Australian rainfall is highly variable. This may be attributed to the fact that it is influenced by a variety of different dynamical factors. Some of these (such as El Niño/La Niña) are reasonably well known, but others with smaller but significant contributions have received little attention. Here, a study is described of the interannual variability of the observed rainfall based on Bureau of Meteorology observations (Jones et al. 2007) over the past 110 years. Since rainfall is affected by different factors in different seasons, the analysis is seasonal, and the impact of the following factors are addressed: ENSO, global warming, the quasi-biennial oscillation (QBO), the Pacific Decadal Oscillation, the Atlantic Meridional Oscillation, the Pacific Gyre Oscillation, and the solar cycle. The analysis is based on empirical orthogonal functions and correlations with indicators of particular processes. In particular, the QBO and the 11-year solar cycle are found to have significant impact in certain regions in particular seasons.