

WRSC / IRSC



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WRSC / IRSC

- **WRSC** (World Robotic Sailing Championship) / **IRSC** (International Robotic Sailing Conference) are **international** and **annual marine robotics competition** and **conference** that aim at stimulating the development of autonomous marine robotics and its applications
- Background : Microtransat challenge, long missions at sea...





Competition

- Originally designed for **autonomous sailboats**, the competition was opened also to **motorboats** in 2013 and 2014
- Categories of robots :
 - Small autonomous sailboats up to 1 m long, 2 m high, 100 kg, referred to **Microsailboats category**
 - Autonomous sailboats up to 4 m long, 10 m high, 500 kg, referred to **Sailboats category**
 - Any type of autonomous boat up to 4 m long, 10 m high, 500 kg, referred to **Motorboats category**





Competition

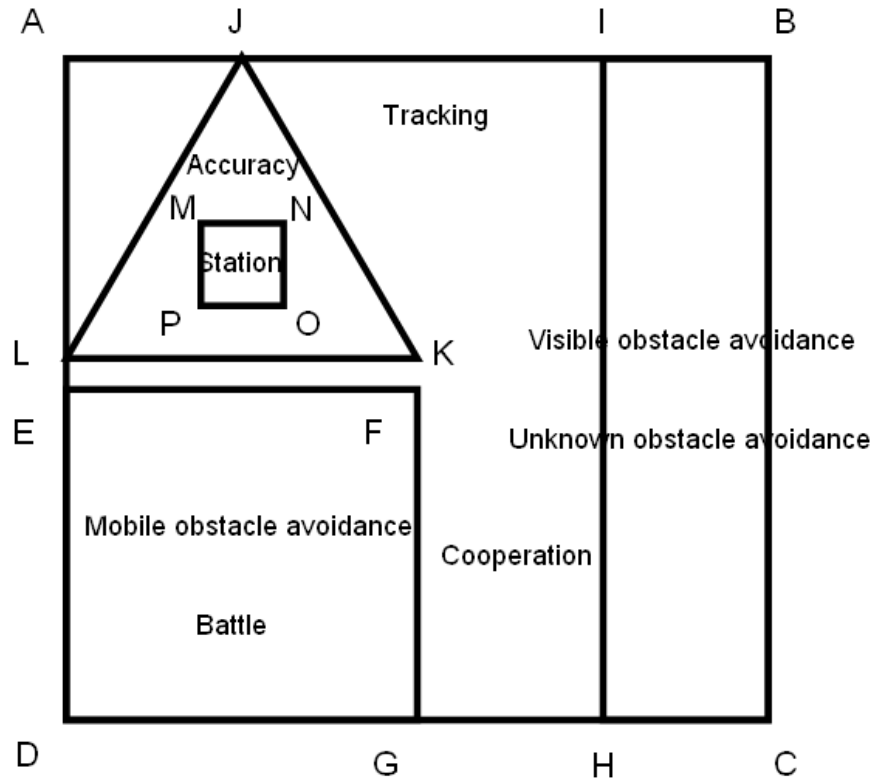
- Teams :
 - **Students teams** : at least 50% of students, max of 10 people, ranked in the student ranking
 - **Open teams** : the only requirements were a max of 10 people, ranked in the open ranking





Competition

- Tasks
 - Station
 - Speed and accuracy in different conditions
 - Obstacle avoidance
 - Endurance
 - ...



Endurance task between Ronde Island and Ecole Navale



Accuracy task : make a triangle trajectory as accurately as possible



Station task : stay at the same point during some time



Obstacle avoidance task : go in the middle of a square and avoid a mobile obstacle





