

# Simone Lolli

Atmospheric Senior Scientist, Assistant Professor, Ph.D.

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Simone Lolli is a permanent senior scientist for the Italian National Research Council (CNR) and scientific Co-PI of the NASA MPLNET Lidar Network. He is also graduate program faculty associate member of the University of Maryland Baltimore County (UMBC) and adjunct professor at Kent State University (KSU, Florence Campus). In the last ten years, Simone developed significant experience in applied atmospheric remote sensing techniques, both from space and from ground, to study aerosol, cloud and precipitation optical, geometrical and microphysical properties, as well as their interaction with climate, meteorology, air quality and global earth-atmosphere energy budget. He also participated in several field campaigns in South-East Asia in the frame 7-SEAS NASA mission. Simone holds a Ph.D. degree in Physics from the École Polytechnique, Palaiseau, France and an M.Sc. degree in Physics from the University of Florence, Italy. He has lived in four countries and speaks Italian, English, French, German, Italian, Portuguese and Spanish. His colleagues describe him as detail-focused, organized, and goal-oriented

## Experience

**Consultant, Science Systems and Applications** (NASA GSFC Contractor) 2019–  
Development and implementation of an operational algorithm to detect rain precipitation from NASA MPLNET lidar network measurements

**Research Scientist, CNR-IMAA** Id:17347 (permanent position), Tito Scalo (PZ), Italy 2017–  
Research on aerosol and cloud direct radiative effects on the Earth radiation budget and climate by ground-based and satellite remote sensing techniques in the frame of ACTRIS program. Permanent member of the NASA MPLNET Lidar network Science Team.

**Assistant Research Scientist, NASA Goddard Space Flight Center**, Greenbelt, MD, USA 2012–2017  
Scientific Co-PI of the NASA GSFC MPLNET.

Accomplishments:

- Development of an algorithm to evaluate cirrus clouds and aerosol layers direct radiative effects on Earth radiation budget obtained from lidar measurements. The Fu-Liou-Gu radiative transfer model has been adapted to accept as input the vertically-resolved lidar extinction atmospheric profiles. This accomplishment brought to formulate the hypothesis of the existence of a southern-northern gradient in cirrus cloud net forcing during summer.
- MPLNET scientific point of contact in the frame of 7-SEAS NASA mission. The main objective is to act as an interface between the MPLNET network and the local universities and research institutes for lidar data analysis to assess principal aerosol sources and transport in the region.
- Responsible of the research project between MPLNET and ECMWF to assimilate lidar extinction data profiles into MACC-II aerosol dispersion model to improve forecast predictions. A test has been realized to assimilate in quasi near real-time data from 5 permanent MPLNET observation stations.
- Field work and installation of lidar instruments in the frame of 7-SEAS mission Analysis on lidar and satellite data to identify principal biomass burning emission sources and transport in South East Asia region.
- Development of a MPLNET parallel algorithm, under MATLAB, to retrieve aerosol layer optical and microphysical properties at both wavelengths (UV-VIS). The algorithm closures over sun photometer columnar AOD measurement when available. A standalone version is released under MATLAB and is available to the scientific community.
- Visiting professor at Universiti Sans Malaysia in Penang and Silpakorn University, Thailand to training our research partners in atmospheric physics and lidar data analysis (Nov. 2013-Aug. 2015 Penang, Jan. 2016 Silpakorn). Co-supervisor of two Ph.D candidates.
- PI (submitted) of NASA ROSES 2015 A.33 Cloudsat and CALIPSO science team recompute (NNH15ZDA001N-CCST)
- Invited talk at 7-SEAS NASA International meeting, Kuala Lumpur, Malaysia (email 13 July 2016).

**Research Atmospheric Scientist, LEOSPHERE**, Paris, France 2007-2011

Expert on technology transfer to develop prototypes of Doppler wind lidar and elastic lidar for atmospheric studies.

Accomplishments:

- Promoting lidar technology for atmospheric observations worldwide through demonstrations and measurement campaigns, both with Doppler wind lidars and UV elastic lidars, with consequent data analysis.
- Project Manager of Level 1.5-standalone algorithm to retrieve optical and microphysical properties of the aerosols currently implemented in Leosphere embedded instrument R-Man software. Managed team of 5 people. Reporting structure: 6 direct reports, 11 indirect reports.
- Project Manager of Leonet. Development of a federated network of Leosphere UV elastic lidars. Decision-makers used Leonet data during Eyjafjallajökull volcano eruption crisis to assess ash plumes presence in the atmosphere. Managed team of 3 people. Reporting structure: 4 direct reports, 9 indirect reports.
- Active member of COST0702 action (2008-2012), with the main objective of collecting European Ground-Based Observations of Essential Variables for Climate and Operational Meteorology (EG-CLIMET).

