



BAV results of observations – transits of exoplanets in 2023

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Abstract: *This study presents 66 results from observations of 56 confirmed transiting exoplanets and 20 observations of 19 candidates, conducted by members of the BAV in 2023. All photometric measurements were analyzed using the ETD algorithm, with results submitted to the ETD and ExoClock databases.*

All results were obtained in 2023 by photometry of CCD images and the subsequent evaluation of the obtained light curves with the algorithm of the Exoplanet Transit Database (ETD) [1]. The mid-transit times are provided in Heliocentric Julian Date (HJD) format, expressed in UTC. The transit duration is given in minutes and the transit depth in mag. The mean errors are tabulated in columns “+/-”.

In cases in which no values for transit depth or transit duration were given, data from the literature were assumed to be given in the evaluation process.

Most results listed here have already been sent to the ETD and the project ExoClock [2]. For results that were not recorded in these two databases, the light curves are presented in the appendix.

The abbreviations used in the table are explained at the bottom of the table

Explanations to the table columns

column 1		designation of confirmed exoplanet or candidate planets
column 2	HJD 24..	heliocentric UTC timings of the observed mid-transit times
column 3	+/-	error of the observed mid-transit $\sigma_{\text{HJD}} \cdot \Delta t \cdot \Delta t_{\text{mid}} \cdot c^{-1}$
column 4	duration	transit duration given in minutes
column 5	+/-	error of the transit $\sigma_{\text{dur}} \cdot \Delta t \cdot \Delta t_{\text{mid}} \cdot c^{-1}$
column 6	depth	transit depth in mag
column 7	+/-	error of the transit $\sigma_{\text{depth}} \cdot \Delta t \cdot \Delta t_{\text{mid}} \cdot c^{-1}$
column 8	Filter	used filter, see list at the end of the tables
column 9	Obs	abbreviation of the observer, see list at the end of the tables
column 10	Rem	remarks, see list at the end of the tables

Confirmed Planets

	HJD 24..	+/-	duration	+/-	depth	+/-	Filter	Obs	Rem
GJ-3470 b	59984,34064	0,00070	110,6	2,3	0,0086	0,0005	Exo	RAT	
GPX-1 b	59963,52261	0,00257	147,7	11,4	0,0123	0,0019	Exo	RAT	
GPX-1 b	60019,35697	0,00153	132,4	6,2	0,0112	0,0009	Exo	RAT	
HAT-P-3 b	60099,42808	0,00041	116,6	1,4	0,0126	0,0003	Clear	RAT	
HAT-P-4 b	60019,58674	0,00069	255,8	2,2	0,0094	0,0003	Exo	RAT	
HAT-P-4 b	60068,48924	0,00070	247,2	2,2	0,0098	0,0003	Exo	RAT	
HAT-P-7 b	60199,42862	0,00135	228,3	4,2	0,0064	0,0004	I	RAT	
HAT-P-11 b	60197,53623	0,00186	148,9	5,7	0,0040	0,0005	V	RAT	
HAT-P-16 b	60296,38158	0,00093	182,5	2,9	0,0146	0,0007	V	WKT	
HAT-P-22 b	60005,00000	0,00044	166,5	1,5	0,0144	0,0003	R	RAT	
HAT-P-25 b	60177,55828	0,00125			0,0162	0,0015	R	WNZ_2	
HAT-P-28 b	60202,44497	0,00072	185,8	2,5	0,0174	0,0006	Exo	RAT	
HAT-P-37 b	60098,46905	0,00097	139,4	3,7	0,0257	0,0013	Exo	RAT	
HAT-P-37 b	60196,37635	0,00070	129,0	2,6	0,0227	0,0008	Exo	RAT	
HAT-P-40 b	60212,44842	0,00154	367,4	4,6	0,0086	0,0004	Exo	RAT	
HAT-P-68 b	60004,35384	0,00191			0,0321	0,0078	Exo	RAT	
HD 189733 b	60136,47919	0,00020	104,3	0,8	0,0287	0,0003	I	RAT	
K2-113 b	60179,51500	0,00194	184,4	7,1	0,0079	0,0006	R	WNZ_2	
Kelt-1 b	60198,52332	0,00065	161,5	2,1	0,0079	0,0003	Exo	RAT	
Kelt-1 b	60214,35118	0,00080	161,5	2,4	0,0076	0,0004	Exo	RAT	
Kelt-9 b	60133,45830	0,00084	238,6	2,5	0,0097	0,0004	R	RAT	
Kelt-9 b	60170,49060	0,00113	226,0	3,4	0,0079	0,0004	R	RAT	
Kelt-18 b	60095,46793	0,00112	278,0	3,4	0,0085	0,0004	R	RAT	
Kelt-24 b	59989,41585	0,00110	250,0	3,5	0,0080	0,0006	I	RAT	
Kepler-13 b	60175,54911	0,00113	199,6	3,4	0,0092	0,0006	R	RAT	KOI-13 b
Kepler-43 b	60121,49113	0,00353	185,3	12,1	0,0082	0,0013	Exo	RAT	
Kepler-685 b	60197,36942	0,00308	155,6	9,9	0,0117	0,0021	Exo	RAT	KOI-1499 b
Kepler-702 b	60167,41613	0,00568	169,5	18,8	0,0074	0,0025	Exo	RAT	
Kepler-854 b	60193,45689	0,00158	252,4	7,0	0,0167	0,0007	Exo	RAT	KOI-1450 b
Kepler-1514 b	60081,90063	0,14408			0,0067	0,0027	Exo	RAT	only ingress
LHS-1478 b	60192,36773	0,00153	43,5	5,1	0,0027	0,0008	Exo	RAT	TOI-1640 b
Qatar-1 b	60170,40968	0,00030	101,6	1,3	0,0257	0,0005	R	WNZ_2	
Qatar-4 b	60208,61373	0,00065	126,9	2,5	0,0262	0,0012	Exo	RAT	
Qatar-5 b	59516,38497	0,00053	167,8	1,8	0,0146	0,0004	V	WNZ_4	
Qatar-9 b	60007,34996	0,00138	109,5	5,1	0,0400	0,0055	Exo	RAT	
Qatar-10 b	60179,52078	0,00061	168,8	2,1	0,0218	0,0006	Exo	RAT	
TOI-1259A b	60220,48743	0,00039	144,9	1,3	0,0304	0,0006	Exo	RAT	
TOI-1272 b	60092,46973	0,00177	92,9	5,9	0,0030	0,0004	Exo	RAT	
TOI-1333 b	60192,53519	0,00164	299,0	5,1	0,0058	0,0004	I	RAT	
TOI-1518 b	59226,56081	0,00299			0,0100	0,0015	TRTGTB	WNZ_1	
TOI-1518 b	60107,46022	0,00081	127,4	4,0	0,0097	0,0004	R	RAT	
TOI-1728 b	60002,42220	0,00116	119,4	3,8	0,0068	0,0006	Exo	RAT	
TOI-2046 b	60096,44071	0,00048	142,3	1,8	0,0197	0,0006	Exo	RAT	
TOI-4010 b	60180,60414	0,01007	100,1	31,7	0,0016	0,0006	Exo	RAT	
TOI-4010 c	60180,44334	0,00167	170,5	5,4	0,0050	0,0004	Exo	RAT	
TOI-4137 b	60214,58894	0,00112	199,6	3,8	0,0090	0,0004	Exo	RAT	
TrES-3 b	60177,38635	0,00178	71,2	10,2	0,0277	0,0064	V	WNZ_1	
TrES-3 b	60194,36717	0,00036	75,1	1,8	0,0248	0,0008	Exo	RAT	
WASP-3 b	60177,46172	0,00046	162,1	1,6	0,0140	0,0003	R	RAT	
WASP-10 b	59083,54602	0,00291			0,0486	0,0076	TRTGTB	WNZ_3	
WASP-10 b	60178,37277	0,00103			0,0415	0,0037	TRTGTB	WNZ_1	
WASP-10 b	60212,39103	0,00047	132,5	2,1	0,0344	0,0017	Clear	WKT	
WASP-11 b	60235,45331	0,00034	154,6	1,2	0,0231	0,0004	Exo	RAT	

