CEOS-GEO Remapping Exercise

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CEO

Plan

- Introduction
- Current CEOS GEO Actions
- Next Steps
- Conclusions

INTRODUCTION

2006-2007 CEOS Support to GEO

- **CEOS either Lead or Contributor to several GEO Tasks** including
  - Virtual Constellations
  - CEOS Response to GCOS: 59 GCOS actions incl. 21 high priority ones
- **Long-term analysis of GEO targets relevant for space** (*Chu Ishida*)
- **All CEOS support activities described in CEOS IP v1** (Nov. 2007)

GEO Tasks led by CEOS in 2007

- **Actions for which CEOS is Lead and Point of contact generally show good progress**
  - under CSA's leadership in advancing **DI-06-09** (***Use of Satellites for Risk Management)***
  - in **CL-06-01** ***(Sustained Reprocessing and Reanalysis Efforts)*** and **CL-06-02** ***(Key Climate Data from Satellite Systems – Response to GCOS requirements)***
  - in **DA-06-02** ***(GEOSS Quality Assurance Strategy).***
  - in **DA-07-03** ***(Virtual Constellations).***

Current CEOS GEO Actions

2008 CEOS Support

- **Significant effort in producing CEOS IP v1 (Nov. 07). Known areas for improvement:**
  - CEOS Actionees not yet identified
  - Contains gaps and inconsistencies ***(Plenary action 21-7)***

- **GEO updated its 2007-2009 Work Plan (Nov. 07 & Mar. 08)**

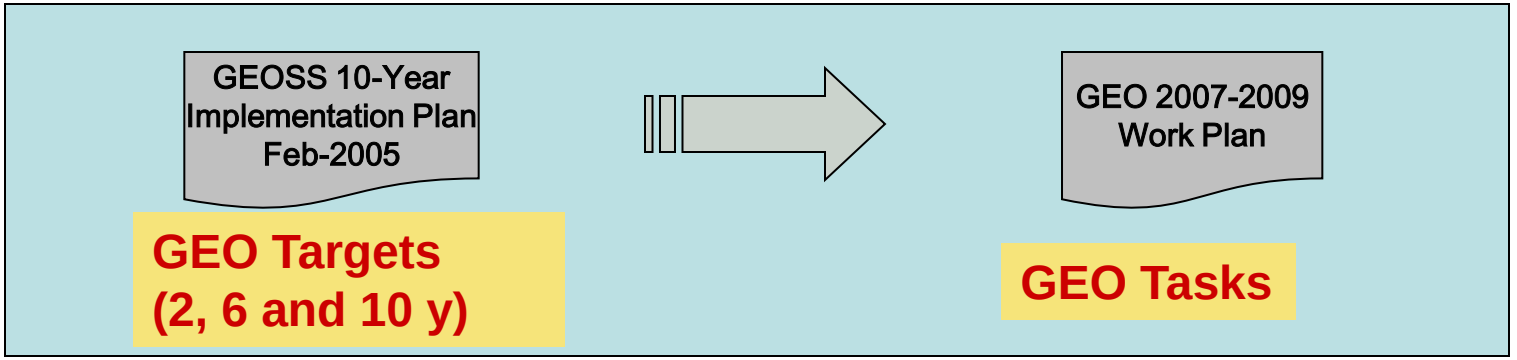
- **GEO Director asked CEOS (Dec. 07):**
  - to identify the **GEO Tasks** to be supported by CEOS, based on the Agencies' interests and resources
  - to quickly produce concrete results

