PATENT PENDING MULTIPLE ALGORITHM PDA BASED DIVE COMPUTER

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DIVEphone

What is it?

A diver carried computer using a mobile phone, inside a pressure and waterproof housing.

In combination with a series of external microcontroller based electronic modules.

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A Patent Pending Invention:

External microcontroller based electronic modules that can measure:
Pressure,
Temperature,
ppO2,
Environment and physiological variables.

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History

The first approach to avoid Decompression Sickness was to tabulate "safe" decompression profiles in form of "Dive Table".

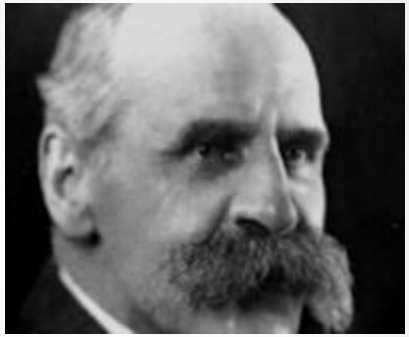
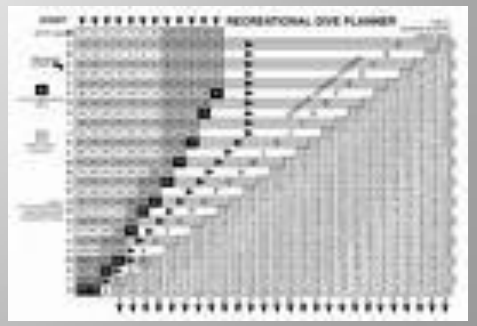


TABLE I.

the Ascent of a Diver after ordinary from Surface.

	Time from Surface to beginning of Ascent.	Approximate Time to First Stop.	Stoppages in Minutes at			
			60 Ft.	50 Ft.	40 Ft.	30 F
	No limit	—	—	—	—	—
	Over 3 hours	1	—	—	—	—
	Up to 1 hour	—	—	—	—	—
	1–3 hours	1½	—	—	—	—
	Over 3 hours	1½	—	—	—	—
	Up to 1 hour	—	—	—	—	—

Boycott AE, Damant GCC and Haldane JS. *J Hyg* 8: 342-443, 1908.



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History

Dive tables were challenged by firstly analog computers allowing the estimation of inert gas exchange at each dive depth and allowing more bottom time.

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History

Anolog computers were followed soon by digital dive computers, desktop and Personal Digital Assistant (PDE) computing tools.

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History

All these computer are based on embedded systems.

The user does not have access to an operating system.

Limited programming options except entering some dive parameters.

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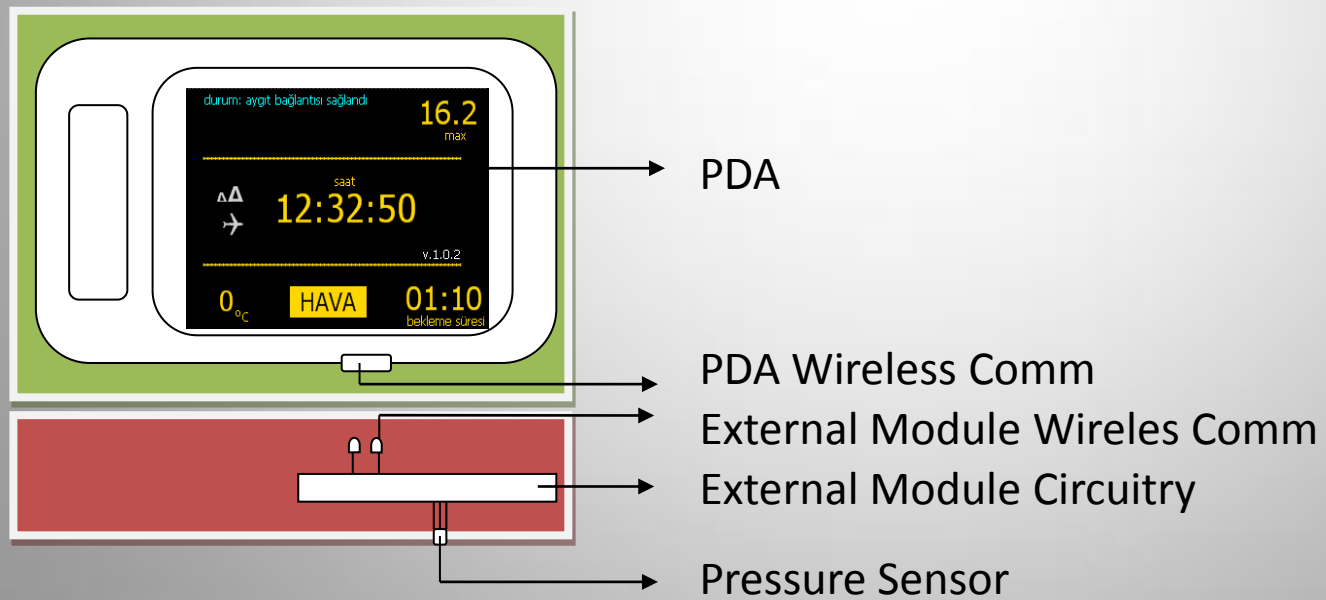
Features