	HJD 24..	+/-	duration	+/-	depth	+/-	Filter	Obs	Rem
WASP-26 b	60198,52973	0,00419			0,0069	0,0025	TRTGTB	WNZ_3	
WASP-32 b	60180,57843	0,00056	145,3	2,0	0,0132	0,0004	R	WNZ_2	
WASP-35 b	60286,47928	0,00203			0,0195	0,0026	TRTGTB	WNZ_3	
WASP-52 b	60180,38180	0,00038	109,9	1,5	0,0345	0,0007	R	WNZ_2	
WASP-52 b	60208,37841	0,00028	109,0	1,1	0,0336	0,0006	Exo	RAT	
WASP-57 b	60095,49214	0,00345	143,0	11,7	0,0369	0,0136	V	WNZ_3	
WASP-74 b	60177,40980	0,00300	129,2	12,6	0,0085	0,0016	R	WNZ_2	
WASP-77 b	60297,34719	0,00212			0,0100	0,0020	TRTGTB	WNZ_3	
WASP-92 b	60093,44982	0,00089	173,7	3,2	0,0145	0,0006	Exo	RAT	
WASP-151 b	60175,48366	0,00111	220,2	3,8	0,0131	0,0010	R	WNZ_2	
WASP-183 b	60049,44057	0,00398	146,5	16,6	0,0333	0,0065	Clear	WKT	
WTS-2 b	60175,36985	0,00155	95,9	6,0	0,0447	0,0039	Exo	RAT	
XO-3 b	60175,46512	0,00479	200,2	15,9	0,0103	0,0022	V	WNZ_1	

Candidate Planets

	HJD 24..	+/-	duration	+/-	depth	+/-	Filter	Obs	Rem
KOI-883.01	60195,37078	0,00184	111,2	6,4	0,0247	0,0030	Exo	RAT	
TOI-1425.01	60110,42674	0,00121			0,0045	0,0007	R	RAT	
TOI-1775.01	59983,54655	0,00067	220,2	2,2	0,0109	0,0003	Exo	RAT	
TOI-1845.01	59984,64180	0,00082	148,6	2,8	0,0166	0,0007	Exo	RAT	
TOI-2040.01	60211,38928	0,00041	155,1	1,4	0,0168	0,0004	Exo	RAT	
TOI-3528.01	60129,51616	0,00518	137,7	28,9	0,0233	0,0060	Exo	RAT	
TOI-3535.01	60132,48888	0,00183	154,0	5,8	0,0051	0,0006	Exo	RAT	
TOI-3535.01	60195,56981	0,00204	170,5	6,4	0,0077	0,0011	Exo	RAT	
TOI-3547.01	60113,46526	0,00191	130,1	7,9	0,0213	0,0019	Exo	RAT	
TOI-3617.01	60219,39337	0,00223	145,6	8,1	0,0067	0,0007	Exo	RAT	1)
TOI-3719.01	60006,35696	0,00281	117,0	10,1	0,0090	0,0014	Exo	RAT	
TOI-3856.01	59985,42025	0,00469	103,8	15,8	0,0156	0,0022	R	RAT	without ingress
TOI-3860.01	60090,47646	0,00151	205,9	5,0	0,0159	0,0010	Exo	RAT	1)
TOI-4045.01	60040,53712	0,00190	225,9	6,3	0,0160	0,0011	Exo	RAT	1)
TOI-4054.01	60091,47030	0,00252	127,5	11,4	0,0110	0,0016	Exo	RAT	1)
TOI-4165.01	59963,34037	0,00088	93,6	2,8	0,0058	0,0006	Exo	RAT	1)
TOI-4436.01	60089,51332	0,00133	198,4	4,2	0,0109	0,0010	Exo	RAT	
TOI-5196.01	60124,45970	0,00163	185,0	5,3	0,0113	0,0011	Exo	RAT	1)
TOI-5483.01	60015,36554	0,00064	127,6	2,1	0,0176	0,0007	Exo	RAT	1)
TOI-6240.01	60194,55280	0,00251	230,0	7,7	0,0057	0,0007	Exo	RAT	1)

