Service

- February 8, 2010 - U.S. Commerce Secretary Gary Locke today announced the intent to create a NOAA Climate Service line office dedicated to bringing together the agency's strong climate science and service delivery capabilities.
- Thomas R. Karl, director of NOAA's National Climatic Data Center, will serve as transitional director of NOAA Climate Service.
- http://www.climate.gov – that serves as a single point-of-entry for NOAA's extensive climate information, data, products and services. Known as the NOAA Climate Portal, the site addresses the needs of five broadly-defined user groups: decision makers and policy leaders, scientists and applications-oriented data users, educators, business users and the public.

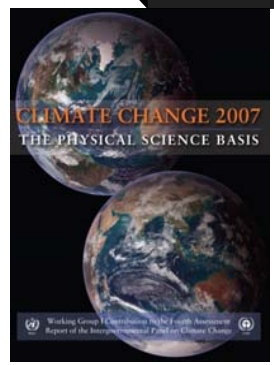

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20502
January 22, 2008

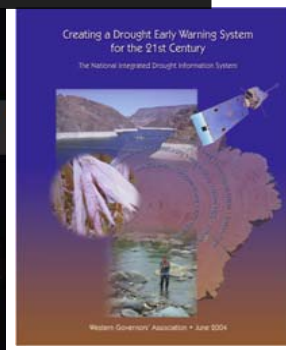
The Honorable Daniel K. Inouye
Chairman
Committee on Commerce, Science and Transportation
United States Senate
Washington, D.C. 20510

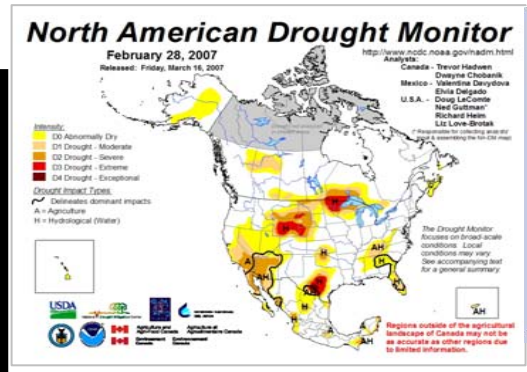
Dear Mr. Chairman:
I write to express the Administration's views on S. 2307, "The Global Change Research Improvement Act of 2007." …

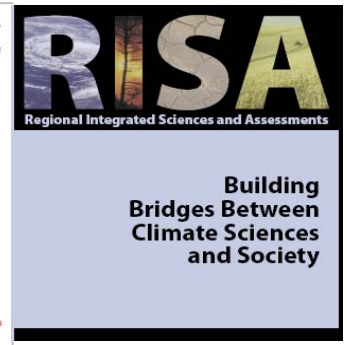
Sincerely,

John H. Marburger, III

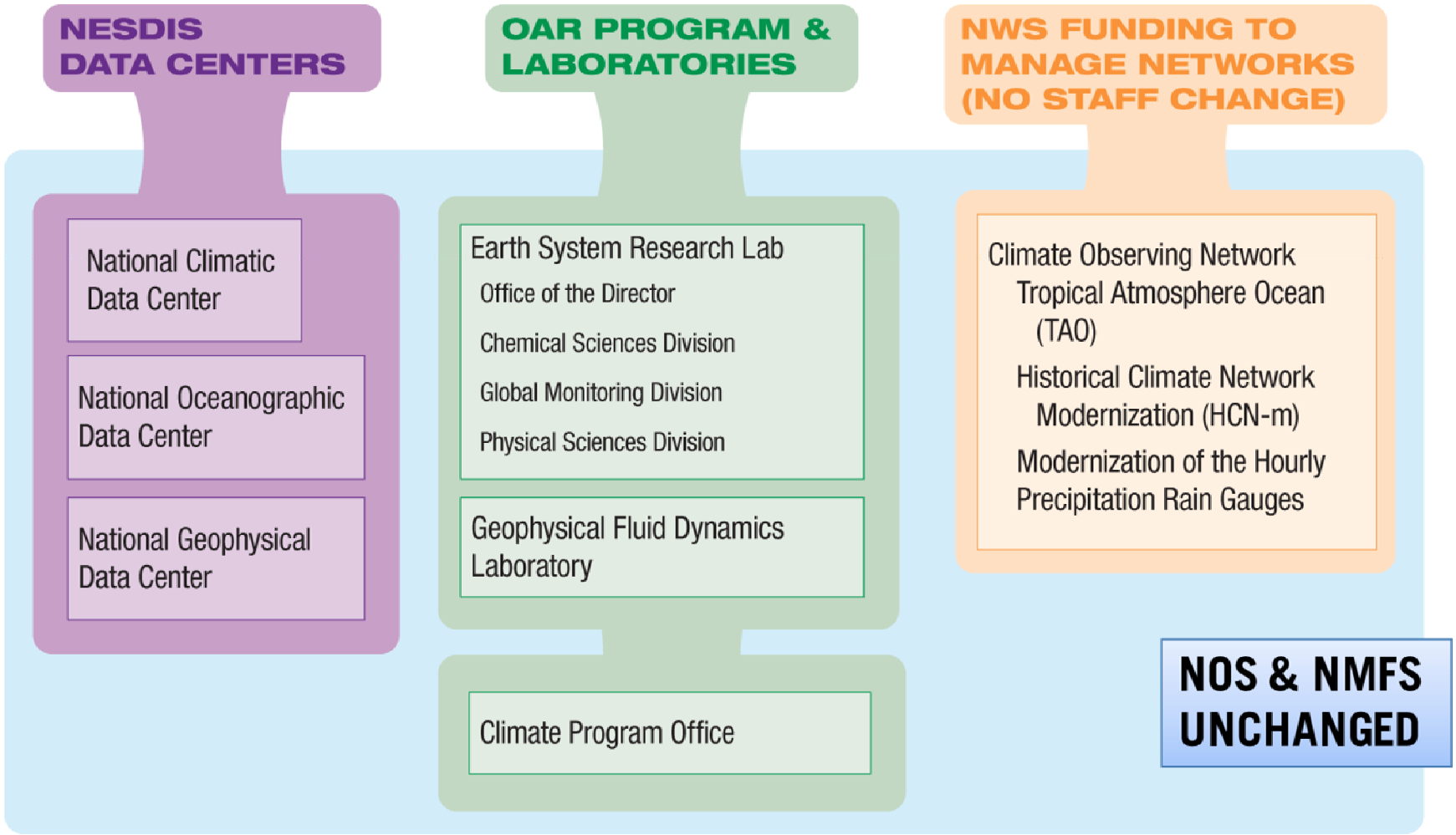








Building Blocks of Proposed NOAA Climate Service



The physical location of these facilities will not change

NOAA's Top five long-range (~5-10 years) climate research areas of interest that intersect with VAMOS

- Improving climate models
- Climate extremes (hurricanes, droughts, …)
- Climate prediction and projection
- Sustaining and enhancing the climate observing system
- Regional-scale climate