# 16th International Workshop on Technical and Scientific Aspects of iMST Radar and Lidar (MST16/iMST3)

**Rostock • September 9th - 13th, 2024**

| Mon, 9 Sep | |
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| 08:30 - 09:00 | **On site registration** |
| 09:00 - 09:30 | **Opening remarks** |
| 09:30 - 10:55 | **Synergistic use of instruments and analysis techniques (6-I)**<br>Aula (University of Rostock)<br>Chair/s: Hubert Luce |
| 09:30 | MST16-T6-Mon1-Oral-01<br>**Integrated Observatories for Monitoring Fire Weather in the Western U.S.**<br>Allen White, NOAA Physical Sciences Laboratory |
| 09:50 | MST16-T6-Mon1-Oral-02<br>**Intercomparison of MLT mean winds from Doppler-Rayleigh Lidar and Radar over Kühlungsborn and ALOMAR**<br>Robin Wing, Leibniz Institute of Atmospheric Physics at the University of Rostock (IAP) |
| 10:05 | MST16-T6-Mon1-Oral-03<br>**Initial results with DIAL system at NARL, India**<br>M Venkat Ratnam, National Atmospheric Research Laboratory, Department of Space, India |
| 10:20 | MST16-T6-Mon1-Oral-04<br>**Towards Operational Satellite Detection on the Buckland Park ST Radar**<br>Bronwyn Dolman, ATRAD Pty Ltd \| University of Adelaide |
| 10:40 | MST16-T6-Mon1-Oral-05<br>**Turbulence studies from a Doppler Lidar, a UHF wind profiler, the MU radar and radiosondes in the convective boundary layer**<br>Hubert Luce, Research Institute for Sustainable Humanosphere (RISH, Kyoto University) |
| 10:55 - 11:25 | **Coffee Break** |

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| 11:25 - 12:25 | **Synergistic use of instruments and analysis techniques (6-II)**<br>Aula (University of Rostock)<br>Chair/s: Koji Nishimura |
| 11:25 | MST16-T6-Mon2-Oral-01<br>**Categorizing Meteor Head Echoes: Enhancing Detection and Understanding through AHEAD Algorithm and Neural Network Analysis**<br>Nicholas Holl, The Pennsylvania State University |
| 11:40 | MST16-T6-Mon2-Oral-02<br>**Unveiling hidden mesoscale dynamics in the Mesosphere and Lower Thermosphere with HYPER, a physics-informed machine learning approach**<br>Juan Miguel Urco, Leibniz Institute of Atmospheric Physics at the University of Rostock, Germany |
| 11:55 | MST16-T6-Mon2-Oral-03<br>**Exploration of a six-dimensional wavelet power spectrum using HDBSCAN - a time-frequency gravity wave analysis**<br>Robert Reichert, Meteorological Institute Munich, Ludwig-Maximilians-University, Munich, Germany |
| 12:10 | MST16-T6-Mon2-Oral-04<br>**Boundary Layer Observation Experiments with PANSY and Sumiré Radars using Supplementary Antennas**<br>Koji Nishimura, Kyoto University, Kyoto, Japan |
| 12:25 - 13:45 | **Lunch** |

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| 13:45 - 15:35 | **Planetary waves and tides in the mesosphere and lower thermosphere (2-I)**<br>Aula (University of Rostock)<br>Chair/s: Wayne Hocking |
| 13:45 | MST16-T2-Mon3-Oral-01<br>**Long-term changes of mesosphere/lower thermosphere mean winds, tides, and gravity waves over Collm, Germany**<br>Christoph Jacobi, Leipzig University, Institute for Meteorology |
| 14:05 | MST16-T2-Mon3-Oral-02<br>**Planetary Waves and Tides Revealed via A Dual-Station Method**<br>Maosheng He, National Space Science Center, Chinese Academy of Sciences, Beijing, China |
| 14:20 | MST16-T2-Mon3-Oral-03<br>**Mean winds and tidal variability from troposphere to the thermosphere by combining ground based and space borne measurements: First results**<br>Venkat Ratnam M, National Atmospheric Research Laboratory (NARL), Gadanki-517112 |
| 14:35 | MST16-T2-Mon3-Oral-04<br>**Climatology of Meteor echoes and Mean winds in MLT region revealed by SVU Meteor radar over Tirupati (13.63oN, 79.4oE): Long-term trends**<br>Madineni Venkat Ratnam, National Atmospheric Research Laboratory (NARL), Gadanki, Tirupati, India. |
| 14:50 | MST16-T2-Mon3-Oral-05<br>**On the extreme mesospheric westward winds during March equinox 2023 at low latitudes**<br>Jose Suclupe, Leibniz-Institute of Atmospheric Physics at the University of Rostock, Kühlungsborn, Germany, et al. |
| 15:05 | MST16-T2-Mon3-Oral-06<br>**Interannual variations of the neutral dynamics during summer and fall-to-winter transition and their impact on the VLF October effect at mid and high latitudes**<br>Sivakandan Mani, Leibniz Institute of Atmospheric Physics at the University of Rostock, Kühlunsborn, Germany |
| 15:20 | MST16-T2-Mon3-Oral-07<br>**Interhemispheric Coupling Mechanism Revealed by High-top High-resolution Hindcast: Interplay of Quasi-two-day Waves and Gravity Waves**<br>Haruka Okui, The University of Tokyo, Tokyo, Japan |
| 15:35 - 16:05 | **Coffee Break** |

