

# Towards the homogenisation of Swiss snow depth series (hom4snow)

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## Aim

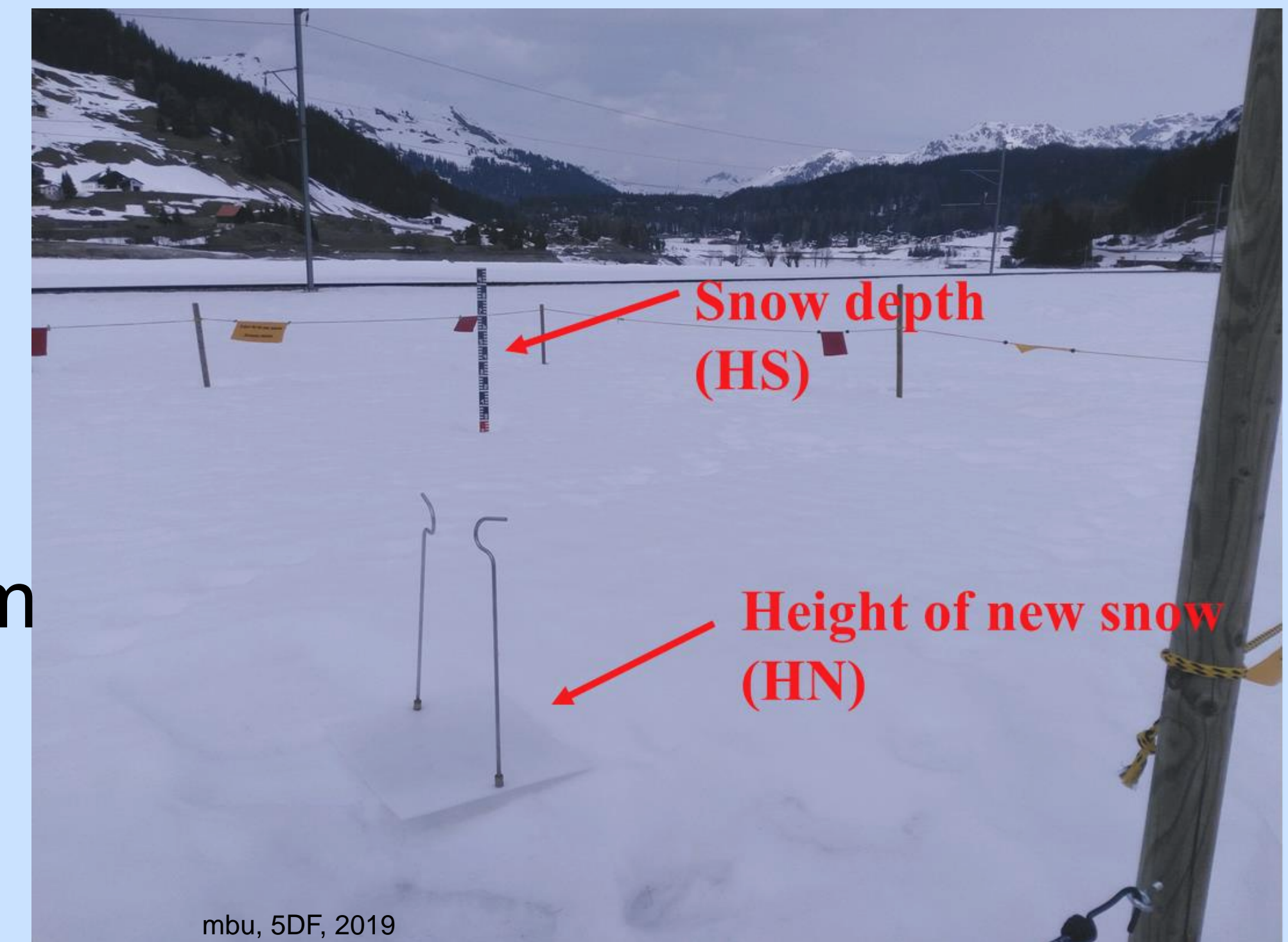
Long-term and homogeneous snow time series

## Problems

- Station relocation
- Observer change
- > Inhomogeneities or breaks in snow series
- Parallel observations
- Gaps filled with parallel series
- > Which series to use?
- > How to merge series?

