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Supersite selection and review procedures for the Geohazard Supersites and Natural Laboratories initiative

1. Purpose of this document

This document describes the submission, evaluation and selection procedures for new Supersites and Natural Laboratories proposals submitted to the GEO Geohazard Supersites and Natural Laboratories (GSNL) initiative. It also describes the procedures for the periodic assessment of established Supersites and Natural Laboratories.

2. Proposals and Submission Dates

Proposals are submitted by the prospective Supersite Coordinator (SC) using a specific template.

The up-to-date forms and templates needed for the submission of Supersite proposals, for their review or for the periodic reporting, should be obtained by email from **info@geo-gsnl.org**.

Supersite proposals can be submitted at any time to the GSNL Chair, using the email **info@geo-gsnl.org.**

A detailed step-by-step procedure aiding in the preparation and submission of Supersite proposals is available on the https://geo-gsnl.org website

3. The Supersite Coordinator

The main goal of the GEO Geohazard Supersites initiative is to stimulate new scientific advancements in hazard and risk science and direct benefits to the end users[1] of scientific information. This is pursued by promoting international collaboration within an Open Science approach, i.e. open exchange of scientific knowledge, sharing of SW and HW resources, open access to data and research results.

The Supersite partnership is composed by data providers (CEOS space agencies and local seismic/volcanic monitoring agencies) and the general scientific community. They should guarantee the provision of the necessary data and the relevant analysis and interpretation at the highest scientific level and within reasonable time. They should also commit, under the lead of the Supersite Coordinator, to support geohazard assessment and emergency response if requested by the local end-users of scientific information.

The Supersite Coordinator is the interface for the dissemination of the research results relevant for risk management, between the scientific community and the end-users; thus *he/she must be employed by a scientific institution which is part of the national framework for risk management*.

The Supersite Coordinator is expected to have proven management and coordination capabilities. He/she should actively promote the uptake by the end users of the different results generated by Supersite scientific community.

The Supersite Coordinator should ensure that all institutions and scientists involved in the Supersite are committed to provide access to in-situ data and research results, according to the GEO-GSNL Data Policy

[1] End users of the scientific results generated by Supersite scientists may be: local government agencies, risk managers, disaster managers, responders, NGOs, etc.

Principles. The GSNL Data Policy Principles allow to consider local and temporary limitations to Open Data Access.

4. The Evaluation Framework

The evaluation procedure is carried out separately by the GSNL Steering Committee (SC) and the CEOS Data Coordination Team (DCT).

The procedure differs for Permanent Supersites/Natural Laboratories and Event Supersites. The latter are temporary initiatives dedicated to support data access over areas affected by particularly significative earthquakes or volcanic eruptions. Event Supersites in general have a duration of one year.

5. Evaluation Procedure for Permanent Supersites or Natural Laboratories

The evaluation procedure consists of two consecutive phases. The first one is the evaluation by the SC. The second phase is the evaluation by the DCT.

5.1. Proposal evaluation by the GSNL SC

Throughout the evaluation steps, the SC verifies the proposals against the criteria described in section 5.1.1.

1. The GSNL Chair makes a first check of the proposal to verify that all sections in the template have been addressed. If not, the Chair returns the form to the proposers asking for amendments.
2. The GSNL SC identifies three experts (they may be external to the SC) willing to review the proposal and write an evaluation report within one month.
3. When the reviews have been received (in case of excessive delays two reviewers are sufficient), a SC teleconference is organised to discuss the evaluation and approve, reject, or request amendments to the proposal.
4. Then:
    a. If the SC approves the proposal, the GSNL Chair notifies the decision to the proposers, and to the CEOS DCT, to start the second evaluation phase (section 5.2).
    b. If the SC requests amendments, the proposers should return the amended proposal within one month to the GSNL Chair. The latter will check the proposal and if all issues have been addressed, will transmit the proposal to the CEOS DCT for the second evaluation phase (section 5.2).
    c. If the SC rejects the proposal, the GSNL Chair notifies the proposers of the reasons for rejection. Proposals can be resubmitted provided that the issues causing rejection are thoroughly addressed.

5.1.1. The SC Evaluation Criteria

This section describes the criteria used by the SC for the evaluation of Permanent Supersite and Natural Laboratory proposals.

Permanent Supersites

The criteria for the selection of Permanent Supersites are:

1. The proposed Supersite fulfils the objectives of the GEO GSNL Initiative.
2. There is a broad scientific interest to work on the selected site as a consequence of well-identified threats and geohazards, and there is evidence for short term or long term societal benefits in the area of Disaster Risk Reduction.

3. The Supersite partners are qualified, as described in section 3, and are committed to pursue the Supersite objectives.
4. The proposal team is open to collaborations with scientists in the Supersite Network and in other international initiatives.
5. There is evidence of existing, developing or planned infrastructures and procedures allowing open access to past and future in-situ and EO data for the Supersite.
6. Plans for a long-term sustainability of the existing monitoring infrastructures and facilities should be in place.
7. Web-services for external data access should be in place or planned.
8. The partners should commit to provide access to digital data and scientific products. Such access could be subjected to a specific Supersite Data Policy, compiled following the Principles for a Supersite or Natural Laboratory Data Policy.
9. The area of interest is well identified, and details on the type and amount of requested EO data are given.
10. There is a good level of involvement of the Supersite Coordinator with the local DRM end-user communities.
11. At least part of the proposal team commits to support the end-users' uptake of the science products generated for the Supersite.

