

KIC 004946581

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})
004946581-01	OBS	5109.01	28.612661	147.622333	167.7	108.654	12.3	23.3	1.99	5562	5.43	88.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004946581-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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 004946581-01

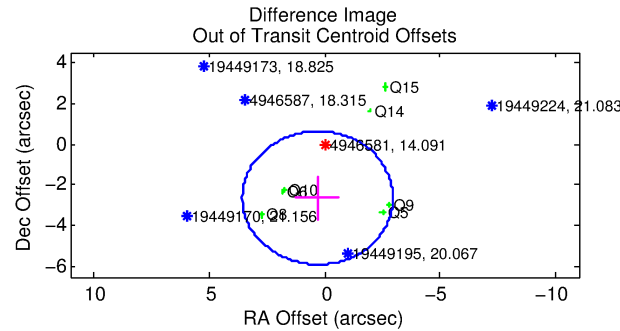
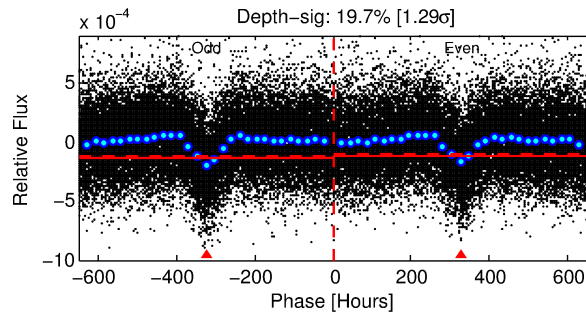
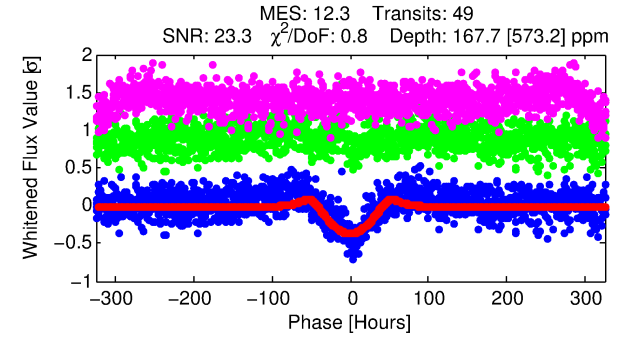
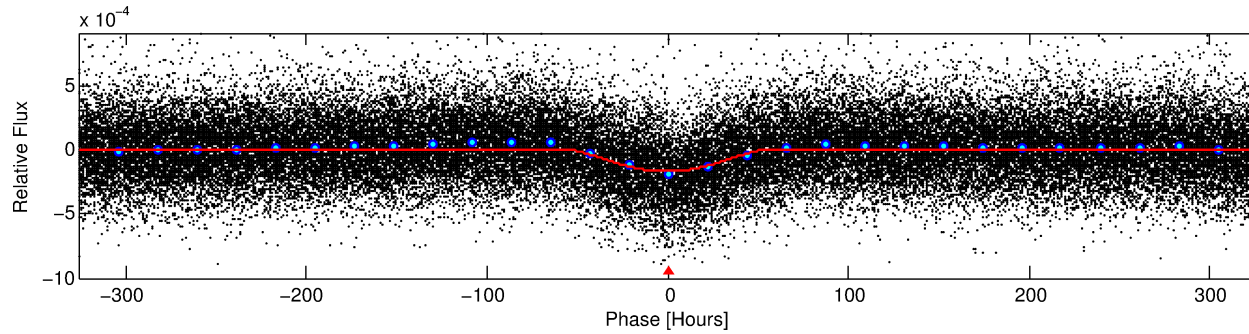
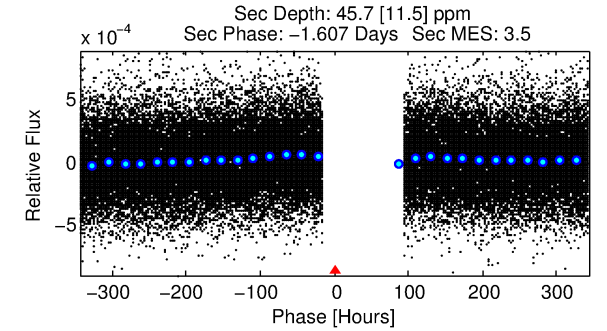
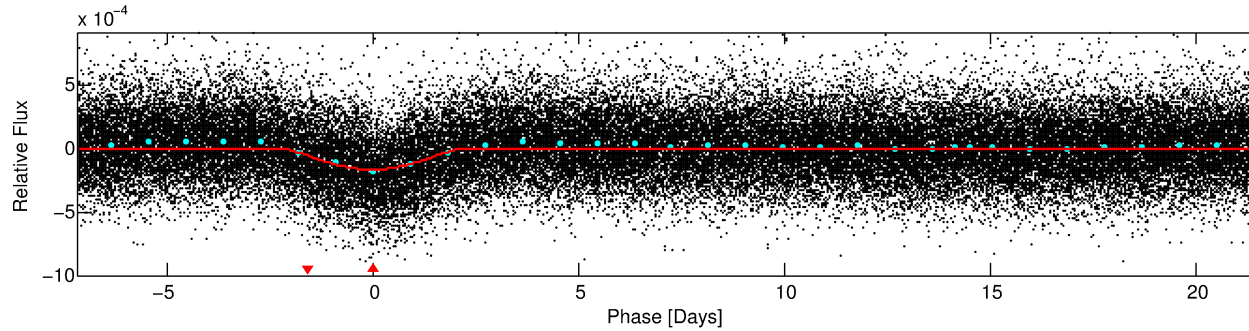
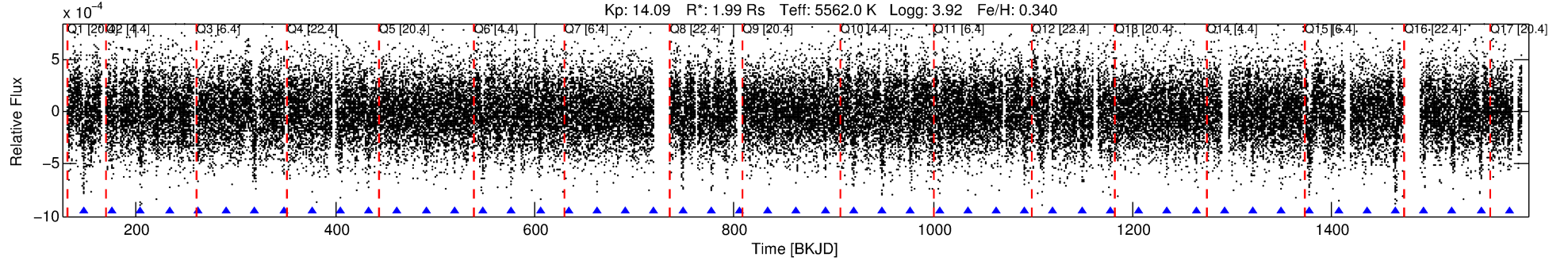
No Significant Match Found

DV One-Page Summary

KIC: 4946581 Candidate: 1 of 1 Period: 28.613 d

KOI: K05109 Corr: No Ephemeris Match

Kp: 14.09 R*: 1.99 Rs Teff: 5562.0 K Logg: 3.92 Fe/H: 0.340



DV Fit Results:

Period = 28.61266 [0.00312] d
Epoch = 147.6223 [0.0865] BKJD
Rp/R* = 0.0251 [0.0219]
a/R* = 1.11 [0.02]
b = 1.00 [0.03]
Seff = 88.83 [33.24]
Teq = 783 [73] K
Rp = 5.43 [4.97] Re
a = 0.1952 [0.0476] AU
Ag = 32.45 [58.42] [0.54σ]
Teffp = 2889 [1274] K [1.65σ]

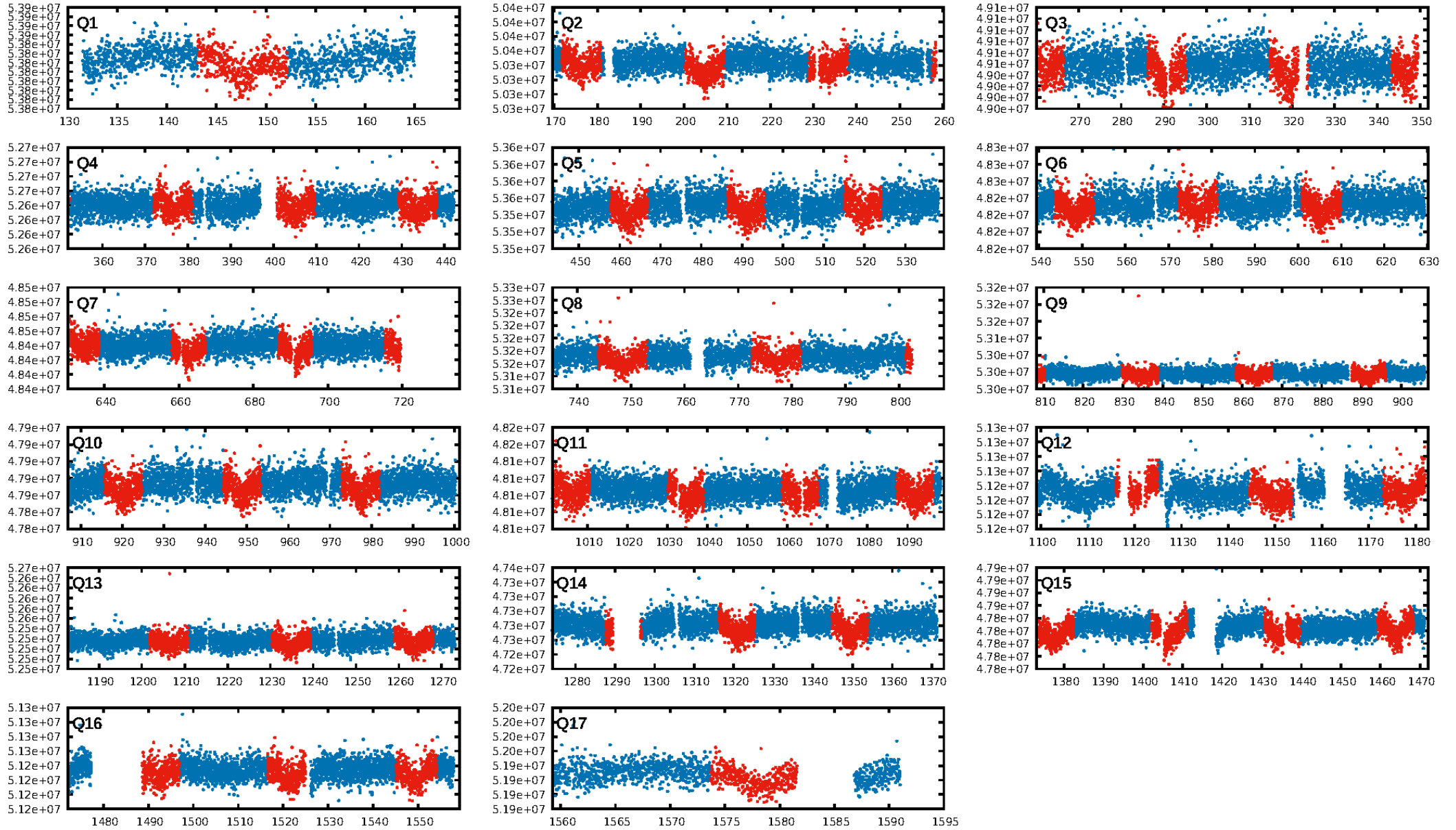
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.48e-37
RollingBand-fgt: 1.00 [47/47]
GhostDiagnostic-chr: 2.229
Centroid-sig: 0.0%
Centroid-so: 0.591 arcsec [1.86σ]
OotOffset-rm: 2.645 arcsec [2.43σ]
KicOffset-rm: 2.430 arcsec [2.63σ]
OotOffset-st: 3/1/1/2 [7]
KicOffset-st: 3/1/1/2 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 1.00 [8/8]

