

Jupiter in 2019: Report no.9

John Rogers (2020 Jan.)

Figures (miniature copies)

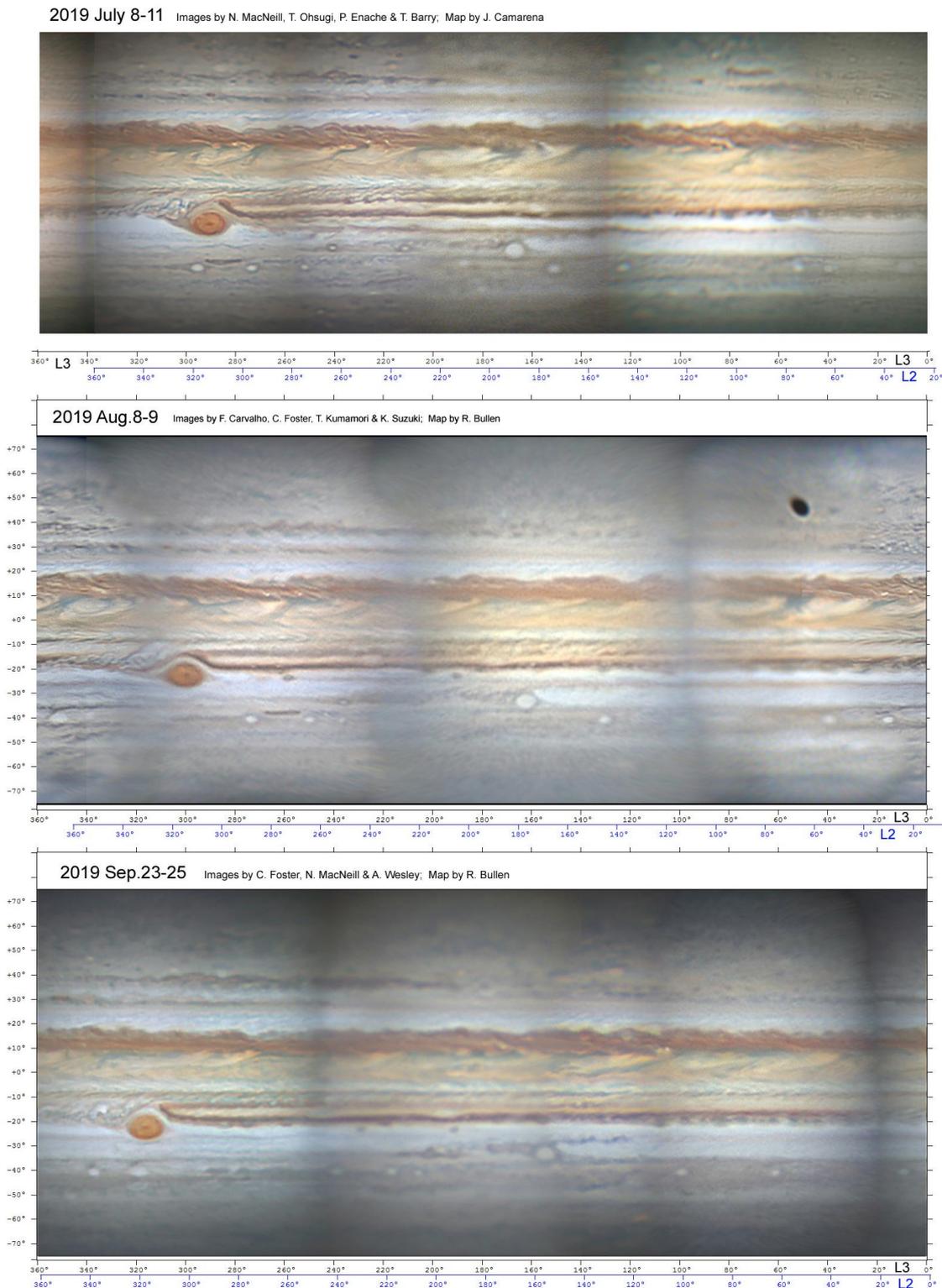


Figure 2. Three global maps: 2019 July 8-11, Aug.8-9, Sep.23-25. For labelling of features, see the sets of regional maps in subsequent figures.

Jupiter's belts & zones, 2018-2019

All maps by Marco Vedovato (JUPOS team) unless otherwise stated.
 Compilation by John Rogers. North up.
 Intensities and colour balance have been adjusted in some maps to reduce artefactual variations between maps.

