

Sub-task Number: DI-09-01b

Sub-task Title: Seismographic Networks Improvement and Coordination

Overarching Task: Systematic Monitoring for Geohazards Risk Assessment

Area: DISASTERS

Related Community of Practice: Geohazards

Relevant Committee: TBD

Related Targets: (to be included in 2009)

Sub-task Definition (as given in the 2009-2011 Work Plan):

Improve the capabilities of global seismographic networks such as GSN, FDSN (including regional and global components), GNSS networks and new ocean bottom networks such as VENUS, NEPTUNE and ESONET. Facilitate sharing of data and event products among GEO members. Expand and coordinate efforts to provide access, using GEOSS interoperability methods, to real time and archived seismological data and products. Develop a portal that will interlink distributed seismological data centers and provide seamless access to other GEOSS components.

Broaden the scope of this activity to identify and build upon synergies across in-situ observing network types (e.g. seismological, GNSS, hydrological). Synergies could range from the use of the same best practices and operational approach, to the use of a common part of the infrastructure for collection and dissemination, and co-location of in-situ instruments.

Leads (GEO Member or PO, Entity carrying out the work, Contact: e-mail):

Mexico (UNAM), Point of Contact: Gerardo Suarez, gerardo@geofisica.unam.mx

China (CENC), Zhibin Huang, tw@seis.ac.cn

EC (EMSO)

EC (EuroSITES)

FDSN

ISC

USA (USGS), George Choy, choy@usgs.gov, William Leith (wleith@usgs.gov)

Motivation/Background (Why should this Task or sub-task be implemented? What relevance to society? What is the state of the art? 3-5 lines)

Outputs (e.g. products and services which result from the activities of the Task/sub-task; outlined in the form of deliverables with timelines)

Planned:

Produced (current status): ...

Activities (operations or work processes through which resources are mobilized to produce specific outputs; outlined in the form of milestones including timelines)

Planned:

Progress (current status): ...

Resources (indication of resources – e.g. financial, human – contributed by GEO Members or Participating Organizations to produce outputs)

Architecture and Data Component

1) Please briefly describe any task-related Earth observation resources (data set, system, website/portal) and any related Web Service interfaces that are contributed to GEOSS. State whether these items are or will be registered with the GEOSS Component and Service Registry for access via the GEO Web Portals, and whether any associated standards or other interoperability arrangements will be registered in the Standards and Interoperability Registry.

2) Please also describe what data and information your activity/system needs that you would request to be accessible through the GEOSS Common Infrastructure.

Capacity Building Component

(capacity building is defined to include the development of capacity related to: (i) Infrastructure and technology transfer (Hardware, Software and other technology required to develop, access and use EO); (ii) Individuals (education and training of individuals to be aware of, access, use and develop EO) and (iii) Institutions – building policies, programs & organizational structures to enhance the value of EO data and products).

1) In accordance with the above definition does this Task have a capacity-building component? If so, please provide a short description of this component including a description of end users.

2) Have any additional CB needs for this Task been identified? Please provide a short description.

User Engagement Component

(please briefly describe to what extent end users are engaged in this Task and influence the nature of the outputs produced)

Science and Technology (S&T) Component

1) Please briefly describe the elements of scientific research or technological development contained in this Task.

2) In relation to the S&T component(s) of this task, please describe gaps, priorities, continuity needs, barriers, scientific expertise and additional resource needs (this information will be used for developing a gaps and needs assessment in Task ST-09-01)

Members and POs' Contributions to Outputs and Activities above:

(Input is optional. This section gives the chance to Members and POs to provide more details (3-5 lines) on their individual activities, making a clear connection with the Outputs and Activities outlined above).

China

Seismographic Network Division, China Earthquake Networks Center (CENC): China Earthquake Networks Center (CENC) undertakes the following tasks: real-time collecting, processing and storing the data of 31 regional seismic networks data in China; rapidly reporting strong earthquake's parameters; producing monthly seismological catalogues; compiling and publishing "Observation Report of Nation Digital Seismic Network" and "Observation Report of China Seismic Stations"; Storing and maintaining nationwide various seismic data, periodically collecting and storing the observation data recorded by mobile seismic stations; operating and maintaining World Data Center for Seismology, Beijing. CENC will improve the capability of seismographic networks in Asia, and share its continuous data and event data. By the web site of World Data Center for Seismology, Beijing, CENC will facilitate GEO members to access the data in CENC.

