

## WGCV-52 Objectives & Agenda

June 5-9, 2023

Frascati, Italy

ESA / ESRIN

Hybrid Meeting

### Meeting Objectives

1. Identify specific actions that can be taken in the short term to maximise the potential of WGCV to contribute to the New Space Task Team.
2. Agree on the Fiducial Reference Measurement (FRM) Framework assessment approach for conducting self assessment of FRM.
3. Formalise the Hyperspectral guidance document
4. Receive updates from the Joint LPV-IVOS working team under WGCV on the exploration of a network of TIR cal/val sites, with a focus on supporting high-resolution TIR missions from CEOS agencies.
5. Seek endorsement of the SITSat Task Team Terms of Reference and discuss initial actions for the team.
6. Review the deliverables updates from the WGCV subgroups:
  - a. Land Product Validation (LPV)
    - i. Forest Biomass Reference Network (GEO-TREES) (CARB-21-03)
    - ii. Production of harmonised biomass products from CEOS Agency missions (CARB-22-01)
    - iii. Cal/Val and production of biomass products from CEOS Agency missions (CARB-17-05)
    - iv. Forest Biomass measurements for GFOI countries (CARB-19-04)
  - b. Infrared Visible Optical Sensors (IVOS)
    - i. Workshop on state of the art for pre-flight calibration techniques (CV-14-03)
    - ii. L1 top-of-atmosphere interoperability (CV-17-01)
  - c. Microwave Sensors Subgroup (MSSG)
    - i. Retrieval and validation of high winds with combined active-passive microwave measurements (CV-23-05)
    - ii. Retrieval and validation of sea surface atmospheric pressure with microwave remote sensing (CV-23-06)
  - d. Atmospheric Composition Subgroup (ACSG)
    - i. Validation protocols for atmospheric aerosol and cloud profiles (CV-22-01)
    - ii. Tropospheric ozone datasets validation and harmonization (VC-20-01)
    - iii. Air quality constellation validation coordination (VC-20-02)
    - iv. Air quality constellation validation coordination: validation plans (VC-20-03)
    - v. Air quality constellation validation coordination: announcements of opportunity (VC-20-04)
    - vi. AC-VC and ACSG Coordination
  - e. Synthetic Aperture Radar (SAR)
    - i. Update on SARCalNet
    - ii. SARCalnet: Establishment of initial SARCalnet processes and network initiation (CV-23-02)
  - f. Terrain Mapping Subgroup (TMSG)
    - i. Launch of a GCP Intercomparison Exercise (CV-23-04)
7. Present updates and discuss the various intercomparison exercises (ACIX-III, CMIX-II, SRIX4Veg, BRIX-2, DEMIX)
8. Discuss the latest updates on the collaboration between GSICS and WMO with CEOS, with a focus on the progress made and future plans for enhancing collaboration and improving the quality of data used in climate analysis.

9. Discuss potential areas of collaboration between WGClimate and WGCV, highlight the need in terms of Cal/Val need.
10. Discuss on the GHG activities, explore how we can use and improve TCCON, COCCON, Pandora Global Network (PGN) and NDACC.
11. Review and assess the sustainability and opportunities for the EAIL within WGCV, and discuss potential avenues for enhancing its effectiveness.
12. Confirm the CEOS-ARD review panel for SAR.
13. Discuss the possibilities regarding WGCV support to a potential CEOS-IMEO (International Methane Emissions Observatory) collaboration.
  - a. Discussion on IMEO's Cal/Val activities for methane and exploration of a possible cooperation.
14. Confirm the plan for the WGCV-53 meeting.

## WGCV-52 Week at a Glance

The meeting will be held over five days, from June 5-9, 2023. The starting time will be 13:30 for Day 1 and 09:00 for Day 2, 3, 4 and 5. The room will be Magellan Room.

