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CABra: a novel large-scale dataset for Brazilian catchments

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We present the Catchments Attributes for Brazil (CABra) dataset. This is the first large-scale dataset for Brazilian catchments and includes data for 1,252 catchments in seven main classes of catchment attributes (CA: streamflow, groundwater, geology, soil, topography, climate, and land-use and land-cover). We have collected and synthesized data from multi-sources (ground stations data, remote sensed data, and gridded data). CABra contains catchments over the six Brazilian biomes: Amazon, Atlantic Forest, Caatinga, Cerrado, Pampa, and Pantanal. We delineated all catchments using the coordinates of each streamflow station provided by the Brazilian Water Agency (ANA, in Portuguese). We only considered stations with more than 10 years of data records and less than 20% of missing data. Catchment areas range from 9 to 4,670,000 km² and the mean daily streamflow varies from 0.006 to 170,271 m³ s⁻¹. We also calculated several hydrological signatures – based on distribution, frequency and duration, and dynamics of daily streamflow – and climate indices. Additionally, this dataset includes boundary shapefiles, centroids latitude and longitude, and drainage area for each catchment, aside from more than 50 attributes within each CA class. The CABra intends to fill a huge gap of multisource data collection in Brazil. This dataset plays an important role towards a better understanding of the climate-landscape-hydrology related drivers in a country of continental dimensions and heterogeneous landscape characteristics. Moreover, we described the collection and processing methods and discussed the limitations of each of our multiple data sources. Aside from being a potential tool for large-scale studies in hydrology, our extensive dataset is of main importance for the development of high-quality hydrologic studies in Brazil.