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GeV-TeV Gamma-Ray Study at the Fermi Cocoon Region with HAWC and Fermi-LAT data BINITA HONA, PETRA HUENTEMEYER, ANDREW ROBARE, HENRIKE FLEISCHHACK, MICHIGAN TECHNOLOGICAL UNIVERSITY, HAWC COLLABORATION — The Cygnus region hosts multiple gamma-ray source types such as pulsar wind nebulae, supernova remnants, binary systems and star clusters. For instance, Fermi-LAT found gamma-ray emission at GeV energies due to a cocoo of freshly accelerated cosmic rays, which is co-located with a known PWN seen by Hegra, VERITAS and other TeV gamma-ray observatories. The High Altitude Water Cherenkov (HAWC) Observatory has been collecting data from the direction of this region continuously since 2014. One of the sources reported in the 2HWC catalog, 2HWC J2031+415 overlaps with the TeV PWN as well as the cocoon region reported by Fermi-LAT. The study of HAWC data will provide more information regarding the morphology, emission origin, and the correlation with the GeV emission. This presentation will discuss results obtained from data collected with the HAWC Observatory and other instruments and multi-wavelength comparison to provide a deeper understanding of the 2HWC J2031+415 region across five decades of energy.

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