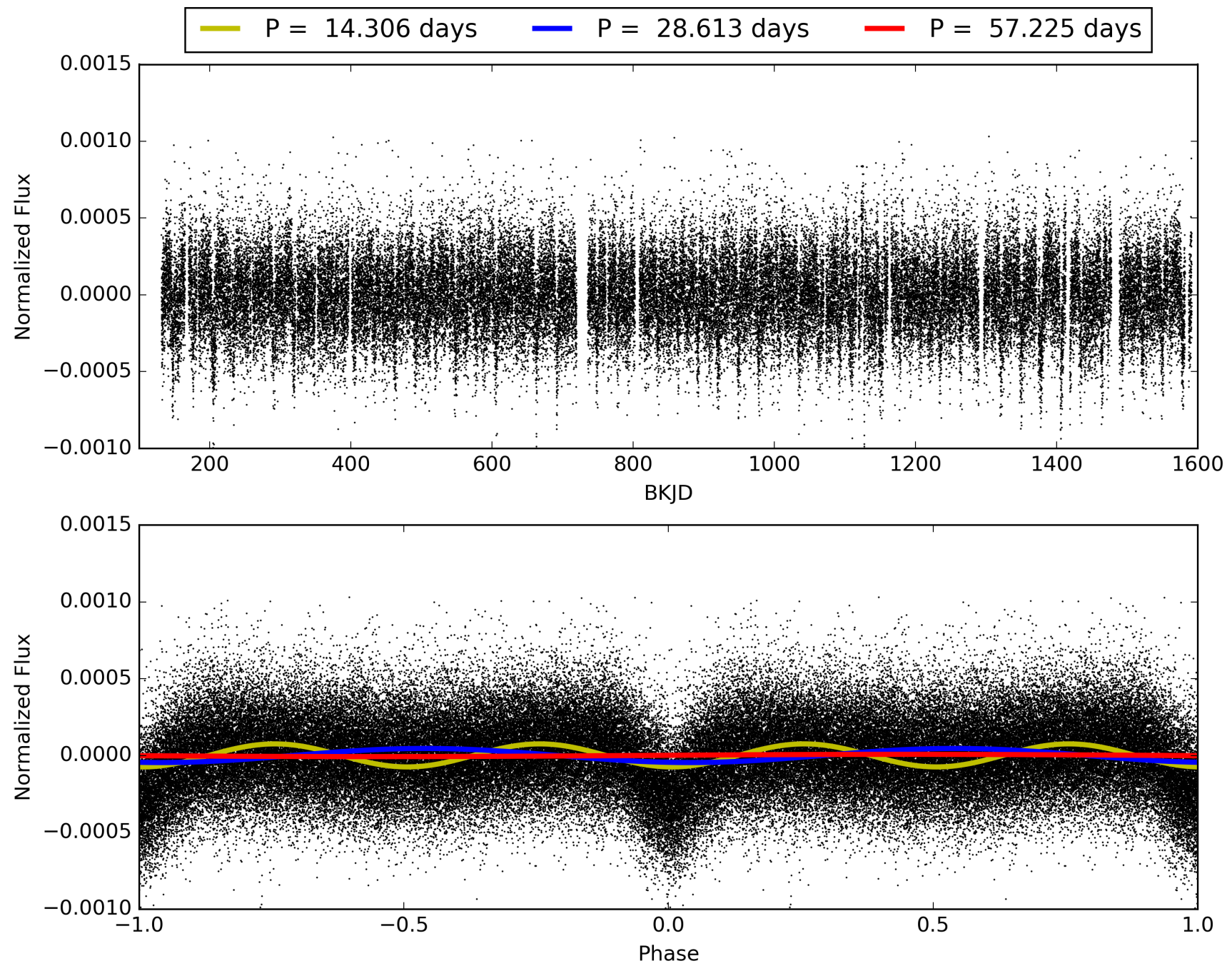
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:32:24 Z

