

Part 2 (104 points)

C. Interannual Variability.

Following is a list of major volcanic eruptions since 1867 and the year that each occurred:

1883 Krakatau

1890 Unidentified

1902 Soufriere/Pelee

1902 Santa Maria

1912 Katmai

1963 Agung

1968 Fernandina Island

1982 El Chichon

1991 Pinatubo

Task 4: For any three of the above eruptions, note the average annual global temperature.

- Make 3 tables showing 3 volcano events including the average annual global temperature for: (3 x 18 points)
 - the year in which the eruption occurred;
 - the year before the eruption;
 - the year after the eruption;
 - two years after the eruption;
 - and three years after the eruption.

Table 4: Volcanic Eruption

Eruption	Year	Annual Temperature (°C)	Difference	Trend

- What is the typical magnitude of the effect of volcanoes on global climate? (3 x 1 points)

- What is the sign (warming or cooling) of the effect of volcanoes on global climate? (3 x 1 points)
- How long does it take for the climate to return to normal after a major eruption? (3 x 1 points)

Following is a list of **El Niño** years in recent times: 1951, 1953, 1957, 1963, 1965, 1969, 1973, 1977, 1983, 1987, 1991, 1997-1998, 2002-2003, 2006-2007. (For El Niño events starting near Christmas time, the following year is listed, since that is when the peak temperature anomaly usually occurs.)

Task 5: Choose three El Niño events (DON't Choose the year of a major volcanic eruption).

- Make 3 tables showing 3 ENSO events including the average annual global temperature for: (3 x 10 points)
 - for the ENSO year;
 - for the year before the ENSO;
 - and for the year after the ENSO (El Niño-Southern Oscillation).

Table 5: El Nino event

El Nino	Year	Annual T (C)	Difference	Trend

- What is the typical magnitude of the ENSO event? (3 x 1 points)
- What is the sign (warming or cooling) of the effect of ENSO event? (3 x 1 points)
- Can ENSO be detected in the global temperature even though it is basically a tropical phenomenon? (1 point)