

KIC 008223568

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})
008223568-01	OBS	No	2.025610	132.782607	25.7	8.949	14.7	12.7	1.31	6726	0.68	2618.35
008223568-02	OBS	No	169.793123	241.103322	193.2	7.367	9.0	9.1	1.31	6726	1.99	7.14
008223568-03	OBS	No	168.063214	143.680942	180.7	3.849	8.3	6.8	1.31	6726	2.04	7.24
008223568-04	OBS	No	658.319006	224.483928	168.0	38.454	8.1	5.6	1.31	6726	1.79	1.17
008223568-05	OBS	No	85.596547	142.828876	165.4	4.464	7.8	8.8	1.31	6726	2.01	17.79
008223568-06	OBS	No	308.578133	327.887031	184.2	9.322	8.1	7.7	1.31	6726	1.85	3.22
008223568-07	OBS	No	496.193301	500.164082	227.6	6.720	8.4	8.6	1.31	6726	2.25	1.71
008223568-08	OBS	No	144.969324	205.071810	79.5	7.500	7.7	-1.0	1.31	6726	1.18	8.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008223568-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008223568-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
008223568-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008223568-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008223568-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008223568-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNCERTAIN
008223568-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_DIFFS
008223568-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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.

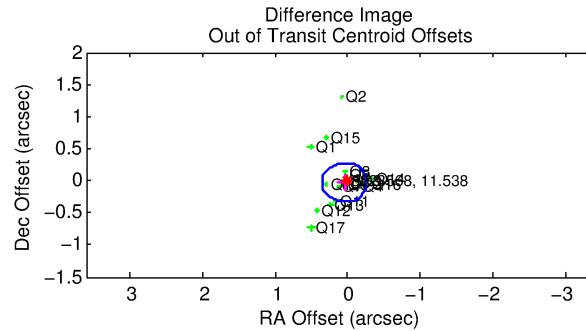
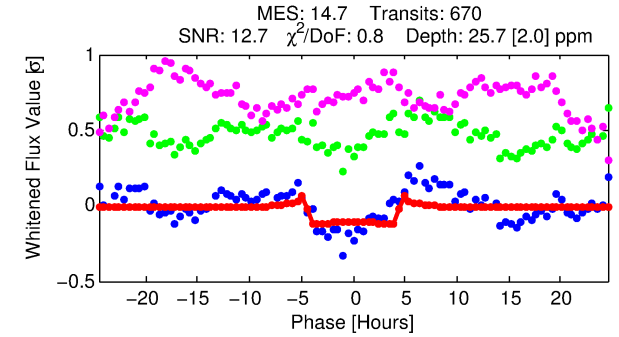
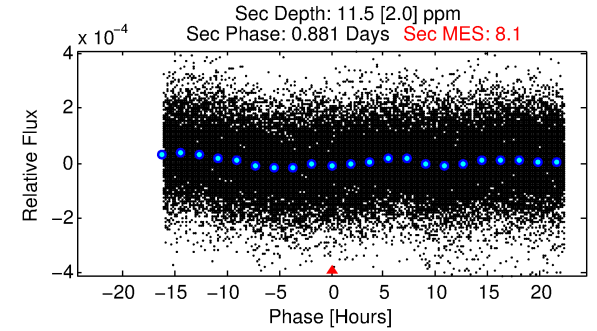
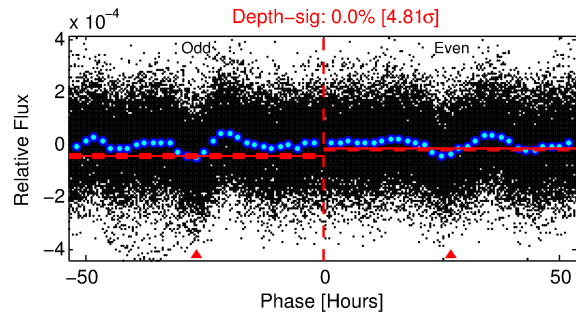
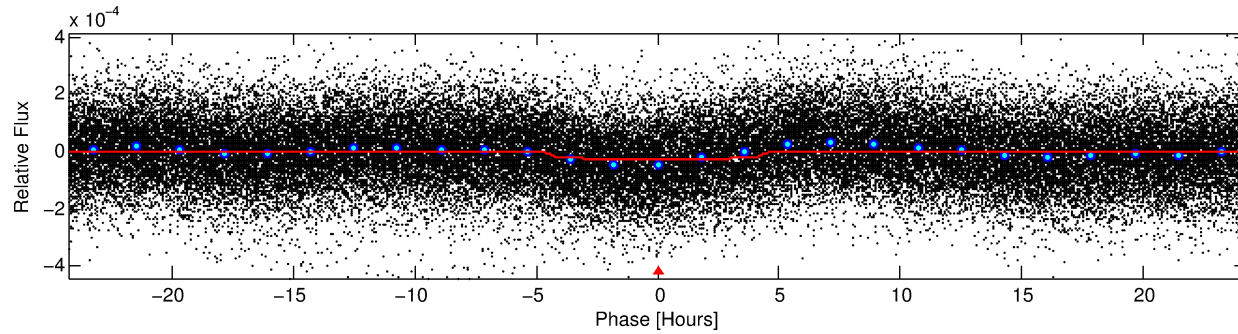
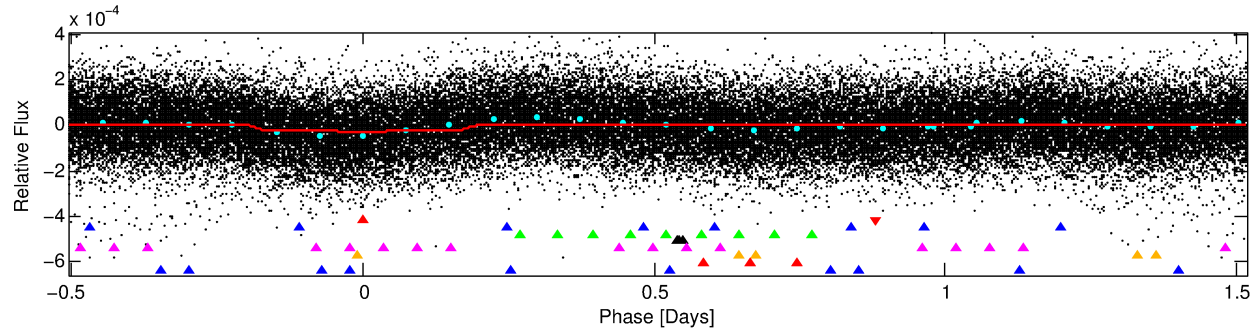
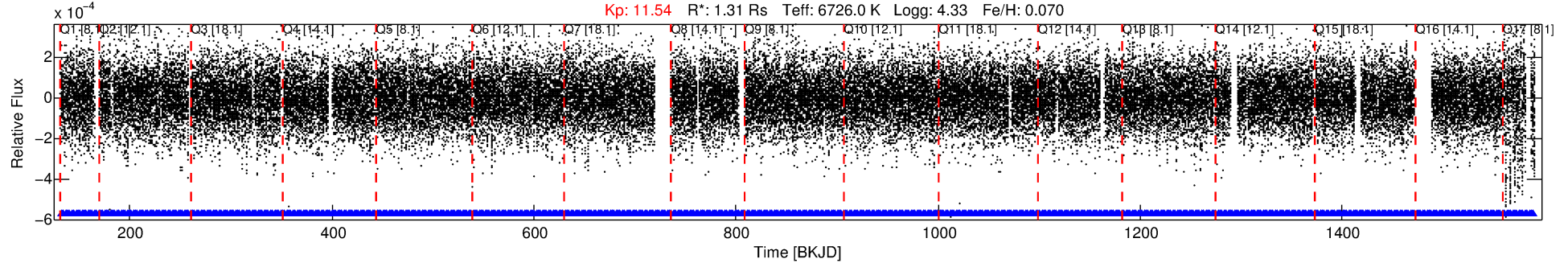
Ephemeris Match Information For 008223568-01

No Significant Match Found

DV One-Page Summary

KIC: 8223568 Candidate: 1 of 8 Period: 2.026 d
KOI: K06176 Corr: No Ephemeris Match

Kp: 11.54 R*: 1.31 Rs Teff: 6726.0 K Logg: 4.33 Fe/H: 0.070



DV Fit Results:

Period = 2.02561 [0.00001] d
Epoch = 132.7826 [0.0032] BKJD
Rp/R* = 0.0048 [0.0013]
a/R* = 1.71 [1.67]
b = 0.44 [2.70]
Seff = 2618.35 [614.72]
Teq = 1824 [107] K
Rp = 0.68 [0.22] Re
a = 0.0347 [0.0051] AU
Ag = 16.27 [9.92] [1.54σ]
Teffp = 5664 [817] K [4.66σ]

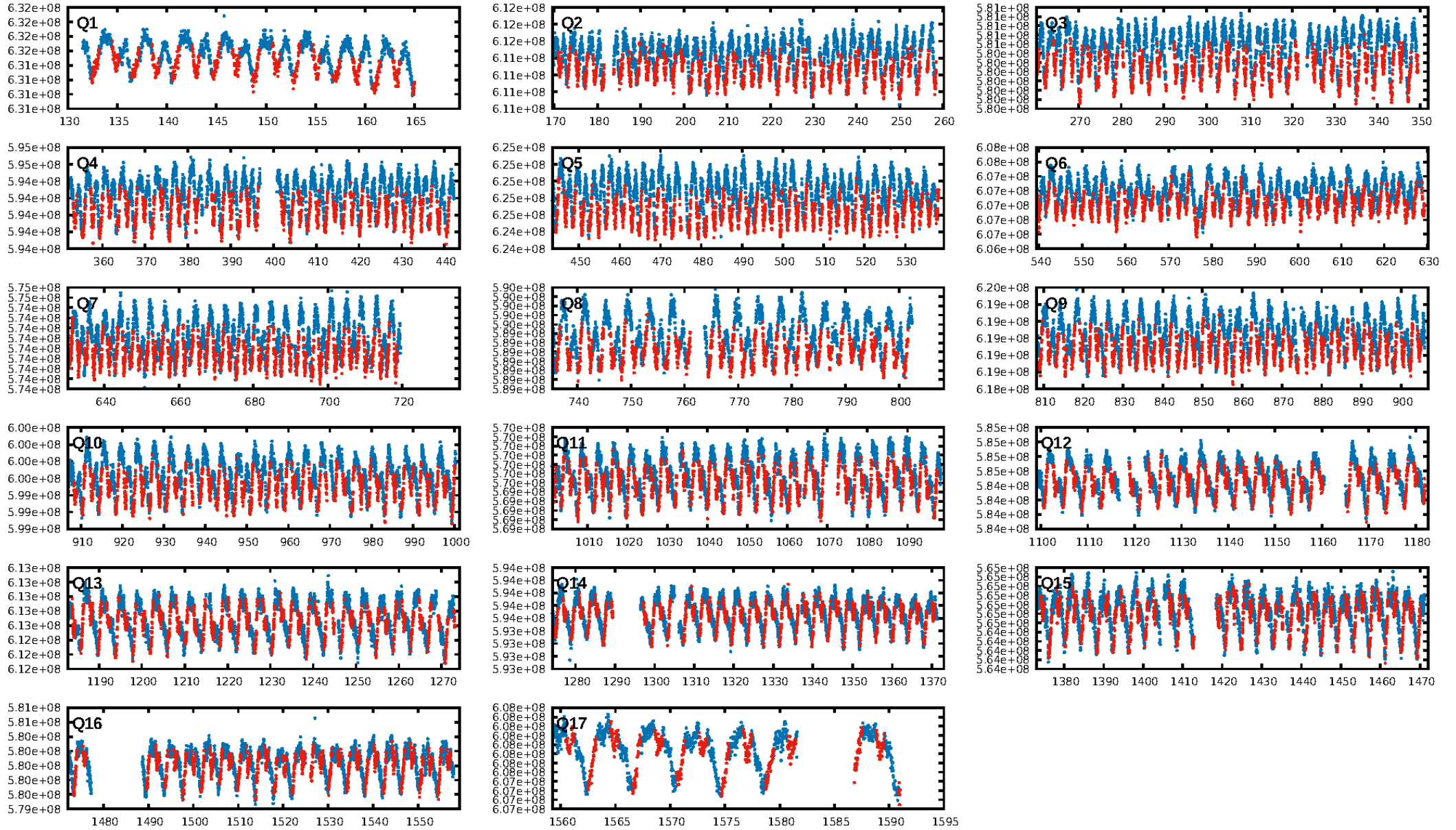
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [200.55σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [641/641]
GhostDiagnostic-chr: 1.18
Centroid-sig: 23.4%
Centroid-so: 0.287 arcsec [0.92σ]
OotOffset-rm: 0.054 arcsec [0.53σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.069 arcsec [0.55σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

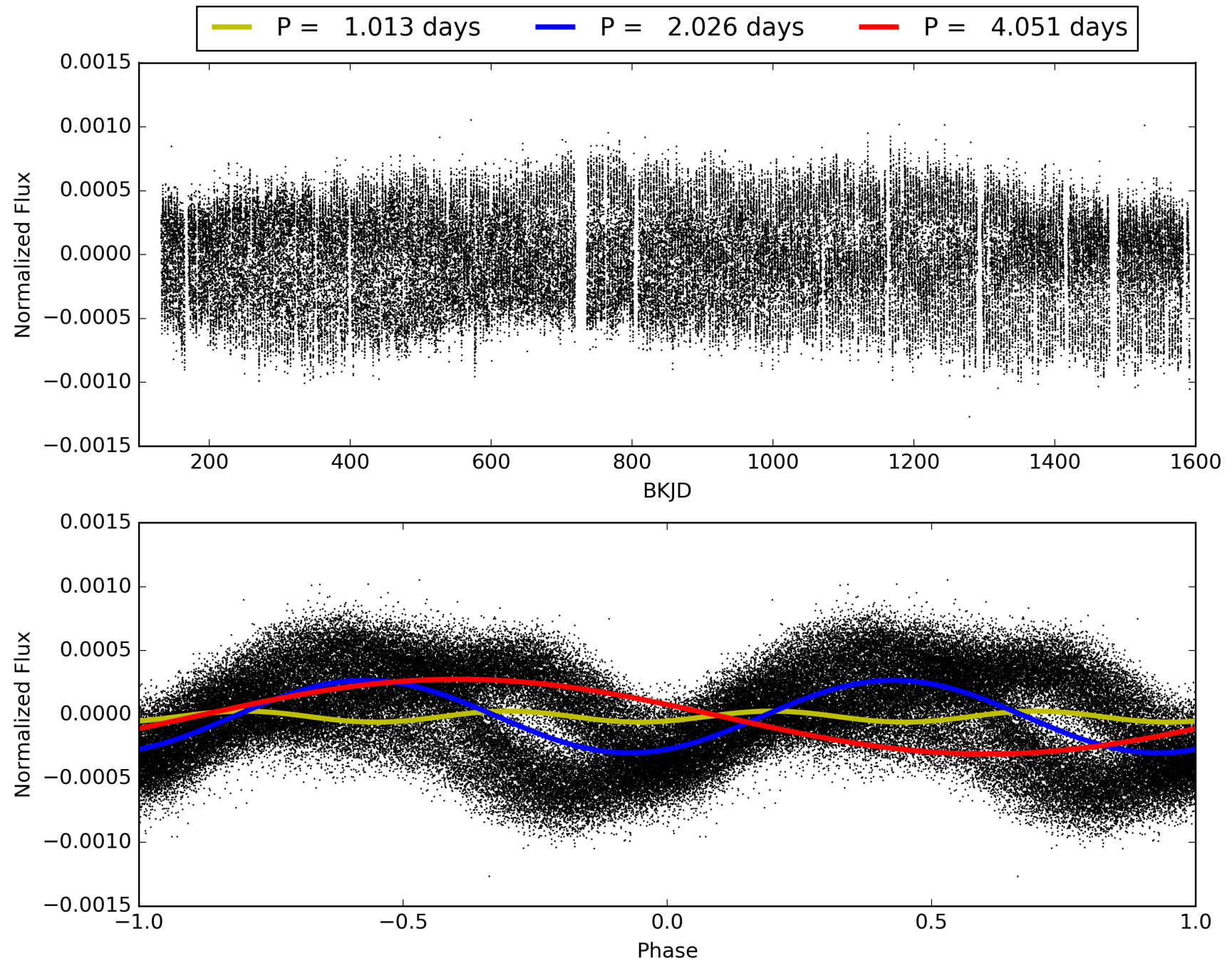
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008223568-01, PDC Light Curves

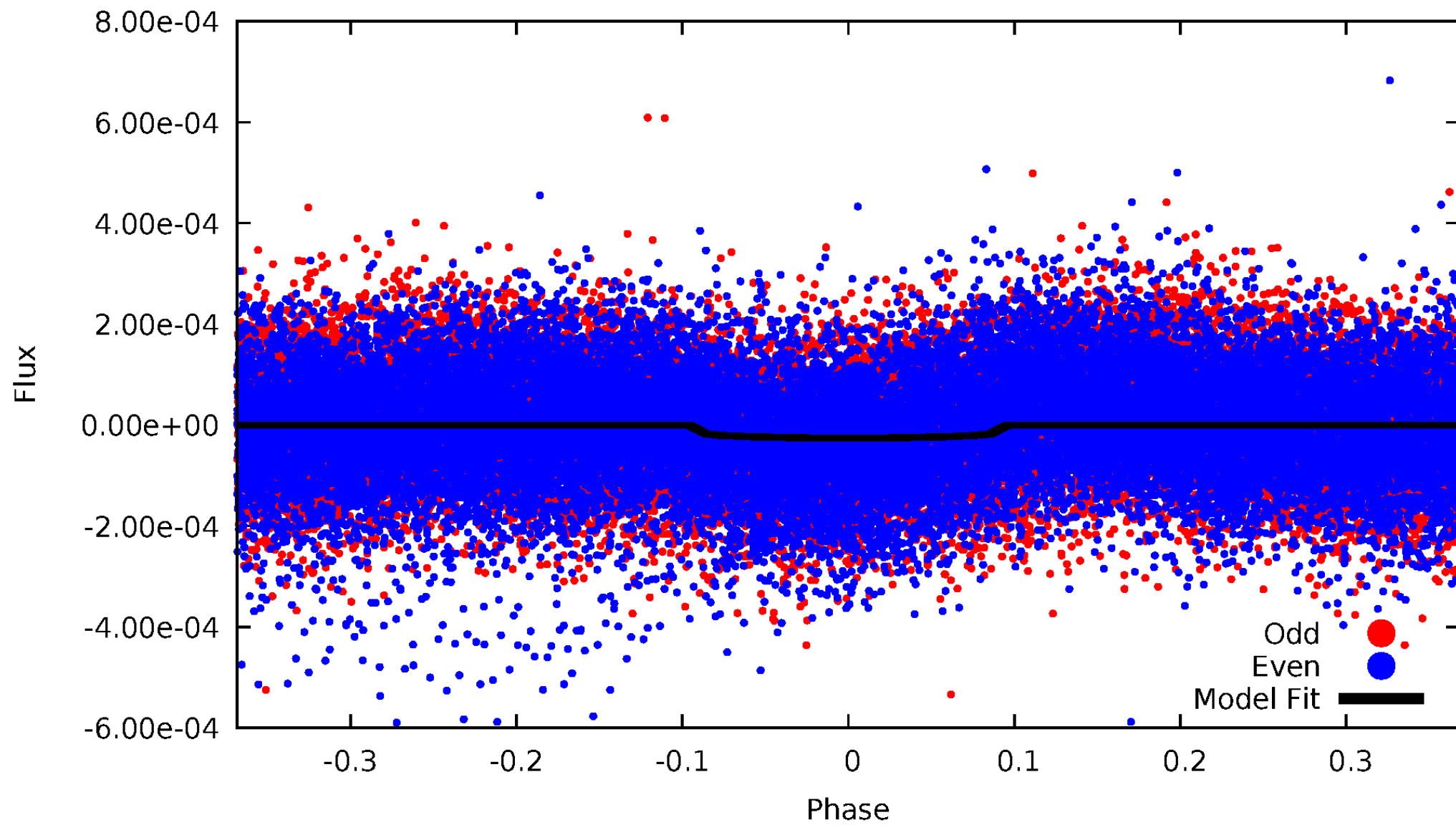


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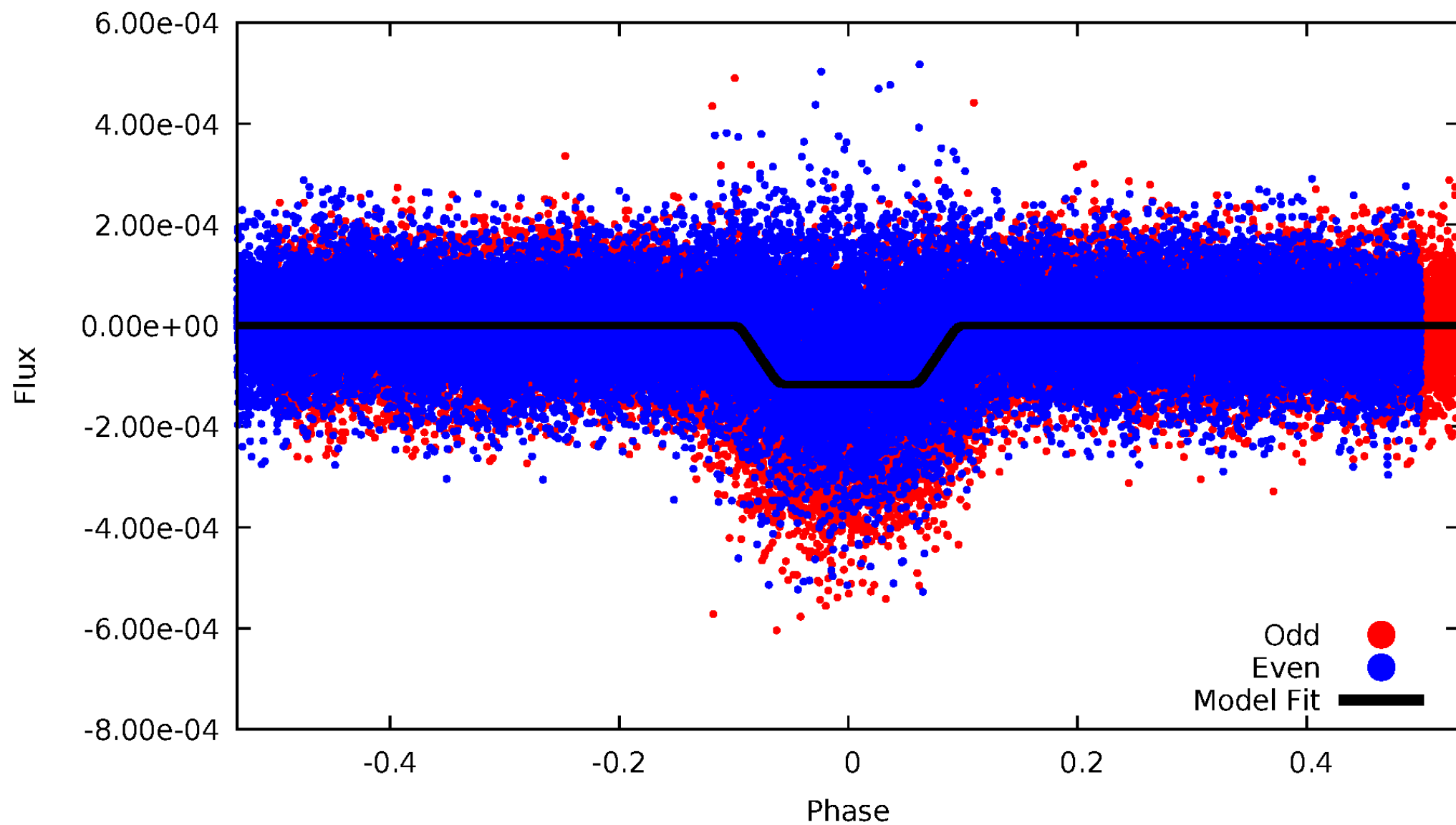
DV Odd/Even

