Mediterranean-climate regions like California's San Joaquin Valley are subject to severe wintertime particulate pollution affecting public health. We present maps of episodes and particulate diagnostics to aid diagnosis and amelioration. For abatement at sources, we require an understanding of sources and transport. Remote sensing should be of aid, but radiance-to-particle relationships are far different from methods which have been of use in the Eastern USA, Northern and Central Europe. Here are the problems: (a) Thin if very polluted mixed layers (MLs) yield optical depths, AOD, near the detection level, (b) bright and quite variegated surfaces (c) Unusual particle composition (e.g., predominance of NH4NO3 and fireplace buning aerosol), which complicate the relationship of AOD to PM2.5. Specialized analysis of MODIS-Aqua data to obtain AOD using the multi-angle (MAIAC) technique employed by Lyapustin and Wang. Meteorological analyses like NOAA's Rapid Analysis Product (RAP, or newer products like HRRR), which are formulated to remain close to observations (e.g. of water), provide useful ML information corroborated by DISCOVER-AQ in-situ and lidar observations. The many PM2.5 measurements allow a calibration of these products and thus maps of aerosol on many successive aerosol buildups. These calibrations also allow insight into compositional information relevant to MODIS retrievals, the product of aerosol density and specific scattering. We have found that the rich in-situ, lidar, and sun-photometer data sets of NASA'S DISCOVER-AQ data set (2013) of great aid. We will highlight the most interesting of many intercomparisons possible with this rich data set. We conclude with a description of new work to extend these insights to similar regions, e.g. the Imperial Valley of California, the Po Valley and maritime Southern Europe, and the litoral regions of Israel.