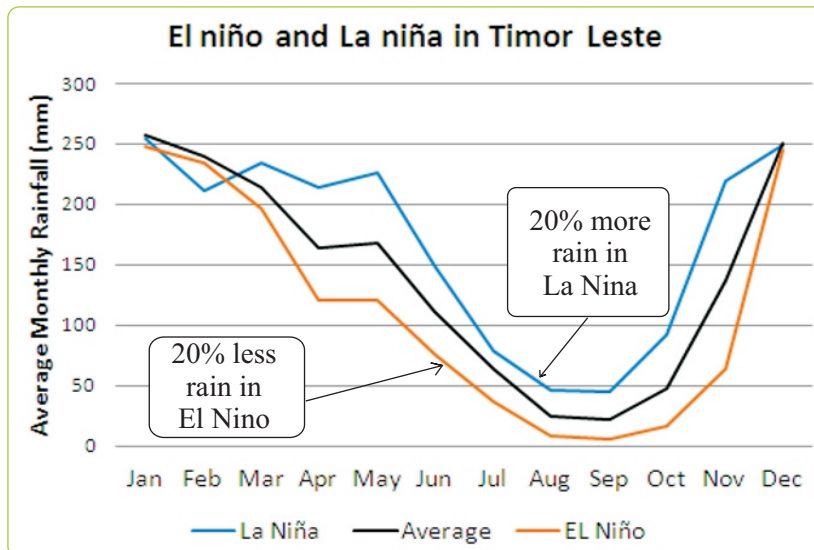


Can we predict how much rain we will get over the next year?

ENSO and its effect on Timor Leste

Is it possible to know if the next wet season will bring lots of rain or not much rain? This is difficult, but it is possible to make a reasonable prediction based on the El Niño Southern Oscillation index, called ENSO. This is an ancient weather cycle that affects the countries around the Pacific including East Timor. When an El Niño event occurs, Timor Leste usually gets less rain and the wet season often starts 4 to 6 weeks late. When a La Niña (opposite to El Niño) event occurs, East Timor usually gets a lot more rain often allowing farmers to plant two crops in a year.

The graph below shows how El Niño and La Niña have affected the rainfall of Timor Leste in the past.



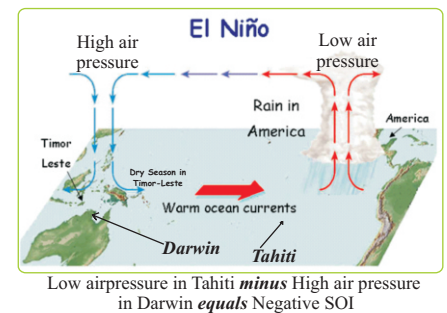
Rainfall data taken from Portuguese data, 1914-1974

Many scientists study the El Niño cycle and many farmers in Australia and America carefully watch the ENSO to help them make good plans for their farms. The Ministry of Agriculture should also be aware of the El Niño cycle and the predictions that are being made so that they can inform farmers about what the weather may be like in the next few months. Note that this is different to the normal wet season/dry season cycle. You still have a wet season and a dry season but they can be impacted by the ENSO cycle.

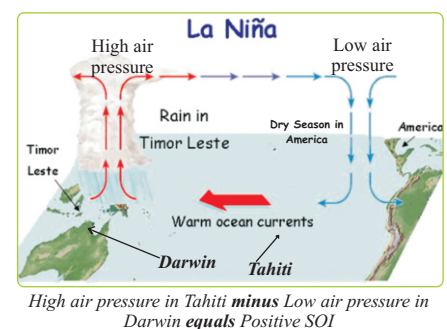
What are the El Niño and La Niña Cycles?

Scientists measure the temperature of the sea water in the Pacific which tells them how the air above the ocean is moving. Warm sea water heats up the air causing it to rise (like smoke rising from a fire – but not that hot!) When the warm air rises it gets high up into the sky where it is cool (like Ramelau is high and cold). When the air gets cold the water in the air condenses (forms into drops) and it rains. So warm seas mean more rain.

This diagram shows what happens during El Niño. Warm ocean currents move away from Timor Leste towards America. This warms up the air and gives more rain to America. The air moves down again over Timor Leste. This means that there is not as much rain as normal in Timor Leste.

