**MAIN GOALS AND OBJECTIVES**

The SWARMs project (http://www.swarms.eu/) aims to guarantee cooperation among autonomous maritime vehicles, for them working together in different missions. Development works that are being carried out for this purpose have already provided an underwater acoustic communication, a middleware architecture and a mission management tool. They were integrated together for the first time during the First Demonstration tests.

**SWARMs integrated systems:**

- **Generic and modular Robot System**
- **On-board Architecture (RSOA)**

**Multi domain communication system:**

- **Underwater**
  - Support ship
  - Gateway buoy / USV
  - RF
  - Wi-Fi

**Trials and Demonstrations:**

- **First Demonstration**
  - 3rd – 14th July 2017
  - Mangalia Harbour, Romania

- **Early Trials**
  - 22nd – 30th September 2016
  - PLOCAN, Gran Canaria

**Projects and Demonstrations:**

- **Mission 1:** Environmental recognition with vehicles
- **Mission 2:** HF acoustic underwater data transfer
- **Mission 3:** RF Air Data Transfer
- **Mission 4:** LF Acoustic Underwater Data Transfer
- **Mission 5:** Middleware Data Transfer
- **Mission 6:** Intuitive input device simulation
- **Mission 7:** Mission planning simulation

**UNIQUE FEATURES**

- Integration of hardware and software.
- Technologies: ROS, DDS.
- Services for the enhancement of data transmission.
- Mission Management Tool.
- Acoustic underwater and wireless Over-the-Air communications.
- On-board autonomous and semi-autonomous capabilities

**FIVE USE CASES:**

- Corrosion prevention in offshore installations
- Monitoring of chemical pollution
- Detection, inspection and tracking of plumes
- Berm building
- Seabed mapping

**SWARMs integrated systems:**

- Simulated mission
- Mission planner
- Results plotted on the main CCS screen