5.1 Implementation of the CEOS OCR-VC, including Terms of Reference

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IOCCG – 19 – Capetown, South Africa
29 January 2014
Progress towards established CEOS-GEO Priorities

Ocean Colour Radiometry Virtual Constellation (OCR-VC)
Paula Bontempi, Peter Regner, and Paul DiGiacomo
Current Status: 3-year outcomes defined in course of the CSS

1. **OCR-VC development**: progress in implementation, broader agency support/engagement required.

2. **INSITU-OCR**: “International Network for Sensor Inter-comparison and Uncertainty assessment for Ocean Color Radiometry” white paper finalized, recommendations/requirements for high accuracy and consistency of ECVs from current/future satellite ocean colour missions fall into four categories:
   - Space sensor radiometric calibration, characterization and temporal stability
   - Development and assessment of satellite products
   - *In situ* data generation and handling
   - Information management and support

3. **Standing ECV Working Group**: Met at IOCS Meeting May 2013 - report at next IOCCG meeting (January 2014). Working data/ECV intercomparisons – comparisons of data products. What merged product is "better"? How do we estimate uncertainties? Opportunities for further improvement? Produce a set of recommendations for improvements, CCI or NASA/OBPG could potentially implement and produce a new OCR-VC version for this WG to evaluate; this would require agency support.


5. "International Ocean Colour Science Team Meeting" (IOCS): successfully undertaken – see forthcoming slides. Follow up activities now required.
Ocean Colour Radiometry Virtual Constellation (OCR-VC)

• Current Status (continued):
  • Recent Actions:
    • Feedback on VC process paper provided, along with updated language for OCR-VC component
    • OCR-VC ToR V0.2 submitted
    • Highlights from 1st International Ocean Colour Science (IOCS) Team Meeting (May 2013) published in CEOS Newsletter (August 2013)
  • Main Issues/concerns
    • Active engagement and support of all appropriate CEOS agencies in the implementation of OCR-VC activities
    • Ensuring free, open & timely sharing of all current/future OCR data
    • Implementation of IOCCG Report on Mission Requirements and INSITU-OCR
  • Leadership:
    • Currently, OCR-VC Co-Leads are Paula Bontempi (NASA), Peter Regner (ESA) and Paul DiGiacomo (NOAA)
    • Co-Chair rotation for the coming year will be revisited and replacements identified as needed
• Recent achievements/outcomes:

  ▪ Publication of IOCCG Report #12: “Ocean-Colour Observations from a Geostationary Orbit”

Available at: http://ioccg.org/reports_ioccg.html
• Recent achievements/outcomes (continued):

  ▪ **First International Ocean Colour Science (IOCS) Meeting**: held 6-8 May 2013 in Darmstadt, Germany
    ▪ The meeting programme included eight presentations from space agency representatives, five invited keynote talks, 12 breakout splinter sessions, two poster sessions (114 posters) and open floor discussions.
    ▪ There were over 244 participants from 36 nations in attendance
    ▪ The overarching theme of the 1st IOCS meeting was “Building of Ocean Colour Climate Data Records”.
Main 2013 achievements/outcomes (continued):

- First International Ocean Colour Science (IOCS) Meeting
  - Splinter Sessions:
    - 1: NASA Ocean Colour Research Team Meeting
    - 2: Advances in Atmospheric Correction of Satellite Ocean-Color Imagery
    - 3: Geostationary Ocean Colour Radiometry
    - 4: Multi-Agency Data Sharing
    - 5: Operational Ocean Colour Data in Support of Research, Applications and Services
    - 6: *In situ* Measurement Protocol Revision for Cal/Val
    - 7: International Training and Outreach
    - 8: System Vicarious Calibration
    - 9: Climate Variables and Long Term Trends
    - 10: Phytoplankton Community Structure from Ocean Colour
    - 11: Satellite Data File Formats and Tools for Easy Science Exploitation
    - 12: Satellite Instrument Pre- and Post-Launched Calibration
Near-Future Plans:

• Facilitate agency follow up to recommendations and requirements articulated in IOCCG Report #13: “Mission Requirements for Future Ocean-Colour Sensors”

• IOCCG/OCR-VC Agency discussion of implementation of INSITU-OCR per recommendations of the white paper; includes proposed establishment of multi-agency project office.

