

CASE STUDIES | IN-HOUSE RIVER FORECAST SYSTEMS



THE PANAMA CANAL AUTHORITY (PCA)

How an in-house forecast system helped modernize transcontinental navigation

The majority of the shipping corridor for the Panama Canal is through Lake Gatun, a man-made reservoir. Water supply for canal operations comes from rainfall on the Canal watershed. For the first several decades, forecasts of lake levels were determined from rain gauge and streamflow observations and the skill and expertise of Canal hydrologists. The RTI Center for Water Resources implemented the first integrated hydrometeorological modeling system for the PCA to forecast reservoir inflows for this iconic landmark more than two decades ago and has provided support, maintenance, upgrades, and training on the system ever since. By implementing one of our signature systems, PCA now has access to more accurate forecasts of inflows to the reservoir so that they can keep traffic flowing through the locks during the dry season, while optimizing the benefits of hydropower generation and municipal water supply.

THE TENNESSEE VALLEY AUTHORITY (TVA)

Transforming operations of one of the nation's most extensive hydropower systems

TVA operates a complex system of 49 dams to generate power, control flooding, support a navigable waterway, provide recreation, and maintain water supply. To manage their system and adjust operations during varying conditions, while continuing to serve its critical functions, TVA implemented a comprehensive river and reservoir forecast system. Since 2012, RTI has supported TVA in modernizing its river forecasting system from a legacy system into the Delft Flood Early Warning System platform, which integrates data collection, data management, various hydrologic and hydraulic models, reservoir operation simulation and optimization, hydrothermal models, inundation mapping, and report generation and dissemination. TVA has estimated that their river forecast system has helped them prevent extensive flood damages and other losses since implementation.

