

GOME/SCIAMACHY Workshop



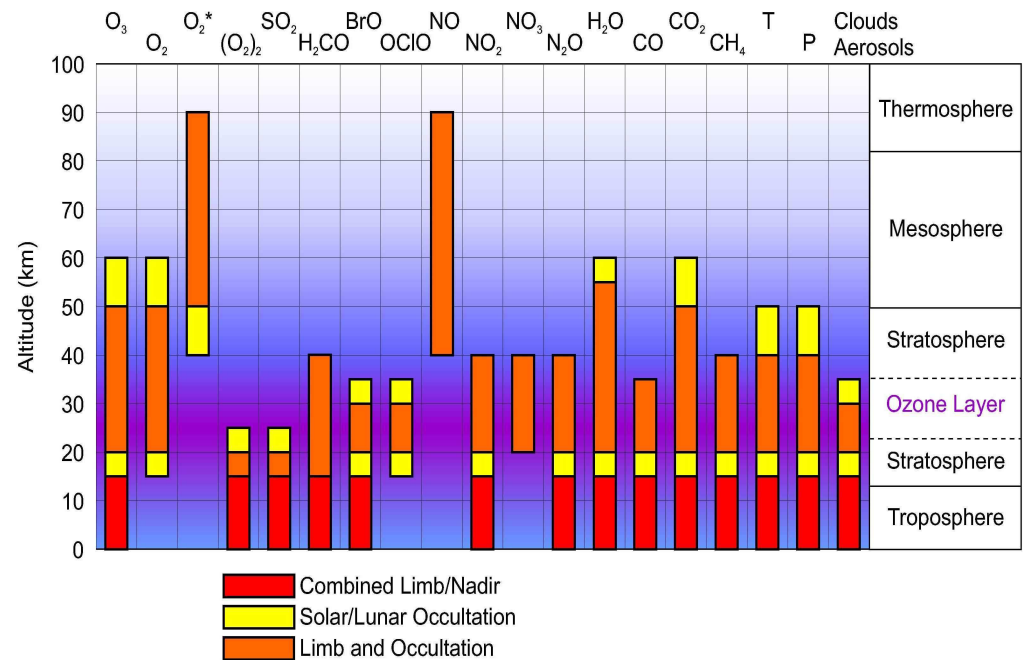
Universität Bremen, 25./26.11.2002

SCIAMACHY @ IUP/IFE

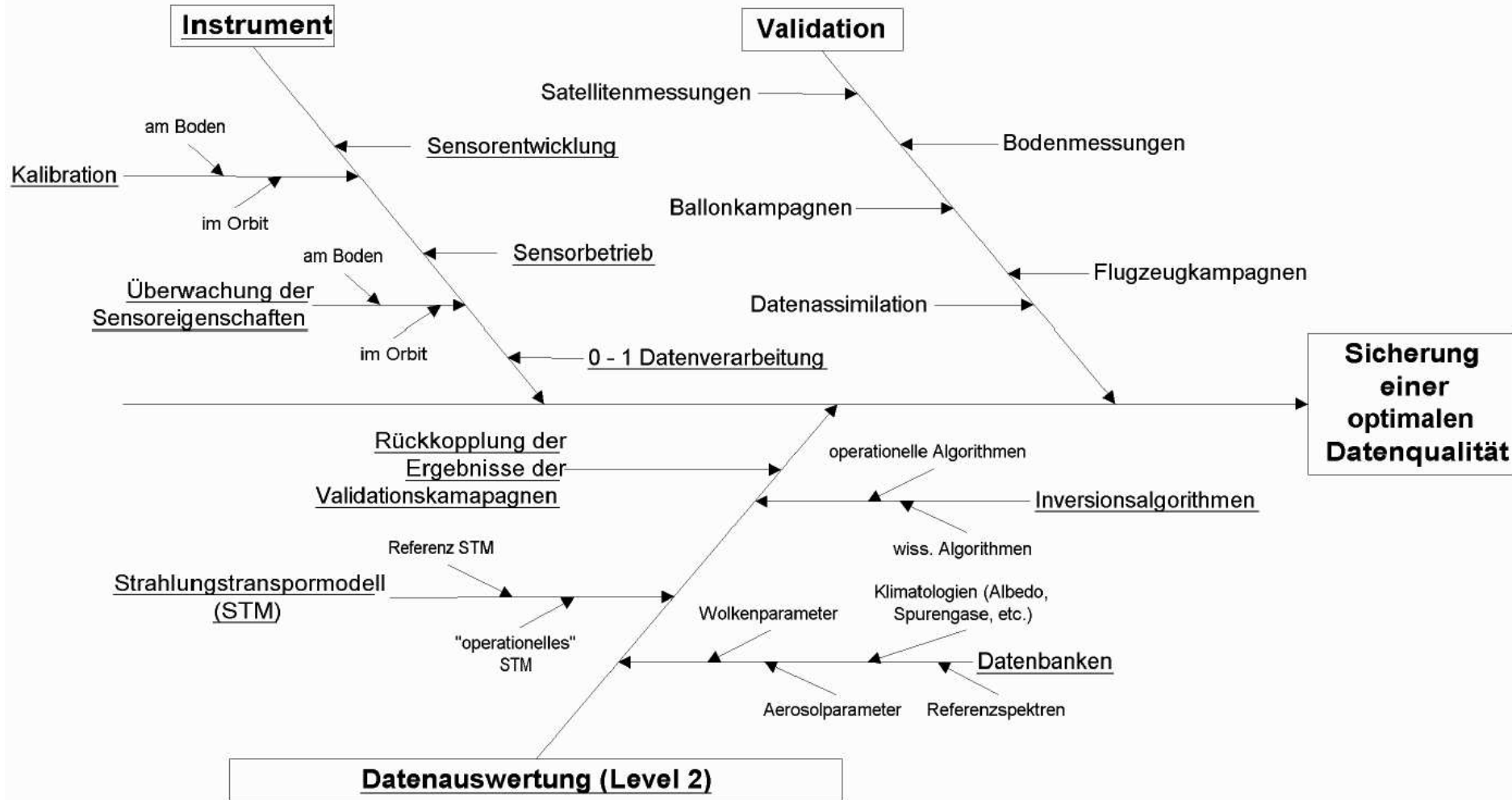


SCIAMACHY Scientific Objectives

- *Global measurements of atmospheric key constituents from lower troposphere/PBL up to the mesosphere*
- *Spatially and temporally resolved*
- *Monitoring, understanding and ultimately predicting global changes:*
 - *Chemistry and dynamics of the stratosphere*
 - *Stratosphere - troposphere exchange*
 - *Chemistry and dynamics of the mesosphere*
 - *Tropospheric pollution*

