

KIC 009705408

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})
009705408-01	OBS	No	352.579106	242.130458	539.7	3.307	7.8	6.4	7.99	5028	20.26	23.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009705408-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—INCONSISTENT_TRANS—CENT_SATURATED

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

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

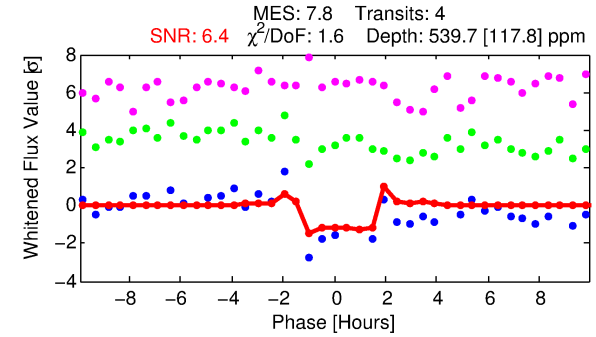
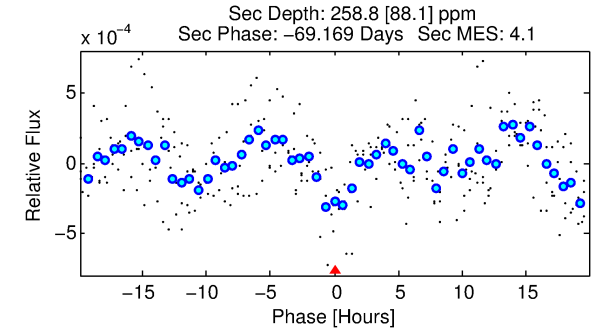
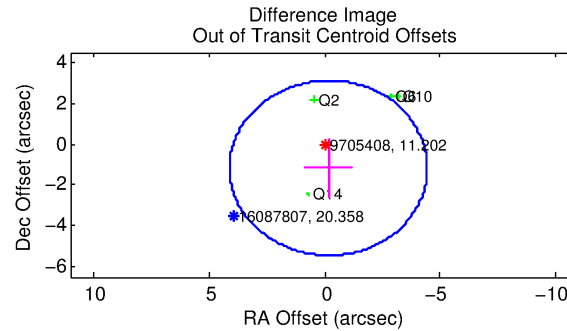
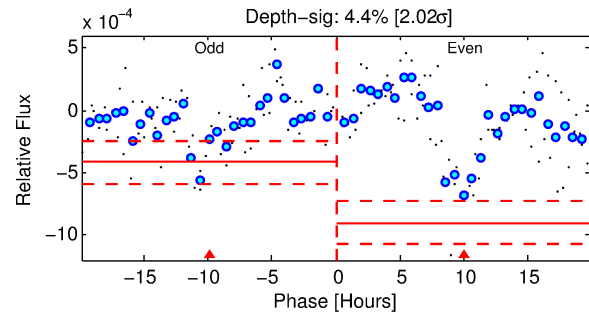
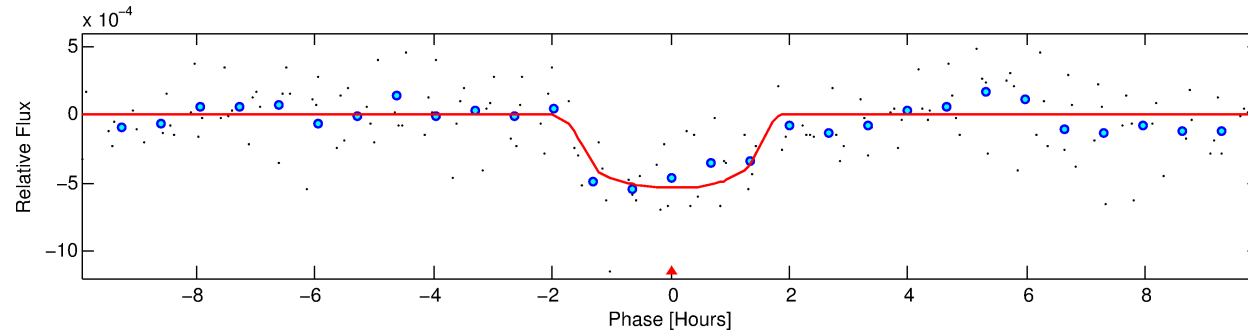
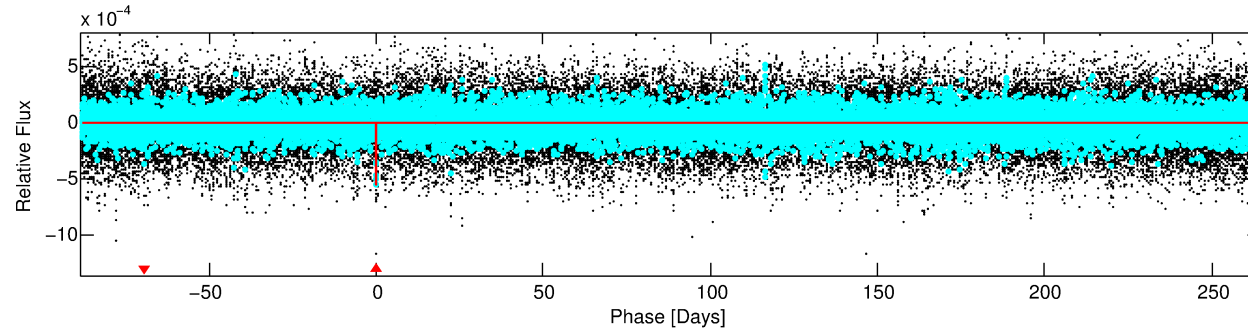
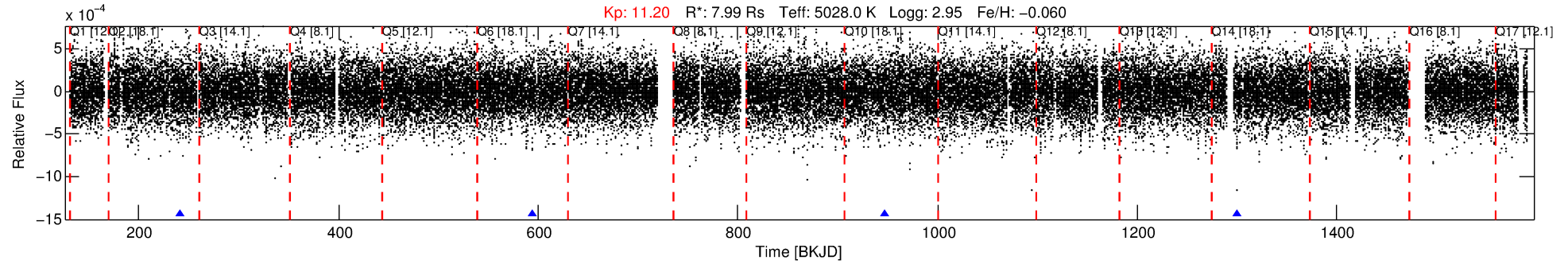
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009705408-01

No Significant Match Found

DV One-Page Summary

KIC: 9705408 Candidate: 1 of 1 Period: 352.579 d



DV Fit Results:

Period = 352.57911 [0.00349] d
Epoch = 242.1305 [0.0085] BKJD
 $R_p/R^* = 0.0232$ [0.0241]
 $a/R^* = 564.37$ [2151.28]
 $b = 0.75$ [2.23]
 $S_{\text{eff}} = 23.58$ [9.16]
 $T_{\text{eq}} = 562$ [55] K
 $R_p = 20.26$ [22.19] R_e
 $a = 1.2453$ [0.3434] AU
 $A_g = 537.95$ [1150.76] [0.47 σ]
 $T_{\text{eff}} = 4184$ [2204] K [1.64 σ]

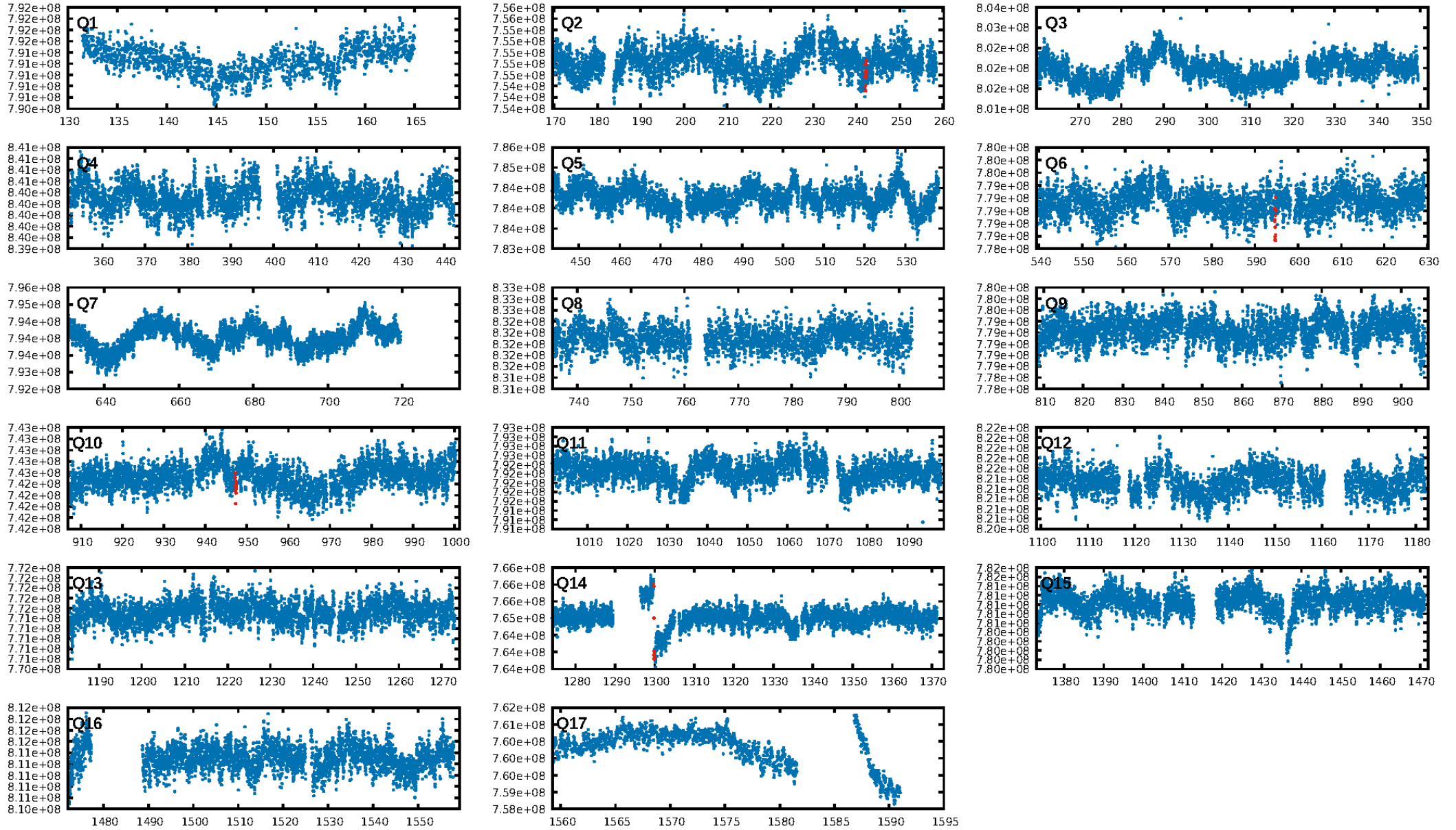
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 4.6%
ModelChiSquareGof-sig: 47.0%
Bootstrap-pfa: 3.20e-12
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.185
Centroid-sig: 1.1%
Centroid-so: 0.826 arcsec [1.56 σ]
OotOffset-rm: 1.178 arcsec [0.83 σ]
KicOffset-rm: 1.271 arcsec [0.89 σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

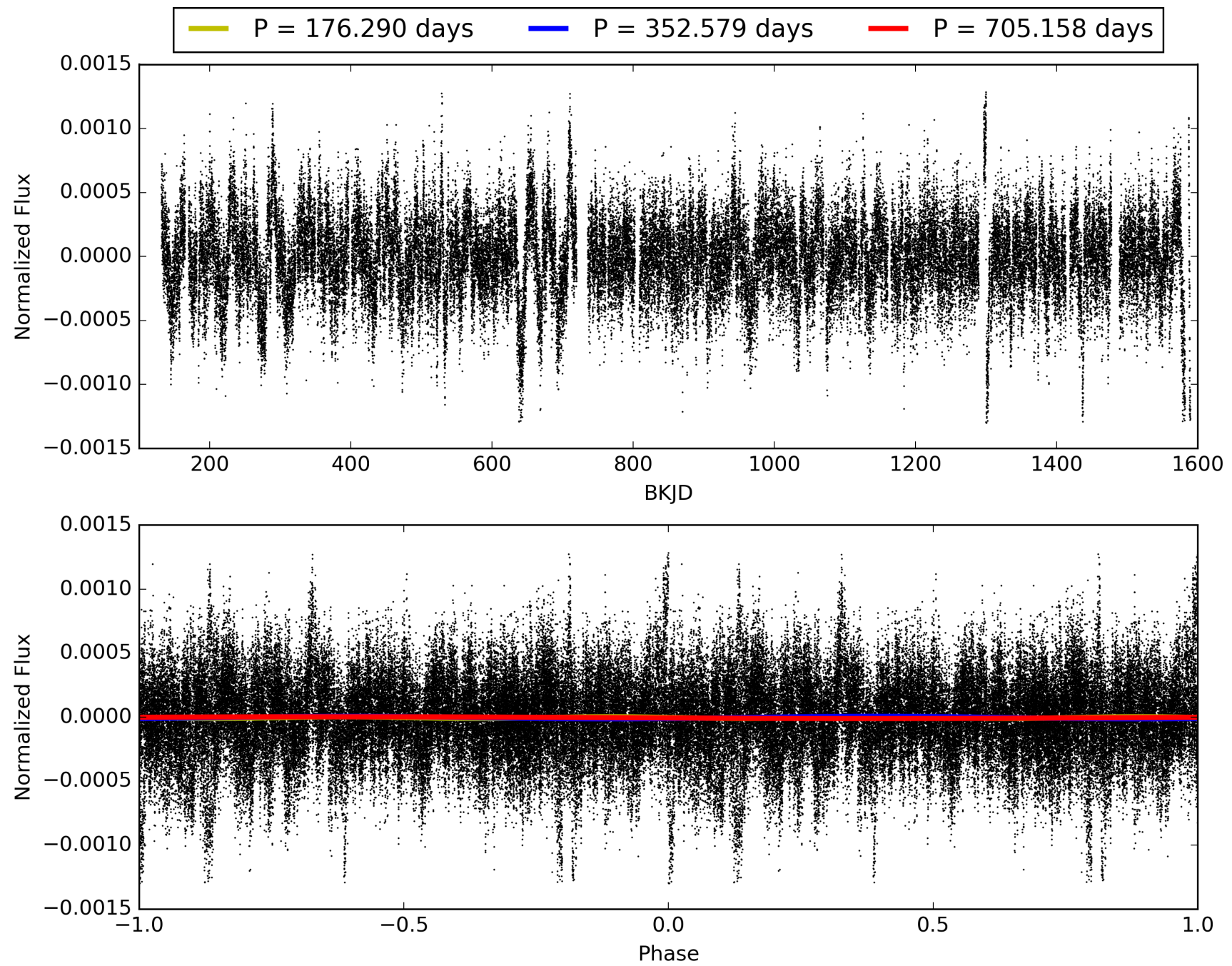
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:29:56 Z

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

TCE 009705408-01, PDC Light Curves

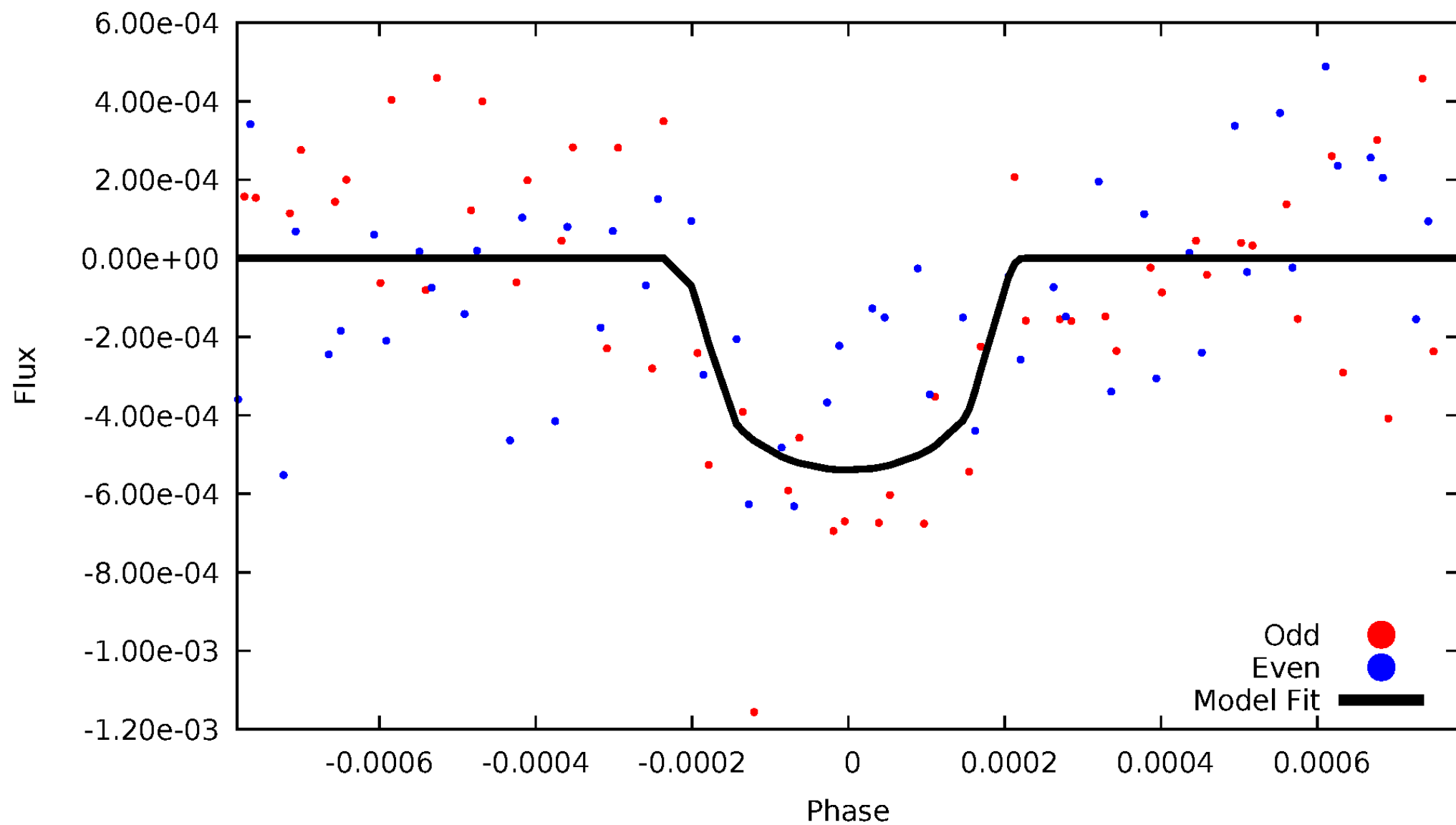


TCE 009705408-01



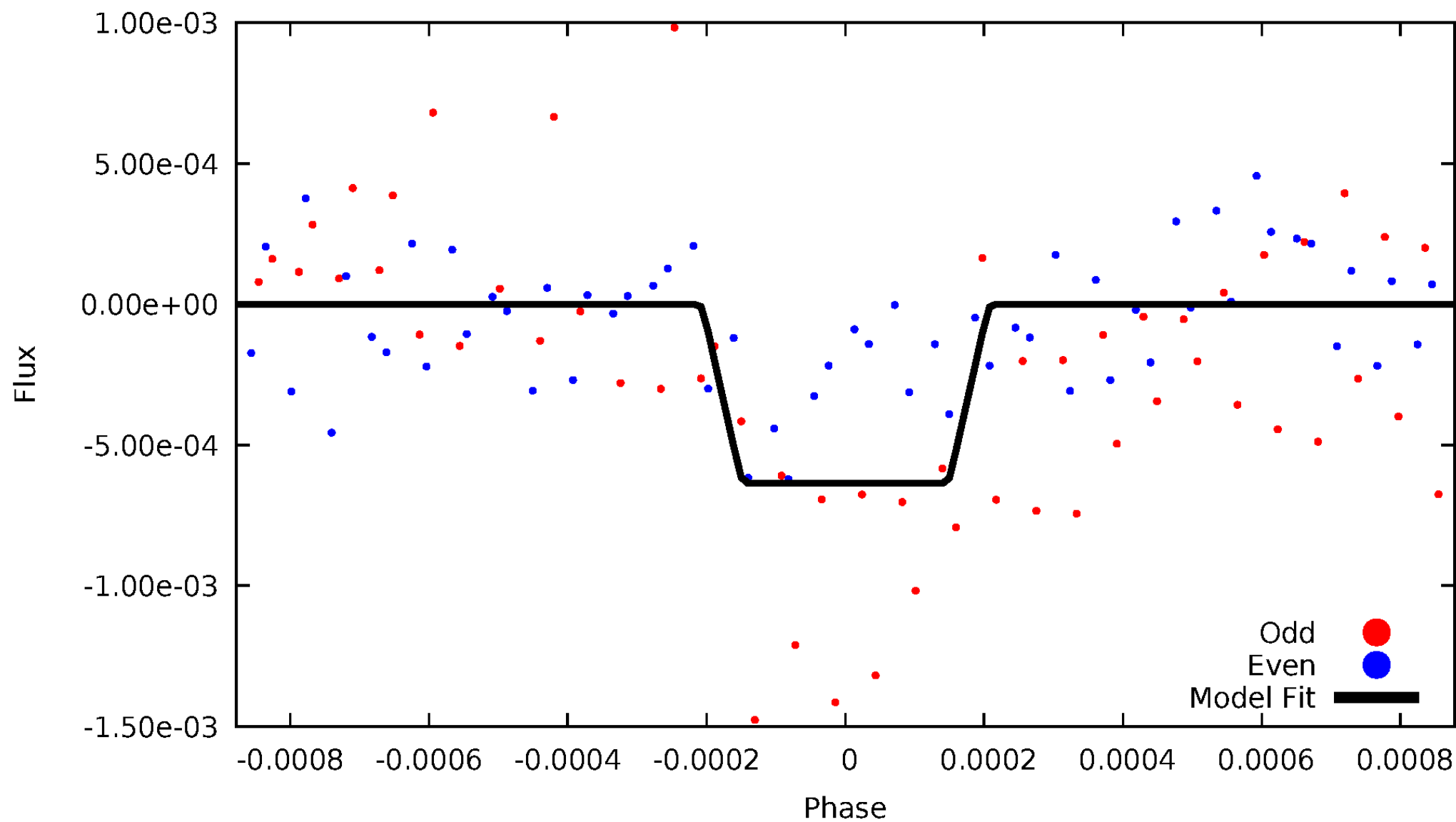
DV Odd/Even

TCE 009705408-01

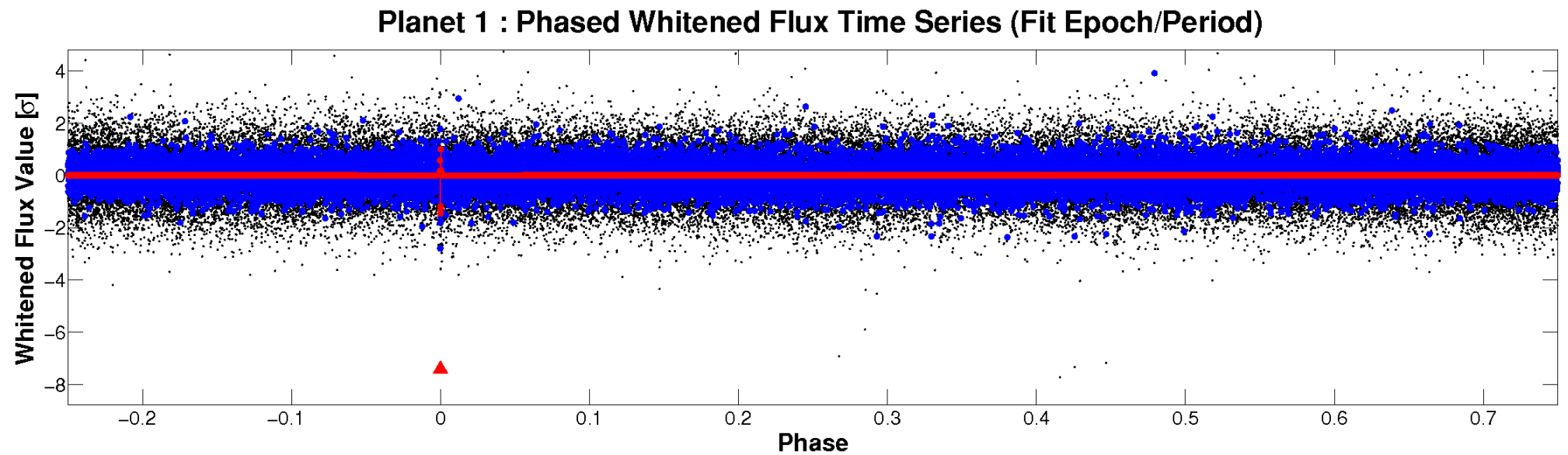
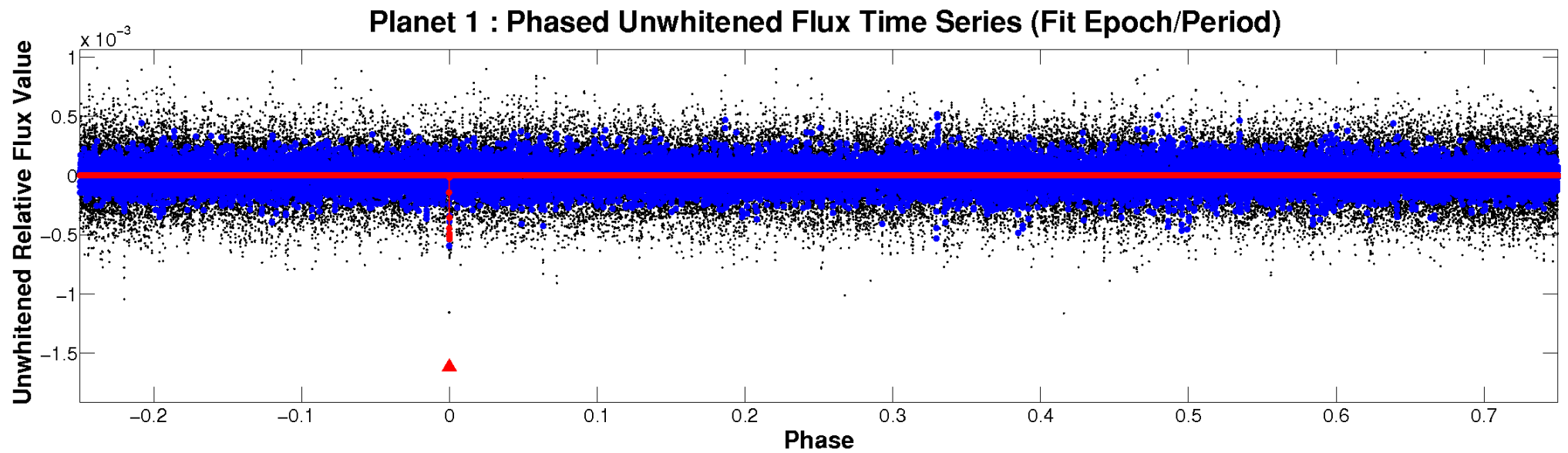


ALT Odd/Even

TCE 009705408-01

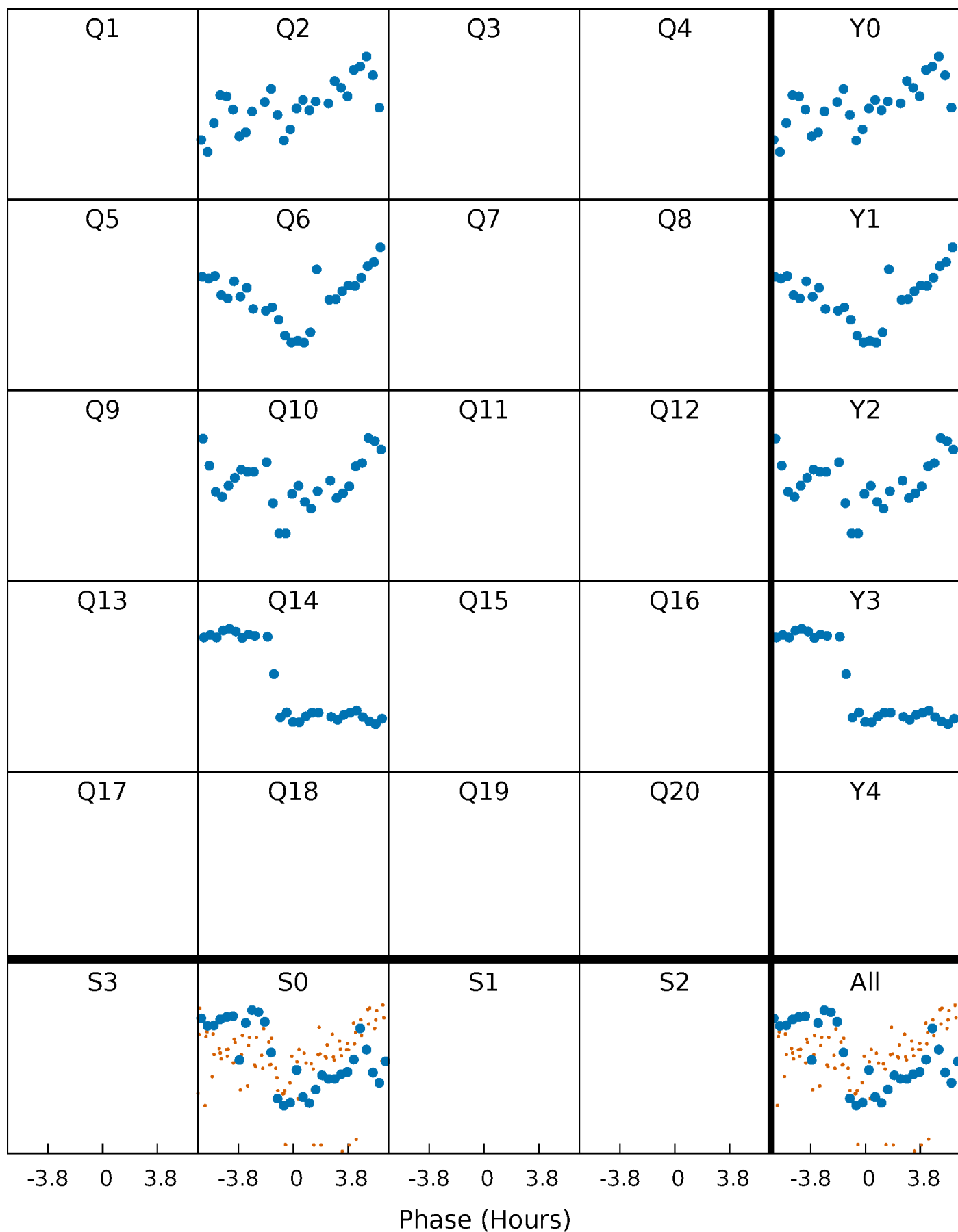


Non-Whitened Vs. Whitened Light Curve



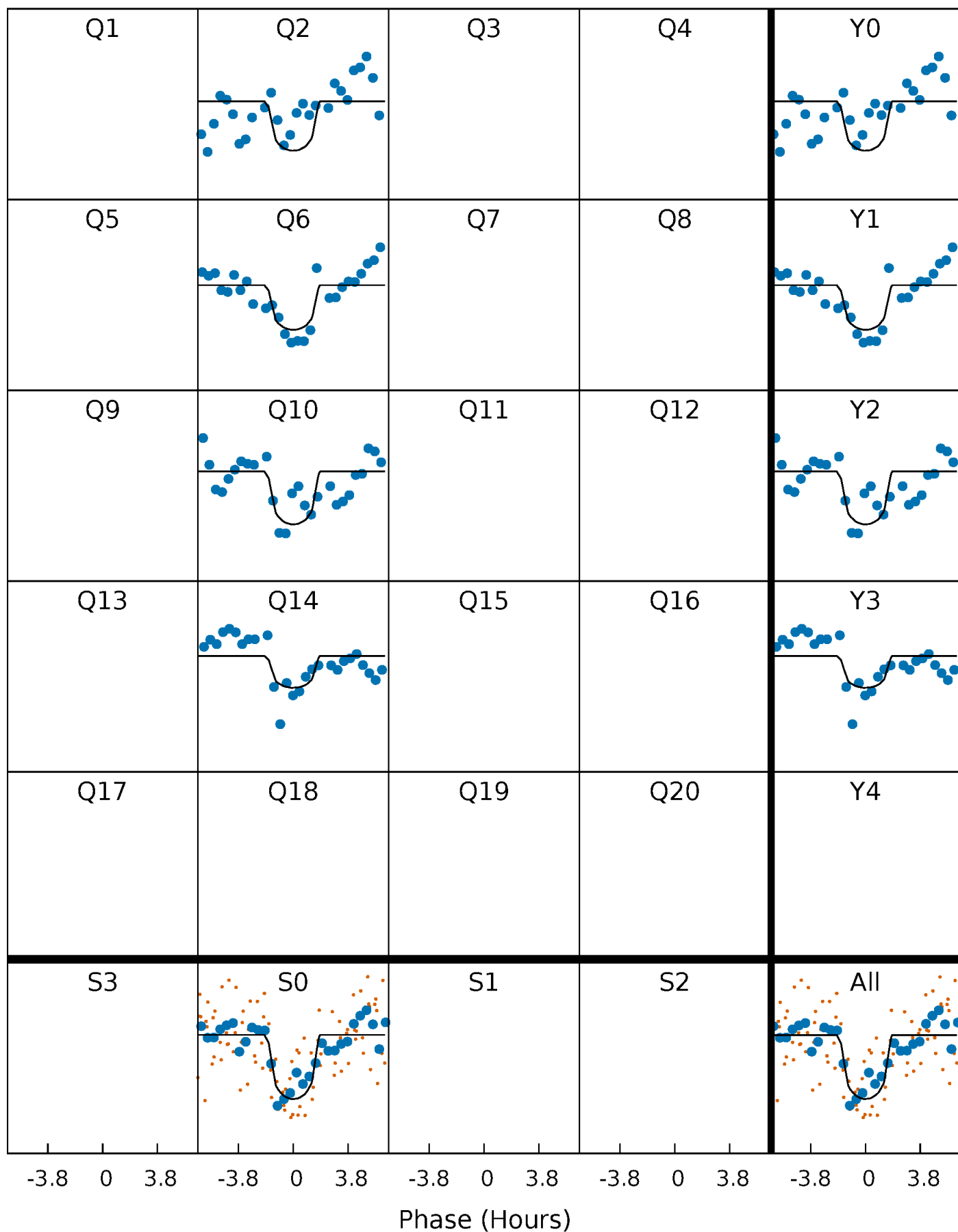
PDC Quarter-Phased Transit Curves

TCE 009705408-01 P=352.579106 Days $T_0=242.130458$ (BKJD)