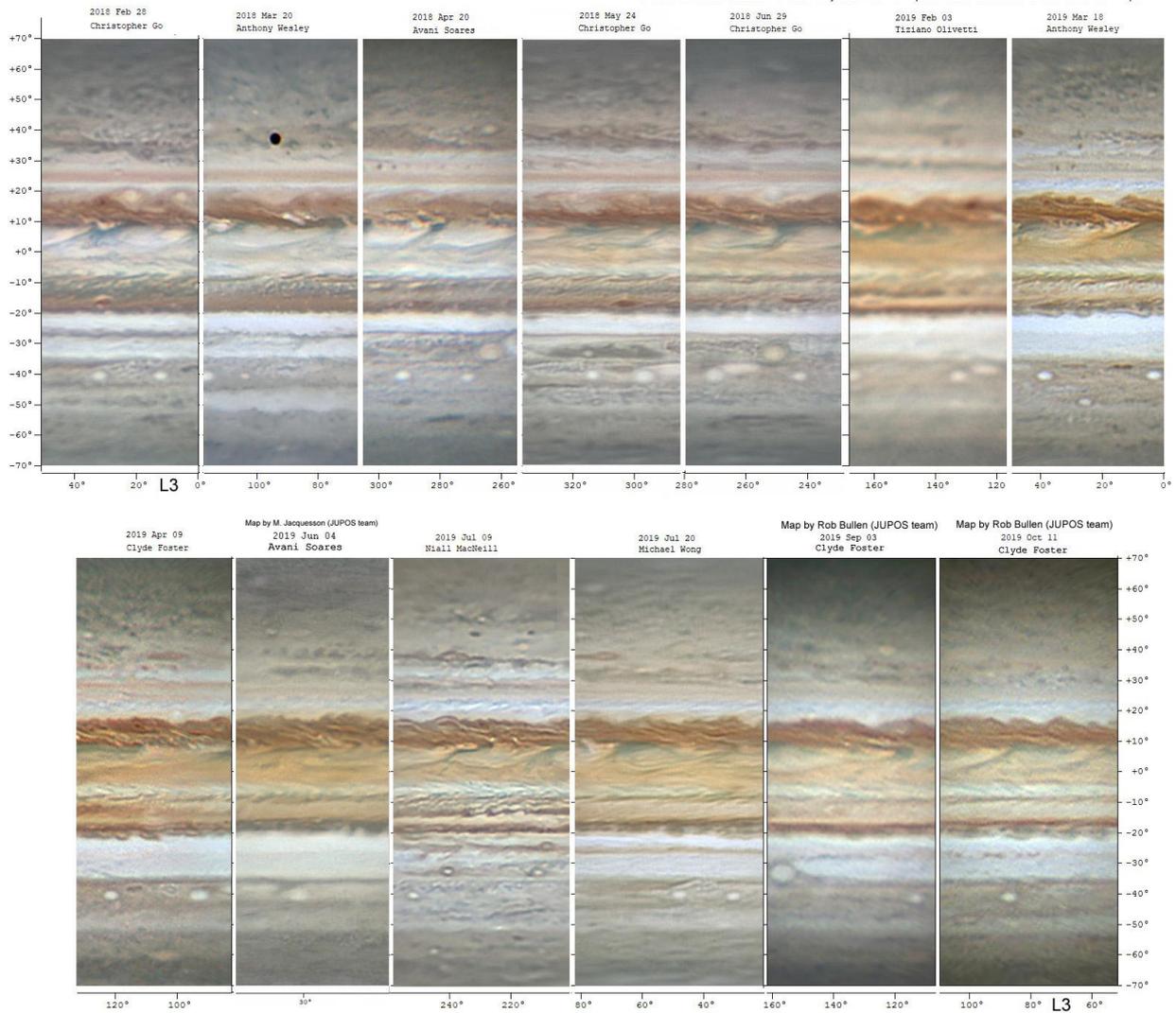


Figure 3. Sectors of maps are aligned to show circumglobal changes from early 2018 to late 2019.

[on next page]:

Figure 4. Zonal wind profile made by Marco Vedovato from Hubble OPAL images on June 26-27. The images were obtained by the OPAL project (Credit: NASA, ESA, STScI, Amy Simon & Mike Wong & Glenn Orton. Christopher Go assisted with image processing.). Link and reference for Vedovato's ZWP and maps: http://pianeti.uai.it/index.php/Jupiter:_ZWP_and_maps_from_HST_2019_June_26-27

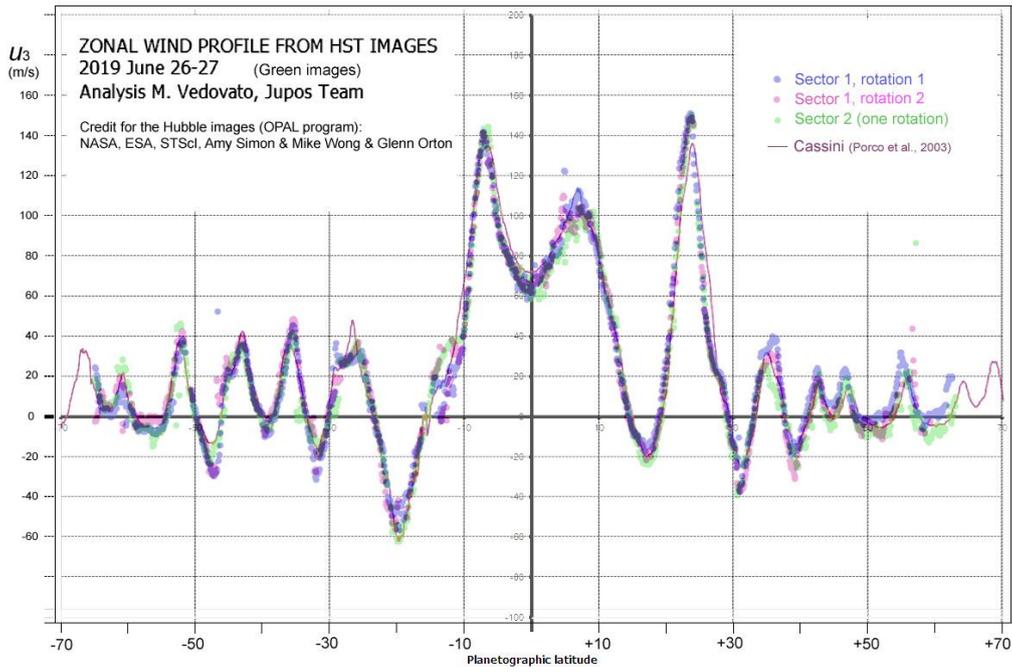


Figure 4

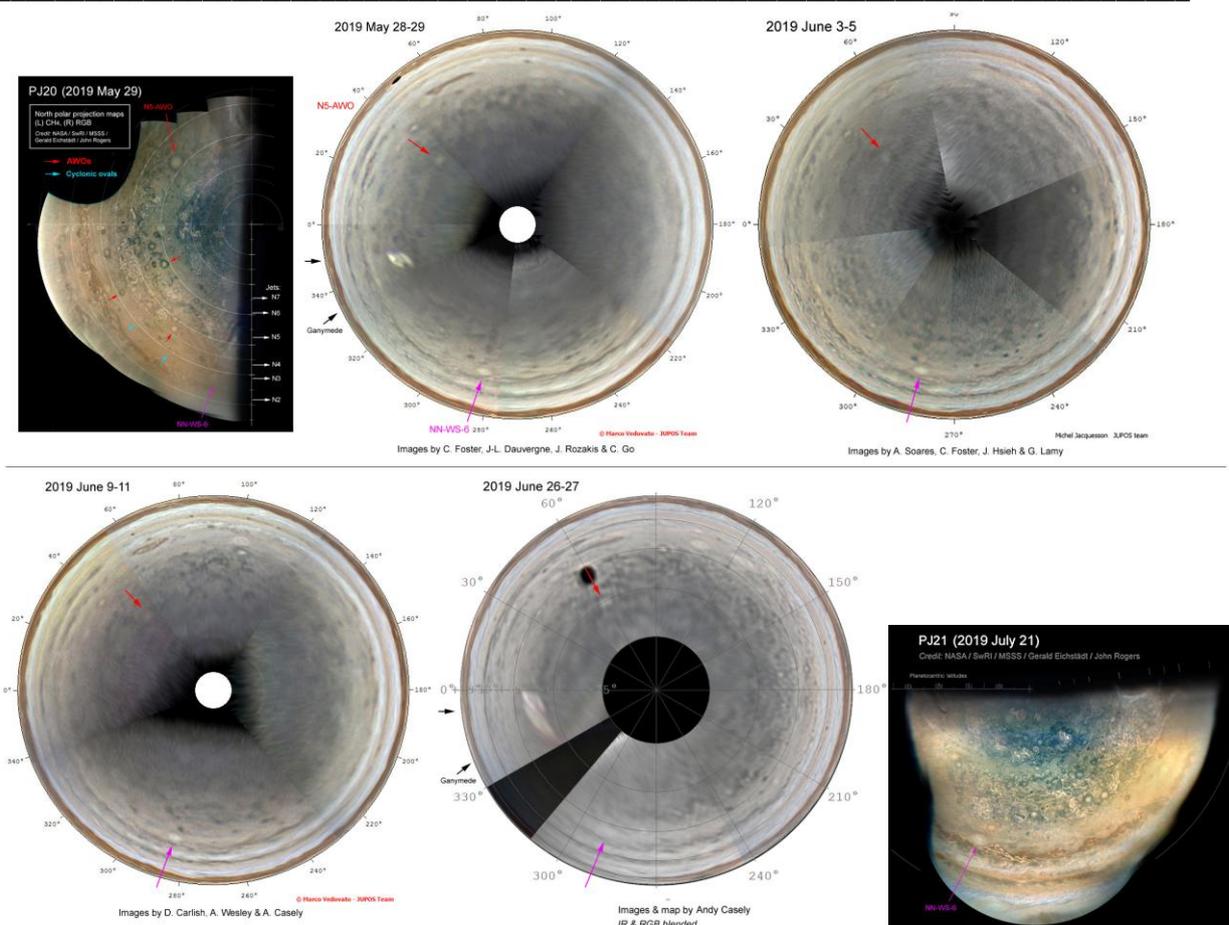


Figure 5. North polar projection maps from JunoCam at PJ20 (May 29) and PJ21 (July 21) and from amateur images in the intervening period. All are plotted in L3 with L3=0 to the left. The JunoCam maps were posted in my reports on PJ20 and PJ21; their latitudes are planetocentric. The JunoCam and amateur maps are on different projections. Ganymede happened to be in transit on two of the contributing images, 4 weeks apart, and appears in distorted form on the maps.

Maps of the N2 and N1 (N.N. and N. Temperate) domains, 2019 April-September
 North up, aligned in L3. Planetographic latitudes.

Annotations by J. Rogers (BAA)

Green arrow: F. end NTD. Green line: NTB rifted sector. Brown arrow: Reddish barge in NTB.

