

KIC 004255422

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})
004255422-01	OBS	3528.01	165.405747	141.576182	66123.1	13.600	3143.7	3098.0	2.19	6061	90.64	16.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004255422-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

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.

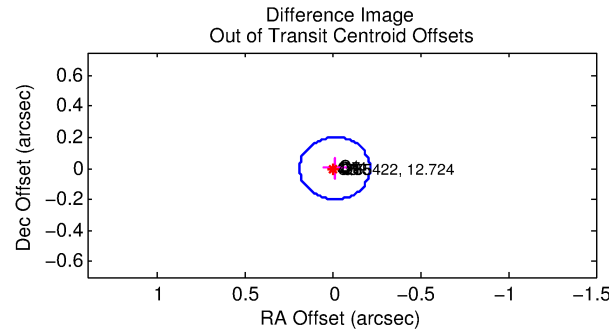
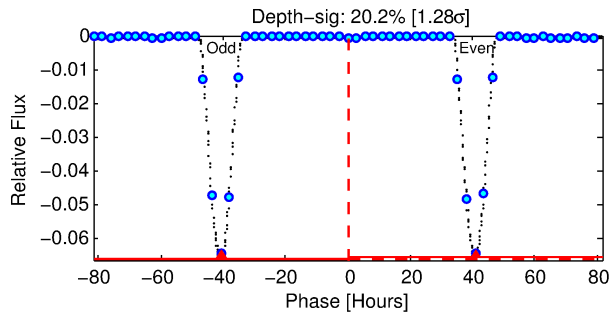
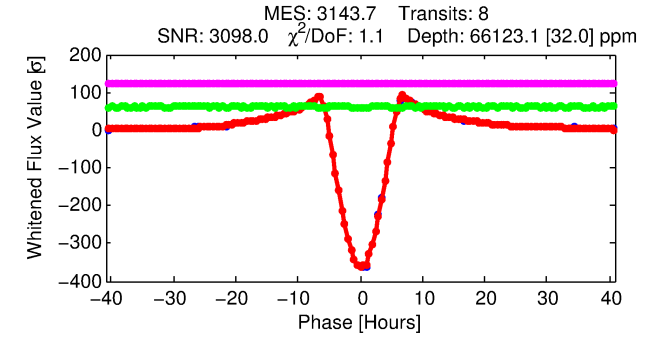
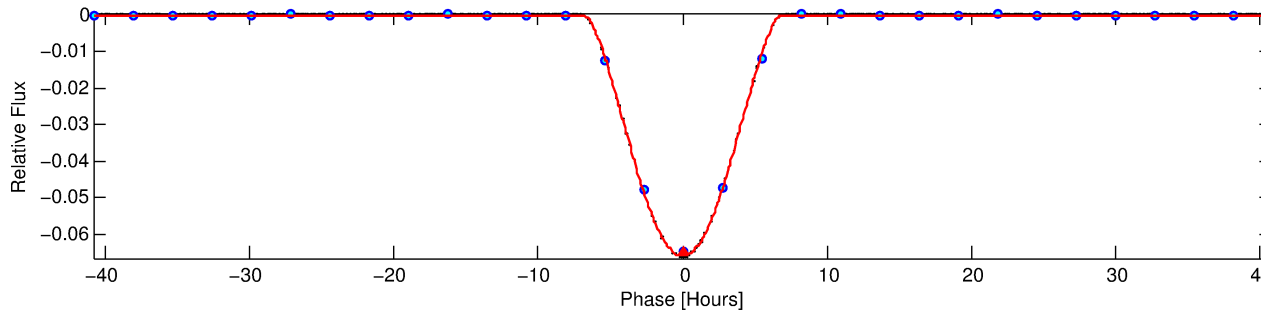
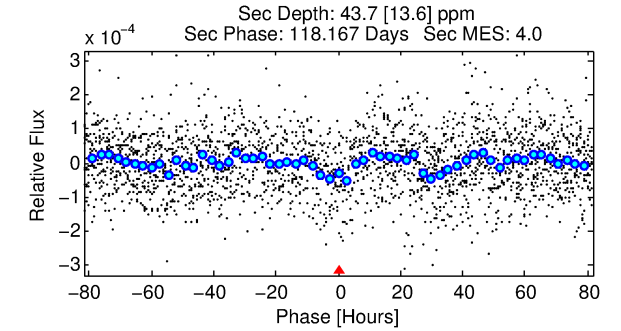
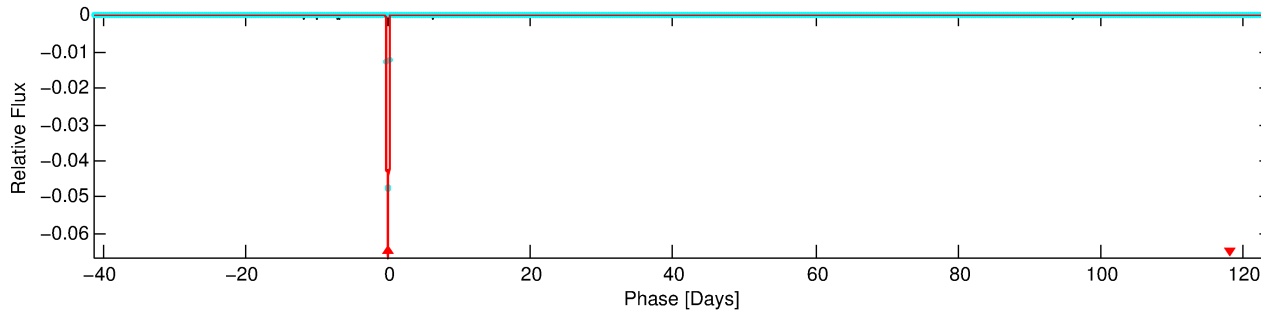
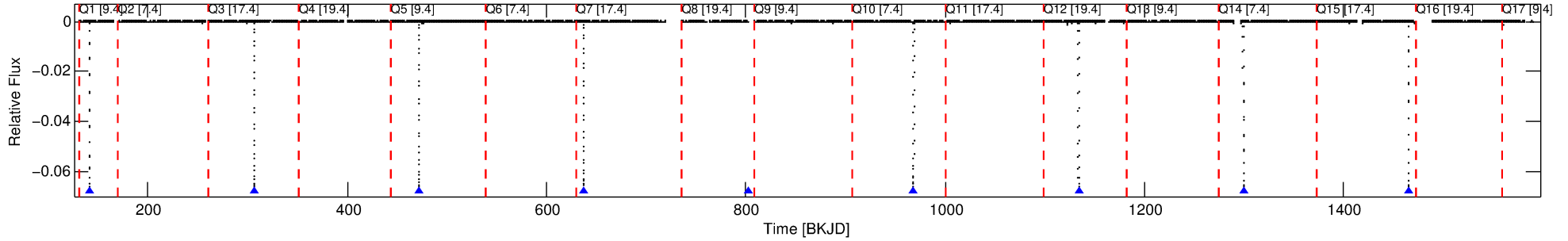
Ephemeris Match Information For 004255422-01

No Significant Match Found

DV One-Page Summary

KIC: 4255422 Candidate: 1 of 1 Period: 165.406 d
KOI: K03528.01 Corr: 1.000

Kp: 12.72 R*: 2.19 Rs Teff: 6061.0 K Logg: 3.76 Fe/H: -0.860



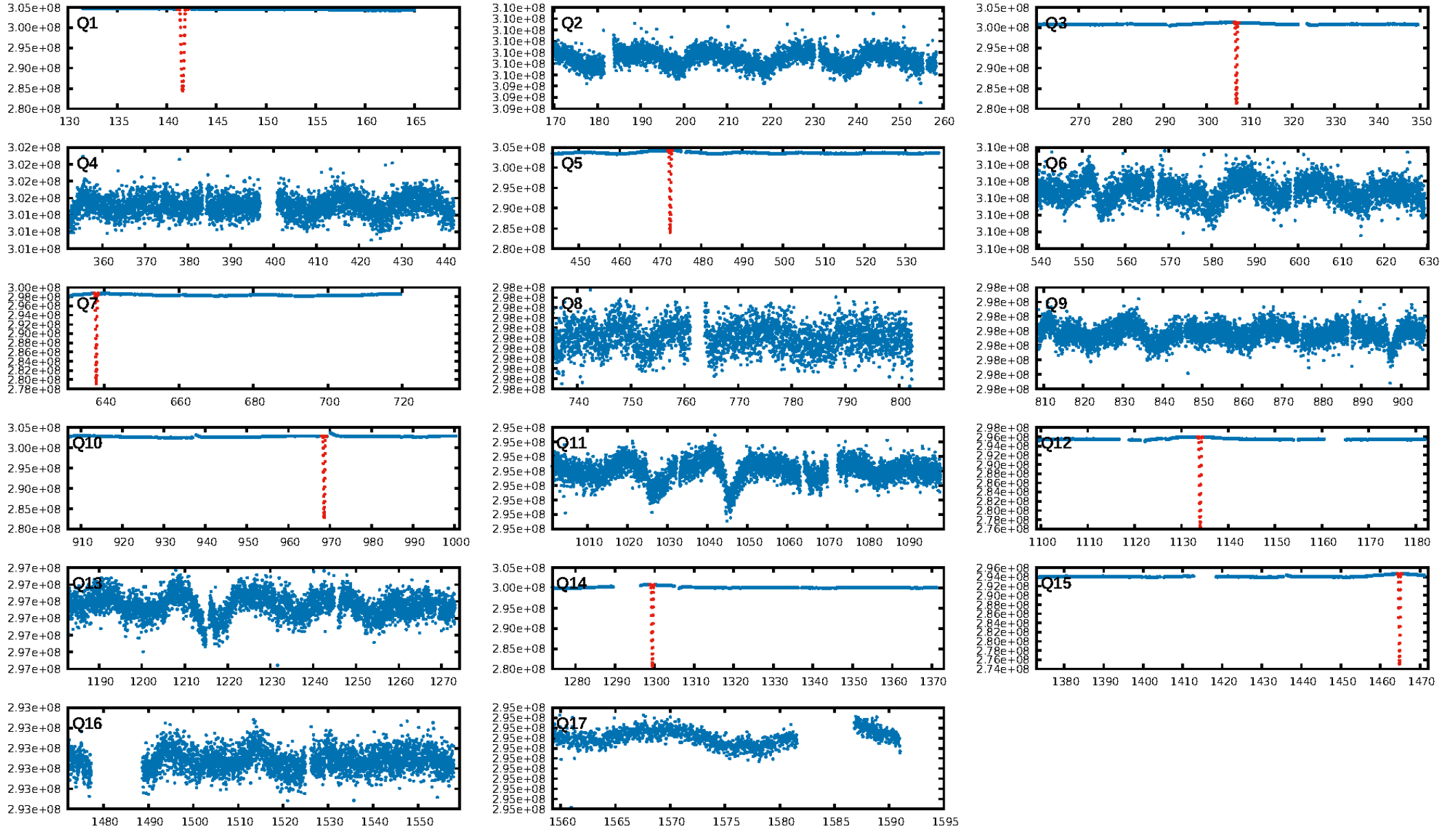
DV Fit Results:

Period = 165.40575 [0.00002] d
Epoch = 141.5762 [0.0001] BKJD
Rp/R* = 0.3801 [0.0094]
a/R* = 90.98 [0.03]
b = 0.97 [0.01]
Seff = 16.59 [18.17]
Teq = 515 [141] K
Rp = 90.64 [53.56] Re
a = 0.5898 [0.3784] AU
Ag = 1.02 [1.15] [0.02σ]
Teffp = 799 [68] K [1.8σ]

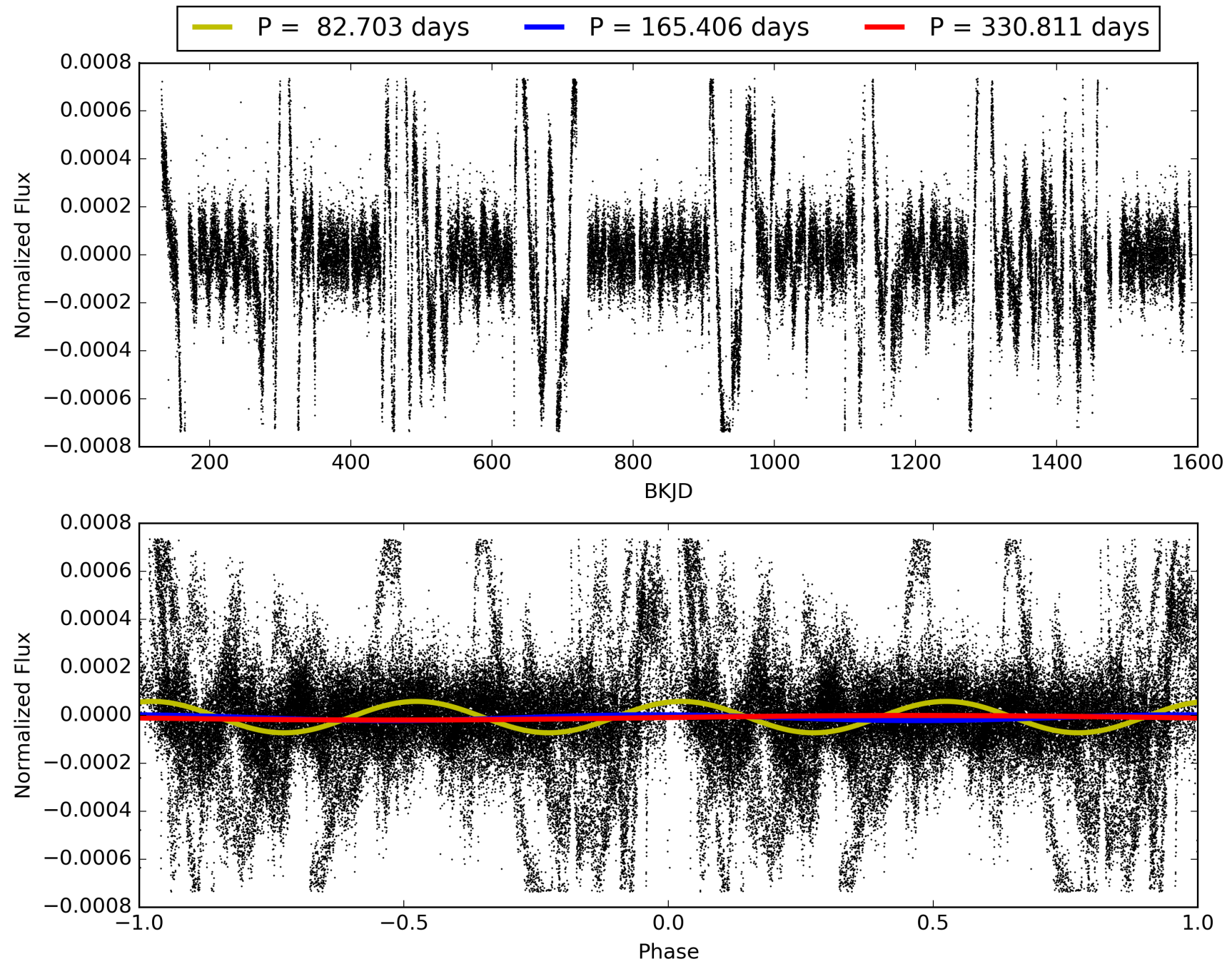
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 43.4%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 4.537
Centroid-sig: 0.0%
Centroid-so: 0.179 arcsec [89.75σ]
OotOffset-rm: 0.012 arcsec [0.17σ]
OotOffset-st: 1/3/0/2 [6]
KicOffset-rm: 0.146 arcsec [2.14σ]
KicOffset-st: 1/3/0/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 004255422-01, PDC Light Curves

