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Photo: Peter Gartmann

SOLAR DECK. The solar catamaran is powered exclusively by solar energy.

The Power of the Sun

Five Swiss men are betting on solar power. They were the first humans to ever **cross the Atlantic Ocean on a ship solely powered by the sun**. On 16 October they left Basel on their catamaran called sun21. On 2 February, they reached Martinique. Their scheduled time of arrival in New York City is 8 May. The solar pioneers want to prove that even **ocean-going ships can travel at a constant speed** powered by solar energy only. Also for freight ships the technology offers interesting financial prospects. After all, diesel-electric drive systems are quite common already. "By combining them with a hybrid drive module, photovoltaics could soon become a feasible option," says Andreas Indlmann of the sun21 development team: a diesel generator capable of delivering an average of 50% of the total power consumed; a fuel cell providing 30%; and a solar generator accounting for the remaining 20%. This is what a freighter's hybrid propulsion system might look like one day. As an example, he describes a 110-metre long, 9.5-metre wide tanker travelling the Rhine powered by an 800 kW diesel engine. "With a total usable solar panel surface of 100 by 8 metres, and an output of 0.2 kW per square metre," he says, "**solar energy could provide twenty per cent of the motor power**."

The journey of the sun21 is a first step towards that goal. Built by Swiss shipbuilder MW-Line, the 14-metre catamaran was developed specifically for a solar-powered electric drive. The ship's hull was designed to minimize water resistance. The solar panels covering most of the deck like a roof have a total area of 65 square metres. Each day, the photovoltaic system yields approximately 40 kWh. **The ship covers roughly 100 nautical miles per day, at a speed of 4 to 4.5 knots**.

So far, "the persistent, fast cruising speed at varying seas and cloud covers has exceeded our expectations," says Mark Wüst, the sun21's captain. "But we should design a boat with solar panels that can be tilted towards the sun."