

Aerosol and trace Gas Interactions and their radiative impact based on advanced remote Sensing profiling techniques - AEGIS

- **Principal Investigator:** Nikolaos Siomos
- **Scientific Area:** Environment & Energy
- **Scientific Field:** Climate change
- **Scientific Subfield:** Observations and remote sensing
- **Projects' Duration (in months):** 18
- **Total Budget (€):** 120000
- **Host Institution:** National Observatory Athens (NOA)

PERSONAL INFORMATION

SURNAME	SIOMOS
NAME	NIKOLAOS
DATE OF BIRTH	04.06.1989
PLACE OF RESIDENCE	ATHENS
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PERSONAL STATEMENT

Dr Nikolaos Siomos (NS) received his **B.Sc. in Physics** in 2011 (8.74/10), his **M.Sc. in Environmental Physics** in 2013 (9.19/10), and his **PhD** in 2018 (excellent), all from the Aristotle University of Thessaloniki (AUTH), Greece. He worked in the Laboratory of Atmospheric Physics as a Post-Doc researcher in collaboration with Prof Dimitris Balis until 2020. His research focused on the climatological analysis and classification of aerosols based on lidar, sunphotometer and spectrophotometer data. In 2020 he changed his position to the National Observatory of Athens (NOA) to continue his research as a member of the ReACT team led Dr Vasilis Amiridis where he has been actively involved in the development, calibration and operation of the new EVE lidar funded by the European Space Agency (ESA) for the validation of AEOLUS satellite. NS has more than 10 years of cumulative hands on experience with lidar systems including the development of corresponding software and the analysis of the data. He has participated in more than **7 scientific projects** funded by the EU and the Greek Government as an associate researcher and has earned **3 academic scholarships**. He has **23 original publications** in peer-reviewed scientific journals and an **h-index of 6 (133 citations)**, Source: Scopus) and has been an active reviewer for more than **7 scientific journals**. NS has participated in **24 international Conferences and Workshops** and in **6 experimental field campaigns**. He has co-supervised **6 Master and 4 Bachelor Thesis** and guided **3 PhD students** as a Post-Doc Research Associate in collaboration with their supervisors. All the above render him appropriate to lead the AEGIS project. This initiative will give NS an excellent opportunity to form and lead his own team and interact with people from a different research team of NOA, the Beyond Center of Excellence, directed by Dr Charalampos Kontoes (PI).

MOBILITY

03.2020 - present	Scientific Associate in the ReACT team, PI: Dr Vasilis Amiridis Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing (IAASARS), National Observatory of Athens (NOA), Greece
05.2012 - 02.2020	Scientific Associate in the LAP team PI: Prof Dimitris Balis Laboratory of Atmospheric Physics (LAP), Aristotle University of Thessaloniki (AUTH), Greece

CURRENT POSITION

03.2020 - present **Scientific Associate in the ReACT team**, Same as in Mobility Section

PREVIOUS POSITION

05.2012 - 02.2020 **Scientific Associate in the LAP team**, Same as in Mobility Section

EDUCATION

01.2014 - 10.2018 Laboratory of Atmospheric Physics, [Physics Department, Aristotle University of Thessaloniki](#), Greece, Thesis: [Climatology and classification of the optical and microphysical properties of aerosols using ground-based remote sensing techniques](#), **Doctor of Philosophy (PhD)**

10.2011 - 10.2013 Physics Department, Aristotle University of Thessaloniki, Greece, Algorithm optimization and evaluation for lidar remote sensing data processing applications, **Master degree in Environmental Physics**, Grade: **9.19**

09.2007 - 06.2011 Physics Department, Aristotle University of Thessaloniki, Greece, Thesis: A statistical analysis of the the aerosol layers in Thessaloniki, **Physics' Bachelor Degree**, Grade: **8.74**

