

Education - Scholarships

- Degree of *Mathematics* (Athens University).
- *PhD in Physics* (Athens University, Section of Physics).
- Post-graduated Research Student *Scholarship* (National Observatory of Athens, 1989-1993).

Professional Objects

- *Assistant Professor*,
Dept. of Environmental Technologists, Technological Institute of Ionian Islands (2008-18),
Dept. of Environment, Ionian University (2018-today).
- *Dept. President* (2011-14).
- *Dept. vice-President* (2010-11).
- Supervisor of the Environmental Physics Sector (2008-20).
- Vice-President of the Education and Research Committee of TEI of Ionian Islands (2010-2011).
- President or Member in numerous Scientific and/or Administrative Committees of the department.



Teaching Experience

- Supervisor and lecturer of the following courses:
 - *Environmental Fluid Mechanics* (Theory and Laboratory, since 2005)
 - *Meteorology - Climatology* (Theory and Laboratory, since 2008)
 - *Mathematics I* (Calculus and Analysis, since 2003)
 - *Mathematics II and Statistics* (Differential Equations, Vectors Algebra, Fields, Basic Statistics, since 2003)
 - *Scientific Software* (Theory and Laboratory, since 2013)
 - *Renewable Energy Sources – Solar and Aeolic Systems* (Theory, since 2014).
- Supervisor of a PhD thesis in Environment Dept. and member of PhD thesis supervising committee in the University of Piraeus.
- Supervisor of numerous graduate thesis.
- Invited Professor of Ionian University Postgraduate Programs.
- Invited Professor of the Lille-1 Sciences and Technologies University, Lille, France.

Scientific publications

- The prototype **research work** is related to the diagnosis and study of the properties and results of natural mechanisms formed by large-scale thermodynamic and fluid-mechanical processes in *distinct* physical systems of our environment (mainly *Geophysical* and *Astrophysical* systems, such as *the climate system* and the *stellar interiors*)^[1]. In addition, it is related with the development and application of arithmetic and/or analytical mathematical methods (mainly based on differential equations) or statistical methods (mainly based on principal components analysis, multi-spectral decomposition and signal to noise resolution techniques, time-evolved detection of coherence and synchronization processes, considering a red-noise stochastic variability background), that leads in the detection and monitoring of the main spatio-temporal variability modes, as well as in the diagnosis of the implicated thermodynamic and fluid-mechanical processes characteristics. The

¹ As it is stated for instance in the introduction of the “Fundamentals of Geophysical Fluid Dynamics” textbook authored by McWilliams JM, (Dept. of Atmospheric and Oceanic Sciences, Univ. of California), Cambridge Univ. Press, 2006, pg.1: “*The subject matter of Geophysical fluid dynamics is motion in the fluid media on Earth and the distributions of material properties, such as mass, temperature, ozone, and plankton. By common custom, planetary and astrophysical fluids are also included in Geophysical fluid dynamics, since many of the scientific issues are similar, but it is awkward to use a more accurate title that explicitly includes all of these media.*”

published research work has received more than 400 references in the international literature, and it is spread in various scientific journals and selected volumes related to the following research subjects^[2]:

- **Climate and Atmospheric dynamics** (published in *Atmospheric Research, International Journal of Climatology, Theoretical and Applied Climatology, Atmospheric Science, Urban Climate*),
- **Sea-Atmosphere interaction** (published in *Atmospheric Research, International Journal of Climatology, Theoretical and Applied Climatology*),
- **Ocean dynamics** with emphasis given in the Mediterranean Sea (submitted in *Progress in Oceanography*, and published in *Mediterranean Marine Science*),
- **Hydrological cycle** and the dynamics of **Geophysical processes** (published in *Journal of Applied Geophysics, Advances in the Research of Aquatic Environment*), and
- **Stellar Structure and Evolution especially of interacting binary systems** (published in *Astrophysics and Space Science, Astronomy and Astrophysics, Recent Advances in Astronomy and Astrophysics – American Institute of Physics, NATO Advanced Studies Institute*).

Some indicative and **recently published papers** in the aforementioned fields are:

- **Kalimeris A**, and Kolios S (2019): TRMM-based rainfall variability over the Central Mediterranean and its relationships with atmospheric and oceanic climatic modes. *Atmospheric Research*. doi.org/10.1016/j.atmosres.2019.104649
 - Kolios S and **Kalimeris A** (2019): Evaluation of the TRMM rainfall product accuracy over the central Mediterranean during a 20-year period (1998–2017). *Theoretical and Applied Climatology* 139, 785–799.
 - **Kalimeris A**, and Founda D (2018): Interannual and interdecadal variability modes of the Athens total cloud cover. *International Journal of Climatology*. 38 (13), 4667–4686, doi:10.1002/joc.5687
 - **Kalimeris A**, Ranieri E, Founda D, and Norrant C (2017) : Variability modes of precipitation along a Central Mediterranean area and their relations with ENSO, NAO, and other climatic patterns. *Atmospheric Research*, 198, 56–80.
 - **Kalimeris A**, Potirakis SM, Eftaxias K, Antonopoulos G, Kopanas J, and Nomikos C (2016): Multi-spectral detection of statistically significant components in pre-seismic electromagnetic emissions related with Athens 1999, M=5.9 earthquake. *Journal of Applied Geophysics*, 128, 41–57.
 - Nanouris N, **Kalimeris A**, Antonopoulou E, and Rovithis-Livaniou H (2015): Efficiency of ETV diagrams as diagnostic tools for long-term period variations. II. Non-conservative mass transfer, and gravitational radiation. *Astronomy and Astrophysics*, 575, A64, 1–13.
- International **Conference Announcements** also published in the Conference Proceedings, such as the *European Geosciences Union*, the *International Conference on Meteorology Climatology and Atmospheric Physics*, the *European Conference on Applications of Meteorology*, the *International Conference on the Mediterranean Coastal Environment*, and others.
 - Author of two **textbooks** (in Greek):
 - **Environmental Fluid Mechanics**, an introduction to geophysical flows, 2007, 425 pp., ISBN: 978-960-91902-1-3
 - **An introduction to the Ordinary Differential Equations**, 2004, 214 pp., ISBN: 978-960-91902-2-0
 - **Chapter author** and **Editor of Lecture-Notes** volumes of three Summer Schools on the Dynamics and Administration of the Mediterranean Sea Environment (2011, -12, -13)
 - Complete **Lecture notes** for the courses of the ‘Environmental Software’ (theory and laboratory) and of the ‘Renewable Energy Sources – Solar and Aeolic Systems’. Author of numerous Laboratory Exercises of the ‘Meteorology-Climatology’ and the ‘Environmental Fluid Mechanics’ courses.
 - **Reviewer** of manuscripts submitted in scientific journals and conference proceedings, such as: *Atmospheric Research* (Elsevier), *Climate Research* (Inter-Research), *Entropy* (MDPI), *European Physics Journal* (Springer), *Nature – Scientific Reports* (Springer Nature), *Climatology and Weather Forecasting* (Longdom Publ), *International Conference on Computer Science and Application Engineering* (CSAE), *Astronomy and Astrophysics* (Springer).

² See for example the bibliographic data base SAO/NASA Astrophysics Data System (ui.adsabs.harvard.edu/).

Scientific Projects and Laboratory Equipment development

- **Project Manager** of the: "Current Meteorological Conditions, Climatic Variability, and Forest Fire Risk Assessment in the Ionian Islands" of the "LAERTIS - Innovative Operational System for Natural Hazards Management in the Ionian Islands Region" Project (MIS 5010951), 2018-2021.
- **Project Manager** of the Interreg IV European Territorial Cooperation Programme DEMSNIISI "Development of an Environmental-Meteorological Stations Network on the Ionian Islands and the Southern Italy" (2012-2015).
- **Department Administrator** for the National Strategic Reference Framework (NSRF) program "The Polynesian Project" (2011-13), President of the Organizing Committee and Administrator in three Summer Schools in "Dynamical and Administration of Mediterranean Sea Environment".
- **Researcher in International and National Research Projects**, such as:
 - Climate-Smart Coastal Practices for Blue governance (BlueCoast Project), **Interreg IPA-CBC**, 2014-2020
 - **IRENE** (Institute de Recherches en Environnement Industriel) "Atmospheric composition change due to climate-chemistry interactions: application over the French North region", Lille-1 University of Sciences and Technology, 2011.
 - Lifelong Learning Programme, **Leonardo da Vinci** project "Chemistry is all around us", 2010-11.
 - **NATO-Scientific and Environmental Research Division**, **Research Grant** 921 208, "Physical Processes in Interacting Binaries", 1996-98.
 - **NATO-Scientific and Environmental Research Division**, **Research Grant** 921 208, "Observational and Theoretical Study of Active Close Binaries", 1994-96.
 - **Thalis-IndrAQ**, Technological Educational Institute of Piraeus, "Indoor air quality monitoring in Greek dwellings" (2012 – 2015).
 - **Archimedes III**, PreEQdisEmpsEM, Technological Educational Institute of Piraeus: "Study and Analysis of seismic precursor electromagnetic radiation" (2012–15).
- Administrator of trans-institutional **Scientific Memorandums of Understanding** between the Technological Educational Institute of the Ionian Islands or the Ionian University and other institutes or bodies (such as the "Institute of Environmental Research and Sustainable Development of the **National Observatory of Athens**", and the "**Hellenic National Meteorological Service**", etc.).
- Supervisor of the installation, development, and operation of numerous scientific field equipment stations for the monitoring of atmospheric parameters along the Ionian region (such as Meteorological and Solar actinometric stations of the Environment Department), and Scientific Administrator of the Meteorological-Environmental Network of the Ionian Islands (<http://ionianweather.gr/en/stations/>).

Research Interests

- Climatic variability of the Mediterranean region.
- Sea-atmosphere interaction with emphasis in the Mediterranean region.
- Signal to noise resolution techniques with applications to the climatic variability.
- Computational Fluid Dynamics with applications in the atmospheric boundary layer air flows over complex terrain and/or isolated obstacles.