

KIC 003832474

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})
003832474-01	OBS	0806.02	60.325237	183.569094	20293.2	6.556	323.4	278.2	0.87	5485	12.10	6.79
003832474-02	OBS	0806.01	143.201422	154.262674	10468.5	8.667	115.6	113.4	0.87	5485	8.68	2.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003832474-01	OBS	PC	0.74	0	0	0	0	NO_COMMENT
003832474-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

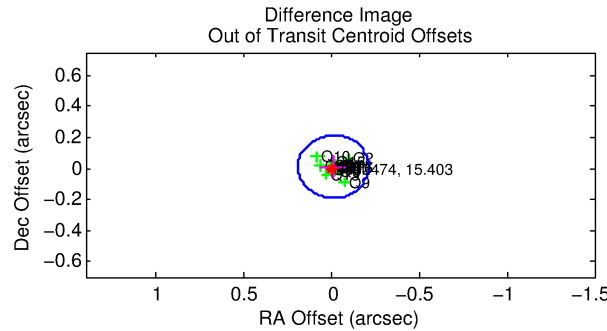
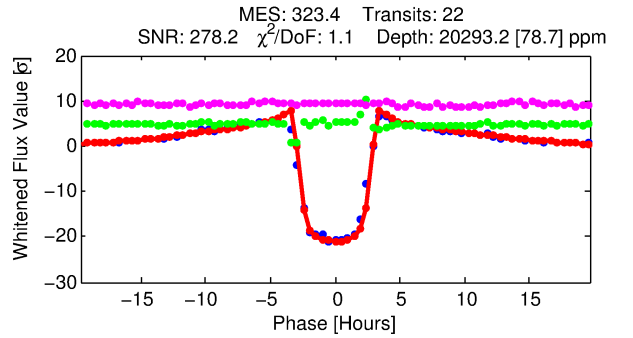
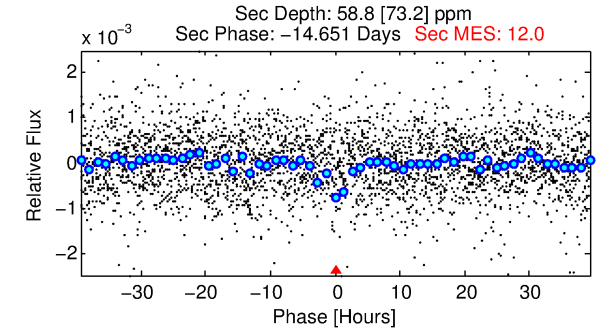
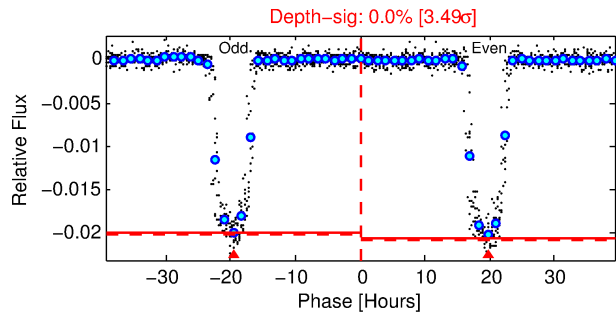
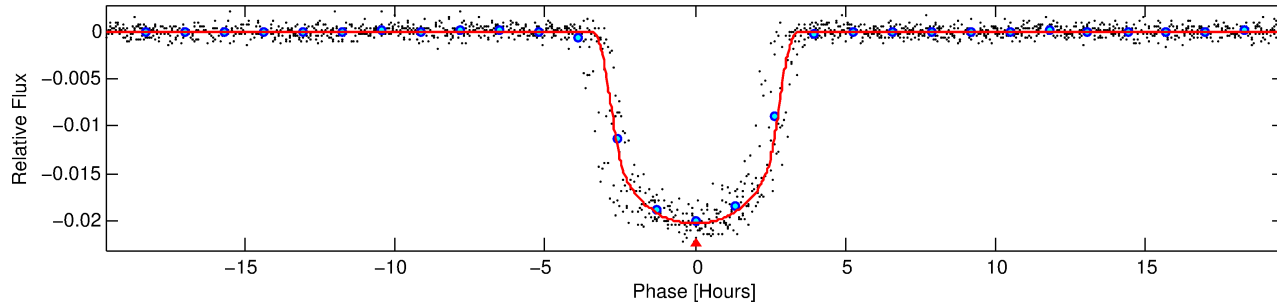
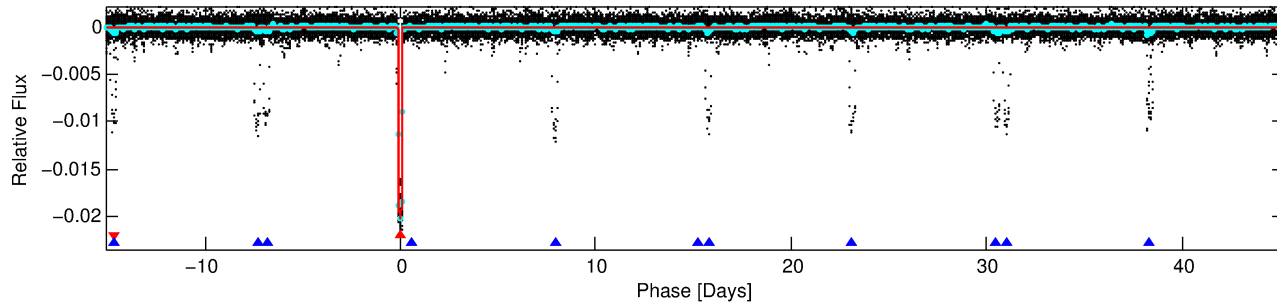
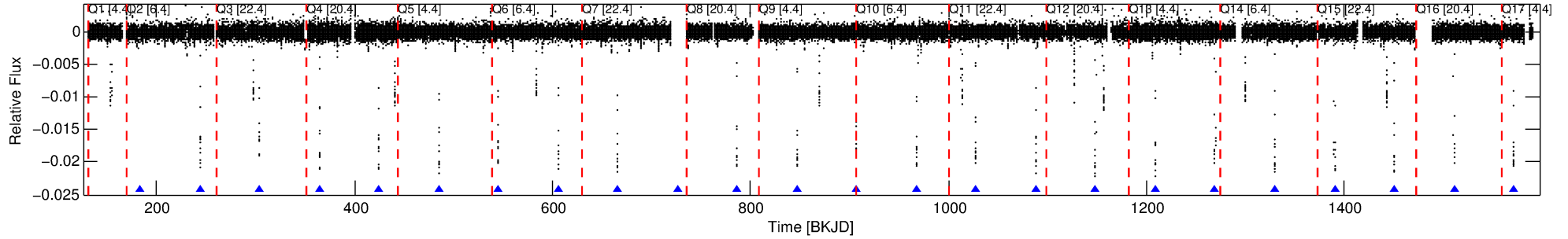
Ephemeris Match Information For 003832474-01

No Significant Match Found

DV One-Page Summary

KIC: 3832474 Candidate: 1 of 2 Period: 60.325 d
KOI: K00806.02 Name: Kepler-30c Corr: 0.983

Kp: 15.40 R*: 0.87 Rs Teff: 5485.0 K Logg: 4.56 Fe/H: 0.210



DV Fit Results:

Period = 60.32524 [0.00003] d
Epoch = 183.5691 [0.0004] BKJD
Rp/R* = 0.1279 [0.0008]
a/R* = 79.28 [1.75]
b = 0.01 [4.40]
Seff = 6.79 [1.11]
Teq = 412 [17] K
Rp = 12.10 [1.11] Re
a = 0.2997 [0.0261] AU
Ag = 19.86 [24.86] [0.76σ]
Teffp = 1343 [419] K [2.22σ]

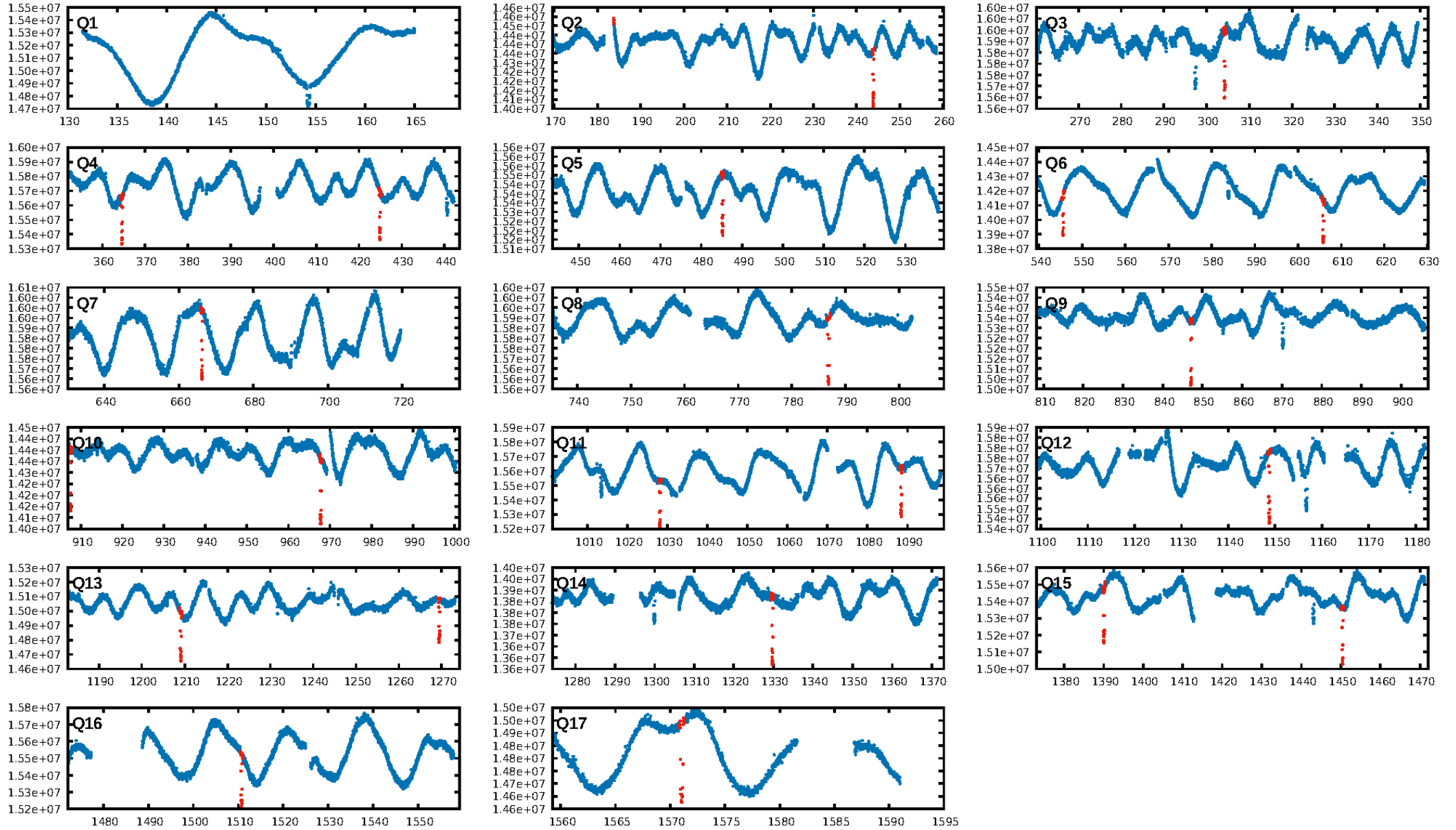
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [183.02σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [21/21]
GhostDiagnostic-chr: 1.828
Centroid-sig: 5.1%
Centroid-so: 0.476 arcsec [17.04σ]
OotOffset-rm: 0.016 arcsec [0.24σ]
KicOffset-rm: 0.078 arcsec [1.13σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

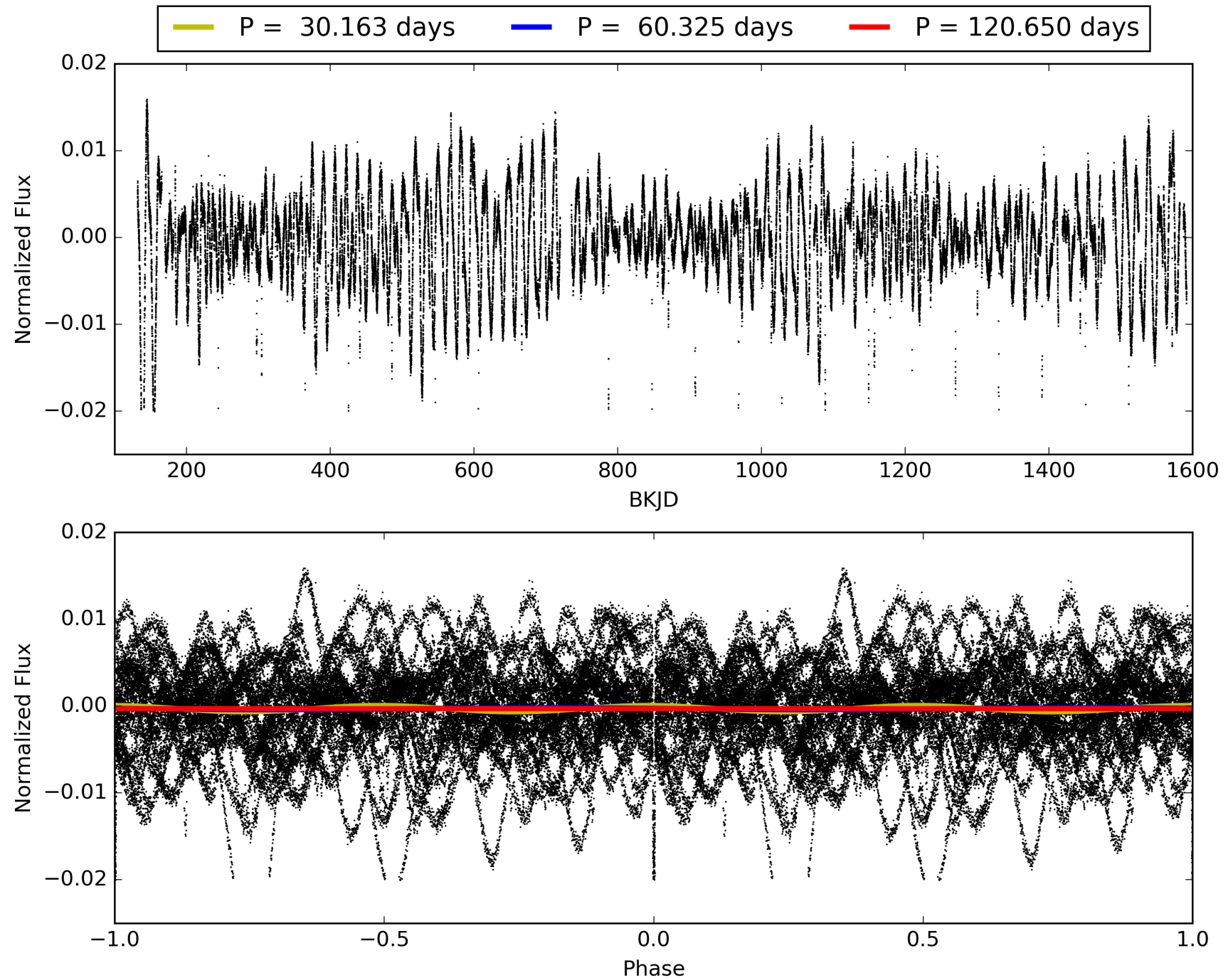
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:04:11 Z

