

## CEOS SEC Report

**Entity:** CEO Team

**Prepared By:** Steven Hosford (CEO)

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### **Updates on issues raised during the last CEOS SEC teleconference**

**(Dot points)**

- Need to clarify way forward with SIT VC on email informing OCR-VC and LSI-VC of the “CEOS Feasibility Study Aquatic Ecosystem EO System Report “
- Proposed changes to use of CEOS Workplan action tracking tool – discussions opened with CEOS SEO
- CEOS Mailing lists. Much larger job than initially anticipated. Exchanges with SIT Chair lead to us proposing an identified “list manager” for each email list (several will be managed by CEO). It will be their responsibility to maintain lists up-to-date when personnel changes occur. List manager will typically be WG or AHT Chairs.
- Logistics for the organisation of “Freshwater from space workshop” progressing slowly. Dates narrowed to 3 weeks in May (14<sup>th</sup>, 21<sup>st</sup>, 28<sup>th</sup>). We are awaiting confirmation from Netherlands Space Office on hosting possibilities in this period before confirming dates. A back-up date has been confirmed at ESA/ESTEC for 16<sup>th</sup>-17<sup>th</sup> May if NSO is unable to confirm hosting.

### **Issues requiring discussion/decision during current CEOS SEC teleconference**

**(Dot points)**

- FDA leadership. USGS (Steve Labahn?) to report on reconfiguring of FDA/MRI participation. Avenues to be investigated to maintain momentum on this subject.
- AOB – invited participation of Juliette Lambin during AOB to discuss Space Climate Observatory agreed by COM

### **Other highlights, activities, actions, projects, collaborations**

**(Dot points, e.g. outputs, new products, papers, technical reports, media, pipeline and new projects, interactions, project status changes, new opportunities)**

- N/A

### **Upcoming meetings or events**

**(Dot points, e.g. meetings, conferences of relevance, visits)**

- N/A

### **Attachments**

**(e.g. pictures, figures, graphs, links – for use in overall CEOS reporting and as website resources etc.)**

# CEOS SEC Report

**Entity:** SIT Chair Team

**Prepared By:** Kerry Sawyer (NOAA)

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## **Updates on issues raised during the last CEOS SEC teleconference**

### **(Dot points)**

- 231-02 closed: CEOS-GEO Bilateral Meeting will be held on 30 Jan 18, with half-day working session on afternoon of 29<sup>th</sup>, in Geneva.

## **Issues requiring discussion/decision during current CEOS SEC teleconference**

### **(Dot points)**

- SIT Chair kindly requests CEOS SEC approval for the SIT Chair (or designated representative) to make decisions in GEO Programme Board “at SIT Chair’s discretion” to alleviate any unnecessary burdens on SEC to decisions that must be made in the proceedings of a meeting. This is akin to CEOS leaders being granted latitude to intervene on behalf of CEOS without coordinating messages due to the inability to do so during dynamic structure of a meeting.
- GEO-C Steering Committee representation – propose Steve for Primary and Pascal Lecomte as Alternate (and most likely to participate in meetings). First meeting scheduled for 2 Feb in Geneva.

## **Other highlights, activities, actions, projects, collaborations**

**(Dot points, e.g. outputs, new products, papers, technical reports, media, pipeline and new projects, interactions, project status changes, new opportunities)**

- N/A

## **Upcoming meetings or events**

**(Dot points, e.g. meetings, conferences of relevance, visits)**

- CEOS-GEO Bilateral Meeting will be held 30 Jan 18, with half-day working session on 29 Jan in Geneva, in conjunction with the GEO Programme Board Meeting. CEO and SIT Chair Team are working with GEO Secretariat to prepare draft agenda. Objective of the meeting is to identify synergies in CEOS and GEO projects and to discuss cooperation for the coming year
- SIT-33 Meeting will be 23-25 April 18 in Boulder, Colorado. Save-the-date message was shared with CEOS community on 11 Dec 17.

## **Attachments**

**(e.g. pictures, figures, graphs, links – for use in overall CEOS reporting and as website resources etc.)**

## CEOS SEC Report

**Entity:** GEO SEC

**Prepared By:** Akiko Noda (GEO Secretariat)

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### **Updates on issues raised during the last CEOS SEC teleconference**

**(Dot points)**

- Regarding details of Climate Show 2018, GEO Sec sent an email to CEOS contact person on 6 Oct and showed the organizer's website, below. GEO is now offered to organize a session.  
<http://www.climateshow.ch/en/show/details>

### **Issues requiring discussion/decision during current CEOS SEC teleconference**

**(Dot points)**

### **Other highlights, activities, actions, projects, collaborations**

**(Dot points, e.g. outputs, new products, papers, technical reports, media, pipeline and new projects, interactions, project status changes, new opportunities)**

- GEO sent invitation letter for GEO-C and GHG Initiative Steering Commute to CEOS. The first meeting will be set on 2 Feb in Geneva.
- GEO Staff (Steven Ramage) attended international conferences as follows,  
Risk Modelling Workshop at UNISDR (with David Green and Stefano Salvi, Report is pending, to be shared with CEOS)  
Science and Technology Forum for Disaster Risk Reduction at Tokyo, Statement issued  
UN-GGIM High Level Forum, in Mexico. GEO is working with National Statistic Offices engagement around the strategic framework for geospatial information and scenarios to support Disaster Risk Reduction.
- GEO Communication Tool Kit has been updated, Please use this updated kit, when you make a presentation on behalf of GEO. It is available at  
<https://drive.google.com/file/d/0B3hVbUplx7hlcHpDbkE1R1BQa2c/view?usp=sharing>

### **Upcoming meetings or events**

**(Dot points, e.g. meetings, conferences of relevance, visits)**

- GEO Program Board meeting will be held on 31 Jan to 1 Feb.
- CEOS GEO Secretariat bilateral meeting is planned on 30 January in Geneva. Concept note and draft agenda are under development.
- 3<sup>rd</sup> GEO Data Providers Workshop is held from 20-23 March at ESA in Frascati, Italy  
It consists of dynamic sessions and a day and half hackathon.  
[https://www.earthobservations.org/me\\_201803\\_dpw.php](https://www.earthobservations.org/me_201803_dpw.php)
- Point 2

### **Attachments**

(e.g. pictures, figures, graphs, links – for use in overall CEOS reporting and as website resources etc.)

## CEOS SEC 232 Report

**Entity:** WGDIsasters

**Prepared By:** Simona Zoffoli (Italian Space Agency), David Green (NASA)

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### **Updates on issues raised during the last CEOS SEC teleconference**

**(Dot points)**

- None

### **Issues requiring discussion/decision during current CEOS SEC teleconference**

**(Dot points)**

- None

### **Other highlights, activities, actions, projects, collaborations**

**(Dot points, e.g. outputs, new products, papers, technical reports, media, pipeline and new projects, interactions, project status changes, new opportunities)**

- The 9<sup>th</sup> CEOS WG Disasters will be held in Brussels on March 13-15, 2018. It was agreed to invite the Chair of the International Working Group of the Satellite Emergency Mapping (IWG-SEM) (currently SERTIT) to the meeting and other members who can participate to bring in some synergy where appropriate or at least to keep informed of each other's objectives and activities. During the meeting a visit will be arranged to the Emergency Response Coordination Centre.
- Continue support to the GEO GSNL Initiative. Letters to communicate Plenary approval of Southern Andes Supersite and Virunga Volcanoes Supersites have been sent to the Chair of the Scientific Advisory Committee of the GSNL.
- Disaster Risk Management (DRM) pilots and demonstrators. Discussion is ongoing on future demonstrators aimed to take successful elements of pilots and broaden their application to new users in new geographic areas, or to consolidate applications with existing users and seek long-term sustainability through new funding relationships.
- Volcanic team activated obj C of the volcanic pilot in response to the Agung eruption. A teleconference on 28/11 was held between the Agencies to detail the needs for the Agung eruption response and how these needs can be met with the available resources. Data have been provided and volcanic team is providing information to the Indonesian geophysicist working on the ground in Bali.
- Recovery Observatory (RO). Technical mission to Haiti recently concluded (4-8 December). Strong engagement from national partners, including Centre national d'information geospatiale, Comite interministeriel d'amenagement du territoire and National Observatory of the Environment and Vulnerability. The second Steering Committee was held on December, 8, 2018. The 2<sup>nd</sup> SC decided the convening of a user workshop mid-May to review the products of the RO.
- GEO-DARMA: Discussions are moving forward in Asia and Africa, and the first project proposals are expected to be formulated in these regions for presentation next spring to CEOS. 3rd Steering Committee planned in late December or mid-January for review of project proposals in Asia and Africa, as well as first analysis of regional reports for Latin America/Caribbean. UNISDR Americas now engaged in process, in tandem with UNEP LAC.

### **Upcoming meetings or events**

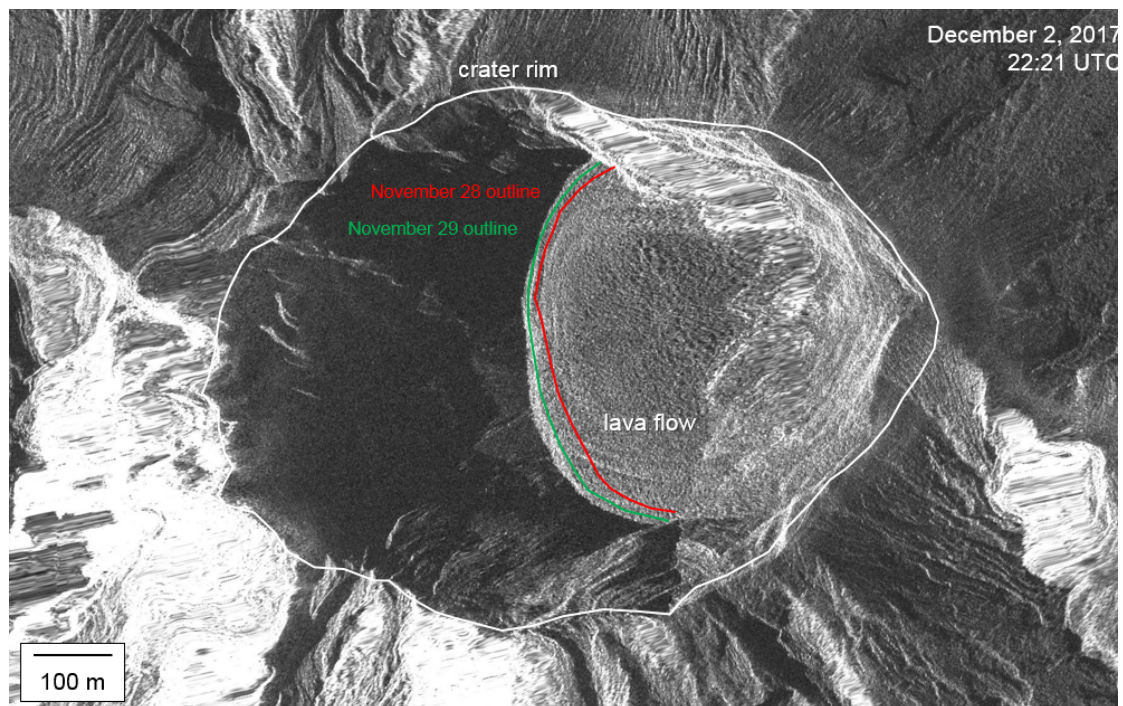
**(Dot points, e.g. meetings, conferences of relevance, visits)**

- 9<sup>th</sup> CEOS WGDIsasters meeting, hosted by COM to be held in Brussel, Belgium, March,13-15, 2018.
- A side event has been proposed to 2018 Understanding Risk Forum, Mexico City, May 14-18, 2018

### **Attachments**

**(e.g. pictures, figures, graphs, links – for use in overall CEOS reporting and as website resources etc.)**

- Agung volcano, on the island of Bali, Indonesia, began erupting in late November 2017 after over 50 years of quiescence. The last eruption, in 1963-64, caused the deaths of over 1000 people, so careful monitoring of the volcano is critically important to look for signs that a large explosion might be imminent. Volcanologists in Indonesia are collecting a wide array of data to help them understand the volcano's activity, including seismic, gas, and GNSS, but visual observations remain of fundamental importance, and there is no safe and easy way to look into the crater of the 3000 m-high volcano. This is where satellite data, and especially Synthetic Aperture Radar, comes in. Radar provides an "eye in the sky" and can also "see" through clouds, which is a critical capability in tropical environments that are often cloudy. Since the start of the eruption the satellites have captured accumulation of lava within the volcano's crater. These multi temporal high-resolution images offer an unprecedented view of the growing lava surface, which appears quite smooth and is therefore relatively low in viscosity. Understanding how the lava shape and amount changes over time is critical information for the Indonesian volcanologists tasked with forecasting Agung's future behavior.



## CEOS SEC 232 Report

**Entity:** WGISS (Working Group on Information System and Services)

**Prepared By:** Mirko Albani - Chair (ESA), Rob Woodcock – Vice-chair (CSIRO)

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### Updates on issues raised during the last CEOS SEC teleconference

**(Dot points)**

- None

### Issues requiring discussion/decision during current CEOS SEC teleconference

**(Dot points)**

- None

### Other highlights, activities, actions, projects, collaborations

**(Dot points, e.g. outputs, new products, papers, technical reports, media, pipeline and new projects, interactions, project status changes, new opportunities)**

- Contribution from WGISS to CEOS 2018-20 Work Plan finalised and under discussion with the CEOS Executive Officer.
- *Data Preservation and Stewardship*
  - WGISS Data Stewardship Maturity Matrix finalised and to be formally issued by end of year;
  - Data Stewardship awareness video being prepared.
- *Data Discovery and Access*
  - Continuing review of WGClimate *ECV inventory Version 2.0* to check status of accessibility of datasets through the WGISS connected data assets infrastructure. Analysis with IDN for collections discovery completed and analysis at granule level started.
  - Started drafting of a Conformance Test Document to define tests to be performed to check catalogue compatibility wrt CEOS OpenSearch Best Practice.
- *Interoperability and Use*
  - WGISS activities in support to FDA initiative being defined and planned;
  - Carbon Portal development progressing in coordination with Carbon team; first version of prototype available for review.
- *Technology Exploration*: next webinar on “WCS/WMS approaches for web-based Data Cube connections using OGC standards” will be held on 19 January 2018.

### Upcoming meetings or events

**(Dot points, e.g. meetings, conferences of relevance, visits)**

- WGISS 45 – April 9-13, 2017 San Jose Dos Campos, Brazil
  - Hosted by INPE (Instituto Nacional de Pesquisas Espaciais), Joint Meeting with WGCV
  - Dedicated Workshop on Future Data Architectures and Introduction of Copernicus Data and Information Access System (DIAS) for CEOS.
- GEOSS Data Providers Workshop on 20-23 March at ESA/ESRIN (Frascati)
- PV 2018 Conference “Adding Value and Preserving Data” on 15-17 May 2018 at ( Rutherford Appleton Laboratory (Harwell, UK)

## CEOS SEC Report

**Entity:** WGCapD Chair Team

**Prepared By:** A. Senthil Kumar (ISRO), Nancy Searby (NASA), Hilcea Ferreira (INPE)

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### Updates on issues raised during the last CEOS SEC teleconference

**231-03: Action:** WGCapD Chair/Vice-Chair to draft letters to agencies from which new WGCapD representatives are sought. Once received, the CEOS Chair Team will communicate the letters to agency Principals/Contacts. – this has been accomplished.

Action Closed.

### Issues requiring discussion/decision during current CEOS SEC teleconference

As follow up of above action, CEOS Chair team is requested to communicate the Space Agencies' Principals/Contacts for new WGCapD membership.

### Other highlights, activities, actions, projects, collaborations

(Dot points, e.g. outputs, new products, papers, technical reports, media, pipeline and new projects, interactions, project status changes, new opportunities)

As per CEOS deliverables CB-15, WGCapD compiled and sent to Steven Hosford (CEOS CEO) and Matt Steventon (COM 2018 CEOS Chair Team) a document (Training: Methods & Best Practices): Updated best practices guidance document for in-person and online training and capacity building. It is ready to be circulated to CEOS community for feedback and suggestions.

### Upcoming meetings or events

(Dot points, e.g. meetings, conferences of relevance, visits)

Website and registration details are now available for 7<sup>th</sup> Annual WGCapD meeting at INPE (São José dos Campos, Brazil), March 6-8, 2018 (<http://ceos.org/meetings/wgcapd-7/>) Participation from WGs, VCs, AHTs, SEC and CEOS Chair is requested.

### Attachments

(e.g. pictures, figures, graphs, links – for use in overall CEOS reporting and as website resources etc.)

## CEOS WGCV SEC-232 Report

**Entity:** WGCV

**Prepared By:** Kurt Thome, Chair, NASA  
Cindy Ong, Vice Chair, CSIRO

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### **Updates on issues raised during the last CEOS SEC teleconference**

**(Dot points)**

- None

### **Issues requiring discussion/decision during current CEOS SEC teleconference**

**(Dot points)**

- None

### **Other highlights, activities, actions, projects, collaborations**

**(Dot points, e.g. outputs, new products, papers, technical reports, media, pipeline and new projects, interactions, project status changes, new opportunities)**

- WGCV telecon was held Nov. 30 with the emphasis on status of current CEOS Work Plan actions.
- There was an Official Release of the CEOS LPV Land Surface Temperature Product Validation Best Practice Protocol: [https://lpvs.gsfc.nasa.gov/PDF/CEOS\\_LST\\_PROTOCOL\\_Oct2017\\_v1.0.0.pdf](https://lpvs.gsfc.nasa.gov/PDF/CEOS_LST_PROTOCOL_Oct2017_v1.0.0.pdf)
- Chair and Vice Chair are working with a Vice Chair candidate to obtain the appropriate paperwork for their candidacy.
- RadCalNet held its second workshop of beta testers on November 30. Presentations were made by seven groups including three commercial providers. Several improvements were suggested to the RadCalNet portal to improve the documentation of results and uncertainties.
- The SAR subgroup of WGCV sponsored its 24<sup>th</sup> SAR Workshop was hosted by the Jet Propulsion Laboratory in Pasadena, California USA. There were 60 attendees from CEOS agencies, universities, and industry. Forty-three talks were presented on SAR calibration and validation including two talks on SAR Analysis Ready Data.
- LPV subgroup's Biomass Focus Area convened a calibration/validation meeting in Bern in October that included a one-day protocol writing workshop. They have recruited over 50 scientists to contribute to building a draft Biomass protocol document. This is being followed by a Biomass Special Session at the AGU meeting in New Orleans the week of Dec. 11.

### **Upcoming meetings or events**

**(Dot points, e.g. meetings, conferences of relevance, visits)**

- WGCV-43 is planned as a joint meeting with WGISS-45 the week of April 9 2018 hosted by INPE in São José dos Campos, Brazil
- WGCV telecon Feb. 01
- LPV subgroup meeting March 2, 2018 at ESA ESRI in Frascati, Italy
- IVOS subgroup meeting March 26-29, 2018 at ESA ESTEC, Noordwijk, the Netherlands
- WGCV-44 Sept. 2018 location TBD

### **Attachments**

**(e.g. pictures, figures, graphs, links – for use in overall CEOS reporting and as website resources etc.)**



## CEOS SEC-232 Report – December 2017

**Entity:** SEO

**Prepared By:** Brian Killough (NASA)

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### Issues requiring discussion/decision during CEOS SEC teleconference

- None

### Updates on issues raised during the last CEOS SEC teleconference

- None

### Upcoming meetings or events

- Brian Killough (SEO) will attend the Earth Science Information Partners (ESIP) 2018 winter meeting in Bethesda, Maryland, USA on Jan 9-11, 2018. A presentation will be given on the topic of Data Analytics and Cloud Computing with a focus on the Open Data Cube initiative as an example of a Big Data analytics architecture.
- The SEO team is working with the Open Data Cube team to plan the annual Data Cube Workshop on Feb 12-16, 2018 at Geoscience Australia.

### Other highlights, activities, actions, projects, collaborations

(e.g. outputs, new products, papers, technical reports, media, pipeline and new projects, interactions, project status changes, new opportunities)

- Brian Killough (SEO) and Alex Held (CSIRO) traveled to Colombia on Nov 29-30 for a meeting at IDEAM focused on forest monitoring. They each made presentations to 50+ people from IDEAM and Colombian government on the ODC and Australian Data Cube progress. CSIRO and SEO continue to support the Colombia team.
- The SEO is making progress in 3 specific areas relevant to the Open Data Cube.
  - (a) We are working with CSIRO and Symbios to progress the Vietnam Data Cube in order to meet an internal Vietnam deadline in March 2018,
  - (b) We are talking with Google about a "Data Cube on Demand" concept that will take advantage of their data holdings for rapid cube generation and
  - (c) We are also working with the Global Partnership for Sustainable Development Data (GPSDD) and Amazon to progress an African Regional Data Cube to support 5 countries: Kenya, Senegal, Sierra Leone, Ghana and Tanzania.

## CEOS SEC 232 Report – December 2017

Entity: SDCG

Prepared By: Stephen Ward & Osamu Ochiai

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### Updates on issues raised during the last CEOS SEC meeting (Rapid City)

(Dot points)

- SDCG SEC has established a plan to ensure continuity of operations through to Plenary 2018 and to take actions to come to CEOS with a long-term sustainability plan. We continue to appeal to GFOI Leads (inc the new UK lead) for support
- Joanne Nightingale (UKSA/NPL) is welcomed to SDCG as a Co-Chair. She will commence duties properly in the new year

### Issues requiring discussion/decision during current CEOS SEC teleconference

(Dot points)

- None

### Other highlights, activities, actions, projects, collaborations (for reference only)

(Dot points, e.g. outputs, new products, papers, technical reports, media, pipeline and new projects, interactions, project status changes, new opportunities)

- GFOI deforestation alert topic continues to gather interest with Norway offering to fund a user needs assessment. SDCG continues to track closely as a topic where space data has a unique role
- Osamu Ochiai attended his first GFOI Leads telcon recently and with SDCG EXEC is taking a very pro-active role in protecting and further developing the CEOS investment in GFOI and ensuring that Phase 2 planning reflects our interests.
- VietnamCube will be launched in Hanoi on 6 March with GFOI and forest monitoring as the first applications. We hope to showcase it at GFOI Plenary.

### Upcoming meetings or events (for reference only)

(Dot points, e.g. meetings, conferences of relevance, visits)

- GFOI Plenary and SDCG will be in Bogota, Colombia in the week of 12 March, 2017.

### Attachments

(e.g. pictures, figures, graphs, links – for use in overall CEOS reporting and as website resources etc.)

## **GEOGLAM**

Brad Doorn (NASA, CEOS-GEOGLAM *ad hoc* WG Co-Lead) and Selma Cherchali (CNES, CEOS-GEOGLAM *ad hoc* WG Co-Lead):

GEOGLAM *ad hoc* WG members are participating in events at the American Geophysical Union Fall Meeting in New Orleans, LA-USA. An oral session and a poster session are hosted by GEOGLAM and focused on emerging technologies: sessions are both entitled “Emerging Earth Observation Technologies and Techniques in Global Agricultural Monitoring.”

The GEOGLAM Operational User Requirements Meeting is scheduled for the week of 16 April 2018 at Ispra, Italy, hosted by EC JRC.

The GEOGLAM *ad hoc* WG published a Google calendar of events for the WG and community to follow. If you are interested in joining this group with access to this calendar please contact one of the co-leads.

## CEOS SEC-232 Report

**Entity:** Ad Hoc Team on SDG

**Prepared By:** Flora Kerblat (CSIRO), and the co-leads Eric Wood (USGS), Marc Paganini (ESA), Alex Held (CSIRO)

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### Updates on issues raised during the last CEOS SEC teleconference

(Dot points)

- N/A
- FYI, in regards to the Global Sustainable Development Report (GSDR) inputs: EO4SDG didn't have time to submit inputs in the end.

### Issues requiring discussion/decision during current CEOS SEC teleconference

(Dot points)

- Geospatial World Forum on SDG mid-January (India): is anyone from CEOS is attending? Greg Scott and B. Ryan are among the panellists.
- To CEOS Principals: if your agency is interested to follow the SDG and join the discussions within CEOS, please provide us the updated contact details of the relevant person from your agency (see below the current list of team members)

### Other highlights, activities, actions, projects, collaborations

(Dot points, e.g. outputs, new products, papers, technical reports, media, pipeline and new projects, interactions, project status changes, new opportunities)

- We (co-leads + Flora + Kim) had a teleconference Tuesday, following the EO4SDG on Monday, to discuss next steps for the team, updates from GEO, next events and outcomes of previous ones. We'll aim at sending more regular information within CEOS (to our team and SEC) about SDGs to update about:
  - current projects within your space agencies (only the activity's name, contact and 1-2 sentences to describe it)
  - Key events related to EO data and SDG
  - AOB about SDG/EO data that we are aware of
- ⇒ Again, for this activity, we'll need your help to get necessary and accurate inputs (call for inputs)
- ⇒ This will help us to stay up to date for our database of SDG related projects within CEOS
- CEOS EO Handbook on SDG (we are working with Symbios): after a review process, some parts are under the graphic/design phase, part 3 (case studies) still under review and discussions – overall progressing well
- Communication:
  - New shortcut to access our page: [ceos.org/sdg](https://ceos.org/sdg) (and updates on the page)
  - Kim/Flora to start working on a brochure on EO and SDG
  - ongoing support to GEO for material/primer/EO4SDG website
- Workshop: Discussions with GEO (Argie), SEO (Brian), GPSDD (Aditya) to organise a workshop in Kenya early May next year, in 3 phases: 1) GEOGLAM RAPP, 2) GEO/SDG (more political), and 3) Data Cube demonstration (for several African countries) with a focus on land cover monitoring/management – if other CEOS groups are interested to join forces, please let us know
- Voluntary National Reviews (VNR) are underway (for next July at the High Level Political Forum): it might be timely to get in contact (proactively) with the department in charge to inform them that your space agency can help/provide complementary data to hem and national statistics.
  - eg in Australia: CSIRO like other national agencies has been contacted to provide inputs to DFAT (Department of Foreign Affairs), responsible of the reporting.

### Upcoming meetings or events

(Dot points, e.g. meetings, conferences of relevance, visits)

- Next teleconference late Jan/early Feb with the whole SDG team
- Face to face meeting probably at SIT: will need a side-meeting (2 or 3h)

– Presence at the GEO4SDG forum in India?

**Attachments** (e.g. pictures, figures, graphs, links – for use in overall CEOS reporting and as website resources etc.)

Current list of SDG team members (as of early December 2017) – please contact us if

Marie-Josee	Bourassa	CSA
Paul	Briand	CSA
Alex	Held	CSIRO
Flora	Kerblat	CSIRO
Michael	Nyenhuis	DLR
Klaus	Schmidt	DLR
Mark	Dowell	EC
Astrid-Christina	Koch	EC
Maurice	Borgeaud	ESA
Marc	Paganini	ESA
Ivan	Petiteville	ESA
Jono	Ross	GA
Tapan	Misra	ISRO
Senthil	Kumar	IIRS
Chu	Ishida	JAXA
Takanori	Miyoshi	JAXA
Yuko	Nakamura	JAXA
Kim	Holloway	NASA
Argie	Kavvada	NASA
Brian	Killough	NASA
Paul	DiGiacomo	NOAA
Satya	Kalluri	NOAA
Kerry	Sawyer	NOAA
Paida	Mangara	SANSA
Nale	Mudau	SANSA
Imraan	Salooji	SANSA
Fernando	Echavarria	USDOS
Eric	Wood	USGS
George	Dyke	Symbios
Matt	Steventon	Symbios
Stephen	Ward	Symbios