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Annex 1 - Questionnaire/Interviews Reports

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QUESTIONNAIRE

SpaceGRID project – The Background

SpaceGRID is an ESA study aimed at identifying the potential benefits of “Grids” to the ESA community and defining a road map for the implementation of this technology within ESA. Grid technology is an emerging computing infrastructure that is intended to provide uniform access to a set of distributed networked resources that would otherwise be incompatible. Depending on the Grid application, the resources may be large-scale computational systems, data-archives or shared facilities constituting a collaborative working environment.

One area being considered by the study is Solar System Research (SSR), encompassing activities in Solar, Solar Terrestrial and Planetary research. This is an active area of ESA’s current (Cassini/Huygens, Cluster and SOHO) and future (SMART-I, Mars-Express, Rosetta, Double Star, Bepi-Columbo and Solar Orbiter) programme. In the case of SSR the main benefits of the SpaceGRID are expected to come from the provision of uniform mechanism for the location, manipulation, access and sharing of online data. This will free the end user from many of the laborious routine data handling tasks allowing more time to concentrate on the analysis. The ability to search multiple, distributed datasets and return a single combined data product will simplify event identification and open the way for new areas of interdisciplinary analysis. A key part of this will be the ability for individual users and groups to “plug-in” to the SpaceGRID not only to retrieve data from existing archive sites but also to make available their own data via a local Grid-site.

The SSR requirements for SpaceGRID are being developed by a group of scientists and software engineers who already have a background in the SSR field and are actively involved in current ESA projects covering the three SSR disciplines. Input from and participation by the community from the outset is seen as an important step to ensuring the success of SpaceGRID. This questionnaire provides one means of collecting these inputs.

EGSO – The Background

The European Grid of Solar Observations (EGSO) is a project funded by the European Commission under its Information Society Technologies (IST) programme. EGSO is a Grid testbed and aims to create a Grid of solar data archives, making them appear as though they were a single data source. To do this it will federate solar data archives across Europe (and beyond); create tools to select, process and retrieve distributed and heterogeneous solar data; provide mechanisms to produce standardized observing catalogues for space and ground-based observations; and provide the tools to create a solar feature catalogue. The EGSO project is due to start in early 2002 and will last for 3 years. For more information about EGSO, see the EGSO web site at URL <http://www.mssl.ucl.ac.uk/grid/egso>.

Many of the problems that EGSO will tackle are very similar to those that SpaceGRID needs to solve. The creation of EGSO will therefore act as a testbed of some of the ideas and concepts that will be result from the SpaceGRID study project. This questionnaire will also help define the user requirements of the EGSO project.

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INSTRUCTIONS

Please fill in as much of the questionnaire as you are able. If your work covers several different areas and the inputs cannot be consolidated into a single response then complete a separate questionnaire for each area.

If you would prefer to complete the questionnaire off-line then you can print out this form or download the MS Word or PDF versions. Please send the completed forms to: SpaceGrid SSR Team, R25 1.88, Space Science and Technology Dept., Rutherford Appleton Lab, Oxfordshire, OX11 0QX, UK.

You can also contact us by sending an E-mail to spacegrid@rl.ac.uk

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ORGANISATION

Name (including title and initials): _____

E-mail: _____

If answering on behalf of a group, how many people in the group? ____

Institution: _____

Department: _____

Main area(s) of study: ☐ Solar ☐ STP ☐ Planetary

Specify the main activity(s) of your group or organisation:

- ☐ Data analysis
- ☐ Theoretical modelling
- ☐ Engineering
- ☐ Operations
- ☐ Data provision
- ☐ Software development
- ☐ Other (please specify) _____

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Grid Technology:

Are you aware of GRID Technology?

☐ Yes, involved in learning, applying or providing facilities using Grid technology
☐ Know something about it but not currently using it
☐ Have heard about it but not sure what it all means
☐ No, not heard about Grid technology before

If you are already using Grid technology or have come across it in some other way, how are you using it or how did you find out about it (i.e. other Grid related projects)?

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The DOMAIN:

The aim of this part of the questionnaire is to identify how information is accessed and used within the specific domain (in this case Solar System Research).

DATA USE:-

What are your main uses of Solar System Research Data?

- ☐ Research (please specify area of study) _____
- ☐ Operations
- ☐ Commercial
- ☐ Other (please specify) _____

Of the sorts of data that you most commonly use, what percentages are from?

Solar:

- _____ % Space-based remote sensing (i.e. imaging, spectroscopy)
- _____ % Space-based in-situ (i.e. particle detection)
- _____ % Ground-based remote sensing
- _____ % Other (please specify) _____

STP:

- _____ % Space-based in-situ (i.e. particles and fields)
- _____ % Space-based remote sensing (i.e. auroral imaging)
- _____ % Ground-based instrumentation
- _____ % Geomagnetic indices
- _____ % Other (please specify) _____

Planetary:

- _____ % Space-based remote sensing (i.e. imaging)
- _____ % Space-based in-situ (i.e. particles and fields)
- _____ % Planetary landers
- _____ % Ground-based remote sensing (i.e. telescopic looking away from Earth)
- _____ % Ground measurements (of Earth, i.e. seismic)
- _____ % Laboratory data (i.e. meteorite analysis)
- _____ % Other (please specify) _____

(Total should be 100%)



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For your most commonly used datasets specify the mission, instrument and type of data (e.g. images, spectra, time-series):

1. _____
2. _____
3. _____

Describe any particular difficulties accessing data from any domain you use:

Do you ever combine datasets?

