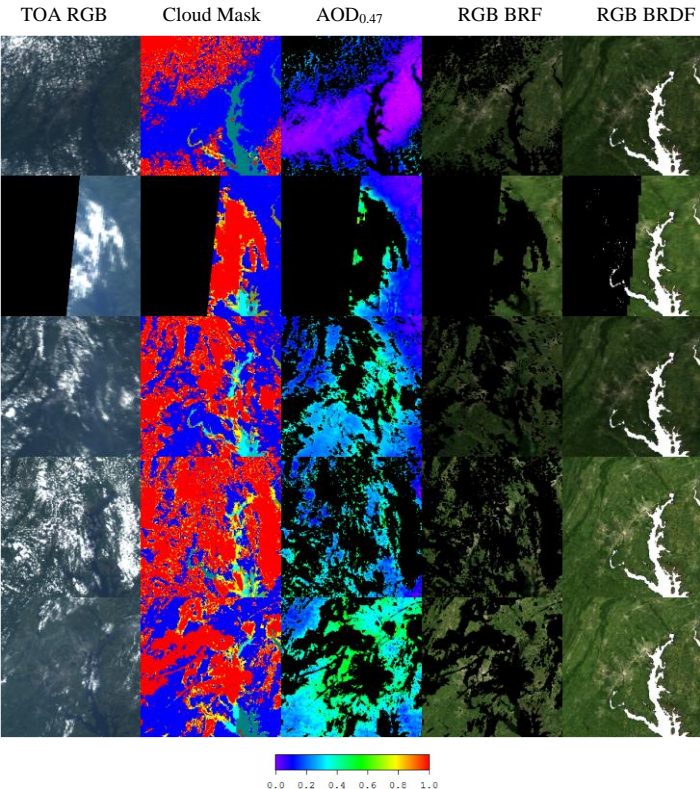
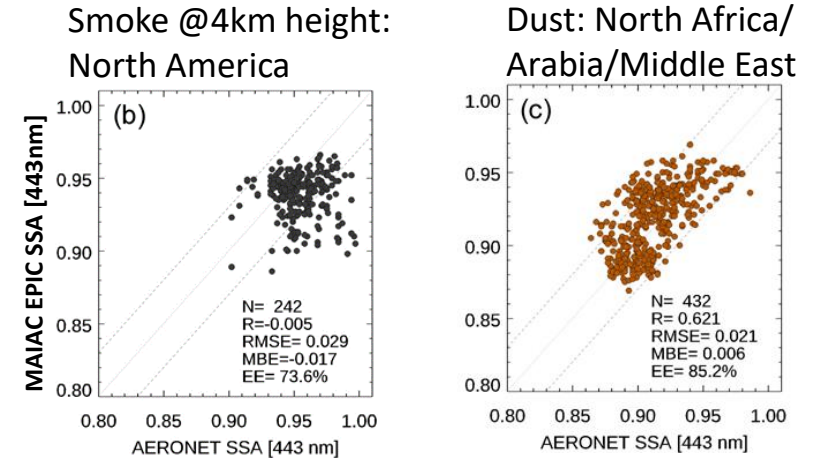


# Atmospheric Correction and Aerosol Speciation from OCI

1. The “reduced” MAIAC (CM, AOD) using MODIS-like OCI bands is developed. We are working on technical aspects of hyperspectral atmospheric correction over land.
2. The algorithm for *joint retrieval of AOD and spectral aerosol absorption* from UV-Vis is developed and prototyped with DSCOVER EPIC: we retrieve  $\{AOD, k_0, b\}$  using optimal fit of 340, 388, 443 and 680nm, where *imaginary ref. index*:

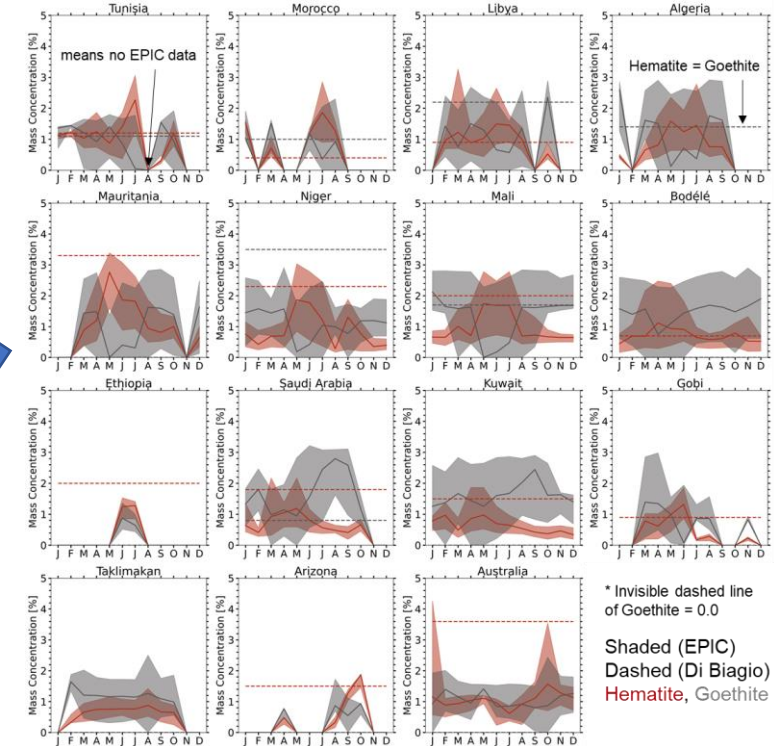
$$k_\lambda = k_0 (\lambda / \lambda_0)^{-b}, \lambda_0 = 680\text{nm}$$

Good SSA accuracy vs AERONET:  $R \sim 0.62$ ,  $rmse \sim 0.02$ , bias  $\sim 0.006$  (dust @ 1km) and  $rmse \sim 0.029$ ,  $EE = 73.6\%$  (smoke @ 4km)



## Aerosol Speciation

1. Following **Schuster et al. (2016)**, use Maxwell Garnett approx. to invert  $AOD-k_\lambda$  for Hematite/Goethite for dust and Black/Brown C for biomass burning aerosol
2. Global dust analysis completed: a) Hm/Gt range agree with Di Biagio (2019); b) Hm/Gt ratio shows seasonal and spatial variability (local sources vs transport)
3. Initial Climatology of Hematite and Goethite content is provided
4. BC/BrC analysis is coming soon (see pre-recorded presentation by Sujung Go)



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