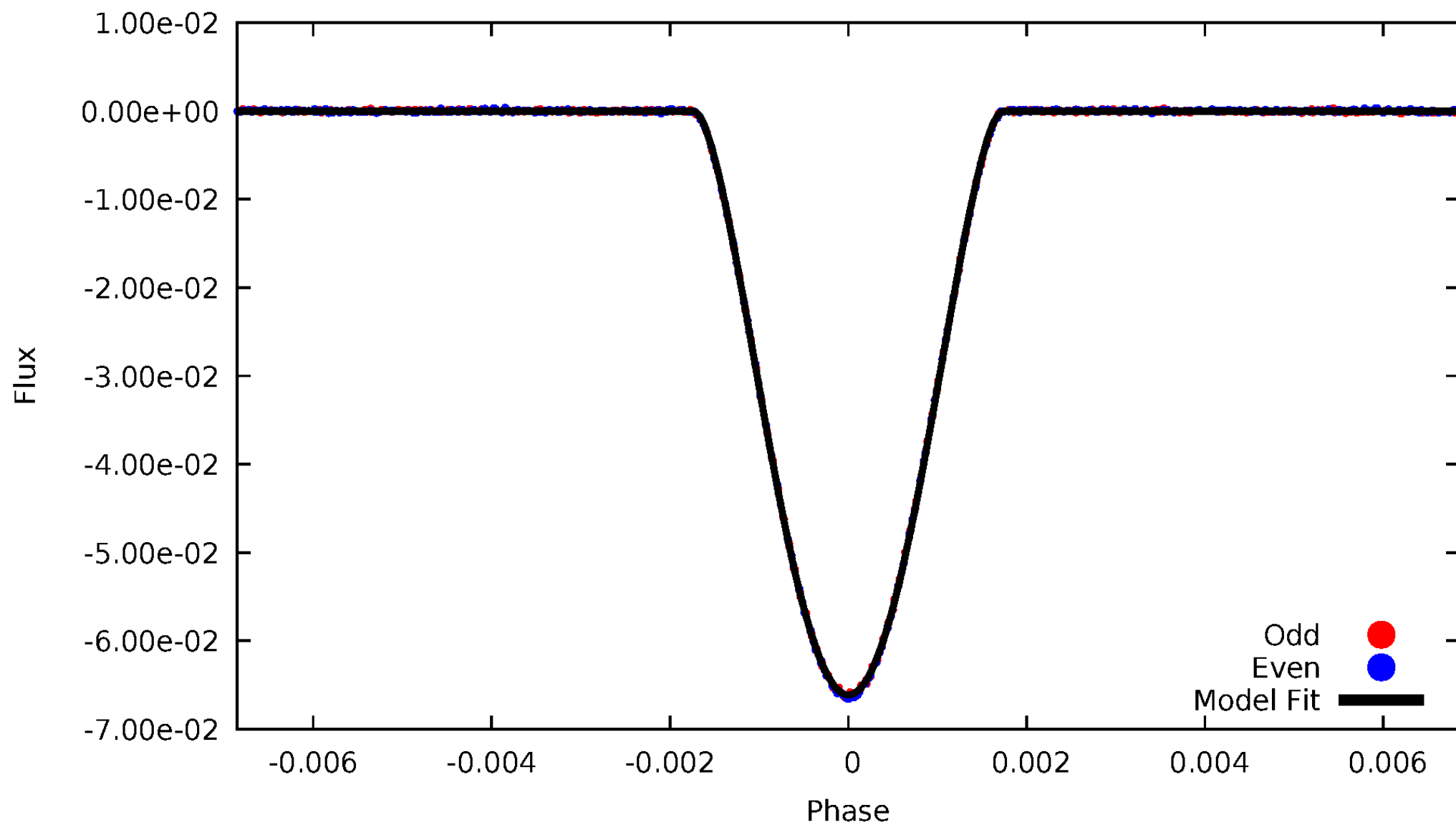


TCE 004255422-01



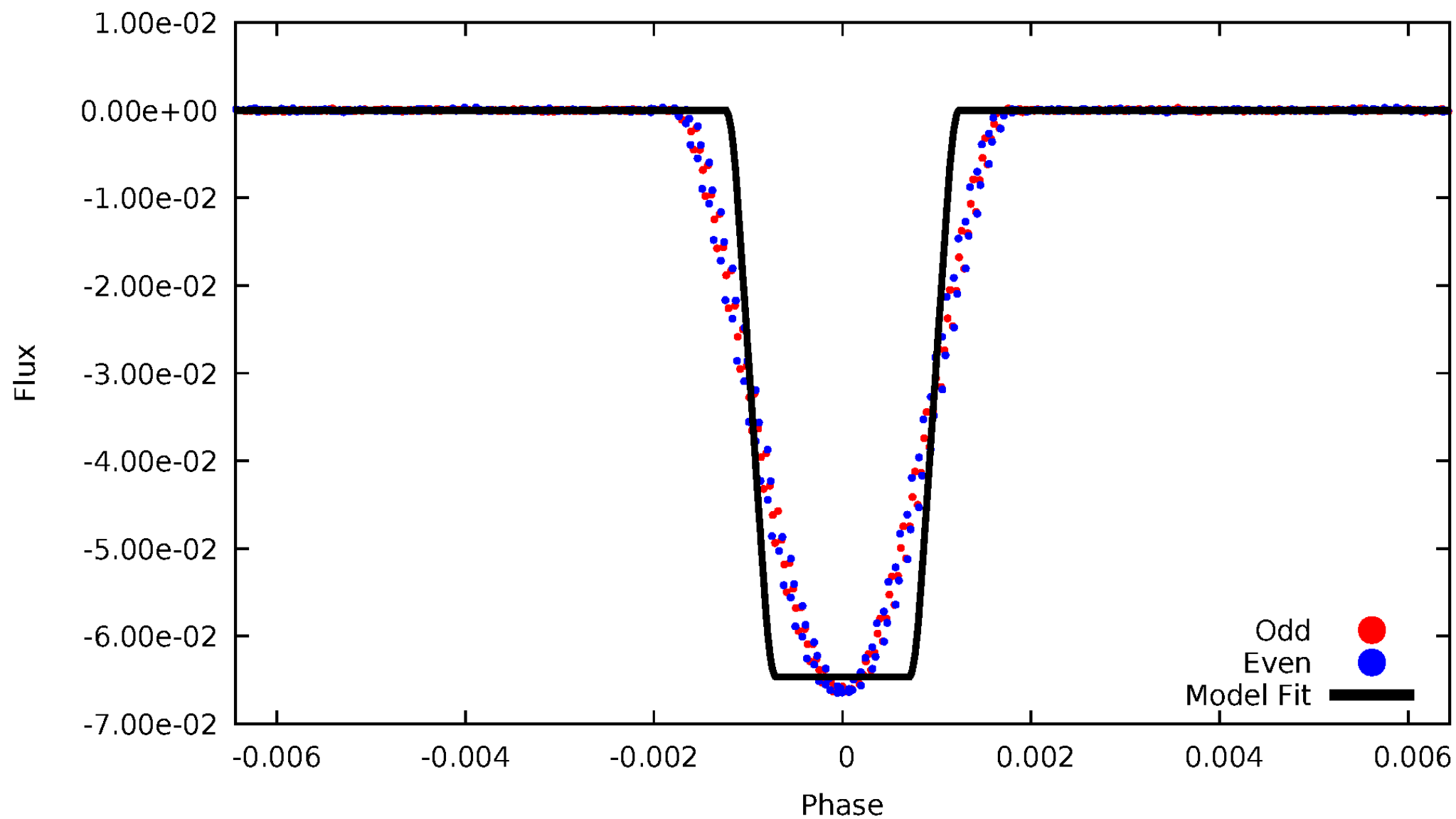
DV Odd/Even

TCE 004255422-01



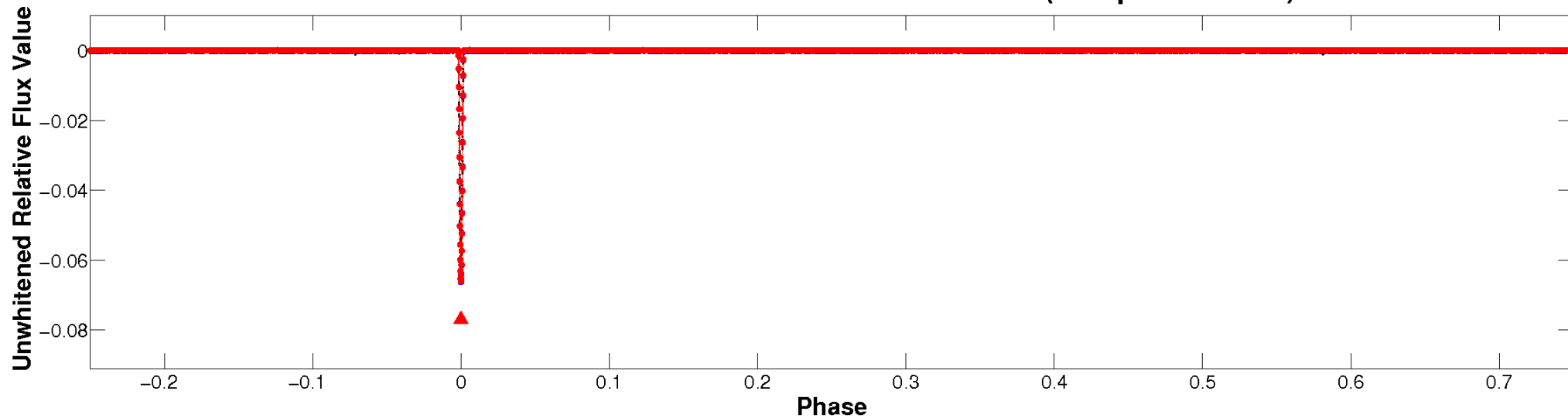
ALT Odd/Even

TCE 004255422-01

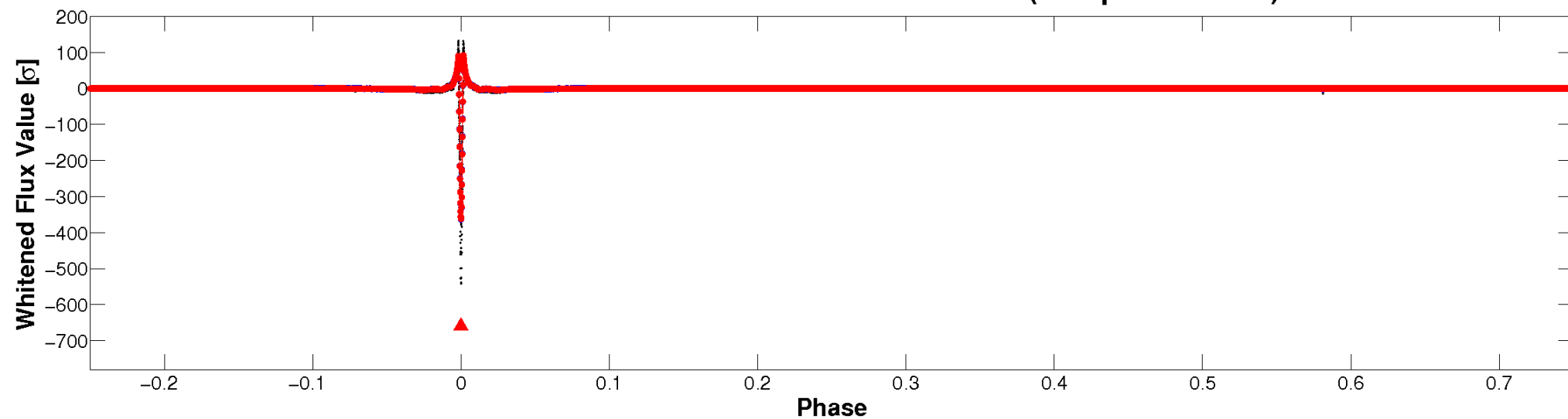


Non-Whitened Vs. Whitened Light Curve

