

## **JunoCam images at PJ62**

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Perijove-62 was on 2024 June 13, preceded by medium-range imaging of Io. Jupiter was not in JunoCam's field of view until the last hour before north pole crossing, so only a small sector of the northern hemisphere was recorded -- albeit at high resolution. This was the same sector covered at PJ61, as the perijove longitudes differed by only 7°. An image of the north polar cyclones was successfully recorded, and after perijove (at 52.2°N, on the dark side), and equator crossing (at L3=163), there was a typical lo-res outbound sequence.

### **Io**

Four hours before perijove, Juno passed 30,926 km from Io and took a series of images (e.g. [Figure 1](#)). They showed the same views as at PJ60, but from twice the distance and therefore at half the resolution. Three of the four PJ60 plumes were seen again (Prometheus, Seth, and Mixcoatl), and the giant red ring around Nusku was unchanged. There were no obvious surface changes.

### **Jupiter's North Polar Region**

Image 129 was a good image of the highest latitudes, clearly showing 5 of the 8 circumpolar cyclones (CPCs) plus half of the central North Polar Cyclone. Gerald's map of it is labelled in [Figure 2](#). Some CPCs still have individual characteristics seen at previous perijoves: CPC-7 displaced southward, CPC-8 extremely chaotic (can it survive?), and CPC-1 very eccentric relative to its 'central' *anti*-cyclone. (See the series of perijove maps in our PJ58 report, continued in [Figure 3](#).)

Associated AWOs are also of interest (labelled by red arrows in [Figure 3](#)). One has been near-stationary on the S edge of CPC-1 ever since PJ52, and continually growing larger. Another AWO is now seen on the N edge of CPC-1; this may be one that had long resided N of CPC-7, but then merged with another AWO between PJ57 and PJ58, and has now drifted round to its new position, although there has not been sufficient coverage to confirm this possible history. There is now only a very small anticyclonic vortex N of CPC-7.

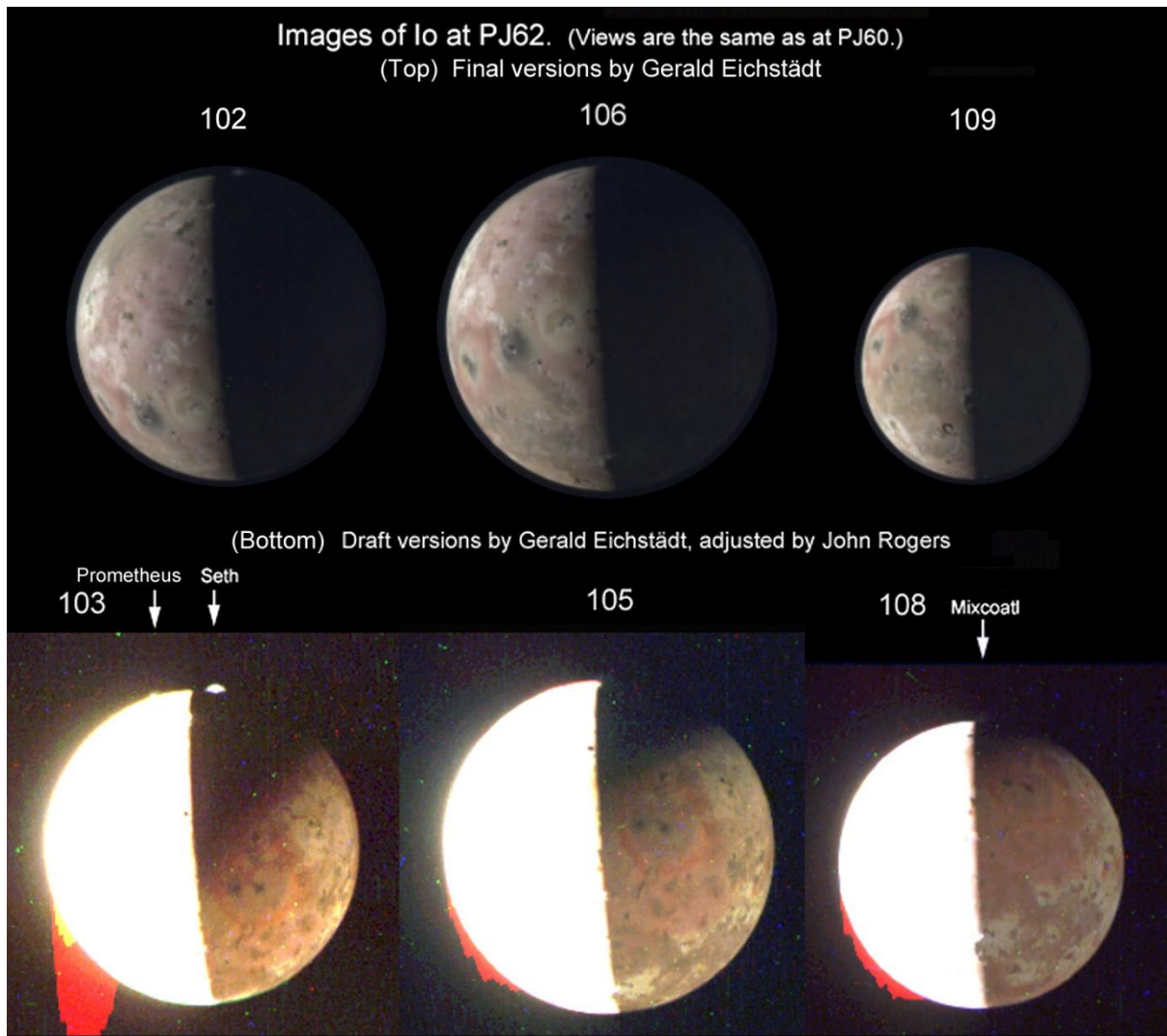
A wider map of the north polar region is in [Figure 4](#).

