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Oceanic Platform of the Canary Islands: an ocean testbed for ocean energy converters

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Oceanic Platform of the Canary Islands (PLOCAN)

The Oceanic Platform of the Canary Islands (PLOCAN) is a Governmental Consortium aimed to build and operate an off-shore infrastructure to facilitate the deep sea research and speed up the technology associated. This Consortium is overseen by the Spanish Ministry of Science and Innovation and the Canarian Agency for Research and Innovation. The infrastructure consists of an oceanic platform located in an area with depths between 50-100 meters, close to the continental slope and four kilometers off the coast of Gran Canaria, in the archipelago of the Canary Islands.

The process of construction will start during the first months of 2010 and is expected to be finished in mid-year 2011.

PLOCAN serves five strategic lines: an integral observatory able to explore from the deep ocean to the atmosphere, an ocean technology testbed, a base for underwater vehicles, an innovation platform and a highly specialized training centre.

Ocean energy is a suitable source to contribute the limited mix-energy conformed in the archipelago of the Canary Islands with a total population around 2 million people unequally distributed in seven islands. Islands of Gran Canaria and Tenerife support the 80% of the total population with 800.000 people each.

PLOCAN will contribute to develop the ocean energy sector establishing a marine testbed allowing prototypes testing at sea under a meticulous monitoring network provided by the integral observatory, generating valuable information to developers. Reducing costs throughout an integral project management is an essential objective to be reach, providing services such as transportation, customs and administrative permits.

Ocean surface for testing activities is around 8 km2 with a depth going from 50 to 100 meters, 4km off the coast. Selected areas for testing have off-shore wind power conditions around 500-600 W/m2 and wave power conditions around 6 kW/m in the East coast and 10 kW/m in the North coast. Marine currents in the Canary Islands are not particularly powerful with values around 40-50 cm/s. However a detailed assessment, based on field measurements, will be conducted in the near future with the aim to identify specific areas close to the coast with stronger currents which make suitable the deployment of marine current turbines.

Although the base Platform is not still available, PLOCAN has already started the activity as an ocean testbed providing services to a wave energy converter patented by the Spanish company PIPO Systems. A scaled 1:5 prototype will be deployed during January 2010 and monitored for several months.

Current facilities available include some ODAS buoys (temperature, salinity, pH, oxygen, turbidity, wind, etc.), wave rider buoy, current meter profilers (ADCP and electromagnetic), system for data management, remote operated vehicles (ROV), autonomous underwater vehicles (AUV), and an oceanographic vessel.

Future facilities include high frequency radar for wave and current measurements and submarine electro-optical cables to connect the Platform with the energy converters and with the shore station.