

**DATA BASES FOR CLIMATE ANALYSIS-  
FORECASTING AND DEVELOPMENT OF CLIMATE  
INFORMATION  
LINKS WITH THE  
WCRP- WORKING GROUP ON SEASONAL TO  
INTERANUAL PREDICTION**

Celeste Saulo

WCRP Conference for Latin America and the Caribbean

Kick off meeting

Buenos Aires, 4-5 March, 2013

# OUTLINE

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- ✧ What is the Working Group on Seasonal to Interannual Prediction (WGSIP)
- ✧ Available data sets for climate analysis and forecasting (some examples)



Opportunity for:

- tailoring climate information
- performing regional training

# WCRP WORKING GROUP ON SEASONAL TO INTERANNUAL PREDICTION WGSIP

- ✧ Develop a program of numerical experimentation for seasonal-to-interannual variability and predictability, paying special attention to assessing and improving predictions
- ✧ This framework has now also been expanded into decadal time-scales
- ✧ 2 main projects:
  - ✧ the Climate Historical Forecast Project (CHFP) and Stratospheric HFP
  - ✧ decadal CMIP5

# THE CLIMATE HISTORICAL FORECAST PROJECT

- ✖ Hindcasts using coupled models (Climate Historical Forecast Project CHFP /SHFP)
- ✖ ~ 1980-2009, monthly means
- ✖ Archived at Centro de Investigaciones del Mar y la Atmósfera (Buenos Aires), open data base
- ✖ ~10 terabytes of data (and is growing)
- ✖ Includes many models that are also providing operational seasonal to interannual forecasts

# THE CHFP/SHFP

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- ✕ Document model biases
- ✕ Perform predictability studies at regional scale
- ✕ Develop statistical tools for improving forecast utility
- ✕ Assess forecast value for specific applications

