

High Plains AMS/NWA Conference - North Platte, NE

Presenters

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Title

2019 Flood: Preparing, Predicting, and Responding to a Multi-Billion-Dollar Disaster

Abstract.

Historic widespread flooding occurred across large portions of Nebraska, Iowa, and surrounding states in March of 2019. Preliminary estimates indicate that the cost of this disaster was more than ten billion dollars, making it one of the costliest inland flood disasters in United States history, and the costliest disaster in Nebraska history. This historic flood resulted from a near-perfect overlap of several ingredients, and if any one of these was missing, the magnitude of the disaster would have been lessened. Unfortunately during the second week of March, the necessary ingredients aligned. February and early March set the stage for the flood as snow accumulated to provide 1"-4" of snow-water equivalent, and much-below-normal temperatures caused significant river ice development and more than one foot of frost depth. On March 13, a bomb cyclone with record-breaking surface low-pressure brought a widespread 1.5" to 3" of rain and warm temperatures, causing a rapid melt of the existing snowpack. Runoff was highly efficient due to the frozen ground, and subsequent ice breakup led to ice jams. More than two dozen communities were evacuated. Hundreds of miles of highways were damaged. Levees failed. Dams broke. Bridges washed away. Interstates were closed. The damage was catastrophic. This presentation will focus on the near-perfect overlap of ingredients that led to the flood, as well as the life-saving pre-event preparation and unprecedented post-flood response efforts. Finally, we'll highlight some of the significant challenges faced by responders including the evacuation of the National Weather Service Valley Office, the closure of many major roadways, and an unprecedented number of levee failures that cut off several towns and many rural areas.