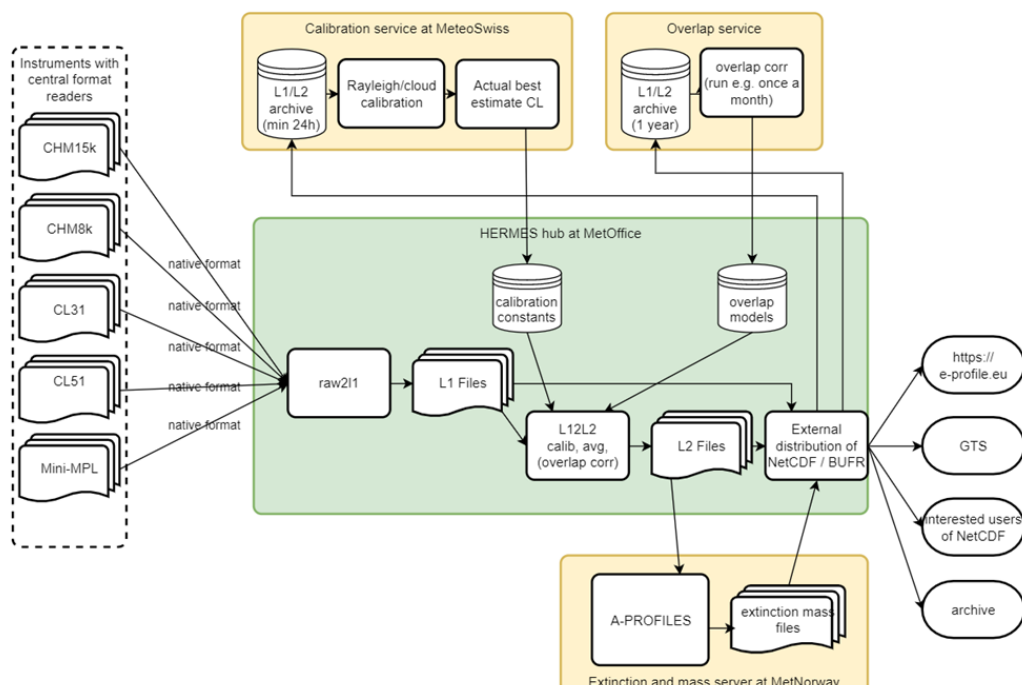


Towards the implementation of an ABL algorithm in E-profile

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The objective of this VMG was to investigate the feasibility of implementing an atmospheric boundary layer (ABL) height detection algorithm within E-PROFILE. Doing so would make this product available in the E-PROFILE level 2 (L2) data product. Under this VMG several subject experts met and discussed the challenges and difficulties of implementing this type of change within E-PROFILE, and also how the necessary changes might best be achieved. The group decided that some initial steps were needed before consideration could be given to the final goal of ABL detection withing E-PROFILE. The recommendations were:

- 1) An automated overlap correction algorithm for the CHM15K data, applying a temperature dependent overlap function of Hervo et al. (2018), should be incorporated into the E-PROFILE processing. Melania Van Hove has written Matlab code that successful applies this correction in an automated way. An initial step would be the provision of clean and well documented Python code that can easily be implemented at either at the Met Office data hub, or at Meteo-Swiss. The translation and re-factoring work is currently underway as part of this VMG.
- 2) Further automation of the ACL calibration service provided by Meto-Swiss to allow more frequent and timely calibration of the data.
- 3) The group stated that even this initial aim of automatically overlap corrected and calibrated data would be a positive step forward. This would allow the data to be ingested by an ABL algorithm (and also the A-PROFILES algorithm for mass concentrations).



Current processing set up within E-PROFILE (credit Rolf Rüfenacht, E-PROFILE)

Hervo, M., Poltera, Y., and Haeefe, A.: An empirical method to correct for temperature-dependent variations in the overlap function of CHM15k ceilometers, *Atmos. Meas. Tech.*, 9, 2947–2959, <https://doi.org/10.5194/amt-9-2947-2016>, 2016.