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El Nino Southern Oscillation (ENSO) in the Philippines: Impacts, forecasts and risk management

Flaviana Hilario[1], Rosalina de Guzman[1], Edna Juanillo[1] and Daisy Ortega[1]

[1]Philippine Atmospheric, Geophysical and Astronomical Services Administration. Department of Science and Technology, Manila, Philippines. fhilarioph@yahoo.com

Outline

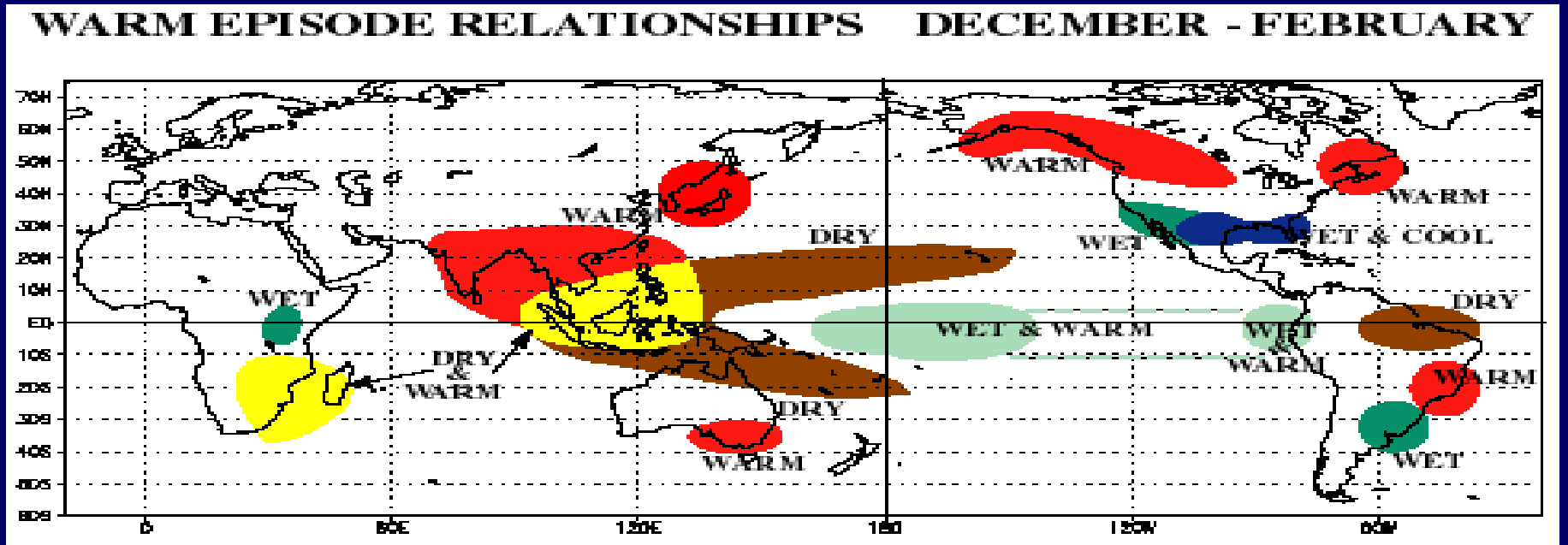
- Introduction
- ENSO impacts in the Philippines
- Climate Forecast and Risk Management

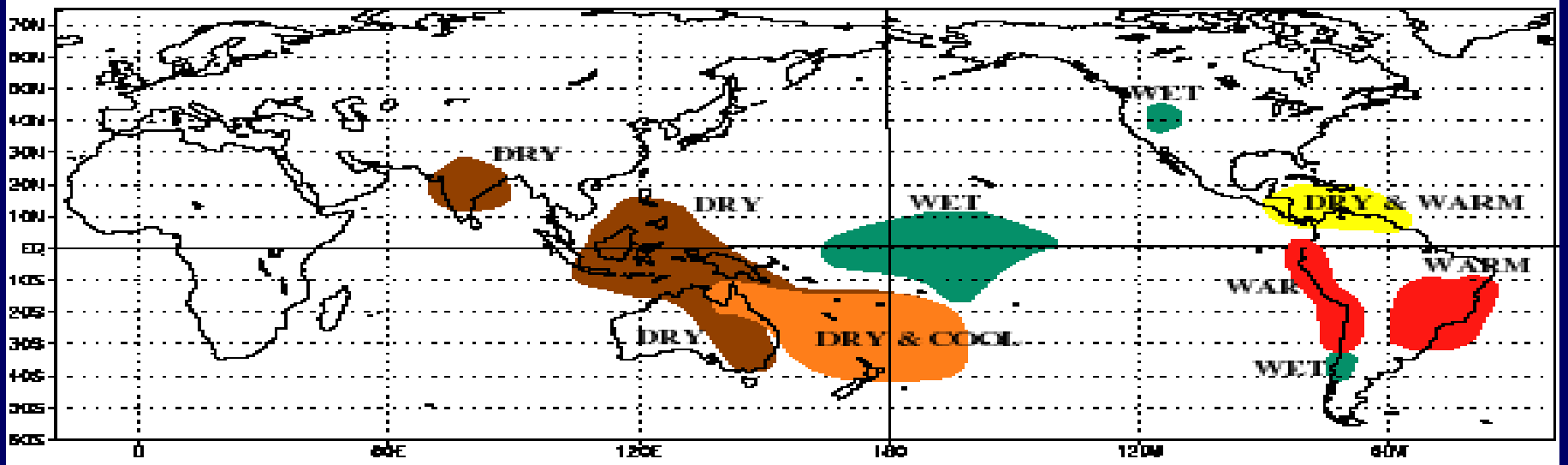
- **Today El Nino refers to the much broader scale phenomenon where water across much of the tropical eastern and central Pacific makes hotter than usual and affects the atmosphere and weather around the world.**

- **These “El Nino” events (warm episodes) do not occur in any precise cycle but broadly speaking tend to recur every 2 to 7 years and last around 12 to 18 months.**

- **Each El Nino event is different in terms of its strength and impact on altered rainfall patterns.**

Areas Consistently Affected by El Niño





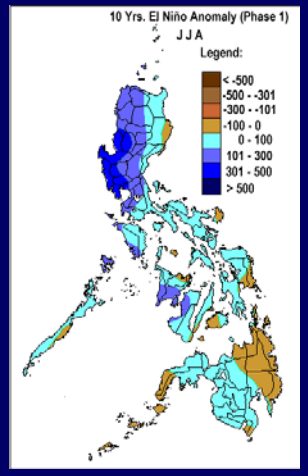
ENSO IMPACTS IN PHILIPPINES

MANIFESTATIONS OF ENSO EVENTS IN PHILIPPINE CLIMATE

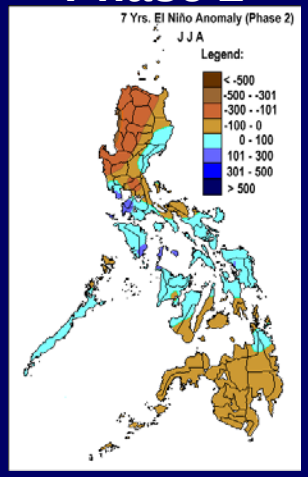
El Niño Episode	La Niña Episode
• Early termination of the rainy season (1st year of the episode) • Weak monsoon activity •Isolated heavy downpour on short duration • Weak tropical cyclone (TC) activity •Tracks are displaced away from the Philippines •Not rain effective • Above normal sea level pressure • Above normal air temperature • Delayed onset of the rainy season (2nd year of the episode)	• Longer rainy season • Active monsoon activity •Increased cloudiness •Widespread rains • Active TC activity •Near to above normal TC occurrences in PAR •Near normal TC tracks •Rain effective TC • Near normal or early onset of the rainy season (2nd phase of the episode) • Near normal to cooler than normal air temperature • Below normal sea level pressure
❖ Drier weather conditions	❖ Wetter weather conditions

