

Developing a user-friendly photometric software
for exoplanets to increase participation
in Citizen Science (CS)

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Definition - origins

- Public participation in the scientific process
- 20th century → an activity for the privileged
- 21st century → “Astronomy from the Chair”
- everyone has access

Objectives

- Increase Public Understanding of Science (PUS)
- Increase Public Engagement with Science and Technology – Horizon 2020 (PEST)



Attract citizens that differ in their preexisting levels of engagement with science

Benefits

- For the scientific community: support for the research
- For the volunteers: involvement in real research and learning
- For the society: enhancement of the relationship between scientists and the public

Current issues in CS

Need for:

- Innovative tools
- Rigorous statistical analysis methods
- Systems for ensuring high-quality data
- Interactive technological and educational techniques
- Research on the best ways for people to learn through citizen science process
- Collaboration between various expertise for a better result

The case of HOPS

Features

- interactive techniques – User Interface
- accessible from everyone
- geospatial
- windows, linux, mac

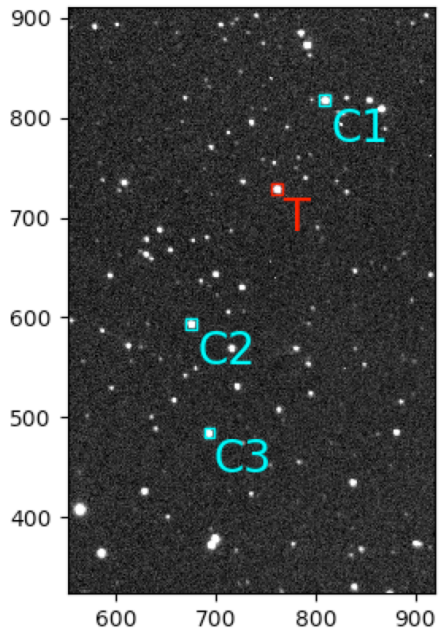


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Fitting

Light-curve file	PHOTOMETRY_5 PHOTOMETRY_APERTURE.txt	Planet	Qatar-1 b Qatar-1 b
Binning	1	Iterations	130000
Scatter limit	3.3	Burned iterations	30000
Filter	V	Period [days]	1.42002504
Stellar metallicity [Fe/H, dex]	0.2	Mid-time [days, HJD]	2455518.4102
Stellar temperature [K]	4910.0	Rp/Rs	0.14541887776983559
Stellar log(g) [cm/s^2]	4.556921012746879	a/Rs	6.262787654111804
		Inclination [deg]	83.82
		Eccentricity	0.0
		Periastron [deg]	0.0



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Photometry

	Position	Box semi-length
<input checked="" type="radio"/> Target	761.1 728.0	<input type="text" value="5"/>
<input type="radio"/> Comparison 1	809.0 817.0	<input type="text" value="5"/>
<input type="radio"/> Comparison 2	675.1 593.3	<input type="text" value="5"/>
<input type="radio"/> Comparison 3	692.7 484.2	<input type="text" value="4"/>
<input type="radio"/> Comparison 4	0 0	<input type="text" value="0"/>
<input type="radio"/> Comparison 5	0 0	<input type="text" value="0"/>
<input type="radio"/> Comparison 6	0 0	<input type="text" value="0"/>
<input type="radio"/> Comparison 7	0 0	<input type="text" value="0"/>
<input type="radio"/> Comparison 8	0 0	<input type="text" value="0"/>
<input type="radio"/> Comparison 9	0 0	<input type="text" value="0"/>
<input type="radio"/> Comparison 10	0 0	<input type="text" value="0"/>

