

ILRC-30 Agenda

Sunday, June 26, 2022

Lidar Tutorials for Students

Link will be provided to those who selected Student Tutorial on registration.

Synopsis: The Lidar Tutorials are aimed at researchers who are new to lidar or are early in their lidar careers. The tutorials are intended to facilitate the participants' comprehension and appreciation of the talks and posters that will be presented during the ILRC, by giving them a basic introduction to atmospheric optics and the technology, techniques, and applications of lidar.

The tutorials are at an introductory level, starting with the simplest elastic backscatter lidar and emphasizing the challenges of developing lidar instruments. The basics of lidar atmospheric optics are summarized, and the governing equations for the lidar signal and the sky background signal are discussed. Descriptions of more sophisticated lidar techniques are also presented.

As in previous years, the Lidar Tutorials will follow the format used in previous ILRCs and European Summer Schools, which is to present the theoretical background first, followed by practical applications of the theory.

12:00-17:30 UTC – Amphitheater: Lidar Tutorials

UTC	Agenda ID / Presenter	Title
12:00	Welcome and opening remarks	Prof. Alex Papayannis (ICLAS Chair) Dr. Thierry Leblanc and Dr. John Sullivan (30th ILRC Chairs) Caitlin Murphy (technical info) General questions from students before tutorials start
12:15	Dr. Gary Gimmestad Georgia Tech (Emeritus), United States	1. Introduction
12:36		2. Atmospheric optics
12:57		Q&A
13:07		3. Lidar models & SNR

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UTC	Agenda ID / Presenter	Title
13:28		4. Lidar transmitters, receivers, and data systems
13:49		Q&A
14:00	Break	
14:30	Dr. Lucia Mona Consiglio Nazionale delle Ricerche (CNR), Italy	Aerosol profiling by ground-based, airborne and spaceborne lidar systems: working principles, highlights, and perspectives
15:30	Dr. Paolo DiGirolamo Università degli Studi della Basilicata, Italy	Water vapor profiling techniques (Raman-DIAL) and applications
16:30	Dr. Arnoud Apituley Royal Netherlands Meteorological Institute (KNMI), Netherlands	Lidar wind measurements and synergy with radars
17:30	End	

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Monday, June 27, 2022

12:00-13:00 UTC – Amphitheater: Opening Ceremony

UTC	Agenda ID / Presenter	Title
12:00	Papayannis / Leblanc / Sullivan	Opening / Welcome
12:15	v. Bismark	AEOLUS Status Update
12:35	Kaye	NASA HQ Update
12:55	Murphy	Virtual ILRC 101

13:00-14:00 UTC – Amphitheater: Oral Session 1

UTC	Agenda ID / Presenter	Title
Session 1: Space-borne lidar missions, instruments and science		
13:00	S01_O01 Yorks	An Overview of the NAS Atmosphere Observing System Inclined Mission (AOS-I) and the Role of Backscatter Lidar
13:13	S01_O02 Nowotnick	A Simulation Capability Developed for NASA. GSFC's Spaceborne Backscatter Lidars: Overview and Projected Performance for the Upcoming AOS Mission
13:26	S01_O03 Hostetler	The Clio HSRL Instrument Concept for the NASA AOS Mission
13:39	S01_O04 Tackett	Mitigation Strategy for the Impact of Low Energy Laser Pulses in CALIOP Calibration and Level 2 retrievals

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UTC	Agenda ID / Presenter	Title
13:52	Q&A	

14:00-14:15 UTC Break

14:15-14:45 UTC – Red Room: Poster Lightning Talks – Session 2

UTC	Poster / Presenter	Title
14:15	Session 2: Emerging lidar techniques, methodologies, and discoveries	
	S02_P01 Jin	Development of low-cost high-spectral-resolution lidar using compact multimode laser for air quality measurement
	S02_P02 Sugimoto	Possible Use of Iodine Absorption/Fluorescence Cell in High-Spectral-Resolution Lidar
	S02_P03 Chen X.	High Spectral Resolution Lidar Based on Optical Coherence Technology
	S02_P04 Hetlage	Atomic Barium Vapor Filter for Ultraviolet High Spectral Resolution Lidar
	S02_P05 Razenkov	Development of High Spectral Resolution Lidars at the University of Wisconsin
	S02_P06 Bukholtz	Field-Widened Michelson Interometer as the Spectral Discriminator in a 1064 nm HSRL
	S02_P07 Cheng	Atmospheric NO2 Measurements in Dalian City by Employing a Continuous-wave Differential Absorption Lidar

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UTC	Poster / Presenter	Title
	S02_P08 Speidel	Design of a Powerful Transversely Pumped Ti:Sapphire Laser for Near-Infrared Lidar Application
	S02_P09 Gasmi	Remote Sensing of Lower Tropospheric Methane with IR KTA-Based OPO Lidar
	S02_P10 Di Paolantonio	Performance Simulation of a Raman Lidar for the Retrieval of CO₂ Atmospheric Profiles
	S02_P11 Gibert	A wind, temperature, H₂O and CO₂ scanning lidar mobile observatory for a 3D thermodynamic view of the atmosphere
	S02_P12 Wirth	Error Model for a Short Pulse Integrated Path Absorption Lidar

14:15-14:45 UTC – Blue Room: Poster Lightning Talks – Session 3

UTC	Poster / Presenter	Title
14:15	Session 3: Atmospheric aerosol and clouds properties	
	S03_P01 Liu D.	Development of the Dual-wavelength Mie-Raman Lidar for Weather Modification Application
	S03_P02 He	Natural seeder-feeder process originating from mixed-phase clouds observed with ground-based polarization lidar and radiosonde over Wuhan
	S03_P03 Radha	Variation of Aerosol Optical Properties over a High-Altitude Station in Western Himalayan Region on Polluted and Non-polluted Days Using RAMAN Lidar