TCE 008223568-01

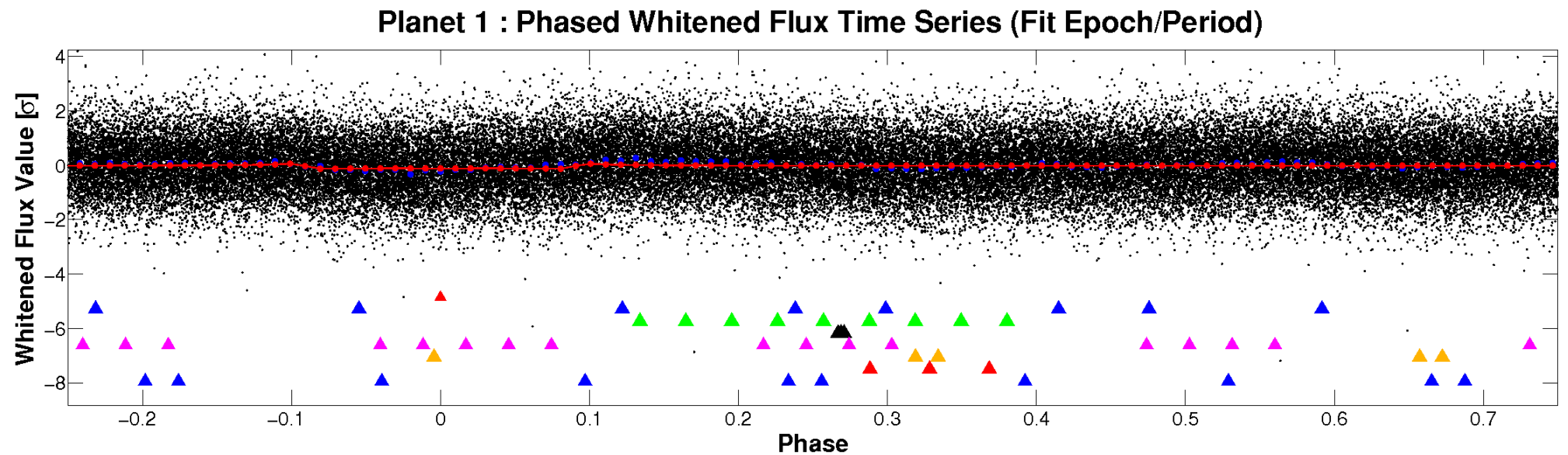
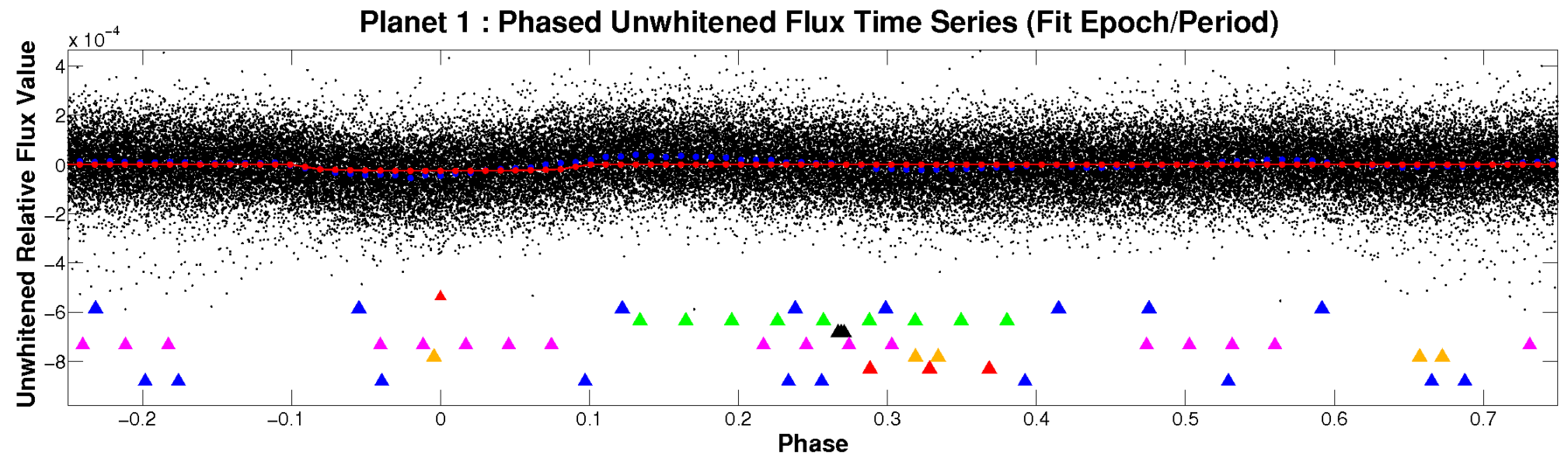


ALT Odd/Even

TCE 008223568-01

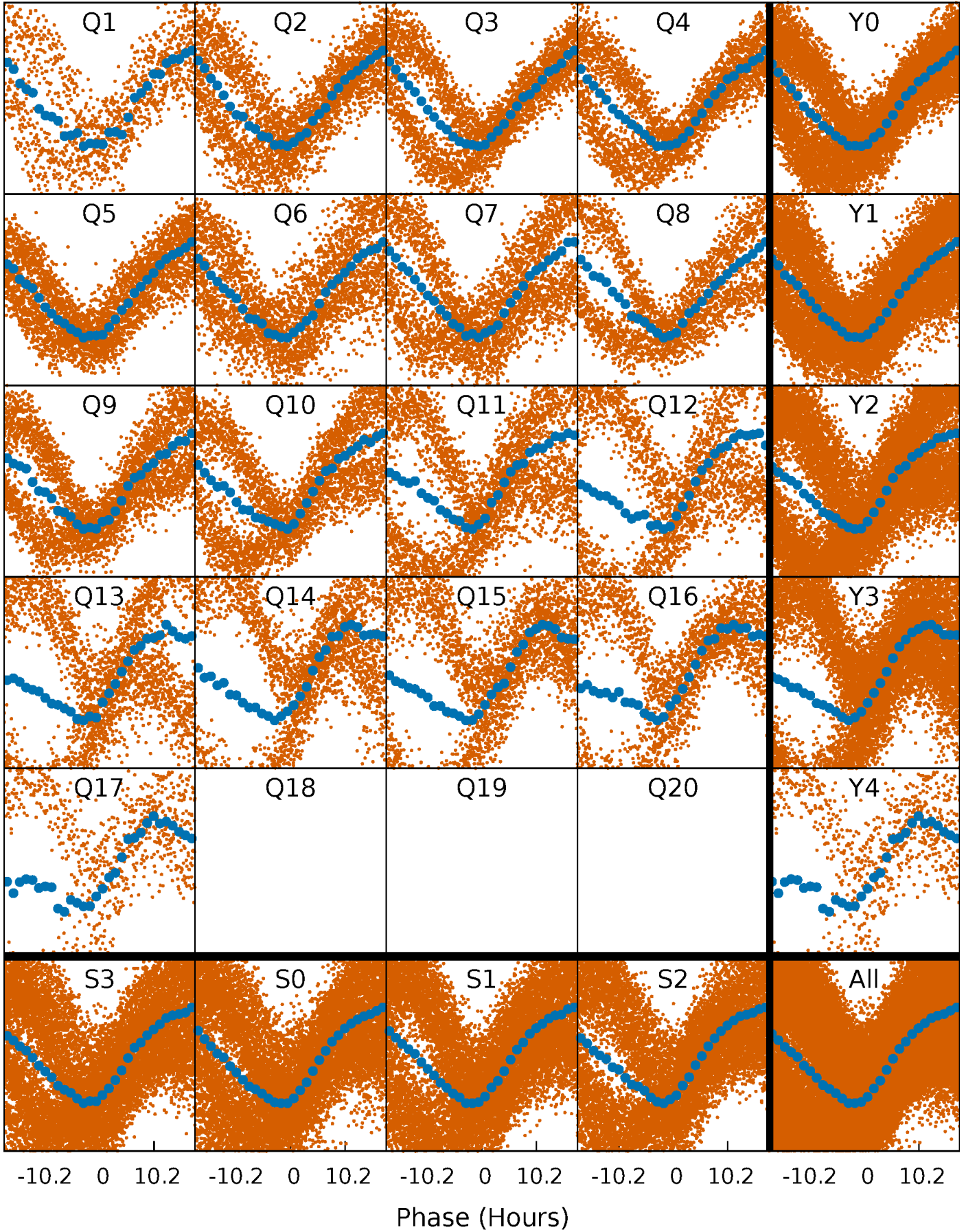


Non-Whitened Vs. Whitened Light Curve



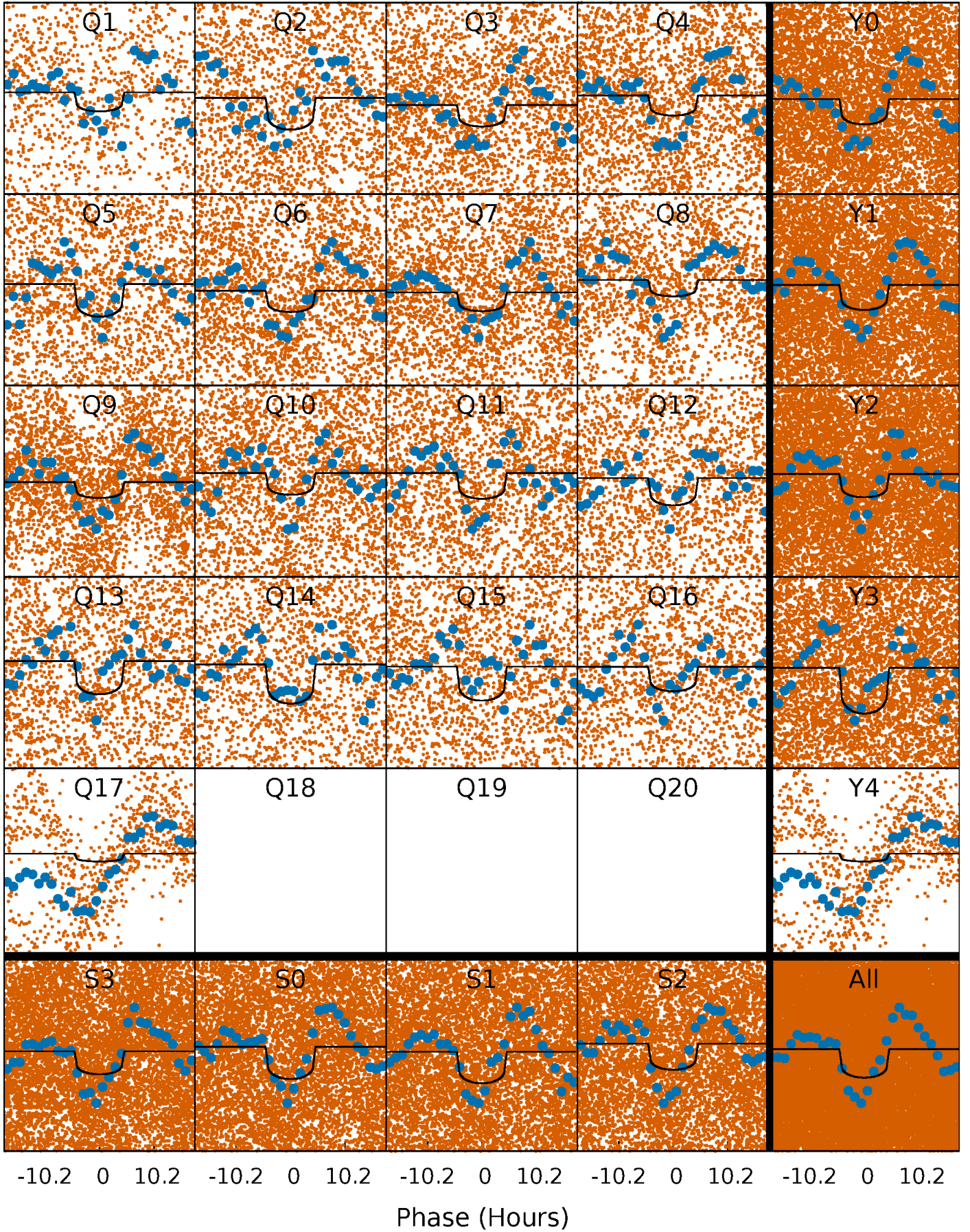
PDC Quarter-Phased Transit Curves

TCE 008223568-01 P= 2.025610 Days $T_0=132.782607$ (BKJD)



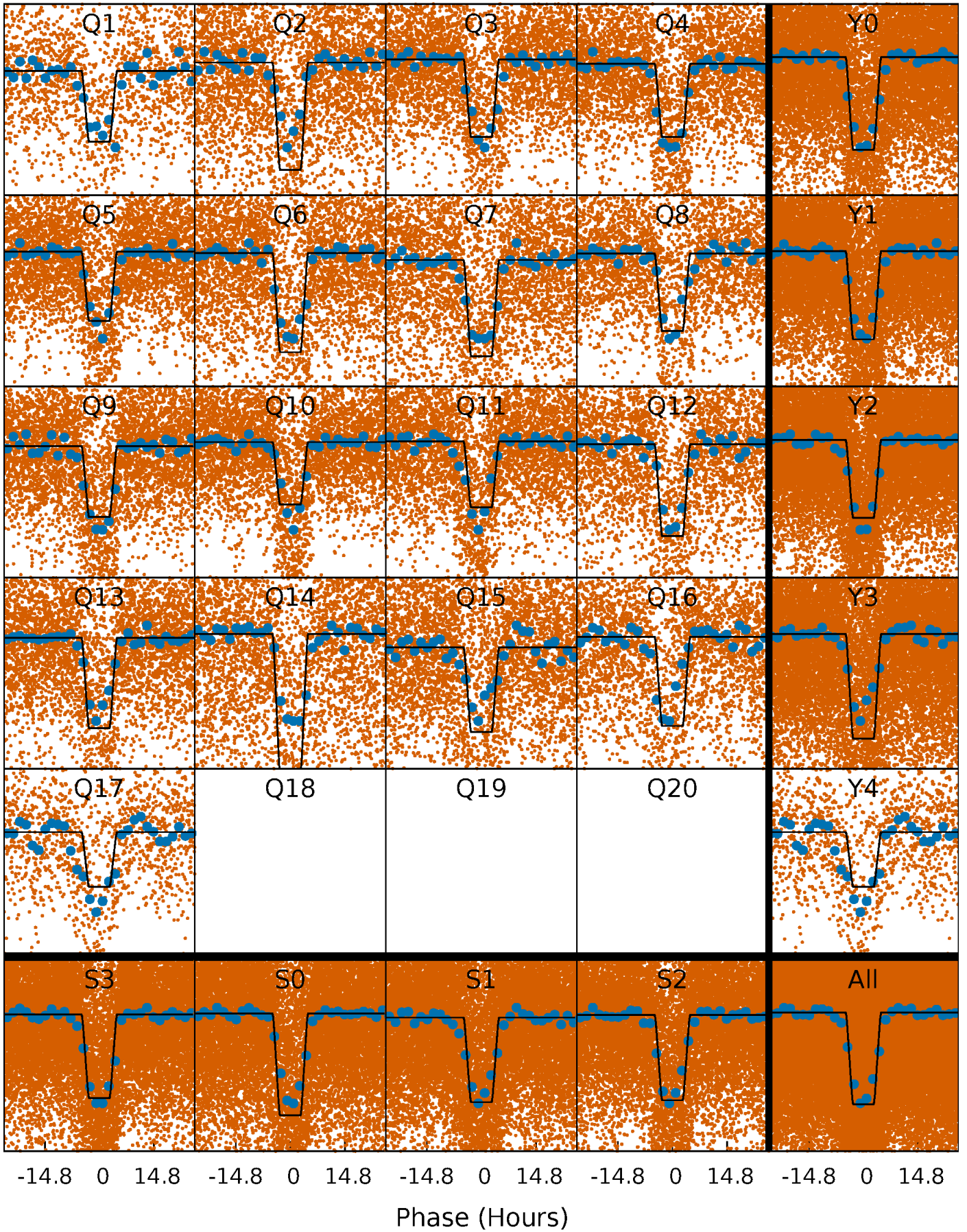
DV Quarter-Phased Transit Curves

TCE 008223568-01 P= 2.025610 Days $T_0=132.782607$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

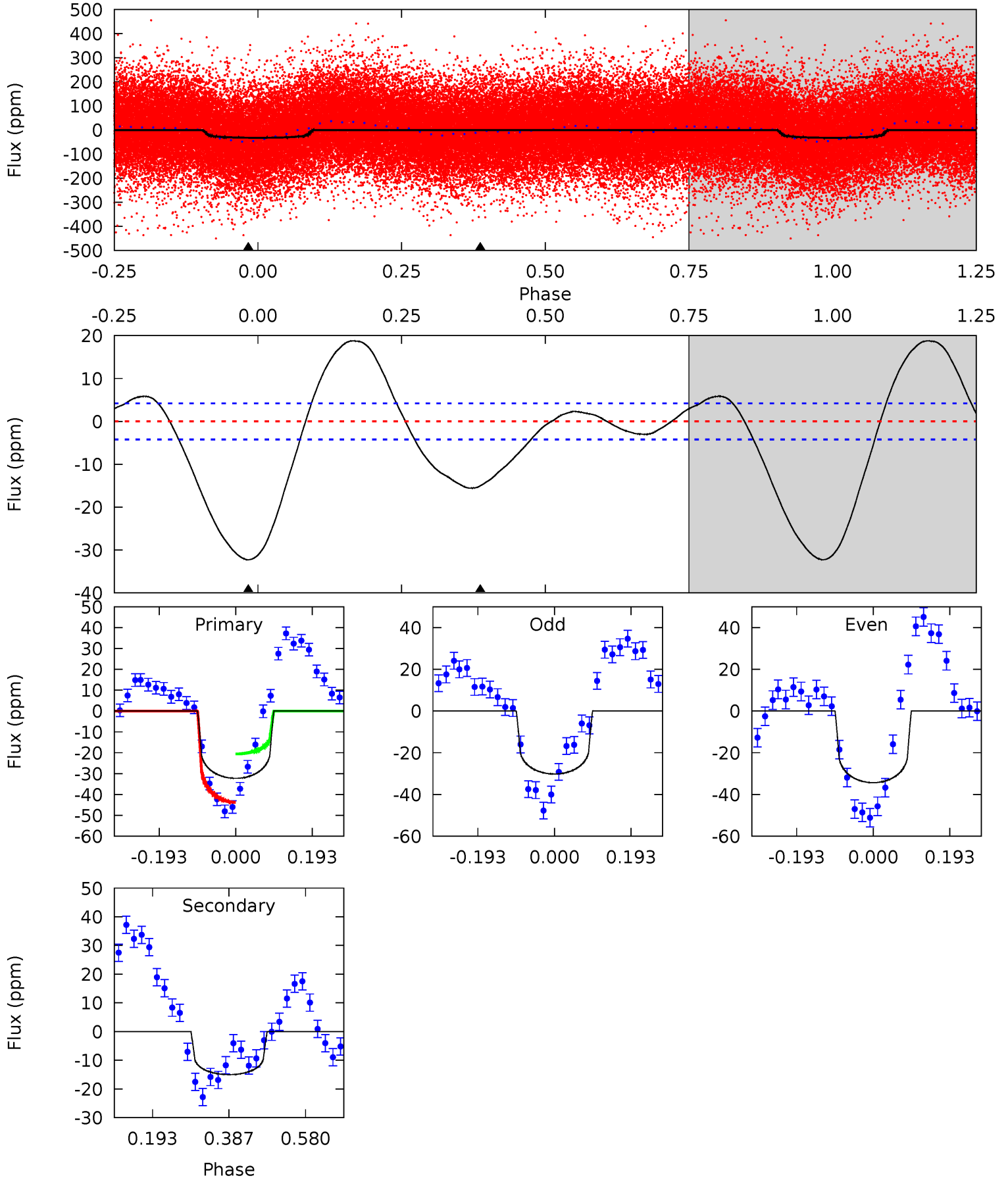
TCE 008223568-01 P= 2.025562 Days $T_0=132.787922$ (BKJD)



