

RTSYS

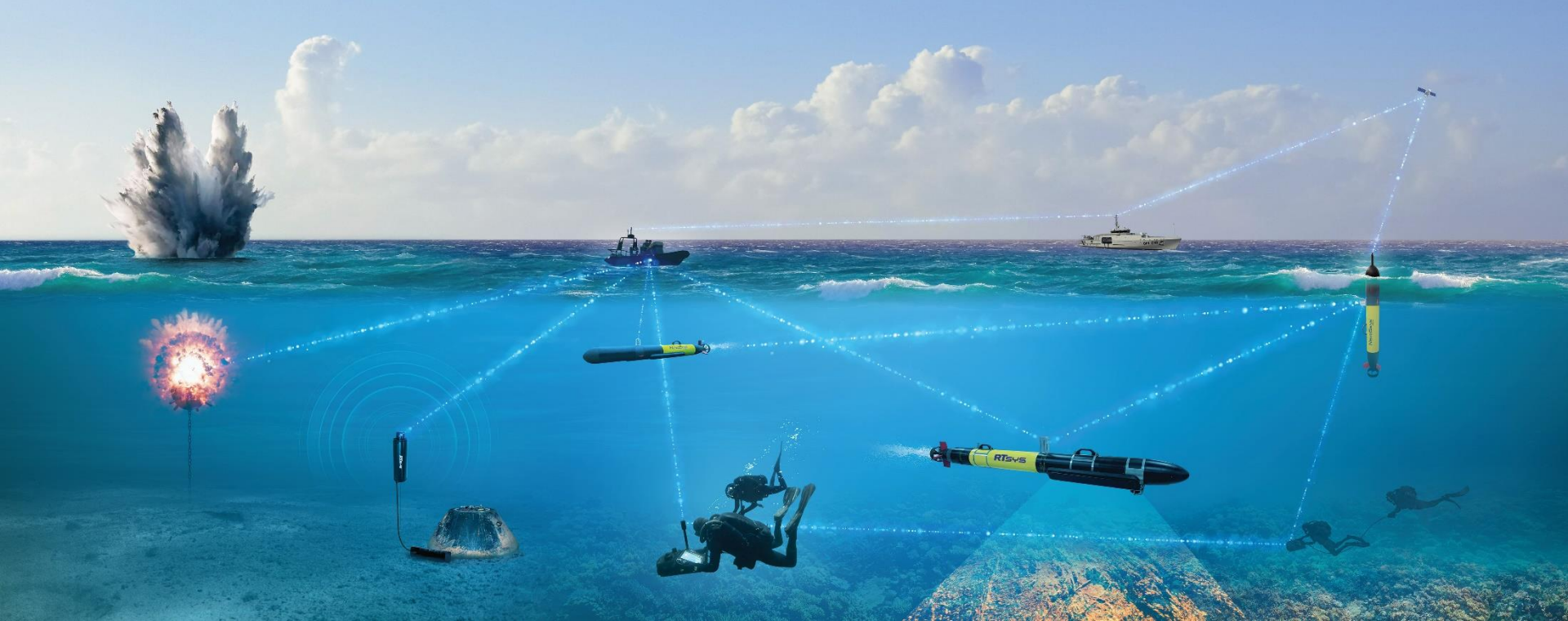
Underwater Acoustics & Drones

MANNED-UNMANNED TEAMING
FOR EOD DIVERS & SPECIAL OPS

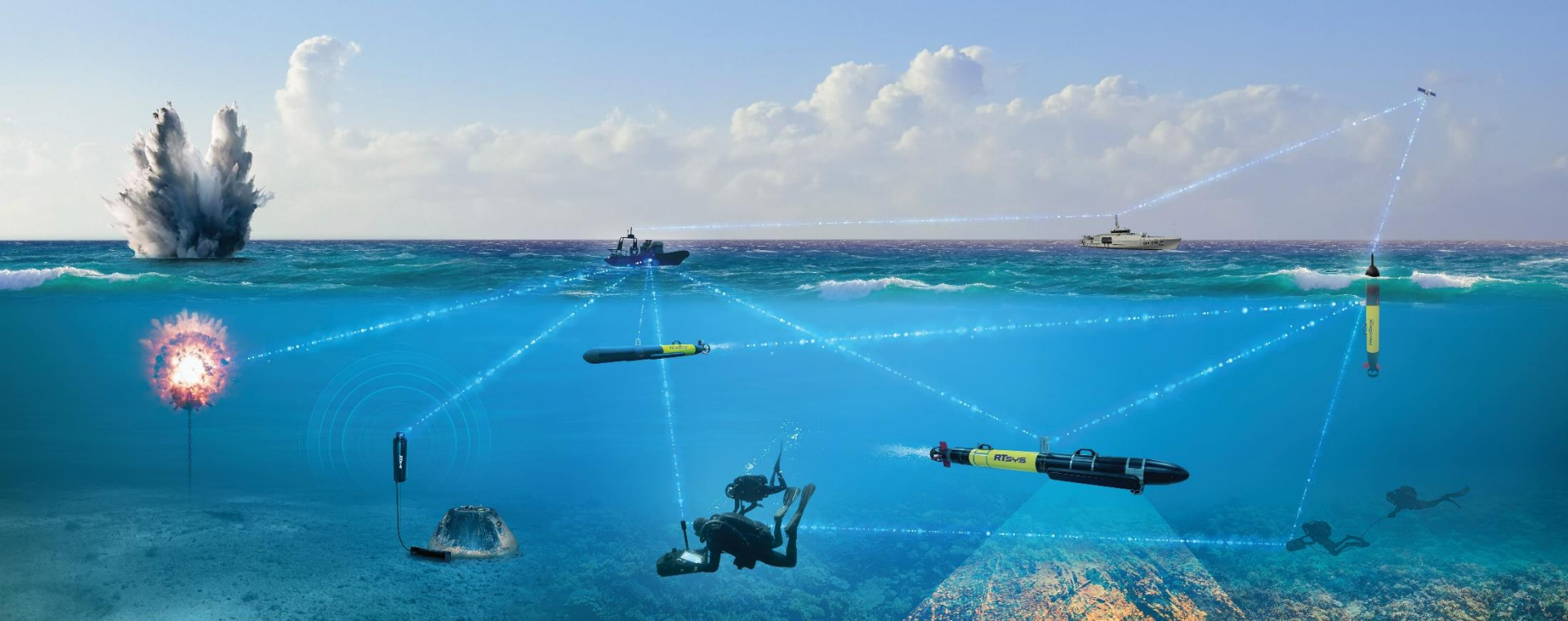


- French Company
 - Defense Focused since 2010
 - Present in more than 80 countries
 - MCM & ASW
 - AUVs, hand held sonar, training target, and sonar calibrator