2008 CEOS Support

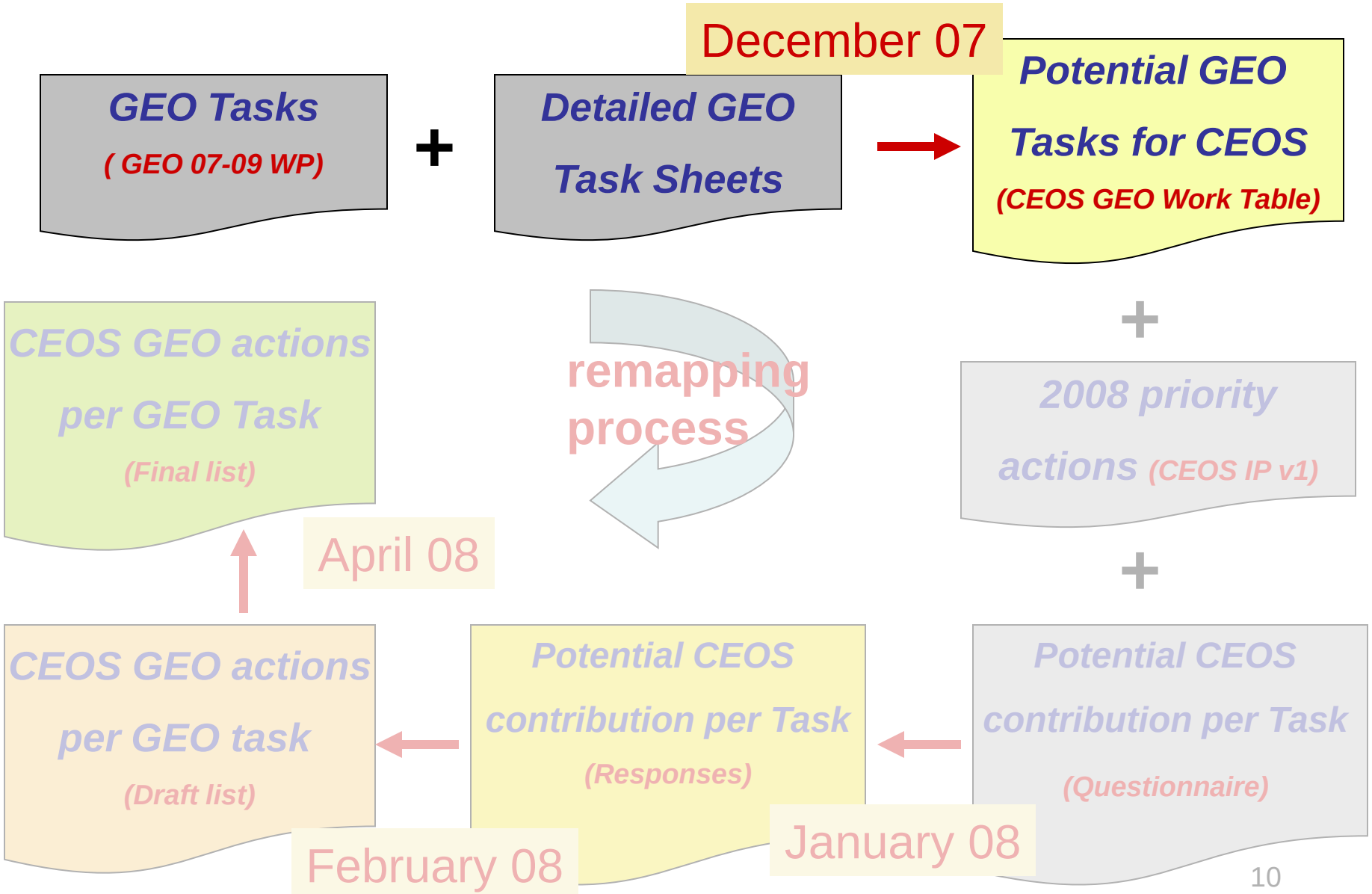
CEOS support to GEO to be revised:

1. Define in detail all on-going & future “actionable” actions:
   - ***Identify for each action a Lead CEOS Agency (+ other contributing Agencies)***
   - ***Specify a Completion Date with main Milestones and Deliverables***
2. Increase contributions of CEOS Agencies, Virtual Constellations and CEOS WGs
3. Improve organization of work, similarly to CEOS Climate Teams for GCOS

GEO Tasks & GEO Targets



- **SIT focus on short-term CEOS actions in support to *GEO 07-09 WP Tasks***
  - long-term CEOS actions addressing GEO Targets to be refined when the process for the GEO Targets revision will be initiated (May-Jun. 08 ? tbc)
  - CEOS inputs for the GEO 2009-2011 WP will be collected and sent to GEO SEC before May 9, 2008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CEOS-GEO Work Table

- **After GEO-IV Plenary, SIT Chair started a large consultation within CEOS to define a set of CEOS actions supporting the GEO 07-09 Work Plan**
  - **Initial GEO SEC-CEOS bi-lateral meeting** (mid-Dec 07) → identification of GEO tasks relevant for CEOS). **Generation of "CEOS GEO Work Table"**
  - **With the cooperation of GEO SEC, identification of a list of 32 GEO tasks for which CEOS support would be needed**

CEOS-GEO Work Table

GEO Task

Potential role For CEOS

WG support

Constellation support

	A	B	C	F	G	J	L	M
1		CO 2007-2009 Work Plan Tasks	Recommended as a HIGH Priority CEOS Task by the GEOSEC?	How do satellite measurements contribute to this area?	Are there any current applications in operations or research that might be leveraged?	Recommended Action and Point of Contact	Supporting Working Group*	Supporting Constellation
2		Last updated 30 November 2007 GEO-IV Plenary		How can satellites contribute?	How are satellites contributing?	Need very specific actions and responsible individual		
34	WMO, IGOS-P, Japan and GOOS	WA-08-P1: Integration of In-situ and Satellite Data for Water Cycle Monitoring	The CEOS contribu would be most helpf close the gaps i hydrological cyc observations		Operational and research demo systems provide routine and experimental products Agency 1: Agency 2:		WGISS/WTF-CEOP	LSI OST Precipitation
35		*Weather (WMO/EUMETSAT/N*						
36	WMO	WE-06-01: Surface-based Global Observing System for Weather						Precipitation
37	WMO	WE-06-02: Space-based Global Observing System for Weather	Yes	The operational environmental satellites operated by NOAA are designed to do exactly this. Both weather imagery and quantative measurements are routinely available.	NOAA: The operational environmental satellites operated by NOAA are designed to do exactly this. Both weather imagery and quantative measurements are routinely available.			OST

