

Contents

Part I Meteorology

Application of GIS and Remote Sensing Techniques for Flood Risk Assessment in Cyprus	3
D.D. Alexakis, D.G. Hadjimitsis, S. Michaelides, I. Tsanis, A. Retalis, C. Demetriou, A. Agapiou, K. Themistokleous, S. Pashiardis, K. Aristeidou, and F. Tymvios	
Estimating Flash Flood Discharge in a Catchment Area with the Use of Hydraulic Model and Terrestrial Laser Scanner	9
D.D. Alexakis, D.G. Hadjimitsis, and A. Agapiou	
On the Role of Potential Vorticity Perturbations in the Spontaneous Generation of Gravity Waves	15
N.A. Bakas and B.F. Farrell	
On a Dynamical Mechanism Underlying the Intensification of Tropical Cyclones	21
N.A. Bakas and P.J. Ioannou	
Radar Derived Storm Characteristics Over Central Greece	27
D. Bampzelis and T. Karacostas	
Synoptic Aspects of the Eastern Mediterranean Explosive Cyclogenesis of 22 January 2004	35
D. Brikas, T. Karacostas, and I. Pytharoulis	
Wind Energy in NW Greece	43
D.C. Chaskos, A. Bartzokas, and J.D. Pnevmatikos	

Agrometeorological Remote Sensing of High Resolution for Decision Support in Precision Agriculture	51
N.R. Dalezios, N. Spyropoulos, A. Blanta, and S. Stamatiades	
Surface Meso High and Wake Low Associated with Pre-Monsoon Thunderstorm Over the Kharagpur Region	57
S. Dawn and M. Mandal	
Evaluation of WRF-ARW Model in Reproducing a Heavy Rainfall Event Over Chalkidiki, Greece: The Effect of Land-Surface Features on Rainfall	65
G. Efstathiou, D. Melas, N. Zoumakis, and P.A. Kassomenos	
On the Effect of Land Use Change on the Meteorological Parameters Above the Greater Athens Area	73
K.M. Fameli, V.D. Assimakopoulos, and V. Kotroni	
Study of a Mesoscale Convective Complex Over Balkans with Meteosat Data	79
H. Feidas	
Numerical Wave Modeling and Wave Energy Estimation	87
G. Galanis, G. Zodiatis, D. Hayes, A. Nikolaidis, G. Georgiou, S. Stylianou, G. Kallos, C. Kalogeri, P.C. Chu, A. Charalambous, K. Savvidou, and S. Michaelides	
Delineation of Convective and Stratiform Rainy Clouds Based on Their Spectral and Textural Features on Meteosat Data	97
A. Giannakos and H. Feidas	
Development of a Modeling System for Urban Heat Islands: An Application to Athens and Thessaloniki, Greece	103
T.M. Giannaros, D. Melas, I. Keramitsoglou, and I.A. Daglis	
Using Synoptic Classification to Evaluate an Operational Weather Forecasting System	109
F. Gofa, D. Tzeferi, and A. Raspanti	
MODIS Data for Monitoring RedScale (<i>Aonidiella aurantii</i>) Population: The Development of a Regression Model Using Temperature Measurements from Satellite and Meteorological Stations	117
D.G. Hadjimitsis, A. Agapiou, and A. Papachristodoulou	
Studying Surface Observed Meteorological Characteristics Under Different Synoptic Scale Circulation Patterns	123
C.H. Halios, C.G. Helmis, H.A. Flocas, S. Nyeki, and D.N. Asimakopoulos	

