SEASONAL CLIMATE PREDICTIONS IN PERU

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SENAMHI PERU

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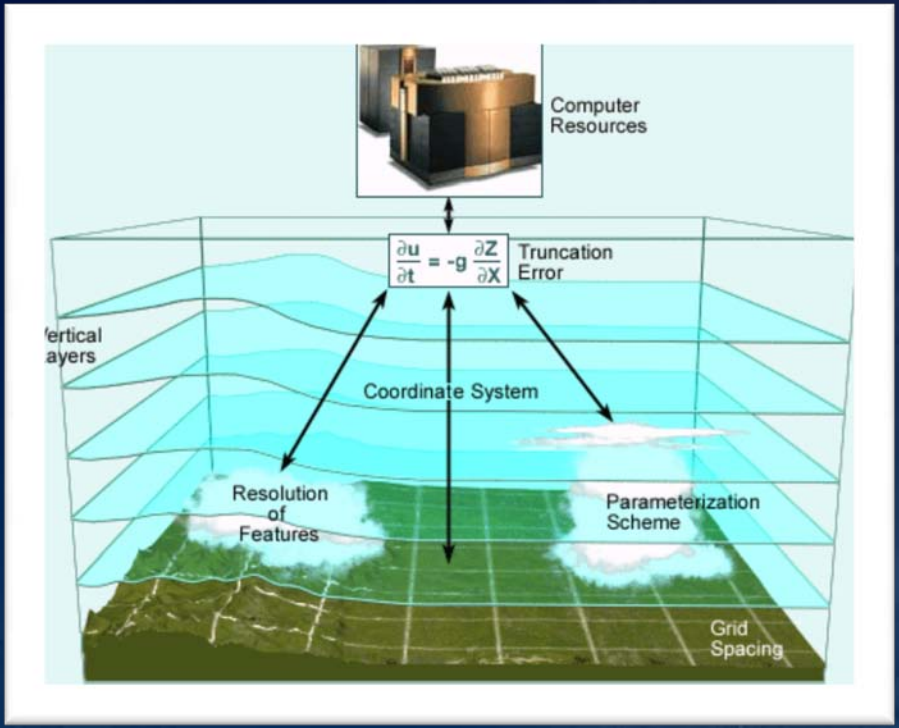
CLIMATE MODELLING IN SENAMHI

- Global Atmospheric Model - NCAR
- Resolution T42 ≈ 2,8°
- Convective Parameterization (Zhang y McFarlene,1995)
- Land Surface Model (LSM) (Bonan,1996) for the behavior of the surface processes.
- 18 vertical levels and a rigid top at the 2.917mb level.
- Hybrid Vertical Coordinates (Simmons y Strüfing, 1981).



PRE – PROCESSING CCM3

Initial Conditions :

- Specific Humidity at 18 levels
- Temperature at 18 levels
- Zonal Wind (U) at 18 levels
- Meridional Wind (V) at 18 levels
- Surface Pressure (Ps)

Boundary Conditions

- Sea Surface Temperature (SST) analyzed/forecasted
- Ozone Mixing Ratio
- LSM: Surface type, soil color, percentage of lime, clay and sand, and lakes and rivers.

