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All-sky search for neutrino flares in the ANTARES legacy data

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The ANTARES neutrino telescope operated from 2007 to early 2022 at the bottom of the Mediterranean Sea, with the primary goal of detecting neutrinos from astrophysical sources. Among these, variable and transient sources are particularly promising, as the timing of neutrino arrivals provides an additional distinguishing feature between signal and background, complementing energy and spatial information. The shorter the neutrino flares, the greater the enhancement in discovery potential compared to steady emissions. As part of the legacy analysis of ANTARES data, a time-dependent algorithm has been developed to search for event clustering in both space and time. For the first time, this method has been applied across a fine grid covering the entire ANTARES visible sky. The results of this analysis applied to the full ANTARES data sample are presented here.

Collaboration(s)

ANTARES

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