

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.

The Annexes contain templates to help the writing of Supersite proposals, forms for the review of Supersite proposals, and forms for the periodic reporting of approved Supersites.

2. Proposals and Submission Dates

Proposals are submitted by the prospective Supersite Coordinator (SC), and should follow the templates provided in Annexes A or B. Permanent Supersite and Natural Laboratory proposals are reviewed three times each year. Proposals should be received by 31 January, 31 May or 30 September.

Event Supersite proposals can be submitted at any time.

3. The Supersite Coordinator

It is one of the main goals of the GEO Geohazard Supersites initiative to promote an easy and regular access to in-situ and satellite data, the generation of new scientific knowledge, and the dissemination of the scientific results to provide direct benefits to end users¹. The Supersite partnership is composed by data providers and research institutions which should guarantee the provision of the necessary data and the relevant analysis and interpretation at the highest scientific level and within reasonable time limits. They should also commit to support geohazard assessment and emergency response if requested by the end-users involved in the Supersite, and always under the coordination of the Supersite Coordinator.

The Supersite Coordinator is expected to have proven capabilities to coordinate and manage the Supersite as a whole. He/she should be proactively promoting the uptake of the project results by the end user communities. The Supersite Coordinator institution should support his/her activity.

The Supersite Coordinator should ensure that all institutions and scientists involved in each Supersite are committed to provide open access to both in-situ data and scientific products generated for the site, according to the GEO-GSNL Data Policy Principles. The GSNL Data Policy Principles allow to consider possible local and temporary limitations to Open Data Access.

The Supersite Coordinator is the interface towards the end-users for the dissemination of the scientific information generated for the Supersite.

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

4. The Evaluation Framework

The evaluation procedure is supported by the GEO Secretariat. Proposals are evaluated by the GSNL Scientific Advisory Committee (SAC) and the CEOS Data Coordination Team (DCT). The GSNL governance is described in this document:

http://www.earthobservations.org/documents/gsnl/20111011_GSNL_White_Paper_Supplement_v3.3_A_melung.pdf

All decisions are taken by the SAC using the procedure described in the following document: http://www.earthobservations.org/documents/gsnl/201412_SAC_decision_making_procedures.pdf. To maintain the necessary transparency all decisions are documented and made publicly accessible on the GEO-GSNL website. SAC members who have a direct personal interest in the decision outcome shall abstain from voting.

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 SAC. The second phase is the evaluation by the DCT.

5.1. Proposal evaluation by the SAC

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

1. Proposals, prepared according to the templates in Annex A, are submitted to the GEO Secretariat support person and to the SAC Chair. The GEO Sec immediately submits the document for publication on the GSNL website.
2. The SAC Chair makes a first check of the proposal to verify that all sections in the template have been addressed. If not, the SAC Chair returns the proposal to the SC asking for amendments.
3. The SAC Chair forwards the proposal to the SAC members in order to identify three experts (who may be external to SAC) willing to review the proposal and write an evaluation report within one month. They will use the template in Annex C.
4. When the reviews have been received (in case of excessive delays two reviewers are sufficient), the GEO Secretariat organizes a SAC teleconference in which the SAC must approve, reject, or request amendments to the proposal.
5. Then:
 - a. If the SAC approves the proposal, the SAC Chair notifies the decision to the proposers, and to the CEOS DCT, to start the second evaluation phase (section 5.2).
 - b. If the SAC requests amendments, the SAC Chair notifies the proposers of the decision, and they should return the amended proposal within one month to the SAC 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 SAC rejects the proposal, the SAC Chair notifies the proposers of the rejection with the reasons. Proposals can be resubmitted at the next submission date, provided that the issues causing rejection are thoroughly addressed.

5.1.1. The SAC Evaluation Criteria

This section describes the criteria used by the SAC 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 clear evidence of existing, developing or planned infrastructures and procedures allowing the open access to a considerable amount of 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 are given.
7. Web-services for external data access should be in place or planned.
8. The partners formally commit to provide access to digital data and science products according 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 km²) 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.

