A standards-based services-oriented architecture for sharing hydrometeorologic data

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Developing comprehensive hydrologic and hydrometeorologic models of the Mediterranean Basin requires sharing data among multiple countries, across multiple levels of government, and between universities and government agencies. The Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) has developed a services-oriented architecture for data publication, discovery, and transmission called the CUAHSI Hydrologic Information System (HIS). The use of standards by CUAHSI HIS, such as the WaterML 2.0 schema for transmitting time-series data, enables it to be easily adopted by multiple organizations. Further standardization using existing Open Geospatial Consortium (OGC) standards will further lower barriers to adoption. A large-scale prototype system has been developed in the North America with more than 70 different services registered including universities, government agencies (such as USGS and US EPA), and local authorities (such as Niagara Peninsula Conservation Authority, Ontario). This prototype illustrates the potential of such a system to advance collaborative research, resource assessment, and predictive modeling using data from multiple administrative units.