Ambient Monitoring Network Assessment

EPA Region 9

Atlanta, GA OAQPS/RO conference

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Region 9 Monitoring Contacts

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Region 9 Assessment Protocol

- Regional Workshops held in early 2002 to gain State & local agency input
- Prioritized pollutants: Ozone, PM2.5, PM10
- We applied the National assessment measures regionally:
  - California – by air basin
  - Arizona, Nevada – by county
  - Hawaii – by island

Region 9 Assessment Protocol (cont.)

- Adopted National Assessment recommendations for CO, NO2, SO2, Pb
- Final product is a proposed network, including redeployment opportunities

Five Measures Used

- Pollutant Concentration
- Estimation Uncertainty
- Deviation from NAAQS
- Spatial Coverage
- Population per Station

Five Measures Used (cont.)

- Each area network (air basin, county, or island) was analyzed using each of the five metrics
- The results were then aggregated to obtain the final index value used for ranking the monitors

Measuring Pollutant Concentration

The metrics and years used for the three concentration based measures were:

Pollutant	Primary NAAQS	Surrogate Metric used for this assessment
O3	Maximum daily 1-hour	1995-97 & 1998-2000 3-year average of annual 2nd daily max 1-hour
	4th Maximum Daily 8-hour Average	1995-97 & 1998-2000 3-year average annual 4th daily max 8-hour

Measuring Pollutant Concentration

The metrics and years used for the three concentration based measures were:

Pollutant	Primary NAAQS	Surrogate Metric used for this assessment
$PM_{2.5}$	Annual Arithmetic Mean	1999-2000 2-year average of annual means
	24 - Hour	1999-2000 2 year average of annual 98^{th} percentiles
PM_{10}	Annual Arithmetic	1998-2000 3 year average of annual means
	24 – Hour	1998-2000 3-year average of daily second maximum values

Nat'l Assessment Results Applied to Region 9

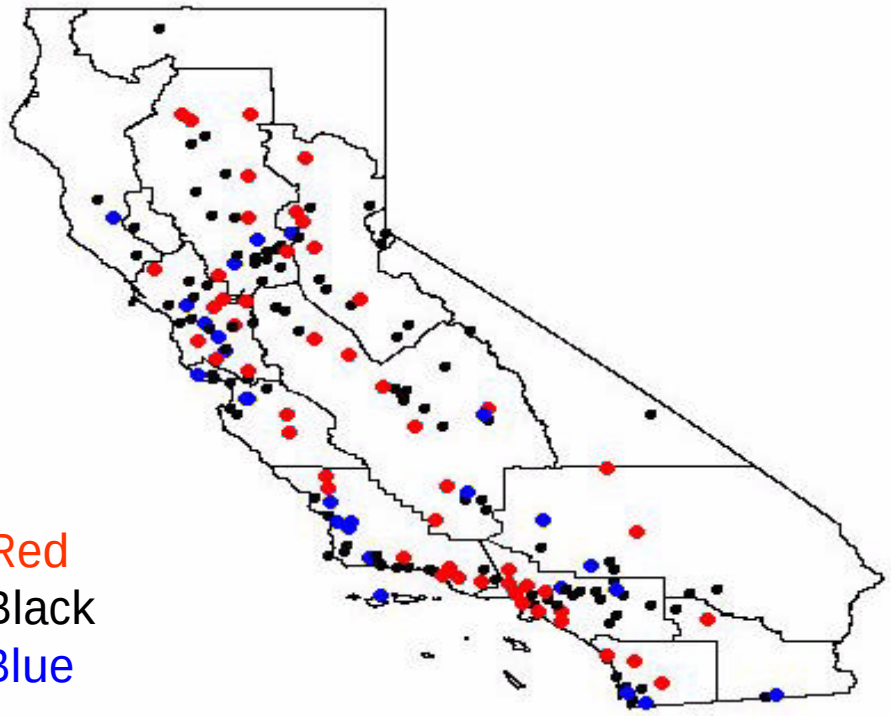
- Outputs from National Assessment were used – data were not updated
- Quartiles were recomputed at Air Basin levels
- Although quartiles were recomputed at Basin levels, the computations for uncertainty and sampling zone (area/pop.) used all nearby sites.

