

KIC 012506342

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})
012506342-01	OBS	7538.01	1.227735	132.571790	260.0	1.820	14.1	16.5	0.56	4551	1.11	339.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012506342-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 012506342-01

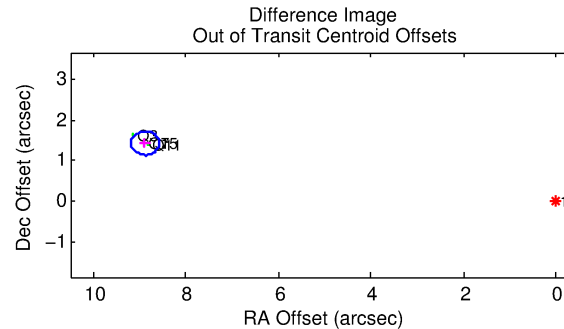
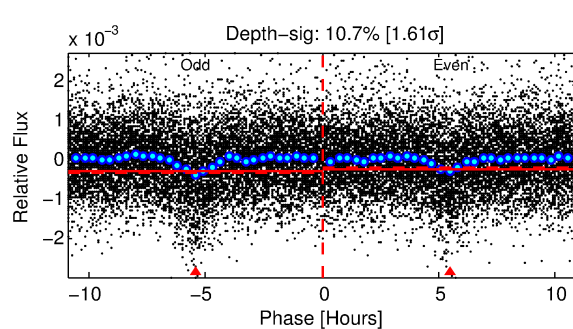
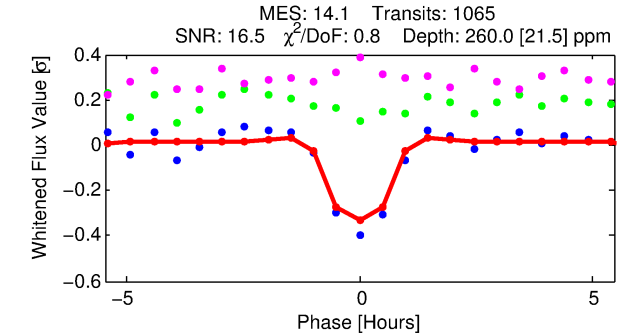
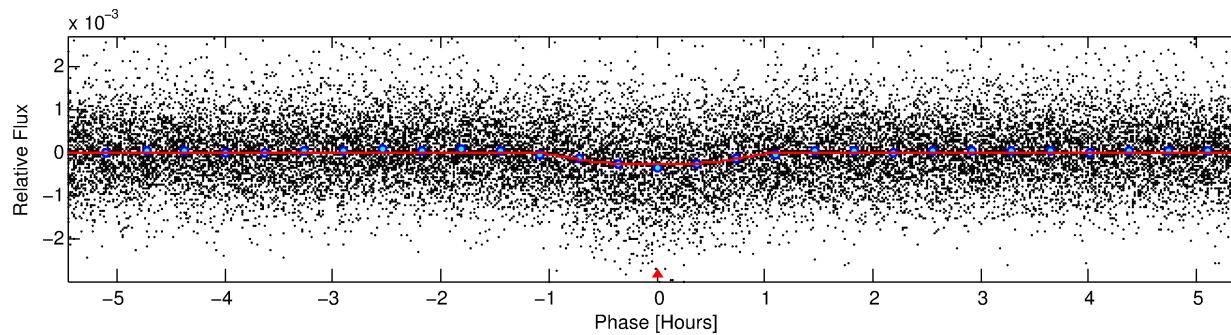
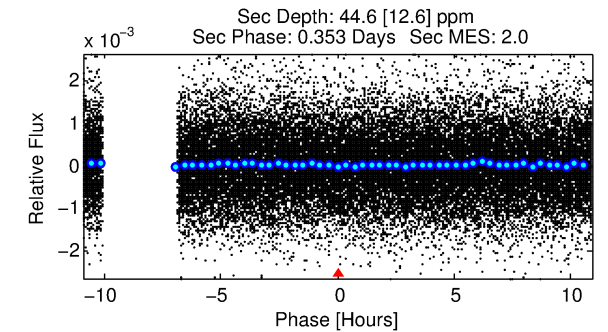
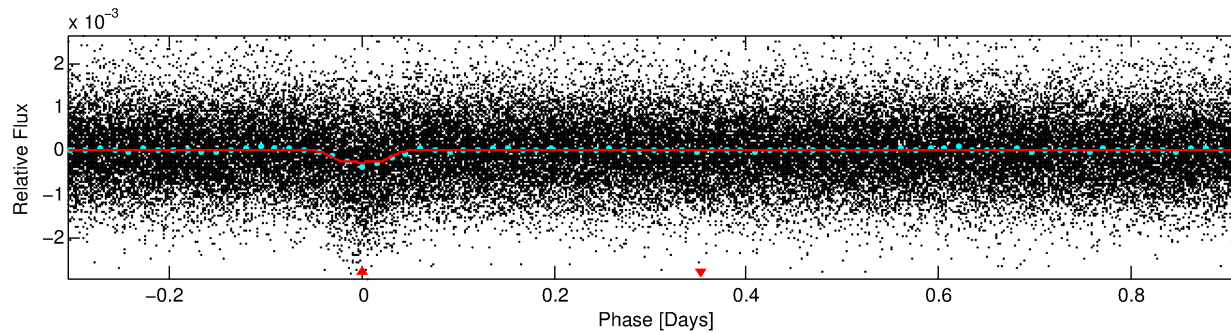
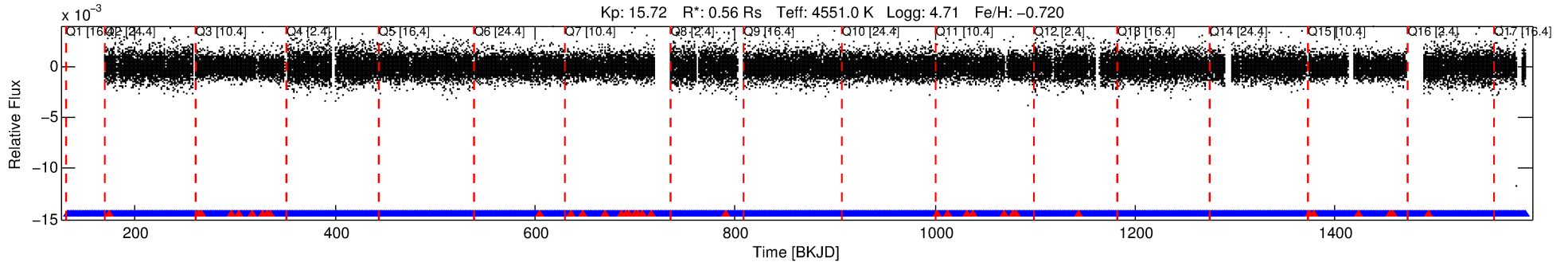
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
012506342-01	12506342	012506351-pri	12506351	1:2	15.9	0	4	13.18	15.71	205.00	Direct-PRF	0	3.34	0.93

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 12506342 Candidate: 1 of 1 Period: 1.228 d
KOI: K07538.01 Corr: 0.905

Kp: 15.72 R*: 0.56 Rs Teff: 4551.0 K Logg: 4.71 Fe/H: -0.720



DV Fit Results:

Period = 1.22773 [0.00001] d
Epoch = 132.5718 [0.0015] BKJD
Rp/R* = 0.0181 [0.0103]
a/R* = 2.63 [4.91]
b = 0.90 [0.48]
Seff = 339.87 [53.29]
Teq = 1095 [43] K
Rp = 1.11 [0.64] Re
a = 0.0188 [0.0014] AU
Ag = 7.12 [8.39] [0.73σ]
Teffp = 2765 [815] K [2.05σ]

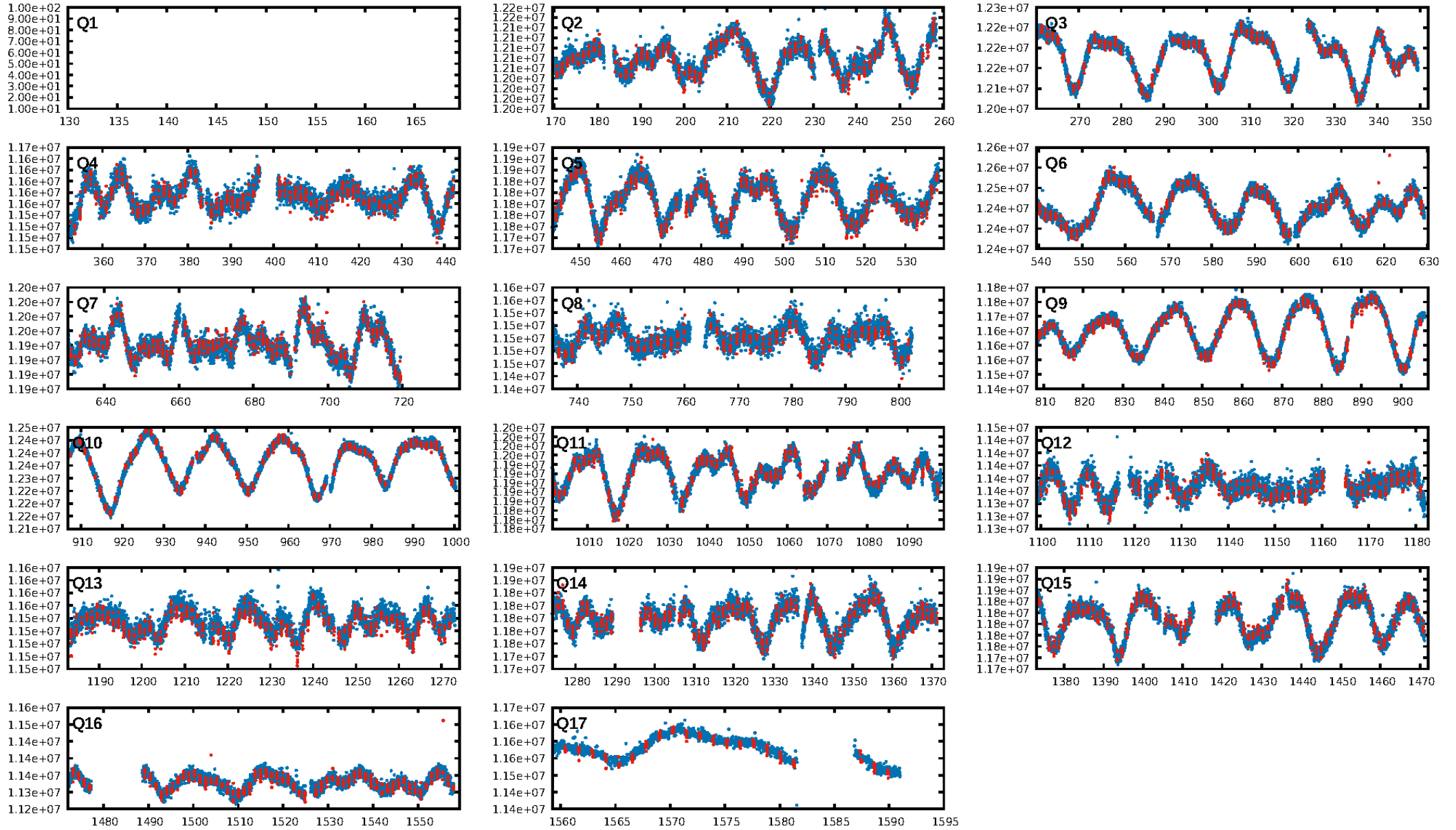
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.03e-42
RollingBand-fgt: 0.97 [1008/1043]
GhostDiagnostic-chr: -0.3299
Centroid-sig: 0.0%
Centroid-so: 56.453 arcsec [63.08σ]
OotOffset-rm: 8.997 arcsec [90.63σ]
KicOffset-rm: 9.194 arcsec [108.46σ]
OotOffset-st: 0/4/0/0 [4]
KicOffset-st: 0/4/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [16/16]

