

U.S. CLIVAR Briefing for U.S. Agency Managers  
on the InterAmericas Study of Climate Processes (IASCLiP)  
August 23, 2012  
Washington, DC

Presenters: Dr. Art Douglas, IASCLiP Science Working Group Chair  
Dr. Vasu Misra, IASCLiP Modeling Working Group Chair

Attendees: Dan Barrie (NOAA MAPP), Tim Boyer (NOAA NODC), Wayne Higgins (NOAA CPC), Tom Karl (NOAA NCDC), Annarita Mariotti (NOAA MAPP), Jennifer Mays (US CLIVAR), Mike Patterson (US CLIVAR), Rick Rosen (NOAA CPO), Gyami Shrestha (USGCRP CCSP), Chris Weaver (EPA, USGCRP NCO)

By Telecon: Landry Bernard (NOAA NDBC), Richard Bouchard (NOAA NDBC), Richard Crout (NOAA NDBC), Stephen Cucullu (NOAA NDBC), Renu Joseph (DoE), Lex LeBlanc (NOAA NDBC), Rodney Riley (NOAA NDBC)

The U.S. CLIVAR Office organized the briefing by U.S. leaders of the IASCLiP Program to engage U.S. CLIVAR program managers and NOAA center directors and staff on

- research findings revealing the importance of the IAS to climate variability and predictability across the U.S., Mexico, Central America and the Caribbean;
- key science issues being addressed by IASCLiP, through contributions from U.S. and regional partners;
- efforts to develop and disseminate climate information and experimental forecast products throughout the region;
- gaps in understanding and implementation (e.g., observing and data systems) that need to be addressed; and
- interest of agency programs and centers in supporting and coordinating efforts to address these gaps.

Art Douglas provided an overview of the IASCLiP Program and understanding of the role of the InterAmericas Seas (IAS) in climate variability and the mechanisms underlying the variability the IAS. Vasu Misra followed Art with a presentation on IAS modeling and experimental prediction research results. These presentations are posted at the U.S. CLIVAR website at (<http://www.usclivar.org/iasclip>). In addition, the IASCLIP website provides background on the program and provides a bibliography of 90 published papers relating to the IAS, its role in climate, and its variability and predictability ([http://www.eol.ucar.edu/projects/iasclip/publications/publication\\_refs.html](http://www.eol.ucar.edu/projects/iasclip/publications/publication_refs.html)).

Below are recommendations by participants made during the meeting to be considered by the IASCLiP Science Working Group and interested programs and centers.

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→Need to provide compelling graphics on impact of IAS on U.S. climate. Rick Rosen suggested that more compelling graphics showing, for example, the portion of precipitation that is related to moisture flow from the IAS; extreme flooding events related to atmospheric rivers related to the IAS.

→Need to investigate AMO correlation with precipitation by season versus by total annual. This may better preserve the out-of-phase relationship in summer precipitation between the North American monsoon and central U.S.

→Need to understand the spatial and temporal variability of mid-summer drought.

→Need to evaluate fidelity of models' skill at simulating/predicting vertical wind shear, shown to be strongly correlated with precipitation in the IAS region. Some models indicate skill in reproducing realistic wind shear. This could establish an important target for model prediction.

→Need to address impediments identified by countries in the region in sustaining ocean and atmospheric observing systems. In 2010, NOAA CPO supported a trip by Art and Mike Douglas (NOAA NSSL) to visit operational and research centers throughout the Caribbean region. Art reports that there is universal understanding of the importance of such observations, but a lack of funding to mount and maintain them, particularly given the need to replace antiquated equipment.

The IASCLiP website (<http://www.eol.ucar.edu/projects/iasclip/>) provides the IASCLiP Monitoring Plan outlining the program's observational strategy as employing:

- long term sustainability of an ocean-atmosphere monitoring network aimed at enhancing both operational and research modeling;
- close oversight of the observing network from both the scientific and operational sector, similar to that which has provided both insight and added value to the TAO and PIRATA arrays;
- leveraging of efforts from other agencies like NDBC (Caribbean moored buoys) and the NSF funded project for the Continuously Operating Caribbean GPS Observational Network (COCONet); and
- deployment of new aerological systems where needed to supplement failing networks. The best example of this is an adaptive upper air sampling scheme to counter the failing network of radiosonde soundings.

The site links to cooperative efforts established to provide data, including NOAA AOML satellite products for the Western Hemisphere Warm Pool (WHWP), <http://www.aoml.noaa.gov/phod/regsatprod/whwp/index.php>; NOAA NSSL summary of *in situ* upper air, surface met, and ocean buoy sites and potential enhancements (<http://www.nssl.noaa.gov/projects/pacs/web/IASCLIP/index.shtml>); and International CLIVAR VAMOS data sets (<http://www.eol.ucar.edu/projects/vamos/data/>).