Candidate Supersites

Sites for which the requirements no. 4, 5, 6 above are not met, but for which there is a clear intention of fulfilment and there is a roadmap in this sense, can be accepted as Candidate Supersites. The status of Permanent versus Candidate can be requested in the proposal or determined by the SAC during the evaluation process.

5.2. Proposal evaluation by the CEOS DCT

The CEOS DCT expects Supersite proposals to be presented following the template defined in Annex A. Then the DCT verifies the proposals against the criteria described in section 5.2.1.

The Chair of the DCT will notify the proposers and the SAC Chair about the evaluation result and about the timing of the formal acceptance of the proposal. The latter require approval by the CEOS Plenary or by the CEOS Special Implementation Team (SIT), which meet 2 times each year.

The formal acceptance letter is sent by the DCT to the proposers and the SAC Chair, and specifies the number of image datasets allocated for each year and each sensor.

During the various steps the GEO Secretariat is always in cc in all communications.

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, hazard or assessment that cannot be addressed by existing Supersites
- The ability of CEOS Agencies to provide sufficient remote sensing satellite resources to make a meaningful contribution to observation/analysis of the new Supersite
- A Supersite Scientific Coordinator has been identified and is committed to coordinate space 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. This requires a simplified evaluation procedure which is expected to be carried out in few days.

1. Proposals are submitted directly to the SAC Chair and to the Chair of the CEOS DCT, using the template in Annex B.
2. The SAC and the DCT Chairs coordinate to check if all sections of the template have been well addressed and if the criteria listed in section 6.1 are met.
3. Then:
 - 3.1 If no proposal clarifications/amendments are needed, the DCT Chair sends the proposal to the CEOS DCT, soliciting a rapid response.
 - 3.2 Otherwise, if some information is missing or the criteria are not met, the SAC Chair returns the proposal requesting the necessary amendments or providing a motivation for rejecting the proposal.

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 issues.
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, according 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 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 quota) by the DCT Chair.

During the various steps the GEO Secretariat is always in cc in all communications.

7. Periodic Review Process

The review process is meant to verify the fulfilment of the general GEO goals, as well as 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.

The review is carried out using pre-defined forms (Annex D & E).

7.1. Review procedures for Permanent Supersites and Natural Laboratories

A comprehensive **biennial report** is requested every even year after the Supersite approval date. It must be prepared using the form in Annex E, and must be sent to the SAC Chair one week before the deadline.

In this report the Supersite Coordinator should summarize the contributions received by all Science Teams. The SAC will discuss the report and give an assessment. The DCT will also provide an assessment.

The final outcome of the comprehensive report review may be:

1. The report is positively evaluated. If the report concerns a Candidate Supersite, and if the requirements for Permanent Supersites are met (section 5.1.1), the status is changed to Permanent Supersite.
2. The report is negatively evaluated. Specific actions may be requested to the involved teams.
3. The report is negatively evaluated and follows a similarly negative assessment of the previous report. In this case the SAC 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 assessment of the report by the DCT and the SAC, the DCT will recommend to the CEOS SIT and Plenary to continue providing support to the Supersite.

During this process, the DCT will update the specified commitments by all participating agencies, which resources are available in support of the proposed Supersite, and will account for any changes in the available missions.

Eventually, the CEOS DCT Chair will confirm CEOS support and available image quotas in a letter to the GSNL Chair who will inform the Supersite coordinator.

7.3. Review procedures for Event Supersites

One report is solicited no later than 6 months after the end of EO data provision by CEOS agencies.

The Supersite Coordinator is requested to provide the synthetic report according to the form in Annex F.

The report must be sent to the SAC and CEOS DCT Chairs.

8. Reporting to GEO

The SAC Chair summarizes the Supersite Coordinators' reports and all GSNL activities in an annual report to the GEO Disaster Task leader.

Annex A

GSNL Proposal Template for Permanent Supersite/Natural Laboratory

A.1 Proposal or Supersite Title

A.2 Supersite Coordinator

Email (Organization only)	
Name:	
Surname:	
Position:	
Personal web page:	<i><In case a personal web page does not exist, please provide a CV below this table></i>
Institution:	
Institution type (Government, Education, other):	
Institution web address:	
Street address:	
City:	
Postal Code/Zip Code:	
Country:	
Province, Territory, State, or County:	
Phone Number:	

A.3 Core Supersite Team

This section should provide the contact information of each participant to the initial Supersite team (the Core team). Further participants may be added at any time.