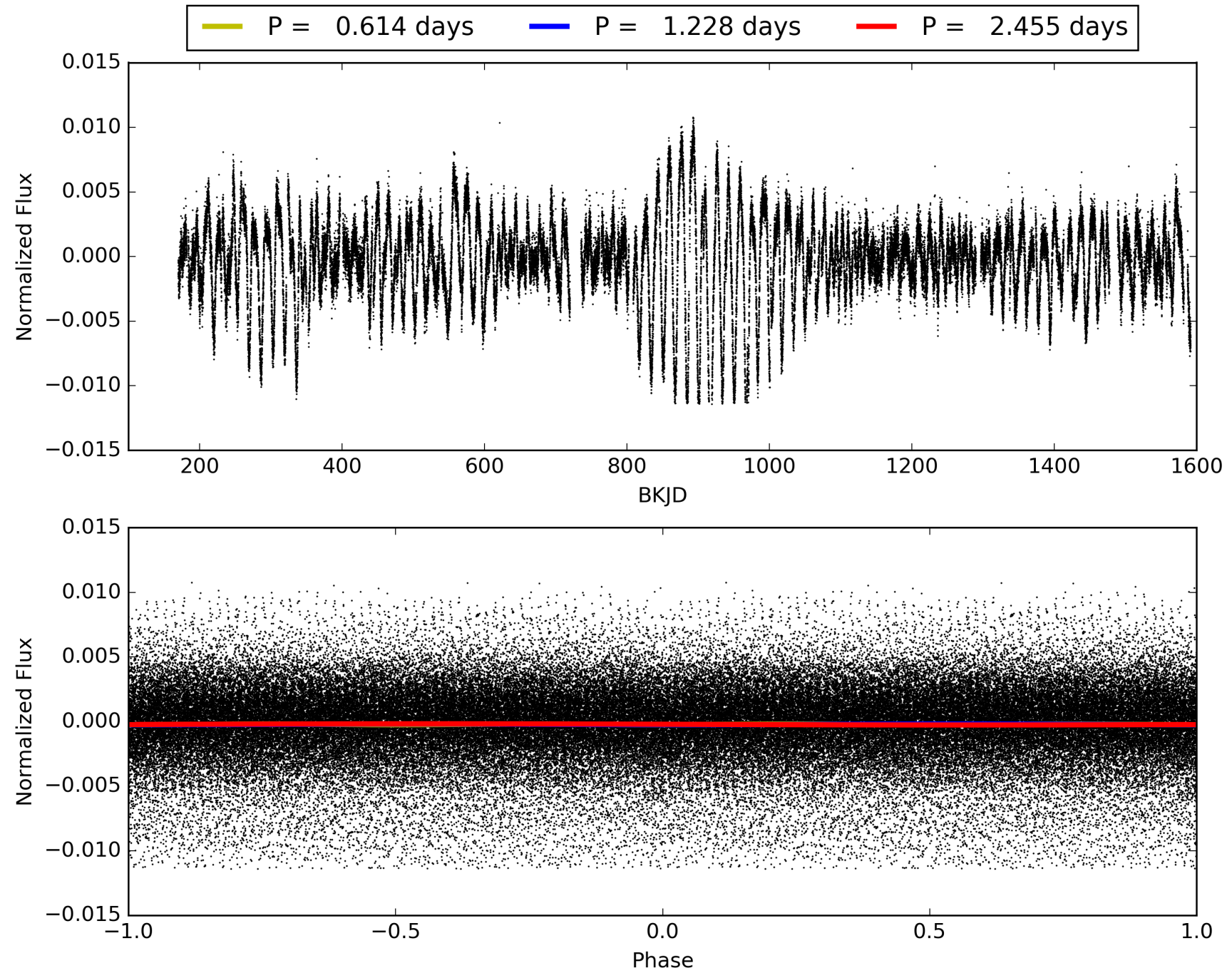
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:47:13 Z

