



International Ocean Colour Coordinating Group (IOCCG)

Promoting the application of remotely-sensed ocean-colour and inland water radiometric data, across all aquatic environments, through coordination, training, liaising between providers and users, and advocacy and provision of expert advice.

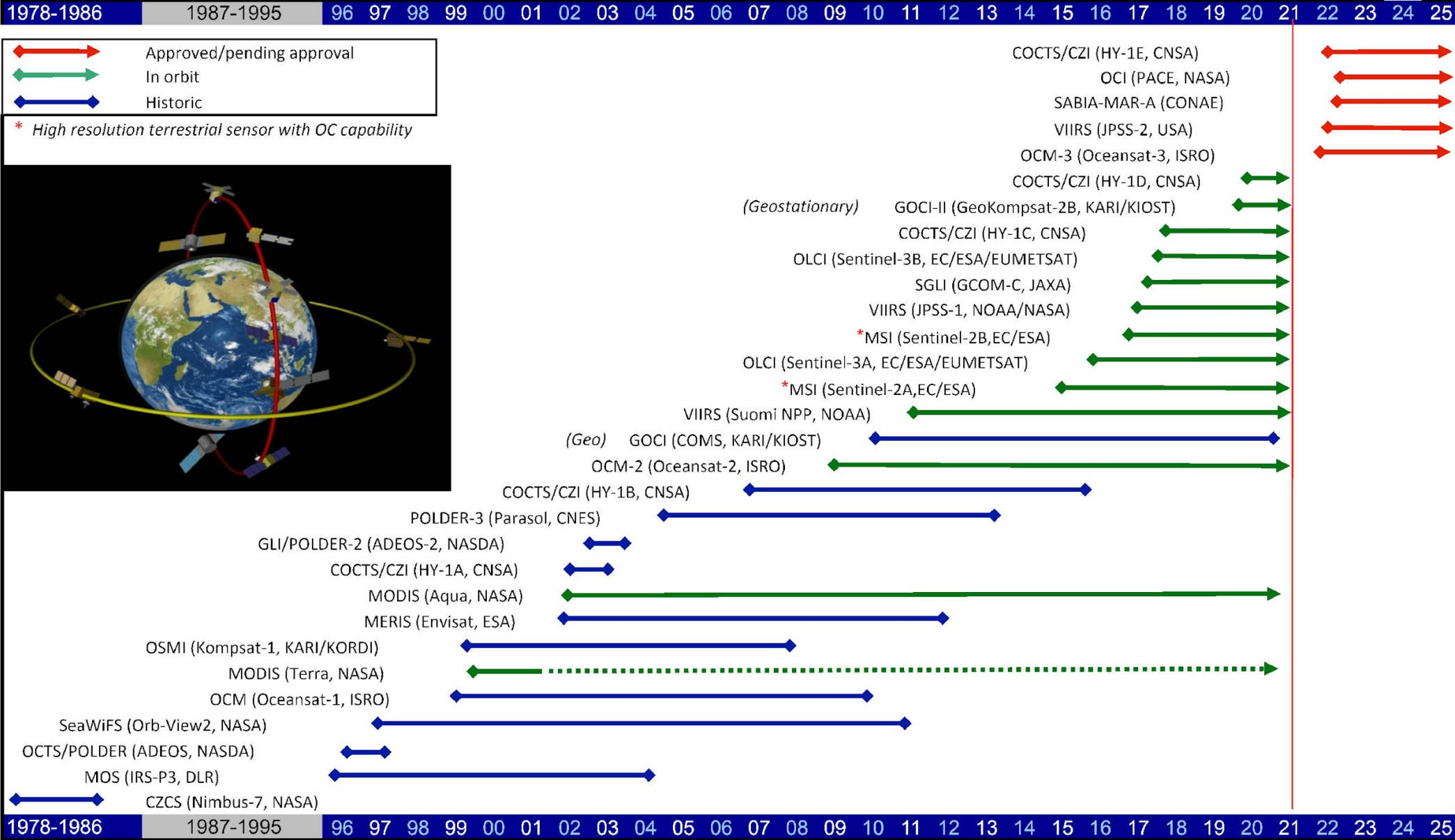
Cara Wilson, IOCCG Chair

Venetia Stuart, IOCCG Project Coordinator

Raisha Lovindeer, IOCCG Scientific Officer

SCOR Annual Meeting • 26-28 October 2021

Satellite Ocean Colour Missions



Current IOCCG Committee

The IOCCG Committee met virtually in May 2021. Minutes of the meeting are available on the [IOCCG website](https://ioccg.org). No rotation of members occurred during 2020-2021.

