

A VAMOS perspective for LPB

Carlos Ereño

Project Officer for AAM & VAMOS panels



1. Background to CLIVAR

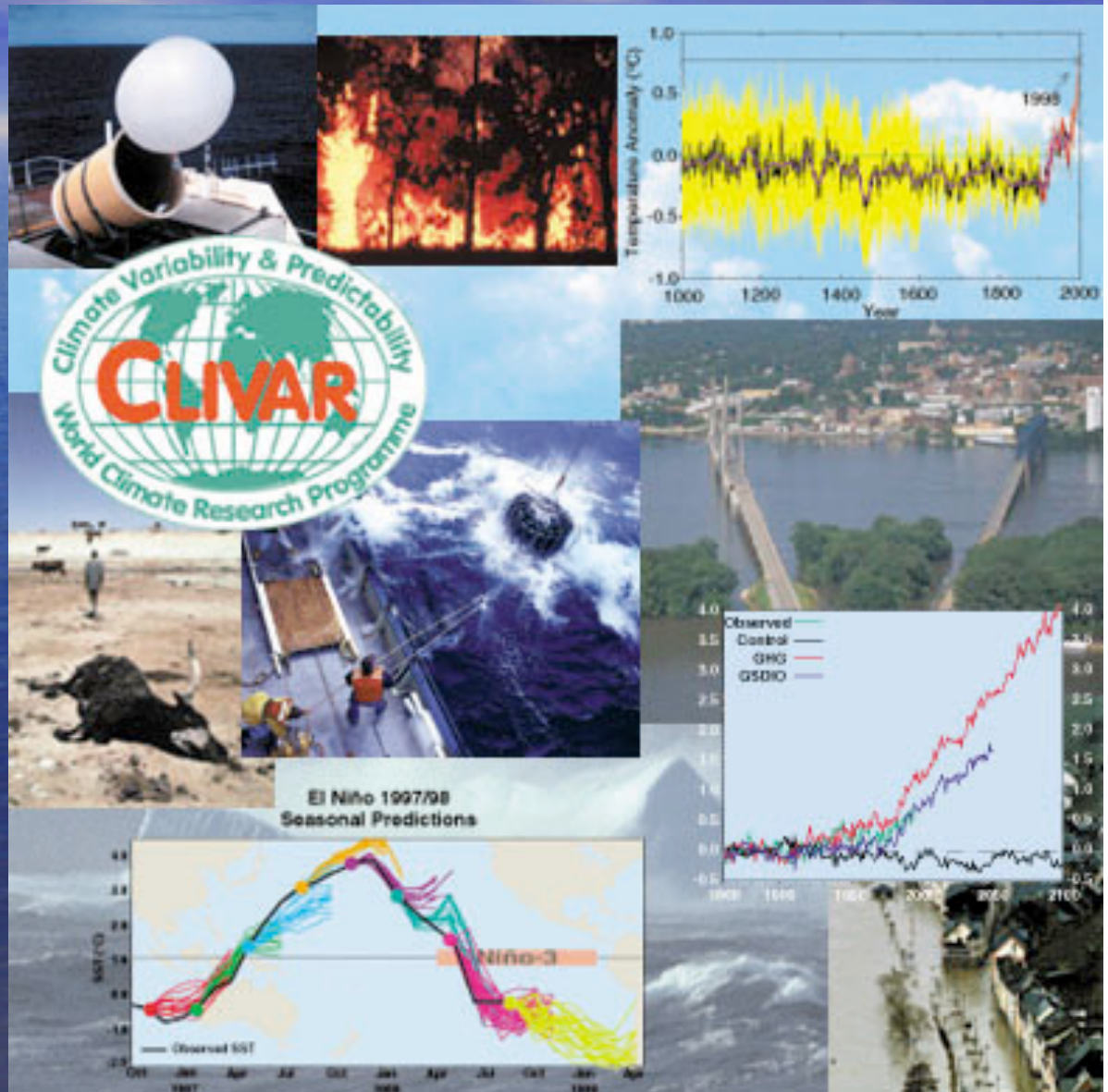


CLIVAR (Climate Variability and Predictability)

CLIVAR is an interdisciplinary research effort within the World Climate Research Programme (WCRP) focusing on the variability and predictability of the slowly varying components of the climate system.

CLIVAR investigates the physical and dynamical processes in the climate system that occur on seasonal, interannual, decadal and centennial time-scales.

