

CURRICULUM VITAE and List of Publications



STAVROS SOLOMOS, PHD

POSTDOCTORAL RESEARCHER

INSTITUTE FOR ASTRONOMY, ASTROPHYSICS, SPACE APPLICATIONS & REMOTE SENSING

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Name:	Stavros Solomos
Date of Birth:	18 th of August, 1976, Athens, Greece
Gender:	Male
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SUMMARY OF RESEARCH INTERESTS AND ACHIEVEMENTS

Stavros Solomos was born in Athens, Greece in 1976. He received his B.Sc. in Physics, M.Sc. in Environmental Physics / Meteorology and PhD in Meteorology / Atmospheric Modeling from the University of Athens, Greece in 2001, 2003 and 2011 respectively. Since 2013, he is a postdoctoral researcher at the Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing (IAASARS) of the National Observatory of Athens (NOA), Greece. During 2006-2013 he worked as research associate at the Atmospheric Modeling and Weather Forecasting Group of the University of Athens.

His fields of expertise include climate change and impacts on regional weather, severe atmospheric phenomena (e.g. hurricanes, floods, dust storms, volcanic ash, biomass burning), direct and indirect aerosol effects in the atmosphere, air pollution, satellite data assimilation and renewable energy. As a researcher he has participated in sixteen (16) international and national projects related to atmospheric processes, air pollution and climate change. He has eleven (11) publications in peer review journals and more than 40 presentations in scientific conferences on atmospheric fields. He has received the 2010 EURASAP Young Researchers 1st Award at the 31th NATO/SPS ITC and the 2014 Copernicus Masters best service award as a member of the FireHub team of NOA.

Stavros Solomos is responsible for the modeling of Atmospheric Hazards at the BEYOND Centre of Excellence in NOA. Operational activities include meteorological modelling, online biomass dispersion service (FireHub), dust modelling and satellite dust assimilation, immediate response modelling for volcanic ash and industrial releases and source receptor analysis.

PROFESSIONAL POSITIONS:

- 2013-present: Research Fellow, National Observatory of Athens, Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing (IAASARS).
- 2006-2013: Research Fellow, University of Athens, Atmospheric Modeling and Weather Forecasting Group (NKUA / AM&WFG)
- 2004-2006: Project Management (FP6-FP7), Institute of Accelerating Systems and Applications (IASA)

EDUCATION:

- 2006-2011: PhD in Meteorology / Atmospheric Modeling, University of Athens, Department of Physics,
- 2001-2003: M.Sc. in Environmental Physics / Meteorology, University of Athens, Department of Physics
- 1994-2001: Diploma in Physics, University of Athens, Department of Physics
- 2000-2001: Professional Seminar (1 year) on Renewable Energy Systems - Wind Farms (Ministry of Education), 2001

RESEARCH INTERESTS:

- Atmospheric modeling, climate change and impacts on regional weather
- Direct and indirect aerosol effects in the atmosphere, cloud microphysics
- Dust modeling and satellite data assimilation
- Biomass burning and fire smoke dispersion
- Severe atmospheric phenomena (thunderstorms, hurricanes, floods, dust storms)
- Renewable energy

PARTICIPATION IN FUNDED PROJECTS:

1. Coordinating and integrating state-of-the-art Earth Observation Activities in the regions of North Africa, Middle East, and Balkans and Developing Links with GEO related initiatives towards GEOSS, (GEO-CRADLE) funded by EU (Horizon 2020), 2015-2019
2. Building a Centre of Excellence for EO-based monitoring of Natural Disasters (BEYOND). Funded by EU (FP7), 2013-2016
3. An enhanced operational system for wave monitoring and prediction with Applications in Hellenic navigation system (ESPEN). Funded by EU and the Greek Government , 2005-2007
4. Data integration system for Eutrophication Assessment in Coastal Waves (INSEA). Funded by EU

(FP6), 2006-2008

5. Prediction of Waves, Wakes and Offshore Wind (POWWOW), funded by EU(FP6), 2005-2008
6. Grid enabled Remote Instrumentation with Distributed Control and Computation (GRIDCC). Funded by EU (FP6), 2005-2007
7. Climate change and Impact Research: the Mediterranean Environment (CIRCE), funded by EU (FP6), 2007-2011
8. Marine Renewable Integrated Application Platform (MARINA), Funded by EU (FP7), 2010-2014
9. Development of a weather and sea state forecasting system (WASSF) for the area of Saudi Arabia, Funded by Saudi Aramco.
10. Development of an Air Quality forecasting system the area of Saudi Arabia, Funded by Saudi Aramco.
11. Open sea and in-port operational weather support for Volvo Ocean Race Cup, Funded by CAMPER, Emirates Team New Zealand.
12. Development of a national scale flash flood guidance system for Saudi Arabia, Funded by Saudi Aramco.
13. Development of an early warning and monitoring system for fog and visibility issues in the area of Dhahran, Funded by Saudi Aramco.
14. Assessment of smoke dispersion from the fire accident at Chevron refinery in Richmond, San Francisco, Funded by ENVIRON.
15. High Resolution modelling of the northern Norwegian fjord and coastal ocean circulation, funded by Akvaplan-niva AS
16. CAMx/WRF real time ozone forecasts for Texas, funded by ENVIRON