• Identify and implement specific linkages with relevant existing and forthcoming components of the GEO Blue Planet Task, including ECVs, ChloroGIN, SAFARI, GODAE-OceanView, Coastal Services, Future Earth, et al.
Near-Future Discussions/Plans:

- Establishment of an OCR Calibration Task Force; specific focus and implementation mechanism to be discussed in upcoming IOCCG Executive Meeting.

- Follow-up on recommendations from IOCS Meeting – review proposals for focused topical workshops and progress on specific technical and programmatic actions.

- Report of activities and actions for OCR ECV Task Force.

- Revise OCR-VC Terms of Reference (ToR) and update OCR-VC Implementation Plan (IP).
Revised OCR-VC ToR accepted on 19 December 2013 - Circulated to CEOS lists with all ToRs on 20 December 2013 w/CEOS Deliverables to 2015

- **Highlights of ToR:**
  - Mission Statement – focus on basic and applied research and management
  - Characterize Observations and Space Segment – did we get this right? missions focused on global climate, and missions focused on regional management

- **Activities/Outcomes/Deliverables:**
  - Implementation of ocean color minimum mission requirements for global polar-orbiting sensors and data harmonization
  - Coordination for geostationary ocean color missions and facilitating coastal ecosystem research, applications and services using OCR data
  - Implementation of the INSITU-OCR
  - Implementation and coordination of an Ocean Color Radiometry satellite sensor calibration permanent task force
  - Support for implementation of the GEO Blue Planet Task
Revised OCR-VC ToR

- Gave examples of 3-yr and 5-yr horizon deliverables for space segment, ground segment and information systems, and Products and Services that the OCR-VC would deliver
- IMPLEMENTATION AND COORDINATION ISSUES TO BE ADDRESSED BY SIT
  - SIT encouragement for CEOS agency implementation of the IOCCG Report 13 will be critical to the success of the OCR-VC and future OCR continuity and user engagement.
  - SIT endorsement for the formulation of a Water Quality Community of Practice, and subsequent development of a pathfinder activity for a global coastal and inland water quality monitoring service, to be developed under the auspices of GEO/GEOSS.
  - SIT encouragement for CEOS agency participation and support toward implementation of the INSITU-OCR.
  - CEOS agency endorsement of sensor calibration approaches advocated by OCR-VC.
  - SIT endorsement for the OCR-VC action plan to be generated addressing the ocean color components in the updated GEO Blue Planet Task Plan.
  - CEOS agency adoption of free, easy and timely access to and sharing of calibrated OCR data, as well as uncalibrated Level-0 or Level-1A data, calibration information and source/processing codes.
  - SIT encouragement for CEOS agency participation and support for sustained projects for calibration and validation of OCR data, and merging of OCR data across satellite sensors with determination of uncertainties/errors and SI traceability.
# Revised OCR-VC ToR

## Schedule:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Milestone</th>
<th>Target Date</th>
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<tbody>
<tr>
<td>Ocean color mission minimum requirements implementation and data harmonization</td>
<td>All CEOS agencies (as appropriate) respond to IOCCG Report #13 recommendations</td>
<td>May 2014</td>
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<tr>
<td>Facilitate coastal ecosystem research, applications, services using OCR data</td>
<td>Implementation of GEO Water Quality Community of Practice (WQ-COP)</td>
<td>July 2014</td>
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<tr>
<td>Facilitate OCR sensor calibration</td>
<td>OCR sensor calibration task force initiated</td>
<td>Sept 2014</td>
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<tr>
<td>Support for implementation of the components delivered</td>
<td>OCR-VC action plan for GEO Blue Planet GEO Blue Planet Task</td>
<td>Sept 2014</td>
</tr>
<tr>
<td>Implementation of the INSITU-OCR</td>
<td>Establish coordinating INSITU-OCR office</td>
<td>May 2015</td>
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New SIT Chair Team – CNES


- Three Objectives:
  - Introduction and quick review of the status and issues and potential resolutions that may require SIT Chair support – ongoing issues and concerns of priority to Chair
  - Continuity of the discussion on issues raised by you in side-meetings or previous telecons.
  - Preparation of SIT-29 discussions and subsequent actions

- Telecon Agenda
  - Introduction
  - Current status and issues, incl. long-term plans and regional aspects
  - Summary