CIRRUS CLIMATOLOGY FOR TROPICAL CRYSTAL

Patrick Minnis
Atmospheric Sciences
NASA Langley Research Center
Hampton, VA

Rabi Palikonda, Kirk Ayers

AS&M, Inc.
Hampton, VA

February 27, 2003

OBJECTIVE

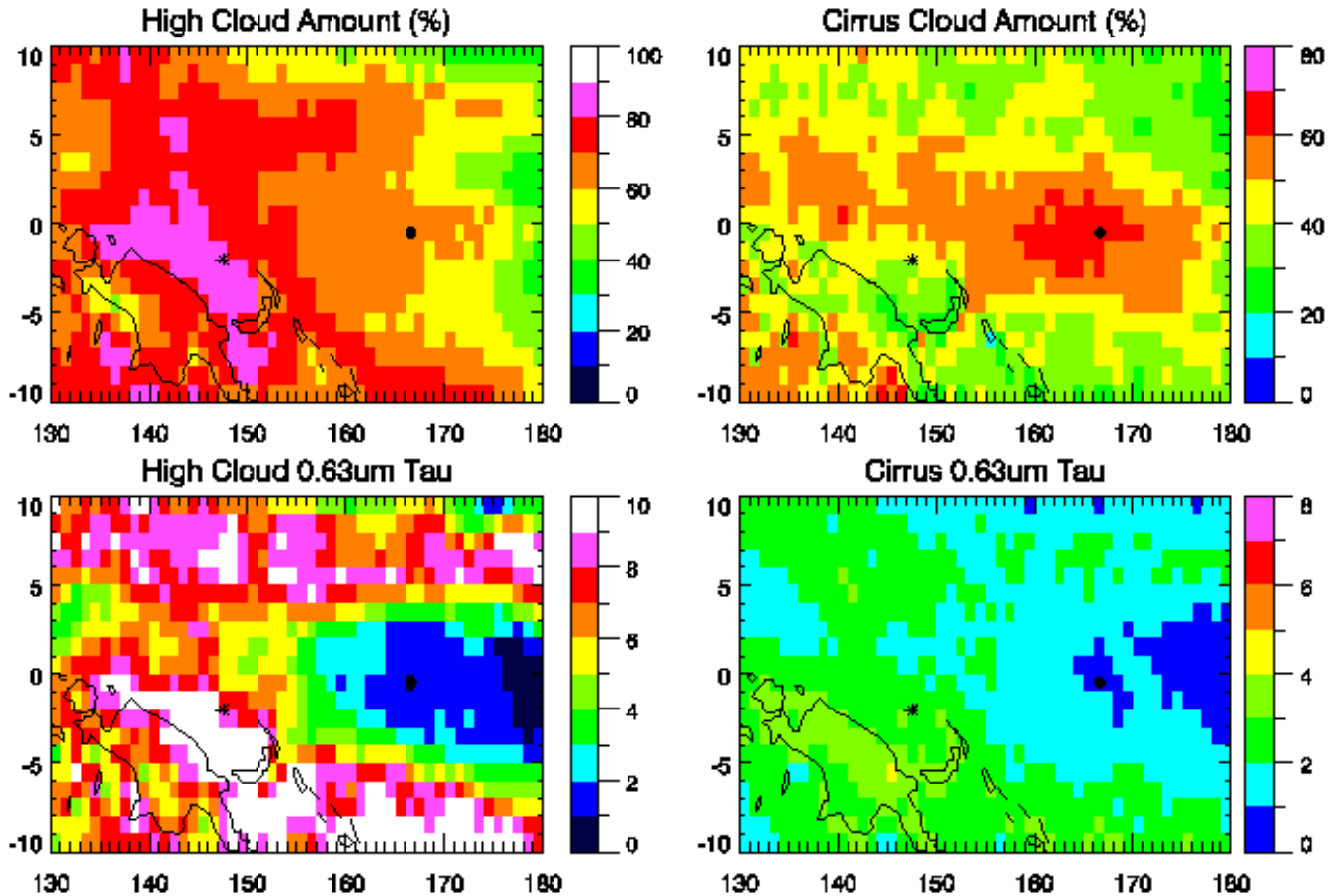
- **Provide Summary of Cirrus Variability Over Potential Tropical Experiment Sites**

DATA

- **ISCCP D2** — **Cb, Ci + Cs monthly means 2.5° resolution (1983-98)**
- **Surface** — **Ship & Ground Sites (1971 - 1996)**
- **ARM TWP** — **Cirrus & High Clouds from GMS (south of Guam)**

