



ExoClock Newsletter

Dear ExoClock participants,

Hope you are all doing well!

We would like to welcome the new members!

We send out a newsletter like this at the beginning of every month, while you can read the past newsletters, watch the past meetings, and have access to other educational material at:

www.exoclock.space/users/material

We also organise meetings dedicated to new ExoClock members. These meetings are held just after our regular monthly meeting. The beginner's meeting will no longer be fixed on the Friday after our regular meeting, because we would like to facilitate participants with different schedules. In these meetings, newcomers have the opportunity to ask questions of any level related to the operation of the website, observations of transits, data analysis etc. Note that these meetings are not recorded.

Finally, we have a Slack channel for more direct communication and if you want to join, please send a request at exoclockproject@gmail.com.

In this newsletter, we discuss:

1. Announcements

1.1. Next ExoClock paper update

1.2. ExoWorlds Spies website in Spanish

1.3. New national contacts

1.4. EPSC 2022 - reminder

1.5. Synchronous Observations campaign

2. Highlighted observations

3. ALERTS

1. Announcements

1.1 Next ExoClock paper

The first analysis for our upcoming paper has been completed! In total there are **450 planets** ephemerides derived from **~17700 data points**:

- ExoClock network - 2900 observations
- Literature - 2500 points
- Space data - 12000 observations
- ETD data - 270 observations

We would like to thank you all for contributing to this effort with your observations. Special thanks also to all the working groups that assisted our efforts (review team, literature team, space data working group, ETD working group).

Now we are in the process of writing the paper. Co-authors will be contacted soon for more details.

1.2 ExoWorlds Spies website in Spanish

The *ExoWorlds Spies* website is now available in Spanish! The website includes guidelines for observing an exoplanet transit and for the data analysis part – how to install and how to use the HOPS photometric software.

<https://www.exoworldsspies.com/es/>

Many thanks to **Mercedes Correa** and **Florence Libotte** who translated all the material to Spanish, in an effort to expand the project to Spanish-speaking people. Florence is also the ExoClock national contact point for Spain. Please share it with any Spanish-speaking audiences that you think may find it useful.

If you are interested in translating material in a language that is not already available, send us an email to: exoclockproject@gmail.com

1.3 New national contacts

We are glad to announce that our team has expanded with national contacts for new countries! National contacts support our efforts to disseminate ExoClock to communities within their countries. They also facilitate participants in local communities. For any questions, participants are encouraged to contact their national contacts in their language to get support.

UK – Rodney Buckland
Spain – Florence Libotte
Poland – Adam Popowicz

1.4 EPSC 2022 abstract deadline - reminder

We remind you that the deadline to submit an abstract to the EPSC 2022 (European Planetary Science Congress) is on the **18th of May**. EPSC is the largest Planetary Science Conference that takes place in

Europe every year. This year the congress will take place in Granada, Spain. There are several sessions dedicated to exoplanets and to pro-am collaborative efforts. We plan to present ExoClock and we are involved as conveners in some sessions.

The link for the conference and to submit an abstract is:

<https://meetingorganizer.copernicus.org/epsc2022/sessionprogramme>

1.5 Synchronous observations campaigns

Recently, we decided to open-up the efforts of the synchronous observations working group to the entire ExoClock community. Thank you for joining this work, we hope to continue this research and see what results we can get. We will run this kind of campaigns once every two or three months and we will be keeping you updated.

Second effort: TOI-1789b results equivalent to 33.5-inch telescope!

The second synchronous observations campaign was for **TOI-1789b** in April.

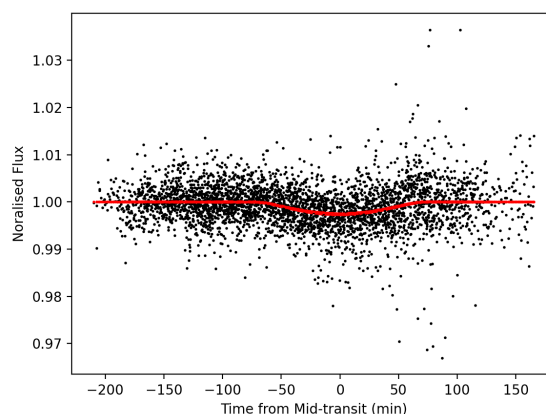
<https://www.exoclock.space/database/planets/TOI-1789b/>

16 observations were conducted on the 15th of April. The telescopes that participated had ranges from 7 to 17 inches, using Rc, L, r', V or no filter, and the total observing time was **48.5 hours**. The total signal contributed by all the telescopes was equivalent to a single observation of **4.3 hours by a 33.5-inch telescope**.

