



ExoClock Newsletter

Dear ExoClock participants,

we hope that you are all doing well! With September fast approaching, we are gradually entering the new academic year, a year that will be busy enough as we plan to add more material, hold more meetings and make further updates to the project. September is also important for ExoClock as the project was launched exactly one year ago, during the EPSC 2019 (European Planetary Science Congress) in Geneva! We would like to celebrate this first year of operation with all ExoClock participants so we will briefly discuss the main outcomes of this year during the upcoming meeting. We are only at the beginning of this journey, but it has been a great pleasure having all of you with us so far!

Next virtual meeting

As the new academic year begins (hopefully with less covid-related problems) we are restarting our virtual meetings, with the next one happening between the 7th and the 11th of September. With the number of ExoClock participants increasing continuously – we are more than 160 at the moment – we would like to reschedule the day and time of the meeting. Please fill in the doodle poll below, if you would like to indicate a day and time of the week that is more convenient for you.

<https://doodle.com/poll/iv5zv7xxgvcks4qm>

After this meeting, we will continue on the same day of the week and the same time for the rest of the year. Do not worry, if you miss any meeting, you can always watch it later through your ExoClock account.

As always, please send us any questions that you may have or any suggestions for topics that you would like to hear about. At the moment our agenda includes the following:

- Welcome the new participants and new national contacts
- Answer any questions you may have.
- Summarise the results presented in our first publication and the plan for the second publication.
- Discuss on how to present ExoClock to meetings/conferences.
- Summarise the first year of operation and define the projects for the next year.
- Discuss on how to plan coordinated observations.

HOPS updates

(version 2.6.2 is now available at <https://www.exoworldsspies.com/en/software>)

After your request, HOPS is now providing and estimation of the uncertainties in the photometry produced. Hence, from now on, you will find three columns in the produced light curve files (**PHOTOMETRY_APERTURE.txt**, **PHOTOMETRY_GAUSS.txt**):

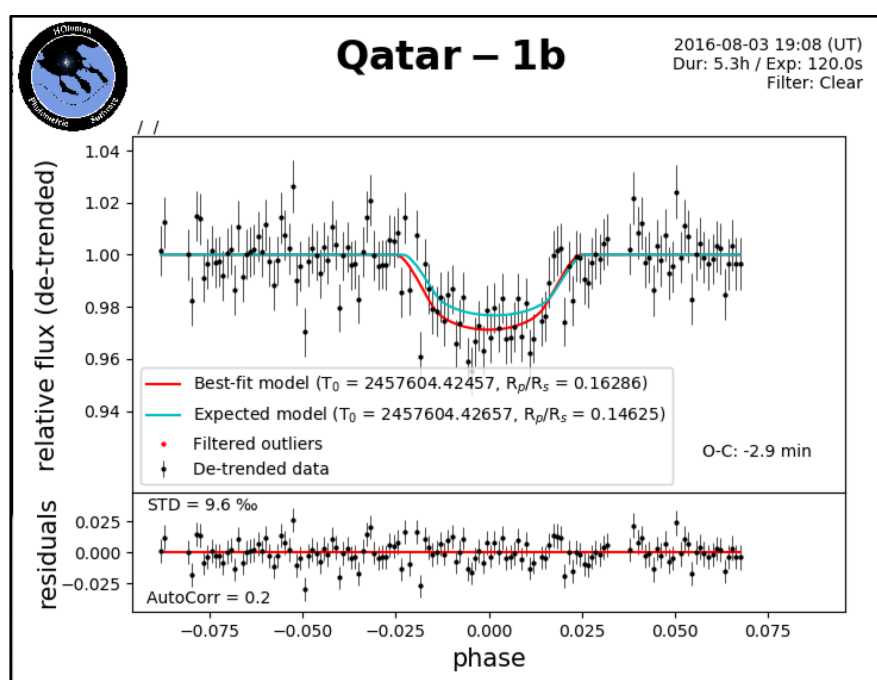
1. Time (JD UTC-based – related to the beginning of each exposure)
2. Flux (relative – produced by dividing the flux of the target by the total flux of the comparison stars)
3. Flux uncertainty (relative - produced by propagating the flux uncertainties for the target and the comparison stars)

You do not need to do anything to get this output, everything is done automatically. This update is towards making HOPS outputs more easily compatible with other databases, like ETD and AAVSO, since we would like to support the dissemination of results produced through the project to other communities.

However, it is important to note that:

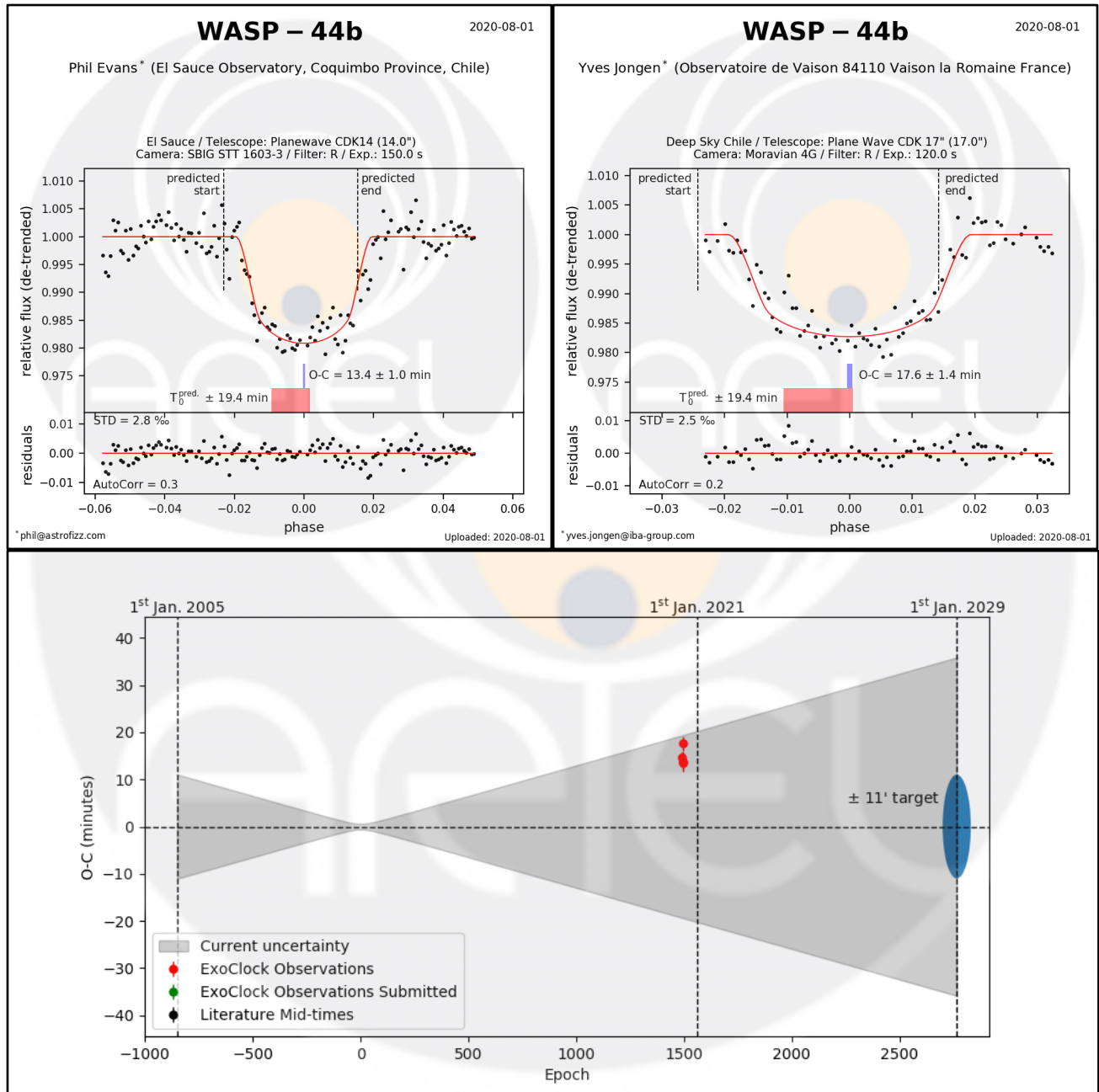
1. The time is referring to the **beginning of each exposure**, which means that **you may need to add half of the exposure time** to every element in the column.
2. The uncertainties are estimated based only on the photon noise for the star and the background. For **bright stars**, for which the read noise and the dark noise of the camera can be omitted, **you should multiply each element in the column by $\frac{1}{\sqrt{\text{camera gain}}}$** . For **faint stars**, for which the read noise and the dark noise of the camera are important, these uncertainties may be too small and misleading, so **you should not use them at all**.

On the ExoClock website and during the fitting process in HOPS, we do take care of both issues above, but we cannot possibly know if this is the case for other platforms, so **BE CAUTIOUS!**



Highlighted observations

Thanks to everyone who managed to observe some of the **ALERT targets** during last month. The alert system is working perfectly and provides great results, helping us confirm unexpected shifts. **WASP-44b** and **HAT-P-6b** were the two main alerts during August. Initially, for **WASP-44-b** a shift of 15 minutes was identified in observations by Yves Jongen and Carmelo Falco during July. Thanks to follow-up synchronous observations by Yves and Phil Evans, the shift was confirmed! Similarly, a shift of 25 minutes was identified in **HAT-P-6-b** but it still requires more observations to be confirmed. Congrats everyone for being so active and responsive to the Alert system!



ALERTS

For the following couple of months, the most important targets with observable transits are **HAT-P-40b** and **HAT-P-6b**. Additionally, the following targets (including old and new ones) are also in the current **alert system**. Please check your personalised alert schedule at:

<https://www.exoclock.space/schedule/alerts>

and if you get a clear sky and a long night, observe them!

- K2-30b
- WASP-31b
- WASP-26b
- WASP-47b

Slack channel

If you would like to join our Slack Channel, please email us and we will invite you!

We remind you also to send us at exoclockproject@gmail.com (or through the Slack Channel from now on!):

- Your feedback on the website
- Suggestions for new features
- Questions on the observations or the analysis
- Ideas for topics you would like to see in the newsletters

Stay well and healthy!

Clear Skies,
the ExoClock team

CHECK this out!

- We would like to thank **Alessandro Nastasi** for translating the HOPS manual in Italian (you can find it at <https://www.exoworldsspies.com/en/software>) and for volunteering to translate the ExoWorlds Spies website, with the instructions on how to observe exoplanets.
- We welcome **Francois Regemba** and **Filip Walter** to our team of national contacts, for **Canada** and **Czechia** respectively!
- Please let us know if you are interested in either translating some material to your own language or being the national contact for your country.