- Wilson*, Cara (Chair) - NOAA/NMFS, USA
- Bernard*, Stewart (Past Chair) - CSIR, South Africa
- Bontempi, Paula – Univ. Rhode Island, USA
- Boss, Emmanuel - University of Maine, USA
- Brando, Vittorio - CNR, Italy
- Chauhan*, Prakash - ISRO, India
- Ciotti, Aurea - Universidade de São Paulo, Brazil
- Devred, Emmanuel - BIO, Canada
- Dogliotti, Ana - IAFE, CONICET/UBA, Argentina
- Franz, Bryan - NASA/GSFC, USA
- Giardino, Claudia - CNR-IREA, Italy
- Giugni*, Laurent - CSA, Canada
- He*, Xianqiang - SIO, China
- Hu, Chuanmin - University of South Florida, USA
- Kampel*, Milton - INPE, Brazil
- Kim, Wonkook - Pusan National University, South Korea
- Kwiatkowska*, Ewa - EUMETSAT, Germany
- Lifermann*, Anne - CNES, France
- Loisel, Hubert - Université du Littoral, France
- Lorenzoni*, Laura – NASA HQ, USA
- Malthus*, Tim - CSIRO, Australia
- Mélin*, Frédéric, EU-JRC, Italy
- Murakami*, Hiroshi - JAXA/EORC, Japan
- Rio*, Marie-Hélène - ESA/ESRIN, Italy
- Ryu*, Joo-Hyung - KIOST, SOUTH Korea
- Wang*, Menghua - NOAA/NESDIS, USA

* Executive Committee members

Continually Rotating - 69 past members <https://ioccg.org/about/past-committee-members/>



IOCCG Communications

- IOCCG celebrated 25 years in 2021 and highlighted achievements and tributes on the newly launched Twitter page and in the Aug 2021 news bulletin.
- News bulletins and the mailing list are the key ways for IOCCG to interact with the ocean color community.
- News bulletins include
 - news from IOCCG, the ocean colour community and IOCCG sponsoring agencies
 - announcements, employment and funding opportunities
 - highlights of new publications
- Past issues are archived on the IOCCG website at <https://ioccg.org/news/>



The screenshot shows the IOCCG website's news page for August 2021. At the top left is the IOCCG logo (International Ocean Colour Coordinating Group). The navigation menu includes HOME, ABOUT, WHAT WE DO, IOCCG NEWS (highlighted in red), RESOURCES, and CONTACT. The main heading is "News August 2021" with a breadcrumb "Home » August 2021 News". The text of the news bulletin states: "This IOCCG news bulletin contains a summary of the latest news from the IOCCG, its sponsoring agencies, and the broader ocean colour community. If you would like to include an item of interest in the next IOCCG news bulletin, please contact the IOCCG Scientific Officer, Dr. Raisha Lovindeer (raisha@ioccg.org), with a cc: to Dr. Venetia Stuart (vstuart@ioccg.org). If you are having trouble receiving emails from IOCCG on your network, please see instructions on how to Whitelist 'Campaign Monitor' (the IOCCG email marketing platform). Please also add raisha@ioccg.org, vstuart@ioccg.org and ioccg@ioccg.org to your list of contacts (especially important for subscribers with Gmail accounts - also check your SPAM folder)." Below this is a section titled "IOCCG News" with the sub-heading "IOCCG Celebrates 25 Years of Existence". The text reads: "The IOCCG celebrates 25 years in 2021! Committee members and sponsoring agencies submitted tributes to the Group. A few tributes have been shared below that encompass many of the sentiments expressed by all, and highlight major contributions of the IOCCG over the past 25 years." A quote follows: "The IOCCG, through its tireless endeavours, outstanding publications, user engagement workshops and symposia, has spearheaded the transition of ocean colour science to the modern era of operational ocean colour radiometry from space. The biogeochemical measurements that are available from space today serve a myriad of societal applications from local to global climate scales. They are testament to the vision, tenacity and dedication of the IOCCG and its membership." To the right of the quote is the IOCCG logo. Below the quote is another quote: "IOCCG from its very beginning made a major contribution to the Medium Resolution Imaging Spectrometer MERIS on ESA's scientific 'Flagship' Earth Observation Mission Envisat, specifically with respect to the development of its water constituent data products and its calibration and validation procedures. Building upon these achievements, the Ocean and Land Colour Imager (OLCI) onboard the operational Copernicus Sentinel-3 mission benefitted from IOCCG's work, its recommendations and its outstanding publications. Unforgotten shall be the excellent support to these missions from IOCCG colleagues, who are unfortunately no longer with us, Andre Morel, Trevor Platt, Roland Doerffer, Andreas Neumann, and Oleg Kopelevich." Below this is a quote from the European Space Agency: "The European Space Agency congratulates the IOCCG on 25 years of excellence and looks forward to an exciting future of hyper spectral measurements - set to reveal even more of the wonderful, yet fundamental, majesty of our oceans." - Craig Donlon & Mike Rast, ESA.

