

Site report - Harestua – 2019

60.2°N, 10.8°E, 596 m.a.s.l.



Johan Mellqvist, Glenn Persson
Space, Earth and Environment
Chalmers University of technology
Göteborg, Sweden
johan.mellqvist@chalmers.se

2010/03/16



ODIN (μ -wave and UV)
O₃, H₂O, ClO, NO₂, N₂O >20 km

FTIR Chalmers
reservoir species
UV/VIS Bira
O₃, NO₂, BrO..



Norway

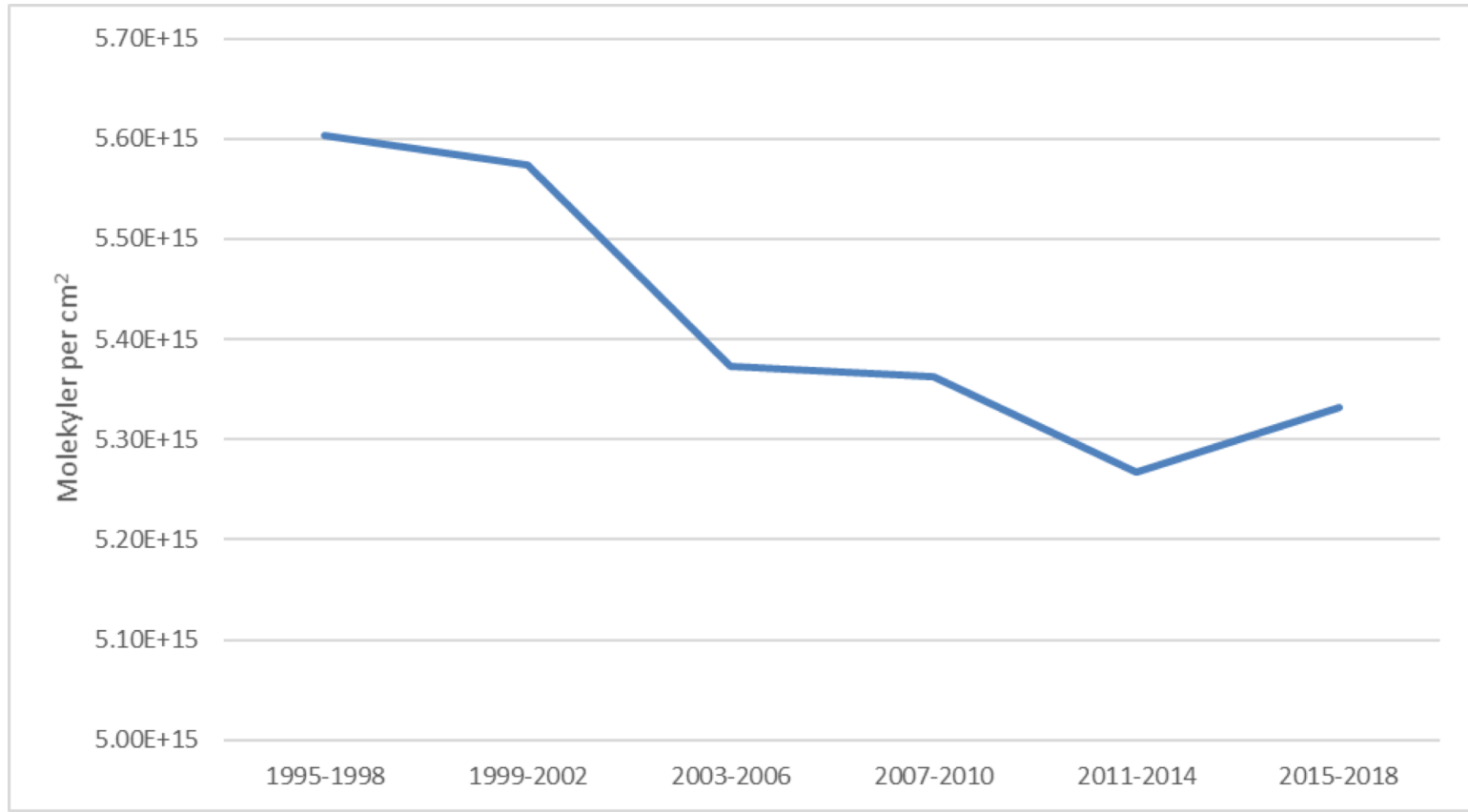
Denmark

μ -wave Chalmers
O₃, CO. mesosph

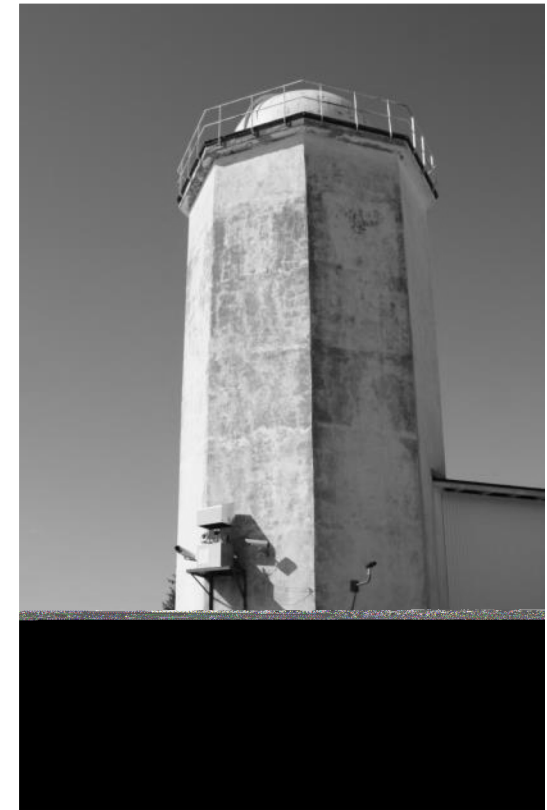
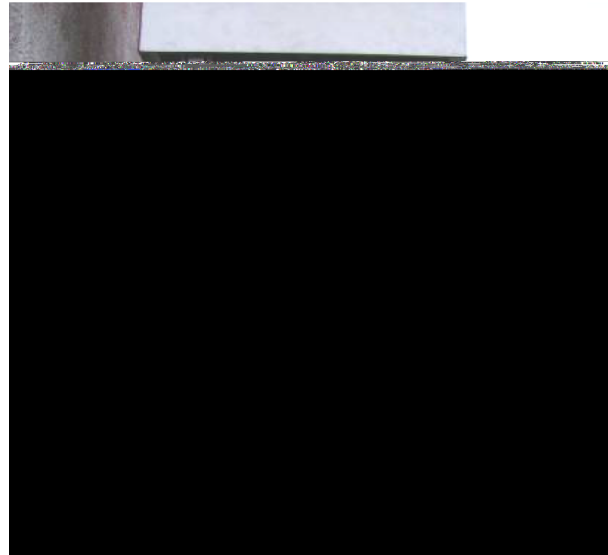
Sweden

Dobson SMHI
O₃

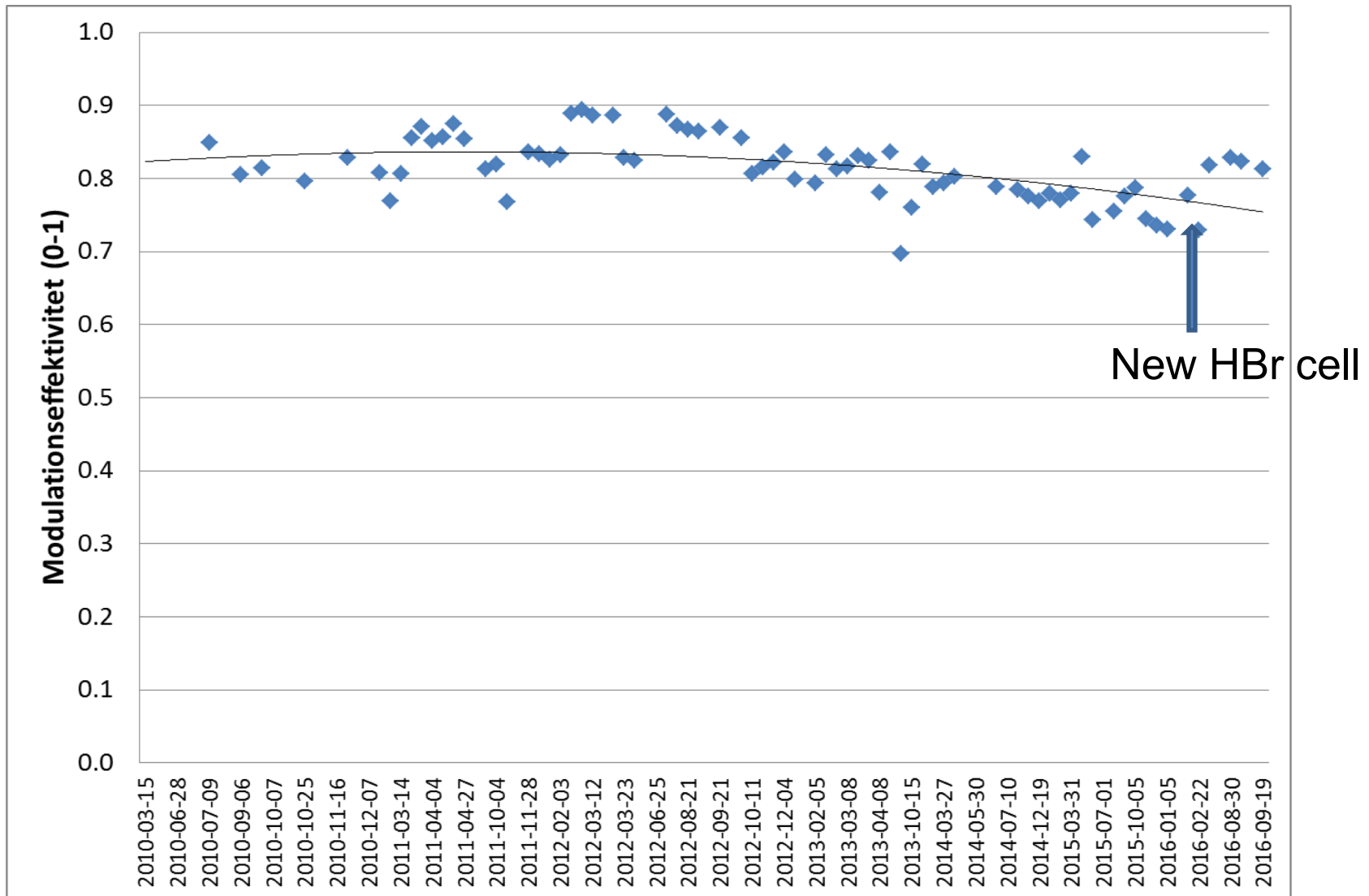
HCl+ClONO₂ 4 years averages (summertime)



- ❑ Bruker 125 M, remotely controlled through internet
- ❑ Instrument installed in May 1994 and upgraded in Aug. 2008 to 125 M (Braut acquisition)
- ❑ Home made solar tracker since 2006, before solar coelostat of solar observatory.
- ❑ Remote LN2 filling and meteorological parameters (p, T and RH), 2008
- ❑ New beamsplitter and laser and new aperture plate, Nov. 2009
- ❑ HBr cell #13, new since Aug 2016



Line shape measurements of HBr cells, # 13 and new one since Aug 2016. But it started leaking end 2017, so now we use old one. .



Measurements at Harestua

- 1166 measurement days since Nov 1994
- 55 measurement days in 2018
- HBR cell measurements shows in general good quality
- Data in AMES format reported to the NDACC archive up to the end of December 2015, available as ames until 2016.
- HDF 4 Geoms just implemented for O3 for 8 last years . Other species will be updated asap
 - Species reported are C2H6, CCl2F2, CH4, ClONO2, CO, COF2, HCFC22, HCl, HF, HNO3, N2O, NO2 and O3.
- Funding from Swedish EPA-part of the monitoring program

Spectroscopic retrieval details

- SFIT 4 for O3 8 last years
 - WAAC apriori profiles
- SFIT2 v3.94 algorithm, (CH₄, CO, HCL, HCN, HNO₃, N₂O). SFIT2 v3.81, other NDACC species
 - Hitran 2004/Hitran 2008 linelist
 - Apriori EMEP profiles
 - NCEP data for pressure and temperature profiles
- ILS using HBr cell and Linefit, ver. 9

Future

- Funding secured for running site with 0.5 Engineer during next 2 years
- This summer switching to SFIT4 with full error characterization and WACCM apriori profiles for all species
- HD4 Geoms reporting all species during the fall