32 high interest GEO tasks for CEOS

AG-07-01: Improving Measurements of Biomass

AR-06-11: Radio Frequency Protection

AR-07-01: Enabling Deployment of a GEOSS Architecture

AR-07-02: GEOSS Architecture Implementation Pilot

CB-07-01a: Engaging Donors

CB-07-01b: Identifying Best Practices, Gaps and Needs

CB-07-01e: Open Source Software

CL-06-01: Sustained Reprocessing and Reanalysis Efforts

CL-06-02: Key Climate Data from Satellite Systems

CL-07-01: Seamless Weather and Climate Prediction System

DA-06-01: GEOSS Data Sharing Principles

DA-06-02: GEOSS Quality Assurance Strategy

DA-06-03: Ensemble-Technique Forecasting Demonstrations

DA-06-04: Data, Metadata and Products Harmonisation

DA-06-09: GEOSS Best Practices Registry

DA-07-03: Virtual Constellations

DI-06-03: Integration of InSAR Technology

DI-06-04: Implementation of a Tsunami Early Warning System at Global Level

DI-06-07: Multi-hazard Zonation and Maps

DI-06-09: Use of Satellites for Risk Management

DI-06-13: Implementation of a Fire Warning System at Global Level

EN-07-01: Management of Energy Sources

HE-06-03: Forecast Health Hazards

HE-07-01: Strengthen Observation and Information Systems for Health

HE-07-02: Environment and Health Monitoring and Modelling

HE-07-03: Integrated Atmospheric Pollution Monitoring, Modelling and Forecasting

WA-06-02: Forecast Models for Drought and Water Resource Management

WA-06-07: Integrated Earth Observation Water Resource Management

WA-07-01: Global Water Quality Monitoring

WA-O8-P1: Integration of In-situ and Satellite Data for Water Cycle Monitoring

WE-06-02: Space-based Global Observing System for Weather

CEOS SBA Teams

- Following CEOS Plenary, CEO worked to identify **CEOS SBA Coordinators**

- **CEOS SBA Coordinators** then identified **SBA Points of Contact** to assist them in the definition and execution of the future CEOS "actionable" actions *(Dec. 07)*

- **The CEOS SBA Coordinators** and their **SBA Points of Contact** address **all SBAs except Biodiversity,** plus **one CEOS Coordinator** for **Transverse areas**

CEOS SBA – WG - Constellation Leads

CEOS SBA

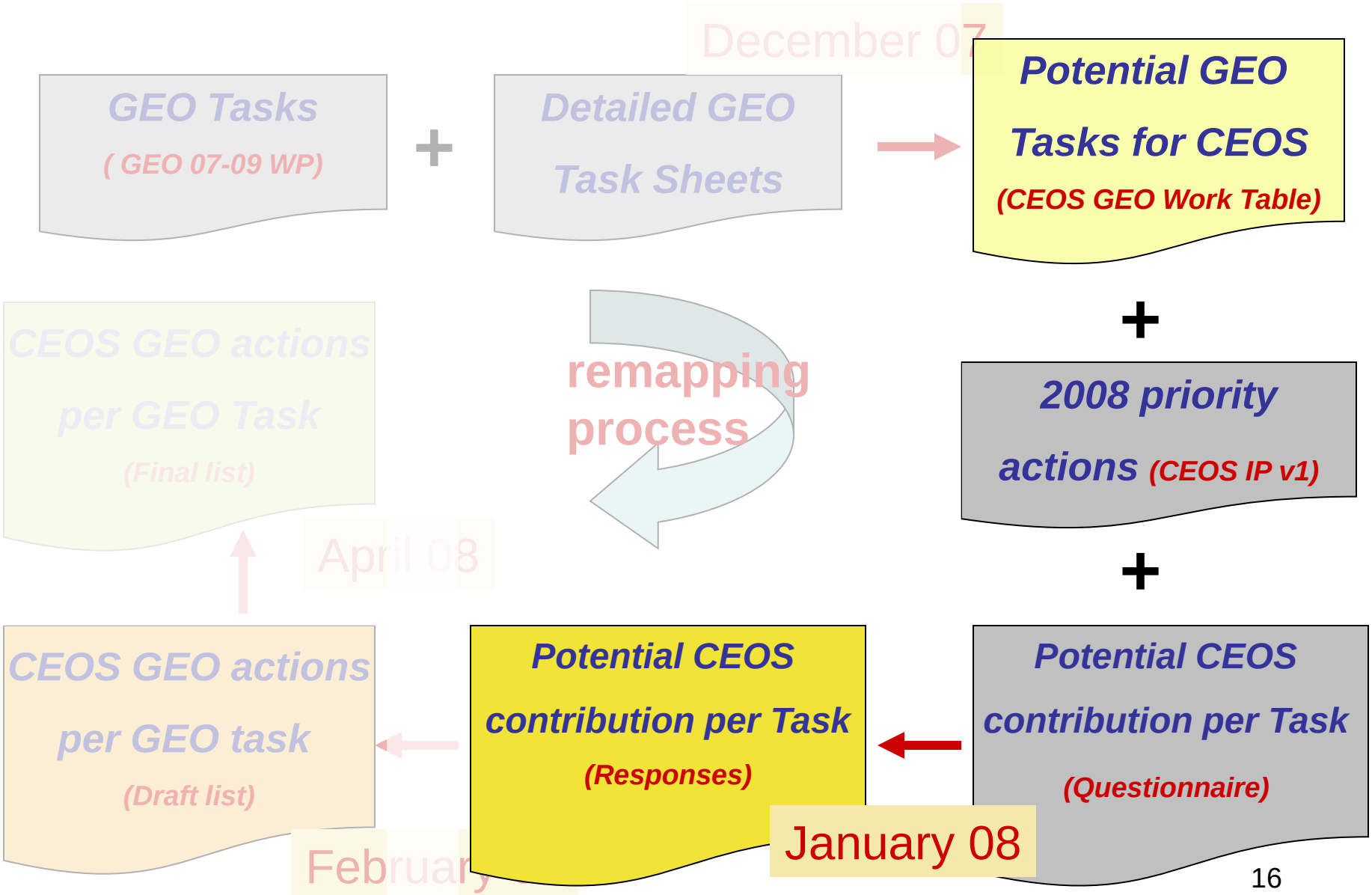
SBA	NAME	AGENCY
DISASTER	Guy Seguin	CSA
HEALTH	Antonio Guell	CNES
CLIMATE	Mitch Goldberg	NOAA
WATER	Chu Ishida	JAXA
WEATHER	Paul Counet	EUMETSAT
ECOSYSTEMS	Alex Fortescue	CSIR
AGRICULTURE	Brad Reed	USGS
ENERGY	Richard Eckman	NASA
TRANSVERSE	Ivan Petiteville	ESA