The Divephone (*patent pending*) system consists of an underwater instrumentation unit designed around a microcontroller and a mobile phone.



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Features

The mobile phone is carried in a housing made of transparent polycarbonate to allow wireless communication with the external module as well.

The external module has two models: Sport and technical. Sport module is wet contact activated, measures only pressure and temperature and transmits the data wirelessly to the mobile phone.

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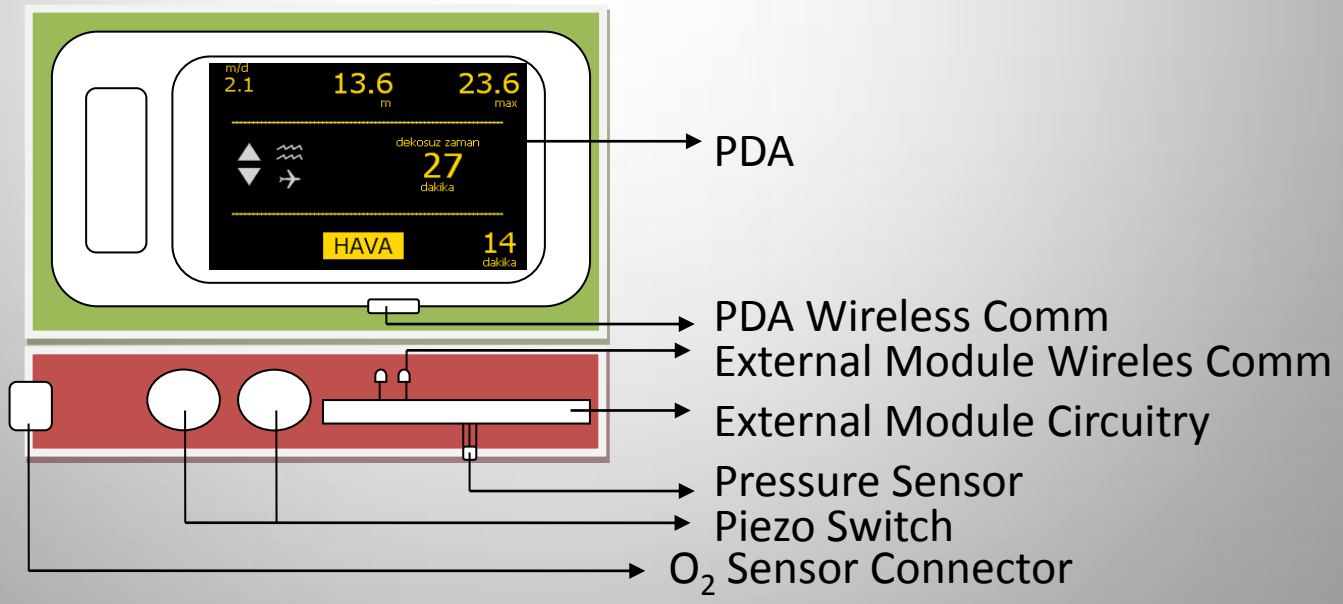
Features

Technical module has two piezo switches and also a wet connector to accommodate input/output from external devices such as O_2, CO_2 and humidity sensors and solenoid actuators…



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Features

The technical module is also integrated to A Closed Circuit Rebreather (SUBMATIX).

