

APPENDIX 5.

Summary of Visibility Data for Colorado

**Source: Long-Term Strategy Review and Revision of Colorado's
State Implementation Plan for Class I Visibility Protection
October 31, 2001**

FIGURES 1 THROUGH 20

These data, plots and graphs were downloaded from the IMPROVE web site before December 15, 2001 and reflect information available as of that date.

Note: The 20% worst days are generally associated with poor meteorology and emissions from sources, while the 20% best days are generally equated to favorable meteorology and low emissions. Many times natural sources, such as fire, windblown dust, or biogenic emissions are contributors to episodes of poor visibility.

Note: These data contain emissions from natural and anthropogenic sources. Natural emissions may be more significant in some categories, such as the geologic and organic carbon categories.

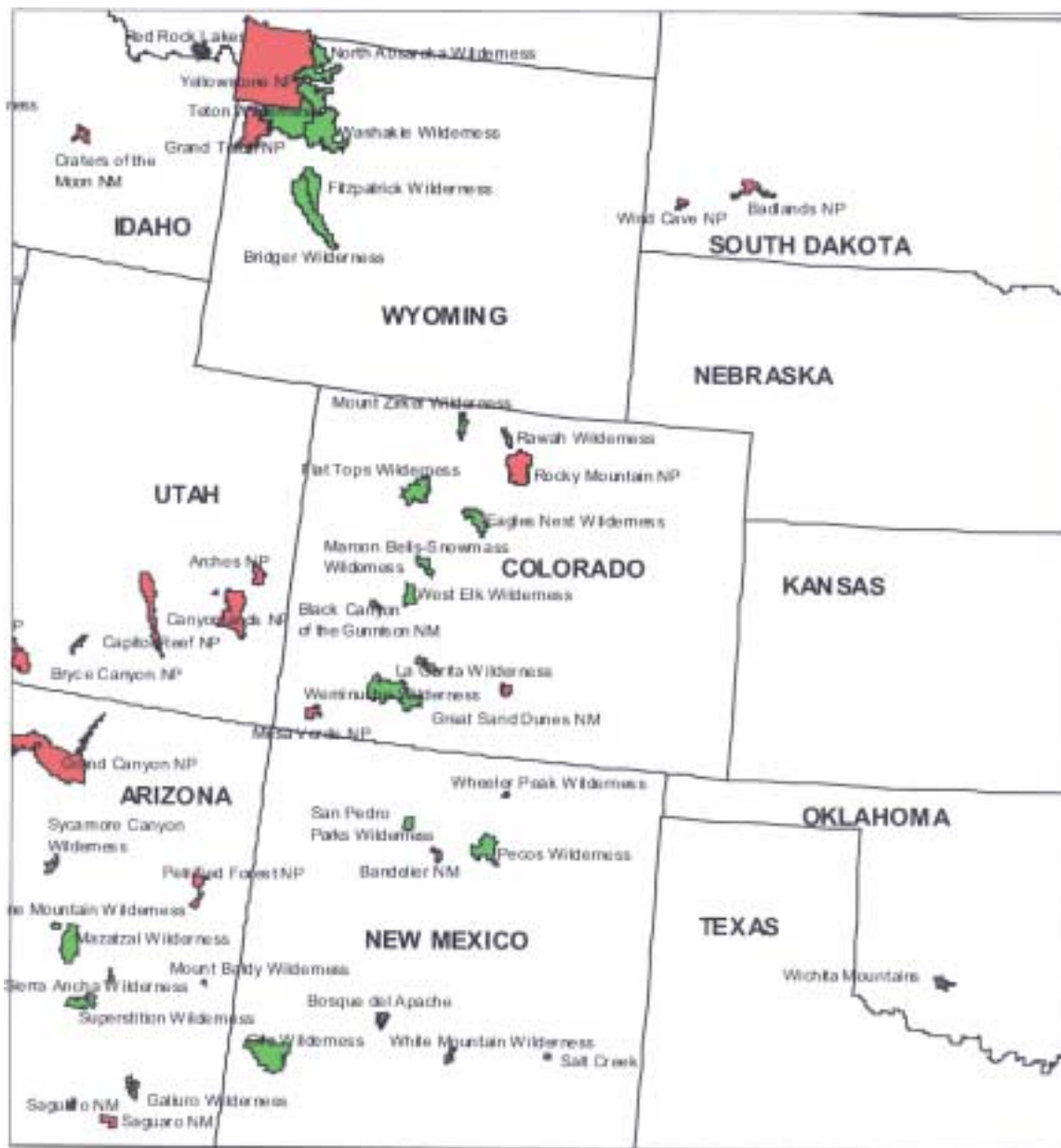


Figure 1: Class I Areas in Colorado and in Other Nearby Western States.

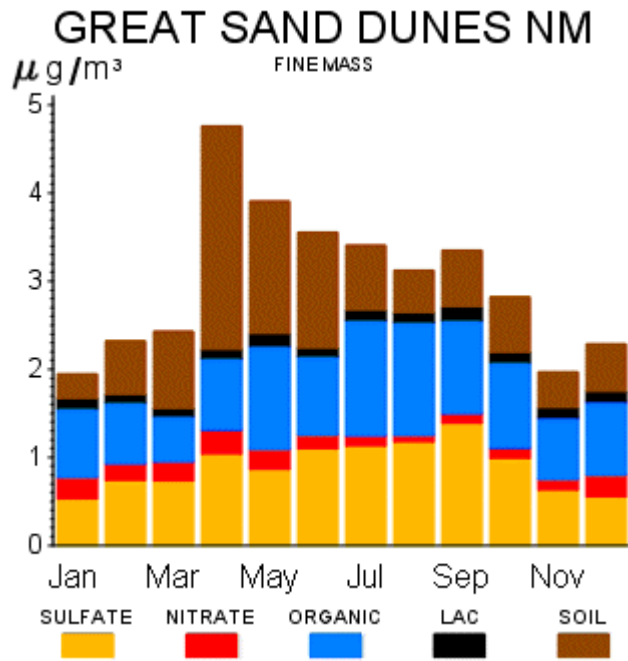


Figure 2: Great Sand Dunes - monthly reconstructed fine particle mass and budgets from the IMPROVE monitoring site, March 1996 through February 1999.

