# MoM CEOS Working Group on Disasters Meeting # 5

*Final Version as of 26 April, 2016*

**Participants:**

Gerald Bawden (NASA), Patrice Benarroche (CNES), Michael Bock (DLR), Stephane Chalifoux (CSA, WG Chair), Jens Danzeglocke (DLR), Andrew Eddy (Athena Global, Secretary, CSA consultant), David Green (NASA), Steven Hosford (CNES), Maike Gerads (DLR), Tobias Gies (DLR), Michio Ito (JAXA), Brenda Jones (USGS), Bob Kuligowski (NOAA), Ziyang Li (AOE), Patrick Matgen (LIST), Dorella Papadopoulou (Argans, ESA consultant), Ivan Petiteville (ESA), Mike Poland (USGS), Joachim Post (DLR/UNOOSA), Catherine Proy (CNES), Sigrid Roessner (German Research Centre for Geosciences GFZ), Stefano Salvi (INGV), Kerry Sawyer (GEO Disasters Coordinator), Klaus Schmidt (DLR), Francoise Villette (EC), Simona Zoffoli (ASI, WG Vice-Chair), Lorant Czaran (UNOOSA), Zeng-Guang Zhou (AOE). By phone: Tahir Akbar (GFDRR), Philippe Bally (ESA), Nathan Clark (University of Copenhagen), Stu Frye (NASA), Dalia Kirschbaum (NASA), Ayaz Parvez (World Bank), Keiko Saito (GFDRR).

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| 09:30 | **Opening and welcome**<br><br>**Tour de table**<br><br>**Logistics** | Klaus Schmidt – (CEOS principal, DLR)<br><br><br><br>Stéphane Chalifoux, Simona Zoffoli |

The meeting began at 9:30. Klaus Schmidt, deputy head of EO at DLR Space Administration and CEOS principal for DLR welcomed the participants. He felt the large group shows engagement in the working group. DLR has been a CEOS member since 1986. They are engaged in several groups, and disasters are a key sector for DLR. DLR has been a Charter member since 2010 and involved in GSNL since the beginning. DLR is also looking to national capacities for disaster applications: TSX, TanDEM-X, Rapid Eye, etc. Given the PPP approach under which national satellite missions were realised, DLR seeks a balanced engagement between public/scientific contributions and the commercial exploitation of the satellites. CEOS working groups can be fun, but it's hard work as well and DLR is proud to be part of it.

Stephane Chalifoux, WG Chair, offered his thanks to Jens and Maike for putting the meeting together. Ivan Petiteville added as ex-chair the appreciation the group has felt for DLR's strong contributions, including the data contributions of the last few years.

The group participants presented themselves to each other in a tour de table.

Logistics: a group photo will be taken at 10:45. A casual dinner will be held in the city centre Tuesday evening.

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| 09:50 | **Outstanding WG business :**<br><br>**MoM from telecon #13**<br><br>**Review of open actions (see notes)** | Andrew Eddy, Stéphane Chalifoux |

The minutes from telcon#13 were approved without change.

Andrew Eddy led a review of open actions. The table below presents the actions still open at the end of the meeting, as well as new actions stemming from the meeting. A separate table shows actions closed at the meeting.

List of **open** actions at end of meeting:

| Telcon 14 | Action | Actionee | Due | Status/ Comments |
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| **M5/1** | Leads of each thematic team to revisit membership of team, and contributions of Team members, with a view to updating thematic team membership, encouraging new members and finalizing the work programme to end 2017 | 4 thematic team leads and RO leads | Telcon 14 | Open |
| **M5/2** | Invite WG Disaster members to join a GEO-DARMA sub-group, with a view to developing the GEO-DARMA proposal under the GEO work programme; convene first meeting of sub-group | Ivan Petiteville | Telcon 14 | Open |
| **M5/3** | Prepare a short note on expectation of role of liaison with user communities and circulate to group by telcon 14 for further discussion on role of user liaison positions | Lorant Czaran | Telcon 14 | Open |
| **M5/4** | Describe responsibilities of GEO Disaster Coordinator and share with WG | Kerry Sawyer | Telcon 14 | Open |
| **M5/5** | Modify WG Disasters organigram graph to show GSNL | Stephane Chalifoux | Telcon 14 | Open |
| **M5/6** | Send information about landslide needs in countries where UNOSAT has had missions | Lorant Czaran | Telcon 14 | Open |
| **M5/7** | Consider adding Munt Cameroon to 2016 monitoring programme, in response to official request (made to UNOOSA) from Gvmt of Cameroun. | Mike Poland and Simona Zoffolli | Telcon 14 | Open |

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| **M5/8** | Bring up issue of data licensing for disasters with the ASI legal department | Simona Zoffoli | Telcon 14 | Open |
| **M5/9** | Convene a 1st telcon of the Sub-group on Data Licensing asking each agency to designate a representative of the group. | Steven Hosford | Telcon 14 | Open |
| **M5/10** | Develop a one pager what is being done in Malawi for the demonstrator, and describing what else might be contributed | Patrice Benarroche | Telcon 14 | Open |
| **M5/11** | Draft letter from DCT (co-sgined with SAC) asking UNAVCO to continue to host data on behalf of GSNL. | Stefano Salvi (draft); Brenda Jones (signature) | End of March | Open |
| **M5/12** | Explore whether Cotapaxi DEM could be shared – a few km by a few km. | Jens Danzeglocke | Telcon 14 | Open |
| **M5/13** | Circulate a template for end 2017 reporting so that pilot teams can prepare | Andrew Eddy | Telcon 14 | Open |
| **M5/14** | Develop draft list of questions to be addressed in the sustainability strategy (part of the evaluation of pilots' success) | Stephane Chalifoux and Andrew Eddy | Telcon 14 | Open |
| **M5/15** | Draft sustainability strategy for each thematic area activity; present for discussion at WGD#6; to plenary for information | Thematic pilot leads | WGD #6 | Open |
| **M5/16** | Provide information to Lorant Czaran on DRM activities for GGIM | Andrew Eddy | TBD | Open |
| **M5/17** | Develop outline of stories for Glossy Report; final text and some pictures | Each pilot lead and RO leads; | draft for Telcon 15; final text by end September | Open |
| **M5/18** | Submit modified UR event document to GFDRR base don WGD discussions; ask for list of registered attendees | Stephane Chalifoux | End of March | Open |
| **M5/19** | Inform WGD Chair of publications and outreach activities | Each pilot lead | Once a month | Open |
| **M5/20** | Update website with: contacts for each pilot (Andrew Eddy); news item from WG (Bob Kuligowski). Provide statistics on site traffic (Stephane Chalifoux). | As described in action | Telcon 14 | Open |
| **T13/3** | Send an update note to WG Disasters on possible GEO-DARMA collaboration with GEO and UNOOSA after the UNISDR Science and Technology Conference on the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 | Ivan Petiteville | Telcon 14 | Open |
| **M4/1** | Lead drafting of article for EOS; circulate for comment | Ivan Petiteville and Mike | Telcon 14 | Open. 1st draft expected for telcon 14. |