Remarks

1) not listed in ETD; Result of the data analysis is shown in appendix

KOI Kepler Object of Interest

TOI TESS Object of Interest

Filter

Clear without filter
I, R, V Bessel, Cousins or Johnson
Exo Astrodon ExoPlanet-BB (V to IR)
TR, TG R or G pixel of Bayer Matrix
TRTGTB All RGB pixel of Bayer Matrix were used

Observers and instruments

RAT Raetz, Manfred Herges-Hallenberg
SCT 280/1790 + Moravian Instruments G2-1600

WKT Wickert, Volker Essen
Newton 500 / 2500mm, Canon EOS 250 (Volkssternwarte Kirchheim)

WNZ_1 Wenzel, Bernhard Vienna
NWT 200 / 900 mm, Canon 200D

WNZ_2 Wenzel, Bernhard Vienna
Cass. 600/4800, SBIG STL 6303-3 (Volkssternwarte Kirchheim)

WNZ_3 Wenzel, Bernhard Vienna
Newton 300/1200 mm, Canon 200 D

WNZ_4 Wenzel, Bernhard, Markus Rockenbauer Vienna
Cass. 800/ 6640, FLI PL16803 (Vienna little telescope (vlt) Department of Astrophysics)

References

[1] *Poddany S., Brat L., Pejcha O., New Astronomy 15 (2010), pp. 297-301, Exoplanet Transit Database. Reduction and processing of the photometric data of exoplanet transits*

<http://arxiv.org/abs/0909.2548>

<https://var.astro.cz/en/Exoplanets>

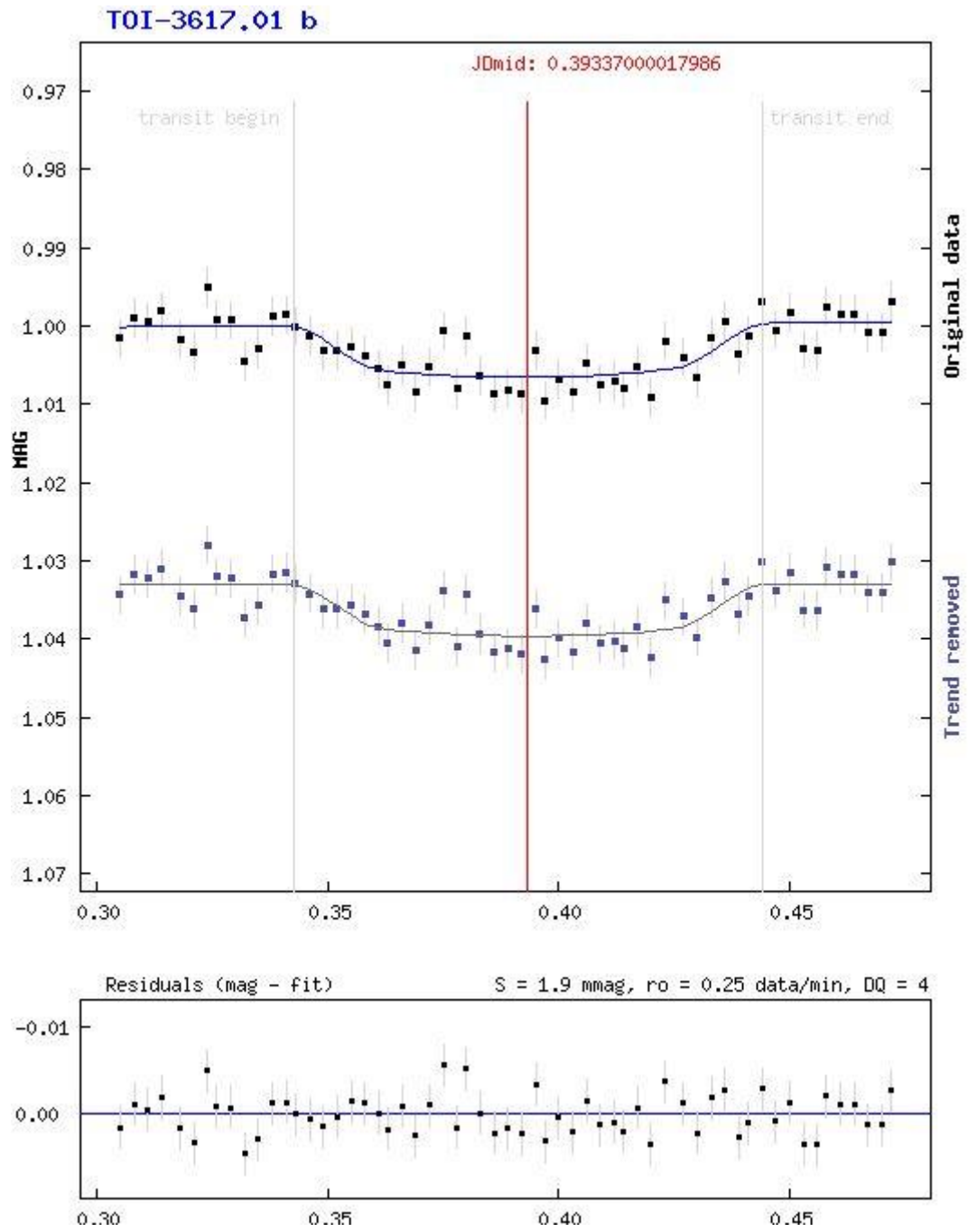
[2] *Kokori, A., Tsiaras, A., Edwards, B. et al., Experimental Astronomy (2021) ExoClock project: an open platform for monitoring the ephemerides of Ariel targets with contributions from the public*

