LITES lidar in UK: Intercomparisons with ATLID level 1 product

Avinash Yadav

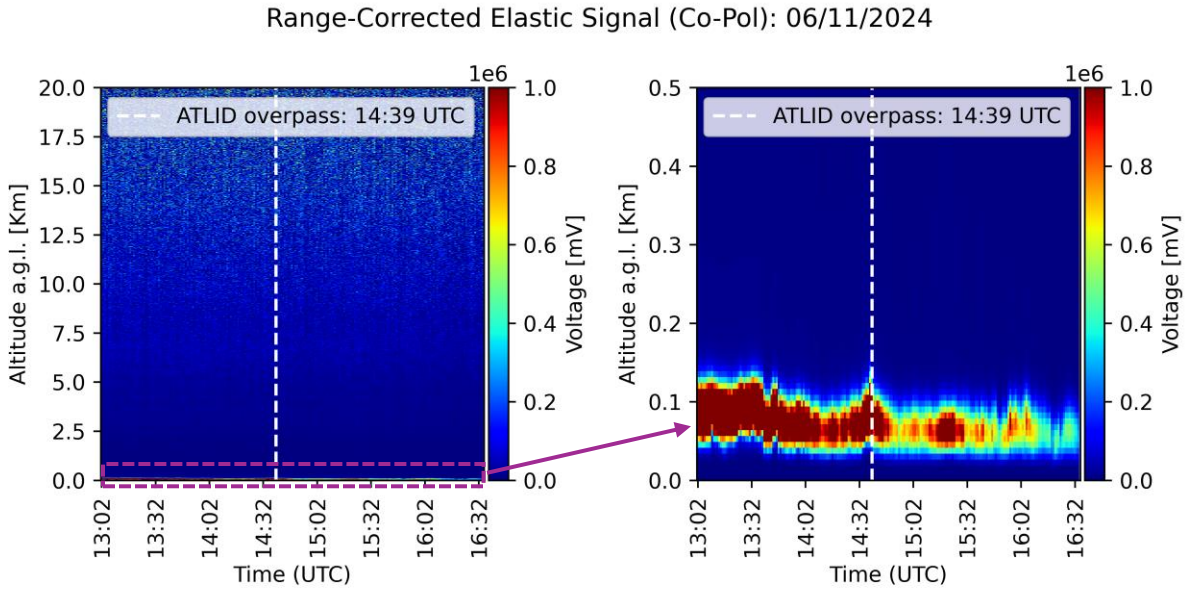
University of Hertfordshire, UK

1st ESA-JAXA EarthCARE In-Orbit Validation Workshop

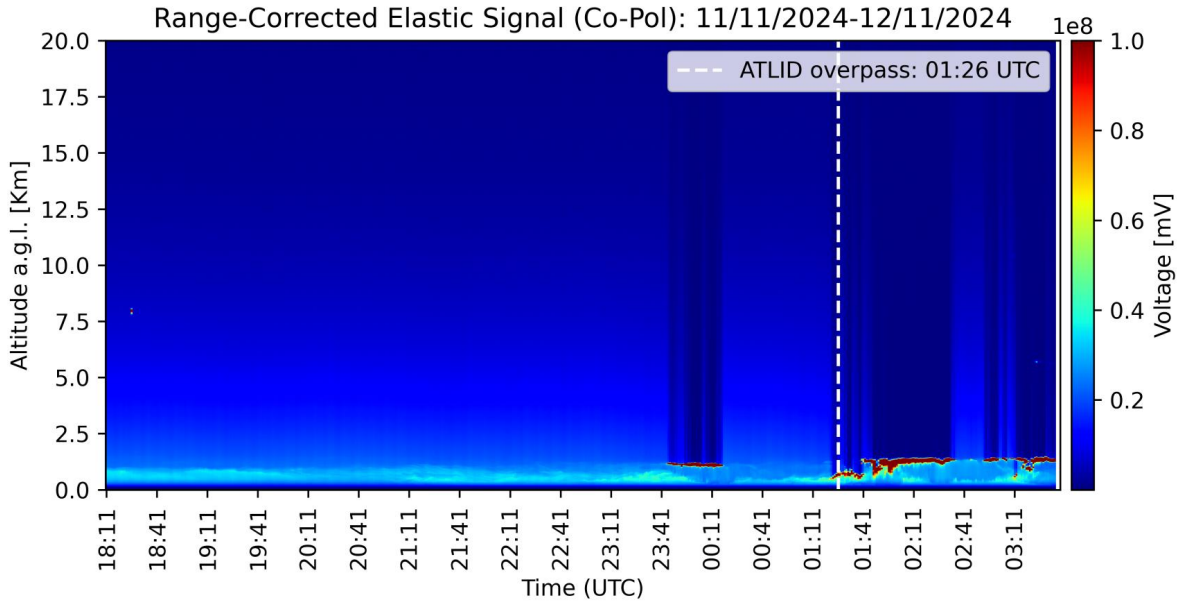
14 – 17 January 2025 | VIRTUAL EVENT

ATLID-LITES Observation Summary

- Observation date: 6th Nov 2024
- Overpass time: 14:39:28 UTC
- Overpass distance(mid-swath): 52.9 Km
- Aerosol products: level-1
- Atmospheric conditions: thick layer of mist

