Forecasts4Profit website

The Forecasts4Profit website has been produced as part of the GRDC 'Using Seasonal Forecasts' extension project, a collaboration between the Grains Research Development Corporation (GRDC), Agriculture Victoria, South Australian Research and Development Institute (SARDI) and Federation University.

The Forecasts4Profit web resource provides a single location to find:

- The latest versions of The Break seasonal updates
- Farmer case studies sharing how they are using seasonal forecast information
- Handy links, tools and forecast model sites accessed by The Break team
- The Very Fast Break flashback highlights - an entertaining way to test your climate knowledge.

You can access the site and the Local Climate Tool explained below at www.forecasts4profit.com.au.

Local Climate Tool

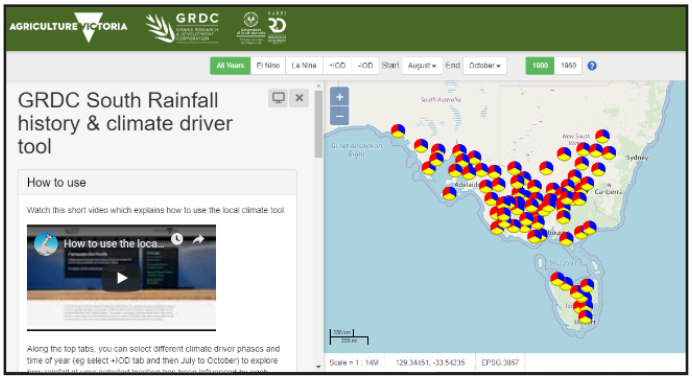
The Local Climate Tool allows you to assess the effect of El Niño, La Niña and positive and negative IOD on rainfall in your area.

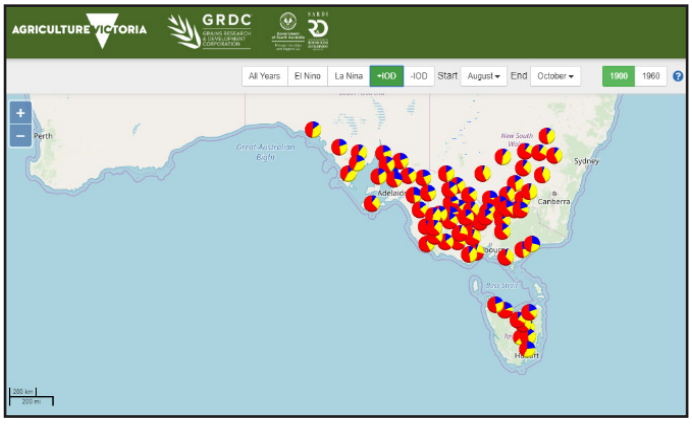
The Local Climate Tool has been produced as part of the GRDC 'Using Seasonal Forecasts' extension project, a collaboration between the GRDC, Agriculture Victoria, SARDI and Federation University.

The page you arrive at when entering the site has all the locations you can interrogate using the tool.

You will also see an information panel and blue circles (with '?' in them) next to objects. These two options provide you more information and can help you understand what the tool is saying.

Across the header you can see each of the climate drivers (El Niño, La Niña, positive IOD and negative IOD) and the months of the year as different selection buttons.





Once you select a climate driver, in this case positive IOD which has been an active climate driver in 2019, the pie charts on the map change to represent the rainfall totals in positive IOD years.

You can also select the months in which you want to interrogate, we have selected August to October because for broadacre cropping this is a crucial time for rain in the low to medium rainfall zones but depending on your industry and system you can change the months to suit.

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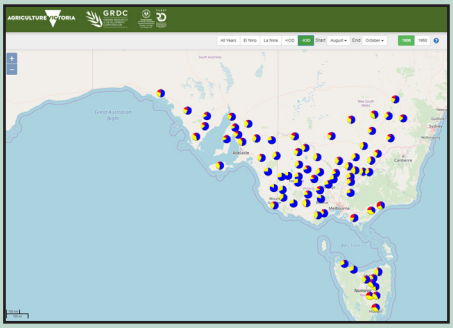
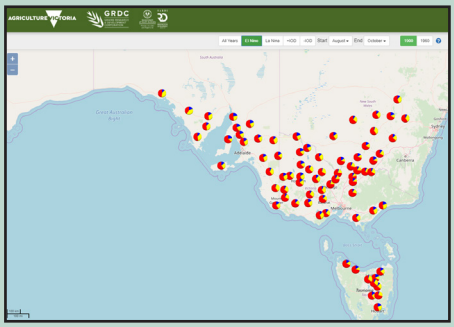
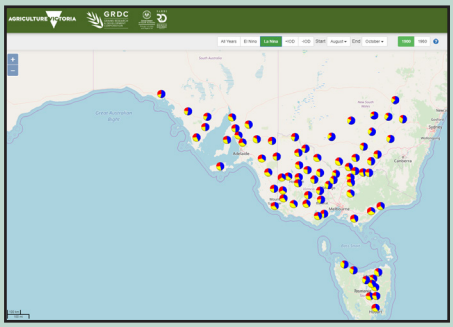
As you select the different climate drivers the pie charts change.







