Helicopter assistance is required to service the remote stations

COASTGUARD COMPLETES NATIONAL NOWCASTING COVERAGE

BY KEVIN O'SULLIVAN

With the activation of new broadcasting sites in Hawkes Bay, Otago and Southland, the Royal New Zealand Coastguard has now created a comprehensive network of this maritime safety service over the whole country.

At any time of the day or night, skippers both recreational and commercial can tune to one of the four channels in the VHF band, either 20; 21; 22 or 23 and hear the latest marine weather forecast, plus real-time wind information from local coastal headlands and islands.

The two maps show the broadcasting sites and the local VHF channel, plus the spread of automatic wind data stations feeding the 60 second wind speed and direction information into the computers which assemble the continuous messages. The network can still be expanded as additional sites are being investigated for Kaikoura, Rotorua/Taupo, Gisborne and the West Coast of the South Island. Development of these will depend on funding. The planned stations at Wanganui and Hokianga are under construction.

Auckland Coastguard began continuous Nowcasting in the Hauraki Gulf in 1983. Up until then forecasts were given at fixed times or on request, and everybody had the experience of looking at their watch and cursing because they had forgotten to tune in to the 1518 report.

The service commenced using a magnetic recorder in the actual Weather Office, linked by phone line to a transmitter on Feltrax House, which broadcast just the latest marine forecast. Next the daily tides were added and in 1991 the real time wind announcements commenced. The idea for this information about "the wind you will meet soon" came from the famous incident in 1990 when Peter Blake, racing Grant Dalton towards Auckland at the end of the Whitbread race, overheard a caller to Peter Montgomery's show describe a sharp south-west wind change at Titirangi. Blake dropped his spinnaker, changed to a genoa and sheeted this in while racing to the line ahead of Dalton who was caught out and blown downwind by the wind-shift. Coastguard observers thought "why not make that a permanent service?"

The real-time element comes from a web of automatic wind-stations which record the peak three-second gust during each minute plus a rolling 10 minute average speed and true direction. A modem at each solar-powered station radios back a small packet of data. Since 2004 this data has been brought back on the nationwide mobile phone network, thereby allowing the service to expand beyond the Hauraki Gulf. Every minute each wind station rings up the weather office at Kelburn, says "I have 26 knots peak, 22 knots average from 236 degrees, my battery voltage is 13.6, my case temperature is 18 degrees and I'm feeling quite well thank you" and hangs up. All this data sits on the Metservice server.

The wind stations are in a variety of places. Probably the classic is atop the 19th century Bean Rock lighthouse in Auckland Harbour. The anemometer and wind-vane are mounted on the copper chimney which once exhausted fumes from the kerosene lantern lit by the resident keeper. The processing modem is on the wall of the keeper's living room in the fully equipped living quarters, which have a magnificent long-drop! Other wind stations are on poles or cabinet mounted, and in some cases existing Metservice AWS units are utilised where they are already well placed. The latest wind sensors have no moving parts and integrate the ultrasonic vibrations across three small vertical probes to produce very accurate information without moving parts.

Broadcast sites must have 230v power for continuous operation and are sited in a range of places around New Zealand, from the Skytower to Coastguard buildings, port company offices and even one cowshed. They have a computer connected to the internet which for every cycle assembles a message menu by downloading the latest wind data for a selected set of local wind stations, the latest local weather forecast(s) recorded by Coastguard Northern Region at Auckland, plus daily tides and local safety messages. The voice of broadcaster Peter Gill has been recorded in a vocabulary of single words, numbers and names and these are packaged together to produce the announcement.

The resulting broadcast is designed to meet the aims and objectives set when the project was originally conceived. Kevin O'Sullivan, the project manager from day one, defines it as "to provide mariners with the best information about weather conditions now and in the near future so they make better decisions about commencing or continuing journeys." Coastguard has three main objectives: education, communication and rescue. Nowcasting is an extension of the communication function and the skipper is still the


Bean Rock repeater

person who has to make the decisions. "We simply want them to know what they are likely to meet and be able to get the information whenever it is convenient, or as many times as they like," O'Sullivan says.

Nowcasting has more to offer yet. Already a service in Coastguard Northern Region allows mariners to text the letter A (Auckland) or N (Northland) to 9463 (WIND) and they will receive back a text message of all data from their wind stations plus a txt msg FC (forecast & tide). This is free to Coastguard members and a small charge for non-members. A graphic interface for PDA users is in the pipeline.

Nowcasting has been built and paid for by Coastguard Northern Region and Coastguard New Zealand. The Northern Region service has been sponsored by Half Moon Bay Marina from the beginning. The national expansion has been thanks to a grant from the NZCT charitable trust.

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