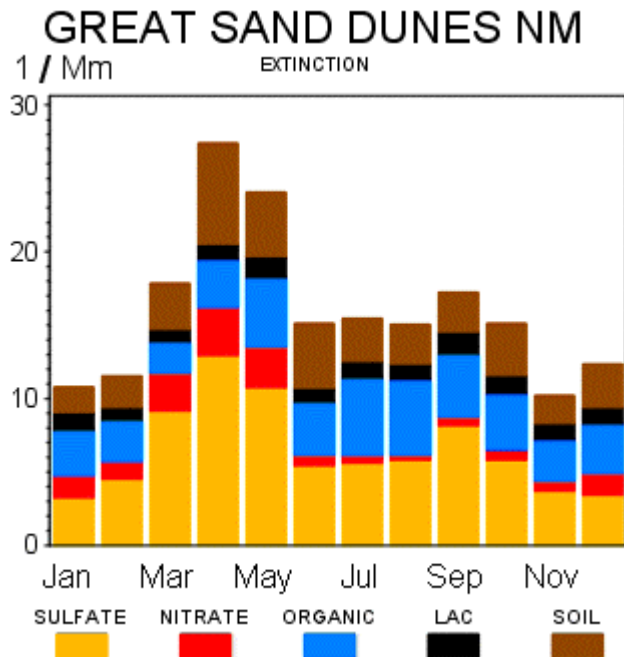


Figure 3: Great Sand Dunes - monthly reconstructed extinction and budgets from the IMPROVE monitoring site, March 1996 through February 1999.

Great Sand Dunes NP

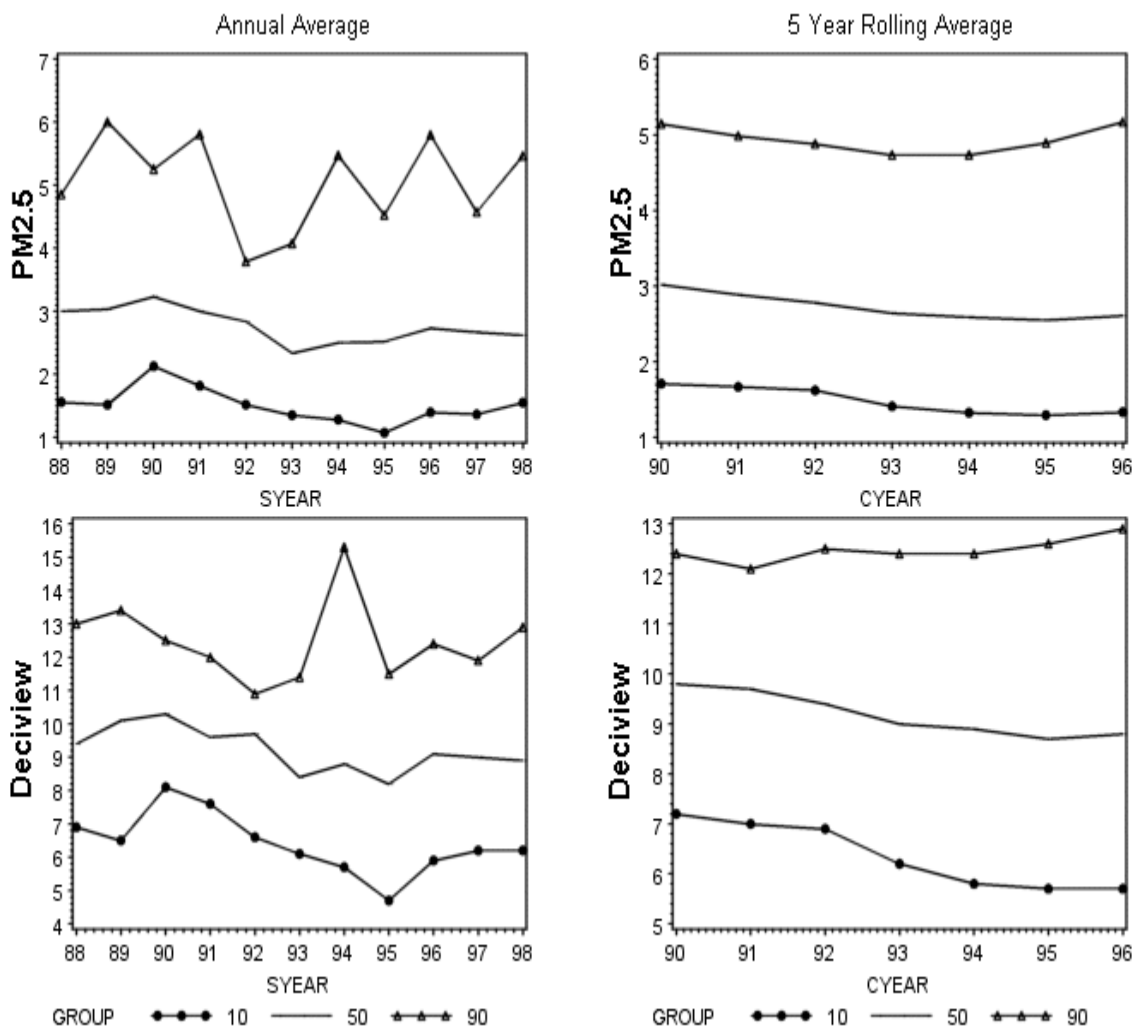


Figure 4: Great Sand Dunes – trends in annual and five-year rolling averages for PM2.5 and deciview.

Note: “Group 10” is the average of the 20% best days in any given year. “Group 90” is the average of the 20% worst days in any given year.

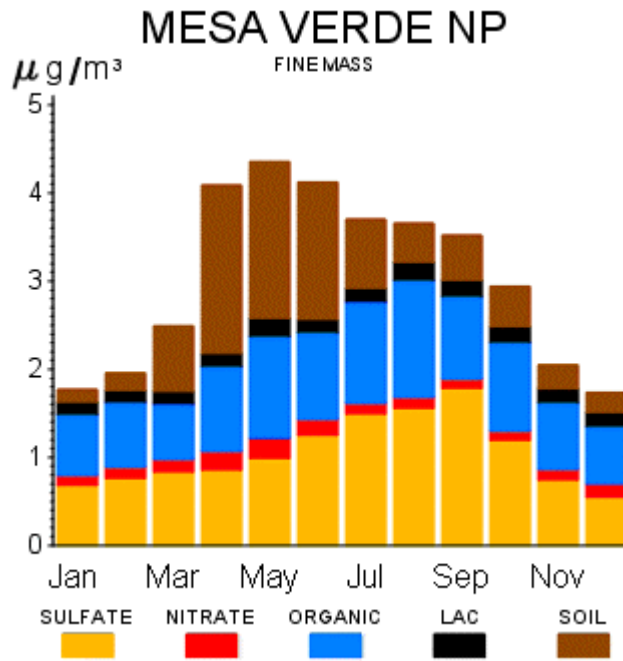


Figure 5: Mesa Verde National Park - monthly reconstructed fine mass and budgets from the IMPROVE monitoring site, March 1996 through February 1999.