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| **M4/11** | All agencies with commercial partners to document in a short statement the conditions for accessing data that was acquired previously by a commercial partner and update the DAP accordingly. | All agencies; Brenda (for DAP update). | Telcon 14 | Open |
| **M4/14** | Request from NASA JPL/USGS a lessons learned report on what worked and what didn't in Nepal, with a particular focus on user uptake of products, including an inventory of partners and where things worked and didn't | David Green | Telcon 14 | Open (Gerald Bawden will request feedback) |
| **M4/22** | Provide a written report of the INGV study on megacities, clearly showing who is acquiring what over which cities and make recommendations on continuity and on gaps that should be filled. | Stefano Salvi | Telcon 14 | Open |
| **M4/24** | Write up elements of NASA GNSS work for possible inclusion in GEO-DARMA | David Green | WG Disasters #6 | Open |
| **M4/30** | Develop a printable hand-out from website materials to present the highlights of each pilot. | Each pilot lead | TBC | Open. Template was circulated. Each pilot to develop as part of website updates spring 2016. |
| **M3/13** | Develop template for common image/branding of GSNL websites (for various supersites) | S Salvi and Dom Berod | WGD #6 | Open. |
| **T9/3 and T10/3** | Identify hosting for Global Flood Dashboard; draft statement of requirement for consideration by ESA | Stu Frye, Bob Kuligowski | Telcon 14 | Open. Interested expressed from ESA through Hydro-TEP. Stu and Bob to draft requirements and submit to P Bally and Ben Koetz. Protype is on MatsuCloud. |

List of actions **closed** during the meeting:

| Code | Action | Actionee | Due | Status/ Comments |
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| **T13/1** | Friendly reminder to all pilots Leaders: Recall of the rules to request data under the Charter specifically ONLY in area of interest identified in | Brenda Jones | WGD #5 (Bonn, March 2016) | Closed |

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| | pilot project. Linked to M4/6 and M4/8 open actions. | | | |
| **T13/2** | Request feedback from leaders if they are interested-want to have more contacts? Linked with the closed M4/32 action. | Brenda Jones Francoise Villette | WGD #5 (Bonn, March 2016) | Closed |
| **T13/4** | Message to WGDisasters members to contribute and be part of a small team to implement the GEO-DARMA concept phase | Ivan Petiteville and Stéphane Chalifoux | WGD #5 (Bonn, March 2016) | Closed; merged with M5/2 |
| **M4/2** | Update the data tracking table from March | All agencies (Brenda Jones to solicit input) | WGD #5 (Bonn, March 2016) | Closed. Updates completed. |
| **M4/3** | Post the Data Access Procedures to the website. | Andrew Eddy | asap (waiting for feedback Brenda) | Closed. |
| **M4/6** | Provide feedback (from Charter) on flood pilot data requests made to Charter | Brenda Jones | WGD #5 (Bonn, March 2016) | Closed. Feedback provided and data flowing from requests. |
| **M4/8** | Document the coordination process with Charter in a clear document to see that this consultation actually takes place (e.g. Namibia example, or volcano pilot) | Brenda Jones, Stephane Chalifoux | WGD #5 (Bonn, March 2016) | Closed. No coordination beyond ex-post facto coordination for data access after activation. Brenda will add pilot lead names to people notified in case of Charter activation to facilitate information exchange. |
| **M4/9** | Add a column in data tracking table for event supersites | Brenda Jones | WGD #5 (Bonn, March 2016) | Closed. |
| **M4/10** | Mark up table and provide changes to Andrew, who will circulate to group for comment. Extend approach through similar table for volcanoes as well. | Stephane Chalifoux Brenda Jones, Stefano Salvi, Philippe Bally; Mike Poland and Simona Zoffoli | WGD #5 (Bonn, March 2016) | Closed. What to do with tables to be discussed in context of GSNL website updates, outside of WG Disasters. |
| **M4/12** | Create a data request log for DCT to track data requests put into DCT and monitor progress in treating the request. | Brenda Jones | WGD #5 (Bonn, March 2016) | Closed. Log has been created. |

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| **M4/13** | Develop new draft questionnaire to determine user feedback | Simona Zoffoli and Mike Poland | WGD #5 (Bonn, March 2016) | Closed. Questionnaire developed and feedback shared during Volcano Pilot report |
| **M4/15** | Showcase results of validation work under Seismic Pilot Obj C through the GEP. | Philippe Bally | WGD #5 (Bonn, March 2016) | Closed. Presented during Seismic Pilot report. |
| **M4/18** | Share Sentinel-Asia recovery experience with ROOT, and organize ROOT briefing for CEOS chair | M. Ito | WGD #5 (Bonn, March 2016) | Closed. Mr. Ito provided briefing during the RO session. |
| **M4/21** | Review SEANLab proposal and provide feedback | DCT members to Brenda | WGD #5 (Bonn, March 2016) | Closed. Proposal has been downscaled to supersite proposal. |
| **M4/23** | Work together to refine a new distance learning webinar proposal to go forward. | Brenda Jones and Hilcea Ferreira and Jane Olwoch | WGD #5 (Bonn, March 2016) | Closed. Brenda indicated a new approach is being pursued by the WGCapD. The WG Disasters remains available to provide support if requested. David Green indicated NASA had a lot of materials and webinar resources in this area. |
| **M4/25** | Add the Sendai context with more specifics in the GEO-DARMA document. | Ivan Petiteville | WGD #5 (Bonn, March 2016) | Closed. |
| **M4/26** | Improve the GEO DARMA slides – 20 minute compelling presentation | Ivan Petiteville and Andrew Eddy | WGD #5 (Bonn, March 2016) | Closed. |
| **M4/27** | Develop formal landslide pilot proposal for the plenary with the interested partners. | David Green and Fausto Guzetti and Dalia Kirschbaum | WGD #5 (Bonn, March 2016) | Closed. Pilot approved at Plenary. |
| **M4/28** | Get back to Flood Pilot on the nature of the Copernicus EMS RSS feed (is it possible to tag it geographically or is it generic?). | Francoise Villette | WGD #5 (Bonn, March 2016) | Closed. Yes, it can be tagged geographically. |
| **M4/31** | Prepare a table of contents for a detailed glossy book presenting the outputs and results of the first 3 pilots, by the end of 2016 at the latest. | Stephane Chalifoux | ASAP and before the WGD #5 (Bonn, March | Closed. Provided to meeting. |

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| **M4/33** | Add contact information and write to Kim Hollister about harmonisation of type fonts and clearer reading of the pages. | Andrew Eddy | WGD #5 (Bonn, March 2016) | Closed. Harmonisation issue is tied to viewing in different formats (iPad, etc.). Contact issue set aside for discussion during website session. Other elements superceded by M5/20. |
| **T8/3** | Establish global list of operational contacts for seismic team (Objective C) | Philippe Bally and Stefano Salvi and Dorella Papadopoulou | WGD #5 (Bonn, March 2016) | Closed. To be addressed in future through seismic pilot reporting. |
| **M3/10** | Follow up with World Bank to determine how Flood pilot data in Malawi and Mozambique were used and seek feedback for improvements | Stu Frye | WGD #5 (Bonn, March 2016) | Closed. Follow-up may tale place during RO Malawi activities. |
| **M2/1** | Identify candidates for Liaison to User Communities position | Ivan Petiteville and Dom Berod | TBD | Closed. Superceded by M5/3. |

There was a discussion between participants on the level of support for disasters available from the GEO Secretariat since the departure of Francesco Gaetani. Dominique Berod is involved in a lead role in

several other areas including water and cold climates, and has less than 5% of his time to dedicate to disasters. The group considered writing to the GEO Secretariat, but it was decided that they are aware of the issue and are trying to address it. A call for secondments has been released for the disaster/resilience sector.