For each location you can drill down further enabling you interrogate the location closest to you.

When all years are selected the pie graph, commonly referred to as a chocolate wheel, the different options (wetter, average and drier) will have approximately the same likelihood of occurring.

The chocolate wheels were the brainchild of SARDI research Peter Hayman, to communicate the probabilities of season forecasts.

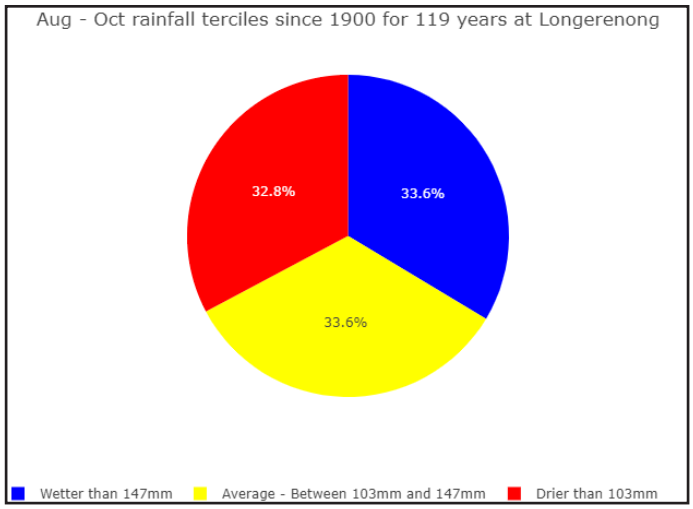
As the chocolate wheel breaks the distribution into three, wetter, average and drier, it becomes what is known as a tercile distribution.

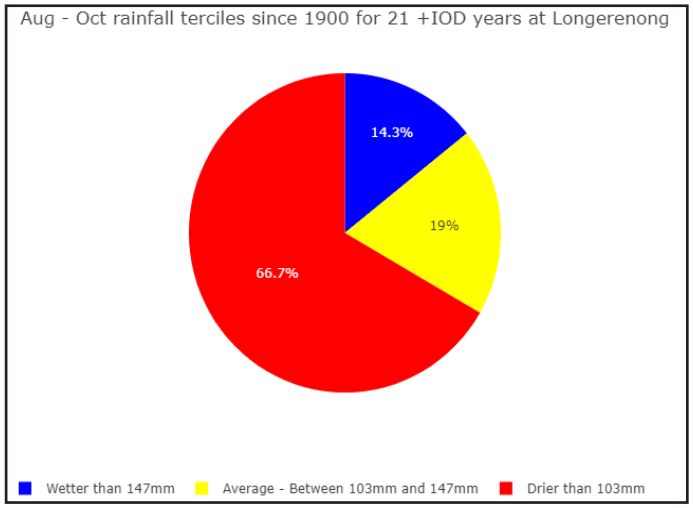
The boundaries between wetter, average and drier is determined by the historical rainfall totals experienced at the location and are therefore different for each location.

When you select a climate driver, you can see that the probabilities for wetter, average and drier change.

Here you can see the pie chart for positive IOD years at Longerenong looking at August to October rainfall.

We can see that there have been 21 positive IOD years in the last 120 years, of these 66.7 per cent have been drier than 103 mm for the August to October period. While a high percentage of positive IOD years have been drier, the wheel shows that there have been years when conditions have been average and wetter for the August to October period at Longerenong.





