

VAMOS Modeling

Lessons Learned

Vision for the Future

Organizing the Discussion

- **Discuss How the Modeling Plan has Been Addressed**
 - Successes, Gaps, Changing Science
 - What Problems are Solved? What Problems Remain that Guide the Strategy for the Future?
 - How did VAMOS Enable Scientific Progress and Understanding?
- **How Do We Want To Proceed in the Future**
 - Major Scientific Thrusts
 - Coordinate What Needs to Be Coordinated
 - Process

VAMOS Modeling Plan (Jun 2008)

- **Modeling Strategy: Multi-Scale Approach**
 - **Simulating, Understanding and Predicting the Diurnal Cycle**
 - **Predicting the Pan-American Monsoon, Onset, Mature and Demise Stages**
 - **Modeling and Predicting SST Variability in the Pan-American Seas**
 - **Improving the Prediction of Droughts and Floods**
- **Data Assimilation, Analysis and Assessing Observing Systems**
- **Prediction and Global-Scale Linkages**

Implementation/Execution

- **Organic Approach – Leverage Ongoing Efforts**
 - Need to “Assess” How VAMOS has Enabled Science
 - Qualitative and Quantitative Measures
 - Need to “Assess” How we have addressed the modeling plan
 - Where appropriate – the science and problems have changed

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Modeling Workshop Summary

- **Simulating, Understanding and Predicting the Diurnal Cycle**
 - Sensitivity of CPTeC AGCM to Parameterization Scheme
 - Scale Interactions – Diurnal to Intraseasonal to Decadal
- **Lots of Past Results from NAME, MESA and VOCALS**
 - Is this Problem Solved?
 - Have we given up?
 - Can VAMOS Reinvigorate Progress?

Modeling Workshop Summary

- **Predicting the Pan-American Monsoon, Onset, Mature and Demise Stages + Modeling and Predicting the Pan American Seas + Improving Prediction of Droughts and Floods**
 - Several Regional Modeling/Prediction Studies
 - Role of Aerosols
 - Land Surface Change
 - Climate Change - CORDEX
 - Downscaling Global Forecasts
 - Global Modeling/Prediction
 - Leveraging Existing Multi-Model Prediction Data Sets (EURBRISA, NMME, CHFP, EUROSIP, ENSEMBLES, APCC) – Forecast Assimilation - CORICOF
 - Atmosphere-Ocean and Atmosphere-Land Coupling
 - Climate Change
 - Using Data Assimilation to Improve Models

Modeling Workshop Summary

- **Modeling and Prediction**

- Several Regional Modeling/Prediction Studies

- Role of Aerosols
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- Climate Change - CORDEX
- Downscaling Global Forecasts

- Global Modeling/Prediction

- Leveraging Existing Multi-Model Prediction Data Sets (EURBRISA, NMME, CHFP, EUROSIP, ENSEMBLES, APCC) – Forecast Assimilation - CORICOF
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- Using Data Assimilation to Improve Models

Modeling Workshop Summary

- **Application of Forecast Information for Decision Science**
 - CARICOF, Hydrological Applications

VAMOS Modeling (Jun 2012)

- **Taking Credit For Successes**
 - Model Improvements
 - Improved Understanding (process studies and field campaigns),
 - Improved Predictions,
 - Quantified Predictability
- **Contributions to Coordinated Activities**
 - IPCC, WGSIP, VAMOS, CHFP, CMIP5, VOCALS, IASCLIP, NAME, MESA, LPB, CLARIS, CORDEX ...
- **How To Coordinate Ongoing Activities into a Coherent Narrative?**
- **Enabling/Facilitating Collaborative Science?**
 - Exchange of Ideas

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