

Automatic lidar calibration and processing program for multiwavelength Raman polarization lidar

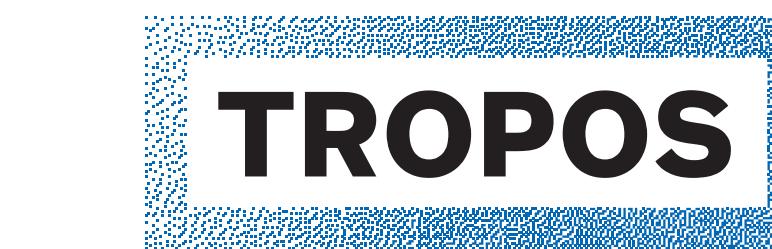
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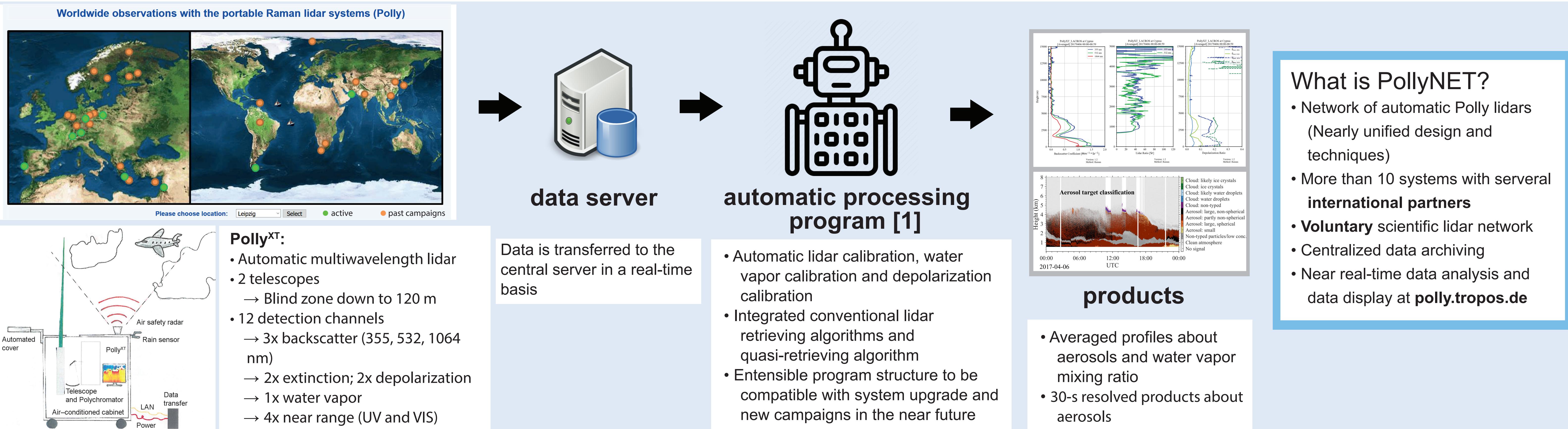
