

KIC 003757588

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})
003757588-01	OBS	6356.01	24.090070	154.284378	6753.2	10.931	183.0	183.8	0.80	5354	9.19	21.88
003757588-02	OBS	No	24.090039	143.894987	2086.1	9.927	59.5	63.4	0.80	5354	5.86	21.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003757588-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
003757588-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

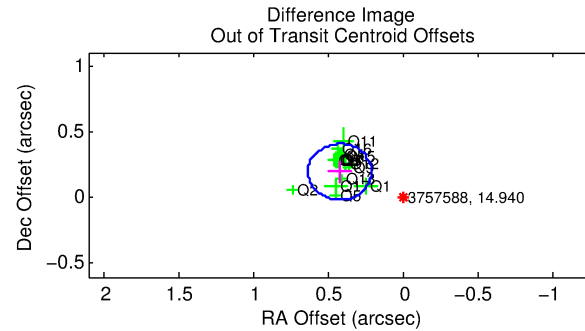
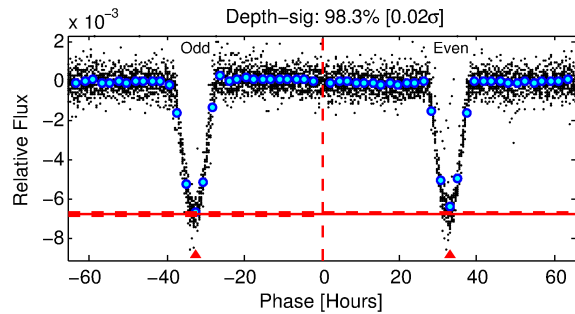
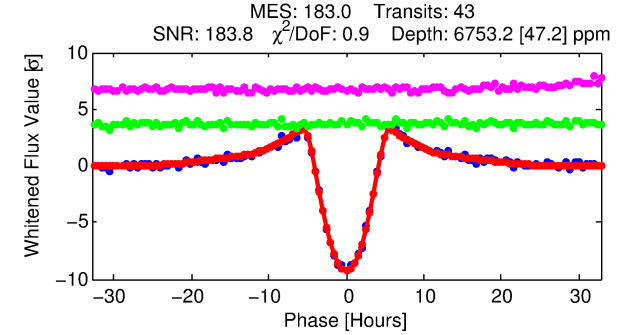
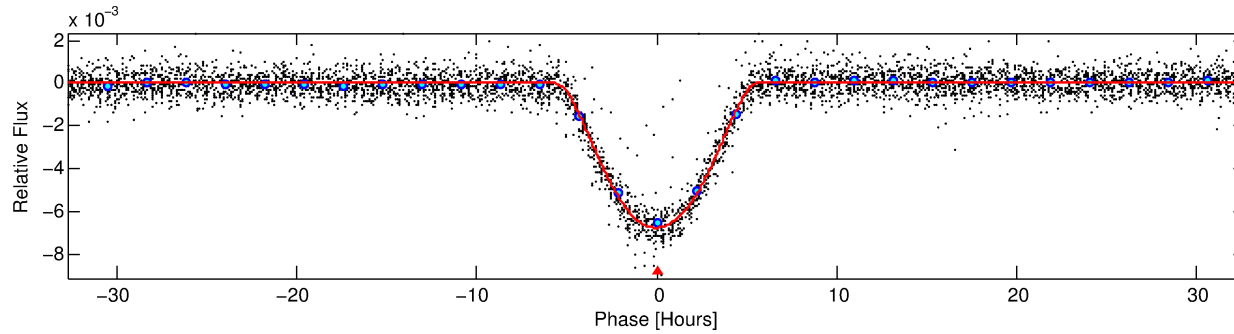
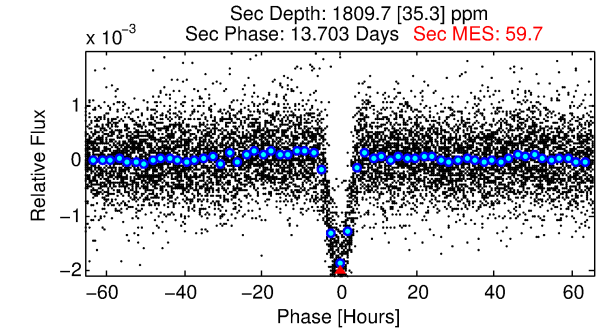
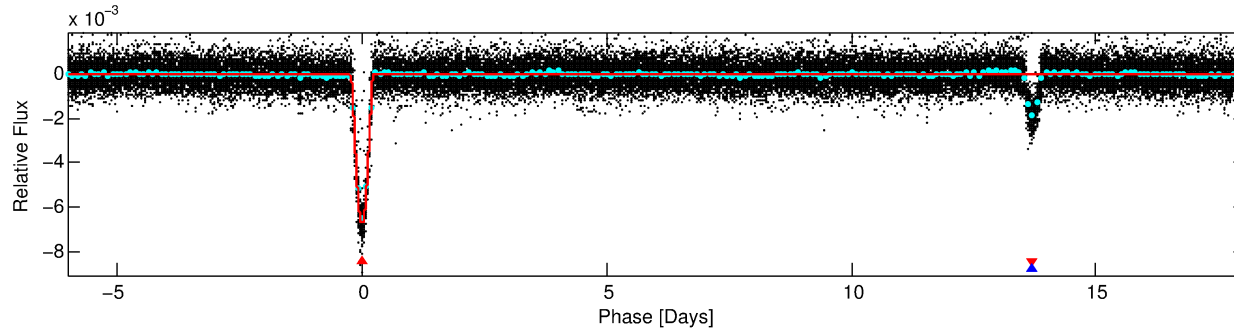
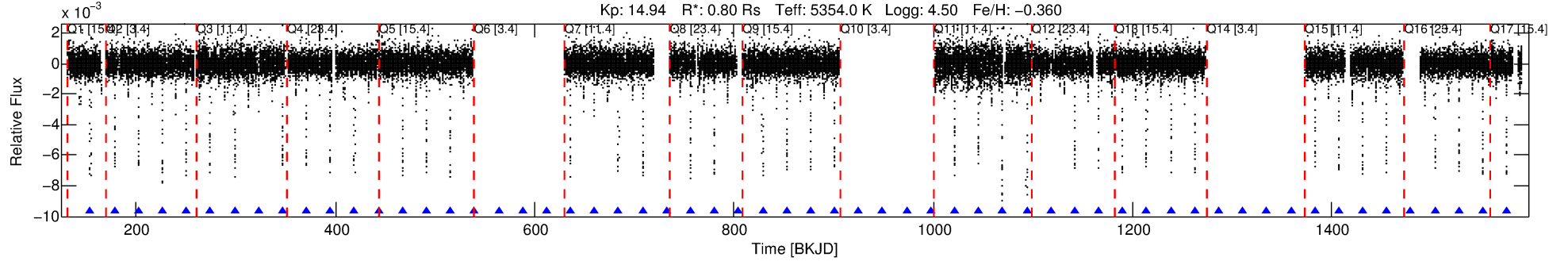
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003757588-01

No Significant Match Found

DV One-Page Summary

KIC: 3757588 Candidate: 1 of 2 Period: 24.090 d
KOI: K06356.01 Corr: 0.996



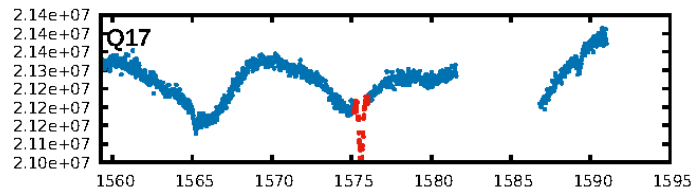
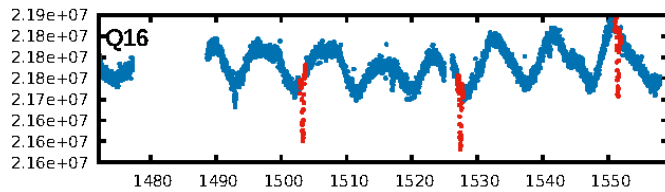
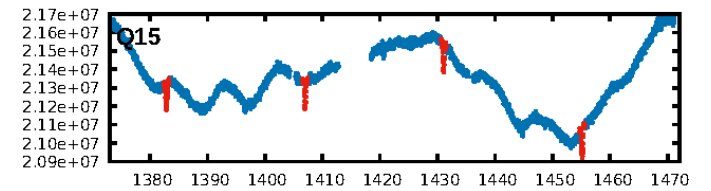
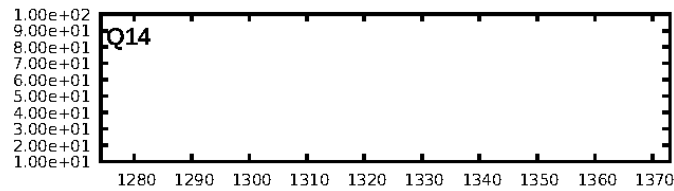
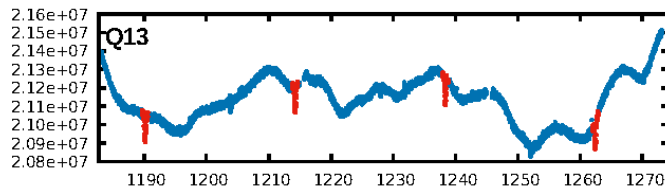
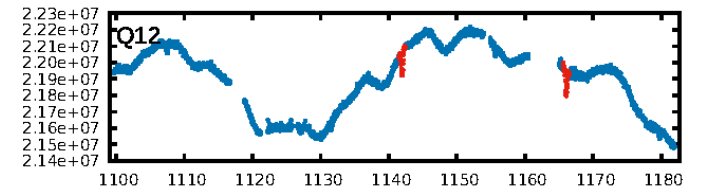
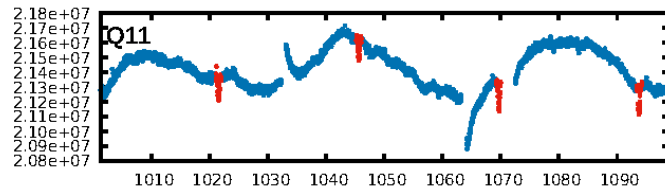
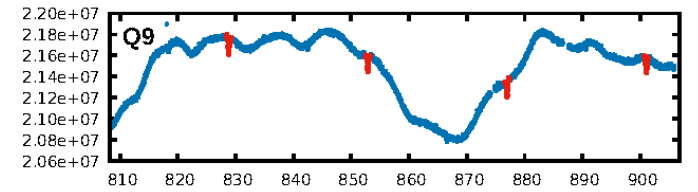
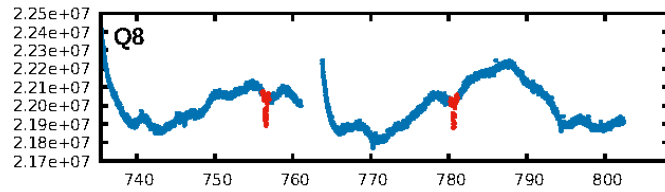
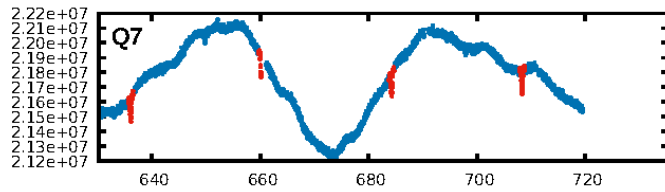
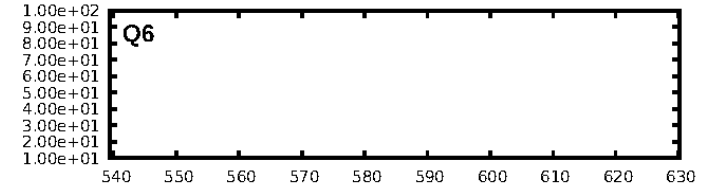
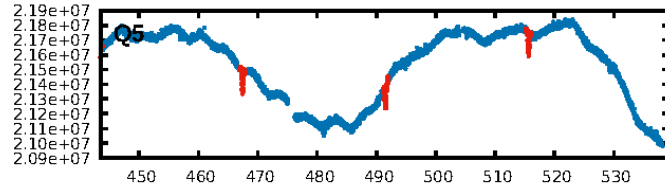
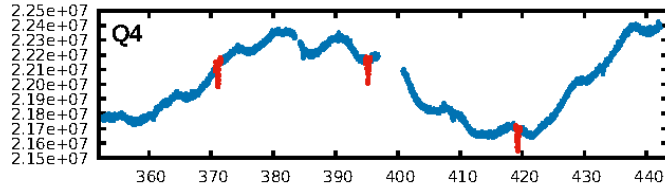
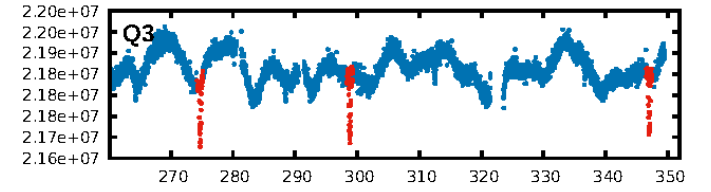
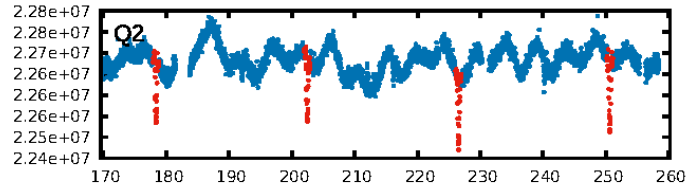
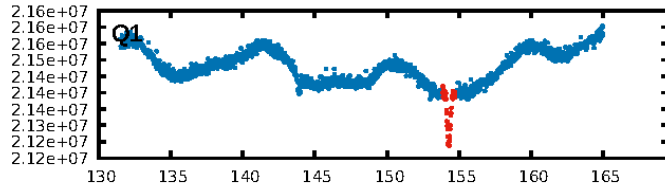
DV Fit Results:

Period = 24.09007 [0.00003] d
Epoch = 154.2844 [0.0010] BKJD
Rp/R* = 0.1048 [0.0051]
a/R* = 9.73 [0.17]
b = 0.94 [0.01]
Seff = 21.88 [5.38]
Teq = 551 [34] K
Rp = 9.19 [1.53] Re
a = 0.1475 [0.0204] AU
Ag = 256.20 [58.88] [4.33 σ]
Teffp = 3411 [141] K [19.72 σ]

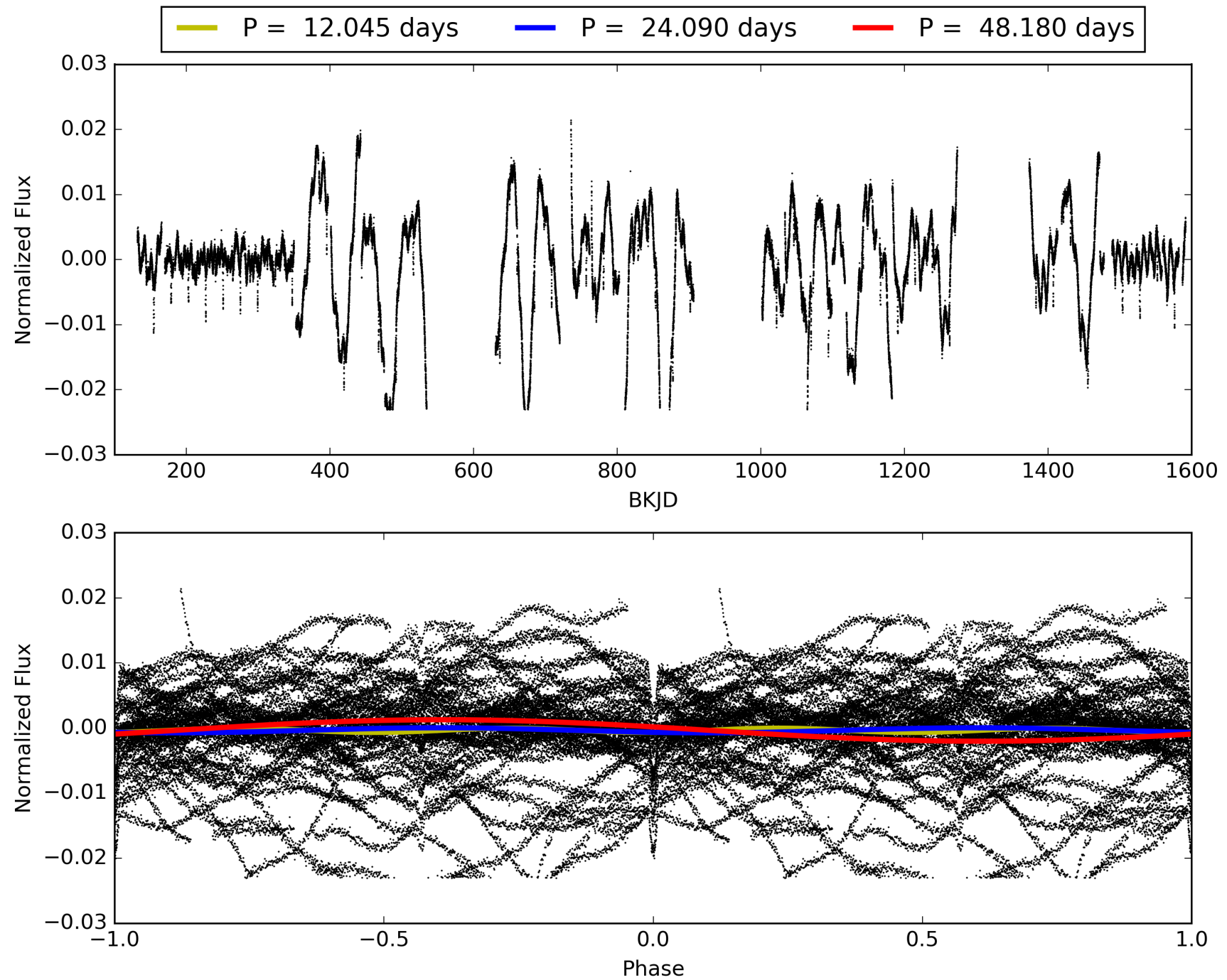
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [41/41]
GhostDiagnostic-chr: 3.106
Centroid-sig: 0.0%
Centroid-so: 0.320 arcsec [6.03 σ]
OotOffset-rm: 0.463 arcsec [6.54 σ]
KicOffset-rm: 0.271 arcsec [3.64 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 003757588-01, PDC Light Curves

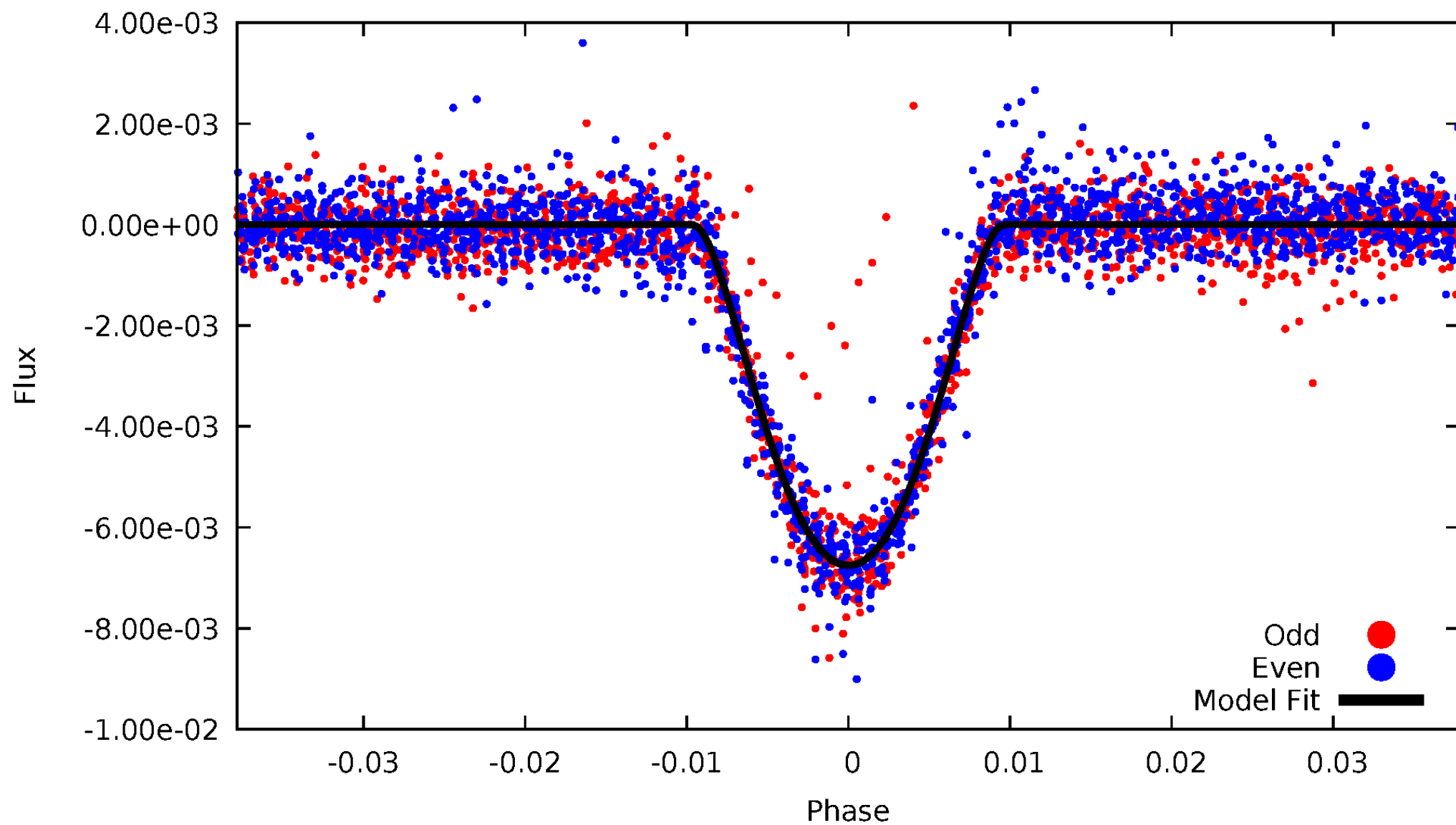


TCE 003757588-01



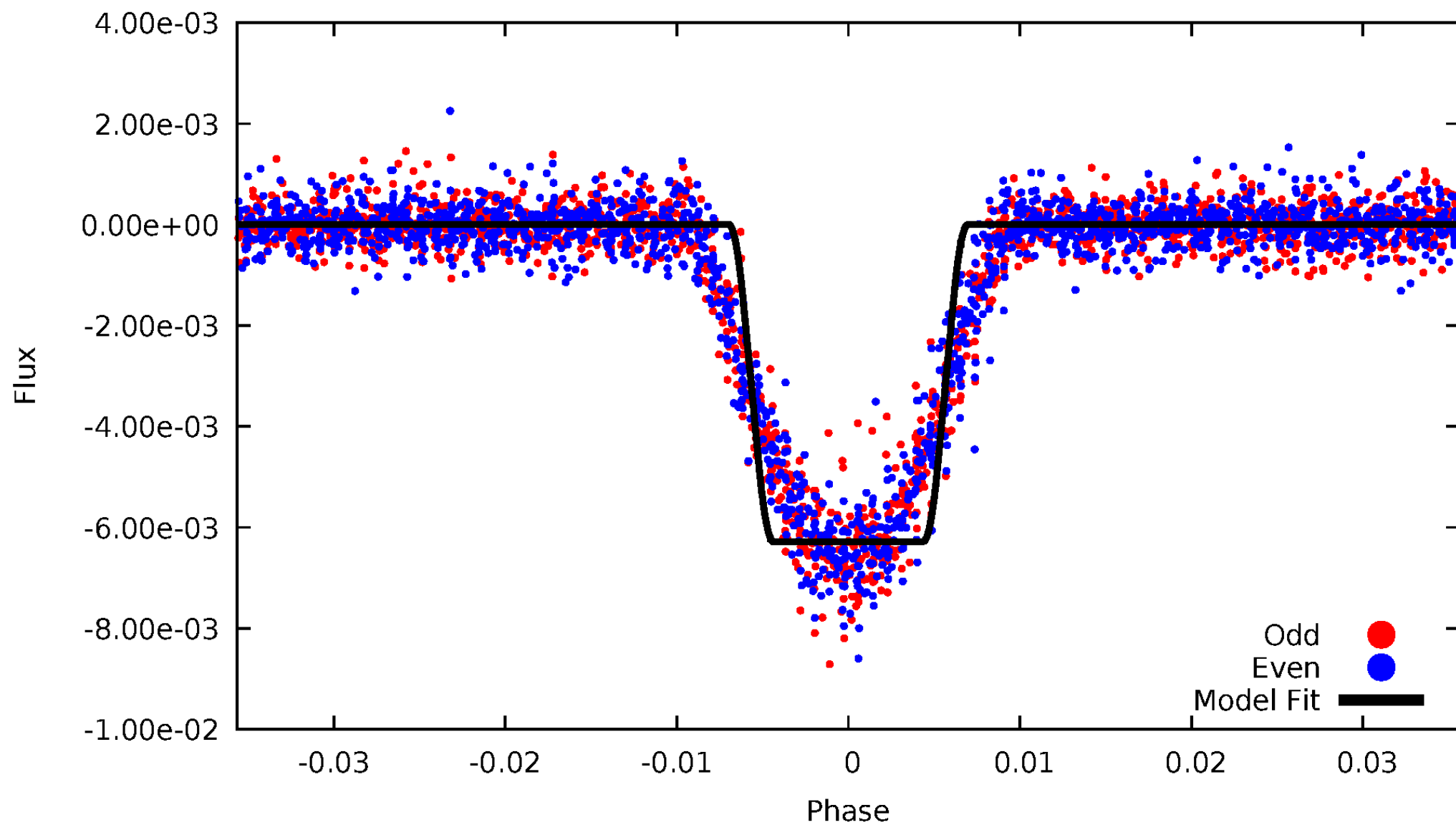
DV Odd/Even

TCE 003757588-01

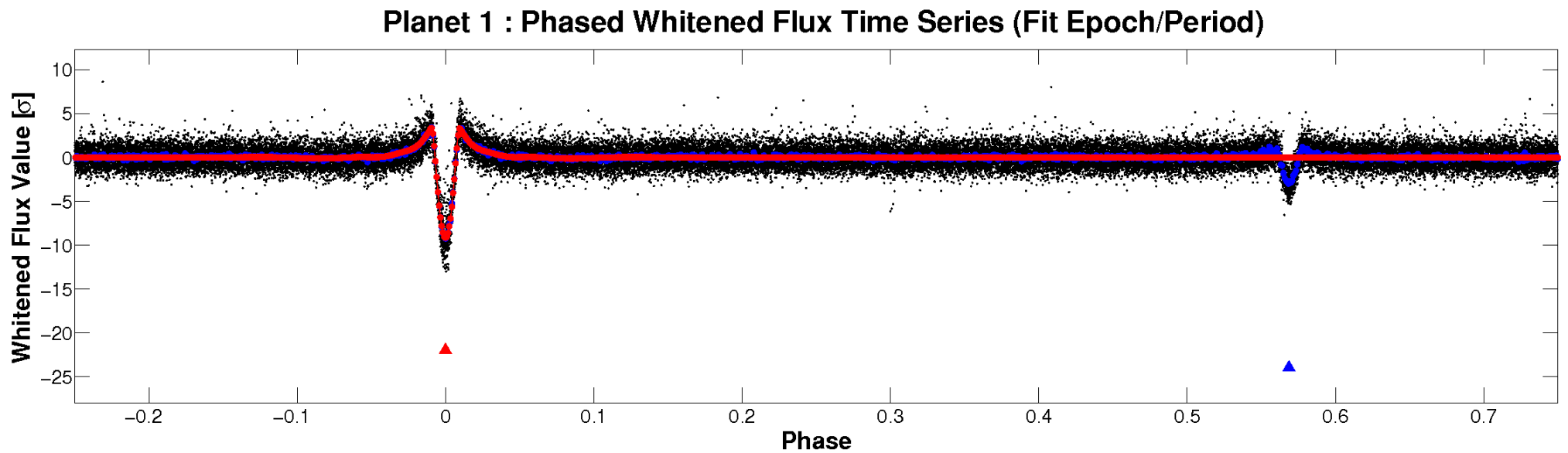
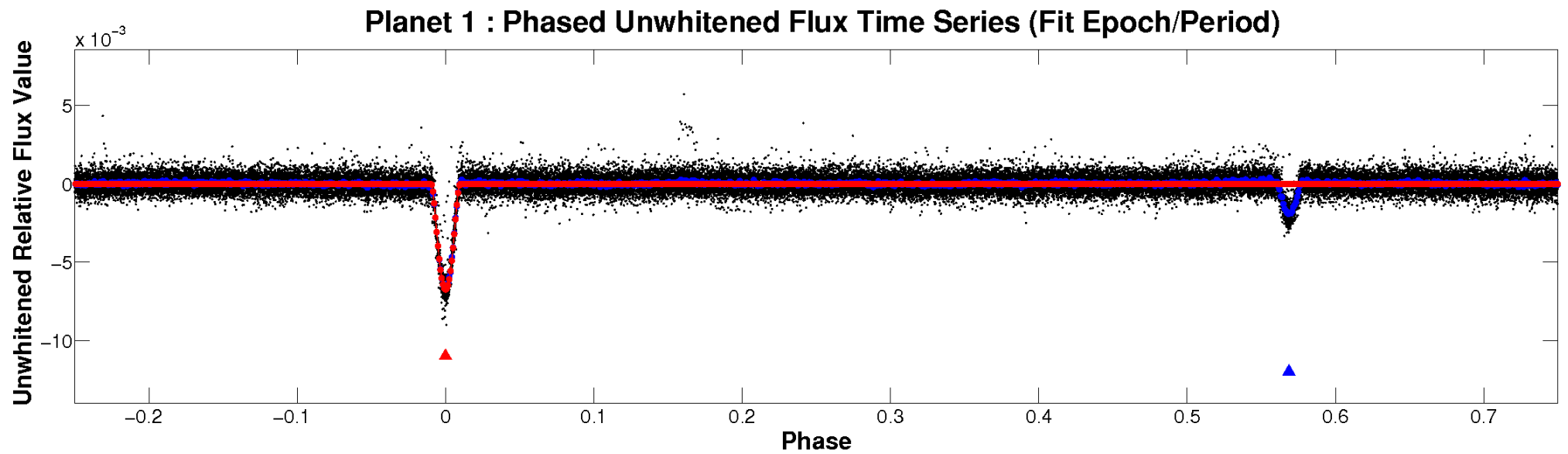


ALT Odd/Even

TCE 003757588-01

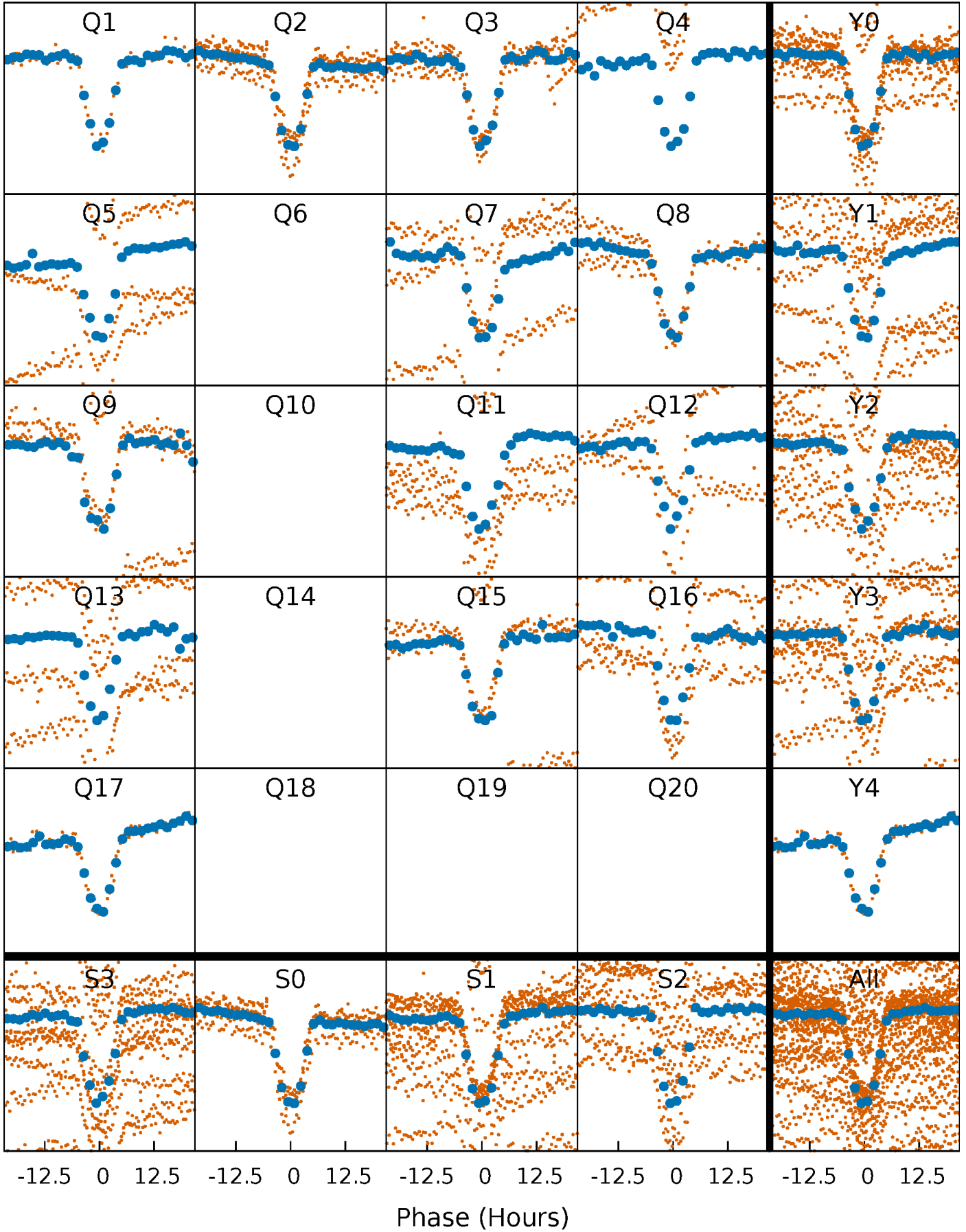


Non-Whitened Vs. Whitened Light Curve



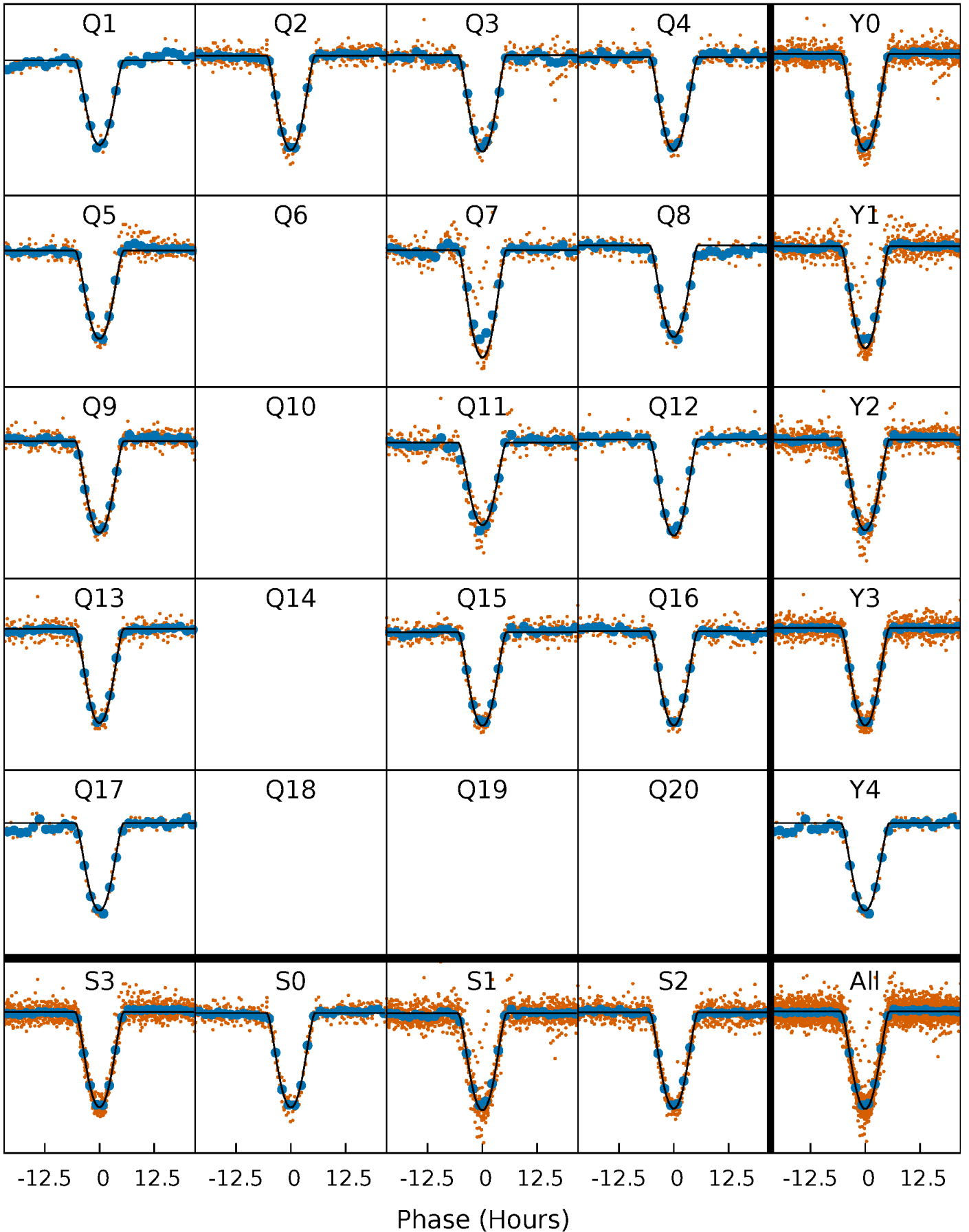
PDC Quarter-Phased Transit Curves

TCE 003757588-01 P= 24.090070 Days $T_0=154.284378$ (BKJD)



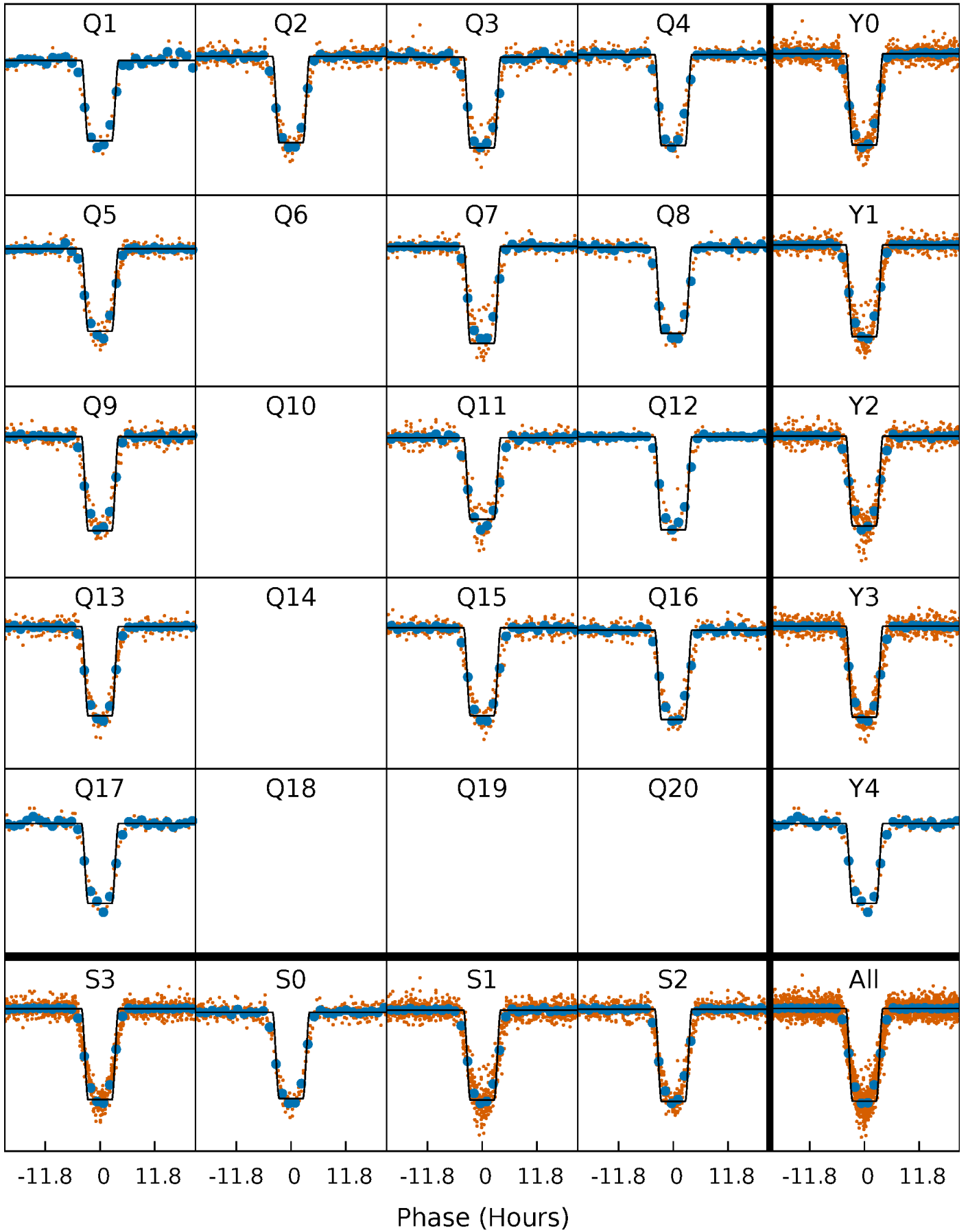
DV Quarter-Phased Transit Curves

TCE 003757588-01 P= 24.090070 Days $T_0=154.284378$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

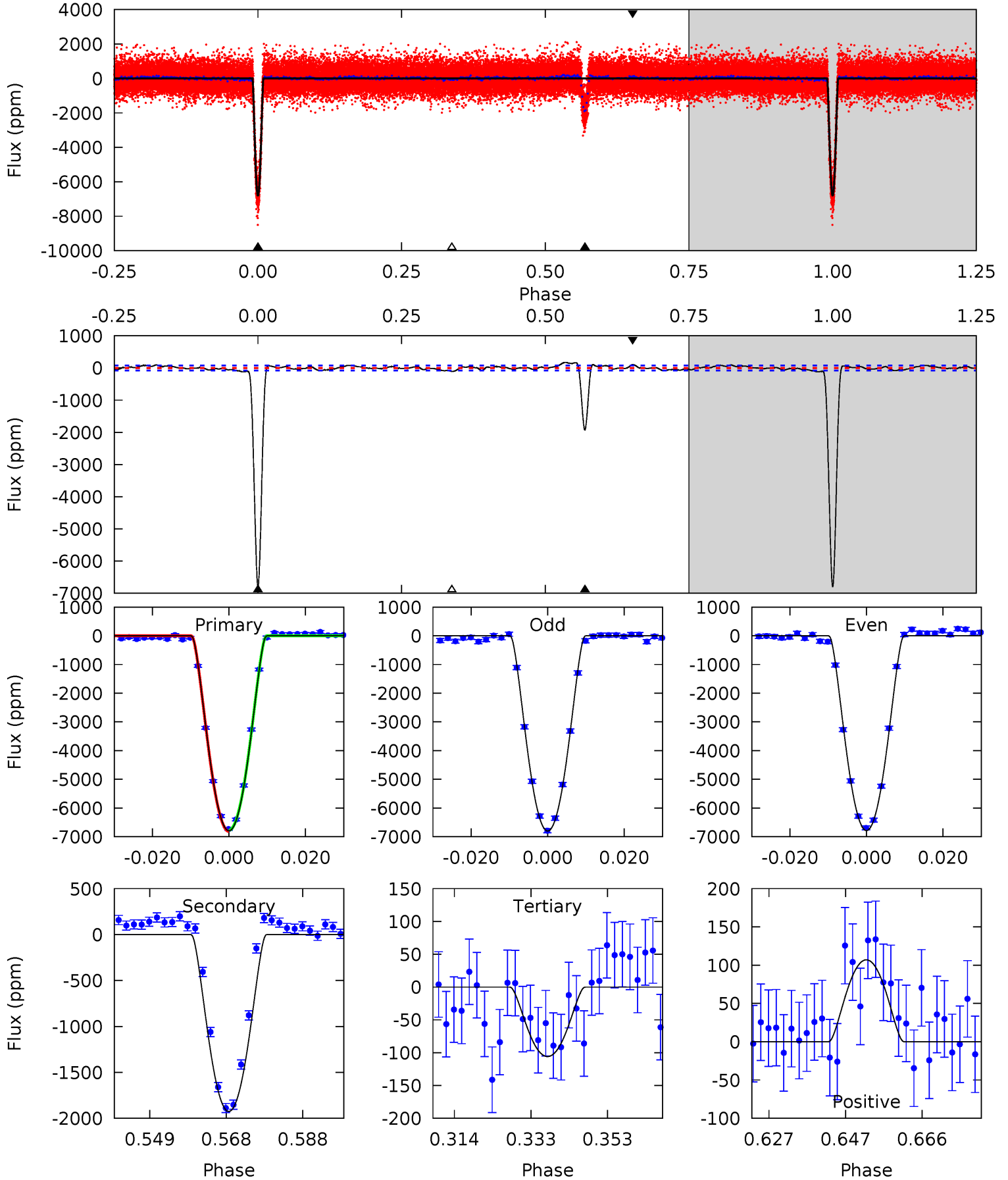
TCE 003757588-01 P= 24.089838 Days $T_0=154.291488$ (BKJD)



