National Aeronautics and Space Administration

FINAL TECHNICAL REPORT FOR NAG 5-3595

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Title of Research: Monitoring X-Ray Emission from X-Ray Bursters

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Final Technical Report for NAG 5-3595

Monitoring X-Ray Emission from X-Ray Bursters

The scientific goal of this project was to monitor a selected sample of x-ray bursters using data from the All-Sky Monitor (ASM) on the Rossi X-Ray Timing Explorer together with data from the Burst and Transient Source Experiment (BATSE) on the Compton Gamma-Ray Observatory to study the long-term temporal evolution of these sources in the x-ray and hard x-ray bands. The project was closely related to "Long-Term Hard X-Ray Monitoring of X-Ray Bursters", NASA project NAG5-3891, and and "Hard x-ray emission of x-ray bursters", NASA project NAG5-4633, and shares publications in common with both of these.

The project involved preparation of software for use in monitoring and then the actual monitoring itself. These efforts have lead to results directly from the ASM data and also from Target of Opportunity Observations (TOO) made with the Rossi X-Ray Timing Explorer based on detection of transient hard x-ray outbursts with the ASM and BATSE. The following papers have used BATSE data or data obtained with ASM or BATSE TOO triggers.

Publications:

"Correlation between Fast Quasi-Periodic Oscillations and X-Ray Spectral Shape in Atoll Sources", P. Kaaret, W. Yu, E.C. Ford, and S.N. Zhang, Astrophys. J. Letters 497, L93 (1998).

"Discovery of Kilohertz QPOs in the Atoll X-Ray Binary 4U 1705-44", E.C. Ford, M. van der Klis, and P. Kaaret, Astrophys. J. Letters 498, L41 (1998).

"Measurement of Hard Lags and Coherences in the X-Ray Flux of Accreting Neutron

Stars and Comparison with Accreting Black Holes ", E.C. Ford, M. van der Klis, M. Mendez, J. van Paradijs, and P. Kaaret, Astrophys. J. Letters 512, L31 (1999).

"XTE J2123–058: A New Neutron Star X-Ray Transient", J.A. Tomsick, J.P. Halpern, J. Kemp, and P. Kaaret, Astrophys. J. (1999) to appear, accepted March 14th, 1999.