Highlighting Monitor: PINN

Pinnacles National Monument

Ventana Wilderness Area

Preliminary Draft
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Feedback appreciated:
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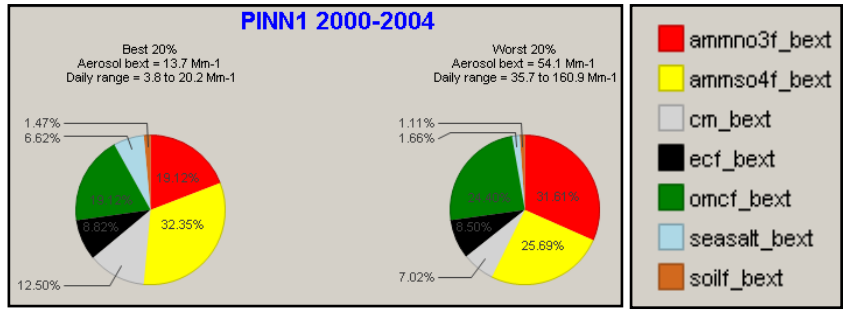

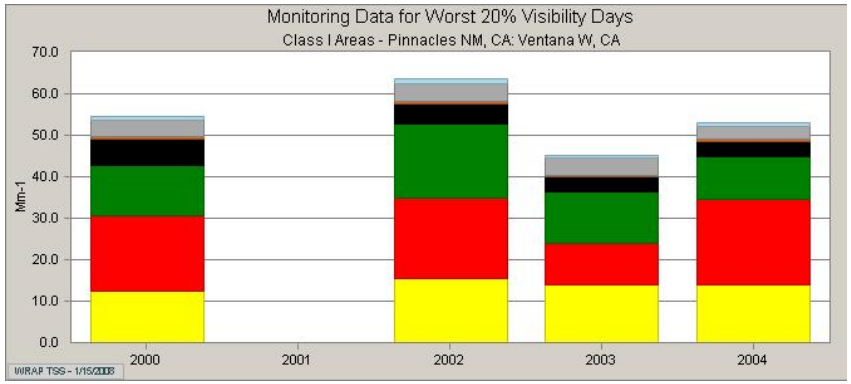

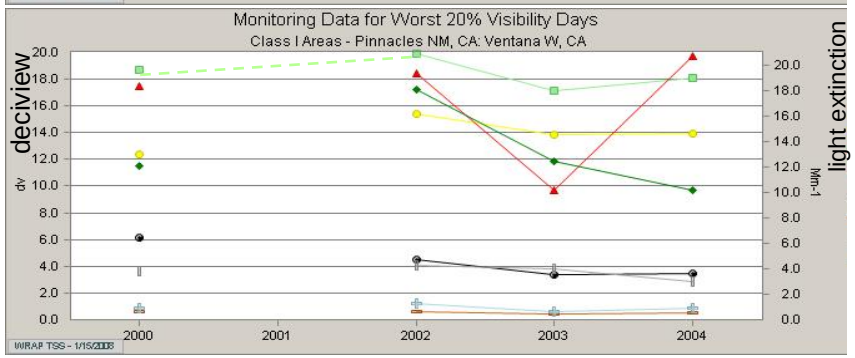

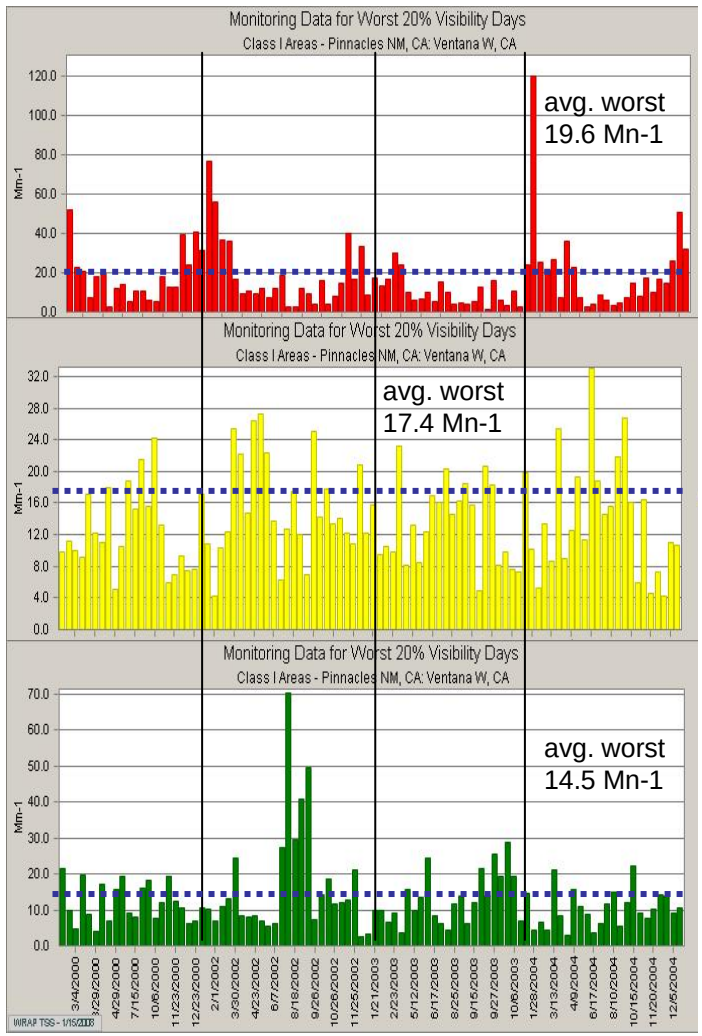

Worst Days occur every month of the year without much variation in monthly average deciview; value is slightly higher in January due to nitrates

Best Days occur throughout year, occasionally none occur in July, August, or September of some years in baseline

Worst Day annual deciview average (18.5 dv) is about twice as high as Best Day annual deciview average (8.9 dv)

Data complete for 2000, 2002, 2003, 2004

Total Deciview (natural logarithm of sum of all light extinctions) and individual species Light Extinction shown together for comparison only

Nitrates, Sulfates, and Organics are key species contributing to light extinction on worst days

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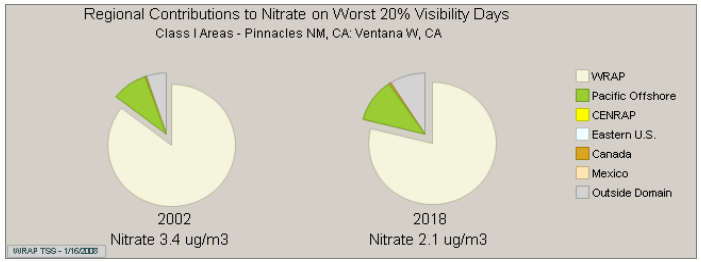
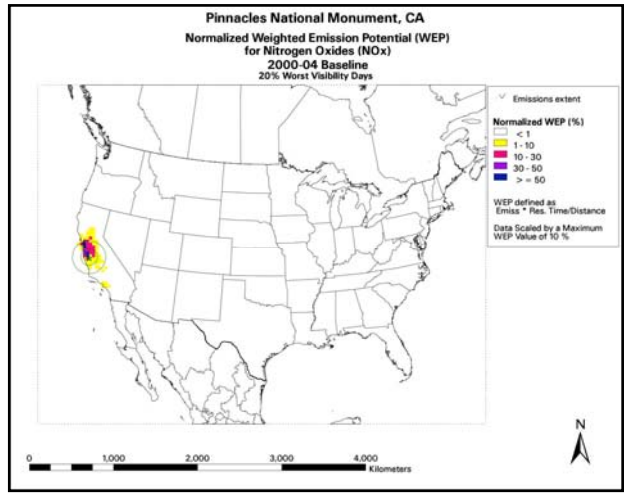
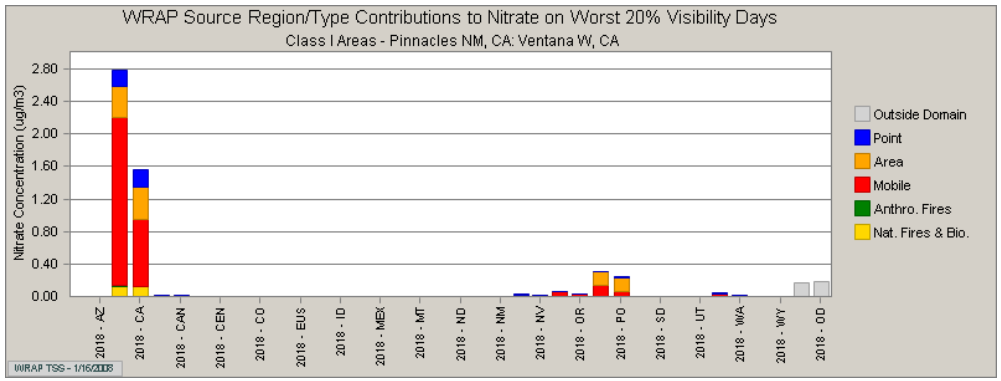
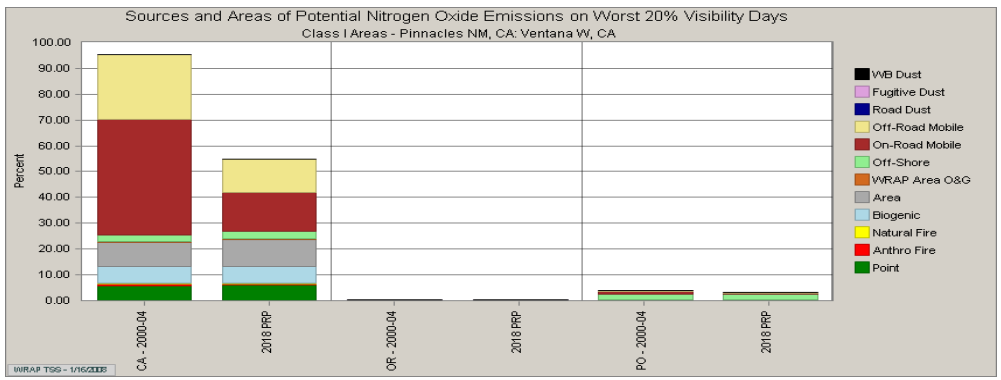


NITRATE contributions from WRAP region will decrease by 2018 due to mobile source control measures that reduce NOx emissions







The chart above shows an estimation of which areas had the most relative potential to generate haze pollutants affecting the PINN monitor due to the inventory of emission sources occurring in a grid and the amount of time an air mass resided in that grid prior to a typical worst day in the baseline years

On worst days, in-state sources appear to have the greatest impact at the PINN Monitor, however air masses from the Pacific and regional ports do reach the monitor on worst days

Pacific Offshore contributions from marine commercial vessel NOx emissions are expected to increase by 2018; the 2018 inventory input to these modeling analyses did NOT include that increase

By holding marine emissions constant at 2002 levels, these analyses focus attention on the improvements to be achieved by the on-shore mobile source controls, both on-road and off-road

