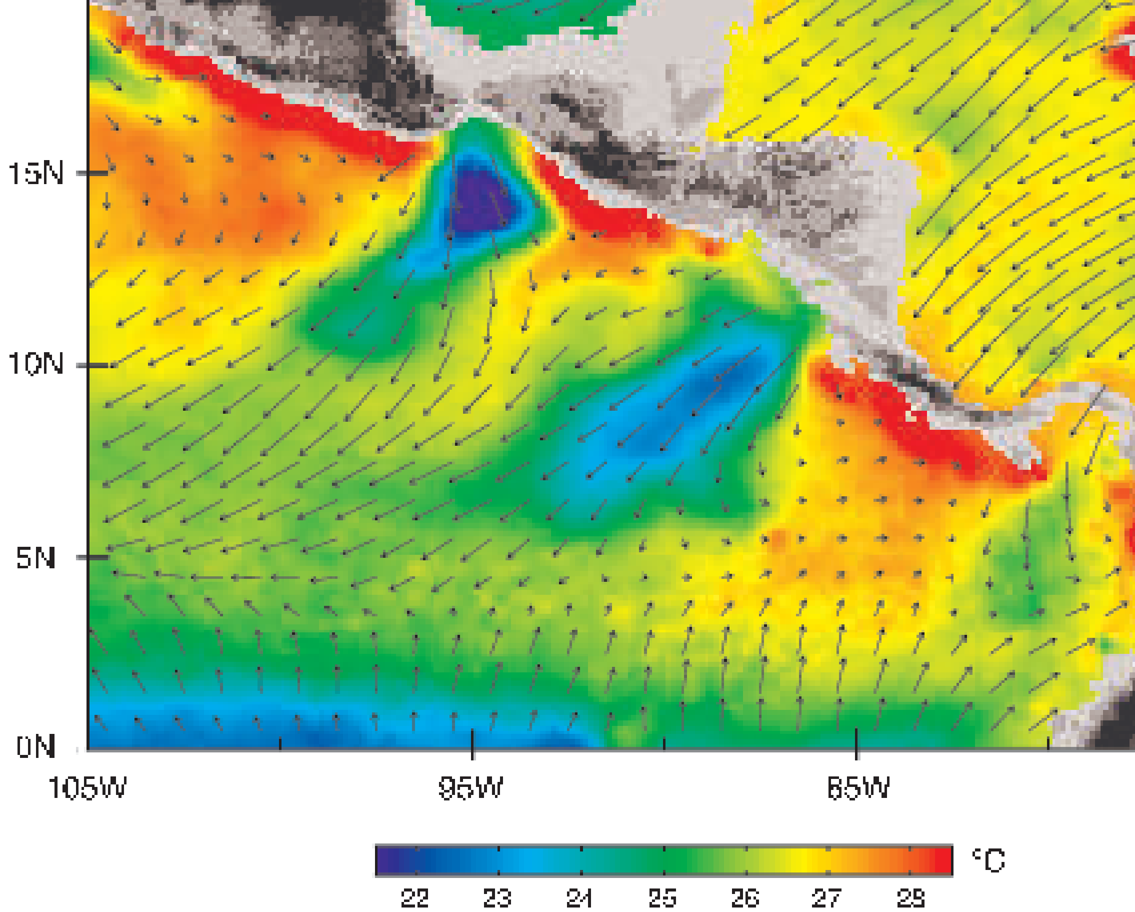

Figure 30. Satellite measurements of surface wind and sea surface temperature averaged for January 2000. Dark shading over land indicate elevation in excess of 300 m. Strong offshore flow downstream of the ga the mountain ranges, with monthly mean wind speeds as high as 10 m s gives rise to local sea surface temperature minima, indicated by the light shading in the figure and enhanced chlorophyll concentrations (Fig. 5).