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- EOD
 - ARMY / NAVY / MARINES Clearance Diver
 - MCM Group
 - Special Forces
 - Combat Divers
 - SAR / Coast Guard
 - Maritime POLICE

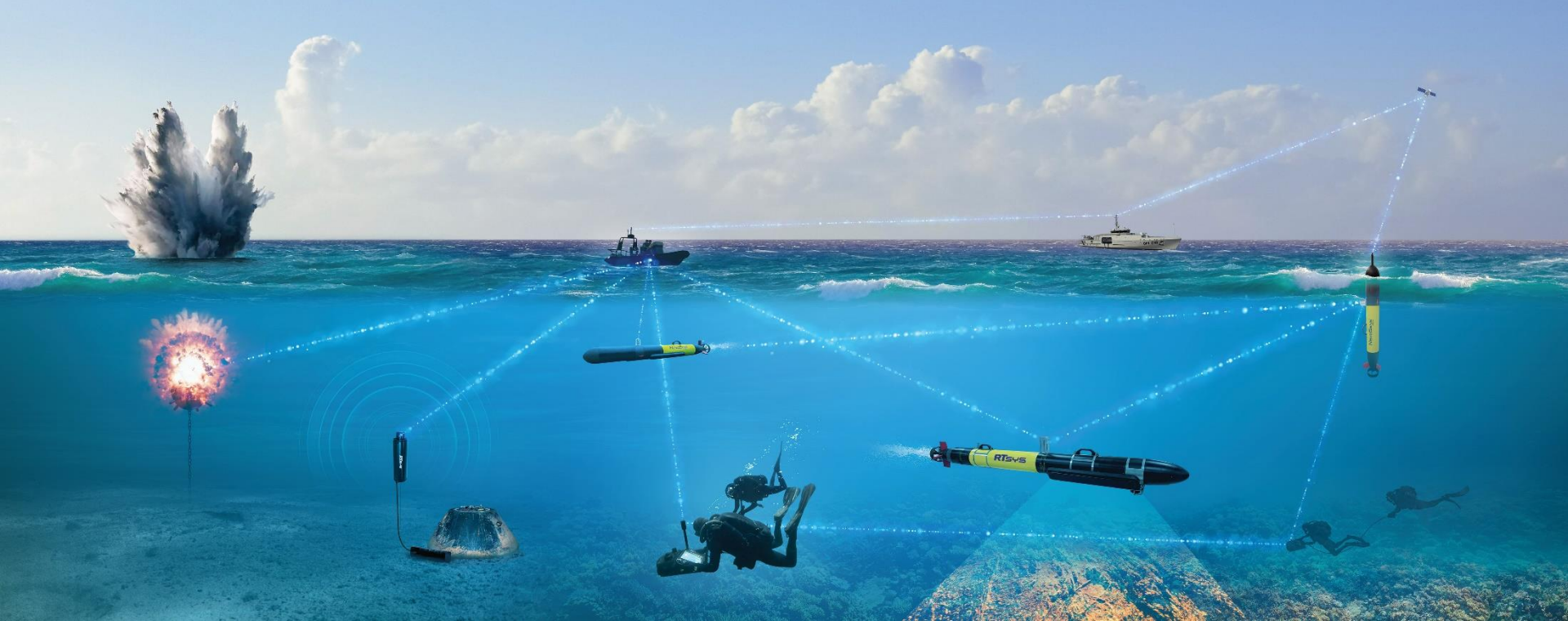




Manned-Unmanned Teaming is the collaborative use of both manned and unmanned systems to achieve a common objective.

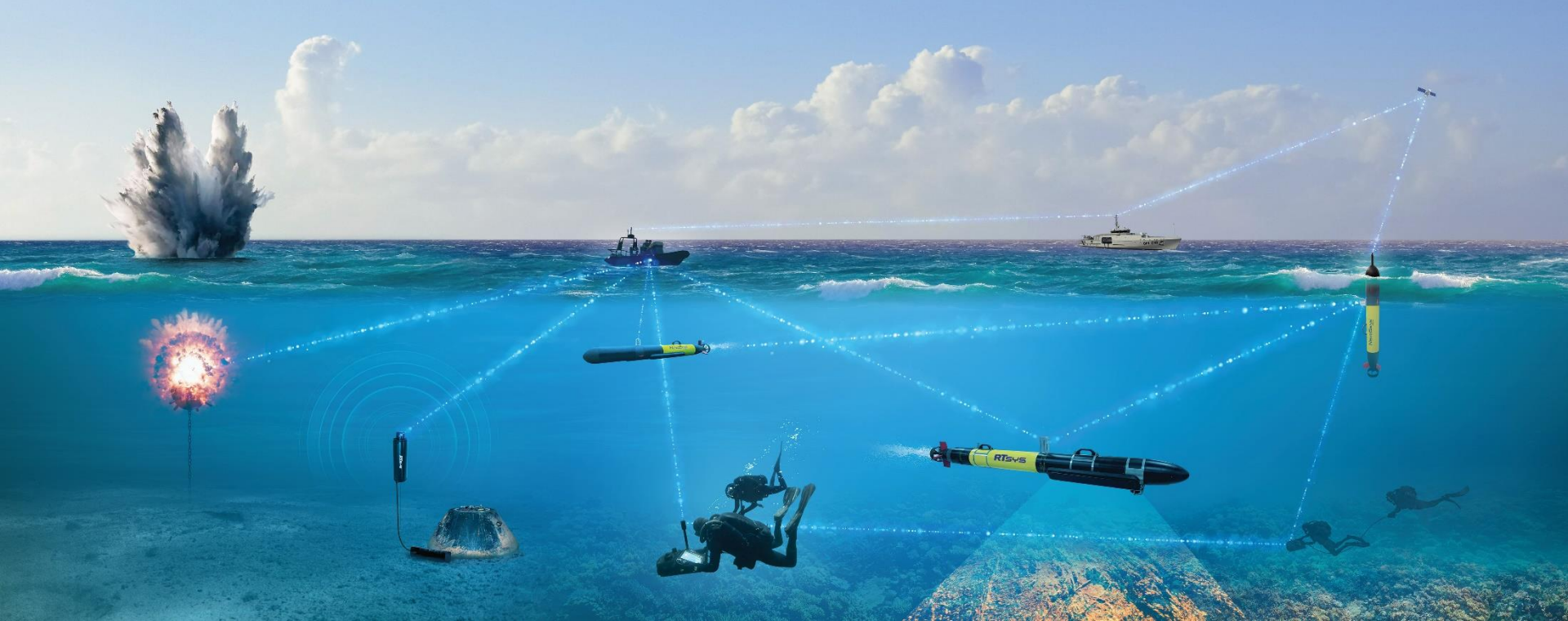


In the context of EOD diving operations, Manned-Unmanned Teaming is the most valuable solution to enhance **safety** and **efficiency** :



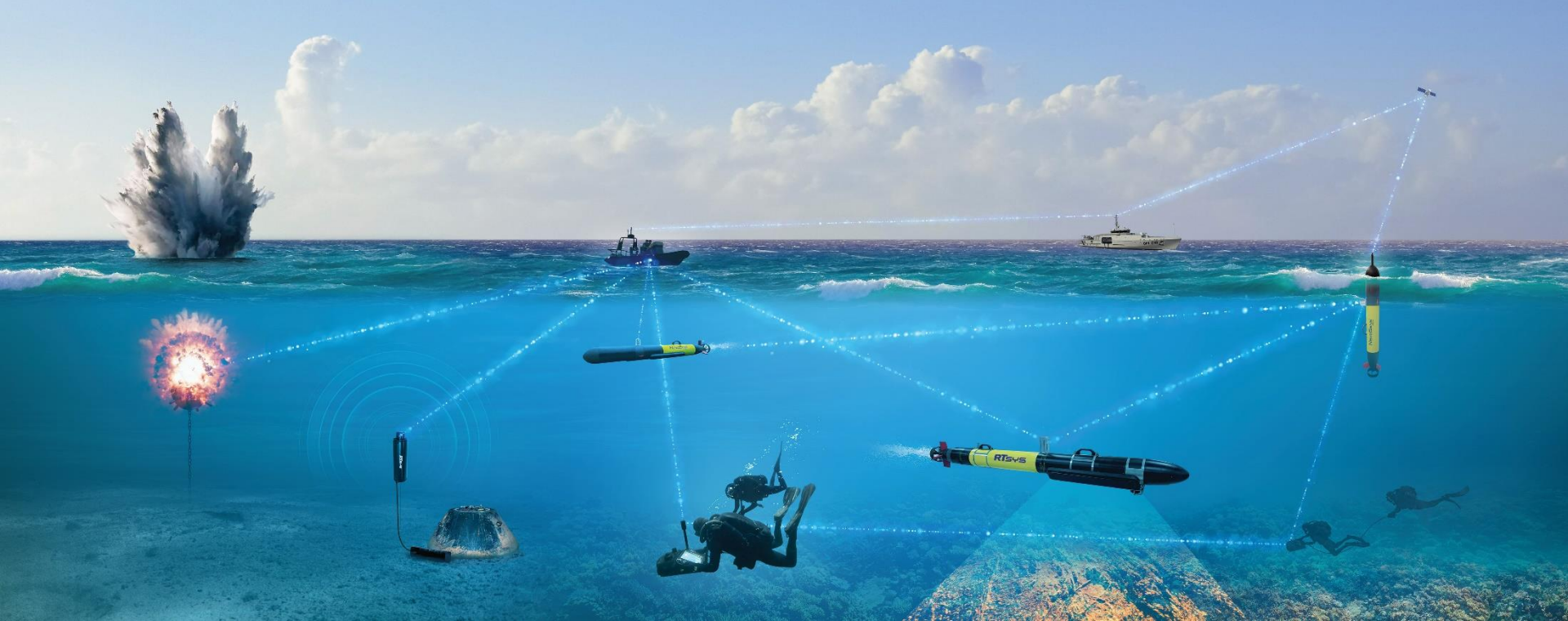
In the context of EOD diving operations, Manned-Unmanned Teaming is the most valuable solution to enhance **safety** and **efficiency** :

