

Myrto Gratsea

Gender: Female

Tel.: +30-2103490907

e-mail: mgratsea@noa.gr

CURRENT POSITION

2008-present, Research Associate / National Observatory of Athens / Greece

PREVIOUS POSITIONS

2006-2008, Sales Support / Attica Telecommunications S.A. / Greece

2001-2006, Sales Support / Data Communication Systems Ltd / Greece

ACADEMIC STUDIES

2014-2022, PhD in Atmospheric Sciences / University of Crete, Chemistry Department / Greece

2011-2013, M.Sc in Environmental Physics / National and Kapodestrian University of Athens, Physics Department / Greece

2003-2009, BSc in Physics / Hellenic Open University, Science and Technology Department / Greece

LANGUAGE KNOWLEDGE

Greek, mother tongue

English, fluent
First Certificate of Cambridge

French
D.E.L.F. 2nd degree
Certificat de langue Francaise

EXPERIMENTAL EXPERIENCE

- Aerosol and trace gases measurements using the MAX-DOAS technique/instrument
- Light absorption and scattering measurements using photometers and nephelometers
- Particle size distribution measurements using Aerodynamic Particle Sizer (APS)
- Ozone measurements using conventional analysers
- Irradiance and columnar ozone measurements using Microtops

COMPUTER SKILLS

- MATLAB, numeric computing environment and programming language
- SCIATRAN, radiative transfer model
- LibRadtran, radiative transfer model
- BOREAS, inverse modeling for aerosol and trace gases profile retrieval

SCHOLARSHIPS

2020 – 2021: Fellowship supporting young researchers. Operational Program: Human Resources Development, Education and Lifelong Learning. European Social Fund

**PARTICIPATION
IN RESEARCH
PROJECTS**

- ARSINOE, Climate resilient regions through systemic solutions and innovations, Horizon 2020, Research Associate: Processing and analysis of climate model data / observations using specially designed climate indices and contribution to project deliverables and publications
- CHOICE, Mainstreaming Integrated Assessment Models by embedding behavioural change and actor heterogeneity, and increasing their outreach to citizens, communities and industrial actors, Horizon 2020, Research Associate: Investigation and statistical analysis of Regional Climate Model data with Matlab programming language for the estimation of the climate change impacts
- MediterRE3, Reducing fire-related greenhouse gas emissions in Greece, Montenegro and France by promoting fire-smart landscape management, EUKI, Research Associate: Investigation and statistical analysis of Regional Climate Model data and fire data for the estimation of greenhouse emissions and the impacts of climate change in the Mediterranean's ecosystems
- MEDGOLD, Turning climate-related information into added value for traditional Mediterranean Grape, Olive and Durum wheat food systems, Horizon 2020, Research Associate: Investigation and statistical analysis of climatic and meteorological data and trends for the study of climate change impact in agriculture
- MAX3D, ESF-Human Resources Development, Education and Lifelong Learning 2014-2020, Three-dimensional distribution of nitrogen dioxide in the urban environment of Athens, using the MAX-DOAS passive remote sensing technique, Research Associate: Measurements performance, statistical analysis, synergies between air quality data and publication of the results in conferences and journals
- URBANPROOF, Climate Proofing Urban Municipalities, LIFE15 CCA/CY/000086, Research Associate: Investigation and statistical analysis of climatic and meteorological data and trends for the study of climate change impact on urban areas
- ADAPT2CLIMA, Adaptation to Climate change Impacts on the Mediterranean islands' Agriculture, LIFE10 CCA/GR/000928, Research Associate: Investigation and statistical analysis of climatic and meteorological data and trends for the study of climate change impact in agriculture
- EMISSION, Environmental monitoring integrated system using an IoT network, Research Associate: Measurements performance and statistical analysis of air quality data
- ARISTOTELIS, Excellence Research Program GSRT (2015-2017) "Environment, Space and Geodynamics/Seismology 2015-2017", Research Associate: aerosol optical properties analysis and investigation of their impact on solar radiation
- KRIPIS-THESPIA I, National Strategic Reference Framework, Developmental proposals for research Institutes, 2014-2015, Research Associate: Development and application of statistical method for the separation of the anthropogenic and the natural component of suspended particles
- CHARADMEExp, Characterization of Aerosol mixtures of Dust and Marine origin, 2014, Role: Ground base actinometric measurements
- XENIOS, Climate change impacts on the touristic development of sensitive areas in the Greek territory. Case study: Messinia-Integrated Tourism Areas, 2011-2013, Research Associate: in situ aerosol measurements and data process
- CITYZEN, megaCITY - Zoom for the ENvironment, FP7 - Collaborative Project, Small or

medium-scale focused research project, ENV.2007.1.1.2.1. Megacities and regional hot-spots air quality and climate, 2008-2011, Research Associate: Databases creation and maintenance, time series analyses

