

Minutes IGWCO CoP meeting 27 April 2022

Attendees

Name	Affiliation
Wolfgang Grabs	Co-Chair IGWCO CoP
Richard Lawford	Morgan State University and former IGWCO Co-Chair
Peter van Oevelen	IGPO and Co-Chair IGWCO CoP
Suxia Liu	Chinese Academy of Sciences
Ulrich Looser	Global Runoff Data Centre (GRDC)
Douglas Cripe	GEO Secretariat
J.C. Shi	Aerospace Information Research Institute, CAS
Guoqiang Jia	Chinese Academy of Sciences (CAS)
Yubao Qiu	Aerospace Information Research Institute, CAS

Agenda

1. Urgent request for contributions to the IGWCO webpage
2. Start-up preparations for a renewed concise water strategy
3. First steps in the development of a Global Water Security Monitoring System
4. Updating the IGWCO Work Plan
5. Any other business

Minutes

Minutes of Last Meeting

The minutes of the last meeting were adopted with a slight amendment. Wolfgang Grabs noted that he would not be sending out a summary of the meeting with Douglas Cripe as specified under the action items. Dr. Grabs reported on that particular meeting, which involved the proposed global water security monitoring system, during the last meeting, so there was no extra report to send. Dr. Grabs noted that providing action items in the meeting minutes was very helpful and hopes the practice will continue.

Outstanding action items include Rick Lawford sending the latest update of the GEO Water Strategy Report for distribution to the IGWCO CoP member mailing list. Later in the call, Prof. Lawford confirmed that he would send the report and Dr. Cripe agreed to look over it. The latest available version will be sent to CoP members.

Prof. Lawford will send the latest update of the GEO Water Strategy Report to Dr. Cripe, and Prof. Lawford will update the document with some edits then send it for distribution to the mailing list.

Establishment of a IGWCO Website

Dr. Grabs noted that as discussed in the last meeting, contributions are needed for the IGWCO webpage.

ACTION ITEM: Fernande or Dr. van Oevelen will send a rough structure of the website and what it would look like, including major headings. The site would include static items such as an introduction or “about” section, and non-static items such as links to documents and news items (teleconference meeting minutes, activity updates, and more). It would be a quick and simple site. Dr. van Oevelen remarked that we should be clear on IGWCO’s added value (its openness, its diversity, its ability to bring together separately-developed issues, and its network-like nature).

Dr. Cripe will investigate whether there are website standards for GEO that could be used so that the IGWCO site can be linked to the GEO website. At a later point, Dr. van Oevelen indicated that he would borrow from the GEO

webpages on the Climate Change and Data Working Groups (links in the next section) when crafting the IGWCO website outline. This would likely boost the compatibility of the IGWCO site with the GEO sites. Dr. Cripe notes that GEO has a communications professional on staff who could help in putting together the webpage. Dr. Cripe will also investigate what logos should be on the webpage (what's allowed and what isn't).

Dr. Grabs proposed that he and Prof. Lawford could draft the introduction for the site.

Letter of recognition

Dr. Grabs asked Dr. Cripe if a formal recognition if IGWCO would be possible, perhaps in the form of a letter.

Dr. Cripe will draft a recognition letter for IGWCO and send it to the group for approval, then send it to Yana Gevorgyan of GEO.

Information on and linking to the GEO Climate Change and Data Working Groups

Links to the websites for the GEO Climate Change Working Group and the GEO Data Working Group can be found below, resolving the action item from a previous meeting for Bente Lilja Bye to send information on the GEO Data Group.

GEO Climate Change Working Group: https://earthobservations.org/cc_wg.php

GEO Data Working Group homepage: https://earthobservations.org/data_wg.php

GEO In-situ Subgroup Work Plan, 2021–2022:

https://earthobservations.org/documents/data_wg/data_sg_insitu_workplan.pdf

Dr. Cripe recommends that some members might join the GEO Climate Change Working Group, which might help create links to UNFCCC and other groups. Dr. van Oevelen will look into identifying someone, though resources are limited in this respect. Dr. Grabs suggests that identifying a point of contact for the Climate Change Working Group might be a way to go about this.

