

SIMULATION OF RELEASE AND DISPERSION OF PARTICULATE MATTER LESS THAN $10 \mu\text{m}$ FROM THE CERRO GRANDE FIRE, MAY 6-18, 2000

Simulation Produced by
Risk Assessment Corporation
Neeses, South Carolina

www.racteam.com

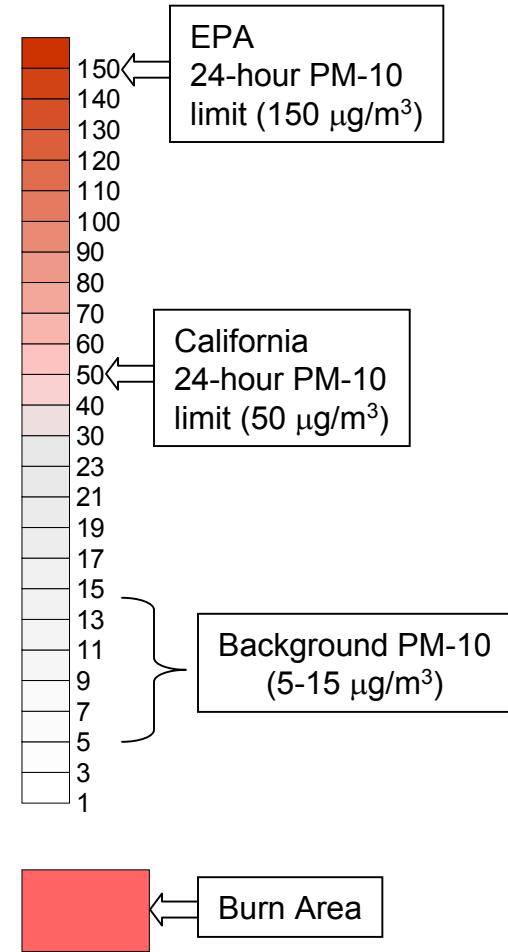
April 2002

Introduction

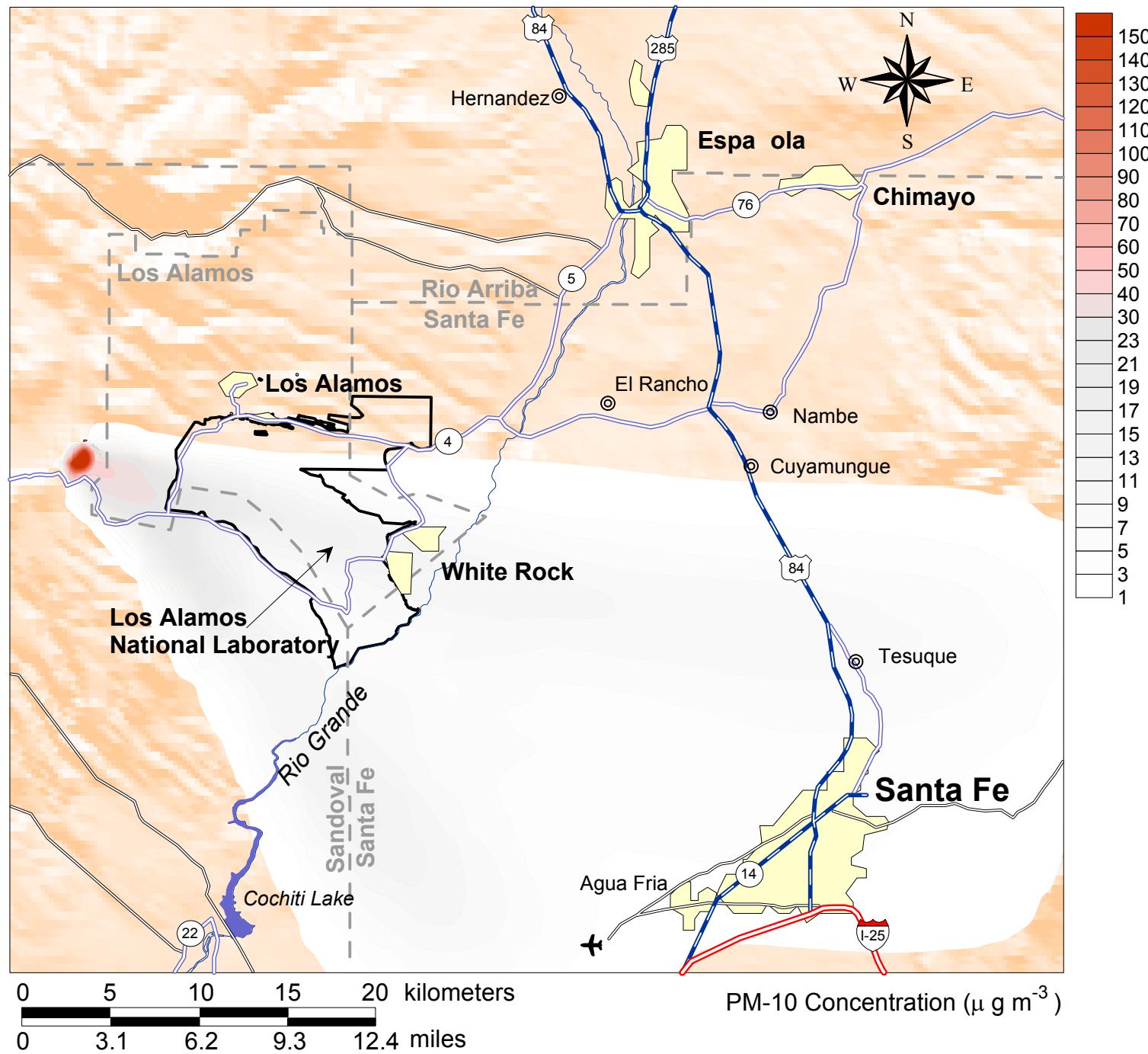
The following presentation depicts a simulation of the 24-hour average concentration of particulate matter less than 10 micrometers (PM-10) at ground level for each day of the Cerro Grande Fire.

Concentrations are shown by color. The color scale on the right shows the magnitude of the concentration. Darker shades of red indicate higher PM-10 concentrations. Units of measure are micrograms of particulate matter per cubic meter ($\mu\text{g m}^{-3}$). Background concentrations of PM-10 are not included in the plots, but are shown in the time histories presented at the end of this presentation.

