



Browning Media Quarterly Australian Report

Summer time is fast approaching for the southern hemisphere, and as Australia braces for its summer heat, a variety of climate factors are shaping Australian weather for the next three months.

These are the main factors shaping the upcoming summer weather for Australia.

1. The Indian Ocean Dipole (IOD) has turned neutral as of mid-November
2. The El Niño–Southern Oscillation (ENSO) is currently neutral

However, a La Nina Modoki is warming the Pacific waters around the northern parts of Australia

3. The Antarctic Oscillation (AAO) is currently very weak and although it is strengthening slightly, it is unlikely to fall back into average strength before the end of December.
4. The Eastern Australian Current (EAC) is moving faster and is almost one full °C hotter than normal

Antarctic Oscillation Index: 14 day forecast

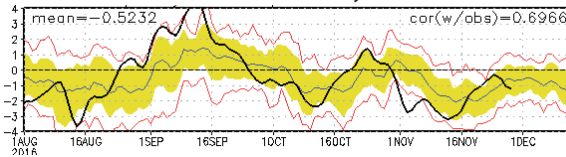


fig. 1 http://www.cpc.ncep.noaa.gov/products/precip/CWlink/daily_aoi_index/aoi/aoi.sprd2.gif

The Indian Ocean Dipole

The IOD has been in a negative phase for several months now. This created more dependable rainfall in the Northern Territory and Queensland from July through September. As the IOD weakened rainfall patterns shifted leaving much of Australia with less rainfall but creating a good first harvest harvesting season. Now in its neutral condition, the IOD is still warm around most of Northern and Eastern Australia but is slowly cooling down.

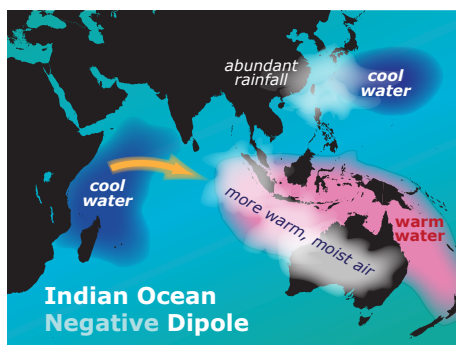
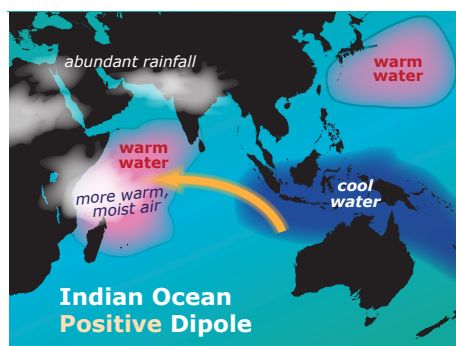


fig. 2 The Indian Ocean Dipoles
© Evelyn Browning Garriss / James J. Garriss

The El Niño-southern Oscillation and the La Niña Modoki

The ENSO is still neutral meaning that the naturally warm waters are still settling along the southwestern parts of the Pacific. However, some scientists have determined that the Pacific is experiencing La Nina like conditions. These conditions are creating a Central Pacific La Nina or La Nina Modoki. This is increasing the temperature of the same Southwestern waters. While the conditions are likely to end by late January or early February, they will keep Queensland temperatures slightly hotter and create an increase in precipitation.

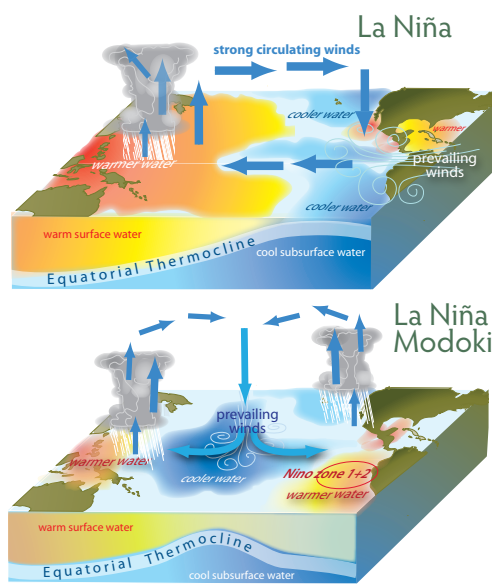


fig. 3 © Evelyn Browning Garriss / James J. Garriss

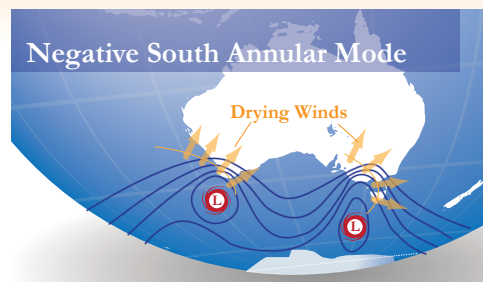


fig. 4 © Evelyn Browning Garriss / James J. Garriss

The Antarctic Oscillation

The AAO has been weak which has increased the Southern Annular Mode (SAM) winds blowing across Victoria, South Australia and the southern part of Western Australia making these provinces drier. The drier conditions have been good for October and November harvests but it is also creating more difficult conditions for grazing lands and fruit growth, especially along Victoria and southern Western Australia. They did not have nearly as much July-September rainfall to create good soil moisture as Queensland and the Northern Territory.

The Eastern Australian Current

The EAC is moving hot and fast along Eastern Australia. This is working with the hotter southwestern Pacific to create warmer temperatures and rainfall along the Eastern coast through January and into early February. The fast movement also creates the opportunity for fiercer damaging storms.