Forest Fire Modeling and the Effect of Fire-Weather in Landscape Fire Behavior for the Region of Attica, Greece	131
N. Iliopoulos, K. Kalabokidis, G. Kallos, H. Feidas, A. Malounis, and E. Mavromatidis	
Mobile Radar Network Measurements for Flood Applications During the Field Campaign of HydroRad Project	137
J. Kalogiros, M. Anagnostou, F.S. Marzano, E. Picciotti, G. Cinque, M. Montopoli, L. Bernardini, E. Anagnostou, A. Volpi, and A. Telleschi	
Synoptic, Dynamic and Thermodynamic Characteristics of the 10th August 2008 Intensive Storm Over North-Central Greece	145
T. Karacostas, V. Spiridonov, D. Bampzelis, I. Pytharoulis, G. Karoutsos, and C. Sideropoulou	
A Three-Dimensional Simulation of the 10th August 2008 Storm Occurred Over Greece: AgI Seeding of Cell Merger by Using a Cloud Resolving Model	151
T. Karacostas, V. Spiridonov, S. Stolaki, I. Pytharoulis, and I. Tegoulas	
The Meteorological Setting of a Particulate Air Pollution Episode During November 2009, in Western Macedonia Industrial Area, Greece	159
A.F. Karagiannidis, A.G. Triantafyllou, and T. Karacostas	
A First Comparative Analysis of Temperature Data Collected from Automatic and Conventional Weather Stations in Greece	169
N. Karatarakis, A. Sarantopoulos, T. Charantonis, P.T. Nastos, K. Lianos, and K. Petsa	
Thermal Comfort in Hot Outdoor Environment Under Unsteady Conditions	175
G. Katavoutas, H.A. Flocas, and M. Tsitsomitsiou	
Heat Island and Thermal Bioclimate in Athens, Greece	181
G. Katavoutas, G.K. Georgiou, D.N. Asimakopoulos, and G. Theoharatos	
Seasonal Forecasts for the 2010 Russian Heat Wave Using an Atmospheric General Circulation Model	187
P. Katsafados, E. Papadopoulou, A. Papadopoulos, and E. Mavromatidis	
Nowcasting a Mesoscale Convective System Over Greece with a Satellite-Based Algorithm	195
S. Kolios and H. Feidas	

openmeteo.org: A Web Service for the Dissemination of Free Meteorological Data	203
S. Kozanis, A. Christofides, N. Mamassis, and D. Koutsoyiannis	
Numerical Investigation of the Role of Topography in Tornado Events in Greece	209
I.T. Matsangouras, I. Pytharoulis, and P.T. Nastos	
Biometeorological Conditions in the Urban Park of Nea Smirni in the Greater Region of Athens, Greece During Summer	217
A. Matsoukis, A. Kamoutsis, A. Bolas, and A. Chronopoulou-Sereli	
Forest Fire Indices in Greece During the Forest Fire Events of Summer 2007	223
A. Mavrakis, A. Agelakis, and G. Theoharatos	
Satellite Based Estimation of Urban Surface Emissivity with the Use of Sub-Pixel Classification Techniques	231
Z. Mitraka and N. Chrysoulakis	
Comparison of Actual Thermal Vote with Two Objective Human-Biometeorological Indices Values	239
K. Pantavou, E. Chatzi, and G. Theoharatos	
A Comparison of a Hydrological and an Energy Balance Model for Estimating Evapotranspiration of Chickpeas at Paphos (SW Cyprus) Agricultural Area	247
G. Papadavid, D.G. Hadjimitsis, S. Michaelides, L. Toullos, and A. Agapiou	
High Resolution Gridded Meteorological Data Across the Mediterranean Basin	253
A. Papadopoulos, P. Katsafados, and I. Pytharoulis	
Performance Assessment of an Integrated Sensor for Simultaneous Measurements of Global and Diffuse Radiation Components at Athens Area	259
B. Psiloglou, S. Lykoudis, and D. Kouvas	
Study of the August 2010 Heat Event in Cyprus	265
A. Retalis, D. Paronis, S. Michaelides, F. Tymvios, D. Charalambous, D.G. Hadjimitsis, and A. Agapiou	
Stable Isotopic Composition of Atmospheric Water Vapor in Greece ...	271
V. Salamalikis, A.A. Argiriou, and E. Dotsika	

Hailstorm Characteristics Over the Area of Central Macedonia During the Period 1998–2008	277
E. Sfiri and T. Karacostas	
The Impact of Topography on the Precipitation Regime over Epirus, NW Greece, During the Cold Period of the Year	285
O.A. Sindosi, A. Bartzokas, V. Kotroni, and K. Lagouvardos	
Meteorological Conditions Associated with Strong Tornadoes in Greece	293
M. Sioutas, P.T. Nastos, I.T. Matsangouras, and H.A. Flocas	
An Attempt for Teaching Meteorological Instruments to the Students of Agriculture by Using Self-Constructions	301
S. Spanos and X. Vatsios	
Contribution to the Study of Regional Actual Evapotranspiration with the Use of Surface Energy Balance and Remote Sensing for Central Greece	309
M. Spiliotopoulos, A. Loukas, and H. Michalopoulou	
The Effects of Naturally Produced Dust Particles on Radiative Transfer	317
C. Spyrou, G. Kallos, C. Mitsakou, P. Athanasiadis, and C. Kalogeri	
Numerical Study of an Intense Episode of Vardaris Wind	325
L. Tsopouridis, I. Pytharoulis, T. Karacostas, P. Zanis, and I. Tegoulis	
A Comparison of Storm Characteristic Between Mountainous and Plain Areas within Central Macedonia	333
K. Tympanidis, D. Bampzelis, T. Karacostas, and E. Chatzi	
ANN-Based Modeling of Daily Global UV, PAR and Broadband Solar Radiant Fluxes in Cyprus	341
F. Tymvios, A. Georgiou, M. Pelecanou, and C.P. Jacovides	
Cloud Detection and Classification with the Use of Whole-Sky Ground-Based Images	349
P. Tzoumanikas, A. Kazantzidis, A.F. Bais, S. Fotopoulos, and G. Economou	
Factors Determined Snow Accumulation Over the Greater Athens Area During the Latest Snowfall Events	355
A. Voudouri and D. Kotta	