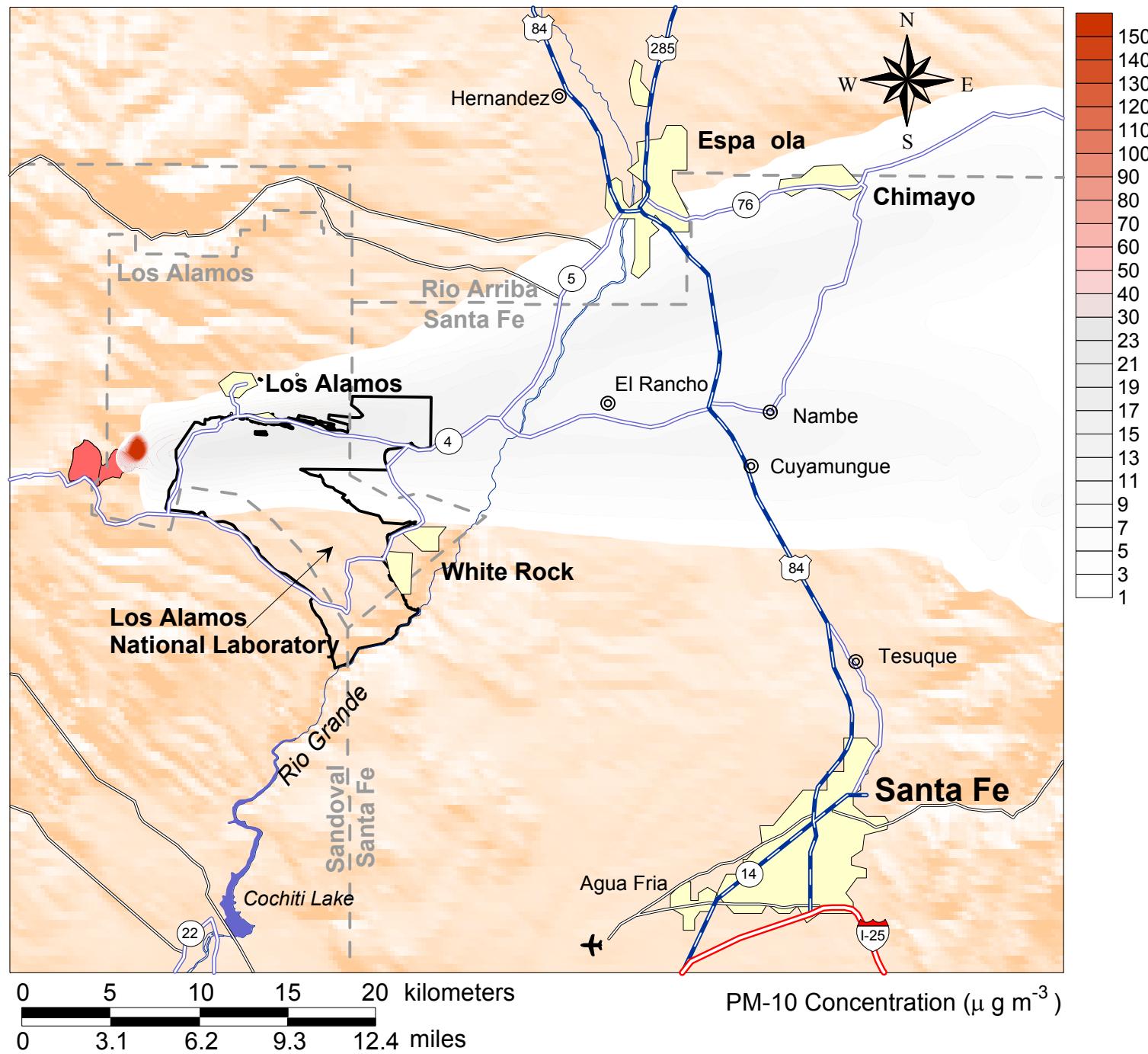
Note: The PM-10 concentrations depicted are at ground level. These are the concentrations a person may have been exposed to within the study area. For some days, concentrations were substantially higher above the ground due to plume rise from the heat generated from the fire.