- ACI-UV, Aerosol and Cloud Influence on global surface UV irradiance retrieved from satellite sensors, 2010-2013, Research Associate: Satellite and ground based data process, algorithm development
- THERMOPOLIS 2009 Campaign, European Space Agency (ESA), 2009-2010. Study of “urban heat island” phenomenon in Athens, Research Associate: Ground based actinometric measurements

SCIENTIFIC PUBLICATIONS

- ‘Assessing the long-term impact of climate change on olive crops and olive fly in Andalusia, Spain, through climate indices and return period analysis’
M. Gratsea, K.V. Varotsos, J. Lopez-Nevaldo, S. Lopez-Feria, C. Giannakopoulos
Climate Services, 28, 100325, doi:10.1016/j.cliser.2022.1000325, 2022
- ‘Five years of spatially resolved ground-based MAX-DOAS measurements of nitrogen dioxide in the urban area of Athens, synergies with in situ measurements and model simulations’
M. Gratsea, E. Athanasopoulou, A. Kakouri, A. Richter, A. Seyler, E. Gerasopoulos
Atmosphere, 12, 1634, doi:10.3390/atmos12121634, 2021
- ‘An improved TROPOMI tropospheric NO₂ research product over Europe’
S. Liu, P. Valks, G. Pinardi, J. Xu, K.L. Chan, A. Argrouli, R. Lutz, S. Beirle, E. Khorsandi, F. Baier, V. Huijnen, A. Bais, S. Donner, S. Dorner, M. Gratsea, F. Hendrick, D. Karagkiozidis, K. Lange, A.J.M. Piters, J. Remmers, A. Richter, M. Van Roozendaal, T. Wagner, M. Wenig, D.G. Loyola
Atmospheric Measurement Techniques, 14, 7297-7327, 2021, doi:10.5194/amt-14-7297-2021
- ‘Evaluation of the LOTOS-EUROS NO₂ simulations using ground-based measurements and S5P/TROPOMI observations over Greece’
I. Skoulidou, M.E. Koukouli, A. Manders, A. Segers, D. Karagkiozidis, M. Gratsea, D. Balis, A. Bais, E. Gerasopoulos, T. Stavrakou, J. van Geffen, H. Eskes, A. Richter
Atmospheric Chemistry and Physics, 21, 5269–5288, 2021, doi: 10.5194/acp-21-5269-2021
- ‘Retrieval and evaluation of tropospheric aerosol extinction profiles using MAX-DOAS measurements over Athens, Greece’
M. Gratsea, T. Bösch, P. Kokkalis, A. Richter, M. Vrekoussis, S. Kazadzis, A. Tsekeri, A. Papayannis, M. Mylonaki, V. Amiridis, N. Mihalopoulos, E. Gerasopoulos
Atmospheric Measurement Techniques, 14, 749-767, 2021, doi:10.5194/amt-14-749-2021
- ‘Ground-based validation of the Copernicus Sentinel-5p TROPOMI NO₂ measurements with the NDACC ZSL-DOAS, MAX-DOAS and Pandoria global networks’
T. Verhoelst, S. Compornelle, G. Pinardi, J.C. Lambert, H.J. Eskes, K.U. Eichmann, A.M. Fjæraa, J. Granville, S. Niemeijer, A. Cede, M. Tiefengraber, F. Hendrick, A. Pazmiño, A. Bais, A. Bazureau, K.F. Boersma, K. Bogner, A. Dehn, S. Donner, A. Elokhov, M. Gebetsberger, F. Goutail, M. Grutter de la Mora, A. Gruzdev, M. Gratsea, G.H. Hansen, H. Irie, N. Jepsen, Y. Kanaya, D. Karagkiozidis, R. Kivi, K. Kreher, P.F. Levelt, C. Liu, M. Müller, M. Navarro Comas, A.J.M. Piters, J.P. Pommereau, T. Portafaix, O. Puentedura, R. Querel, J. Remmers, A. Richter, J. Rimmer, C. Rivera Cárdenas, L. Saavedra de Miguel, V.P. Sinyakov, K. Strong, M. Van Roozendaal, J.P. Veefkind, T. Wagner, F. Wittrock, M. Yela González, C. Zehner
Atmospheric Measurement Techniques, 14, 481-510, 2021, doi:10.5194/amt-14-481-2021

