

Geohazard Supersites Breakout Session

ESA's Living Planet Symposium, Bergen, Norway, July 1 2010

Summarized by F. Amelung, University of Miami and Wolfgang Lengert, ESA, Giuseppe Puglisi, INGV and Pierre Briole, ENS Paris.

This summary also includes discussions in a telecon with Guy Seguin, CSA, Ivan Petiteville, ESA, CEOS and Steven Hosford, CNES, and discussions about the governance structure held after the breakout session

1. Items to be added to White Paper draft:

Science Objectives. A section detailing the science questions to be addressed for each Supersite is needed (requested by Guy Seguin, CSA).

Data requirements. A section detailing the data requirements from each satellite need to be added (requested by Guy Seguin, CSA).

Benefits for in-situ data providers. This section was missing in the section “Benefits of Geohazard Supersites” (noted by Giuseppe Puglisi, INGV).

Geohazards CoP. The Data Users need to be represented as the Geohazards Community of Practice (Geohazards CoP) to better align with GEO terminology (suggested by Guy Seguin, CSA).

GEO task leader. For the same reason add a section explaining that the Chair and Vice-Chair of the consortium also are the GEO task leaders (requested by Joern Hoffmann, DLR).

Supersite data portal. A section outlining the next-generation Supersites data portal using HMA format (will be provided by Steven Hosford, CNES).

Disaster mitigation, Disaster preparedness has to be replaced by disaster mitigation in the text. Disaster mitigation is what is meant (noted by Gonneri LeConnazet, BRGM).

Crisis response. There was a lengthy discussion about the role of the Supersites for crisis response. The dilemma is that the Supersites have their greatest visibility during crises but they are not the main objective which is the scientific study based on long-term data provision and data availability. Henri Laur, ESA, suggested to state more clearly in the White Paper that crisis response is not an objective and to remove all references to “Civil Protection authorities” from the Draft. This means to rewrite specific aims 2 and 3 accordingly. On the other hand, for some Space Agencies it may be easier to contribute data for crisis response than for background acquisitions. Some Space Agencies may be rather in a “disaster response” than “disaster mitigation” mode.

Giuseppe Puglisi, INGV noted that in section 5 “Differences Supersites and Charter” the scientific aspects of geological disasters need to be better defined.

Archived data in crises. Birgit Schaedler, DLR: One strength of the Supersites is that in a crisis all archived multi-satellite SAR imagery will be readily available which is critical for the scientific assessment of the event. This needs to be said more clearly in the White Paper.

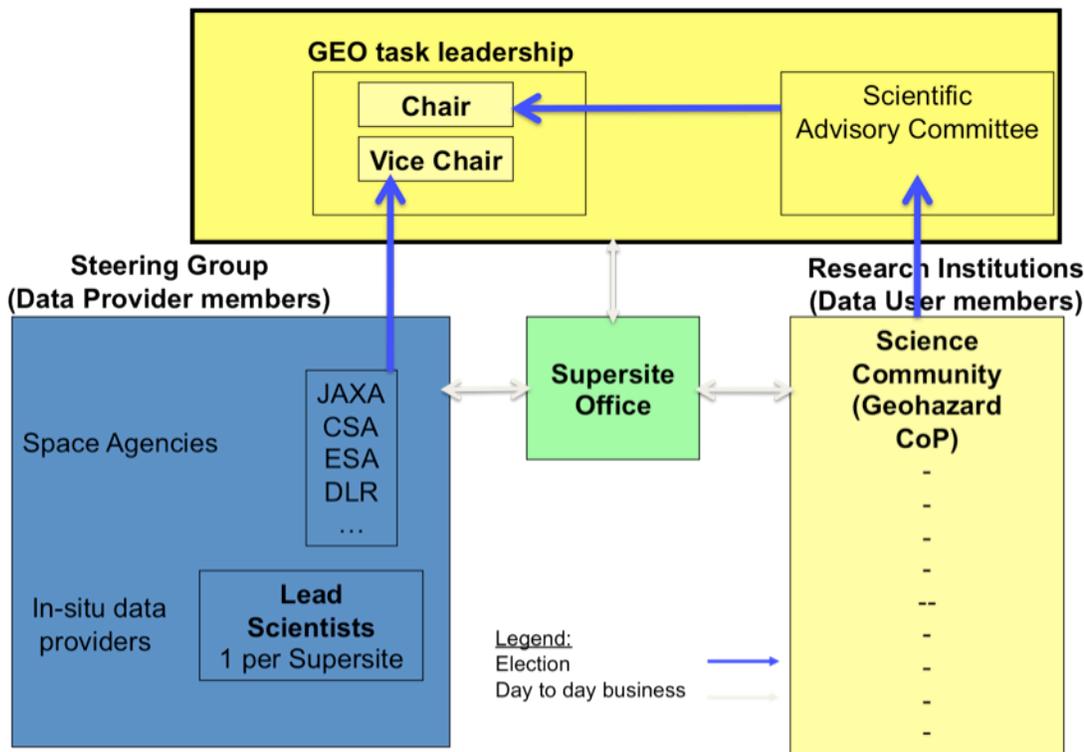
Revised Governance Structure. (See next section for detailed text).