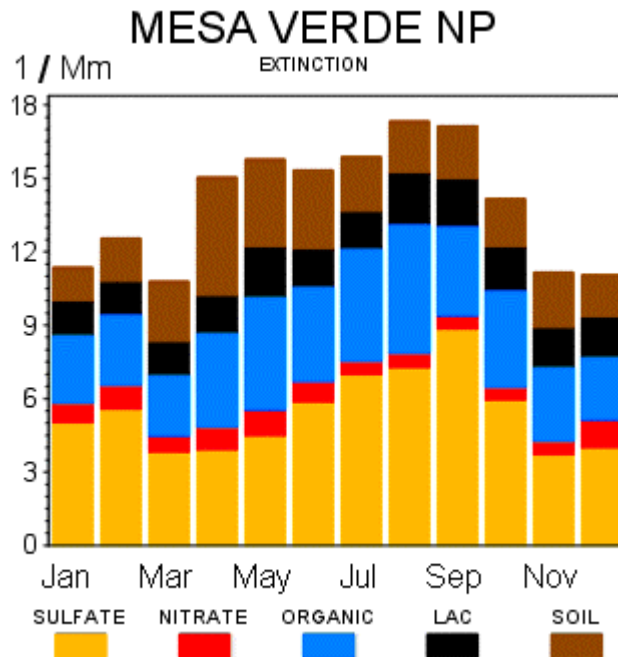


Figure 6: Mesa Verde National Park - monthly reconstructed extinction and budgets from the IMPROVE monitoring site, March 1996 through February 1999.

Mesa Verde NP

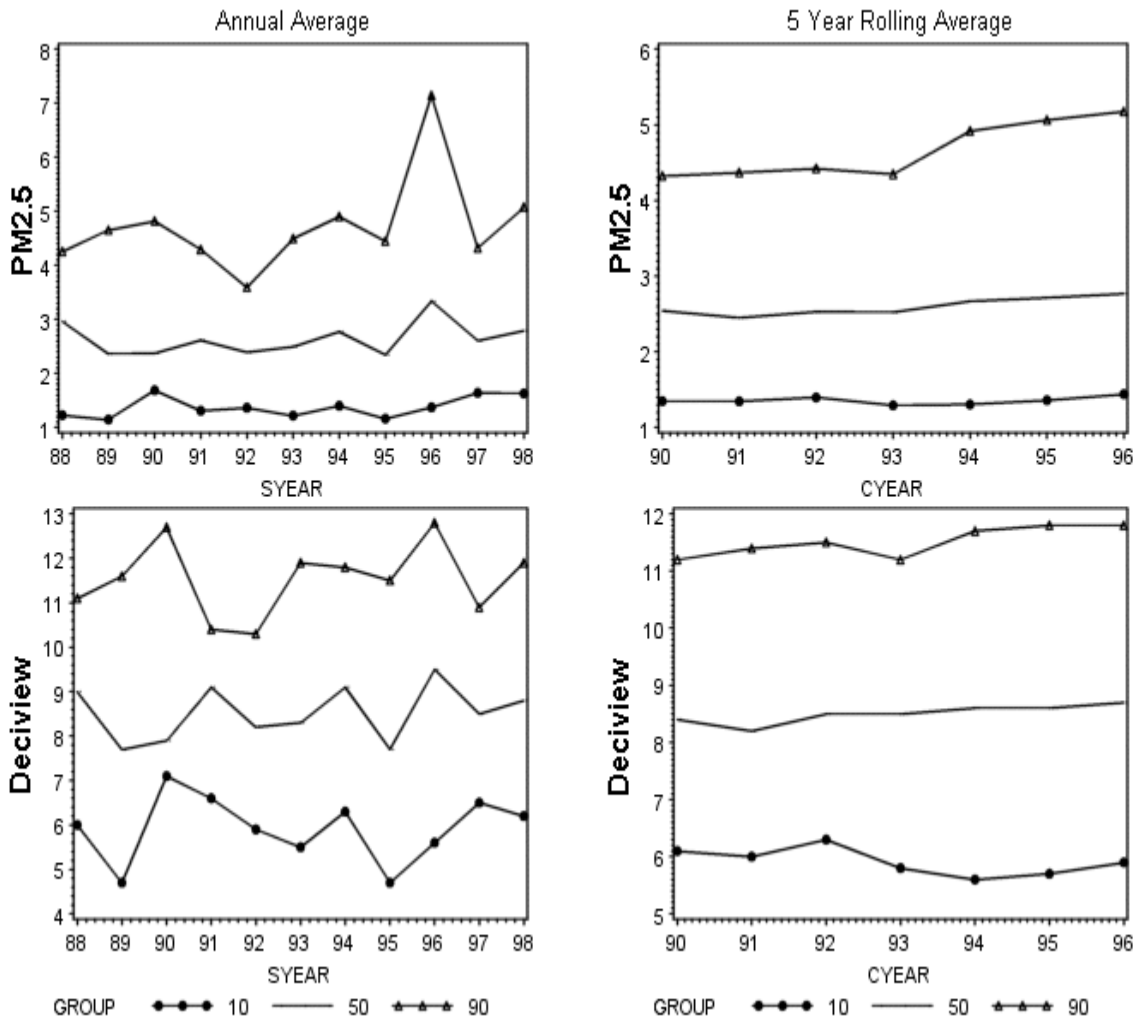


Figure 7: Mesa Verde National Park – trends in annual and five-year rolling averages for PM2.5 and deciview.

Note: “Group 10” is the average of the 20% best days in any given year. “Group 90” is the average of the 20% worst days in any given year.