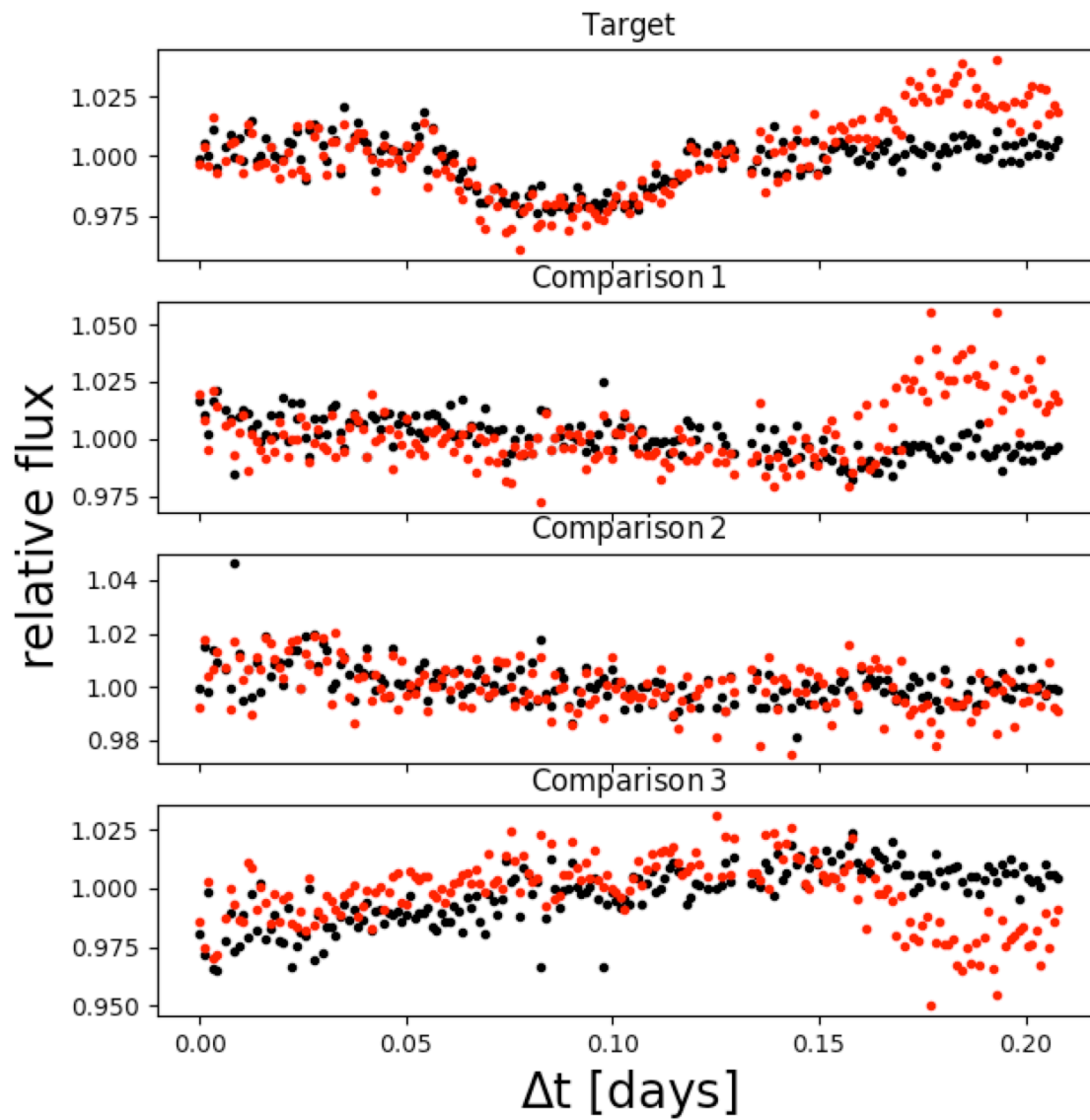
Show FOV

RUN PHOTOMETRY

PROCEED TO FITTING



pan/zoom

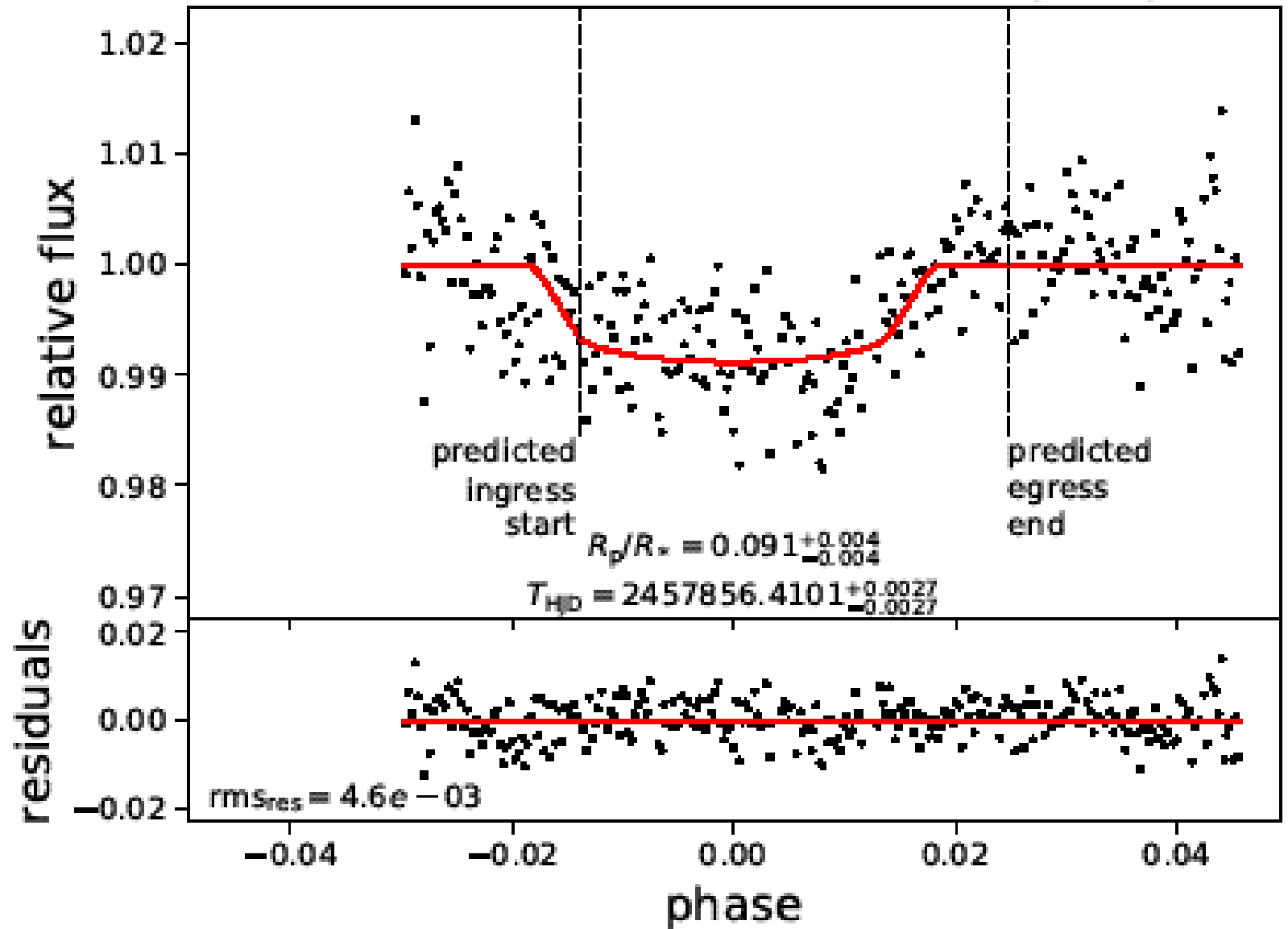


The objectives of the project

- Better estimation of transiting exoplanets' ephemeris
- Better characterization of the orbital parameters