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

TCE 003832474-01, PDC Light Curves

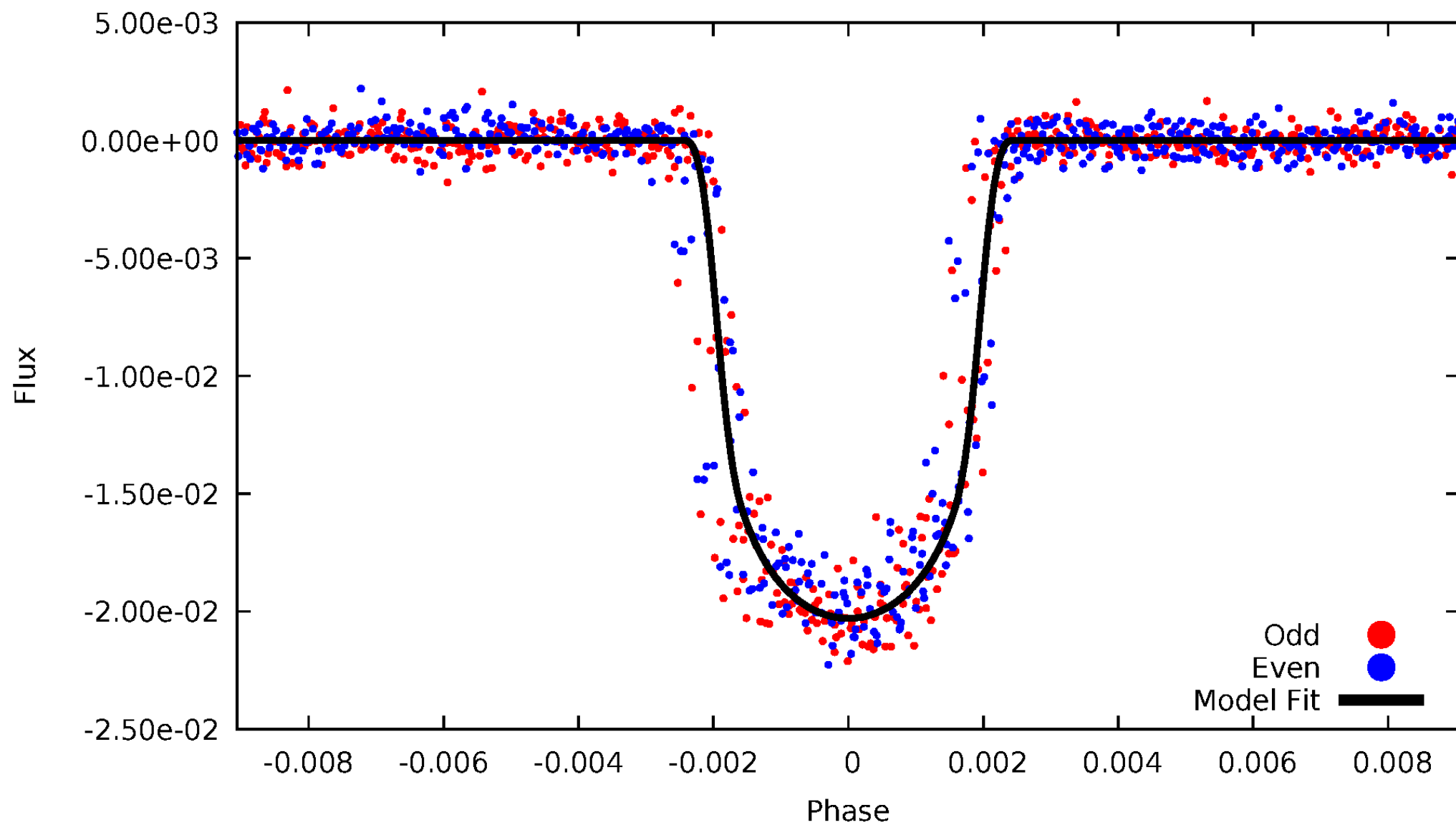


TCE 003832474-01



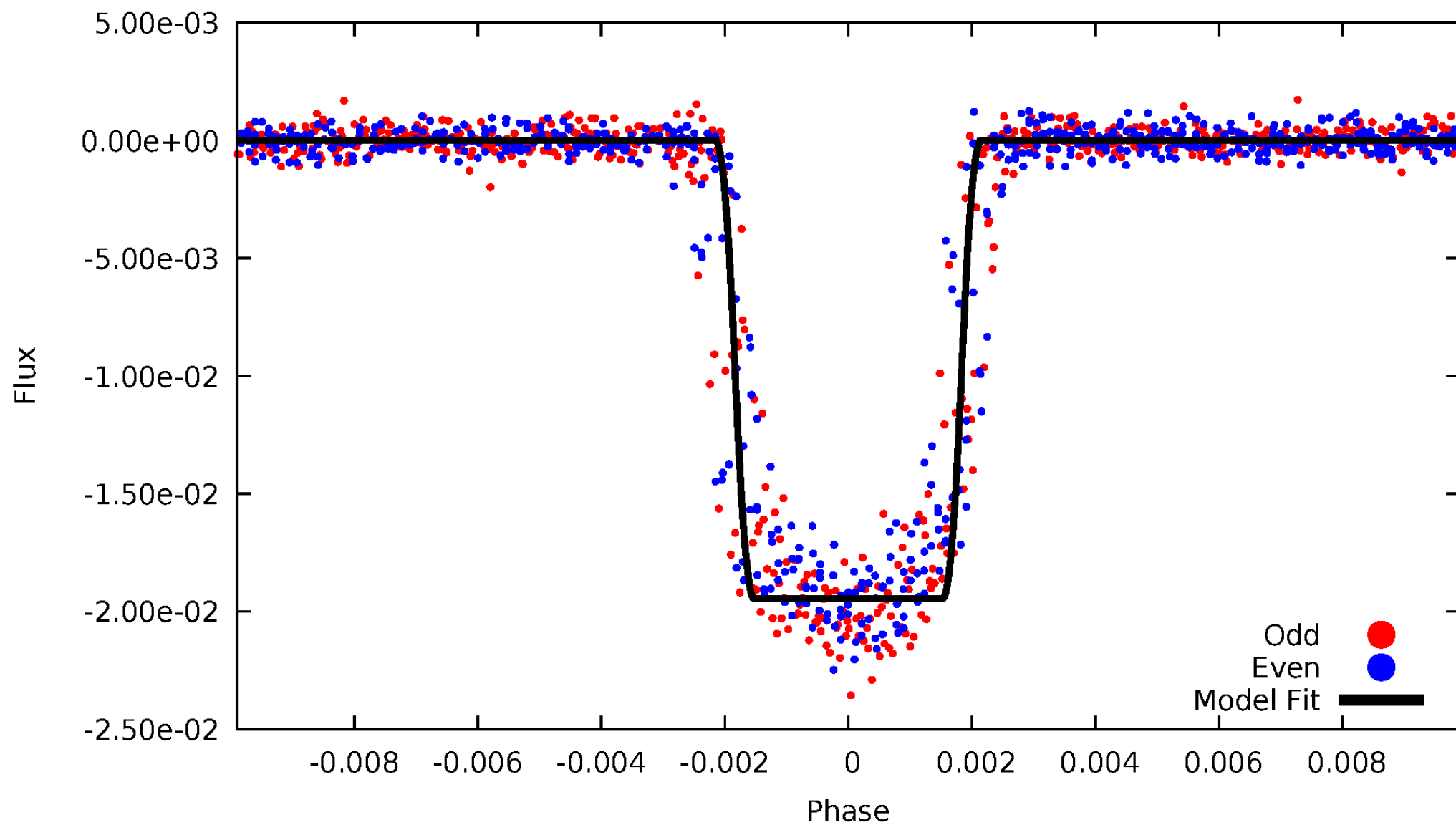
DV Odd/Even

TCE 003832474-01



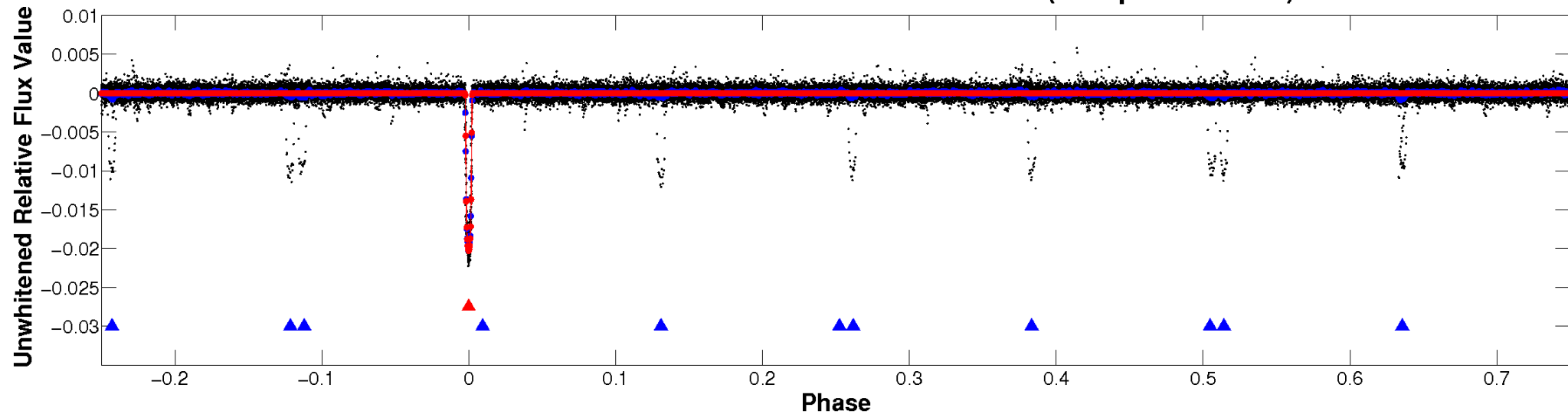
ALT Odd/Even

TCE 003832474-01

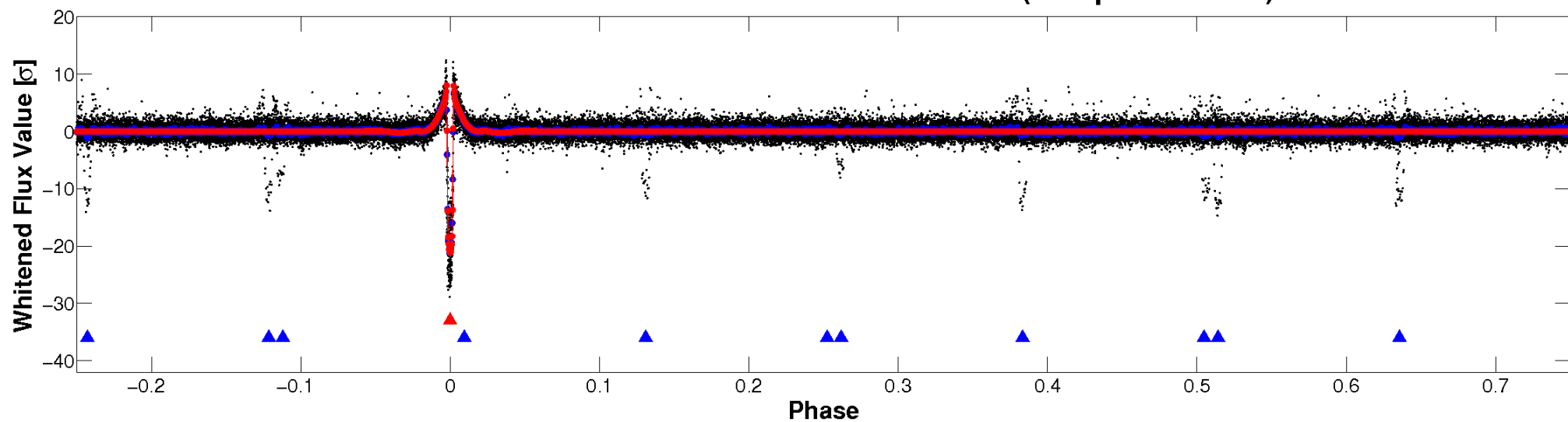


Non-Whitened Vs. Whitened Light Curve

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

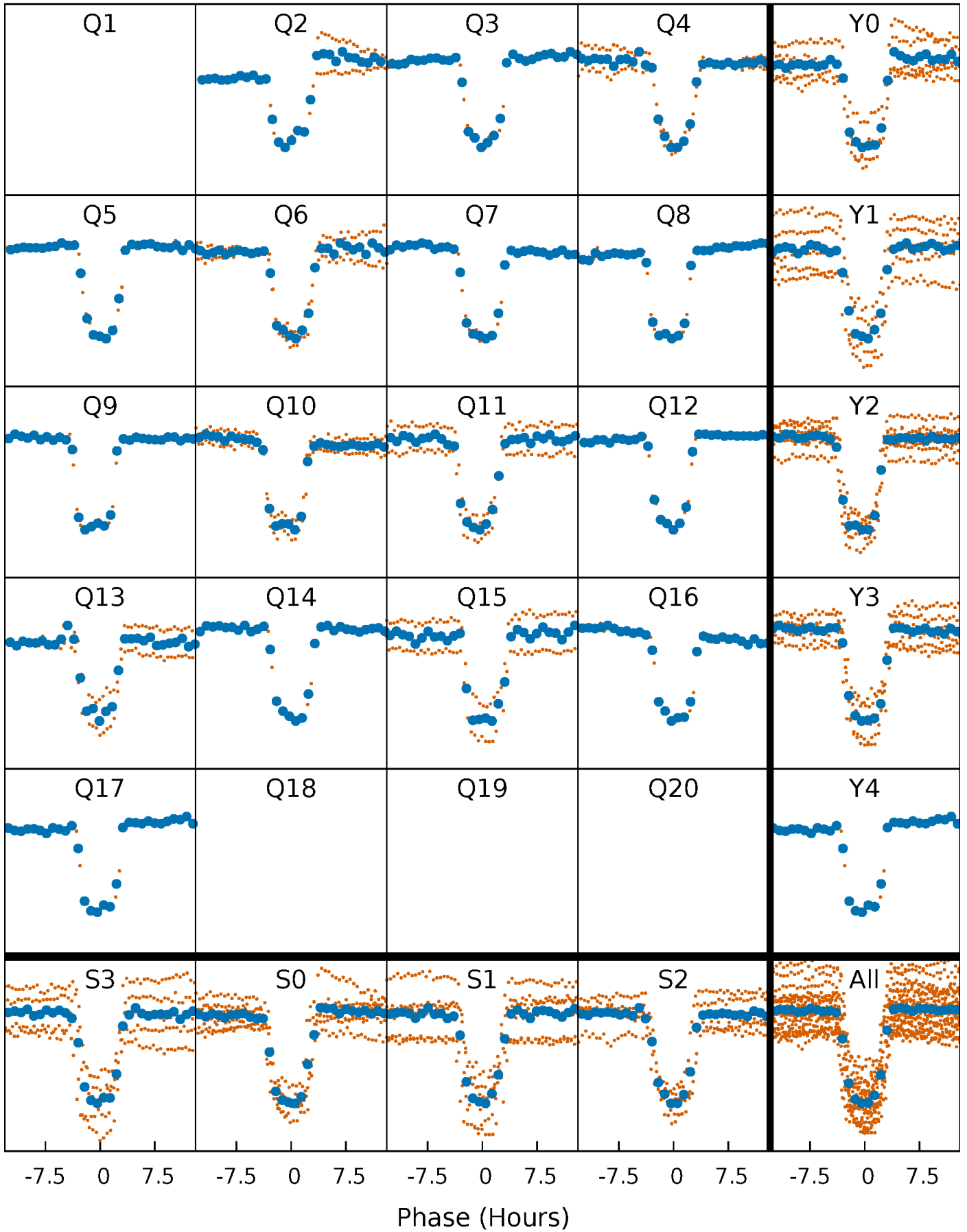


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



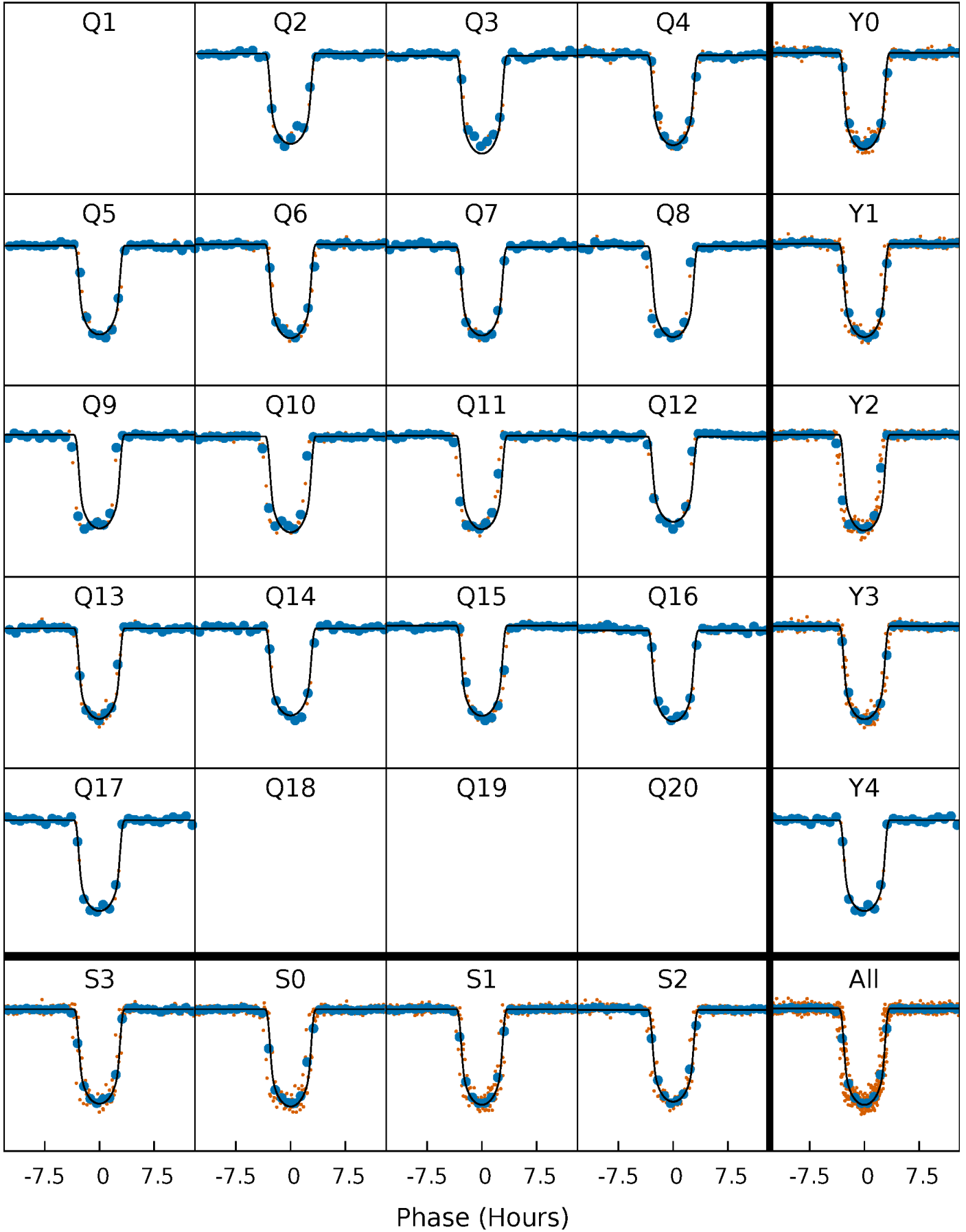
PDC Quarter-Phased Transit Curves

TCE 003832474-01 P= 60.325237 Days $T_0=183.569094$ (BKJD)



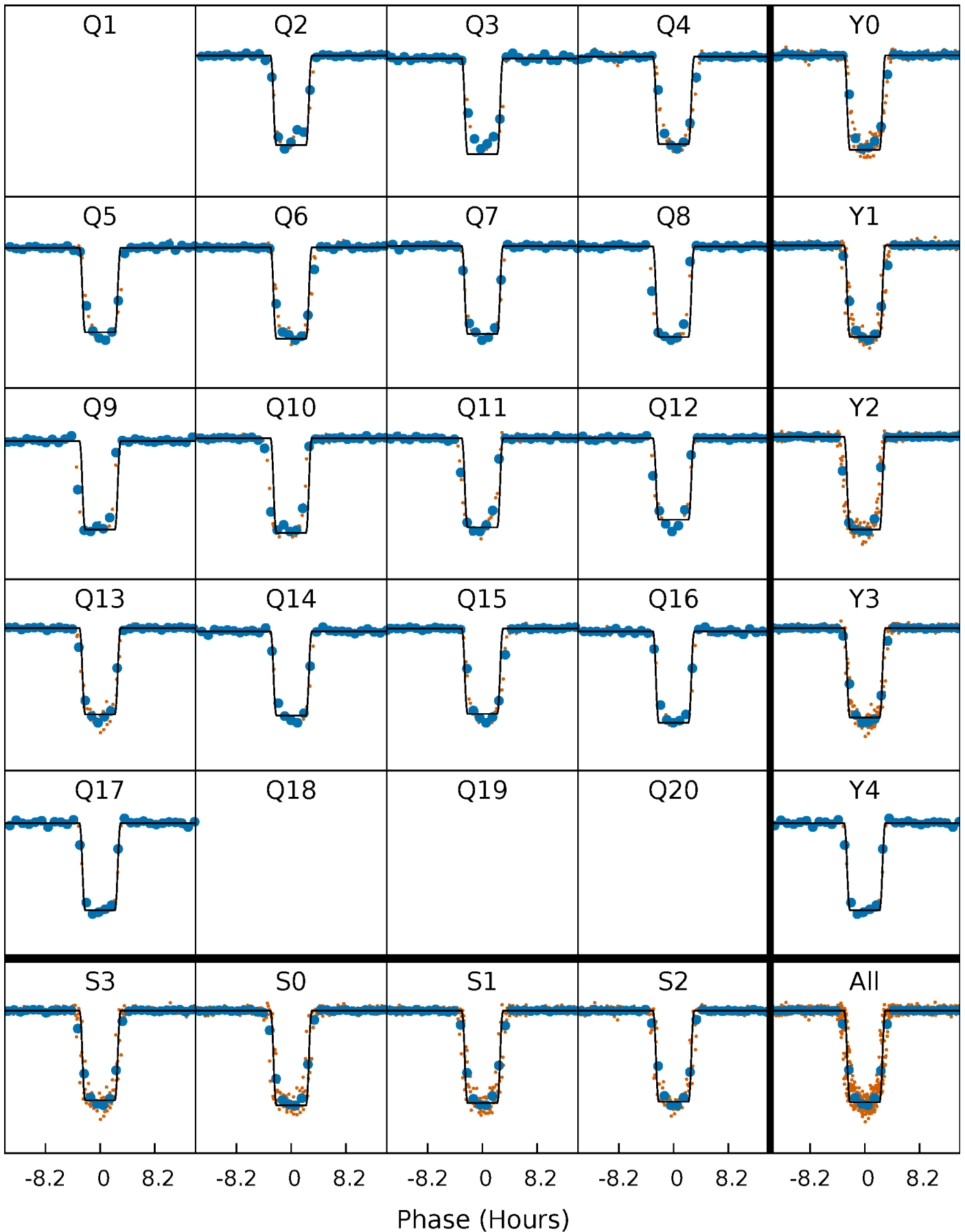
DV Quarter-Phased Transit Curves

TCE 003832474-01 P= 60.325237 Days $T_0=183.569094$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

