



## **Rain Ready in Top Springs, NT**

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### **Introduction**

On Tuesday 6 February 2024, as part of the Northern Territory Rain Ready Rangelands<sup>1</sup> project, climate extension officer Emily Hinds and climatologist and researcher Dr Andrew Marshall delivered a climate literacy workshop at the Top Springs Hotel, hosted by Territory Natural Resource Management (TNRM) and the Northern Australia Climate Program (NACP).

The 7-hour drive from Darwin on the previous day (Fig. 1) provided ample time for confirming the week's events, which also included a seminar for nine industry linked attendees at Katherine Research Station (7 February), one-on-one station visits around Katherine (8 February), a meeting with the Parks and Wildlife Commission of the NT (8 February), and an ABC Radio interview with Victoria Ellis on NT Outback Rural Report (9 February).

The drive to Top Springs was also spent appreciating the lushness of the surrounding grasslands following heavy monsoonal rains three weeks earlier, which had led to temporary road closures in the second half of January. Workshop slides were finalised, stories were exchanged, and jokes were told, mostly at Andrew's expense.

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<sup>1</sup> Rain Ready Rangelands is a collaboration of Territory Natural Resource Management (TNRM) and Northern Territory Department of Industry, Tourism and Trade (NT DITT). Rain Ready Rangelands is a Future Drought Fund (FDF) project funded under the Drought Resilient Soils and Landscapes Grants Program.

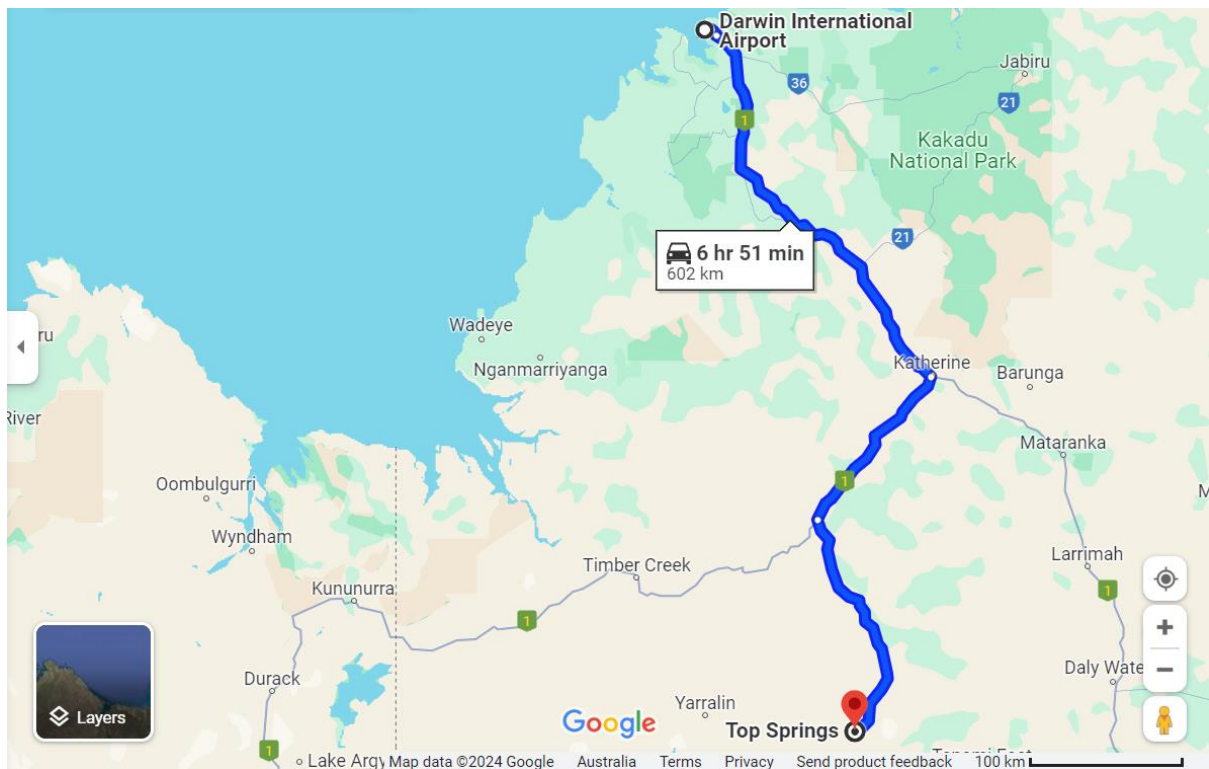


Fig. 1: Itinerary for the Rain Ready Rangelands climate literacy workshop in Top Springs. Source: Google Maps.

The Top Springs workshop comprised a total of nine participants, which included producers from Consolidated Pastoral company's Dungowan Station, AACo's Montejinni Station, and Heytesbury Pastoral's Birrindudu Station. They were joined by extension and research staff from Territory Natural Resource Management and Katherine Research Station.

Workshop topics covered [climate drivers](#) that affect the region, how to interpret [weather](#) and [climate forecasts](#) from the Bureau of Meteorology, and where to find the [most relevant and up-to-date climate information](#).

Of particular interest were the recent weather events in mid-January that brought significant multi-day rainfall and flooding to the Victoria River District and surrounds. These extreme conditions, their impacts and causes are documented here, as presented at the workshop.

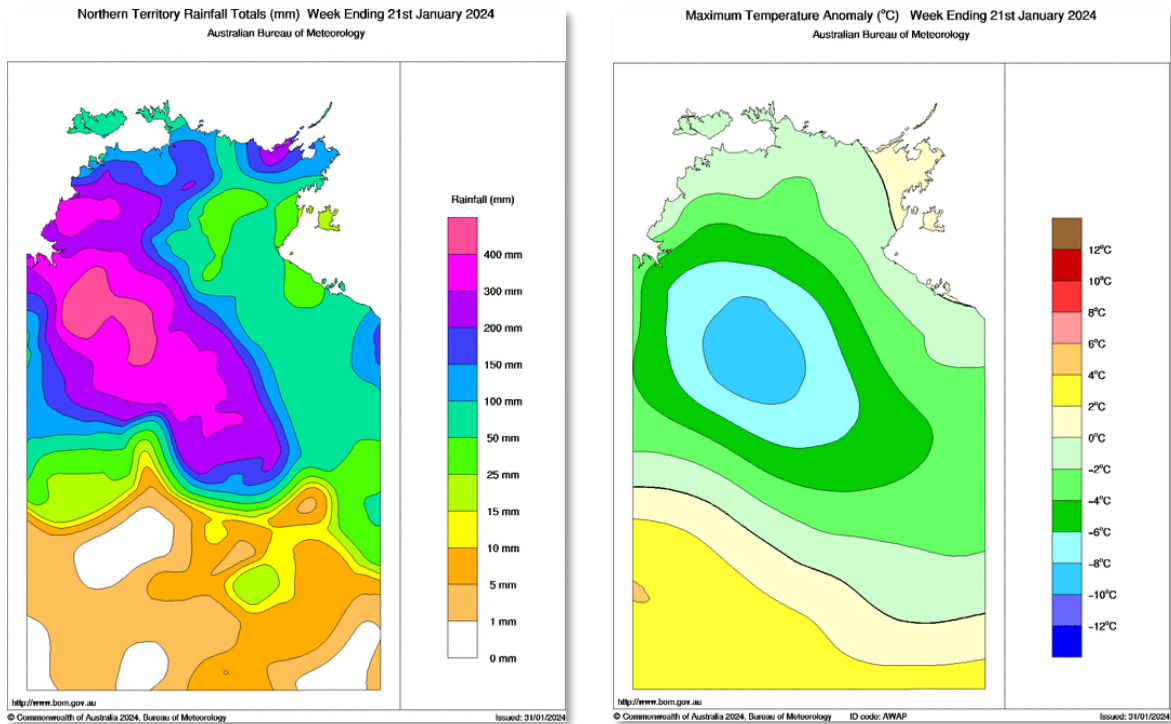


Fig. 2. NT rainfall totals (mm; left) and maximum temperature anomalies (°C; right) for the week of 15-21 January 2024. Source: Bureau of Meteorology.

### The extreme rainfall and flooding event in January 2024

Seven-day rainfall totals for the week of 15-21 January 2024 set new records at Victoria River Downs with 405.4 mm and at Montejinni with 429.4 mm (Fig. 2). As a result of the heavy rainfall, roads and properties were flooded (Fig. 3), the Victoria and Stuart highways were closed, and around 100 people were evacuated from their communities.



Fig. 3. Flooding at Newcastle Waters Station (left; source: Suzie Shearer) and at Victoria River Roadhouse (right; source: Victoria River Roadhouse) in January 2024.

