

KIC 012020218

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
012020218-01	OBS	1507.01	21.358818	135.069403	626.0	5.965	26.8	29.4	0.99	6170	2.69	53.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012020218-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

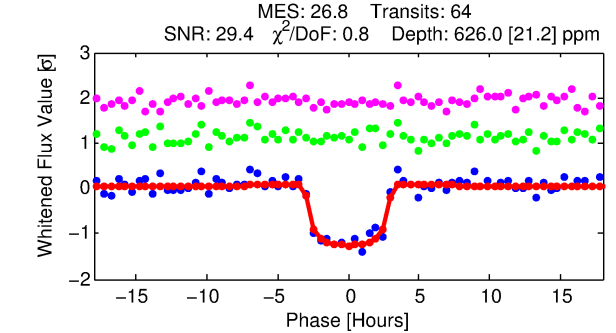
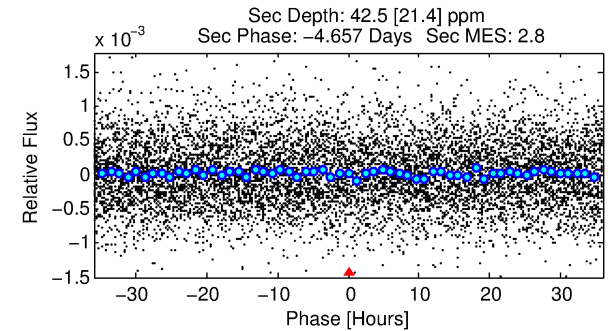
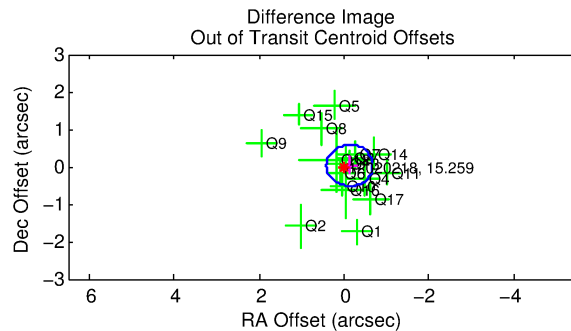
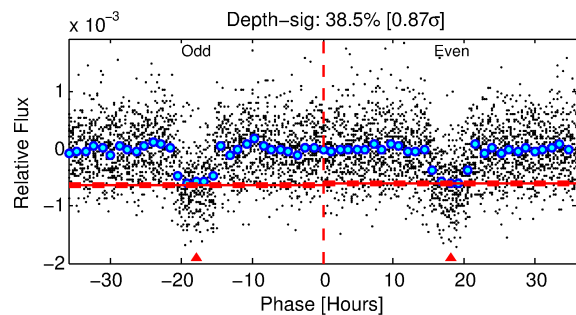
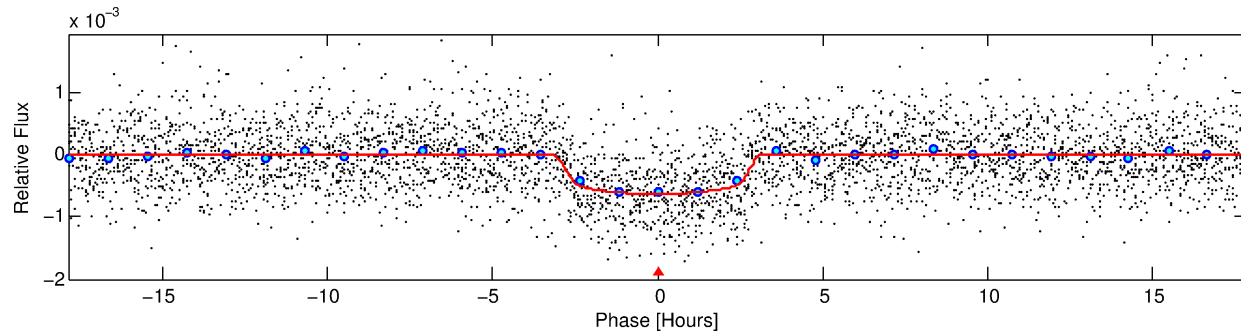
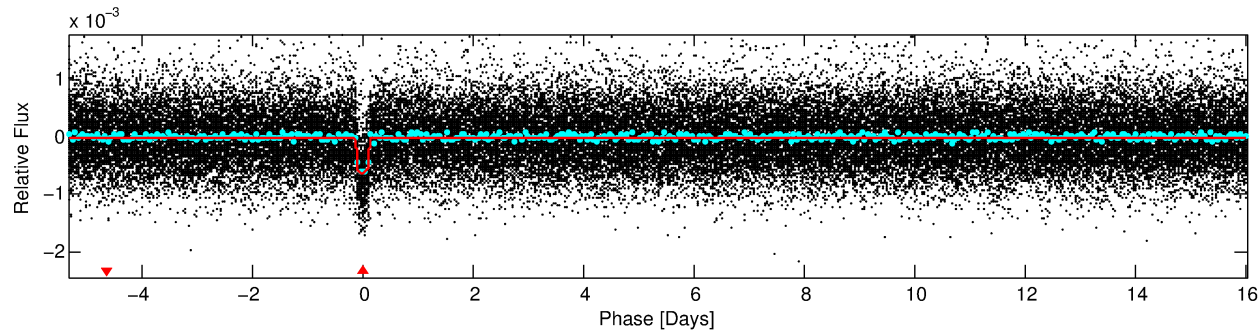
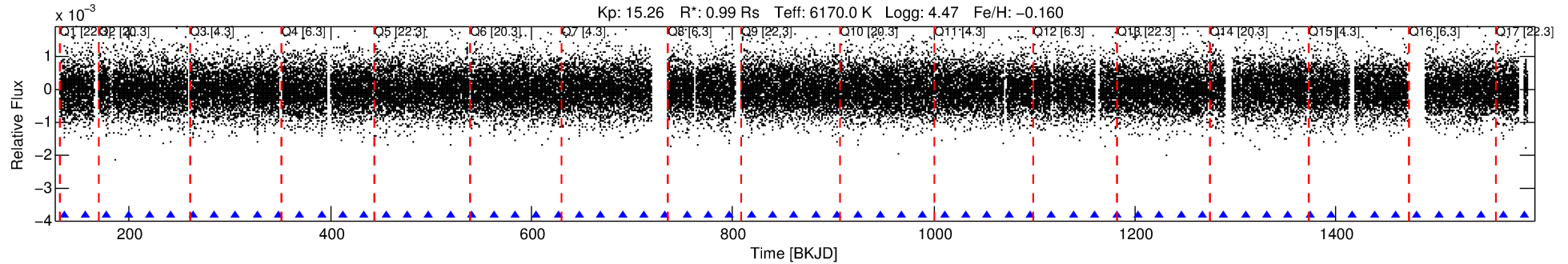
Ephemeris Match Information For 012020218-01

No Significant Match Found

DV One-Page Summary

KIC: 12020218 Candidate: 1 of 1 Period: 21.359 d

KOI: K01507.01 Corr: 0.995



DV Fit Results:

Period = 21.35882 [0.00010] d
Epoch = 135.0694 [0.0039] BKJD
Rp/R* = 0.0248 [0.0042]
a/R* = 19.34 [16.47]
b = 0.74 [0.52]
Seff = 53.99 [22.77]
Teq = 691 [73] K
Rp = 2.69 [0.97] Re
a = 0.1538 [0.0414] AU
Ag = 76.70 [55.47] [1.36 σ]
Teffp = 3163 [494] K [4.95 σ]

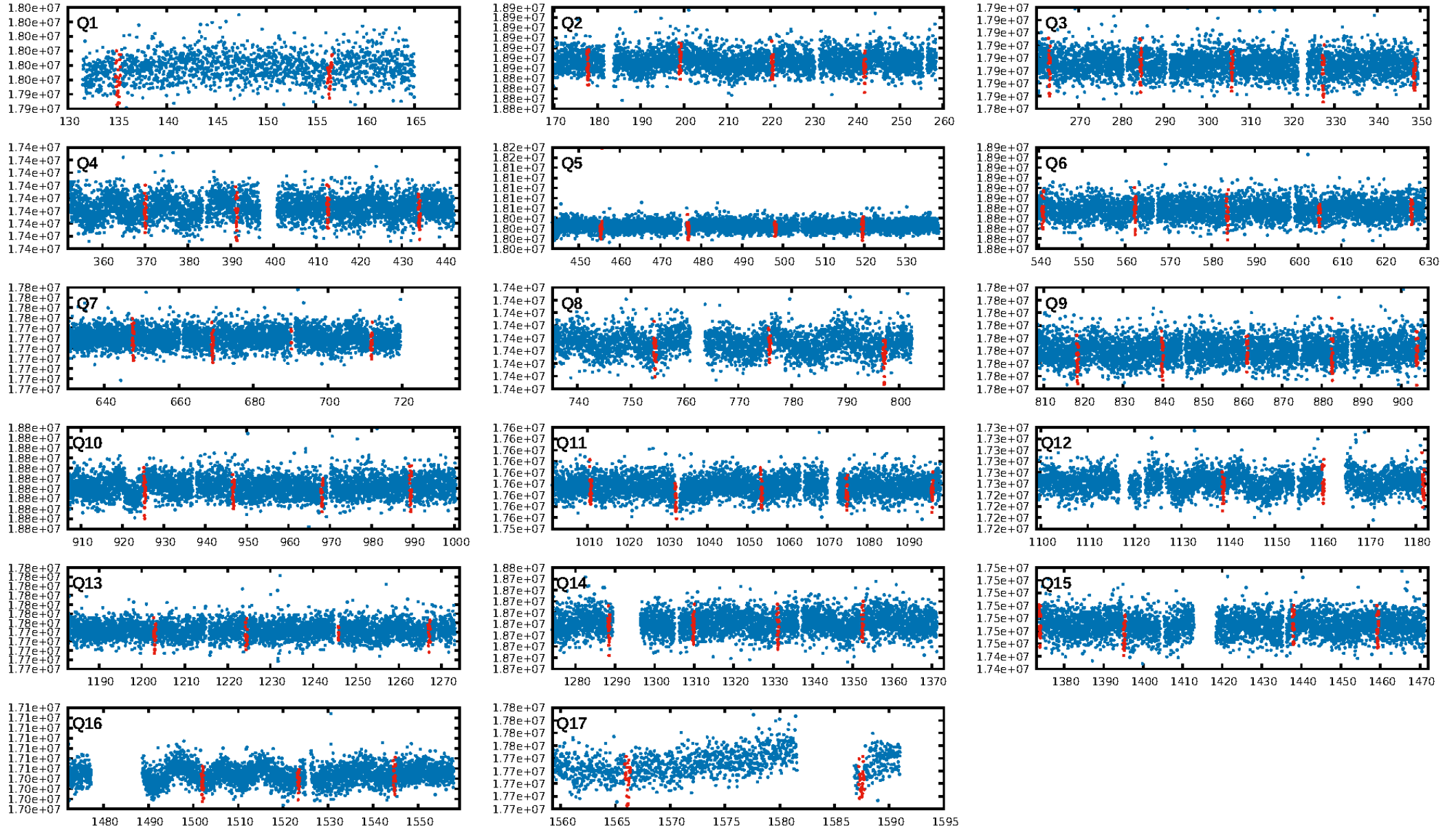
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 88.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.75e-162
RollingBand-fgt: 1.00 [60/60]
GhostDiagnostic-chr: 2.183
Centroid-sig: 40.3%
Centroid-so: 0.101 arcsec [0.21 σ]
OotOffset-rm: 0.141 arcsec [0.77 σ]
KicOffset-rm: 0.067 arcsec [0.32 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

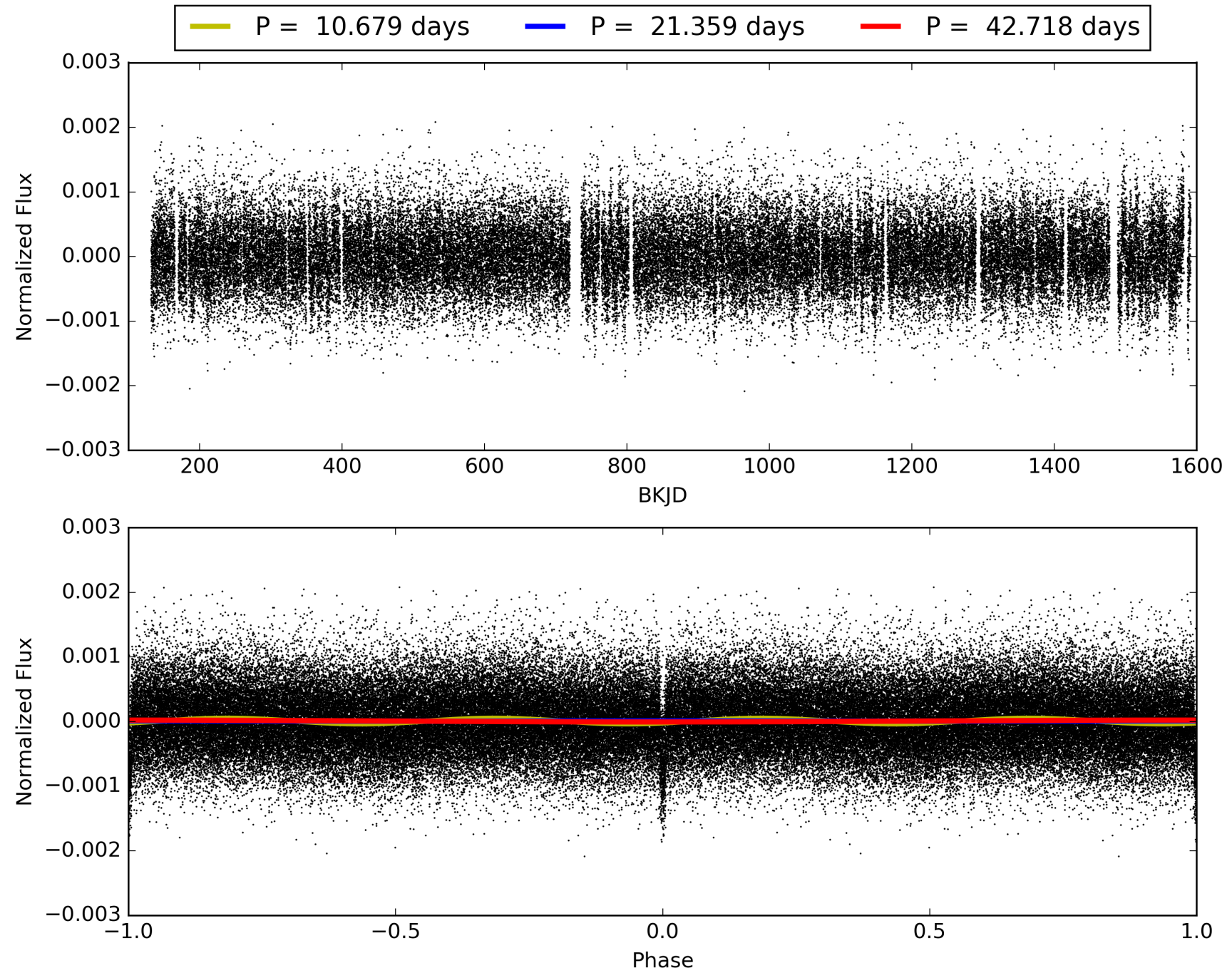
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:55:21 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 012020218-01, PDC Light Curves

