

International DOAS Workshop Thessaloniki, Greece 9-11 July 2025 Preliminary Detailed Program

Wednesday, 9 July

08:00-09:10 Registration
09:10-09:20 Welcome and logistics

Session 1: Ground-based remote sensing

Chair: TBD

- 09:20-09:40 **Point-Sampling and Open-Path Ancillary Observations in the Context of MAX-DOAS Measurements During the CINDI-3 Campaign (52)**
Johannes Lampel, Stefan Schmitt, Martin Horbanski, Denis Pöhler, Erna Frins and Roberto Barragán
- 09:40-10:00 **CINDI-3: Results from the Semi-blind DSCD Inter-comparison and Comparisons with data from the FRM4DOAS Centralised Processed data (64)**
Martina Michaela Friedrich, Karin Kreher and Michel Van Roozendael
- 10:00-10:20 **Ammonia Concentration Monitoring Using long-path UV DOAS (48)**
Stijn Berkhout, Mark Eijkelboom, Kevin Felter, René van der Hoff, Marty Haaima, Thomas Kotte and Bas Spilt
- 10:20-10:40 **Ground-based Total Ozone Column Measurements in the Huggins and Chappuis Bands Using Direct-Sun DOAS Observations (58)**
Dimitris Karagkiozidis, Katerina Garane, Michel Van Roozendael
- 10:40-11:10 **Coffee break**
- 11:10-11:30 **DOAS Retrievals with a Hyperspectral Imager Scanning in Wavelength: The NO₂ Camera (56)**
Pierre Gramme, Cedric Busschots and Emmanuel Dekemper
- 11:30-11:50 **Two Decades of DOAS Measurements in the Canadian High Arctic and Two New Instruments (67)**
Kimberly Strong, Ramina Alwarda, Darby Bates, Orfeo, Colebatch, Pierre Fogal, Kevin Joshy and Xiaoyi Zhao
- 11:50-12:10 **Conversion of Pandora Direct Sun NO₂ Columns to Surface NO₂ in the Greater Toronto and Detroit-Windsor Areas (55)**
Darby Bates, Ramina Alwarda, Kimberly Strong, Xiaoyi Zhao, Vitali Fioletov, Sum Chi Lee, Debora Griffin and Yushan Su
- 12:10-12:30 **MAX-DOAS Surface and Tropospheric Column Validation: NO₂ and HCHO in Toronto (29)**
Meike K. Rotermond, Victoria Flood, Martina M. Friedrich, Michel Van Roozendael, Xiaoyi Zhao and Kimberly Strong
- 12:30-14:00 **Lunch break**
- 14:00-14:20 **Cloud Classification and Satellite Comparison of CU MAX-DOAS Measurements During the 2024 Utah Summer Ozone Study. (32)**
Ruby Burgess, Robert Ryan, Clara Lietzke, Jan-Lukas Tirpitz, Nicolas Theys, Isabelle De Smedt, Gonzalo González, Abad, Caroline Nowlan, Heesung Chong and Rainer Volkamer

Session 2. Trace-gas vertical profiling

Chair: TBD

- 14:20-14:40 **The Mainz profile algorithm (MAPA) version 2 (34)**
Steffen Beirle, Sebastian Donner, Steffen Ziegler and Thomas Wagner
- 14:40-15:00 **Simultaneous profiling of aerosol and tropospheric nitrogen dioxide from synergetic ground-based observations of sun-sky photometer and spectrometer (40)**
Masahiro Momoi, Elena Lind, Oleg Dubovik, Marcos Herreras-Giralda, Benjamin Torres, Tatyana Lapyonok, Anton Lopatin, Wushao Lin, Fernando Rejano, Marie Stöckhardt, Axel Kreuter and Alexander Cede

- 15:00–15:20 **Retrieval of NO₂ and Aerosol Vertical Profiles During the CINDI-3 Campaign (49)**
Udo Frieß André Achilli, Ramina Alwarda, Alkis Bais, Darby Bates, Tim Bösch, Elisa Castelli, Ka Lok Chan, Zeqing Chen, Mirjam den Hoed, Martina M Friedrich, Laura Gomez-Martin, Xiangguang Ji, Kevin Joshy, Dimitris Karagkiozidis, Hyeong-Ahn Kwon, Ang Li, Cheng Liu, Chaonan Lv, Paolo Pettinari, Ankie Pitters, Andreas Richter, André Seyler, Kimberly Strong, Shiyao Tang, Michel Van Roozendael, Zijie Wang, Mark Wenig, Pinhua Xie, Chengzhi Xing, Jin Xu, Steffen Ziegler, Thomas Wagner and Steffen Beirle
- 15:20–15:50 **Coffee break**
- 15:50–16:10 **Glyoxal Vertical Profiles Using MAX-DOAS Observations over Thessaloniki, Greece: First results (57)**
Dimitris Karagkiozidis, Martina Michaela Friedrich, Michel Van Roozendael, Dimitris Nikolis and Alkis Bais
- 16:10–16:30 **Exploring SO₂ Profiling Capabilities Using Pandora MAX-DOAS Measurements (63)**
Ramina Alwarda, Xiaoyi Zhao, Vitali Fioletov, Debora Griffin, Michel Grutter, Alberto Redondas, Martina Friedrich, Alexander Cede and Kimberly Strong
- 16:30–16:50 **Hybrid Active Open Path/MAX-DOAS Instrument: Combining Precise Surface Concentration Measurements with Vertical Profiling (39)**
Stefan Schmitt, Denis Pöhler, Martin Horbanksi and Johannes Lampel
- 16:50–18:00 **Poster Session**

Thursday, 10 July

- 08:45–09:00 **Registration**
- Session 3. Instruments and algorithms**
- Chair: TBD
- 09:00–09:20 **Covariance-DOAS (CODOAS), the best of the two worlds? (46)**
Nicolas Theys, Isabelle De Smedt, Thomas Danckaert, Andreas Richter, Jonas Vlietinck and Michel Van Roozendael
- 09:20–09:40 **Sensitivity Study for the DOAS fit Settings of Formaldehyde Using Synthetic and Measured Spectra (23)**
Sebastian Donner, Steffen Beirle, Janis Pukite, Steffen Ziegler and Thomas Wagner
- 09:40–10:00 **Optimizing the Retrieval Algorithm for Ammonia Concentration Gradients from Multiple open-path DOAS Measurements (66)**
Jos de Boer and Shelley van der Graaf
- 10:00–10:20 **NO₂, O₃, OClO and BrO Stratospheric Photochemical Air Mass Factors at Marambio and Belgrano Antarctic stations (14)**
Laura Gomez-Martin, Cristina Prados-Roman, Martyn Chipperfield, Olga Puenteadura, Monica Navarro-Comas, Michel Van Roozendael, Hector Ochoa, Miguel Montero-Vega and Margarita Yela
- 10:20–10:40 **Methane Imaging Based on Fabry–Perot Interference Correlation Spectroscopy (37)**
Yinsheng Lyu, Pinhua Xie, Jin Xu and Youtao Li
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- 11:10–11:30 **Quantification of spectrograph straylight and detector sensitivity using high resolution sun spectra (13)**
Thomas Wagner, Carl-Fredrik Enell, Myojeong Gu, Bianca Lauster, Uwe Raffalski and Steffen Ziegler
- 11:30–11:50 **Assessment of Laboratory O₄ (O₂-O₂ Collision-Induced) Absorption Cross-sections at 360 nm Using Atmospheric Long-path DOAS Observations (21)**
Bianca Lauster, Udo Frieß, Jan-Marcus Nasse, Ulrich Platt and Thomas Wagner
- Session 4. Advances in satellite remote sensing and validation**
- Chair: TBD
- 11:50–12:10 **Improved air mass factors for TROPOMI tropospheric NO₂ (36)**
Thomas Visarius, Andreas Richter, Heinrich Bovensmann and Hartmut Bösch
- 12:10–12:30 **Unleashing the potential of geostationary satellite observations in air quality forecasting through artificial intelligence techniques (19)**
Chengxin Zhang

- 12:30–14:00 **Lunch break**
- 14:00–14:20 **Synergistic Satellite Hyperspectral Remote Sensing with Artificial Intelligence and UAV-Based Hyperspectral Imaging for Atmospheric Pollution Monitoring (28)**
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- 14:40–15:00 **Enhancing the quality of TEMPO NO₂ Slant Column Densities by destriping (3)**
Symeon Vlassis, Andreas Richter, Kezia Lange and Kai Krause
- 15:00–15:20 **Pushing the Limits – What can we Learn from Averaged TROPOMI Spectra? (54)**
Andreas Richter, Thomas Wagner, Steffen Beirle, Holger Sihler and Hartmut Bösch
- 15:20–15:50 **Coffee break**
- 15:50–16:10 **Optimized OCIO Retrieval Algorithm for TROPOMI: Evaluation and Validation in Preparation of the Operational AC-SAF Sentinel-5 OCIO Product (53)**
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Andrè Achilli, Elisa Castelli, Enzo Papandrea, Paolo Pettinari, Massimo Valeri, Francesco Cairo, Luca Di Liberto, Francescopiero Calzolari, Claudio Campenni and Spartaco Ciampichetti
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- Chair: TBD**
- 16:30–16:50 **Airborne Mapping of Tropospheric NO₂ Distributions During the CINDI-3 Campaign (1)**
Frederik Tack, Alexis Merlaud, Ward Van Roy, Annelore Van Nieuwenhove, Dirk Schuettemeyer and Michel Van Roozendael
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Friday, 11 July

- 09:00–09:20 **Investigating Shipping Emissions at Halifax Harbour, Canada (65)**
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Denis Pöhler, Christina Schmidt, Yoann Bernard, Thomas Frateur, Norbert Ligterink, Michal Vojtisek, Philipp Eger and Ulrich Platt
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Christoph Kern
- 10:20–10:40 **Quantifying NO_x emissions by mass balance using airborne DOAS, Doppler lidar, and in-situ data synergies in the Colorado Front Range (15)**
Clara Lietzke, Sunil Baidar, Robert Ryan, Ruby Burgess, Jan-Lukas Tirpitz, Alan Brewer, Steven Brown, Xinrong Ren and Rainer Volkamer
- 10:40–11:10 **Coffee break**

Session 6. Data exploitation and applications

Chair: TBD

- 11:10–11:30 **The Bremen tram DOAS Instrument – Observations of Spatial and Temporal NO₂ Variability (60)**
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- 11:50–12:10 **Optical Closure Studies of Aerosol Extinction (69)**
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- 14:00–14:20 **Simultaneous observations of atmospheric IO radical, O₃, and sea surface iodide over the tropical western Pacific warm pool: strong correlation of IO levels with estimated inorganic iodine fluxes (5)**
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Robert Ryan, Ruby Burgess, Jan-Lukas Tirpitz, Robyn Schofield and Rainer Volkamer
- 14:40–15:00 **Spatiotemporal distribution and formation mechanisms of HONO in agricultural areas based on long-term 2D-MAXDOAS observations (27)**
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- 15:00–15:20 **Exploring HONO Production in Biomass Burning Aerosols with the ICAD (Iterative Cavity-Enhanced DOAS) (7)**
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