Acquired managerial experience to run projects with limited resources.

**Research Scientist**, Università degli Studi di Firenze, Florence, Italy 2005-2007  
Development of a standalone algorithm that simulates through a Monte Carlo technique the effects of polarization on multiple scattering by ellipsoids and cylindrical particles

**Research Scientist**, Università degli Studi di Ferrara, Ferrara, Italy 2003-2005  
Theoretical studies on performances of a satellite-based direct detection Doppler wind lidar. A standalone simulation program named ATLID is available to simulate lidar precision on wind speed measurement on different atmospheric conditions and in presence of multiple scattering.

**Research Scientist**, Italian National Research Council-INO, Florence, Italy 2002-2003  
Study on high power lasers (CO<sub>2</sub>)

**Research Scientist**, Centro di Eccellenza Optronica (CEO), Florence, Italy 2000-2002  
Responsible in the frame of ADM/AEOLUS (European Space Agency ADM Mission) of the Double Edge Doppler Wind Lidar end-to-end performance model

**PhD Candidate**, Université de Genève, Geneva, Switzerland 1998-2000  
Ph.D candidate on: Research and development of a Doppler Wind Lidar for atmospheric remote sensing in the frame of the European Space Agency (ESA) ADM/Aeolus

## Projects

**NASA Research Opportunities in Space and Earth Science** 2020-2025  
(ROSES-2020-NNH20ZDA001N-EUSPI), EarthCARE Cal/Val Using the NASA Micro Pulse Lidar Network (MPLNET)

**Geospatial Science and Technology Innovation Centre**, Earth Observation and Remote Sensing international leading overseas expert in the frame of the 111 Project of China Ministry of Education 2020-2025

**ESFRI**, Official Italian Delegate 2020-  
Environment Strategy Working Group

**ENVRI Plus**, Deliverable D2.3 task leader 2018-  
Working Package 2 responsible on research infrastructure harmonization strategy in support of the European Satellite missions

**GDRI-Sud in South East Asia (SOOT-SEA)**, CO-PI 2018-  
Remote sensing Black Carbon detection and retrieval by lidar measurements in the South East Asia region

**CRCS NASA**, CO-Investigator 2017-  
Evaluating model reanalysis of Arctic aerosol surface and atmospheric forcing by assimilating OMI over ice

**Eunadics**, Data Integration and Assimilation for Work Package 4 2017-2019  
Integrating ground-based measurement into early alert system model for ash surveillance

**7-SEAS**, Scientific CO-PI for NASA MPLNET Lidar Network 2012-  
Point of contact between local universities and research institution in South East Asia (Singapore, Thailand, Malaysia, Taiwan, Laos, Vietnam)

**NASA MPLNET**, Scientific Committee member 2012-  
MPLNET Science Ambassador outside USA

**MDE Offshore Wind Energy**, CO-Investigator 2012-2013  
Funded by Maryland Department of Energy.  
Measurements of Terrestrial and Offshore Wind Resource over Maryland for Strategic Planning and Development of Offshore Wind Energy Projects

## Academic

**Adjunct Professor**, Introduction to Quantitative Remote Sensing, (45 hours, 3 credits) Spring 2020-  
China University of Mining and Technology (CUMT) , Xuzhou, China

**Adjunct Professor**, Frontiers in Astronomy, PHY 21430 (45 hours, 3 credits) Spring 2020-  
Kent State University (KSU) **American Academy Program**

**Adjunct Professor**, Experimental Physics II, PHYS276 (60 hours, 2 credits) Fall 2018-2019  
University of Maryland College Park (UMD) **Physics in Florence** program

**Adjunct Professor (Cultura della Materia)**, Elaborazione dei dati nei sistemi di 2017-  
Telerilevamento  
DINFO, Università degli Studi di Firenze, Florence, Italy

**Assistant Professor**, Computational Physics Spring 2016  
Master/Graduate course, PHYS 440/640 (45 hours, 3 credits), University of Maryland Baltimore County, Baltimore, USA

**Trainer**, New MPLNET version 3 website Fall 2016  
Graduate School, Silpakorn University, Nakhon Pathon, Thailand

**Trainer**, Lidar training for atmospheric science research Spring 2015  
Graduate Doctoral Program, Universiti Sains Malaysia, Penang, Malaysia

## Management

**Committee Member**, NASA Aerocenter 2017

**Graduate Faculty Associate Member**, UMBC 2016-

**Program Committee**, ISPRS 2021, Thessaloniki, Greece. ISPRS 2019, Nanjing, China, ISTP9  
2012, Delft, NL

## Organization

Invited talks: ISPRS19 Nanjing, China, PIERS19 Rome, Italy, EGU 2019 meeting, Wien, Austria, 7-SEAS Malaysia,  
VIET GEOPHYS 2017, Hanoi, Vietnam

Expert Commentary for The Optical Society of America (OSA) Spotlight: April 2019, September 2018 and November 2016

Associate Editor: AMT, PLOS ONE, Earth, MDPI Remote Sensing (Atmospheric section), Frontiers in LiDAR Sensing

Guest Editor: Active sensing on MDPI Remote Sensing, MDPI Lidar Remote Sensing, Image processing MDPI Remote Sensing

Reviewer: JTECH, ACP, AMT, IEEE Geoscience and Remote Sensing, AAQR, Air Waste and Management, MIUR  
Italian VQR 2011-2014 Evaluator, Italian PRIN 2015 Evaluator.

## Education

**Qualified as Full Professor (National Italian Academic), 02/C1 - FIS06** 2021-2030

**Qualified as Associate Professor (National Italian Academic), 02/C1 - FIS06** 2019-2028

**Philosophiae Doctor (Ph.D.)**, Dep. of Physics, Ecole Polytechnique, Palaiseau, France 2011

Subject of the dissertation: Development of a direct detection Doppler wind Lidar in the frame of ADM/AEOLUS project and VALID intercomparison campaign. Director: Prof. Pierre H. Flamant. Opponents: Prof. Adolfo Comeron and Dr. Jaques Pelon.

**Master of Science (M.Sc.)**, Dep. of Physics, Università degli Studi di Firenze, Florence, Italy 1996

Subject of dissertation: Validation of Microwave Scattering Emission Model from Bare Soil realized at Joint Research Center , Ispra, Italy

## Professional Societies

**Italian Society of Meteorology (AISAM)**, Fellow 2019-

**American Geophysical Union**, Fellow 2008-

**European Geophysical Union**, Fellow 2008-

## Supervision

Wey Ying Khor, PhD student in Physics, Univ. Sains Malaysia, Penang 2017

Brian Carrol, PhD student in Physics, University of Maryland Baltimore County, Baltimore, USA 2015-2017

## Computer skills

Software engineering: MATLAB, IDL, Python  
Desktop publishing: L<sup>A</sup>T<sub>E</sub>X, BibTeX, Microsoft Office

## Languages

Mother tongue Other languages <sup>1</sup>	Italian							
	Understanding		Speaking				Writing	
	Listening	Reading	Interaction		Production			
English	C2	Fluent	C2	Fluent	C2	Fluent	C2	Fluent
French	C2	Fluent	C2	Fluent	C2	Fluent	C2	Fluent
German	B1	Independent	A1	Basic	B1	Independent	B1	Independent
Spanish	C1	Fluent	C1	Fluent	C1	Fluent	B1	Independent
Portuguese	C1	Fluent	C1	Fluent	B2	Independent	B1	Independent
Romanian	A1	Basic	A1	Basic	A1	Basic	A1	Basic

## Awards

Top 20 author in Nature SREP Earth Science	March, 2021
Top 1% Peer Reviewer in Geoscience (from Web of Knowledge)	Sept., 2019
NASA JPL press release on publication <a href="#">SEUSA Paper</a>	Aug, 2017
NRL Alan Berman Research Publication Award, Washington DC, USA	March, 2017
UMBC press news spotlight <a href="#">Cirrus clouds net radiative effects</a> , Baltimore, USA	March, 2017