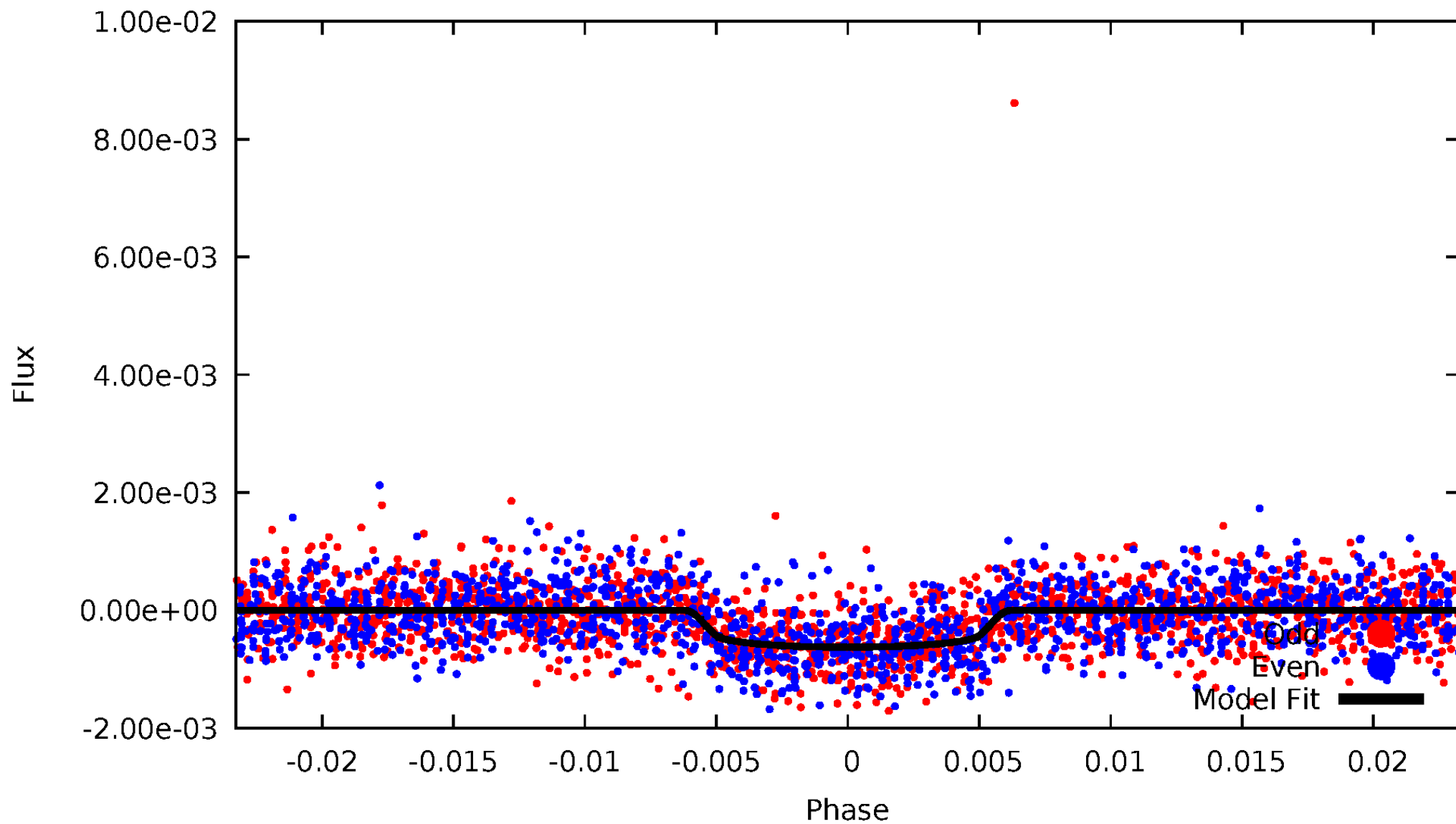


TCE 012020218-01



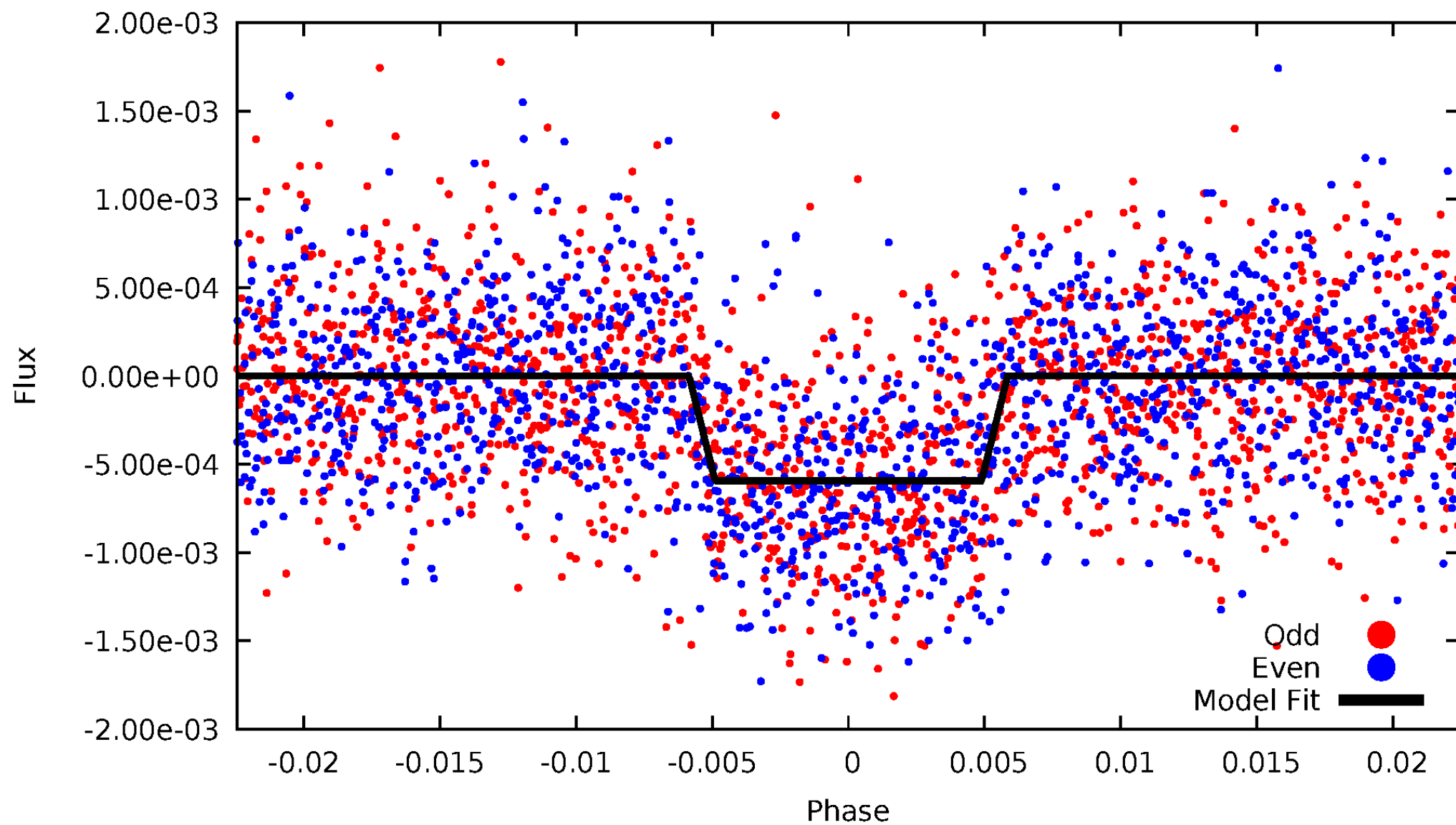
DV Odd/Even

TCE 012020218-01

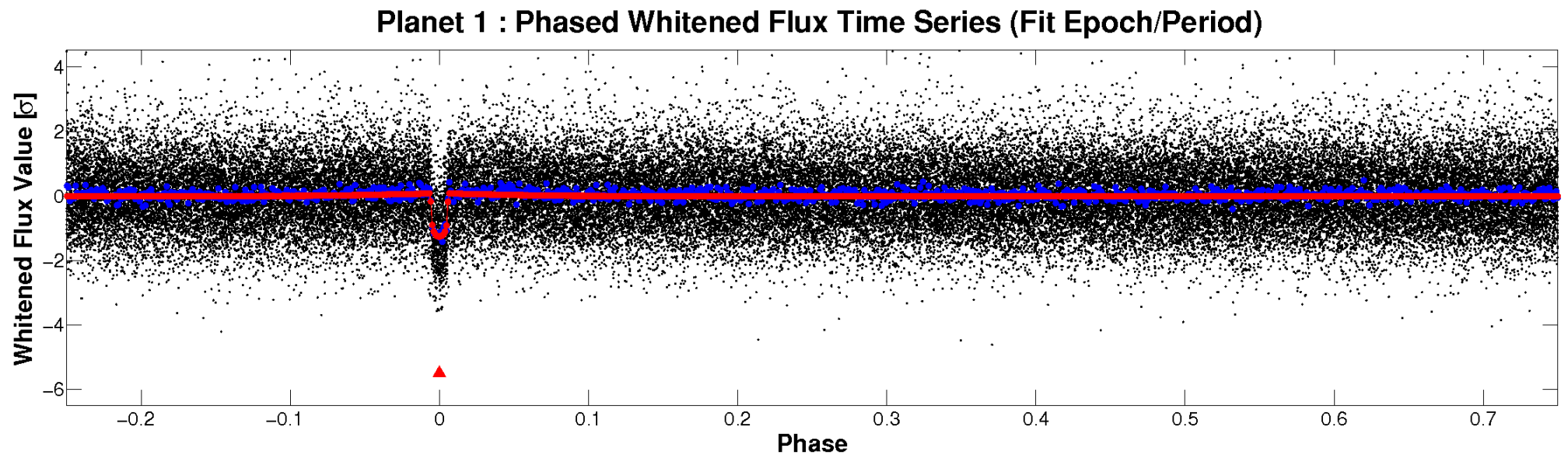
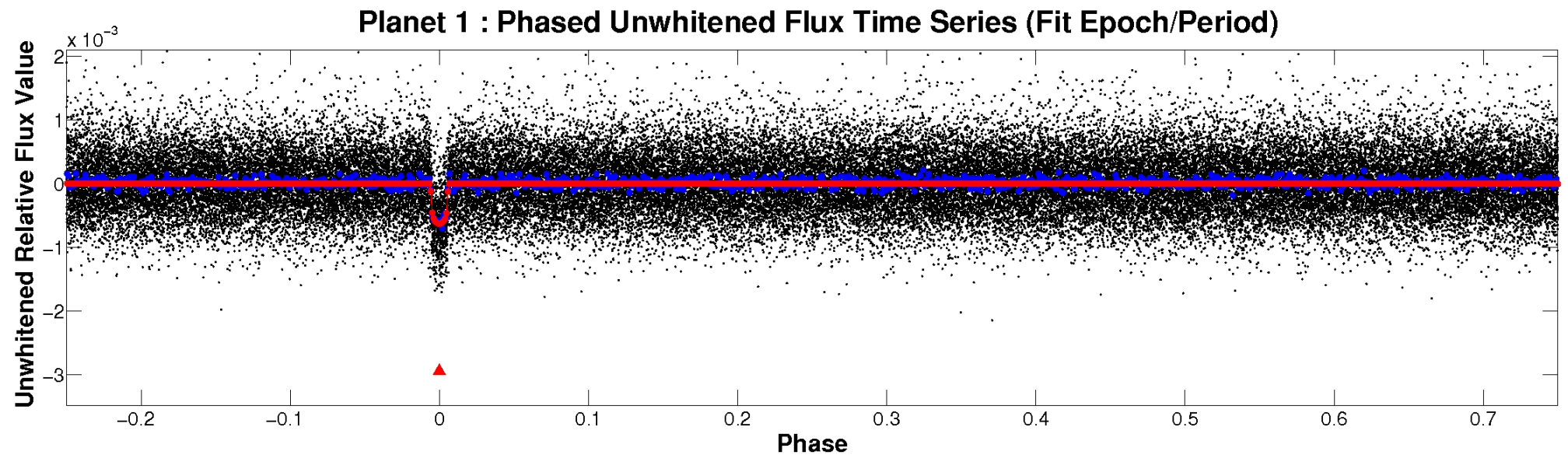


ALT Odd/Even

TCE 012020218-01

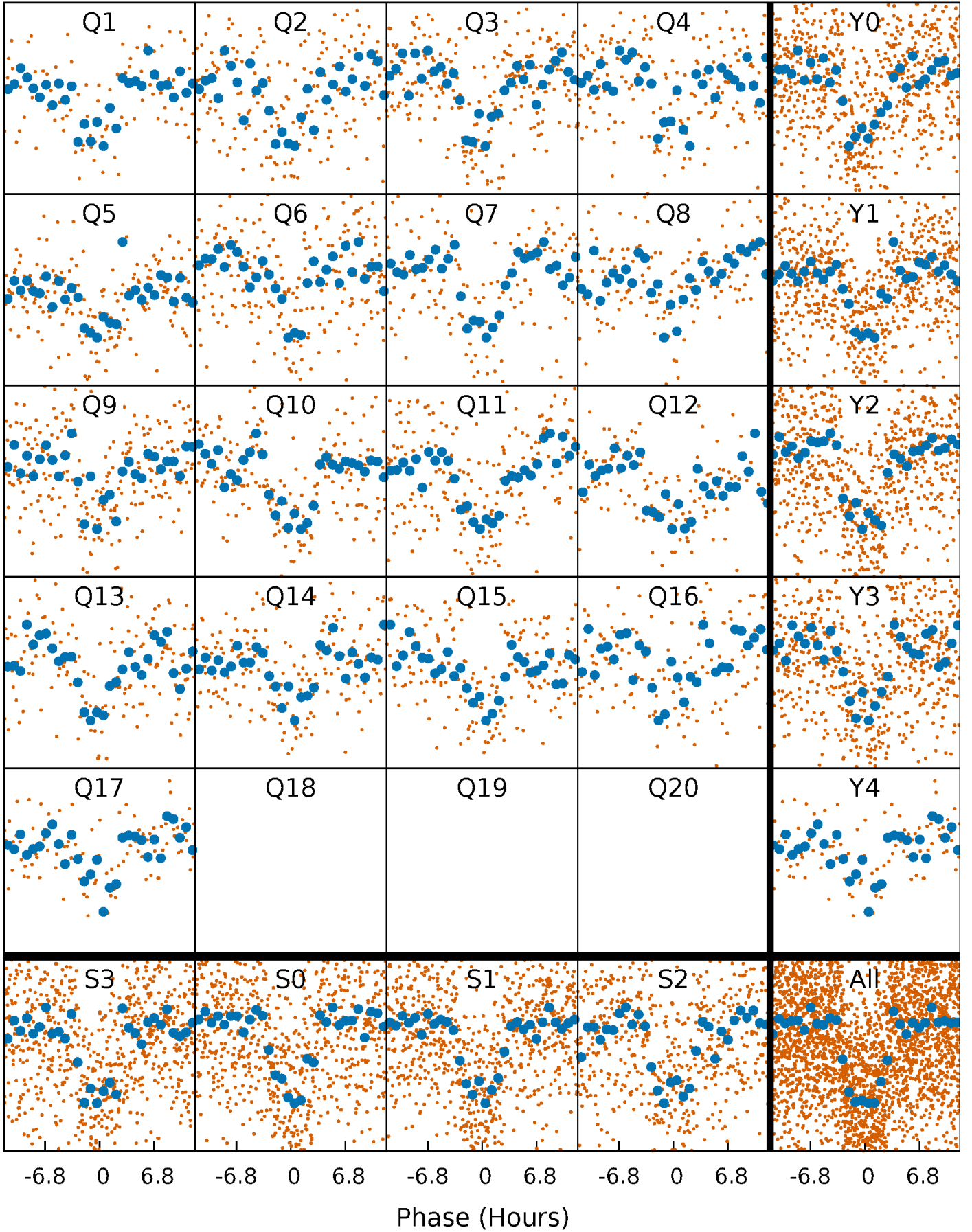


Non-Whitened Vs. Whitened Light Curve



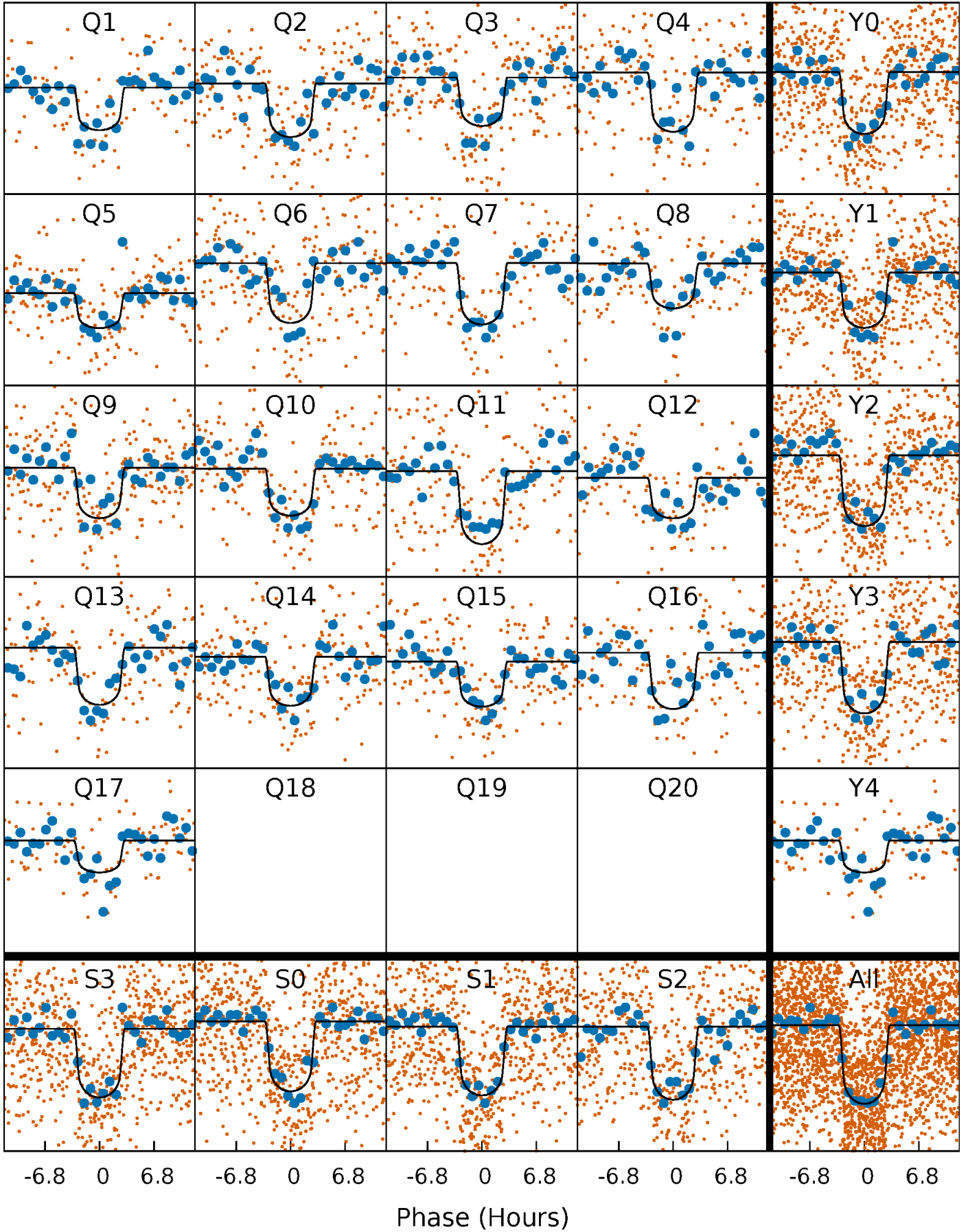
PDC Quarter-Phased Transit Curves

TCE 012020218-01 P= 21.358818 Days $T_0=135.069403$ (BKJD)



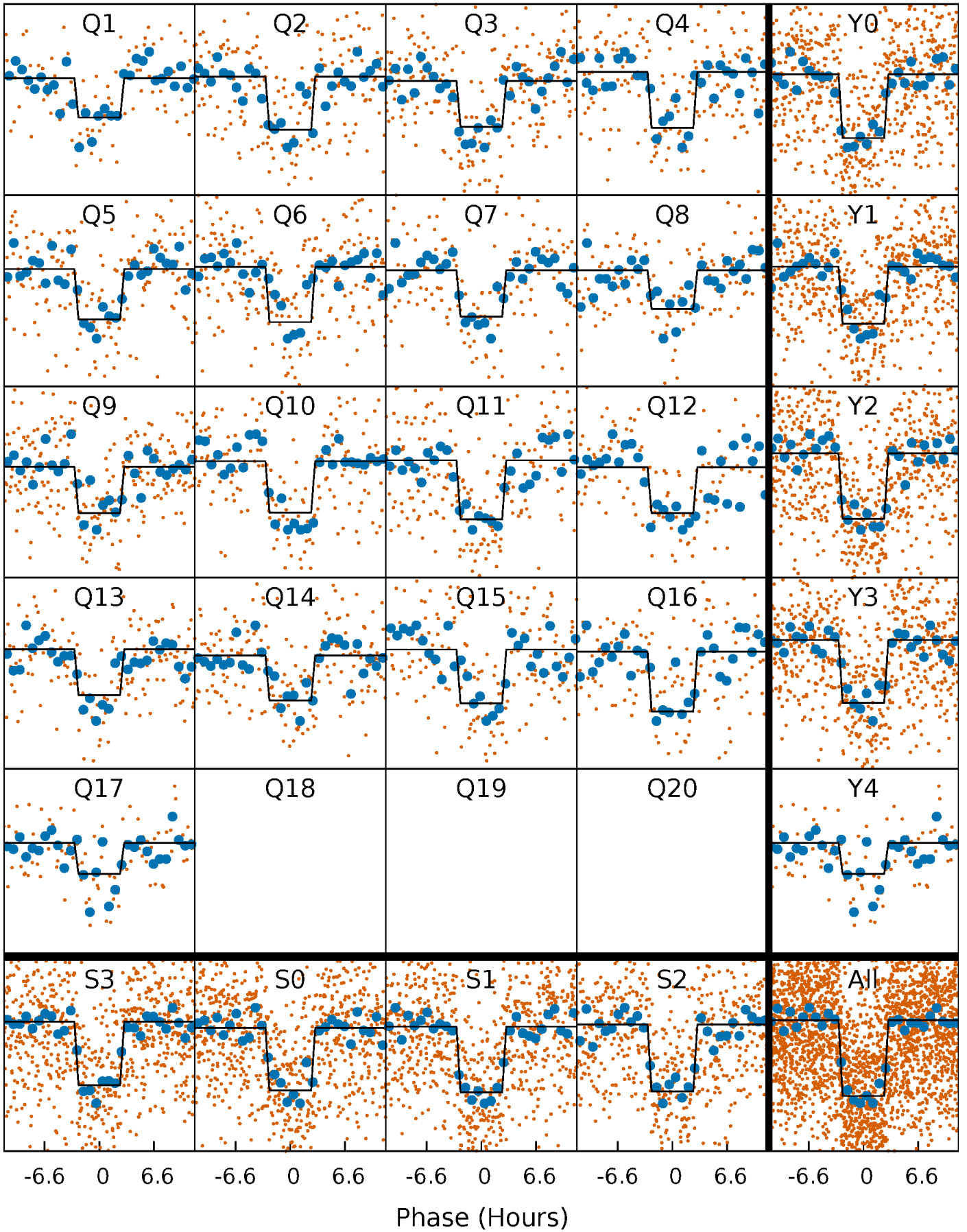
DV Quarter-Phased Transit Curves

TCE 012020218-01 P= 21.358818 Days $T_0=135.069403$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

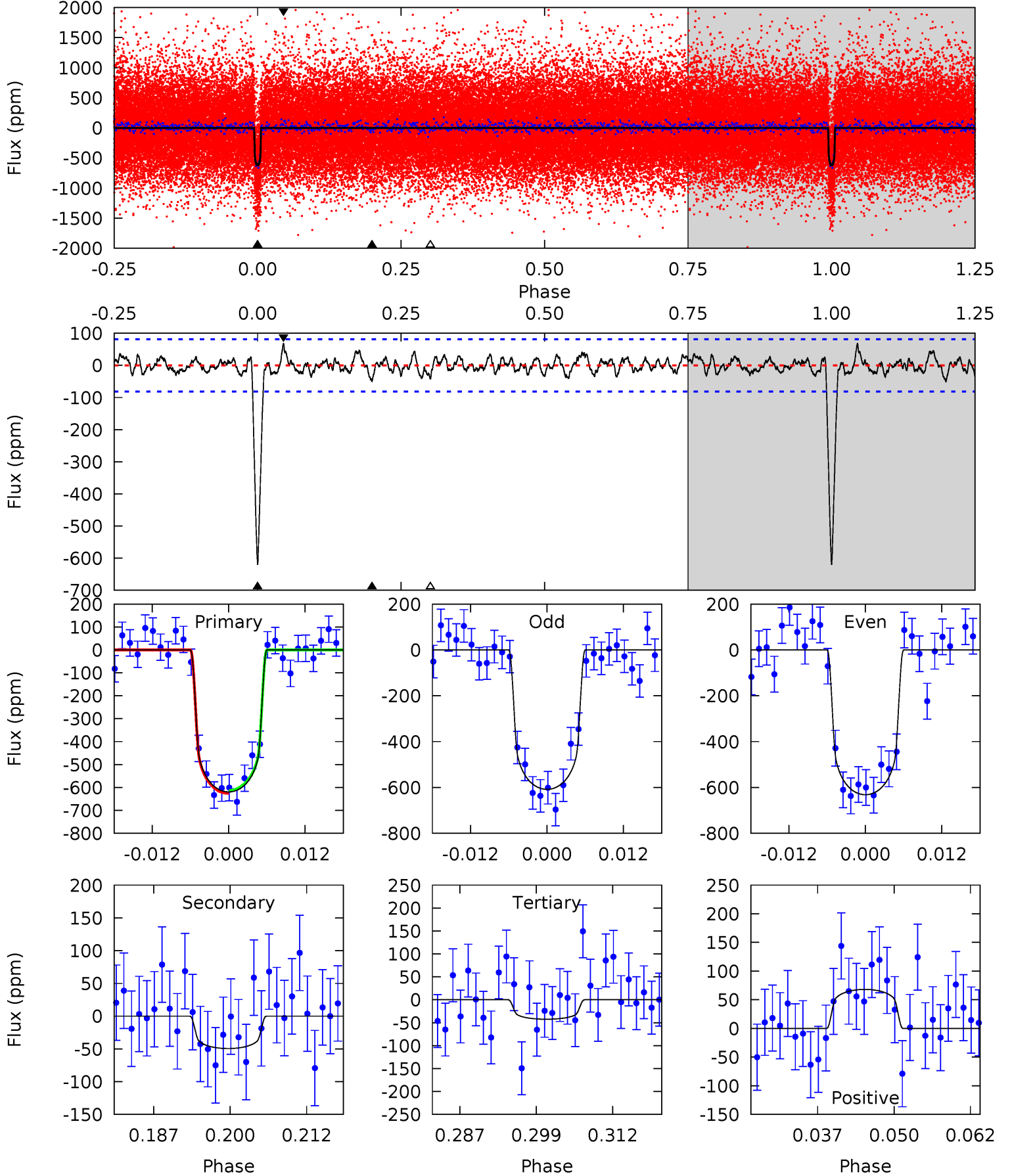
TCE 012020218-01 P= 21.358431 Days $T_0=135.081421$ (BKJD)



DV Model-Shift Uniqueness Test

012020218-01, P = 21.358818 Days, E = 113.710585 Days

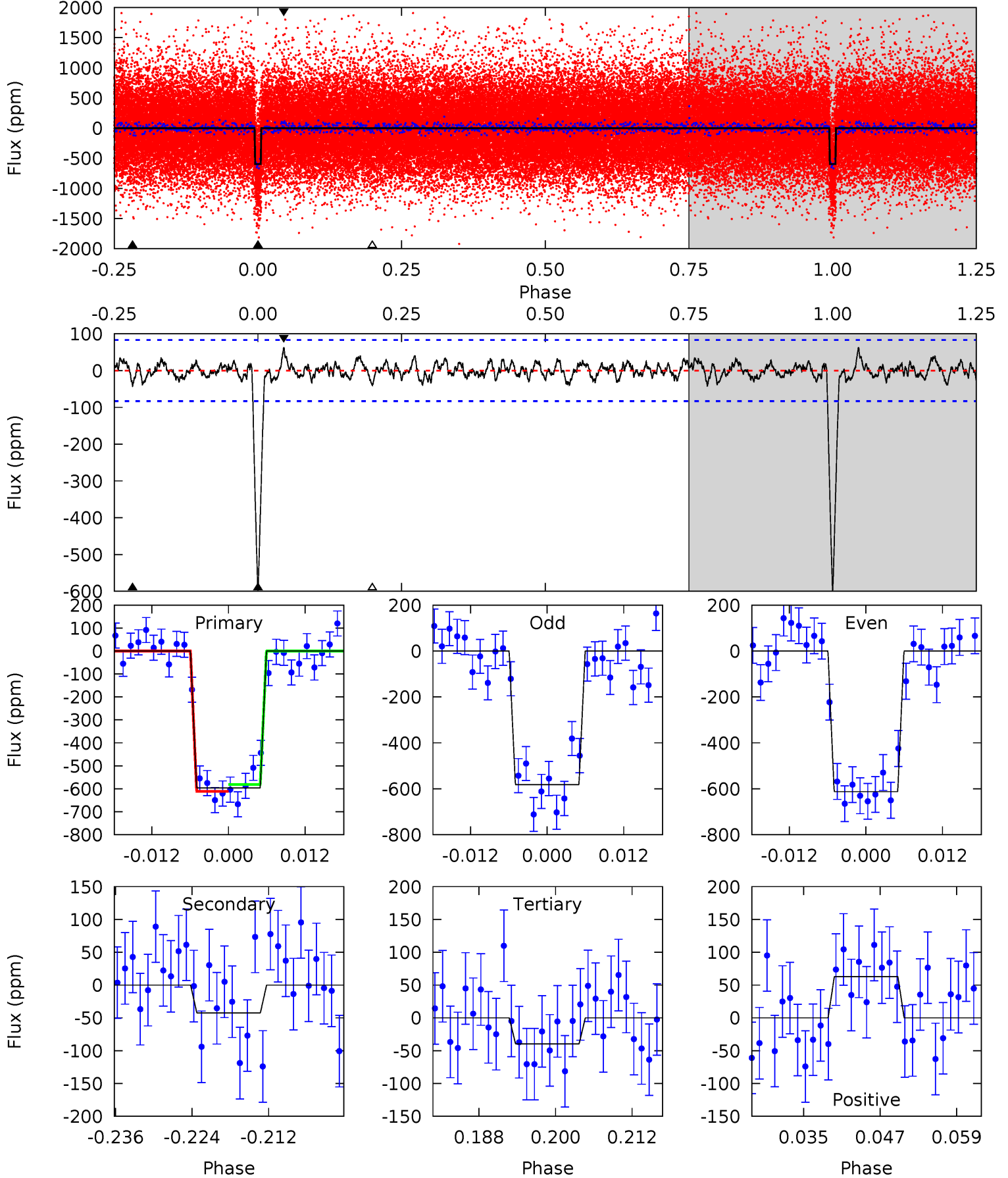
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.0	3.03	2.61	4.17	4.98	2.50	1.11	35.4	33.8	0.43	-1.14	0.72	1.01	0.10	0.38



Alt Model-Shift Uniqueness Test

012020218-01, P = 21.358431 Days, E = 113.722990 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.8	2.54	2.38	3.77	4.99	2.52	0.98	33.4	32.0	0.17	-1.23	0.92	0.99	0.10	0.91



Stellar Parameters For KIC 012020218

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6170^{+170}_{-233}	$4.472^{+0.054}_{-0.216}$	$-0.160^{+0.250}_{-0.350}$	$0.992^{+0.316}_{-0.105}$	$1.063^{+0.139}_{-0.153}$	$1.535^{+0.438}_{-0.852}$
	+3%/-4%	+1%/-5%	+156%/-219%	+32%/-11%	+13%/-14%	+29%/-56%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 012020218-01 / KOI 1507.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-49 ± 16	$2.86^{+0.58}_{-0.55}$	988^{+74}_{-52}	3686^{+298}_{-278}	78^{+49}_{-32}
Alt.	-42 ± 17	$2.77^{+0.62}_{-0.53}$	986^{+71}_{-51}	3602^{+345}_{-332}	66^{+52}_{-30}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

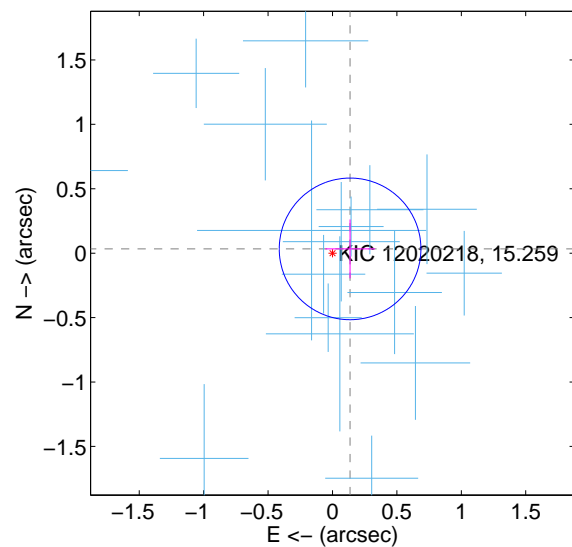
Supplemental centroid analysis for 012020218-01. Kepler magnitude: 15.26. Transit SNR 29.38

There are 17 quarters with good PRF difference image offsets

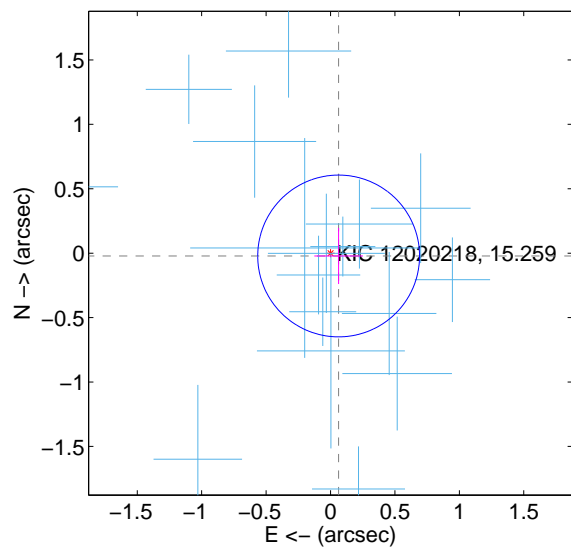
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.141 ± 0.183	0.77	-0.137 ± 0.192	0.033 ± 0.228
PRF-fit source offset from KIC position	0.067 ± 0.209	0.32	-0.063 ± 0.189	-0.022 ± 0.218
photometric centroid source offset	0.10 ± 0.49	0.21	-0.10 ± 0.49	0.00 ± 0.51

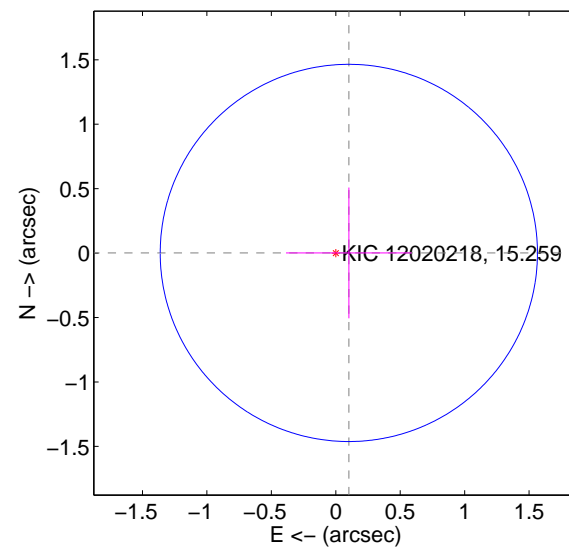
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

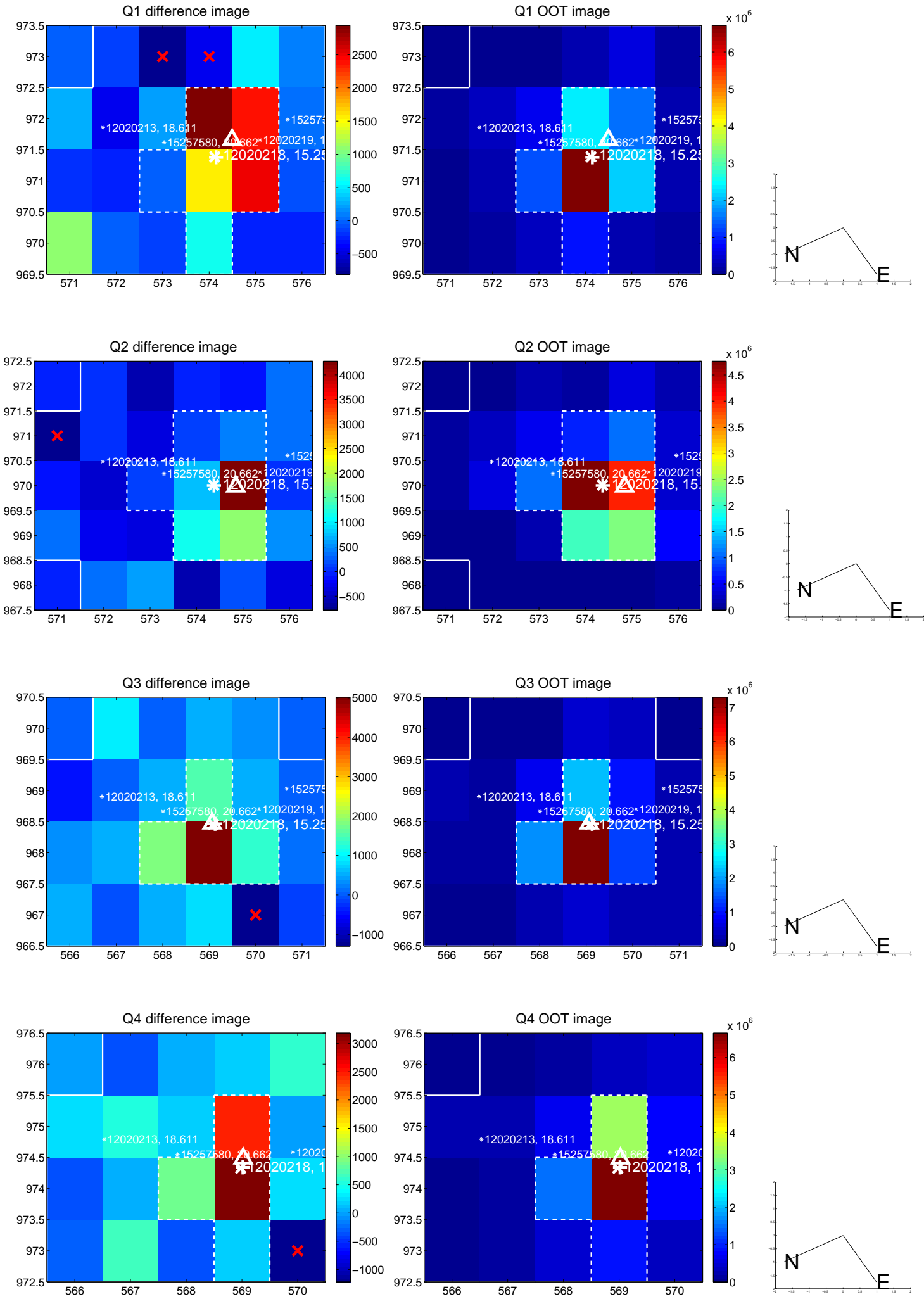


offset from photometric centroids

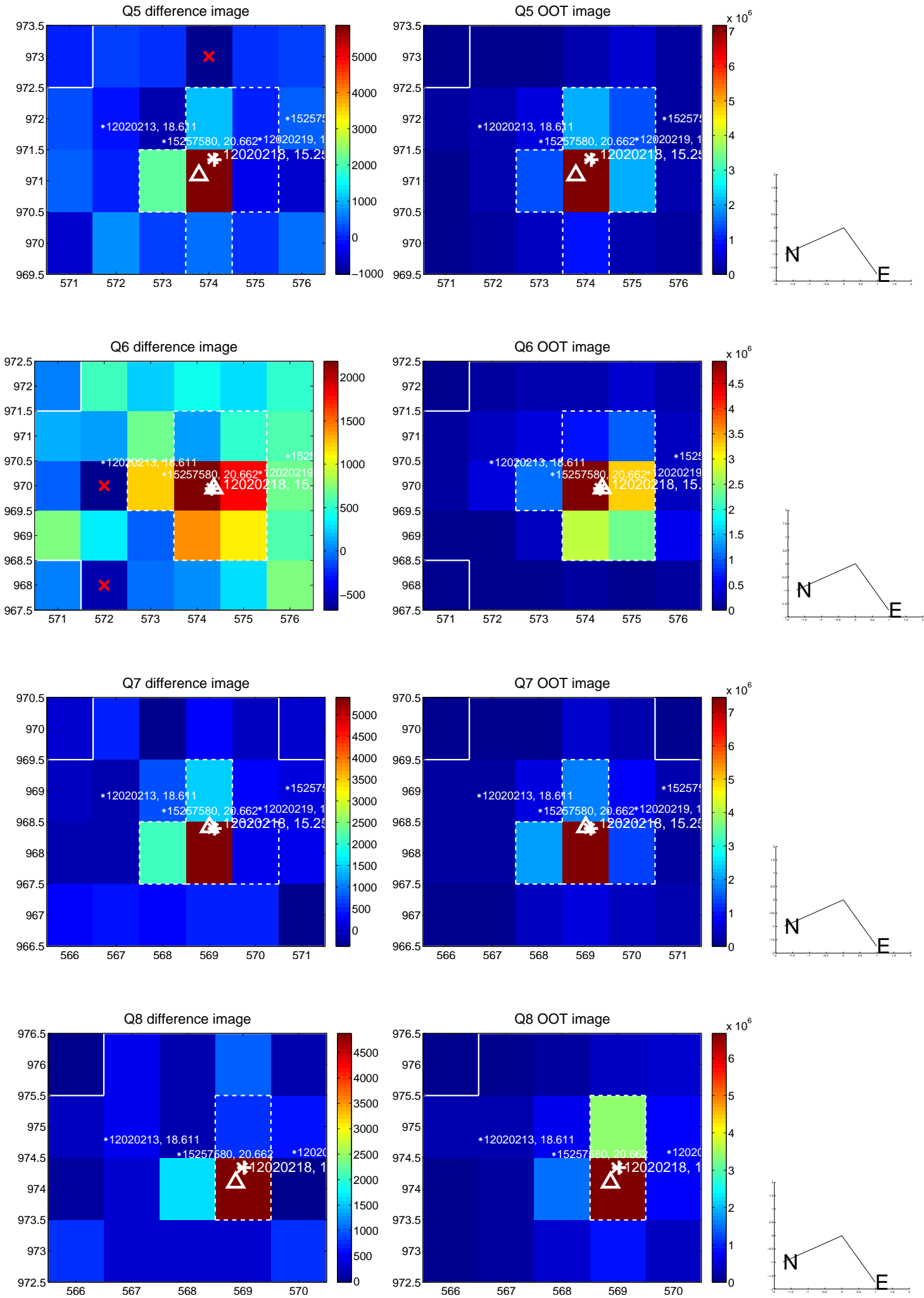


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

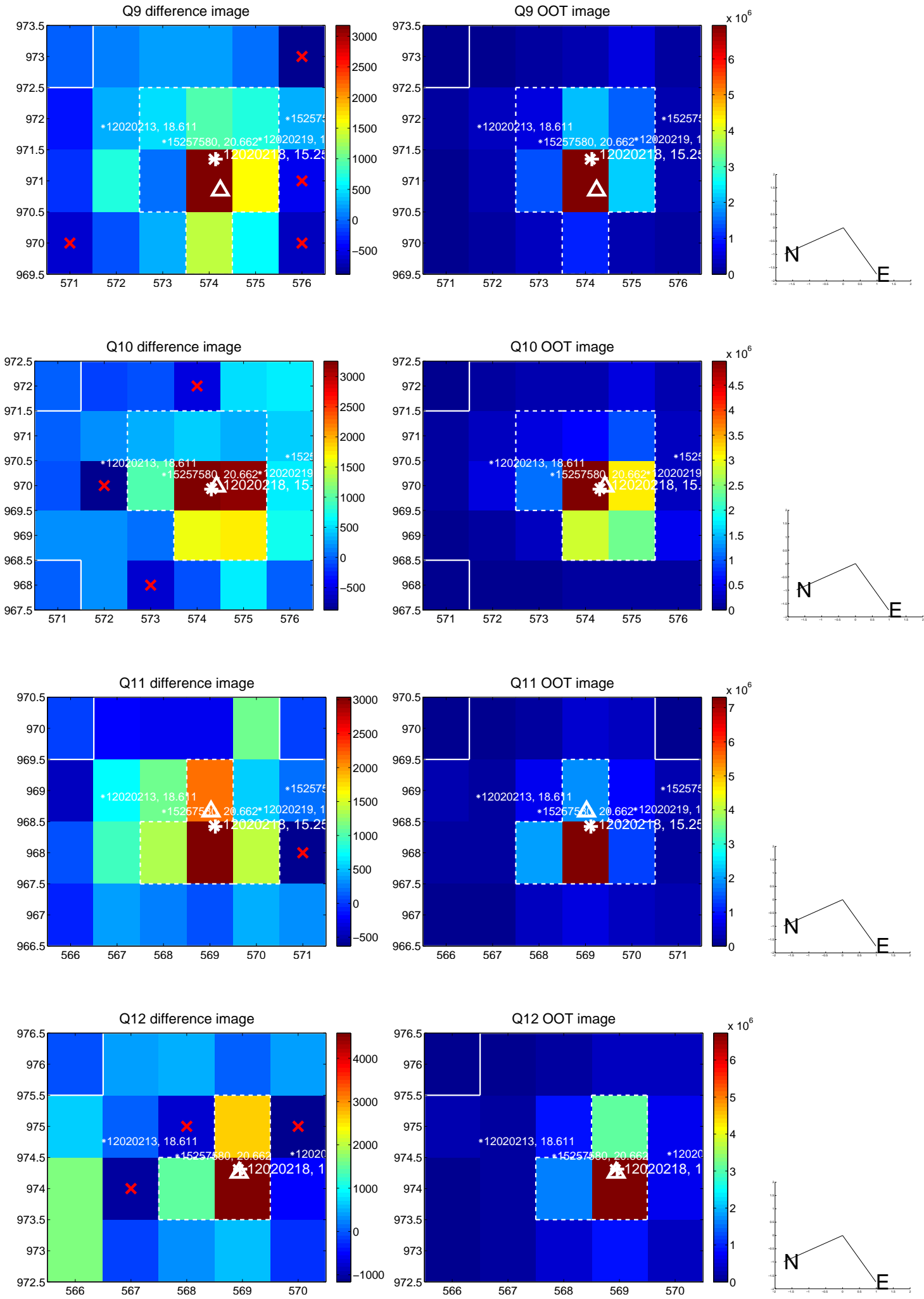
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



