Image: Hubble sees a cluster of red, white, and blue

July 2 2021, by Claire Andreoli

Credit: ESA/Hubble & NASA, J. Kalirai, A. Milone

This image taken with the NASA/ESA Hubble Space Telescope depicts the open star cluster NGC 330, which lies around 180,000 light-years away inside the Small Magellanic Cloud. The cluster—which is in the constellation Tucana (the Toucan)—contains a multitude of stars, many of which are scattered across this striking image.

Because star clusters form from a single primordial cloud of gas and dust, all the stars they contain are roughly the same age. This makes them useful natural laboratories for astronomers to learn how stars form and evolve. This image uses observations from Hubble's Wide Field Camera 3 and incorporates data from two very different astronomical investigations. The first aimed to understand why stars in star clusters appear to evolve differently from stars elsewhere, a peculiarity first observed with Hubble. The second aimed to determine how large stars can be before they become doomed to end their lives in cataclysmic supernova explosions.

Hubble images show us something new about the universe. This image, however, also contains clues about the inner workings of Hubble itself. The crisscross patterns surrounding the stars in this image, known as diffraction spikes, were created when starlight interacted with the four thin vanes supporting Hubble's secondary mirror.

Provided by NASA's Goddard Space Flight Center