Part II Climatology

Simulating the Climatology of Extreme Events for the Central Asia Domain Using the RegCM 4.0 Regional Climate Model	365
H. Altinsoy, T. Ozturk, M. Turkes, and M.L. Kurnaz	
The Precipitation and Temperature Regime Over Three European Sub-regions as a Result of Climate Change	371
H. Altinsoy, A. Yuncu, and M.L. Kurnaz	
Analysis of the Effect of Climate Change on the Yield of Crops in Turkey Using a Statistical Approach	379
H. Altinsoy, C. Kurt, and M.L. Kurnaz	
Drought Index Over Greece as Simulated by a Statistical Downscaling Model	385
C. Anagnostopoulou, K. Tolika, and P. Maheras	
Hellenic Network for Solar Energy	391
A.F. Bais, A. Kazantzidis, C.S. Zerefos, D. Melas, E. Kosmidis, S. Kazadzis, E. Nikitidou, T.M. Giannaros, M.-M. Zempila, K. Fragkos, and V. Salamalikis	
The Climate and Bioclimate of Nevşehir from the Perspective of Tourism	397
O. Çalışkan and A. Matzarakis	
Indications of Stability of Occurrence of Halcyon Days in the Ancient Greek Drama	403
C. Chronopoulou and A. Mavrakis	
Remotely Sensed Spatiotemporal Features of Agrometeorological Drought	409
N.R. Dalezios, A. Blanta, and N. Spyropoulos	
Characterization of Dust Storm Sources in Western Iran Using a Synthetic Approach	415
A. Darvishi Bolorani, S.O. Nabavi, R. Azizi, and H.A. Bahrami	
Objective Recognition of Low Pressure Systems and Their Characteristics in the Area of Greece	421
K. Douvis, G. Tselioudis, M. Bauer, and C.S. Zerefos	

Relating Climatic Variables to Geographic Features in Greece	429
H. Feidas, A.F. Karagiannidis, S. Keppas, G. Marougianni, M. Vaitis, Th. Kontos, I. Kioutsioukis, D. Melas, P. Zanis, and E. Anadranistakis	
The Contribution of Urban Effect to the Warming Trends of Air Temperature in Athens	437
D. Founda, F. Pierros, M. Petrakis, and C.S. Zerefos	
Modeling of Changes in Human Thermal Bioclimate Resulting from Changes in Urban Design: Example Based on a Popular Place in Freiburg, Southwest Germany	443
D. Fröhlich and A. Matzarakis	
Evaluation of Potential Evapotranspiration in Central Macedonia by EmPEst	451
S. Gebhart, K. Radoglou, G. Chalivopoulos, and A. Matzarakis	
Impacts of Climate Change Over the Eastern Mediterranean and Middle East Region Using the Hadley Centre PRECIS RCM	457
C. Giannakopoulos, E. Kostopoulou, P. Hadjinicolaou, M. Hatzaki, A. Karali, J. Lelieveld, and M.A. Lange	
Spatial Variability of Daily Extreme Surface Air Temperatures Over Europe During 1950–2009	465
A. Gkikas, E. Mastrapostoli, F. Stamatoukou, B.D. Katsoulis, and N. Hatzianastassiou	
Comparisons of Air Temperature Summer Conditions Between an Urban Forest Park and Its Surrounding Built-Up Area with Their Nearby Mountainous Forest, in the Greater Athens Area, Greece	471
V. Gouma	
Relationship of South-Eastern Europe Winter Precipitation with North Atlantic SST	479
M. Hatzaki and R. Wu	
Phenological Response of Pear and Orange Trees to Air Temperature at Regions of Thessaly and Peloponnesus, Greece	487
A. Kamoutsis, A. Matsoukis, P. Kouzounas, and A. Chronopoulou-Sereli	
Regional Climate Models' Future Simulations of Mean Air Temperature in Greece	493
J. Kapsomenakis, P.T. Nastos, K. Douvis, C.M. Philandras, G. Tselioudis, and C.S. Zerefos	

