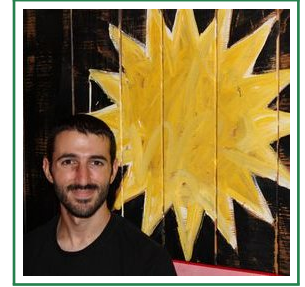


Theodosios Chatzistergos

Curriculum Vitae (Updated on July 26, 2023)

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Employment

- 01/06/2020– **Post-doc**, at *Max Planck Institute for Solar System Research*, Göttingen, Germany.
01/04/2018–31/05/2020 **Post-doc**, at *INAF – Osservatorio Astronomico di Roma*, Monte Porzio Catone, Italy.
03/06/2017–31/03/2018 **Post-doc**, at *Max Planck Institute for Solar System Research*, Göttingen, Germany.

Education

- 07/10/2013–02/06/2017 **PhD**, *Max Planck Institute for Solar System Research and Georg August University of Göttingen*, Germany.
Topic: Analysis of historical solar observations and long-term changes in solar irradiance.
Supervisors: Prof. Sami K. Solanki and Dr. Natalie A. Krivova.
17/09/2012–31/08/2013 **MSc with distinction**, *Queen Mary University of London*, England.
Dissertation title: “Satellite perturbations on planetary rings”.
Supervisor: Prof. Carl D. Murray.
02/02/2005–20/12/2011 **BSc in Physics, major in Astrophysics**, *Faculty of Physics at National and Kapodistrian University of Athens*, Greece.
Dissertation title: “The atmosphere of Saturn’s satellite, Titan, using data from the space mission Cassini-Huygens”.
Supervisor: Prof. Xenophon Moussas.

Short-term research stays

- Royal Observatory of Belgium. Host: Frederic Clette & Laure Lefèvre, 10/10/2022–14/10/2022;
- MPS, Germany. Host: Natalie A. Krivova, 05/01/2020–24/01/2020, 04/02/2020–29/02/2020;
- University of Oulu, Finland. Host: Ilya G. Usoskin, 02/05/2016–18/06/2016, 17/08/2016–28/08/2016;
- INAF Osservatorio Astronomico di Roma, Italy. Host: Ilaria Ermolli, 26/10/2013–03/11/2013, 24/01/2014–12/02/2014, 08/03/2014–22/03/2014, 05/06/2015–28/06/2015.

Publications

A. In peer-reviewed journals

- Hayakawa, H., Cliver, E. W., Clette, F., Ebihara, Y., Toriumi, S., Blake, S., Cauzzi, G., Reardon, K. P., Ermolli, I., **Chatzistergos, T.**, et al. 2023, The Extreme Space Weather Event of February 1872: Sunspots, Magnetic Disturbance and Auroral Displays, *ApJ*, in press
- Murabito, M., Ermolli, I., **Chatzistergos, T.**, Jafarzadeh, S., Giorgi, F., Rouppe van der Voort, L. 2023, Investigating the effect of the solar ambient and characteristics of the data on Ca II K observations and line profile measurements, *ApJ*, 947:1
- Clette, F., Lefèvre, L., **Chatzistergos, T.**, et al. 2023, Recalibration of the Sunspot Number: Status Report, *Solar Physics*, 298, 3
- Chatzistergos, T.** 2023, Is there a link between the length of the solar cycle and Earth’s temperature?, *Rendiconti Lincei. Scienze Fisiche e Naturali*, 34, 1
- Ermolli, I., Giorgi, F., **Chatzistergos, T.** 2022, Rome Precision Solar Photometric Telescope: precision solar full-disk photometry during solar cycles 23–25, *Frontiers in Astronomy and Space Sciences*, 9
- Chatzistergos, T.**, Krivova, N. A., Ermolli, I. 2022, Full-disc Ca II K observations – a window to past solar magnetism, *Frontiers in Astronomy and Space Sciences*, 9
- Chatzistergos, T.**, Ermolli, I., Krivova, N. A., et al. 2022, Scrutinising the relationship between plage areas and sunspot areas and numbers, *Astronomy & Astrophysics*, 667, A167