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| 16:05 - 17:35 | **Planetary waves and tides in the mesosphere and lower thermosphere (2-II)**<br>Aula (University of Rostock)<br>Chair/s: Haruka Okui |
| 16:05 | MST16-T2-Mon4-Oral-01<br>**Characteristics and Momentum Flux of the Quasi 2-Day Wave over Low-Latitude MLT Region**<br>Anagha Prasad, Centre for Earth, Ocean and Atmospheric Sciences (CEOAS), University of Hyderabad, Hyderabad, India |
| 16:20 | MST16-T2-Mon4-Oral-02<br>**Planetary wave-gravity wave interactions during mesospheric inversion layer events over Gadanki (13.5°N, 79.2°E)**<br>K. Ramesh, British Antarctic Survery (BAS), Cambridge, UK |
| 16:35 | MST16-T2-Mon4-Oral-03<br>**Quasi 6- and 10-day oscillations in the meteor winds at Southern and Northern Hemispheres during August-September 2019**<br>Lourivaldo Mota Lima, Universidade Estadual da Paraíba, et al. |
| 16:50 | MST16-T2-Mon4-Oral-04<br>**Symmetric and antisymmetric semidiurnal tides in the mesosphere and lower thermosphere**<br>Yosuke Yamazaki, Leibniz Institute of Atmospheric Physics |
| 17:05 | MST16-T2-Mon4-Oral-05<br>**Long-term characteristics of Tides and Planetary waves in the MLT region revealed by SVU Meteor radar over Tirupati (13.63oN, 79.4oE): Vertical coupling**<br>Vijaya Bhaskara Rao Sarangam, Sri Venkateswara University, Tirupati - 517502 |
| 17:20 | MST16-T2-Mon4-Oral-06<br>**Impact of atmospheric tides on tropical mesosphere and lower thermospheric region**<br>Kishore Kumar Grandhi, Centre for Earth, Ocean and Atmospheric Sciences (CEOAS), University of Hyderabad, Hyderabad, India |

# Tue, 10 Sep

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| 08:30 - 10:30 | **Atmospheric and ionospheric layering (4-I)**<br>Aula (University of Rostock)<br>Chair/s: Xinzhao Chu |
| 08:30 | MST16-T4-Tue1-Oral-01<br>**The generation of 150 km echoes through nonlinear wave mode coupling**<br>William Longley, New Jersey Institute of Technology |
| 08:50 | MST16-T4-Tue1-Oral-02<br>**Recent progress on mesospheric and valley region radar echoes from Gadanki**<br>Amit Patra, National Atmospheric Research Laboratory |
| 09:10 | MST16-T4-Tue1-Oral-03<br>**Development of ionospheric vertical plasma drift model using radar observations in the Indian and Indonesian longitudes**<br>PavanChaitanya Peddapati, National Atmospheric Research Laboratory, Gadanki, India |
| 09:25 | MST16-T4-Tue1-Oral-04<br>**Highlights of SYISR measurements**<br>Xinan Yue, Institute of Geology and Geophysics, Chinese Academy of Sciences |
| 09:45 | MST16-T5-Tue1-Oral-05<br>**Was the unseasonal development of post-sunset equatorial plasma bubbles in Southeast Asia in July 2023 driven by quasi two-day planetary waves in mesosphere and lower thermosphere?**<br>Guofeng Dai, Beijing National Observatory of Space Environment, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China. \| Key Laboratory of Earth and Planetary Physics, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China., et al. |
| 10:00 | MST16-T4-Tue1-Oral-06<br>**Magnetic aspect angle analysis of incoherent scatter spectral observations conducted with AMISR-14 at Jicamarca**<br>Marco Milla, Pontificia Universidad Católica del Perú, Lima, Peru |
| 10:15 | MST16-T4-Tue1-Oral-07<br>**Two-dimensional radar studies of post-midnight ESF using AMISR-14**<br>Alexander Massoud, The University of Texas at Dallas |
| 10:30 - 11:00 | **Coffee Break** |