[Subscribe to the mailing list](#)



IOCCG Scientific Report Series

- Scientific Working Groups investigate various aspects of ocean-colour science, technology and its applications and publish their findings in a scientific reports.
- 20 IOCCG Reports published to date (plus a handbook) on the IOCCG website (<https://ioccg.org/what-we-do/ioccg-publications/>) as well as the IODE Ocean Best Practices repository.
- **Newest report is the *Observation of Harmful Algal Blooms with Ocean Colour Radiometry* (2021) published this year, which was partially supported by SCOR**




IOCCG Scientific Report Series - Full List

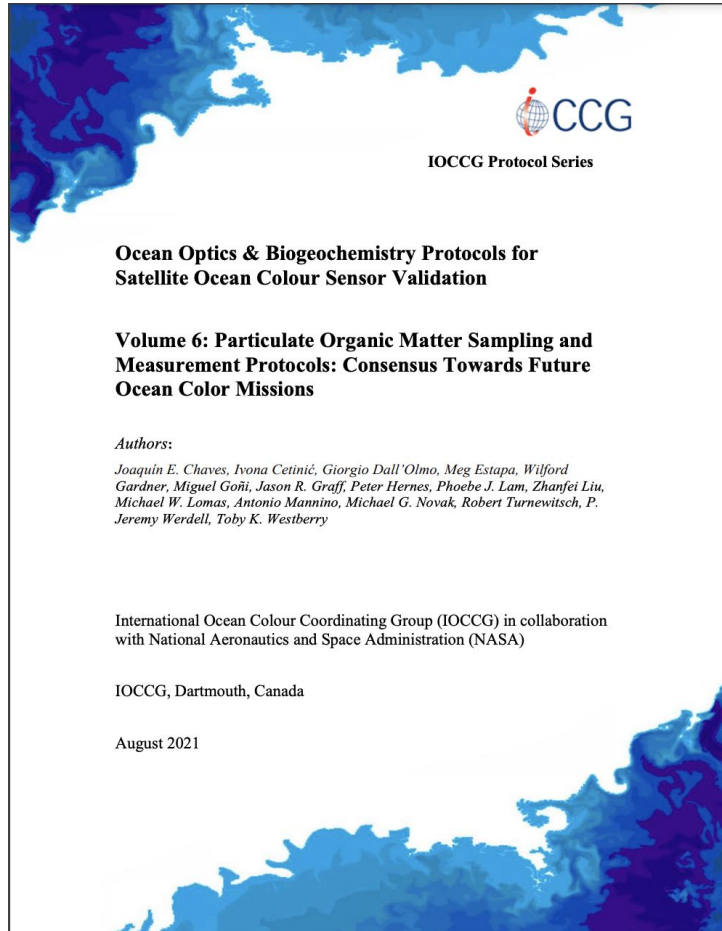
1. Minimum Requirements for an Operational Ocean-Colour Sensor (1998)
2. Status and Plans for Satellite Ocean-Colour Missions (1999)
3. Remote Sensing of Ocean Colour in Coastal and Other Waters (2000) – high downloads!
4. Ocean-colour, Level-3, binned data products (2004)
5. Remote Sensing of IOPs: Fundamentals and Algorithms (2006) – high downloads!
6. Ocean-Colour Data Merging (2007)
7. Why Ocean Colour? The Societal Benefits of Ocean-Colour Technology (2008)
8. Remote Sensing in Fisheries and Aquaculture (2009)
9. Partition of the Ocean into Ecological Provinces (2009)
10. Atmospheric Correction (2010)
11. Bio-Optical Sensors on Argo Floats (2011)
12. Ocean-Colour Observations from a Geostationary Orbit (2012)
13. Mission Requirements for Future Ocean-Colour Sensors (2012)
14. In-flight Calibration of Satellite Ocean-Colour Sensors (2013)
15. Phytoplankton Functional Types from Space (2014)
16. Ocean Colour Remote Sensing in Polar Seas (2015)
17. Earth Observations in Support of Global Water Quality Monitoring (2018)
18. Uncertainties in Ocean Colour Remote Sensing (2019)
19. Synergy between Ocean Colour and Biogeochemical/Ecosystem Models (2020)
20. **Observation of Harmful Algal Blooms with Ocean Colour Radiometry (2021)**



