



10th International Limb Workshop – Scientific program

Greifswald, June 3 – 7, 2019

Monday, June 3, 18:00: Icebreaker and Reception

Restaurant *Campo Alegre* (Lange Reihe 1)

Session 1: Tuesday, June 4, 08:30 – 10:30

(Chair: Christian von Savigny)

Welcome

- 08:30 – 08:35 Welcome by local organizers (Christian von Savigny)
- 08:35 – 08:45 Welcome address by representative of the City of Greifswald (Jeanette von Busse)
- 08:45 – 08:55 Welcome address by University administration (Pro-rector Prof. Katharina Riedel)
- 08:55 – 09:05 Welcome address by Dr. Christian Suhm (Academic coordinator of Alfred Krupp Institute of Advanced Study)
- 09:05 – 09:15 Logistics (Christian von Savigny)

New missions and mission concepts

- 09:15 – 09:45 Didier Fussen Forthcoming limb observations with ALTIUS (**invited talk**)
- 09:45 – 10:00 Nick Lloyd The Canadian Atmospheric Tomography System (CATS) – The Next Generation OSIRIS Instrument
- 10:00 – 10:15 Marilee Roell Stratospheric Aerosol and Gas Experiment (SAGE) III installed on the International Space Station (ISS): Mission overview and Science Data Product Validation
- 10:15 – 10:30 Matthew DeLand MASTAR: Limb Scattering Measurements of Stratospheric Aerosols

10:30 – 11:00 Coffee break

Session 2: Tuesday, June 4, 11:00 – 13:00

(Chair: Adam Bourassa)

New missions and mission concepts

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| 11:00 – 11:25 | Christoph R. Englert | MIGHTI (Michelson Interferometer for Global High-resolution Thermospheric Imaging): The Wind and Temperature Instrument Onboard the NASA Ionospheric Connection (ICON) Mission (invited talk) |
| 11:25 – 11:50 | Donal Murtagh | MATS - a micro satellite for studies of Mesospheric Airglow /aerosol by Tomography and Spectroscopy (invited talk) |
| 11:50 – 12:15 | Kristell Pérot | SIW: a New Satellite Mission to Explore Middle Atmospheric Wind Structure and Composition (invited talk) |
| 12:15 – 12:30 | John Burrows | A new Concept SLIPSTREAM/SCIA-L2 |
| 12:30 – 12:45 | William E. Ward | Wind, temperature and constituent observations with a Field Widened Michelson Interferometer |
| 12:45 – 13:00 | Yasuko Kasai | Terahertz Explorer-1 for Mars Atmospheric Observation |

13:00 – 14:00 Lunch break

Session 3: Tuesday, June 4, 14:00 – 15:30

(Chair: Yasuko Kasai)

Upper troposphere/lower stratosphere

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| 14:00 – 14:15 | Doug Degenstein | Merging Satellite and Sonde Data for Ozone Trend Analysis – What Can We Do in the UTLS? |
| 14:15 – 14:30 | Christopher E. Sioris | MAESTRO upper tropospheric water vapour: Comparisons with other satellites and ground-based instruments |
| 14:30 – 14:45 | Patrick Sheese | Recent trends in atmospheric concentrations of HCFCs |
| 14:45 – 15:00 | Sören Johansson | Pollution trace gas distributions in the Asian monsoon UTLS derived from measurements of the airborne imaging limb-sounder GLORIA during the StratoClim campaign |
| 15:00 – 15:15 | Jeremy J. Harrison | Phosgene in the upper troposphere and lower stratosphere: a marker for product gas injection due to chlorine-containing very short-lived substances |
| 15:15 – 15:30 | Sabine Grießbach | Characterization of Aerosol and Clouds in the Upper Troposphere and Lower Stratosphere using Infrared Limb Emission Measurements |

15:30 – 16:00 Coffee break

16:00 – 18:00 Poster session (Authors in attendance)

Session 4: Wednesday, June 5, 08:30 – 10:30

(Chair: Christian von Savigny)

