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28 February - Albany and Adelaide

Big Picture

The macroscale forecast from Tuesday remains the same: much of Australia will remain dry and anomalously warm throughout the period, while rapidly-moving troughs are able to reach the southern coastline. However, these troughs will not have enough of a southerly component to the wind to bring in much moisture, meaning precipitation will still remain quite low. Low-level confluent flow across the interior of the country will bring interior heat all the way to the coastline of South Australia and Western Australia from days 0 to 3, with the anomalous heat more persistent in New South Wales and Victoria. As the forecast progresses, an enhanced subtropical jet streak moves from the Indian Ocean into Western Australia on days 4 and 5, merging with a trough in the polar jet and bringing below average cold temperatures to the southwestern coast. As discussed previously, the formation of a surface low pressure associated with this trough has been uncertain in several model runs. The exact positioning of a potential tropical cyclone, along with variability of the strength of surface cyclones close to the Antarctic coast will determine where, if anywhere, this surface cyclone develops. Recent model runs have shifted the main trough toward southeastern Australia, a very different solution just from previous days.

Day 7-10

This period of the forecast is the most susceptible to changes as different features have large forecast spread. A yet to be named tropical cyclone in the central Indian Ocean basin is expected to strengthen quickly and remain strong as it meanders south off the coast of Madagascar. This cyclone seems to be enhancing a subtropical jet streak over the eastern Indian Ocean, interacting with the polar jet and aiding in forming a surface cyclone on the Australian coast. With a strong cyclone along the Antarctic coast also influencing the jet, these features will interact in a way that cannot be resolved yet do to possible nonlinear interactions. This happens before day 7 begins, but any error in this period will then impact the forecast for the later period. As of now, there seems to be an anomalously cold trough lingering across Victoria and New South Wales, bringing relief to the abnormal heat in this region. After this, the subtropical upper-level high sitting off of the west coast looks to come onshore, with the potential extratropical transition of the formerly mentioned tropical cyclone. This will bring anomalous heat to most of the north and western portions of the country, with cooler temperatures to the southeast.

Day 4-6

The major global models have now generally become more convergent on a solution depicting an incoming trough throughout the period that centers near 40S and along the central axis of Australia before lifting out by day 5. The coupling of a more zonally elongated and eastward shifted subtropical high and upper-level trough will aid in bringing about anonymously colder air for Australia poleward of approximately 25S. Regions along the coast forecasted to have small dewpoint depressions within the low-levels combined with cooling and moistening aloft ahead of the trough may experience brief light precipitation at times, particularly further east near Adelaide. Surface high pressure south of Australia and zonal flow aloft will dominate the end of the period, allowing conditions to remain dry and anomalously cold supplied by arctic air advected throughout much of the western and southern coast of the country.

Day 0-3

An eastward moving upper-level trough at the beginning of the period aids in the development of a north-northwesterly flow regime over Western Australia. As the trough becomes centered over Western Australia by the end of day 0, the combination of downsloping, advection of hot, dry air from further inland, and onshore flow will aid in providing the potential for deep surface-based elevated mixed layers to occur along the south-eastern coast. Upon the passing of the cold front throughout Western Australia, though sufficient lifting and ascent ahead of the trough may allow elevated convection along the coast, any generated precipitation would be subjected to evaporation due to a sufficient dry layer extending from 500mb to the surface. Further east, the environment depicts DCAPE values well above 1000 J/kg, a superadiabatic surface layer, and a deep, dry-adiabatic convective boundary layer that extends upward to near the 500mb level, which will increase the threat of potential dry microbursts in the region with sufficient lifting along the frontal boundary. By the end of the period, surface high pressure begins building into the region associated with the persistent upstream coastal high that aids in net cooling for regions of interest.

Probabilistic Forecasts for the period

Albany, Australia

Day 0-3

High Temperature	10th: 68°F	50th: 70°F	90th: 72°F
Low Temperature	10th: 59°F	50th: 61°F	90th: 63°F
Precipitation	10th: 0.00"	50th: 0.02"	90th: 0.10"

Day 4-6

High Temperature	10th: 69°F	50th: 72°F	90th: 75°F
Low Temperature	10th: 61°F	50th: 63°F	90th: 65°F
Precipitation	10th: 0.00"	50th: 0.00"	90th: 0.02"

Day 7-10

High Temperature	10th: 66°F	50th: 69°F	90th: 72°F
Low Temperature	10th: 60°F	50th: 62°F	90th: 64°F
Precipitation	10th: 0.05"	50th: 0.20"	90th: 0.40"

Adelaide, Australia

Day 0-3

High Temperature	10th: 90°F	50th: 97°F	90th: 104°F
Low Temperature	10th: 73°F	50th: 77°F	90th: 82°F
Precipitation	10th: 0.00"	50th: 0.00"	90th: 0.01"

Day 4-6

High Temperature	10th: 75°F	50th: 81°F	90th: 86°F
Low Temperature	10th: 53°F	50th: 59°F	90th: 64°F
Precipitation	10th: 0.05"	50th: 0.15"	90th: 0.25"

Day 7-10

High Temperature	10th: 78°F	50th: 79°F	90th: 81°F
Low Temperature	10th: 61°F	50th: 63°F	90th: 65°F
Precipitation	10th: 0.00"	50th: 0.05"	90th: 0.10"