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

TCE 004946581-01, PDC Light Curves

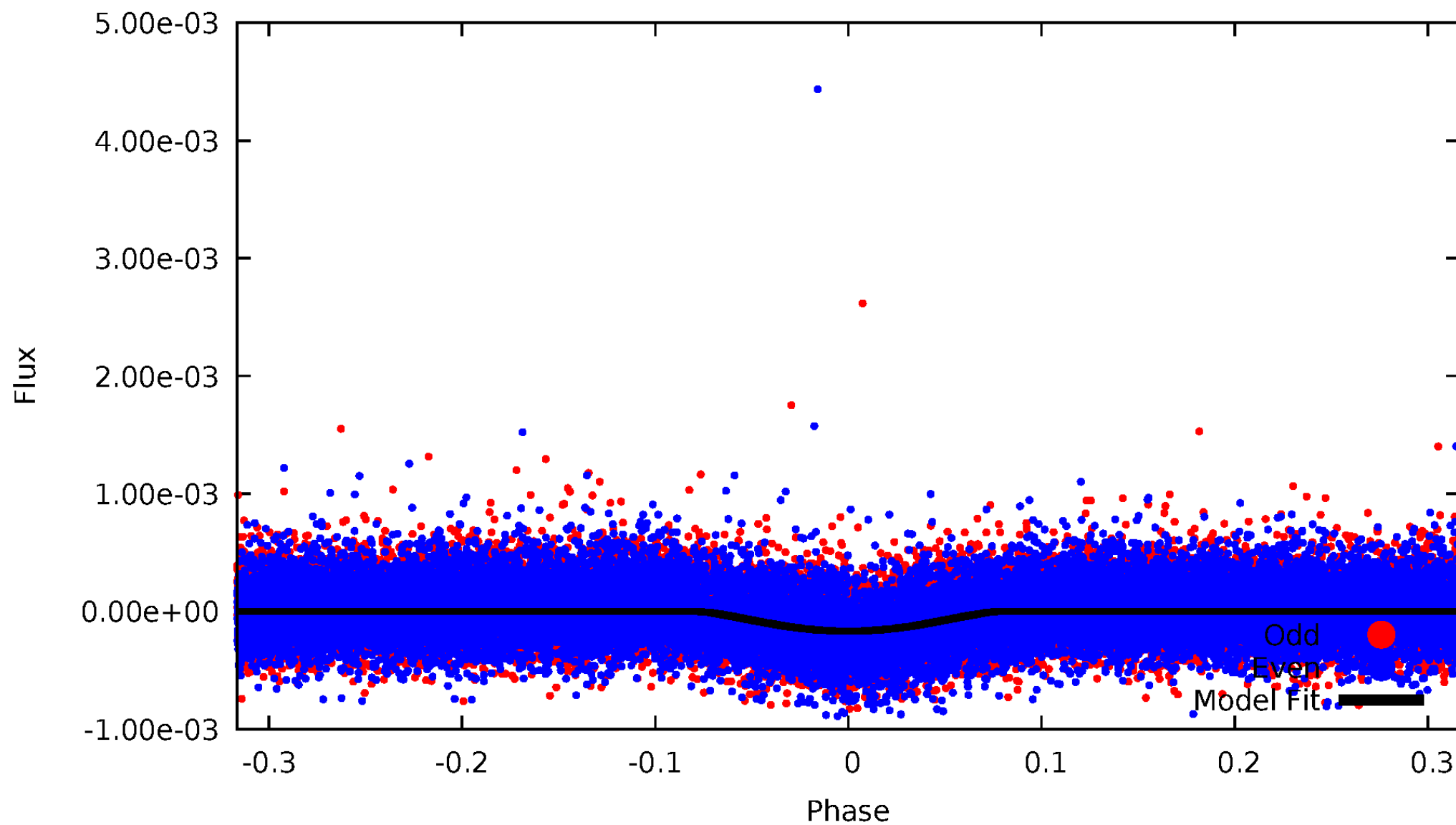


TCE 004946581-01



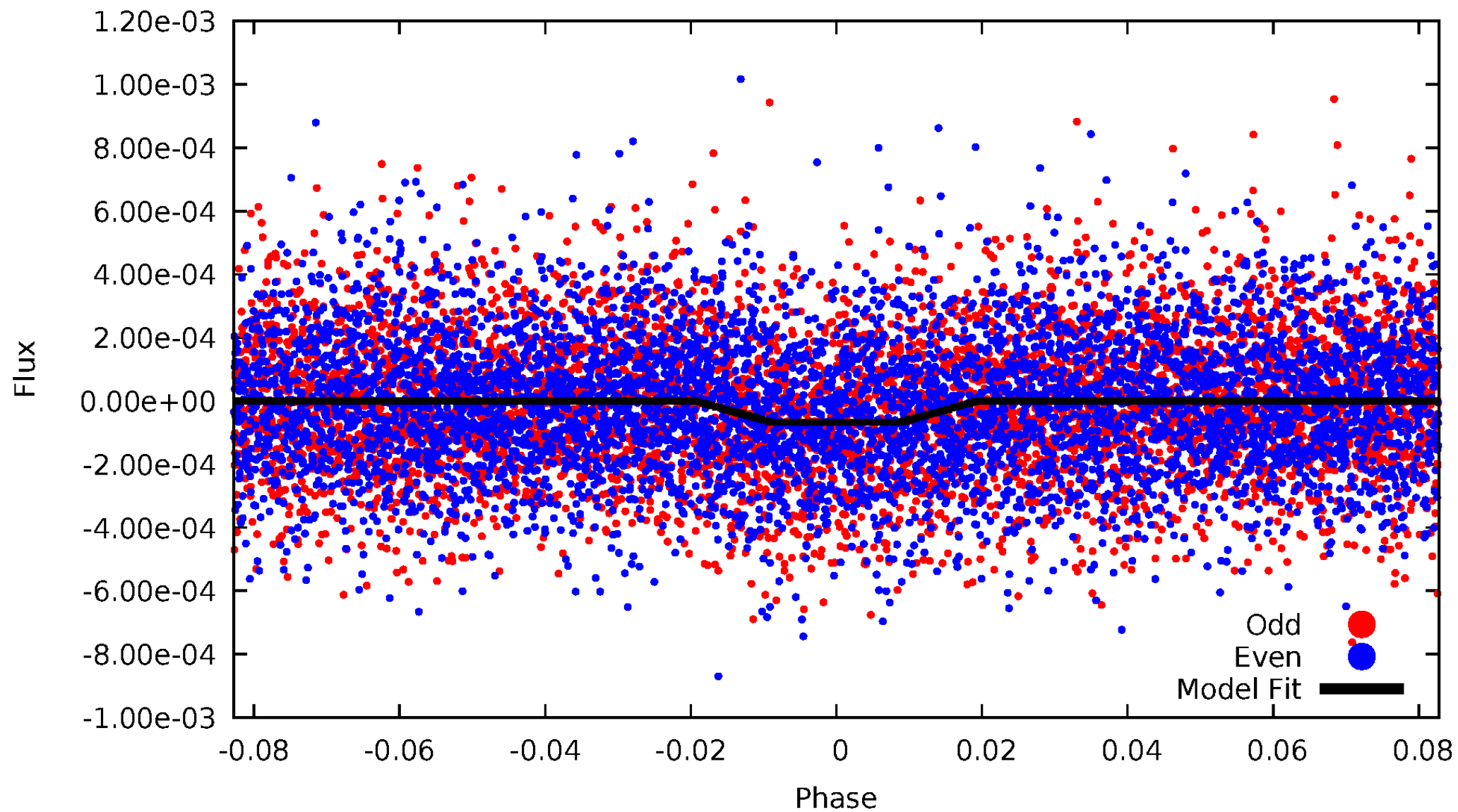
DV Odd/Even

TCE 004946581-01



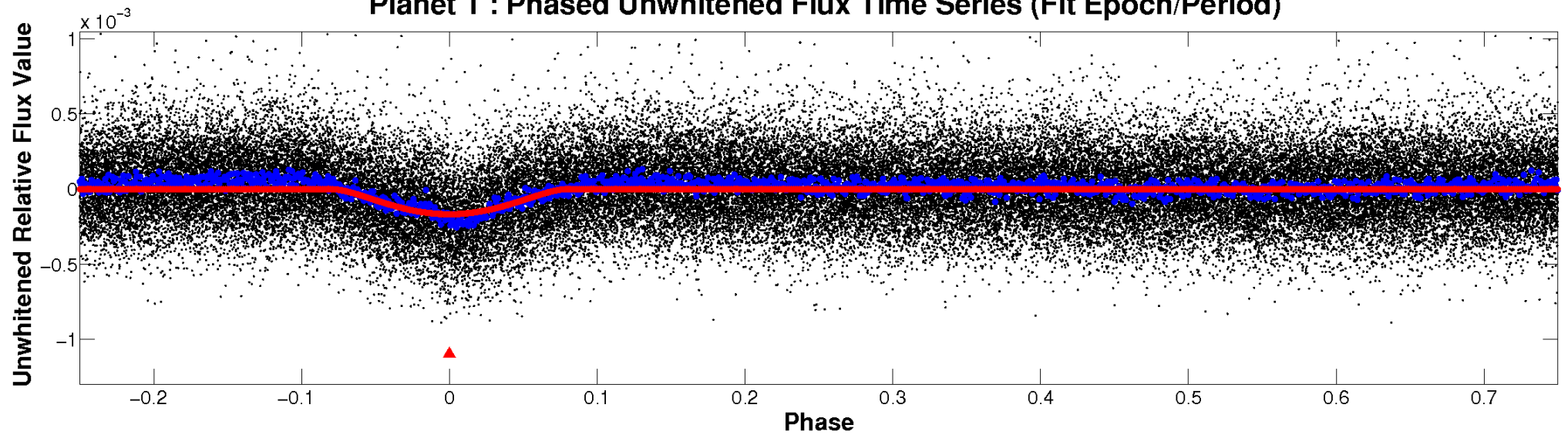
ALT Odd/Even

TCE 004946581-01

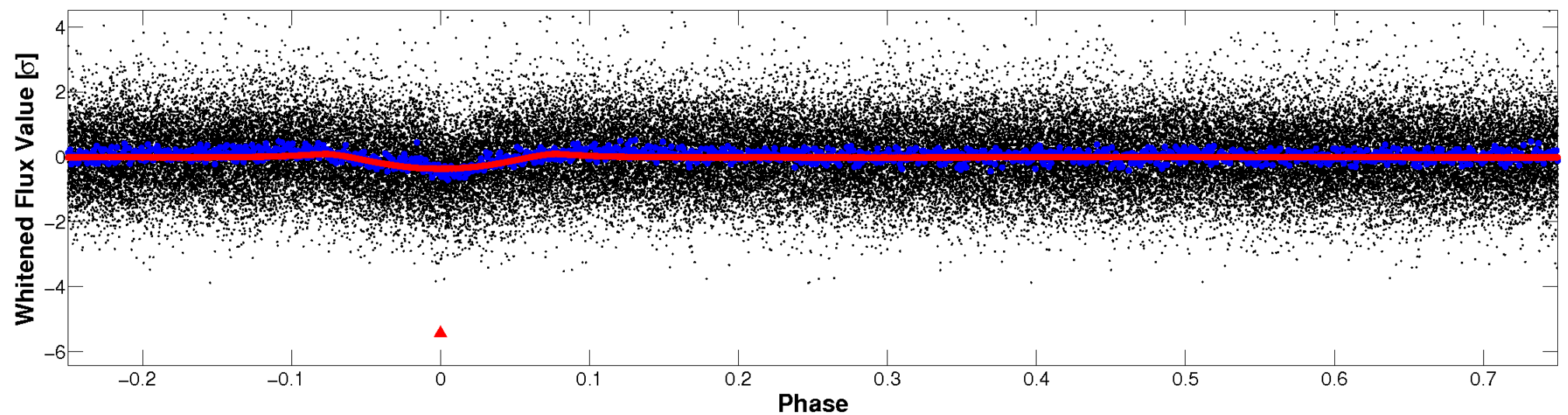


Non-Whitened Vs. Whitened Light Curve

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

