

## Summary IGWCO CoP meeting 25 February 2021

### Attendants

Name	Affiliation
Alice Andral	National Centre for Space Studies (CNES) France
Bente Lilja Bye	Bente Lilja Bye (BLB) research and consulting company
Jiancheng Shi	Institute of Remote Sensing and Digital Earth - Chinese Academy of Sciences (CAS)
Florian Franziskakis <i>on behalf of Douglas Cripe</i>	GEO secretariat
Wolfgang Grabs	Co-Chair IGWCO CoP
Eva Haas	EOMap
George Huffman	NASA Goddard Space Flight Center
Guoqiang Jia	Chinese Academy of Sciences (CAS)
Toshio Koike	International Centre for Water Hazard and Risk Management
Kamal Labbassi	Chouaib Doukkali University
Richard Lawford	Morgan State University and former IGWCO Co-Chair
Suxia Liu	Chinese Academy of Sciences
Rita Marteleira <i>on behalf of Anil Mishra</i>	UNESCO-Hydrology
Sharon Orta	Newcastle University
Hans-Peter Plag	Old Dominion University
Yubao Qiu	Chinese Academy of Sciences
Jiancheng Shi	Chinese Academy of Sciences
Bob Su	University Twente
Sushel Unninaray	NASA Goddard Space Flight Center and Morgan State
Peter van Oevelen	IGPO and Co-Chair IGWCO CoP
Yijian Zeng	University of Twente

### Agenda

1. Introduction of participants
2. Membership issues of the IGWCO-CoP
3. Overview of on-going activities and new developments from participants
4. Overview of on-going activities and new developments from IGWCO co-chairs
5. Discussion of the implementation of the IGWCO (discussion document circulated prior to the meeting)
6. Suggestions for sharing of work amongst members of the Community of Practice
7. The GEOSS Water Strategy: adapting the strategy to the future
8. Any other business

### Summary

#### Ad 1. Introduction of participants

Participants briefly introduced themselves with their affiliation and main fields of activities. Participants are listed above in the list of Attendants.

Subsequently, the agenda was adopted as proposed

#### Ad 2. Membership issues of the IGWCO-CoP

Co-chairs were concerned that possibly not all persons interested in IGWCO are properly registered. Persons that are not yet signed up to the mailing list or having trouble receiving messages from IGWCO are kindly requested to please send a message to [contact@gewex.org](mailto:contact@gewex.org). Persons should also check whether messages from IGWCO or

GEWEX are placed in the spam folder. Going forward only the latest updated list will be used to contact IGWCO-CoP members and sending updates and news.

### Ad 3. Overview of on-going activities and new developments from participants

Co-Chairs will request GEOGLOWS to provide some input on current developments and activities, including [AmeriGEOSS](#).

#### George Huffman

[GEOGLOWS](#) Working Group 3 '*Essential Water Variables and Observations*' is concerned with the definition and promotion of Essential Water Variables (EWVs). There is some concern from the community about the utility of EWVs as there are already Essential Climate Variables (ECVs). In many instances the names of the variables are identical, but differences exist for example in terms of temporal latency and areal resolution. Work in progress.

#### Rick Lawford

Working with the GEO Secretariat, the Earth observations for the Water-Energy-Food Nexus ([EO4WEF](#)) is in the process of setting up a new webpage which will go live in three to four weeks. Functioning with CoP but it feeds into the actual community activity as documented in the GEOS Workplan. The GEOS Workplan might be considered a model for IGWCO and the follow-up of the GEO Water Strategy.

The Water Strategy Review document will be finalized latest by end of March for further use. The paper manuscript "Implementing the GEOSS Water Strategy: From Observations to Decisions" has been submitted for review in the Journal of the American Water Resources Association (JAWRA). There is no perspective yet when the article will be accepted for publication.

#### Bob Su

The European Joint Programming Initiative ([JPI](#)) on "Water challenges for a changing world" is focused on how to make scientific products useful to users. This might be of interest for IGWCO.