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

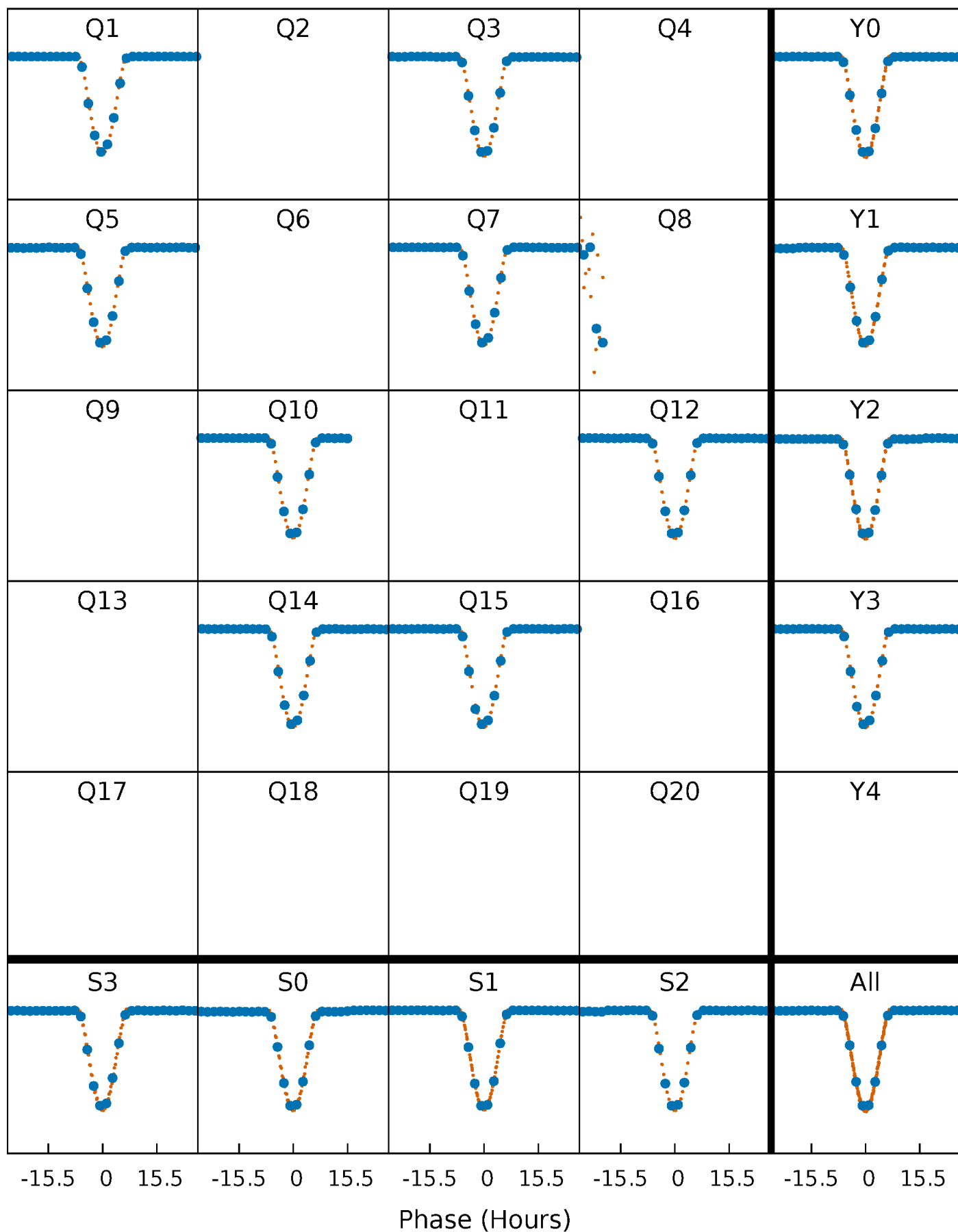


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



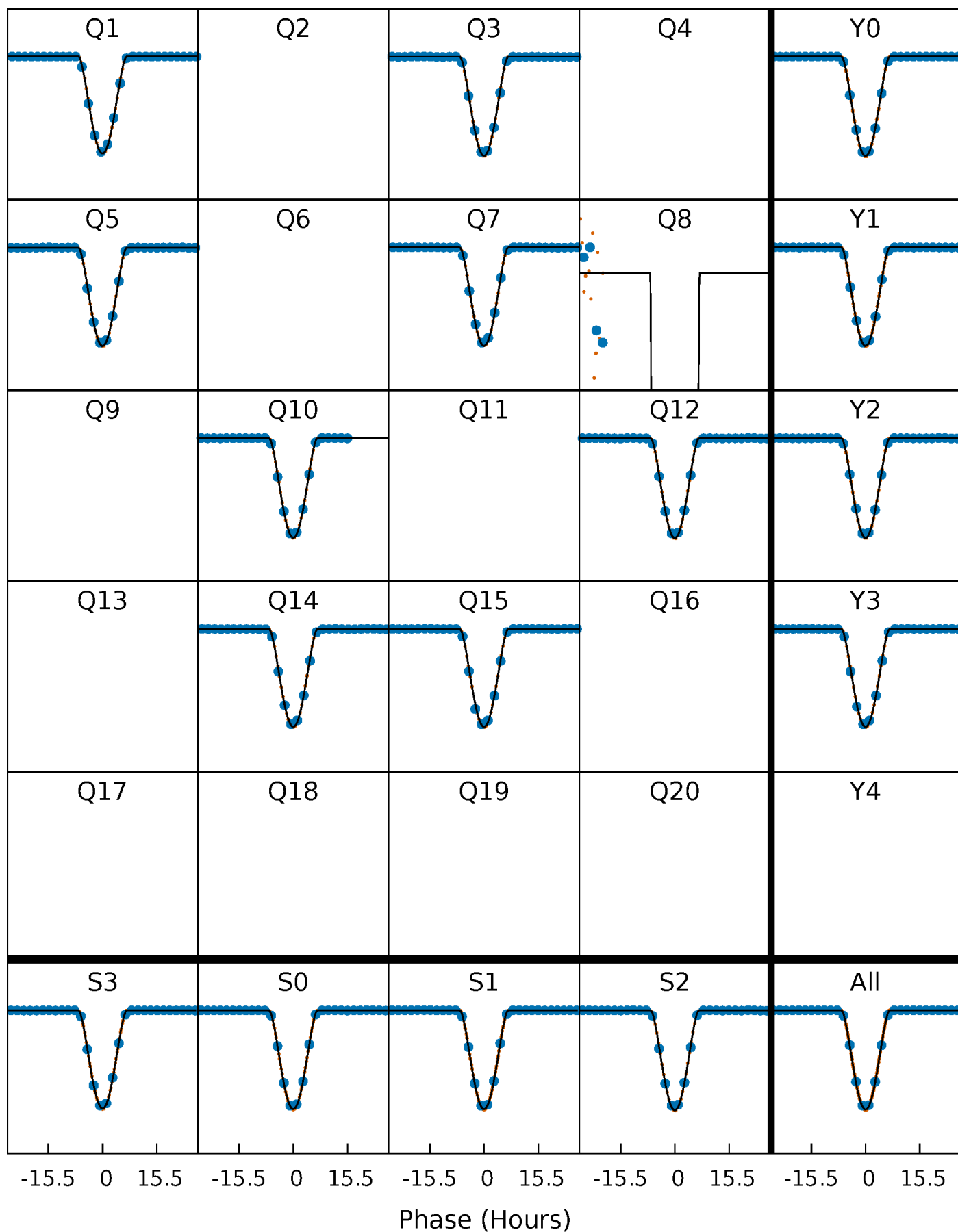
PDC Quarter-Phased Transit Curves

TCE 004255422-01 P=165.405747 Days $T_0=141.576182$ (BKJD)