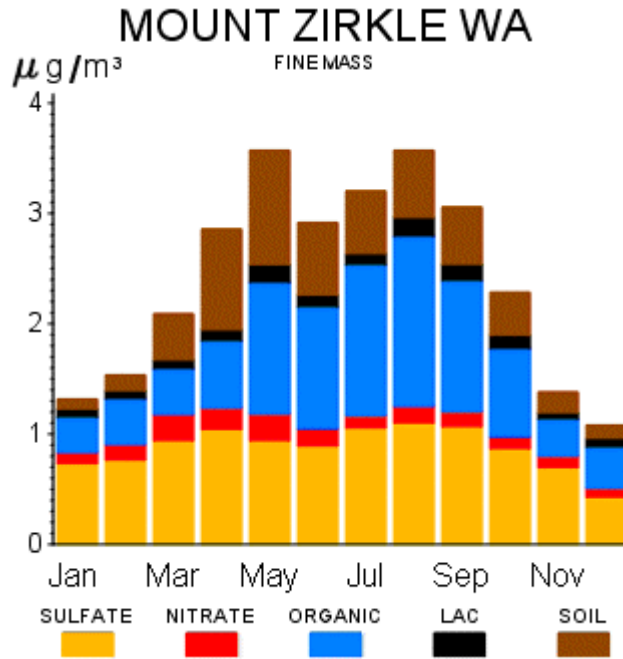


Figure 8: Mt. Zirkel Wilderness Area - monthly reconstructed fine mass and budgets from the IMPROVE monitoring site, March 1996 through February 1999.

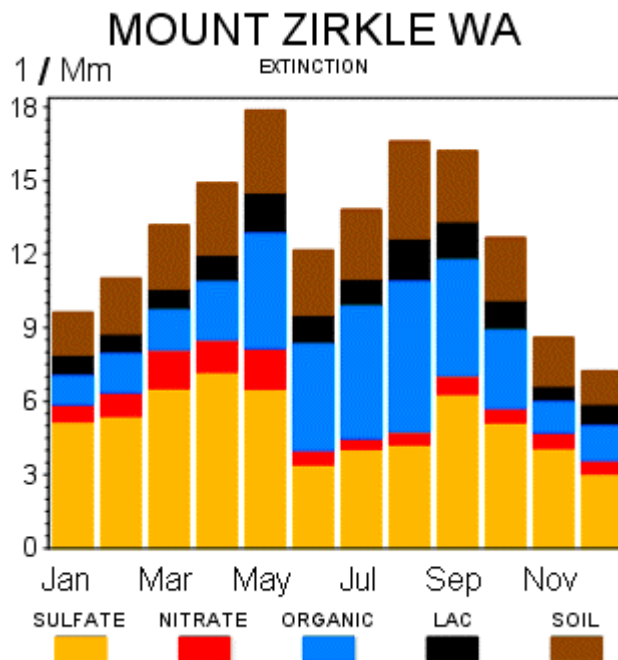


Figure 9: Mt. Zirkel Wilderness Area - monthly reconstructed extinction and budgets from the IMPROVE monitoring site, March 1996 through February 1999.

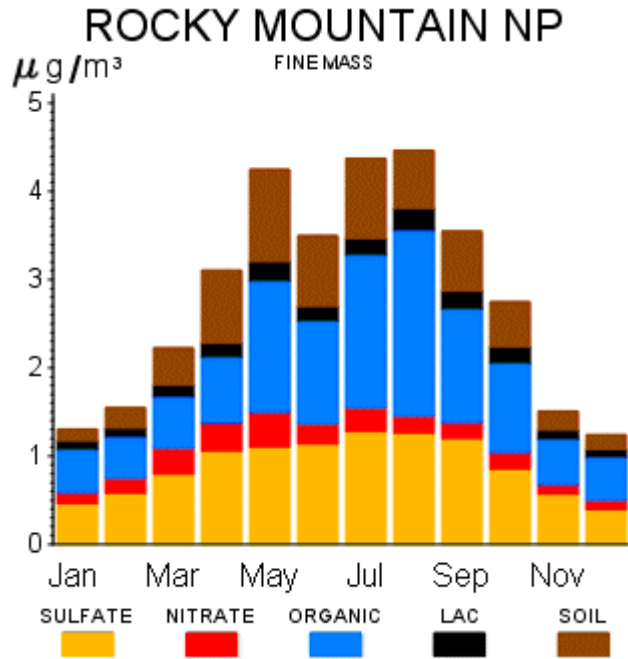


Figure 10: Rocky Mountain National Park - monthly reconstructed fine mass and budgets from the IMPROVE monitoring site, March 1996 through February 1999.

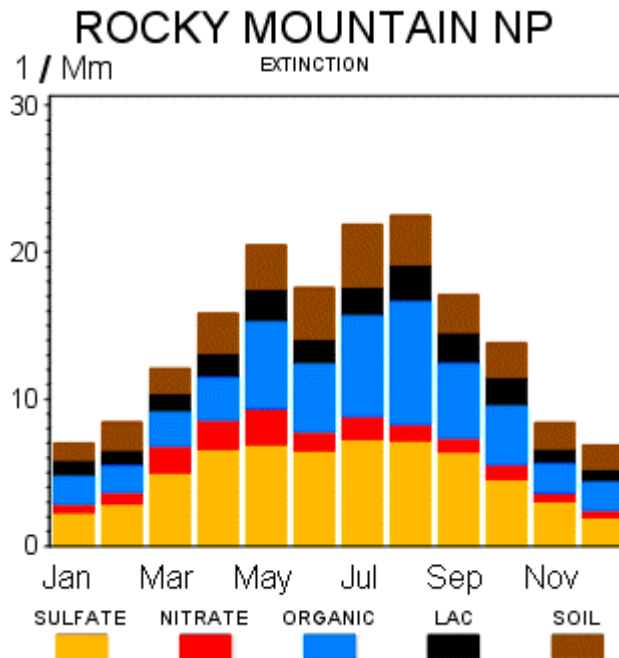


Figure 11: Rocky Mountain National Park - monthly reconstructed extinction and budgets from the IMPROVE monitoring site, March 1996 through February 1999.

