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## Collaboration between Riverside Technology and Iowa Flood Center

When two organizations can come together and unite under a common goal, the whole is sometimes more than the sum of the parts. Such is the case in a recent partnership between Riverside Technology and the Iowa Flood Center (IFC), a state-funded entity within the IIHR Hydrosience & Engineering research unit of the University of Iowa College of Engineering.

The parts coming together include:

- The 32-year history of Riverside providing innovative solutions to address the increasing demand for environmental decision support technologies in an ever-changing world.
- IIHR, a world-renowned center for education, research, and public service focusing on hydraulic engineering and fluid mechanics.
- IFC, which develops hydrologic models for physically-based flood frequency estimation and real-time forecasting of floods, including hydraulic models of flood plain inundation mapping, and assists in the development of a workforce in Iowa knowledgeable regarding flood research, prediction, and mitigation strategies.

Riverside, IIHR Hydrosience & Engineering, and the IFC have agreed to move forward in a relationship where hydrologic and hydraulic science/engineering will be supported by IIHR and IFC, and Riverside will reach out to customers of this information to support critical planning (strategic) and real-time (tactical) decisions. IIHR and IFC bring more than a century of hydrologic/hydraulic/water resource expertise in the computerized collection and analysis of data by numerical modeling techniques, which has set the stage for a great diversity of capabilities ranging from model studies of specific hydraulic structures to computational fluid dynamics investigations of complex flow mechanisms.



*The Riverside team traveled to Iowa in late May to work toward common goals in the future of flood mapping. (From left to right: Witold Krajeuski, Director of IFC, Larry Weber, Director of IIHR, Brian Ashe, CEO Riverside Technology, George Smith, Director of NCEI & SEFSC Programs.*

Riverside and IIHR/IFC are collaborating on a pilot project for RiverTrak flood inundation maps on the Turkey River basin in northeastern Iowa. RiverTrak rapidly produces dynamic maps of depths and extents of flooding and is customized to regional watersheds. Maps are created and distributed based on the latest available observed and forecast river stage values from the NWS or private networks. RiverTrak provides historical, real-time, and scenario maps that integrate with existing hazard mitigation efforts and systems.

To enhance the RiverTrak mapping capability, Riverside and Iowa are also working together to enhance and expand the application work done at the IFC for Monitoring Iowa's Rivers and Streams in real-time. Iowa's severe flooding in 2008 demonstrated the need for more extensive monitoring of the state's rivers and streams in real time. To address this, the IFC developed and maintains a statewide network of stream stage sensors designed to measure stream height and transmit data automatically and frequently to the Iowa Flood Information System (IFIS), where one can view the sensor locations and data in real-time. The sensors provide an affordable, effective way to measure stream and river heights. The sensors are solar powered and attached to the side of bridges. A sonar signal is used to measure the distance from the water surface to the sensor and data is transmitted via a cell modem to IFIS where the data are publicly available. The IFC currently maintains a network of over 200 stream stage sensors across the state.

Riverside is looking to expand the use/coverage of these stream sensors to provide additional river information in locations currently under-served by other national or local networks. A test implementation is being conducted in Larimer County and the City of Fort Collins in Colorado. Riverside and IFC are partnering to provide a full set of marketing, enhancements, and maintenance capabilities for and additional stream sensor users.

The Riverside/IIHR Hydrosience & Engineering/IFC collaboration provides a full-service team based in innovative water science and proven customer service to expand and support planning and real-time water resource decision needs.

Additional information about the Iowa Flood Center can be found at their website: <http://iowafloodcenter.org/>.

Additional information about RiverTrak flood inundation maps: <https://www.rivertrak.com/>.

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