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## Supplement of

## Evaluating the representation of aerosol optical properties using an online coupled model over the Iberian Peninsula

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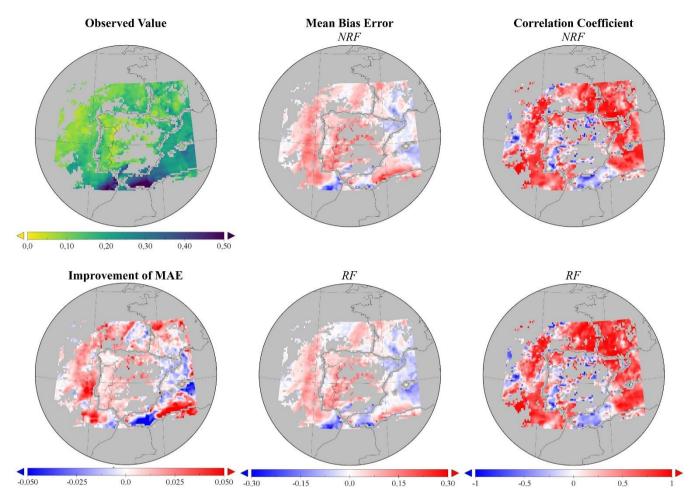


Figure 1: Comparison of  $AOD_{550}$  model output vs.  $AOD_{550}$  from Aqua-MODIS data for the dust episode (temporal mean from 28 June to 12 July). AOD MODIS values (top left), Improvement of MAE due to the inclusion of RF (MAE in RF-NRF simulations, bottom left), MBE for NRF (top centre) and RF simulations (bottom centre). Correlation Coefficient for NRF (top right) and RF (bottom right) simulations.

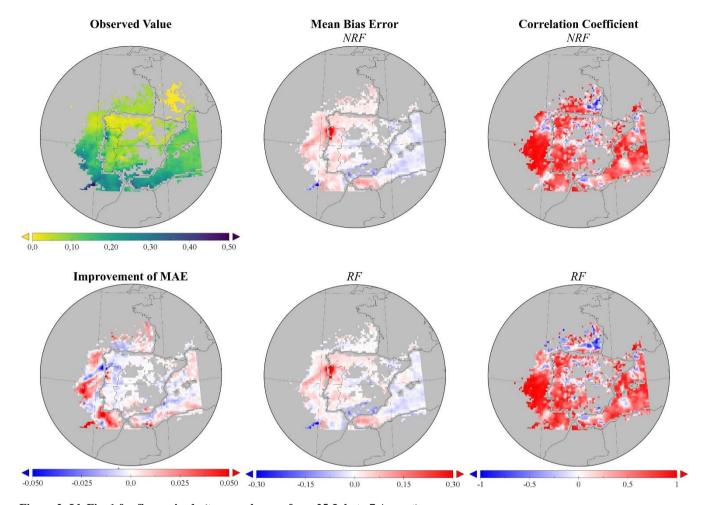


Figure 2: Id. Fig. 1 for fires episode (temporal mean from 25 July to 7 August).

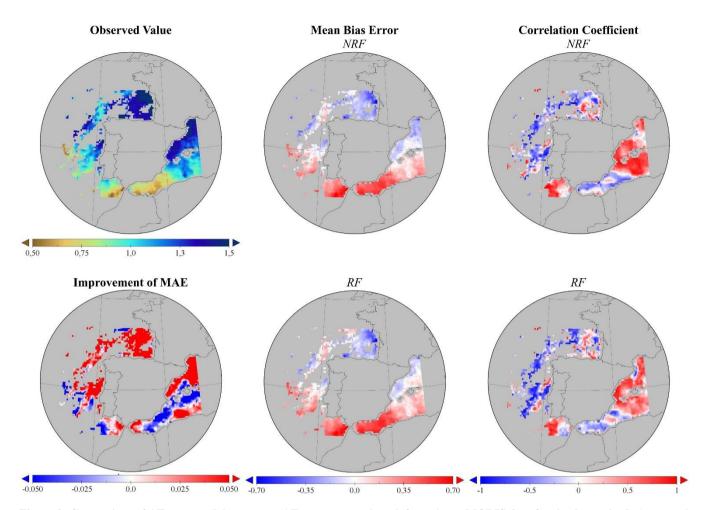


Figure 3: Comparison of  $AE_{550/860}$  model output vs. AE at same wavelength from Aqua-MODIS data for the dust episode (temporal mean from 28 June to 12 July). AE MODIS values (top left), Improvement of MAE due to the inclusion of RF (MAE in RF-NRF simulations, bottom left), MBE for NRF (top centre) and RF simulations (bottom centre). Correlation Coefficient for NRF (top right) and RF (bottom right) simulations.