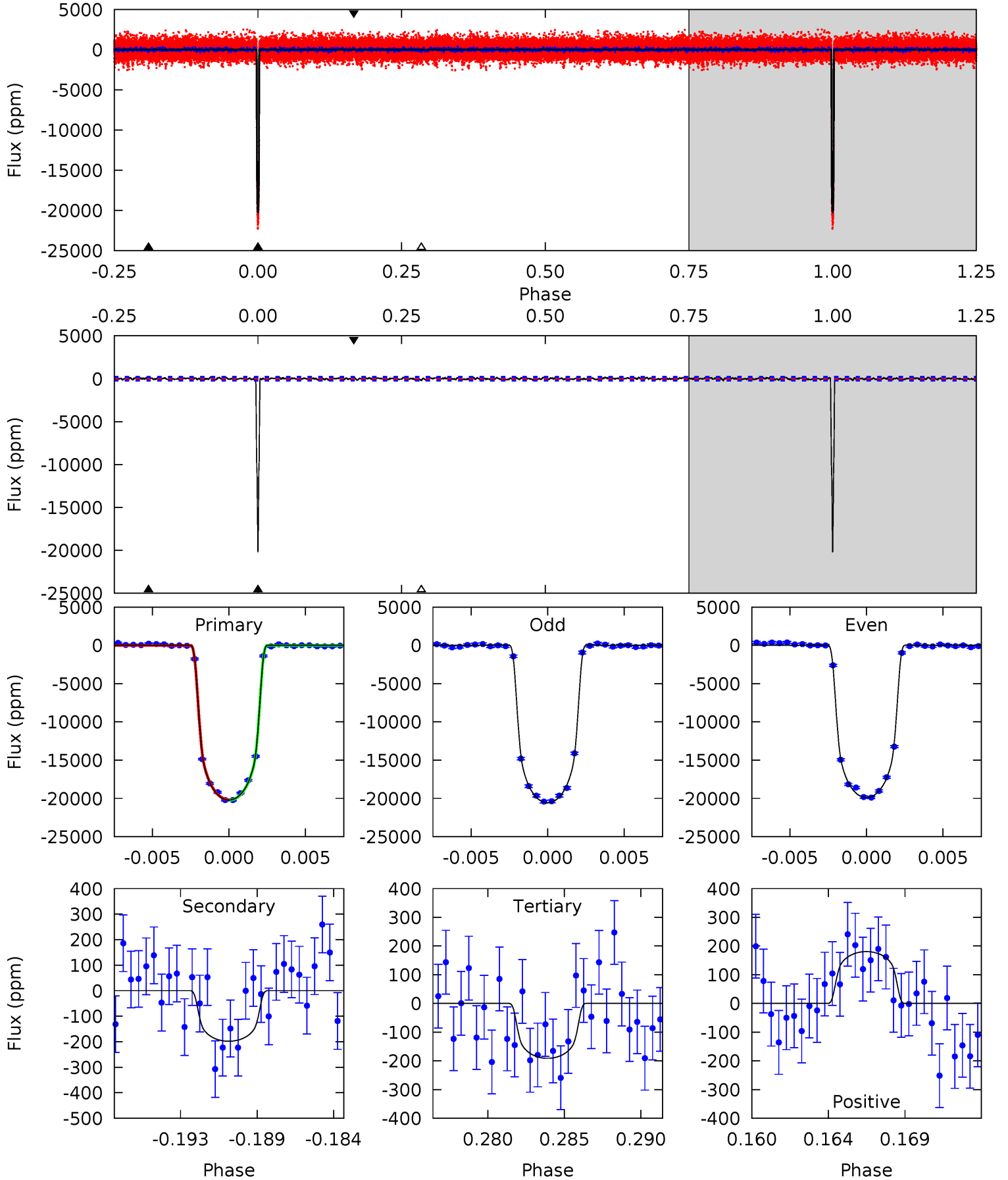
TCE 003832474-01 P= 60.325640 Days $T_0=183.559127$ (BKJD)



DV Model-Shift Uniqueness Test

003832474-01, P = 60.325237 Days, E = 123.243857 Days

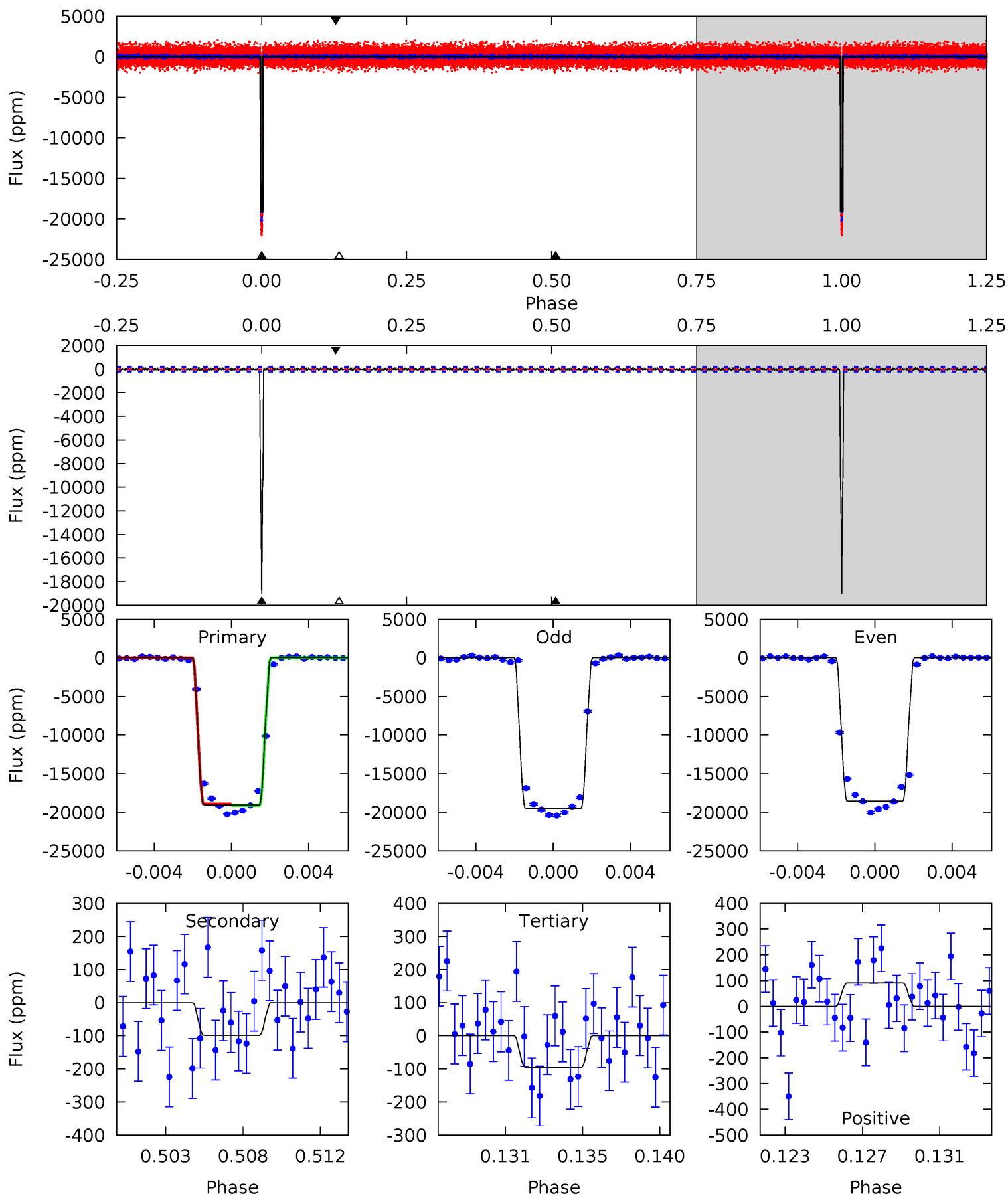
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
511.7	5.02	4.84	4.57	5.16	2.82	1.57	506.8	507.1	0.18	0.44	8.64	0.99	0.01	1.04



Alt Model-Shift Uniqueness Test

003832474-01, P = 60.325640 Days, E = 123.233487 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
513.4	2.65	2.58	2.44	5.19	2.86	0.66	510.8	510.9	0.07	0.21	12.5	1.01	0.00	2.60



Stellar Parameters For KIC 003832474

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5485^{+98}_{-120}	$4.556^{+0.014}_{-0.081}$	$0.210^{+0.150}_{-0.200}$	$0.867^{+0.079}_{-0.037}$	$0.986^{+0.035}_{-0.082}$	$2.133^{+0.192}_{-0.485}$
	+2%/-2%	+0%/-2%	+71%/-95%	+9%/-4%	+4%/-8%	+9%/-23%
Source	SPE34	SPE34	SPE34	DSEP		

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

Secondary Eclipse Parameters for KIC 003832474-01 / KOI 0806.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-198 ± 39	$12.27^{+0.60}_{-0.42}$	582^{+15}_{-14}	2622^{+69}_{-82}	64^{+14}_{-14}
Alt.	-98 ± 37	$13.34^{+0.75}_{-0.42}$	581^{+18}_{-14}	2355^{+96}_{-129}	26^{+11}_{-10}

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

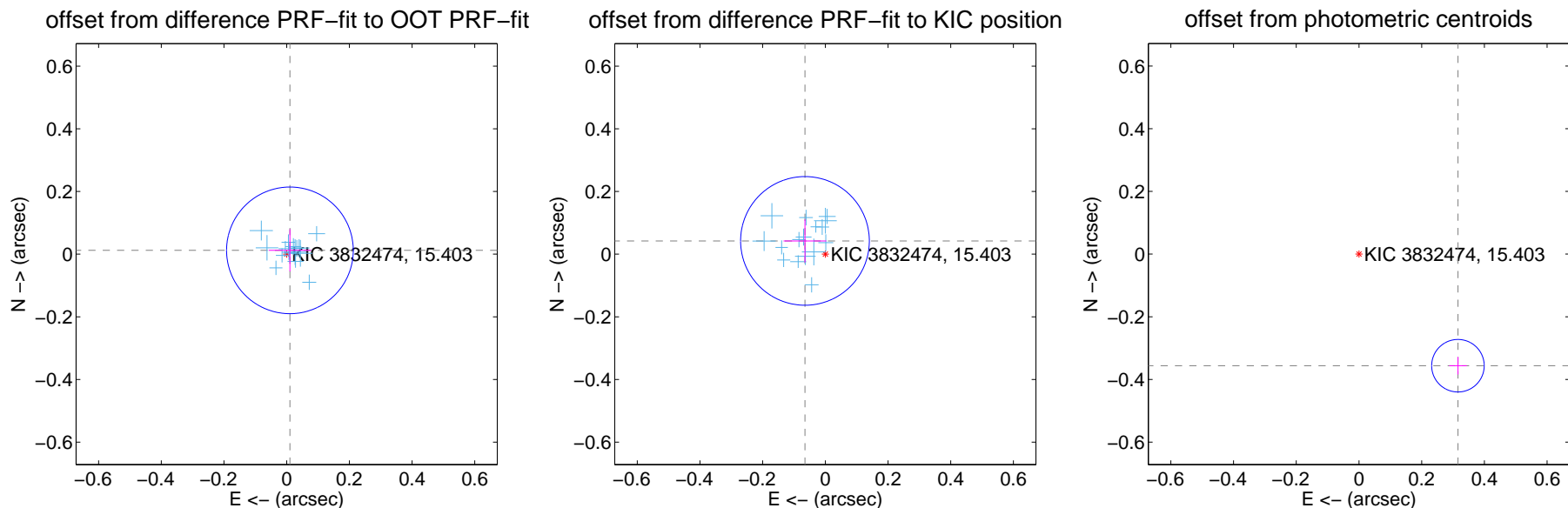
DV Centroid Data

Supplemental centroid analysis for 003832474-01. Kepler magnitude: 15.40. Transit SNR 278.19

There are 16 quarters with good PRF difference image offsets

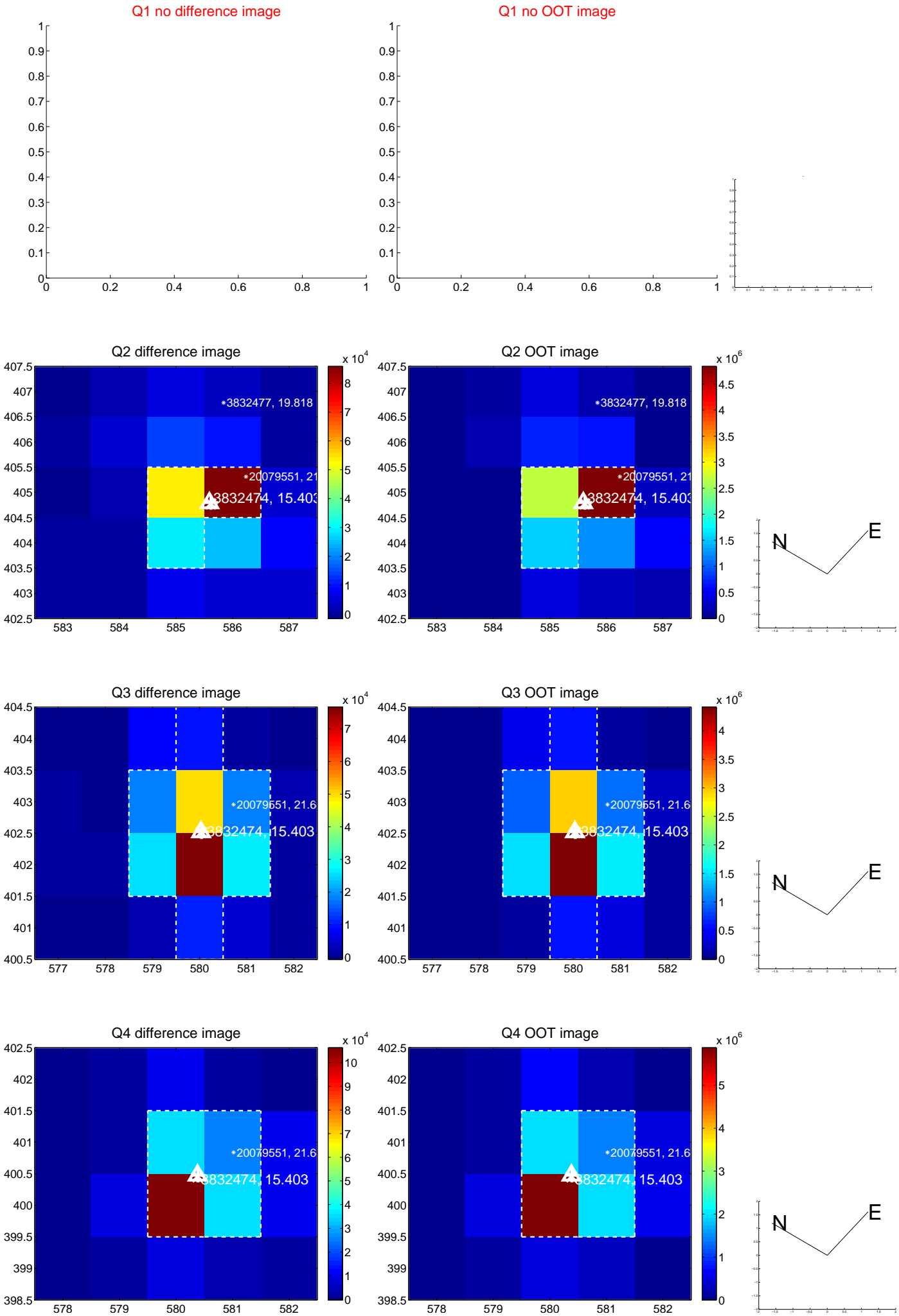
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.016 ± 0.067	0.24	-0.010 ± 0.068	0.012 ± 0.067
PRF-fit source offset from KIC position	0.078 ± 0.068	1.13	0.065 ± 0.068	0.042 ± 0.069
photometric centroid source offset	0.48 ± 0.03	17.04	-0.32 ± 0.03	-0.36 ± 0.03

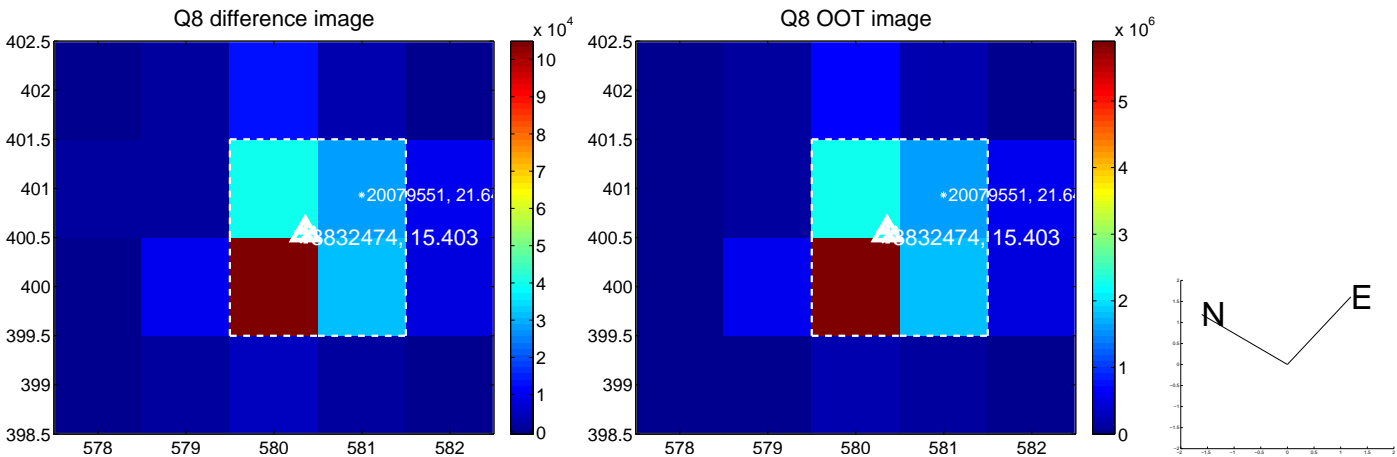
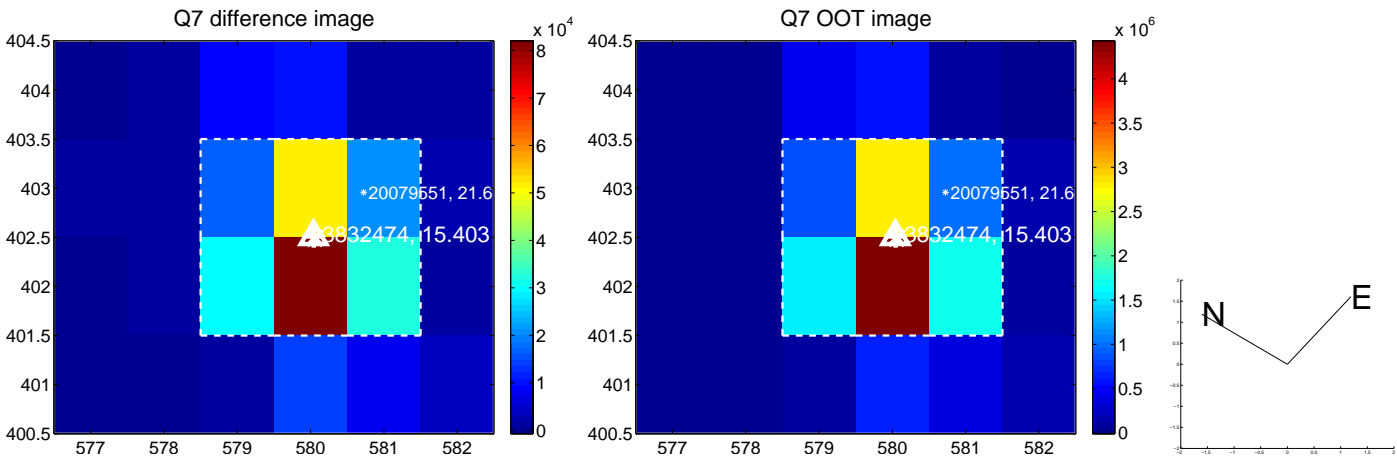
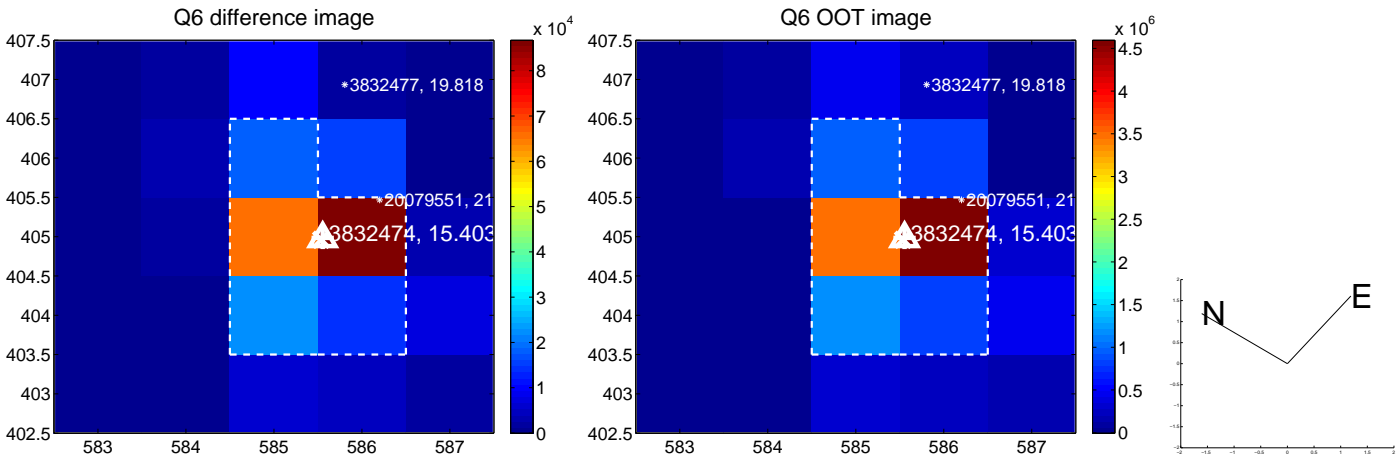
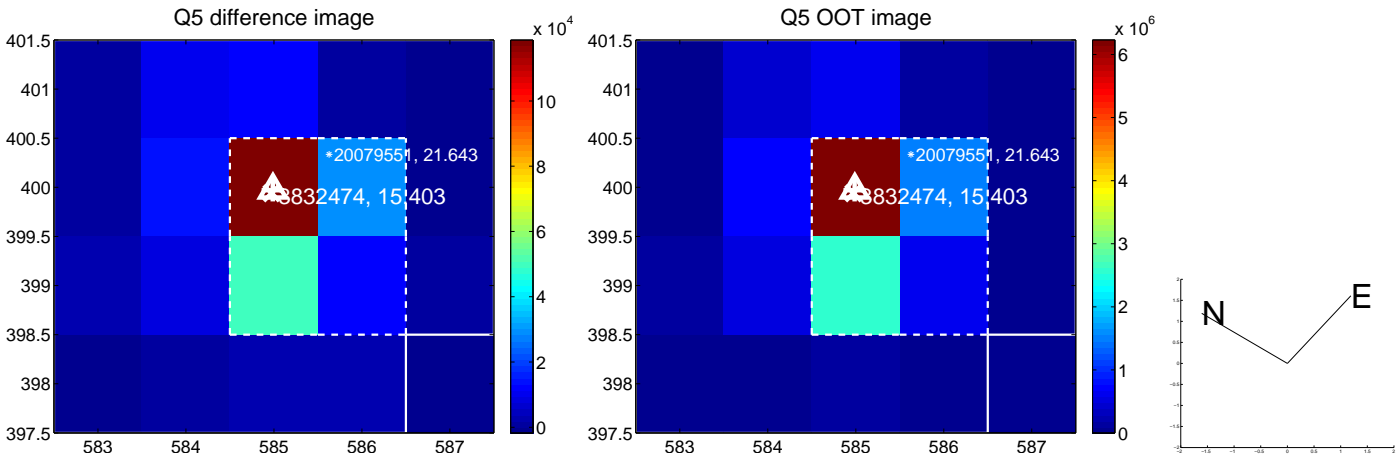


