The World Climate Service:
An Australian Livestock Producers Friend

November, 2023

The Customer

"The subseasonal and seasonal climate forecast information provided by the World Climate Serivce helps reduce climate-related livestock productivity risk by enabling decisions that minimize losses in poor years and maximize profits in good years," says Jon Welsh, Principal Climate Analyst and Economist at AgEcon in Australia.

Established in 2017, Ag Econ is an agricultural Research, Development and Extension (RD&E) provider with offices in Northwest NSW, New England, and the Southern Tablelands. With a background owning and operating farm enterprises across cropping and livestock, the partners at Ag Econ understand the intricacies of agribusiness operations and analysis.

Jon continues that "WCS is a full turnkey solution for current forecast information and analogue research presented in an easy to read and intuitive format. There is no other product like it available in the Australian weather information market."

The Technology

WCS provides the full range of calibrated dynamical weather and climate forecast information, climate analog, and statistical analysis tools necessary to prepare both subseasonal (weeks in advance) and monthly to seasonal forecasts. WCS helps its users save time while preparing an improved long-range forecast relative to the disjointed and inconsistiently produced weather and climate information they might find scattered around the internet.

World Climate Service

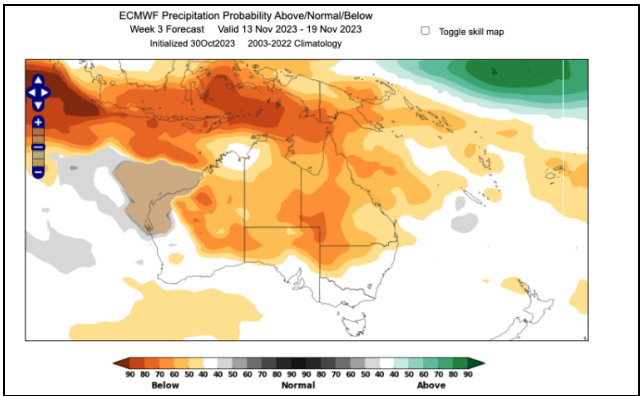

Figure 1. A three-week lead time probability precipitation forecast for the below normal, normal, and above normal categories. This forecast shows elevated probabilities of below normal precipitation.

The WCS dynamical model forecasts are calibrated. This means that 20 prior years of forecast information is used to estimate model performance including forecast uncertainty. WCS forecasts are reliable because we optimize the real-time model forecast using that historical information. The event being forecast by a reliable forecast (i.e., drier than normal conditions with a specific liklihood) should happen with it's being predicted. The result is that users can quantify the risks associated of different weather outcomes.

WCS includes monitoring and both subseasonal and seasonal time scale forecasts of climate indices important for Australian long-range forecasts. These are the El Niño/Southern oscillation (ENSO), the southern annular mode (i.e., the Antarctic oscillation), the Indian Ocean dipole, and the Madden-Julien Oscillation. WCS also provides analog analysis tools to help diagnose the likely weather and climate outcomes of different climate index values. Figure 2 provides an example of such forecast and analog analysis.

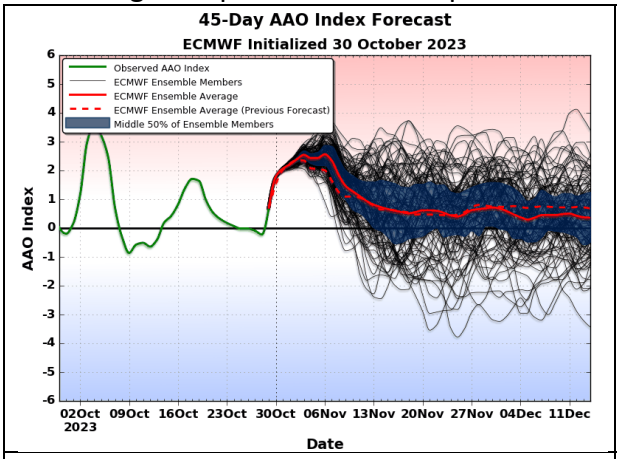

Figure 2a. An subseasonal Antarctic oscillation (southern annular mode) forecast from the World Climate Service.

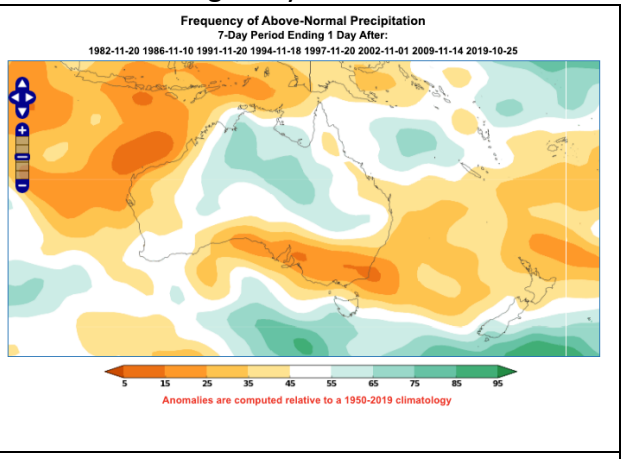

Figure 2b. An analog analysis of the impact of a positive AAO centered on November 5th, corresponding to the positive deviation forecast in Figure 2a.

The Benefit

WCS provides unparalleled insight into the likelihood of future weather and climate conditions weeks and months ahead. It improves Australian livestock producers' profitability by enabling an improved view of the weather conditions likely to occur in the weeks and months ahead. It helps evaluate livestock related climate risk in Autumn allowing adjustment of winter and spring stocking rates relative to expected pasture growth.

All information necessary to prepare a long-range forecast is available in a single web-based portal saving users time to concentrated on important decisions. Improved long-range forecasts are enabled via implementation of difficult to implement scientific techniques that add value to readily available information. For example, forecast calibration is offered by very few organizations around the world because the process is difficult to implement and is both computationally and data intensive. WCS users have the benefit of evaluating the risk of outcomes using its probabilistic outlooks.

Conclusion

The World Climate Service is available for Australian users who seek improved information regarding weather and climate conditions in the weeks and months to come. WCS specifically benefit livestock producers by helping to optimize expenses and plans during key livestock growth periods that are impacted by weather conditions.

Learn more about the World Climate Service at https://www.worldclimateservice.com.