Evaluation of the Canadian Fire Weather Index in Greece and Future Climate Projections	501
A. Karali, A. Roussos, C. Giannakopoulos, M. Hatzaki, G. Xanthopoulos, and K. Kaoukis	
Spatio-Temporal Analysis of Extreme Anomalous Hot and Dry Weather Events in Israel	509
O. Karo and H. Kutiel	
Assessing the Impact of Mineral Dust and Adsorption Activation on Cloud Droplet Formation	515
V.A. Karydis, P. Kumar, D. Barahona, I.N. Sokolik, and A. Nenes	
An Investigation of Iran's Precipitation Anomalies in Relation with Atmospheric Blocking	521
G. Azizi and M. Khalili	
Changes of Pan Evaporation Measurements and Reference Evapotranspiration in Greece	527
G. Kitsara, G. Papaioannou, and P. Kerkides	
Homogenization of Temperature Time Series of Western Greece	535
K.V. Kolokythas and A.A. Argiriou	
Evaluation of Cloud Description in General Circulation Models Using A-Train Observations	541
D. Konsta, H. Chepfer, and J.L. Dufresne	
Assessment of Climate Change Extremes Over the Eastern Mediterranean and Middle East Region Using the Hadley Centre PRECIS Regional Climate Model	547
E. Kostopoulou, C. Giannakopoulos, M. Hatzaki, A. Karali, P. Hadjinicolaou, J. Lelieveld, and M.A. Lange	
Viticulture: Climate Relationships in Greece and Impacts of Recent Climate Trends: Sensitivity to "Effective" Growing Season Definitions	555
G. Koufos, T. Mavromatis, S. Koundouras, and N.M. Fyllas	
On the Dynamics of Mediterranean Explosive Cyclogenesis	563
J. Kouroutzoglou, H.A. Flocas, M. Hatzaki, K. Keay, and I. Simmonds	
On the Climate Characteristics of Convection Contribution to Precipitation in Southeastern Europe	571
C.J. Lolis, A. Bartzokas, and B.D. Katsoulis	

Assessment on Temperature Extremes in Montenegro	577
J. Lukovic, D. Buric, V. Ducic, M. Doderovic, and I. Milevski	
Trend Analysis for Climatic Time Series for Greece	583
G. Marougianni, D. Melas, I. Kioutsioukis, H. Feidas, P. Zanis, and E. Anadranistakis	
Transferring Climate Information for Application and Planning: The Climate-Tourism/Transfer-Information-Scheme	591
A. Matzarakis	
Climatic Classification of an Industrial Area of Eastern Mediterranean (Thriassio Plain: Greece)	599
A. Mavrakis	
Climate-Cereal Crop Relationships in Greece and the Impacts of Recent Climate Trends: The Role of the Effective “Growing Season” Definition	605
T. Mavromatis	
Soil Temperature Prediction Using Time-Delay Neural Networks	611
E. Mazou, N. Alvertos, and I.X. Tsiros	
An Objective Classification of Synoptic Types over Europe	617
C. Michailidou, P. Maheras, C. Anagnostopoulou, and I. Tegoulas	
Optimization of a Regional Climate Model for High Resolution Simulations over Greece	623
S. Mystakidis, P. Zanis, C. Dogras, E. Katragkou, I. Pytharoulis, D. Melas, E. Anadranistakis, and H. Feidas	
Future Projections of Heat Waves in Greece. Extreme or Common Events?	631
P.T. Nastos and J. Kapsomenakis	
Composite Mean and Anomaly of Synoptic Conditions for Tornadoic Days over North Ionian Sea (NW Greece)	639
P.T. Nastos and I.T. Matsangouras	
Effect of Sea-Air Interaction of Caspian Sea on Heavy and Super Heavy Precipitation Events in the Southern Coasts of Caspian Sea	647
H. Nouri, M. Azadi, and G. Ghasempour	
Evaluation of the Climate Change Impact on the Productivity of Portuguese Pine Ecosystems Using the Forest-BGC Model	655
L. Nunes, M.A. Rodrigues, and D. Lopes	

