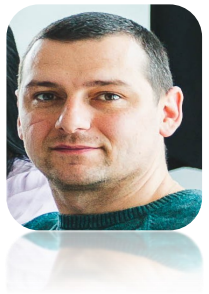
Bathymetry Systems

The Bathymetry systems include ultra-performing bathymetry / hydrology systems which may be used for:

- analyzing the evolution of the river sections from a hydro-morphological point of view;
- assessment of environmental conditions in bodies of water;
- generating bathymetric maps;
- map underwater archaeological sites, such as shipwrecks, ancient cities, and submerged structures;
- disaster prediction and management;
- monitoring river-flow parameters (flows, flow rates);
- measurement and description of the physical features of bodies of water;
- bathymetry laboratories also serve as educational and research centers, training future oceanographers, geologists, hydrographers, and marine biologists in the use of bathymetric technology and data.

Bathymetry Systems

Members:



- **Lecturer dr. eng. Maxim ARSENI**

https://dcfm.ugal.ro/index.php/membri/2-uncategorised/46-arseni-maxim)

- **Lecturer dr. eng. Octavian ROMAN**

https://www.transfrontaliera.ugal.ro/index.php/ro/despre/departamente/departament-2

Bathymetry Systems

Equipment:

Multibeam bathymetry system for REXDAN Vessel - Kongsberg Maritime EM 2040CX Dual

Uses:

- hydrographic surveys to map the seabed and to create detailed navigational charts found below the sea level;
- navigation maps, especially in areas critical for shipping and navigation;
- harbour assessment and mapping and development of strategies for harbour maintenance and expansion;
- environmental monitoring;
- study and protection of marine/ river/ channel/ lake ecosystems, habitats, and coastal environments.

Equipment:

Multibeam bathymetry system for REXDAN Vessel - Kongsberg Maritime EM 2040CX Dual

Technical Specifications:

- frequency range: 200 to 700 kHz;
- beam width: 1x1° at 400 kHz;
- max ping rate: 50 Hz;
- swath coverage sector: Up to 200° (dual head);
- depth Rating: 50 meters;
- beam patterns: equiangular, equidistant and high density;
- no. of beams per ping: 1024 single swath dual head;
- roll/pitch/yaw stabilised beams: ± 15°/± 10°/± 10°

Bathymetry Systems

Equipment:

Singlebeam bathymetry - Kongsberg Maritime EA440

Uses:

- depth observations;
- side scan;
- sub-bottom light.

Technical Specifications:

- high precision hydrographic echo sounder;
- up to eight simultaneous channels;
- frequencies from 38 kHz to 500 kHz;
- sub-bottom functionality at 15 kHz;
- CW/FM pulse forms;
- easy to install on Windows computers;
- roll, pitch and heave compensation;
- true raw data logging;
- world-class bottom detection.

Equipment:

Hydrometric portable system - DCX-22AA

Uses:

- measurement and recording of groundwater levels, using the technology of the two AA sensors (absolute-absolute);
- measurement of water level with the submersible depth sensor;
- measurement and compensation of changes in barometric pressure;
- used in drilling from the wharf or from the shore.

Technical Specifications:

- measuring principle: hydrostatic;
- measuring range: 800÷1800 mbar;
- accuracy: 0,02% FS;
- output signal: Digital RS485;
- degree of protection: IP68 ;
- supply: Lithium battery 3.6 V (Model AA);
- battery life: 10 years at 1 measurement per hour.

Equipment:

Ultrasound Probe and Ichthyofauna Discrimination equipment - SIMARD EK 80 - ES38-18/200-18

Uses:

- real-time echo integration and target strength analysis in an unlimited number of layers;
- storage of raw data for replay or analysis in one of several post-processing software packages;
- fish migration studies;
- long-term biological studies;
- improved fish stock assessment;
- water column profiling.

Technical Specifications:

- operating frequency from 10 to 500 kHz;
- chirp (frequency modulated sweep) and continous wave (CW);
- CW pulses up to 8 ms pulse length;
- control of four channels independently;
- maximum output power is 2000 W (4 x500 W);
- standardized EK80 raw data format.

Bathymetry Systems

Equipment:

ADCP system – Nortek Signature 1000

Uses:

- simultaneous current and turbulence studies up to 30m range;
- sediment transport studies or biomass estimates using optional scientific echosounder;
- buoy-mounted measurements in high-energy areas with optional AHRS for motion correction;
- wave measurements and ice monitoring using acoustic surface tracking (AST);
- disharge calculation.

Technical Specifications:

- maximum profiling range: 25 m (burst mode), 30 m (average mode);
- cell size: 0.2-2 m;
- minimum blanking: 0.1 m;
- maximum number of cells: 256 (burst)/200 (average);
- velocity range (along beam): User-selectable 2.5 or 5.0 m/s;
- minimum accuracy: 0.3% of the measured value, ± 0.3 cm/s;
- velocity resolution: 0.1 cm/s;
- max sampling: rate 16 Hz (8 Hz using 5 beams).

Equipment:

Meteo weather station - NAV-HYDROMET-14

Uses:

- flood prediction and management;
- environmental monitoring;
- wind speed measurement;
- humidity measurement;
- wind direction measurement;
- barometric pressure measurement;
- determination of total solar radiation;
- visibility measurement;
- atmospheric temperature measurement.

Technical Specifications:

- wind speed measurement from 0.01 to 60 m/s, with an accuracy of ±3% (at 40 m/s);
- wind direction measurement in degrees, continuous measurement range 360°;
- atmospheric temperature measurement with ±0.3 °C accuracy (at 20 °C);
- humidity measurement measuring range 0-100 %RH, with accuracy ±2 %RH (at 20 °C);
- barometric pressure measurement range from 600 to 1100 hPa, with maximum accuracy of ±0.5 hPa (at 25 °C);
- determination of total solar radiation, measurement range from 0 to 1600 W/m2, ISO 9060 Second Class standard;
- visibility measurement from 5 m to 75000 m, maximum accuracy ±8% (up to 600 m).