June_July_August El Niño Rainfall Anomalies

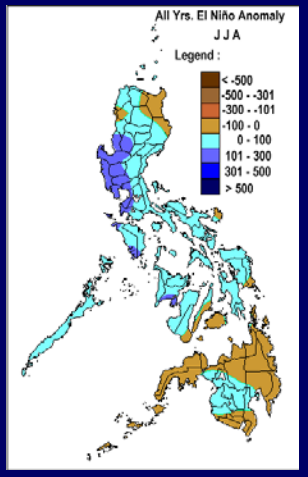
Phase 1



Phase 2

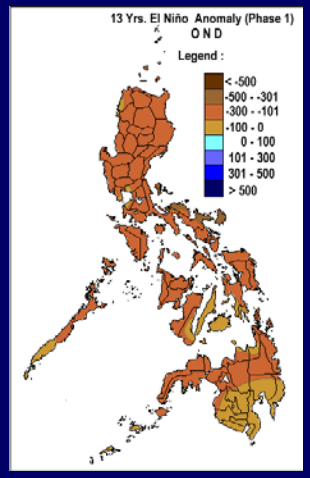


All Phases

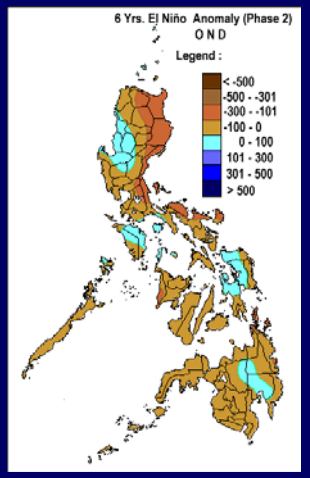


Oct_Nov_Dec El Niño Rainfall Anomalies

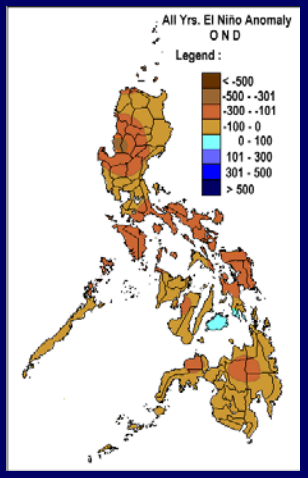
Phase 1



Phase 2

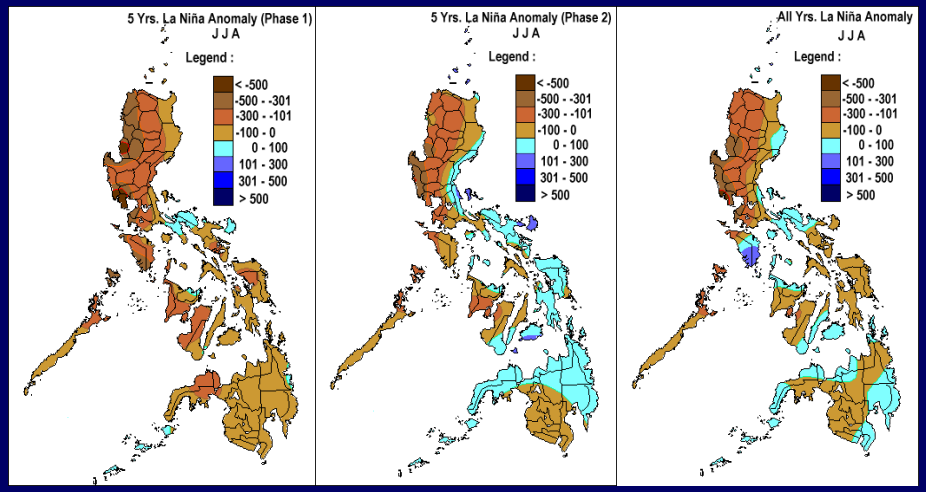


All Phases



June_July_August La Niña Rainfall Anomalies

Phase 1 | Phase 2 | All Phases



Oct_Nov_Dec La Niña Rainfall Anomalies

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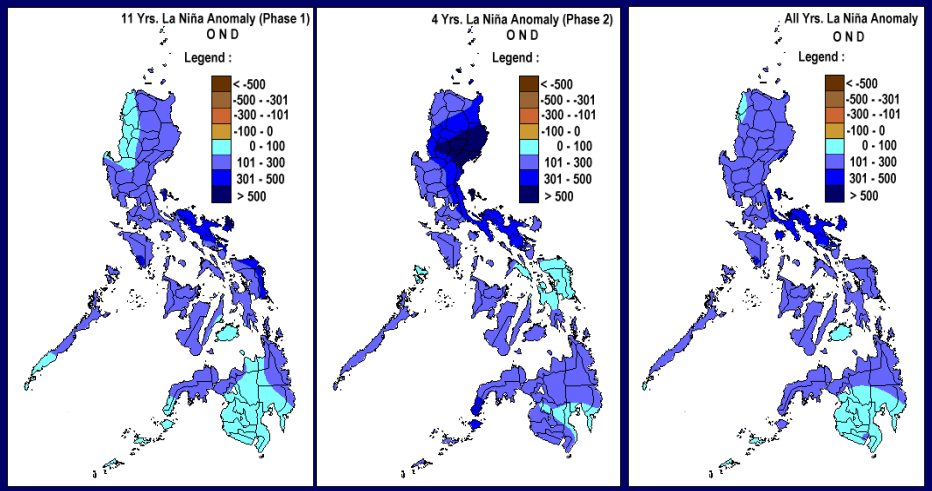
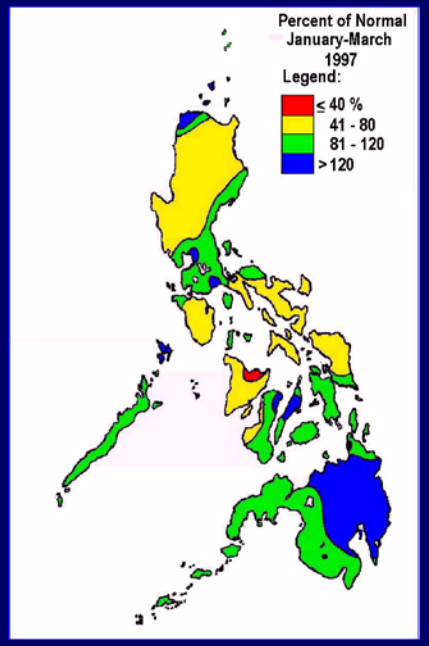
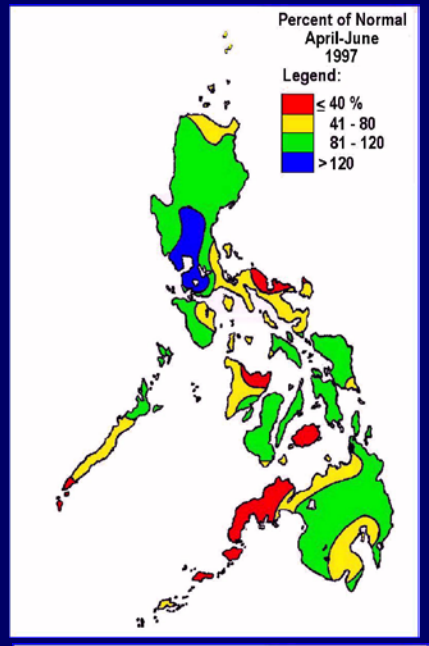
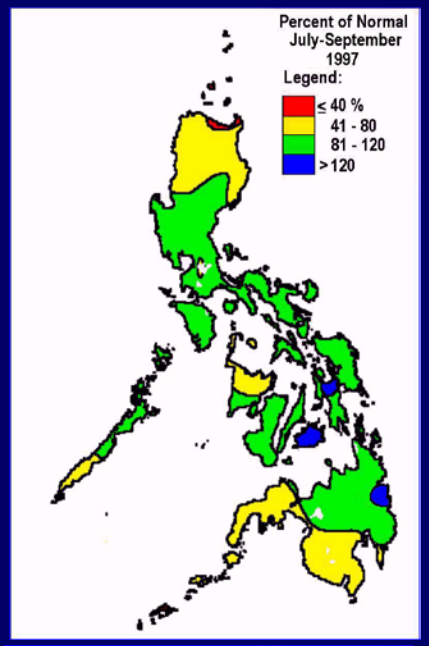
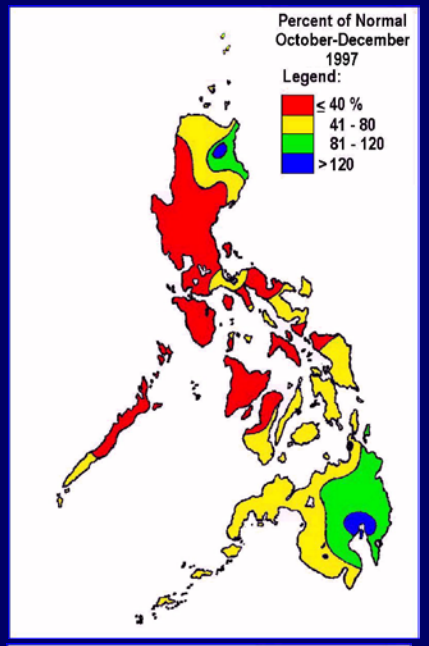