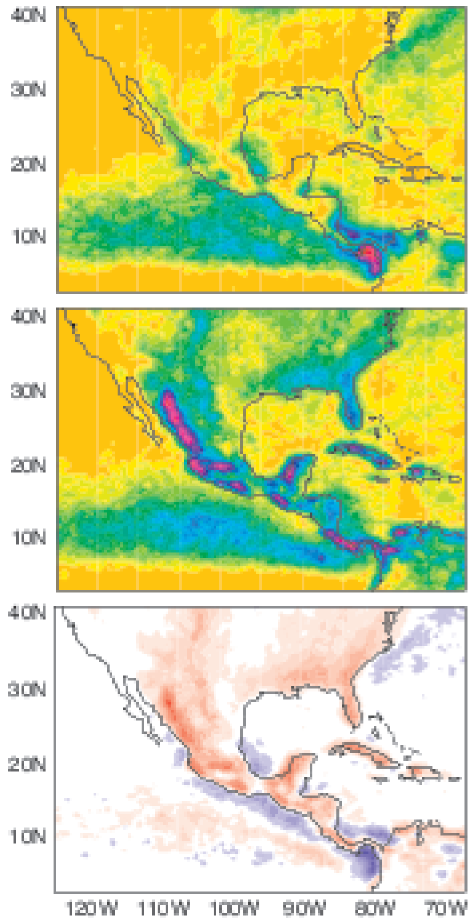

Figure 31. Frequency of deep convection as indicated by the occurrence of clouds with tops colder than -38°C at two different times of day during July. Around 5 AM local time (top) the highlands are cloud free and the offshore waters experience the highest frequency of convective clouds, whereas around 5 PM local time (middle), convection tends to be concentrated over the high terrain and the compensating subsidence tends to keep offshore waters relatively cloud free. The difference between 5 PM minus 5 AM (bottom panel) shows even more clearly the complex influences of the mountain ranges and the shape of the coastline. It is interesting to note how at ~5 PM, the continental monsoon and the ITCZ are well separated, but at ~5 AM they appear to be nearly merged.

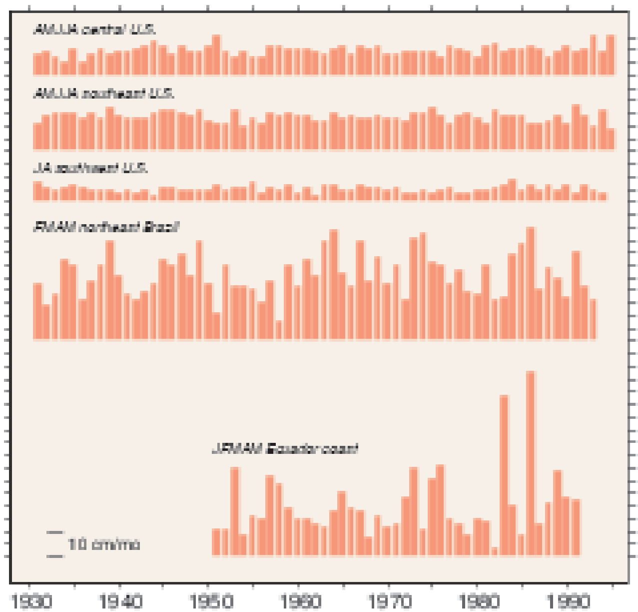

Figure 32. Time series of warm season rainfall over selected regions: U.S. Great Plains; southeast U.S.; Arizona; Ceara, Brazil; and Guayaquil, Ecuador. Average months as indicated.

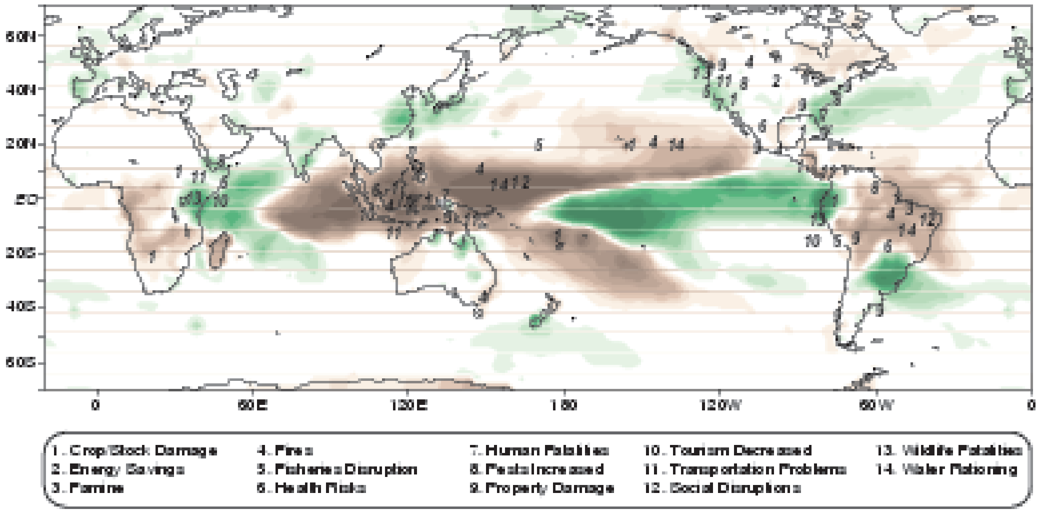

Figure 33. Nature of global El Niño impacts during 1997-1998.

