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The High Altitude Water Cherenkov (HAWC) Observatory

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HAWC is a continuously operated, wide field of view detector comprised of three hundred 200,000 liter water Cherenkov detectors, each instrumented with four photomultipliers providing charge and timing information. HAWC covers approximately ~22,000 m² at an altitude of 4100m and reliably estimates the energy and arrival direction of gamma and cosmic rays with significant sensitivity over energies from several hundred GeV to several hundred TeV. With an instantaneous field of view of 2 steradians, HAWC observes 2/3 of the sky in 24 hours. HAWC has been optimized to study transient and steady emission from both galactic and extragalactic sources of gamma rays and serves as a survey instrument for multi-wavelength studies. HAWC has significant discovery potential, including the possibility of indirect detection of dark matter through the observation of gamma rays produced via dark-matter particle annihilation. Given the large number of cosmic-ray events observed, measurements of the cosmic ray flux are also performed. HAWC has been making observations since summer 2012 and officially commenced data-taking operations with the completed detector on March 20, 2015. A discussion of the detector design, science capabilities, current status, and first results will be presented.

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