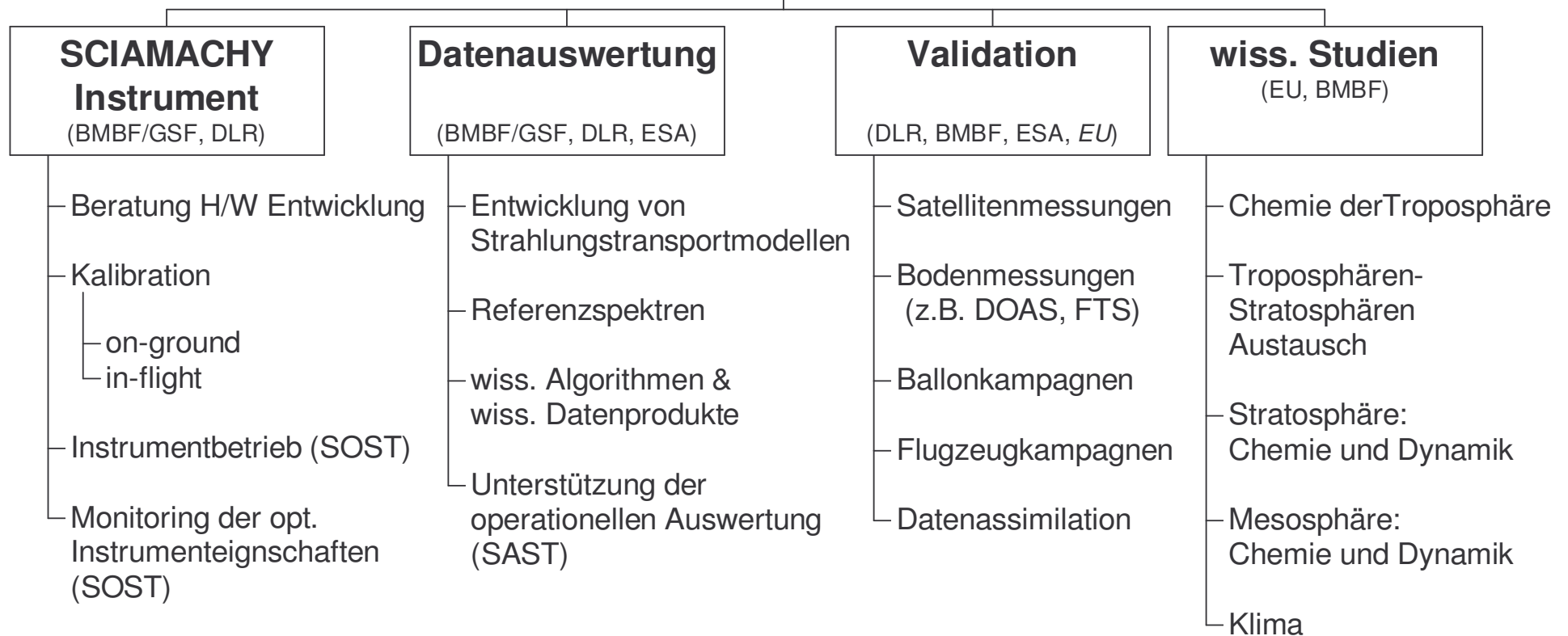


Sicherung der Datenqualität



SCIAMACHY am IFE/IUP

Ziel: Sicherung des wissenschaftlichen Erfolges der SCIAMACHY Mission durch optimale Datenqualität und wissenschaftliche Studien



Strahlungstranfer & Auswertelgorithmen

- Limb: V. & A. Rozanov, v. Savigny, Eichmann, Rohen
- Nadir: Buchwitz, Sierk, Richter, Tsetkova
- Okkultation: Meyer, Schlesier, Amekudzu
- FURM/OE: V. Rozanov, NN
- Aerosole: Hoyningen-Hüne, Freitag, Kokhanovsky

SAST

Unterstützung der oper. Datenauswertung

- NRT (0-1-2 Nadir) R. deBeek
- OL 1-2 OL Limb: Eichmann, v. Savigny, A. Rozanov

Validation

- Koordination: K. Bramstedt
- Boden: AG Richter, FTS NN
- Flugzeug: AG Richter
- Ballon: Gurlit, Krause, Gerilowski
- Satellit: Weber, Bracher, Skupin

Validation

(AG Künzi)

- Boden: RAM AG
- Flugzeug: ASUR AG

SCIAMACHY am IFE/IUP

PI: J.P. Burrows

Koordination: H. Bovensmann

Labor

- Kinetik: Spietz, Gomez-Martin
- Referenzspektren: Kromminga
- Kalibration: Gurlit, Krause, Gerilowsky

SOST

- Missionsplanung (Noel)
- Kalibration (Wuttke, Skupin)
- Monitoring (Noel, Wuttke)
- Data Server (M. Vountas)

Dateninterpretation

- Stratosphäre: Weber, Sinnhuber
- UT/LS: NN
- Troposphäre: DOAS AG
- Mesosphäre: v. Savigny, v. Köning
- Assimilation: Bovensmann, Meyer
- Klima: Weber, NN

Priorities of SCIAMACHY Data Analysis at IFE/IUP