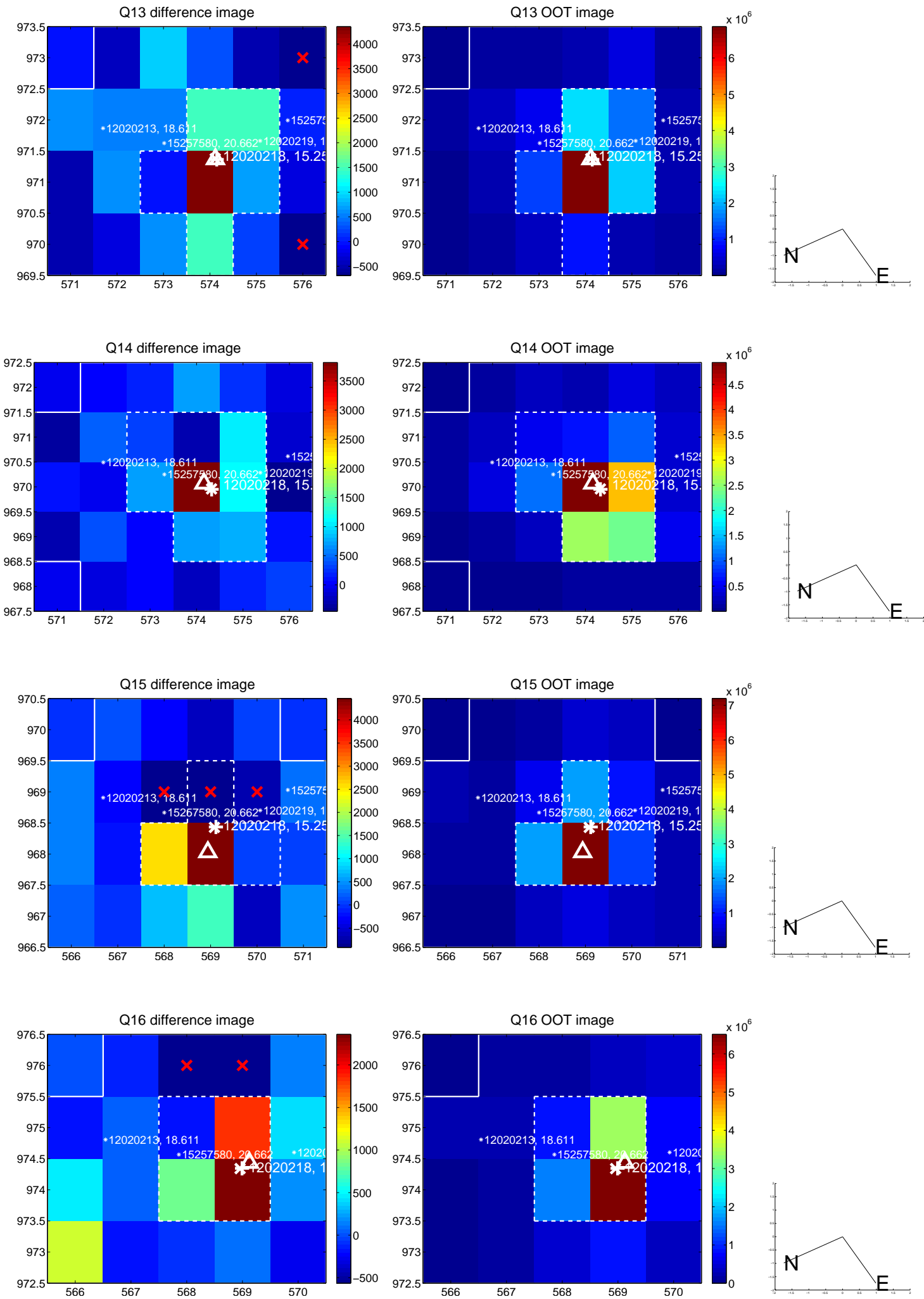
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



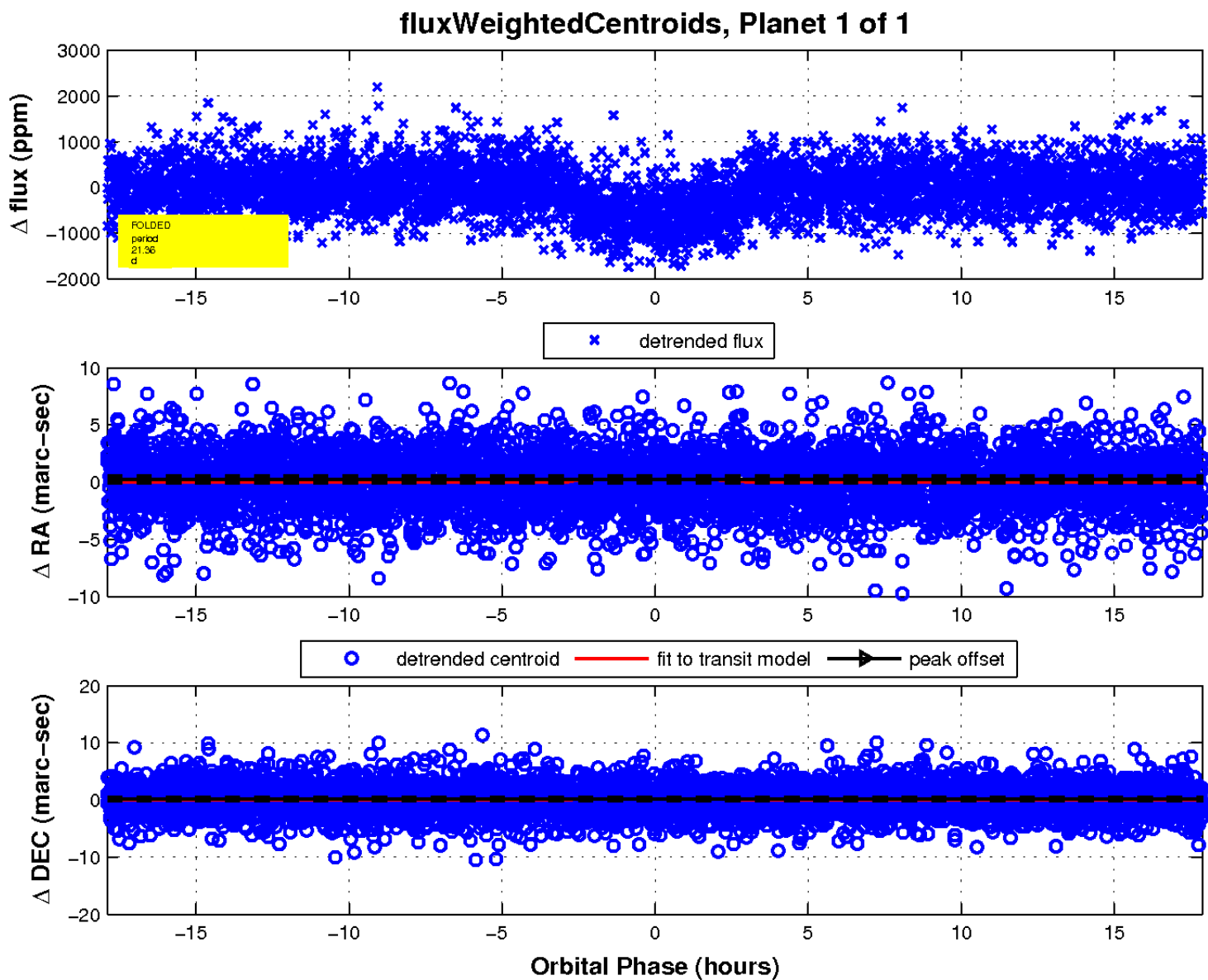
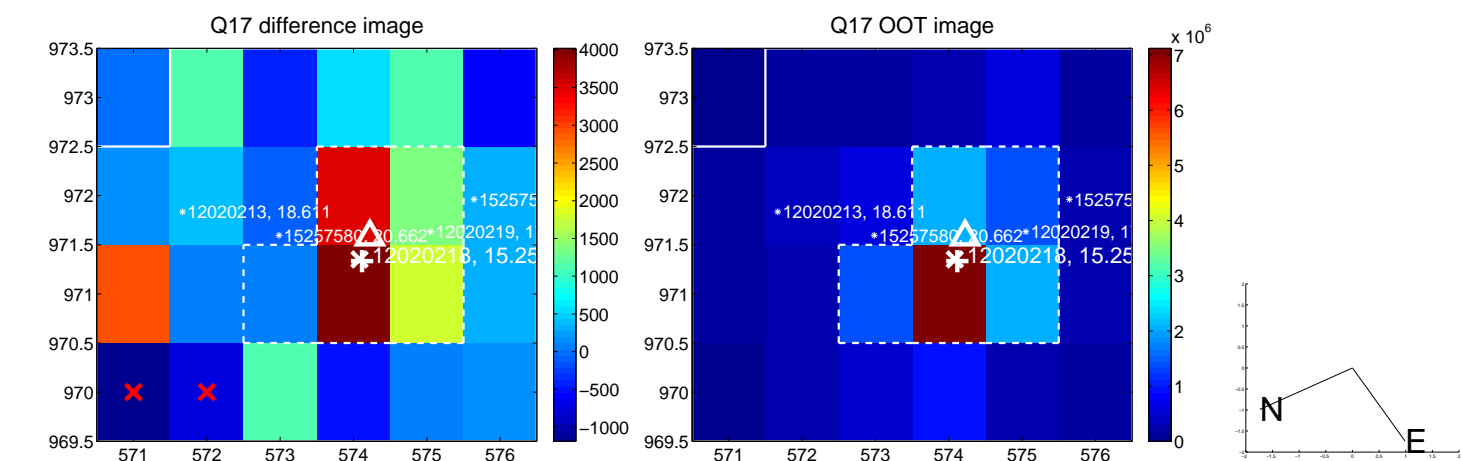
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