SELECTED PUBLICATIONS

- **Siomos, N.**, Fountoulakis, I., Natsis, A., Drosoglou, T., Bais, A., Automated Aerosol Classification from Spectral UV Measurements Using Machine Learning Clustering, *Remote Sens.*, 12, 965, <https://doi.org/10.3390/rs12060965>, **2020**.
- **Siomos N.**, Balis D., Bais A., Koukouli M., Garane K., Voudouri K. A., Gkertsis F., Natsis A., Karagkiozidis D. and Fountoulakis I., Towards an Algorithm for Near Real Time Profiling of Aerosol Species, Trace Gases, and Clouds Based on the Synergy of Remote Sensing Instruments, *EPJ Web Conf.*, <https://doi.org/10.1051/epjconf/202023708023>, **2020**
- Voudouri, K. A., **Siomos, N.**, Michailidis, K., Papagiannopoulos, N., Mona, L., Cornacchia, C., Nicolae, D., and Balis, D., Comparison of two automated aerosol typing methods and their application to an EARLINET station, *Atmos. Chem. Phys.*, 19, 10961–10980, <https://doi.org/10.5194/acp-19-10961-2019>, **2019**.
- Fountoulakis, I., Natsis, A., **Siomos, N.**, Drosoglou, T., Bais, A.F. Deriving Aerosol Absorption Properties from Solar Ultraviolet Radiation Spectral Measurements at Thessaloniki, Greece. *Remote Sens.*, 11, 2179, <https://doi.org/10.3390/rs11182179>, **2019**
- **Siomos, N.**, Balis, D. S., Voudouri, K. A., Giannakaki, E., Filioglou, M., Amiridis, V., Papayannis, A., and Fragkos, K., Are EARLINET and AERONET climatologies consistent? The case of Thessaloniki, Greece, *Atmos. Chem. Phys.*, 18, 11885-11903, <https://doi.org/10.5194/acp-18-11885-2018>, **2018**.
- Stachlewska, I.S., Samson, M., Zawadzka, O., Harendra, K.M., Janicka, L., Poczta, P., Szczepanik, D., Heese, B., Wang, D., Borek, K., Tetoni, E., Proestakis, E., **Siomos, N.**, Nemuc, A., Chojnicki, B.H., et al., Modification of Local Urban Aerosol Properties by Long-Range Transport of Biomass Burning Aerosol. *Remote Sens.*, 10, 412. <https://doi.org/10.3390/rs10030412>, **2018**
- Tsekeri, A., Lopatin, A., Amiridis, V., Marinou, E., Iggloffstein, J., **Siomos, N.**, Solomos, S., Kokkalis, P., Engelmann, R., Baars, H., et al., GARRLiC and LIRIC: strengths and limitations for the characterization of dust and marine particles along with their mixtures, *Atmos. Meas. Tech.*, 10, 4995–5016, <https://doi.org/10.5194/amt-10-4995-2017>, **2017**
- **Siomos, N.**, Balis, D. S., Poupkou, A., Liora, N., Dimopoulos, S., Melas, D., Giannakaki, E., Filioglou, M., Basart, S., and Chaikovsky, A., Investigating the quality of modeled aerosol profiles based on combined lidar and sunphotometer data, *Atmos. Chem. Phys.*, 17, 7003-7023, <https://doi.org/10.5194/acp-17-7003-2017>, **2017**

CONFERENCES/WORKSHOPS/SCHOOLS/CAMPAIGNS**CONFERENCES (12)**

- 2nd European Lidar Conference (2nd ELC), **2020**, Web Conference
- 2nd Scientific Conference of PANACEA, **2020**, Web Conference

CONFERENCES/WORKSHOPS/SCHOOLS/CAMPAIGNS

- 1st Scientific Conference of PANACEA, **2019**, Heraklion, Greece
- European Aerosol Conference – EAC 2019, **2019**, Gothenburg, Sweden
- 29th International Laser Radar Conference (29th ILRC), **2019**, Hefei, China
- 1st European Lidar Conference (1st ELC), **2018**, Thessaloniki Greece
- 14th International Conference on Meteorology, Climatology and Atmospheric Physics (COMECAP), **2018**, Alexandroupoli, Greece
- 28th International Laser Radar Conference, **2017**, Bucharest, Romania
- 13th COMECAP, **2016**, Thessaloniki, Greece
- 27th International Laser Radar Conference (27th ILRC), **2015**, New York City, USA
- European Geosciences Union G. A. (EGU 2015), **2015**, Vienna, Austria
- European Geosciences Union G. A. (EGU 2014), **2014**, Vienna, Austria
- 26th International Laser Radar Conference (26th ILRC), **2012**, Porto Heli, Greece

WORKSHOPS (12)

- Aeolus Cal/Val & Science Workshop 2020, 2-6 November, **2020**, ESA, Web Workshop
- Aerosol Remote Sensing (ARS-ARES) Workshop, 6-8 Jul **2020**, Web Workshop
- Copernicus Sentinel-5P Validation Team Workshop, 11-14 November, **2019**, ESA/ESRIN, Frascati (Rome), Italy
- ACTRIS Remote-Sensing Workshop, 18-22 November, **2019** Rome, Italy
- Aeolus Cal/Val & Science WS 2019, 26-29 March **2019**, ESA-ESRIN, Frascati, Italy
- ACTRIS-2 4th WP2 Workshop, 19-23 November, **2018**, Hatfield, UK
- ACTRIS-2 3rd WP2 Workshop, 13-17 November, **2017**, Delft, Netherlands
- ACTRIS-2 2nd WP2 Workshop, 7-11 November, **2016**, Barcelona, Spain
- ACTRIS-2 1st WP2 Workshop, 22-25 November **2015**, Leipzig, Germany
- 4th Joint ACTRIS WP2/WP20 Workshop, 28-31 October, **2014**, Lille, France
- 3rd Joint ACTRIS WP2/WP20 Workshop, 26-29 November, **2013**, Limassol, Cyprus
- 2nd Joint ACTRIS WP2/WP20 Workshop, 2-5 October **2012**, Lecce, Italy

