

KIC 004178376

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})
004178376-01	OBS	No	2.183432	132.776144	30.0	8.741	7.9	7.1	1.28	6194	0.76	2118.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004178376-01	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

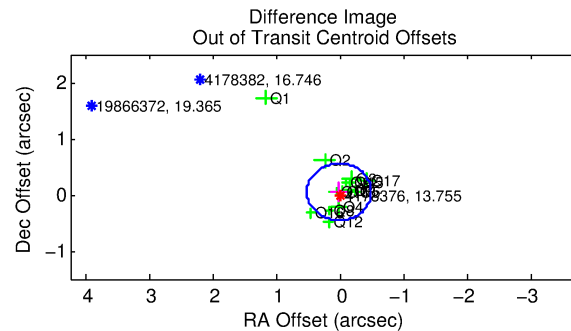
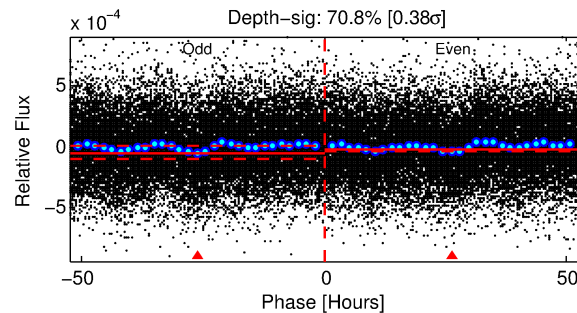
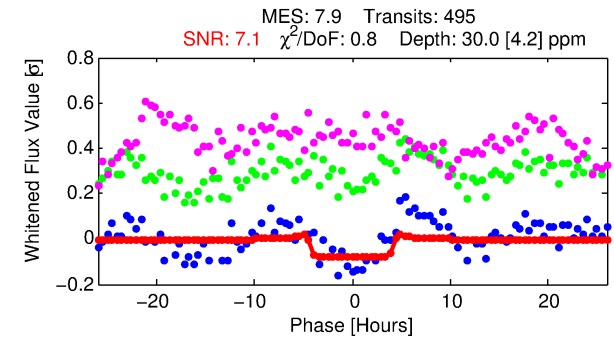
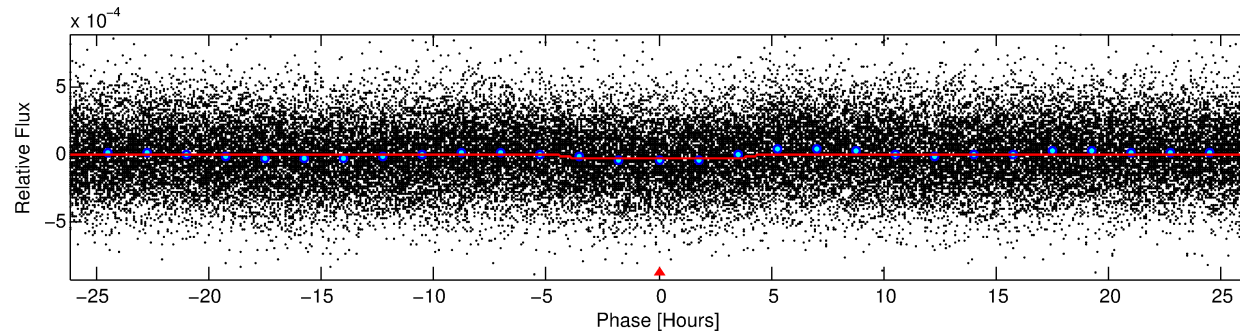
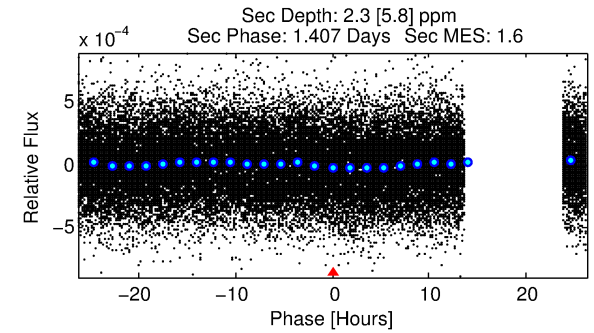
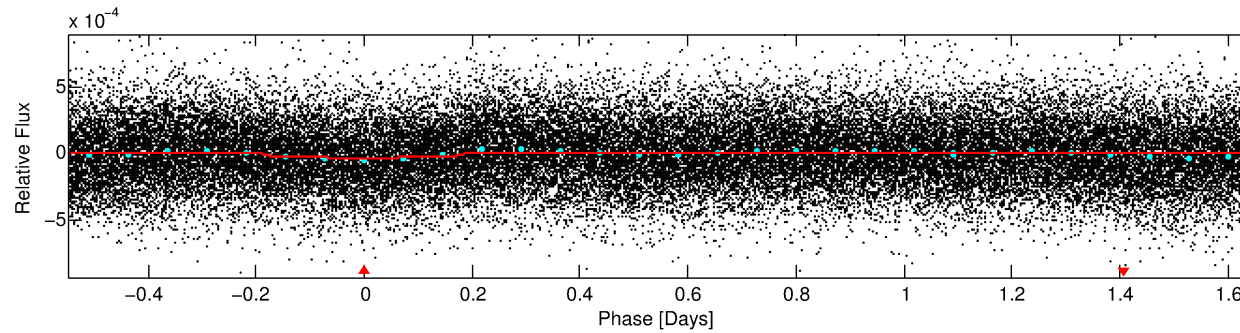
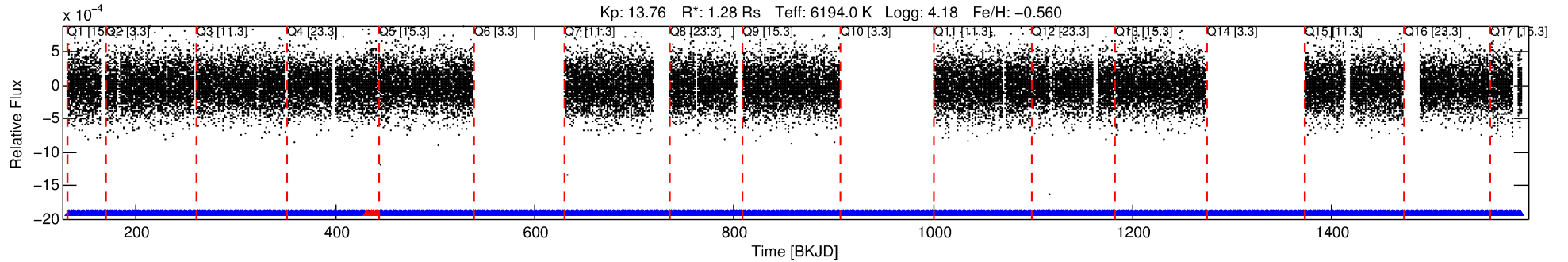
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004178376-01

No Significant Match Found

DV One-Page Summary

KIC: 4178376 Candidate: 1 of 1 Period: 2.183 d



DV Fit Results:

Period = 2.18343 [0.00004] d
Epoch = 132.7761 [0.0087] BKJD
Rp/R* = 0.0055 [0.0024]
a/R* = 1.52 [2.04]
b = 0.76 [1.34]
Seff = 2118.68 [1085.60]
Teq = 1730 [222] K
Rp = 0.76 [0.39] Re
a = 0.0319 [0.0094] AU
Ag = 2.19 [6.02] [0.20 σ]
Teffp = 3252 [2207] K [0.69 σ]

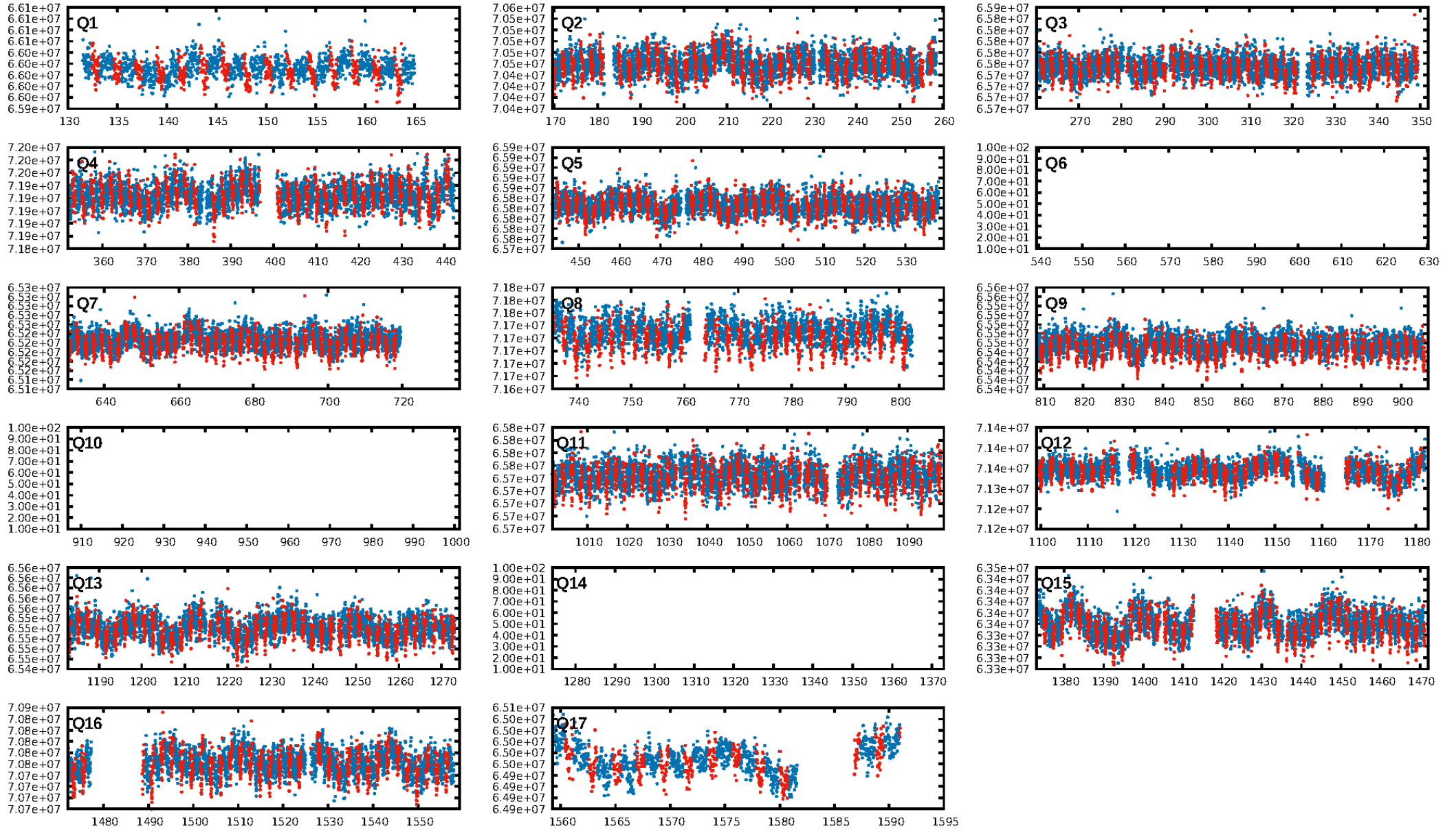
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.92e-11
RollingBand-fgt: 0.99 [464/468]
GhostDiagnostic-chr: 0.7709
Centroid-sig: 51.3%
Centroid-so: 1.153 arcsec [0.94 σ]
OotOffset-rm: 0.056 arcsec [0.33 σ]
KicOffset-rm: 0.124 arcsec [1.06 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