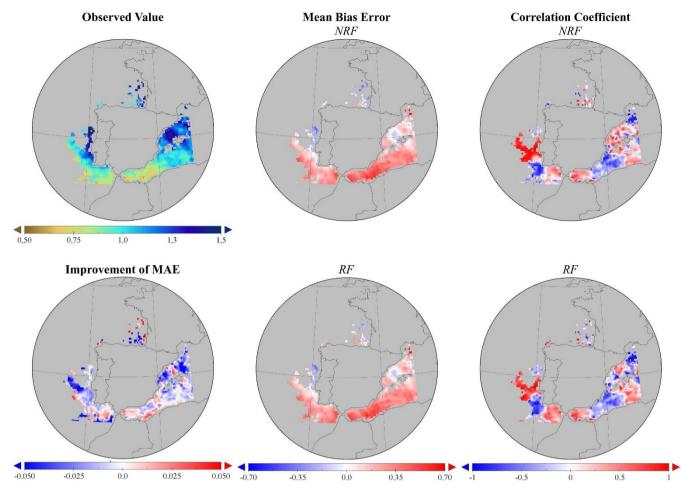


Figure 4: Id. Fig. 3 for fires episode (temporal mean from 25 July to 7 August).

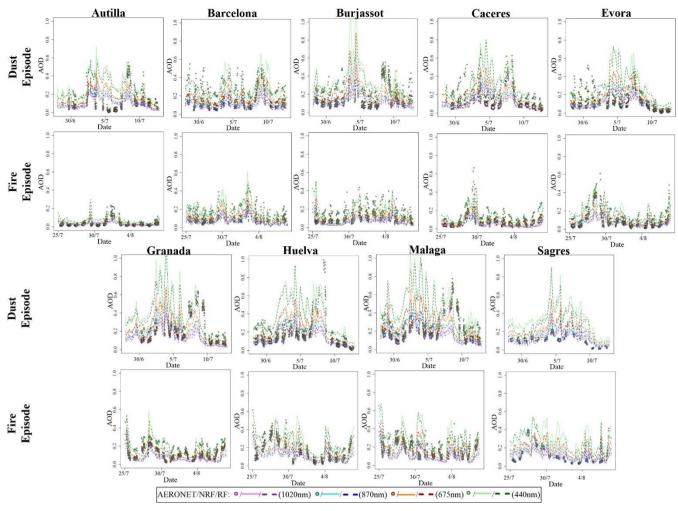


Figure 5: AERONET data (dots), NRF (line) and RF simulations (dash line): AOD at different AERONET wavelengths.

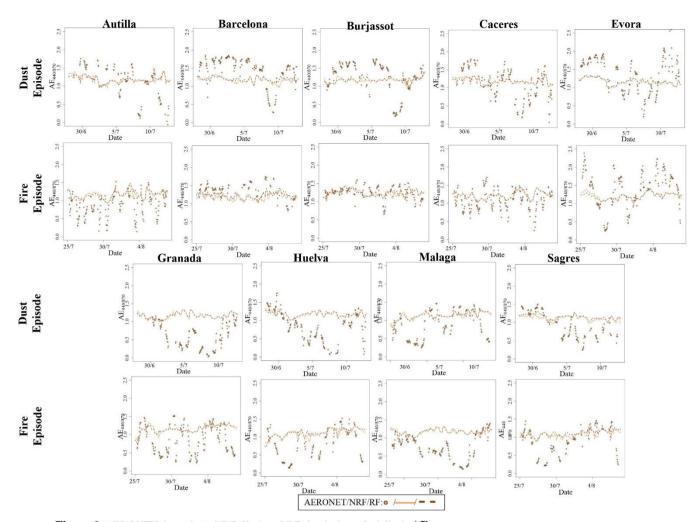


Figure 6: AERONET data (dots), NRF (line) and RF simulations (dash line): AE440/870.