Start-up preparation for renewed concise water strategy

Dr. Grabs began by pointing out that the water strategy document should be more concise than the previous document, something around 20 pages. Many of the basic elements from the last version are still valid today and don't need to be repeated. The concise water strategy document should be released before 2025, so that it can circulate in the community before discussions on what happens to GEO after 2025.

The effort should be led by a small ad-hoc advisory panel, consisting of 5 or 6 influential individuals who could offer opinions on potential aims and goals of the strategy, novel strategy elements, and future developments to address. They could also provide an overview of developments in the last 10 or so years since the publication of the first strategy. One element of the strategy could be the global water security monitoring system. Dr. Grabs will approach Dominique Bérod (Head of the Earth System Monitoring Division of WMO) concerning the global water security monitoring system and the concise water strategy, and Dr. Cripe will as well.

Everyone should think of a couple people who could serve on this advisory panel and who have shaped discussions on water strategy in the past. These individuals should be from various communities: the sciences, water resources management, integrated global observations, and societal needs. The advisory panel members would likely not write the strategy; a lead writer would collate inputs and editing team would take it from there, with help from the International GEWEX Project Office.

Planning a structure for the strategy would be the next step, and an opinion poll could be offered on the website regarding the direction of the strategy.

First steps in the development of a Global Water Security Monitoring System

A statement made during the last conference call was that we don't have a definition of water security. Dr. Grabs posed the question of what the group wants to do with the term "water security" as it applies to a monitoring

system. The group would like to see a basic or core system in place within a two-year timeframe, one constructed on a few operational building blocks with more building blocks added in the future.

Dr. Grabs suggested that the group could build a credible base for the project by asking experienced individuals to help identify what type of water security issues should be a matter of priority. A list of such individuals includes Peter Gleick from the Pacific Institute, Fred Hattermann from the Potsdam Institut für Klima Folgeforschung, and Jay Famiglietti of the Global Institute for Water Security. Jay has potential monitoring tools that could be directly used in a global water security monitoring system. The GRACE satellite product is advanced enough that it can provide outlooks, developments, and trends for different regions of the world, and this could help identify where there are surpluses of water and declines in water availability. This could be repackaged as an input into a global water security monitoring system, and Dr. Grabs reports that Jay has some interest in this, as agencies in the US are not particularly motivated to use the data. This is a good example of an already-available monitoring tool.

Other tools may include the Environmental Mapping and Analysis Program (EnMAP) satellite, launched by the German Aerospace Center (DLR). Dr. Grabs asked Prof. Lawford if CEOS might be able to provide tools with information on water security from a water availability viewpoint.

Dr. Grabs suggested that a small advisory committee, perhaps five or six people, could identify priority issues in water security to assist in the development of the global water security monitoring system. Prof. Lawford proposed Charles Vörösmarty (City College of New York) for the list of experts, as he had developed “report cards” for various countries through a contract with the World Bank.

Dr. van Oevelen added some other off-the-shelf monitoring tools that might be useful, including the Princeton Climate Institute (working with UNESCO)’s efforts on global drought monitoring, which links to what Jay is doing with GRACE data. In Europe, there are several activities affiliated with Copernicus that are ready and might be of use. Dr. van Oevelen posed the question of where IGWCO sits: is it bringing together the observations on the backend, or on the product side, where information is disseminated? The focus is currently unclear.

Dr. Grabs asked Dr. Cripe if he envisioned an operational system that provides information through the GEO community. Dr. Cripe responded that he imagines something along operational lines, something comprised of operational components that agree to work together. There may perhaps be modifications or interoperability issues that would need to be addressed to bring things together into a coherent package.

