

Validation von SCIAMACHY Produkten durch bodengebundene Mikrowellenmessungen (Projekt 50 EE 0010/0011)

- BreRAM Mathias Palm (IUP)
- RAM Helmut Härle (IUP)
- MIRA/WARAM Manuel Quack (IUP)/
Gerd Hochschild (FZK)

Partners:

- Institut für Umweltphysik, Universität Bremen, Germany
- Stiftung Alfred-Wegener Institut für Polar und
Meeresforschung, Germany
- Forschungszentrum Karlsruhe, Germany

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BreRAM – Bremen Radiometer for Atmospheric Measurements

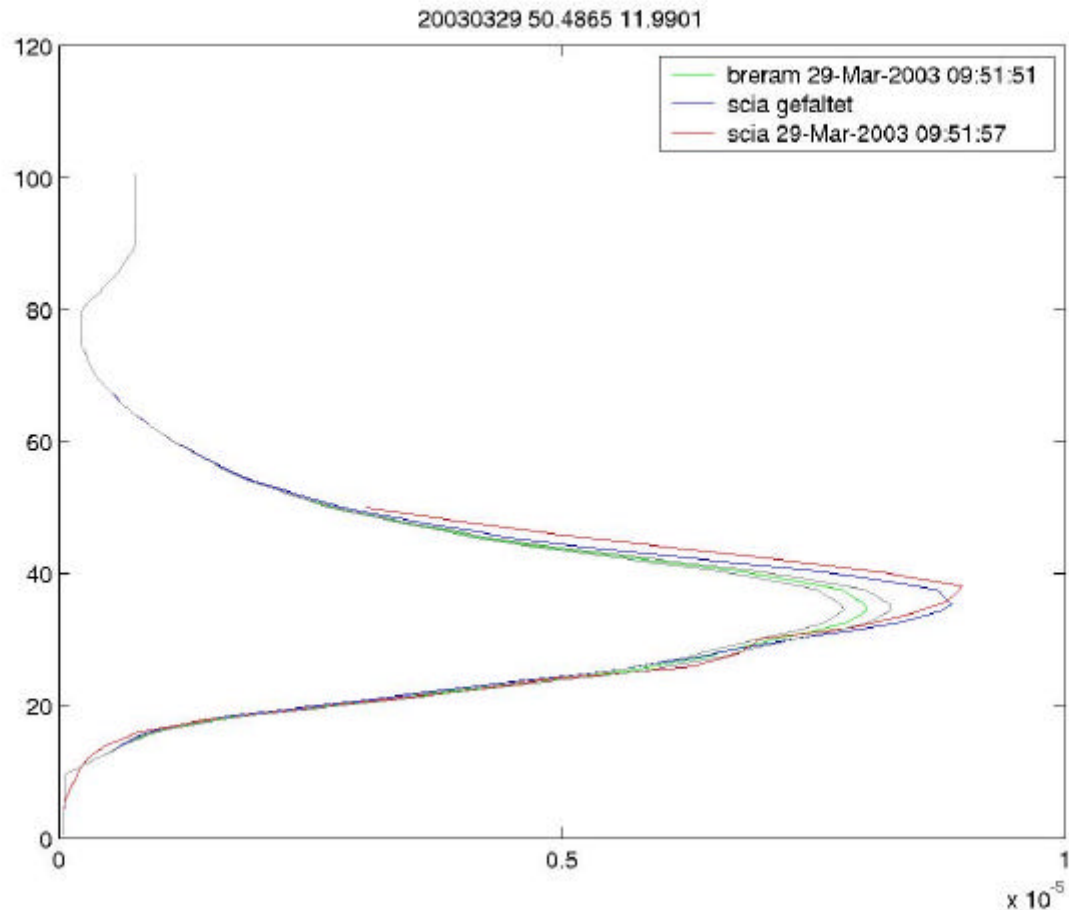
- Location: Bremen (53°N, 8°E)
- Responsible: Mathias Palm (PhD-Student)
- Measured: Ozone line at 110 GHz
- Range: 15-40km
- Operating: since September 2000
- Validation: by comparison with sonde data
- Data: 2002 - continuously except March, April
2003 - continuously from 11. March
Not operating from Saturday noon to Monday noon

SCIAMACHY:

50°N, 12°E

BreRAM: 53°N, 8°E

SCIAMACHY profile
converted from
concentration to vmr and
convoluted with BreRAM
altitude resolution kernels



SCIAMACHY Profile von C.v.Savigny

Validation of **SCIAMACHY** within the **MARS Project** (Mérida Atmospheric Research Station)

Responsible: Manuel Quack/Gerd Hochschild

2 Radiometers: - multi channel instrument from IMK (FZ Karlsruhe)
operating at 268-280 GHz (O_3 , ClO , HNO_3 , N_2O)
- Water Vapour Radiometer at 22 GHz

Measurements at Schneefernerhaus (Zugspitze, 2650 m asl, E $10^{\circ}59'$,
N $47^{\circ}25'$)

Location MARS Station: Mérida/Venezuela, N 8° W 71° , 4765 m asl

Waiting for Customs clearance

MIRA Ozone Measurements:

- Line at 273.05 GHz
- Range: 17-55 km
- Resolution: 7 –12 km
- Well validated during several campaigns
- Data availability: 2003 (Zugspitze):
 - 28.02. - 02.03.
 - 05.03. - 07.03.
 - 09.03. - 13.03.
 - 15.03. - 30.03.
 - 10.04. - 19.04.
 - 22.04. - 24.04.
 - 28.04. - 30.04.
 - 05.05. – today
- Additional H₂O measurements at Zugspitze and in Ny-Alesund

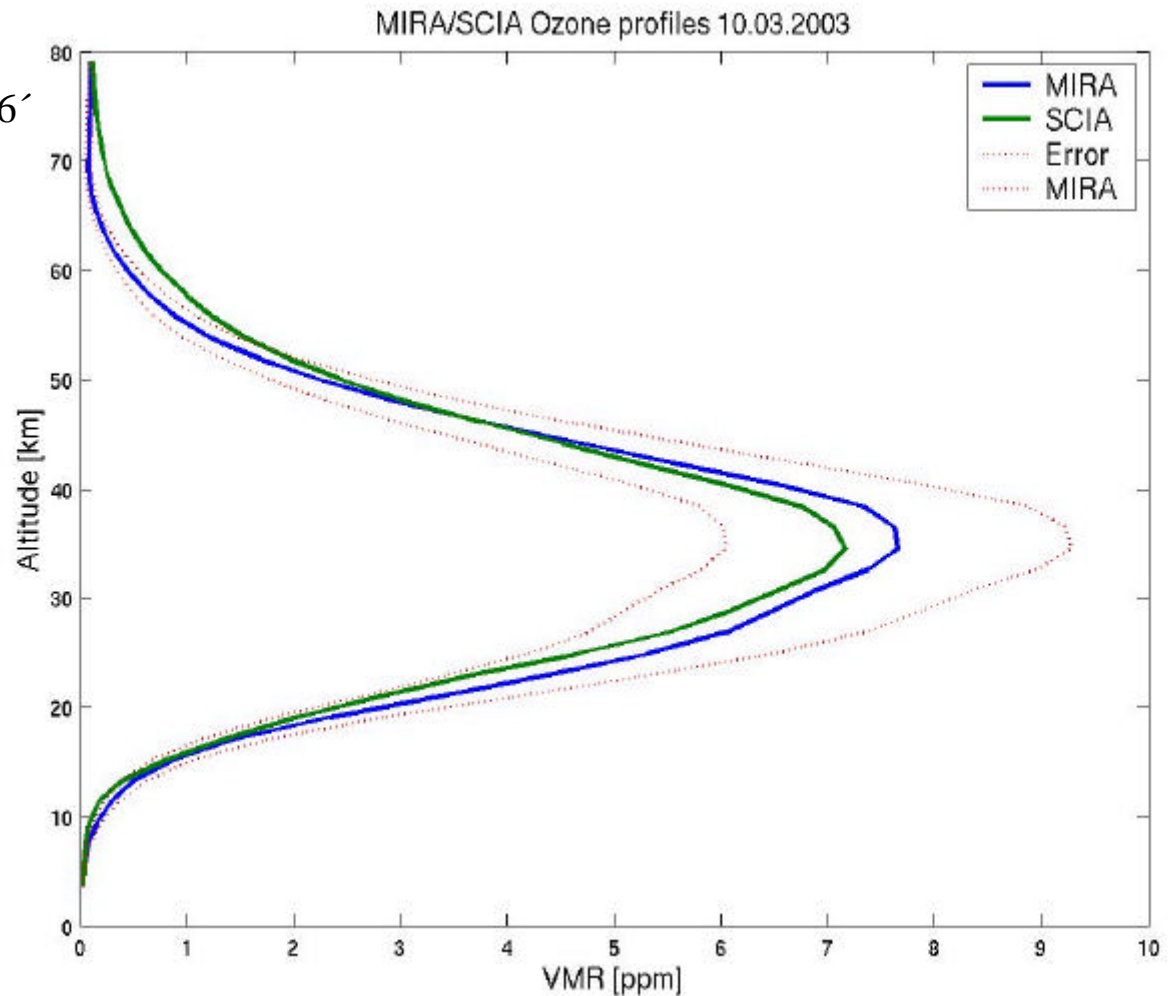
MIRA: E 10°59' N 47°25'

14:00 h

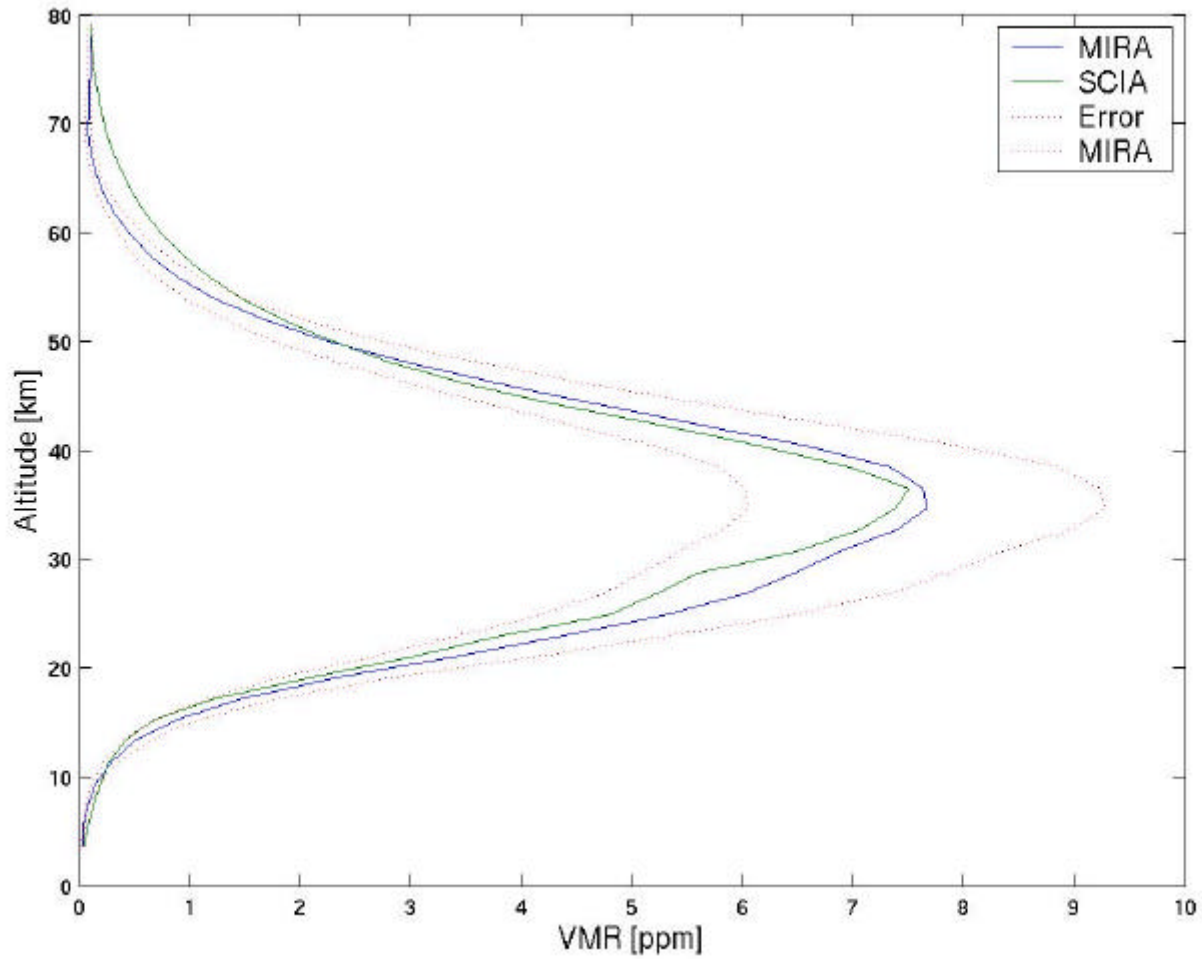
SCIAMACHY: E 10°53' N 46°06'

9:44 h

SCIAMACHY concentrations are converted to VMR and convoluted with MIRA altitude resolution kernels.



SCIAMACHY profiles from C. von Savigny, MIRA profiles from G. Kopp/FZK



RAM – Radiometer for Atmospheric Measurements

- Location: Ny – Alesund / Spitsbergen (78,9°N, 11,9°E)
- Measured: Ozone at 142GHz (since:1994)
ClO at 204 GHz (since:1996)
H₂O at 22 GHz (since:1999)
- Range: Ozone: 15-55 km, ClO: 16-35km, H₂O: 25-55km
- Resolution: ~10 km
- Data: 2003: Ozoneprofiles from february 20th until april 30th already available at nilu database
2003: water vapour sveral measurements every day
2003: ClO selected days from february until april
- actual Status: Ozone and H₂O operating alternately

SCIAMACHY: 15.8°E, 80.2°N

RAM: 11,9°E, 78,9°N

Distance: ~120km

RAM / SCIA O₃-Profile march 29th 2003

- The spatial nearest available SCIA Profile the moment to the RA
- Offset : may be due to uncertainty in tangent height
- Differences between and 50 km probably due to higher a priori content both measurements

