

## The Cloud Nasara: The development and use of the ENSO Handbook in Vanuatu

The cloud nasara determines where it rains in Vanuatu, a nation of about 80 small, high volcanic islands in the Western South Pacific. It determines whether the taro leaves in the Banks Islands in the north grow brown and curl inwards or gather glossy droplets in their center; whether the rainwater catchment tanks on Aneityum to the south are full or drained dry; whether small bridges in the capital of Port Vila are washed out in a flood or the streambeds below them harden into cracked ground. The *cloud nasara*, which roughly means *the meeting area of clouds* in Bislama – one of the national languages of Vanuatu – is a dense strip of clouds that heavily influences where and when it rains in Vanuatu.

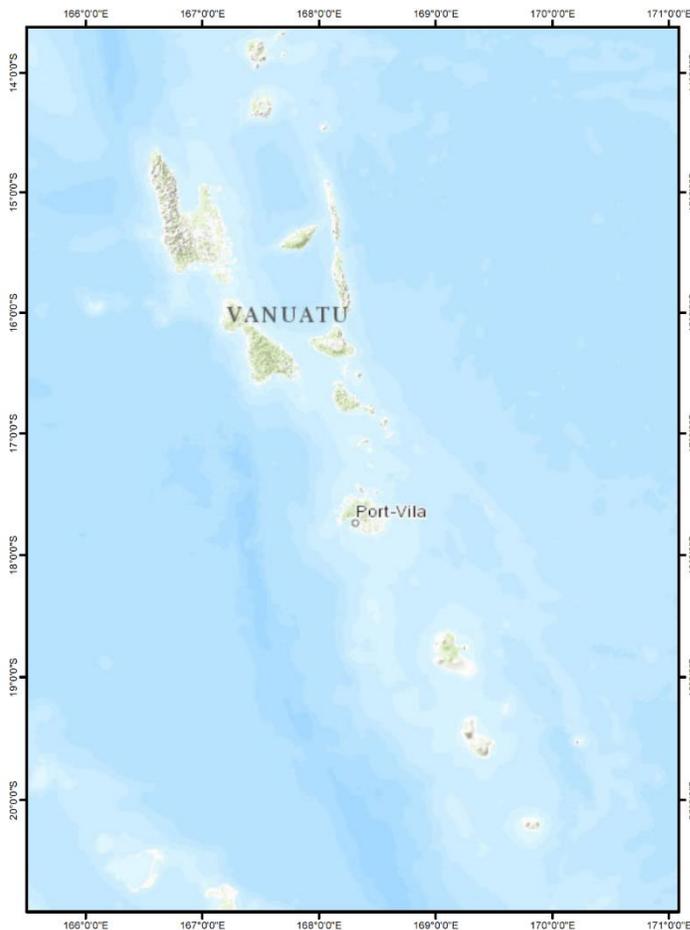
Prevailing easterly and southeasterly winds in the Western South Pacific converge near Vanuatu, to form the cloud nasara, also called the South Pacific Convergence Zone (SPCZ). The location of the cloud nasara can be influenced by an almost cyclical climate phenomenon called the El Niño Southern Oscillation (ENSO), which is characterized by changes in the geographic distribution of rainfall, wind and water temperature in the Pacific. During an El Niño event, the warm phase of ENSO that typically occurs every 3 to 7 years, the cloud nasara tends to shift away from Vanuatu due to changing wind and atmospheric pressure patterns, leaving Vanuatu and its neighboring countries such as Fiji and the Solomon Islands, in drought. Atop the dryness, El Niño can also raise air temperature – accelerating evaporation of what little surface water remains. An El Niño event typically last between 6 and 18 months before reverting back to normal or switching to the cold phase, La Niña. These changes in climate affect many land-based sectors in Vanuatu, including agriculture, livestock, freshwater resources, and human health.

Farmers are perhaps most vulnerable to climate variability in Vanuatu, and therefore most need to understand and adapt to these changes. “They have coping strategies traditionally,” said Philip Malsale, Manager of the Climate Division of the Vanuatu Meteorological and Geo-Hazards Department (VMGD), “but in this time and age people tend to rely more on scientific information.”

Malsale and the VMGD saw the need for a product that could translate scientific information from climate early warning (CLEW) systems into useable strategies to cope with ENSO. The development of an ENSO handbook to support CLEW systems was initially suggested at the first Agro-Met Summit, a series of workshops that the VMGD hosts to bring together meteorologists and representatives from land-based sectors including agriculture, forestry, and livestock. The handbook, it was suggested, could be an accessible guide to how to respond to ENSO that would bring information on climate variability down to the community level – “a linkage between farmers and the scientific institutions.”