Note that most space agencies require that each person using the data should sign a license agreement with specific rules on data use.

Email (Organization only)	
Name:	

Surname:	
Position:	
Personal web page:	<In case a personal web page does not exist, please provide a CV below this table>
Institution:	
Institution type (Government, Education, other):	
Institution web address:	
Street address:	
City:	
Postal Code/Zip Code:	
Country:	
Province, Territory, State, or County:	
Phone Number:	

Repeat table above as needed

A.4 Region of Interest

Identify the region of interest (use a figure) and specify geographic coordinates in Lat/Long (please attach a shapefile or KML file).

A.5 Supersite (or Natural Laboratory) motivation (2-4 pages)

This section should provide a description of the state of the art (include comprehensive reference list), scientific problems, available data, further data needs, benefits of the Supersite for science and society, also in terms of risk prevention. Please address here criteria 1,2,3,4 of section 5.1.1

Please give a clear description of the Supersite objectives in a bullet list.

A.6 Access to in situ data

This section should provide a detailed description of the in situ data available to the Supersite participants and of the procedures and means for data access. Please address here criteria 5, 6, 7, 8 of section 5.1.1 This section should declare acceptance of the Supersite Data Policy Principles and detail the potential limitations to open access (criterion 8) which the team would like to implement.

Type of data	Data source	Data access
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<i>e.g. seismic waveforms, GPS time series, gas measurements, etc.</i>	<i>Please describe how to access the data, type of access (unregistered, registered, limited to GSNL scientists, etc.), and future developments in the Supersite framework.</i>
...	...

A.7 Supersite activity work plan

This section should describe the work plan (including timeline) of the Supersite implementation, e.g. in terms of scientific activities, in situ and EO data provision to the community, infrastructures for data and research products archival and dissemination, benefits for end-users, etc.

Please address here also criteria 10 and 11 of section 5.1.1

A.8 Available Resources

Describe resources and funding (cash and in kind) available to carry out the Supersite objectives.

A.9 EO data requirements

This section should provide details on the EO data requirements for the Supersite, divided by mission. It should also provide justification for the requested EO data with respect to the Supersite objectives.

MISSION NAME (e.g. COSMO-SkyMed, TerraSAR X, Radarsat 2, etc.)

	Information	Notes
Image mode	e.g. STRIPMAP, SCANSAR, etc.	
Orbit pass		
Look direction		
Beam or incidence angle (range)		
Polarization		
Type of Product	(i.e. SLC, RAW)	
Number of archive images requested		
Number of new images requested, per year		

Repeat table above for each sensor/system

A.10 Declaration of commitment

The investigator(s) should explicitly declare here that they agree to what required in the criteria 3,4,7,8,11 of section 5.1.1. Specifically, this section should provide information on how the formal commitments of the partners will be respected. In case of multiple in situ data sources, a Memorandum of Understanding (MoU) among the data providers, or a similar agreement, is recommended. If the proposers want to implement some limitations to Open Data Access, as mentioned in the GSNL Data Policy Principles, they should make this explicit in this section.

A.11 Further comments

The investigator(s) may provide additional comments or information to ensure that the request is properly understood.

Annex B

GSNL Proposal Template for Event Supersites

B.1 Proposal Title

B.2 Event Supersite Coordinator

Email (Organization only)	
Name:	
Surname:	
Position:	
Personal web page:	<i><In case a personal web page does not exist, please provide a CV below this table></i>
Institution:	
Institution type (Government, Education, other):	
Institution web address:	
Street address:	
City:	
Postal Code/Zip Code:	
Country:	
Province, Territory, State, or County:	
Phone Number:	

B.3 Event Supersite Team

This section should provide the contact information of each participant to the initial Event Supersite team. Further participants may be added at any time.

Note that most space agencies require that each person using the data (i.e. at least the Supersite team members) should sign a license agreement, with specific rules on data use.

