SUMMARY OF THE DECEMBER 1991 WEATHER ON THE MONTEREY PENINSULA, CALIFORNIA

General: Temperatures and daily fog frequency averaged near normal; rainfall was above normal and winds were light generally.

Temperature: December averaged near normal: 52.1°F vs the 40-year normal of 52.2°F. Daytime readings were on the cool side: 60.2°F vs 60.9°F with an average of 43.9°F normal. The absolute range for the month, from 69°F (on 4 December) to 37°F (on 13 and 21 December), was considerably less than the normal range of 38°F for December. No daily temperature records were set in December 1991.

First light frost at the station (defined here as the thermal shelter temperature of 39°F to 35°F) was observed on 13 Dec (37°F); this is 12 days later than the 40-year normal. The average date of a killing frost (defined here as the thermal shelter temperature less than 35°F) is 29 December, but temperatures 34°F or less have not yet occurred this winter season at the station.

Calendar year 1991 was cool on the Peninsula. The 12-month average of 56.2°F is 0.4°F below normal. This year, along with 1985, is the coolest year since 55.8°F in 1982. Only thirteen years in the past 40 have been cooler than December 1991. Coolest: 54.7°F in 1955/ Warmest: 58.7°F in 1958/ The negative anomaly in 1991 is due to the generally cool daytime maximums: an average of 64.2°F vs 65.7°F normal. The 64.2°F is also the coolest since 1982. Only eight of the past 40 years showed cooler daytime temperatures on the average. Nites in 1991 averaged slightly warmer than normal: 48.1°F vs 47.8°F.

Precipitation: The storm sequence from 27 through 29 December was the highlight of the month. It advanced the rainfall figures for December to the well-above-normal status: 3.50" vs 2.86" normal, and brought the rain year total (1 July to 31 December) to 5.25", only 1.37" below the normal for 31 December. Last year the 31 December figure stood at 2.52" and it was not until 28 February that the rainfall exceeded 5".

The 2.12" that fell in the 24-hour period 6 AM 28 to 6 PM 29 December was the fifth highest 24-hour amount (6 PM – 6 PM) in 40 years and the highest single-day rainfall since 2.16" recorded on 1 Mar 1983. 3.85" on 23 December 1955 holds the 24-hour record. There are only eight rainfalls (29 December 1991 included) equal to or greater than 2" in 24 hours in the past 40 years. Four of these have occurred in December and all but one of seven were in rain years that exceeded normal! Rainfall became occasionally torrential (by Monterey Peninsula standards) between 09 and 10 AM Sunday 29 December 1991 with an instantaneous rainfall rate exceeding 4" per hour around 0930 AM.

A total of six thunderstorms were recorded on the 29th, starting at 18 minutes after midnight and concluding with thunder/lightning at 1230 PM. Typical of thunderstorms on the Monterey Peninsula each thunderstorm evidenced itself by one of two claps of thunder and the associated lightning.
There have been seven thunderstorm days in calendar year 1991. Five is normal. A thunderstorm day is a calendar day with one or more thunderstorms (i.e., thunder heard at the station). Eleven thunderstorm days occurred in 1978, 1982 and 1982; as few as one day was recorded in 1985. Thunderstorms are most common in the months of November through March and again in September.

The 29 December storm, coming out of the central North Pacific, and aimed directly at the Central California Coast caused minor flooding on the Peninsula and mudslides on Highway 1 in south Monterey County. Rainfall figures as high as 8” (Ponciano Ridge above San Clemente Dam) occurred in the Santa Lucia Mountains south/southeast of the Peninsula. Moisture soaked in rather than ran off during/after the storm but it is reported that both the San Clemente and Los Padres dams fill to spilling by year’s end.

The nature of the storms on 27-28 and 29 December advanced the speculation that the "El Nino" weather is upon us. The sea-surface temperatures continue to slowly warm in the eastern South Pacific tropical waters and the associated wind circulation continues to support the El Nino development. Thus far the current El Nino is classified as weak and weak El Nino’s have been, more often than not, related to below median rainfall on the central California west coast. The latest National Weather Service outlook for 30 to 90 days – January, and January, February and March – calls for near median rainfall as the best estimate.

**Fog:** After eight months in a row with an above normal number of fog days, December’s normal fog occurrence is most welcome. Seven days is normal for December.

1991 set a 29-year record for number of fog days, namely 214 vs 146 normal! The nearest competitor is 1989 with 182 days. Every month except March and December showed above normal fog occurrence. In March the fog-day count was only one day below normal (fog day is defined here as one with one or more hours of horizontal visibility (at the six-foot level) six miles or less due to fog). Cross checks with airport visibility are routinely made in order that the recorded visibility is representative of the Monterey Peninsula.

**Wind:** Wind was a so-so weather event in December 1991. The average at the airport (from hourly observations 6 AM to 11 PM daily) is 6 miles per hour (mph) which is less than the past four years. The recent five-year December average (not including 1991) is 7 mph. The average maximum daily wind gust at the National Weather Service Climate Station is 16.8 mph compared to the 20-year average of 18. On 23 December the maximum gust didn’t exceed 9 mph whereas on 27 December pre-storm wind gusts reached 37 mph.