



Software controlled guidance, recording and post-processing of seafloor observations by ROV and other towed devices: The software package OFOP

E. Huetten and J. Greinert

Scientific Abyss Mapping Services, Ghent, Belgium (info-sams@telenet.be)

ROV operations, TV-sled tows or lander deployments are nowadays common procedures for studying hydrothermal vents, cold seeps or other environments/habitats that demand very detailed visual observations and sampling techniques. Having the position data of the ship and the underwater device (e.g. ROV, lander) online together with a bathymetric map of the area on a screen makes it much easier to deploy the device at the best possible sampling position. Over the last 8 years the software package OFOP has been developed to do exactly this, bearing user-friendliness in mind. OFOP was mainly developed with the experience of scientific cruises as the basis and aims to fit the needs of a wide variety of marine science experts: helping geophysicists when planning multibeam surveys or reconfirming positions of OBS/Hs, supporting microbiologists to deploy e.g. TV-guided multi-corers precisely on a bacterial mat; helping biologists visually mapping habitats or oceanographers towing CTDs through hydrothermal plumes to know exactly at each second where the CTD is. OFOP reads a wide variety of position data and formats (NMEA-0183, NMEA-equivalent serial strings like SAG from Posidonia or GAPS underwater navigation systems, HRP and camera view direction from ROVs, ...). Settings way points, creating routes and plotting of digitally recording visual observations made at the seafloor helps to define targets for the next deployments and makes later GIS-based data analysis possible. Writing Ocean Floor Observation Protocols in OFOP simply demands clicking buttons that record all input parameters (GPS-position, underwater position of the deployed gear, and other connected data streams) and station actions, when e.g. the device has reached the seafloor or crosses a seep site with tubeworms. All actions are stored lo-

cally in simple-to-read text files and can be broadcast to the local network via UDP at the same time. Detailed post processing is possible by replaying the recorded seafloor video which is linked to the recorded navigation and position data. The post processed observation files can be merged with previous ones and additional sensor data can be integrated, corrected for time offsets and finally splined to get a complete data set for each individual deployment. Seafloor observation items are retrieved from an editable item list that gives each item an individual ID number. Each of the 28 buttons can be linked to a specific observation item (e.g. bacterial mat, bubbles, seep, soft sediment, ...) and 6 different lists of up to 100 entries can be used to categorize the more specific observations (e.g. Ascidina (solitary), Orange Roughy, Pebbles, ...). All data from previous observation tracks can be plotted online with the current deployment and thus help tremendously to find and re-find a particular spot at the seafloor. Special requirements can be met by adding features in new windows and input/output capabilities can be adapted to individual needs.