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

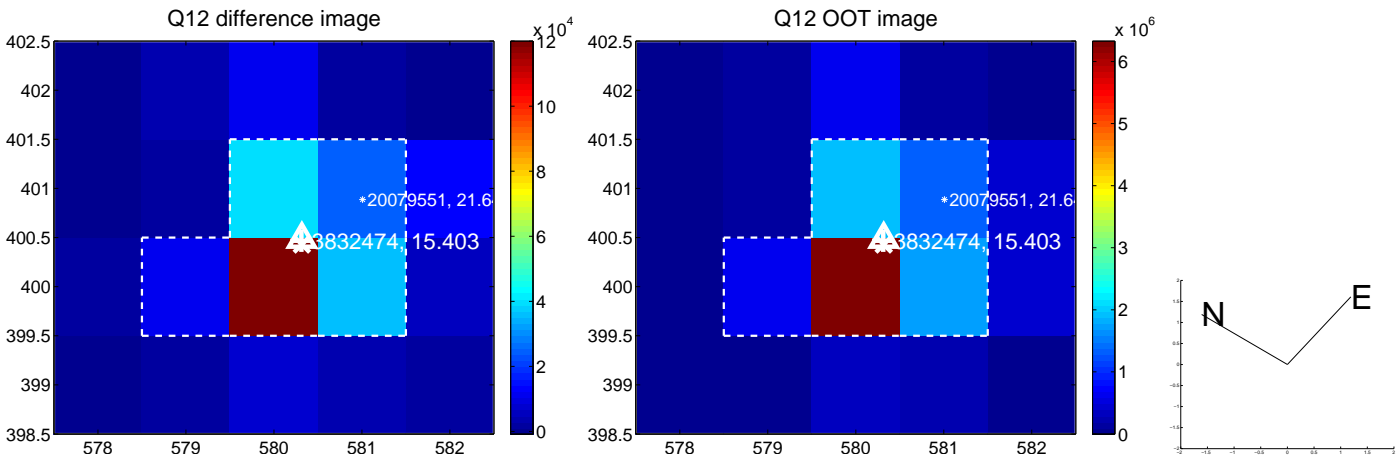
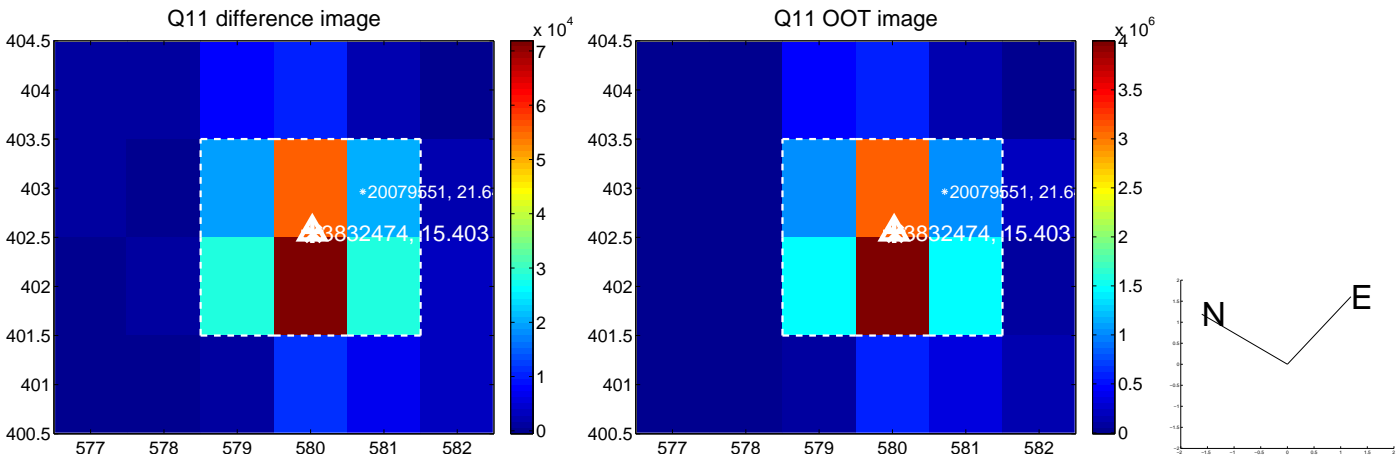
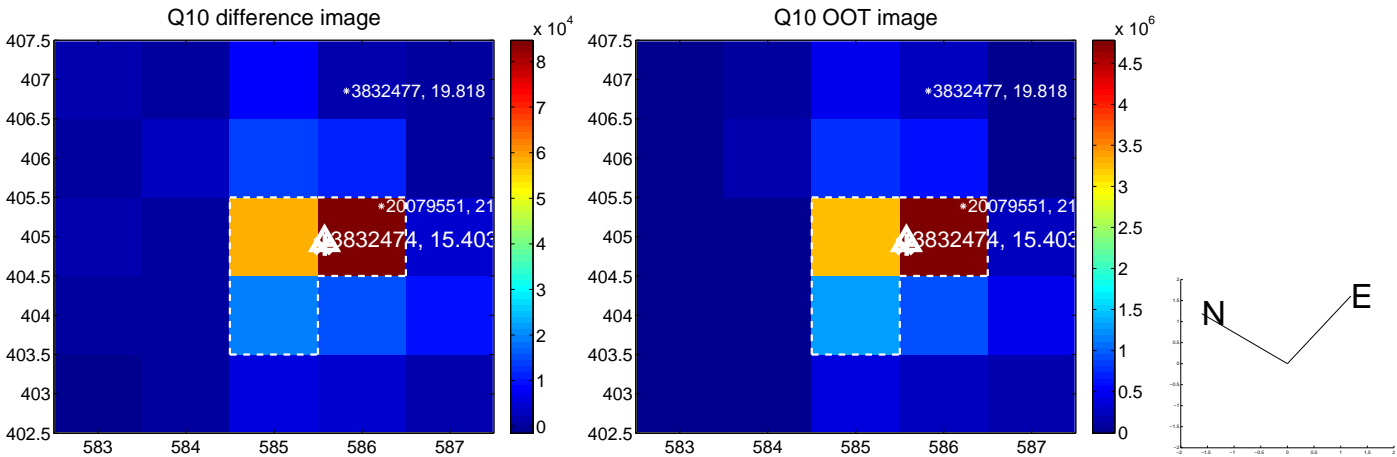
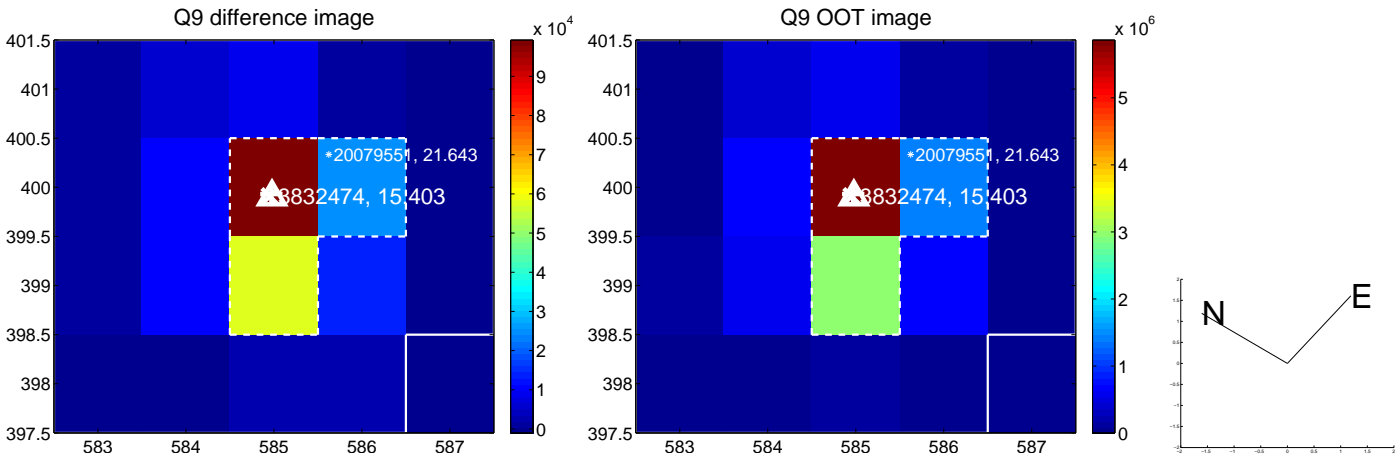
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



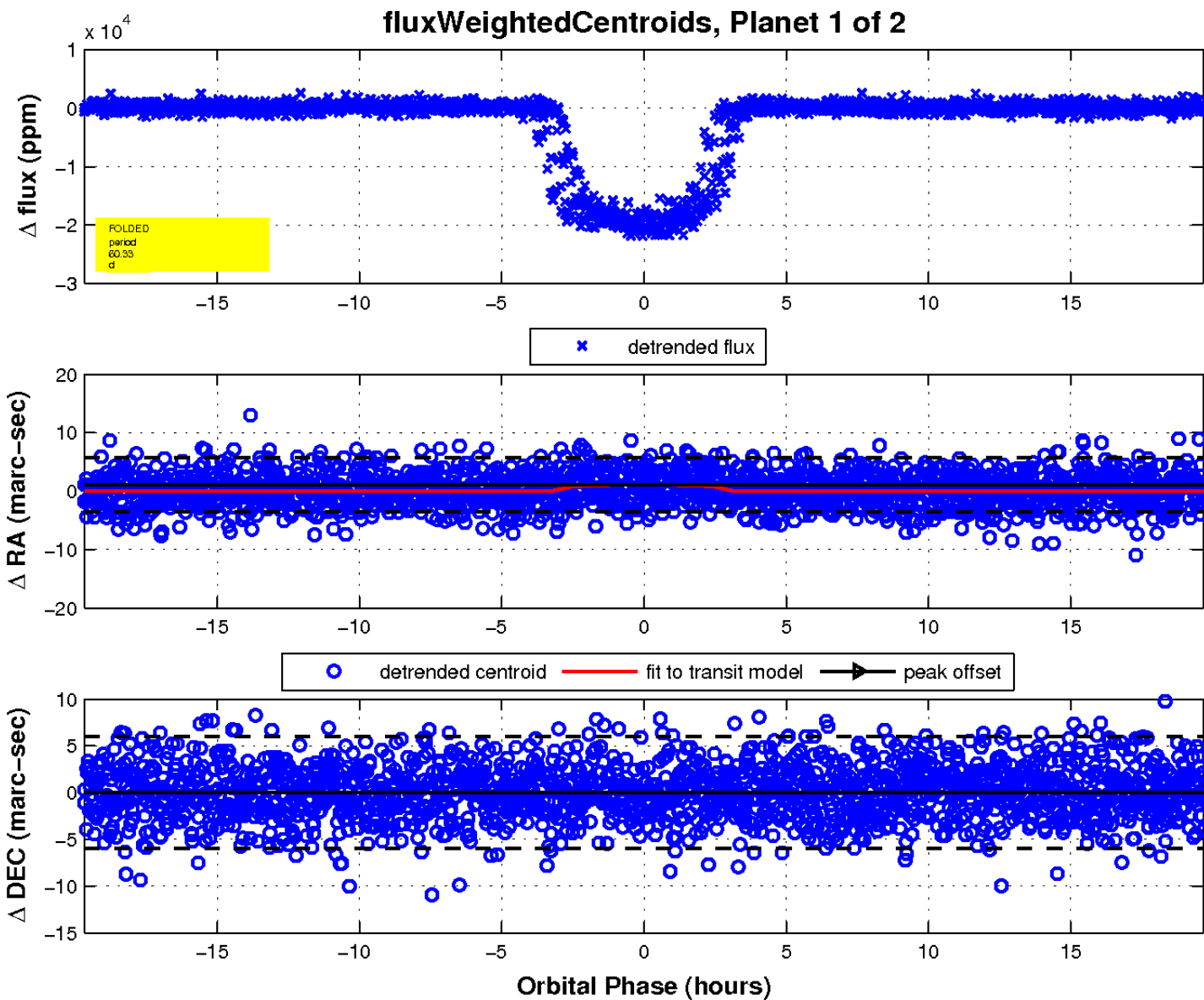
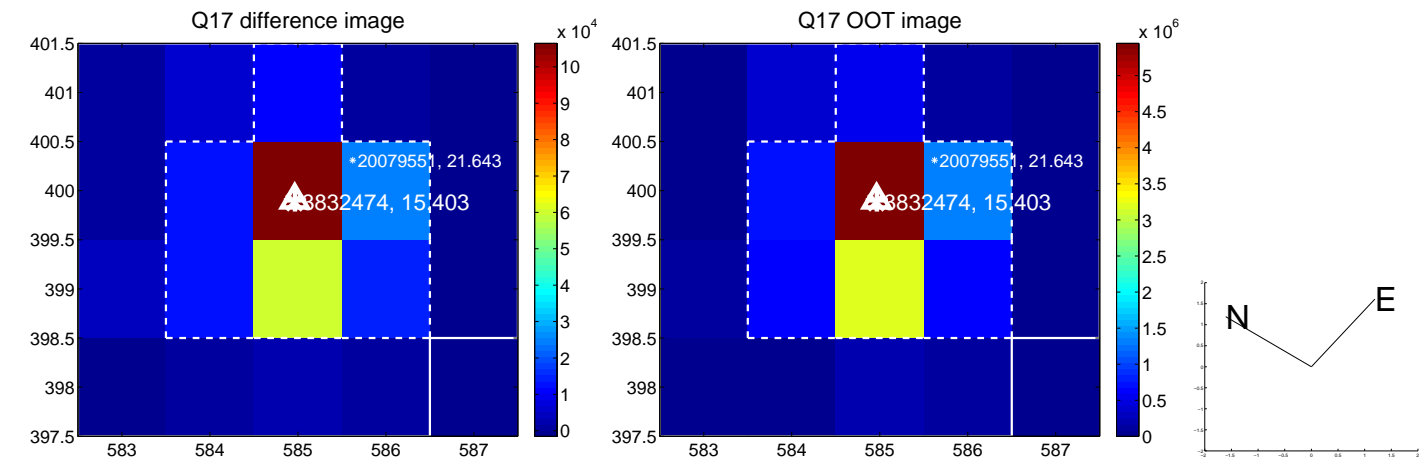
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

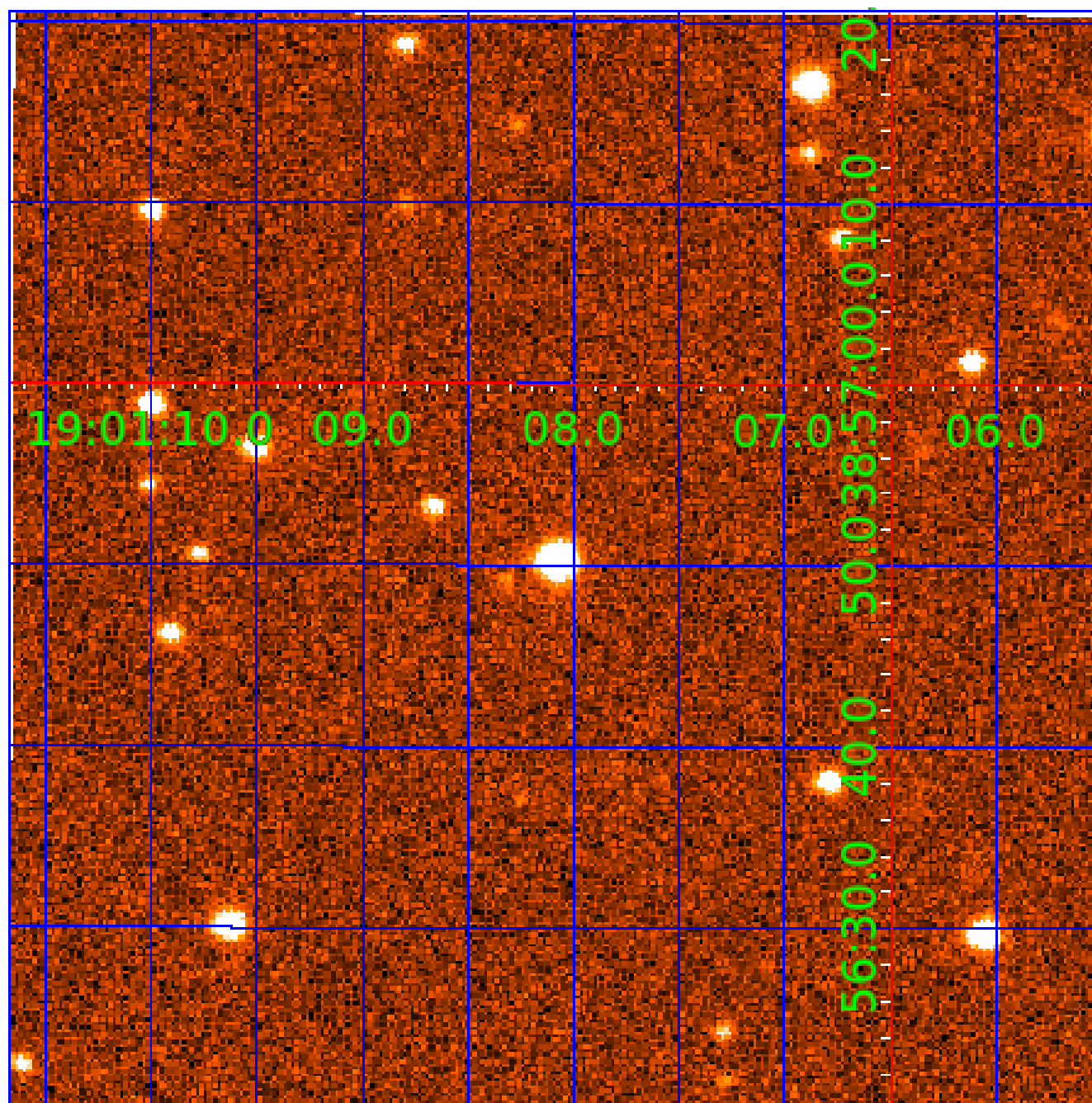


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003832474

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})
003832474-01	OBS	0806.02	60.325237	183.569094	20293.2	6.556	323.4	278.2	0.87	5485	12.10	6.79
003832474-02	OBS	0806.01	143.201422	154.262674	10468.5	8.667	115.6	113.4	0.87	5485	8.68	2.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003832474-01	OBS	PC	0.74	0	0	0	0	NO_COMMENT
003832474-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

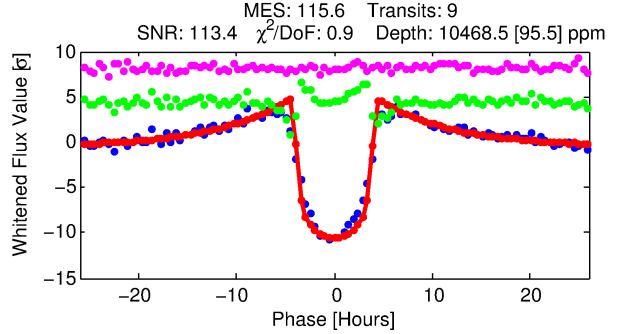
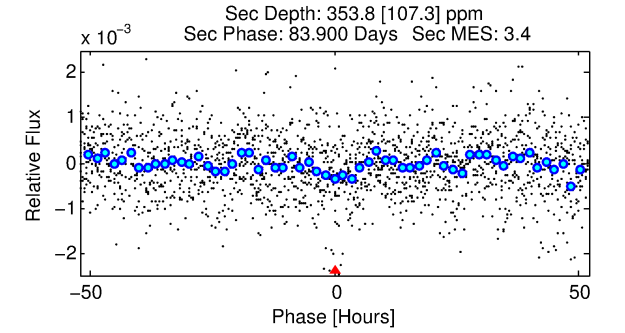
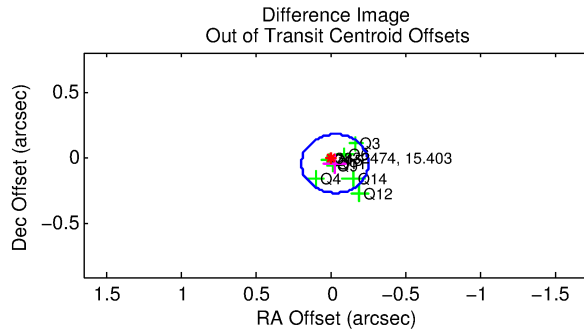
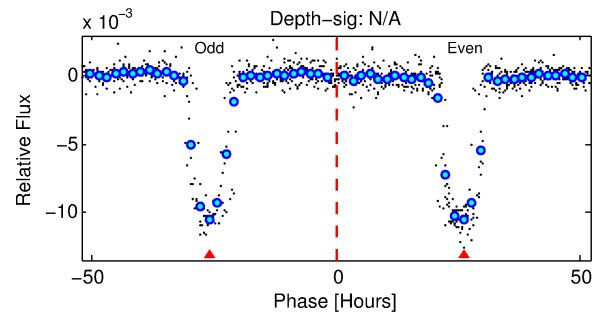
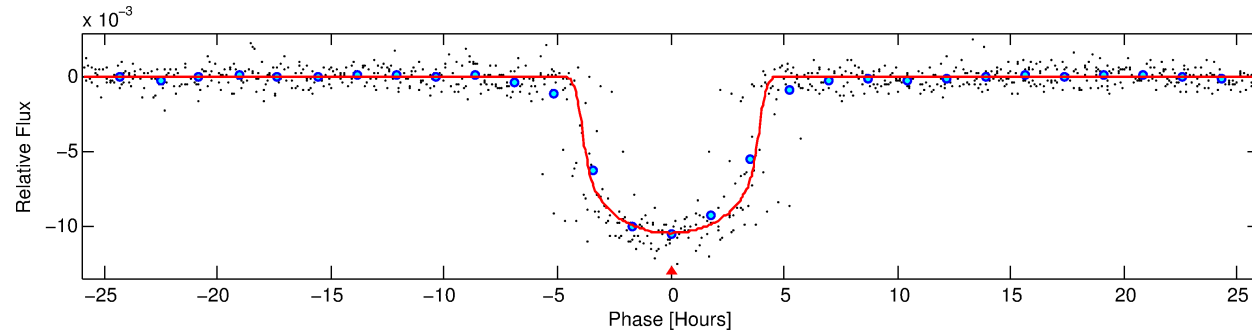
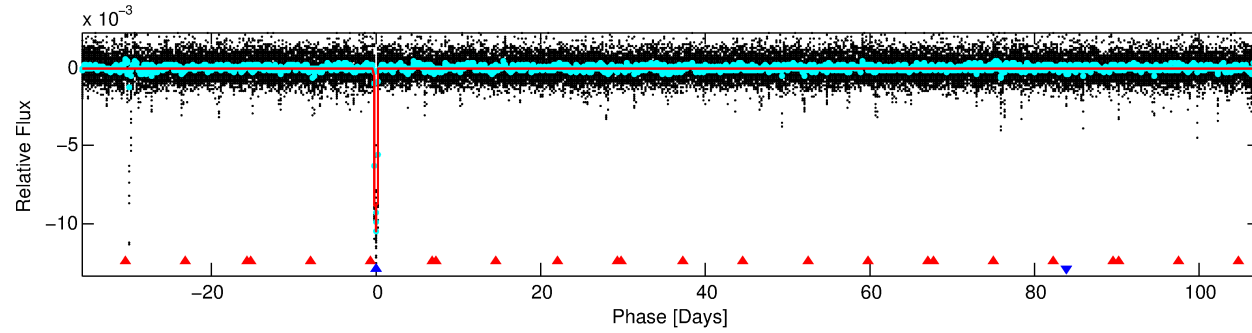
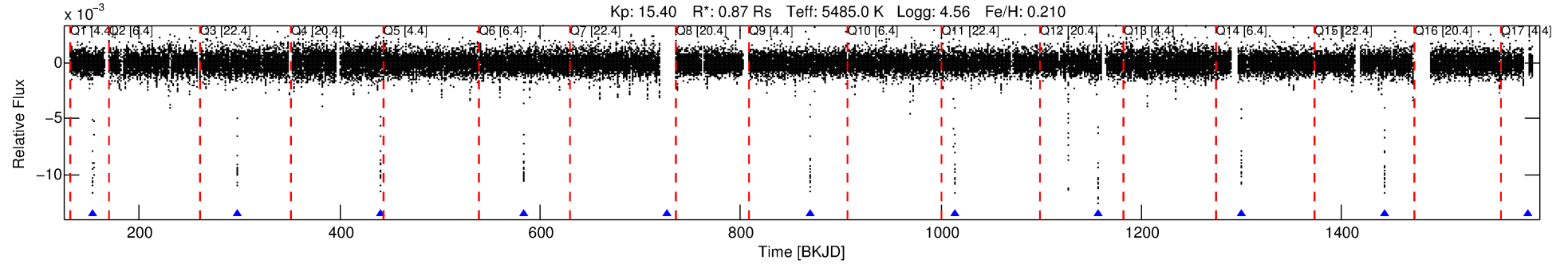
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003832474-02

No Significant Match Found

DV One-Page Summary

KIC: 3832474 Candidate: 2 of 2 Period: 143.201 d
KOI: K00806.01 Name: Kepler-30d Corr: 0.960



DV Fit Results:

Period = 143.20142 [0.00020] d
Epoch = 154.2627 [0.0011] BKJD
Rp/R* = 0.0918 [0.0017]
a/R* = 137.79 [8.82]
b = 0.02 [3.79]
Seff = 2.14 [0.35]
Teq = 309 [13] K
Rp = 8.68 [0.81] Re
a = 0.5333 [0.0464] AU
Ag = 734.41 [246.31] [2.98 σ]
Teffp = 2483 [197] K [11.00 σ]

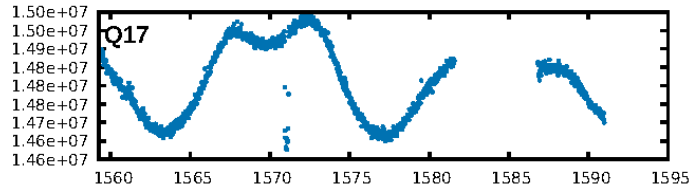
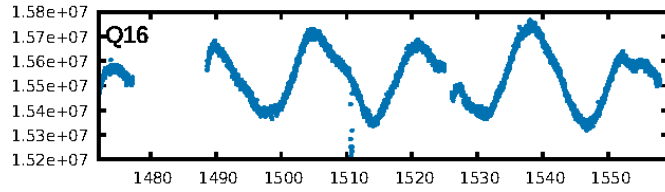
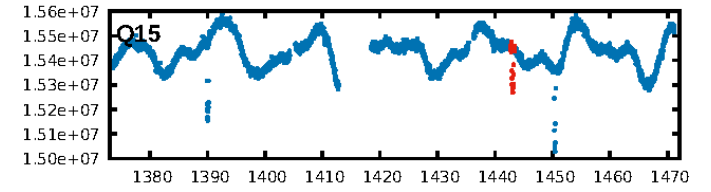
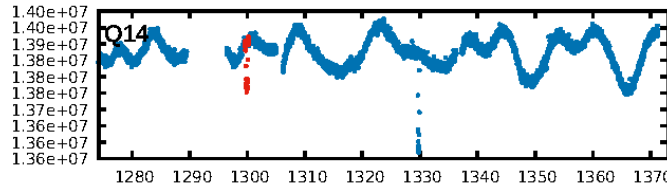
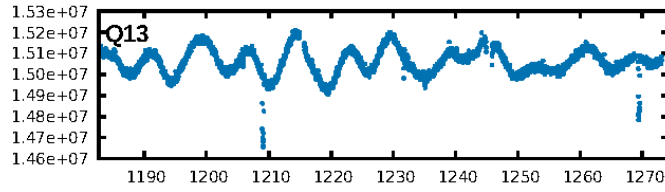
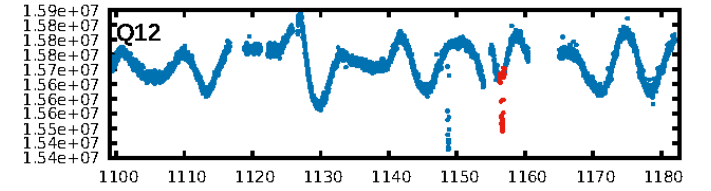
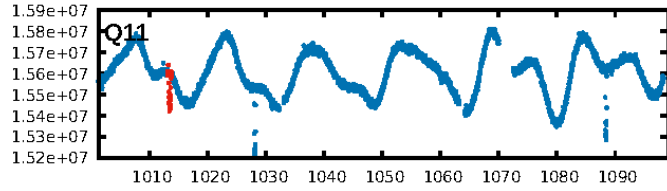
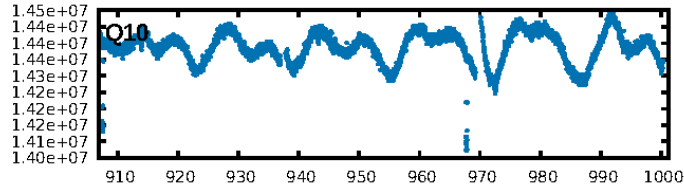
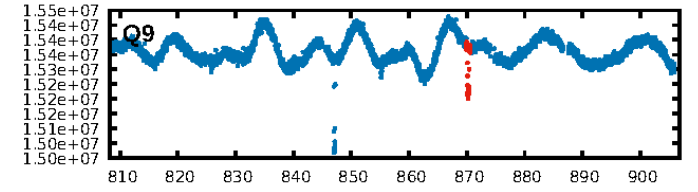
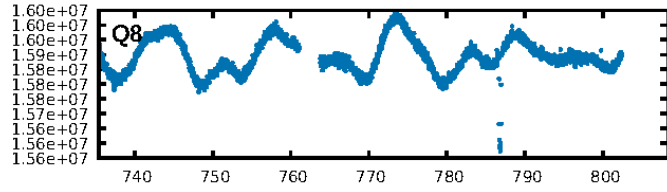
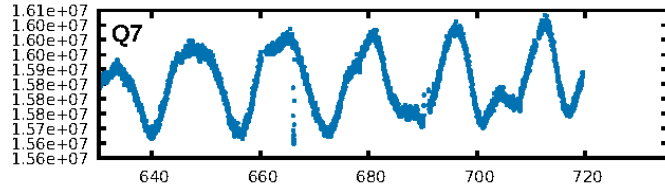
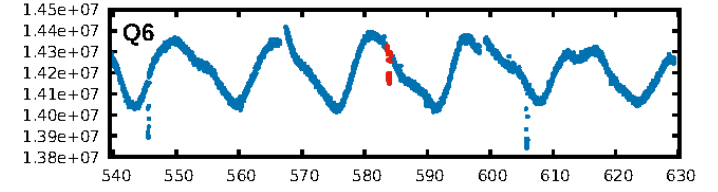
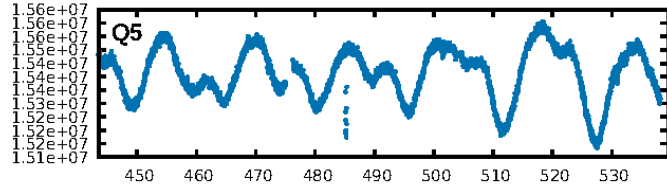
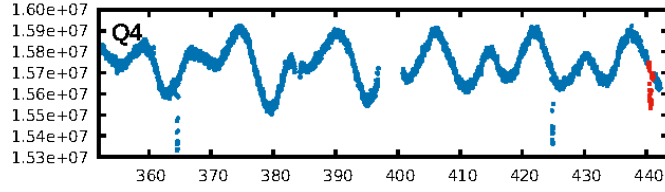
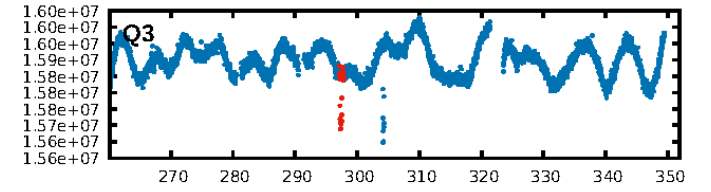
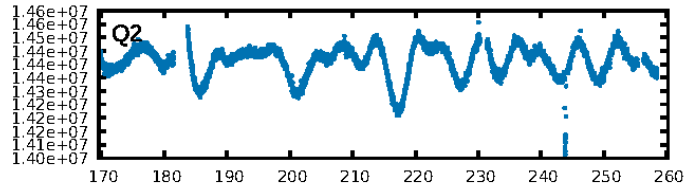
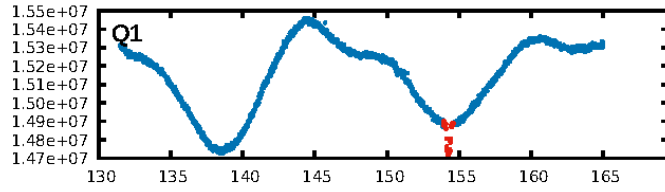
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [183.02 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 42.7%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 2.563
Centroid-sig: 8.1%
Centroid-so: 0.500 arcsec [6.81 σ]
OotOffset-rm: 0.052 arcsec [0.71 σ]
KicOffset-rm: 0.044 arcsec [0.59 σ]
OotOffset-st: 2/3/2/2 [9]
KicOffset-st: 2/3/2/2 [9]
DiffImageQuality-fgm: 1.00 [9/9]
DiffImageOverlap-fno: 1.00 [9/9]

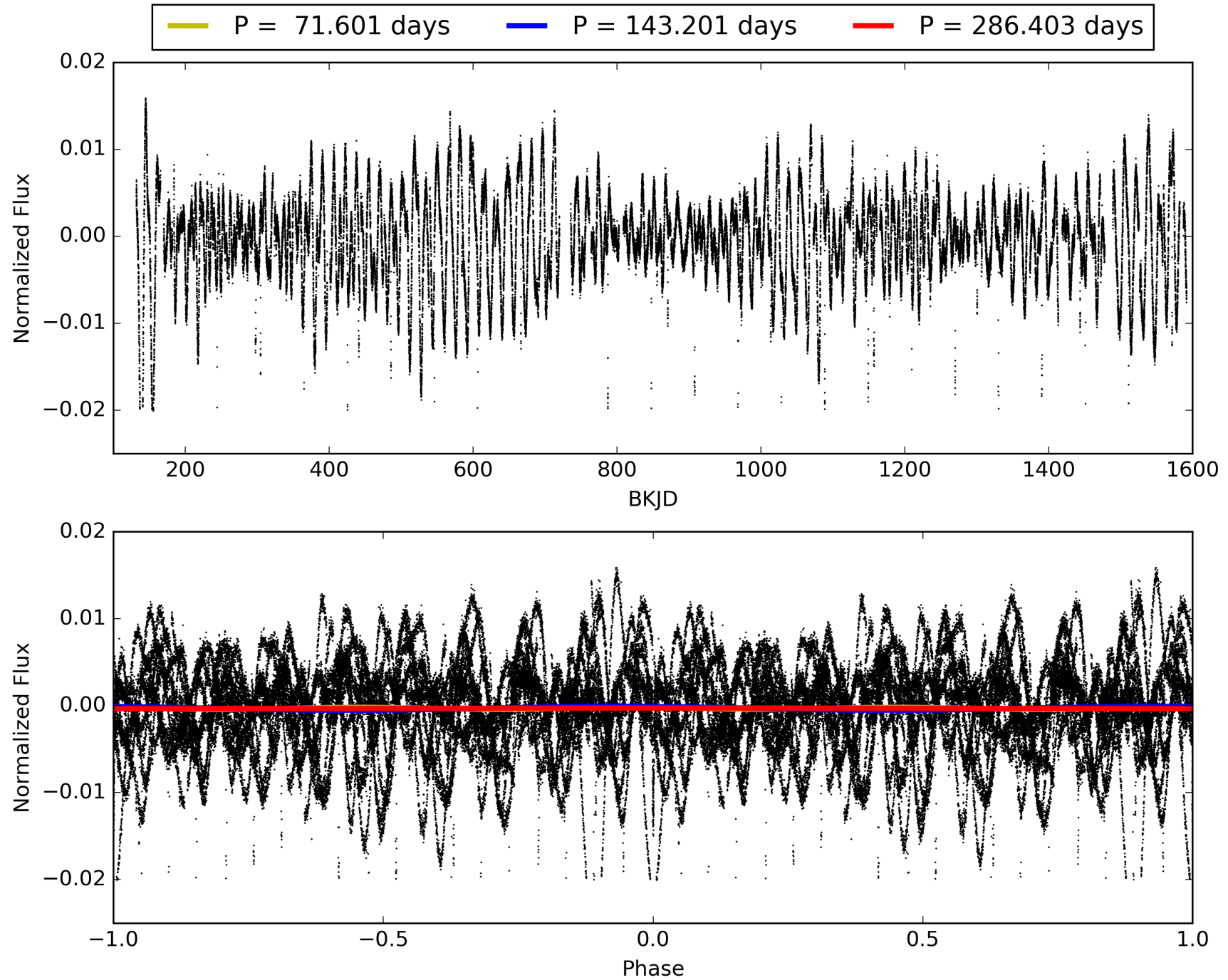
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:04:19 Z