<https://rdcu.be/cwj6C>

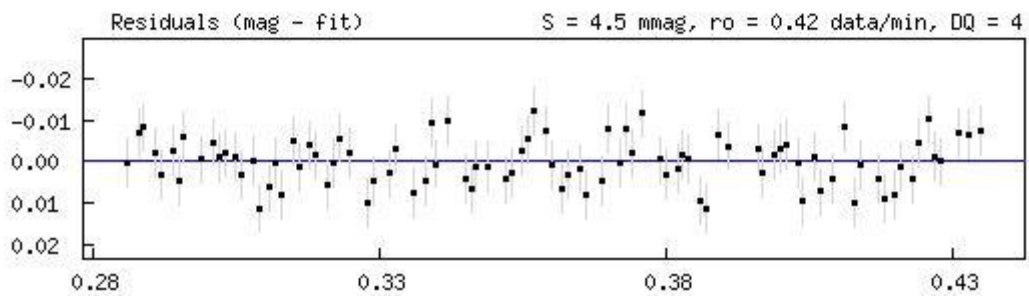
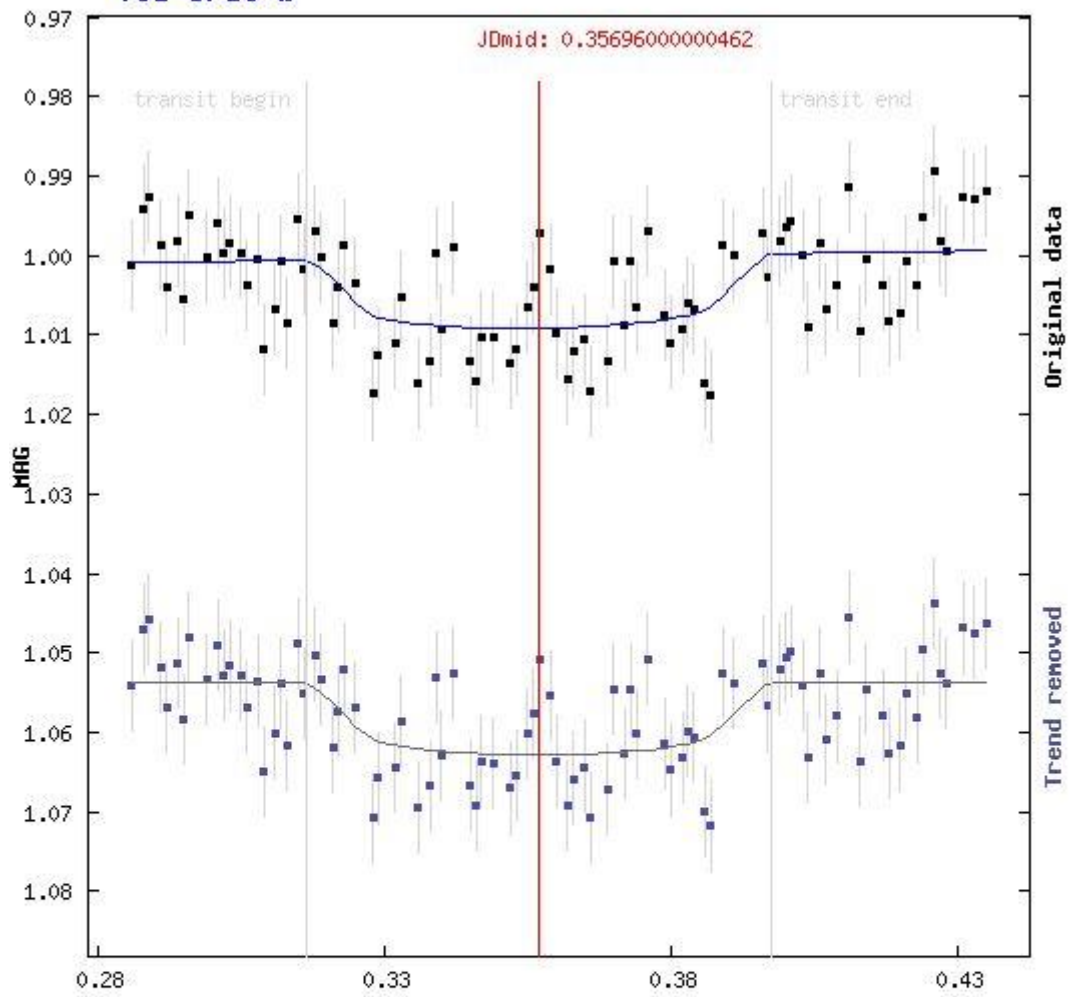
<https://www.exoclock.space/>