Germany

DLR DFD-KA: Set-up of the Network for Detection of Mesopause Change, NDMC in order to also detect infrasound from seismic events.

Japan

JAMSTEC: contributes to the upgrading in the function of the global earthquake observation network by improving land and marine earthquake observation network of West Pacific Ocean region operated by JAMSTEC.

NIED: contribute to strengthening global earthquake observation networks by installation and operation of broadband seismometers in Indonesia and other countries and collecting online data.

USA

The Incorporated Research Institutions for Seismology (IRIS) Consortium and the U.S. Geological Survey (USGS) jointly operate the Global Seismographic Network (GSN)—a permanent network of state-of-the-art seismological and geophysical sensors connected by available telecommunications. All data are openly available in real-time without restriction. The GSN provides data for earthquake response, tsunami warning, international nuclear treaty monitoring, and serves as a foremost resource for seismological research and for training and educating the next generation of earth scientists.

The USGS and IRIS, through collaboration and cooperation with national and international partners, are working to increase the capability and capacity of global earthquake and tsunami monitoring networks. This is being achieved by expanding the GSN and affiliated networks, by upgrading their telemetry, through the development of software to enhance product quality and delivery, and through participation in workshops and training programs with regional partners. The USGS obtains rapid estimates of seismic event parameters within 12-15 minutes of an earthquake's origin that are expeditiously disseminated worldwide. Work continues to improve post-earthquake information products, including a rapid estimate of the impact of an earthquake on the local population. *PAGER* (Prompt Assessment of Global Earthquakes for Response) and *ShakeMap* are publicly available products that provide rapid estimates of societal impact from major earthquakes worldwide, based on estimates of people and property exposed to potentially damaging levels of ground motion. The IRIS Consortium operates a Data Management System, archiving data from over 5,000 seismic stations—of which over 1,000 are available in near-real-time—and a wide range of other geophysical sensor channels. All data are freely and openly available from www.iris.edu.

ISPRS

ISPRS WGVIII-1 and 5: Contribute to preparation of reports.

GEO Secretariat's Comment: Liase with members to become, if is not yet the case, contributing seismographic networks members of the Global Seismographic Network.

Participation (Table to be filled in 2009):

Type	Member or PO	Representing	Contact Name	EmailAddress
Lead(PoC)	Mexico	UNAM	Gerardo Suarez	gerardo@geofisica.unam.mx
Lead	China	CENC	Zhibin Huang	tw@seis.ac.cn
Lead	USA	USGS	George Choy	choy@usgs.gov
Lead	USA	USGS	William Leith	wleith@usgs.gov
Lead	EC	EMSO		
Lead	EC	EuroSites		
Lead	FDSN			
Lead	ISC			
Contributor	Germany	Bundesanstalt für Geowissenschaften und Rohstoffe (BGR)	Christian Boennemann	Christian.Boennemann@bgr.de
Contributor	Germany	DLR DFD-KA	Kathrin Höppner	kathrin.hoepner@dlr.de
Contributor	Germany	GeoForschungsZentrum Potsdam	Winfried Hanka	hanka@gfz-potsdam.de
Contributor	ISPRS	ISPRS WGVIII-1 and 5	Thomas Cudahy	Thomas.Cudahy@csiro.au
Contributor	Japan	JAMSTEC	Tetsushi Komatsu	komatsut@jamstec.go.jp
Contributor	Japan	NIED	Hiroshi Inoue	inoue@bosai.go.jp
Contributor	USA	USDI, BLM	Nick Douglas	Nick_Douglas@blm.gov
Contributor	USA	USDI, BLM	Ron Huntsinger	Ron_Huntsinger@blm.gov
Contributor	USA	USGS	William Leith	wleith@usgs.gov