


PERSONAL INFORMATION Evangelos Paouris

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Date of birth 26/07/1982

Nationality Hellenic (Greek)

PERSONAL STATEMENT Astrophysicist, Space Weather Expert**CURRENT POSITIONS**

03/2018 – Present **Postdoctoral Researcher**
Postdoctoral Researcher at the Institute for Astronomy, Astrophysics, Space Applications & Remote Sensing of the National Observatory of Athens (IAASARS-NOA).

05/2017 – Present **Research Associate**
National and Kapodistrian University of Athens, Faculty of Physics
Forecaster of the Athens Space Weather Forecasting Center (ASWFC)

EDUCATION

05/2013 – 05/2017 **PhD in Physics**
National and Kapodistrian University of Athens, Faculty of Physics
▪ Thesis Title: *Space weather monitoring: modulation of cosmic ray intensity due to large interplanetary coronal mass ejections.*

▪ Grade 10.0/10.0

10/2010 – 03/2013 **MSc in Astrophysics**
National and Kapodistrian University of Athens, Faculty of Physics
▪ Thesis Title: *Coronal Mass Ejections and the influence on Cosmic Ray Modulation for Solar Cycles 23 and 24.*

▪ Grade 8.7/10.0

10/2001 – 10/2010 **Physics Degree**
National and Kapodistrian University of Athens, Faculty of Physics

▪ Grade 7.0/10.0

RESEARCH ACTIVITY

- My fields of interest in astrophysics are focused on Solar and Space Physics. In particular, I study solar flares, coronal mass ejections (CMEs) and their interplanetary counterparts (ICMEs), solar energetic particles (SEPs) and their effects on Earth and the interplanetary space in general.
- During my MSc studies in Astrophysics I introduced a new indicator of solar activity based on CMEs (P_1 - index). The introduction of this index into cosmic ray intensity modulation models significantly improved the results of these models.
- During my Ph.D., and in particular from October 2014 until today, I am responsible for the daily Space Weather Report of the Athens Space Weather Forecasting Center (ASWFC) (<http://cosray.phys.uoa.gr/index.php/space-weather-report>). The daily surveillance of the Sun, using as many as possible data from satellites such as SOHO, SDO, ACE, DSCOVR, GOES etc. and the information of the public about space weather conditions made this effort unique in Greece. To date I have published more than 2200 daily space weather reports.
- A very important result revealed from my PhD thesis it was a model about the estimation of the time of arrival of the shock of an

Earth-directed ICME. This model is very useful for Space Weather predictions and from May 2017 is one of the registered methods in the CME Scoreboard - Community Coordinated Modeling Center (CCMC) NASA – CME Propagation Models (<https://swrc.gsfc.nasa.gov/main/cmemodels>).

- I am a member of the Athens Cosmic Ray group from 2006 and I worked in a number of research projects. On the current research program of the European Space Agency (ESA) I am responsible for the development of a new model for the prediction of the geomagnetic index Ap.
- I actively participate in the experiment of the Athens Neutron Monitor Station of the Athens Cosmic Ray group in many sections (data processing, event analysis such as GLEs, operation hardware and software).
- I am participating in the International Space Science Institute (ISSI) group: Understanding Our Capabilities In Observing And Modeling Coronal Mass Ejections ISSI Team led by C. Verbeke (BE) & M. Mierla (BE) as model expert. (<https://www.issibern.ch/teams/understandcormasseject/index.php/team-members/>).

GRANTS - SCHOLARSHIPS

16/01/2020 – 15/01/2022 Reinforcement of Postdoctoral Researchers – 2nd Cycle (MIS-5033021), implemented by the State Scholarships Foundation (IKY).

