

VERITAS AGN Highlights: Executive Summary



- VERITAS is running well & plans to operate until Summer 2025: ~7000 h of AGN data
 - 2019-21 difficult (COVID): VERITAS can now operate remotely @ full-scale; Recent AGN yields 25% low
 - VERITAS source catalog is now at 64 sources from 8 classes: 40 are AGN
- Major effort: Monitoring select Northern VHE AGN & intense flare follow up; Highlights:
 - B2 1811+31: New IBL; 8σ in 5 h in Fall '20; 6% Crab (>250 GeV); Soft ($\Gamma \sim 4.1$); SED shifts to higher flux & freq.
 - H 1426+428: 3.3% Crab flare (>250 GeV) in '21; Hard spectrum ($\Gamma \sim 2.6$); Steady flux in contrast to Swift
 - 3C 264: Enhanced flux (0.7% Crab (>315 GeV)) in '18; No clear activity in resolved spatial source; SED unusual
 - Mrk 421: >27 Crab flare in Feb. '10; ~ 20 min timescales; VHE correlation w/ optical + lag; 1-zone SSC challenged
- Deep, multi-year VERITAS exposure for every known VHE blazar \Rightarrow Catalog (5,300 h)
 - 50% have >50 h & 75% have greater than 25 h; All with MWL coverage;
 - Combined LAT + VHE spectra cover ~ 5 orders of magnitude in energy: See cutoff in brightest four
- Other Major efforts: VHE Luminosity Function of HBLs ($\sim 2,000$ h) & FSRQ survey (12)
- Multi-messenger physics a major program: TXS 0506+056 flux lower in '18-21 than '17