ST-09-02: Promoting Awareness and Benefits of GEO in the Science and Technology Community: Progress, Status, Issues

Task Leads:
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1) IEEE (University of Nevada, Reno, Nevada, USA; 2) COSPAR

ST-09-02: Promoting Awareness and Benefits of GEO in the Science and Technology Community: Progress, Status, Issues

- Introduction
- Activities (progress since STC-14, status, issues)
- Focus on
  - GEOSS Citation Standard
  - GEO Label (Sidetrack: URR)
  - Compelling Examples
- Other Matters

Full documentation of Task Activities and Outputs at http://www.geo-tasks.org/st0902 (*needs some updates)*

ST-09-02: Task Definition

ST-09-02: Promoting Awareness and Benefits of GEO in the Science and Technology Community

This Task is led by COSPAR and IEEE (hpplag@unr.edu)

Promote awareness and benefits of GEOSS in the scientific and technological communities **in order to engage the research community** in GEO and GEOSS with the **goal to achieve breakthroughs** in the understanding of the Earth's changing environment and global integrated Earth system. The **scientific community** should collaborate within GEO to **address interactions** between the components of the global integrated Earth system, and **connect natural and socioeconomic sciences**.

ST-09-02: Overview

Approach:
- Implement selected activities of the STC Roadmap
- Carry out additional activities as appropriate

Five main Activities (each with several sub-activities):

Activity 1: Links with major scientific research enterprises (*inventory; prioritization; integration)*

Activity 2: Encourage scientists and technical experts to contribute to GEOSS (*Roadmap 2a: citation standard; Roadmap 2b: "GEO label"; Roadmap 2e: registration of scientific data sets*)

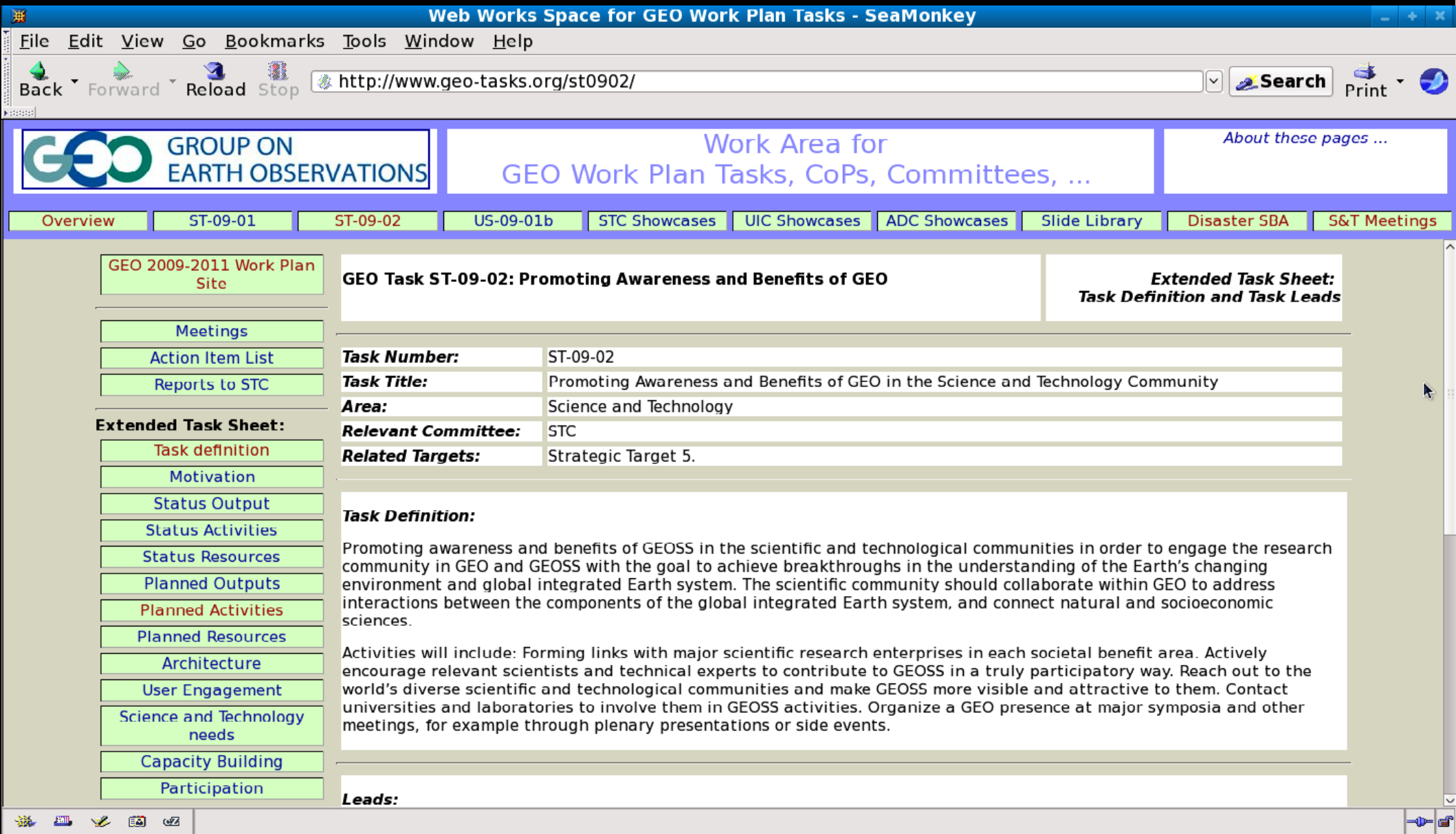
Activity 3: Outreach to diverse scientific and technological communities in order to make GEOSS more visible and attractive (*promotion material; outreach of GEO principals; Roadmap 2d: Showing GEOSS at work - compelling examples*)

Activity 4: Specific efforts to contact universities and research laboratories with the goal to involve them in GEOSS activities. (*major university cooperation programs and research network; collaboration with GEO tasks; transition from research to operational*)

Activity 5: Presence of GEO at major symposiums and other meetings on different levels. (*presentations at major conferences; specific sessions on GEOSS; side events; series of GEO - SBA-specific - conferences*)