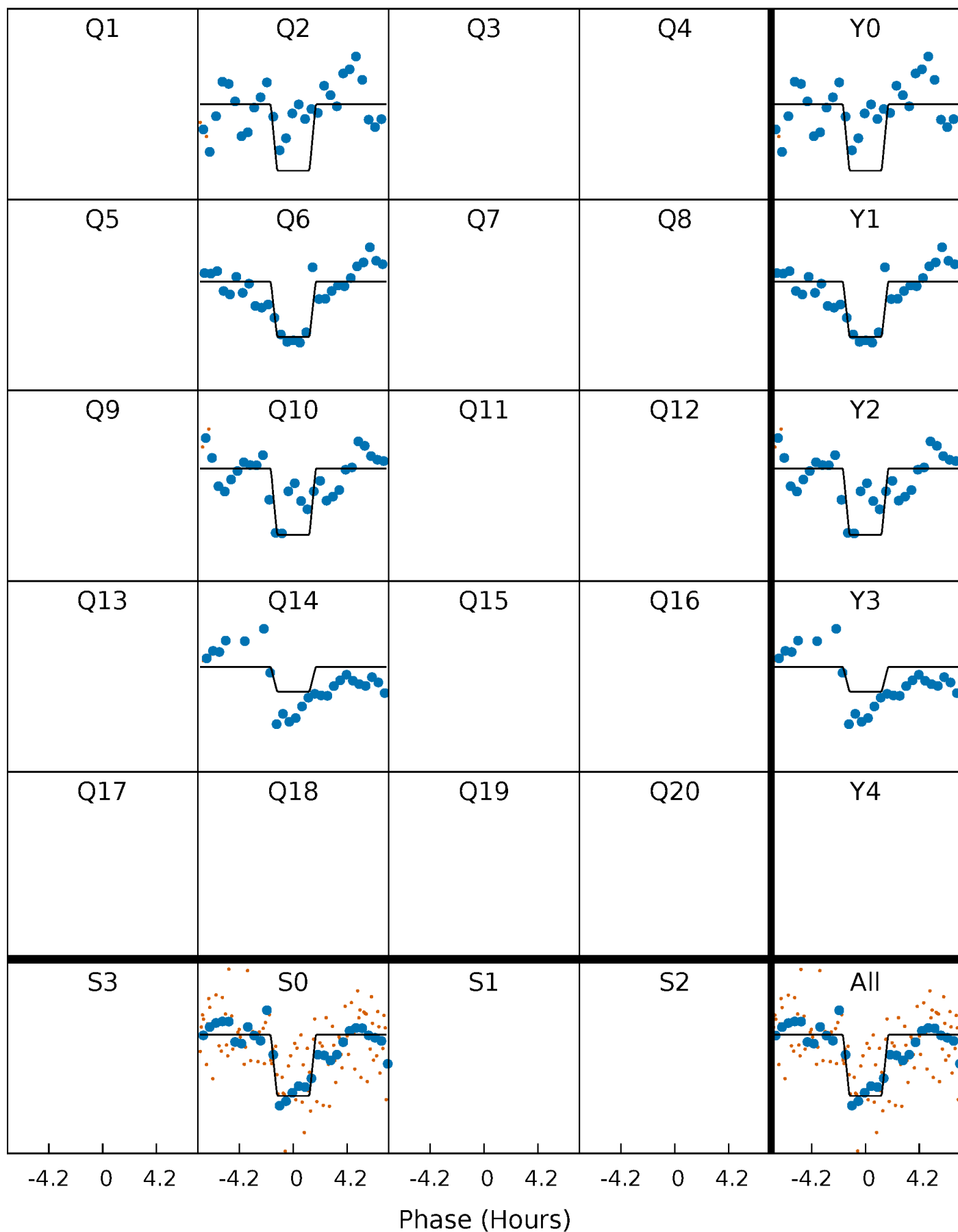
DV Quarter-Phased Transit Curves

TCE 009705408-01 P=352.579106 Days $T_0=242.130458$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

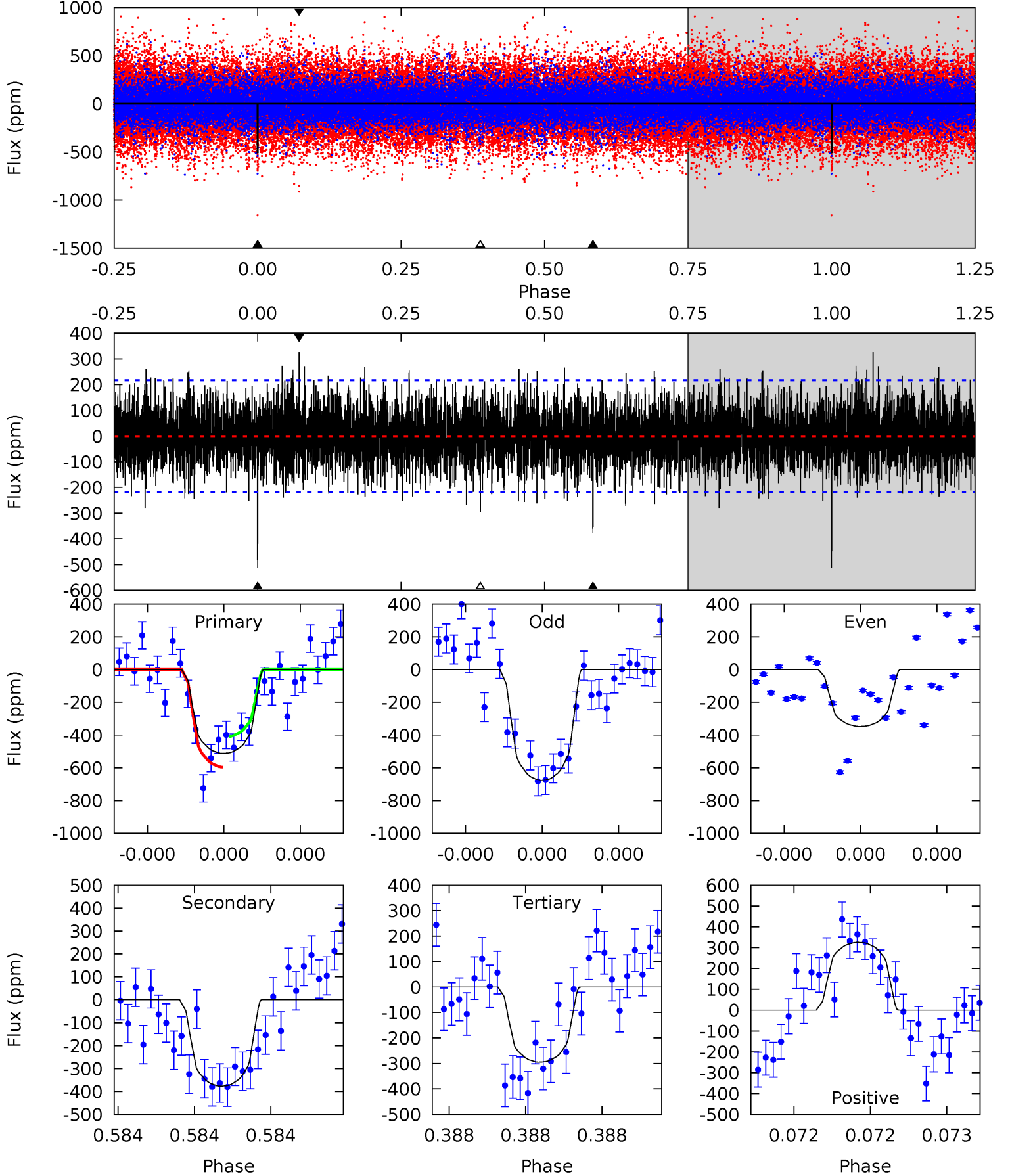
TCE 009705408-01 P=352.578184 Days $T_0=242.136716$ (BKJD)