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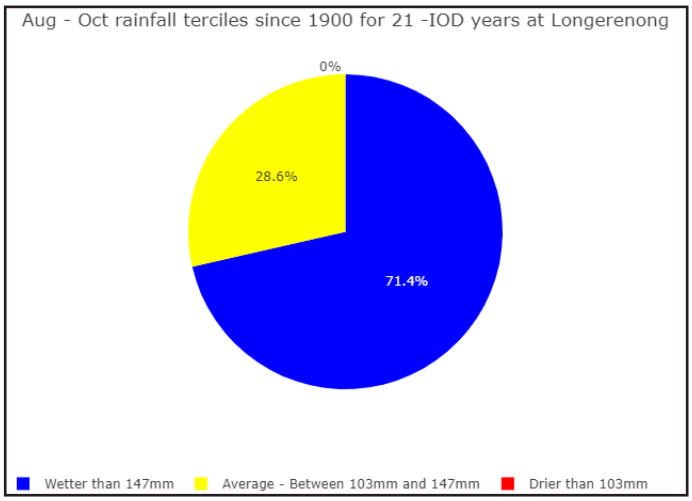
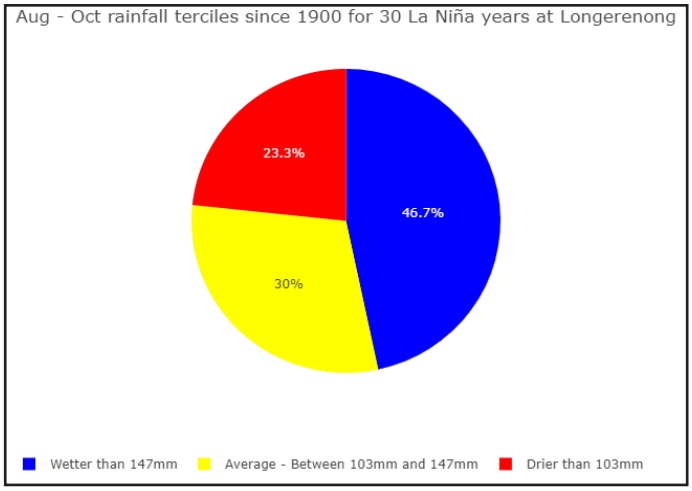
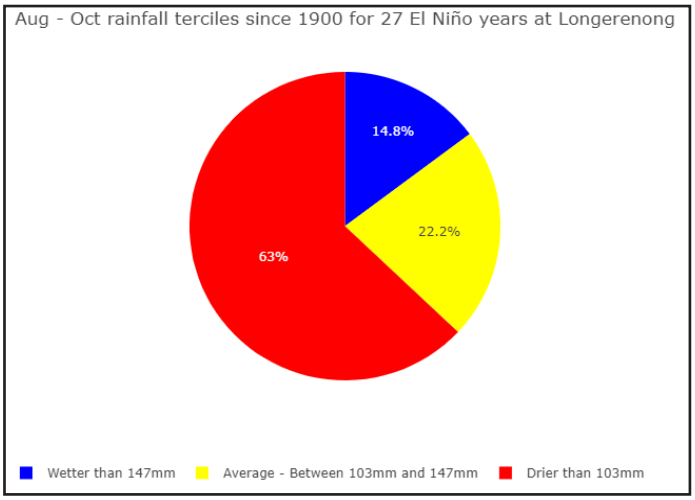


The other phase of the IOD is the negative IOD. When you select the negative IOD pie chart you can see that most years have been wetter than 147 mm, 28.6 per cent have been between 103-147 mm and no years in the last 21 negative IOD years has the rainfall for August to October been less than 103 mm.



The El Niño Southern Oscillation (ENSO) is the other climate driver that has a major impact on Australia. The wet phase of ENSO is known as La Niña.

Here we can see that in the past 30 La Niña years for Longerenong 46.7 per cent have been wetter than 147 mm, 30 per cent have been between 103-147 mm and 23.3 per cent have been drier than 103 mm.



The drier phase of ENSO is known as El Niño, when we look at the pie chart for Longerenong we can see that the majority, 63 per cent, of the past 27 El Niño years have been drier than 103 mm.

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While the pie chart breaks the climate driver years into terciles (three; wetter, average and drier), this figure breaks them into deciles (ten equal sections), again based on the historical rainfall figures for the location.

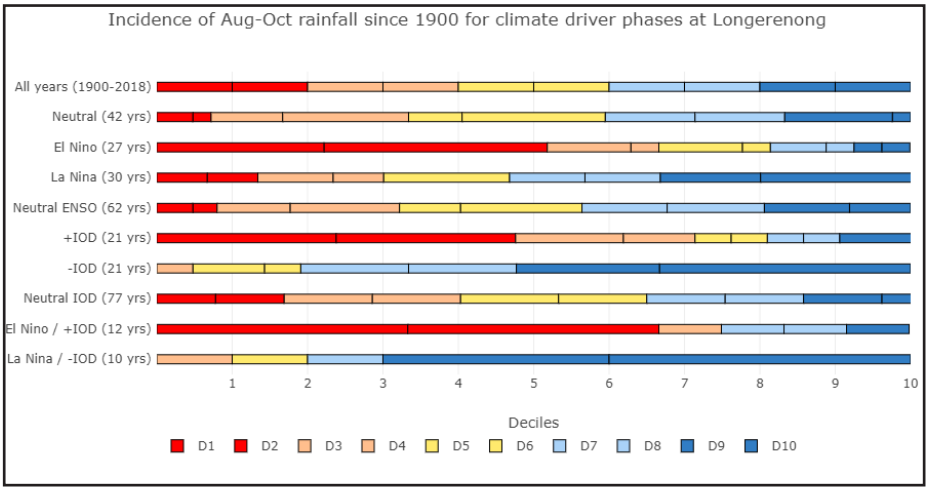
These are commonly referred to as chocolate bars and are the brainchild of SARDI researcher Peter Hayman.

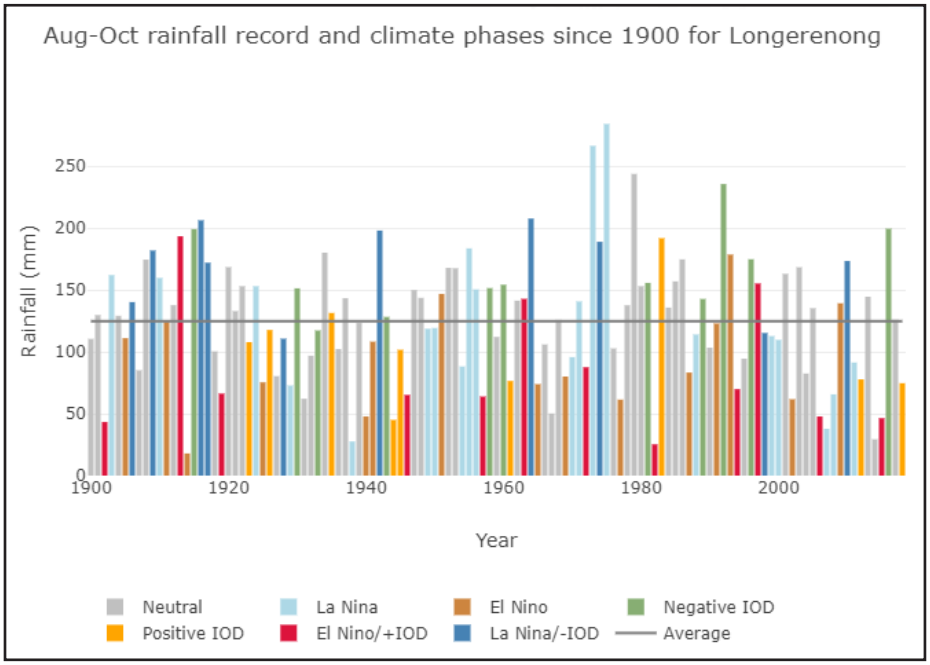
You can see that the first bar which takes the data from all years, has equal splits into ten even sections, this represents climatology.

But when you look at a certain climate driver the deciles increase or decrease in size. If you look at the positive IOD, deciles one and two (red), increase in size, and we lose decile ten completely.

To get the most out of this graph it is best to interact with it online, as you can then hover over the different decile lines to get the percentage numbers.

In this bar graph the years have been colour coded to which climate driver was active in that year, this enables you to see how different climate drivers have affected your location at different times and there is no clear pattern.





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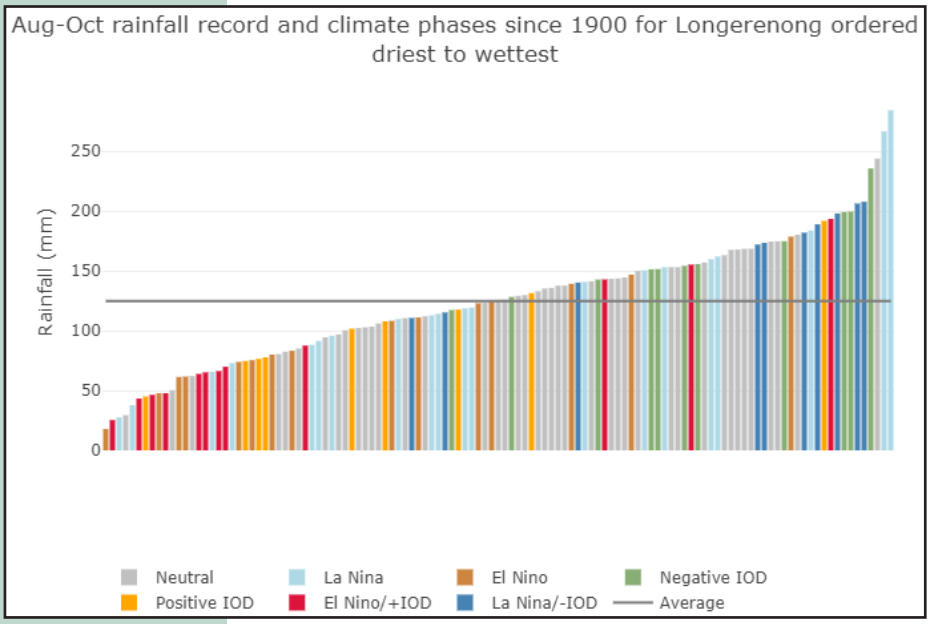
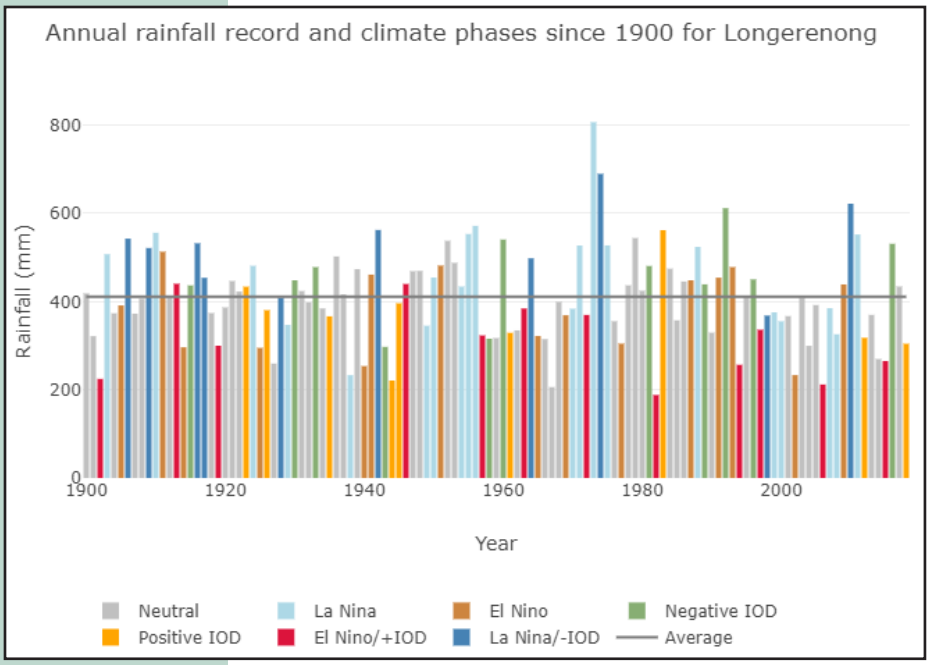
This bar graph is a variation on the graph before, with the same data, but arranged from the driest to wettest August to October for Longerenong. This is in the style of Darren Ray from Bureau of Meteorology (BoM).

Here you can see that for Longerenong there is a higher proportion of blue and green years to the right of the graph, and red and yellow years to the left of the graph.

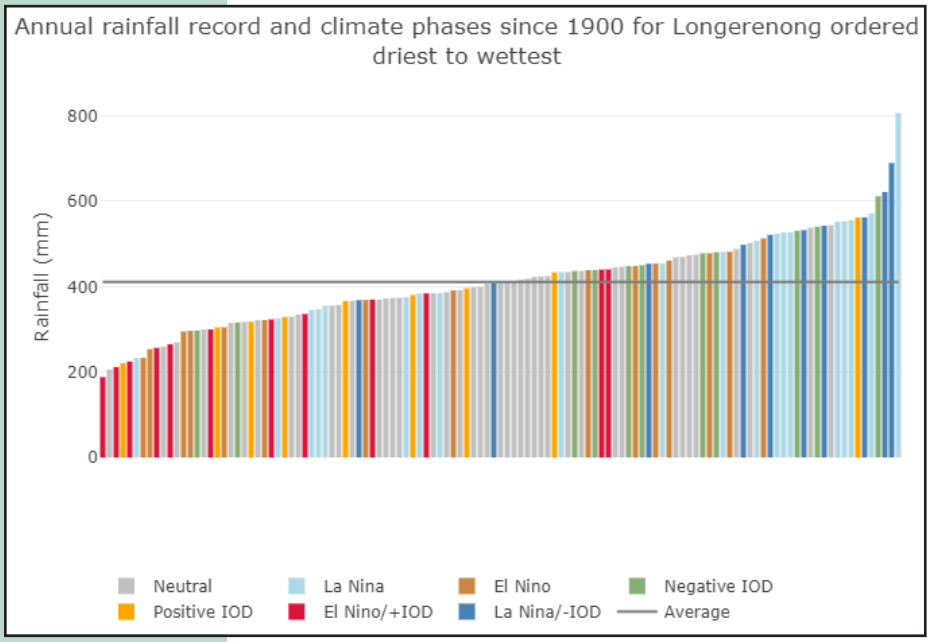
But it also shows that there are some blue and green years that have fallen in drier years and vice versa. This is because climate driver effects don't always play by the rule book, occasionally they are the opposite of what you would expect.



This graph is the same coloured bar graph as above but draws in the annual rainfall not just the August to October totals.



This graph is also the same as the sorted bar graph above but is drawing in the annual rainfall not just the August to October totals.



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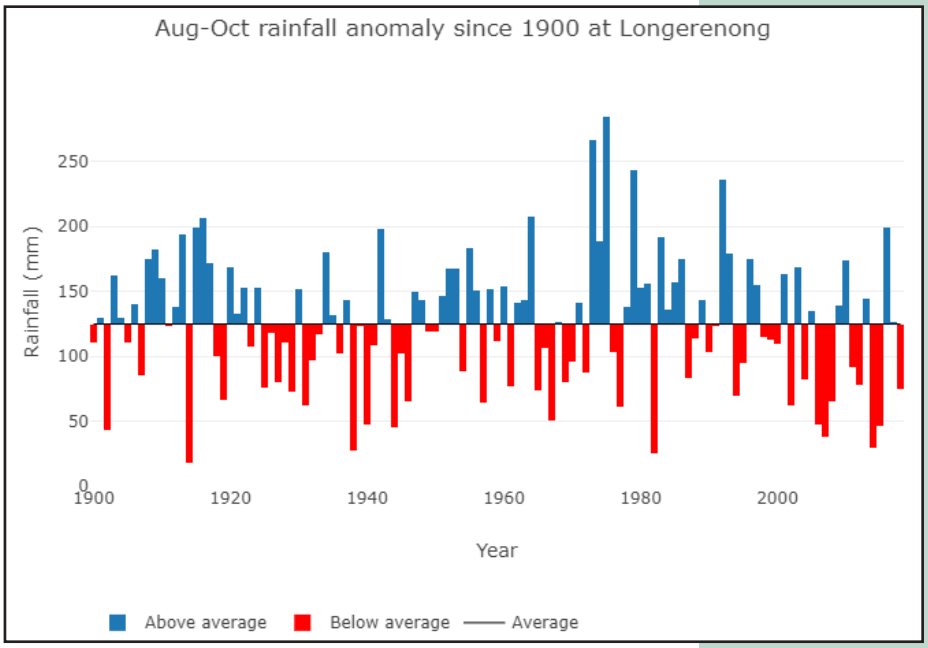
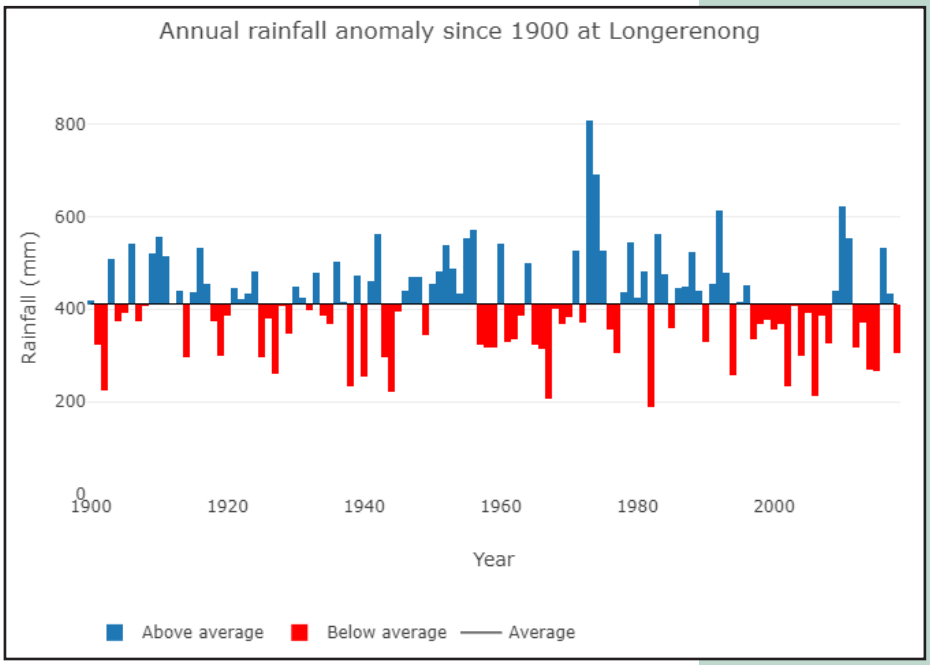


This figure and the one below allows you to look at the rainfall totals for each year, for the time period set (in this case August to October) compared to the long-term average. The red bars indicate totals below the average, while blue bars indicate rainfall above the average.