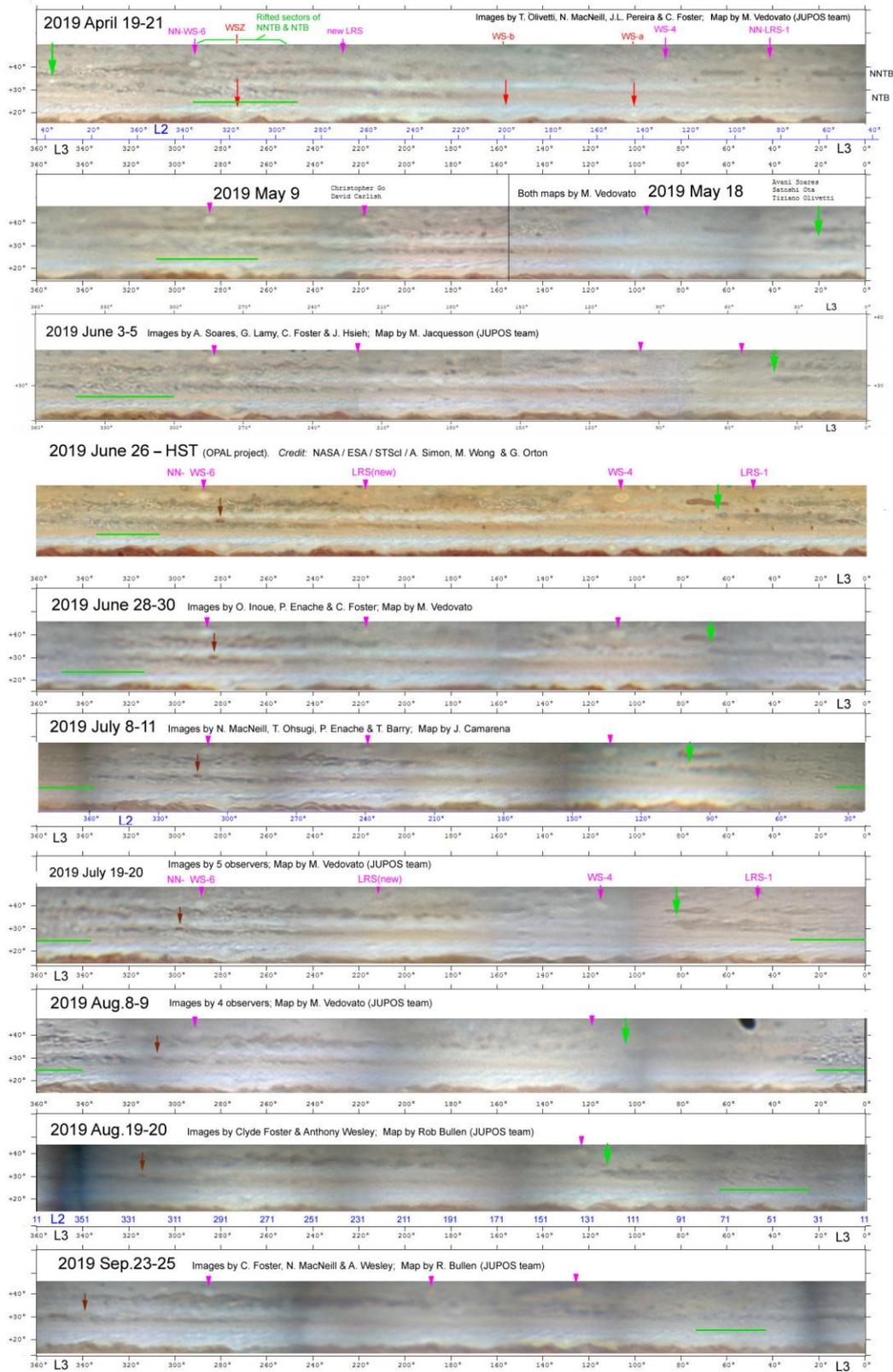


Figure 6. Set of maps of the N2 and N1 domains from 2019 April to Sep. Maps are aligned in L3, with north up. (Also see the labelled JUPOS charts, with maps aligned in L2 and south up.)

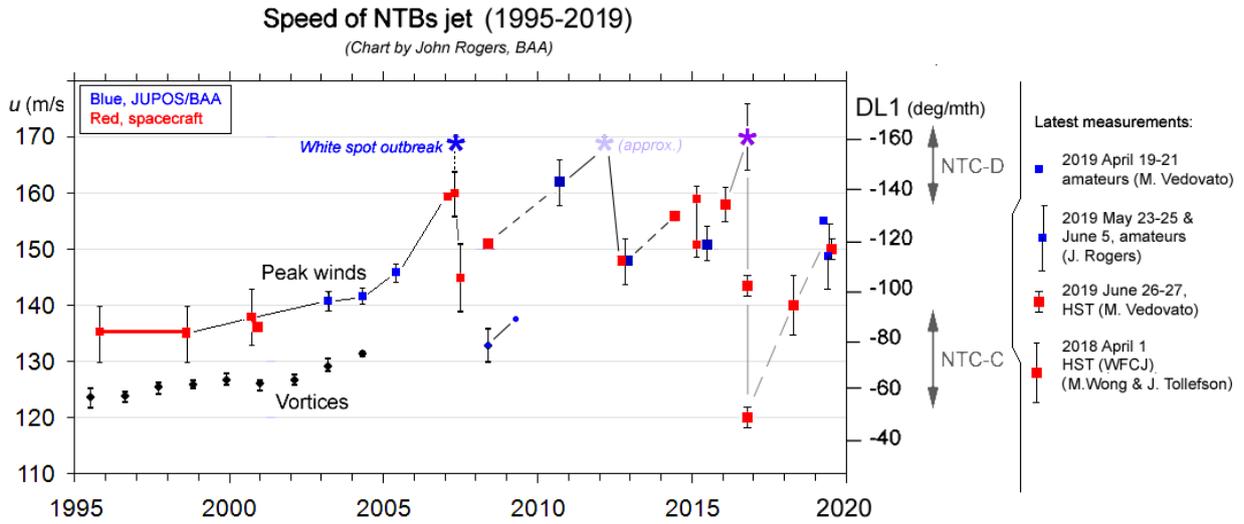


Figure 7. Chart of NTBs jet speed from 1995 to 2019, extended from versions in previous reports. The panel at right gives the sources of the last 4 values, including the mean of measurements given in this report. Note that after each super-fast (NTC-D) white spot outbreak, the speed falls back close to the NTC-C range, then accelerates again irregularly over subsequent years, leading up to the next NTC-D white spot outbreak.