ST-09-02: Web Page

Aggregated report: GEO Work Plan Web Site, updated ~three times a year



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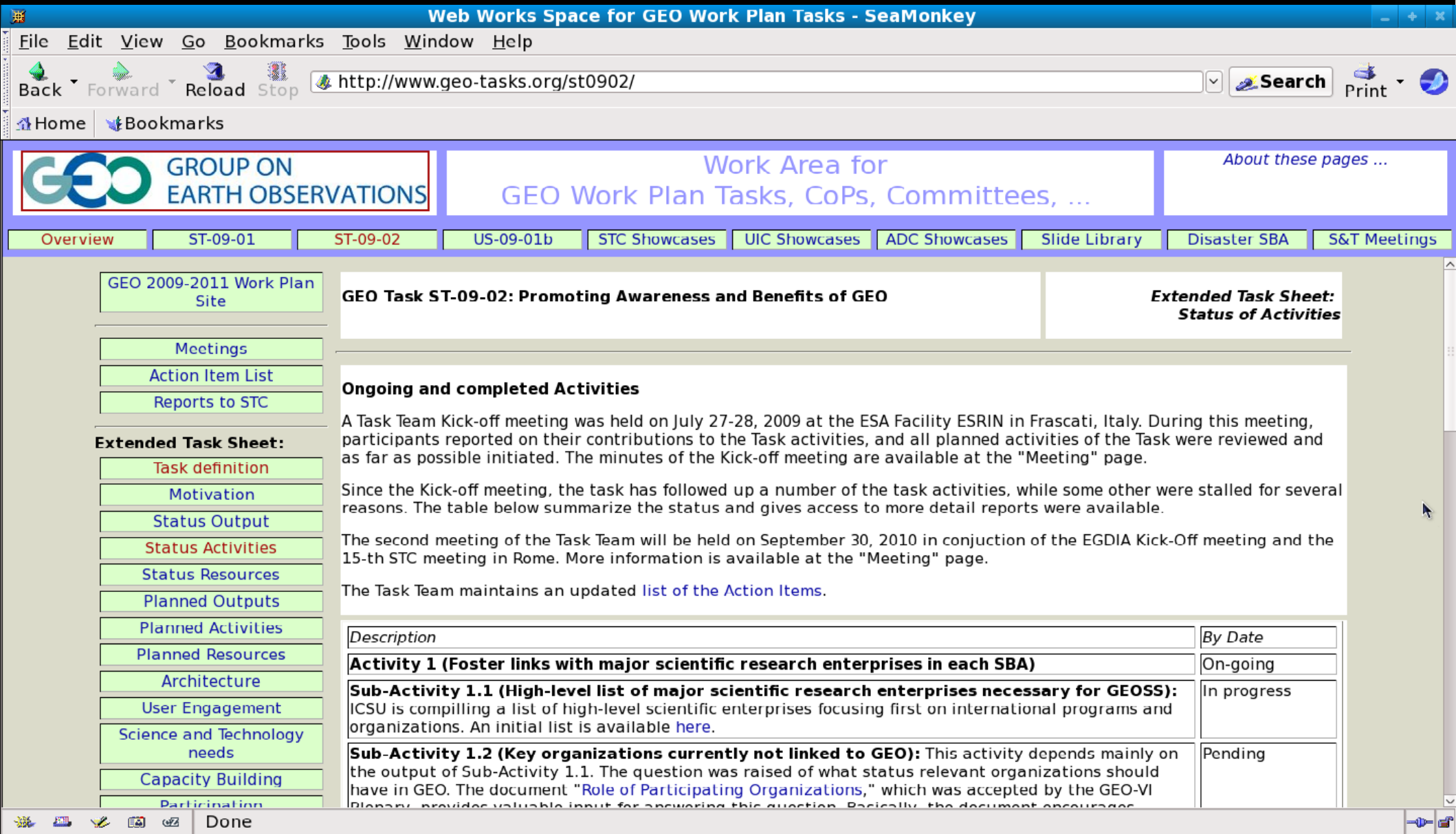


ST-09-02: Progress Since STC-14

Activity 1: Links with major scientific research enterprises

1.1 High-level list of major scientific research enterprises necessary for GEOSS:
- *Stalled*
- *Can EGIDA help?*

1.2: Identification of key organizations currently not linked to GEO and development of mechanisms for linkage to these organizations
- *pending*

1.3 Organize, support, initiate workshops to network the new organizations with relevant Task Team and CoPs in the different SBA.
- *pending*

Issue:
- *Reconsider approach (not first inventory, then action)*
- *populate matrix of SBA and Sub-areas to identify gaps*
- *target gaps*
- *coordinate workshops with other relevant workshop activities*

ST-09-02: Progress Since STC-14

Activity 2: Encourage scientists and technical experts to contribute to GEOSS

2.1 Roadmap Activity 2a; a GEOSS citation standard:

- *Draft data citation rules compiled based on ESIP data citation rules;*
- *Linked to the question of peer-review process of data sets (STC-13 Action item)*
- *Discussion at ST-09-02 Task Team meeting*
- *Coordination with EGDIA required*

ST-09-02: Progress Since STC-14

Activity 2: Encourage scientists and technical experts to contribute to GEOSS

2.2 Roadmap Activity 2b; establishing a “GEO label”:

- *STC Co-chairs guidelines (Minchin et al.) recommend:*
  * *That STC through ST-09-02 develop the Objective Label concept further to arrive at a quality related label for GEOSS components, datasets and tools. A robust proposal should be completed by Q2/2011.*
  * *That UIC consider planning for the development of Subjective labelling (GEO Community label), which may be implemented as part of future upgrades to the GCI. The conceptual development for the subjective labelling should be completed by Q2/2011.*
- *Subjective part discussed with UIC (at UIC-16):*
  Conclusion: ST-09-02 develop complete draft and then requests comments from UIC
- *Draft concept distributed to Task Team and EGIDA WP 3 Team*
- *Discussion at Task Team meeting*
- *Coordination with EGIDA and other activities required*

ST-09-02: Progress Since STC-14

Activity 2: Encourage scientists and technical experts to contribute to GEOSS

2.3 Roadmap Activity 2e: Enhancing registration of relevant scientific data sets.

- *stalled*
- *coordination with EGIDA*
- *identify relevant scientific data sets (gap analysis)*
- *support owners with registration (holding hands, tutorials, ...)*
- *make incentives visible (What do I get in return if I register?)*

ST-09-02: Progress Since STC-14

Activity 3: Outreach to diverse scientific and technological communities in order to make GEOSS more visible and attractive

3.1 Propose, stimulate, foster and monitor the production of promotion material
- *stalled*
- *Can EGIDA help?*

3.2 Support outreach of GEO Principals, Committee members and other delegates
- *stalled*
- *collection of presentations/slides/slide library should be considered*
- *can EGDIA help?*

3.3 Roadmap Activity 2d; showing GEOSS at work: compelling examples:
- *First set of CEs selected after review*
- *one-page stories invited for hand-outs for the STC booth*

ST-09-02: Progress Since STC-14

Activity 4: Contact universities and research laboratories

4.1 Disseminate information about GEOSS

- *Pending: a high-level presentation at the annual conference of the International Association of Universities (IAU)*

4. 2 Establish proactive collaboration between S&T activities at universities and labs

- *stalled, no inventory*
- *reconsider approach; maybe use SBA matrix to identify gaps/opportunities*

4.3 If activities are found to be of appropriate scope and level, promote a transition from research to operational

- *process for identification and review of examples need to be developed*
- *process of promotion within GEO need to be developed*
- *ad hoc identificiation of first test case: ARGO proposal*
- *coordination with EGDIA required*

ST-09-02: Progress Since STC-14

Activity 5: Presence of GEO at major symposiums and other meetings on different levels.

5.1 Identify major scientific conference and facilitate plenary presentations on GEO and GEOSS

- *List of scientific conferences has been started at geo-tasks.org (needs update);*
- *Request to STC members to submit information on conferences to ST-09-02 was not successful*
- *Current list biased towards some SBAs*
- *Broader effort needed with more resources; EGIDA?*

ST-09-02: Progress Since STC-14

Activity 5: Presence of GEO at major symposiums and other meetings on different levels.

