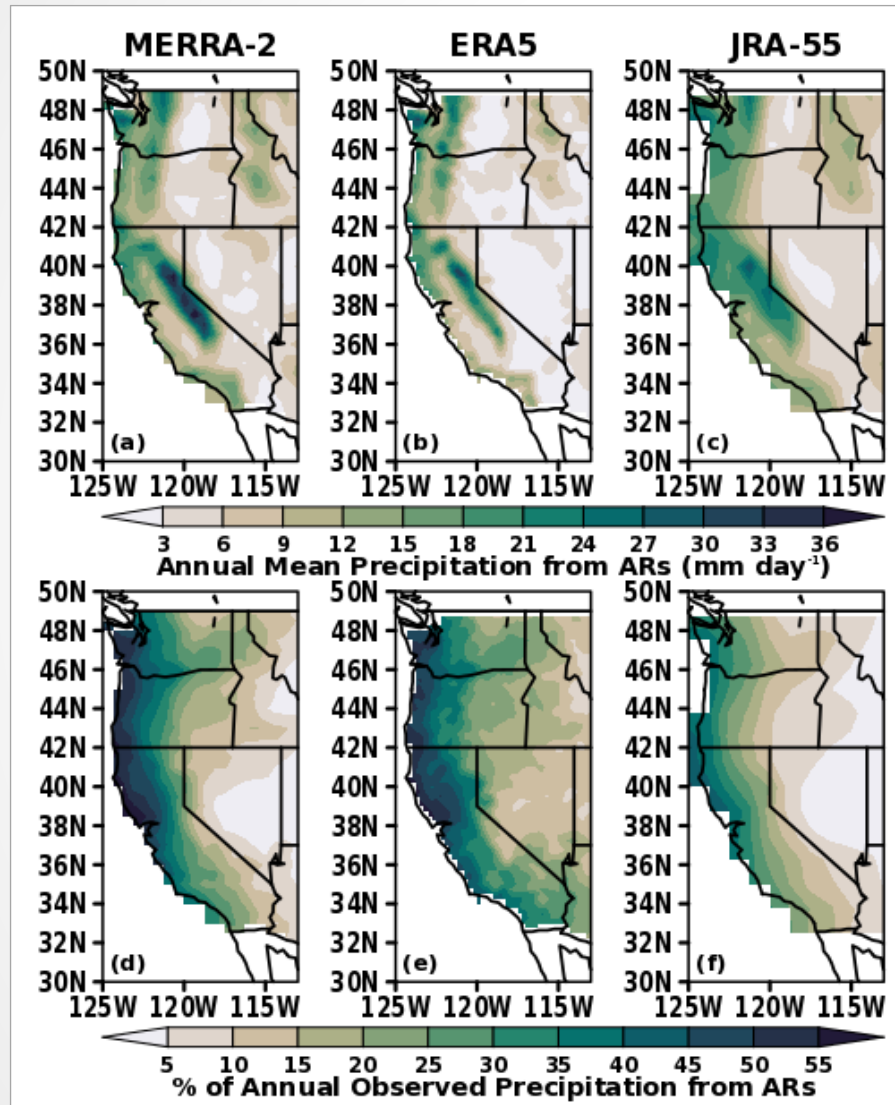


# The Detection of Atmospheric Rivers in Reanalyses and its Influence on Precipitation



Eleven Atmospheric River Detection Tools (ARDTs) were used with three reanalyses to help quantify uncertainties in our ability to detect Atmospheric Rivers. For the Pacific Coast of the US, results show that due to an elevated climatology for precipitable water vapor in MERRA-2 relative to ERA5 and JRA-55, more ARs are detected. There is also a larger percentage of precipitation associated with ARs in MERRA-2 right at the coastline. In addition, the impact of spatial resolution is evident as precipitation associated with ARs is smoothed out in JRA-55, while ERA5 has finer scale features and allows ARs to penetrate further inland. Results from the Atmospheric River Tracking Method Intercomparison Project (ARTMIP) project, Collow et al. (2022).