|           | Day 1  | Day 2  | Day 3  | Day 4   | Day 5  |
|-----------|--|--|--|---|--|
| <b>am</b> | Registration,<br>Coffee  | Subgroup Reports:<br>ACSG, TMSG, MSSG<br>ACIX/CMIX/Cloud<br>Camera Network<br>DEMIX  | New Space Topics<br>CEOS-ARD<br>Hyperspectral<br>Resources and Way<br>Forward<br>Hypernet<br>CEOS<br>Interoperability<br>Framework | Fiducial Reference<br>Measurement<br>(FRM) Assessment<br>Framework<br>AusCalVal<br>CEOS WGClimate<br>Report<br>LPV Subgroup<br>Report | IVOS Subgroup<br>Report<br>WGCV Cal/Val<br>Portal<br>CEOS-GSICS<br>Collaborations<br>Upcoming<br>Meetings<br>Action and<br>Decisions Review<br>AOB & Close |
| <b>pm</b> | Welcome<br>Chairs' Report<br>Tour de Table<br>Agenda Review<br>ESA Presentation<br>Review of CEOS<br>Work Plan<br>Action Review<br>SITSat Discussion | Intercomparison<br>Exercises:<br>BRIX-2, SRIX4Veg<br>GHG task group<br>(incl.<br>use/improvement<br>of network: TCCON,<br>COCCON, PGN,<br>NDACC)<br>Agency Reports | Phi Experience<br>Tour/Group Photo<br>SAR Subgroup<br>Report<br>SARCalNet<br>CEOS EAIL<br>Agency Reports                           | 'Network' Topics:<br>TIRCALNET,<br>RadCalNet,<br>CalValPark,<br>BAQUNIN (Site for<br>AC)<br>Agency Reports<br>(TBA)                   |  |
|           | ESA-hosted<br>Icebreaker   | Tour to Winery<br>(Frascati) + Dinner  |  |   |  |

# Agenda

## Day 1 (Magellan Room)

Monday June 5, 2023

ESA ESRIN opens at 08:30. Day 1 meeting starts at 13:30. Arrival by own transport. Bus departs at 19:00 from ESRIN to Piazza Marconi (square) Frascati (30 seats).

| Time (CEST)   | Item  | Presenter(s)   |
|---------------|---|--|
| 13:30 – 13:55 | <b>1.1:</b> Welcome and Chair's Report <ul style="list-style-type: none"><li>Welcome and review of agenda</li><li>Tour de table</li></ul>   | P. Goryl   |
| 13:55 – 14:15 | <b>1.2:</b> ESA Presentation [ <a href="#">PPT</a> ]  | Henri Laur (Head of Mission Management and Data Quality) |
| 14:15 – 15:00 | <b>1.3:</b> ESA Presentation on EarthCARE Cal/Val [ <a href="#">PPT</a> ]   | Bjoern Frommknecht (Mission Manager for EarthCARE)       |
| 15:00 – 15:15 | <b>1.4:</b> CEOS Work Plan Review [ <a href="#">PPT</a> ]   | M-C. Greening (Virtual)                                  |
| 15:15 – 15:30 | <b>1.5:</b> Action Review <ul style="list-style-type: none"><li><a href="#">WGCY-51</a></li><li><b>Decision:</b> Decide the date for the pre-flight calibration workshop</li></ul>  | R. Singh   |
| 15:30 – 15:45 | <b>Coffee Break (15 min)</b>  |  |
| 15:45 – 17:45 | <b>1.6:</b> SI-Traceable Satellite (SITSat) Discussion [ <a href="#">PPT</a> ] <ul style="list-style-type: none"><li>Review of team motivation, objectives, leads</li><li><b>Discussion:</b> initial tasks, priorities, approach</li><li><b>Endorsement:</b> <a href="#">Terms of Reference</a></li><li><b>Possible action:</b> Start to convene team members</li></ul> | N. Fox, M. Thankappan, P. Goryl                          |
| 17:45         | <b>Day 1 Close, ESA-hosted Icebreaker (at ESRIN)</b>  |  |

## Day 2 (Magellan Room)

Tuesday June 6, 2023

Bus departs 08:00 Piazza Marconi (square) Frascati to ESRIN (30 seats). Coffee breaks will be in the James Cook room.

