

Probability of Precipitation

Quick Reference Guide

Probability of Precipitation (PoP) is defined by the NWS as the probability of measurable precipitation (≥ 0.01 inch) during the stated forecast period at an effective “point” — a rain gauge, a model grid point, or a single digital forecast grid box.

While a representative single PoP value could be described over a large region full of “points” (like a county or forecast zone), we treat PoP as a point probability.

What PoP Is:

- Probability of measurable precipitation at a point
- Probability of measurable precipitation over the specified time period

What PoP Is NOT:

- A measure of precipitation intensity
- A measure of precipitation duration
- A percentage describing the areal coverage of precipitation*

***Note:** Expected percentage coverage of accumulating precipitation over a region could be useful for effective communication of a forecast message in certain weather setups, but it should be considered a separate measure from a point PoP.

A forecast PoP of 20% resulting in accumulating precipitation (or a forecast of 80% with no precipitation) is not necessarily a bad forecast!

The true measure of PoP skill is determined by **reliability** measured over many forecasts made over many days. If a large sample of 20% PoP forecasts verifies with accumulating precipitation 20% of the time, it is said to be **reliable**. In this one-year regional verification, the NBM PoP showed better reliability than the NDFD PoP. The NDFD forecast PoPs showed a systematic low bias.

