



2012-2015 GEO Work Plan – Disasters (DI-01) Task Component 2: Geohazards Monitoring, Alert, and Risk Assessment

Geohazard Supersites and Natural Laboratories (GSNL) Initiative

“Supersites Definitions”

September 6 2012

1. Purpose of the document

GEO “Geohazard Supersites and Natural Laboratories” (GSNL) Leads and Contributors met together (virtually) on June 11, 2012 with the purpose of assessing the state of the GSNL Initiative, gathering ideas and thoughts and, eventually, achieve an agreed vision for the overall scope of GSNL and on the basic principles for its Governance structure.

At the (virtual) meeting the GEO Secretariat was asked to draft a “Supersites Definitions” document in order to collect and consolidate input from the participants to define criteria to be applied in selecting the four typologies of Supersites that were identified through the discussion, namely

1. “Permanent Supersites” alias “Supersites”
2. “Candidate Supersites”
3. “Event Supersites”
4. “Natural Laboratories”

This document was agreed upon in a telecon organized by the GEO secretariat on 6th September, 2012.

2. Definitions

2.1 Permanent Supersites (“Supersites”)

Geohazard Permanent Supersites (Supersites) are single sites or extended areas of highest priority to the geohazards community in which active single or multiple geological hazard caused by single or multiple sources poses a threat to human population and/or critical facilities (such as that of volcanic ash dispersion to aviation).

Supersites are subject to investigations aimed at broadening the scientific understanding of the causative geological processes narrowing down the uncertainty in hazard and risk assessment. Supersites must have well-developed data infrastructures providing open access to data acquired by in-situ and satellite Earth observing systems. Supersites support collaborative research activities of a broad international research community.

Supersites provide open, and free-of-charge access to comprehensive satellite (optical and/or SAR) and ground-based geophysical data sets derived from different sources and different disciplines. (e.g., Seismic, GNSS, Strain meter, Tilt, Gas, gravity, LIDAR).

Supersites are not limited in time and will normally exist during the lifetime of the related activities or organizations and beyond that as applicable. Their continued relevance will be monitored regularly (every 2 years).

2.2 Candidate Supersites

These are sites that the GSNL Scientific Advisory Committee (SAC) and CEOS wants to develop into Permanent Supersites, but for which not all the conditions to effectively integrate satellite and in-situ Earth observations have been established. They are candidates for permanent Supersites because of high hazard and scientific significance.



2.3 Event Supersites

Event Supersites are sites affected by a major geological event (e.g. earthquakes, volcanic unrest or eruption, landslides) for which a scientific forum of experts, end-users and data providers is set up during or in the immediate aftermath of the event

The hazard sources or impacts should fulfill at least one of the following criteria:

- a) Provide an important and rare opportunity for scientific investigation,
- b) Motivate substantial supra-regional scientific interest and investigations of the Region,
- c) Benefit from comprehensive satellite and in situ data sets.

Event Supersites provide open and free-of-charge access to comprehensive satellite and ground-based geophysical data sets derived from different sources and different disciplines.

Event Supersites must be limited in time and area and must be justified by the interests of the Scientific Community.

At the end of their operational period, Event Supersites will be archived and removed from the list of active Supersites.

2.4 Natural Laboratories

Natural Laboratories are geographic regions in one or several countries characterized by relevant geohazards and a coherent tectonic setting. They are similar to Permanent Supersites but cover larger regions and are less densely monitored. They are subject to investigations aimed at broadening the scientific understanding of the causative processes and at narrowing the uncertainty in geohazard assessment.

Natural Laboratories provide a framework for regional collaborations in order to promote transnational access and collaborative temporary experiments for implementing the existing observing systems. Data providers and end users would share data and products, and coordinate research and studies at regional level including activities for testing and validating new techniques, technologies and sensors.

Natural laboratories are not limited in time and will normally exist during the lifetime of the related activities or organizations and beyond that as applicable.

3. References and basic definitions

GEO 2012-2015 Work Plan(Revision 1) December, 2011.

Available for download at: http://www.earthobservations.org/documents/work%20plan/GEO%202012-2015%20Work%20Plan_Rev1.pdf

Amelung F., Cocco M., Dobson C., Wright T., Aoki Y., Furuya M., Hooper A., Sansosti E., Fielding E., Plag H.-P. Marsh S., Lengert W., Eichelberger J., Meertens C. (2011) Geohazard Supersites and Natural Laboratories Strategic Plan, Version 1.0;

Amelung F., Lengert W. (2011) The Geohazard Supersites Partnership, White Paper and Implementation Plan, 11 October, 2011;

Amelung F., (2011) Supplement to the White Paper draft version 3.3,

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Dobson C., Hoffmann J., Hosford S., Lengert W., Osamu O., Seguin G., Zoffoli S. (2012) Selection process for GEO Geohazard supersites. A proposal of the Committee on Earth Observing Satellites.

Amelung F., Cocco M., (2012) Terms of Reference for Supersites (draft); Short term Roadmap (draft); Long Term Roadmap (draft);

Amelung F., Cocco M., Dell'Acqua F. (2012) GEO (Sub) Component Task Sheet Di-01-C2-GSNL.

Available for download at: <ftp://ftp.earthobservations.org/GHZSNL/>

Marsh S., Plag H.-P. GEO Geohazard Community of Practice (GHCP) Road Map;

Available at: <http://www.geohazcop.org/library>

For risk terminology and associated meaning used in this document please refer to “United Nations International Strategy for Disaster Reduction Secretariat (UNISDR), 2009 *Terminology: Basic terms of disaster risk reduction*. (Available at: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf).



Critical facilities

The primary physical structures, technical facilities and systems which are socially, economically or operationally essential to the functioning of a society or community, both in routine circumstances and in the extreme circumstances of an emergency.

Disaster

A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Disaster risk

The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Disaster risk reduction

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Geological hazard

Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Hazard

A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.