Aerosols and Clouds

08:30 – 08:45	Jörn Ungermann	Advances on Tomographic Cloud Extinction Retrievals for GLORIA and AtmoSAT
08:45 – 09:00	Matthew DeLand	Clouds and OMPS Limb Profiler: Cirrus, PSC, PMC, and More
09:00 – 09:15	Omar Torres	OMPS_LP Observations of the Stratospheric Injection of Massive Smoke Plume from Canadian Boreal Fires in 2017
09:15 – 09:30	Adam Bourassa	Forest fires, volcanic eruptions, and climate modelling: an update on OSIRIS and OMPS-LP stratospheric aerosol data records
09:30 – 09:45	Robert Loughman	Development of the OMPS LP Version 2 Aerosol Extinction Coefficient Retrieval Algorithm
09:45 – 10:00	Ghassan Taha	Overview of OMPS LP Aerosol Extinction Measurements
10:00 – 10:15	Elizaveta Malinina	Stratospheric aerosol particle size distribution from SCIAMACHY Limb data
10:15 – 10:30	Reinhold Spang	Exploration of Polar Stratospheric Clouds with IR limb measurements: Where we are and where we go

10:30 – 11:00 Coffee break

Session 5: Wednesday, June 5, 11:00 – 12:30

(Chair: Erkki Kyrölä)

Stratosphere

11:00 – 11:30	Kris Wargan	The use of satellite limb observations of the stratosphere in NASA's reanalyses (invited talk)
11:30 – 11:45	Gabriele P. Stiller	Improved global distributions of SF6 and mean age of stratospheric air by use of new spectroscopic data
11:45 – 12:00	Pawan K. Bhartia	Is Limb Scattering a Viable Low-cost Technique for Monitoring Stratospheric Change?
12:00 – 12:15	Glen Jaross	Limb scatter retrievals from SAGE III/ISS
12:15 – 12:30	Alexei Rozanov	Accounting for polar mesospheric clouds in the retrieval of ozone vertical distributions from space borne limb-scatter measurements

12:30 – 13:30 Lunch break

13:30 – 19:00 Trip to Peenemünde

19:30 Conference Dinner at Brasserie Herrmann (Gützkower Str. 1)

Session 6: Thursday, June 6, 08:30 – 10:30

(Chair: John Burrows)

Stratosphere

08:30 – 08:45	Natalya Kramarova	Analysis of the 7-year ozone profile record from OMPS Limb Profiler
08:45 – 09:00	Erkki Kyrölä	Ozone trends in the stratosphere and mesosphere determined by Dynamic Linear Model
09:00 – 09:15	Alexandra Laeng	On natural atmospheric variability of CFC-11
09:15 – 09:30	Carlo Arosio	Merging ozone profiles from SCIAMACHY and OMPS limb observations to study longitudinally resolved long-term ozone changes in the stratosphere
09:30 – 09:45	Chris Boone	Version 4 retrievals for the Atmospheric Chemistry Experiment
09:45 – 10:00	Tomohiro Sato	Diurnal variation of oxygen isotopic enrichments of asymmetric heavy ozone observed by SMILES

10:00 – 10:15	Daniel Zawada	Retrieval of Stratospheric Temperatures using OSIRIS Limb Scattered Radiances
10:15 – 10:30	Nora Mettig	Ozone Profile Retrieval from Nadir Measurements in the UV Spectral Range

10:30 – 11:00 Coffee break

Session 7: Thursday, June 6, 11:00 – 12:45

(Chair: Donal Murtagh)

Mesosphere

11:00 – 11:15	Thomas von Clarmann	The Direct Inversion of the Continuity Equation: A Climatology of Middle Atmospheric Circulation
11:15 – 11:30	Piao Rong	Estimating solar 27-day cycle variations in middle atmospheric temperature
11:30 – 11:45	Jia Jia	Mesospheric Monitoring of Ozone using Ku-band radiometer
11:45 – 12:00	Stefan Bender	Middle atmosphere ionization from particle precipitation as observed by the SSUSI satellite instruments
12:00 – 12:15	Julia Koch	Investigating the excitation mechanism of the sodium D-line emissions
12:15 – 12:30	Anqi Li	Tomographic retrieval of O ₂ dayglow emissions and derivation of mesospheric ozone using Odin-IRIS
12:30 – 12:45	Chris Roth	OSIRIS IR: A second look at the lesser known OSIRIS dataset

12:45 – 14:00 Lunch break

Session 8: Thursday, June 6, 14:00 – 16:00

(Chair: Doug Degenstein)

Retrieval algorithms, error treatment & validation

14:00 – 14:30	Thomas von Clarmann	Towards Unified Error Reporting (TUNER) (invited talk)
14:30 – 14:45	Nathaniel Livesey	Why considering only "systematic error" and "random error" (or "accuracy" and "precision") can be problematic – some MLS-based examples

14:45 – 15:00 Takayoshi Yamada Solving non-LTE problems in rotational transitions using the Gauss–Seidel method and its implementation in the Atmospheric Radiative Transfer Simulator

Validation studies

15:00 – 15:15 Kaley A. Walker The Atmospheric Chemistry Experiment (ACE) Satellite: Recent Validation Results

15:15 – 15:30 Kevin R. Leavor Intercomparison of Active Satellite Observations with SAGE III ISS

15:30 – 15:45 H. J. Ray Wang Validation of SAGE III-ISS V5.1 solar ozone data

15:45 – 16:00 Evgenia Galytska Validation of SCIAMACHY limb NO₂ scientific data V4.0, its changes in the stratosphere and their impact on O₃ chemistry in the tropical region

16:00 – 16:30 Coffee break

Session 9: Thursday, June 6, 16:30 – 17:45

(Chair: Yasuko Kasai)

Agencies, programs and projects

16:30 – 16:45 Marcus Dejmek CSA Atmospheric Science Satellite Missions – **withdrawn** –

16:30 – 16:45 Michaela I. Hegglin The ESA Water Vapour Climate Change Initiative

16:45 – 17:00 Susann Tegtmeier Update of the SPARC Data Initiative for 2002-2018

17:00 – 17:15 Christine Bingen Retrieval of stratospheric aerosol size properties from GOMOS: Current status

Concluding discussions and remarks Thursday 17:15 – 17:45

Friday, June 7, 09:00 – 12:30:

Possibility for informal discussions at the Institute of Physics
(Felix-Hausdorff-Str. 6)

Posters

Yuki Uchiyama	Calibration System of Terahertz Explorer-1 instrument for Mars Atmospheric Observation
Christoph Hoffmann	Signatures of the Madden-Julian Oscillation in Middle Atmosphere Temperature from Aura MLS
Ernest Nyaku	A comparison of lognormal and gamma size distributions for characterizing the stratospheric aerosol phase function from OPC measurements
Mahesh Kovilakam	Revisiting Stratospheric Aerosol Climatology for the post-SAGEII era using Space-based Measurements
Felix Wrana	Retrieval of particle size distribution parameters of stratospheric aerosol using solar occultation measurements of SAGE III on ISS
Travis Knepp	Aerosol Product Validation for the Stratospheric Aerosol and Gas Experiment III (SAGE-III) installed on the International Space Station (ISS)
Jacob Zalach	Challenges in retrieving stratospheric aerosol extinction and particle size from RMR-LIDAR observations
Christian von Savigny	The DFG Research Unit VollImpact: Revisiting the volcanic impact on atmosphere and climate
Andrea Orfanoz-Cheuquelaf	WFDOAS total column ozone retrieval from OMPS/NPP in preparation for tropospheric ozone retrieval using the limb-nadir technique
Susan Kizer	Stratospheric Aerosol and Gas Experiment III on the International Space Station (SAGE III/ISS) Science Data Ozone Product: Preliminary Validation Results
Rob Damadeo	An initial evaluation of ozone data quality from SAGE III/ISS v5.1
David Huber	Evaluation of the SAGE III/ISS Water Vapor Retrieval
Seidai Nara	The Vertical Profile of HCl from Stratosphere to Lower Thermosphere Observed by SMILES
Viktoria Sofieva	High-resolution temperature profiles retrieved from bi-chromatic stellar scintillation measurements by GOMOS/Envisat
Francesco Grieco	Odin/SMR long-term measurements of Carbon Monoxide in the Middle Atmosphere
Miriam Sinnhuber	Solar heating rates derived from SCIAMACHY observations of the O ₂ (1Sigma) and O ₂ (1Delta) airglow
Olexandr Lednyts'kyi	Modeling of molecular and atomic oxygen photochemistry on the basis of multiple in-situ and limb nightglow emissions