GMS-5 Derived Parameters

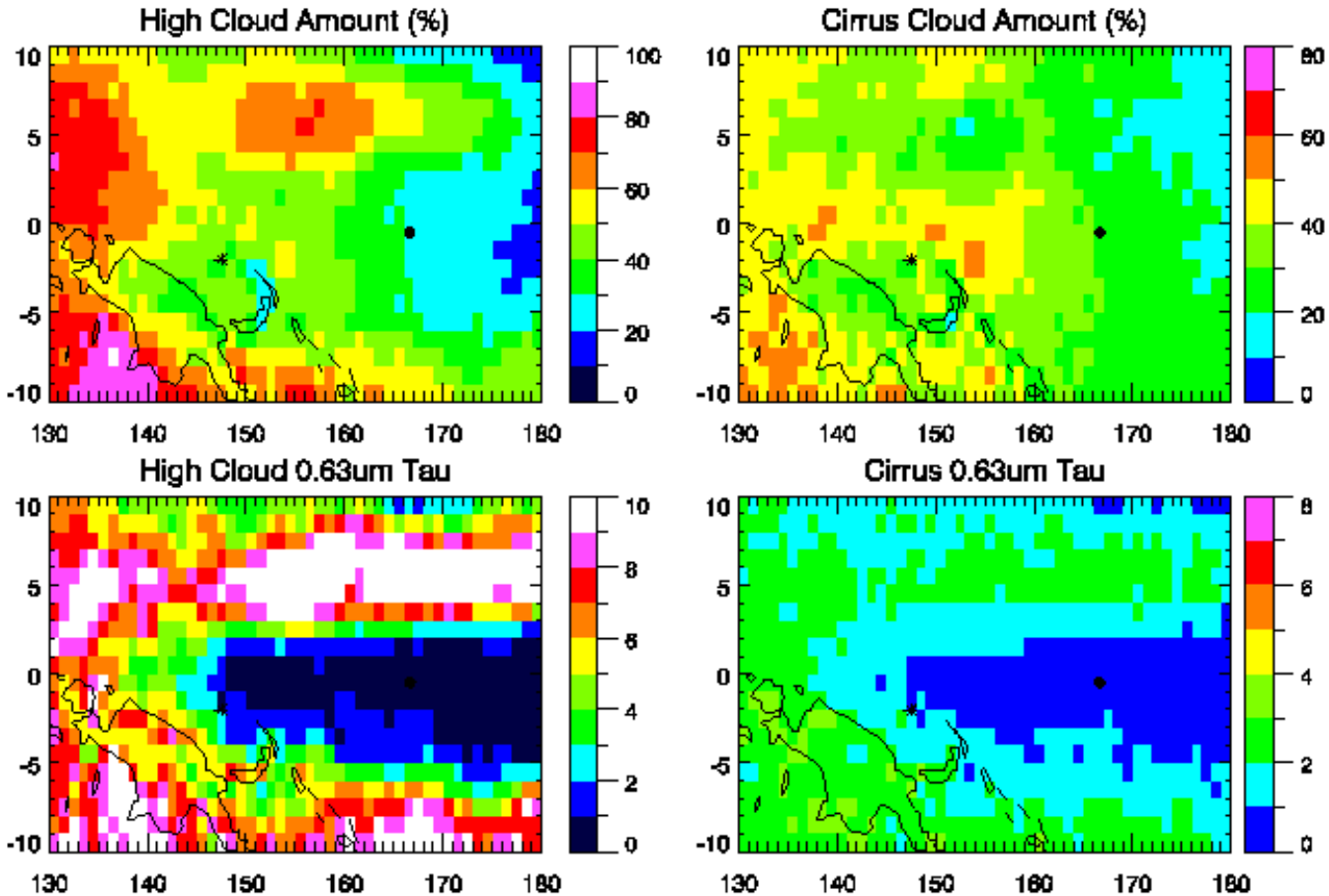
December 1 - December 31 2000



NASA LaRC

GMS-5 Derived Parameters

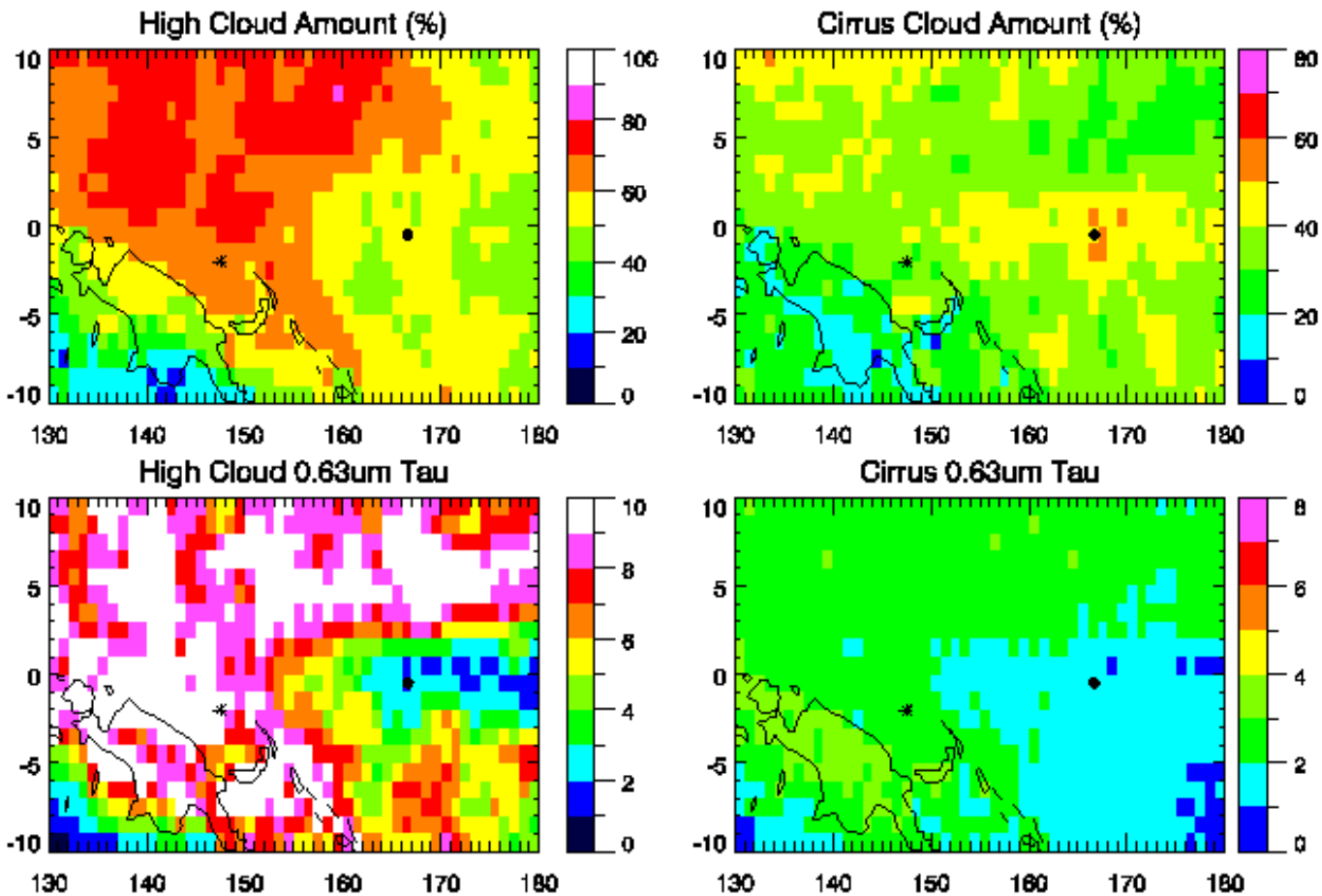
February 1 - February 29 2000



NASA LaRC

GMS-5 Derived Parameters

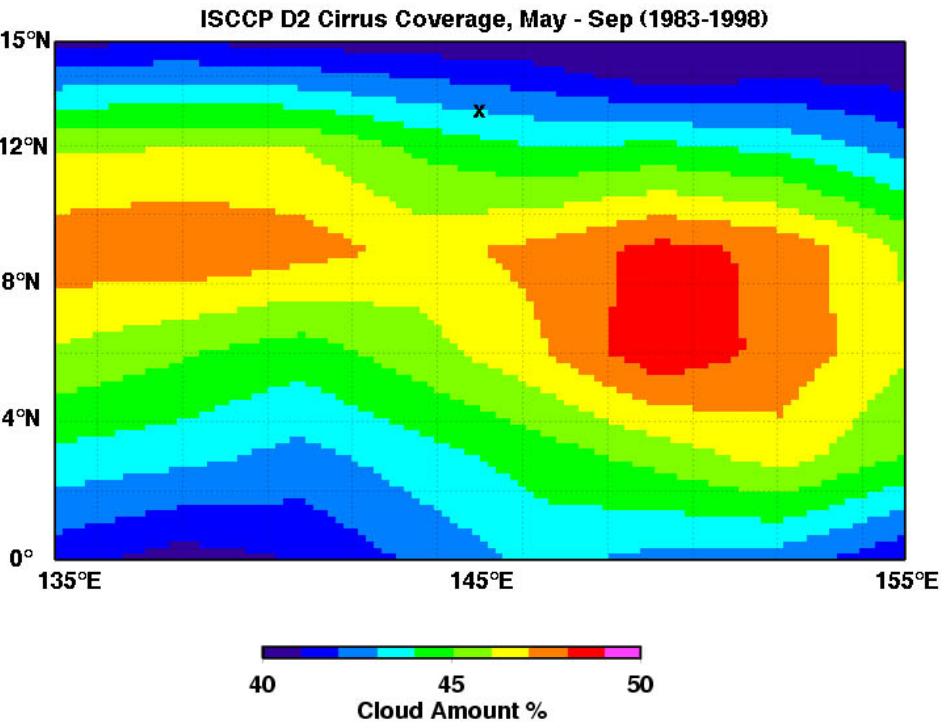
August 1 - August 31 2000



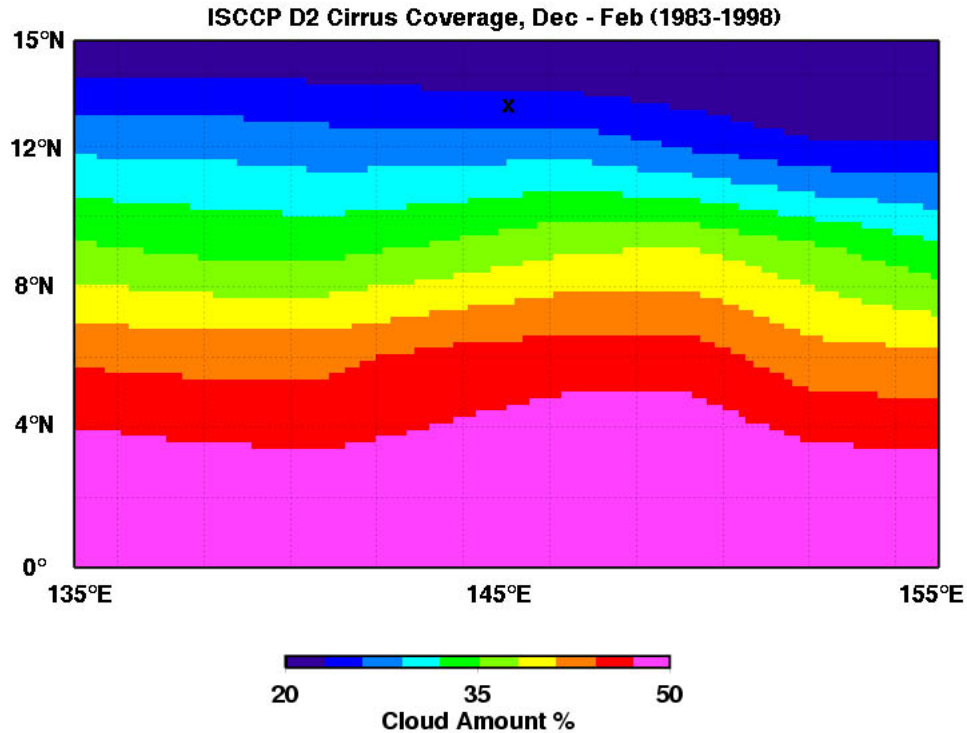
NASA LaRC

ISCCP Seasonal Cirrus Coverage

