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Surveying the TeV Sky with the High Altitude Water Cherenkov (HAWC) Observatory BRENDA DINGUS, Los Alamos National Lab, HAWC COLLABORATION — The highest energy gamma rays probe Nature's particle accelerators and the physical mechanisms operating in these extreme sources. The flux from these TeV accelerators decreases with gamma ray energy and in many cases is rapidly and unpredictably variable. A detector, such as the HAWC observatory with its wide field of view of ~ 2 steradians and nearly 100% duty factor, will enable new observations of the TeV sky. The large area and good background rejection will allow spectral measurements to >100 TeV which are key to determining the sources of Galactic cosmic rays. And the HAWC sensitivity at <1 TeV is sufficient to detect flaring active galactic nuclei and search for the predicted prompt emission from gamma-ray bursts. However, the most exciting results will likely come from the unpredicted observations enabled by HAWC's unbiased survey of the entire Northern Hemisphere sky.

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