

## Mars NIRCam Images

### Extended Description

Graphic titled “Mars: James Webb Space Telescope, NIRCam, September 5, 2022” showing three images of Mars’ eastern hemisphere, with the same scale and different fields of view: a reference map at the left, a small 2.1-micron NIRCam image at the top right, and a larger 4.3-micron NIRCam image at the bottom right.

#### Left: Reference Map

“Simulated image with base maps from NASA and MOLA data” showing the full disc with orange-brown surface coloring (visible reflected light), topography, and latitude and longitude lines for reference. The view is centered along the 80 degrees east longitude line. The north-south axis is oriented 25 degrees clockwise from vertical, consistent with the axial tilt. Shading is consistent with time of day of the observation, with the eastern portion of the disc in evening shadow. Three features are labeled: Syrtis Major, a dark region centered near 10 degrees north, 70 degrees east; Huygens Crater, a set of concentric rings centered near 15 degrees south, 55 degrees east; and Hellas Basin, a large light-colored circular multi-ringed impact crater centered around 30 degrees south, 70 degrees east.

Two square outlines show the fields of view of the images on the right: A large white outline that includes most of the disc to show the field of view of the 4.3-micron image at the bottom right, and a smaller blue outline inside it, covering about one quarter of the disc, to show the field of view of the 2.1-micron image at the top right. A scale bar shows that the field of view of the 2.1-micron image is 2,616 miles (2,410 kilometers) across. This is about half the diameter of the full disc and the 4.3-micron image.

#### Top Right: 2.1-micron NIRCam Image

Sepia-toned map showing the measured brightness of 2.1-micron reflected light. The field of view covers about one quarter of the eastern hemisphere of Mars, centered at about 10 degrees south, 80 degrees east. Below the map is a scale bar to explain the color mapping. Dark brown is least reflective; light orange is most reflective. Brightness differences in the image are similar to those on the reference map: Syrtis Major is very dark; Hellas Basin is very bright; Huygens Crater is bright between the impact rings. The map is outlined in blue to show that it corresponds to the area outlined in blue on the reference image.

#### Bottom Right: 4.3-micron NIRCam Image

Colorful map showing the measured brightness of 4.3-micron emitted light. The field of view covers most of the visible disc of Mars (the eastern hemisphere). Below the map is a blue to yellow scale bar to explain the color mapping: Brightness increases from black (least light emitted) to blue, purple, red, orange, and then yellow (most light emitted). Brightness in this image generally corresponds to the surface lighting on the base map related to season and time of day. The southern hemisphere is brighter (mostly yellow and orange) than the northern hemisphere (purple, blue and black). The western portion of the disc is brighter than the eastern portion.

The brightest region appears as a large yellow region centered on the southwestern side of the disc centered at roughly 10 degrees south, 60 degrees east. A point near the center of this bright region, which is roughly circular, is labeled “Subsolar point.” The edge of this yellow region grades outward with

roughly concentric bands of orange, red, purple, blue, and then black to indicate a decrease in brightness toward the poles and toward the evening (eastern) and morning (western) limbs.

In the south-central portion of the yellow region is a smaller circular patch with darker, orange coloring labeled "Hellas Basin." The patch of orange corresponds to the large basin visible in the base map.

The 4.3-micron map is outlined in white to show that it corresponds to the area outlined in white on the reference image to the left.

### Alt Text

"Mars: James Webb Space Telescope, NIRCam, September 5, 2022" with 3 images of Mars' eastern hemisphere: reference map at left, 2.1-micron NIRCam image at top right, larger 4.3-micron image at bottom right. Reference map of full eastern hemisphere centered at 80 E with eastern portion in shadow. Syrtis Major, Huygens Crater, Hellas Basin labeled. 2 square outlines show fields of view of images on right. Top Right: Sepia-toned map of 2.1-micron light. Scale bar indicates dark brown is least reflective; light orange most reflective. Brightness similar to reference map: Syrtis Major dark; Hellas Basin bright; Huygens Crater bright between rings. Bottom Right: Colorful map of 4.3-micron light over most of eastern hemisphere. Scale bar indicates that brightness increases from black to blue, red, orange, and yellow. Brightness corresponds to season and time of day with brightest region labeled Subsolar point. Exception is darker (orange) Hellas Basin within brighter (yellow) subsolar region.