VIRTUAL CONSTELLATIONS

CONSTEL.	NAME	AGENCY
Atmospheric Composition	Ernest Hilsenrath Claus Zehner	NASA ESA
Land Surface Imaging	Bryan G Bailey V. Jayaraman	USGS ISRO
Ocean Surface Topography	Stan Wilson Francois Parisot	NOAA EUMETSAT
Precipitation	Steven Neeck Riko Oki	NASA JAXA

WORKING GROUPS

WG	NAME	AGENCY
WGCV	Changyong Cao	NOAA
WGEdu	Gordon Bridge	EUMETSAT
WGISS	Martha Maiden	NASA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per individual GEO Task

Questionnaire Content

1. **Identify current space-related activities that could contribute to this GEO task:**
   - significance ?
   - related actions and/or deliverables ?
2. **Identify any issues (current/potential data gaps, data sharing problems, funding, etc)**
   - related actions and/or deliverables needed ?
3. **Identify key international organization(s) already assigned to work on this task from the satellite perspective.**
   - Outstanding issues CEOS can help address in coordination with these organization(s).

Replies to Questionnaire

- **Questionnaire sent to Leads/Chairs CEOS SBA Teams, CEOS Working Groups, Virtual Constellations Teams** (*Jan 8, 2008*).
  - 165 responses received (end Jan. 2008) addressing 69 GEO Tasks
  - Each response proposed one or more CEOS actions addressing a specific GEO Task
  - 29 high interest GEO Tasks addressed. 3 not covered
  - Hard work and high motivation !!!

- **Consolidation phase until CEOS-GEO workshop**

- **CEOS-GEO workshop organized by SIT** ***(Feb. 20-22, 2008)***
  - **Participants:** *CEOS SBA Teams, CEOS WGs and Constellations Leads, Chair rep., SIT Team, SEO and CEO*

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⚠ **AR-06-11: Radio Frequency Protection**

