



**Physikalisches  
Institut  
Uni Bonn**



# SCIAMACHY Validation with the U. Bonn Lidar at the Esrange

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July 7, 2003

## Data Base

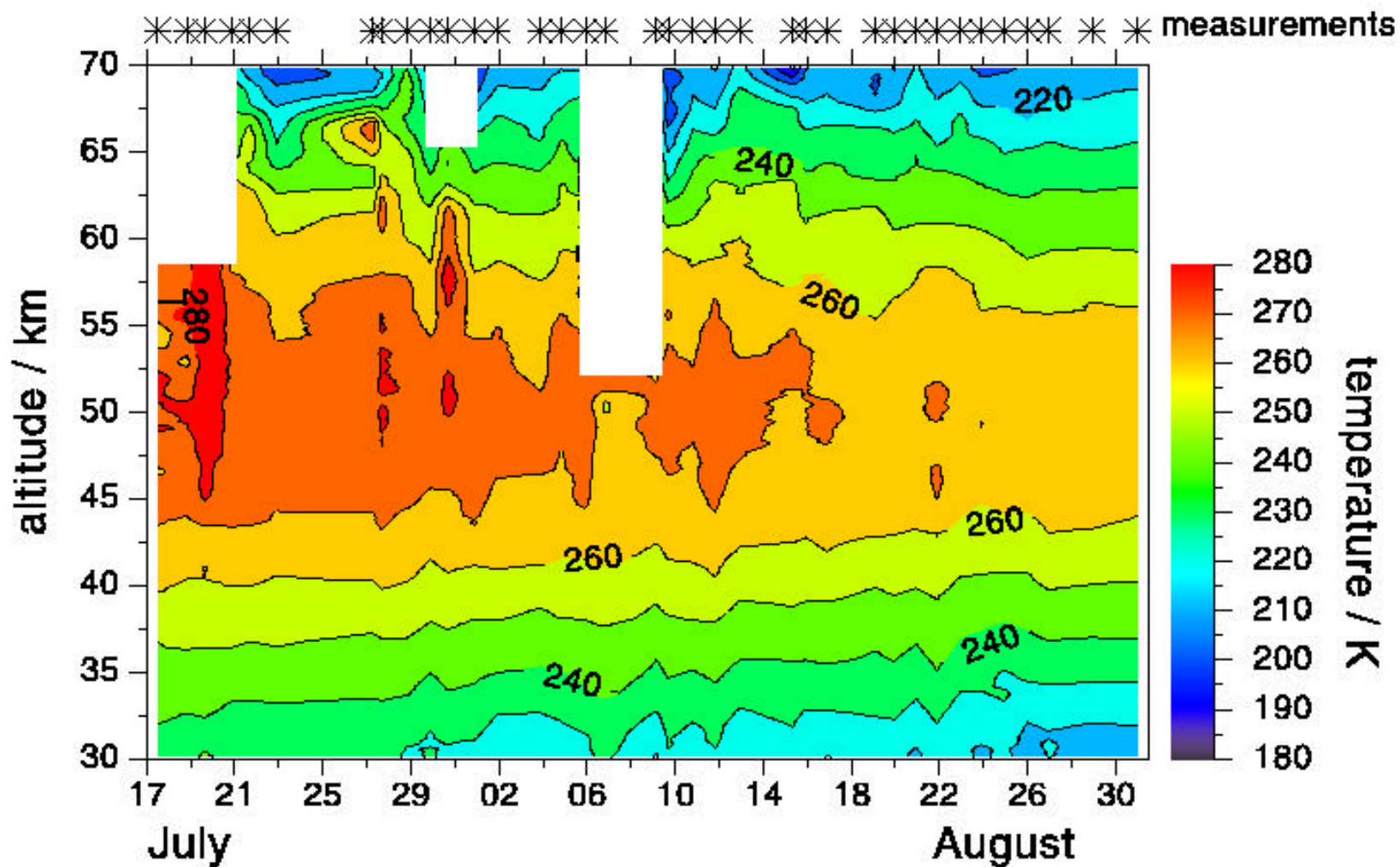
### U. Bonn Lidar at the Esrange:

- Summer campaign
  - \* July 15 - August 31, 2002
  - \* 36 measurement nights
  - \* 34 night mean temperature profiles
  - \* 9 NLC observations
- Winter campaign
  - \* January 8 - February 19, 2003
  - \* 29 measurement nights
  - \* 29 night mean temperature profiles
  - \* 2 PSC observations

### SCIAMACHY:

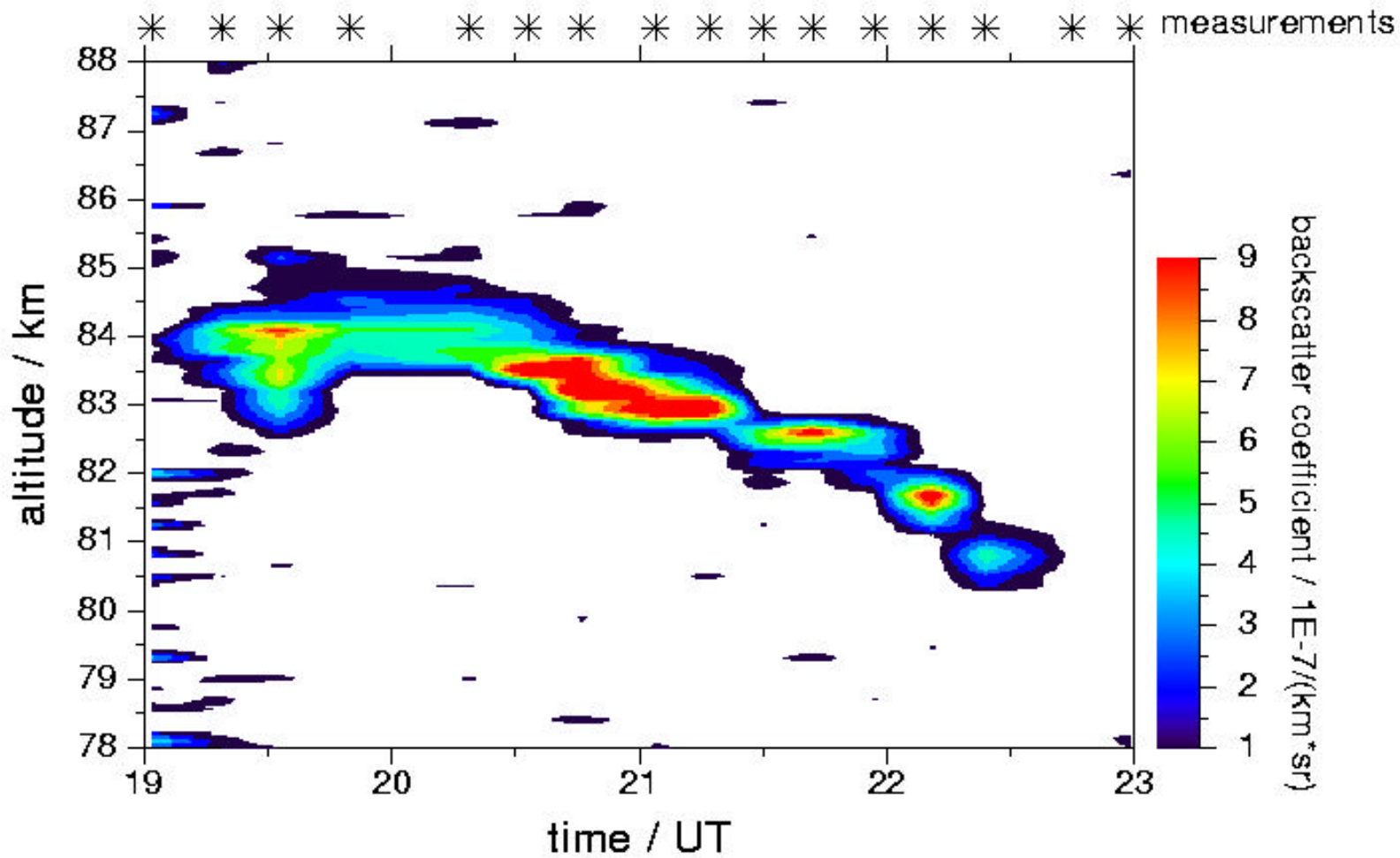
- Limb data
  - \* No Limb data available
- Nadir data:
  - \* Cloud top pressure
  - \* Cloud coverage

