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 Alfried 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

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

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

15:30 – 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 O2 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 VolImpact: 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 O2(1Sigma) and O2(1Delta) airglow

Olexandr Lednyts’kyy  Modeling of molecular and atomic oxygen photochemistry on the basis of multiple in-situ and limb nightglow emissions