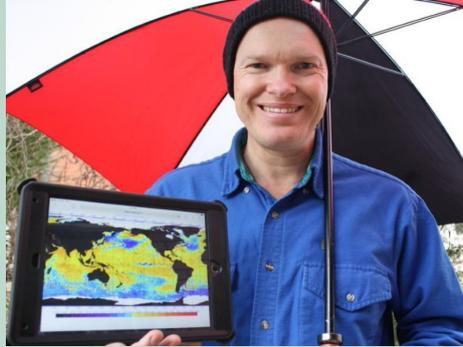# Insights into Seasonal Forecasting

An interview with Dale Grey, Seasonal Risk Agronomist (Agriculture Victoria)

Q. What makes you more confident about a Seasonal Forecast? What are the signals you look out for?

The first thing to consider is the time of the year. I'm never very confident about using longer term forecasts during autumn because that's where the predictability barrier is, but I certainly start to become more confident in forecasts when we get into winter; the July forecast for August-October is when I have greatest confidence in forecasts. I don't place much confidence in summer forecasts. Exceptions to these times can occur when fully functioning climate drivers occur very early or late in the season.

Secondly, if the models are predicting wetter or drier, are they also predicting a reason why this might be happening such as a major climate driver like El Niño or La Niña or a signal from the Indian Ocean Dipole? In other words, is there a known physical reason as to what might be causing a drier or wetter forecast.

Thirdly, is there actually evidence of indicators such as ocean or cloud changes month by month, that you can see 'things' are actually happening or changing in the direction of the forecast? A seasonal forecast is one thing but if you can see evidence that a forecast is starting to play out, then that can be a situation where you can have more confidence in that forecast.

Q. What's neutral mean?

Neutral doesn't mean average. Frustratingly, there are two uses of the term 'neutral' - if referring to a 'neutral' ocean, that infers that the ocean is behaving in its historically 'average' or 'normal' state (i.e. not in an El Niño or IOD positive state).

However, when we refer to a 'neutral' forecast it's tempting to think that neutral means average but that's not the case. Neutral means anything is possible. For example, models may be run 100 times and from all these model outputs a neutral forecast says that one third of the models are indicating a drier forecast, one third came out average and one third came out with a wetter forecast. In other words, there is no strong signal in any direction pointing wetter, average or drier– that's the official term for the meaning of a 'neutral' forecast. Neutral means plan for anything.

Q. Do you have a favourite seasonal forecast model or prefer to scan them all to check the vibe?

Because I've been looking at seasonal forecast models for the last 11 years, I do have my favourites that have won my 'Brownlow' count over the years. They are usually the European Centre for Medium-Range Weather Forecasts (ECMWF), the Bureau of Meteorology (BoM) and the UK Met office models that have been the best performers over the last 10 years. But in saying that they have all, at times, performed poorly so I don't have rose coloured glasses on when I'm looking at any of the models.

Q. Do some of the models perform better at predicting say, IOD or ENSO than others?

Yes. ECMWF model is generally a bit better for predicting what's happening with the Indian Ocean Dipole. Some models are better at ENSO whilst others are better at predicting both. However, my experience suggests that you'd be mad to put all your eggs in one basket and just look at the one model because that could be the year that that particular model doesn't perform well or pick anything. For example, if six models are forecasting drier and your one 'favoured' model contradicts these six then you wouldn't stick with that one model just because it is usually the more reliable one. Better to consider the overall 'vibe'. That's why I provide an analysis of a range of models in The Fast Break indicating what the range of models are predicting. When you can see half or more of the models swinging a certain way then that tells me something.

Q. If a forecast says we have 50 per cent chance of above or below average rainfall – does that mean we are most likely to get average?

No. It's all about probability. If a model says a 50 per cent chance of above average (median) rainfall then there is a matching percentage of getting the opposite of that, i.e. 50 per cent chance of getting below average rainfall. It's frustrating because there are no absolutes in climate modelling, or any future prediction for that matter. It's all about probabilities.

Some useful links for that rainy day:

Where's the rain expected for the next 7 days? www.bom.gov.au/jsp/watl/rainfall/

The next 7 days (model forecast) – just hit the play button and see what the next week might play out www.bom.gov.au/australia/charts/viewer/index.shtml

BoM product showing how much soil moisture is about www.bom.gov.au/water/landscape/

The BoM seasonal outlooks, which now have a monthly video snapshot as well as 1 to 4 months outlooks for rainfall and temperatures www.bom.gov.au/climate/ahead/

CliMate app – useful tool to look up your nearest local long-term rainfall station data and then ask questions like "How often we do we get autumn breaks with 50 mm over 2 weeks in March-May? www.climateapp.net.au/

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