Astronomical Society of Southern Africa

ASSA Planetary Interest Group

Annual Report 2024- 2025

Introduction

Following discussions earlier this year, it was agreed that the writer should initiate a planetary interest group, which would fall under the ASSA Observing Section.

This report covers the period from July 2024-July 2025, will only highlight the most significant aspects of the period, and at this stage is focussed on the work undertaken by the writer from his Observatory (Oryx Observatory), located on the Khomas highlands in Namibia. It is anticipated that in the future more widespread interaction will be initiated, including a regular newsletter.

Over the last 11 years, the writer's planetary imaging work has primarily focused on Mars, Jupiter and Saturn, with some limited imaging of Mercury, Venus, Uranus and Neptune. More recently he has included more Venus images (UV and IR) in his imaging schedule.

The 2024-25 apparitions of Jupiter and Mars were rather poor from a southern observer's perspective due to their far northern declinations at opposition, and limited time was allocated to the two planets during the opposition months due to excellent coverage from our northern colleagues.

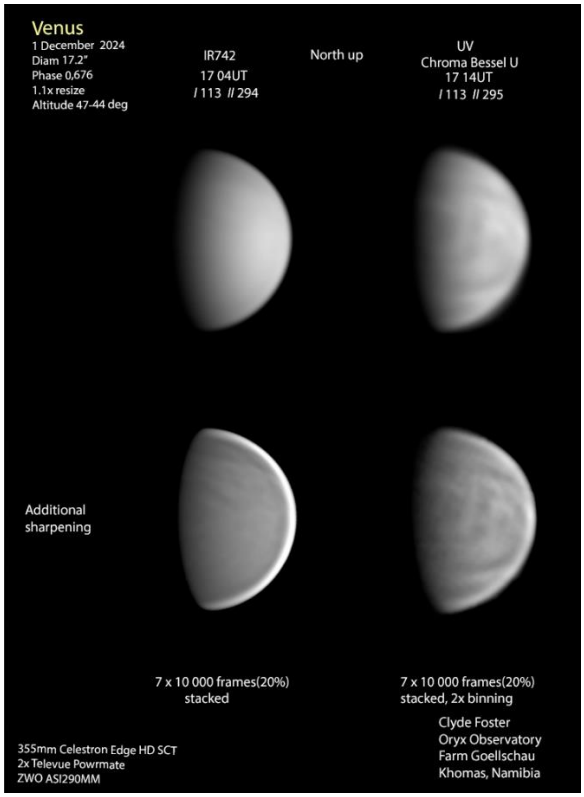
A highlight of the period was planetary presentations at the DHPS school in Windhoek for Space Week.

Mercury

Always a challenging target, and rarely observed, the writer was able to follow the morning apparition (western elongation) of the tiny planet (western elongation) over the period 12 April to 26 April this year. 10 images were captured during this period. Some surface detail was detected not least the bright impact crater, Kuiper.

Venus

Rather bland visually, the planet has been attracting more of the writer's interest in the last few years, particularly imaging in the UV (high cloud structures) and the Infra-Red (mid-atmospheric cloud structures), more specifically the Methane wavelength (890nm). From August to December 2024, 79 images were submitted to the international planetary databases, whilst so far this year 38 images were captured over the January and April apparitions. The writer has been credited (together with others) with a number of detections of the elusive Cloud Discontinuity (CD).



Mars

Despite its far northern declination during the 2024-25 apparition, making it a more challenging target for southern observer's, the writer did commit significant time and effort to monitoring the planet early and late in the apparition when fewer observers tend to image, and was rewarded with detection of a few localised dust storms, where interaction took place with the NASA Mars Reconnaissance Orbiter (MRO) mission team (Dr Bruce Cantor, Malin Space Science Systems who download and analyse the MRO data).

From August to December 206 individual images were submitted to the international databases, whilst so far this year 225 images have been submitted.

The writer continues to monitor the planet as it heads towards solar conjunction with the planet now at 4.5 arc-seconds in size.