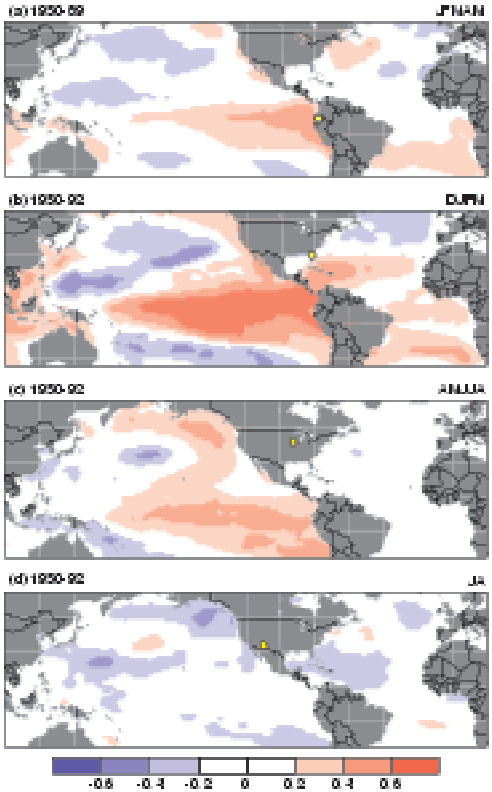

Figure 34. Simultaneous linear correlations between seasonal-mean rainfall in the indicated region (yellow dot) and Pacific and Atlantic sea surface temperature anomalies. Averaging months and periods of record as indicated. See also Fig. 24.

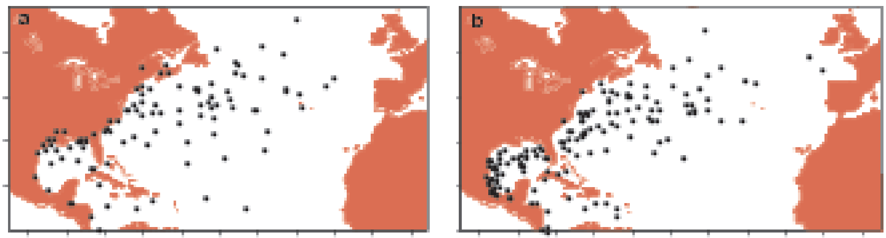

Figure 35. Hurricane positions on the last day that they exhibit hurricane-force winds during the (a) 25 warmest and (b) 25 coldest years in terms of sea surface temperature in the equatorial cold tongue region (6° N-6° S, 180-90°W) based on the period of record 1886-1992.

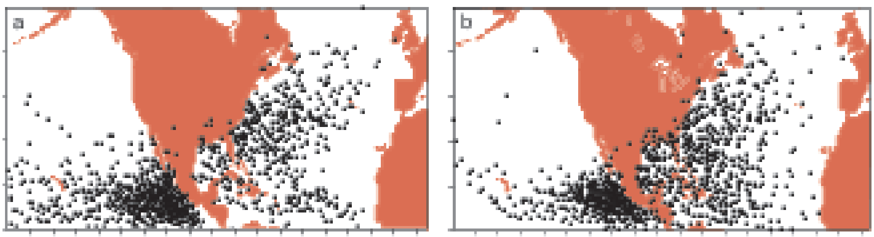

Figure 36. Daily hurricane and tropical cyclone positions during the (a) 10 warmest and (b) 10 coldest years in terms of sea surface temperature in the equatorial cold tongue regions based on the period of record (1949-1992).