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| 11:00 - 12:50 | **Atmospheric and ionospheric layering (4-II)**<br>Aula (University of Rostock)<br>Chair/s: Jorge Chau |
| 11:00 | MST16-T4-Tue2-Oral-01<br>**Tracing metal layers in the space-atmosphere interaction region with lidars**<br>Xinzhao Chu, University of Colorado Boulder |
| 11:20 | MST16-T4-Tue2-Oral-02<br>**Ice clouds in the mesopause region at mid-latitudes: Overview over observations by lidar and radar at Kühlungsborn/Germany (54°N, 12°E)**<br>Michael Gerding, Leibniz Institute of Atmospheric Physics |
| 11:35 | MST16-T4-Tue2-Oral-03<br>**Mid-latitude Mesospheric Echoes seen by VHF Radar in Canada**<br>Wayne Hocking, University of Western Ontario \| Mardoc Inc. |
| 11:50 | MST16-T4-Tue2-Oral-04<br>**First results on the mesospheric echoing layers, winds and turbulence from the newly established 53 MHz radar at Haringhata, India**<br>Amit Patra, National Atmospheric Research Laboratory, Gadanki, India |
| 12:05 | MST16-T4-Tue2-Oral-05<br>**First observation of PMWE with SOUSY Svalbard Radar**<br>Njål Gulbrandsen, UiT - the Arctic University of Norway, Tromsø, Norway |
| 12:20 | MST16-T4-Tue2-Oral-06<br>**Observations of Kilometer-Scale Varicose-Mode Flows in the Mesosphere - a Case Study**<br>Jennifer Hartisch, Leibniz Institute of Atmospheric Physics |
| 12:35 | MST16-T4-Tue2-Oral-07<br>**The future of nuctilucent clouds**<br>Franz-Josef Lübken, Leibniz Institute of Atmospheric Physics |
| 12:50 - 14:10 | **Lunch** |

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| 14:10 - 16:00 | **Gravity waves and turbulence (3-I)**<br>Aula (University of Rostock)<br>Chair/s: Alan Liu |
| 14:10 | MST16-T3-Tue3-Oral-01<br>**The Sources and Dynamics of Atmospheric Turbulence**<br>Dave Fritts, GATS, Boulder Colorado |
| 14:30 | MST16-T3-Tue3-Oral-02<br>**Turbulence characteristics in the Upper Troposphere and Lower Stratosphere measured by the UK MST radar**<br>David Hooper, STFC Rutherford Appleton Laboratory |
| 14:45 | MST16-T3-Tue3-Oral-03<br>**Exploring the dynamics of gravity waves in the UTLS region amidst Himalayan thunderstorms using 206.5 MHz ST Radar**<br>Aditya Jaiswal, Indian Institute of Tropical Meteorology, Pune, India |
| 15:00 | MST16-T3-Tue3-Oral-04<br>**Research Highlights from the PANSY Radar Observations in the Antarctic**<br>Kaoru Sato, Department of Earth and Planetary Science, Graduate School of Science, the University of Tokyo, et al. |
| 15:15 | MST16-T3-Tue3-Oral-05<br>**The characteristics of the inertia gravity waves and turbulence parameters based on the Beijing MST radar observations**<br>Yufang Tian, Key Laboratory of Middle Atmosphere and Global Environment Observation (LAGEO), Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing 100029, China, et al. |
| 15:30 | MST16-T3-Tue3-Oral-06<br>**Middle atmospheric structure, dynamics, and coupling from three decades of Indian MST radar and complimentary observations: An overview**<br>Madineni Venkat Ratnam, National Atmospheric Research Laboratory |
| 15:45 | MST16-T3-Tue3-Oral-07<br>**High-order structure functions of winds in the Lower and Middle Atmosphere using MAARSY observations**<br>Facundo Poblet, Leibniz Institute of Atmospheric Physics at the University of Rostock, Kühlungsborn, Germany |
| 16:00 - 16:30 | **Coffee Break** |

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| 16:30 - 18:50 | **Gravity waves and turbulence (3-II)**<br>Aula (University of Rostock)<br>Chair/s: Michael Gerding |
| 16:30 | MST16-T3-Tue4-Oral-01<br>**Seasonal variation in gravity wave momentum and heat fluxes, and sodium flux in the mesopause region observed by sodium lidar**<br>Wen Yi, University of Science and Technology of China |
| 16:50 | MST16-T3-Tue4-Oral-02<br>**Wave-induced Instabilities and Heat Flux Observed by a Sodium Lidar in the Andes**<br>Alan Liu, Embry-Riddle Aeronautical University |
| 17:05 | MST16-T3-Tue4-Oral-03<br>**The Role of Stratified Turbulence in the Cold Summer Mesopause Region**<br>Victor Avsarkisov, Meteorologisches Institut, Universität Hamburg |
| 17:20 | MST16-T3-Tue4-Oral-04<br>**Dissipation rates of mesospheric stratified turbulence from multistatic meteor-radar observations**<br>Juha Vierinen, University of Tromsø |
| 17:35 | MST16-T3-Tue4-Oral-05<br>**Multi-instrumental observation of layered phenomena and their surroundings. Untangling processes ranging from turbulence to trends up to the edge of space.**<br>Gerd Baumgarten, Leibniz Institute of Atmospheric Physics at the University of Rostock |
| 17:50 | MST16-T3-Tue4-Oral-06<br>**Mountain wave momentum flux measurements in the middle atmosphere above the southern Andes**<br>Bernd Kaifler, Deutsches Zentrum für Luft und Raumfahrt, Institut für Physik der Atmosphäre, Oberpfaffenhofen, Germany |
| 18:05 | MST16-T3-Tue4-Oral-07<br>**Extreme vertical velocity radar observations in the mesosphere and lower thermosphere**<br>Jorge Chau, Leibniz Institute of Atmospheric Physics |
| 18:20 | MST16-T3-Tue4-Oral-08<br>**Almost one decade observing the MLT over Europe using multi-static specular meteor radars**<br>Federico Conte, Leibniz Institute of Atmospheric Physics, Kühlungsborn, Germany |
| 18:35 | MST16-T3-Tue4-Oral-09<br>**Statistics of traveling ionospheric disturbances at high latitudes using a rapid-run Ionosonde**<br>Samson Moges, Sodankylä Geophysical Observatory, University of Oulu, Finland |