DV Model-Shift Uniqueness Test

008223568-01, P = 2.025610 Days, E = 130.756997 Days

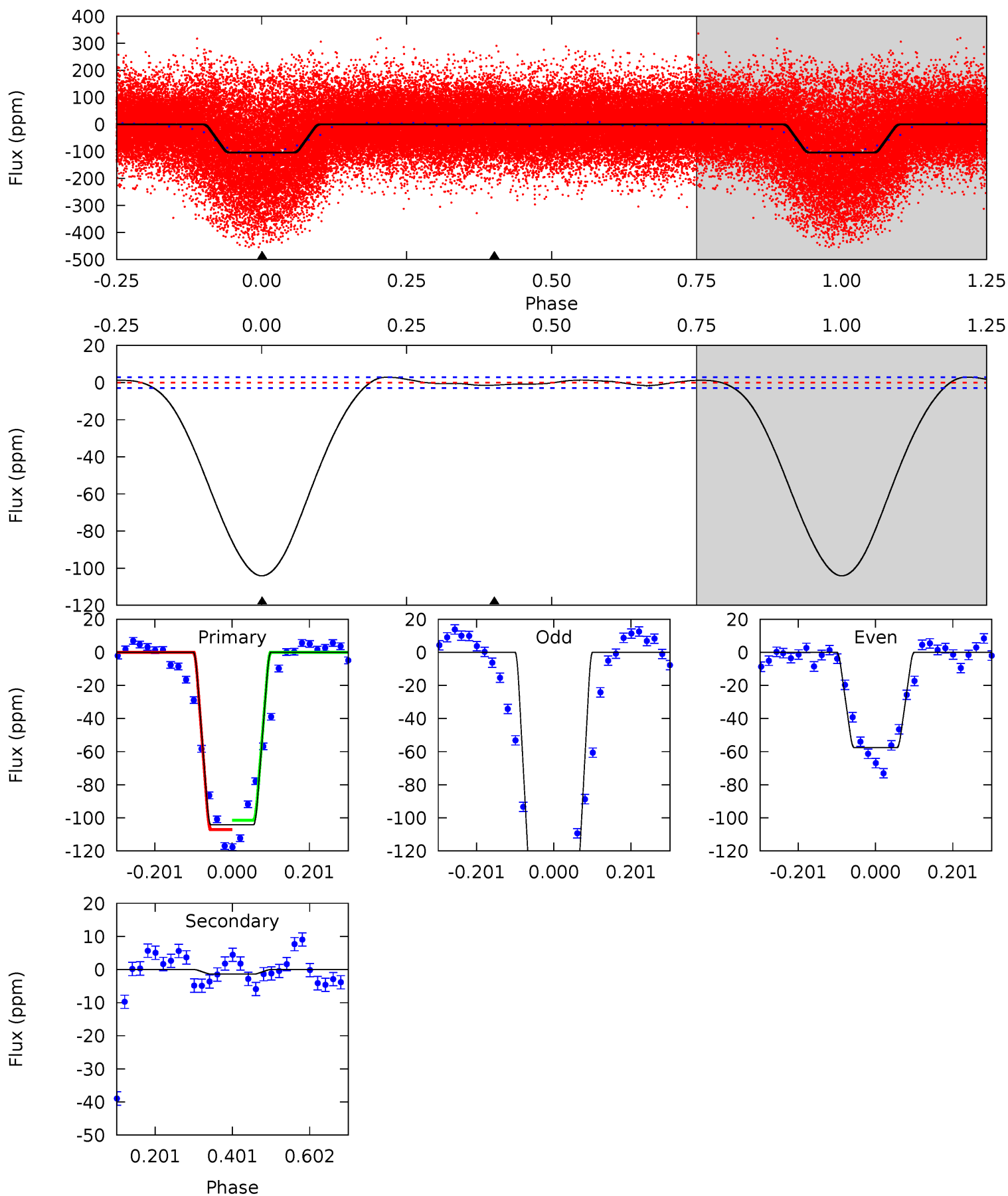
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.9	15.8	0	0	4.42	1.30	5.52	33.9	33.9	15.8	15.8	2.20	1.06	0.37	12.3



Alt Model-Shift Uniqueness Test

008223568-01, P = 2.025562 Days, E = 130.762360 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
157.2	2.10	0	0	4.42	1.28	1.45	157.2	157.2	2.10	2.10	69.6	1.00	0.03	4.29



Stellar Parameters For KIC 008223568

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6726^{+117}_{-150}	$4.335^{+0.032}_{-0.120}$	$0.070^{+0.100}_{-0.200}$	$1.310^{+0.226}_{-0.097}$	$1.354^{+0.075}_{-0.112}$	$0.848^{+0.131}_{-0.298}$
	+2%/-2%	+1%/-3%	+143%/-286%	+17%/-7%	+6%/-8%	+15%/-35%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 008223568-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-15 ± 1	$0.70^{+0.20}_{-0.19}$	2580^{+108}_{-77}	6008^{+1179}_{-684}	20^{+19}_{-8}
Alt.	-1 ± 1	$1.58^{+0.24}_{-0.20}$	2575^{+110}_{-76}	2289^{+512}_{-4853}	$0.352^{+0.221}_{-0.182}$

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 $A_{obs} \gg 1.0$

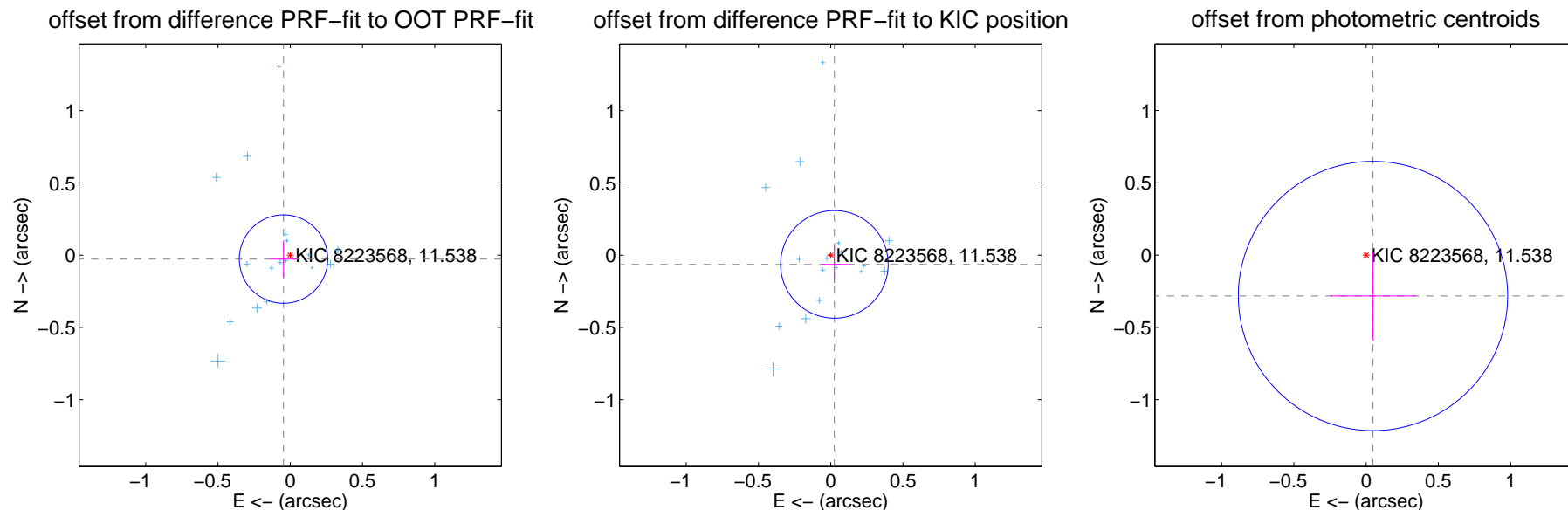
DV Centroid Data

Supplemental centroid analysis for 008223568-01. **Kepler magnitude: 11.54.** Transit SNR 12.69

There are 17 quarters with good PRF difference image offsets

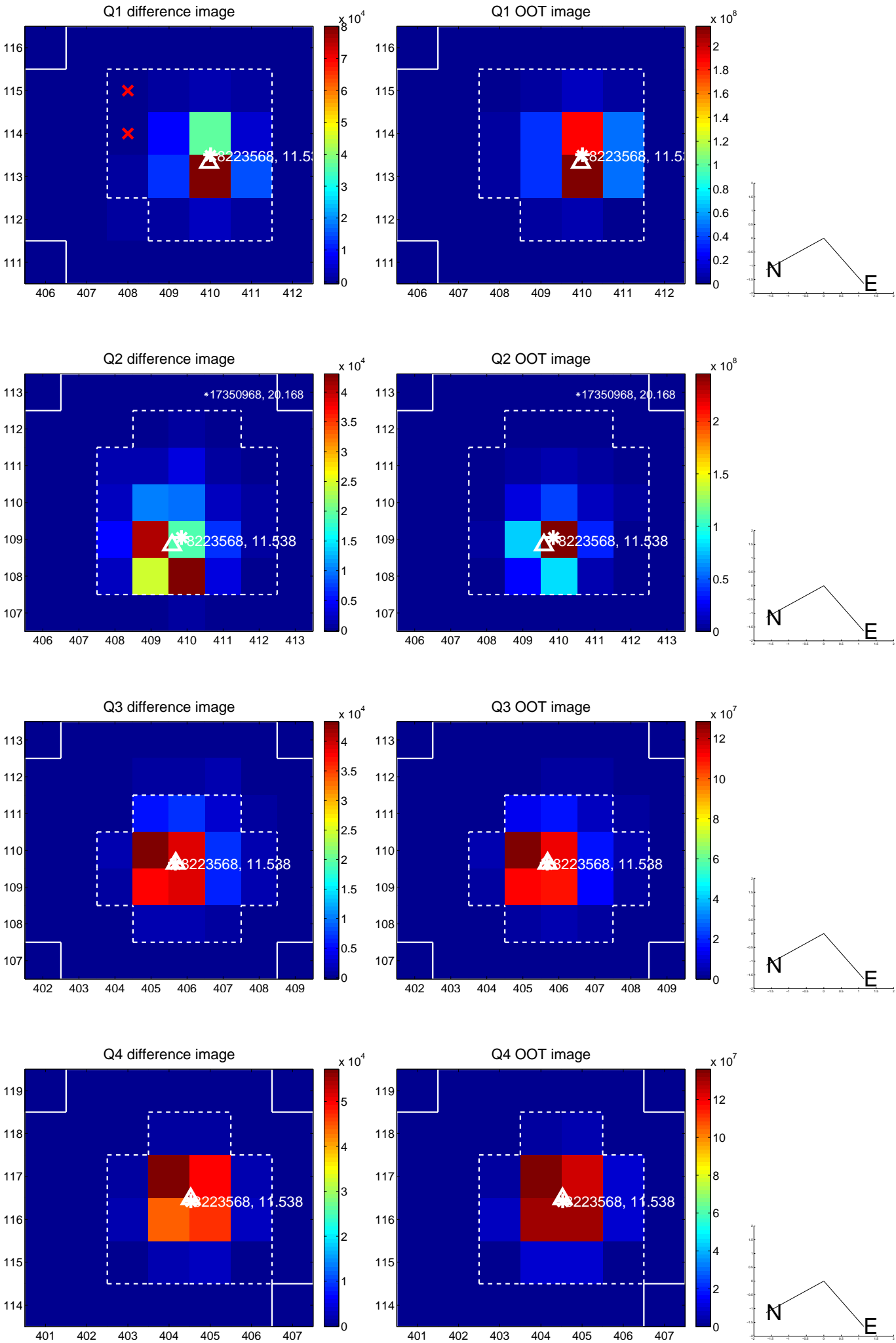
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.054 ± 0.102	0.53	0.047 ± 0.088	-0.027 ± 0.127
PRF-fit source offset from KIC position	0.069 ± 0.124	0.55	-0.025 ± 0.092	-0.064 ± 0.129
photometric centroid source offset	0.29 ± 0.31	0.92	-0.05 ± 0.30	-0.28 ± 0.31

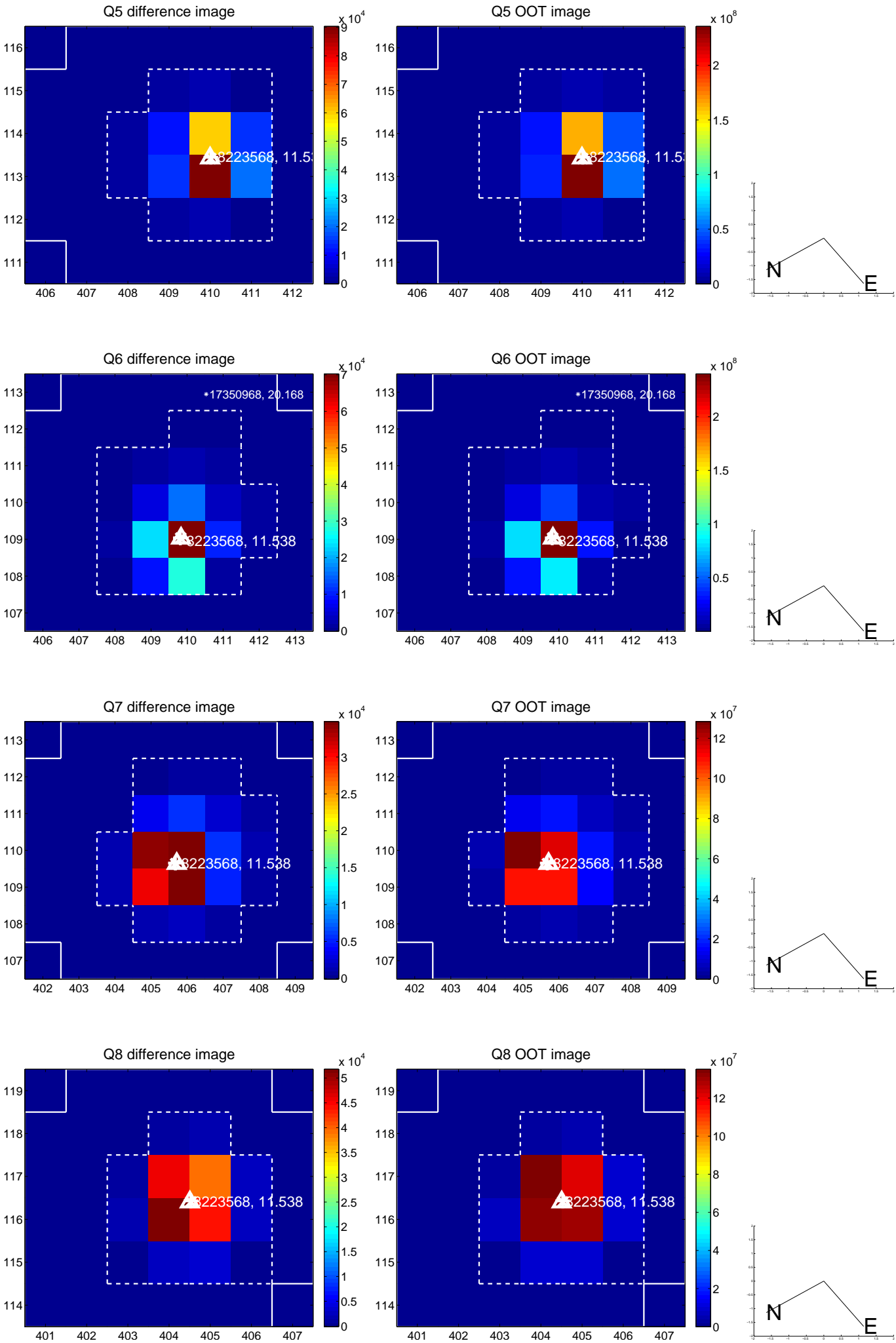


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

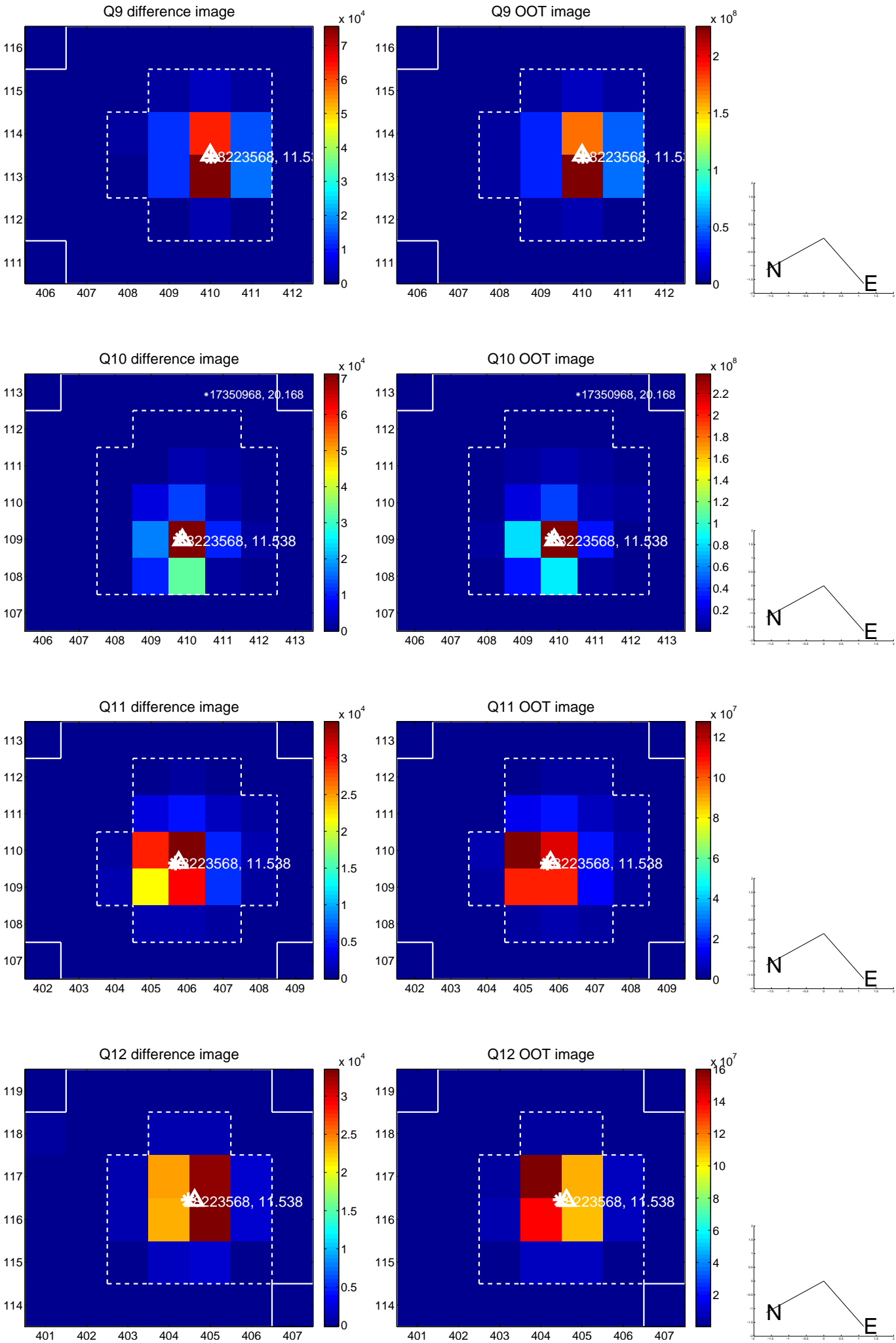
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



