

7th NDMC Symposium

Agenda

15th - 18th May, 2017, Grainau, Germany
Berghotel Hammersbach

Monday, 15 th May 2017: Arrival day	1
Tuesday, 16 th May 2017: 1 st meeting day	2
Wednesday, 17 th May 2017: 2 nd meeting day	5
Thursday, 18 th May 2017: Excursion day	8

Talks Each talk will be 15 minutes long with additional 5 minutes for discussion.

Monday, 15th May 2017: Arrival day

18:00h **Dinner**

Evening Possibility for coming together in the Hotel bar!

Tuesday, 16th May 2017: 1st meeting day

09:00h	Welcome and introduction
09:00h	Introduction and meeting objectives <i>Michael Bittner</i> - NDMC Co-chair
09:20h	Start of scientific presentations, Chair: Patrick J. Espy (tbc)
09:20h	On the role of non-LTE effects for variations in OH rotational temperatures <i>Stefan Noll¹, Stefan Kimeswenger^{2,1}, Bastian Proxauf^{4,3}, Wolfgang Kausch^{4,1}, Steffanie Unterguggenberger¹, Amy Jones⁵</i> ¹ Institut für Astro- und Teilchenphysik, Universität Innsbruck, Innsbruck, Austria ² Instituto de Astronomía, Universidad Católica del Norte, Antofagasta, Chile ³ Max Planck Institute for Solar System Research, Göttingen, Germany ⁴ University of Vienna, Department of Astrophysics, Vienna, Austria ⁵ Max Planck Institute for Astrophysics, Garching, Germany
09:40h	Study of UV airglow for purposes of JEM-EUSO mission <i>Simon Mackovjak¹, Pavol Bobik¹, Marian Putis¹</i> ¹ Department of Space Physics, Institute of Experimental Physics, Slovak Academy of Sciences, Košice, Slovakia
10:00h	Effect of magnetospheric disturbances on UV nightglow <i>Marian Putis¹</i> ¹ Department of Space Physics, Institute of Experimental Physics, Slovak Academy of Sciences, Košice, Slovakia
10:20h	The effect of the geomagnetic activity at temperature of the sub-auroral mesopause over Yakutia <i>G.A. Gavriljeva¹, P.P. Ammosov¹, A.M. Ammosova¹, I.I. Koltovskoi¹</i> ¹ Institute of Cosmophysical Research and Aeronomy, SB RAS, Yakutsk, Russia
10:40h	Coffee break
11:00h	Continuation of scientific presentations, Chair: Goderdzi Didebulidze (tbc)
11:00h	Altitude of the hydroxyl layer over the Observatory of Sierra Nevada (37N,3W), Granada, Spain <i>Maya Garcia-Comas¹, María José López-González¹</i> ¹ Instituto de Astrofísica de Andalucía (CSIC), Granada, Spain
11:20h	Chemical heating rates derived with the developed Multiple Airglow Chemistry model <i>Olexandr Lednyts'kyi¹, Christian von Savigny¹</i> ¹ University of Greifswald, Greifswald, Germany

11:40h **Characterizing variability in OH* emissions during the last solar cycle retrieved from SCIAMACHY nightglow observations**

Georg Teiser¹, Christian von Savigny¹

¹Institute of Physics, Ernst-Moritz-Arndt-Universität Greifswald, Germany

12:00h **Empirical model of the spatio-temporal distribution of the intensity of the infrared emissions of atomic oxygen (63 μm) and carbon dioxide (15 μm) in the upper atmosphere**

Anatoly Semenov¹, Irina Medvedeva², Vladimir Perminov¹, Valentina Sidash¹

¹Obukhov Institute of Atmospheric Physics RAS, Moscow, Russia

²Institute of Solar-Terrestrial Physics, Siberian Branch, RAS, Irkutsk, Russia

12:20h **Lunch break**

14:00h **Group photo**

14:20h **Continuation of scientific presentations, Chair: Frank J. Mulligan (tbc)**

14:20h **Studying metals in the MLT using astronomical facilities**

Stefanie Unterguggenberger¹, Stefan Noll¹, Wuhu Feng^{2,3}, John M. C. Plane², Wolfgang Kausch^{4,1}, Stefan Kimeswenger^{5,1}, Amy Jones^{6,1}