DV Model-Shift Uniqueness Test

003757588-01, P = 24.090070 Days, E = 130.194308 Days

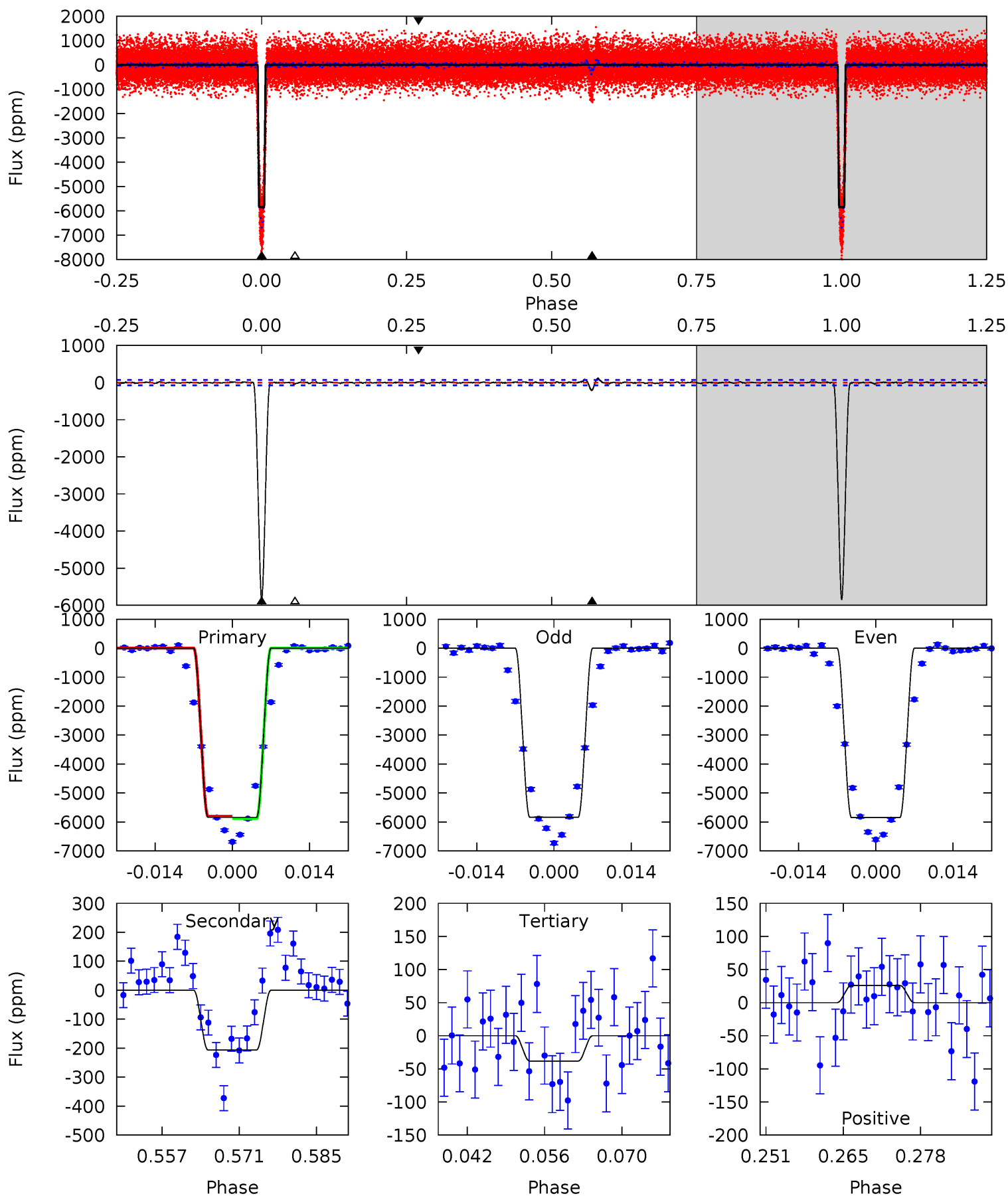
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
419.5	118.9	6.54	6.60	4.90	2.33	3.07	412.9	412.9	112.3	112.3	0.42	0.96	0.03	1.26



Alt Model-Shift Uniqueness Test

003757588-01, P = 24.089838 Days, E = 130.201650 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
394.0	13.9	2.58	1.74	4.96	2.46	0.69	391.5	392.3	11.3	12.2	0.37	0.99	0.02	2.61



Stellar Parameters For KIC 003757588

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5354^{+177}_{-160}	$4.495^{+0.105}_{-0.116}$	$-0.360^{+0.350}_{-0.300}$	$0.804^{+0.128}_{-0.105}$	$0.737^{+0.115}_{-0.054}$	$1.999^{+0.947}_{-0.640}$
	+3%/-3%	+2%/-3%	+97%/-83%	+16%/-13%	+16%/-7%	+47%/-32%
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 003757588-01 / KOI 6356.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1926 ± 16	$9.33^{+1.03}_{-0.90}$	776^{+42}_{-37}	3823^{+118}_{-104}	268^{+58}_{-45}
Alt.	-206 ± 15	$7.02^{+0.81}_{-0.72}$	772^{+41}_{-37}	2955^{+86}_{-88}	51^{+13}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

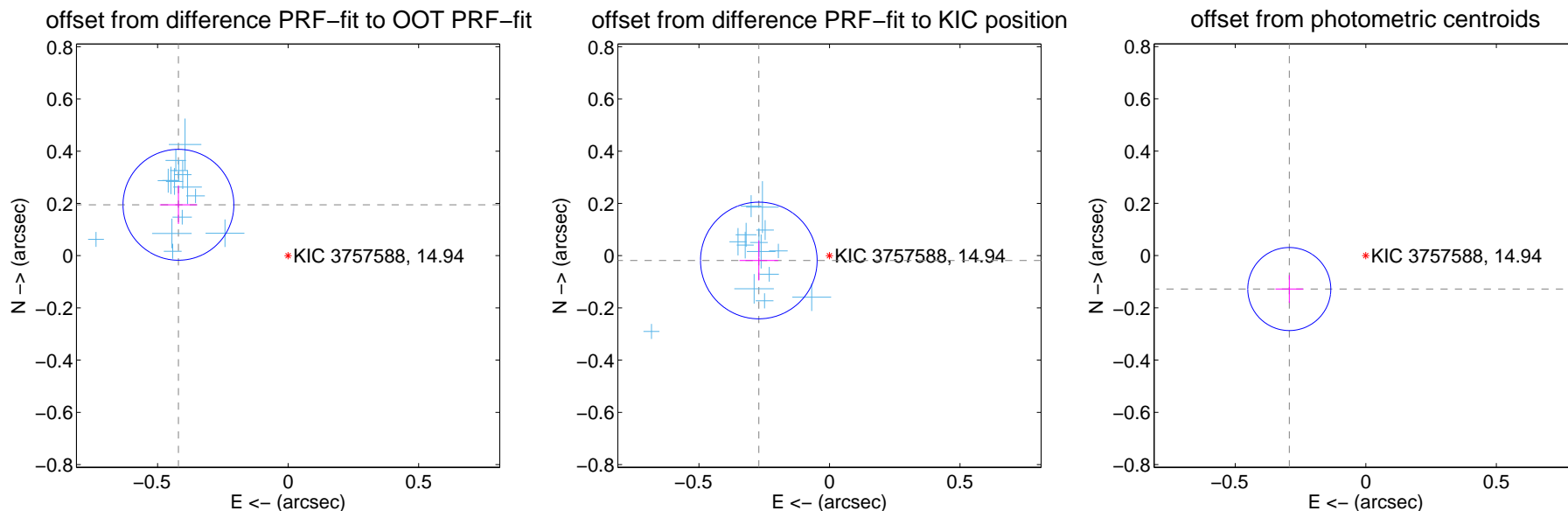
DV Centroid Data

Supplemental centroid analysis for 003757588-01. Kepler magnitude: 14.94. Transit SNR 183.81

There are 14 quarters with good PRF difference image offsets

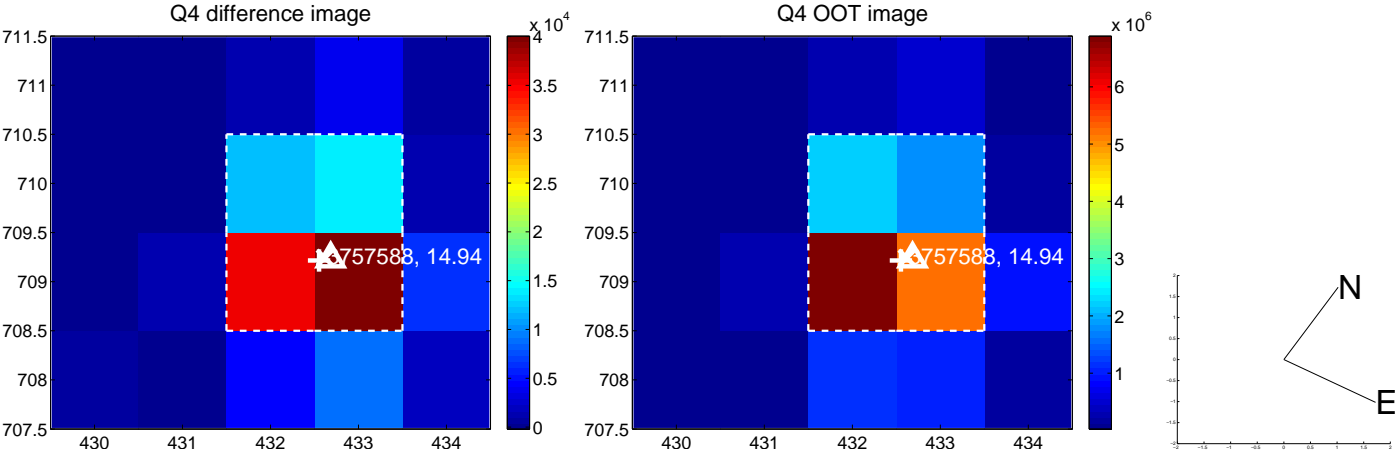
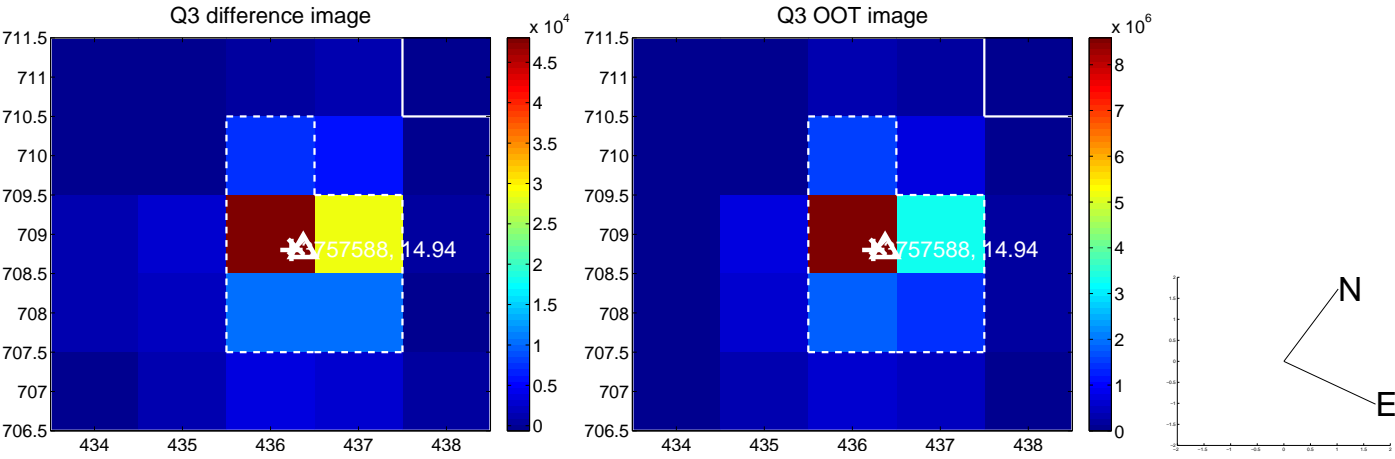
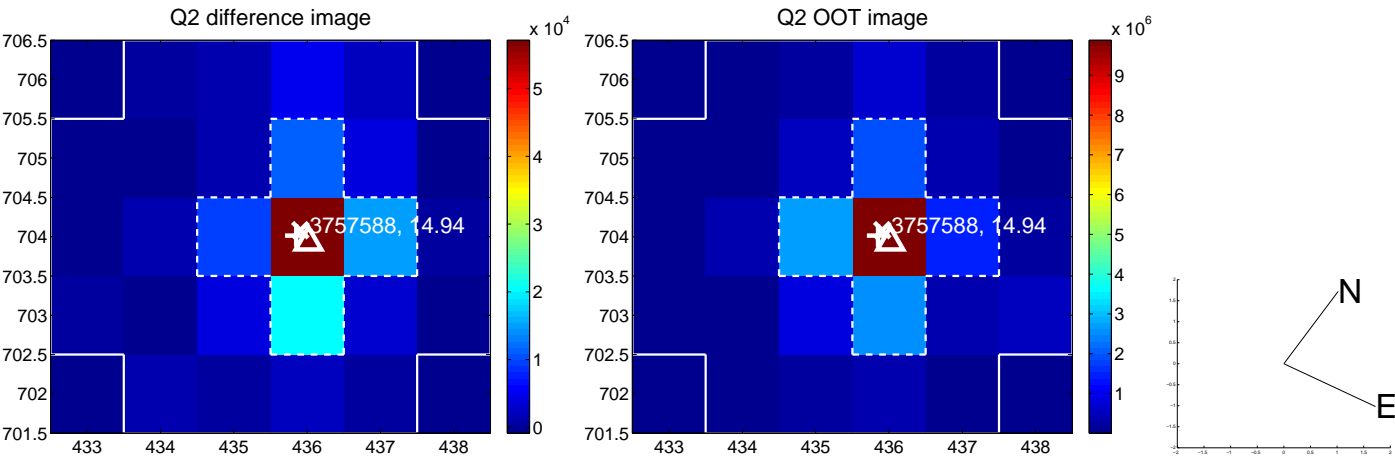
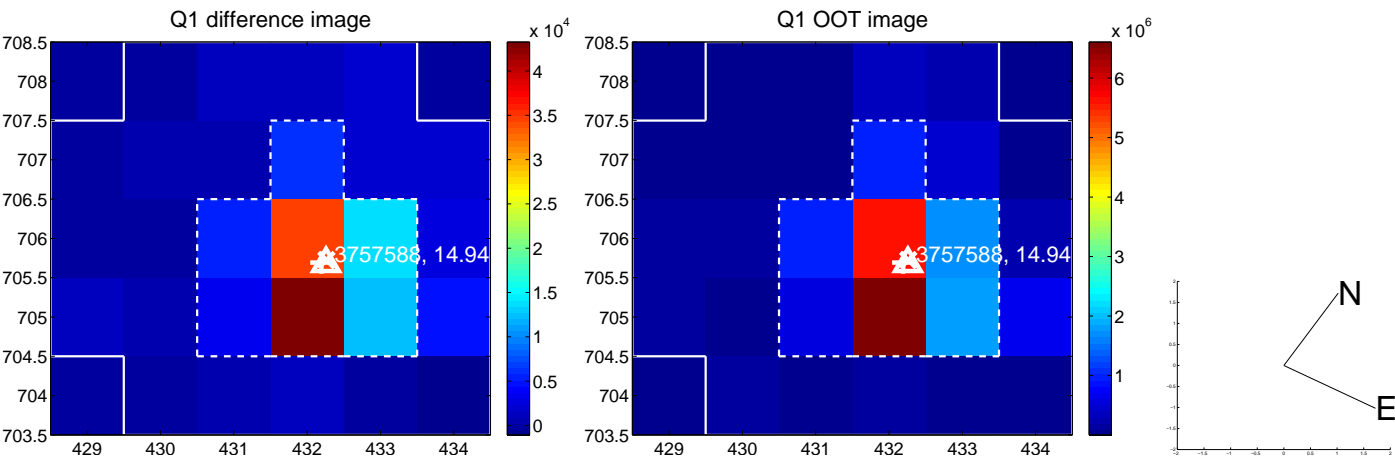
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.463 ± 0.071	6.54	0.420 ± 0.071	0.195 ± 0.074
PRF-fit source offset from KIC position	0.271 ± 0.074	3.64	0.271 ± 0.074	-0.018 ± 0.076
photometric centroid source offset	0.32 ± 0.05	6.03	0.29 ± 0.05	-0.13 ± 0.05

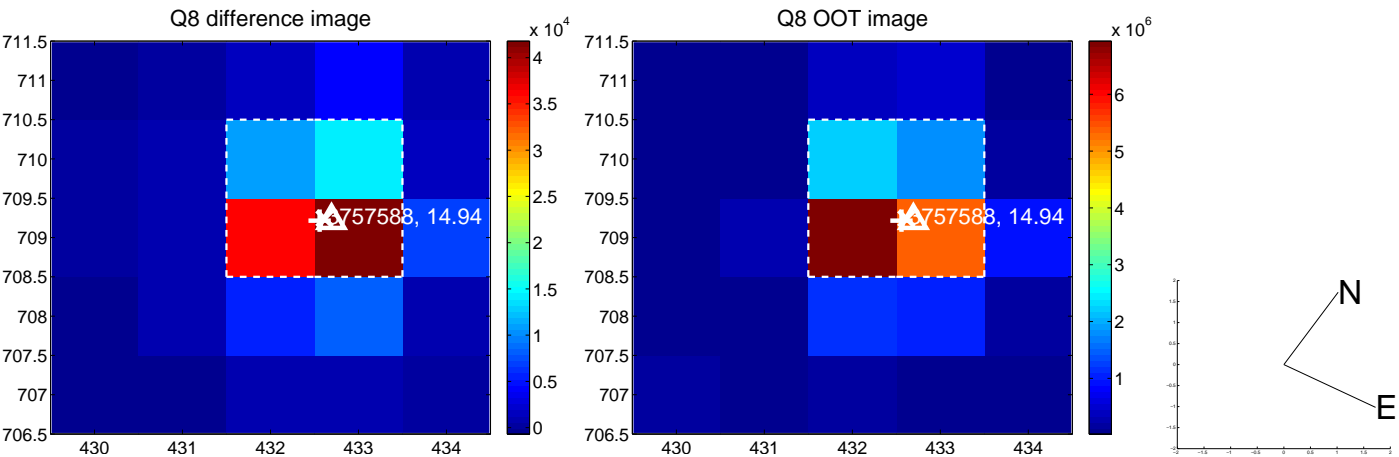
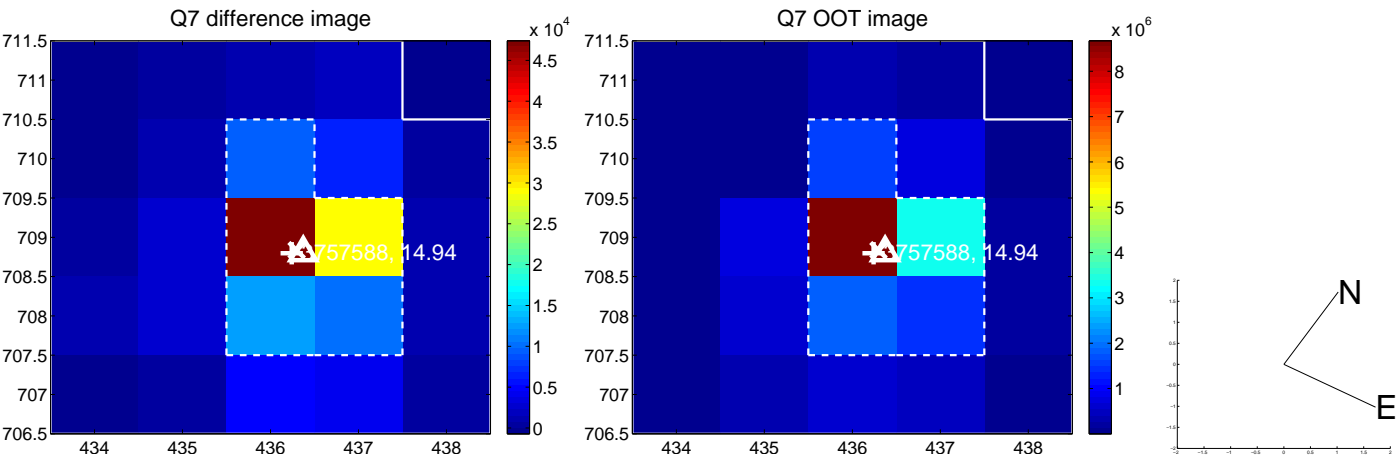
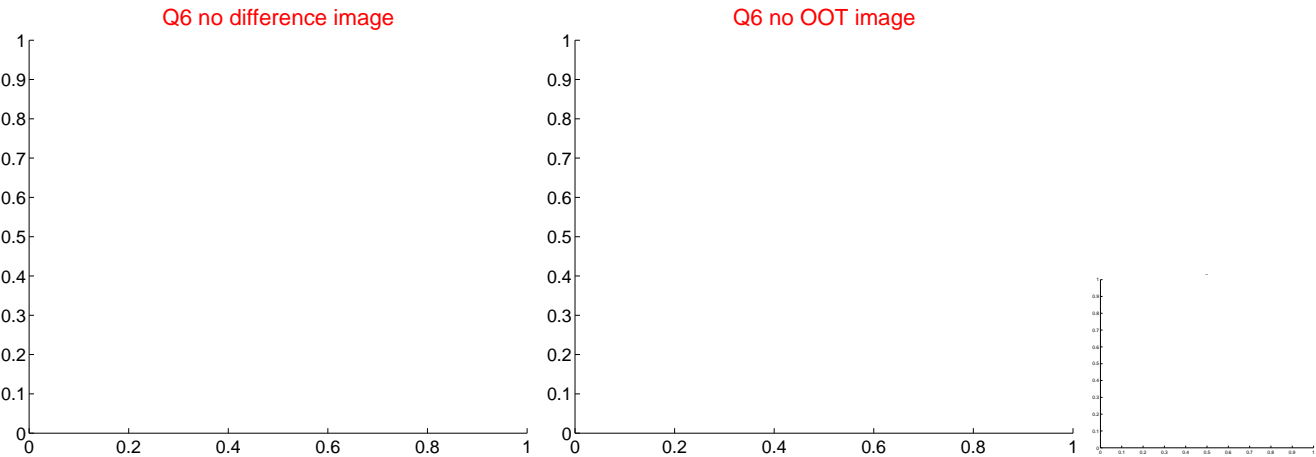
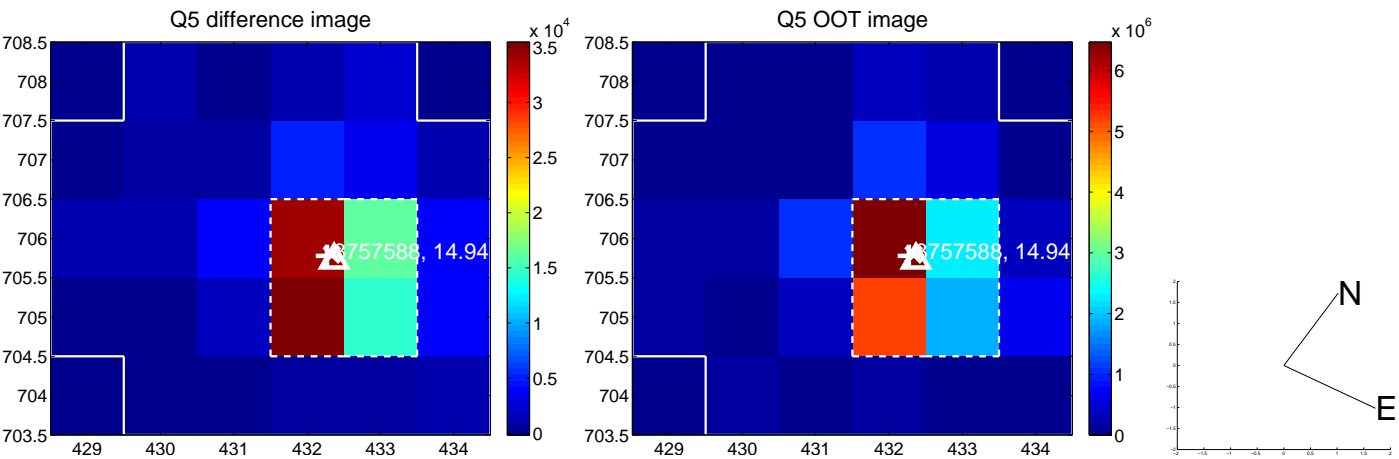


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

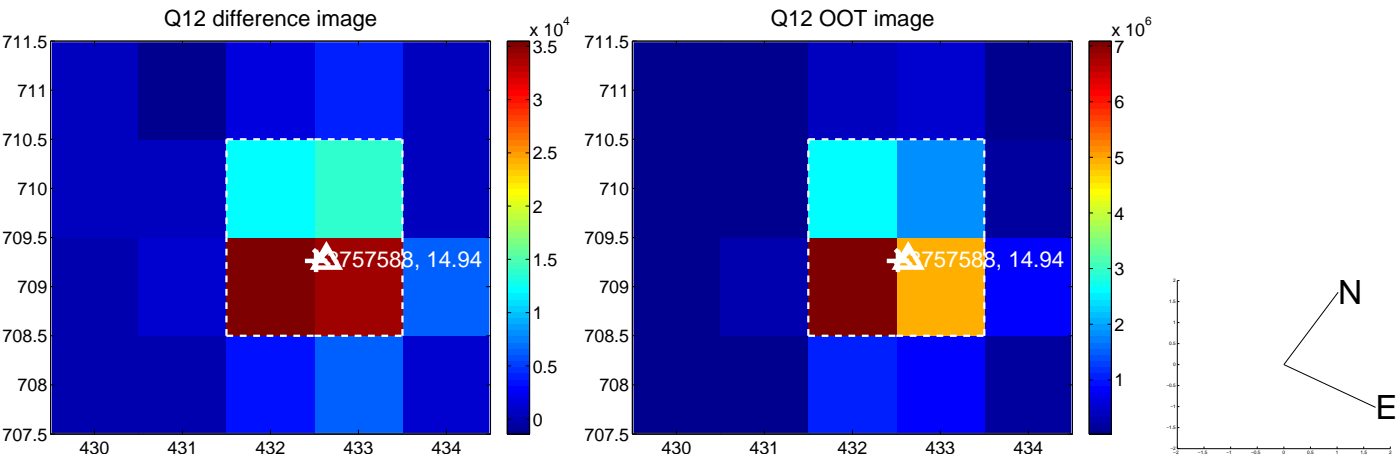
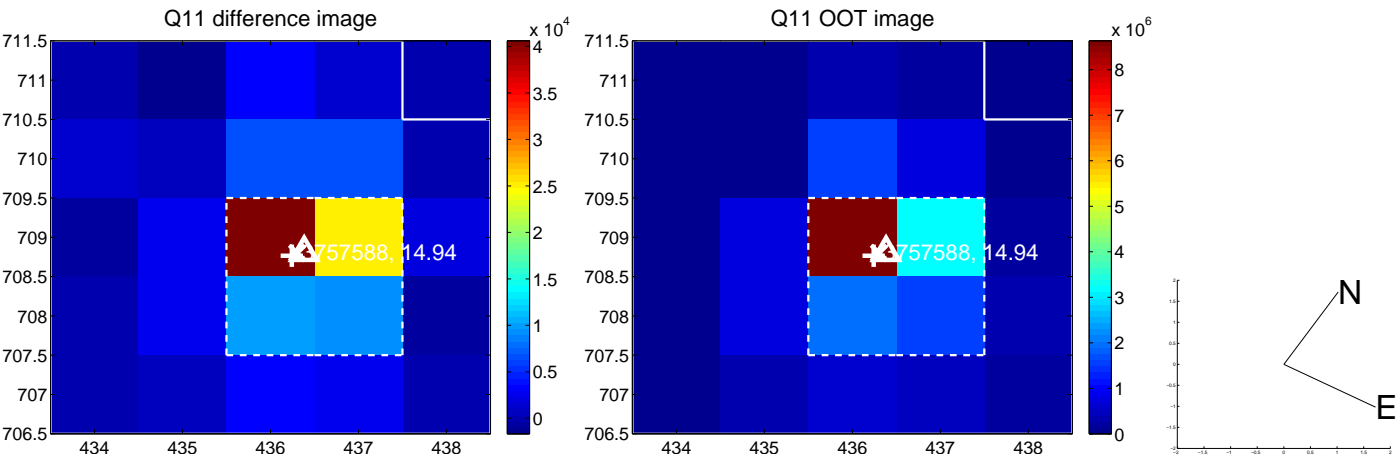
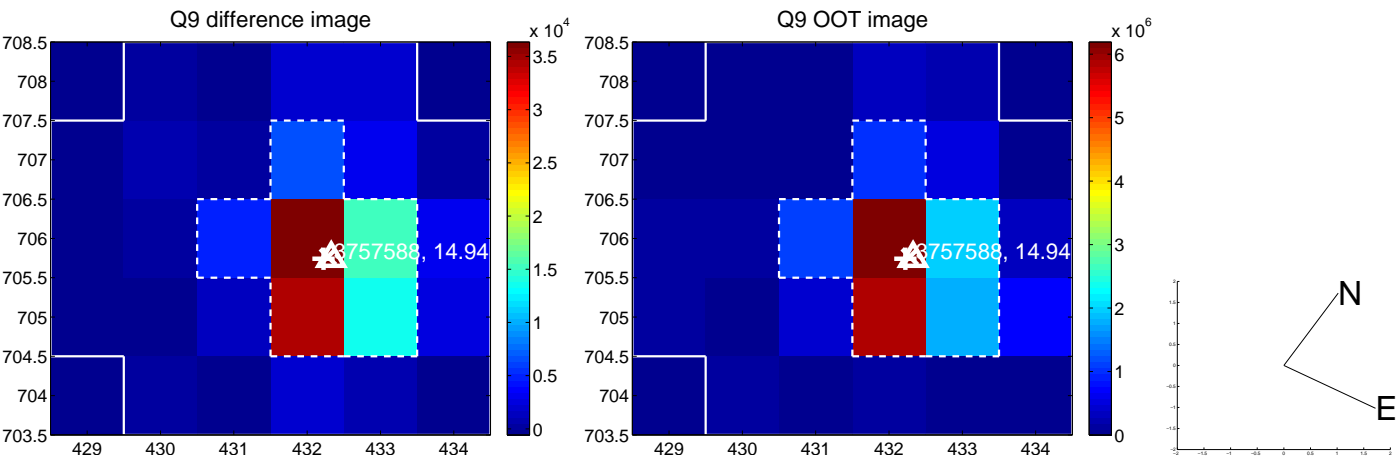
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



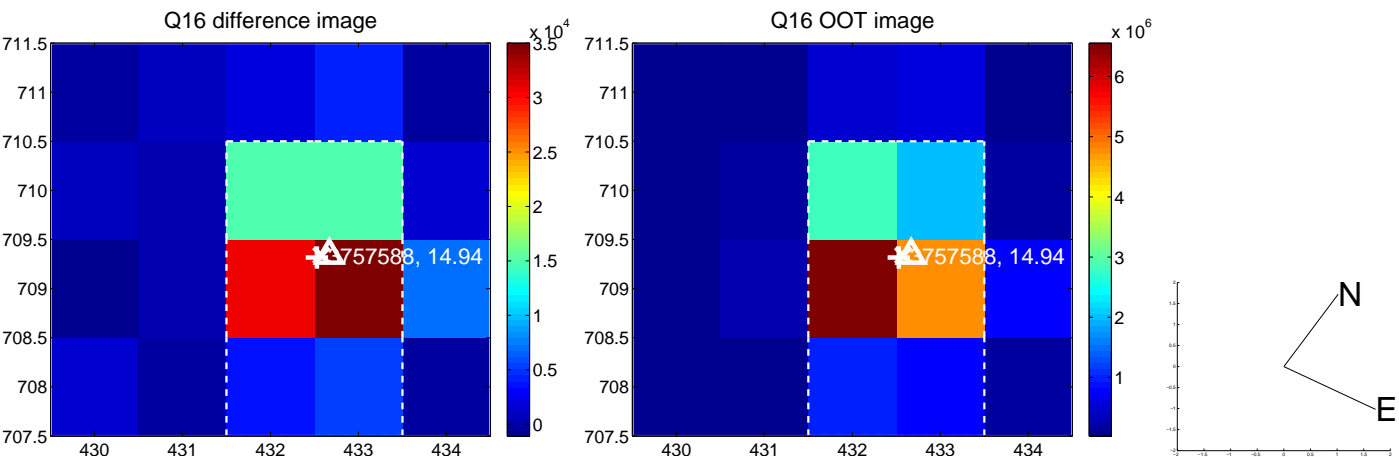
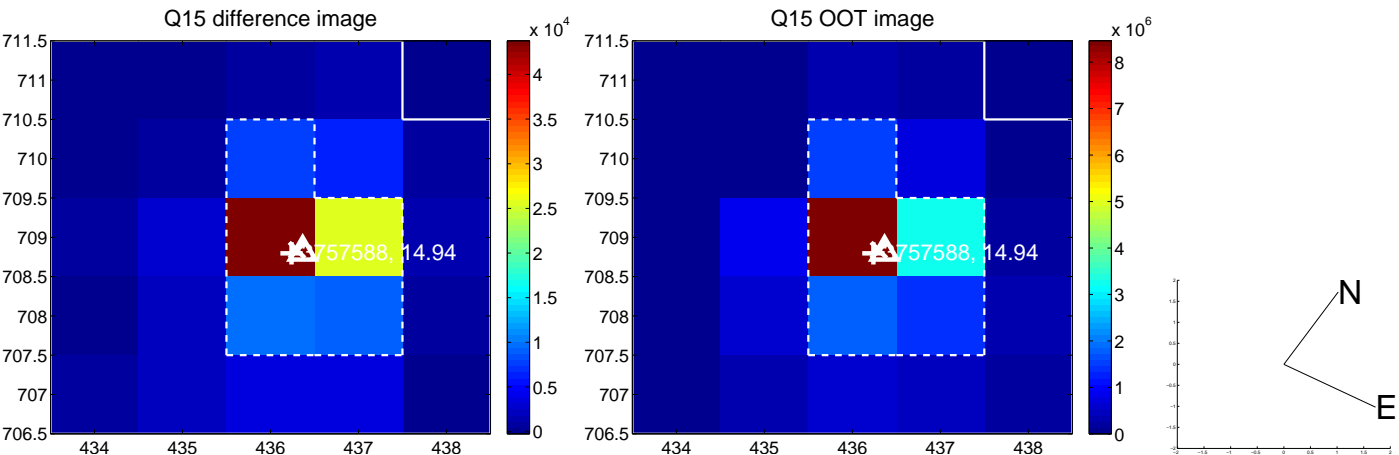
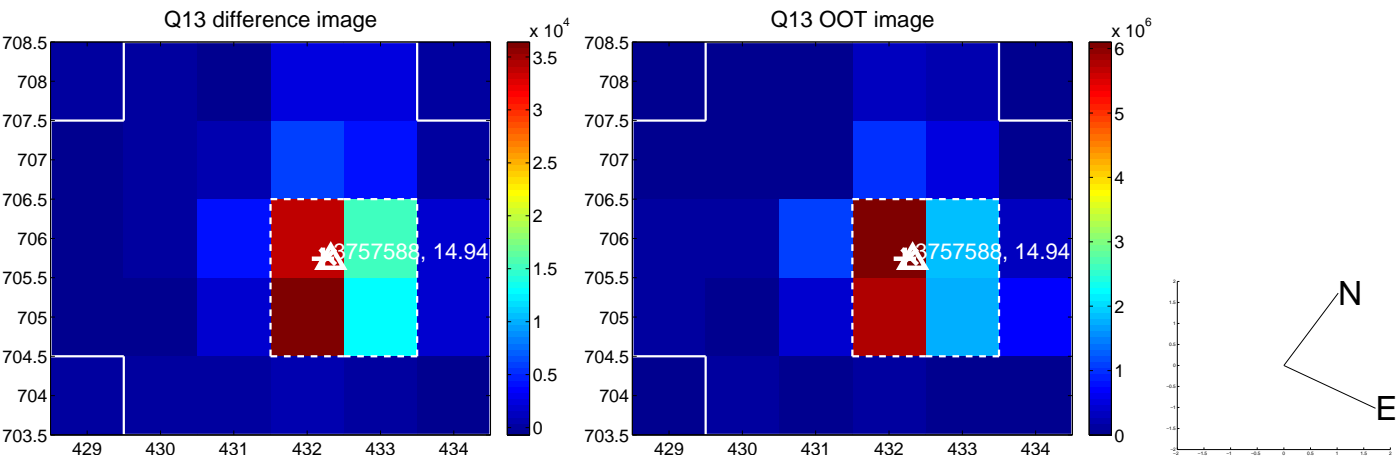
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



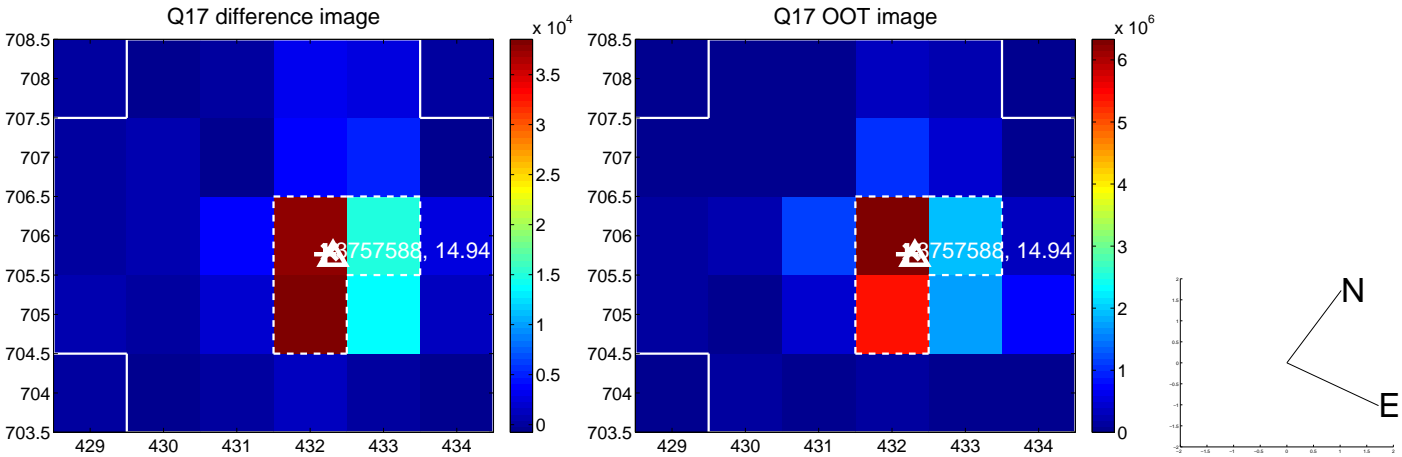
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



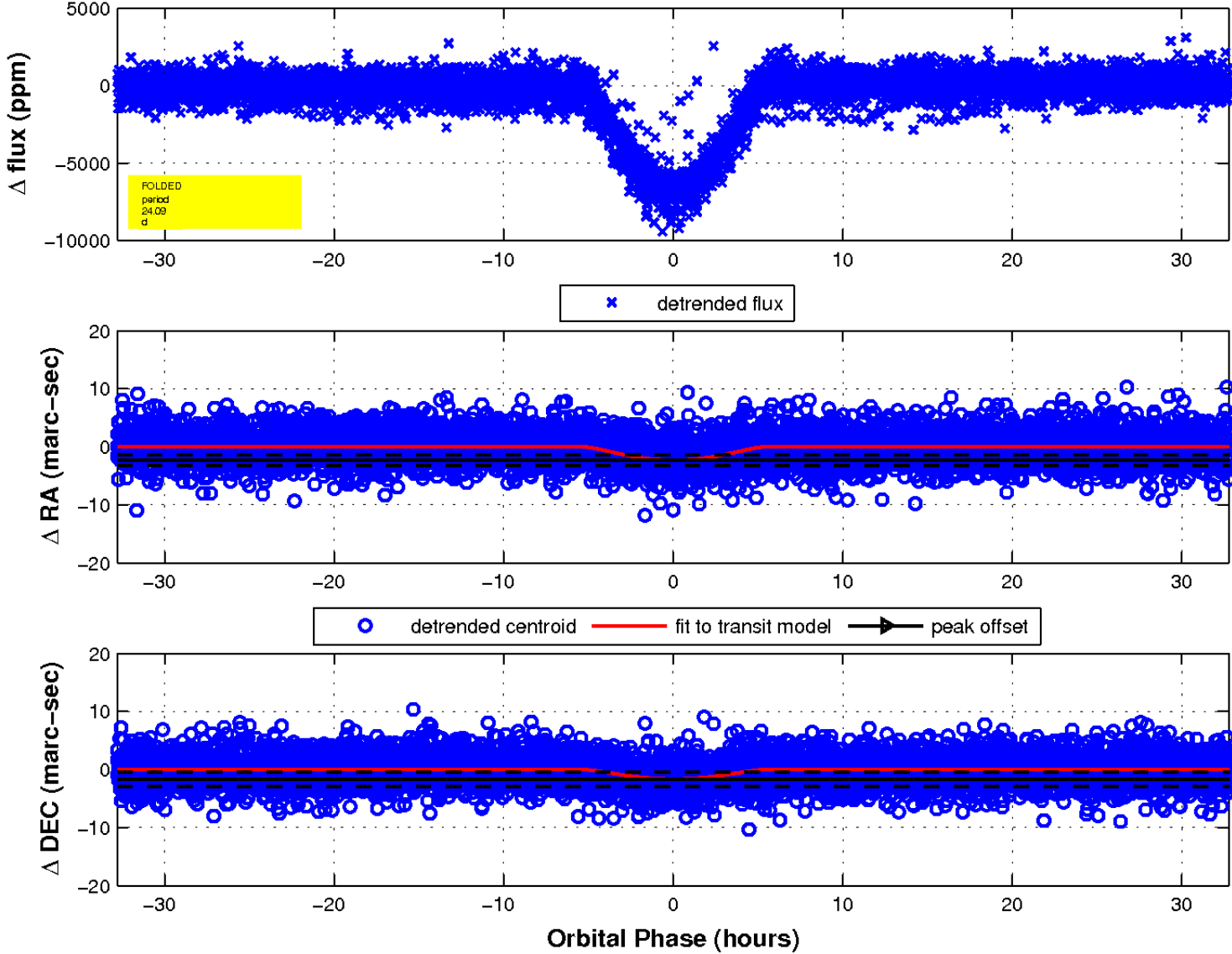
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



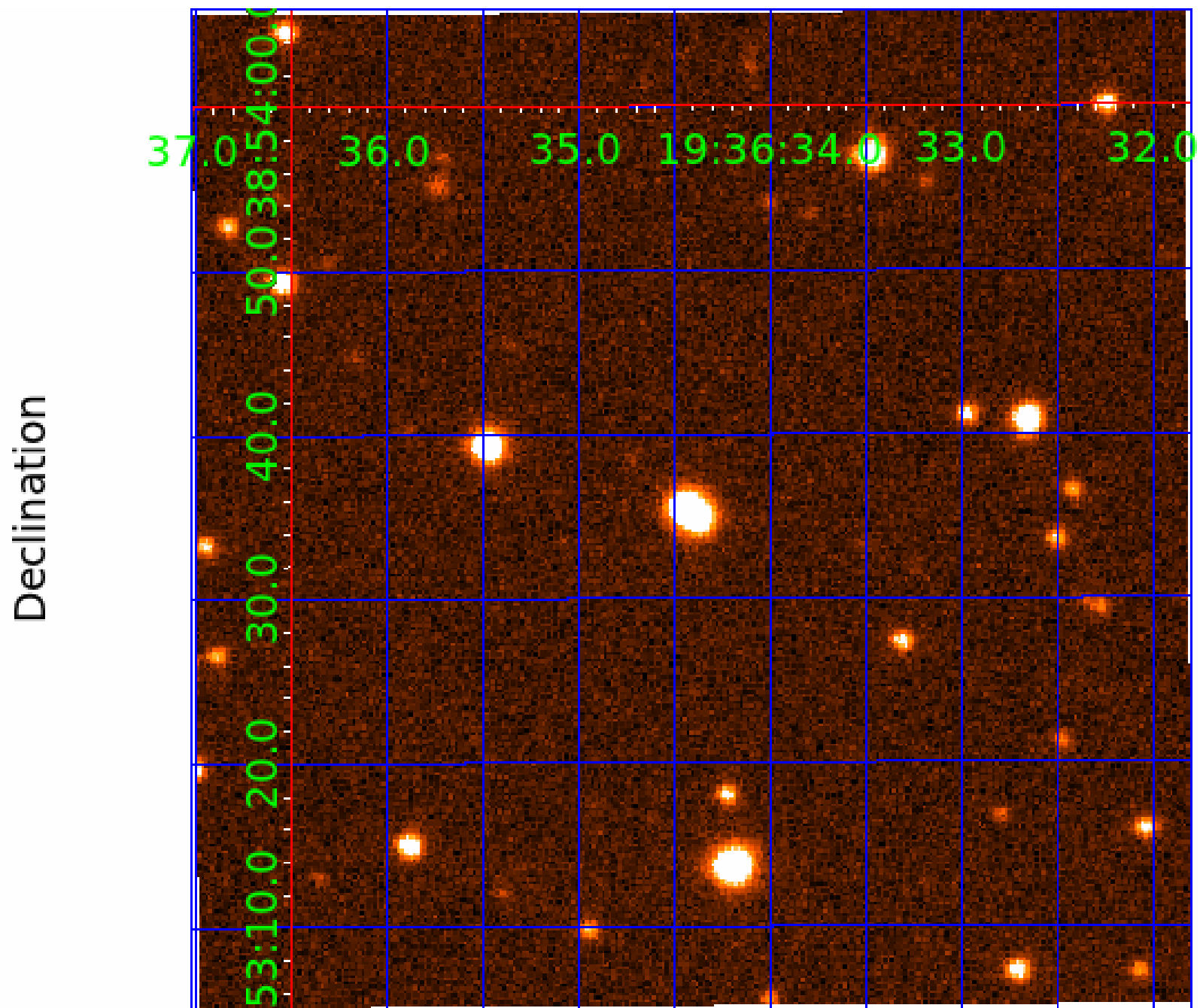
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 003757588

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})
003757588-01	OBS	6356.01	24.090070	154.284378	6753.2	10.931	183.0	183.8	0.80	5354	9.19	21.88
003757588-02	OBS	No	24.090039	143.894987	2086.1	9.927	59.5	63.4	0.80	5354	5.86	21.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003757588-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
003757588-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

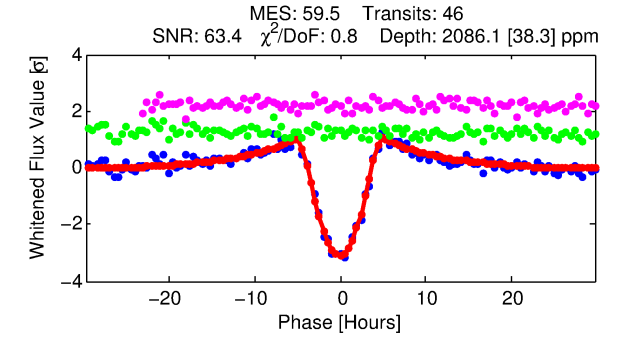
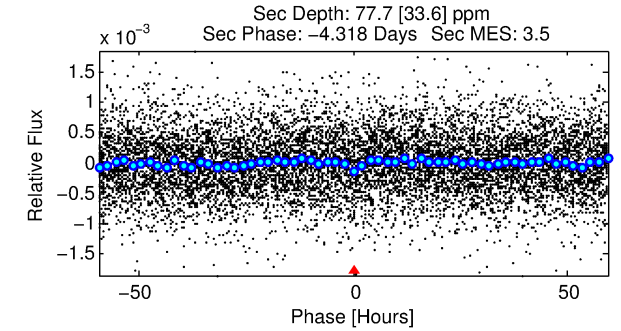
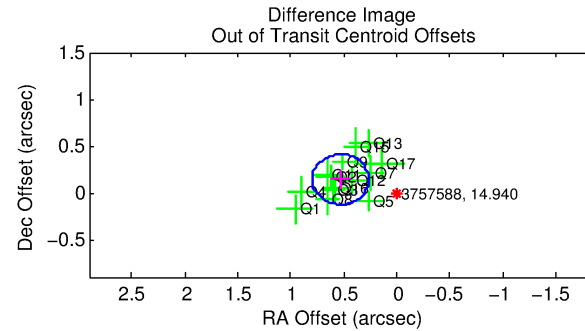
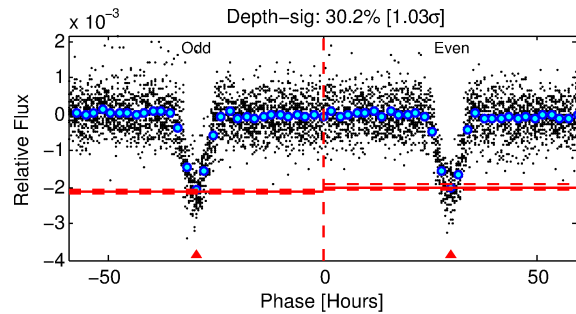
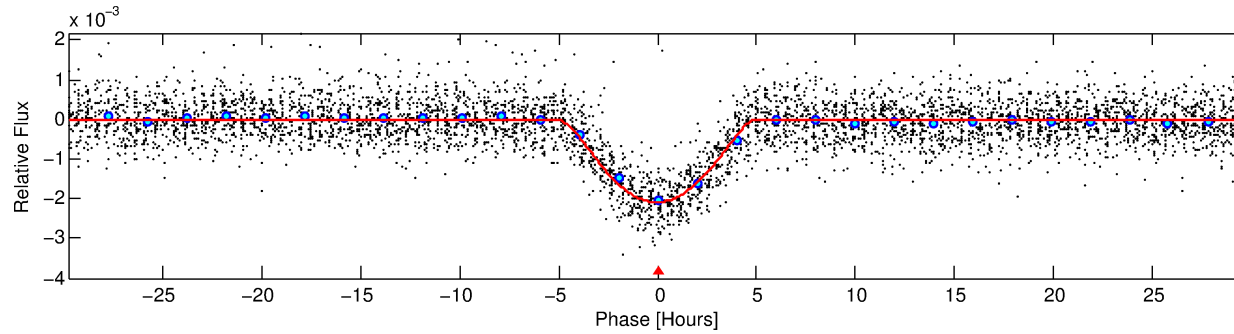
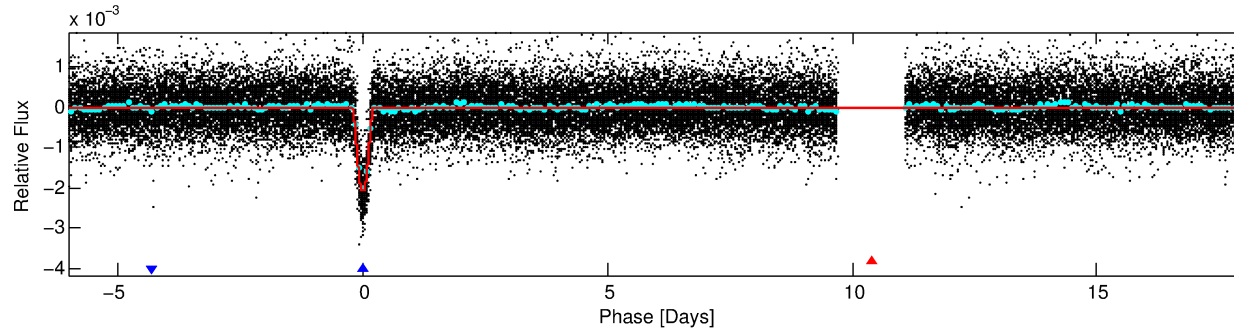
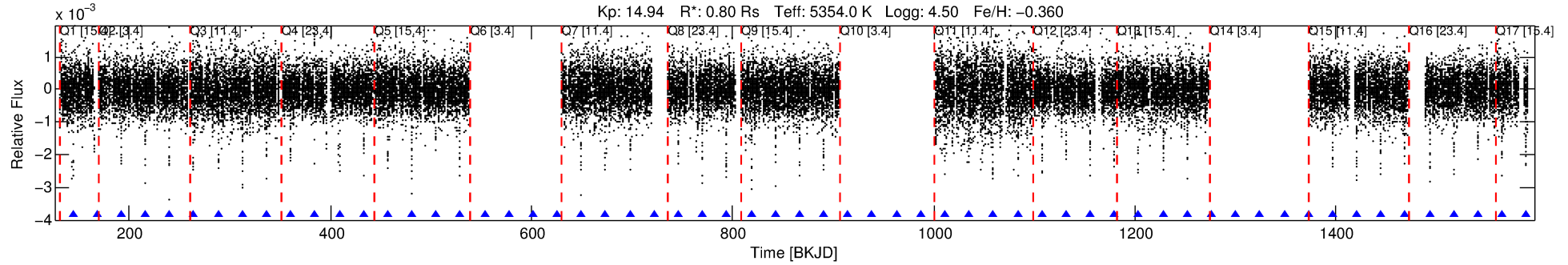
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003757588-02

No Significant Match Found

DV One-Page Summary

KIC: 3757588 Candidate: 2 of 2 Period: 24.090 d
KOI: K06356 Corr: No Ephemeris Match



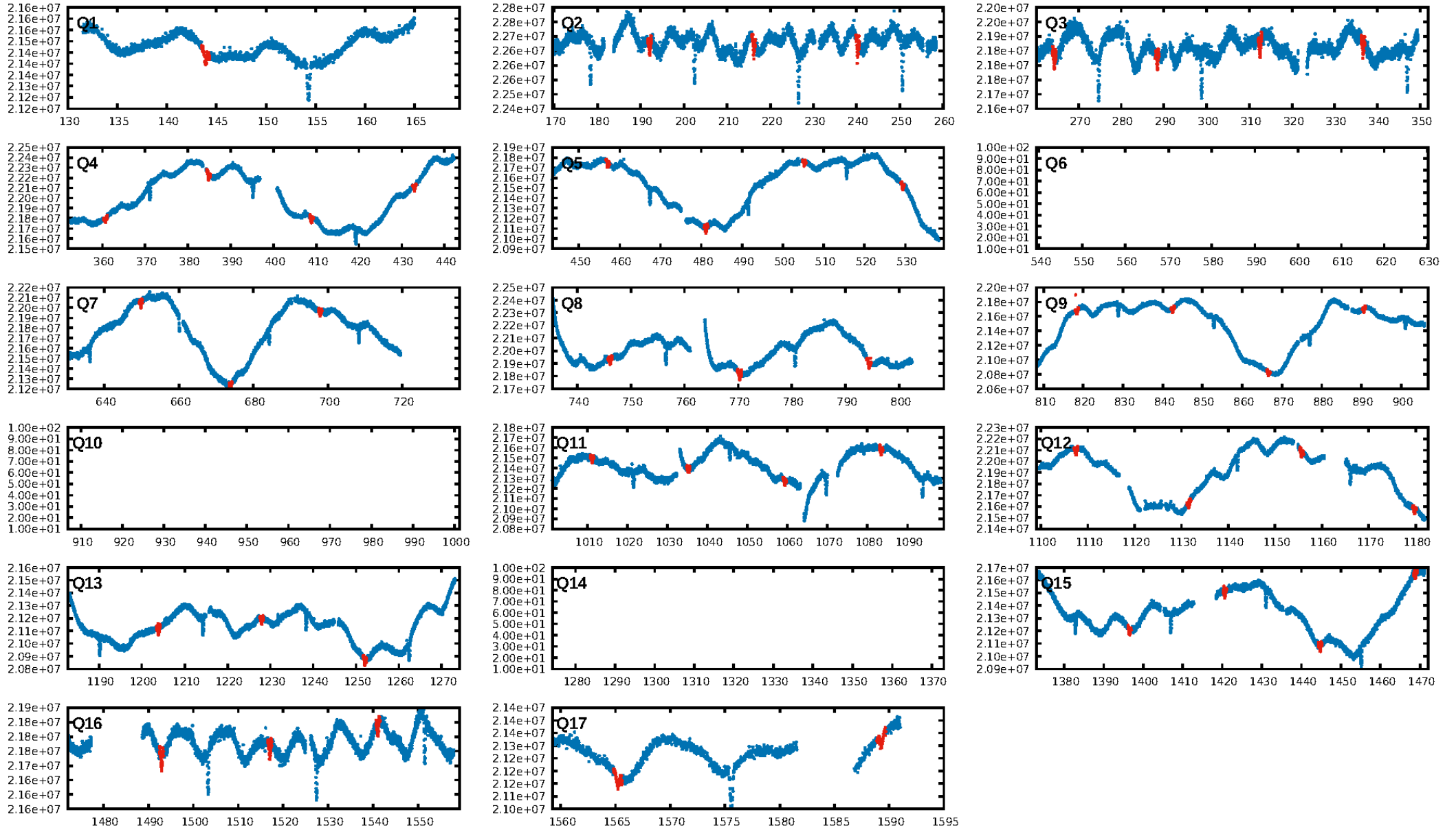
DV Fit Results:

Period = 24.09004 [0.00008] d
Epoch = 143.8950 [0.0028] BKJD
Rp/R* = 0.0668 [0.0150]
a/R* = 7.97 [0.55]
b = 0.98 [0.03]
Seff = 21.88 [5.38]
Teq = 551 [34] K
Rp = 5.86 [1.62] Re
a = 0.1475 [0.0204] AU
Ag = 27.07 [17.80] [1.46 σ]
Teffp = 1945 [310] K [4.47 σ]

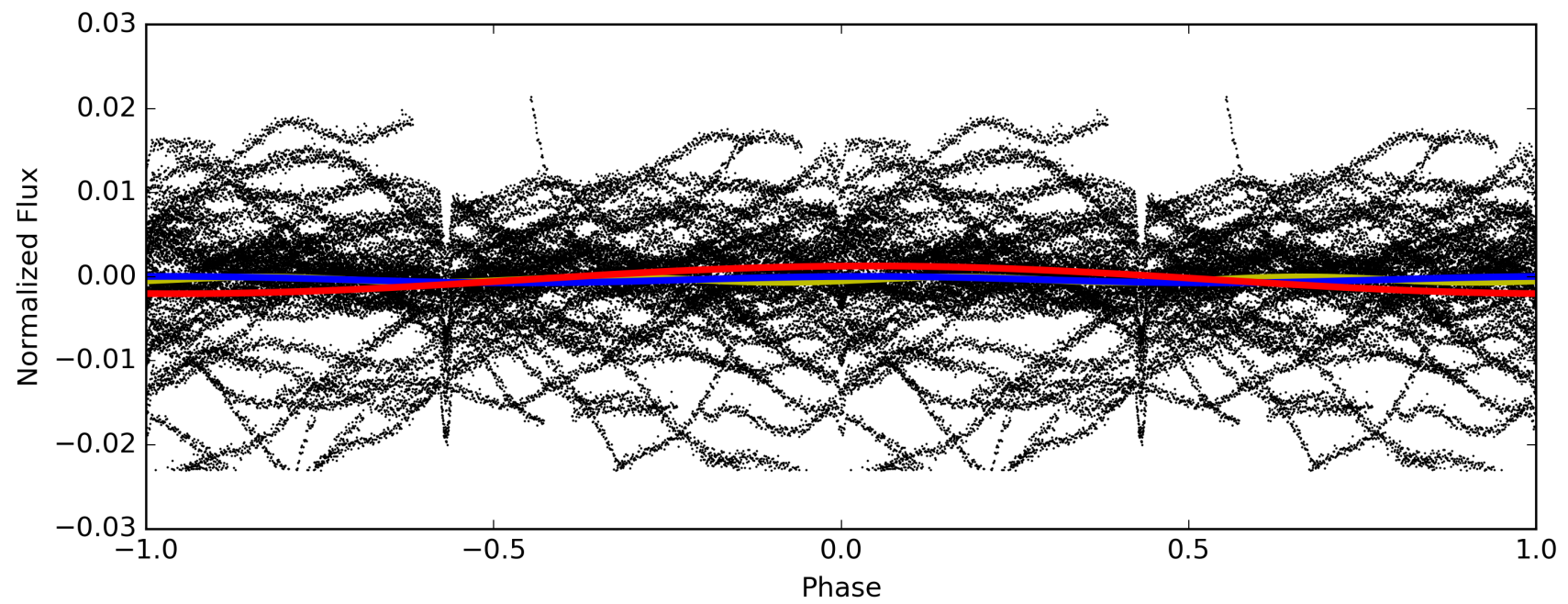
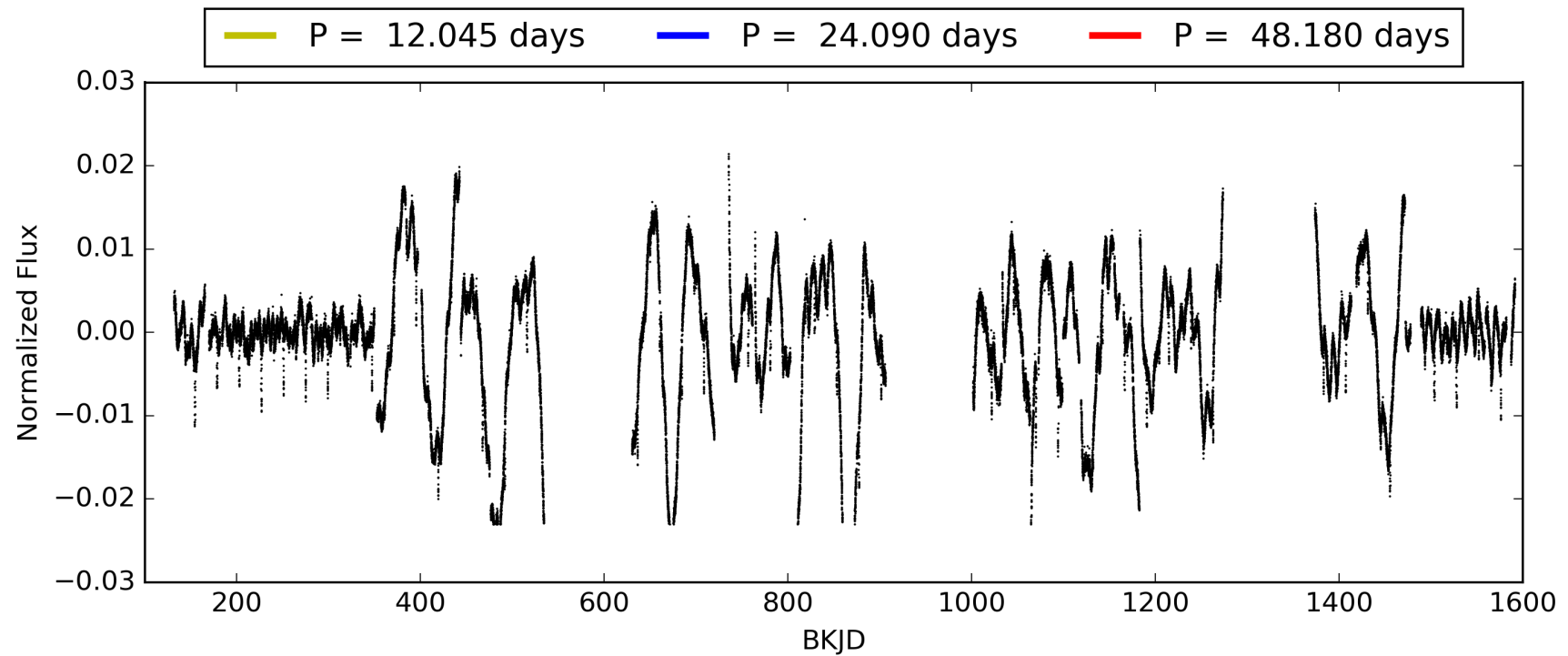
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [43/43]
GhostDiagnostic-chr: 3.386
Centroid-sig: 0.0%
Centroid-so: 0.907 arcsec [5.49 σ]
OotOffset-rm: 0.549 arcsec [6.15 σ]
KicOffset-rm: 0.397 arcsec [4.00 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 003757588-02, PDC Light Curves

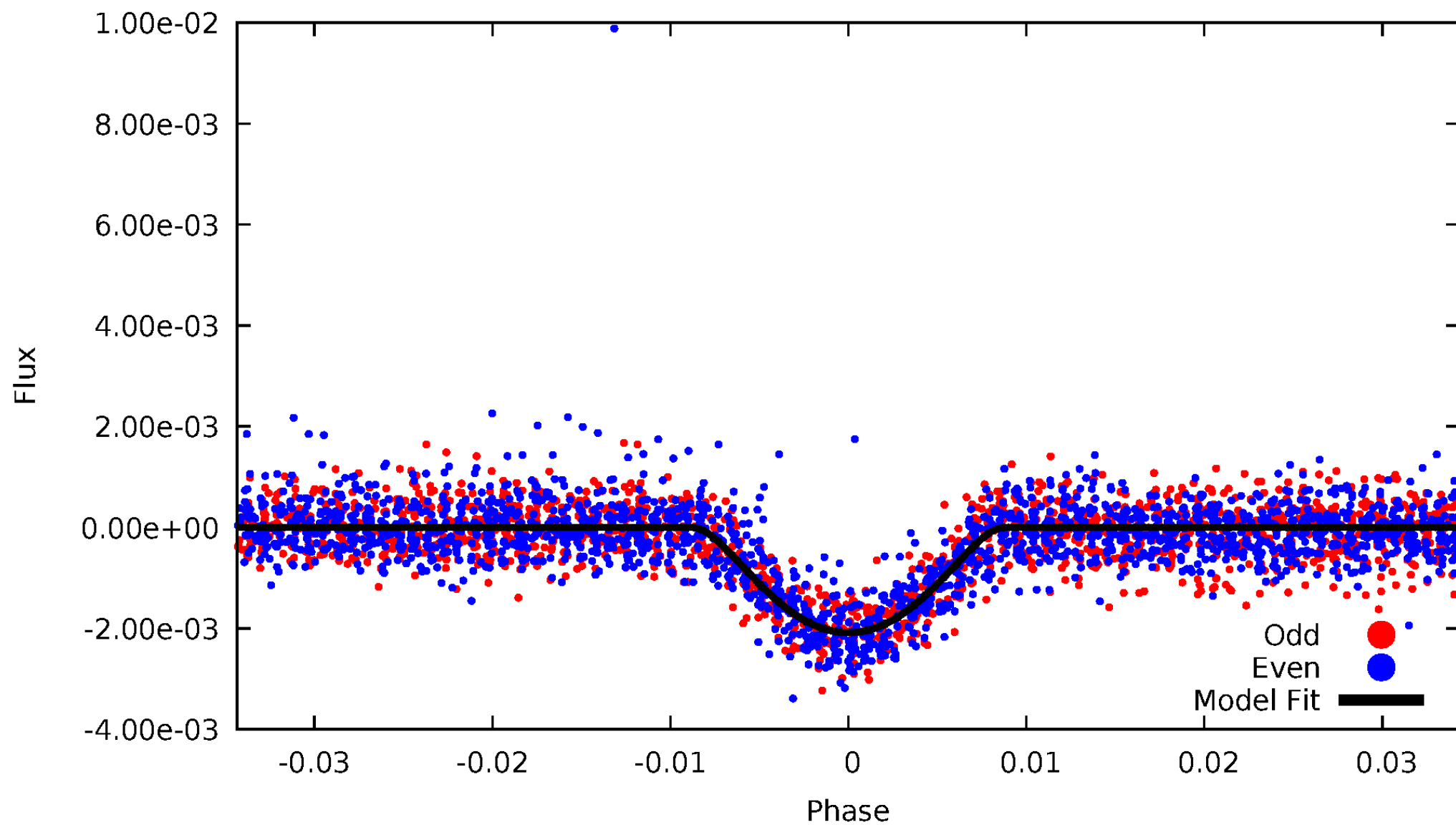


TCE 003757588-02



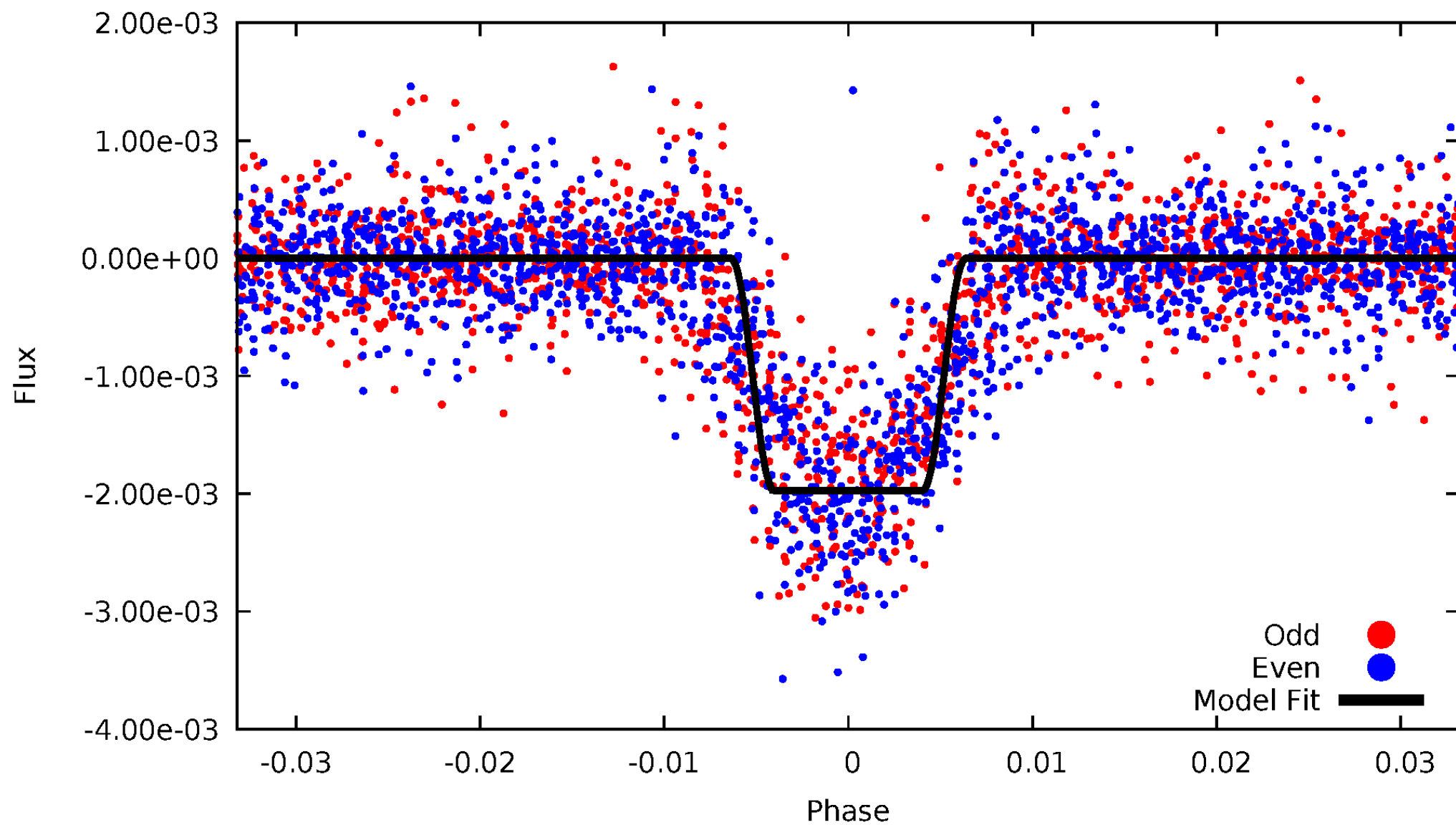
DV Odd/Even

TCE 003757588-02



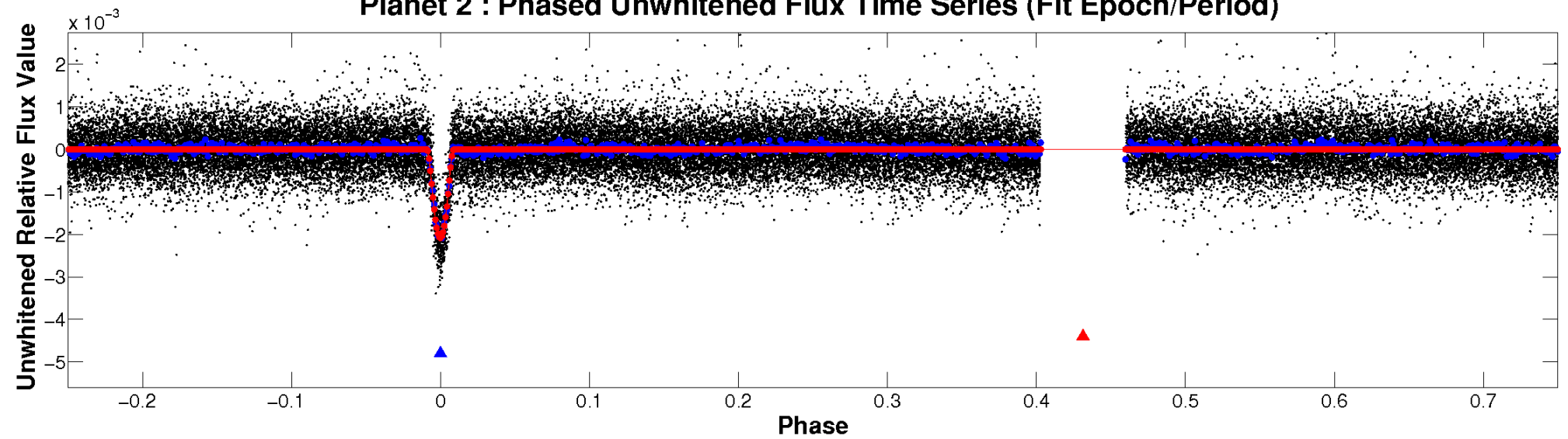
ALT Odd/Even

TCE 003757588-02

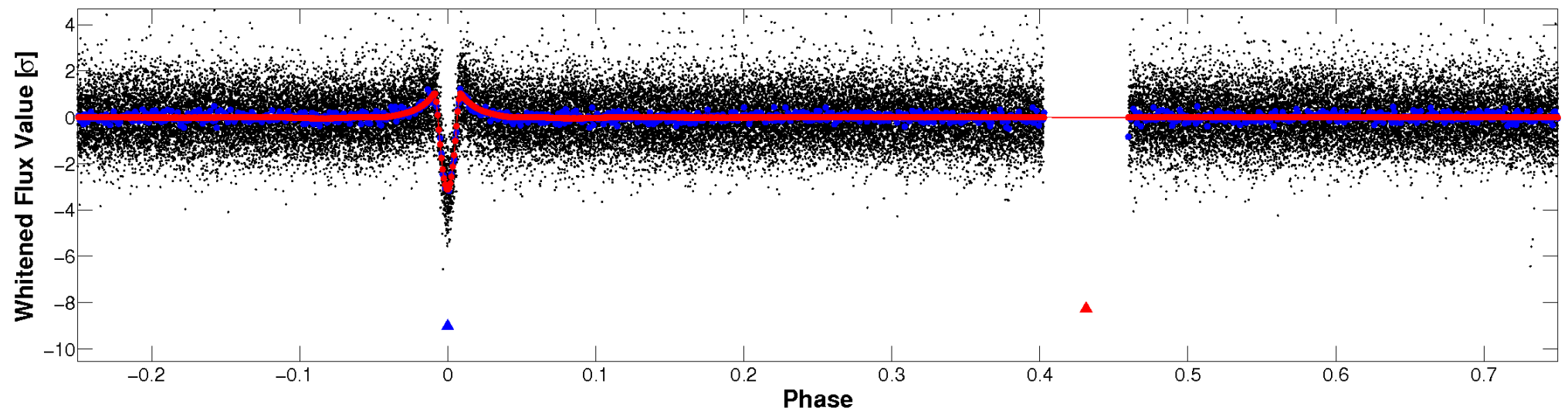


Non-Whitened Vs. Whitened Light Curve

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

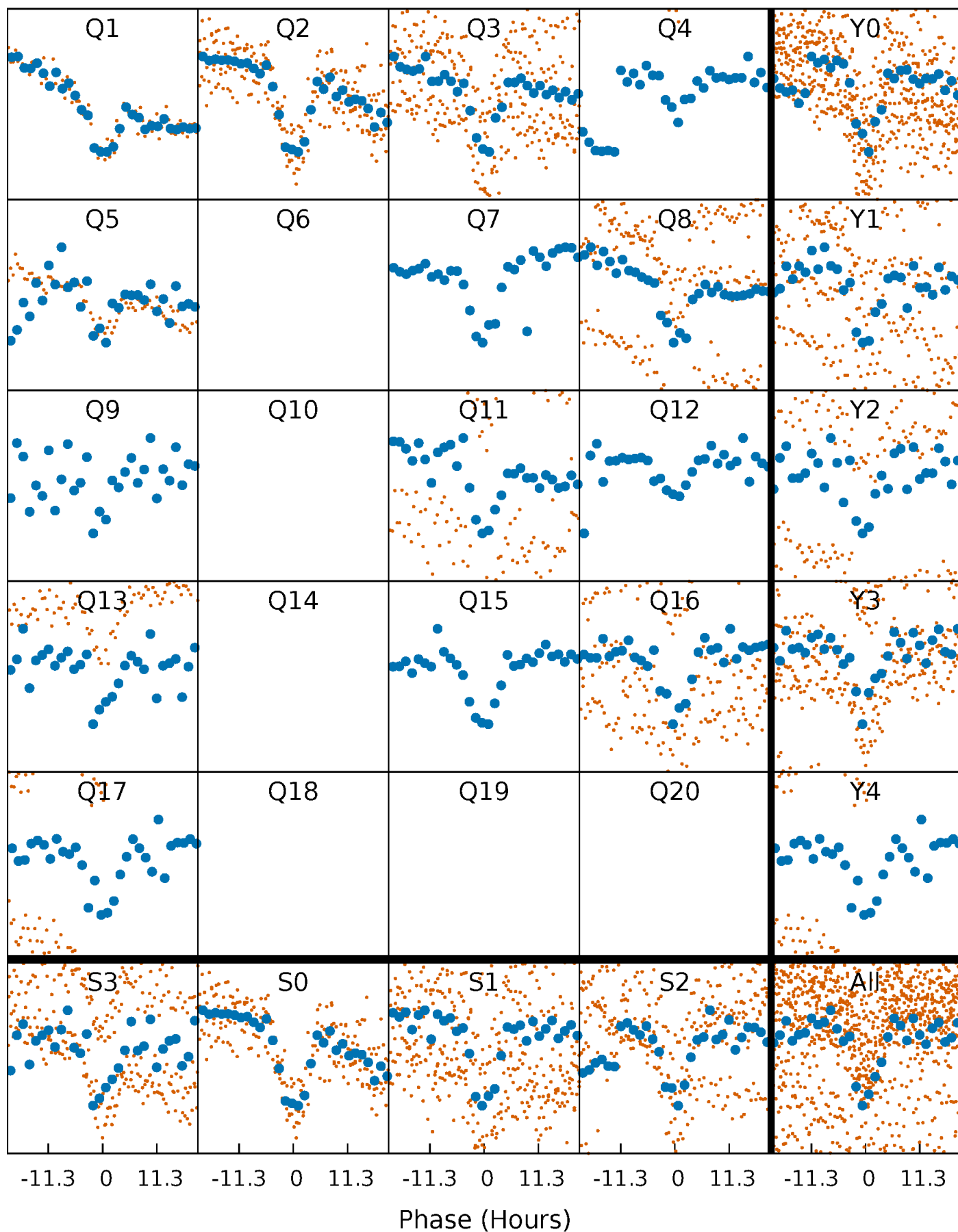


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



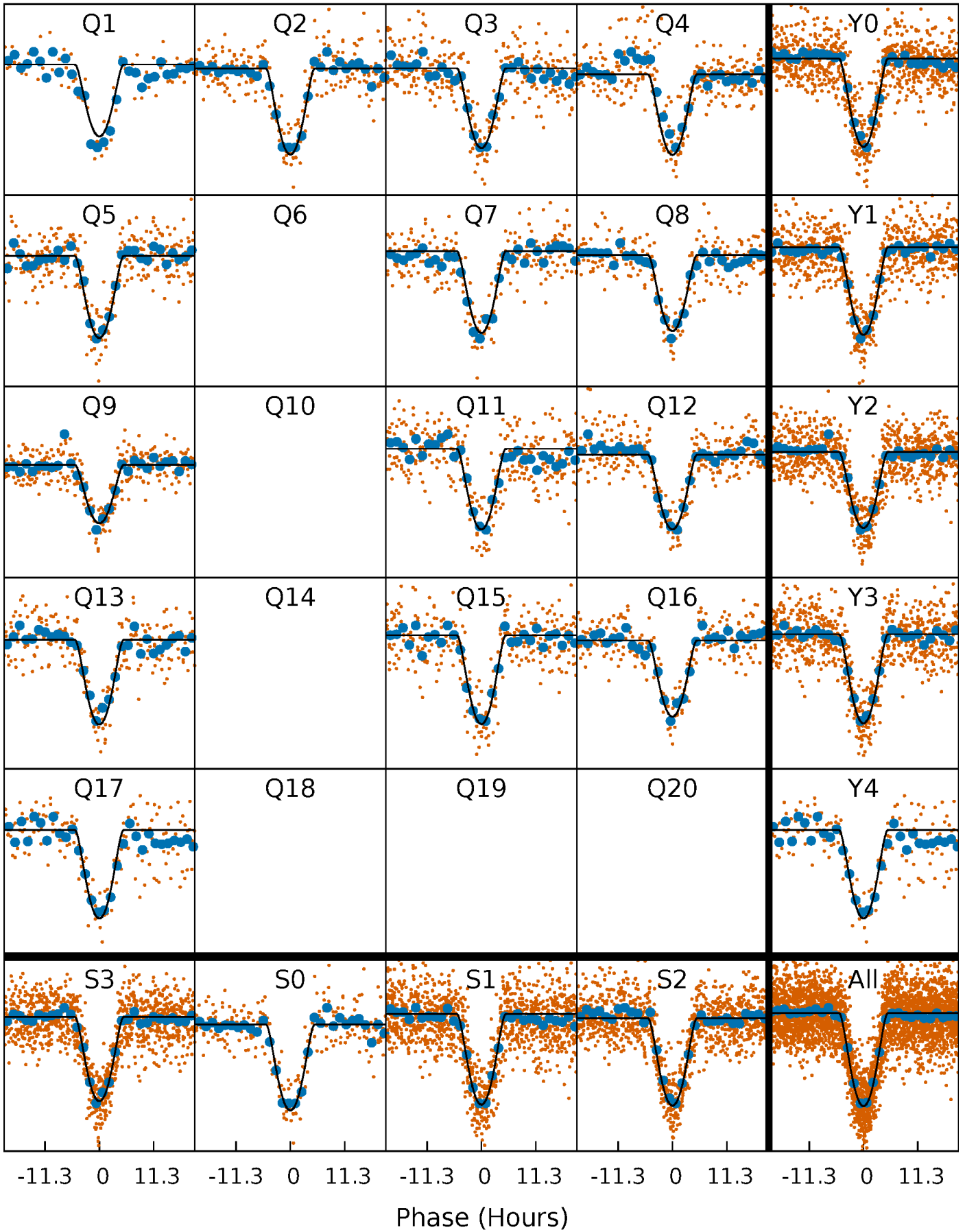
PDC Quarter-Phased Transit Curves

TCE 003757588-02 P= 24.090039 Days $T_0=143.894986$ (BKJD)



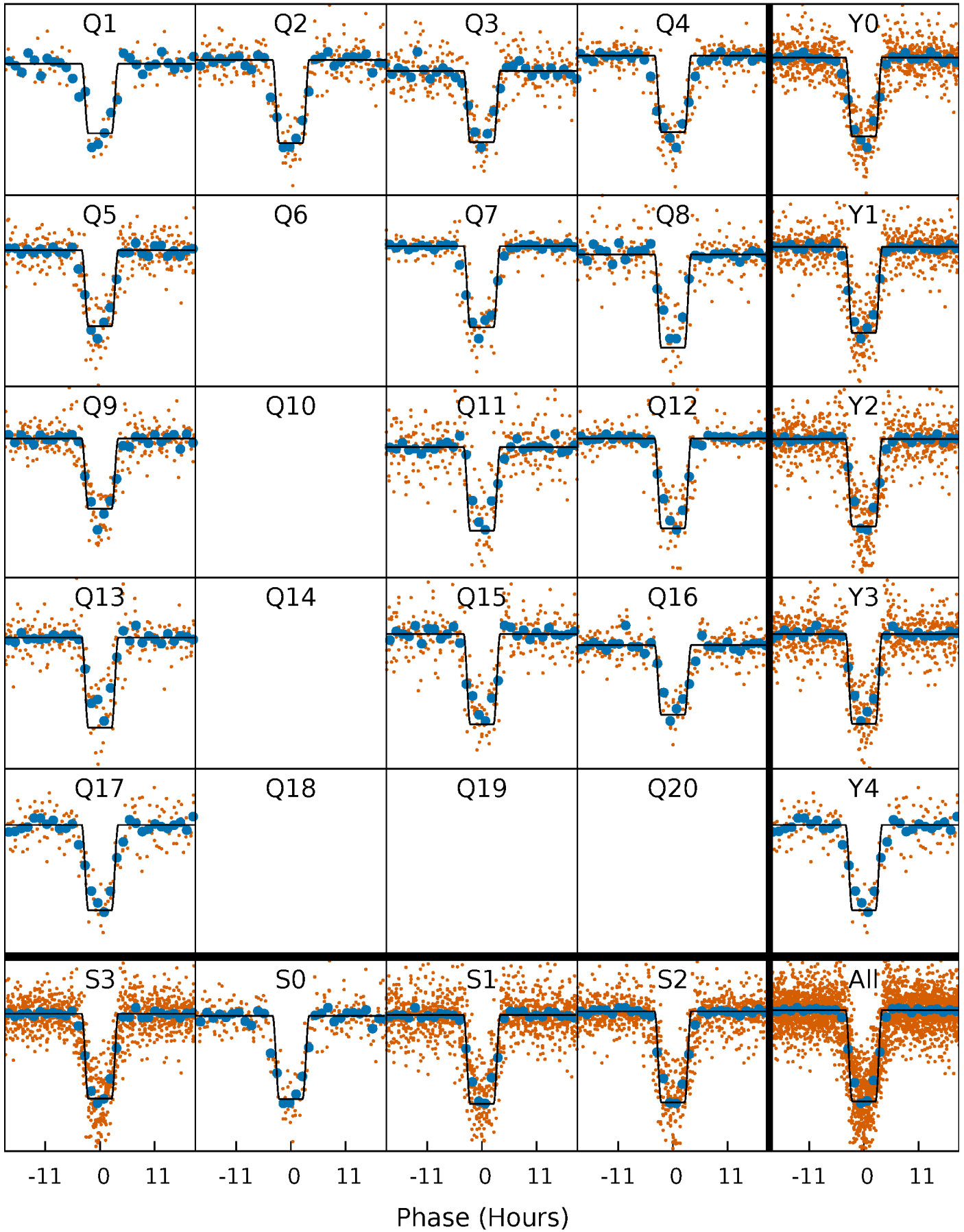
DV Quarter-Phased Transit Curves

TCE 003757588-02 $P = 24.090039$ Days $T_0 = 143.894986$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

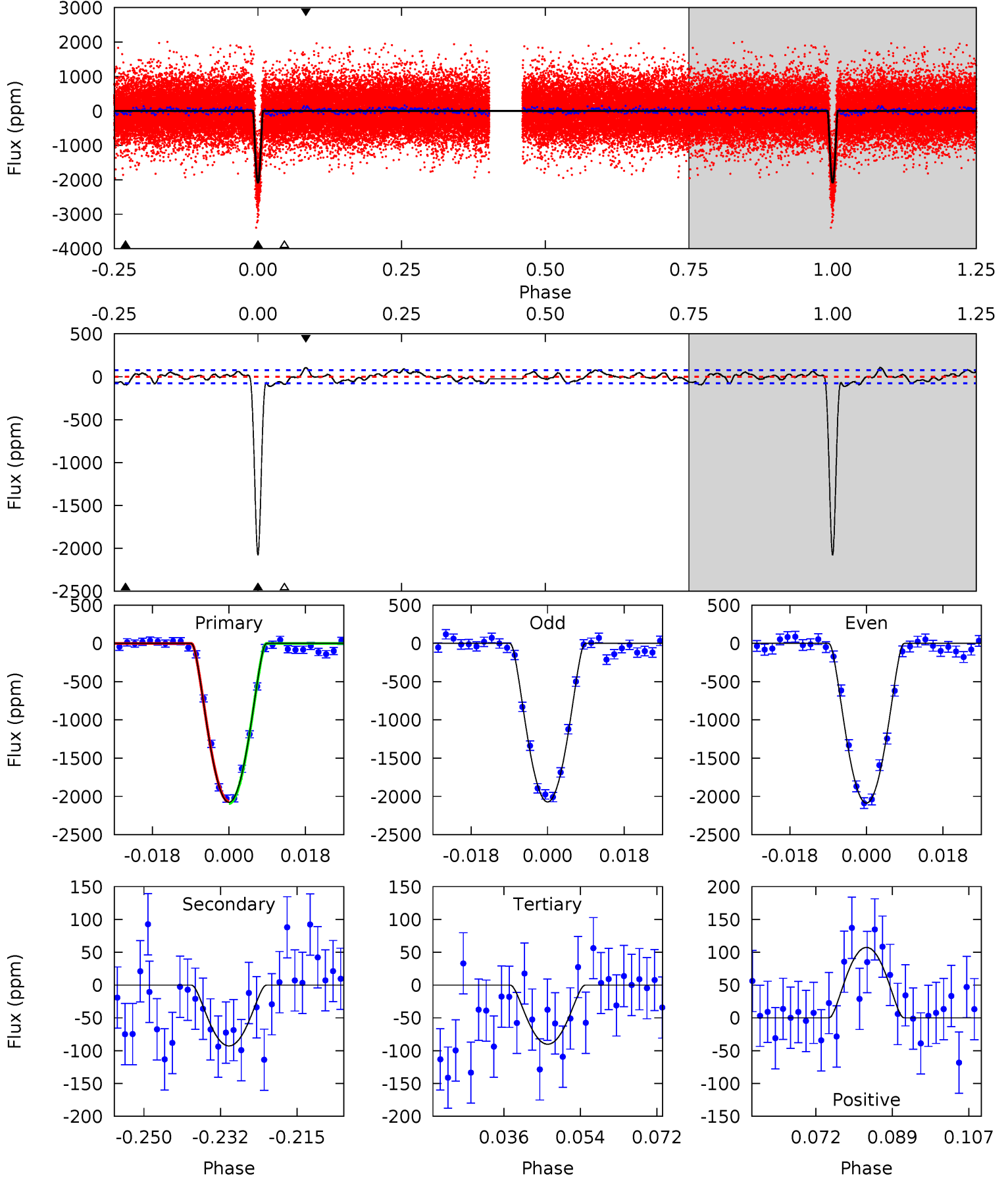
TCE 003757588-02 $P = 24.089838$ Days $T_0 = 143.906768$ (BKJD)



DV Model-Shift Uniqueness Test

003757588-02, P = 24.090039 Days, E = 119.804947 Days

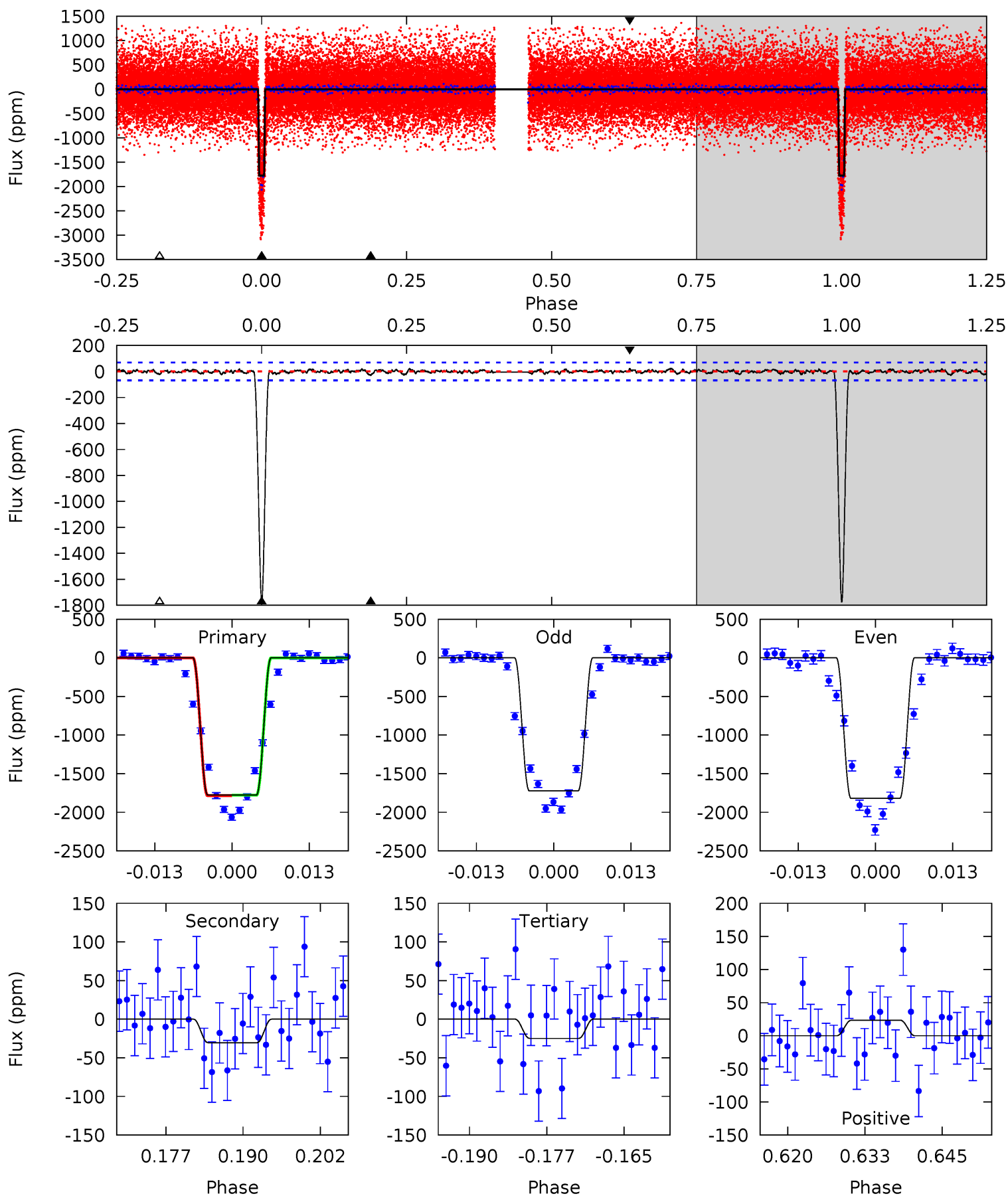
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
133.5	5.96	5.80	6.90	4.91	2.37	2.56	127.7	126.6	0.17	-0.93	0.48	0.99	0.05	0.80



Alt Model-Shift Uniqueness Test

003757588-02, $P = 24.089838$ Days, $E = 119.816930$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
128.7	2.21	1.81	1.69	4.98	2.49	0.61	126.9	127.0	0.40	0.51	3.57	1.01	0.01	0.20



Stellar Parameters For KIC 003757588

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5354^{+177}_{-160}	$4.495^{+0.105}_{-0.116}$	$-0.360^{+0.350}_{-0.300}$	$0.804^{+0.128}_{-0.105}$	$0.737^{+0.115}_{-0.054}$	$1.999^{+0.947}_{-0.640}$
	+3%/-3%	+2%/-3%	+97%/-83%	+16%/-13%	+16%/-7%	+47%/-32%
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 003757588-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-93 ± 16	$5.94^{+1.38}_{-1.51}$	771^{+42}_{-38}	2783^{+204}_{-176}	32^{+24}_{-12}
Alt.	-30 ± 14	$3.99^{+1.32}_{-1.39}$	773^{+41}_{-38}	2657^{+304}_{-273}	23^{+30}_{-14}

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

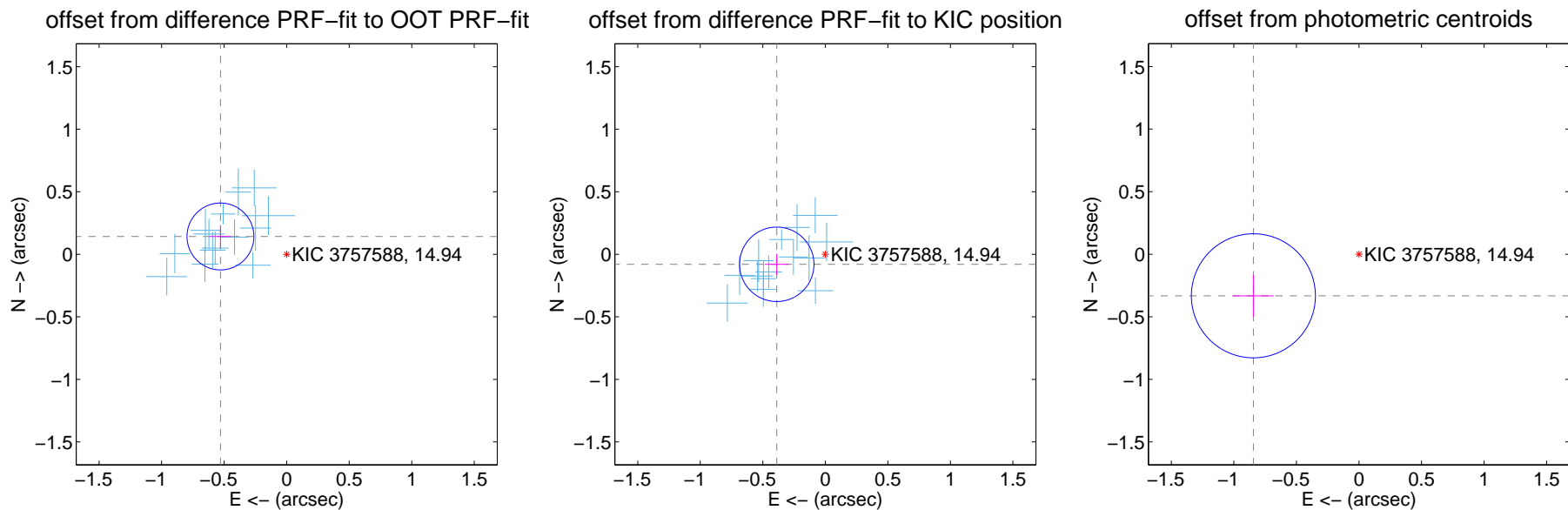
DV Centroid Data

Supplemental centroid analysis for 003757588-02. Kepler magnitude: 14.94. Transit SNR 63.37

There are 14 quarters with good PRF difference image offsets

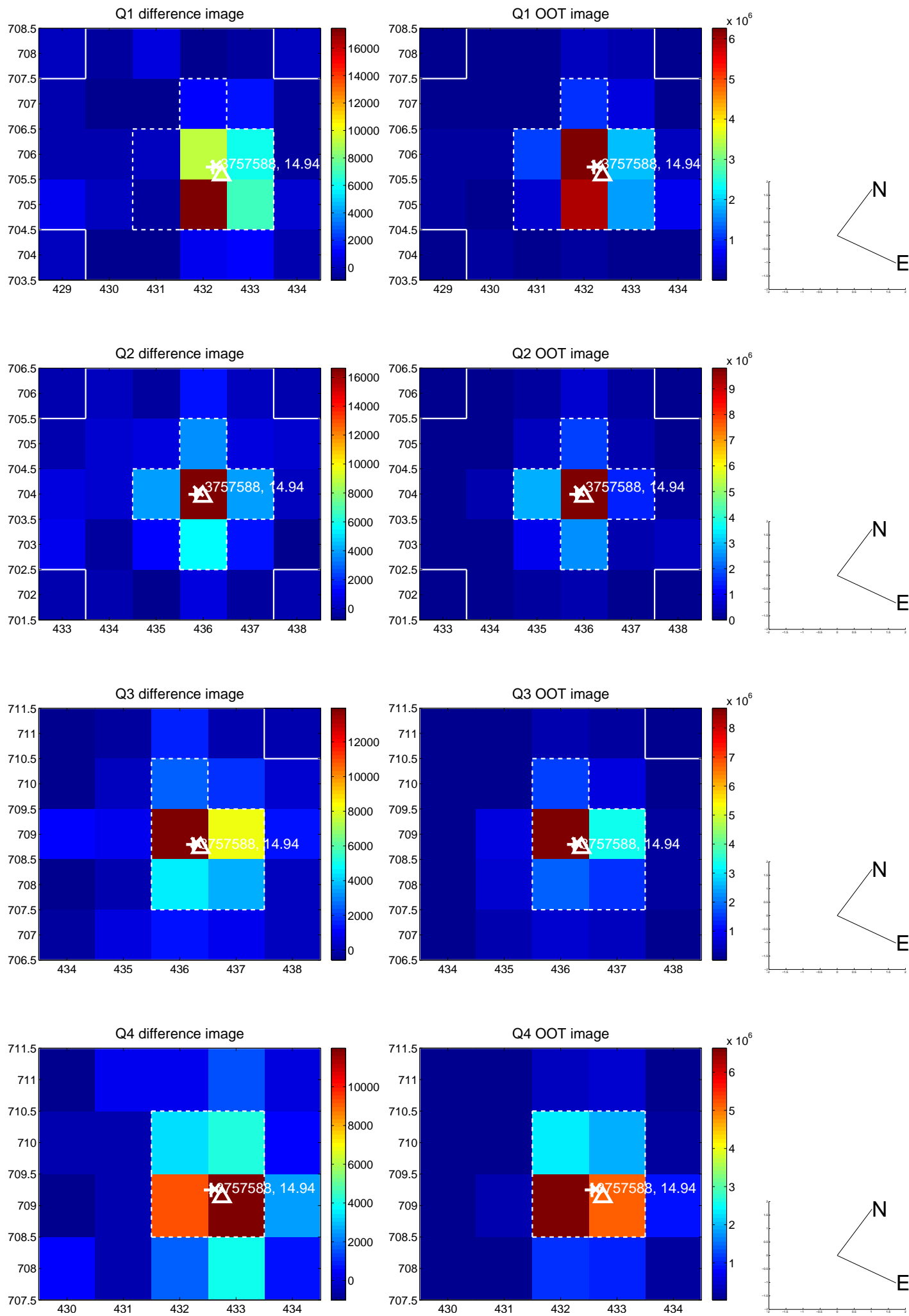
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.549 ± 0.089	6.15	0.530 ± 0.089	0.142 ± 0.092
PRF-fit source offset from KIC position	0.397 ± 0.099	4.00	0.388 ± 0.095	-0.080 ± 0.083
photometric centroid source offset	0.91 ± 0.17	5.49	0.84 ± 0.17	-0.33 ± 0.17

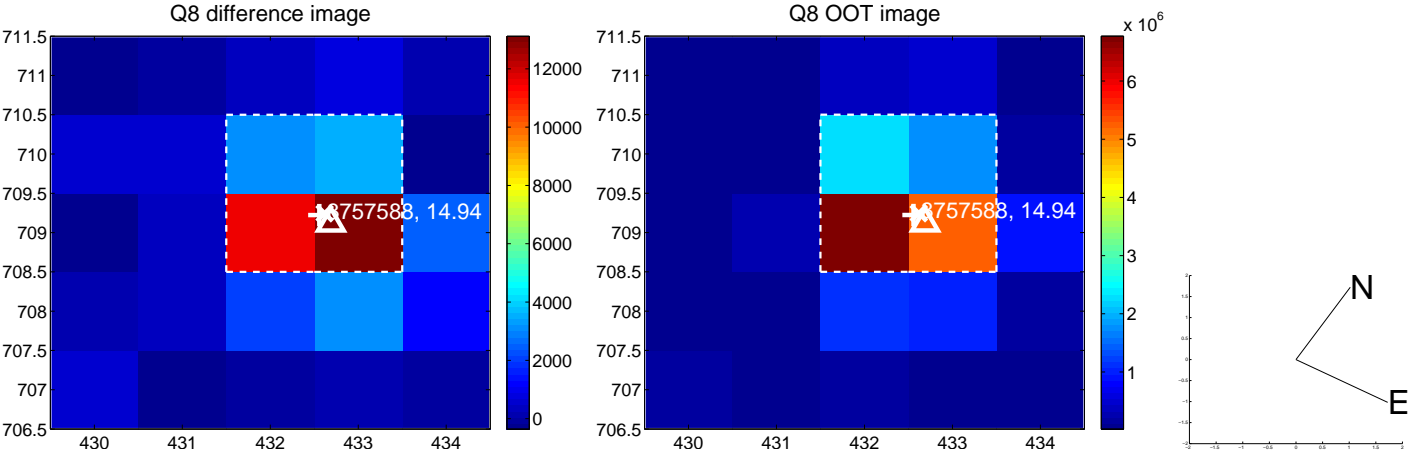
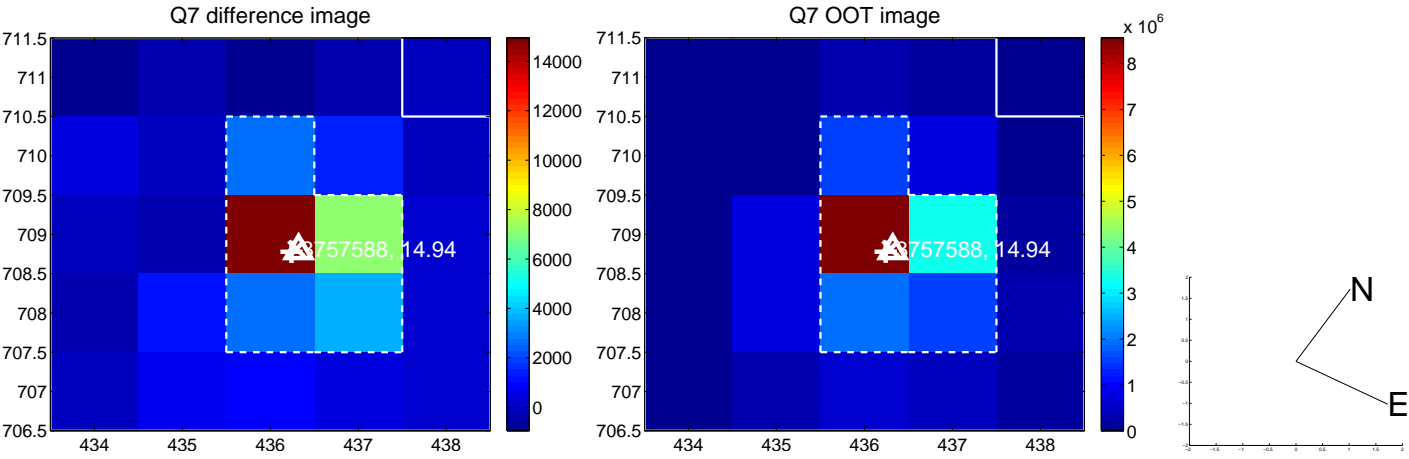
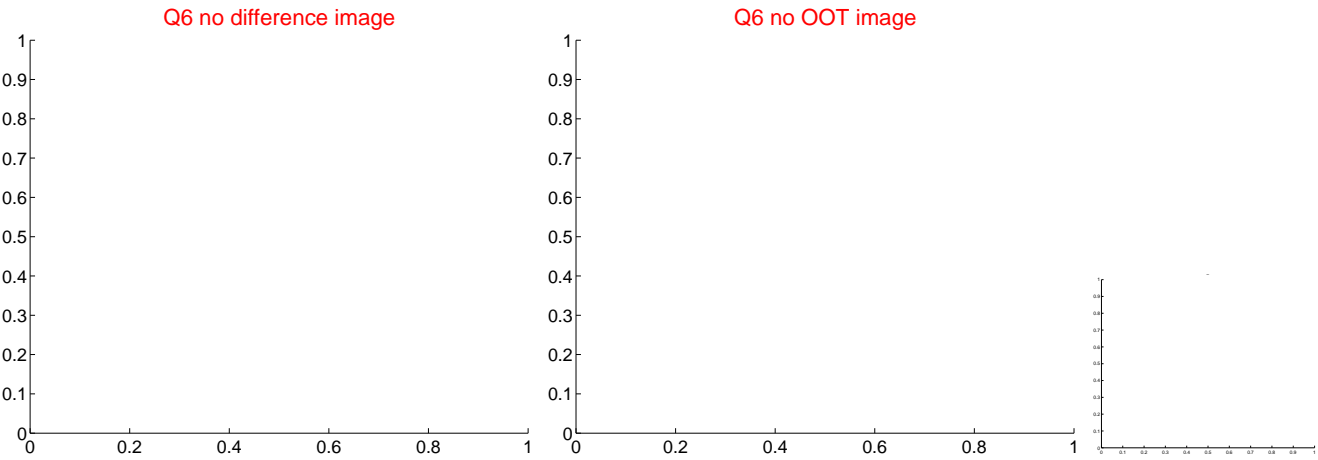
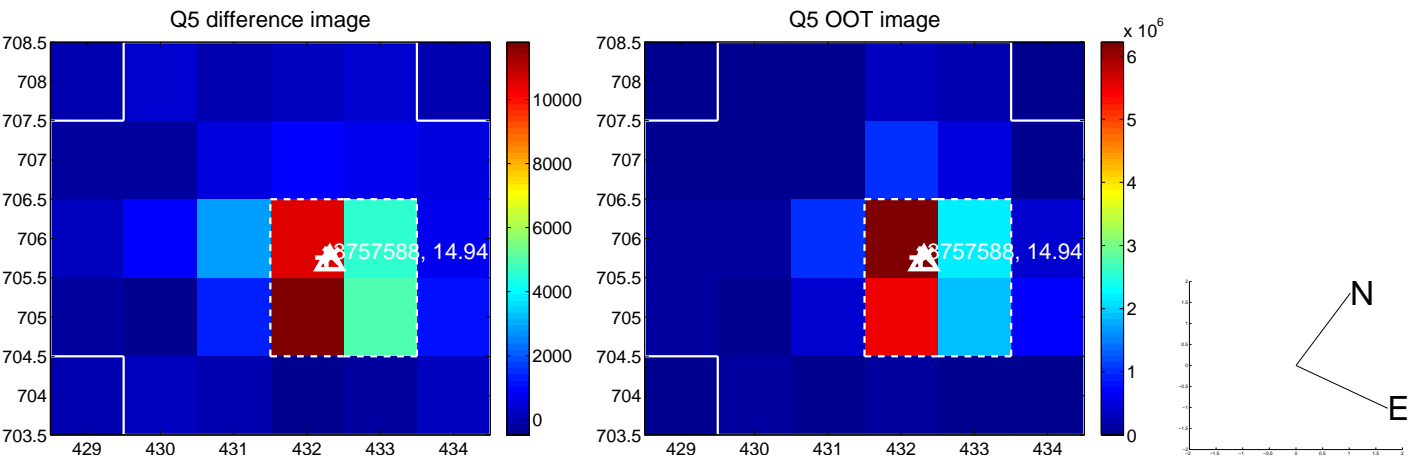


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

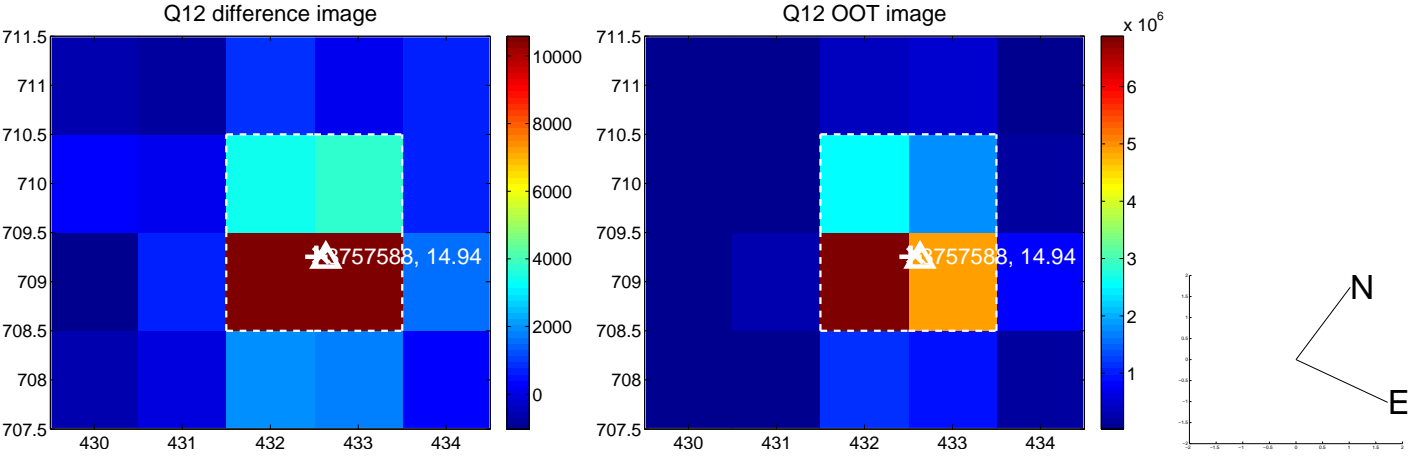
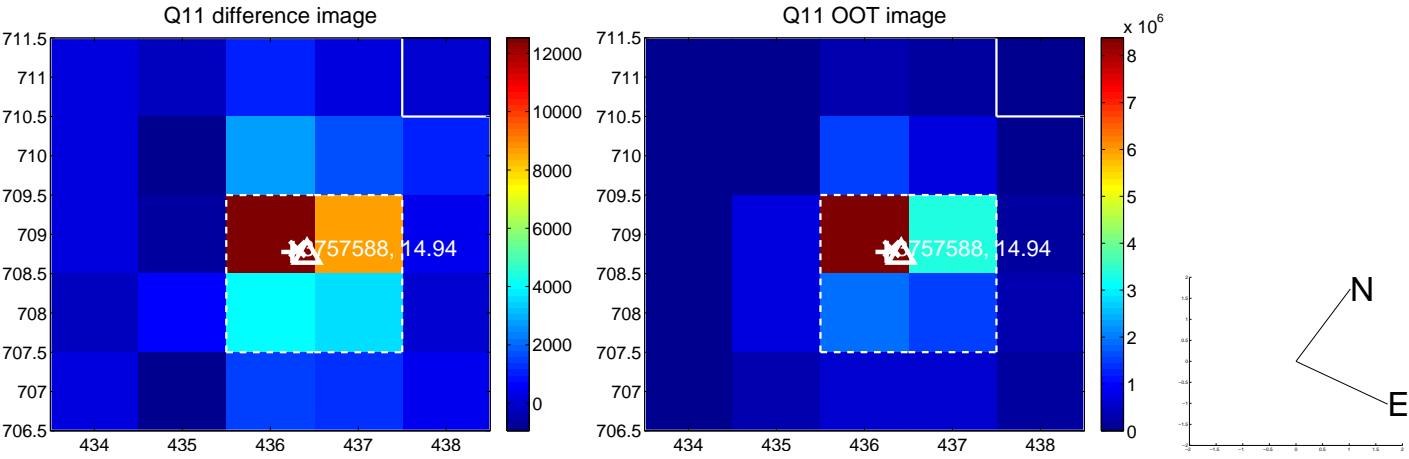
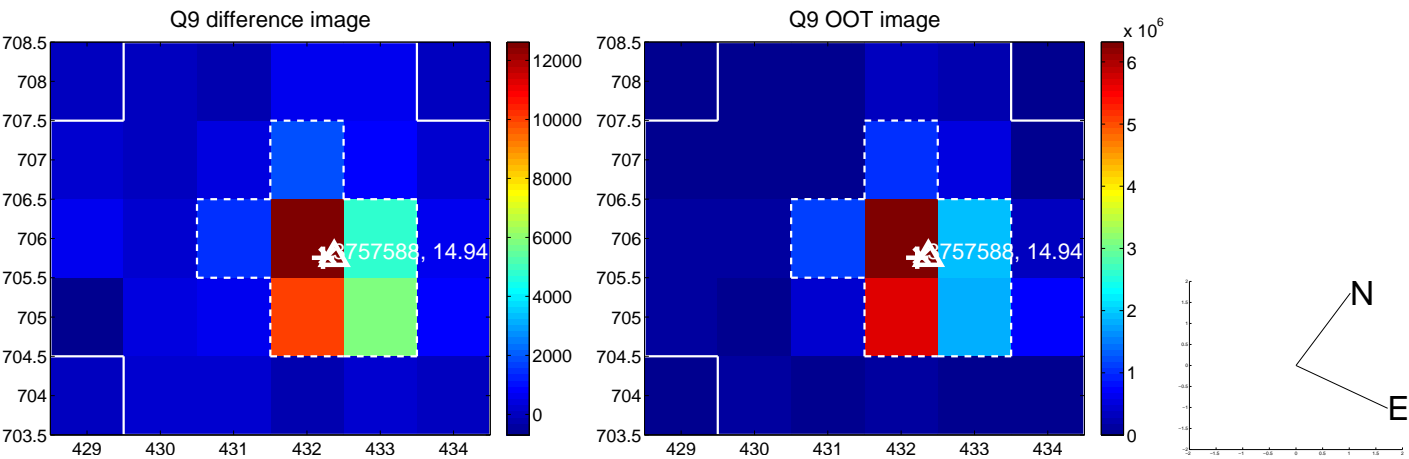
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



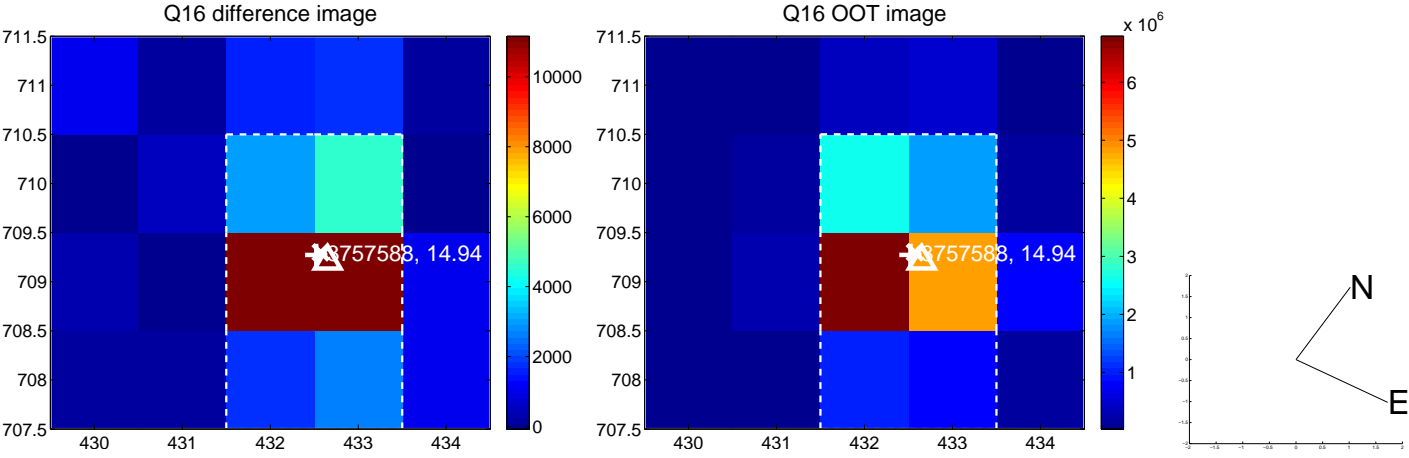
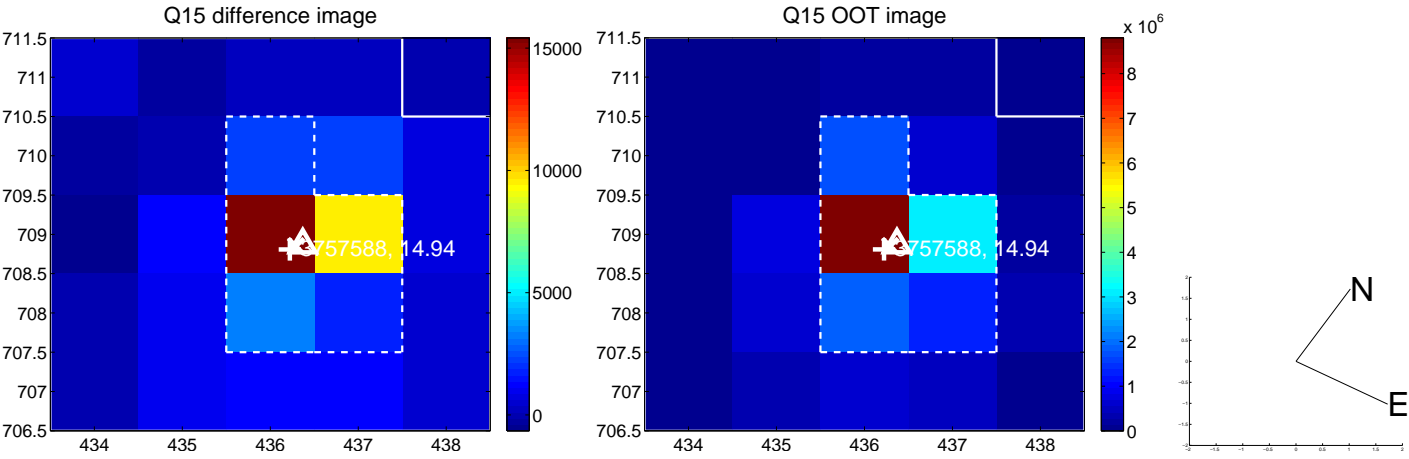
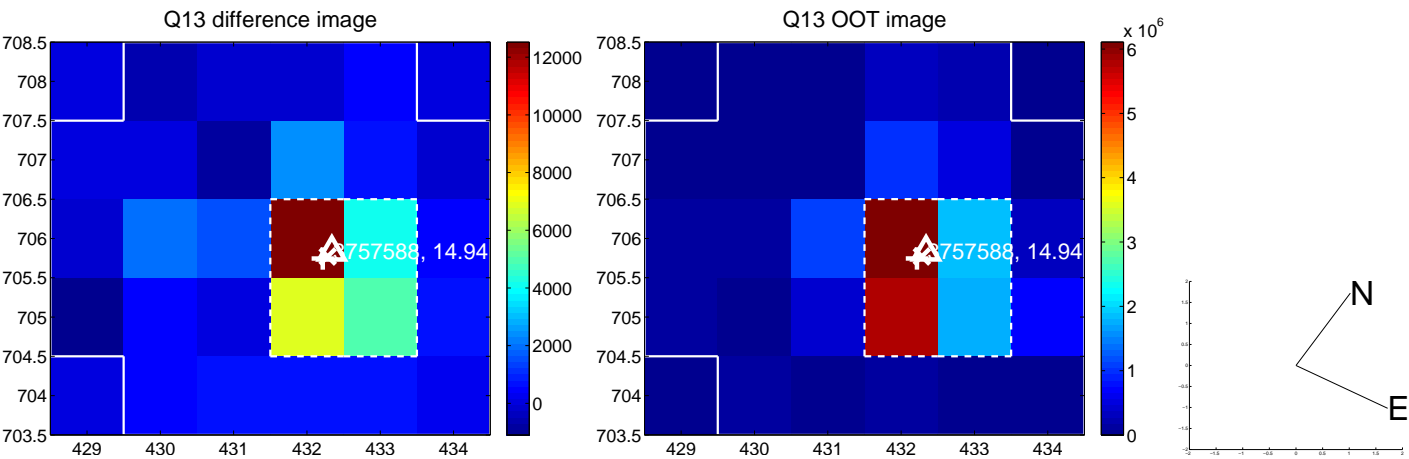
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



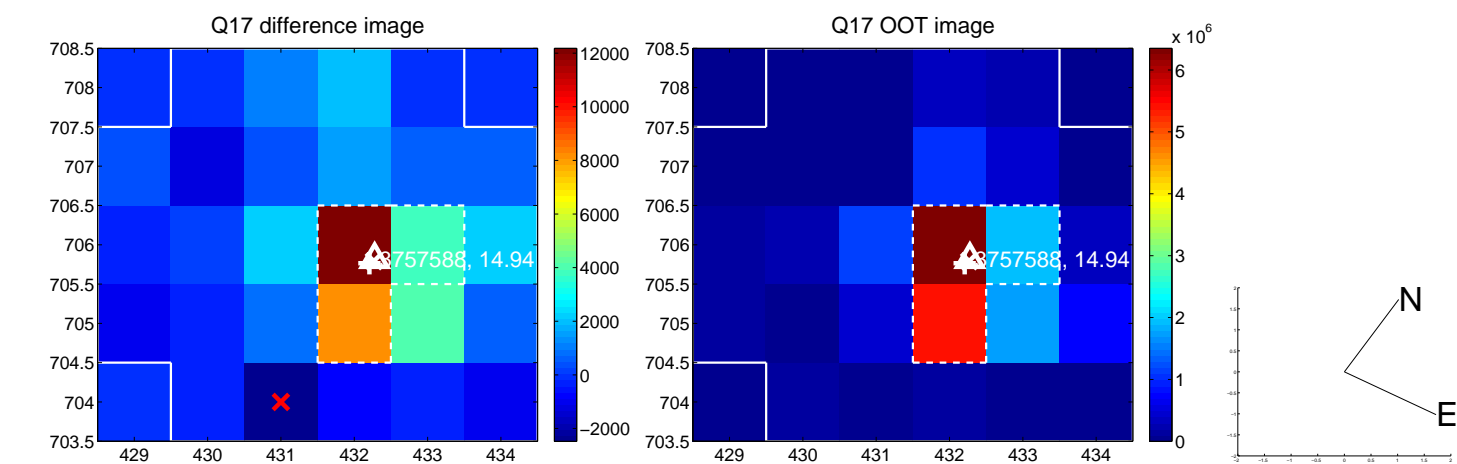
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



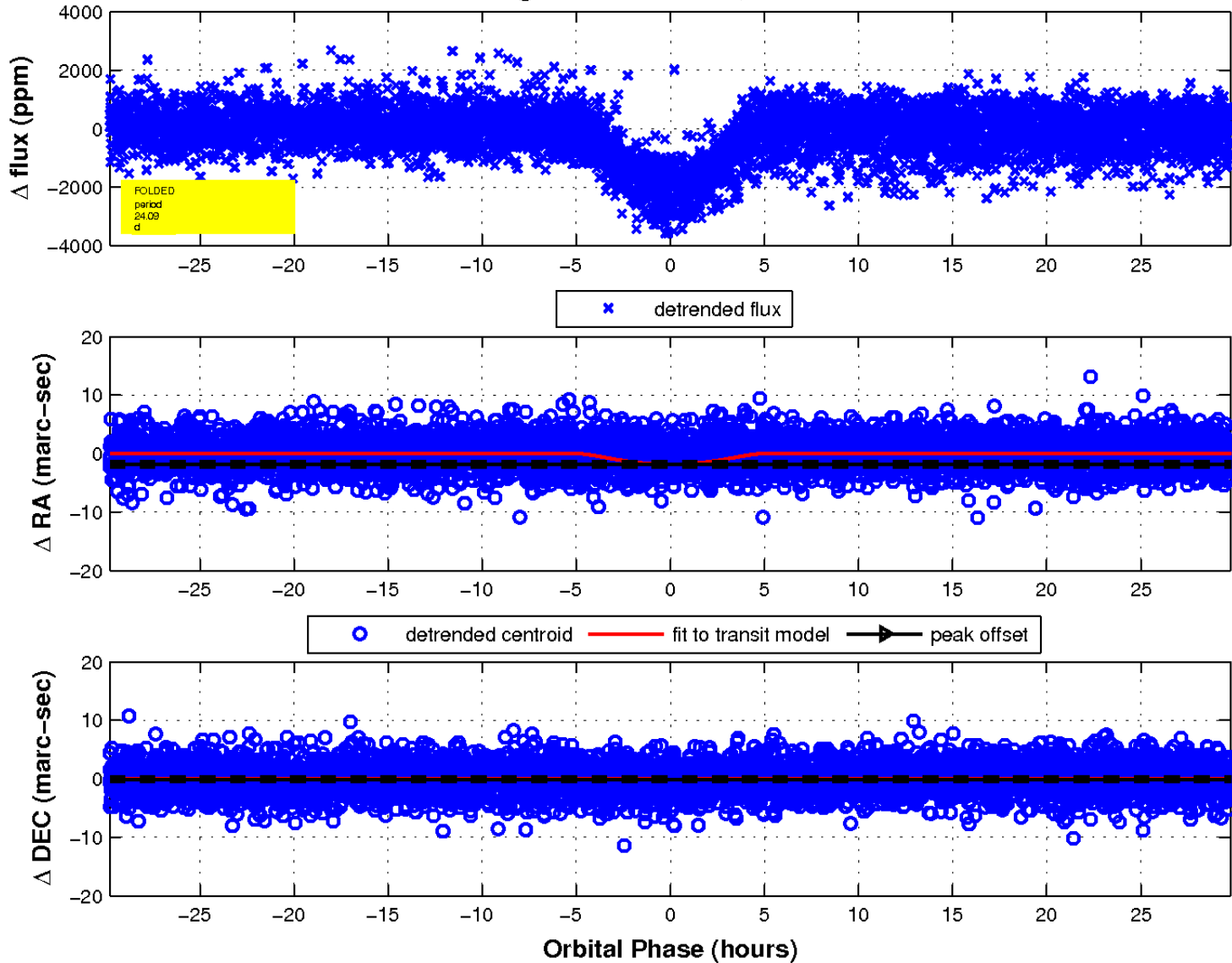
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

