



# LUKA ILIĆ

PHD, METEOROLOGY

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## EDUCATION

PhD, Meteorology  
Faculty of Physics,  
University of Belgrade  
2022

MSc, Meteorology  
Faculty of Physics,  
University of Belgrade  
2012

## TECHNICAL SKILLS

Tailored Weather and  
Climate Services  
Numerical Weather  
Prediction  
Geophysical Fluid  
Dynamics  
High Performance  
Computing (HPC)

## MORE INFORMATION

[ORCID](#)  
[Personal Portfolio](#)

## SUMMARY

Atmospheric scientist specializing in mineral dust and aerosol modelling, data integration, and high-performance computing. Experienced in advancing modelling systems across scales and developing physics-based parameterizations, and remote sensing based validation. With a strong focus on turning complex atmospheric models into operational workflows and decision-ready environmental services.

## SELECTED PROFESSIONAL EXPERIENCE

### Recognized Researcher

Barcelona Supercomputing Center (BSC), Barcelona, Spain | 2021 - Present

- Atmospheric dust transport and radiation interaction model development, MONARCH Model
- Numerical air quality model forecast validation with ground-based sun-photometers, Copernicus Atmospheric Monitoring Service (CAM5), AERONET
- Field measurement campaign J-WADI in the Wadi-Rum desert

### Research Assistant

Institute of Physics Belgrade (IPB), Belgrade, Serbia | 2013 – 2021

- Atmospheric dust transport and ice nucleation in clouds model development, DREAM Model
- Atmospheric pollen transport and rupture model development, DREAM-Pollen
- Operational numerical weather prediction of dust and pollen
- LIDAR aerosol remote sensing, ground-based and satellite
- Field measurement campaign PRE-TECT in Crete

### Meteorologist

SEWA – Environment and Weather Agency, Belgrade, Serbia | 2007 – 2013

- Operational Numerical Weather Prediction System development
- Model Output Statistics (MOS)
- Wind energy weather forecast
- Tailored road weather and central heating forecasts