 Minimize the risks to divers and increase the speed of operations



In the context of EOD diving operations, Manned-Unmanned Teaming is the most valuable solution to enhance **safety** and **efficiency** :

- 💪 Minimize the risks to divers and increase the speed of operations
- 🧠 Humans at the center of operational decisions



In the context of EOD diving operations, Manned-Unmanned Teaming is the most valuable solution to enhance **safety** and **efficiency** :

- 💪 Minimize the risks to divers and increase the speed of operations
- 🧠 Humans at the center of operational decisions
- 🎯 Simple and affordable solution for optimized missions

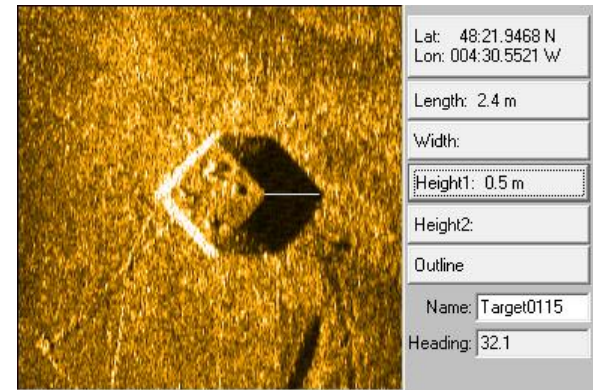
COMPLEMENTARITY BETWEEN THE STRENGTHS OF TRAINED DIVERS AND AUVs

- Effectiveness of EOD diving operations
- Minimizing associated risks in the water
- Increase missions' speed and covered areas
- Reducing costs of missions



EXTEND THE TRADITIONAL SCOPE OF OPERATIONS OF EOD DIVERS

- Mine Countermeasure Missions (MCM)
- Very Shallow Water missions (VSW)
- Rapid Environmental Assessment (REA)
- Search And Locate (SAL)
- Search And Rescue (SAR)
- Amphibious and Beaching operations
- Harbor protection
- Intelligence, Surveillance, and Reconnaissance (ISR)



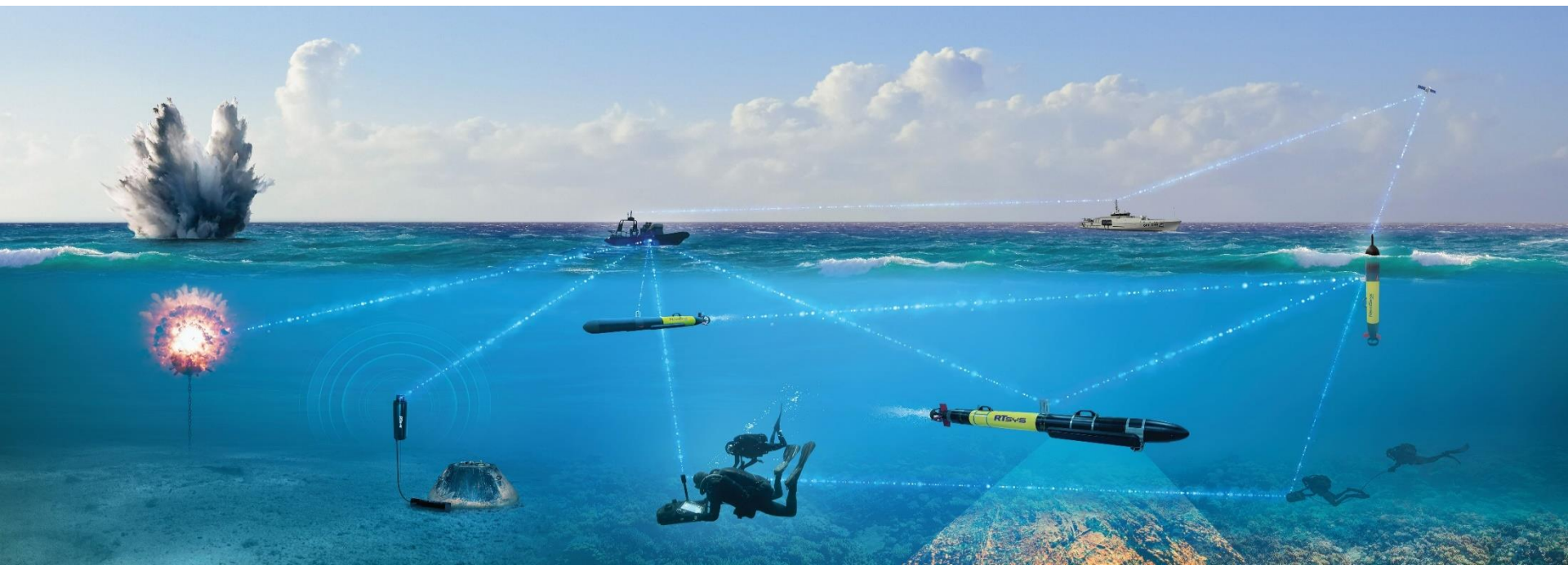
MANNED-UNMANNED TEAMING... HOW ?

