



Hydrological parameters of the Branco river (Amazon basin) from GPS-derived surface slopes and ADCP flow velocity transects

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In Nov 2003, we have conducted a field campaign on the Branco River (tributary of the Negro River, Amazon basin). In the frame of this work, we have collected GPS data from Boa-Vista (2.8°N) to the confluence with the Rio Negro(1.3°S). These GPS data were collected with both a buoy and an antenna fixed on top a ship. Computed in cinematic mode with respect to GPS sites temporary set on the banks of the river, these provide an altimetric profile of the river (referenced in WGS84). Altitudes and hydraulic slopes have been then computed by removing GRACE geoid heights to the GPS profile. During the cruise, we have also collected 40 ADCP profiles across the river (measuring the wet perimeter and area, together with the distribution of the flow velocity). Relating these quantities give access to hydrologic parameters such as the Chezy and Manning coefficients or to empirical relationships and/or power laws between discharge, area and slope. We present the data collected and discuss their validity for hydrological modelling by comparison of the parameters and relationships so derived with tabulated values and previous works