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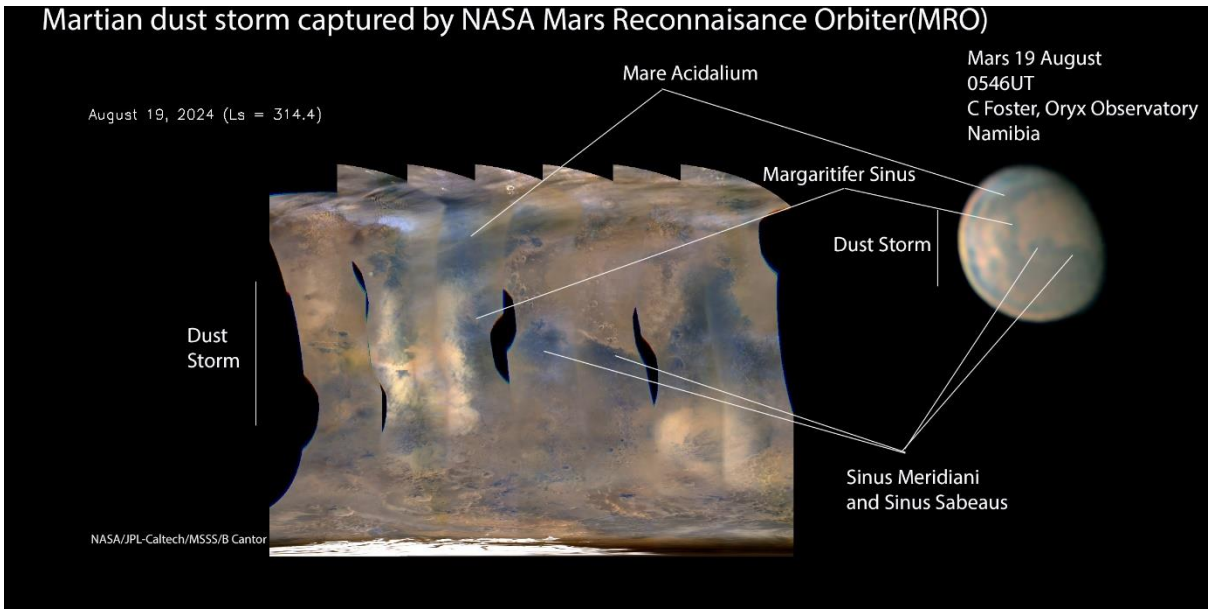
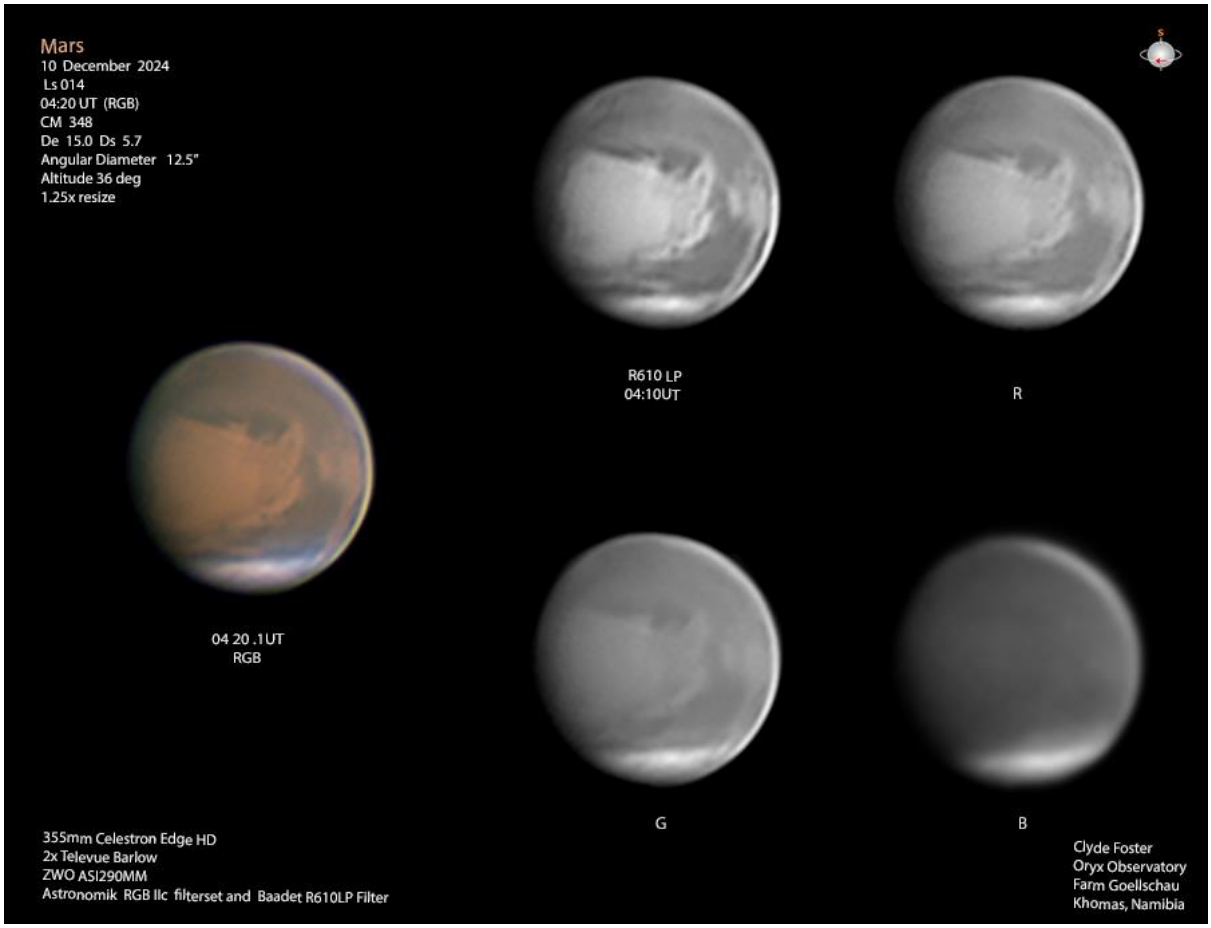