| Time (CEST)   | Item  | Presenter(s)                          |
|---------------|---|---------------------------------------|
| 09:00 – 09:15 | <b>2.1: Welcome</b> <ul style="list-style-type: none"><li>Review of day 1 actions</li></ul>   | P. Goryl, M. Steventon                |
| 09:15 – 10:15 | <b>2.2: Atmospheric Composition Subgroup (ACSG) Report</b> <a href="#">[PPT 1]</a> <a href="#">[PPT 2]</a><br>[Presentation: 30 min, Discussion: 30 min] <ul style="list-style-type: none"><li>FRM-MAP</li><li>Evolution of ground-based networks</li><li>Data harmonization</li><li>GEO-AQ (TEMPO, GEMS, Sentinel-4) validation</li><li>Discussion</li></ul> | J-C. Lambert, B. Veihelmann (Virtual) |
| 10:15 – 10:45 | <b>2.3: ACIX, CMIX and Cloud Camera Network</b> <a href="#">[PPT]</a><br>[Presentation: 15 min, Discussion: 15 min]   | E. Vermote                            |
| 10:45 – 11:00 | <b>Coffee Break (15 min)</b>  |                                       |
| 11:00 – 12:00 | <b>2.4: Terrain Mapping Subgroup (TMSG) Report</b> <a href="#">[PPT]</a><br>[Presentation: 30 min, Discussion: 30 min] <ul style="list-style-type: none"><li>DEMIX progress, next steps</li><li>Discussion</li></ul>  | P. Strobl                             |
| 12:00 – 13:00 | <b>2.5: Microwave Sensors Subgroup (MSSG) Report</b> <a href="#">[PPT]</a><br>[Presentation: 30 min, Discussion: 30 min] <ul style="list-style-type: none"><li>Updates</li><li>Discussion</li></ul>   | X. Dong                               |
| 13:00 – 14:30 | <b>Lunch Break (90 min)</b>   |                                       |
| 14:30 – 15:00 | <b>2.6: BRIX-2</b> <a href="#">[PPT]</a><br>[Presentation: 15 min, Discussion: 15 min]  | C. Albinet                            |
| 15:00 – 15:30 | <b>2.7: SRIX4Veg</b> <a href="#">[PPT]</a><br>[Presentation: 15 min, Discussion: 15 min] <ul style="list-style-type: none"><li>SRIX4Veg-II</li></ul>  | V. Boccia, C. Ong                     |
| 15:30 – 15:45 | <b>Coffee Break (15 min)</b>  |                                       |
| 15:45 – 16:30 | <b>2.8: Greenhouse Gas Cal/Val Campaign and Network Updates</b>   | A. Kuze, B. Veihelmann                |

|               |  |  |
|---------------|--|--|
|               | and Future Requirements <ul style="list-style-type: none"> <li>• Cal/Val for multiple GHG sensor and Railroad Valley Campaign [A. Kuze] <a href="#">[PPT]</a></li> <li>• TCCON / COCCON / PGN / NDACC [J-C. Lambert, B. Veiheilmann] <a href="#">[PPT]</a></li> <li>• Update on CO2M Cal/Val planning [R. Lang] <a href="#">[PPT]</a></li> <li>• Discussion</li> </ul>                                     | (Virtual), J-C. Lambert, R. Lang (Virtual) |
| 16:30 – 17:00 | 2.9: Space agency reports (as requested) on new Cal/Val activities, etc. [10 mins for each report] <ol style="list-style-type: none"> <li>JAXA (A. Kuze) <a href="#">[PPT]</a> [16:40-16:50]</li> <li>USGS (C. Anderson) <a href="#">[PPT]</a> [16:50-17:00] <ul style="list-style-type: none"> <li>○ Landsat 9 reprocessing</li> <li>○ Landsat Collection 3 potential improvements</li> </ul> </li> </ol> |  |
| 17:00         | Day 2 Close, Tour to Winery and Hosted Dinner in Frascati  |  |

## Day 3 (Magellan Room)

Wednesday June 7, 2023

Bus departs 08:00 Piazza Marconi (square) Frascati to ESRIN (30 seats). Coffee breaks will be in the James Cook room.

| Time (CEST)   | Item  | Presenter(s)                                   |
|---------------|---|--|
| 09:00 – 09:15 | 3.1: Welcome <ul style="list-style-type: none"> <li>• Review of day 2 actions</li> </ul>  | P. Goryl, M. Steventon                         |
| 09:15 – 10:15 | 3.2: WGCV Contributions to the CEOS New Space Task Team <a href="#">[SIT TW 2022 Presentation]</a> <ul style="list-style-type: none"> <li>• Review of inputs to date</li> <li>• <u>Discussion</u>: Shared data quality metrics</li> <li>• <u>Discussion</u>: Near-term and future actions in response, how to realise identified opportunities and benefits.</li> <li>• Related WGCV actions from VH-RODA and JACIE <a href="#">[PPT]</a> <ul style="list-style-type: none"> <li>○ New Space Match-up database</li> <li>○ VHR GCP database (or reference images/imagettes)</li> </ul> </li> <li>• Discussion</li> </ul> | P. Goryl, A. Ciccolella, C. Anderson           |
| 10:15 – 10:40 | 3.3: CEOS-ARD <a href="#">[PPT]</a> <ul style="list-style-type: none"> <li>• OGC ARD SWG progress</li> <li>• Surface Reflectance ARD Equivalency – CEOS Interoperability Framework 'Pathfinder' ? <a href="#">[DOC]</a></li> <li>• <u>Discussion / Decision</u>: WGCV-51-ACT-11: Confirm alternate PoC for CEOS ARD evaluations</li> </ul>  | M. Thankappan / F. Gascon / M. Steventon (TBC) |
| 10:40 – 10:55 | Coffee Break (15 min)   |  |

|               |  |  |
|---------------|--|--|
| 10:55 – 11:30 | <b>3.4: Hyperspectral Cal/Val Resources</b> [PPT] <ul style="list-style-type: none"> <li>• <u>Decision</u>: Publish the <a href="#">hyperspectral cal/val resources summary document</a></li> </ul>  | P. Goryl, C. Ong, P. Castracane              |
| 11:30 – 12:00 | <b>3.5: Hypernet Update</b> [PPT]  | K. Ruddick (Virtual)                         |
| 12:00 – 13:00 | <b>3.6: CEOS Interoperability Framework</b> <ul style="list-style-type: none"> <li>• Common online dictionary (P. Strobl, 15 min) [PPT] <ul style="list-style-type: none"> <li>○ <u>Discussion</u>: Fostering CEOS adoption of common dictionary?</li> <li>○ <u>Discussion</u>: Need for additional support and resources</li> </ul> </li> <li>• CEOS Interoperability Framework (T. Sohre - 15 min) [PPT]</li> <li>• <u>Discussion &amp; Decision</u>: Identification of CEOS Interoperability Framework Factor Champions (Semantic, Data Quality)</li> </ul> | P. Strobl, M. Natsuisaka, T. Sohre (Virtual) |
| 13:00 – 13:50 | <b>Lunch Break (60 min)</b>  |  |
| 13:50 – 14:30 | <b>ESA PHI Experience Tour</b>   |  |
| 14:30 – 14:45 | <b>Group Photo</b>   |  |
| 14:45 – 15:45 | <b>3.7: Synthetic Aperture Radar (SAR) Subgroup Report</b> [PPT]<br>[Presentation: 30 min, Discussion: 30 min] <ul style="list-style-type: none"> <li>• Updates</li> <li>• SARCalNet progress</li> <li>• Discussion</li> </ul>   | B. Chapman (Virtual)                         |
| 15:45 – 16:00 | <b>Coffee Break (15 min)</b>   |  |
| 16:00 – 16:30 | <b>3.8: CEOS Earth Analytics Interoperability Lab (EAIL)</b> [PPT] <ul style="list-style-type: none"> <li>• Overview of EAIL capabilities and opportunity for WGCV (D. Borges, 15 min)</li> <li>• <u>Discussion</u>: Potential WGCV use cases; objectives and datasets needed</li> </ul>   | P. Goryl, D. Borges (Virtual)                |
| 16:30 – 17:25 | <b>3.9: Space Agency Reports (as requested) on New Cal/Val Activities, etc. [10 mins for each report]</b> <ol style="list-style-type: none"> <li>CSIRO (C. Ong) [PPT] [16:30-16:40]</li> <li>NASA (X. Xiong) [PPT] [16:40-16:50]</li> <li>AIR-CAS (Lingling) [PPT] [16:50-17:00]</li> <li>ASI (A. Montuori) [PPT] [17:00-17:10]</li> </ol>   |  |
| 17:25 – 17:30 | <b>Day 3 Close</b>   |  |

## Day 4 (Magellan Room)

Thursday June 8, 2023

Bus departs 08:00 Piazza Marconi (square) Frascati to ESRIN (30 seats). Coffee breaks will be in the James Cook room.

| Time (CEST)   | Item   | Presenter(s)                       |
|---------------|--|------------------------------------|
| 09:00 – 09:15 | <b>4.1: Welcome</b> <ul style="list-style-type: none"><li>Review of day 3 actions</li></ul>  | P. Goryl, M. Steventon             |
| 09:15 – 10:45 | <b>4.2: Fiducial Reference Measurement (FRM) Assessment Framework [PPT]</b> <ul style="list-style-type: none"><li>Overview of <a href="#">proposal</a>, motivation, objectives</li><li>Progress made to date</li><li><u>Discussion</u>: Development roadmap, stakeholders, additional support and requirements</li><li><u>Decision</u>: Next steps and actions</li></ul>   | P. Goryl, N. Fox, P. Castracane    |
| 10:45 – 11:00 | <b>Coffee Break (15 min)</b>   |                                    |
| 11:00 – 11:30 | <b>4.3: AusCalVal Update [PPT]</b> <ul style="list-style-type: none"><li>Overview and program plans</li><li>Potential collaborations, opportunities, etc.</li></ul>  | M. Garthwaite                      |
| 11:30 – 12:30 | <b>4.4: Land Product Validation (LPV) Subgroup Report [PPT]</b><br>[Presentation: 30 min, Discussion: 30 min] <ul style="list-style-type: none"><li>Current protocols in development by the LPV subgroup</li><li>LPV contributing satellites/instruments (MODIS re-evaluation, Landsat, etc.)</li><li>Interaction with IVOS to update protocols for supersites and LPV products</li><li>Discussion with IVOS on TOA calibration of LST</li><li>Potential <u>actions</u> for <u>discussion</u>:<ul style="list-style-type: none"><li>WGCV to consider potential for GPP/NPP land product Focus Area within LPV</li><li>WGCV to consider potential for Evapotranspiration land product Focus Area within LPV</li><li>Elevating Soil Moisture to Stage 4 with the release of FRM4SM</li></ul></li></ul> | M. Cosh                            |
| 12:30 – 13:00 | <b>4.5: CalVal Park and BAQUNIN (Site for AC) [PPT]</b>  | F. Niro and S. Casadio (ESA/Serco) |
| 13:00 – 14:30 | <b>Lunch Break (90 min)</b>  |                                    |
| 14:30 – 15:00 | <b>4.6: TIRCalNet [PPT]</b>  | S. Dransfeld                       |
| 15:00 – 15:30 | <b>4.7: RadCalNet [PPT]</b>  | M. Bouvet                          |
| 15:30 – 15:45 | <b>Coffee Break (15 min)</b>   |                                    |



|                      |   |                       |
|----------------------|---|-----------------------|
| <b>15:45 – 16:15</b> | <b>4.8:</b> CEOS Working Group on Climate (WGClimate) Report [PPT] <ul style="list-style-type: none"> <li>Potential WGCV support to WGClimate work and priorities</li> </ul>  | J. Privette (Virtual) |
| <b>16:15 – 16:45</b> | <b>4.9:</b> Space agency reports (as requested) on new Cal/Val activities, etc. <ul style="list-style-type: none"> <li>I. GA (M. Thankappan) [PPT] [16:15-16:30] <ul style="list-style-type: none"> <li>Calibration plan for SCR</li> </ul> </li> </ul> |                       |
| <b>17:00</b>         | <b>Day 4 Close</b>  |                       |

## Day 5 (Magellan Room)

**Friday June 9, 2023**

*Bus departs 08:00 Piazza Marconi (square) Frascati to ESRIN (30 seats). Coffee breaks will be in the James Cook room.*

| Time (CEST)          | Item   | Presenter(s)  |
|----------------------|--|---|
| <b>09:00 – 09:15</b> | <b>5.1:</b> Welcome <ul style="list-style-type: none"> <li>Review of day 4 actions</li> </ul>  | P. Goryl, M. Steventon                                    |
| <b>09:15 – 10:15</b> | <b>5.2:</b> Infrared and Visible Optical Sensors (IVOS) Subgroup Report [PPT]<br>[Presentation: 30 min, Discussion: 30 min]  | N. Fox  |
| <b>10:15 – 10:45</b> | <b>5.3:</b> CEOS WGCV CalVal Portal Updates [PPT]  | P. Castracane   |
| <b>10:45 – 11:00</b> | <b>Coffee Break (15 min)</b>   |   |
| <b>11:00 – 11:40</b> | <b>5.4:</b> GSICS and WMO Collaboration Update [PPT 1] [PPT 2]   | P. Castracane, Cheng-Zi Zou (Virtual) , M. Bali (Virtual) |
| <b>11:40 – 12:00</b> | <b>5.5:</b> Plans for WGCV-53 Meeting  | P. Goryl  |
| <b>12:00 – 12:30</b> | <b>5.6:</b> Day 5 Actions and Decisions Review   | M. Steventon  |
| <b>12:30 – 12:40</b> | <b>5.7:</b> AOB <ul style="list-style-type: none"> <li>Endorsement of the SITSat <a href="#">Terms of Reference</a></li> <li>Follow up on pre-flight calibration workshop details</li> <li>WGCV subgroup participant lists? CEOS mailing lists and cal/val portal</li> </ul> |   |
| <b>12:40</b>         | <b>Day 5 Close</b>   |   |