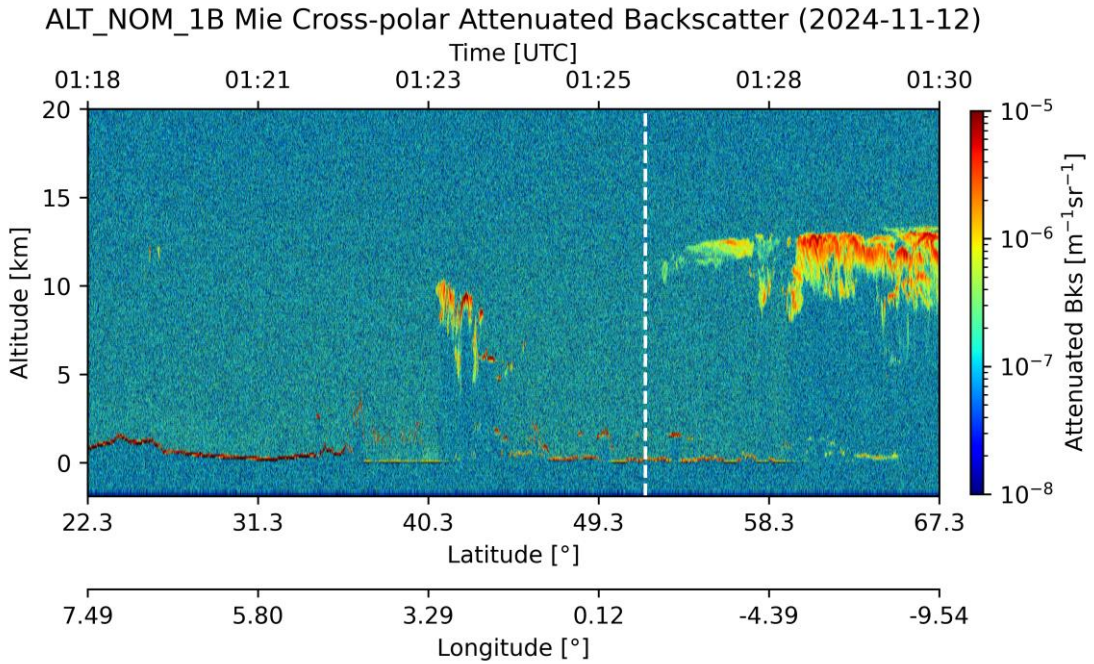


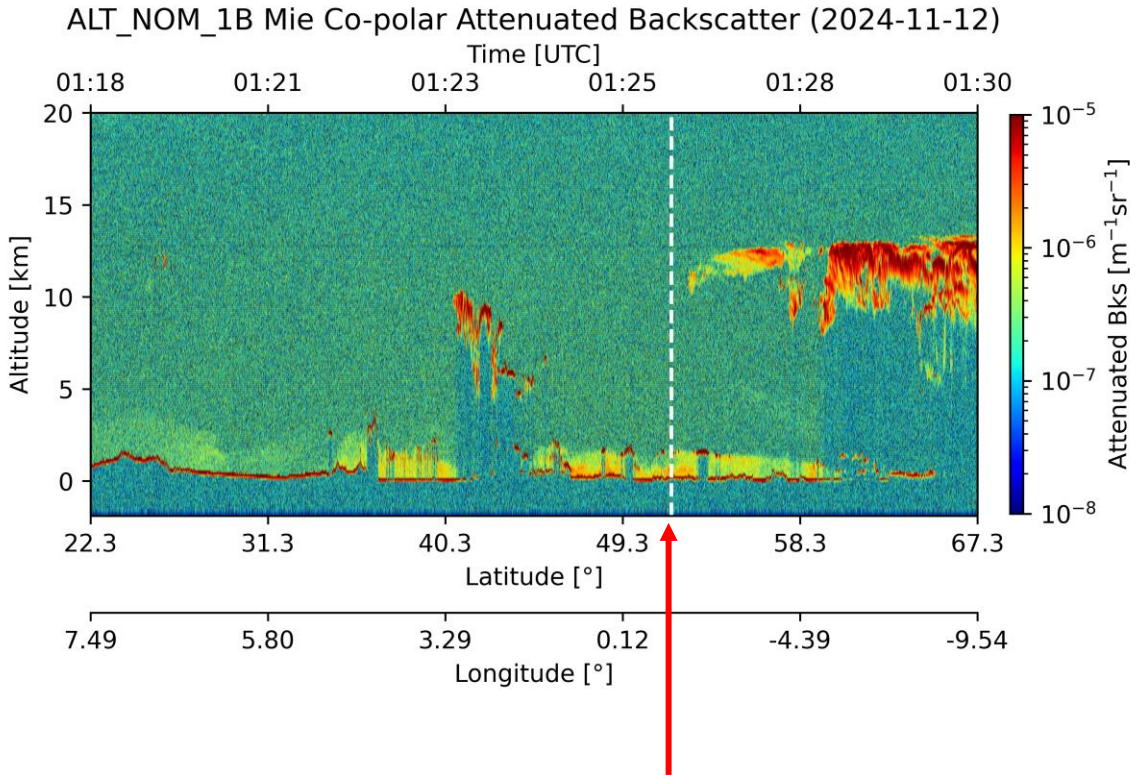
- Observation Date: 12th Nov 2024
- Overpass time: 01:26:18 UTC
- Overpass distance(mid-swath): 21.4 Km
- Aerosol products: level-1
- Atmospheric conditions: clear sky



ATLID Observation Summary

- Observation Date: 12th Nov 2024
- Overpass time: 01:26 UTC
- Distance(mid-swath) from LITES: 21.4 Km
- Aerosol products: ALT_NOM_1B