8. **Chatzistergos, T.**, Krivova, N. A., Ermolli, I., et al. 2021, Reconstructing solar irradiance from historical Ca II K observations. I. Method and its validation, *Astronomy & Astrophysics*, 656, A104
9. Carrasco, V., Nogales, J. M., Vaquero, J. M., **Chatzistergos, T.**, Ermolli, I. 2021, A note on the sunspot and prominence records made by Angelo Secchi during the period 1871–1875, *JSWSC*, 11, 51
10. Asvestari, E., Pomoell, J., Kilpua, E., Good, S., **Chatzistergos, T.**, Temmer, M., Palmerio, E., Poedts, S., & Magdalenic, J. 2021, Modelling a multi-spacecraft coronal mass ejection encounter with EUHFORIA, *Astronomy & Astrophysics*, 652, A27
11. Sowmya, K., Shapiro, A. I., Witzke, V., Nèmec, N.-E., **Chatzistergos, T.**, Yeo, K. L., Krivova, N. A., & Solanki, S. K. 2021, Modeling Stellar Ca II H and K Emission Variations. I. Effect of Inclination on the S-index, *ApJ*, 914:1
12. **Chatzistergos, T.**, Ermolli, I., Giorgi, F., Krivova, N. A., & Puiu, C. C. 2020a, Modelling solar irradiance from ground-based photometric observations, *JSWSC*, 10, 45
13. **Chatzistergos, T.**, Ermolli, I., Krivova, N. A., et al. 2020c, Analysis of full-disc Ca II K spectroheliograms - III. Plage area composite series covering 1892–2019, *Astronomy & Astrophysics*, 639, A88
14. **Chatzistergos, T.**, Ermolli, I., Solanki, S. K., et al. 2019c, Delving into the Historical Ca II K Archive from the Kodaikanal Observatory: The Potential of the Most Recent Digitized Series, *Solar Physics*, 294, 145, number: 10
15. **Chatzistergos, T.**, Ermolli, I., Ilaria, Solanki, Sami K., et al. 2019d, Recovering the unsigned photospheric magnetic field from Ca II K observations, *Astronomy & Astrophysics*, 626, A114
16. **Chatzistergos, T.**, Ermolli, I., Krivova, N. A., & Solanki, S. K. 2019b, Analysis of full disc Ca II K spectroheliograms - II. Towards an accurate assessment of long-term variations in plage areas, *Astronomy & Astrophysics*, 625, A69
17. **Chatzistergos, T.**, Ermolli, I., Solanki, S. K., & Krivova, N. A. 2018b, Analysis of full disc Ca II K spectroheliograms - I. Photometric calibration and centre-to-limb variation compensation, *Astronomy & Astrophysics*, 609, A92
18. **Chatzistergos, T.**, Usoskin, I. G., Kovaltsov, G. A., Krivova, N. A., & Solanki, S. K. 2017, New reconstruction of the sunspot group numbers since 1739 using direct calibration and “backbone” methods, *Astronomy & Astrophysics*, 602, A69
19. Usoskin, I. G., Kovaltsov, G. A., & **Chatzistergos, T.** 2016, Dependence of the Sunspot-Group Size on the Level of Solar Activity and its Influence on the Calibration of Solar Observers, *Solar Physics*, 291, 3793, number: 12

B. In peer-reviewed conference proceedings

1. **Chatzistergos, T.**, Ermolli, I., Krivova, N. A., & Solanki, S. K. 2020a, Historical solar Ca II K observations at the Kyoto and Sacramento Peak observatories, *Journal of Physics: Conference Series*, 1548, 012007
2. **Chatzistergos, T.**, Ermolli, I., Falco, M., et al. 2019a, Historical solar Ca II K observations at the Rome and Catania observatories, in *Il Nuovo Cimento*, Vol. 42C, 5