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

TCE 003832474-02, PDC Light Curves

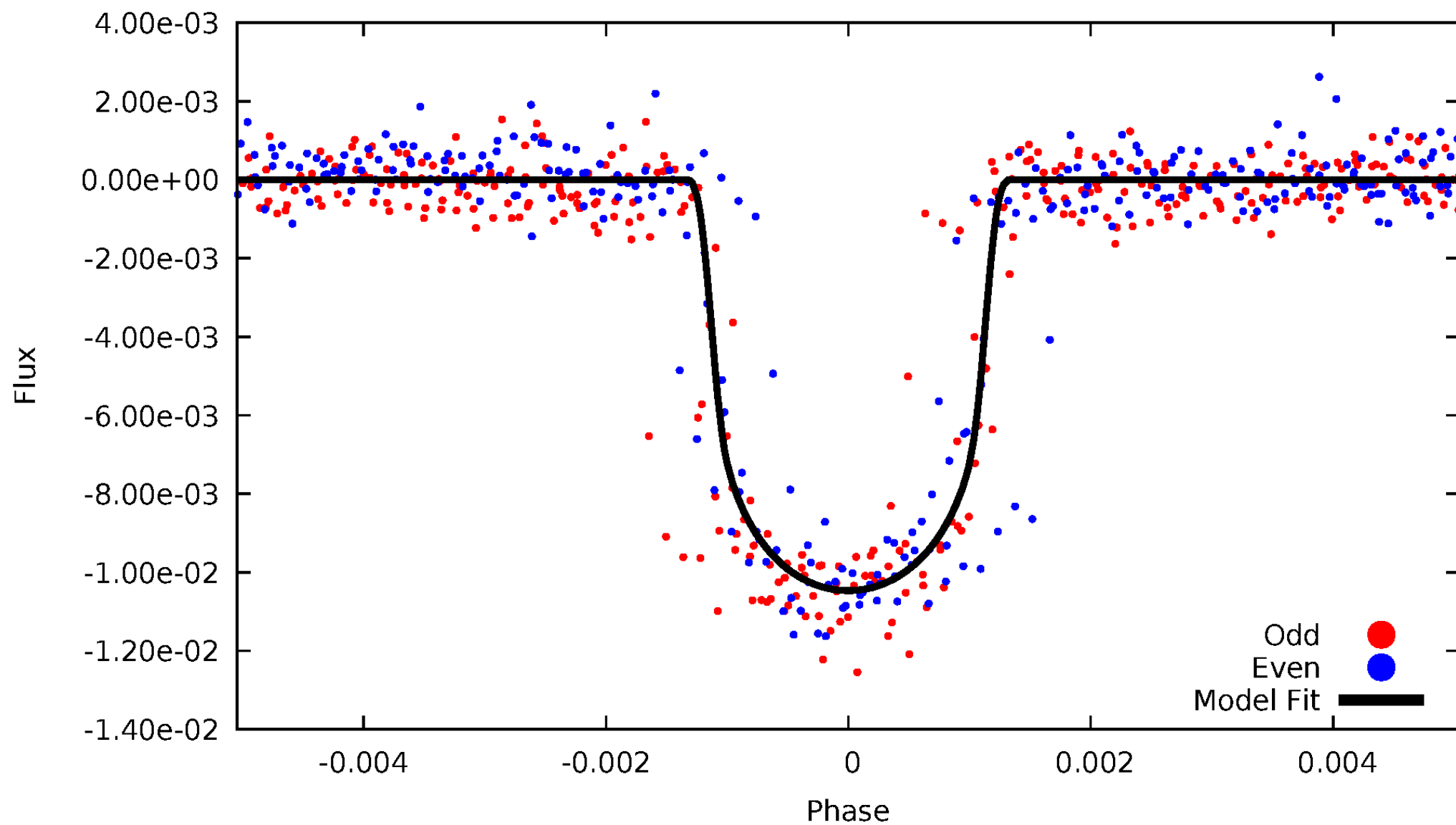


TCE 003832474-02



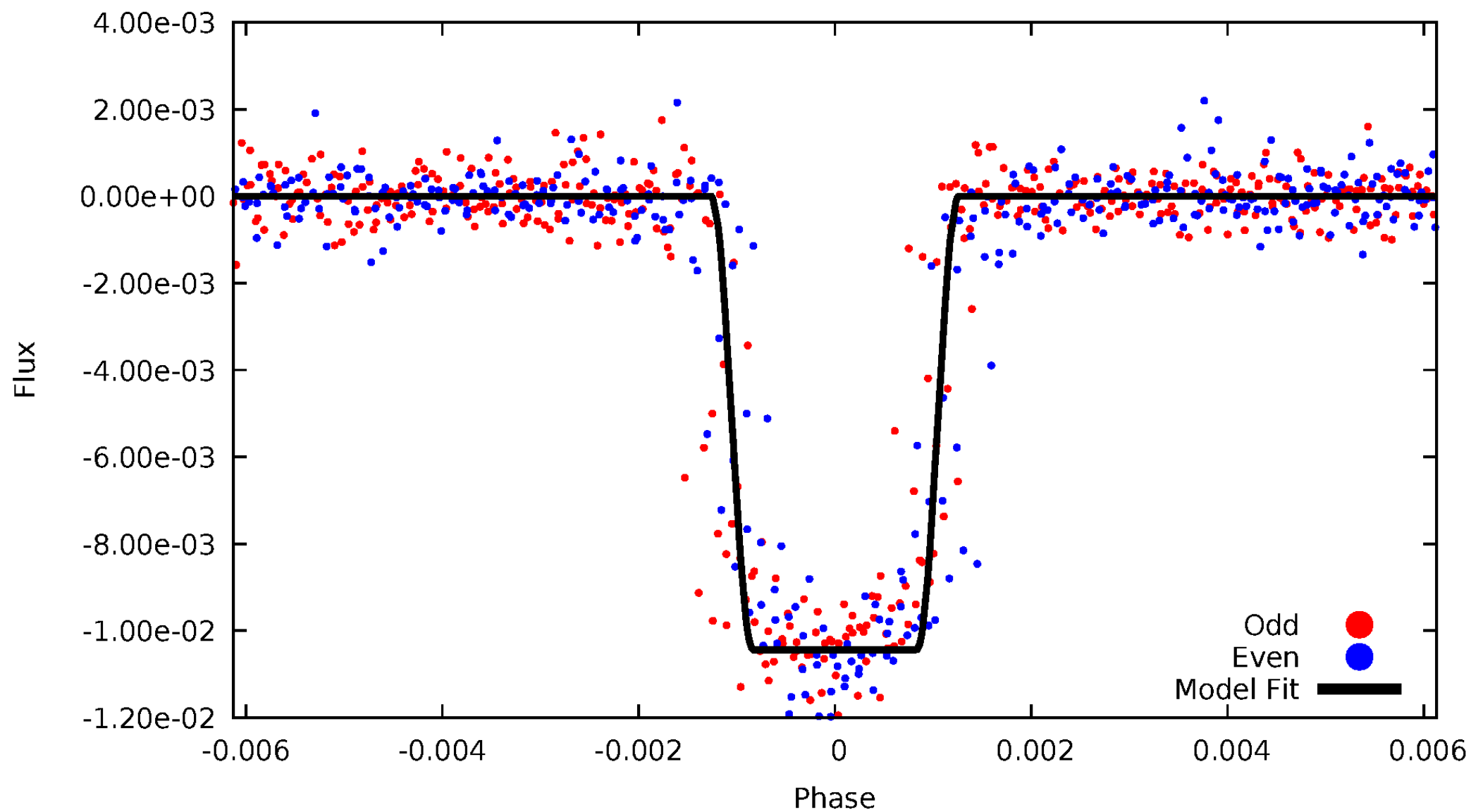
DV Odd/Even

TCE 003832474-02



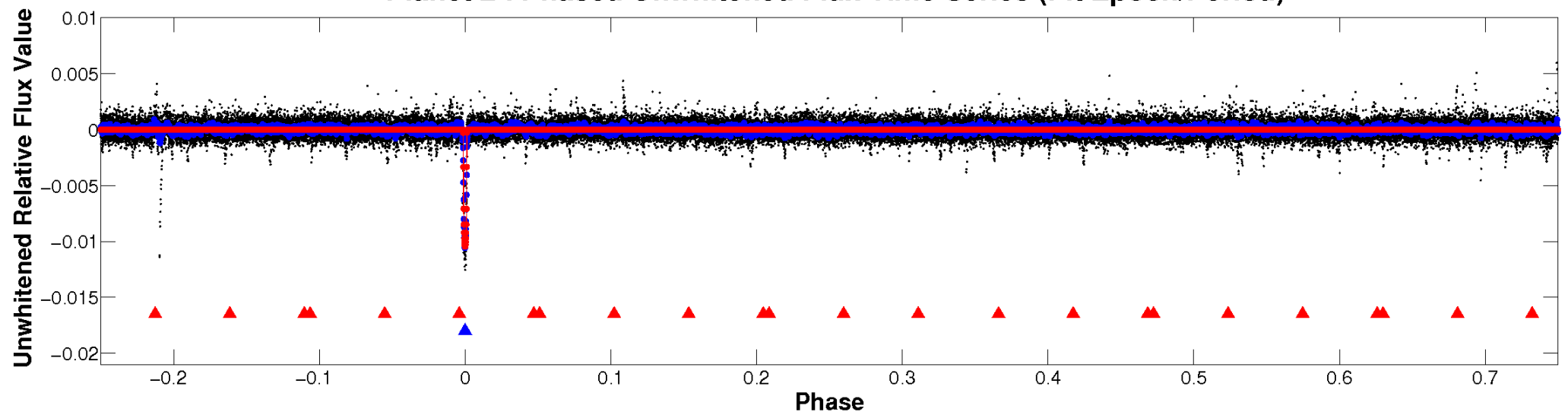
ALT Odd/Even

TCE 003832474-02

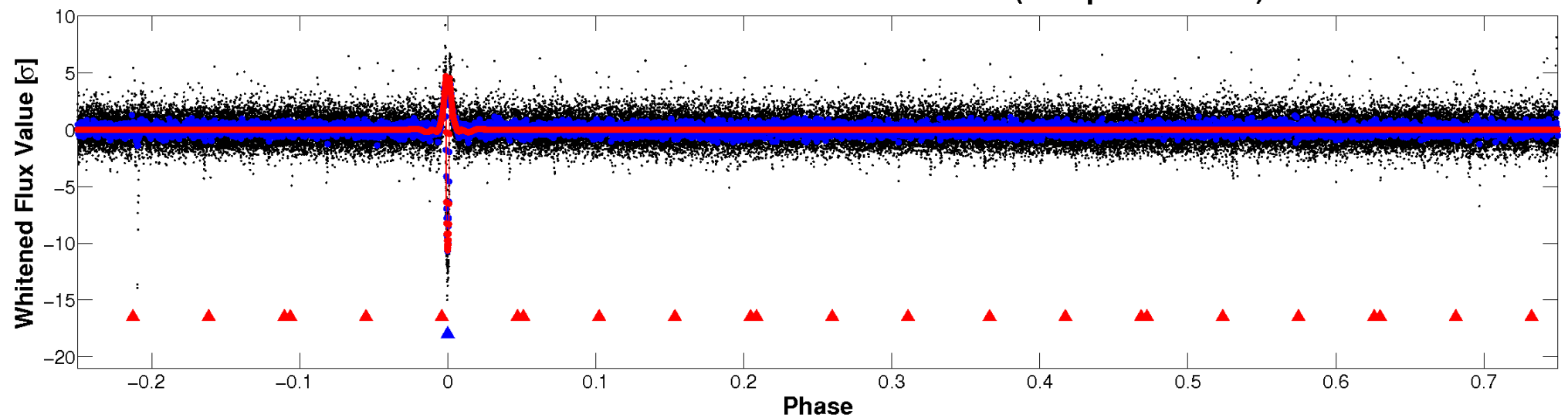


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

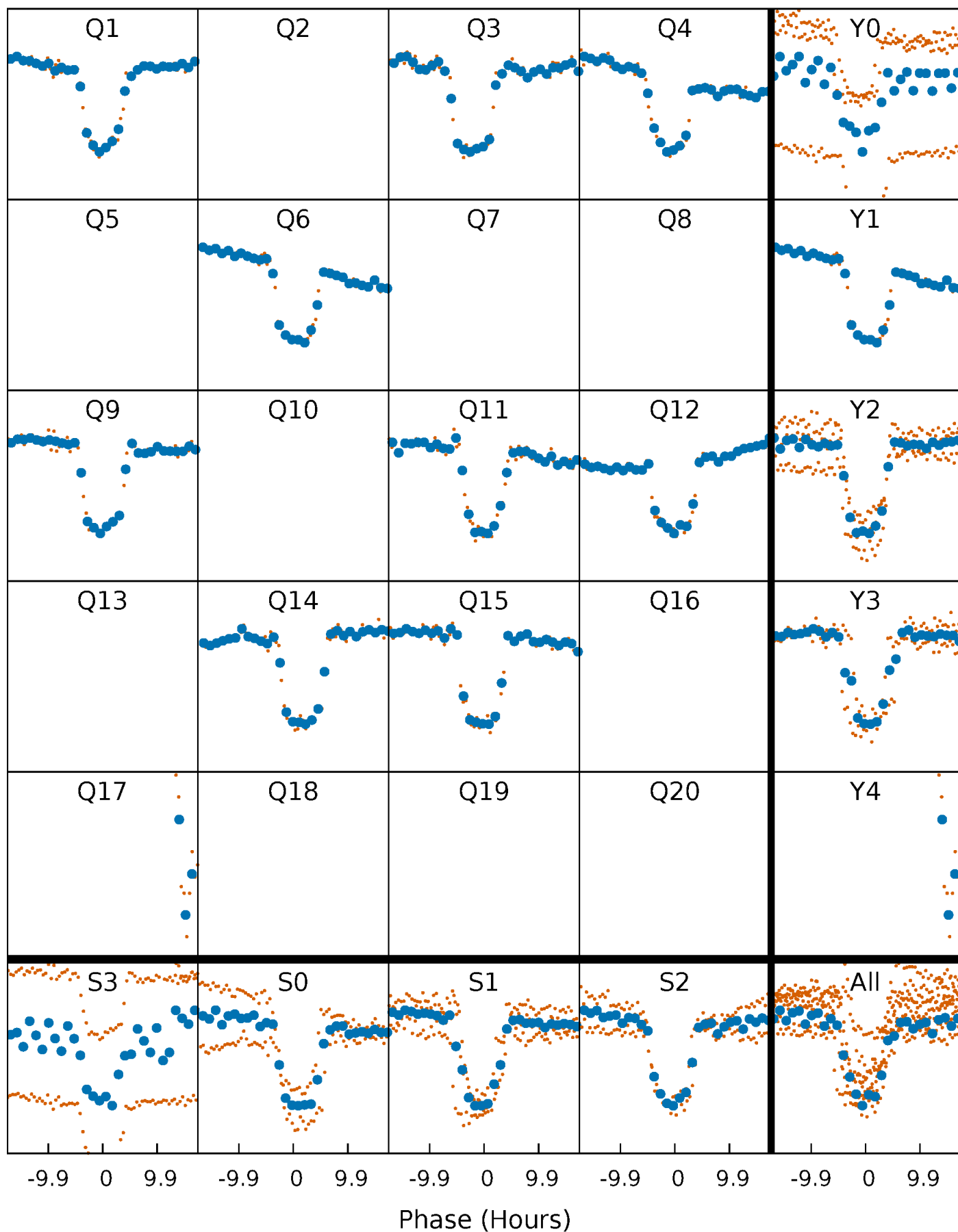


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



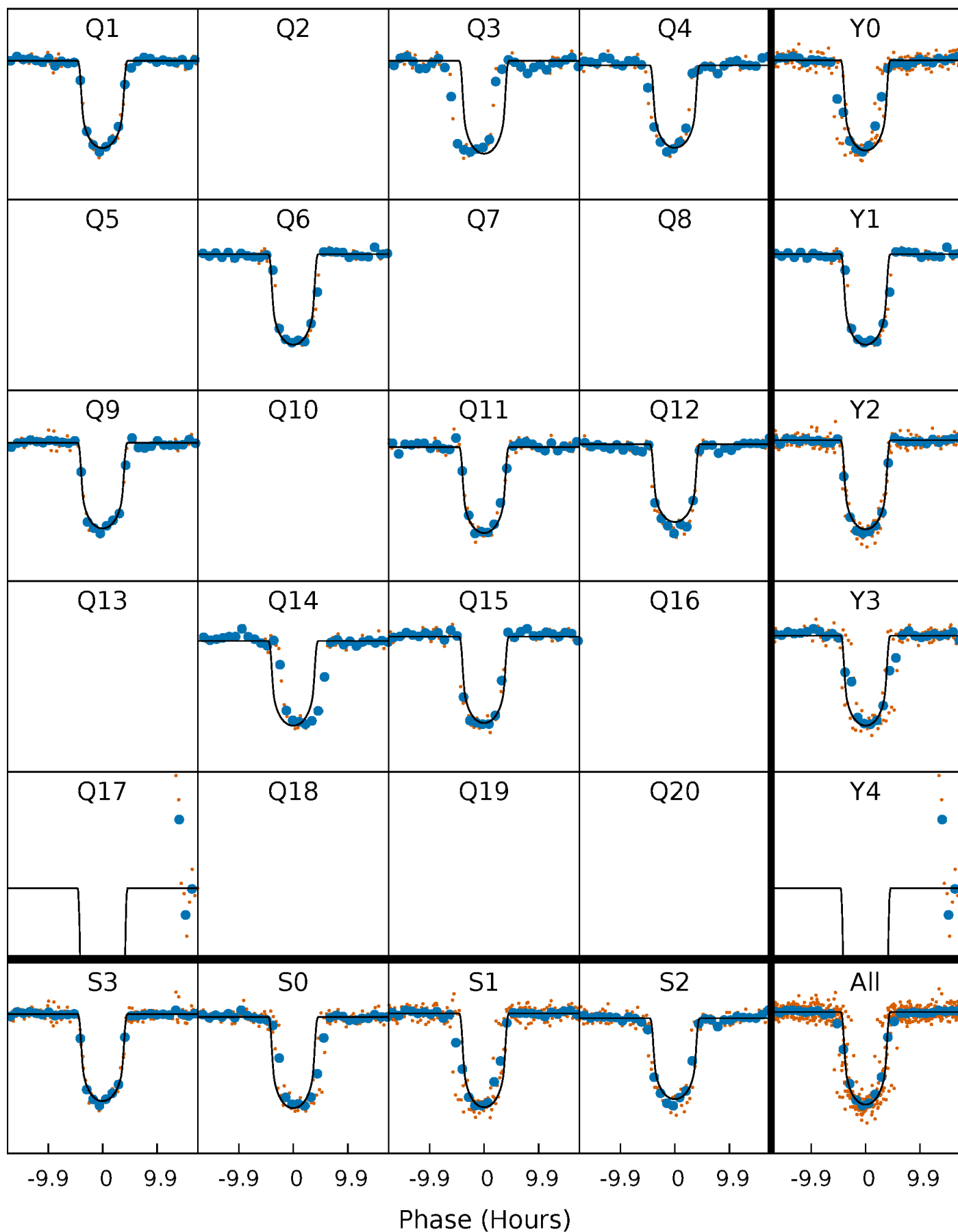
PDC Quarter-Phased Transit Curves

TCE 003832474-02 P=143.201422 Days $T_0=154.262675$ (BKJD)



