eVe polarization lidar on the Joint Aeolus Tropical Atlantic Campaign 2021 - First results of Aeolus L2A products validation

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The Campaign:
Joint Aeolus Tropical Atlantic Campaign (JATAC). ASKOS is the ground-based component of JATAC

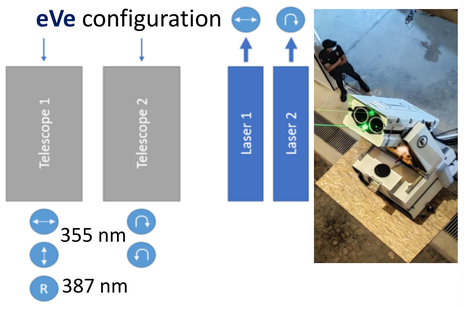
Why:
To validate the Aeolus L2A products

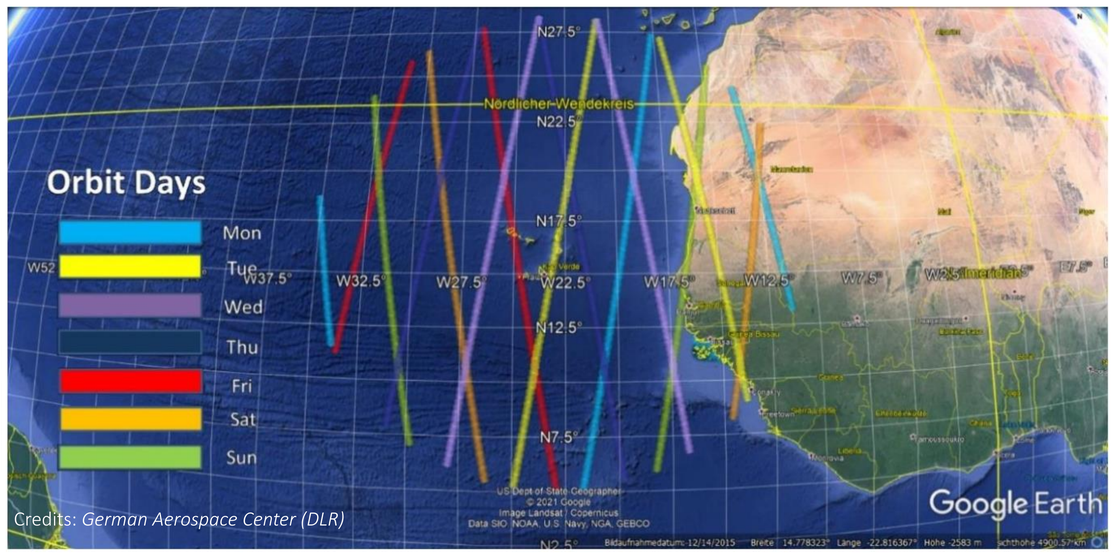
When:
July and September 2021 (ASKOS/JATAC)

Where:
Ocean Science Centre Mindelo (OSCM), Mindelo, Cape Verde

The ground-based lidar: eVe lidar
- a combined linear/circular polarization lidar system with Raman capabilities
- the ESA's ground reference system for the Aeolus L2A Cal/Val.

