Updated Ganymede Mosaic from Juno Perijove 34 Images

Elke Kersten (1), Anatoly E. Zubarev (2), Irina Nadezhdina (2), Thomas Roatsch (1), and Klaus-Dieter Matz (1)
(1) Institute of Planetary Research, German Aerospace Center, Germany (elke.kersten@dlr.de), (2) Moscow State University of Geodesy and Cartography (MIIGAiK), Moscow, Russia

1. Introduction

In preparation of the JUICE mission with the primary target Ganymede [1] we generated a new controlled version of the global Ganymede image mosaic from Voyager 1 and 2 and Galileo images [2] based on a new 3D control point network from Zubarev et al., 2016 [3]. In 2021, the Juno mission acquired new Ganymede images with its onboard wide-angle camera JunoCam [4]. We used the best available images from Perijove 34 to integrate them into the global Ganymede mosaic.

2. Image data

On June 7th, 2021, near the end of Juno's prime mission, the spacecraft flew by Ganymede to obtain four close-ups of the leading side of the moon from an altitude of about 1046 km. The derived image data has been integrated into the control point network of Ganymede to find a global solution for all three datasets. The new control point network consists of 4968 points.

3. Mosaicking

After aligning the Juno images photogrammetrically to fit onto the global Ganymede mosaic from Voyager and Galileo images brightness and contrast corrections have been applied to the Juno images manually to create a consistent look within the global mosaic. The small crater Anat is defining the longitude system at 232° East and the radius is set to 2631.2 km. The updated version of the global Ganymede mosaic will become available at https://janus.dlr.de/ and will be archived at PSA's GSF.

4. Outlook

With this work we hope to support the JUICE team during pre-arrival investigations and the observation planning of Ganymede.

References

[1] Grasset et al., 2013, Planetary and Space Science, 78, 1-21, DOI: 10.1016/S0032063312003777. [2] Kersten et al., 2021, Planetary and Space Science 206, DOI: 10.1016/j.pss.2021.105310. [3] Zubarev et al., 2016, Solar System Research, 50, 5, 352-360, DOI: 10.1134/S0038094616050087. [4] Hansen et al., 2017, Space Science Reviews, 213, pages 475-506.