

Operational Dive Data Collection (TA 09-04)

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Aims & Objectives

- Record and analyze operational dives
- Field test decompression tools
- Automation of download and processing of operational dive profiles



Cost Effectiveness

- Real-time decompression tools being added to the fleet are sources of time/depth profiles
- Automating collection and analysis of collected profiles
 - Enhance data collection
 - Reduce the per-dive cost of data collection



Operations

- Topside Decompression Monitor (TDM) was fielded to SWRMC-NI for ships husbandry operations
 - NAVSEA Waiver
 - On-site training was provided
 - Technical report issued May 2011



Operations

- AIR IIIs were issued to NSA PC Dive Locker by NAVSEA
 - Profiles have been downloaded
 - First year of use to be analyzed to evaluate the benefits



NDC Testing

- Battery Duration testing
 - 14 days submerged
 - Both version of Generation III Hardware represented
 - Battery option
 - 2x Alkaline N-cells
 - 1x Lithium
 - Small Drop in Battery Voltage (0.2Volt average)
 - 1 NDC performed poorly that had corroded battery contacts



Operational Opportunities

- Newly available data loggers developed for Navy
 - Two new models of the Navy Dive Computer have been created and will be issued to specific dive communities
 - Technical Reports document successful completion of testing
 - EOD: TR 10-11 dated December 2010
 - NSW: TR 11-04 dated April 2011



Future Efforts

- TDM continues to be used under NAVSEA waiver by SWRMC-NI for ships husbandry operations
- Identify operation of interest for FY12
 - An operation conducting decompression dives using in-water oxygen or surface oxygen (SurDO₂) would provide a perfect opportunity to field test the feature set that will be released as version 1 of the TDM (1QFY12)



Problems / Concerns

- At a NAVSEA meeting of the NDC user communities it was determined that purchasing of the NDC access routines was not be a current priority
 - Without the routines, it will not be possible to fully automate data collection for the ODDC project
- We will investigate possible alternatives:
 - Software tools: These applications may also improve testing of NEDU developed software
 - Examine the Analyst can file to determine if it would be possible to extract the profiles directly



Operational Dive Data Collection

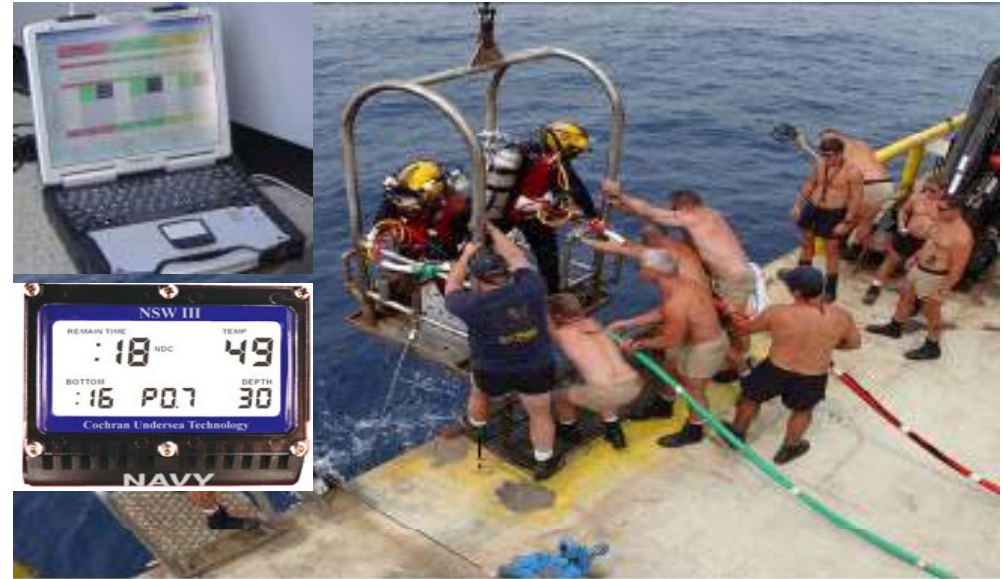
Background: The effort to focus decompression modeling to support the U.S. Navy with real time decompression guidance requires an understanding of the type of dives done that are 1) at the limits of the tables, or 2) extrapolations for the present models. Further decompression modeling efforts related to these dives could provide significant improvements to the Navy.

Work Effort Benefits: Collecting data on dives that are beyond the limits of square tables and which can be conducted using the real time guidance of an AIR III Navy Dive Computer (NDC) or Topside Decompression Monitor (TDM) will provide evidence to support increased use of real-time decompression tools.

Status: ON GOING

Objectives: Record data from dives in order to improve risk prediction of decompression sickness and oxygen toxicity. Test and evaluate products that offer real-time decompression guidance which can be generated while continuing to record dives.

Deliverable(s):
Technical Report



U.S. Navy photo by Chief Photographer's mate Eric J. Tilford.

Goals/Milestones:

FY10 – 2QFY11 Completed

- Fielded the TDM to provide decompression guidance during a ship's husbandry operation at SWRMC (Summer 2010)
- Collected profiles from the use of AIR IIIs issued to NSA PC Dive Locker

FY11 – FY12 Goals

- Analyze NDC profiles from NSA PC to assess the benefit of the AIR IIIs for Navy diving
- Continue to support fielding of TDM to SWRMC
- Identify and field TDM at command performing Surface Decompression with Oxygen diving

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