Local author Philip Malsale, Manager of the Climate Division of the Vanuatu Meteorological and Geo-Hazards Department (VMGD). Source: Philip Malsale.



After several iterations of draft and review within the group of meteorologists and land-based sector specialists attending the Agro-Met Summit, the Vanuatu ENSO Handbook was born. Scientists contributed information on ENSO indicators and forecasts while farmers contributed methods to adapting to climate variations. VMGD engaged both scientists and sector specialists in the handbooks development to ensure that the product would be most helpful to its intended audience. “We’d have to refine that and bring it over to the next Agro-Met workshop summit. We would get comments and then finally, the year before last, we printed it out and submitted to farmers our final copy,” said Malsale. The final copy was printed in 2013 and made available [online](#).

**KEY MESSAGE**

**Engage with the community and other stakeholders early and often** – building community ownership and participation from the beginning leads to more positive, sustainable outcomes.

The handbook includes coping strategies for growing a variety of crops in drought conditions. For bananas trees, the handbook suggests removing all but two of the young shoots from the parent tree and replanting them in a different area to relieve some of the water demands in the soil. When growing taro, farmers should try to plant 5 to 6 months before the dry season, the handbook recommends, so they can harvest it before the drought commences. Additionally, the handbook describes how to plant the taro deep in the soil – which allows the roots to reach deeper water reserves – and how to select drought-tolerant varieties of taro such as Navia and Fiji taro, which have small leaves that point down away from the sun.

The handbook is meant to be used with the climate updates that VMGD issues about ENSO. “We handed this out to the farmers during our workshops,” said Malsale. “So if we put out the information on any ENSO events, the farmers can look it up on what sector they are involved with – agriculture – and what specific crops they’re dealing with, cassava. If they’re talking about vegetables, then these are the steps that you need to do.”

The handbook had yet to be tested by an El Niño or La Niña in Vanuatu since it was published. Nevertheless, VMGD continues to expand their knowledge of how to cope with ENSO locally. “To be honest, there are many, many ways on how people here can cope with these events using the traditional knowledge that was passed on from generation to generation,” explained Malsale. “And currently we are having a traditional knowledge project that is within the climate division that is funded by the Australian government. We are collecting information on traditional indicators, indications of the different climate events.”

Despite the engaging and applicable nature of the handbook, VMGD was worried that its messages wouldn’t reach all the necessary audiences. “What we have seen in the past in Vanuatu is, if you print out some scientific information, distribute it in posters, fliers, and publications, people don’t really read those things,” said Malsale.

“So we think that the most effective way of preaching climate science to the Vanuatu community, especially those in the rural areas, is coming up with an animation,” said Malsale. “The characters inside have to be familiar to those people, and the setting has to be familiar – some local setting. So when people watch they can relate to it very easily and they can understand it.”



During La Niña events Vanuatu receives more rain than normal, flooding fields, homes and other infrastructure. Photos: Philip Malsale.

#### KEY MESSAGE

**Tailor information to the needs of the user** – commitment to an iterative process involving the ‘co-production of knowledge’ at multiple levels will ensure that products and services are specific to sector and locale as well as the nature and timing of decision-making.

So VMGD, along with a number of partners including the Red Cross and the German and Australian Governments, developed a 6-minute animated movie about the cloud nasara and ENSO to accompany the handbook. The animation shows how the cloud nasara forms, how El Niño and La Niña can change the location of the cloud nasara, and how heavy rainfall or drought can ensue. The cast includes dancing clouds, a parrot who likes only reggae music, and a string band he throws fruit at.

“If people see what’s really happening in science, then with the ENSO handbook, they can link events,” said Malsale. VMGD distributes this animation, along with the ENSO handbook and a second animation that explains ENSO across the Pacific through the lens of the Climate Crab. These aids provide a more interactive way to teach students about ENSO and climate change.

“Linking what you’re doing with those who will use it, I think that’s the missing thing that [meteorological] services have in the Pacific or elsewhere in the world,” said Malsale. “You know, linking the products that you have with those that will be affected. “

The Pacific Islands Climate Storybook can be found at: <http://pacificislandsclimate.org/csdialogs/>  
Climate Stories can be found at: <http://www.pacificislandsclimate.org/csstories/>

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