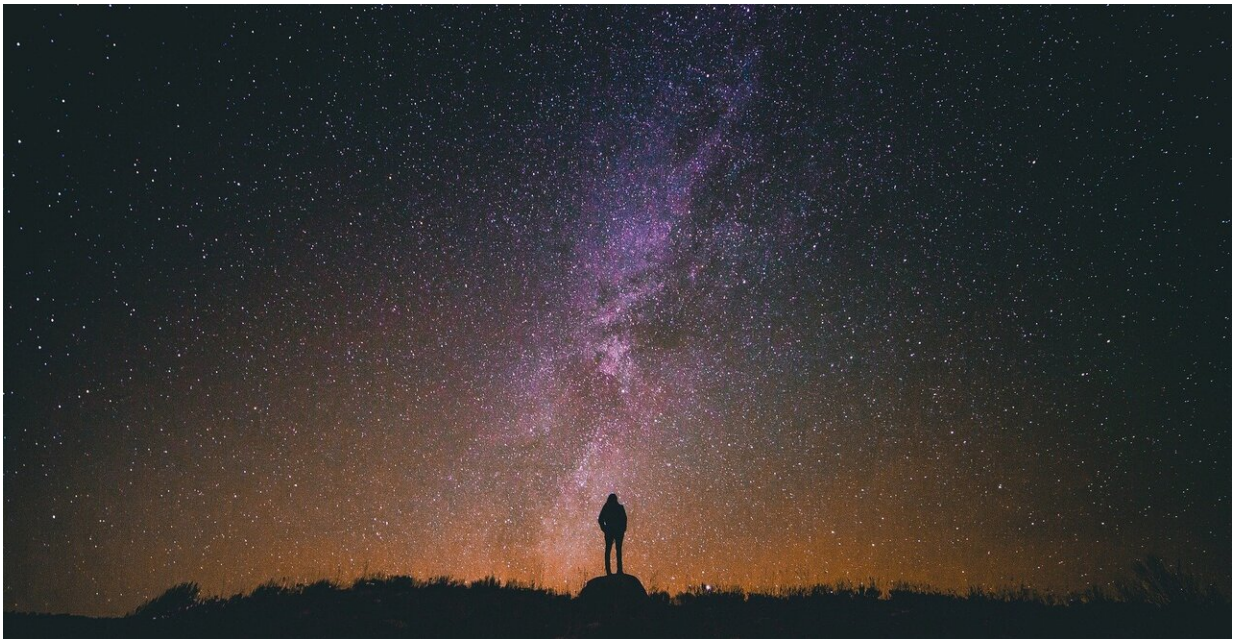


## Video: One billion stars and counting—the sky according to Gaia's second data release

May 25 2020

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Launched in 2013, ESA's Gaia satellite has been scanning the sky to measure the positions, distances and motions of more than one billion stars in our galaxy, the Milky Way. The goal of the mission is to create the most detailed galactic map ever made, in order to investigate the Milky Way's past and future history like never before.

This animation shows the satellite as it scans great circles around the sky.

Eventually, the sky is unfolded to reveal the view of the Milky Way and neighbouring galaxies, based on measurements of nearly 1.7 billion stars from the second Gaia data release. The map shows the total brightness and colour of stars observed by Gaia in each portion of the sky between July 2014 and May 2016.

Brighter regions indicate denser concentrations of especially bright stars, while darker regions correspond to patches of the sky where fewer [bright stars](#) are observed. In the middle of the image, the Galactic centre appears vivid and teeming with stars.

Sprinkled across the image are also many globular and open clusters—groupings of stars held together by their mutual gravity, as well as entire galaxies beyond our own. The two bright objects in the lower right of the image are the Large and Small Magellanic Clouds, two dwarf galaxies orbiting the Milky Way.

The animation ends with a pan over the Galactic plane, the bright horizontal structure that hosts most of the stars in our home Galaxy. Darker regions across the Galactic plane correspond to foreground clouds of interstellar gas and dust, which absorb the light of stars located further away, behind the clouds. Many of these conceal stellar nurseries where new generations of [stars](#) are being born.

The all-sky image from the second Gaia data release, published on 25 April 2018, is available [here](#).

Provided by European Space Agency

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