

Jupiter in 2025/26, Report no.2

John Rogers (2025 Oct.14)

This is a brief report on the present state of the planet. [Figure 1](#) is a map from 2025 Oct.1-3 with long-lived anticyclonic ovals and several other features labelled.

North Temperate Belt (NTB): Following last year's spectacular NTBs jet outbreak, the NTB is fully revived, with grey-brown shading throughout the NTB(N) and NTZ (separated by an irregular wavy bright line), while the NTB(S) is orange (though rather pale at some longitudes). Very few spots can be tracked in the NNTBs jet, suggesting that the NTBs outbreak has suppressed or masked this activity, as usual.

NTBs jet: Several dark spots have been visible on the south edge of the NTB(S), with speeds somewhat slower than the jet peak. One of these NTBs spots, at L1 ~ 15 in August, could be a remnant of the reddish blob that was conspicuous in April; it probably faded in Sep. Three more distinct grey spots had speeds ranging from DL1 = -27 deg/30d to +25 deg/30d. The latter, a large southerly one, encountered one of the others around Sep.30 but then resumed its previous course. We will monitor these spots in case they persist for years as happened in the 1990s.

North Equatorial Belt (NEB): The NEB broadened in 2023/24, and now has an array of 'barges' (dark brown cyclonic spots) and 'portholes' (AWOs) as is typical after such events. The expanded northern part is beginning to recede again.

Equatorial Zone (EZ): There is still extensive shading over most of the EZ, mostly 'warm grey', and mixed with dark bluish-grey streaks in festoons from the NEBs and SED.

South Equatorial Disturbance (SED): The main complex of the SED has been conspicuous recently ([Figure 2](#)). Its very dark bluish portion is exceptional in having a greenish tint (as pointed out by Steve Hill - in contrast to the NEBs dark formations), and being extremely dark in the methane band.

Great Red Spot (GRS): Measurements of the GRS by Shinji Mizumoto ([Figure 3](#)) show that during solar conjunction it has accelerated (from DL2 = +1.8 to +1.2 deg/30d) and expanded slightly (from 11.2° to 11.5° long). On Sep.1 it was at L2=77, L3=292.

Shinji Mizumoto has also posted a valuable compilation of images and measurements of the GRS throughout its history: '*1879-2025 Jupiter's Great Red Spot by S.Mizumoto*': <https://alpo-j.sakura.ne.jp/kk25/j251006r.htm>

South Temperate Belt (STB) & S.S. Temperate Belt (SSTB): The STB is still a prominent dark belt around most of the planet. Oval BA is distinctly reddish now. The SSTB, pockmarked by the 7 long-lived AWOs, has reddish sectors and three white oblongs.

A pair of bright outbreaks in STB & SSTB:

Two outbreaks of small white spots have appeared, one in the STB and one nearby in the SSTB, approaching the GRS ([Figures 4-6](#)) Each began with a small bright spot, also very bright in the methane band, in pre-existing cyclonic structures. The first appeared in the STB on Sep.22, in a small red cyclonic oval. This was similar to the few previous convective outbreaks observed in the STB, but the first one to occur without any apparent triggering factor. Then a similar outbreak appeared in the SSTB on Oct.4, in a dull white oblong. Their

proximity suggests that one might have triggered the other. They have rapidly expanded, and we wait to see if they will develop into persistent chaotic regions (FFRs). Further details:

The outbreak in the STB appeared on Sep.22 (Figure 4), at approx. $L3 = 318$, immediately south-following the GRS, in a small dark red ‘mini-barge’ (cyclonic oval) which had existed at least since August 10 within the dark belt. It was first detected on Sep.22, by Constantin Sprianu (Romania, 02:36 UT) then Gary Walker (USA, 11:08 UT) then Isao Miyazaki (Japan, 20:15 UT), all in colour images, and it was also bright in Miyazaki’s methane images on Sep.22 & 25. It was discovered and reported by Isao Miyazaki on Sep.25. It expanded and proliferated over the subsequent days and weeks, like a miniature version of a mid-SEB outbreak. It is now starting to pass the GRS.

Even more remarkably, on Oct.4 Miyazaki discovered another such outbreak, in the SSTB, just south-following the STB outbreak, within a pale white oblong which was probably a large cyclonic circulation. It was very methane-bright on the first day, and has since expanded (Figs.5&6).

Such outbreaks in the STB are rare, although some could have been missed in the past. This one was very similar to Clyde’s Spot in 2020 and Spot 8 in 2021, except that those appeared in small pale cyclones in a white environment, just after passing the GRS. Otherwise, such convective outbreaks in the STB have only been observed when larger cyclonic formations collided, in 2010 and 2018 [as described in our previous reviews of the STB; an update is in preparation].

In the SSTB, which we recently reviewed [https://britastro.org/section_information_/jupiter-section-overview/long-term-reports-publications/s2-domain-2012-2023], there have been only two occasions where a very small, weakly methane-bright spot was seen at the start of a new FFR, and never as bright as the present one. One of these appeared in 2020 May, a few weeks before Clyde’s Spot appeared nearby, so it is possible that one outbreak triggered the other, both in 2020 and in 2025. The present outbreak does resemble one observed by Voyager 2 in visible light, which transformed a cyclonic white oval into a FFR, although Voyager could not take methane-band images.

Shinji Mizumoto has posted a set of maps of the new outbreaks day by day: https://alpo-j.sakura.ne.jp/Latest/j_Cylindrical_Maps/j2025%20STB-SSTB%20OB%20mapsL3.htm

Satellite phenomena:

There have been some beautiful groupings of the Galilean moons recently, especially when in transit, illustrating the coupling of their orbits (Figures 7-9) (with thanks to the observers, and to ALPO-Japan for some of these images).

Figure 1:

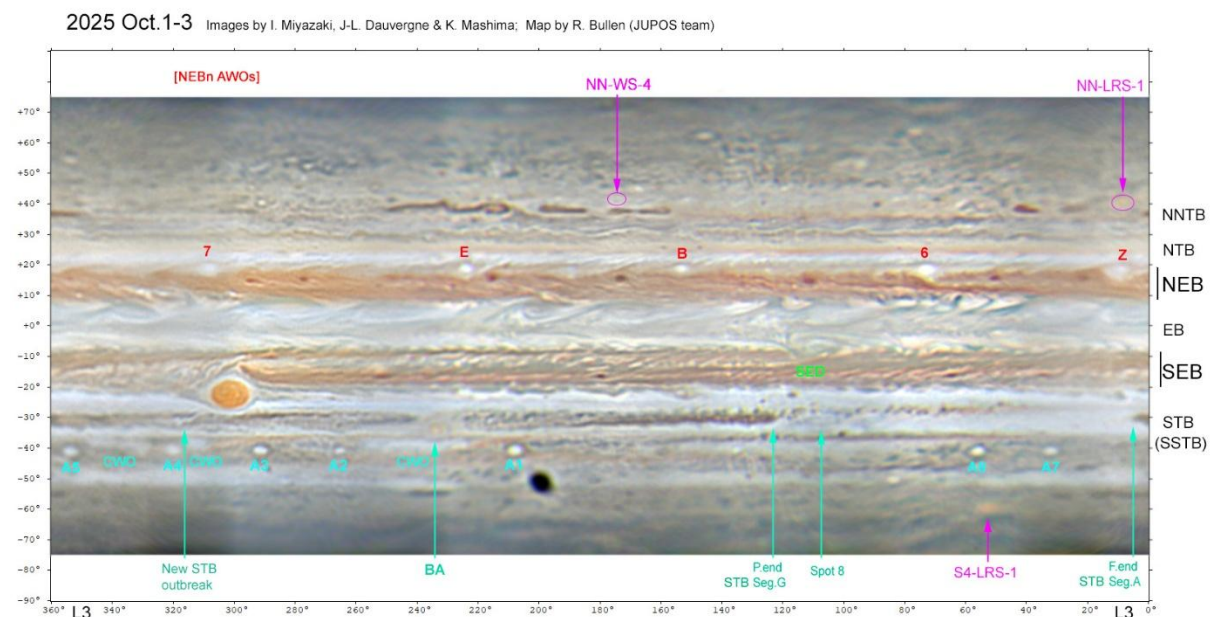


Figure 2:

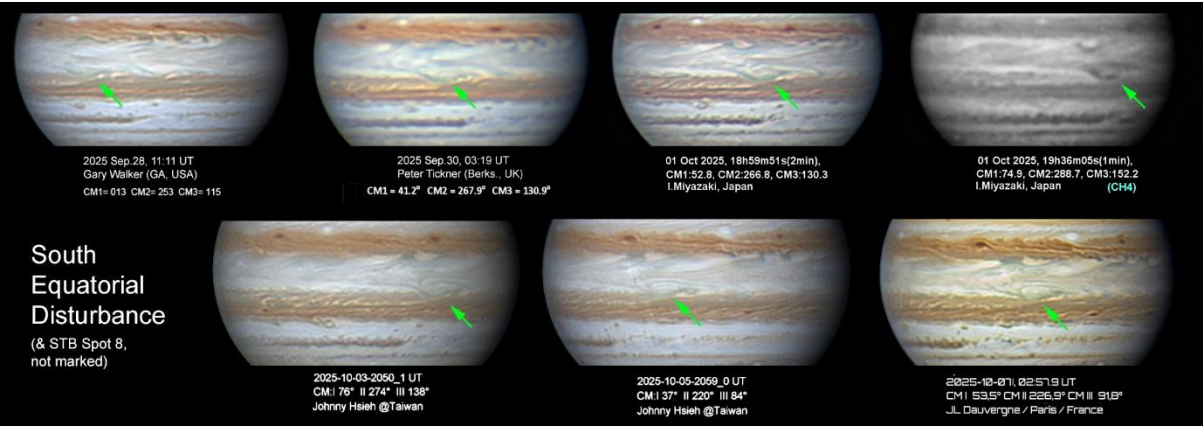


Figure 3:

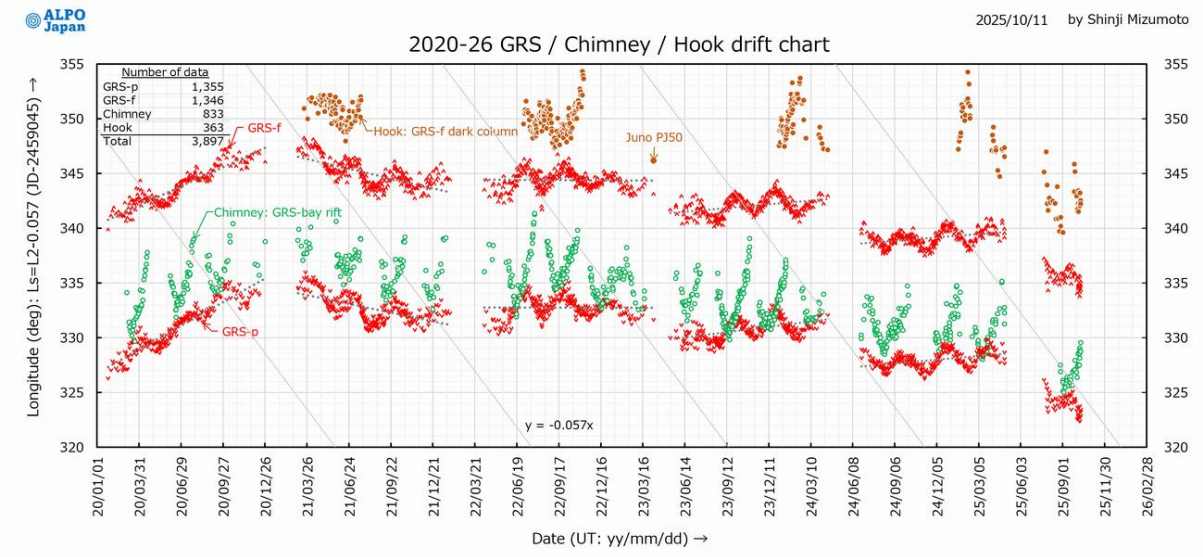


Figure 4:

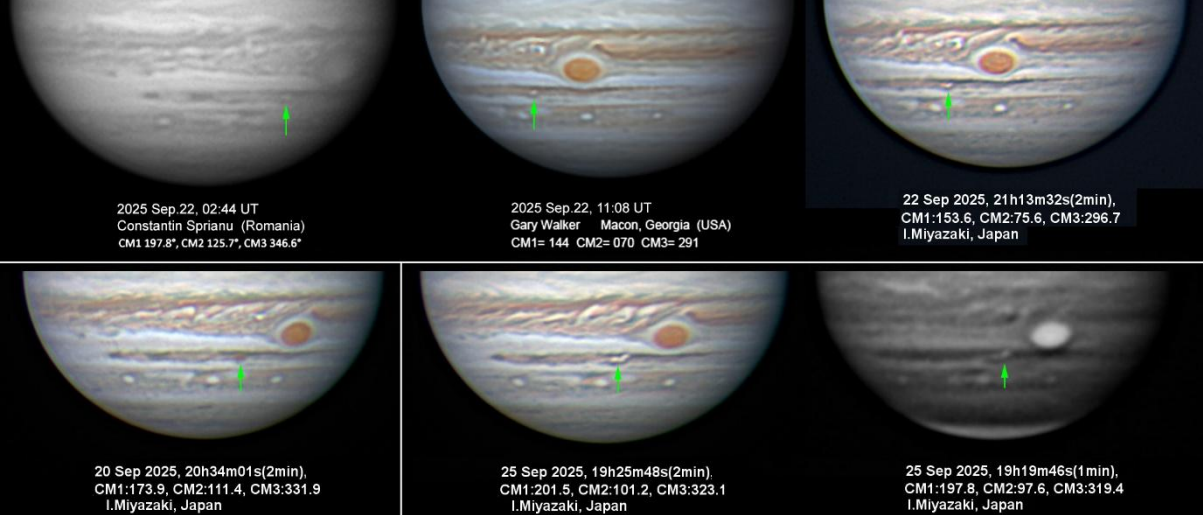


Figure 5:

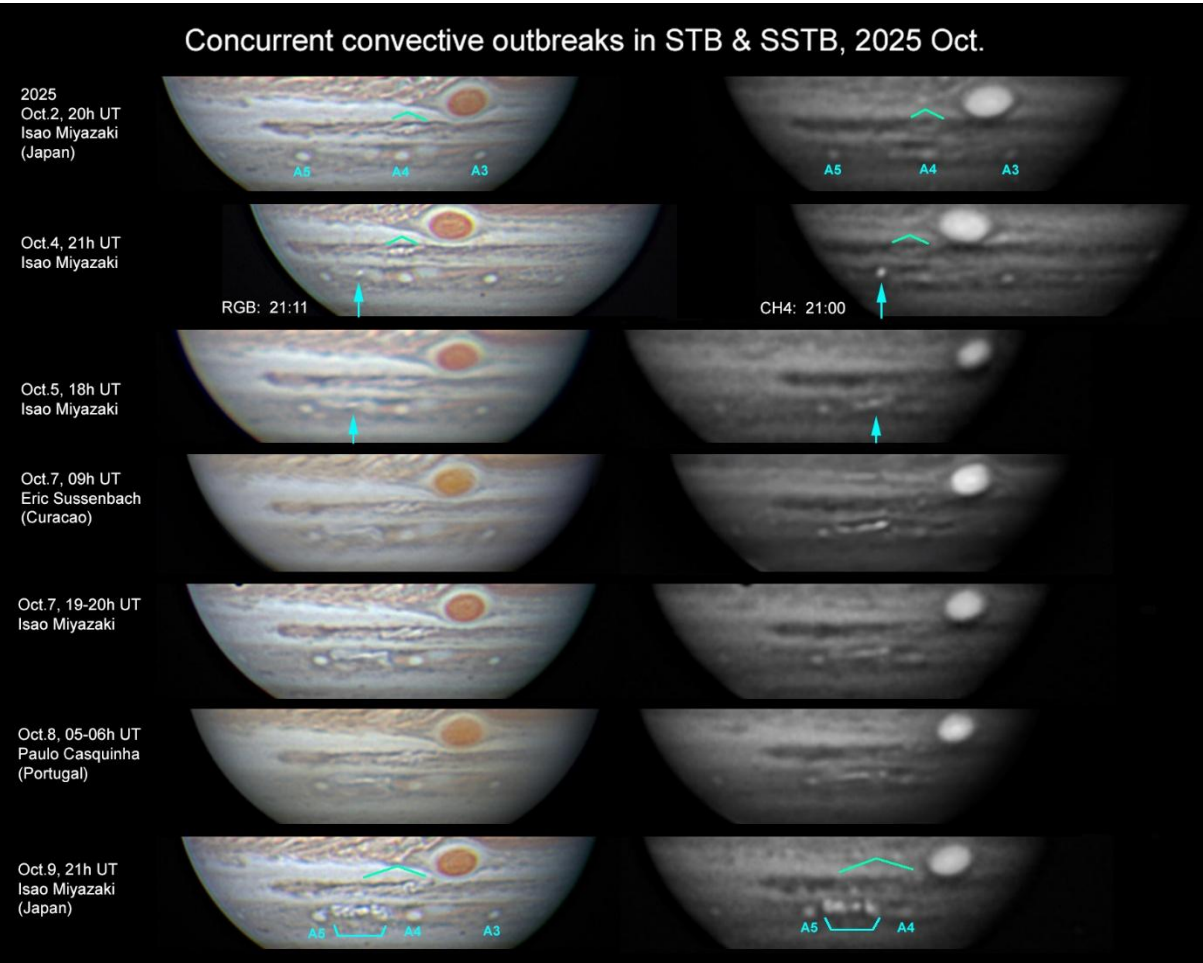


Figure 6:

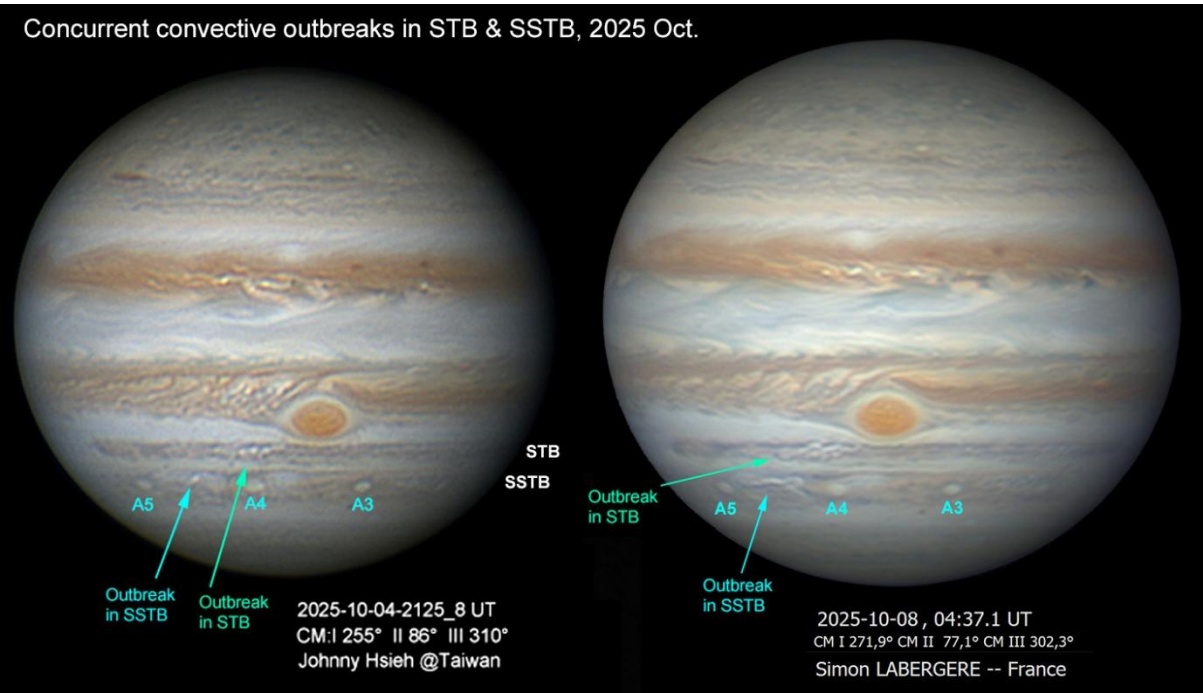


Figure 7:

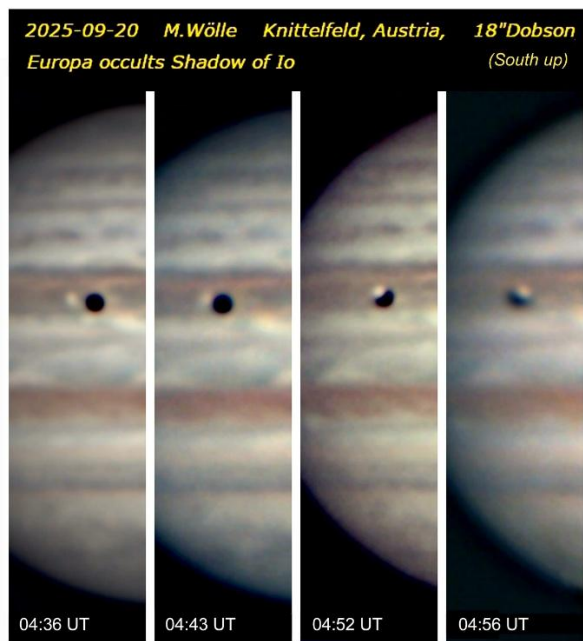


Figure 9:

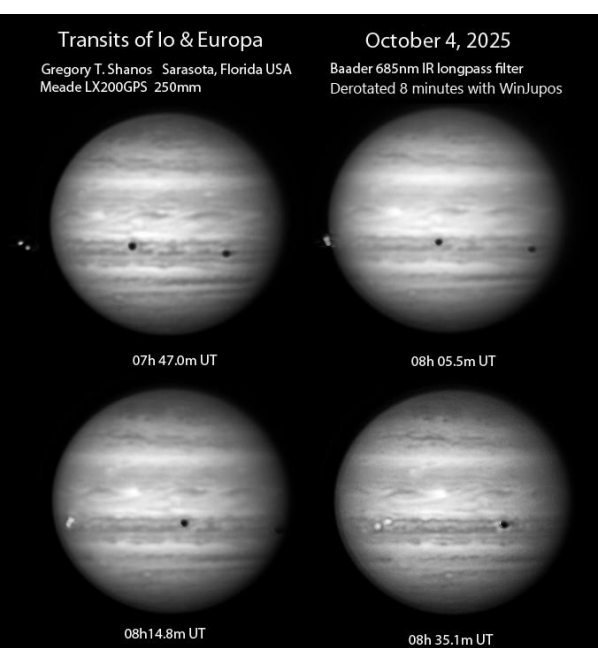


Figure 8:

