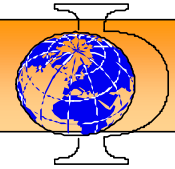
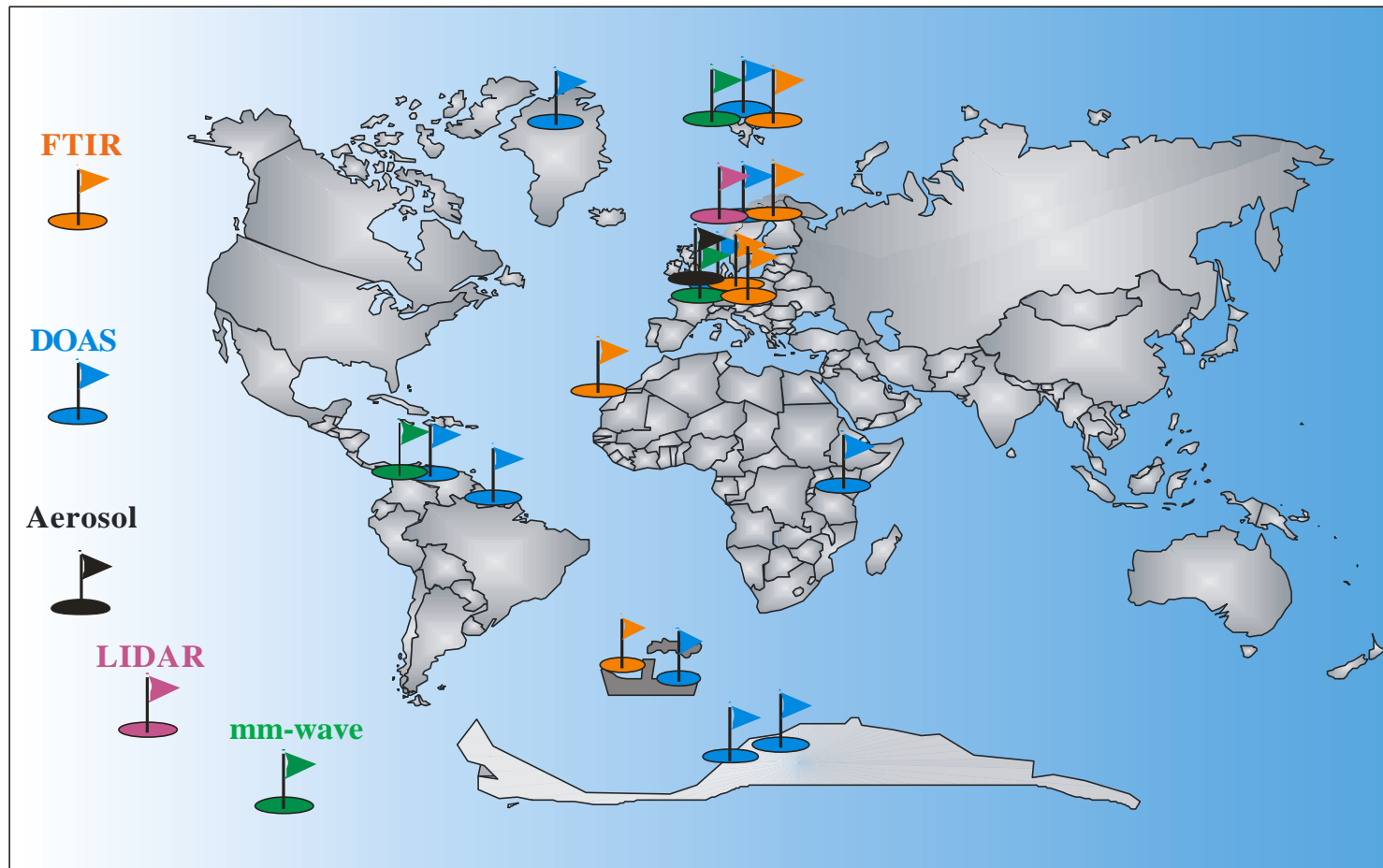


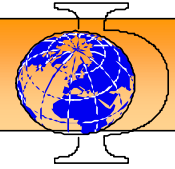
The four columns of the German SCIAMACHY Validation

