Hi, David, all

It is exactly as David said.

To reinforce the science behind this event, let me make further comments.

A link to our MNRAS paper about the 2020 Umbriel occultation is given on this Titania Web page.

In the paper, you will find in Table 2 some instrument/detector setups used on that occasion.

Now, from an observation perspective, things are more favorable, as Titania is more distant from Uranus (30 arcseconds), and the star is brighter (V=13.8 for Umbriel occultation, V = 11.8 for Titania).

The scientific goals are basically the same as those described for the Umbriel paper. But due to the more favorable situation, we can try to do a little better:

- find the apparent shape and size of Titania with high precision chords from a northern sub-observer point of view. Voyager II observed the south in 1986 and Widdeman et al. (2009, Icarus) studied the 2001 and 2003 occultations which sampled the limb of Titania from a equinox sub-observer point of view. Our data combined with theirs can set better figures for the ellipsoid of Titania.

- measure the limb variation of Titania as we did for Umbriel and compare with previous results from the northern (Voyager II) and equinox (Widemman et al.) sub-observer points of view.

- get better light curves with better S/N (brighter star) and improved time resolution. For Umbriel, we got exposure times of 0.1 s = 1.7 km. For Titania, we have 1 km = 0.046 s, therefore we should try 0.05 s exposure times for a 1 km resolution, if possible.

Light curves with good S/N and 0.05 s exposure times = 1 km resolution shall derive:

- excellent limb measurements;

- the possibility to detect local atmospheres with pressures above say 13 nbar, related to putative local bright spots which could be deposits of volatiles such as CO2.

Therefore, if you can, use your larger telescope and your best camera. Of course, all care must be taken with regard to time registration, as usual.

Best regards,

Marcelo Assafin

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Marcelo Assafin, PhD
Federal University of Rio de Janeiro
Valongo Observatory
Ladeira do Pedro Antonio 43 - Saude

zip: 20080-090 Rio de Janeiro BRAZIL
phone: (55)(21) 2263-0685 ext. 232
fax: (55)(21) 2263-0685 ext. 232
http://www.ov.ufrj.br/docentes/marcelo-assafin/
email: massaf@ov.ufrj.br
IAU Division A - Fundamental Astronomy
Steering Committee Member
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