Appendix

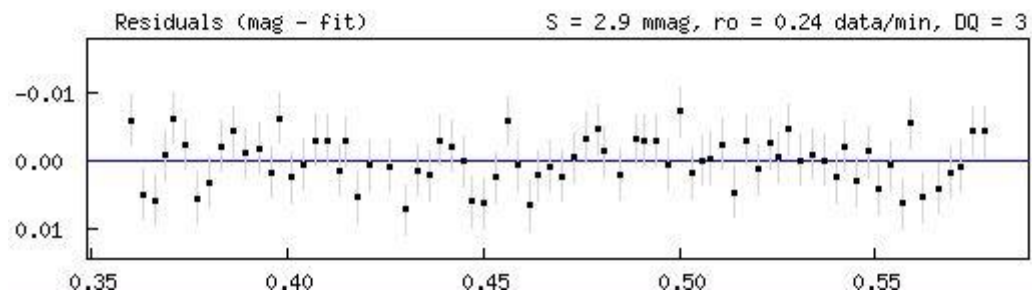
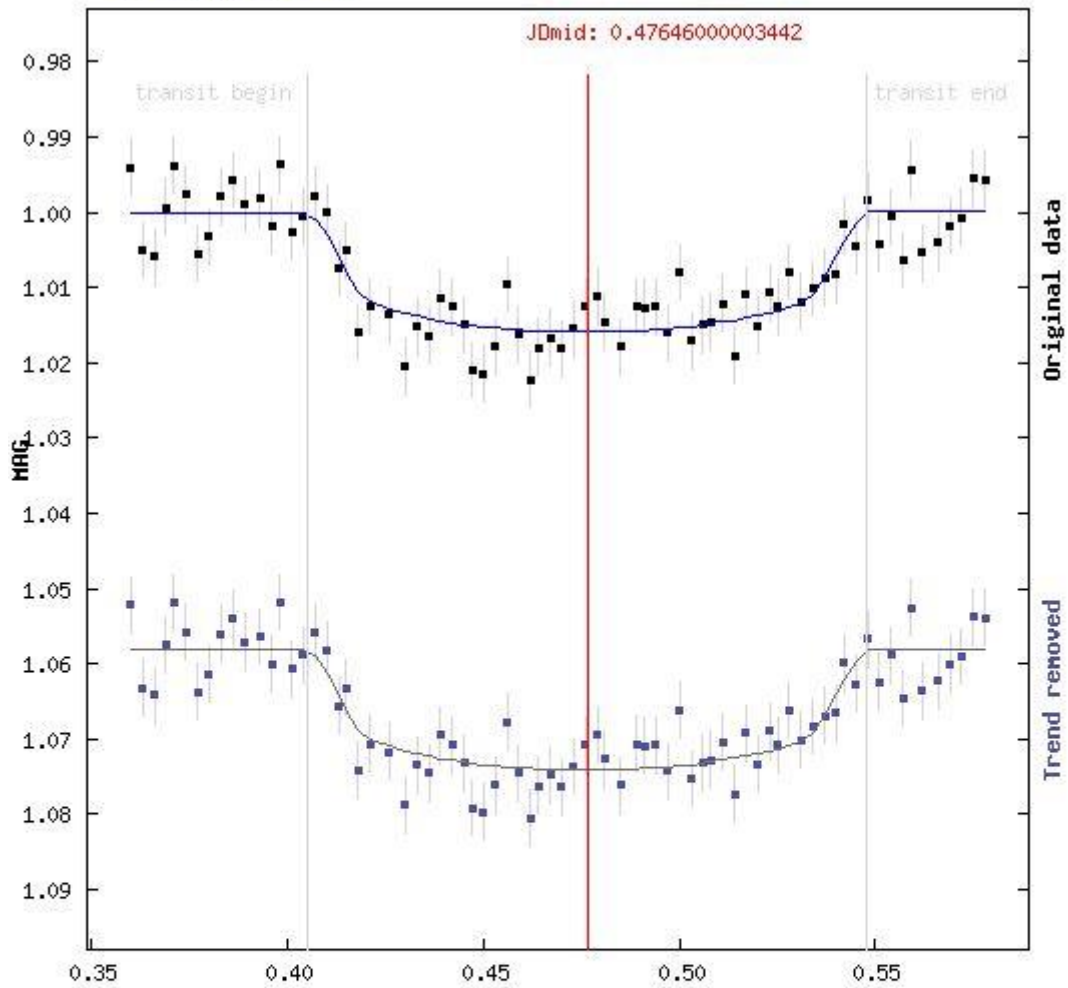
Results of exoplanets not listed in the ETD, analyzed with the algorithm of the ETD



