

KIC 008544992

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})
008544992-01	OBS	2466.01	3.173227	133.700227	205.2	1.986	17.0	20.2	0.63	4500	1.03	112.55
008544992-02	OBS	2466.02	13.297157	140.945739	234.5	3.473	12.2	13.3	0.63	4500	1.28	16.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008544992-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008544992-02	OBS	PC	0.94	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.

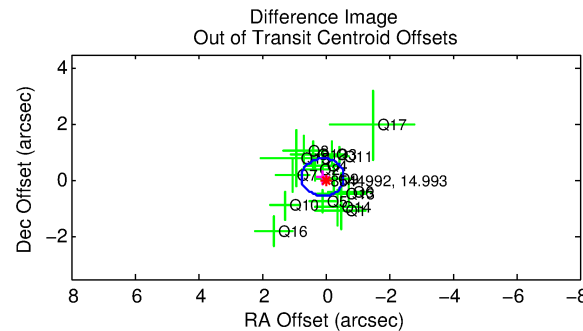
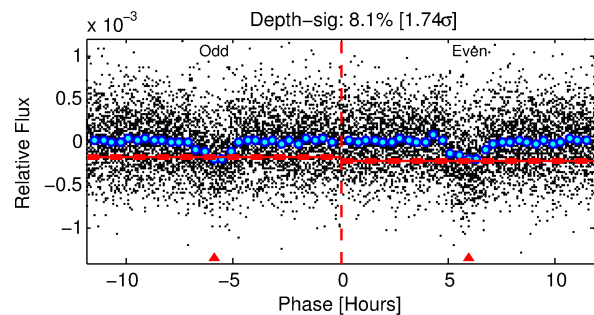
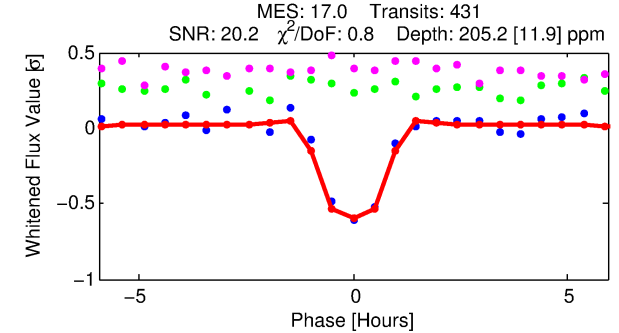
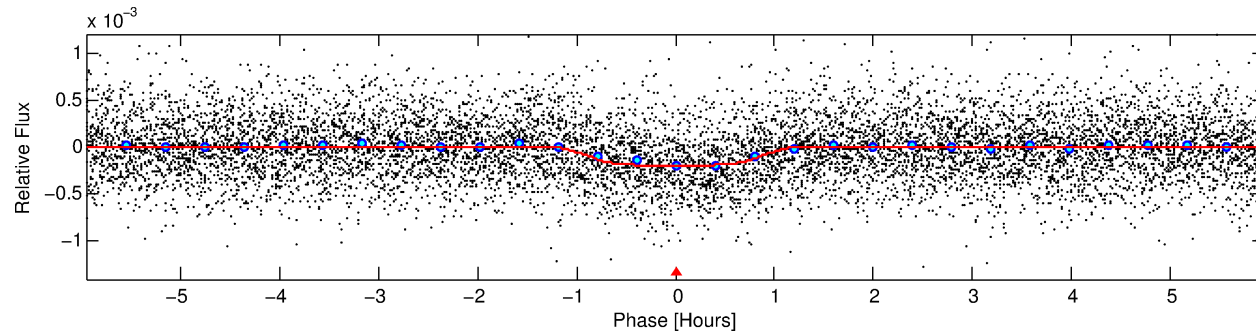
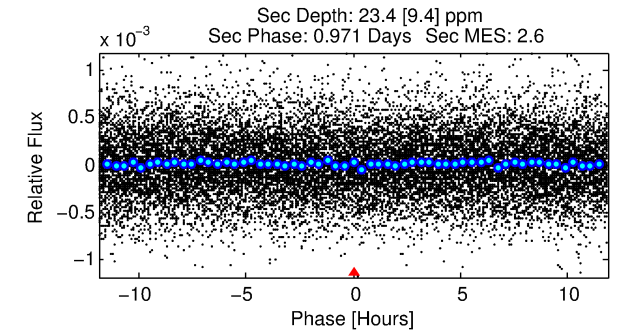
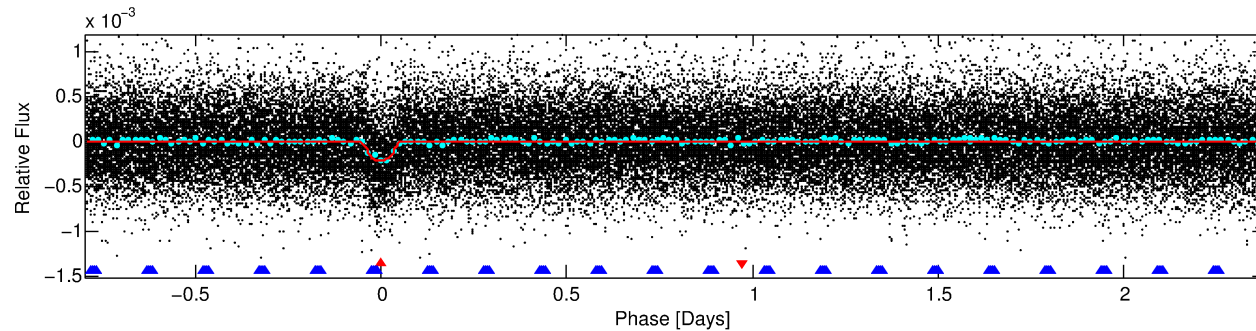
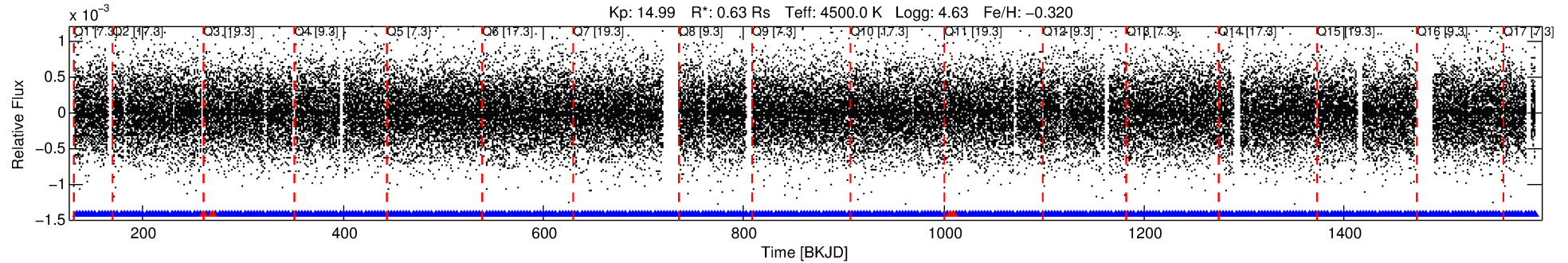
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008544992-01

No Significant Match Found

DV One-Page Summary

KIC: 8544992 Candidate: 1 of 2 Period: 3.173 d
KOI: K02466.01 Name: Kepler-388b Corr: 0.973



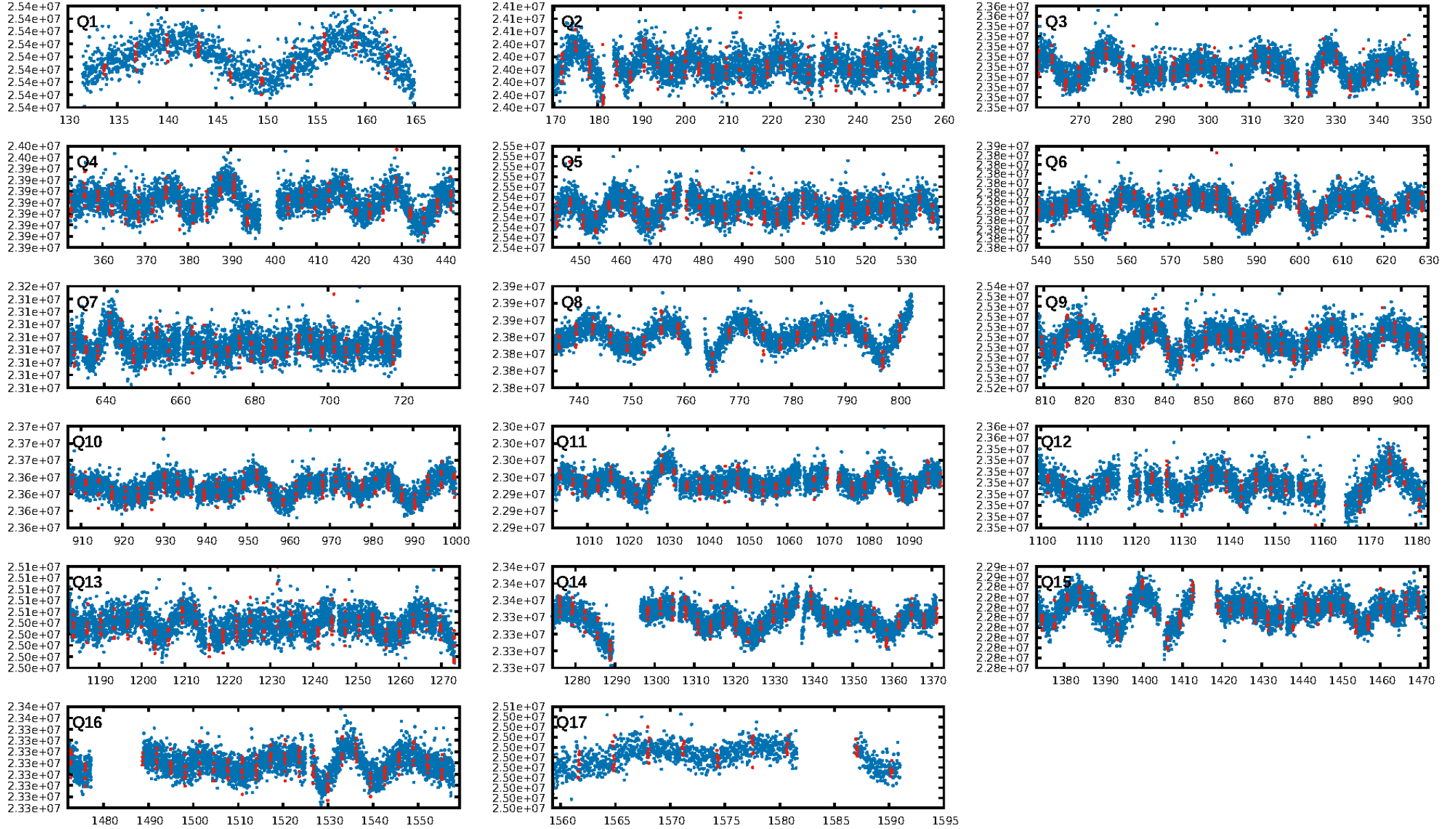
DV Fit Results:

Period = 3.17323 [0.00001] d
Epoch = 133.7002 [0.0017] BKJD
Rp/R* = 0.0149 [0.0073]
a/R* = 7.53 [12.36]
b = 0.81 [0.74]
Seff = 112.55 [16.98]
Teff = 831 [31] K
Rp = 1.03 [0.51] Re
a = 0.0362 [0.0025] AU
Ag = 15.94 [17.02] [0.88σ]
Teffp = 2566 [687] K [2.52σ]

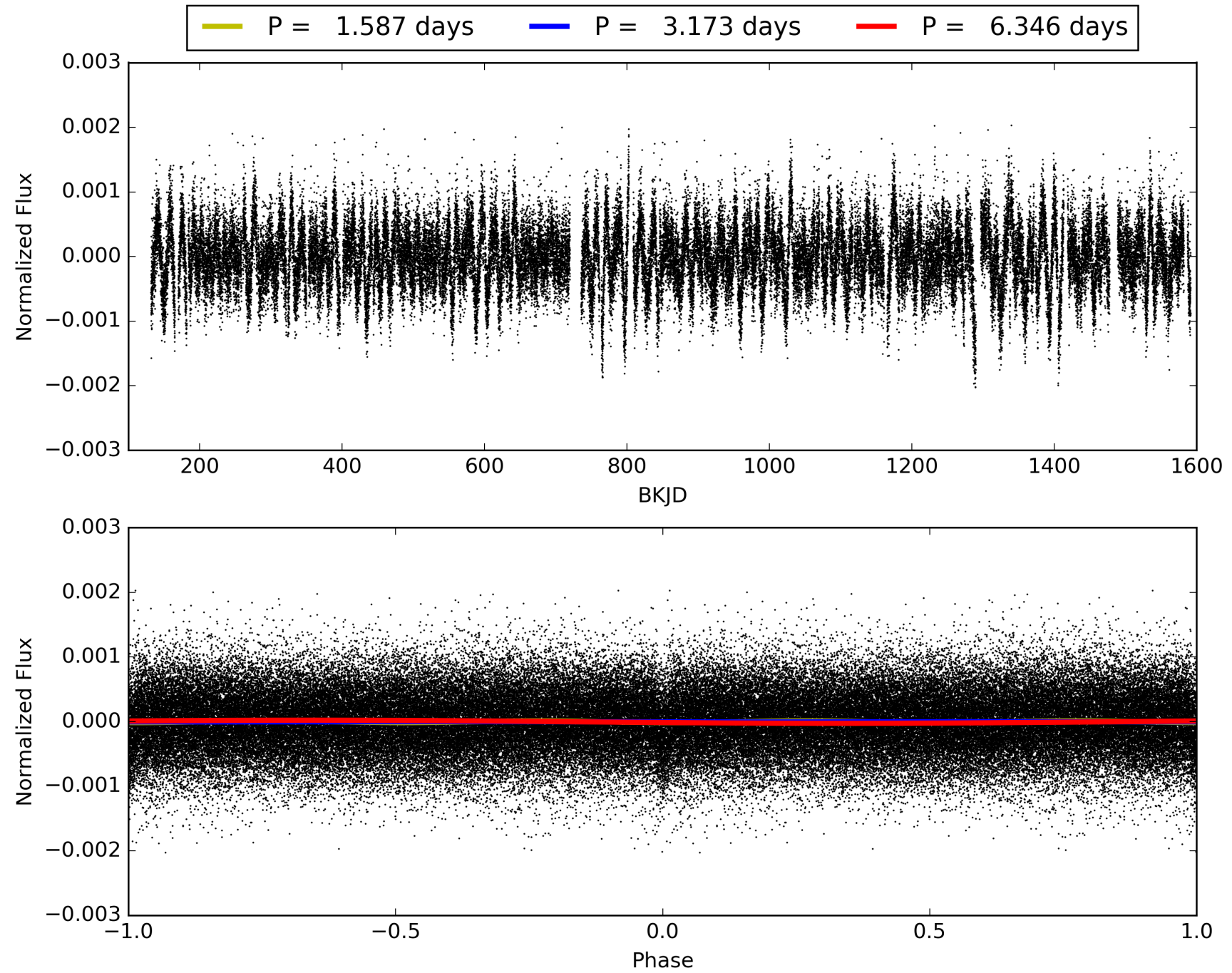
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [60.74σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.16e-63
RollingBand-fgt: 0.99 [408/412]
GhostDiagnostic-chr: 10.98
Centroid-sig: 0.0%
Centroid-so: 1.826 arcsec [2.54σ]
OotOffset-rm: 0.147 arcsec [0.66σ]
KicOffset-rm: 0.098 arcsec [0.49σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008544992-01, PDC Light Curves