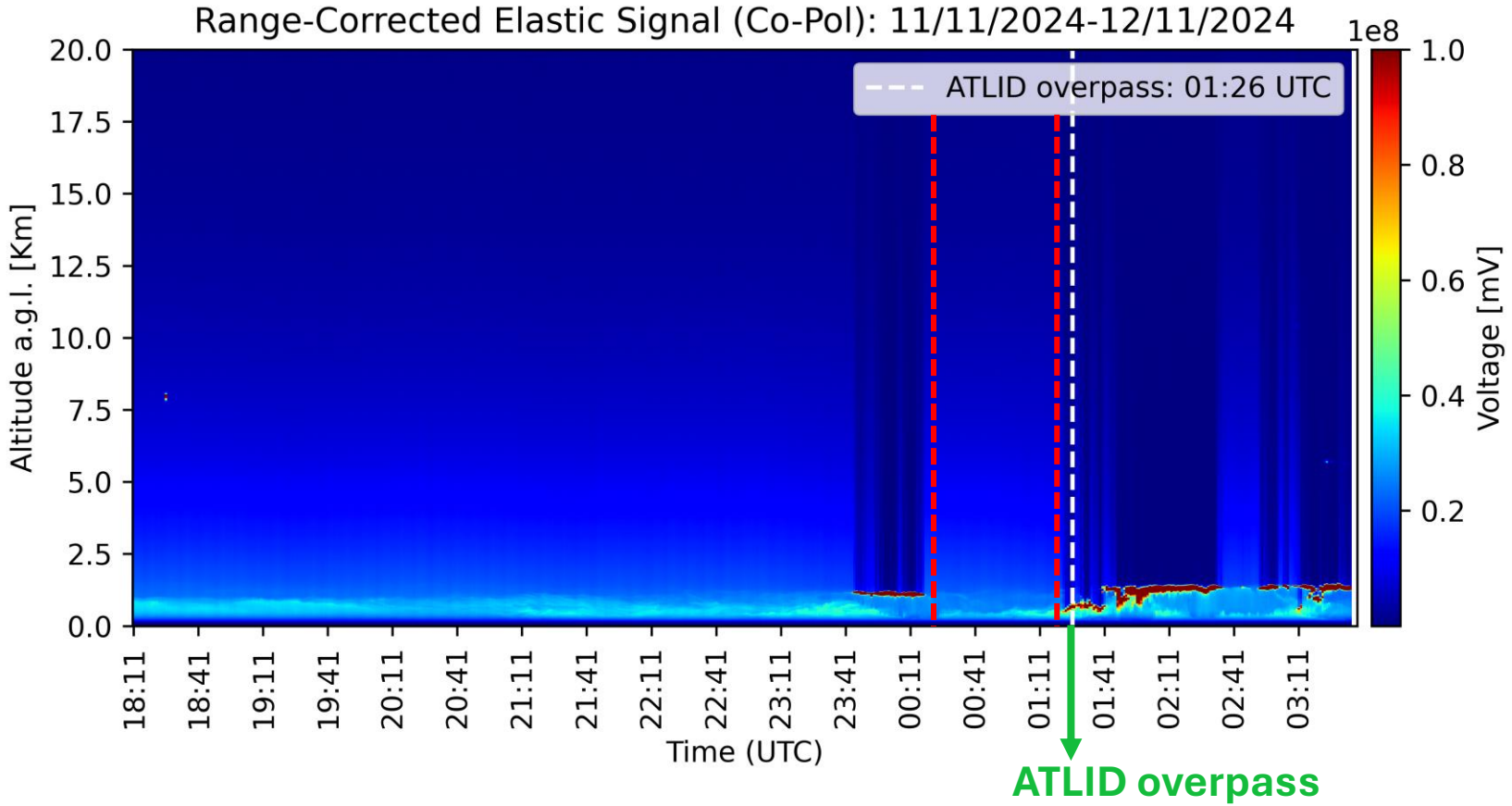




LITES lidar (51.75N, 0.23W)

