8.2 Reducing WRF's high bias of shortwave radiation reaching the ground using new fractional cloudiness scheme and aerosol direct radiative effect.

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New to WRF this year is the addition of aerosol optical depth (AOD) calculated using the Thompson & Eidhammer (2014) microphysics scheme's evolving aerosol variables and humidity to scatter solar radiation in the RRTMG scheme (aer_opt=3). Preliminary analysis of coupled aerosol-radiation simulations shows good improvements to SURFRAD observations in clear sky. Furthermore, an updated WRF cloud fraction scheme (icloud=3) reduced a 30-40 W/m2 high bias of shortwave radiation at the surface to near zero bias.