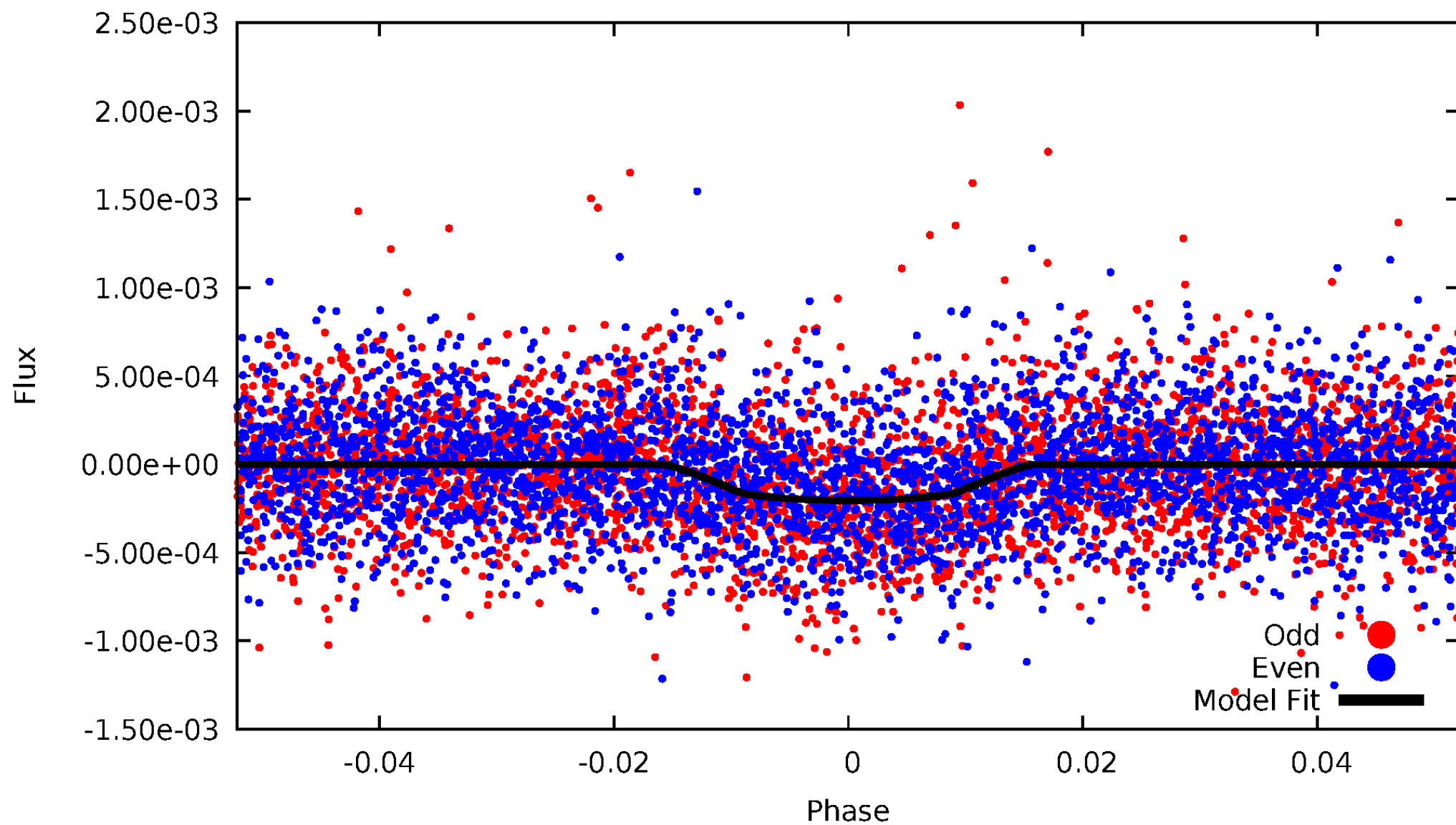


TCE 008544992-01



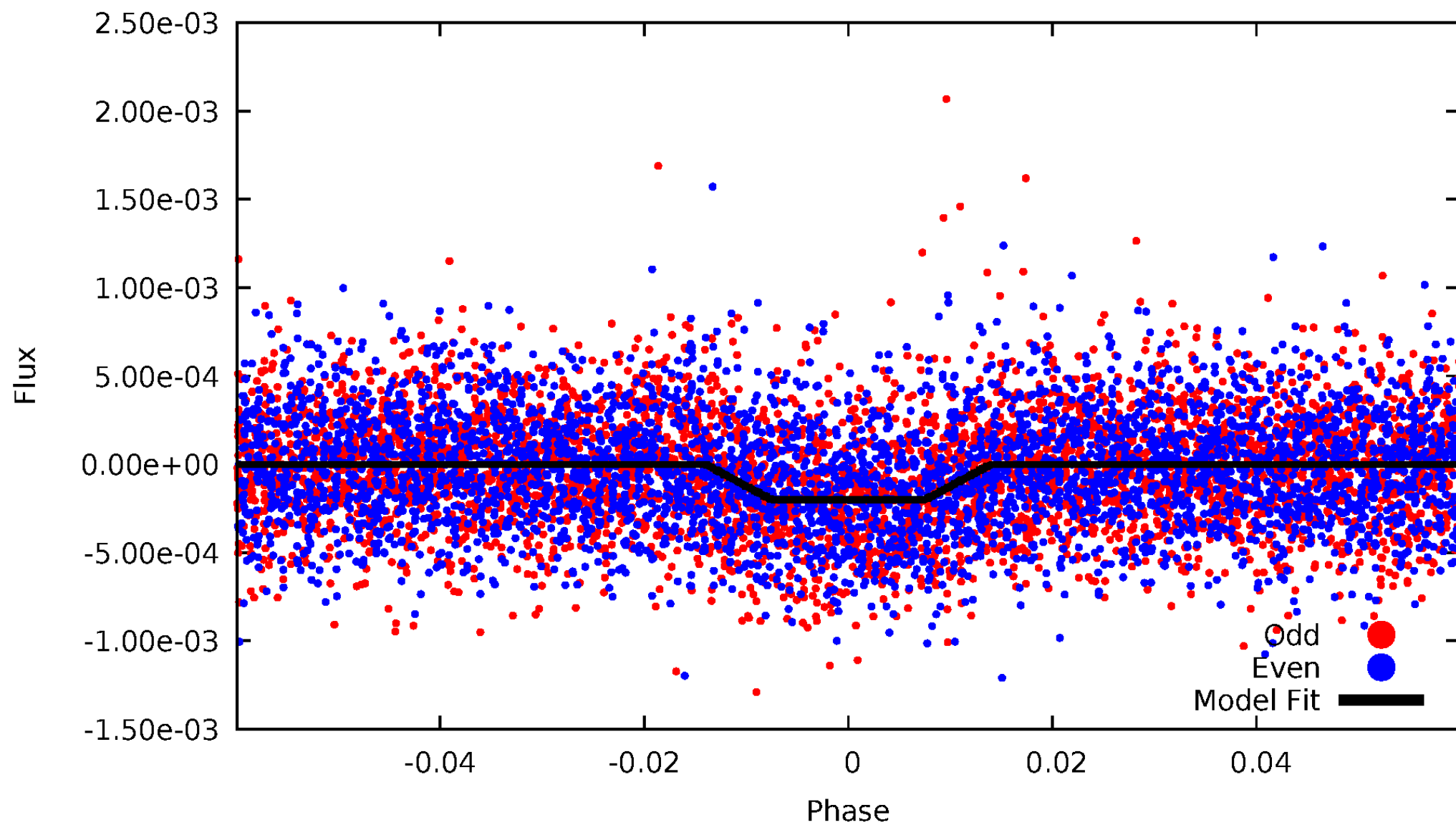
DV Odd/Even

TCE 008544992-01



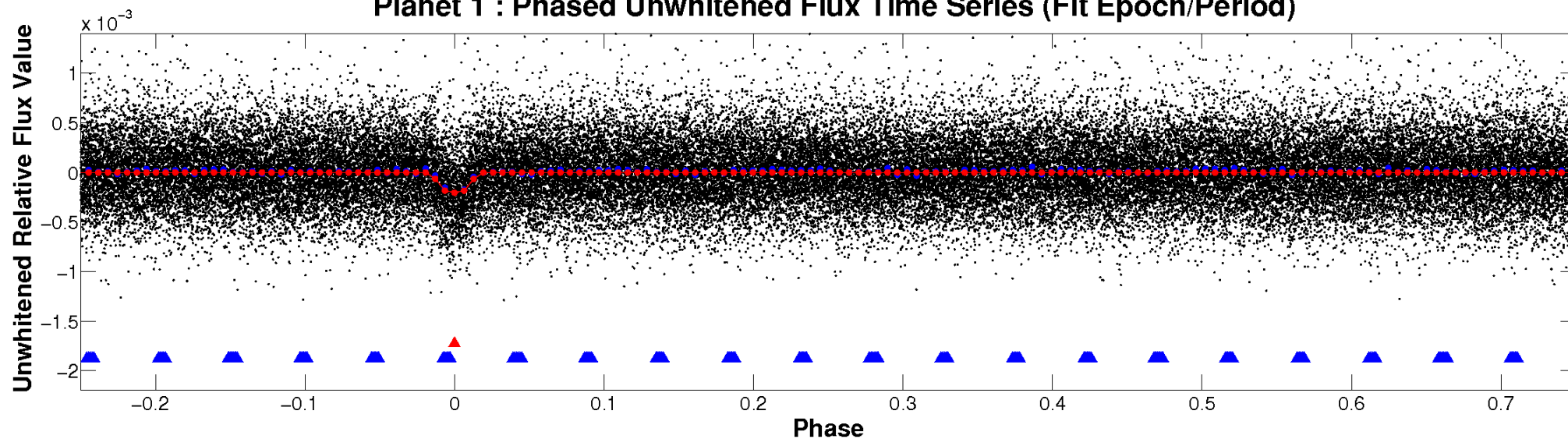
ALT Odd/Even

TCE 008544992-01

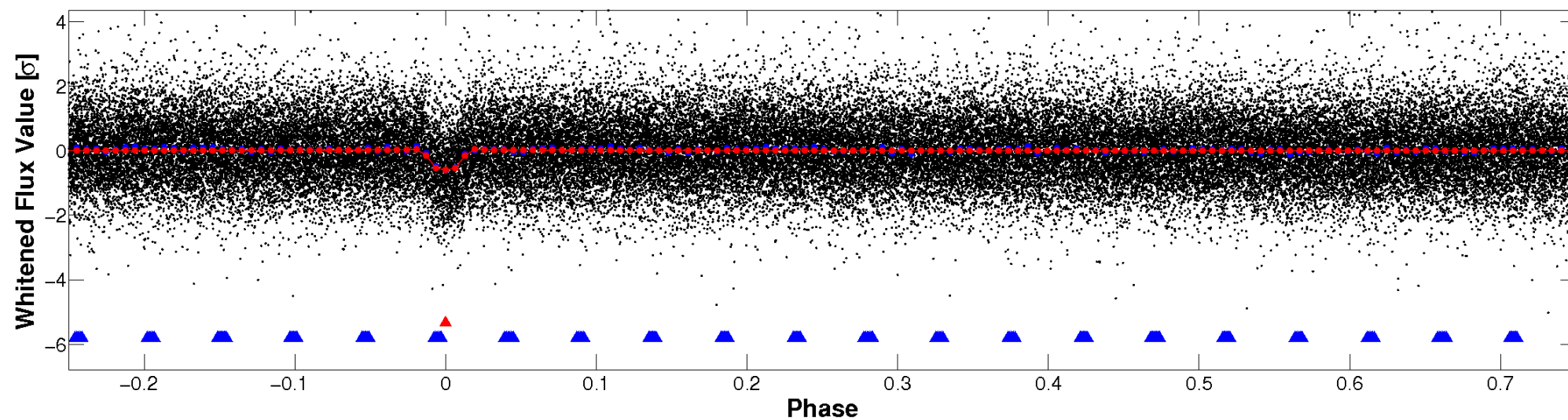


Non-Whitened Vs. Whitened Light Curve

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

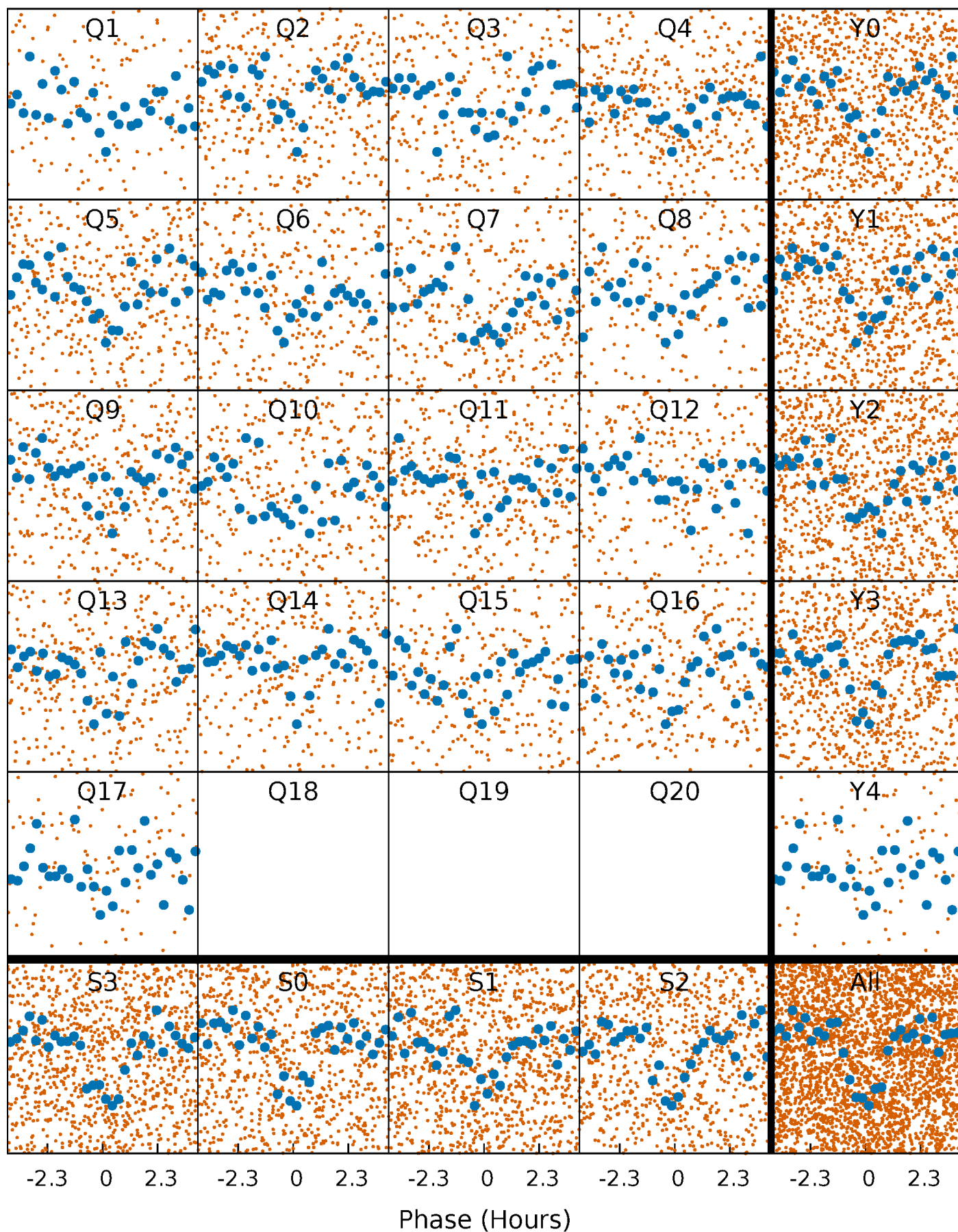


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



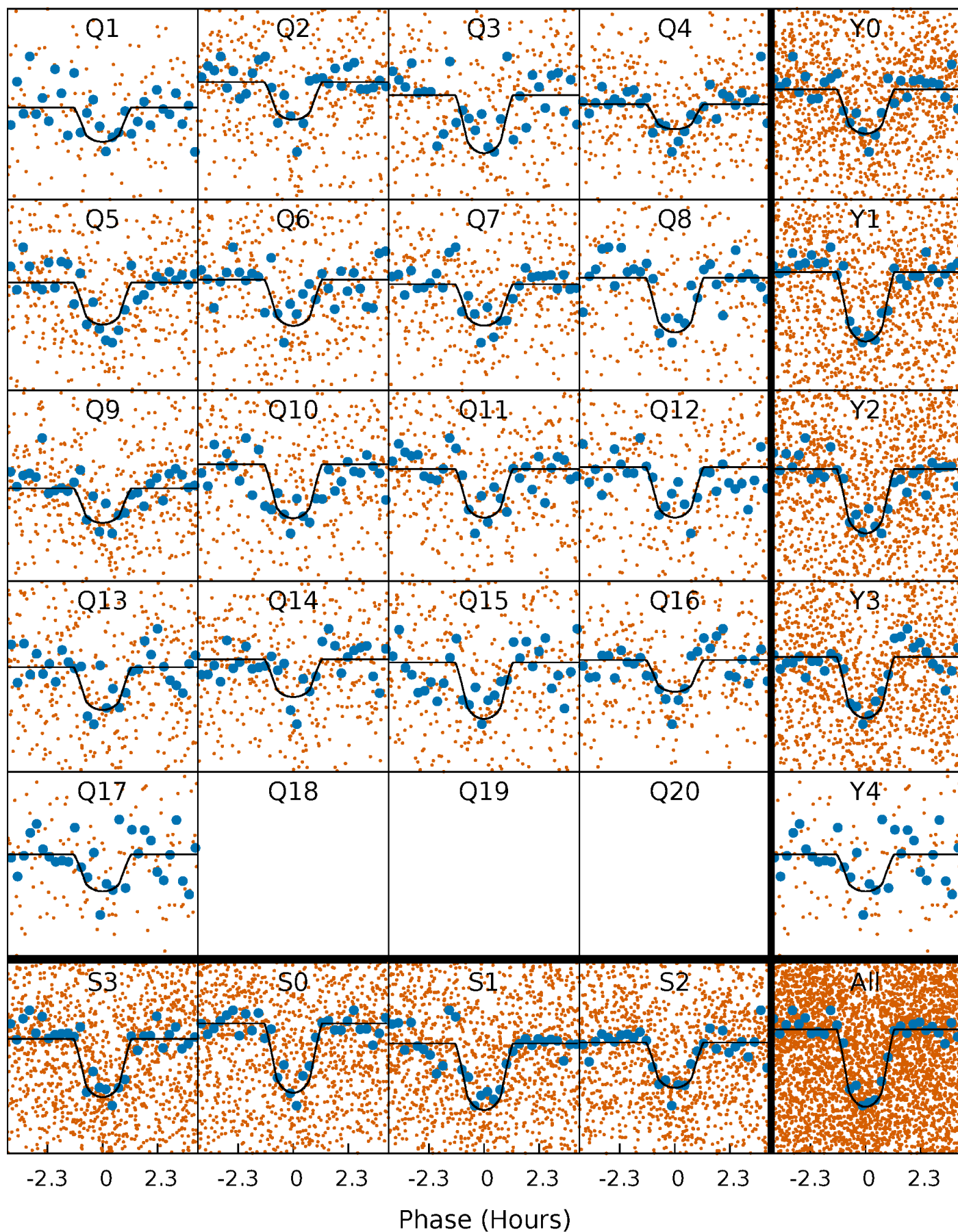
PDC Quarter-Phased Transit Curves

TCE 008544992-01 P= 3.173227 Days $T_0=133.700227$ (BKJD)



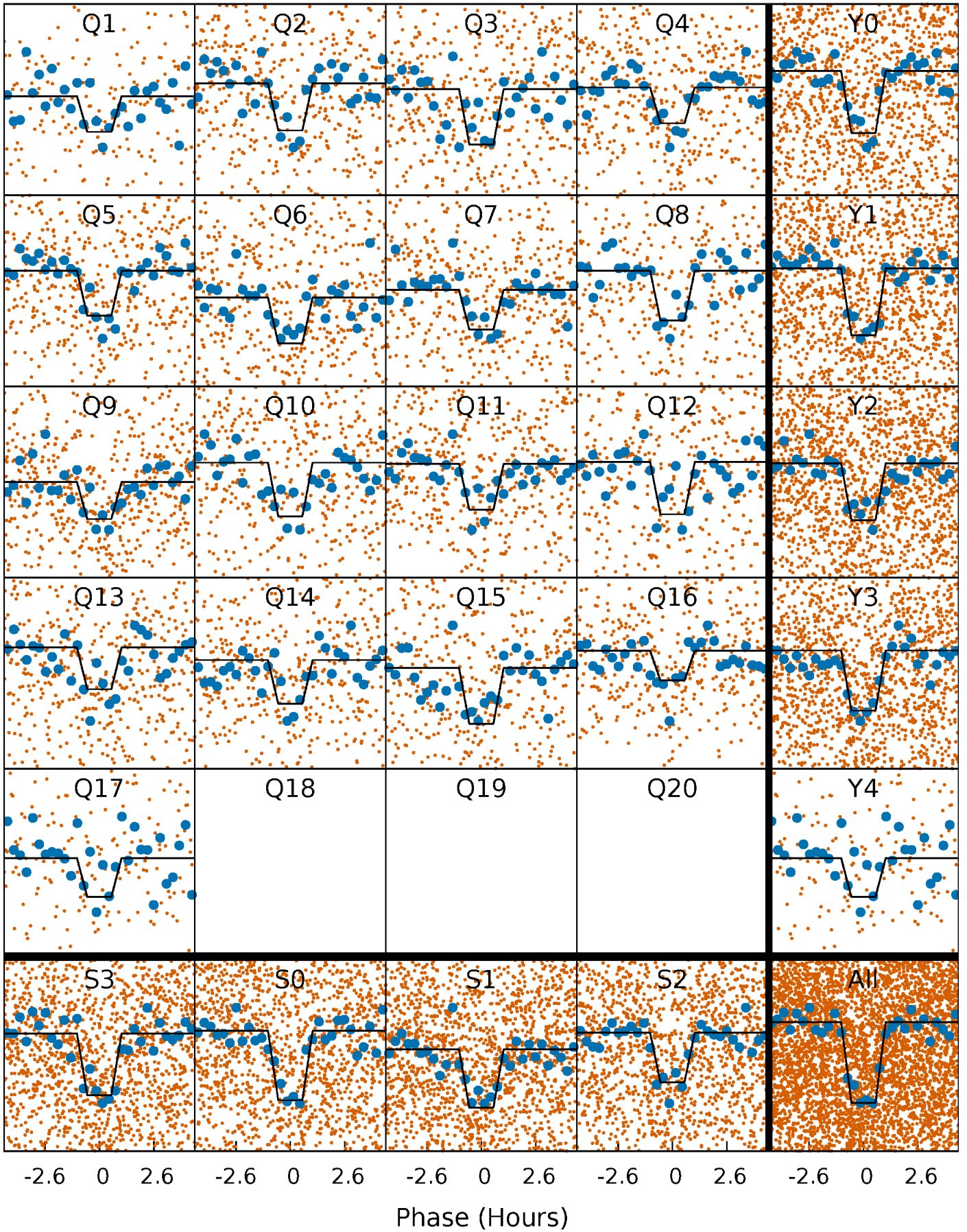
DV Quarter-Phased Transit Curves

TCE 008544992-01 P= 3.173227 Days $T_0=133.700227$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

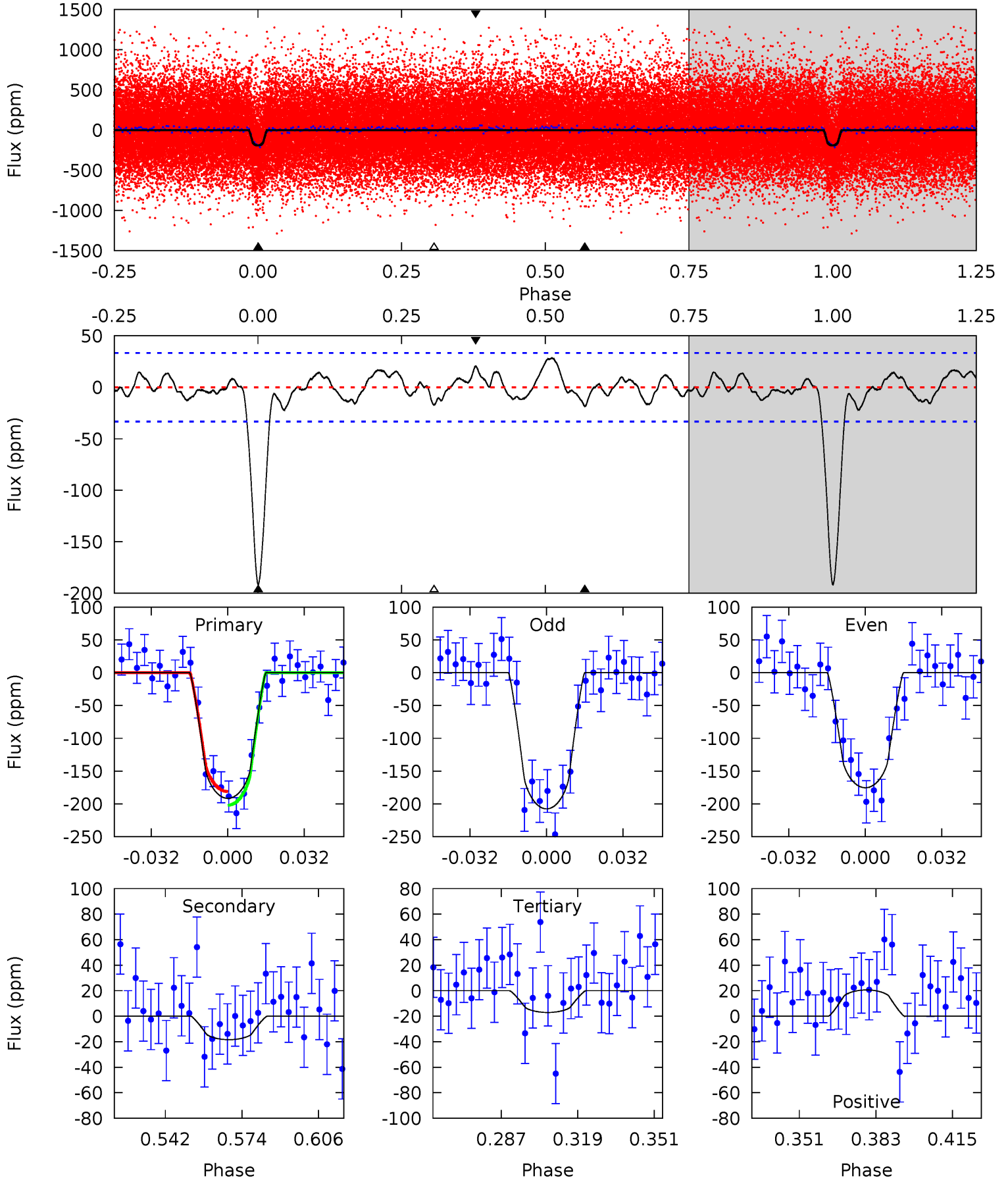
TCE 008544992-01 P= 3.173234 Days $T_0=133.698923$ (BKJD)