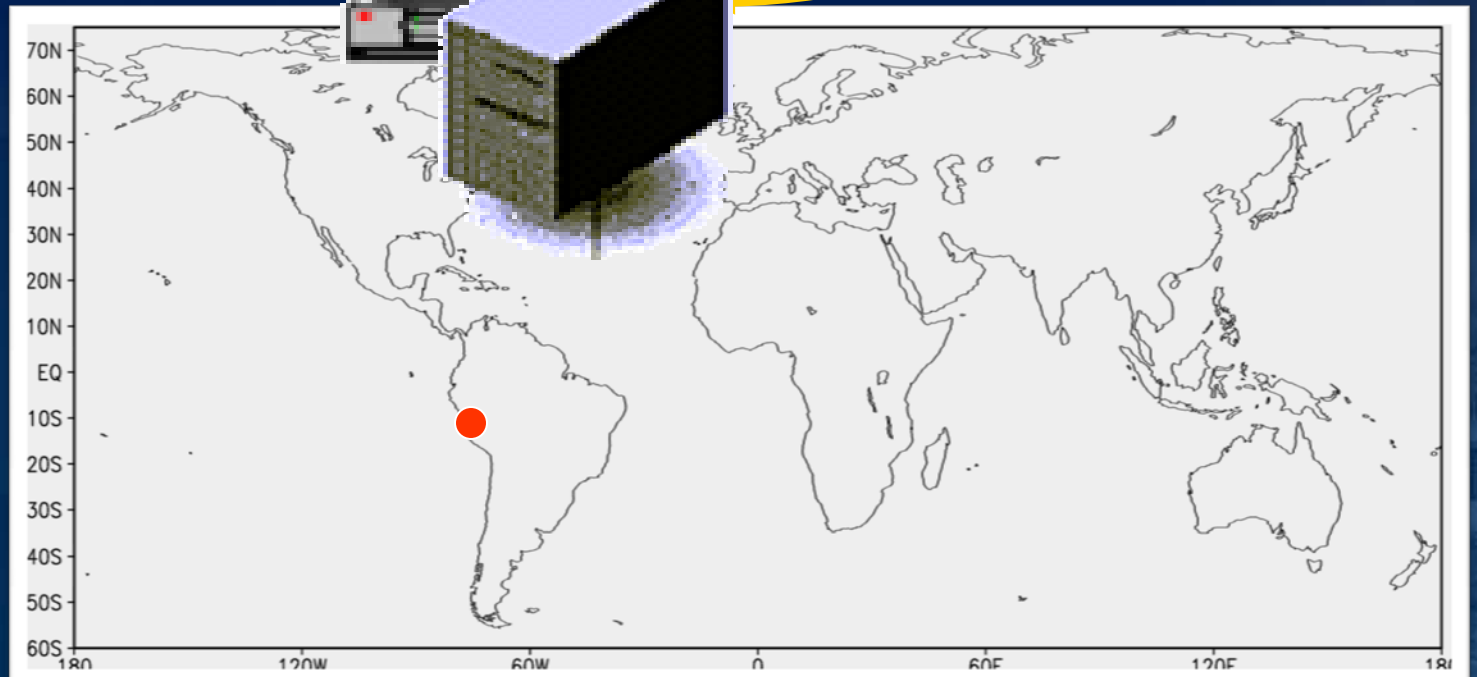
PRE – PROCESSING CCM3

NWS

SST Global Observed /Forecasts

SENAMHI SERVER

Boundary Conditions For CCM3



PROCESSING :
DETERMINISTIC RUNS

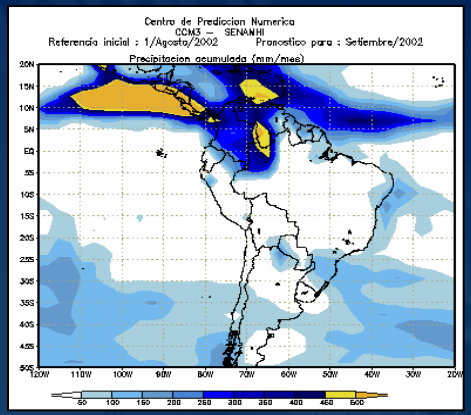
Initial Conditions

Pre-processing of analyzed/forecasted data

CCM3 Process

Post-process: Forecast of atmospheric variables

Boundary Conditions



Output: 1 Forecast or Climate Scenario

High uncertainty!!!