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

TCE 012506342-01, PDC Light Curves

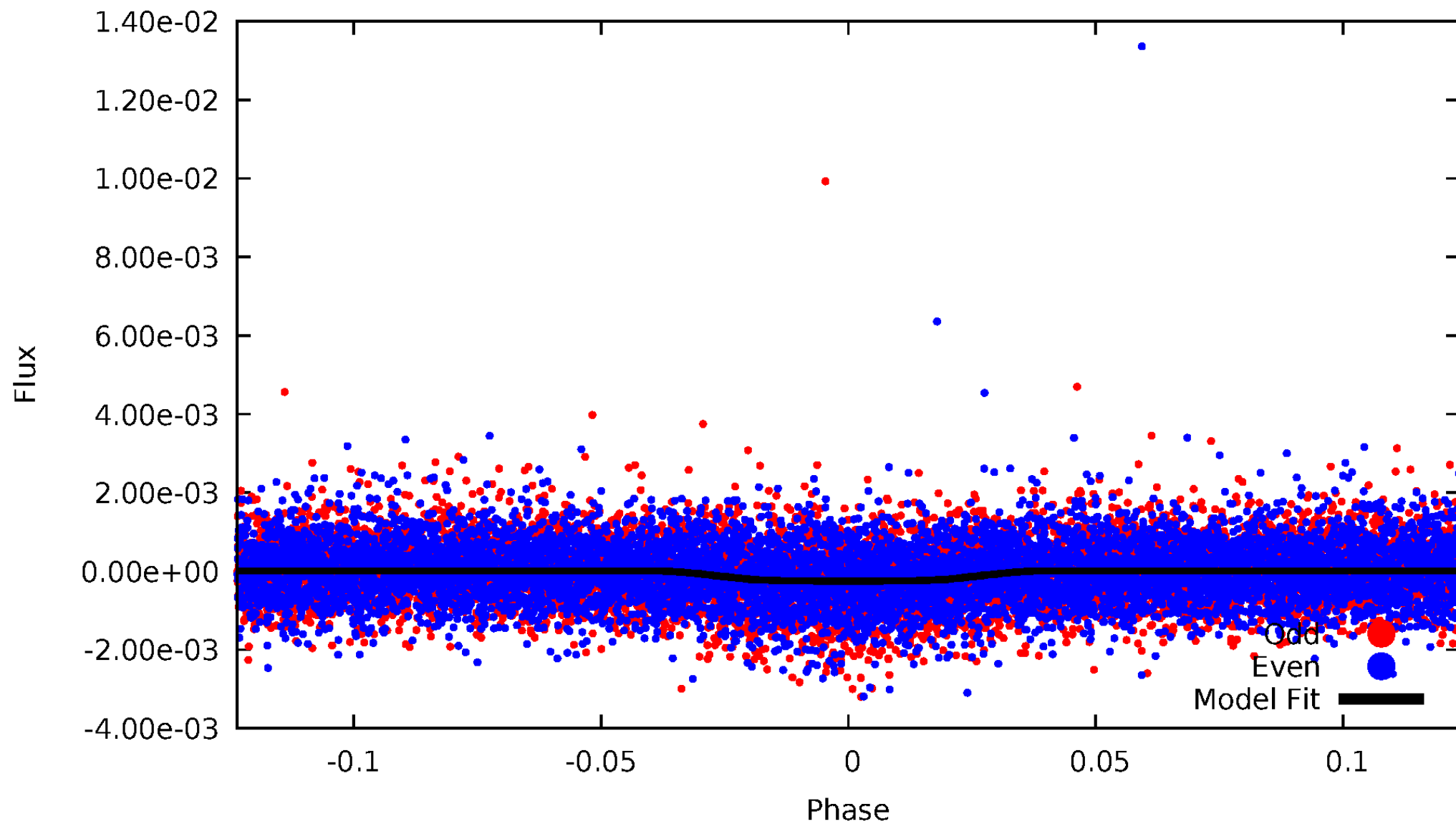


TCE 012506342-01



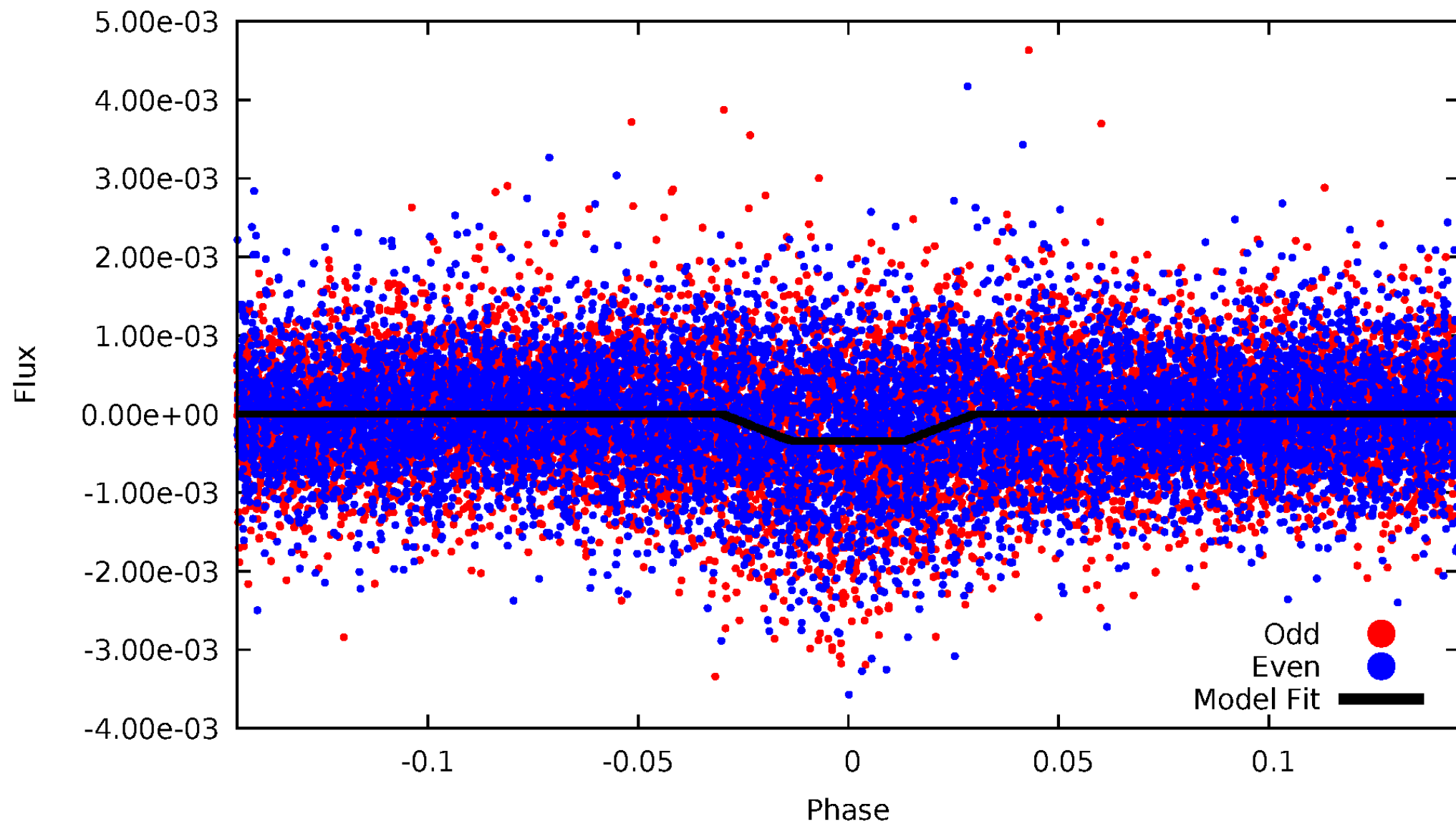
DV Odd/Even

TCE 012506342-01



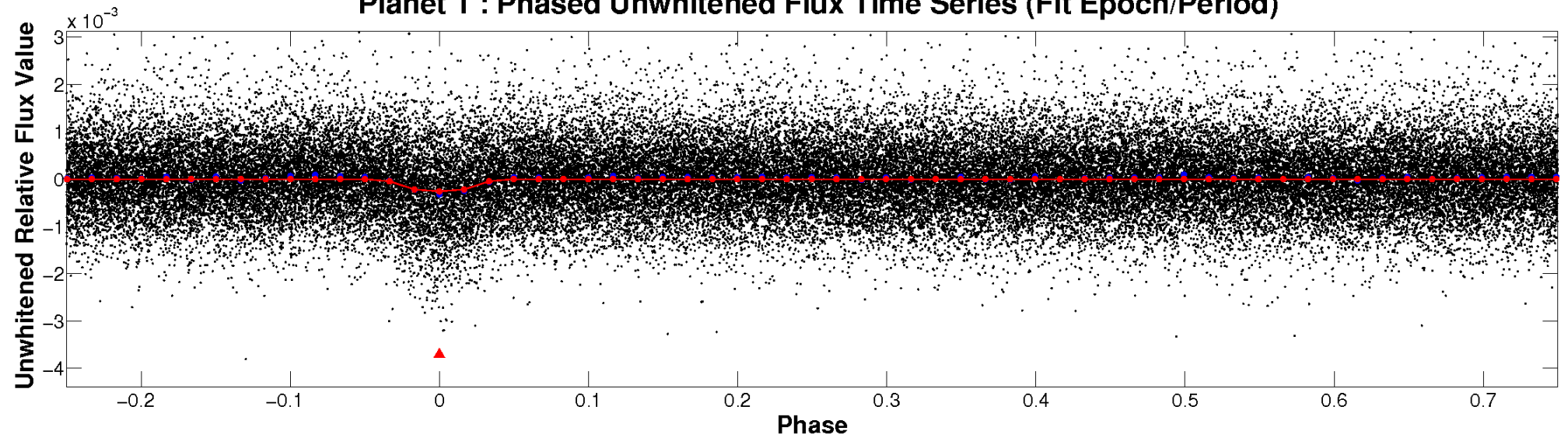
ALT Odd/Even

TCE 012506342-01

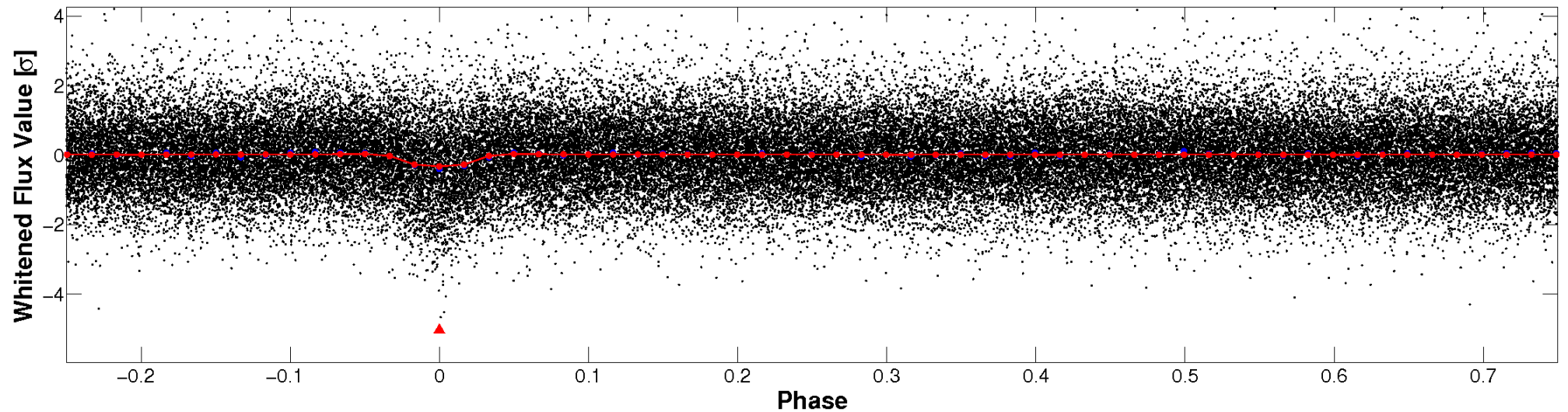


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

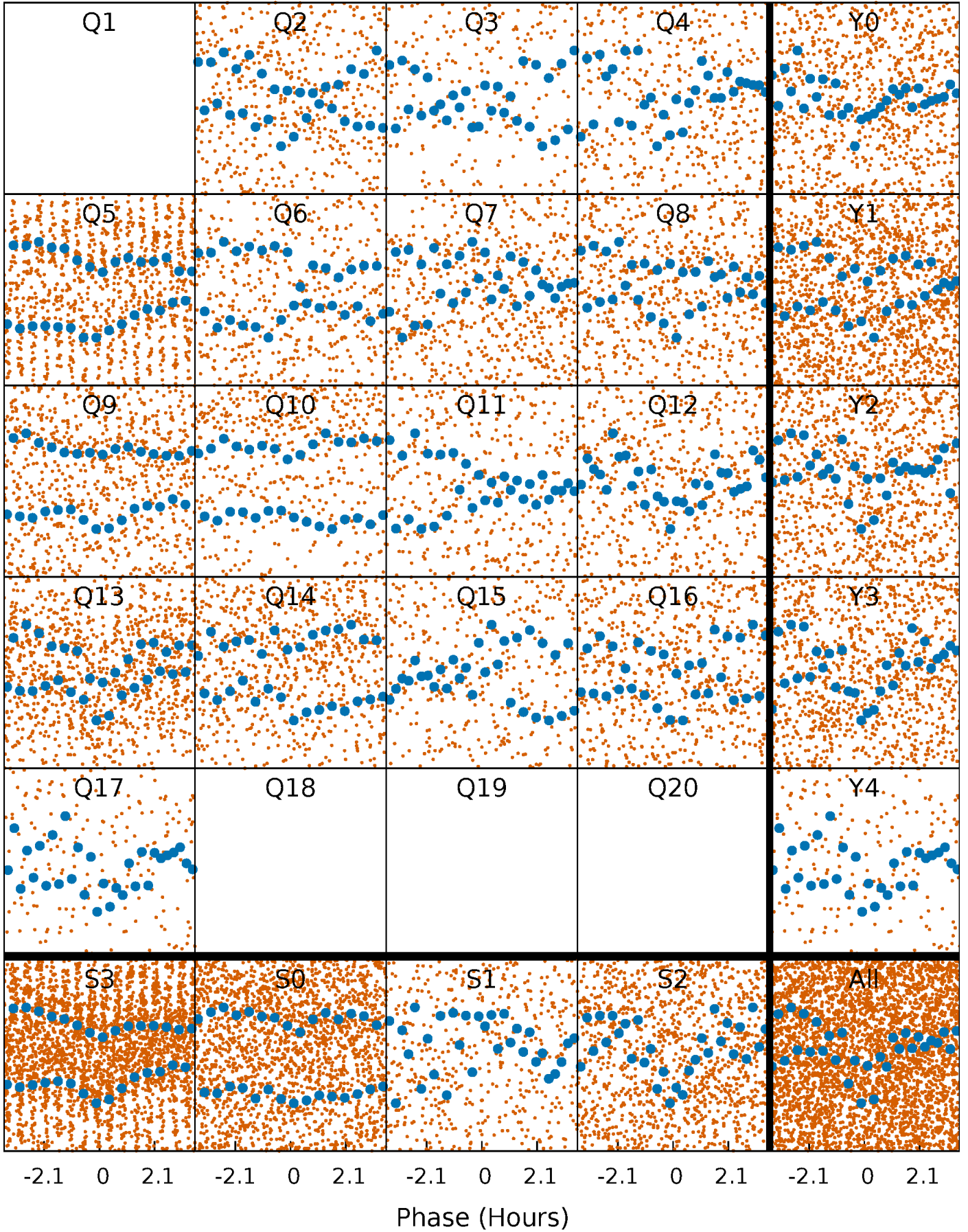