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Features

Five different decompression models are programmed including: B-GFx, Table, NeOX and Continuous Compartments. Suitable for gas mixture selection, altitude and gas switching options as well.

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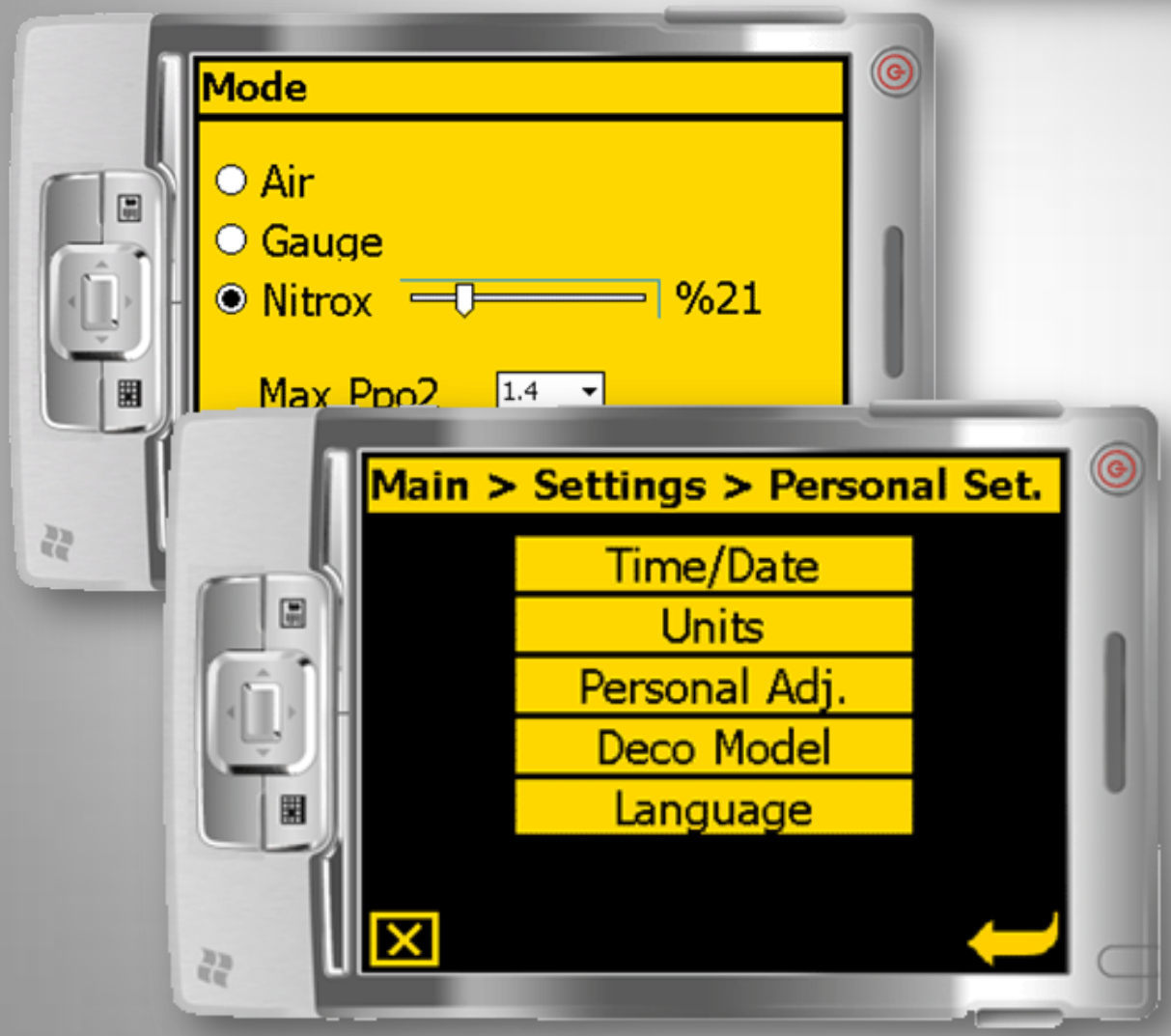