# Wed, 11 Sep

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| 09:00 - 18:00 | **Poster presentations and tour of the IAP facilities**<br>Leibniz Institute of Atmospheric Physics Kühlungsborn (IAP)<br>*A shuttle bus transfer will be organized for all participants.* |
| | MST16-T1-Wed2-Poster-01<br>**A re-examination of the mean vertical wind velocity measured by MU radar in the 2-20 km range over 35 years (1987-2022)**<br>Hubert Luce, Research Institute for Sustainable Humanosphere (RISH, Kyoto University) |
| | MST16-T1-Wed2-Poster-02<br>**Network of ST/MST radars and balloon borne measurement Campaigns of the Asian Summer Monsoon Anticyclone (NetRAD-ASMA)- Initial Results**<br>Nabarun Poddar, Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO, Thiruvananthapuram \| Department of Physics, University of Kerala, Thiruvananthapuram, et al. |
| | MST16-T1-Wed2-Oral-03<br>**VHF radar estimation of momentum flux profiles associated with the mesoscale convective system in the central Himalayas**<br>Aditya Jaiswal, Indian Institute of Tropical Meteorology, Ministry of Earth Sciences, Pune 411008, India |
| | MST16-T2-Wed2-Poster-04<br>**Low-Latitude Planetary Waves Dynamics during an Unusual Antarctic Sudden Stratospheric Warming**<br>Gourav Mitra, Space and Atmospheric Sciences Division, Physical Research Laboratory, Ahmedabad, GJ, India \| Department of Physics, Indian Institute of Technology, Gandhinagar, GJ, India |
| | MST16-T2-Wed2-Poster-05<br>**Long-term and Interannual Variability of the Semidiurnal Tide in Mesosphere and Lower Thermosphere from Meteor Radar Observations Over Esrange (67.9°N, 21.1°E)**<br>K. Ramesh, British Antarctic Survey (BAS), Cambridge, UK |
| | MST16-T2-Wed2-Poster-06<br>**Characteristics of intraseasonal oscillations in middle atmosphere**<br>Amitava Guharay, Space and Atmospheric Sciences Division, Physical Research Laboratory, Ahmedabad, GJ, India |
| | MST16-T2-Wed2-Poster-07<br>**Long term analysis of high-resolution E-region neutral wind estimations over Jicamarca**<br>Roberto Flores, Jicamarca Radio Observatory - Instituto Geofisico del Peru |

MST16-T2-Wed2-Poster-08
**Seasonal dependency of interannual oscillations in the MLT region winds and temperature over Europe**
Sivakandan Mani, Leibniz Institute of Atmospheric Physics at the University of Rostock, Kühlunsborn, Germany

MST16-T3-Wed2-Poster-09
**A radar-based Method for determining the relative Contributions of Gravity-Waves and geostrophic Turbulence in the Atmosphere**
Wayne Hocking, University of Western Ontario | Mardoc Inc

MST16-T3-Wed2-Poster-10
**Seasonal and Altitudinal Variations in Atmospheric Gravity Wave Spectra: Insights from Lidar Observations**
Mohamed Mossad, Leibniz Institute of Atmospheric Physics (IAP)

MST16-T3-Wed2-Poster-11
**Comparison of the Turbulence Echo Power observed by Equatorial Atmosphere Radar (EAR) with the Refractive Index Gradient and the Atmospheric Stability from Hourly Radiosondes with 10 m Vertical Sampling**
Noersomadi Noersomadi, Research Center for Climate and Atmosphere, National Research and Innovation Agency (BRIN), Indonesia

MST16-T3-Wed2-Poster-12
**A Source of Clear-Air Turbulence? Tracking Gravity Wave Formation in Inertially Unstable Regions**
Timothy P. Banyard, Centre for Atmospheric Science, Department of Earth and Environmental Sciences, University of Manchester, United Kingdom

MST16-T3-Wed2-Poster-13
**Estimate of Turbulent Energy Dissipation Rate From the VHF Radar Observations in the Antarctic**
Masashi Kohma, The University of Tokyo

MST16-T3-Wed2-Poster-14
**Spectral Width Correction in 205 MHz Radar: An Experimental Evaluation**
Sujithlal SP, Cochin University of Science and Technology

MST16-T4-Wed2-Poster-15
**Polar mesospheric VHF radar echoes and their connection to ionization and neutral dynamics**
Toralf Renkwitz, Leibniz Institute of Atmospheric Physics at the University of Rostock

