Sub-task Number: US-09-01a
Sub-task Title: Identifying Synergies between Societal Benefit Areas

Overarching Task*:* User Engagement
Area: USER ENGAGEMENT
Relevant Committee*: UIC*
Related Targets: *(to be included in 2009)*

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

Develop a GEO process for identifying critical Earth observation needs common to many GEOSS societal benefit areas, involving scientific and technical experts, taking account of socio-economic factors and building on the results of existing systems' requirements development processes.

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

USA (NASA), *Point of Contact:* Lawrence Friedl, LFriedl@nasa.gov

IAG, Hans-Peter Plag, hpplag@unr.edu

IEEE, Ellsworth LeDrew, IEEE – ells@watleo.uwaterloo.ca

USA (EPA), Gary Foley, EPA – Foley.Gary@epa.gov

Central email for coordination of this task: geo-task-us-0901@lists.nasa.gov

Motivation/Background

This task will establish and conduct a process for GEO to identify critical Earth observation priorities within each Societal Benefit Area and those common to the nine SBAs. GEO will use the results of this process to determine, prioritize, and communicate gaps in current and future Earth observations. The GEO Members and Participating Organizations will use the results in determining priority investment opportunities for Earth observations. This task will help GEO optimize the observations in GEOSS that are most likely to provide societal benefit.

The GEO Common Infrastructure (GCI) includes a User Requirement Registry (URR). The task will include activities to test the abilities of the URR to store the observation needs and support the cross-SBA comparison to determine priorities. Such a URR can support future GEO efforts to analyze and prioritize observation needs.

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

The process for this task involves 9 steps. The steps include activities to identify existing documents that specify observation needs, perform a meta-analysis across the documents, and prepare interim and final reports. The task will conduct this process and produce a final report for each of the 9 SBAs, and then it will compare across these final reports to identify the critical Earth observation priorities common to many SBAs. The 9-step process is available on the Task US-09-01 website: *http://sbageotask.larc.nasa.gov* .

The task will harvest information identified in existing, publicly-available documents that GEO Members and Participating Organizations published from 2000-present. (The task does not involve new, original research on needs or requirements gathering.)

The task will provide feedback on the URR to the Architecture and Data Committee at several stages.

Planned: Nine preliminary SBA reports – at least 4 by May 2009; remaining by October 2009
Nine final SBA reports – at least 4 by September 2009; remaining by February 2010
Preliminary findings from initial SBA reports – November 2009

Preliminary findings across all SBA reports – March 2010

Final Task report and recommendations – May 2010

Feedback reports on the URR to the ADC – October 2009, March 2010.

Produced (current status):

Four preliminary SBA reports delivered May 2009 (Climate, Disasters, Ecosystems, Energy)

One preliminary SBA report delivered July 2009 (Weather)

Analyses and preliminary SBA reports for other four SBAs are in development.

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

For each SBA, there will be an Analyst and a ~12-person Advisory Group to conduct the process. The Analyst will serve as the point of contact to manage the activity. The Advisory Group will assist the Analyst to identify documents, assess analyses, and review findings. The Advisory Group will include representatives from developed and developing countries that represent experts in an SBA; the Advisory Groups will include interested people from existing GEO Communities of Practice. (Note: The Advisory Groups are *ad hoc* and will disband after completion of the process.)

There is a 9-step process that the Analysts and Advisory Groups will follow (see Outputs above).

Planned: Identification of Analysts for SBAs

Formation of Advisory Groups for each SBA

Lists of documents for each SBA

Telecons with Analysts – Monthly

Status reports to UIC Co-chairs – Monthly and at UIC Meetings

Progress (current status):

Analysts for 9 SBAs identified

Kick-off meeting/telecon for task – October 2008

GEO Secretariat issued letter on Task US-09-01 – 8-January-2009

List of documents and Advisory Group members – see task website

Analysts Meeting (Washington, DC) – 4-February-2009

Monthly telecons with Analysts – October 2008 - Present.