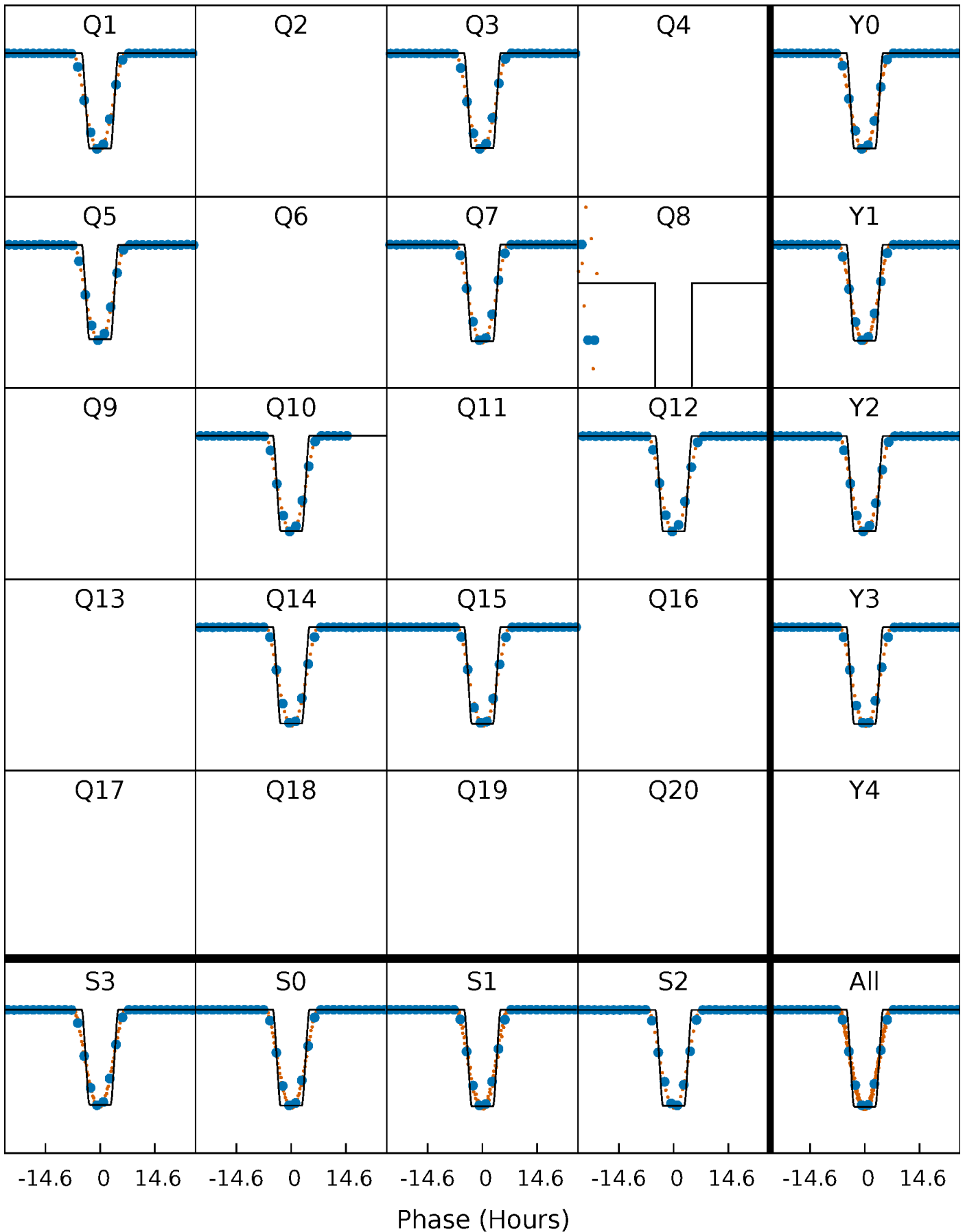
DV Quarter-Phased Transit Curves

TCE 004255422-01 P=165.405747 Days $T_0=141.576182$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

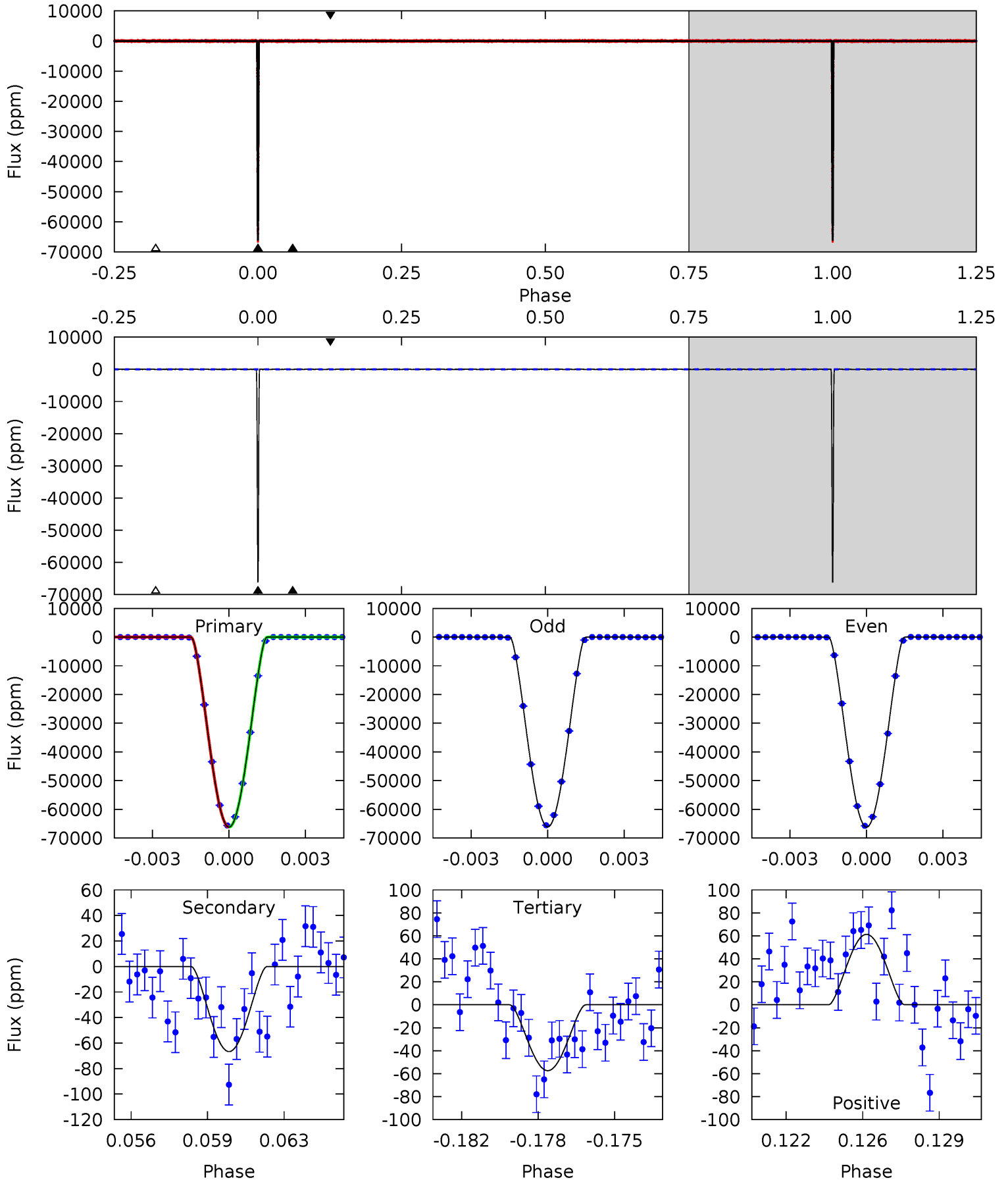
TCE 004255422-01 P=165.402857 Days $T_0=141.587921$ (BKJD)