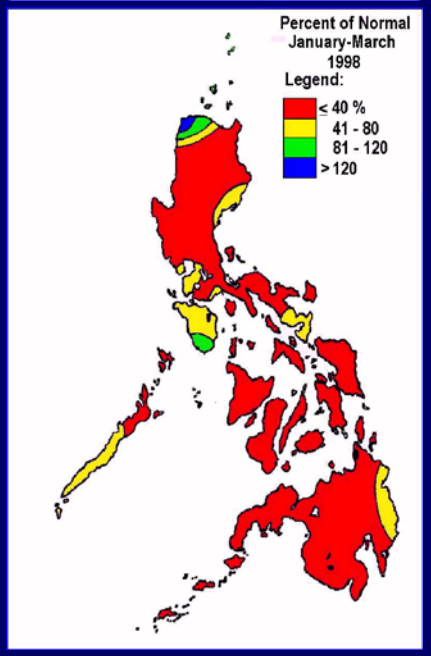
1997-1998 ENSO

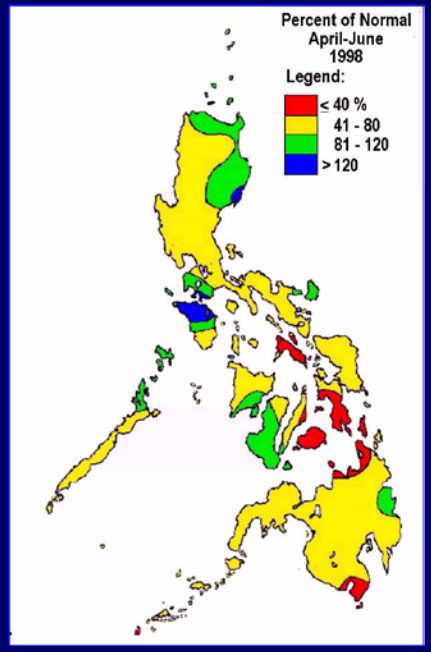


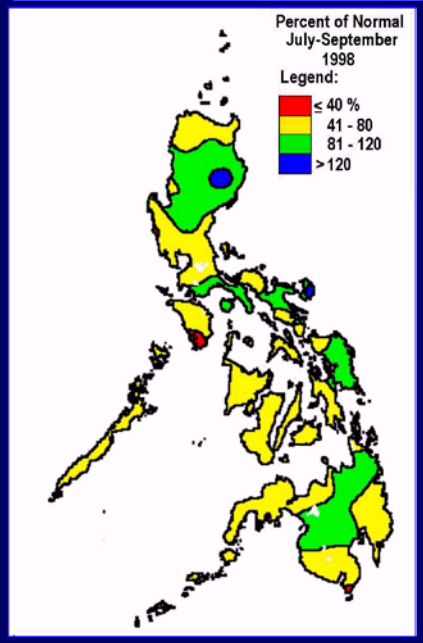


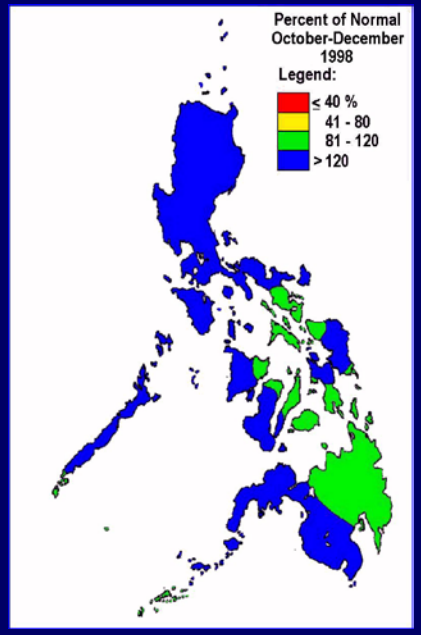




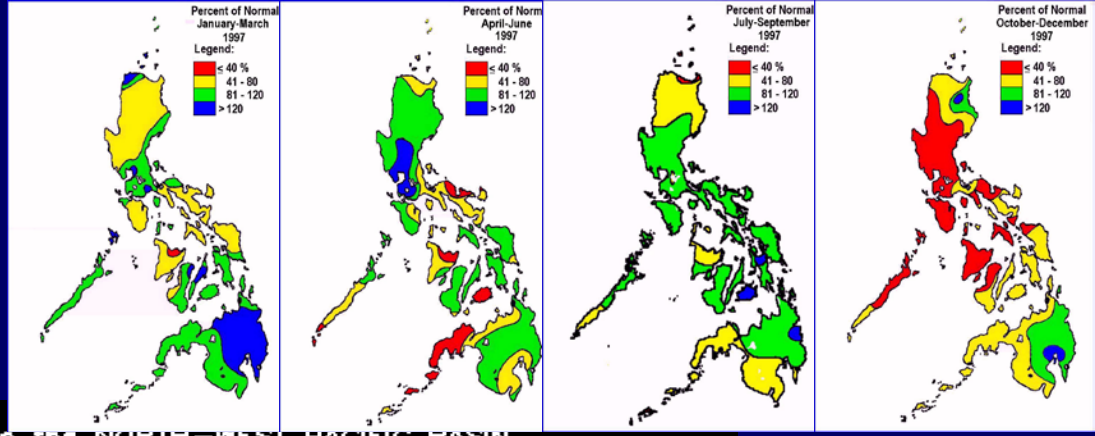


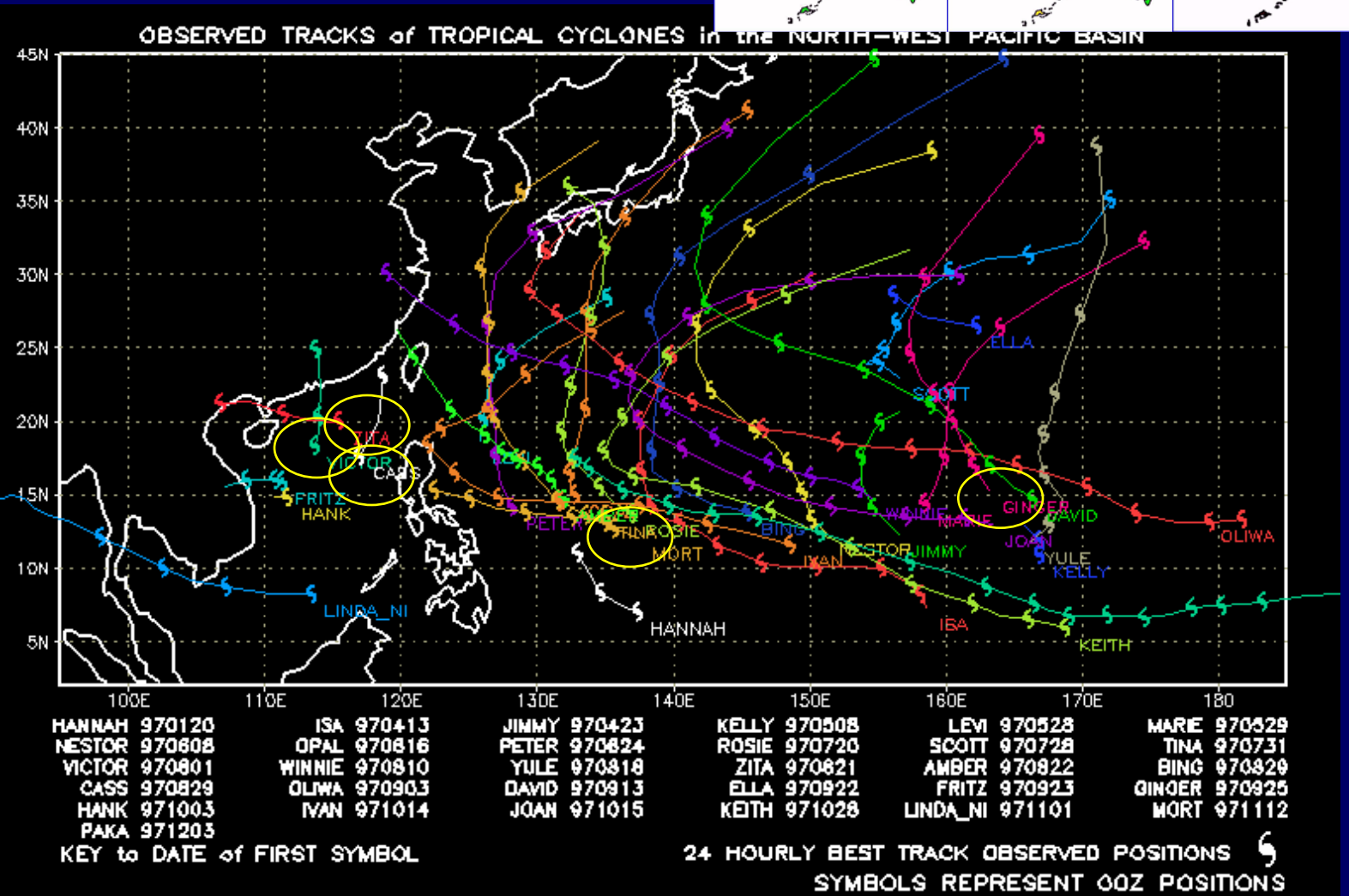




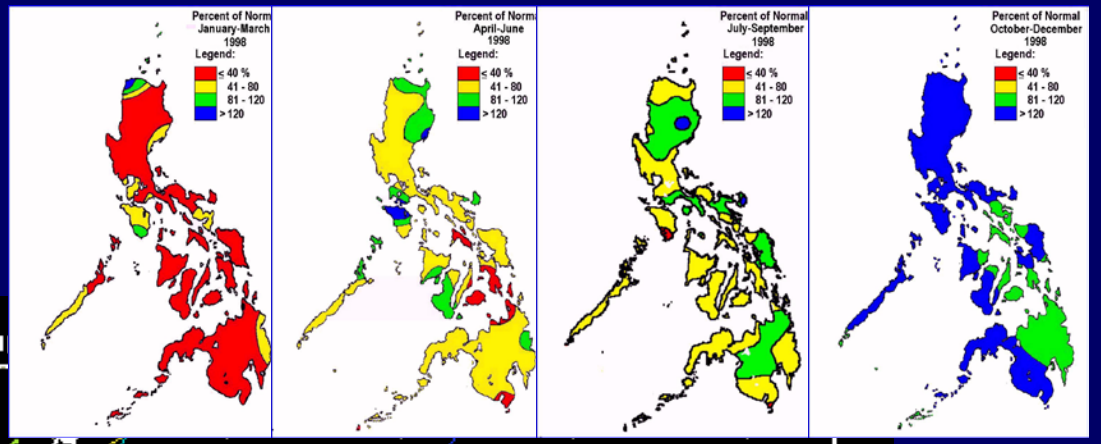


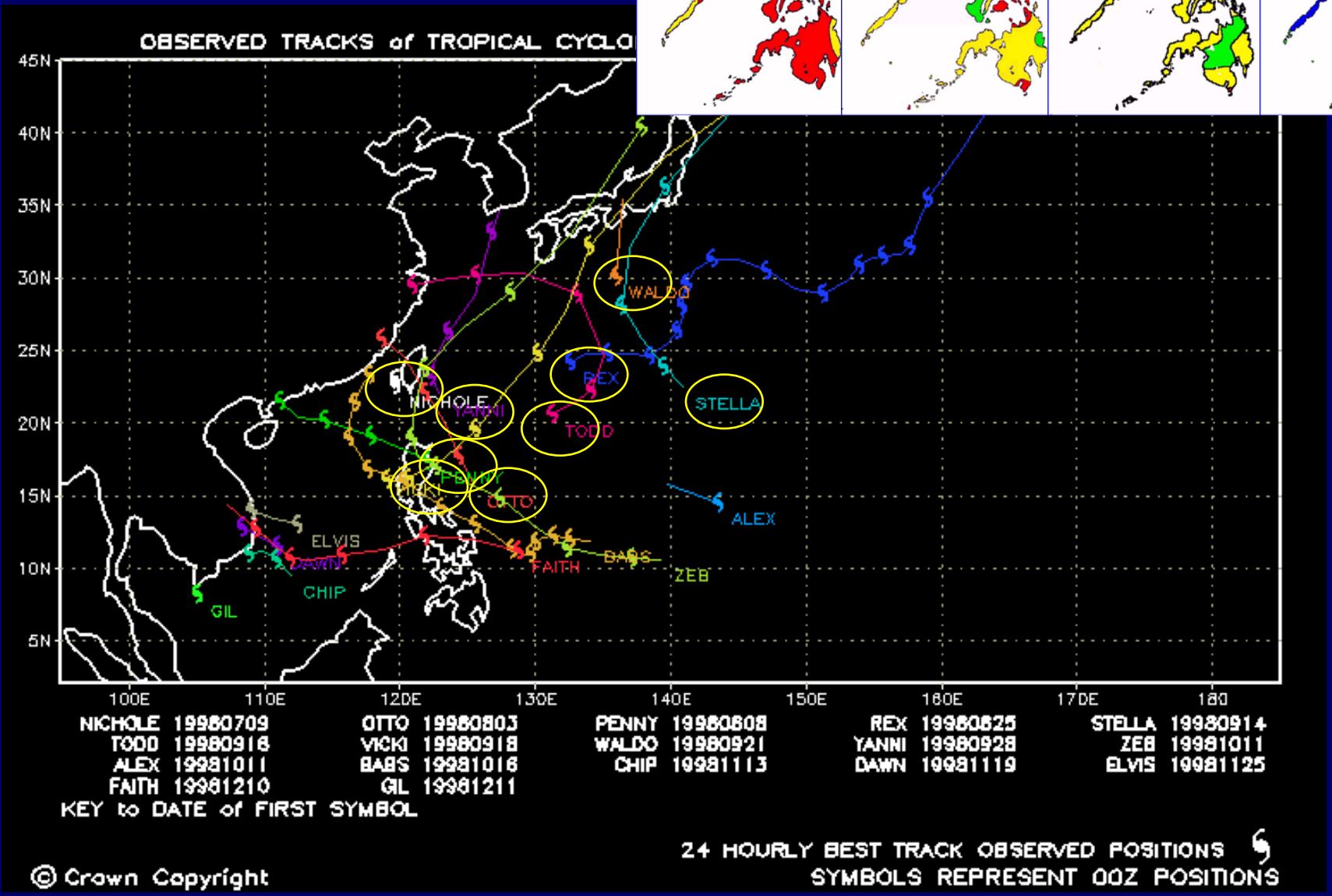