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| 10:30 | **Meeting objectives** | Stéphane Chalifoux |

Stéphane presented on the meeting objectives. The pilots have reached a critical milestone in their delivery and we need to begin addressing the question of evaluation of the pilots and presentation of results, as well as the sustainability strategy within each thematic area. There will be a formal evaluation; input to SIT-31 is required – we can roll this up roll-up at the end of the meeting. Stephane asked if there are new activities that need approval at SIT? Are there new supersites? The new multi-hazard landslide pilot needs to be formally reviewed at SIT-31. We need to check on what is required from the last Plenary decision on the landslide pilot. The pilot was approved, but the Implementation Plan needs to be presented to the SIT for information. This Implementation Plan should include areas of focus and estimates of data requirements.

For all past SIT and plenary meetings, the presentations have been distributed. Each of the pilots should review who they are working with, and the roles of the partners, and share contacts, information.

**Action M5/1** Leads of each thematic team to revisit membership of team, and contributions of Team members, with a view to updating thematic team membership, encouraging new members and finalizing the work programme to end 2017.

The group also discussed GEO-DARMA as a possible structure to move forward with elements that worked well in the pilots. It was agreed that a GEO-DARMA sub-group should be formed.

**Action M5/2** Invite WG Disaster members to join a GEO-DARMA sub-group, with a view to developing the GEO-DARMA proposal under the GEO work programme; convene first meeting of sub-group.

The group discussed what the expectations of a liaison role were.

**Action M5/3** Lorant Czaran to prepare a short note on expectation of role of liaison with user communities – share and discuss – include some users in the discussion

**Action M5/4** Kerry Sawyer to describe responsibilities of GEO Disaster Coordinator and share with WG.

Not all groups have liaison positions, but WGISS had one, and it has terms of reference. DLR questioned whether we need a specific liaison with the user communities. The chairs, pilot leads, and secretary do this anyway. Perhaps when GEO-DARMA starts up this could be revisited. There are many user communities. It is difficult to find a single organisation that is representative of all of them… The interface needs to be assured at level of each pilot perhaps. Maybe we do not need an umbrella person representing all the user communities. INGV agreed. UN-SPIDER brings some of its approach to the

group. For the time being, perhaps we can leave the user communities liaison empty? Maybe this is a small committee, instead of a person, and they have an action to track partnership and stakeholder participation. They can ensure linkages to other working groups within CEOS and outside CEOS as well. This can be useful for the implementation of the Sendai Framework as well… Maybe it's two or three people who have this responsibility.

Pilots have driven the form of the WG. Is there a wider role of sharing in the international community? How are other issues dealt with? Where are the supersites? DLR felt that GSNL needs to be on the slide. They are, but not in a clear and compelling format. It goes through the DCT. What will the WG Disasters be in two years? The scope of the WG Disasters is more than providing data. The WG demonstrates use, has activities that showcase what we can do with data. There is a role of group with regard to open data sharing… We need to increase visibility of GSNL in graph.

**Action M5/5** Modify graph to better show GSNL

Pilots were pulled together to show visibility at Sendai and beyond. We've achieved some of our goals in this respect. How much does recent availability of Sentinel-1 affect the game? Monitoring is often neglected… The SDCG (Space Data Coordination Group) is going through a similar process. The same comments are on the table. Sentinel 1 and 2 are game changers and we need to re-think how we as agencies are involved. We need to demonstrate value and find partnerships with commercial providers. There is no commercial market for disasters, but there may be money from governments to help this happen. The commercial sector is also a solution provider, not just a data supplier. Translation into risk information is the critical added-value here.

From a structure of the WG point of view, Catherine informed the group that the World Bank/GFDRR had accepted to co-lead the ROOT. The WG members took note of the change and the WG slide will be updated.

If part of the pilots' role was to capture sustainability, what about recommendations for how we go forward? The business structure is changing, and we need to adapt to this. There is an onus to clearly put emphasis on sustainability over the next year or two. What we want to sustain is the use of EO, even outside of CEOS…not the pilots per se.

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| 11:15 | **Data use and the DRM Pilots**<br>• **Data Access:**<br>  o **Outstanding issues**<br>• **Data Tracking:**<br>  o **Status to date from agencies**<br>• **CEOS Pilots and Charter Data**<br>• **CEOS Pilots and GSNL** | Brenda Jones<br><br>All DCT members<br>Brenda Jones<br>Stefano Salvi |

Brenda shared the EO data tracking table with the group.

CSA: Comments on Marmara site for RSAT-2: 121 images in quota but no request for data as of yet. Concern was expressed.

DLR: Increasing amount of TSX data is exploited for the volcano pilot. Some issues under Objective C of the seismic pilot: the series of data acquisitions started by DLR was broken, because the PI did not take over the account created, and now there is no continuity. Looking at the Supersites, some of them order a lot of TSX data (e.g. Iceland, Marmara), others do not really use the quota provided. In the case of the Hawaii Supersite, the reason seems to be a situation of permanent conflicts with acquisitions for the global DEM.

ESA: no issues. Can ESA report the number of images used by the pilots? For Sentinel-1 for example? No because of the open ESA data policies allow any user to freely download most of the Sentinel data, nominally with no restrictions. But image use is tracked in pilot reports.

JAXA: Update not provided by JAXA. Must be done by users because they download directly. Flood and Seismic pilot should also provide data.

Brenda indicated she will solicit input from pilot leads as well.

ASI: increased use from seismic pilot. Request received for flood pilot out side area of interest but it was delivered. The GEP is being used to share data. The data available in GEP will be increased. When ASI receives requests from outside area they need to ask for a specific approval. Data may be provided late… ASI is waiting for feedback on two Ecuadorian volcanoes – report required. Difficult to extend the data quota without further information on results.

CNES: happy to announce that agreement to provide Pleiades data has been finalized. Next step is to be signed by CNES and Airbus. We've never been so close to having it signed. The process can be updated in the DAP to show that there is an agreement to signed between CNES and the lab and then data can flow. In the next three months, there is a strong desire to show results – data, products, usage… There is value in the data whether it is for DEMs or whatever – interest in pushing on in the next three months. For SPOT data there is still the SPOIT World Heritage programme for 1A data. Many acquisitions in the Caribbean. Plan is to go to 1C (ortho-rectified). No timeline for moving to 1c, but it can be done on an ad hoc basis. Eventually all data will be processed and put on website (currently only data over France).

What is the methodology for people to be aware that data is available? The pilots should be communicating to their users/experts that data is available…

Charter and Pilots: data now flowing

For landslide pilot, it should be clear how to contribute, what we sign on for… These issues (goals, AOIs, data needs, etc.) need to be addressed in the landslide pilot Implementation Plan.

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| 14:00 | **Landslide**<br>• **Overall Pilot Status (by co-leads)** | David Green, Fausto Guzzetti (remote), Dalia Kirschbaum (remote), Jonathan Godt (remote) |
| | • **Survey results (overview from lead)** | Co-leads and users *(remote participation can be arranged)* |
| | • **Landslide detection (CAS) (10 minutes)** | Zeng-Guang Zhou (CAS) |
| | • **Landslide detection (GFZ) (10 minutes)** | Sigrid Roessner (GFZ) |
| | • **Data provision: Tour de table of EO data providers agency by agency (each DCT member)** | All DCT Members |

Dalia Kirschbaum presented the landslide proposal presentation. Dalia gave a status update on the scoping of the landslide activity. She invited other pilot leads in particular to provide comments on the proposed structure. The pilot aims to improve information to take actionable decisions. 2007 to 2013 landslides globally shown (rainfall triggered landslides that resulted in fatalities). Goal to better understand landslide hazard. End users at global scale. Two goals were put forward but there is openness to feedback from the group. See slides for objectives and deliverables.

The pilot is not proposing a global land pilot but will propose regions. April 20 mtg planned at EGU. Fausto Guzetti is withdrawing as a co-lead for personal reasons. The group is seeking new co-leads. David made the connection with the sustainability discussion… Survey with 28 respondents, a large number from China. What areas of interest? Who are the users? What data do we need?, etc. 50 members of which about 35 have been active. Many different roles of potential users. All different types of imagery, including satellite and airborne, SAR and lidar. UN-SPIDER's contribution could be to document when they have come across landslide related needs in their national missions. Ivan also mentioned UNESCAP as a good source of user needs for landslides in SE Asia. Francoise sent some information to Ivan on the landslide research project which was also circulated to the team leads.

**Action M5/6** Lorant Czaran to send info about landslide needs in countries where they have had missions

Dalia has a running list of pilot names/emails . The pilot requested to have formal representation from each of the other pilots. Objective C requires input from other pilots, or it cannot be done. There was

consensus that objective C is really a modus operandi as opposed to an objective. Consensus on deleting objective C.

Consider methods for sharing data across pilots for multi-hazard events. Good for co-leads to talk about better data coordination. DLR suggested sharing areas of interest with other pilots, to facilitate coordination. Can you check out existing pilot areas?

A couple of elements were retained for proposed areas: do we have groups doing research in these areas? Do the local communities have the ability to work with us? Different level of capacity, looking at geographies of other pilots, build on existing progress?

China presented its ArcSer system (Ziyang Li). System was introduced at last meeting. This system could be a concrete contribution to the work of the WG Disasters.

Ivan Petiteville asked what type of user input they received in the definition of the services. It was set up on an ad hoc basis. Now that it exists, the user feedback is more hazard information products would be required (as opposed to pure data).

Sigrid Roessner presented landslide related remote sensing e work conducted at the Remote Sensing Section of GFZ Potsdam. They combine methodological research with applied research, using both optical and SAR data. Radar measurements (InSAR) can reveal pre-cursors for larger mass movements. A sensible strategy uses different techniques in a complementary fashion. Satellite data can provide a comprehensive spatiotemporal picture, even looking back over time using the already archived data. In the future the combined use of Sentinel-1 and 2 can provide a huge step forward. Automatic landslide detection methods using optical data have been developed and applied at GFZ focussing on landslide-prone areas in Kyrgyzstan (Central Asia). These methods have also been tested for analysing the landslide situation after the 2015 Nepal earthquakes which have largely destabilized slopes leading to increased rates of mass wasting during the next years, especially in Monsoon seasons. The research experience at GFZ has shown that end users need to be involved at an early stage of the methodological developments to be part of a dialogue defining requirements and products.

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| 15:15 | **Floods**<br>• **Overall Pilot Status (by co-leads)**<br>• **Results of pilot work to date (overview from lead)**<br>• **Data use: presentation of projects from users, publications and conferences**<br>• **Data provision: Tour de table of EO data providers agency by agency (each DCT member)** | Bob Kuligowski, Stu Frye (remote)<br><br>Co-leads and users *(remote participation can be arranged)*<br><br>All DCT Members |

Bob Kuligowski presented the status of the flood pilot.

Use of diverse and extensive data sets going well. Recent agreement with Charter has helped to increase this volume of useful data. The Flood pilot reiterated their appreciation for the enhanced cooperation with the Charter.

To Francoise's question whether Sentinel-1 data was used, she got a positive reply and that the flood working group plans to use Sentinel-2 as well. She suggested that there could be interesting links to be made: the flood activations under Copernicus EMS, as well as the flood early warning system (EFAS and GloFAS). The Global Land Service within Copernicus may also be of relevant use. It looks at global land cover throughout the world and includes a soil water index and water bodies for systematic and regular earth covering.

Kerry asked how the new GEO work programme community activity, global flood risk monitoring, is this connected to Objective A of the Flood Pilot? This needs to be clarified. CA-28 might be closed in Work Programme, or perhaps the description of CA-27 might be expanded.

Andrew made the point that sustainability depends on linking the global system and regional/local systems, and coming up with a path forward. It was acknowledged that this should be a goal for the last 18 months of the pilot.

Lorant indicated that more information exchange is necessary for capacity building efforts. UN-SPIDER could co-fund if the event is known in advance.

There are growing opportunities for alignment with the NGO community in the flood area. Link between observing system and end users is improving. New evolution in data and modelling availability, including what we can automate that we could not three years ago. Also re-insurance community is coming to the table. The scalability issue is being pushed by the community very strongly. How do we reconcile the local and global scales. There is also a new role for academia in this area. The lessons learned and the trajectory of what we have identified should be captured by the end of the pilot. There are new ways of thinking in many areas, and the flood world is changing quickly. NASA wants to address integrated tools

on global and regional floods. The issues of latency and real time data access are also critical. The new adoption by the response agencies of SAR into flood arena is real. The organisations that used to barely use satellite data have become large users; they are investing in people with knowledge and expertise.

Francoise came back to the capacity building component. There is an EU delegation in almost every country in the world so good to contact them. Francoise can help to provide the contact. They may do flood monitoring for mitigation. They are there to help. They often do workshops and capacity building.

Can we make better use of CEOS website to promote some of these events and link to a calendar? Upcoming workshops, etc. The latest news on the CEOS homepage is a good tool to promote events as well, and is underused at this time.

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| 16:45 | **Volcanoes**<br>• **Overall Pilot Status (by co-leads)**<br>• **Results of pilot work to date (overview from lead)**<br>• **Data use: presentation of projects from users, publications and conferences**<br>• **Data provision: Tour de table of EO data providers agency by agency (each DCT member)** | Simona Zoffoli, Mike Poland<br><br>Co-leads and users *(remote participation can be arranged)*<br><br>All DCT Members |

Mike Poland gave a summary of the volcano pilot status.

The pilot is using InSAR in a detection mode as opposed to after the fact is a promising future application, though still not well developed… The Fogo eruption has served as a demonstrator for the Objective C work as they await a major eruption; key data sets have been shared with scientists on the ground who worked with civil protection. The pilot has shown, especially in South America through Objective A, that sometimes the remote sensing data can verify that a station is reporting well, or not reporting well. This is a good validation mechanism. NOAA changed some algorithms for sensitivity of ash detection based on pilot SAR data… This demonstrates that the ash component is also integrated in the work of the pilot. At Reventador, only SAR data allows to calculate effusion rates, which is the key data set to determine risk of future activity/eruptions.

For the user feedback questionnaires, a new approach has been adopted. Instead of sending out the questionnaire, it has become a template guide for conversations with volcano observatories, using the phone or in person. This has greatly increased the response rate. Interviews were conducted in six countries. There are a few common threads…They would love to have data as Google Earth or ArcGIS

files. They would like more frequent data, and data quickly – timeliness. They would like to integrate the data in a standard report (weekly reports on volcano activity). They would like graduate level training for students. Peru is a good example of how remote sensing data are used and what is needed in the future.

With regard to the key objectives – achieve monitoring – the pilot is closing in but not there yet. Students can demonstrate feasibility, but are not a long term solution for product generation. On the data side, Sentinel-1 is great, but L-band is necessary in many cases. In the central Andes, C-band works very well, but not true in Northern or Southern Andes because of vegetation…. Using wide swaths, we can image most of the Holocene volcanoes… Sustained service for Latin America could be achieved as an add-on to the pilot, using students, etc… challenging, not ideal, but doable. Matt Pritchard's proposal to NASA has been accepted so that we can go forward for several years…

Scaled approach for global monitoring? What about considering risk as part of the prioritisation process? Ground exposure, air travel, etc? Big project…. But could be done.

TSX is taskable for the pilot, so that's why the background mission comes up with regard to this satellite. The pilot team wonders how to document the long time series to ensure they aren't interrupted…

UNOOSA requested that the pilot add Mount Cameroon to the 2016 monitoring. There has been an official request from the Government of Cameroon to UNOOSA to do this…

**Action M5/7** Consider adding Mount Cameroun to volcano monitoring for 2016

## DAY 2 (Wednesday, 9 March)

| | | |
|---|---|---|
| 09:30 | **Seismic Hazards**<br>• **Overall Pilot Status (by co-leads)**<br>• **Results of pilot work to date**<br>• **Data use: presentation of projects from users, publications and conferences**<br>• **Data provision: overview of data consumption; tour de table of EO data providers agency by agency (each DCT member)** | Stefano Salvi, Theodora Papadopoulou, Philippe Bally (remote),<br><br>Co-leads and users *(remote participation can be arranged)*<br><br>All DCT Members |

Dorella presented the Seismic Pilot status. InSAR based velocity measurements are progressing well. Validation completed in California. On going work in Turkey and Japan. Major seismic events took place in Nepal, Chile, and Greece.

Objective A – North Anatolian Fault, Septentrional Fault in Haiti, Chaman Fault in Afghanistan/Pakistan.

DLR – there had been no requests for Obj A data using TSX, and now substantial volumes being requested. To be addressed offline. The pilot team questioned that there had been no initial request, although the request did take time to come together.

CNES – existing request is for 1 Pleiades image and SPOT 6/7. There is no SPOT 6/7 quota for the pilots, but the Pleiades image can be obtained.

Lekfkada – moderate earthquake off the island. Coseismic CSK data. This is the same fault system as the Cephalonia earthquake in 2014. There will likely be more activity here…

There will be an integration of GPOD (Grid Processing on Demand) and GEP in April 2016.

Stephane asked if it would be useful to have a half day webinar. Currently they are working with science users and there is no need for a webinar. The work on the operational list is continuing, and we expect that Italy, France, Greece will come on as end users. However, the webinar is not the right venue. Perhaps a small workshop for end users to become more familiar with the GEP. The workshop could show the connection between the scientific results and decisions. Currently, there are no end users. The science users are actually generating interferograms. For data accounting, it is difficult without user feedback. For JAXA/ALOS-2, it is easy as only Philippe and Dorella are downloading data, but for CSK for example it is difficult to account for data usage.

Ivan asked what evidence we have of what science users do with the GEP. Besides scientific publications, are there any concrete outcomes with civil protection agencies? Stefano Salvi indicated that for Objective A, there is no end user beyond the science community. There is no contact with end users in China or Pakistan. However, the situation is different for Obj C. For Cephalonia and Lefkada, results were provided to EPPO (and GSCP); they were not used during the emergency (because of time delays) but they have been used to improve the fault database and improve the seismic hazard maps. And these maps are used by the local authorities. The maps help to understand where the risk is and how to react in future for protection of public infrastructure, etc. The Obj C team hopes to have letters from the municipality and GSCP to explain how the data and results helped them. They may also provide information about the format of the information, or other requests.

It is critical to have a good relationship with end users for science data to be used properly. This is why when events happen at Permanent supersites, where good relationships between scientists and end users are already in place, scientific products generated during disaster response are rapidly assimilated into the management chain. For the Event supersites this may not work similarly well, if there is no collaboration framework already in place. The list of operational users aims to address this issue,

identifying points of contact among the users, who could be receiving the scientific products from the Supersite and/or Pilot communities.

Dorella provided a demonstration of the GEP.

ALOS-2 wideband swath images are 50 GB for each image. Viewing these images and a fortiori, processing the on the GEP (possible at next release), would be very useful. With regards to data policy for products, there is no policy to oblige the scientists to leave the products open. They can be either re-used or not according to the scientists' decision. It was asked if you can consult the users who performed an operation? We have a name, but not a contact. This could be added. With the GEP V2 to be released soon, you can upload local data which is not shared and then process. So it is possible to process without using GEP data.

Is it possible to request an extension of the data quota, and if we do, how do we do that? Do we go through a single agency, or the DCT? For DLR, they need a proposal saying how many data, what mode and what for… DLR cannot answer the Marmara data request issue without more detailed information.

It was asked what the formal procedure to request data for landslides would be. This follows the same procedure as the other pilots. The Implementation Plan must be developed, with an associated data quota, and then the requests are made through the DCT.

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| 11:00 | **Follow-on on GEO DARMA: status and concept phase** | Ivan Petiteville |

Ivan Petiteville presented the GEO-DARMA project. The project aims to build on strong partnerships with regional institutions, for an independent assessment of the Sendai Framework 2015-2030 priorities. Brenda asked how this would be different from Sentinel Asia in Asia. Sentinel-Asia is a key partner and relay, but the approach is different. Andrew indicated the very different approach which involves linking to existing programmatic opportunities. Sigrid supports the approach put forward by Andrew, it is key to be connected to the existing systems and real users and programmes.

Ivan invited people to join the new GEO-DARMA team, and an action on this has already been noted. Stephane asked (in relation to SIT-31) – will we present a few slides on this at SIT-31 – yes.

A participant asked 'what are the main criticalities or weaknesses in the project as put forward'? Ivan indicated he needed contractual support and a good team. The next challenge is to convince the regional institutions to join. Do we assume agencies will continue to contribute data through GEO-DARMA? There will likely be data contributions of some sort, but the exact contributions are still to be defined after the fields of actions are defined, in response to recommendations coming from the regional institutions at the end of the Concept Phase.

There were questions regarding the roles of the various agencies. The agencies provide data, but who adds the value? The users want value-added products, that are integrated into operational procedures that involve other types of data as well. There are stakeholders involved at various phases, and it is difficult to build the partnerships to do this… It is innovative but challenging. GEO-DARMA can build on the pilot reports and make something that integrates the best of what has come out of the pilots… Stefano suggests we focus more on the risk side rather than the hazard side. We need to have risk assessment – we need to deal with exposure and vulnerability. There is a role here for satellite data as well. Addressing risk brings us much closer to the end users. GEO-DARMA can take pilots from hazard to risk. Effective risk reduction is done at local scale, but there is a need for regional coordination. Scientists need to be motivated to contribute to the prototyping phase, and need some vision of how their contributions meet their own goals.

Joachim Post (DLR, currently seconded to UNOOSA) commented that the Sendai framework and the subsequent process of defining suitable indicators should be regarded. In addition, there are also numerous SDG-related indicators related to disaster risk. An idea was to define something like "Essential Risk Variables" following the established concept of ECVs.

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| 12:00 | **UN-SPIDER activities (UNOOSA)** | Lorant Czaran |

Lorant presented on UNOOSA, its mandate, its activities, etc. UN-SPIDER publishes Lessons learnt publications – one on Pakistan floods.

There are agreements in place for data access with Planet Labs and Google Skybox, Israel Space Agency discussions, DubaiSat… a number of discussions ongoing… UN-SPIDER and UNOOSA are eager and happy to contribute to the work of the CEOS WG Disasters, and will seek to find a complementary role for GEO-DARMA and the Global Partnership, to ensure the two work together.

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| 14:00 | **Recovery Observatory**<br>• **Status of RO and report on December working**<br>• **Initiation of recovery monitoring demonstration (Malawi)**<br>• **EO data licensing for disasters – progress and next steps**<br>• **Recovery input for UR Istanbul event**<br>• **Sustainability and next steps** | Steven Hosford, Catherine Proy, Andrew Eddy |

Catherine Proy, Patrice Benarroche, and Steven Hosford presented on the recovery Observatory. CNES was happy to welcome GFDRR (Joe Leitmann) as a co-chair for this activity, recognizing the key role users play within the team.

Significant progress has been made since the last meeting. A working session was held in Washingont DC and from this session the team adopted a new approach, with a view to establishing a demonstrator that can possibly become the RO, but in any event document the types of products the RO would undertake. An activity to identify a demonstrator was undertaken by the ROOT chairs and it is proposed that the group focus on Malawi as a target demonstrator. Discussions are about to begin with the Malawi Government to secure support for the activity. The plan is to have one demonstrator, over Malawi, which will either become the RO or validate the principle. Francoise asked what format the products would have – reports? Maps? The outputs will be data on the dot cloud… Ivan pointed out that as Malawi is affected by flooding every year, so we can measure progress, and this is positive. USGS indicated the decision to select Malawi should have been taken by the whole ROOT. Andrew responded that the proposal to work in Malawi was from the World Bank, based on their experience and the recovery projects underway, but that the decision was not taken and that this meeting of the ROOT, in the context of the WG, was to discuss that point. The formal discussions with the Government of Malawi could start in late March if the meeting today was favorable.

Steven put forward the vision for a CEOS team on licensing to address disaster licensing issues… Simona felt that this effort is one where CEOS could add value. The agencies should look at how to facilitate access to data together. ASI cannot commit without consulting the legal department but she can bring this request to the legal department to see if there is any interest in changing the approach.

**Action M5/8** Simona to bring up issue of data licensing for disasters with the ASI legal department

DLR said that licenses are as they are – we need to understand them, and we need to understand the laws in place as well, which in Germany deal mostly with recent data. Michael Bock (DLR) agreed that it would be interesting to discuss with commercial data providers, such as Airbus, together and ideally with a common position. CSA might support a Task Team on this. They are looking at RCM data licensing now. This would not apply to RSAT-2. For RSAT-2 there are two licenses, one government dedicated, one for other users… There are multiple licenses to be considered. JAXA indicated that ALOS-2 has a commercial provider so if they like it, it is okay. UNOOSA added that they would like the team to coordinate with the UN and they would like to share their experience. UNOOSA is doing this now and it would be good to work together on this ad have one voice on the terms. CNES indicated that this work is more on the license content, whereas UNOOSA is looking for free disaster data. It was unclear whether the activity should apply only to the RO, or address disasters more broadly. All the discussion with final users raises a broader issue, not just recovery. We need to address this in relation to disasters, not just RO – use, re-use, sharing, not for profit.

**Action M5/9** CNES to convene a 1st telcon of the Task team on Data Licensing asking each agency to designate a representative of the group.

The RO is being presented at UR 2016 in Istanbul and also in Prague at Living Planet 2016.

Francoise has some comments on the initiative. EMS has been approached and feels this can feed into this. Francoise feels this is the purpose of this group. This is an example of tapping into the development community. This is a good demonstration of reaching out to different communities than the ones we usually speak to. We have 'GMES and Africa' and have a framework with a whole Africa strategy. Disasters are at the forefront of this. If we go forward in Malawi, we should exchange on this. Is it possible to trigger EMS to do recovery mapping for Malawi? Perhaps. However risk and recovery mapping does not function over a long period, whereas the RO aims to address needs over 3 to 5 years.

The Charter received a presentation from CNES on addressing the gap between the 2 weeks to maximum 4 and 8 weeks of a Charter activation for post disaster needs assessment. CNES has an action within the Charter to consider how to address this and hopes that this will be addressed by the Charter in the future.

DLR was supportive of the Malawi proposal and indicated that the Global Urban Footprint could be probably contributed, and perhaps other things still to be explored.

**Action M/10** Draft one pager what is being done in Malawi, and what else might be contributed

Ayaz reminded the team that unless the Malawi Government provides its agreement, the ROOT cannot go forward. This approval will be sought shortly.

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| 16:00 | **Sentinel-Asia** | Michio Ito |

Presentation by Ito-san in response to M4 action on Sentinel-Asia activities for recovery.

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| 16:15 | **Supersites Initiative (GSNL)**<br>• **Overall status & presentation on GSNL**<br>• **Nepal Event Supersite**<br>**Southeast Asia Natural Laboratory proposal status** | Stefano Salvi |

Stefano Salvi presented on behalf of GSNL. He requested that Etna, Campi Flegrei and Marmara reports be presented end June instead of in April. If they still have quota remaining, this should be alright. Otherwise, there may be an interruption in data flow. They cannot present report at SIT-31, so this will be delayed to SIT-32 or the Plenary. For supersite 7, a letter needed to ask for results of first work for further quota.

SEANLab proposal has been reduced to a supersite and will be resubmitted soon to the SAC. Possible re-evaluation of the Natural Laboratory after 2 years, if successful. The San Andreas Fault proposal is still under development.

Do we want to have the data from Hawaii CSK on the UNAVCO site? If we want it there, the DCT need to send a letter asking that they keep the data there. Ivan pointed out that the issue is one for the science community, not for the agencies. The letter should come from GSNL. Stefano disagreed. The letter should be a joint letter form the DCT and GSNL.

**Action M5/11** Letter from DCT (with SAC) to be drafted asking UNAVCO to continue to host data on behalf of GSNL. Stefano to provide draft for signature by Brenda.

Stefano asked if we could envisage using the TanDEM-X DEM for supersites. It was suggested to try and progress step-by-step. Cotopaxi volcano, as part of the Ecuador supersite, could be a good AOI to start with, because it is a very limited area.

**Action M5/12** DLR to explore whether Cotopaxi DEM could be shared – a few km by a few km.

Can RSAT-2 data be on GEP? Probably yes but it must follow the license agreement to the letter. If there are problems that raise questions, please ask specifically.

The GSNL are a good chance to demonstrate that end users actually employ EO-based scientific products for hazard assessment or emergency response (situational awareness). We need to communicate this. Beyond the basic science generated in the Supersites, the community is able to generate scientific products to support operational needs, for the Risk Prevention and Response phases, and in some cases also for the Recovery phase.

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| 17:30 | **Copernicus and the Emergency Management Service** | Francoise Villette |

Francoise presented the Copernicus programme and its Emergency Management Service (EMS). The EMS offers both a rush/emergency response service, and a non-rush, “Risk & Recovery” service. Any authorised user may request an activation of the service. The service has been activated all over the world. The Risk & Recovery component has not so far been activated as much as the emergency response service, but is increasingly called upon. It is designed to address preparedness as well as recovery monitoring and risk assessment. Francoise presented the timelines for data access under both the Rapid and the Risk & Recovery services which provide value-added products (maps and analytical statistics). There was a question about whether the Risk & Recovery service could offer a complementary service to the RO, and Francoise indicated this needed to be examined further and highlighted the need for synergies and to avoid duplication. The timelines are different, but it is possible that a Risk & Recovery activation may be an early data set for the establishment of the RO, similar to the data collected over a Charter activation for example, which could serve as a baseline for the RO as well. Francoise explained that the Emergency service could be activated by members of the CEOS group via

authorised users and invited interested members to discuss with her. Further information available on www.emergency.copernicus.eu

## DAY 3 (Thursday, 10 March)

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| 9:30 | **Evaluation of pilot success/results – Sustainability strategy**<br>• **Handbook (hard copy) – SIT-32nd 2017**<br>• **Report (website) – Plenary 2017** | Andrew Eddy, Stéphane Chalifoux |

Stephane presented to the group the actions in the CEOS WorkPlan which relate to disasters. Andrew Eddy presented an overview of the evaluation criteria for the pilots, requesting comments from the pilot leads. The pilot leads requested a template for the reporting that would be requested of them in 2017.

**Action M5/13** Circulate a template for end 2017 reporting so that pilot teams can prepare

There was a discussion on measuring performance. It was felt that the 3rd bullet in the PPT was misleading and should be changed. The semestrial reports are an important part of the pilot reporting, and they should continue to be completed, and they should be made available to the group, if not on the website. Although they show problems as well as success, they are an excellent summary of progress. Reporting is a key element for sustainability. The report must evaluate what worked and what did not, and what elements are likely to be sustainable, putting forward a vision for how they might be sustained either in a CEOS context or outside of CEOS. It was pointed out that the objective is sustained EO use, whether that is through CEOS, or GEO, or directly with users through science data or commercial data supporting a mature application in a thematic area. The pilot leads requested that Andrew and Stephane provide a list of the key questions to be addressed in the sustainability strategy for their consideration.

**Action M5/14** Develop draft list of questions to be addressed in the sustainability strategy

**Action M5/15** Draft sustainability strategy for each thematic area activity; present for discussion at WGD#6; status to 2016 Plenary for information

There was a discussion on the apparent but fallacious opposition of science and operations. It was pointed out that there can be operational science as well. The volcano pilot and objective C of the seismic pilot were good examples of this, because scientific work will always be needed to bring such methods into operational use. Not all operations should be deemed be commercial. In this context, there may be some activities that are sustainable as science, and 2017 reporting should not shy away from science successes.

Lorant Czaran indicated that reporting on the pilots is useful outside the CEOS context as well. He requested that the pilots provide information for the upcoming GGIM (Global Geoscience Initiative Meeting).

**Action M5/16** Provide information to Lorant Czaran on DRM activities for GGIM

There are in fact two separate reporting exercises that will be undertaken. The formal reporting is through the report to the Plenary at the end of the pilots in late 2017 (18 October). However, already in 2016, we need to work on the Glossy Report that will showcase what has been achieved. Stephane and Andrew presented a proposed Table of Contents for this report and sought feedback on the contents and the timeline put forward. The Table of Contents calls for a section on stories to be shared by the users. The pilot leads need to work on developing the content of the stories, together with their users. The main inputs (final text, pictures, etc, movies) must be collected by end of September at the latest, as there is a four-month production delay. There will be both a print version and amulet-media version, meaning we can present video and other visual materials interactively.

**Action M5/17** Develop outline of stories for Glossy Report; final text and some pictures

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| 10:45 | **Communication and outreach activities:**<br>• **2016 Understanding Risk Forum and Partnership**<br>• **Other…** | Stéphane Chalifoux, Pilot leads and all members |

Stephane presented the vision for the CEOS session at UR 2016. The session will highlight the success of the pilots and the RO (through dedicated presentations of 15 minutes each), and will end with a panel discussion of about 45 minutes. There should be presentations from each of the three existing thematic pilots and the RO as a minimum. The group supported the approach of shorter presentations and a panel discussion. Andrew will prepare some questions in advance to ensure the panel is well prompted. Stephane will update the UR description and notify the organisers of the changes to the text/speakers, and ask for a list of the registered attendees.

**Action M5/18** Submit modified UR event document to GFDRR base don WGD discussions; ask for list of registered attendees

Stephane asked to be informed once monthly by the pilot leads of any outreach activities or publications going forward.

**Action M5/19** Inform WGD Chair of publications and outreach activities

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| 11:15 | **CEOS WG Disaster website – review of updates and new materials** | Stéphane Chalifoux, Andrew Eddy, Pilot leads |

The problems with regard to font seem to be tied to different viewing platforms, and are true for all of the CEOS website, not just the disasters pages. There is no way to address this at the WG level.

**Action M5/20** Update website with: contacts for each pilot (Andrew Eddy); news item from WG (Bob Kuligowski). Provide statistics on site traffic (Stephane Chalifoux).

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| 11:45 | **News from agencies** | All members |

Each agency present provided a short update of activities and status of their projects. Francoise indicated that the launch of Sentinel-1B was scheduled for April 2016. Stephane indicated that RCM was on track for a triple satellite launch in 2018. China's CAS indicated that a published project group was recently created for 5 years. The information is in Chinese, but Ziyang offered to send a short paragraph summarising the activity to the group. Gerald indicated that ASF would be the distributor of NISAR data, the 20920 ISRO/NASA L and S-band SAR mission. SWOT is also on track, it will offer global surface water topography at 500m resolution over the ocean, and collect lake height for lakes 1 ha or more every 21 days, as well as river conditions at 100m (target 50m) resolution.

The September meeting will be 6-9 September in Vancouver, Washington, USA. The 9th will be a field trip to Mt St-Helens. The meeting may start at noon on the 6th to facilitate travel. Travel arrangements should be made to Portland, Oregon, not to Vancouver, Canada.

Annex 1 – Meeting Agenda

## DAY 1 (Tuesday, 8 March)

| | | |
|---|---|---|
| 09:30 | **Opening and welcome** | Klaus Schmidt – (CEOS principal, DLR)<br><br>Stéphane Chalifoux, Simona Zoffoli |
| 09:35 | **Tour de table of participants** | All |
| 09:45 | **Logistics** | Jens Danzeglocke, Maike Gerads |
| 09:50 | **Outstanding WG business :**<br><br>**MoM from telecon #13**<br><br>**Review of open actions** | Andrew Eddy, Stéphane Chalifoux |
| 10:30 | **Meeting objectives** | Stéphane Chalifoux |
| 10:45 | *Group Photo* | |
| 10:55 | *Coffee Break* | |
| 11:15 | **Data use and the DRM Pilots**<br>• **Data Access:**<br>o **Outstanding issues**<br>• **Data Tracking:** | Brenda Jones<br><br>All DCT members<br>Brenda Jones |

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| | ○ **Status to date from agencies**<br>• **CEOS Pilots and Charter Data**<br>• **CEOS Pilots and GSNL** | Stefano Salvi |
| 13:00 | *Lunch Break* | |
| | **CEOS DRM Pilots** | |
| 14:00 | **Landslide**<br>• **Overall Pilot Status (by co-leads)**<br>• **Survey results (overview from lead)**<br>• **Landslide detection (CAS) (10 minutes)**<br>• **Landslide detection (GFZ) (10 minutes)**<br>• **Data provision: Tour de table of EO data providers agency by agency (each DCT member)** | David Green, Fausto Guzzetti (remote), Dalia Kirschbaum (remote), Jonathan Godt (remote)<br>Co-leads and users *(remote participation can be arranged)*<br>Zeng-Guang Zhou (CAS)<br>Sigrid Roessner (GFZ)<br>All DCT Members |
| 15:15 | **Floods**<br>• **Overall Pilot Status (by co-leads)**<br>• **Results of pilot work to date (overview from lead)**<br>• **Data use: presentation of projects from users, publications and conferences**<br>• **Data provision: Tour de table of EO data providers agency by agency (each DCT member)** | Bob Kuligowski, Stu Frye (remote)<br>Co-leads and users *(remote participation can be arranged)*<br>All DCT Members |
| 16:30 | *Coffee Break* | |
| 16:45 | **Volcanoes**<br>• **Overall Pilot Status (by co-leads)**<br>• **Results of pilot work to date (overview from lead)**<br>• **Data use: presentation of projects from users, publications and conferences**<br>• **Data provision: Tour de table of EO** | Simona Zoffoli, Mike Poland<br>Co-leads and users *(remote participation can be arranged)* |

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| | **data providers agency by agency (each DCT member)** | All DCT Members |
| 18:00 | *ADJOURN* | |
| 20:00 | *Hosted casual dinner in the Brewery House "Bönnsch" in Bonn City Center (see http://www.boennsch.de).* | |

## DAY 2 (Wednesday, 9 March)

| | | |
|---|---|---|
| 09:30 | **Seismic Hazards**<br>• **Overall Pilot Status (by co-leads)**<br>• **Results of pilot work to date**<br>• **Data use: presentation of projects from users, publications and conferences**<br>• **Data provision: overview of data consumption; tour de table of EO data providers agency by agency (each DCT member)** | Stefano Salvi, Theodora Papadopoulou, Philippe Bally (remote)<br><br>Co-leads and users *(remote participation can be arranged)*<br><br>All DCT Members |
| 10:45 | *Coffee Break* | |
| 11:00 | **Follow-on on GEO DARMA: status and concept phase** | Ivan Petiteville, Dominic Berod |
| 12:00 | **UN-SPIDER activities (UNOOSA)** | Lorant Czaran |
| 12:30 | **Open session** | Free |
| 13:00 | *Lunch Break* | |
| 14:00 | **Recovery Observatory**<br>• **Status of RO and report on December working**<br>• **Initiation of recovery monitoring demonstration (Malawi)**<br>• **EO data licensing for disasters – progress and next steps**<br>• **Recovery input for UR Istanbul event**<br>• **Sustainability and next steps** | Steven Hosford, Catherine Proy, Andrew Eddy |
| 16:00 | *Coffee Break* | |
| 16:15 | **Supersites Initiative (GSNL)**<br>• **Overall status & presentation on GSNL**<br>• **Nepal Event Supersite**<br>**Southeast Asia Natural Laboratory proposal status** | Stefano Salvi |
| 17:30 | **Presentation on Copernicus and the Emergency Management Service** | Francoise Villette |

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| 18:00 | *ADJOURN* | |

## DAY 3 (Thursday, 10 March)

| | | |
|---|---|---|
| 9:30 | **Evaluation of pilot success/results – Sustainability strategy**<br>• **Handbook (hard copy) – SIT-32nd 2017**<br>• **Report (website) – Plenary 2017** | Andrew Eddy, Stéphane Chalifoux |
| 10:30 | *Coffee Break* | |
| 10:45 | **Communication and outreach activities:**<br>• **2016 Understanding Risk Forum and Partnership**<br>• **Other…** | Stéphane Chalifoux, Pilot leads and all members |
| 11:15 | **CEOS WG Disaster website – review of updates and new materials** | Stéphane Chalifoux, Andrew Eddy, Pilot leads |
| 11:45 | **News from agencies** | All members |
| 12:00 | *END of MEETING* | |