

STANDARD OPERATING PROCEDURE

WATER COLLECTION & HYDROLOGY

I. Sample collection

The profiles of temperature, salinity, density, dissolved oxygen, fluorescence, transmittance, turbidity, pH, oxide reduction potential and photosynthetically active radiation (PAR) are obtained using a SeaBird Electronic SBE911 *plus* multi-parameter profiler. The probe acquires 24 data per second with an accuracy of 0.002 ° C for temperature and 0.001 S/m for conductivity. A ROSETTE-type sampler with twelve NISKIN bottles of 10 liters each is used to collect the water samples.

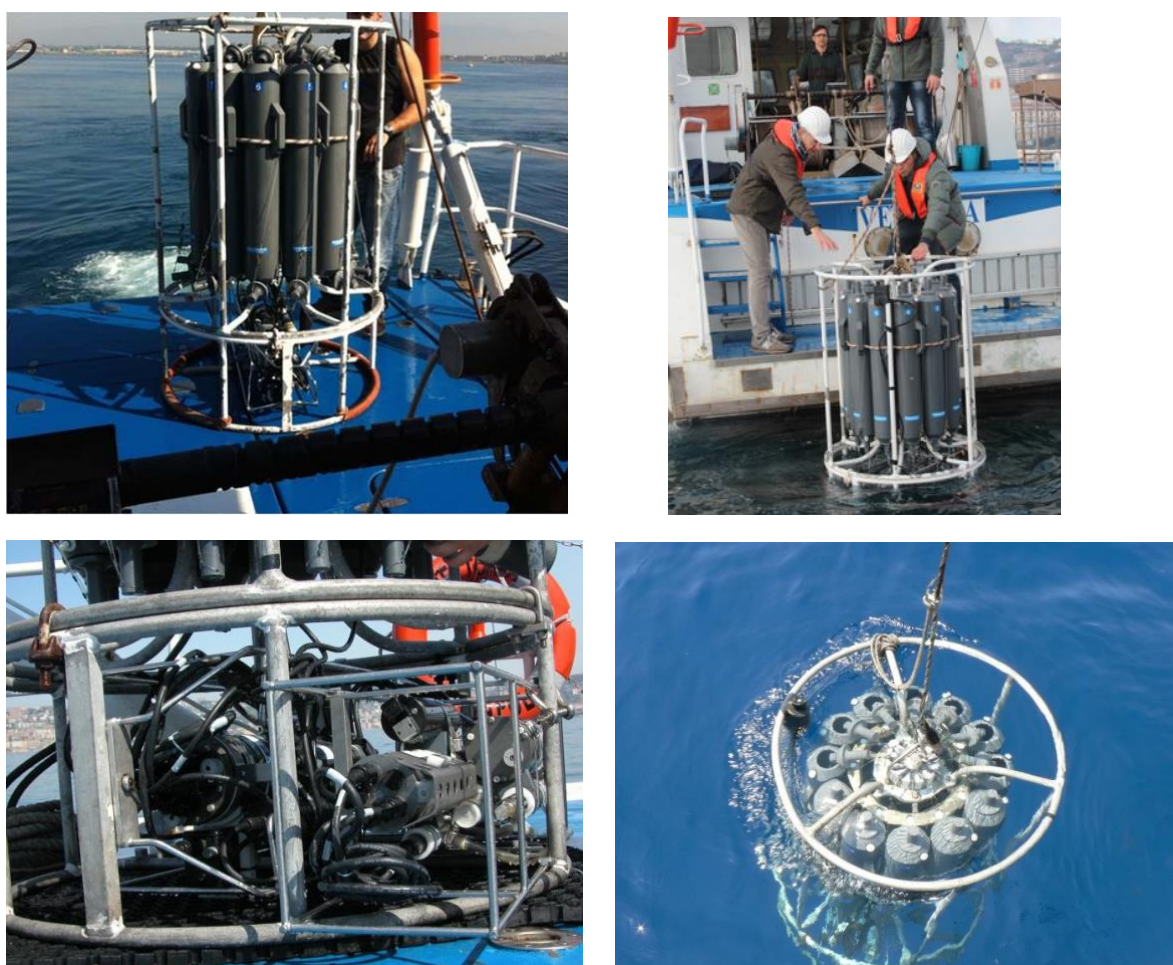


Figure 1 SBE 911 *plus* multi-parametric probe (CTD) with Carousel SBE 32 water multisampler with 12 Niskin and 10-liter bottles (on board R/V Vettoria)

A thermosalinograph (SeaBird SBE-45 Micro) is installed on board the R/V VETTORIA to continuously map surface temperature and salinity data used during navigation.

An on-line fluorometer is also connected to this system, to map surface fluorescence.

Additional information about the turbidity of waters is obtained using a Secchi disk.

II. Operating procedure: CTD and Rosette sampler

Near the sampling point:

- Click on Real Time Data
- Click on Start
- Select “Begin archiving data immediately”
- Click on Select Output Data File Name
- Select the folder in which you want to insert the cast or if it does not exist, create it
- Open the folder and save (assigning an appropriate name) the file of the sampling you are about to perform
- Keep the Start Real-Time Data Acquisition screen open and once you arrive at the sampling site:
 - Wait until the Carousel is completely submerged and at this point turn on the Deck Unit
 - Wait for the Deck Unit display to change from 000010 to 000011 (which denotes the switching on and correct operation of the pump)
 - Click Start on the Start Real-Time Data Acquisition screen and Ok on the next screen (the window will appear indicating that the connection is in progress) and at the same time tell the operator at the winch to bring the probe to the skin
 - When the operator at the winch will communicate that the water surface has been reached, if the software has established communication (i.e. if the window indicating the connection in progress will be closed and if no further error window appeared) tell the winch to begin lowering the Carousel
 - When you reach the maximum depth (as per the sampling program), close the bottle (s) (by selecting the desired Niskin bottle number and clicking the Fire Bottle button)
 - Then start the ascent up to the closing level of the next bottle and continue in this way until the last programmed level (usually the surface)

Note 1: if the closure is foreseen for example at 30 meters, close the bottle when the depth is at 31 mt (this is because there is a difference in altitude of about 1m between the pressure sensor and the bottle).

Note2: notify the operator at the winch of the approach to altitude and tell him to slow down 1-2 meters before reaching it and stop at the quota.

At the end of the acquisition, when the carousel is still in the water:

- Click on Real Time Data
- Click on Stop
- Switch off the Deck Unit and notify the crew that the carousel can be recovered on board



Figure 2 SBE - Deck Unit