The main source of the extreme rainfall and flooding was Tropical Low 03U which, combined with a monsoon trough, persisted over the Northern Territory for 10 days, from the 12<sup>th</sup> to the 21<sup>st</sup> of January (Fig. 4). This was associated with an active and vigorous Madden-Julian Oscillation event over northern Australia in its convective phases 4 and 5, which brought with it the first monsoonal rain for the season.

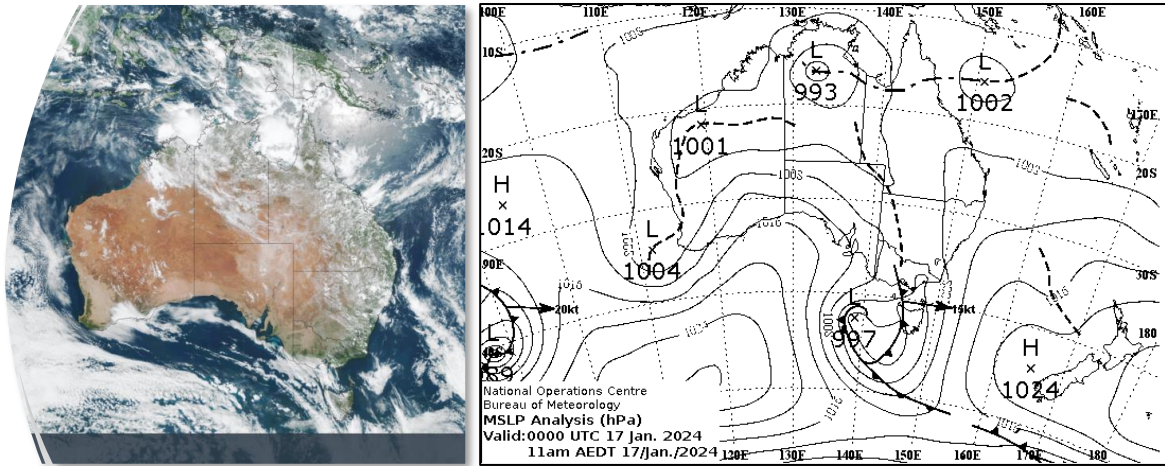


Fig. 4. Himawari-9 satellite image at 11:10am ACST on 10 January (left). Mean sea level pressure analysis at 9:30am ACST on 17 January (right) showing the monsoon trough and Tropical Low 03U centred over the NT (993 hPa). Source: Bureau of Meteorology.

ACCESS-S forecasts issued at the Bureau of Meteorology on 7 January first predicted the MJO's strong activity over northern Australia for the fortnight ahead (Fig. 5) while, consistent with this, rainfall forecasts from 8 January indicated an increased chance of upper quintile rain (top 20% of historical totals) for parts of the Victoria River District for the week of 15 to 21 January 2024 (Fig. 6).

The MJO's driving role in this extreme event, and its prediction up to two weeks ahead, highlighted the importance of always using reliable and up-to-date forecast information for ensuring rain readiness.