- ‘Adverse results of the economic crisis: A study on the emergence of enhanced formaldehyde (HCHO) levels seen from satellites over Greek urban cities’
I. Zyrichidou, D. Balis, M.E. Koukouli, T. Drosoglou, A. Bais, M. Gratsea, E. Gerasopoulos, N. Liora, A. Poupkou, C. Giannaros, D. Melas, I. De Smedt, M. Van Roozendaal, R.J. Van der A, K.F. Boersma, P. Valks, A. Richter
Atmospheric Research, 224, 42-51, 2019, doi:10.1016/j.atmosres.2019.03.017
- ‘GARLiC and LIRIC: Strengths and limitations for the characterization of dust and marine particles along with their mixtures’
A. Tsekeri, A. Lopatin, V. Amiridis, E. Marinou, J. Igloffstein, N. Siomos, S. Solomos, P. Kokkalis, R. Engelmann, H. Baars, M. Gratsea, P. Raptis, I. Biniotoglou, N. Mihalopoulos, N. Kalivitis, G. Kouvarakis, N. Bartsotas, G. Kallos, S. Basart, D. Schuettemeyer, U. Wandinger, A. Ansmann, A. Chaikovsky, O. Dubovik
Atmospheric Measurement Techniques, 10(12), 4995-5016, 2017, doi:10.5194/amt-10-4995-2017
- ‘The combined effect of reduced fossil fuel consumption and increasing biomass combustion on Athens’ air quality, as inferred from long term CO measurements’
M. Gratsea, E. Liakakou, N. Mihalopoulos, A. Adamopoulos, E. Tsilibari, E. Gerasopoulos
Science of the Total Environment, 592, 115-123, 2017, doi:10.1016/j.scitoenv.2017.03.045
- ‘Slant Column MAX-DOAS measurements of nitrogen dioxide, formaldehyde, glyoxal and oxygen dimer in the urban environment of Athens’
M. Gratsea, M. Vrekoussis, A. Richter, F. Wittrock, A. Schönhardt, J. Burrows, S. Kazadzis, N. Mihalopoulos, E. Gerasopoulos
Atmospheric Environment, Volume 135, 118-131, 2016, doi: 10.1016/j.atmosenv.2016.03.048
- ‘Fire risk, atmospheric chemistry and radiative forcing assessment of wildfires in eastern Mediterranean’
E. Athanasopoulou, D. Rieger, C. Walter, H. Vogel, A. Karali, M. Hatzaki, E. Gerasopoulos, B. Vogel, C. Giannakopoulos, M. Gratsea, A. Roussos
Atmospheric Environment, Volume 95, 113-125, 2014, https://doi.org/10.1016/j.atmosenv.2014.05.077

CONFERENCE PUBLICATIONS

- ‘Use of the return period methodology for the prediction of weather events with adverse impacts - case studies for the agricultural and hydrological sectors’
18th Plinius Conference on Mediterranean Risks (30 September-3 October 2024, Chania, Greece)
M. Gratsea, G. Kitsara, P. Machaira, E. Kostopoulou, K.V. Varotsos, C. Giannakopoulos
- ‘Climate indices and return period analysis to assess the long-term impact of climate change on olive crops in Peloponnese, Greece’
9th International Conference on Meteorology and Climatology of the Mediterranean (22-24 May 2023, Genoa, Italy)
M. Gratsea, P. Machaira, G. Kitsara, C. Giannakopoulos
- ‘Tailoring climate change information to assess the vulnerability of Greek airports, in support of prioritising adaptation measures’
European Geosciences Union General Assembly 2023 (23-28 April 2023, Vienna, Austria)
T. van de Schriek, C. Giannakopoulos, N. Roukounakis, A. Karali, G. Kitsara, G. Lemesios, M. Gratsea
- ‘An improved TROPOMI Tropospheric NO₂ Research Product over Europe’
ESA Atmospheric Science Conference 2021 (22-26 November 2021, online)
P. Valks, S. Liu, S. Seo, G. Pinardi, J. Xu, K.L. Chan, A. Argyrouli, R. Lutz, S. Beirle, E. Khorsanidi, F. Baier, V. Huijnen, A. Bais, S. Donner, S. Dorner, M. Gratsea, F. Hendrick, D. Karagkiozidis, K. Lange, A.J.M. Peters, J.

