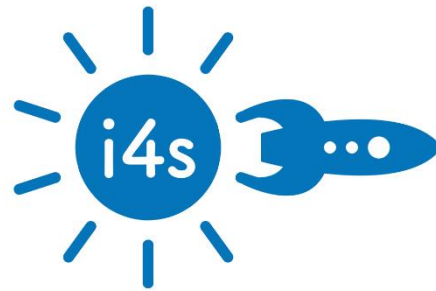


# IBERIAN SPACE SCIENCE SUMMER SCHOOL



First edition 2021

Teresa Barata



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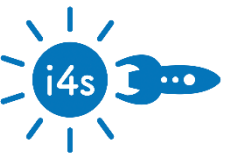


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# MOTIVATION

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The motivation is clear: being Space Weather one of the topics of Space Science, the aim is to progress significantly the topic of Space Weather on the Iberian Peninsula and to foster collaborations across Portugal and Spain on this topic

- **Portugal:** Space Weather is in a period of development, and the awareness and interest in this field are growing
- **Spain:** is already quite aware of the importance of Space Weather on society



This summer school is an excellent opportunity to promote the Space Weather and Space Science research in the Iberian Peninsula, to attract young scientists for this research topics and to strengthen networks in an Iberian context

The school will contribute to the dissemination of Space Science and Space Weather research, and to attract the academic community to this subject, as well as the civil society and young entrepreneurs



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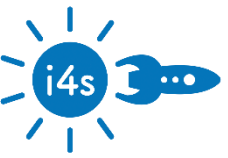


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# OBJECTIVES

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- **Main objective:** of the school is to provide a high-level training of young researchers in the domain of Space Science and Space Weather, with an emphasis on fundamental science of the Sun-Earth system and its modeling and forecasting
- **Other objectives:** are to promote scientific collaboration between researchers from Iberian Peninsula region, to stimulate interest among young researchers and to help the dissemination of the results of research in Space Weather
- **Expectation:** this first school will also help us to accomplish a wider objective that is to create an “i4S -Iberian Space Science Summer School” to be held annually. The different “i4S - Iberian Space Science Summer School” will work alternately between Portugal and Spain, and in different universities



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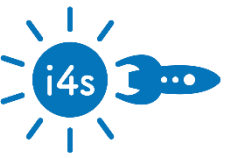


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# PROGRAM

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The course will have special emphasis on the theoretical basis for the study of Space Weather and the impact of on modern technology

The prime focus will be on specific characteristics of Space Weather effects in the Iberian Region mostly related to geomagnetic and ionospheric disturbances (for instance, effects of Space Weather on the quality of the EGNOS signal at Canarias, Madeira, and Azores islands)

To invite enthusiastic and good communicators in Space Weather and Space Science, and highly experienced in the fields of research and teaching



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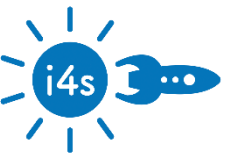
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# PROGRAM – MAIN TOPICS



The Sun and Sun-Earth interactions	Scientific instrumentation	Modeling and forecasting	Space Weather effects
The Solar interior and dynamo	Observacional data	Model assumptions, inputs and limitations	Due to variations of the geomagnetic field (power grids, transportation, oil and gas, drilling, etc.)
The Solar magnetic flux	Ground Instruments	Integration of observational data	Due to energetic particles events (satellites, aviation, etc.).
The Solar Atmosphere: photosphere, chromosphere and corona	Space missions	Visualization, analysis and interpretation of model outputs	Due to ionospheric disturbances (GNSS signal, telecommunications, radio blackouts, etc.)
The Heliosphere and solar wind		Accuracy of forecasts	Specific characteristics of Space Weather for the Iberian Region (mostly related to geomagnetic and ionospheric disturbances)
The Earth's magnetosphere			
The Earth's atmosphere (from low to high, including the Ionosphere)			
Climate Change			



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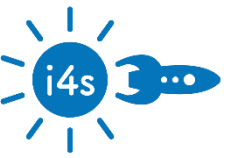


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# REQUIREMENTS

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- **Who should apply:** The course is open to both Iberian and foreign PhD students and young researchers
- **Format:** virtual, due to the Covid-19 pandemic situation
- **Duration:** 5 days (one week)
- **Participants:** 30 -40
- **Application requirements:** currently enrolled as a graduate student in any phase of training, or first or second year postdoctoral researcher; majoring in physics with an emphasis on astrophysics, geophysics, and space physics, or experienced in at least one of these areas
- **Documents needed:** Curriculum Vitae and a cover letter briefly stating motivation for application



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# ORGANIZERS



<http://www.iastro.pt/ia/>

**IA:** is a research infrastructure with a national dimension, devoted to the development of Astronomy, Astrophysics and Space Sciences in Portugal. IA supports teaching and training of young researchers and students in close collaboration with the Universities of Lisbon, Porto, and Coimbra. The Coimbra node holds a research team focused on solar physics, space weather, and minor icy bodies of the solar system

Main contact: Teresa Barata (teresabarata@dct.uc.pt)



<http://www.spaceweather.es/>

**SWE-UAH:** located in University of Alcalá, Alcalá de Henares, Spain is a research group dedicated to the Sun-Earth interaction research and to develop Space Weather products. SWE-UAH is responsible for the Spanish Space Weather Service (SeNMES) and it is also providing Space Weather products through the ESA Space Weather portal

Main contact: Consuelo Cid (Consuelo.cid@uah.es)



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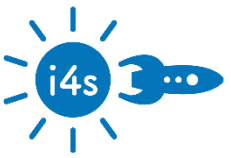
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- LOC

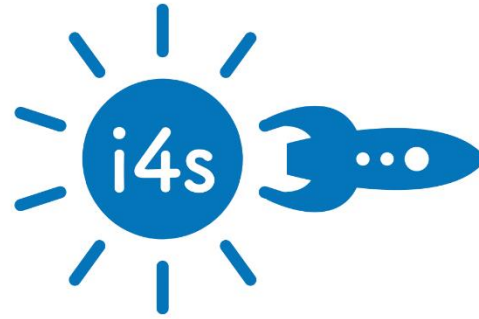
University of Coimbra (Portugal)	University of Alcala, UAH (Spain)	Other institutions
<b>Teresa Barata, IA (chair of the LOC)</b> João Fernandes, CITEUC Anna Morozova, IA Alexandra Pais, CITEUC Ricardo Gafeira, IA Fernando Pinheiro, CITEUC Nuno Peixinho, IA	<b>Consuelo Cid (chair of the LOC)</b> Antonio Guerrero Elena Sainz	Ivan Dorotovič, Slovak Central Observatory, Hurbanovo Rui Pinto, IRAP, Toulouse

- Co-organizers





# THANK YOU!



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