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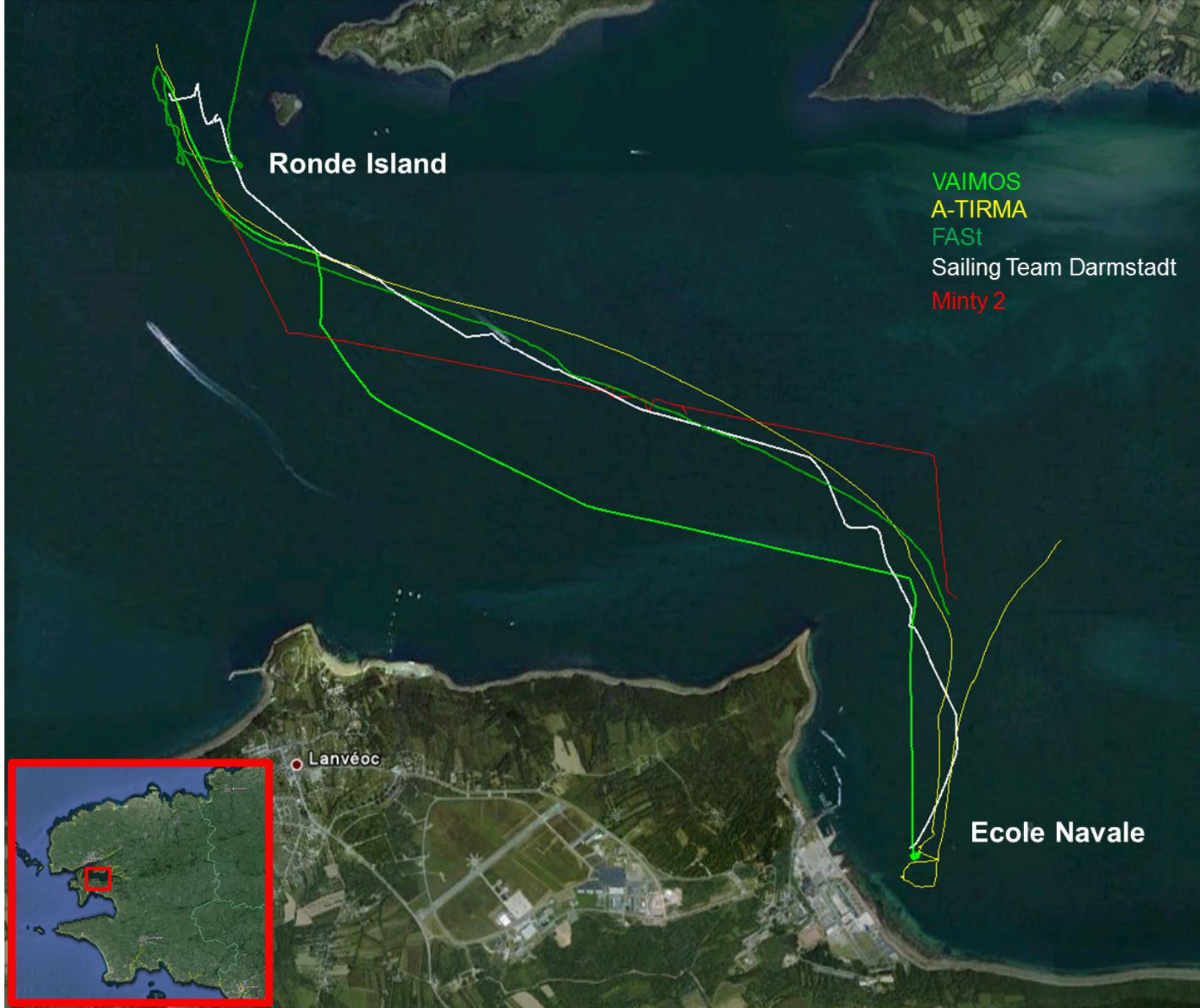
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Participation and awards

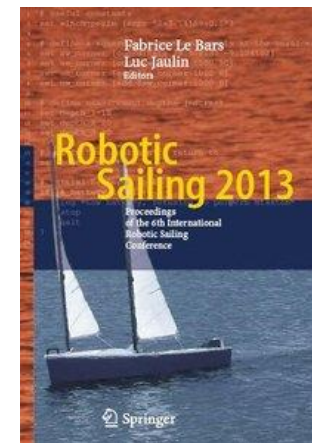
- 7 teams with a total of 12 robots participated to the competition (from France, UK, Spain, Portugal, Germany)
- Awards:
 - Best open autonomous sailboat
 - Best student autonomous sailboat
 - Best autonomous microsailboat
 - Best autonomous motorboat
 - Endurance special awards
 - Most professional student project
 - Best open source architecture
 - Best mobile obstacle avoidance with an autonomous motorboat
 - Best innovation in control





Conference

- IRSC topics around autonomous marine robotics and its applications :
 - Mechanical design and advanced materials
 - Hardware and software organization
 - Energy and power management
 - Control architectures and algorithms
 - Route planning and optimization
 - Collision avoidance and boat to boat communication
 - Machine learning and adaptation
 - Applications of autonomous marine robots
 - Legal issues for autonomous vessels
 - Robotic boats in teaching





Specificities and issues

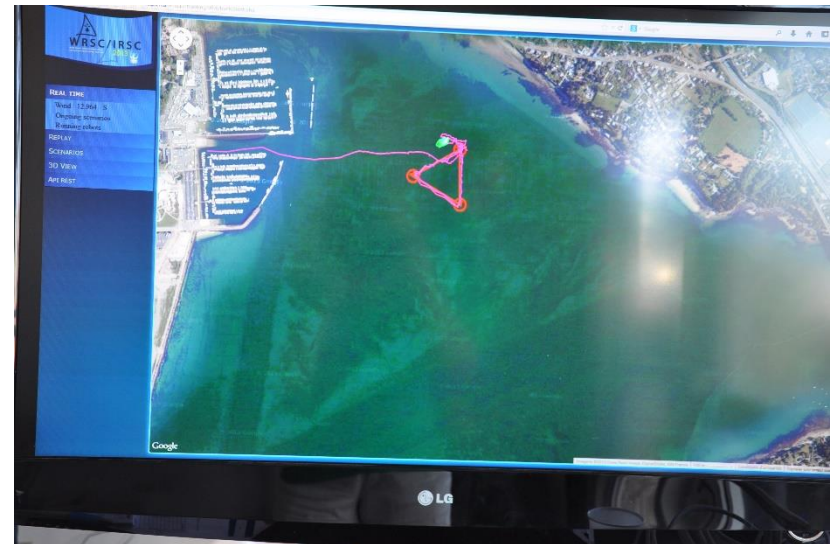
- Variability of the robots, weather constraints
- Scoring
- Collisions, sharing the area with other users
- Funding





Improvements

- More judges, chase boats, pilots
- Independent tracking system
- Assign people dedicated to pictures and videos of the event, social media





Contacts and information

- Official website WRSC/IRSC 2013
 - <http://www.ensta-bretagne.fr/wrsc13/>
- Next : Aland Islands, Finland, 2015-08-31 – 2015-09-04
 - <http://wrsc2015.com/>