

Recent advances in sensor signal processing at the NATO Research Centre for Maritime Research and Experimentation (CMRE)

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For over 60 years, the NATO Centre for Maritime Research and Experimentation (CMRE), formerly named SACLANTCEN and NURC, has been at the cutting edge of the Atlantic Alliance's innovation strategy.

Technical and operational innovation is the core of CMRE's identity. The Centre's function is still S&T innovation in the maritime domain, assessing its value through at-sea experimentation and promoting its transformation into equipment, systems and capabilities for the benefit of NATO Commands and the NATO members states' armed forces.

While SACLANTCEN began in 1959 doing research only in the domain of anti-submarine warfare, CMRE today has expanded its programme of work to all undersea warfare areas. A common thread that links all of CMRE's undersea research is the important role of sensor signal processing. Research and development in sensors and signal processing is a key component of CMRE's programme and expertise.

In recent years, this has led to many successes in unmanned systems, robotics, artificial intelligence and automatic target detection/classification, distributed signal processing, automatic decision making, as well as synthetic aperture sonar.

The purpose of this keynote paper is to highlight CMRE's recent advances in the signal and information processing domains, presenting for each the basic theory as well as results obtained from at-sea experimentation.