<http://www.clivar.org>



CLIVAR 1995 →



WGNE
WGCM
WGSF
IPAB
WGSAT

CliC 2000 →



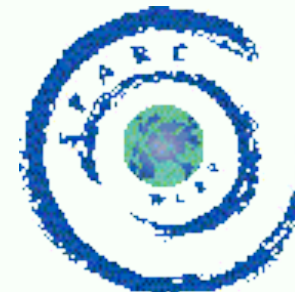
GEWEX 1988 →



SOLAS 2001 ->



SPARC 1992→



CLIVAR Mission

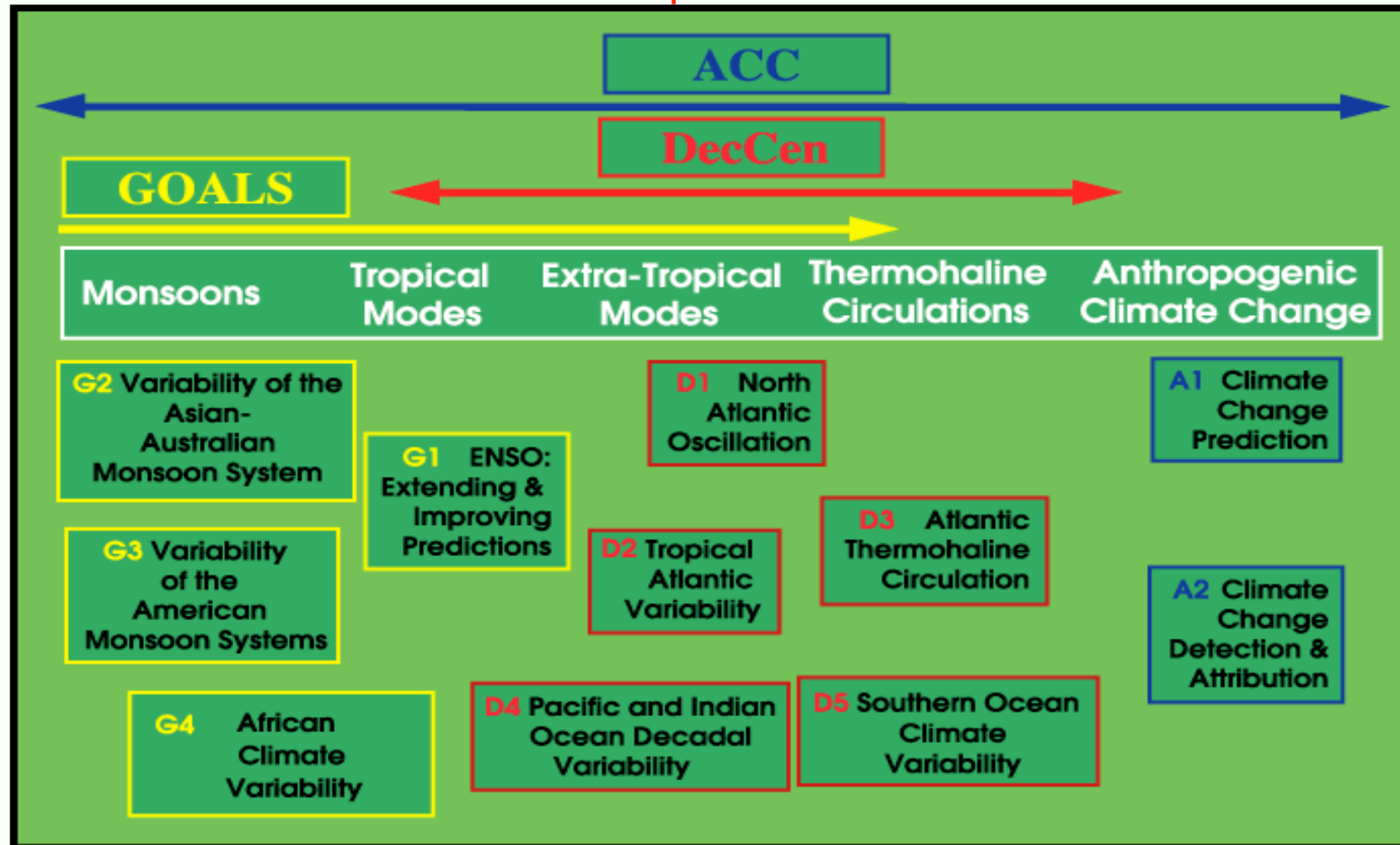
- To observe, simulate and predict Earth's climate system, with focus on ocean-atmosphere interactions, enabling better understanding of climate variability, predictability and change, to the benefit of society and the environment in which we live.

