

How to get maximum value from a seasonal weather outlook

What is up with the weather?

First we need to understand the big picture – the globe.

It all starts with the big globe and its atmosphere. It is heated by the sun but strongest heating is where sunlight is most direct - and this occurs where the sea is warmest and general rotation of water vapour is best - water vapour is the FUEL for development of our weather systems. The upper winds shift the water vapour around, from equator to pole creating jetstreams that act like FUEL LINES.

Our orbit around the sun causes a regular annual change in the 'latitude of the warmest sea'. This travels north and south within the tropics, making the seasons, and adds PATTERN to the zones taken by our weather systems.

But clouds and rain are discrete rather than continuous. And land and sea heat and cool at different rates. These add CHAOS to our weather.

How do we forecast for a season?

We don't look at weather systems because they have not formed yet. Instead we look at trends in the ocean and atmosphere.

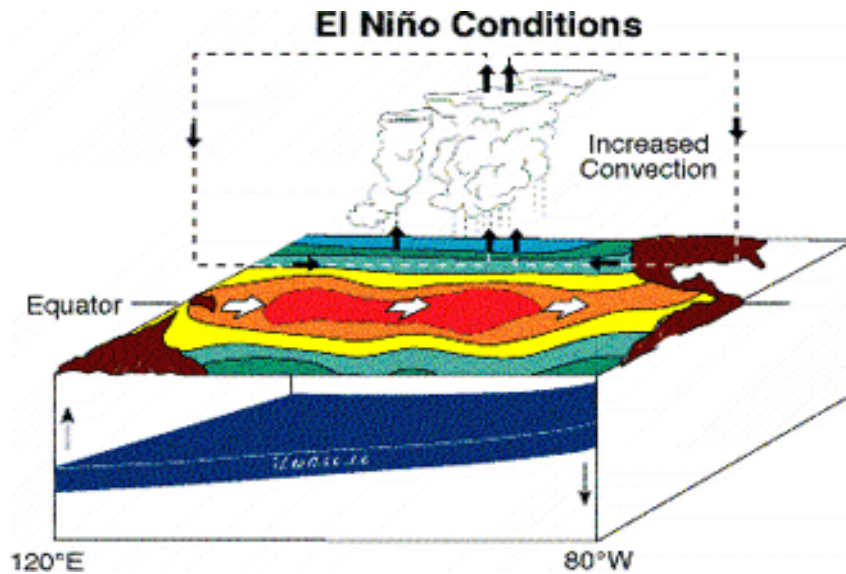
La Nina

The most important factor for seasonal forecast is the latitude of the warmest sea (i.e. the time of the year). The second most important factor is whether that sea is warmer than normal - El Nino, about normal (neutral), or cooler than normal – La Nina.

What causes a La Nina or an El Nino? Think of a bath tub of warm water sloshing back and forth. In La Nina all the warm water in the bath tub (Pacific Ocean) collects on the western side. Whereas in an El Nino the warmer water sloshes eastwards across the central and eastern equatorial Pacific.

How does that affect our weather in New Zealand? It has an effect on all land masses bordering the Pacific ocean by changing the latitude zones taken by the weather systems.

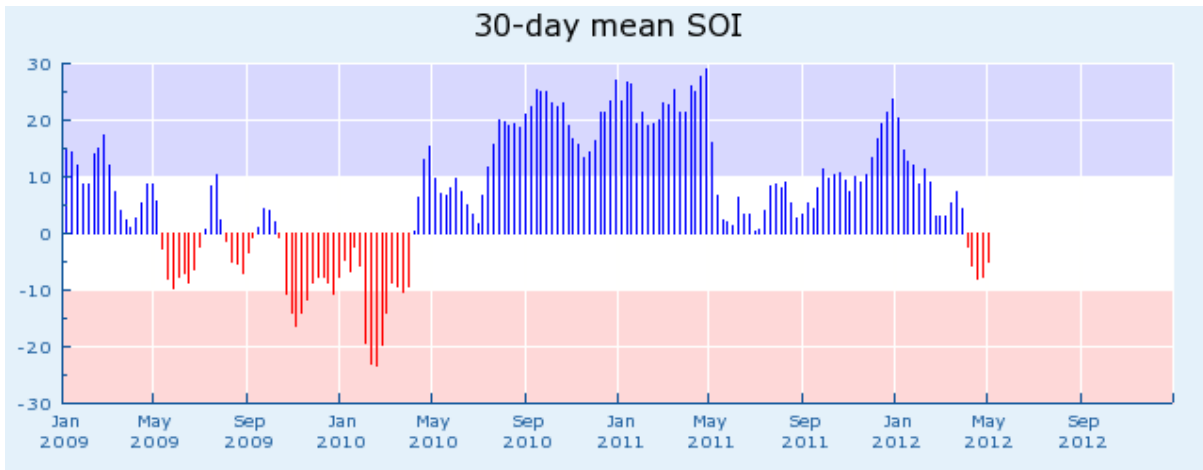
Tropical weather systems (from www.niwa.com).



El Niño diagram (from www.niwa.com).

How do we measure it? One big parameter to measure it is the SOI (Southern Oscillation Index).

It looks at the sea level pressure difference between Tahiti and Darwin (Australia). A positive value represents a La Nina Phase and higher pressure near Tahiti than Darwin and stronger easterly trade winds. A negative value would represent an El Niño Phase and higher pressure near Darwin. Trade winds would then be very weak allowing a reverse flow.



SOI (Southern Oscillation Index).

The winter outlook

La Nina was the big player this past summer. It has now packed its bags and is heading off into the sunset

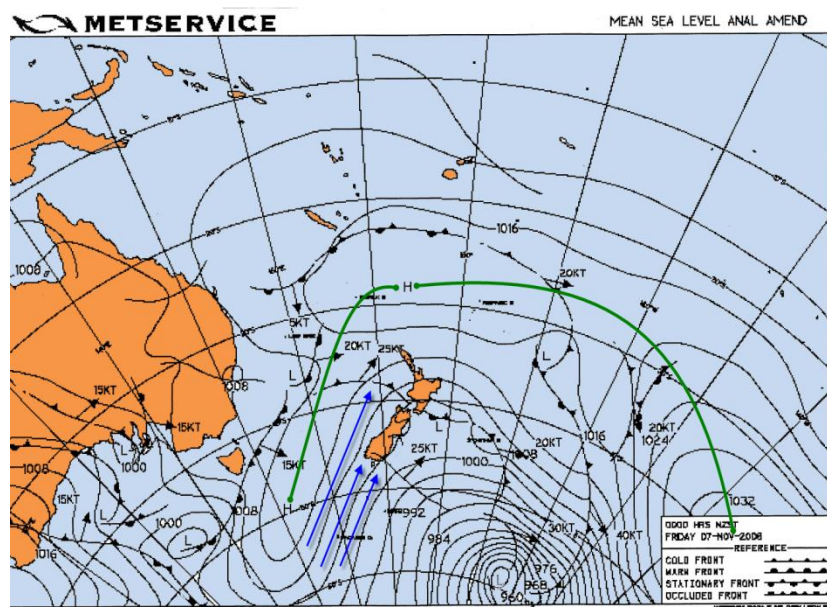
What is on the menu for our winter?

- Neutral ENSO Phase.
- Broad troughs from Tasman. Anticyclones for variety.
- Still on the menu: lows from the NW and possible polar outbreaks.

Regional outlook

For Waikato, Taupo, Taranaki, Wanganui, Manawatu and Kapiti.

- Some active troughs and anticyclones.
- Temperature: about normal.
- Rain: about normal.
- On the menu: risk of polar outbreaks.