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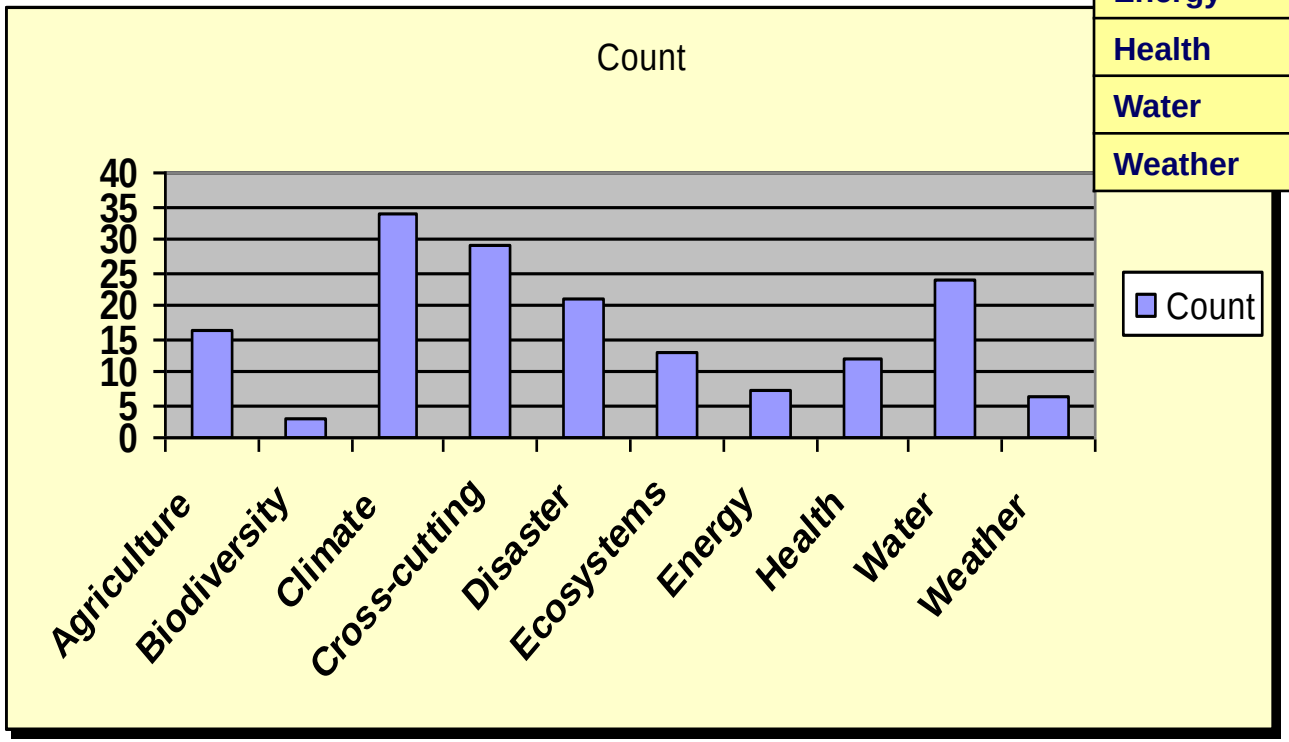
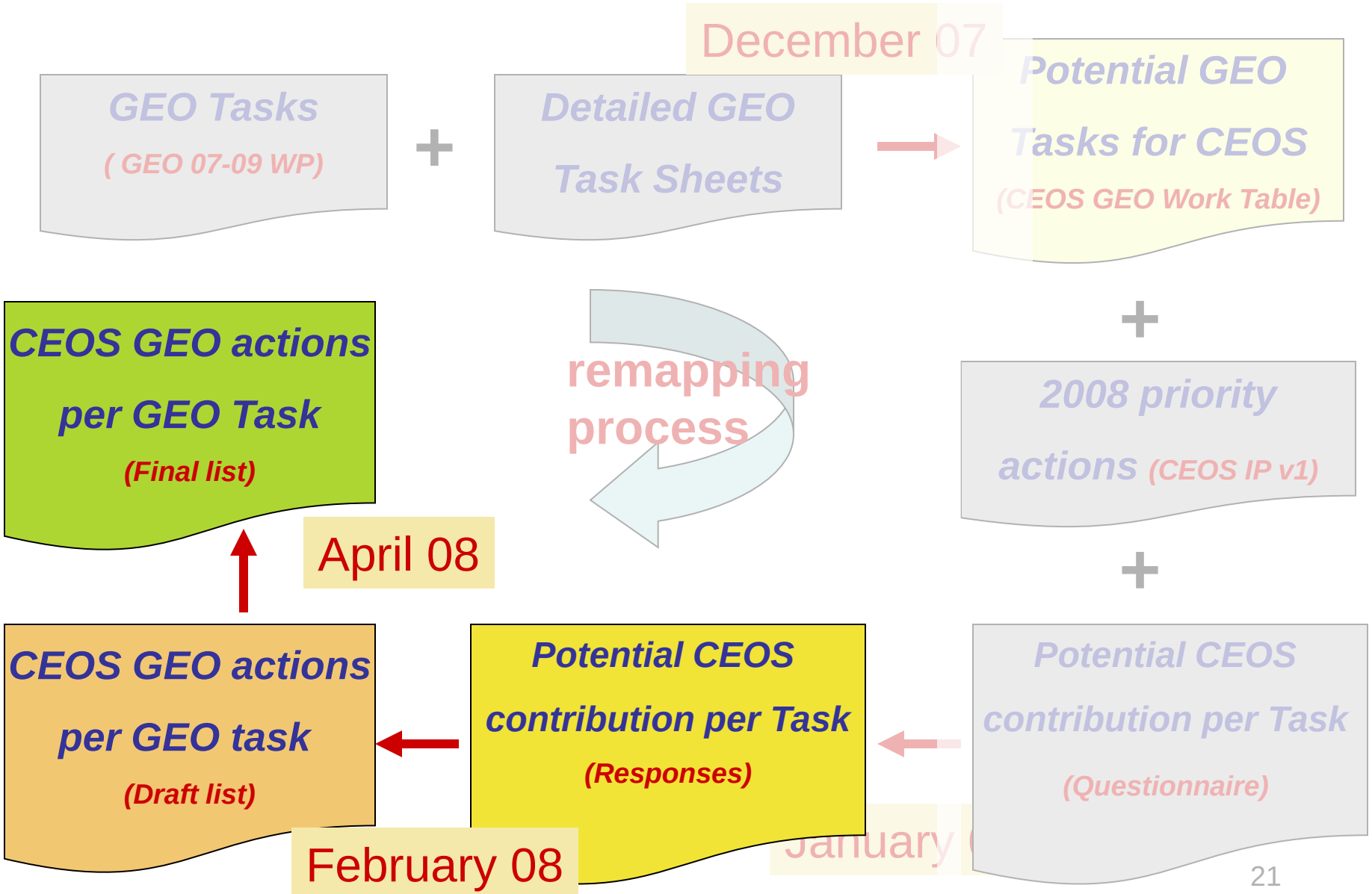
Statistics on Questionnaires

