"Course on Ocean-Atmosphere Interaction in the Tropics"
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"Influence of SST Anomalies on Atmospheric Circulations"

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Please note: These notes are intended for internal distribution only.
Figure 1. Indian summer monsoon rainfall anomaly (departure from long term mean). Positive and negative deviations from the normal rainfall are denoted as warm and cold periods, respectively. Zero line represents normal rainfall.
SST ANOMALY
April 1958

SST SURFACE TEMPERATURE ANOMALY (°C). 01 APRIL 1958
Observational works by Moreira and Oliva (1982) and Oliveira (1982) show that the ITCZ seems to be stronger than normal and placed northwards from its mean position during years of drought and the reverse for very wet years. Figure 2 (adapted from Oliveira, 1982) shows mean satellite cloud brightness in percentage for two contrasting years. The dry year of 1972 has an ITCZ stronger, narrow and placed northwards when compared with the wet year of 1974.

**WET YEAR (DEC 1973 - MAY 1974)**

**DRY YEAR (DEC 1971 - MAY 1972)**
Fig 13. Differences (anomaly-control) of 60 day mean evaporation.
Fig. 7. Average May-June 1988 OLR anomalies. The zero contours are the heavy line and

CONTINENTS are every 10 W/m². Values exceeding +10 W/m² are shaded.
Fig. 6 Average May-June 1988 SST anomalies. The zero contour is the heavy line and contours are at ±0.5, ±1, ±2 and ±3°C. Values exceeding ±1°C are shaded.

Fig. 6. Average Zonal Wind Stress Anomalies at 200 mb for April-May June 1988.
90 day mean rainfall anomaly

[1, 2, 3 June], [1988-87] (JJA)

MODEL [CLIMATE SST]

MODEL [88 SST-87 SST]
OBSERVED (J, F, 87)

PRECIPITATION (mm/day) (J, F, 87)

1987 200mb

(OBSERVED)

(MODEL)
\[
- \frac{\text{CLR} ['\text{W/m}^2']}{5.7} \approx \text{Precip. [mm/day] (Arkin, 84-months, 55-85N)}
\]

OBS 850mb U anomaly (CAC Quick Look Atlas)

OBS

9-PT SN ANOMALY PRECIP. [MM/DAY] 55-85N

Model Diff.

MODEL

N-6S Modeled 850mb U diff. (anomaly-control)
GLOBAL ATMOSPHERE TEMPERATURE (°C)

(EASTERN EQUATORIAL PACIFIC SST (°C))

[Note: scale shifted by 6 months]