5.2 Session on GEOSS-related topics at major scientific meetings

Past:

- *GEOSS session at COSPAR: chaired by G. Ollier and N. Gobron (report not yet available)*
- *ISPRS VIII Symposium, August 9-12, Kyoto: 2 GEOSS Session chaired by H.-P. Plag and Bingfang: very good discussions revealing the benefits of GEOSS; report in next GEO Newsletter*

Future:

- *AGU Fall 2010: GEOSS related hydrology session: only four invited abstracts, no contributed abstracts; merged with other session*
- *ISRSE 2011, 10-15 April 2011, Sydney: side events and sessions*
- *IUGG 2011, 27 June-08 July 2010, Melbourne: not aware of GEOSS-related sessions*

Issues:

- *Needs more resources and a concept discussion; EGIDA?*

ST-09-02: Progress Since STC-14

Activity 5: Presence of GEO at major symposiums and other meetings on different levels.

5.3 Organize/promote side events at major scientific meetings
- *Difficult to keep overview, GEO Secretariat should inform ST-09-02*

5.4 High-level prospectus for a series of SBA-specific major conferences
- *Concept (objectives, goals, structure) needs some development*
- *Needs coordination with the respective CB Task (CB-10-01c)*
- *EGIDA?*

GEOSS Citation Standard (2.1)

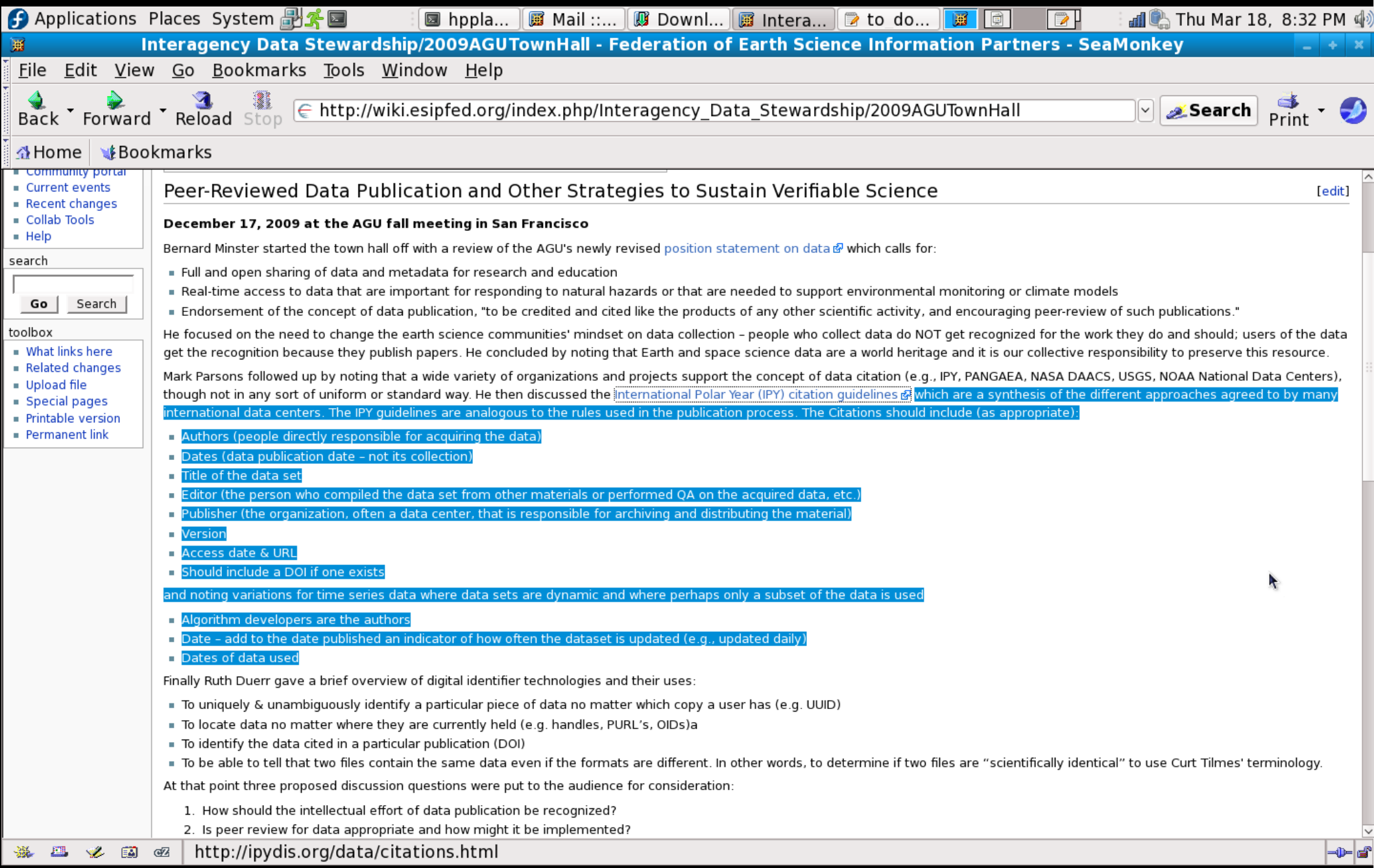
Sub-Activity 2.1 (Roadmap Activity 2a; a GEOSS citation standard):
(Roadmap 2a) Getting GEOSS acknowledged: In the scientific community in particular, recognition and renown are important currencies. In order to increase the attractiveness of GEO and GEOSS for scientists, their contributions must be acknowledged visibly when others use it to their benefit. A GEOSS citation standard will be proposed by the end of 2009 and its use will be promoted thereafter.

- Broad issue of data citation and data review;
- Issue recognized and discussed by many organizations;
- GEOSS Citation Standard should be consistent with general development;

The Federation of Earth Science Information Partners (ESIP) has a Preservation and Stewardship Cluster, which is discussing Data Citation Rules.

The objective of the cluster is to support the long-term preservation of Earth system science data and information.

GEOSS Citation Standard (2.1)



GEOSS Citation Standard (2.1)

EOS

EOS, TRANSACTIONS, AMERICAN GEOPHYSICAL UNION

VOLUME 91 NUMBER 34 24 AUGUST 2010

Data Citation and Peer Review

A scientific publication is fundamentally an argument consisting of a set of ideas and expectations supported by observations and calculations that serve as evidence of its veracity. An argument without evidence is only a set of assertions. Consider the difference between the statement "The hairy woodpecker population is declining in the northwest region of the United States" and the statement "Hairy woodpecker populations in the northwest region of the United States have declined by 11% between 1992 and 2003, according to data from the Institute for Bird Populations (http://www.birdpop.org/)." Both or neither of these statements could be true, but only the second one can be verified. Scientific papers do, of course, present specific data points as evidence for their arguments, but how well do papers guide readers to the body of those data, where the the data's integrity can be further examined? In practice, a chasm may lie across the path of a reviewer seeking the source data of a scientific argument.

The collective text that describes scientific knowledge, consisting of peer-reviewed publications connected by citations, is

Federation of Earth Science Information Partners and AGU's Earth and Space Science Informatics Focus Group have sponsored data publication conference sessions, working groups, and discussion fora including a town hall meeting at the 2009 AGU Fall Meeting (see http://wiki.esipfed.org/index.php/Interagency_Data_Stewardship/2009AGUTownHall). As a result, some best practices and critical research needs are beginning to emerge, and scientists are collectively calling for greater attention to these practices and needs.

