Precipitation forecasts from numerical weather prediction (NWP) models are used as input in hydrological forecasts. The skill of the NWP rainfall forecasts decreases with scale in both time and space, the models have some skill in forecasting mean areal daily accumulations over large areas but almost no skill at forecasting hourly rainfall over small spatial scales. The skill of the NWP model as a function of scale is investigated so as to aid the hydrologists in understanding the limitations of using NWP output for hydrological modelling over a range of scales. Low pass Fourier filters were employed on the data and forecasts and the skill of the forecasts for a range of space and time scales was calculated. Two models which are currently employed by the Australian Bureau of Meteorology were investigated, one with a 12 km horizontal resolution and one with a 5 km resolution. The use of a high resolution forecast based on a radar/NWP model mix for short lead times (up to 6 hours) was also investigated. Case studies were performed over two areas, one in the southern parts of Australia (Victoria) and one in the sub-tropical south east Queensland to get an idea of the model skill over different areas.