Ground-based and ship-borne Validation	Aircraft-borne Validation	Satellite Validation	Balloon-borne Validation
Ground based: DOAS, FTIR, MW, LIDAR, Aerosol Ship: DOAS, FTIR	OLEX ASUR AMAXDOAS	GOME, OSIRIS, TOMS, HALOE, SAGE II + III, SBUV II, SABER, SOLSTICE, SUSIM POAM III MIPAS GOMOS	LPMA/DOAS, MIPAS B, TRIPLE



Ground-based and ship-borne Validation





Validation with the German Research Vessel Polarstern

ANT-XX

26. October 2002 until 17. Feb. 2003

MultiAxisDOAS and FTIR

ANT-XIX

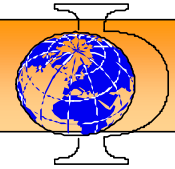
7. November 2001 until 30. May 2002

MultiAxisDOAS

- Unfortunately not relevant, because of
late launch of Envisat

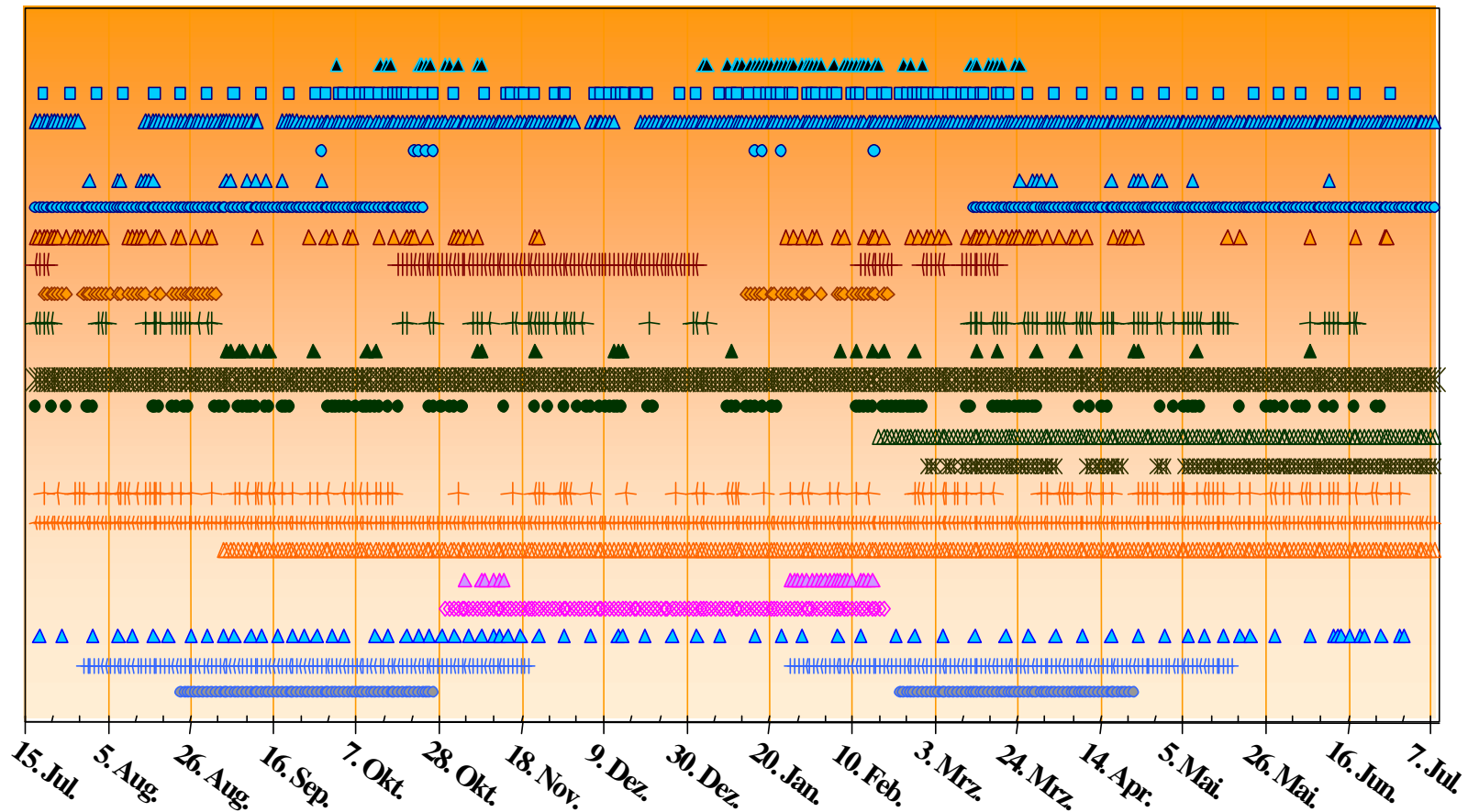