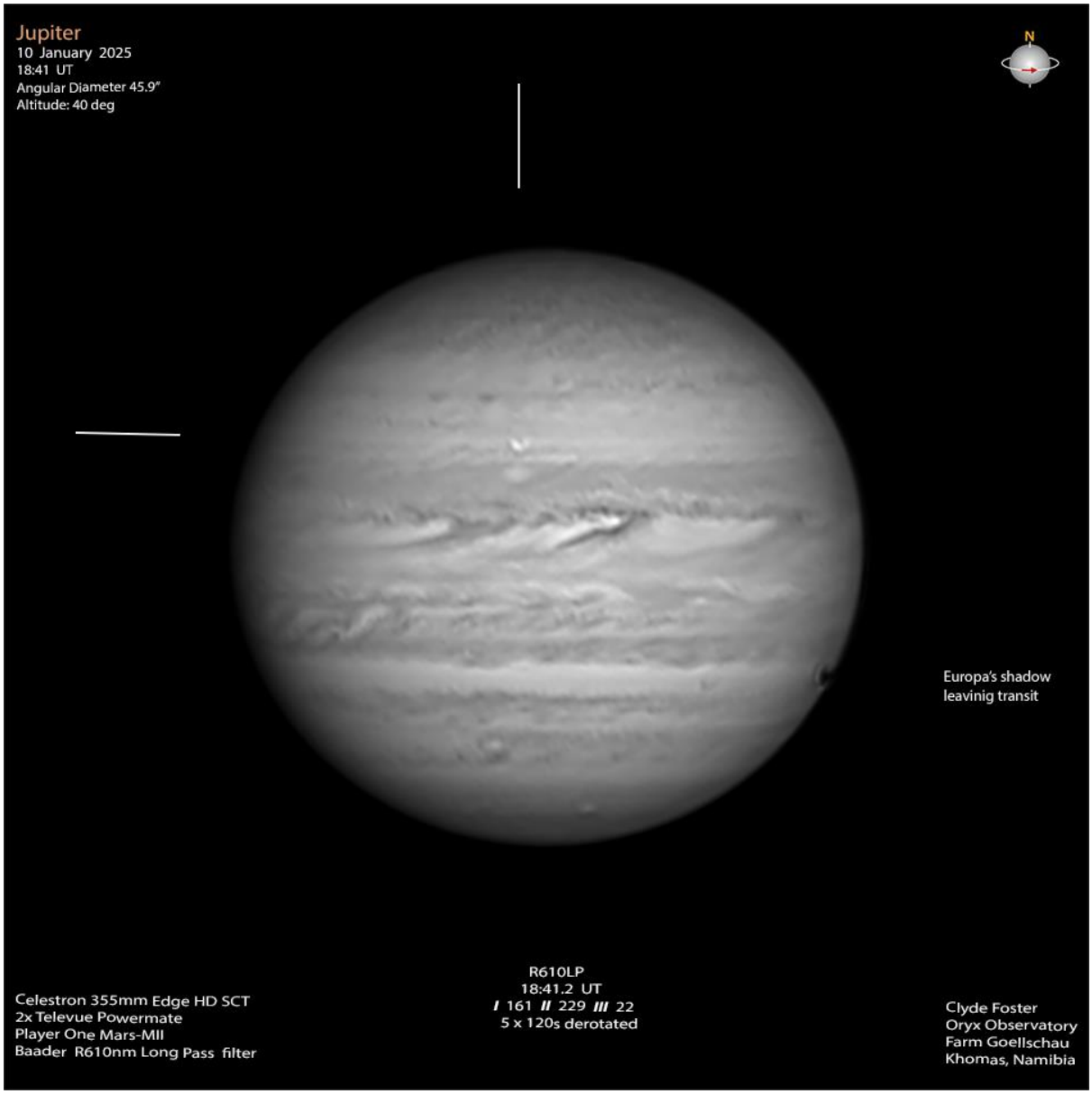


Jupiter

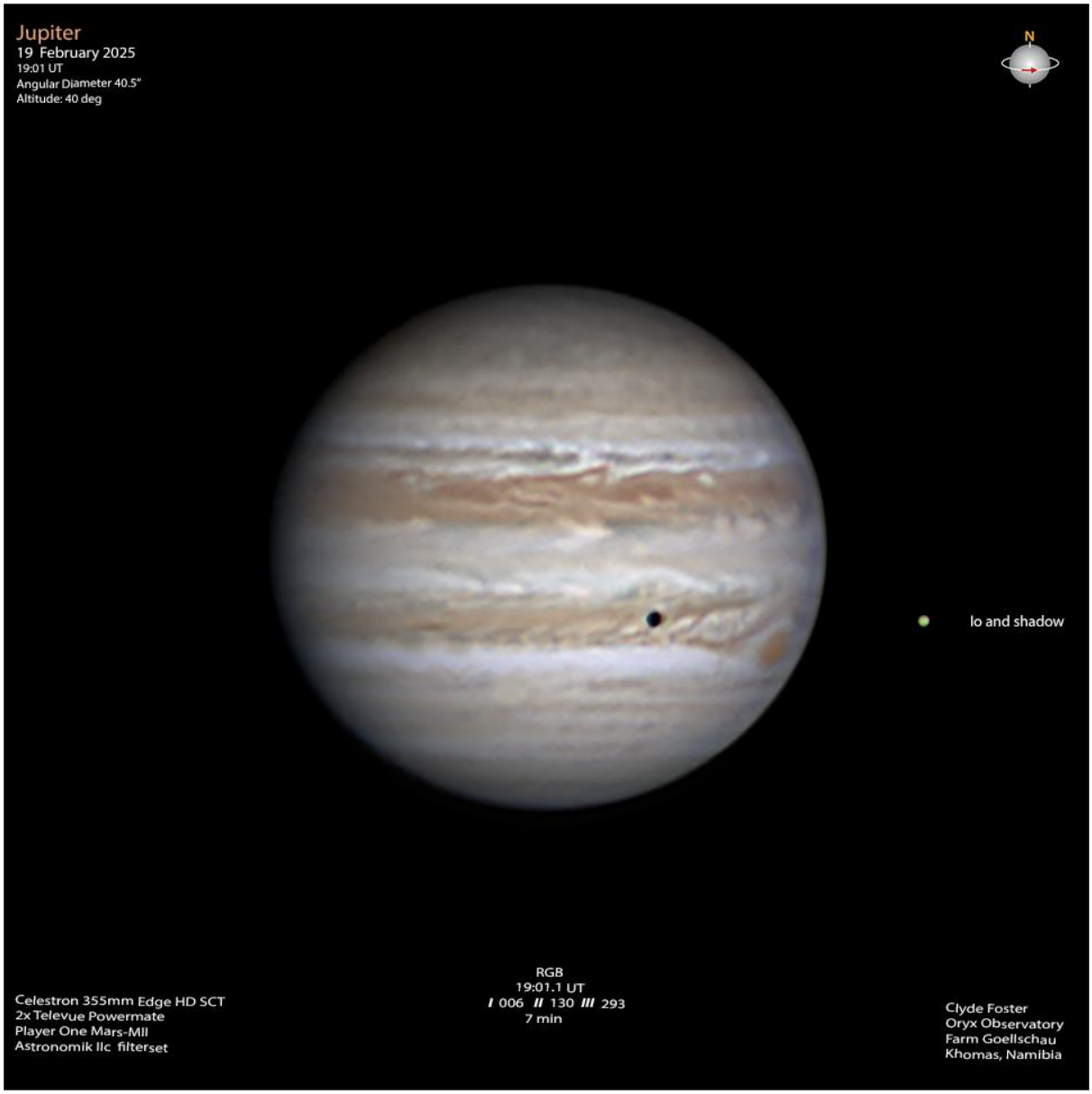
As with Mars, the giant planet was near its highest northern declination for most of the 2024-2025 apparition, far from ideal for southern observers. Given the many excellent images produced by our more northern planetary colleagues, the writer tended to allocate more time to the other planets, whilst still capturing Jupiter data when conditions were acceptable. He was co-credited with detection of one of the impressive North Temperate belt outbreaks which were one of the more notable features of this apparition. The writer continues to analyse all his Jupiter data for asteroid impacts using the DeTect software.