**A SIMILAR APPROACH CAN BE USED WITH  
DECADAL CMIP5**

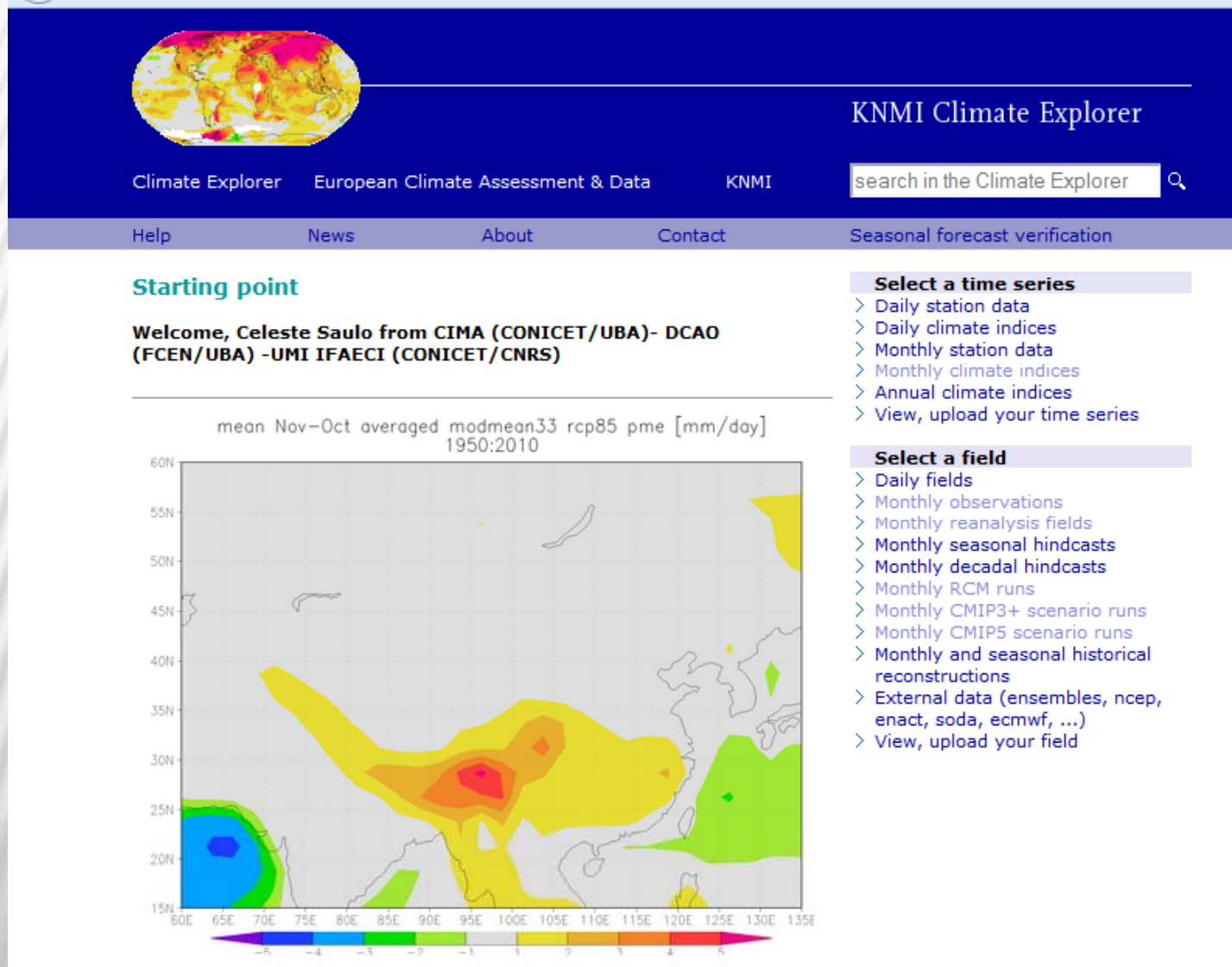


**DATA BASES FOR CLIMATE ANALYSIS...**



# THE KNMI CLIMATE EXPLORER:

- ✗ is a web application to analysis climate data statistically



# THE NCAR CLIMATE DATA GUIDE

<https://climatedataguide.ucar.edu/es>

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Home About ▼ Data ▼ Processing ▼ Evaluation ▼ external ▼ Search Compare ▼

search  
data sets



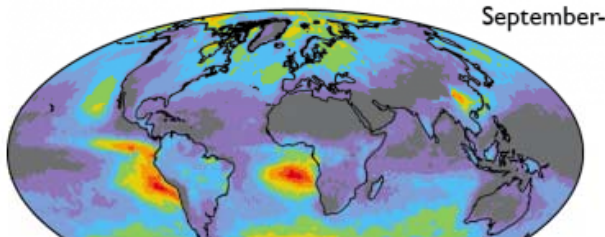
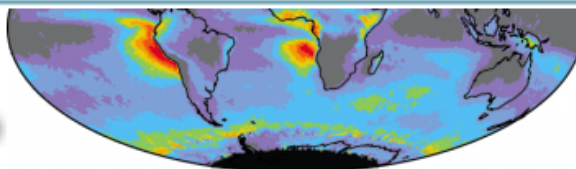
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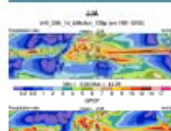
## Data from satellites

Satellite data are used to measure numerous components of the earth system, from Arctic sea ice to African water isotopes. Explore our list of climate data derived from satellite observations.

[Read more »](#)

« prev 3 of 3 next »

## key topics



### Observations are a modeler's best friend

Climate models are judged based on their ability to match observations. Get the scoop on the data sets that are routinely used to evaluate the performance of NCAR's Community Atmosphere Model.

## What is the Climate Data Guide?

An insider's view of data strengths and limitations.



# CLIMATE FORECASTS

- ✖ Hindcasts using coupled models (Climate Historical Forecast Project CHFP /SHFP or the decadal CMIP5 data base) → links with WGSIP
- ✖ Operational Forecasts → links with WMO-IRI-NMME and other sources of seasonal and longer time range forecasts

# OPERATIONAL SYSTEMS



# WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble

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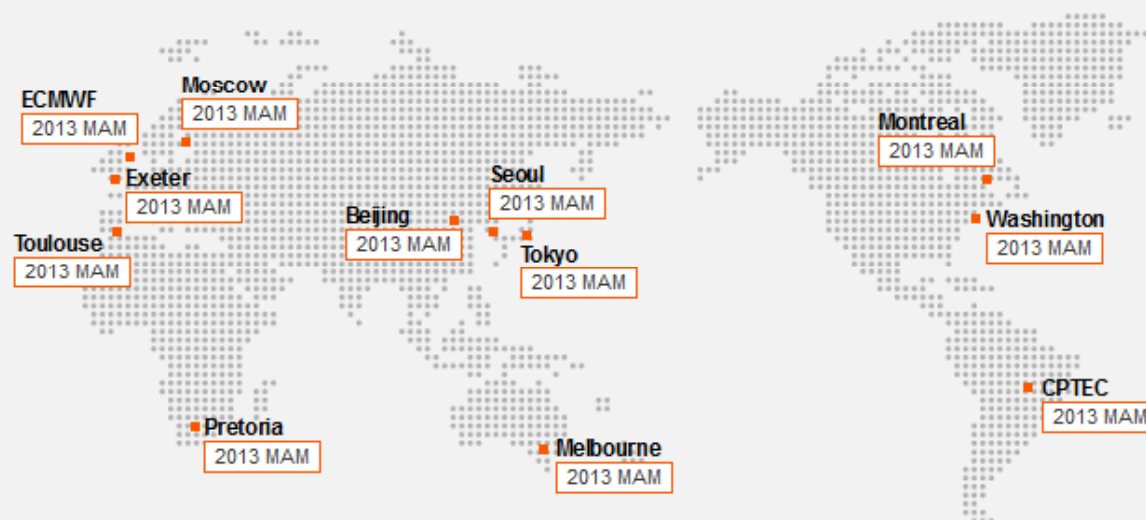
[Data & Plot](#)