Referencing a water quality outlook product from the UN Environment Programme (UNEP), Dr. Grabs suggested that GEO could issue a global yearly outlook, which has the option of being an annex to the World Water Development Report. The outlook could address specific issues and analyze them based on the available monitoring tools. The focus would then not be the development of new tools, but the ingesting of available tools with a proven ability to provide clarity and analysis and then focusing on different regions or a global picture on different aspects of water security.

Dr. Cripe asked about the report cards developed by Charles Vörösmarty and where they might be available. He also posed the question of how the information would be collated into a yearly outlook. Dr. Grabs replied that if you have a core monitoring system, the next step would be to ask how the system could be presented: on the regional level, the national level? What is the audience: the UN community, governments? Dr. Cripe pointed out that from the GEO perspective, this would include the GEO community. Dr. van Oevelen raised a point in the chat: how will this monitoring system be distinguished from the Global Water Information System that WMO wants to put together? Dr. Cripe will have some chats with Dominique Bérod to discern the different spheres that they will be approaching with the various monitoring systems.

As currently understood, the global water information system at WMO aims to bring together all the water activity within the UN, including UN Water. The global water information system would also feature a global water data portal, which would provide access to things like the Global Environment Monitoring System for Freshwater (GEMS/Water) information and the Global Basic Observing Network (GBON). WMO is perhaps focusing on the operational aspect of global water monitoring, and the IGWCO global water security monitoring

system could play an assimilation role and issue an annual report. The global water security monitoring system would center not on the data itself, but data analysis and assimilation (with available tools).

Members can send Fernande and Dr. van Oevelen suggestions for people to contact, and if they are able to contact some of those people, they can include the results of their conversations. Dr. Grabs is happy to approach Charles Vörösmarty, and Dr. van Oevelen will contact Jay Famiglietti.

Dr. Cripe is working to foster connections between programs and projects that, if linked together, might create a useful product. This is also the approach he is trying to take within GEO.

This concludes the formal agenda.

New GEO work program

Prof. Lawford asked Dr. Cripe about the new GEO work program and its priorities. Dr. Cripe explained that the new program was at the confluence of several issues, including the end of GEO's mandate in 2025 and the effort to determine GEO's value-added proposition. The new work program for 2023–2025 seeks to help define GEO's added value in terms of providing applications of Earth observations. Yana Gevorgyan has also expressed interest in the idea of finding nexus areas, such as coastal zones (where land and ocean interests meet). One goal is to figure out how Earth observations can supplement marine spatial planning in coastal zone management issues. The work program is shaping up to involve specific supports for policy or nexus focuses. Dr. Grabs recommended looking into a now-concluded program that might be of interest: the Land Ocean Interactions in the Coastal Zone (LOICZ).

Dr. Cripe explained that the new GEO work plan was going to have a flagship initiative and pilot projects, with the understanding that pilot projects will want to advance to flagship initiative status eventually. Generally, the work plan structure isn't changing that much, but GEO is moving away from the idea that it coordinates observations themselves. Its niche is in the application of Earth observations and how that can support policy. Dr. Grabs pointed out how well this fits with the concept of the global water security monitoring system as elaborated earlier in the teleconference. The GEO knowledge hubs will likely be critical to this move away from coordination towards applications. The hubs will allow GEO to communicate the applications of open-science observations so they can be adapted to different conditions and situations. IGWCO can play a role in putting water-related information into the knowledge hub, including applications of Earth observations that help us understand the water cycle. Perhaps the items for inclusion in the knowledge hub could be conceived of in terms of an inventory.

Updated IGWCO work plan

The IGWCO work plan is based on the roadmap document of May 2020 [*Roadmap for Next-Level Development of the Integrated Global Water Cycle Observations (IGWCO) Community of Practice (CoP)*], and updates include the water strategy and global water security monitoring system. If anyone can think of new ideas, things to take out, etc., let Dr. Grabs know so he can update the document accordingly, preferably within four weeks of the call (keeping in mind that meetings occur approximately every eight weeks or so). Some updates might be necessary for the information provided on observations, data services, support to GEO initiatives, flagship and community activities (see page 12 of the roadmap document), and on capacity building (see page 11 of the roadmap document). Other action items from this meeting can be sent as they are completed.

