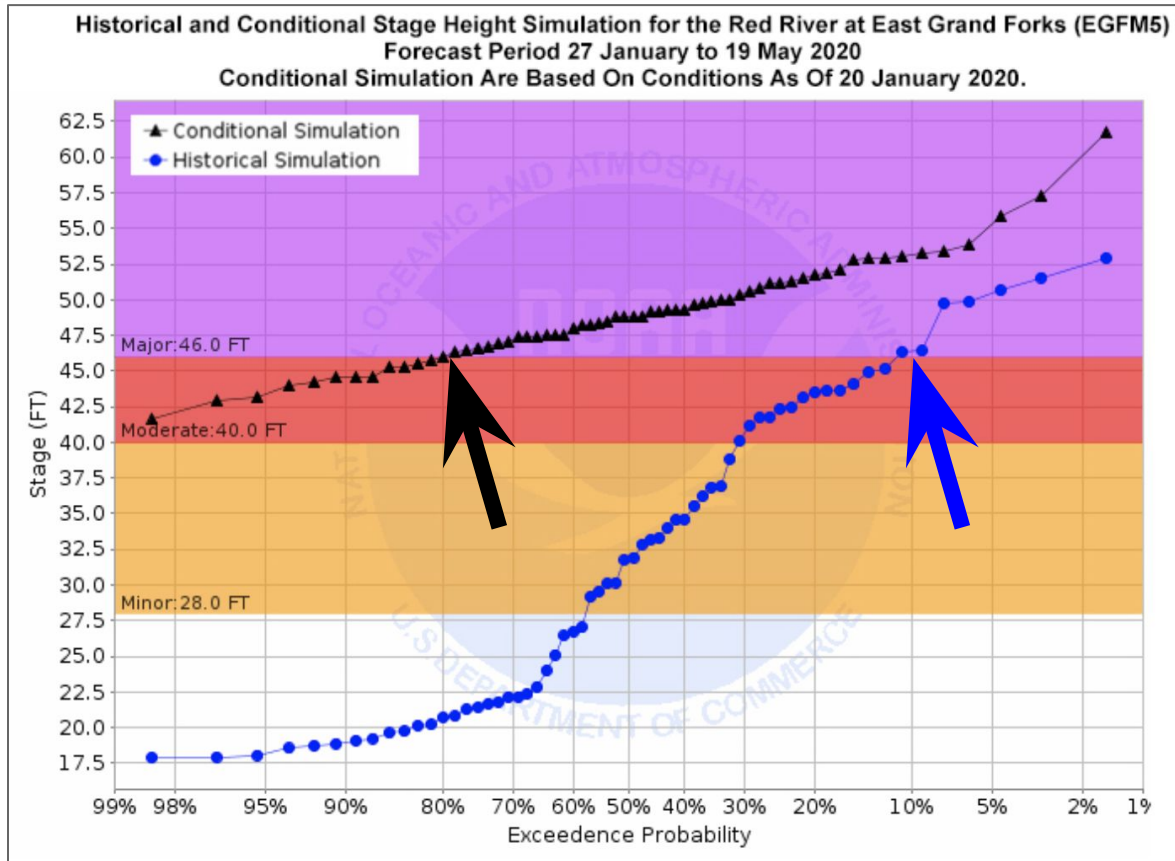# Historical Probability
Quick Reference Guide

Historical probability describes the frequency that an event of a particular magnitude has occurred for a given location during the observational record.

Historical and Conditional Stage Height Simulation for the Red River at East Grand Forks (EGFM5)
Forecast Period 27 January to 19 May 2020
Conditional Simulation Are Based On Conditions As Of 20 January 2020.

In this river flooding example, the historical simulation (blue curve), based on years of data, shows a 10% chance of exceeding the major flood stage of 46.0 feet (blue arrow) at this location in any given year. But the current forecast data (black curve) suggests an 80% chance of exceeding this value (black arrow) during the 27 January - 19 May period.

Average Recurrence Interval (ARI) is used to describe the average time between events based on long-term historical probability. Caution should be used when considering messaging based on ARI, like "50 year flood". Evidence suggests this messaging can be confusing to the audience, as many think that means the event can only happen once during that time duration.