

# Ádám Leelőssy

PhD meteorologist, assistant professor

## Summary

A researcher in air pollution meteorology at ELTE University, Budapest, Hungary.

## Professional skills

Application and development of predictive tools for air pollution assessment

Environmental modelling in the fields of atmospheric radioactivity and pollen dispersion

Meteorological and environmental data analysis

Python programming and scientific python tools

Science communication and teaching in Hungarian and English languages

## Research experience

Researcher and lecturer at the Dept. of Meteorology, ELTE University, Budapest (2015-)

Consultant, National Center for Environmental Health, *EFOP-1.8.0: Methodological development of the health care system, pollen forecasting group* (2017-)

Participation in the research project OTKA 116506: *Development of the components of an atmospheric dispersion model system* (2015-)

Participation in the research project OTKA 109361: *Analyses of the interactions between local air pollution and urban vegetation by in situ measurements and model simulations* (2013-2018)

## Teaching experience

Instructor of *Classical Physics, Hydrodynamics, Atmospheric chemistry, Synoptic meteorology* and *Computer simulation* courses (2012-)

Thesis supervisor for 8 graduate and 10 undergraduate students in Meteorology, Environmental and Geosciences (2013-)

Co-writer of *Atmospheric Chemistry* e-book (2013) and lecture notes in *Synoptic meteorology* (2016)

## Education

PhD in Earth Sciences “summa cum laude”

Doctoral School of Earth Sciences, Eötvös Loránd University, Budapest, Hungary, 2018  
*Thesis title: Development and application of a model system to predict atmospheric concentration of air pollutants*

MSc in Meteorology

Eötvös Loránd University, Budapest, Hungary, 2012

BSc in Physics

Eötvös Loránd University, Budapest, Hungary, 2010

## Short courses

Advances in Air Quality Analysis and Prediction: The Interaction of Science and Policy, NCAR Advanced Study Program Summer Colloquium, Boulder, Colorado, 2016 (2 weeks)

First Educational Symposium on Radiation and Health by Young Scientists (ESRAH), Hirotsuki University, Japan, 2014 (1 week)

Online Integrated Modelling of Meteorological and Chemical Transport Processes, Young Scientist Summer School, COST Action ES1004, University of Aveiro, Portugal, 2014 (1 week)

European Research Course on Atmospheres (ERCA), Grenoble, France, 2014 (5 weeks)

Kovacs Language Bursary Program, University of Regina, Canada, 2006 (8 weeks)

## Other achievements

Scholarship of the New National Excellence Program of the Hungarian Ministry of Human Capacities (2016-2017)

Secretary of the Youth Section of the Hungarian Meteorological Society (2012–2018)

Alfréd Hille Award, Hungarian Meteorological Society, 2012  
*“For the best thesis of the year in meteorology”*

Hungarian Students’ Conference on Environmental Studies, 1<sup>st</sup> Prize, 2012

Scholarship of the Hungarian Republic, 2011-2012

Excellent Student Award of the Faculty of Science, ELTE University, 2011

National Scientific Students’ Association Conference, 3<sup>rd</sup> Prize, 2011

Peer-reviewed papers:

1. Leelőssy Á., Lagzi I., Kovács A., Mészáros R., 2018: A review of numerical models to predict the atmospheric dispersion of radionuclides, *Journal of Environmental Radioactivity*, 182, 20-33.
2. Leelőssy Á., Lagzi I., Mészáros R., 2017: Spatial and temporal pattern of pollutants dispersed in the atmosphere from the Budapest Chemical Works industrial site, *Időjárás*, 121(2), 101-115.
3. Leelőssy Á., Mészáros R., Kovács A., Lagzi I., Kovács T., 2017: Numerical simulations of atmospheric dispersion of iodine-131 by different models, *PLoS ONE*, 12(2), e0172312, doi:10.1371/journal.pone.0172312
4. Leelőssy Á., Holló G., Suzuno K., Ueyama D., Lagzi I., 2016: Numerical Simulation of Maze Solving Using Chemotactic Particles, *International Journal of Unconventional Computing*, 12(5-6), 439-452.
5. Mészáros R., Leelőssy Á., Kovács T., Lagzi I., 2016: Predictability of the dispersion of Fukushima-derived radionuclides and their homogenization in the atmosphere, *Scientific Reports*, doi:10.1038/srep19915
6. Leelőssy Á., Molnár F., Izsák F., Havasi Á., Mészáros R., Lagzi I., 2014: Dispersion modelling of air pollutants: a review, *Central European Journal of Geosciences*, 6(3), 257-278.
7. Leelőssy Á., Ludányi E.L., Kohlmann M., Lagzi I., Mészáros R., 2013: Comparison of two Lagrangian dispersion models: a case study for the chemical accident in Rouen, 21-22 January 2013, *Időjárás*, 117(4), 435-450.
8. Mészáros R., Leelőssy Á., Vincze Cs., Szűcs M., Kovács T., Lagzi I., 2012: Estimation of the dispersion of radionuclides and toxic materials based on weather type classification, *Theoretical and Applied Climatology*, 107(3-4): 375-387.
9. Leelőssy Á., Mészáros R., Lagzi I., 2011: Short and long term dispersion patterns of radionuclides in the atmosphere around the Fukushima Nuclear Power Plant, *Journal of Environmental Radioactivity*, 102(12): 1117-1121.

