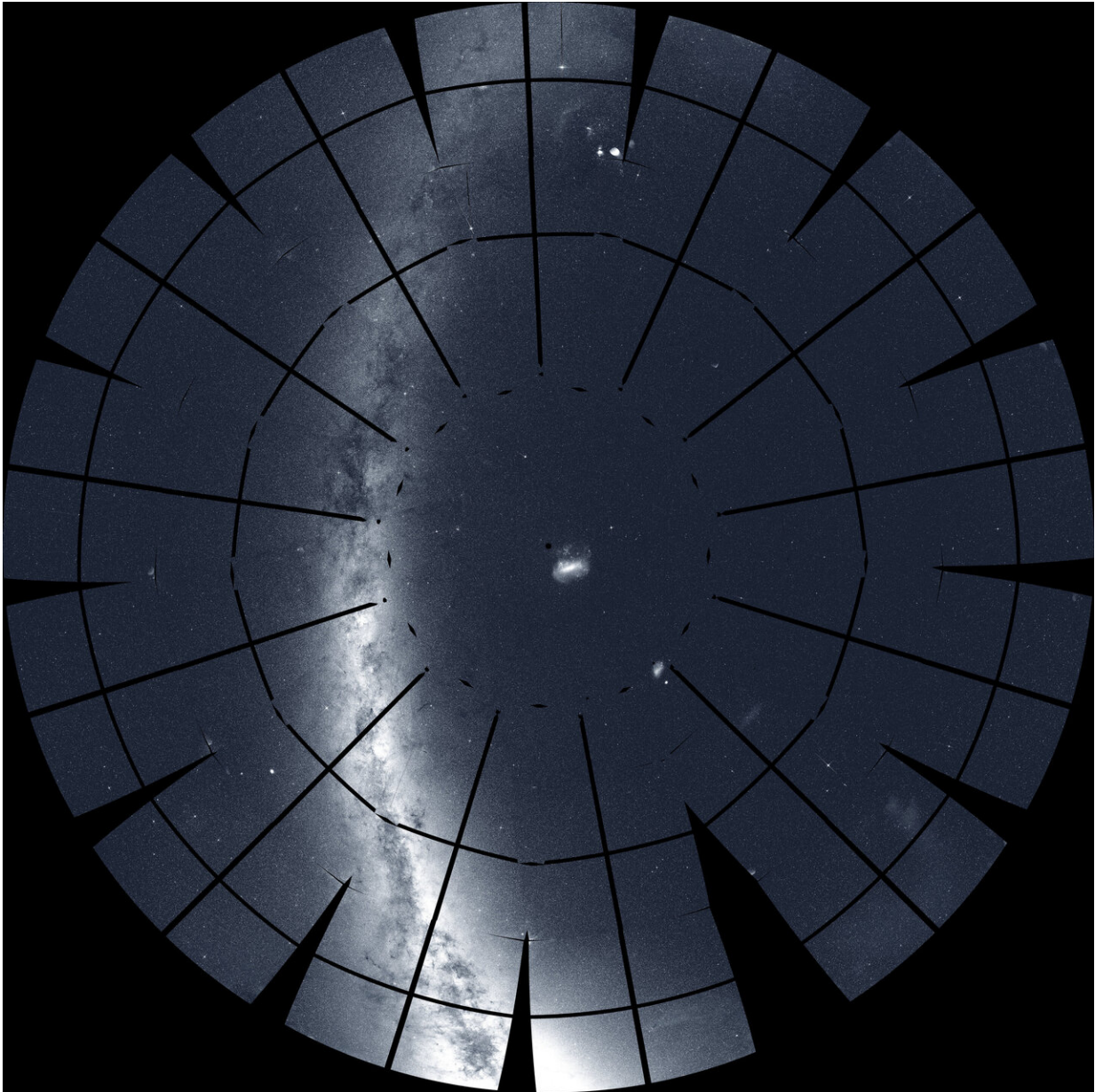


TESS presents panorama of southern sky

November 5 2019, by Francis Reddy



This mosaic of the southern sky was assembled from 208 images taken by

NASA's Transiting Exoplanet Survey Satellite (TESS) during its first year of science operations, completed in July 2019. The mission divided the southern sky into 13 sectors, each of which was imaged for nearly a month by the spacecraft's four cameras. Among the many notable celestial objects visible is the glowing band (left) of the Milky Way, our home galaxy seen edgewise, the Orion Nebula (top), a nursery for newborn stars, and the Large Magellanic Cloud (center), a nearby galaxy located about 163,000 light-years away. The prominent dark lines are gaps between the detectors in TESS's camera system. Credit: NASA/MIT/TESS and Ethan Kruse (USRA)

The glow of the Milky Way—our galaxy seen edgewise—arcs across a sea of stars in a new mosaic of the southern sky produced from a year of observations by NASA's Transiting Exoplanet Survey Satellite (TESS). Constructed from 208 TESS images taken during the mission's first year of science operations, completed on July 18, the southern panorama reveals both the beauty of the cosmic landscape and the reach of TESS's cameras.

"Analysis of TESS data focuses on individual [stars](#) and planets one at a time, but I wanted to step back and highlight everything at once, really emphasizing the spectacular view TESS gives us of the entire sky," said Ethan Kruse, a NASA Postdoctoral Program Fellow who assembled the mosaic at NASA's Goddard Space Flight Center in Greenbelt, Maryland.

Within this scene, TESS has discovered 29 exoplanets, or worlds beyond our solar system, and more than 1,000 candidate planets astronomers are now investigating.

TESS divided the southern sky into 13 sectors and imaged each one of them for nearly a month using four cameras, which carry a total of 16 charge-coupled devices (CCDs). Remarkably, the TESS cameras capture a full sector of the sky every 30 minutes as part of its search for

exoplanet transits. Transits occur when a planet passes in front of its host star from our perspective, briefly and regularly dimming its light. During the satellite's first year of operations, each of its CCDs captured 15,347 30-minute science images. These images are just a part of more than 20 terabytes of southern sky data TESS has returned, comparable to streaming nearly 6,000 high-definition movies.

In addition to its planet discoveries, TESS has imaged a comet in our [solar system](#), followed the progress of numerous stellar explosions called supernovae, and even caught the flare from a star ripped apart by a supermassive black hole. After completing its southern survey, TESS turned north to begin a year-long study of the northern sky.

Provided by NASA's Goddard Space Flight Center

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