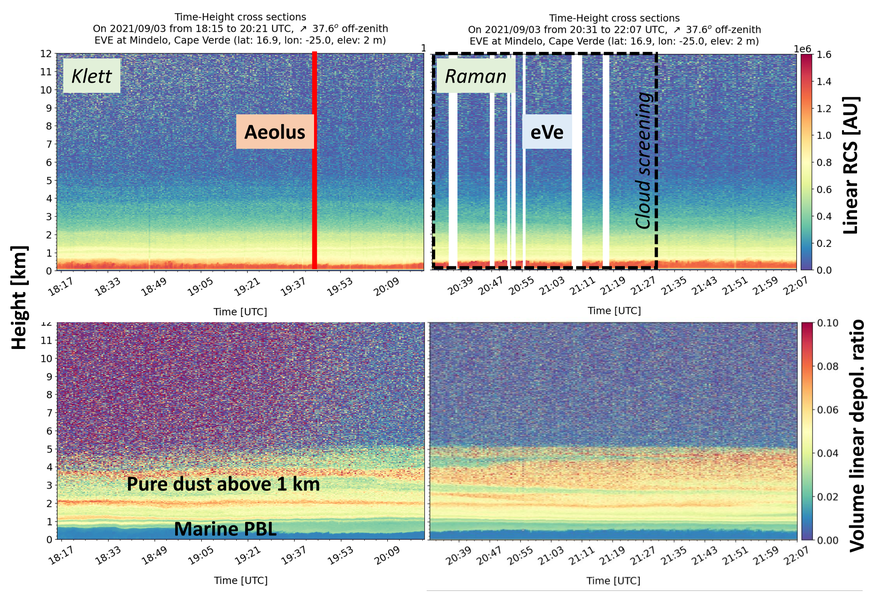
Nearest Aeolus overpass:
Friday evening at ~ 19:36 UTC and ~23 km from site (see map)
8 eVe-Aeolus collocated measurements (4 on July; 4 on September)

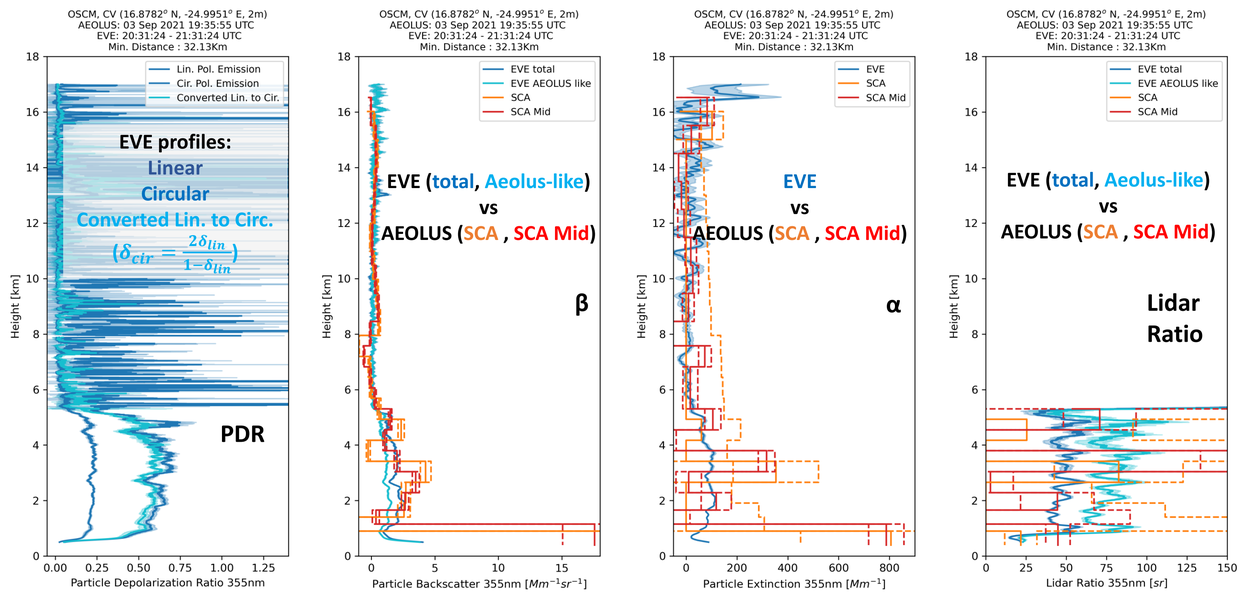




Credits: *German Aerospace Center (DLR)*

Case 03/09/2021





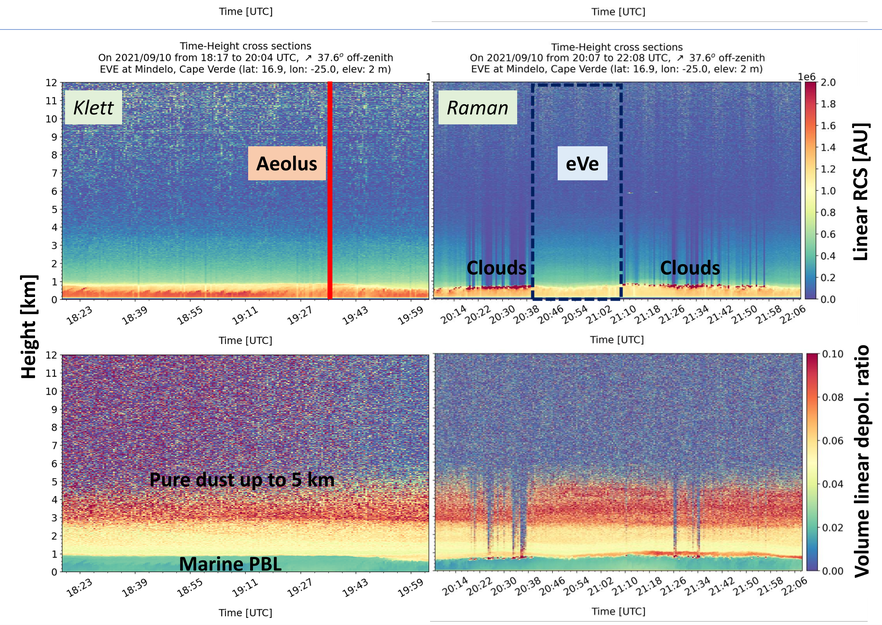