Rocky Mountains NP

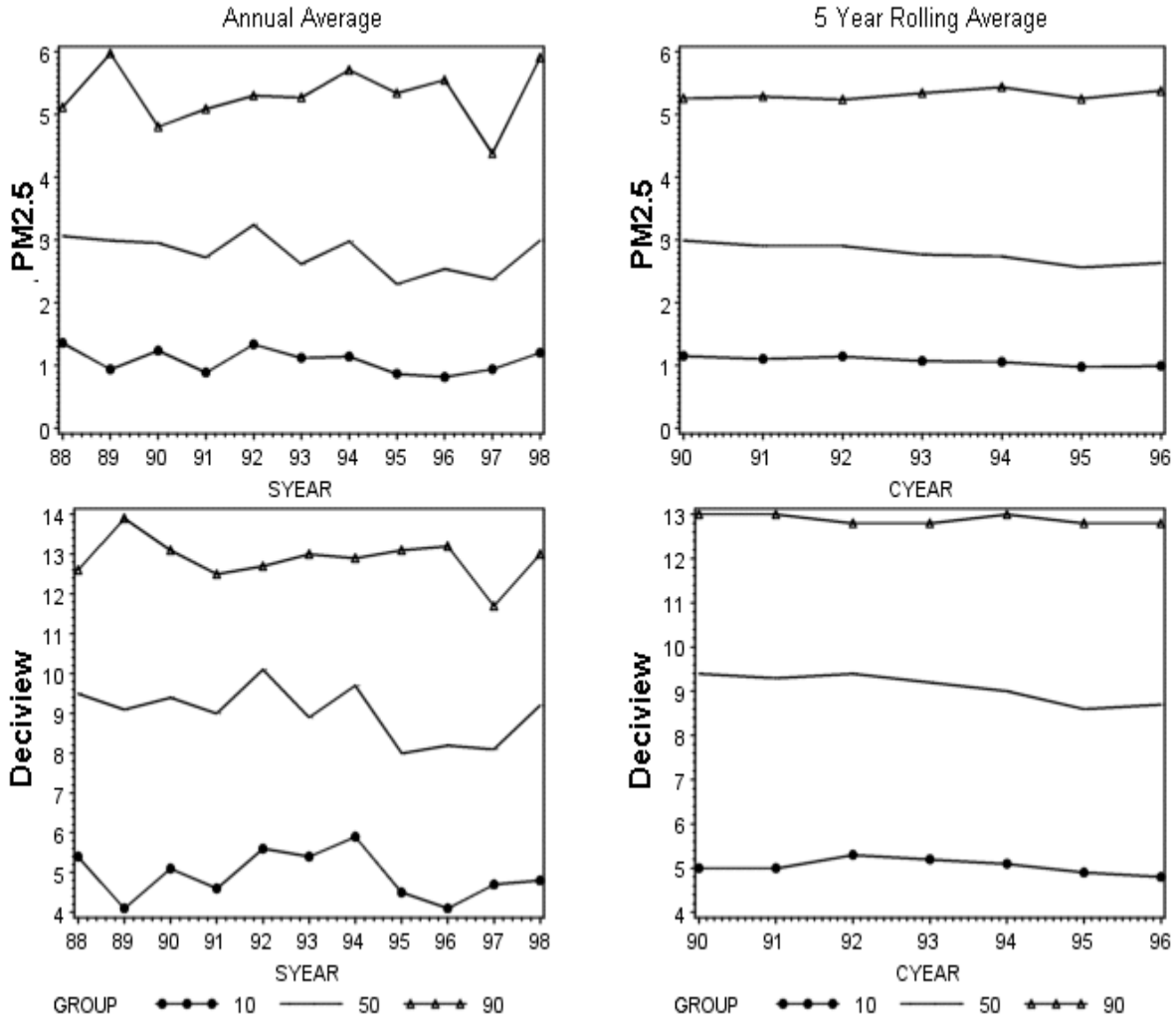


Figure 12: Rocky Mountain National Park – trends in annual and five-year rolling averages for PM2.5 and deciview.

Note: “Group 10” is the average of the 20% best days in any given year. “Group 90” is the average of the 20% worst days in any given year.

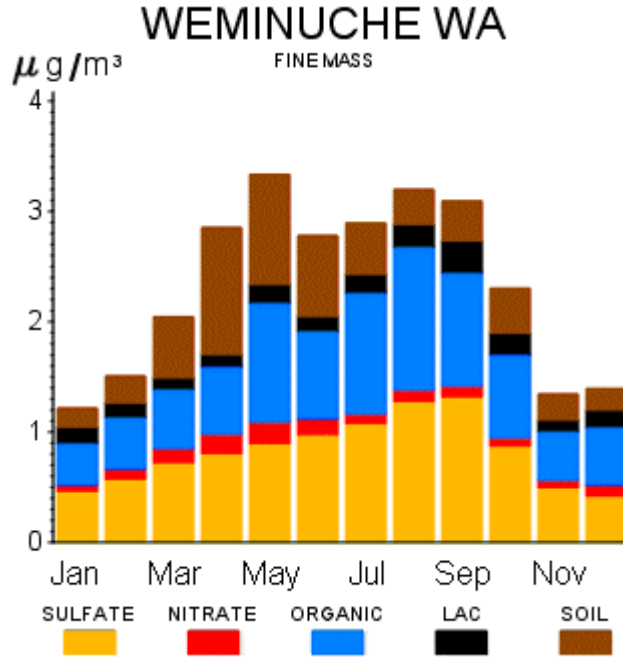


Figure 13: Weminuche Wilderness Area - monthly reconstructed fine mass and budgets from the IMPROVE monitoring site, March 1996 through February 1999.

