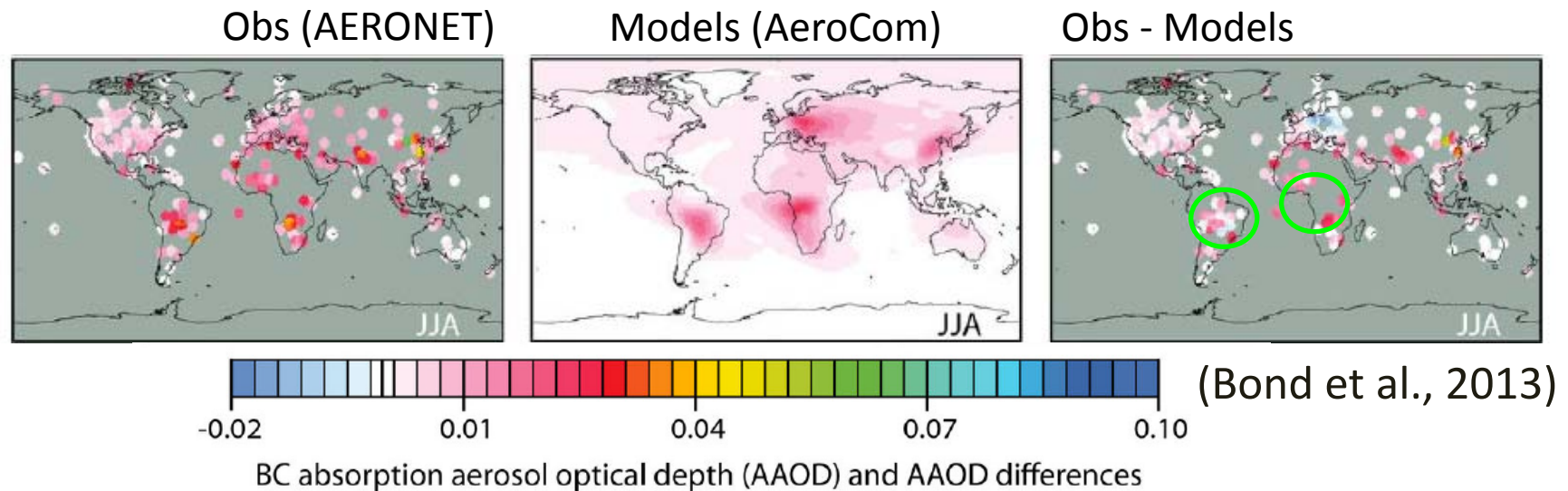# Progress in Resolving Model-Data Differences in Aerosol Absorption Properties over BB regions

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Priority: Resolve differences in obs vs model aerosol absorption optical depth (AAOD) over BB regions


Obs (AERONET) Models (AeroCom) Obs - Models

(Bond et al., 2013)

BC absorption aerosol optical depth (AAOD) and AAOD differences

- **Observation**: ARM/ASR data -> More data in the BB regions; attribution of absorption (BC, BrC, or SOA, or dust influence); aging and mixing

- **Modeling:** Built on our previous studies of BrC, implement a *Source-dependent parameterization of BrC optical properties* to the global model CAM5