Science <-> Applications

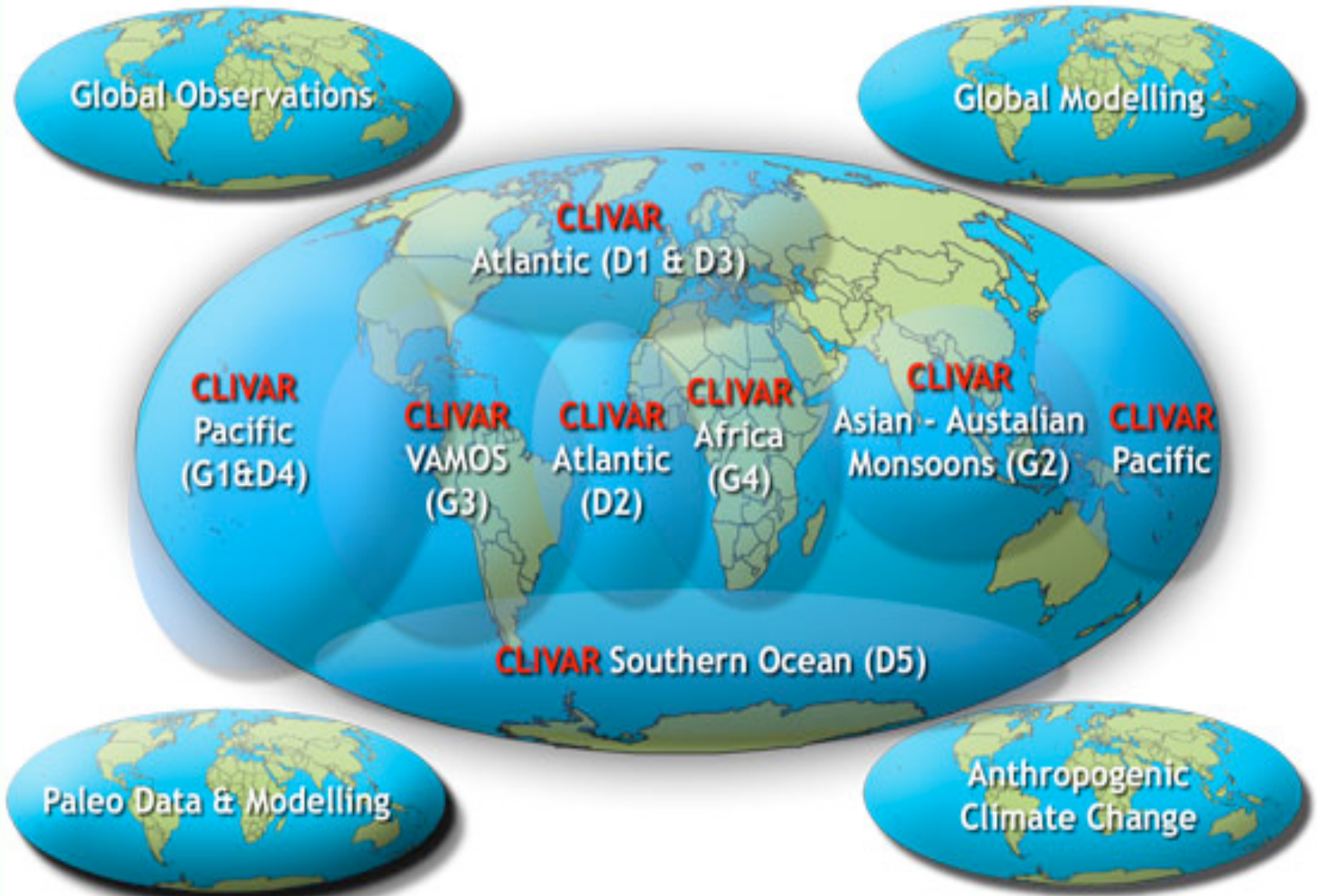
CLIVAR Goals and Objectives

- Understand the physical processes responsible for **climate variability and predictability on seasonal, interannual, decadal, and centennial time-scales ...**
- Extend the range and accuracy of **seasonal to interannual climate prediction ...**
- Extend the record of climate variability ...
- Understand, predict and detect **the anthropogenic modification** of the natural climate signal.

CLIVAR - Principal Research Areas



CLIVAR - global view





CLIVAR Organization



Scientific Steering Group

Crosscutting (global) Panels

Observations & Data

CLIVAR Synthesis & Observations Panel*

PAGES/CLIVAR Working Group

CC/CLIVAR Expert Team on Climate Change Detection (A2)

Modelling

Working Group on Seasonal to Interannual Prediction

JSC/CLIVAR Working Group on Coupled Modelling

WGCM/CLIVAR Working Group on Ocean Model Development

Regional or PRA¹ related Panels

Asian-Australian Monsoon Panel (G2)

Atlantic Implementation Panel (D1-D3)

Southern Ocean Implementation Panel (D5)

Variability of the American Monsoon Systems (VAMOS) (G3)

Pacific Implementation Panel (G1 & D4)

CLIVAR/MOC Indian Ocean Implementation Panel

Variability of the African Climate System Panel (G4)