## Publications

### Peer-reviewed journals

- [1] Atmospheric boundary layer height estimation from aerosol lidar: a new approach based on morphological image processing techniques  
G. Vivone, G. D'Amico, D. Summa, S. Lolli, A. Amodeo, D. Bortoli, G. Pappalardo  
*Atmospheric Chemistry and Physics* 21.6 (2021) pp. 4249–4265. Copernicus, 2021
- [2] Influence of A Weak Typhoon on the Vertical Distribution of Air Pollution in Hong Kong: A Perspective from a Doppler lidar network  
T. Huang, Y. Yang, E. J. O'Connor, S. Lolli, M. Haywood, J. C.H. Cheng, J. Guo, S. H.L. Yim  
*Environmental Pollution* 276 (2021) p. 116534. Elsevier, 2021
- [3] Cirrus cloud top-of-the-atmosphere net daytime forcing in the Alaskan subarctic from ground-based MPLNET monitoring  
J. R Campbell, E. K. Dolinar, S. Lolli, G. J. Fochesatto, Y. Gu, J. R Lewis, J. W. Marquis, T. M. McHardy, D. R. Ryglicki, E. J. Welton  
*Journal of Applied Meteorology and Climatology* 60.1 (2021) pp. 51–63. American Meteorological Society, 2021
- [4] The role of tropospheric ozone in flagging COVID-19 pandemic transmission  
S. Lolli, G. Vivone  
*Bulletin of Atmospheric Science and Technology* (2020) pp. 1–5. Springer, 2020
- [5] Determining cloud thermodynamic phase from the polarized Micro Pulse Lidar  
J. R. Lewis, J. R. Campbell, S. A. Stewart, I. Tan, E. J. Welton, S. Lolli  
*Atmospheric Measurement Techniques* 13.12 (2020) pp. 6901–6913. 2020. doi: [10.5194/amt-13-6901-2020](#)
- [6] Impact of meteorological conditions and air pollution on COVID-19 pandemic transmission in Italy  
S. Lolli, Y.-C. Chen, S.-g-H. Wang, G. Vivone  
*Scientific Reports* 10.1 (2020) pp. 1–15. Nature Publishing Group, 2020. doi: [10.1038/s41598-020-73197-8](#)
- [7] Diurnal variation of summer precipitation modulated by air pollution: observational evidences in the Beijing metropolitan area  
Z. Zheng, C. Zhao, S. Lolli, X. Wang, Y. Wang, X. Ma, Q. Li, Y. Yang  
*Environmental Research Letters* 15.9 (Aug. 2020) p. 094053. IOP Publishing, 2020
- [8] Editorial for Special Issue: High Resolution Active Optical Remote Sensing Observations of Aerosols, Clouds and Aerosol–Cloud Interactions and Their Implication to Climate  
S. Lolli, K. Qin, J. R. Campbell, S.-H. Wang  
*Remote Sensing* 12.13 (2020) p. 2166. 2020. doi: [10.3390/rs12132166](#)