One unique Surface Communication Module

One unique Seabed Warfare Data Center

One unique underwater communication device

*RACAM[®] lightweight and compact acoustic modem
natively installed on every device*



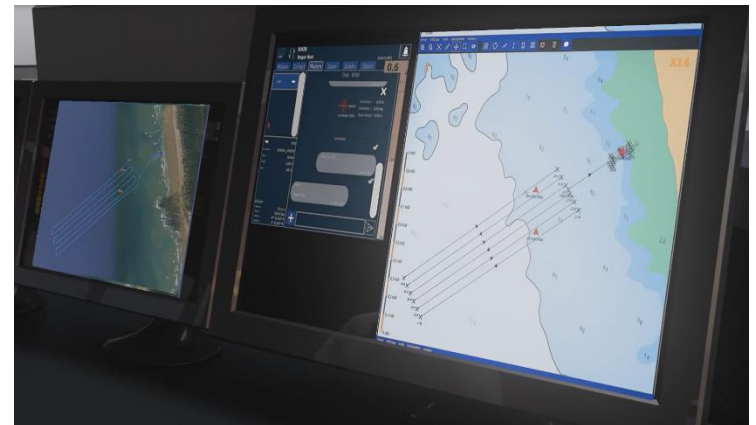
MANNED-UNMANNED TEAMING... HOW ?

Real time tracking & communication

Over 2 km point to point and up to 5 km with relay beacon

All mission units share the same mission

Diving commander can follow from the surface the proper tracking of the underwater asset rails in real time



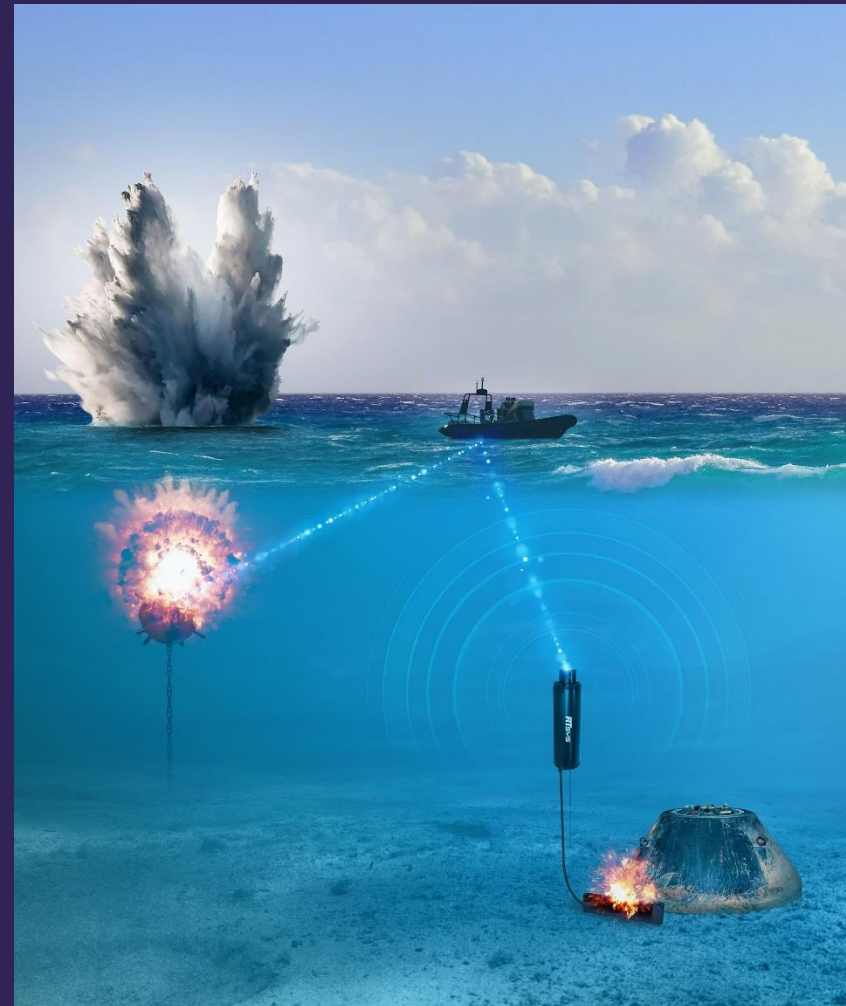
SONADIVE HANDHELD SONAR



- **Diver's navigation, imaging under zero visibility, communication**
- 12" screen
- GPS – INS – DVL
- Text messages
- Underwater survey up to 100m
- Positioning accuracy less than 5m constantly