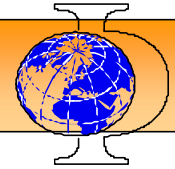
Route of the ANT XIX cruise
lasting from 7 November 2001 until 3 June 2002



GB and Ship-borne Measurements 15.07.2002 - 07.07.2003

- ▲ Lidar NyAl
- O3-sonde NyAl
- ▲ MW NyAl
- FTIR NyAl (lunar)
- ▲ FTIR NyAl
- DOAS NyAl
- ▲ FTIR Kiruna
- + DOAS Kiruna
- ◆ Lidar Esrange
- + MW Bremen
- ▲ FTIR Bremen
- * DOAS Bremen
- FTIR Zugspitze
- ▲ DOAS Zugspitze
- * MW Zugspitze
- + FTIR Tenerife
- + DOAS Surinam
- ▲ DOAS Nairobi
- ▲ FTIR Polarstern
- ◆ DOAS Polarstern
- ▲ O3-sonde Neumayer
- + DOAS Neumayer
- DOAS Arrival Heights

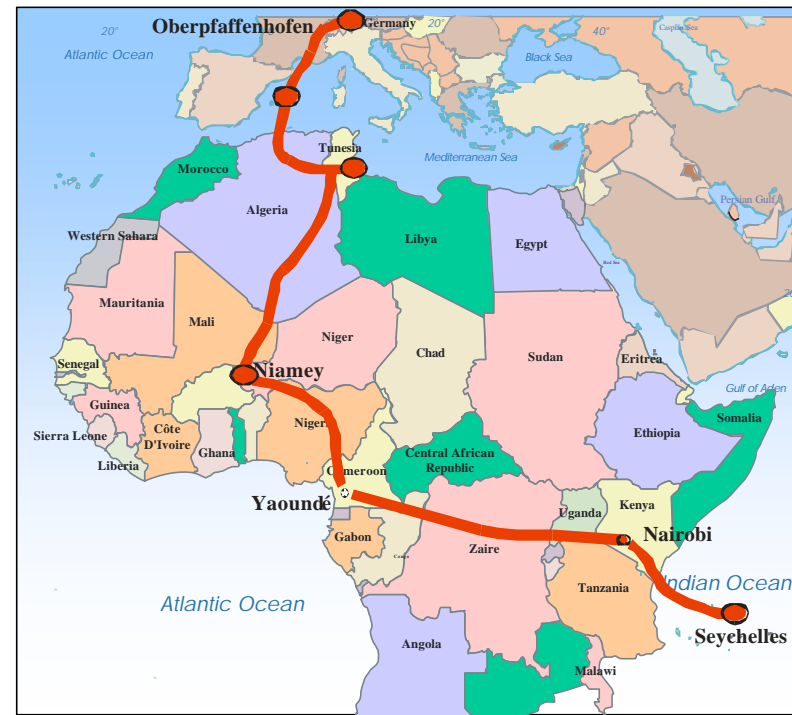
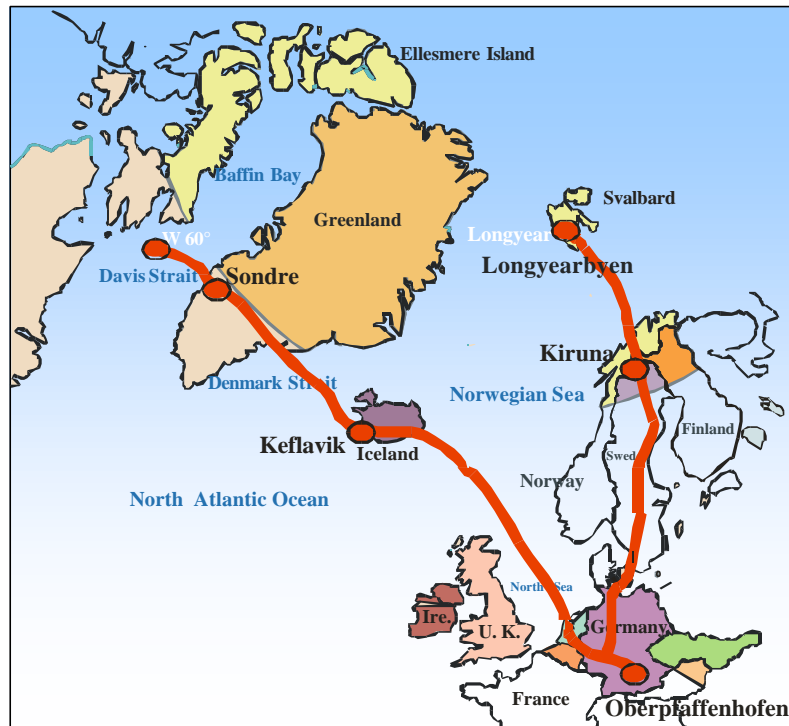