Status report to UIC Committee – 10th UIC Meeting, 26/27-February-2009

Status report to UIC Committee – 11th UIC Meeting, 2-May-2009

July 2009:

- 5 SBAs are at Step 7; 3 SBAs are at Steps 5-6; 1 SBA is at Steps 3-4.
- Human Health SBA is split into 3 areas (Air Quality, Allergens, and Infectious Disease).
- To date, the Analysts have collectively included over 670 documents.
- Across all the SBAs, the task involves 119 people in the Advisory Groups.

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

The following GEO Member countries and Participating Organizations have contributed funding or in-kind support for Analysts: USA (NASA, EPA), Canada (Natural Resources Canada), IEEE, ECMWF.

The Advisory Groups will include contributions from numerous GEO Members and Participating Organizations; the task website lists the Advisory Groups' members and their organizations.

USA (NASA) is sponsoring a website and email address to enhance communication between the Analysts and Advisory Groups and overall performance of the task. The website is for logistical support and is not intended for a general public audience.

IAG is providing support for the testing of and feedback on the User Requirement Registry as part of the GCI.

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.

A portion of this task focuses on identifying Earth observations priorities for each of the SBA areas. This portion is an analytic task that will not contribute any specific interfaces to GEOSS or items registered in GEOSS. This portion will identify Earth observations parameters, which could serve as keywords in GEOSS and GEO Web Portals.

The GCI includes a User Requirement Registry, and this task will contribute information and materials to that registry. Following the meta-analysis and determination of Earth observation priorities within each SBA, GEO can add this information to the URR to store observation needs

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

The URR needs the capacity to ingest the Earth observation priorities this task will identify. The URR needs the capacity and capability within the GCI to store, sort, and analyze the observation parameters by SBA and cross-SBA. The task lead and UIC will perform the initial meta-analysis of Earth observation priorities across the SBAs. It is expected that the URR can support future GEO efforts to analyze and prioritize observation needs.

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.

In line with *i* and *ii*, this task involves capacity building activities. The Advisory Groups include representatives from developing countries. The process for each SBA will include information from a broad distribution of international, regional, and national documents, including significant representation of documents from developing countries. In analyzing the documents, the Analysts/Advisory Groups are asked to identify needs and activities in the documents to support capacity building for developing countries.

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

The CBC has agreed to support this task in recommending people to be on the Advisory Groups and to identify documents from developing countires for each SBA.

User Engagement Component

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

The task will include a broad distribution of documents that span geographic regions and types of users; the documents will include observation needs of end users. By the nature of the task, the end users are largely

engaged indirectly through the representation of their Earth observation priorities and needs expressed in the documents.

The Advisory Groups include people who are end users and represent end user communities. The Advisory Groups will assist the Analysts to identify documents, assess analyses, review findings, and publish the reports for each SBA. In February 2009, the Analysts generated a list of User Types for each SBA. The Analysts and Advisory Groups are using these User Types as a way to systematically examine what users are represented and where gaps in their document gathering and analyses might exist.

Some Analysts are using GEO-sponsored workshops to gather information from end users specific to their SBA. The Agriculture SBA Analyst engaged users at the GEO Forest Workshop (November 2008).

Science and Technology (S&T) Component

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

This task focuses on identifying Earth observation priorities expressed in existing documents. The activity is largely a meta-analysis across dozens of documents within each SBA, and then across the Final reports from the 9 SBAs. Some of the documents used in this task are of a scientific, technical, or technological nature. The conduct of the task itself does not involve scientific research or technological development. There may likely be scientific research or technological development associated with actions taken by GEO Member Countries and Participating Organizations based on the priorities identified 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)

This task focuses on identifying Earth observation priorities expressed in existing documents. The task uses the documents to identify Earth observations that different user types deem to be priority needs. As such, the task's identification of the observations is inherently independent of the sensor technology or measurement technique and independent of whether the observations currently exist or not. Furthermore, the identification of scientific/technological advances required to produce the priority observations (or advances required to translate observations into data products that end users can readily utilize) is beyond the scope of this task.

