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Distance no barrier to reef care

Mitchell Bingemann | September 23, 2008

THE Australian Institute of Marine Science has begun using one of the world's first reef-based internet protocol networks to monitor the impact of destructive forces on the Great Barrier Reef.



AIMS solar-powered sensors are being used to monitor the Great Barrier Reef

Using waterproof Next G modems, adaptive sensor equipment and solar-powered buoys to float the devices, AIMS has installed two wireless IP networks that can transmit data in real time up to 100km offshore.

"We've been hit by a number of coral-bleaching events over the past 10 years but until now we've had no way to monitor the causes unless we've been there in person," Great Barrier Reef Observing System project manager Scott Bainbridge said.

The system was a world first, not only for the smart sensor technology on each buoy, but also for the network's ability to transmit data to onshore labs, Mr Bainbridge said.

The adaptive sensor on each buoy measures water temperature, salinity, pressure and acidity.

They also automatically adapt to changing ocean conditions, he said.

Mr Bainbridge said a vital part of the system was its use of Telstra's Next G wireless network. "These systems are remote. Some are up to 100km off the coast, and we needed an IP network to get the data back in real time so we can do our analysis."

Before going down the Next G path, AIMS tested a microwave-based network to transmit data collected by the buoys.

The bandwidth capability was phenomenal, but the price of the technology was way outside the research body's budget, Mr Bainbridge said.

"We tried putting in our own dedicated microwave-based network, but with that in place we would have had to spend about \$500,000 for each location."

By comparison, equipping each buoy with a waterproof Next G modem cost \$1000 per unit.

"Not only is the price right, but Next G gives us outrageous distance," Mr Bainbridge said.

"We can transmit data 100km offshore at broadband speeds via a secure network. It's the only wireless technology that gives us that type of distance." Since deploying its first buoy three months ago, AIMS has extended the network to include five sensor-equipped buoys.

These are located at two sites, Heron and One Tree islands, in the southern part of the Great Barrier Reef near Gladstone.

AIMS hopes to extend the reef-based network to five more sites in coming months.

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