### **Jupiter: Global mapping**

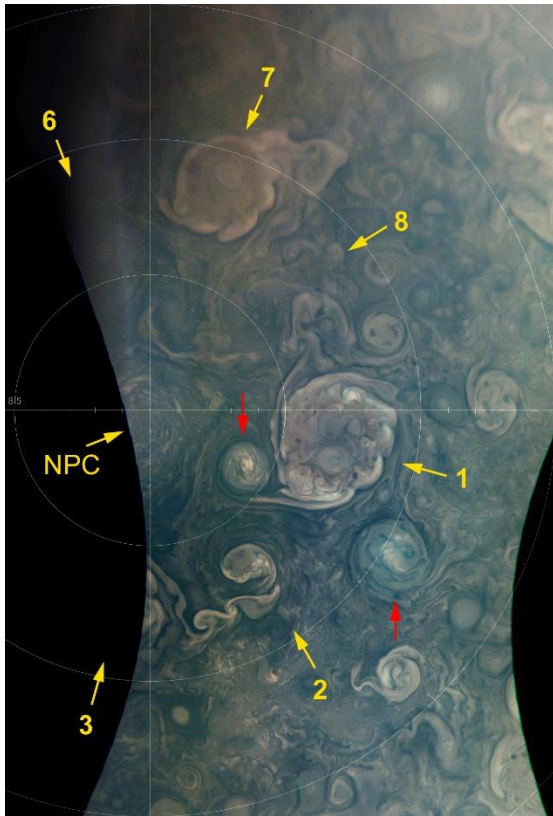
Jupiter was still very low down in the morning sky for Earth-based observers (Clyde Foster just achieved the first, near-IR, images in the days around PJ62), so JunoCam's colour map ([Figure 5](#)) is the only one available at the time. It only includes a small sector of the northern hemisphere, plus the southern hemisphere at sufficient resolution to identify the main features. The south polar projection map is in [Figure 6](#).