Decadal Analysis of Heat-Wave Events in Thessaloniki and Investigation of Impacts on PM₁₀	663
N. Pakalidou, E. Katragkou, A. Poupkou, P. Zanis, A. Bloutsos, and T. Karacostas	
A Study of Divergence and Convergence of the Wind Field over Europe and the Mediterranean	671
O. Pezoula and A. Bartzokas	
Climatology of Upper Air Temperature in the Eastern Mediterranean Region	677
C.M. Philandras, P.T. Nastos, J. Kapsomenakis, and C.C. Repapis	
Influence of Extreme Weather Events on Insects in Hungary	687
J. Puskás, L. Nowinszky, and É. Nagy	
Cloud Radiative Effects on Solar Radiation Over the Eastern Mediterranean Basin from 1984 to 2007	693
M. Pyrina, C.D. Papadimas, A. Fotiadi, C. Matsoukas, N. Hatzianastassiou, and I. Vardavas	
Large-Scale Variability Over Mediterranean Associated with the Indian Summer Monsoon	701
D. Rizou, H.A. Flocas, P. Athanasiadis, and A. Bartzokas	
ECHAM5/MPI General Circulation Model Simulations of Teleconnection Indices Over Europe	709
E. Rousi, C. Anagnostopoulou, K. Tolika, P. Maheras, and A. Bloutsos	
Atmospheric Circulation Characteristics Associated with high Static Instability Conditions Over the Athens Region	717
E. Serbis, C.J. Lolis, and P.A. Kassomenos	
Construction of Winter Temperature Scenarios over Greece, Using an Alternative Statistical Downscaling Model Based on CCA	723
A. Skourkeas, F. Kolyva-Machera, and P. Maheras	
Climate Variability and Water Mass Formation in the Eastern Mediterranean Sea	729
S. Sofianos, V. Vervatis, N. Skliris, S. Somot, A. Lascaratos, and A. Mantziafou	
Day to Day Variability of Air Temperature over Greece for the Period 1957–2002	737
V. Stathopoulos, A. Fotiadi, E.E. Houssos, N. Hatzianastassiou, and I. Vardavas	

Investigating with the Ceres-Wheat Model the Impacts of Soil and Climate Factors on Durum Wheat Performance and Earliness in Northern Greece	743
K. Symeonidis, T. Mavromatis, and S. Kotzamanidis	
Information System Regarding the Management and Processing of Data Base Software for Applications in Cases of Remote Sensing	751
A. Theodorou, K. Nicolaides, and F. Tymvios	
Applications of Semi-Analytical Models for Estimating Soil Temperature	757
E. Thoma, I.X. Tsiros, S. Lykoudis, and B.E. Psiloglou	
Extreme Heat Wave Events in the Thessaloniki Region: Past, Present and Future Projections	765
K. Tolika and C. Anagnostopoulou	
Anticyclonic Blocking Effects Over Europe from an Ensemble of Regional Climate Models in Recent Past Winters	773
K. Tourpali and P. Zanis	
Thermal Comfort Conditions and Evaluation of the Thermal Bioclimate Index PET in Two European Cities During Summer	779
A. Tseliou, I.X. Tsiros, M. Nikolopoulou, and S. Lykoudis	
Connection of Heat Events in Cyprus with Synoptic Upper Air Patterns	787
F. Tymvios, S. Michaelides, D. Charalambous, A. Retalis, D. Paronis, D.G. Hadjimitsis, A. Agapiou, K. Themistokleous, and C. Skouteli	
The Summer Circulation in the Eastern Mediterranean and the Middle East: Influence of the South Asian Monsoon and Mid-Latitude Dynamics	793
E. Tyrllis, J. Lelieveld, and B. Steil	
Study of Frost Days in the Greek Region: Future Projections from the ENSEMBLES Models	803
K. Velikou and K. Tolika	
A Dynamic-Statistical Downscaling Approach for Simulating Air Temperature Time Series	811
I. Yiannikopoulou, D. Deligiorgi, H.A. Flocas, and K. Philippopoulos	

The Impact of Climate Change in Water Resources: An Example of Hard Rocks Aquifers in Mantoudi Area (Central Euboea Island, Hellas)	819
G. Yoxas and P.T. Nastos	
Efficient ANN Training for the Reconstruction of Isotopic Time Series	825
A. Zagouras, V. Salamalikis, A.A. Argiriou, and S. Lykoudis	
Land-Atmosphere Coupling: The Feedback of Soil Moisture into Surface Temperature in Eastern Mediterranean and Middle East	833
G. Zittis, P. Hadjinicolaou, and J. Lelieveld	
 Part III Atmospheric Physics	
Surface Ozone Spatial Distribution and Trends Over Europe During 1997–2006	843
D. Aggelis, P. Zanis, C.S. Zerefos, A.F. Bais, and P.T. Nastos	
Air Quality Simulations Over Europe for the Period 1996–2006 with Emphasis on Tropospheric Ozone	849
D. Akritidis, P. Zanis, E. Katragkou, I. Tegoulas, A. Poupkou, K. Markakis, T. Karacostas, and I. Pytharoulis	
Trends of Shortwave and Longwave Surface Radiation in Europe: Spatiotemporal Analysis and Comparison of Satellite and Ground-Based Observations	857
G. Alexandri, C. Meleti, A.K. Georgoulas, and D. Balis	
Evaluation of CALIPSO's Aerosol Classification Scheme During the ACEMED Experimental Campaign Over Greece: The Case Study of 9th of September 2011	865
V. Amiridis, E. Marinou, S. Kazadzis, E. Gerasopoulos, R.E. Mamouri, P. Kokkalis, A. Papayannis, N. Kouremeti, E. Giannakaki, E. Liakakou, D. Paraskevopoulou, M. Gratsea, G. Kouvarakis, K. Allakhverdiev, F. Huseyinoglu, A. Secgin, D. Balis, A.F. Bais, N. Mihalopoulos, I.A. Daglis, and C.S. Zerefos	
Estimating Direct Effects of Secondary Organic Aerosol Over Europe Using COSMO-ART	873
E. Athanasopoulou, H. Vogel, K. Lundgren, B. Vogel, C. Fountoukis, and S.N. Pandis	