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



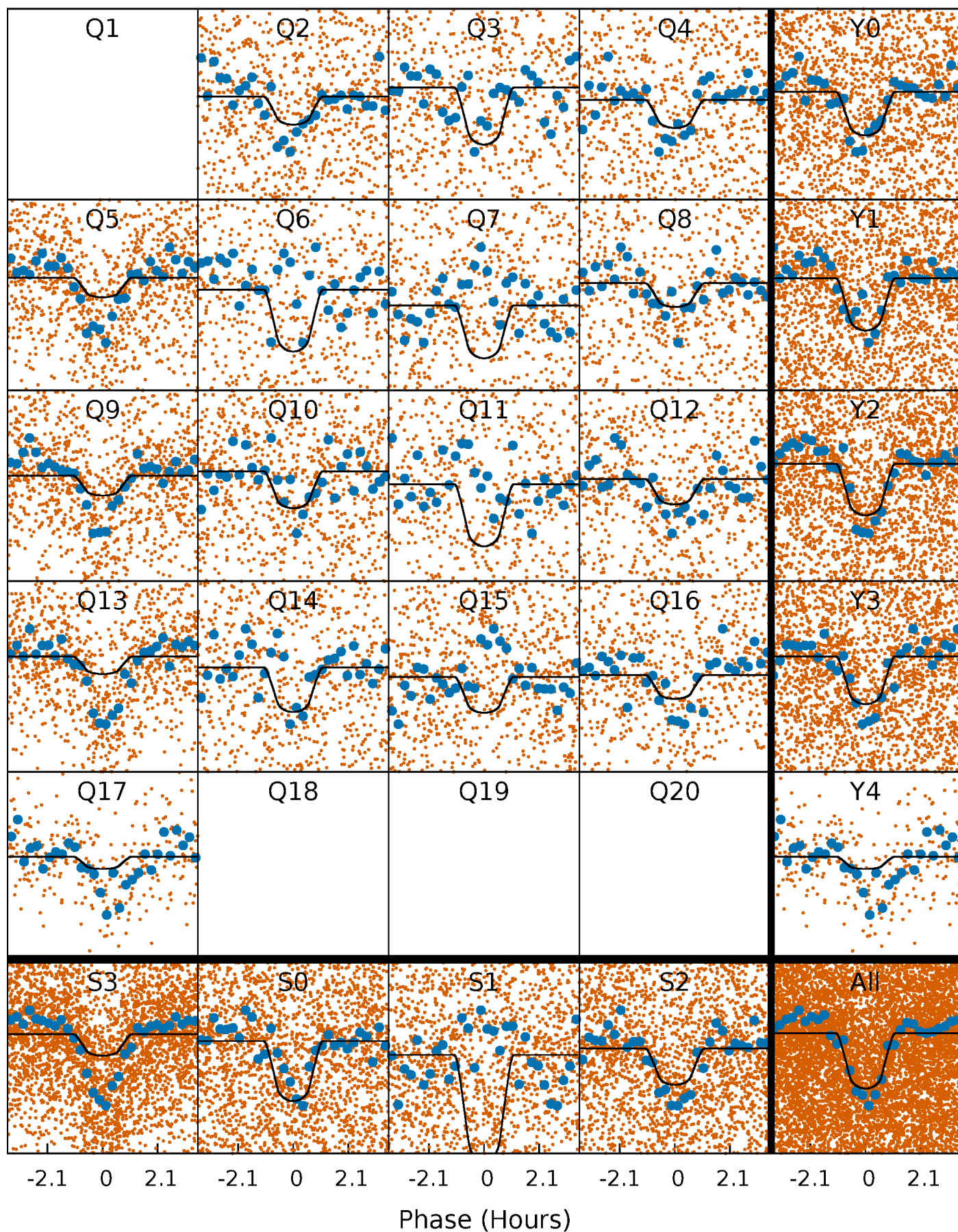
PDC Quarter-Phased Transit Curves

TCE 012506342-01 P= 1.227735 Days $T_0=132.571790$ (BKJD)



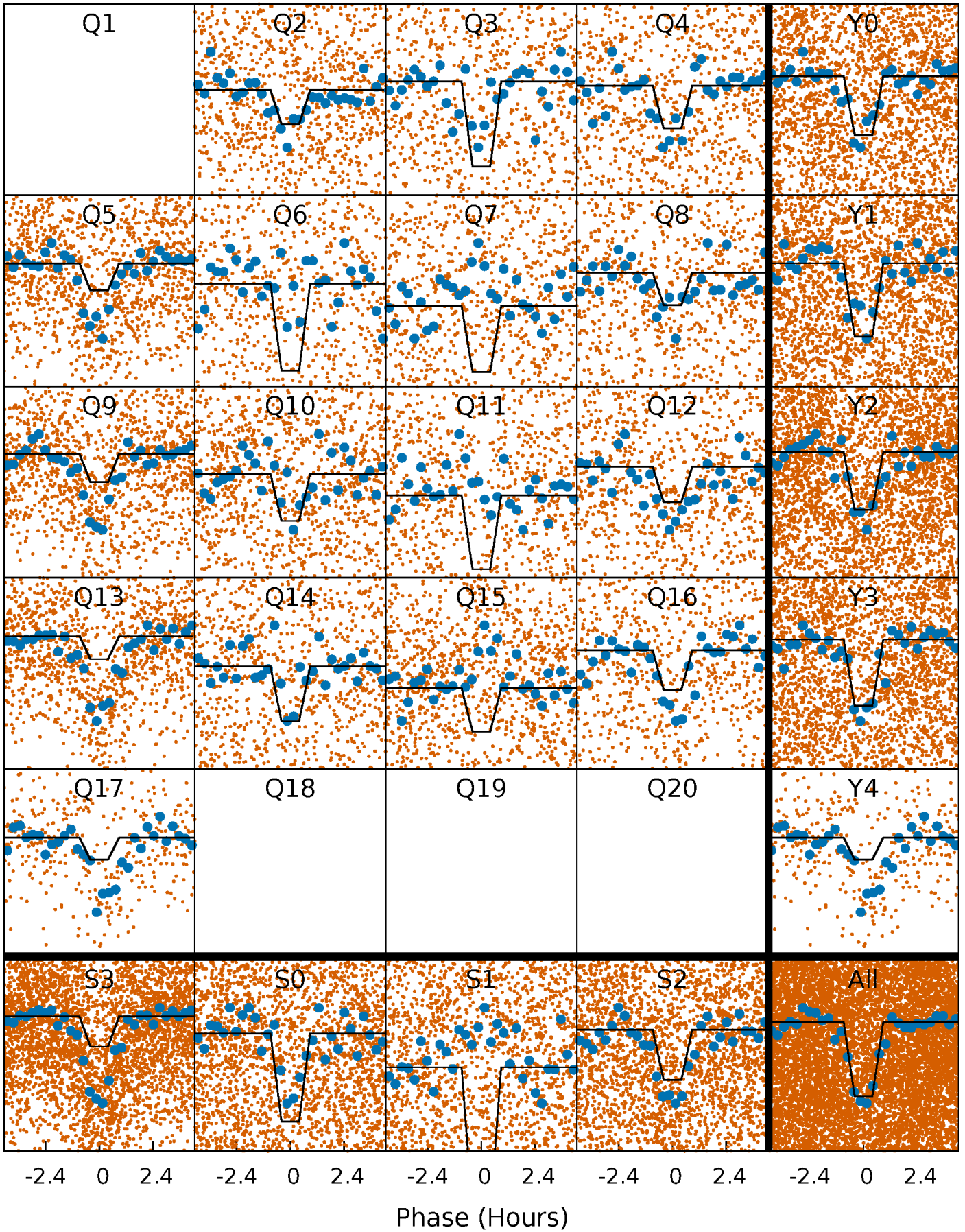
DV Quarter-Phased Transit Curves

TCE 012506342-01 P= 1.227735 Days $T_0=132.571790$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

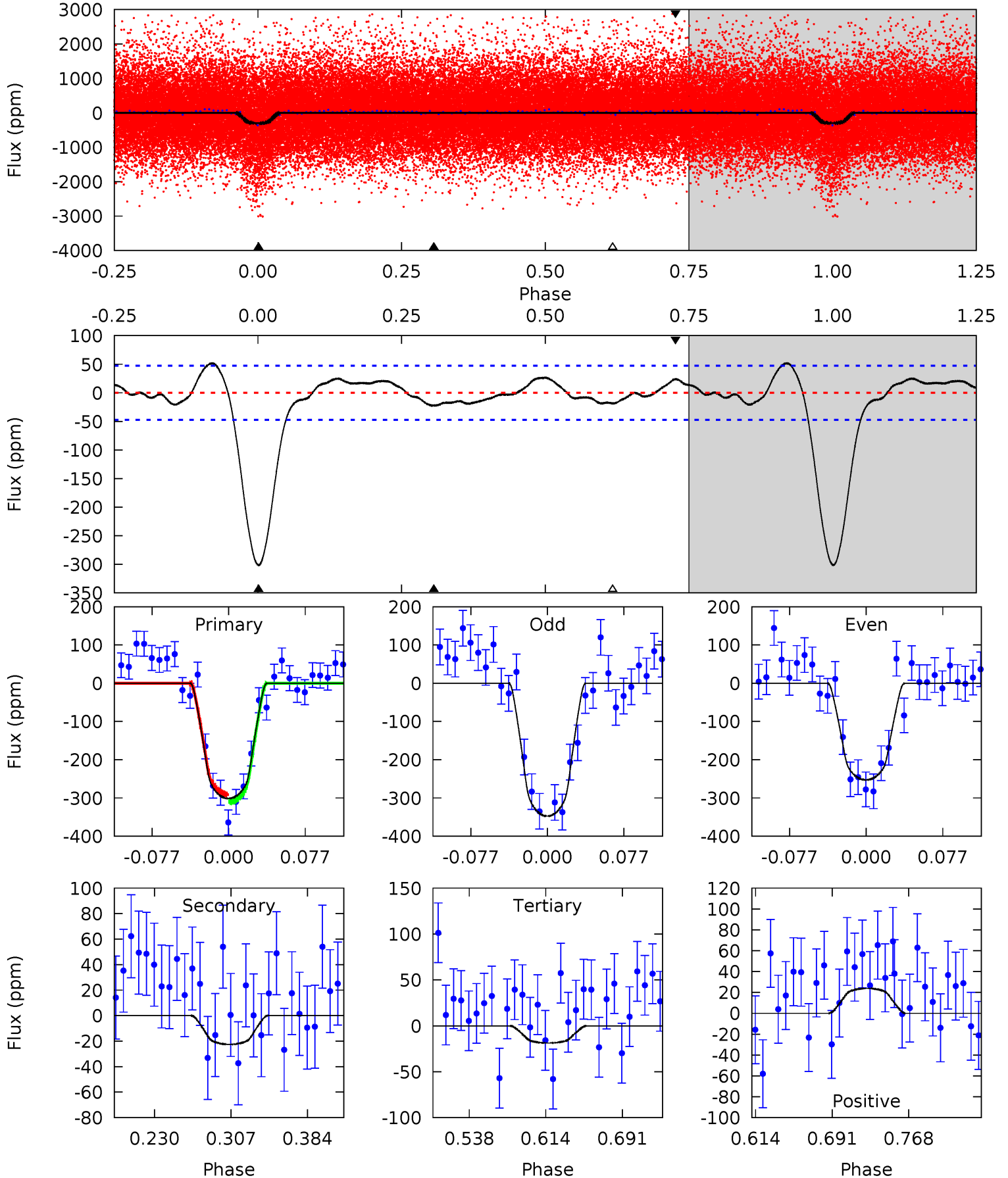
TCE 012506342-01 P= 1.227742 Days $T_0=132.568555$ (BKJD)



