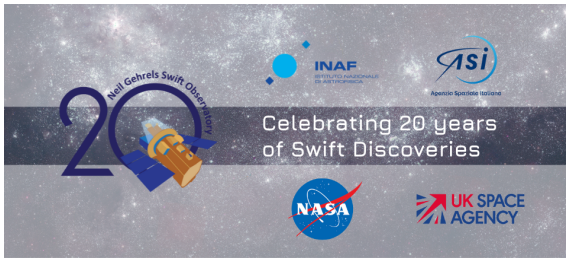


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# Unraveling the Origins of GRB X-ray Plateaus through a Study of X-ray Flares

*Tuesday 25 March 2025 14:29 (1 minute)*

The plateau phase observed in the early X-ray light curve of GRBs (lasting up to thousands of seconds) has been a subject of debate since its discovery by the Neil Gehrels *Swift* Observatory in 2005. First, I will show that the plateau phase can be explained within the classical GRB model by considering a jet Lorentz factor of tens expanding in a wind-type environment. In this model, the end of the plateau marks the beginning of the deceleration phase. Then, I will compare the properties of X-ray flares in bursts both with and without an X-ray plateau. It was found that the distributions of flare properties are similar in each group. Specifically, the peak time of the flares and the ratio of the flare width to the flare peak time which is found to be ~ 1, regardless of the presence of a plateau. I will conclude the talk by discussing these results in view of the different theoretical models explaining the plateau.

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