¹Institut für Astro- und Teilchenphysik, Universität Innsbruck, Innsbruck, Austria

²School of Chemistry, University of Leeds, Leeds, United Kingdom

³National Centre for Atmospheric Science, University of Leeds, Leeds, United Kingdom

⁴University of Vienna, Department of Astrophysics, Vienna, Austria

⁵Instituto de Astronomía, Universidad Católica del Norte, Antofagasta, Chile

⁶Max Planck Institute for Astrophysics, Garching, Germany

14:40h **Retrieval of horizontally resolved winds from a multi-static multi-frequency meteor radar network**

Gunter Stober¹, Jorge L. Chau¹, Sven Wilhelm¹, Christoph Jacobi²

¹Leibniz-Institute of Atmospheric Physics, Kühlungsborn, Germany

²University of Leipzig, Institute for Meteorology, Leipzig, Germany

15:00h **Lidar observations of gravity waves and tides in the middle atmosphere above Kühlungsborn (54° N): An update**

Michael Gerding¹, Kathrin Baumgarten¹, Franz-Josef Lübken¹

¹Leibniz Institute of Atmospheric Physics, Kühlungsborn, Germany

15:20h **Using the Optimal Estimation Method to Retrieve Middle Atmospheric Temperature from Rayleigh-scatter lidar measurements**

Robert J. Sica¹, Alexander Haefele², Ali Jalali¹

¹Department of Physics and Astronomy, The University of Western Ontario, London, Canada

²Federal Office of Meteorology and Climatology MeteoSwiss, Payerne, Switzerland

15:40h	Coffee break
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16:20h	Continuation of scientific presentations, Chair: Irina Medvedeva (tbc)
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16:20h	<p>A new middle atmosphere Rayleigh-scatter temperature climatology using the Optimal Estimation Method <i>Ali Jalali¹, Robert J. Sica^{1,2}, Alexander Haeferle^{2,1}</i> ¹Department of Physics and Astronomy, The University of Western Ontario, London, Canada ²Federal office of Meteorology and Climatology, MeteoSwiss, Switzerland</p>
16:40h	<p>Meridional net of stations measuring the temperature of the mesopause in the North East of Siberia <i>P.P. Ammosov¹, G.A. Gavriljeva¹, A.M. Ammosova¹, I.I. Koltovskoi¹, V.I. Sivtseva¹</i> ¹Institute of Cosmophysical Research and Aeronomy, SB RAS, Yakutsk, Russia</p>
17:00h	<p>A radiometric traceability concept for the Network of Mesospheric Change (NDMC) <i>Max Reiniger¹, Christian Monte¹, Jörg Hollandt¹, Paul Dekker², Steven van den Berg², Carsten Schmidt³, Sabine Wüst³, Michael Bittner³</i> ¹Physikalisch-Technische Bundesanstalt (PTB) ²VSL - Dutch Metrology Institute ³Deutsches Zentrum für Luft- und Raumfahrt (DLR)</p>
17:20h	<p>Development of a near-infrared filter radiometer as part of the traceability chain for ground-based P-branch spectrometers <i>Steven van den Berg¹, Paul Dekker¹, Max Reiniger², Berndt Gutschwager², Christian Monte², Jörg Hollandt²</i> ¹VSL - Dutch Metrology Institute ²Physikalisch-Technische Bundesanstalt (PTB)</p>
17:40h	<p>Diurnal variability of OH at high latitudes <i>Patrick J. Espy¹</i> ¹Norwegian University of Science and Technology, Department of Physics</p>

18:00h	End of session - 19:00h dinner
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Evening	Possibility for coming together in the Hotel bar!
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Wednesday, 17th May 2017: 2nd meeting day

