



Chandra Science Highlight

W3 Main: An Active Star Formation Region

Chandra X-ray Observatory ACIS image.

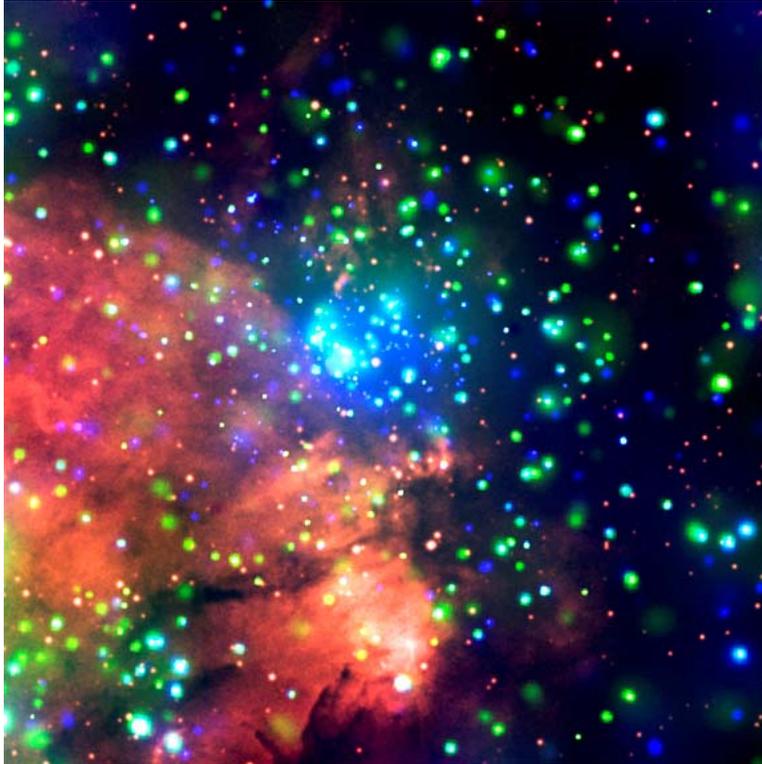


Image is 14 arcmin across.

W3 is part of a vast star formation complex located in the Perseus spiral arm of the Galaxy. In this composite image of W3 Main, one of the many star-forming complexes of W3, green and blue represent lower and higher-energy X-rays, respectively, while red shows optical emission.

- The ability of X-rays to penetrate dust clouds, together with Chandra's resolving power, reduces contamination and confusion in star formation complexes such as W3 Main.
- Hundreds of X-ray sources due to massive young stars have been detected.
- The diffuse blue glow in the central region may be due to colliding stellar winds from a concentration of massive young stars.
- A domino effect wherein the formation of one star cluster, followed in a few million years by numerous supernova explosions, may trigger the collapse of a nearby cloud of dust and gas to form another cluster of stars. The formation of the clump of young stars in the lower left of this image may have triggered the formation of stars in W3 Main.
- Distance to W3: About 6 thousand light years.

Credit: X-ray: NASA/CXC/Penn State/L.Townsley et al.;
Optical: Pal Obs. DSS

REFERENCES: L. Townsley, 2006 astro-ph/0608173;
L. Townsley et al, 2005, astro-ph 0506418

DECEMBER 2006