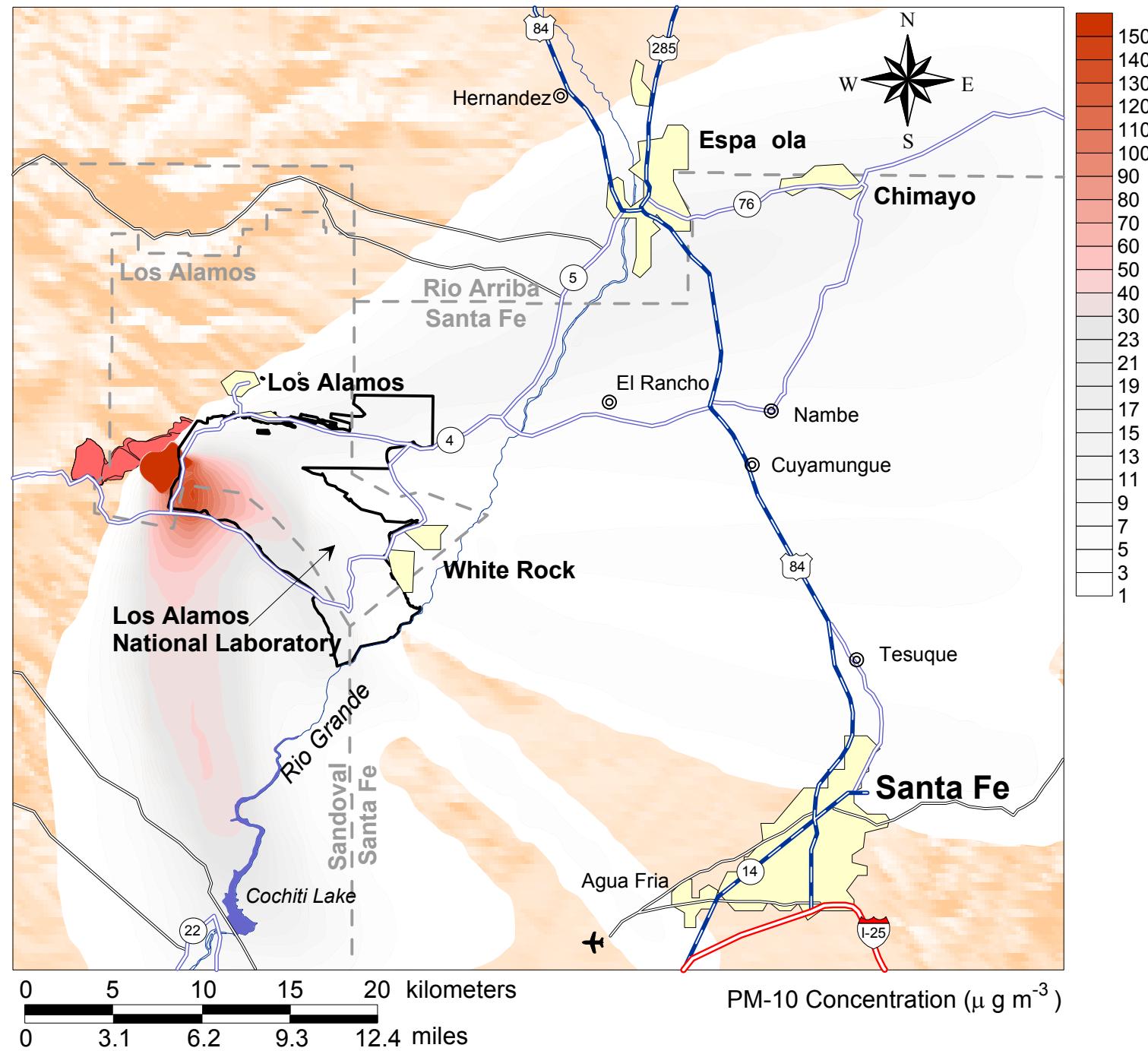
May 6



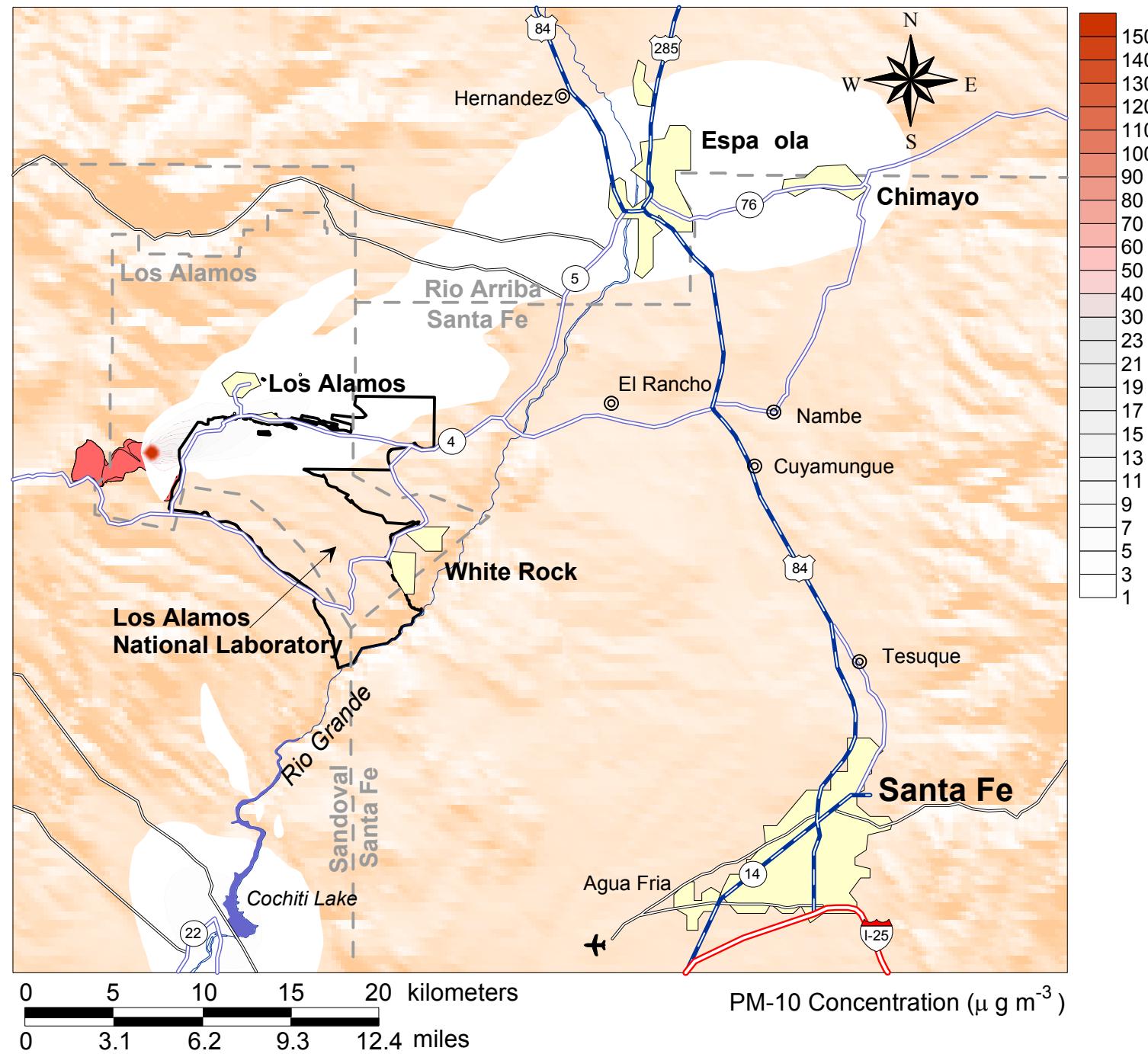
May 7