An integrative information aqueduct is being established to close the gaps between global satellite observation of water cycle elements and local sustainable management of water resources. Trying to downscale global water cycle elements products to field scale.

Trying to utilize high resolution data like Sentinel 1-data would aim on how 25 to 30 Km products from SMAP and SMOS can be used on field level. Will probably utilize cloud computing platform from ITC. Algorithms or data will be uploaded. If user is interested in a higher resolution product, this will be facilitated by running global low-resolution data through the algorithm and produce high resolution data for specified areas of application.

#### Florian Franziskakis

A few weeks ago, an in-situ dedicated subgroup in the GEO data Working Group has started its work. Its main activity focuses on serving the GEO program activities in relation to institutional challenges that may be encountered for data sharing, data availability, etc. This activity could be linked to the further implementation of the GEO Water .

#### Toshio Koike

In Asia we are doing the International Flood Initiative ([IFI](#)) to reduce water-related disasters intensified by climate change under the framework of the GEOSS Asian Water Cycle Initiative (AWCI) in collaboration with the UN organizations, including UNESCO, WMO, UNDR and the UN Universities, national governments including Sri Lanka, Philippines, Myanmar, and Indonesia, and GEOGLOWS.

In Africa, based on the legacy of [African water cycle coordination initiative](#), UNESCO and ICHARM is now doing the West Africa project focusing on Niger River and Volta River. Due to the COVID19-situation, we developed and implemented online e-learning programs, including Training of Experts (ToE) and Training of Trainers (ToT). From

the 262 experts who joined the ToEs we nominated 31 experts for the ToTs which have been completed. The closing ceremony will be next week.

In collaboration with the World bank, ICHARM developed an agriculture drought monitoring and seasonal prediction system in the North East part of Brazil, based on the system for northern Africa which was demonstrated at the COP22 in Morocco by ICHARM. We are trying to update the system in collaboration with F UNCEME, the Meteorology and Water Resource Center of Ceara State in northeastern Brazil.

#### Ad 4. Overview of on-going activities and new developments from IGWCO co-chairs

- With regard to communications with the GEO Secretariat about the Review of Water Strategy paper, next step to be undertaken is a summary which recommendations have been accomplished and others that are still relevant and an analysis which new recommendations might be needed in future as a result of the current valid GEO Strategy and developments in the GEO community.

The German GEO-Chapter under the lead of the IGWCR UNESCO Category-II Center has formed a group to see what could be done to take the GEO Water Strategy further especially how the strategy could be anchored in the overall UN Water Strategy. Next meeting of this group is planned after Easter, where the last version of the Water Strategy Review document will be discussed.

Rick is finalizing the March 2020-version of the Water Strategy Review document. He will send the updated version, and with it the responsibility of monitoring its progress, to Wolfgang by the end of March 2021. Rick will stay available for consultation.

- Wolfgang was leading the in-situ community initiative when it was still active. The GEO Secretariat suggested to merge the in-situ community initiative with GEOGLOWS. Although positive, GEOGLOWS said it didn't have the resources to follow-up last year. Updated information will be requested from GEOGLOWS.

The Global Terrestrial Network Hydrology ([GTN-H](#)), is very interested in the ongoings of the in-situ community initiative, which is dormant at the moment.