Aircraft-borne Validation with the German Falcon (ASUR / OLEX / AMAXDOAS)

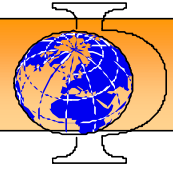
Northern Part

03.-07.09.2002 and 10.-19.03.2003

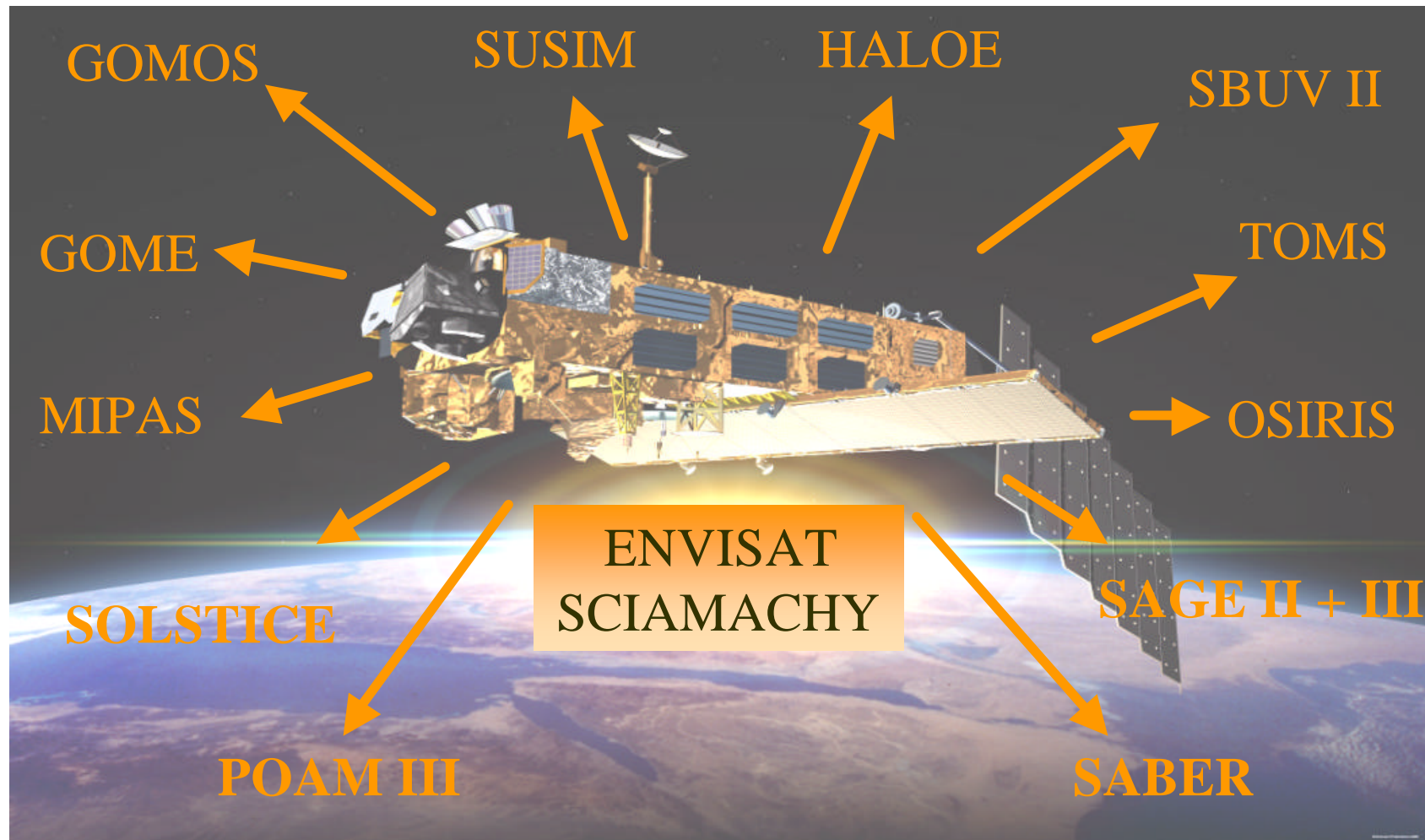


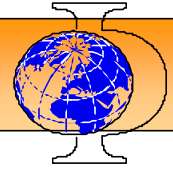
Southern Part

15.-28.09.2002 and 19.02.-03.03.2003



Satellite Validation





Balloon-borne Validation



Kiruna August 2002

LPMA-DOAS: 18./19. February 2002 (Testflight Mini DOAS)

Air sur l'Adour September/ October 2002

MIPAS-B: 11. September 2002

TRIPLE: 24. September 2002



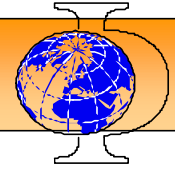
Kiruna December 2002

MIPAS-B: 07. December 2002 (AFO 2000 – POSTA Funding)



ife

German Validation Activities



Kiruna February/ March 2003

TRIPLE: 06. March 2003

MIPAS-B: 20./21. March 2003

LPMA-DOAS: 23. March 2003



Kiruna June / July 2003 (HGF funding)

