



Committee on Earth Observation Satellites

# Evaluation of pilot success/ sustainability

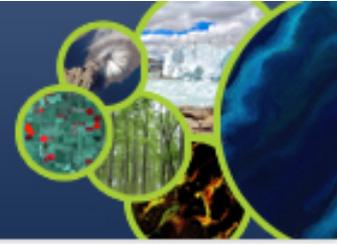
**Stéphane Chalifoux, WGD Chair**

**Andrew Eddy, WGD Secretary**

**WGD#6, Vancouver, WA**

**6-9 September, 2016**





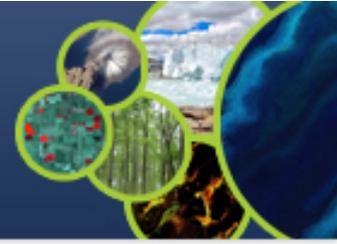
**Flood, Seismic Hazards, and Volcano Pilots approved by SIT April 2014 and run to end 2017**

**Recovery Observatory formally approved by plenary November 2015 and is expected to be triggered in 2016, to run for 3 to 5 years (2018-2020), with go-no-go decision after 6 months (2017)**

**Landslide pilot planning begun 2015; approval at plenary 2016; may run to end 2019**

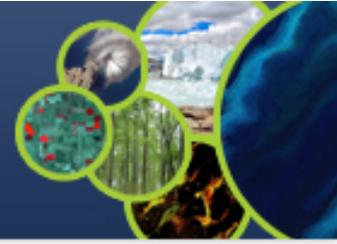
**Some activities may continue, or be linked to new initiatives (e.g. GEO-DARMA), while others will cease**

**Vision for sustainability to be put forward early 2017 (SIT) for approval at 2017 Plenary**



## **Both measurable and qualitative evaluation of pilots:**

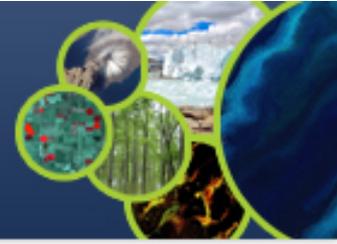
- **Evaluation against pilot objectives (initial evaluation criteria of three pilots, but also deliverables & milestones)**
  - **Monitoring by Pilot Leads and regular reporting to WG in “semestrial report” and WG meetings and teleconferences: formal review of reporting should be instituted**
- **Own qualitative judgment by thematic team and feedback from intermediate and end users – end user questionnaire to be developed for each thematic team, on basis of Volcano Pilot questionnaire**



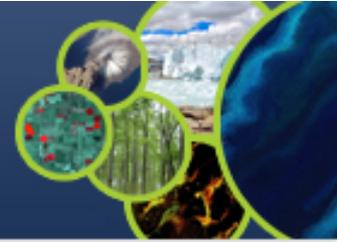
- **Data use (volume and quality of images and products)**
- **User uptake (number of users and volume of products generated and used effectively)**
- **User engagement (actual use of products, willingness to contribute to sustainability strategy)**
- **Outside interest (willingness of stakeholders to finance activities)**
- **Objective accomplishments (changes to decision-making processes, effective DRM strategies influenced)**
- **Ease of implementation (does the path to sustainability come naturally? Is there a clear vision for how to transition from demonstration to viable on-going work?)**



Objective/Deliverable	Projected Completion Date	Background Information
<p><b>DIS-10:</b> Implementation of Data Acquisition Plan in support to DRM pilots, data coordination for GNSL supersites</p>	<p>Q4 - 2016</p>	<p>A strategic data acquisition plan in response to the floods, seismic hazards, and volcanoes pilots' EO requirements was endorsed at SIT-29. This plan will be updated to reflect the landslides pilot endorsed at the 29<sup>th</sup> CEOS Plenary Meeting.</p> <p>Potential proposals for new GSNL activities (i.e. new permanent &amp; event Supersites) aiming at expanding the objectives of the current pilots will be assessed by the Data Coordination Team and the various pilot teams in due time. The assessment will be done following the procedures endorsed by CEOS.</p> <p>The status of implementation of the plan, and of the pilots and supersites being supported, will be reported at SIT-31 and at the 30<sup>th</sup> CEOS Plenary Meeting.</p>

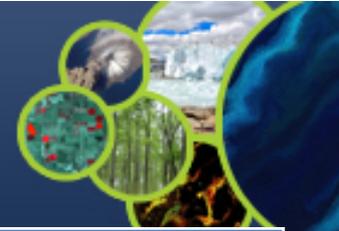


Objective/Deliverable	Projected Completion Date	Background Information
<p><b>DIS-12:</b> Report on survey of donors for post-2016 operation of a Recovery Observatory</p>	<p>Q4 – 2017</p>	<p>WGDisasters will develop a survey of potential institutional donors to study the possible inclusion of additional hazards and the sustainability of Recovery Observatory activities for 2016 onwards. The survey will commence after the triggering of the Recovery Observatory.</p> <p>The findings of this survey will be presented in a lessons learnt report to Plenary to enable timely consideration by CEOS Agencies.</p>

