



Research Equipment for the Deep Sea AUV POSEIDON



Autonomous underwater vehicles (AUVs) have been an important working tool for deep-sea exploration for years. Vehicles with a torpedo-like shape can efficiently cover many kilometers on the seafloor over many hours and map large areas visually and acoustically. The AUV POSEIDON is intended to become such an AUV and to succeed the AUV ABYSS.

The former GEOMAR research vessel POSEIDON served for over 40 years and was decommissioned at the end of 2019. Under the name *Humanity 1*, it is currently used for refugee rescue in the Mediterranean Sea. The new autonomous underwater vehicle is expected to keep the POSEIDON name alive, continuing the research tradition. The go-ahead for the construction of AUV POSEIDON was given at the end of 2020 and will be financed by the proceeds from the sale of the Kiel research vessel by the state of Schleswig-Holstein.

The construction of AUV POSEIDON has already been prepared by the AUV team at GEOMAR since 2016. Projects like AEGIR, CoraMo and MOSES were steps in this direction to build up experience in dealing with open software and



Checking individual segments and components of AUV POSEIDON in the AUV laboratory of the TLZ. Photo: AUV Team/GEOMAR

hardware development. AUV POSEIDON will be compatible with the „smaller“ GEOMAR AUVs LUISE, ANTON and ALBERT in terms of communication and underwater positioning. This will be realized by implementation into the communication infrastructure BELUGA, which has also been developed at GEOMAR.

While the work in the area of software and electronics is carried out almost exclusively by the engineers of the AUV group, in the

area of mechanical design there is close cooperation with the GEOMAR Technical and Logistics Center (TLZ) and various working groups at Kiel University of Applied Sciences. During the specification phase, close cooperation was also maintained with the AUV group of the Alfred-Wegner-Institut (AWI) in Bremerhaven.

The AUV POSEIDON, like the AUV ABYSS, is designed for medium and larger research vessels. It can be launched both laterally and from the aft deck, and deployment and transport will be container-based. Unlike many underwater vehicles, which mostly have a titanium chassis, here the frame will be made of a plastic shell into which a frame structure made of polypropylene will be bolted. The inner part of the segments will be modular in order to be able to connect different sensors and components. This means that payload segments can also be exchanged at sea at a later date.

More: www.geomar.de/en/tlz/auv-autonomous-underwater-vehicles/auv-poseidon

Specifications AUV POSEIDON

Speed [max]: 4 knots, water depth [max]: 6,000 meters, weight: 1,000 kilograms, length: 5 meters, diameter: 0.6 meters