Relate the absorptivity of BrC to the source-dependent BC-to-OC ratio at emission
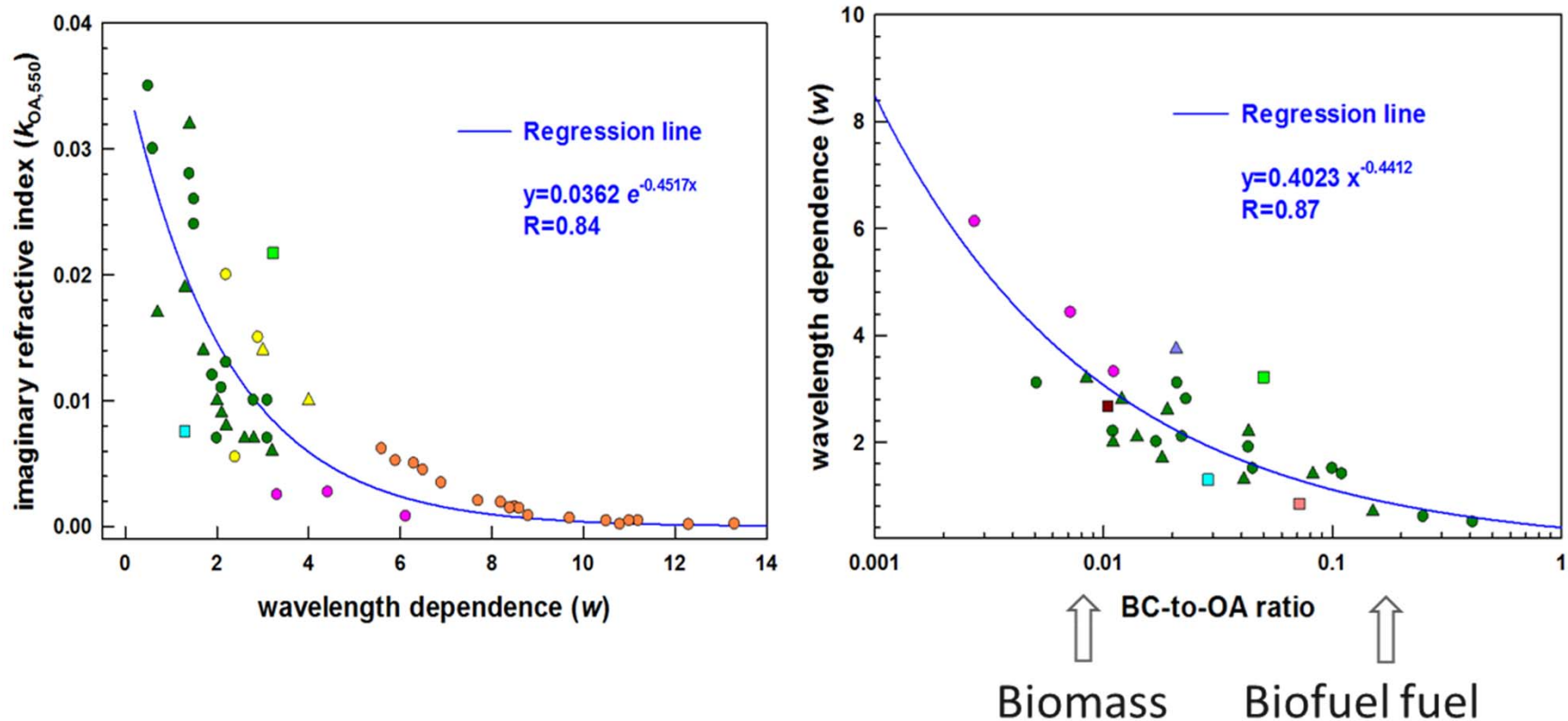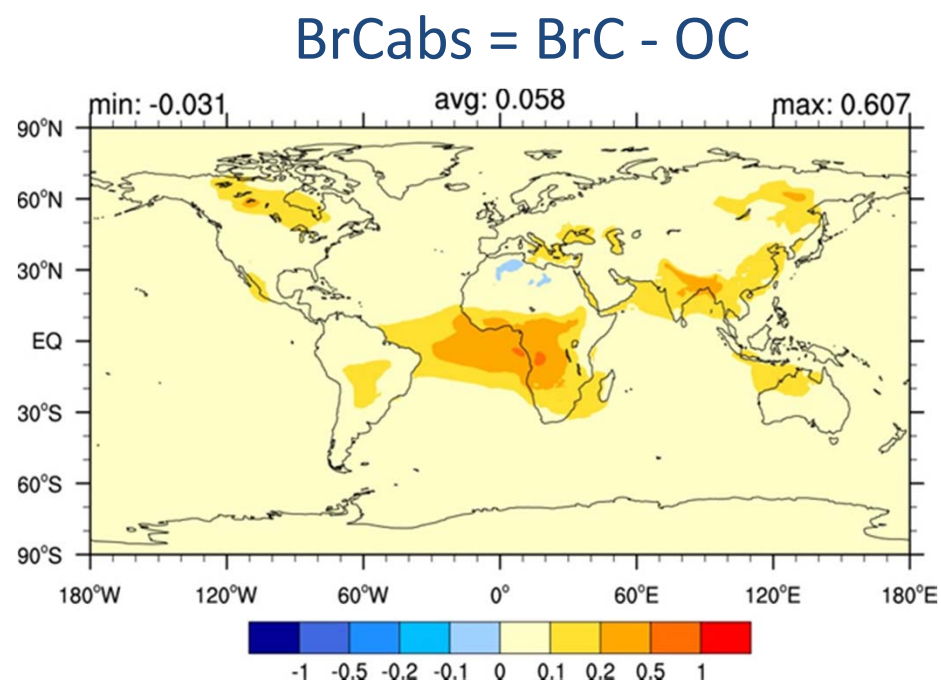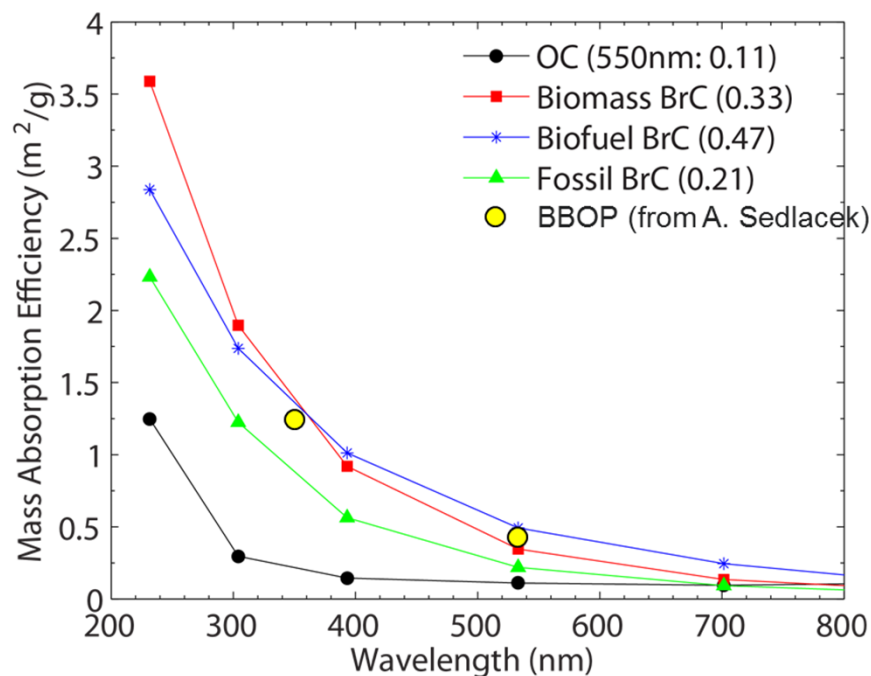