Revise bylaws. The bylaws will be revised to reflect the new governance structure.

2. Revised Governance Structure

The Space Agencies feel that the originally proposed governance structure with scientists on the Executive Committee and the data providers on the advisory committee is not practical. The data providers need to be in the driver's seat and the scientists should be on the advisory committee. Also, the need of a lead scientist responsible for each Supersite was recognized. Furthermore, the space agencies feel that the Supersite office should work at their discretion. This requirement is not consistent with Unavco's mission which is currently hosting the Supersite office, highlighting the need for a Office funded by the Space Agencies. The following governance structure was proposed:

Proposed structure of Consortium



A1. Steering Group

Members:

- all space agencies
- in-situ data provider if they wish (for each Supersite only one in-situ data provider represented by the Lead Scientist) (if in-situ data provider membership grows, elect representatives.)

Responsibilities:

- To provide the satellite and in-situ data.
- To respond to requests of the Scientific Advisory Committee.
- To accept or deny newly proposed Supersites in view of (space and ground) data provider capacities.
- To characterize data policies supporting GEO Supersites (e.g. half-year delay for in-situ volcano data)

A2. Lead Scientist for each Supersite

Assigned by the in-situ data providers (one for each Supersite), member of steering group. Should have a very good knowledge of the science made on the supersite and of the various teams involved in the study of the supersite, and

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very good communication capabilities. Lead scientist can delegate SAR data responsibilities to a well-respected InSAR scientist.

Responsibilities:

- To define data requirements (space) on behalf of Supersiter community / Scientific Advisory Committee;
 - back ground mission for satellites
 - on-line data set, considering limitations of data providers
- To communicate with Space Agencies (through the Supersite Office or directly).
- To take decisions about space-based data coverage given available satellite resources
- To inform Scientific Advisory Committee about space-based and in-situ data coverage.
- To ensure availability of in-situ data
- To ensure completeness of data Supersite data repository (identifying with help of the office missing data)
- Compile with help of the Office a dossier / report on the science results achieved having free “all” data

Individuals proposed in meeting (need to be asked and confirmed):

Hawaii: Mike Poland, USGS
Los Angeles: Ken Hudnut (plus Paul Lundgren)
Etna: Giuseppe Puglisi (plus Eugenio Sansosti)
Istanbul: Semih Ergintav?? (plus Thomas Walter??)
Vesuvius: ?? (plus Paolo Berardino)
Vancouver: ??
Tokyo: ?? (plus Masato Furuya?)

B. Scientific Advisory Committee

Responsibilities:

- To select Supersite candidates.
- To define the metrics for the transition form Supersites candidate to Supersites.
- To check the metrics and to report failures and achievements.
- To oversee data requirements of lead scientist and ensure that they are consolidated with membership
- To define standards and formats (for higher level products).
- To ensure that Supersites are referenced and acknowledged
- To organize sessions on Geohazard Supersites at scientific meetings.
- Annual report on science achievements to GEO and Steering Committee (including suggestions for improvements)
- To define how a site can cease to be a supersite

C. Supersite Office

The Office operates at the discretion of the Steering Group (*).

Responsibilities:

- To maintain the Supersites website and data portal.
- To place satellite data provided by the participating data providers on website and Virtual Archive
- To accommodate specific requests of participating organizations for data dissemination, access and reporting.
- To assist participating organization with data acquisition and provision. On request, the Supersite Office can fulfill the responsibilities of an order desk and directly access SAR data production systems for satellite tasking and data ordering.
- To transmit requirements of lead scientists and advisory committee to Steering Committee (**).
- To coordinate the Supersite membership and conduct elections.
- To ensure communication between the elected committees and the memberships through e-mail lists.
- To coordinate meetings of the committees and membership.
- To comply with all the reporting requirements to participating organizations (technical; e.g. providing logs on downloads and usage of portal, collecting scientific reports of Lead Scientist).