09:00h	Continuation of scientific presentations, Chair: Michael Gerding (tbc)
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09:00h	<p>Results of reverse ray-tracing short-period gravity waves and ripples observed at Davis Station Antarctica (68° S, 78° E) during the period 1999-2013 <i>Mulligan, FJ¹, Rourke, S¹, French WJR²</i> ¹Department of Experimental Physics, Maynooth University, Maynooth, Co. Kildare, Ireland ²Australian Antarctic Division, Kingston, Tasmania, Australia</p>
09:20h	<p>Derivation of horizontal and vertical wavelengths using a scanning OH(3-1) airglow spectrometer <i>Sabine Wüst¹, Thomas Offenwanger¹, Carsten Schmidt¹, Michael Bittner^{1,2}, Christoph Jacobi³, Gunter Stober⁴, Jeng-Hwa Yee⁵, Martin G. Mlynczak⁶, James M. Russell III⁷</i> ¹Deutsches Zentrum für Luft- und Raumfahrt, Deutsches Fernerkundungsdatenzentrum, Oberpfaffenhofen, Germany ²Universität Augsburg, Institut für Physik, Augsburg, Germany ³Universität Leipzig, Institut für Meteorologie, Leipzig, Germany ⁴Institut für Atmosphärenphysik, Kühlungsborn, Germany ⁵Applied Physics Laboratory, The Johns Hopkins University, Laurel, USA ⁶NASA Langley Research Center, Hampton, USA ⁷Center for Atmospheric Sciences, Hampton, USA</p>
09:40h	<p>Comparison of atmospheric and ionospheric variabilities from measurements of OH(6-2) rotational temperature and F2 peak electron density <i>Irina Medvedeva¹, Konstantin Ratovsky¹</i> ¹Institute of Solar-Terrestrial Physics Siberian Branch of Russian Academy of Sciences (ISTP SB RAS), Irkutsk, Russia</p>
10:00h	<p>Comparison of temperature of the mesopause measured by ground-based and satellite instruments <i>G.A. Gavrilyeva¹, P.P. Ammosov¹, A.M. Ammosova¹, I.I. Koltovskoi¹</i> ¹Institute of Cosmophysical Research and Aeronomy, SB RAS, Yakutsk, Russia</p>

10:20h	Coffee break
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11:00h	Continuation of scientific presentations, Chair: Sabine Wüst (tbc)
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10:40h	<p>Seasonal fluctuations of internal gravity waves in the mesopause region by measurements at Tiksi and Maimaga <i>V.I. Sivtseva¹, P.P. Ammosov¹, G.A. Gavrilyeva¹, I.I. Koltovskoi¹</i> ¹Institute of Cosmophysical Research and Aeronomy, SB RAS, Yakutsk, Russia</p>
11:00h	<p>Vortical perturbations and their possible transformation into short-period AGWs by nightglow observations <i>Goderdzi Didebulidze¹, Maya Todua¹, Lekso Toriashvili¹</i> ¹Evgeny Kharadze Abastumani Astrophysical Observatory of Ilia State University, Georgia</p>

11:20h **Small-scale gravity waves in the Alpine region observed in OH-airglow - comparison of measurements at Oberpfaffenhofen, Germany, and Sonnblick, Austria**

Patrick Hannawald¹, René Sedlak¹, Carsten Schmidt², Sabine Wüst², Michael Bittner^{1,2}

¹University of Augsburg, Institute for Physics, Atmospheric Remote Sensing

²German Aerospace Center, German Remote Sensing Data Center, Atmosphere

11:40h **High resolution observations of small scale gravity waves and turbulence features in the OH airglow layer**

René Sedlak¹, Patrick Hannawald¹, Carsten Schmidt², Sabine Wüst², Michael Bittner^{1,2}

¹University of Augsburg, Germany – Institute of Physics

²German Aerospace Center, Germany – German Remote Sensing Data Centre

12:00h **Lunch break**

13:40h **Continuation of scientific presentations, Chair: Robert J. Sica (tbc)**

13:40h **High-Resolution Airborne Airglow Imaging during the Gravity Wave Life Cycle Campaign in Northern Scandinavia**

Carsten Schmidt¹, Patrick Hannawald², René Sedlak², Sabine Wüst¹, Michael Bittner^{1,2}

¹Deutsches Zentrum für Luft- und Raumfahrt, Earth Observation Center, Deutsches Fernerkundungsdatenzentrum

²Universität Augsburg, Institut für Physik

14:00h **Observations of OH-airglow from ground, aircraft, and satellite during the GW-LCYCLE campaign: investigation of different wave types**