RESEARCH PROJECTS - ASSOCIATE

03/2018 - Solar Energetic Particle (SEP) Advanced Warning System (SAWS) - Advanced Solar Particle Events Casting System (ASPECS), ESA-ESTEC, ESA Contr. Number: 4000120480/17/NL/LF/hh.
 11/2018 - P3-SWE-XXIII User Requirements for the Mediterranean Region” ESA ITT AO/1-9408/18/D/CT (SWE MED) P3-SWE-III / ESC-RAD Space Weather Expert Service Centres, ESA-ESOC, Contr. Number: 40000113187/15/D/MRP.
 06/2017 - P2-SWE-I / ESC-RAD Space Weather Expert Service Centres Definition and Development, ESA-ESOC, Contr. Number: AO/1-7699/13/D/MRP.
 09/2015 – 05/2017 Space Weather Precursor Services Operations (SN-IV3) – European ionosonde and neutron monitor service, ESA-ESOC, Contr. Number: RFQ/3-13556/12/D/MRP.
 01/2012 – 12/2012 Electrodynamics Study of the Upper Atmosphere in Support to Future MLTI Missions, ESA-ESTEC, Contr. Number: 4000104174/11/NL/AF.
 11/2011 – 09/2013

CONFERENCES

05/2020 EGU General Assembly 2020
 11/2019 16th European Space Weather Week (ESWW16)
 07/2019 14th Hellenic Astronomical Conference (14th Hel.A.S. Conference)
 11/2018 15th European Space Weather Week (ESWW15)
 11/2017 14th European Space Weather Week (ESWW14)
 03/2017 10 Years Neutron Monitor Database – NMDB Workshop, Athens, Greece
 11/2016 13th European Space Weather Week (ESWW13)
 11/2015 12th European Space Weather Week (ESWW12)
 06/2015 12th Hellenic Astronomical Conference (12th Hel.A.S. Conference)
 11/2013 10th European Space Weather Week (ESWW10)
 09/2013 11th Hellenic Astronomical Conference (11th Hel.A.S. Conference)
 09/2011 13th European Solar Physics Meeting (ESPM-13)
 09/2007 3rd Solar Extreme Events (SEE 2007), International Symposium-COSPAR Colloquium
 09/2005 7th Hellenic Astronomical Conference (7th Hel.A.S. Conference)

PUBLICATIONS IN JOURNALS (peer-reviewed)

Submitted recently:

- Paouris, E., Vourlidas, A., Papaioannou, A., Anastasiadis, A., Assessing the projection correction of Coronal Mass Ejection speeds on Time-of-Arrival prediction performance using the Effective Acceleration Model, submitted to Space Weather, September 2020.
- Paouris, E., Calogovic, J., Dumbovic, M., Leila Mays, M., Vourlidas, A., Papaioannou, A., Anastasiadis, A., Balasis, G., Propagating conditions and the time of ICMEs arrival: A Comparison of the Effective Acceleration Model with ENLIL and DBEM models, submitted to Solar Physics, September 2020.
- Paouris, E., Abunina, M., Belov, A., Mavromichalaki, H., Statistical analysis on the current capability to predict the Ap Geomagnetic Index, submitted to New Astronomy, September 2020.

Published:

1. Aminalragia-Giamini, S., Jiggins, P., Anastasiadis, A., Sandberg, I., Aran, A., et al. (2020). Prediction of Solar Proton Event Fluence spectra from their Peak flux spectra. J. Space Weather Space Clim. 2020, 10, 1. DOI: 10.1051/swsc/2019043.
2. Mavromichalaki, H., Gerontidou, M., Paschalis, P., Paouris, E., Tezari, A., Sgouropoulos, C., et al. (2018). Real-time detection of the ground level enhancement on 10 September 2017 by A.Ne.Mo.S.: System report. Space Weather, 16, 1797–1805. DOI: 10.1029/2018SW001992.
3. Paouris, E. and Mavromichalaki, H. 2017. "Effective Acceleration Model for the arrival time of interplanetary shocks driven by coronal mass ejections",