PROCESSING : ENSEMBLES

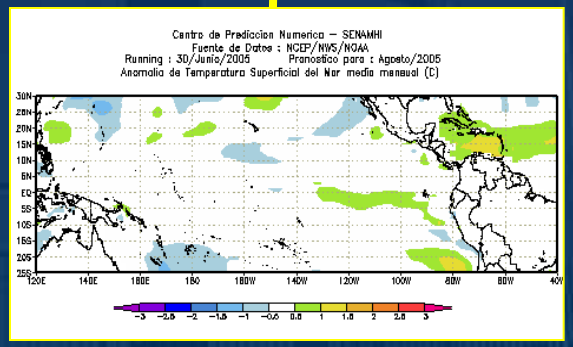
Post-process: Forecast

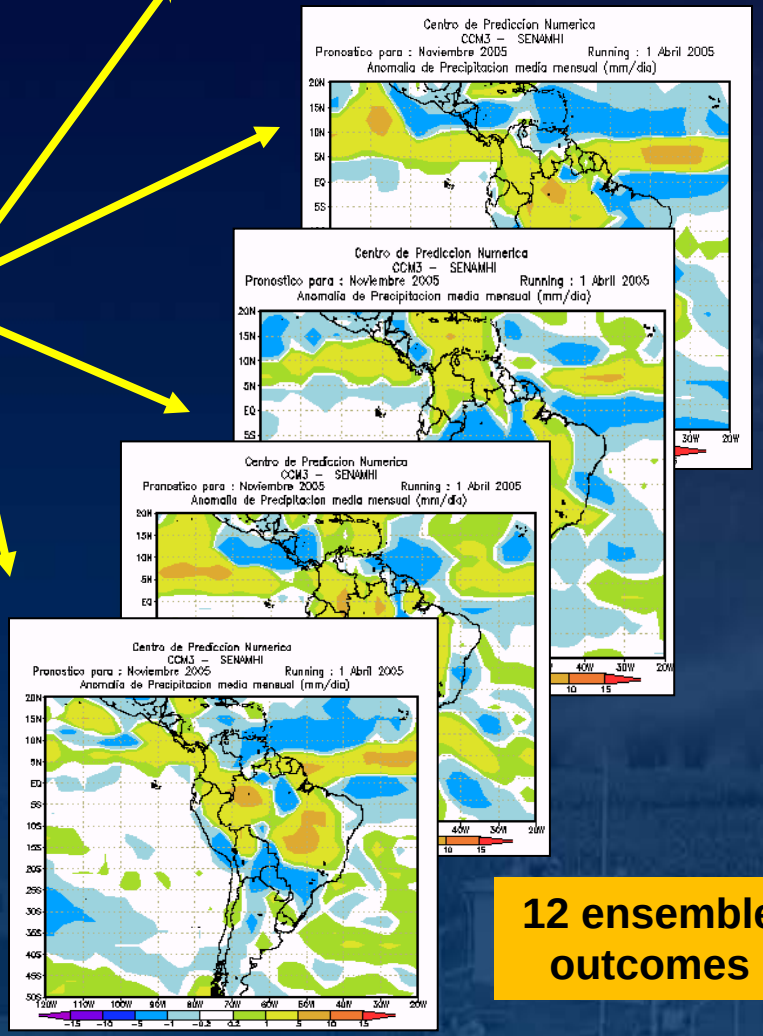
Initial Conditions

Pre-processing of analyzed/forecasted data

CCM3 Process

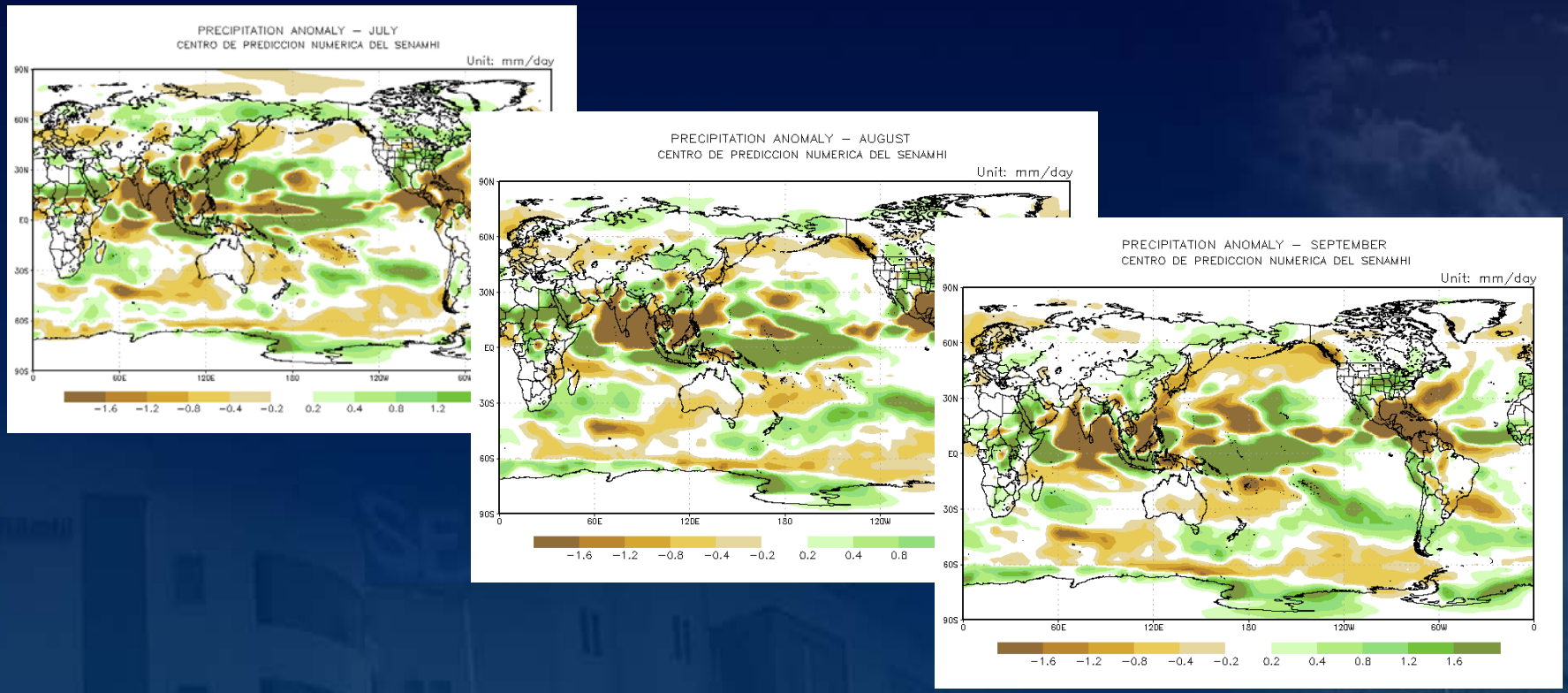
