



ExoClock Newsletter

Dear ExoClock participants,

we hope that you are doing well! Despite the different conditions, the academic year started very actively, and September was a rather busy month for ExoClock!

During the past month, these were the main activities that took place:

- ExoClock virtual meeting – September 2020
- EPSC2020 – European Planetary Science Congress 2020 – presentations related to ExoClock and Ariel
- Splinter meeting on Ariel and ExoClock at EPSC2020
- Announcement of the collaboration with the ETD – Exoplanet Transit Database
- Launching a campaign for a new ExoClock logo

ExoClock virtual meeting - September 2020

We had our first meeting for the academic year where we shared the most important points of the **ExoClock publication** and we also discussed plans for the future.

Below you can find a brief summary and some highlights:

- Submitted to Experimental Astronomy in July and it was part of a special issue on Ariel
- There are 46 co-authors of which 35 stated to be amateur astronomers
- Includes 650 observations and in total 119 planets
- Regarding the results:

1. 19 high priority targets were refined (**example K2-30b**).

Below you can see the O-C diagrams before and after the refinement:

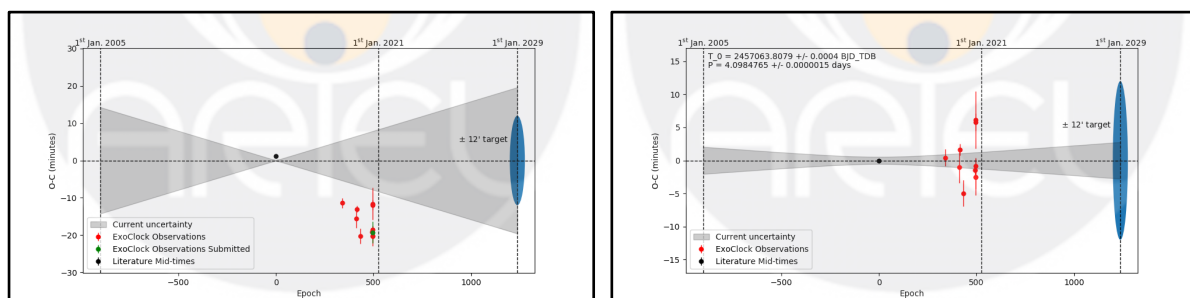


Figure 1: O-C diagram for K2-30b before (left) and after (right) the ExoClock refinement

- There are 9 targets for which an unexpected shift was found (example XO-4b)
Below you can see the O-C diagrams before and after the refinement

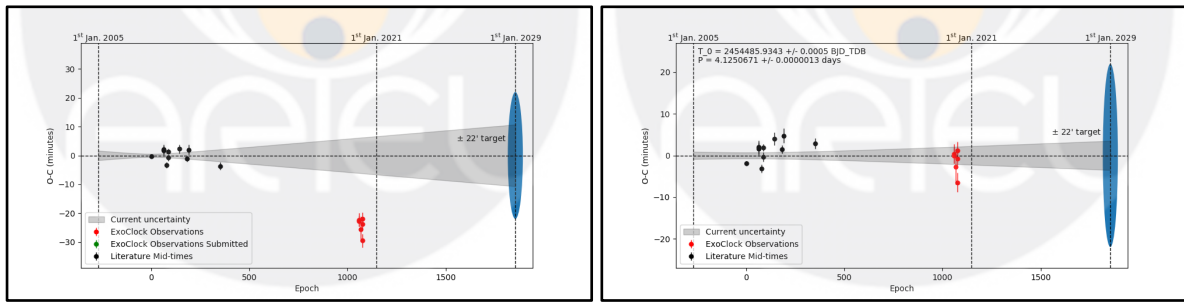


Figure 2: O-C diagram for XO-4b before (left) and after (right) the ExoClock refinement

- 59 targets were verified (example WASP-103b).
Below can see the O-C diagrams before and after the refinement

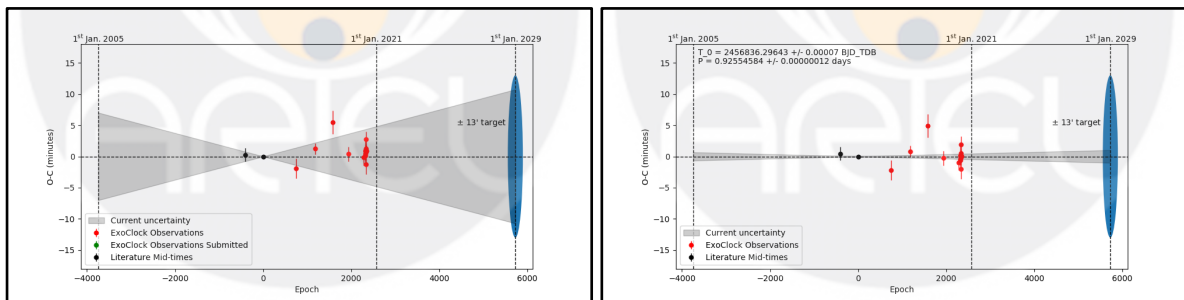


Figure 3: O-C diagram for WASP-103b before (left) and after (right) the ExoClock refinement