DV Model-Shift Uniqueness Test

009705408-01, P = 352.579106 Days, E = 242.130458 Days

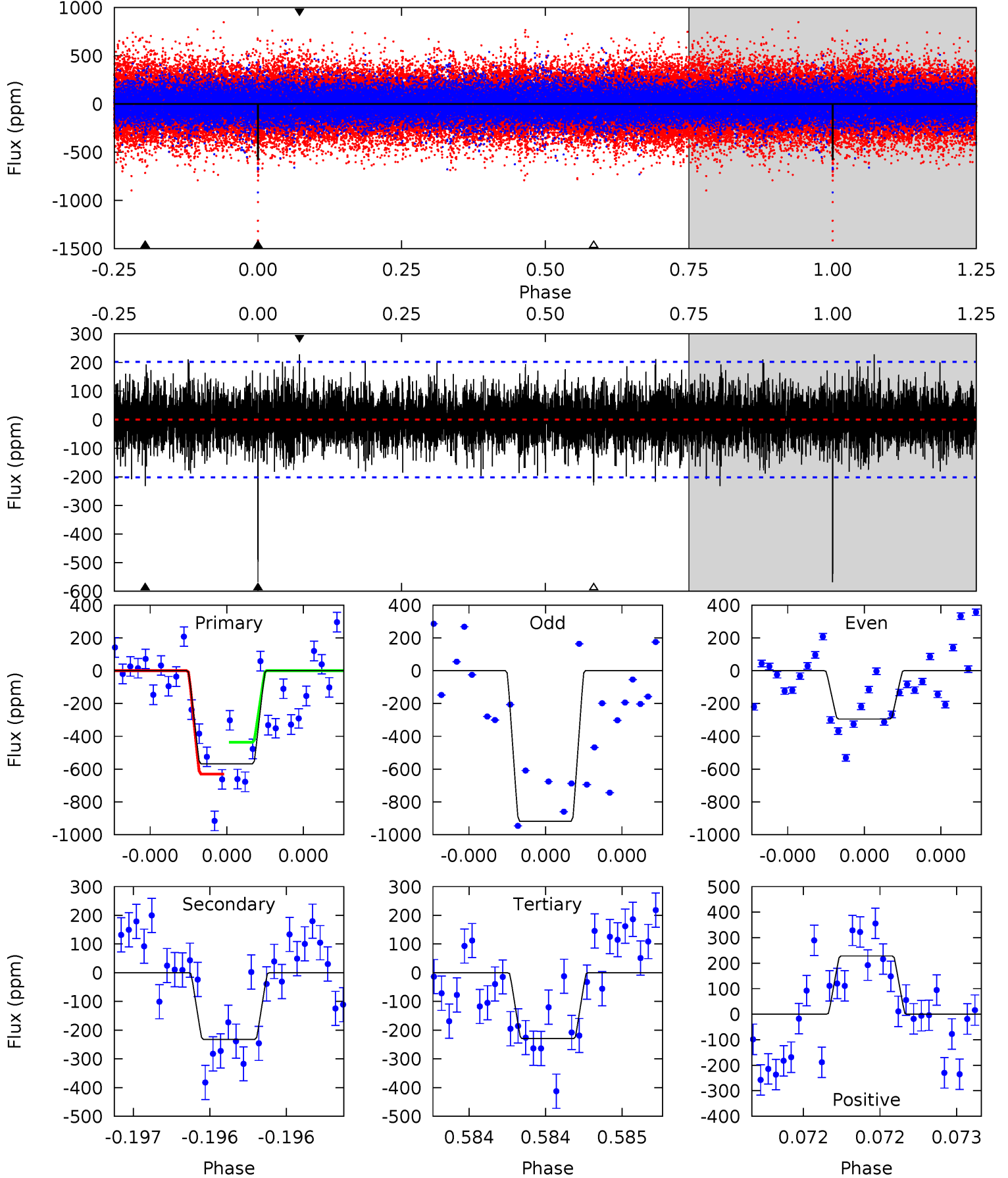
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	9.72	7.60	8.39	5.60	3.52	2.13	5.60	4.82	2.12	1.33	4.32	0.92	0.39	2.41



Alt Model-Shift Uniqueness Test

009705408-01, P = 352.578184 Days, E = 242.136716 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	6.45	6.38	6.34	5.61	3.53	1.65	9.40	9.44	0.07	0.11	8.98	1.21	0.29	2.66



Stellar Parameters For KIC 009705408

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5028^{+44}_{-111}	$2.949^{+0.195}_{-0.105}$	$-0.060^{+0.100}_{-0.200}$	$7.991^{+1.619}_{-2.776}$	$2.071^{+0.576}_{-0.864}$	$0.006^{+0.008}_{-0.002}$
	+1%/-2%	+7%/-4%	+167%/-333%	+20%/-35%	+28%/-42%	+147%/-33%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 009705408-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-377 ± 39	$23.96^{+20.27}_{-15.75}$	774^{+42}_{-50}	4307^{+2536}_{-814}	588^{+3905}_{-423}
Alt.	-232 ± 36	$25.65^{+21.70}_{-15.14}$	775^{+38}_{-54}	3813^{+1550}_{-596}	301^{+1513}_{-208}

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

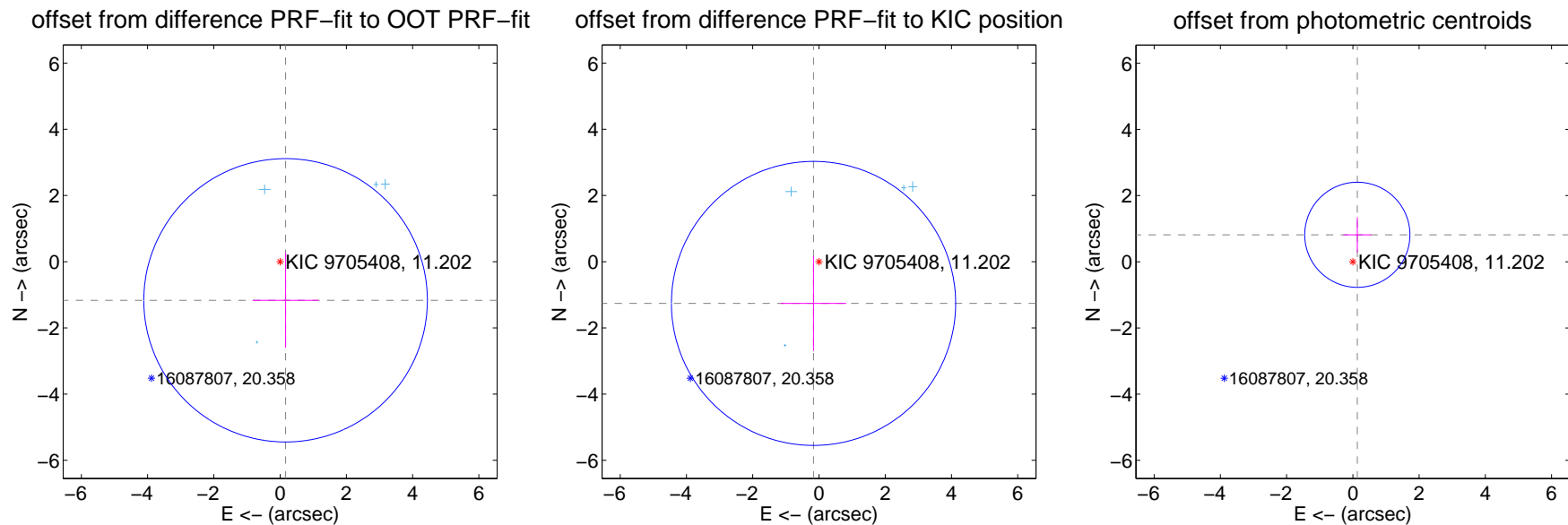
DV Centroid Data

Supplemental centroid analysis for 009705408-01. **Kepler magnitude: 11.20.** Transit SNR 6.37

