Jul 11th, 10:50 AM - 11:10 AM

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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