Remmers, A. Richter, M. Van Roozendaal, T. Wagner, M. Wenig, D.G. Loyola

- ‘Long-term MAX-DOAS NO₂ measurements over Athens and association with urban sources’
15th International Conference on Meteorology, Climatology and Atmospheric Physics (26-29 September 2021, Ioannina, Greece)
M. Gratsea, E. Athanasopoulou, A. Kakouri, A. Richter, A. Seyler, E. Gerasopoulos
- ‘Evaluation of the LOTOS-EUROS NO₂ simulations using ground-based measurements and S5P/TROPOMI observations over Greece’
15th International Conference on Meteorology, Climatology and Atmospheric Physics (26-29 September 2021, Ioannina, Greece)
I. Skoulidou, M.E. Koukouli, A. Manders, A. Segers, D. Karagkiozidis, M. Gratsea, D. Balis, A. Bais, E. Gearasopoulos, A. Richter, T. Stavrakou, J. van Geffen, H. Eskes
- ‘Return period analysis to assess the long-term impact of climate change on olive sector in Andalusia, Spain - results from the Med-Gold project’
European Geosciences Union General Assembly 2021 (19-30 April 2021, online)
M. Gratsea, K.V. Varotsos, J. Lopez-Nevaldo, S. Lopez-Feria, C. Giannakopoulos
- ‘Using NDACC MAX-DOAS Central Processing System data for TROPOMI NO₂ and HCHO column validation: first results’
9th DOAS Workshop (13-15 July 2020, Utrecht, Netherlands)
M.M. Friedrich, F. Hendrick, G. Pinardi, C. Fayt, M. Van Roozendaal, A. Bais, S. Beirle, T. Bösch, S. Casadio, P. Castracane, A. Dehn, S. Donner, U. Friess, M. Gratsea, D. Karagkiozidis, K. Kreher, K. Lnge, M. Navarrop-Comas, A. PETERS, R. Querel, J. Remmers, A. Richter, J.L. Tirpitz, T. Wagner, M. Yela
- ‘Mediterranean agro-climate projections and the case of olives in Andalusia: results from the MED-GOLD project’
European Meteorological Society Annual Meeting (9-13 September 2019, Copenhagen, Denmark)
K. Varotsos, C. Giannakopoulos, M. Gratsea, V. Tenentes
- ‘Climatological analysis of extreme precipitation in five European countries: Results from the TRIBUTE project measurements’
16th Plinius Conference on Mediterranean Risks (9-11 October 2018, Montpellier, France)
K. Varotsos, C. Giannakopoulos, M. Gratsea, V. Tenentes, I. Keramitsoglou, C. Kiranoudis
- ‘Evaluation of various bias correction methods for Mediterranean agro-climate projections: first results from the Med-Gold project’
MedCLIVAR 2018 Conference (17-21 September, Belgrade, Serbia)
C. Giannakopoulos, K. Varotsos, A. Karali, M. Gratsea
- ‘LIFE UrbanProof: current and future climate trends in Mediterranean cities’
14th International Conference on Meteorology, Climatology and Atmospheric Physics (15-17 October 2018, Alexandroupolis, Greece)
C. Giannakopoulos, K. Varotsos, A. Karali, G. Lemesios, M. Gratsea, V. Tenentes
- ‘Retrieval of aerosol vertical profiles over Athens using MAX-DOAS measurements’
11th International Conference on Air Quality – Science and Application (12-16 March 2018, Barcelona, Spain)
M. Gratsea, T. Bösch, P. Kokkalis, A. Richter, M. Vrekoussis, S. Kazadzis, A. Papayannis, V. Amiridis, N. Mihalopoulos, E. Gerasopoulos
- ‘Validation and Verification of S5P NO₂, using ground-based, airborne and satellite data’

Atmospheric Composition Validation and Evolution workshop, ESA (18-20 October 2016, Rome, Italy)

A. Richter, F. Wittrock, E. Peters, A. Schönhardt, A. Meier, M. Ostendorf, H. Bovensmann, J.P. Burrows, M. Vrekoussis, S. Schreier, M. Gratsea, E. Gerasopoulos

- ‘An overview of biomass burning impacts on Athens air quality and analysis of its increasing significance’
13th International Conference on Meteorology, Climatology and Atmospheric Physics (19-21 September 2016, Thessaloniki, Greece)

E. Gerasopoulos, M. Gratsea, E. Liakakou, M. Lianou, B. Psiloglou, N. Kappos, H. Kambezidis, N. Mihalopoulos

- ‘Impact of biomass combustion on the urban air quality of Athens’
10th International Conference on Air Quality – Science and Application (14-18 March 2016, Milan, Italy)