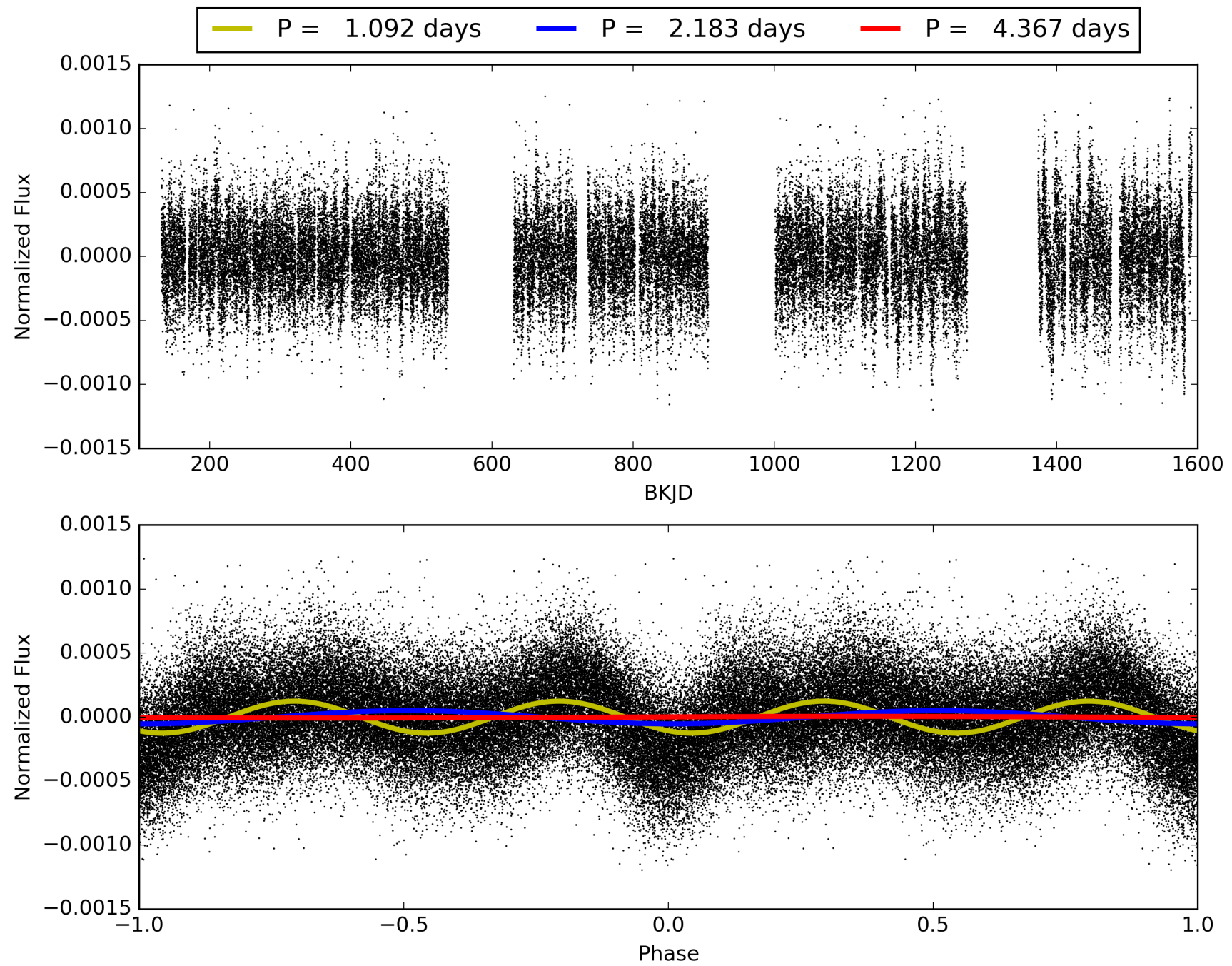
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:13:00 Z

