



OPAC-IROWG 2026

Workshop on Occultations for Probing Atmosphere and Climate

Joint OPAC-8 & IROWG-11

Programme



Castle Seggau | Austria | September 10–16, 2026

Hosted by



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SCIENTIFIC PROGRAM

THURSDAY, SEPTEMBER 10, 2026

08:00-09:00 **Registration** (and poster mounting time)

09:00-09:20 **Welcome & Opening Event**
Moderator: Gottfried Kirchengast

Welcome and Remarks by the Organizers

Ulrich Foelsche, Julia Danzer, Marc Schwärz (OPAC-8): Organizational remarks

Hui Shao, Tony Mannucci (IROWG-11): IROWG introductory remarks

Welcome Address

Andrea Steiner (Dean – School of Environmental & Regional Sciences and Education, University of Graz)

09:20-10:30 **Opening Talks**
Moderator: Ulrich Foelsche

09:20-09:50 GNSS-RO for Climate (*keynote*)

William Randel, Jon Starr, Fei Wu, Richard Anthes, Jeremiah Sjoberg, Zhen Zeng, and Sergey Sokolovskiy

09:50-10:10 Occultations for probing atmosphere and climate at Uni Graz: highlights from 30 years ARSCliSys Research Group science (*invited*)

Gottfried Kirchengast

10:10-10:30 Current and future activities in radio occultation at EUMETSAT (*invited* – 40 years EUMETSAT)

Christian Marquardt, Pedro Cozinheiro, Axel von Engeln, Elżbieta Lasota, Francisco Martín Alemany, Riccardo Notarpietro, Sebastiano Padovan, Saverio Paoletta, Verónica Rivas Boscán, and Francisco Sancho

10:30-11:00 **Coffee Break** (and poster mounting time)

11:00-12:25	Morning Session Current Missions 1 Chair: Rob Kursinski
11:00-11:20	COSMIC Data Analysis and Archive Center GNSS Radio Occultation Status <i>(invited)</i> Maggie Sleziak-Sallee , J. Weiss, J. Braun, C. Brown, I. Cherniak, D. Hunt, E. Lauer, G. Romero, S. Sokolovskiy, T. VanHove, H. Veitel, I. Zakharenkova, Z. Zeng, and J. Zhang
11:20-11:40	Status on the processing of new and old satellite missions at the ROM SAF <i>(invited)</i> Stig Syndergaard , Kent B. Lauritsen, Johannes K. Nielsen, and Hans Gleisner
11:40-11:55	NOAA NESDIS Commercial Data Program - Overview and Status Marc Gasbarro , Natalie Laudier, Gerard Peltzer, Harshesh Patel, and Lin Lin
11:55-12:15	PlanetiQ GNSS-RO Observing System: 2026 Update <i>(invited)</i> Jonathan Brandmeyer , E. Robert Kursinski, Chris McCormick and Paul McGaugh
12:15-12:25	Operational and Emerging Capabilities from Spire's GNSS-RO and GNSS-R Constellation <i>(invited)</i> Vu Nguyen , Philip Jales, Matthieu Talpe, Jessica Cartwright, and Giorgio Savastano
12:25-14:00	Lunch Break
14:00-15:45	Afternoon Session 1 Current to Future Missions Chair: Kent B. Lauritsen
14:00-14:20	NOAA Commercial RO - Planning for the Future <i>(invited)</i> Marc Gasbarro , Natalie Laudier, Christopher Barsoum, William Gullotta, Scott Schnee, Jan-Peter Weiss, and Gerard Peltzer
14:20-14:35	Balancing RO Architecture and Design with Enterprise Needs: Take-Aways from the NOAA RO Analysis of Alternatives William Gullotta , Christopher Barsoum, Natalie Laudier, Marc Gasbarro, Gerald Peltzer, Chunhui Pan, and Jan Weiss
14:35-14:50	Radio Occultation on Metop-D: Mission Overview and First Results Riccardo Notarpietro , Saverio Paoletta, Christian Marquardt, Axel von Engeln, Verónica Rivas Boscán, Francisco Sancho, Sebastiano Padovan, Francisco Martín Alemany, Pedro Cozinheiro, and Elżbieta Lasota