- Florian will inform the institute co-leads that IGWCO-CoP (Wolfgang and/or Stephan) discuss with the in-situ task group which priority recommendations need to be addressed. Florian will send an email to Wolfgang with the necessary information and Wolfgang will contact the people involved.
- GEO Secretariat voiced its continued interest in the GEO Water Strategy. There are changed parameters, especially as the societal benefit areas are now merged into larger entities in the new structure. The relationship between the Water Strategy and the GEO Knowledge Hub needs to be further explored.
- GEO Secretariat encourages IGWCO to develop a Community Initiative, which would give IGWCO CoP a more formal context in working with the GEO Secretariat.
- GEO Secretariat is considering providing web presentation for Community Initiatives such as IGWCO-CoP once the Initiative has been accepted by GEO Secretariat. Meanwhile, IGWCO will shortly prepare its own webpage that could be merged in to the GEO webpage at a later stage. GEO-Secretariat will prepare some guidance to the format and content for a community initiative webpage.
- There are a number of activities going on at WMO in part related to the reorganization at WMO and consequently some of the changes at the research departments. Also important to IGWCO are developments in GCOS. Several things intersect e.g., where will the global dataset development be placed and who is going to steward this development in the future. GEWEX will hopefully play an important role. Questions that we need to answer: how does this co-exist with the application/implementation focus of GCOS, a production of climate data records, and how can we embed these types of things in the larger context of the GEO strategy and its Work Plan.

GEWEX focuses on the process-oriented part of research but needs connections on how that can be implemented and applied. This is where GEWEX intersects with many groups like IGWCO.

#### Ad 5. Discussion of the implementation of the IGWCO

The discussion document circulated to IGWCO members in advance of this teleconference describes aspects of the implementation of IGWCO and the proposed next steps and outlook. The discussion document is based on the Roadmap document for the renewed IGWCO-CoP adopted last year. There is the need to come up with a couple of activities that are already described in the roadmap document.:

- 1) Identification of relevant water issues in current GEO-activities. Water issues are spread-out all over in GEO-activities that are relevant to water. Although many water-related issues are addressed by GEOGLOWS, some are taken up by IGWCO and others might be included by other groups unknown to us.
- 2) Development of an IGWCO community activity. Wolfgang will distribute a blueprint explaining the setup and content of such an activity. Such an initiative involves actively participating members and institutions who share the work that needs to be done and identifying supporting institutions that can provide backup. Funding issues are mentioned in the roadmap document. It is proposed that a separate meeting is dedicated on funding.
- 3) There is need for clarification of specific operations carried out by IGWCO and others by GEOGLOWS. In principle, the activities within GEOGLOWS are funded. Activities in IGWCO are based on opportunity, best efforts and voluntary work without a structural funding base.
- 4) It is important that points of contact are identified for specific tasks for the development of capacity and execution of agreed activities within the scope of an implementation plan of the IGWCO-CoP. It is noted that the IGWCO membership list is diverse and represents many different areas that are of interest.

#### Ad 6. Suggestions for sharing of work amongst members of the Community of Practice

The aim is to have a group of volunteers, who would like to be involved with the items mentioned in the implementation document within the next two to three weeks after the adoption of the minutes of this meeting. Apart from an implementation plan we need to come up with a workplan for this year. Together with partners who are not members of the IGWCO it is intended to form task-teams to tackle the necessary activities.

In anticipation of the blueprint for a webpage from GEO Secretariat, IGWCO supported by the GEWEX office aims to develop a simple webpage containing basic information, like news items, project progress, meeting outcomes, basic and background documents etc. This could be a way to solicit inputs to the CoP from the target audience.

GEO Sec is interested in the Water Strategy review and its review.

Based on the final version of the Water Strategy Review, some recommendations can be derived for its further implementation. CoP is called to follow up on the development and will take up some of the actual work.

Additional suggestions were: i) to write brief position papers on the various areas of activities in the renewed IGWCO program in cooperation with GEO Secretariat; ii) include such positions in the community activity paper, which we would like to develop with co-authors from the community.

The development of the IGWCO Implementation Plan should be seen as a living document and is something of the middle-term future at this moment.

Important to IGWCO-CoP are capacity building activities tied to the GEO Knowledge Hub. Need to discuss with GEO Secretariat about their preferences. Such as: Does GEO-Sec wish knowledge hub sectors in different domain areas like water? If so, a water knowledge package could be developed that feeds into the knowledge hub.

Alternatively, does GEO-Sec would prefer a contribution where water could develop parts or components in the overall GEO Knowledge Hub?

