Early Warning System (EWS)

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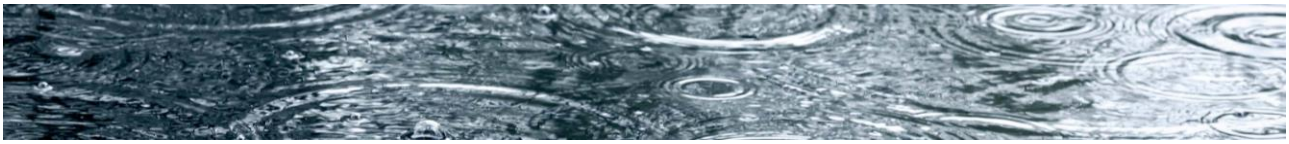
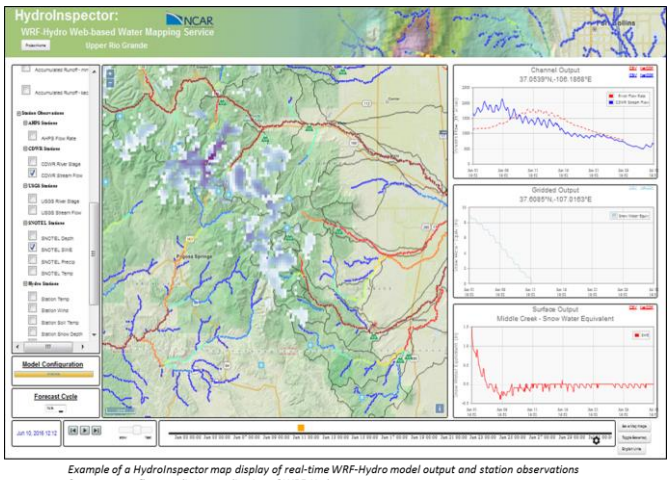
The Early Warning System (EWS) will make intensive use of weather radar precipitation information and a dynamic flood modeling system to produce several high-resolution real-time precipitation and flood warning products. Weather radar information will be combined with existing rain gauge stations to obtain a combined product that could provide the best-observed precipitation field. These will then be integrated into an advanced, high resolution flood prediction model called WRF-Hydro.



Features and Capabilities

- Generation of short-term precipitation radar-forecasts (**Nowcasting**) up to 3 hours.
- Two **warning products** at the scale of the radar cell:
  - Warnings related to exceedance of precipitation accumulation at each cell in a certain time period. The purpose of this warning will be to provide very rapid information about potential flooding conditions due to the accumulation of water in a certain area, usually in short time periods. This type of warnings can be very useful to anticipate flooding due to intense localized storms, and it has very practical application in urbanized areas and small catchments with short response times.
  - Warnings related to the aggregated precipitation over the contributing basin of each cell and for different aggregation periods. This product provides another very rapid indicator of potential flooding conditions.
- Mapped flood inundation warnings that are developed by a hyper-resolution, physics-based hydrologic model (WRF-Hydro) which ingests radar-derived precipitation estimates and nowcasts. [The WRF-Hydro model is also used as the NOAA National Water Model.]
- Warnings calculated based on both **measured** and **forecasted** data, which will allow for the intersection of flood risks and sensitive infrastructure in advance and help to activate mitigation actions.
- Deployed as a **web-based platform** that will include all the basic aspects (data acquisition, processing of products and warnings, monitoring, configuration and display).
- Platform will include **dissemination tools**, with e-mail and SMS dissemination capabilities in order to facilitate the maximum distribution of warnings among potential users.
- **Linked to available pre-existing information** (associated flooding maps, protection protocols, etc.).



Example of a HydroInspector map display of real-time WRF-Hydro model output and station observations from a streamflow prediction application of WRF-Hydro.