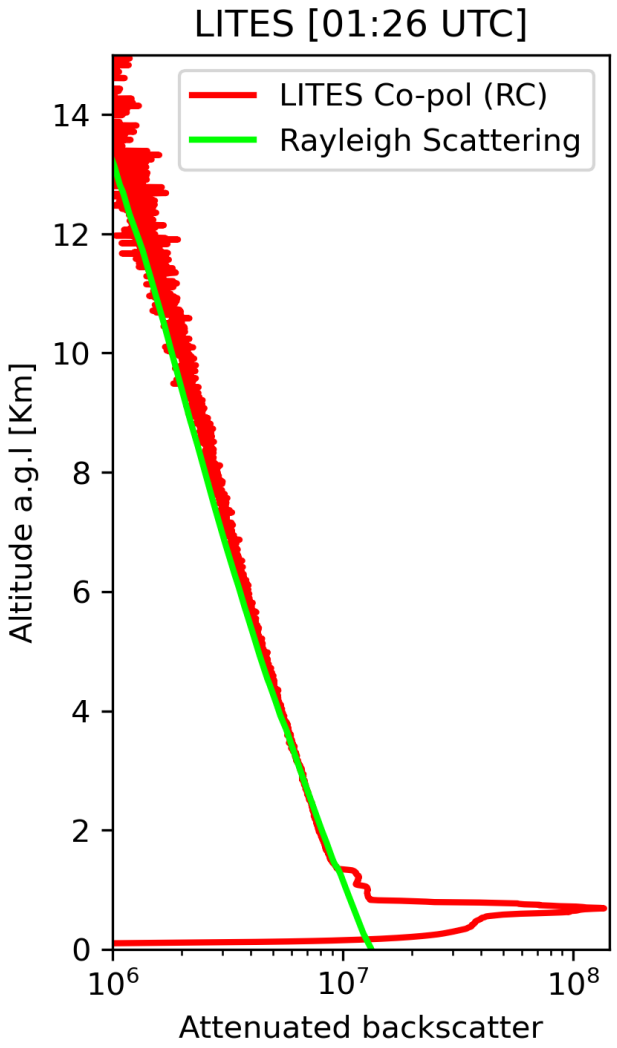
Ground Observation Summary

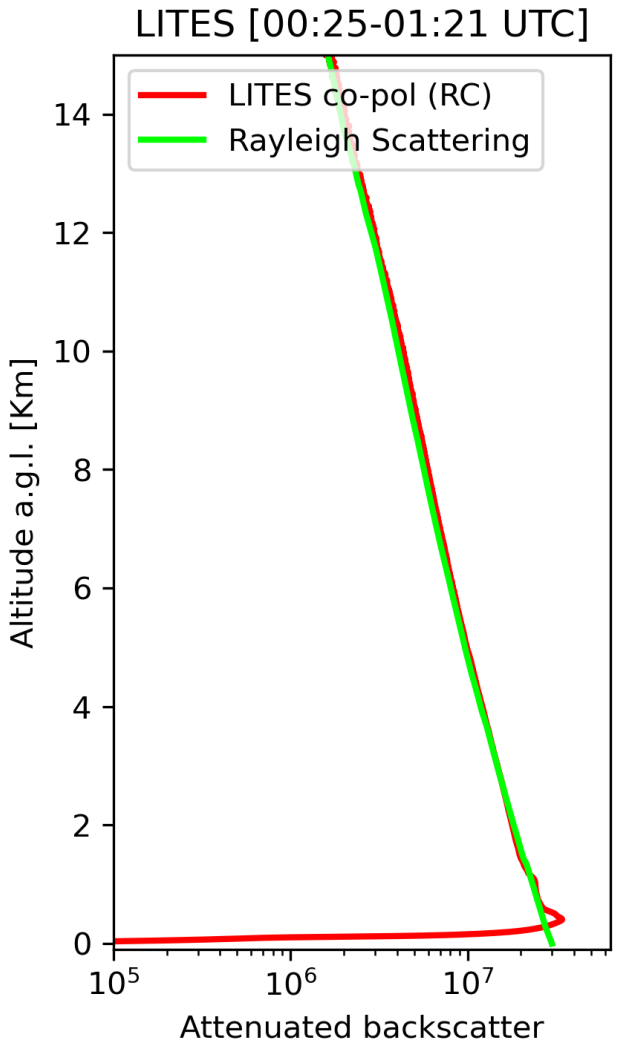
- Observation time: 18:11 - 03:38 UTC.
- Distance to mid-swath: 21.4 Km
- Atmospheric conditions: Low-level dense cloud appears at 01:22 UTC just before the overpass
- Data conditions: Raman signals were out of alignment.
- Background atmosphere: radiosonde measurements from (53.0°N, -1.25°W).
- Aerosol/cloud retrieval: single PMT elastic signals between 00:25-01:21 are used to retrieve.