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

TCE 004178376-01, PDC Light Curves

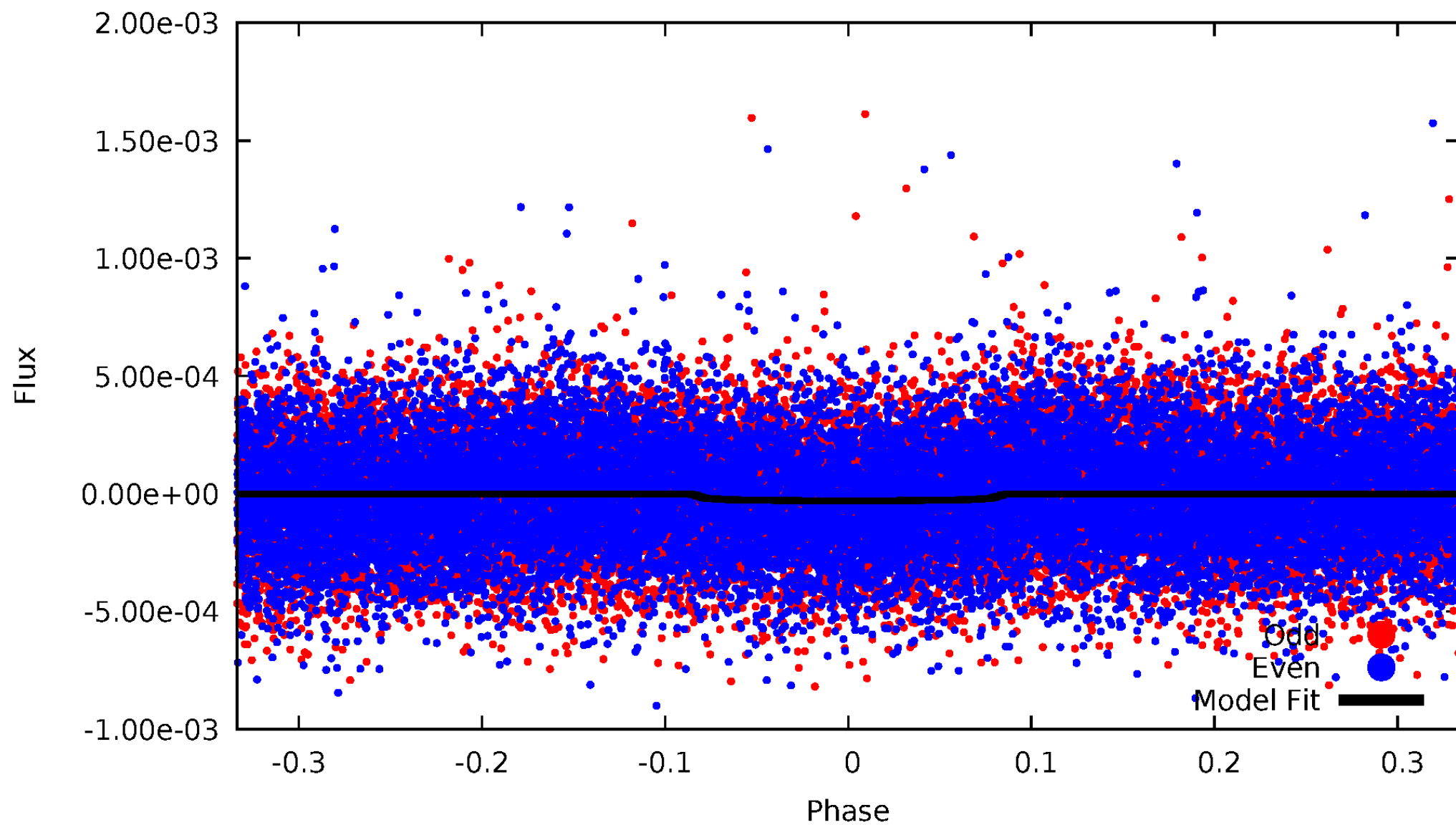


TCE 004178376-01



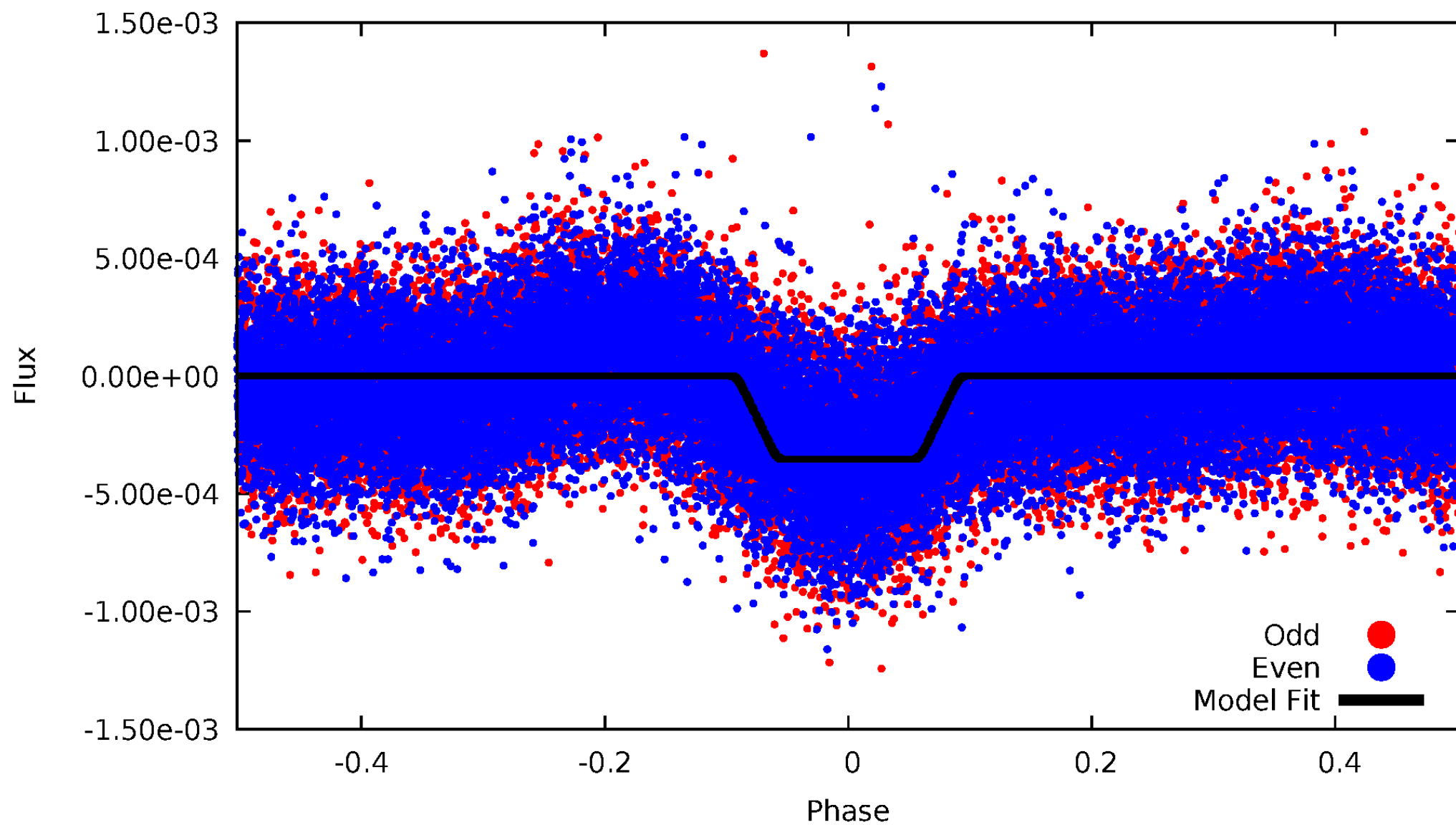
DV Odd/Even

TCE 004178376-01

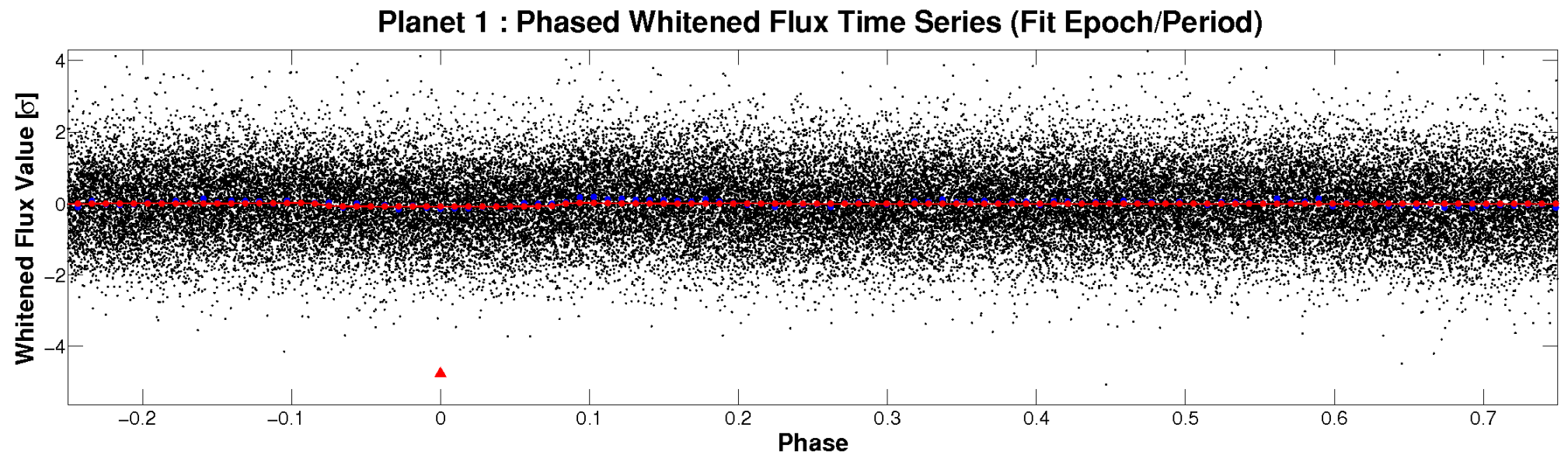
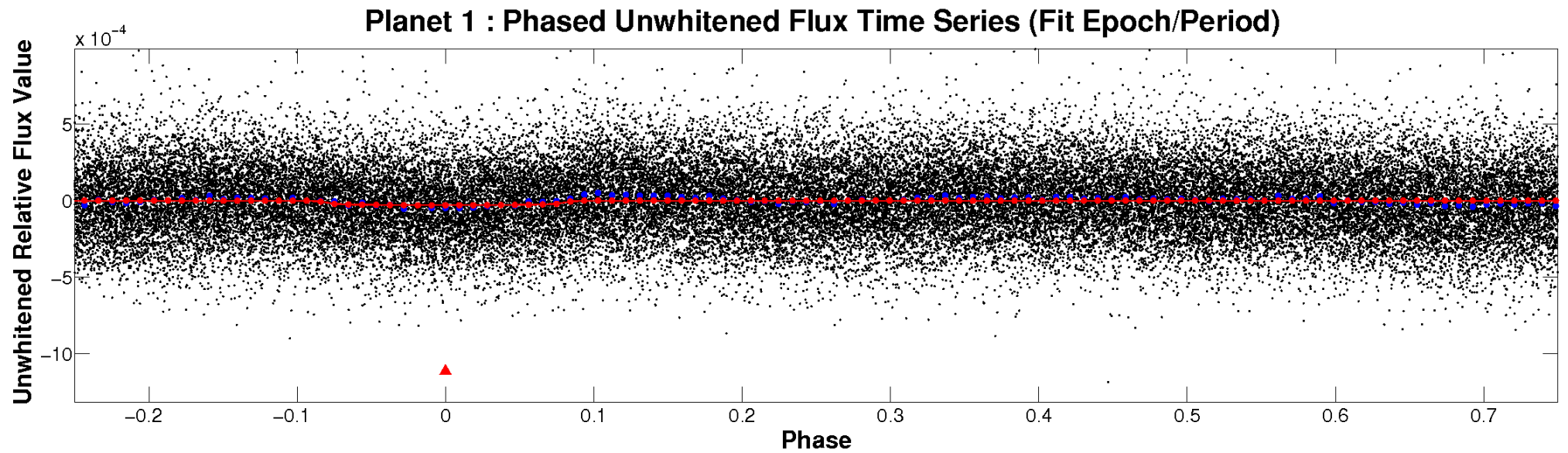


ALT Odd/Even

TCE 004178376-01

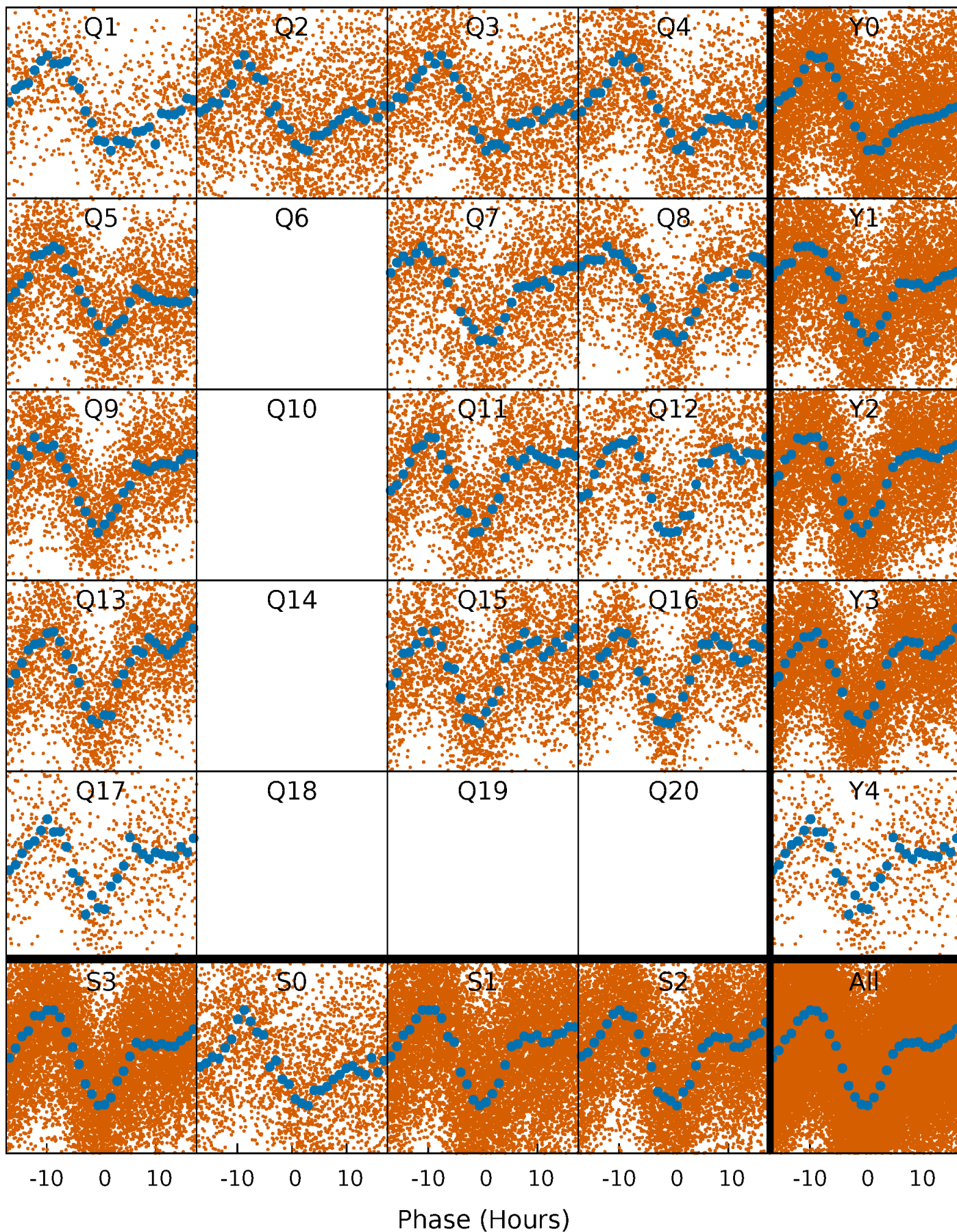


Non-Whitened Vs. Whitened Light Curve



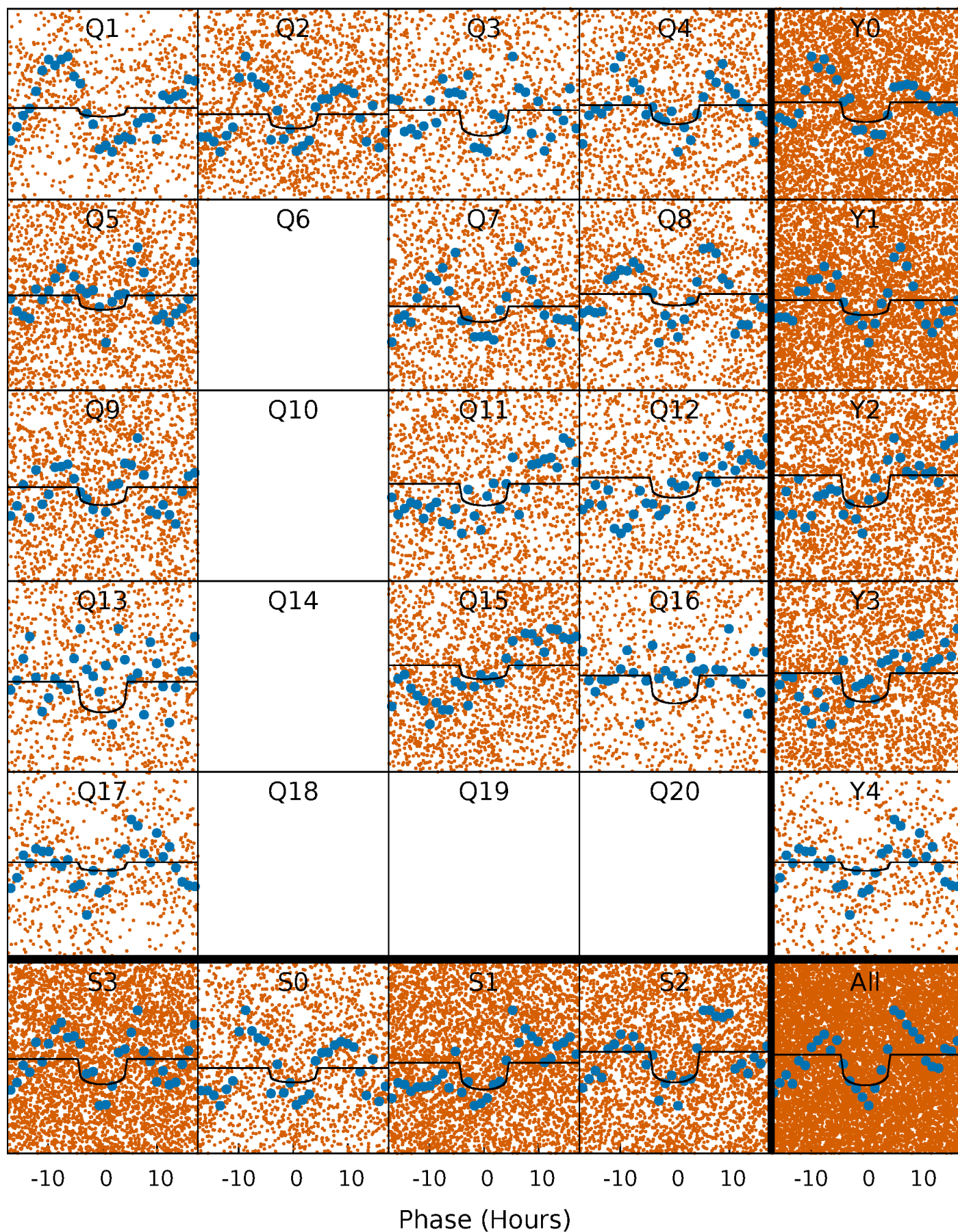
PDC Quarter-Phased Transit Curves

TCE 004178376-01 P= 2.183432 Days $T_0=132.776144$ (BKJD)