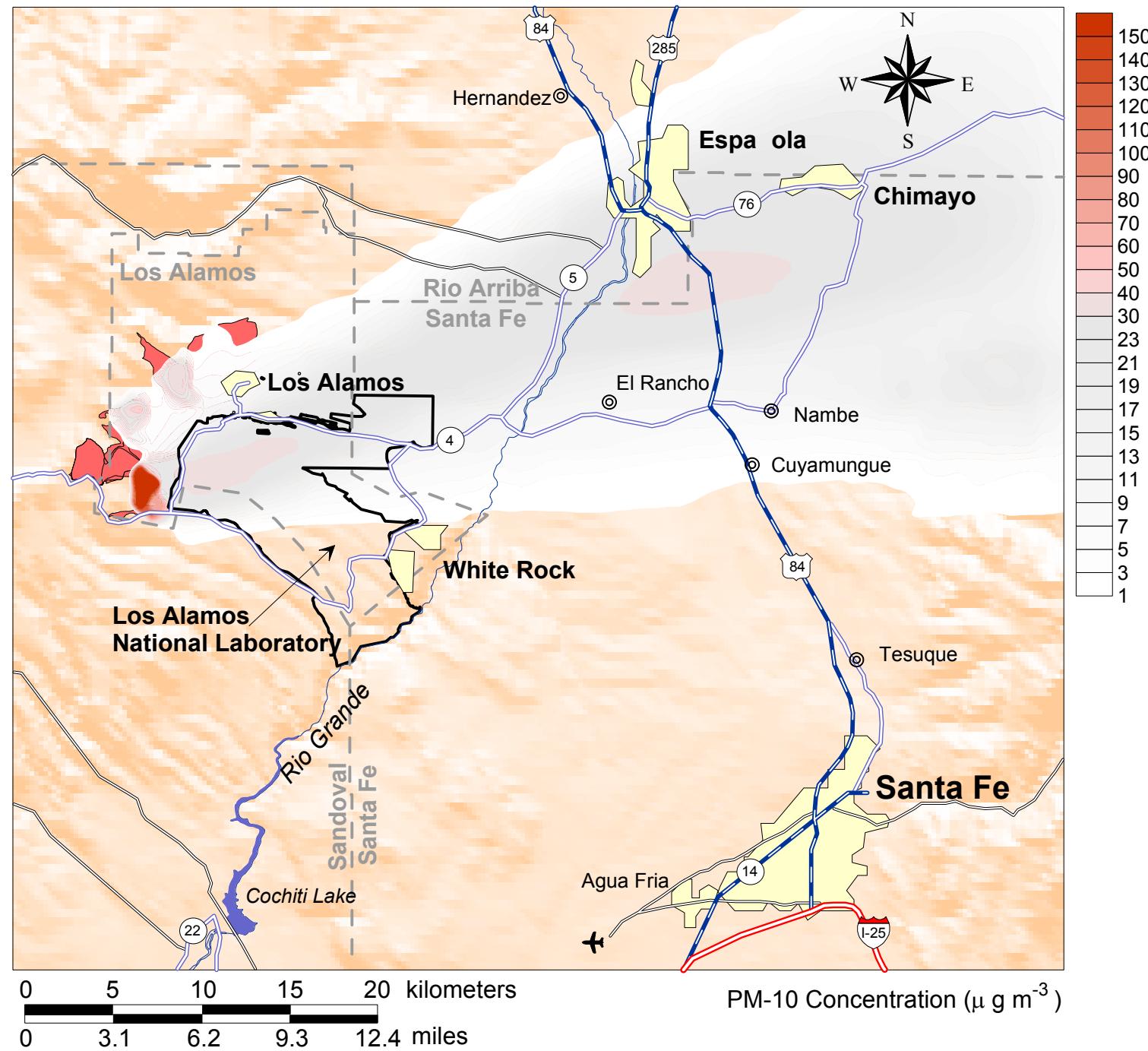
May 8



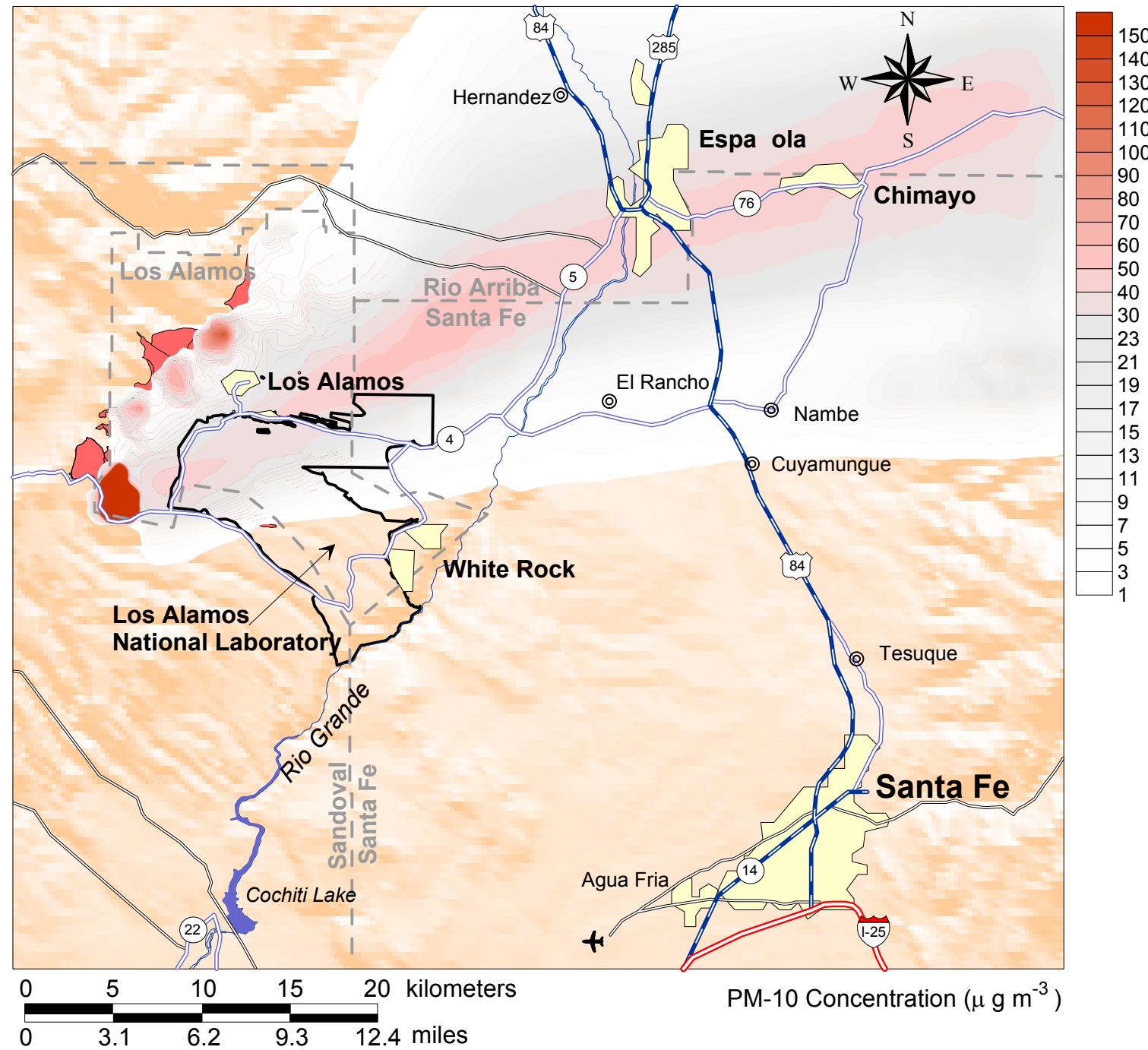
May 9



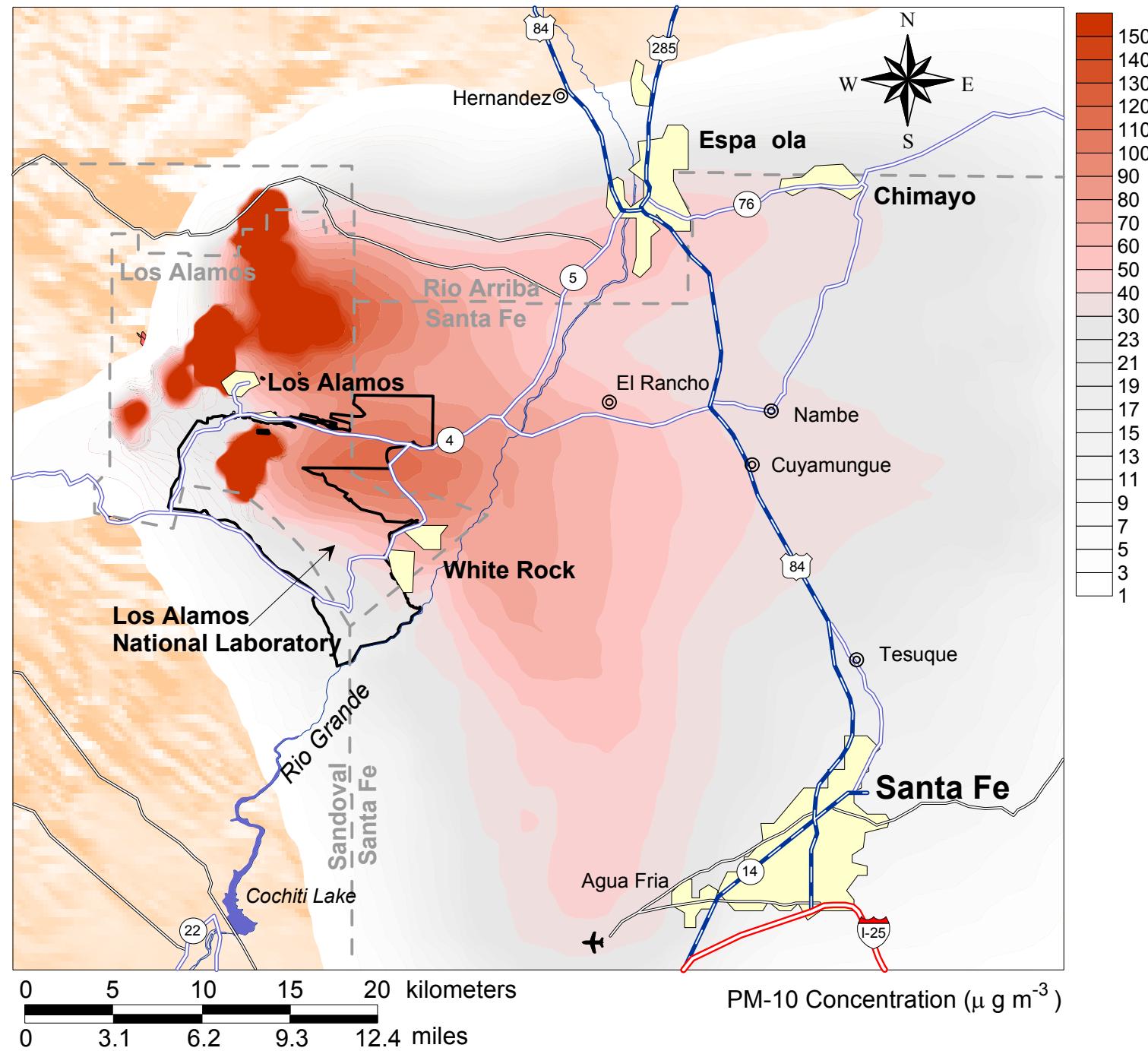