Lack of a Consistent Method for Data Citation

The scientific method and the credibility of science rely on full transparency and explicit references to both methods and data. These require that science data be open and available without undue and proprietary restriction. However, a consistent, rigorous approach to data citation is lacking.

Data citation has been described in the literature [e.g., *Klump et al.*, 2006; *Costello*,

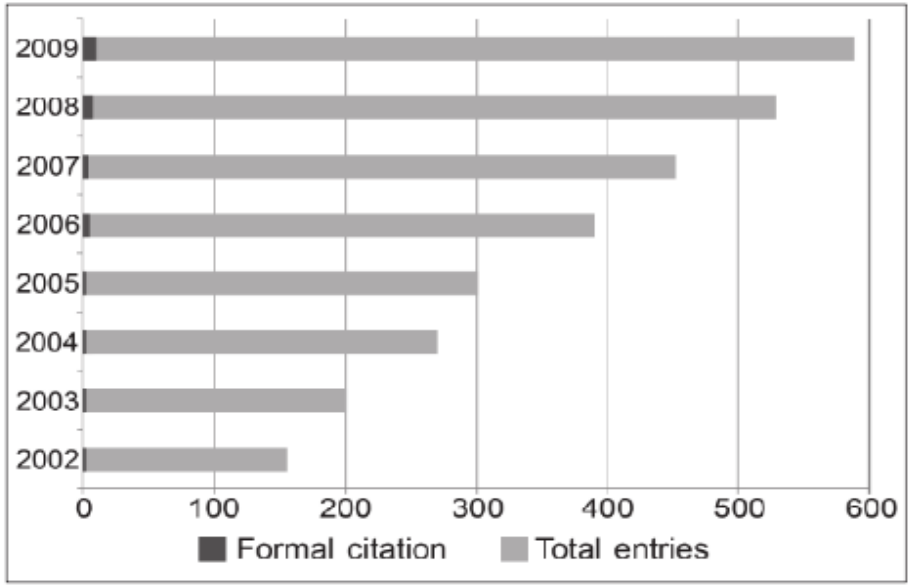


Fig 1. The National Snow and Ice Data Center distributes a variety of different snow cover products derived from the Moderate Resolution Imaging Spectroradiometer (MODIS). The results of a quick analysis of how many scientific papers mention use of "MODIS snow cover data" (according to Google Scholar™) and how often the data sets themselves are formally cited show a huge disparity, illustrating the infrequency of proper data citation in practice. Moreover,

By M. A. Parsons, R. Duerr, J.-B. Minster

GEOSS Citation Standard (2.1)

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(Roadmap 2a) Getting GEOSS acknowledged: In the scientific community in particular, recognition and renown are important currencies. In order to increase the attractiveness of GEO and GEOSS for scientists, their contributions must be acknowledged visibly when others use it to their benefit. A GEOSS citation standard will be proposed by the end of 2009 and its use will be promoted thereafter.

- Draft concept will be discussed at Task Team Meeting
- Important to link to the ESIP et al. discussions
- Could two or three EGIDA participants devote resources to this?

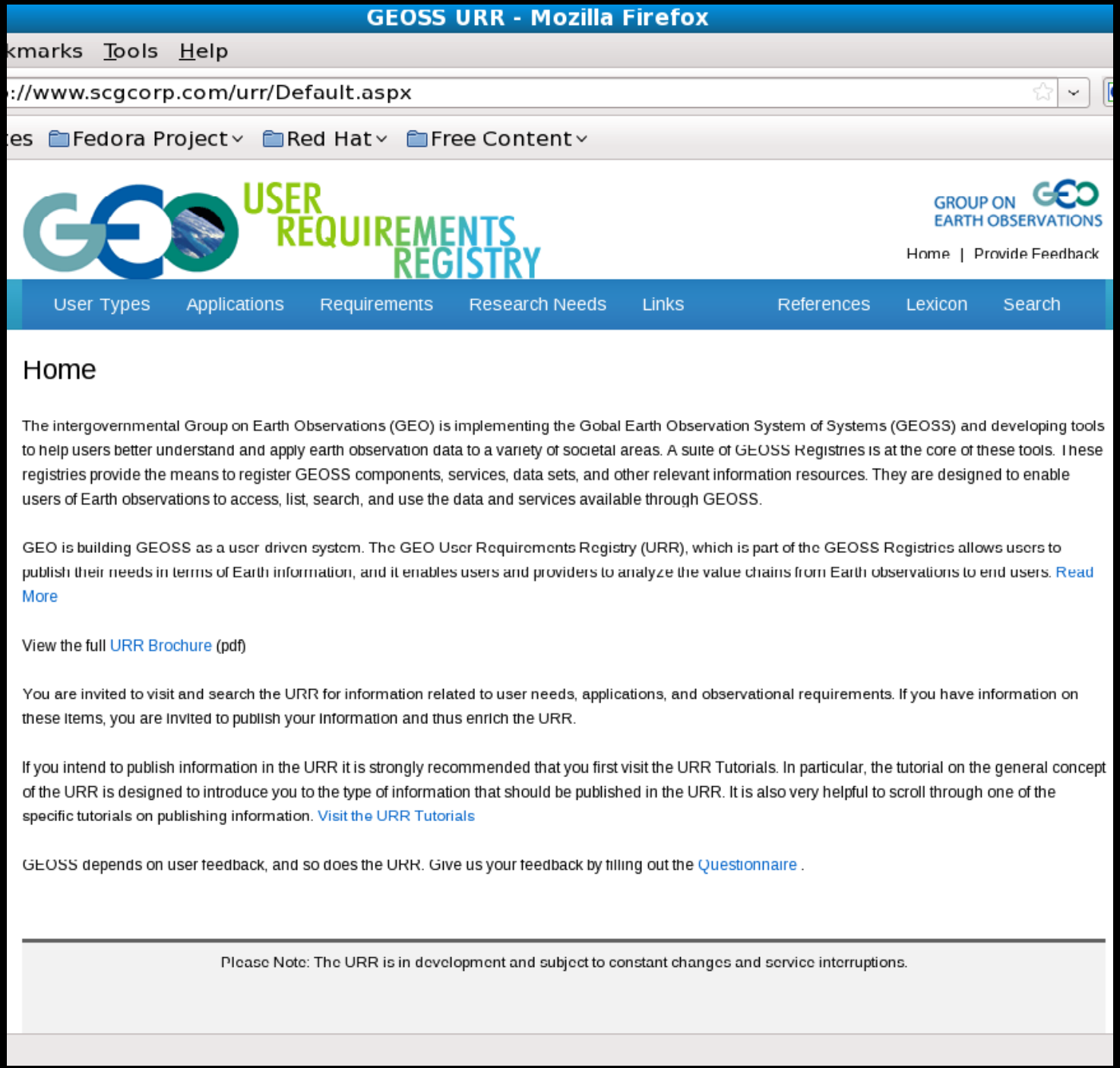
GEO Label (2.2)

Sub-Activity 2.2 (Roadmap Activity 2b; establishing a “GEO label”):
(Roadmap 2b) Establishing a “GEO label”. Develop a concept for a “GEO label” related to the scientific relevance, quality, acceptance and societal needs for activities in support of GEOSS as an attractive incentive for involvement of the S&T communities. A draft concept will be proposed in early 2010 liaising with existing major Earth observation data providers.