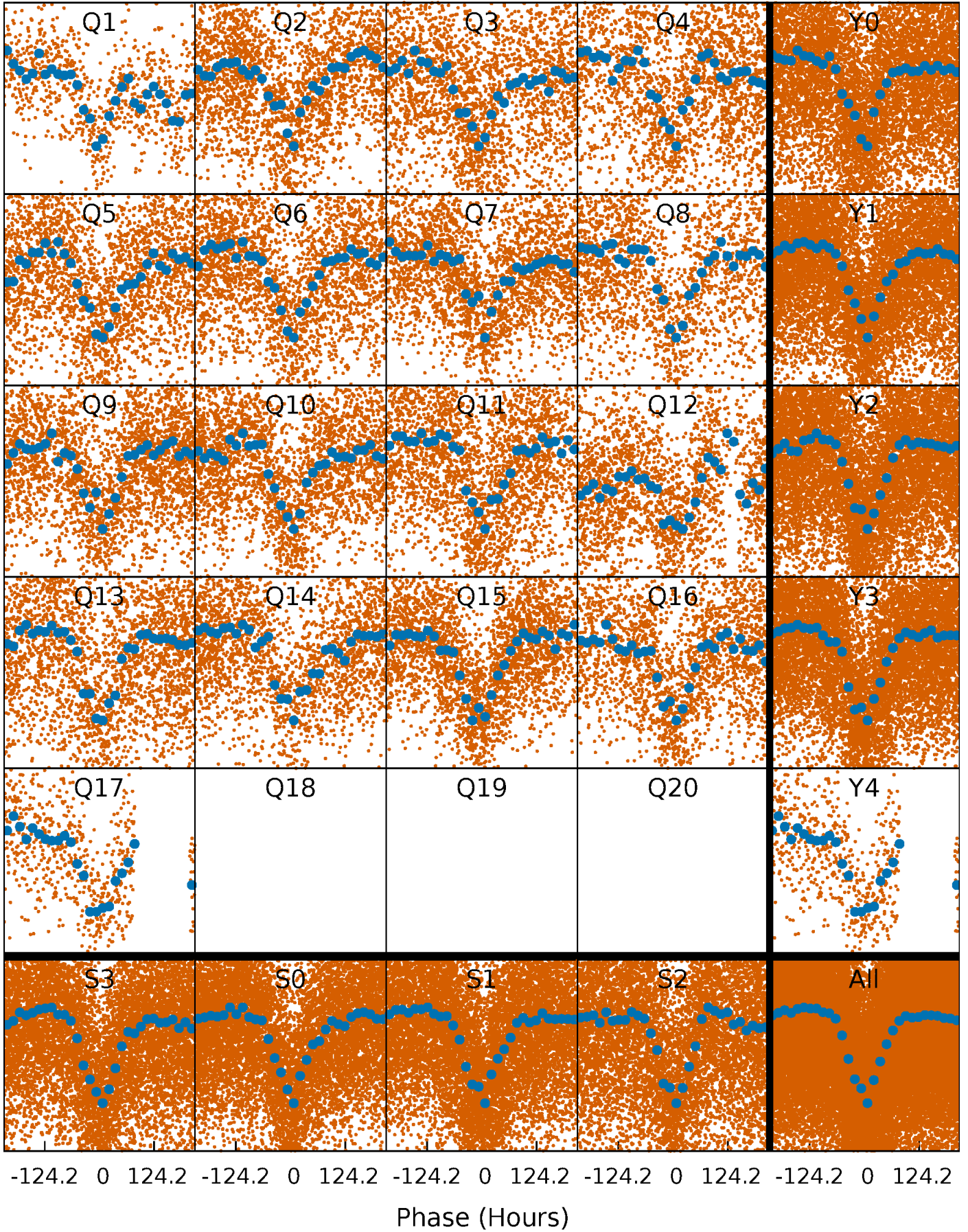


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



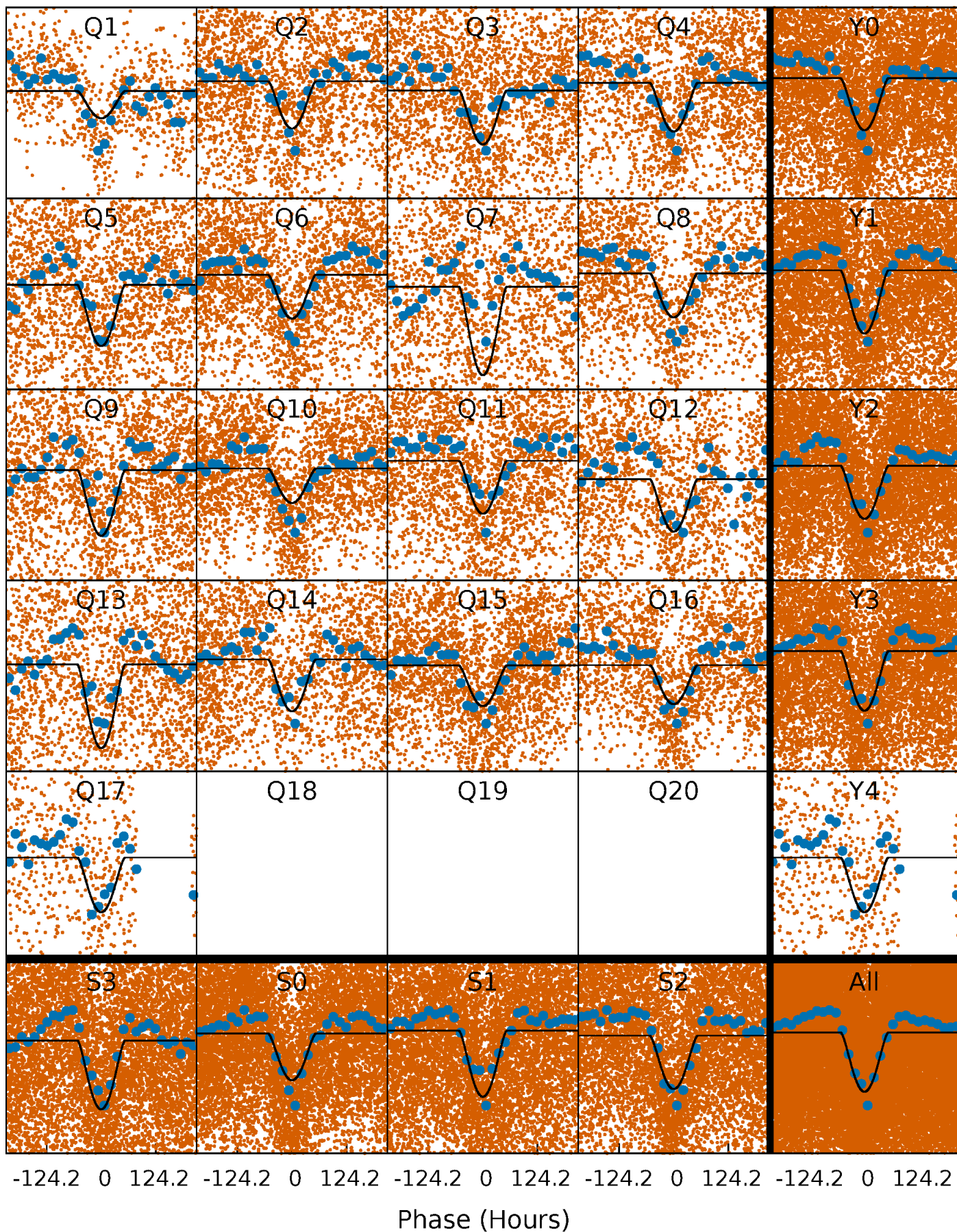
PDC Quarter-Phased Transit Curves

TCE 004946581-01 P= 28.612661 Days $T_0=147.622333$ (BKJD)



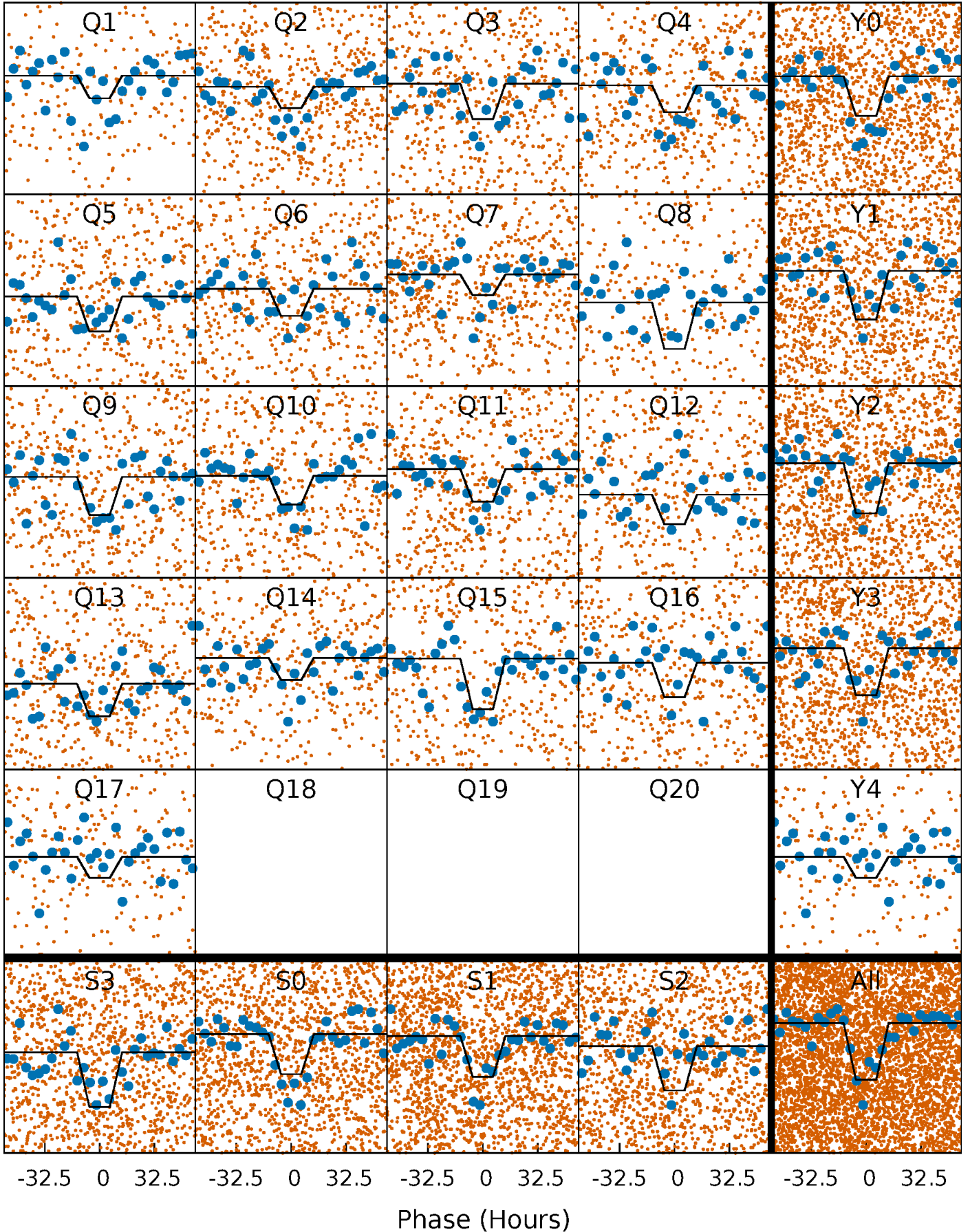
DV Quarter-Phased Transit Curves

TCE 004946581-01 P= 28.612661 Days $T_0=147.622333$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

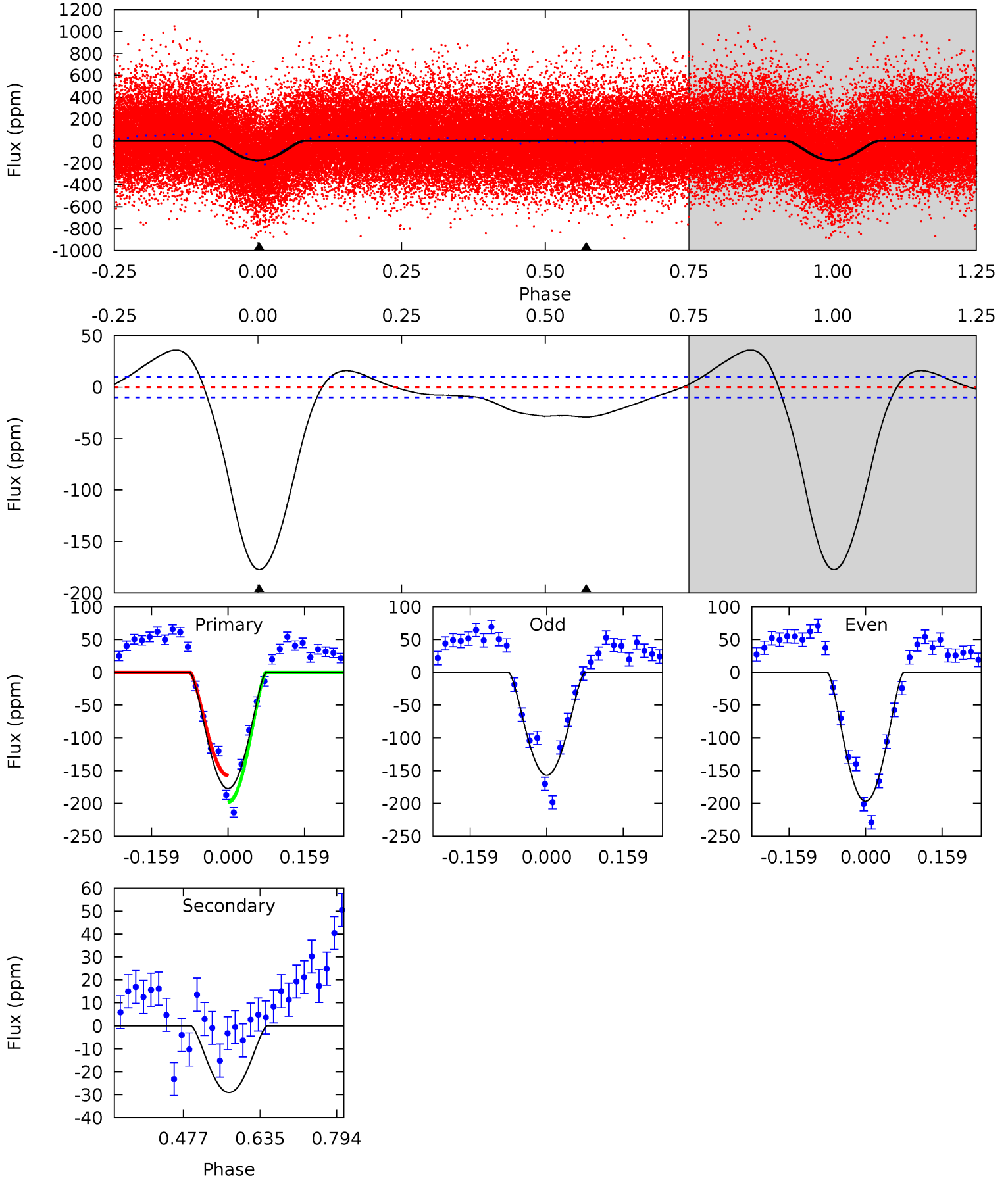
TCE 004946581-01 P= 28.619117 Days $T_0=147.710357$ (BKJD)



DV Model-Shift Uniqueness Test

004946581-01, P = 28.612661 Days, E = 119.009672 Days

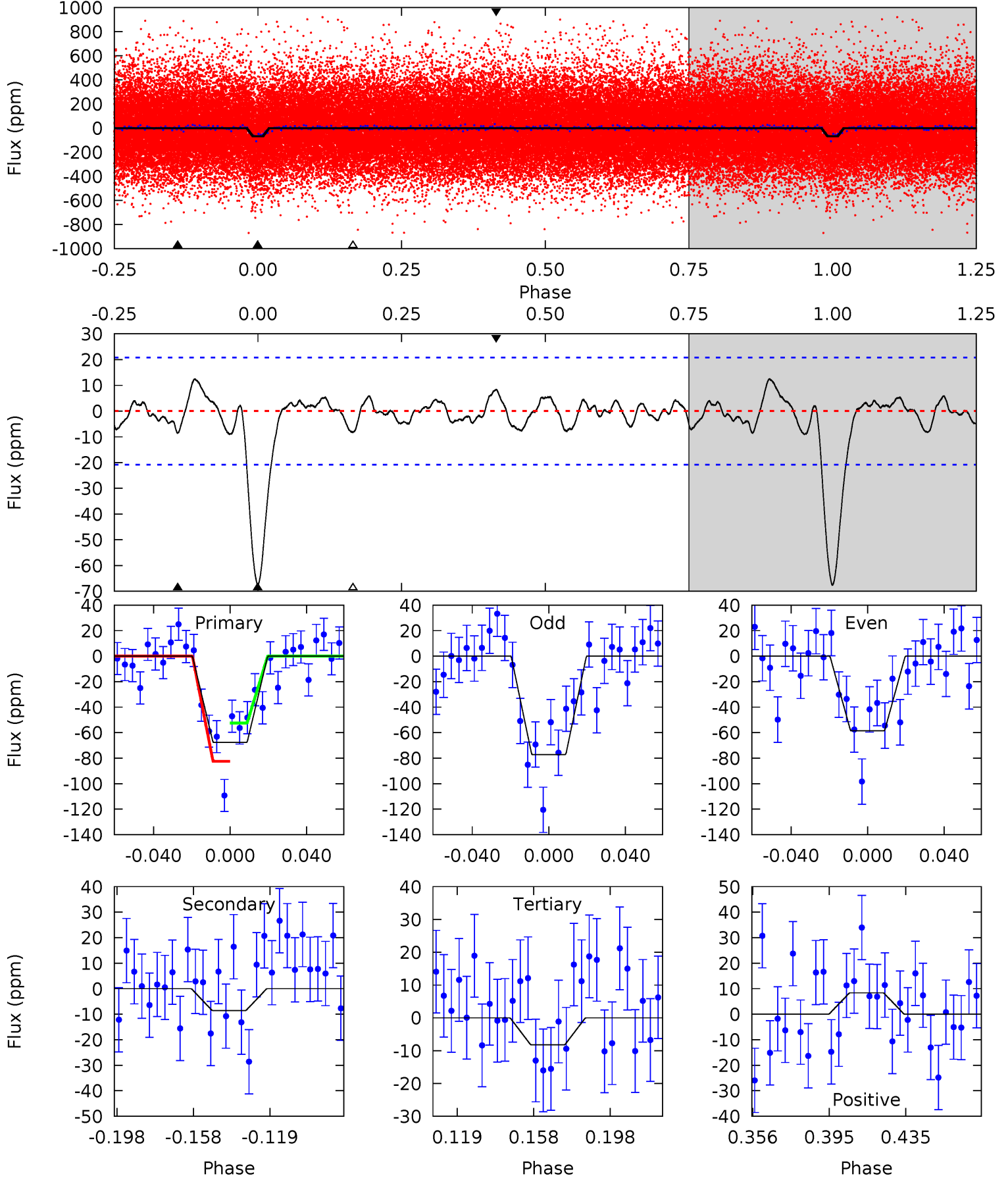
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
78.8	12.9	0	0	4.47	1.41	5.57	78.8	78.8	12.9	12.9	8.85	1.03	0.17	9.08



Alt Model-Shift Uniqueness Test

004946581-01, P = 28.619117 Days, E = 119.091240 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	1.95	1.88	1.92	4.76	2.06	0.87	13.6	13.5	0.07	0.03	2.14	0.85	0.16	3.43



Stellar Parameters For KIC 004946581

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5562^{+88}_{-77}	$3.925^{+0.208}_{-0.096}$	$0.340^{+0.100}_{-0.150}$	$1.987^{+0.321}_{-0.550}$	$1.213^{+0.096}_{-0.179}$	$0.218^{+0.267}_{-0.068}$
	+2%/-1%	+5%/-2%	+29%/-44%	+16%/-28%	+8%/-15%	+123%/-31%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 004946581-01 / KOI 5109.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-29 ± 2	$5.84^{+4.48}_{-3.69}$	1083^{+50}_{-64}	3067^{+1221}_{-448}	18^{+111}_{-12}
Alt.	-9 ± 4	$3.79^{+3.68}_{-2.73}$	1085^{+52}_{-76}	2855^{+1448}_{-510}	11^{+146}_{-8}

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 $A_{obs} \gg 1.0$

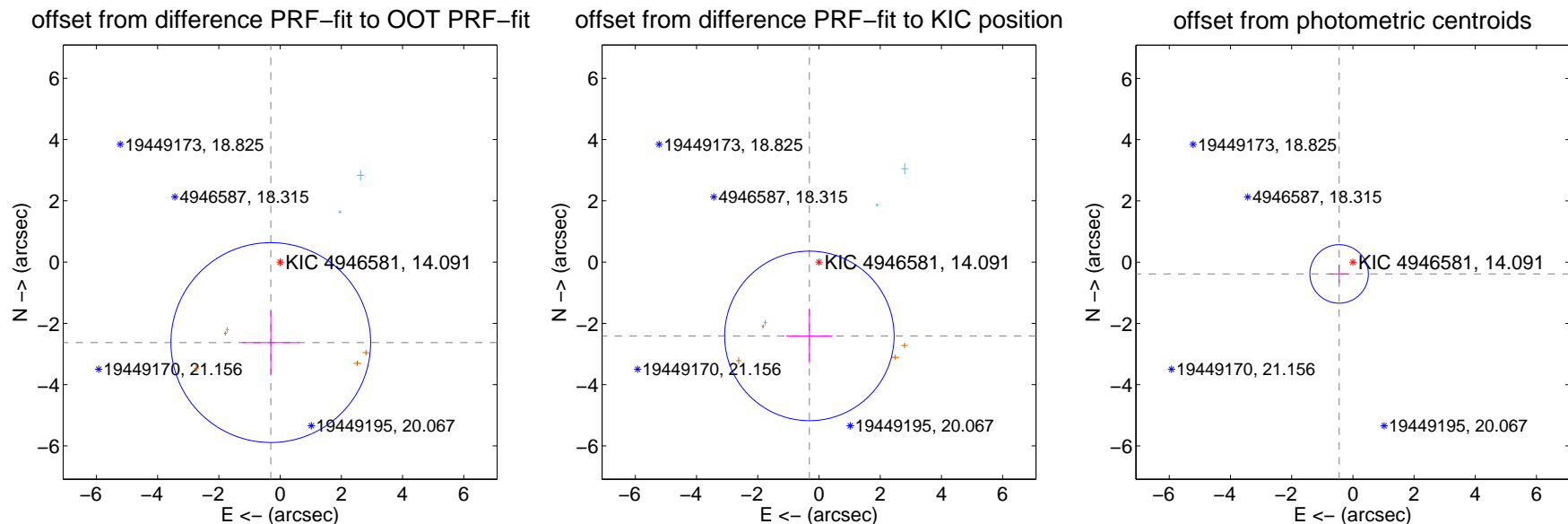
DV Centroid Data

Supplemental centroid analysis for 004946581-01. Kepler magnitude: 14.09. Transit SNR 23.30