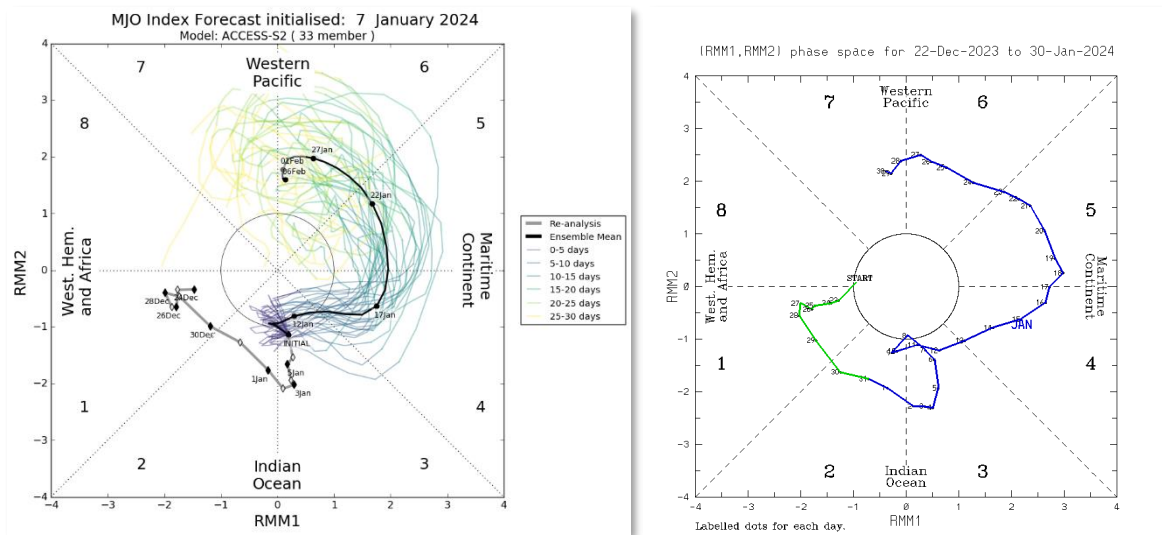
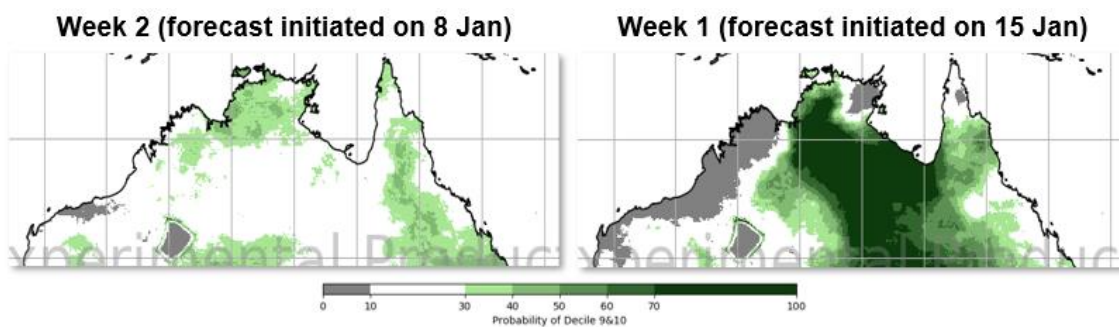


Fig. 5. MJO forecast from ACCESS-S2 issued on 7 January 2024 (for the period from 7 January to 6 February 2024; left), compared to observations (22 December 2023 to 30 January 2024; right). Source: Bureau of Meteorology.

### Closing remarks

The Top Springs workshop provided an invaluable opportunity for producers and pastoralists in the Victoria River District to develop and enhance their understanding of the important climate drivers for their region. These workshops increase the confidence of participants on how best to use forecast information from the Bureau of Meteorology, from days to seasons ahead, in decision making for drought and climate resilience. It also provided participants with opportunities to ask questions and continue conversations during breaks and outside the workshop times, on topics such as past chill events, the El Niño – Southern Oscillation, and the seasonal outlook for the months ahead.



### Observed rainfall totals for 15 – 21 January

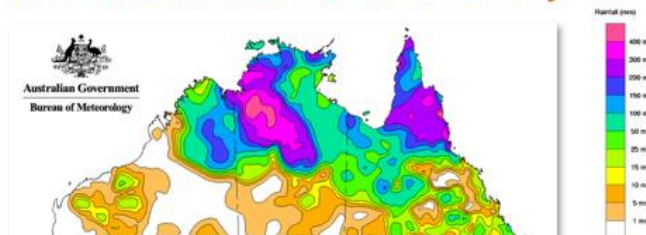


Fig. 6. Chance of extreme rain (highest 20% of historical range over 1981-2018) from ACCESS-S2 for the period 15 to 21 January 2024 at a lead time of two weeks (top left; forecast initiated on 8 January 2024) and one week (top right; forecast initiated on 15 January 2024). Observed rainfall totals for the period are also shown (bottom). Source: Bureau of Meteorology.

Thanks to Matt Fogarty and TNRM, NT DITT, FDF, NACP, and the Top Springs Hotel for making the workshop possible. We would also like to acknowledge NACP funding support from Meat and Livestock Australia, the Drought and Climate Adaptation Program, and the University of Southern Queensland.

Emily and Andrew look forward to future engagement, training and workshops in partnership with TNRM and the Rain Ready Rangelands project. Emily has provided similar condensed climate literacy training for participants of the Barkly and Alice Springs Rain Ready Rangelands projects.



Fig. 7: Emily presenting at the Top Springs workshop on Tuesday 6 February 2024 (left) and Andrew presenting at the Katherine Research Station seminar on Wednesday 7 February 2024 (right).