- STC-Co-Chairs' Guideline: two aspects:
  - objective: quality-related
  - subjective: relevance and acceptance-related

- Inherently related to data review:
  - quality assurance more responsibility of provider;
  - peer-review more responsibility of publisher;
  - fit-for-usage is an important criteria; depends on application
  - many more considerations (see Parsons et al., 2010)

GEO Label (2.2) - Sidetrack: URR



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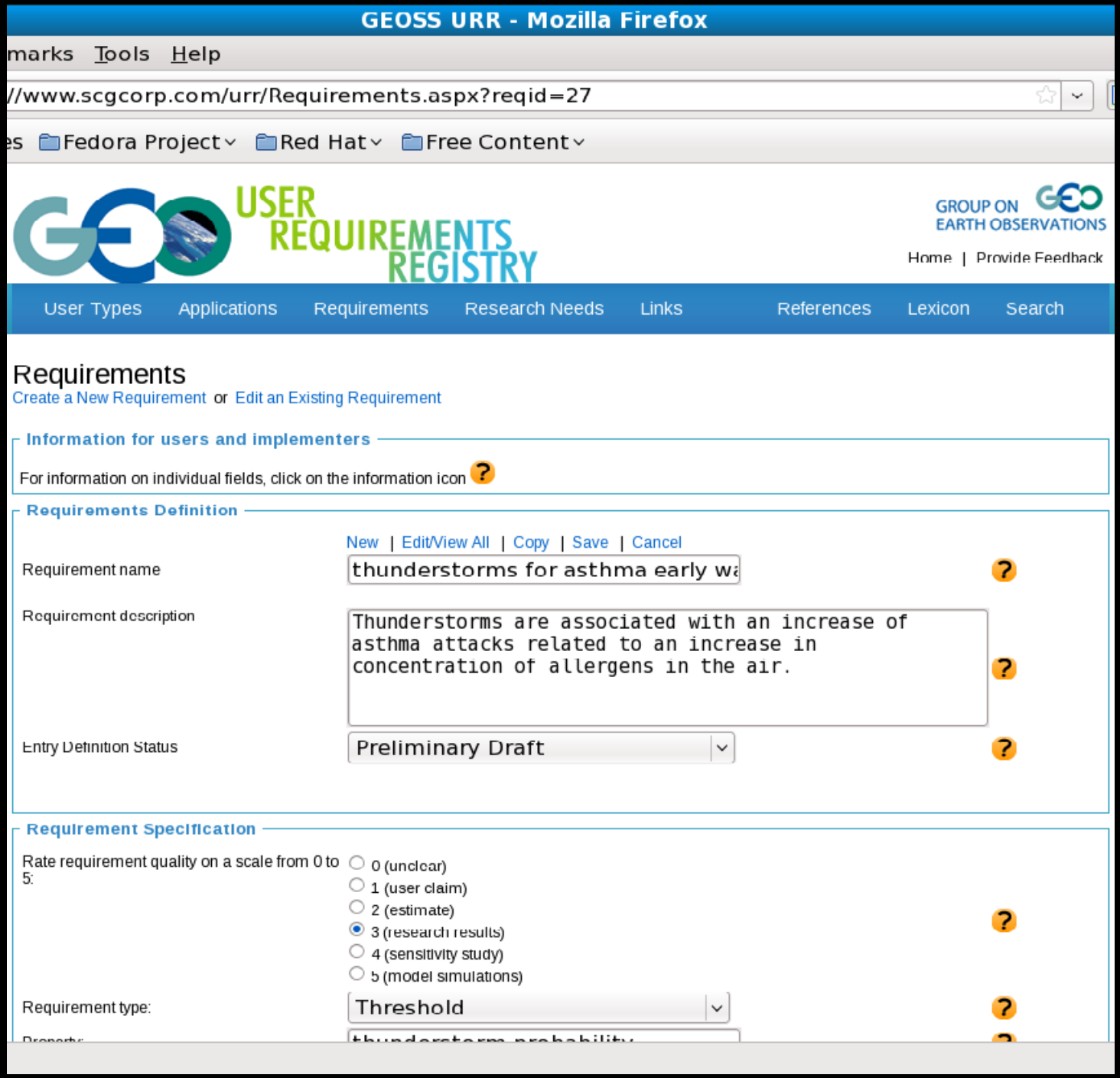

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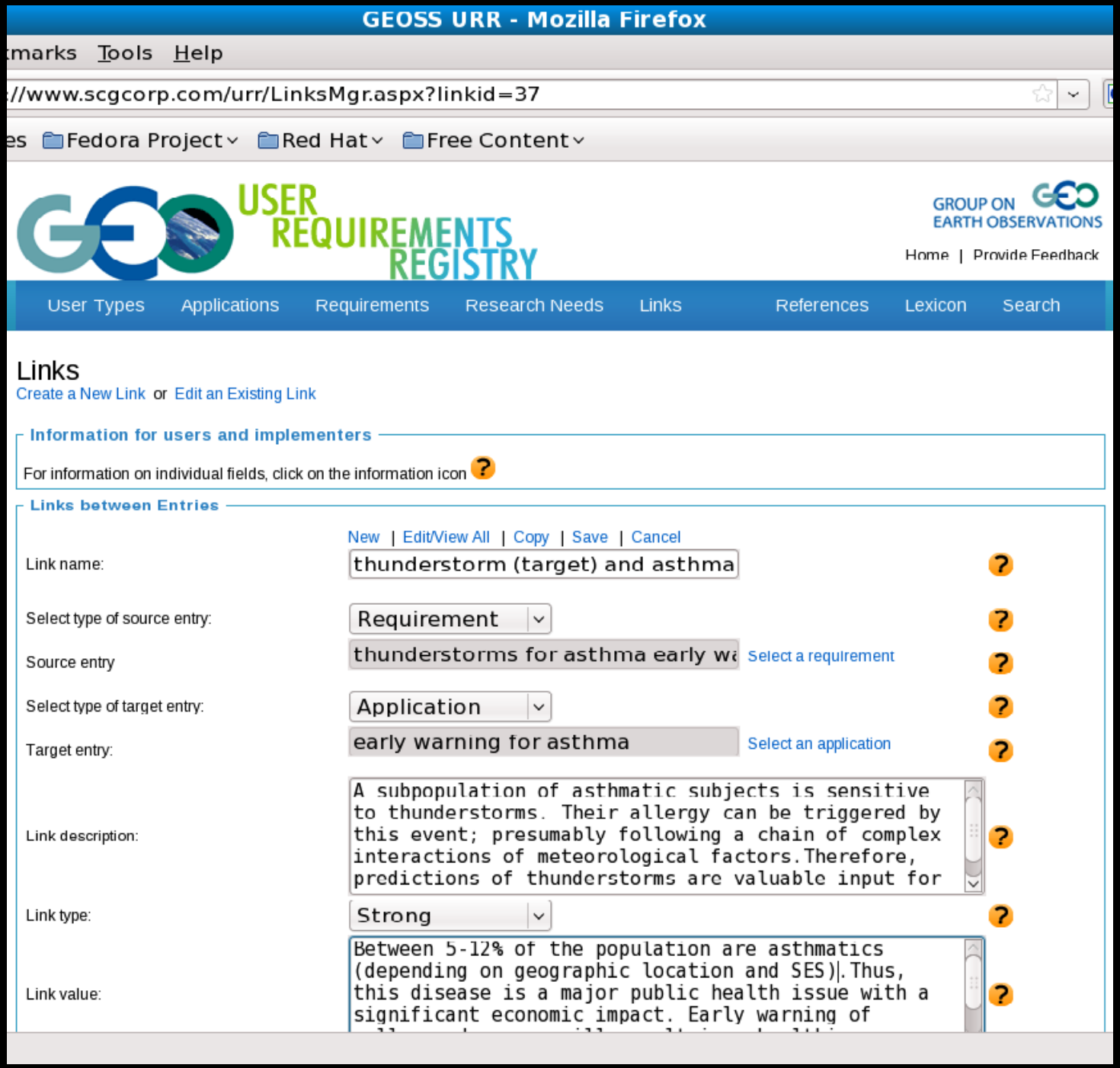

