INTEGRATING REMOTELY SENSED DATA, WATERSHED MODELS, AND DATA ASSIMILATION

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Abstract The Military Hydrology Program of the Coastal and Hydraulics Laboratory (CHL) at the US Army Engineer Research and Development Center (ERDC) responds daily to hydrologically related requests for information (RFI) from the military. Often, the requests require a predictive capacity. Moreover, they are often associated with locations that are data poor in terms of available historical and/or existing hydrometeorological surface network data. In attempts to modernize and grow our capacity to serve our military customers with hydrological support services, we are integrating our forward and inverse modeling research and development efforts, and utilizing remotely sensed data products to force and constrain our physics-based, spatially-distributed hydrologic model(s) using data assimilation and parameter estimation methodologies. We will present current and planned research and development efforts directed at these three areas (viz., physics-based forward model deployment, remotely sensed data, data assimilation) to support hydrologic forecasting in the battlespace environment. Depending upon progress, we will also present application results to the Helmand River Basin in Afghanistan.