SCHOOLS (2)

- 1st HAAR Summer School, on theory and practice of aerosol chemistry and engineering for climate, air quality, emissions and health effects, 18-25 May **2016**, Navarino Environmental Observatory (NEO), Messinia, Greece
- [Advanced Analysis of Atmospheric Processes and Feedbacks and Atmosphere Biosphere Interactions, ACTRIS winter school](#), 10-21 March, **2014**, Hyytiälä, Finland

FIELD CAMPAIGNS (6)

- [2nd PANACEA Measurement campaign winter 2020](#), January - February **2020**, PI: Prof Dimitris Balis
- Cyprus experimental campaign, in the framework of D-TECT, October **2019**, PI: Dr Vasilis Amiridis
- [1st PANACEA Measurement campaign summer 2019](#), July – August **2020**, PI: Prof Dimitris Balis
- [Measurement campaign EUNADICS-AV exercise](#), March **2020**, PI: Dr Lucia Mona
- Lidar & Radiometer measurement campaign (LRMC-2017), May **2017**, PI: Prof Anatoli Chaikovsky
- [PRE-TECT experimental campaign in the framework of D-TECT and ACTRIS](#), April **2017**, PI: Dr Vasilis Amiridis

MEMBERSHIPS & REVIEWING ACTIVITIES

2016-2021 Referee in the following peer review journals (7):

- **Atmospheric Chemistry and Physics**, Copernicus Publ., IF: 5.414
- **Atmospheric Measurement Techniques**, Copernicus Publ., IF: 3.668
- **Atmospheric Environment**, Elsevier, IF: 4.039
- **Atmospheric Research**, Elsevier, IF: 4.676
- **Remote Sensing of Environment**, Elsevier, IF: 9.085
- **Environmental Pollution**, Elsevier, IF: 6.792
- **Atmosphere**, MDPI, IF: 2.397

TEACHING ACTIVITIES

2014-2019 Laboratory assistant – Techniques of Atmospheric Measurements, LAP-AUTH

FELLOWSHIPS and AWARDS

- 12/2019-11/2021** **Scholarship:** State Scholarships Foundation (IKY), “Reinforcement of Postdoctoral Researchers - 2nd Cycle” (MIS-5033021) in the framework of the Operational Program «Human Resources Development, Education and Lifelong Learning» funded by Greece and the European Union (European Social Fund)
- 01/2018** **Fellow researcher:** ACTRIS-2 Trans-National Access (TNA), Training and investigation of Single Calculus Chain (SCC) new products (in developing phase) and automatization of SCC at station level, CNR IMAA Atmospheric Observatory (CIAO), Potenza, Italy, PI: Lucia Mona (lucia.mona@imaa.cnr.it)
- 05/2017-07/2018** **Scholarship:** State Scholarships Foundation (IKY), “Scholarships programme for postgraduates studies -2nd Study Cycle” in the framework of the Operational Programme “Human Resources Development Program, Education and Lifelong Learning” of the National Strategic Reference Framework (NSRF) 2014 – 2020.

SELECTED RESEARCH GRANTS

Project Title	Funding source	Period	Role of the PI
D-TECT - Does dust triboelectrification affect our climate?	European Research Council	2019-present	Scientific associate
EVE , A novel mobile ground-based lidar for the Enhancement and Validation of ESA products	European Space Agency	2019-2020	
Optimization and application of methods for ground-based remote sensing of aerosols and ozone in the lower troposphere for investigating their variability	Co-financed by Greece and the European Union (European Social Fund)	2018-2019	
MARCOPOLO , Monitoring and assessment of regional air quality in China using space observations, project of long term Sino-European cooperation	European Commission	2016-2017	
ACTRIS-2, Aerosols, Clouds, and Trace gases Research InfraStructure	European Union’s Horizon 2020	2015-2019	
SMASH , Support to Aviation Control Service	European Space Agency	2013	
ACTRIS , Aerosols, Clouds and Trace gases Research InfraStructure Network	European Commission	2012-2015	

SCIENTIFIC ACHIEVEMENTS

- **Monograph:** **Siomos, N.** (2018). Climatology and classification of the optical and microphysical properties of aerosols using ground - based remote sensing techniques ([Doctoral thesis](#))
- **1st Prize** in the [research competition of the Raymetrics SA company](#) (2018) with research titled: “Investigating the quality of modeled aerosol profiles based on combined lidar and sunphotometer data”, published in the Atmospheric Chemistry and Physics Journal
- **Best poster prize** in the 14th COMECAP, 2018, Alexandroupoli, Greece, with research titled: “Aerosol classification based on the synergy of Brewer spectrophotometer and sunphotometer measurements”