There are 4 quarters with good PRF difference image offsets

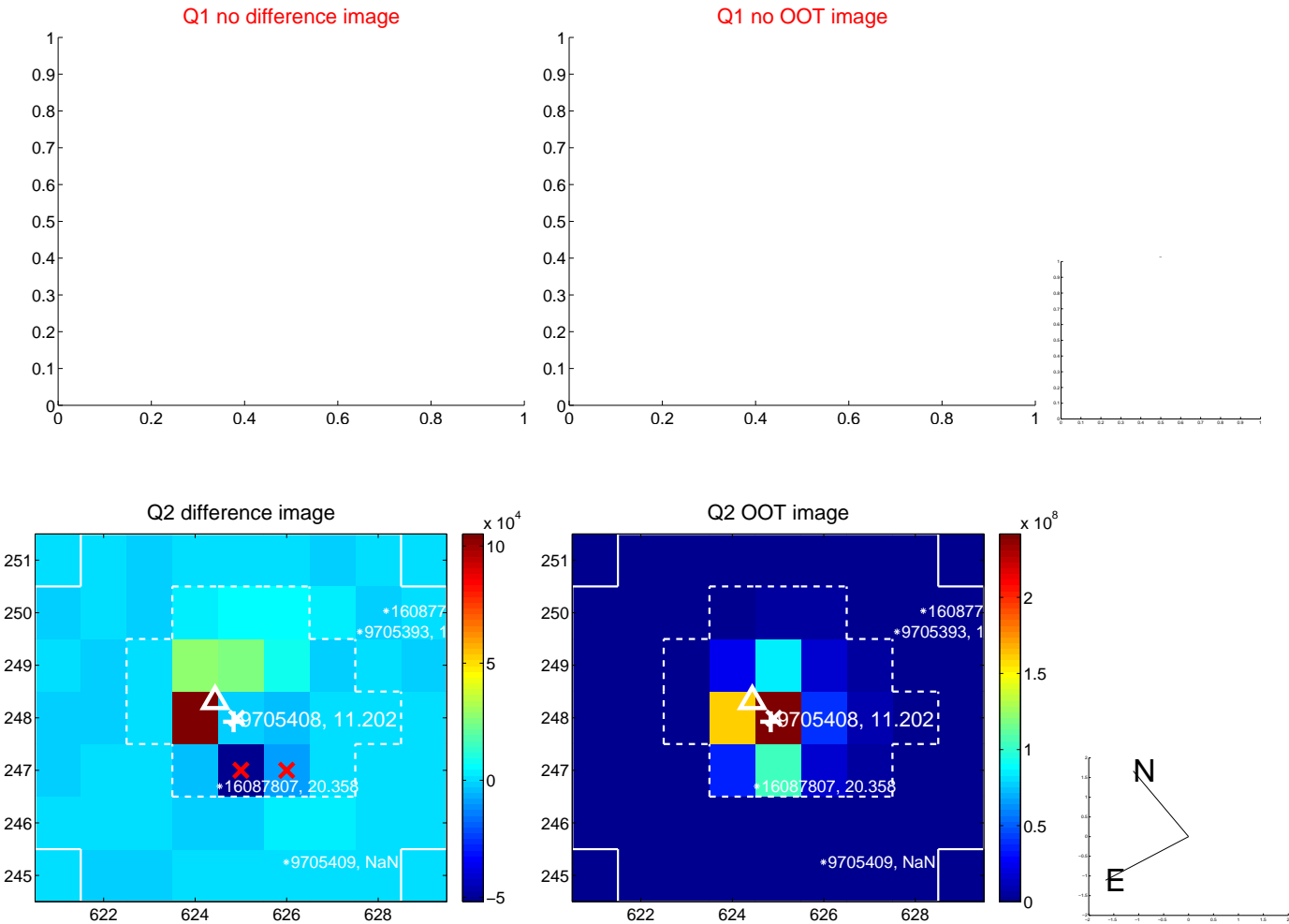
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.178 ± 1.427	0.83	-0.165 ± 0.995	-1.167 ± 1.434
PRF-fit source offset from KIC position	1.271 ± 1.430	0.89	0.165 ± 0.992	-1.260 ± 1.437
photometric centroid source offset	0.83 ± 0.53	1.56	-0.14 ± 0.42	0.82 ± 0.53