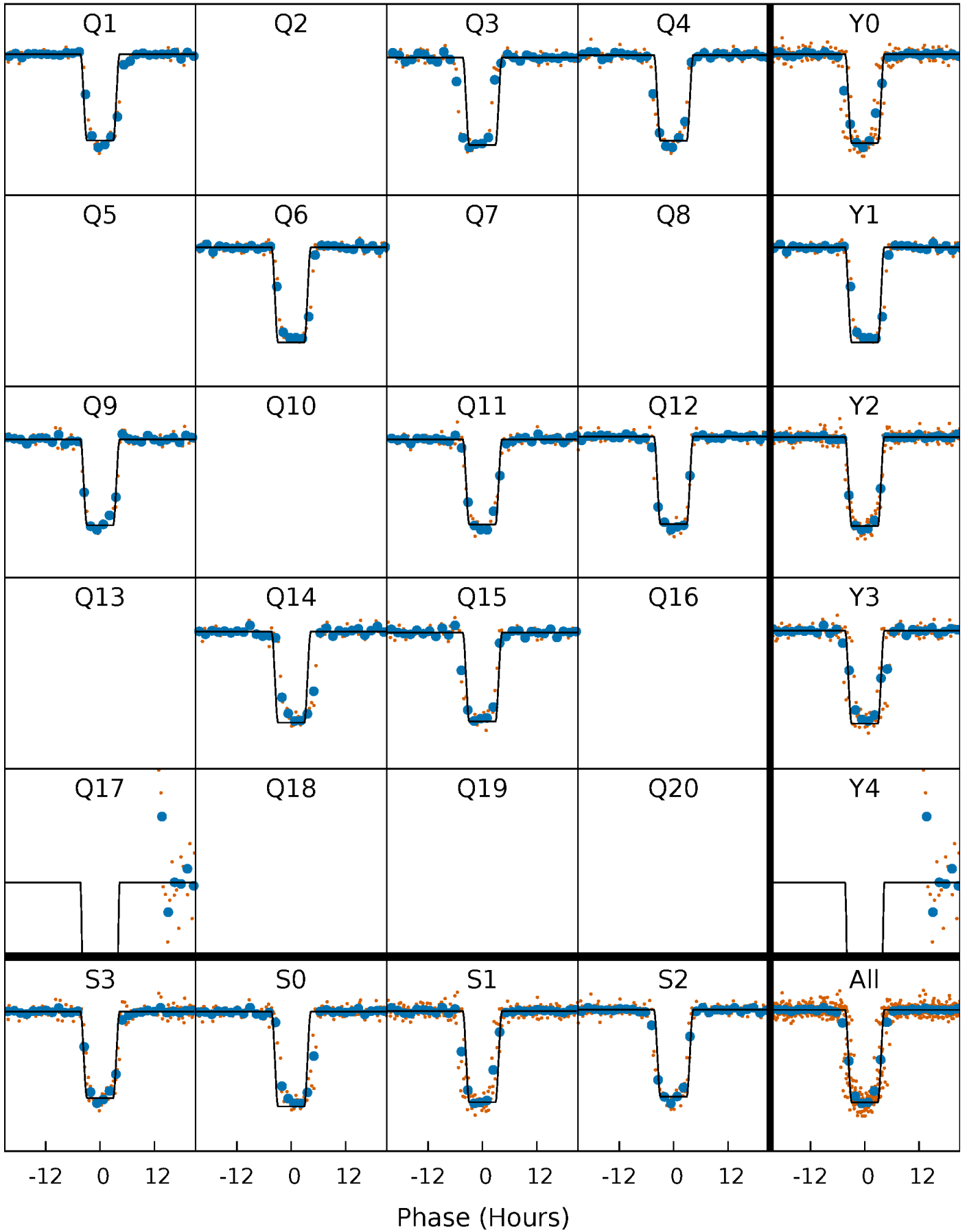
DV Quarter-Phased Transit Curves

TCE 003832474-02 P=143.201422 Days $T_0=154.262675$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

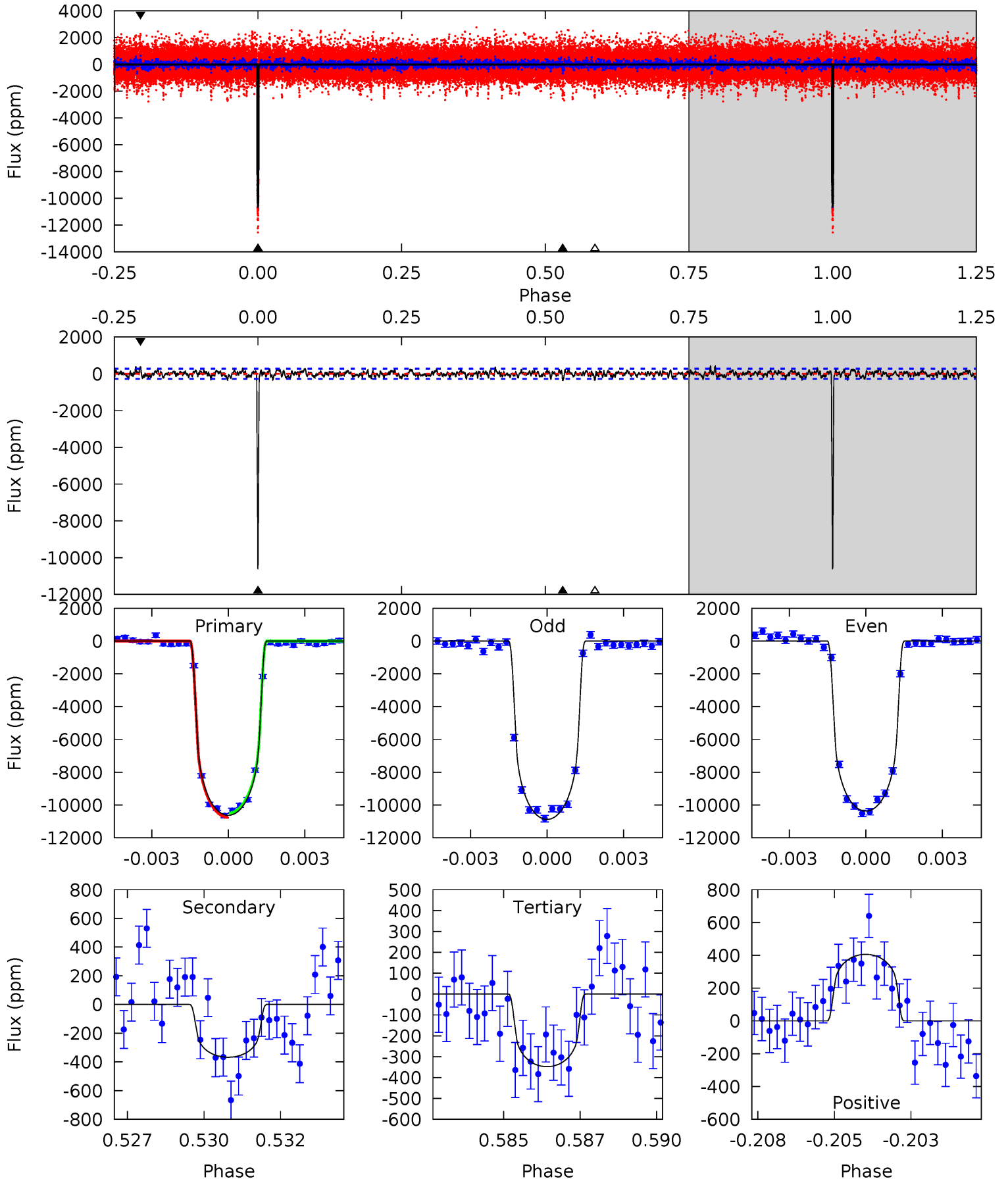
TCE 003832474-02 P=143.205200 Days $T_0=154.242125$ (BKJD)



DV Model-Shift Uniqueness Test

003832474-02, P = 143.201422 Days, E = 11.061253 Days

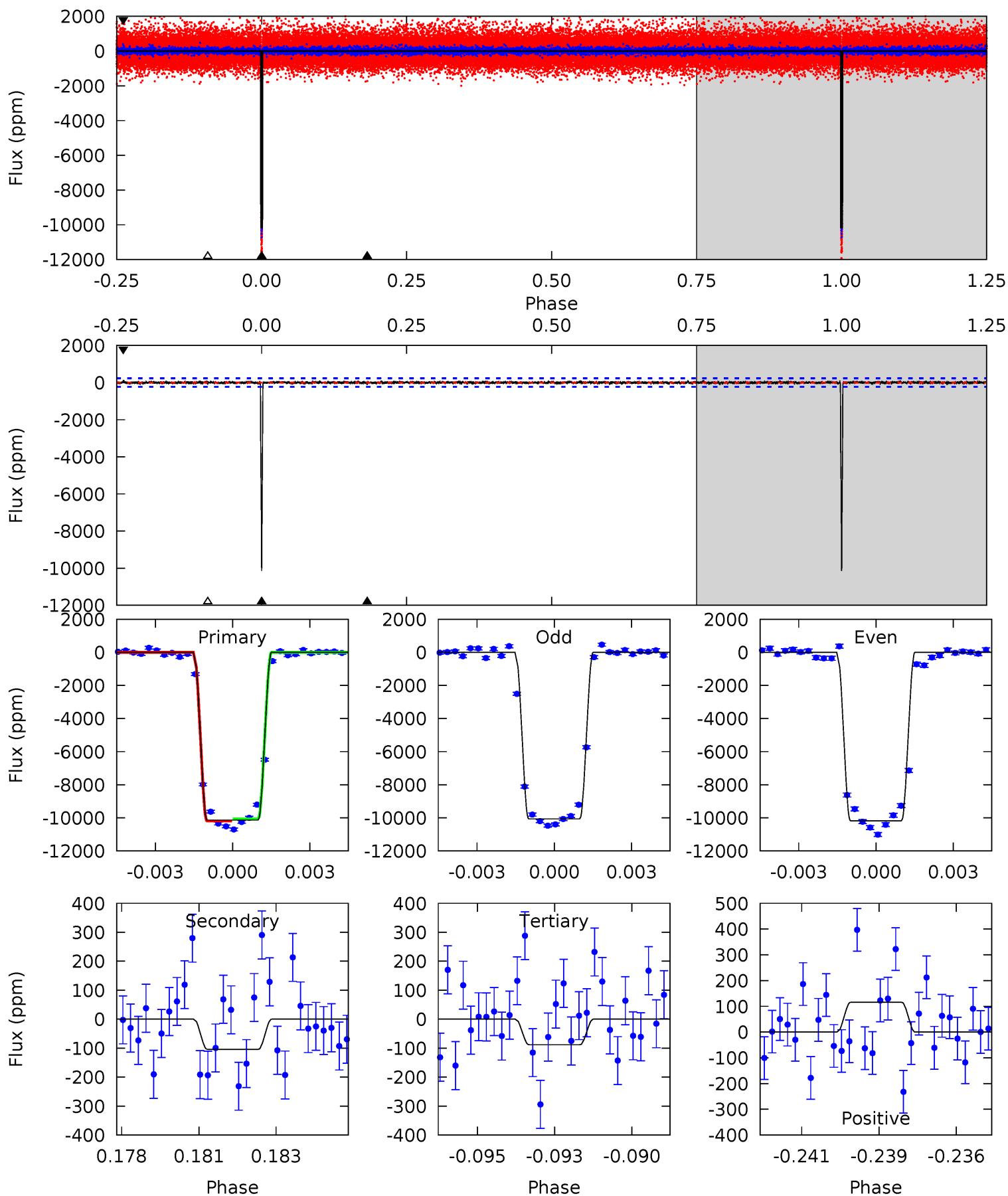
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
202.4	6.99	6.62	7.72	5.28	3.01	1.98	195.7	194.6	0.37	-0.73	4.84	0.99	0.04	2.53



Alt Model-Shift Uniqueness Test

003832474-02, $P = 143.205200$ Days, $E = 11.036925$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
232.8	2.39	2.02	2.65	5.29	3.02	0.52	230.8	230.1	0.37	-0.27	1.31	0.98	0.01	1.56



Stellar Parameters For KIC 003832474

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5485^{+98}_{-120}	$4.556^{+0.014}_{-0.081}$	$0.210^{+0.150}_{-0.200}$	$0.867^{+0.079}_{-0.037}$	$0.986^{+0.035}_{-0.082}$	$2.133^{+0.192}_{-0.485}$
	+2%/-2%	+0%/-2%	+71%/-95%	+9%/-4%	+4%/-8%	+9%/-23%
Source	SPE34	SPE34	SPE34	DSEP		

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

Secondary Eclipse Parameters for KIC 003832474-02 / KOI 0806.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-367 ± 53	$8.80^{+0.45}_{-0.34}$	436^{+13}_{-11}	3115^{+77}_{-76}	723^{+118}_{-116}
Alt.	-104 ± 44	$9.80^{+0.48}_{-0.37}$	435^{+13}_{-11}	2560^{+124}_{-177}	166^{+73}_{-71}

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

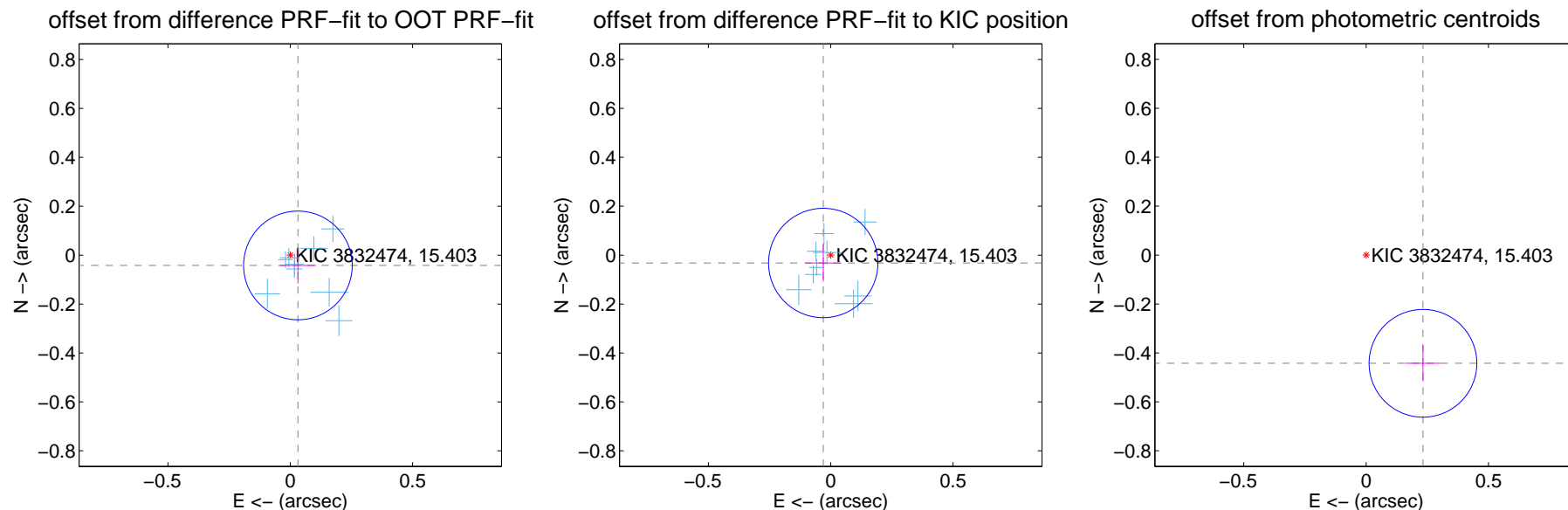
DV Centroid Data

Supplemental centroid analysis for 003832474-02. Kepler magnitude: 15.40. Transit SNR 113.43

There are 9 quarters with good PRF difference image offsets

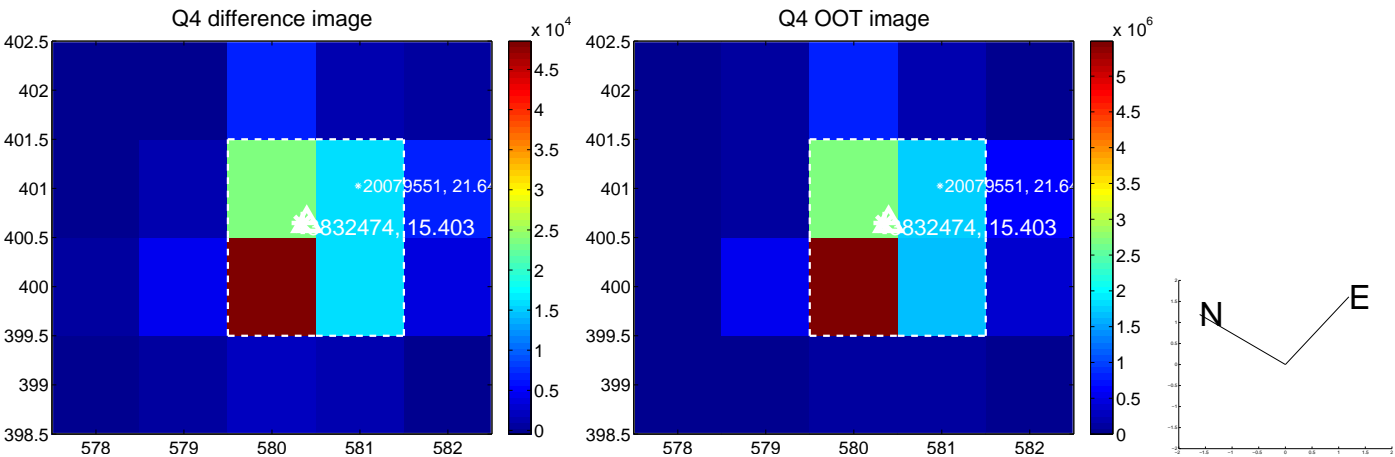
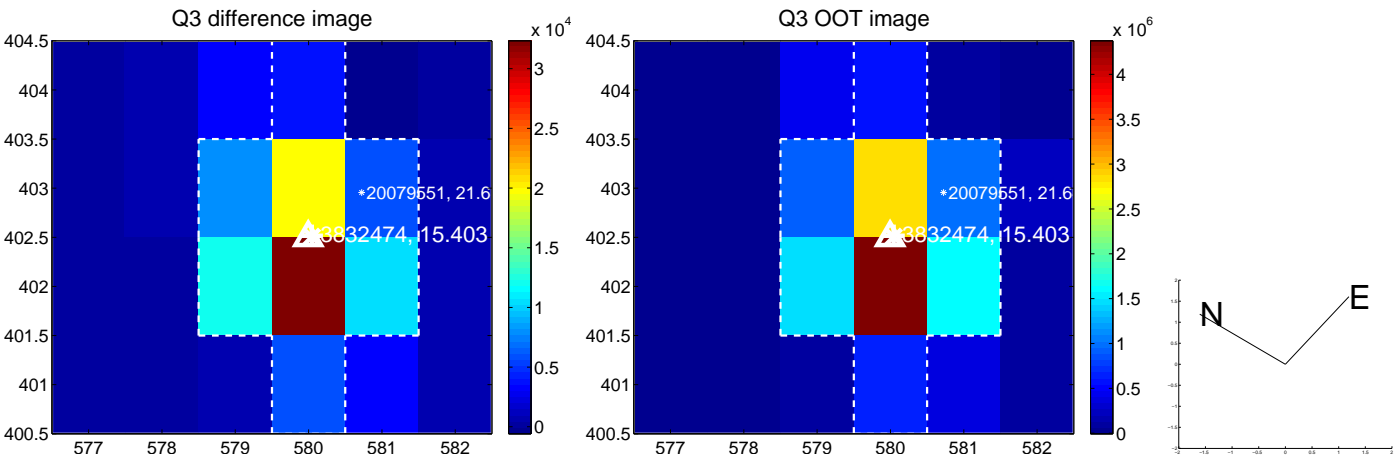
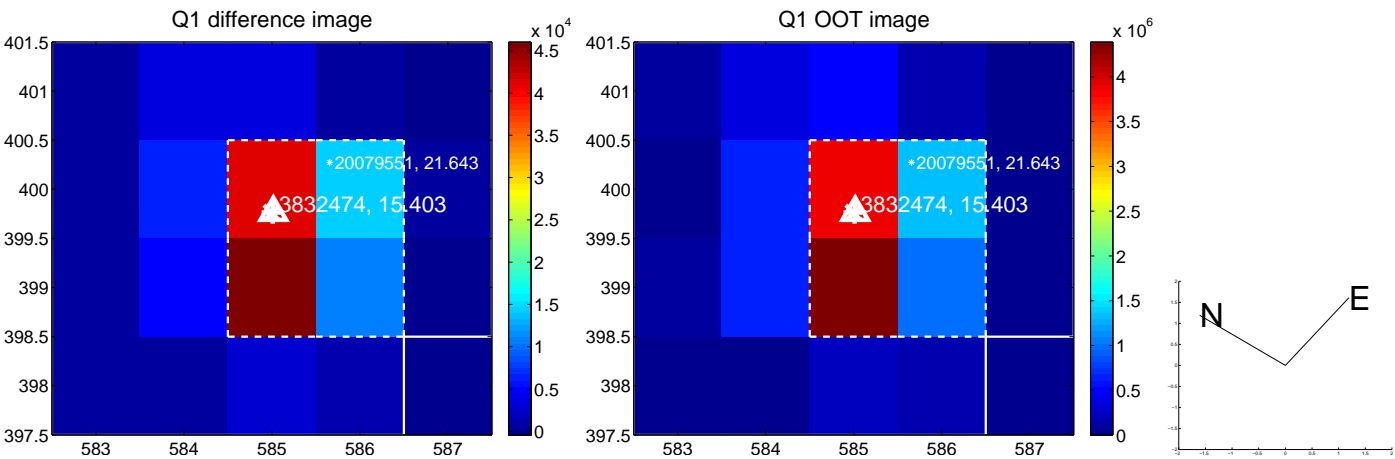
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.052 ± 0.074	0.71	-0.031 ± 0.074	-0.042 ± 0.074
PRF-fit source offset from KIC position	0.044 ± 0.075	0.59	0.031 ± 0.073	-0.032 ± 0.076
photometric centroid source offset	0.50 ± 0.07	6.81	-0.23 ± 0.07	-0.44 ± 0.07



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.