14:50-15:10	Updates on FY3F/3G/3H status and Private Sector Engagement (<i>invited</i>) Mi Liao , Lu Wenqiang, Liu yan, Tang Qi, and Cheng Yan
15:10-15:30	Overview of YunYao RO Constellation, Data Processing and Data Quality (<i>invited</i>) Yan Cheng , Li Fenghui, Fu Naieng, Xia Sai, Xu Bobo, Li Xingguo, Yan Mingming, and Guan Wenting
15:30-15:45	Performance of Occultation Data from the Miniaturized GNSS Occultation Sounder (GNOS-M) Onboard the TianMu-1 Satellite Constellation Congliang Liu , Yueqiang Sun, Jiahui Liang, and Weihua Bai
15:45-16:15	Coffee Break
16:15-17:35	Afternoon Session 2 Specific occultation methods – Reflections and Airborne Chair: Chi O. Ao
16:15-16:35	Characterizing Earth's Planetary Boundary Layer (PBL) Using Grazing Reflected Signals (<i>invited</i>) Panagiotis Vergados , Kuo-Nung Wang, and Chi O. Ao
16:35-16:50	Tracking Sentinel-6 GNSS-RO Grazing Reflection Signals and its PBL Characterization Applications Kuo-Nung Wang , T. K. Meehan, C. R. Galley, C. O. Ao, and A. R. Dorsey
16:50-17:05	Toward a Mission-Agnostic Machine Learning Framework for GNSS-R Wind Speed Retrieval Elżbieta Lasota , Sebastiano Padovan, Francisco Martín Alemany, and Christian Marquardt
17:05-17:20	1D-Var retrieval using refractivity observations from GNSS airborne radio occultation Paweł Hordyniec and Aleksandra Maciejewska
17:20-17:35	Augmenting the dataset for investigating surface fluxes in atmospheric rivers using open-loop tracking airborne radio occultation in the lower troposphere Priyankar Bhattacharjee , Bing Cao, Noah Barton, and Jennifer S. Haase
17:35	Thursday Scientific Sessions Adjourn
18:00-22:00	Get-Together Party

FRIDAY, SEPTEMBER 11, 2026

09:00-10:35 Morning Session 1

NWP 1 – Processing, Assimilation and Forecasting Advancements

Chair: Harald Anlauf

09:00-09:20 Status of GNSS-RO assimilation at ECWMF (*invited*)

Sean Healy and **Katrin Lonitz**

09:20-09:35 Impact evaluation of GPS Radio Occultation (GNSS-RO) In Australian Regional Models (*remote*)

Birtukan Biadglgne, Fiona Smith, Andrew Smith, and Nahidul Hoque Samrat

09:35-09:50 GNSS RO Data Assimilation in the NOAA GFS: Recent Progress

Xuanli Li, Catherine Thomas, Haixia Liu, Andrew Collard, and Daniel Holdaway

09:50-10:05 Estimation of GNSS RO Observation Impact in CMA Global Numerical Weather Prediction System

Yan Liu

10:05-10:20 Impact of 2D ROPP Forward Operators and Airborne Radio Occultation

Assimilation on Global Numerical Weather Prediction

Hui Christophersen, Zoe Zibton, Jacob Gull, and Chris Hartman

10:20-10:35 Increasing the impact of GNSS-RO observations in the Met Office NWP system

Neill Bowler and Liam J. Hall

10:35-11:05 Coffee Break

11:05-12:30 Morning Session 2

Atmospheric Physics and Climate 1

Chair: Bill Randel

11:05-11:25 Global Variability of Double Tropopauses from Radio Occultation and Their Links to Climate Modes (*invited*)

Alejandro de la Torre, Peter Alexander, Torsten Schmidt, Andrea Steiner, Florian Ladstädter, and Rodrigo Hierro

11:25-11:40 The impact of atmospheric extremes on tropopause characteristics

Matthias Stocker, Florian Ladstädter, and Johannes K. Nielsen

11:40-11:55 Latest results in radio occultation wind field monitoring and analysis

Julia Danzer, Irena Nimac, and Annika Reiter

11:55-12:10	Climatological Regimes of Precipitable Water Vapor Revealed by Clustering of GNSS Radio Occultation and ERA5 Data Peter Alexander and Alejandro de la Torre
12:10-12:25	Assessment of GRAS-RO and MW/IR Instruments on Metop-A in UTLS: Brightness Temperature Comparison Vinícius Ludwig-Barbosa , Hans Gleisner, Kent B. Lauritsen, Timo Hanschmann, Viju O. John, and Axel Von Engeln

12:25-12:35 Group Photo

12:35-14:00 Lunch Break

**14:00-15:35 Afternoon Session 1
Occultation Methodology 1**
Chair: Stig Syndergaard

14:00-14:20	An update of the estimation of the refractivity expression (<i>invited</i>) Josep Aparicio
14:20-14:35	Recent updates to the CDAAC neutral atmospheric RO data processing system Zhen Zeng, Jeremiah Sjoberg , Sergey Sokolovskiy, Jan-Peter Weiss, John Braun, Douglas Hunt, Teresa Vanhove, and Maggie Sleziak-Sallee
14:35-14:50	Characterizing Residual Ionospheric Errors in GNSS RO Bending Angles: A Comparative Analysis of COSMIC-1 and COSMIC-2 Jaehee Chang , Jiyun Lee, Sergey Sokolovskiy, Zhen Zeng, and John Braun
14:50-15:05	Tandem Radio Occultation Experiments for Direct Estimation of Bending Angle Uncertainty: Metop and Sentinel-6 Applications Saverio Paoletta , Riccardo Notarpietro, Sebastiano Padovan, Verónica Rivas Boscán, Francisco Sancho, Christian Marquardt, Axel von Engeln, Francisco Martín Alemany, Elżbieta Lasota, and Pedro Cozinheiro
15:05-15:20	GNSS RO bending angle accuracy in the lower troposphere Rob Kursinski , Xuelei Feng, Kevin Nelson and Jonathan Brandmeyer
15:20-15:35	Commercial and COSMIC-2 GNSS-RO Neutral Atmosphere Near-real-time Product Processing and Generation at NOAA/STAR and Performance Assessment Yong Chen, Changyong Cao , Xi Shao, Tom Liu, Xinjia Zhou, Xin Jing, Ming Chen, Jun Zhou, Bin Zhang, and William Miller

15:35-16:00 Coffee Break

16:00-17:00 Afternoon Session 2
IROWG
 Chair: Christian Marquardt

16:00-16:30 IROWG: Reports from CGMS-53 and CGMS-54
Tony Mannucci, Ulrich Foelsche, and Hui Shao

16:30-17:00 Open Actions from CGMS WGII and WGIII
 Pre-Planning of IROWG-12 (2027/28)
 Preparig the IROWG co-chair election

17:00-19:00 Poster Session
 Chair: Congliang Liu

- P1 COSMIC-2 Payload Status - From Launch through Extended Mission
John Braun
- P2 Evaluation of NOAA STAR-processed COSMIC-2 and Commercial GNSS RO
 Bending Angle Assimilation in the GFS Model
William Miller, Yong Chen, and Xi (Sean) Shao
- P3 Application of the three-cornered hat method to evaluate and compare model
 analyses and forecasts
Jeremiah Sjoberg, Amal El Akkraoui, and Richard Anthes
- P4 Impact of Vertical Observation Error Modeling of GNSS RO on Forecast
 Performance in the Korean Integrated Model
Eun-Hee Kim, Hyoung-Wook Chun and Yong Hee Lee
- P5 Modulating the RO observation operator when assimilating 35,000 radio
 occultations per day during ROMEX
Katrin Lonitz and Sean Healy
- P6 Evaluating the impact of a ray-tracing operator on the assimilation of Radio
 Occultation Observations Using JEDI and the GFS Atmospheric Model
 Hailing Zhang, **Hui Shao**, John Braun, and Zhen Zeng
- P7 Developing a Forward Operator on Polarimetric Radio Occultation (PRO)
 observations
Kuo-Nung Wang, T. L. Kubar, C. O. Ao, F. J. Turk and R. Padullés
- P8 Assessing the potential of GNSS-R for tropospheric sensing using signal
 simulations
Wiktoria Kowalczyk and Witold Rohm

- P9 1DVAR assimilation of GNSS-ARO observations in ROPP software
Aleksandra Maciejewska and Paweł Hordyniec
- P10 GNSS Radio Occultation Ducting in the Tropical Cyclone Boundary Layer and Implications for NWP Data Assimilation
Kevin Nelson, E. Robert Kursinski, and Xuelei Feng
- P11 ROM SAF radio occultation activities for the period 2027 to 2032
Kent Lauritsen
- P12 Construction and Application of Radio Occultation Bending Angle Climatology for Quality Control and Assessing Spatio-Temporal Variability
Aashish Tripathee and Jonathan Brandmeyer
- P13 Robust Detection and Extraction of Radio Occultation (RO) Reflection Signals for Lower Troposphere Profiling
Aashish Tripathee and Jonathan Brandmeyer
- P14 Tropopause variability at the edge of the tropics and the expansion of the tropical belt
Florian Ladstädter, Anna Payer, Sebastian Scher and Andrea Steiner
- P15 Characterizing and Correcting GNSS Radio Occultation IWV Bias in Atmospheric River Conditions Using Multi-Source Observations
Bahareh Rahimi and Ulrich Foelsche
- P16 Retrieval of Multi-GNSS TEC and Electron Density Profiles from Radio Occultation at NOAA/STAR with Applications to Recent Space Weather Storms
Xi Shao, Yong Chen, Tom Liu, Xin Jing, and William Miller
- P17 Altitude and Spatial Distribution of Equatorial Plasma Bubbles Derived From GNSS Radio Occultation and Compared With GOLD Radiance Images
Carles Quilis Alfonso, Vinícius Ludwig-Barbosa, Joel Rasch, Anders Carlström, Saleh Javadi, Viet Thuy Vu, and Mats I. Pettersson
- P18 Calibration, Processing, and Operations of the PlanetiQ Total Electron Content Observations
Jonathan Brandmeyer, E. Robert Kursinski, and PlanetiQ engineering staff
- P19 Ionospheric Occultations and Scintillations from Cosmic-2 and Sentinel-6 Radio Occultation Antennas
Tom K. Meehan, **Chi Ao**, and Angela Dorsey

P20	Comparing IRI-2020 Ray Tracing Absorption Estimates with Observed 10 MHz Signal Strength via the HamSCI GRAPE Network Gamal Zayed , Kuldeep Pandey, and Nathaniel Frissell
P21	All-Sky Radiative Transfer Simulations Enabling Joint Interpretation of Polarimetric Radio Occultation and Passive Microwave Observations for Hydrometeor Characterization using WRF–ARTS Verònica Vidal, Ramon Padullés , Antía Paz Carracedo, and Estel Cardellach
19:00	Friday Adjourn

19:00-20:00	Dinner
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SATURDAY, SEPTEMBER 12, 2026

09:00-10:30 IROWG Subgroup Working Meetings

10:30-11:00 Coffee Break

11:00-12:30 Consolidation of IROWG Subgroup-Recommendations

12:30-13:30 Lunch Break

13:30-22:00 Excursion and Dinner

SUNDAY, SEPTEMBER 13, 2026

Free – explore Castle Seggau, the surroundings, or make a trip to Graz (not included in the registration fee).

MONDAY, SEPTEMBER 14, 2026

09:00-10:35	Morning Session 1 Specific occultation methods – Polarized and Infrared Chair: Antía Paz Carracedo
09:00-09:20	Polarimetric Radio Occultations: Processing, simulations and exploitation <i>(invited)</i> Ramon Padullés , Estel Cardellach, Antía Paz Carracedo, Verònica Vidal, and S. Oliveras
09:20-09:35	Processing Polarimetric Radio-Occultation Soundings with Wave Optics Methods Jonathan Brandmeyer and E. Robert Kursinski
09:35-09:55	PlanetiQ linearly polarized RO results measuring precipitation Rob Kursinski , Jonathan Brandmeyer, Kevin Nelson, and Xuelei Feng <i>(invited)</i>
09:55-10:10	Development of a broadband frequency locked laser source for SWIR atmospheric occultation measurements Ting Yu , Jing Liu, Botao Li, Zhenxing He, Yuchen Wang, Jiaqi Zhou, Bo Dai, and Weibiao Chen
10:10-10:25	Fulllink uncertainty evaluation for spaceborne infrared laser occultation measurements Shuo Huang , Yun-Meng Liu, and Shizhao Li
10:25-10:55	Coffee Break
10:55-12:30	Morning Session 2 Current Missions 2 Chair: Maggie Sleziak-Sallee
10:55-11:15	The Operation and Orbit maintenance of FORMOSAT-7/COSMIC-2 Constellation Cheng-Yung Huang , I-te Lee, Chao-Yen Chen, Wen-Tzong Shian, Wen-Chuang Huang, Wen hao Yeh, and Kun-Lin Chen <i>(invited)</i>
11:15-11:30	GRAS-2 In-Orbit Verification Results for the First Metop-SG Satellite Anders Carlström , Joel Rasch, Thomas Liljegren, and Beyond Gravity Sweden

11:30-11:45	Precise orbit determination for Metop-D at EUMETSAT: status and challenges Verónica Rivas Boscán , Sebastiano Padovan, Saverio Paoella, Riccardo Notarpietro, Francisco Sancho, Axel von Engel, Christian Marquardt, Francisco Martín Alemany, Pedro Cozinheiro, and Elżbieta Lasota
11:45-12:00	Sentinel-6B Non-Time-Critical Radio Occultation products by EUMETSAT Sebastiano Padovan , Axel von Engel, Saverio Paoella, Riccardo Notarpietro, Verónica Rivas Boscán, Francisco Sancho, Francisco Martín Alemany, Elżbieta Lasota, Pedro Cozinheiro, and Christian Marquardt
12:00-12:15	Enhanced PBL Capabilities from the COSMIC-2 and Sentinel-6 Missions Chi Ao , Chad Galley, Thomas K. Meehan, Panagiotis Vergados, and Kuo-Nung Wang
12:15-12:30	Advance of the Climate and Atmospheric Composition Exploring Satellites Mission (CACES) in China Xin Wang, Xuemei Zong, and Zhihua Zhang

12:30-14:00 Lunch Break

14:00-15:35 Afternoon Session 1
Radio Occultation Data for Climate Monitoring
Chair: Johannes Nielsen

14:00-14:20	GNSS radio occultation processing at the GFZ: 25 years of data for weather forecast and climate research (<i>invited</i>) Torsten Schmidt , Patrick Schreiner, and Jens Wickert
14:20-14:35	EUMETSAT Reprocessing Activities Francisco Martín Alemany , Francisco Sancho, Christian Marquardt, Axel Von Engel, Verónica Rivas Boscán, Sebastiano Padovan, Saverio Paoella, Riccardo Notarpietro, Elżbieta Lasota, and Pedro Cozinheiro
14:35-14:50	How recent armed conflicts disrupt RO GNSS climate monitoring Sebastian Scher and Florian Ladstädter
14:50-15:05	The radio occultation reprocessing at the Wegener Center: Validation and uncertainty evaluation of rOPS long-term climate monitoring data Marc Schwärz , Gottfried Kirchengast, Josef Innerkofler, and Armin Leuprecht
15:05-15:20	Methodology for determining climatic winds from radio occultation data Irena Nimac , Johannes Unegg, and Julia Danzer

15:20-15:35	Propagating GNSS RO uncertainties to aggregated fields and trend estimates Florian Ladstädter , Sebastian Scher, Marc Schwärz, Josef Innerkofler, Andrea Steiner, and Gottfried Kirchengast
15:35-16:05	Coffee Break
16:05-17:50	Afternoon Session 2 NWP 2 – ROMEX Data Usage Chair: Dominique Raspaud
16:05-16:20	An extended ROMEX experiment Christian Marquardt , Liao Mi, Xu Na, Lu Wenqiang, Liu Yan, Tang Qi, and Cheng Yan
16:20-16:35	Dry temperature comparisons and diurnal variability from ROMEX radio occultation observations Jeremiah Sjöberg , Richard Anthes, Jon Starr, and Douglas Hunt
16:35-16:50	Status of GNSS-RO in global data assimilation at DWD Harald Anlauf
16:50-17:05	GNSS-RO capabilities in JEDI Ben Ruston , François Vandenberghe, Hailing Zhang, Lindsey Hayden and Rajeswari Chidambaram, and Neill Bowler
17:05-17:20	Global Forecast Impacts of Radio Occultation Observations Using Traditional and AI-Based Data Assimilation with the AIFS Kristen Bathmann , Sanita Vetra-Carvalho, Karina Apodaca-Martinez, Luis Vela, Tom Gowan, and Mathew Rothstein
17:20-17:35	Radio occultation simulation and prediction at EUMETSAT: current and future applications Francisco Sancho , Axel von Engel, Verónica Rivas Boscán, Sebastiano Padovan, Christian Marquardt, Riccardo Notarpietro, Saverio Paoletta, Francisco Martín Alemany, Elżbieta Lasota, and Pedro Cozinhos
17:35-17:50	Beyond COSMIC-2: Can polar and mid-inclination orbits fill the tropical gap? Francisco Sancho , Christian Marquardt, Axel von Engel, Pedro Cozinhos, Elżbieta Lasota, Francisco Martín Alemany, Riccardo Notarpietro, Sebastiano Padovan, Saverio Paoletta, and Verónica Rivas Boscán
17:50	Monday Scientific Sessions Adjourn
18:30-19:30	Dinner
20:00-22:00	Wine Tour

TUESDAY, SEPTEMBER 15, 2026

09:00-10:15 Morning Session 1

Occultations in ionospheric and planetary science

Chair: Riccardo Notarpietro

- 09:00-09:15 Performance Assessment of Total Electron Content Products from the Spire Constellation
Matthieu Talpe, Vu Nguyen, Philip Jales, and Surabhi Guruprasad
- 09:15-09:30 Development of GNSS-Based Data Assimilation for Space Weather at NRL Using JEDI
Hui Shao, David Kuhl, John Haiducek, Peter Caffrey, Lindsey Hayden, Francois Hebert, and Nick Pedatella
- 09:30-09:45 Ionospheric Radio Occultation Data from LEO Satellite Constellations and Their Data Assimilation Applications
Naifeng Fu, Fenghui Li, Yan cheng, Wanganyin Cui, and Feiteng Meng
- 09:45-10:00 Equatorial ionospheric irregularities from the COSMIC-2 mission during solar cycle 25
John Braun, Irina Zakharenkova, Iurii Cherniak, Sergey Sokolovskiy, Qian Wu, and Jan-Peter Weiss
- 10:00-10:15 Definition of system requirements and hardware selection for a cross-link radio occultation instrument to observe the lunar ionosphere
Giacomo Radaelli, Richard B. Langley, Chris Watson, and Ulrich Foelsche

10:15-10:45 Coffee Break

10:45-12:30 Morning Session 2

NWP 3

Chair: Ben Ruston

- 10:45-11:00 Taking into account the uncertainty in the expression of refractivity in the GNSS-RO observation operator
Dominique Raspaud
- 11:00-11:15 Towards the Operational Assimilation of Polarimetric Radio Occultations: Forward operator development and NWP applications
Antía Paz Carracedo, Ramon Padullés, Estel Cardellach, Katrin Lonitz, Dominique Raspaud and Clotilde Augros, and Mary Borderies

- 11:15-11:30 First results from assimilating Polarimetric RO data
Katrin Lonitz, Nouredine Semane, and Sean Healy
- 11:30-11:45 Integrated Impact of GNSS-RO and GNSS-R Data Assimilation on Tropical Cyclogenesis Prediction: A Case Study of Typhoon Gaemi (2024)
Shu-Ya Chen and Quan Pham Xuan
- 11:45-12:00 Assessments of new data sources and observation error statistics
Liam Hall and Neill E. Bowler
- 12:00-12:15 Study on the Distribution Characteristics and Collaboration of Global GNSS Occultation Missions
Wenqiang Lu, Na Xu, Chengli Qi, Mi Liao, Xiuqing Hu, Guanglin Yang, Yan Liu, and Xiangguang Meng
- 12:15-12:30 Spatiotemporal Resolution in Radio Occultation: The Interdependent Design Loop Between Weather Model Performance and Constellation Design
Nikki Privé, **Christopher Barsoum**, Douglas Hunt, Michael J. Murphy, Richard Anthes, William Gullotta, Natalie Laudier

12:30-14:00 Lunch Break

14:00-15:30 Afternoon Session 1
New Techniques – AI and NI
Chair: Anders Carlström