Current IOCCG Working Groups

Topic	Chair(s)	Report Status
<p><u>Conducting Benthic Reflectance Measurements</u></p> 	<p>Heidi Dierssen (USA)</p>	<p>Virtual meeting planned for late Nov 2021. In-person meeting planned for Feb 2022 in conjunction with the Ocean Sciences Meeting in Hawaii, USA.</p>
<p><u>Atmospheric Correction Algorithms over Optically-Complex Waters</u></p>	<p>Cédric Jamet (France)</p>	<p>Will be an IOCCG Technical Report. Expected publication late 2021/early 2022</p>

IOCCG Protocol Series



<https://ioccg.org/what-we-do/ioccg-publications/>

New Protocol published August 2021!

[Volume 6: Particulate Organic Matter Sampling and Measurement Protocols: Consensus Towards Future Ocean Color Missions](#)

New draft available for community comment until November 2021

[Volume 5: Aquatic Primary Productivity Field Protocols for Satellite Validation and Model Synthesis](#)

FULL LIST

- V7.0 – Aquatic Primary Productivity Field Protocols for Satellite Validation and Model Synthesis (**DRAFT – for community review until Nov 2021**)
- V6.0 – Particulate Organic Matter Sampling and Measurement Protocols (Aug 2021)
- V5.0 – Measurement Protocol of Absorption by CDOM and Other Dissolved Materials (**DRAFT – currently being revised according to community feedback**)
- V4.0 – IOP Measurements and Protocols: Best Practices for the Collection and Processing of Ship-Based Underway Flow-Through Optical Data (Nov 2019)
- V3.0 – Protocols for Satellite Ocean Color Data Validation: In situ Optical Radiometry (Dec 2019)
- V2.0 – Beam Transmission and Attenuation Coefficients: Instruments, Characterization, Field Measurements and Data Analysis Protocols (April 2019)
- V1.0 – IOP Measurements and Protocols: Absorption Coefficient (Nov. 2018)

IOCCG Task Forces

IOCCG has established several semi-permanent Task Forces to address issues that require an ongoing capability and/or expertise and help to facilitate inter-agency collaboration on an ongoing basis.

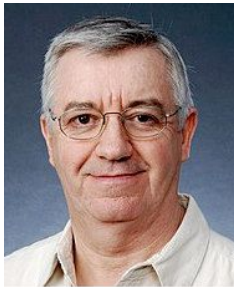
- **Ocean Colour Satellite Sensor Calibration:** Task Force provides a framework for exchange of ideas, information, and data among ocean colour instrument calibration experts from various agencies, and to conduct hands-on research and implementation.
- **Long-term Vicarious Adjustment of Ocean Colour Sensors:** Previously an IOCCG working group being transformed into a Task Force to facilitate inter-agency collaboration.
- **Remote Sensing of Plastic Marine Litter & Debris :** Task Force spearheaded by ESA to improve our ability to monitor floating plastic debris from space. The first Task Force workshop was held in July 2021. They are tackling four different core topics:
 - technologies, datasets, interdisciplinary aspects and algorithms & applications.