AWARDS:

1. Copernicus Masters 2014 Best Service award as a member of the operational EO based fire management service "FireHub: A Space Based Fire Management Hub", which was developed in the framework of BEYOND project.
2. Young researchers EURASAP 1st award for the paper entitled: "Effects of natural and anthropogenic particles on cloud formation and precipitation - A modeling study" 31st NATO/CCMS International Technical Meeting on Air Pollution Modeling and its Applications, September 2010, Turin, Italy.

INVITED TALKS:

1. G. Kallos, S. Solomos, J. Kushta, C. Mitsakou, C. Spyrou, N. Bartsotas, C. Kalogeri: "natural and anthropogenic aerosols in the mediterranean region and middle east: patterns and impacts", air quality management at urban, regional and global scales", 4th international symposium and iuappa regional conference, 10-13 September 2012 Istanbul – Turkey
2. Solomos S.: "The role of airborne particles on radiation-cloud-precipitation cycle in Mediterranean", "3rd International Meeting on Meteorology and Climatology of the

PUBLICATIONS:

List of publications in peer reviewed journals

1. Solomos, S., V. Amiridis, P. Zanis, E. Gerasopoulos, F.I. Sofiou, T. Herekakis, J. Brioude, A. Stohl, R.A. Kahn, C. Kontoes, Smoke dispersion modeling over complex terrain using high resolution meteorological data and satellite observations – The FireHub platform, *Atmospheric Environment*, Volume 119, October 2015, Pages 348–361, doi:10.1016/j.atmosenv.2015.08.066, 2015
2. Amiridis V., E. Marinou, A. Tsekeri, U. Wandinger, A. Schwarz, E. Giannakaki, R. Mamouri, P. Kokkalis, I. Biniotoglou, S. Solomos, T. Herekakis, S. Kazadzis, E. Gerasopoulos, D. Balis, A. Papayannis, C. Kontoes, K. Kourtidis, N. Papagiannopoulos, L. Mona, G. Pappalardo, O. Le Rille, and A. Ansmann LIVAS: a 3-D multi-wavelength aerosol/cloud climatology based on CALIPSO and EARLINET *Atmos. Chem. Phys. Discuss.*, 15, 2247-2304, 2015
3. Lekas Th.I., J. Kushta, S. Solomos and G. Kallos, Some considerations related to flight in dusty Conditions *Journal of Aerospace Operations* 3 (2014) 45–56, DOI 10.3233/AOP-140043
4. G.Kallos, S. Solomos, J. Kushta, C. Mitsakou, C. Spyrou, N. Bartsotas, C Kalogeri: “Natural and Anthropogenic Aerosols in the Mediterranean region and Middle East: Patterns and Impacts”, *Science of the Total Environment*, 2014
5. Kushta J., G Kallos, M. Astitha, S. Solomos, C. Spyrou, C. Mitsakou, J. Lelieveld: “Impact of natural aerosols on atmospheric radiation and consequent feedbacks with the meteorological and photochemical state of the atmosphere”, *JGR*, doi: 10.1002/2013JD020714, 2014
6. Baklanov, K. H. Schlutzenzen, P. Suppan, J. Baldasano, D. Brunner, S. Aksoyoglu, G. Carmichael, J. Douros, J. Flemming, R. Forkel, S. Galmarini, M. Gauss, G. Grell, M. Hirtl, S. Joffre, O. Jorba, E. Kaas, M. Kaasik, G. Kallos, X. Kong, U. Korsholm, A. Kurganskiy, J. Kushta, U. Lohmann, A. Mahura, A. Manders-Groot, A. Maurizi, N. Moussiopoulos, S. T. Rao, N. Savage, C. Seigneur, R. Sokhi, E. Solazzo, S. Solomos, B. Sørensen, G. Tsegas, E. Vignati, B. Vogel, and Y. Zhang: “Online coupled regional meteorology-chemistry models in Europe: current status and prospects”, *Atmos. Chem. Phys.* 2013
7. X. Zhang, E. Anagnostou M. Frediani, S. Solomos, G.Kallos: “Using NWP Simulations in Satellite Rainfall Estimation of Heavy Precipitation Events over Mountainous Areas”, *Journal of Hydrometeorology*, 2013
8. Solomos, S., Kallos, G., Mavromatidis, E., Kushta, J.: “Density Currents as a Desert Dust Mobilization Mechanism”, *Atmos. Chem. Phys.*, 12, 11199–11211, doi:10.5194/acp-12-11199-2012, 2012
9. Solomos, S., Kallos, G., Kushta, J., Astitha, M., Tremback, C., Nenes, A., Levin, Z.: An integrated modeling study on the effects of mineral dust and sea salt particles on clouds and precipitation, *Atmos. Chem. Phys.*, 11, 873–892, doi:10.5194/acp-11-873-2011, 2011
10. Kallos, G., Spyrou, C., Astitha, M., Mitsakou, C., Solomos, S., Kushta, I., Pytharoulis, I., Katsafados, P., Mavromatidis, E., Papantoniou, N. 'Ten-year operational dust forecasting - Recent model development and future plans”, *Earth and Environmental Science* 7 012012 doi: 10.1088/1755-1307/7/1/012012, 2009
11. Mitsakou, C., Kallos, G., Papantoniou, N., Spyrou, C., Solomos, S., Astitha, M., and Housiadas, C.: Saharan dust levels in Greece and received inhalation doses, *Atmos. Chem. Phys.*, 8, 7181-7192, 2008