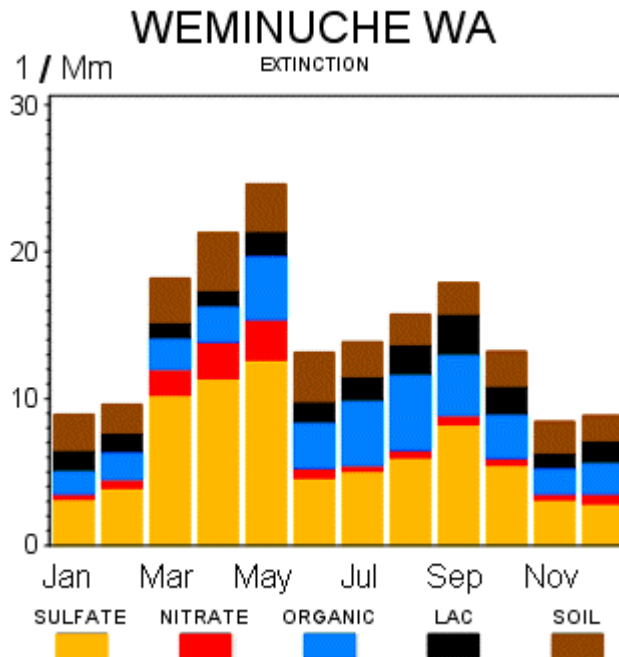


Figure 14: Weminuche Wilderness Area - monthly reconstructed extinction and budgets from the IMPROVE monitoring site, March 1996 through February 1999.

Weminuche WA

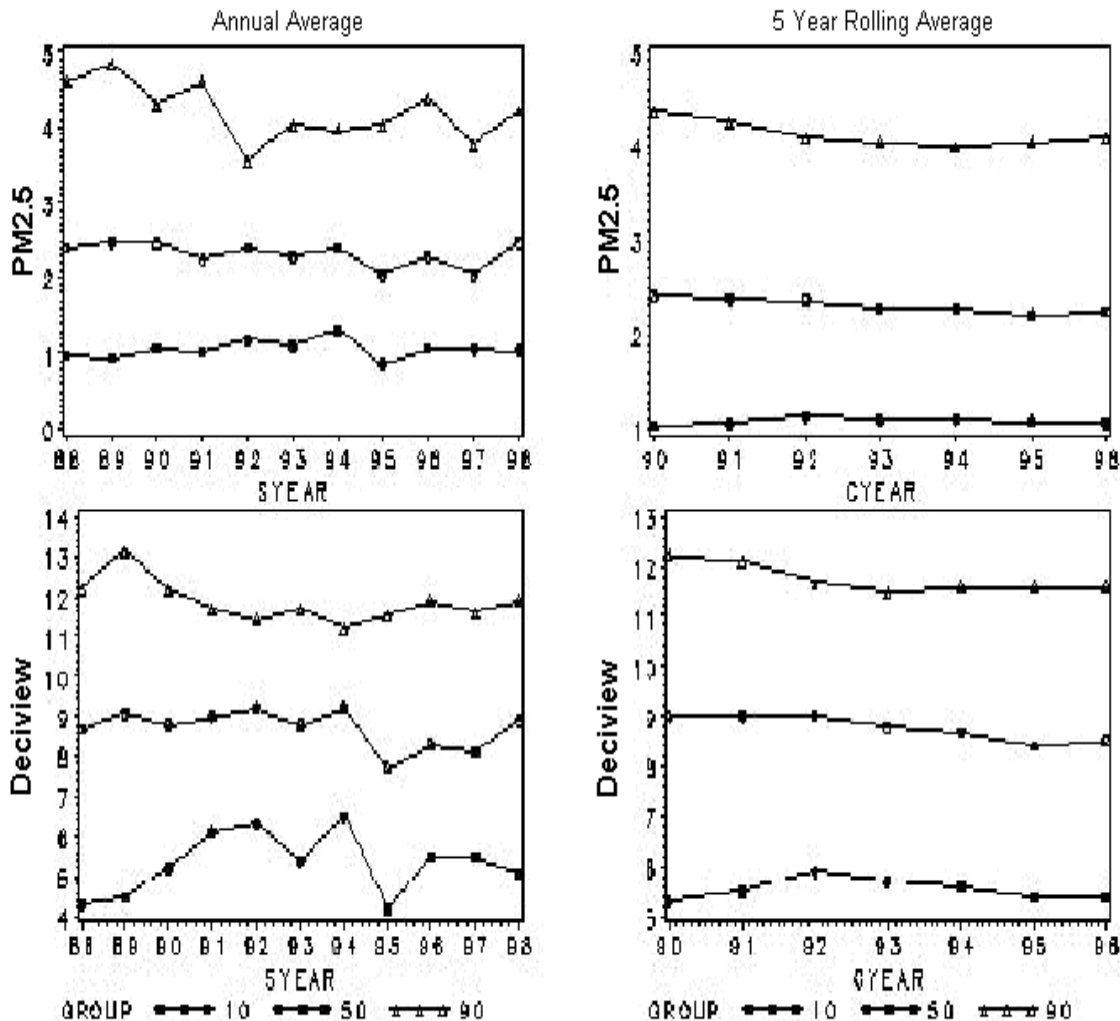


Figure 15: Weminuche Wilderness Area – trends in annual and five-year rolling averages for PM2.5 and deciview.

Note: “Group 10” is the average of the 20% best days in any given year. “Group 90” is the average of the 20% worst days in any given year.