## JOURNAL ARTICLES

- Eskes, H., Tsikerdekis, A., Ades, M., Alexe, M., Benedictow, A. C., Bennouna, Y., Blake, L., Bouarar, I., Chabrillat, S., Engelen, R., Errera, Q., Flemming, J., Garrigues, S., Griesfeller, J., Huijnen, V., **Ilić, L.**, Inness, A., Kapsomenakis, J., Kipling, Z., Langerock, B., Mortier, A., Parrington, M., Pison, I., Pitkänen, M., Remy, S., Richter, A., Schoenhardt, A., Schulz, M., Thouret, V., Warneke, T., Zerefos, C., and Peuch, V.-H. (2024) Technical note: Evaluation of the Copernicus Atmosphere Monitoring Service Cy48R1 upgrade of June 2023, *Atmos. Chem. Phys.*, 24, 9475–9514, <https://doi.org/10.5194/acp-24-9475-2024>
- Ničković, S., Petković, S., **Ilić, L.**, Pejanović, G., Mijić, Z., Huete, A., Marks, G., (2022) Prediction of airborne pollen and sub-pollen particles for thunderstorm asthma outbreaks assessment, *Science of The Total Environment*, Volume 864, 2023, 160879, ISSN 0048-9697, <https://doi.org/10.1016/j.scitotenv.2022.160879>
- Ilić, L.**, Jovanović, A., Kuzmanoski, M., Lazić, L., Madonna, F., Rosoldi, M., et al. (2022). Mineralogy sensitive immersion freezing parameterization in DREAM. *Journal of Geophysical Research: Atmospheres*, 127, e2021JD035093. <https://doi.org/10.1029/2021JD035093>
- Mijić, Z., **Ilić, L.**, Kuzmanoski, M. (2023) Data quality assurance for atmospheric probing and modeling: characterization of Belgrade Raman lidar station, *Contributions of the Astronomical Observatory Skalnaté Pleso*, vol. 53, no. 3, p. 163-175, <https://doi.org/10.31577/caosp.2023.53.3.163>
- Barreto, Á., Cuevas, E., García, R. D., Carrillo, J., Prospero, J. M., **Ilić, L.**, Basart, S., Berjón, A. J., Marrero, C. L., Hernández, Y., Bustos, J. J., Ničković, S., and Yela, M.: Long-term characterisation of the vertical structure of the Saharan Air Layer over the Canary Islands using lidar and radiosonde profiles: implications for radiative and cloud processes over the subtropical Atlantic Ocean, *Atmos. Chem. Phys.*, 22, 739–763, <https://doi.org/10.5194/acp-22-739-2022>
- Vudragovic, D., **Ilić, L.**, Jovanovic, P., Nickovic, S., Bogojevic, A., and Balaz, A., (2018) VI-SEEM DREAMCLIMATE Service, *Scalable Computing: Practice and Experience*, 19(2), <https://doi.org/10.12694/scpe.v19i2.1396>
- Ilić, L.**, Kuzmanoski, M., Kolarž, P., Nina, A., Srečković, V., Mijić, Z., Bajčetić, J., Andrić, M., (2018) Changes of atmospheric properties over Belgrade, observed using remote sensing and in situ methods during the partial solar eclipse of 20 March 2015, *Journal of Atmospheric and Solar-Terrestrial Physics*, Volume 171, 2018, Pages 250-259, ISSN 1364-6826, <https://doi.org/10.1016/j.jastp.2017.10.001>
- Granados-Muñoz, M. J., Navas-Guzmán, F., Guerrero-Rascado, J. L., Bravo-Aranda, J. A., Biniotoglou, I., Pereira, S. N., Basart, S., Baldasano, J. M., Belegante, L., Chaikovsky, A., Comerón, A., D'Amico, G., Dubovik, O., **Ilić, L.**, Kokkalis, P., Muñoz-Porcar, C., Nickovic, S., Nicolae, D., Olmo, F. J., Papayannis, A., Pappalardo, G., Rodríguez, A., Schepanski, K., Sicard, M., Vukovic, A., Wandinger, U., Dulac, F., and Alados-Arboledas, L. (2016) Profiling of aerosol microphysical properties at several EARLINET/AERONET sites during the July 2012 ChArMEx/EMEP campaign, *Atmos. Chem. Phys.*, 16, 7043–7066, <https://doi.org/10.5194/acp-16-7043-2016>
- Lazić, L., Aničić Urošević, M., Mijić, Z., Vuković, G., **Ilić, L.** (2016) Traffic contribution to air pollution in urban street canyons: Integrated application of the OSPM, moss biomonitoring and spectral analysis, *Atmospheric Environment*, Volume 141, 2016, Pages 347-360, ISSN 1352-2310, <https://doi.org/10.1016/j.atmosenv.2016.07.008>

- Biniotoglou, I., Basart, S., Alados-Arboledas, L., Amiridis, V., Argyrouli, A., Baars, H., Baldasano, J. M., Balis, D., Belegante, L., Bravo-Aranda, J. A., Burlizzi, P., Carrasco, V., Chaikovsky, A., Comerón, A., D'Amico, G., Filioglou, M., Granados-Muñoz, M. J., Guerrero-Rascado, J. L., **Ilić, L.**, Kokkalis, P., Maurizi, A., Mona, L., Monti, F., Muñoz-Porcar, C., Nicolae, D., Papayannis, A., Pappalardo, G., Pejanovic, G., Pereira, S. N., Perrone, M. R., Pietruczuk, A., Posyniak, M., Rocadenbosch, F., Rodríguez-Gómez, A., Sicard, M., Siomos, N., Szkop, A., Terradellas, E., Tsekeri, A., Vukovic, A., Wandinger, U., and Wagner, J. (2015) A methodology for investigating dust model performance using synergistic EARLINET/AERONET dust concentration retrievals, *Atmos. Meas. Tech.*, 8, 3577–3600, <https://doi.org/10.5194/amt-8-3577-2015>
- Stojic, A., Stanišić Stojic, S., Šoštaric, A., **Ilić, L.**, Mijic, Z., Rajšic, S., (2015) Characterization of VOC sources in an urban area based on PTR-MS measurements and receptor modelling. *Environ Sci Pollut Res* 22, 13137–13152, <https://doi.org/10.1007/s11356-015-4540-5>
- Papayannis, D. Nicolae, P. Kokkalis, I. Biniotoglou, C. Talianu, L. Belegante, G. Tsaknakis, M.M. Cazacu, I. Vetres, **L. Ilić** (2014), Optical, size and mass properties of mixed type aerosols in Greece and Romania as observed by synergy of lidar and sunphotometers in combination with model simulations: A case study, *Science of the Total Environment* 500–501 (2014) 277–294 <https://www.sciencedirect.com/science/article/abs/pii/S0048969714012807>
- L. Lazić, G. Pejanović, M. Zivković, **L. Ilić** (2014), Improved wind forecasts for wind power generation using the Eta model and MOS (model output statistics) method, *Energy*, vol. 73, no. 7, pp. 567–574, <https://doi.org/10.1016/j.energy.2014.06.056>
- Ivković S., **L. Ilić**, M. Stanković, R. Radojičić, Z. Babović (2013) Source-sink model. *IPSI Trans Inter Res Belgrade Serbia* 9(2):28–33, <https://vipsi.org/ipsi/journals/journals/papers/tir/2013july/tir2013july.pdf#page=30>
- Kotroni, V., Floros, E., Lagouvardos, K., Pejanovic, G., **Ilić, L.**, and Zivkovic, M., (2010) Multi-model multi-analysis ensemble weather forecasting on the Grid for the South Eastern Mediterranean Region, *Earth Science Informatics*, 3, 209-218, <http://dx.doi.org/10.1007/s12145-010-0071-2>

