



Cosmic Tidal Wave Wakes Up Sleeping Galaxies

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The nearest star to our Solar System is 40 million, million kilometres away. But despite the vast distances between stars, the Universe is a social place. Planets orbit stars, stars live in galaxies, and galaxies often live in clusters with other galaxies.

Galaxy clusters are like cities, where thousands of galaxies are packed together. This includes a mix of bright young galaxies and "sleeping" galaxies that stopped making new stars long ago.

Over billions of years, galaxy clusters merge with neighbouring clusters, like growing cities absorbing nearby towns. When this happens there is a huge release of energy as the clusters crash together. This colourful space photograph shows the shock wave created by two merging clusters known as the Sausage Cluster.

The shock wave travels through the clusters like a tidal wave. But until now there was no evidence that it affected the galaxies very much.

Astronomers have now found that sleeping galaxies were transformed by these shock waves. It sparked new life into the galaxies by restarting star birth.

It works like a stirring a teaspoon into a cup of chocolate powder and hot milk to make hot chocolate. The galactic material begins moving and eventually leads to thick gas clouds forming. These are the vital ingredients for the birth of new stars.

Unfortunately, the shocks only lead to a brief increase in the number of new stars forming. The cosmic tidal wave leads to the birth of massive stars that live just a short time before exploding as violent supernovae!

▲ COOL FACT!

Every cluster of galaxies near to the Milky Way has experienced a series of mergers during its lifetime.