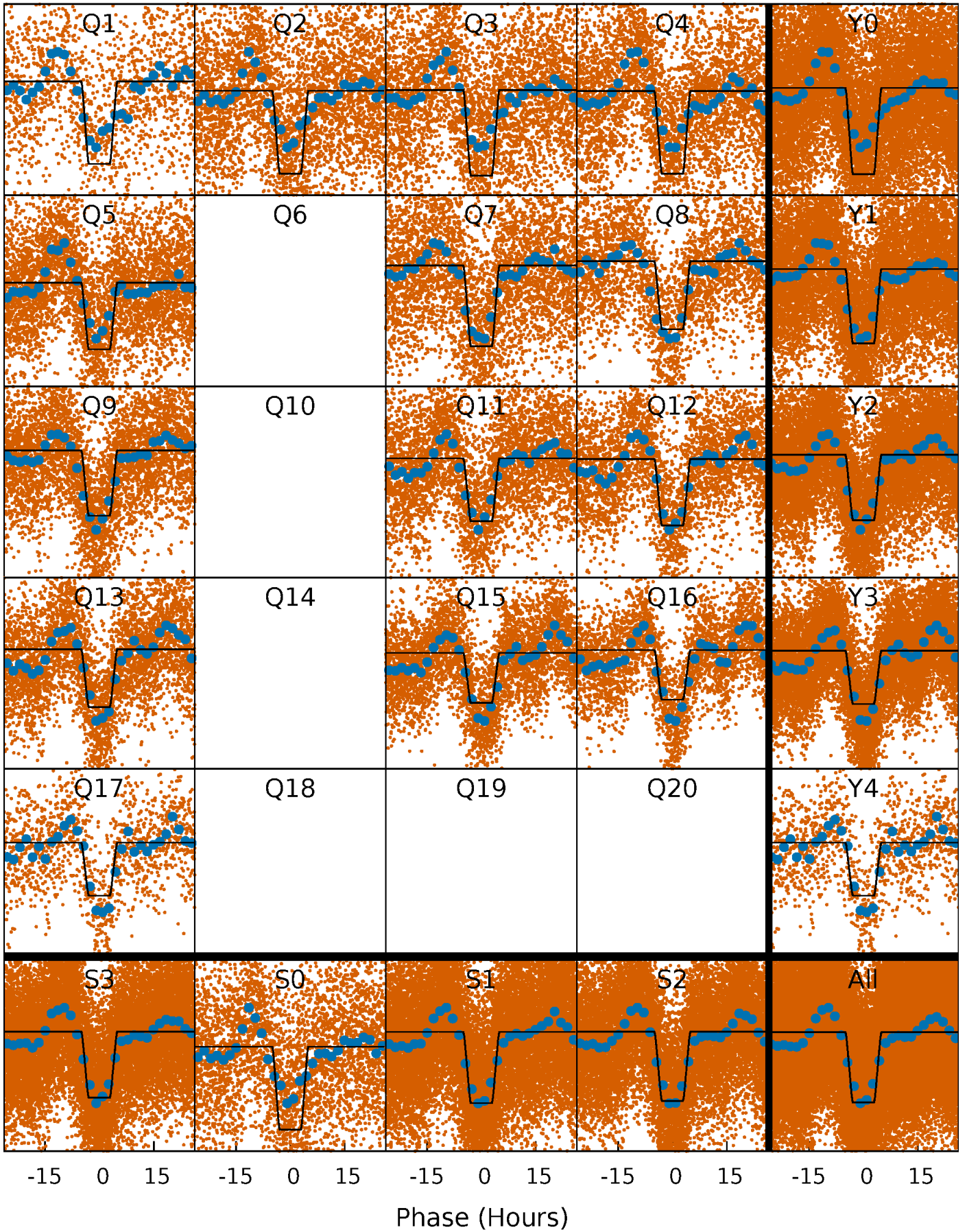
DV Quarter-Phased Transit Curves

TCE 004178376-01 P= 2.183432 Days $T_0=132.776144$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

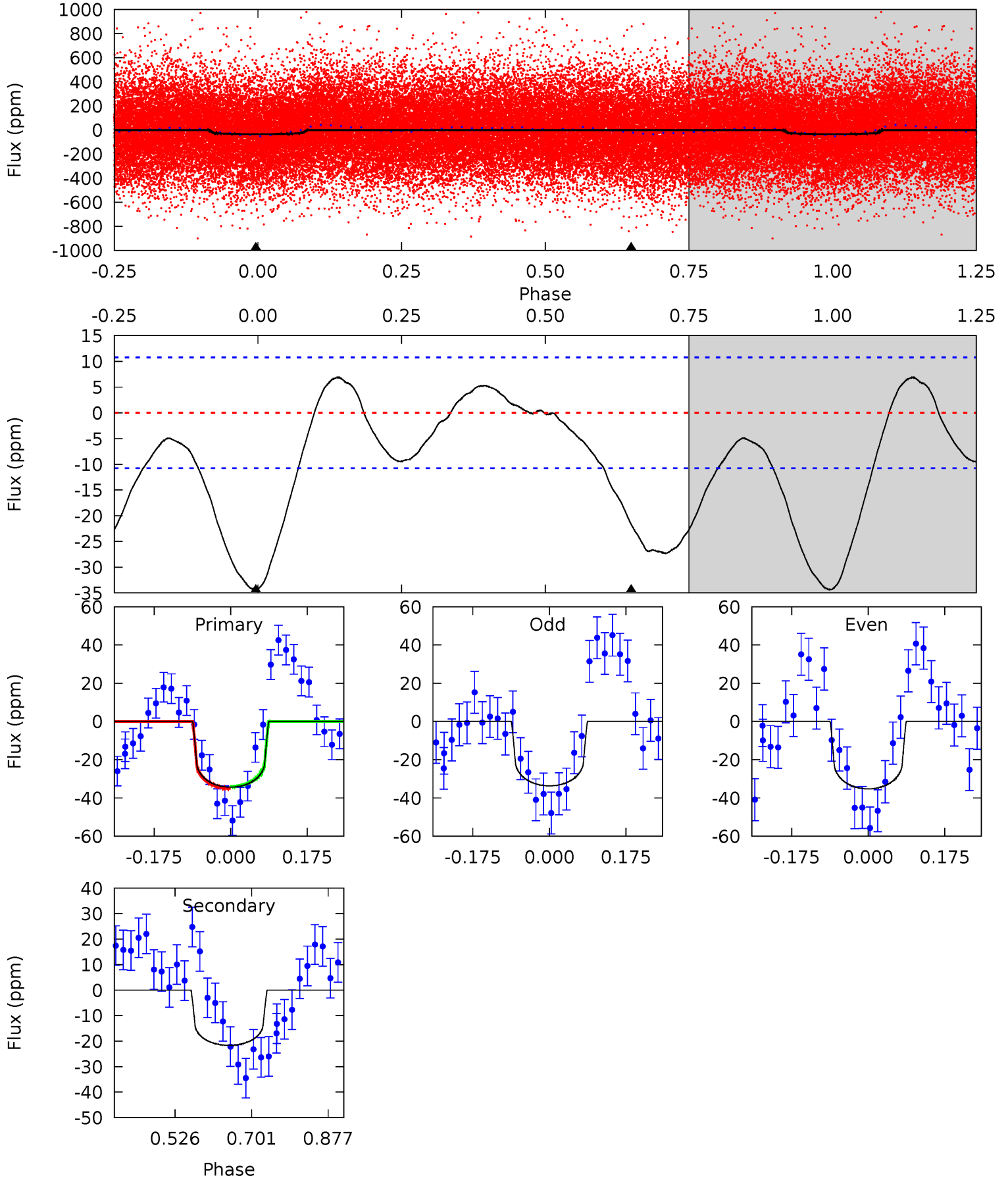
TCE 004178376-01 P= 2.183161 Days $T_0=132.882228$ (BKJD)



DV Model-Shift Uniqueness Test

004178376-01, P = 2.183432 Days, E = 130.592712 Days

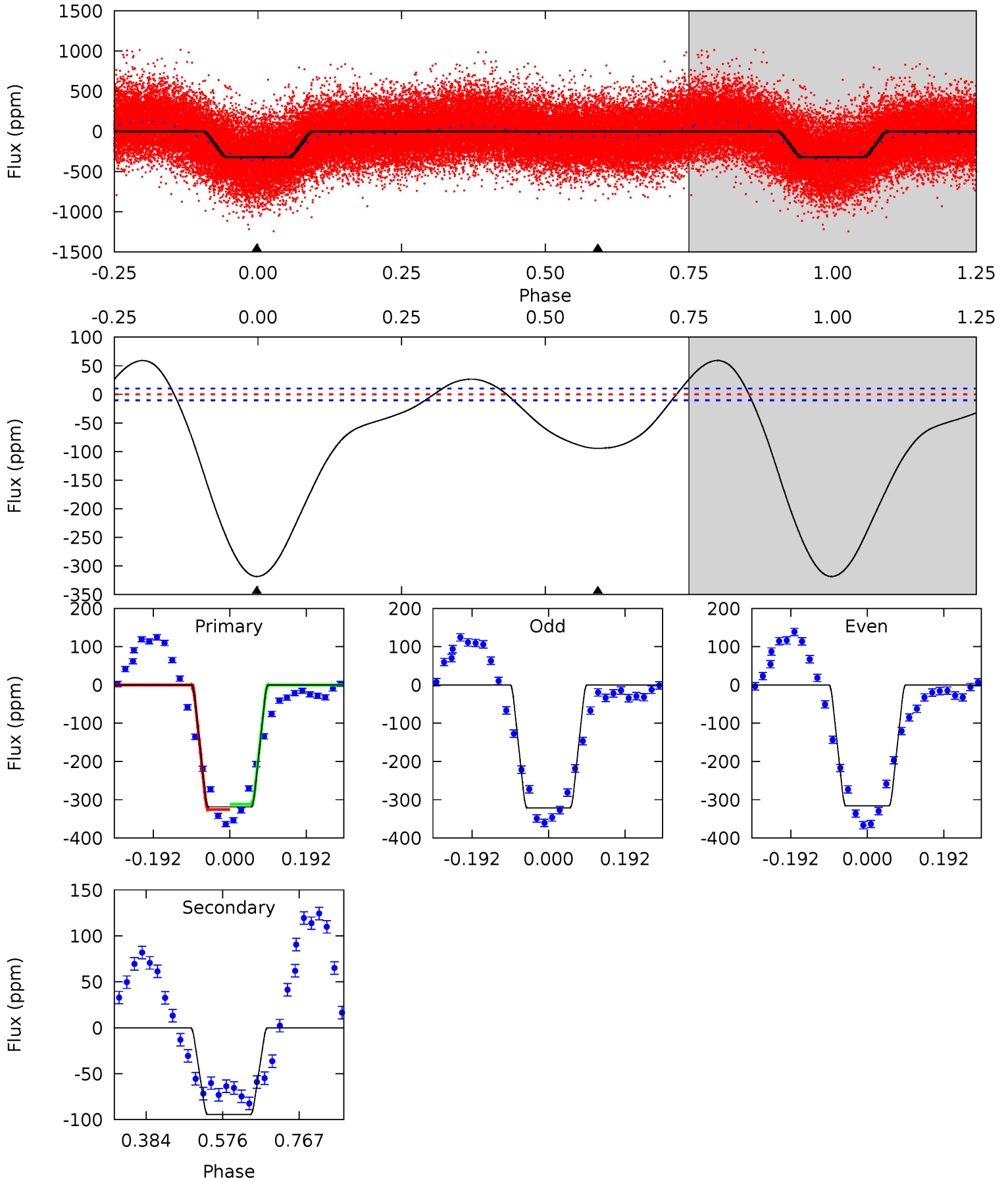
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	8.95	0	0	4.45	1.36	2.03	14.2	14.2	8.95	8.95	0.32	1.00	0.17	0.20



