

# Abstract

## **Application of Volumetric GIS Data Objects in Groundwater Resource Investigations**

**Track:** Water Resources

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Multiple techniques useful for analysis and visualization of groundwater resources are implemented using ArcGIS, the ArcGIS 3D Analyst extension, and ArcObjects. Parameters examined using data-based objects include groundwater pressure head, total head and concentration, capture volumes, aquifer saturated thicknesses and hydrogeologic solids. Techniques include multipatch based meshes and grids, scalar data polygons to create iso-volumes, and boundary delineations with convex and concave hulls. Data is analyzed using three dimensional geoprocessing and data query operations. Data is visualized and presented using ArcGIS and the 3D Analyst extension. Examples are presented.

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