DV Model-Shift Uniqueness Test

004255422-01, P = 165.405747 Days, E = 141.576182 Days

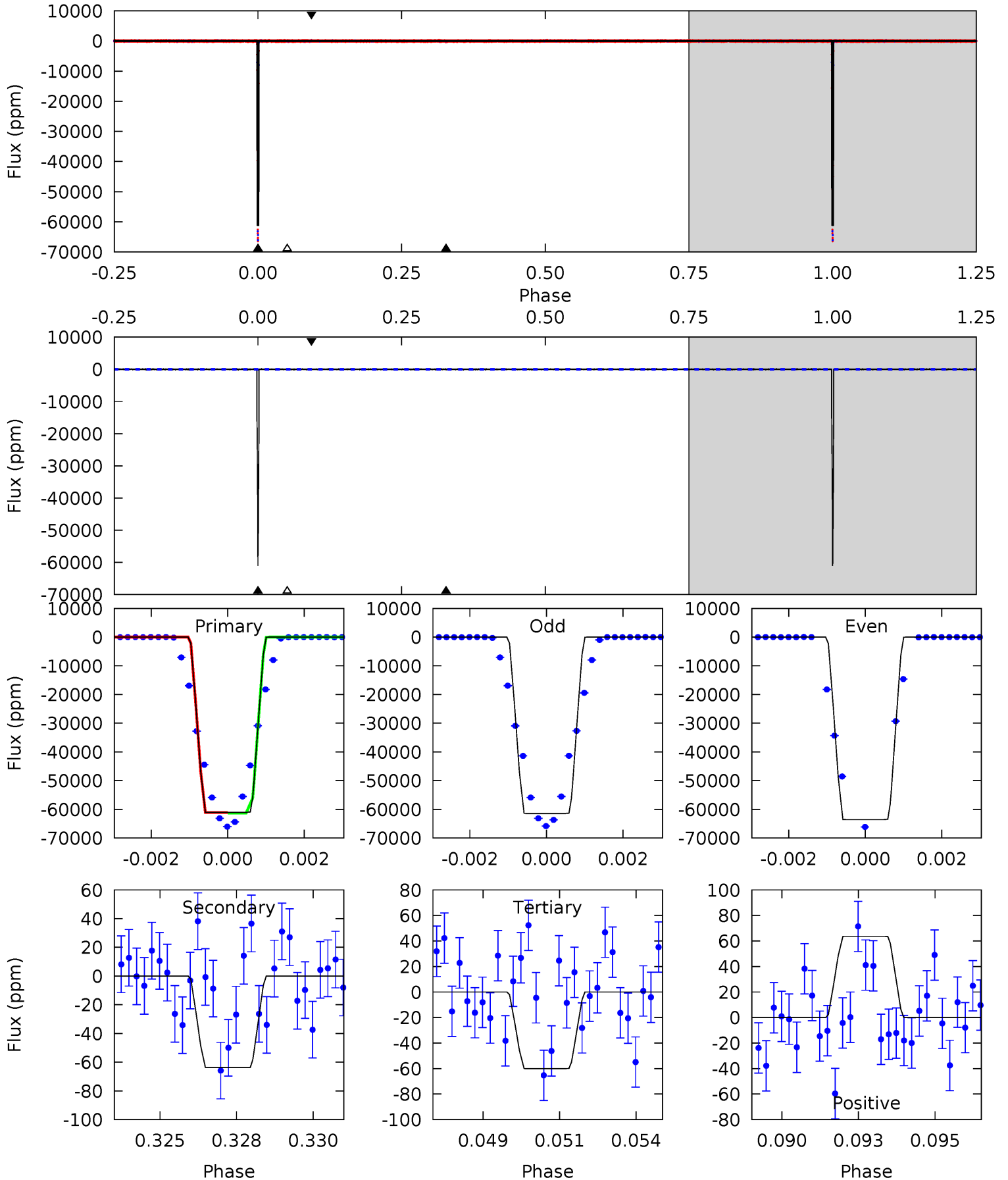
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10463	10.5	9.07	9.70	5.22	2.92	2.90	10454	10454	1.48	0.85	6.12	1.00	0.00	3.73



Alt Model-Shift Uniqueness Test

004255422-01, P = 165.402857 Days, E = 141.587921 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4441	4.63	4.36	4.63	5.29	3.03	1.23	4436	4436	0.27	0.01	79.1	1.00	0.00	5.34



Stellar Parameters For KIC 004255422

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6061^{+200}_{-182}	$3.759^{+0.660}_{-0.176}$	$-0.860^{+0.350}_{-0.250}$	$2.185^{+0.695}_{-1.290}$	$0.999^{+0.146}_{-0.201}$	$0.135^{+1.477}_{-0.059}$
	+3%/-3%	+18%/-5%	+41%/-29%	+32%/-59%	+15%/-20%	+1095%/-44%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 004255422-01 / KOI 3528.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-67 ± 6	$85.60^{+18.51}_{-27.59}$	696^{+78}_{-114}	1877^{+35}_{-40}	$1.770^{+1.885}_{-0.592}$
Alt.	-64 ± 14	$58.42^{+12.29}_{-17.11}$	705^{+70}_{-113}	2039^{+57}_{-64}	$3.558^{+3.390}_{-1.288}$

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 $A_{obs} \gg 1.0$

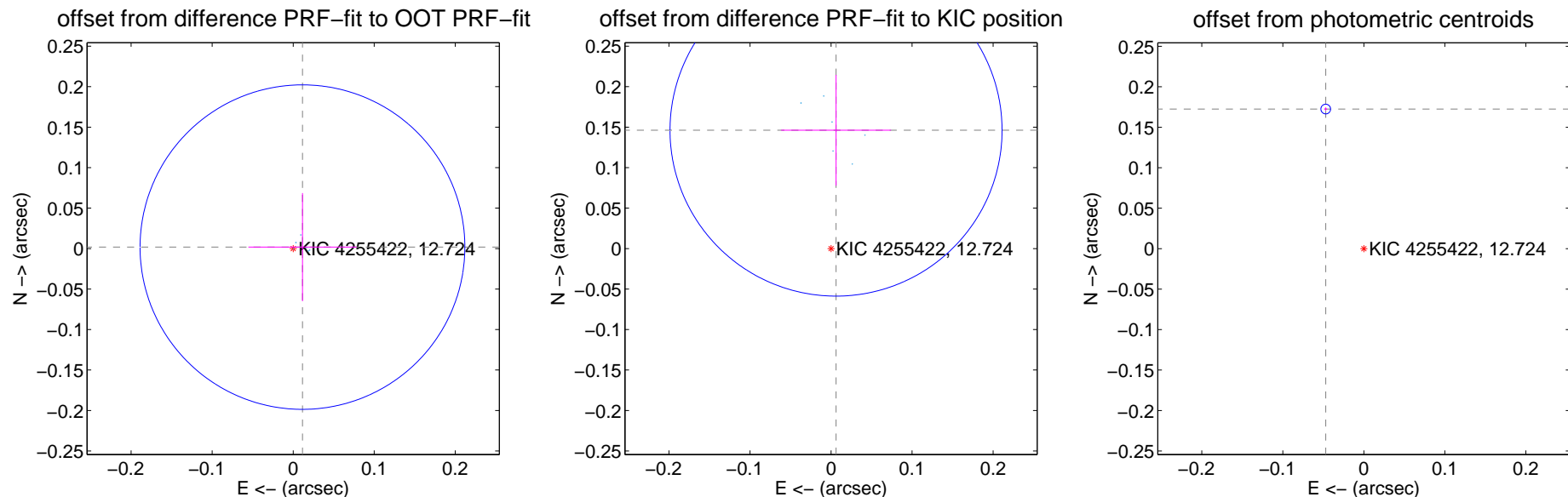
DV Centroid Data

Supplemental centroid analysis for 004255422-01. Kepler magnitude: 12.72. Transit SNR 3098.05