Nat'l Assessment Results Applied to Region 9

- Keep in mind...a Blue site in one basin may actually be more "important" (e.g. higher concentration, closer to NAAQS, higher uncertainty, more area represented and/or more population represented) than a Red site in a different Basin!
  - Site 060190010, '98-'00 avg. 4th Max Ozone=.091
    - National rank 251/1100 = ●
    - California Rank 63/184 = ●
    - San Joaquin Valley Basin 20/25 = ●

CA Air Basins

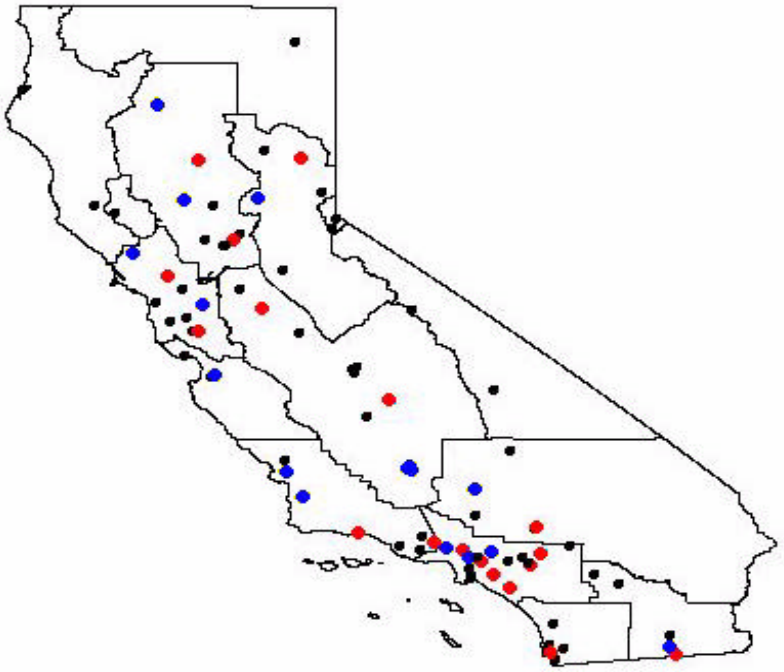
O_3 Aggregate- Equal Weight for all Measures



High Value ($\geq$75th percentile) – Red
Median (26 – 74th percentile) – Black
Low Value ($\leq$ 25th percentile) - Blue

CA Air Basins

$PM_{2.5}$ Aggregate- Equal Weight for all Measures



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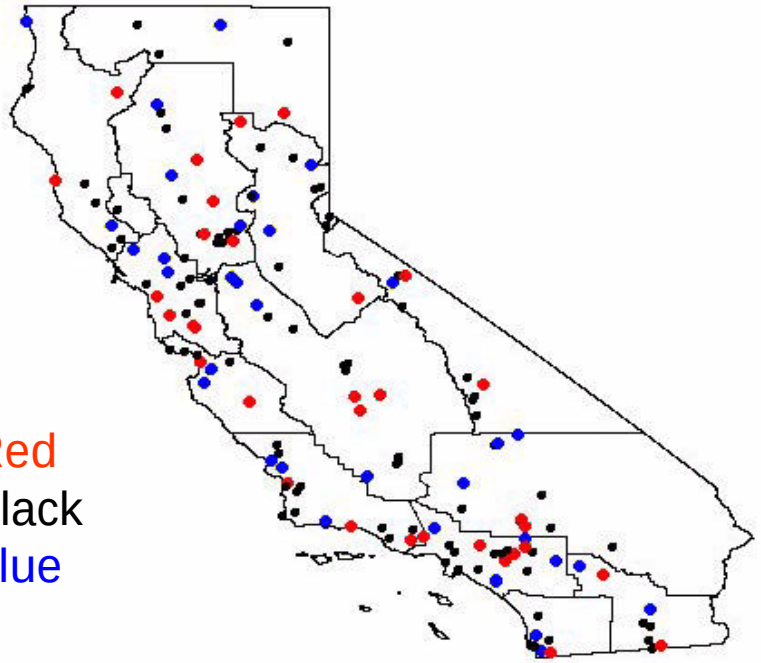
CA Air Basins
PM_{10} Aggregate- Equal Weight for all Measures



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Region 9 Assessment
Recommended Network Changes