From August to December 2024, 15 images were submitted to the international databases.

So far this year, 45 images have been submitted



NTB outbreak detection image.



Saturn

With Saturn better placed for southern observers, much of the writer's attention was focussed on the ringed planet. For the first time since 2009, the southern surface of the rings has become visible and is slowly catching more sunlight. Unfortunately the ring plane crossing, when the rings are edge on to the earth, was not observable due to the planet's proximity to the sun.

47 images were submitted to the databases from August to December 2024.
109 images have been submitted so far this year.
All data is analysed by DeTect software for potential asteroid impacts.
With the rings close to edge on, multiple moon and shadows have been observable, including the impressive Titan transits.

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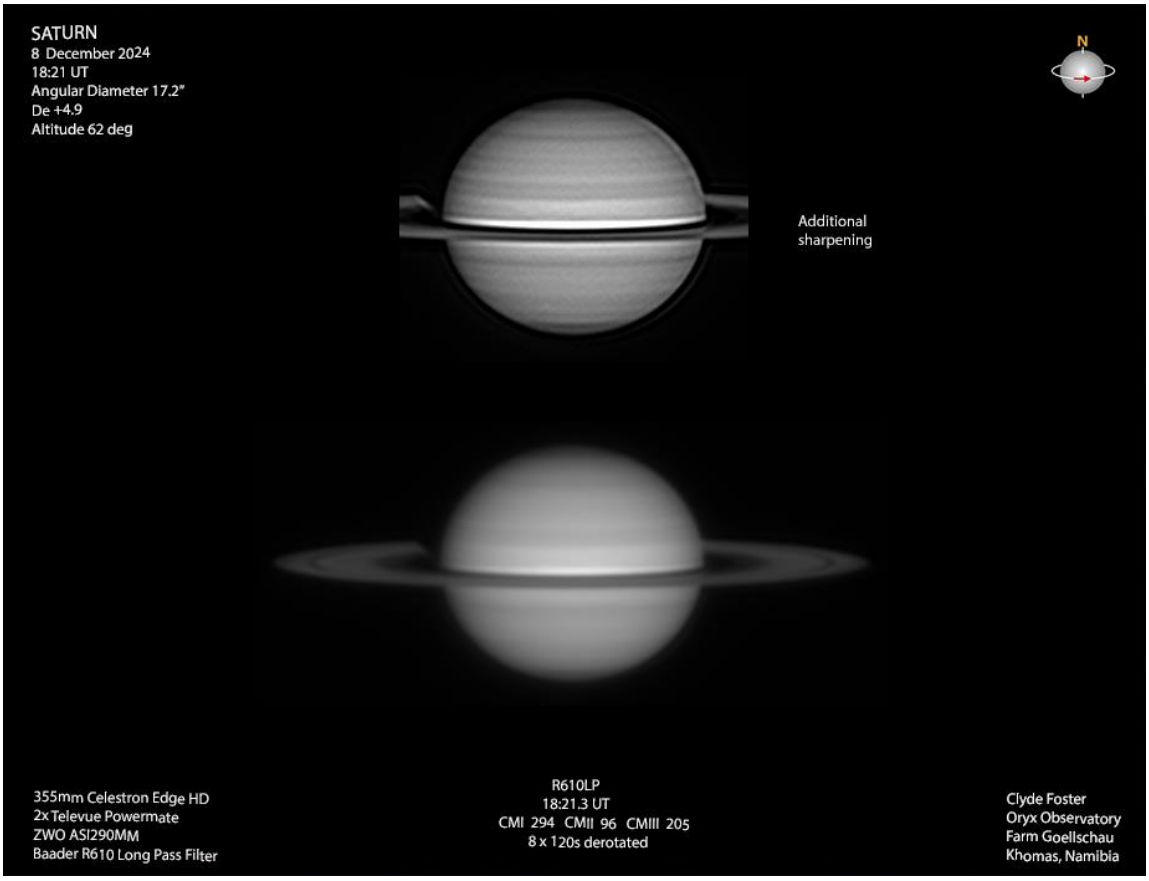