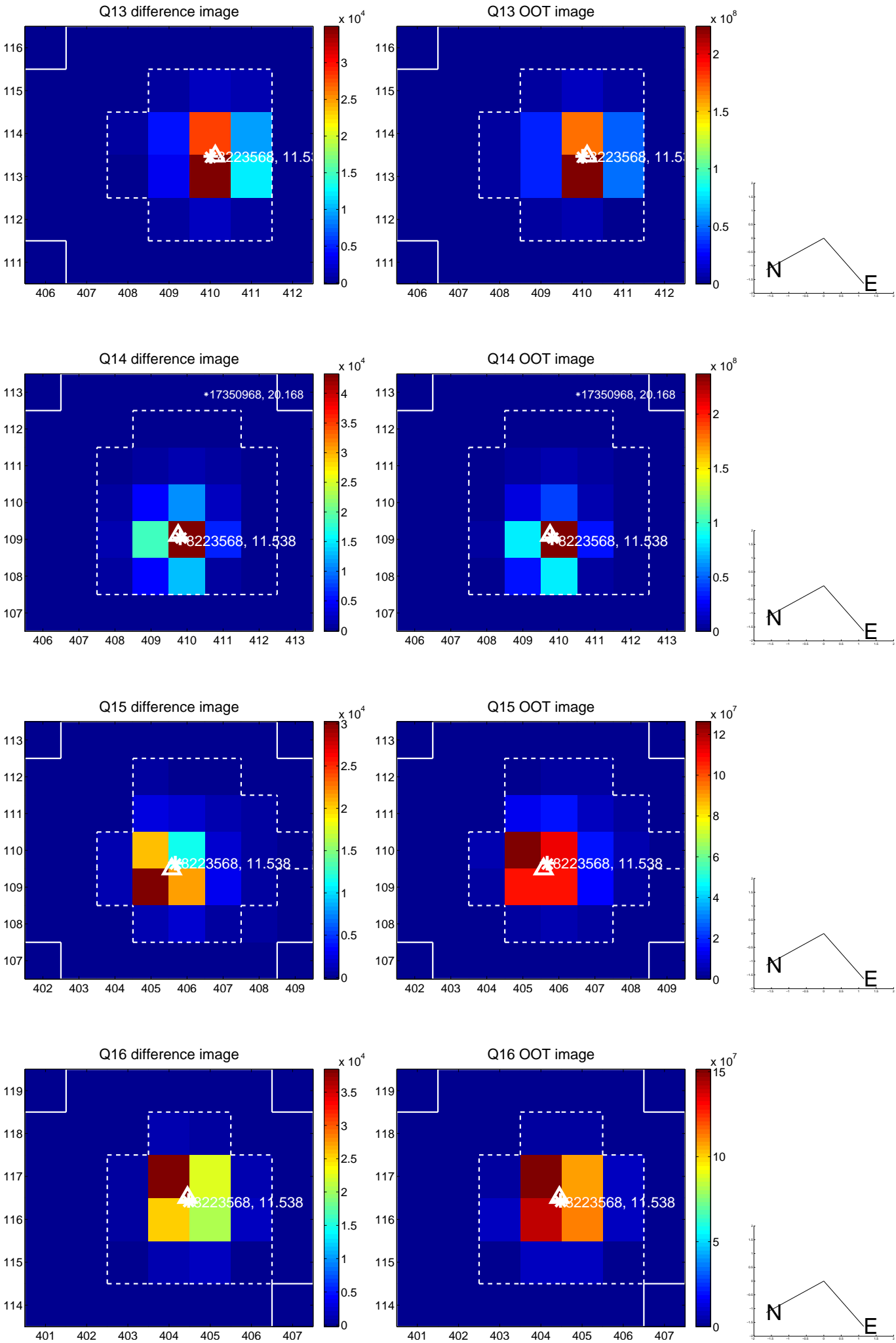
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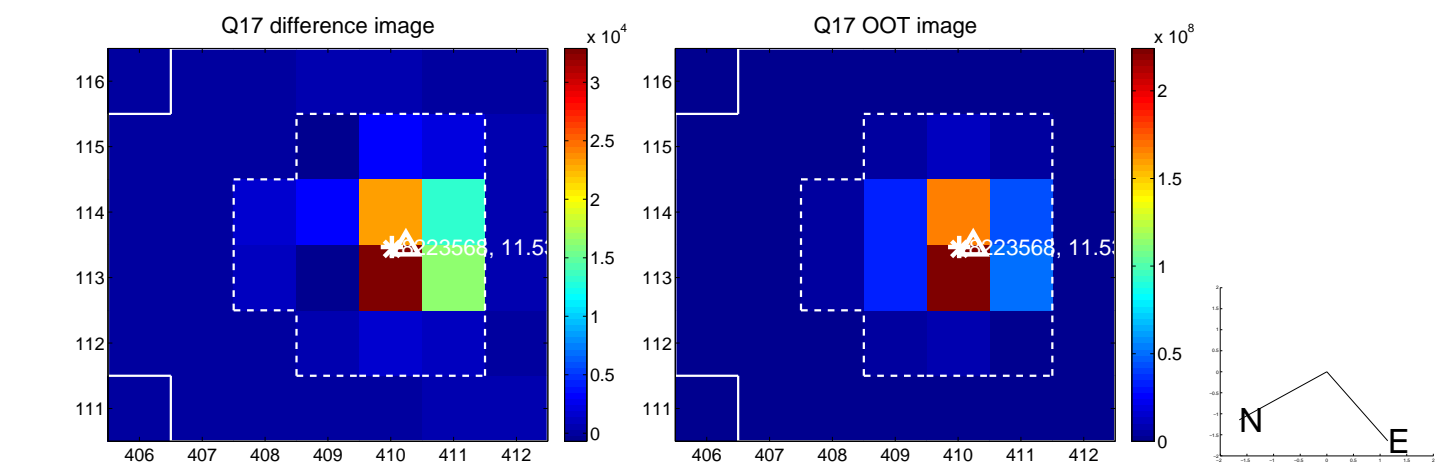
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



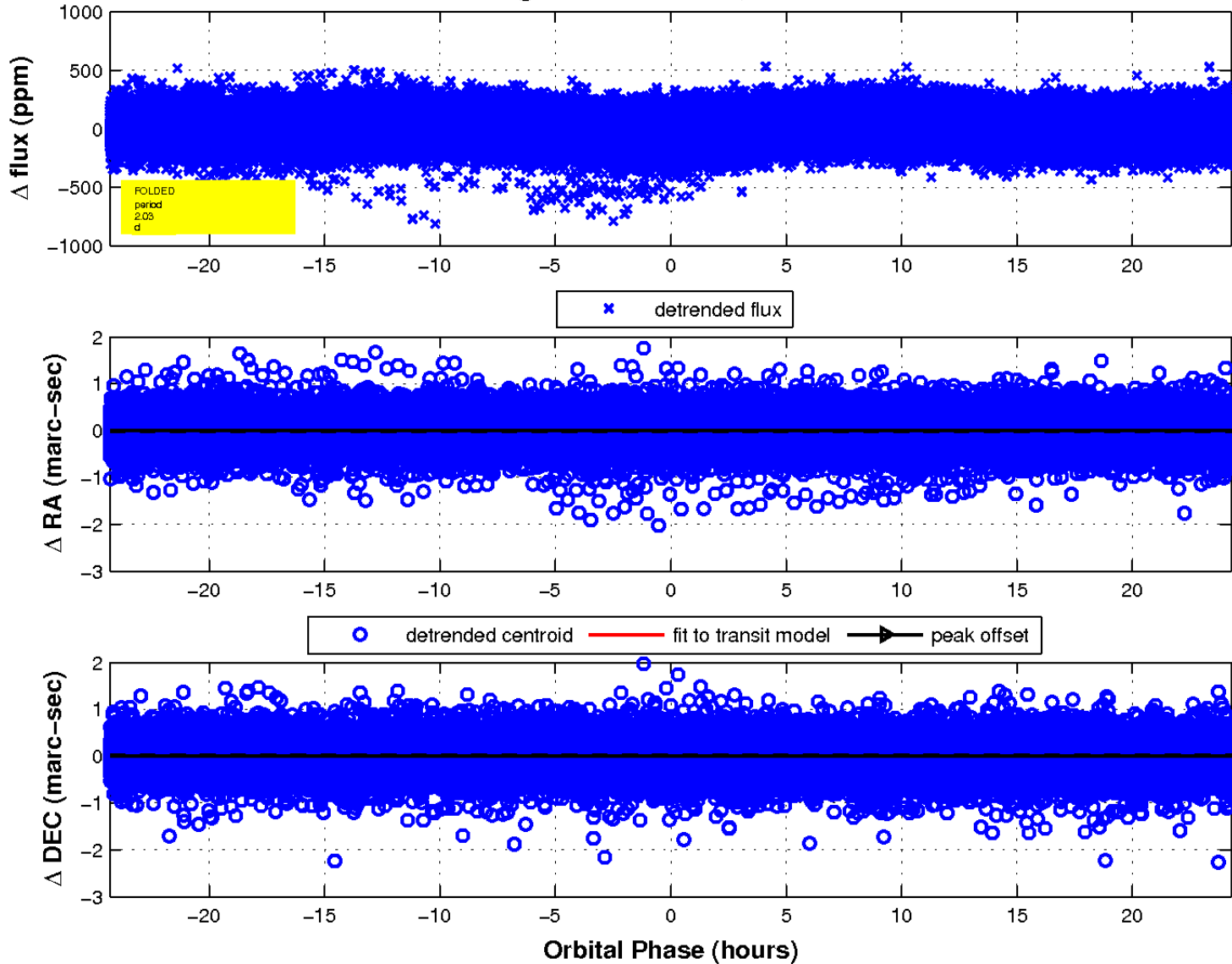
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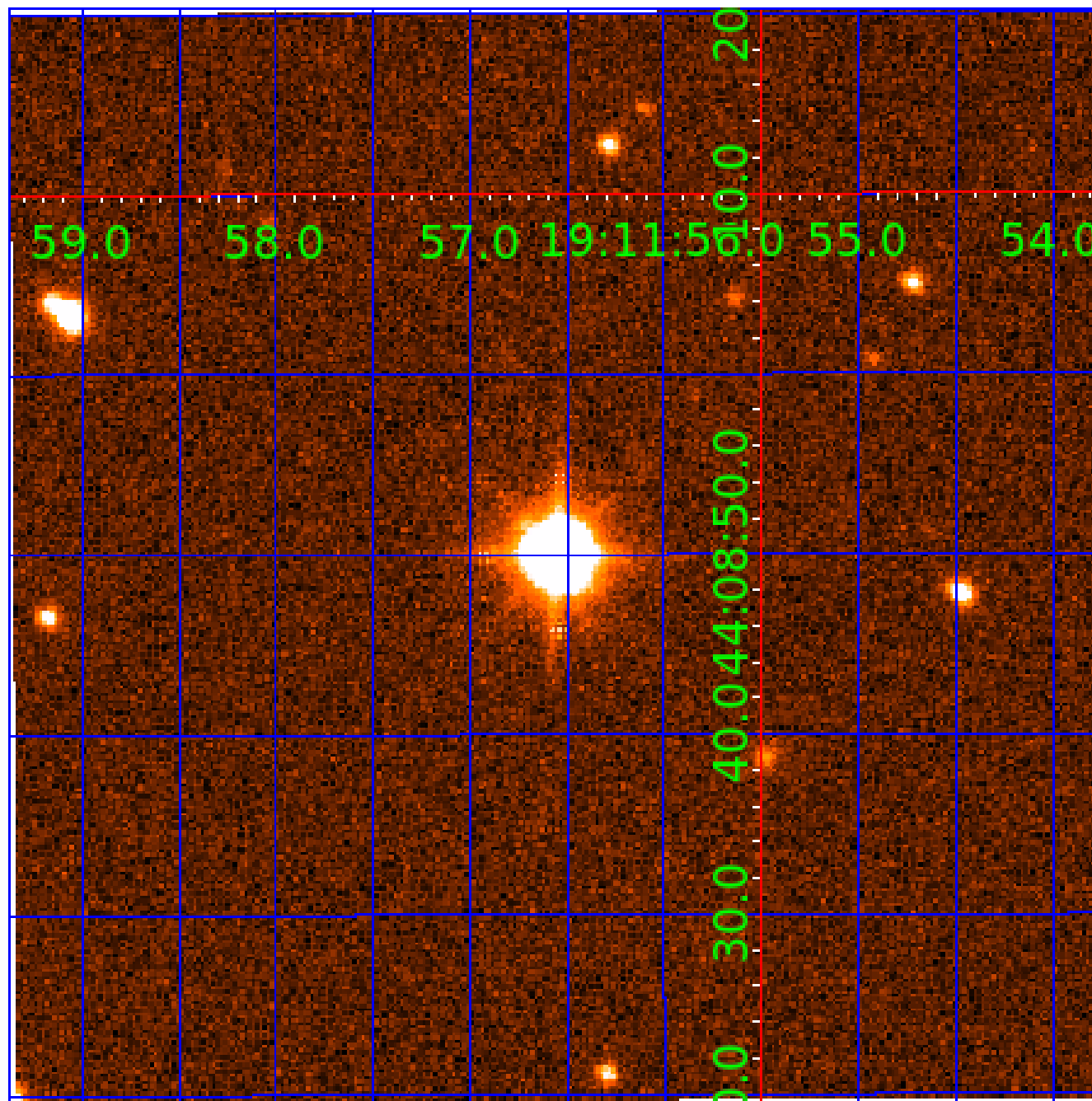


fluxWeightedCentroids, Planet 1 of 8



UKIRT Image

Declination



KIC 008223568

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})
008223568-01	OBS	No	2.025610	132.782607	25.7	8.949	14.7	12.7	1.31	6726	0.68	2618.35
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Robovetter Results

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008223568-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008223568-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
008223568-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008223568-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008223568-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008223568-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNCERTAIN
008223568-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_DIFFS
008223568-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

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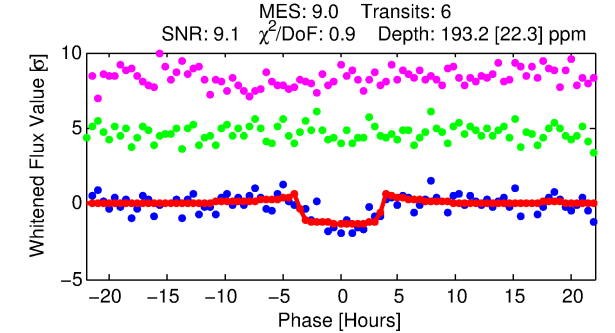
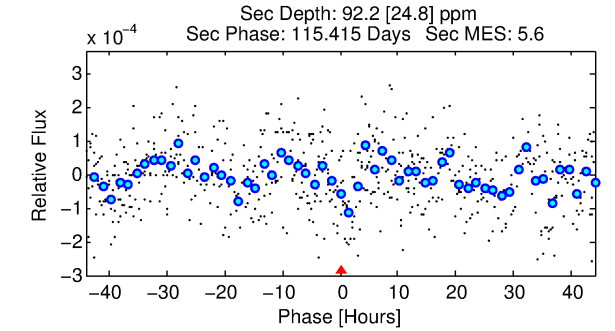
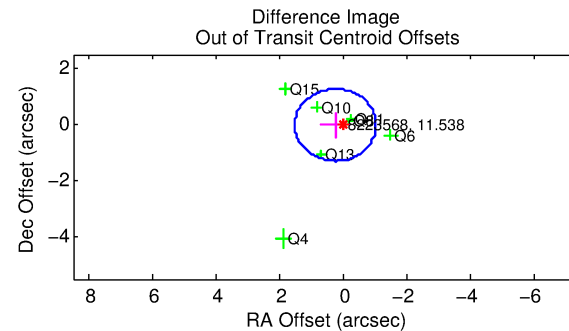
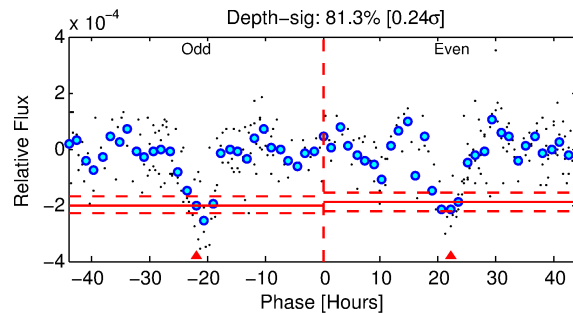
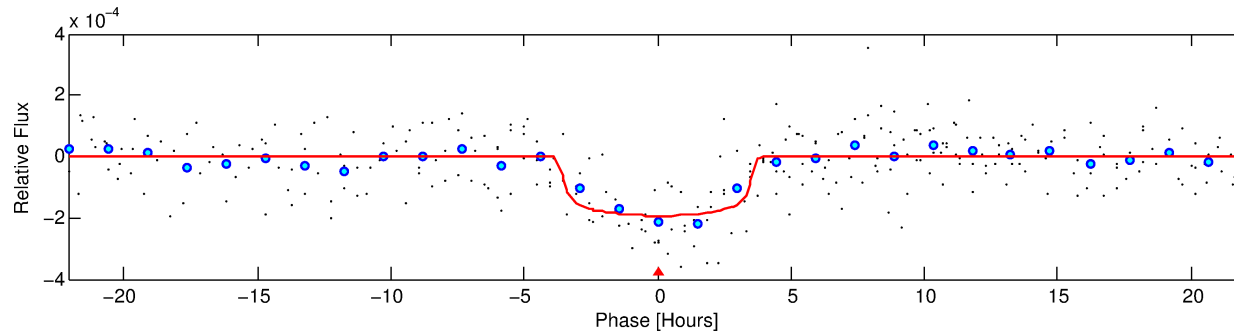
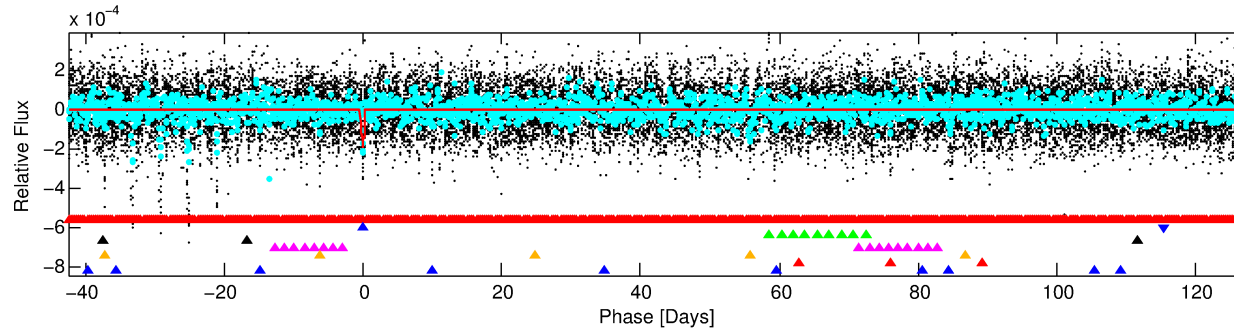
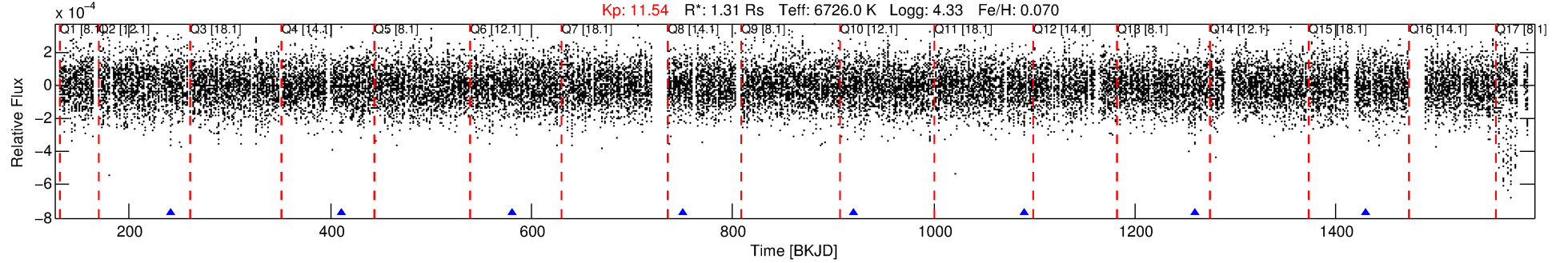
Ephemeris Match Information For 008223568-02

No Significant Match Found

DV One-Page Summary

KIC: 8223568 Candidate: 2 of 8 Period: 169.793 d
KOI: K06176 Corr: No Ephemeris Match

Kp: 11.54 R*: 1.31 Rs Teff: 6726.0 K Logg: 4.33 Fe/H: 0.070



DV Fit Results:

Period = 169.79312 [0.00169] d
Epoch = 241.1033 [0.0076] BKJD
Rp/R* = 0.0139 [0.0057]
a/R* = 116.71 [268.59]
b = 0.77 [1.24]
Seff = 7.14 [1.68]
Teq = 417 [24] K
Rp = 1.99 [0.89] Re
a = 0.6640 [0.0978] AU
Ag = 5669.17 [5079.78] [1.12σ]
Teffp = 5592 [1222] K [4.24σ]