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UTC	Poster / Presenter	Title
	S03_P04 Khalesifard	Comparison of Local and Transregional Atmospheric Particles Over the Urmia Lake in Northwest Iran, Using Polarization Lidar Recordings
	S03_P05 Konoshonkin	Updated databank of backscattering Mueller matrices of cirrus clouds' ice crystals for lidar applications
	S03_P06 Konoshonkin	Statistical simulation of laser pulse propagation through cirrus-cloudy atmosphere
	S03_P07 Choudhury	Cloud Condensation Nuclei Concentration from Spaceborne Lidar Measurements-Methodology & Validation Study
	S03_P08 Baron	Hunga-Tonga Volcanic Plume Optical Properties Derived from Lidar Observations at Reunion Island (Indian Ocean, 21°S, 55°E)
	S03_P09 Popovici	Low-Power versus High-Power Lidars: Allies with the Same Purpose, the Vertical Atmospheric Sounding
	S03_P10 Duflot	Tropospheric and UTLS trace gases and aerosols observations by lidar at Mado Observatory (La Reunion, 21°S, 55°E): systems, datasets and case studies overview
	S03_P11 Barja	Cirrus Cloud Characteristics at the Southern-Hemispheric Midlatitude Site of Punta Arenas (53°S, 71°W)
	S03_P12 Pinnegar	Cloud Base Height Correlation between a Co-located Micro-Pulse Lidar and a CHM15k Lufft Ceilometer

14:15-14:45 UTC – Gold Room: Poster Lightning Talks – Session 4

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UTC	Poster / Presenter	Title
14:15	Session 4: Synergistic use of multiple instruments and techniques, networks and campaigns	
	S04_P01 Sanchez Barrero	Integrated Automatic Mobile Systems of two-wavelength polarization micro-pulse lidar and photometer for aerosol
	S04_P02 Thobois	Agreement and availability of Doppler velocity measurements from co-located Doppler Wind Lidar and X-band weather radar
	S04_P03 Fortunato dos Santos Oliveira	First results of inverted aerosol properties through GRASP algorithm, using polarized data from the multi-wavelength
	S04_P04 Mereuta	Oil smoke plumes as seen through MODIS and CALIPSO
	S04_P05 Yukhymchuk	Impact of Aerosol Contamination for Radiative Forcing to the Atmosphere Over Kyiv According to Lidar Campaign and Sun Photometer observation
	S04_P06 Bazo	Analysis of the aerosol radiative impact in the longwave spectral range for different aerosol types in Southeastern Spain
	S04_P07 Michailidis	Spatial distribution analysis of the TROPOMI Aerosol Layer Height: A pixel-by-pixel comparison to EARLINET and CALIOP observations
	S04_P08 Pescherenkov	Study of Large-Scale Smoke and Dust Transport from Observations by CALIOP and Solar Photometers
	S04_P09 Papayannis	Synergistic Use of Lidar and In Situ aerosol measurements over a high altitude site (1800-2300 m): Highlights from the CALISPHTO Campaign at the Helmos Mountain (Autumn 2021)
	S04_P10 Di Girolamo	The Role of Dry Layers and Cold Pools in the Activation of Mesoscale Convective Systems: A Characterization Study based on

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UTC	Poster / Presenter	Title
		the Combined use of Raman Lidar and DIAL Measurements and MESO-NH Model Simulations
	S04_P11 Ravetta	Radiative budget in the lower tropical stratosphere from the combination of balloonborne lidar and radiometric measurements
	S04_P12 Pal	On the application of lidar and in-situ based observations and numerical simulations to examine the spatiotemporal variability in urban heat island and urban heat advection

14:15-14:45 UTC – Green Room: Poster Lightning Talks – Sessions 5, 6

UTC	Poster / Presenter	Title
Session 5: Greenhouse gases, tracers, and transport in the free troposphere and above		
14:15	S05_P01 Abo	Trajectory Analysis of CO2 Concentration increase Events in the Nocturnal Atmospheric Boundary Layer Observed by the Differential Absorption Lidar
	S05_P02 Fix	Precise Characterization of the Performance of CHARM-F during Ground-based and Airborne Measurements
	S05_P03 Di Girolamo	COmpact RamaN lidar for Atmospheric CO2 and TheRmodyNamic ProfiLLNG-CONCERNINF
	S05_P04 Choudhary	Long-term ground level ozone and nitrogen oxides observations over east coastal state of India
	S05_P05 Chen W.-N.	Efficiency Assessment of Single Cell Raman Gas Mixture for DIAL Ozone Lidar

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UTC	Poster / Presenter	Title
	S05_P06 Li D.	Tropospheric Ozone DIAL Development at NYC area
	S05_P07 Fenn	DIAL Ozone Measurement Capability Added to NASA's HSRL-2 Instrument Demonstrates Tropospheric Ozone Variability Over Houston Area
	S05_P08 Su	Quality Control and Validation for Tropospheric NO₂ Measurements Using a Three-wavelength Optical Parametric Oscillator Differential Absorption Lidar
	S05_P09 Gonzalez Ramos	Characterization of recent Aerosol Events occurring in the Subtropical North Atlantic region using a CIMEL CE376 GPN micro-Lidar

Session 6: Model validation and assimilation using lidar data

	S06_P02 Filioglou	Evaluating modelled winds over an urban area using ground-based Doppler lidar observations
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14:45-15:45 UTC – Amphitheater: Oral – Session 1 (continued)