What It All Means

Fierce storms, surprise frosts and bushfires created damage to western Victorian fruit crops along with the Australian wheat belt crops. Additionally, most of Western Australia dealt with surprise cold spells and strong drought. The southern and western parts of Queensland and Victoria have had dry con-

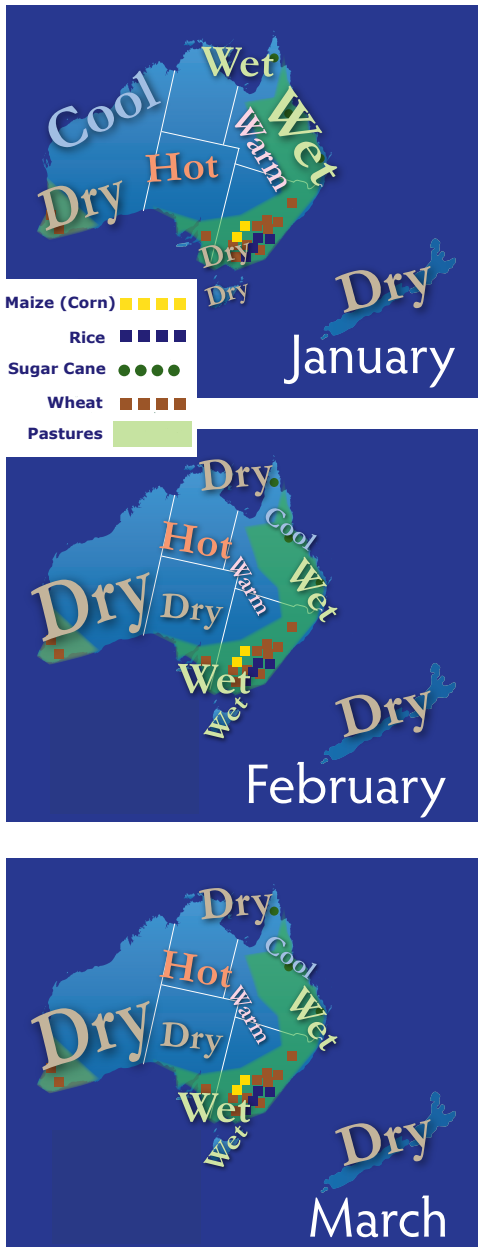


fig. 5A-C © Evelyn Browning Garriss / James J. Garriss

ditions from the AAO. Intermittent severe storms from the hot Pacific made for difficult growing conditions that have depleted what could have been better than average winter harvest yields making them merely average.

On the positive side, strong precipitation from July-September has created solid soil moisture and good streamflow with Queensland, and the Northern Territory benefiting the most. This means that the Northern Territory, Queensland and Victoria have extra water to utilize during potential dry conditions along the eastern parts of Australia. The hotter than average EAC and La Niña Modoki will bring added rainfall to eastern Australia. The northern half of Western Australia can also anticipate higher than average precipitation due to the hot water remaining as the neutral IOD cools down.

Through December and into January we can anticipate average to above average rainfall along the northern part of Western Australia and dry drought-like conditions along the southern part of Western Australia. By February the entire province should become much drier. When rainfall does come, it will be in the form of strong storms, not long-term rainfall over many days. This can damage crops and create flash flooding risk for the grazing herds in the northern parts of the province.

Southern Australia will also remain relatively dry throughout the next three months with only January potentially creating average rainfall. In the Northern Territory, expect northern coastal storms through December but for the region to cool down and dry out by January and into February.

In Queensland, temperatures will be much hotter over the next three months creating brushfire risk and flash droughts. However, the EAC and La Niña Modoki should bring some decent precipitation along the eastern parts of Queensland and reduce long drought risk through January in the western part of the province. This is where we differ with many of the climate projections for this continent. In studying Asian science journals, we consider the potential La Niña Modoki and its impact on Eastern Australia due to

the hotter southwestern Pacific waters. While normally the neutral Pacific and neutral IOD would be both dry and drought-creating for these regions, we anticipate the hotter EAC and the La Niña Modoki will bring enough rainfall to lower severe drought risks.

December should see some good rainfall in the form of short storms, but precipitation is still likely to be below average in January. Keep in mind the storms can be damaging. These wet spells are unlikely to move in Victoria which spells trouble for crops. With the additional drying power of the SAM, we can anticipate warm temperatures that will become hot and drying by January. There should be relief in February as the SAM heads back to Antarctica and the shift in atmospheric pressure creates some February storms.

With good water availability and good precipitation, the Australian grazing regions in South Australia, the Northern Territory and Queensland will be plentiful, the grazing regions along Western Australia will grow from IOD-created rainfall in the northern part of the province but will be poor in the southern part.

Flood risks will lower mining yields along the northern part of Western Australia as well as create a higher property risk and insurance claims along the eastern shores. Finally the eco-friendly infrastructure in South Australia and Victoria have taken damage from recent flash floods. Look for the country to pursue investment opportunities into updating the infrastructure technology to handle more severe weather after repairs have been made.

Precipitation Anomalies during Central Pacific La Niña (La Niña Modoki)

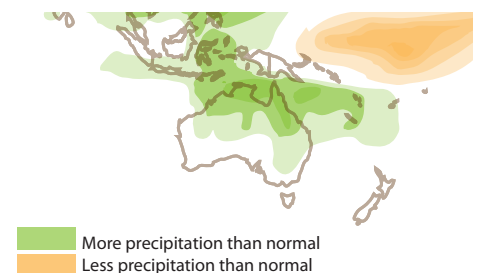


fig. 6 © Evelyn Browning Garriss / James J. Garriss

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