Participants were informed about the outcomes of a webinar on the Knowledge Hub.

Participants were further informed that Yana Gevorgyan (NOAA - NESDIS), is the new director-elect of the GEO Secretariat and will start duties on 1 June 2021.

As detailed in the roadmap, one of the major service pillars of IGWCO are the Observation and Data Services that support the GEO initiatives, flagships and community activities. With regard to the Essential Water Variables,

there is the need to take a closer look at the linkages with GEOGLOWS, GCOS and WMO. Additionally, information should be sought on the status of the Global Terrestrial Observations System (GTOS) of the FAO, which has been dormant over the last 15 years. Last year, GTOS indicated that they are interested in having a new secretariat again. Currently, the 'Terrestrial Observation Panel on Climate (TOPC)' is hosted by GCOS. It's not clear who is responsible for, or active in GTOS at FAO.

Together with JAXA and CEOS, there is need to review the status of existing research in operation satellite observing systems across the water cycle components, especially those for which future continuity is uncertain or under review. Colleagues who are working on this, could be brought in as a contributor to IGWCO.

Another topic is to assess opportunities for using multi-sectorial or multi-disciplinary data from remote sensing platforms together with in-situ water data for integration in order for us to provide end-user applications and decision-making services. The idea and lessons learned from the upcoming GEO Water Strategy publication is to look closer at end-user applications and decision-making services.

Together with the Global Runoff Data Centre ([GRDC](#)), a successful effort has been undertaken to develop a combined database of satellite based water gauging data, which is based on the altimetry from mainly SMOS and the regular in-situ observations of the GRDC. The current status of this effort should be investigated with LEGOS-CNES and GRDC. Additionally, CNES maintains the data from the global water lake database, which is partly from in-situ Russian global lakes and reservoirs database and partly on a webpage (Hydroweb) which is taken up and maintained by CNES.

Alice Andral reported that [Hydroweb](#) currently contains more than 11.000 points of measurements around the world.

This year an increase of the number of lakes that will be monitored around the world is expected. Main work is focused on the preparation of the future mission, Satellite Water and Ocean Topography ([SWOT](#)), which will provide a global view of water storage in lakes around the world.

Another possibility is to look at the European Horizon 2020 program as a source for support of in-situ data projects. There are a number of data and data services related issues which IGWCO could support. We're looking for volunteers who want to participate.

Bente Lilja Bye:

Bente is co-chair of the Next generation EO services ([NEXTEOS](#)) community activities. The upcoming meetings of this group are on 4 March and 8 April. These meetings might be of interest to the members of IGWCO CoP to exchange information as there might be possibilities for cross sectorial capacity building. Discussion on the use of new technologies e.g., machine learning, data cloud, AI, etc. are on the agenda. Additionally, Angelica will give a presentation about GEOGLOWS and AMERIGEO on 4 March.

NEXTEOS has the means to catalogue data, services and applications in a data catalogue called NEXTGEOSS, based on the European Horizon 2020 project. It's connected to the GEO-portal and free to use by IGWCO to make data accessible to a large community.

Yubao Qiu:

The High Mountain and Cold Region Working Group working under the auspices of the Digital Belt and Road Initiative ([DBAR-HiMAC](#)) is continuing its activities. In the old portal, which has not been released formally, metadata, raw data and added-value data have been compiled. It has been tried to connect with NEXTEOS and through hub to determinate and exchange the meta-data at least. Some of this data can be used for analysis of climate change and environmental changes.

Kamal Labbassi:

Want to stress the importance of the involvement of the African research community. Extra effort to get them involved might be necessary. Africa is a big and diverse continent with lots of potential and many challenges and opportunities. Africa has most famous hydrological basins e.g., Nile, Congo basin, etc.