Nadir

- Tracegases
 - GOME-DOAS: NO₂, HCHO, SO₂, BrO
 - WFM-DOAS: CO, CH₄, N₂O, CO₂
 - O₃ profiles from Nadir (GOME O₃ profile retrieval)
- Cloud & Aerosol
 - AOT over ocean and land
 - COT, Liquid Water Path

Limb

- O₃, NO₂ and CH₄ first priority
- BrO, OCIO, H₂O, CO₂ ...

Occultation

- O₃, NO₂, BrO, OCIO, CH₄ profiles

Status of First Results @ IFE (11/2002)

	Nadir	Limb	Occultation
O ₃	X	X	X
NO ₂	X	X	X
BrO	X	X	O
OCIO	O	O	
SO ₂	X	?	-
HCHO	O	-	-
H ₂ O	O	O	O
CH ₄	X	O	O
CO	O	?	O
CO ₂	X	O	O
Aerosol	O	O	O
Clouds	O	PSC, NLCs	O

Summary SCIAMACHY (1/3)

SCIAMACHY In-Flight Instrument Performance

- Instrument is fully functional
- Spectral and Radiometric Performance as expected from on ground tests
- Internal WLS is a very valuable source for relative radiometric measurement in-flight
- Etalon in channels 1-5 is very stable (improvement vs GOME)
- Transmission loss due to ice in channels 7 & 8, solutions are investigated
- More than 99% of nadir and limb measurements and all solar occultation measurements work as expected
- Nominal measurement scenario since August 2002
- Full calibration started

Summary SCIAMACHY (2/3)

First Results from Limb

- *Tangent height accuracy within 200 m*
- O₃ retrieval feasible from lower stratosphere to mesosphere
- NO₂ and BrO retrieval 15 – 35 km
- PSC's and NLC's detected
- Other gases in progress

