***OBJECTIVE: Provide CEOS agencies with consolidated user requirements on parameters measurable from space that help in assessment of land-based fresh water characteristics and dynamics. These parameters should cover a broad range of application interests from potential user groups including, but not limited to, climate monitoring, agriculture, water resource management, environmental assessment and international reporting. The outcome of this initial workshop will be a draft paper outlining current opportunities and critical gaps around freshwater observations from space and associated data services, that in turn may provide space agencies with a consolidated rationale and priorities for ongoing and future investment in key observational capabilities coordinated through CEOS.***

***Structure and organisation of the workshop.***

The CEOS Freshwater from Space workshop will bring together experts representing the user community, international coordination initiatives and organisations (Aquawatch, GEOGLOWS, EO4SDG, GCOS, GEWEX, UN) and technical experts in space based earth observation techniques capable of providing relevant observations and variables for current an dfuture use by this user community.

The workshop will take place over two days broadly organised along the following lines:

* Wednesday 16th May. A full day will be set aside to bring all of the workshop participants to the same level of information on the state of the art in
  + our understanding and monitoring of the water cycle,
  + our capabilities in observing fresh water quantity and quality (from space and in situ)

The status of various key initiatives in the domain will also be presented. The proposed structure and organization of the break-out sessions for the discussions the following morning will be introduced.

* Thursday 17th May. The morning session will involve several parallel threads of discussion during a break-out session. The afternoon will provide the opportunity to bring these threads back together and set out the priorities and next steps for observations of Freshwater from Space within CEOS.

|  |  |
| --- | --- |
| **2018** | **9:30** |
| 1. **Introductions and meeting overview**  * Context and Objectives | 20 mins |
| 1. **Keynote : Observing the Water Cycle**   **Covering:**   * **Historical context on observing the Water Cycle** * **Key “operational” Essential Water Variables and data sources (two main objectives : climate and water resources)** * **Science/applications** | 30mins |
| 1. **Previous coordination efforts**  * **GEOSS Water Strategy** * **CEOS Strategy for Water Observations from Space** | 30mins |
| **Break** | **20mins** |
| 1. **Current international Initiatives (goals, affiliations, partners, space data needs)**  * **GEOGLOWS** * **AQUAWATCH** * **GEWEX** | 1h |
| 1. **Needs of a global scale end-user: Sustainable Development Goals** | 20mins |
| 1. **Current and planned Observations (cf. CEOS EO MIM Database)**  * **Space (+ planned missions)** * **In Situ** | 30mins |

|  |  |
| --- | --- |
| **Lunch** | **13-14** |
| 1. **EWV focus areas (focus on requirements regarding climate and water resource management)**  * **Precipitation** * **Soil Moisture** * **Evaporation / evapotranspiration** * **Groundwater** * **Water quality** * **Surface water**   **Each presenter will discuss:**   1. **the state of the science and existing database/s** 2. **How the science is done (protocols)** 3. **Existing critical observations, identifying needs or gaps** | Experts TBC  2h |
| **Break** | **20mins** |
| 1. **Breakout session I**   *Breakout sessions will be focused on the 6 EWV focus areas.*  *Breakout session leads will be the 6 experts presenting in session 7*  *The meeting participants will be evenly distributed between each EWV and will have an opportunity to change EWV between sessions 8, 9 and 10 allowing participation in as many as 3 distinct EWV discussions if desired.*  *For each EWV a lead and rapporteur (2 people team) will be designated.* | 1h |
| **Adjourn** | **17:30** |

|  |  |
| --- | --- |
|  |  |
| 1. **Breakout Session II** | 1h30 |
| **Break** | |
| 1. **Breakout Session III** | 1h30 |
| **Lunch time** | |
| 1. **Debrief of Breakout Sessions**   *Presentations and panels could be used to debrief the breakout sessions*  *Debrief should put in the context the engagement of international initiatives. Gaps identified should be accompanied by a proposed approach to fill them and proposed responsibilities going forward.*  *Two specific questions should be considered:*   1. *What should Space Agencies/CEOS do?* 2. *What is the role of international initiatives in implementing the list of EWVs (e.g. AquaWatch/GEOGLOWS/other) and what specific tasks can they take on?* | 2hrs |
| 1. **Way forward (Workshop leads)** |  |
| 1. **Wrap up (Workshop leads)** |  |
| **Adjourn** | |

**Meeting Participants**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Email** | **Affiliation** | **Presenter** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |