

**BAV results of observations – transits of exoplanets in 2024**

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Abstract: 45 results from the observation of 42 confirmed transit planets and 24 results from the observation of 22 planet candidates are documented. These observations were conducted by BAV observers in the year 2024.

All results were obtained in 2024 by CCD time-series photometry, light-curve reduction and transit model fitting obtained using the ETD algorithm [1]. All times of mid transit are heliocentric UTC, expressed as Heliocentric Julian Date (HJD). The transit duration is given in minutes and the transit depth in mag. The mean errors are tabulated in columns "+/-".

In cases where no values for transit duration could be determined, data from the literature were used.

This is documented in the table with a "*" in the "+/-" column.

All results listed here have already been sent to the ETD and if the planets are included in the database of the ExoClock project [2], they were also sent there. All light curves can be viewed on the ETD website via the links provided in the appendix.

Confirmed Planets

Exoplanet	HJD 24..	+/	duration	+/-	depth	+/-	Filter	Obs
Gaia-2 b	60320.59796	0.00042	172.5	1.9	0.0196	0.0004	Exo	RAT_1
HAT-P-18 b	60487.43512	0.00053	152.2	1.8	0.0237	0.0012	Exo	RAT_1
HAT-P-18 b	60509.46737	0.00043	158.7	1.5	0.0261	0.0006	Exo	RAT_1
HAT-P-2 b	60443.46836	0.00078	263.8	2.4	0.0062	0.0003	I	RAT_1
HAT-P-21 b	60337.61476	0.00194	218.1	6.8	0.0105	0.0007	Exo	RAT_1
HAT-P-23 b	60522.50720	0.00040	132.7	1.3	0.0162	0.0004	Exo	RAT_2
HAT-P-24 b	60330.36394	0.00094	221.2	3.0	0.0129	0.0006	Exo	RAT_1
HAT-P-36 b	60395.39324	0.00039	133.3	1.4	0.0190	0.0005	Exo	RAT_1
HAT-P-4 b	60444.43940	0.00070	244.9	2.2	0.0115	0.0004	Exo	RAT_1
HAT-P-40 b	60573.48417	0.00146	377.4	4.5	0.0079	0.0003	Exo	RAT_1
HAT-P-44 b	60445.44925	0.00049	179.1	1.6	0.0236	0.0007	Exo	RAT_1
HAT-P-51 b	60319.34451	0.00229	193.8	7.4	0.0185	0.0019	Exo	RAT_1
HAT-P-61 b	60379.38142	0.00112	99.6	4.3	0.0103	0.0008	Exo	RAT_1
HAT-P-66 b	60373.54928	0.00253	278.2	8.3	0.0114	0.0009	Exo	RAT_1