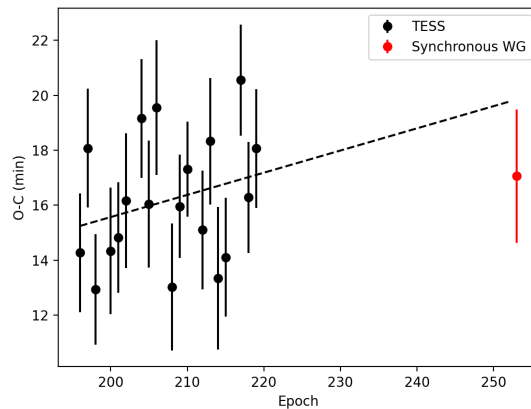
While the individual observations were not good enough to produce a reliable result (some of them were partial), the **signal-to-noise ratio** achieved by combining all the observations was exceptional with a value of **13.45**. This is very close to the expected **signal-to-noise ratio of 13.55**, meaning that the efficiency of the synchronous observations reached the **level of 99%**.

We would like to thank the synchronous observations working group and especially **Alessandro Nastasi** for organising this effort, and the observers who took part in it, namely: **Leon Bewersdorff, Attilio Bruzzone, Mauro Caló, Dominique Daniel, Simon Dawes, Claudio Lopresti, Jean-Baptiste Marquette, Paolo Arcangelo Matassa, Eric Miny, Robert Roth, Lionel Rousselot, John Savage, Dave Shave-Wall, Alberto Tomatis, Bob Trevan, David Wright**.

Combined light-curve and transit model:



O-C diagram in comparison with the observations from TESS:



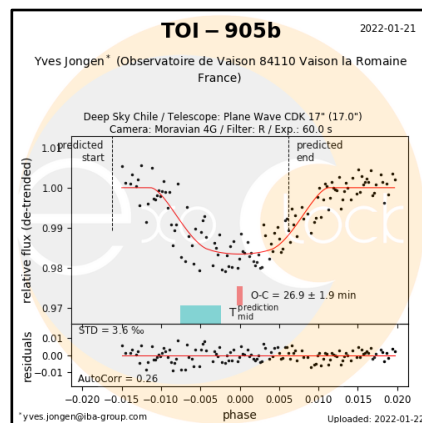
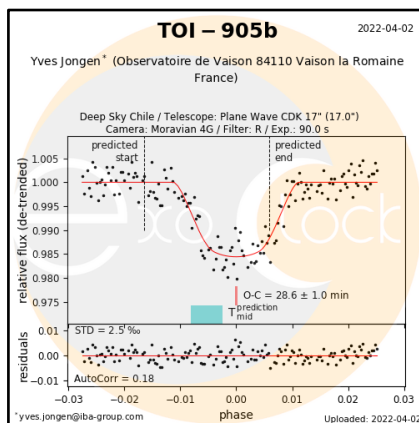
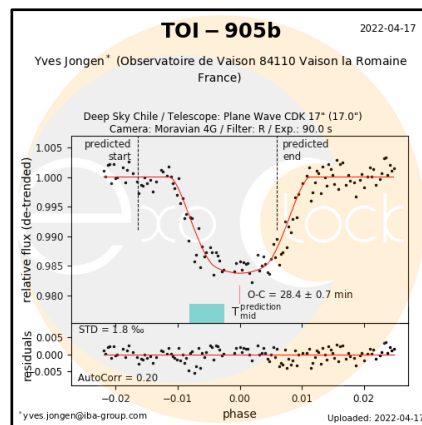
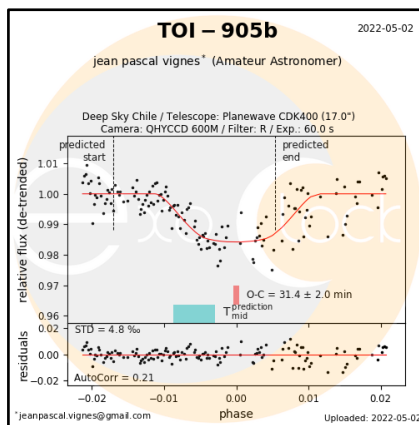
The next synchronous observations campaign will be organised in June. We will keep you updated!

2. Highlighted observations

We would like to thank you all for the observations you contributed in April!

We have selected TOI-905b, for which a shift of ~27 minutes was initially identified by Yves Jongen in January 2022. This drift was confirmed by more observations in April by Yves and Jean Pascal Vignes. Below you can see the light-curves.

Congratulations for your efforts!



3. ALERTS

Thank you all for observing the alert targets! Please check your personalised alert schedule at:

www.exoclock.space/schedule/alerts

for the **ALERT** planets and if you get a clear sky and a long-enough night, you can try observing them!

The following targets are in the current **alert system**:

- WASP-38b
- WASP-7b
- WASP-192b
- WASP-185b
- WASP-84b
- HATS-10b

Please remember that many targets were not in the alert list, before an unexpected shift was identified by you, the ExoClock participants. This highlights the importance of observing targets that are also of low and medium priorities.

Clear Skies,
the ExoClock team