

Area Forecast Discussion: Albany and Adelaide

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Big Picture Perspective

The majority of Australia is expected to continue to experience intense heat throughout the forecast period. Chances for clipper systems through the period has precipitation to be close to and possibly slightly above climatological values. However the warm phase of ENSO is acting to suppress convection in the Australian region via the weakened walker circulation but will mostly affect N. Australia. The MJO is currently in phase 1 but is forecasted with some agreement between the models to move into phases 2 and 3 over the Indian Ocean and Australia. This projection will become much more important in the extended range where the MJO will impact Northern Australia as indicated by OLR anomalies in the forecast. Forecast uncertainty remains high due to large spread in the TC track in the Indian Ocean as well the position of the high pressure that is moving eastward over Australia. These main features will influence how the large scale trough-ridge pattern sets up that will highly influence temperature and precipitation patterns for the two forecast cities.

Extended Range: Day 7-10

Another anticyclonic wave breaking that is forecasted to occur towards the end of the medium range period will leave the southern coast under another zonal ridge for most of the period. The resulting surface anticyclone will pull tropical moisture southward around the west coast of Australia producing a 3-4 sigma positive precipitable water anomaly over the southwestern coast. A cut off short wave trough will then propagate into the area, providing forcing to fuel somewhat broad precipitation over and off of the southwestern coast of Australia. Meanwhile, south eastern Australia will be guarded by the surface anticyclone being supported in the equatorward exit region of the jet streak in the base of the trough. Albany will stay in near climatological temperatures for the whole period with intermittent precipitation associated with the series of troughs. Adelaide will start off the period with high surface pressure, but negative 3-4 sigma 850 temperatures. The high surface pressure and southerly winds will keep any precipitation too far south to hit Adelaide.

Medium Range: Day 4-6

The period will begin with a large anticyclone off the western coast of Australia and a surface anticyclone over western Australia as a result of the zonal ridge. This pattern

will hold in western Australia for the majority of the period, but southeastern Australia will be affected by a digging trough behind the anticyclonic wave breaking mid way through the period. A southerly jet will set up between the trough and the upstream anticyclone, bringing very cold northward to create a front along southeastern Australia towards the end of the period. Albany will stay dry and very hot throughout the period as the high surface pressure off the western coast drifts closer to Australia. Adelaide will start off the period with a chance of precip as a shortwave trough moves over the southern coast, producing a coastal front as a result of the CAA and onshore flow. This will likely be followed by a day of fair weather before the cold front associated with the second trough brings more rain to southeastern Australia.

Short Range: Day 0-3

The start of the forecast begins with a deepening trough feature moving into the forecast region. This feature hints at some precipitation however due to a strong anticyclone in the East it remains unlikely because it quickly breaks up the trough. There is high certainty in this event due to consistent model runs and agreement between the GFS and ECMWF models. The remainder of the period stays quiet as the high pressure system moves into the region keeping the area fairly dry and warm as. This is causing the weak summer jet stream to remain fairly zonal keeping precip closer to the poles. Subsidence will adiabatically warm air parcels resulting in the continuation of a heat wave for Australia.

Probabilistic Forecast

Albany, Australia:

Day 0-3:

Max Temp: 20°C (10th), 23°C (50th), 25°C (90th)

Min Temp: 16°C (10th), 17°C (50th), 19°C (90th)

Precip: 1 mm (10th), 3 mm (50th), 5 mm (90th)

Day 4-6:

Max Temp: 20°C (10th), 21°C (50th), 23°C (90th)

Min Temp: 11°C (10th), 14°C (50th), 16°C (90th)

Precip: 1 mm (10th), 2 mm (50th), 4 mm (90th)

Day 7-10:

Max Temp: 21°C (10th), 22°C (50th), 24°C (90th)

Min Temp: 13°C (10th), 14°C (50th), 16°C (90th)
Precip: 1 mm (10th), 3 mm (50th), 5mm (90th)

Adelaine, Australia:

Day 0-3:

Max Temp: 22°C (10th), 35°C (50th), 36°C (90th)
Min Temp: 22°C (10th), 24°C (50th), 25°C (90th)
Precip: 0 mm (10th), 1 mm (50th), 2 mm (90th)

Day 4-6:

Max Temp: 27°C (10th), 28°C (50th), 30°C (90th)
Min Temp: 20°C (10th), 21°C (50th), 23°C (90th)
Precip: 0 mm (10th), 1 mm (50th), 2 mm (90th)

Day 7-10:

Max Temp: 22°C (10th), 23°C (50th), 25°C (90th)
Min Temp: 15°C (10th), 16°C (50th), 18°C (90th)
Precip: 0 mm (10th), 1 mm (50th), 2 mm (90th)