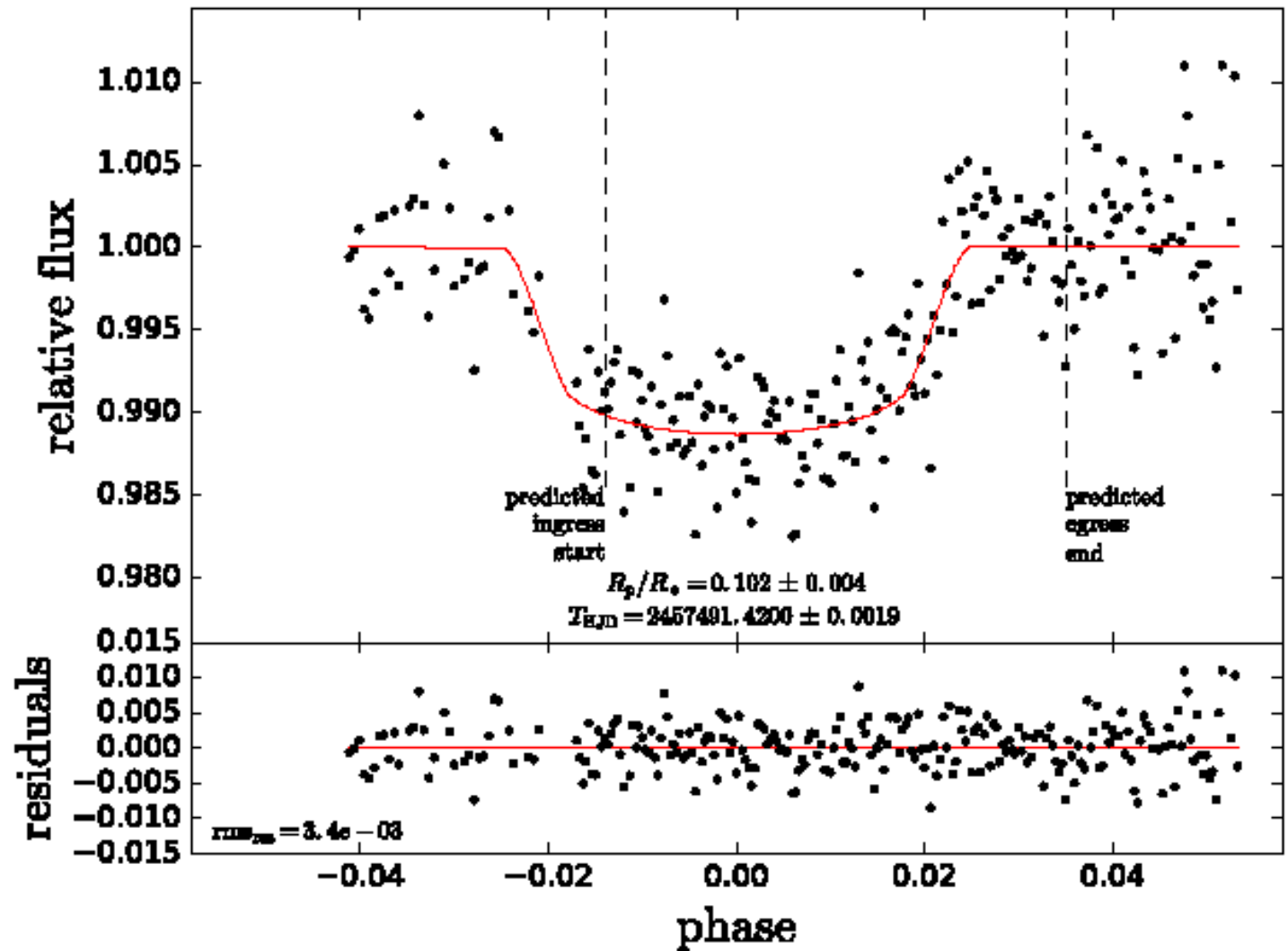
WASP - 54b

2017-04-12



KELT 3 b

13/04/2016



Conclusion

- Current use of HOPS in CS projects –online panel in progress
- Collaboration between different universities and people from different places- community development
- Application in the field of exoplanets or in other fields
- Ideas-proposals for improvement
- For more information/ ideas send an email to:
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