Early adopters

New technologies, new measurements. To prepare potential users of future SWOT products, in 2018 NASA and CNES formed a community of Early Adopters, in other words not scientists but end-users looking for real-world benefits from the satellite's data. Depending on the practical applications being sought, these Early Adopters are combining simulated SWOT data with other available indicators to gauge the added value the future mission is going to bring. Their observations are fuelling exchanges and encouraging key adjustments. For example, data turnaround times have been shortened from 45 to just three days. Early Adopters at the Indian Institute of Technology (IIT) Bombay have integrated SWOT and Sentinel-1 measurements in a flood prediction map, while the Compagnie Nationale du Rhône (CNR) in France has also used simulated SWOT measurements for hydroelectricity energy budgets and to forecast navigability in rivers where instruments are scarce.

1.6 billion

More than 20% of the world's population—about 1.6 billion people—live less than 30 kilometres from the coast.

90 %

The SWOT mission will be able to sound 90% of Earth's surface waters (rivers, lakes and reservoirs).

AQUAWATCH AUSTRALIA

Initiated by CSIRO[1] in partnership with SmartSat CRC and a range of national and international organizations including space agencies, AquaWatch Australia will monitor the quality of the country's continental and coastal waters. This forecasting structure will measure key water variables and provide early warning of severe events. It will track and supply information on ecosystems under threat, the quality of inland and coastal waters, and habitat conditions. This national service will thus help end-users such as water planners and contractors to make informed decisions.

1. Commonwealth Scientific and Industrial Research Organisation, the Australian national science agency

500

BILLION M³.
Mean precipitation recorded in French territories.

890 km

Altitude at which the two-tonne SWOT satellite will be orbiting.

70%

About 70% of water abstracted from rivers and lakes is used for irrigation. Some 20% of croplands are irrigated.

620,000

KILOMETRES
France's rivers run a total combined length of 620,000 kilometres, 430,000 kilometres in mainland France.

AI4Geo

HOW CAN we get the most out of the plethora of geospatial data out there? Backed by the government's PIA future investment programme, AI4Geo is an R&D programme coordinated by CS Group. CNES, national mapping, survey and forestry agency IGN and national aerospace and defence research agency ONERA are contributing satellite data and expertise. The aim is to automate production of geospatial information. To do that, AI4Geo is banking on artificial intelligence to turn satellite data into extremely precise 3D maps. Alongside its research work, AI4Geo is developing application demonstrators, some of which are focused on the water cycle and led by CLS.

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ACCESS TO WATER AND ITS MANAGEMENT GO TO THE HEART OF THE SUSTAINABLE DEVELOPMENT GOALS (SDGS) in the United Nations Agenda 2030. The SWOT mission is set to contribute to four of these 17 SDGs selected by France. Inventorying of surface waters, evaluations of stocks and regular monitoring of water volumes will provide real-time data to guarantee clean water and sanitation for all (SDG 6). SWOT will complement existing satellite data to support conservation of marine resources and keep a check on fisheries (SDG 14). To a lesser extent, it will help ensure access for all to reliable energy services, as tight management of reservoirs and their capacity is required for production of more sustainable energies like hydroelectricity (SDG 7). Lastly, by enabling scientists to study fine-scale ocean/atmosphere interactions, SWOT will support urgent climate action measures (SDG 13).

76% to 90%

Between 1990 and 2015, the proportion of the world's population using an improved source of drinking water increased from 76% to 90%.

14,000

New SWOT high-resolution products that will be listed in the hydroweb.next catalogue every day, representing 7 terabytes (7 million megabytes).