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The TeV HBL blazar 1ES 1011+496 in Gamma-, X-, Optical flaring activity

ATel #7267; **Luigi Pacciani (IAPS-INAF Italy), Antonio Stamerra (INAF-Italy & SNS Pisa Italy)**

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We detected a gamma-ray flare from the TeV HBL blazar 1ES 1011+496 ($z=0.212$), triggering on FERMI-LAT data at $E > 10$ GeV with $TS \sim 50$, from 2015-03-12 to 2015-03-16, following the prescription of Pacciani et al. 2014, ApJ, 790, 45. The gamma-ray flux was $(3.0 \pm 0.9) \times 10^{-8}$ ph cm $^{-2}$ s $^{-1}$, photon index 1.32 ± 0.25 , $TS \sim 94$ ($E > 1$ GeV), to be compared with the catalog flux of $(0.73 \pm 0.02) \times 10^{-8}$ ph cm $^{-2}$ s $^{-1}$ reported in the 3rd Fermi-LAT point-source catalog. The Swift Follow-up revealed the source in high state in optical and X-ray. The preliminary Swift-UVOT photometry on 2015-03-17 is: $V = 15.69 \pm 0.05$ $B = 16.01 \pm 0.03$ $U = 15.02 \pm 0.03$ $UVW1 = 14.89 \pm 0.03$ $UVM2 = 14.69 \pm 0.02$ $UVW2 = 14.79 \pm 0.02$ which is 5-15% brighter than the peak flux on 2014. Magnitudes are in the UVOT photometric system (Poole et al. 2008, MNRAS, 383, 627) and have not been corrected for Galactic extinction. The simultaneous Swift-XRT observation gives a counting rate of 4.2 cps (to be compared with 5.1 cps of the brightest state on 2014-02-25, Swift obsid 00035012033 <http://www.swift.psu.edu/monitoring/source.php?source=1ES1011+496> , and ATel 5866 <http://www.astronomerstelegam.org/?read=5866>) and a flux of $(1.02 \pm 0.07) \times 10^{-10}$ erg cm $^{-2}$ s $^{-1}$ (0.3-10 keV). We fit an absorbed log-parabola model to the data, obtaining $\alpha = 1.65 \pm 0.15$, $\beta = 0.49 \pm 0.12$, $E_{\text{pivot}} = 0.3$ keV, $E_{\text{peak}} \sim 0.7$ keV, n_H fixed at the galactic value of 8.4×10^{19} cm $^{-2}$, $\chi^2/\text{ndof} = 0.97$). We encourage further multi-wavelength observations, particularly TeV observations. We thank the Swift team and Swift Observatory Duty Scientist for rapidly scheduling our observations.