BATSE observations of classical novae

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Detection of gamma-ray emission from classical novae, in the range between 30 and 511keV, would provide a crucial test of the thermonuclear runaway (TNR) model. This emission results from the annihilation of positrons, emitted by some radioactive nuclei (^{13}N and ^{18}F) synthesized during the TNR; it has a short duration and is produced before the optical maximum. Therefore, it can only be analyzed "a posteriori", once the nova has been discovered optically. The capability to observe all the sky, together with its high sensitivity in the low-energy range, make BATSE an ideal instrument to detect this emission. Data analysis techniques previously applied for BATSE observation of 511keV transients of short duration and occultation observations that have been optimized for this study have been applied. The first results from the systematic search in BATSE background data which is under way will be presented, which include nearby novae that have exploded since CGRO launch. Comparison with recent updated theoretical models is made in each case. Results relative to the recent Nova Velorum 1999 will also be presented. Although no positive detection has been obtained up to now, upper limits to the emitted flux will be presented, together with comments on improvements both on the theory and on the data analysis techniques that we envision from our results.