High Resolution Aerosol Optical Depth in the Broader Greek Area Using MODIS Satellite Data 881
G. Athanassiou, C.D. Papadimas, and N. Hatzianastassiou

The Application of a Mixed-Phase Statistical Cloud-Cover Scheme to the Local Numerical Weather Prediction Model COSMO.GR 889
E. Avgoustoglou and T. Tzeferi

Changes in Total Solar Irradiance Measured at Thessaloniki, Greece Since 1993 Associated with Changes in Aerosols 897
A.F. Bais, Th. Drosoglou, C. Meleti, and N. Kouremeti

Forest Fire Aerosols: Vertically Resolved Optical and Microphysical Properties and Mass Concentration from Lidar Observations 905
D. Balis, E. Giannakaki, V. Amiridis, R.E. Mamouri, P. Kokkalis, G. Tsaknakis, and A. Papayannis

Comparative Analysis of MERIS/AATSR Synergy Algorithm Aerosol Retrievals Versus MODIS Aerosol Product and Validation Against AERONET Observations 911
N. Benas and N. Chrysoulakis

Aerosol Shortwave Direct Radiative Effect and Forcing Based on MODIS Level 2 Data in the Eastern Mediterranean (Crete) 917
N. Benas, N. Hatzianastassiou, C. Matsoukas, A. Fotiadi, N. Mihalopoulos, and I. Vardavas

Total Ozone Observations Made by Dobson Spectrophotometer at the Most SE Station in Europe the Last Twenty Years 923
J. Christodoulakis, C. Varotsos, D.N. Asimakopoulos, and C. Tzanis

Particulate Matter and Airborne Fungi Concentrations in Schools in Athens 931
P.V. Dorizas, E. Kapsanaki-Gotsi, M.N. Assimakopoulos, and M. Santamouris

On the SUVR Variability in Athens, Greece: An Overview 939
M. Efstathiou, C. Tzanis, C. Varotsos, P. Birmpakos, and M.N. Assimakopoulos

Comparison of Ozone Variations from Model Calculations (OsloCTM2) and Satellite Retrievals (SBUV) 945
K. Eleftheratos, I.S.A. Isaksen, C.S. Zerefos, K. Tourpali, and P.T. Nastos

Simulating Ultrafine Particle Formation in Europe Using a Regional CTM: Contribution of Primary Emissions Versus Secondary Formation to Aerosol Number Concentrations	951
C. Fountoukis, I. Riipinen, H. Denier van der Gon, P.E. Charalampidis, C. Pilinis, and S.N. Pandis	
Effect of Atmospheric Temperature Variations on Total Ozone Measured with a Brewer MKII Spectrophotometer at Thessaloniki	959
K. Fragkos, A.F. Bais, and C. Meleti	
Summer Total Cloud Cover Weekly Variability over Europe: Sign of Aerosols' Indirect Effect?	967
A.K. Georgoulas, K.A. Kourtidis, G. Alexandri, and A. Sanchez-Lorenzo	
Factors Controlling the Variability of Photolysis Rates of NO₂ and O¹D in the Complex Environment of the Eastern Mediterranean	975
E. Gerasopoulos, N. Mihalopoulos, S. Kazadzis, M. Vrekoussis, E. Liakakou, G. Kouvarakis, and N. Kouremeti	
Vertical Separation of Aerosol Types Using of CALIPSO Level-2 Products	981
E. Giannakaki, D. Balis, and V. Amiridis	
Air Pollution Monitoring Based on Remote Sensing and Simultaneous Ground PM₁₀ and PM_{2.5} Measurements: The 'WebAir-2 Project'	987
D.G. Hadjimitsis, A. Agapiou, K. Themistokleous, C. Achilleos, A. Nisantzi, R.E. Mamouri, C. Panayiotou, and S. Kleanthous	
On the Vertical Structure and Spectral Characteristics of the Marine Low-Level Jet	995
C.G. Helmis, G. Sgouros, and Q. Wang	
Atmospheric Conditions Associated with High and Low Ozone Concentrations in the Boundary Layer and the Lower Troposphere over the Eastern Mediterranean (Aegean Sea)	1003
P.D. Kalabokas	
A Case of African Dust Transport over Athens Captured by a Ceilometer	1011
H.D. Kambezidis, A.G. Paliatsos, N. Kappos, and B. Kasselouri	
Drivers of Air Quality in the East Mediterranean	1019
M. Kanakidou, N. Mihalopoulos, U. Im, S. Myriokefalitakis, and N. Daskalakis	