Tropical Cyclones 1997



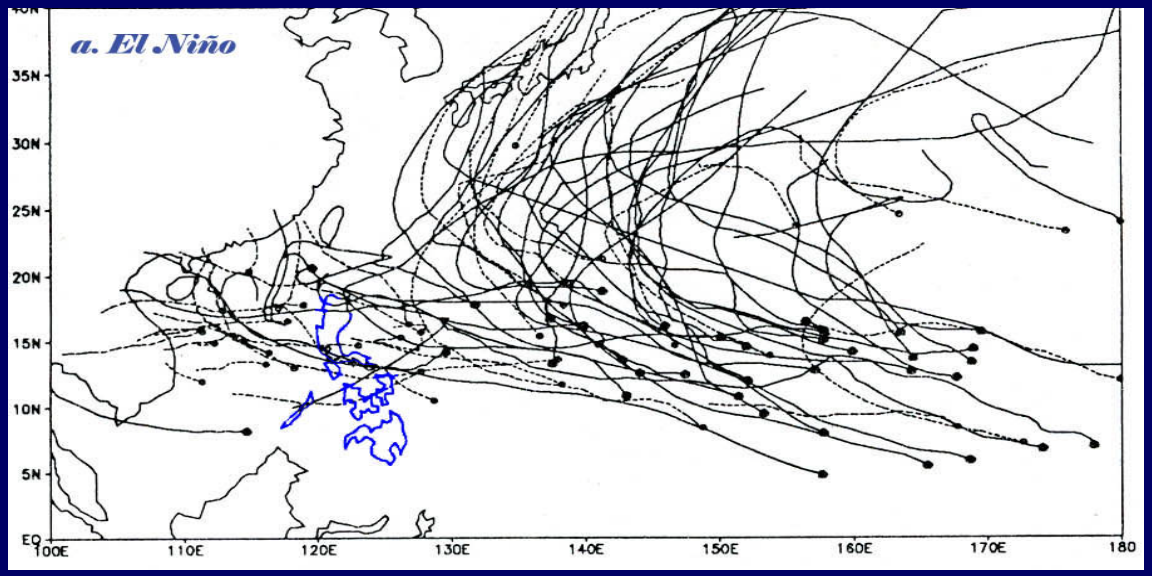


Tropical Cyclones 1998

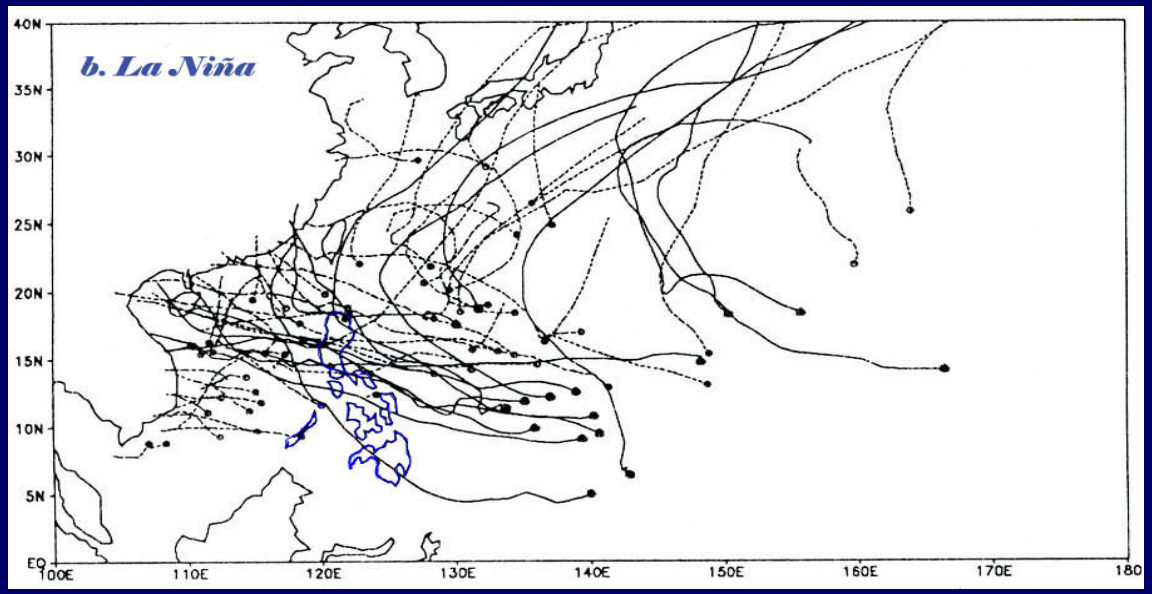




HOW STRONG ENSO EVENTS AFFECT TROPICAL CYCLONE ACTIVITY OVER THE WESTERN NORTH PACIFIC

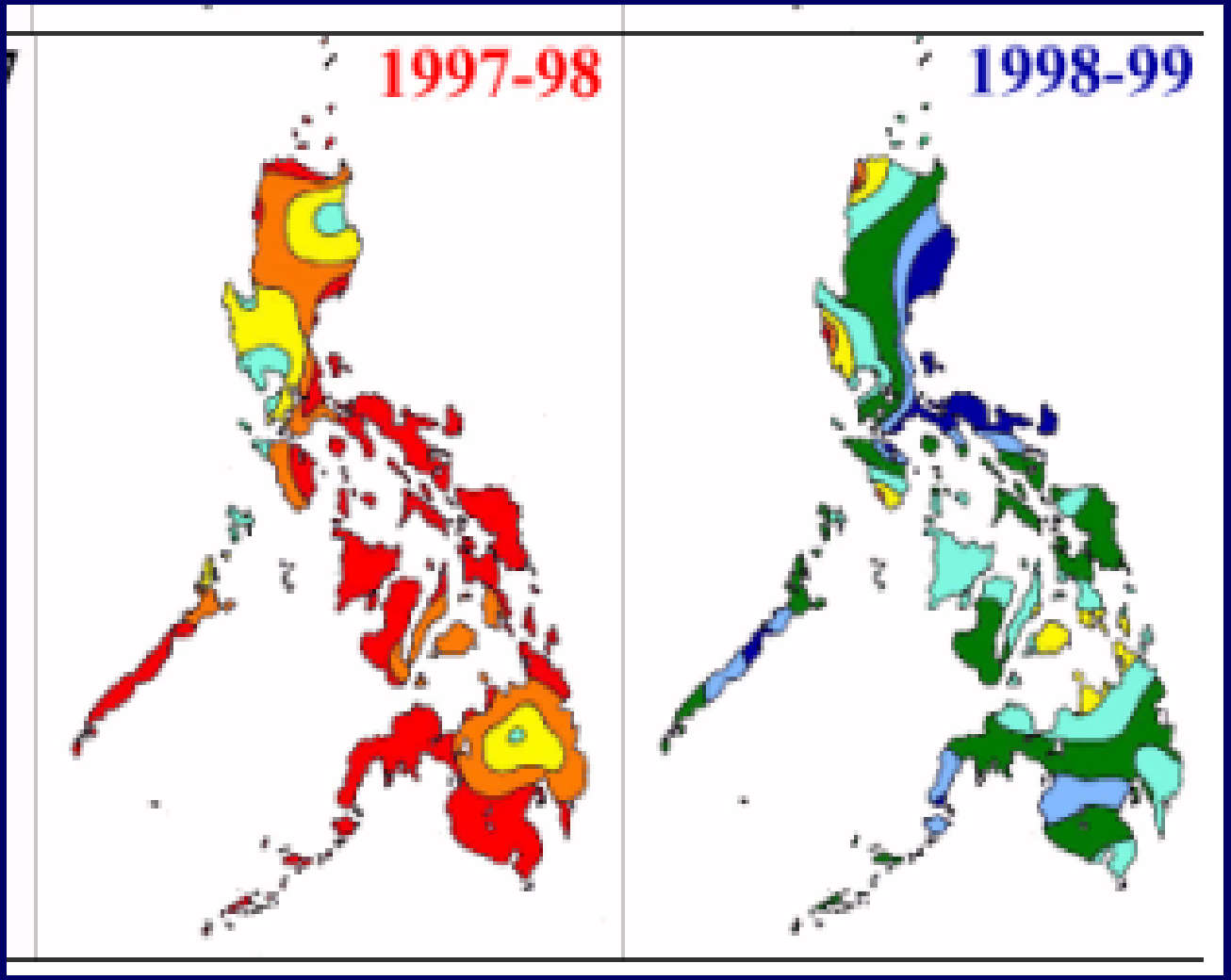


(a.) Sept-November TC tracks during the six strongest warm years



(b.) Sept-November TC tracks during the six strongest cold years

IMPACTS OF ENSO ON PHILIPPINE RAINFALL



Legend:

- Severe drought impacts
- Drought impacts with major losses
- Moderate drought impacts
- Near normal to above normal condition
- Way above normal condition
- Potential for flood damage
- Severe flood damage