Email (Organization only)	
Name:	
Surname:	

Position:	
Personal web page:	<i><In case a personal web page does not exist, please provide a CV below this table></i>
Institution:	
Institution type (Government, Education, other):	
Institution web address:	
Street address:	
City:	
Postal Code/Zip Code:	
Country:	
Province, Territory, State, or County:	
Phone Number:	

Repeat table above as needed

B.4 Region of Interest

Identify the region of interest (use a figure) and specify geographic coordinates in Lat/Long (please attach a shapefile or KML file).

B.5 Event Supersite motivation (2 pages)

This section should provide a description of the event, scientific problems, available data, further data needs, benefits of the Event Supersite for science and society, also in terms of emergency management. Please address here criteria 2 and 5 of section 6.1

Please give a clear description of the Supersite objectives in a bullet list.

B.6 In situ data

This section should provide a detailed description of the in situ data available to the Event Supersite participants. Please address here criteria 4 of section 6.1 This section should describe the limitations to open access which the team requests during the emergency.

Type of data	Data source	Data access
<i>e.g. seismic waveforms, GPS time series, gas measurements, etc.</i>	<i>.....</i>	<i>Please describe how to access the data, type of access (unregistered, registered, limited to GSNL scientists, etc.), and future developments in the Supersite framework.</i>
<i>...</i>	<i>.....</i>	<i>...</i>
<i>...</i>	<i>.....</i>	<i>...</i>

B.7 Available Resources

Describe resources and funding available to carry out the Event Supersite objectives.

B.8 EO data requirements

This section should provide details on the EO data requirements for each mission. It should also provide justification for the requested EO data with respect to the Supersite objectives.

MISSION NAME (e.g. COSMO-SkyMed, TerraSAR X, Radarsat 2, etc.)

	Information	Notes
Image mode	e.g. STRIPMAP, SCANSAR, etc.	
Orbit pass		
Look direction		
Beam or incidence angle (range)		
Polarization		
Type of Product	(i.e. SLC, RAW)	
Number of archive images requested		
Number of new images requested, per year		

Repeat table above for each sensor/system

B.9 Declaration of commitment

The investigator(s) should explicitly declare here that they agree to what required in criteria 4 of section 6.1. Specifically, this section should provide information on how the formal commitments of the partners will be respected.

B.10 Further comments

The investigator(s) may provide additional comments or information to ensure that the request is properly understood.

Annex C

Supersite proposal review form

C.1 Proposal Title and Coordinator

C.2 Reviewer name

C.3 Site, rationale and team

In this section the reviewer should provide an evaluation of sections A.2 to A.8 of the Permanent Supersite/Nat. Laboratory proposal, or B.2 to B.7 of an Event Supersite proposal.

The evaluation should verify the fulfillment of the criteria stated in sections 5.1.1 or 6.1 of [this document](#).

Overall judgement should be given as : good, average, poor.

The evaluation should consider also the following aspects:

1. Importance of the scientific objectives and their relevance to hazard assessment and disaster risk reduction
2. Capacity of the Supersite to stimulate an advanced scientific understanding of the geophysical processes and hazards acting at the site
3. Capacity of the Supersite Coordinator and core scientific team to pursue the proposal objectives.
4. Capacity of the partnership to promote a fast uptake of the new scientific findings by the relevant disaster management agencies.
5. If, in prospect, the Supersite can stimulate new collaborative research and improvement of capacity building at the local scale.

C.4 Data

In this section the reviewer should evaluate the adequacy of the In situ and EO data volume and quality, with respect to the Supersite objectives.

The evaluation should consider the criteria stated in sections 5.1.1 or 6.1 of [this document](#).

Overall judgement should be given as : good, average, poor.

The evaluation should consider also the following aspects:

1. If the Supersite is expected to promote open data access for the site.
2. Adequacy of the data sharing infrastructure and capacity to provide data access through web services.
3. How good is the EO data acquisition plan (viewing geometry, imaging frequency, synergies between sensors) and if the EO resources will be sufficient to address the proposal objectives.
4. Capacity of the new data and science to support disaster risk reduction.