### **Figures (small copies, on following pages):**

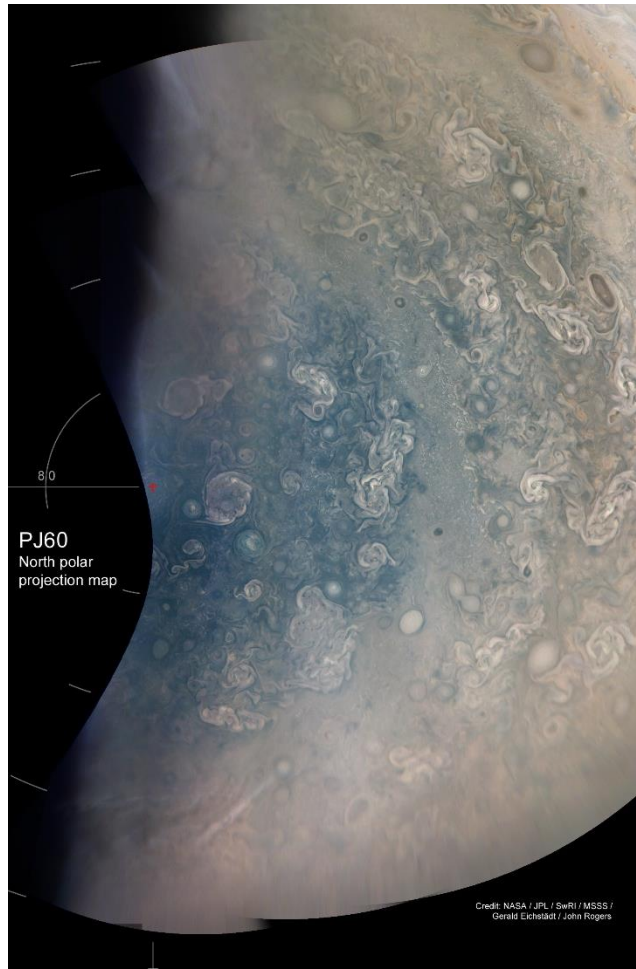
All figures use images & maps generated by the NASA JunoCam team & Gerald Eichstädt.



**Figure 1.** Some of JunoCam's images of Io at PJ62. The south pole is in the upper part. *Top row:* Standard exposures showing the daylit side (with background cropped at 100 km above the limb). *Bottom row:* Long exposures, from Gerald's draft assemblies of the raw images, further brightened to enhance the jove-lit dark side and the plumes on the limb (labelled). [The Prometheus plume was misidentified as Volund in an earlier version of this report.]