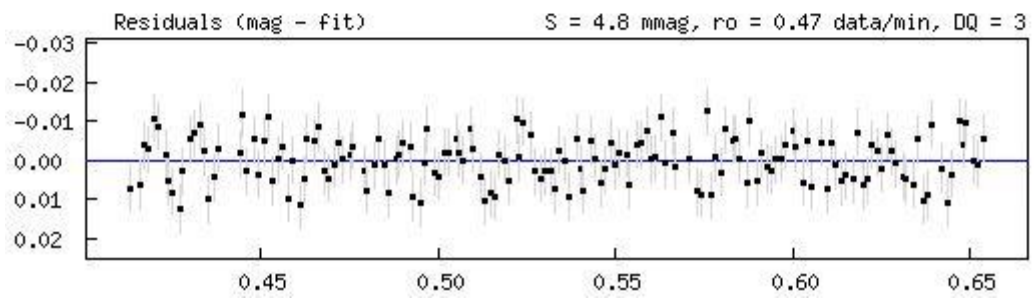
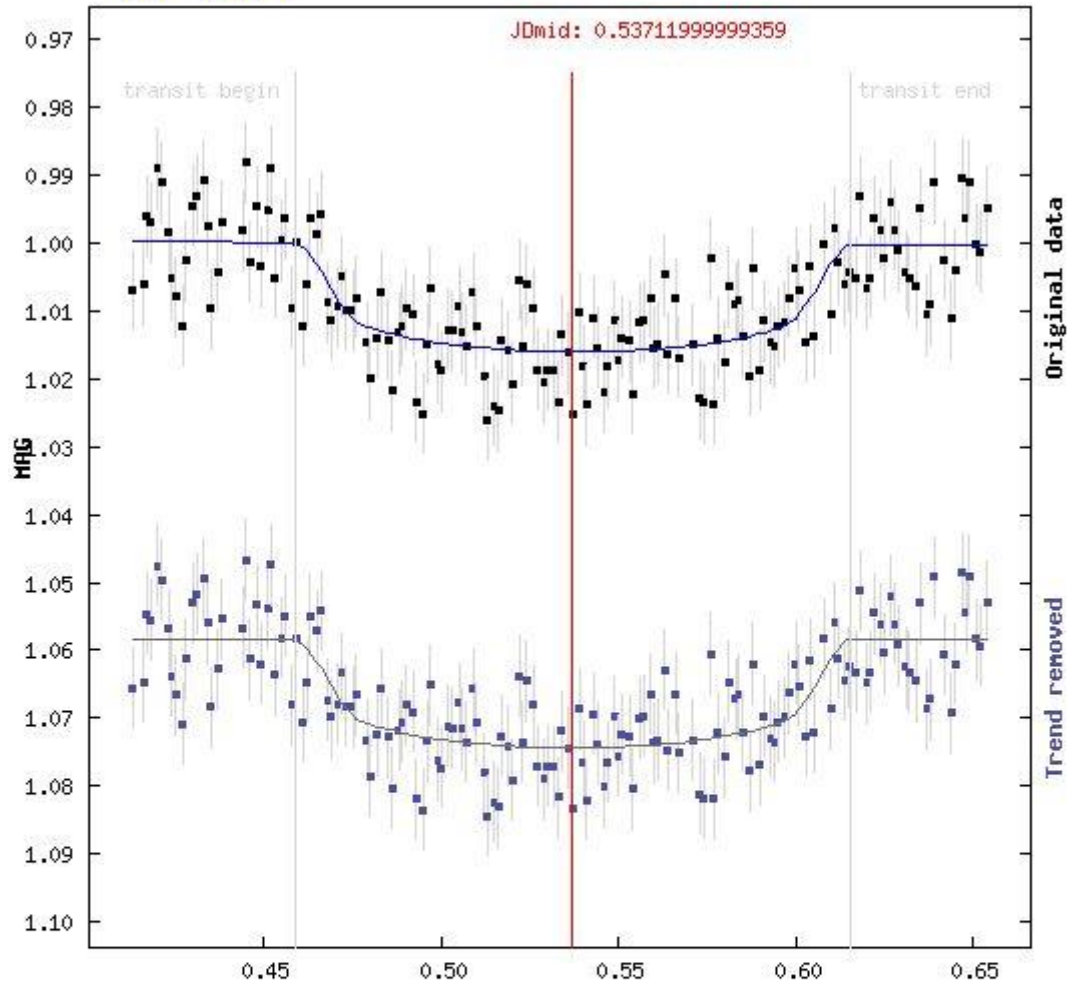
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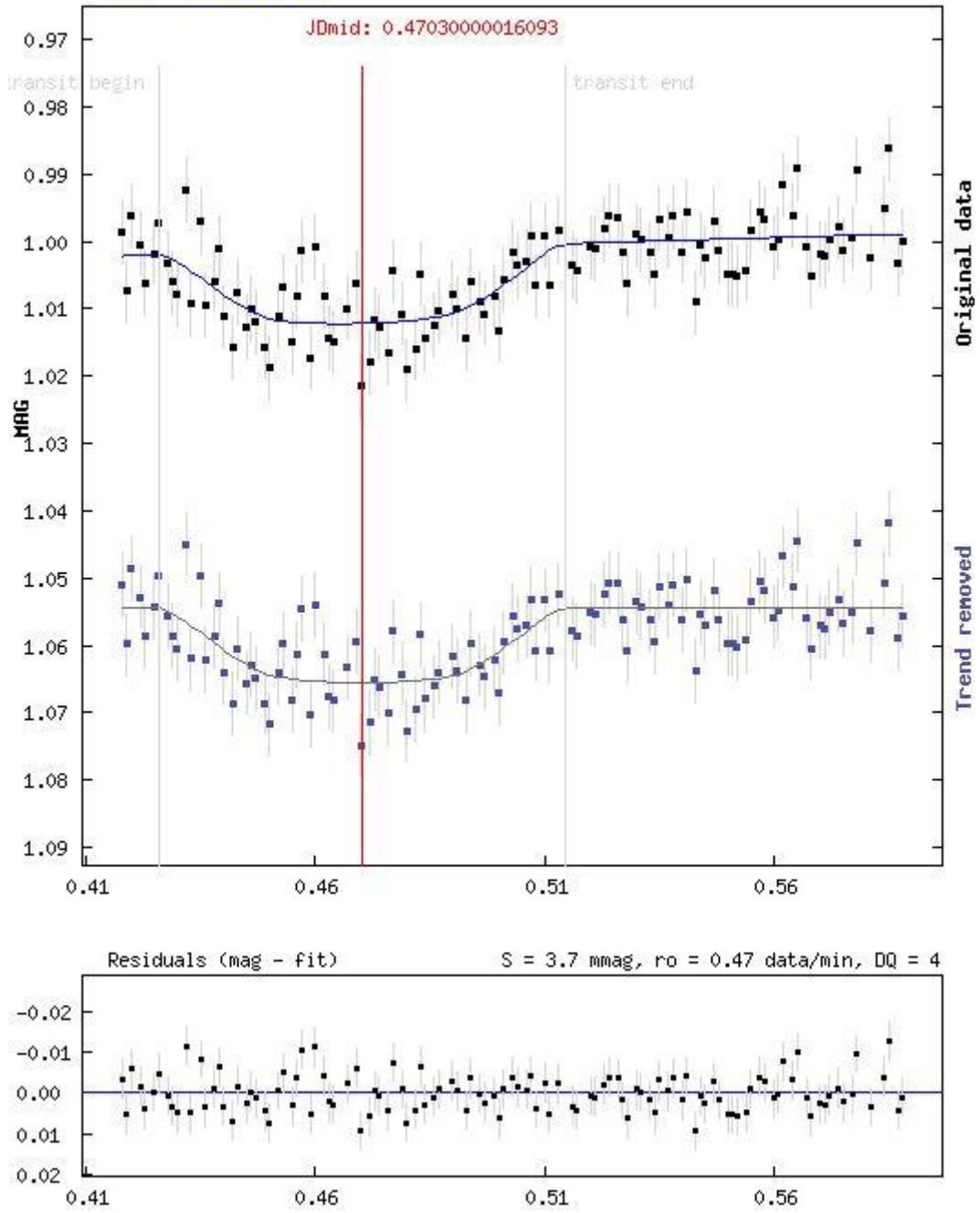