DV Model-Shift Uniqueness Test

012506342-01, P = 1.227735 Days, E = 132.571790 Days

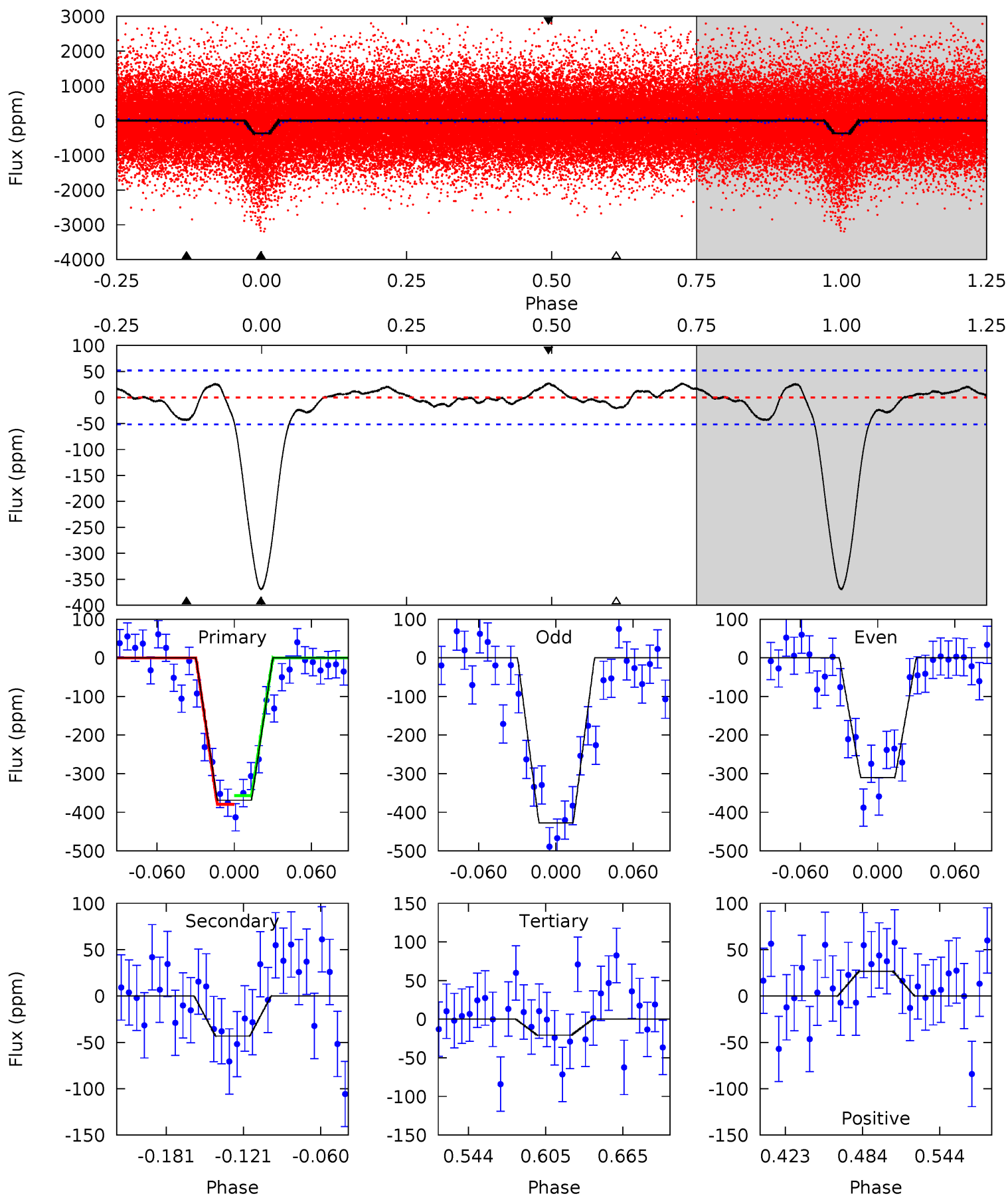
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.4	2.20	1.83	2.33	4.62	1.77	1.52	27.6	27.1	0.37	-0.13	4.64	1.04	0.15	0.96



Alt Model-Shift Uniqueness Test

012506342-01, P = 1.227742 Days, E = 132.568555 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.2	3.89	1.86	2.39	4.67	1.88	1.12	31.4	30.8	2.03	1.50	5.29	1.05	0.07	1.03



Stellar Parameters For KIC 012506342

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4551^{+135}_{-135}	$4.713^{+0.032}_{-0.052}$	$-0.720^{+0.300}_{-0.300}$	$0.560^{+0.054}_{-0.036}$	$0.590^{+0.048}_{-0.043}$	$4.736^{+0.696}_{-0.812}$
	+3%/-3%	+1%/-1%	+42%/-42%	+10%/-6%	+8%/-7%	+15%/-17%
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 012506342-01 / KOI 7538.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-23 ± 10	$1.16^{+0.63}_{-0.58}$	1535^{+54}_{-50}	2845^{+752}_{-419}	$3.130^{+10.469}_{-2.065}$
Alt.	-43 ± 11	$1.23^{+0.59}_{-0.67}$	1536^{+55}_{-53}	3115^{+877}_{-392}	$5.678^{+18.747}_{-3.219}$

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 $A_{\text{obs}} \gg 1.0$

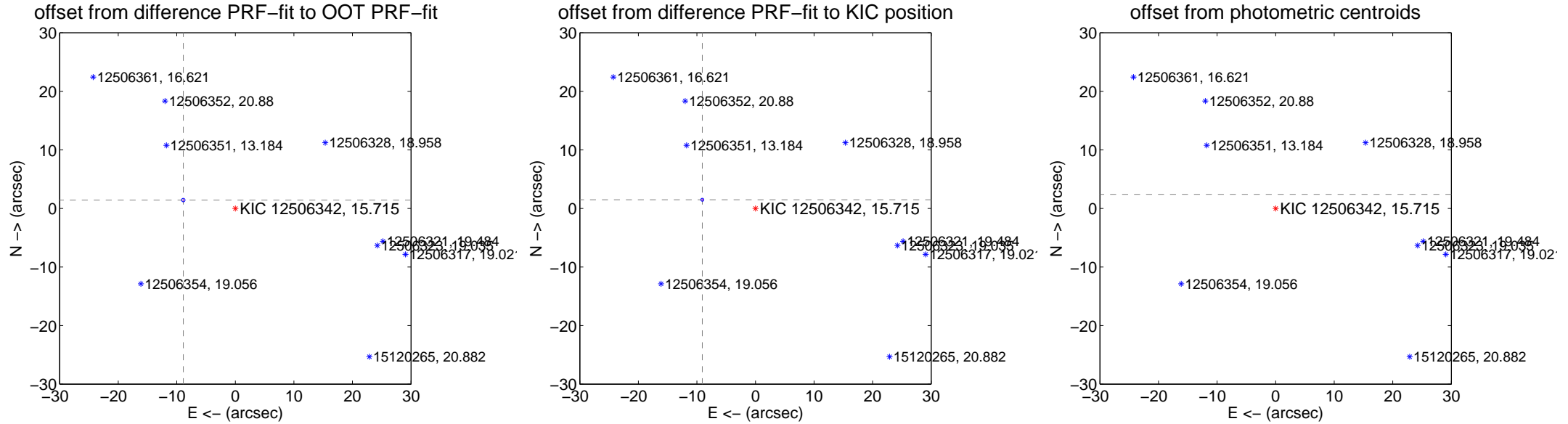
DV Centroid Data

Supplemental centroid analysis for 012506342-01. Kepler magnitude: 15.71. Transit SNR 16.47

There are 4 quarters with good PRF difference image offsets

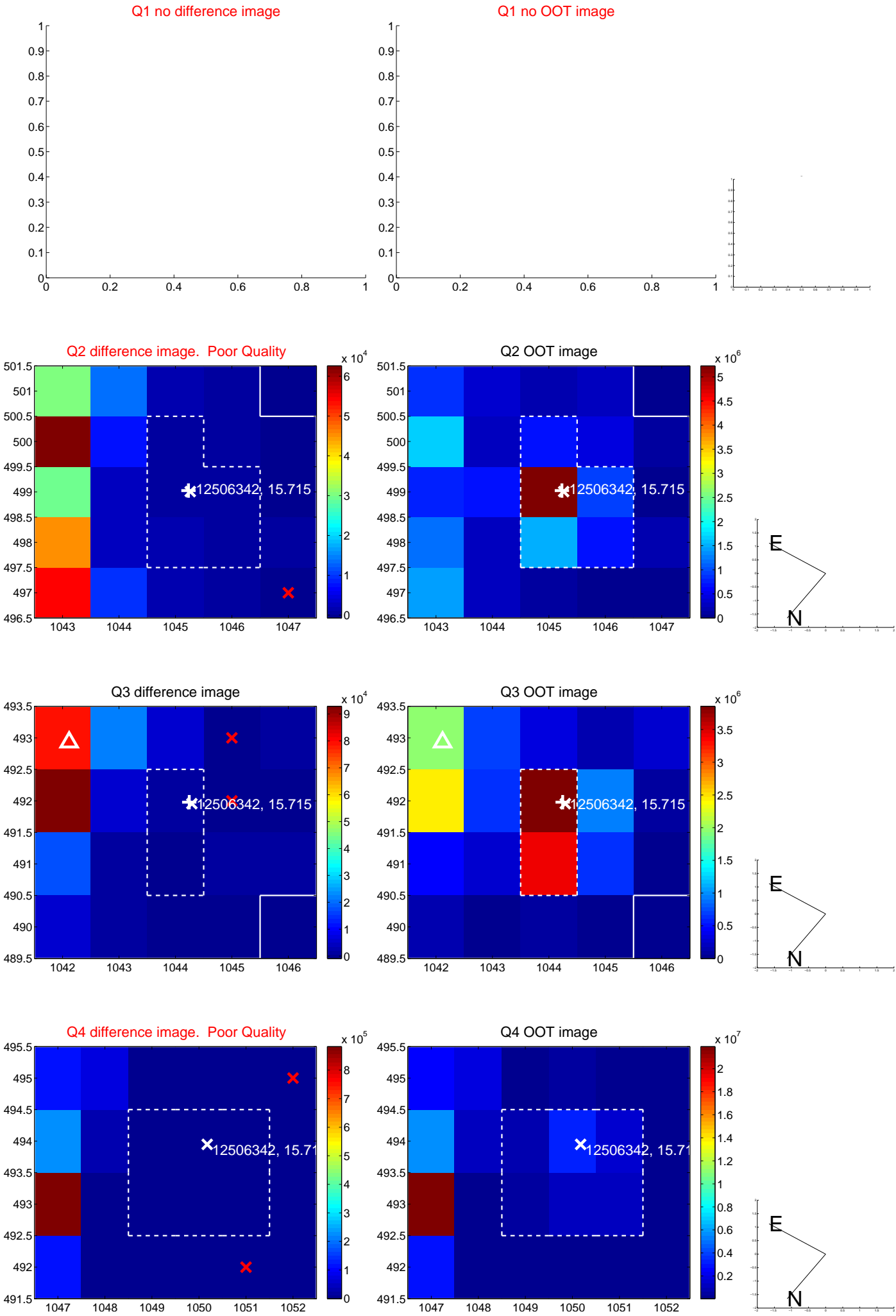
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.997 \pm 0.099	90.63	8.883 \pm 0.100	1.427 \pm 0.081
PRF-fit source offset from KIC position	9.194 \pm 0.085	108.46	9.074 \pm 0.085	1.481 \pm 0.085
photometric centroid source offset	56.45 \pm 0.89	63.08	56.40 \pm 0.90	2.41 \pm 0.67

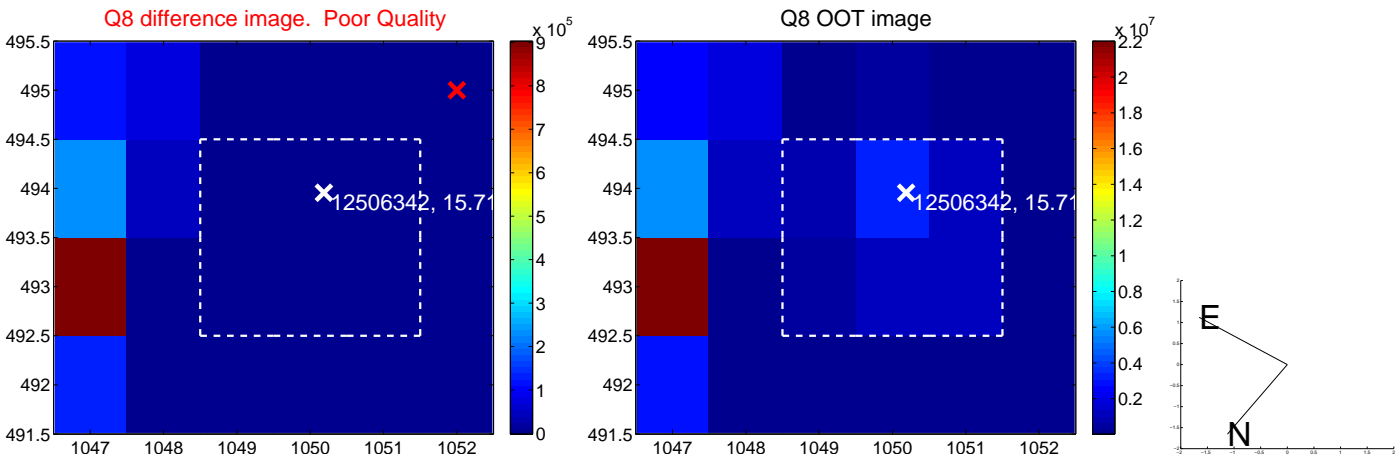
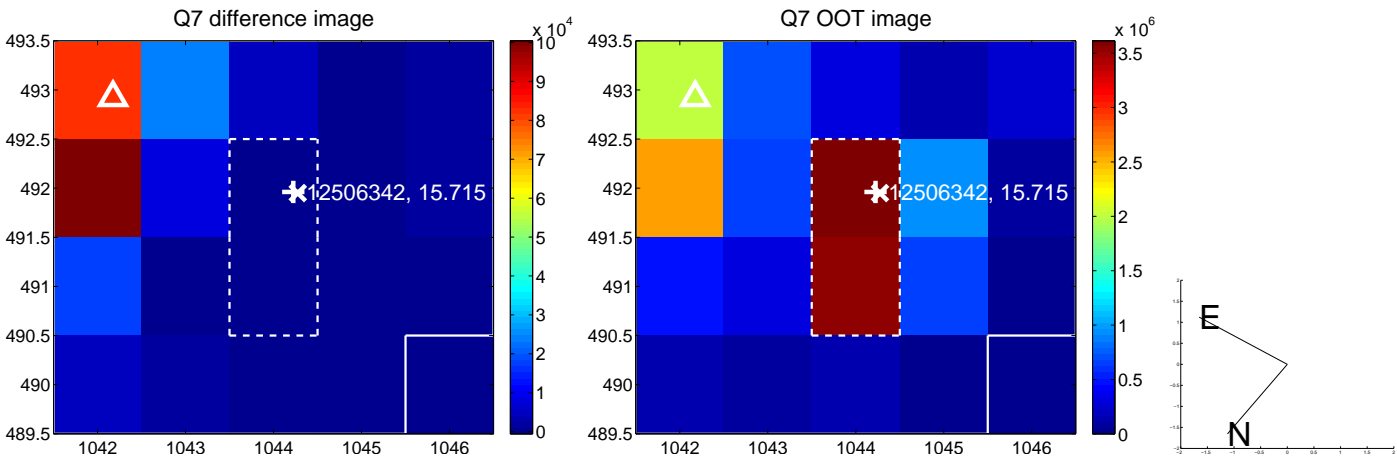
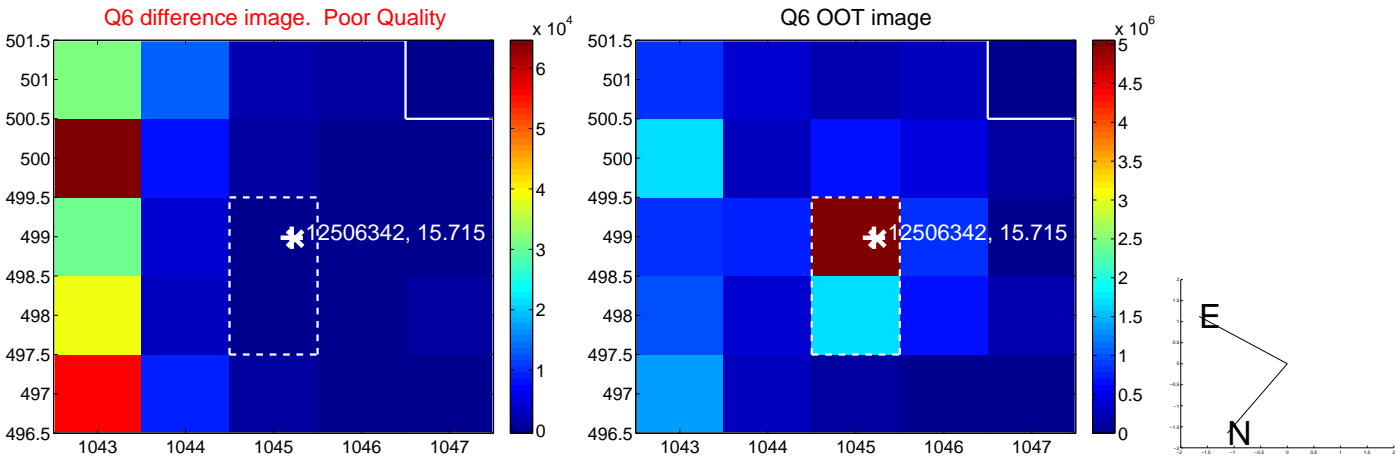
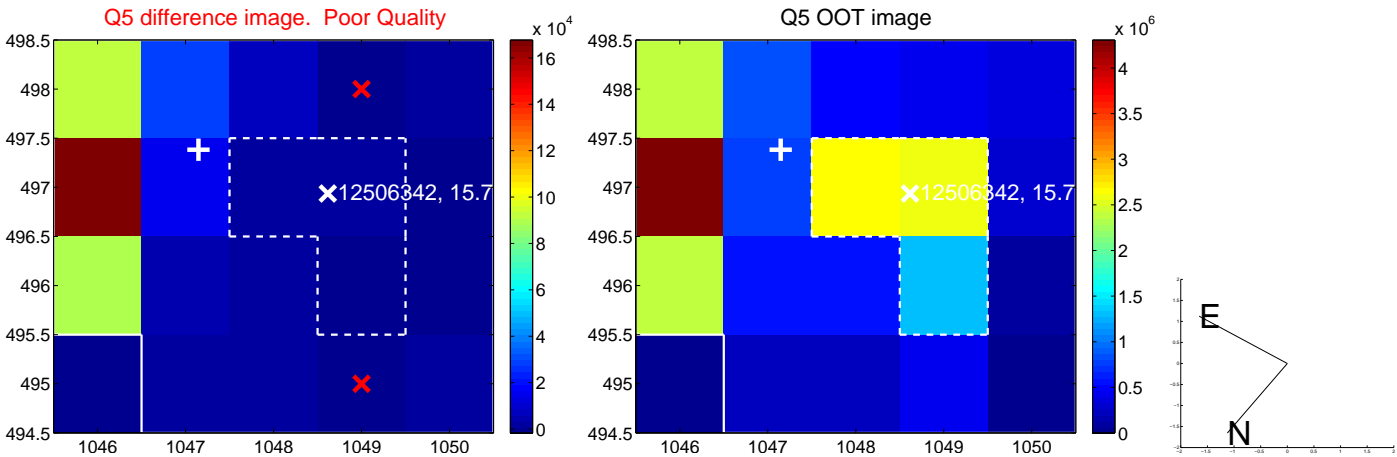