Book Chapters

1. Solomos S., Kushta J., Kallos G., "Chapter 95 - Effects of Airborne Particles on Cloud Formation and Precipitation: A Modeling Study", D.G. Steyn and S.T. Castelli (eds.), Air Pollution Modeling and its Application XXI, NATO Science for Peace and Security Series C: Environmental Security 4, doi 10.1007/978-94-007-1359-8_95, # Springer Science+Business Media B.V., 2011
2. George Kallos, Christina Mitsakou, Andres Alastuey, John van Ardenne, Marina Astitha, Michael Cusack, Ulrike Doering, Evangelos Gerasopoulos, Nikolaos Hatzianastassiou, Maria Kanakidou, Jonilda Kushta, Jos Lelieveld, Zev Levin, Nikolaos Mihalopoulos, Millán Millán, José L. Palau, N. Perez, Jorge Pey, Xavier Querol, Stavros Solomos, Christos Spyrou, Chris Theodosi, Christos Zerefos: "Part I - Chapter 3: Mechanisms of climate variability, air quality and impacts of atmospheric constituents in the Mediterranean Region", Regional Assessment Climate Change in the Mediterranean (RACCM), 2011
3. Development of algorithms for the estimation of aerosol-cloud interactions <http://phdtheses.ekt.gr/eadd/handle/10442/26159>, (dissertation)

List of publications in conference proceedings (selection)

1. Zerefos C., Kapsomenakis I., Amiridis V., Solomos S., Eleftheratos K., Gerasopoulos E., MACC VAL team, "Tropospheric Volcanism and Air-Traffic", ATMOS 2015
2. Tsekeri A., Amiridis V., Marengo F., Marinou E., Rosenberg P., Solomos S., Trembath J., Allan J., Bacak A., Nenes A. "Utilizing The Synergy of Airborne Backscatter LIDAR and IN-SITU Measurements for Evaluating Calipso", ILRC 2015
3. Marinou E., Amiridis V., Tsekeri A., Solomos S., Kokkalis P., Proestakis E., Kottas M., Biniotoglou I., Zanis P., Kazadzis S. Wandinger U., Ansmann A., "3D Structure of Saharan Dust Transport Towards Europe as seen by CALIPSO", ILRC 2015
4. Amiridis V., U. Wandinger, E. Marinou, A. Tsekeri, S. Basart, S. Kazadzis, Jose M. Baldasano, A. Ansmann, S. Solomos, C. Kontoes "Dust model validation using CALIPSO", DUST 2014
5. Sofiou F., Solomos S., Amiridis V., Herekakis T., Argialas D., Kontoes C. "Evaluation of FLEXPART smoke dispersion using MISR plume heights", COMECAP, 2014
6. Bartsotas N., S. Solomos, E. Nikolopoulos, E. Anagnostou, G. Kallos "The role of model resolution and microphysical properties in simulating flash flood induce storms", EGU General Assembly, 2013
7. Bartsotas N., E. Nikolopoulos, E. Anagnostou, S. Solomos, J. Al Qahtani, E. Alaa, I. Alexiou, G. Kallos "Using satellite-rainfall data to identify flood prone areas over the Saudi Arabian Peninsula", EGU General Assembly, 2013
8. Anagnostou E, E. Nikolopoulos, N. Bartsotas, S. Solomos, G. Kallos "Using Satellite Rainfall for Simulation of Flash Floods in Mountainous Basins", EGU General Assembly, 2013
9. G. Kallos, S. Solomos "Modeling cloud processes in a mixed-type aerosol environment", EGU General Assembly, 2012
10. Solomos S., G. Kallos, J. Kushta "Effects of airborne particles on cloud processes and precipitation", EGU General Assembly, 2011
11. Solomos S., G. Kallos, E. Mavromatidis "Density currents and their role on dust mobilization", EGU General Assembly, 2011
12. Solomos, S., Kushta J., Kallos G., "Effects of airborne particles on cloud formation and precipitation. A modeling study"; 31th NATO/SPS International Technical Meeting on Air Pollution Modelling and its Application, Turin 26 Sep- 1 Oct, 2010
13. Solomos S., G. Kallos, J. Kushta, M. Astitha, C. Spyrou, C. Mitsakou "A modeling study on the effects of aerosol concentration and chemical composition on precipitation amounts and distribution", Atmospheric Composition Changes: Climate-Chemistry Interactions (ACC-CCI), Lecce, 2-4 November 2009