MST16-T4-Wed2-Poster-16
**Climatological comparison of polar mesosphere summer echoes over the Arctic and Antarctica at 69°**
Ralph Latteck, Leibniz-Institut für Atmosphärenphysik, Kühlungsborn, Germany

MST16-T4-Wed2-Poster-17
**Climatology of the mesospheric echoes observed with the unattended mid-power JULIA mode at the equator: preliminary results**
Danny Scipion, Radio Observatorio de Jicamarca, Instituto Geofísico del Perú, Lima, Peru

MST16-T4-Wed2-Poster-18
**Estimating MLT Winds from Non-Specular Meteor Trails: A Machine Learning Approach with RetinaNet**
Armando Castro, Ciencia Internacional, Lima, Peru

MST16-T4-Wed2-Poster-19
**Automatic segmentation and classification of ESF patterns using a U-NET-based model**
Marco Milla, Pontificia Universidad Católica del Perú

MST16-T4-Wed2-Poster-20
**Introduction of Recent Work Using VHF Ionospheric and Meteor Radar in South Korea**
Tae-Yong Yang, Korea Astronomy and Space Science Institute, et al.

MST16-T4-Wed2-Poster-21
**Lidar observation of Ca+ in ionospheric E-F region at Mohe (52.9°N 122.3°E)**
Jing Jiao, State Key Laboratory of Space Weather, National Space Science Center, Chinese Academy of Sciences, Beijing 100190, China

MST16-T4-Wed2-Poster-22
**A Three-Frequency Ca+ Doppler Lidar for Ion Temperature Measurements in the Midlatitude Thermosphere**
Fang Wu, State Key Laboratory of Space Weather, National Space Science Center, Chinese Academy of Sciences, Beijing, China | University of Chinese Academy of Sciences, Beijing, China, et al.

MST16-T5-Wed2-Poster-23
**Are equatorial plasma bubble periodicities driven by atmospheric gravity waves?**
Suman Kumar Das, Leibniz Institute of Atmospheric Physics, Germany | National Atmospheric Research Laboratory, India

MST16-T5-Wed2-Poster-24
**Long-term changes in the dependence of NmF2 on solar flux at Juliusruh**
Maria Gloria Tan Jun Rios, Institute for Solar-Terrestrial Physics, German Aerospace Center (DLR), Neustrelitz, Germany | Department of Earth and Planetary Science, Kyushu University, Japan

MST16-T6-Wed2-Poster-25
**Statistical characteristics of the echo power and the vertical wind velocity from the long-term observation of Equatorial Atmosphere Radar in 2001-2019**
Noersomadi Noersomadi, Research Center for Climate and Atmosphere, National Research and Innovation Agency (BRIN), Indonesia

MST16-T6-Wed2-Poster-26
**Vertical Wind Profiles in the Mesosphere and Lower Thermosphere Driven by Meteor Radar and Ionospheric Connection Explorer Observations Over the Korean Peninsula**
Jaewook Lee, Department of Astronomy and Space Science, University of Science and Technology | Division of Space Science, Korea Astronomy and Space Science Institute

MST16-T6-Wed2-Poster-27
**Tropopause Identification with  Change Point Detection Method: A Novel Approach Using the CUSAT-205 MHz ST Radar.**
Sujithlal S P, Department of Atmospheric Science, Cochin University of Sciences And Technology.

MST16-T6-Wed2-Poster-28
**Recent Decadal Wind Patterns over Queen Maud Land, Antarctica: Analysis and Validation of MARA Radar Wind Observations**
Ajilesh PP, Cochin University of Science And Technology

MST16-T6-Wed2-Poster-29
**Retrieval of a humidity profile using machine learning techniques for the EAR-RASS observations**
Noersomadi Noersomadi, National Research and Innovation Agency, et al.

MST16-T6-Wed2-Poster-30
**Current facilities at Piura for MST research**
Rodolfo Rodriguez, Universidad de Piura

MST16-T7-Wed2-Poster-31
**Open-access data from the Capel Dewi Atmospheric Observatory, home of the Aberystwyth MST Radar**
David Hooper, STFC Rutherford Appleton Laboratory

MST16-T7-Wed2-Poster-32
**Wind prediction analysis in the MLT region over the Peruvian coast**
Jose Suclupe, Rostock University

MST16-T7-Wed2-Poster-33
**Lidars and Collaborative Atmosphere Probing Instruments of the Chinese Meridian Project**
ZhiQing Chen, National Space Science Center, Chinese Sciences Academy Beijing, China, 100190