SONABLOW ACOUSTIC FIRING SYSTEM

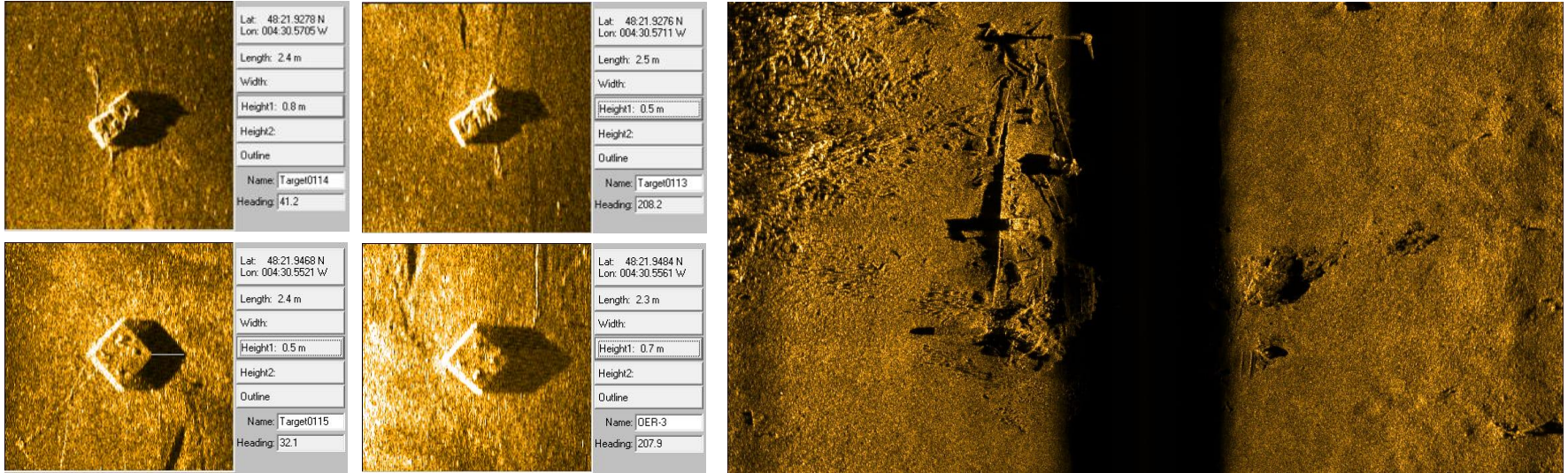
- **Neutralization of mines – no wires**
- 2km acoustic range
- 7 days autonomy
- Encrypted data
- Safer and easier process
- Triggering at any time from the surface