## BOOK CHAPTER

- Stojić, S. Stanišić Stojić, Z. Mijić, **L. Ilić**, M. Tomašević, Marija Todorović, and Mirjana Perišić (2015). Comprehensive Analysis of VOC Emission Sources in Belgrade Urban Area, in: *Urban and Built Environments: Sustainable Developments, Health Implications and Challenges*, Editor: Alexis Cohen, Nova Science Publishers, NY, USA, pp. 55-87, ISBN: 978-1-63483-117-8 <https://novapublishers.com/shop/urban-and-built-environments-sustainable-development-health-implications-and-challenges>

## TECHNICAL SOLUTION

- Milutinović, V., Bojović, M., Ivković, S., Ilić, L., Radojičić, R., Stanković, M., Babović, Z., Accelerating the Source-Sink Model Algorithm for Numerical Weather Prediction, <https://enauka.gov.rs/handle/123456789/317886> Technical Solution (2014)

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- Ilić, L.**, Obiso, V., Gonçalves Ageitos, M., Li, L., Mahowald, N. M., Miller, R. L., Ginoux, P., Song, Q., Brodrick, P. G., Thompson, D. R., Clark, R. N., Ehlmann, B. L., Okin, G. S., Zhou, B., Kalashnikova, O., Green R. O., Pérez García-Pando, C. (2025) Dust Absorption Sensitivity to Mineralogy in the MONARCH Model, 24th AeroCom / 13th AeroSat workshop, Institut Pascal, Université Paris-Saclay, France, 13-17 October 2025 <https://aerocom.met.no/events/aerocom2025>
- V. Obiso, M. Gonçalves Ageitos, **L. Ilić**, O. Jorba, R. Sousse, L. Li, N. M. Mahowald, R. L. Miller, P. Ginoux, Q. Song, P. G. Brodrick, D. R. Thompson, R. N. Clark, B. L. Ehlmann, G. S. Okin, B. Zhou, O. Kalashnikova, R. O. Green and C. Pérez García-Pando. (2025) Improved Assessment of Shortwave Absorption by Dust Aerosols, 24th AeroCom / 13th AeroSat workshop, Institut Pascal, Université Paris-Saclay, France, 13-17 October 2025 <https://aerocom.met.no/events/aerocom2025>
- Z. R. Mijić, M. Kuzmanoski, **L. Ilić** (2023) Data quality assurance and characterization of Belgrade Raman lidar station, V Meeting on Astrophysical Spectroscopy - A&M DATA - Astronomy & Earth Observations, Palić, Serbia, September 12-15, 2023, Book of abstracts and contributed papers, p.73, ISBN 978-86-82441-61-8, [http://aspectro2023.ipb.ac.rs/AsSpectro2023\\_book.pdf](http://aspectro2023.ipb.ac.rs/AsSpectro2023_book.pdf)
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- Klose, M. and Pérez García-Pando, C. and the J-WADI Team: The Jordan Wind erosion And Dust Investigation (J-WADI), EGU General Assembly 2023, Vienna, Austria, 24–28 Apr 2023, EGU23-8286, <https://doi.org/10.5194/egusphere-egu23-8286> 2023. J-WADI Team: Martina Klose, Tareq Hussein, Andreas Wieser, Andrés Alastuey, Alexander Böhmländer, Sylain Dupont, Bethany Ehlmann, Vicken Etyemezian, Timo Gamer, María Gonçalves Ageitos, Cristina González Flórez, Adolfo González Romero, Ann-Kathrin Goßmann, Rebecca Greenberger, **Luka Ilić**, Mark Irvine, Konrad Kandler, Abigail Keebler, Hannah Meyer, Ron L. Miller, Ottmar Möhler, Jessica M. Mueller, George Nikolich, Agnesh Pant, Xavier Querol, Simone Scheer, Ruben Sousse Villa, Chris Stopford, Sebastian Vergara Palacio, Franziska Vogel, Frederik Weis, Carlos Pérez García-Pando
- Costa-Surós, M., Gonçalves, M., Chatziparaschos, M., Georgakaki, P., **Ilić, L.**, Montane, G., Myriokefalitakis, S., van Noije, T., Le Sager, P., Kanakidou, M., Nenes, A., and Pérez García-Pando, C. (2023) New Aerosol-sensitive Heterogeneous Ice Nucleation Parameterization in the EC-Earth3 Earth System Model: evaluation and climate response, EGU General Assembly 2023, Vienna, Austria, 23–28 Apr 2023, EGU23-13040, <https://doi.org/10.5194/egusphere-egu23-13040>