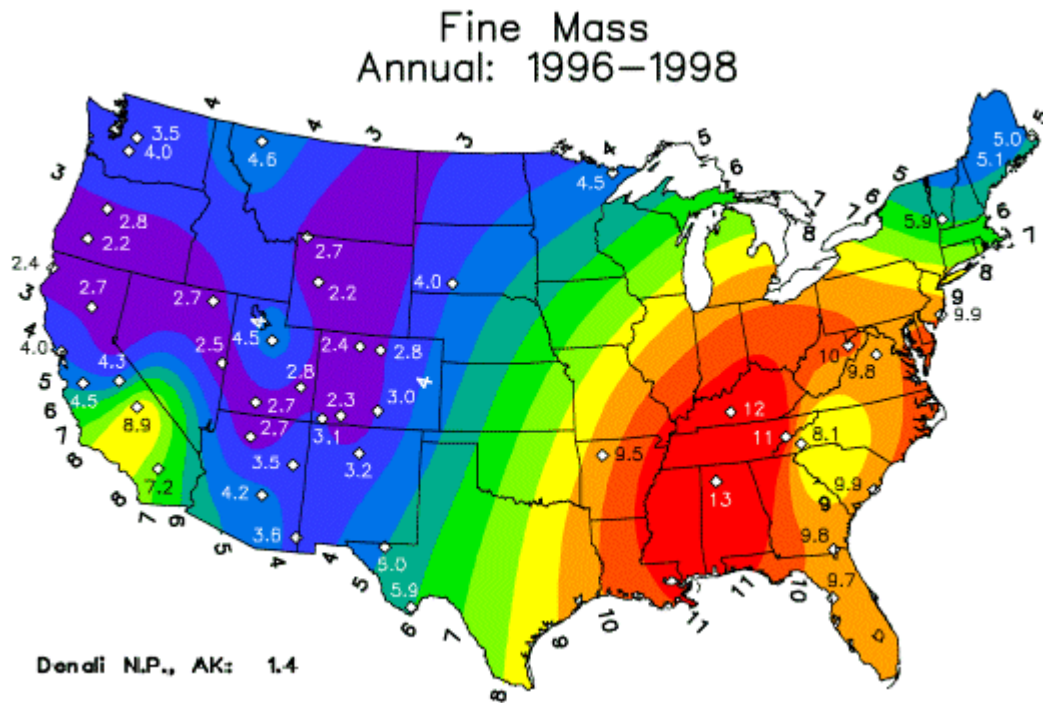


Figure 16: Annual average fine particle mass based on IMPROVE monitoring sites.

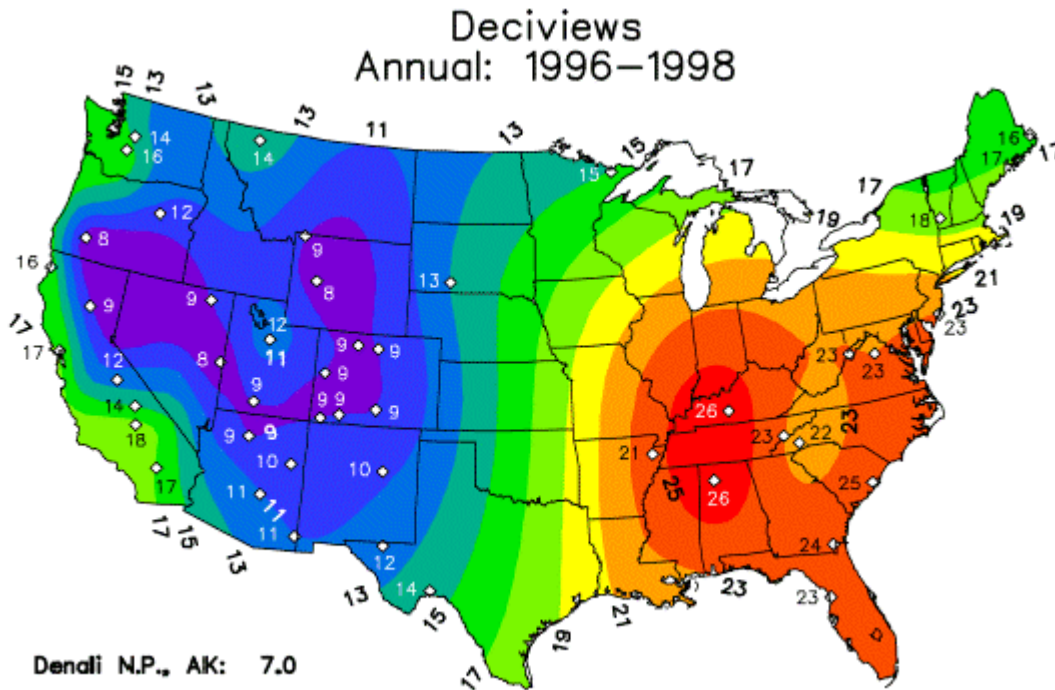


Figure 17: Annual average deciview based on IMPROVE monitoring sites.

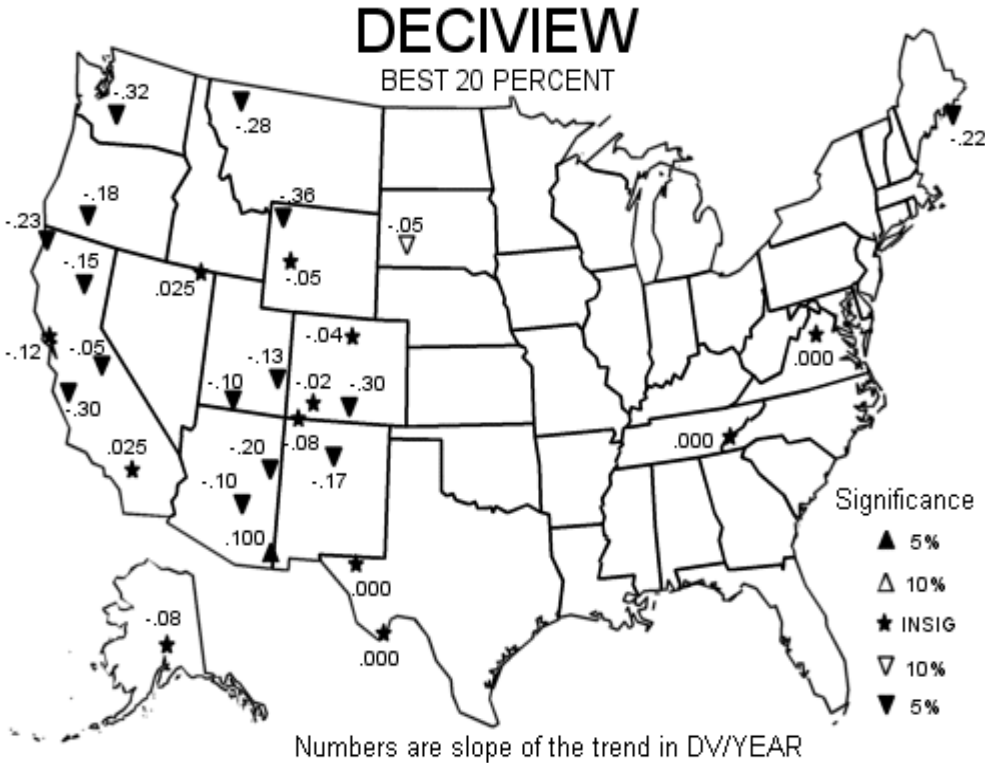


Figure 18: Map summarizing the trends in deciview (dv/yr) for the best 20% of the days monitored at each site. The icons mark the site locations. A star indicates an insignificant slope. An upward triangle indicates a worsening trend toward increased haziness. A downward triangle indicates a trend toward improving visibility. Empty triangles indicate a trend that is significant in the range of $0.05 < p \leq 0.1$ level of probability. Filled triangles indicate a trend that is significantly better than 0.05 ($p \leq 0.05$) level of probability.

