

3. DESCRIPTION OF AVAILABLE DATA

We compiled data for the following measurements into data sets for subsequent analyses:

- hourly concentrations of ozone, CO, NO, NO₂, and NO_x for all monitoring locations in southern California for the years 1980 through 1999 from the California Air Resources Board (CARB);
- multi-hour (usually three-hour) hydrocarbon measurements for PAMS and other monitoring locations in California for 1994 through 1999;
- CARB particulate matter measurements from 1980 through 1999 (PM₁₀ mass, PM₁₀ nitrate, PM₁₀ sulfate, TSP mass, TSP nitrate, and TSP sulfate);
- data from the Carbonaceous Species Methods Comparison Study (CSMCS) for 1986;
- particulate matter measurements from the 1987 Southern California Air Quality Study (SCAQS);
- particulate matter measurements from the California Acid Deposition Monitoring Program (CADMP) (1988-94);
- particulate matter measurements from the 1995-96 PM₁₀ Technical Enhancement Program (PTEP);
- particulate matter measurements from the 1997 South Coast Ozone Study (SCOS97).

These data are from either long-term routine monitoring programs or short-term special studies. Generally, questions exist regarding the accuracy of most of the long-term data; however, the lengthy data records that are available are needed for their statistical power. In contrast, the accuracy of measurements from short-term special studies is typically high, but the shortness of the records can preclude observation of statistically significant differences between weekdays and weekends. Thus, both types of data were useful.

Routine CARB data from the South Coast, South Central Coast and Mojave Desert air basins were available for 1980-1999. PM₁₀ and TSP are collected once every 6 days, for a 24-hour period. Twenty-four hour averages (computed from hourly measurements) of ozone, CO and NO_x were matched by date to the available PM₁₀ and TSP measurements. These data were split by cool/wet and warm/dry seasons (Oct-March and April-Sept). In some later analyses, we restricted the routine data to sites with at least 10 years of data and at least 21 days per season per year (70%), yielding 15 CO, 17 NO_x, 25 O₃, 9 PM₁₀, and 26 TSP sites. The numbers of sites having at least 50 percent of sampling days during both cool/wet and warm/dry seasons are shown in Table 2 for each year.

Table 2. Number of sites having data from fifty percent or more of data collection days (every sixth day) for both cool/wet season (October-March) and warm/dry season (April-September).

Year	PM ₁₀ mass	PM ₁₀ nitrate	PM ₁₀ sulfate	PM ₁₀ ammonium	TSP sulfate	TSP nitrate
1980	0	0	1	0	35	14
1981	0	0	1	0	37	15
1982	0	0	0	0	35	4
1983	0	0	0	0	37	7
1984	0	9	0	0	40	14
1985	9	16	12	0	45	17
1986	12	19	19	0	38	12
1987	27	20	20	8	36	5
1988	36	23	20	7	34	11
1989	44	26	26	7	29	11
1990	45	29	27	7	25	14
1991	45	29	26	6	17	11
1992	51	30	29	6	17	0
1993	54	31	30	5	18	2
1994	50	29	29	4	16	0
1995	47	25	25	6	16	11
1996	52	30	28	6	14	0
1997	49	24	23	6	13	0
1998	45	24	24	6	13	0
1999	44	17	17	0	13	1

The CADMP operated three sites in southern California (Long Beach, downtown Los Angeles, and Azusa) from 1988 through 1994 on a once-per-six days, twice-a-day (6 am to 6 pm and 6 pm to 6 am) schedule. Because both daytime and nighttime samples were collected, weekday/weekend differences may be investigated separately by day or night. The CADMP sampler employed redundant measurements (both $PM_{2.5}$ and PM_{10} mass and speciation; two separate measures of particulate nitrate and of HNO_3), so it is possible to use measurements whose accuracy is not suspect (as we have done).

The PTEP study provided data from March 1995 through February 1996 at five locations: Anaheim, downtown Los Angeles, Diamond Bar, Fontana, and Riverside. Speciated measurements of both PM_{10} and $PM_{2.5}$ 24-hour samples were made. Gas-phase (ammonia, nitric acid) species were also sampled.