There are 3 quarters with good PRF difference image offsets

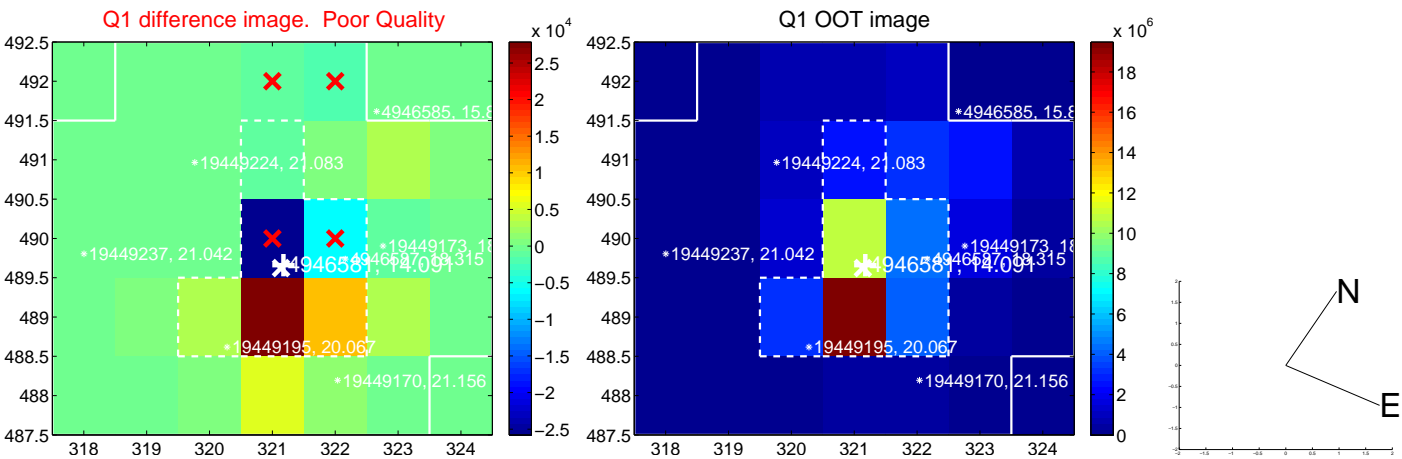
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.645 ± 1.087	2.43	0.305 ± 0.932	-2.627 ± 1.038
PRF-fit source offset from KIC position	2.430 ± 0.922	2.63	0.314 ± 0.759	-2.409 ± 0.884
photometric centroid source offset	0.59 ± 0.32	1.86	0.45 ± 0.33	-0.38 ± 0.30

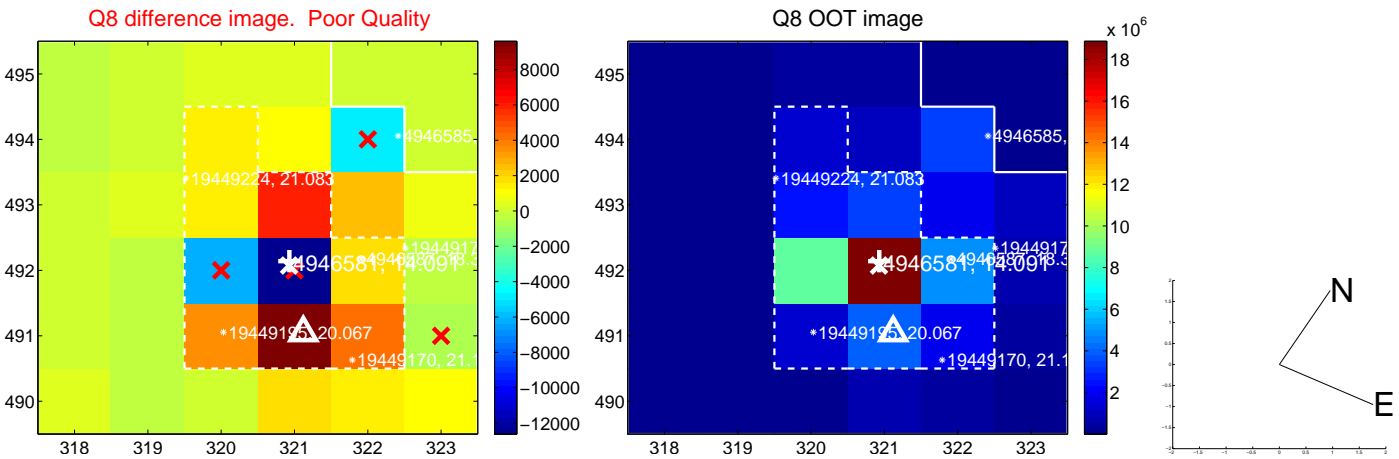
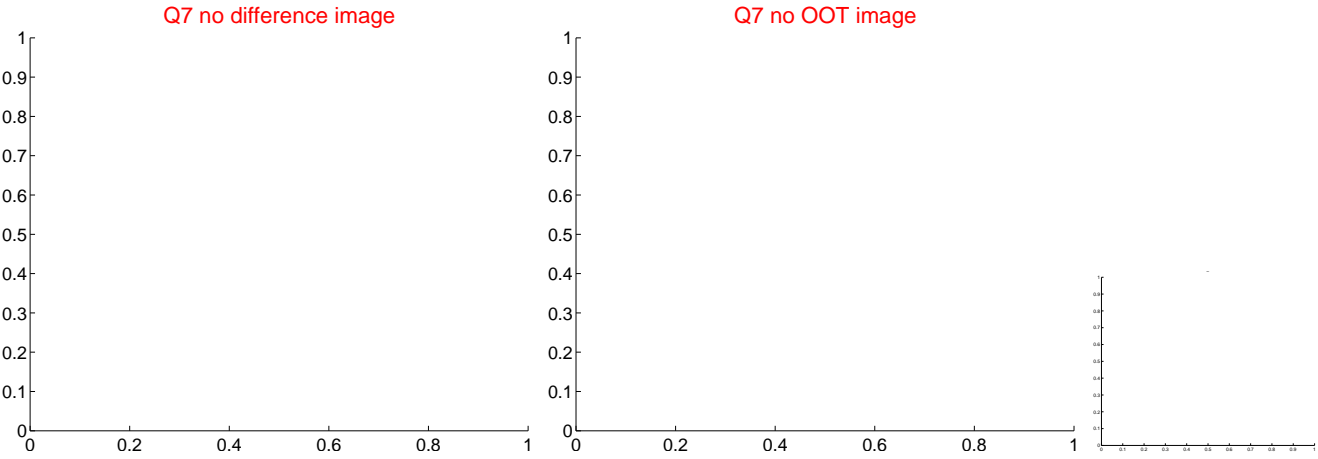
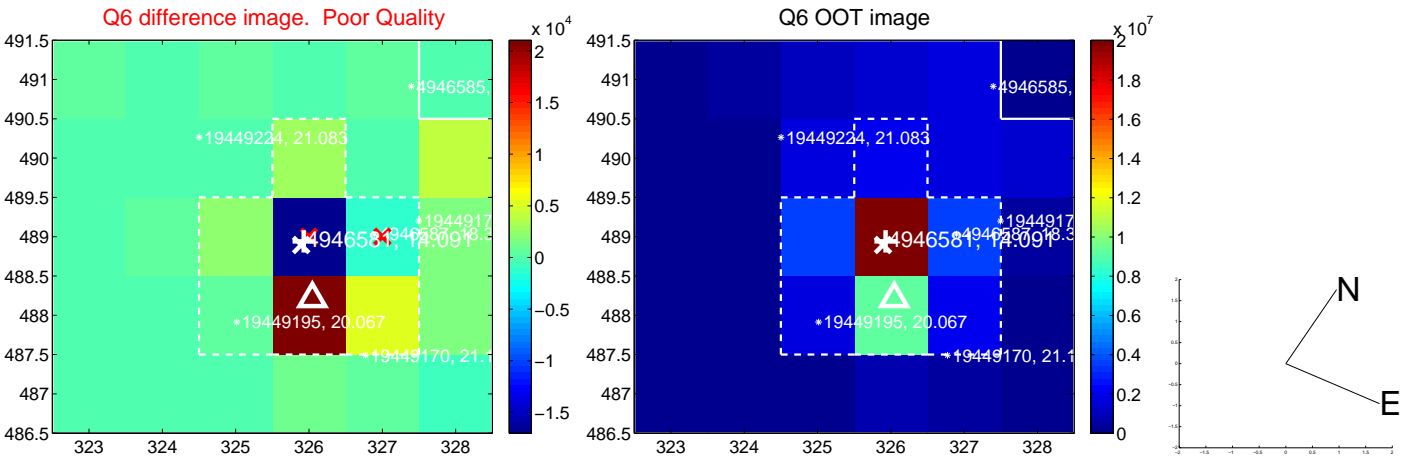
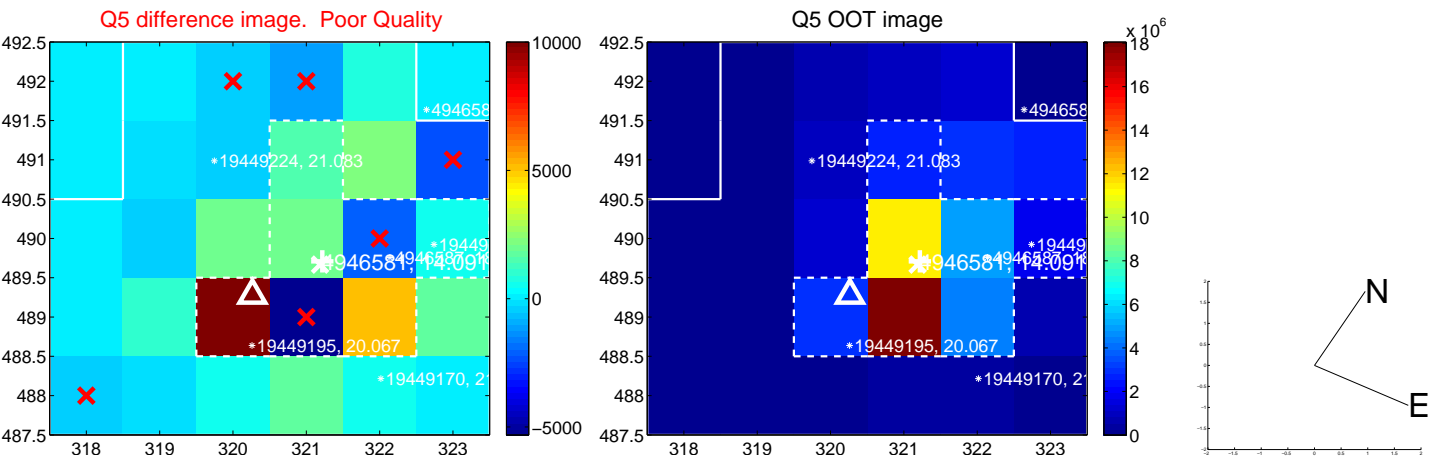


