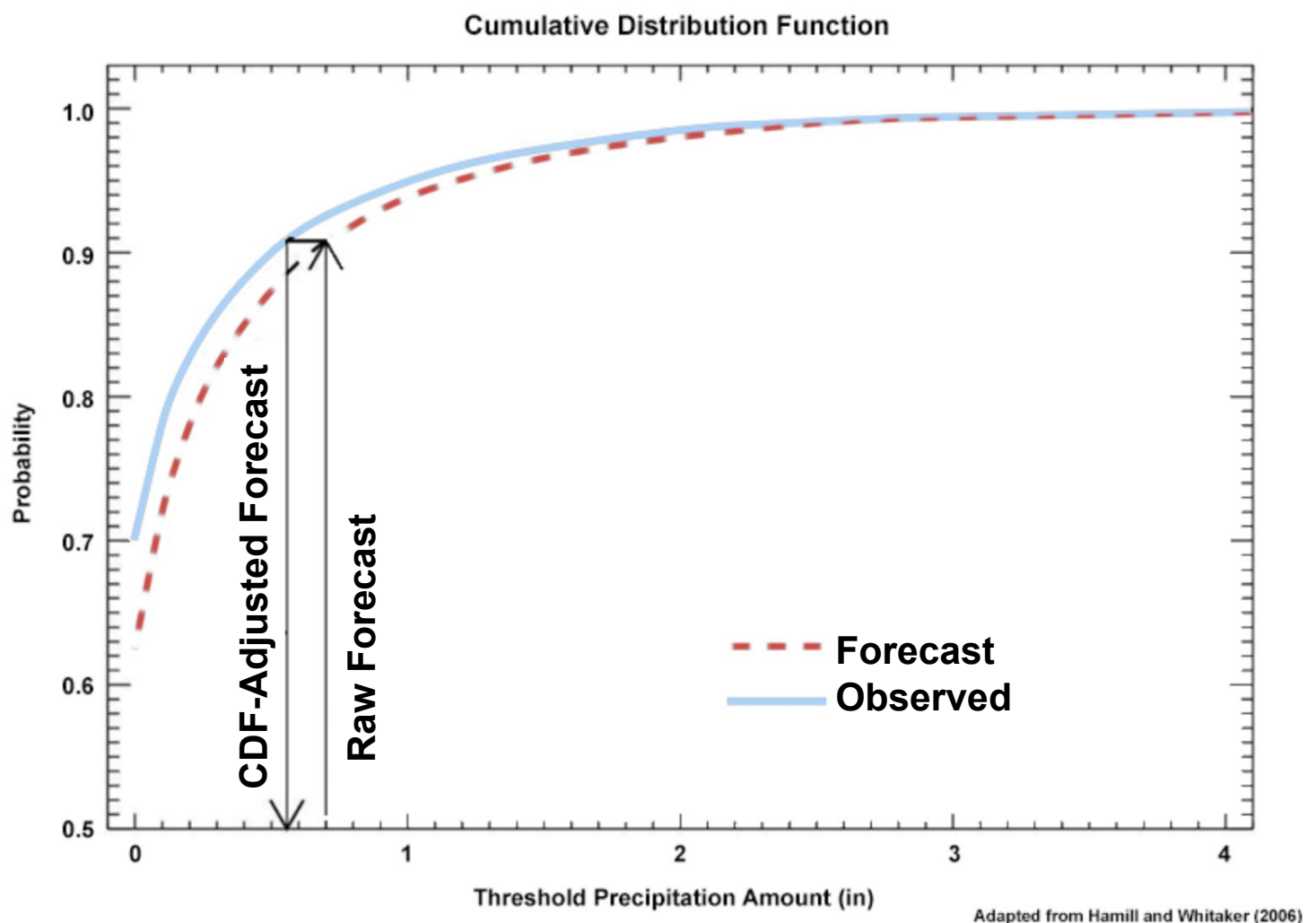# Quantile Mapping and Bias Correction
Quick Reference Guide

While **random** errors are unpredictable and relatively uncontrollable, **systematic** errors are predictable and tend to happen more frequently. **Bias** is the systematic tendency for a model to over- or underestimate a given forecast variable over many forecasts. **Bias correction** is a way to address systematic error by accounting and adjusting for a known bias.

Cumulative Distribution Function

Adapted from Hamill and Whitaker (2006)

The **Quantile Mapping** process calculates a bias correction at every grid point on the map. At this example point, the raw model output has a 90% non-exceedance probability of 0.70 inches. This is adjusted to a 90% non-exceedance probability of 0.56 inches, suggesting the model has a systematic wet bias at this grid point.