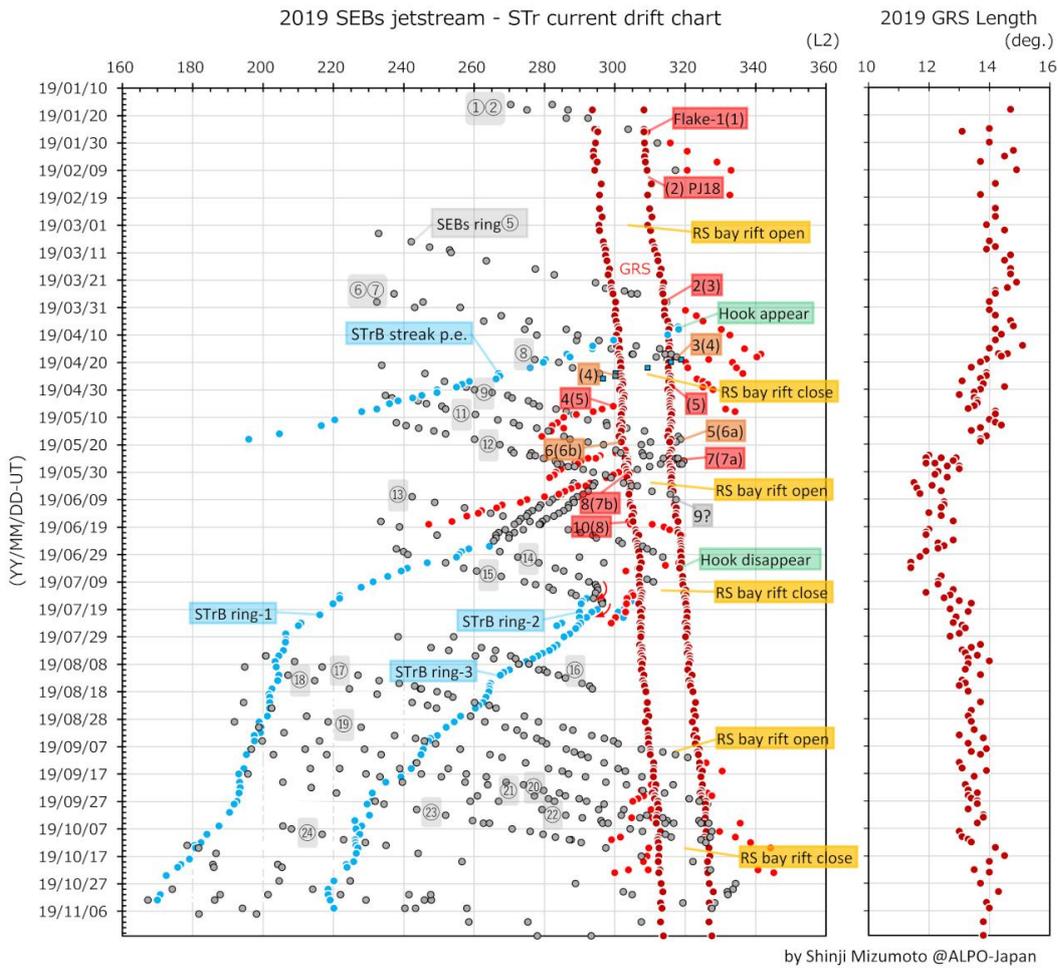


Figure 8 [caption on next page]

Figure 8. Charts of the GRS and vicinity in 2019, by Shinji Mizumoto (ALPO-Japan). (JUPOS charts agree well with these charts but do not include the ‘flakes’.)
(A) Chart of longitude (L2) vs time (yy/mm/dd) for spots interacting with the GRS, whose p. and f. ends are shown. The chart is oriented to align with maps with south up, opposite to the maps in this report. Grey: Retrograding SEBs jet spots (rings). Red: Flakes emerging from the GRS. Blue: Prograding rings that formed on the S.Tropical Band. All of these are numbered. ‘RS bay rift’ is the intermittent white rift in SEB(N) due N of the GRS.
(B) Length of the GRS.