This graph is the same depiction as above, except that it shows annual rainfall instead.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Aug-Oct
1913	3	71	49	16	31	11	22	48	89	56	21	23	440	194
1983	6	6	80	40	61	23	68	66	72	54	65	22	562	192
1997	32	15	5	3	56	19	12	38	85	32	36	4	336	155
1963	83	0	19	2	45	45	43	56	59	29	0	5	384	143
1935	10	9	30	32	18	47	56	53	57	22	13	21	367	132
1926	4	5	7	51	80	49	54	49	31	38	3	10	380	118
1923	8	2	0	0	69	101	89	32	34	42	17	39	434	108
1945	22	109	1	1	21	71	36	59	19	23	20	14	396	102
1972	54	61	4	42	30	15	47	57	13	18	29	1	370	88
2012	9	4	36	12	40	60	51	31	35	13	11	17	318	78
1961	0	20	20	59	16	30	43	16	32	28	26	39	329	77
2018	12	4	7	7	43	33	30	43	7	25	27	66	304	75
1994	28	27	2	5	24	58	23	16	14	40	18	1	257	70
1919	2	65	25	4	57	19	32	20	31	15	4	27	300	66
1946	55	80	49	9	30	45	71	26	17	23	13	21	440	65
1957	4	122	21	11	20	33	20	20	6	38	20	9	323	64
2006	32	2	6	42	25	17	26	16	31	2	8	6	212	48
2015	78	10	3	17	25	45	19	11	31	5	15	8	265	46
1944	11	9	1	36	39	2	27	1	8	36	11	40	221	45
1902	6	5	32	0	11	37	6	21	10	13	4	80	225	43
1982	34	14	26	19	26	22	14	6	13	6	4	4	188	25

The Local Climate Tool also isolates the monthly rainfall totals for the years that experience a certain climate driver.

To the left we have the 21 years of the positive IOD split into monthly rainfall, the annual total and the total for the months selected (August to October).

The August to October data is colour code to align with where it sits within the tercile pie graph (chocolate wheel), wetter, average or drier, as described at the beginning of this article.

This allows you to see that while some years have resulted in very poor August to October rainfall in a positive IOD phase, there are years that have had reasonable falls. While probability says there is less likely to be wetter years, some of the drier years may still be acceptable in your industry and/or system.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Aug-Oct
1992	22	21	25	39	79	40	14	76	80	80	62	74	612	236
1964	0	9	2	38	14	47	81	48	77	83	85	15	498	208
1916	32	4	0	15	14	85	53	77	80	50	66	58	532	206
2016	42	26	24	8	63	42	66	46	110	44	17	43	531	200
1915	14	0	0	31	34	100	44	65	111	23	11	2	437	199
1942	24	17	9	43	101	47	38	73	67	58	66	21	562	198
1974	116	38	39	122	88	17	66	54	60	75	7	8	690	189
1909	25	11	42	37	60	77	52	132	21	29	22	15	522	182
1996	16	27	23	17	11	97	66	70	84	21	9	10	450	175
2010	15	46	63	44	33	22	52	77	47	50	46	130	622	174
1917	16	49	20	15	57	28	69	39	64	69	14	14	454	172
1981	30	9	4	6	59	95	100	93	21	42	16	5	481	156
1960	23	35	43	50	87	30	32	53	83	18	70	17	541	154
1958	8	10	7	4	44	8	58	72	27	53	23	1	316	152
1930	0	30	0	26	20	5	48	50	27	75	32	135	448	151
1989	4	14	28	31	73	62	55	54	41	48	24	8	439	143
1906	2	34	52	6	82	87	57	43	47	51	70	12	543	140
1943	15	32	6	23	15	36	31	53	51	25	6	5	297	128
1933	52	0	17	37	75	32	34	35	53	29	45	69	478	117
1998	17	21	4	63	19	43	44	16	40	60	30	13	368	115
1928	53	82	38	21	20	49	33	6	43	62	0	3	409	111

This table shows 21 negative IOD years broken down into monthly rainfall amounts, with total annual and August to October rainfall. Sorted from most rainfall for the August to October period to the least. Colour coding indicates if the 21 years fall into the wetter and average category.