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| | MST16-T7-Wed2-Poster-34<br>**Next Steps in the Development of the Zephyr Multistatic Meteor Radar in Colorado**<br>James Monaco, University of Colorado Boulder, Smead Aerospace Engineering Sciences |
| | MST16-T7-Wed2-Poster-35<br>**Introduction of the Qinzhou MST radar of Chinese Meridian Project Ⅱ**<br>Gang Chen, Electronic Information School, Wuhan University, Wuhan, China |
| | MST16-T7-Wed2-Poster-36<br>**D4 technology and its application in MST radar**<br>Li Chen, Nanjing Research Institute of Electronic Technology |
| | MST16-T7-Wed2-Poster-37<br>**Capabilities, advantages and limitations of the Low lAtitude long Range Ionospheric raDar for observing ionospheric variability**<br>Wenjie Sun, Key Laboratory of Earth and Planetary Physics, Institute of Geology and Geophysics, Chinese Academy of Sciences, et al. |
| | MST16-T7-Wed2-Poster-38<br>**A multi-purpose spectral approach to compressed coherent radar echoes**<br>Matthias Clahsen, Leibniz Institute of Atmospheric Physics at the University of Rostock, Kühlungsborn, Germany |
| | MST16-T7-Wed2-Poster-39<br>**SanDRA - Software Defined Radio in Atmospheric Research**<br>Nico Pfeffer, Leibniz Institute of Atmospheric Physics |

# Thu, 12 Sep

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| 08:30 - 10:20 | **Atmospheric and ionospheric vertical coupling studies (5-I)**<br>Aula (University of Rostock)<br>Chair/s: Huixin Liu |
| 08:30 | MST16-T5-Thu1-Oral-01<br>**The capability of the atmospheric vertical coupling observation over the Tibetan Plateau based on the MST radar and lidar systems**<br>Daren Lyu, Key Laboratory of Middle Atmosphere and Global Environment Observation (LAGEO), Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing 100029, China, et al. |
| 08:50 | MST16-T5-Thu1-Oral-02<br>**The impact of QBO disruptions on diurnal tides over the low- and mid-latitude MLT region observed by a meteor radar chain**<br>Jianyuan Wang, China Research Institute of Radiowave Propagation |
| 09:05 | MST16-T5-Thu1-Oral-03<br>**Gravity Wave Coupling of Lower Atmosphere and Ionosphere**<br>Sujata Kovalam, University of Adelaide, Australia |
| 09:20 | MST16-T5-Thu1-Oral-04<br>**Atmospheric gravity waves and medium scale traveling ionospheric disturbances at auroral latitudes**<br>Alexander Kozlovsky, Sodankylä Geophysical Observatory, University of Oulu, Oulu, Finland, et al. |
| 09:35 | MST16-T5-Thu1-Oral-05<br>**Investigating the role of gravity waves on equatorial ionospheric irregularities using TIMED/SABER and C/NOFS satellite observations**<br>Melessew Nigussie, Washera Geospace and Radar Science Research Laboratory, Physics Department, Science College, Bahir Dar University, Ethiopia |
| 09:50 | MST16-T5-Thu1-Oral-06<br>**Lunar tidal wave effects on equatorial ionospheric vertical ExB drift during sudden stratospheric warming**<br>PavanChaitanya Peddapati, National Atmospheric Research Laboratory, Gadanki, India |
| 10:05 | MST16-T5-Thu1-Oral-07<br>**Characterizing Vertically Propagating Infrasound in the Mesosphere and Lower Thermosphere**<br>Kenneth Obenberger, Air Force Research Laboratory, Kirtland AFB, NM |
| 10:20 - 10:50 | **Coffee Break** |

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| 10:50 - 12:40 | **Atmospheric and ionospheric vertical coupling studies (5-II)**<br>Aula (University of Rostock)<br>Chair/s: Yufang Tian |
| 10:50 | MST16-T5-Thu2-Oral-01<br>**Upper Atmosphere Responses to the 2022 Hunga Tonga-Hunga Ha'apai Volcanic Eruption via Acoustic-Gravity Waves and Air-Sea Interaction**<br>Qinzeng Li, State Key Laboratory of Space Weather, National Space Science Center, Chinese Academy of Sciences, Beijing, 100190, China \| Hainan National Field Science Observation and Research Observatory for Space Weather, National Space Science Center, Chinese Academy of Sciences, Beijing, 100190, China, et al. |
| 11:10 | MST16-T5-Thu2-Oral-02<br>**Examining the wind shear theory of sporadic E with ICON/MIGHTI winds and ionosonde Es**<br>Huixin Liu, Kyushu University |
| 11:25 | MST16-T5-Thu2-Oral-03<br>**MLT horizontal wind perturbations associated with the 2022 Hunga eruption from multistatic meteor radar observations**<br>Facundo Poblet, Leibniz Institute of Atmospheric Physics at the University of Rostock, Kühlungsborn, Germany |
| 11:40 | MST16-T5-Thu2-Oral-04<br>**The All-Solid-State Narrowband Lidar Developed by Optical Parametric Oscillator/Amplifier (OPO/OPA) Technology for Simultaneous Detection of the Ca and Ca + Layers in China**<br>Fang Wu, National Space Science Center, Chinese Academy of Science \| University of Chinese Academy of Sciences, Beijing, China |
| 11:55 | MST16-T5-Thu2-Oral-05<br>**Meteor ablation in the mesosphere and enhancement of sodium and potassium atoms: A study using optical and radio observations**<br>Alexandre Pimenta, Heliophysics, Planetary Science and Aeronomy Division, National Institute for Space Research (INPE), São José dos Campos, SP, Brazil |
| 12:10 | MST16-T4-Thu2-Oral-06<br>**The spatial features of E region irregularities revealed by all-sky radar**<br>Wenjie Sun, Institute of Geology and Geophysics, Chinese Academy of Sciences |
| 12:25 | MST16-T5-Thu2-Oral-07<br>**Impact study of four Sudden Stratospheric Warming / Elevated Stratopause events on the VLF signal in high latitudes**<br>Helen Schneider, German Aerospace Center, Solar Terrestrial Institute, Neustrelitz, Germany |
| 12:40 - 14:00 | **Lunch** |