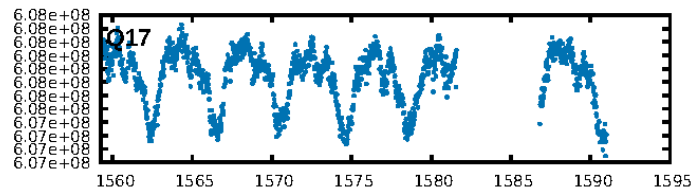
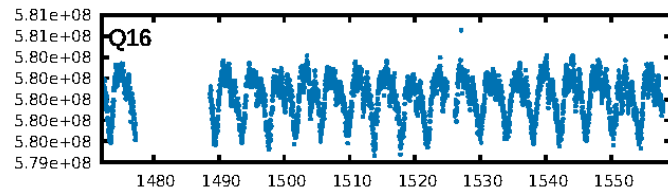
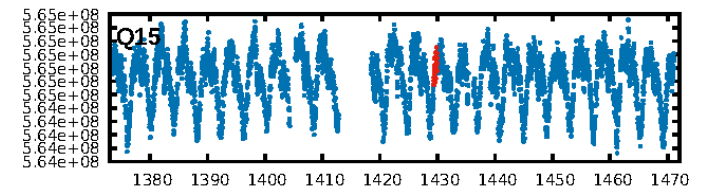
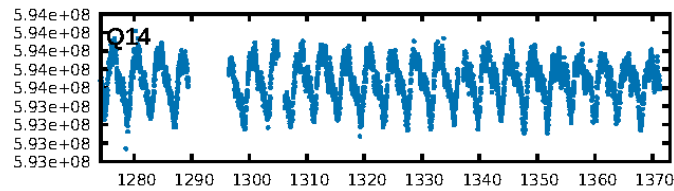
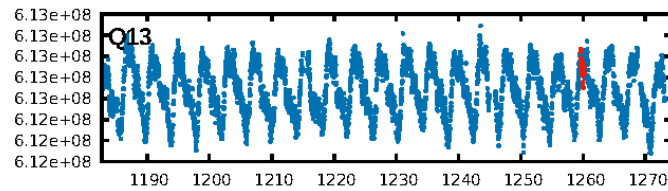
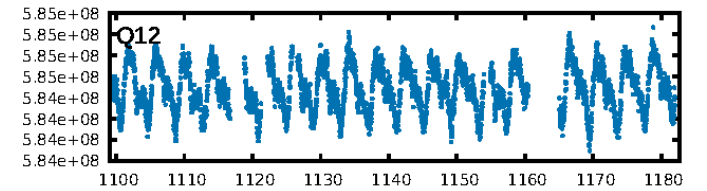
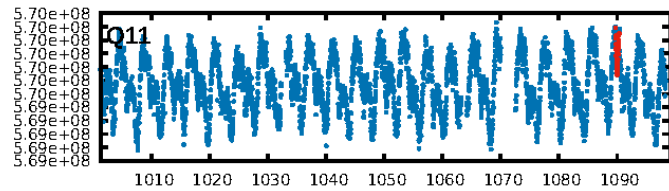
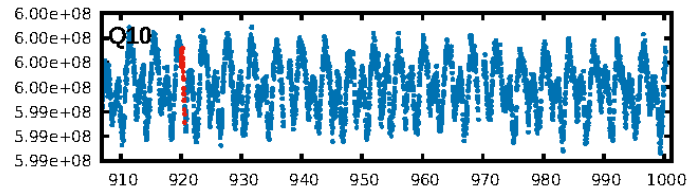
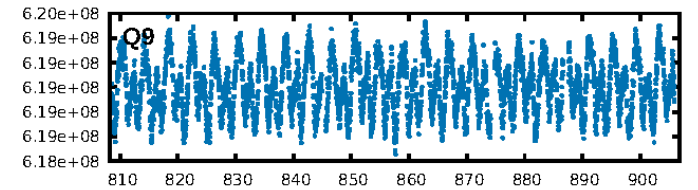
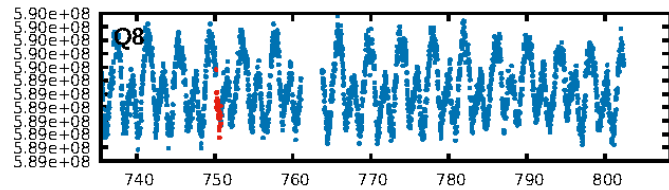
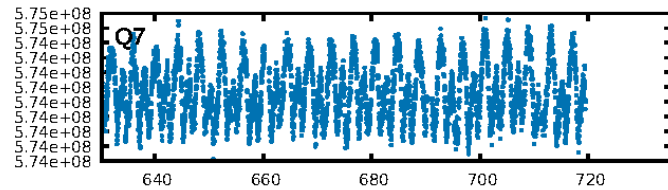
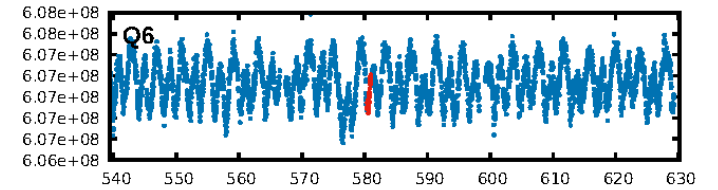
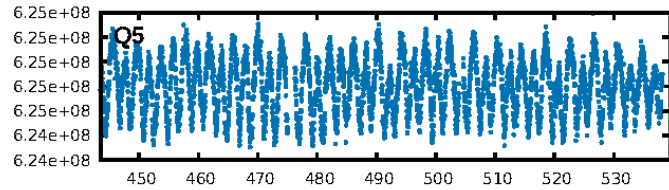
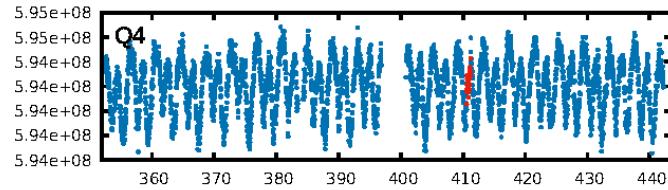
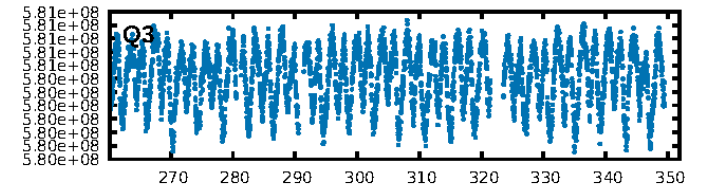
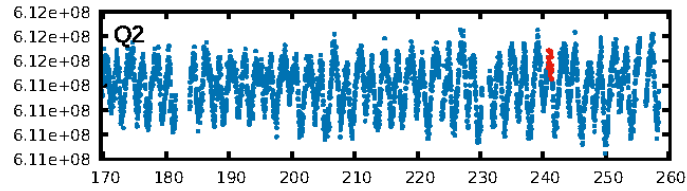
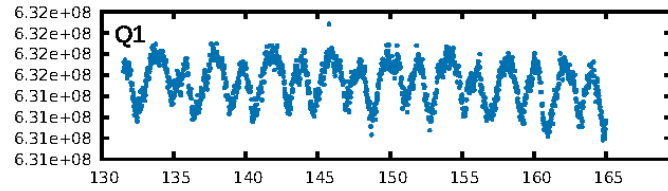
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.99σ]
LongPeriod-sig: 100.0% [280.33σ]
ModelChiSquare2-sig: 90.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 2.858
Centroid-sig: 4.8%
Centroid-so: 0.837 arcsec [1.93σ]
OotOffset-rm: 0.255 arcsec [0.60σ]
KicOffset-rm: 0.182 arcsec [0.43σ]
OotOffset-st: 2/2/2/1 [7]
KicOffset-st: 2/2/2/1 [7]
DiffImageQuality-fgm: 0.71 [5/7]
DiffImageOverlap-fno: 0.38 [3/8]

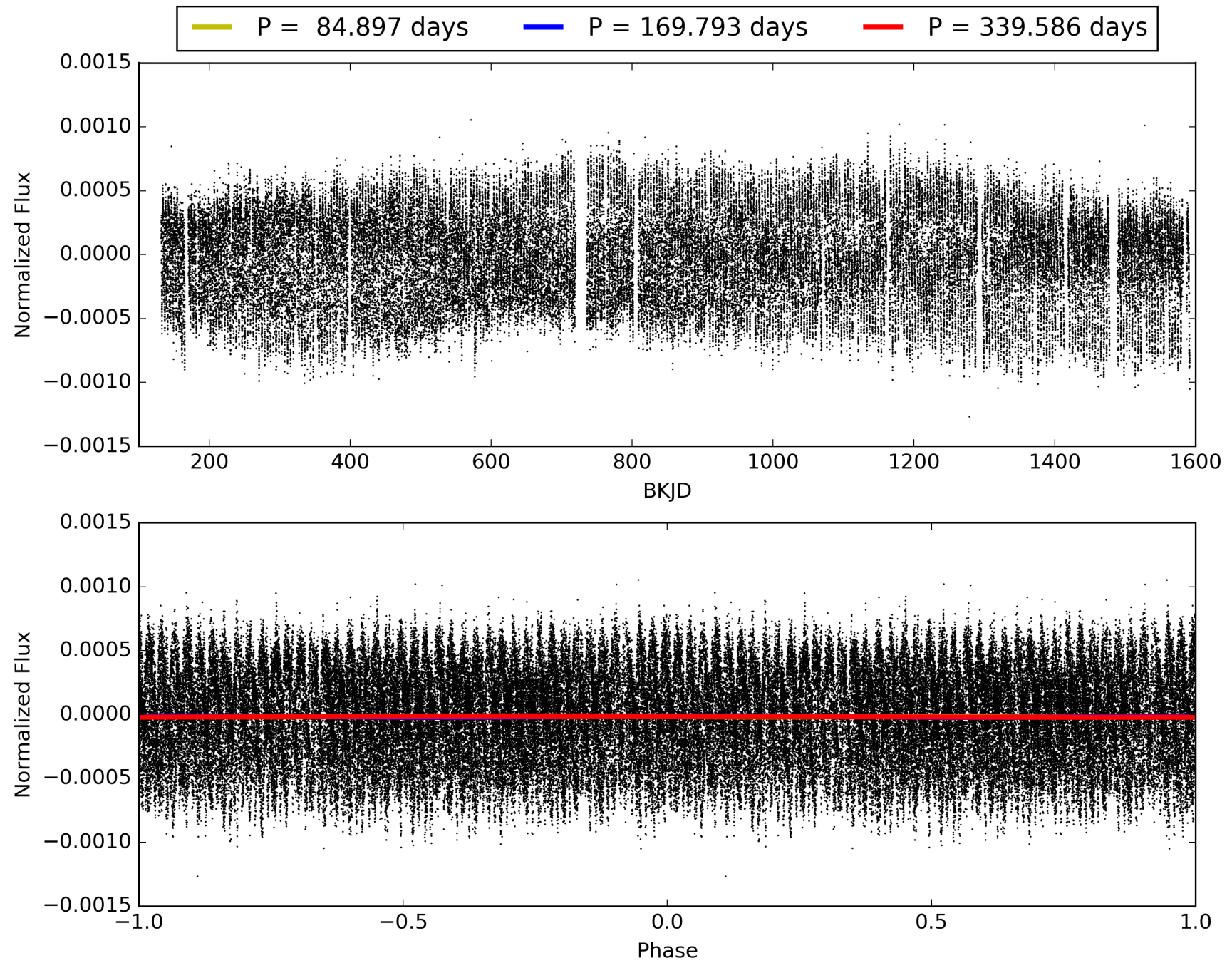
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:02:23 Z