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

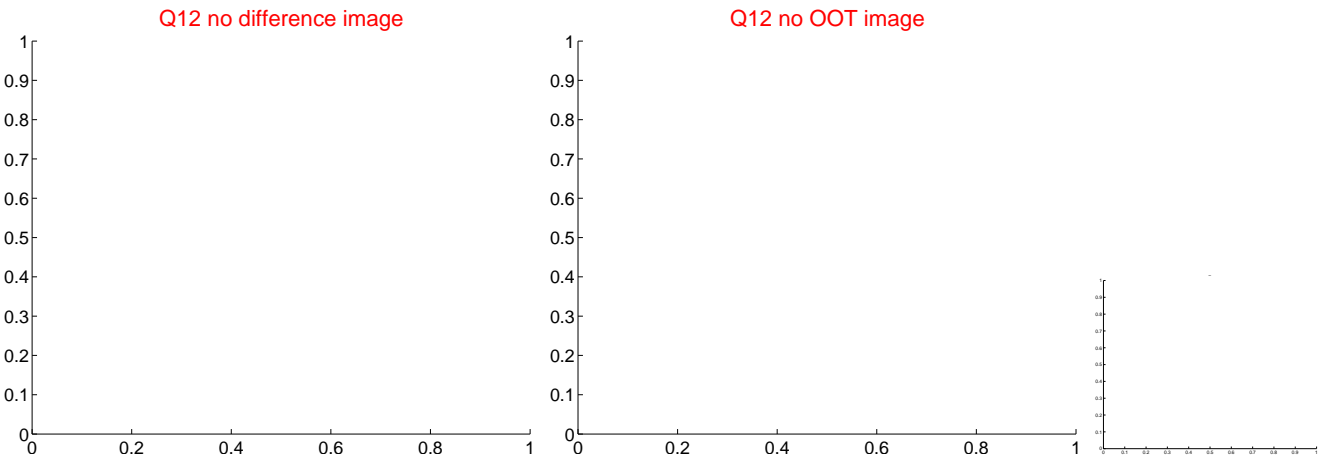
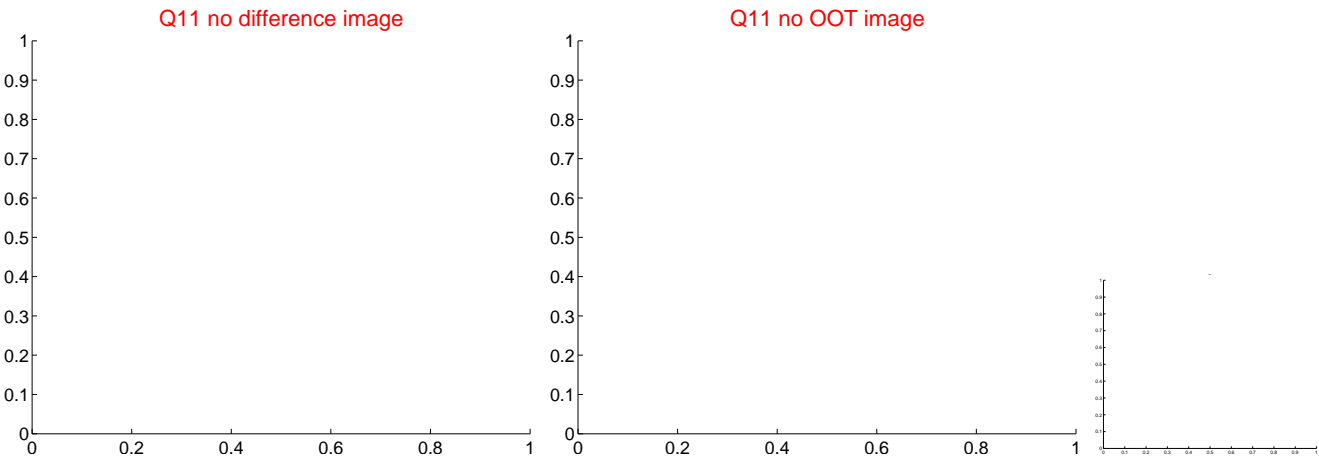
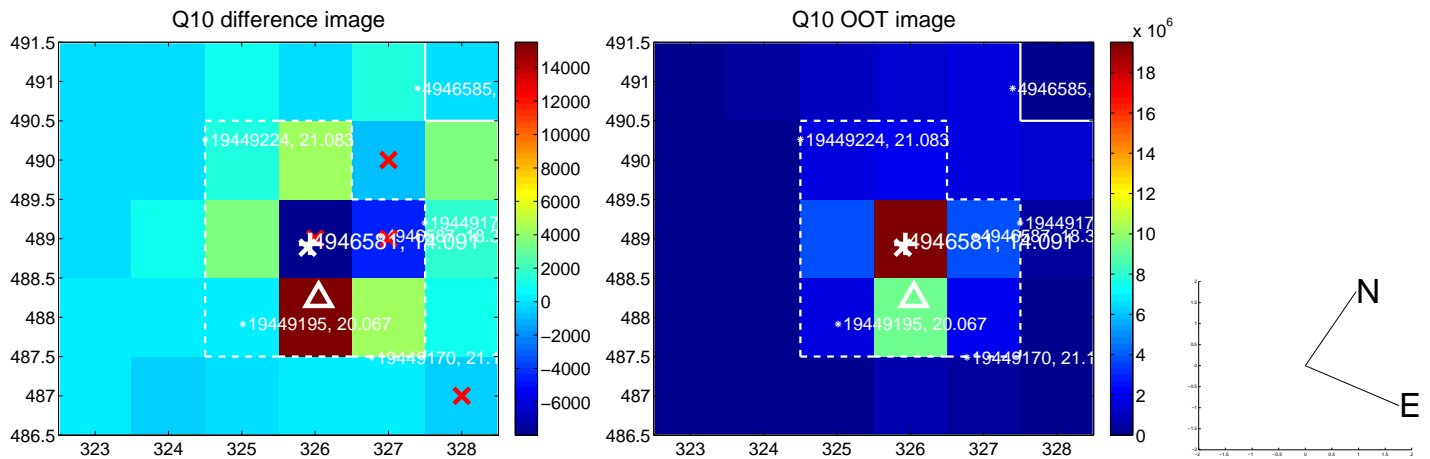
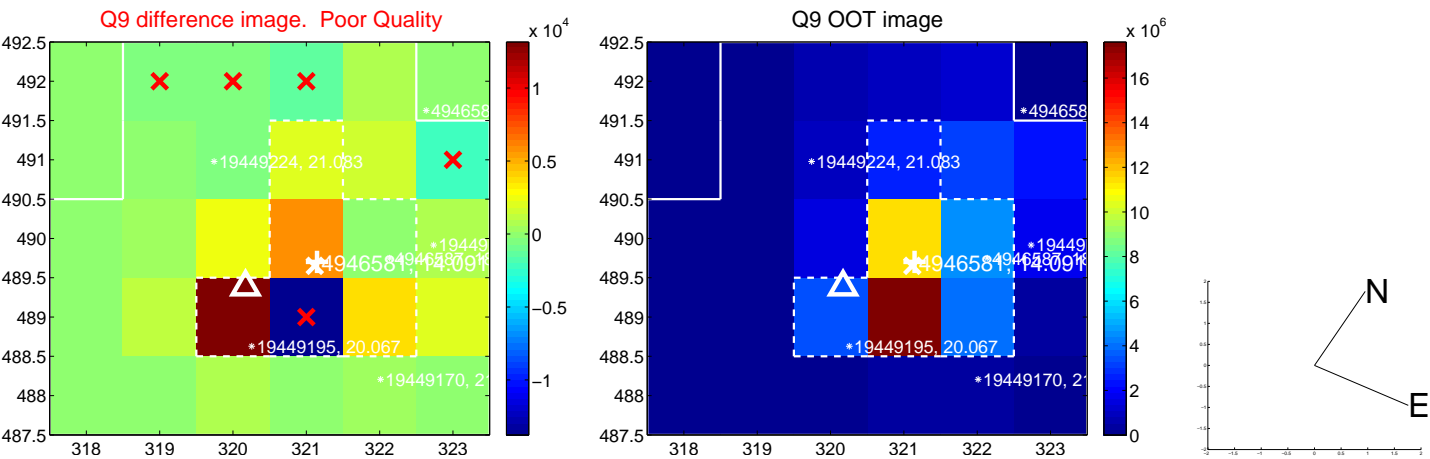
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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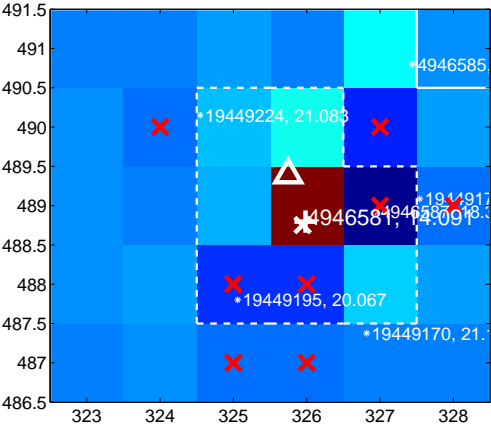
Q13 no difference image