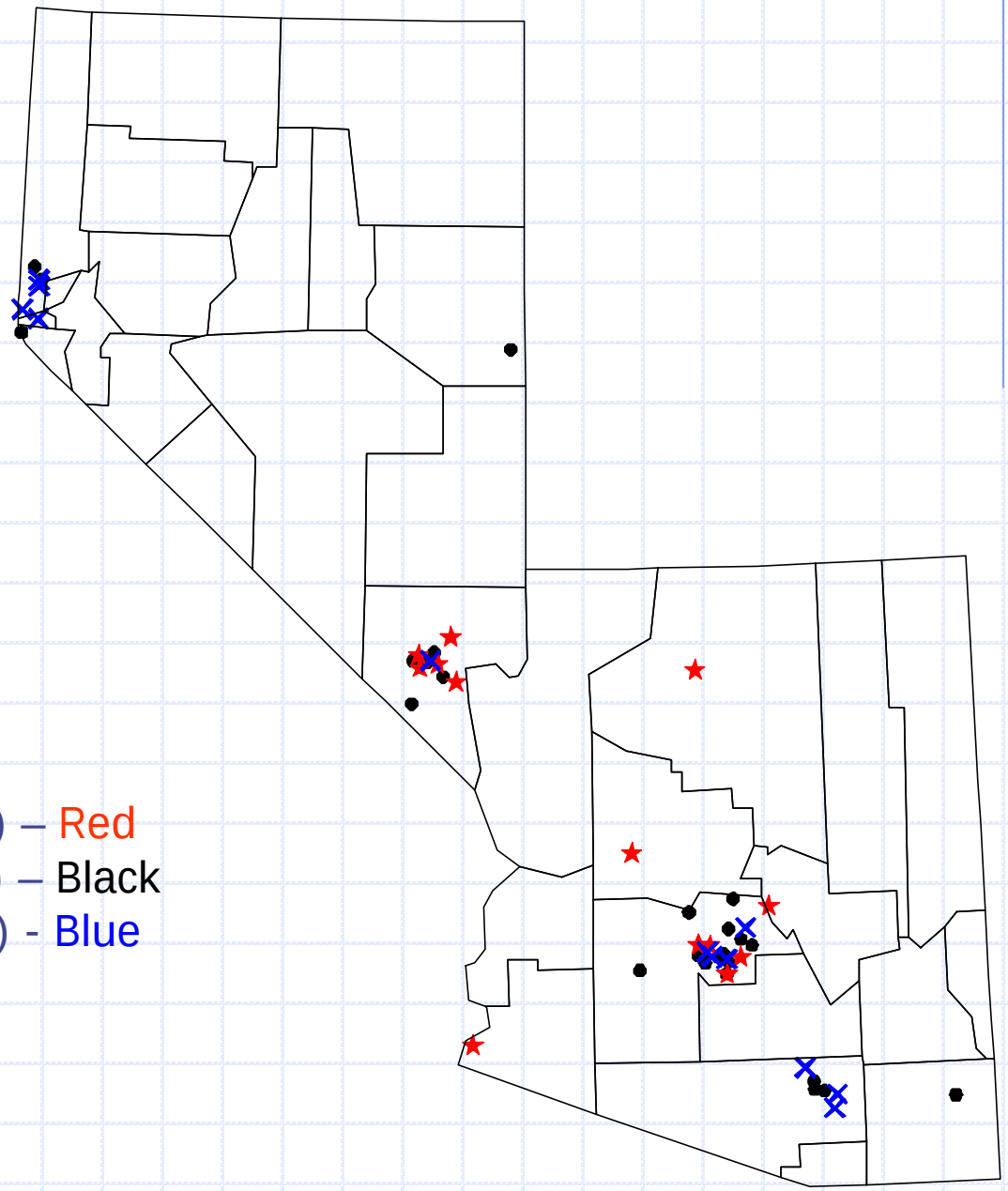
CA Air Basin	Retained	Shutdown	% change
Bay Area	17	4	19
Great Basin	5	5	50
Lake County	1	0	0
Lake Tahoe	2	0	0
Mojave Desert	8	6	43
Mtn Counties	13	6	46
N Cent. Coast	10	2	20

Region 9 Assessment
Recommended Network Changes

CA Air Basin	Retained	Shutdown	% change
North Coast	5	6	54
NE Plateau	2	3	60
Sacramento	19	12	39
Salton Sea	6	3	33
San Diego	10	1	9
SJV	22	11	33
S Cent. Coast	24	5	17
South Coast	26	11	30