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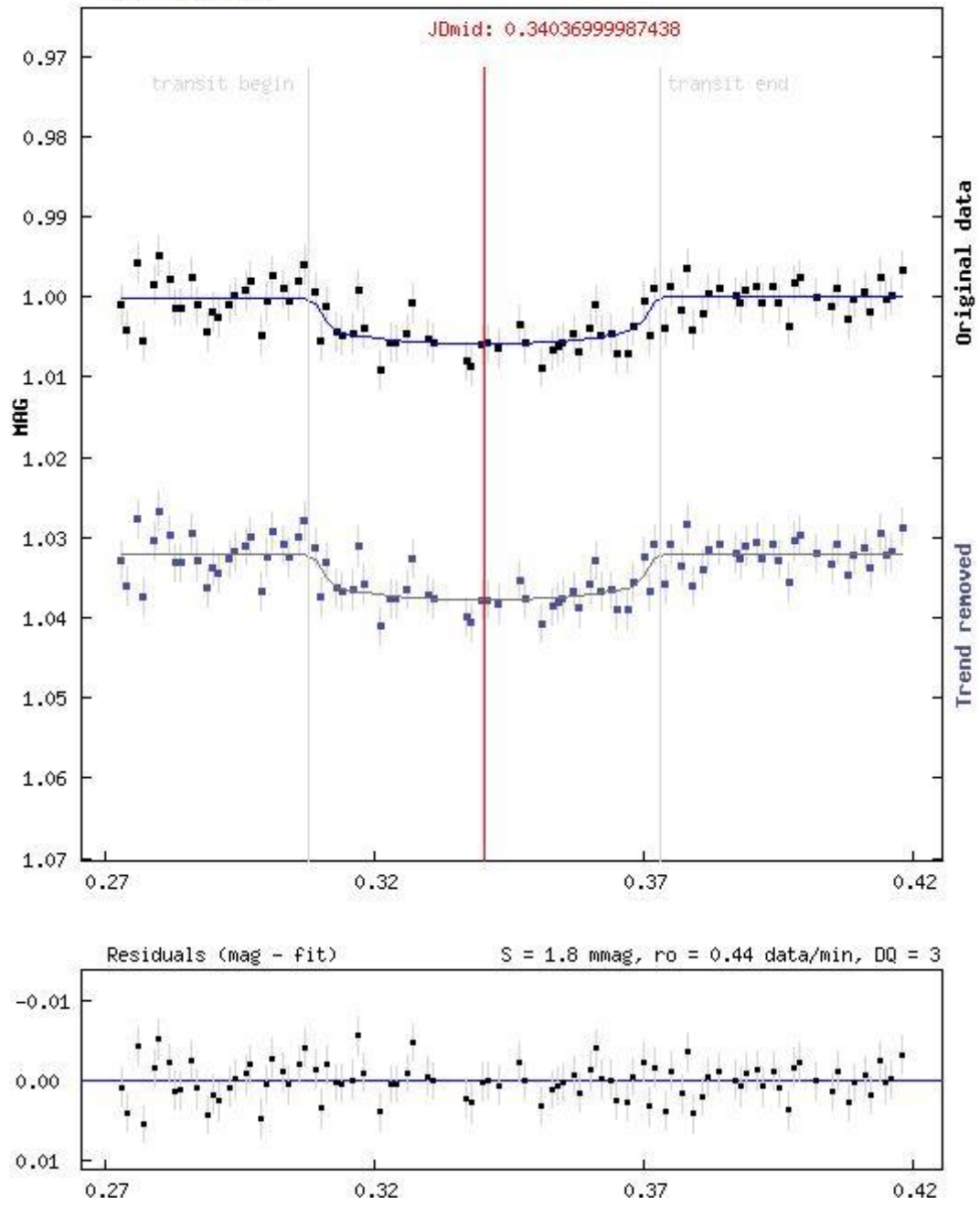
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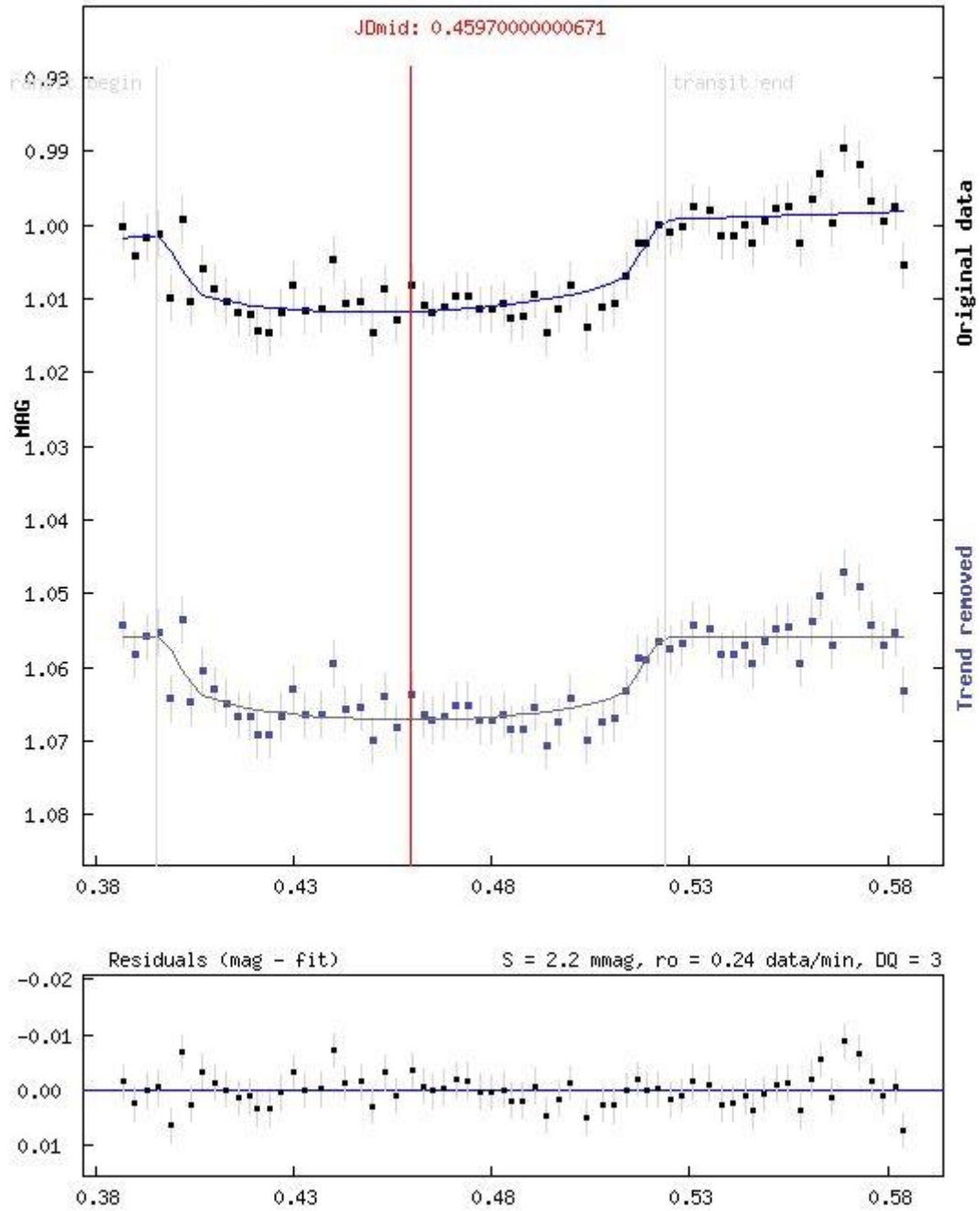
