INTEGRAL observations of SGR 1833-0832: The detection of the prompt emission and the non-detection of soft gamma-rays in the post-burst era

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INTEGRAL observed the Scutum region around Galactic longitude L=25 at the time of a burst from a source dubbed SGR 1833-0832 (GCN's #10526,#10530,#10536; ATEL #2493). The source off-axis angle was about 5.7 degrees, just outside the fully coded field of view of the Soft Gamma-Ray Imager ISGRI aboard INTEGRAL. In the detector light curve of ISGRI data for the 20-150 keV band the short duration burst (about 16 ms; GCN #10526) was clearly detected at time 18:35:57.07 TT, March 19, 2010 (=18:34:50.9 UTC, March 19, 2010) and thus coincident with the Swift BAT trigger time. Its significance is about 19 sigma (about 64 counts were collected during a 0.02 s time interval of which 8 counts are expected to be background; see http://www.sron.nl/~kuiper/ATEL/SGR1833-0832 for the ISGRI 20-150 keV detector light curve in 0.01 s time bins).

The sky region near SGR 1833-0832 was again in the INTEGRAL field of view for about 45 ks from March 20, 2010 10:22 till March 21, 2010 00:00 and for about 90 ks from March 21, 2010 10:30 till March 23, 2010 05:39. Imaging analysis of the ISGRI data for the combined data set (136.38 ks of total good time exposure) yielded no detection of SGR 1833-0832 at energies above 20 keV. We obtained a 3 sigma flux upper limit of 2 mCrab in the 20-60 keV band.

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