**Minutes V1.0**

**221st CEOS SECRETARIAT MEETING**

Thursday 2nd March 2017

7AM US East, 1PM Europe, 9PM Tokyo, 11PM Sydney

Chaired by USGS

**Participants**

**CEO:** Jonathon Ross

**EC:** Astrid-Christina Koch, Mark Dowell

**ESA/SIT Chair Team:** Ivan Petiteville

**EUMETSAT:** Robert Husband

**GEO:** Osamu Ochiai

**JAXA:** Shizu Yabe, Yukio Haruyama, Koji Akiyama

**NASA:** Brian Killough, Eric Lindstrom

**NOAA/SIT Vice-Chair Team:** Kerry Sawyer

**USGS:** Eric Wood, Frank Kelly, Matthew Steventon, Stephen Ward, George Dyke

**WGCapD:** Phila Sibandze,Senthil Kumar

**WGClimate:** Jörg Schulz

**WGCV:**  Kurt Thome

**WGDisasters:** Simona Zoffoli

**WGISS:** Andrew Mitchell

*The collection of written reports received ahead of the teleconference are attached in Appendix A. They present a thorough overview of the status and activities of the CEOS entities present at CEOS SEC-221.*

1. **Welcome and Introductions**

Eric Wood (USGS, CEOS Chair Team) welcomed everyone to CEOS SEC-221. He noted that he is chairing the teleconference on behalf of Frank Kelly (USGS, CEOS Chair).

1. **Review of Agenda**

Eric Wood (USGS, CEOS Chair Team) noted that the meeting will start with an item on the CEOS Ocean Variables Enabling Research and Applications for GEO (COVERAGE) Initiative, before moving on to the Working Group reports as usual.

1. **Action Status**

Eric Wood (USGS, CEOS Chair Team) noted that the updated SEC action record was included with the meeting agenda, and he reported that actions 220-01, 220-02, and 220-06 can all be marked as complete. The status of other actions will not be reviewed unless there is a specific request from one or more SEC members.

1. **CEOS Ocean Variables Enabling Research and Applications for GEO (COVERAGE) Initiative**

Jonathon Ross (GA, CEO) introduced the COVERAGE agenda item, recalling that this proposed CEOS Initiative has been present since 2013. Since its first presentation, the proponents have been following the steps laid out in the CEOS New Initiatives Process Paper. Consistent with the process, COVERAGE was presented to both CEOS SEC and SIT Technical Workshop in late 2016. Final approval will now be sought at a plenary session during CEOS SIT-32 in April, and decision text will be circulated two weeks beforehand. He added that if COVERAGE is approved as a CEOS Initiative, version 1.1 of the CEOS Work Plan 2017 – 2019 will be released following the meeting to reflect the endorsement. Jonathon asked CEOS SEC for any feedback related to the presentation of COVERAGE at SIT-32.

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| 221-01 | *CEO, SIT Chair Team, and Eric Lindstrom (NASA) to ensure that the COVERAGE proposal for SIT-32 is sent to CEOS Principals and Contacts at least two weeks prior to the meeting, preferably in the meeting document package accompanying the agenda.* | 11 April 2017 |

Eric Lindstrom (NASA) is the lead proponent, and he spoke briefly about COVERAGE and the lead up to SIT-32. He noted that a Sargasso Sea pilot activity – demonstrating how the initiative will supply a platform with a steady stream of satellite (and other) data – has been very positive. Ahead of SIT-32, testimony letters are expected to be sent to CEOS from those involved in the pilot. He noted that the COVERAGE team are now preparing for SIT-32, and are coordinating with CEOS VCs and GEO Blue Planet. A side meeting is planned for SIT-32 to progress the specifics around implementation. Eric thanked Jonathon for his support with the CEOS Work Plan.

Senthil Kumar (ISRO, WGCapD Vice-Chair) asked whether there is any scope for contributions to COVERAGE from geostationary meteorological satellites. Eric noted that the scope has been limited to polar orbiting satellites at this stage, however they are by no means excluded.

Mark Dowell (EC/JRC) asked whether COVERAGE expects contributions purely from the VCs, or whether there is a plan to seek broader inputs directly from agencies. Eric confirmed that many of the datasets are indeed covered by the VCs, however the plan is to solicit agencies directly, to perhaps identify new contributions that do not currently fall under the scope of the VCs. Eric confirmed that the COVERAGE team has experienced good responsiveness from the VCs to date, and no assistance from the SIT Chair Team/CEO is required at this stage.

1. **Working Group Reports**

**WGDisasters (Simona Zoffoli, ASI, Vice-Chair)**

Simona reported on behalf of Stéphane Chalifoux (CSA, WGDisasters Chair), highlighting that a successful Hurricane Matthew Recovery Observatory (RO) mission took place during the week of January 30th, led by CNES with the Global Facility For Disaster Reduction and Recovery (GFDRR) and other stakeholders. RO members met with national and international partners in Port-au-Prince, Haiti, to solidify the partnership and validate information needs. A second meeting (a user workshop) is planned for late April or June to present preliminary results and future plans. Further updates on the Haiti RO will be presented at SIT-32.

**WGClimate (Jörg Schulz, EUMETSAT, Vice-Chair)**

Jörg reported that:

* The 7th WGClimate meeting was held in Saõ José dos Campos (hosted by INPE) on February 8th and 9th. This was preceded by a special meeting on the Space Agency Response to the GCOS IP (Implementation Plan) Writing Team on February 7th. The Writing Team agreed a schedule (see written report) and a document structure, which is expected to result in a lighter – but still comprehensive – document.
* The 7th WGClimate meeting:
  + Underscored the very impressive progress on the population of the ECV Inventory (see written report for details) and the highly valued work of the EUMETSAT support team;
  + Placed emphasis on the ambitious and critical schedule for the ECV gap analysis, the need for a Gap Analysis Coordinator, extension of the domain-specific gap analysis teams, and maximum automation in the gap analysis process;
  + Elected John Dwyer (USGS) as the new Vice-Chair – to be proposed at both the CGMS and CEOS plenaries in 2017.
* At WGClimate-7, WGCapD expressed interest in using the ECV Inventory for training purposes. This is in accordance with interest from the WMO/CGMS VLab – as captured in a CGMS action. Both will be satisfied by the publication of the ECV Inventory Cycle #2 in mid-2017.

**WGISS (Andrew Mitchell, NASA, Chair)**

Andrew reported on behalf of WGISS:

* WGISS leadership is awaiting a response from the CEOS Agency that expressed interest in putting forward a nominee for the WGISS Vice-Chair position. The role is a four-year commitment which would begin in November 2017.
* WGISS is set to begin defining a preliminary set of requirements for a future Carbon Portal that would be developed in collaboration with WGClimate and CEOS Carbon leads. Starting this discussion in parallel with the ongoing work to define ECV and Carbon requirements allows WGISS to identify an initial list of ECVs that are key for Carbon, and to start putting together a list of relevant data collections from identified providers.
* WGISS (Richard Moreno, CNES) has agreed to co-chair the CEOS Chair’s Moderate Resolution Sensor Interoperability (MRI) initiative. MRI recognizes WGISS as the lead coordinator on the definition of interoperable metadata.
* WGISS members responded to the Future Data Architectures (FDA) strategy questionnaire. The intention is to provide the FDA *ad-hoc* team with an understanding of where the center of gravity lies in regard to the emphasis of the CEOS FDA strategy.
* WGISS is hosting its first technology exploration webinar on March 14th on ‘Data Search Relevancy’. The GEO Data Access Broker (GEODAB) will be co-presenting along with WGISS members. Search relevancy ranking is the process of sorting data results so that those data which are most likely to be relevant to a query are shown at the top.
* WGISS has been invited to give a keynote presentation during the GEO Data Provider Workshop in April, titled: “*GEO/GCI Success Story of GCI-CEOS Interoperability Achievements and Next Steps”.*
* WGISS-43 will be hosted by NASA in Annapolis, Maryland, USA, from April 3-7. The meeting will include a Technology Exploration Workshop (April 4) and a WGISS-GEOSS Interoperability Workshop (April 5). WGISS-44 is scheduled for September 25-29 in Beijing, China, hosted by the Chinese Academy of Sciences.

**WGCapD (Senthil Kumar, ISRO, Vice-Chair)**

Senthil reported on behalf of WGCapD:

* SAR training workshops have been held in Nepal (September 2016), Zambia (October 2016), South Africa (January 2017, supported by the Japan International Cooperation Agency – JICA) and Gabon (February 2017, supported by the Gabonese Agency for Space Studies and Observations – AGEOS). Senthil thanked ESA, Copernicus, and UNOOSA for their funding support.
* WGCapD-6 will be hosted by DLR, from March 27-29. The agenda will cover: new and existing activities, strengthening connections with other CEOS WGs/VCs, and guidance for best practices.
* The draft version of the *‘Best Practices for Efficient Training’* has been circulated to CEOS WGs, VCs, and *ad-hoc* teams to get their input.
* This year WGCapD is aiming to strengthen collaborations with AmeriGEOSS, AfriGEOSS, and AOGEOSS. Supporting WGCV and CEOS Data Cube activities are additional priorities for 2017.
* The 2017 Asian Conference on Remote Sensing (ACRS) will be held in October in New Delhi, India. This is one of the major remote sensing events in Asia, and participation from CEOS WGs, VCs, and *ad-hoc* teams is encouraged. Senthil is the lead of the organising committee and should be contacted for more information.

**WGCV (Kurt Thome, NASA, Chair)**

Kurt highlighted the following points from the WGCV written report:

* Results of the Atmospheric Correction Intercomparison eXercise (ACIX) will be presented at a workshop in mid-April, hosted by ESA ESRIN. 14 atmospheric correction teams took part in the intercomparison, and the results are critical for CEOS interoperability efforts.
* The second GSICS/WGCV Reference Solar Spectrum web meeting was held on February 14, with an emphasis on informing users of how to best select reference spectra for surface reflectance retrieval and interoperability. The results of the effort will be summarized in a report from WGCV in mid-late 2017, and will present a standard solar irradiance that can be used to convert at-sensor radiances to reflectance for use in atmospheric correction algorithms.
* RadCalNet Beta testing is continuing with 15 registered users evaluating the web site. RadCalNet puts different instruments on the same radiometric scale so that they can then be converted using the aforementioned reference solar spectrum and atmospherically corrected so that interoperability can be achieved. Results of the beta testing will be presented at the WGCV/IVOS meeting in March.
* All of these activities are contributing to the 2017 CEOS Chair’s MRI Initiative, which is being co-led by WGCV (with WGISS and USGS).

1. **CEO Report**

**CEOS Work Plan 2017 – 2019**

Jonathon Ross (GA, CEO) has circulated draft version 0.5 of the CEOS Work Plan 2017 – 2019 to the CEOS mailing lists for feedback, which is now due by the 6th of March. Version 0.5 includes input from all CEOS groups except the Ocean Surface Topography Virtual Constellation (OST-VC), from which no response has been received. Jonathon reported that the 2017 – 2019 Work Plan seems well-balanced across the themes of CEOS activity.

In response to Astrid-Christina Koch (EC), Jonathon confirmed that the 2018 CEOS Chair Initiatives do not need to be submitted for this version of the Work Plan, but any ideas would ideally be first socialized at SIT-32.

A revision will be prepared taking into account any final inputs received from the CEOS community and will then be circulated to CEOS SEC for approval. A virtual endorsement process, consistent with the procedure agreed at CEOS Plenary, will follow shortly thereafter. Jonathon thanked everyone for their contributions to date.

**WIGOS 2040 Vision Response Letter**

The latest draft of the CEOS letter responding to the *Vision for the WIGOS Space-Based Component in 2040* was forwarded to the CEOS SEC mailing list on the 2nd of March 2017. Jonathon welcomed feedback during the teleconference.

Astrid-Christina Koch (EC) has previously suggested that the paragraph related to WMO-GEO cooperation be revised to be shorter and less prescriptive. Kerry Sawyer (NOAA, SIT Vice-Chair Team) supported the existing text, as it is consistent with previous CEOS messaging encouraging WMO-GEO engagement and also includes reference to the commercial sector.

Jonathon will re-circulate the letter, highlighting the two options for this paragraph. The choice will be made by the CEOS Chair, taking into account any feedback received from CEOS SEC.

Mark Dowell (EC/JRC) suggested that more emphasis could be placed on areas where there have been successful CEOS-CGMS-WMO collaborations on climate and carbon topics. He also suggested that engagement with the private sector should be covered closer to the top of the letter. Mark took an action to submit his feedback to Jonathon via email.

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| 221-02 | *CEO to share a final review copy of the CEOS letter responding to the ‘Vision for the WIGOS Space-Based Component in 2040’ – including two versions of the GEO-related paragraph for CEOS SEC feedback and final selection by the CEOS Chair.* | 6 March 2017 |
| 221-03 | *Mark Dowell (EC/JRC) to submit his feedback on the CEOS letter responding to the ‘Vision for the WIGOS Space-Based Component in 2040’ to the CEO via email.* | 6 March 2017 |

**CEOS-GEO Coordination Meeting**

Jonathon directed CEOS SEC to the CEO written report for a summary of the CEOS-GEO Coordination Meeting.

**Leadership Changes**

Jonathon closed by suggesting that future CEOS SEC agendas should request leadership change updates from the various WGs and other CEOS teams, as necessary.

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| 221-04 | *CEOS Chair Team to ensure that future SEC agendas request leadership change updates from all CEOS WGs and other necessary teams.* | SEC-222 |

1. **SIT Chair Report**

Ivan Petiteville (ESA, SIT Chair Team) reported on behalf of the ESA SIT Chair Team:

* The SIT Chair Team is working on preparations for SIT-32, taking into account the decisions and actions from the 2016 CEOS Plenary and GEO-XIII Plenary. 58 people are currently registered. Two surveys have been sent in preparation for the meeting, on Copernicus/Sentinel Data Uptake & Application and Development Agency Finance.
* The first round of teleconferences between the SIT Chair Team and the 12 CEOS Working Groups and Virtual Constellations for 2017 is now complete. One major issue concerns the leadership of the OST-VC; only one of the two co-leads was present, and was unable to report on recent activities since he had not attended the last OST-VC meeting in October 2016. He also confirmed that he will not attend SIT-32 due to schedule conflicts. It is the second time in a row that the OST-VC was not able to report on their activities, though the constellation undoubtedly represents a very active community with new, exciting perspectives. This issue will be revisited at SIT-32.
* The SIT Chair Team, SIT Vice-Chair representative (Kerry Sawyer, NOAA) and CEO (Jonathon Ross, GA) participated in the 5th GEO Programme Board meeting. The GEO Lead Chair (Robert-Jan Smits, Director-General of DG Research and Innovation, European Commission) was also present. In order to better manage the overall GEO contribution to the SDGs and to shape the next GEO Work Programme Symposium around GEO strategic priorities, the GEO Programme Board created two dedicated subgroups, and CEOS is present in both. To support Monitoring & Evaluation, a third subgroup was also established.
* During the CEOS-GEO Coordination Meeting (February 3rd), CEOS and GEO discussed, at a strategic level: the SDGs, water, climate, carbon (including the GEO CARBON initiative), disaster risk reduction, future data architectures, and requirements analysis.
* Ivan closed the report by noting upcoming meetings (refer to the written report for details).

1. **GEO SEC Report**

Osamu Ochiai (GEO Secretariat) reported the following in addition to the CEOS-GEO points already communicated by the CEO and SIT Chair Team:

* The 5th GEO Programme Board (PB) was held February 1-2 in Geneva. Three new co-chairs were assigned (Ivan De Loatch, United States; Tim Haigh, EEA; Albert Fisher, IOC). Robert-Jan Smits (Director-General of DG Research and Innovation, European Commission; and 2017 GEO Co-Chair) attended the PB and imparted strategic guidance on the three major priorities planned for the GEO Work Programme 2017-2019: SDGs, the Paris Climate Agreement, and the Sendai Framework for Disaster Risk Reduction.
* A new Director of the GEO Secretariat is expected to be appointed in 2018.
* William Sonntag (US EPA) is now the POC for SDGs at the GEO Secretariat. The PB SDG subgroup (EO4SDGs) will attend next week’s United Nations Statistical Commission meeting and the CEOS SDG *ad-hoc* team meeting in Washington D.C. (March 8-9).
* Osamu closed the report by noting upcoming GEO-related meetings (refer to the written report for details).

1. **Systems Engineering Office (SEO) Report**

Brian Killough (NASA, SEO) reported:

* This week the SEO team is in Australia to meet with CSIRO and GA on a number of CEOS Data Cube topics. This annual face-to-face meeting of the three groups has been critical to planning and sustained progress. One key objective of the meeting is to develop a governance plan for the open source Data Cube software site. We will also continue to work on our shared project plan and discuss progress and issues within the prototype projects.
* Brian met with Barbara Ryan (GEO Secretariat Director) to discuss a plan for some work that will be done in collaboration with WGCapD, and he will share details as soon as possible.
* Brian also visited UNEP-GRID in Geneva on February 14th to discuss the progress of the Switzerland Data Cube pilot project. The group has made excellent progress installing a small Data Cube and connecting the application user interface. The meeting resulted in 15 actions that the group will pursue in the coming year. These actions are focused on Landsat data acquisition, Data Cube creation, and application testing.
* The SEO continues to make progress on the Data Cube core technology. The cloud-based (Amazon) user interface is now open to the public for testing (<http://tinyurl.com/datacubeui>). The interface includes 10 sample Data Cubes and 7 applications. New additions include coastal change and a Landsat-7/Landsat-8 combined mosaic. Additional work continues on the creation of sample Cubes for SERVIR and Vietnam, and evaluation and testing of the CCDC change detection algorithm.

1. **Brief Status Updates of *Ad-Hoc* Initiatives**

**SDCG for GFOI**

Stephen Ward (SDCG Secretariat) reported on behalf of the SDCG for GFOI:

* Last week, the leadership of LSI-VC, SDCG for GFOI, and the CEOS-GEOGLAM *ad-hoc* WG met by teleconference to discuss the rationalization of CEOS land surface imaging activities, including the proposed September joint meeting of the LSI-VC, SDCG for GFOI, and CEOS-GEOGLAM *ad-hoc* WG. All attendees provided comments on the trial meeting paper and the broader issues around managing a transition. The call achieved the takeaway that the leadership of LSI-VC, SDCG for GFOI, and the CEOS-GEOGLAM *ad-hoc* WG are unanimous in their belief that CEOS should explore this transition and we should be proactive in doing so. The joint meeting is fixed for September 6-8 at ESA ESRIN.
* One of the main discussion points at the GFOI Plenary (Vietnam, early April) will be how GFOI will develop as it enters its second phase. Changes to the GFOI Data Component are expected, with a broader focus being considered to encompass more applications and tools to help countries uptake and apply data. Ensuring the CEOS investment is protected is important and SDCG EXEC are actively engaging with SilvaCarbon, FAO, and others to ensure the planning is credible.
* SDCG-11 will be taking place April 9-10, followed by GFOI Plenary (April 11-12) in Ho Chi Minh City, Vietnam. More information is available at <http://ceos.org/meetings/sdcg-11/>
* Planning for SDCG-12 is in its early stages, and is being planned to take place as a part of the joint meetings with LSI-VC and the CEOS-GEOGLAM *ad-hoc* WG, September 5-8. SDCG will hold an All-Hands call on Wednesday the 22nd of March.

**CEOS *Ad-Hoc* Working Group on GEOGLAM**

George Dyke reported two select points from the written report on behalf of Brad Doorn (NASA) and Selma Cherchali (CNES) – the CEOS *Ad-Hoc* Working Group on GEOGLAM Co-Leads:

* GEOGLAM wants to increase coordination with WGCapD. Initial discussions have taken place between Nancy Searby (NASA) and Alyssa Whitcraft (GEOGLAM Secretariat) around scoping this activity. One possible avenue is WGCapD funding a GEOGLAM trainer or two for AmeriGEOSS week (July 31 – August 4) in Costa Rica. The University of Maryland (UMD) is trying to find funding to send a Germany-based colleague to the WGCapD annual meeting to represent GEOGLAM and move the coordination forward.
* The CEOS *Ad-Hoc* Working Group on GEOGLAM Co-Leads support the idea of a joint meeting of the LSI-VC, SDCG for GFOI, and CEOS-GEOGLAM *ad-hoc* WG to discuss the rationalization of CEOS land surface imaging activities.

**Future Data Access & Analysis Architectures *Ad-Hoc* Team (FDA-AHT)**

Stephen Ward (CEOS Chair Team) reported the following points on behalf of the FDA-AHT Co-Leads:

* The FDA-AHT and the five FDA Pilots continue to have a significant schedule dependence on LSI-VC for the stewarding of the CARD4L definition and trial production of CARD4L products for the pilots in 2017. The FDA-AHT stresses the need for LSI-VC to continue its great work and asks agencies to support this critical initiative.
* A strategic assessment brainstorming session was held via teleconference on February 14. A short survey was distributed to solicit input on key strategic questions, including the top FDA priorities from an agency perspective. The FDA-AHT is working to analyze and draw conclusions from the responses to present at SIT-32. After SIT-32 the ‘what’ of the CEOS FDA Strategy will be decided, and attention will then turn to the ‘how’.

Jonathon Ross (GA, CEO) recalled the positive response and pledge to support the work of the FDA-AHT from Tapan Misra (ISRO) at the 2016 CEOS Plenary, and noted that ISRO is yet to respond to the *FDA Survey on CEOS Agency Priorities*. A representative from ISRO was not on the teleconference, so an action was recorded for the CEOS Chair Team to follow up.

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| 221-05 | *CEOS Chair Team to follow up an ISRO response to the ‘FDA Survey on CEOS Agency Priorities’.* | 10 March 2017 |

**CEOS *Ad-Hoc* Team on Sustainable Development Goals (SDG-AHT)**

Eric Wood (USGS, CEOS Chair Team) reported that the first meeting of the SDG-AHT is taking place next week, March 8-9, in Washington D.C. 10-15 participants from CEOS and GEO will attend the first day to finalise the SDG-AHT Terms of Reference and Work Plan. On the second day, 5-10 non-CEOS/GEO participants will also join to hear more about CEOS/GEO SDG activities.

Jonathon Ross (GA, CEO) commended the recently released report: *Earth Observations in Support of the 2030 Agenda for Sustainable Development,* which was prepared under the leadership of Chu Ishida (JAXA) with input from numerous CEOS and GEO (GI-18) colleagues, and was prepared for a side event of the 48th Session of the United Nations Statistical Commission:

<https://unstats.un.org/unsd/statcom/48th-session/side-events/documents/20170306-1M-JAXA-SDG.pdf>

1. **AOB**

**Moderate Resolution Sensor Interoperability Initiative (MRI)**

Eric Wood (USGS, CEOS Chair Team) reported on behalf of Gene Fosnight (USGS, MRI Lead):

* The MRI team has been assembled. The CEOS SEC response to the request to participate was very positive. The MRI kick-off teleconference will be held later today. The first face-to-face meeting for many team members will be during and following LSI-VC-3, March 20-22.
* Gene thanks WGCV (Cindy Ong, CSIRO) and WGISS (Richard Moreno, CNES) for agreeing to co-lead the initiative.

**GEO Data Providers Workshop**

Mark Dowell (EC/JRC) asked for clarification on the GEO Data Providers Workshop and how CEOS is engaging. Osamu Ochiai (GEO Secretariat) reported that the meeting is taking place April 20-21 in Florence, Italy. The invitation has been circulated to the entire GEO community. WGISS leadership have engaged with the GEO Secretariat. WGISS will be presenting a keynote: “*GEO/GCI Success Story of GCI-CEOS Interoperability Achievements and Next Steps*”.

1. **Next Meeting and Adjourn**

Eric Wood (USGS, CEOS Chair Team) adjourned the meeting. He thanked everyone for attending and reported that CEOS SEC-222 will take place on the 30th of March 2017.

1. **Appendix – Written Reports**

Please see the attached document for the written reports submitted by:

* Working Group on Disasters (WGDisasters)
* CEOS/CGMS Working Group on Climate (WGClimate)
* Working Group on Information Systems and Services (WGISS)
* Working Group on Capacity Building and Data Democracy (WGCapD)
* Working Group on Calibration and Validation (WGCV)
* CEOS Executive Officer (CEO)
* Strategic Implementation Team Chair (SIT Chair)
* GEO Secretariat (GEO SEC)
* CEOS Systems Engineering Office (SEO)
* Space Data Coordination Group for the Global Forest Observations Initiative (SDCG-GFOI)
* CEOS *Ad Hoc* Working Group on GEOGLAM (CEOS-GEOGLAM)
* Future Data Access & Analysis Architectures *Ad Hoc* Team (FDA-AHT)
* Moderate Resolution Sensor Interoperability Initiative (MRI)