Exoplanet	HJD 24..	+/-	duration	+/-	depth	+/-	Filter	Obs
HAT-P-7 b	60512.50044	0.00125	233.7	3.8	0.0075	0.0006	R	RAT_1
K2-295 b	60619.34323	0.00121	150.0	4.1	0.0265	0.0017	Exo	RAT_1
Kelt-1 b	60337.31709	0.00071	167.1	2.3	0.0082	0.0003	Exo	RAT_1
Kepler-6 b	60508.46312	0.00102	220.5	3.3	0.0127	0.0006	Exo	RAT_1
Kepler-12 b	60551.46221	0.00131	289.0	4.4	0.0182	0.0007	Exo	RAT_1
Kepler-77 b	60485.50158	0.00277	171.8	8.8	0.0162	0.0029	Exo	RAT_1
Kepler-412 b	60548.49510	0.00162	107.8	6.0	0.0126	0.0012	Exo	RAT_1
Kepler-426 b	60555.45787	0.00298	106.7	10.9	0.0147	0.0027	Exo	RAT_1
Kepler-447 b	60535.39089	0.00168	73.0	9.5	0.0054	0.0007	Exo	RAT_1
Kepler-448 b	60550.43779	0.00208	448.0	*	0.0083	0.0005	Exo	RAT_1
Kepler-686 b	60521.46496	0.00126	126.3	4.1	0.0139	0.0012	Exo	RAT_2
Kepler-785 b	60520.45562	0.00043	105.2	1.6	0.0360	0.0011	Exo	RAT_2
Qatar-10 b	60378.60552	0.00049	162.2	1.7	0.0212	0.0005	Exo	RAT_1
Qatar-10 b	60439.48140	0.00111	161.3	*	0.0185	0.0010	Exo	RAT_1
TOI-1136 d	60338.62423	0.00154	226.1	4.8	0.0027	0.0003	I	RAT_1
TOI-1248 b	60531.46396	0.00152	140.8	5.2	0.0068	0.0006	Exo	RAT_1
TOI-1410 b	60528.52416	0.00169	53.5	5.8	0.0013	0.0003	Exo	RAT_1
TOI-1518 b	60535.54868	0.00104	146.8	5.0	0.0097	0.0004	I	RAT_1
TOI-2046 b	60319.52360	0.00051	144.5	1.8	0.0168	0.0005	Exo	RAT_1
TOI-2152A b	60366.40644	0.00170	229.0	*	0.0082	0.0010	Exo	RAT_1
TOI-2570 b	60609.60279	0.02008	279.0	64.2	0.0185	0.0025	Exo	RAT_1
TOI-2570 b	60618.53435	0.00122	178.1	3.9	0.0173	0.0012	Exo	RAT_1
TOI-4010 d	60574.54554	0.00192	223.2	6.3	0.0063	0.0005	Exo	RAT_1
TOI-4087 b	60423.41264	0.00056	165.6	1.9	0.0145	0.0004	Exo	RAT_1
TOI-4153 b	60554.41938	0.00135	267.8	4.4	0.0100	0.0004	Exo	RAT_1
TOI-4329 b	60442.57804	0.00182	325.4	*	0.0087	0.0011	Exo	RAT_1
TOI-5205 b	60552.37981	0.00052	80.5	2.1	0.0620	0.0026	Exo	RAT_1
TOI-6034 b	60574.31961	0.00057	88.9	2.6	0.0614	0.0024	Exo	RAT_1
