RAFAELLA-ELENI P. SOTIROPOULOU **CURRICULUM VITAE**

CONTACT INFORMATION

Rafaella P. Sotiropoulou
N.C.S.R. "Demokritos"
Institute of Nuclear Technology - Radiation Protection
Environmental Research Laboratory
Patriarchou Gregoriou and Neapoleos Str.
15310, Aghia Paraskevi Attikis
Greece

Phone: +30 (210) 650 3405 ; FAX: +30 (210) 654 5496
E-mail: rsot@ipta.demokritos.gr

EDUCATIONAL BACKGROUND

2005 – 2006 **Postdoctoral Scholar,** Georgia Institute of Technology, School of Earth and Atmospheric Sciences

1999 – 2005 **Ph.D** in Atmospheric Sciences, University of the Aegean, Greece

Thesis: Simulation of physicochemical processes of biogenic aerosols: Their impact on air quality and climate change in the Mediterranean area (in Greek).

1995 – 1999 **Diploma**: University of the Aegean, Department of Environment, Greece

Thesis: Anaerobic Processes in landfill sites – Model for the prediction of biogas production rate from landfills, (in Greek).

RESEARCH BACKGROUND

2006 - 2009 **Research Scientist II,** Georgia Institute of Technology, School of Earth and Atmospheric Sciences, Atlanta, GA, USA

2005 - 2006 **Postdoctoral Scholar,** Georgia Institute of Technology, School of Earth and Atmospheric Sciences, Atlanta, GA, USA

2005 **Postdoctoral Scholar**, Τμήματος University of the Aegean, Department of Environment, Greece

2002 - 2005 **Associate Research Scientist**, University of the Aegean, Department of Environment, Greece

2001 - 2004 **Associate Research Scientist**, N.C.S.R. "DEMOKRITOS"

LANGUAGES

Greek (Native Language)

English

German

French

PROFESSIONAL EXPERIENCE AND PARTICIPATION IN RESEARCH PROJECTS

2008-2009	The next generation of aerosol-cloud-chemistry interactions in the NASA Global Modeling Initiative, NRA
2005-2009	Toward an improved representation of aerosol-cloud interactions in global models: studies integrating NASA GMI and remote sensing products, NRA-03-OES-04
2005-2006	Chemistry, Aerosols, and Climate: Tropospheric Unified Simulation (CACTUS), NRA-02-OES-06 [Investigations that Contribute to the NAS Earth Science Enterprise's Multidisciplinary Research in Climate, Chemistry, and Global Modeling] http://www-as.harvard.edu/chemistry/trop/ids.html
2005	Pythagoras II - Modeling the PM pollution -formation of new particles (nucleation) in the Mediterranean area.
2004-2005	Pythagoras – The contribution of landfill biogas to climate change, air pollution and its renewable energy potential
2002-2004	BOND: Biogenic aerosols and air quality in the Mediterranean Area, European Commission, EVK2-CT-200100107 http://milos.ipta.demokritos.gr/bond/
2002-2004	AEOLOS: Assessment of Impact of SF6 & PFCs Reservoir Tracers on Global Warming, European Commission, ENK6- CT-2001-00501. http://milos.ipta.demokritos.gr/aeolos/
1997-1999	Participation in **9** research projects spanning a wide range of subjects in the field of Waste Management with director Prof. C.P. Halvadakis (University of the Aegean – Department of Environment, Greece, e-mail: khalv@aegean.gr).

PUBLICATIONS

REFEREED PUBLICATIONS IN JOURNALS

1. **Sotiropoulou**, **R.E.P.,** J. Kouatchou, L. Oreopoulos, N. Meskhidze, J. M. Rodriguez and A. Nenes, Sensitivity of indirect forcing and autoconversion to cloud parameterizations, meteorological fields and surface albedo, *J. Geophys. Res.*, *in review*.

2. Barahona, D., **R.E.P. Sotiropoulou** and A. Nenes, First Order Effects of Entrainment on Cloud Droplet Number, Effective Radius, Indirect Forcing, and Autoconversion Rate, *J. Geophys. Res.*, *in review*.

3. **Sotiropoulou**, **R.E.P.,** N. Meskhidze, J. Kouatchou, B. Das, L. Oreopoulos, J. M. Rodriguez and A. Nenes, Aerosol - cloud interactions in the NASA GMI: Model development and indirect forcing assessments for sulfate aerosol, *Atmos. Chem. Phys. Discuss*., **7**, 14295-14330, *in review*.

4. **Sotiropoulou, R.E.P.**, A. Nenes, P.J. Adams, and J.H. Seinfeld (2007), Cloud condensation nuclei prediction error from application of Köhler theory: Importance for the aerosol indirect effect, *J. Geophys. Res*., **112**, D12202, doi:10.1029/2006JD007834.