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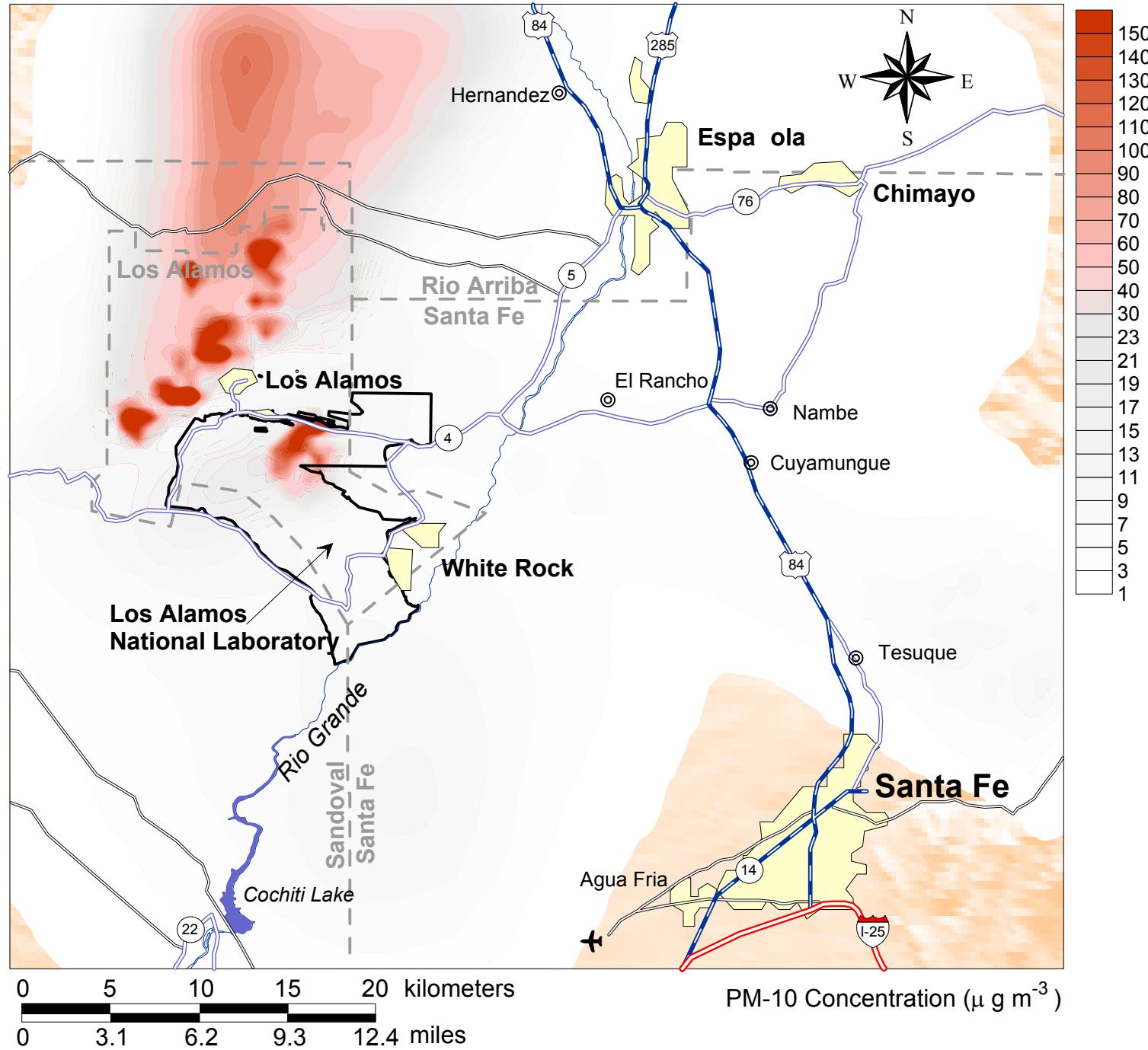
May 11



