David Pérez-Suárez

CONTACT INFORMATION

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EDUCATION

2005 - 2011 **Ph.D., Solar Physics:** *Multi-layer Analysis of Coronal Bright Points*
Armagh Observatory, Armagh, N. Ireland, UK &
Queen's University of Belfast, Belfast, N. Ireland, UK

2000 - 2005 **B.S., Physics Science** (*Specialisation: Astrophysics*)
Universidad de La Laguna, La Laguna, Tenerife, Spain

EXPERIENCE

April 2015 - Present **Research Software Developer** at University College London

Service: Programming support to various research disciplines in UCL such as critical care or astrophysics projects, requiring to learn and use programming languages as C++, R, PUPPET and PYTHON.

Teaching: Organisation and delivery of training courses about research software development languages, tools and practices to students and researchers of different expertise levels.

Dec 2014 - Mar 2015 **Post-Doctoral Research Associate** at MSSL – University College London

Research: Improvement and adaptation of a global solar waves detection algorithm (CorPITA) to work with the the Improved Solar Observing Optical Network (ISOON), a ground-based telescope based in New Mexico (US).

Service: Programming support to the solar physics team, including training to staff and students in good programming practices.

Supervision: Co-supervision of PhD student based at the Finnish Meteorological Institute and supervision of a UCL Computer Science summer student to implement Hinode/EIS data analysis tools in SunPy.

Oct 2014 - Dec 2014 **Post-Doctoral position** at the Finnish Meteorological Institute

Service: Implementation and deployment of ESPAS webservice for IMAGE.

Oct 2013 - Sep 2014 **Post-Doctoral position** at the South African National Space Agency

Research: Analysis and implementation of algorithms for different products of the Space Weather Team such as short term forecasting of sunspots number and quiet sun daily variation on geo-magnetic measurements for K-index calculation. Also, scientific assistance in the installation of an e-Callisto station in Hermanus.

Service: Scientific support on solar physics to the Space Weather Team, preparation of the space weather forecast bulletins for general public and private clients, co-mentor team's intern, and train SANSA's staff and students in programming.

Teaching: Arrange and deliver lectures in solar physics and space weather for different courses and schools to students and clients, but also an in depth solar physics course to the Space Weather Team.

Outreach: Tours and activities with visitors at SANSA's Space Weather Center.

Oct 2012 - Sep 2013 **Post-Doctoral position** at the Finnish Meteorological Institute

Research: Analysis of coronal holes' shape over the whole SoHO era and the solar wind properties as part of the HISSI team leaded by Dr. Tanskanen.

Service: Development of data wrappers for IMAGE magnetometers network and the Hybrid Web Archive webservices to be used by the European Commission's Seventh Framework Programme (EC's FP7) ESPAS and IMPEx projects.

Aug 2009 - Sep 2012 **Post-Doctoral Research Fellow** at Trinity College Dublin

Research: Active role in the scientific and developer teams at the EC's FP7 HEliophysics Integrated Observatory (HELIO) project working in the development and implementation of automated solar feature detection algorithms and heliospheric propagation models.

Teaching: Oral assessments and experiment report grading of 2nd year undergraduate physics students.

Supervision: Supervision, co-supervision and grading of astrophysics final year research projects on the School of Physics.

Service: Web designer and curator of www.SolarMonitor.org.

Awards

Software Sustainability Institute, UK
- Fellow 2016, Dec 2015.

National Astronomy Meeting, UK
- Cambridge University Press Prize at best poster, April 2008.

Santo Tomás, Ciudad Real, Spain
- 1st Prize for the video *Light Aberration and Gravitational Lens*. World Year of Physics 2005, April 2005.

Successful Grants

I have participated on the elaboration of the proposals for the following successful grants:

Royal Astronomical Society grant for an undergraduate research bursary to implement Hinode/EIS analysis routines in Python (Feb 2015).