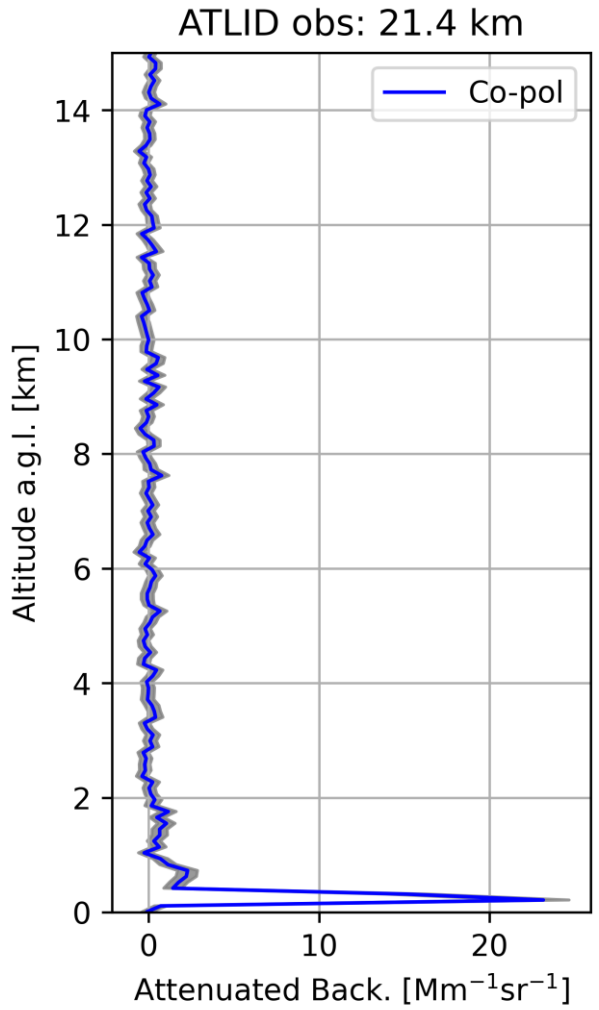


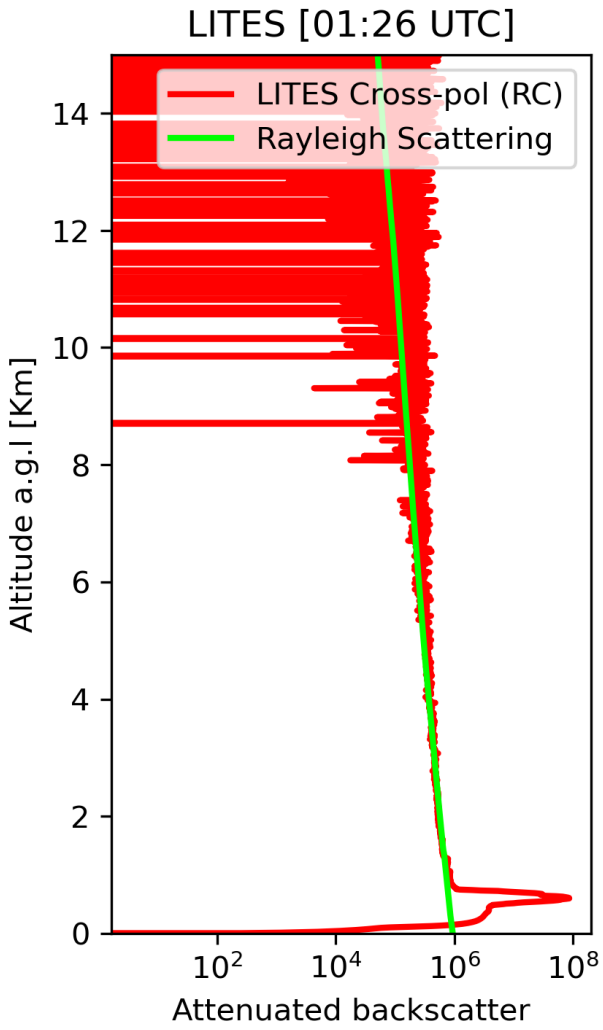
Range corrected elastic lidar signals (Co-Pol)