Lu et al. (2015)

Relate the absorptivity of BrC to the source-dependent BC-to-OC ratio at emission
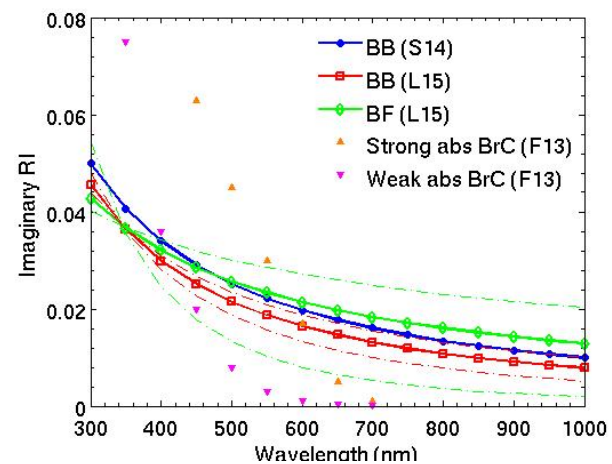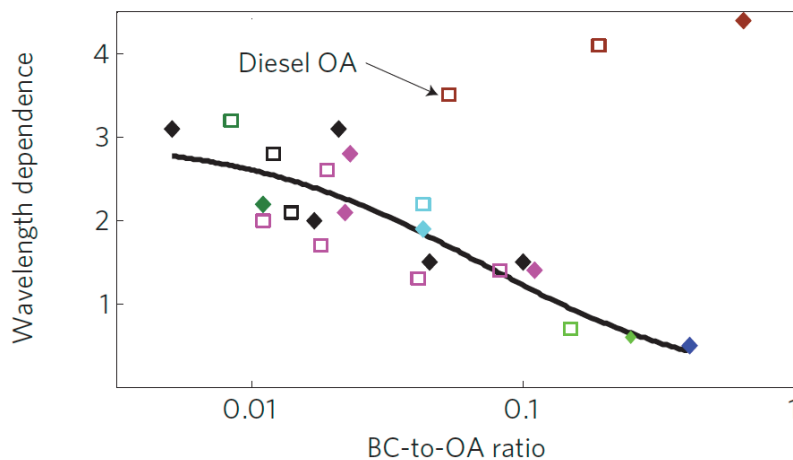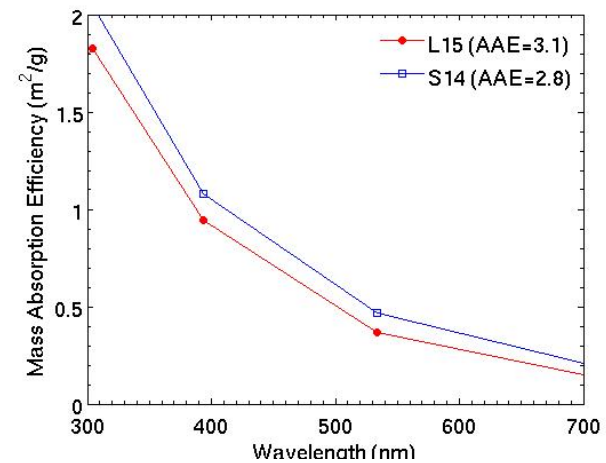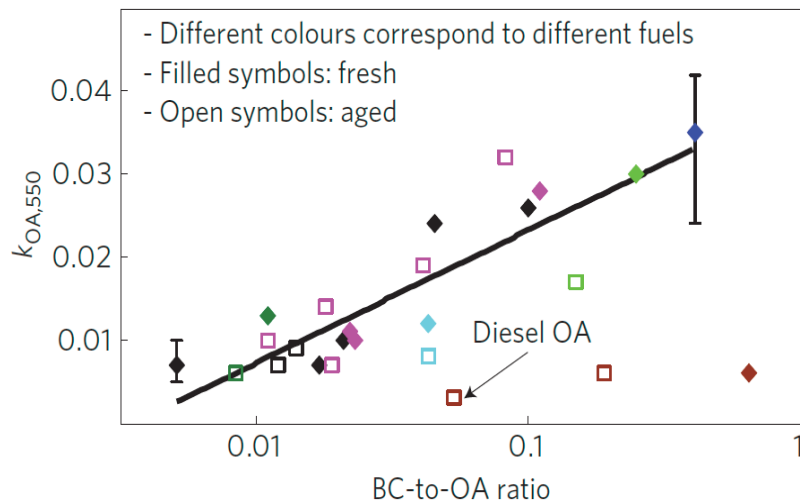
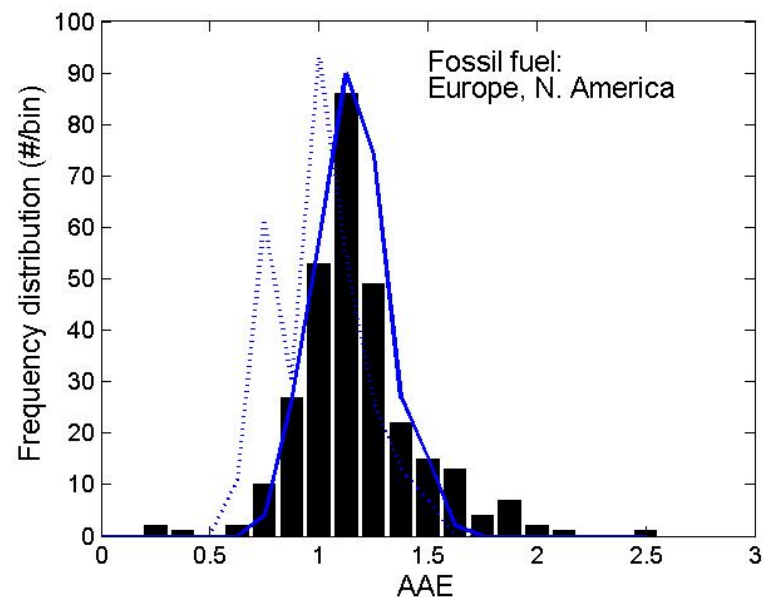Saleh et al. (2014)