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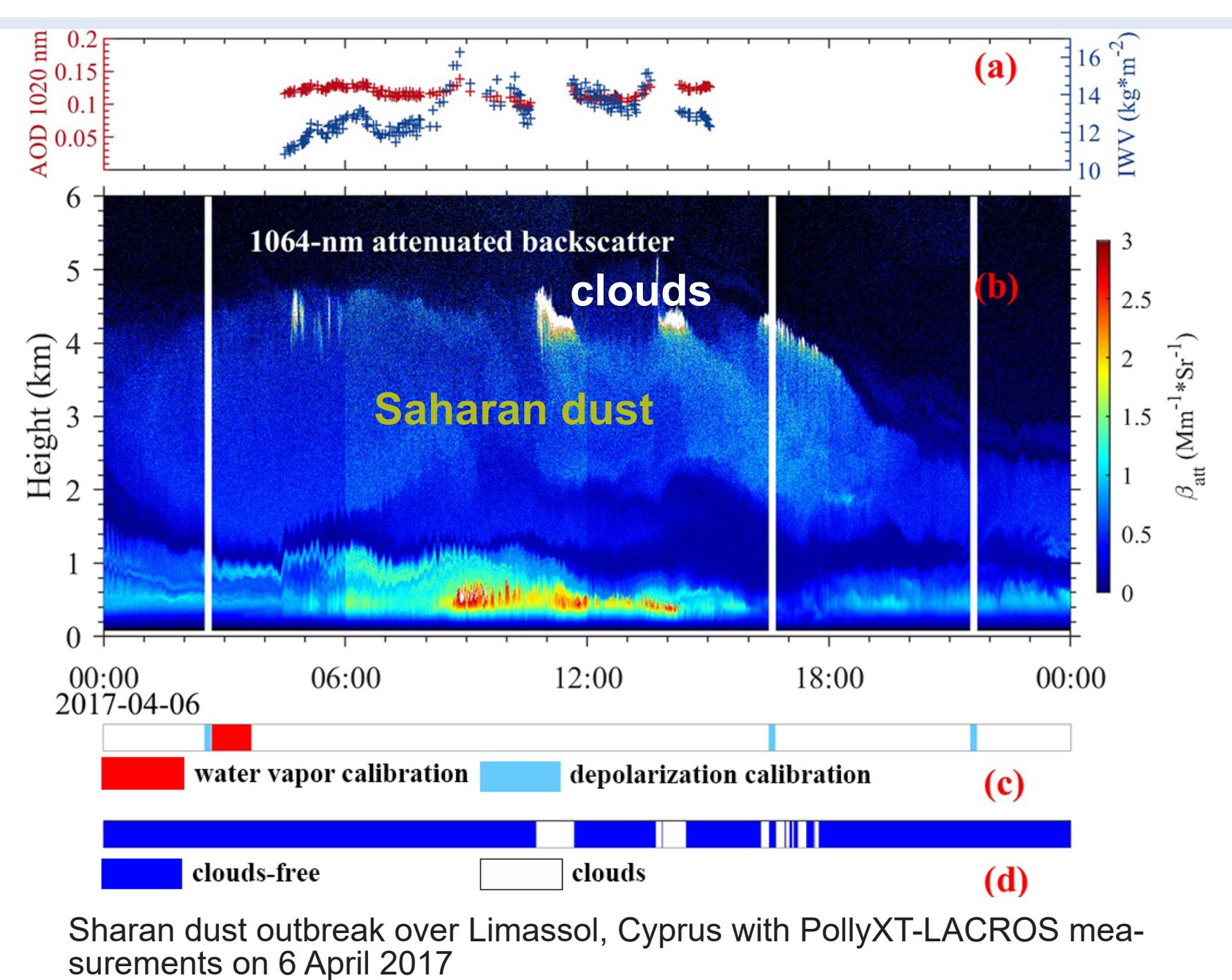
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PollyNET - Automated Raman-polarization lidar network in the framework of ACTRIS/EARLINET