C. In non-refereed conference proceedings

1. **Chatzistergos, T.**, Krivova, N. A., Ermolli, I., Yeo, K. L., Solanki, S. K., Puiu, C. C., Giorgi, F., Mandal, S. 2021, Reconstructing solar irradiance from Ca II K observations, in *AGU 2020 Fall Meeting, Sunset of SORCE, Sunrise of TSIS: Sun–Climate Changes over Two Solar Cycles I*
2. Ermolli, I., **Chatzistergos, T.**, Krivova, N. A., & Solanki, S. K. 2018, The potential of Ca II K observations for solar activity and variability studies, in *IAU Symposium*, Vol. 340, Long-term Datasets for the Understanding of Solar and Stellar Magnetic Cycles, ed. D. Banerjee, J. Jiang, K. Kusano, & S. Solanki (Cambridge, UK: Cambridge University Press), 115–120
3. **Chatzistergos, T.**, Ermolli, I., Krivova, N. A., & Solanki, S. K. 2018a, Ca II K spectroheliograms for studies of long-term changes in solar irradiance, in *IAU Symposium*, Vol. 340, Long-term Datasets for the Understanding of Solar and Stellar Magnetic Cycles, ed. D. Banerjee, J. Jiang, K. Kusano, & S. Solanki (Cambridge, UK: Cambridge University Press), 125–128
4. **Chatzistergos, T.**, Ermolli, I., Solanki, S. K., & Krivova, N. A. 2016, Exploiting Four Historical Ca II K Spectroheliogram Archives, in *Astronomical Society of the Pacific Conference Series*, Vol. 504, Coimbra Solar Physics Meeting: Ground-based Solar Observations in the Space Instrumentation Era, ed. I. Dorotovic, C. E. Fischer, & M. Temmer, San Francisco, 227–231

Presentations

A. Invited talks

- 11–19/07/2023 IUGG 28th general assembly, Berlin, Germany. “Variations of solar irradiance on the solar cycle timescale”;
- 29/05–02/06/2023 ICTP-SCOSTEP-ISWI Workshop on the Predictability of the Solar-Terrestrial Coupling - PRESTO, Trieste, Italy. “Historical datasets and the solar cycle”;
- 19–22/09/2022 Space Climate Symposium 8, Krakow, Poland. “Reconstructing solar irradiance from Ca II K observations”;
- 16/06/2022 13th SCOSTEP/PRESTO Online Seminar, SCOSTEP Distinguished Young Scientist Award Seminar. “Ca II observations: Exploiting historical treasures for solar activity and variability studies”, https://cicr.isee.nagoya-u.ac.jp/site1/info_e/scostep_seminar.html;

- 27/05/2022 Heliophysics Online Seminars. “Utilizing Ca II K observations for solar irradiance reconstructions”, <https://www.youtube.com/watch?v=Ww7EqtjZm1E>;
- 30–31/05/2022 Earth and solar system research partnership meeting, Jena, Germany. “Ca II K observations for irradiance studies”;
- 17–20/05/2022 Sun-Climate Symposium, Madison, Wisconsin, U.S.A.. “Ca II K observations for irradiance studies”;
- 11–15/04/2022 International school of space science: The different spatio-temporal scales of the solar magnetism, L’Aquila, Italy. “The solar cycle over the centuries”;
- 28–30/01/2020 Project for Solar-Terrestrial Environment Prediction 4th meeting, Nagoya, Japan. “Comprehensive analysis of Ca II K observations”;
- 17–22/03/2019 DPG spring meeting, SMuK dissertation prize, Munich, Germany. “Analysis of historical solar observations and long-term changes in solar irradiance”.