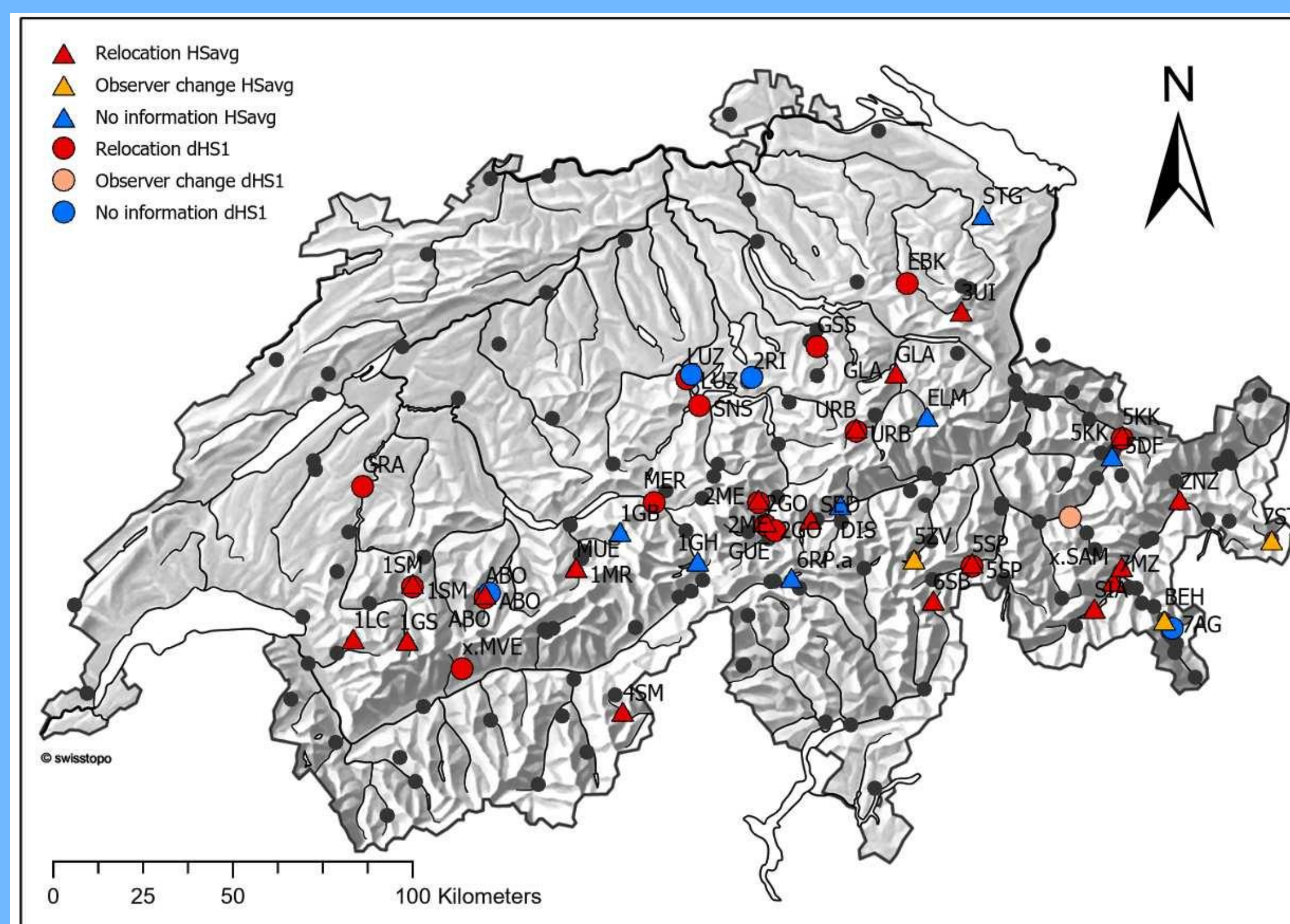