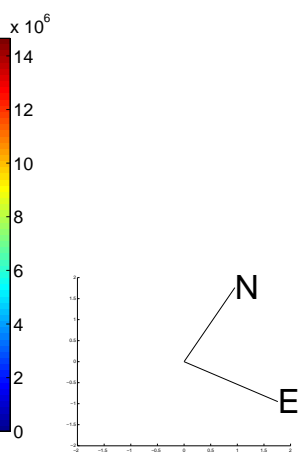
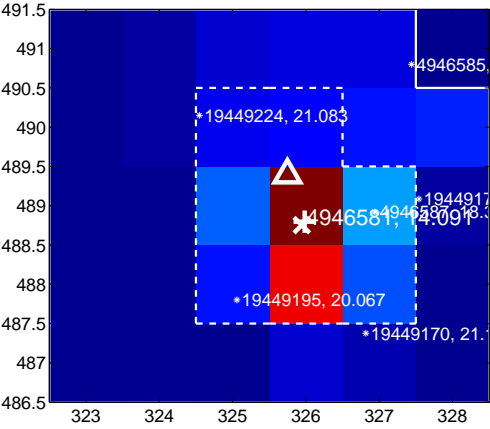
Q13 no OOT image



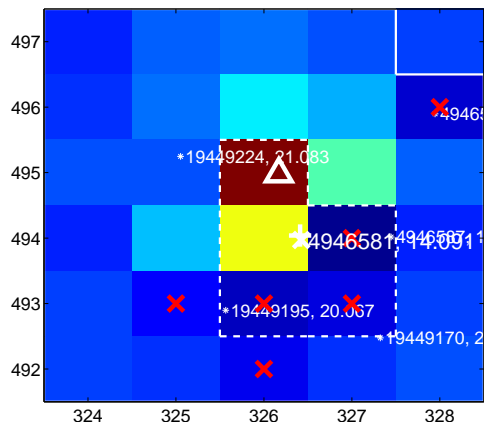
Q14 difference image



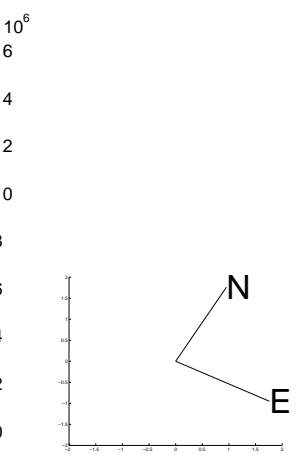
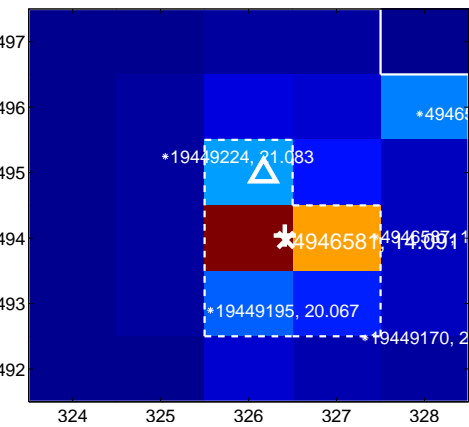
Q14 OOT image



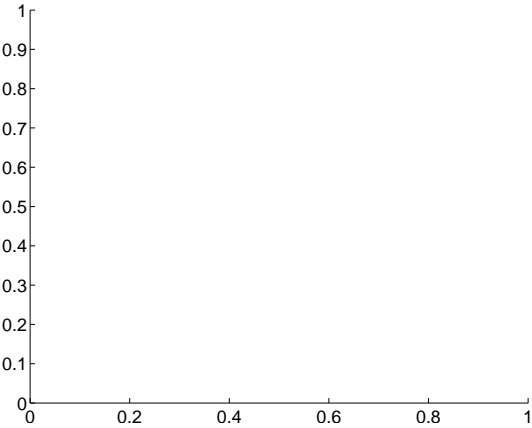
Q15 difference image



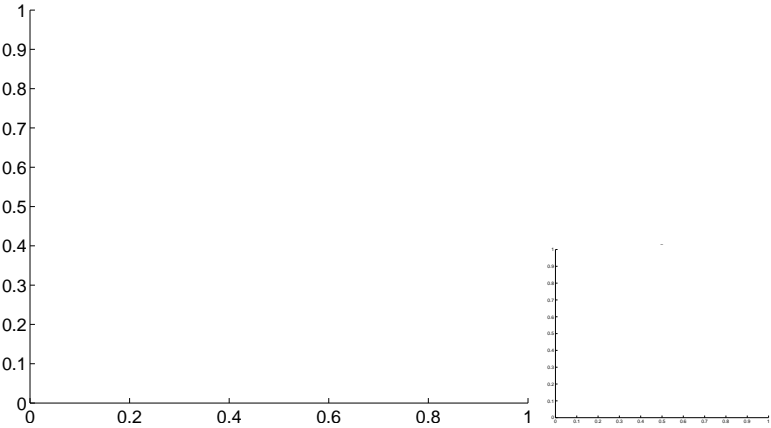
Q15 OOT image



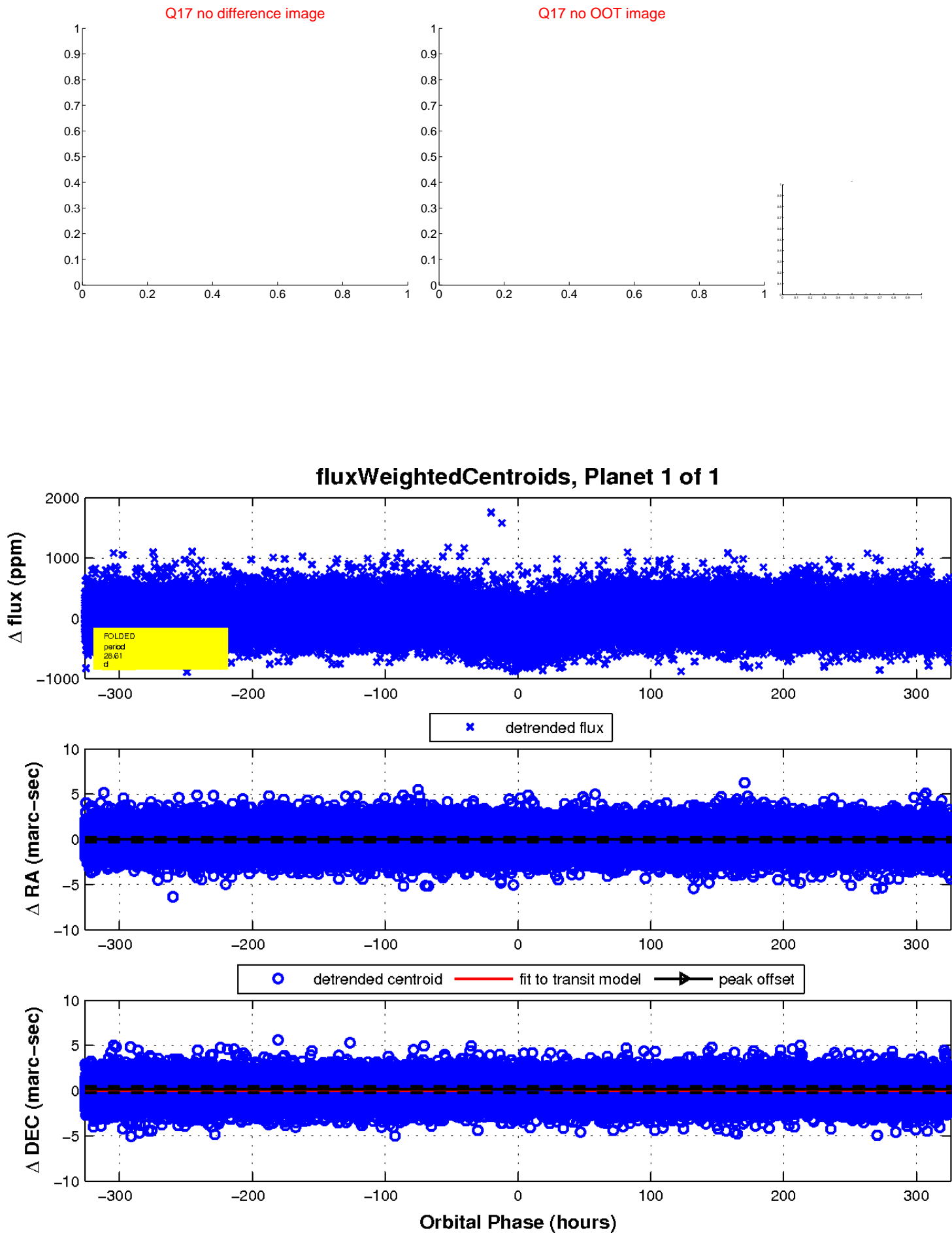
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