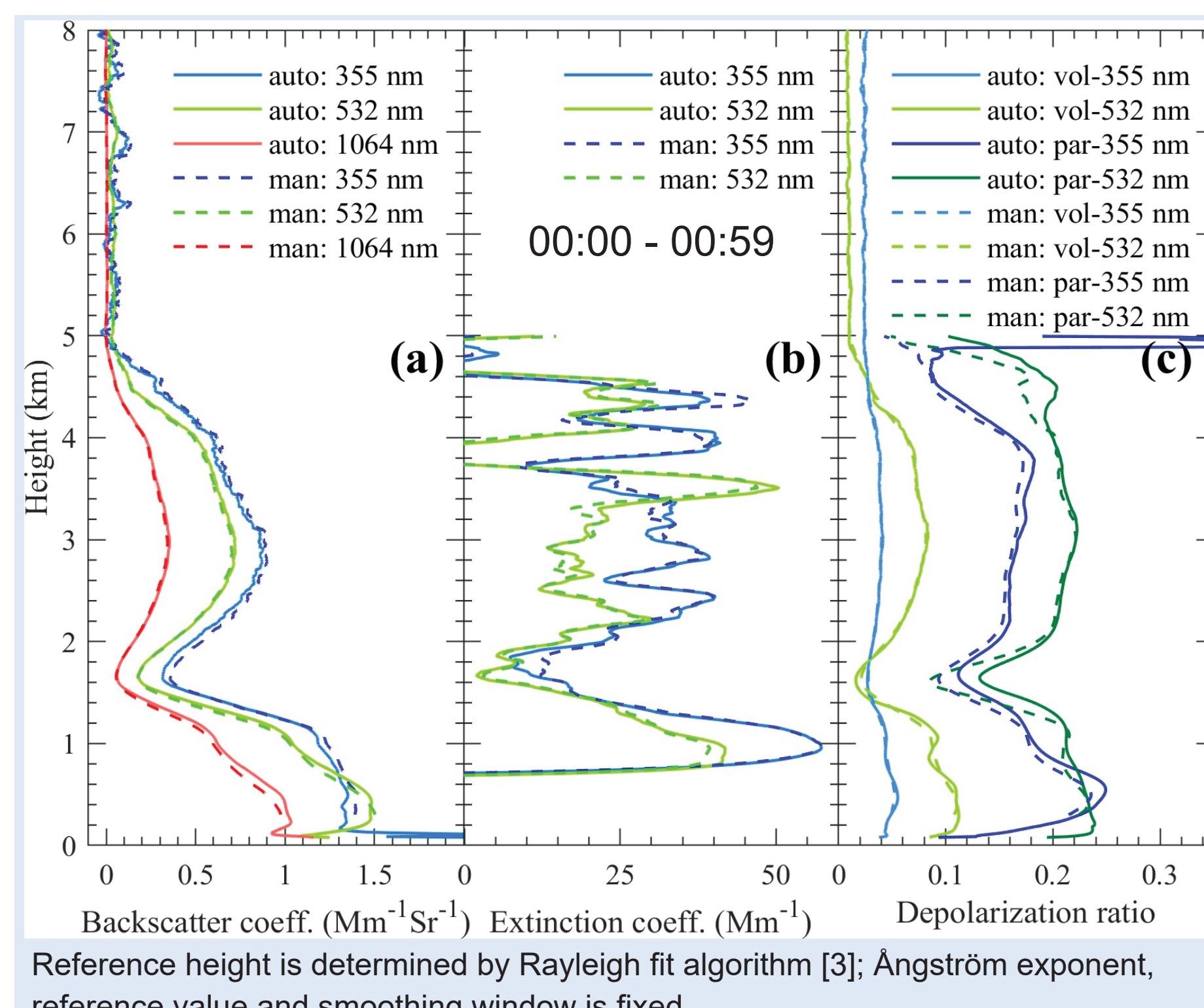


1. Segmentation



- Cloud-screening for choosing continuous cloud-free profiles [2]
- Segment determination for depolarization calibration, water vapor channel calibration

2. Vertical profiles validation



Conclusions

- Automatic lidar calibration and processing program was setup to process all the realtime PollyNET data
- Good agreement was found when comparing with the manual retrieving profiles
- Ground-based lidar needs to be calibrated regularly