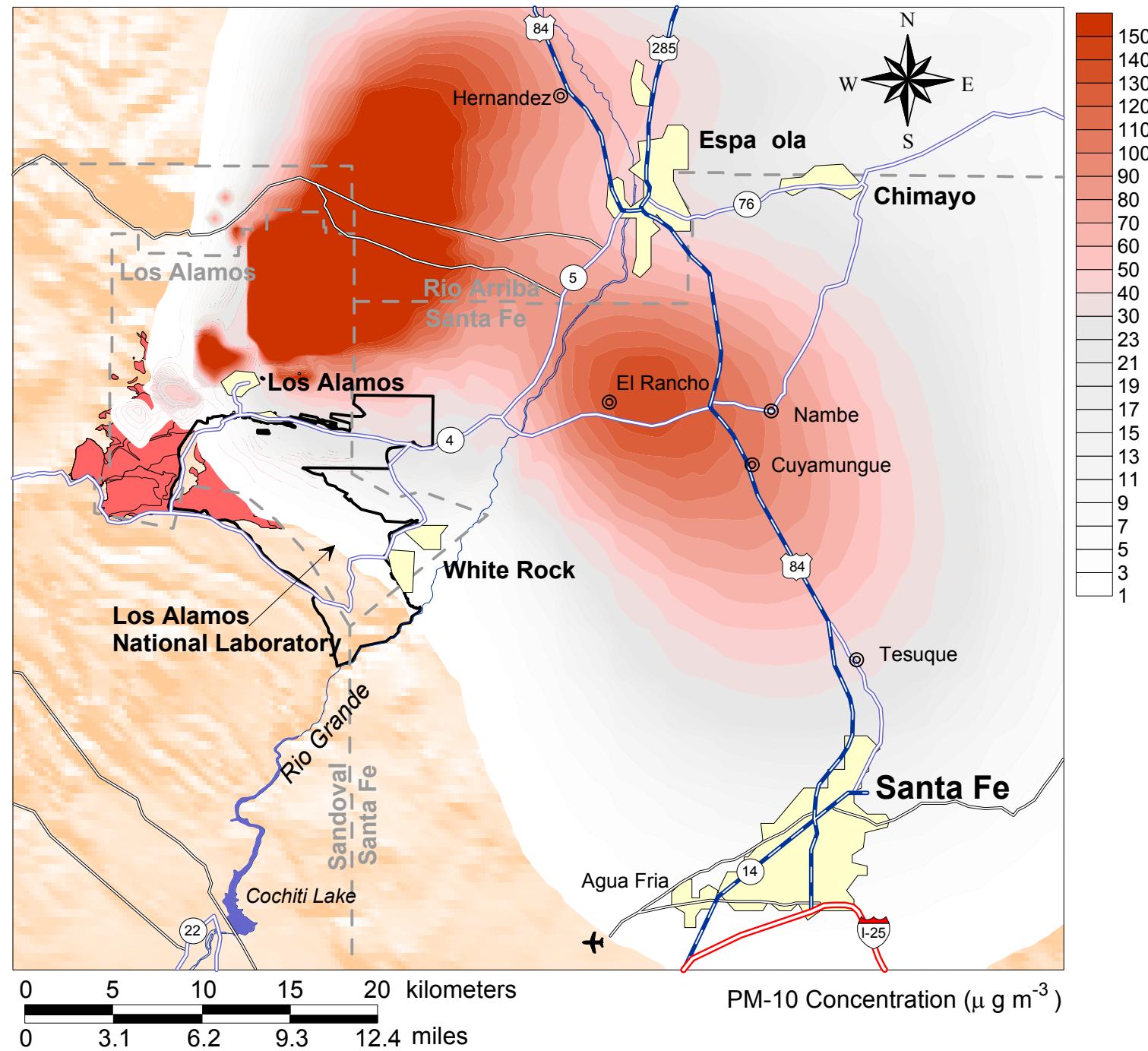
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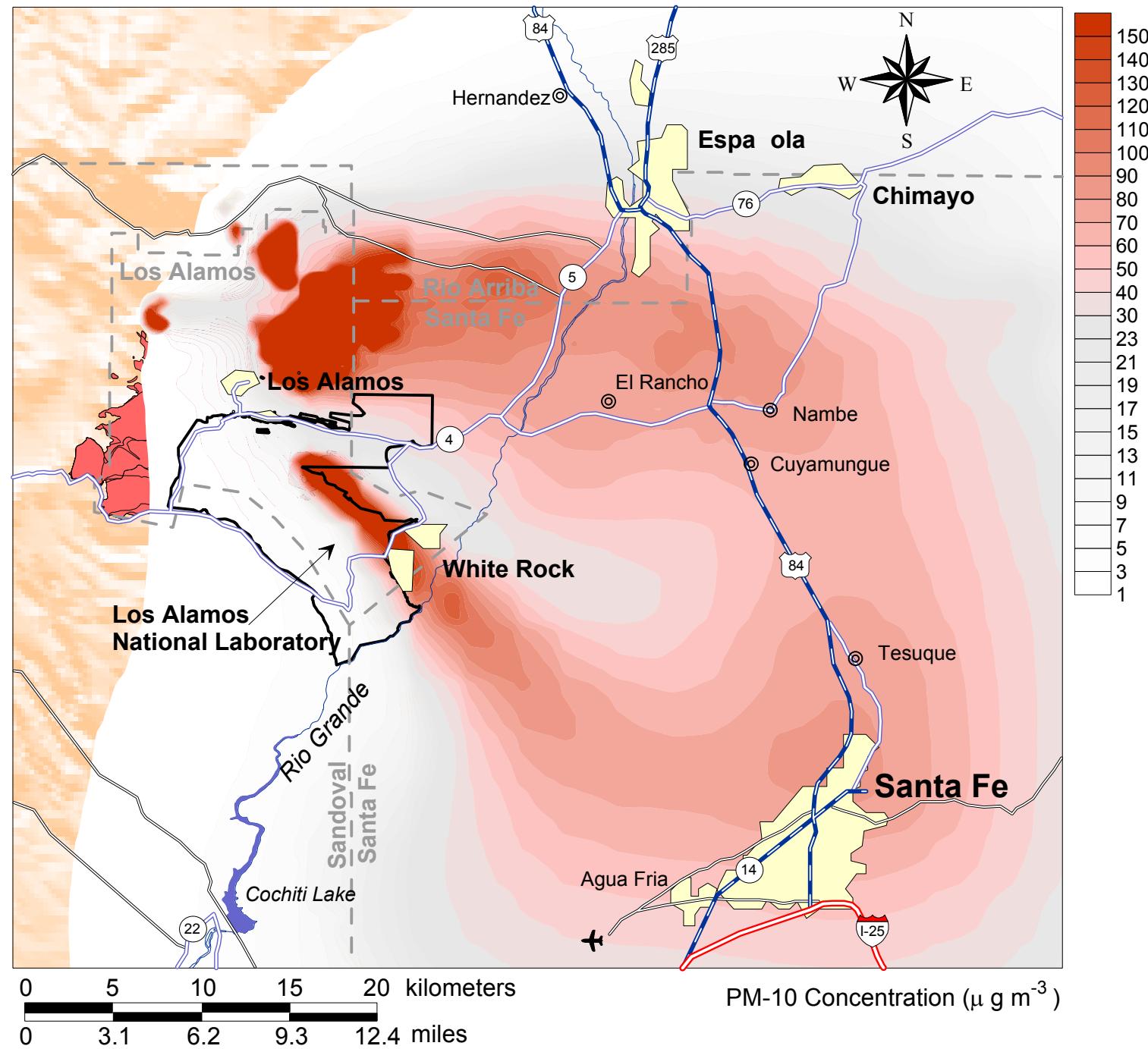
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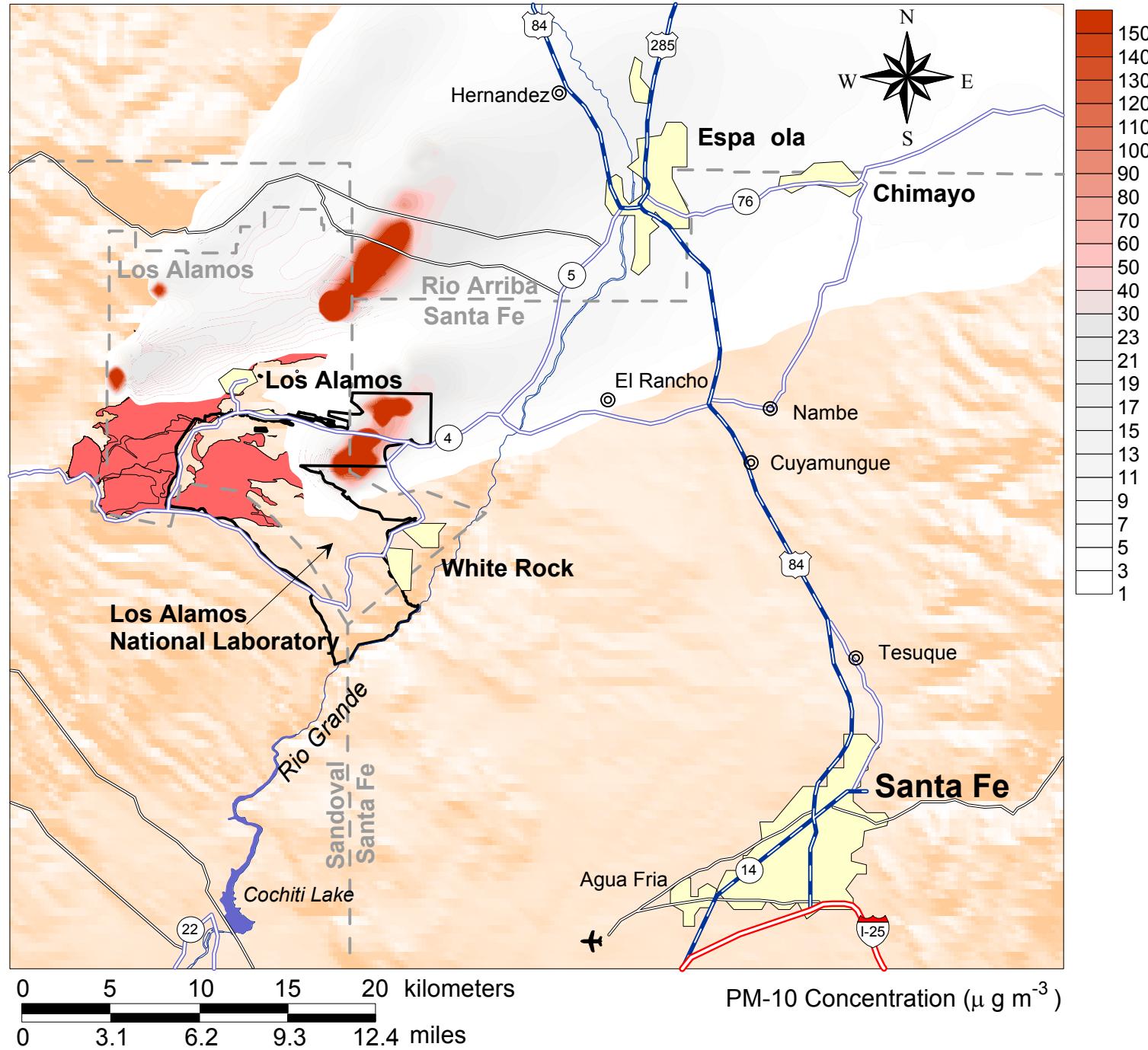
