

eRAMS

The Environmental Resource Assessment and Management System (eRAMS) is an open source technology that provides cloud-based software solutions as online services and a platform for development and deployment of online tools.

Version control and platform requirements are often barriers to widespread adoption of new technologies.

We develop platform independent software to access analytical and "big" data management systems. eRAMS streamlines access to publicly available databases and simplifies workflows.

Our software holistically integrates data and models to comprehensively assess water, land, energy and other linked systems.

Our services are used to assist with strategic and tactical decision making for sustainable management of land, water, energy and other connected resources.

Urban Water Demand Forecasting

Integrated Urban Water Model



The [Integrated Urban Water Model \(IUWM\)](#) is a high level planning tool that allows urban planners and water managers to consider potable water savings of indoor and outdoor conservation measures, and alternative water sources such as graywater, stormwater, and reclaimed water. IUWM primarily projects water demands and revenue for municipal water providers through a combination of mass balance and empirical relationships.

The purpose of IUWM is to evaluate alternative urban water management strategies under varying climatic conditions at a municipal or regional scale. IUWM has been deployed as an online tool and as a web service, enabling accessibility, ease of use, and collaborative benefits for project teams. IUWM facilitates the development of urban water demand forecasts through automated retrieval of publicly available data inputs through a geographical information system (GIS) interface, reducing the need for manual input of data.

Indoor residential demands are forecast based on end-use at the census block level with population and household data retrieved from the United States census. Combined residential/commercial, industrial, and institutional (CII) irrigation demands are forecast based on daily evapotranspiration and land cover data.

Documentation: Sharvelle, Sybil, Andre Dozier, Mazdak Arabi, and Brad Reichel. 2017. "A Geospatially-Enabled Web Tool for Urban Water Demand Forecasting and Assessment of Alternative Urban Water Management Strategies." *Environmental Modelling & Software* 97 (Supplement C): 213–28. <https://doi.org/10.1016/j.envsoft.2017.08.009>

CATENA ANALYTICS

Catena Analytics provides powerful platforms for building accessible and scalable analytical tools and simulation models that can be accessed via desktop or mobile devices.

Our **Environmental Resource Assessment and Management System (eRAMS)** and **Cloud Services Integration Platform (CSIP)** present several options for developing collaborative projects and integrating geospatial data, analytics, and modeling engines.

ACCESSIBLE

Your documents, data and tools can be accessed from commonly used web-browsers on mobile or desktop devices.

SCALABLE

Our sophisticated distributed storage and computing techniques provide the scalability and availability necessary to serve a broad range of needs.

SECURE

We provide state-of-the-art data protection solutions and instant access to digital resources using a secure user account.

Key Features

The [Integrated Urban Water Model \(IUWM\)](#) can be used to forecast urban water demand and project potential savings from conservation and use of alternative water sources over varying climatic conditions and land uses. IUWM is GIS enabled and utilizes land use designations, lot size, census data, climate information, soils characteristics and allows the user to tailor scenarios of adoption of conservation measures and alternative water sources to determine the impact on potable water demands for various land use configurations. To launch the tool visit: <http://www.erams.com/iuwm> Additional information is available at: <https://erams.com/catena/tools/urban-planning/urban-water-demand-forecasting/>

Noteworthy Attributes:

- GIS-enabled
- Sophisticated and customizable graphing capabilities
- Compare and contrast multiple scenarios simultaneously
- Download and export model outputs, raw data and graphics

RESULTS

The [Integrated Urban Water Model](#) has sophisticated graphing capabilities that allows the user to evaluate the impact of land use configurations, changes in climate, conservation programs and alternative water sources on water supply demands. The graphing tools can be tailored to the user's needs and exported along with the raw model outputs.

Indoor residential demands are forecast based on end-use at the census block level with population and household data retrieved from the United States census. Combined residential/commercial, industrial, and institutional (CII) irrigation demands are forecast based on daily evapotranspiration and land cover data. The following water management strategies are included in IUWM:

- Indoor conservation
- Irrigation conservation
- Graywater reuse for toilet flushing and irrigation
- Stormwater capture and use
- Roof runoff capture and use
- Wastewater treatment plant (WWTP) effluent reuse

TECHNICAL SUPPORT

Should you need additional assistance we are here to help! Contact an eRAMS expert to help guide you through any hurdles at:

eramsinfo@gmail.com

System Requirements

A modern web-browser is required to connect and run the web-tool. Browser options include: Google Chrome v.69, Mozilla Firefox v.62, Safari v.11.1.1, and Microsoft Edge v.17.



CATENA
ANALYTICS

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