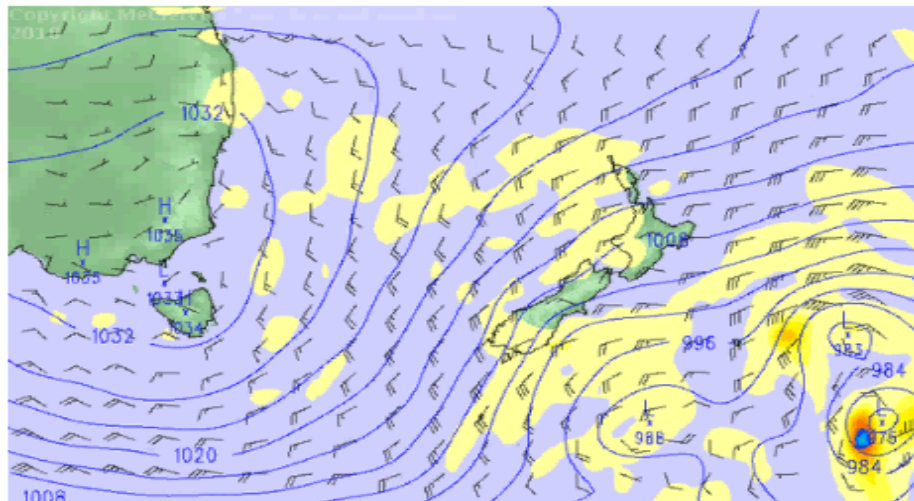


A polar outbreak.

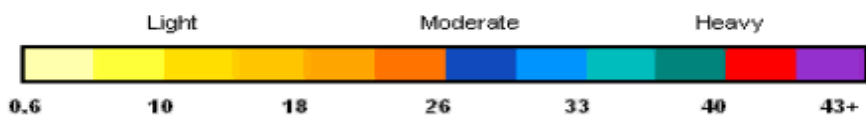
How can you make the most of your time and plan around the weather?

- Make the most of the weather information. Understand your local weather and terrain.
- Which wind brings the rain, cold, etc.
- Keep your own local data. Look for patterns in the weather
- Fine tune forecasts to your local area.

METSERVICE.COM has loads of great information at your fingertips from daily forecasts on the rural page, thunderstorm outlook maps, 3 day and 7 day rainfall maps. Climate information and now daily on-demand videos on MetService TV.



12:00pm Monday 14 June 2010



Some useful websites

- MODIS satellite imagery

<http://lance-modis.eosdis.nasa.gov/imagery/subsets/?subset=NewZealand>

- What causes Earth's seasons?

<http://www.youtube.com/watch?v=DuiQvPLWziQ>

- 14 day montages

<http://www.ssec.wisc.edu/data/composites.html>

- Weather map archive

<http://www.bom.gov.au/australia/charts/archive/index.shtml>

- Sea surface temperature map last month

<http://www.bom.gov.au/climate/current/meansst.shtml>

- Sea surface temperature anomaly map last month

<http://www.bom.gov.au/climate/current/anomsst.shtml>

- Sea surface temperature map last 6 months

http://www.osdpd.noaa.gov/ml/ocean/sst/sst_anim.html

- Sea surface temperature anomaly map last 6 months

http://www.ospo.noaa.gov/Products/ocean/sst/anomaly/anim_6mfull.html

- Sea level pressure last 6 months

http://www.esrl.noaa.gov/psd/map/images/fnl/slp_30.fnl.anim.html

- Sea level pressure anomaly last 6 months

http://www.esrl.noaa.gov/psd/map/images/fnl/slp_30a.fnl.anim.html

- El Nino and La Nina, NIWA

<http://www.niwa.co.nz/education-and-training/schools/students/enIn>

- Southern Oscillation Index, Farm Online

http://weather.farmonline.com.au/climate/indicator_enso.jsp?c=soi&p=weekly

- SAM polar vortex outbreaks

http://www.cpc.ncep.noaa.gov/products/precip/CWlink/daily_ao_index/ao/new.ao_index_ensm.html

- Metservice seasonal forecast sign up

<http://www.metservice.com/rural/seasonal-outlook-email>