Cosmic rays with energies in the TeV-PeV range are believed to originate in our galaxy, possibly in local astrophysical accelerators such as supernova remnants. As they propagate through the interstellar medium, cosmic rays scatter off irregularities in the Galactic magnetic field, a process that makes their arrival directions at Earth almost entirely isotropic. However, due to the nature of this diffusive propagation mechanism, anisotropy with per-mille amplitude or lower should subsist in the cosmic-ray sky. Cosmic-ray detectors in the northern hemisphere have observed anisotropy at TeV energies. The anisotropic pattern is dominated by a large scale feature of dipolar shape accompanied by several localized excess regions with typical angular sizes between 10 and 20 degrees.

Using cosmic-ray data from the IceCube, AMANDA, and IceTop detectors, we have expanded the search for anisotropy to the southern sky for the first time in the TeV-PeV energy range. The multi-billion event data set collected by these three instruments over the last 12 years has allowed us to perform detailed studies of cosmic-ray anisotropy as a function of angular scale, energy, and time. I will discuss the results that we have obtained so far, and how these observations fit into our current knowledge of cosmic-ray origin and propagation in our galaxy.

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