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14. ABSTRACT
Numerical weather prediction simulates aerosol abundance using climatic emission inventories due to a lack of available real-time observation. An advocation to monitor aerosol number concentration with a standardized global sensor network is defended. Analysis is done on WRF-Chem output near Dayton, Ohio after CPC data is manually inserted as WRF-Chem input at the surface. Upon confirmation of PM2.5 characterization improvement by point-observation initialization, a method of integrating PM2.5 abundance into the long-standing meteorological observation network is suggested: encoding of PM2.5 number concentration in the routine meteorological aerodrome report (METAR) as an estimate of horizontal visibility.

15. SUBJECT TERMS
Aerosols, Observational Network, Meteorology, Numerical Weather Prediction, Visibility

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