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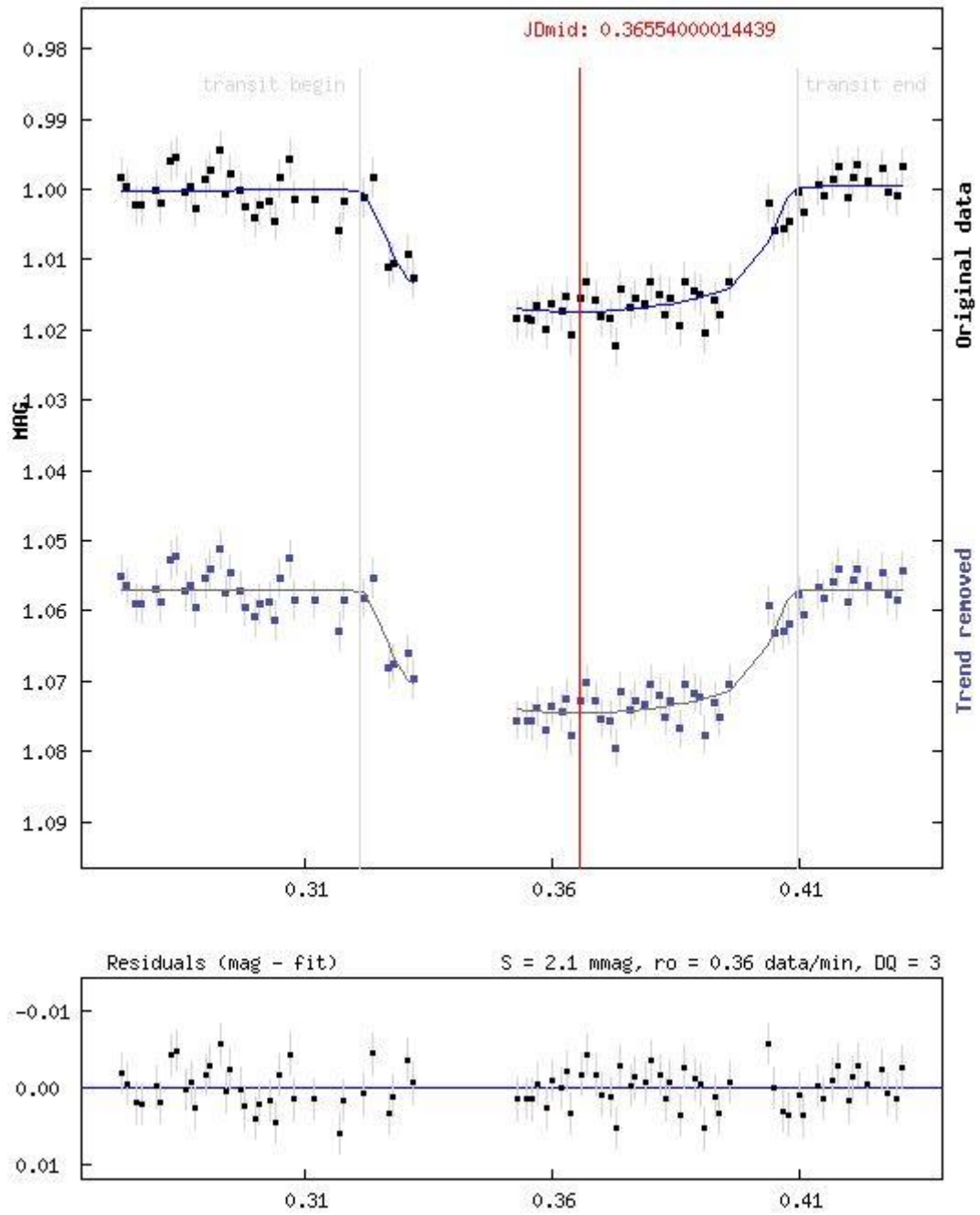
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TOI-5196.01 b



TOI-5483 b



TOI-6240.01 b

