

Image: Hubble checks out a home for old stars

December 21 2015, by Ashley Morrow



Credit: NASA & ESA, Acknowledgement: Judy Schmidt

This image, taken with the Wide Field Planetary Camera 2 on board the NASA/ESA Hubble Space Telescope, shows the globular cluster Terzan 1. Lying around 20,000 light-years from us in the constellation of Scorpius (The Scorpion), it is one of about 150 globular clusters belonging to our galaxy, the Milky Way.

Typical [globular clusters](#) are collections of around a hundred thousand stars, held together by their [mutual gravitational attraction](#) in a spherical shape a few hundred light-years across. It is thought that every galaxy has a population of globular clusters. Some, like the Milky Way, have a few hundred, while giant elliptical galaxies can have several thousand.

They contain some of the oldest stars in a galaxy, hence the reddish colors of the stars in this image—the bright blue ones are foreground stars, not part of the cluster. The ages of the stars in the globular cluster tell us that they were formed during the early stages of galaxy formation! Studying them can also help us to understand how galaxies formed.

Terzan 1, like many globular clusters, is a source of X-rays. It is likely that these X-rays come from binary star systems that contain a dense neutron star and a normal star. The neutron star drags material from the companion star, causing a burst of X-ray emission. The system then enters a quiescent phase in which the neutron star cools, giving off X-ray emission with different characteristics, before enough material from the companion builds up to trigger another outburst.

Provided by NASA

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