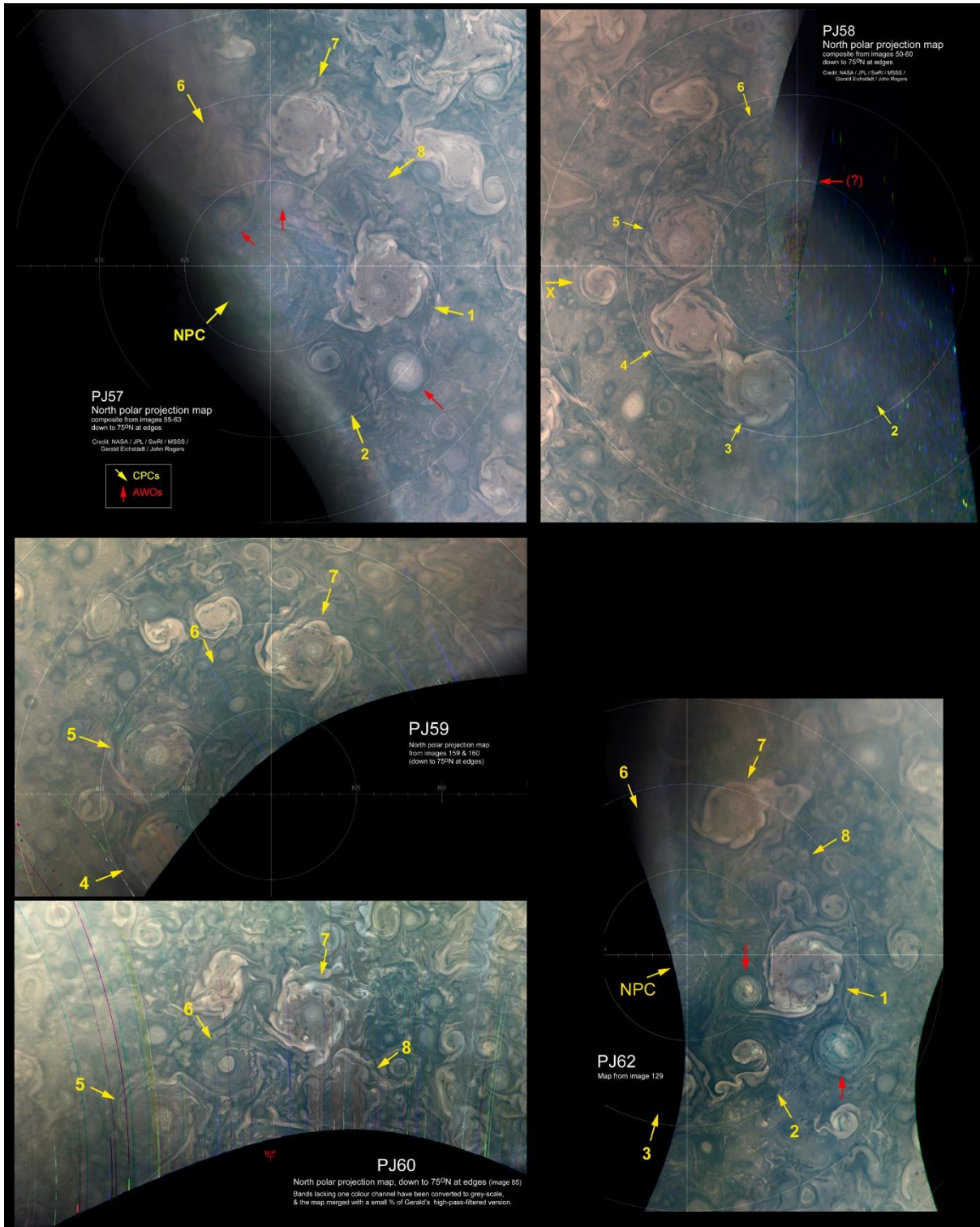


**Figure 2.** North polar projection map, down to 75°N at the edges, from image 129. Arrows indicate the CPCs (yellow) and AWOs (red).

