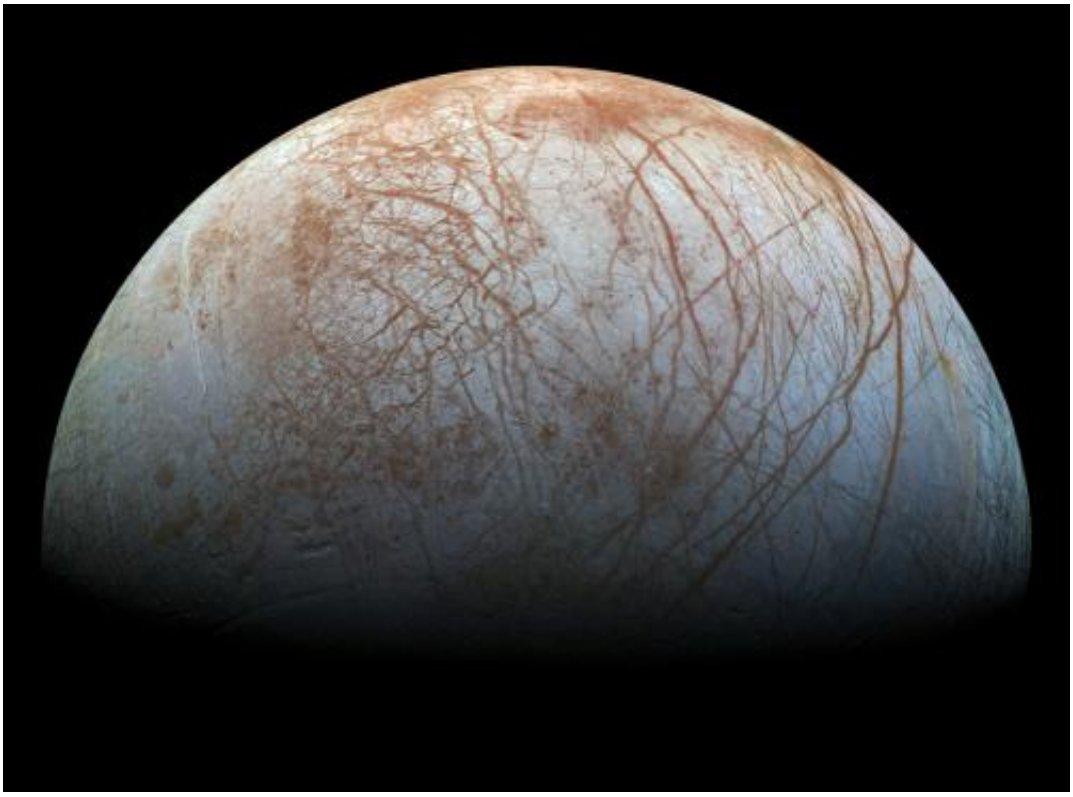
NASA issues 'remastered' view of Jupiter's moon Europa

November 21 2014



The puzzling, fascinating surface of Jupiter's icy moon Europa looms large in this newly-reprocessed color view, made from images taken by NASA's Galileo spacecraft in the late 1990s. This is the color view of Europa from Galileo that shows the largest portion of the moon's surface at the highest resolution. The view was previously released as a mosaic with lower resolution and strongly enhanced color. To create this new version, the images were assembled into a realistic color view of the surface that approximates how Europa would appear to the human eye. The scene shows the stunning diversity of Europa's surface geology. Long, linear cracks and ridges crisscross the surface, interrupted by regions of disrupted terrain where the surface ice crust has been broken up and

re-frozen into new patterns. Color variations across the surface are associated with differences in geologic feature type and location. For example, areas that appear blue or white contain relatively pure water ice, while reddish and brownish areas include non-ice components in higher concentrations. The polar regions, visible at the left and right of this view, are noticeably bluer than the more equatorial latitudes, which look more white. This color variation is thought to be due to differences in ice grain size in the two locations. Images taken through near-infrared, green and violet filters have been combined to produce this view. The images have been corrected for light scattered outside of the image, to provide a color correction that is calibrated by wavelength. Gaps in the images have been filled with simulated color based on the color of nearby surface areas with similar terrain types. This global color view consists of images acquired by the Galileo Solid-State Imaging (SSI) experiment on the spacecraft's first and fourteenth orbits through the Jupiter system, in 1995 and 1998, respectively. Image scale is 2 miles (1.6 kilometers) per pixel. North on Europa is at right. Credit: NASA/JPL-Caltech/SETI Institute

(Phys.org) —Scientists have produced a new version of what is perhaps NASA's best view of Jupiter's ice-covered moon, Europa. The mosaic of color images was obtained in the late 1990s by NASA's Galileo spacecraft. This is the first time that NASA is publishing a version of the scene produced using modern image processing techniques.

This view of Europa stands out as the color view that shows the largest portion of the moon's surface at the highest resolution.

An earlier, lower-resolution version of the view, published in 2001, featured colors that had been strongly enhanced. The new image more closely approximates what the human eye would see. Space imaging enthusiasts have produced their own versions of the view using the publicly available data, but NASA has not previously issued its own rendition using near-natural color.

The image features many long, curving and linear fractures in the moon's bright ice shell. Scientists are eager to learn if the reddish-brown fractures, and other markings spattered across the surface, contain clues about the geological history of Europa and the chemistry of the global ocean that is thought to exist beneath the ice.

In addition to the newly processed image, a new video details why this likely ocean world is a high priority for future exploration.

Hidden beneath Europa's icy surface is perhaps the most promising place in our solar system beyond Earth to look for present-day environments that are suitable for life. The Galileo mission found strong evidence that a subsurface ocean of salty water is in contact with a rocky seafloor. The cycling of material between the ocean and ice shell could potentially provide sources of chemical energy that could sustain simple life forms.

The Galileo mission was managed by NASA's Jet Propulsion Laboratory in Pasadena, California, for the agency's Science Mission Directorate in Washington. JPL is a division of the California Institute of Technology, Pasadena.

Provided by NASA

Citation: NASA issues 'remastered' view of Jupiter's moon Europa (2014, November 21) retrieved 20 April 2024 from https://phys.org/news/2014-11-nasa-issues-remastered-view-jupiter.html

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