SGB/IRD July 2023 Project Update

The SGB/CPRM (**Geological Survey of Brazil**) and IRD (**French National Research Institute for Sustainable Development**) realized a joint field work on the Upper Negro River for the calibration and validation (CalVal) phase of the SWOT Satellite. The field work took place from the 4th to the 18th of June near to city of São Gabriel da Cachoeira in the state of Amazonas in Brazil, which is a zone covered by the Swot CalVal one-day orbit.

The team was composed of experts from Legos, GET, IRD in French Guyana, SGB/CPRM and had the support of Brazilian Army.

Over 15 days, the experts navigated more than one thousand kilometers on the Upper Negro River, in the Amazon forest, collecting data with several instruments installed on two boats, including a GNSS receiver, radar, ADCP to measure flow and the special "Calnageo" floating device that collects unprecedented water level surface observations. The team also retrieved water level data from ANA/SGB permanent gauge stations and leveled these gauges in the same altimetric reference of SWOT data.

The team also realized an AUV Lidar/photogrametry survey in order to map the river reaches at gauge stations installed over SWOT 1day orbit Cal/Val zone. Such observations are key information to support the validation of SWOT surface water extent products and to quantify the impact of vegetation on SWOT measurements.

This field work is funded by CNES, Swot Science Team Project "Swot for South America" and in the frame of the CPRM/SGB-IRD project Dinâmica Fluvial and takes the logistics support of Brazilian National Hydrometeorological network that is a partnership between ANA and SGB.

Figure GNSS CALNAGEO and GNSS + RADAR on boat to mapping water level surface.
(Credits:SGB/CPRM).

Figure 2. Visit to Water Level Gauge Stations to GNSS levelling and data collection.
(Credits:SGB/CPRM).

Figure 3 - Lidar and Photogrametry drone to mapping the SWOT cal/val zone at in-situ gauge stations. (Credits:SGB/CPRM).
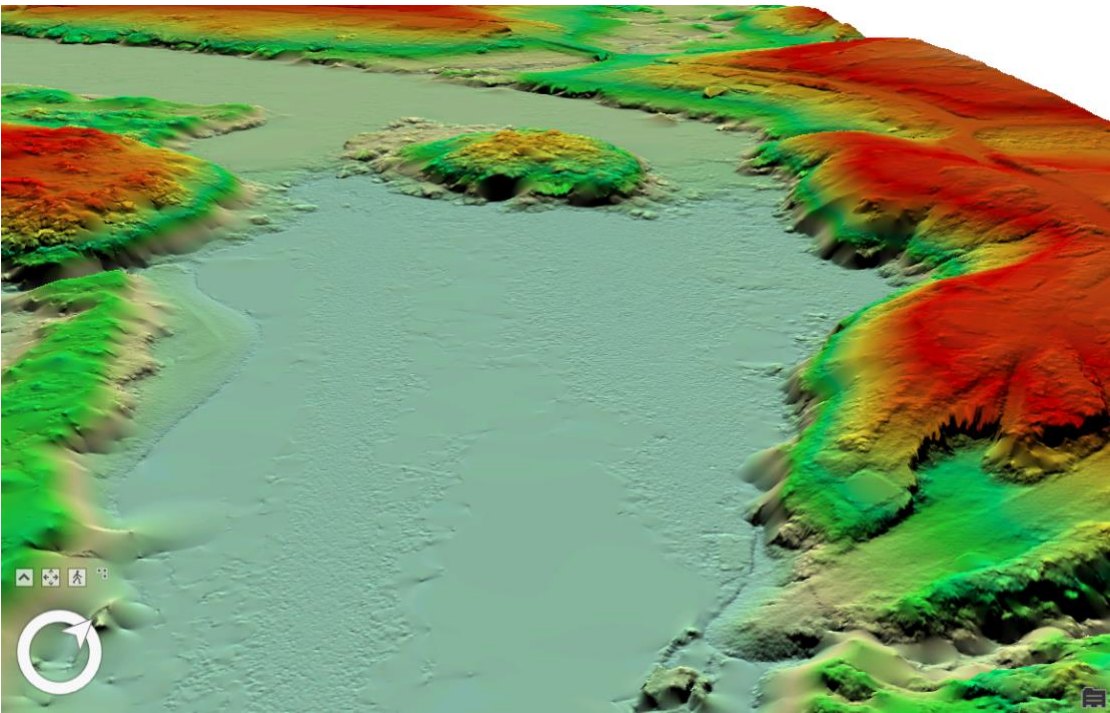

Figure 4 – Exemple of DEM generated by Drone Lidar data. (Credits:SGB/CPRM).