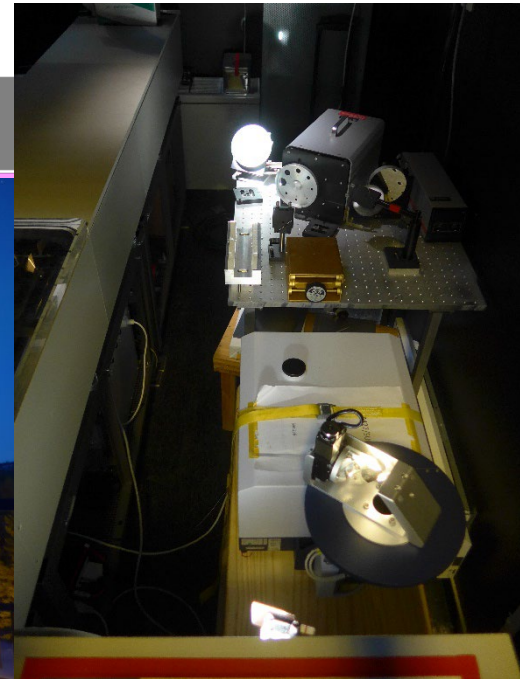


# Kiruna site report

Thomas Blumenstock, Jochen Groß, Frank Hase, Amelie Röhling  
KIT-IMK, Karlsruhe, Germany

Uwe Raffalski, IRF Kiruna, Sweden

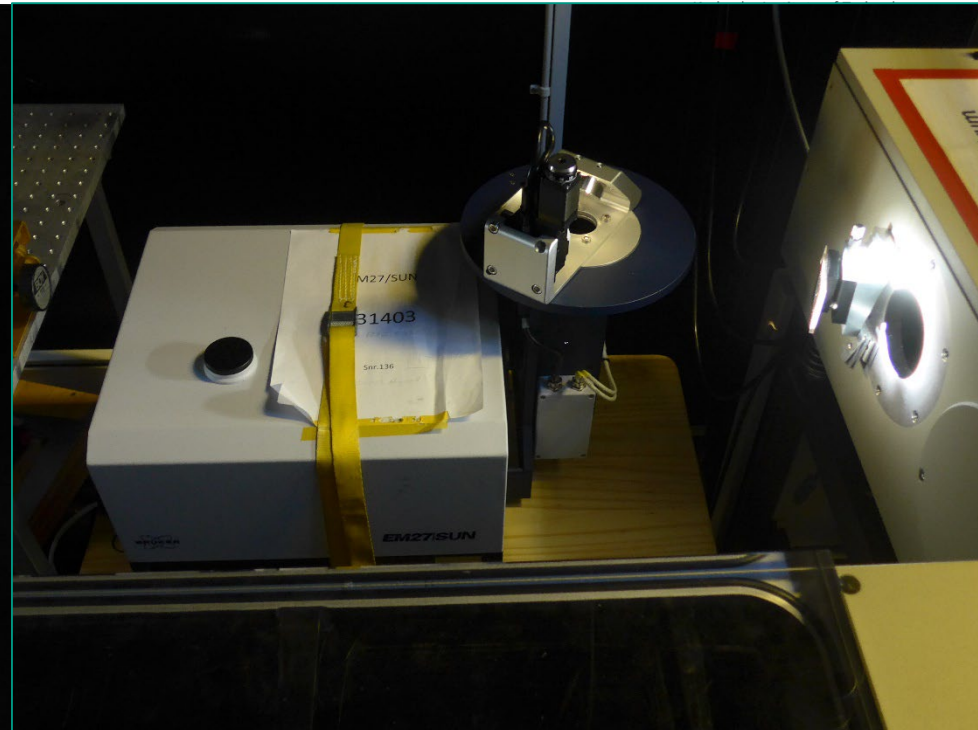
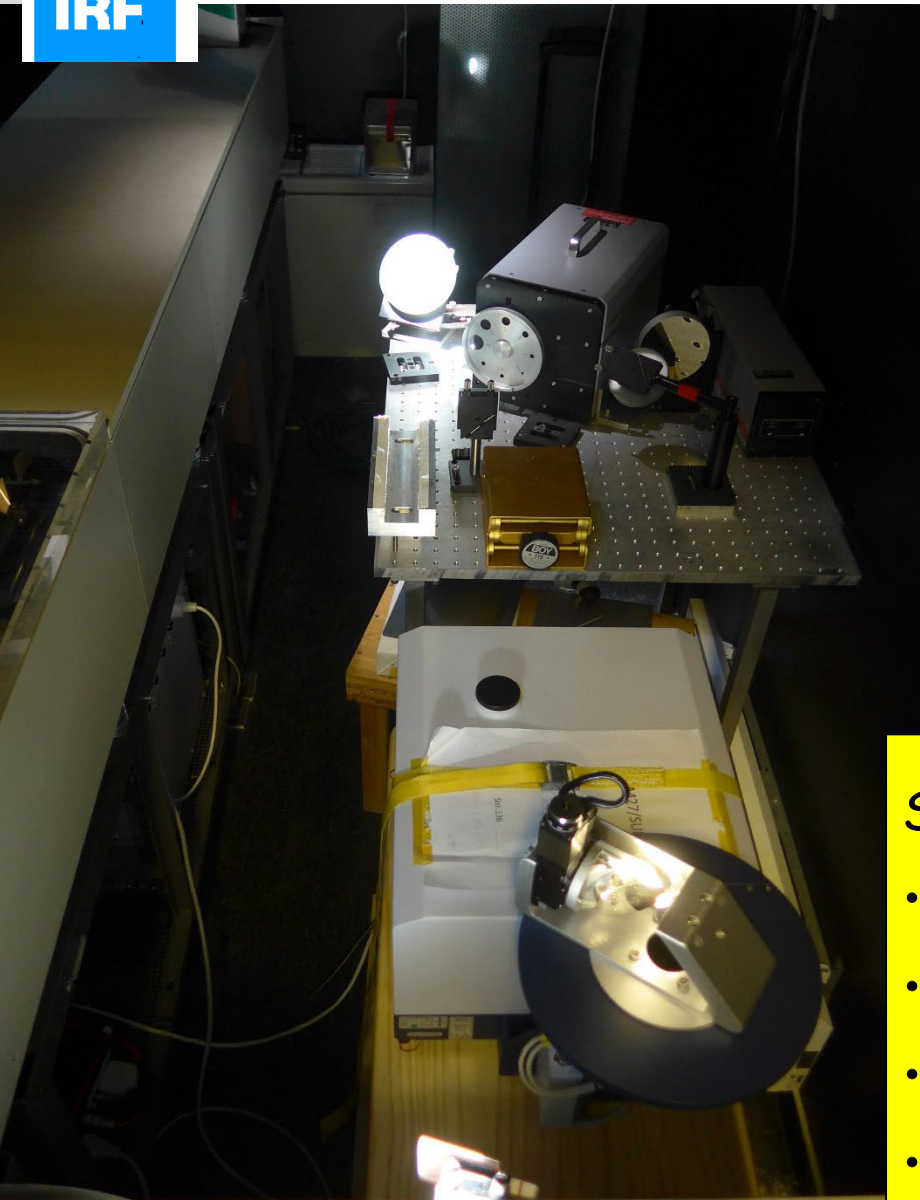
INSTITUTE OF METEOROLOGY AND CLIMATE RESEARCH (IMK)  
ATMOSPHERIC TRACE GASES AND REMOTE SENSING (ASF)



# Kiruna site report

- **Start** in March 1996
- **Regular cell measurements** from beg.
- **Remote control** since 2004
- **Upgrade to 125 HR** in July 2007
- **Camtracker software** in Sept. 2010
- **Bruker EM-27-SUN** added in 2017
- **Laser broken** in 2010, 2011, 2014, 2018 and 2022!
- Switch to **M16 electronics** in 2021  
Thanks to Gregor just plug & play!
- **New InSb detector** in 2023
- **Issues during Covid** were fixed by **Uwe Raffalski on site!**





- Set-up of Bruker EM-27-SUN at IRF:
- Using the same solar beam as the HR
  - Not a big effort
  - Complementary to NDACC instrument
  - Measuring GHG ( $XCO_2$  &  $XCH_4$ ) with high precision

Advantages of two spectrometers:  
NDACC measurements without any compromise:

- Full spectral coverage incl. MCT
- Full observation time
- No beam splitter exchange nor broadband BS needed

COCCON measurements without any compromise or extra effort:

- Full observation time
- No need for enclosure, just a small mirror needed, RC possible

=> Measuring GHG ( $\text{CO}_2$  &  $\text{CH}_4$ ) and  $\text{O}_2$  with EM-27 and full suite of NDACC species with HR spectr.!



# Kiruna site: brief summary 2020 to date



- Kiruna FTIR site fully operational
- NDACC site operated remote controlled
- Site visits postponed to 2021 (JG) & 2023 (TB)
- Technical issues during Covid were broken laser, scanner cable and tracker cabling. All issues were fixed by Uwe Raffalski on site (with video support).
- Days of operation:
  - 2020: 105
  - 2021: 95
  - 2022: 99
- Thanks to Uwe!



# Kiruna: Current status / data analysis

## Data analysis:

PROFFIT 9.6

## Data base:

NASA: 1996 - 2007

HDF: 1996 - end of 2022

## Species:

$O_3$ , HCl, HF,  $HNO_3$ ,  $N_2O$ ,

$CH_4$ ,  $ClONO_2$ ,  $C_2H_6$ , CO,

HCN,  $NO_2$ , NO

Last archiving date:

June 2023

Next archiving date:

Early 2024

## Thanks to

BMW via DLR under  
grant 50EE1711A.

Gefördert durch:



Bundesministerium  
für Wirtschaft  
und Energie

aufgrund eines Beschlusses  
des Deutschen Bundestages



# Kiruna site: any losses (due to Covid), outlook 2023 and beyond

- No loss due to Covid
- No NDACC related project funded anymore!
- TB retired beginning of this month (June 2023).
- Replacement in half a year hopefully.
- Observations to be continued by Uwe Raffalski, IRF Kiruna.
- Technical support by Jochen Groß & Frank Hase
- Standard data analysis to be cont'ed
- Please expect delays in re-processing and new species in 2023.



**Thanks to Uwe, Amelie, Jochen & Frank!**

# Summary Kiruna site report



- ✓ NDACC site fully operational and no loss of data due to Covid or technical issues
- ✓ Data analysis and archiving up to date
- ✓ Bruker EM-27 added for  $XCO_2$  &  $XCH_4$
- ✓ For publications please see list (not only NDACC):
- ✓ <http://www.imk-asf.kit.edu/english/709.php>
- ✓ One of the PIs retires, FTIR Kiruna continues



Thank you very  
much for your  
attention and  
collaboration!  
Good bye!!