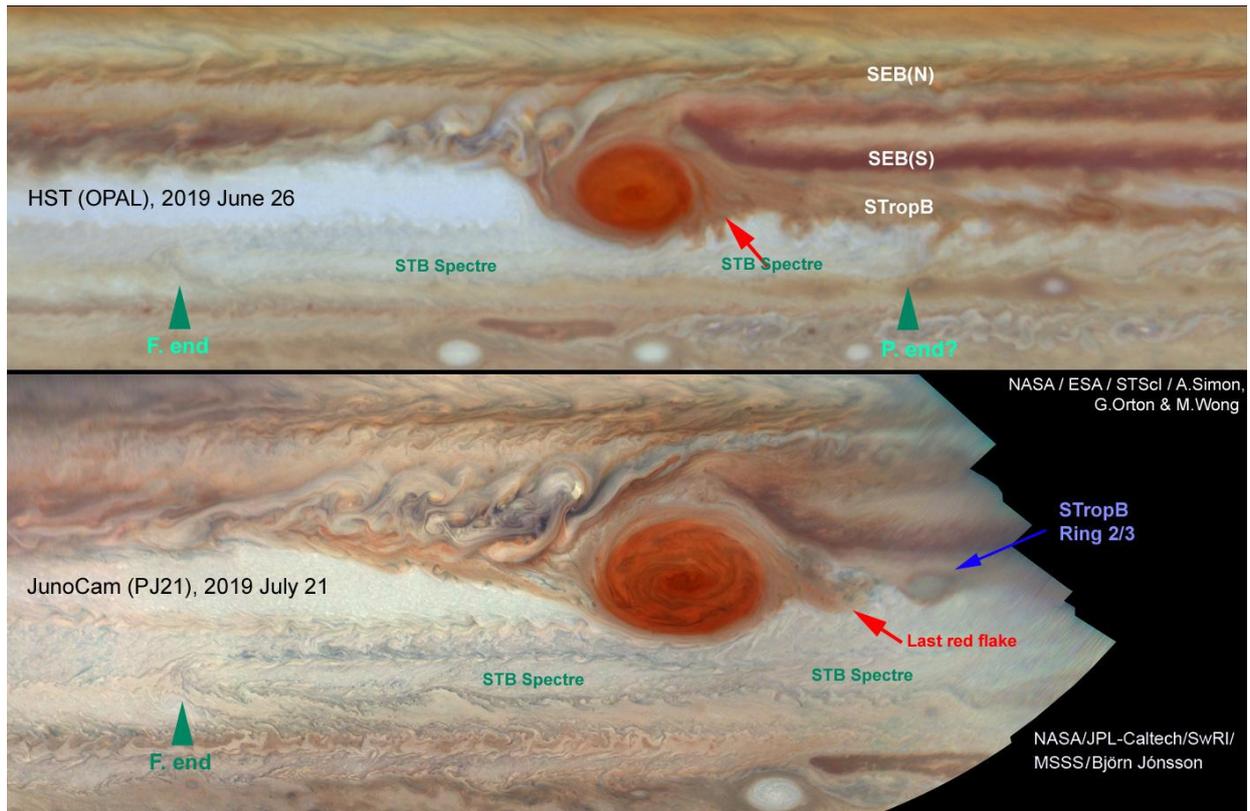


Figure 9. The GRS region in cylindrical maps from Hubble (June 26) and Juno (PJ21, July 21). Red arrow indicates flake material recently emerged from the p. end of the GRS. The STB Spectre is alongside the S side of the GRS.

Maps of STropZ & S. Temperate domain, 2019

▲ Rings on STropB or STropZ ↗ Faint streak in white STB All maps aligned in L3

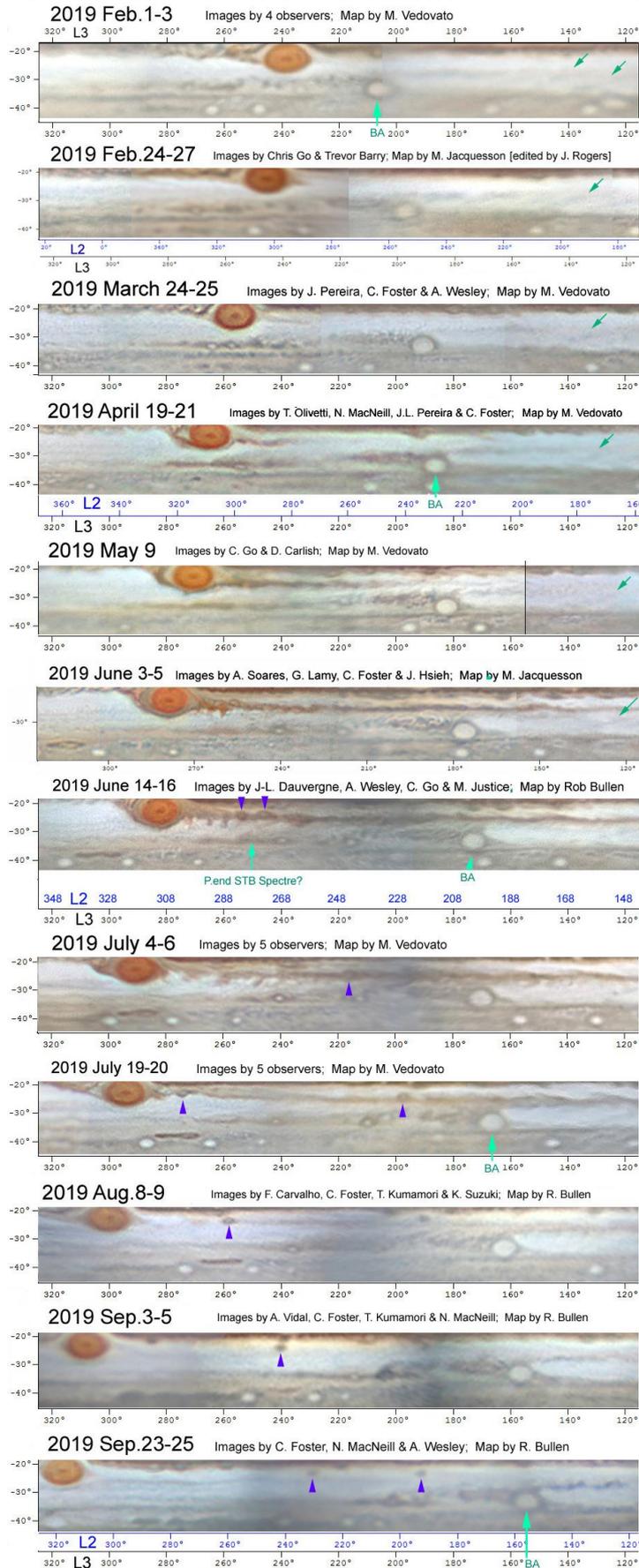


Figure 13. Set of strip-maps covering the STropZ and S. Temperate domain, L3 ~ 115-325, including oval BA and the dark features f. it. The STB Spectre is on the left-hand side though the limits are difficult to discern in these maps. All aligned in L3, with north up. See **Figure 17** for JunoCam maps.