- [9] Sensitivities in Satellite Lidar-derived Estimates of Daytime Top-of-the-Atmosphere Optically-Thin Cirrus Cloud Radiative Forcing: A Case Study  
E. K. Dolinar, J. R. Campbell, S. Lolli, S. C. Ozog, J. E. Yorks, C. Camacho, Y. Gu, M. J. Bucholtz  
*Geophysical Research Letters* (2020) 10.1029/2020GL088871. 2020. doi: [10.1029/2020GL088871](https://doi.org/10.1029/2020GL088871)
- [10] Overview of the New Version 3 NASA Micro-Pulse Network (MPLNET) Automatic Precipitation Detection Algorithm  
S. Lolli, G. Vivone, J.R. Lewis, M. Sicard, E.J. Welton, J.R. Campbell, A. Comerón, L.P. D'Adderio, A. Tokay, A. Giunta, G. Pappalardo  
*Remote Sensing* 12.71 (2020). 2020. doi: [10.3390/rs12010071](https://doi.org/10.3390/rs12010071)
- [11] Monsoon Season Quantitative Assessment of Biomass Burning Clear-Sky Aerosol Radiative Effect at Surface by Ground-Based Lidar Observations in Pulau Pinang, Malaysia in 2014  
S. Lolli, W. Y. Khor, Mohd M. Z. Matjafri, H. S. Lim  
*Remote Sensing* 11.22 (2019). 2019. doi: [10.3390/rs11222660](https://doi.org/10.3390/rs11222660)
- [12] Fast Reproducible Pansharpening Based on Instrument and Acquisition Modeling: AWLP Revisited  
G. Vivone, L. Alparone, A. Garzelli, S. Lolli  
*Remote Sensing* 11.19 (2019) p. 2315. Multidisciplinary Digital Publishing Institute, 2019
- [13] Characteristics of Fine Particulate Matter (PM<sub>2.5</sub>) over Urban, Suburban, and Rural Areas of Hong Kong.  
M. Bilal, J.E. Nichol, M. Nazeer, Y. Shi, L. Wang, K.R. Kumar, U. Ho, M.P. Bleiweiss, Z. Qiu, K.M. Khedher, S. Lolli  
*Atmosphere* 10.9 (2019). 2019
- [14] A Simplified and Robust Surface Reflectance Estimation Method (SREM) for Use over Diverse Land Surfaces Using Multi-Sensor Data  
M. Bilal, M. Nazeer, J. E. Nichol, M. P. Bleiweiss, Z. Qiu, E. Jäkel, J. R. Campbell, L. Atique, X. Huang, S. Lolli  
*Remote Sensing* 11.11 (2019). 2019. doi: [10.3390/rs11111344](https://doi.org/10.3390/rs11111344)
- [15] Evaluation of Terra-MODIS C6 and C6.1 Aerosol Products against Beijing, XiangHe, and Xinglong AERONET Sites in China during 2004-2014  
M. Bilal, M. Nazeer, J. Nichol, Z. Qiu, L. Wang, M. P. Bleiweiss, X. Shen, J. R. Campbell, S. Lolli  
*Remote Sensing* 11.5 (2019) p. 486. 2019. doi: <https://doi.org/10.3390/rs11050486>
- [16] Quantifying the direct radiative effect of absorbing aerosols for numerical weather prediction: a case study  
M. I. Oyola, J. R. Campbell, P. Xian, A. Bucholtz, R. A. Ferrare, S. P. Burton, O. Kalashnikova, B. C. Ruston, S. Lolli  
*Atmospheric Chemistry and Physics* 19.1 (2019) pp. 205–218. 2019. doi: [10.5194/acp-19-205-2019](https://doi.org/10.5194/acp-19-205-2019)
- [17] Multispectral Pansharpening with Radiative Transfer-Based Detail-Injection Modeling for Preserving Changes in Vegetation Cover  
A. Garzelli, B. Aiazzi, L. Alparone, S. Lolli, G. Vivone  
*Remote Sensing* 10.8 (2018). 2018
- [18] Vertically Resolved Precipitation Intensity Retrieved through a Synergy between the Ground-Based NASA MPLNET Lidar Network Measurements, Surface Disdrometer Datasets and an Analytical Model Solution  
S. Lolli, L.P. D'Adderio, J.R. Campbell, M. Sicard, E.J. Welton, A. Binci, A. Rea, A. Tokay, A. Comerón, R. Barragan J. M. Baldasano, S. Gonzalez, J. Bech, N. Afflitto, J.R. Lewis, F. Madonna  
*Remote Sensing* 10.7 (2018). 2018. doi: [10.3390/rs10071102](https://doi.org/10.3390/rs10071102)
- [19] Intercomparison of aerosol measurements performed with multi-wavelength Raman lidars, automatic lidars and ceilometers in the framework of INTERACT-II campaign  
F. Madonna, M. Rosoldi, S. Lolli, F. Amato, J. Vande Hey, R. Dhillon, Y. Zheng, M. Brettle, G. Pappalardo  
*Atmospheric Measurement Techniques* 11.4 (2018) pp. 2459–2475. 2018. doi: [10.5194/amt-11-2459-2018](https://doi.org/10.5194/amt-11-2459-2018)
- [20] Impact of varying lidar measurement and data processing techniques in evaluating cirrus cloud and aerosol direct radiative effects  
S. Lolli, F. Madonna, M. Rosoldi, J.R. Campbell E.J. Welton, J.R. Lewis, Y. Gu, G. Pappalardo  
*Atmospheric Measurement Techniques* 11.3 (2018) pp. 1639–1651. 2018. doi: [10.5194/amt-11-1639-2018](https://doi.org/10.5194/amt-11-1639-2018)
- [21] Unusually Deep Wintertime Cirrus Clouds Observed over the Alaskan Subarctic  
J.R. Campbell, D.A. Peterson, J.W. Marquis, G.J. Fochesatto, M. A. Vaughan, S. A. Stewart, J.L. Tackett, S. Lolli, J.R. Lewis, M.I. Oyola, E.J. Welton  
*Bulletin of the American Meteorological Society* 99.1 (2018) pp. 27–32. 2018. doi: [10.1175/BAMS-D-17-0084.1](https://doi.org/10.1175/BAMS-D-17-0084.1)
- [22] Haze Correction for Contrast-Based Multispectral Pansharpening  
S. Lolli, L. Alparone, A. Garzelli, G. Vivone  
*IEEE Geoscience and Remote Sensing Letters* 14.12 (2017) pp. 2255–2259. IEEE, 2017