WD 1856+534 b	60522.40142	0.00028	9.4	1.9	0.9482	0.1929	Exo	RAT_2
XO-3 b	60673.33659	0.00105	180.5	3.4	0.0096	0.0006	I	RAT_1
XO-7 b	60618.34813	0.00103	154.3	3.7	0.0088	0.0004	Exo	RAT_1

Candidate Planets

Candidate	HJD 24..	+/-	duration	+/-	depth	+/-	Filter	Obs
TOI-1131.01	60559.33868	0.00089	41.9	2.9	0.0140	0.0017	Exo	RAT_1
TOI-1251.01	60516.48488	0.00062	179.3	2.0	0.0115	0.0004	Exo	RAT_1
TOI-1302.01	60571.39304	0.00114	225.5	3.8	0.0115	0.0006	Exo	RAT_1
TOI-1425.01	60468.46354	0.00140	85.8	4.9	0.0037	0.0005	R	RAT_1
TOI-1425.01	60595.38709	0.00072	91.2	2.4	0.0045	0.0003	R	RAT_1
TOI-1455.01	60511.47159	0.00046	163.7	1.9	0.0178	0.0004	R	RAT_1
TOI-1787.01	60672.54130	0.00115	152.9	4.3	0.0076	0.0004	Exo	RAT_1
TOI-2031.01	60377.57686	0.00096	255.4	3.2	0.0154	0.0004	Exo	RAT_1
TOI-2578.01	60561.57497	0.00126	164.1	5.1	0.0105	0.0005	Exo	RAT_1
TOI-3686.01	60610.52312	0.00169	218.9	*	0.0198	0.0035	Exo	RAT_1
TOI-3771.01	60378.38140	0.00321	157.0	10.0	0.0088	0.0020	Exo	RAT_1
TOI-3822.01	60619.61715	0.00191	177.4	8.8	0.0179	0.0012	Exo	RAT_1
TOI-3830.01	60372.39912	0.00275	125.4	9.8	0.0086	0.0011	Exo	RAT_1
TOI-3910.01	60486.45274	0.00050	149.1	1.8	0.0218	0.0006	Exo	RAT_1
TOI-3916.01	60471.48460	0.00154	128.1	5.6	0.0088	0.0008	Exo	RAT_1
TOI-3952.01	60559.53926	0.00112	208.8	*	0.0178	0.0014	Exo	RAT_1
TOI-4080.01	60320.27081	0.00132	169.9	4.4	0.0182	0.0015	Exo	RAT_1
TOI-4149.01	60338.32814	0.00066	123.0	2.2	0.0162	0.0007	Exo	RAT_1
TOI-5261.01	60501.45912	0.00095	124.3	3.1	0.0099	0.0006	Exo	RAT_1
TOI-5770.01	60488.50328	0.00116	96.5	*	0.0211	0.0013	Exo	RAT_1
TOI-6156.01	60575.44222	0.00106	84.0	3.5	0.0089	0.0008	Exo	RAT_1
TOI-6244.01	60538.43142	0.00046	152.9	1.5	0.0134	0.0003	Exo	RAT_1
TOI-6244.01	60561.42823	0.00044	147.4	1.5	0.0162	0.0004	Exo	RAT_1
TOI-6392.01	60372.57594	0.00496	224.6	*	0.0056	0.0022	Exo	RAT_1