SBA	Count
Agriculture	16
Biodiversity	3
Climate	34
Transverse	29
Disaster	21
Ecosystems	13
Energy	7
Health	12
Water	24
Weather	6

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Workshop Main Objectives

Workshop

Define in detail the CEOS actions to be undertaken by CEOS Members to support GEO

SIT meeting (April 08)

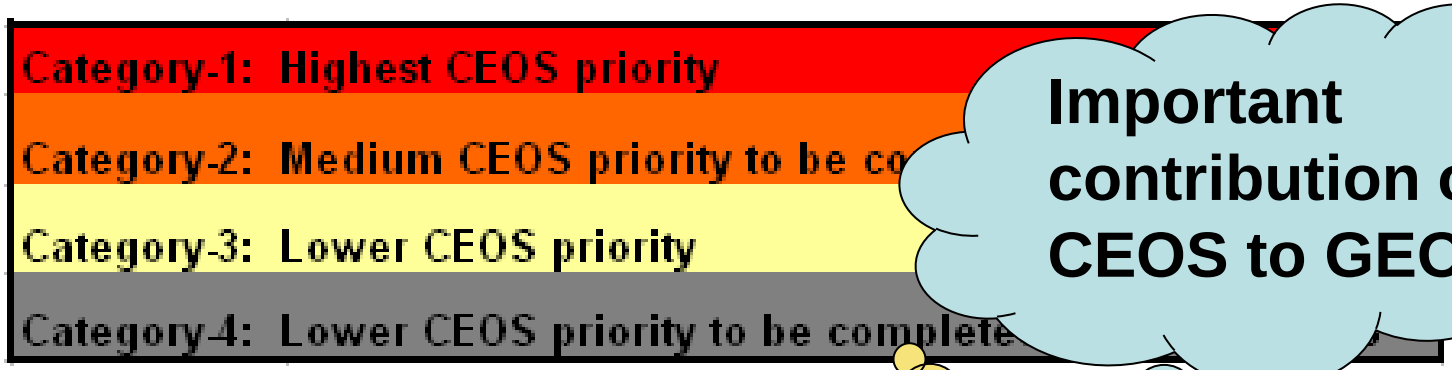
Each CEOS Agency will be requested to commit the resources necessary for the accomplishment of those CEOS actions

Main Workshop Outputs

CEOS-GEO Actions Table:

- *Excel file*
- *After final consolidation,* ***CEOS-GEO action table will be imported into "CEOS Information System"***
- ***Flexible process:*** *actions may be modified, added or suppressed at any time*