Boundary Conditions with modified SST





12 ensemble outcomes

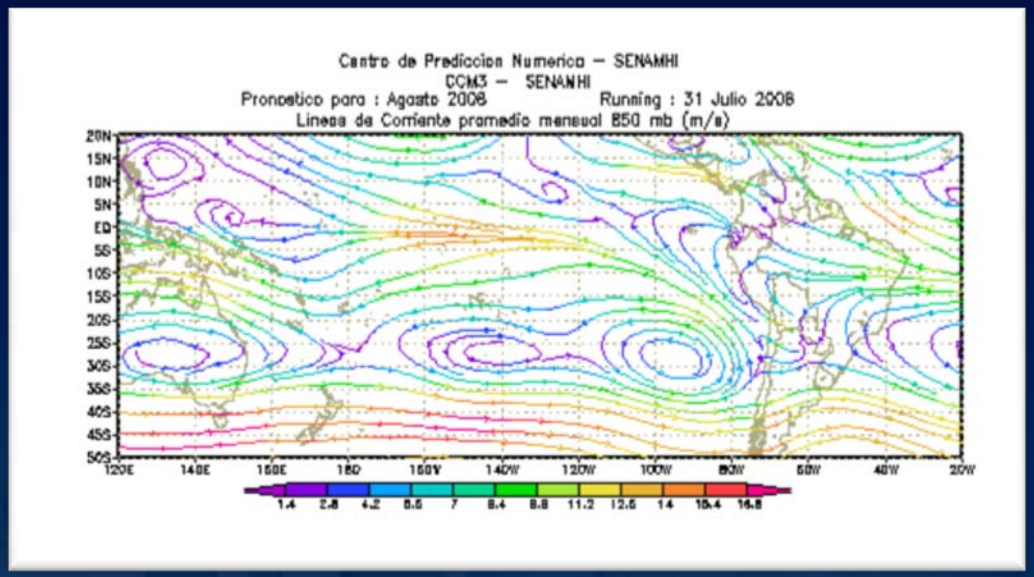
After this process we get ensembles in 2.8 ° and we need to convert this data up to 2.5°, using interpolation program (CDO)