(*) This applies for the time after the move of the Supersite office to Europe. While based at Unavco, the Supersite

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office operates at the discretion of the Scientific Committee (required by Unavco bylaws).

(**) not initially.

D. Chair and Vice-Chair of consortium

The Scientific Advisory Committee shall elect the Chair of the Geohazard Supersite consortium and the Steering Group shall elect the Vice-Chair (*). The Chair and Vice-Chair shall be the GEO task leader and vice-task leader.

(*) These roles may be exchanged after the Supersite office has moved to Europe.

3. Lobbying to support Geohazard Supersites

- Scientists are encouraged to contact their national GEO principal to express support of the initiative (the principal names are not published on the GEO website according to GEO rules).
- Research institutions wishing to propose new Supersites are encouraged to make as a first step their ground-based data available. The protocol to promote new Supersites through political channels would be a request from the Director of the Research institution to the Director of the GEO secretariat (Jose Achache), the CEOS Chair (listed on CEOS webpage, currently a representative from the Brazilian Space Agency), and to the national GEO principal.

4. Others

Data User members: individuals or institutions. There was a vivid discussion about whether individuals or institutions should be the consortium members with many preferring individual membership. Institutional membership ensures smoother elections and is the bedrock of Unavco's functioning. Institutional membership is necessary as long as the Supersite office is based at Unavco.

5. Next steps

Initiative will be discussed at CEOS technical meeting in Montreal in a site meeting (September 2010) and presented to the CEOS plenary in Rio (October 2010).

Text details to be added to White Paper draft (evolving)

1. Detailed Data request.

Haiti earthquake event Supersite. All archived Alos-PALSAR data (3 path, each 3-4 frames) and existing Radarsat-2 data sets.

Wenchuan, China earthquake event Supersite. All archived Alos-PALSAR data covering earthquake area.

Earthquake and volcano Supersites (Tokyo, Los Angeles, Vancouver, Istanbul, Hawaii, Vesuvius, Etna). For each Supersite data acquisition and provision of two tracks every repeat cycle from each SAR data provider (preferably one ascending and one descending orbit) (TSX is handled independently through science proposals to DLR). Details will be determined by the lead scientists of each Supersite in collaboration with the respective Space Agencies.

2. Benefits for In-Situ Data Providers.

- Involvement in the satellite data acquisition planning.
- Unprecedented satellite coverage leads to new scientific discoveries and improved assessment of earthquake and volcano hazard.
- Facilitates collaboration with national and international remote sensing research teams to more efficiently extract information from the satellite data
- Advanced processing techniques of satellite data combined with ready data availability may lead to better monitoring systems.
- Easy access to satellite data; no need to maintain local SAR data repositories; guaranteed long-term access to historic satellite data.

3. Science Objectives

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ESA new data policy and Natural Laboratories

At the end of the break-out session the implications of ESA's data policy (reproduction costs are waived) on the Geohazard Community was discussed.

Summary. It is desired that Unavco/WinSAR takes an active role in providing the Geohazard community with access to complete ESA SAR data set using the Virtual Archive or Unavco's servers (goal: limit multiple production of same data to limit strain on ESA's production system). Given the limited size of the Virtual Archive (currently 5TB storage with 10TB traffic) it is desired that the Virtual Archive hosts complete data sets for all the "small" Natural Laboratories (covered by a few tens of frames) whereas Unavco could provide access to the larger data sets (WinSAR, Dragon, South America data).

Standard Products for Virtual Archive. The standard products are framed (tiled) L0-data. Unavco will replace all swath (strip) data in the Virtual Archive with framed data. Homogeneity of the Virtual Archive is paramount. "Small" natural laboratories (e.g. Hawaii) could have swath data. Frequently processed tracks in the WinSAR and Dragon holdings will be re-ordered in frame format (if the community desires) so that the data are ready for the transfer into the Virtual Archive the moment more space is available. Rarely used tracks stay in swath format and may not be transferred into the Virtual Archive as long space is limited.

WinSAR data. Non-American WinSAR members (or "Non American scientists" ?) will be able to access WinSAR data.

Additional Natural Laboratories. Community members who have ERS / Envisat satellite data from those sites are invited to provide them to ESA (via Unavco who uploads the data on the VA) to reduce strain on ESA's production system). Unavco will then complete the data sets using the Geohazard account.

- Gulf of Corinth (Pierre Briole will provide track/frame numbers)
- Piton de la Fournaise (Reunion)
- Iceland (all data April to December)
- Taiwan
- East-African volcanoes (Juliet Biggs will provide track/frames)
- Italy (ESA has full data set. Susanna, please check with Wolfgang on where the data is and how to put them into VA).