Natural Laboratories

The criteria for the selection of Natural Laboratory (NL) proposals are the same as for Permanent Supersites, with the following additions:

1. The NLs must cover a large region (several 100s of km^2) and must be subject to strong hazard levels from multiple sources having the potential to generate high societal impacts.
2. The added value (for science and society) of creating a Natural Laboratory should be clearly expressed.
3. There is evidence of a clear benefit from the multi-disciplinary and cross-disciplinary research that should be facilitated by the Natural Laboratory.

Note: since NLs are very demanding in terms of satellite image coverage, they may be approved only if the criteria 2 and 3 above are convincingly addressed also for the CEOS DCT.

5.2. Proposal evaluation by the CEOS DCT

The CEOS DCT evaluates the proposals against the criteria described in section 5.2.1.

The Chair of the DCT will notify the proposers and the GSNL Chair about the evaluation result and about the timing of the formal acceptance of the proposal.

The formal acceptance letter is sent by the DCT to the proposers and the GSNL Chair, and specifies the image datasets (image quotas) allocated to the Supersite for each year and for each sensor.

5.2.1. The CEOS DCT Evaluation Criteria for Permanent Supersites and Natural Laboratories

The DCT will evaluate the proposed Supersite with respect to the following criteria:

- Substantial interest of a broad scientific community, e.g. demonstrated by a minimum number of 5 research teams
- Level of commitment of the partnership of the Supersite proposal
- Availability of relevant in situ data

- The proposed Supersite enables scientific investigations into physical processes, hazards or problems that cannot be addressed by existing Supersites
- The ability of CEOS Agencies to provide sufficient satellite resources to make a meaningful contribution to the monitoring needs of the new Supersite
- A Supersite Scientific Coordinator has been identified and is committed to coordinate satellite data requests and scientific reporting.

6. Evaluation Procedure for Event Supersites

The establishment of Event Supersites needs to be fast to allow the prospective planning of EO data acquisitions at the first usable satellite passes following an earthquake or volcanic eruption. This requires a simplified evaluation procedure which is expected to be carried out in few days.

1. Proposals are submitted directly to the GSNL Chair and to the Chair of the CEOS DCT, without the need to use a specific form.
2. The GSNL and the DCT Chairs verify if the criteria listed in section 6.1 are met.
3. Then:
   - 3.1 If the criteria are met, the DCT Chair sends the proposal to the CEOS DCT members, soliciting a rapid response.
   - 3.2 If the criteria are not met, the GSNL Chair returns the proposal, requesting the necessary amendments or providing a motivation for rejection.

6.1. Evaluation Criteria for Event Supersites

Criteria for the successful evaluation of an Event Supersite proposal are:

1. The proposed Supersite fulfils the objectives of the GEO GSNL Initiative in terms of scientific interest and societal benefits.
2. The event is particularly relevant in terms of either magnitude, social/economic impact or scientific problems.
3. The area of interest is well identified, and details on the type and amount of the requested EO data are given.
4. The science teams accept to share their research results in numerical format with other science teams and with risk managers and users. The sharing may be subjected to a specific Supersite Data Policy, compiled following the Principles for a Supersite or Natural Laboratory Data Policy.
5. The proposal identifies some end-users interested in the scientific products generated by the Supersite scientists.

6.2. Event Supersite proposal evaluation by the CEOS DCT

As mentioned, the CEOS DCT members will receive a proposal which has been initially verified by the DCT Chair against the common criteria described in section 6.1.

Then the single space agencies will independently decide to what extent they can support the Event Supersite, based also on other constraints (e.g. agreements with their commercial partners, conflicts with ongoing acquisition plans, etc.). Approval by the CEOS Plenary is not needed, and the Supersite Coordinator will be informed about the results of the evaluation (and the allowed image quotas) by the DCT Chair.

7. Periodic Review Process

The review process is meant to verify the accomplishment of the specific objectives of each Supersite. The review process is also aiming to stimulate transfer of hazard and risk information between the scientific and user communities and should promote coordination among the Supersites.

7.1. Review procedures for Permanent Supersites and Natural Laboratories

A comprehensive **biennial report** is requested every two years after the Supersite approval date. The GSNL Chair will communicate with the Supersite Coordinator to request the report and provide the necessary template. Reports can be delayed for maximum 3 months following a motivated request by the Coordinator.

In this report the Supersite Coordinator should summarize the contributions received by all Science Teams. The SC will review the report to verify if the Supersite community is progressing towards the stated objectives. The DCT will review the report to verify the role of satellite data in the scientific investigations of the related phenomena and in providing actual benefit for risk management.

The final outcome of the biennial report review may be:

1. The report is positively evaluated.
2. The report is negatively evaluated. Specific amendments may be requested to the Coordinator.
3. The report is negatively evaluated. If a similar negative assessment was given to the previous biennial report, the SC and the DCT will discontinue support to the specific Supersite or Natural Laboratory.

7.2. Extension of CEOS support to the Supersite or Natural Laboratory

In case of positive evaluation of the biennial report, the DCT space agencies will confirm or modify the image quotas allocated to the Supersite.
The DCT Chair will confirm the agencies' support and the available image quotas in a letter to the Supersite coordinator, copy to the GSNL Chair.

7.3. Review procedures for Event Supersites

A final report is solicited by the GSNL Chair no later than 6 months after the end of EO data provision by CEOS agencies. The report will be evaluated by the SC and the DCT members.