Features

Divephone's menus are very clear and easy to navigate as it can benefit from the graphical and memory capacities of PDAs


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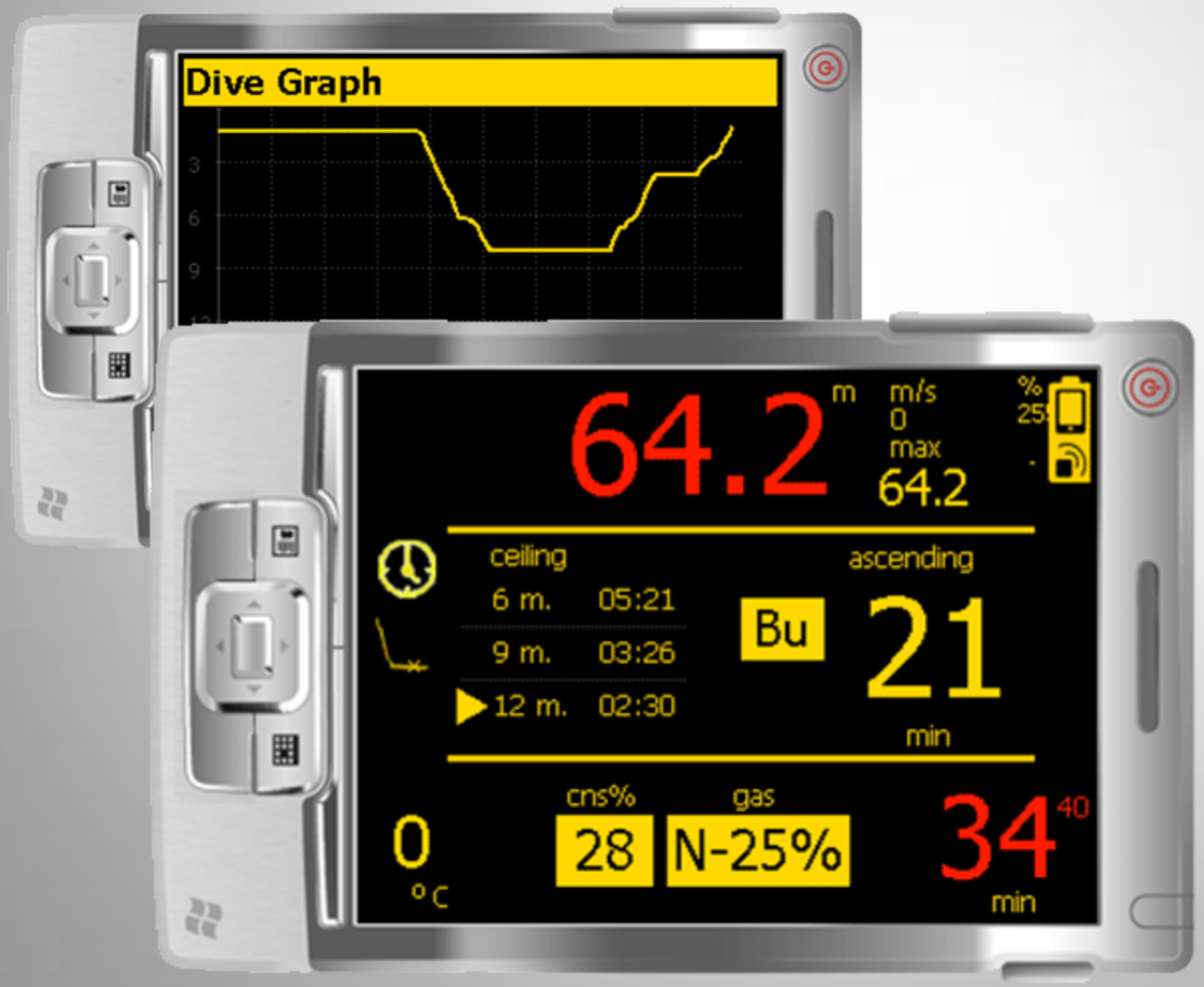
DIVEphone



Features

These user-friendly designed menus enables the divers to use all the features of the Divephone easily.