Alt Model-Shift Uniqueness Test

004178376-01, P = 2.183161 Days, E = 130.699067 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
138.0	40.9	0	0	4.43	1.31	14.3	138.0	138.0	40.9	40.9	1.04	1.02	0.16	2.87



Stellar Parameters For KIC 004178376

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6194^{+187}_{-206}	$4.183^{+0.299}_{-0.161}$	$-0.560^{+0.300}_{-0.300}$	$1.280^{+0.355}_{-0.355}$	$0.909^{+0.128}_{-0.093}$	$0.611^{+0.999}_{-0.291}$
	+3%/-3%	+7%/-4%	+54%/-54%	+28%/-28%	+14%/-10%	+163%/-48%
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 004178376-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-22 ± 2	$0.76^{+0.36}_{-0.33}$	2389^{+187}_{-215}	5612^{+1852}_{-878}	21^{+44}_{-11}
Alt.	-94 ± 2	$2.54^{+0.62}_{-0.49}$	2372^{+214}_{-195}	4577^{+297}_{-242}	$8.321^{+4.145}_{-2.877}$

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

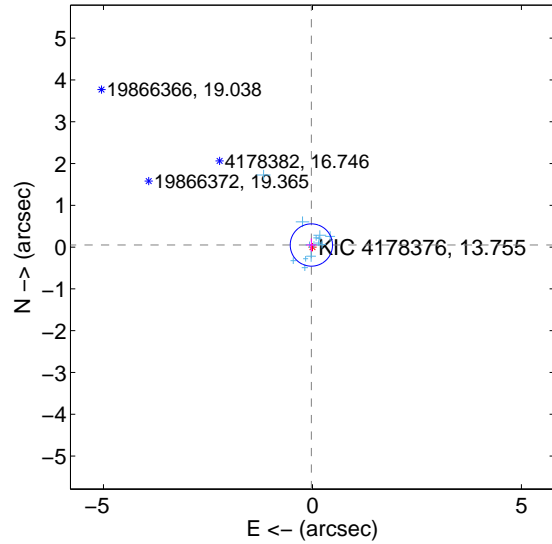
Supplemental centroid analysis for 004178376-01. Kepler magnitude: 13.76. Transit SNR 7.06

There are 14 quarters with good PRF difference image offsets

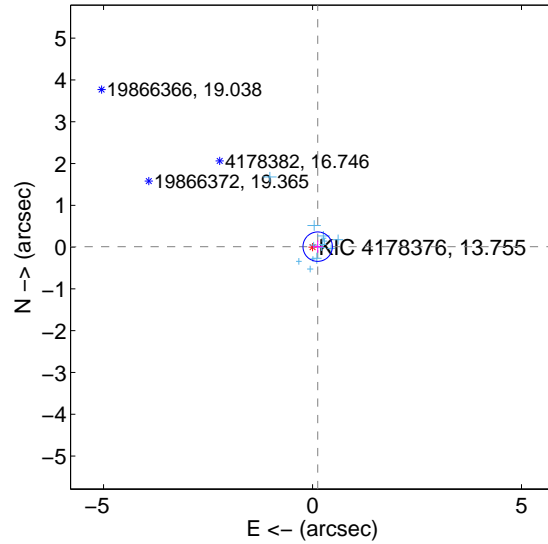
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.056 ± 0.169	0.33	0.025 ± 0.120	0.050 ± 0.157
PRF-fit source offset from KIC position	0.124 ± 0.117	1.06	-0.124 ± 0.122	0.011 ± 0.146
photometric centroid source offset	1.15 ± 1.22	0.94	-0.94 ± 1.25	-0.67 ± 1.17

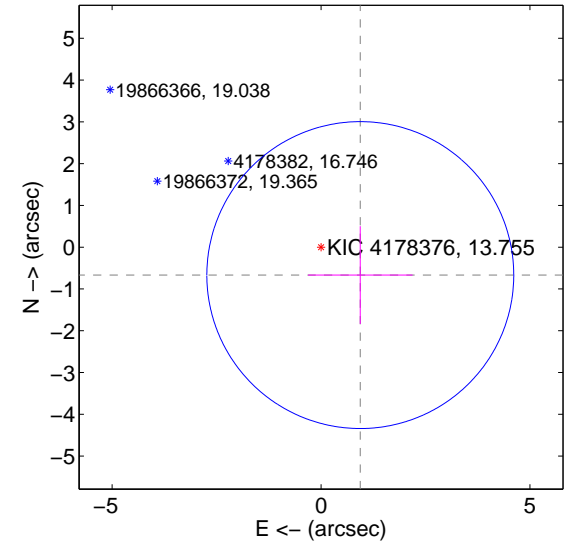
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

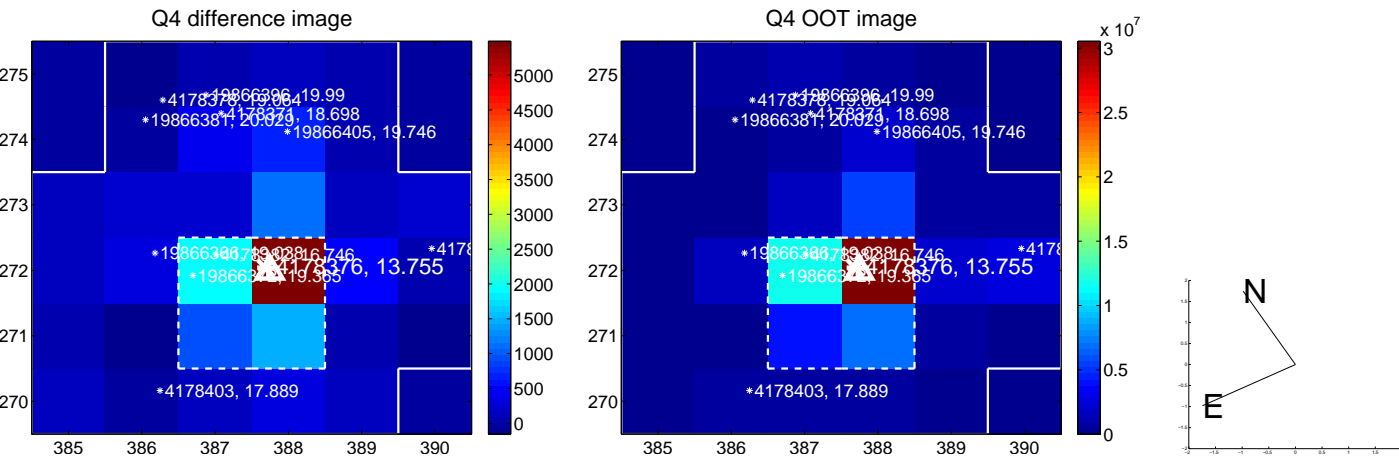
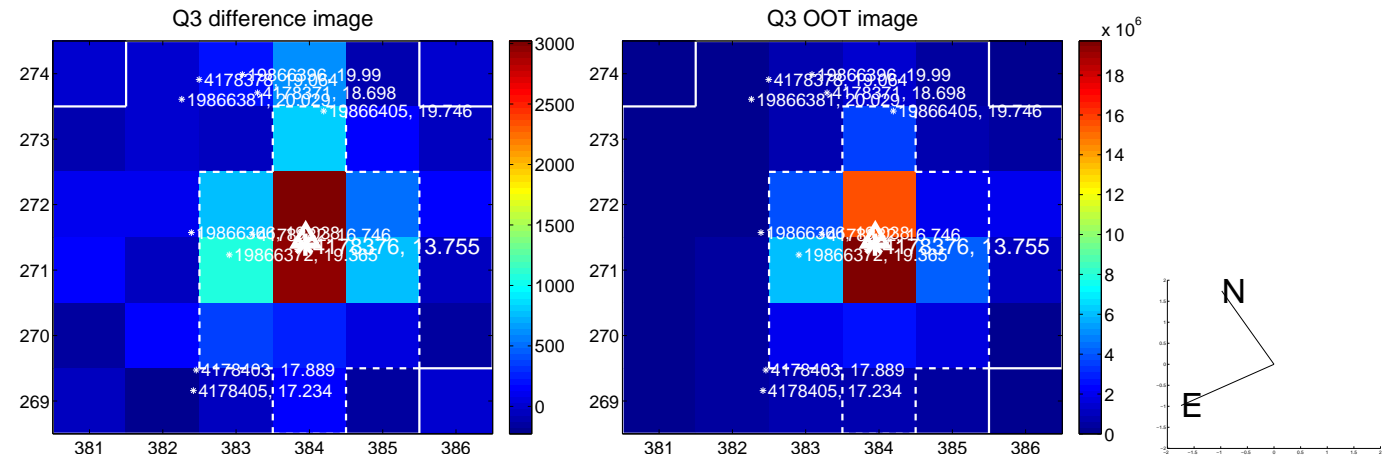
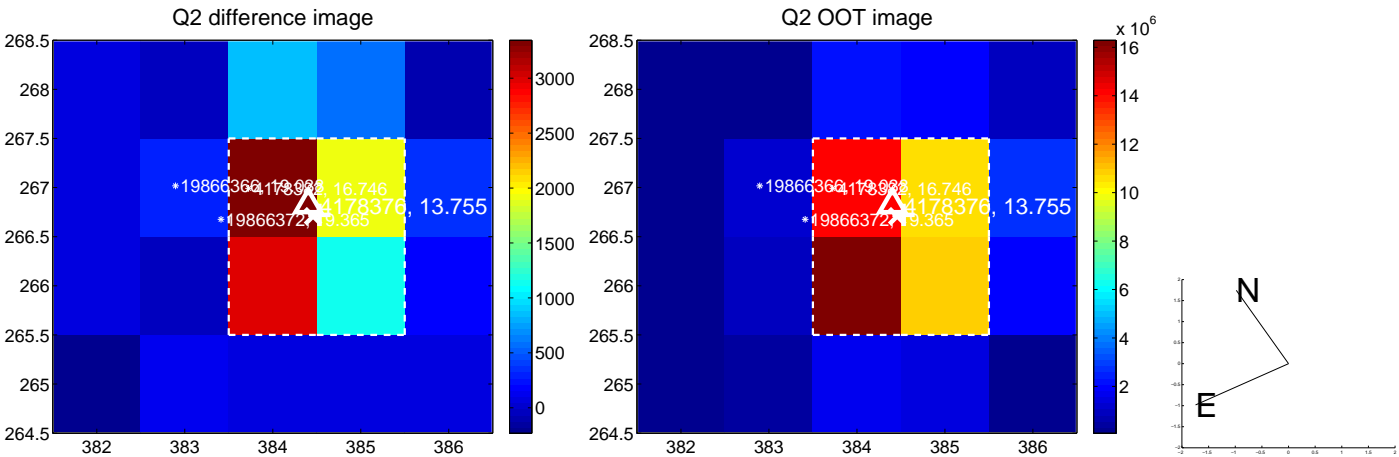
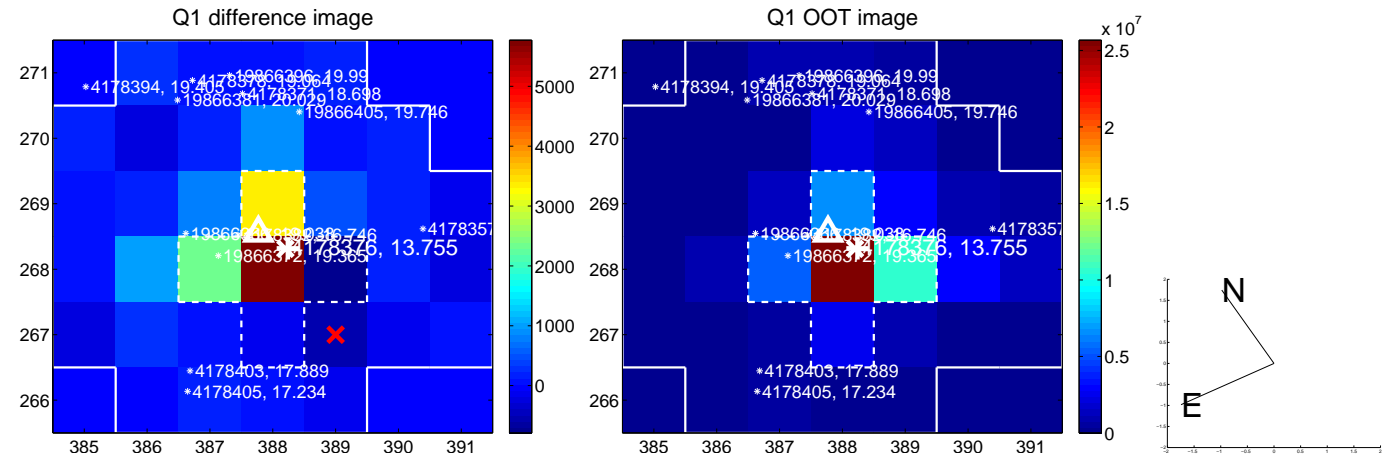