In this context, an introduction to the African Association of Remote Sensing of the Environment ([AARSE](#)) can be provided with the help of colleagues at [AfriGEO](#). At the AARSE conference Kamal can present the activities of IGWCO. This conference should have taken place in Kigali, Rwanda in October 2020, but has been postponed due to COVID19 and might be rescheduled to coincide with the [African Space Week](#) scheduled from 19 – 25 June 2021 in Nairobi, Kenya. Peter van Oevelen will be one of the Keynote speakers.

In terms of capacity building, suggest capitalizing and consolidating capacity acquired during programs that are completed e.g., the TIGER initiative and the African Water Cycle Initiative, which was launched by Prof. Toshio. Older programs: GEMS and Africa program which is considered the first Pan-African program for sustainable development. In the framework of GEMS and Africa, 12 consortia are collaborating towards delivering approximately 23 services and application through the implementation of 4 pillars: data and infrastructure, product and services, training and communication. This program will deliver a continuous flow of data on Africa over the next 20 years. There are many activities in Africa that could be used as an opportunity for IGWCO to engage with the African community.

#### Suxia Liu:

- Share in-situ data of international soil moisture network ([ISMN](#)). Latest [publication](#) of the ISMN includes data from China. This improved data is valuable to validate remote sensing data. Everybody is welcome to use it.
- Are using data from Hydroweb and are using Unmanned Aerial Vehicle (UAV) and in-situ observations to compare remote sensing data for the inland waters of Chinese main rivers e.g., high and yellow rivers.

Suxia wants to contribute to IGWCO on the two above mentioned aspects.

#### Suggestions:

- IGWCO has organized many interesting conferences in the past. At this time in-person meetings are not possible due to COVID19. We could organize meetings on-line and/or start dynamic communication platform e.g., WeChat in China
- Increase number of publications on behalf of IGWCO to spread awareness about IGWCO.

#### Yijian Zeng:

Reports that the [Climate Data Store](#) on Copernicus Climate Change Services includes in-situ based climate data records too. Perhaps someone could link IGWCO to this.

He summarized that there are a number of ongoing activities which are of interest, or could even be contributing to, IGWCO and other activities where we as a group could assist in driving things forward. Who wants to participate?

There will be regular teleconferences, especially to initiate dynamic interaction. An option would be to use the GoTo Meeting platform that can be used by everyone.

Co-Chairs requested that the earlier sent documents are reviewed by participants and comments sent to [gewex@gewex.org](mailto:gewex@gewex.org) at the latest 2 weeks after the adoption of the minutes of this meeting.

Peter will start building a small website to accommodate documentation and to have a central focal point. There should be something ready for you to comment on at the beginning of April.

Members are asked for suggestions /ideas on how to manage discussion papers e.g., through GOOGLE doc, or other platforms

## Ad 7. The GEOSS Water Strategy: adapting the strategy to the future

Need to find recommendations to link GEO Water Strategy closer to the GEO strategy and have look at the new workplan (see links below), for instance:

- Linking GEO Water Strategy to GEO Water Hub in terms of requirements of water business
- Regarding EWW: naming system similar to GCOS. However, there is a big difference in identification of specificities and interpretation of necessities in terms of spacial and timely resolution, accuracy and methods of observation. In addition to ECVs it's of interest to have EWWs. It's going to take a lot of work to get this established. GEOGLOWS and IGWCO community could assist with the development, which is part of GEO strategy as well.

Rick Lawford made a suggestion: Based on results from workshops in the period 2013 - 2014 isn't it time to start with a next update or major revision to the GEOSS Strategy? Information is partially dated and issues have shifted and should be adapted. If we want to publish an updated version of the GEOSS Water Strategy in three to four years, we should start now.

Although it will take more time, on the short-term work on recommendations and in the long-term work on review of the original document. Note that the consultation process takes a long time. Producing a shorter document would be beneficial.

## Ad 8. Any other business

Yubao: On behalf of Prof. Jay Shi: proposed Water Cycle Observation Mission (WCOM)-satellites years ago and continues to propose water cycle satellites with the French member of soil moisture network. This activity is ongoing. Secondly, Prof. Shi works with international cooperation for the water cycle with Chinese and other international community members.