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This table shows the 27 El Niño years.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Aug-Oct
1913	3	71	49	16	31	11	22	48	89	56	21	23	440	194
1993	66	9	13	2	25	21	73	49	82	48	46	45	478	179
1997	32	15	5	3	56	19	12	38	85	32	36	4	336	155
1951	14	68	13	29	51	60	46	51	11	85	15	39	482	147
1963	83	0	19	2	45	45	43	56	59	29	0	5	384	143
2009	0	1	13	19	52	63	56	47	71	22	64	32	439	139
1911	3	128	33	12	63	53	39	19	93	12	1	57	513	124
1991	45	0	13	15	7	153	52	62	58	3	29	17	454	123
1905	26	14	1	52	39	77	54	18	32	62	14	4	391	111
1941	121	9	45	27	10	47	61	17	62	30	25	8	461	108
1972	54	61	4	42	30	15	47	57	13	18	29	1	370	88
1987	38	49	14	13	75	56	41	22	10	52	11	67	448	83
1969	13	46	51	17	50	8	58	40	27	12	24	23	369	80
1925	11	15	6	14	79	38	28	22	48	6	26	3	295	75
1965	1	0	5	12	54	22	57	58	11	5	37	60	322	74
1994	28	27	2	5	24	58	23	16	14	40	18	1	257	70
1919	2	65	25	4	57	19	32	20	31	15	4	27	300	66
1946	55	80	49	9	30	45	71	26	17	23	13	21	440	65
1957	4	122	21	11	20	33	20	20	6	38	20	9	323	64
2002	11	9	13	16	21	25	25	18	31	13	32	21	233	62
1977	17	22	26	14	49	52	19	22	15	25	33	11	305	61
2006	32	2	6	42	25	17	26	16	31	2	8	6	212	48
1940	7	3	2	65	28	9	30	13	19	16	37	24	254	48
2015	78	10	3	17	25	45	19	11	31	5	15	8	265	46
1902	6	5	32	0	11	37	6	21	10	13	4	80	225	43
1982	34	14	26	19	26	22	14	6	13	6	4	4	188	25
1914	10	21	10	56	24	19	19	9	5	4	52	67	296	18

There have been 30 La Niña years which you can interrogate.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Aug-Oct
1975	32	1	30	15	45	13	58	34	74	177	28	20	527	284
1973	49	153	19	35	107	61	75	76	55	135	24	18	807	267
1964	0	9	2	38	14	47	81	48	77	83	85	15	498	208
1916	32	4	0	15	14	85	53	77	80	50	66	58	532	206
1942	24	17	9	43	101	47	38	73	67	58	66	21	562	198
1974	116	38	39	122	88	17	66	54	60	75	7	8	690	189
1955	4	62	26	16	51	121	49	106	32	45	31	10	553	184
1909	25	11	42	37	60	77	52	132	21	29	22	15	522	182
2010	15	46	63	44	33	22	52	77	47	50	46	130	622	174
1917	16	49	20	15	57	28	69	39	64	69	14	14	454	172
1903	5	13	31	68	45	43	49	41	78	44	65	27	507	162
1910	9	1	98	5	62	72	91	44	90	26	47	12	556	160
1924	12	75	38	7	16	41	12	47	53	53	125	2	481	153
1956	11	0	88	68	110	63	51	49	46	56	24	6	572	151
1971	22	22	17	102	51	49	34	44	52	45	65	24	527	141
1906	2	34	52	6	82	87	57	43	47	51	70	12	543	140
1950	0	77	62	21	94	10	42	30	50	39	16	13	455	119
1949	10	68	12	2	33	14	36	9	44	65	51	2	345	119
1998	17	21	4	63	19	43	44	16	40	60	30	13	368	115
1988	36	23	32	3	138	76	40	26	65	23	24	39	524	114
1999	8	24	31	0	45	26	28	57	17	39	35	67	376	113
1928	53	82	38	21	20	49	33	6	43	62	0	3	409	111
2000	2	61	8	41	27	17	49	26	52	32	23	19	355	110
1970	22	2	24	65	27	28	18	51	25	20	61	39	384	96
2011	161	69	21	15	23	19	52	44	13	35	53	48	552	91
1954	51	0	6	106	16	29	37	35	16	37	47	54	434	88
1929	20	27	41	16	26	41	25	27	17	28	8	71	347	73
2008	45	0	7	8	39	33	48	32	27	7	10	69	326	66
2007	71	26	6	66	65	7	38	13	18	7	46	23	385	38
1938	35	16	1	24	13	49	48	11	12	5	19	1	233	28

Due to the complexity of the website it is best if you access it via a desktop computer or tablet. The screen size on a smart phone does reduce the amount of information you can view at any one time making it difficult to read some of the graphs and tables.

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