¹Principal Research Areas

*to be established

International CLIVAR Project Office

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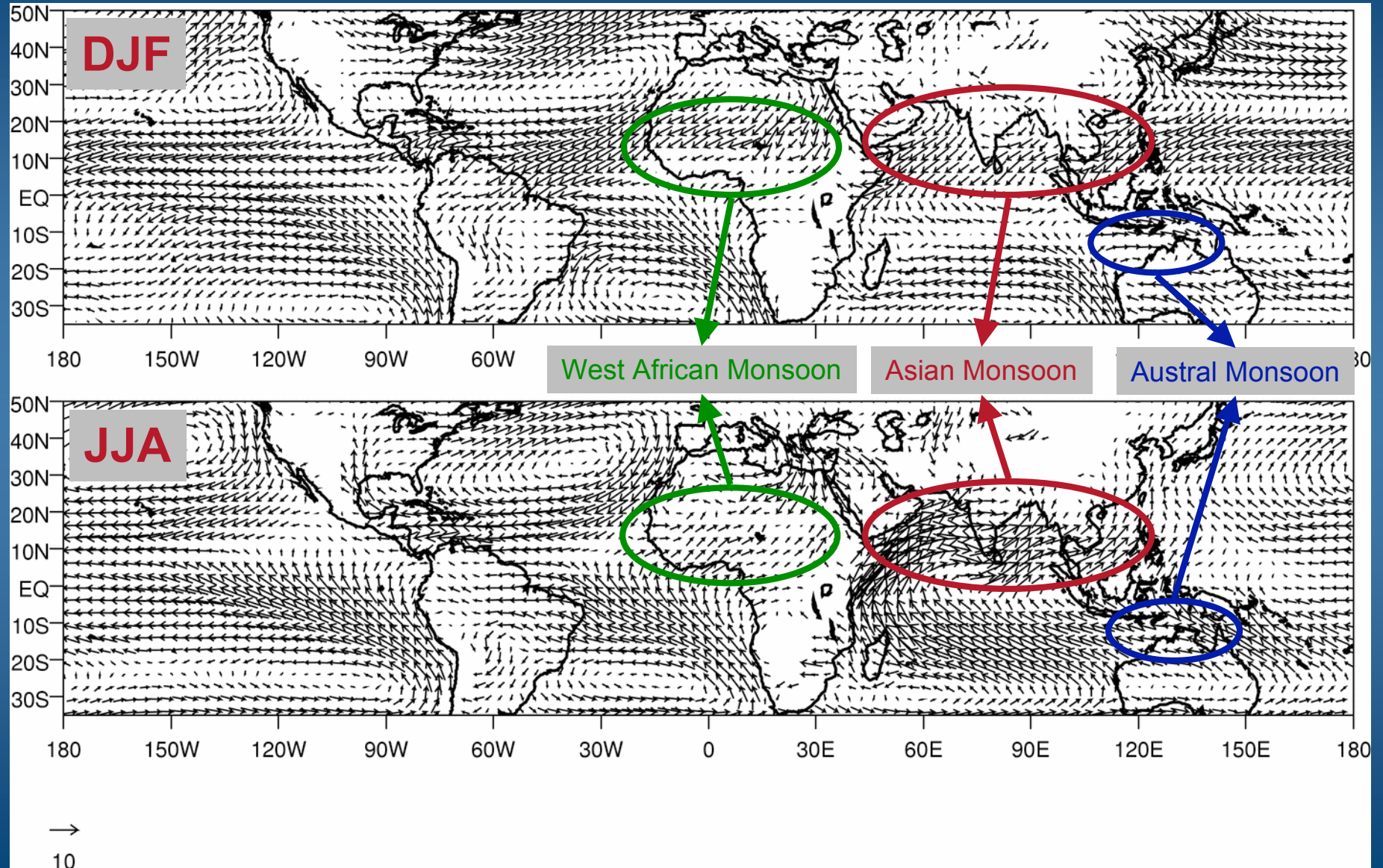


2. What are monsoons?

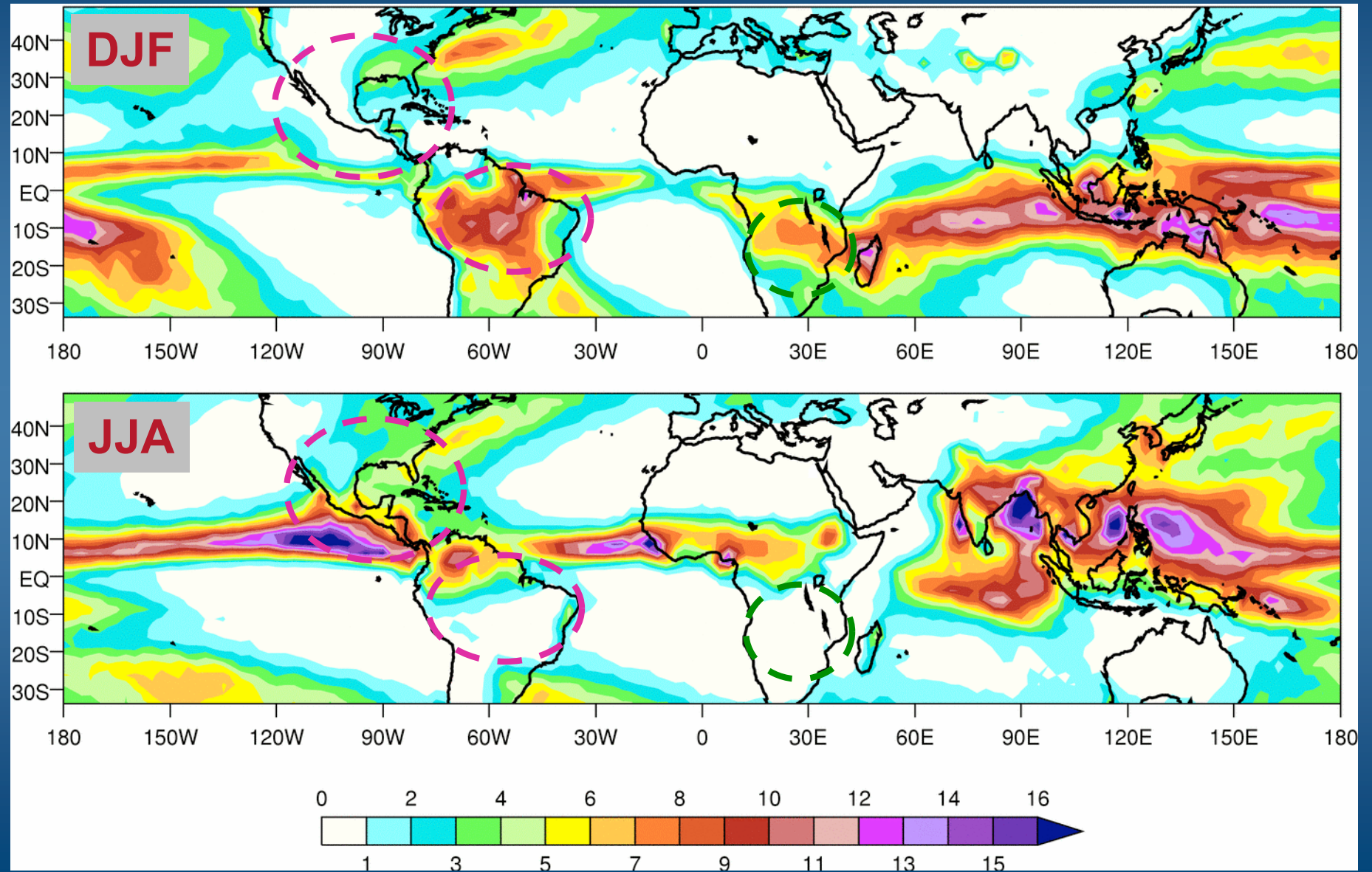
What are Monsoons?

- 'Monsoon' means 'season'
- Describes complete reversal of wind regimes during the seasonal cycle
- Driven by changes in the distribution of heating driven primarily by the solar seasonal cycle
- Requires a thermal contrast between land and sea to set up a monsoon
- Once established, positive feedback between circulation and latent heat release maintains the monsoon
- Ramage (1971) proposed 3 criteria:
 - *Prevailing wind direction shifts by at least 120° between July and January*
 - *Prevailing wind direction persists for at least 40% of the time in January and July*
 - *Mean wind exceeds 3ms⁻¹ in either month*

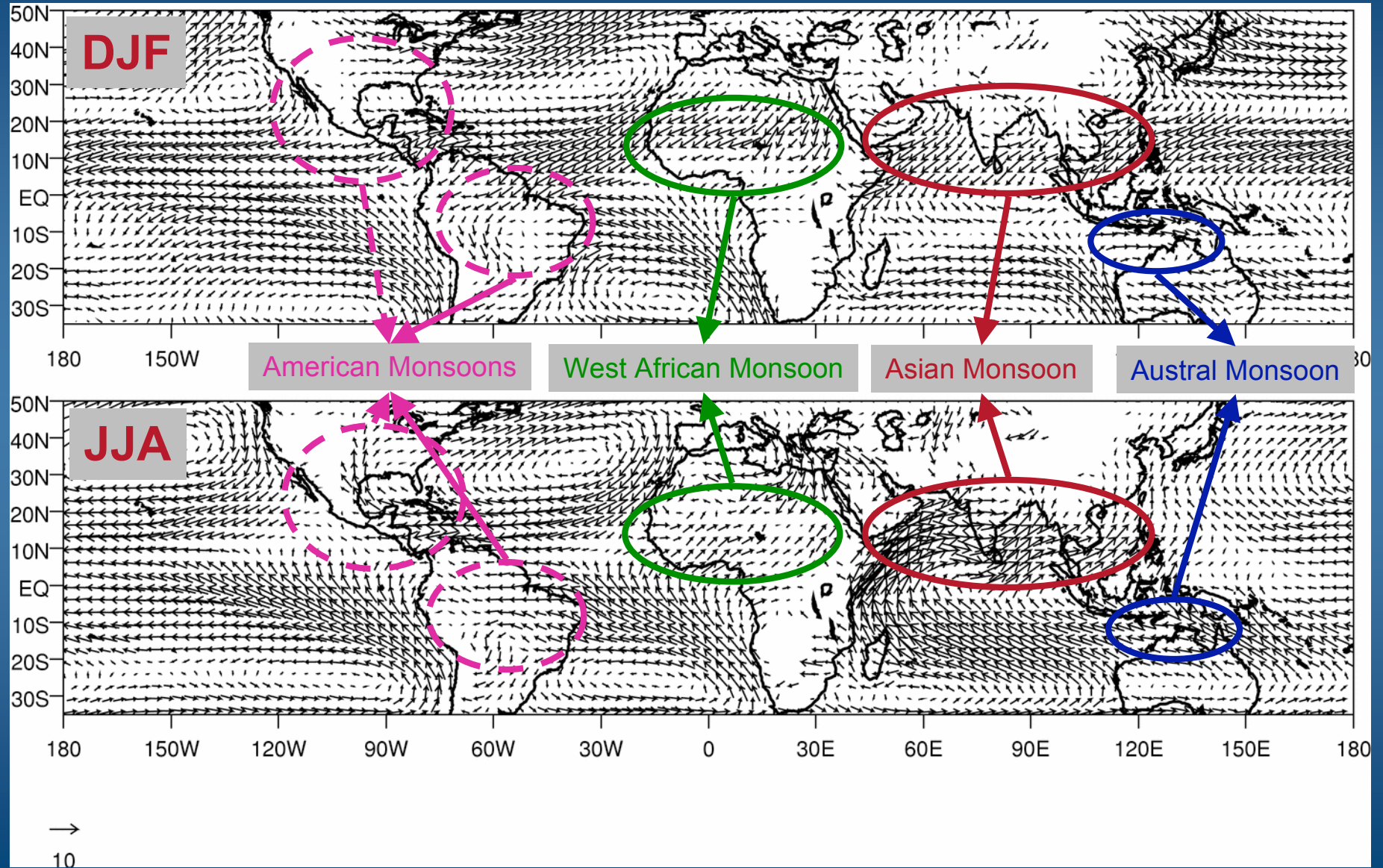
Winds at 925hPa



Rainfall (mm/day)



Winds at 925hPa



3. The Variability of the American Monsoon Systems Panel



Variability of the American Monsoon Systems

A WCRP/CLIVAR program focused on the climate of the Americas





IMPLEMENTATION

Science Components

- North American Monsoon Experiment (NAME)
- Monsoon Experiment South America (MESA)
- VAMOS Oceans-Clouds-Atmosphere-Land Study (VOCALS)

