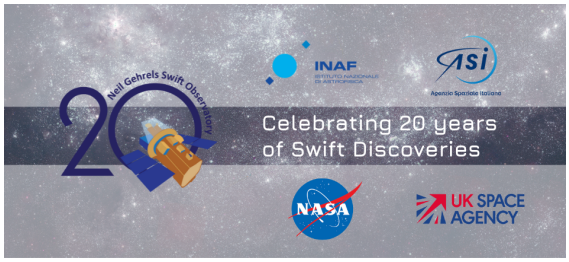

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10-yrs follow-up of the ANTARES neutrino alerts by Swift

Tuesday 25 March 2025 14:15 (1 minute)

High-energy neutrinos could be produced in the interaction of charged cosmic rays with matter or radiation surrounding astrophysical sources. To look for transient sources associated with neutrino emission, a follow-up program of neutrino alerts has been operating within the ANTARES Collaboration since 2009. For the highest energy neutrinos. this program has triggered the Neil Gehrels Swift Observatory immediately after the detection of any relevant neutrino candidate. The results of twelve years of observations are reported. In September 2015, ANTARES issued a neutrino alert and during the follow-up, a potential transient counterpart was identified by Swift/XRT. A multi-wavelength follow-up campaign has allowed to identify the nature of this source and has proven its fortuitous association with the neutrino. No other X-ray counterpart has been significantly associated with an ANTARES candidate neutrino signal. Constraints on transient neutrino emission have been set. The return of experience is particularly important for the alert system of KM3NeT, the next generation neutrino telescope in the Mediterranean Sea, which should start beginning of 2025.

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