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New weather radar to read oceans' clouds

Some of the big questions about weather, climate, and the atmospheric conditions in remote areas of the world's oceans can now be answered following the purchase of a dual-polarisation weather research radar to sit atop Australia's new research vessel, the RV *Investigator*.

Credit: Richard Arculus

The RV *Investigator* is a 93.9 metre purpose-built ship research vessel currently under construction and due for delivery in late 2013 as the flagship of Australia's **Marine National Facility**.

The Executive Director for the **Future Research Vessel Project**, Toni Moate, said the two-tonne weather research radar will be installed on the highest point of Investigator and will be able to collect cloud and weather data anytime, anywhere in the world's oceans.

'Data will be gathered from clouds towering 20 kilometres over the tropical ocean to cold ice storms in the Antarctic, in a 150 kilometre radius from the ship, and will have a broad range of research applications,' Ms Moate said.

The dual-polarisation weather radar is part of a new generation of weather technology that is being compared to the difference in television between black and white to colour technology. The greater detail provided by the state-of-the-art device will allow meteorologists to gather more information about the atmosphere than ever before, including clearly seeing the difference between rain and snow.

Dr Peter May from the Bureau of Meteorology and the Centre for Australian Weather and Climate Research, together with his colleague Dr Alain Protat, are part of the Technical Advisory Group and it's their expertise that has been central to the selection and installation of the weather research radar on the ship.

'With *Investigator* we will be able to source weather data from places we have previously not been able to access, such as the deep Southern, Indian, and Pacific Oceans,' said Dr May.

'This advanced radar will tell us not only how much it is raining but also the size of the drops, what mixtures of water and ice are present in the clouds, and what types of ice crystals are present.

'It will be a keystone for the study of cloud formations and contribute to improvements in numerical weather forecasting and climate prediction models over the vast areas of ocean surrounding Australia,' said Dr May.

The successful tenderer to supply the radar is Environmental Systems & Services (ES&S), an Australian advanced technology company specialising in solutions in environmental and allied fields such as meteorology.

Source: CSIRO