DV Model-Shift Uniqueness Test

008544992-01, P = 3.173227 Days, E = 130.527000 Days

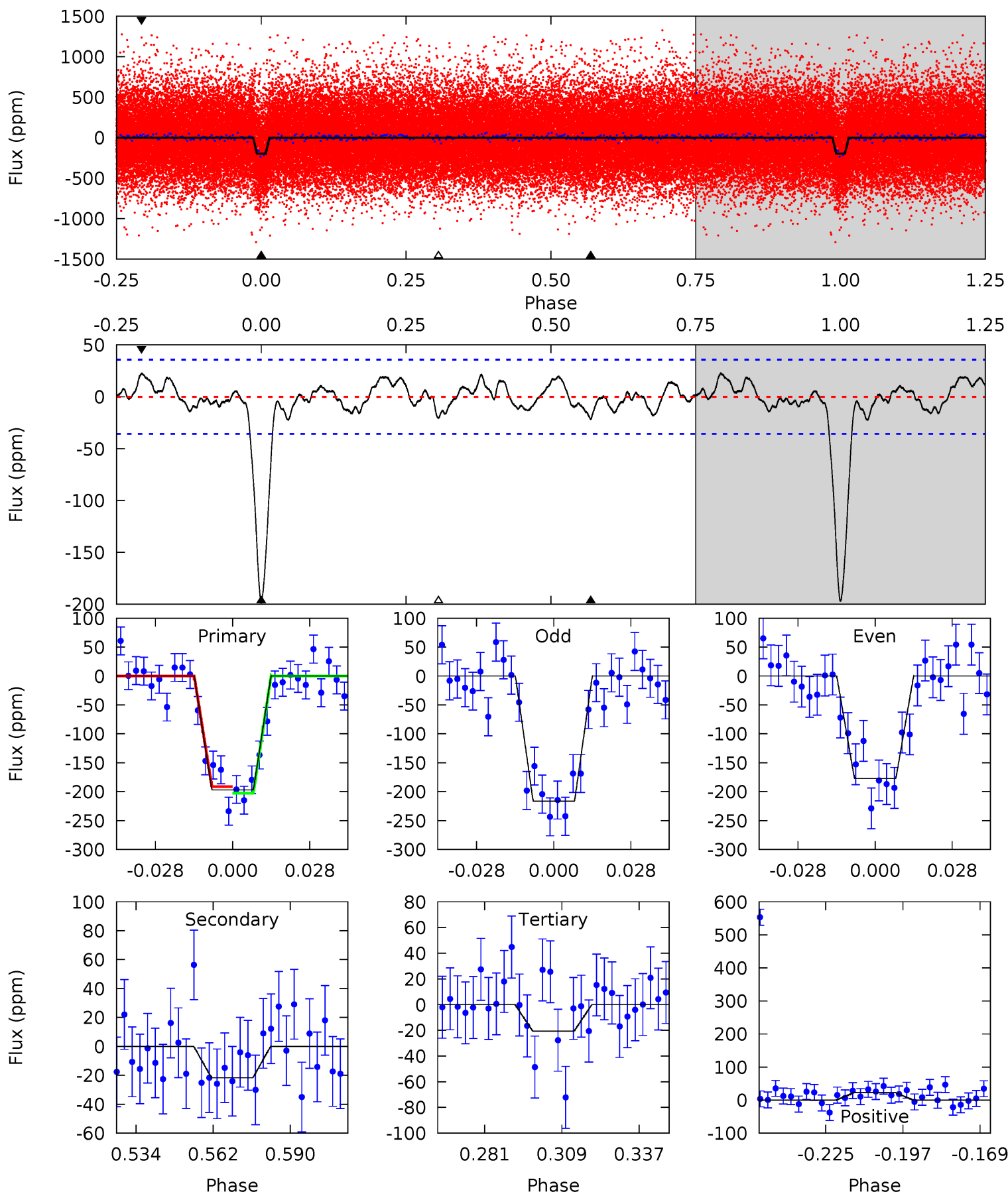
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.6	2.65	2.46	2.97	4.80	2.15	1.42	25.1	24.6	0.19	-0.32	2.32	0.97	0.13	1.51



Alt Model-Shift Uniqueness Test

008544992-01, P = 3.173234 Days, E = 130.525689 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.6	2.92	2.78	3.04	4.82	2.20	1.34	23.8	23.5	0.15	-0.12	2.64	0.98	0.10	0.76



Stellar Parameters For KIC 008544992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4500^{+133}_{-133}	$4.632^{+0.048}_{-0.028}$	$-0.320^{+0.300}_{-0.300}$	$0.633^{+0.050}_{-0.055}$	$0.626^{+0.068}_{-0.050}$	$3.484^{+0.742}_{-0.421}$
	+3%/-3%	+1%/-1%	+94%/-94%	+8%/-9%	+11%/-8%	+21%/-12%
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 008544992-01 / KOI 2466.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-18 ± 7	$1.06^{+0.47}_{-0.50}$	1153^{+41}_{-42}	2943^{+648}_{-342}	12^{+32}_{-7}
Alt.	-22 ± 7	$0.98^{+0.50}_{-0.46}$	1154^{+38}_{-39}	3089^{+705}_{-402}	16^{+42}_{-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 $A_{\text{obs}} \gg 1.0$

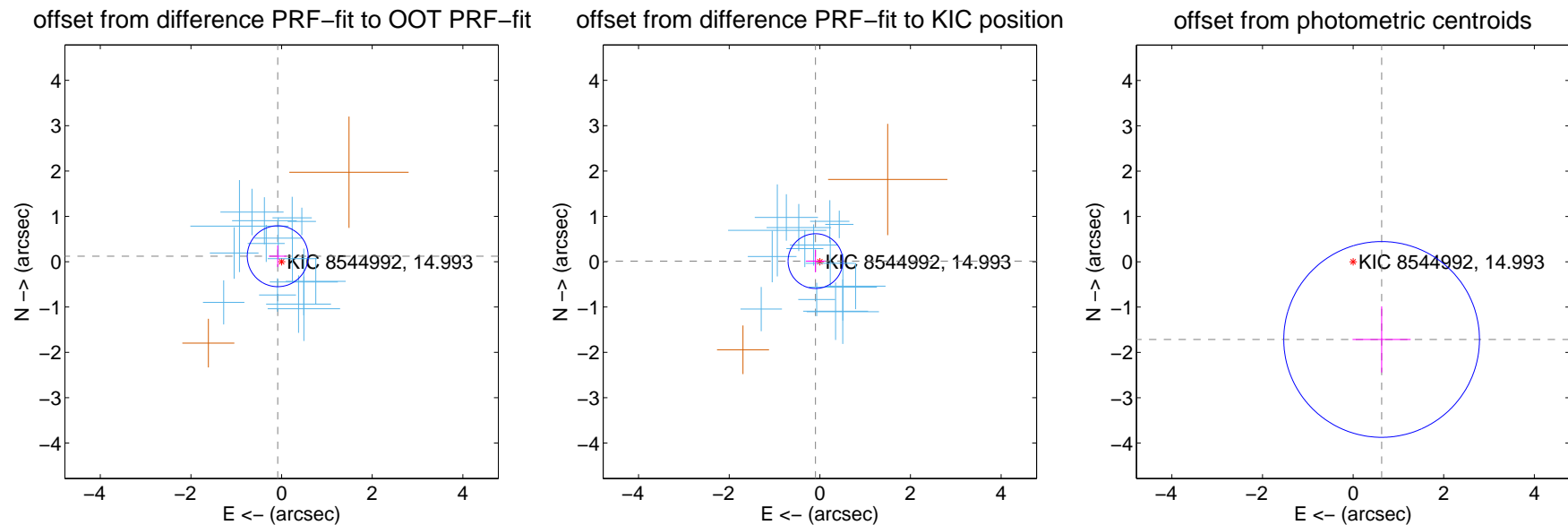
DV Centroid Data

Supplemental centroid analysis for 008544992-01. Kepler magnitude: 14.99. Transit SNR 20.25

There are 15 quarters with good PRF difference image offsets

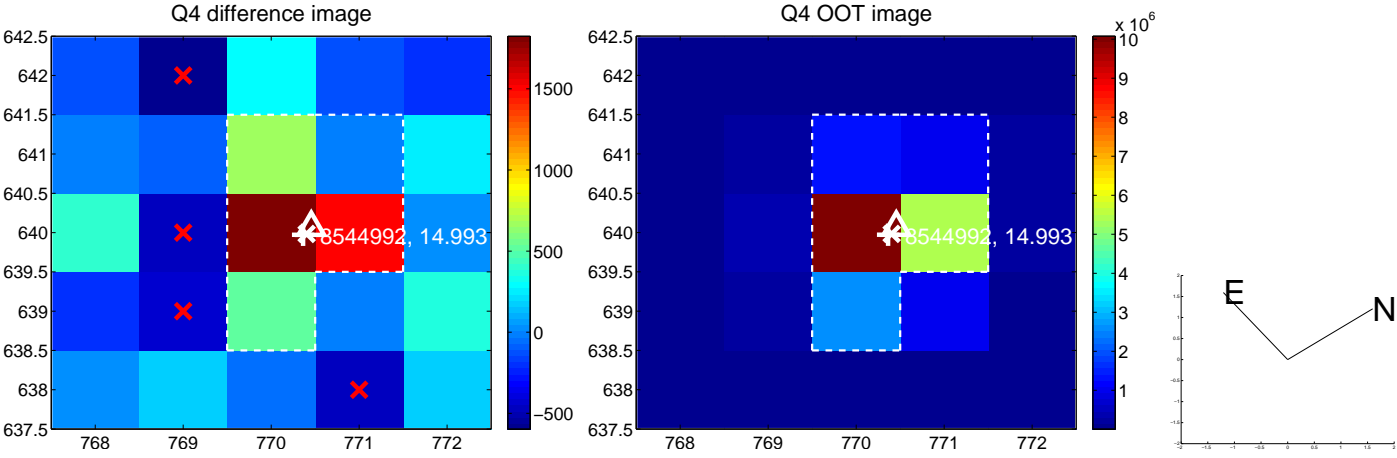
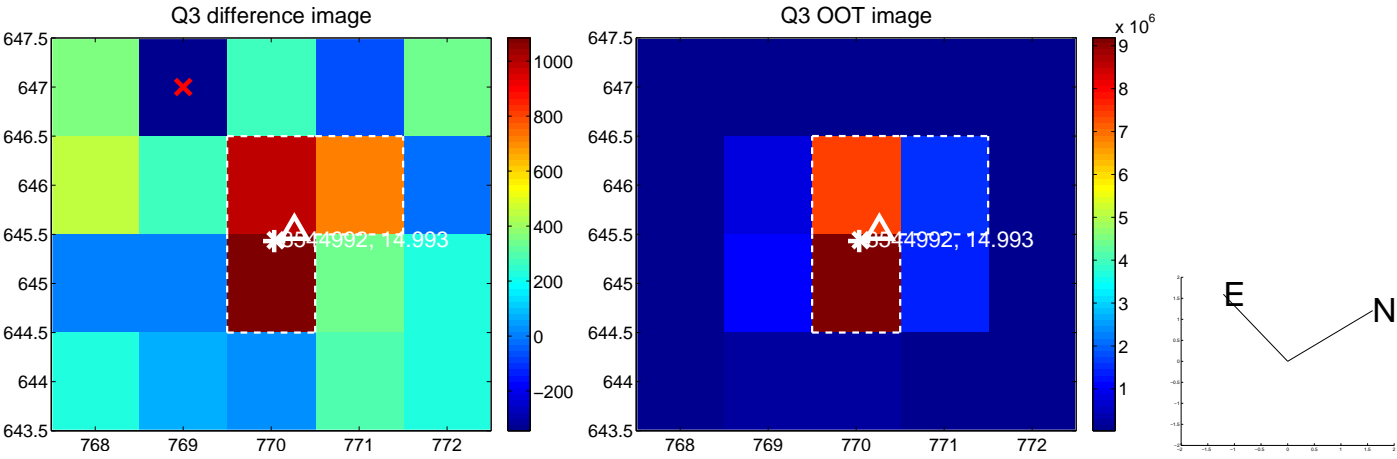
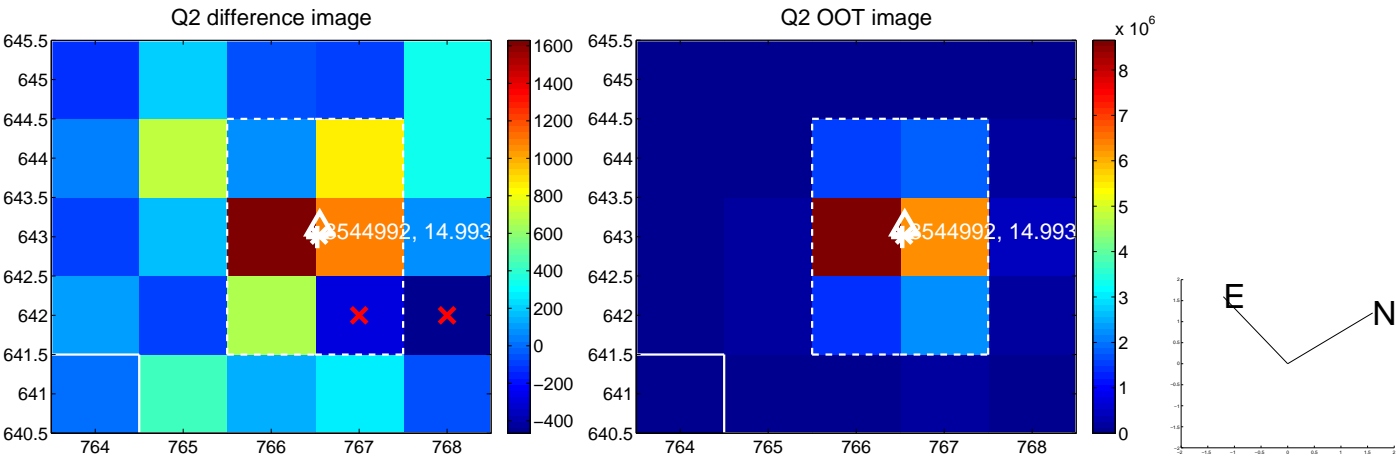
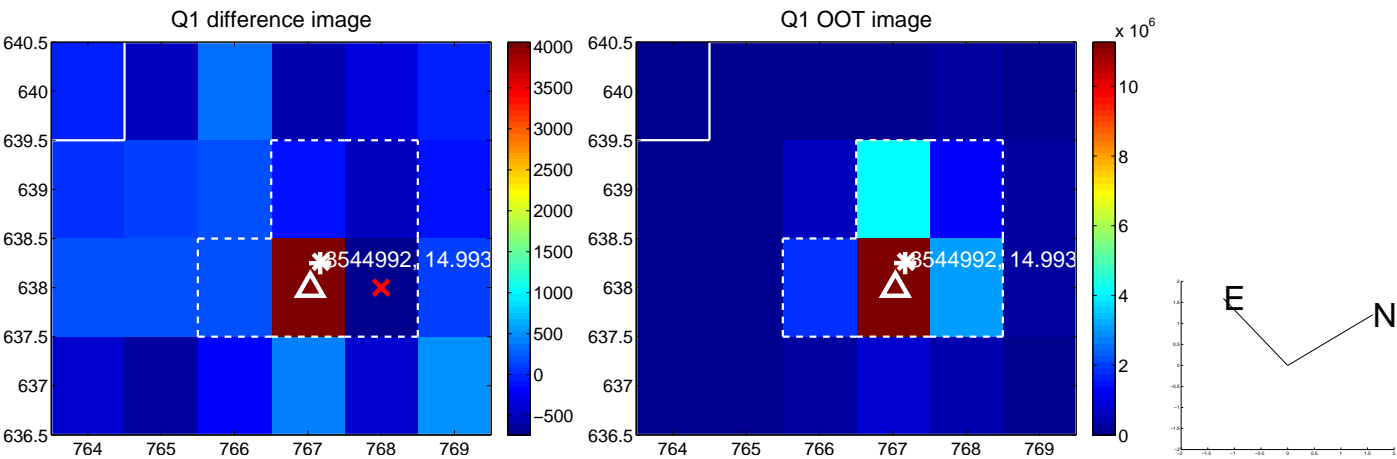
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.147 ± 0.224	0.66	0.085 ± 0.194	0.120 ± 0.237
PRF-fit source offset from KIC position	0.098 ± 0.201	0.49	0.097 ± 0.213	0.013 ± 0.246
photometric centroid source offset	1.83 ± 0.72	2.54	-0.63 ± 0.64	-1.71 ± 0.73

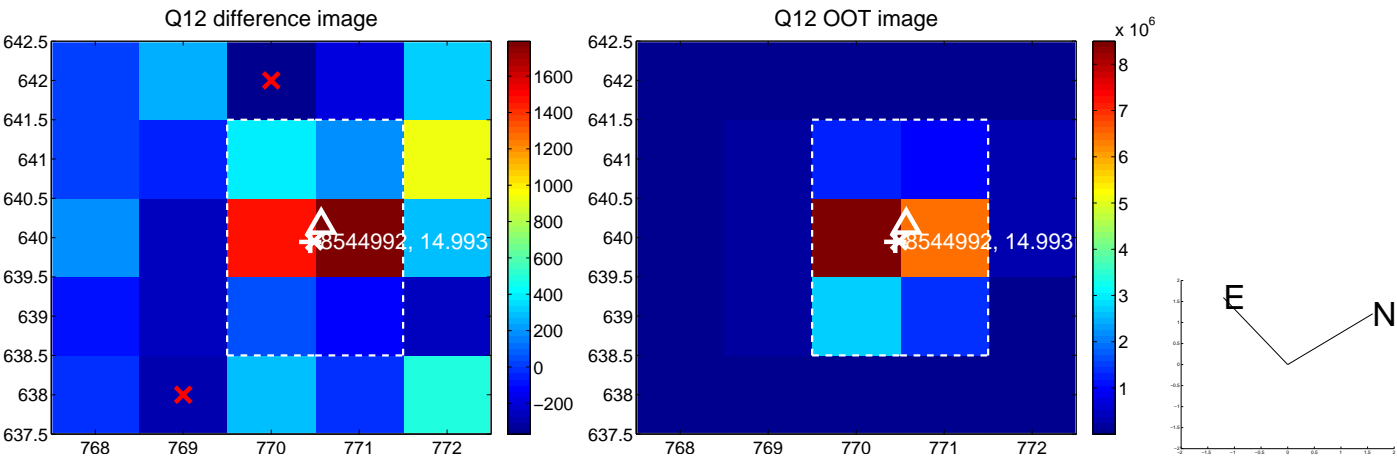
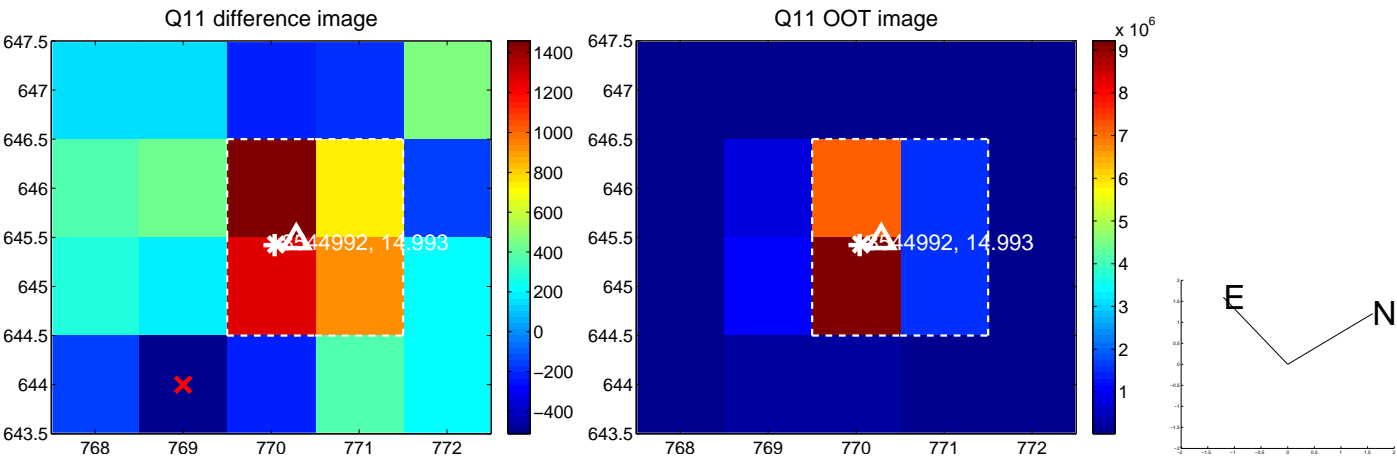
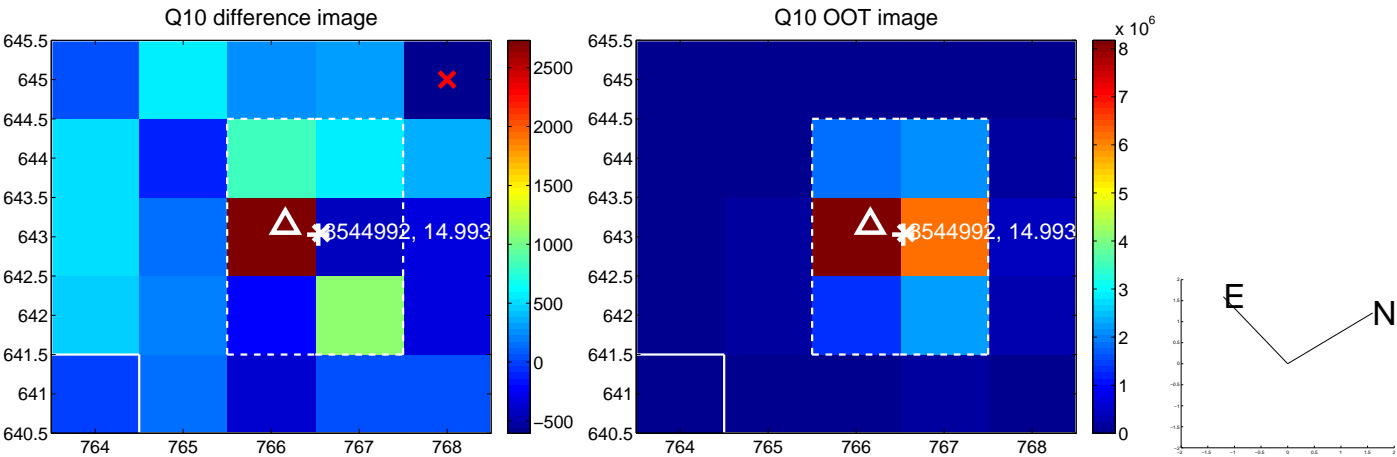
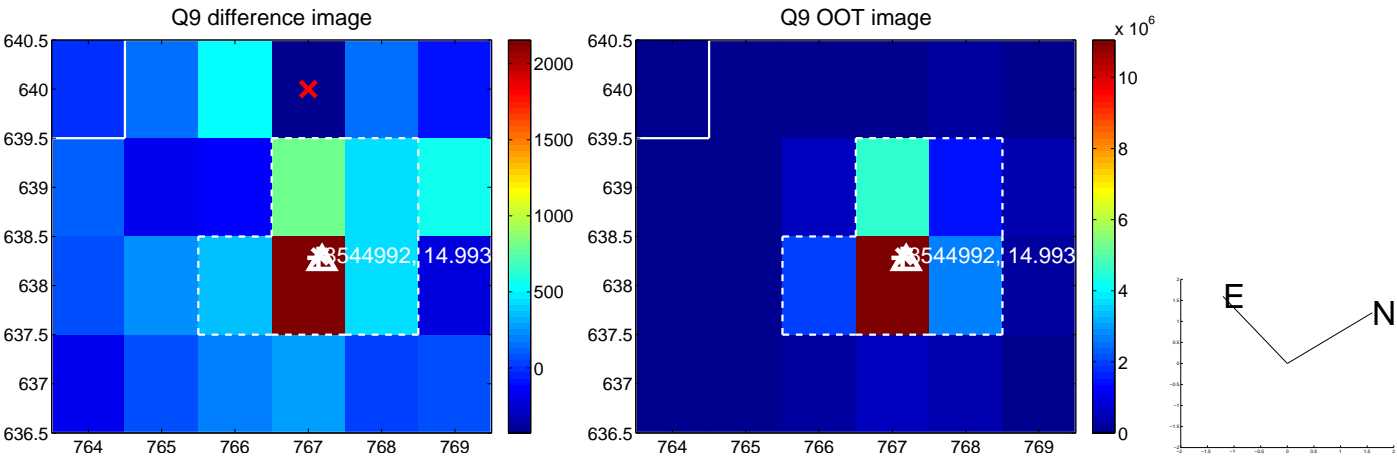