MAY-SEPT

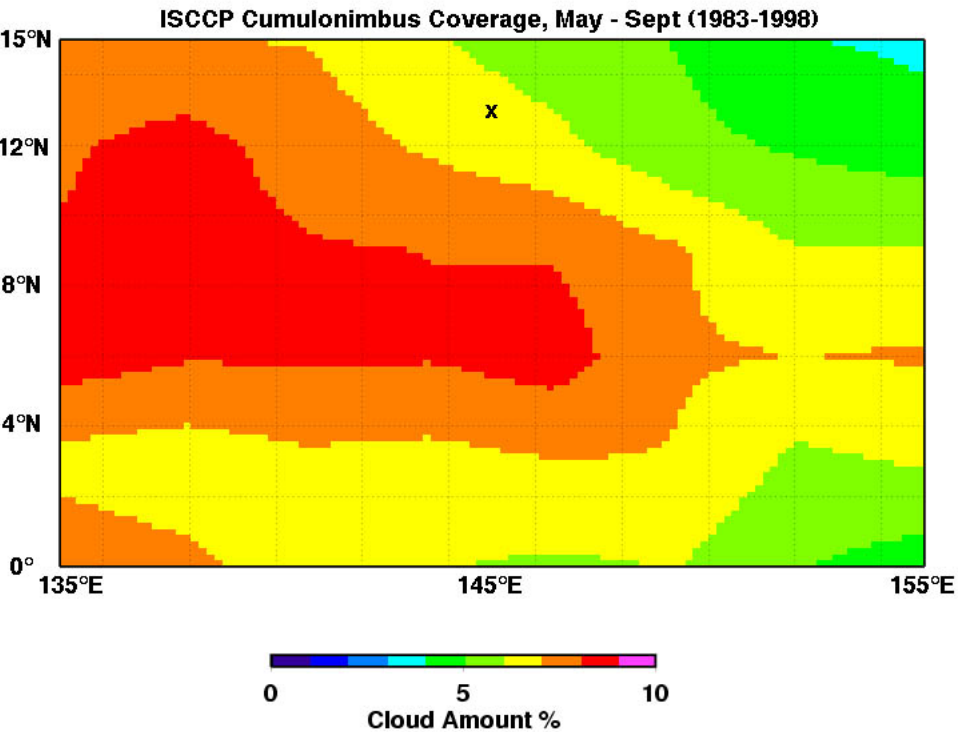


DEC-FEB

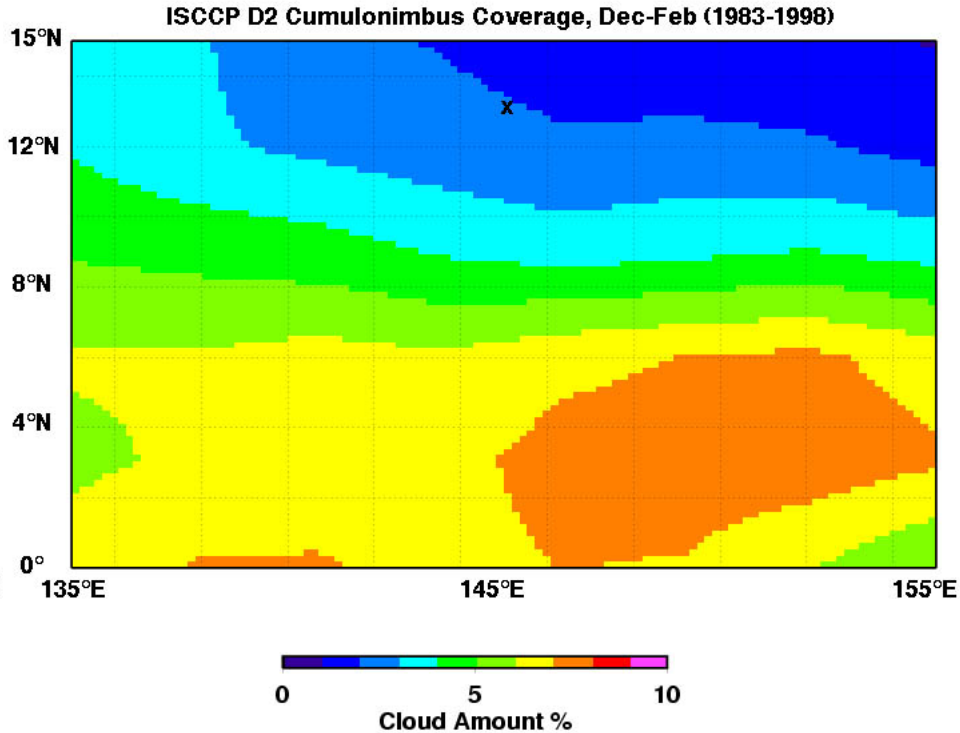


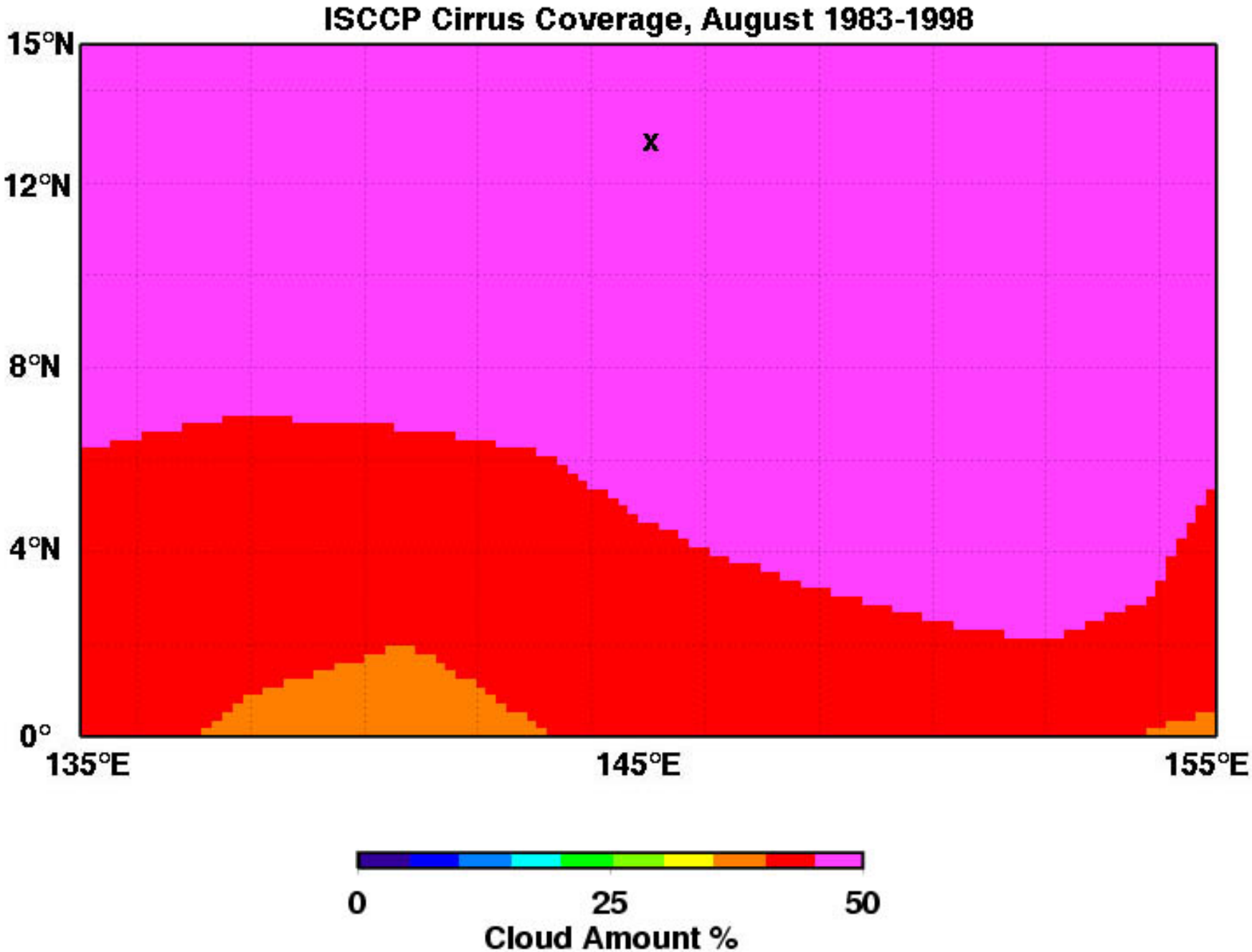
ISCCP Seasonal Cumulonimbus Coverage

