COMPTEL Reloaded: a heritage MeV data project

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The double-Compton telescope COMPTEL flew on the NASA Compton Gamma Ray Observatory (CGRO) satellite from 1991 to 2000, and is still the basis of most of our knowledge of the 1-30 MeV sky. Pending new missions like eAstrogam, for the next decade COMPTEL will still be a major resource for MeV gamma rays. A long-term effort to exploit heritage COMPTEL data is underway at MPE and MPA Garching. The full 9-year COMPTEL mission covered the entire sky. Several new developments are in progress for COMPTEL: the COMPTEL data analysis system was partly ported to Linux, new event processing techniques improve the background rejection, and new energy ranges are defined to avoid background lines. Time-of-flight background rejection has been improved using intra-detector resolution instead of just per detector, and this is combined with pulse-shape discrimination in a 2D analysis. A new source catalogue will be generated with the new event processing. The maximum-entropy skymapping method for COMPTEL has been updated to use current state-of-the-art convolution on the sphere and the HealPix sky projection and the method has been adapted to modern hardware. New skymaps based on these developments are presented.

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