14. Solomos, S., Kallos, G., Kushta, J., Tremback, C. "A new modeling system for studying aerosol – cloud – radiation interaction processes", *Eos Trans, AGU*, 89(53), Fall Meet. Suppl., Abstract A41E-0157, 2008
15. Mitsakou, C., Kallos, G., Papantoniou, N., Spyrou, C., Solomos, S., Astitha, M., Housiadas, C. "Lung dose from mineral Saharan dust to Greek residents", 2008: Society of Environmental Geochemistry and Health 26th European Conference SEGH 2008, Athens, Greece, 31/3-2/4, 2008.
16. Solomos, S., Kallos, G., Kushta, J., Tremback, C., "A new modeling system for studying aerosol – cloud – radiation interaction processes", *Eos Trans, AGU*, 89(53), Fall Meet. Suppl., Abstract A41E-0157, 2008

Technical Reports

1. Gerasopoulos E., Solomos S., Liakakou E., Psiloglou V., Lianou M., Mihalopoulos N., Marinou E., Amiridis V., Kontoes C. "Airborne concentrations of gas and particle pollutants over the greater Athens area after the fire accident at the recycle factory of Aspropyrgos". Environmental Impact Assessment Report prepared by NOA on behalf of the Region of Attica, Directorate of Environment, PART 2 "Chemical analysis and numerical modelling", July 2015
2. Gerasopoulos E., Liakakou E., Psiloglou V., Lianou M., Mihalopoulos N., Solomos S., Marinou E., Amiridis V., Kontoes C., "Airborne concentrations of gas and particle pollutants over the greater Athens area after the fire accident at the recycle factory of Aspropyrgos. Environmental Impact Assessment Report prepared by NOA on behalf of the Region of Attica, Directorate of Environment, PART 1 "In situ measurements", June 2015
3. G. Kallos, S. Solomos, N. Bartsotas, C. Spyrou "Meteorological Report for the area of Eastern Saudi Arabia for the period 1 May – 31 August 2008". A combined WRF, SKIRON modeling study prepared for Saudi Aramco. Final Report, April 2011
4. G. Kallos, S. Solomos: "Weather Conditions In the Strait Between Ydra and Peloponnese During 1st December 2009". Report prepared for the law office Lallis-Voutsinos-Anagnostopoulos
5. G. Kallos, J. Kushta, S. Solomos: "Wind field study for the railway bridge SG26". Report prepared for the technical office Mallios A. E.
6. G. Kallos, S. Solomos, J. Kushta, A. Tilloy: The impact of landuse modifications on urban microclimate. Environmental study for the new Athens Metropolitan Park at the vicinity of the former Athens Airport, prepared for the Nomarchy of Athens, 2008
7. G. Kallos, M. Astitha, S. Solomos: Environmental Study for the Power Plant (NaturalGas) Installation at Thisvi-Domvraia in Viotia. Final Report prepared for Thisvi Power Generation Plant S.A., 2008
8. G. Kallos, C. Spyrou, N. Papantoniou, C. Mitsakou, M. Astitha, S. Solomos and P. Katsafados: Analysis of the Particulate Matter Exceedances in Greece. Period 2001-2004. Final Report Prepared for the Ministry of Environment City Planning and Public Work, June 2007.

REVIEWER FOR SCIENTIFIC JOURNALS:

1. Atmospheric Chemistry and Physics (ACP)
2. Science of the Total Environment (STOTEN)
3. Journal of Hydrology
4. Atmospheric Sciences
5. Annales Geophysicae (ANGEO)