

FIELD CAMPAIGN PLANNING AND DATA MANAGEMENT

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Scope of Field Campaign Planning and Operations

- Interface PI/Facilities (International, Multi-national, Multi-agency)
- Site Selection, Space, Facilities, Coordination with Local Host
- Operations Management (ATC Coordination, Facility Direction)
- Communications Plan (Including Data Access; LAN)
- Forecast Coordination (Data Access, Display, Experts)
- Field Catalog
- Data Management—In-field Access, Data Integrity (Metadata, Completeness, Long Term Archive, Compatibility)
- Prepare Operations and Data Management Plans
- Customs, Immigration, Security, Other Logistics
- Project Timeline



Timeline for a Generic Large NSF Field Program

(Assuming FY 2007 Field Deployment)

Project Planning Phase



NCAR S-pol radar



10 cm Doppler, polarimetric radar Highly portable, six 20 ft. seatainers Diesel generator powered Easy set up Peak power 1 Mw 1 degree beamwidth antenna Suite of Doppler and polarimetric variables Doppler measurements, polarimetric-based rainfall maps, hydrometeor identification Internet ready Requested via NCAR/NSF and deployments funded by Deployment Pool. Well suited to international deployments.





ER-2 Dropsonde Pod

915-MHz Profilers

- Atmospheric Research
 - Profilers purchased or developed by university or federal government research groups
 - Profiler technology not as complicated as high frequency scanning radars
- Universities with 915 MHz profilers include:
 - NCAR (three ISSs & one MAPR)
 - U. Alabama at Huntsville
 - McGill University
 - U. North Dakota
 - CU Boulder
- Federal Labs with 915 MHz profilers include:
 - NOAA ESRL
 - DOE ARM
 - Argonne National Lab



Raman-shifted Eye-safe Aerosol Lidar (REAL)



NCAR's Raman-shifted Eye-safe Aerosol Lidar (REAL), developed by ATD scientists, is one of the few lidars that can be used in highly populated areas. The eye-safe and scanning capability expands the lidar's applications to include mapping urban atmospheric pollutants, and studies of dispersion very near the surface of the earth.

Why is REAL Unique? | References | Staff

Why is REAL Unique?

Wavelength and Pulse Energy | Backscatter Depolarization | Direct Analog Detection Applications | History | The Technical Challenge

Wavelength and Pulse Energy: REAL's wavelength (1.54 microns) lies within a band that is the safest in the entire optical spectrum. Photons in the 1.5-1.8 micron band are safely absorbed over several millimeters of depth in the eye humor. At shorter wavelengths photons can reach the retina causing damage and longer wavelengths are absorbed in near the eye's surface causing damage to the cornea. The American National Standard for Safe Use of Lasers reports that this wavelength band is the highest allowable eye-safe region. Therefore, by operating at this wavelength, REAL can safely transmit very high energy laser pulses that generate strong aerosol backscatter.

Lidar Links



See animations of REAL scans

Scans from Boulder >>

REAL News

Highlights from T-REX





SALLJEX Timeline





SALLJEX Upper-air network

PIBALS

RADIOSONDES







SALLJEX WCRP CLIVAR / VAMOS-GEWEX Field Campaign

SALLJEX DAILY PRECIPITATION NETWORK by Apr 2003



goes-8 VIS 200301221509 - 200301221515





SALLJEX Composite Satellite 9-hour 1-km visible images





VAMOS-EOL Satellite Digital Archive (Dec 2000- to present)







La Plata Basin Continental Scale Experiment



http://www.eol.ucar.edu/projects/lpb/

Program Overview

• CLIVAR/VAMOS and GEWEX/GHP identified the *Río La Plata* Basin as a climate-hydrology system with components that are potentially predictable with useful skill from seasons in advace, and whose variability has important impacts on human activities.

 LPB provides a framework for integration of regional projects leading to improved predictions of the climate and hydrology system, and the coordination of those projects at the highest international level (WMO/WCRP)

 LPB can act as an advocacy group to agencies that provide funding for science projects and the strengthening of the scientific infrastructure.