- S. Ničković, **L. Ilić**, S. Petković, G. Pejanović, A. Huete, Z. Mijić, Novel Approach in Airborne Pollen Dispersion Modelling, 30th International Conference Ecological Truth and Environmental Research – EcoTER'23, Serbia, 20-23 June, 2023. Proceedings, pp. 306-311, ISBN 978-86-6305-137-9 <https://mibor.rs/wp-content/uploads/2023/06/Proceeding%20EcoTER23.pdf>
- Z. Mijić, S. Ničković, **L. Ilić**, S. Petković, G. Pejanović, A. Huete, Recent Progress and New Approach in Numerical Modelling of Airborne Sub-pollen Particles, II International Conference on Physical Aspects of Environment ICPAE2023, Zrenjanin, Serbia, August 24-26, 2023. Proceedings, pp. 48-52. ISBN 978-86-7672-366-9 <http://www.tfzr.uns.ac.rs/icpae/conference%20program!/Zbornik%20ICPAE2023!.pdf>
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- Barreto, A., Cuevas, E., García, R. D., Carillo, J., Prospero, J. M., **Ilić, L.**, Basart, S., Berjón, A., Marrero, C. L., Hernández, Y., Bustos, J. J., Ničković, S., Yela, M. (2022) Long-term characterization of the Saharan Air Layer (SAL) in a North Atlantic subtropical site, International Radiation Symposium 2022, Thessaloniki, Greece, 4-8 July 2022, <https://irs2022.org/>
- Z. Mijić, M. Kuzmanoski, **L. Ilić** (2022) Remote Sensing of Tropospheric Aerosols: Experience from Belgrade Raman Lidar Station, International Conference on Physical Aspects of Environment ICPAE2022. Zrenjanin, 31 March – 2 April 2022. Proceedings, pp.189-94, ISBN 978-86-7672-354-6 <http://www.tfzr.uns.ac.rs/icpae/conference%20program/ICPAE2022.pdf>
- S. Ničković, **L. Ilić**, S. Petković, G. Pejanović, A. Huete, Z. Mijić, Physically Based Numerical Model for Pollen Forecast, International Conference on Physical Aspects of Environment ICPAE2022. Zrenjanin, 31 March – 2 April 2022. Proceedings, pp.189-94, ISBN 978-86-7672-354-6 <http://www.tfzr.uns.ac.rs/icpae/conference%20program/ICPAE2022.pdf>
- Z. Mijić, M. Kuzmanoski, **L. Ilić**, A. Kovačević, D. Vasiljević (2022) Review of atmospheric aerosol optical properties profiling and lidar station activities in Serbia , IV Meeting on Astrophysical Spectroscopy - A&M DATA - Atmosphere Book of Abstracts and Contributed Papers, May 30 - June 2, 2022, Fruška Gora, Serbia, p. 89 [http://servo.aob.rs/eeditons/CDS/Workshops/Spectroscopy\\_4/papers/31.pdf](http://servo.aob.rs/eeditons/CDS/Workshops/Spectroscopy_4/papers/31.pdf)
- Kuzmanoski, M., **Ilić, L.**, Ničković, S. (2022) Mineral Dust Single Scattering Albedo and Radiative Effects Based on DREAM Model, The 11th International Conference of the Balkan Physical Union, Belgrade, BPU11 CONGRESS, Serbia, 28 August - 1 September 2022, <https://indico.bpu11.info/event/1/contributions/139/>
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## **PUBLIC AND INVITED TALKS**