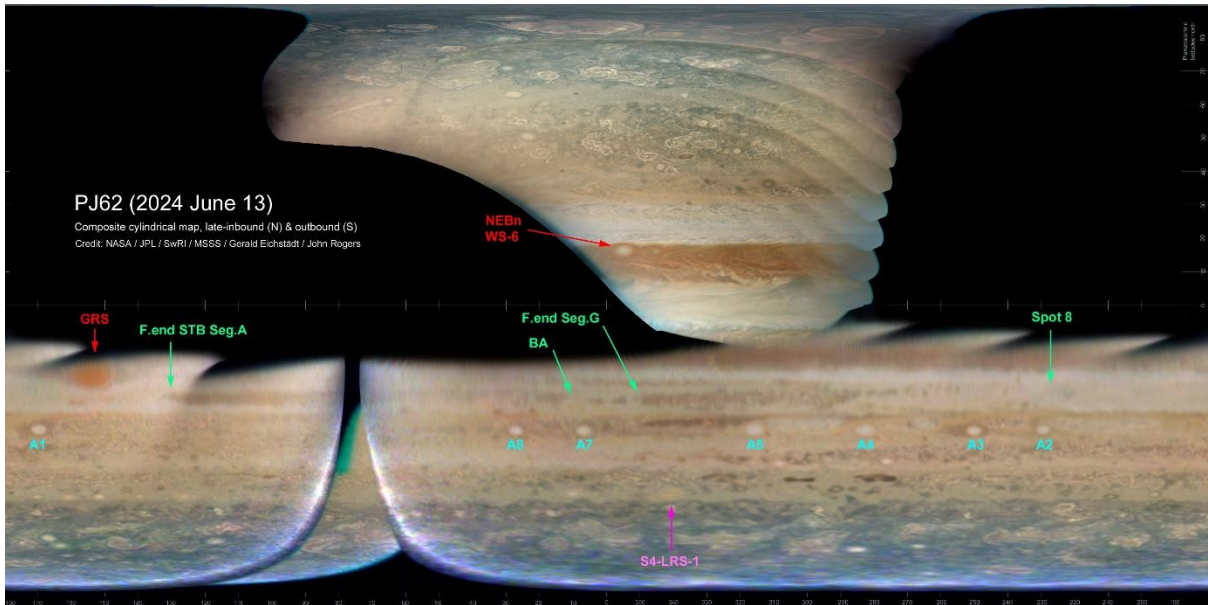


**Figure 3** [on next page]

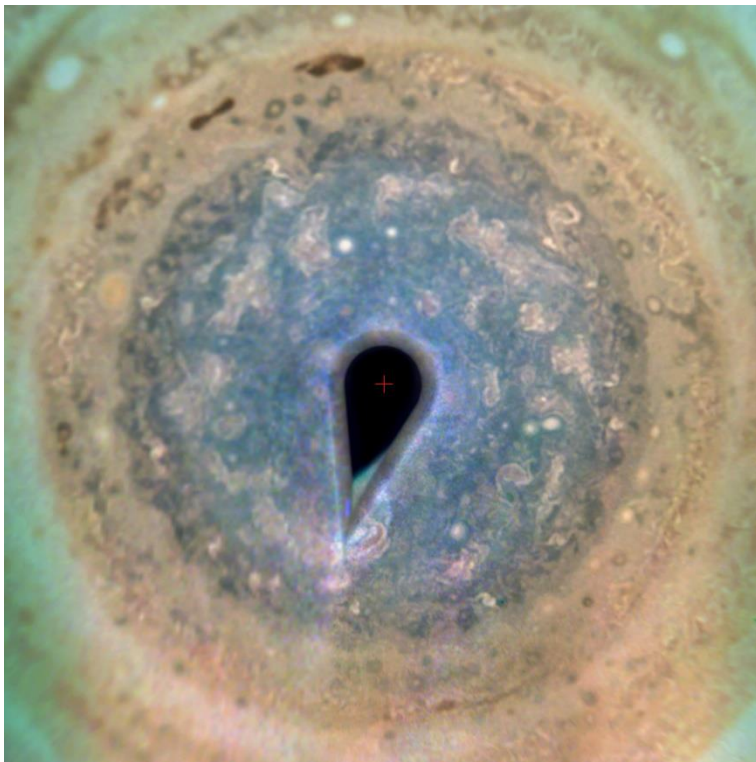
**Figure 4** [above right]. North polar projection map, down to 45°N at the edges, compiled from maps made by Gerald. We note an unusually large AWO in the Bland Zone (N6 domain), at L3=28, 63°N. If this is the same one that was recorded at PJ61 (L3=74), it has prograded by 46° in 32.7 days (DL3 = -42 deg/30d), which is typical for this domain (see our 2022/23 Report no.6).



**Figure 3.** Comparison of north polar projection maps of the CPCs from PJ57 to PJ62.



**Figure 5.** Composite cylindrical global map, combining maps generated from late inbound images (north) and outbound images (south).



**Figure 6.** South polar projection map, down to 45°S at the edges. As usual, blue-green colour at the corners is due to use of long-exposure images to give best detail in the polar region.