An activity to identify critical peices of science that are needed to help realize societal benefits from Earth observations would complement this task. The STC could undertake such an effort to engage the scientific community in specific SBAs where the requirements for improved science are not well known.

Members and POs' Contributions to Outputs and Activities above:

The following is the list of GEO Members and Participating Organizations sponsoring Analysts for each SBA:

Canada (Natural Resources): Agriculture
ECMWF: Weather
USA (EPA): Human Health, Biodiversity
USA (NASA): Climate, Disasters, Ecosystems, Energy, Water

IEEE provided support in 2007-8 to begin identifying documents for the Energy SBA. IAG provided input to the development of the User Requirement Registry integrated in the GCI.

The UIC welcomes support from GEO Members and Participating Organizations in this task. Members and organizations are encouraged to provide suggestions for documents and Advisory Group members.

The website for the task is: http://sbageotask.larc.nasa.gov
The central email for the task is: geo-task-us-0901@lists.nasa.gov

Germany

Bundesanstalt für Gewässerkunde (BfG)/Universität Bonn: Analyst for topic "Weather".

Japan
JAXA: To provide the information identifying the priority tasks derived from the GOESS Roadmap.

USA
The USGEO Strategic Assessment Group (SAG) has recently completed a similar assessment to identify U.S. Earth observations priorities within the framework of Societal Benefit Areas.

IAG
Provided input to the development of the User Requirement Registry integrated in the GCI.

IEEE
Provided support in 2007-8 to begin identifying documents for the Energy SBA.

GCOS
Ensure that climate-related datasets (e.g. Essential Climate Variables) are available and useful for all SBAs, and that their value is appreciated by all relevant SBAs.

Participation:

Type	Member or PO	Representing	Contact Name	Email Address
Lead(PoC)	USA	NASA	Lawrence Friedl	LFriedl@nasa.gov
Lead	IAG	IAG	Hans-Peter Plag	hpplag@unr.edu
Lead	IEEE	IEEE	Ellsworth LeDrew	ells@watleo.uwaterloo.ca
Lead	USA	EPA	Gary Foley	Foley.Gary@epa.gov
Contributor	Canada	Natural Resources	Michael Brady	MBrady@NRCan.gc.ca
Contributor	CEOS	CEOS (Support to Advisory Groups)	Multiple CEOS SBA Reps.	Use US0901 Task Email/Website
Contributor	ECMWF	ECMWF	Manfred Kloeppel	Manfred.Kloeppel@ecmwf.int
Contributor	GCOS		Stephan Bojinski	sbojinski@wmo.int
Contributor	Germany	BfG (Federal Institute of Hydrology)	Michael Nyenhuis	michael.nyenhuis@uni-bonn.de
Contributor	Germany	Deutscher Wetterdienst (DWD)	Stefan Rösner	Stefan.Roesner@dwd.de
Contributor	Japan	JAXA	Osamu Ochiai	ochiai.osamu@jaxa.jp
Contributor	UNOOSA		Werner Balogh	werner.balogh@unoosa.org
Contributor	USA	NOAA	Peter Wilczynski	peter.wilczynski@noaa.gov

Note: The Analysts and Advisory Groups are *ad hoc* – they exist only for this task. Their responsibilities and organization will expire at the completion of the task.

Additional Information:

Task Email Address and Coordinator
People that send an email to the task e-mail address (*geo-task-us-0901@lists.nasa.gov*) will receive a reply from Amy Jo Swanson (USA/NASA). Amy Jo Swanson manages this task's email address as well as other logistics and coordination amongst the Analysts.

IGOS Transition into GEO.
The IGOS themes identified many observation priorities within their respective scientific communities. Some of the themes are engaged in this task already; the task leads encourage other interested IGOS themes to contact the appropriate Analyst to participate in the Advisory Groups.