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

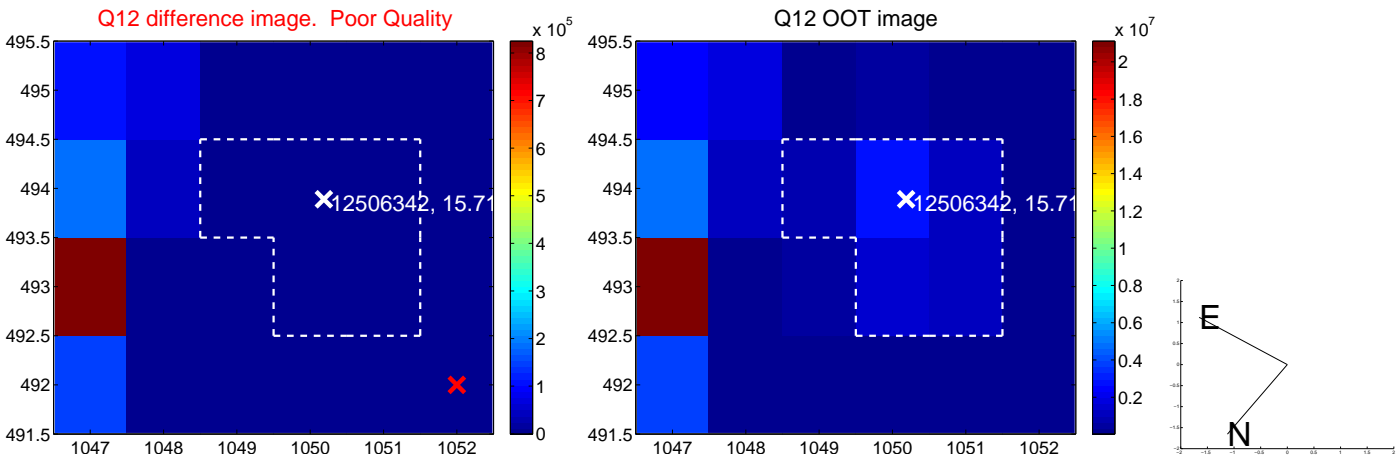
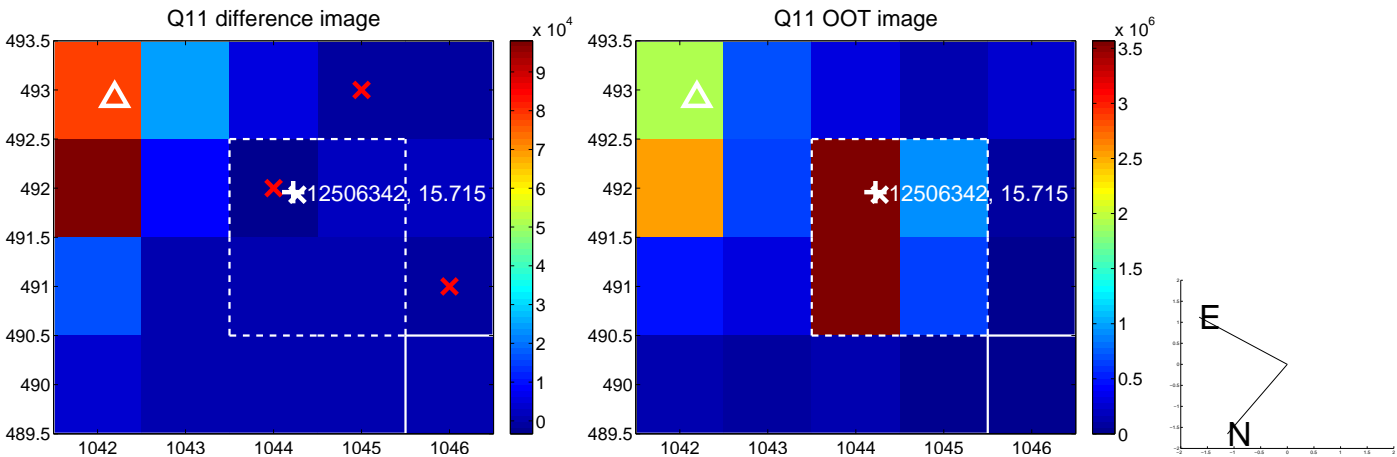
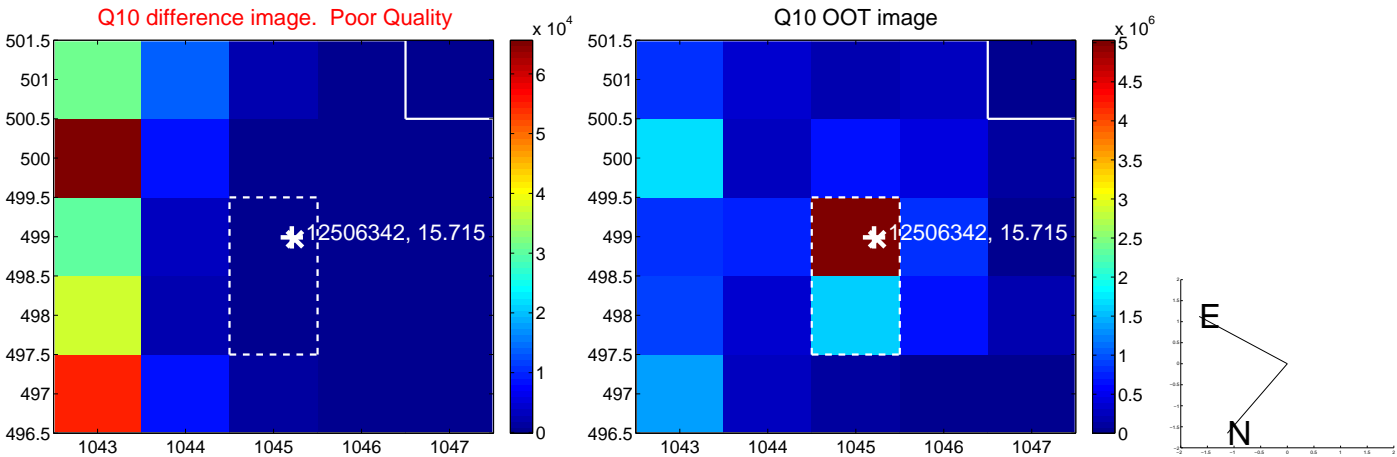
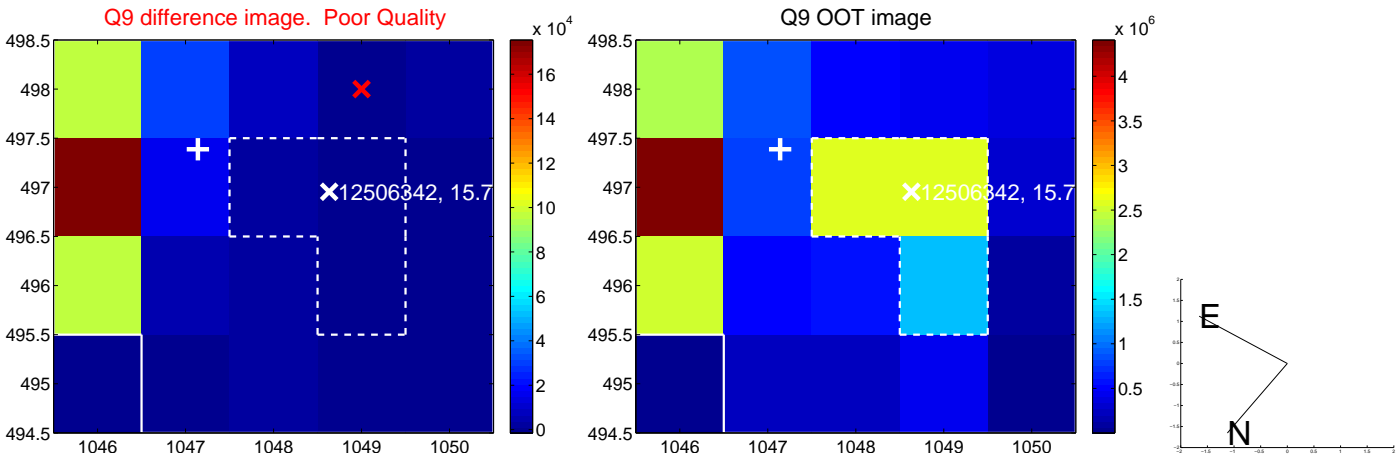
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