Note: The test for significance does not include any quantification in the accuracy or precision of measurements. Since visibility is defined through the multiple measurements, the overall uncertainty is the sum of the uncertainty of the individual components.

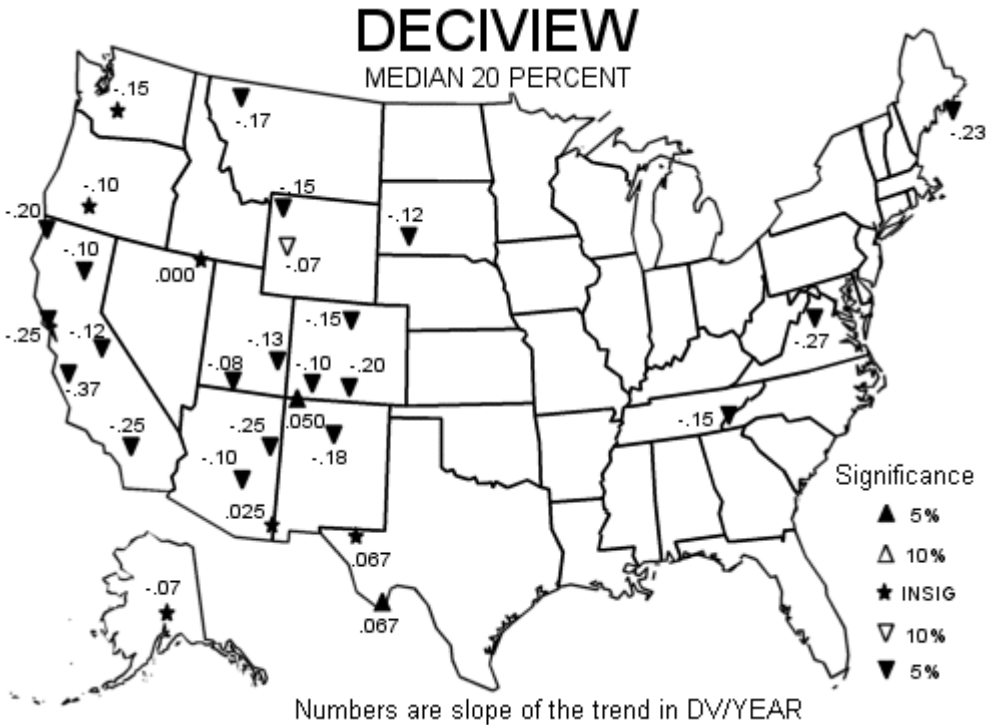


Figure 19: Map summarizing the trends in deciview (dv/yr) for the median 20% of the days monitored at each site. The icons mark the site locations. A star indicates an insignificant slope. An upward triangle indicates a worsening trend toward increased haziness. A downward triangle indicates a trend toward improving visibility. Empty triangles indicate a trend that is significant in the range of $0.05 < p \leq 0.1$ level of probability. Filled triangles indicate a trend that is significantly better than 0.05 ($p \leq 0.05$) level of probability.

Note: The test for significance does not include any quantification in the accuracy or precision of measurements. Since visibility is defined through the multiple measurements, the overall uncertainty is the sum of the uncertainty of the individual components.

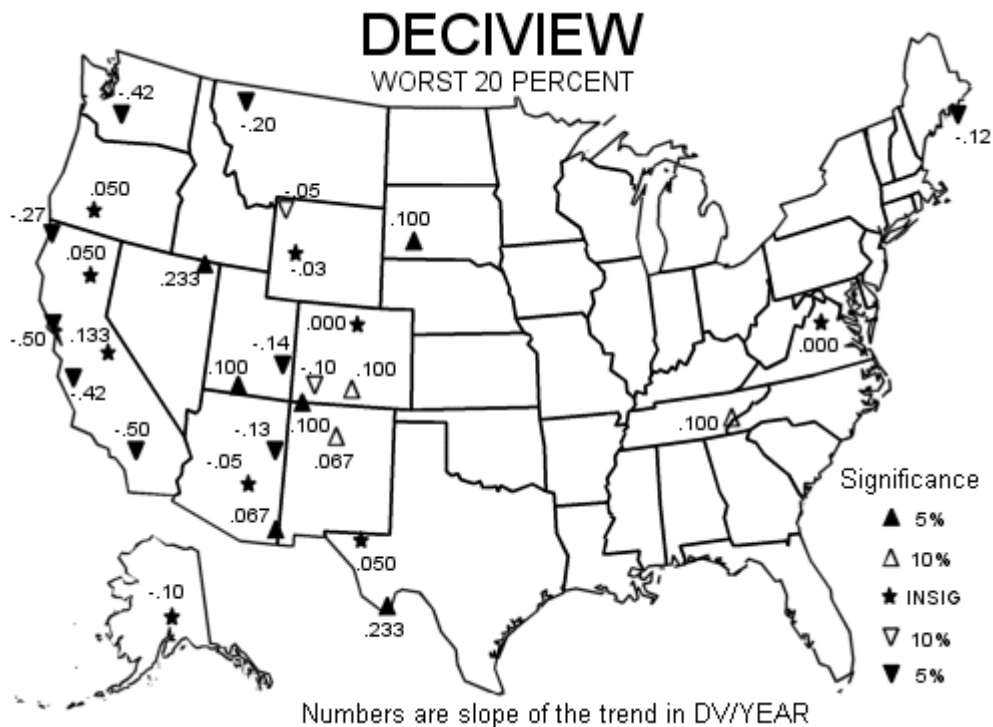


Figure20: Map summarizing the trends in deciview (dv/yr) for the worst 20% of the days monitored at each site. The icons mark the site locations. A star indicates an insignificant slope. An upward triangle indicates a worsening trend toward increased haziness. A downward triangle indicates a trend toward improving visibility. Empty triangles indicate a trend that is significant in the range of $0.05 < p \leq 0.1$ level of probability. Filled triangles indicate a trend that is significantly better than 0.05 ($p \leq 0.05$) level of probability.

Note: The test for significance does not include any quantification in the accuracy or precision of measurements. Since visibility is defined through the multiple measurements, the overall uncertainty is the sum of the uncertainty of the individual components.