[Related Sites](#)

[WMO Lead Centre for SVSLRF](#) >>

[Introduction](#) | [Deterministic MME](#) | [Probabilistic MME](#) | [References](#)

## Latest Forecast data



## Latest PMME plot

[View all](#)

## Latest Individual Forecast plot

[View all](#)

## Notice / News

[More](#)

### Check! System Requirements

All GPCs(12) for FMA 2013 are uploaded new 2013.01.23

Forecasts for FMA 2013 are uploaded new 2013.01.17

ML GPCs(12) for JFM 2013 are uploaded 2013.12.17

## WMO Global Producing Centres

Canada Montreal

BCC Beijing

ECMWF

HYDROMETEOROLOGICAL CENTRE OF RUSSIA Moscow

Seoul

Tokyo

Toulouse

Washington

# IRI: THE INTERNATIONAL RESEARCH INSTITUTE FOR CLIMATE AND SOCIETY



The International Research Institute  
for Climate and Society

Topics



Regions



Resources



## Climate



### Program Divisions

- Overview
- Dynamical Modeling
- Global Prediction Development
- Downscaling & Tailoring
- Near-Term Climate Change

### Climate Monitoring

### Climate Forecasts

- **Forecast Products Overview**
- IRI Seasonal Climate Forecasts

## Climate Forecast Overview

At the height of 1997's very strong El Niño episode, IRI's prediction division began generating seasonal climate forecasts on a real-time basis. To produce these forecasts an extensive suite of forecasting tools was developed, including a multimodel ensemble approach that required thorough validation of each model's accuracy level in simulating interannual climate variability. [Learn more...](#)

You may also [subscribe to forecasts](#).

### Forecasts Produced by the IRI

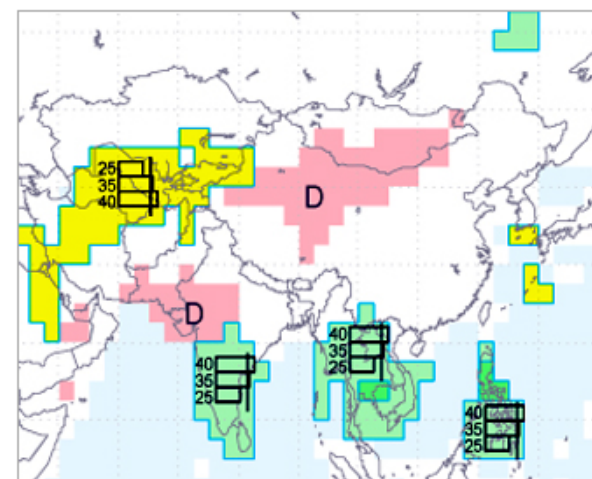
*IRI Seasonal Climate Forecasts*

Global and Regional Seasonal Climate Forecast Maps ([Maps](#), [More Background](#))

Verification of IRI Seasonal Climate Forecasts ([Verifications](#), [More Background](#))

Forecasts in Context of Recent Observations ([Forecasts](#), [More Background](#))

Additional Tailored Climate Products ([Northeast Brazil](#), [Philippines](#))



# ISSUES

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- ✖ There is a need to foster the use of all this information
- ✖ WGSIP group would like to have a special section on “Seasonal to decadal prediction”
- ✖ This Conference could be a great opportunity to organize a back-to-back training activity, taking advantage of available data/forecasts/tools.





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- ✖ conference could be a hands-on session based on the CHFP server and an interface like IRI's CPT or the KNMI Climate Explorer, while one of the useful outcomes could be feedback on the coordinated experiments that WGSIP promotes

# CHFP/SHFP

| Institution  | Model        | Ensemble Members | Lead Months | Starting Month | Hindcast Period |
|--------------|--------------|------------------|-------------|----------------|-----------------|
| NCEP         | CFS v1       | 7                | 9           | May, nov       | 1989-2006       |
| Meteo France | ARPEGE       | 11               | 4           | May, nov       | 1989-2007       |
| MRI          | JMA/MRI-CGCM | 10               | 6           | May, nov       | 1989-2007       |
| Met Office   | GloSea4      | 9                | 5           | May, nov       | 1989-2007       |
| CMC          | CMAM         | 10               | 4           | May, nov       | 1989-2007       |
| ECMWF        | IFS-HOPE     | 9                | 5           | May, nov       | 1989-2007       |