RED colored years are EL NINO years, BLUE colored years are LA NINA years and BLACK colored years are NON_ENSO years

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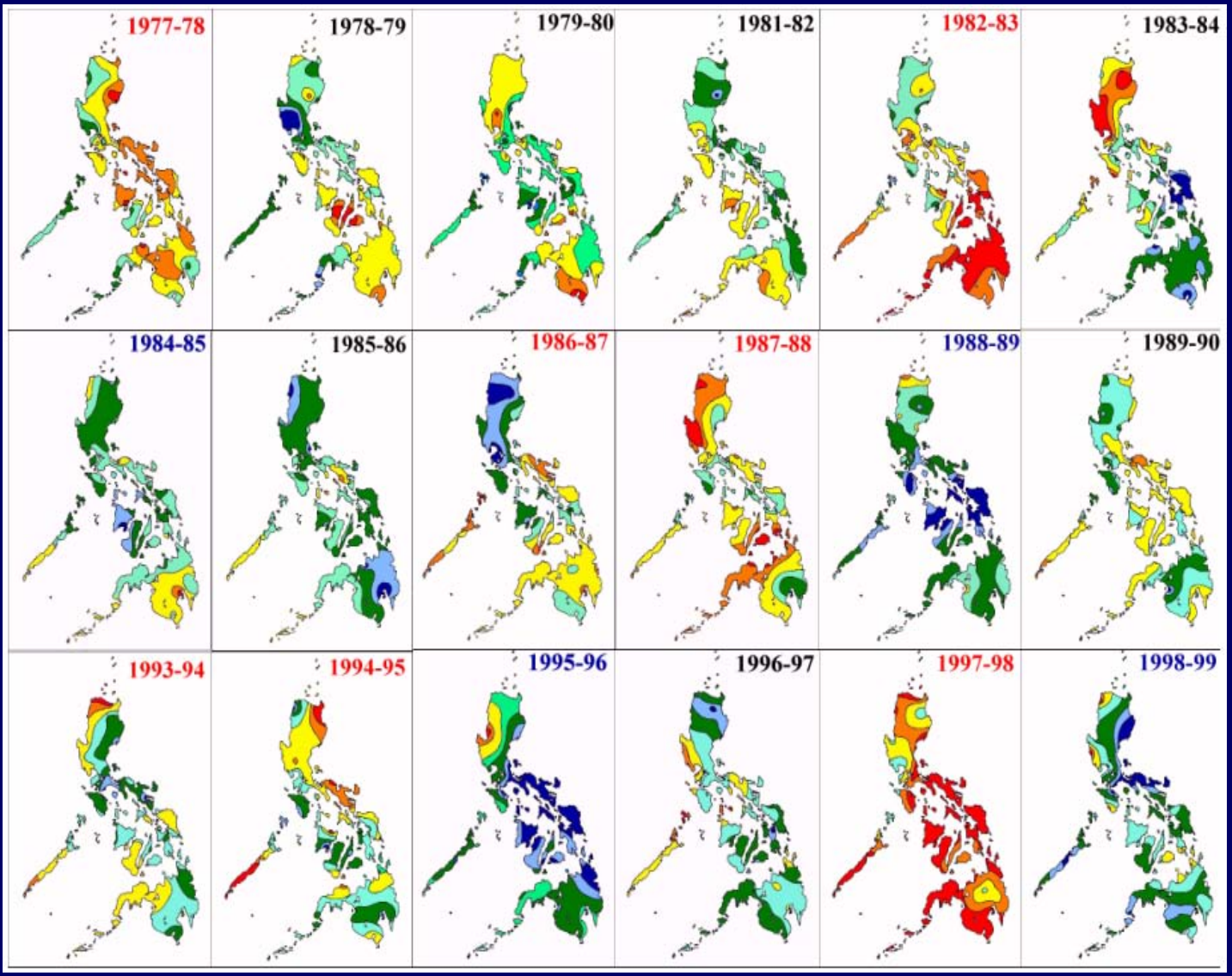