B. Oral contributions

- 11–19/07/2023 IUGG 28th general assembly, Berlin, Germany. “Relationship between plage and sunspot areas”;
- 16–24/07/2022 COSPAR 44th scientific assembly, Athens, Greece. “Historical Ca II K observations for irradiance reconstructions”;
- 09–11/02/2022 2nd meeting of the Space Weather Italian Community (SWICo), Rome, Italy. “Irradiance reconstruction from Ca II K observations”;
- 06–10/09/2021 ESPM16 meeting (online). “Reconstructing past solar irradiance variations with Ca II K observations”;
- 01–17/12/2020 AGU fall meeting, San Francisco, U.S.A. (online). “Reconstructing solar irradiance from Ca II K observations”;
- 08–11/07/2019 Space climate symposium 7, Orford, Canada. “Composite of plage areas over the entire 20th century”;
- 28–31/10/2018 3rd Meeting of the Italian Solar and Heliospheric Community, Turin, Italy. “Evolution of plage areas since 1907”;
- 18–24/02/2018 IAU symposium 340, Jaipur, India. “Ca II K spectroheliograms for studies of long-term changes in solar irradiance”;
- 18–22/09/2017 Astronomische Gesellschaft meeting, Göttingen, Germany. “Connecting chromospheric emission to photospheric magnetic field”;
- 13–15/09/2017 Rocks & Stars II meeting, Göttingen, Germany. “Relating photospheric magnetic field to Ca II K intensity”;
- 13–17/03/2017 DPG spring meeting, Bremen, Germany. “New calibration of the group sunspot number series using a non-linear non-parametric method”;
- 12–16/12/2016 AGU fall meeting, San Francisco, U.S.A.. “Non-linear re-calibration of group sunspot number series back to 1739”;
- 26–30/09/2016 XIVth Hvar Astrophysical Colloquium, Croatia. “Exploring historical Ca II K spectroheliogram archives”;
- 19–23/09/2016 9th IAGA - ICMA/IAMAS - ROSMIC/VarSITI/SCOSTEP workshop on Long-Term Changes and Trends in the Atmosphere, Kühlungsborn, Germany. “The potential of historical spectroheliograms for Sun-climate studies”;
- 04–07/04/2016 Space climate symposium 6, Levi, Finland. “Examination of spectroheliogram archives”;
- 05–09/10/2015 Coimbra solar physics meeting 2, Portugal. “Exploiting historical Ca II K spectroheliogram archives: Preliminary results from four archives”.

C. Posters

- 12–13/02/2020 1st meeting of the space weather Italian community (SWICo), Rome, Italy. “Analysing Ca II K and H_{α} full-disc observations”;
- 30/06–06/07/2019 IAU symposium 354, Copiano, Chile. “Reconstructing solar unsigned magnetograms from Ca II K observations”;
- 18–21/06/2019 10th Young researcher meeting, Rome, Italy. “Studying past solar activity with Ca II K observations”;
- 10–14/12/2018 AGU fall meeting, Washington D.C., U.S.A.. “Plage areas from seven historical Ca II K archives”;
- 20–31/08/2018 IAU XXX general assembly, Vienna, Austria. “Generating magnetograms from Ca II K observations for irradiance reconstructions since the early 20th century”;
- 12–16/12/2016 AGU fall meeting, San Francisco, U.S.A.. “Handling historical Ca II K spectroheliogram archives” & “Non-linear re-calibration of group sunspot number series back to 1739”.

Working groups and science teams

- Lead investigator of the science topic team "Thermodynamics of Network and Plages" for Aditya-L1 SUIT (since 2021);

- Member of ISSI International Team 417 “Recalibration of the Sunspot Number Series” (2018–2019).

Observational proposals

- Solar orbiter (SO) polarimetric and helioseismic imager (PHI) observations (2022)
 - PI for "Relationship between the Ca II K brightness and the magnetic field strength using SO/PHI in combination with Rome/PSPT";
 - Co-I for "Understanding solar UV variability using SO/PHI in combination with Aditya/SUIT";
 - Co-I for "Enhanced sunspot rings".
- 3rd flight of Sunrise balloon-borne telescope observations (2024?)
 - PI for Sunrise observations for "Effect of the bandpass on plage observations in Ca II K";
 - Co-I for "Understanding the origin of circumfacular regions".

Grants and awards

- SCOSTEP Distinguished Young Scientist Award (2022);
- SOLARNET Mobility Programme for Young Researchers to visit MPS for 7 weeks (2019). Host: Dr. Natalie A. Krivova;
- COST (Action ES1005) Short Term Scientific Mission to INAF Osservatorio Astronomico di Roma, Italy for 5 weeks (2014). Host: Dr. Ilaria Ermolli;
- One of the four finalists invited for a talk for the SMuK dissertation prize by DPG (2019).