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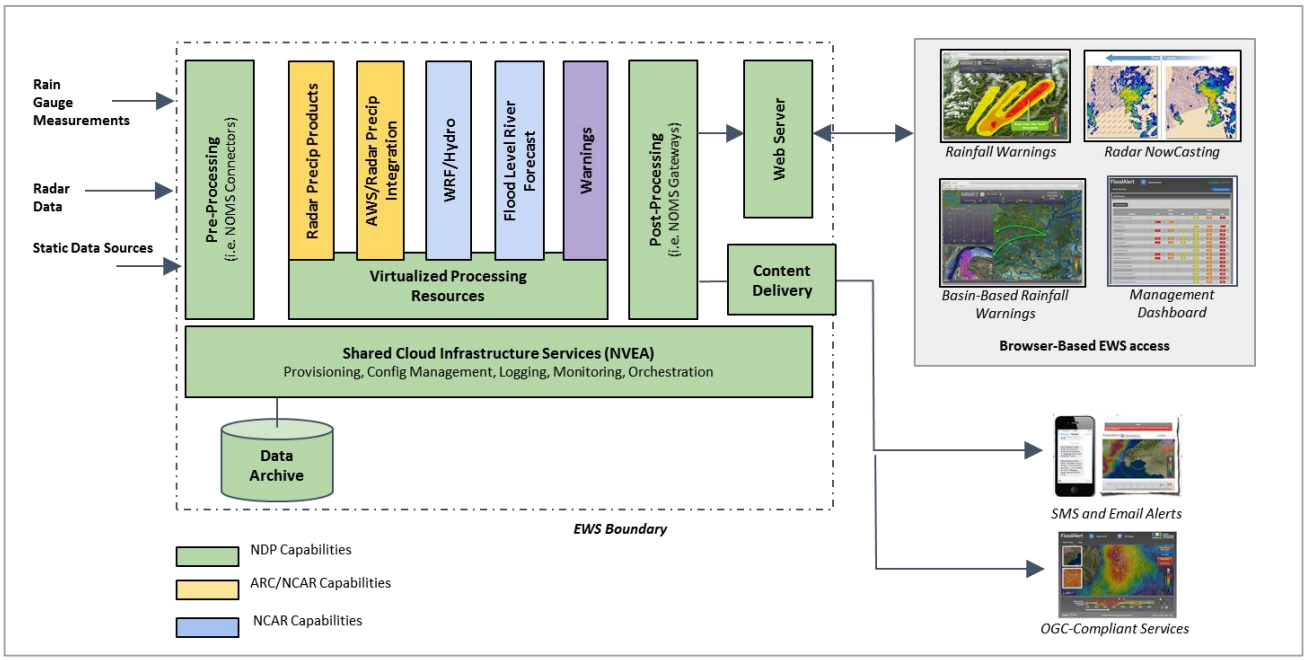
EWS Architecture



Our Team

- **Advanced Radar Company (ARC)**: ARC was founded in 2006 by the UCAR Foundation to commercialize a new generation of advanced weather radars and solutions.
- **Net-Centric Design Professionals (NDP)**: NDP is a leading engineering firm specializing in net-centric system design, cybersecurity and systems integration. We specialize in developing, modernizing and maintaining ground stations, data centers and computer systems.
- **National Center for Atmospheric Research (NCAR) Research Applications Laboratory (RAL)**: One of five laboratories within NCAR. Its mission is to conduct directed research that contributes to fundamental understanding of the atmosphere and related physical, biological, and social systems; to support, enhance, and extend the capabilities of the scientific community; and to develop and transfer knowledge and technology for the betterment of life on Earth

About ARC
ARC was founded in 2006 by the UCAR Foundation to commercialize a new generation of advanced weather radars and solutions. Our systems are simple to maintain, calibrate and operate while still maintaining accuracy and reliability. We are committed to our customers and seek to supply our clients with the best end-to-end solutions. ARC is more than just a radar company. We also provides our customers with high-end Engineering and Scientific services on how to locate their radars for specific purposes and integrate them with other systems to provide the most accurate and complete solutions. ARC has a diverse client base, ranging from installations in the US, Middle East and Central Africa.

Mailing address
PO Box 19225
Boulder, CO 80308

Office
3309 Airport Road
Boulder, CO 80301

Phone: 720-565-0300
Fax: 720-565-0400