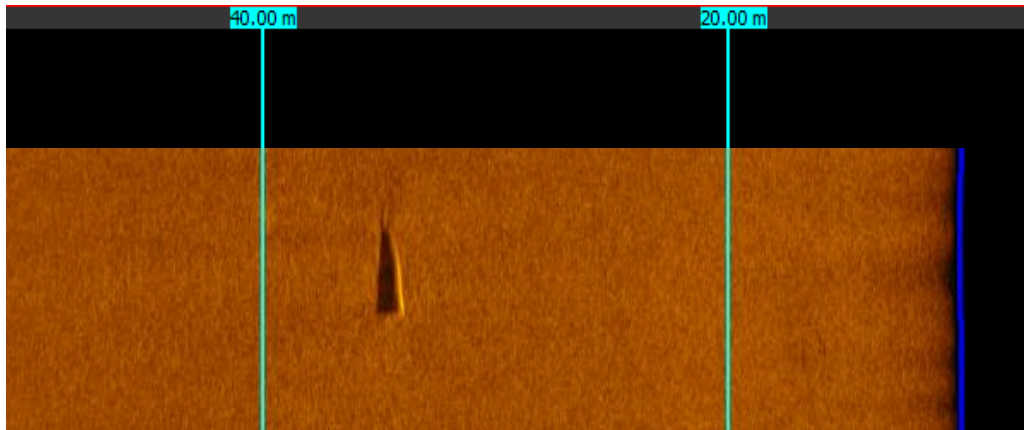


MANNED-UNMANNED TEAMING
WHAT THE TECHNOLOGY CAN BRING TO DIVERS

900 KHZ MICRO SSS NemoSens



450-9000 KHZ MICRO SSS Comet-300



MKIV ENGLISH MINE

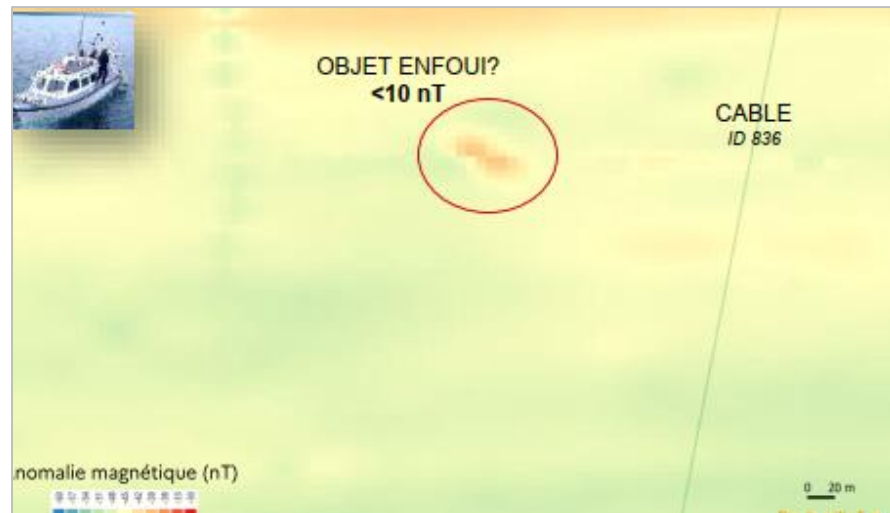
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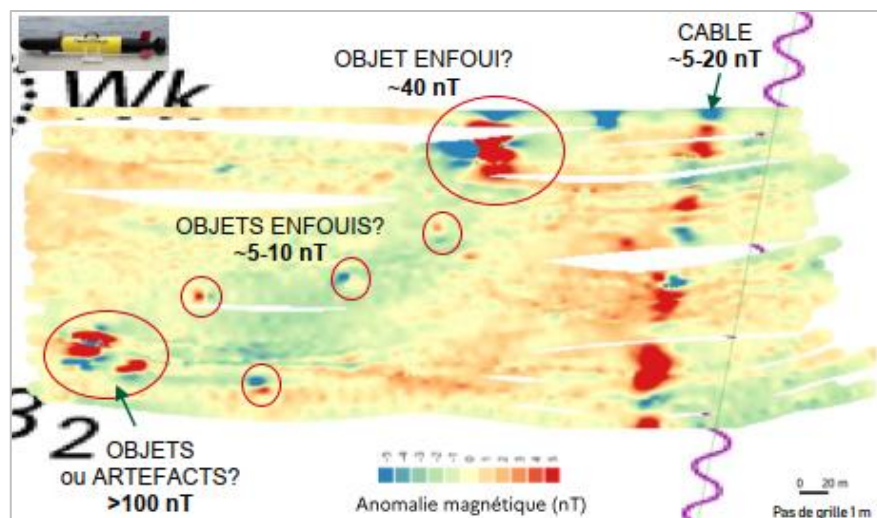
MAGNETOMETER



Vector magnetometer
APS 1540

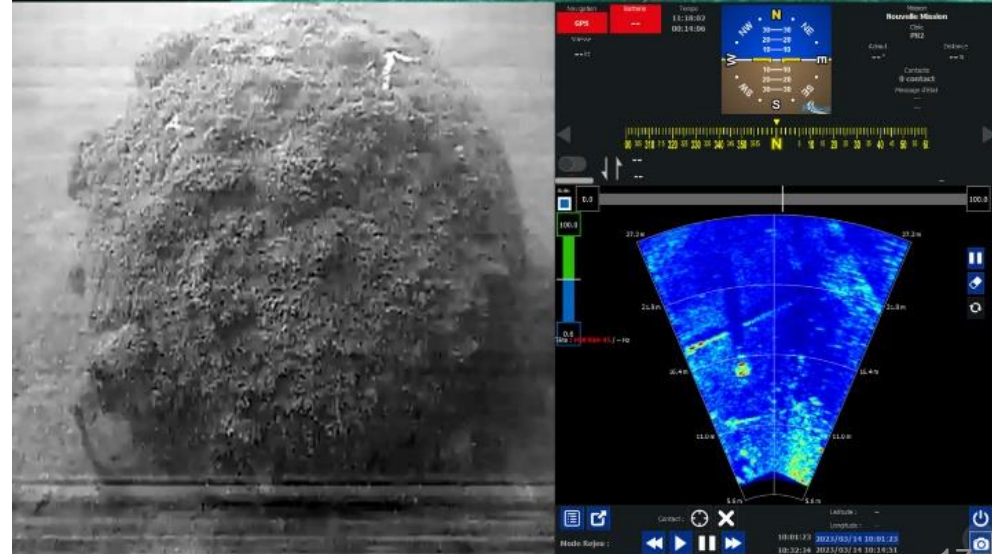
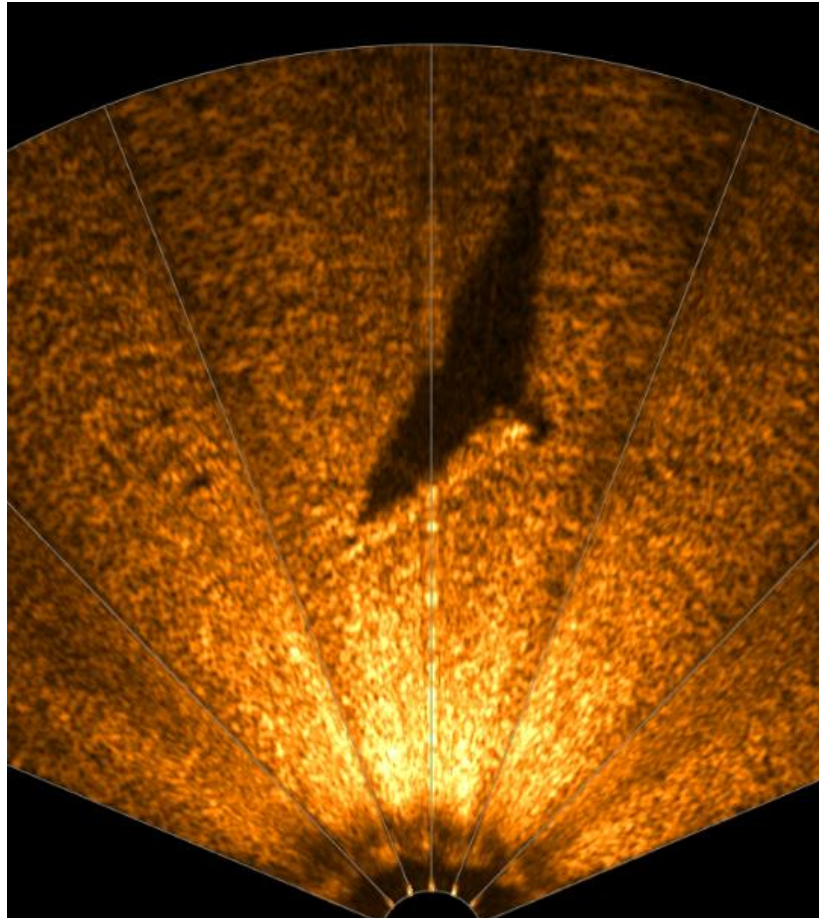