There are 6 quarters with good PRF difference image offsets

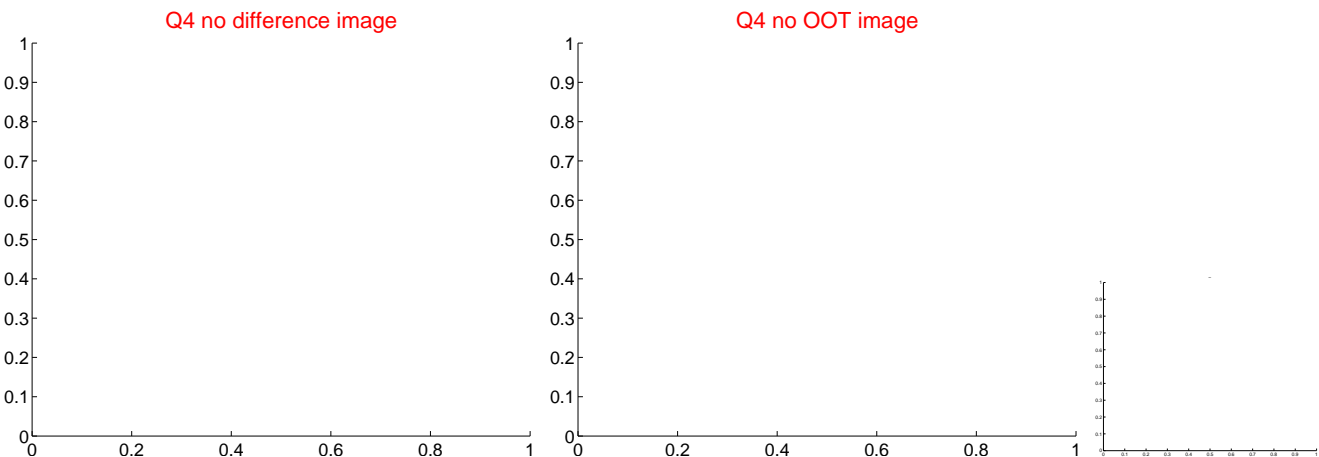
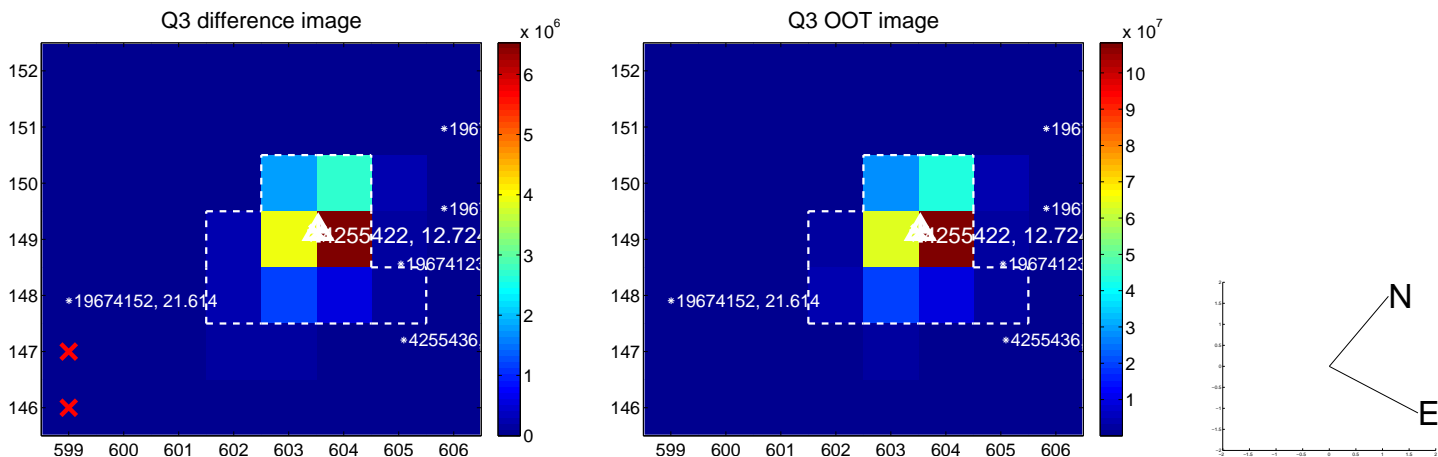
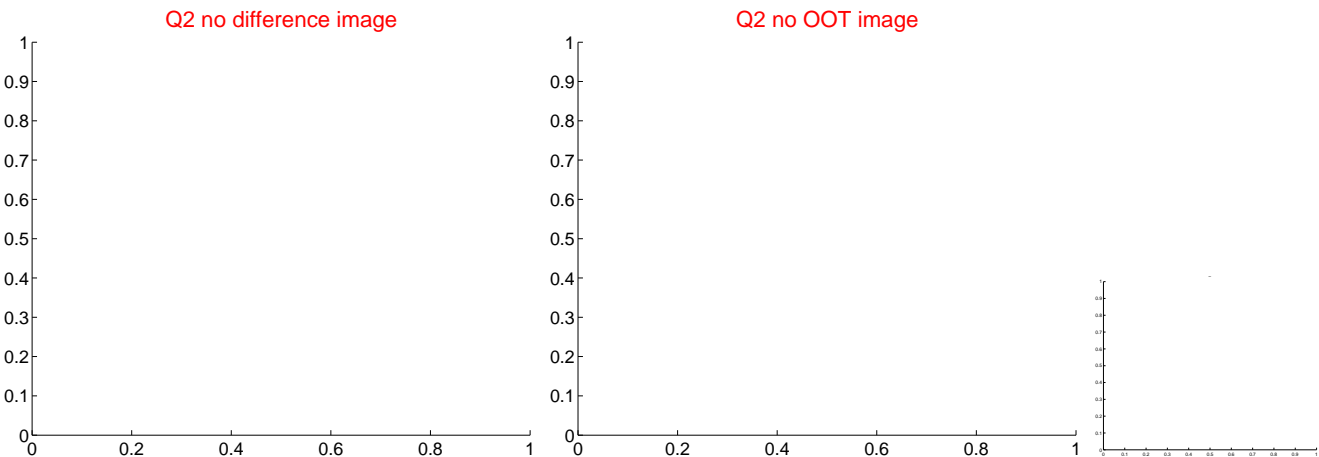
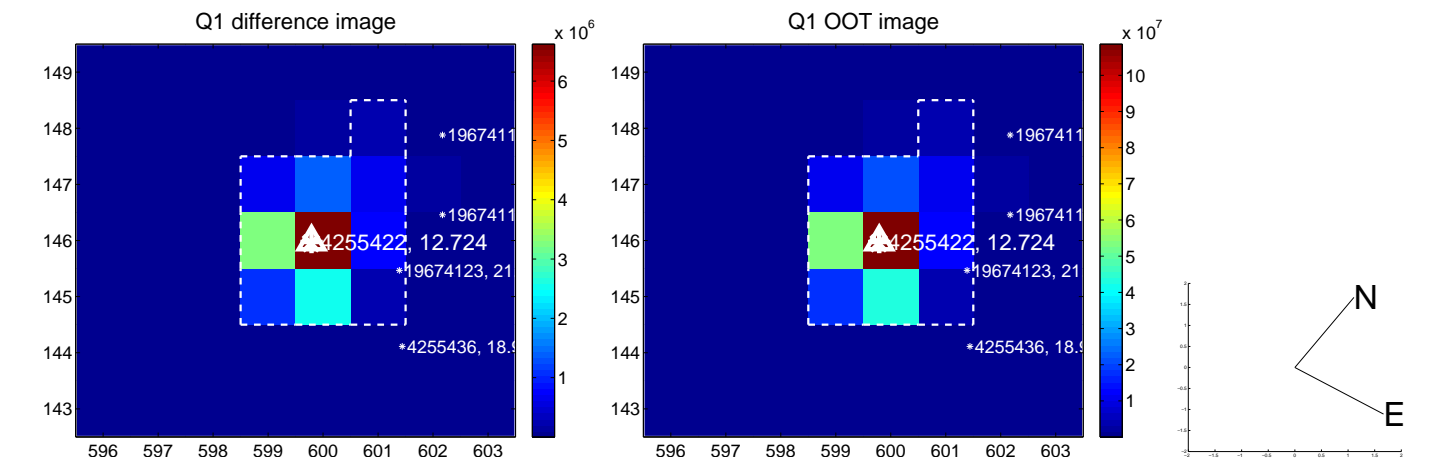
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.012 ± 0.067	0.17	-0.011 ± 0.067	0.002 ± 0.067
PRF-fit source offset from KIC position	0.146 ± 0.068	2.14	-0.006 ± 0.068	0.146 ± 0.068
photometric centroid source offset	0.18 ± 0.00	89.75	0.05 ± 0.00	0.17 ± 0.00

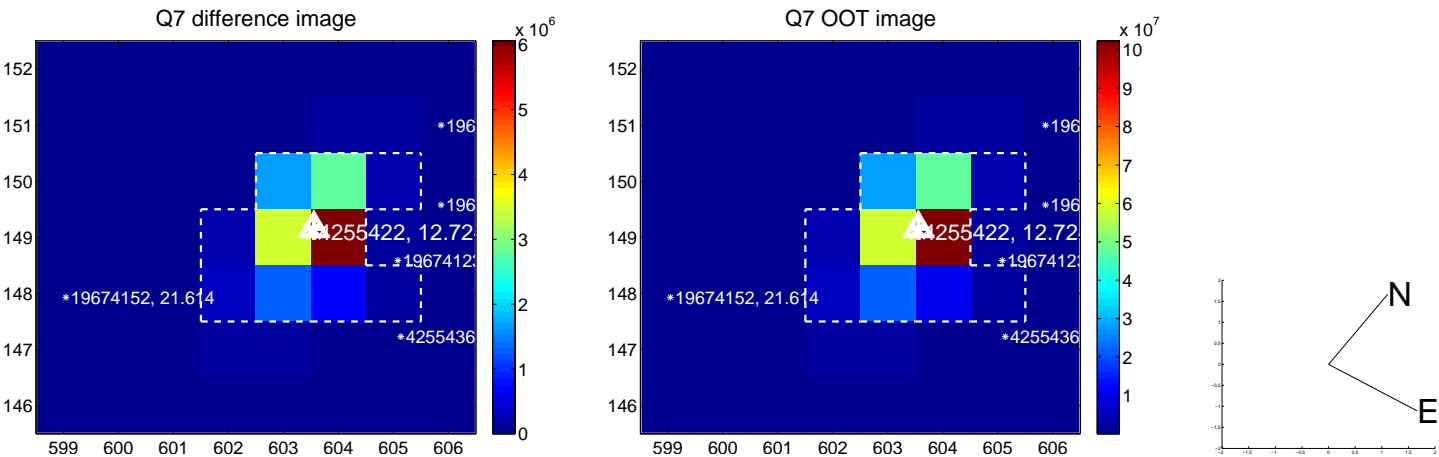
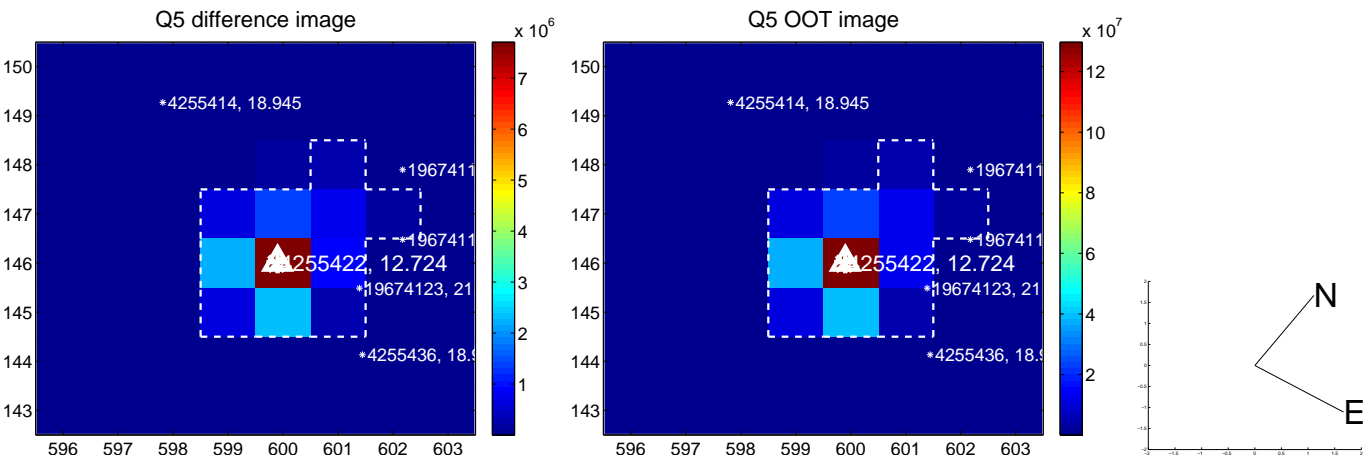


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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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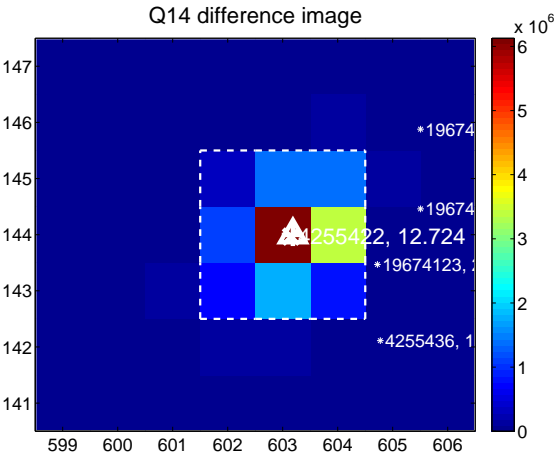
Q13 no difference image



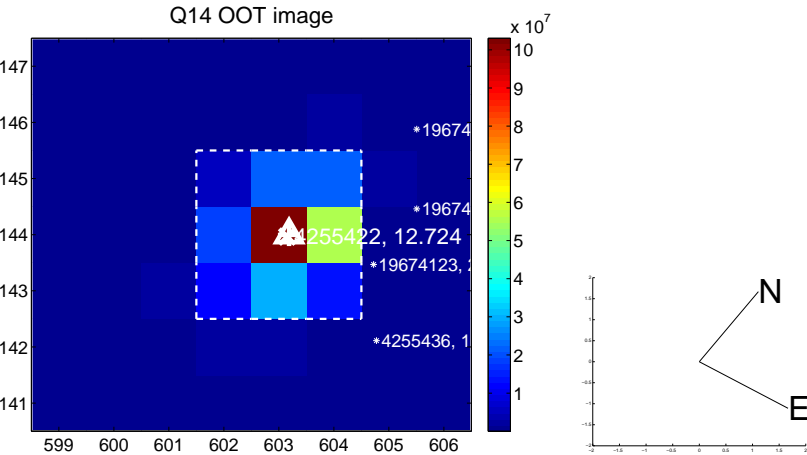
Q13 no OOT image



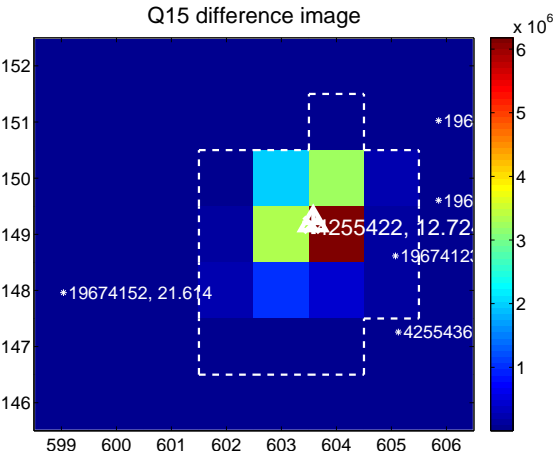
Q14 difference image



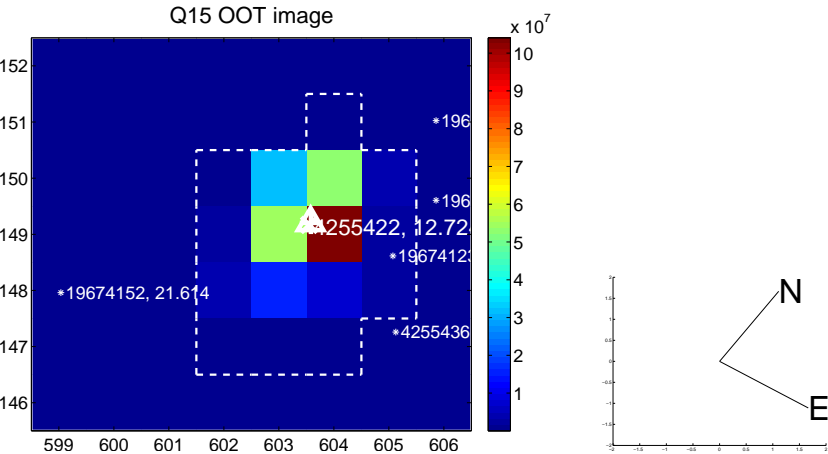
Q14 OOT image



Q15 difference image



Q15 OOT image



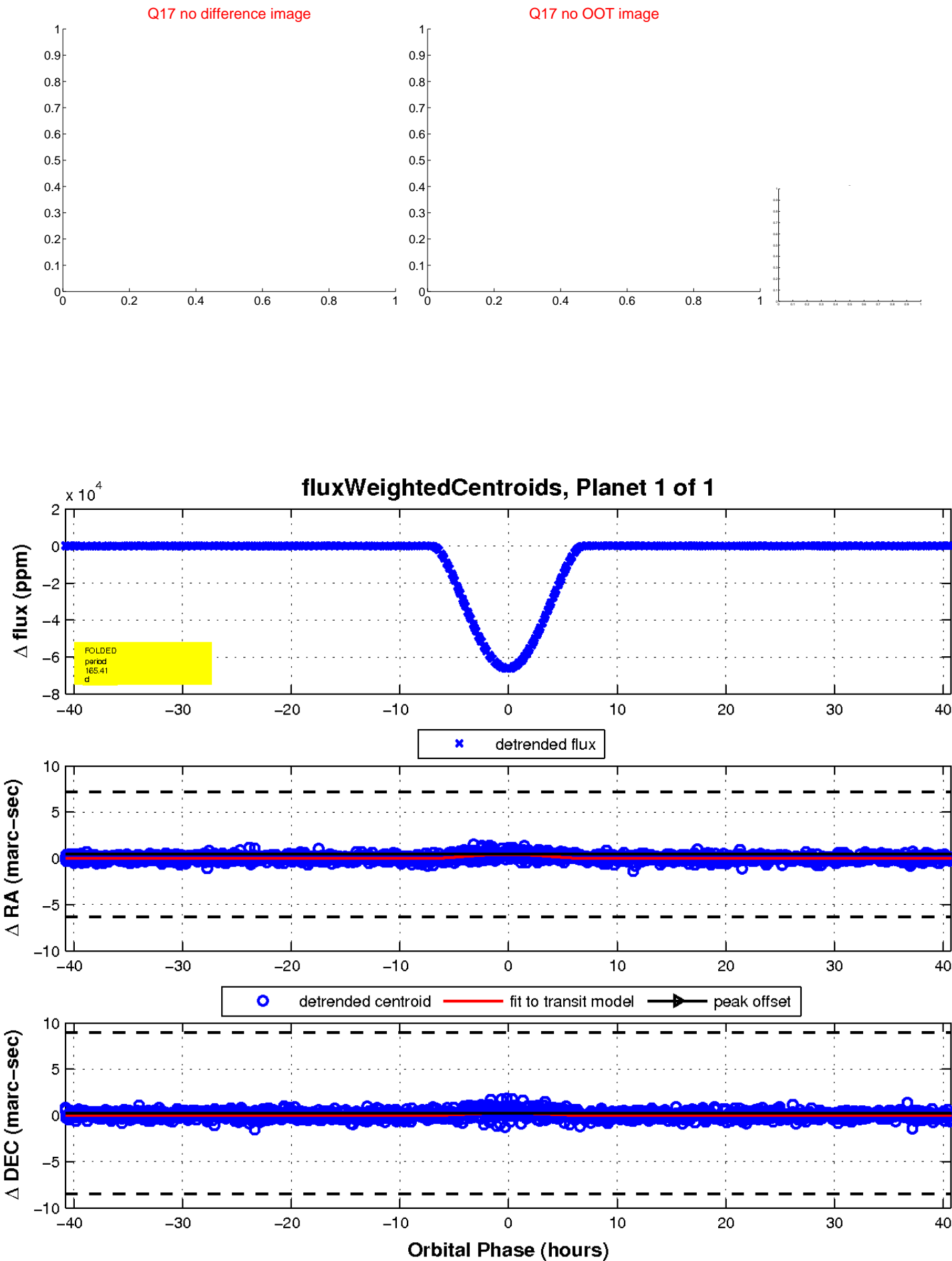
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

