



Project acronym:
SEE-GRID-SCI

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Web site: www.see-grid-sci.eu

SEE-GRID-SCI

e-INFRASTRUCTURE

for regional eScience



Participant organisation name	Short name	Country
Greek Research and Technology Network	GRNET	GR
European Organization for Nuclear Research	CERN	CH
Institute for Parallel Processing - BAS	IPP	BG
National Institute for Research & Development in Informatics	ICI	RO
The Scientific and Technological Research Council of Turkey	TUBITAK	TR
Computer and Automation Research Institute	SZTAKI	HU
Polytechnic University of Tirana	UPT	AL
University of Banja Luka	UoBL	BA
SS. Cyril and Methodius University of Skopje	UKIM	MK
University of Belgrade	UOB	RS
University of Montenegro	UOM	ME
Research and Educational Networking Association of Moldova	RENAM	MD
Ruđer Bošković Institute	RBI	HR
Institute for Informatics and Automation Problems, National Academy of Sciences of Armenia	IIAP-NAS-RA	AM
Georgian Research and Educational Networking Association	GRENA	GE



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OVERVIEW AND OBJECTIVES

eInfrastructure in Europe has reached a mature state where the GÉANT network forms a communications backbone on top of which a distributed computing infrastructure - the Grid - provides processing and storage services for eScience research. The South-East European eInfrastructure initiatives are committed to ensuring equal participation of the less-resourced countries of the region in European trends. The SEEREN initiative has established a regional network and its connection to the Pan-European research network GÉANT, and the SEE-GRID initiative the regional Grid. The SEELIGHT project is working towards establishing a dark-fibre backbone that will interconnect most national Research and Education networks in the region.

SEE-GRID-SCI leverages the SEE eInfrastructure to enable new scientific collaborations among user communities.

- SEE-GRID-SCI **stimulates widespread eInfrastructure uptake by new user groups** extending over the region, fostering collaboration and providing advanced capabilities to more researchers, with an emphasis on strategic groups in **seismology, meteorology** and **environmental protection**. The initiative thus aims to have a catalytic and structuring effect on target user communities that currently do not directly benefit from the available infrastructures.
- In parallel, it aims to **enlarge the regional eInfrastructure** to cater for demands of the communities by **increasing the computing and storage resources** and involving new partner countries in the region.
- Finally, SEE-GRID-SCI targets to help **mature and stabilise the National Grid Initiatives in the region**, allowing them to join the new era of longer-term sustainable Grid infrastructure in Europe.

In longer term, SEE-GRID-SCI aspires to contribute to the stabilisation and development of South-East Europe, by easing the digital divide and stimulating eInfrastructure development and adoption by new user communities, thus enabling collaborative high-quality research across target scientific fields.

SEE-GRID-SCI WORKING METHODOLOGY

Overall, the project is composed of four Networking Activities, one Service Activity, and one Joint Research Activity.

NA1 - Project administrative and technical management - establishes and maintains a lightweight and efficient management structures and mechanism.

NA2 - National Grid Initiatives (NGI) support and international collaboration - focuses on supporting the NGIs in the region: guidelines for NGI best-practices are defined, and a set of coherent actions carried out to ensure that NGIs reach the adequate maturity levels leading to their integration in wider European Grid operational and organisational models.

NA3 - Dissemination and training - focuses on outreach, both to the wider public as well as to specific Grid operator and new user communities, and targeted training events.

NA4 - User communities support - provides round-the-clock user support for a range of applications from 3 target fields. Dedicated support teams for the regional applications provide pre-deployment gridification support, as well as run-time production-level user support.

SA1 - Infrastructure operations - ensures that user community needs in terms of size and availability of computing, storage, networking and application-specific resources are catered for. Discipline-specific services are to be deployed over the eInfrastructure and supported by SA1 and sophisticated operational tools from JRA1 are to be used to enhance infrastructure performance.

JRA1 - Development of application-level services and operational tools - Carries out specific middleware / application-ware developments in order to cater for efficient application deployment and support. Moreover, it aims at improving the existing operational tools in order to enhance the infrastructure performance and automation, with the focus on application-related customisations.

USER COMMUNITIES

The core objective of the project is to engage user communities from different countries in close collaboration so as to explore application similarities and abstract out common elements with respect to the approaches to actual Grid usage. This strategy is envisaged to have a structuring effect for crucial regional communities. The target applications are from the fields most relevant for the region: taking into account local geography - meteorology, seismology and environmental protection are core earth science disciplines in the region.

Within each discipline, a number of key players from the region are involved in common use of eInfrastructure, enabling them to share data, applications, tools and results of their work.

The **SEE-GRID-SCI user communities** involved include, amongst others: National Observatory of Athens, Greece; Geophysical Institute of the Bulgarian Academy of Sciences; Technical University of Cluj-Napoca, Romania; Middle East Technical University, Turkey; Kandilli Observatory and Earthquake Research Institute, Boğaziçi University; Department of Meteorology at Eötvös Loránd University, Hungary; Geodetic and Geophysical Research Institute of the Hungarian Academy of Sciences; Republic Hydrometeorological Institute Banja Luka; Federal Hydrometeorology Institute of Bosnia and Herzegovina; University of Tirana Institute of Geosciences and Institute of Water, Energy and Environment; Seismological Observatory of Faculty of Natural Sciences and Mathematics, UKIM, Skopje; South Environment and Weather Agency, Belgrade; Hydrometeorological Institute of Montenegro; Institute of Geology and Seismology of Academy of Sciences of Moldova; State Hydrometeorological Service of Moldova; Department of Geophysics, University of Zagreb.

The **SEE-GRID-SCI applications** include:

Seismology: Seismic Risk Assessment; Massive Digital Seismological Signal Processing with Wavelet Analysis; Numerical Modelling of Mantle Convection;

Meteorology: Regional scale Multi-model, Multi-analysis ensemble forecasting system. (BOLAM, MM5, NCEP/Eta, and NCEP/WRF-NMM models); Study of the interaction of airflow with complex terrain.

Environmental protection: Modelling System for Emergency Response to the Release of Harmful Substances in the Atmosphere; Monte Carlo Sensitivity Analysis for Environmental Systems; Multi-scale Atmospheric Composition Modelling; Regional Modelling of the Geomagnetism; Environment oriented Satellite Data Processing.