AZ and NV Counties

O_3 Aggregate – Equal weight for all Measures



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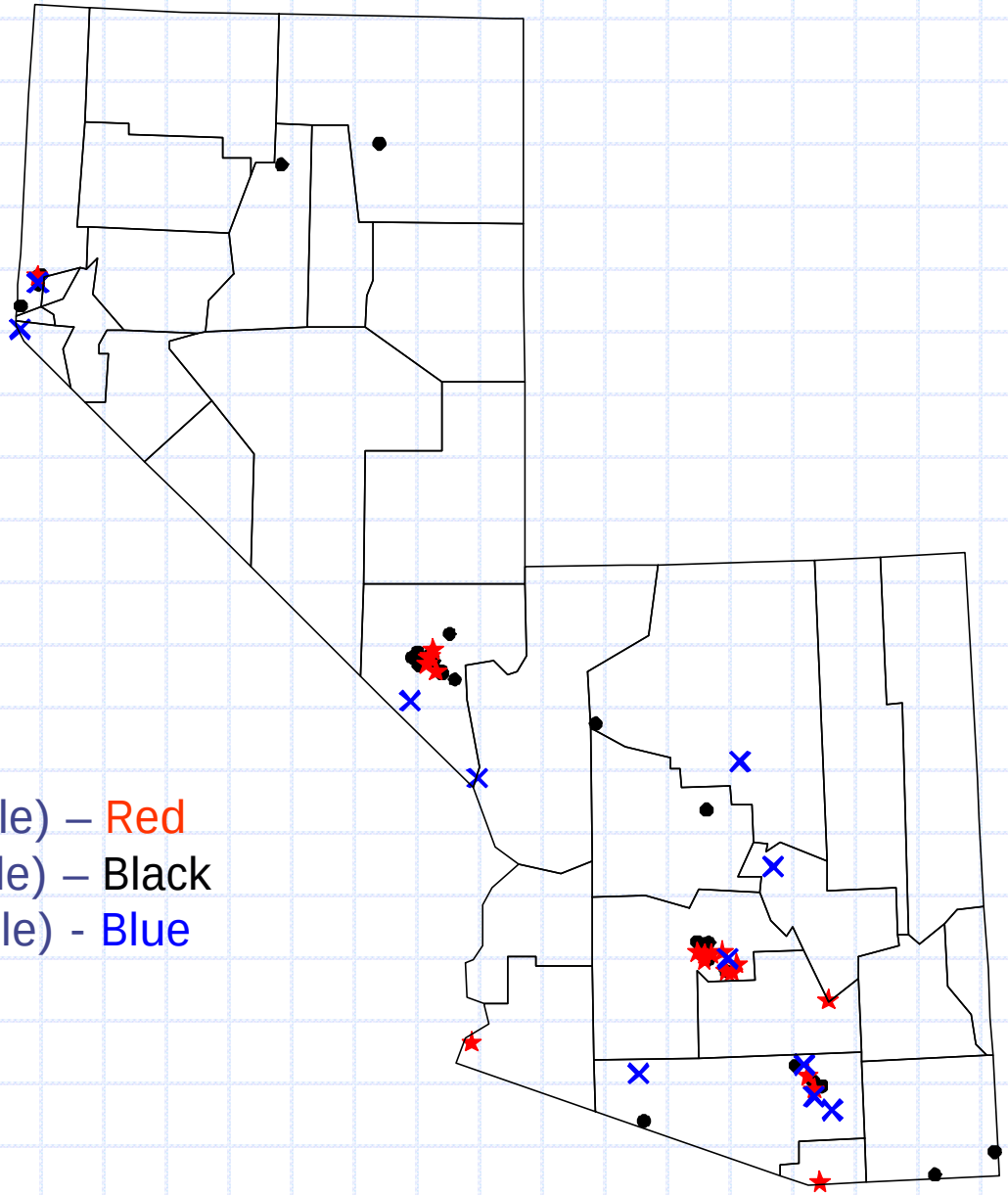

High Value (≥75th percentile) – Red
Median (26 – 74th percentile) – Black
Low Value (≤ 25th percentile) - Blue

ACKNOWLEDGEMENT

Region 9 would like to especially thank

Mark Schmidt

of OAQPS for his immense help in providing the initial analyses and maps.