Feng et al., in prep.

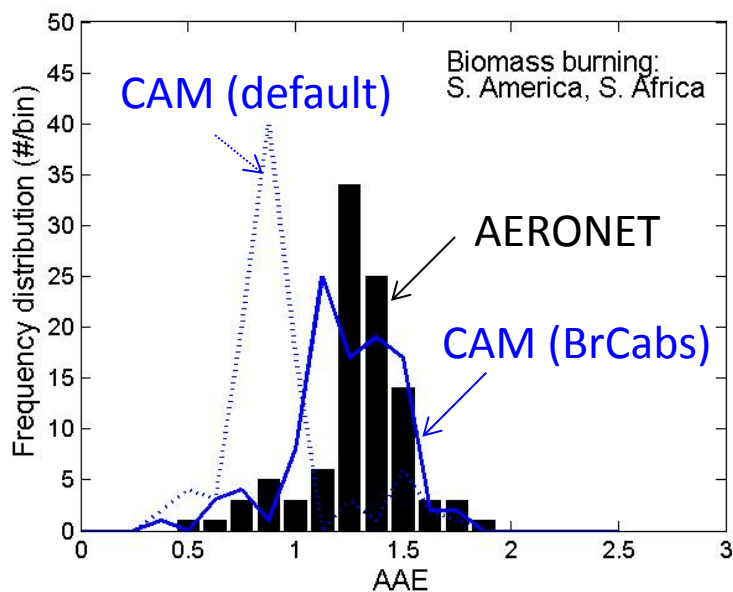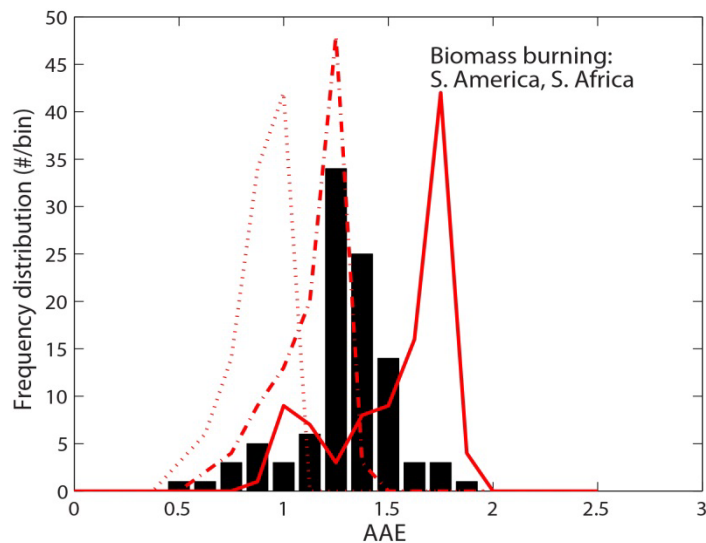# Implementation of BrC to CAM

BrCabs = BrC - OC

Inclusion of BrCabs inserts a positive forcing of +0.06 Wm-2 at TOA, about 11% of BC forcing

Feng et al., in prep.

Comparison of AAE distributions with AERONET

Feng et al., in prep.

Feng et al 2013

Ongoing work

- Evaluation of the primary BrC parametrization with recent field datasets, i.e., link the MCE-based optical properties with BC-to-OA ratio, compare near-source vs downwind data, tar balls, etc

- Secondary BrC formation from low-yield SOA precursors