UTC	Agenda ID / Presenter	Title
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Session 1: Space-borne lidar missions, instruments and science

14:45	S01_O05 Abril-Gago	First Validation of Aeolus Wind Products with Radiosondes and Doppler Lidar at the ACTRIS Granada Station
14:58	S01_O06 Tzeremes	ATLID latest developments and lessons learned for future space lidar missions

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UTC	Agenda ID / Presenter	Title
15:11	S01_O07 Donovan	ATLID Algorithms applied to ALADIN
15:24	S01_O08 Arnold	Overview and Status of the Methane Remote Sensing Lidar Mission :Merlin
15:37	Q&A	

15:45-16:00 UTC Break

16:00-17:00 UTC – Poster Area: Sessions 2, 3, 4, 5, 6

UTC	Session
16:00	Poster Sessions

17:00-17:45 UTC – Amphitheater: Oral Session 7

UTC	Agenda ID / Presenter	Title
Session 7: Joint CLRC/ILRC Session		
17:00	S07_O01 Tucker	Current Challenges and Opportunities for Space-Based Doppler Wind Lidar Systems
17:13	S07_O03 Cezard	Double-Lidar airborne mission over Scandinavia for atmospheric transport assessment of methane and carbon dioxide
17:26	Q&A	

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Tuesday, June 28, 2022

12:00-12:30 UTC – Red Room: Poster Lightning Talks – Sessions 8, 2

UTC	Poster / Presenter	Title
12:00	Session 8: Atmospheric boundary layer processes	
	S08_P01 Wu Y.	Diurnal variability of MLH and ozone in NYC urban and coastal area from an integrated observation during LISTOS 2018
	S08_P02 Palm	Planetary Boundary Layer Height Estimates from ICESat-2 and CATS Backscatter Measurements
	S08_P03 Pan	A new algorithm for planetary boundary layer height calculation based on multilayer recognition
	S08_P04 Colberg	Planetary Boundary Layer Height Measurements Using Diode-Laser-Based High Spectral Resolution Lidar
	S08_P05 Zhang D.	Comparisons of Planetary Boundary Layer Height Derived using Different Lidar Systems
	S08_P06 Jaswant	Assessment of Planetary Boundary Layer Height Variations over a Mountain Region in Western Himalayas
12:15	Session 2: Emerging lidar techniques, methodologies, and discoveries	
	S02_P13 Okubo	Dust flow distribution measurements by low coherence doppler lidar
	S02_P14 Petrov	Performance of pulsed wind lidar based on optical hybrid
	S02_P15 Benzo	Validation of the New Version of the WindCube Scan Lidar

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UTC	Poster / Presenter	Title
	S02_P16 Kasic	Demonstrating Capabilities of Multiple-Beam Airborne Doppler Lidar using an LES-based Simulator
	S02_P17 Spuler	Semiconductor Lidar Design for Quantitative Atmospheric Profiling
	S02_P18 Sacca	3D Point Cloud Classification using Drone-based Scanning LIDAR and Signal Diversity

12:00-12:30 UTC – Blue Room: Poster Lightning Talks – Session 3

UTC	Poster / Presenter	Title
12:00	Session 3: Atmospheric aerosol and clouds properties	
	S03_P13 Singh	Aerosol Optical Properties over Western Himalayas Region by Raman Lidar during the December 2019 Annular Solar Eclipse
	S03_P14 Lagrosas	Continuous Observations of Aerosol-Weather Relationship from a Horizontal Lidar to Simulate Monitoring of Radioactive Dust in Fukushima, Japan
	S03_P15 Choudhary	Estimation of aerosols and air pollutants using ARIMA time series model over Talcher coalfield of India
	S03_P16 Dong	Study on optical and microphysical properties of a dust aerosol in Shouxian County by polarization lidar and in situ observation
	S03_P17 Dehkhoda	Integration Method of LIDAR, Satellite, and AERONET Data to Depict a Three-Dimensional Fine Particle Mass Concentration Distribution at the Korean Peninsula

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UTC	Poster / Presenter	Title
	S03_P18 Joo	A study on How to Distinguish between Water Vapor and Fine Particles in the Atmosphere Using Scanning Lidar
	S03_P19 Yabuki	Aerosol spatial distribution observed by a mobile vehicle lidar with optics for a near range detection
	S03_P20 Sim	Atmospheric factor measurement using three wavelengths of the camera
	S03_P21 Szczepanik	Long-term changes of optical properties of mineral dust and its mixtures derived from Raman polarization water vapor lidar in Central Europe
	S03_P22 Janicka	Differences in lidar-derived optical and microphysical properties of long-range transported biomass burning aerosol in troposphere and stratosphere
	S03_P23 Kolgotin	Particle Complex Refractive Index from 3beta+2alpha HSRL/Raman Lidar Measurements: Conditions of Accurate Retrieval, Uncertainties and Constraints Provided by Information by RH
	S03_P24 Cholleton	Laboratory Evaluation of the (UV, VIS) Particle Depolarization Ratio of Pure Pollen

12:00-12:30 UTC – Gold Room: Poster Lightning Talks – Sessions 4, 8

UTC	Poster / Presenter	Title
12:00	Session 4: Synergistic use of multiple instruments and techniques, networks and campaigns	