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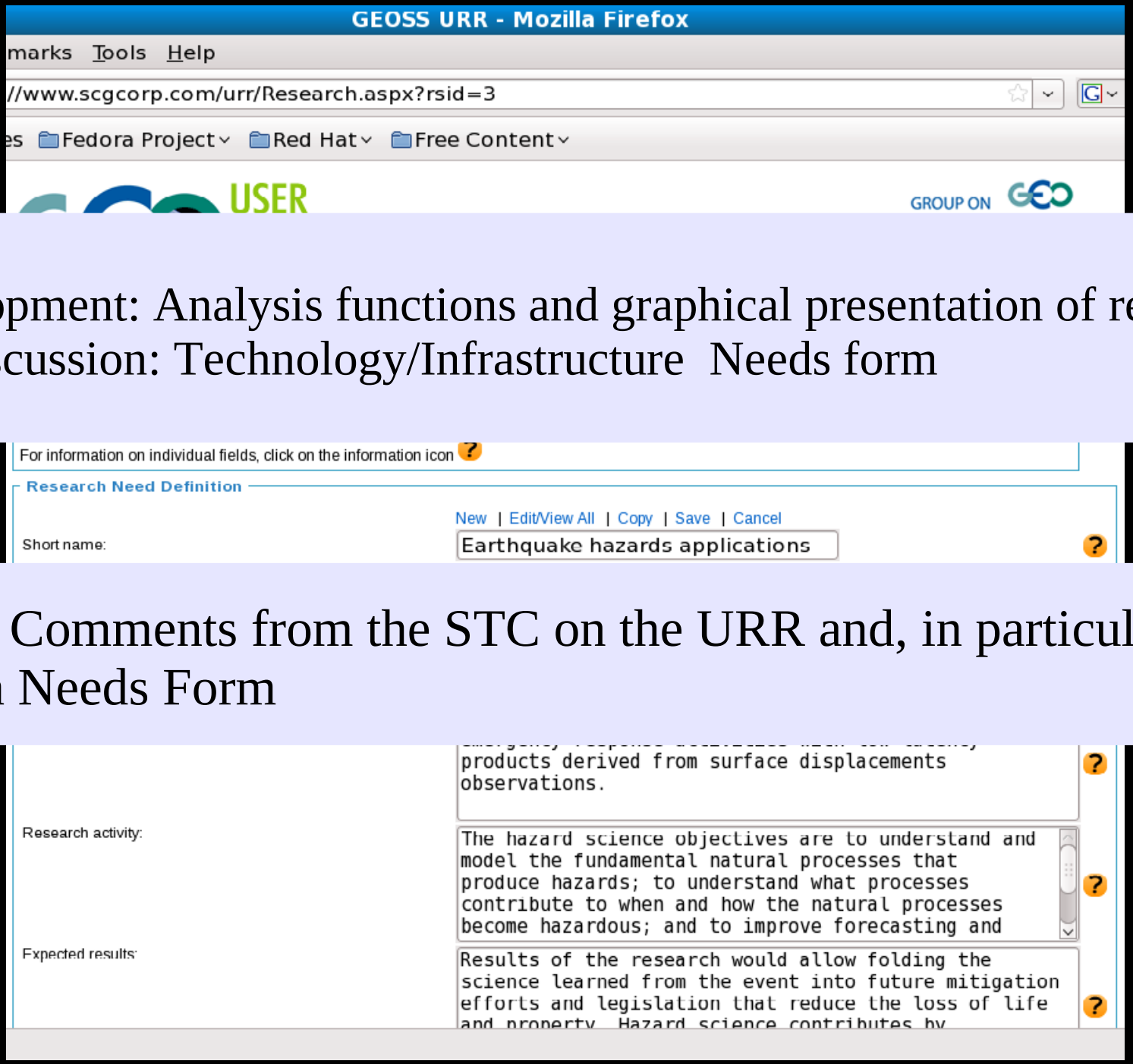
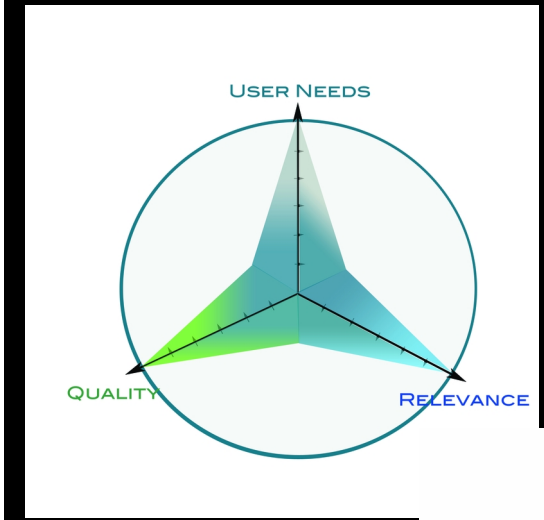


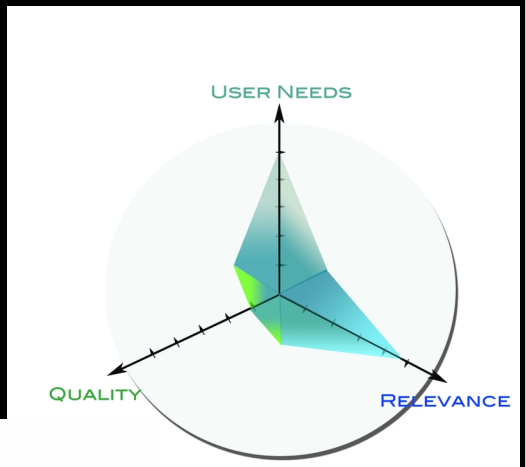
In Development: Analysis functions and graphical presentation of results
Under discussion: Technology/Infrastructure Needs form

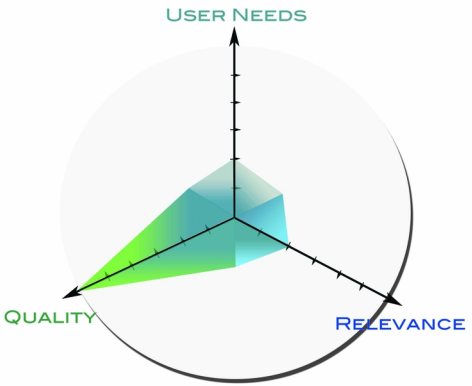
Request: Comments from the STC on the URR and, in particular, the Research Needs Form

GEO Label (2.2)

Initial draft concept under discussion on ST-09-02 Task Team:
- three-faceted label:
  - quality, based on QA4EO (objective criteria)
  - relevance/acceptance: based on user feedback (subjective)
  - user needs: based on (objective) fit with (subjective) user needs in the GEO User Requirement Registry (URR)







Compelling Examples (3.3)

Sub-Activity 3.3 (Roadmap activity Showing GEOSS at work: compelling examples): (Roadmap 2d) Showing GEOSS at work. Support broader involvement of S&T communities by a set of compelling examples showing how GEOSS serves S&T communities in their work. Suitable examples will be identified in cooperation with GEO Tasks and the provision of the examples through the tasks will be promoted. The examples will be accessible through the GEO web page and/or the GEO portals and publicized in reports and at conferences. This activity will strongly feed into the preparations for the Ministerial in 2010.