Automatic processing program

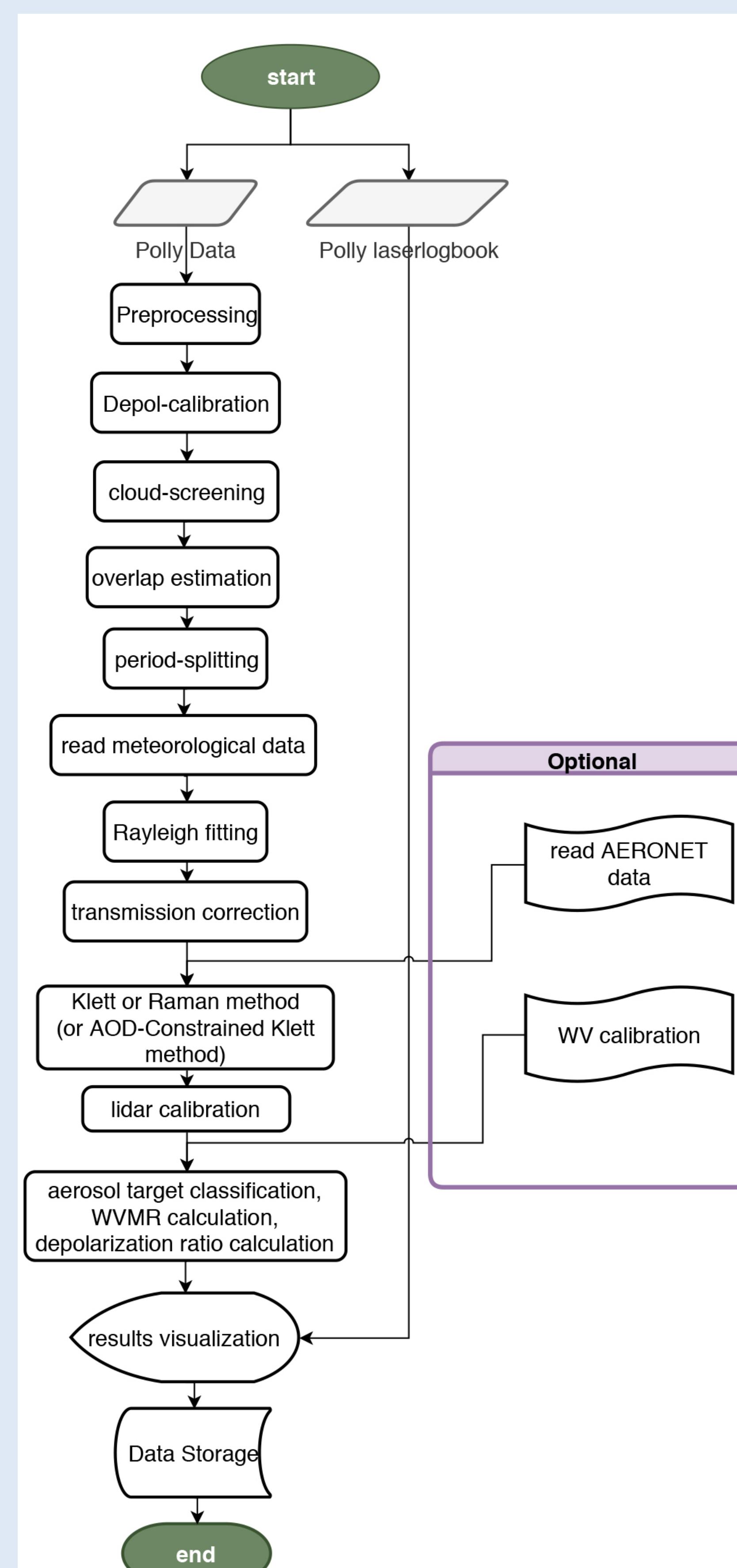