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| 14:00 - 15:50 | **Tropospheric and stratospheric dynamics and processes (1-I)**<br>Aula (University of Rostock)<br>Chair/s: David Hooper |
| 14:00 | MST16-T1-Thu3-Oral-01<br>**Applications of Aeolus Wind Lidar Observations to Atmospheric Dynamics**<br>Timothy P. Banyard, Centre for Atmospheric Science, Department of Earth and Environmental Sciences, University of Manchester, United Kingdom \| Centre for Space, Atmospheric and Oceanic Science, University of Bath, United Kingdom, et al. |
| 14:20 | MST16-T1-Thu3-Oral-02<br>**A climatological study of the frequency spectra of vertical winds from MU radar data (1987-2022)**<br>Hubert Luce, Research Institute for Sustainable Humanosphere (RISH, Kyoto University) |
| 14:35 | MST16-T1-Thu3-Oral-03<br>**Characteristics of vertical air motion over central Himalayan region using 206.5 MHz Stratosphere-Troposphere Radar**<br>Nabarun Poddar, Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO, Thiruvananthapuram \| Department of Physics, University of Kerala, Thiruvananthapuram |
| 14:50 | MST16-T1-Thu3-Oral-04<br>**Ground-based Doppler lidar for high-resolution wind profiling up to 75 km altitude: scientific applications and Aeolus validation**<br>Sergey Khaykin, LATMOS-IPSL, CNRS/INSU, UMR 8190, Université Paris-Saclay, 78280 Guyancourt, France |
| 15:05 | MST16-T1-Thu3-Oral-05<br>**The Aeolus satellite: a new look at gravity waves and tropical dynamics**<br>Mathieu Ratynski, Rosenstiel School of Marine and Atmospheric Science (RSMAS), University of Miami, Miami, Florida |
| 15:20 | MST16-T1-Thu3-Oral-06<br>**On the intermittency of waves in the polar upper troposphere and lower stratosphere over northern Norway using MAARSY**<br>Priyanka Ghosh, Leibniz-Institute of Atmospheric Physics at University of Rostock, Kühlungsborn, Germany. |
| 15:35 | MST16-T1-Thu3-Oral-07<br>**Cross tropopause flux observed at sub-daily scales over the south Indian monsoon regions**<br>Hemanth Kumar Alladi, Department of Physics and Nanotechnology, SRMIST \| National Atmospheric Research laboratory |
| 15:50 - 16:20 | **Coffee Break** |

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| 16:20 - 18:10 | **Tropospheric and stratospheric dynamics and processes (1-II)**<br>Aula (University of Rostock)<br>Chair/s: Sergey Khaykin |
| 16:20 | MST16-T1-Thu4-Oral-01<br>**The European network of radar and lidar wind profilers for operational meteorology**<br>Alexander Haefele, MeteoSwiss, Payerne, Lindenberg |
| 16:40 | MST16-T1-Thu4-Oral-02<br>**Advancements in Atmospheric Wind Measurements by a Multi Field of View Lidar using Aerosol backscatter in Troposphere and Stratosphere**<br>Thorben H. Mense, Leibniz Institute of Atmospheric Physics, Schloßstraße 6, 18225 Kühlungsborn, Germany |
| 16:55 | MST16-T1-Thu4-Oral-03<br>**Understanding the characteristics of stratosphere-to-troposphere exchange associated with tropical cyclone Fani-2019 using volume scanning technique of Advanced Indian MST radar (AIR)**<br>Nabarun Poddar, Space Physics Laboratory, Vikram Sarabhai Space Centre, Trivandrum-695022, India |
| 17:10 | MST16-T1-Thu4-Poster-04<br>**Dynamics of Monsoon Mesoscale Convective Systems: Insights from C-Band Polarimetric Doppler Weather Radar**<br>Bukya Sama, Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO, Trivandrum. \| Department of Physics, University of Kerala, Thiruvananthapuram |
| 17:25 | MST16-T1-Thu4-Oral-05<br>**Effect of the middle-upper tropospheric water vapor on the MST radar echo power and radar tropopause**<br>Yufang Tian, Institute of Atmospheric Physics, Chinese Academy of Sciences, China, et al. |
| 17:40 | MST16-T1-Thu4-Oral-06<br>**The MST radar signature of some types of mid-latitude clouds**<br>David Hooper, STFC Rutherford Appleton Laboratory |
| 17:55 | MST16-T1-Thu4-Oral-07<br>**Determining Tilts of radar-scattering Layers from Wind and Velocity Measurements**<br>Wayne Hocking, University of Western Ontario \| Mardoc Inc. |
| 19:00 - 23:00 | **Conference Dinner** |