Initial proposals from Task Team Members: four proposals

Invitations to Showcase authors and selected presenters at GEOSS Sessions:
- 33 invitations,
- 13 proposals (in total),
- 7 SBAs,
- 3 cross-cutting proposals

- 12 proposals reviewed; 1 still under review.
- 8 accepted;
- one-page stories and other material requested.

Compelling Examples (3.3)

Selected Compelling Examples:

Water: Pilot Projects for Improved Water Discovery and Quality Assessments

Climate: (1) Capacity building of operational oceanography and climate adaptation
(2) Year of Tropical Convection (YOTC)

Ecosystems: enviroGRIDS Building Capacity for a Black Sea Catchment Observation and Assessment System supporting Sustainable Development

Biodiversity: Protected Areas Monitoring Pilot

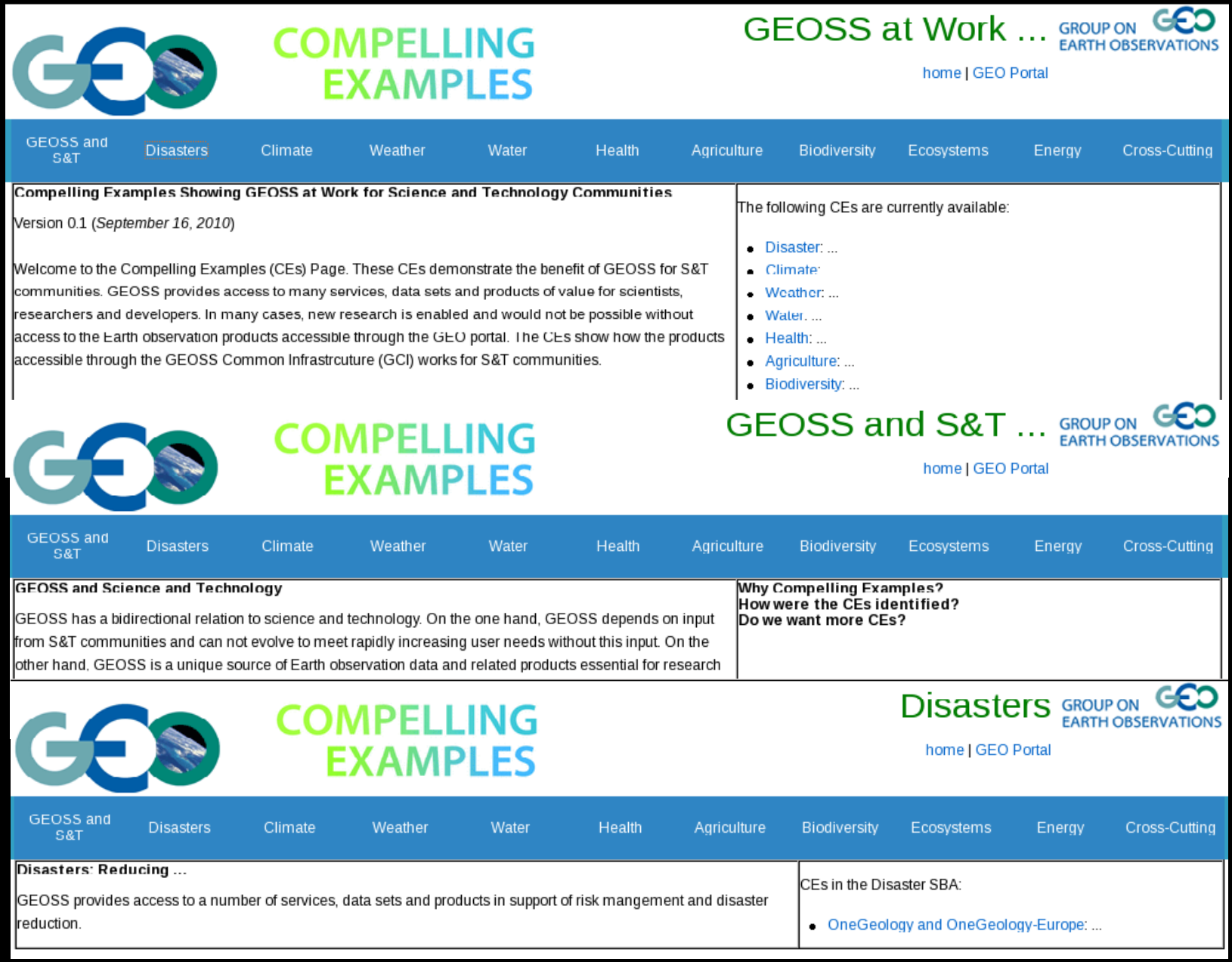
Agriculture: The Harmonized World Soil Database (HWSD) as a first step towards a Global Soil Information System

Health: Using Earth Observations to Benefit Health

Cross-cutting: EuroSITES : European Observatory Network

Compelling Examples (3.3)

Publication of Compelling Examples: Central Entry web page with links to individual CE pages:



COMPELLING EXAMPLES

GEOSS at Work … GROUP ON EARTH OBSERVATIONS

home | GEO Portal

GEOSS and S&T | Disasters | Climate | Weather | Water | Health | Agriculture | Biodiversity | Ecosystems | Energy | Cross-Cutting

Compelling Examples Showing GEOSS at Work for Science and Technology Communities

Version 0.1 (*September 16, 2010*)

Welcome to the Compelling Examples (CEs) Page. These CEs demonstrate the benefit of GEOSS for S&T communities. GEOSS provides access to many services, data sets and products of value for scientists, researchers and developers. In many cases, new research is enabled and would not be possible without access to the Earth observation products accessible through the GEO portal. The CEs show how the products accessible through the GEOSS Common Infrastrcuture (GCI) works for S&T communities.

The following CEs are currently available:

- Disaster: ...
- Climate:
- Weather: ...
- Water: ...
- Health: ...
- Agriculture: ...
- Biodiversity: ...

COMPELLING EXAMPLES

GEOSS and S&T … GROUP ON EARTH OBSERVATIONS

home | GEO Portal

GEOSS and S&T | Disasters | Climate | Weather | Water | Health | Agriculture | Biodiversity | Ecosystems | Energy | Cross-Cutting

GEOSS and Science and Technology

GEOSS has a bidirectional relation to science and technology. On the one hand, GEOSS depends on input from S&T communities and can not evolve to meet rapidly increasing user needs without this input. On the other hand, GEOSS is a unique source of Earth observation data and related products essential for research

Why Compelling Examples?
How were the CEs identified?
Do we want more CEs?

