Validation and uncertainty analysis of PACE HARP2 aerosol product from FastMAPOL algorithm

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The NASA Plankton, Aerosol, Cloud, Ocean Ecosystem (PACE) mission aims to enhance our understanding of the global ocean and atmosphere. With a specific focus on refining data records related to ocean ecology, biogeochemistry, atmospheric aerosols, and clouds, the PACE satellite was successfully launched on February 8th this year. The PACE data has been officially released in April after two-month commissioning period [1], comprising Level 1 data from all three sensors (OCI, HARP2, and SPEXone)[2], alongside advanced products encompassing ocean, land, and atmospheric data.

The multi-angle polarimetric measurements from SPEXone and HARP2 yield valuable insights into aerosol optical and microphysical properties. To facilitate the processing of the wide-swath HARP2 data, we employed the FastMAPOL retrieval algorithm [3], enhanced by a set of neural network-based radiative transfer models and an adaptive multi-angle data screening approach, on the initial nine months of HARP2 data. In this study, we will summarize our findings in validating the aerosol product with respect to AERONET and PACE PAX filed campaign and examine the impacts of retrieval product uncertainties.

References

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