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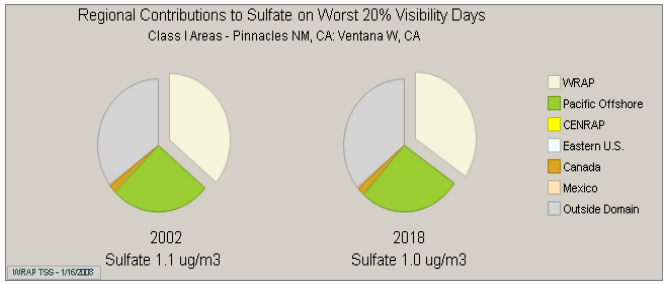
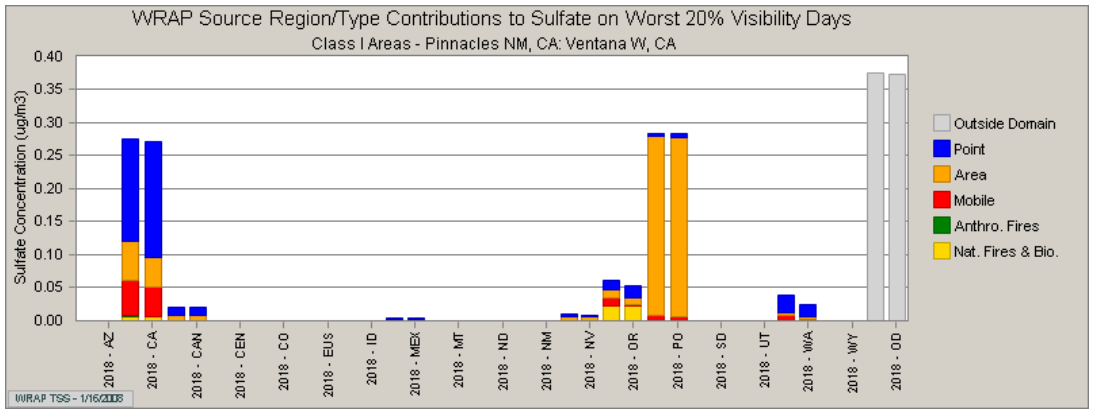
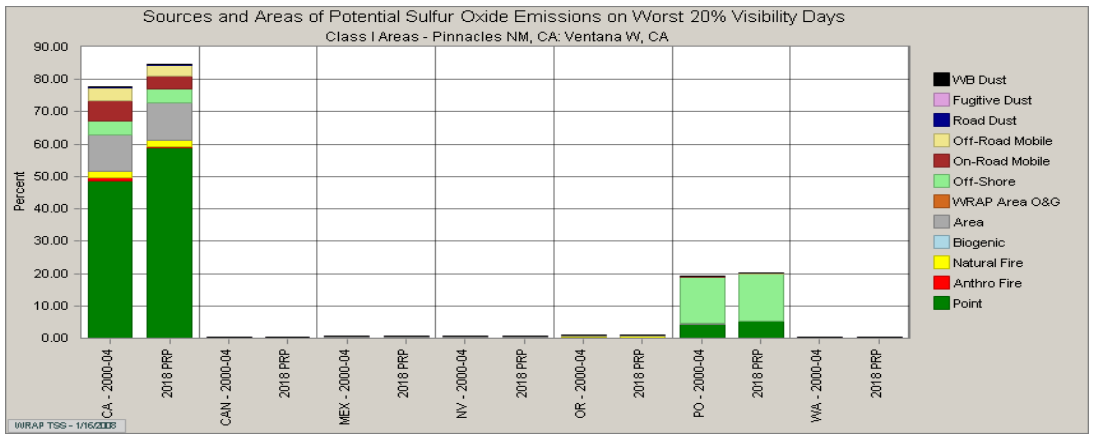
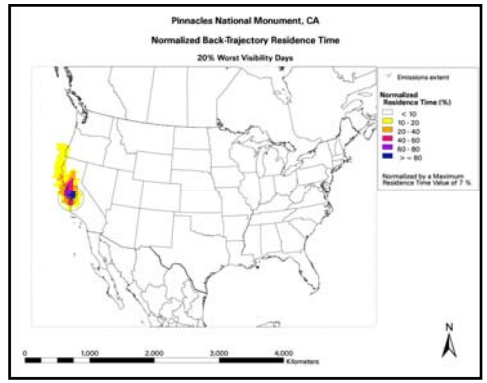