- Solar Physics, vol. 292: 180. DOI: 10.1007/s11207-017-1212-2.
4. Paouris, E., Mavromichalaki, H. 2017. "Interplanetary Coronal Mass Ejections Resulting from Earth-Directed CMEs Using SOHO and ACE Combined Data During Solar Cycle 23", Solar Physics, vol. 292: 30. DOI: 10.1007/s11207-017-1050-2.
 5. Mavromichalaki, H., Preka-Papadema, P., Theodoropoulou, A., Paouris, E., Apostolou, A. 2017. "A study of the possible relation of the cardiac arrhythmias occurrence to the polarity reversal of the solar magnetic field", Advances in Space Research, vol. 59: 366. DOI: 10.1016/j.asr.2016.08.024.
 6. Gushchina, R.T., Belov, A.V., Eroshenko, E.A., Obridko, V.N., Paouris, E., and Shelting, B.D. 2014. "Cosmic Ray Modulation during the Solar Activity Growth Phase of Cycle 24", Geomagnetism and Aeronomy, vol. 54: 430. DOI: 10.1134/S0016793214040057.
 7. Paouris, E. 2013. "Ineffectiveness of narrow CMEs for Cosmic Ray Modulation", Solar Physics, vol. 284: 589. DOI: 10.1007/s11207-012-0166-7.
 8. Mavromichalaki, H., Paouris, E. 2012. "Long-Term Cosmic Ray Variability and the CME-Index", Advances in Astronomy, vol. 2012, Article ID 607172, 8 pages. DOI: 10.1155/2012/607172.
 9. Paouris, E., Mavromichalaki, H., Belov, A., Gushchina, R. and Yanke, V. 2012. "Galactic Cosmic Ray Modulation and the Last Solar Minimum", Solar Physics, vol. 280: 255. DOI: 10.1007/s11207-012-0051-4.
 10. Mavromichalaki, H., Paouris, E., Karalidi, T. 2007. "Cosmic-Ray Modulation: An Empirical Relation with Solar and Heliospheric Parameters", Solar Physics, vol. 245: 369. DOI: 10.1007/s11207-007-9043-1.

PUBLICATIONS IN CONFERENCE PROCEEDINGS (peer-reviewed)

1. Paouris, E., Mavromichalaki, H., Belov, A., Eroshenko, E. and Gushchina, R. 2015. "The Solar Polar Field on the cosmic-ray intensity modulation", Journal of Physics: Conference Series, vol. 632, 012074. DOI: 10.1088/1742-6596/632/1/012074.
2. Mavromichalaki, H., Gerontidou, M., Paschalis, P., Papaioannou, A., Paouris, E., Papailiou, M. and Souvatzoglou, G. 2015. "Recent Research applications at the Athens Neutron Monitor Station", Journal of Physics: Conference Series, vol. 632, 012071. DOI: 10.1088/1742-6596/632/1/012071.