CEOS-GEO Actions Categories



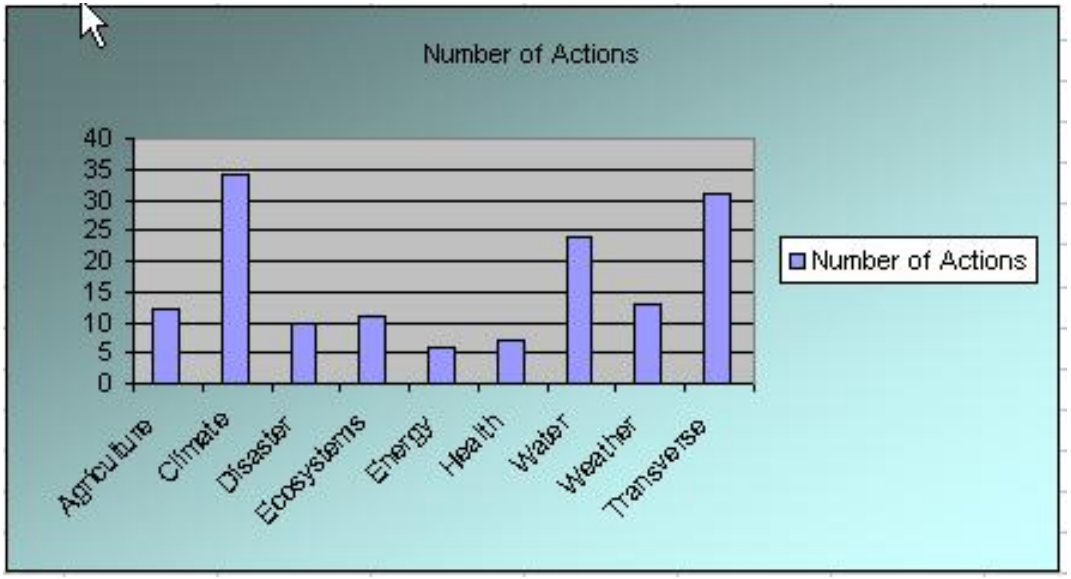
Important contribution of CEOS to GEO

- **Exception to above rules:** 4 actions have been promoted to Cat 1 because of both their importance and the intermediate progress expected already before Oct 1, 2008
- **148 actions all categories addressed by CEOS Agencies.**
  - 62 in Cat 1 addressing 22 GE
  - 55 in Cat 2.
  - 18 in Cat 3
  - 13 in Cat 4
- **CEOS WGs and Constellations involvement**

Full support of CEOS Agencies to the WGs and Constellations is needed

CEOS-GEO Actions per SBA

SBA	Number of Actions
Agriculture	12
Climate	34
Disaster	10
Ecosystems	11
Energy	6
Health	7
Water	24
Weather	13
Transverse	31



- 1/3 of CEOS actions address more than one SBA

Cross-cutting nature of CEOS Actions

CEOS Actions per Constellations

ACC: 13 actions incl. 6 cat. 1
- supporting 6 SBAs (8 GEO

LSI: 17 actions incl. 6 cat. 1
- supporting 4 SBAs (8 GEO Tasks)

OST: 7 actions incl. 4 cat. 1
- supporting 5 SBAs (6 GEO Tasks

PC: 15 actions incl. 7 cat. 1
- supporting 5 SBAs (6 GEO Tas

Cross-cutting nature of constellations

Important contribution of constellations

Families of CEOS Actions

3 families of Cat 1 actions may be distinguished:

1. **Data provision** (incl. data reprocessing), **data access** (incl. data interoperability, user portal)

2. **Scientific and Calibration/Validation**

3. **Programmatic** (planning of future missions/sensors, requirements/gaps analysis, funding, promotion)

Characteristics of CEOS Actions

- Most of Cat 1 actions relies on activities either on-going or already planned by the CEOS Agencies.
  - However the level of efforts (financial, human, ..) overall is considerable but not distributed equally between CEOS Agencies *(2/3 of the CEOS actions are being led by 5 CEOS Agencies).*

- The cross-cutting aspect is highlighted explicitly for 1/3 of actions

- Actions are heterogeneous in terms of financial implications, nature *(e.g. political, technical, scientific, ..)*, status *(on-going or future activities)*, level of details provided in the description

NEXT STEPS

Next Steps (1/2)

1. **Consolidate the CEOS GEO Action Table** with outcomes from SIT-21 *(Apr. 08)*

2. Finalize cross check to **make sure that all CEOS IP v1 actions are taken into account** *(May 08)*

3. Import actions in **CEOS-GEO Information Systems** *(May 08)*
   - Used for a more efficient management of actions
   - Used for reporting to CEOS *(Plenary, SIT, SEC, WGs meetings, others …)* and to GEO *(Quarterly report , GEO Plenary, GEO Committees meetings)*
   - Used for populating automatically part of the CEOS IP v2