5. Medina, J., A. Nenes, **R.E.P. Sotiropoulou**, L.D. Cottrell, L.D. Ziemba, P.J. Beckman, and R.J. Griffin (2007), Cloud condensation nuclei closure during the International Consortium for Atmospheric Research on Transport and Transformation 2004 campaign: Effects of size-resolved composition, *J. Geophys. Res*., **112**, D10S31, doi:10.1029/2006JD007588.

6. **Sotiropoulou, R.E.P.**, E. Tagaris, C. Pilinis, T. Anttila and M. Kulmala (2006), Modeling New Particle Formation During Air Pollution Episodes: Impacts on Aerosol and Cloud Condensation Nuclei, *Aeros. Sci. Tech*., **40**, 557–572.

7. **Sotiropoulou, R.E.P.**, J. Medina, and A. Nenes (2006), CCN predictions: Is theory sufficient for assessment of the indirect effect?, *Geophys. Res. Lett.*, **33**, L05816, doi:10.1029/ 2005GL025148.

8. Vlachogiannis, D., A. Sfetsos, A. Stubos, **R.E.P. Sotiropoulou**, E. Tagaris, C. Pilinis, W. Zhong, J.D. Haigh, D.O. Eriksen, S. Hartvig, C. Chatzichristos, J. Muller and R. Kleven (2005), Assessment of the Impact of SF_6 and PFCs Reservoir Tracers on Global Warming, the AEOLOS study, *Environ. Sci.*, **2**, (2-3) 263 – 272, doi: 10.1080/ 15693430500396170.

9. **Sotiropoulou, R.E.P.,** E. Tagaris, C. Pilinis, S. Andronopoulos, A. Sfetsos and J.G. Bartzis (2004), The BOND project: Biogenic aerosols and air quality in Athens and Marseille Greater Areas, *J. Geoph. Res*., **109**, D05205, doi:10.1029/ 2003JD003955.

10. **Sotiropoulou, R.E.P.**, E. Tagaris and C. Pilinis (2004), An estimation of the spatial distribution of agricultural ammonia emissions in the Greater Athens Area, *Sci. Total Environ.,* **318**, 159-169.

11. Tagaris, E., **R.E.P. Sotiropoulou**, C. Pilinis and C.P. Halvadakis (2003), A Methodology to Estimate Odors around Landfill Sites: The Use of Methane as an "Odor Index" and Its Utility in Landfill Siting, *J. Air Waste Manage*., **53** (5), 629-634.

12. Tagaris, E., **R.E.P. Sotiropoulou**, C. Pilinis and C.P. Halvadakis (2003), Atmospheric Methane Transport near landfill Sites, *Waste Manage. Res.*, **21** (1), 62-73.

IN PREPARATION

1. **Sotiropoulou, R. E. P.**, Meskhidze, N., and Nenes, A.: Aerosol – cloud interactions in the NASA GMI: Sensitivity of indirect effects to cloud formation parameterization and

meteorological fields, *Atmos. Chem. Phys. Discuss*., *in preparation*.

2. **Sotiropoulou, R.E.P.**, A. Nenes, P.J. Adams and J.H. Seinfeld, Uncertainty in aerosol indirect effect from CCN prediction errors: A global modeling assessment, *Geophys. Res. Lett.*, *in preparation*

BOOK CHAPTERS

1. **Sotiropoulou, R.E.P.,** E. Tagaris, C. Pilinis, T. Anttila, and M. Kulmala, Modeling new particle formation in the Greater Athens Area, Report Series in Aerosol Science, Eds. M. Kulmala and T.M. Ruuskanen, 73, pp. 288-292, 2004

CONFERENCE PROCEEDINGS

1. **Sotiropoulou**, **R.E.P.,** N. Meskhidze , J. Kouatchou, L. Oreopoulos, J. M. Rodriguez and A. Nenes, Sensitivity of indirect effects to cloud formation parameterizations and meteorological fields, 18th International Conference on Nucleation and Atmospheric Aerosols (ICNAA), Prague, Czech Republic, August 2009

2. **Sotiropoulou**, **R.E.P.,** J. Kouatchou, L. Oreopoulos, N. Meskhidze, J. M. Rodriguez and A. Nenes, Sensitivity of indirect effects to cloud formation parameterization and meteorological fields, American Geophysical Union (AGU), Fall Meeting, San Francisco, California, December 2008

3. Barahona, D., **R.E.P. Sotiropoulou** and A. Nenes, The Importance of Entrainment on Cloud Droplet Number and Indirect Forcing, American Geophysical Union (AGU), Fall Meeting, San Francisco, California, December 2008