- Finally, the remaining number of targets are waiting for at least one more observation to either refine or confirm their ephemerides.

The paper has passed the first review stage and we hope that it will be accepted for publication soon. After this point, we will make it available to everyone.

You can access this meeting and all the previous ones here:

www.exoclock.space/users/material

Next virtual meetings

The number of ExoClock participants is increasing continuously – we are more than 170 at the moment – we would like to know the day and time that suit most of you.

Some of you have already filled the poll, for those that haven't, please fill in the doodle poll below, to indicate a day and time of the week that is more convenient for you. At the moment, Thursday is the day that

www.doodle.com/poll/iv5zv7xxgvcks4qm

EPSC2020 - main points

The European Planetary Science Congress – EPSC – is the largest meeting for planetary sciences in Europe and takes place every year in different countries. This year, although the congress was organised virtually, it included various events in addition to the main presentations.

Most of the talks are available for non-registered participants and there are several events related to both exoplanets and amateur astronomy. Especially ExoClock was presented in various points and we are happy to see high interest by different communities!

We encourage you to check the EPSC website and watch presentations and material that is of your interest. We would like to draw your attention to the following talks related to exoplanets and involvement of amateur astronomers which also referred to ExoClock:

- The ExoClock Project: an open integrated platform for maintaining the Ariel target ephemerides with contributions from the public by *Anastasia Kokori*

Available at:

https://meetingorganizer.copernicus.org/EPSC2020/oral_presentations_and_abstracts/38423

- Citizen Scientist Participation in Transiting Exoplanet Science by *Mark Salisbury, PhD student at Open University and member of BAA*

Available at:

https://meetingorganizer.copernicus.org/EPSC2020/oral_presentations_and_abstracts/38424

- Importance of citizen Czech Astronomical Society for variable star and exoplanet research by *Katerina Honkova and Filip Walter*

Available at:

https://meetingorganizer.copernicus.org/EPSC2020/oral_presentations_and_abstracts/38424

These were part of the sessions:

“Professional-Amateur collaborations in small bodies, terrestrial and giant planets, exoplanets, and ground-based support of space missions”

and

“Open planetary science for effective knowledge co-creation and dissemination”

More information on the EPSC2020 can be found here:

www.epsc2020.eu/home.html

Splinter meeting on Ariel and ExoClock

As part of EPSC2020, we organised a special meeting dedicated to Ariel and contributions by amateur astronomers through ExoClock. This meeting includes presentations by several people involved in

Ariel and discuss/ mention different aspects of the mission. This meeting is available online and open to everyone who would like to watch. Please share it with interested people who would like to get a better idea of Ariel and the support that ExoClock provides to the mission.

We are really glad that the *PI of the mission, Giovanna Tinetti* gave a talk and was there to answer questions raised by attendees.

The meeting also gives information for people that would like to join ExoClock and it gives an overview of how ExoClock operates.

We would like to thank also *Martin Crow, ExoClock participant and member of the BAA* who shared his experience during the meeting, his presentation was really supportive for other exoplanet observers.

You can access the meeting here:

www.exoclock.space/epsc2020_splinter

or here:

www.youtube.com/watch?v=2LVpcjj6oE

Launching the ExoClock logo campaign

We have launched a campaign for a new ExoClock logo and this is open to everyone - and of course there are no requirements such as having a telescope!

The prize for the winner is free observing time with the telescopes of Telescope Live in collaboration with Marco Rocchetto who is also a member of the ExoClock team.

Please share this with interested people - not only ExoClock participants!