offset from photometric centroids

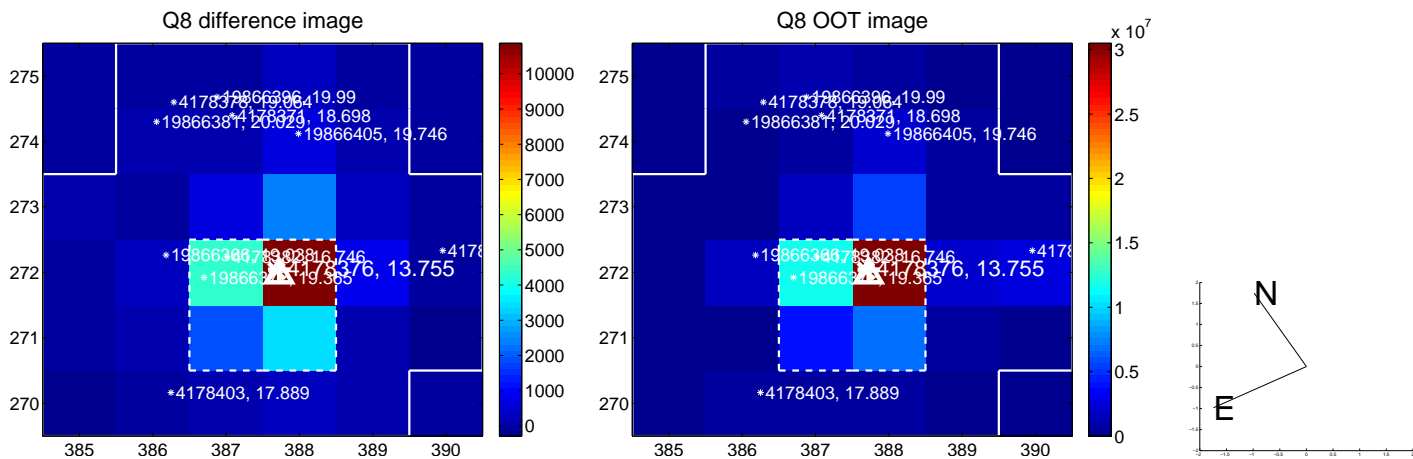
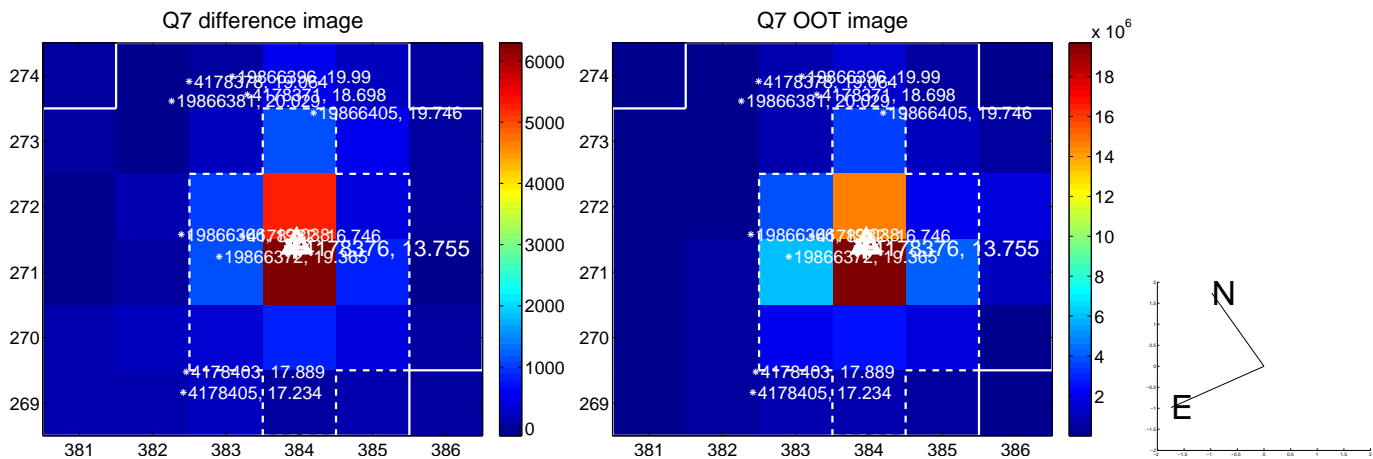
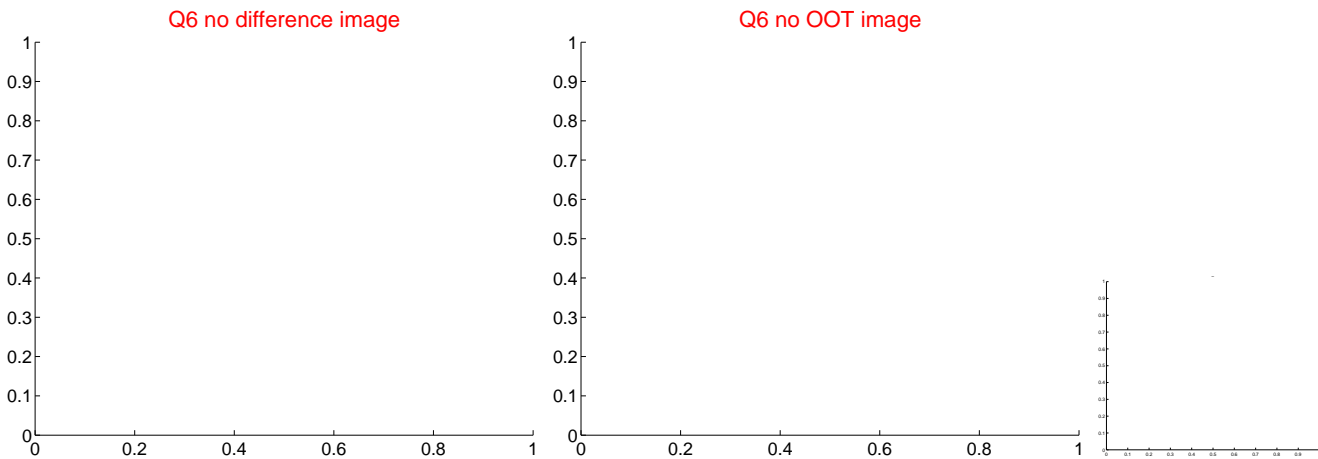
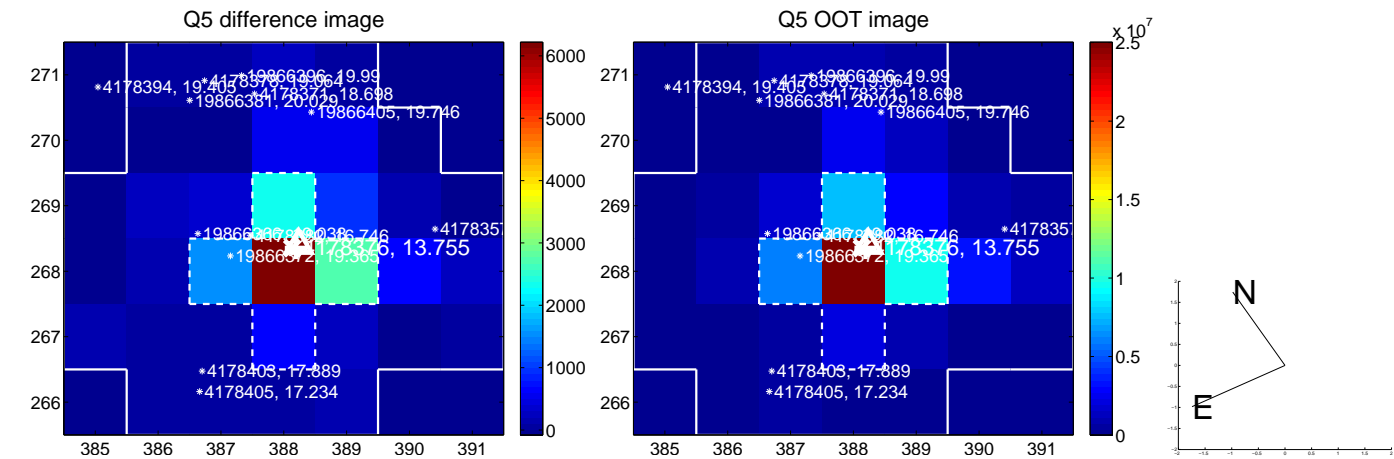


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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.