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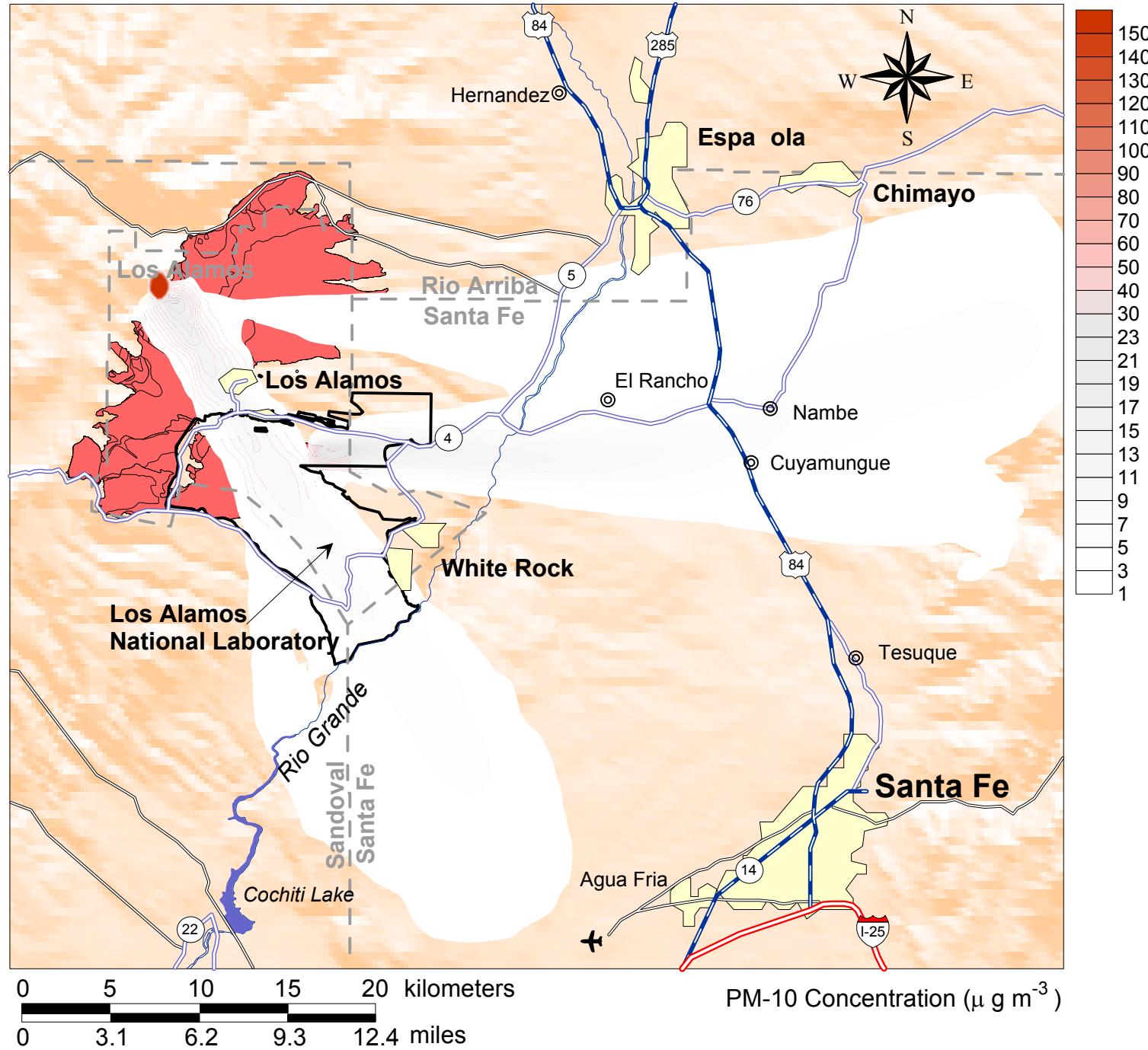
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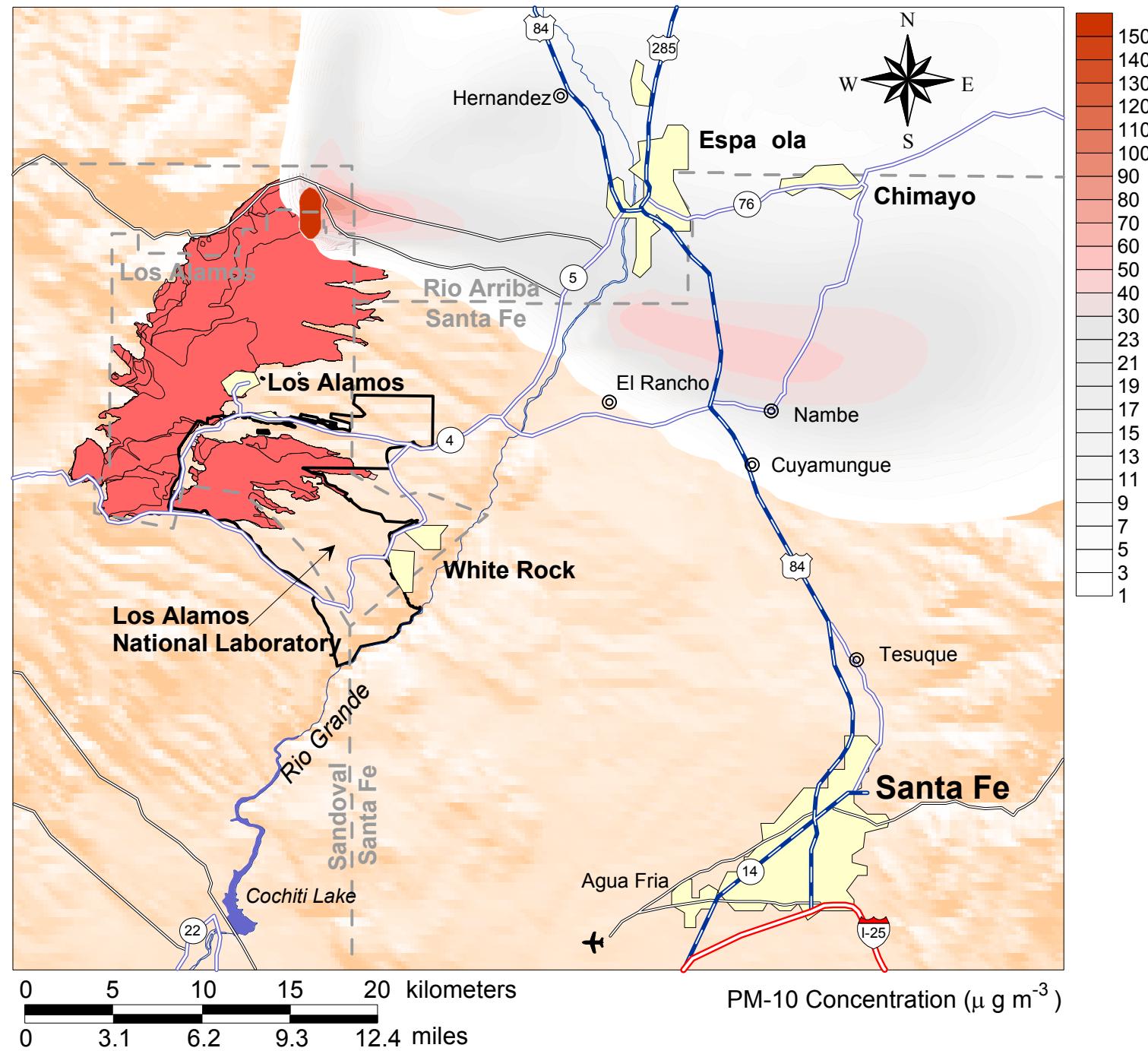
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May 17