IOCCG Capacity Building Initiatives

IOCCG Summer Lecture Series (Advanced Training)

- Biennial 2-week course at Laboratoire d'Océanographie de Villefranche since 2012. 2020 was cancelled. Next scheduled for Summer 2022.
- Sponsors:



Trevor Platt Memorial Scholarship

- For students from developing countries to conduct hands-on research, or to receive in-depth training, at a foreign institute.
- New call will be issued in early 2022

Applied Introductory Training Courses

- 24 courses to date. 500 students trained from 86 different countries
- Lectures and hands-on exercises (using software for processing and displaying satellite data).

<https://ioccg.org/what-we-do/training-and-education/>

Online Educational Resources

IOCCG website continues to maintain [a clearing house of online resources](#) about ocean optics including:

- Presentations and videos from past IOCCG Summer Lecture Series and other training courses
- Presentations and videos from the University of Maine's Ocean Optics Course
- Training materials from NASA, EUMETSAT and ESA, and other tutorials
- Link to the **Ocean Optics Web Book**, a continually developing community resource for optical oceanography. Initial content by Curtis Mobley.

“Textbook”

Physical Principles of Ocean Color Remote Sensing

by Howard Gordon, 2019

- Available exclusively on the IOCCG website
- Easily searchable! (Contents, equations, figures, bibliography, and index are in hypertext).
- 995 pages (45 MB)
- Downloaded over 680 times!

International Ocean Color Science Meeting



International Ocean Colour Science

Advancing Global
Ocean Colour
Observations

- NEXT scheduled for 2023 in USA
- brings the ocean colour community together
- held every other year since 2013
- sponsored by various space agencies.

OVERALL GOAL

- ◆ To build, represent, and reinforce the voice of the global ocean colour and inland water user community
- ◆ To promote international linkages among different ocean and Earth science communities
- ◆ To provide a forum for discussion on key research and technology topics and come up with recommendations/advice for IOCCG, user communities, and feedback to space agencies
- ◆ To facilitate broad ocean colour community engagement in IOCCG activities

PAST IOCS STATS SPONSORING AGENCIES

- May 2013, Darmstadt, Germany, 244 attendees, 36 countries, EUMETSAT, NASA, ESA, CNES
- June 2015, San Francisco, USA, 262 attendees, 29 countries NASA, NOAA, ESA, EUMETSAT, CNES, SCOR
- May 2017, Lisbon, Portugal, 344 attendees, 41 EUMETSAT, ESA, NASA, EC
- April 2019, Busan, South Korea, 235 attendees, 29 countries KIOST, NASA, EUMETSAT

<https://iocs.ioccg.org/>

Journal Special Issue: Aquatic Carbon from Space

Call for papers issued for [Journal Special Issue - Aquatic Carbon Stocks and Fluxes: The Big Picture from Remote Sensing](#)

in *Earth-Science Reviews* Led by Chuanmin Hu (USF) and Laura Lorenzoni (NASA)

Topics of interest

1. Carbon sequestration/export
2. Carbon exchange across land/water interface
3. CO₂ exchange across the air-water interface – the dissolved inorganic carbon budget
4. Dissolved organic carbon budget
5. Particulate carbon budget
 - a. Particulate organic carbon
 - b. Particulate inorganic carbon
6. In water volatile organic carbon budget and rates
7. Aquatic ecosystem to aerosol flux
8. Gross and net primary production
9. Aquatic respiration
10. Primary to secondary carbon transfer
11. Blue carbon
12. Anthropogenic elements of aquatic carbon
13. Future observational and modeling requirements
14. Disturbance/extreme events to the carbon cycle as seen from space

IOCCG & SCOR



IOCCG is an affiliate of SCOR

- SCOR provides avenue for funding for IOCCG from US agencies, which is critical to the implementation of the IOCCG program. E.g. IOCCG NASA funds are managed by SCOR.
- SCOR provides support for students from developing countries to attend IOCCG training courses and IOCS meetings.
- SCOR supported IOCCG and other ocean color-related activities, e.g. the IOCCG/GlobalHAB report on harmful algal blooms.
- Early affiliation with SCOR provided international recognition of the scientific expertise and achievements of IOCCG.

Contacts

IOCCG Chair

Cara Wilson – cara.wilson@noaa.gov

IOCCG Project Office

Venetia Stuart – vstuart@ioccg.org

Raisha Lovindeer – raisha@ioccg.org

www.ioccg.org

[Subscribe to the IOCCG mailing list](#)

 [@IOCCG](https://twitter.com/IOCCG)

