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Observation of cosmic ray anisotropy with the IceCube and IceTop detectors MARCOS SANTANDER, University of Wisconsin-Madison, ICECUBE COLLABORATION — Over the last four years, the IceCube neutrino observatory has collected a data sample of tens of billions of muon events produced by the interaction of TeV cosmic rays with the Earth's atmosphere. A data set of this size has opened the possibility of searching for anisotropy in the arrival direction of cosmic rays at different angular scales and over a wide range of energies. We report on the observation of cosmic ray anisotropy in the southern sky at median energies from 20 TeV to 400 TeV. At low energies, the anisotropy is dominated by a large angular scale feature of per-mille strength accompanied by structures with smaller amplitudes and with typical angular sizes between 10° and 20°. At the highest energies, the cosmic ray flux still shows significant anisotropy, but with a different structure. The most significant feature is a deficit region with an angular size of about 30°. A preliminary analysis of data taken with the IceTop air shower array at a median energy of about 650 TeV shows an anisotropy that is consistent with the one observed by IceCube at 400 TeV.

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