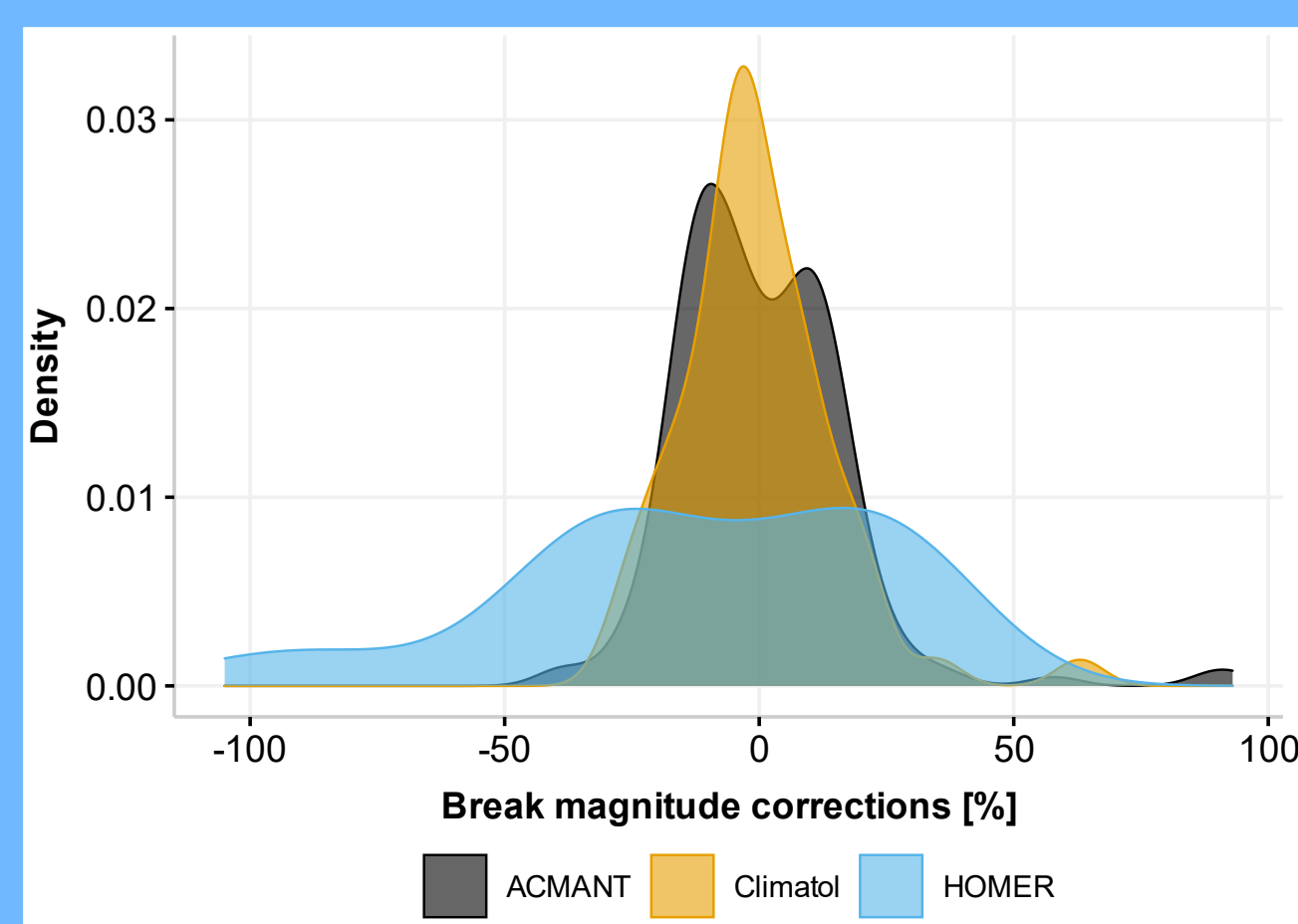
## Data

- Manual measurements, daily resolution, snow depth (HS) and new snow (HN)
- Two institutions: SLF and MeteoSwiss
- 184 stations
- 33 parallel station pairs [SLF, MeteoSwiss]
- Distance < 3 km,  $\Delta z < 150$  m
- > 80 % data Nov - Apr
- Elevation > 400 m a.s.l.



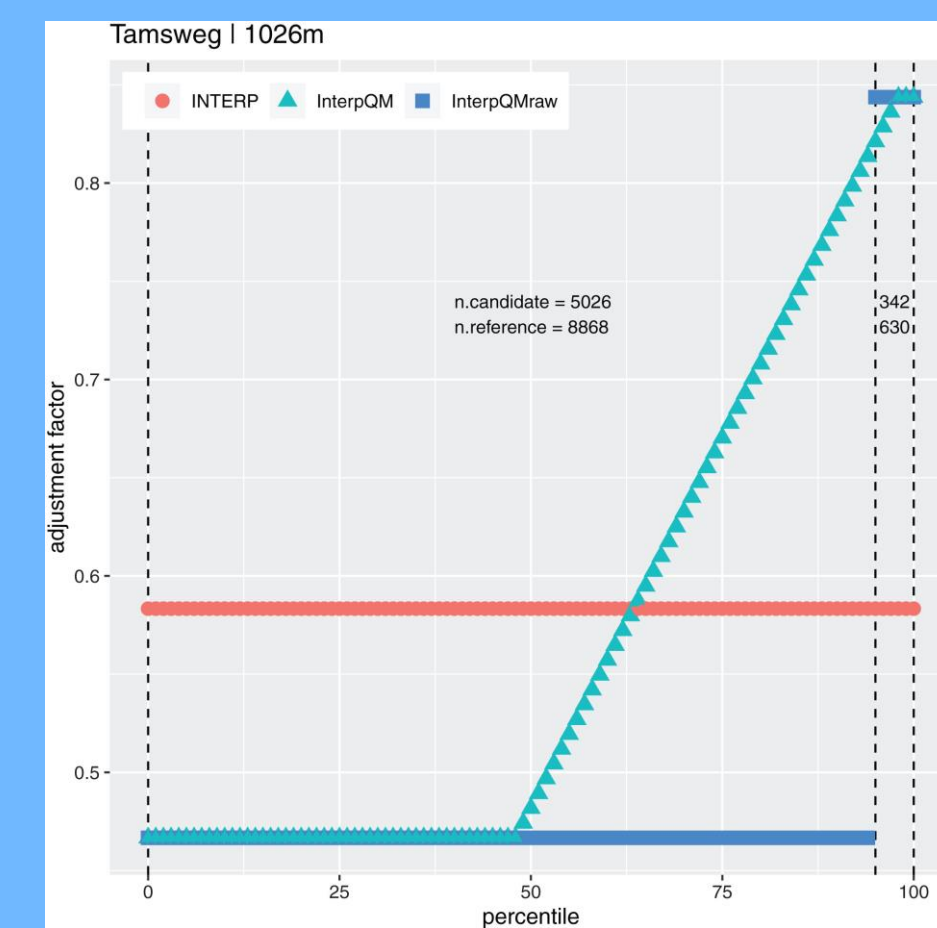
## Break detection methods

- ACMANT, Climatol, HOMER
- Break valid if detected by 2/3 within  $\pm 2$  years



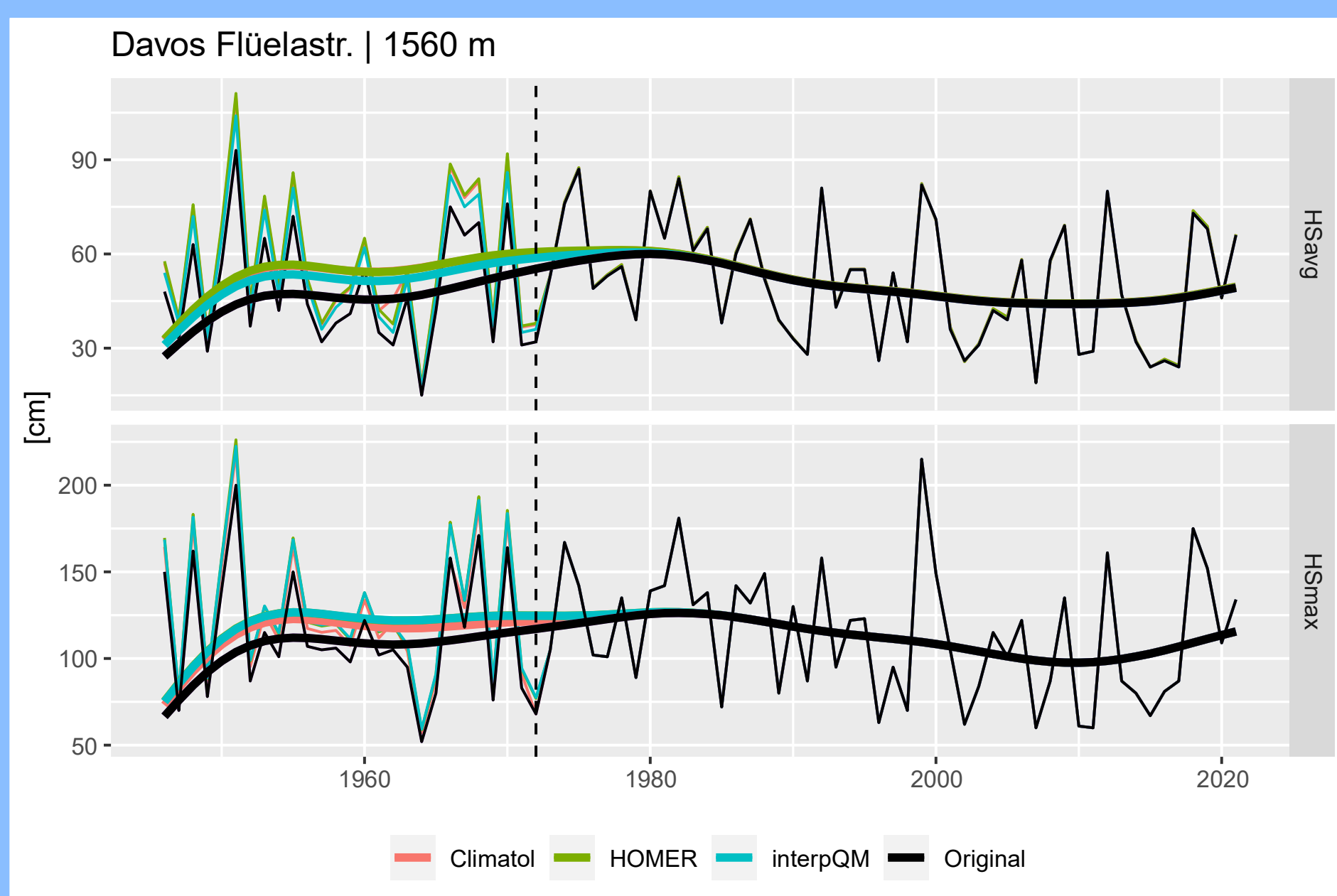
## Adjustments

- Quantile matching InterpQM

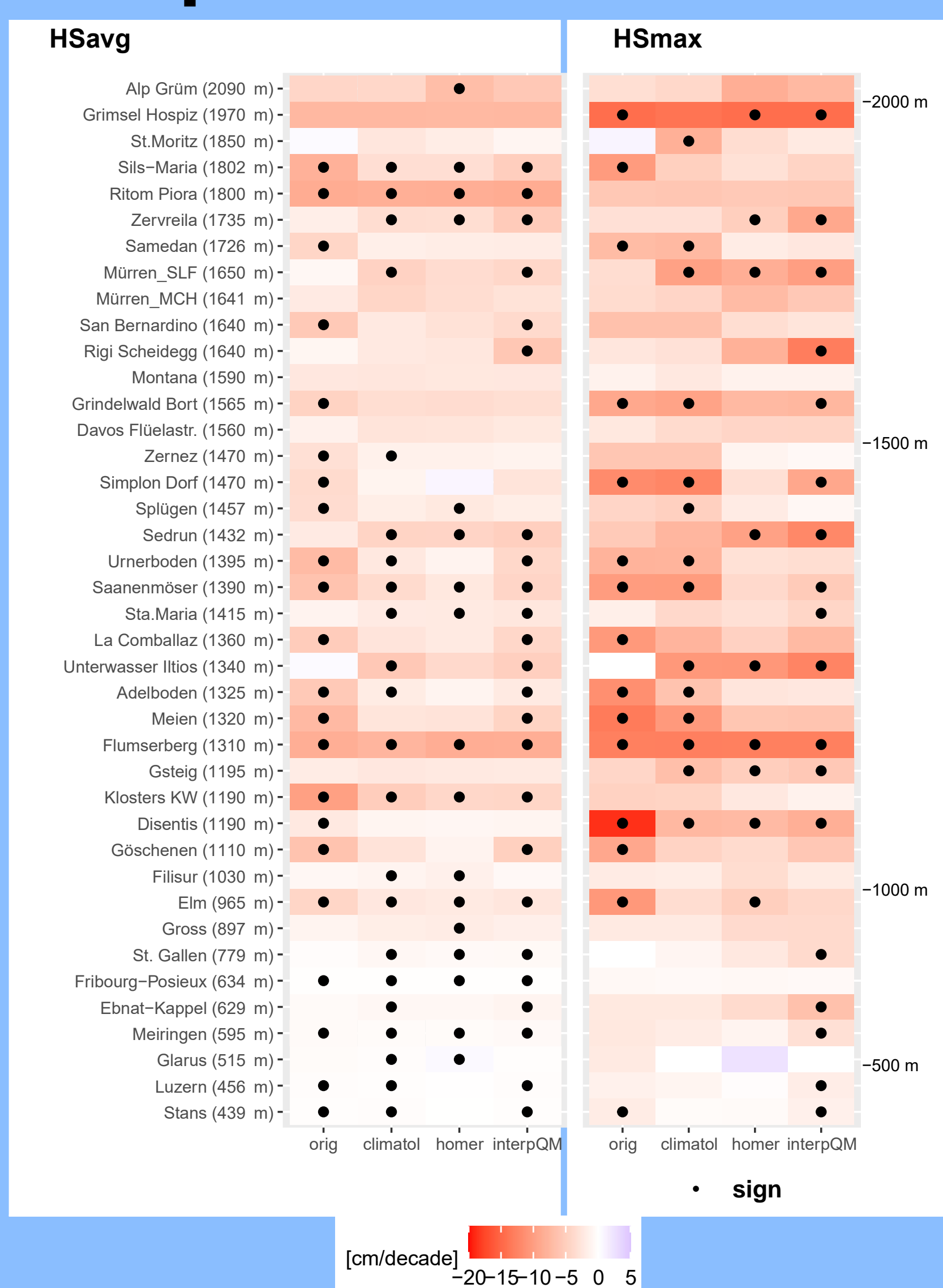


## Homogenisation:

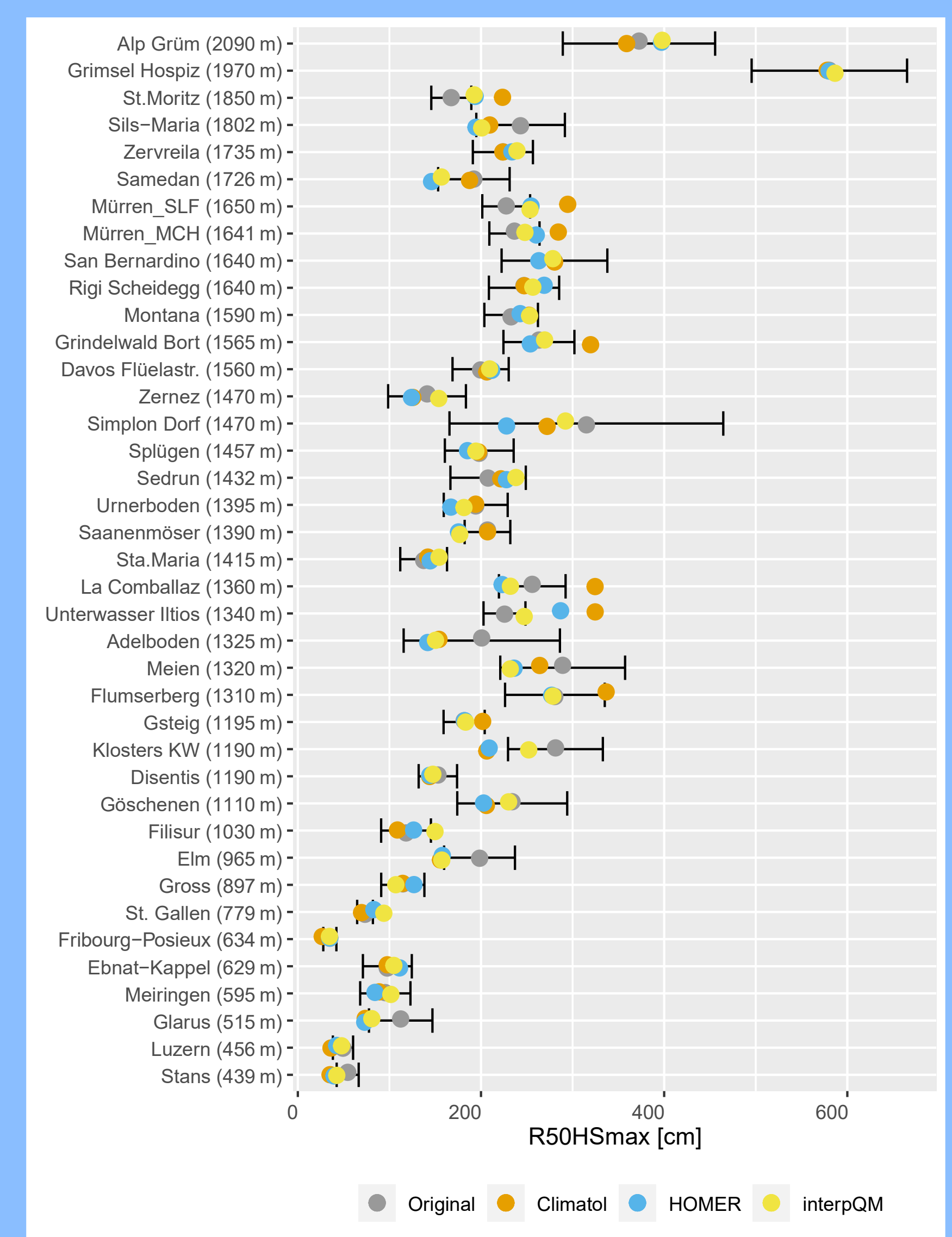
- Homer, Climatol, InterpQM
- 184 stations with 45 breaks in 40 series



## Impact on trends



## and extreme values



## Outlook: operationalise the homogenisation procedure

- Homer with Bart
- Climatol with optimal input parameters

- Coupling
- InterpQM
- SPLIDHOM



**MeteoSwiss**

**SMHI**

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