Dataset Development

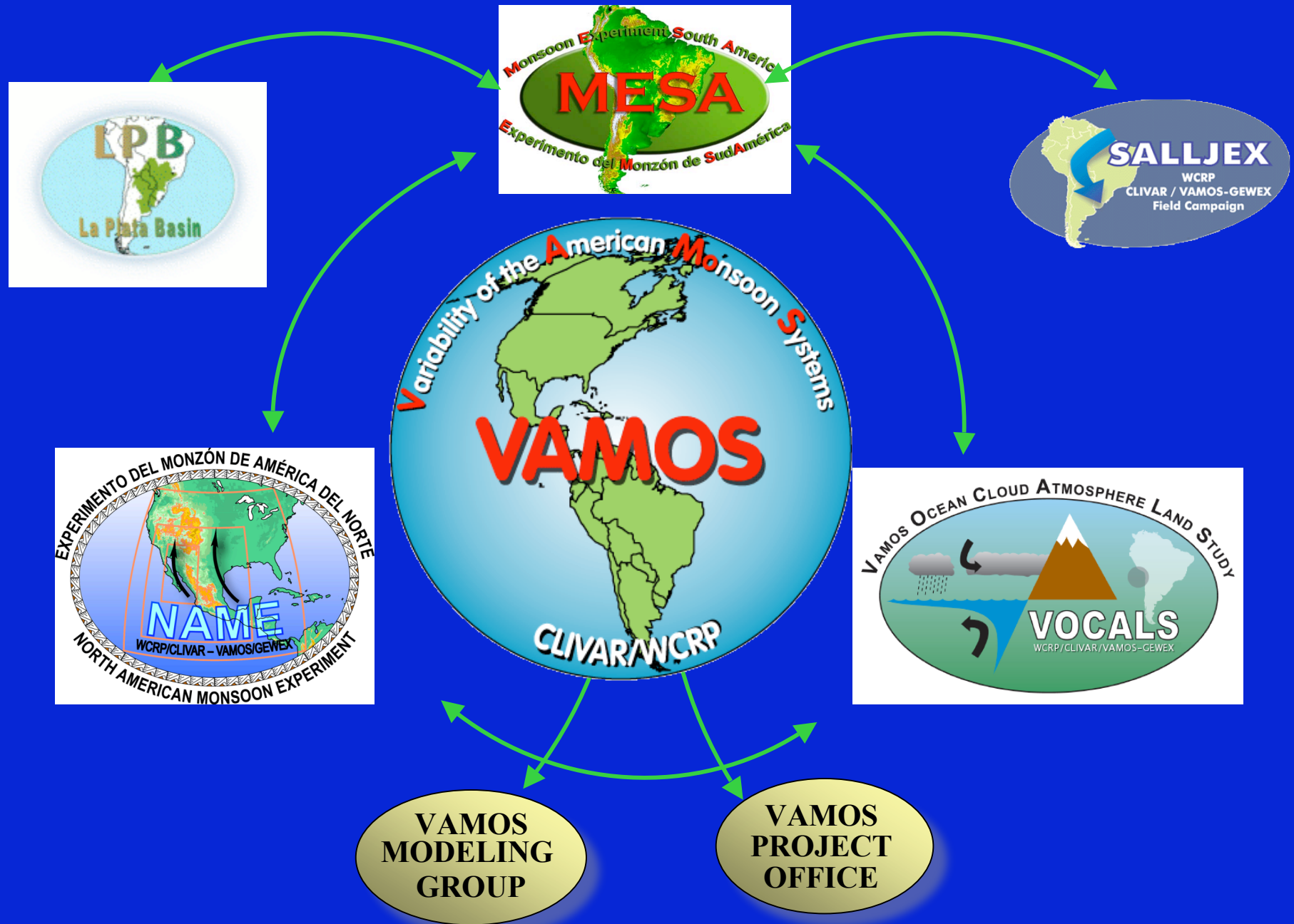
- VAMOS Data Information Server

Project Support

- VAMOS Support Center



VAMOS Program Structure



VAMOS SUPPORT CENTER



Variability of the American Monsoon Systems
VAMOS Support Center



News

Data Server

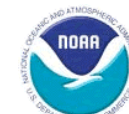
Panel Members

Activities

Organization

Publications

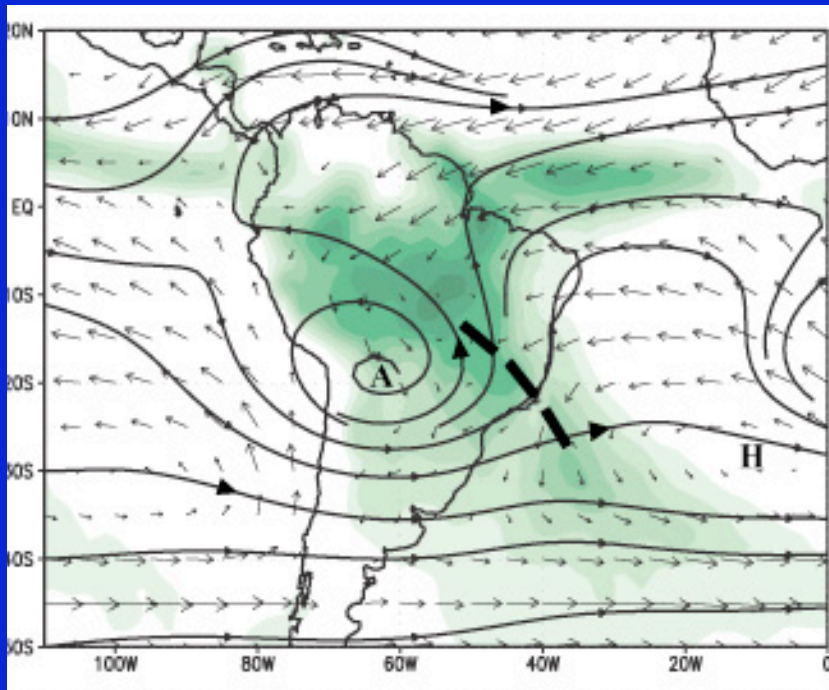
Science



Experiments supported by the VAMOS Programs Project Office

<http://www.eol.ucar.edu/projects/vamos/>

MONSOON EXPERIMENT SOUTH AMERICA (MESA)



HYPOTHESIS:

The SAMS provides a physical basis for determining the degree of predictability on short- and long timescales over the region.

MESA PRIORITY RESEARCH AREAS (PRA):

Better understanding and simulation of:

- diurnal and mesoscale processes (PRA-I);
- intraseasonal variability (PRA-II)
- interannual and longer time variability (including ACC) (PRA-III)
- monsoon evolution and variability (PRAs-I, II, III).

YEAR (2001+)	01	02	03	04	05	06	07	08 ...
SALLJEX Planning	...-----							
SALLJEX Preparations	-----							
SALLJEX Data Collection		-----						
SALLJEX Post-field activities		-----						
PLATEX Planning		-----						
PLATEX Preparation					?	-----		
PLATEX Data Collection							?	-----...
MESA Principal Research	... -----							...
MESA Data Management		-----						...



MESA SUPPORT

MESA has a strong international participation from Argentina, Bolivia, Brazil, Chile, Paraguay, Peru, Uruguay and USA (~70 principal scientists)

Funding for MESA activities provided by:

- **NOAA/CPPA Program**
- **NSF**
- **National Funding Agencies of South America (Argentina, Brazil, Chile, Paraguay, Peru, Uruguay, ~\$500K/y)**
- **European Commission (CLARIS, \$200K/y)**
- **IAI (PROSUR, \$200K/y)**
- **GEF (La Plata Basin, \$3M/y, requested for observing system enhancement)**