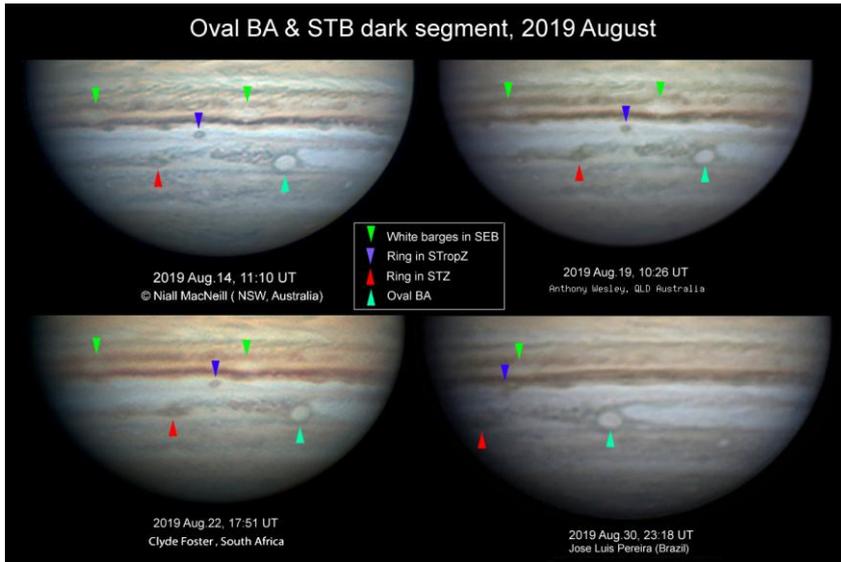


Figure 14. Hi-res images of the southern hemisphere in August, including oval BA and the dark features f. it.

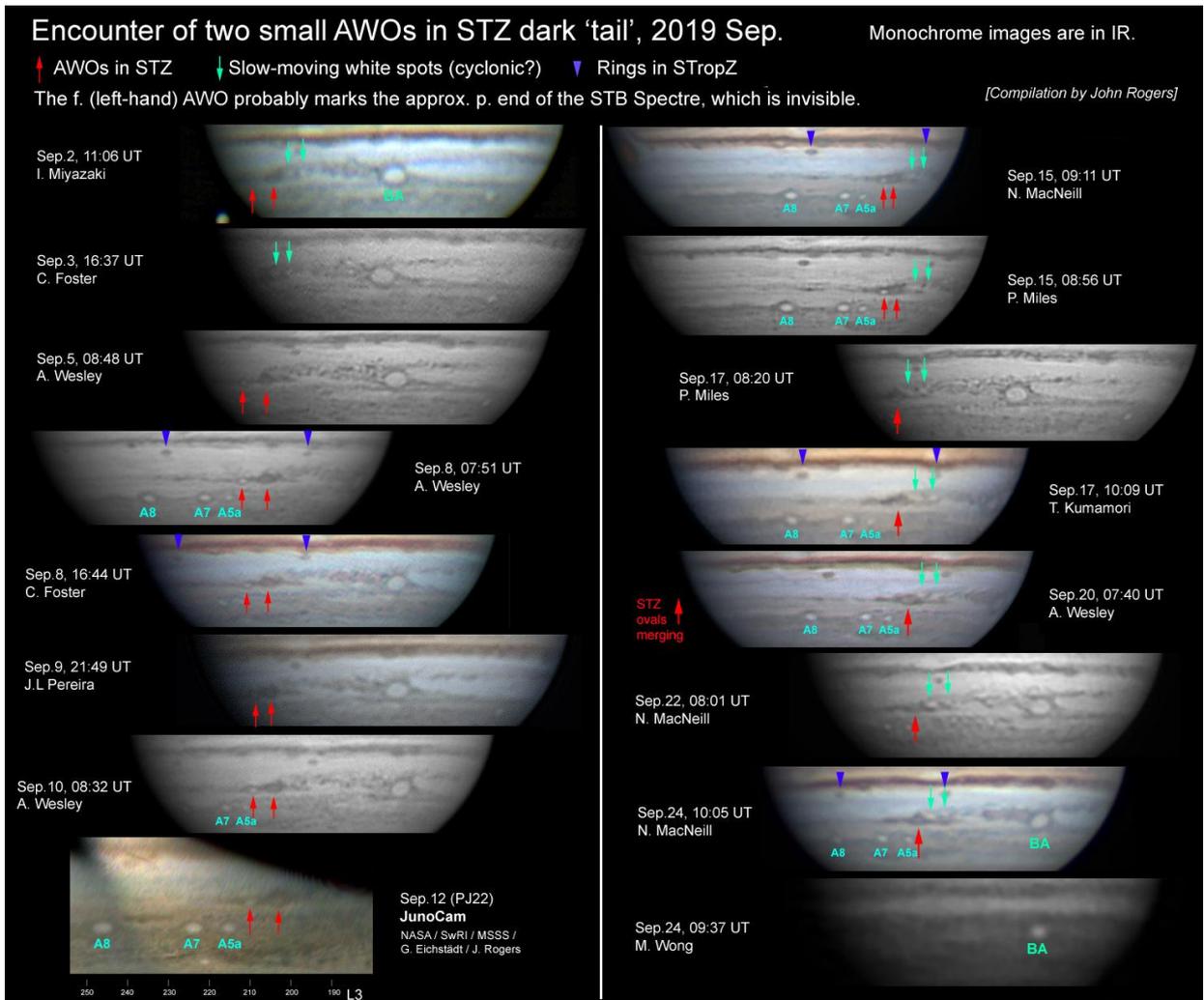


Figure 15. Set of images in Sep. showing oval BA and the dark features f. it, including the encounter of two small AWOs in the 'Sf. tail'. S2-AWOs are also labelled.