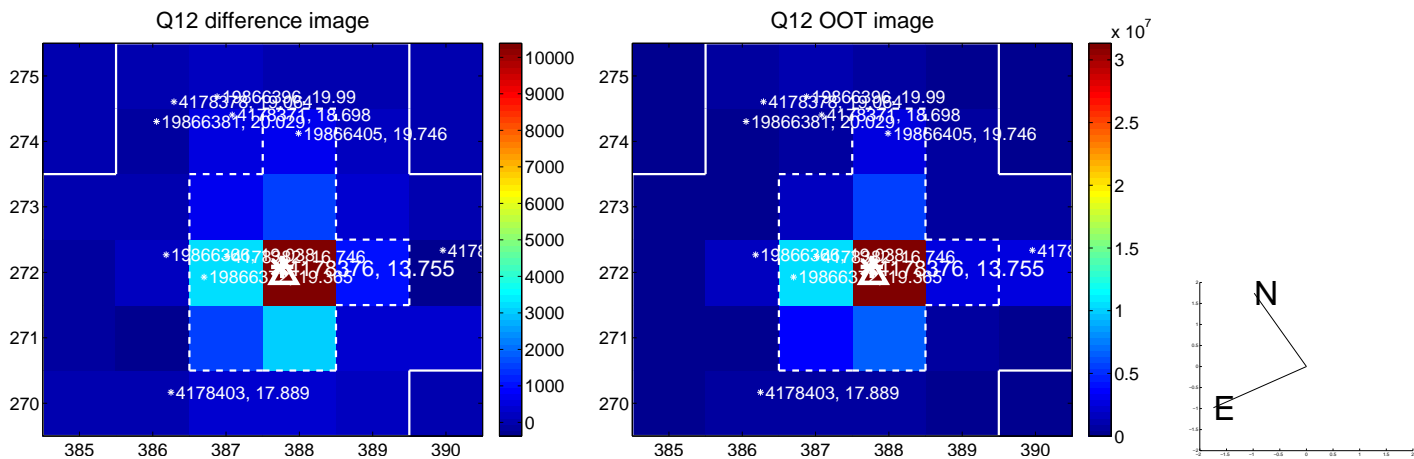
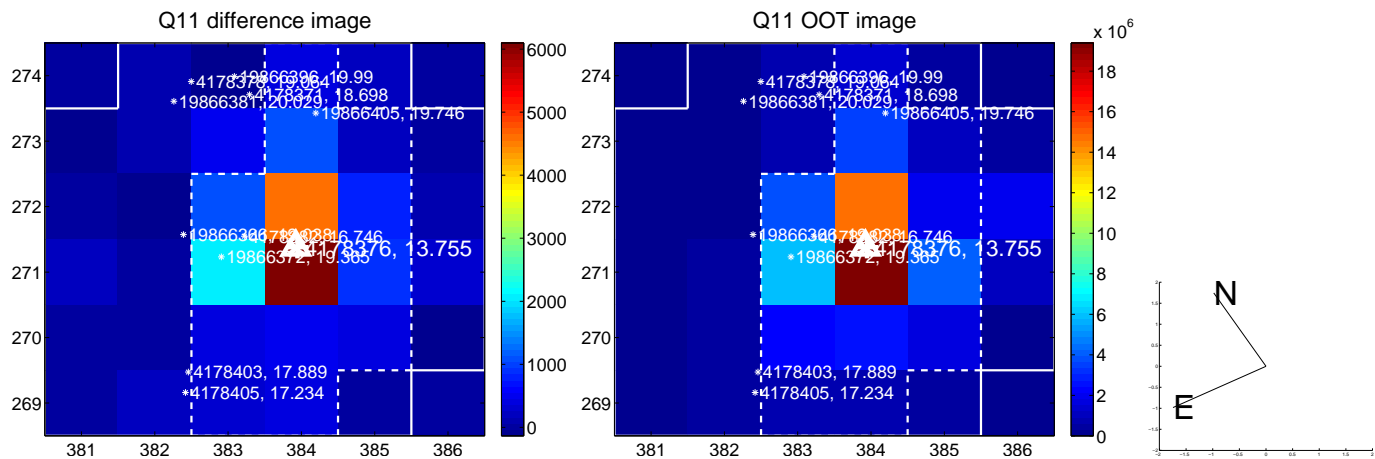
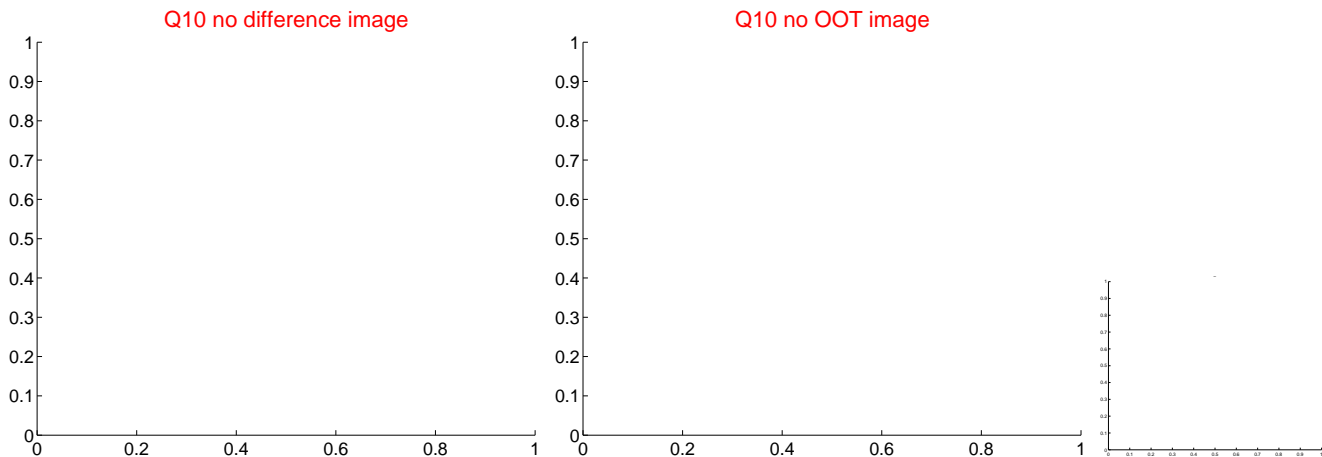
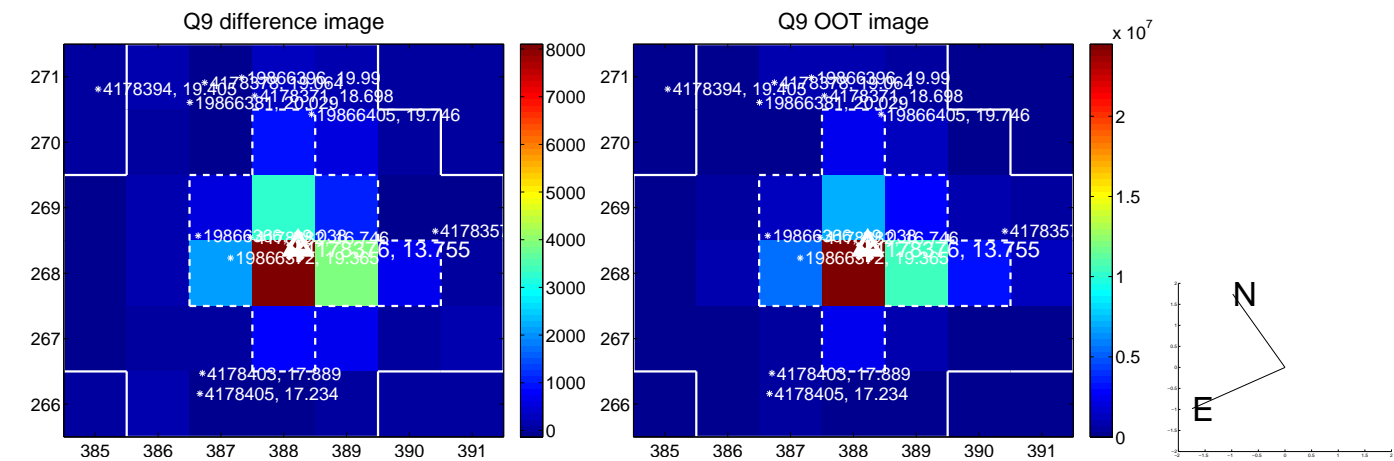
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



