

# Hubble spots the Tucana Dwarf in the dark

August 23 2024

---



The Tucana Dwarf galaxy resides about 3 million light-years away, at the far edge of our Local Group of galaxies. Credit: NASA, ESA, C. Gallart (Instituto de Astrofísica de Canarias), A. del Pino Molina (Centro de Estudios de Física del Cosmos de Aragón), and R. van der Marel (Space Telescope Science Institute); Image Processing: Gladys Kober (NASA/Catholic University of America)

A splatter of stars glows faintly at almost 3 million light-years away in this new image from NASA's Hubble Space Telescope. Known as the Tucana Dwarf for lying in the constellation Tucana, this dwarf galaxy contains a loose bundle of aging stars at the far edge of the Local Group, an aggregation of galaxies including our Milky Way, bound together by gravity. The Tucana Dwarf was discovered in 1990 by R.J. Lavery, the same year Hubble launched.

What makes the Tucana Dwarf distinct from other dwarf galaxies comes in two parts: its classification, and its isolation. As a dwarf spheroidal galaxy, it is much smaller and less luminous than most other dwarf galaxies. Dust is sparse and the stellar population skews towards the older range, giving them a dimmer look.

Additionally, the Tucana Dwarf lies about 3.6 million light-years from the Local Group's center of mass, far from the Milky Way and other galaxies. It is only one of two dwarf spheroidal galaxies in the Local Group to be this remote, making astronomers theorize that a close encounter with a larger galactic neighbor called Andromeda slingshotted it into the distance about 11 billion years ago.

Having such pristine properties enables scientists to use the Tucana Dwarf as a cosmic fossil. Dwarf galaxies could be the early ingredients for larger galaxies, and with older [stars](#) residing in such an isolated environment, analyzing them can help trace galaxy formation back to the dawn of time.

For that reason, Hubble reached far across the Local Group using the capabilities of the Advanced Camera for Surveys and Wide Field and Planetary Camera 2 to meet this distant, lonely galaxy. Examining its structure, composition, and star formation history sheds light on the epoch of reionization, when the first stars and [galaxies](#) arose from the dark billions of years ago.

Provided by NASA

Citation: Hubble spots the Tucana Dwarf in the dark (2024, August 23) retrieved 26 August 2024 from <https://phys.org/news/2024-08-hubble-tucana-dwarf-dark.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.