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Status and development of the KM3NeT/ARCA detector

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The multimessenger astronomy era has begun: combined measurement of gravitational waves, gammas and high-energy cosmic rays and neutrinos provide unprecedented tools to understand the birth and evolution of cosmic sources. Hundred kilometres South West off Capo Passero, Sicily the KM3NeT Collaboration is building the ARCA neutrino detector, formed by 230 vertical units equipped with 130 thousand of photomultiplier tubes. With ARCA, high-energy neutrino sources can be identified thus providing the answer to the question of the origin of cosmic rays. The first two detection units of ARCA were deployed in 2015 and 2016 and operated till April 2017, providing valuable information for the validation of the detector technology, calibration methods and the water column properties. In 2017 another milestone was reached with the deployment of the first vertical unit of the low energy neutrino detector KM3NeT/ORCA offshore Toulon, France. The KM3NeT Collaboration is now producing detection units and refurbishing the seabed infrastructures to complete the first phase of KM3NeT with 24 detection units in ARCA and 7 in ORCA and subsequently start the extension towards a block of 115 detection units at each site. The status of the ARCA detector, data analysis and envisaged performances will be discussed.

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