Conference travel grants

- DPG travel grant to attend the DPG spring meeting for the SMuK dissertation prize, Munich, Germany (2019);
- IAU travel grant to attend the IAUS 340 in Jaipur, India (2018);
- ‘Wilhelm und Else Heraeus-Förderprogramms der Deutschen Physicalischen Gesellschaft e.v. zur wissenschaftlichen kommunikation von nachwuchsphysikern/innen’ grant to attend the DPG meeting in Bremen, Germany (2017);
- VarSITI grant to attend the XIVth Hvar Astrophysical Colloquium, Croatia (2016);
- Travel grant to attend the ICMA/IAMAS - ROSMIC/VarSITI/SCOSTEP workshop in Kühlungsborn, Germany (2016);
- Travel grant to attend the Space climate symposium 6 in Levi, Finland (2016);
- COST grant to attend the 2nd TOSCA training school in Trieste, Italy (2014).

Training Courses

- “The different spatio-temporal scales of the solar magnetism” ISSS school at L’aquila, Italy, 11 April - 15 April 2022;
- “A week above the Clouds” SOLARNET school at Tenerife, Spain, 05 August - 09 August 2019;
- “Space climate 6” school at Levi, Finland, 30 March - 03 April 2016;
- 2nd TOSCA training school “Solar variability and climate response” at ICTP (Trieste, Italy), 13-17 October 2014.

Teaching Experience

Teaching assistant at the University of Göttingen for the courses:

- Solar System Science: The Planetary System (Summer semester 2015);
- Introduction to Astro/Geo Physics (Summer semester 2014);
- Physics IV, Quantum Mechanics, Atomic and Molecular Physics (Summer semester 2014).

Student supervision

Supervised 1 BSc thesis project, 3 1-month and 1 1-week long internships.

International collaborations

- 2021–2023 Analysis of the sunspot number series (Max Planck Institute for Solar System Research, World Data Center SILSO, Royal Observatory of Belgium, INAF Osservatorio Astronomico di Roma, Universidad de Extremadura);

- 2018–2022 Application of deep learning techniques on Ca II K observations (Max Planck Institute for Solar System Research, INAF Osservatorio Astronomico di Roma, Kyung Hee University);
- 2017–2019 Member of the ISSI team ‘Recalibration of the Sunspot Number Series’;
- 2016–2017 Analysis of the group sunspot number (Max Planck Institute for Solar System Research, University of Oulu, Ioffe Physical-Technical Institute of St.Petersburg);
- 2013–2023 Analysis of Ca II K spectroheliogram series (Max Planck Institute for Solar System Research, INAF Osservatorio Astronomico di Roma, Indian institute of astrophysics, University of Coimbra, National observatory of Japan, LESIA observatoire de Paris, Kislovodsk Mountain Astronomical Station, Astronomical observatory of Kharkiv, and Observatory of Upice).

Peer-review

Referee for papers submitted to scientific journals: the Astrophysical Journal (4), Solar Physics (3), Astronomy & Astrophysics (2), Journal of Space Weather and Space Climate (2), Advances in Space Research (3), Geoscience Data Journal (1), Open Astronomy (1), Publications of the Astronomical Society of Japan (1), Physica A: Statistical Mechanics and its Applications (1), and MDPI geosciences (1).

Public Outreach

- Participation in Notte Europea dei Ricercatori (Night of science) event (Rome, 28/09/2018 and 27/09/2019);
- Participation in Nacht des Wissens (Night of science) event (Göttingen, 21/01/2017).
- Contributed text for the fact-checking website Ellinika Hoaxes addressing misinformation on Greek media regarding solar physics, solar activity, and the influence of the Sun on Earth’s climate (29/11/2022). www.ellinikahoaxes.gr/2022/11/29/climate-change-sun-pseudoscience/
- Contributed text for the European Solar Physics Nugget (ESPN) series (09/02/2022), titled: "Exploring Ca II K observations for reconstructions of past irradiance variations" <https://est-east.eu/nuggets/46-espn/1155-espn-5>
- Contributed text for the book "The Science of EST" (2020). <https://est-east.eu/the-science-of-est>

Memberships

2022- Member of the Space Weather Italian Community
 2018- Junior member of the International Astronomical Union;
 2017- Member of the Deutsche Physikalische Gesellschaft.
 2016- Member of the American Geophysical Union;