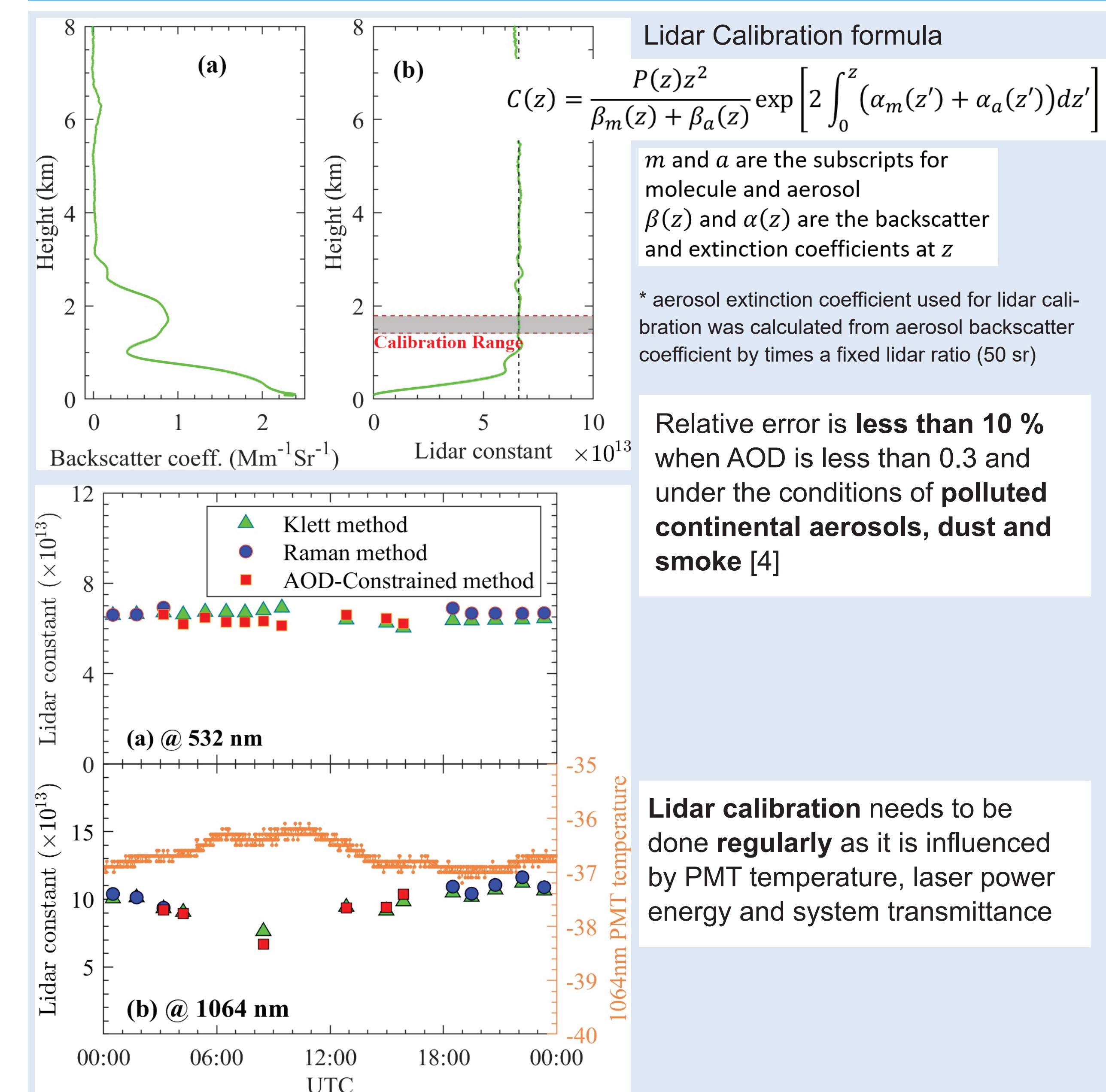
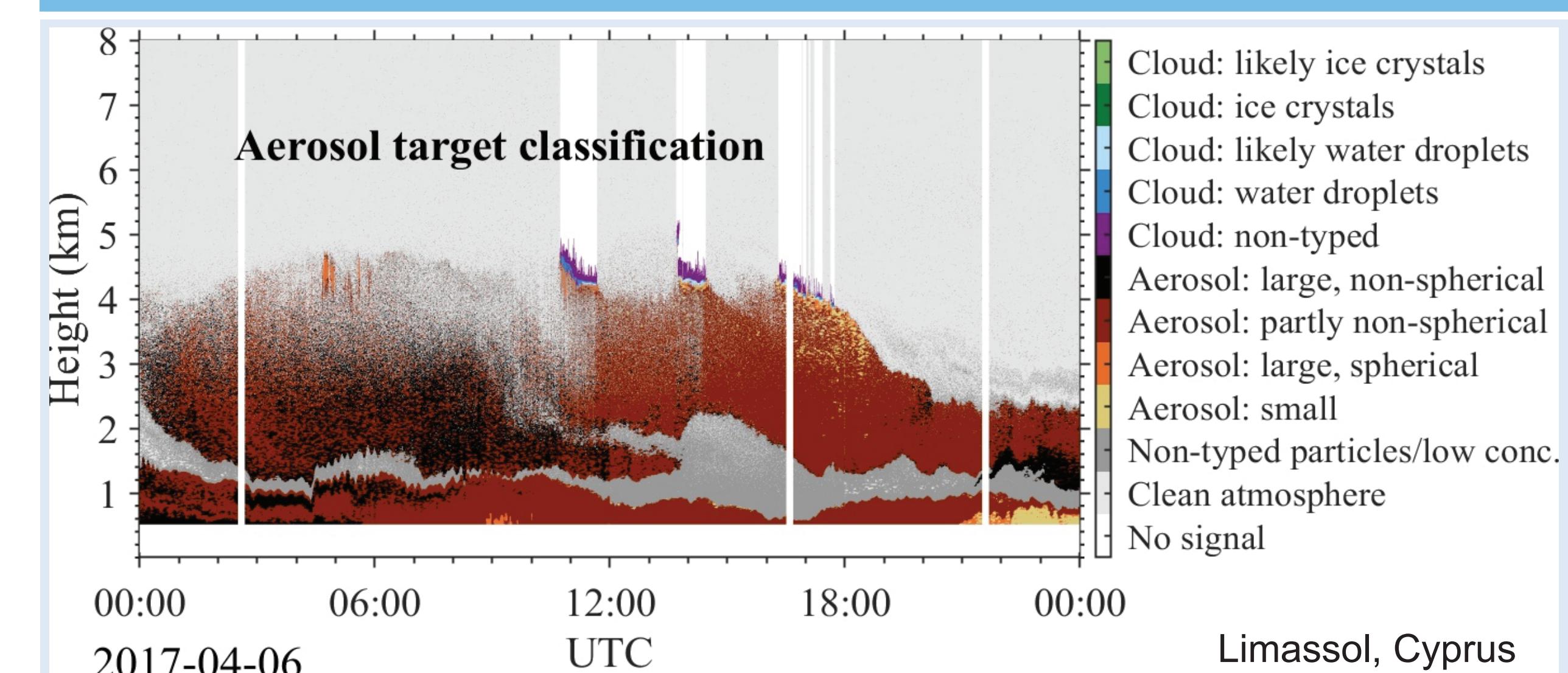


