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Introducing CAMELS-SE: Connecting 60 Years of Hydroclimatic Observations with Catchment Attributes for 50 Sites in Sweden

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The field of hydroclimatology is witnessing a transformative era with the convergence of various technologies and methodologies aimed at enhancing research reproducibility and collaboration. Within this context, hydroclimatic datasets have emerged as fundamental tools for unraveling the interplay between climate and hydrology, resonating across geographical boundaries. Particularly, the exploration of large-scale datasets can shed light on hydrological differences and similarities across diverse catchments, serving both scientific and educational purposes. Efforts to enhance the availability of such datasets are ongoing globally, with the introduction of initiatives like CAMELS (**c**atchment **a**tttributes and **m**eteorology for **l**arge-**s**ample **s**tudies). Despite this collective global effort to unravel hydroclimatic complexities, and the abundance of online hydrologic databases, valuable information remains fragmented and scattered across different platforms. Much local data is still presented and documented in languages other than English, impeding the transfer of knowledge between local and international communities. For example, a considerable portion of open hydrologic data provided by Swedish governmental authorities is solely accessible in Swedish, hindering its integration into pan-European or global research.

Therefore, we here introduce the community-accessible CAMELS-SE dataset, which covers 50 catchments in Sweden spanning a wide range of hydroclimatic, topographic and environmental catchment properties. The dataset includes daily hydroclimatic variables (precipitation, temperature, and streamflow) over a 60-year period (1961-2020), and information on geographical location, landcover, soil classes, hydrologic signatures, and regulation for each catchment. Data was collected from various sources, such as the Swedish Meteorological and Hydrological Institute (SMHI), the Swedish Geological Survey (SGU) and several Copernicus products provided by the European Environment Agency (EEA). The compiled, spatially-matched, and processed data is publicly available online through the Swedish National Data Service (<https://snd.gu.se/en>). CAMELS-SE adds a new region to the list of existing CAMELS datasets, offering a valuable resource for studying hydrological processes, climate dynamics, environmental impacts and sustainable water management strategies in Nordic regions.