# UBonn Lidar at Esrange Temperature Development July/August 2002



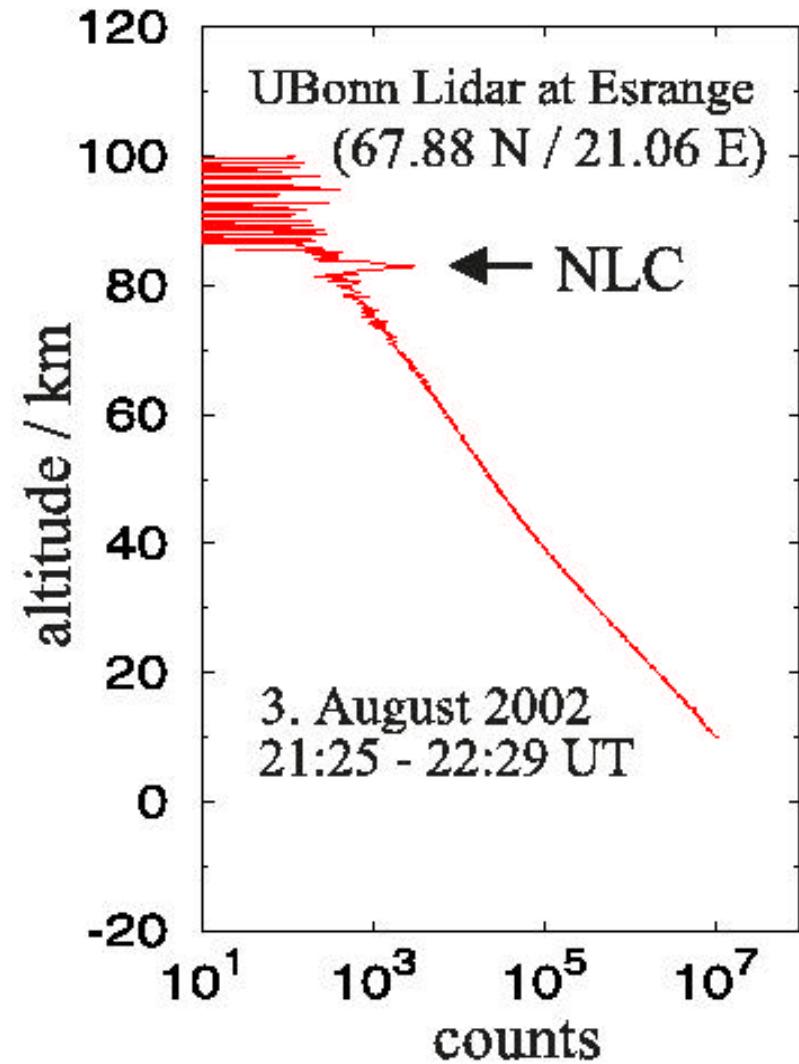
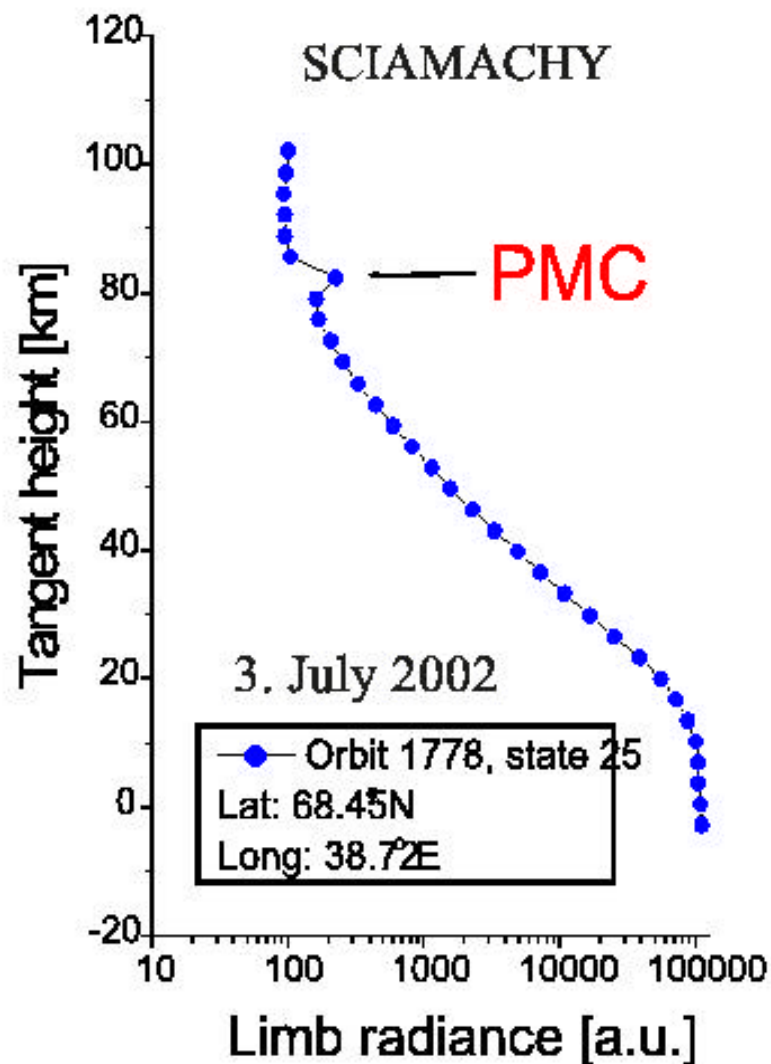
24.08.2003:14:28:38,UB

UBonn Lidar at Esrange  
NLC-observation  
22./23. July 2002

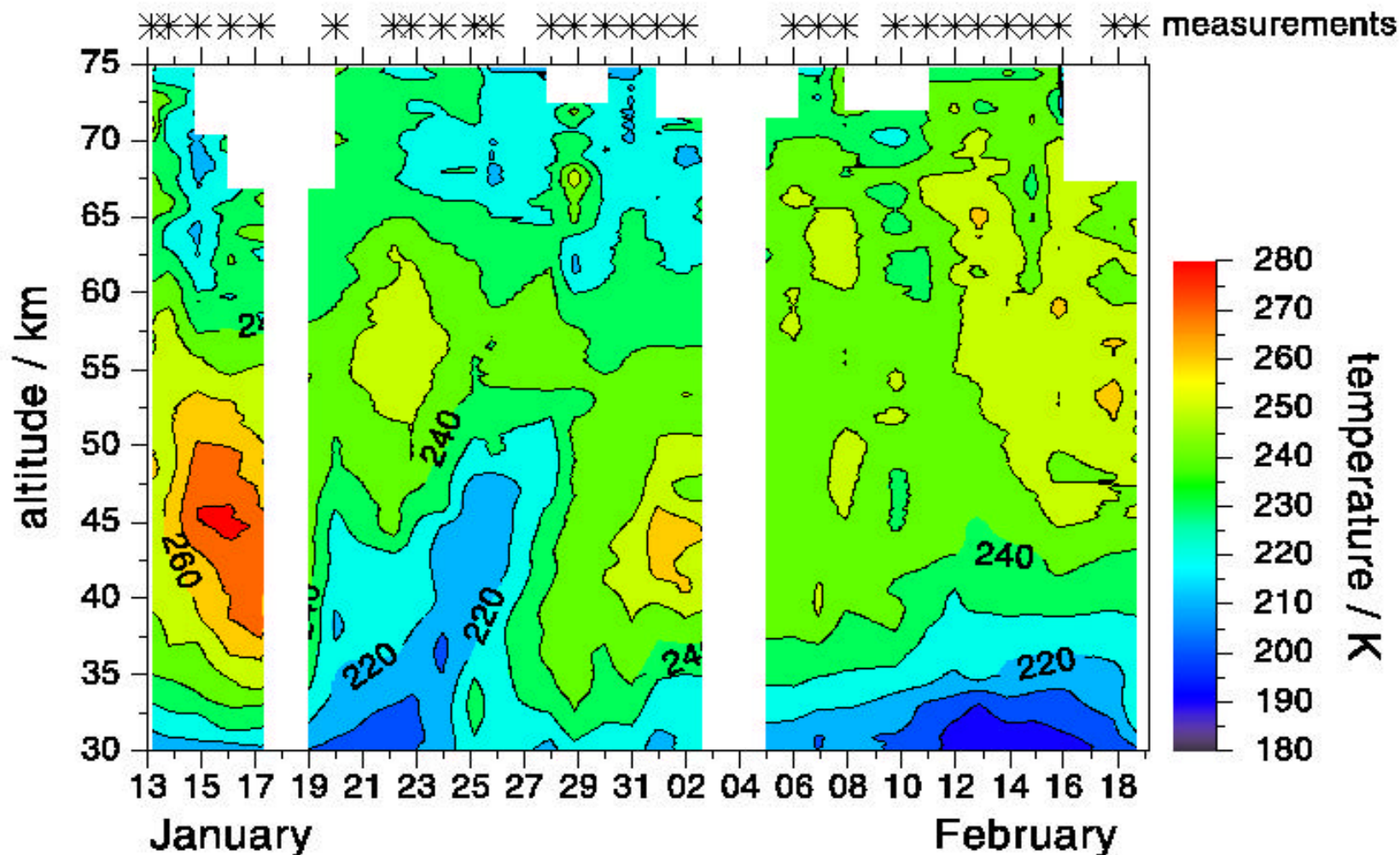


24.06.2003, 16:35:40, UB

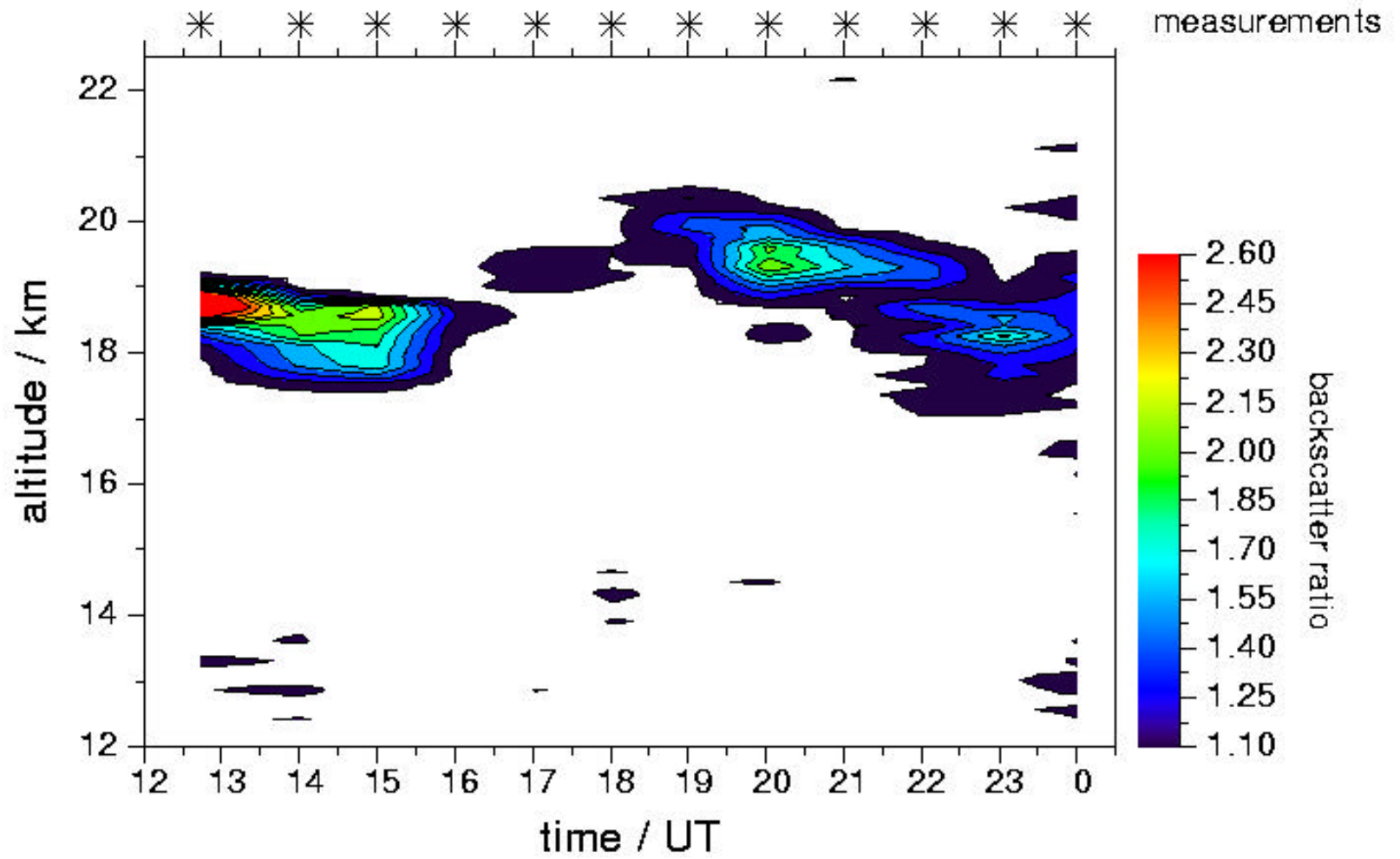
## Satellite and Lidar PMC/NLC-Observation



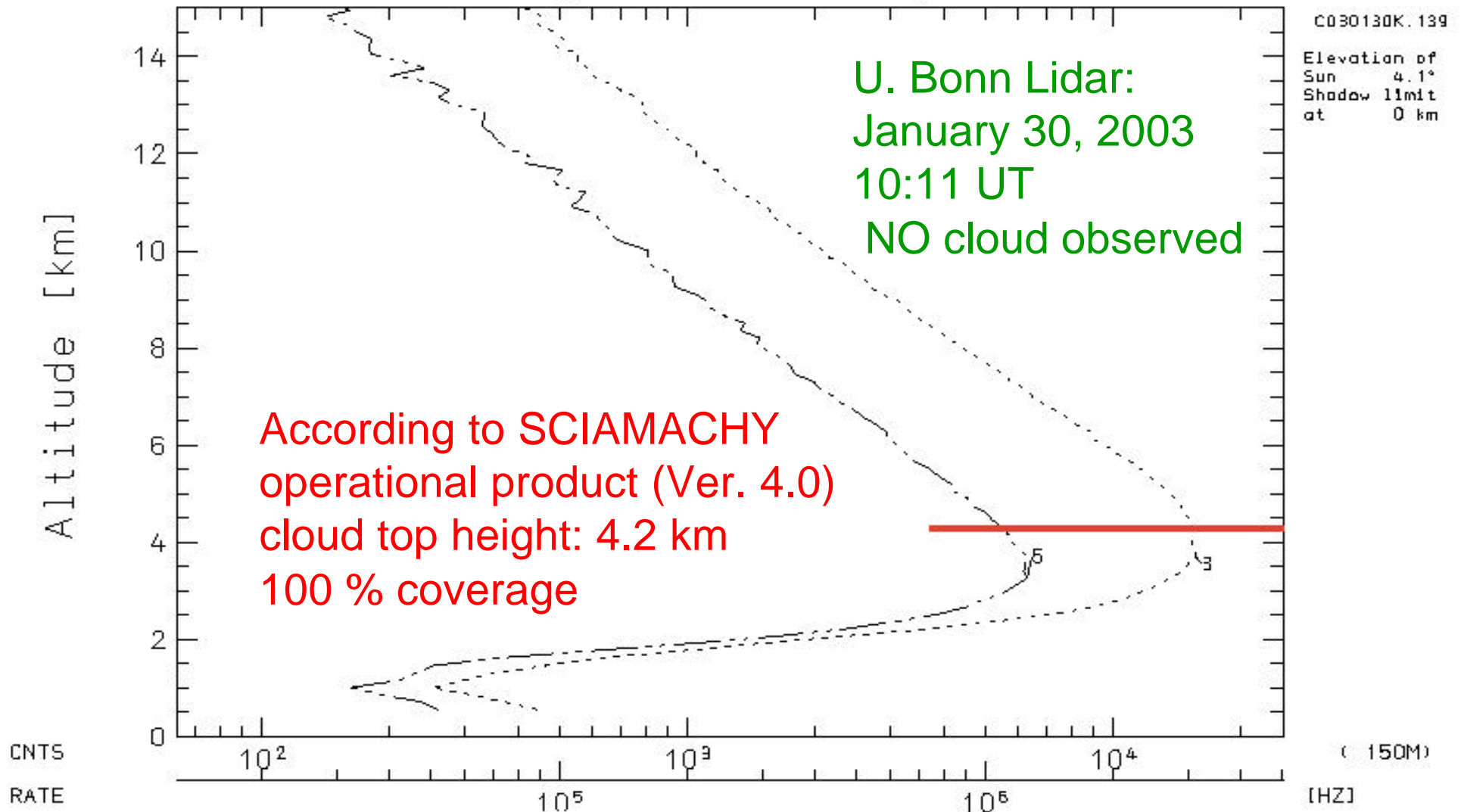
# UBonn Lidar at Esrange Temperature Development January/February 2003



PSC above Esrange  
January 13/14, 2003  
parallel polarization



# Esrange Lidar (68N, 21E)



SCIAMACHY pixel geometry:  
Size: 56 km x 25 km  
Distance center to lidar: 7 km  
Measurement time: 10:11:35 UT



## Cloud Top Height Validation

- total of 13 collocated pixels during January / February 2003
- SCIAMACHY operational products (Ver. 4.0) show cloud top height values with small variance: 4.25 km  $\pm$  0.30 km
- Lidar cloud top heights vary from no clouds up to cloud top height of 12.5 km.

SCIAMACHY cloud top heights are NOT data  
but taken from climatology



## Schedule / Further planning

- January / February 2004:  
lidar winter campaign, approx. 5 weeks (PSC)
- July / August 2004:  
lidar summer campaign, approx. 5 weeks (NLC)
- January / February 2005:  
lidar winter campaign, approx. 5 weeks (PSC)  
in close cooperation with ESABC balloon and aircraft campaign

All correlative data were uploaded to the NILU database