Figure 1. Flowchart of automatic lidar processing program for PollyNET

3. Lidar calibration

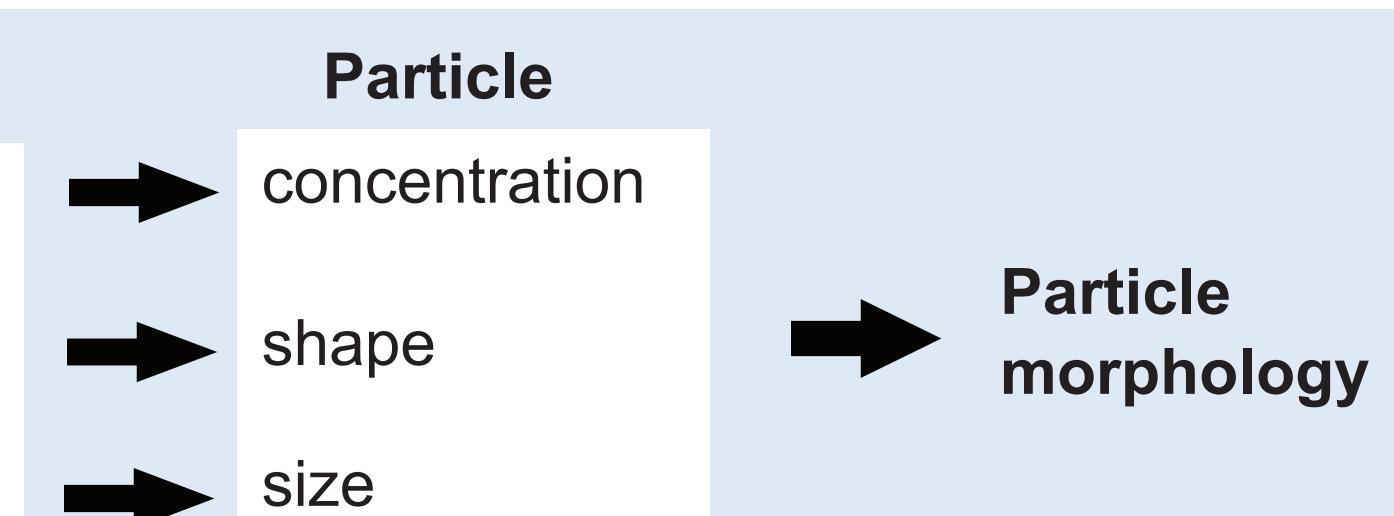


4. Target classification [3]



Quasi-retrieving algorithm [3]

- backscatter coefficient
- particle depolarization coefficient
- Ångström exponent



References

- [1] ZPYin: ZPYin/Pollynet_Processing_Chain: Pollynet Processing Chain, doi:10.5281/zenodo.2604521, 2019.
- [2] Baars, H., et al. (2016), An overview of the first decade of Polly(NET): an emerging network of automated Raman-polarization lidars for continuous aerosol profiling, *Atmospheric Chemistry and Physics*, 16(8), 5111-5137, doi:10.5194/acp-16-5111-2016.
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- [4] Baars, H., P. Seifert, R. Engelmann, and U. Wandinger (2017), Target categorization of aerosol and clouds by continuous multiwavelength-polarization lidar measurements, *Atmospheric Measurement Techniques*, 10(9), 3175-3201, doi:10.5194/amt-10-3175-2017