C.5 Dissemination of results

In this section the reviewer should provide an evaluation of the adequacy of the proposal for the dissemination of the scientific results to all stakeholders: scientific community, disaster managers and the society in general (at the respective levels of detail).

Overall judgement should be given as : good, average, poor.

The evaluation should consider also the following aspects:

1. Commitment of the partnership to the definition of a data policy in the spirit of the GEO principles.

C.6 Overall assessment

In this section the reviewers should score the proposal as:

A =Proposal can be accepted as is

B= Proposal needs amendments/integrations

C= Proposal should be rejected

Annex D

Biennial report for Permanent Supersite/Natural Laboratory

Name of Supersite

History	<i>Link to the respective page on the GSNL website geo-gsnl.org</i>
Supersite Coordinator	<i>Name, affiliation, address</i>

1. Abstract

<A one-page abstract which may be used for dissemination by CEOS or GEO>

2. Scientists/science teams

<In the table below please list all scientists/science teams who used/received data >

Researcher/team 1	<i>Name, affiliation, address, e-mail, website/personal page of team leader</i>
" 2
" 3

Scientists/science teams issues

<In this subsection please describe existing issues regarding the organization of the scientific research on the Supersite, e.g. if there are too few participants, how to improve participation, coordination issues, etc.>

1. In situ data

<In the table below please list all in situ data types available for the Supersite>

Type of data	Data provider	How to access	Type of access
<i>e.g. seismic waveforms, GPS time series, gas measurements, etc.</i>	<i>Link to data repository or description of procedure for data access</i>	<i>E.g. unregistered public, registered public, limited to GSNL scientists, etc.</i>

...
...

In situ data issues

<In this subsection please describe existing issues regarding the open access to in situ data, e.g. if there are some datasets which are not open, why, if access is straightforward or cumbersome, future developments, etc. >

2. Satellite data

<In the table below please list all satellite data types available for the Supersite>

Type of data	Data provider	How to access	Type of access
TerraSAR X, COSMO-SkyMed, Radarsat 2, ALOS-1/2, etc.	DLR, ASI, CSA, JAXA, etc.	Link to data repository or description of procedure for data access	E.g. unregistered public, registered public, limited to GSNL scientists, etc.
...

Satellite data issues

<In this section please describe existing issues regarding the access to satellite data, e.g. if there are some datasets which are not open, why, if access is straightforward or cumbersome, future developments, etc. >

3. Research results

<Here please give an overview of the scientific achievements, also with reference to the original Supersite proposal >

Publications

<In this subsection please list all publications obtained using datasets (in situ and EO) obtained through the Supersite initiative>

Peer reviewed journal articles

...

...

...

Conference presentations/proceedings

...

...

...

Research products

<In the table below please list all research products available for the Supersite >

Type of product	Product provider	How to access	Type of access
<i>e.g. ground deformation time series, source model, etc.</i>	<i>Name of scientist(s)</i>	<i>Link to publication, research product repository or description of procedure for access</i>	<i>E.g. public, registered, limited to GSNL scientists, etc.</i>
...
...

Research product issues

<In this subsection please describe existing issues regarding how the participants provide access to their research products, e.g. if products are open to other scientists (in numerical format), if they are open to the public, how access is provided, future developments, etc. >

4. Dissemination and outreach

<In this section please describe what other actions (other than publication) have been made to inform the public, the scientific community and the stakeholders, of the existence of your Supersite, of the scientific opportunities, results, benefits, and any other relevant aspects.>

5. Funding

<In this section please describe if and what funding has been used for the activities described above. Please provide reference to projects and proposals related to the Supersite. >

6. Societal benefits

<In this section please describe who are the stakeholders (other than the scientific community); what societal benefits have been achieved through your Supersite during the reference period, and who have been the most benefiting stakeholders. We remind you that GSNL is included in the GEO Disasters Benefit Area.>

7. Conclusive remarks and suggestions for improvement

<In this section the Supersite Coordinator is asked to summarize the achievements and the issues, and to provide comments, impressions, remarks, and suggestions to improve the GSNL initiative and/or the specific Supersite activities.>

8. Annex with dissemination material

<In this section the Coordinator should present a plain-language summary of the main scientific results obtained for the Supersite, including figures and citations.>