ANNOUNCEMENTS, PRESENTATIONS, POSTERS etc. in conferences

1. Paouris, E., Vourlidis, A., Papaioannou, A., Anastasiadis, A., How Reliable are CME speeds derived from single viewpoint observations?, EGU 2020. DOI: 10.5194/egusphere-egu2020-625
2. Paouris, E., Vourlidis, A., Papaioannou, A. and Anastasiadis, A., "Quantifying the reliability of CME speeds derived from single viewpoint observations", 14th Hellenic Astronomical Conference (14th Hel.A.S. Conference), 8-11 July, Volos, Greece, 2019.
3. Paouris, E., Papaioannou, A., Anastasiadis, A. et al., "Forecasting the Strength of Geomagnetic Storms utilizing CME-ICME characteristics", 15th European Space Weather Week (ESWW15), 5-9 November 2018, Leuven, Belgium, 2018.
4. Papaioannou, A., Paouris, E., Anastasiadis, A. et al. "Solar and interplanetary sources of Solar Energetic Particle (SEP) Events during 1988-2013- Implications for SEP forecasting Solar Energetic Particles", 15th European Space Weather Week (ESWW15), 5-9 November 2018, Leuven, Belgium, 2018.
5. Anastasiadis, A., Aran, A., Vainio, R., Sandberg, I., et al. "Solar Energetic Particle (SEP) Advanced Warning System (SAWS)" The Advanced Solar Particle Events Casting System (ASPECS) activity, 15th European Space Weather Week (ESWW15), 5-9 November 2018, Leuven, Belgium, 2018.
6. Paouris, E., Mavromichalaki, H., "Forecasting the arrival time of the CME's shock at the Earth", 14th European Space Weather Week (ESWW14), 27 November – 2 December, Oostende, Belgium, 2017.
7. Mavromichalaki, H., Gerontidou, M., Paschalis, P., Paouris, E. and Tezari, A., "The multi-usage of cosmic ray data to Space Weather services", 14th European Space Weather Week (ESWW14), 27 November – 2 December, Oostende, Belgium, 2017.
8. Paouris, E., Gerontidou, M., Mavromichalaki, H., Kolydas, Th. and Kouroutzoglou, I., "Space Weather Forecasting Report by ASWFC and a possible contribution to the Hellenic National Meteorological Service", 10 Years Neutron Monitor Database – NMDB Workshop, 20-23 March, Athens, Greece, 2017.
9. Paouris, E. and Mavromichalaki, H., "Galactic Cosmic-ray Modulation by Interplanetary CMEs", 10 Years Neutron Monitor Database – NMDB Workshop, 20-23 March, Athens, Greece, 2017.
10. Paouris, E. and Mavromichalaki, H., "A new ICMEs catalogue: Tracking a CME from Sun to the Earth", 13th European Space Weather Week (ESWW13), 14 - 18 November, Oostende, Belgium, 2016.
11. Paouris, E., Gerontidou, M., Mavromichalaki, H., Kolydas, Th., Kouroutzoglou, I., "Contribution of the geomagnetic activity monitoring by the Athens Space Weather Forecasting Center to the Hellenic National Meteorological Service", 13th European Space Weather Week (ESWW13), 14 - 18 November, Oostende, Belgium, 2016.
12. Theodoropoulou, A., Mavromichalaki, H., Preka-Papadema, P., Paouris, E., Apostolou, Th., "Possible relation of the cardiac arrhythmias occurrence to the solar magnetic field polarity reversal during the solar cycle 23", 13th European Space Weather Week (ESWW13), 14 - 18 November, Oostende, Belgium, 2016.
13. Mavromichalaki, H., Gerontidou, M., Paschalis, P., Paouris, E., Tezari, A., "The ANeMoS federated products to the SSA Space Radiation Expert Service Centre (R-ESC)", 13th European Space Weather Week (ESWW13), 14 - 18 November, Oostende, Belgium, 2016.
14. Mavromichalaki, H., Gerontidou, M., Paschalis, P., Paouris, E., "Facilities of Athens Neutron Monitor Station to Space Weather services, 25th edition of the European Cosmic Ray Symposium (ECRS2016)", 4 - 9 September, Torino, Italy, 2016.
15. Paouris, E. and Mavromichalaki, H., "The ICMEs magnetic field and the role on the galactic cosmic ray modulation for the solar cycle 23", 12th European Space Weather Week (ESWW12), 23 - 27 November, Oostende, Belgium, 2015.
16. Mavromichalaki, H., Gerontidou, M., Paouris, E., Eroshenko, E., Yanke, V., Lingri, D., Laoutaris, A., Kanellakopoulos, A., Abunin, A., and Abunina, M., "A study of the polar and middle latitude neutron monitors during the extended geomagnetic storm of March 17, 2015", 12th European Space Weather Week (ESWW12), 23 - 27 November, Oostende, Belgium, 2015.
17. Mavromichalaki, H., Gerontidou, M., Paschalis, P. and Paouris, E., "The role of UoA as expert group of the ESA SSA P2 SWE-1 program", 12th European Space Weather Week (ESWW12), 23 - 27 November, Oostende, Belgium, 2015.
18. Paouris, E. and Mavromichalaki, H., "The CME-index for short-term estimation of Ap geomagnetic index based on the new ICME list", 12th Hellenic Astronomical Conference (12th Hel.A.S. Conference), 28 June - 2 July, Thessaloniki, Greece 2015.
19. Mitrokotsa, S., Paouris, E., and Mavromichalaki, H., "Hysteresis effect of the cosmic ray intensity of 10 GV", 12th Hellenic Astronomical Conference (12th Hel.A.S. Conference), 28 June - 2 July, Thessaloniki, Greece 2015.
20. Mavromichalaki, H., Gerontidou, M., Paouris, E., Paschalis, P., Lingri, D., Laoutaris, A., Kanellakopoulos, A., "The extended geomagnetic storm of March 2015", 12th Hellenic Astronomical Conference (12th Hel.A.S. Conference), 28 June - 2 July, Thessaloniki, Greece 2015.

21. Gerontidou, M., Paouris, E., Paschalis, P., Papaioannou, A. and Mavromichalaki, H., "Geomagnetic Conditions Forecasting Using Solar Activity Parameters", 10th European Space Weather Week (ESWW10), 18-22 November, Antwerp, Belgium, 2013.
22. Paouris, E., Gerontidou, M. and Mavromichalaki, H., "Using the CME-index for short-term estimation of Ap geomagnetic index", 11th Hellenic Astronomical Conference (11th Hel.A.S. Conference), 8-12 September, Athens, Greece, 2013.
23. Mitrokotsa, S., Paouris, E., and Mavromichalaki, H., "Time-lag of cosmic ray intensity during solar cycles 20-23", 11th Hellenic Astronomical Conference (11th Hel.A.S. Conference), 8-12 September, Athens, Greece, 2013.
24. Mavromichalaki, H., Papaioannou, A., Souvatzoglou, G., Dimitroulakos, J., Paschalis, P., Gerontidou, M., and Paouris, E., "Implementing the European Neutron Monitor Service for the ESA SSA Program", 11th Hellenic Astronomical Conference (11th Hel.A.S. Conference), 8-12 September, Athens, Greece, 2013.
25. Paouris, E., "The Coronal Mass Ejection index (Pi) and statistical properties of CMEs for the period Jan 1996-Oct 2010", 13th European Solar Physics Meeting (ESPM-13), 12-16 September, Rhodes, Greece, 2011.
26. Paouris, E., "A new statistical index (Pi) for coronal mass ejections", 3rd Solar Extreme Events (SEE 2007), International Symposium-COSPAR Colloquium, 24-27 September, Athens, Greece, 2007.
27. Mavromichalaki, H., Paouris, E. and Karalidi, T., "Long-term Cosmic-ray Modulation during Solar Cycle 23rd", 7th Hellenic Astronomical Conference (7th Hel.A.S. Conference), 8-11 September, Kefalonia, Greece, 2005.
28. Paouris, E., Exarhos, G., Nikolopoulou, A. and Moussas, X., "Evolution of the Heliosphere the years 1990-2004 using Ulysses Data", 7th Hellenic Astronomical Conference (7th Hel.A.S. Conference), 8-11 September, Kefalonia, Greece, 2005.

REVIEWER IN JOURNALS

2013, 2017 Solar Physics

AWARDS - DISTINCTIONS

11/2013 "Wise Scientist ESWW10", (http://users.uoa.gr/~evpaouris/ESWW10_Quiz_Results.html)

ORGANIZATION OF CONFERENCES

23/09/2019 User Requirements for the Mediterranean Region - Greek Workshop for SWE-MED ESA's project
 20/03/2017 – 23/03/2017 10 Years Neutron Monitor Database – NMDB Workshop, Athens, Greece.

PARTICIPATION IN SCHOOLS

20/01/2020 - 22/01/2020 First Artificial Intelligence Data Analysis (AIDA) School for Heliophysicists, CINECA, Bologna, Italy.
 04/06/2012 - 09/06/2012 First European School on: Fundamental processes in Space Weather: a challenge in numerical modeling, SWIFF – Space Weather Integrated Forecasting Framework, Spineto, Tuscany, Italy.
 21/08/2011 – 27/08/2011 2011 ISWI-Europe Summer School in Space Science, Centre of excellence «Centre of Space Research: Space Weather Influences», Astronomical Institute of the Slovak Academy of Sciences (AI SAS), Tatranska Lomnica, Institute of Experimental Physics of SAS in Kosice (IEP SAS), Institute of Physics of UPJS in Kosice (IP UPJS), Slovak Central Observatory (SCO), Hurbanovo.
 13/08/2007 – 24/08/2007 Life and death of stars, University of Utrecht, Netherlands.

COMPUTER SCIENCE

Very good knowledge of programming languages:

- Interactive Data Language (IDL), Mathematica, and packages such as Origin.
- Python, in particular: Machine and Deep Learning Algorithms

FOREIGN LANGUAGES

English First Certificate in English – University of Cambridge (June 1998).

ADDITIONAL INFORMATION

- 09/2001 – 06/2020: Teaching Physics and Mathematics in high school students for their participation for the National Exams.
- 08/2010 – 05/2011: Fulfillment of military obligations.