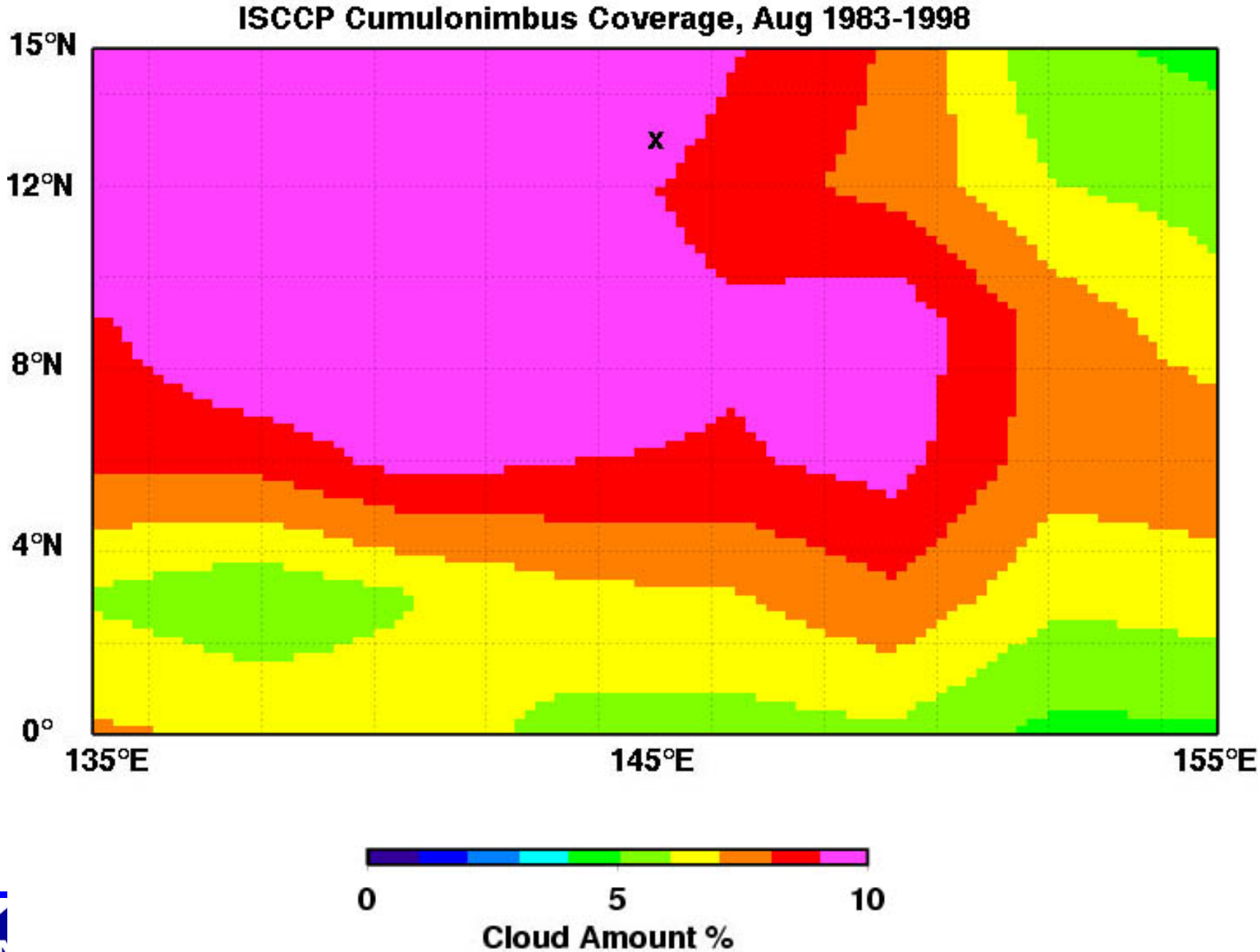
MAY-SEPT

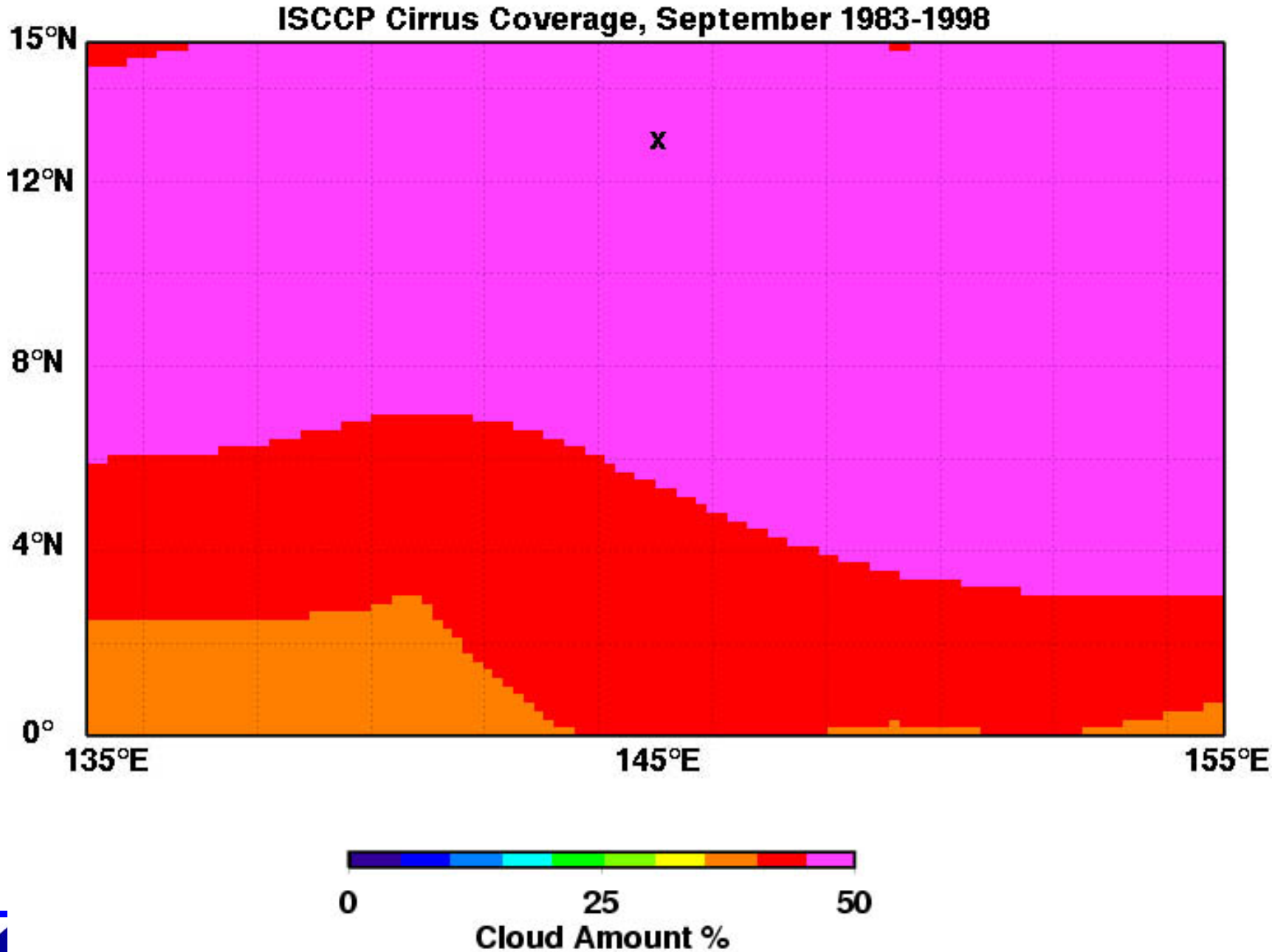


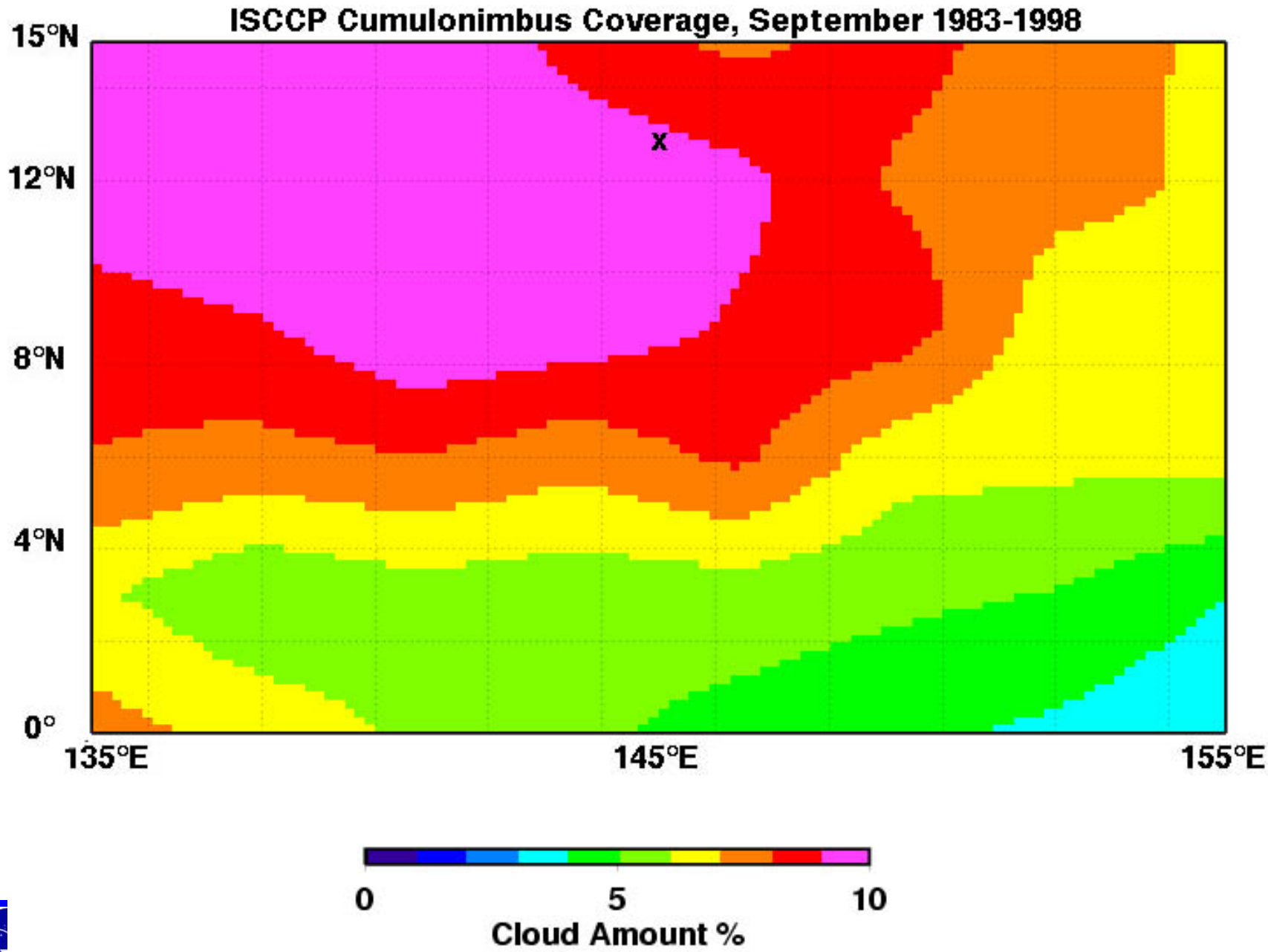
DEC-FEB



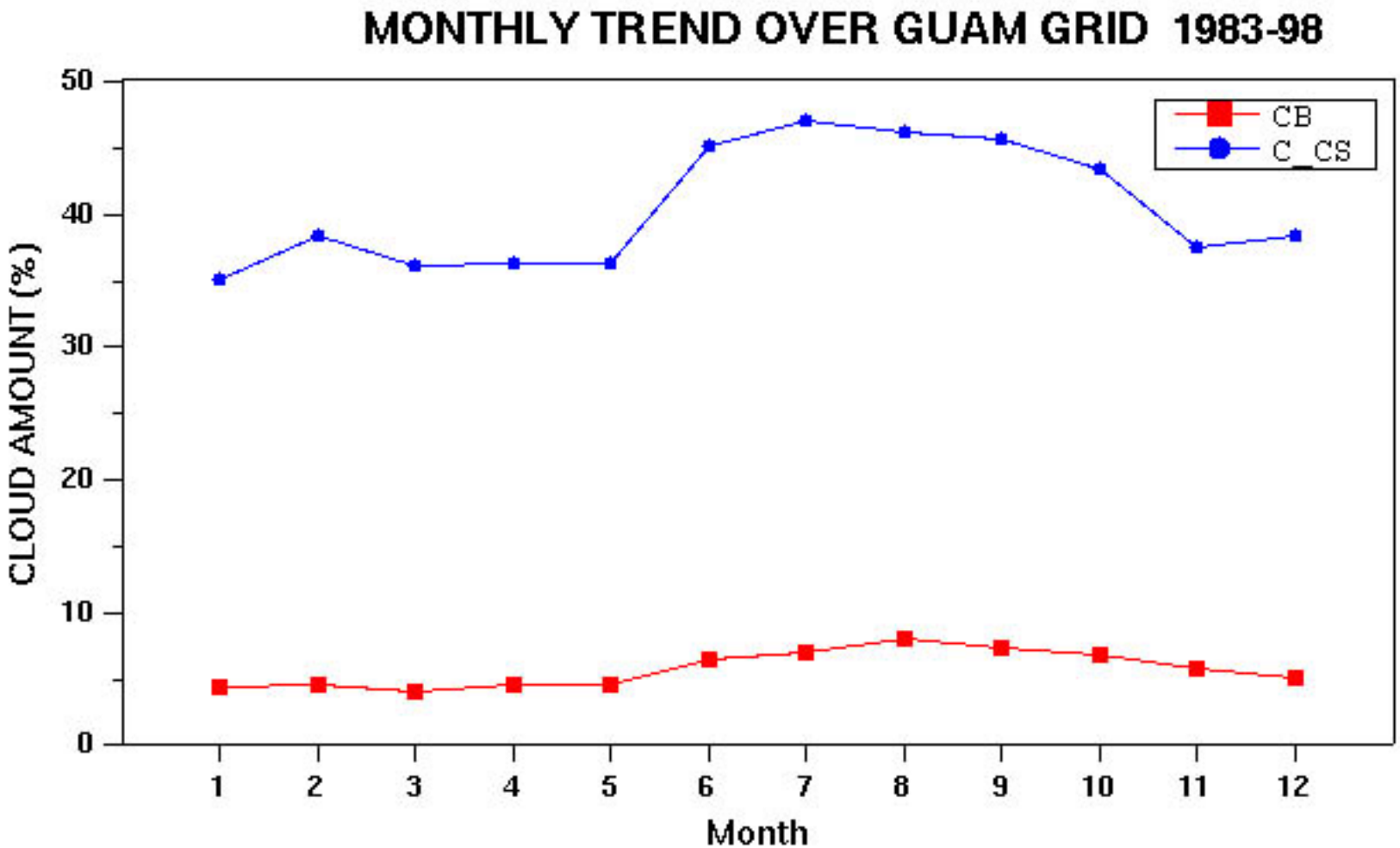

ISCCP Cirrus Coverage, August 1983-1998
15°N
12°N
8°N
4°N
0°
135°E
145°E
155°E
x
0
25
50
Cloud Amount %


ISCCP Cumulonimbus Coverage, Aug 1983-1998
15°N
12°N
8°N
4°N
0°
135°E
145°E
155°E
x
0
5
10
Cloud Amount %