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

TCE 008223568-02, PDC Light Curves

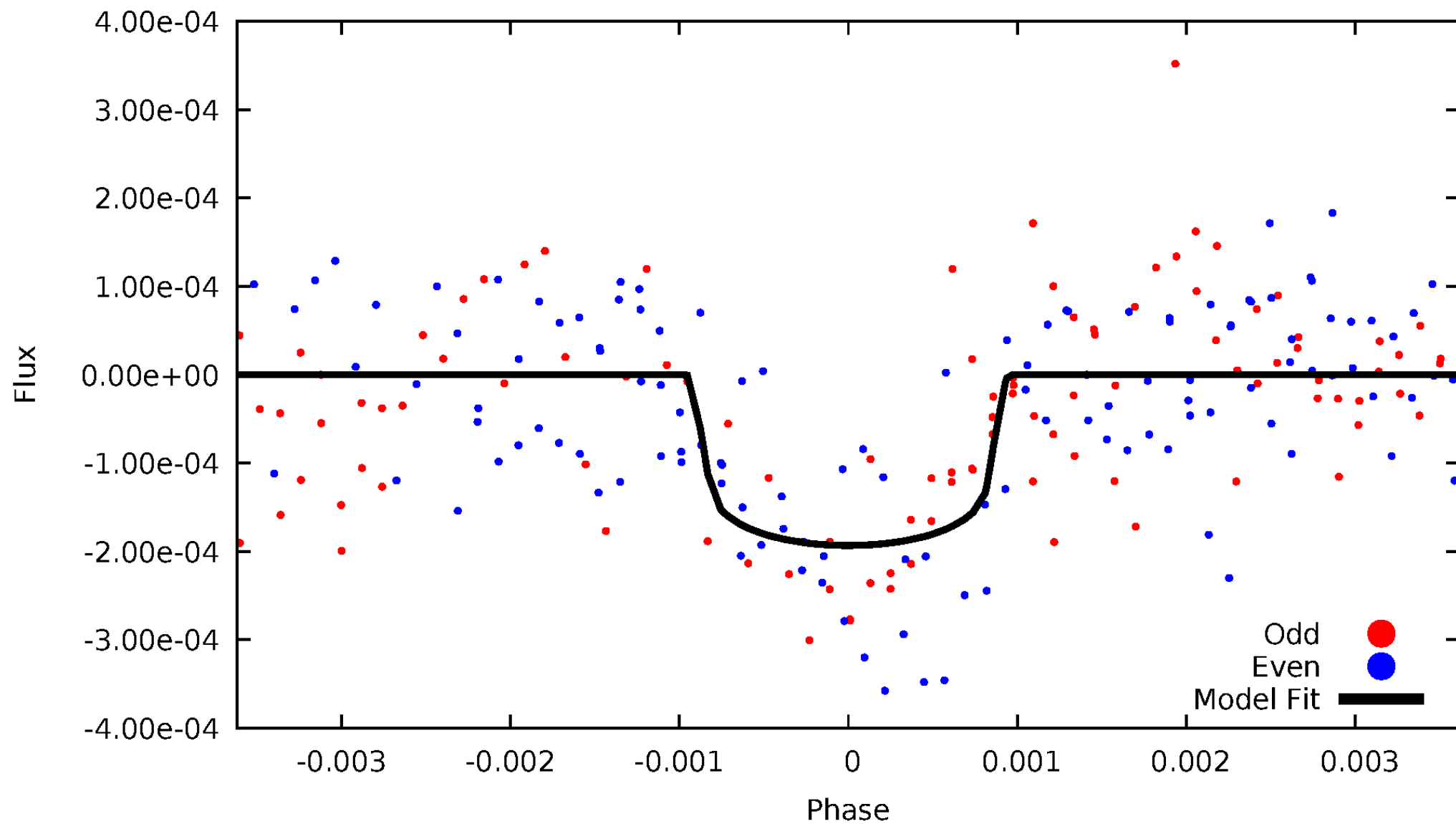


TCE 008223568-02



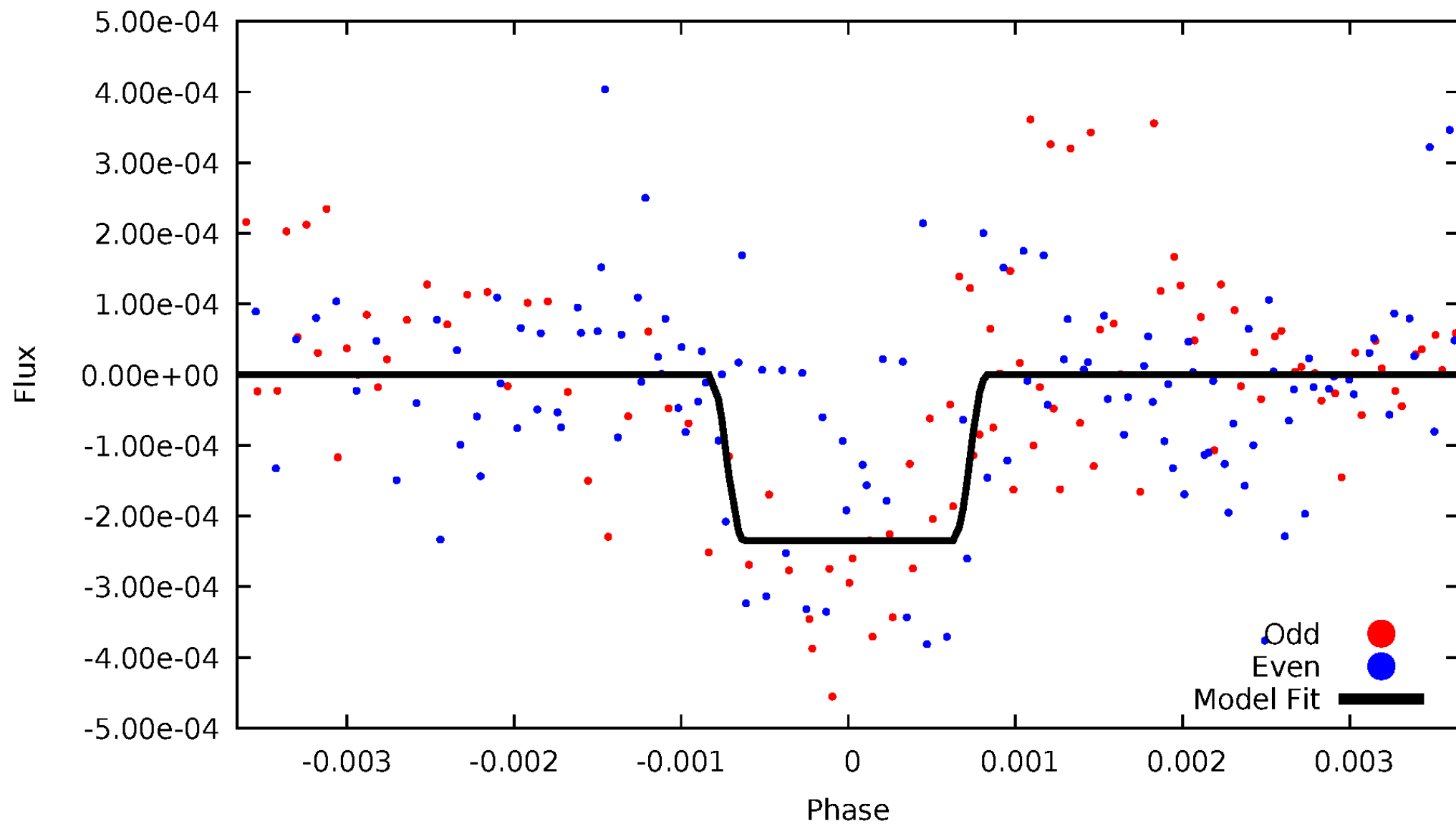
DV Odd/Even

TCE 008223568-02



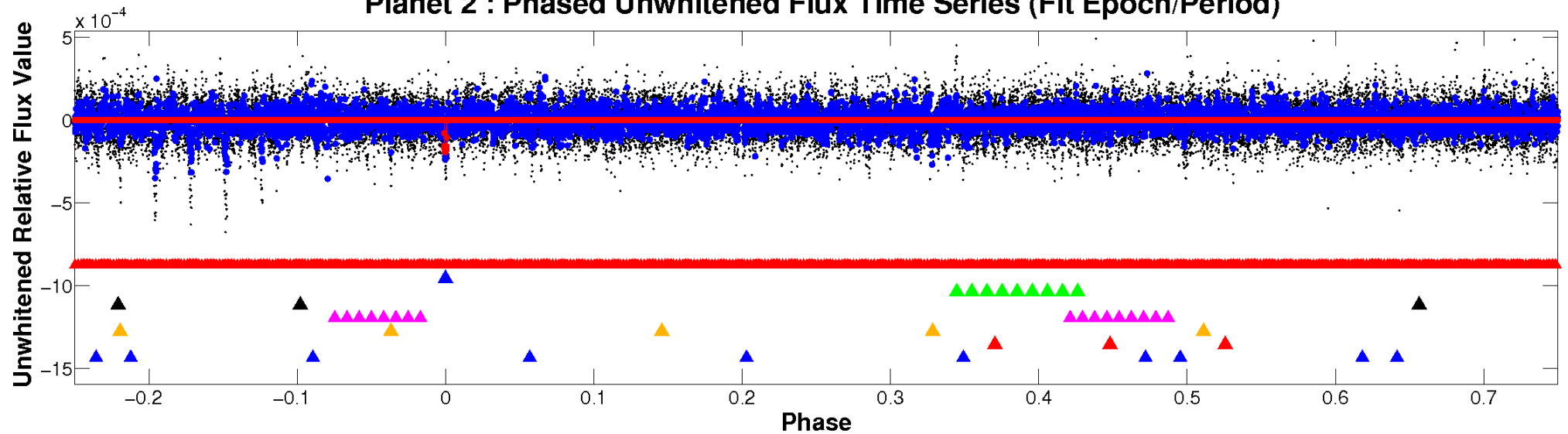
ALT Odd/Even

TCE 008223568-02

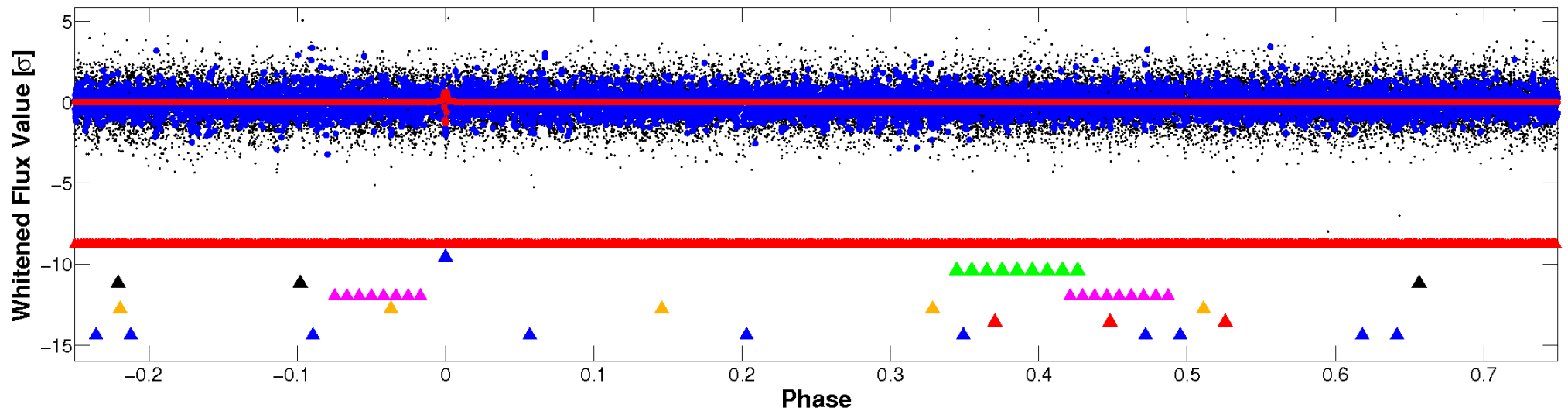


Non-Whitened Vs. Whitened Light Curve

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

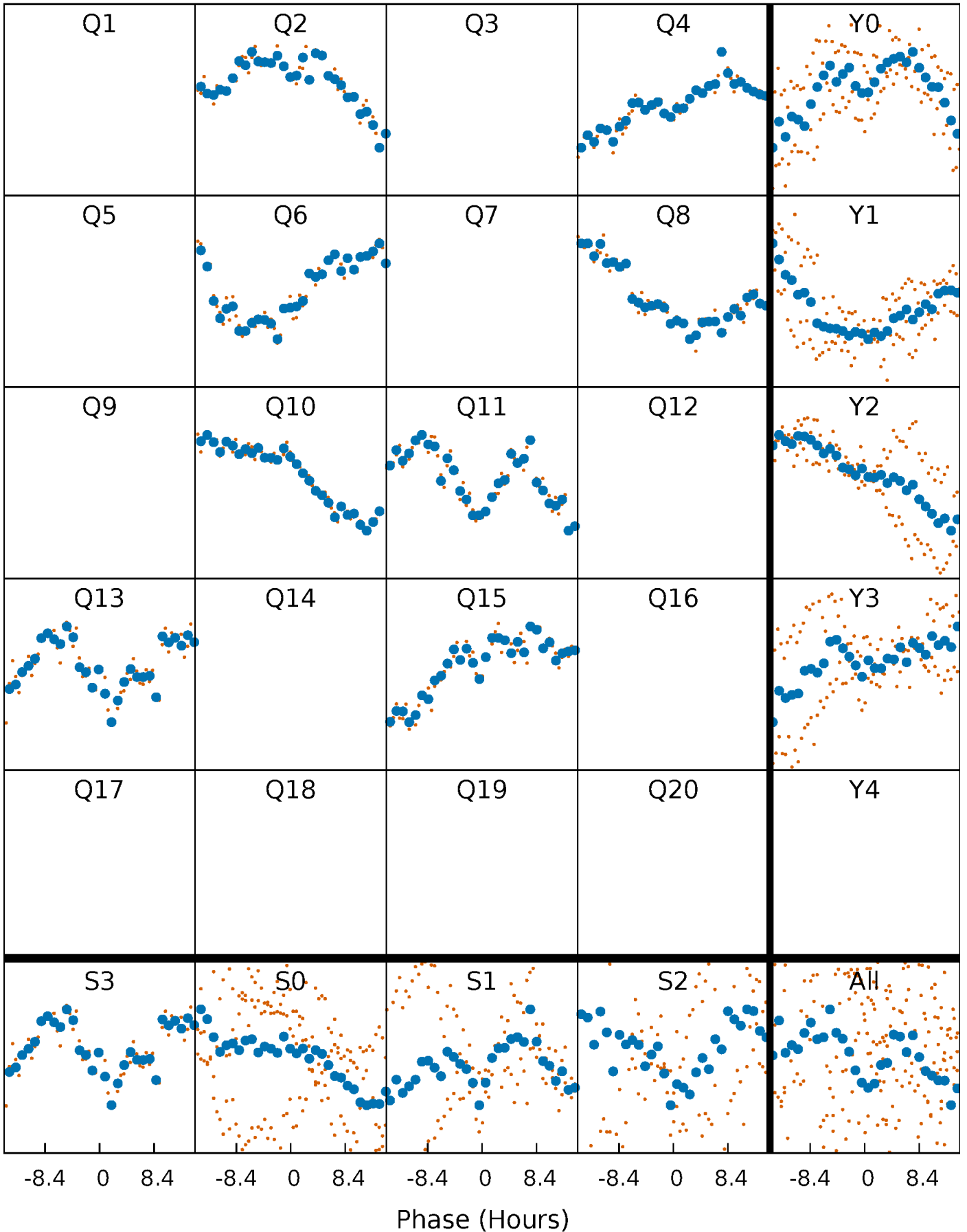


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



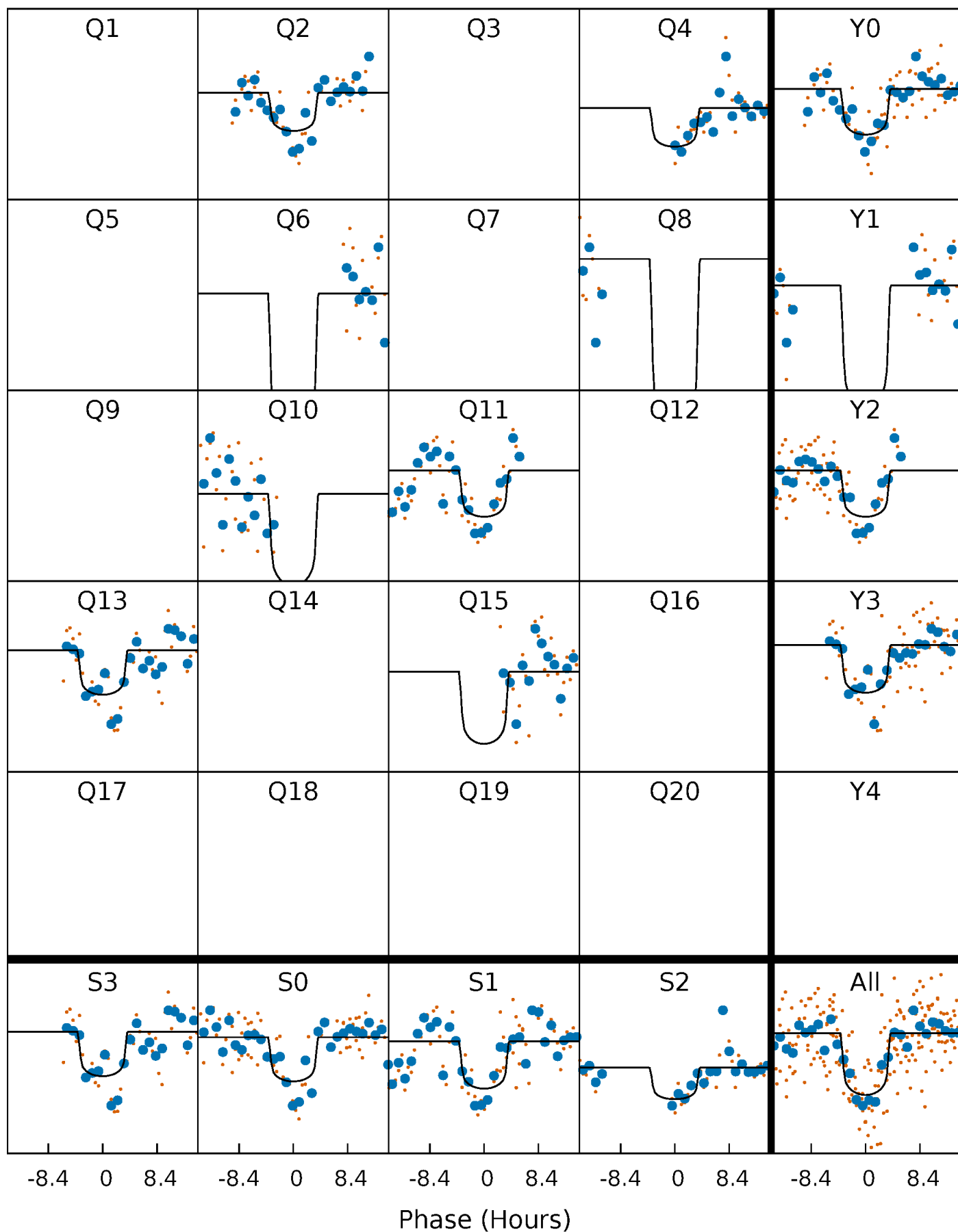
PDC Quarter-Phased Transit Curves

TCE 008223568-02 P=169.793123 Days $T_0=241.103322$ (BKJD)



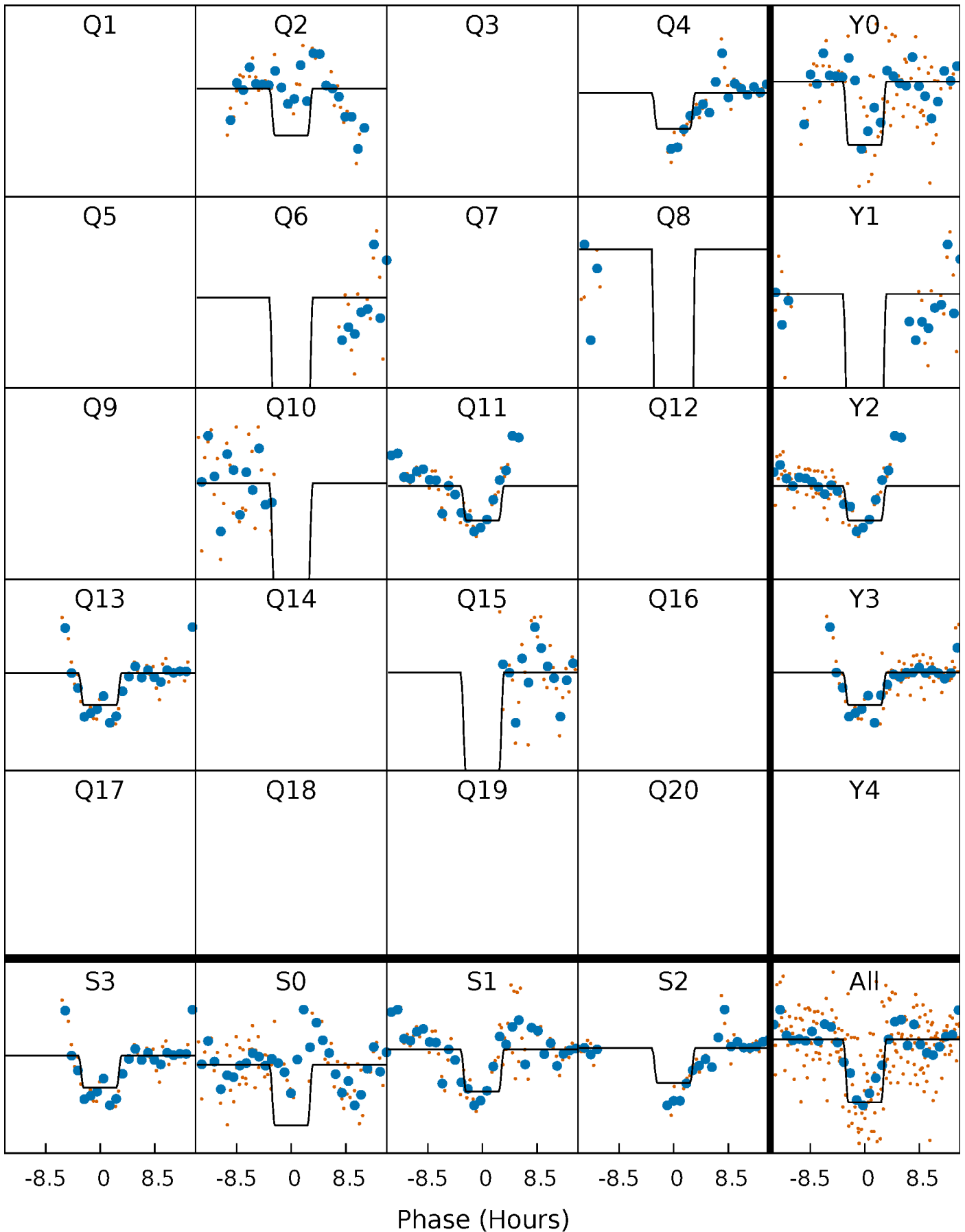
DV Quarter-Phased Transit Curves

TCE 008223568-02 P=169.793123 Days $T_0=241.103322$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

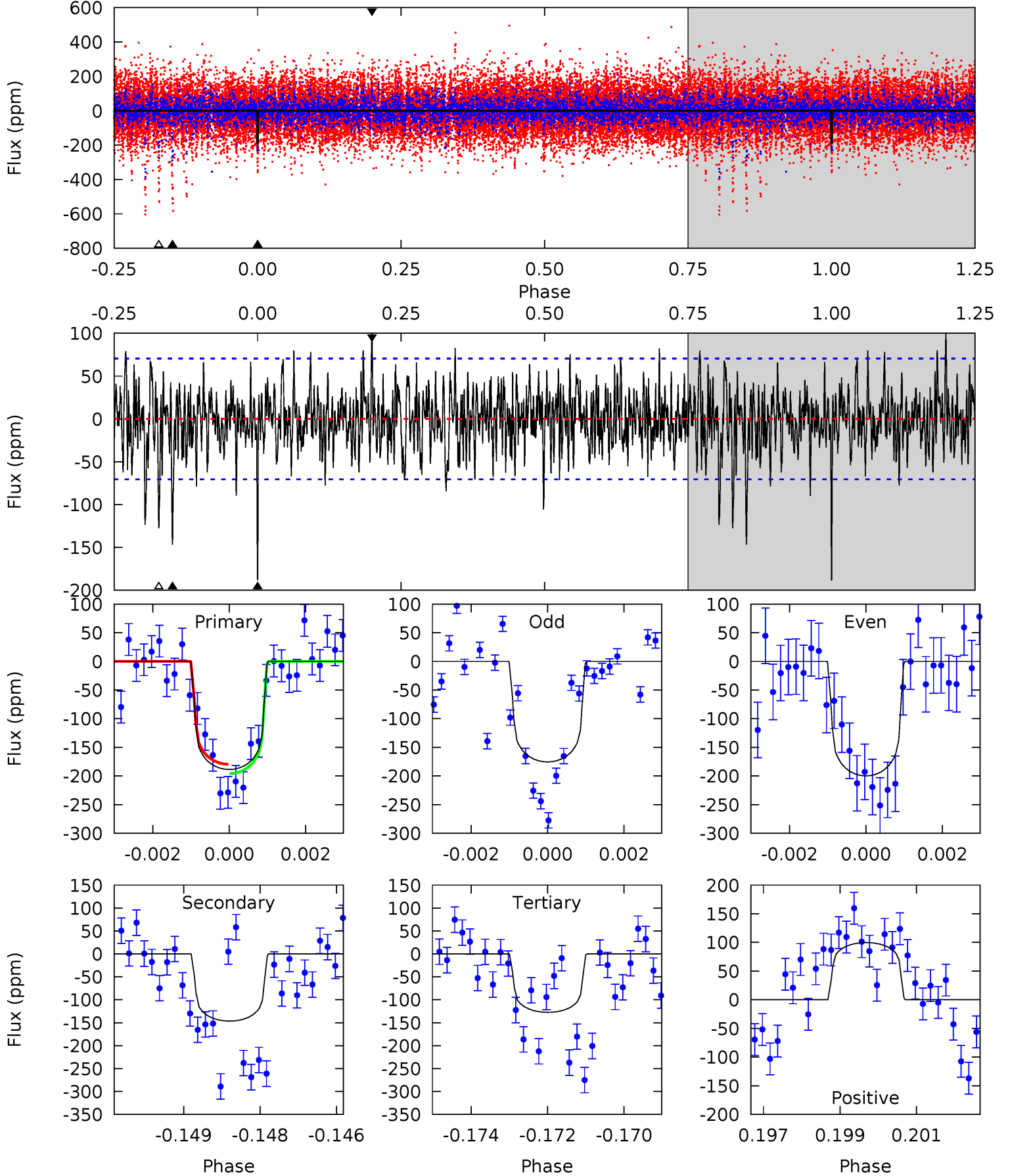
TCE 008223568-02 P=169.788784 Days $T_0=241.125540$ (BKJD)



DV Model-Shift Uniqueness Test

008223568-02, P = 169.793123 Days, E = 71.310199 Days

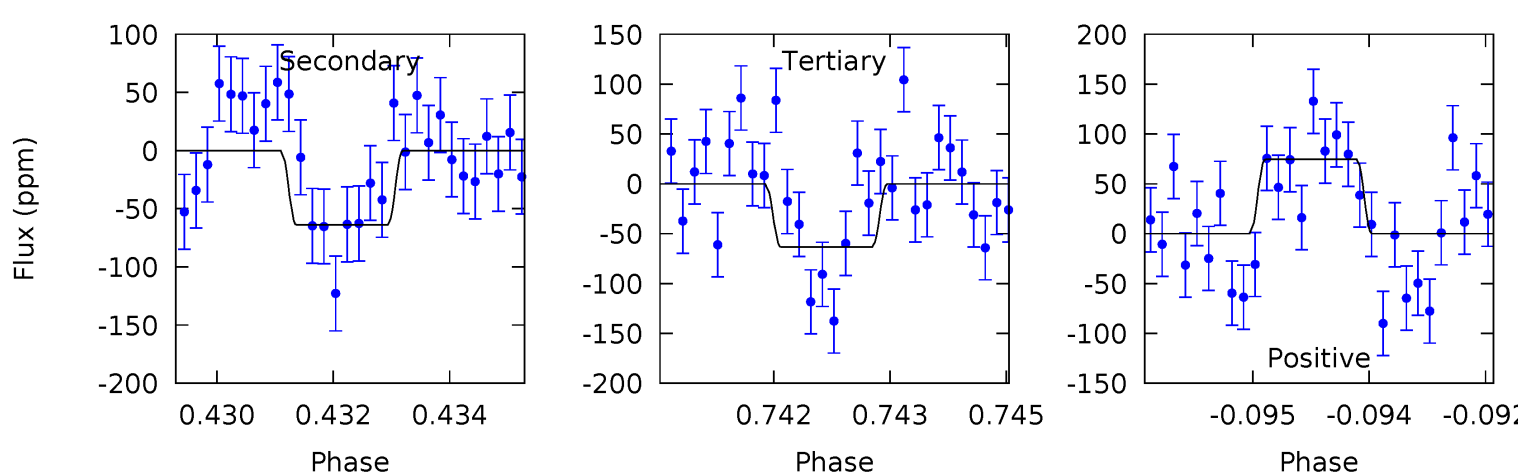
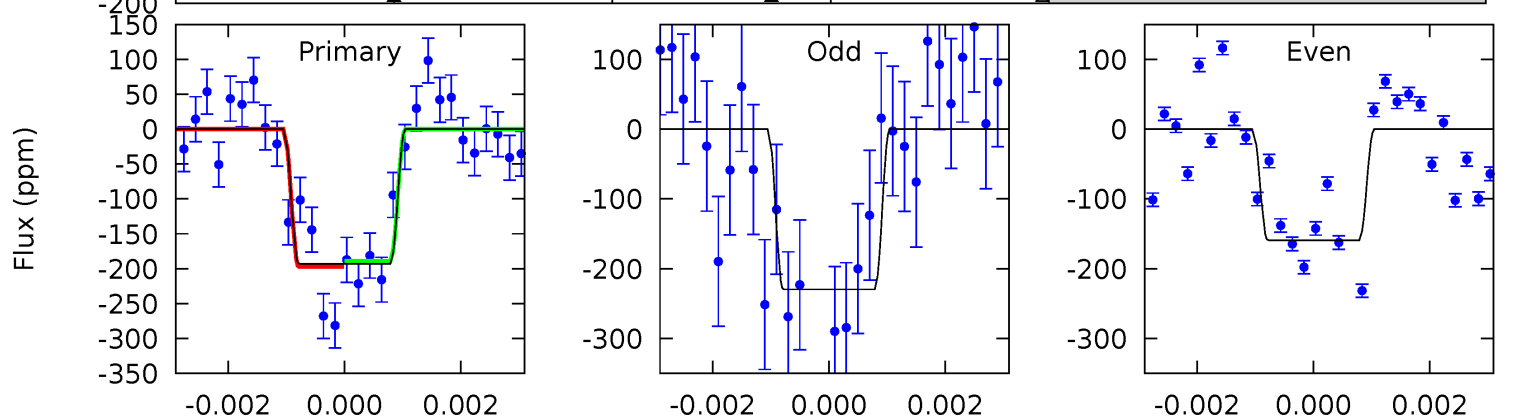
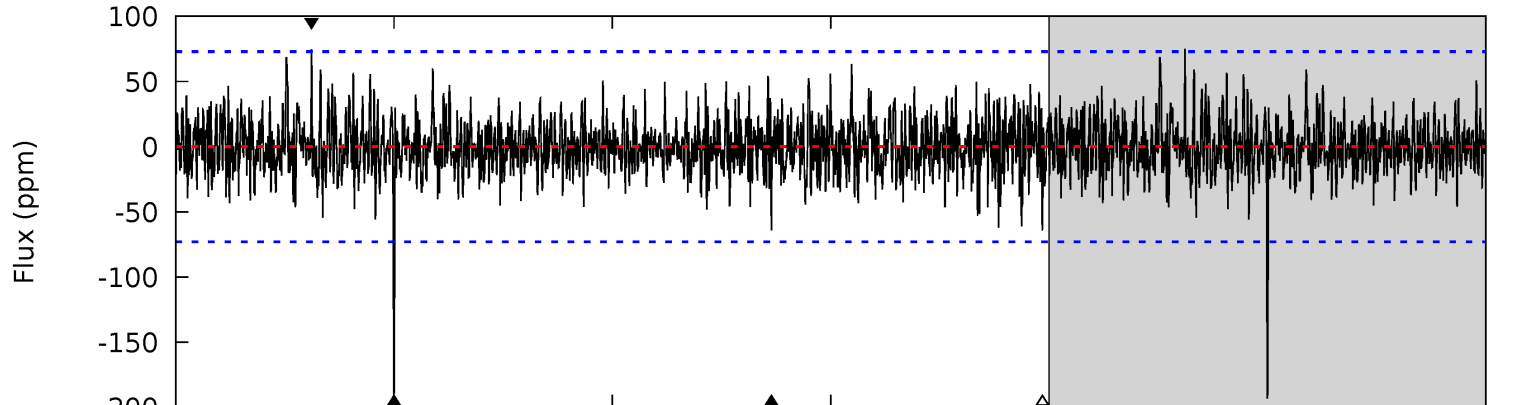
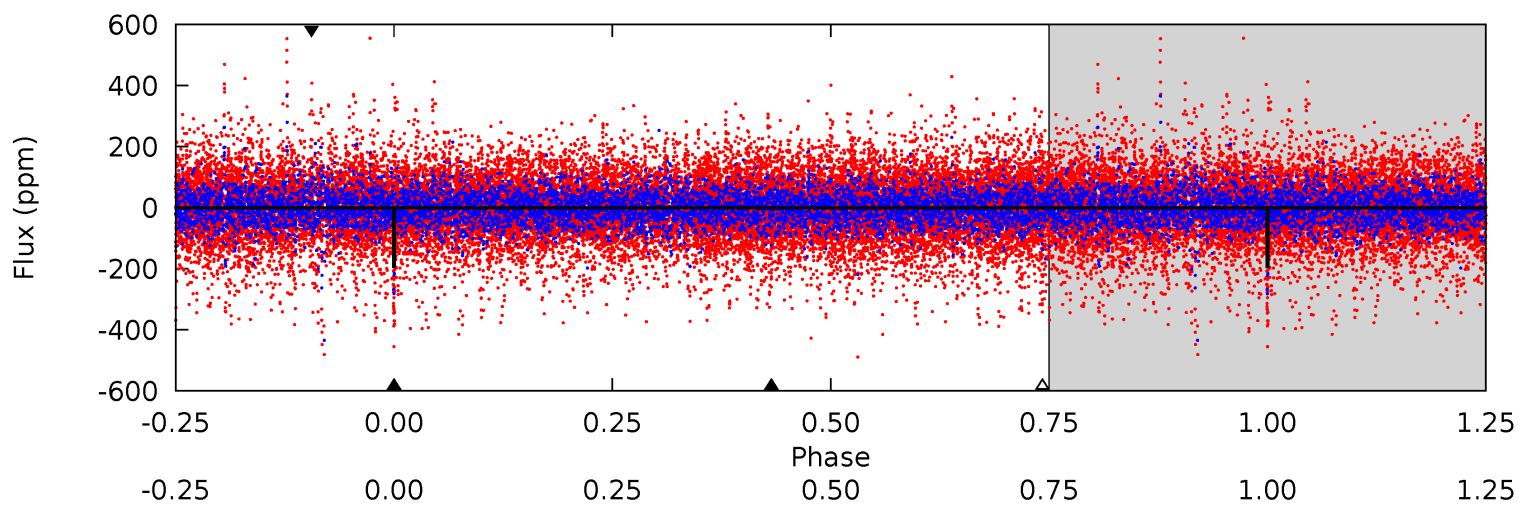
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	11.1	9.64	7.55	5.34	3.11	2.18	4.63	6.73	1.44	3.54	0.92	0.77	0.35	0.61