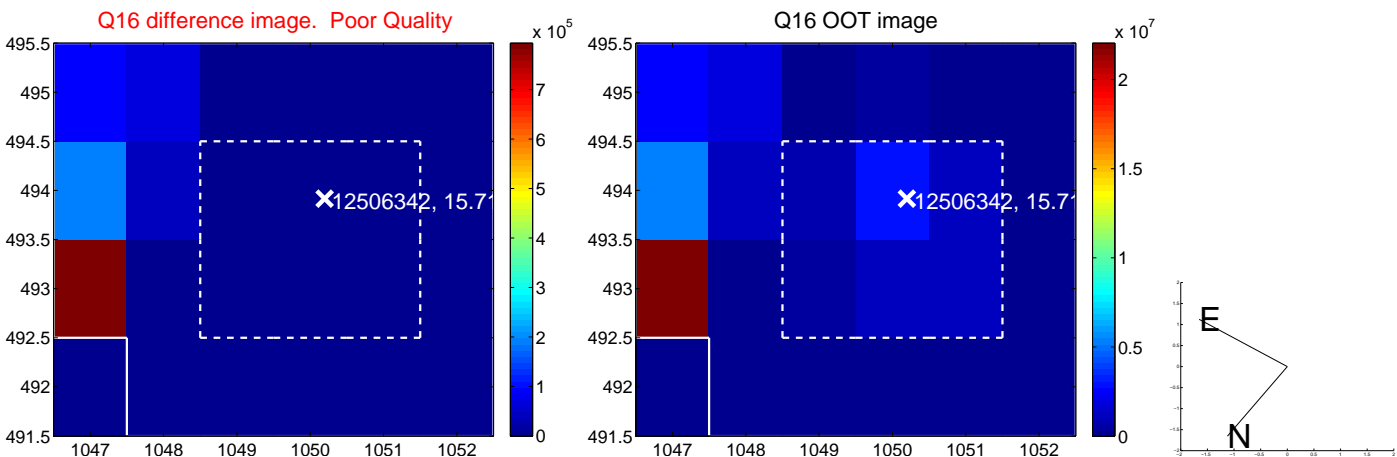
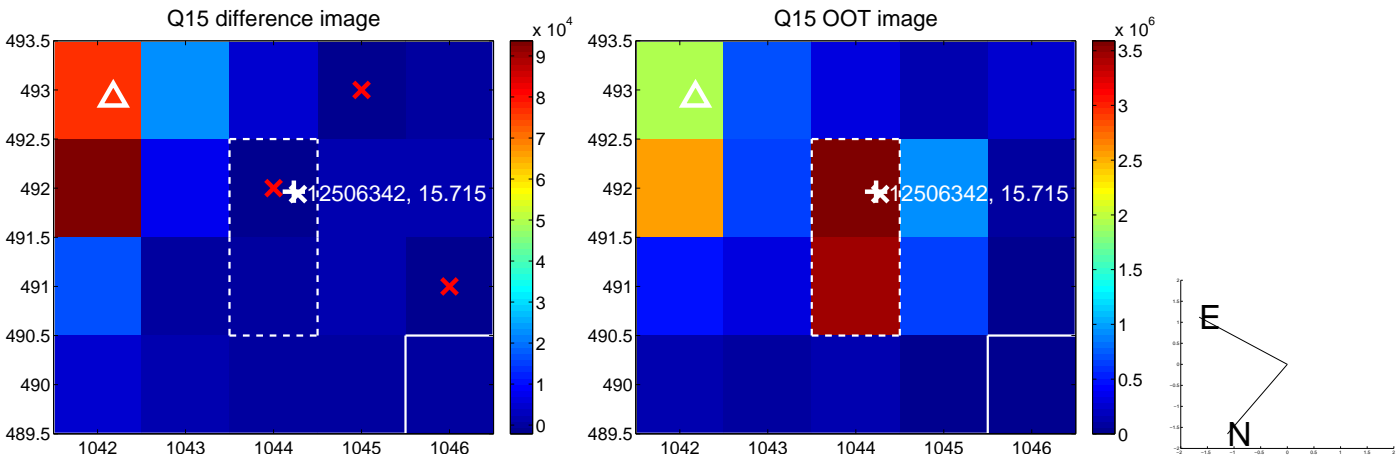
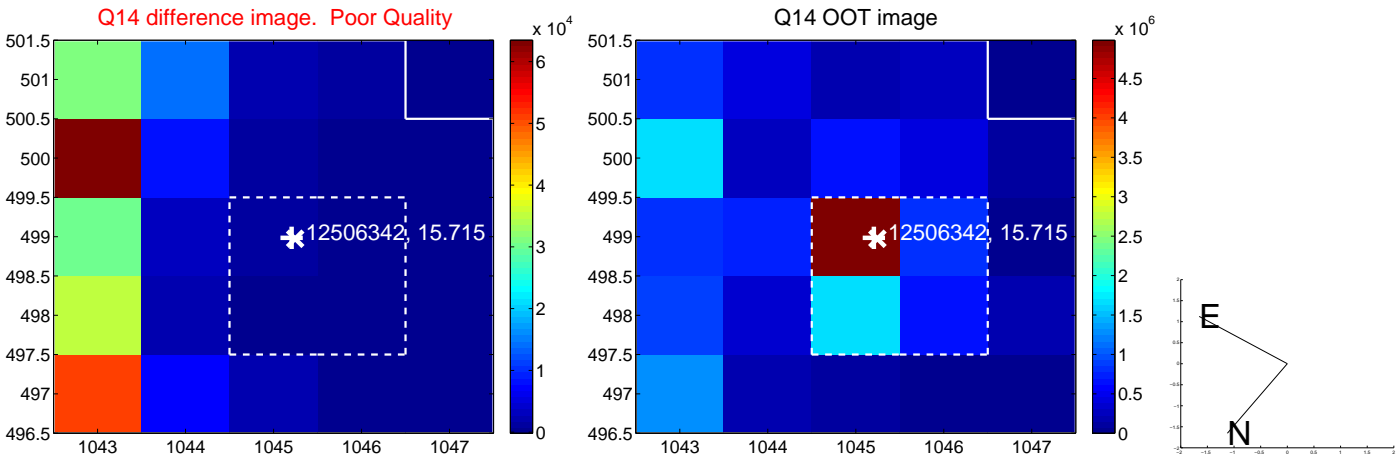
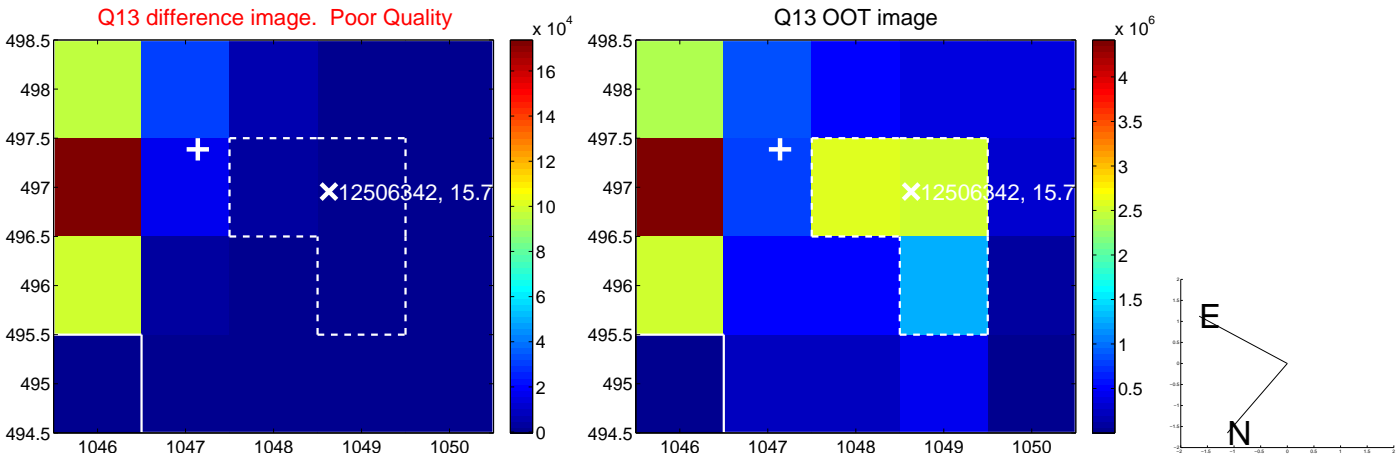
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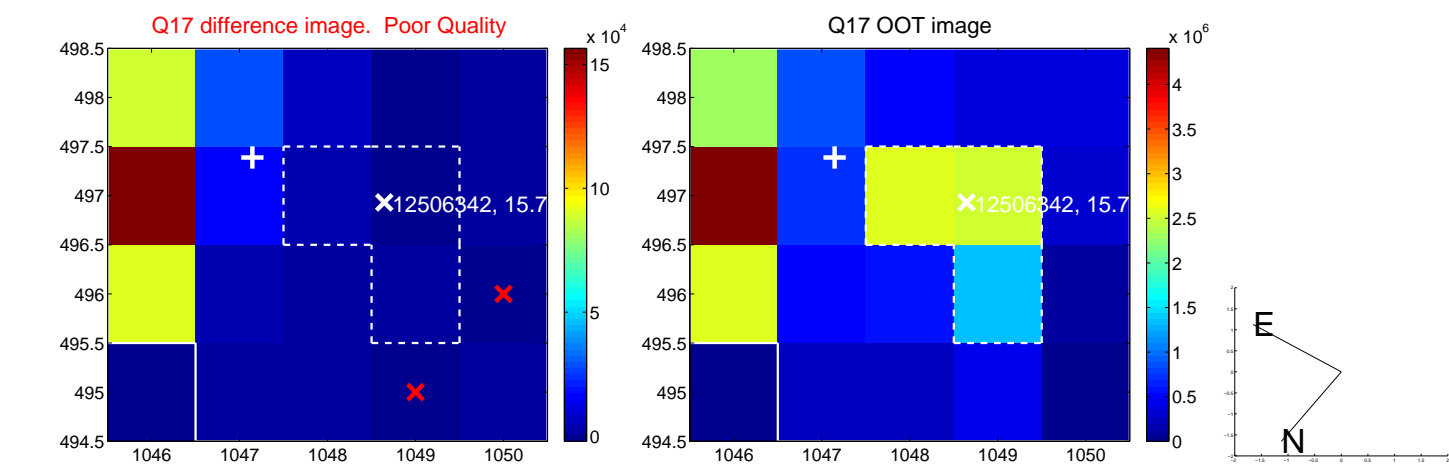
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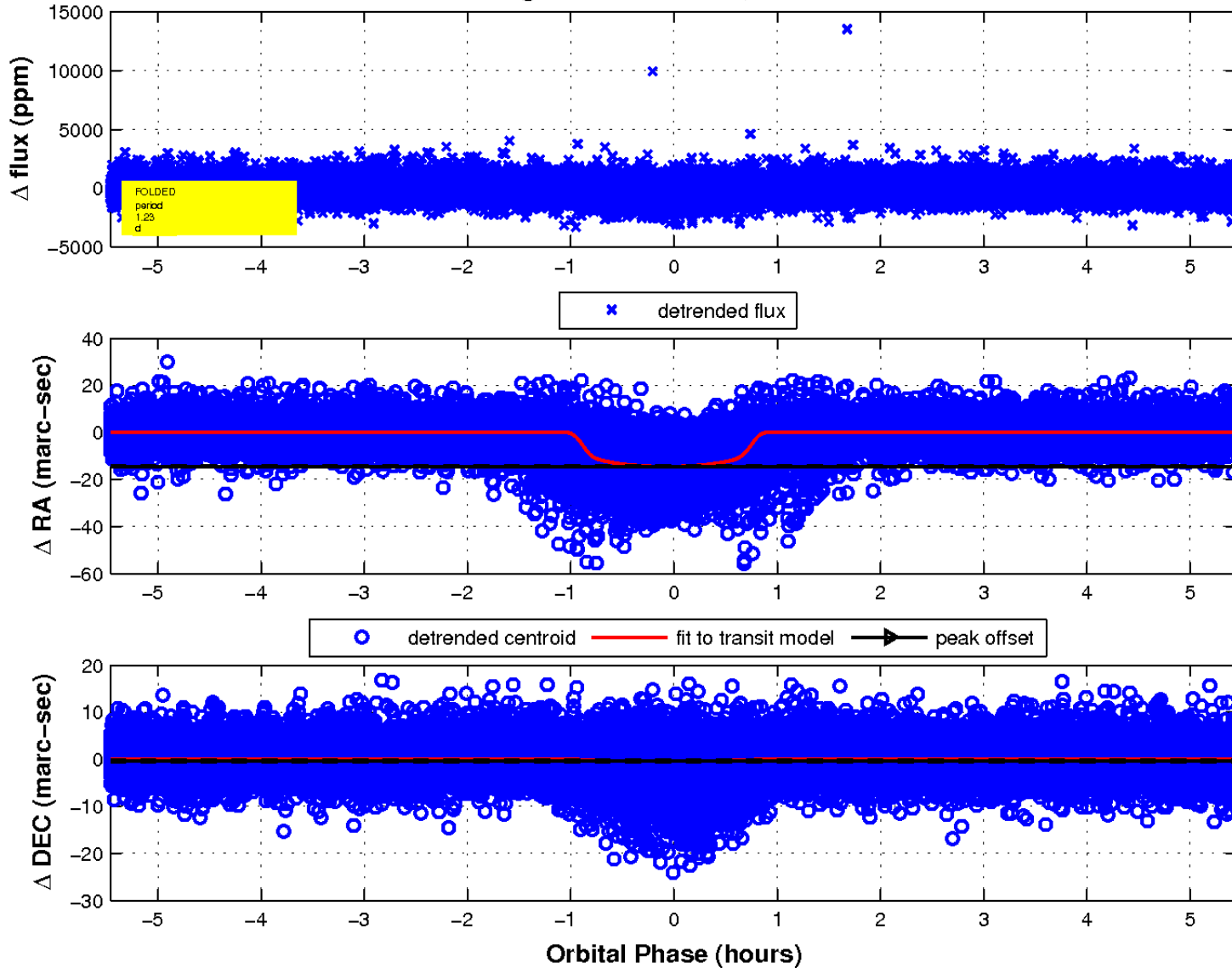
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