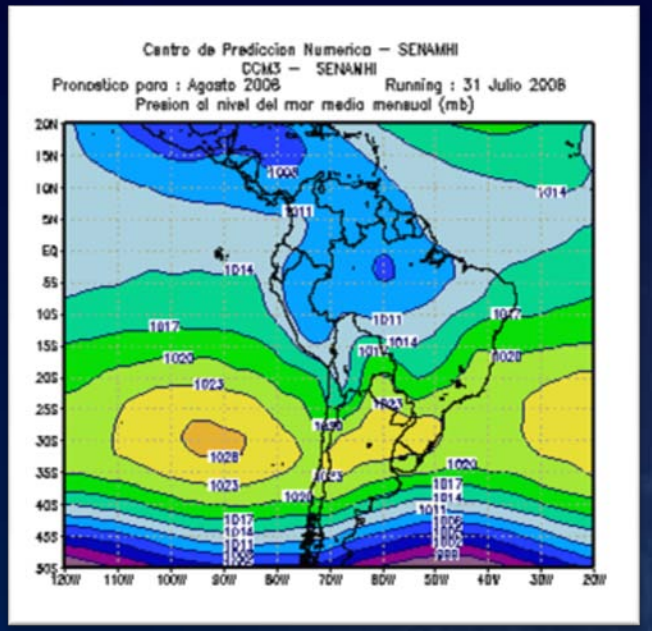
Finally, we sent the forecast for the next three months to APCC, using ftp: (ftp://210.98.49.13)

CCM3 MODEL OUTPUTS

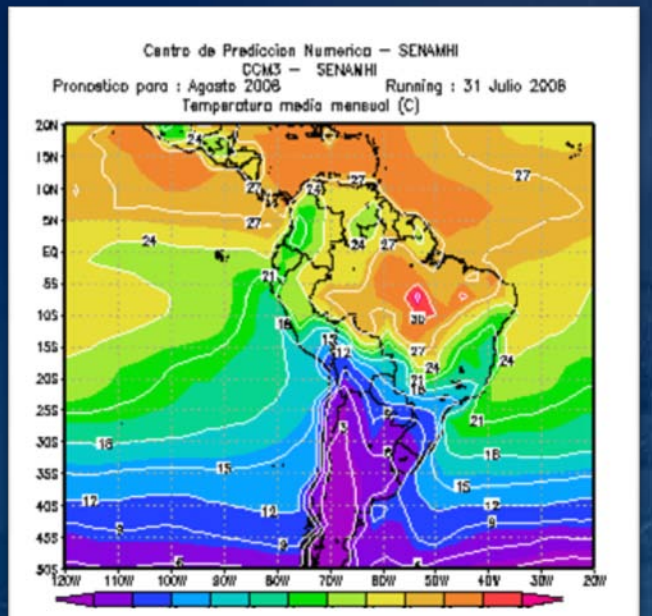
Wind streamlines of the Tropical Pacific at 850mb



Sea surface pressure

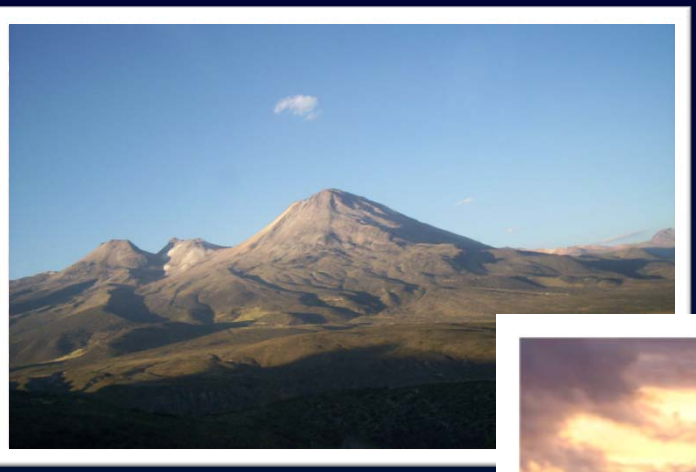


Monthly Mean Temperature



FUTURE CHALLENGES

- Increase our capacity
- Enhance our professional knowledge about methods and techniques on climate prediction.
- Run the atmosphere model CAM in a operational mode
- Incorporate new SST forcing (from others International Prediction Centers).
- Improve verification of the statistical and dynamical models.
- Adopt suitable parameterizations for a better climate simulation.



THANK YOU !!