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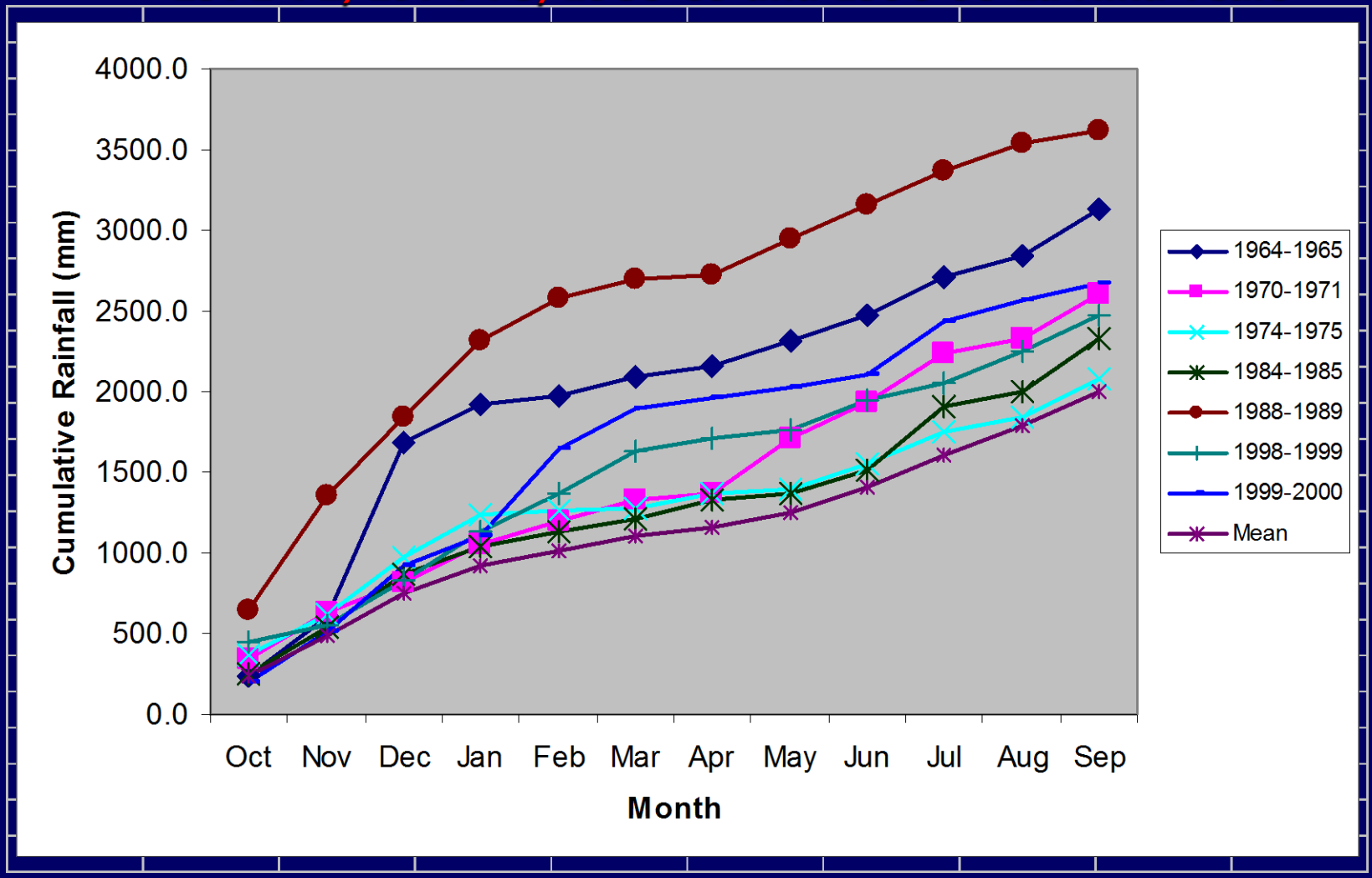
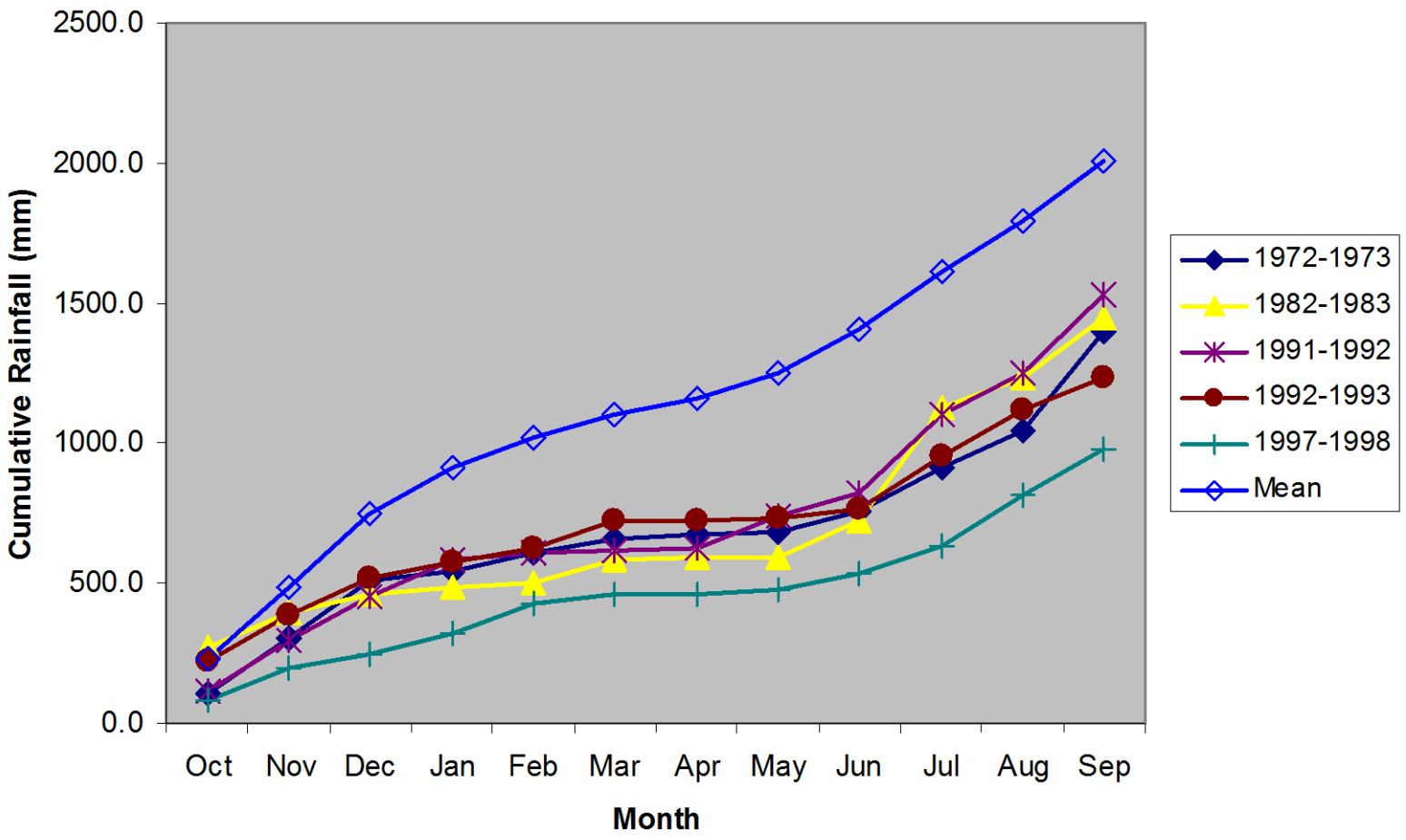
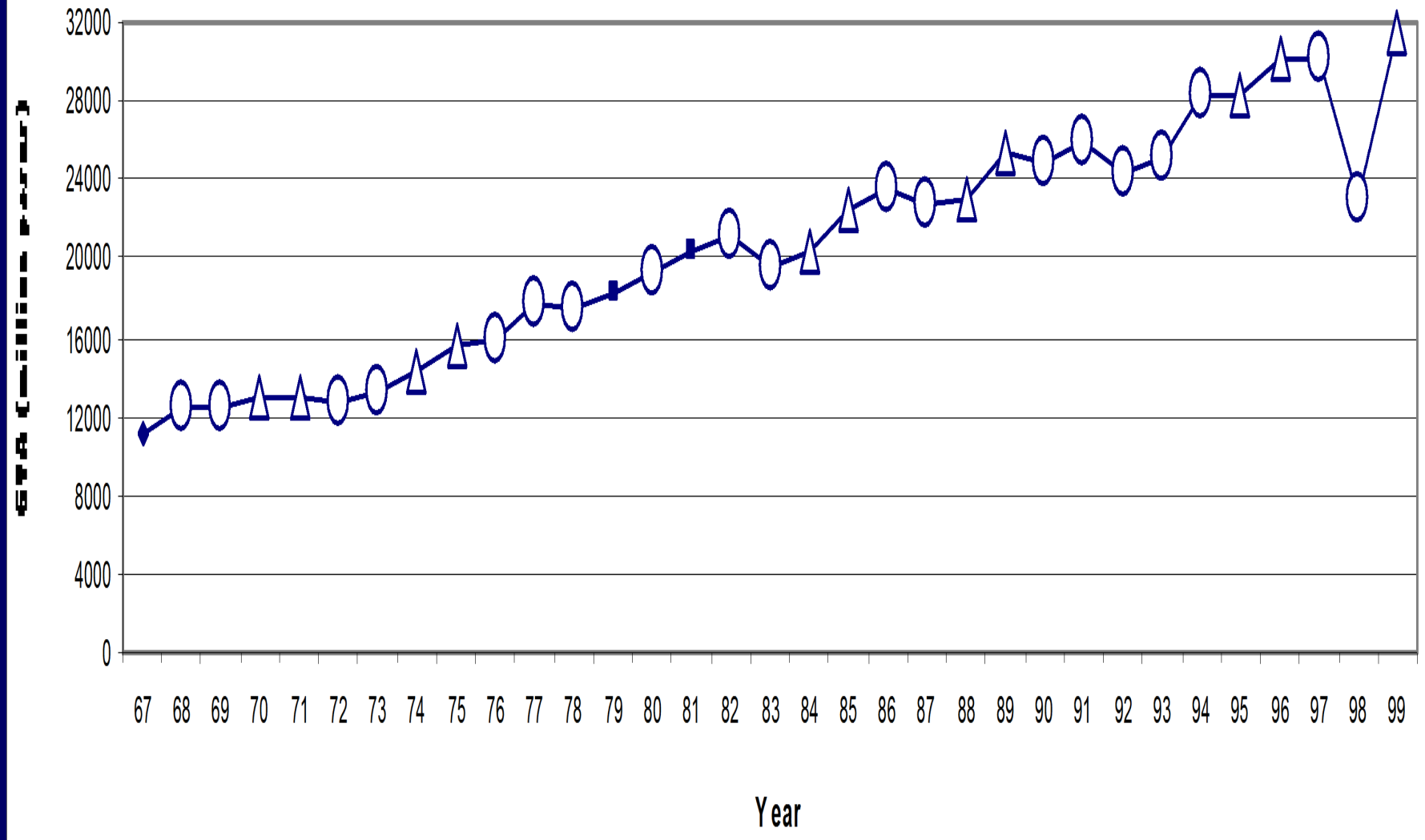
October to September Cumulative Rainfall in Masbate During 1964-65, 1971-72, 1974-75, 1988-89 and 1998-99 La Niña Years