Updates on major projects in China

JC has a project called the Global Water Cycle Observatory, supported by the Chinese Academy of Sciences. It aims to produce most of the components of the water cycle, including precipitation, soil moisture, snow, frozen soil, lake water, and uses GRACE data for water storage; currently this is being applied to the Tibetan Plateau. The major problem is that the water cycle can't be closed, and it's far from the model prediction. One question centers on water cycle analysis, and on how to see if the water cycle is speeding up or changing. Dr. Lawford remarked that this might be interesting to follow from the water security side of things, and pointed to the

question of how to compare efforts in different parts of the world on how well we close the water budget with models vs. data.

This is part of the GEWEX area of study, and Dr. van Oevelen remarked that the issue **JC** is describing is critical: it isn't really possible yet to close the water balance using these observational tools. It also depends on resolution and timescale: the coarser the resolution and the longer the timescale, the simpler the problem gets, but the less useful the information becomes. GEWEX tends to look at the problem from the angle of whether we represent the processes well enough using these observations to actually be able to close the budget. One question is how good does the attempt at closing the budget have to be? This depends on the purpose: when looking at water scarcity or water security, closing the budget isn't that relevant. The larger unknown variable is the amount of available groundwater. The Global Water Cycle Observatory mainly works on three or four components of the water balance: precipitation, evapotranspiration, water storage, and also runoff.

JC notes that, with respect to the global water security monitoring system, if there's a good tool, it can support the international community. Currently the format of the tool or platform (model, resource-based analysis, or something else) is unclear, and Dr. Lawford noted that the global water security monitoring system is still in development and this sort of feedback will help determine its format.

Closing items

German GEO is no longer interested in cooperating in the development of the water strategy. Dr. van Oevelen posited that it might be worth looking into why that's the case.

Thank you for your participation!

Wolfgang Grabs and Peter van Oevelen

Overview of Meetings

- [3rd Pan-GASS Meeting, Understanding and Modeling Atmospheric Processes](#) (UMAP 2022), Monterey, CA, USA, 25-29 July 2022

For additional relevant meetings, visit the [GEWEX calendar](#).

Action items

- Prof. Lawford will send the latest update of the GEO Water Strategy Report to Dr. Cripe, and Prof. Lawford will update the document with some edits then send it for distribution to the IGWCO mailing list
- Fernande or Dr. van Oevelen will send a rough structure of the IGWCO website and what it would look like, including major headings
- Dr. Cripe will investigate what logos should be on the webpage (what's allowed and what isn't)
- Dr. Cripe will draft a recognition letter for IGWCO and send it to the group for approval, then send it to Yana Gevorgyan (GEO)
- Dr. van Oevelen will look into identifying someone to join the GEO Climate Change Working Group, which might help create links to UNFCCC and other groups
- Dr. Grabs will approach Dominique Bérod (WMO) concerning the global water security monitoring system and the concise water strategy, and Dr. Cripe will as well
- All members: suggest a couple people who could serve on the concise water strategy ad-hoc advisory panel. These individuals should be from various communities: the sciences, water resources management, integrated global observations, and societal needs, and should have a track record of shaping discussions on water strategy in the past
- All members: send Fernande and Dr. van Oevelen suggestions for people who could identify priority issues in water security to assist in the development of the global water security monitoring system. If you are able to contact some of these people, please include the results of the conversation
 - Dr. Grabs will approach Charles Vörösmarty
 - Dr. van Oevelen will contact Jay Famiglietti
- All members: send suggestions to Dr. Grabs for the IGWCO work plan, preferably within four weeks of the meeting. Some updates might be necessary for the information provided on observations, data services, support to GEO initiatives, flagship and community activities (see page 12 of the roadmap document), and on capacity building (see page 11 of the roadmap document)