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Using Tethys Portal to Deploy Water Data Visualization and Analysis Web Apps for the U.S. National Water Center

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Abstract: Tethys Platform is an open source web application (app) development environment built using the Django Python framework. Tethys is specifically intended for developing and hosting water resources-related web applications. Our experience shows that Tethys significantly lowers the barrier for cloud-based app development, simplifies the process of accessing scalable distributed cloud computing resources and leverages additional software for data and computationally intensive modelling. The Tethys software development kit allows users to create web apps for visualizing, analyzing and modelling hydrologic data. Several Tethys web applications have been created in collaboration with the U.S. National Water Center (NWC) to support their new National Water Model (NWM). These apps include data search and discovery of NWM forecasts; a global snow cover prospector; an earth observation data explorer for USGS and NASA observed data; a watershed delineation app, and others. These apps have been deployed within the HydroShare App portal at http://apps.hydroshare.org/ to enhance the NWC’s capability in flood forecasting and water resources modelling. Users and clients are able to access the web apps via this web app portal. Developers and other organizations can follow a similar approach to launch custom Tethys Portals and web apps. This presentation will demonstrate the NWC Tethys Portal including several apps related to streamflow prediction and flood forecasting. A brief introduction to developing a Tethys App will also be given.

Keywords: Decision Support; cloud computing; hydrologic modelling; geoprocessing; flood forecasting; watershed modelling; open source software