- [23] Attributing Accelerated Summertime Warming in the Southeast United States to Recent Reductions in Aerosol Burden: Indications from Vertically-Resolved Observations  
M.G. Tosca, J.R. Campbell, M. Garay, S. Lolli, F.C. Seidel, J.W. Marquis, O. Kalashnikova  
*Remote Sensing* 9.7 (2017) p. 674. Multidisciplinary Digital Publishing Institute, 2017
- [24] Fu–Liou–Gu and Corti–Peter model performance evaluation for radiative retrievals from cirrus clouds  
S. Lolli, J.R. Campbell, J.R. Lewis, Y. Gu, E.J. Welton  
*Atmospheric Chemistry and Physics* 17.11 (2017) pp. 7025–7034. Copernicus GmbH, 2017
- [25] Rain Evaporation Rate Estimates from Dual-Wavelength Lidar Measurements and Intercomparison against a Model Analytical Solution  
S. Lolli, P. Di Girolamo, B. Demoz, X. Li, E.J. Welton  
*Journal of Atmospheric and Oceanic Technology* 34.4 (2017) pp. 829–839. 2017
- [26] Daytime Top-of-the-Atmosphere Cirrus Cloud Radiative Forcing Properties at Singapore  
S. Lolli, J.R. Campbell, J.R. Lewis, Y. Gu, J.W. Marquis, B.N. Chew, S.C. Liew, S.V. Salinas, E.J. Welton  
*Journal of Applied Meteorology and Climatology* 56.5 (2017) pp. 1249–1257. 2017
- [27] Aerosol meteorology of Maritime Continent for the 2012 7-SEAS southwest monsoon intensive study–Part 2: Philippine receptor observations of fine-scale aerosol behavior  
J.S. Reid, N.D. Lagrosas, H. Jonsson, E.A. Reid, S.A. Atwood, T.J. Boyd, V.P. Ghatge, P. Xian, D.J. Posselt, J. B. Simpas  
*Atmospheric Chemistry and Physics* 16.22 (2016) pp. 14057–14078. 2016
- [28] Vertical profiling of aerosol types observed across monsoon seasons with a Raman lidar in Penang Island, Malaysia  
W.S. Hee, H.S. Lim, M.Z. Matjafri, S. Lolli, W.Y. Khor  
*Aerosol Air Qual. Res* 16 (2016) pp. 2843–2854. 2016
- [29] Cirrus cloud radiative characteristics from continuous MPLNET profiling at GSFC in 2012  
S. Lolli, J.R. Lewis, J.R. Campbell, Y. Gu, E.J. Welton  
*Óptica pura y aplicada* 49 (2016) pp. 1–6. 2016
- [30] Daytime cirrus cloud top-of-the-atmosphere radiative forcing properties at a midlatitude site and their global consequences  
J.R. Campbell, S. Lolli, J.R. Lewis, Y. Gu, E.J. Welton  
*Journal of Applied Meteorology and Climatology* 55.8 (2016) pp. 1667–1679. 2016
- [31] Assessment of aerosol optical property and radiative effect for the layer decoupling cases over the northern South China Sea during the 7-SEAS/Dongsha Experiment  
S.K. Pani, S.H. Wang, N.H. Lin, S.C. Tsay, S. Lolli, M.T. Chuang, C.T. Lee, S. Chantara, J.Y. Yu  
*Journal of Geophysical Research: Atmospheres* 121.9 (2016) pp. 4894–4906. 2016
- [32] Applying advanced ground-based remote sensing in the Southeast Asian Maritime Continent to characterize regional proficiencies in smoke transport modeling  
J.R. Campbell, C. Ge, J. Wang, E.J. Welton, A. Bucholtz, E.J. Hyer, E.A. Reid, B.N. Chew, S.C. Liew, S.V. Salinas  
*Journal of Applied Meteorology and Climatology* 55.1 (2016) pp. 3–22. 2016
- [33] Principal component analysis approach to evaluate instrument performances in developing a cost-effective reliable instrument network for atmospheric measurements  
S. Lolli, P. Di Girolamo  
*Journal of Atmospheric and Oceanic Technology* 32.9 (2015) pp. 1642–1649. 2015
- [34] Observations of rapid aerosol optical depth enhancements in the vicinity of polluted cumulus clouds  
T.F. Eck, B.N. Holben, J.S. Reid, A. Arola, R.A. Ferrare, C.A. Hostetler, S.N. Crumeyrolle, T.A. Berkoff, E.J. Welton, S. Lolli  
*Atmospheric Chemistry and Physics* 14.21 (2014) p. 11633. 2014
- [35] Evaluating light rain drop size estimates from multiwavelength micropulse lidar network profiling  
S. Lolli, E.J. Welton, J.R. Campbell  
*Journal of Atmospheric and Oceanic Technology* 30.12 (2013) pp. 2798–2807. 2013
- [36] 0.355-micrometer direct detection wind lidar under testing during a field campaign in consideration of ESA's ADM-Aeolus mission  
S. Lolli, A. Delaval, C. Loth A. Garnier, P.H. Flamant  
*Atmospheric Measurement Techniques* 6 (2013) pp. 3349–3358. 2013
- [37] Origin, transport, and vertical distribution of atmospheric pollutants over the northern South China Sea during the 7-SEAS/Dongsha Experiment  
S.H. Wang, S.C. Tsay, N.H. Lin, S.C. Chang, C. Li E.J. Welton, B.N. Holben, N.C. Hsu, W.K.M. Lau, S. Lolli



- [38] Evaluation of mixing-height retrievals from automatic profiling lidars and ceilometers in view of future integrated networks in Europe  
M. Haeffelin, F. Angelini, Y. Morille, G. Martucci, S. Frey, G.P. Gobbi, S. Lolli, C.D. O'Dowd, L. Sauvage, I. Xueref-Rémy  
*Boundary-Layer Meteorology* 143.1 (2012) pp. 49–75. Springer Netherlands, 2012
- [39] An assessment of pseudo-operational ground-based light detection and ranging sensors to determine the boundary-layer structure in the coastal atmosphere  
C. Milroy, G. Martucci, S. Lolli, S. Loaec, L. Sauvage I. and Xueref-Remy, J.V. Lavrič, P. Ciais, D.G. Feist, G. Biavati  
*Advances in Meteorology* 2012 (2012). Hindawi Publishing Corporation, 2012
- [40] EZ Lidar™: A new compact autonomous eye-safe scanning aerosol Lidar for extinction measurements and PBL height detection. Validation of the performances against other instruments and intercomparison campaigns  
S. Lolli, L. Sauvage, S. Loaec, M. Lardier  
*Óptica pura y aplicada* 44.1 (2011) pp. 33–41. 2011
- [41] Polarization behavior and damage thresholds of long-period diffractive samplers  
A. Lapucci, M. Ciofini, S. Lolli  
*Journal of Optics A: Pure and Applied Optics* 5.4 (2003) p. 356. IOP Publishing, 2003
- [42] Diffractive optical components for high power laser beam sampling  
M. Ciofini, A. Lapucci, S. Lolli  
*Journal of Optics A: Pure and Applied Optics* 5.3 (2003) p. 186. IOP Publishing, 2003
- [43] Experimental validation of surface scattering and emission models  
G. Macelloni, G. Nesti, P. Pampaloni, S. Sigismondi, D. Tarchi, S. Lolli  
*IEEE Transactions on Geoscience and Remote Sensing* 38.1 (2000) pp. 459–469. IEEE, 2000

## Conference Proceedings

- [1] HEAD: a robust high-resolution satellite image-based aerosol optical depth retrieval algorithm in the blue wavelength range using Kalman filters  
S Lolli, G Vivone, L Alparone, A Arienzo, A Garzelli, M Bilal  
*Remote Sensing of Clouds and the Atmosphere XXV*, 2020
- [2] Fully Automated Light Precipitation Detection from MPLNET and EARLINET Network Lidar Measurements  
S. Lolli, G. Vivone, E. J. Welton, J. R. Lewis, J. R. Campbell, M. Sicard, A. Comeron, G. Pappalardo  
*EPJ Web of Conferences*, 2020
- [3] An automatic light rain detection algorithm on NASA MPLNET lidar observations in the frame of WMO GALION project  
S. Lolli, M. Sicard, G. Vivone, J. R. Lewis, E. J. Welton, A. Comerón  
*Remote Sensing of Clouds and the Atmosphere XXIV*, 2019. DOI: [10.1117/12.2533571](https://doi.org/10.1117/12.2533571)
- [4] Fast multispectral pansharpening based on a hyper-ellipsoidal color space  
B. Aiazzi, L. Alparone, A. Arienzo, A. Garzelli, S. Lolli  
*Image and Signal Processing for Remote Sensing XXV*, 2019. DOI: [10.1117/12.2533481](https://doi.org/10.1117/12.2533481)
- [5] High-resolution satellite aerosol optical depth retrieval and its variability over highly industrialized hotspots in the Po Valley, Italy  
S. Lolli, L. Alparone, M. Bilal, A. Garzelli, G. Vivone  
*Proc.SPIE*, 2018
- [6] Estimate of rain evaporation rates from dual-wavelength lidar measurements: comparison against a model analytical solution  
S. Lolli, P. Di Girolamo, B. Demoz, X. Li, E. J. Welton  
*EPJ Web of Conferences*, 2018
- [7] Status of the NASA Micro Pulse Lidar Network (MPLNET): overview of the network and future plans, new version 3 data products, and the polarized MPL  
E.J. Welton, S. Stewart, J.R. Lewis, L.R. Belcher, J.R. Campbell, S. Lolli  
*EPJ Web of Conferences*, 2018
- [8] Assessment of cirrus cloud and aerosol radiative effect in South-East Asia by ground-based NASA MPLNET lidar network data and CALIPSO satellite measurements  
S. Lolli, J.R. Campbell, J.R. Lewis, E.J. Welton, P. Di Girolamo, Fatkhuroyan, Y. Gu, J. W. Marquis