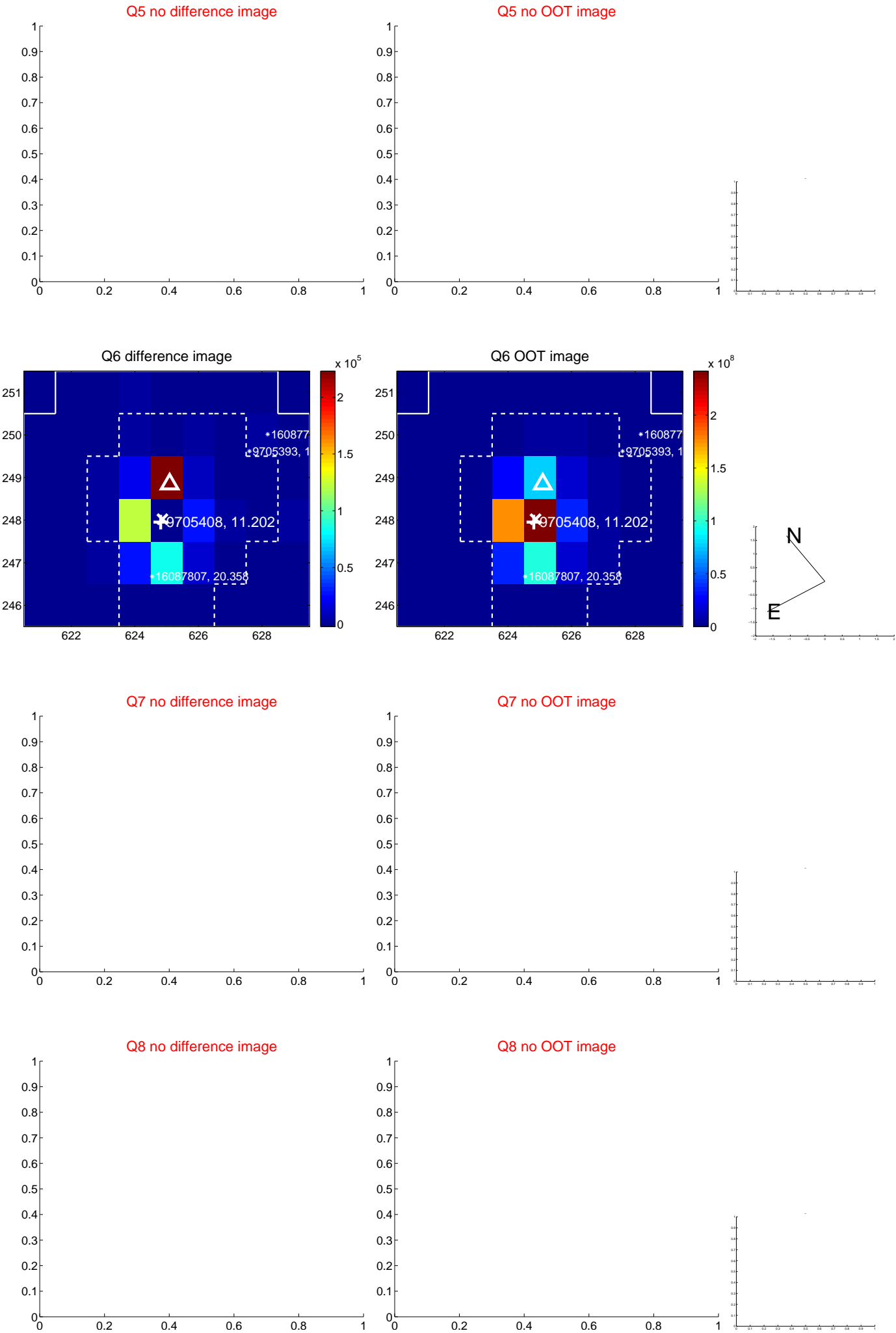


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

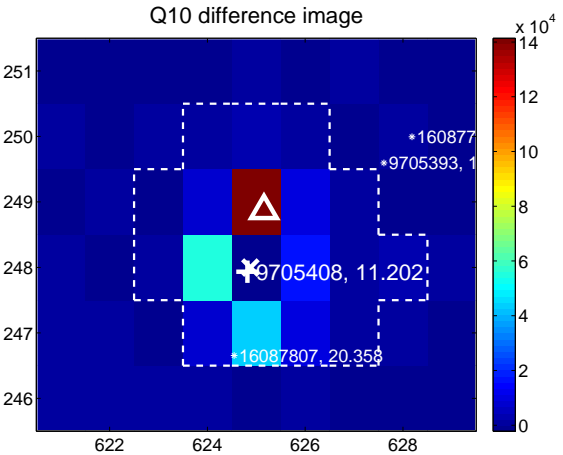
Q9 no difference image



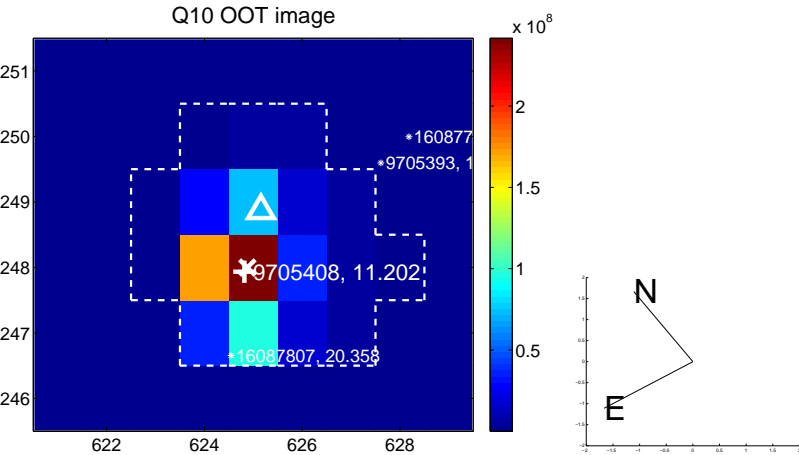
Q9 no OOT image



Q10 difference image



Q10 OOT image



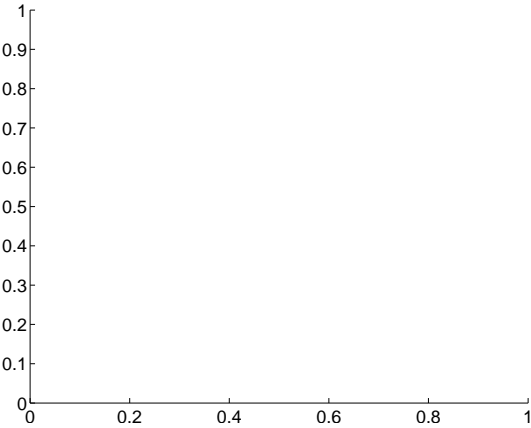
Q11 no difference image



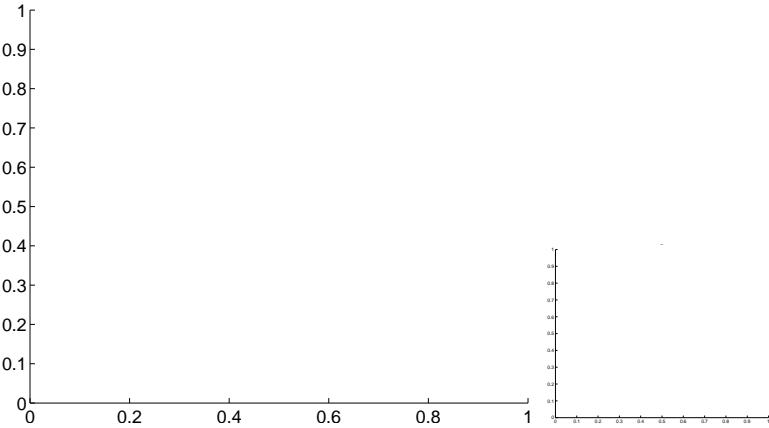
Q11 no OOT image



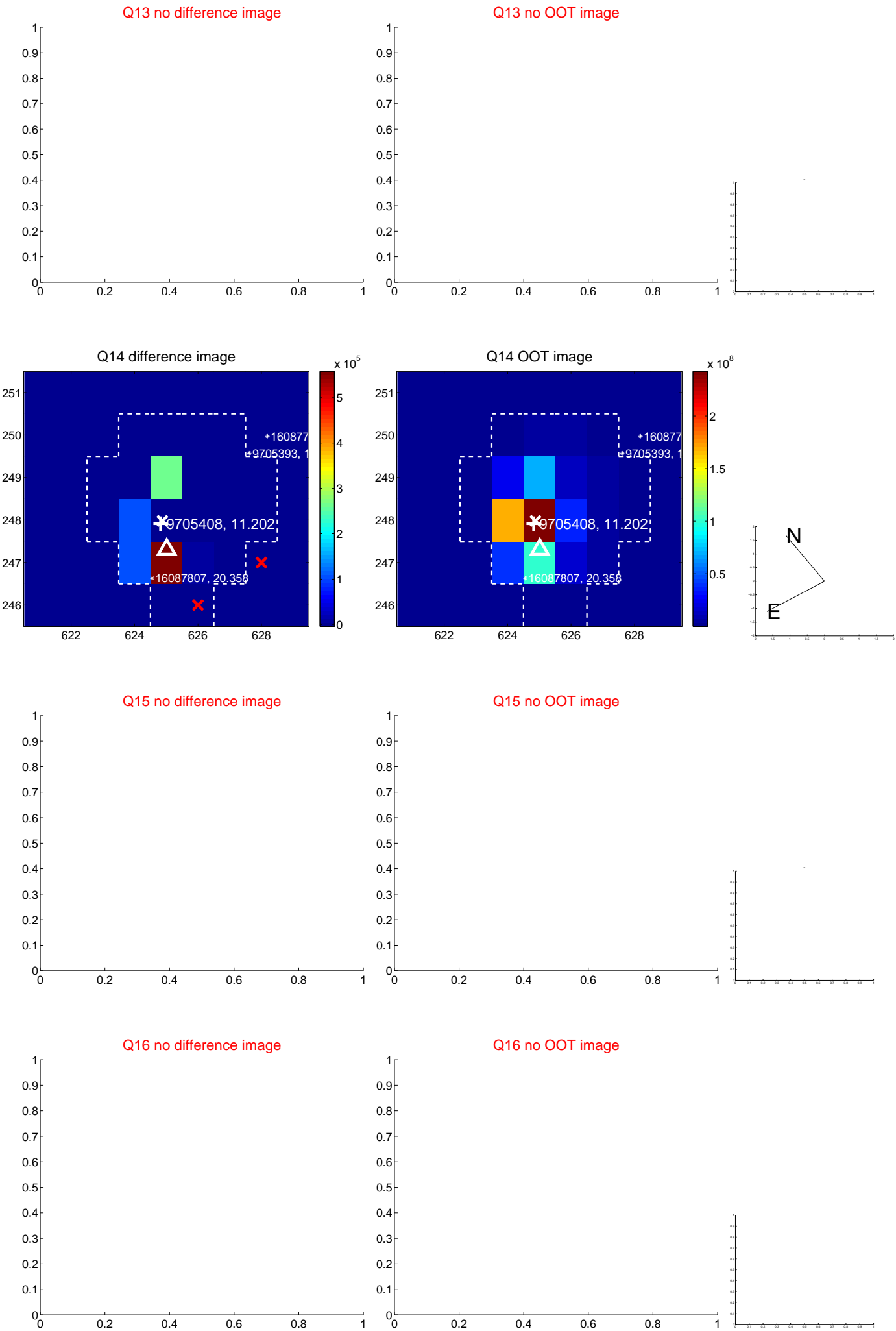
Q12 no difference image



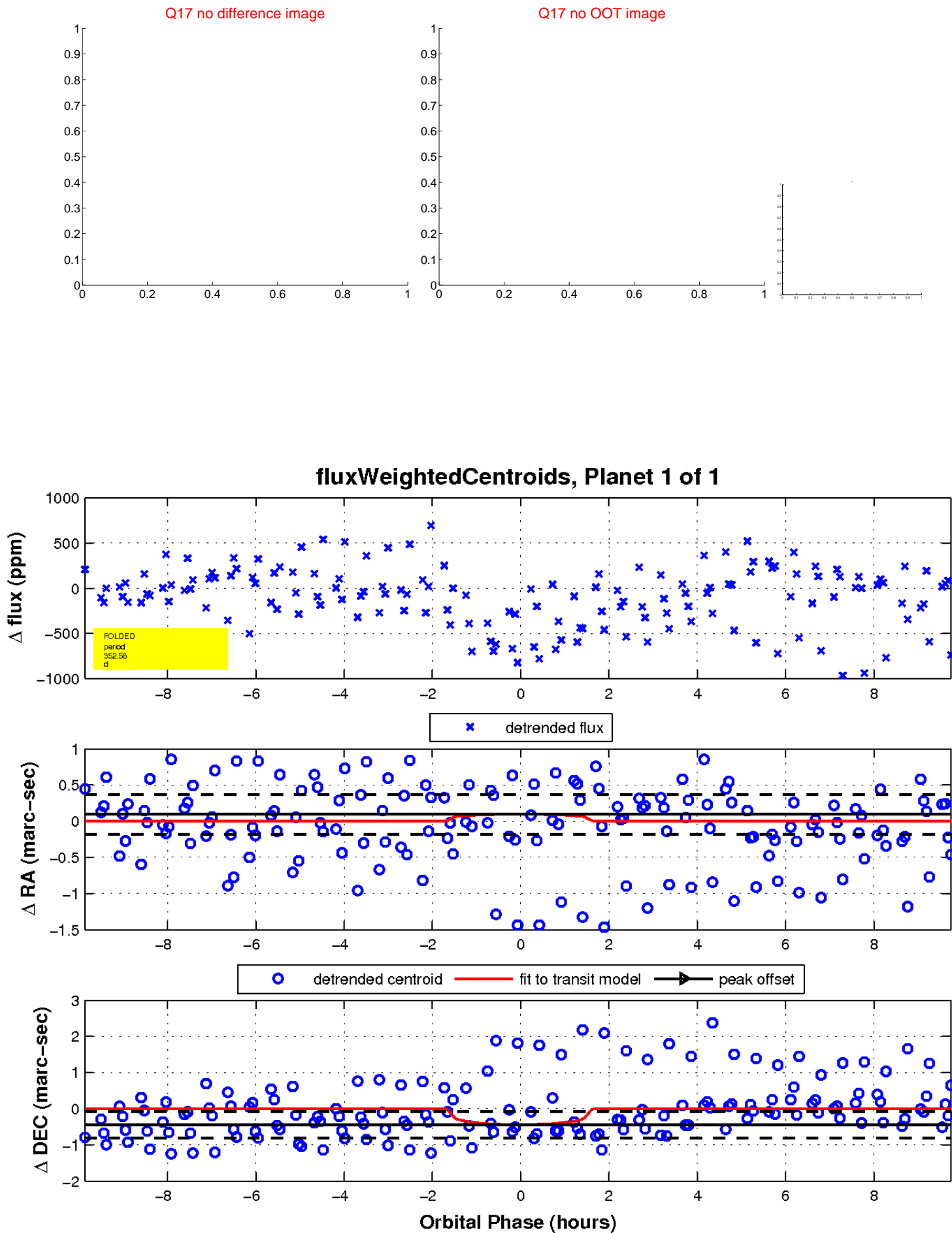
Q12 no OOT image



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