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Tests

The wireless communication between the modules and the mobile phone were tested and were proven to relay data without loss for InfraRed (IR) and Bluetooth communication protocols.

The Divephone is tested and benchmarked successfully with 7 existing dive computers in the market up to 42 m in open water conditions and in dry chamber.

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Superiorities

Rapid model implementation and deployment

Ability to run multimodel decompression procedures

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Superiorities

Very large data logging capacity using external SD Cards

User specific screen layout through the application of “skins”

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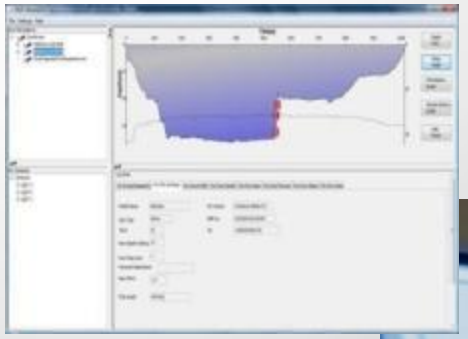
Superiorities

All the advantages of mobile phones including sending post dive SMS messages in case of preset rules for emergencies

Automatic wireless transfer of dive logs to research centers via internet and/or to dive center management services



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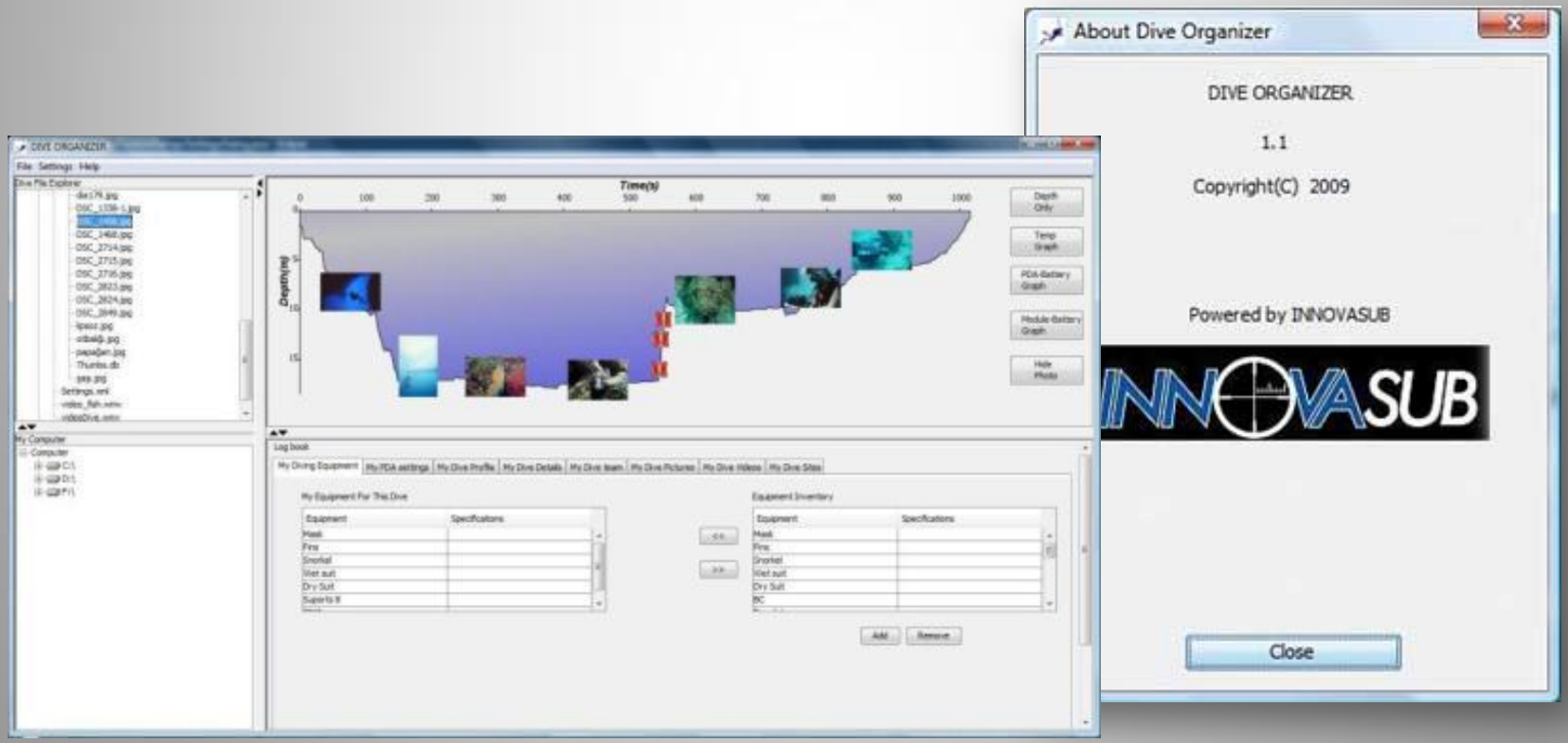
Organiser