EVE vs AEOLUS comments

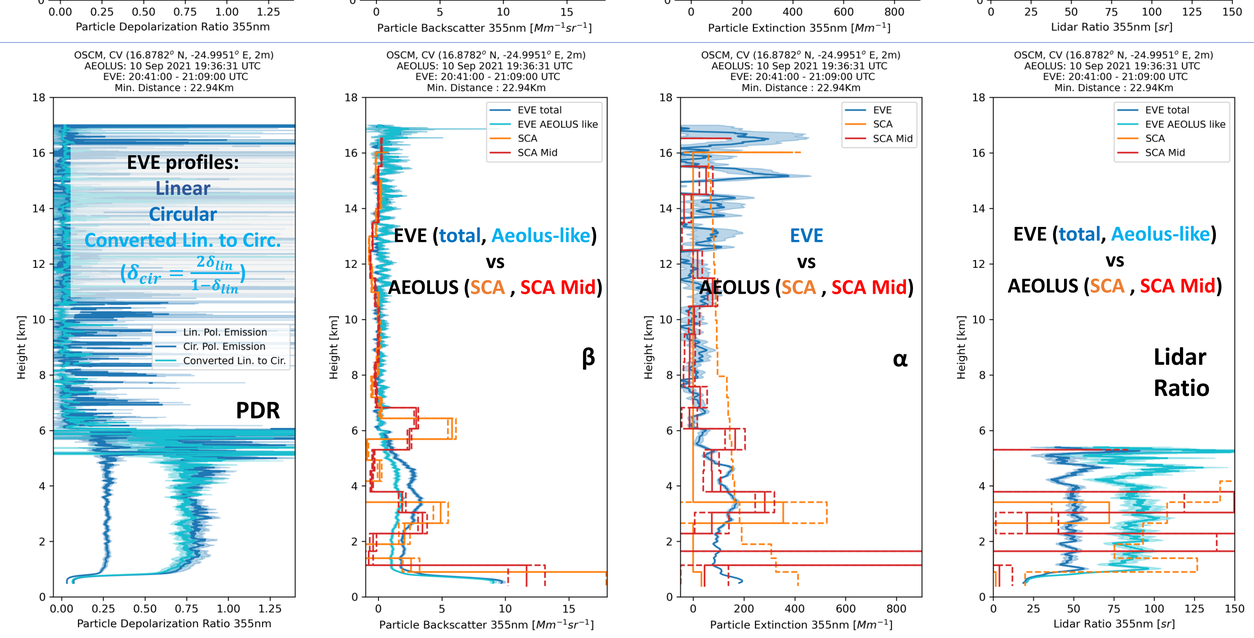
β:
- good agreement above 1km
- AEOLUS first bin overestimation