*SPIE Proceedings*, 2017. DOI: [10.1117/12.2278987](https://doi.org/10.1117/12.2278987)

- [9] Assessment of cirrus cloud and aerosol radiative effect in South-East Asia by ground-based NASA MPLNET lidar network data and CALIPSO satellite measurements  
S. Lolli, J.R. Campbell, J.R. Lewis, E.J. Welton, P. Di Girolamo, Fatkhuroyan, Y. Gu, J.W. Marquis  
*Remote Sensing of Clouds and the Atmosphere XXII*, 2017
- [10] Benefits of haze removal for modulation-based pansharpener  
S. Lolli, L. Alparone, A. Garzelli, G. Vivone  
*SPIE Proceedings*, 2017. DOI: [10.1117/12.2279086](https://doi.org/10.1117/12.2279086)
- [11] One-year monitoring of the atmosphere over Penang Island using a ground-based lidar  
W.Y. Khor, M.Z. Matjafri, H.S. Lim, W.S. Hee, S. Lolli  
*SPIE Remote Sensing*, 2015
- [12] Lidar measurements during a haze episode in Penang, Malaysia and validation of the ECMWF MACC-II model  
W.Y. Khor, S. Lolli, W.S. Hee, H.W. Lim, M.Z. Matjafri, A. Benedetti, L. Jones  
*AIP Conference Proceedings*, 2015
- [13] MPLNET lidar data assimilation in the ECMWF MACC-II Aerosol system: evaluation of model performances at NCU lidar station  
S. Lolli, E.J. Welton, A. Benedetti, L. Jones, M. Suttie, S.H. Wang  
*SPIE Remote Sensing*, 2014
- [14] High Spectral Resolution Lidar and MPLNET Micro Pulse Lidar aerosol optical property retrieval intercomparison during the 2012 7-SEAS field campaign at Singapore  
S. Lolli, E.J. Welton, J.R. Campbell, E. Eloranta, B.N. Holben, B.N. Chew, S.V. Salinas  
*Proc. of SPIE Vol*, 2014
- [15] Variation in daytime tropospheric aerosol via LIDAR and sunphotometer measurements in Penang, Malaysia  
F.Y. Tan, W.S. Hee, S.L. Hwee, K. Abdullah, L.Y. Tiem, M.Z. Matjafri, S. Lolli, B.N. Holben, E.J. Welton  
*AIP Conference Proceedings*, 2014
- [16] Preliminary analysis of ground based lidar backscattered signal and performance evaluation in Penang Island  
F.Y. Tan, B.C. Beh, C.H. Tan, H.S. Lim, K. Abdullah, M.Z. Matjafri, E.J. Welton, S. Lolli  
*AIP Conference Proceedings*, 2013
- [17] Planetary boundary layer height retrieval at UMBC in the frame of NOAA/ARL campaign  
S. Lolli, R. Delgado, J. Compton, R. Hoff  
*Proc. of SPIE Vol*, 2011
- [18] An automatic planetary boundary layer height detection with a compact aerosol UV lidar  
L. Sauvage, S. Loaec, S. Lolli, M. Boquet, A. El Filali  
*Proc. of SPIE Vol*, 2010
- [19] Eyjafjallajökull volcano ash plume detection in the frame of the new constituting Lidar network Leonet  
S. Lolli, S. Conil, A. Dabas, D. Donovan, S.E. Gryning, T. Mikkelsen, H. Ricketts, L. Sauvage, G. Vaughan, J. Walter  
*Proc. of SPIE Vol*, 2010
- [20] Validation of the new long range 1.5  $\mu\text{m}$  wind lidar wls70 for atmospheric dynamics studies  
J.P. Cariou, M. Boquet, S. Lolli, R. Parmentier, L. Sauvage  
*Proc. of SPIE Vol*, 2009
- [21] EZ lidar dust transit phenomena observations in Seoul, Korea  
S. Lolli, L. Sauvage, S. Loaec  
*Proc. of SPIE Vol*, 2009
- [22] EZ LIDAR™ measurement results in the frame of Indian Monsoon TIGER-Z NASA campaign  
S. Lolli, E.J. Welton, L. Sauvage  
*Proc. of SPIE Vol*, 2008
- [23] Assessment of the EZ LIDAR and Micro Pulse Lidar (MPL) performances at ARM Southern Great Plains (SGP) Central Facility for the measurement of clouds and aerosols  
S. Lolli, L. Sauvage, I. Stachlewska, R. Coulter  
*Geophys. Res. Abstracts*, 2008
- [24] Folded stable resonators versus hybrid stable-unstable resonators for slab lasers



A. Lapucci, M. Ciofini, S. Lolli  
*Proc. of SPIE Vol*, 2002