

New South Wales winter-spring rainfall

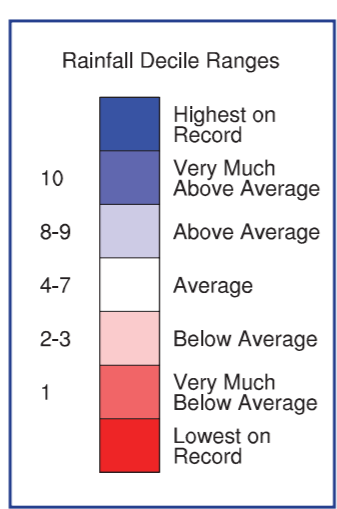
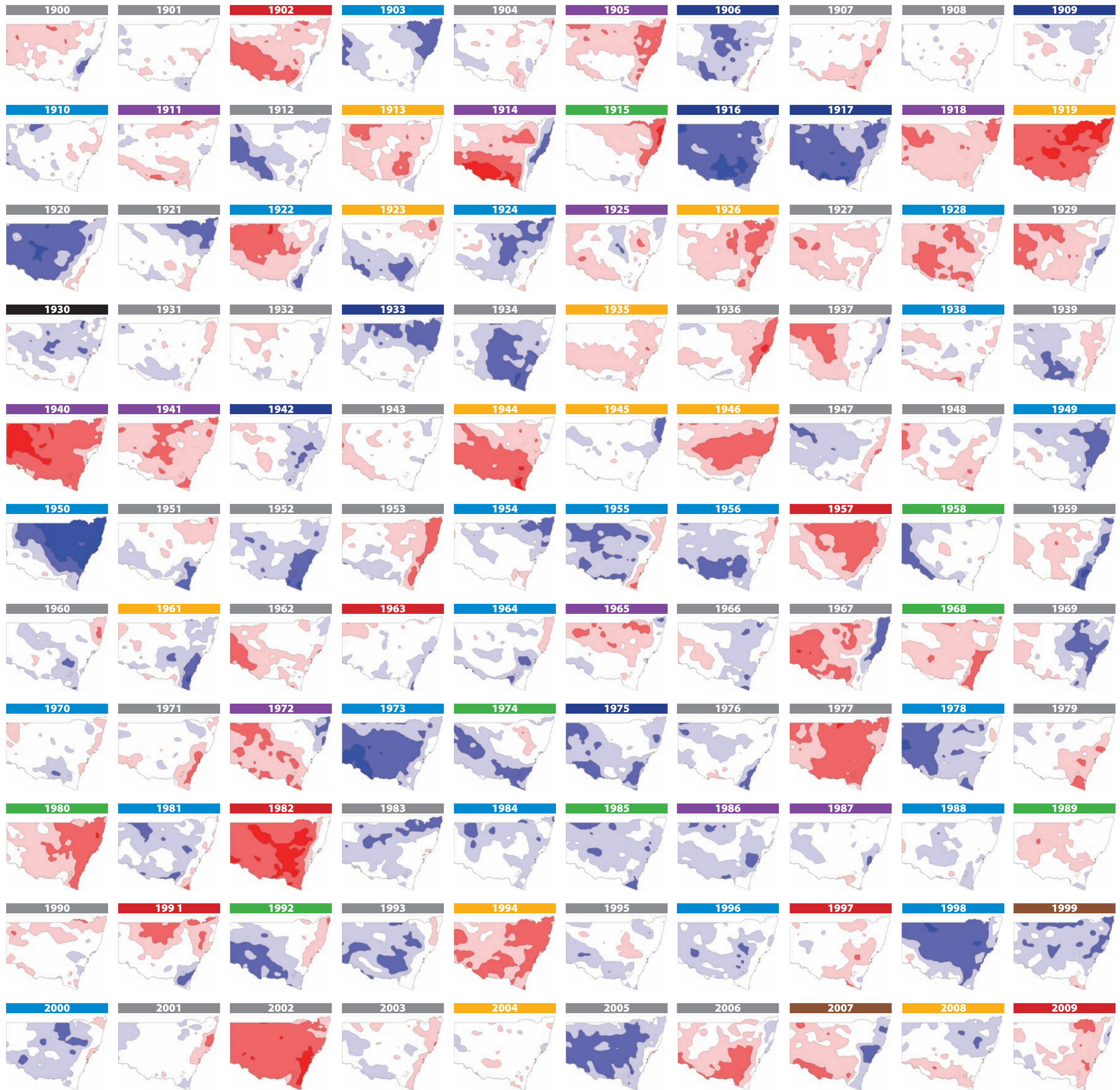
June to November annual rainfall relative to 1900-2010

This poster shows how the Pacific and Indian oceans have influenced cool season rainfall in NSW over the past 110 years. From June through to November, rainfall in Inland NSW is influenced by sea surface temperatures in the Pacific and the Indian Oceans. Favourable ocean temperatures enhance the flow of moist air onto the Australian continent, increasing the chance of cool season rainfall. Unfavourable ocean temperatures reduce the flow of this moist air onto the Australia continent and lower the chances of cool season rainfall. Because of this influence, climate scientists closely monitor ocean temperatures in the Pacific and Indian Oceans, helping them to make predictions of rainfall during the cooler months.

The El Nino Southern Oscillation (ENSO) describes the ocean temperature patterns in the Pacific Ocean, with La Nina being favourable for rainfall and El Nino being unfavourable, reducing the chance of rain. In the Indian Ocean, the Indian Ocean Dipole (IOD) describes the ocean temperature patterns, with negative values being favourable for rainfall and positive values being unfavourable, reducing the chance of rainfall. ENSO and IOD each have three phases and studies originally undertaken by Meyer et al in 2007 and furthered by Ummenhofer et al 2010 classified different years according to 9 possible ENSO/IOD combinations. Rainfall decile maps for each year have been colour coded to indicate the corresponding ENSO/IOD phase.

	Negative IOD	Neutral IOD	Positive IOD
El Nino	1930	1877 1888 1899 1905 1911 1914 1918 1925 1940 1941 1965 1972 1986 1987	1896 1902 1957 1963 1982 1991 1997 2009
Neutral ENSO	1915 1958 1968 1974 1980 1985 1989 1992	1880 1881 1882 1883 1884 1895 1898 1900 1901 1904 1907 1908 1912 1920 1921 1927 1929 1931 1932 1934 1936 1937 1939 1943 1947 1948 1951 1952 1953 1959 1960 1962 1966 1967 1969 1971 1976 1977 1979 1983 1990 1993 1995 2001 2002 2003 2005 2006	1885 1887 1891 1894 1913 1919 1923 1926 1935 1944 1945 1946 1961 1994 2004 2008
La Nina	1906 1909 1916 1917 1933 1942 1975 2010	1878 1879 1886 1889 1890 1892 1893 1897 1903 1910 1922 1924 1928 1938 1949 1950 1954 1955 1956 1964 1970 1973 1978 1981 1984 1988 1996 1998 2000	1999 2007

Historic ENSO & IOD combinations 1877-2010 adapted from Ummenhofer et al 2010



Rainfall Deciles

Rainfall deciles indicate how dry or wet it was compared to a period. All rainfall received in the June-November period is ranked in order. The driest 10% of years fall into decile 1 and the wettest 10% of years decile 10.



Australian Government
Bureau of Meteorology

Acknowledgements: Rainfall maps sourced from the Australian Bureau of Meteorology