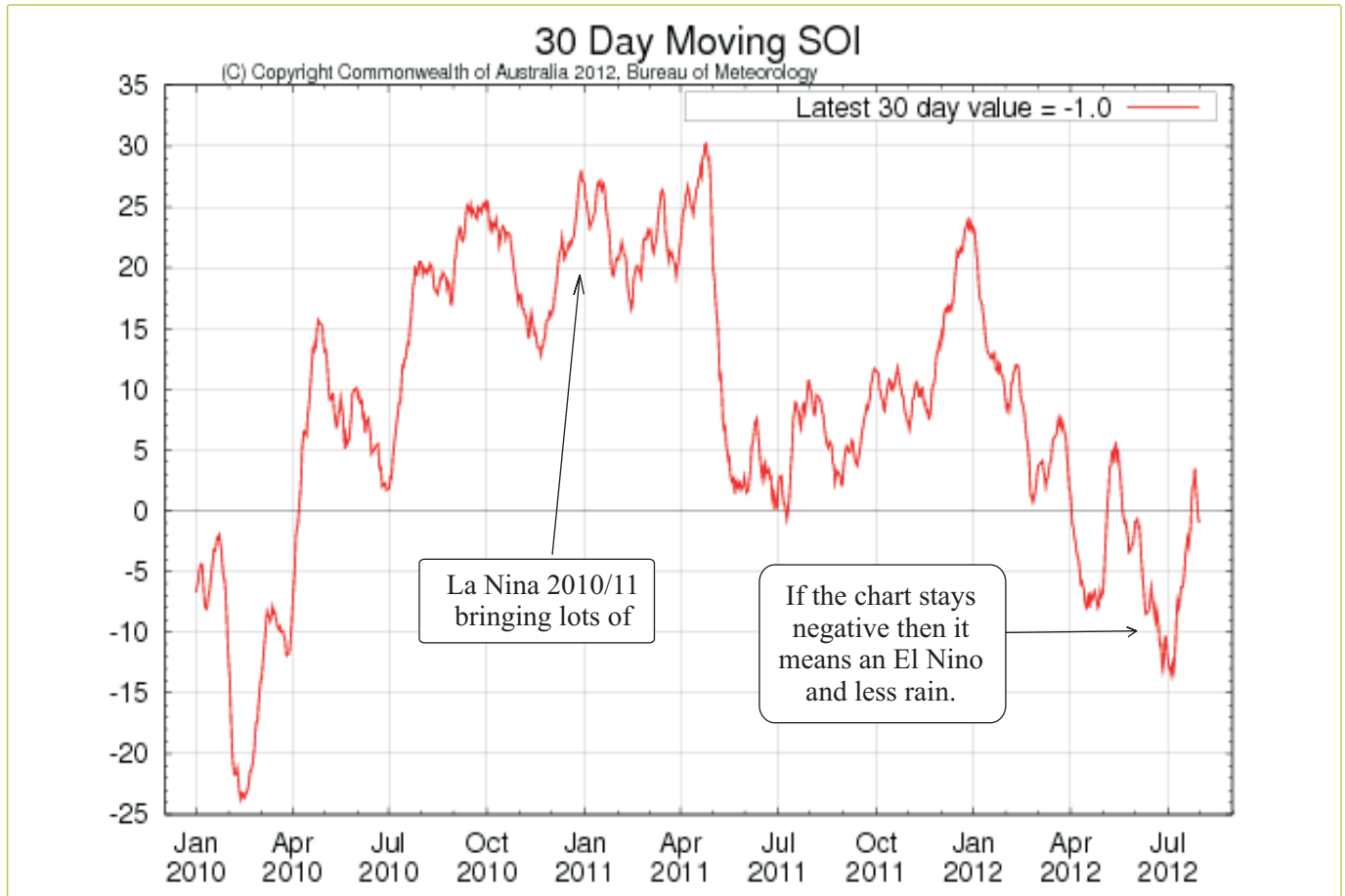


This diagram shows what happens during La Niña. Warm ocean currents move toward Timor Leste. This causes the air to rise up, cool down and give rain. There is usually more rain in Timor Leste during a La Niña period.



How can we know when El Niño or La Niña is coming?

Scientists measure the difference in air pressure between Tahiti in the middle of the Pacific Ocean and at Darwin. From this they calculate the Southern Oscillation Index (SOI). If the SOI is higher than 8 for a number of months then a La Niña event is likely bringing moist winds and rain towards East Timor. If the SOI goes below -8 for a number of months then an El Niño event is likely and there is less rain in East Timor. Here is a chart showing the SOI for the last few years.



An SOI of "10" is 1 standard deviation from average air pressure differences.

Source: <http://www.bom.gov.au/climate/enso/>

Notice that in the 2010/11 wet season the SOI was strongly positive (above 10 for 8 months). This was a strong La Niña event and brought lots of rain to Timor Leste. The SOI is now going negative and some scientists are predicting that there is a possible El Niño approaching.

What should We do about it?

Growing mulch crops like velvet bean (Lehe) and terracing on slopes will assist to retain moisture in the soil to help farmers cope with drier times in El Niño.

If the SOI continues to go negative and an El Niño event is announced we can advise farmers that there could be a late start to the wet season and overall less rain. In this case farmers should avoid planting their crops too early and plan to maintain or improve any water lines and irrigation if possible.

For more information go to: www.bom.gov.au/climate/enso/

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