Model for Estimating Atmospheric Ozone Content over Northern Europe for Use in Solar Radiation Algorithms	1025
K. Karavana-Papadimou, B. Psiloglou, S. Lykoudis, and H.D. Kambezidis	
Aerosol Characteristics over Bay of Bengal During W-ICARB Cruise Campaign	1033
D.G. Kaskaoutis, P.R. Sinha, S.K. Kharol, P.G. Kosmopoulos, R.K. Manchanda, R.P. Singh, K.V.S. Badarinath, and S. Sreenivasan	
The Effect of Aerosol Absorption in Solar UV Radiation	1041
S. Kazadzis, V. Amiridis, and N. Kouremeti	
Estimation of the Cloud Modification Factor from Satellite and Ground Data at Thessaloniki, Greece	1049
A. Kazantzidis, E. Nikitidou, and A.F. Bais	
Aerosol Size over the Broader Greek Area Based on Satellite and Ground Measurements	1055
M. Koras-Carraca, A. Gkikas, C.D. Papadimas, N. Mihalopoulos, and N. Hatzianastassiou	
Experimental Study of the Turbulent Structure of the Surface Marine Atmospheric Boundary Layer over the Aegean Pelagos Under Etesian Winds	1063
V.E. Kostopoulos, C.G. Helmis, and P.I. Raptis	
Use of Shadowband Correction Models for Predicting Beam Solar Irradiance	1069
M.C. Kotti and A.A. Argiriou	
Investigating the GOME2/MetopA Total Sulphur Dioxide Load with the Aid of Chemical Transport Modelling over the Balkan Region ...	1075
M.E. Koukouli, P. Valks, A. Poupkou, I. Zyrichidou, M. Rix, N. Hao, E. Katragkou, D. Balis, D. Loyola, and D. Melas	
Phaethon: A System for the Validation of Satellite Derived Atmospheric Columns of Trace Gases	1081
N. Kouremeti, A.F. Bais, D. Balis, and I. Zyrichidou	
Effects of Albedo on Solar Irradiance	1089
A. Kreuter, M. Blumthaler, A.R. Webb, A.F. Bais, R. Kift, and N. Kouremeti	
The Impact of Wind Conditions on Particle Mass Concentrations in Athens, Greece	1097
M. Lianou, I.G. Kavouras, T. Kopania, and A. Kotronarou	

**Emissions of Megacities and Their Impact on Air Quality
Over Europe** 1105
A.G. Megaritis, C. Fountoukis, and S.N. Pandis

**Stratospheric Responses to the 11-year Solar Cycle in MAECHAM5
with and without Ocean Coupling** 1113
S. Misios and H. Schmidt

**24-Hours Ahead Forecasting of PM₁₀ Concentrations Using Artificial
Neural Networks in the Greater Athens Area, Greece** 1121
K. Moustris, I. Larissi, P.T. Nastos, K. Koukouletsos, and A.G. Paliatsos

**Aerosols Optical Properties and Their Effect on the UV Solar
Irradiance at Uccle, Belgium** 1127
E. Nikitidou, V. De Bock, H. De Backer, and A. Kazantzidis

**Study of Air Pollution with the Use of MODIS Data, LIDAR
and Sun Photometers in Cyprus** 1133
A. Nisantzi, D.G. Hadjimitsis, E. Akylas, A. Agapiou, M. Panayiotou,
S. Michaelides, F. Tymvios, D. Charalambous, S. Athanasatos, A. Retalis,
D. Paronis, S. Perdikou, P. Koutrakis, J.S. Evans, and S. Achilleos

**Ground-Based Aerosol Optical Depth Inter-Comparison Campaigns
at EUSAAR Sites in Athens, Greece** 1141
S. Nyeki, C.H. Halios, K. Eleftheriadis, V. Amiridis, J. Gröbner,
and C. Wehrli