4. Some CLIVAR/VAMOS publications



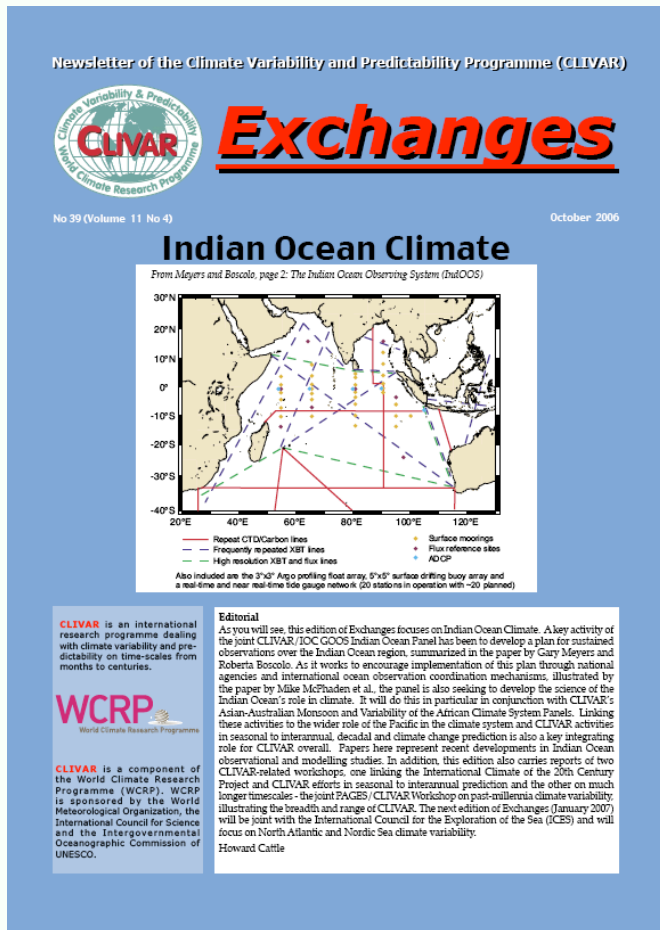
CLIVAR Publications 2006

2006

- **Panel & WG Reports**
 - WGSIP-9, AAMP-7; WGOMD-6; Atlantic Panel-7, Pacific Panel-3
Indian Ocean Panel-3; VACS-4
 - In pipeline WGSIP-10
- **Workshop Reports**
 - Ocean Reanalysis
 - pan-WCRP Monsoon Modelling
 - International Repeat Hydrography (with IOCCP)
 - North Atlantic THC Variability
 - Southern Ocean Modelling
 - VACS Southern and Eastern African Climate Predictability Workshop
- **Implementation Plans**
 - Indian Ocean Implementation Plan for Sustained Observations
- **CLIVAR Exchanges (4 issues)**



CLIVAR Exchanges 2006/7



Issues on:

- Climate Forcings (Jan 06) joint with PAGES
- MedCLIVAR (Apr)
- General issue (Jul)
- Indian Ocean Climate (Oct)
- N Atlantic Oceanography (Jan 07) with ICES
- AMMA (Apr)
- Ocean Model Development? (Jul)
- General issue? (Oct)
- Seasonal Prediction? Jan 08

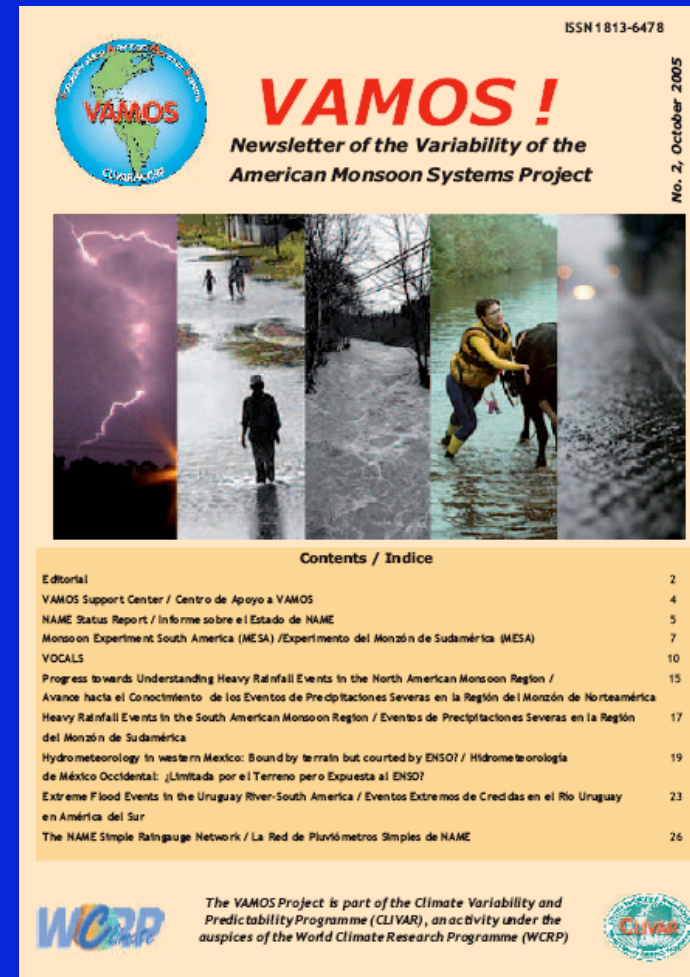
Size ≈ 32 pages; Distribution ~ 1700 copies per issue (hardcopy & pdf)

Last issue on AAM "The Asian Monsoon, July 2005. Future issue?



VAMOS NEWSLETTER

- The second issue of the *VAMOS NEWSLETTER* (Apr 2006) was a big success.
- Volunteers in VAMOS Programs (e.g. NAME 2004) appreciate this forum for updates on VAMOS, affirming their participation, etc.
- Many superlative comments from the science community and the public
- The VAMOS Panel has recommended that the contents remain relatively light and with a specific theme.
- The VAMOS! Newsletter is published annually.
- 2007 issue (Apr) will focus on “Beyond Daily Weather Forecast: Assessment and Applications of Seasonal Forecasting





<http://www.clivar.org>

<http://www.clivar.org/organization/vamos/vamos.php>