Sabine Wüst¹, Carsten Schmidt¹, Patrick Hannawald², Thomas Offenwanger¹, René Sedlak², Michael Bittner^{1,2}, Jeng-Hwa Yee³, Martin G. Mlynarczyk⁴, James M. Russell III⁵

¹Deutsches Zentrum für Luft- und Raumfahrt, Deutsches Fernerkundungsdatenzentrum, Oberpfaffenhofen, Germany

²Universität Augsburg, Institut für Physik, Augsburg, Germany

³Applied Physics Laboratory, The Johns Hopkins University, Laurel, USA

⁴NASA Langley Research Center, Hampton, USA

⁵Center for Atmospheric Sciences, Hampton, USA

14:20h **Very high resolution observations of waves in the OH airglow at low latitudes**

Christoph Franzen^{1,2}, Robert Edward Hibbins^{1,2}, Patrick Joseph Espy^{1,2}, Anlaug Amanda Djupvik³

¹Norwegian University of Science and Technology (NTNU), Norway

²Birkeland Centre for Space Science (BCSS), Norway

³Nordic Optical Telescope, Spain

14:40h **Are self-sustained oscillations part of the climate problem?**
D. Offermann¹, Ch. Kalicinsky¹, R. Koppmann¹, K. Matthes², H. Schmidt³, W. Steinbrecht⁴, J. Wintel¹
¹University of Wuppertal, Germany
²GEOMAR Helmholtz Centre for Ocean Research, Kiel, Germany
³MPI Meteorology, Hamburg, Germany
⁴Hohenpeißenberg Observatory, DWD,Germany

15:00h **Coffee break**

15:40h **Continuation of scientific presentations, Chair: Maya Garcia-Comas (tbc)**

15:40h **Trends and variability of planetary wave activity in the lower and middle atmosphere during the last 37 years**
Lisa Küchelbacher¹, Sabine Wüst¹, Carsten Schmidt¹, Michael Bittner^{1,2}
¹Deutsches Zentrum für Luft- und Raumfahrt, Earth Observation Center, Deutsches Fernerkundungsdatenzentrum
²Universität Augsburg, Institut für Physik, Professur für Atmosphärenfernerkundung

16:00h **An update on ozone and temperature trends in the stratosphere.**
Wolfgang Steinbrecht¹, et. al.
¹Deutscher Wetterdienst, Hohenpeißenberg, Germany

16:20h **Investigation of the filtering effect of gravity waves by planetary waves based on a three decadal time series of mesopause temperatures at mid-latitudes**
René Sedlak¹, Lisa Küchelbacher², Carsten Schmidt², Sabine Wüst², Alexandra Zühr^{1,2}, Ralf Koppmann³, Michael Bittner^{1,2}
¹University of Augsburg, Germany – Institute of Physics
²German Aerospace Center (DLR), Germany – German Remote Sensing Data Center
³Institute for Atmospheric and Environmental Research, University of Wuppertal, Germany

16:40h **Longterm variability of semiannual oscillation in OH temperatures**
Lisa Mittelstädt¹, Sabine Wüst¹, Carsten Schmidt¹, Lisa Küchelbacher¹, Michael Bittner^{1,2}
¹German Aerospace Center (DLR), Germany – German Remote Sensing Data Center
²University of Augsburg, Germany – Institute of Physics

17:00h **Any other business, Chair: Michael Bittner**

17:00h **Report on NDMC data platform**
Oleg Goussev¹, Julian Meyer-Arnek¹, Michael Bittner^{1,2}
¹German Aerospace Center (DLR), Germany – German Remote Sensing Data Center
²University of Augsburg, Germany – Institute of Physics

17:20h **Any other issues**

18:00h **End of session - 19:00h dinner**

After dinner **NDMC Young Scientist Award 2017**

Evening Possibility for coming together in the Hotel bar!

Thursday, 18th May 2017: Excursion day

Excursion to Partnachklamm or Wank Partnachklamm as well as Wank are beautiful hiking locations which are both easily accessible. Costs for public transport and entrances are not included in the conference fee. Partnachklamm can also be visited in case of bad weather.

Find further information for Partnachklamm at:

<http://www.parnachklamm.eu/flyer/eng-flyer-inet.pdf>

and for Wank at:

<http://zugspitze.de/en/summer/mountain/wank>

Please take sturdy shoes and rainwear with you!