Maps of S.S. Temperate domain, 2019

All maps aligned in L3

Compilation & annotation by John Rogers (BAA)

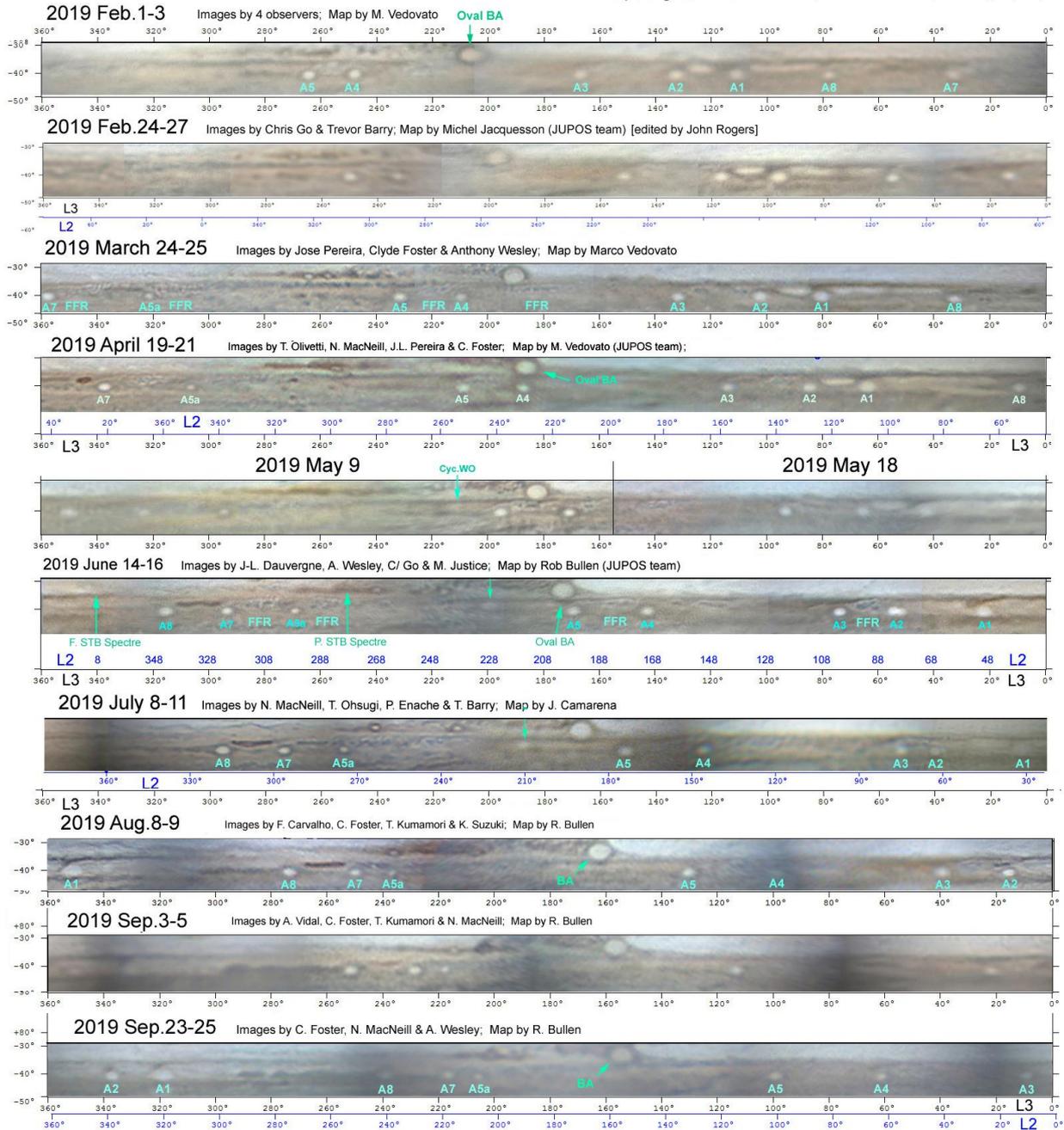


Figure 18. Set of strip-maps from amateur images, covering the S2 domain, aligned in L3. These are excerpts from a larger set covering the whole apparition.

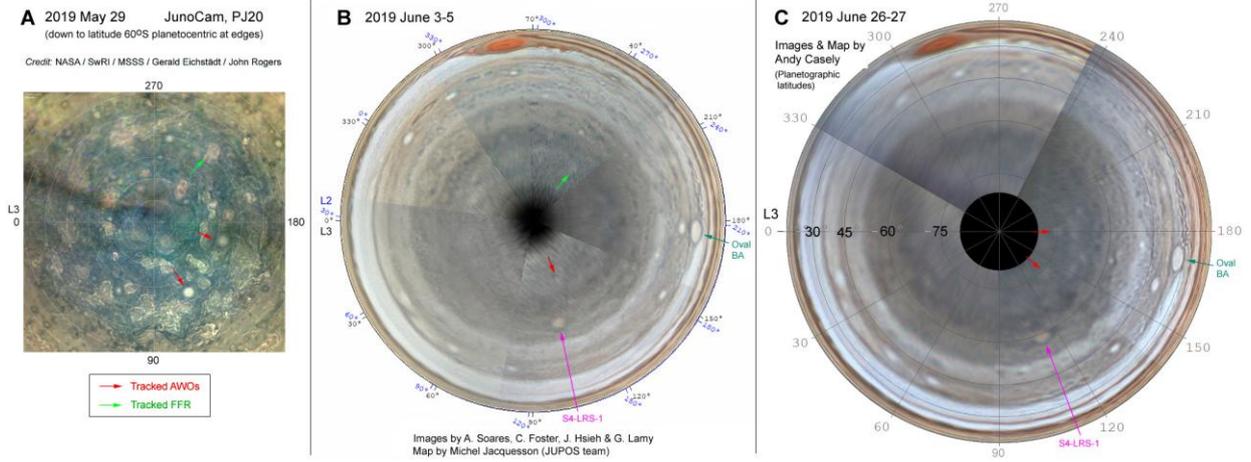


Figure 19. Examples of south polar projection maps. **(A)** From JunoCam at PJ20. **(B,C)** From amateur images. Arrows indicate bright spots (red, AWOs; green, an isolated FFR) that could be identified on multiple maps and tracked by JUPOS.