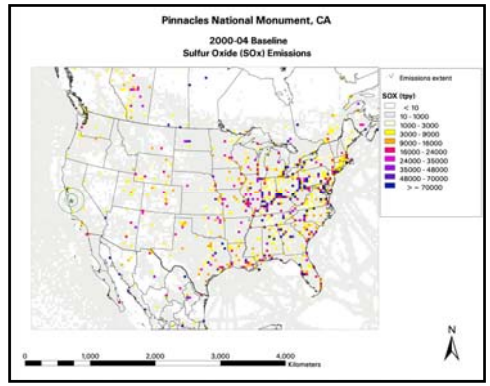
Only one-third of the **SULFATE** sources appear to be in the on-shore WRAP region, including California

Very little change in source areas are expected by 2018 but there appears to be some reductions from the WRAP states









As the mobile source share decreases, the point source share increases

In the topmost map, pre-Worst Days meteorological patterns appear to bring emissions from offshore shipping lanes, the Bay Area, and the Central Valley as well as the immediate central coast air basin

In the lower map, note the tremendous extent of low-level SOx emissions in the ocean shipping lanes which contribute to a constant “background” of persistent sulfates; natural marine biologic activity also generates sulfates

Natural and anthropogenic marine emissions are still being quantified, as well as international transport of industrial and natural emissions from Asia (outside domain)

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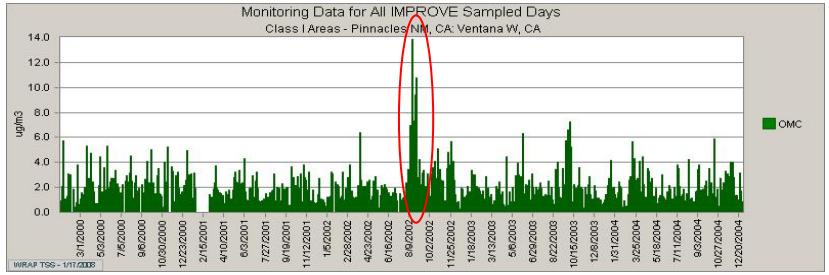
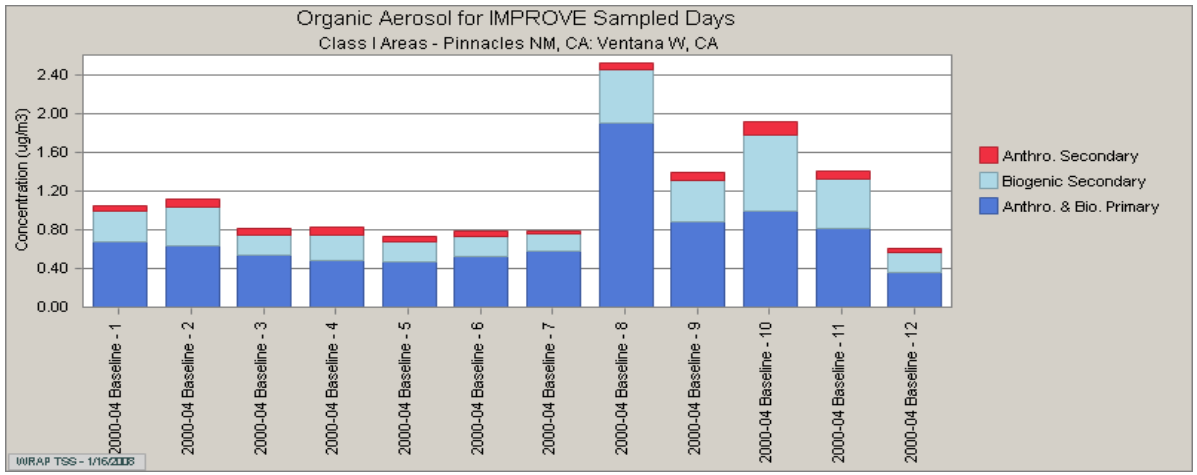
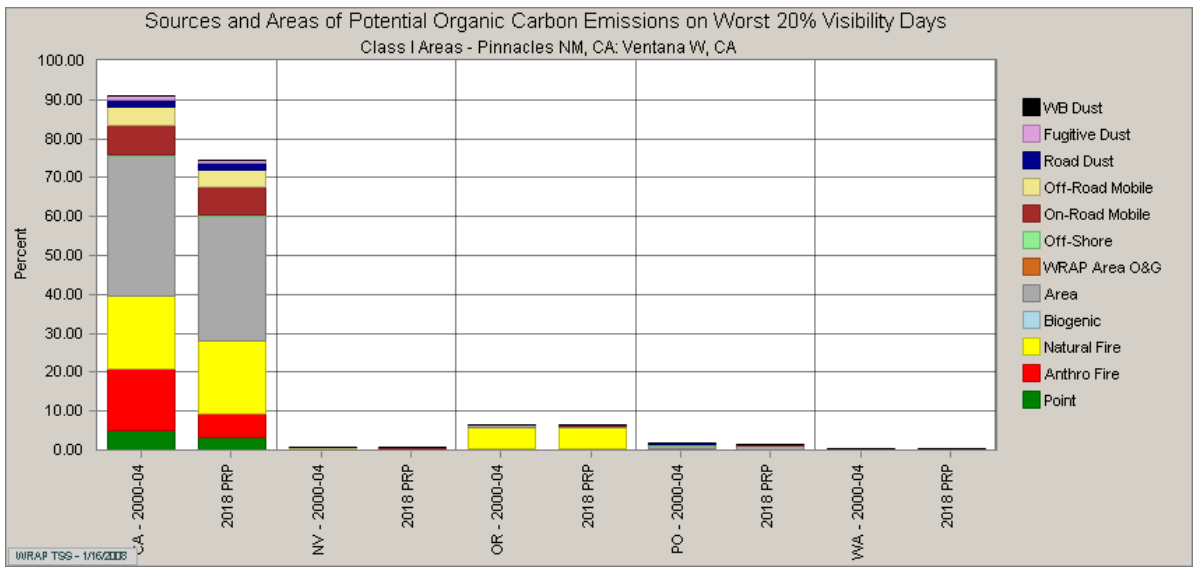