Alt Model-Shift Uniqueness Test

008223568-02, P = 169.788784 Days, E = 71.336756 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	4.71	4.67	5.48	5.37	3.16	1.35	9.54	8.73	0.04	-0.78	2.59	1.10	0.28	0.31



Stellar Parameters For KIC 008223568

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6726^{+117}_{-150}	$4.335^{+0.032}_{-0.120}$	$0.070^{+0.100}_{-0.200}$	$1.310^{+0.226}_{-0.097}$	$1.354^{+0.075}_{-0.112}$	$0.848^{+0.131}_{-0.298}$
	+2%/-2%	+1%/-3%	+143%/-286%	+17%/-7%	+6%/-8%	+15%/-35%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 008223568-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-147 ± 13	$2.09^{+0.87}_{-0.89}$	590^{+25}_{-20}	6239^{+2250}_{-983}	8080^{+16884}_{-4066}
Alt.	-64 ± 14	$2.20^{+0.85}_{-0.84}$	590^{+24}_{-18}	4945^{+1217}_{-632}	3009^{+5448}_{-1474}

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 $A_{obs} \gg 1.0$

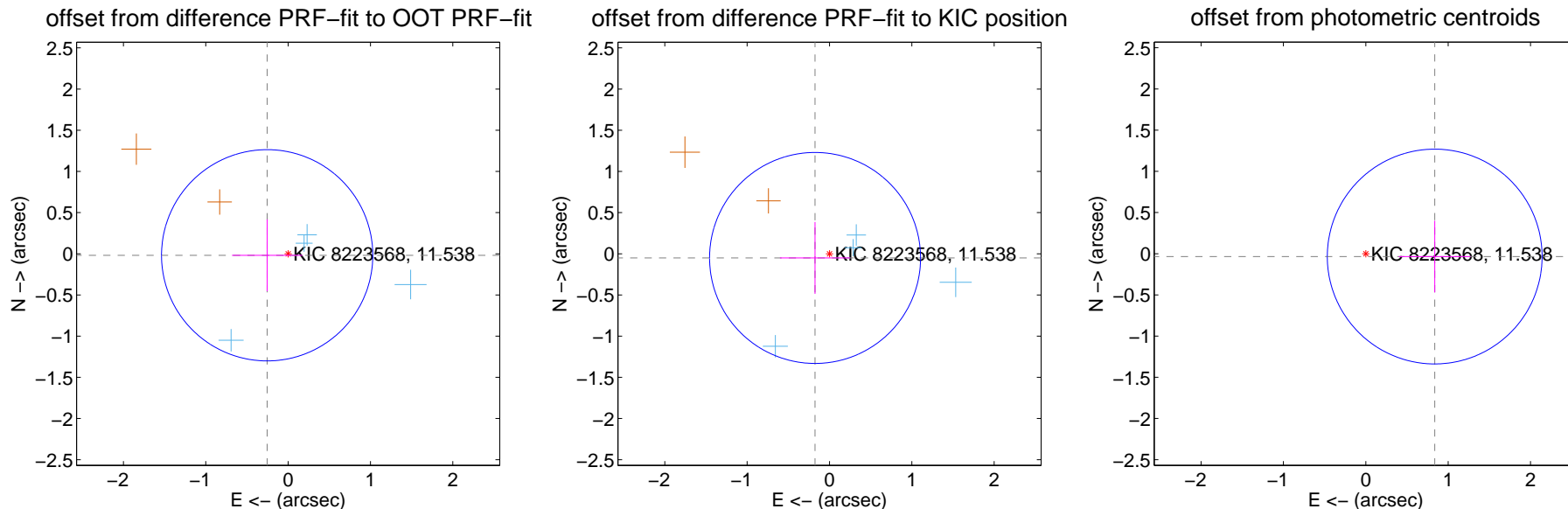
DV Centroid Data

Supplemental centroid analysis for 008223568-02. **Kepler magnitude: 11.54.** Transit SNR 9.11

There are 5 quarters with good PRF difference image offsets

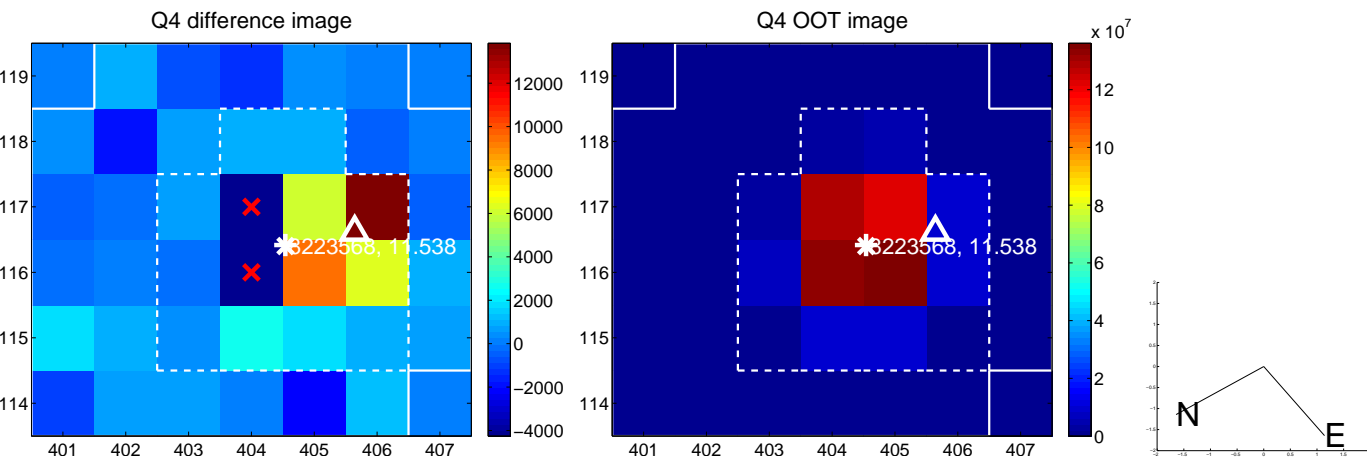
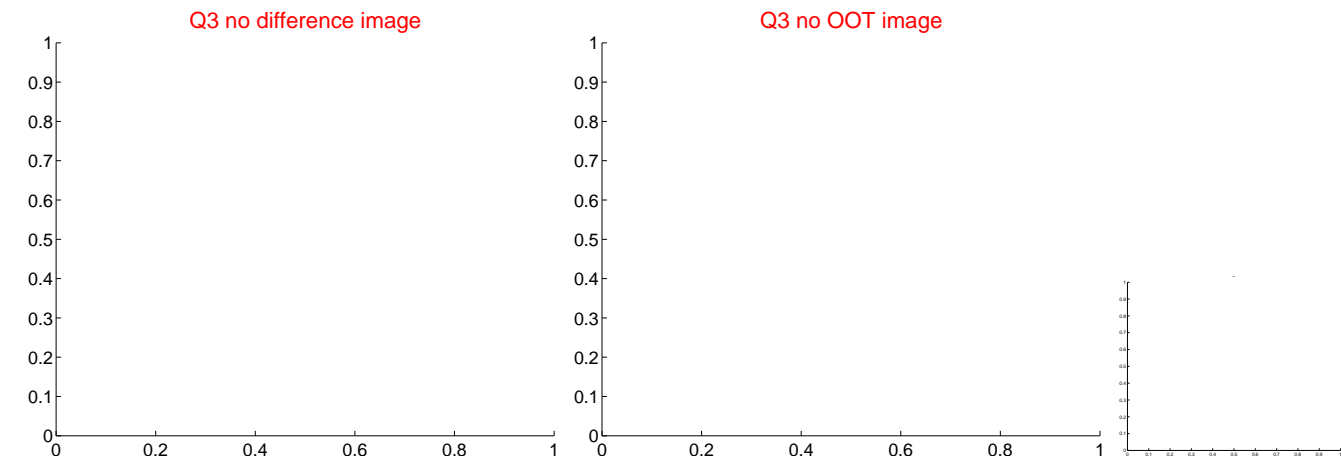
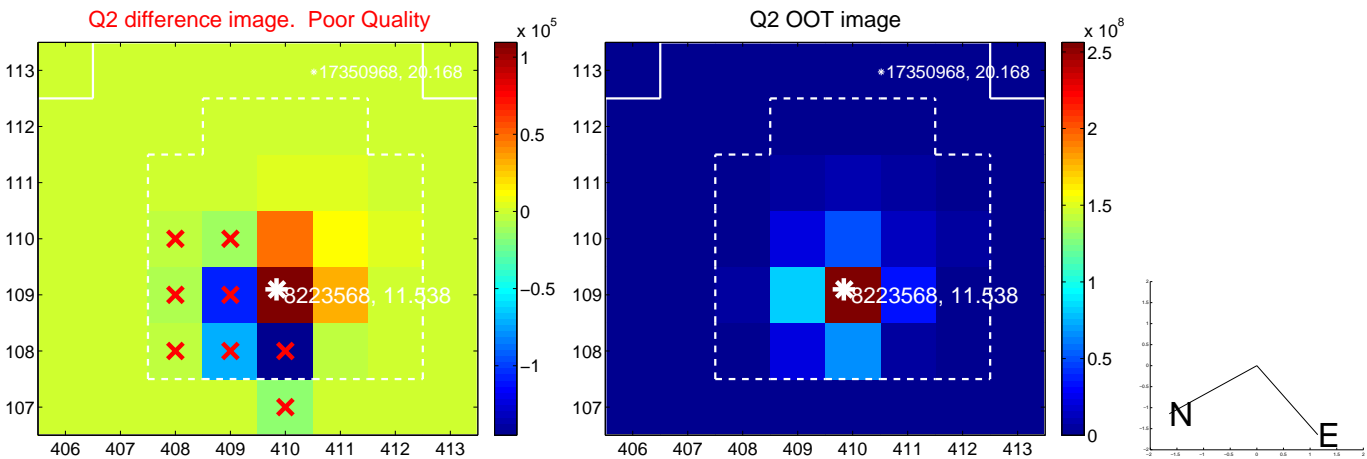
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.255 ± 0.428	0.60	0.255 ± 0.427	-0.018 ± 0.436
PRF-fit source offset from KIC position	0.182 ± 0.427	0.43	0.175 ± 0.426	-0.051 ± 0.436
photometric centroid source offset	0.84 ± 0.43	1.93	-0.84 ± 0.43	-0.03 ± 0.44



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.