Sunspotter - A Zooniverse project to classify solar active regions (Dec 2012).

Can we survive a day without satellite navigation? a space weather session on the Euroscience Open Forum 2012, Dublin (Aug 2012).

Two grants for Indian students to study and research at Trinity College Dublin under the *HEAD Government of Ireland India* scheme (Jun 2012).

Students for the development of SunPy (Python for solar physicists) in the ESA's Summer of Code in Space 2011, 2012, 2013, 2014, 2015 and 2016 editions and in the Google Summer of Code 2013, 2014, 2015 and 2016 as part of the Python Software Foundation and the OpenAstronomy organisation.

SolarMonitor mobile: A summer internship for a undergraduate computer science student to develop a smart phone application to access www.SolarMonitor.org. The internship was supported by the Innovation Bursaries 2010 scheme (Spring 2010).

Community

Active developer and vice-chair of SunPy, an organization that aims to develop an open-source solar data-analysis software based on the scientific Python environment. Software Package started in 2011, organisation instaured 2014.

Member of the Science Organiser Commitee of a training session on heliophysics virtual observatory tools at EGU. 30 April, 2014.

Instructor of Software-Carpentry, a volunteer organization whose goal is to teach basic computing skills to scientists. Member since August 2013.

Member of the Solar Orbiter Data Analysis Working Group for SunPy.

Coordinator of a session at the European Science Open Forum (ESOF) in Dublin. 2-7 July, 2012.

HELIO Coordinated Data Analysis Workshop 1 and 4 at Trinity College Dublin. Member of the the Science and Local Organiser Committee. 11-13 April, 2011; 4-7 September, 2012.

Webmaster and developer for SolarMonitor.org. 2010 - Jun 2016.

Solar Summer School at Armagh Observatory: An Overview of the Coupled Earth-Sun System. Webmaster and Member of the Local Organiser Committee. 9-14 September, 2007.

Referee of book chapter on image processing techniques and articles on the Journal of Space Weather and Space Climate.

Technical Skills

Extensive software experience in UNIX-like system administration as well as programming experience mainly in Python, IDL (*SolarSoft*, image analysis, visualisation...), web development, and graphic design of posters for advertising science conferences, meetings, talks and outreach activities.

Outreach

Organisation of outreach activities for all ages groups and attendance to conferences about science and the web.

Activities

Zooniverse project for classification of active regions. Web Citizen Science Project to obtain statistics on the detection and classification of solar active regions.

SUAS Bridge To College (B2C) Programme. Secondary school kids are introduced to the university life through team-work activities. Trinity College Dublin.

Armagh Observatory Tours. People from different backgrounds visit Armagh Observatory every time on the year. I have led different tours showing the telescopes and the exhibitions on the grounds of the observatory (human orrery, scale model of the solar system and universe).

Armagh Observatory Schools activities. Once a year schools from all around Ireland go to Armagh to do different activities related with astronomy. I have been at charge of teaching groups of 30 secondary school kids.

Outreach related Conferences:

Zooniverse 2 (Chicago, 2013)

DotAstronomy 4 (Heidelberg, 2012)

Science Online London (2010 and 2011)

