

# **LARGE HYDROGRAPHIC BASIN LOCAL FLOWS AND DRAINAGE NETWORKS EXTRACTION USING TERRAHIDRO PLATFORM FOR DISTRIBUTED HYDROLOGIC MODELING**

Sergio Rosim; João Ricardo de Freitas Oliveira; Camilo Daleles Rennó; Eric Silva Abreu;  
Alexandre Copertino Jardim

## **ABSTRACT**

Defining drainage network for large hydrographic basins is important to several applications as regional and global climatic changing, or water degradations caused by forest deforestations, or hydroelectric implantations. We present the TerraHidro platform, in development at Image Processing Division - DPI, of the National Institute for Space Research - INPE, Brazil, to develop distributed hydrological models. Initially TerraHidro is described, followed by the drainage extractions for large basins using TerraHidro for the large Amazonian basins of the Tocantins, Purus and Madeira rivers, as well as the São Francisco river. For each basin, the steps to achieve the correspondent drainage network area shown. These steps are the extraction of the local flows, the definition of the accumulated area, the drainage network definition using a threshold value, and the watersheds determination. A set of figures show the results for each step.

**PALAVRA-CHAVE: drainage, hydrological model, large basin**