NEW TECHNOLOGIES TO GATHER UNDERWATER DATA

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Recreational diving has been na important tool for acquisition of data for ocean sciences, with special contribution of SCUBA diving. Standards and procedures have been developed, with the main purpose of maintaining divers integrity (American Academy of Underwater Science). However, in some countries (i.e. Brazil), there are no standard procedures for scientific diving. The Centro de Treinamento de Mergulho advises researchers to achieve certifications that meet their studies requirements. We present here three innovative technologies that offer great improvement in the use of SCUBA diving as a research tool: 1 – the independent diving program; 2 – the SCUBA package for R programming; 3 – low cost sampling devices (LCSD) for underwater images acquisition. The most notable benefits of the independent diving program for researchers are the ability to completely focus on their activities (i. e. benthos sampling) and the better preparation for more complex and defiant diving environments. The minimum setup for this activity includes two independent air delivery systems; spare mask, fin straps and diving computer; knife; diving reel; dive buoy; primary and secondary lamps. The requirements are: minimum of 18 years old; at least 75 open water dives, with at least 50 hours underwater; being certified on navigation, low visibility and deep diving programs or at least 5 logged dives in each of these specialities; certification in Stress and Rescue. Good dive planning applications are usually paid, however now we can count on the SCUBA package for R programing, which performs theoretical diving calculations, that allows the creation and manipulation of sintetic diving profiles, execute decompression calculations, calculates the better non-decompression double dive, verifies oxygen partial pressure and toxicity, among other functionalities. Video and photo devices are becoming more accessible for land use (i. e. Drones), however the costs for underwater image acquiring devices are still very high. We utilize a simple device, composed of a structure for holding Gopro cameras, a light system and a scale for acquisition of images for previous recognition of the study area. This device can be used dynamically or statically. Images are not seen in real time, however, are very important for planning dives below 40 meters deep.