The RV Simon Stevin: home of the newest oceanographic tools for scientists

Cattrijsse Andre, Thanos Gkritzalis, Karen Rappé, Michiel T'Jampens and Wim Versteeg

Flanders Marine Institute (VLIZ), InnovOcean site, Wandelaarkaai 7, 8400 Oostende, Belgium
E-mail: andre.cattriisse@vliz.be

The research vessel Simon Stevin, operating mainly in the Belgian part of the North Sea, has been servicing marine scientists for almost two years. With a high resolution multibeam, a current profiler, a dynamic positioning system, two laboratories, a large aft A-frame and a data-acquisition system the ship is well designed to support marine science. Moreover the low underwater noise generated by the vessel allows acquisition of high quality acoustic data.

Since its commissioning the RV Simon Stevin has been further equipped with high tech instruments and sampling equipment to provide technological support for various marine research disciplines:

- A **flow-cytometer** collects images and a set of physical measurements of each particle in a water sample allowing species identification of microplankton;
- The **Video Plankton Recorder (VPR)** allows automated detection of plankton through the collection of in-situ images and real time image analysis while being towed;
- The **ZooSCAN**, a lab image analysis tool, identifies in an automated way zooplankton;
- The **Sediment Profile Imaging (SPI)** camera provides *in situ* imaging of organism-sediment relationships on the seafloor obtained by a vertical cross section of the sediment/water interface;
- A **video-camera frame** inspects and surveys underwater features in real-time;
- A dedicated winch operates the VPR, the SPI and the camera frame;
- The **ROV Genesis** gathers seabed samples together with videos and images of the seafloor and underwater structures.

The underway data acquisition system collects continuously data on sea surface salinity, temperature and chlorophyll-a fluorescence and has been upgraded with:

- A **Fast Repetition Rate Fluorometer** (FRRf) to acquire data that are used to estimate primary productivity;
- A **nutrient analyser** to measure concentrations of Nitrate, Phosphate and Silicate;
- A **pH sensor** (ISFET type)
- An Oxygen sensor (optode)
- **pCO_2 analysers** to determine CO2 concentrations in air and in water;
- A Submersible **Ultraviolet Nutrient Analyser** (SUNA) to measure Nitrate.