

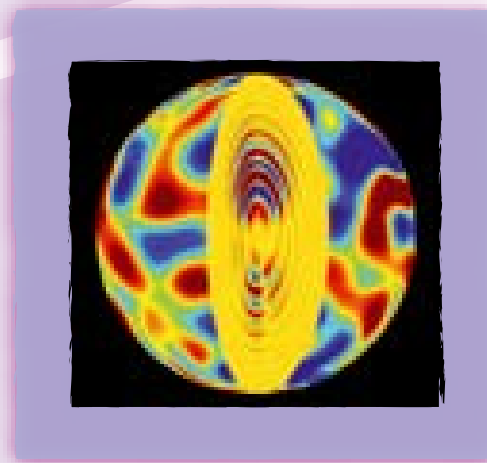


HELAS: European Helio- and Asteroseismology Network

The movement of the sun marks time, its daily movement helps to distinguish between the seasons, and solar events have particular significance for many cultures. Since time immemorial, man has been fascinated by the sun and has tried to understand its composition. We have come a long way since Galileo's first telescopic observations. Today's scientists have a clear understanding of the physical properties of the sun, and are collecting data on the solar and stellar interiors. HELAS brings together European groups active in helio- and asteroseismology to prepare the European research community for important projects. The EU-funded network helps scientists to coordinate and structure their research activities efficiently and ensure that Europe remains in pole position in this field.

● JOINING HANDS FOR WHAT LIES BEYOND

By ensuring that researchers from different countries work together on future projects, Europe can maintain its leading position in helio- and asteroseismology. Over the next few years, various innovative experiments and missions will start delivering interesting results, helping scientists to further understand the solar and stellar interiors. An unprecedented amount of data will be collected by new space experiments aboard the Solar Dynamics Observatory (SDO) and the asteroseismic mission COROT (CONvection, ROTation & planetary transits). High-tech ground-based observatories and European researchers need to be prepared to analyse the results of NASA space missions such as the SDO, and CNES missions such as COROT and PICARD. The European Space Agency mission Solar Orbiter will also be in the spotlight. European science needs the best intellectual integration to efficiently structure the research activities that make use of these data.



● NETWORKING ALL THE RESEARCHERS UNDER THE EUROPEAN SUN

HELAS focuses on a number of networking activities. The **HELAS Forum** will offer a platform to support and disseminate activities and tools that take place or are developed in the European helio- and asteroseismology context. This will allow the European groups to coordinate their work better and to step up cooperation between the solar and stellar communities worldwide. A unique IT platform will be available for data and software exchange and will also hold information on workshops and meetings. It will contribute to the dissemination of related information (outreach, specific forums and e-news). Moreover, the Forum will organise annual international meetings.

The **Global Helioseismology** network will coordinate the exchange of knowledge on the global properties of the Sun. This

network will link groups working in the field of stellar modelling with groups investigating global solar properties. Large amounts of global helioseismology data are already accessible, and new data will be made available during the network's lifetime. The Global Helioseismology network is coordinating the process of developing methods and software to analyse these data in the context of global helioseismology.

Local Helioseismology network activities are geared towards an efficient exchange of knowledge and data for tests, comparisons and analysis. This networking effort will coordinate the process of developing common software tools and will prepare Europe for the SDO and Solar Orbiter missions. The SDO is a mission designed to help us understand the Sun's influence on Earth by studying

the solar atmosphere on small space- and time-scales and in many wavelengths simultaneously. The Solar Orbiter mission will deliver images and data of the side of the sun not visible from the Earth.

The **Asteroseismology** network will promote a vital exchange between groups in the field of stellar physics. The institutions will collaborate to work on the theoretical description of physical properties of stars and to analyse and interpret stellar oscillation data.

Finally, **Public Outreach** activities will focus on the dissemination of the results obtained by HELAS to all relevant levels of the educational system and to the general public in the participating countries, as well as the scientific community, in order to communicate the excitement and importance of helio- and asteroseismology at all levels. Outreach material (text, images, animations, full presentations) will be made available by the HELAS partners along with lecture notes for teaching stellar evolution, stellar pulsations, helioseismology and asteroseismology in universities.

● EUROPEAN HELIO- AND ASTEROSEISMOLOGY NETWORK IN SUMMARY

Project acronym: HELAS

Project full title: European Helio and Asteroseismology Network

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EU project officer: Elena Righi-Steele

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Project webpage: <http://www.helas-eu.org>

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