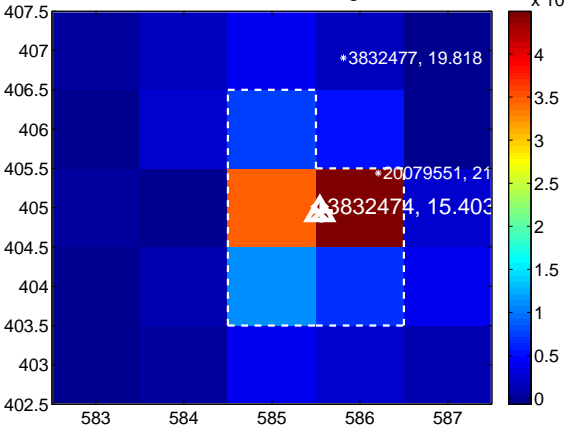
Q5 no difference image



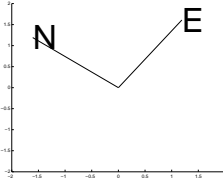
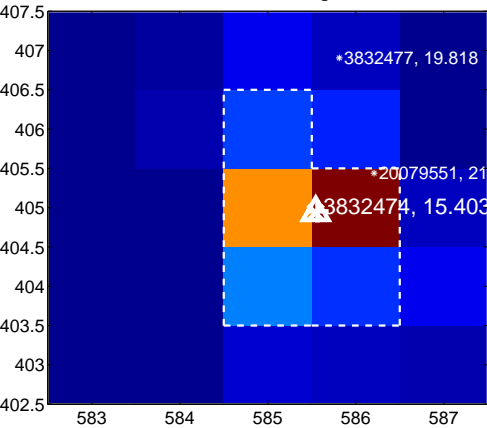
Q5 no OOT image



Q6 difference image



Q6 OOT image



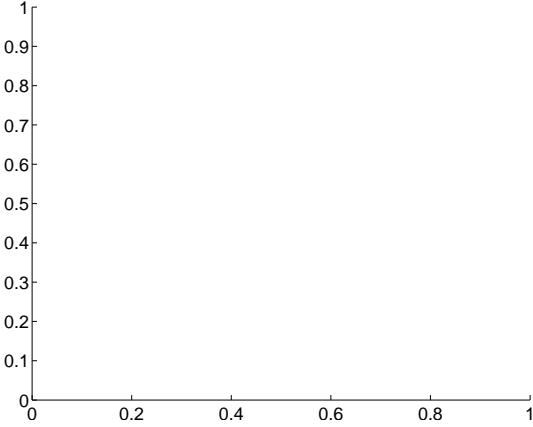
Q7 no difference image



Q7 no OOT image



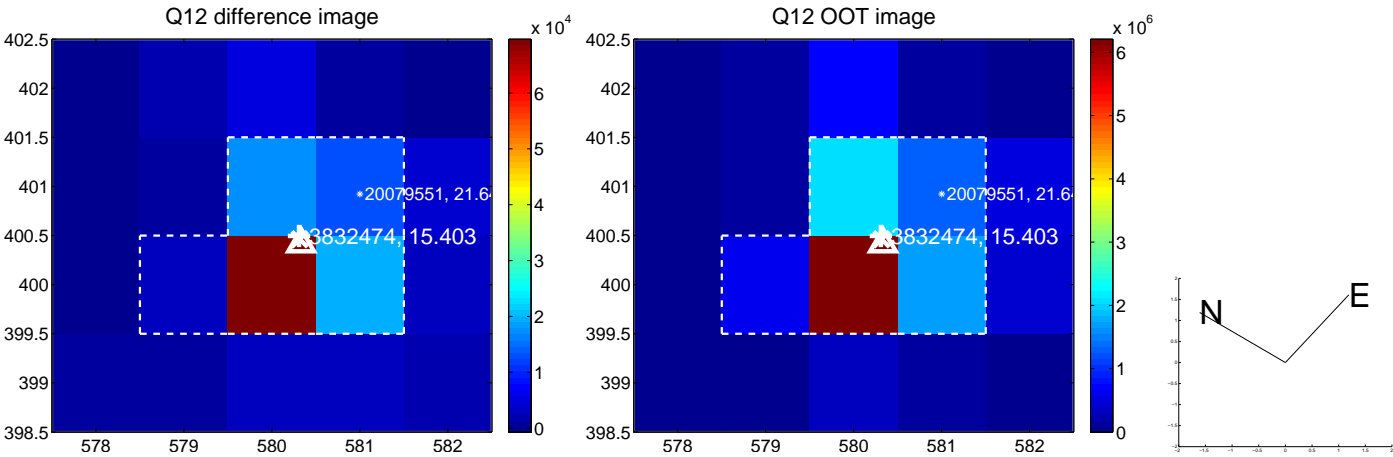
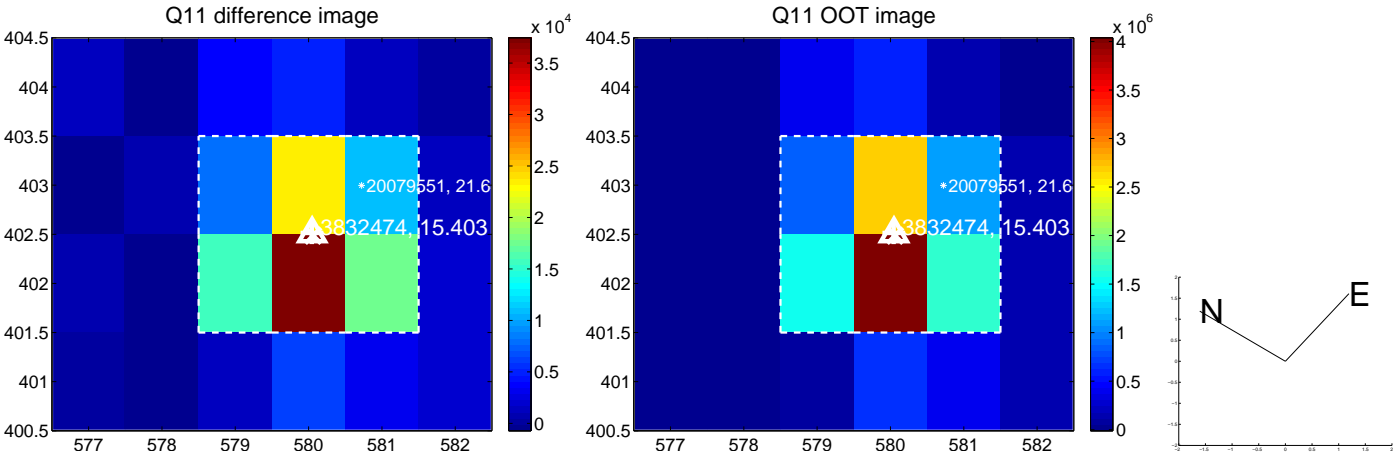
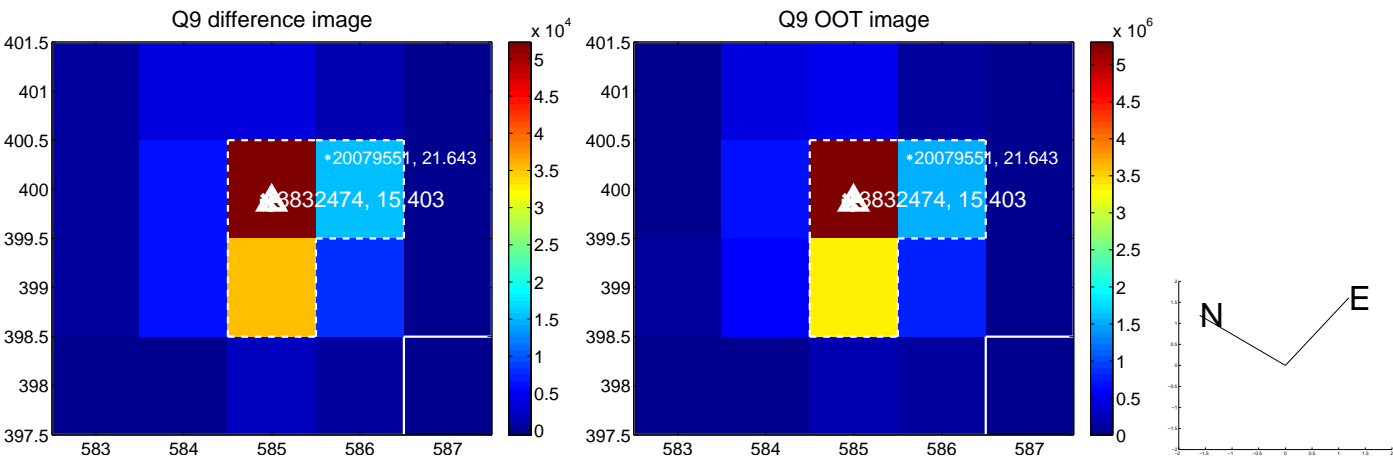
Q8 no difference image



Q8 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.

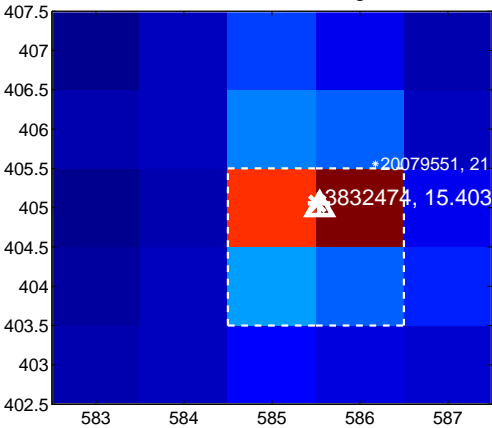
Q13 no difference image



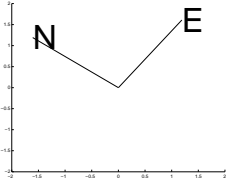
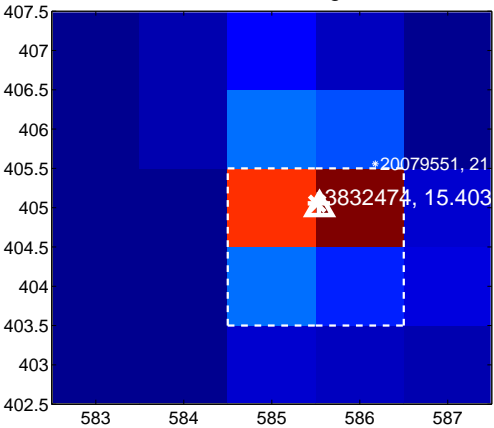
Q13 no OOT image



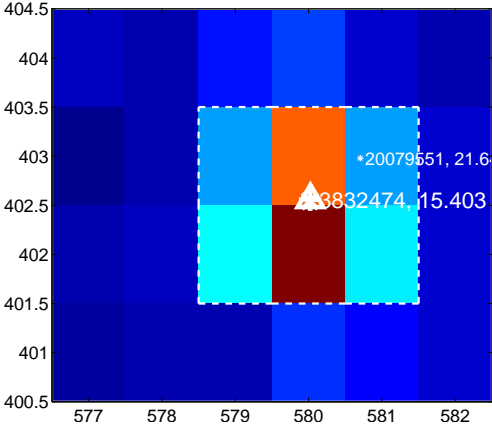
Q14 difference image



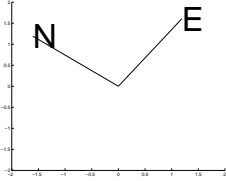
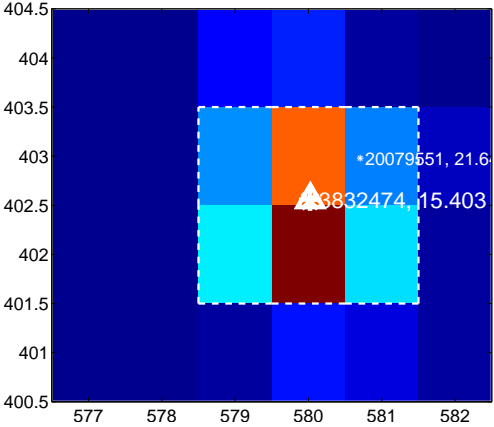
Q14 OOT image



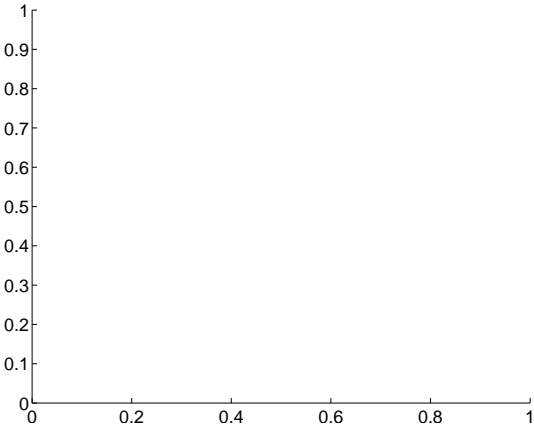
Q15 difference image



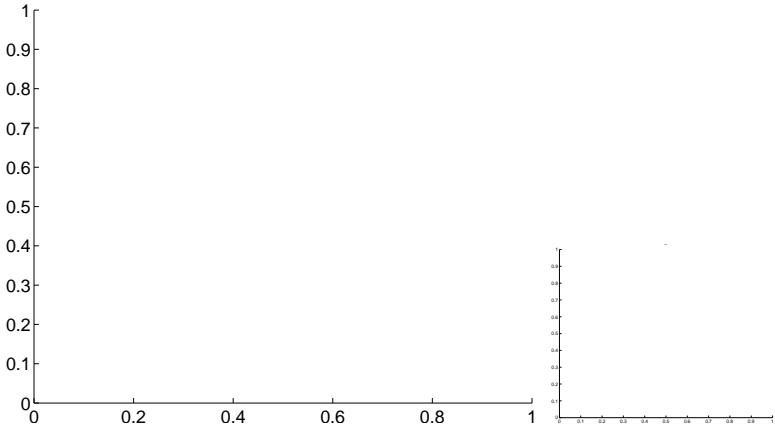
Q15 OOT image



Q16 no difference image

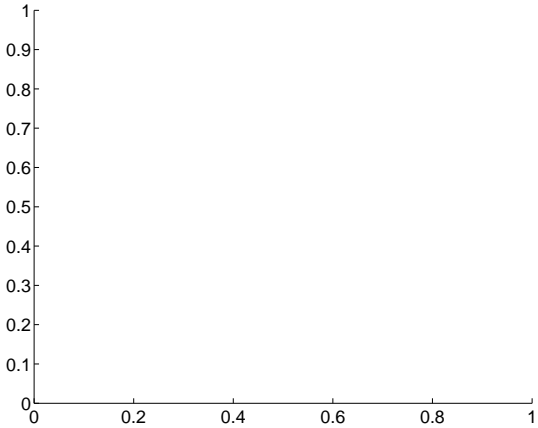


Q16 no OOT image

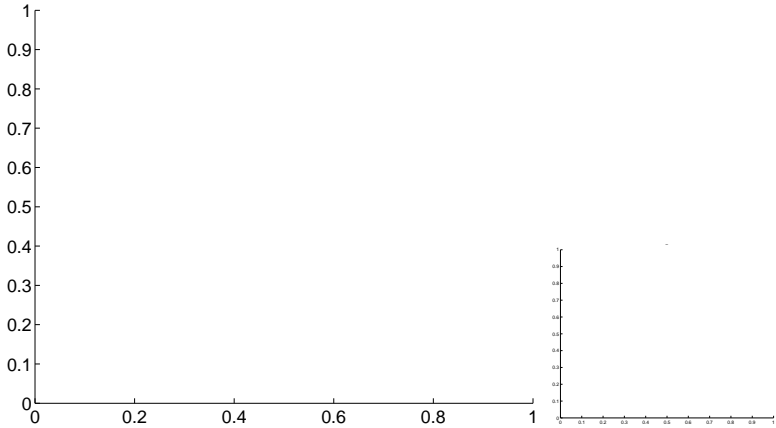


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

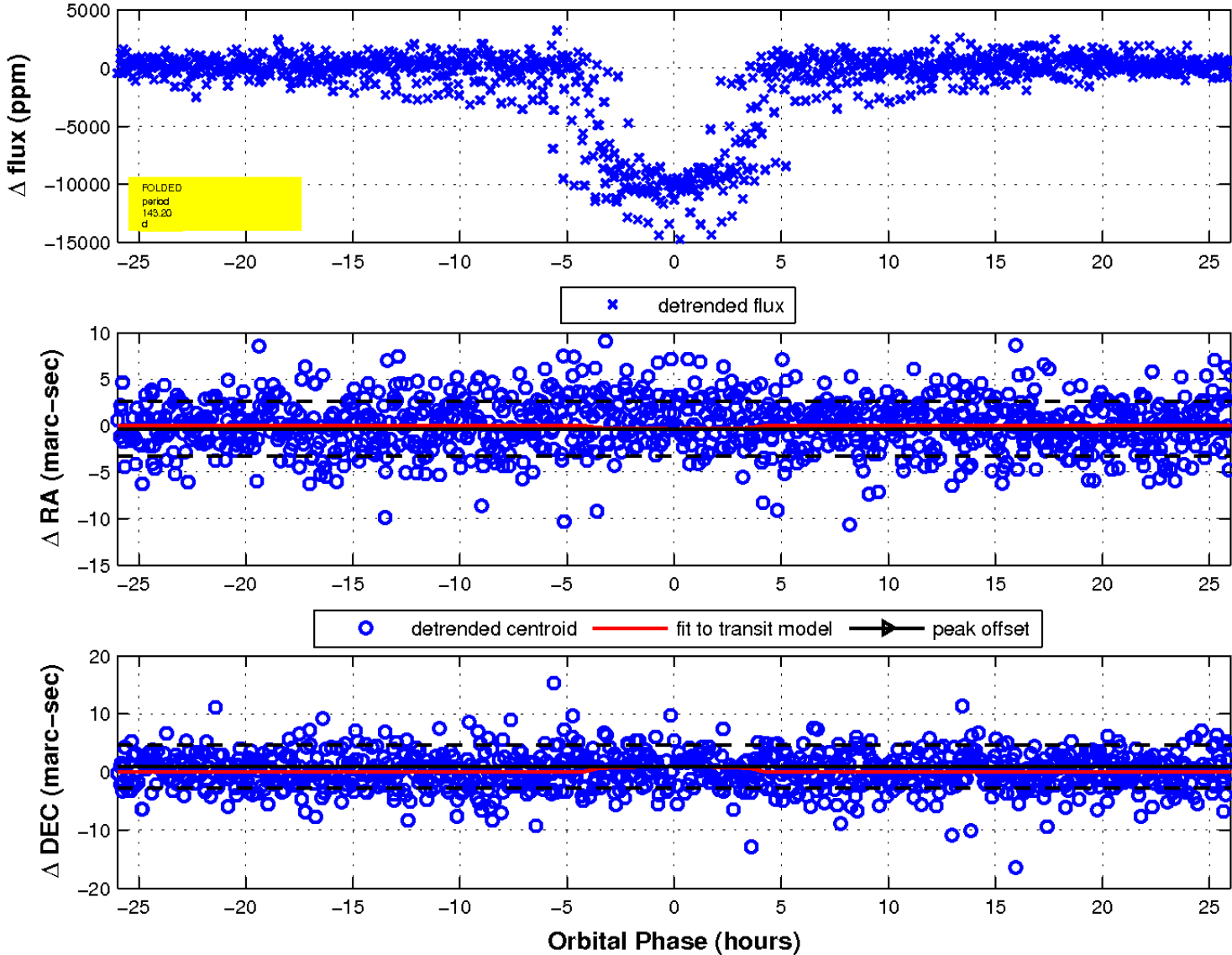
Q17 no difference image



Q17 no OOT image



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

