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Operational Hydro-meteorological Forecasting: The Anatomy of a Disaster

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Operational hydro-meteorological forecasting plays a key role before, during and after a significant storm event. It becomes the focus for making the most efficient decisions possible to save lives and property; however, no matter how technologically advanced atmospheric, hydraulic and hydrologic modeling becomes, a decision making interface must be firmly established in order to illicit mitigating actions and engage a pro-active response to a flooding disaster. This is especially true for regions that have not experienced a significant flooding event for an extended period or that are not acquainted with advanced hydro-meteorological techniques.
Lessons learned from ongoing operational hydro-meteorological support for flooding disasters will be portrayed in this presentation in order to engage the audience in a dialogue regarding how best to convey, distribute, use, and improve accurate hydro-meteorological forecast data and guidance. The messenger can be as important as the message.
HDR Engineering recently assisted the State of South Carolina, U.S. through the flooding disaster that was the result of the storm event of October 1-5, 2015. Like many locations throughout the world, vulnerabilities to flooding were well established in this region, but a test of this magnitude had not been experienced in this region in a long while. The synoptic evolution of this event was truly unique and resulted in a complex and sometimes confused flood disaster response that required the assistance of private sector expertise to facilitate the decision making process. While this discussion will focus on the operational hydro-meteorological guidance that was provided, it will also cover the interaction of this guidance as it was applied to the pre-disaster situation, the synoptic evolution of the event, pro-active response, field observations and guidance, after-action reporting and continued post-event recovery management.