4. **Sotiropoulou**, **R.E.P.,** N. Meskhidze, J. Kouatchou, L. Oreopoulos, J. M. Rodriguez and A. Nenes, Aerosol - cloud interactions in the NASA GMI: Sensitivity of indirect effects to cloud formation parameterization and meteorological fields, European Aerosol Conference (EAC'2008), Thessaloniki, Greece, August 2008

5. **Sotiropoulou**, **R.E.P.,** N. Meskhidze, and A. Nenes, Aerosol – cloud interactions using the NASA Global Modeling Initiative (GMI), American Geophysical Union (AGU), Fall Meeting, San Francisco, California, December 2007

6. **Sotiropoulou**, **R.E.P.,** N. Meskhidze, and A. Nenes, Aerosol – cloud interactions: sensitivity of indirect effects to cloud formation parameterization, meteorological fields, and emission scenario, 25th Annual Conference, American Association for Aerosol Research (AAAR 2007), Reno, Nevada, September 2007

7. **Sotiropoulou**, **R.E.P.,** N. Meskhidze, and A. Nenes, Sensitivity of aerosol indirect forcing and autoconversion to cloud formation parameterization, meteorological field and emission scenarios: An assessment with the NASA Global Modeling Initiative (GMI), Geophysical Research Abstracts, Vol. 9, 00981, EGU, Vienna, April 2007

8. **Sotiropoulou, R.E.P.,** N. Meskhidze and A. Nenes, Sensitivity of aerosol indirect forcing

and autoconversion to cloud droplet parameterization: an assessment with the NASA Global Modeling Initiative, American Geophysical Union (AGU), Fall Meeting, San Francisco, California, December 2006

9. **Sotiropoulou, R.E.P.**, A. Nenes, P.J. Adams and J.H. Seinfeld, Uncertainty in Aerosol Indirect Effect from CCN prediction errors: a Global Modeling Assessment, 7th International Aerosol Conference, American Association for Aerosol Research (IAC 2006), St. Paul, Minnesota, October 2006

10. Hsieh, W.C, **R.E.P. Sotiropoulou** and A. Nenes, Parameterization of cloud droplet formation and autoconversion in large-scale models, 7th International Aerosol Conference, American Association for Aerosol Research (IAC 2006), St. Paul, Minnesota, October 2006

11. **Sotiropoulou, R.E.P.**, J. Medina, and A. Nenes, CCN predictions: is theory sufficient for indirect forcing calculations?, American Geophysical Union (AGU), Fall Meeting, San Francisco, California, December 2005

12. **Sotiropoulou, R.E.P**., E. Tagaris, C. Pilinis, T. Anttila and M. Kulmala, Modeling new particle formation in the Mediterranean area, 24th Annual Conference, American Association for Aerosol Research (AAAR 2005), Austin, Texas, October 2005

13. **Sotiropoulou, R.E.P**., E. Tagaris, C. Pilinis, How biogenic emissions affect aerosol concentrations and radiative forcing in the Mediterranean area, 24th Annual Conference American Association for Aerosol Research (AAAR 2005), Austin, Texas, October 2005

14. **Sotiropoulou, R.E.P**., E. Tagaris, C. Pilinis, T. Anttila and M. Kulmala, Estimation of new particle formation in Greater Athens Area, European Aerosol Conference (EAC'2005), Ghent, Belgium, August 2005

15. Vlachogiannis, D., **R.E.P. Sotiropoulou**, A. Sfetsos, W. Zhong, J. D. Heigh, D. Erisken, S. Hartving, C. Chatzichistos, E. Tagaris, C. Pilinis, R. Kleven, A. Stubos, and J. Muller, Assesment of the Impact of SF6 and PFCs Reservoir Tracers on Global Warming, the AEOLOS study, 4th International Symposium on Non-CO2 Greenhouse Gases (NCGG-4) Science, Control, Policy and Implementation, Utrecht, The Netherlands, July 2005

16. **Sotiropoulou, R.E.P**., Tagaris, E., Pilinis, C., Anttila, T. and Kulmala, M. Modeling new particle formation in the Greater Athens Area, Report Series in Aerosol Science, Eds. M. Kulmala and T.M. Ruuskanen, 73, pp. 288-292, 2004

17. Tagaris E., **R.E.P. Sotiropoulou**, and C.P. Halvadakis, Methodology for estimating types and quantity of landfilled solid waste: the case of Mytilene Municipality (Greece), ISWA World Environment Congress and Exhibition, Rome, Italy, October 2004

18. Sfetsos, A., D. Vlachogiannis, N. Gounaris, A. Stubos, **R.E.P. Sotiropoulou**, E. Tagaris, C. Pilinis, C. Chatzichistos and R. Kleven, A methodology for the identification and prediction of weather types using data mining methodologies, 18th International Conference Informatics for the Environmental Protection, Geneva, Switzerland, October 2004

19. **Sotiropoulou, R.E.P.**, E. Tagaris, C. Pilinis, S. Andronopoulos, A. Sfetsos and J.G. Bartzis, The BOND project: Contribution of biogenic emission to the aerosol budget in the Mediterranean area, European Aerosol Conference (EAC'2004), Budapest, Hungary,

September 2004

20. **Sotiropoulou, R.E.P,** E. Tagaris, C. Pilinis, D. Vlachogiannis, A. Sfetsos, N. Gounaris, A. Stubos, C.Chatzichristos and R. Kleven. Estimation of the effects of SF6 and PFCS reservoir tracers on atmospheric quality in the North Sea using data from the AEOLOS study, 13th World Clean Air Congress, London, August 2004

21. **Sotiropoulou, R.E.P**., E. Tagaris and C. Pilinis, Evaluation of the UAM-AERO and CAMx air quality models using the BOND study, database, Protection and Restoration of the Environment VII, Mykonos, Greece, June 2004

22. **Sotiropoulou, R.E.P.**, E. Tagaris, C. Pilinis, S. Andronopoulos, N. Gounaris, A. Sfetsos, J.G. Bartzis, Estimation of particulate matter concentrations in the Greater Athens Area by means of the UAM-AERO model, 8th International Conference on Environmental science and Technology, Limnos Island, Greece, September 2003

23. Tagaris, E., **R.E.P. Sotiropoulou**, C. Pilinis and C.P. Halvadakis, Methane production and dispersion around landfill sites, 8th International Conference on Environmental science and Technology, Limnos Island, Greece, September 2003

24. **Sotiropoulou, R.E.P.**, E. Tagaris, C. Pilinis, S. Andronopoulos, N. Gounaris, A. Sfetsos, J.G. Bartzis, Application of the UAM-AERO model in the Greaer Athena Area, 4th International Conference on Urban air Quality – Measurements, Modelling and Management, Prague, March 2003

25. **Sotiropoulou, R.E.P.** and C. Pilinis. Modeling of photochemical pollution in Athens, Greece – Application of the UAM-AERO and CALGRID modeling systems. Proceedings of the 7th International Conference of Environmental Science and Technology, Ermoupolis, Syros Island, Greece, 2001.

26. Tagaris, E., **R.E.P. Sotiropoulou**, C. Pilinis and C.P. Halvadakis Methane as Odor Index in Landfill Sites, 7th International Conference on Environmental science and Technology, Ermoupolis, Syros Island, Greece, September 2001

WORKSHOPS

1. **Sotiropoulou, R.E.P**., and A. Nenes, Impact of CCN Prediction Uncertainty on the Aerosol Indirect Effect: A Global Modeling Assessment, 4th Annual UCAR/NCAR Early Career Scientists Assembly (ECSA) Junior Faculty Forum on Future Scientific Directions (JFF), Boulder, Colorado, August 1- 3, 2006

RESEARCH PROPOSALS

"The next generation of aerosol-cloud-chemistry interactions in the NASA Global Modeling Initiative", PI: Nenes A., Co-PI: Sotiropoulou R.E.P., National Aeronautics and Space Administration ROSES 2006 A.23, Atmospheric Composition: Modeling and Analysis, June 1, 2007 - May 31, 2010, Status: Funded

"Aerosol-Cloud-Climate Interactions: Improving the Predictive Understanding of the Climate System", PI: Sotiropoulou R.E.P., NOAA Climate and Global Change Postdoctoral Fellowship Program, April 1, 2007 – March 31, 2009, Status: Declined

SEMINARS

Total Quality Management in the Analytical Laboratory, Intensive Program, Mytilene, 1998

HONORS, AWARDS AND RECOGNITIONS

2007 - Session chair: "**5A AEROSOLS, CLOUDS AND CLIMATE: CLOUD PROCESSING AND COMPOSITION",** 26th Annual Conference, American Association for Aerosol Research (AAAR 2007), Reno, Nevada, USA

2006 - UCAR/NCAR Early Career Scientists Assembly (ECSA) Junior Faculty Forum on Future Scientific Directions (JFF)

REVIEWER

Atmospheric Chemistry and Physics (ACP)
Environmental Science and Technology (ES&T)
Journal of Environmental Management (JEMA)

MEMBERSHIP IN PROFESSIONAL AND HONOR SOCIETIES

American Association for Aerosol Research (AAAR)
American Geophysical Union (AGU)
European Geophysical Union (EGU)
Hellenic Association for Aerosol Research (HAAR)
Union of Environmental Scientists of Greece