

Enhanced Monitoring for US CLIVAR
input from the PanAmerican Implementation panel, December 2003

1a. TAO enhanced monitoring along 95°W for EPIC

Leaders: Meghan Cronin, Mike McPhaden (both NOAA PMEL)

Timeline: Start date: Nov 99
Duration: 4 yr
End date: Nov 03 (i.e., just completed)
Cost: \$2.3M for 5 yr (this included grad student etc.)

Goals: Monitor air-sea heat, moisture, and momentum fluxes, and upper ocean temperature, salinity and currents across the stratus deck/cold tongue/ITCZ complex for up to 4 yr.

Linked modeling/analyses activities: Modeling and empirical analyses begun under this project are likely to continue for several years. We expect new projects to develop in the next several years. During the past year, over 70 different non-PMEL individuals downloaded these data from PMEL-based archives, and there were more than 310 anonymous downloads.

Archiving/access: Data are available through PMEL-maintained, web-based data delivery and ftp sites. These sites can be accessed from JOSS EPIC webpage.

1b. Barometric pressure sensors on TAO moorings along 110°W.

Leaders: Chris Bretherton (UW), Meghan Cronin, Mike McPhaden (both NOAA PMEL)

Timeline: Start date: Mar 01
Duration: as long as possible
End date: whenever the 5 BP sensors expire (1 lost so far)
Cost: CB provided \$25K to purchase the 5 BPs; TAO project office supports other implementation costs.

Goals: Monitor the barometric pressure gradient in the cold-tongue frontal zone (110°W, 0°/2°N).

Archiving/access: Data are available through PMEL-maintained data delivery website and ftp sites. These sites can be accessed through JOSS EPIC webpage.

1c. Ship-based PBL measurements at 95°W

Leaders: Chris Fairall (NOAA ETL), Nick Bond (NOAA PMEL)

Timeline: Start date: next cruise Oct 04
Duration: 2 more years
End date: Oct 05
Cost:

Goals: Continuation of PBL monitoring carried out during the core of the EPIC enhanced monitoring period, which just ended (activity 1a). The goal of this final phase is to repeat boreal autumn PBL observations to characterize interannual variability of cross-equatorial circulation, cloudiness and precipitation.

Linked modeling/analysis activities: Now being developed as part of overall EPIC modeling strategy.

2a. PACS SONET project

Leader: Mike Douglas, NOAA NSSL

Timeline: Start date: 1999
Duration: 3 yr initial grant, 3 yr renewal just funded
End date: 2005
Cost: 1999-2001: \$325K/yr, 2003-2005 \$300K/yr

Goals: Augment upper air sounding network in data sparse regions, especially Central and South America. Recent focus has been to obtain multi-year observations in PanAm/VAMOS priority areas (in support of SALLJEX and NAME). Currently operating pilot balloon sites in eight countries. Sites are operated by local institutions and are designed to be "simple and robust".

Linked modeling/analysis activities: SONET data were an integral component of MESA/SALLJEX. They are providing a multi-year perspective for NAME activities as well. Some observations are assimilated into NCEP final GDAS but impact studies have not been performed.

Archiving/access: Observations are archived at NSSL in near real-time, with web page access. JOSS also maintains a data archive. Quality control of observations being more carefully done in delayed mode; no "final" quality-controlled data set yet exists.

Linkages/partnerships: All SONET sites are integrally linked to partner institutions in the host countries. Educational activities are carried out in conjunction with SONET to stimulate use and exploitation of the data set and ensure sustainability of the network.

2b. Enhanced operational upper air network in South America

Leader: Carolina Vera, Univ. Buenos Aires, has developed the proposal for GCOS

Timeline: Start date:
Duration: 3 years
End date:
Cost: ~\$750K

Goals: Consolidate and expand the operational upper-air network over central South America (western Brazil, Bolivia, Paraguay and northern and central Argentina). The project aims to guarantee the full operational state of the current upper-air stations operating in the region, and implement a group of new upper-air stations, filling a large gap in the current operational network over South America. The network will make twice-daily observations, at 0000 and 1200UTC.

Linked modeling/analysis activities: Network motivated by results from VAMOS/MESA activities, especially SALLJEX.

Archiving/access: Soundings transmitted over the GTS to WDC ingest centers.

Linkages/partnerships: The funding would support facilities operated by host country weather services.

3a. In situ precipitation monitoring in Mexico: Event-logging gauges

Leaders: David Gochis (NCAR), Chris Watts (IMADES)

Timeline: Start date: Jul 02 (Stage 1); May 03 (Stage 2)

Duration: Ongoing

End date: 2005

Cost: ~300K (3 years)

Goals: Resolve sharp precipitation gradients along transects extending from the Gulf of California to the Sierra Madre Occidental.

Linked modeling/analysis activities: Diagnostic analysis with NCEP/CPC collaboration is funded by a follow-on proposal.

Archiving/access: Data are collected twice per year, and delivered to JOSS NAME data archive approximately 3 months after collection.

3b. In situ precipitation monitoring in Mexico: Simple gauges

Leaders: Wayne Higgins (NOAA NCEP/CPC), Rene Lobato (IMTA)

Timeline: Start date: May 04

Duration: cooperative network

End date: ongoing

Cost: ~300K (3 years)

Goals: Augment the existing in situ daily precipitation data base in northern Mexico to enhance long term monitoring.

Linked modeling/analysis activities: Linked to entire suite of NAME observational and modeling activities.

Archiving/access: Data to be included in NCEP precipitation archive, including the operational gridded daily precipitation product.

Linkages/partnerships: IMTA, SMN

4. Intra-American Seas monitoring of water vapor transport

Leaders: Chidong Zhang (U. Miami), Victor Magaña (UNAM), Jorge Amador (U. Costa Rica)

Timeline: Start date: Apr 08

Duration: 4 years (Apr – Sep only)

End date: Sep 11

Cost: \$40K + \$600K/yr

Goals: Augment in situ daily upper-air soundings near the entrance (Caribbean Islands) and exit (Central America) of the low-level easterly jet that is responsible for the water vapor transport from the tropical Atlantic into the IAS, moisture budget in the IAS, and oceanic source of water vapor for precipitation in the U.S. Great Plains region.

Linked modeling/analysis activities: The enhanced sounding data will be used in the NCEP regional reanalysis to provide more accurate data assimilation products to assess the role of water vapor transport in the predictability of summertime precipitation in Central and North Americas.

Archiving/access: UCAR/JOSS