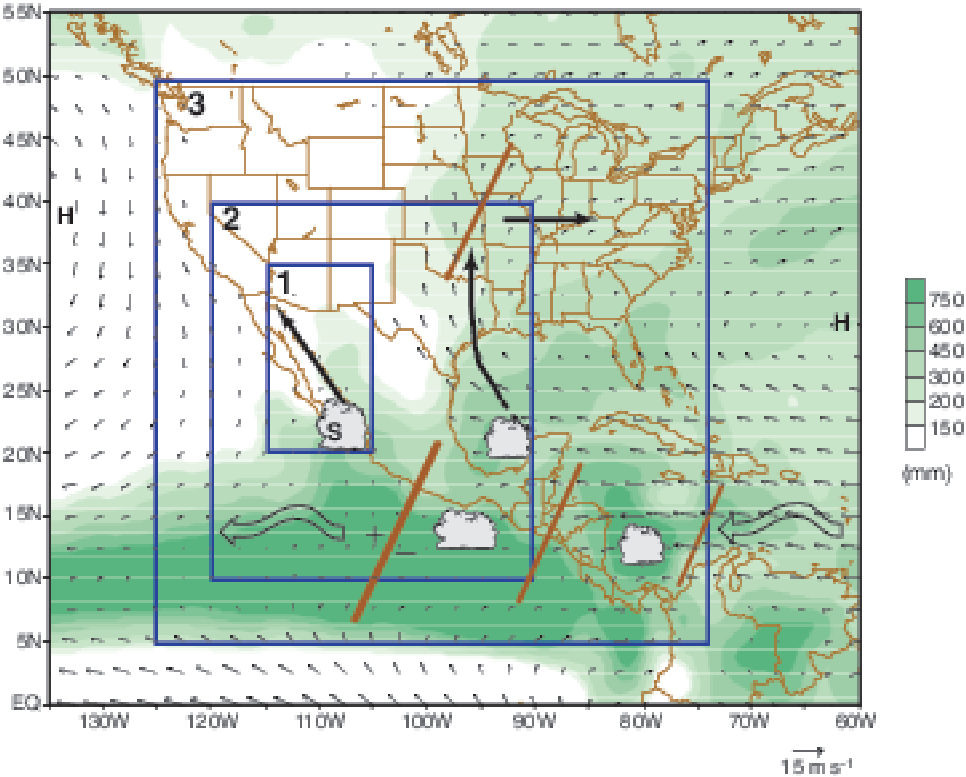

Figure 37. Schematic figure illustrating the implementation plan for the North American Monsoon Experiment (NAME). Analytic, diagnostic, and model development activities will be organized using a multiscale approach. NAME includes specific research objectives addressing mesoscale (Tier 1), regional scale (Tier 2), and continental scale (Tier 3) phenomena. The N-S arrows are the Gulf of California and Great Plains low level jets. Squiggly arrows represent tropical easterly waves (TEW) and angled lines show the intensification of a TEW as it moves westward. The angled line over the Central Plains indicates a midlatitude disturbance that is propogating eastward, as indicated by the arrow. "S" indicates the origin of a Gulf of California moisture surge and the "H" indicates the locations of subtropical high pressure systems, specifically the Bermuda high in the Atlantic and the eastern Pacific subtropical high.

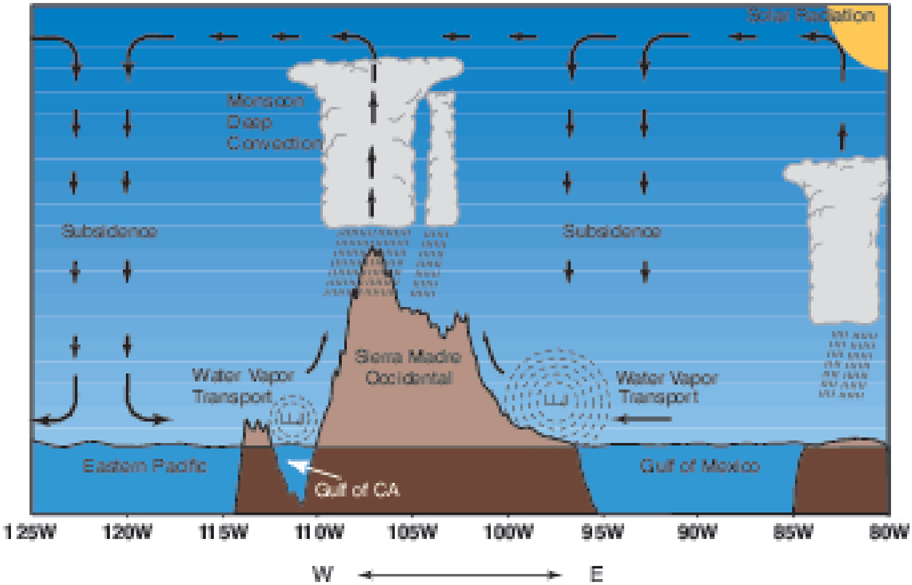

Figure 38. Schematic vertical (longitude-pressure) cross section through the North American monsoon system at 27.5°N illustrating processes and phenomena that contribute to the budgets of heat and water in the core monsoon region.