M. Gratsea, E. Gerasopoulos, E. Liakakou, N. Mihalopoulos

- ‘MAX-DOAS observation of CHOCHO, HCHO and NO₂ over Nairobi and Athens’
DPG Spring meeting (March 2015, Heidelberg, Germany)

L. Alvarado, A. Richter, E. Peters, F. Wittrock, J.P. Burrows, M. Vrekoussis, M. Gratsea, E. Gerasopoulos

- ‘Spatial and temporal variability of NO₂ in Athens observed by MAX-DOAS’
NORS/NDACC/GAW workshop (5-7 November 2014, Brussels, Belgium)

A. Richter, M. Gratsea, F. Wittrock, J.P. Burrows, M. Vrekoussis, E. Gerasopoulos

- ‘NO₂ measurements over Athens using the MAX-DOAS technique’
12th International Conference on Meteorology, Climatology and Atmospheric Physics (28-31 May 2014, Heraklion, Greece)

M. Gratsea, M. Vrekoussis, F. Wittrock, A. Schönhardt, A. Richter, E. Gerasopoulos

- ‘A method for calculating O₁D and NO₂ photolysis frequencies using satellite based UV solar radiation retrievals’
12th International Conference on Meteorology, Climatology and Atmospheric Physics (28-31 May 2014, Heraklion, Greece)

I.P. Raptis, S. Kazadzis, B. Bohn, N. Mihalopoulos, M. Gratsea, H. Berresheim, F. Rohrer, M. Ada

- ‘Spatial and temporal variability of NO₂ in Athens observed by MAX-DOAS’
European Geosciences Union General Assembly 2014 (27 April-2 May 2014, Vienna, Austria)

A. Richter, M. Gratsea, F. Wittrock, J.P. Burrows, M. Vrekoussis, E. Gerasopoulos

- MAX-DOAS observation of HCHO and CHOCHO over Athens and Nairobi’
European Geosciences Union General Assembly 2014 (27 April-2 May 2014, Vienna, Austria)

L. Alvarado, A. Richter, E. Peters, F. Wittrock, J.P. Burrows, M. Vrekoussis, M. Gratsea, E. Gerasopoulos

- ‘1.5 Year AOD Observations at Navarino Environmental Observatory (NEO), in Messinia – Southern Greece (Eastern Mediterranean)’

European Geosciences Union General Assembly 2013 (7-12 April 2013, Vienna, Austria)

E. Gerasopoulos, M. Gratsea, V. Amiridis, C. Zerefos, M.O. Andreae

- ‘Aerosol observations and predictions in the southeastern Europe during the extreme summer 2007’
2-7 September 2012 European Aerosol Conference, EAC (2-7 September 2012, Granada, Spain)

E. Athanasopoulou, E. Gerasopoulos, H. Vogel, M. Gratsea, B. Vogel, S. Kazatzis and E. Liakakou

- ‘Optical properties of aerosols over Athens, Greece, and their relation to chemical composition’
11th International Conference on Meteorology, Climatology and Atmospheric Physics (29 May-1 June 2012, Athens, Greece)

D. Paraskevopoulou, E.Gerasopoulos, E. Liakakou, M. Gratsea, P.Zarmpas, C.Theodosi, N.Mihalopoulos

- ‘ACEMED experimental campaign over Greece for the evaluation of CALIPSO’s aerosol classification scheme’
11th International Conference on Meteorology, Climatology and Atmospheric Physics (29 May-1 June 2012, Athens, Greece)

V. Amiridis, E. Marinou, S. Kazadzis, E. Gerasopoulos, P. Kokkalis, R.E. Mamouri, A. Papayannis, N. Kouremeti, E. Giannakaki, E. Liakakou, D. Paraskevopoulou, M. Gratsea, K. Allahverdi, G. Kouvarakis, D. Balis, A. Bais, N. Mihalopoulos, I. Daglis, & C. Zerefos

- ‘Dust impact on urban air quality’
6th International Workshop on Sand/Duststorms and Associated Dustfall (7-9 September 2011, Athens, Greece)

E. Gerasopoulos, M. Gratsea, S. Kazadzis, V. Amiridis, M. Vrekoussis, E. Liakakou

REVIEWER

Reviewer in 3 international scientific journals (Atmospheric Environment, Euro-Mediterranean Journal for Environmental Integration, Remote Sensing)