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

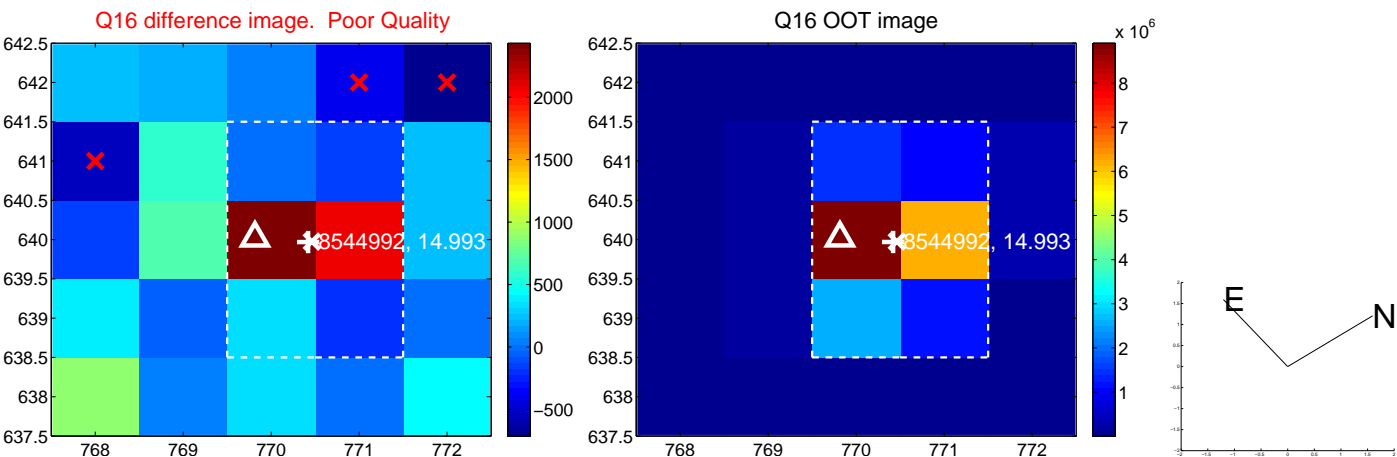
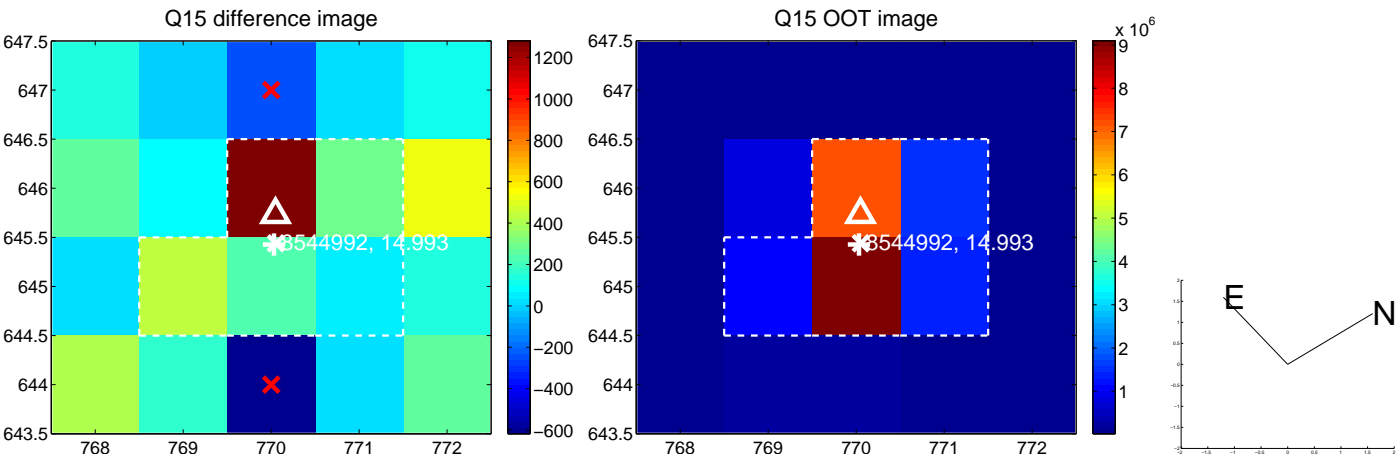
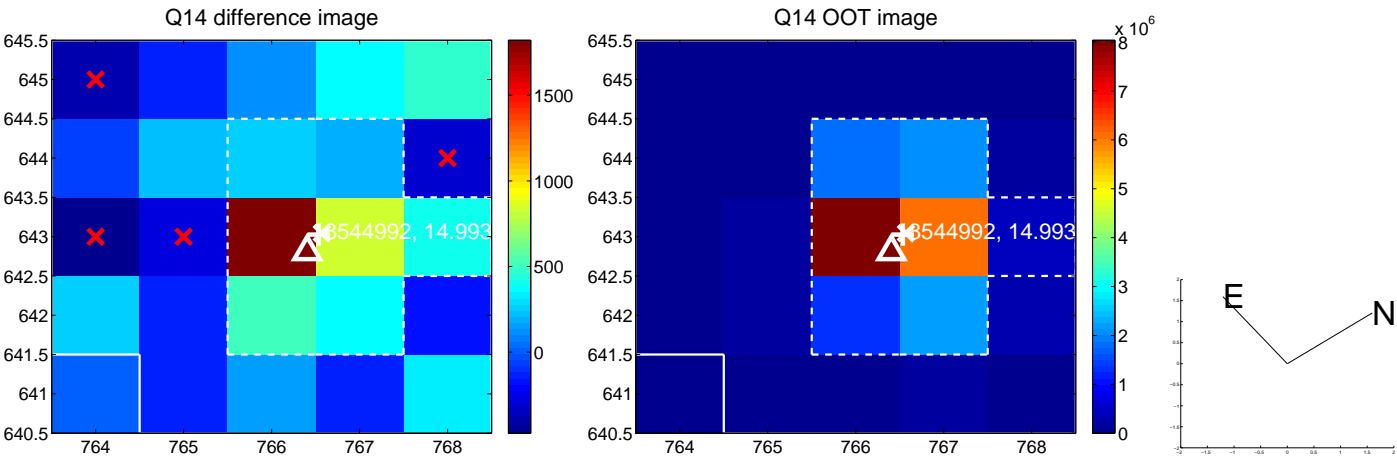
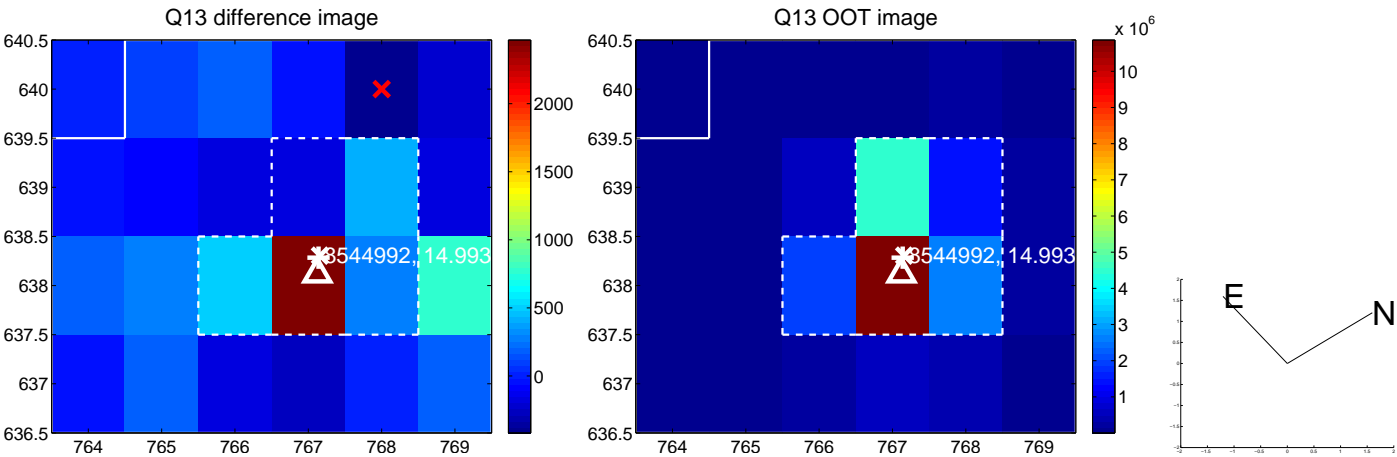
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



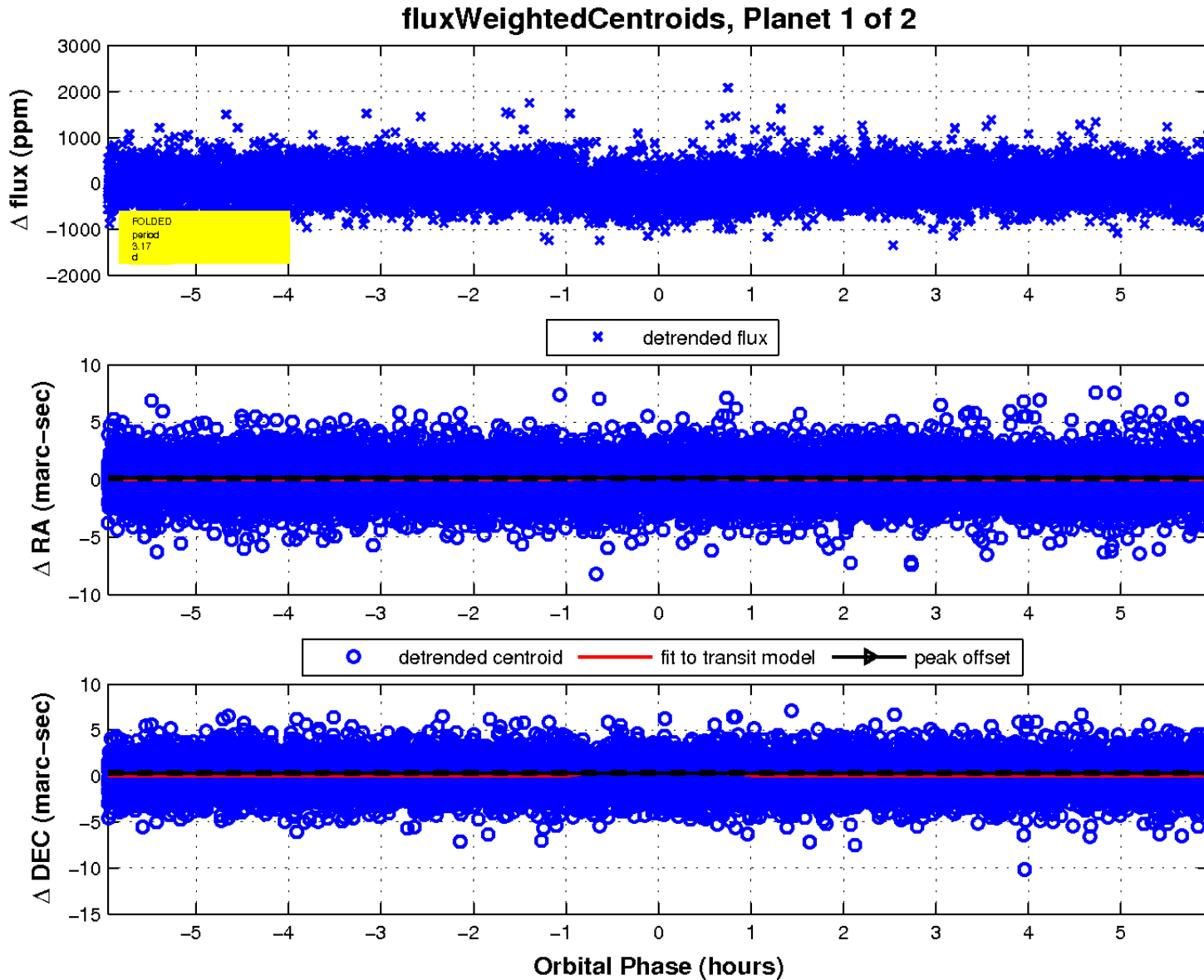
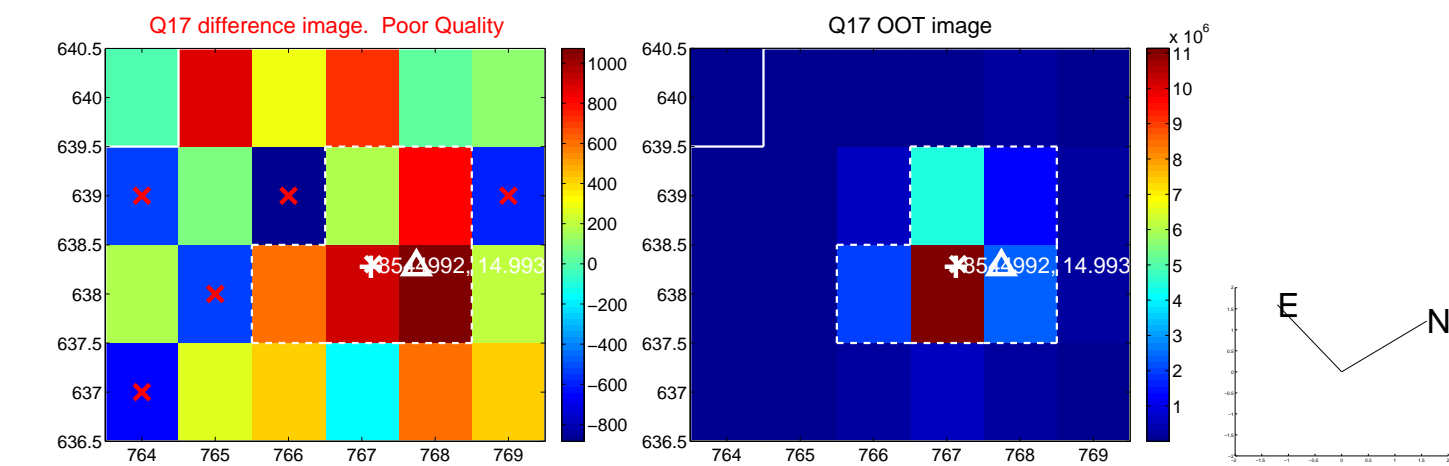
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

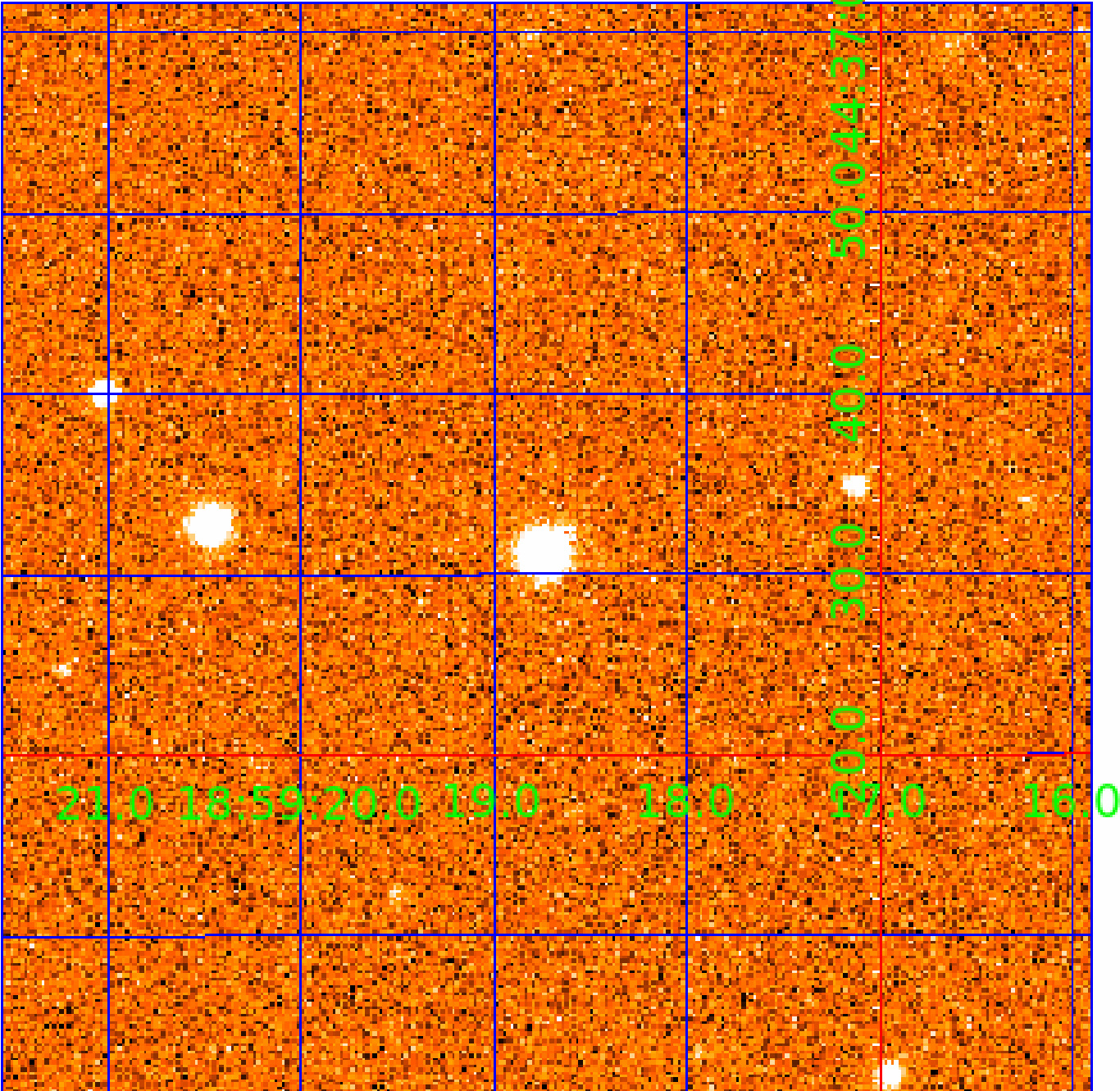


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



UKIRT Image

Declination



KIC 008544992

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})
008544992-01	OBS	2466.01	3.173227	133.700227	205.2	1.986	17.0	20.2	0.63	4500	1.03	112.55
008544992-02	OBS	2466.02	13.297157	140.945739	234.5	3.473	12.2	13.3	0.63	4500	1.28	16.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008544992-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008544992-02	OBS	PC	0.94	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.

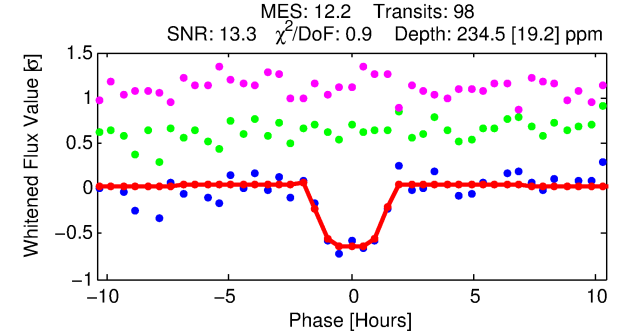
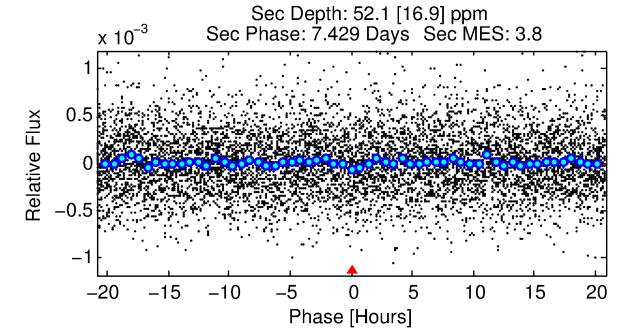
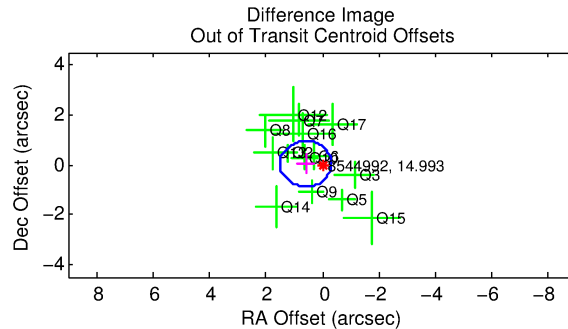
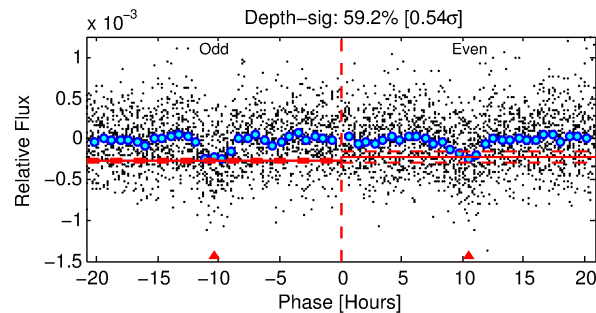
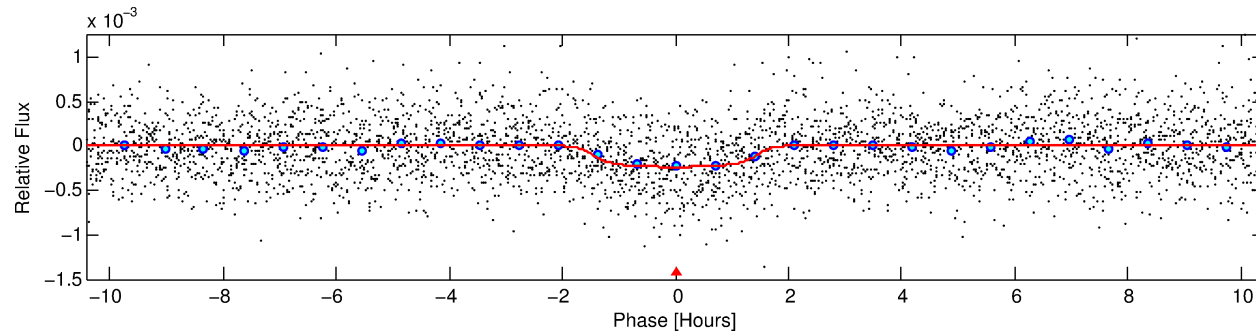
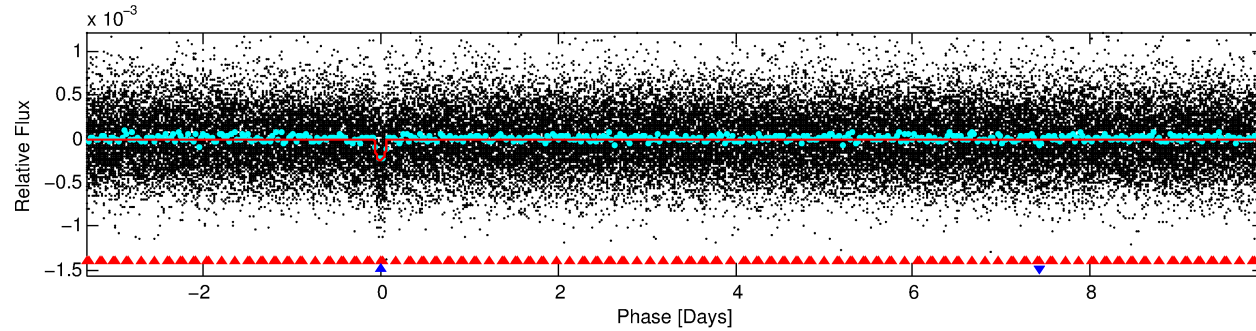
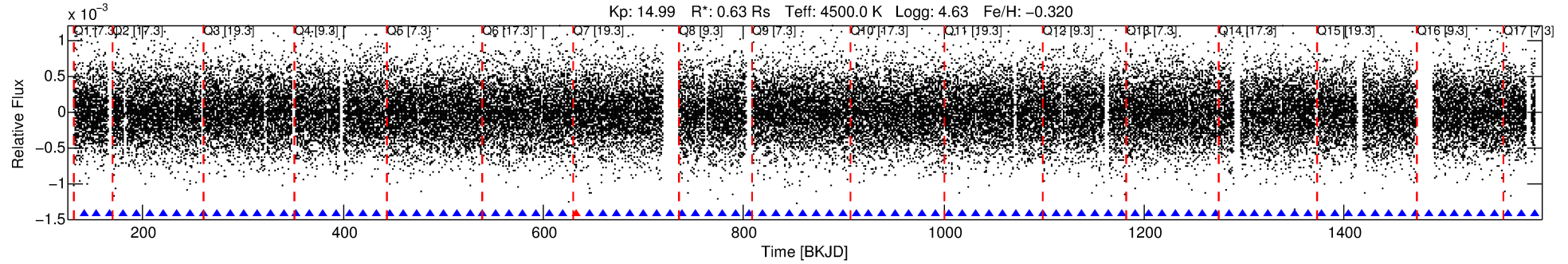
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008544992-02

No Significant Match Found

DV One-Page Summary

KIC: 8544992 Candidate: 2 of 2 Period: 13.297 d
KOI: K02466.02 Name: Kepler-388c Corr: 0.972



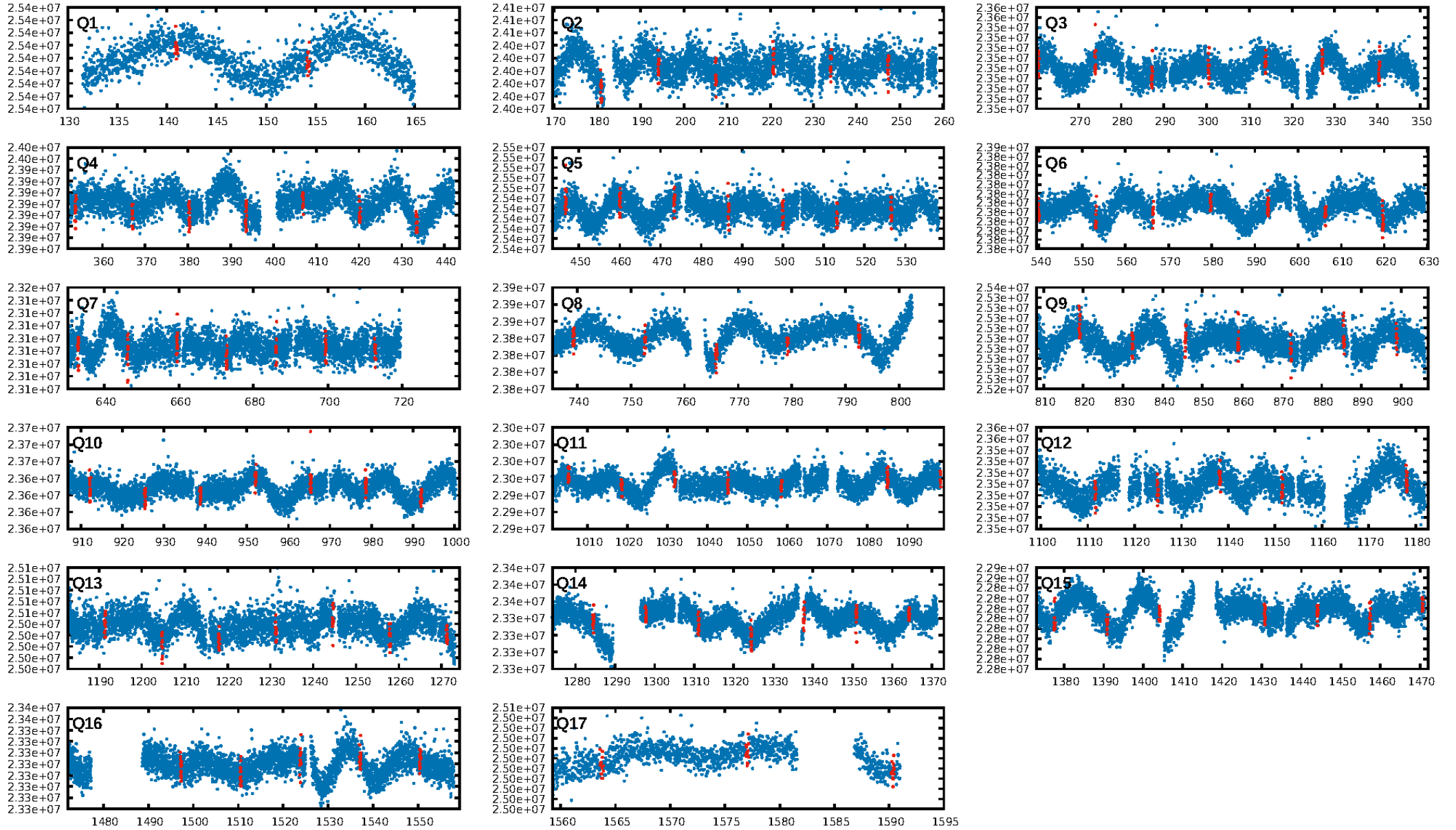
DV Fit Results:

Period = 13.29716 [0.00009] d
Epoch = 140.9457 [0.0055] BKJD
Rp/R* = 0.0185 [0.0029]
a/R* = 11.16 [6.69]
b = 0.94 [0.07]
Seff = 16.66 [2.51]
Teq = 515 [19] K
Rp = 1.28 [0.23] Re
a = 0.0940 [0.0065] AU
Ag = 154.93 [71.18] [2.16 σ]
Teffp = 2810 [327] K [7.01 σ]

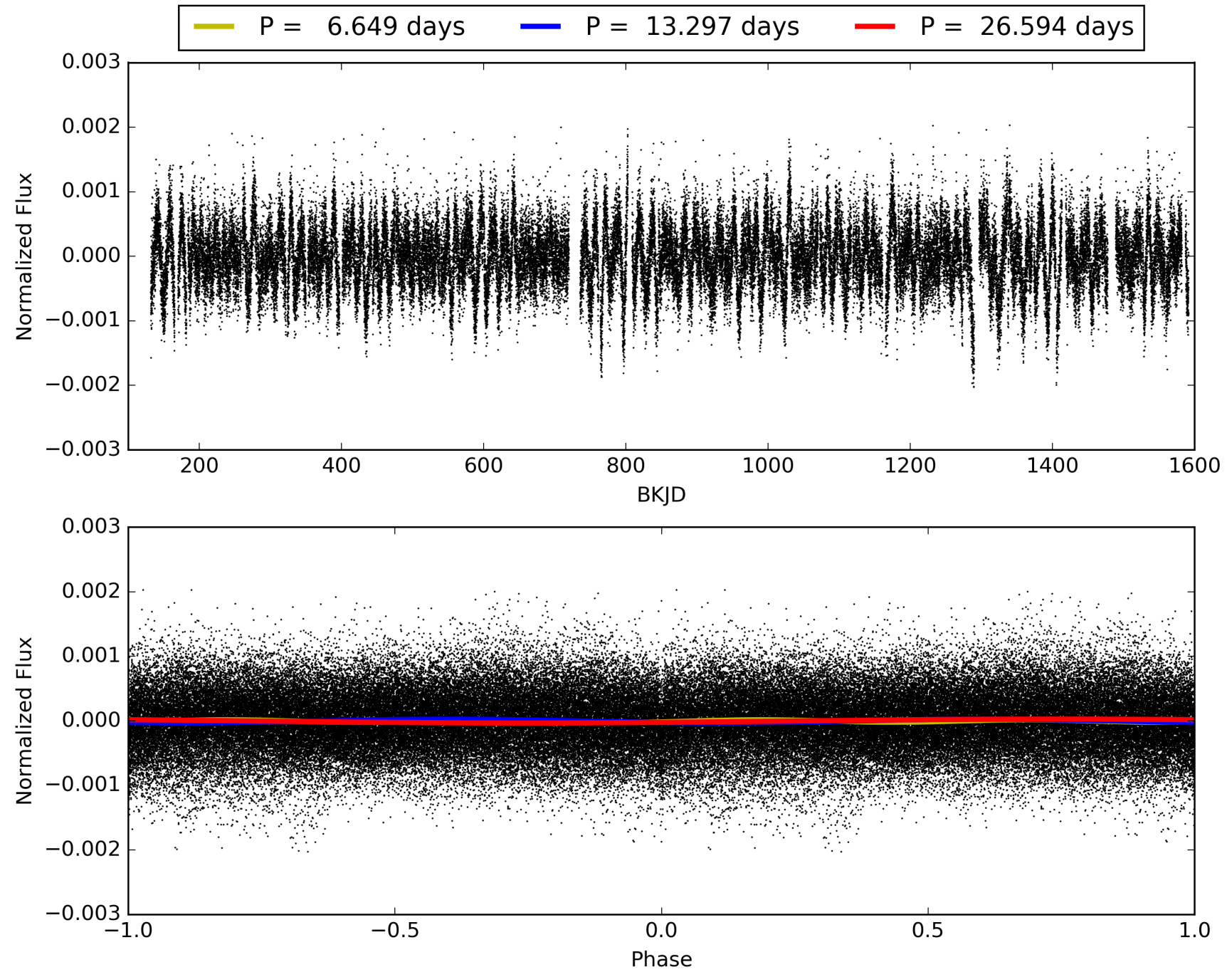
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [60.74 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.93e-34
RollingBand-fgt: 0.99 [92/93]
GhostDiagnostic-chr: 14.51
Centroid-sig: 0.0%
Centroid-so: 2.702 arcsec [2.68 σ]
OotOffset-rm: 0.594 arcsec [1.95 σ]
KicOffset-rm: 0.606 arcsec [2.05 σ]
OotOffset-st: 4/3/3/4 [14]
KicOffset-st: 4/3/3/4 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008544992-02, PDC Light Curves

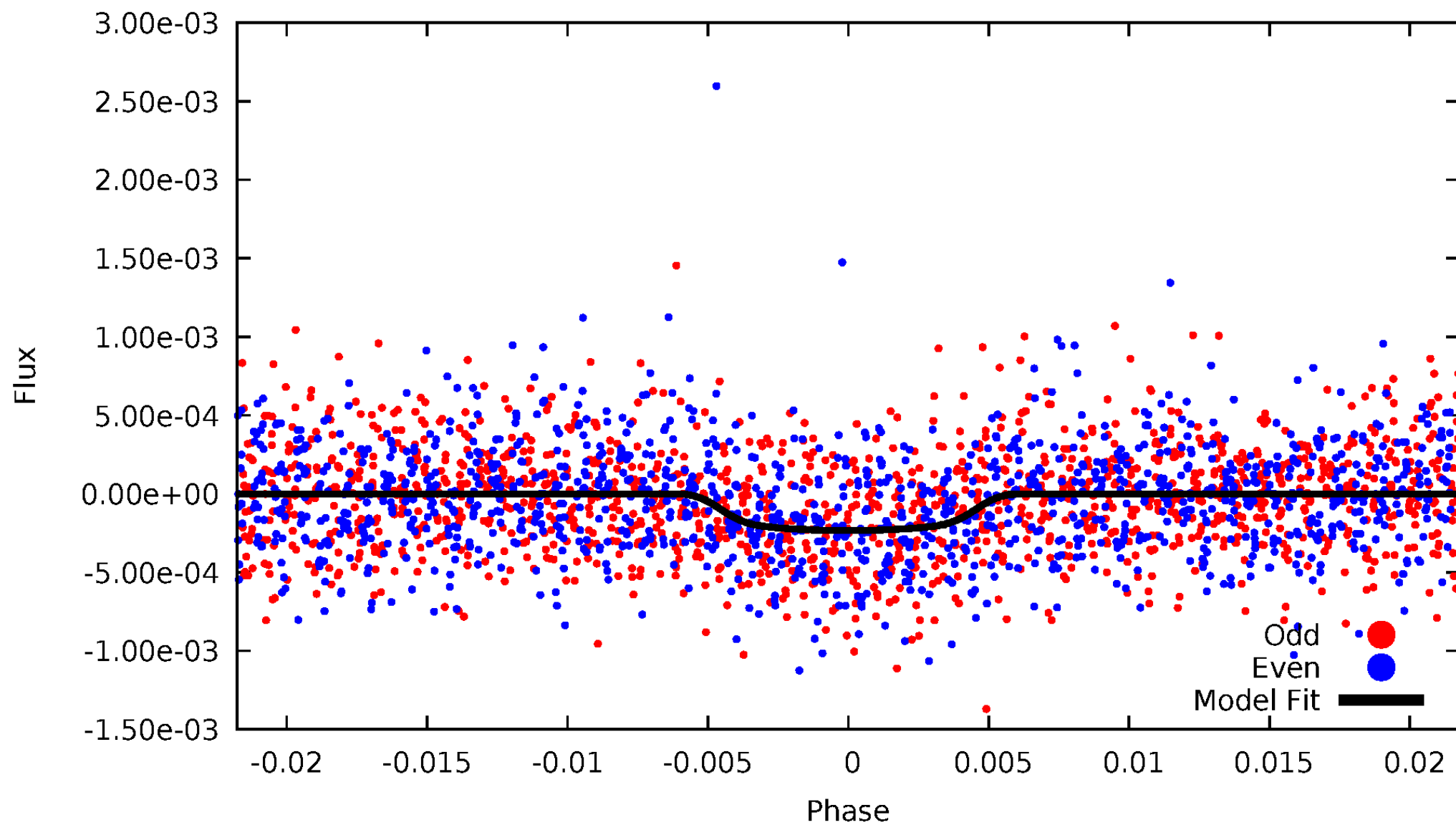


TCE 008544992-02



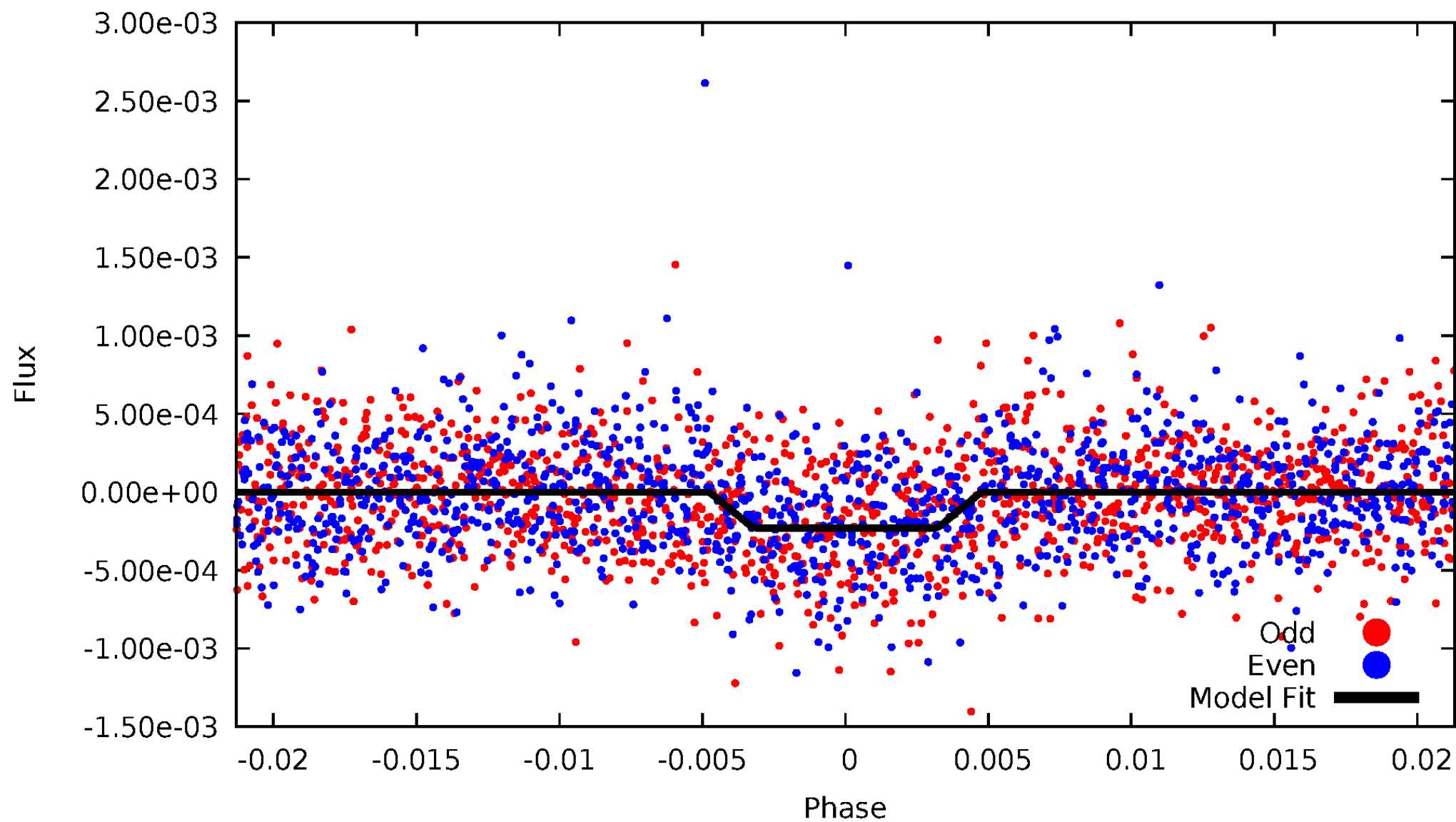
DV Odd/Even

TCE 008544992-02



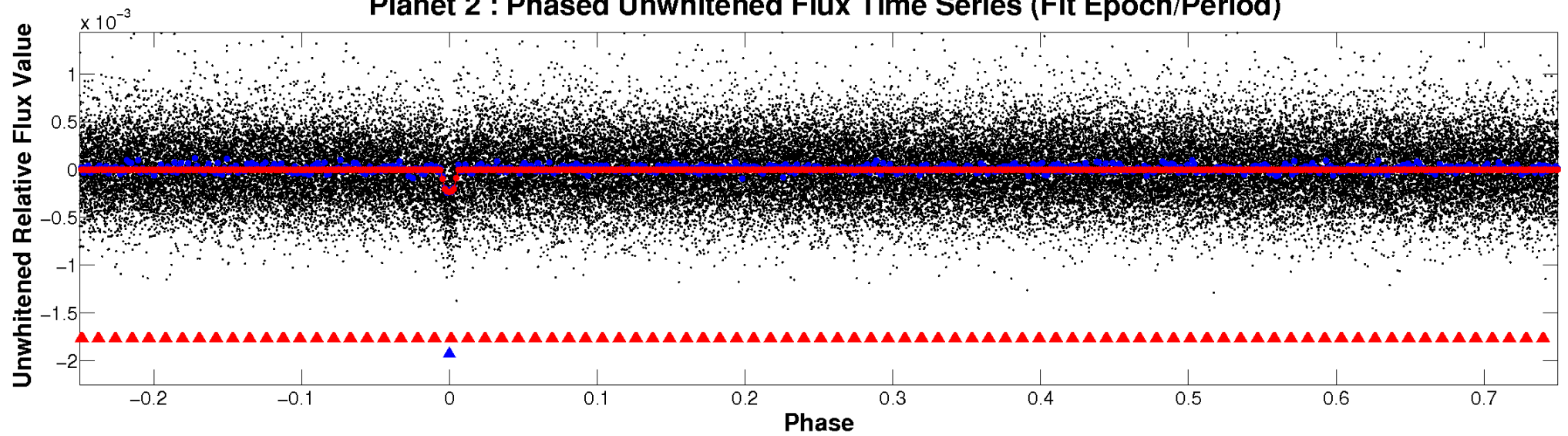
ALT Odd/Even

TCE 008544992-02

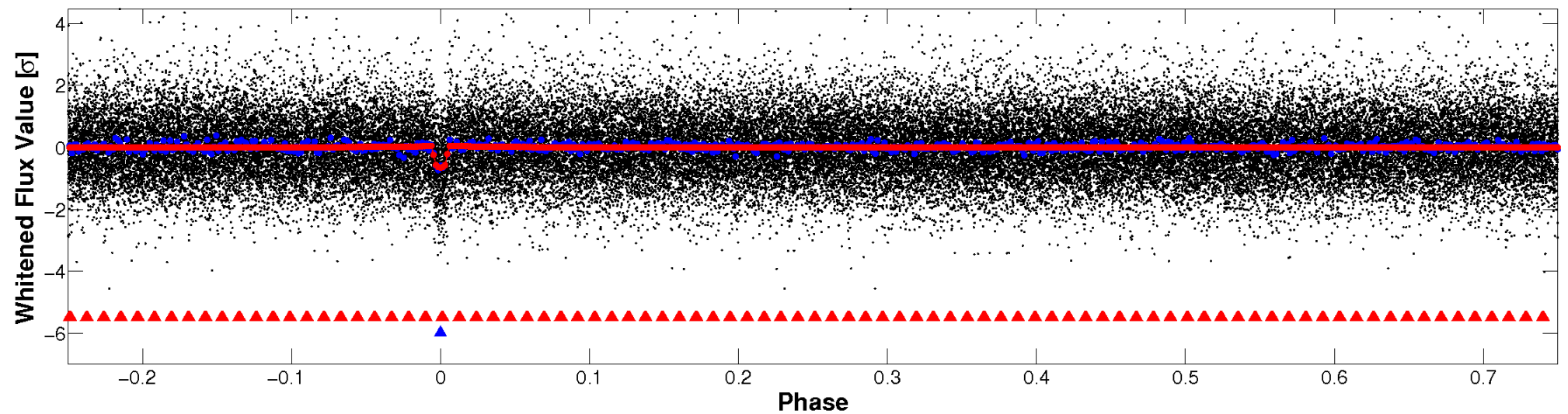


Non-Whitened Vs. Whitened Light Curve

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

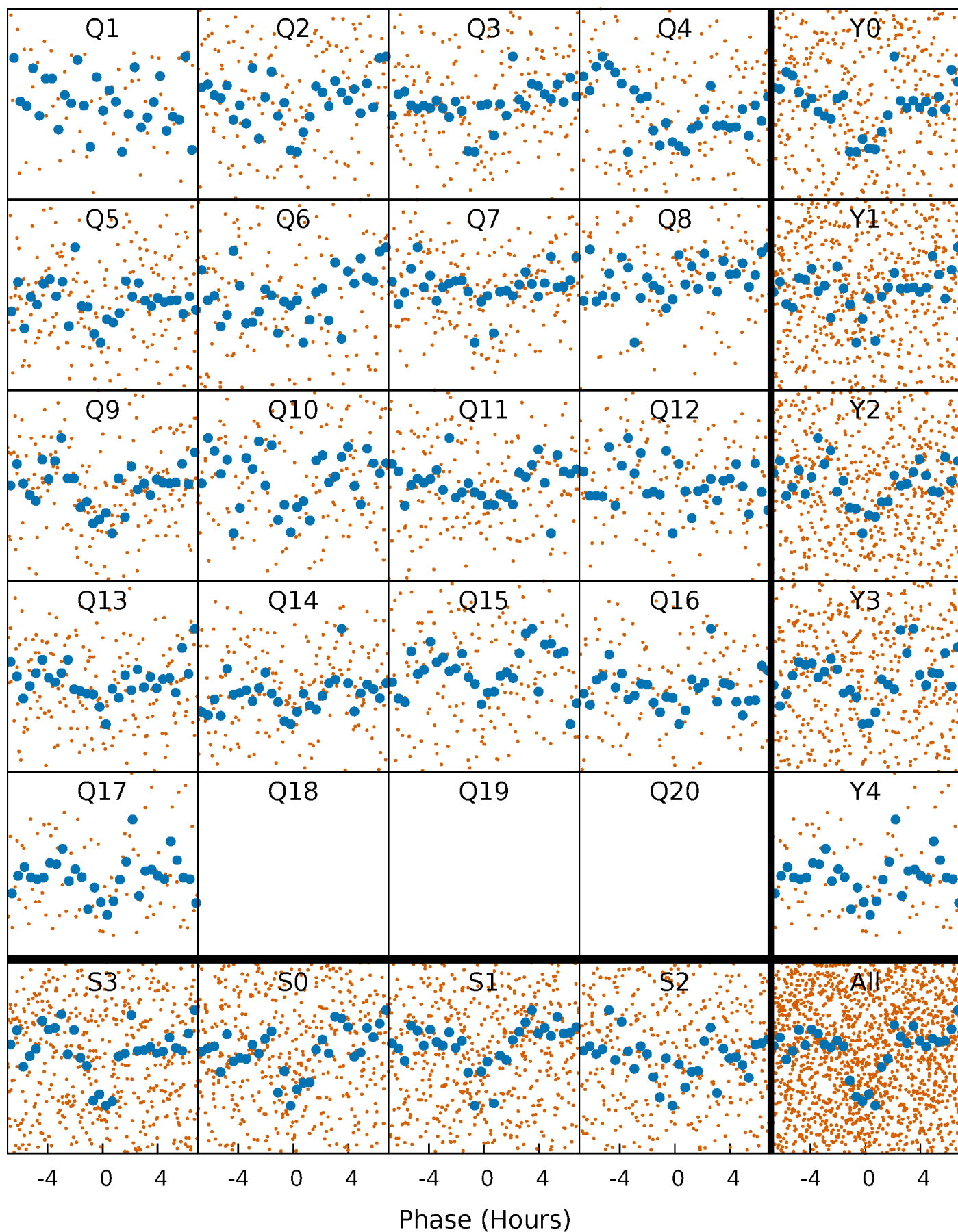


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



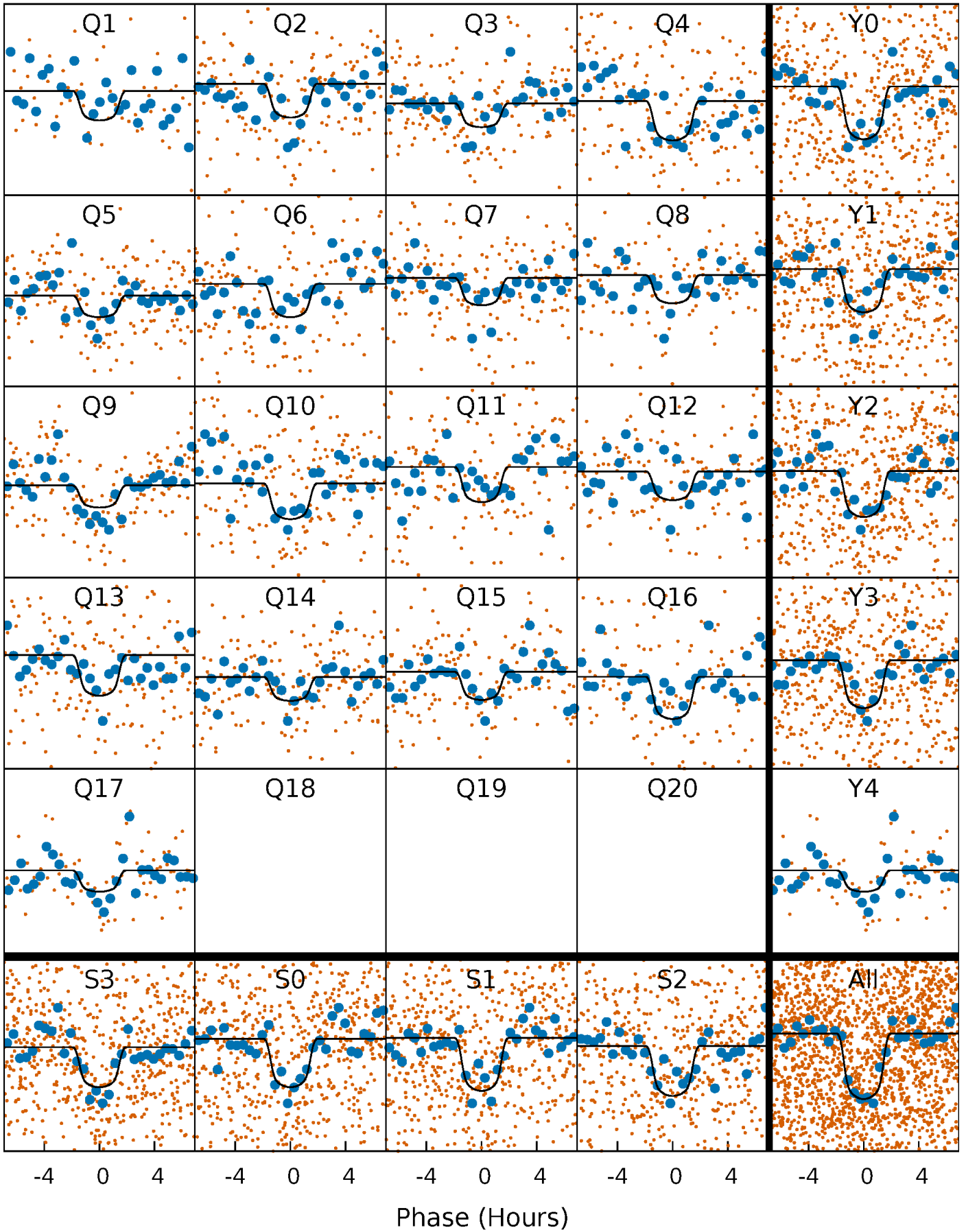
PDC Quarter-Phased Transit Curves

TCE 008544992-02 P= 13.297157 Days $T_0=140.945739$ (BKJD)



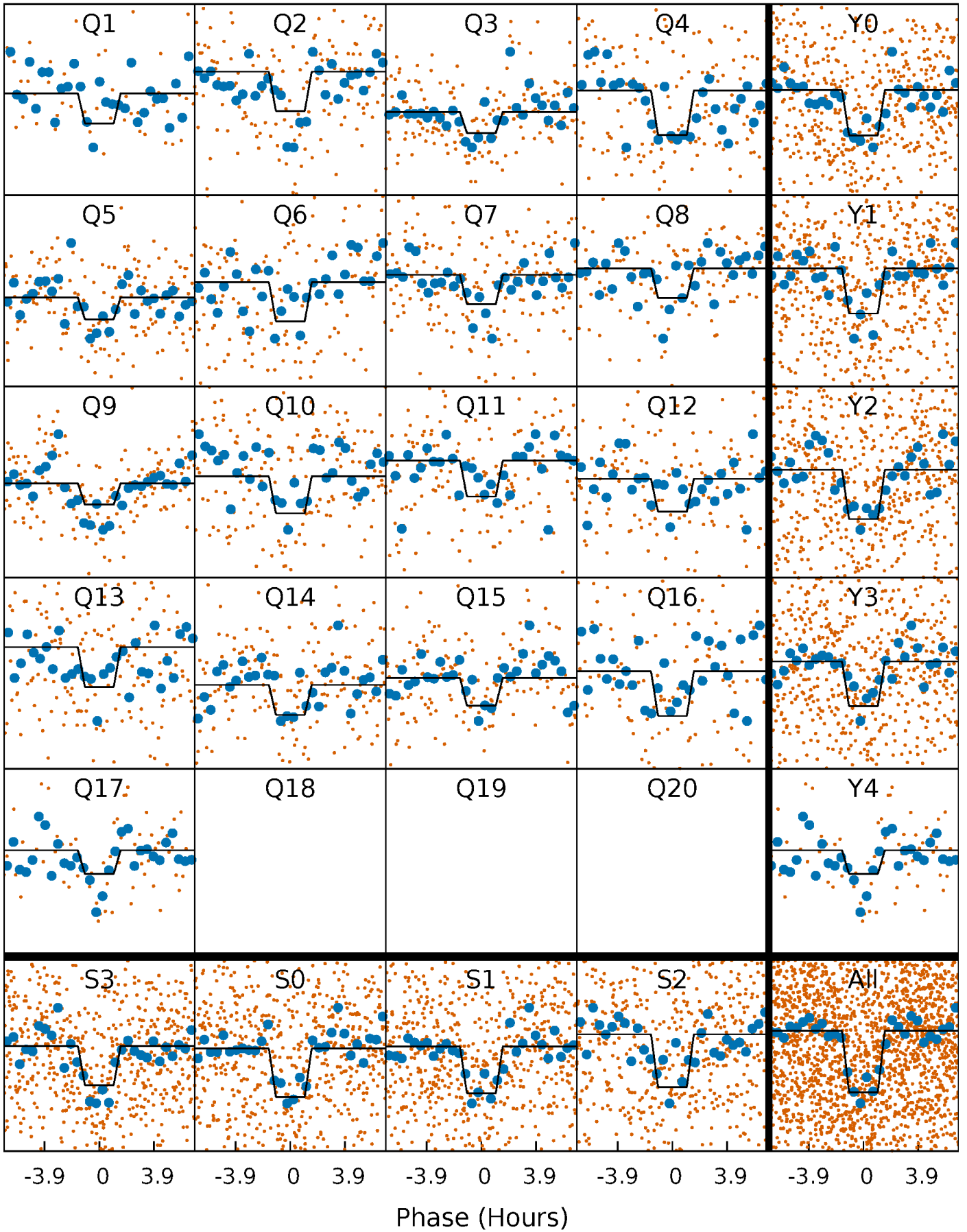
DV Quarter-Phased Transit Curves

TCE 008544992-02 P= 13.297157 Days $T_0=140.945739$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

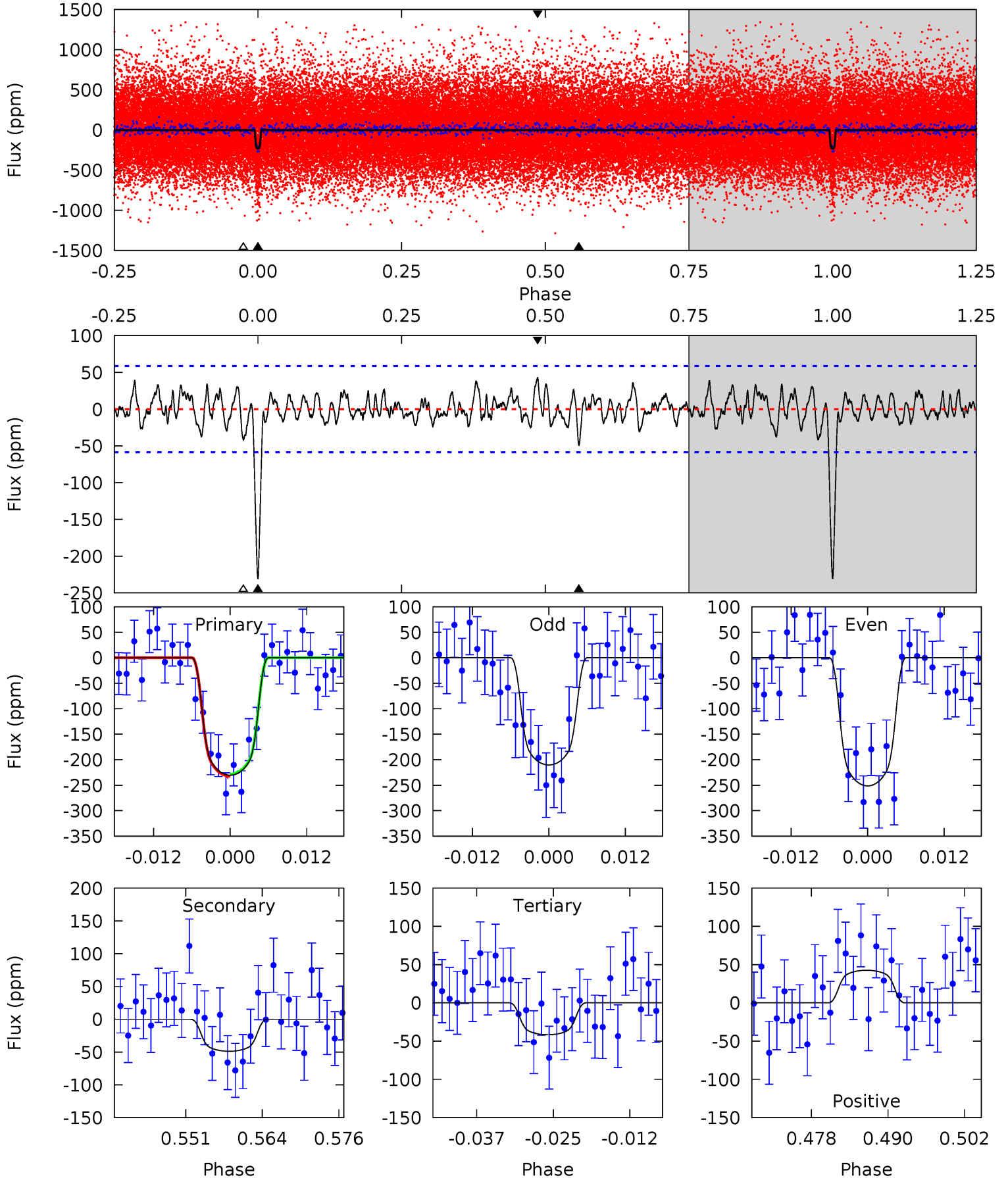
TCE 008544992-02 $P = 13.297292$ Days $T_0 = 140.940254$ (BKJD)



DV Model-Shift Uniqueness Test

008544992-02, $P = 13.297157$ Days, $E = 127.648582$ Days

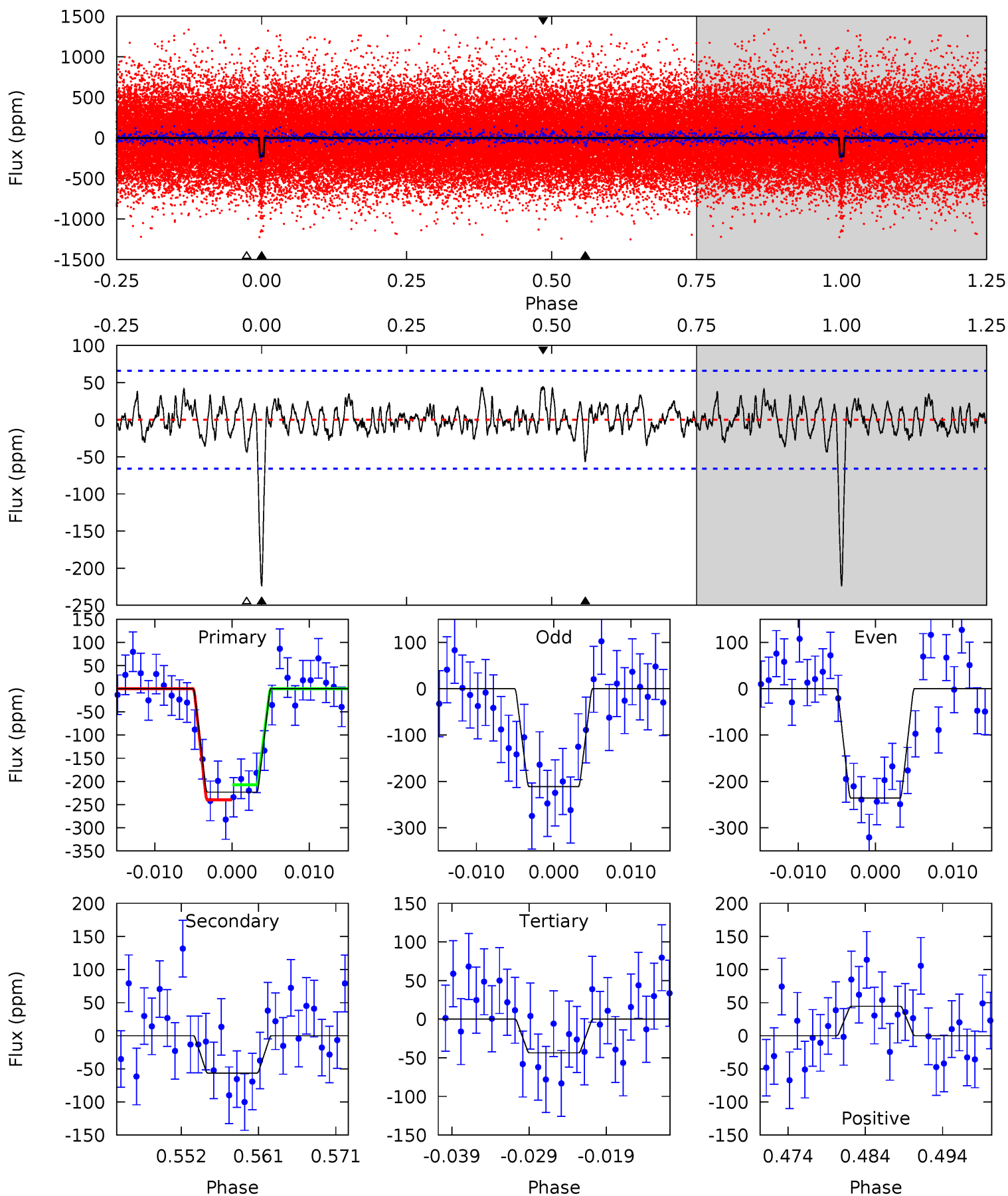
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.6	4.15	3.54	3.62	4.99	2.50	1.23	16.0	16.0	0.61	0.53	1.74	0.97	0.16	0.15



Alt Model-Shift Uniqueness Test

008544992-02, $P = 13.297292$ Days, $E = 127.642962$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	4.30	3.33	3.39	5.03	2.59	1.15	13.7	13.7	0.97	0.92	0.93	1.05	0.17	1.24



Stellar Parameters For KIC 008544992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4500^{+133}_{-133}	$4.632^{+0.048}_{-0.028}$	$-0.320^{+0.300}_{-0.300}$	$0.633^{+0.050}_{-0.055}$	$0.626^{+0.068}_{-0.050}$	$3.484^{+0.742}_{-0.421}$
	+3%/-3%	+1%/-1%	+94%/-94%	+8%/-9%	+11%/-8%	+21%/-12%
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 008544992-02 / KOI 2466.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-49 ± 12	$1.26^{+0.21}_{-0.19}$	716^{+25}_{-24}	3235^{+227}_{-195}	148^{+77}_{-50}
Alt.	-56 ± 13	$1.03^{+0.21}_{-0.20}$	718^{+25}_{-23}	3515^{+301}_{-242}	251^{+157}_{-91}

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 $A_{obs} \gg 1.0$

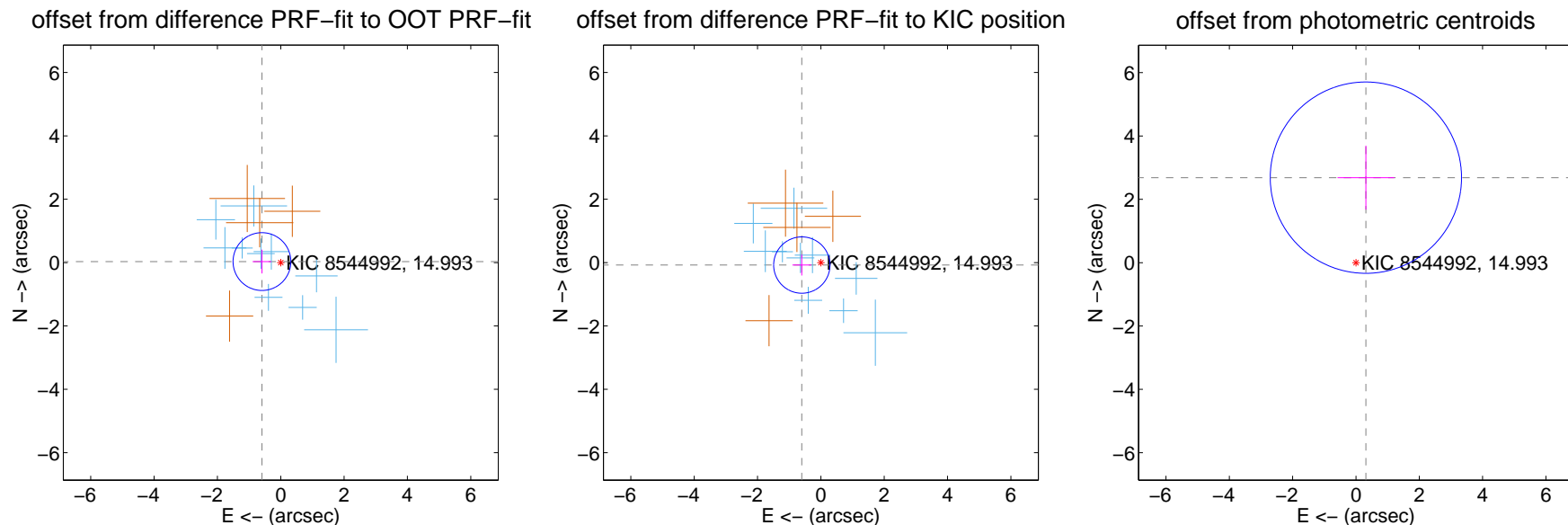
DV Centroid Data

Supplemental centroid analysis for 008544992-02. Kepler magnitude: 14.99. Transit SNR 13.26

There are 10 quarters with good PRF difference image offsets

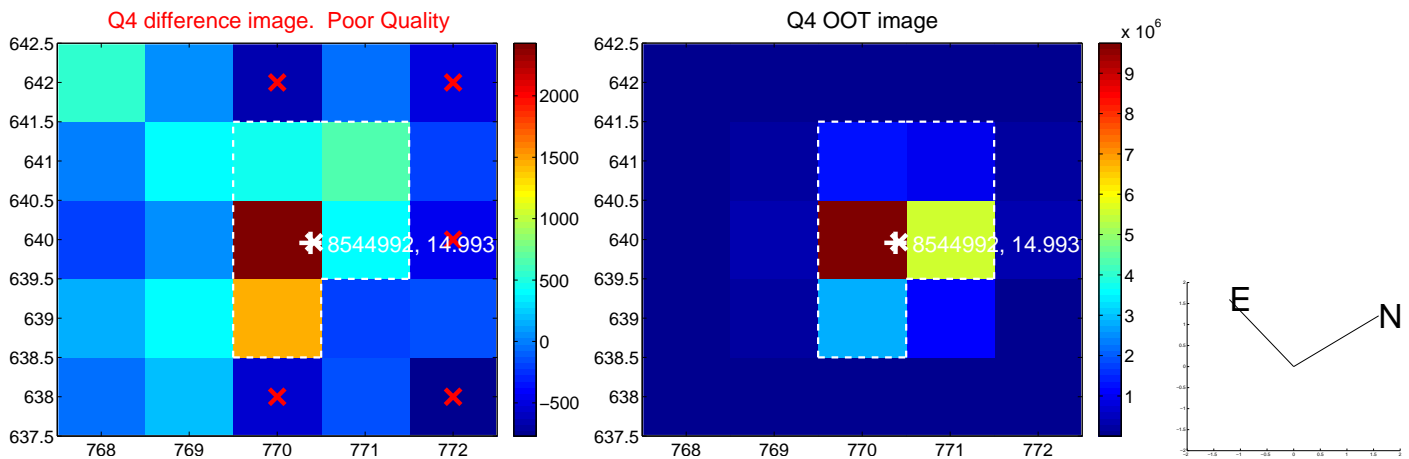
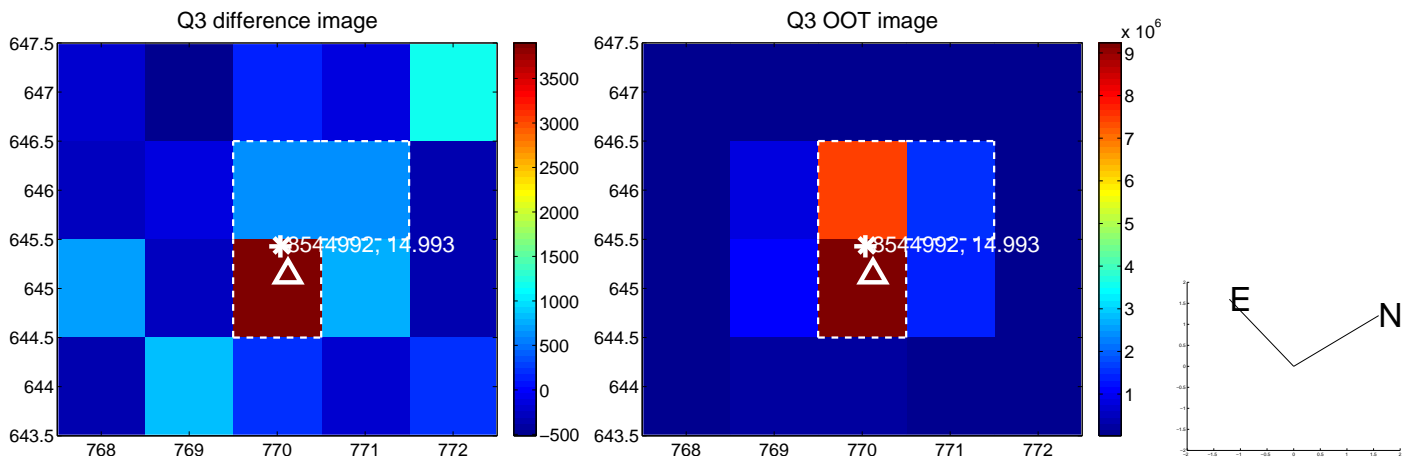
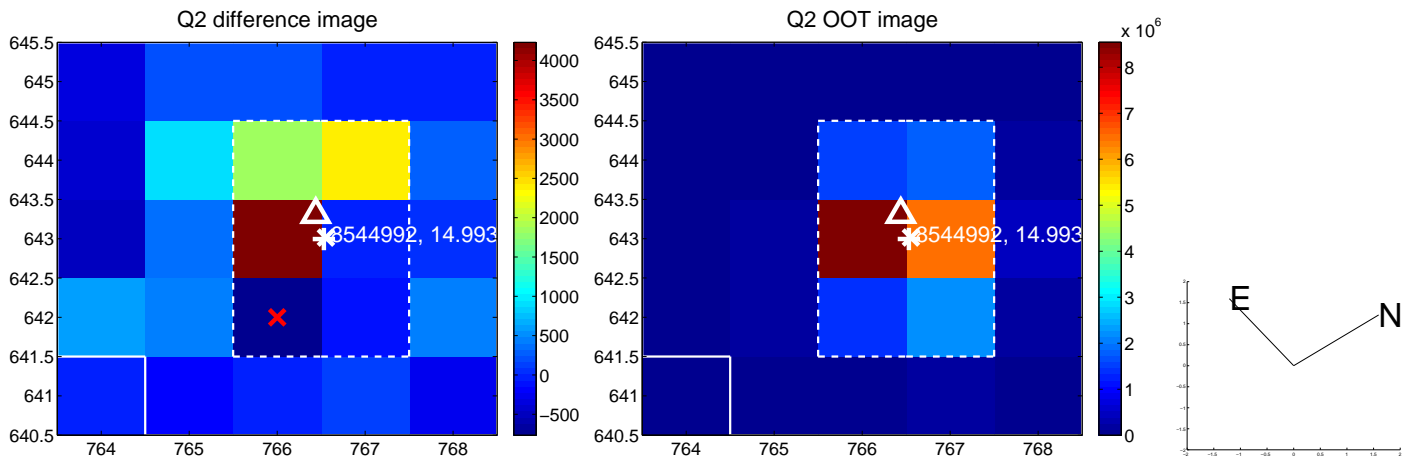
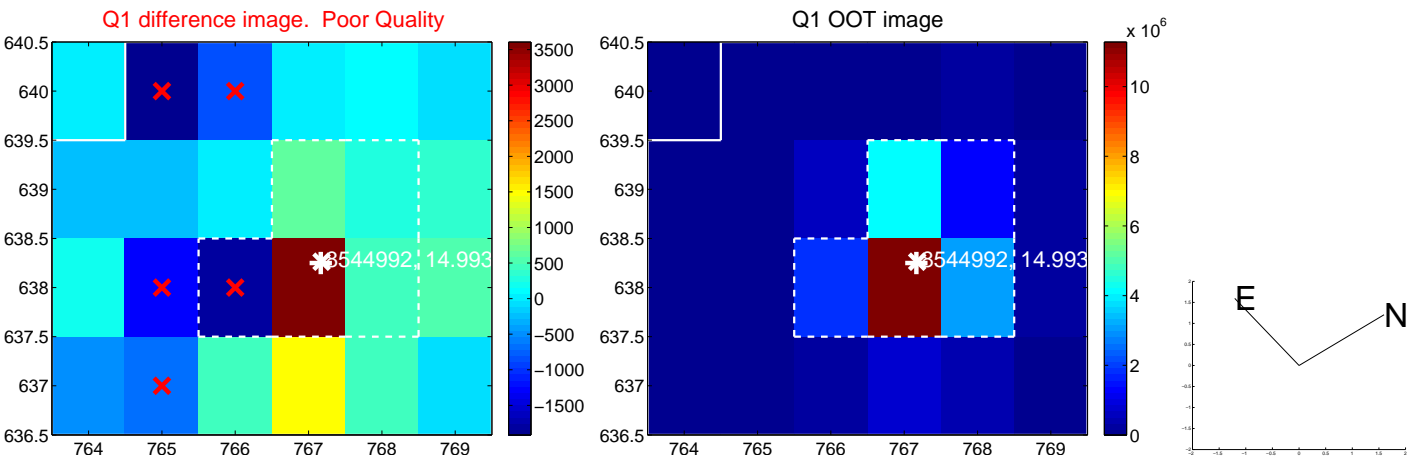
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.594 ± 0.304	1.95	0.594 ± 0.294	0.032 ± 0.374
PRF-fit source offset from KIC position	0.606 ± 0.296	2.05	0.601 ± 0.296	-0.078 ± 0.329
photometric centroid source offset	2.70 ± 1.01	2.68	-0.31 ± 0.90	2.68 ± 1.01

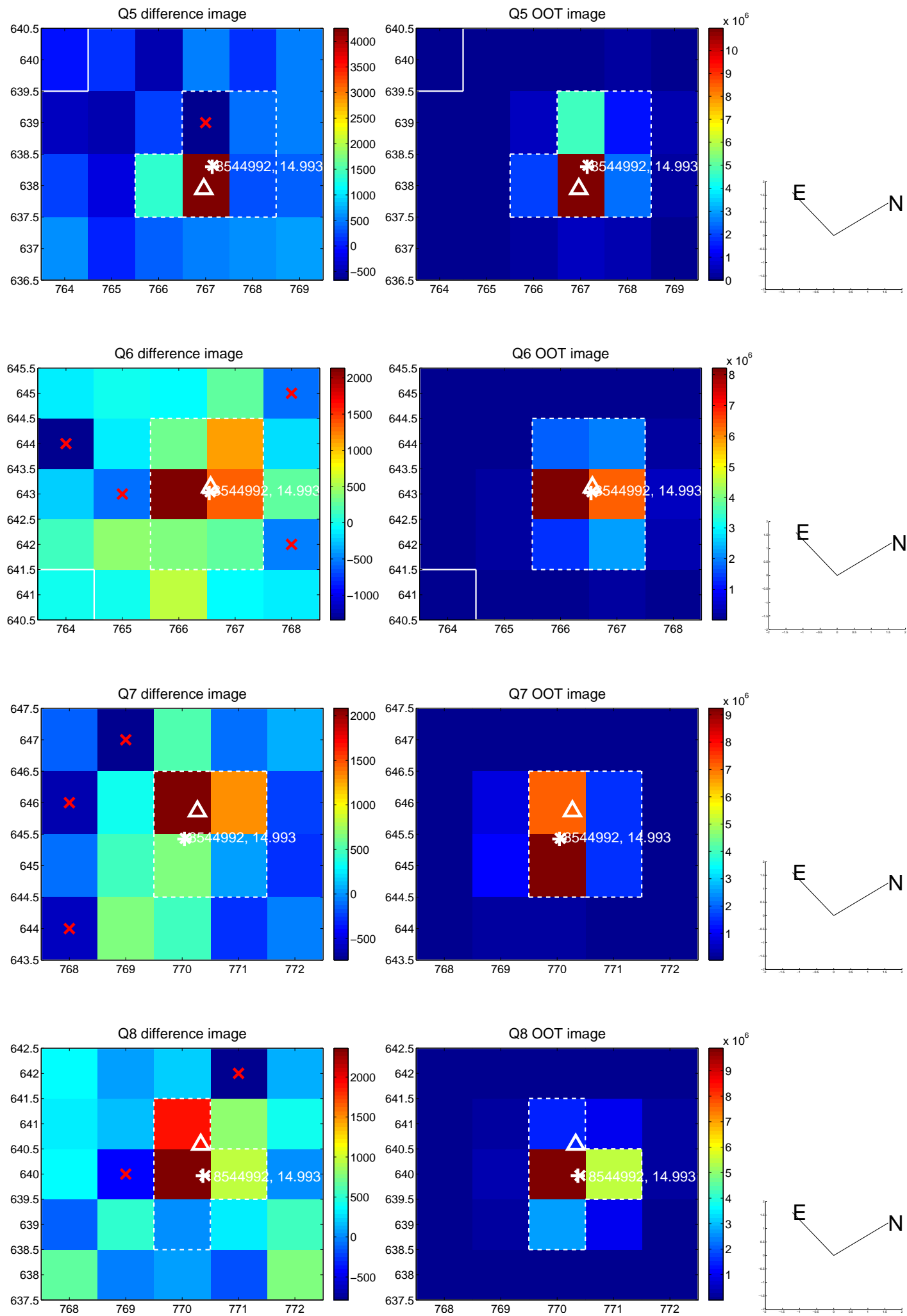


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

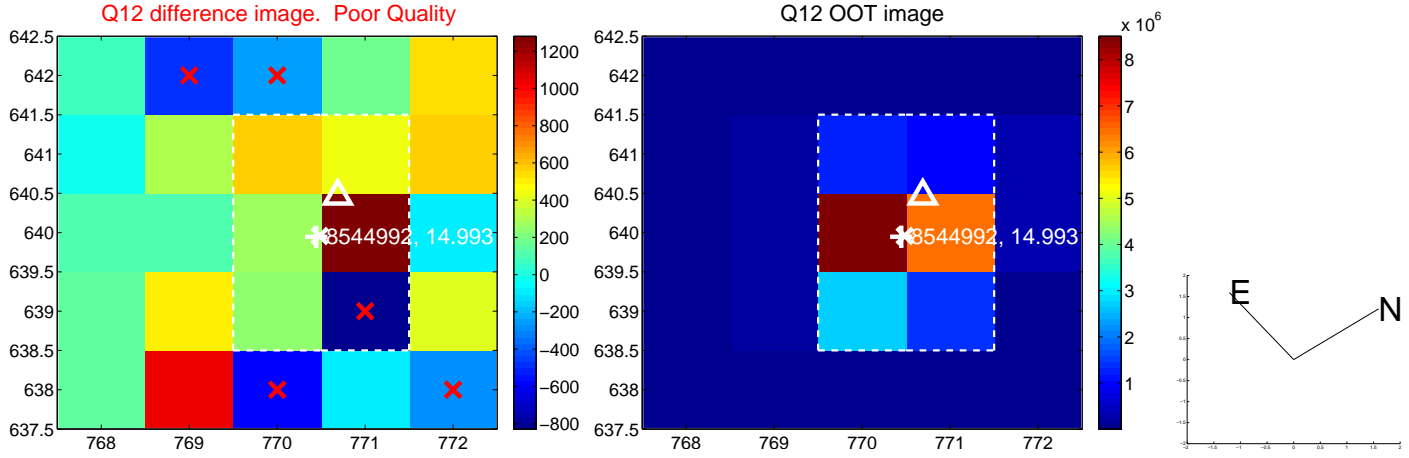
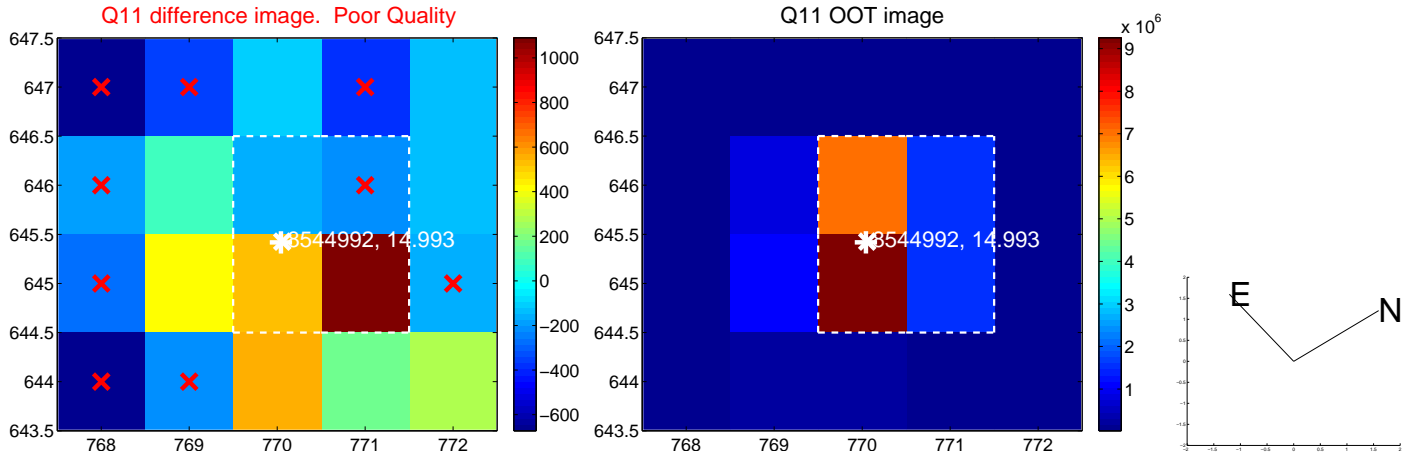
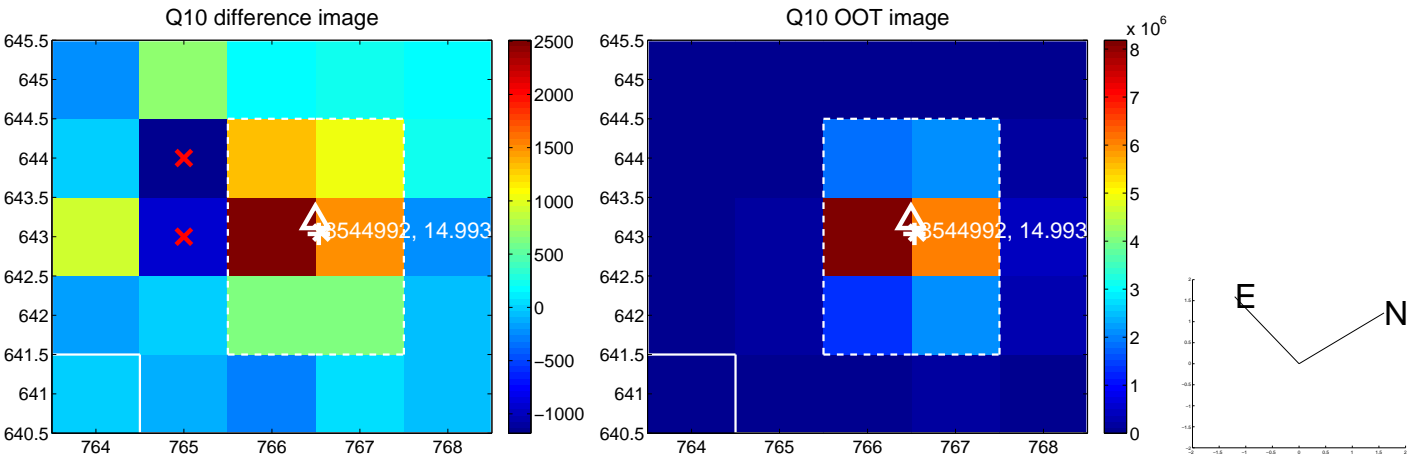
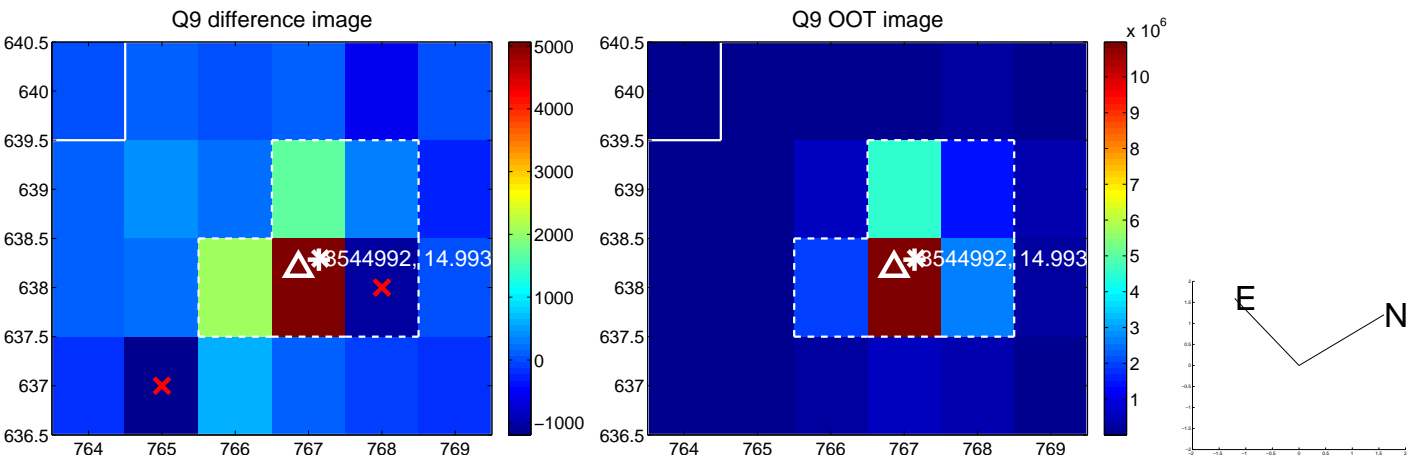
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



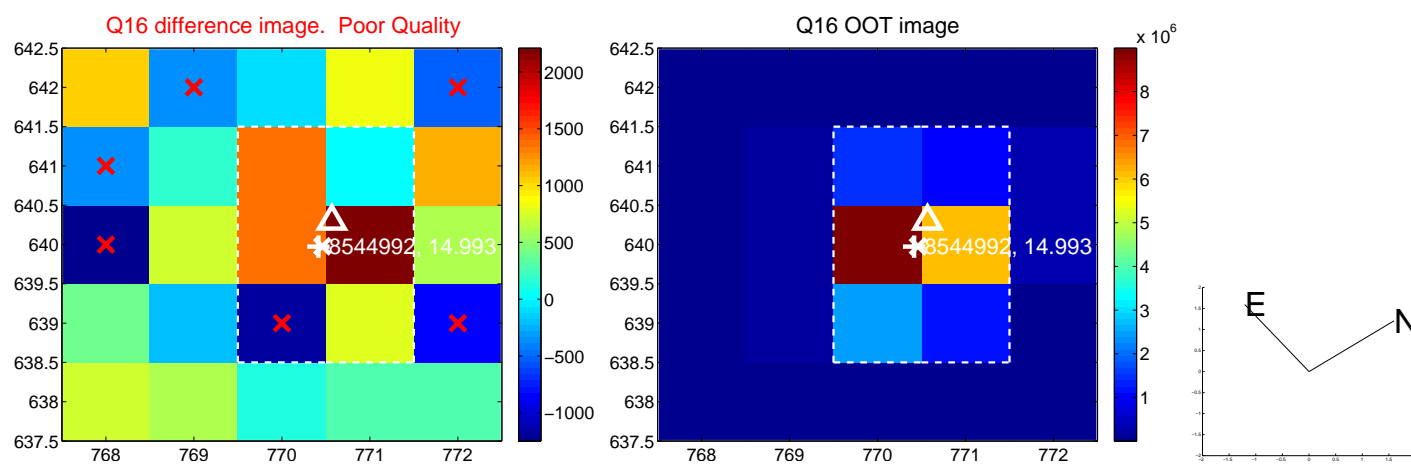
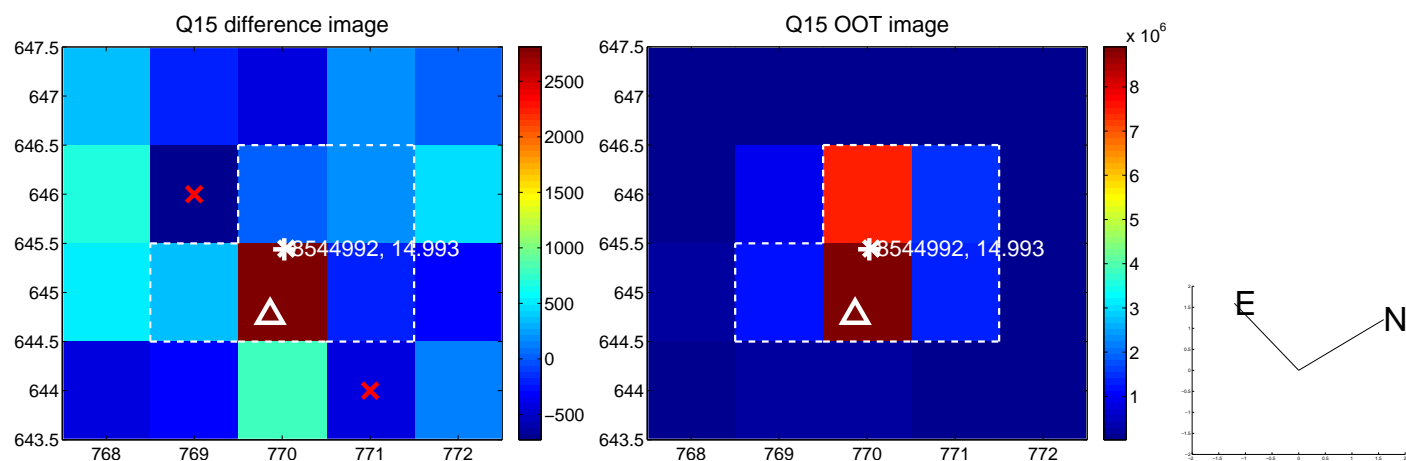
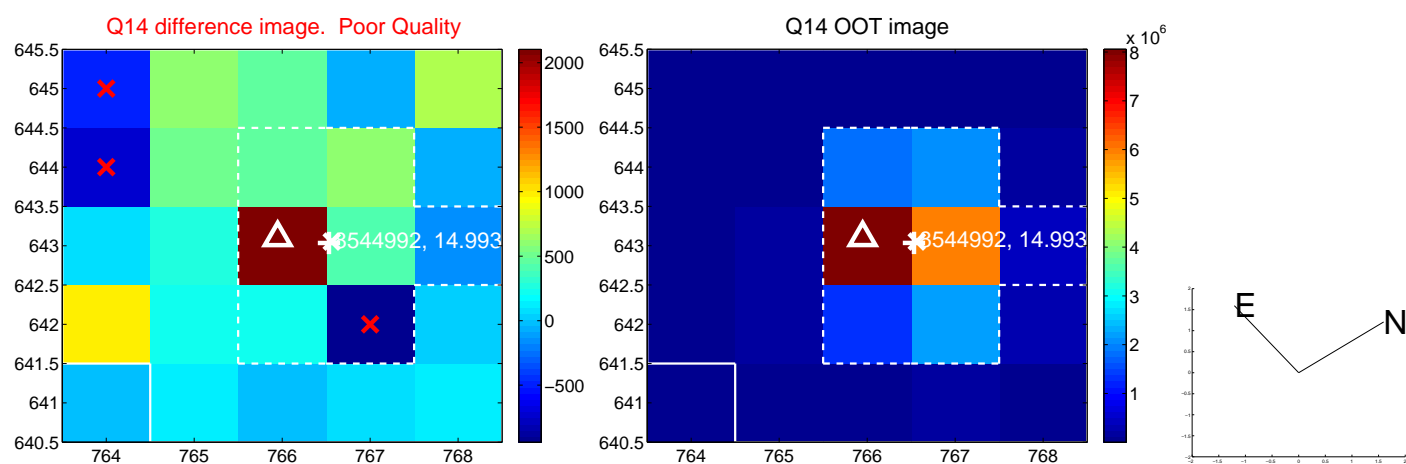
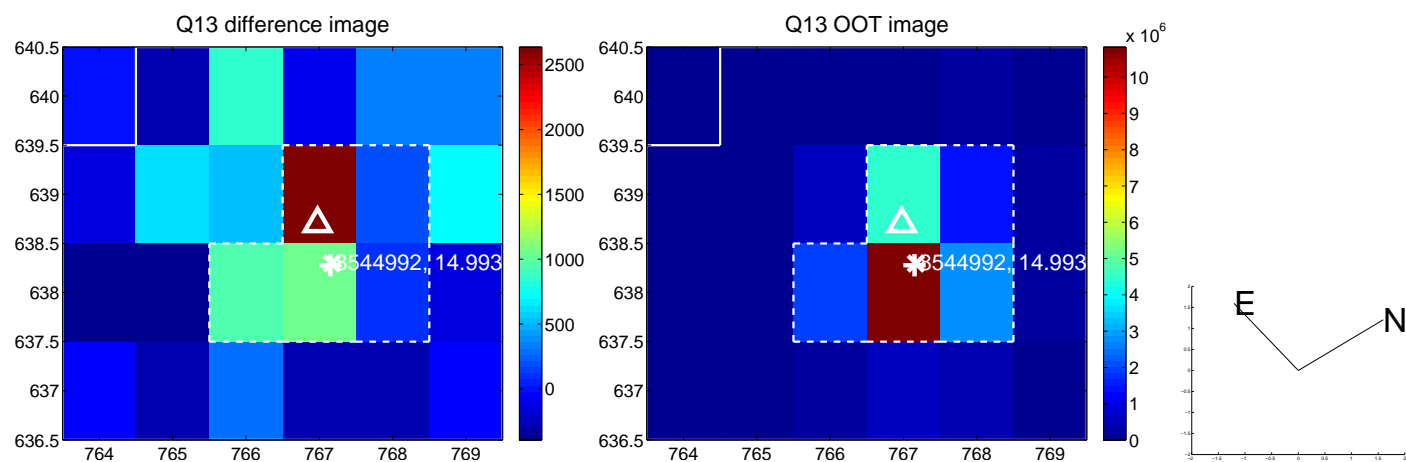
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



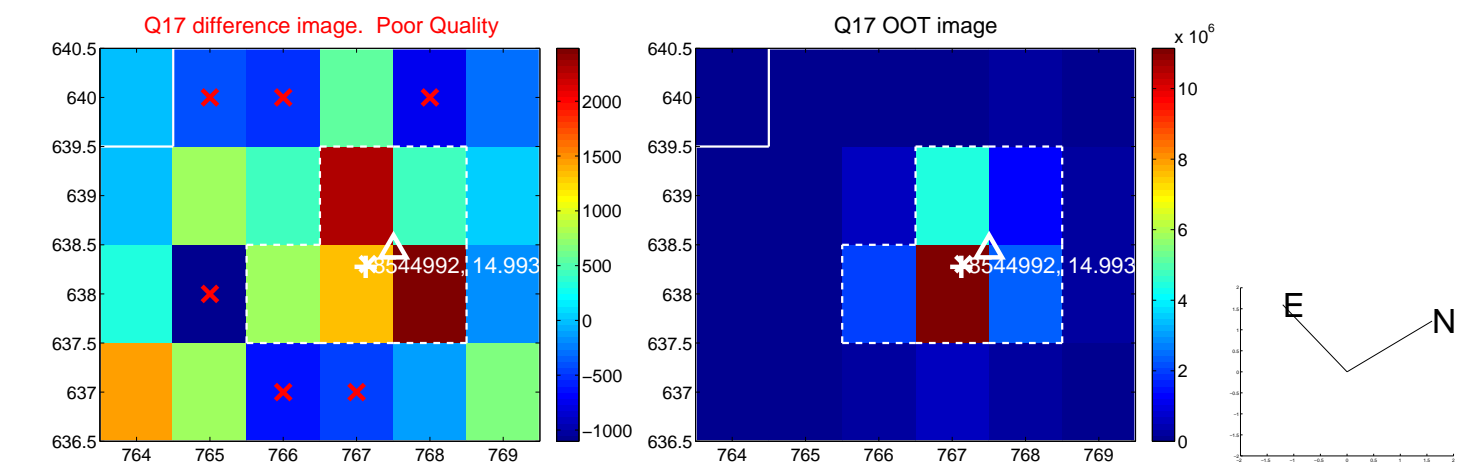
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



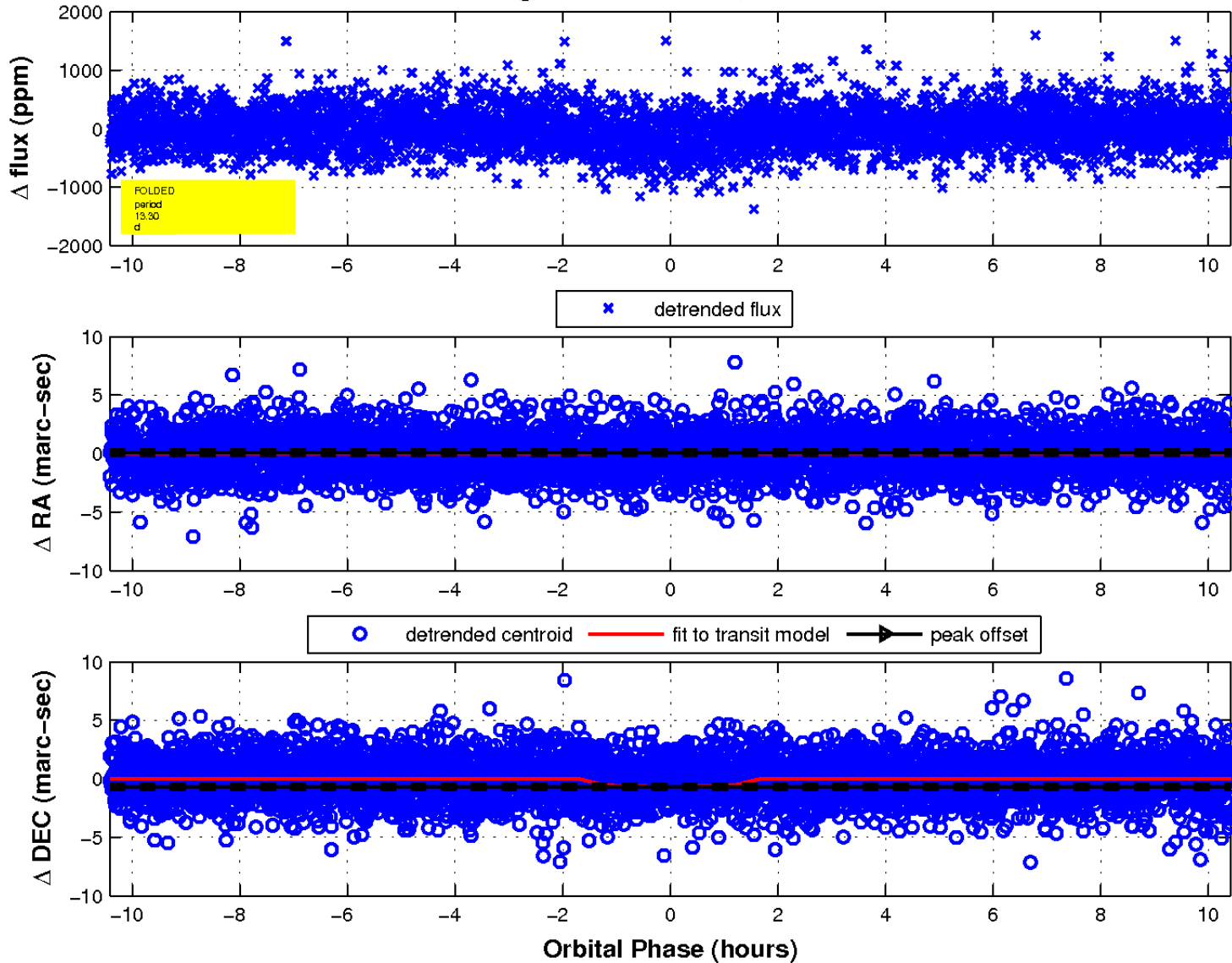
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