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UTC	Poster / Presenter	Title
	S04_P13 Shimizu	A difference of the Depolarization Ratio Detected at Locally Generated Dust Layers and Transported Asian Dust Layers over Japan with AD_Net
	S04_P14 Nemuc	Profiling of the Atmospheric Boundary Layer at European Scale
	S04_P15 Adam	LIDAR MONITORING of BIOMASS Burning Smoke in Connection with the Land Cover
	S04_P16 Welton	The NASA Micro Pulse Lidar Network: Features and data products of the operational Version 3 processing system
	S04_P17 Ajtai	Strengthening aerosol and cloud remote sensing capacities in South-Eastern Europe within the framework of ACTRIS-RI
	S04_P18 Kuang	Huntsville Mobile RO3QET Launch
	S04_P19 Newchurch	Synergistic Observation of Boundary-layer Ozone with Ground-based, Airborne, and Space-borne instruments
	S04_P20 Nguyen	Improved Remote Operations Capabilities for the NASA GSFC Tropospheric Ozone Lidar for Routine Ozone Profiling for Satellite Evaluation
	S04_P21 Roots	Analysis of a Mid-Atlantic Ozone Episode using TOLNet and Pandora
12:18	Session 8: Atmospheric boundary layer processes	
	S08_P07 Shibata	Precipitation particle distribution measurement by particle polarization lidar

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UTC	Poster / Presenter	Title
	S08_P08 Chouza	The Impact of Los Angeles Basi Pollution and Stratospheric Intrusions on the Surrounding San Gabriel Mountains as seen by Surface Measurements, Lidar and Numerical Models
	S08_P09 Sakai	Analyzing the Performance of the new Vaisala CL-61 Ceilometer to Detect and Probe Planetary Boundary Layer Processes

12:00-12:30 UTC – Green Room: Poster Lightning Talks – Session 9

UTC	Poster / Presenter	Title
Session 9: Atmospheric temperature, water vapor, wind, turbulence, and waves		
12:00	S09_P01 Ishii	A 355-NM Direct-Detection Doppler Wind Lidar for Vertical Atmospheric Motion
	S09_P02 Liu X.	Observation of Rainfall Velocity and Raindrop Size Using Power Spectrum of Coherent Doppler Lidar
	S09_P03 Zhang X.	Aircraft Wake Vortex Recognition and Classification Based on Coherent Doppler Lidar and Convolutional Neural Networks
	S09_P04 Gong	Temperature variations characteristics in the middle atmosphere studied with Rayleigh lidar Haikou (19.9°N, 110.3°E)
	S09_P05 Engelmann	Open-Ocean in-cloud Vertical Velocity Observations with a Motion-Stabilized Doppler Lidar
	S09_P06 Thobois	Retrieving wind profiles over the Paris (France) urban areas from a single Doppler Lidar measurements

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UTC	Poster / Presenter	Title
	S09_P07 Wing	Presenting the New Middle Atmospheric Doppler Wind Lidar at Kuhlungsborn
	S09_P08 Repasky	Performance Modeling of a Diode-Laser-Based Direct Detection Doppler Lidar
	S09_P09 Hamel	Exploring Convective Boundary Layer Turbulence Characteristics using Combined Doppler Lidar and Tall-tower Observations over an Arid Region
	S09_P10 Li J.	A Case Study of Secondary Gravity Wave generation at Alaska with Lidar and reanalysis data
	S09_P11 Cruikshank	MicroPulse Differential Absorption Lidar for Temperature Retrieval in the Lower Troposphere
	S09_P12 Jayaweera	Long Term Calibration of a Pure Rotational Raman Lidar for Temperature Measurements Using Radiosondes and Solar Background

12:30-14:00 UTC – Amphitheater: Oral Session 2

UTC	Agenda ID / Presenter	Title
Session 2: New Technology		
12:30	S02_O01 Chu	Future Lidars for Cutting-Edge Sciences in Ionosphere-Thermosphere-Mesosphere-Stratosphere Physics and Space Atmosphere Coupling
12:43	S02_O02 Kaifler	First detection of thermospheric metastable helium by lidar

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UTC	Agenda ID / Presenter	Title
12:56	S02_O03 Mense	VAHCOLI: A new concept for Lidars
13:09	S02_O05 Hayman	Enhancing the Performance of the MicroPulse DIAL through Poisson Total Variation Signal Processing
13:22	S02_O06 Hebert	Short comb atmospheric lidar experiment (SCALE): principles, activities at CNES and perspectives for a new lidar concept
13:35	Q&A	
13:50		

14:00-14:15 UTC Break

14:15-15:15 UTC – Poster Area: Sessions 2, 3, 4, 8, 9

UTC	Session
14:15	Poster Sessions

15:15-16:07 UTC – Amphitheater: Oral Session 2 (continued)

UTC	Agenda ID / Presenter	Title
Session 2: New Technology		
15:15	S02_O07 Takakura	Evaluation of Multiple Scattering in a Polarization Scheimpflug Lidar System

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UTC	Agenda ID / Presenter	Title
15:28	S02_O08 Buckholtz	Low-cost, Diode-Based HSRL System with Simplified Optical Setup
15:41	S02_O09 Veselovskii	A step forward in aerosol typing using Mie-Raman-Fluorescence lidar
15:54	S02_O10 Tatarov	LITES: Laboratory Investigations of Atmospheric Aerosol Composition by Raman-Scattering and Fluorescence Spectra

16:07-16:45 UTC – Amphitheater: Oral Session 6

UTC	Agenda ID / Presenter	Title
Session 6: Model validation and assimilation using lidar data		
16:07	S06_O01 Cornut	Assimilation of aerosol observations from the future spaceborne lidar onboard the AOS mission into the MOCAGE chemistry-transport model
16:20	S06_O02 Yang	Assimilating Radar and Lidar Observations to Improve the Prediction of Bore Waves during the 2015 PECAN Field Campaign
16:33	Q&A	

16:45 – ~17:30 UTC – Firepit: Fireside Chat

Fireside Chat will be an informal discussion with a Senior Member of the lidar community where we will hear about personal stories and topics such as the future of lidar.

Speaker: **Sara Tucker** (Ball Aerospace)

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Wednesday, June 29, 2022

12:00-12:30 UTC – Red Room: Poster Lightning Talks – Session 2

UTC	Poster / Presenter	Title
12:00	Session 2: Emerging lidar techniques, methodologies, and discoveries	
	S02_P19 Du	Continuous Detection of Diurnal Sodium Fluorescent Lidar over Beijing in China
	S02_P20 Guotao	The all-solid-state narrowband lidar developed by optical parametric oscillator/amplifier (OPO/OPA) technology for simultaneous detection of the Ca and Ca⁺ layers
	S02_P21 She	Measuring atmospheric temperatures with Cabannes scattering at 589 nm with sodium vapor filters
	S02_P22 Xiafukaiti	Multi-wavelength LED lidar for near ground atmospheric monitoring
	S02_P23 Kim G.	Scanning lidar noise filtering and signal processing using multi-section slope values
	S02_P24 Shin	Confirmation of illegal Incineration in Rural Areas using Scanning Lidar
	S02_P25 Lu	All Fiber Free-Running Dual-Comb Ranging System
	S02_P26 Månefjord	Low-cost and Lightweight Hyperspectral Lidar for Mapping Vegetation Fluorescence
	S02_P27 Hayman	When can Poisson random variables be approximated as Gaussian?

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UTC	Poster / Presenter	Title
	S02_P28 Vasileiadis	Design and Development of a Raman Lidar for Cherenkov Gamma Array Experiments
	S02_P29 Svanberg	Ten Years of Interdisciplinary Lidar Applications at SCNU, Guangzhou
	S02_P30 Wang Z.	Scene adaptive research on lidar denoising method

12:00-12:30 UTC – Blue Room: Poster Lightning Talks – Sessions 3, 6, 10, 11

UTC	Poster / Presenter	Title
12:00	Session 3: Atmospheric aerosol and clouds properties	
	S03_P25 Tesche	Locations for the Best Lidar View of Mid-level, High, and Polar Stratospheric Clouds
	S03_P26 Snels	Observation of Polar Stratospheric Clouds at Dome C, Antarctica
	S03_P27 Ritter	Properties of Polar Stratospheric Clouds over the European Arctic from ground-based lidar
	S03_P28 Payen	The Free Tropospheric and Stratospheric Aerosols Database of the Mado Observatory (Reunion Island, 21°S, 55°E)
	Session 6: Model validation and assimilation using lidar data	
	S06_P03 Tremblay	A Polarimetric Multiple Scattering Lidar Model Based on Poisson Distribution
	Session 10: Measurement techniques and observations of ocean properties	

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UTC	Poster / Presenter	Title
	S10_P01 Zhang H.	Dual wavelength heterodyne LDA for velocity and size distribution measurements in ocean water flows
	S10_P02 Shiina	Interaction between sea wave and surface atmosphere by shallow angle LED lidar
	S10_P03 Dionisi	COLOR: CDOM-proxy retrieval from aeOLus ObseRvations
	S10_P04 Jamet	Validation of the ocean products from the space-borne ATLAS, ALADIN and CALIOP and air-borne LNG lidars

Session 11: 50 years of lidar observations: the tip of the laser remote sensing iceberg?

	S11_P01 Trickl	Stratospheric Aerosol-45 Years of Lidar Measurements at Garmisch-Partenkirchen at Garmisch-Partenkirchen
	S11_P02 Schuster	Mapping Modeled Aerosol Species to Measured Lidar Ratios for the MIRA Project

12:00-12:30 UTC – Gold Room: Poster Lightning Talks – Sessions 4, 9

UTC	Poster / Presenter	Title
12:00	Session 4: Synergistic use of multiple instruments and techniques, networks and campaigns	
	S04_P22 Lopes	Monitoring tropospheric and stratospheric aerosol events over South America using ground-based lidar system
	S04_P23 Paschou	First Results from the Aeolus reference lidar eVe during the tropical campaign JATAC at Cape Verde

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UTC	Poster / Presenter	Title
	S04_P24 Apituley	Planned Remote Sensing Set-up for Urban Meteorology and Emission Estimate Campaign in Rotterdam, The Netherlands
	S04_P25 Voudouri	Regional Changes in the dominant aerosol type over Europe during the ACTRIS Covid-19 Campaign
	S04_P26 Gatou	Lidar Aerosol Characterization Based on Graphical Method of Gobbi Diagrams
Session 9: Atmospheric temperature, water vapor, wind, turbulence, and waves		
	S09_P13 Shibata	Evaluation of Atmospheric Pressure on the Temperature Measurement Method by Three Wavelength CO@ DIAL
	S09_P14 Uchiho	Observation of Water Vapor Profiles by Raman Lidar with 266 nm laser in Tokyo
	S09_P15 Deng	Design and Development of an all-solid-state lidar system for water vapor profiling
	S09_P16 Sakai	Comparison of Lower Tropospheric Water Vapor Vertical Distribution Measured with Raman Lidar and DIAL and Their Impact of Data Assimilation in Numerical Weather Prediction Model
	S09_P17 Speidel	The ATMONYS lidar system for boundary layer observations: Experiences and first results from two field-campaigns
	S09_P18 Vogelmann	Powerful Raman-Lidar for water vapor in the free troposphere and lower stratosphere as well as temperature in the upper stratosphere and mesosphere

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UTC	Poster / Presenter	Title
	S09_P19 Martucci	Validation and uncertainty characterization of the water vapor mixing ratio measured by the MeteoSwiss Raman lidar and advanced experiments towards operational assimilation

12:00-12:30 UTC – Green Room: Poster Lightning Talks – Session 12

UTC	Poster / Presenter	Title
Session 12: Measurements in the stratosphere, mesosphere and thermosphere		
12:00	S12_P01 Jiao	A Comparison of the Mid-latitude Nickel and Sodium Layers in the Mesosphere
	S12_P02 Xu	Study on Average Characteristics of Upper Boundary of Sodium Layer in Yanqing
	S12_P03 Zou	First Simultaneous High-Sensitivity Lidar Observations of Permanent and Sporadic D-Region Ca⁺, Ca and Na Layers at Yanqing (40.5°N, 116.0°E), Beijing
	S12_P04 Wu F.	Lower Thermosphere Sporadic Ni (TSNi) layers and correlation with Lower Thermosphere Sporadic Na (TSNa)
	S12_P05 Sutliff	Extending the Useful Range of Florescence LIDAR Data by Applying the Layered Binning Technique
	S12_P07 Chen Y.	First Discovery of Regular Occurrence of Mid-Latitude Thermosphere-Ionosphere Na (TINa) Layers Observed with High-Sensitivity Na Doppler Lidar and New Data Processing Techniques over Boulder
	S12_P08 Das	Rayleigh and Resonance Lidar Studies of the Arctic Middle Atmosphere

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UTC	Poster / Presenter	Title
	S12_P09 Jandreau	New Lidar Data Processing Techniques for Improving the Detection Range and Accuracy of Atmospheric Gravity Wave Measurements
	S12_P10 Portafaix	10 Years of Stratospheric Ozone Measurements by DIAL at Mado Observatory in La Reunion Island, Instrument, Algorithm and Profiles
	S12_P11 Voudouri	Investigating the geometrical and optical properties of the persistent stratospheric aerosol layer observed over Thessaloniki, Greece During 2019
	S12_P12 Williams	Airborne Lidars to Measure Stratospheric Winds and Temperatures over Deep Convection during the CGWaveS

12:30-14:00 UTC – Amphitheater: Oral Session 3

UTC	Agenda ID / Presenter	Title
Session 3: Atmospheric aerosol and clouds properties		
12:30	S03_O01 Shi	Retrieving instantaneous faint aerosol extinction based on Calipso measurements
12:43	S03_O02 Nishizawa	An algorithm to retrieve aerosol optical properties from ATLID and MSI measurements
12:56	S03_O03 Gross	Investigating an aviation induced indirect aerosol effect on cirrus clouds using airborne and spaceborne lidar measurements
13:09	S03_O04 Lolli	Two decades analysis of cirrus cloud radiative effects by lidar observations in the frame of NASA MPLNET lidar network

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UTC	Agenda ID / Presenter	Title
13:22	S03_O05 Reichardt	Aerosol Studies with Spectrometric Fluorescence and Raman Lidar
13:35	S03_O06 Siomos	Rotational Raman scattering through narrow-band interference filters: investigating uncertainties using a new Rayleigh scattering code developed with ACTRIS
13:50	Q&A	

14:00-14:15 UTC Break

14:15-15:15 UTC – Poster Area: Sessions 2, 3, 4, 6, 9, 10, 11, 12

UTC	Session
14:15	Poster Sessions

15:15-16:45 UTC – Amphitheater: Oral Session 3 (continued)

UTC	Agenda ID / Presenter	Title
Session 3: Atmospheric aerosol and clouds properties		
15:15	S03_O07 Kong	A polarization-sensitive imaging lidar based on the division-of-focal-plane scheme for atmospheric remote sensing
15:28	S03_O08 Tsekeri	Polarization lidar for monitoring dust particle orientation: first measurements

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UTC	Agenda ID / Presenter	Title
15:41	S03_O09 Miffre	Laboratory Evaluation of the lidar particle depolarization ratio (PDR) of sulfates, soots and mineral dust at 180.0 lidar backscattering angle
15:54	S03_O10 Deng	Wildfire Smoke Observations in the Western U.S. from the Airborne Wyoming Cloud Lidar during the BB-FLUX Project
16:07	S03_O11 Hu	Properties of Biomass Burning Aerosols and Their Variabilities in 2020 North American Wildfires
16:20	S03_O12 Papanikolaou	Optical properties and radiative forcing of biomass burning aerosols during the 2019-2020 Australian bushfire season
16:27	Q&A	

16:45 – ~17:30 UTC – Firepit: Fireside Chat

Fireside Chat will be an informal discussion with a Senior Member of the lidar community where we will hear about personal stories and topics such as the future of lidar.

Speaker: **Wolfgang Steinbrecht** (Deutscher Wetterdienst)

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Thursday, June 30, 2022

12:00-12:30 UTC – Red Room: Poster Lightning Talks – Session 2

UTC	Poster / Presenter	Title
12:00	Session 2: Emerging lidar techniques, methodologies, and discoveries	
	S02_P31 Wang L.	Research on Calibration Method for Three-wavelength Polarization Lidar
	S02_P32 Tang	The Design of UAV-borne Polarization Lidar for Supercooled Water Clouds Observation
	S02_P33 Tuononen	Applications with ceilometer with depolarization ratio measurement
	S02_P34 Belegante	Effects of trigger delay on the lidar depolarization products
	S02_P35 Howe	Design and Validation of an Elastic Lidar Simulator for Testing Potential New Systems for Aerosol Typing
	S02_P36 Miffre	Interpreting lidar backscattering Angstrom Exponents beyond a size indicator: dependence with size, shape and complex refractive index
	S02_P37 Shang	Pollen observations at Four EARLINET station in May 2020
	S02_P38 Siomos	Accounting for the polarizing effects introduced from non ideal quarter-waveplates in lidar measurements of the circular depolarization ratio
	S02_P39 Voudouri	Sensitivity study on the performance of the Single Calculus Chain aerosol layering module

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UTC	Poster / Presenter	Title
	S02_P40 Kokkalis	Optical properties and radiative forcing of the Hunga Tonga-Ha'apai volcanic eruption in 2022
	S02_P42 Gronoff	SO2 Plumes Observation. with LMOL: Theory, Modeling, and Validation

12:00-12:30 UTC – Blue Room: Poster Lightning Talks – Session 3

UTC	Poster / Presenter	Title
12:00	Session 3: Atmospheric aerosol and clouds properties	
	S03_P29 Benli	Aerosol Effective Radius Retrieval Based on Dual-wavelength Mie Scattering Lidar Measurements
	S03_P30 Yin	Contrast of aerosol vertical distributions over Wuhun before/during COVID-19 lockdown
	S03_P31 Fei	Atmospheric pollution monitoring in Qinhuangdao by employing a scanning lidar system
	S03_P33 Mylonaki	Radiative effects of extreme Attika fires and windblown African dust, based on the synergy of CALIOP lidar and radiative transfer simulation, August 2021, Athens, Greece
	S03_P34 Radovici	Multiwave length Raman lidar observations in Eastern Europe for long-range transported aerosols originating from North American biomass burning episodes
	S03_P35 Michailidis	Temporal Variability of the Aerosol Optical Properties Using a Cimel Sun/Lunar Photometer over Thessaloniki, Greece: Synergy with the Upgraded Thelisy Lidar System

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UTC	Poster / Presenter	Title
	S03_P36 De Rosa	Fresh Biomass burning aerosol observed in Potenza by multiwavelength Raman Lidar and sun-photometer
	S03_P37 Gidarakou	Transport of Saharan Dust Aerosols over the Helmos Mountain during CALISHTO-HELMOS Campaign studied by the Synergy of Remote Sensing Techniques
	S03_P38 Gouliaditis	The potential of CALIPSO lidar measurements to provide pollen optical properties
	S03_P40 Chang	Retrieval of Aerosol Properties from Multiwave length Raman Lidar Data Based on Maximum Likelihood Estimation

12:00-12:30 UTC – Gold Room: Poster Lightning Talks – Session 8

UTC	Poster / Presenter	Title
12:00	Session 8: Atmospheric boundary layer processes	
	S08_P10 Murayama	Observation of Structure of Marine Atmospheric Boundary Layer by Celiometer over Kuroshio current
	S08_P11 Wang X.	Automatic ensemble retrieval and statistical analysis of atmospheric boundary layer height on Coherent Doppler Lidar
	S08_P12 Wang H.	RETRIEVAL OF BOUNDARY LAYER HEIGHT IN COMPLEX ATMOSPHERIC STRATIFICATION SCENE BASED ON LIDAR INTENSITY AND DEPOLARIZATION
	S08_P13 Summa	ABL determination and comparison with different approaches in the frame of HyMeX SOP1

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UTC	Poster / Presenter	Title
	S08_P14 Chen W-N.	Deep Learning Based Convective Boundary Layer Determination for Aerosol and Wind Profiles observed with Wind LIDAR
	S08_P15 Chen P.	Observation of Low-level Wind Field over Ocean with Floating Coherent Doppler Lidar during passage of Typhoon "Rai"
	S08_P16 Zhang H.	Boundary layer dynamic, aerosol composition, and air quality in the urban background of Stuttgart in winter
	S08_P17 Clark	Lidar-based Investigation of the Relationship Among Entrainment Zone Thickness, Turbulence, and Aerosol Variability in the Convective Boundary Layer
	S08_P18 Pal	Examining the role of horizontal advection on convective layer dynamics across complex interfaces using lidar and radiosonde observations
	S08_P19 Strobach	Isolating and Disseminating Core Updraft Structures for the 2019 FIREX-AQ Campaign using Observations from and Airborne Doppler Lidar
	S08_P20 Espinoza Ruiz	Temporal Evolution of Wavelength and Orientation of Atmospheric Canopy Waves
	S08_P21 Hoffman	Symmetric Convergence in the United States Southern Great Plains: Case Study and Dynamic Analysis using Raman Lidar and Radar Wind Profiler Remote Sensing

12:00-12:30 UTC – Green Room: Poster Lightning Talks – Session 1

UTC	Poster / Presenter	Title
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Session 1: Space-borne lidar missions, instruments and science

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UTC	Poster / Presenter	Title
12:00	S01_P01 Abo	Proposals for the Space-borne Integrated Path Differential Absorption (IPDA) Lidar for Lower Tropospheric Water Vapor Observations
	S01_P02 Guojiang	A principle prototype of Space-Based Lidar Transmitter with 12.3W at 532nm, 1ns pulse duration and 25pm line width on the repetition of 10kHz
	S01_P03 Franco	Performance simulation of a space-borne Raman Lidar for ATLAS
	S01_P04 Floutsi	Aerosol typing and space-borne lidars-potentials and limitations
	S01_P05 Proestakis	Assessing Aeolus Aerosol Observational Capabilities for data assimilation in Air Quality and NWP Models
	S01_P06 Ratynski	Global distribution of gravity wave activity from Aeolus wind profiling
	S01_P07 Cassou	Impact of Meteorological Uncertainties in the Methane Retrieval Ground Segment of the MERLIN Lidar Mission
	S01_P08 Vaughan	Correcting CALIOP Polarization Gain Ratios for Diurnal Variations
	S01_P09 Ryan	Column Optical Depth (COD) Derived from CALIOP Ocean Surface Returns
	S01_P10 Lewis	Development of Micro Pulse Lidar Network (MPLNET) Level 3 Satellite Validation Products in advance of the EarthCARE Mission
	S01_P11 Wise	gPCE Uncertainty Quantification Modeling of Lidar for Bathymetric and Earth Science Applications

