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COVER STORY



ROBOT SUBS

How gliders are going where humans can't

"Very small, gentle submarines." That's how oceanographer Dr Pierre Testor from Paris's Pierre And Marie Curie University describes the underwater robots he works with. In the 1980s, scientists came up with the idea of long-range vehicles that could explore hard-to-reach areas of the oceans. Today, fleets of autonomous robots known as gliders scour the seas for months at a time, gathering crucial data about how the oceans work.

When Testor starting carrying out his glider studies a decade ago, the worry of not knowing if costly equipment would make it back in one piece was tempered by the excitement of new discoveries. "I felt I was starting to do oceanography in a different way," he recalls. Since then he's seen gliders used in all spheres of ocean science, from physics to biology.

Current gliders can reach depths of 1,000m, but Testor is deputy science coordinator of a European project, BRIDGES, which is developing new

gliders that go much deeper. "We plan to produce a glider that's able to go to really great depths, around 6,000m," he says. This means they'll be able to reach around 98 per cent of the oceans. A big part of the gliders' success is their extreme efficiency: they consume about the same amount of power as two Christmas tree lights.

The new BRIDGES gliders are intended for academic and industrial uses, including monitoring pollution from deep-sea mines. Rare earth minerals are in huge demand from the electronics industry and could soon be extracted from the seabed and oceanic hydrothermal vents. Conservationists are concerned that such mines will be very difficult to monitor. It's therefore hoped gliders will help keep an eye on operations many kilometres beneath the waves: equipped with acoustic sensors, they'll be able to detect clouds of metal-rich sediments churned up by the mines.

BELOW A depth chart of part of the Gulf of Lyon in the Mediterranean, produced using one of BRIDGES' gliders

