



Hydrologic model framework for river basins with a range of hydroclimatic and bioclimatic conditions

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This presentation reports on the first steps in the development of a regional scale runoff modelling framework for a river basin that features a wide range of diverse hydroclimatic and landscape conditions across the basin.

A new approach will be tested based on an ecohydrologically and water balance oriented landscape classification concept. As starting point the Holdridge life zone system concept will be used which is based on indices of precipitation, evapotranspiration and temperature and differentiates landscapes with respect to climatic and elevation zones. Further steps of the projects will include the search for additional indices that can be used to define the controls on the dominant runoff processes in relations to water balance and landscapes characteristics, respectively. The final model framework will be constructed around a group of modules, each of the modules representing specific conditions with respect to the geomorphologic and ecohydrologic characteristics of the particular landscape type.

The selected test river basins are located in 2 regions of Peru, the Piura region (24,000 Km²) and the Lambayeque region (10,000 Km²). They feature a wide range of hydroclimatic and landcover situations with diversity of landscapes (from high mountaneous andean areas to flat coastal areas, from forested areas to desert areas, and from permanent to ephemeral lakes). A very particular feature exists in the form of the lake Ramon next to the coast of the sea which exhibits a strong bild-up in the time of ENSO/El Niño episodes, reaching an extent of about 2,000 Km² in area and around 8,000 million m³ in volume in the ENSO event 1997-98, and a strong redrawing at the end of such an episode.