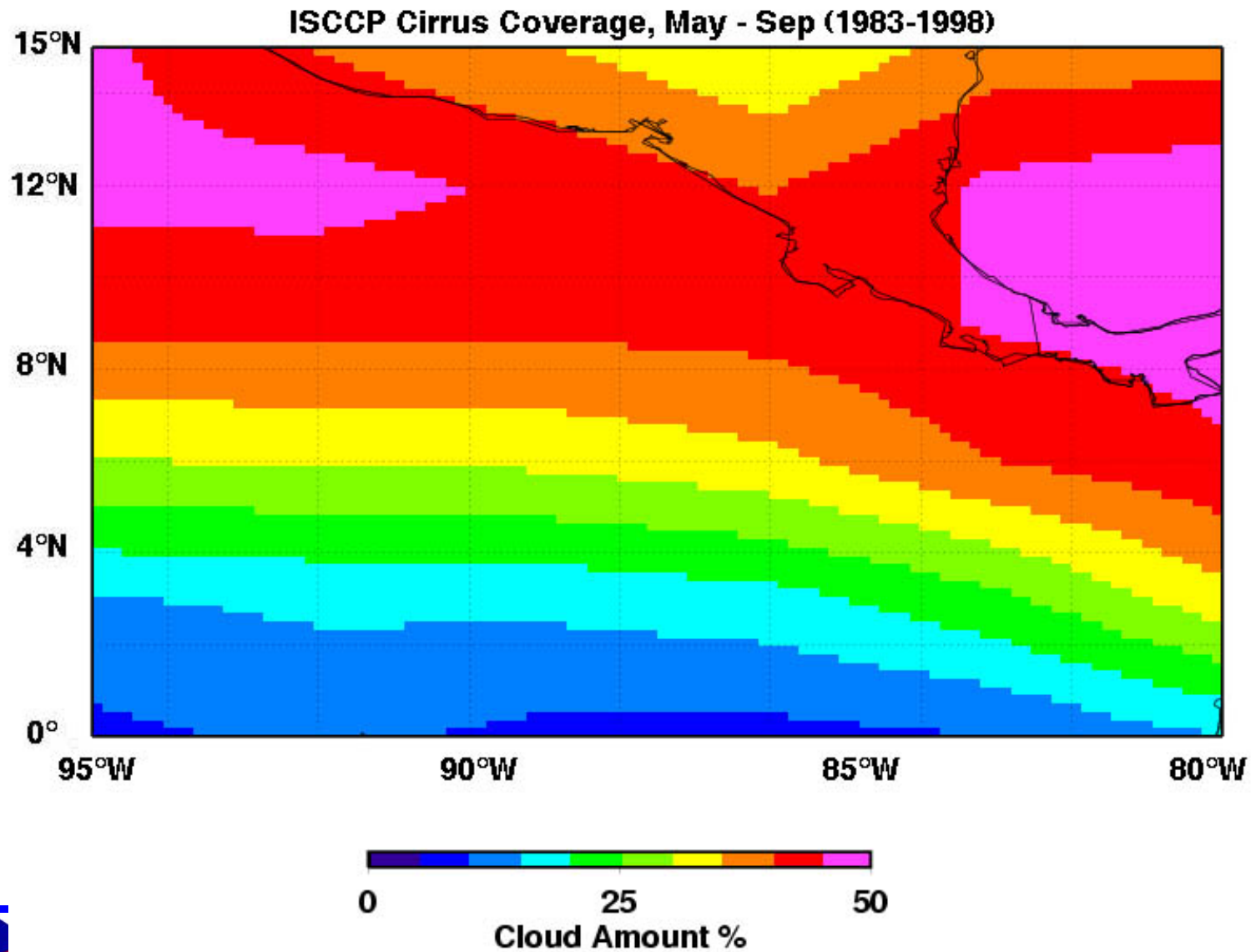

ISCCP Cirrus Coverage, September 1983-1998
15°N
12°N
8°N
4°N
0°
135°E
145°E
155°E
x
0
25
50
Cloud Amount %


ISCCP Cumulonimbus Coverage, September 1983-1998
15°N
12°N
8°N
4°N
0°
135°E
145°E
155°E
X
0
5
10
Cloud Amount %

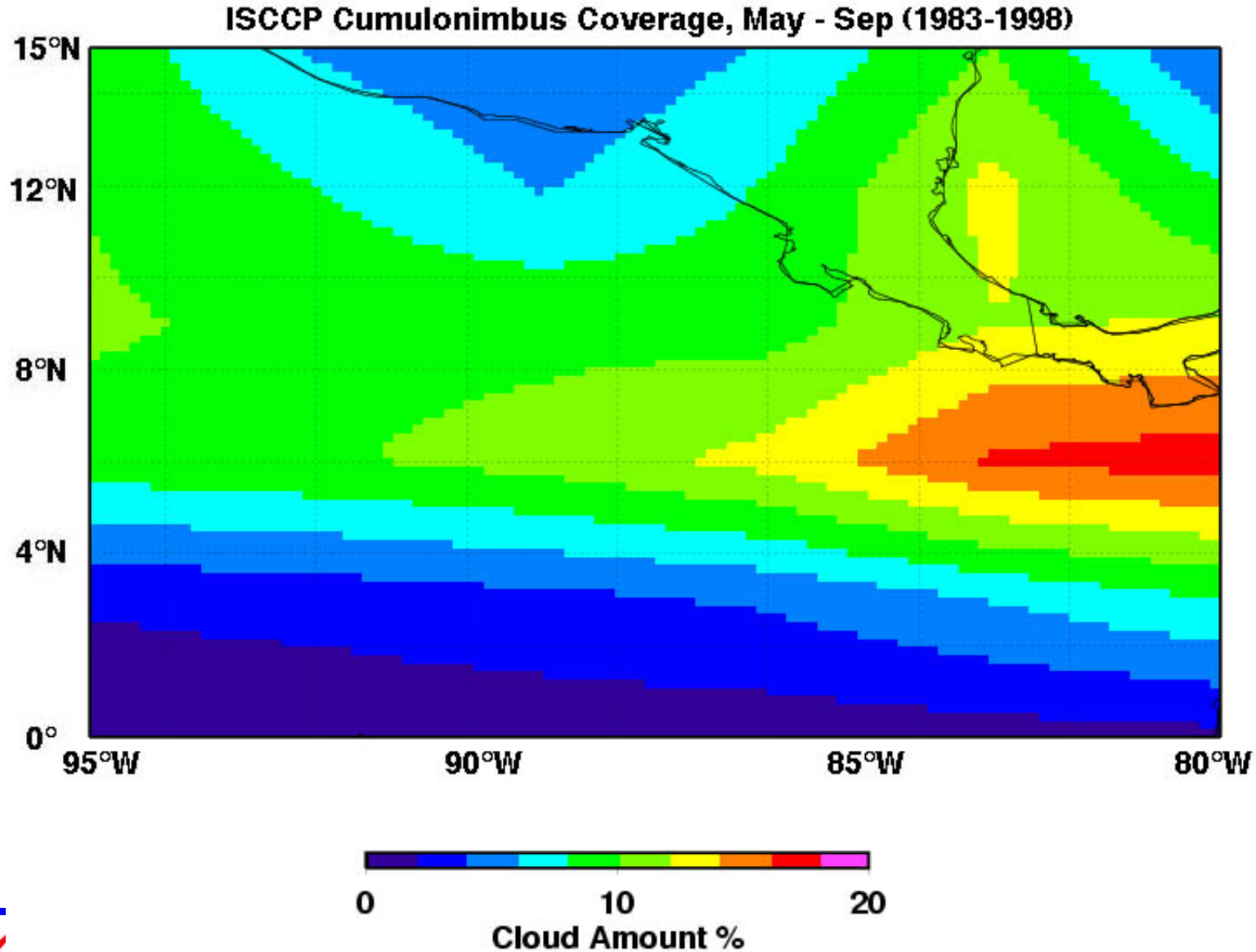
ISCCP High Cloud Coverage Over Guam Domain



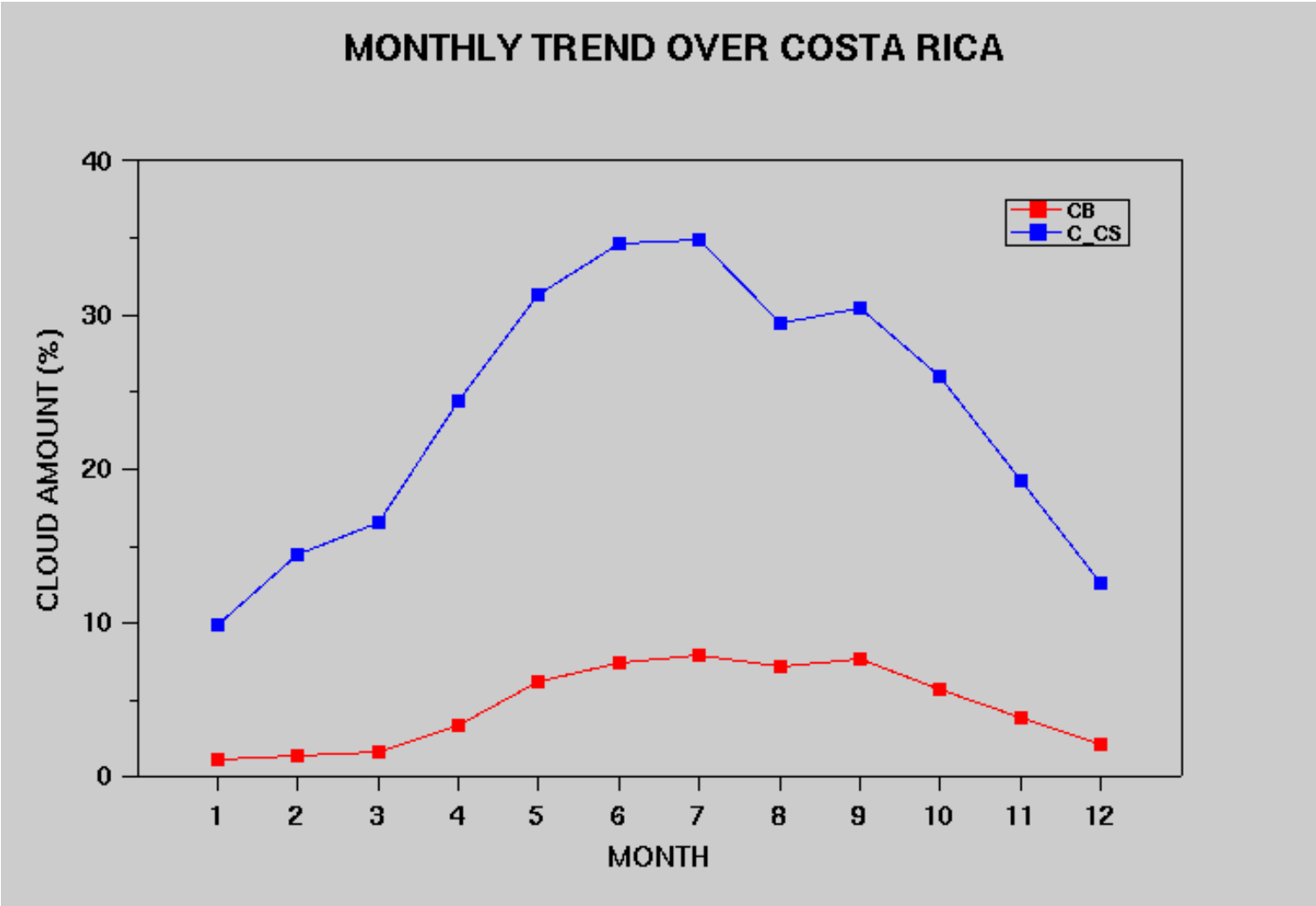
ISCCP Cirrus Coverage For Costa Rica Domain



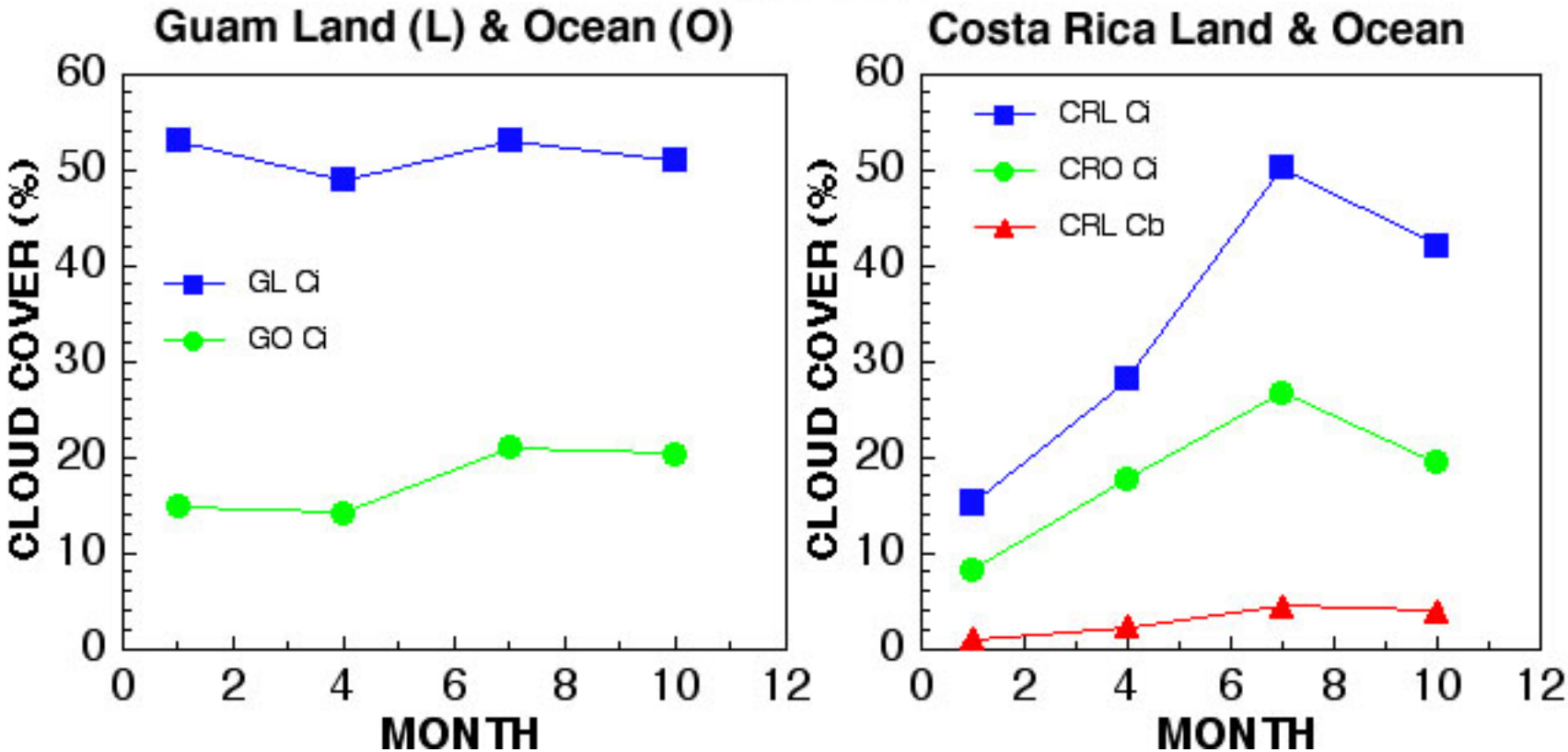
ISCCP Cirrus Coverage For Costa Rica Domain



ISCCP High Cloud Coverage For Costa Rica Domain



SURFACE-BASED CIRRUS & CUMULONIMBUS STATISTICS
1971-1996



SUMMARY

- **Costa Rica:**
  - **Early-to-mid summer has most convection and cirrus coverage**
    - **July (*miserable?*)**
- **Pacific/Guam:**
  - **August/September: most convection & cirrus in area**
  - **December/February: convection & cirrus reduced by 25%**

    best opportunities along edge of ER-2 range