**Regression of the Scattered Radiation Intensity with Precipitable
Water Depth and Relative Atmospheric Mass** 1147
M.D. Panagiotopoulou, A.S. Rapti, and N.D. Panagiotopoulos

Air Quality During Heat Waves 1153
D.K. Papanastasiou, D. Melas, and H.D. Kambezidis

**Optical Properties of Aerosols Over Athens, Greece, and Their
Relation with Chemical Composition** 1159
D. Paraskevopoulou, E. Gerasopoulos, E. Liakakou, M. Gratsea,
P. Zampas, C. Theodosi, and N. Mihalopoulos

**Atmospheric Circulation Role on Air Pollutants (PM₁₀, NO_x, O₃):
Two Different Approaches** 1165
St. Pateraki, D.N. Asimakopoulos, H.A. Flocas, Th. Maggos,
and Ch. Vasilakos

Annual Variation of Benzene Concentrations Over Western Athens Area During the Year 2009	1173
M. Petrakis, B. Psiloglou, A.G. Paliatsos, L. Drivas, and G. Zotos	
Properties of Aged Aerosols in the Eastern Mediterranean	1181
M. Pikridas, L. Hildebrandt, E. Kostenidou, G.J. Engelhart, B.H. Lee, N. Mihalopoulos, and S.N. Pandis	
Study of the Impact of an Intense Biomass Burning Event on the Air Quality in the Eastern Mediterranean	1189
A. Poupkou, K. Markakis, N. Liora, T.M. Giannaros, U. Im, N. Daskalakis, S. Myriokefalitakis, D. Melas, P. Zanis, M. Kanakidou, and C.S. Zerefos	
Temporal Variability of Surface Ozone Concentrations in Volos, Greece	1197
G. Proias, I. Larissi, K. Moustris, P.T. Nastos, and A.G. Paliatsos	
Air Pollution in Eastern Mediterranean: Nested-Grid GEOS-CHEM Model Results and Airborne Observations	1203
A.P. Protonotariou, E. Bossioli, M. Tombrou, N. Mihalopoulos, G. Biskos, J. Kalogiros, G. Kouvarakis, and V. Amiridis	
Weekly Cycles in Meteorological Variables Over Large-Scales: Fact or Myth?	1211
A. Sanchez-Lorenzo, P. Laux, H.J. Hendricks-Franssen, A.K. Georgoulas, J. Calbó, S. Vogl, and J. Quaas	
Meteorological Influences Within the Context of Air Quality in Beijing	1219
K. Schäfer, Y. Wang, S. Norra, R. Shen, J. Xin, H. Ling, G. Tang, C. Münkel, N. Schleicher, Y. Yu, J. Schnelle-Kreis, L. Shao, V. Dietze, K. Cen, R. Zimmermann, S. Schrader, and P. Suppan	
Monitoring Cloud Coverage in Cyprus for Solar Irradiance Prediction	1227
R. Tapakis and A.G. Charalambides	
Carbonaceous Aerosols Over the Mediterranean and Black Sea	1233
C. Theodosi, D. Smouliotis, P. Zarmpas, M. Kocak, and N. Mihalopoulos	
Physical and Chemical Processes of Polluted Air Masses During Etesians: Aegean-Game Airborne Campaign – An Outline	1239
M. Tombrou, E. Bossioli, J. Kalogiros, J. Allan, A. Bacak, G. Biskos, H. Coe, A. Dandou, G. Kouvarakis, N. Mihalopoulos, A.P. Protonotariou, B. Szabó-Takács, and E. Triantafyllou	

**Lignite Power Plant’s Contribution to the Particulate Pollution
in the Grater Western Macedonia Area, Greece 1245**
A.G. Triantafyllou, A. Krestou, and V. Matthaïos

**Assessment of the Impacts of Climate Change on Ozone Air-Quality
in Europe 1251**
K.V. Varotsos, C. Giannakopoulos, and M. Tombrou

**Regional Air Quality Simulations Over Europe in Present
and Future Climate: Evaluation and Climate Change Impacts
on Near Surface Ozone 1257**
P. Zanis, E. Katragkou, I. Tegoulías, I. Kioutsioukís, and D. Melas

**Compilation of a NO_x Emission Inventory for the Balkan Region
Using Satellite Tropospheric NO₂ Columns 1265**
I. Zyrichidou, M.E. Koukouli, D. Balis, K. Markakis, I. Kioutsioukís,
A. Poupkou, D. Melas, K.F. Boersma, and M. van Roozendael

Index 1273