Rita: will remind Anil Mishra of UNESCO to send you his review of the documents.

Yijian: Having read the implementation plan, it's not clear for how to contribute? Is implementation plan linked to GEOS Water Strategy, where there are specific tasks mentioned?

Wolfgang mentioned that funding possibilities can be discussed in another meeting. In the meantime, we should look for funding opportunities e.g., (EU) Horizon 2020. There are other potential funding mechanisms to support community activities. Another option might be a cost action project. (<https://www.cost.eu/>)

Regarding capacity building: Africa EO (<https://www.itc.nl/news/2021/3/985999/eo-africa-rd-facility-kick-off>) is linked to capacity building in Africa and is the follow-up of TIGER program.

Wolfgang explained that although an important aspect, the implementation of IGWCO is not only linked to the Water Strategy. Besides GEO and GEOS, IGWCO is historically oriented to other activities as well. As in the roadmap document, IGWCO has a couple of main pillars of which one is GEO. Others are not necessarily related to GEO, although GEO might have an interest. The implementation of IGWCO is more than the implementation of the GEO Water Strategy.

Part is to develop a set of activities, which would constitute a community activity within GEO, and the Water Strategy is one of them. Other activities of IGWCO members get profiled and could be displayed and discussed with others by having them identified in the workplan of community activities. Community projects and activities contribute and give substance to IGWCO and the exposure will benefit the individual in return.

Alice commented that in addition to what was mentioned earlier in this meeting the links between GEOGLOWS and IGWCO need to be defined more in detail. Also, there is the question of how can we proceed to interact more effectively?

Having Alice participating in these IGWCO meetings is very helpful. Maybe Angelica could join as well. The aim is to develop some sort of understanding where there could be mutual help going from one to the other and vice versa. Rather than try to describe it in advance, let it develop organically.

Peter will look into this more closely and will get back on this topic.

George: The pandemic has been really hard on GEOGLOWS activity, so we hope for better in the future. Also, the future of the microwave satellite constellation continues to be an issue.

At the end of the teleconference, participants extended a big “Thank You” to Rick Lawford for having led this group for so many years and his many contributions. We’re happy with your continued involvement.

Thank you all for joining and participating and stay safe!

#### Action items

- Contributors send a few lines to [IGPO](#) on your topic to be added to the minutes of this meeting
- Rick will send the updated version of the Water Strategy paper to Wolfgang by the end of March 2021.
- Florian will inform in-situ committee of the possibility of a presentation with priority recommendations by IGWCO and will send an email to Wolfgang with the necessary information. Wolfgang will contact the people involved.
- Wolfgang send Peter the blueprint for an IGWCO-activity for distribution.
- Florian will send the link on the Knowledge Hub webinars
- **Volunteers/contributors for implementation Water Strategy, sharing of work and other activities please send email to [gewex@gewex.org](mailto:gewex@gewex.org). Deadline 23 March 2021**
- Send comments on Roadmap and Implementation Plan to [gewex@gewex.org](mailto:gewex@gewex.org) at the latest on 23 March 2021
- First version of website ready at the beginning of April.

#### Links

[2020-2022 GEO Work Programme Summary Document V4](#)

[2020-2022 GEO Work Programme](#), including GEO Flagships, Initiatives, Community Activities, GEO Regions and Foundational Tasks

[GEO Knowledge Hub webinar](#) Recording

Group on Earth Observations Global Agricultural Monitoring Initiative ([GEOGLAM](#))

[Hydroweb](#): Time series of water levels in the rivers and lakes around the world

[HYDROSPACE-GEOGIOWS 2021](#) meeting (7-11 June 2021)

[The International Soil Moisture Network: serving Earth system science for over a decade](#)

[In-Situ Water](#) (older version) from 2020-2022 GEO Work Programme

NEXTEOS: <https://nextgeoss.eu/nexleos/>

[World Water day 2021](#) (22 March 2021)