Jupiter in 2022/23, Report no.8:
Final report on the southern hemisphere

John Rogers (BAA), Gianluigi Adamoli, Rob Bullen, Michel Jacquesson, Hans-Joerg Mettig (JUPOS team), & Shinji Mizumoto (ALPO-Japan). (2023 Sep.)

Figures

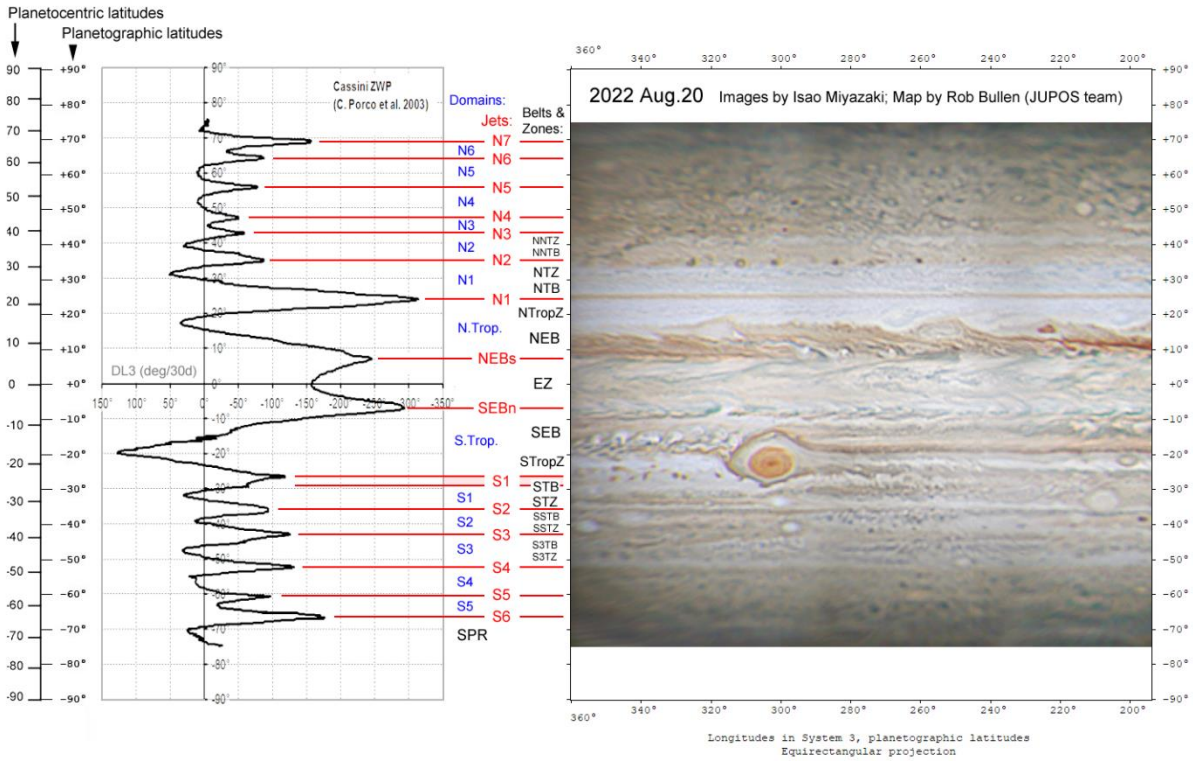


Figure 1. Standard names and latitudes of the domains, jets, belts & zones, referred to the zonal wind profile from Cassini (ZWP: ref.3) and a map from 2022 Aug.20.

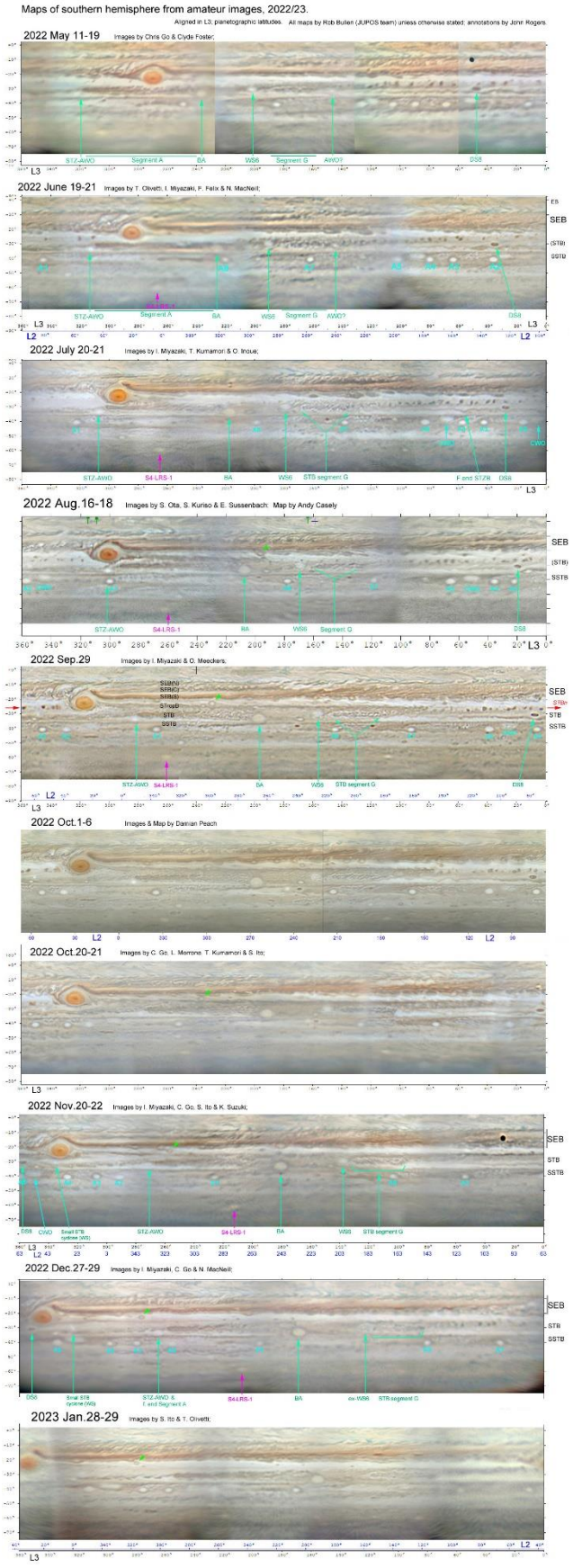


Figure 2. Maps of the southern hemisphere from amateur images, 2022 May to 2023 Jan., produced with the JUPOS software by Rob Bullen unless otherwise stated; mostly taken from our previously posted reports. Features are labelled on some maps.

Figure 3. Maps of the southern hemisphere S of the GRS from JunoCam images, from PJ41 (2022 April 9) to PJ49 (2023 March 1), copied from our previously posted reports.

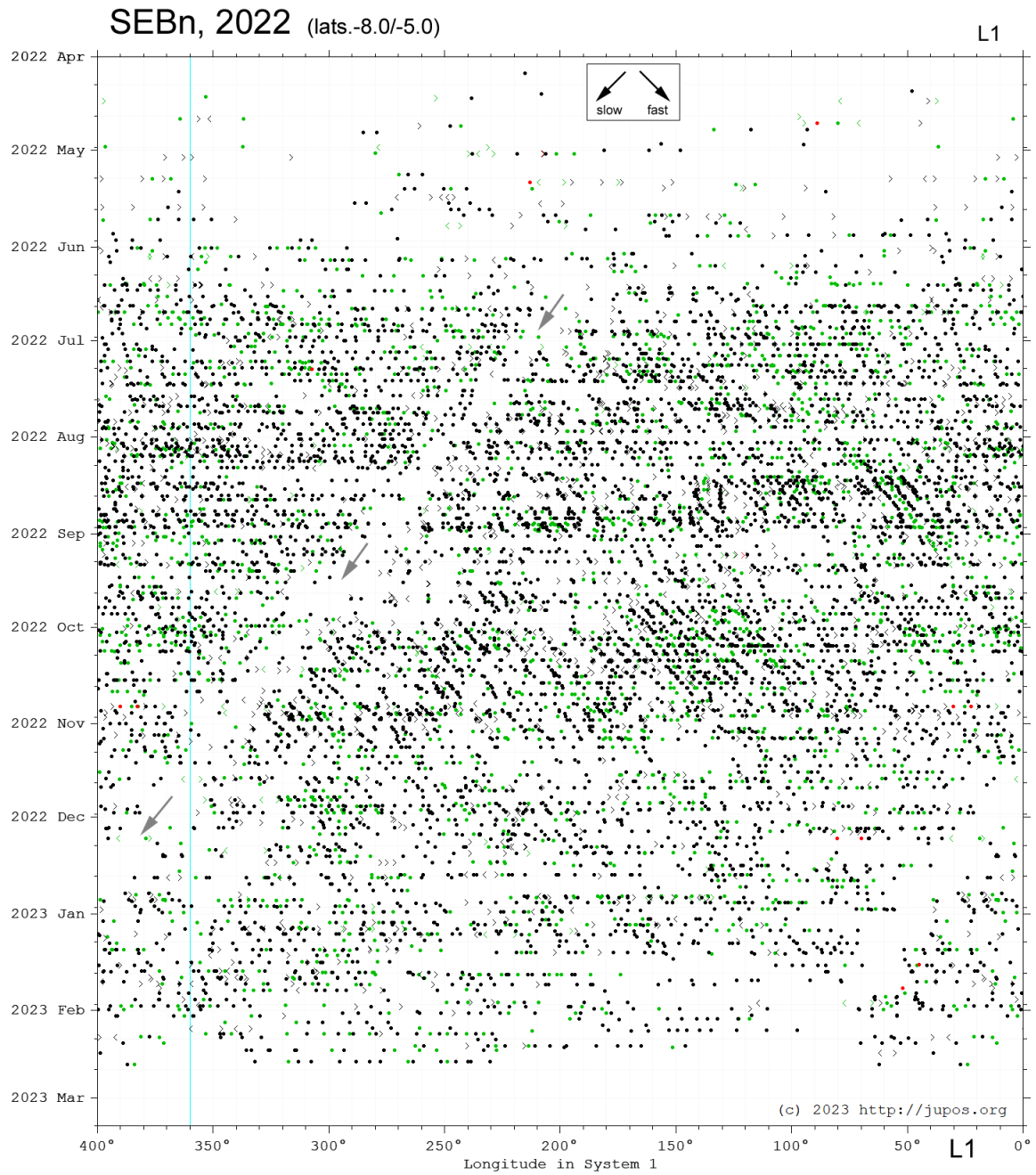


Figure 4. JUPOS chart for the SEBn jet. Grey arrows mark the putative S. Equatorial Disturbance (SED). On all JUPOS charts, black = dark spots, green = bright spots, unless otherwise stated.

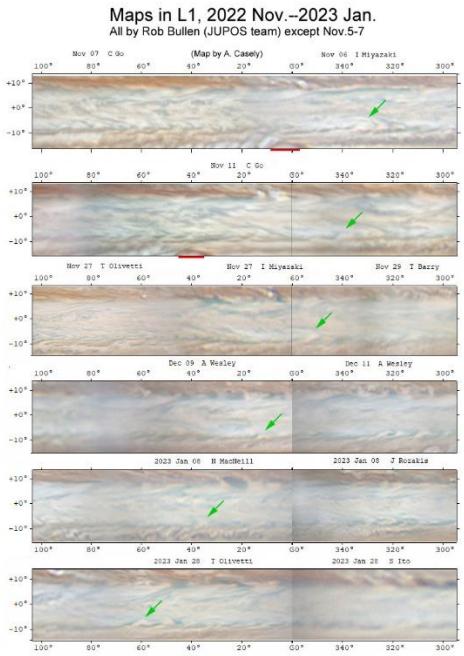


Figure 5. Maps of the SEBn (in System 1). Green arrows mark the putative SED.

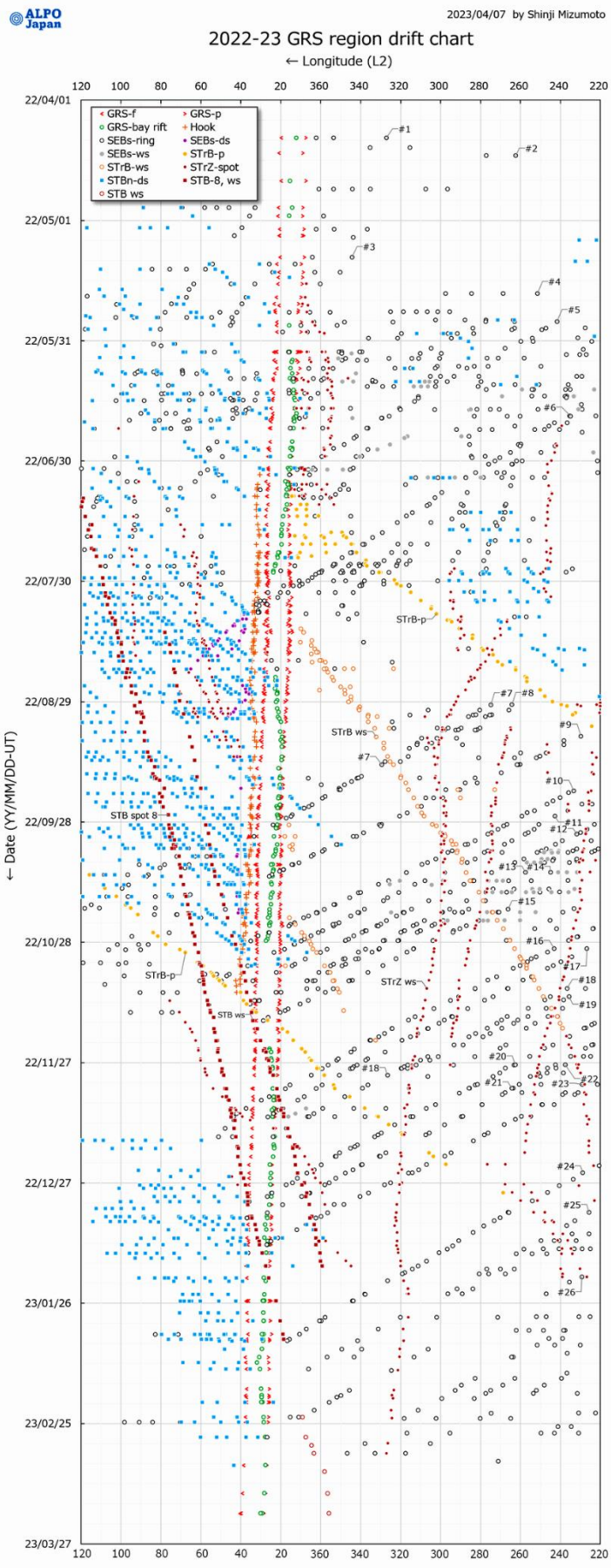


Figure 6. Chart of spots in the GRS region, by Shinji Mizumoto (ALPO-Japan), including spots on the SEBs and STBn jets, and the Hook f. the GRS.

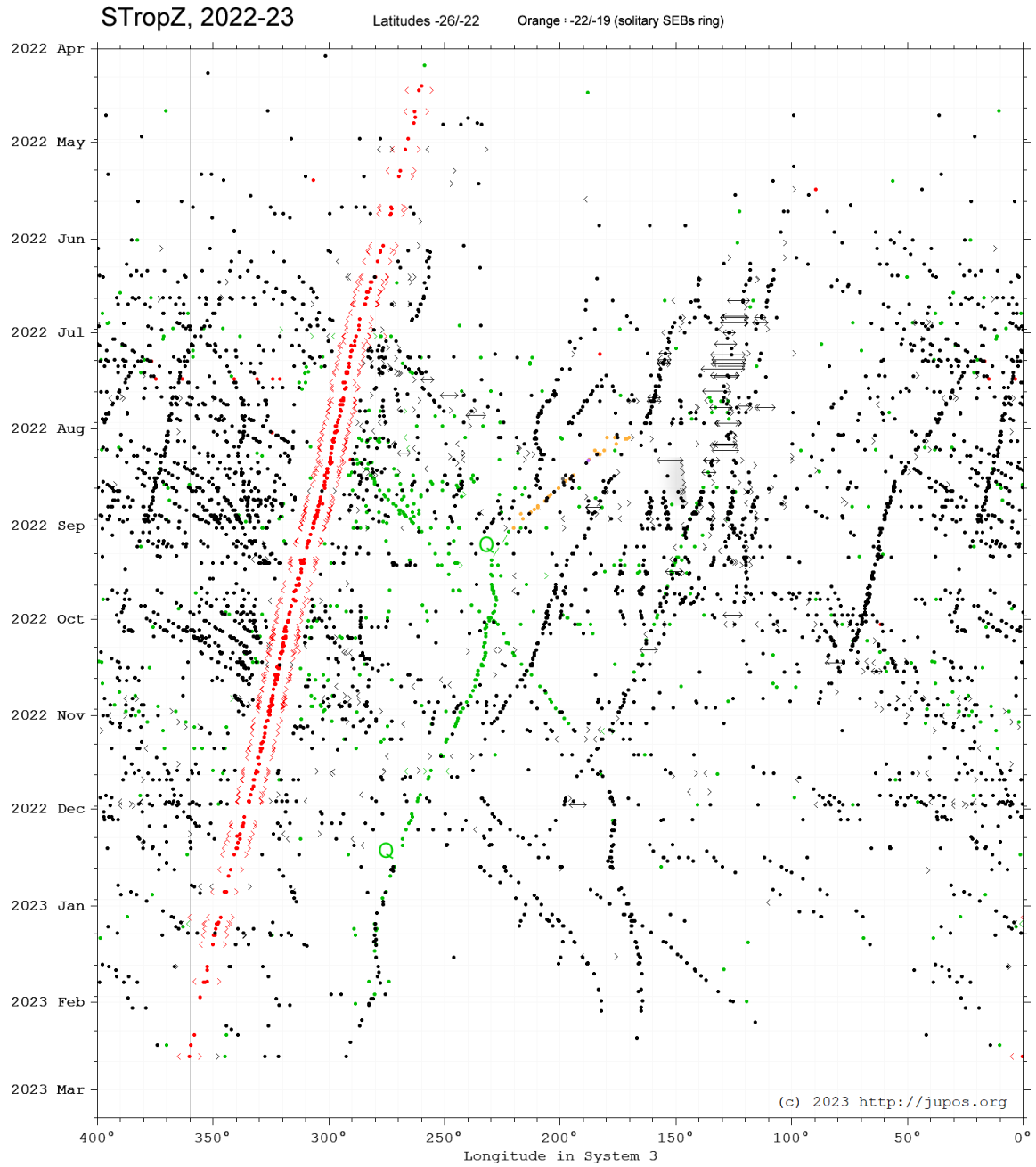


Figure 7. JUPOS chart of the STropZ.

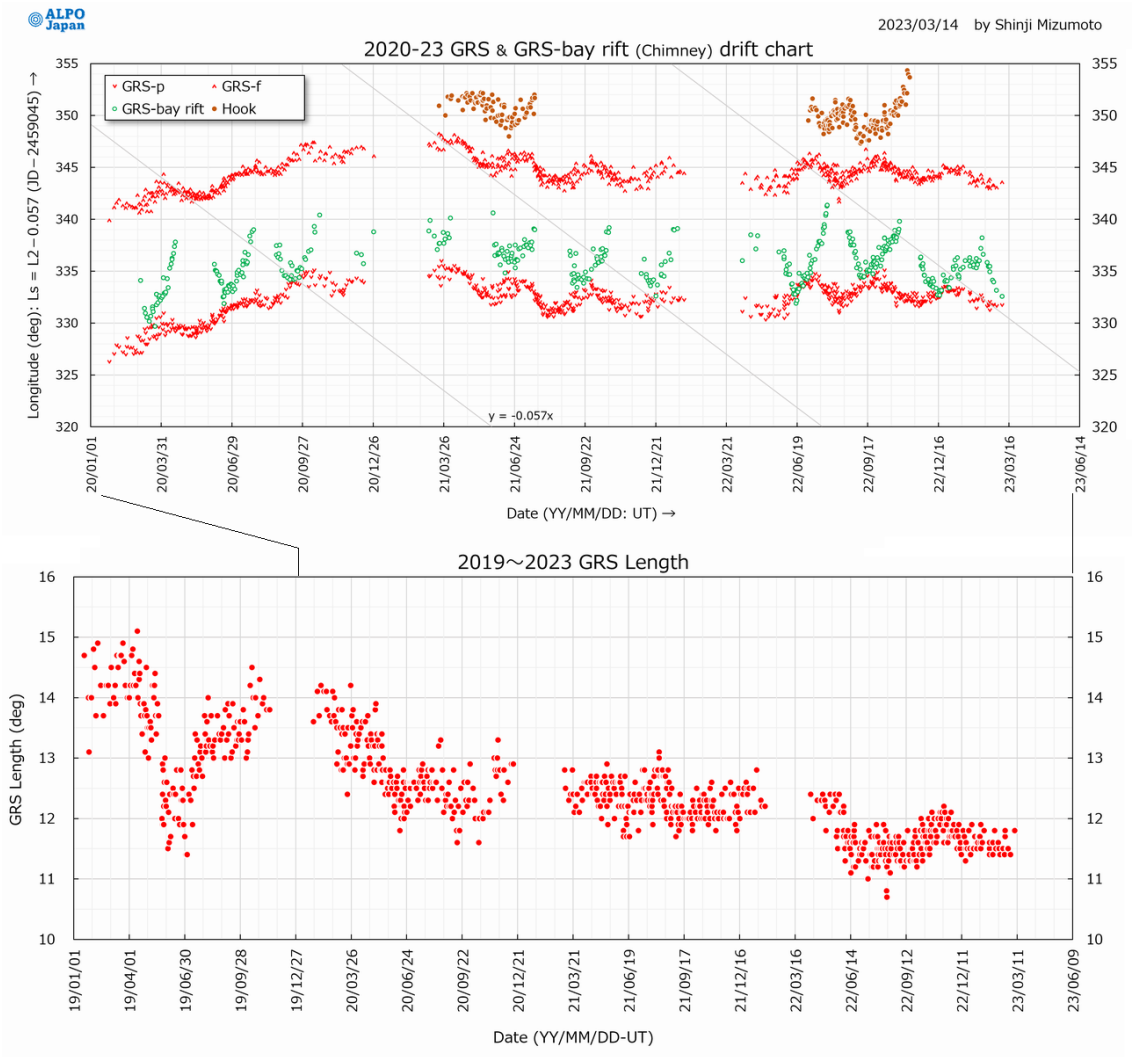


Figure 8. Charts of the drift (A) and length (B) of the GRS, by Shinji Mizumoto (ALPO-Japan). Chart (A) is plotted in a frame moving with DL2 = +1.7 deg/30d. It includes the Hook f. the GRS, and the rift or 'chimney' in the Red Spot Hollow due N of the GRS, which continues to appear and move in synchrony with the 90-day oscillation of the GRS.

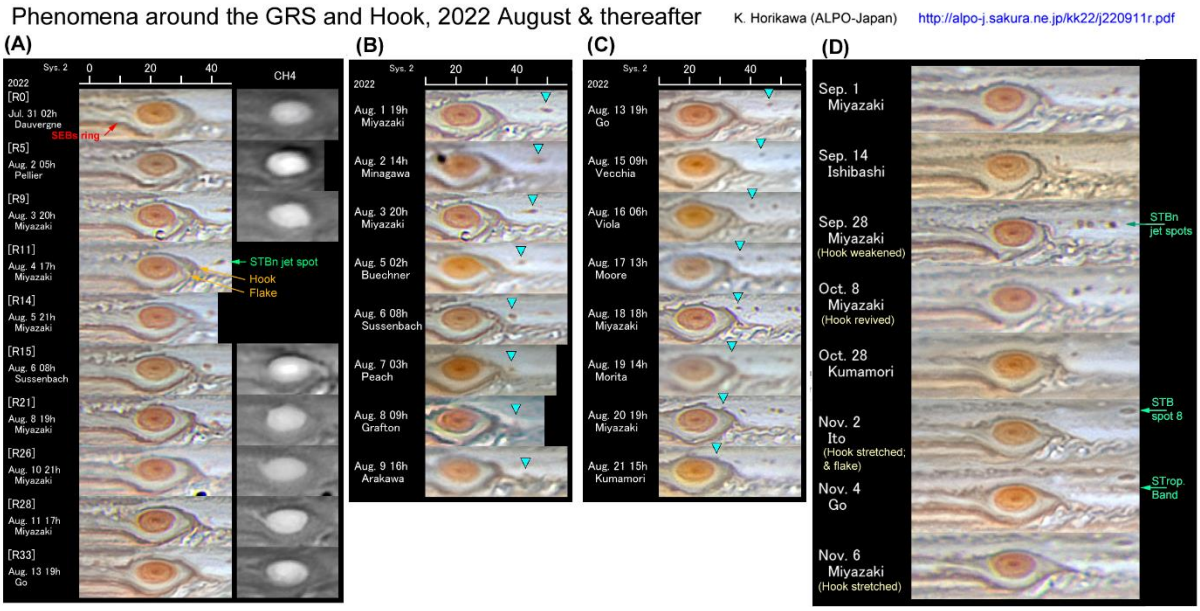


Figure 9. Maps of the GRS region *[caption on following page]*...

Figure 9. Maps of the GRS region, by Kuniaki Horikawa (ALPO-Japan), in 2022 August & thereafter, showing the Hook & Collar, and other phenomena. *South is up.*
(A) A red flaking event. A retrograding SEBs ring enters the RSH on July 31; the flake appears at the f. end on Aug.3-6, then travels round to appear at the p. end on Aug.8-11. Also note tha jagged waves prograding on the STropB p. the GRS. (This is an expanded version of Fig.13 in our Report no.3.)
(B) Over the same period, a prograding STBn jet spot (cyan arrowhead) approaches the Hook and recirculates to retrograde on the SEBs.
(C) A STBn jet spot slightly further south does not recirculate but proceed straight into the Collar.
(D) Changing aspects of the Hook from Sep. to Nov.

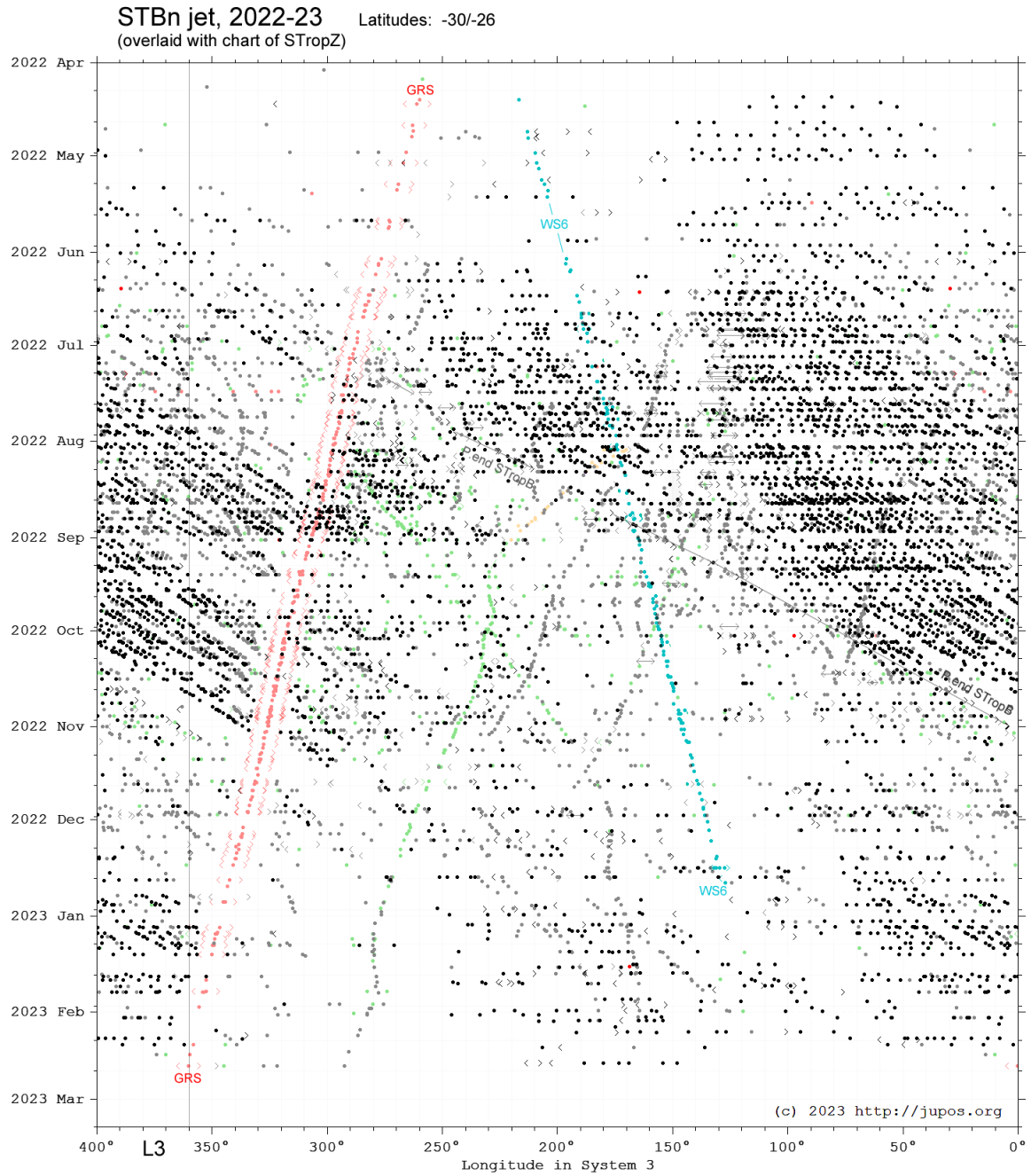
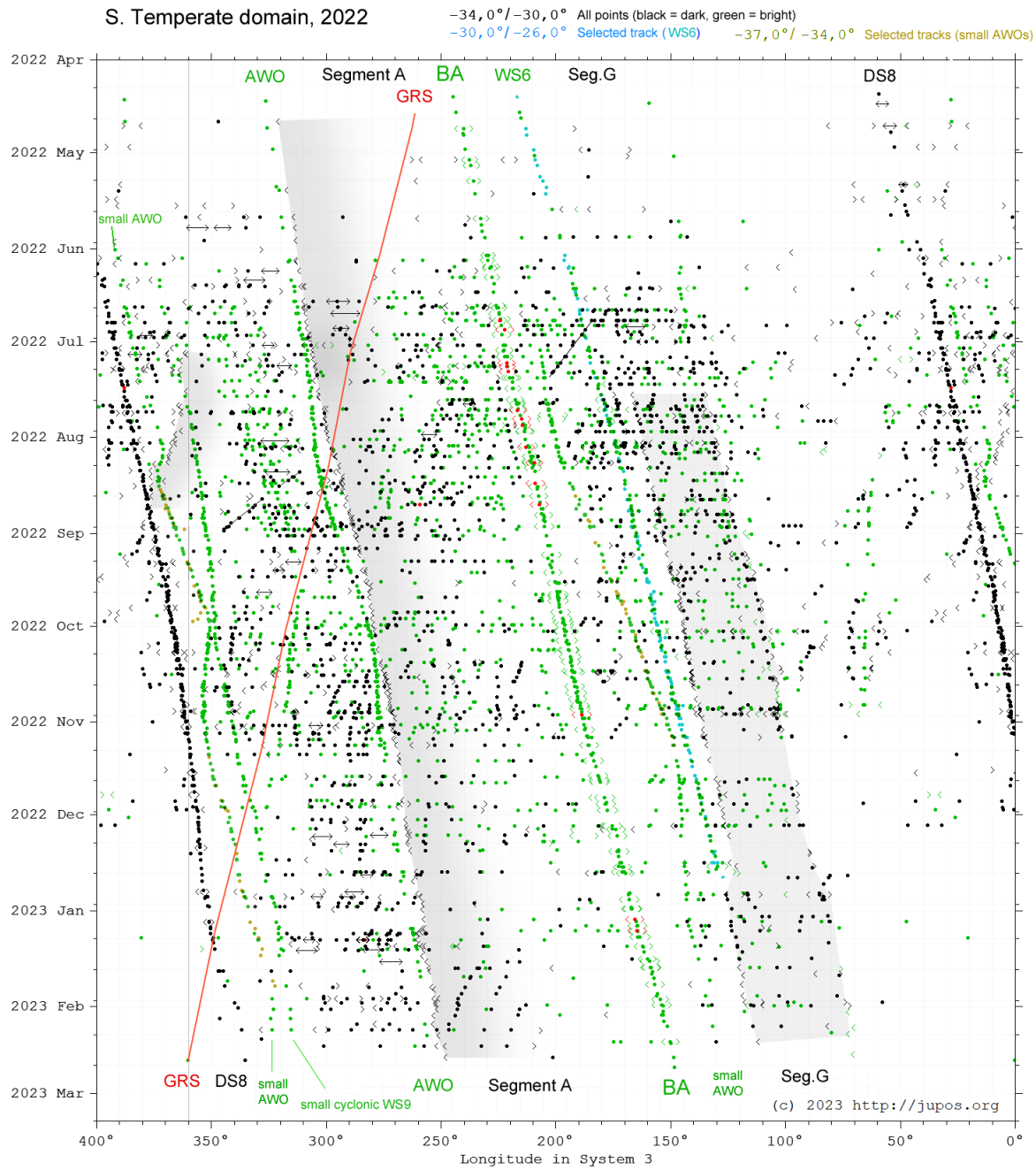


Figure 10. JUPOS chart of the STBn jet, overlaid with the STropZ chart (Fig.7).



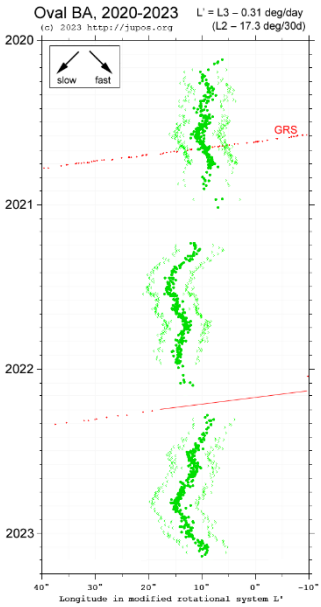


Figure 11. (A) JUPOS chart of the S. Temperate domain. (B) JUPOS chart of oval BA, in a system moving with -17.3 deg/30d relative to L2.

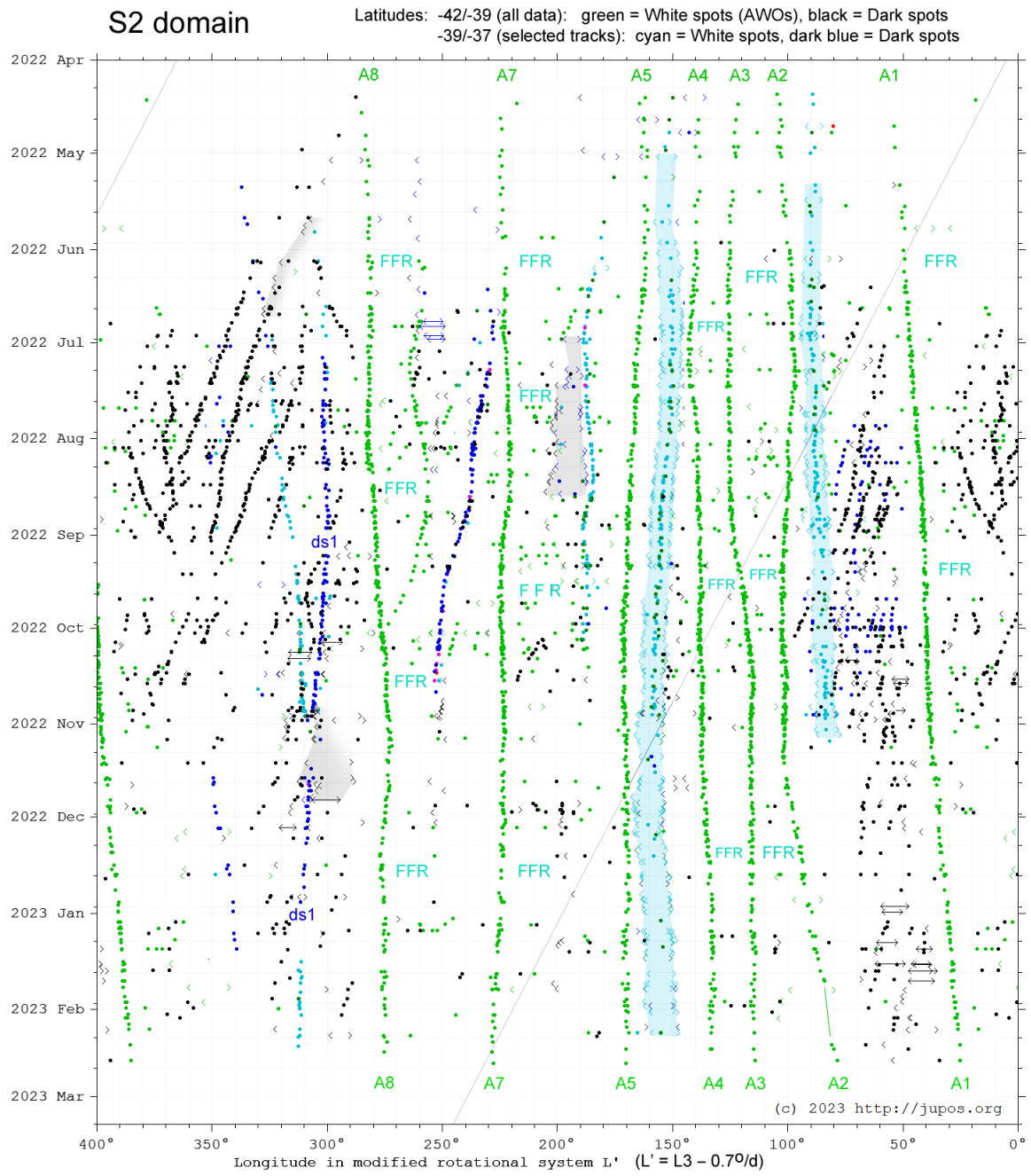


Figure 12. JUPOS chart of the S2 (S.S. Temperate) domain.

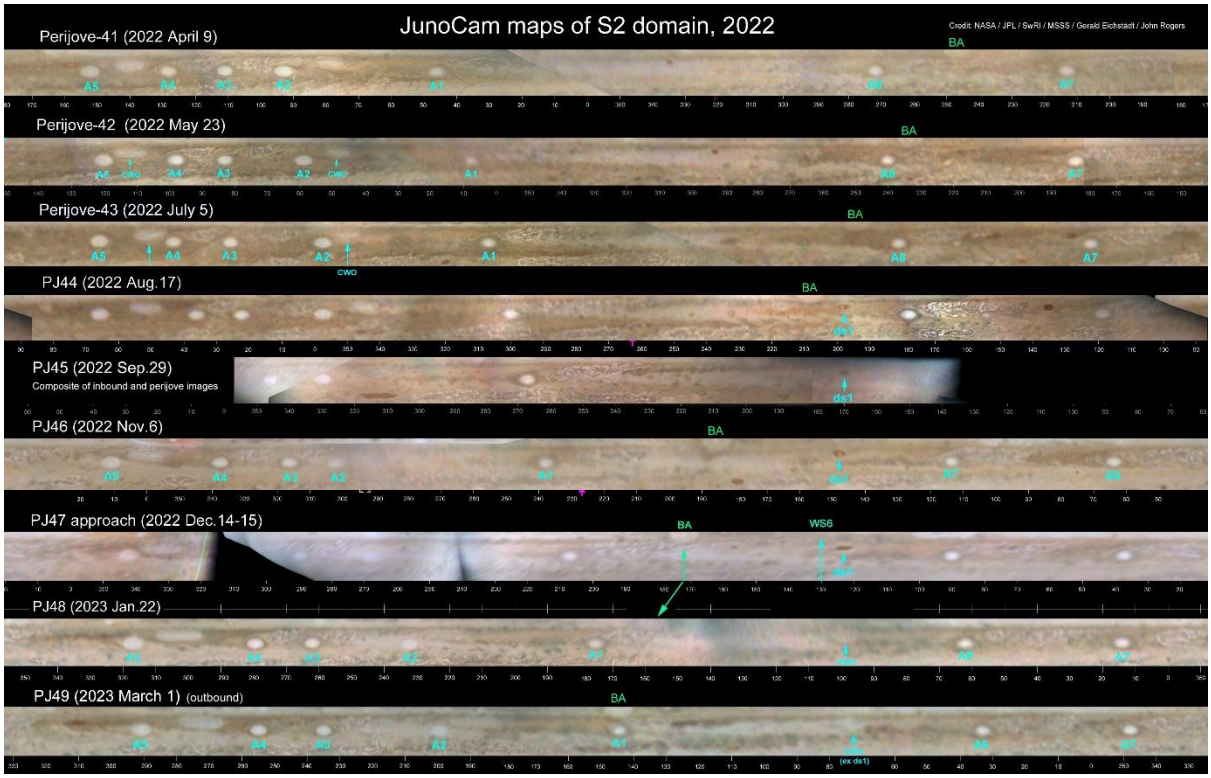


Figure 13. JunoCam maps of the S2 domain (from Fig.3), realigned by DL3 = -19 deg/30d (DL2 = -27 deg/30d) to approximately match the SSTC.

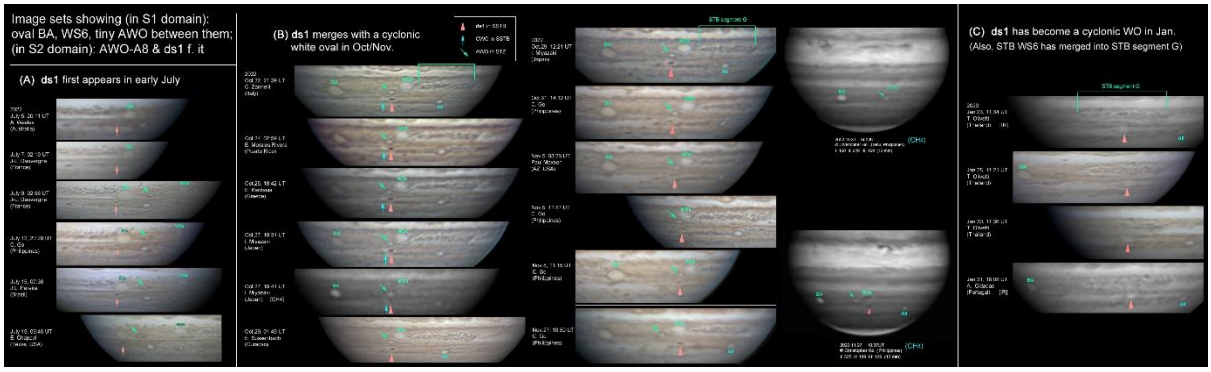


Figure 14. Images showing SSTB spot ds1 (pink arrowhead) & other features. (A) Origin of ds1 in early July, while starting to pass oval BA. (B) ds1 merges with a cyclonic white oval in Oct/Nov., but remains a dark brown spot, which becomes methane-dark.
(C) ds1 has transformed into a cyclonic white oval in 2023 Jan. (and STB WS6 has merged into STB segment G).

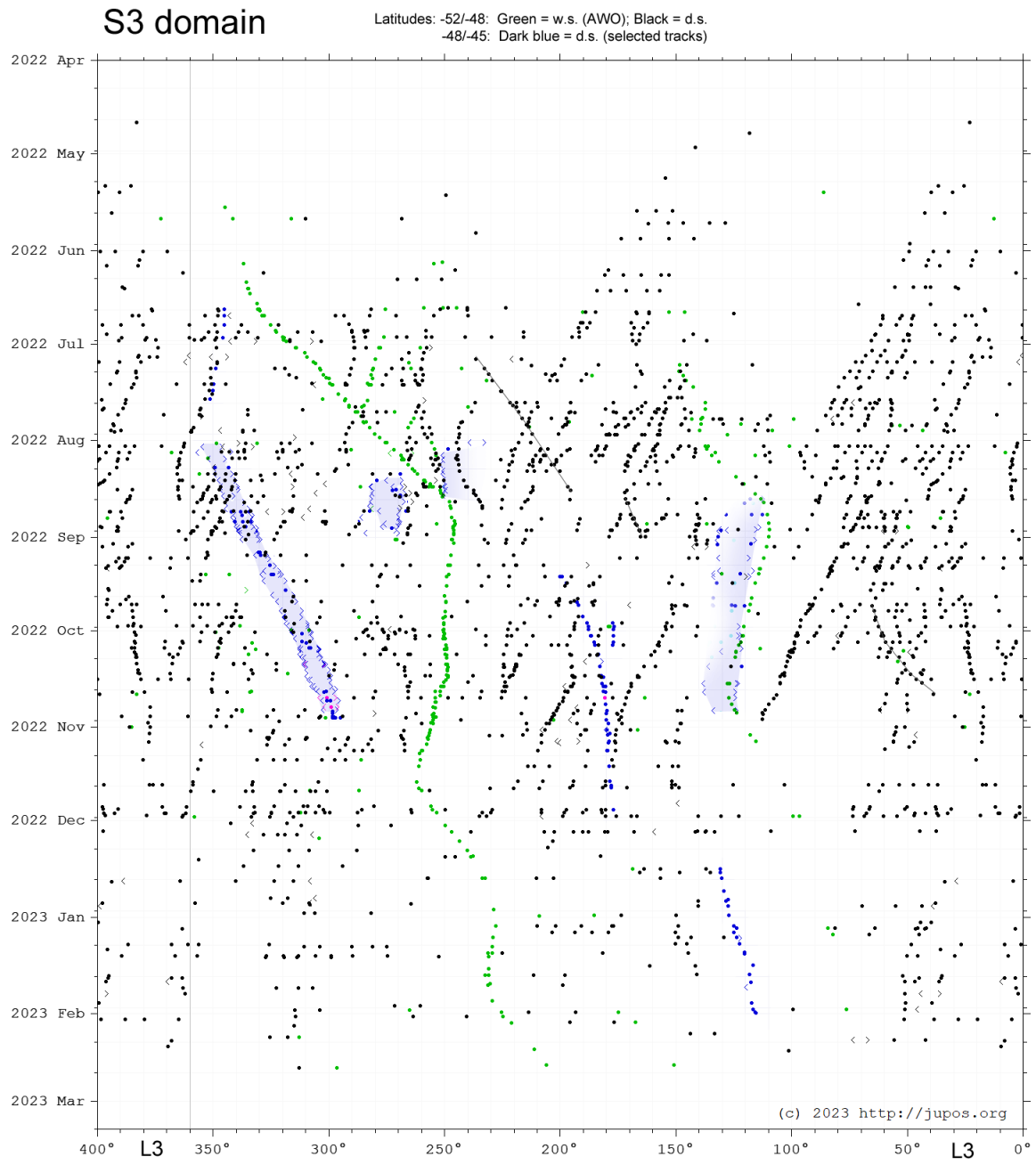


Figure 15. JUPOS chart of the S3 domain.

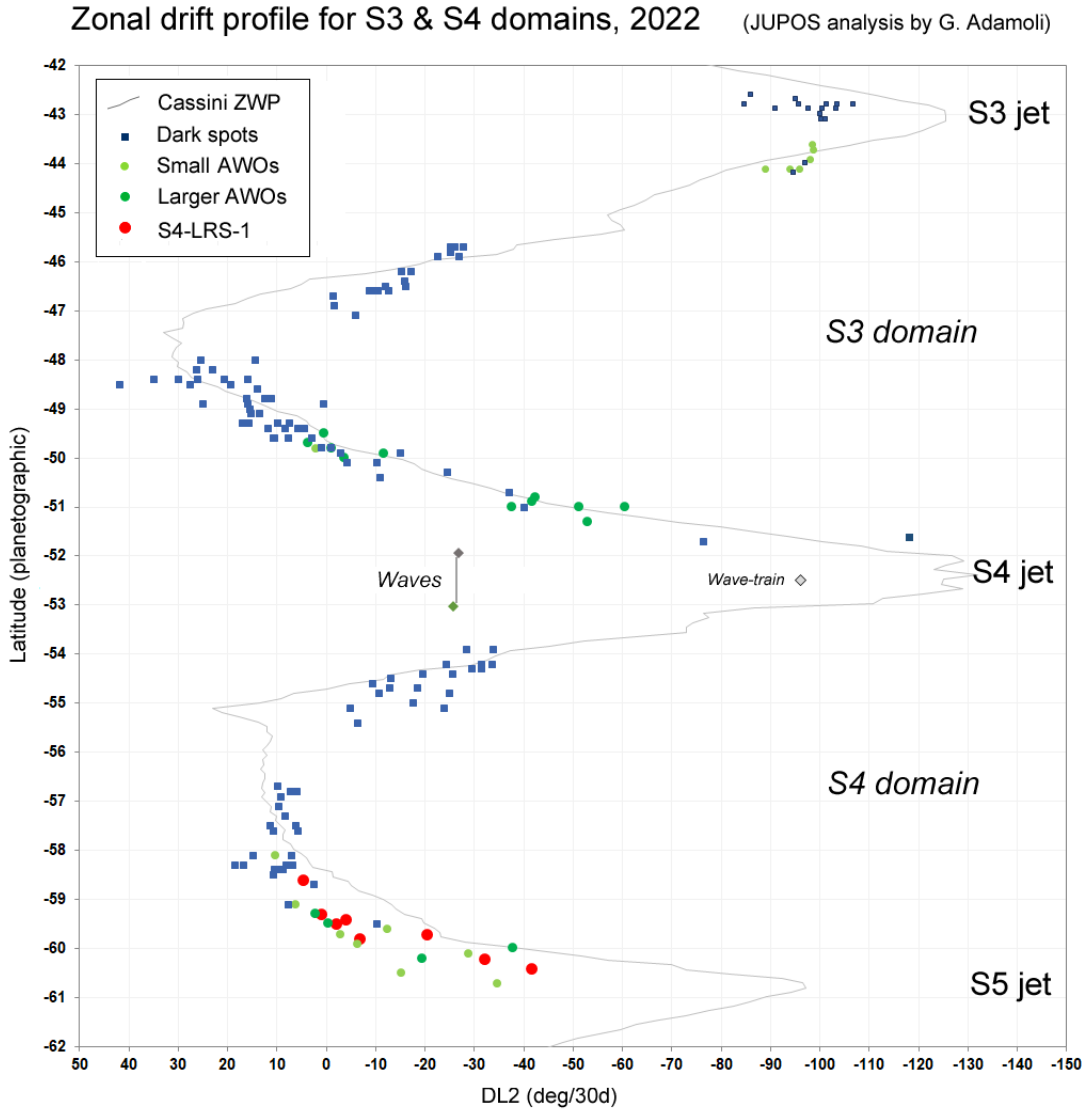


Figure 16. ZDP covering the S3 jet and the S3 and S4 domains, from JUPOS data. Also included are averages for the waves on the S4 jet.

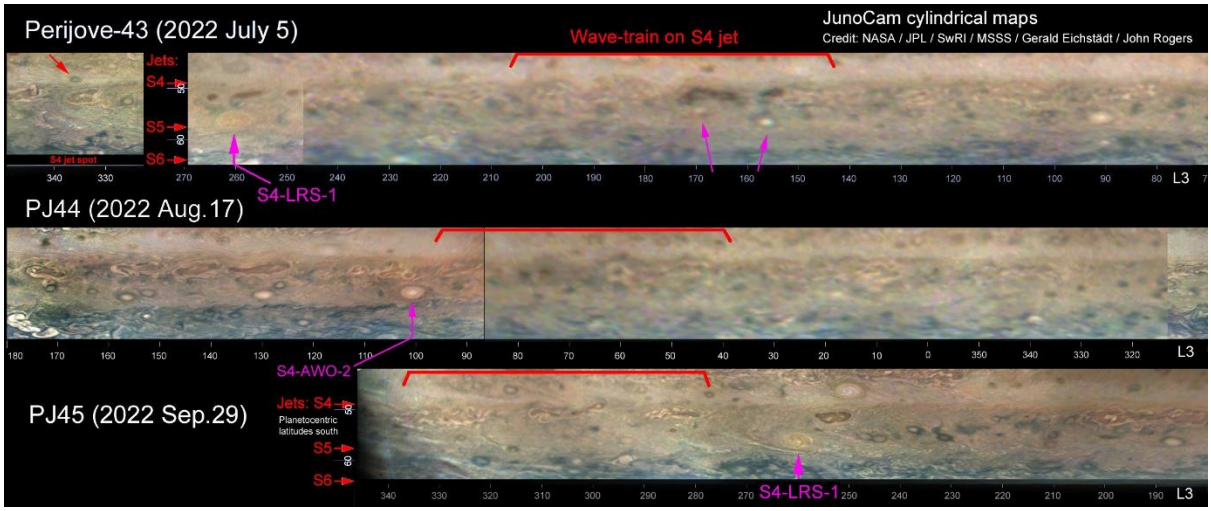


Figure 17. Excerpts from JunoCam maps (from Fig.3) showing the waves on the S4 jet and (inset at top left) the small dark spot on the S4 jet, which were tracked with JUPOS data.

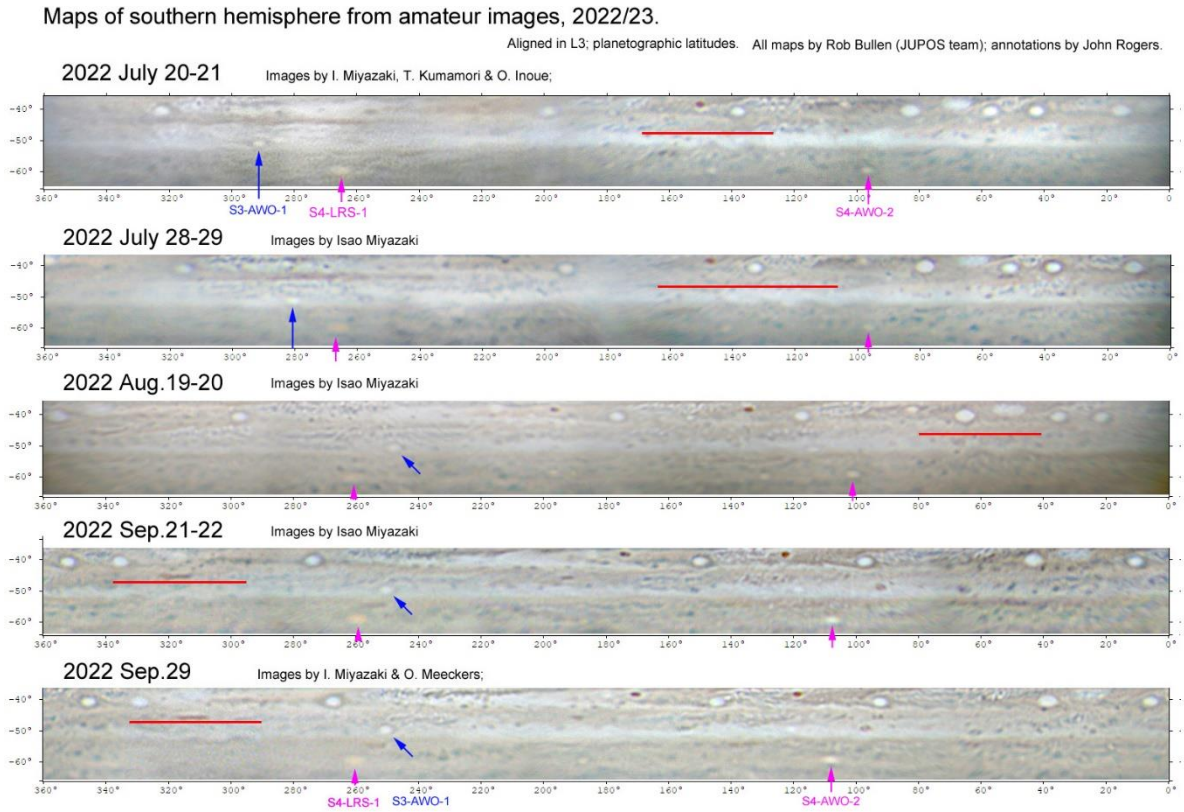


Figure 18. Ground-based maps of the S2 to S4 domains, showing the wave-train on the S4 jet (indicated by the red line).