August 10-September 5, 2002: Local wildfire event? Or smoke from Biscuit Fire? Or possibly smoke from McNally Fire?



Typically, primary and secondary emissions increase from August to the end of the dry season due to plant emissions and natural wildfires

Slight increase in anthropogenic emissions in October and Spring could be due to agricultural and prescribed burning



Slight decrease in CA area sources on worst days may be due to VOC control measures

Note that "biogenics" are listed but not included in the emissions inventory in the WEP analysis chart (bottom left); biogenics are ~18% of the total organic carbon inventory for the North Central Coast Air Basin

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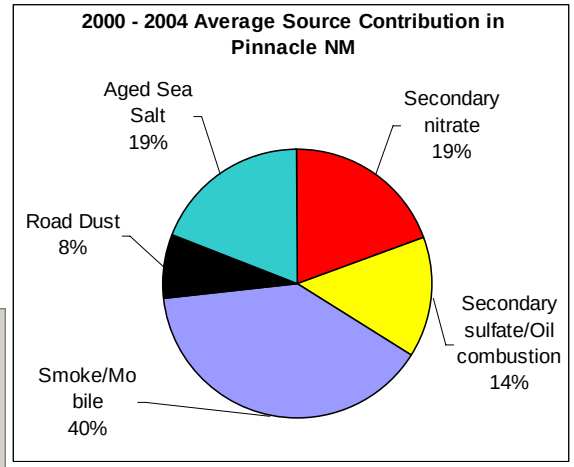