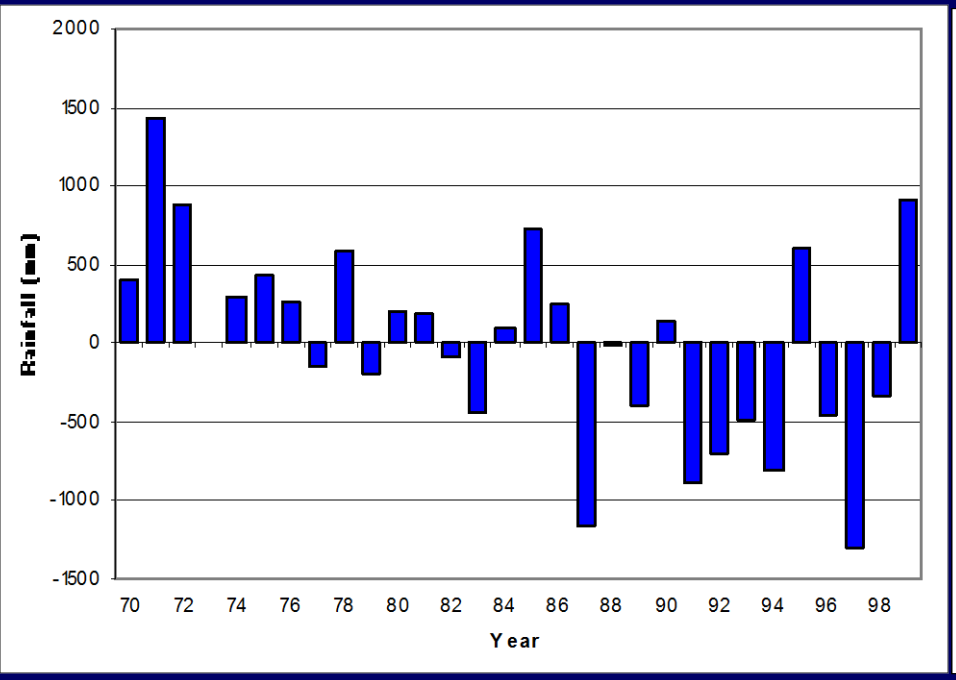
October to September Cumulative Rainfall in Masbate During 1972-73, 1982-83, 1991-92, 1992-93 and 1997-98 El Niño Years

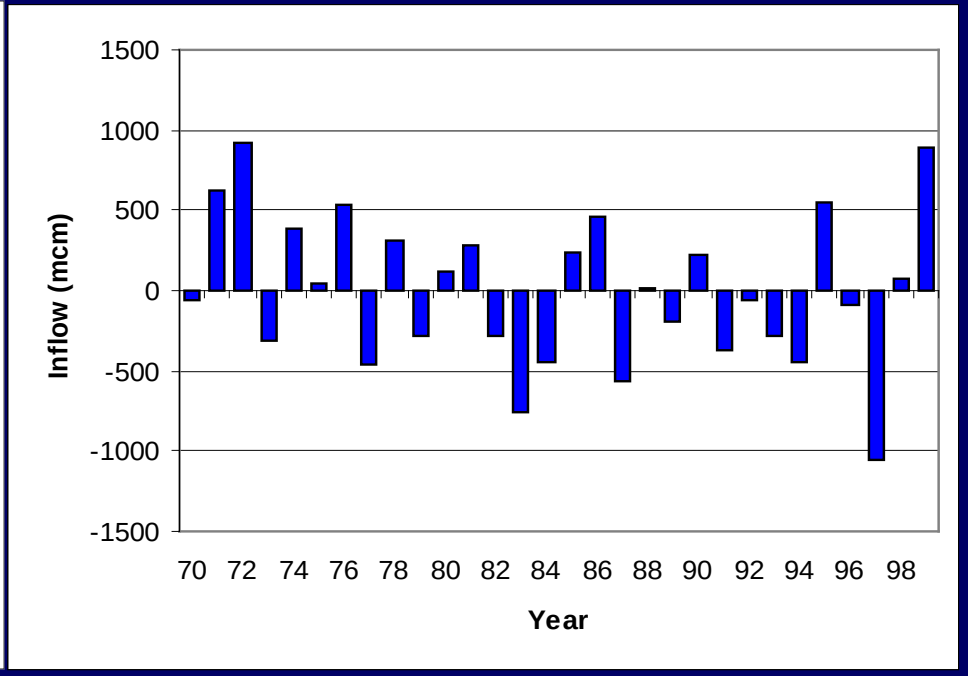


Gross Value Added in Palay at Constant 1985 Prices

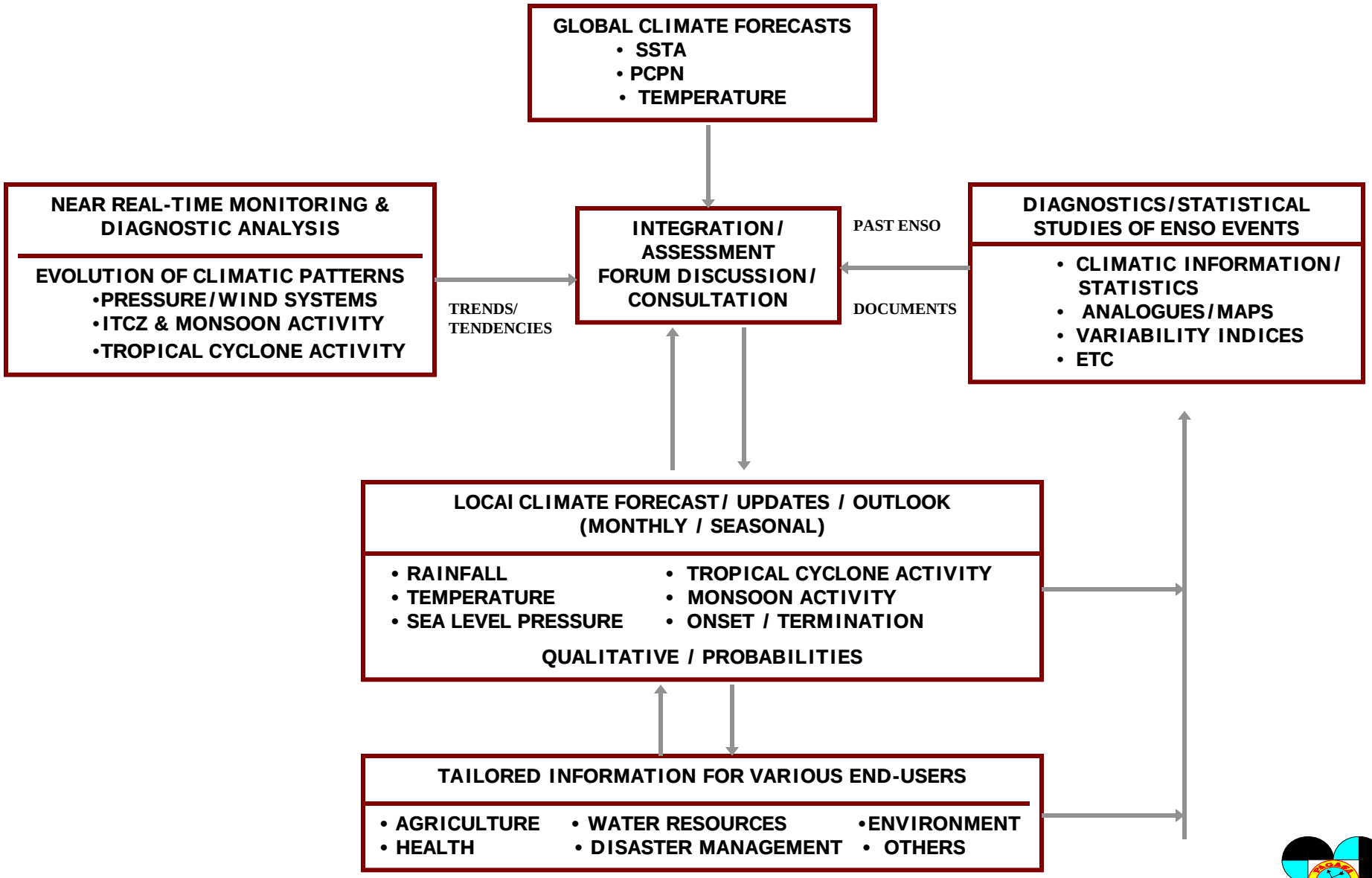


Annual rainfall and inflows anomalies in Angat reservoir (main water source for Metro Manila). Minimal amounts of rainfall and inflows are associated with ENSO-related drought events of 1973, 1977, 1983, 1987, 1991, 1994, 1997.





Schematic Diagram of Translation of Global Climate Forecasts/Information Into Local Climate Forecasts Tailored for Various End-Users



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Thank you