- ☐ From the same mission/facility
- ☐ From related missions/facilities (e.g. ground-based with space data)
- ☐ From other areas within Solar System Research
- ☐ From other disciplines outside Solar System Research

If yes, then indicate the main difficulties encountered when combining these data:

DATA SOURCE:-

Please identify any online data facilities that you regularly use as part of your research and indicate where they are located (e.g. Europe, US). In the case of mirror sites specify the location of the site that you use.

1. _____
2. _____
3. _____

How do you locate the data you are looking for?

- ☐ Ask colleagues
- ☐ Use a domain specific links list or search facility (e.g. MOLD, SOHO or PDS links page)
- ☐ Search web pages by mission
- ☐ Search web pages by instrument



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- ☐ Search web pages by type of data
- ☐ Offline source (e.g. journal or reference library)
- ☐ Other (please specify) _____

Of the data that you use, what percentage:

- _____ % Is commercial (requires payment)
- _____ % Is proprietary (restricted access)
- _____ % Is public but requires registration and authentication
- _____ % Is public and accessible anonymously

Do you have data that you would like to make available to other users if this were easy to do?

- ☐ Yes ☐ No

If Yes, then please list the data sets:

DATA REQUEST:-

What is your most common way of constraining a data request?

- ☐ Specifying a time range
- ☐ Specifying a location
- ☐ Other (please specify) _____

Are there any selection criteria you would wish were available?

What is your current preferred means of requesting data?

- ☐ Online web request
- ☐ E-mail (automated request)
- ☐ Personal request (via E-mail, phone or fax)
- ☐ Other (please specify) _____

What is the average number of data requests made annually? _____

What do you estimate would be the typical data volume involved in a single request? _____ MB



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What percentage of the data volume of a typical request is actually required? _____

What is your current preferred means of data/product delivery?

- ☐ Online delivery (i.e. wait for output of web submission)
- ☐ Delayed data delivery (data ftp'd to you)
- ☐ Delayed data collection (you ftp data from a supplied location)
- ☐ E-mail attachment
- ☐ Hard media (please specify, i.e. CD-ROM, tape) _____
- ☐ Other (please specify) _____

Would you benefit from being able to process data remotely before downloading the result?

☐ Yes or ☐ No

What response time for data delivery would be essential _____
or desirable? _____

DATA PROCESSING:-

What hardware and operating system(s) do you use?

What data formats do you commonly use to store data locally (e.g. ASCII, FITS, CDF)?

To distribute data (if different from above)?

What processing do you need to apply to retrieved data (e.g. re-format) before it can be used?

What commercial software do you use for data processing (e.g. IDL, Matlab)?

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What tools or analysis systems that are provided and supported by the community do you use (e.g. ISIS, SolarSoft, PAPCO)?

What other publicly available freeware software packages or tools do you use?

Indicate any of the systems above that you help to support or develop?

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Looking for a standardisation:

What aspects of your data analysis and research do you think are currently hindered by lack of standardisation amongst the various datasets, their metadata (catalogues) or datafile formats?

What do you think is currently the greatest impediment to working with multi-instrument datasets?

Collaborative environment:

Do you normally, or often, work on joint projects with collaborators at other institutes?

☐ No or ☐ Yes (How many institutes are typically involved? ____)

What are the primary mode(s) of communication with your collaborators?

Have you used any of the following techniques to hold virtual meetings?

- ☐ Telephone conferencing
- ☐ Video conferencing
- ☐ Online (net) meeting
- ☐ Collaboration Grid (combined video and online)
- ☐ Other (please specify) _____

Which is your most frequently used method?

☐ Tele-conf, ☐ Video-conf, ☐ Net meeting, ☐ Collaboration Grid, ☐ Other

Do you think the ability to process and simultaneously view large datasets remotely from several sites would lead to more collaborative work in your field?

☐ Yes or ☐ No

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How do you currently disseminate data you have taken to the general community?

How do you ensure that each collaborating institute has access to the same data products?

PRIORITIES for Solar System Research from a GRID:

Indicate on a scale from 1 (least productive) to 5 (most productive) how each of the following features might improve your productivity:

☐ Improved facilities for locating online sources of data based on a general query

☐ Standardisation in the format and content of delivered data descriptions (metadata)

☐ Standardisation in the delivery format of data from different sources

☐ Compatibility with other national and international programmes

☐ Improved facilities for querying the catalogues of a single data archive

☐ The ability to apply queries on the data within a single data archive

☐ The ability to query transparently the catalogues of multiple distributed data archives

☐ The ability to query the data across multiple distributed data archives

☐ The ability to manipulate and process data remotely prior to download

☐ A web portal to access distributed resources from a single web site

☐ A Grid server application that allows users to link their own data into SpaceGRID

☐ A software library that can be used to allow programs access to SpaceGRID facilities

☐ An online collaborative working environment – virtual SpaceGRID meeting facility

Please indicate any other Solar System Research related or general features that you think should be considered for inclusion in an ESA SpaceGRID.

1.

2.

3.

What single feature, function or capability of an ESA SpaceGRID do you feel would provide the greatest benefit to the Solar System Research community?

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Your future involvement:

Please insert here any comment, suggestion or remark you may consider significant concerning the development of the ESA SpaceGRID.

The SpaceGRID study includes a prototyping phase that will be used to demonstrate some of the key capabilities of Grid technology to the community. Please indicate any particular area, project or application within the Solar System Research domain that you think would benefit from inclusion in this work.

For more information on the Solar System Research portion of SpaceGRID please visit our web site at www.spacegrid.rl.ac.uk/spacegrid/

You can also contact us by sending an E-mail to spacegrid@rl.ac.uk