# Fri, 13 Sep

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| 08:30 - 10:20 | **Recent advances and future plans (7-I)**<br>Aula (University of Rostock)<br>Chair/s: Ralph Latteck |
| 08:30 | MST16-T7-Fri1-Oral-01<br>**40 years of the MU radar**<br>Mamoru Yamamoto, Research Institute for Sustainable Humanosphere, Kyoto University (RISH) |
| 09:05 | MST16-T7-Fri1-Oral-02<br>**The Tibetan Plateau (Yangbajing) MST radar system description and preliminary results**<br>Yufang Tian, Key Laboratory of Middle Atmosphere and Global Environment Observation (LAGEO), Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing 100029, China, et al. |
| 09:20 | MST16-T7-Fri1-Oral-03<br>**A Small VHF Radar for Measurements of Dynamics in The Troposphere, Lower Stratosphere, and Mesosphere**<br>Bronwyn Dolman, ATRAD Pty Ltd \| University of Adelaide |
| 09:35 | MST16-T7-Fri1-Oral-04<br>**IMST radar phase calibration using satellite returns**<br>Bronwyn Dolman, Defence Science & technology Organisation, Edinburgh, SA, Australia \| School of Physical Sciences, University of Adelaide, SA, Australia |
| 09:50 | MST16-T7-Fri1-Oral-05<br>**Recent improvements to atmospheric radars using coherent and incoherent MIMO configurations**<br>Jorge Chau, Leibniz Institute of Atmospheric Physics |
| 10:05 | MST16-T7-Fri1-Oral-06<br>**Pulse codes for simultaneous operation of pulsed meteor detection radars at identical frequencies**<br>Christian Adami, ATRAD Pty. Ltd. |
| 10:20 - 10:50 | **Coffee Break** |

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| 10:50 - 12:40 | **Recent advances and future plans (7-II)**<br>Aula (University of Rostock)<br>Chair/s: Gerd Baumgarten |
| 10:50 | MST16-T7-Fri2-Oral-01<br>**Metastable helium lidar for the middle and upper thermosphere**<br>Christopher Geach, German Aerospace Center - Institute for Solar-Terrestrial Physics |
| 11:10 | MST16-T7-Fri2-Oral-02<br>**Groundbased LIDAR Networks: Current State and Outlook**<br>Josef Höffner, Leibniz Institute of Atmospheric Physics, IAP |
| 11:25 | MST16-T7-Fri2-Oral-03<br>**EISCAT_3D - Next Generation European Arctic Geospace Radar**<br>Thomas Ulich, EISCAT Scientific Association |
| 11:40 | MST16-T7-Fri2-Oral-04<br>**Moon Imaging Technique and Experiments Based on Sanya Incoherent Scatter Radar**<br>Mingyuan Li, Key Laboratory of Earth and Planetary Physics, Institute Geology and Geophysics, Chinese Academy of Sciences \| College of Earth and Planetary Sciences, University of Chinese Academy of Sciences \| Beijing National Observatory of Space Environment, Institute of Geology and Geophysics, Chinese Academy of Sciences, et al. |
| 11:55 | MST16-T7-Fri2-Oral-05<br>**Development of Low Latitude Long Range Ionospheric Radar for Observing Plasma Bubble Irregularities and Preliminary Results**<br>Lianhuan Hu, Institute of Geology and Geophysics, Chinese Academy of Sciences |
| 12:10 | MST16-T7-Fri2-Oral-06<br>**J-ARGUS: Expanding the observation capabilities to study the equatorial ionosphere**<br>Danny Scipion, Radio Observatorio de Jicamarca, Instituto Geofísico del Perú, Peru |
| 12:25 | MST16-T7-Fri2-Oral-07<br>**Novel meteorological data acquisition network using the air-traffic-control radio communication protocol for commercial aircraft (atc2met)**<br>Taishi Hashimoto, National Institute of Polar Research \| The Graduate Institute for Advanced Studies, SOKENDAI |
| 12:40 - 14:00 | **Lunch** |

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| 14:00 - 14:50 | **Recent advances and future plans (7-III)**<br>Aula (University of Rostock)<br>Chair/s: Ralph Latteck |
| 14:00 | MST16-T7-Fri3-Oral-01<br>**Chinese multistatic meteor radar network : system description and preliminary results**<br>Wen Yi, Chinese Academy of Sciences Key Laboratory of Geospace Environment, Department of Geophysics and Planetary Sciences, University of Science and Technology of China \| Mengcheng National Geophysical Observatory, School of Earth and Space Sciences, University of Science and Technology of China |
| 14:20 | MST16-T7-Fri3-Oral-02<br>**High resolution wind observations based on advanced MF radar meteor echo measurements**<br>Masaki Tsutsumi, National Institute of Polar Research \| The Graduate Institute for Advanced Studies, SOKENDAI |
| 14:35 | MST16-T7-Fri3-Oral-03<br>**Design of large aperture antenna arrays for a geo-space multi-static radar in Peru.**<br>David Torres, Pontificia Universidad Catolica del Peru |
| 14:50 - 15:50 | **Closing remarks** |