Filter

I, R, V Bessel, Cousins or Johnson
 Exo Astrodon ExoPlanet-BB (V to IR) [3]

Observers and instruments

RAT_1 Raetz, Manfred Herges-Hallenberg
 SCT 280/1850 + Moravian Instruments G2-1600

RAT_2 Raetz, Manfred Herges-Hallenberg
 Cass. 600/4800 + Moravian Instruments G2-1600 (Volkssternwarte Kirchheim)

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

DOI: 10.1016/j.newast.2009.09.001

<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

DOI: 10.1007/s10686-020-09696-3

<https://rdcu.be/cwj6C>

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

[3] <https://farpointastro.com/products/astrodon-exoplanet-light-curve-filters?variant=40161579466905>

Appendix

Confirmed Planets

Gaia-2b	https://var.astro.cz/en/Observations/93260?transid=11692
HAT-P-18 b	https://var.astro.cz/en/Observations/98581?transid=20257
HAT-P-18 b	https://var.astro.cz/en/Observations/98582?transid=20258
HAT-P-2 b	https://var.astro.cz/en/Observations/98589?transid=20264
HAT-P-21 b	https://var.astro.cz/en/Observations/93314?transid=11750
HAT-P-23 b	https://var.astro.cz/en/Observations/98624?transid=20276
HAT-P-24 b	https://var.astro.cz/en/Observations/93305?transid=11740
HAT-P-36 b	https://var.astro.cz/en/Observations/106854?transid=20316
HAT-P-4 b	https://var.astro.cz/en/Observations/106870?transid=20324
HAT-P-40 b	https://var.astro.cz/en/Observations/94220?transid=12659
HAT-P-44 b	https://var.astro.cz/en/Observations/106878?transid=20333
HAT-P-51b	https://var.astro.cz/en/Observations/93212?transid=11644
HAT-P-61 b	https://var.astro.cz/en/Observations/106879?transid=20335
HAT-P-66 b	https://var.astro.cz/en/Observations/93427?transid=11863
HAT-P-7 b	https://var.astro.cz/en/Observations/106903?transid=20350
K2-295 b	https://var.astro.cz/en/Observations/98550?transid=20234
Kelt-1 b	https://var.astro.cz/en/Observations/93339?transid=11775
Kepler-6 b	https://var.astro.cz/en/Observations/106911?transid=20358
Kepler-12 b	https://var.astro.cz/en/Observations/94179?transid=12617
Kepler-77 b	https://var.astro.cz/en/Observations/106913?transid=20363
Kepler-412 b	https://var.astro.cz/en/Observations/94104?transid=12542
Kepler-426 b	https://var.astro.cz/en/Observations/94132?transid=12570
Kepler-447 b	https://var.astro.cz/en/Observations/106904?transid=20351
Kepler-448 b	https://var.astro.cz/en/Observations/94172?transid=12610
Kepler-686 b	https://var.astro.cz/en/Observations/106926?transid=20376
Kepler-785 b	https://var.astro.cz/en/Observations/106927?transid=20377
Qatar-10 b	https://var.astro.cz/en/Observations/98576?transid=20252
Qatar-10 b	https://var.astro.cz/en/Observations/106923?transid=20373
TOI-1136 d	https://var.astro.cz/en/Observations/93302?transid=11734
TOI-1248 b	https://var.astro.cz/en/Observations/106954?transid=20397
TOI-1410 b	https://var.astro.cz/en/Observations/106988?transid=20423
TOI-1518 b	https://var.astro.cz/en/Observations/94265?transid=12704
TOI-2046b	https://var.astro.cz/en/Observations/93237?transid=11669
TOI-2152A b	https://var.astro.cz/en/Observations/93407?transid=11843
TOI-2570 b	https://var.astro.cz/en/Observations/98372?transid=20135
TOI-2570 b	https://var.astro.cz/en/Observations/98477?transid=20184
TOI-4010 d	https://var.astro.cz/en/Observations/94222?transid=12661
TOI-4087 b	https://var.astro.cz/en/Observations/106953?transid=20396
TOI-4153 b	https://var.astro.cz/en/Observations/94144?transid=12582
TOI-4329 b	https://var.astro.cz/en/Observations/110503?transid=22156
TOI-5205 b	https://var.astro.cz/en/Observations/94184?transid=12623
TOI-6034 b	https://var.astro.cz/en/Observations/94255?transid=12694
WD 1856+534 b	https://var.astro.cz/en/Observations/93950?transid=12386
XO-3 b	https://var.astro.cz/en/Observations/107124?transid=20500
XO-7 b	https://var.astro.cz/en/Observations/98469?transid=20178

Candidate Planets

TOI-1131.01	https://var.astro.cz/en/Observations/94153?transid=12591
TOI-1251.01	https://var.astro.cz/en/Observations/106983?transid=20419
TOI-1302.01	https://var.astro.cz/en/Observations/94208?transid=12647
TOI-1425.01	https://var.astro.cz/en/Observations/98364?transid=20131
TOI-1425.01	https://var.astro.cz/en/Observations/98362?transid=20129
TOI-1455.01	https://var.astro.cz/en/Observations/107128?transid=20503
TOI-1787.01	https://var.astro.cz/en/Observations/107052?transid=20467
TOI-2031.01	https://var.astro.cz/en/Observations/94190?transid=12629
TOI-2578.01	https://var.astro.cz/en/Observations/94186?transid=12625
TOI-3686.01	https://var.astro.cz/en/Observations/98556?transid=20240
TOI-3771.01	https://var.astro.cz/en/Observations/107147?transid=20511
TOI-3822.01	https://var.astro.cz/en/Observations/98549?transid=20233
TOI-3830.01	https://var.astro.cz/en/Observations/107152?transid=20512
TOI-3910.01	https://var.astro.cz/en/Observations/107156?transid=20515
TOI-3916.01	https://var.astro.cz/en/Observations/107188?transid=20537
TOI-3952.01	https://var.astro.cz/en/Observations/94158?transid=12596
TOI-4080.01	https://var.astro.cz/en/Observations/107205?transid=20552
TOI-4149.01	https://var.astro.cz/en/Observations/107210?transid=20557
TOI-5261.01	https://var.astro.cz/en/Observations/107232?transid=20579
TOI-5770.01	https://var.astro.cz/en/Observations/107285?transid=20613
TOI-6156.01	https://var.astro.cz/en/Observations/94236?transid=12675
TOI-6244.01	https://var.astro.cz/en/Observations/94174?transid=12612
TOI-6244.01	https://var.astro.cz/en/Observations/94173?transid=12611
TOI-6392.01	https://var.astro.cz/en/Observations/107290?transid=20618