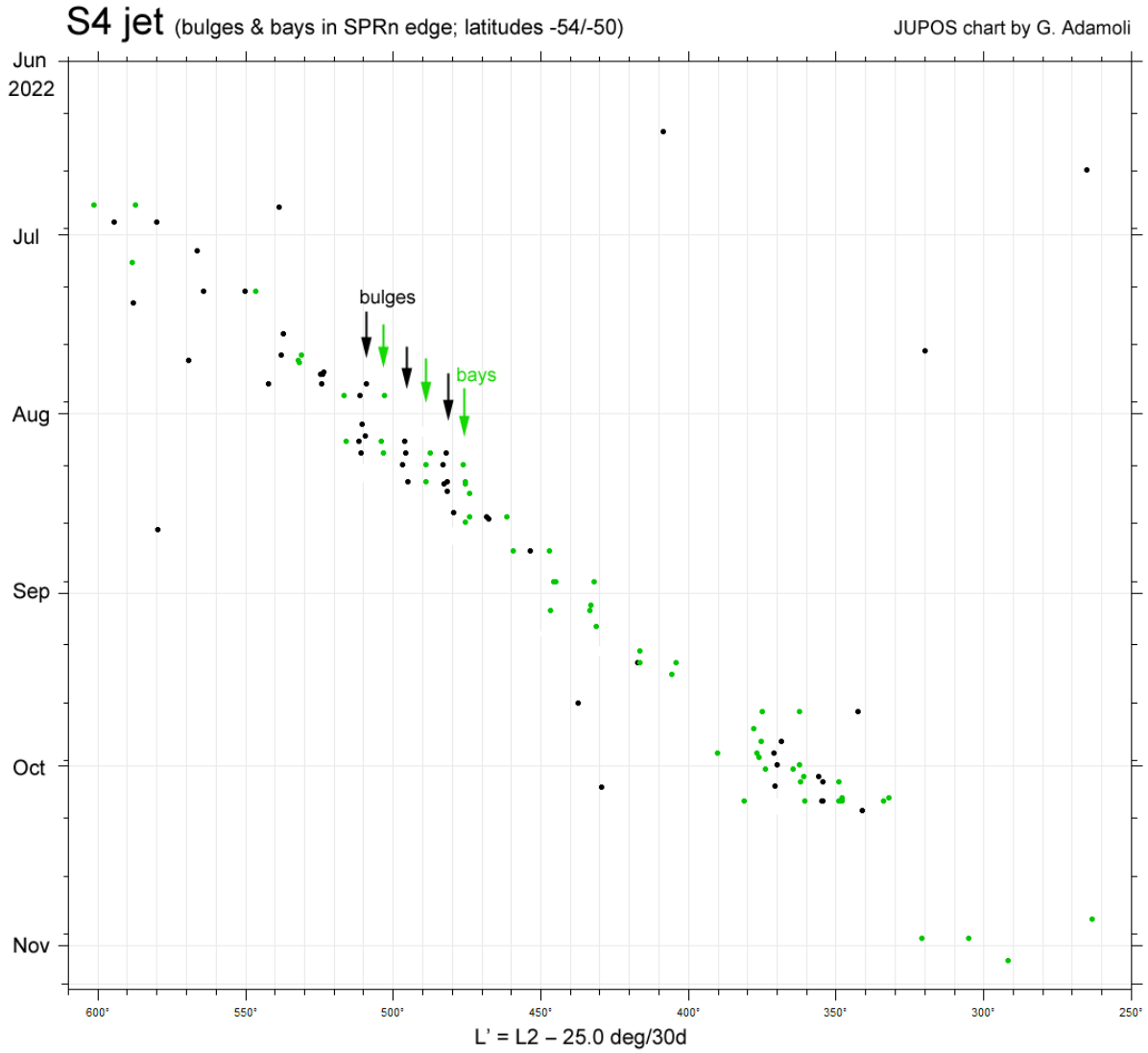


Figure 19. JUPOS chart for waves on the S4 jet.

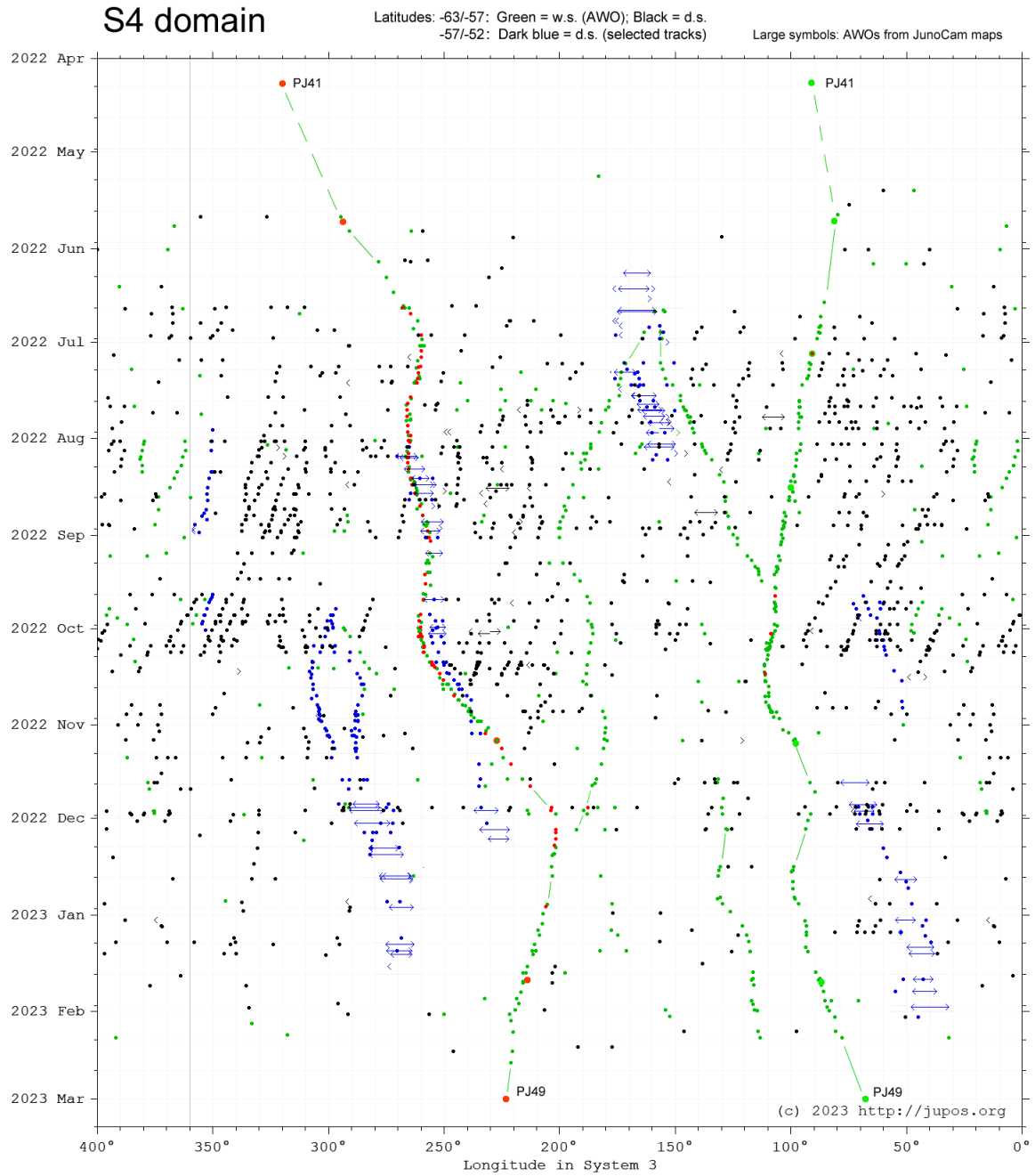


Figure 20. JUPOS chart of the S4 domain. Some positions from JunoCam maps have been added to facilitate identification across solar conjunction.