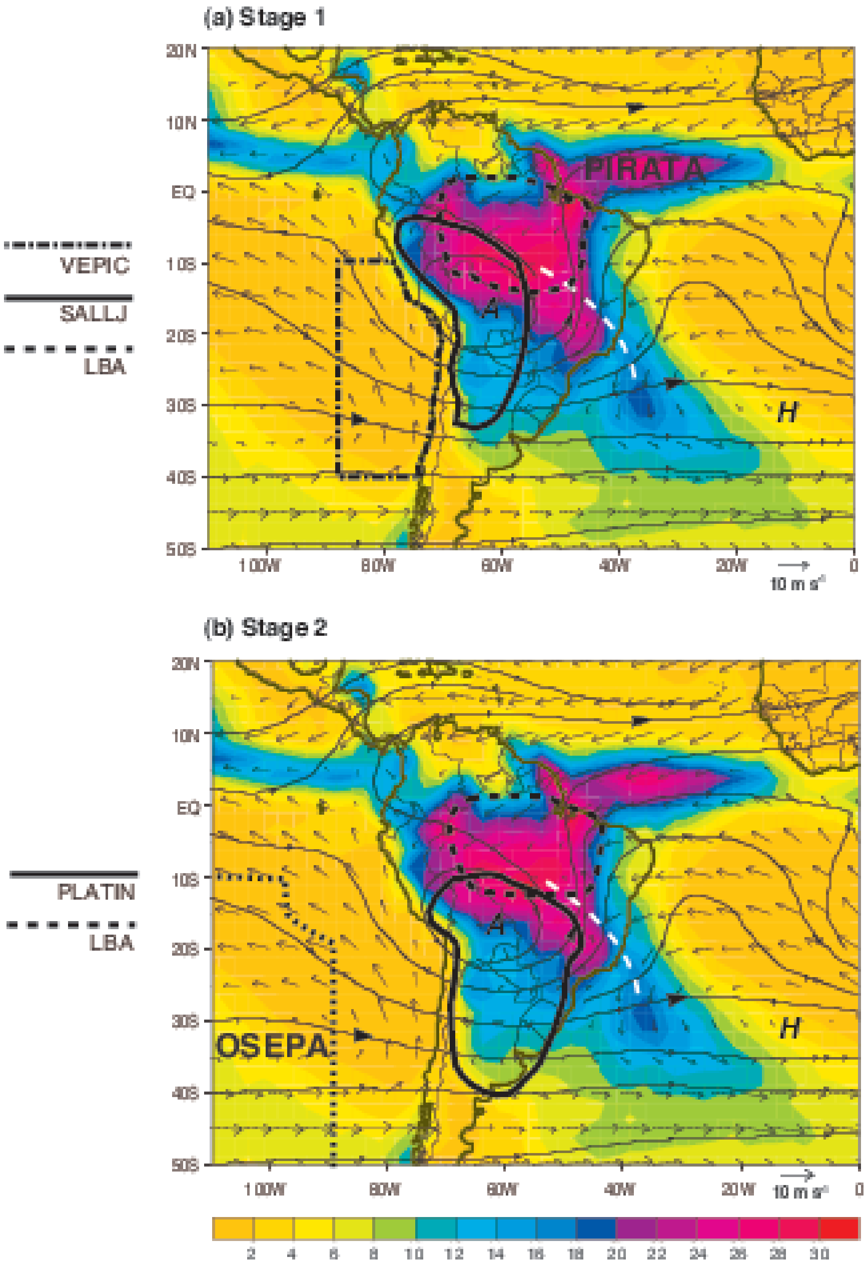

Figure 39. Implementation plan for **MESA** (Monsoon Experiment South America) will have two stages conducted in sequence: (a) Stage 1, a field study leading to better description and understanding of the role of the South American low-level jet (**SALLJ**) in climate variability and **VAMOS EPIC (VEPIC)** studies of ocean-atmosphere-land interactions in the region of the southeastern Pacific Ocean and western South America, and (b) Stage 2, a study of the hydroclimatology of the La Plata River basin. **LBA** (Large-scale Biosphere-Atmosphere in Amazonia) is a GEWEX program focusing on the water and energy budgets of the Amazon River basin. **PIRATA** (Pilot Research Moored Array in the Atlantic) and **OSEPA** (proposed Ocean Southeast Pacific Array) are moored buoy arrays designed for enhanced ocean-atmosphere climate monitoring.