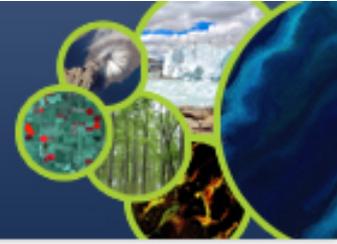


Objective/Deliverable	Projected Completion Date	Background Information
<p><b>DIS-13:</b> Report on follow-on actions to DRM Pilots</p>	<p>Q4 – 2017</p>	<p>The DRM Pilots are expected to provide important insights into where, and how, Earth observations from space can support the Disaster Risk Reduction community. A report will be prepared to summarise the learnings from these pilots, and to recommend pathways forward. In particular the report will focus on the elements necessary to the sustainability of operational solutions beyond 2017.</p>



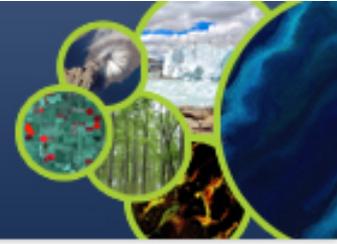


Objective/Deliverable	Projected Completion Date	Background Information
<p><b>DIS-15:</b> Support for GEO-DARMA identification of major hazards and DRR issues for each selected region</p>	<p>Q4 – 2017</p>	<p>During this period GEO-DARMA will seek independent identification of disaster risk management priorities at regional level (e.g. most prevalent hazards and most severe impact; hurdles in implementing effective DRR and resilience measures in the region) by authoritative Regional Institutions, in line with the priorities from the <i>Sendai Framework for Disaster Risk Reduction 2015-2030</i>.</p> <p>The accomplishment of the task will require the active support of major stakeholders in the field of disaster risk management at global, regional and national level on order to implement a series of pilot projects.</p>



## Selection of significant results by thematic teams:

- **Publication on web site. Each pilot lead to provide ½ page general public summary and then a link to more detailed information.**
- **Current target is 2 web stories a year (could do more).**
- **Publication of articles in specialized scientific journals.**
- **Presentations at international meetings.**
- **Glossy ‘pilot report’ highlighting pilot results to be published in April 2017, as a preparation of the pilot successor strategy for 2017.**

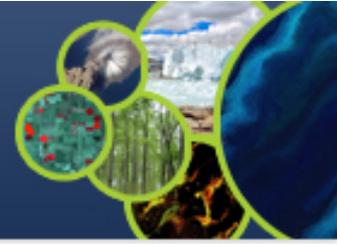


**Hardcopy, glossy document to be published by ESA by April 2017 for SIT-32**

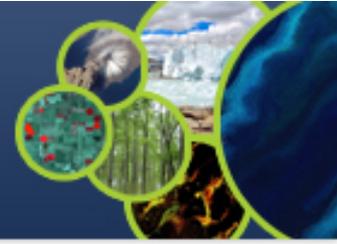
**Report will provide overview of DRM objectives, and then focus on success stories from within each thematic area**

**Report will document how specific initiatives from within each thematic area led to increased end user engagement in satellite-based disaster risk management**

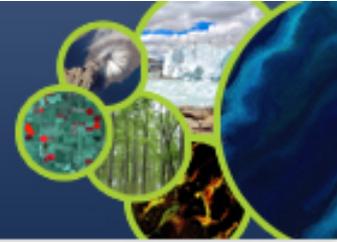
**Report includes end user testimonials on how satellite use changed their approach to DRM**



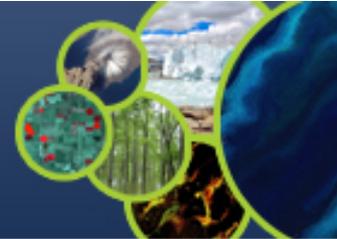
- 1. Accuracy of measurements of iGSRM region completed under the project; ability to use output of work for other regions (validation methodologies for example)**
- 2. Number of end users and practitioners using data exploitation platform; number and quality of peer reviewed papers based on work done on the platform;**
- 3. Rapid delivery of science products; linkages made between rapid delivery and advancement of seismic understanding of given area; uptake of products by end users.**



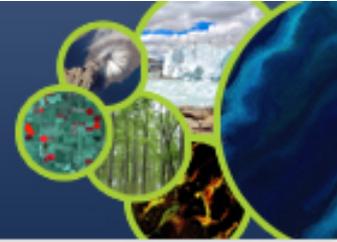
- 1. Identification of new areas of unrest through regional InSAR monitoring**
- 2. Uptake by Latin American volcano monitoring agencies of EO-based methodologies for tracking deformation, as well as gas, thermal, and ash emissions**
- 3. Utilization of EO data for operational monitoring by volcano observatories at Supersite targets**
- 4. Interest expressed by volcano community to broaden approaches adopted in pilot (especially regional monitoring and new methodologies for EO-based monitoring) through representative bodies such as IAVCEI, WOVO or GVM**



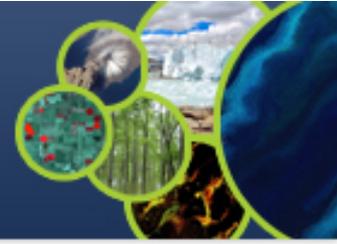
- 1. Increased use of global flood monitoring and modeling tools/sites (pilot will track metrics from 2014 to 2016, and categorize the user communities)**
- 2. Successful integration of archived and near-real time satellite EO into operational flood monitoring systems in the three pilot areas**
- 3. Quantitative evaluation of the effectiveness of modeling and observational products for warning and response for the three pilot areas**



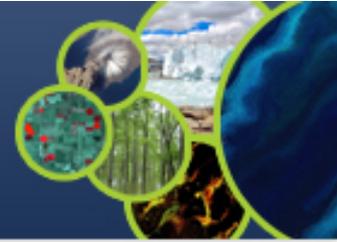
- **Several Pilot activities foreseen to end 2017**
- **Success does not necessarily imply sustainability: successful activities need to find ‘operational home’ outside pilots**
- **Successful activities might also be extended still as prototyping activities but in different frameworks such as GEO-DARMA**
- **Non-successful activities should be flagged and abandoned**
- **Formal report to be made to Plenary 2017, including web updates on status and successes of each pilot, and formal recommendations of WG Disasters on next steps (or not) for each pilot. Final report must be a complement to the Glossy Handbook), with CEOS Chair and members as audience (no formal print version). Summary results, lessons learned and recommended path forward.**



- **What elements of the pilot have proven to be successful, especially with regard to user interest and involvement? Are there specific elements that will be "missed" if stopped now? Which ones and why?**
- **Are there elements of the pilot that are likely to be supported (possibly financially) from outside CEOS and the pilot going forward beyond 2017? If yes, what organizations might be willing to contribute to a sustainability plan?**
- **In considering successes that should go forward, do these involve a transition from research to operations? Are there data issues involved?**
- **Do you consider that data for the sustainable elements should come from CEOS, or from commercial providers, or some mix?**



- **Who are the key partners for achieving sustainability?**
- **Who are the main clients and users of the sustainable services?**
- **What if any is the role for CEOS in the sustainable service?**
- **What are the largest threats to sustainability, and what are the consequences of not achieving a sustainable service as proposed?**
- **Does sustainability imply a simple continuation, or does it involve scaling something developed in the pilot to a global level, or other larger level? What is involved? Can you provide a description/vision of this larger system and what it entails from a cost perspective (using elements from the pilot as a the starting point for costing)?**



- **Articulate vision for scaling from regional (Latin America) to global monitoring (processes, mechanisms) – describe vision and explain philosophy, from broad area monitoring with widely available data to detailed monitoring triggered by detections of unrest**
- **Estimate data volumes by type**
- **Articulate benefits of global monitoring (the delta from today)**
- **Propose organisational structure based on regional responsibilities and global coordination**
- **Convene (at political level) a meeting to bring this into being...**
- **Define proposed on-going CEOS role and identify key partners and paths to partnership**

**Target 1** – using satellite EO during the crisis for rapid damage mapping:

- articulate relationship with Copernicus, Charter and Sentinel-Asia, and role if any of CEOS

**Target 2** – using satellite EO during the crisis to support operational seismology with advanced science products:

- define nature and content of rapid science product “service”, including role of partners for delivery, role of CEOS agencies, and relationship to parallel providers (e.g. Charter)

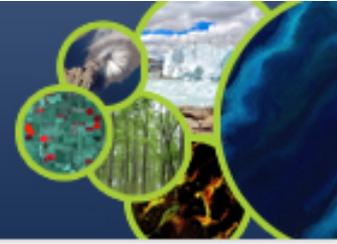
**Target 3** – using satellite EO after the crisis for better understanding of earthquakes:

- unclear how this is different from science work already performed by Universities through existing AOs with agencies...

**Target 4** – support recovery and reconstruction process:

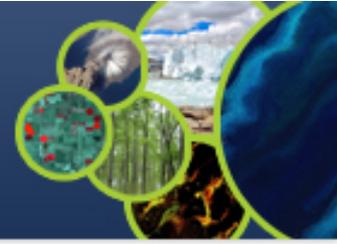
- refine content of “support” (science of recovery? environmental impact? logistical monitoring?) and coordinate with RO

**Propose action plan and estimate data volumes for each target**



- **Technical success**
- **Engaged and committed users**
- **Applications ready to roll out with API services**
- **But... challenges:**
  - **Data access/distribution issues**
  - **Large number of regional /national users without clear international community – coordination difficulties**
  - **Dichotomy between global and regional approaches – global is too coarse and regional is too data and resource intensive**





- **Articulate vision for flood monitoring around the world integrating global and regional elements (processes, mechanisms) – What do we keep? What will we do? How will it work? Describing a vision that scales monitoring from regional to global is critical**
- **Estimate data volumes and other resources necessary to deliver**
- **Reiterate benefits of monitoring based on user feedback**
- **Propose delivery mechanisms based on national and regional structures and needs**
- **Coordinate with other flood initiatives such as GEO Flood Risk Monitoring, Global Flood Partnership, etc**
- **Explain difference between new vision and previous pilot activities**
- **Define proposed on-going CEOS role and identify key partners**