TRIPLE: 09. June 2003

MIPAS-B: 03. July 2003

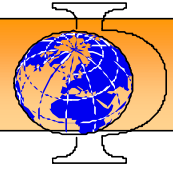
Meteorology for Balloon Validation

Kiruna Campaign August 2002 (LPMA/ DOAS)

ASA Campaign September/October 2002 (TRIPLE, MIPAS-B)

Kiruna February/March 2003 (LPMA/DOAS, TRIPLE, MIPAS-B)

Kiruna June/July 2003 (TRIPLE, MIPAS-B)



Future Validation Activities

LPMA/DOAS



TRIPLE



MIPAS-B



15. September 2003 in ASA
(LPMA/DOAS)

March 2004 in Kiruna (LPMA/DOAS)

Fall 2004 in the Tropics (ALL)

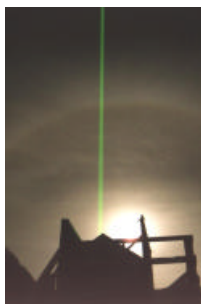
Polarstern cruise ANT-XXI

Multi Axis DOAS: 20. 10. 2003 until 02. 07. 2004

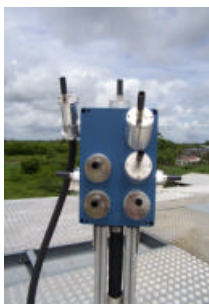
FTIR: 22. 10. until 15. 11. 2003



Esrange



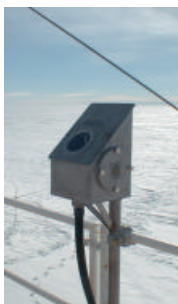
Suriname



Nairobi



Neumayer



Ongoing measurements as long as possible