Scientific deep-sea applications operated by MODUS

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During the last years a deep-sea intervention system called MODUS (Mobile Docker for Underwater Sciences) has been developed and successfully used within several European projects such as GEOSTAR 1 and 2 (Geophysical and Oceanographic Station for Abyssal Research), BIODEEP (Biotechnologies from the Deep), ORION (Ocean Research by Integrated Observatory Networks). The aim of this MODUS-system is to operate at water depth down to 4000m water depth, to observe remote locations in the deep-sea, to deploy heavy observatories (up to 3 tons) and to recover them later.

The presentation will give a rough survey about the steps of design, development, tests and the scope of features of MODUS including the operational procedures and field test.

An overview of the several uses for geophysical purposes such as long term observatories, operated by the Italian institution INGV around Sicily, will be referred to, especially the SN-1 (Submarine Network-1) a system developed within the Italian project of the National Group for the Defense against Earthquakes(GNDT) and the ORION network deployment operation. Moreover, its use for the surveying and sampling in the area of HSAB (Hypersaline anoxic basins) will be documented.

Results of the missions and its about 70 dives down to a maximum of 3800 m, experiences and future perspectives for its use for geophysical networks will be given.. This includes the use of ASTRA (Automated Sensor Burial Tool for Remote Applications) that has been derived from the experiences with partners involved to the field of geophysics a burial tool for seismometers at deep sea bottoms.