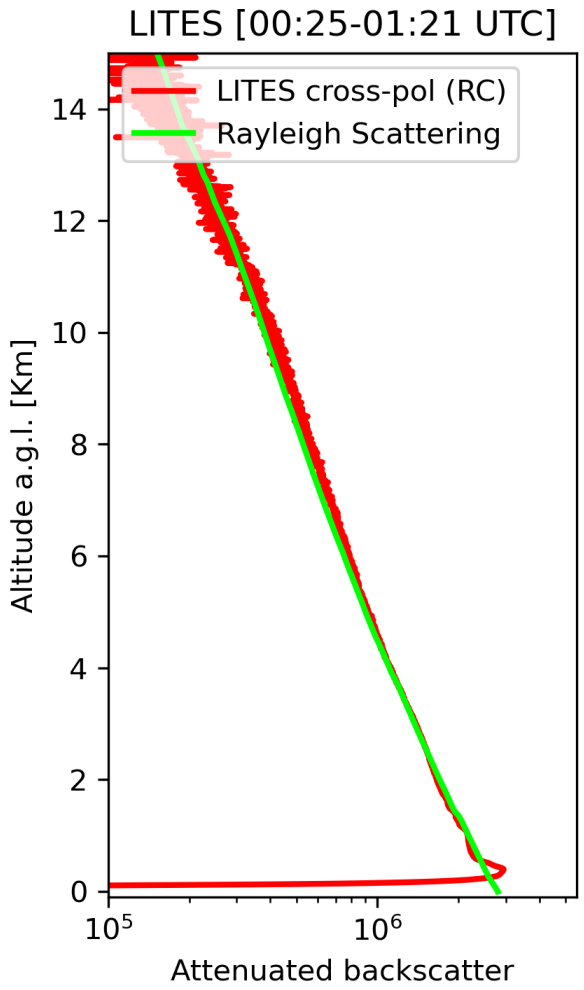
ATLID-LITES Comparison Summary

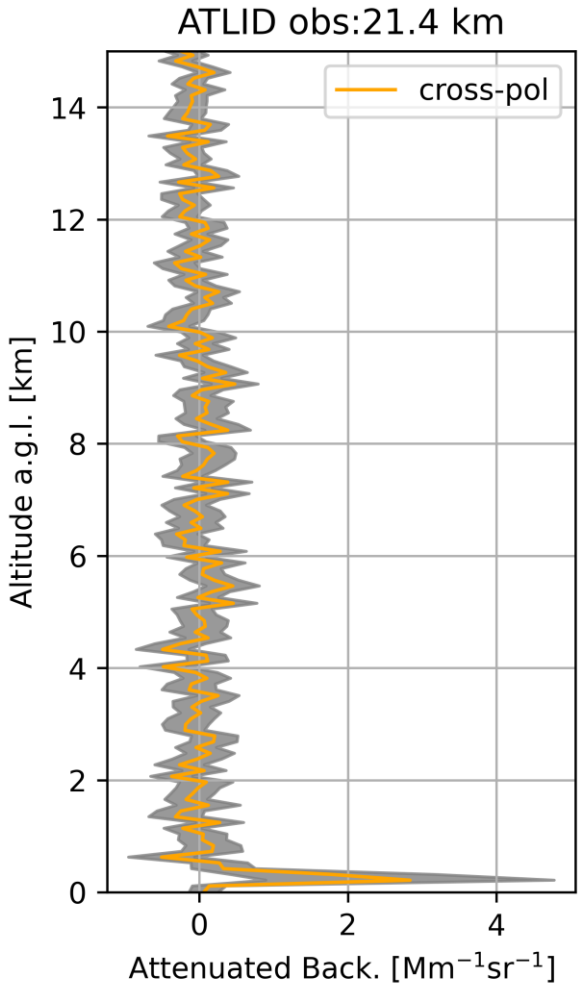







LITES [01:26 UTC]
LITES Cross-pol (RC)
Rayleigh Scattering
Altitude a.g.l [Km]
Attenuated backscatter


LITES [00:25-01:21 UTC]
LITES cross-pol (RC)
Rayleigh Scattering
Altitude a.g.l. [Km]
Attenuated backscatter


ATLID obs:21.4 km
cross-pol
Altitude a.g.l. [km]
Attenuated Back. [Mm^{-1}sr^{-1}]

Thank You!