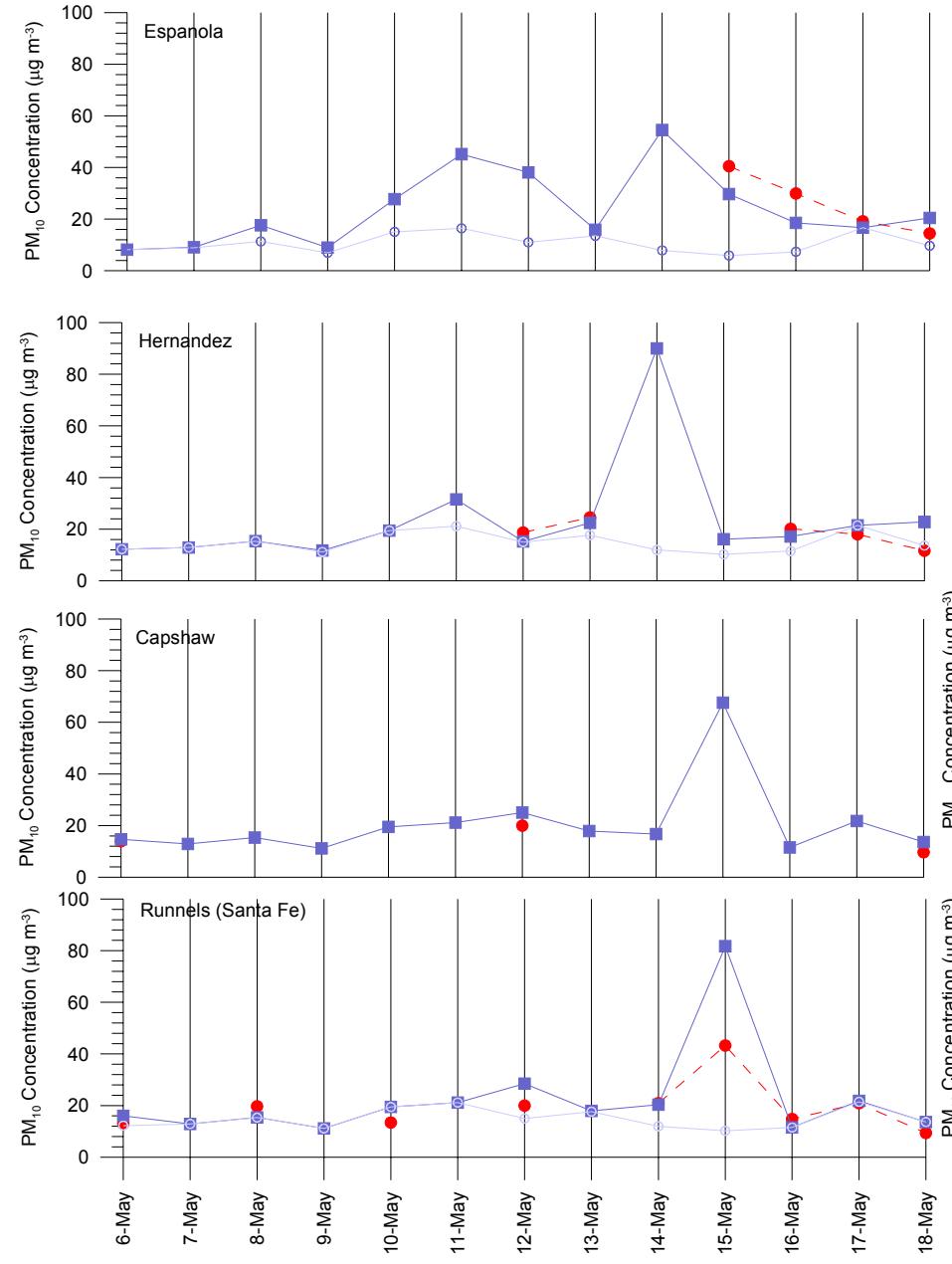
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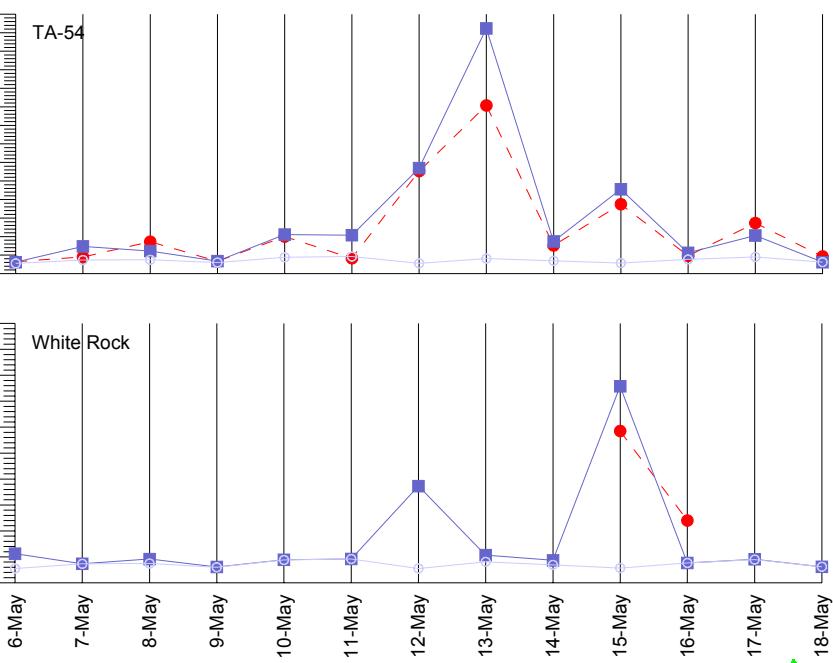
HOW DO THE SIMULATED PM-10 CONCENTRATIONS COMPARE TO MEASURED VALUES?



Predicted and observed 24-hour average PM-10 concentrations



Measured
Predicted+Background
Background



Conclusions

- Simulated concentrations of PM-10 were within a factor of 2 of the measured values.
- The maximum measured PM-10 concentration at TA-54 ($182 \mu\text{g m}^{-3}$) was overestimated by the model by a factor of 1.46
- Background concentrations of PM-10 were shown to vary with the mean 24-hour average wind speed.