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UTC	Poster / Presenter	Title
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S01_P12 Lu

[Ocean and Snow Studies from Calipso and ICESat-2](#)

12:30-14:00 UTC – Amphitheater: Oral Session 12

UTC	Agenda ID / Presenter	Title
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Session 12: Measurements in the stratosphere, mesosphere and thermosphere

12:30	S12_O01 Geraghty	An Automated Wave Extraction and Identification Methodology for Atmospheric Lidar Observations Based on a 2D Wavelet Transform
12:43	S12_O02 Khaykin	Exploring the effects of megafires on stratospheric aerosol composition using ground-based and satellite lidars
12:56	S12_O03 Gerding	Middle Atmosphere RMR Lidar Soundings at Kuhlungsborn/Germany: An update on current capabilities
13:09	S12_O04 Wang R.	Progress of the lower and middle atmosphere lidar system at Zhongshan Station, Antarctica
13:22	S12_O05 Prakash	Long-Term Lidar Observations of Polar Mesospheric Clouds in Antarctica for Studies of Solar Cycle and Polar Vortex Effects
13:35	S12_O06 Collins	All -Solid State Iron Resonance Lidar for Measurement of Temperature and Winds in the Upper Mesosphere and Lower Thermosphere
13:50	Q&A	

14:00-14:15 UTC Break

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14:15-15:15 UTC – Poster Area: Sessions 1, 2, 3, 4, 8

UTC	Session
14:15	Poster Sessions

15:15-16:07 UTC – Amphitheater: Oral Session 9

UTC	Agenda ID / Presenter	Title
Session 9: Atmospheric temperature, water vapor, wind, turbulence, and waves		
15:15	S09_001 Lange	The Atmospheric Raman Temperature and Humidity Sounder: Highlights of Three Years of Ground-based and Shipborne Boundary Layer Measurements with Turbulence Resolution
15:28	S09_002 Gasch	Targeted airborne Doppler lidar observations in the vicinity of convective systems
15:41	S09_003 Gibert	Convective boundary layer sensible and latent heat flux lidar observations and towards new model parametrizations
15:54	S09_004 Stillwell	Field Testing of a Diode-Laser-Based Micropulse Differential Absorption Lidar System to Measure Atmospheric Thermodynamic Variables

16:07-16:45 UTC – Amphitheater: Oral Session 8

UTC	Agenda ID / Presenter	Title
Session 8: Atmospheric boundary layer processes		

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UTC	Agenda ID / Presenter	Title
16:07	S08_O01 Demoz	Comments on a national lidar network for PBL Profiling: Motivation, Progress, Challenges, and Prospects
16:20	S08_O02 Chu Y.	The spatial variability of the planetary boundary layer at SGP site
16:33	Q&A	

16:45 UTC – End. Firepit: Fireside Chat

Friday, July 1, 2022

12:00-13:30 UTC – Amphitheater: Oral Session 4

UTC	Agenda ID / Presenter	Title
Session 4: Synergistic use of multiple instruments and techniques, networks and campaigns		
12:00	S04_O01 Garnier	Identification of Mixed Phase Clouds Using Combined CALIPSO Lidar and Imaging Infrared Radiometer Observations
12:13	S04_O02 Stachlewska	Discrimination of molecular, aerosol and cloud scattering and polarization by combination of lidar, radar and radiometer observations
12:26	S04_O03 Alves Gouveia	A closure study between Raman lidar observations and model simulations of aerosol optical properties during the RITA 2021 campaign
12:39	S04_O04 Sullivan	Advances in Characterizing Pollution Transport with Ground-Based and Airborne Profilers: Case Studies withing Houston, Tx

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UTC	Agenda ID / Presenter	Title
12:32	S04_O05 Leblanc	Recent Increase of Aerosol Fluorescence Contamination on the NDACC Long-Term Water Vapor Lidar Records and Proposed Correction Method
12:52	S04_O06 Marinou	Defining validation protocols for space-borne aerosol and cloud profile products
13:05	Q&A	

13:30-14:15 UTC Break

14:15-15:30 UTC – Amphitheater: Oral Session 11

UTC	Agenda ID / Presenter	Title
Session 11: 50 years of lidar observations: the tip of the laser remote sensing iceberg?		
14:15	S11_O01 Di Girolamo	Introducing the Cloud Aerosol Lidar for Global Scale Observations of the Ocean-Land-Atmosphere System
14:28	S11_O02 Wu S.	Developing Status of Guanlan Spaceborne LIDAR for Oceanography
14:41	S11_O03 Langford	A Look Back at 10 years of Lidar Operations at the NOAA Fritz Peak Observatory
14:54	S11_O04 Steinbrecht	Long-Term Monitoring of the Stratosphere by Lidars in the Network for the Detection of Atmospheric Composition Change
15:07	S11_O05 She	Seasonal variation of Mesopause temperatures over Fort Collins, CO

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UTC	Agenda ID / Presenter	Title
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15:20	Q&A	
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15:30-16:30 UTC – Amphitheater: Closing Ceremony

UTC	Agenda ID / Presenter	Title
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15:30	Papayannis / Leblanc / Sullivan	Awards and Closing
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16:30		End
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