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Search for point-like neutrino sources above the horizon with the ANTARES Neutrino Telescope

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Installed in the Mediterranean Sea, at a depth of $\sim$ 2.5 km, ANTARES is the largest undersea neutrino telescope currently operating. Point source searches with neutrino telescopes are normally limited to a fraction of the sky, due to the selection of events where the direction of the neutrino candidate has been reconstructed as coming from below the horizon, usually referred to as "up-going" events, in order to significantly reduce the atmospheric muons background. Here we demonstrate that the background can be effectively suppressed through an energy and direction dependent event selection so that a part of the region above the horizon can be included in the search. This approach provides sensitivity to the signal spectrum of sources in the EeV energy range, not accessible for up-going events due to the Earth absorption of neutrinos with energies above a PeV. The results from a binned scan of the entire sky and for a list of a few source candidates will be presented. In both cases an E^{-2} source spectrum is assumed.

Collaboration

ANTARES

Registration number following "ICRC2015-I/"

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