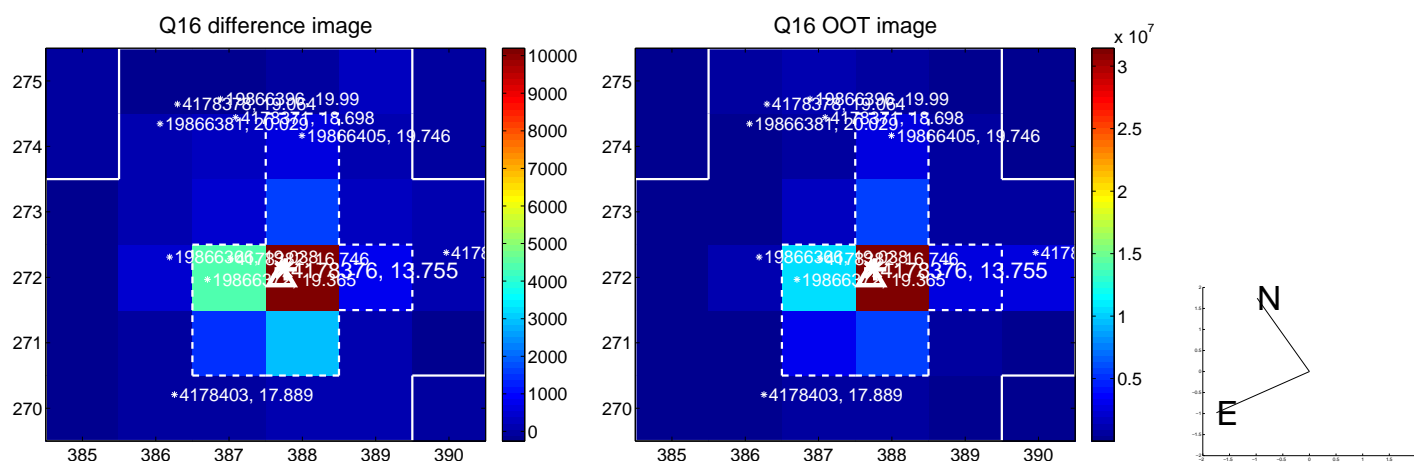
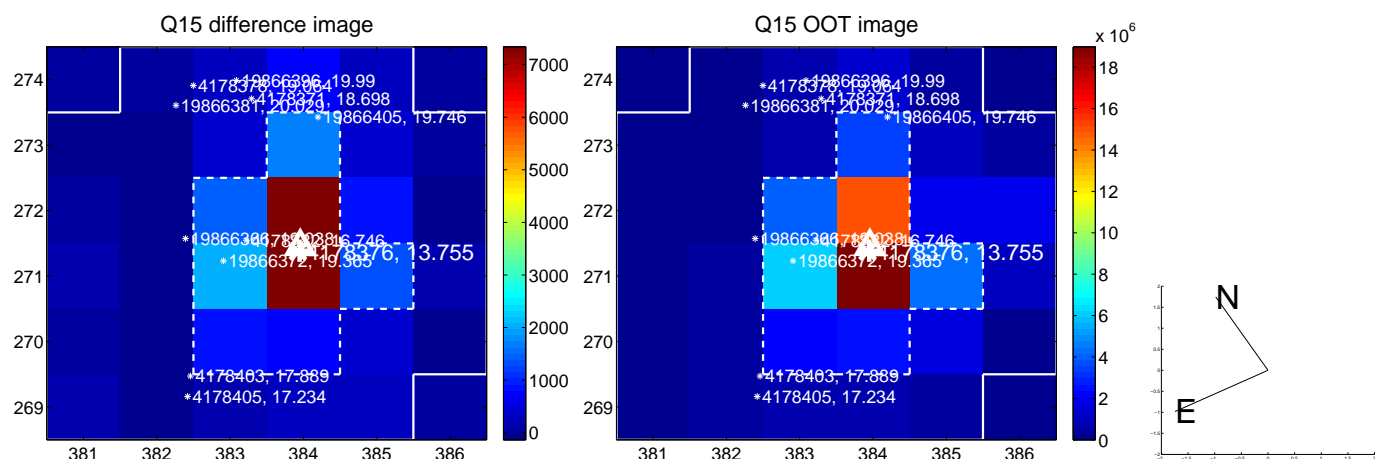
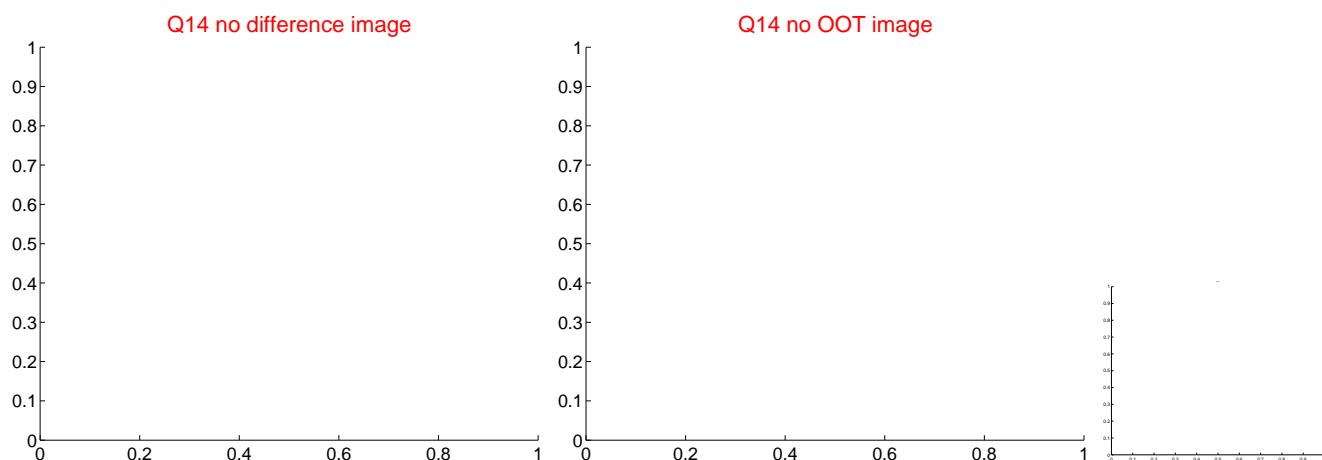
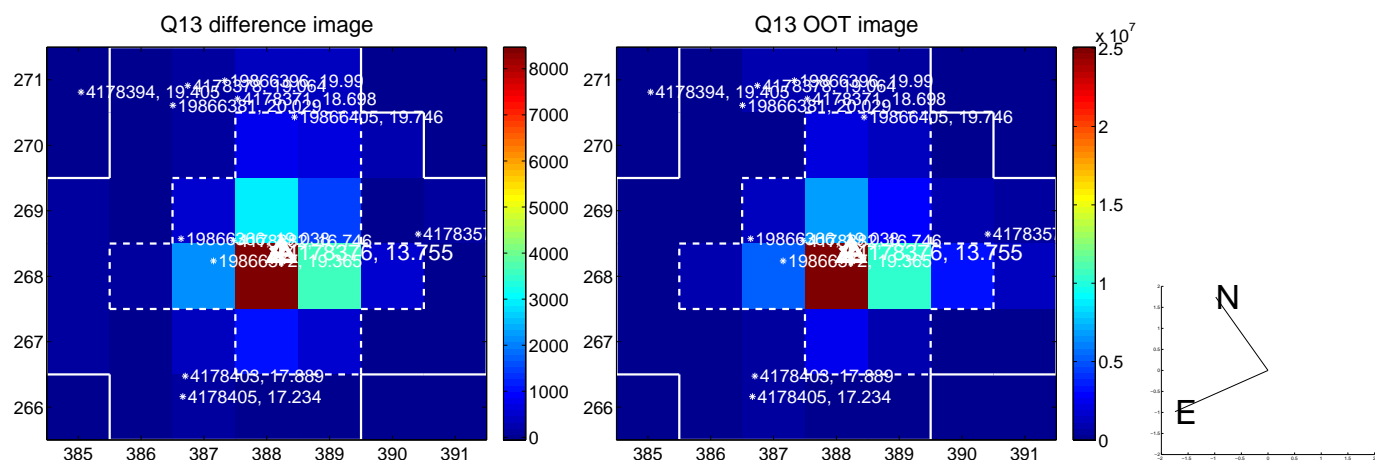
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



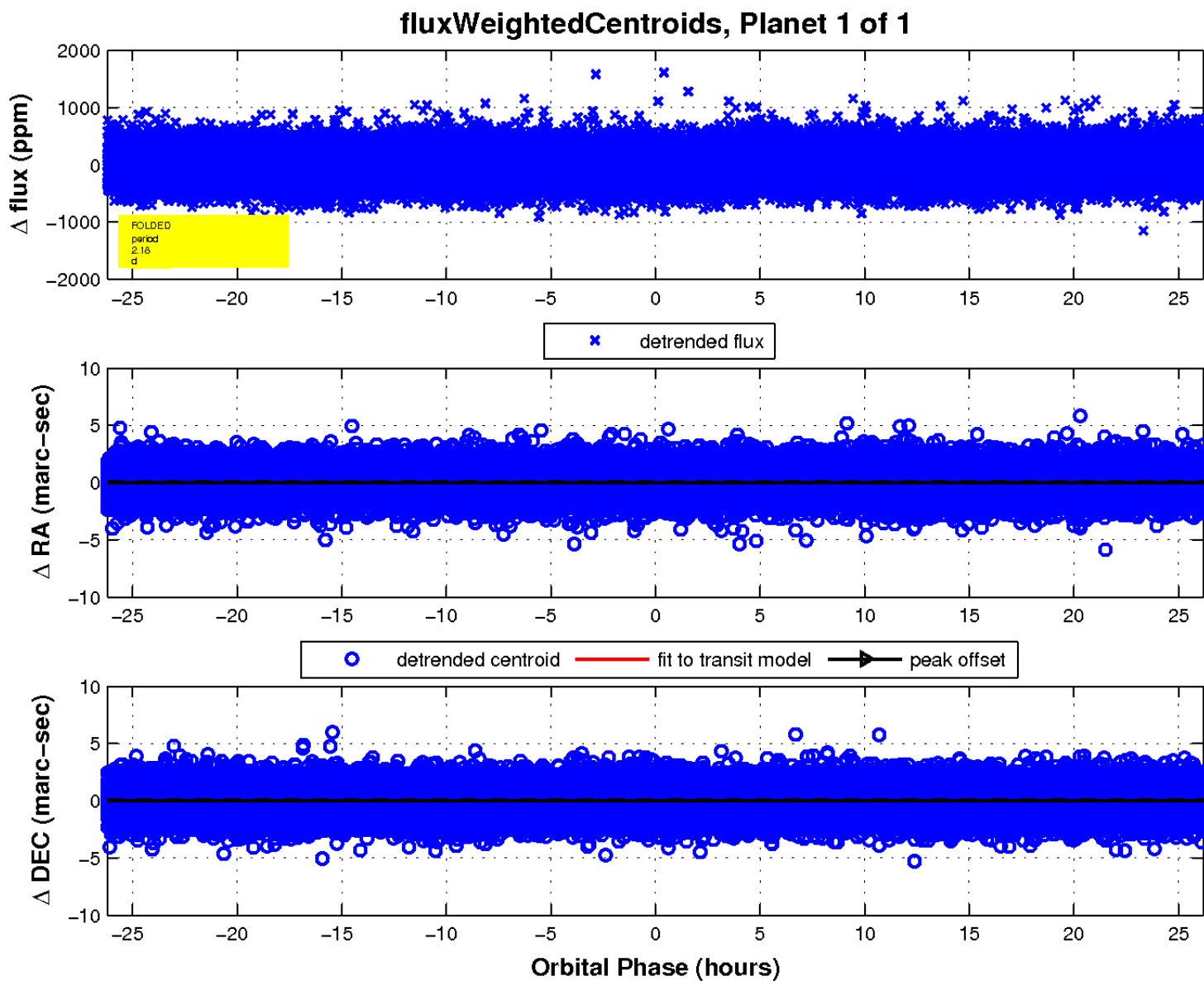
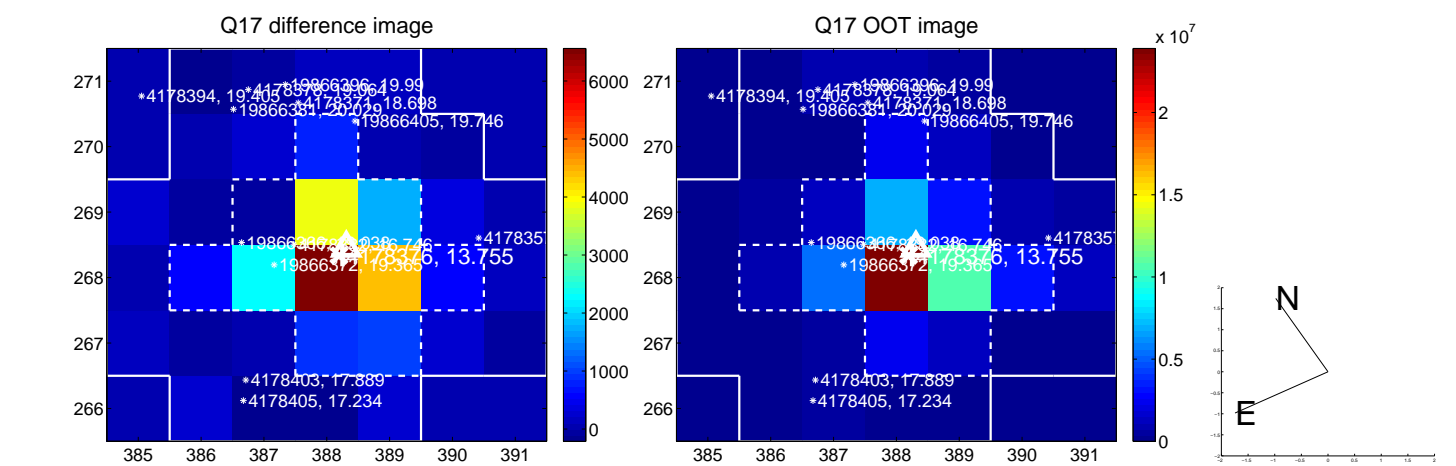
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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.



UKIRT Image

Declination