Publications

Refereed

- Dacie, S., Démoulin, P., van Driel-Gesztelyi, L., Long, D., Baker, D., Janvier, M., Yardley, S.L., **Pérez-Suárez, D.**; "Evolution of the magnetic field distribution of active regions"
  Astronomy & Astrophysics, (2016); DOI: 10.1051/0004-6361/201628948
- Long, D.L., **PrezSurez, D.**, Valori G.; "Restricted propagation of an EIT wave in the low solar corona"
  Proceedings of the International Astronomical Union, 11, S320, 98-102. (2016); DOI: 10.1017/S1743921316000247
- The SunPy Community, Mumford, S., Christe, S., **Pérez-Suárez, D.**, Ireland, J., Shih, A., Inglis, A., Liedtke, S., Hewett, R., Mayer, F., Hughitt, K., Freij, N., Meszaros, T., Bennett, S., Malocha, M., Evans, J., Agrawal, A., Leonard, A., Robitaille, T., Mampaey, B., Campos-Rozo J. and KirkLong, M.; "SunPy - Python for Solar Physics"
  Comp. Science & Discovery, 8 014009 (2015); DOI: 10.1088/1749-4699/8/1/014009
- Long, D. M., Bloomfield, D. S., Gallagher, P. T. and **Pérez-Suárez, D.**; "CorPITA: An Automated Algorithm for the Identification and Analysis of Coronal 'EIT Waves"'
  Solar Physics, 289(9), 3279-3295. (2014); DOI: 10.1007/s11207-014-0527-5
- Bentley, R. B., Brooke, J., Csillaghy, A., Fellows, D., Le Blanc, A., Messerotti, M., **Pérez-Suárez, D.**, Pierantoni, G. and Soldati, M.; "HELIO: Discovery and analysis of data in heliophysics"
  Fut Gener Comp Sy, 29(8), 2157-2168. (2013); DOI: 10.1016/j.future.2013.04.006
- Le Blanc, A., Brooke, J., Fellows, D., Soldati, M., **Pérez-Suárez, D.**, Marassi, A., Santin, A.; "Workflows for Heliophysics"
  Journal of Grid Computing, 11(3), 481-503 (2013); DOI: 10.1007/s10723-013-9256-5
- **Pérez-Suárez, D**, Maloney, S. A. , Higgins, P. A., Bloomfield, D. S., Gallagher, P. T., Pierantoni, G., Bonnin, X., Cecconi, B., Alberti, V., Bocchialini, K., Dierckxsens, M., Opitz, A., Le Blanc, A., Aboudarham, J., Bentley, R. B., Brooke, J., Coghlan, B., Csillaghy, A., Jacquey, C., Lavraud, B. and Messerotti, M.; "Studying SunPlanet Connections Using the Heliophysics Integrated Observatory (HELIO)"
  Solar Physics, 280(2), 603-621. (2012); DOI: 10.1007/s11207-012-0110-x
- Bentley, R. B., Brooke, J., Csillaghy, A., Fellows, D., Le Blanc, A., Messerotti, M., **Pérez-Suárez, D.**, Pierantoni, G. and Soldati, M.; "HELIO: Discovery and Analysis of Data in Heliophysics"
  E-Science (e-Science), 2011 IEEE 7th International Conference on, 248-255; DOI: 10.1109/eScience.2011.42
- **Pérez-Suárez, D**, Higgins, P. A., Bloomfield, D. S., McAteer, R. T. J., Krista, L. D., Byrne, J. B. and Gallagher, P. T.; "Automated Solar Feature Detection for Space Weather Applications"
  Applied Signal and Image Processing: Multidisciplinary Advancements, Chapter 13, 207-225 (2011); DOI: 10.4018/978-1-60960-477-6
- Doyle, J. G., Chapman, S., Bryans, P., **Pérez-Suárez, D.**, Singh, A., Summers, H. and Savin, D. W.; "Deriving the coronal hole electron temperature: electron density dependent ionization / recombination considerations"
  Research in Astronomy and Astrophysics, 10(1), 91-95 (2010); DOI: 10.1088/1674-4527/10/1/008
- Banerjee, D., **Pérez-Suárez, D.** and Doyle, J. G.; "Signatures of Alfvén waves in the polar coronal holes as seen by EIS/Hinode"
  A&A, 501(3), L15-L18 (2009); DOI: 10.1051/0004-6361/200912242
- **Pérez-Suárez, D.**, Maclean, R. C. Doyle, J. G. and Madjarska, M. S.; "The structure and dynamics of a bright point as seen with Hinode, SoHO and TRACE"
  A&A, 492(2), 575-583 (2008); DOI: 10.1051/0004-6361:200809507

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