More information can be found here:

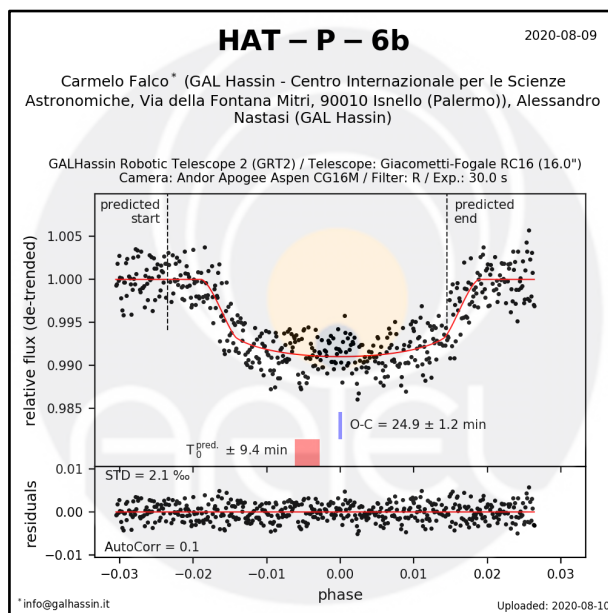
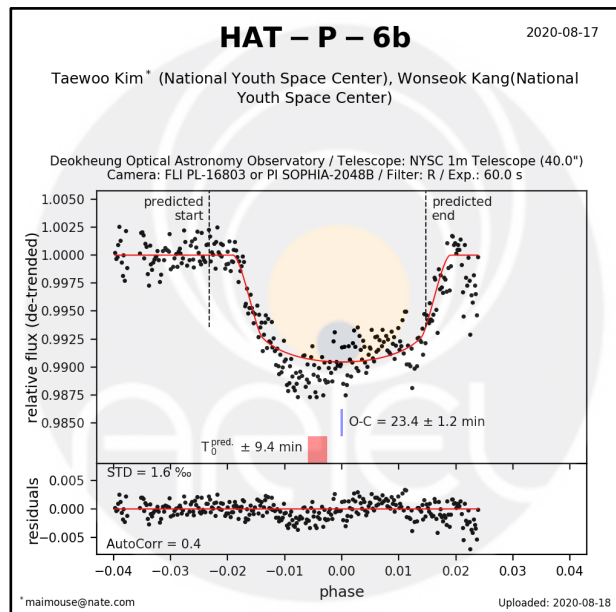
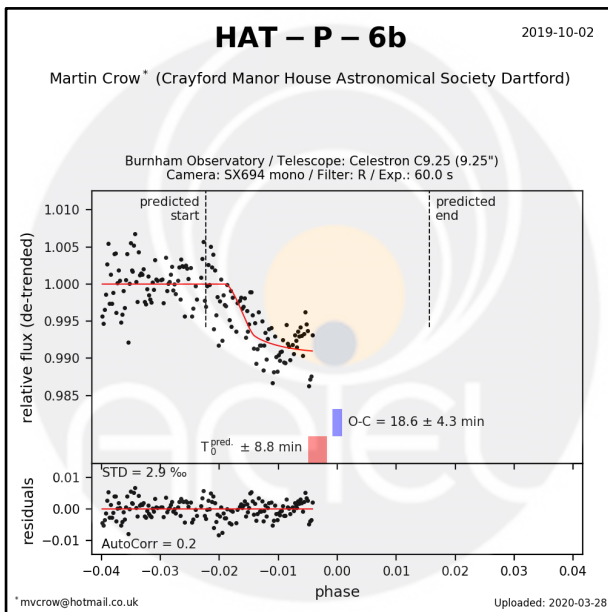
www.exoclock.space/logo_campaign

Highlighted observations

Thanks to everyone who observed some of the **ALERT targets** during last month!

The alert system is really helping us confirm unexpected shifts which were not detected previously. The detection and the confirmation of these shifts would have not been possible without your excellent collaboration. **HAT-P-40b** and **HAT-P-6b** were the two main alerts during September. Many of you managed to observe **HAT-P-6b** and indeed, a time shift of approximately 20 minutes had been detected. This target had already past observations but only after your efforts, this time shift has been finally confirmed. Although many observations could be highlighted, we share here three light curves that initially identified the shift and belong to the following observers: Martin Crow, Carmelo Falco & Alessandro Nastasi and Taewoo Kim. Many thanks to all for spotting a shift of 20 minutes!

More recent observations by many of you confirm this time shift and the ephemeris will be updated.



ALERTS

HAT-P-40b remains an alert target and it has only two remaining transits for this season. Additionally, the following targets are also in the current **alert system**. Please check your personalised alert schedule at:

www.exoclock.space/schedule/alerts

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

- WASP-56b
- WASP-62b
- K2-140b
- WASP-126b
- WASP-100b

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 volunteering to translate the ExoWorlds Spies website, which is now available online! Please share this with any Italian communities that might be interested. The Italian version is accessible here: www.exoworldspies.com/it/
- 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.