 LPB aims to enhance the scientific infrastructure in the Plata Basin in agreement with producers and users of climate information.

Latest News

Calendar

- LPB Implementation Plan
- LPB Status Update to the 9th VAMOS Panel

LPB Workshops and Meetings

Presentations

Science Planning

- Documents
- GIS Demonstration Map Server

Data Management

- LPB Data Management page at NCAR/EOL
- Master List of All LPB International Data Sets
- LPB (DRAFT) Data Policy
- LPB web site at CPTEC, Brazil

Other Links

- Related Projects
- Institutions, Offices and Organizations

Program Structure

- LPB Implementation Team
- VAMOS Support Center
- Monsoon Experiment South America (MESA)

Program Focus

Program efforts during this first year will be divided largely into three main foci:

- Focus 1
- Focus 2
- Focus 3





EOL DATA MANAGEMENT TOOLS

EOL Field Catalog

In-field tool to ingest and display operational and preliminary research data and project documentation for making real-time decisions and evaluating project progress

Features:

- Daily Mission Reports
- Operations Summary
- Facility Status Reports
- Data Analysis Products
- Authoring Tools
- Web-based access

EOL Data System (CODIAC)

Primary means for all project scientists and researchers to browse and retrieve data from any EOL-supported projects

Features:

- Long-term field project data archival and distribution
- Interactive data browsing, subsetting, and format translation
- Web-based access
- Value-added datasets
- Data documentation



FIELD CATALOG SAMPLE PRODUCTS





0.2







WSI NOWRAD MOSAIC 08 JUN 1998 0



LA PLATA BASIN MAPSERVER TOOL



















Data Management Strategy

- Early involvement in project planning
- Involvement with PIs to develop data management strategy (e.g., plan, policy, format, special collection and processing)
- Consistent implementation of strategy for lifetime of project and beyond
- Reliable and efficient archive and distribution system
- Easy and efficient access to datasets by broader community including stakeholders, educators, and students



Project Data Management Considerations

- Develop Data Management Plan
- Data Types
- Data Formats and Documentation
- Data Collection
- Real-time Data Requirements
- Data Quality Control
- Data Archival
- Data Distribution
- Coordination with other Programs



LPB DATA ARCHIVE IMPLEMENTATION

- Mirrored Data Archives (CPTEC and EOL)
 - Redundancy (backup)
 - Easy Access by hemisphere
 - Shared Responsibilities (TBD)
 - Special LPB project datasets
 - Standardized Metadata
 - Configuration Management
- Metrics
- Satisfy GEWEX/CLIVAR Data Requirements
- Data Stewardship

The First Global Integrated Data Sets of the Water Cycle

Model Outputs by Numerical Weather Prediction Centers

Surface Observational (*in-situ*) Data from the 33 CEOP Reference Sites Satellite Remote Sensing Data





REFERENCE SITE DESCRIPTION

1D Site:

Near surface + surface + sub-surface (Atmospheric sounding^{*} is highly desirable)

2.5D Site:

A few 1D sites + surface heterogeneity with an area of at least 100km²

3D Site:

1D sites network (+3D system) or 2.5D site + 3D atmosphere ** with an area of about 10^4 km²

The terminology in summarizing these sites is used in the following manner:

- Sub-surface (0 to -1m): Soil moisture and temperature profile, heat conduction and soil characteristics;
- Surface (0 to +2m): Four-component radiation, PAR, surface temperature, surface soil moisture, precipitation, vegetation type characteristics, snow;
- Near surface(+2 to +10m): Temperature, specific humidity and wind speed profiles, surface pressure, momentum, latent and sensible heat fluxes;
- * Atmospheric soundings: Radiosonde, wind profile, LIDAR microwave rain radar











CORRECTION to CEOP Newsletter #4: *** LBA sites are NOT properly positioned in the map *** (BRASILIA is NOT sitting on top of the Atlantic Ocean!)



Brasilia-Cerrado