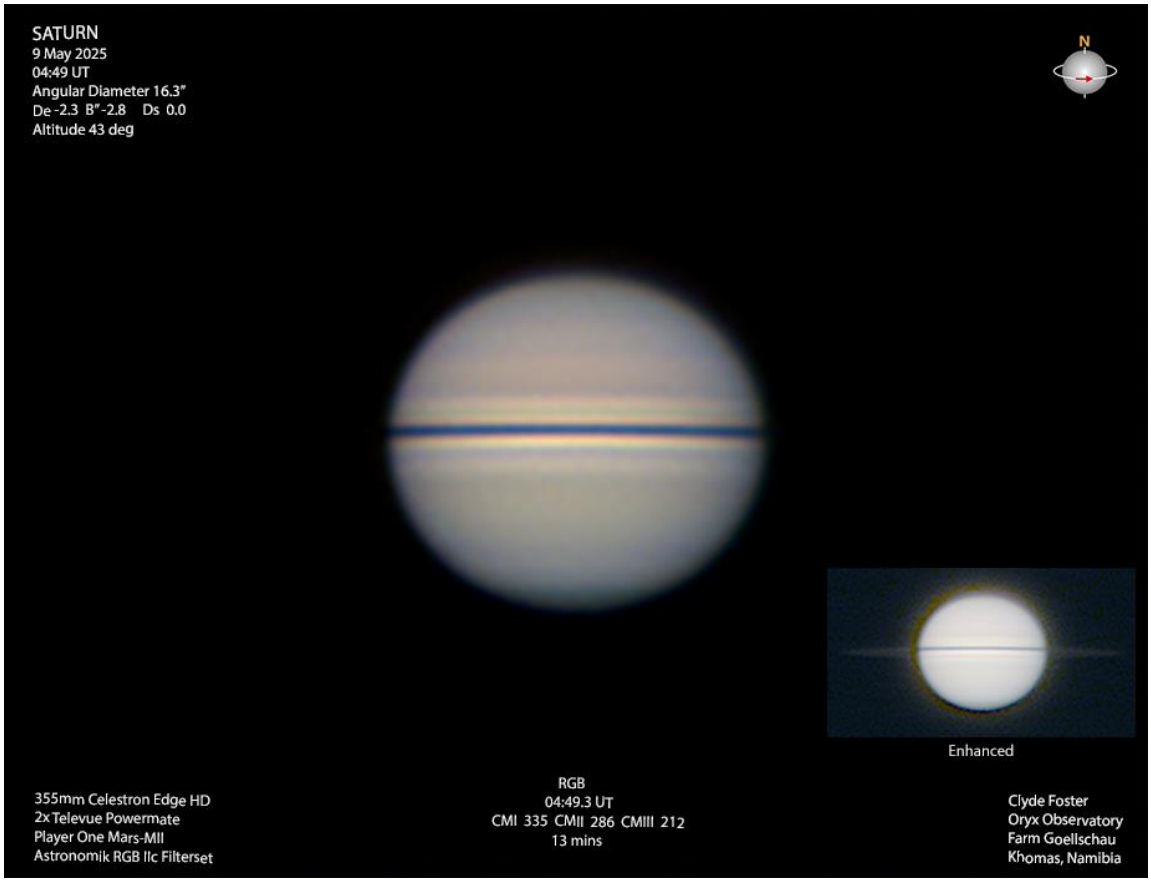

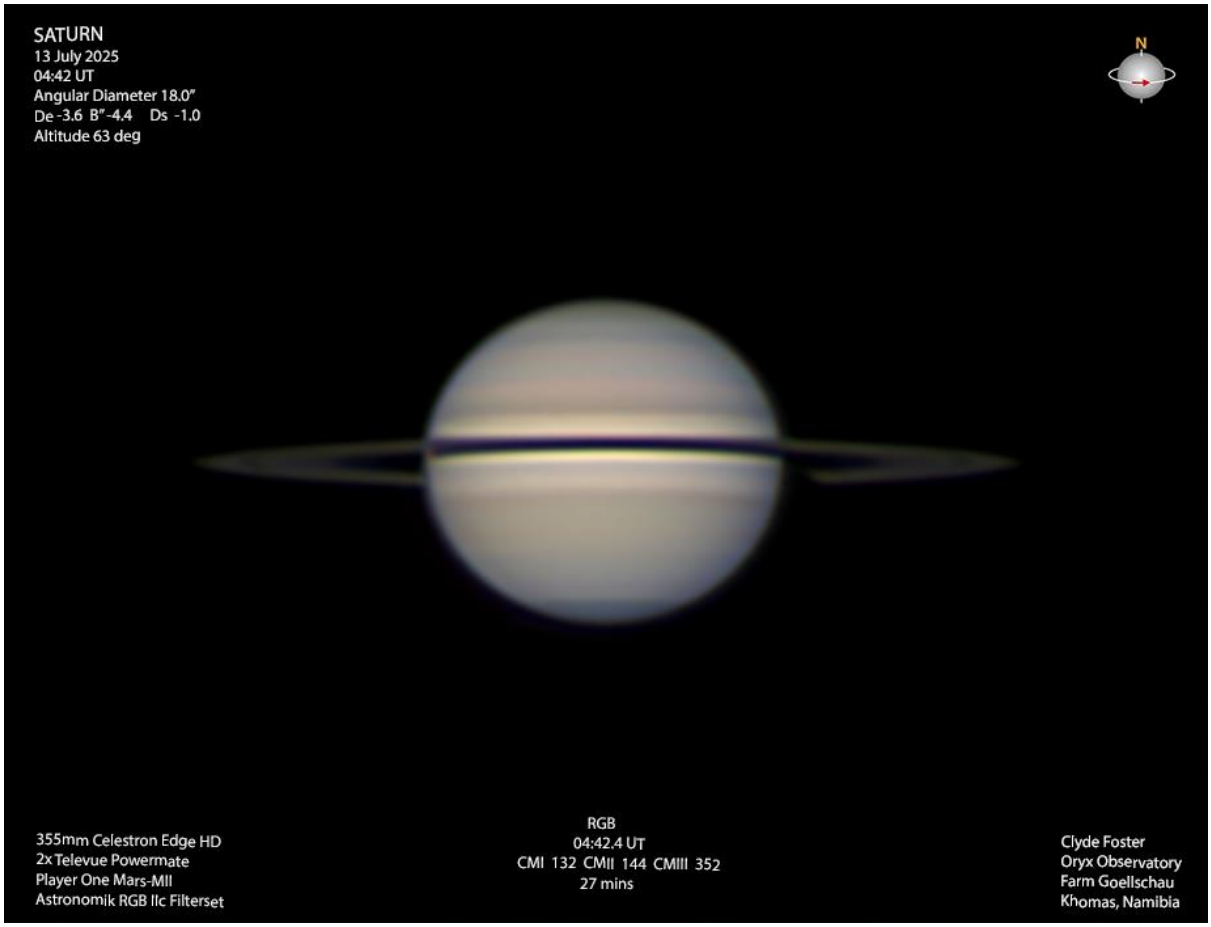

Uranus and Neptune

No observations were made of the two outermost planets during this period.

World Space week 2024- DHPS, Windhoek

One of my personal highlights of the year is when I was able to present a talk on the planets to the Grade 7 students at the German DHPS school in Windhoek. The students were split into two groups of +-30 each. There was wonderful interaction, and a few students kept me very busy after the talks!

I look forward to further interaction with DHPS and also presentations to other schools.

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Conclusion

The writer's intent is to continue his planetary imaging programmes, with the specific planetary targets based on attempting to optimise his contribution to the planetary science community.

It is also hoped that more open communication be shared on a regular basis with the ASSA community, including highlighting any specific events of interest. This will likely take the form of a newsletter, as well as sharing information via ASSAVIP email group.

Since the move to Namibia, the writer has developed a relationship with the Namibia Scientific Society Astronomy group, and it is hoped that the relationship can extend to developing closer links between NSS and ASSA in the future.

Clyde Foster

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