



DESCARTES

A balloon borne instrument for in situ CFC measurements.

quantitative

CFC-11	CCl_3F
CFC-113	$\text{CCl}_2\text{FCClF}_2$

qualitative

CFC-12	CCl_2F_2
HCFC-22	CHClF_2
carbon tetrachloride	CCl_4
methyl chloroform	CCl_3CH_3



DESCARTES principle



Figure 1: DESCARTES during flight.

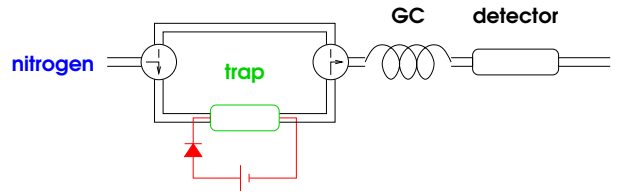


Figure 2: Analysis of the samples.



Figure 3: Calibration of the response.



Flights

981117 from Andøya with SAOZ.

981208 from esrange with SKERRIES.

THESEO-O3-loss campaign

990127 *cold conditions, fast ascent*

990212 *slow ascent*

990218



Status

To get profiles of this seasons flights

- Calibration of flowmeters, barometers, termistor.
- Calibration of detector response.
- Calibration of trap efficiency?
- Manual integration of chromatograms.

Todo list

- Calibrate samplebox I.
- Warming for box II.

Future plans

- Make DESCARTES watertight.



Possible comparisons

Other profile measurements.

- O₃ stratospheric source.
- H₂O tropospheric source.
- HF *FTIR*
- N₂O *FTIR?*

Other CFC-measurements.

- FTIR CFC-11, CFC-12, HCFC-22
- DIRAC CFC-11

Models.

- Slimcat 3D chemical model.

Radar

The slope of the profiles ⇒ subsidence.
MST radar ⇒ tropopause strength.