Unique dive organiser desktop software



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Divesite Maps

View your dive site map using your DivePhone


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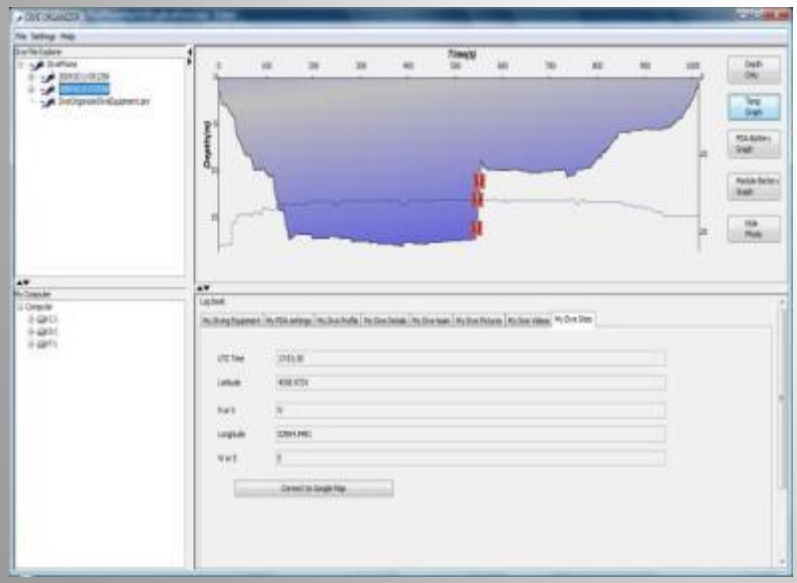
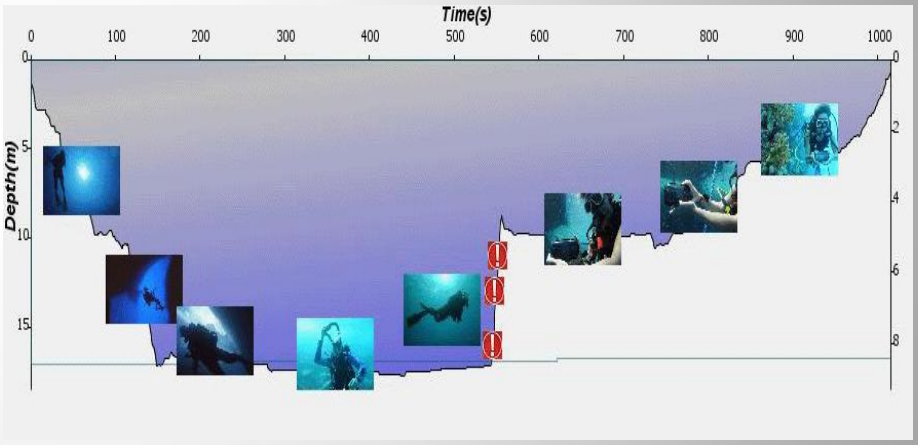
Organiser

Organize your underwater pictures
on your dive profiles





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