Towed scalar magnetometry (surface)



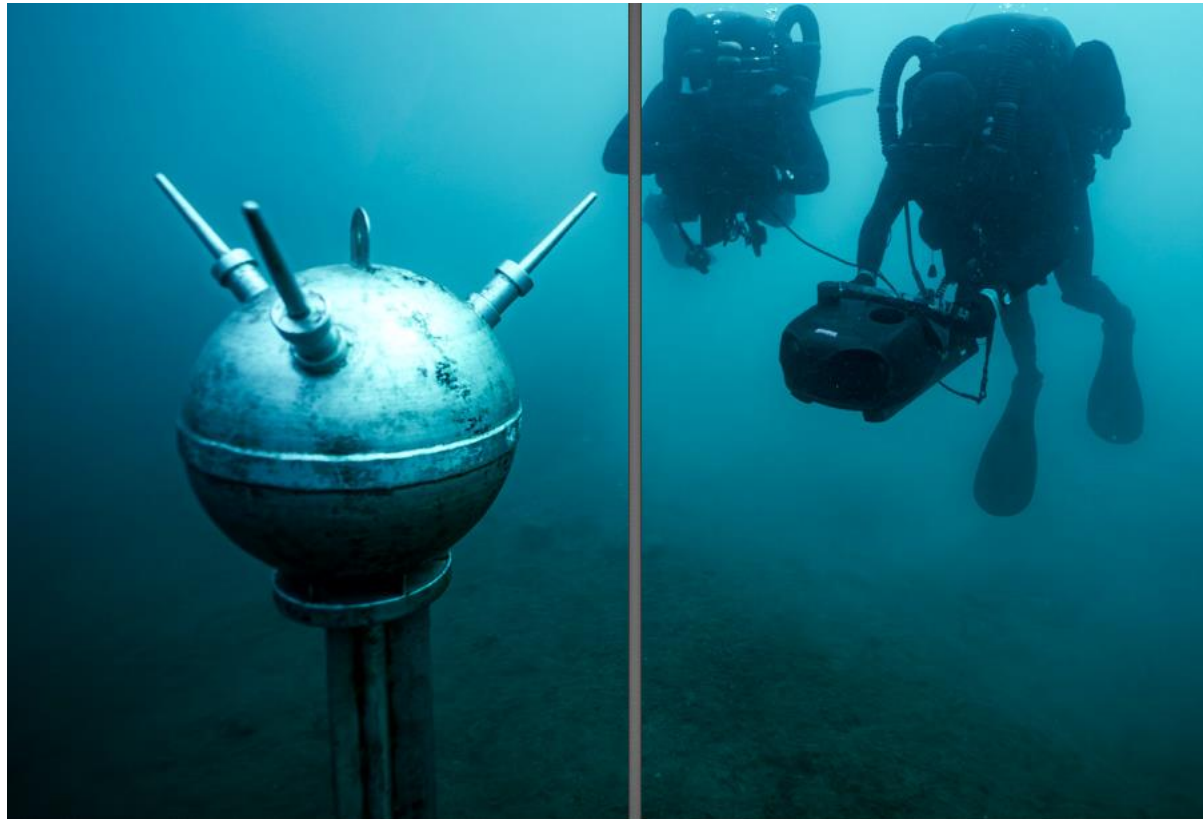
Vector magnetometry by AUV (altitude 3m)

HIGH RESOLUTION IMAGING SONAR



And Tomorrow ?

- New tools & new technologies to continuously increase Divers performances underwater



RTSYS

Underwater Acoustics & Drones

Q & A



RTSYS

Underwater Acoustics & Drones



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