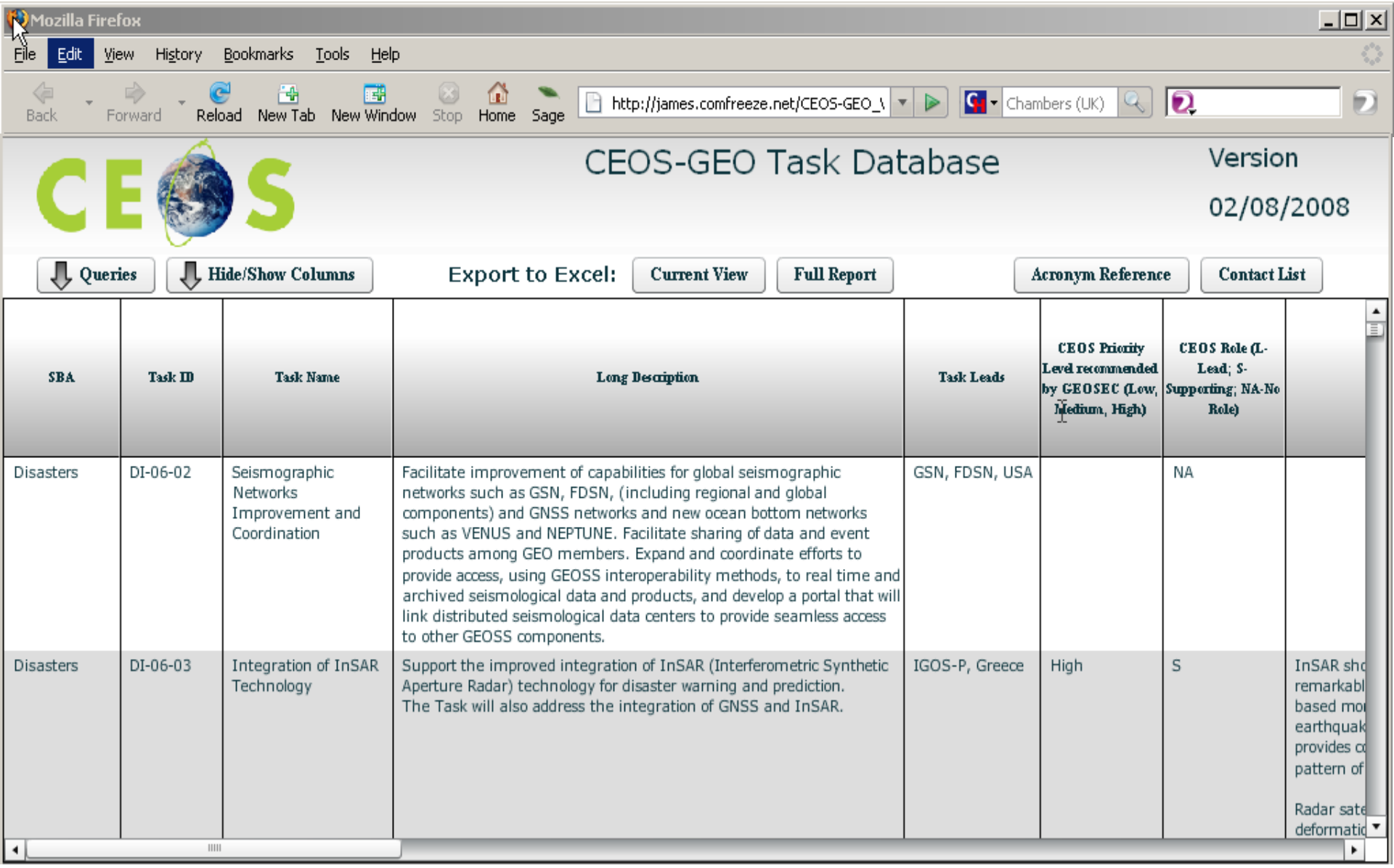
Next Steps (2/2)

4. Under responsibility of CEOS SBA Coordinators, for each CEOS Action, **POC to produce a list of Activities** incl. list of Deliverables and associated Milestones *(May 08)*
5. CEOS is ready to **support the review of the GEO Targets** as soon as the review process is initiated by the GEO Secretariat
6. **Update of GEO 2009-2011 WP**. Inputs to be sent to GEO before May 9.
7. **Generation of CEOS IP v2** *(Sep. 08)*

CEOS GEO Information System

- Following recommendation from former CEO and the subsequent Plenary action 21-13, both the SEO (NASA) and CEO have worked together to specify and implement a web-based **CEOS Information System to manage and monitor the execution of the CEOS GEO Actions**
  - Ease reporting: CEOS internal; CEOS to GEO
  - Status of CEOS Actions visible at any time.
  - Used to automatically generate part of CEOS IP v2

- Demonstration by SEO



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CEOS

CEOS-GEO Task Database

Version 02/08/2008

Queries | Hide/Show Columns | Export to Excel: | Current View | Full Report | Acronym Reference | Contact List

SBA	Task ID	Task Name	Long Description	Task Leads	CEOS Priority Level recommended by GEOSEC (Low, Medium, High)	CEOS Role (L-Lead; S-Supporting; NA-No Role)	
Disasters	DI-06-02	Seismographic Networks Improvement and Coordination	Facilitate improvement of capabilities for global seismographic networks such as GSN, FDSN, (including regional and global components) and GNSS networks and new ocean bottom networks such as VENUS and NEPTUNE. 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, and develop a portal that will link distributed seismological data centers to provide seamless access to other GEOSS components.	GSN, FDSN, USA		NA	
Disasters	DI-06-03	Integration of InSAR Technology	Support the improved integration of InSAR (Interferometric Synthetic Aperture Radar) technology for disaster warning and prediction. The Task will also address the integration of GNSS and InSAR.	IGOS-P, Greece	High	S	InSAR sho remarkabl based mo earthquak provides c pattern of Radar sate deformatio

CONCLUSIONS

Conclusions (1/2)

- **Large participation to Remapping exercise across CEOS Agencies. High motivation.**

- **Significant level of CEOS resources allocated to support GEO:**
  - For 2008, about 50 POC manage 62 CEOS Cat 1 actions addressing 22 GEO Tasks. 13 CEOS Agencies as Lead.
  - About 80 Points of Contact (POC) coordinate the execution of the 148 CEOS actions

Conclusions (2/2)

- **Activities listed in the slides "Next Steps (1/2)" and "Next Steps (2/2)" needs to be carried out**

- **CEOS Actions need to be executed in a timely manner, with emphasis on the Cat 1 actions.**

Thank you …

Any questions ?