Chapters:

1. Holló G., Leelőssy Á., Tóth R., Lagzi I., 2018: Tactic Droplets at the Liquid-Air Interface, *Self-organized Motion: Physicochemical Design based on Nonlinear Dynamics*, Royal Society of Chemistry
2. Leelőssy Á., Mona T., Mészáros R., Lagzi I., Havasi Á., 2016: Eulerian and Lagrangian Approaches for Modelling of Air Quality, *Mathematical Problems in Meteorological Modelling*, Springer International Publishing

## Conferences:

1. Breuer H., Göndöcs J., Kovács A., Leelőssy Á., Mészáros R., 2018: Modeling the urban environment of Budapest with the WRF and WRF-Chem models at the ELTE University, *Conference on Modelling Fluid Flow (CMFF)*, Budapest
2. Csapó P., Mészáros R., Leelőssy Á., Kovács A., 2018: Measurements of PM<sub>2.5</sub> concentration by bike in the downtown of Budapest, Hungary, *EMS Annual Meeting Abstracts 15*, EMS2018-643
3. Kovács A., Leelőssy Á., Lagzi I., Mészáros R., 2018: The dependence of ozone concentration on model schemes of WRF-Chem (v3.6), *EMS Annual Meeting Abstracts 15*, EMS2018-637
4. Magyar D., Mányoki G., Csépe Z., Kajtor-Apatini D., Udvardy O., Leelőssy Á., Fejős Á., Páldy A., Pándics T., Szigeti T., 2017: Meeting new challenges of personalized information for allergenic patients in Hungary – introduction to a nationwide survey, *Palynology-Aerobiology-Allergy Symposium*, Vienna, Austria
5. Lagzi I., Leelőssy Á., Mészáros R., Göndöcs J., 2017: Autoregressive temperature and air quality prediction in Budapest in the winter of 2016-2017, *EMS Annual Meeting Abstracts 14*, EMS2017-530
6. Kovács A., Leelőssy Á., Lagzi I., Mészáros R., 2017: Modeling urban air pollution in Budapest using WRF-Chem model, *Geophysical Research Abstracts 19*, EGU2017-1461
7. Mészáros R., Leelőssy Á., Csapó P., Boda B., Kovács A., Lagzi I., 2016: Monitoring of atmospheric trace gases in Budapest by mobile measurements, *EMS Annual Meeting Abstracts 13*, EMS2016-501
8. Leelőssy Á., Dezső Zs., Mona T., Zsilinszki A., Merics A., 2016: Project-based learning: interactive weather forecast laboratory at the Eötvös Loránd University, Budapest, *EMS Annual Meeting Abstracts 13*, EMS2016-652
9. Kovács A., Mészáros R., Leelőssy Á., Lagzi I., 2016: Air pollution modeling in urban environment using WRF-Chem model, *17<sup>th</sup> International Conference on Harmonization within Atmospheric Dispersion Modelling for Regulatory Purposes*, Budapest, Hungary
10. Leelőssy Á., Kovács A., Lagzi I., Mészáros R., Kovács T., 2016: Simulation of dispersion of radionuclides in the atmosphere from regional to global scale, *V. Terrestrial radioisotopes in the environment: International Conference on Environment Protection*, Veszprém, Hungary
11. Leelőssy Á., Mona T., Mészáros R., Lagzi I., Havasi Á., 2016: Eulerian and Lagrangian Approaches for Modelling of Air Quality, *Mathematical Problems in Meteorological Modelling workshop*, Budapest, Hungary
12. Hrotkó K., Steiner M., Forrai M., Tóth E.G., Vértesy M., Leelőssy Á., Kardos L., Sütöriné D.M., Magyar L., Mészáros R., 2014: Investigations on environmental benefits of urban trees at Corvinus University of Budapest, *Plants in Urban Areas and Landscape*, Nitra, Slovakia
13. Mészáros R., Leelőssy Á., Lagzi I., Kovács T., 2014: Numerical simulations of atmospheric dispersion of iodine-131 emitted from a point source, *The 9<sup>th</sup> International Symposium on the Natural Radiation Environment (NRE-9)*, Hirosaki, Japan

14. Kovács T., Lagzi I., Leelőssy Á., Mészáros R., 2012: Simulations of Atmospheric Dispersion from Point Sources, *II. Terrestrial radioisotopes in environment: International Conference on Environment Protection*, Veszprém, Hungary
15. Leelőssy Á., Lagzi I., Mészáros R., 2012: Sensitivity study of OpenFOAM model for local scale atmospheric dispersion simulations, *Geophysical Research Abstracts* 14, EGU2012-11925
16. Leelőssy Á., Lagzi I., Mészáros R., 2011: Local scale statistical analysis of the accidental release from Fukushima Nuclear Power Plant, *EMS Annual Meeting Abstracts* 8, EMS2011-735
17. Leelőssy Á., Mészáros R., Lagzi I., Kovács T., 2011: Statistical application of ALOHA local scale air dispersion model for non-radioactive accidental releases at Paks Nuclear Power Plant, *Geophysical Research Abstracts* 13, EGU2011-10578
18. Mészáros R., Lagzi I., Molnár F., Vincze Cs., Leelőssy Á., Kovács T., 2010: Modelling dispersion process of hypothetical nuclear accident release on different scales, *EMS Annual Meeting Abstracts* 7, EMS2010-450

Educational materials:

1. Breuer H., Dezső Zs., Leelőssy Á., 2016: Synoptic meteorology lecture notes, Eötvös Loránd University
2. Lagzi I.L., Mészáros R., Gelybó Gy., Leelőssy Á., 2013: Atmospheric Chemistry, e-book, Eötvös Loránd University