Applicable Reports by Shawn R. Ferreria SJVAPCD

T&B Systems, <u>Adequacy and Validity of Meteorological Measurements</u>

ARB – The ARB data are well suited for analyses due to having a well-established QA program, and at least 114 sites exist within the database. The only limitation with the data is that currently the wind speed is only reported to the nearest 0.447 m/s. This limitation, however, does not appear to significantly affect the representativeness of the data.

BAAQMD – the BAAQMD data is essentially the same in quality as the ARB data, except that the reporting resolution is better. Although no comparisons of the BAAQMD data were made, this dataset are also recommended for use.

CIMIS – This data set should be used with extreme caution. Two significant issues regarding the CIMIS data were noted. First, the fact that wind measurements are made at 2 meters instead of 10 meters appears to result in the reported wind speeds decreasing by about 30% relative to those made at 10 meters. This can be corrected, for the most part, by using the standard power law adjustment. Second, the results brought about significant questions about the alignment of the wind direction system, with possible misalignments as much as 30° noted. This potential problem was noted at a significant number of sites investigated. The QA program for the CIMIS network is not known.

NOAA – No problems were noted with the NOAA data and the data can be used by other researchers with no qualifications.

NWS – The NWS data is limited in that wind speeds are only reported to the nearest 0.447 m/s and wind direction only to the nearest 10°. In addition, wind speed comparisons with a “collocated” NOAA sensor showed significant differences. Based on this, use of the NWS data is not recommended.

PG&E (PG) – PG&E wind data were monitored at several different heights, ranging from 10 to 18 meters. Reporting precision is similar to that of NOAA and CIMIS sites. QA for the PG&E sites requires further investigation. Comparisons with other nearby systems were inconclusive.

RAWS (RA) – The RAWS data was not compared, since the complex terrain where most of these sensors are located is representative of local conditions and as such these sites would not be expected to correlate well.

STI, <u>Final Validation of CCOS Field Data</u>

90 % of the expected sites reported some air quality data

83% of the expected sites reported at least half of the expected air quality parameters

88% of the expected sites reported surface meteorology parameters

About 400 additional surface meteorological sites found

Data from 18 routine monitoring sties and routine VOC measurements from PAMS sites not found.

26 RWP and RASS sites were expected and all were found (some not in reported locations)

None of the expected NEXRAD or routine radiosonde data were found
All 6 aircraft reported dome data (Ozone, NO, NO_y), temperature, wind speed, and wind direction were reported from all aircraft)

No individuals reported performing additional Level 2 or Level 3 data validation steps

At the completion of the automated QC, more than 98% of the data remained valid.

Nearly all surface AQ results were valid

The only surface met data with surface met data with significant data quality issues was total / net radiation (at 3 sites 25% of this data flagged as suspect)

For the aloft met data, only 3 of 28 sites had more than 5 % of data flagged

A significant number of Ozone from UCD flights were flagged as suspect.

Ninety-eight percent of the data residing in the CCOS data archive were determined to be valid

With minor exceptions, the data residing in the CCOS data archive should be ready for use by data analysts and modelers without further consideration of data quality.

San Joaquin Valley APCD, CCOS TC MEETING PRESENTATION ON 10/19/2005

Mass Continuity, Boundary Layer Mixing Height, and Transport Flow between air basins differences between FDDA and non-FDDA model products

Missing RAWS, Buoy, and District Surface Observation Sites

Missing Upper Air Soundings for OAK, RNO

Trimmer boundary layer mixing height too high at night, relative to conceptual model

Maximum temperatures NOAA (FDDA) cool bias, with the (non-FDDA) even cooler bias.

Observed ozone higher than forecast.

Morning eddy flow circulation and up valley flow present in FDDA and not present in non-FDDA

Slope flow timing for both FDDA and non-FDDA slope flow slow by 2 hours

FDDA strengths afternoon up valley flow and morning eddy flow circulations; boundary layer mixing heights closer to what was measured

FDDA weakness mountain slope flow timing is off (slow). Over representing wind fields where surface observations are not numerous

Non-FDDA strengths doesn't over emphasize wind flow fields were surface observations are sparse.

Non-FDDA weakness afternoon up valley flow and morning eddy flow circulations; boundary layer mixing heights are not close to what was measured; mountain slope flow timing off (slow)