

MASTERS STUDENT HYDROLOGIC INFORMATION SYSTEMS

Area of emphasis: Geographic Information Systems, Hydrologic Information Systems, Water Resources Engineering.

Applicable Major: Agricultural Engineering, Biological Systems Engineering or Environmental Engineering.

Research Project: Water resources data is collected by numerous federal, state, local agencies, and academic institutions. Although the internet presents the opportunity to improve access to these disparate data sources, gathering the data required for most hydrologic studies requires visiting multiple web sites, printed repositories and archives; each with its own access protocols and data formats. The near-term goal of this research project is to inventory and develop a pilot hydrologic information system for the Republican Basin in Nebraska, Kansas, and Colorado. The long-term goals of this project are to create a vision to unite Nebraska's water information; to make it easily accessible and useful; and to provide access to the data sources, tools and models that enable the synthesis, visualization and evaluation of the complex interaction between surface and groundwater systems. The short-term goal will be achieved through compilation of a GIS framework for a Republican Basin Water Resources Data Atlas that profiles existing data and reports, and generate a repository for this information and data on an ARGIS Server that supports further research and development within the WATERS Network Observatory (WNO). Near term benefits of this research is the creation of a geographically distributed system of web-connected data and functions, understanding of digital watershed structure and functions, and provide access to HIS capability from within user preferred analysis environment via web services.

The student will use GIS as a data analysis tool using a common database and will work with various datasets including geophysical, landuse/landcover, eco-hydrological, on-site measurements (stream), off-site measurements (laboratory analysis), satellite remote sensing, various formats and data set locations in WNO. Potential masters research topic will be in hydrologic information system. Experience in GIS and programming skills in ArcGIS is desirable.

Support: The Department of Biological Systems Engineering provides Graduate Research Assistantships on a competitive basis. A stipend, tuition waiver and the majority of health insurance premiums are included. For more information and to apply to Graduate Studies refer to <http://bse.unl.edu/Grad/gradindex.htm>.

The position is available immediately to support a full time graduate student. Contact Wayne Woldt, if you are interested:

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