

Earth's final destiny

August 26 2005



In the constellation of Pisces, some 100 million light-years from Earth, two galaxies are seen to collide - providing an eerie insight into the ultimate fate of our own planet when the Milky Way fatally merges with our neighbouring galaxy of Andromeda.

Image: see below

The image of the intertwined galaxies was captured on the night of 13-14th July 2005 by the Gemini Multi-Object Spectrograph [GMOS] instrument fitted to the 8-metre class Gemini North Observatory, sited

on Mauna Kea, Hawaii.

Prof. Ian Robson, Director of the UK Astronomy Technology Centre which built GMOS in collaboration with other partners said, " This is quite scary. Since GMOS was installed on the telescope back in 2001 it has taken some amazing astronomical images of very faint, distant galaxies and star forming regions, providing a wealth of scientific data, but this one sends shivers down my spine. Our saving grace is that we have about 5 billion years left before we get swallowed up by Andromeda. Nevertheless, it's amazing to see so far in advance how planet Earth and our own galaxy will ultimately end. Glad to say I won't be around when the fireball happens".

The image of the combined galaxies, which are known as NGC 520, may be fairly early in their galactic dance of death and it is likely that the situation has changed dramatically in the time it has taken for their light to reach Earth*.

Prof. Robson added, "Hints of new star formation taking place can be seen in the faint red glowing areas above and beneath the middle of the image. Perhaps even now the galaxies have totally combined to form a whole new galaxy with a brand new set of stars and associated planets - and maybe new life on one of those planets!"

The unique shape of NGC 520 is the result of the two galaxies colliding. One galaxy's dust lane can be seen easily in the foreground and a distant tail is visible at the bottom centre. These features are the result of the gravitational interactions that have robbed both galaxies of their original shapes.

Image caption:

NGC 520 has a unique shape that is the result of two galaxies colliding with each other. One galaxy's dust lane can be seen easily in the

foreground and a distinct tail is visible at bottom centre. These features are a result of the gravitational interactions that have robbed both of the galaxies of their original shapes. Some astronomers speculate that each member of the pair was originally similar to the Milky Way and Andromeda Galaxy. This collision could be providing us a glimpse at what might happen to our own galaxy in about five billion years as the Andromeda Galaxy collides with our Milky Way.

Estimated to lie some 100 million light-years away in the direction of the constellation Pisces, these galaxies have likely changed significantly in the time it has taken for their light to reach us. This view may be fairly early in the galactic dance that these galaxies have been performing. Hints of star formation (faint red glowing areas above and beneath the middle of the image) may have become more pronounced during the course of the collision.

*Many background galaxies also appear in this image. They represent galaxy evolution at an even earlier epoch in the history of the universe. This image of NGC 520 was obtained on the night of July 13-14, 2005 at the Gemini North Telescope on Mauna Kea in Hawaii.
Credit: Gemini Observatory*

Source: PPARC

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