- 14:00-14:15 Bias characteristics and estimation of the FORMOSAT-7/COSMIC-2 radio occultation bending angle in the low troposphere with a machine learning algorithm
Gia-Huan Pham, Shu-Chih Yang, Shu-Ya Chen, Cheng-Yung Huang, and Kuo-Nung Wang
- 14:15-14:30 Processing deep occultation data from GRAS-2 using sliding window phase matching and multiple correlators
Joel Rasch, Anders Carlström, and Thomas Liljegren
- 14:30-14:45 Wavelet-Transform-based Phase Matching Method for Impact Multipath Mitigation in GNSS Radio Occultation
Jonghyeon Park, Jaehee Chang, and Jiyun Lee
- 14:45-15:00 Reliable Ducting Detection with Sliding Window Phase Matching
Jonathan Brandmeyer, E. Robert Kursinski, and Xuele Feng

15:00-15:15	Deep Learning for Detecting Atmospheric Ducting in GNSS-RO Data Hsiang-Wen Cheng , Chung-Yu Shih, Kai-Hsun Chen, Wen-Chien Chang, Shu-Chih Yang, Cissi Ying-Tsen Lin, Chia-Hui Chang, Feng-Nan Hwang, Cheng-Yung Huang, and Yi-Hsiu Chen
15:15-15:30	Generating realistic synthetic RO soundings in extreme atmospheric events Clémence Allietta , Rémi Douvenot, and Sonia Cafieri
15:30-16:00	Coffee Break
16:00-17:20	Afternoon Session 2 Climate Trends and Water Vapor Chair: Panagiotis Vergados
16:00-16:20	Atmospheric temperature trends from observations: an update (invited) Andrea Steiner , Florian Ladstädter, Matthias Stocker, Stephen Po-Chedley, and the APARC ATC Activity
16:20-16:35	Leveraging GNSS radio occultation excess phase and bending angle observables for anthropogenic climate signal detection in the troposphere and stratosphere Josef Innerkofler , Gottfried Kirchengast, Florian Ladstädter and Marc Schwärz
16:35-16:50	An observational perspective on wind trends: a comparison of RO and reanalysis data Annika Reiter , Irena Nimac, and Julia Danzer
16:50-17:05	The ROM SAF tropospheric humidity Climate Data Record development. Johannes Nielsen , Kent B. Lauritsen, Hans Gleisner and Stig Syndergaard, and Vinícius Ludwig-Barbosa
17:05-17:20	Observing Atmospheric Rivers and their Vertical Structure with GNSS Radio Occultation Ulrich Foelsche , Bahareh Rahimi, and Linda M. Maier
17:20	Tuesday Scientific Sessions Adjourn
18:00-19:00	Dinner
19:00-21:00	WGIII discussion (IROWG to assess the impact of the decline in COSMIC data availability)

WEDNESDAY, SEPTEMBER 16, 2026

09:00-09:40

Morning Session 1

IROWG – Reporting of Subgroups

Chair: Tony Mannucci

09:00-09:20

Reporting of the IROWG Subgroup on NWP (*invited*)

Neill Bowler and **Katrin Lonitz** (Subgroup co-chairs)

09:20-09:40

Reporting of the IROWG Subgroup on Climate (*invited*)

Panagiotis Vergados and **Andrea Steiner** (Subgroup rapporteur and chair)

09:40-10:00

Reporting of the IROWG Subgroup on Space Weather (*invited*)

Riccardo Notarpietro (Subgroup rapporteur) and **NN** acting chair

10:00-10:20

Reporting of the IROWG Subgroup on Innovation (*invited*)

John Braun and **Rob Kursinski** (Subgroup rapporteur and chair)

10:20-10:50

Coffee Break

10:50-12:50

Morning Session 2

IROWG Recommendations to CGMS

Chairs: Hui Shao and Ulrich Foelsche

10:50-11:05

Report from WGIII discussion to CGMS

11:05-11:10

BUFR format brief

Harald Anlauf, Christian Marquardt, Hui Shao

11:10-12:50

Main IROWG Recommendations to CGMS

(Moderated by IROWG co-chairs)

12:50-13:00

Workshop Wrap-up & Farewell

13:00-14:00

Lunch (optional)