

Global system for hydrological monitoring and forecasting in real time at high resolution

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This project presented at the EGU 2016 born of solidarity and the need to dignify the most disadvantaged people living in the poorest countries (Africa, South America and Asia, which are continually exposed to changes in the hydrologic cycle suffering events of large floods and/or long periods of droughts. It is also a special year this 2016, Year of Mercy, in which we must engage with the most disadvantaged of our Planet (Gaia) making available to them what we do professionally and scientifically. The project called "Global system for hydrological monitoring and forecasting in real time at high resolution" is Non-Profit and aims to provide at global high resolution (1km²) hydrological monitoring and forecasting in real time and continuously coupling Weather Forecast of Global Circulation Models, such as GFS-0.25° (Deterministic and Ensembles Run) forcing a physically based distributed hydrological model computationally efficient, such as the latest version extended of TOPKAPI model, named TOPKAPI-eXtended. Finally using the MCP approach for the proper use of ensembles for Predictive Uncertainty assessment essentially based on a multiple regression in the Normal space, can be easily extended to use ensembles to represent the local (in time) smaller or larger conditional predictive uncertainty, as a function of the ensemble spread. In this way, each prediction in time accounts for both the predictive uncertainty of the ensemble mean and that of the ensemble spread. To perform a continuous hydrological modeling with TOPKAPI-X model and have hot start of hydrological status of watersheds, the system assimilated products of rainfall and temperature derived from remote sensing, such as product 3B42RT of TRMM NASA and others. The system will be integrated into a Decision Support System (DSS) platform, based on geographical data. The DSS is a web application (For Pc, Tablet/Mobile phone): It does not need installation (all you need is a web browser and an internet connection) and not need update (all upgrade are deployed on the remote server) and DSS is a classical client-server application. The client side will be an HTML 5-CSS 3 application, it runs in one of the most common browser. The server side consist in: A web server (Apache web server); a map server (Geoserver); a Geographical q3456 Relational Database Management System (Postgresql+Postgis); Tools based on GDAL Libraries. A customized web page will be implemented to publish all hydrometeorological information and forecast runs (free) for all users in the world. In this first presentation of the project are invited to attend all those scientific / technical people, Universities, Research Centers (public or private) who want to collaborate in it, opening a brainstorming to improve the System.

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