

Measurements of emitted dust size distribution and model simulations of dust lifetime (D, σ)

Constrained globally averaged dust particle size distribution (D, σ)

Simulations of dust size distribution from six different models, $\tilde{f}(x-y-z, S, D)$

Constrained dust particle size distribution, $\frac{d\hat{V}_{atm}}{dD}(x-y-z, S, D, \sigma)$

Measurements of dust index of refraction and dust shape distributions (σ).

Single scattering database of Meng et al., 2010 (D, λ, σ)

Constrained globally averaged dust extinction efficiency at 550 nm, $\hat{Q}_{ext}(D, \sigma)$

Constrained dust mass extinction efficiency at 550 nm, $\hat{\epsilon}_r(x-y-z, S, D, \sigma)$

Uncertainty estimate of observationally constrained dust AOD from Ridley et al, 2016 (S, σ)

Dust AOD estimates from four reanalysis products, incorporating satellite and ground-based measurements ($x-y, S$)

Ensemble estimates of dust AOD at 550 nm, $\hat{\tau}(x-y, S, \sigma)$

Constrained atmospheric dust loading at 550 nm, $\hat{L}(x-y, S, D, \sigma)$