α:
- good agreement above 1 km; slight overestimation at 3.5 km
- AEOLUS first bin overestimation

Lidar Ratio:
- AEOLUS is too noisy

Case 10/09/2021





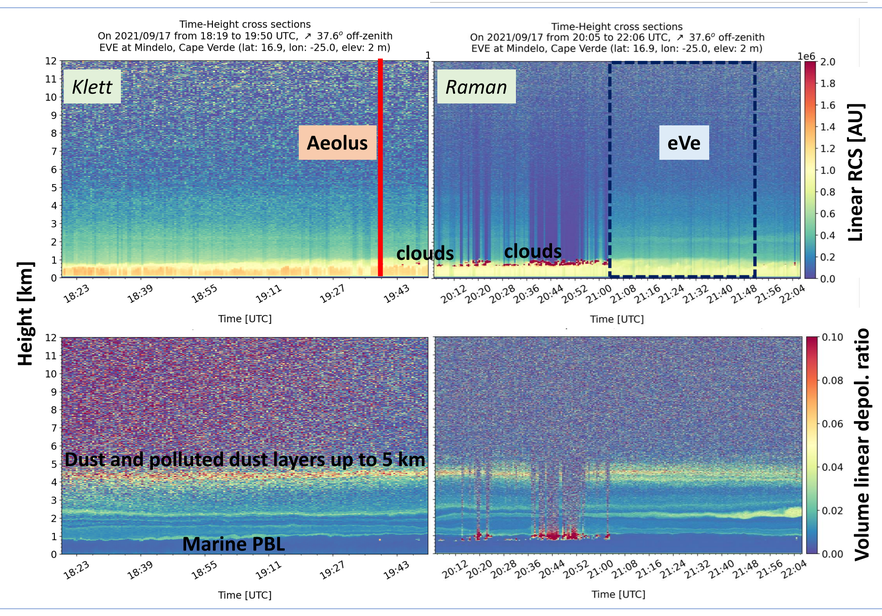
EVE vs AEOLUS comments

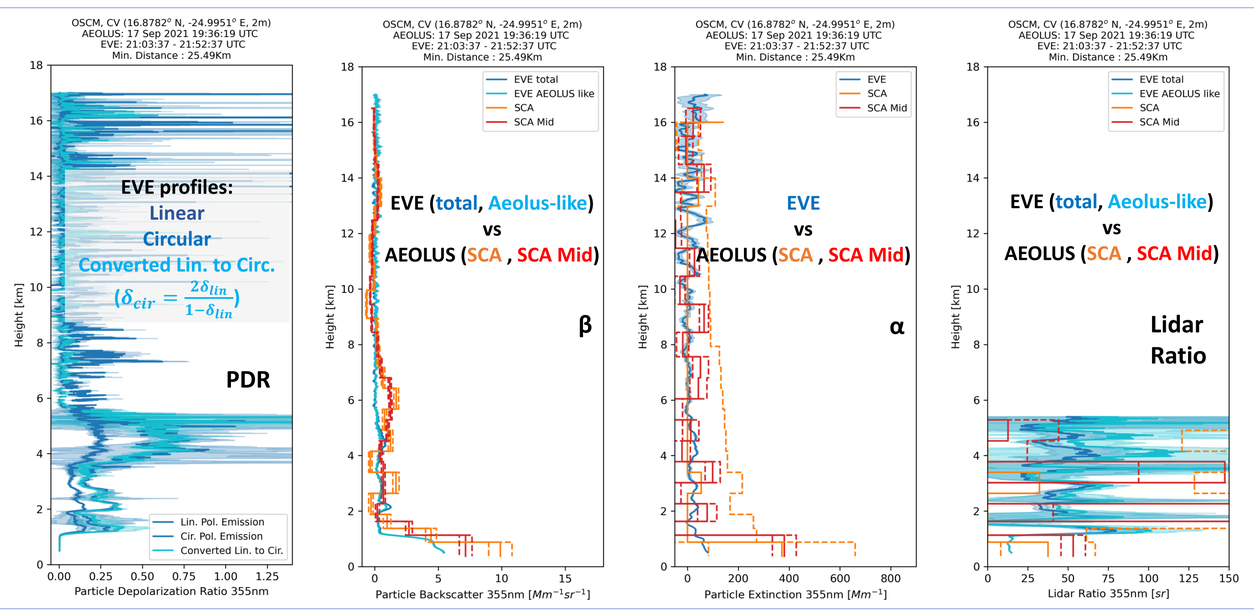
β:
- Good agreement in all heights

α:
- Good agreement above 1 km; slight overestimation at 3.5 km
- AEOLUS overestimation at 1 km

Lidar Ratio:
- AEOLUS is too noisy

Case 17/09/2021





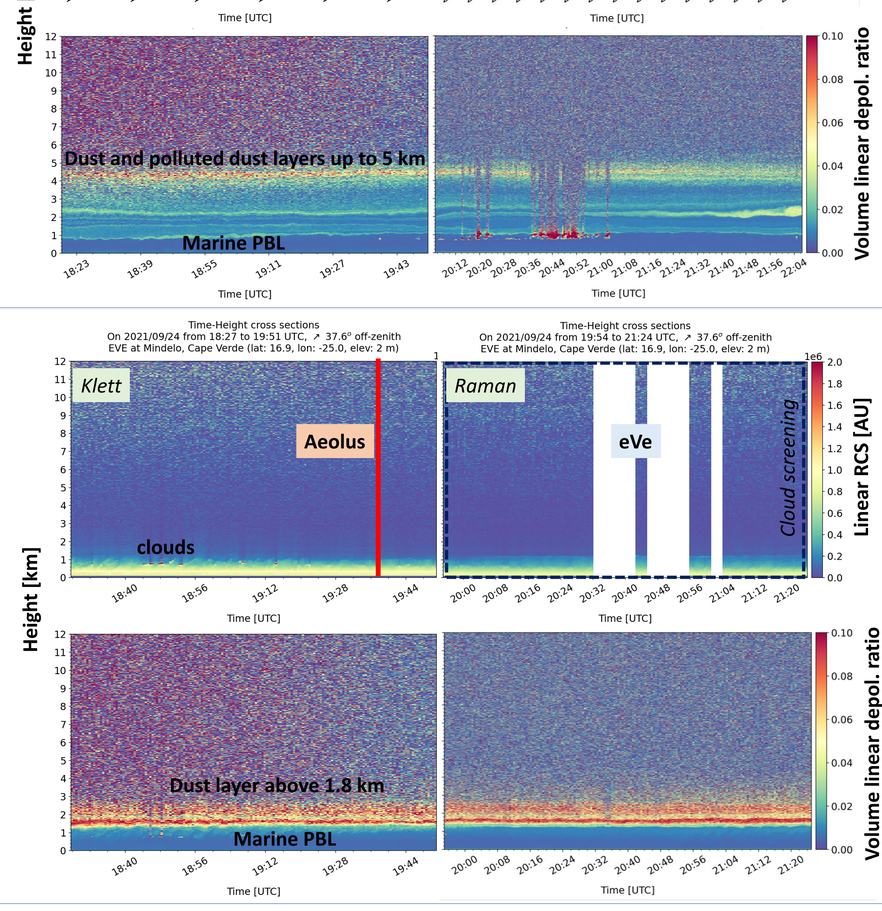
EVE vs AEOLUS comments

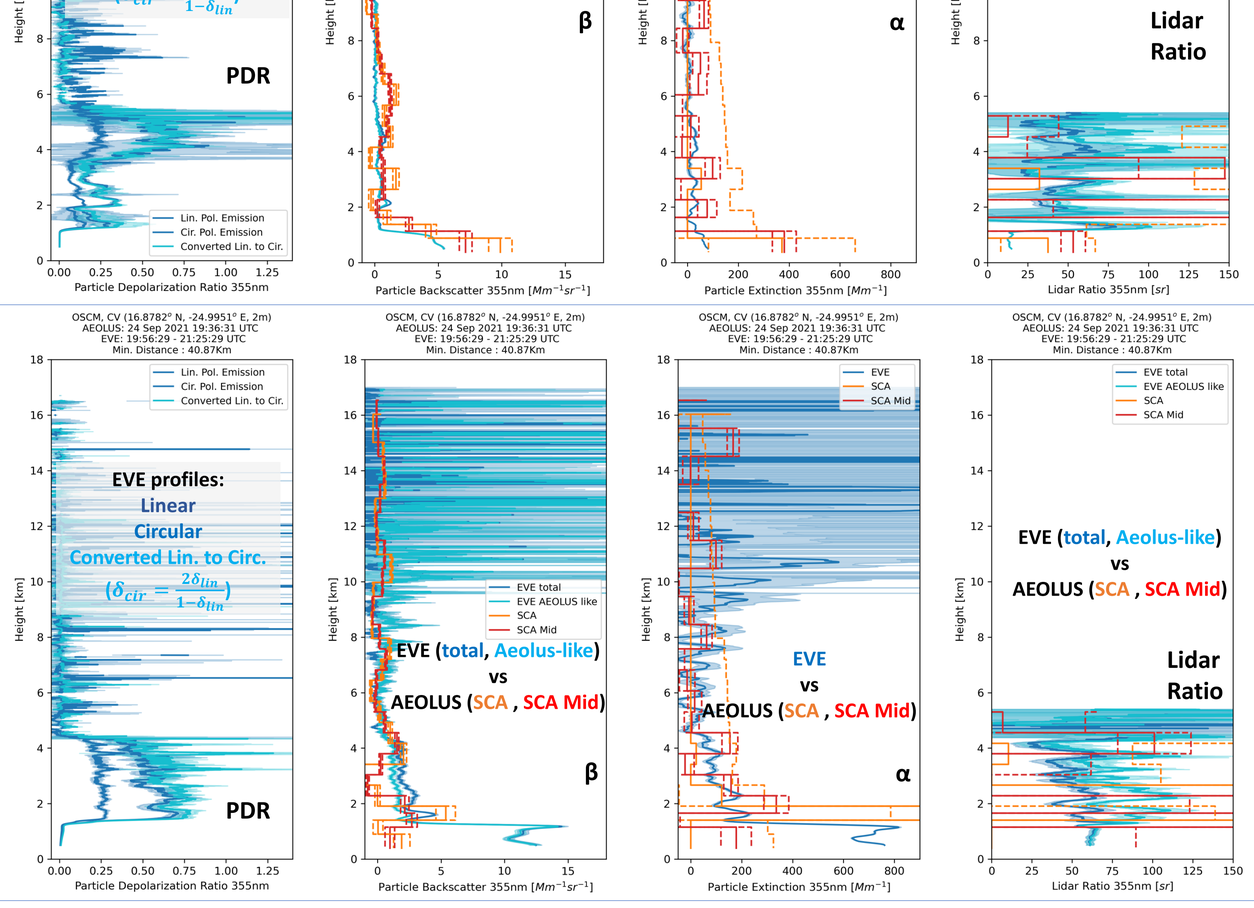
β:
- Very good agreement in all heights

α:
- Very good agreement above 1km
- AEOLUS first bin overestimation

Lidar Ratio:
- AEOLUS is too noisy

Case 24/09/2021





EVE vs AEOLUS comments

β:
- Very good agreement above 1km
- AEOLUS first bin overestimation
- EVE nosier Raman retrievals due to cloud screening and near daytime retrieval

α:
- Very good agreement above 1km
- AEOLUS first bin underestimation

Lidar Ratio:
- AEOLUS is too noisy

Acknowledgements: