

# FTIR, results from Bremen, Ny-? lesund and Polarstern (AO 331 / AO 126)

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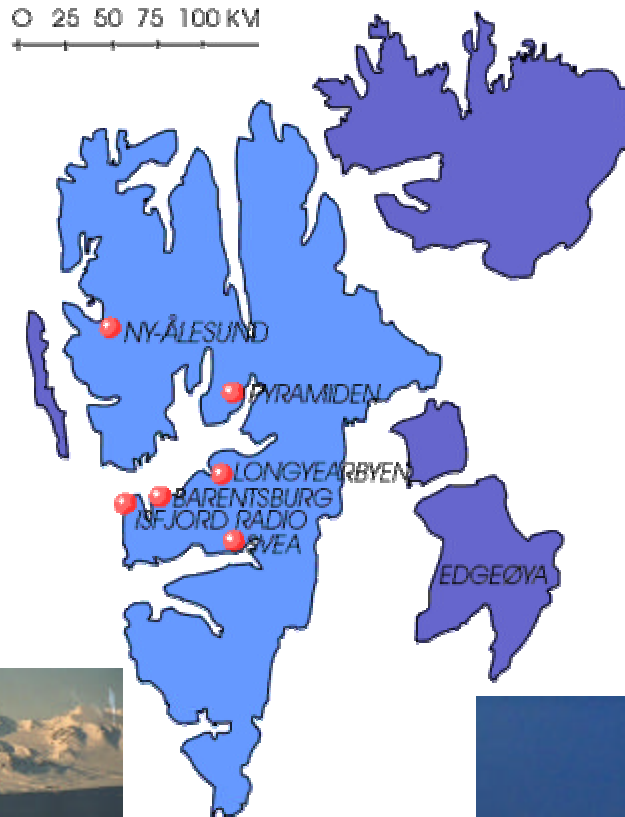
# Gases measured by groundbased FTIR

constant VMR-profile	N <sub>2</sub> , CO <sub>2</sub>
tracers	HF, N <sub>2</sub> O, CFC-12, CFC-22, CH <sub>4</sub>
tropospheric trace gases	C <sub>2</sub> H <sub>2</sub> , C <sub>2</sub> H <sub>6</sub> , CH <sub>2</sub> O, <u>CO</u> , NH <sub>3</sub> , SF <sub>6</sub> , HCN, H <sub>2</sub> O, COS
stratospheric trace gases	HCl, HNO <sub>3</sub> , NO, NO <sub>2</sub> , ClONO <sub>2</sub> , COF <sub>2</sub> , <u>O<sub>3</sub></u>

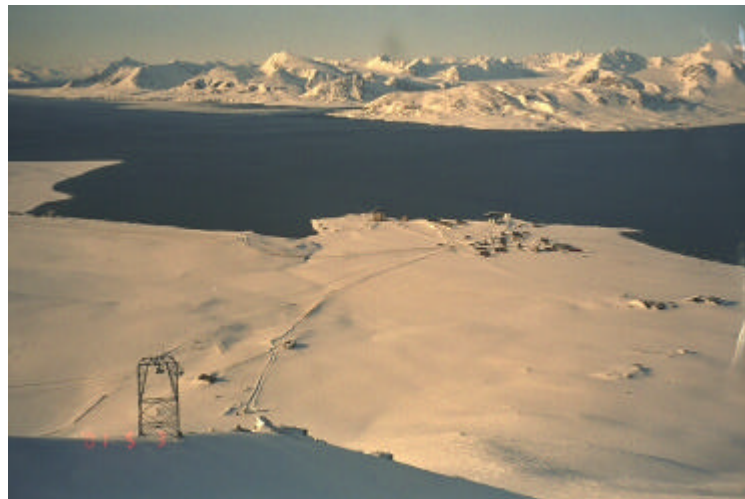
blue: SCIAMACHY Level-2 data  
underlined: vertical profiles

Ny-Ålesund,  
79° N, 12° E

Instrument:  
Bruker 120HR



Primary station  
with daily radio  
soundings and  
weekly ozone  
soundings



View from Zeppelin mountain

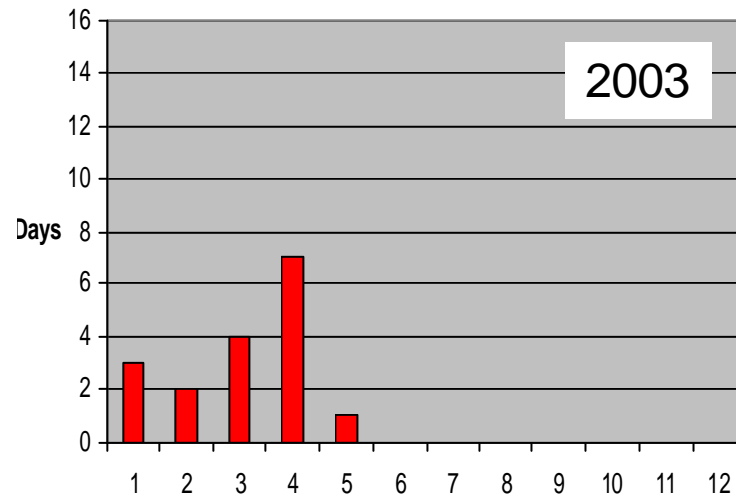
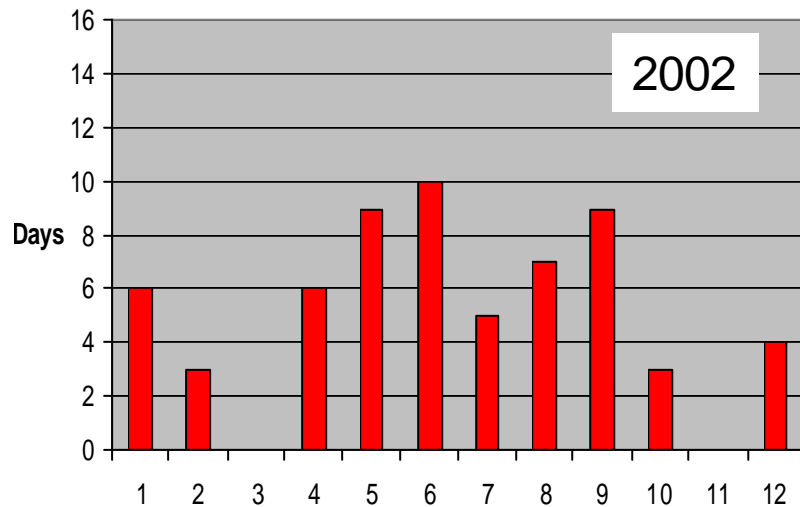


NDSC- Station

# Measurements at Ny-? lesund

Measurements were performed preferably including overpasses of ENVISAT- due to the high latitude, there are daily overpasses.

Data from solar absorption have been submitted to the database for the period June-September 2002. Solar spectra of 2003 up to June have been analyzed and will be submitted soon.

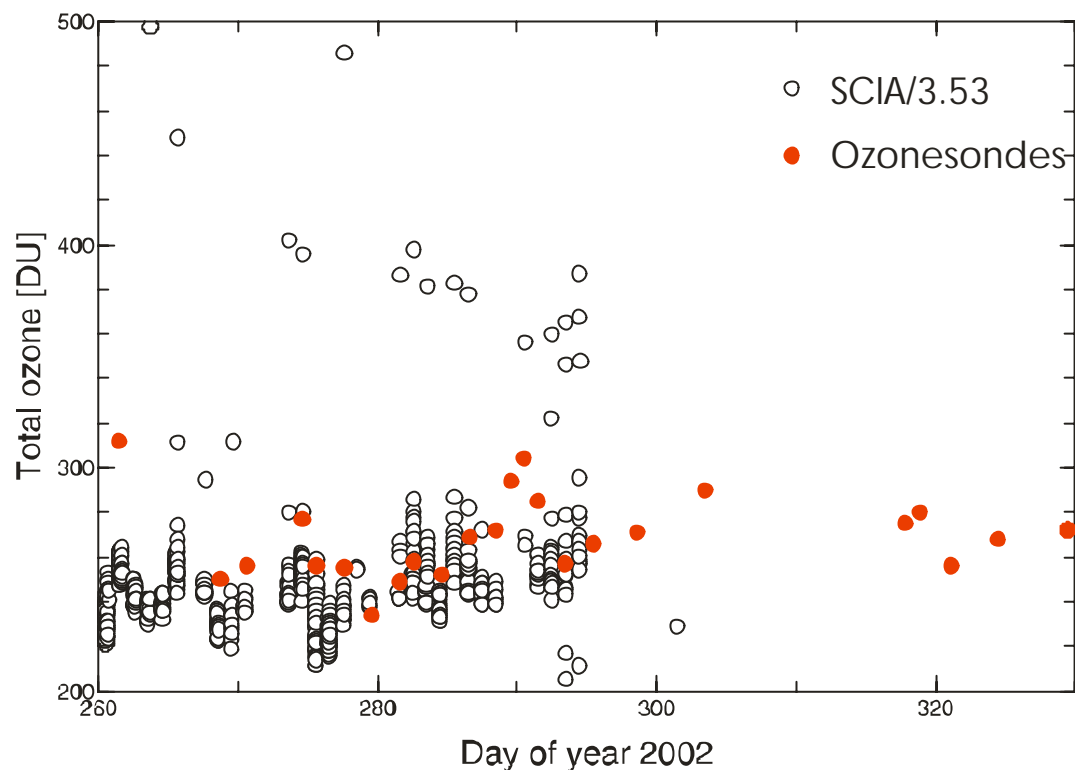


## Comparison in Ny-Ålesund

With SCIA/3.53 there is only one day of correlative data with FTIR measurements (August 12, 2002).

O<sub>3</sub>-FTIR: 254-260 DU  
Sonde (Aug 15): 256 DU  
Sonde (Aug 7): 276 DU  
O<sub>3</sub>-SCIA: 190-211 DU

NO<sub>2</sub>-FTIR: 0.194-0.201 DU  
NO<sub>2</sub>-SCIA: 0.218-0.270 DU

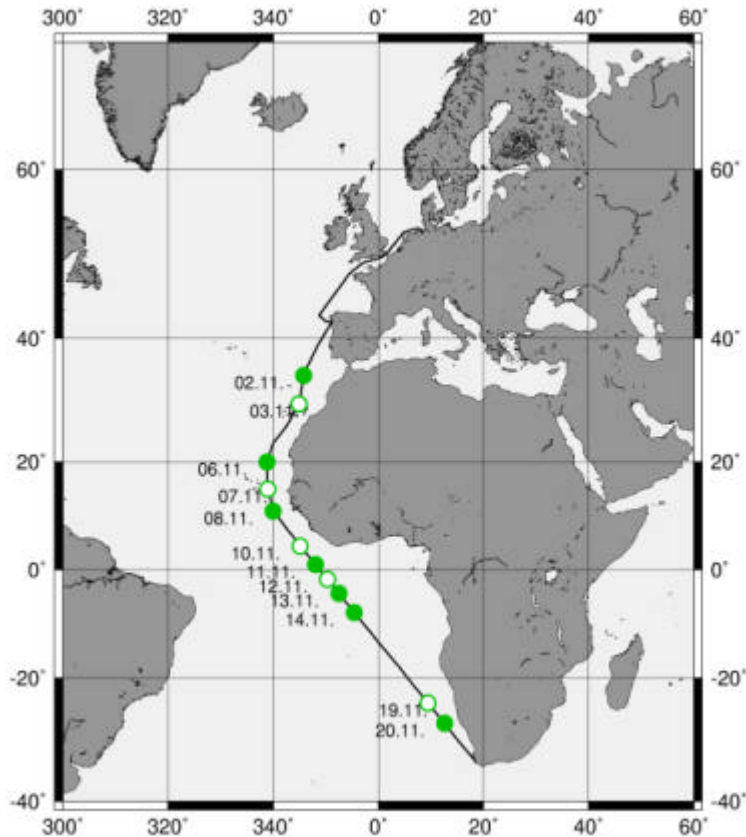




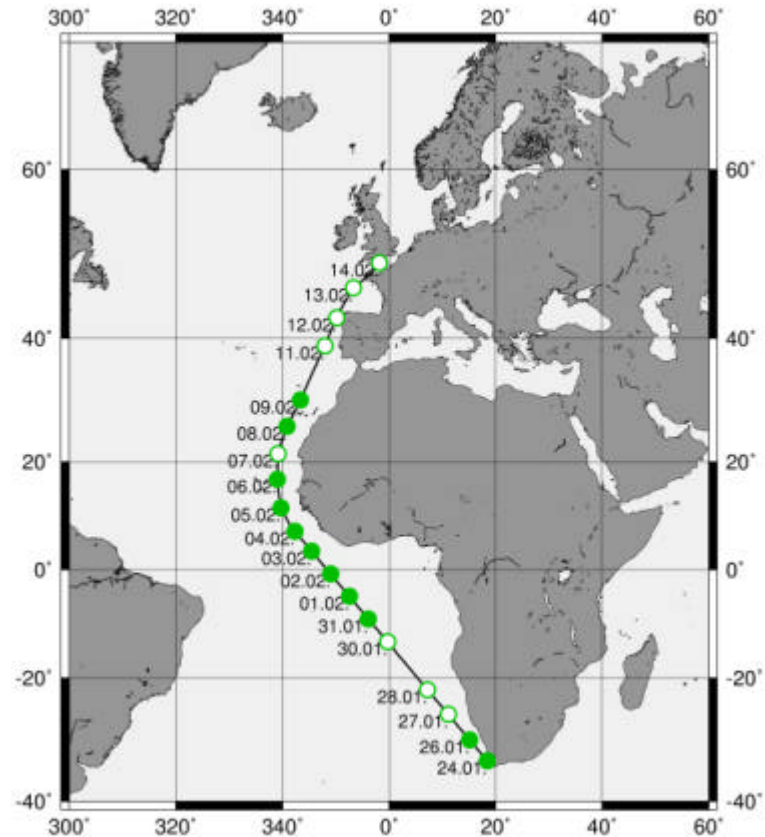
RV Polarstern, October 2002

Instrument: Bruker 120M

# Polarstern measurements

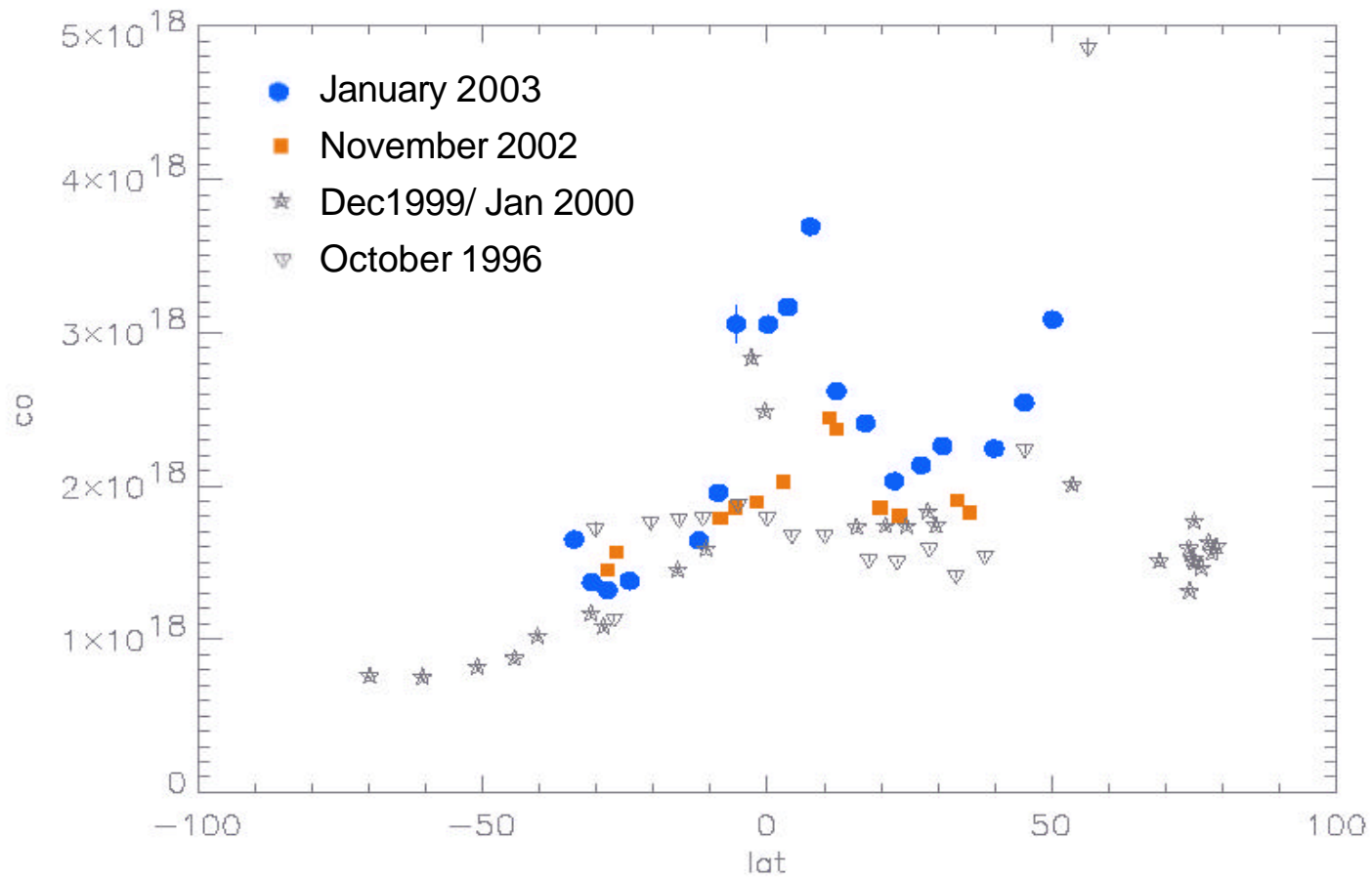


October/November 2002  
Bremerhaven – Cape Town



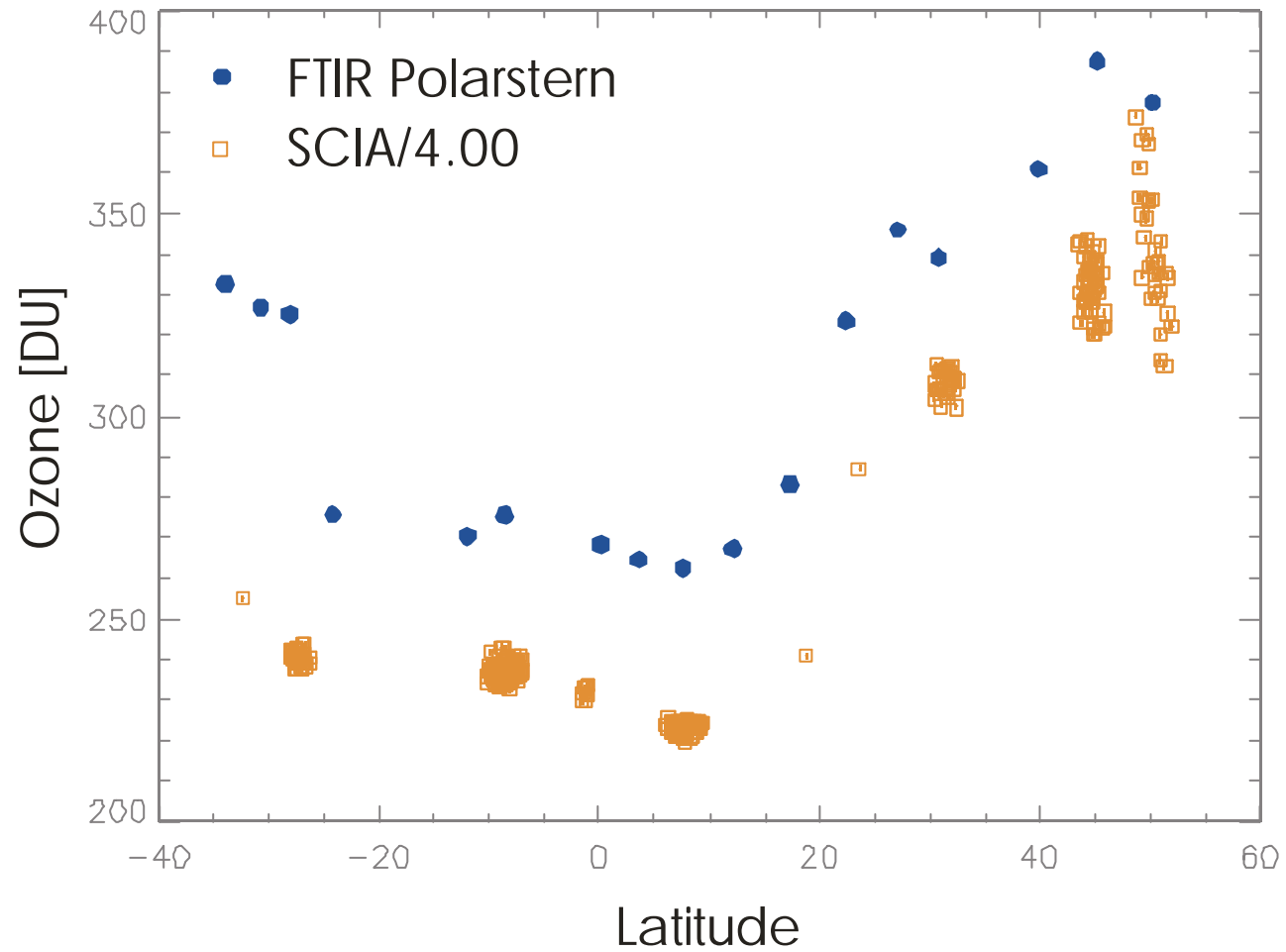
January/February 2003  
Cape Town - Bremerhaven

# Total columns of CO

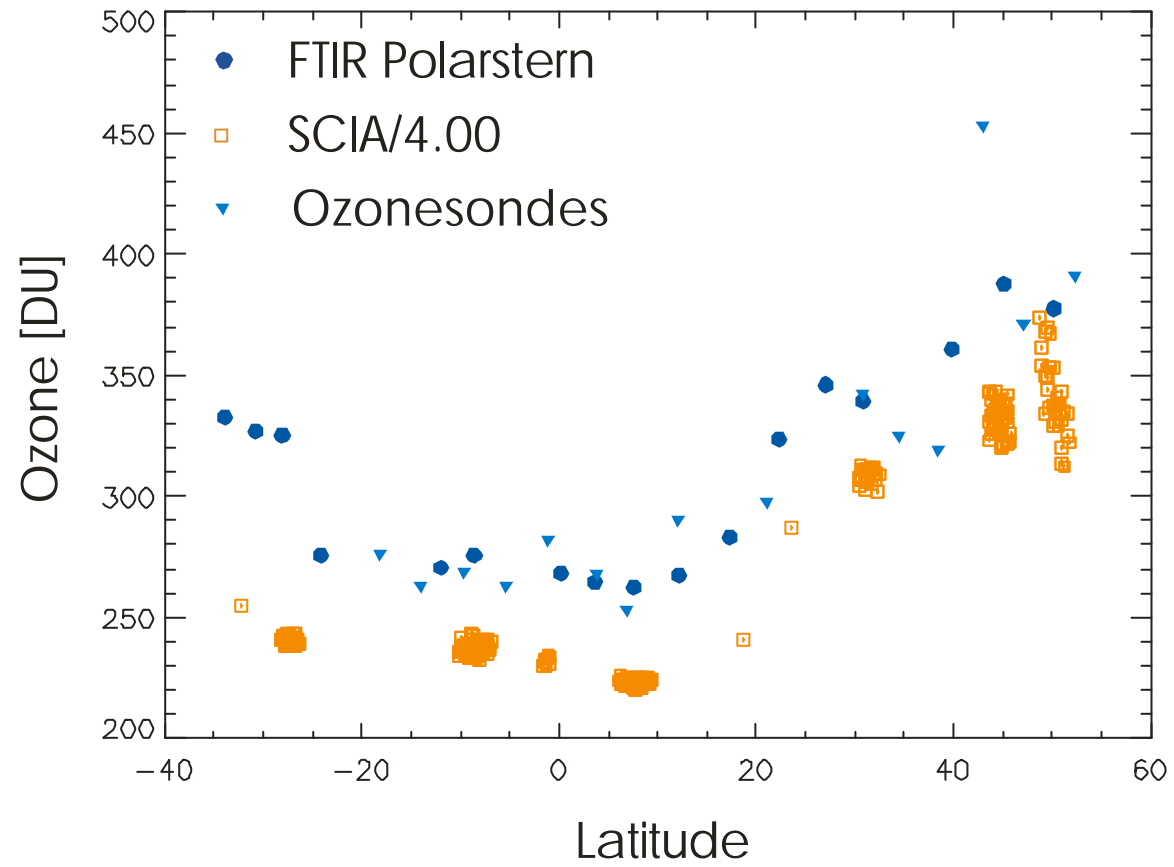




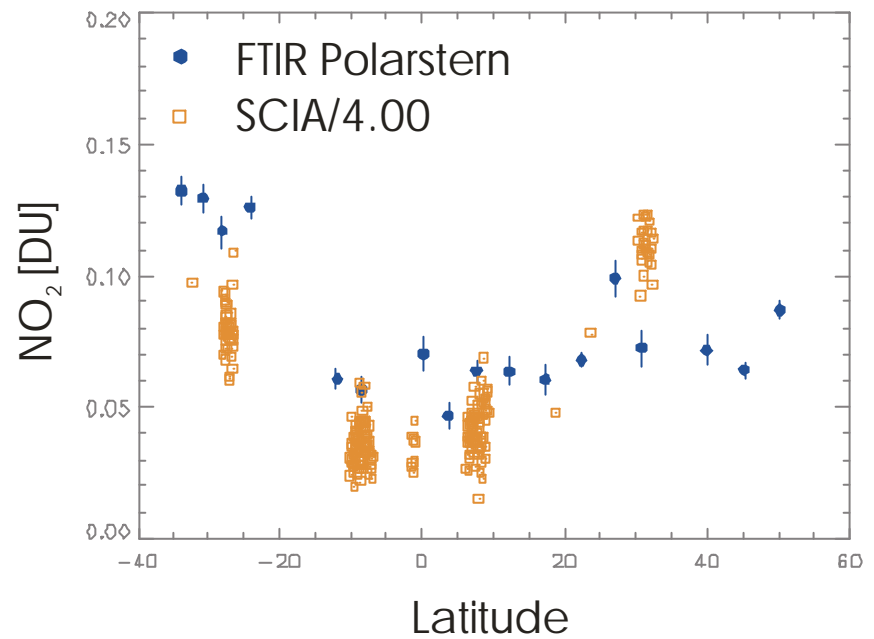
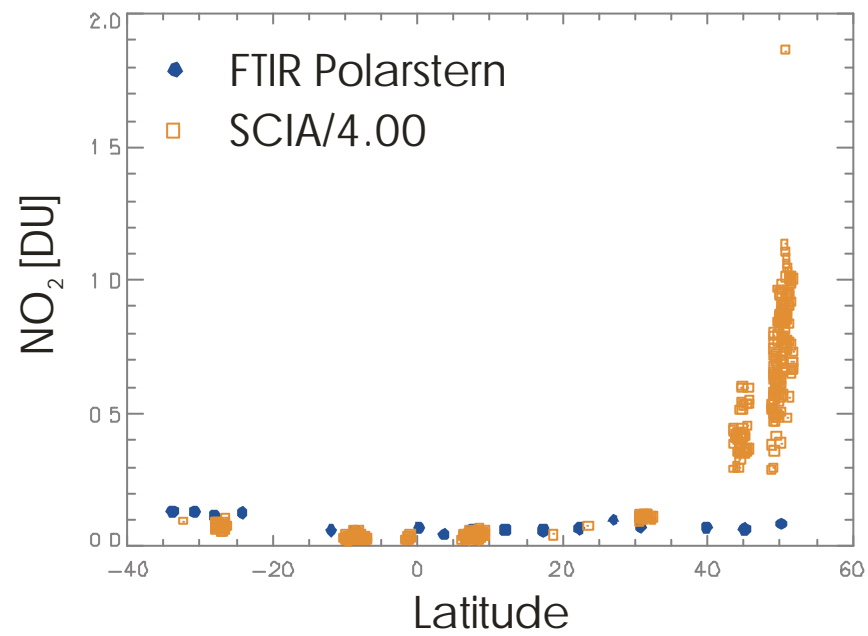
# Total Ozone – January/February 2003



# Total Ozone – January/February 2003



# Total NO<sub>2</sub> – January/February 2003



# Bremen (53.1°N, 8.9°E)

**Occasional measurements:**  
since May 2000

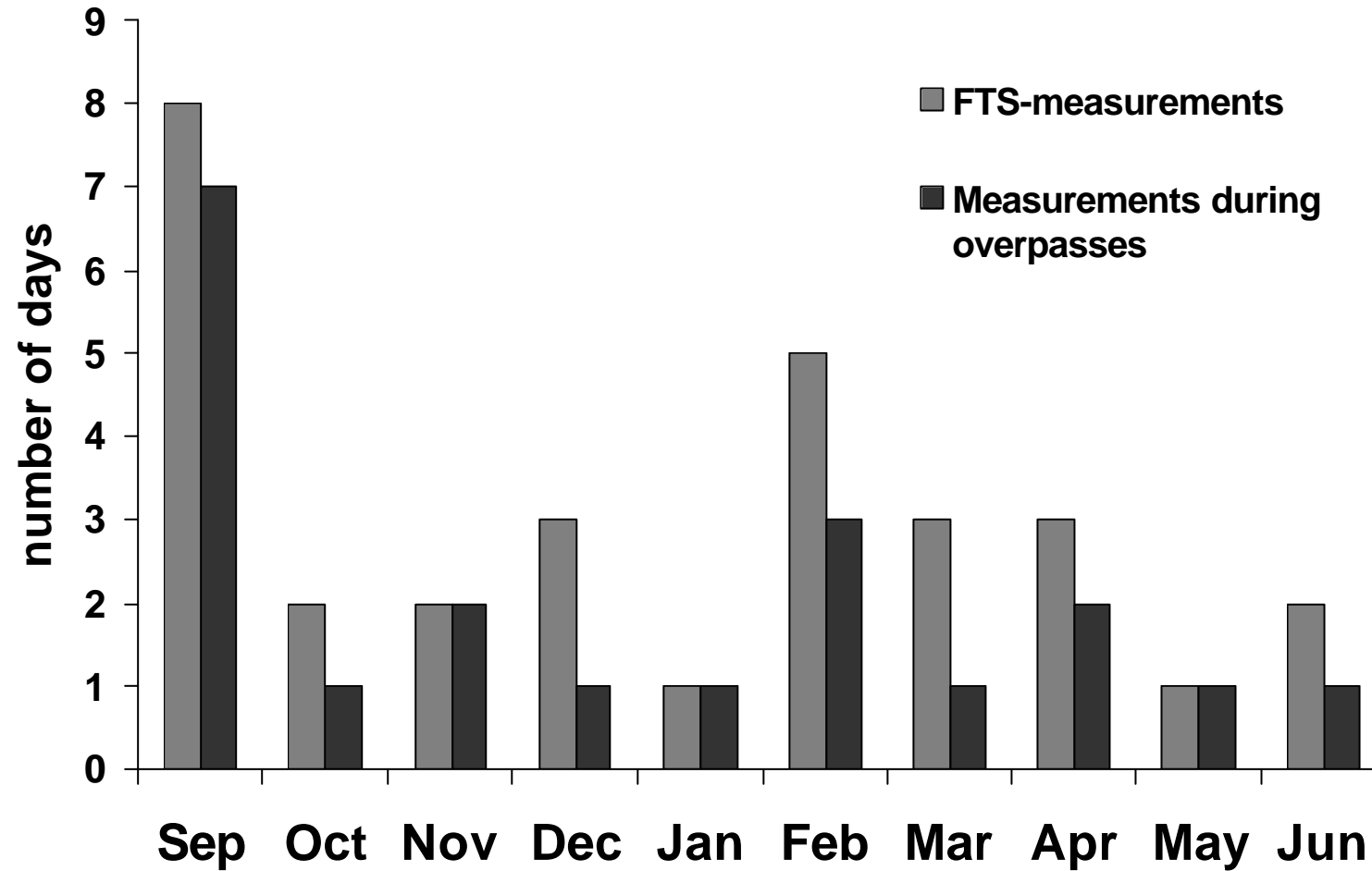
**Regular measurements:**  
since September 2002

Instrument: Bruker 120 HR

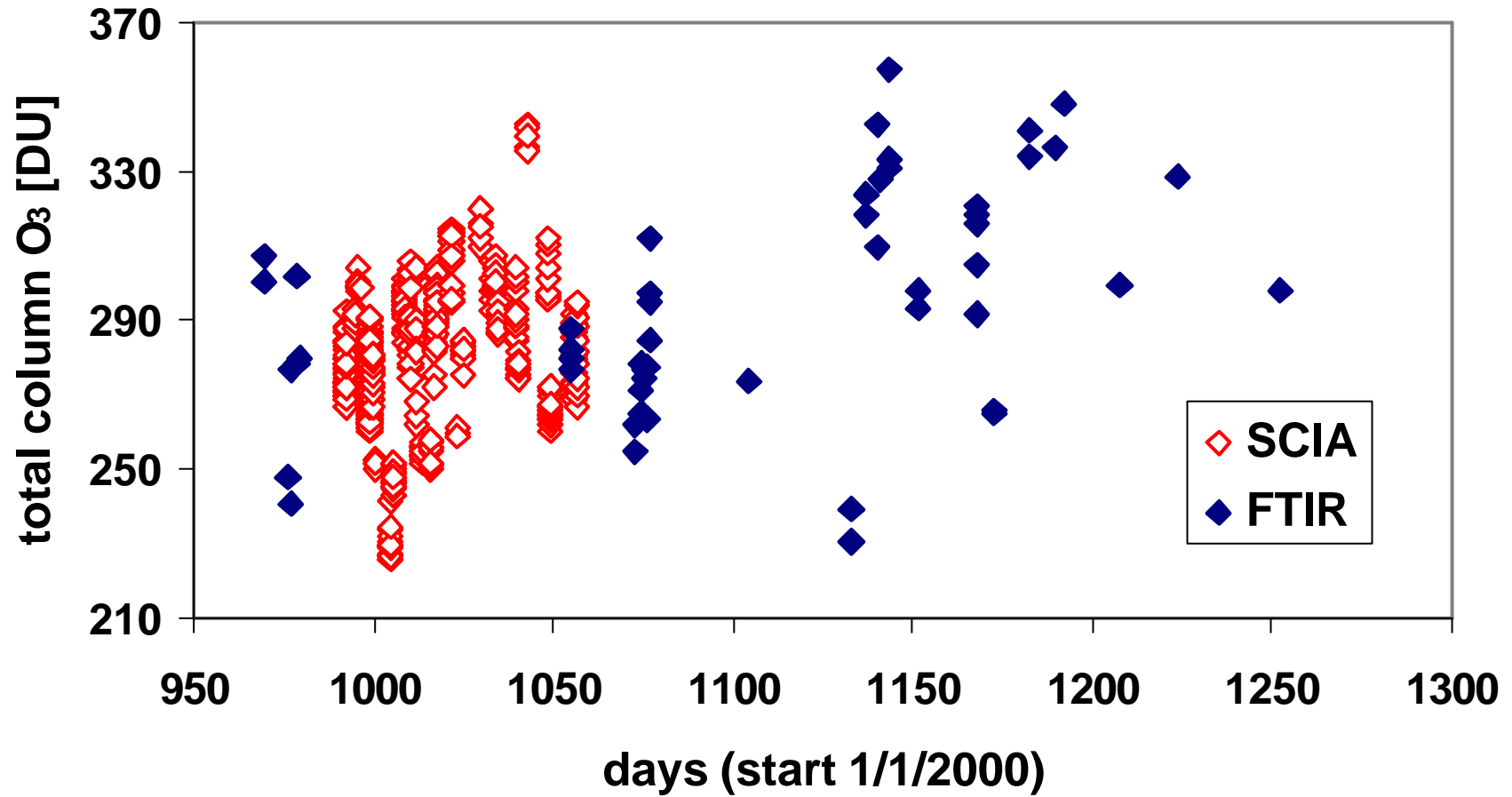


At present, the FTS is shared with the laboratory measurement group. From October 2003 there will be a dedicated FTIR-observatory for atmospheric observations.

# Measurement statistics at Bremen



# O<sub>3</sub>-comparison SCIA-FTIR at Bremen (SCIA/3.53)



# Database submission

Location	Ny-?lesund	Polarstern	Bremen
Submitted (total columns, GFIT retrieval)	June-September 2002 (hourly averages)	All data ( 2 cruises, daily averages)	Until June 2003 (hourly averages)
CH <sub>4</sub>	x	x	x
CO	x	x	x
CO <sub>2</sub>	x	x	x
H <sub>2</sub> O	x	x	x
N <sub>2</sub> O	x	x	x
NO	x		
NO <sub>2</sub>	x	x	x
O <sub>3</sub>	x	x	x

# Future plans

## **Further Polarstern measurements:**

Bremerhaven-CapeTown

October 22 to November 15, 2003



## **Ny-?lesund:**

Routine measurements up to twice a week in summer,  
twice a month in winter (during full moon periods).

## **Bremen:**

Routine measurements up to twice a week.