First Results from Solar Occultation

- O₃ and NO₂ demonstrated
- Other gases in progress

Summary SCIAMACHY (3/3)

First Results from Nadir

- O₃, NO₂, SO₂, BrO retrieval demonstrated
 - Fascinating high horizontal resolution
 - CH₄, H₂O, and CO₂ spectral structures clearly identified, retrieval results for CH₄ looking promising
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- Nominal Measurement sequence running since end of July 2002
 - Ground Segement Problems affect Validation
 - Operational Data Processing and Validation ongoing, WS in December 2002

www.sciamachy.de



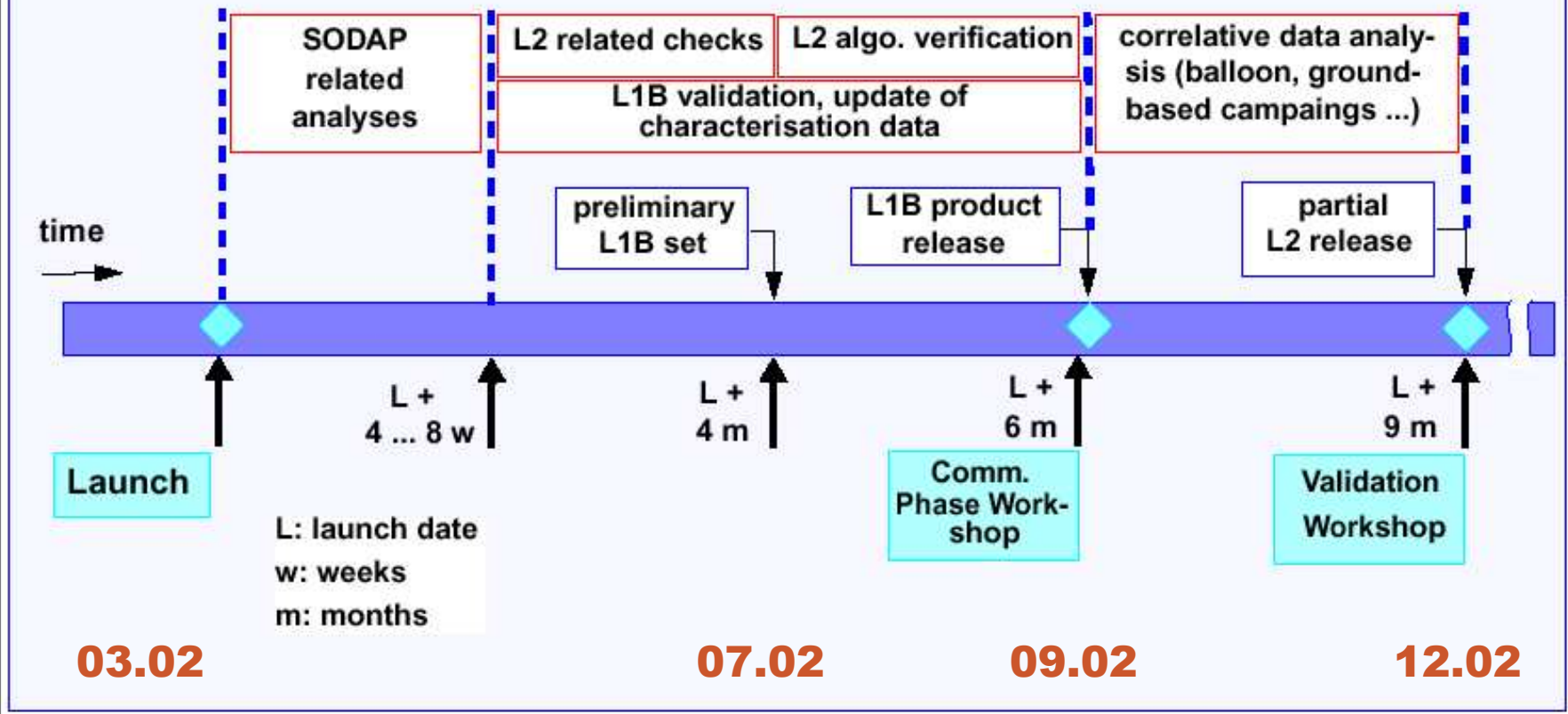
Availability of ESA Data Products



CEOS
ESA / ESRIN, 6 June 2001



Instrument / Algo CalVal activities: Overall schedule



ENVISAT Calibration & Validation

Atmospheric Chemistry