COMPELLING EXAMPLES

Disasters GROUP ON EARTH OBSERVATIONS

home | GEO Portal

GEOSS and S&T | Disasters | Climate | Weather | Water | Health | Agriculture | Biodiversity | Ecosystems | Energy | Cross-Cutting

Disasters: Reducing …

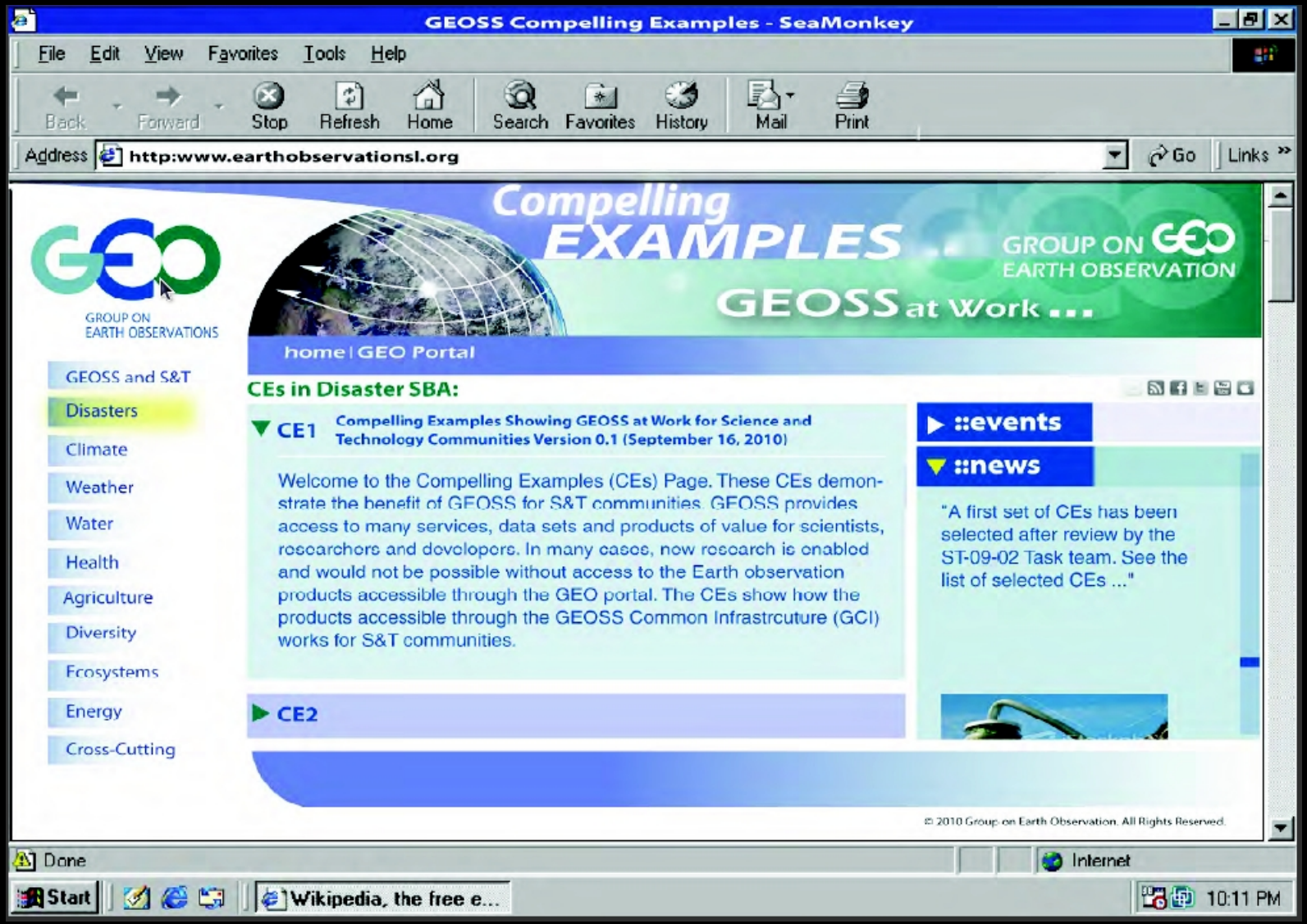
GEOSS provides access to a number of services, data sets and products in support of risk mangement and disaster reduction.

CEs in the Disaster SBA:

- OneGeology and OneGeology-Europe: ...

Compelling Examples (3.3)

Publication of Compelling Examples: Central Entry web page with links to individual CE pages:



Design study by SCG

ST-09-02: New Activities

Activities emerging from Work Plan Symposium:

- Extend documentation of what has been done and outputs that have been achieved
- Initiate coordination with UIC, US-09-01b (CoPs)
- Initiate coordination with CBC, CB-09-02a (Cross-Border education), CB-10-01c (workshops)

Requires a more active Task Team: *Can EGIDA help?*

ST-09-02: Participation and Resources

GROUP ON EARTH OBSERVATIONS

Work Area for
GEO Work Plan Tasks, CoPs, Committees, ...

About these pages ...

Extended Task Sheet:

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Last edited 26 September 2010

ST-09-02: Participation and Resources

Contributors:
- Minor changes
- EGDIA participants (in particular, WG 3 contributors) invited to join
- Activity biased towards North-Atlantic (Europe, North America)
- Bias likely to increase
- Needs to be broadened (South Africa, Asia, Australia, South America)

Leads:
- IEEE, COSPAR;
- H.-P. Plag PoC (for IEEE)

Additional Co-Task leads? Africa, Asia? Cross-cutting?

ST-09-02: Participation and Resources

Task Meetings:
Kick-off meeting, 27-28 July 2009, Frascati
Based on experience with e-mail work, I proposed to meet about every six months co-located with other meeting (AGU, STC, ...)

Minutes of KOM:
"**12 Date and time of next Task Meeting**

The discussion of the next meeting led to the conclusion not to meet in the near future. **David Halpern proposed that the Task team works by e-mail.** A potential meeting could then be held during, for example, the IGARS meeting on July 25-30, 2010 in Hawaii. No decision about a future meeting date and venue was taken."

Splinter meeting of a small number of Task Team members at GEO Plenary in Washington, D.C., November 2009.

ST-09-02: Participation and Resources

2nd Meeting tentatively scheduled in March/April 2010 for June 18, 2010 in Paris:

- PoC had a conflict; informed Task Team on 13 April 2010.
- Task team decided against meeting without PoC, by WebEx, co-located with IGARSS, etc. and agreed to postpone the meeting and co-located with STC meeting

Future:

- Based on past experience, I will again propose to the Task Team on Thursday to aim for meetings about twice a year co-located with other meeting (AGU, STC, EGIDA Stakeholders, ...)
- EGIDA might help to facilitate more activity and more face2face meetings

ST-09-02: Participation and Resources

Resources:
- Dedicated resources: Since July some resources for Activity 3.3 (EPA)
- Now: EGIDA
- More active participants needed to take lead in sub-activities
- Task co-leads?
- Better coverage across SBAs needed