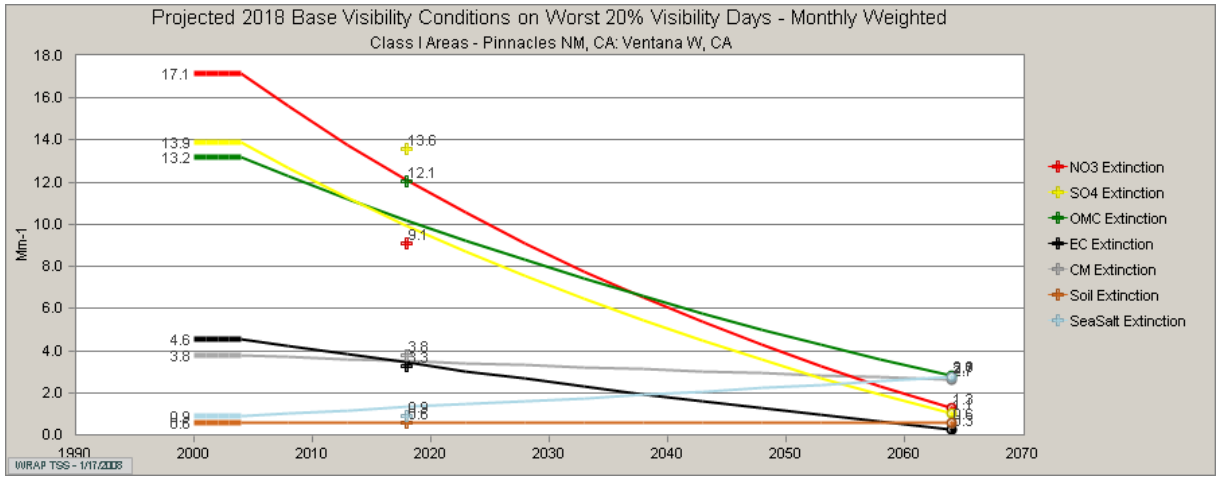

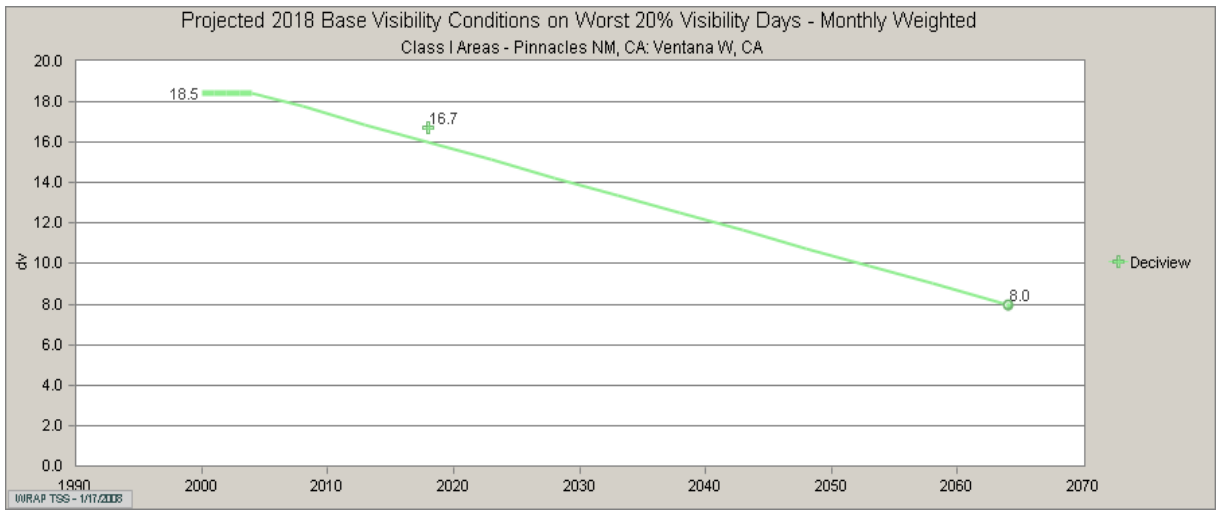

Dramatic reductions of in-state mobile source emissions have most benefit, especially for decreasing nitrate formation

Other species are often from sources beyond direct control, therefore reductions progress more slowly

Note that sea salt will have increasing influence on visibility as anthropogenic sources are reduced

Preliminary Reasonable Progress Goal for 2018 is 16.7 deciviews

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