The Dust Protocol Discussion and Musical Performance at the Barcelona Techies Meeting Organized by the Metapilot Academy, December 4, 2025, Barcelona, Spain

The Dust Protocol Discussion and Musical Performance at the art+science Festival, October 26, 2025, Belgrade, Serbia

Impact of Dust Mineralogy Representation on Modeled Optical Properties and Radiative Effects Using MONARCH, Sveučilište u Rijeci, September 3, 2025, Rijeka, Hrvatska

12th Workshop on the Theory and Use of Regional Climate Models, External Talk, Impact of Dust Mineralogy Representation on Modeled Optical Properties and Radiative Effects Using MONARCH, Abdus Salam International Center for Theoretical Physics (ICTP), September 2, 2025, Trieste, Italia

Impact of Dust Mineralogy Representation on Modeled Optical Properties and Radiative Effects Using MONARCH, Univerza v Novi Gorici, August 25, Nova Gorica, Slovenija

Weather and Climate HPC across scales: SMEs, HPC Grid, Research Institutions, EuroCC4SEE Workshop in Belgrade, May 20-22, 2025, The Palace of Science, Belgrade, Serbia

CAMS2\_82 Dust Validation and Model Upgrade, Faculty of Physics Seminar, Institute of Meteorology, University of Belgrade, April 22nd, Belgrade, Serbia

The Magic of Minerals in the Air Vol. 2, Talks & Meze Belgrade, August 18th, 2024.

The Magic of Minerals in the Air, Talks & Meze Barcelona, March 10th, 2024.

The Art of Improvisation: Melding into a Collective Mind, Talks & Meze Barcelona, November 26, 2023.

Implementation of mineralogy sensitive ice initiation parameterization in Dust Regional Atmospheric Model (DREAM), South East Europe Space Conference, Beograd, Srbija, September 30, 2020.

Klimatske promjene - koliko je čovjek pokvario svijet? (Climate Change – How Much Have Humans Affected the Planet?) Presentation at The Seventh Symposium Theology in the Public Sphere, Trebinje, Bosnia and Herzegovina, February, 2020.

Modeling of immersion freezing initiation of mineral dust in dust regional atmospheric model DREAM, The 7th international WeBIOPATR Workshop and Conference, 1-3 October 2019, Belgrade, Serbia

Presentation of my PhD project, Computational Research of Young Talents in Serbia, The Milanković Day event, Mathematical Institute of the Serbian Academy of Sciences and Arts, May 28th, 2019.

VI-SEEM DREAMCLIMATE Service at “e-Infrastructures for excellent science in Southeast Europe and the Eastern Mediterranean” conference in Sofia, Bulgaria, on 15-16 May 2018

Presentation on parameterization of dust-induced ice nuclei concentration in DREAM model. The talk was organized at Prof. Jennifer Kay's Polar and atmospheric science group meeting, at the Department of Atmospheric and Oceanic Sciences, University of Colorado at Boulder, July 5th, 2017.

Presentation on dust modeling using DREAM model at Prof. Ulrike Lohmann's Atmospheric Physics Group Seminar at Institute for Atmospheric and Climate Science, ETH Zurich on November 26, 2016.

Numerical Weather Prediction Eta Model - Maxeler Workshop, Univerzitet u Kragujevcu, Kragujevac, Srbija, October 20th, 2012.