UN 2023 Water Conference Side Event
Big Earth Data: A Game Changer to Promote Implementation SDG 6
[March 23, 18:30-19:45 (UTC-5), United Nations Headquarters in New York]

Organized by: [International Society for Digital Earth (ISDE); International Research Center of Big Data for Sustainable Development Goals (CBAS); Land and Water Division, Food and Agriculture Organization of the United Nations (FAO Land & Water); World Meteorological Organization (WMO); Intergovernmental Hydrological Programme, The United Nations Educational, Scientific and Cultural Organization (UNESCO-IHP); Global Water Partnership (GWP); International Water Resources Association (IWRA); International Centre for Integrated Mountain Development (ICIMOD); General Institute of Water Resources and Hydropower Planning and Design, Ministry of Water Resources, China (GIWP)]

Background on the event (one paragraph)
The data required for monitoring and evaluation of the existing SDG 6 indicator system mainly depends on the submission or confirmation of member states. Due to the differences in monitoring capabilities and the wide variety of data management methods adopted by different countries, there are unintended gaps in indicator data introducing variety of missing data or data discontinuity challenges in a broad, large scale, and in comparative analysis of the real progress of the targets and indicators for different global sub regions, thus impacting the timing and direction of policy intervention. As a collective of multiple active data sources such as space earth observation, ground observation network and mobile internet, and big data analysis methods and technologies including contemporary and novel techniques such as machine learning, deep learning, and cloud computing technologies, big earth data can help to provide solutions to these data and information challenges. Therefore, it has the potential to provide unique advantages to the progress towards the realization of global SDG 6. The objectives of the side event are to discuss and promote recent advances and challenges in big earth data sciences and highlight its potential for supporting research and policy towards implementation of SDG 6, to provide discussion opportunities for promoting engagement and foster multidisciplinary sciences to cooperate in facilitating innovative breakthrough in big earth data implementation for SDG 6, and to form new partnership and collaboration mechanism.

Water Action Agenda (one paragraph, if possible, please include the link to your commitment in the [Water Action Agenda database](#))
A voluntary commitment for the Water Action Agenda entitled as SDG 6 Data and Information Service System (SDG6-DISS) based on Big Earth Data has been approved and published at: https://sdgs.un.org/partnerships/sdg-6-data-and-information-service-system-sdg6-diss-based-big-earth-data.

Key Issues discussed (5- 8 bullet points)

--What are the opportunities and challenges of the recent rapid development and expansion of earth observation and mobile Internet data to fill the data gap?

--How to effective and collaboratively use different data sources, including statistic, field observation network, satellite, and mobile internet data?

--What are the difficulties and priorities to transform data into information, knowledge, and decision support?

--How to synergy or complement between science-based and statistics-based evaluations in the future?

--What is the role of big data acquisition and analysis technology in improving the integrated management of regional water resources, especially in decision support?

--Compared with traditional big data, what is the value of big earth data technology to monitor whole processes of water sources, transportation, utilization and treatment?

--What is the role of big earth data technology in groundwater monitoring and assessment? How about the progresses, challenges, and future breakthroughs it will bring?

Key recommendations for action (5 - 6 bullet points)

--If we work together on big data, we can overcome the hesitation some may have in water development projects. We can monitor all the river and lake levels from the space, we can evaluate how land develops, we can start to deduct water quality issues with data.

--Nowadays the water cycle is extremely important. The global water cycle is not just the regional scale, we need to do more at a global scale across the boundary.

--Real data reflects social and real conditions. The analysis tools are very important. If we have good tools, then we can use the data in the correct way.

--Capacity building is necessary. In order to make data available to the end users, we need the science within the UN agencies. Monitoring is not a priority issue.

--We need to explore what the data can be used for and where we need to be cautious. Data needs to be communicated very carefully and the distribution of data should include the uncertainties related to it.

--To overcome the data gap of aquifer boundaries, aquifer properties, and abstraction rates, the use of remote sensing data has helped understanding all the stages of groundwater worldwide. Not only because of the lack of data but also because is easier and cheaper from the surface than actually reach it.

--Practice will not be sustainable or valid if the data is not validated.

--Ensure fair access to data and protect the rights of data producers and owners.