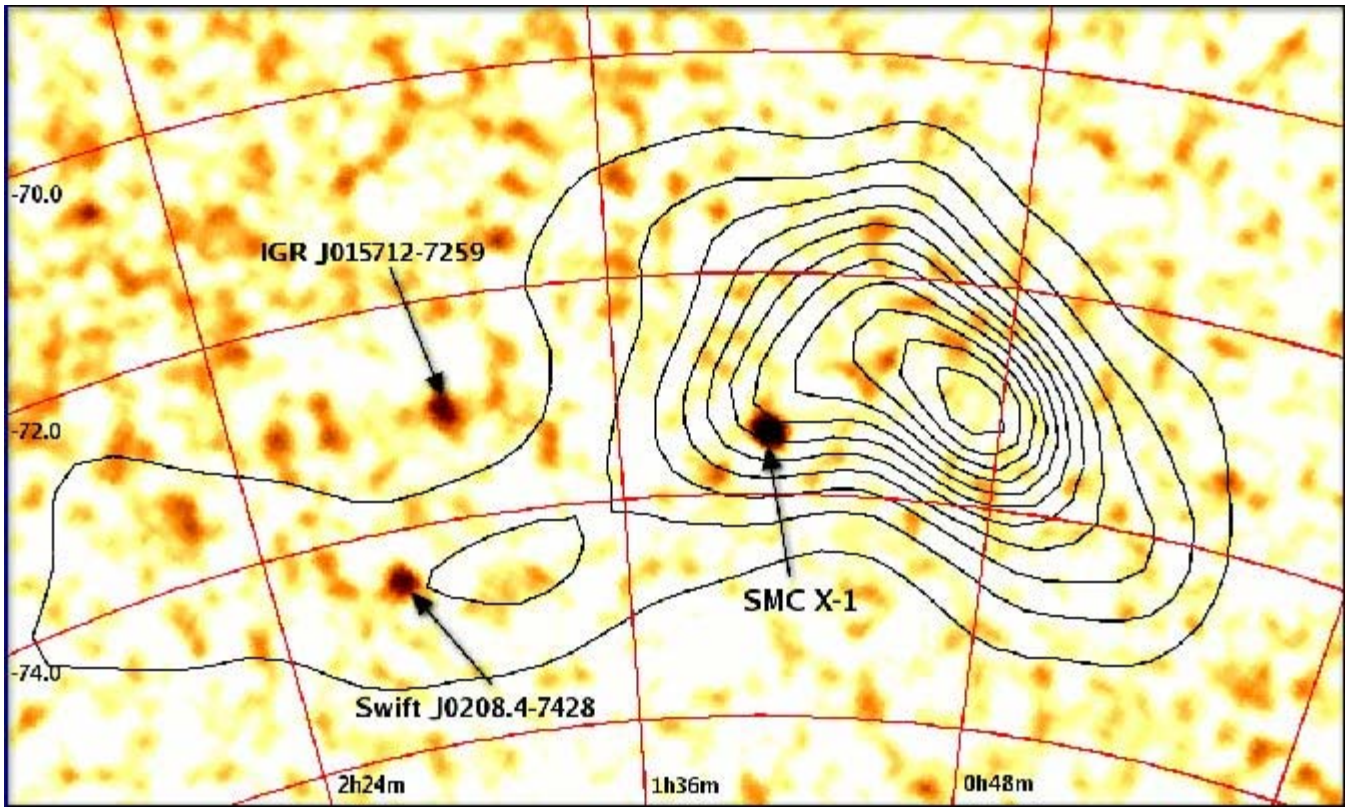
Picture of the Month

February 2010



High energy transients in the Magellanic Bridge

INTEGRAL/IBIS observations of the Small Magellanic Cloud (SMC) and Magellanic Bridge, totalling an exposure of close on 12 days, have brought to light five new transient sources in the Magellanic Bridge. The Bridge is a stream of neutral hydrogen linking the Small and Large Magellanic Clouds, and is thought to have been extracted from the Clouds during gravitational interactions between these two galaxies. Follow-up of two of these sources at optical and soft X-ray wavelengths indicate that they are massive X-ray binaries. These sources, together with one previously known massive X-ray binary, represent an emerging high energy stellar population in the Magellanic Bridge.

The picture above shows a 15-35 keV IBIS map of the SMC and Magellanic Bridge, and the detection of two of the new transient sources (along with SMC X-1, a persistently accreting massive X-ray binary in the SMC). The contours show the underlying structure of neutral hydrogen in this region.

This work presents the first near-uniform survey of the Magellanic Bridge at X-ray wavelengths and shows an emerging population of X-ray binaries, probably formed in-situ, in the Magellanic Bridge. Given the typical X-ray duty cycles of such transients, and the young stellar population of this region,

we may, in fact, be observing just the tip of the iceberg of the high energy population. Understanding the stellar population in this acutely turbulent environment in our Local Group is pivotal to interpreting observations of galaxy mergers in much more distant environments.

Related links:

- The Magellanic Bridge: evidence for a population of X-ray binaries
  McBride, V.A. et al., 2010, MNRAS in press
  http://arxiv.org/abs/0912.2951

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