→Need to consider wind profiler enhancements at Cancun and in Central America sites to support examinations of the Caribbean low level jet (LLJ).

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➔Need to ensure that COCONet and TLALOC (the Mexico GPS network funded by a World Bank grant) precipitable water and surface met data are available in real time and that NCEP has the capacity to process the data (e.g., via a postdoc). Research is needed to explore the assimilation of GPS PW into the GFS models. Wayne Higgins indicated that these are testbed-type issues.

➔Need enhanced ocean observations to enable process understanding of the variability of the Atlantic Warm Pool. Suggestions include:

- Addition of 10 subsurface thermistors and surface salinity measurements on 6 NDBC buoys in the IAS (estimated cost of \$600K for implementation and processing)
- Use of profiling gliders in IAS through NDBC pilot program; one already deployed in Gulf of Mexico (Oil company purchase of gliders; NDBC deployment)

➔Need to engage oil companies to access ocean and atmospheric data set holdings in region. Tim Boyer shared that NODC has access to data collected through Deep Water Horizon's research fund. He also suggested exploring the possibility of atmospheric observations from oil rigs operating in the IAS region. Art indicated that while reluctance has been expressed by some oil companies in providing access given safety concerns, the Apache Corporation has expressed interest in collaborating. Tom Karl confirmed that a lot of met data is collected by oil companies on their platforms in the region, and suggested working with the Army Corps to gain access to the private company data holdings. Richard Bouchard shared that NDBC has worked with the Gulf of Mexico oil companies. The Bureau of Ocean Energy Management, Regulation & Enforcement (formerly Minerals Management Service) of DoI has links with the oil companies and their collection of profiling current data. Atmospheric data is collected via EPA and is made available via GTS.

➔Need to develop Research to Operations (R2O) pathways. Wayne Higgins expressed interest in pursuing a R2O component in IASCLiP. Potential efforts could include:

- Linking NAME and IASCLiP forecast forums
- Extending the North American Drought Information System (including both the monitor and outlook) to include the IAS region; potential for addressing subseasonal mid-summer drought by examining monthly wind shear; connection with Drought Task Force meetings at the October Climate Diagnostics and Prediction Workshop in Fort Collins
- Linking IASCLiP research into the CPC Tropical Cyclone Outlooks to include seasonal intensity and landfall expectations; Wayne also suggested an offline conversation to coordinate between IASCLiP and CPC in developing TC forecasts (April for MJJ, July for ASO). Spring should be considered as well as summer to include the Caribbean Low Level Jet influence.

Annarita Mariotti confirmed MAPP's interest in R2O, identifying the Climate Prediction Task Force led by Ben Kirtman (U. Miami) with co-leadership of Vasu Misra (among others) and participation of NCEP's Climate Test bed, designed to advance intraseasonal-to-interannual prediction and methodologies.

➔Need to explore decadal variability and changes in IAS. Tom Karl suggested that the IASCLiP Program should consider engaging the decadal time scale, thereby bridging the gap between ISI and decadal communities. One such undertaking could be an examination of CMIP5 model evaluation of wind shear over the IAS.

➔Need to consider bias corrections of models. Vasu's group is developing systematic bias corrections for models—one model at a time. The research effort is not intended to adhere to an operational schedule, as is being done with the National Multi-Model Ensemble (NMME) project. Wayne suggests engaging the NMME. Annarita suggested the Climate Prediction Task Force an immediate opportunity to connect with NMME (both NMME PIs and IASCLiP PIs are invited to participate in the Task Force).

➔Need for opportunities to coordinate research projects. Annarita encouraged IASCLiP leads to leverage on-going projects to advance the goals of IASCLiP and demonstrate progress. There is no systematic support of IASCLiP meetings. Acknowledging tight budgets, Annarita suggested that the community utilize telecons and meetings of opportunity to enable meetings at reduced costs. Along these lines, for the past several years, IASCLiP scientists have been meeting informally one evening during the NOAA Climate Diagnostics and Prediction Workshop (CPDW). All U.S. agency funded PIs will be invited to participate in the meeting be planned for the week of October 22 in Fort Collins. Wayne volunteered that future CDPWs provide opportunities to focus on IASCLiP, e.g. a day-long session could be included in next year's CDPW agenda.

The U.S. CLIVAR Project Office will follow-up with Art, Vasu and the agency managers to further explore the above recommendations.