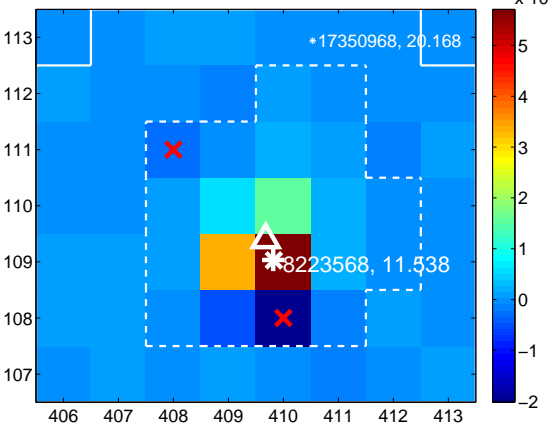
Q5 no difference image



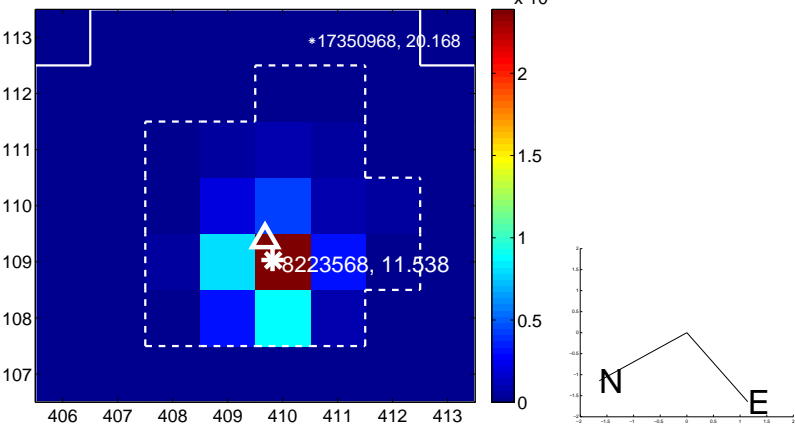
Q5 no OOT image



Q6 difference image



Q6 OOT image



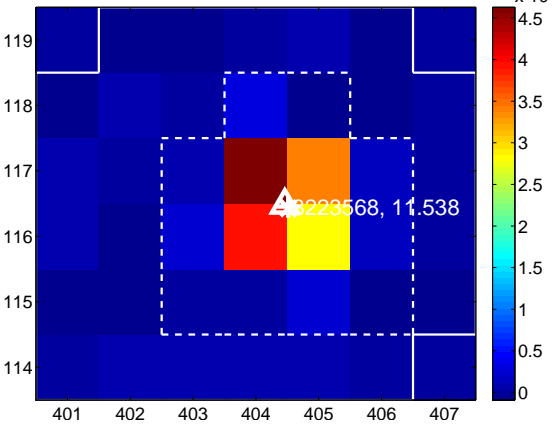
Q7 no difference image



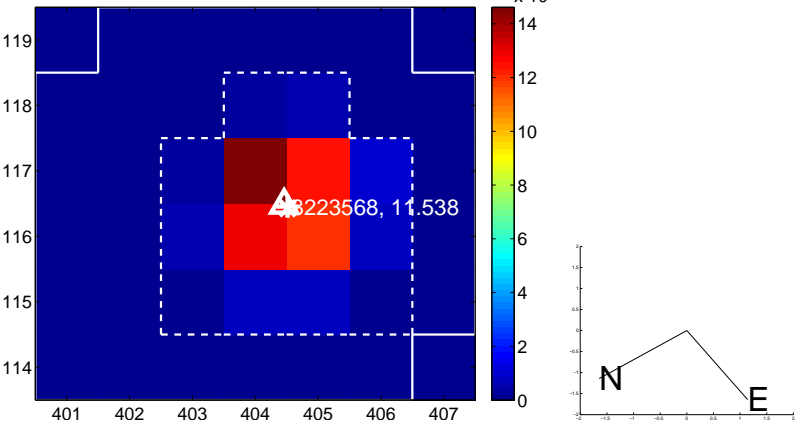
Q7 no OOT image



Q8 difference image



Q8 OOT image



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

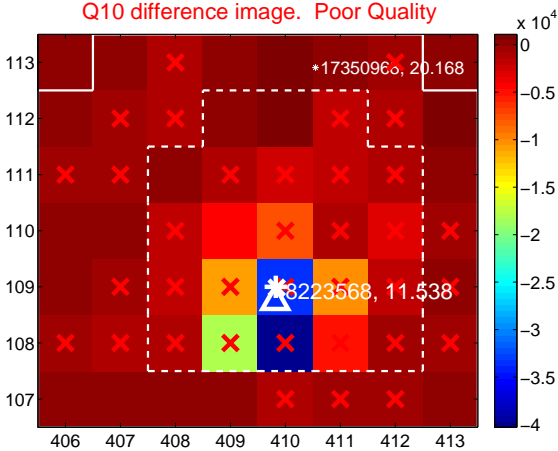
Q9 no difference image



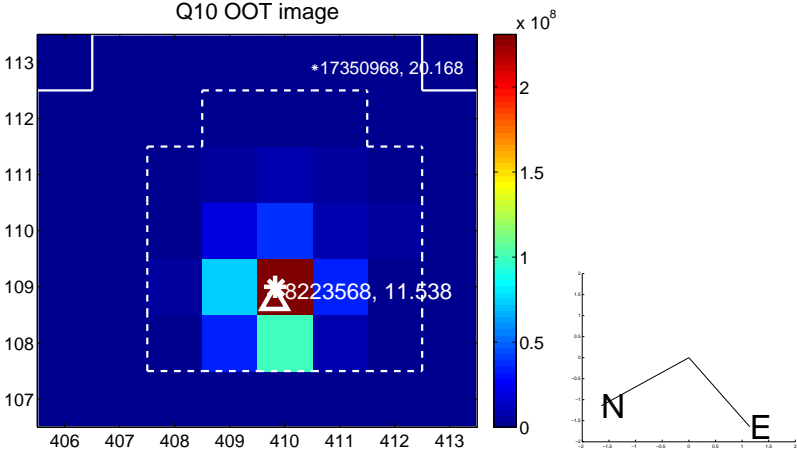
Q9 no OOT image



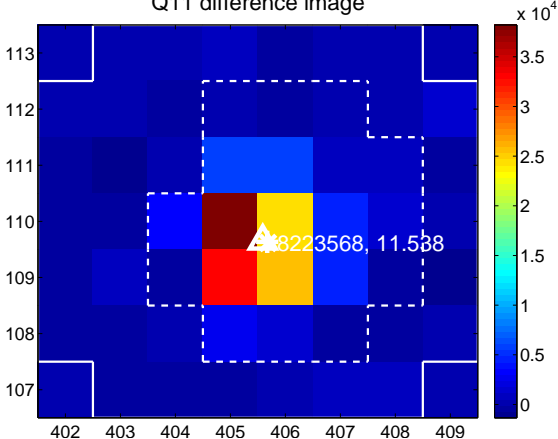
Q10 difference image. Poor Quality



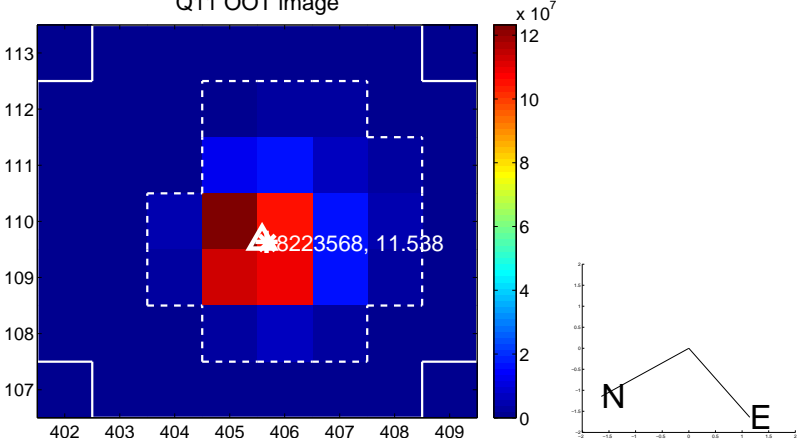
Q10 OOT image



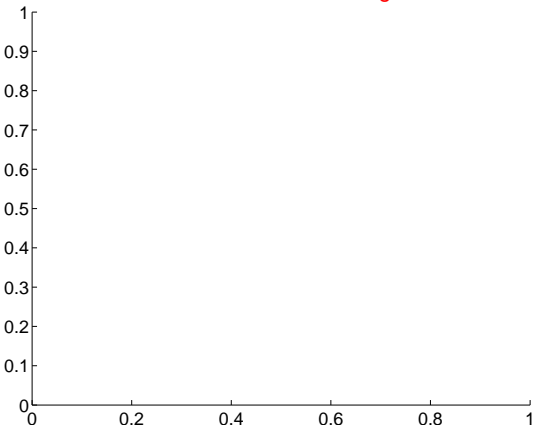
Q11 difference image



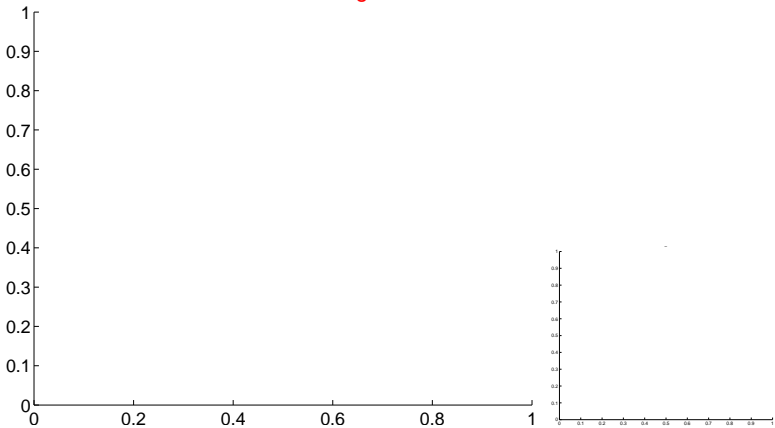
Q11 OOT image



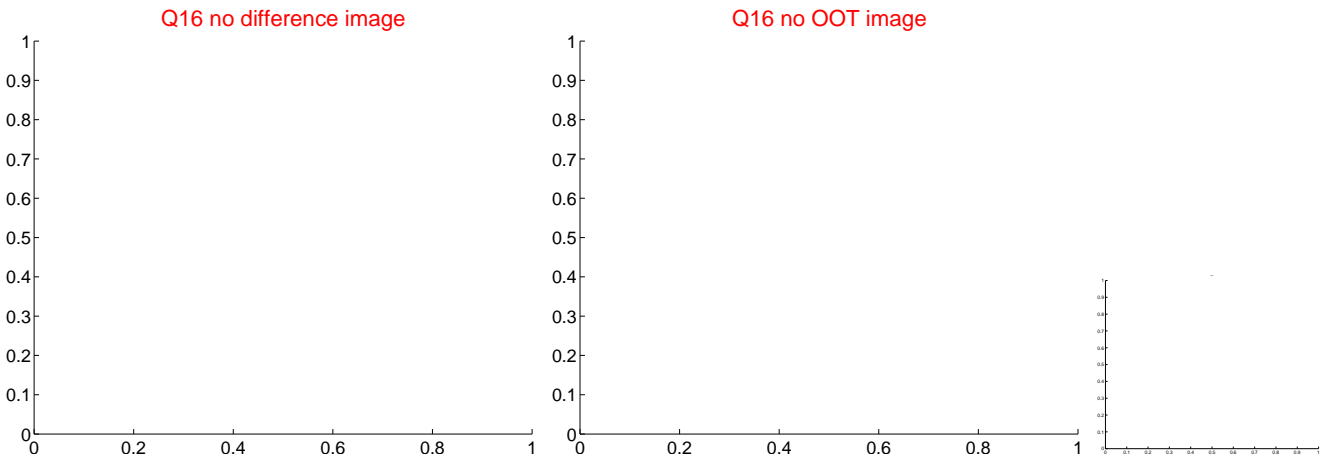
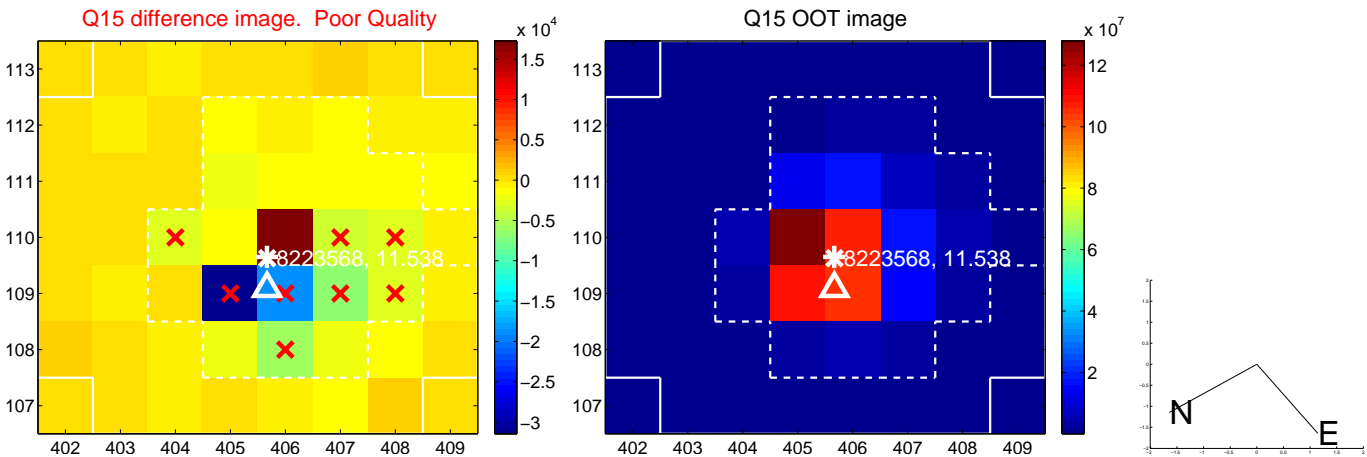
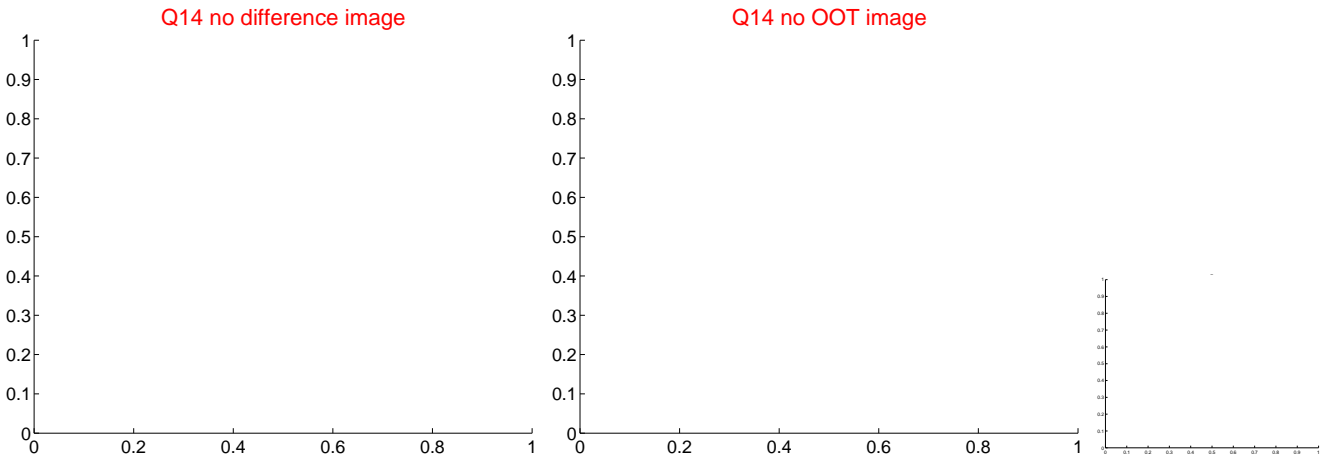
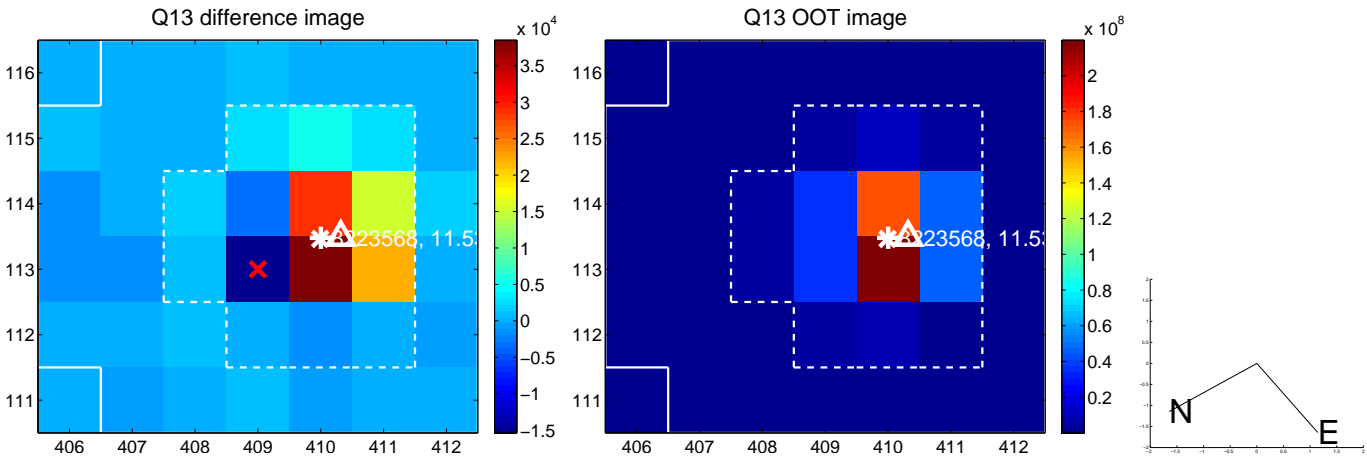
Q12 no difference image



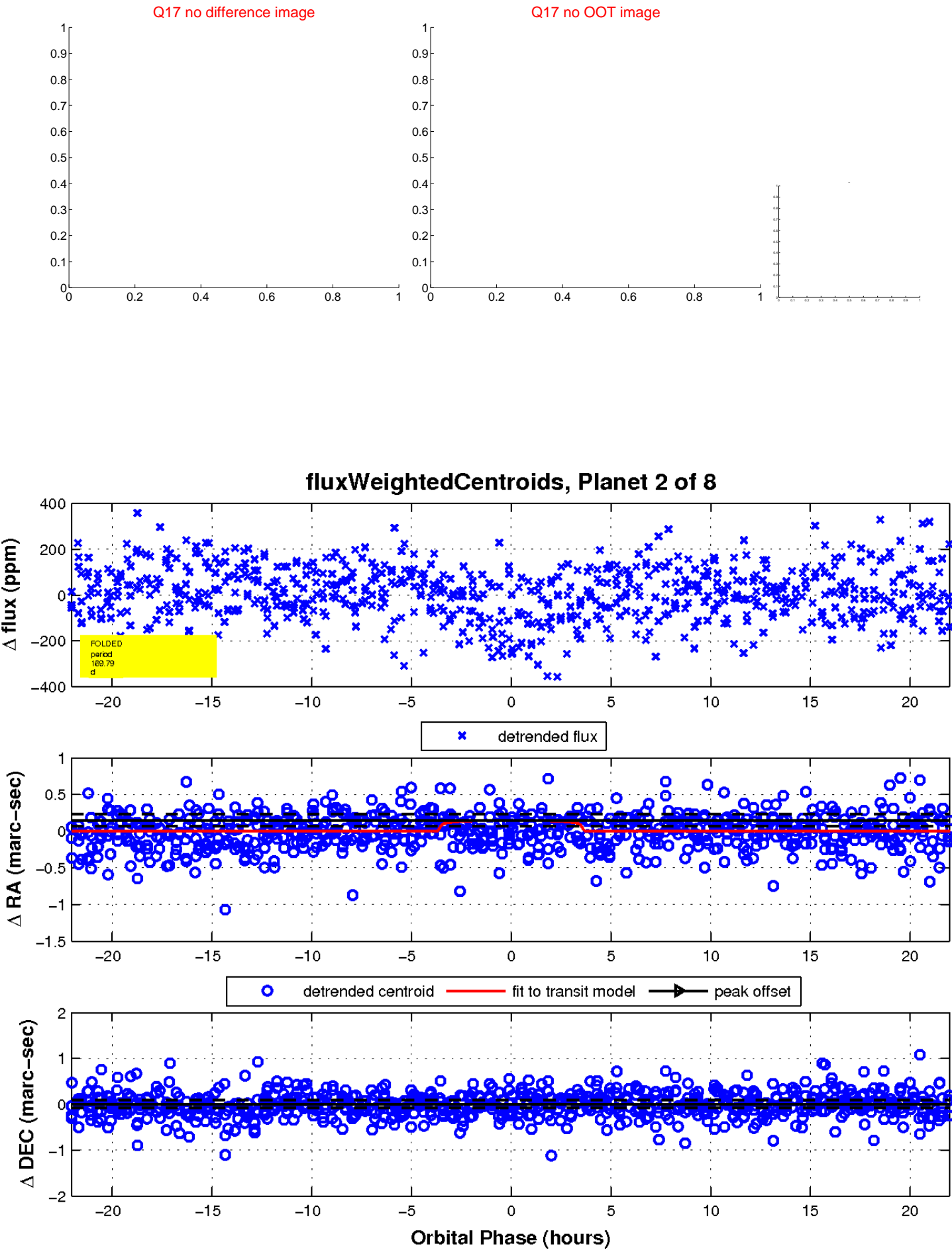
Q12 no OOT image



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

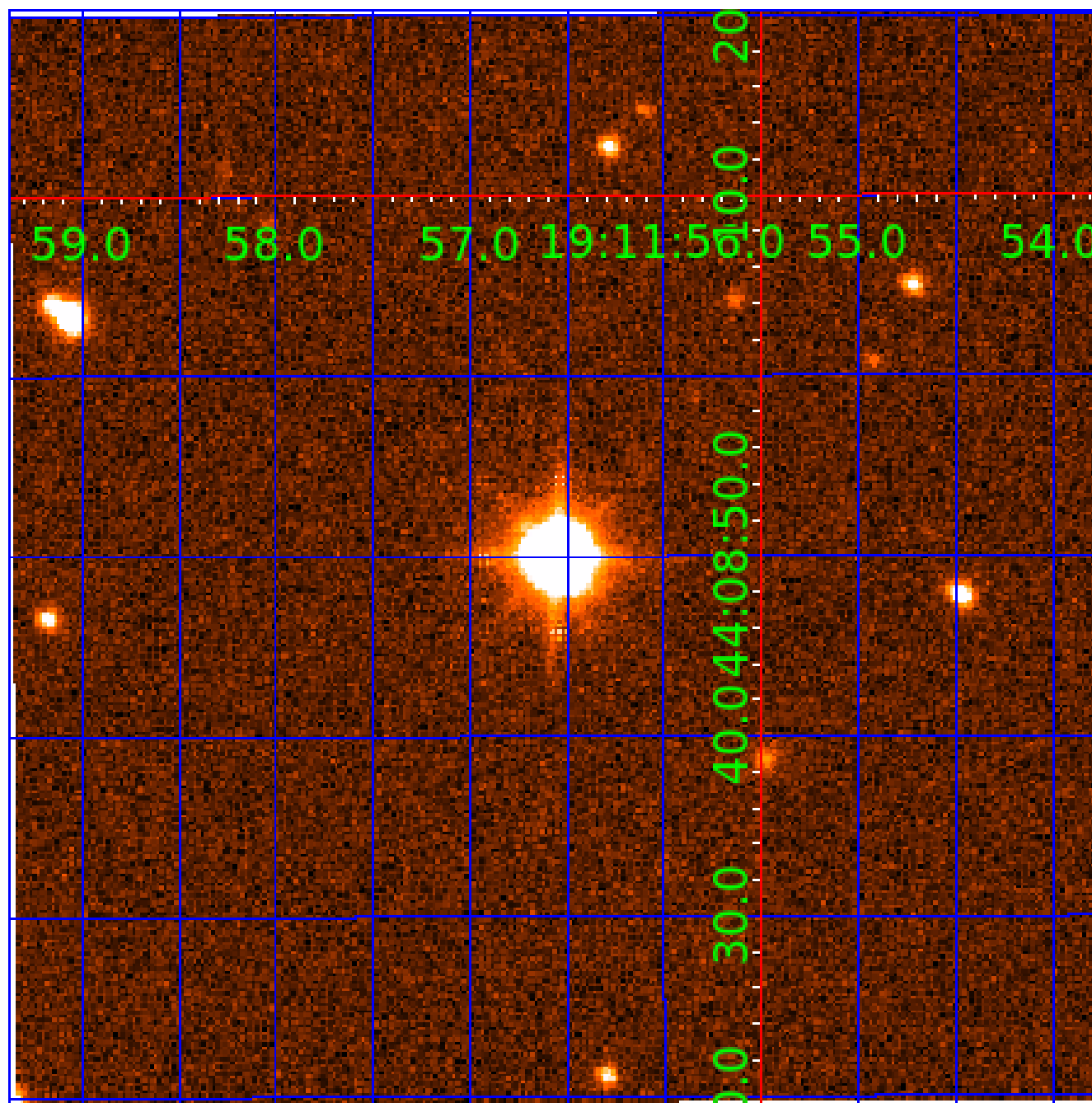


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008223568

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})
008223568-01	OBS	No	2.025610	132.782607	25.7	8.949	14.7	12.7	1.31	6726	0.68	2618.35
008223568-02	OBS	No	169.793123	241.103322	193.2	7.367	9.0	9.1	1.31	6726	1.99	7.14
008223568-03	OBS	No	168.063214	143.680942	180.7	3.849	8.3	6.8	1.31	6726	2.04	7.24
008223568-04	OBS	No	658.319006	224.483928	168.0	38.454	8.1	5.6	1.31	6726	1.79	1.17
008223568-05	OBS	No	85.596547	142.828876	165.4	4.464	7.8	8.8	1.31	6726	2.01	17.79
008223568-06	OBS	No	308.578133	327.887031	184.2	9.322	8.1	7.7	1.31	6726	1.85	3.22
008223568-07	OBS	No	496.193301	500.164082	227.6	6.720	8.4	8.6	1.31	6726	2.25	1.71
008223568-08	OBS	No	144.969324	205.071810	79.5	7.500	7.7	-1.0	1.31	6726	1.18	8.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008223568-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008223568-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
008223568-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008223568-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008223568-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008223568-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNCERTAIN
008223568-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_DIFFS
008223568-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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 008223568-03

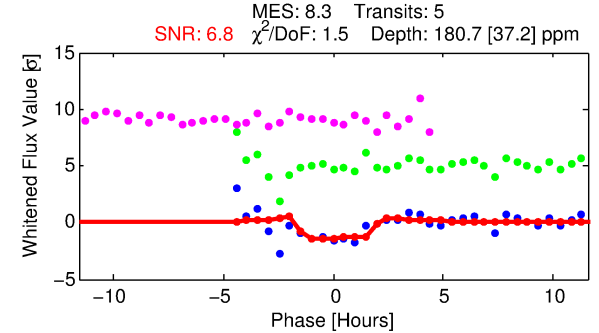
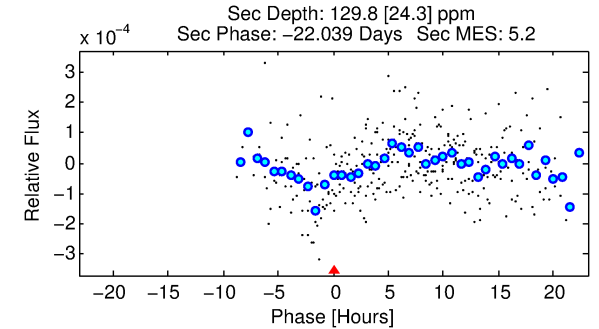
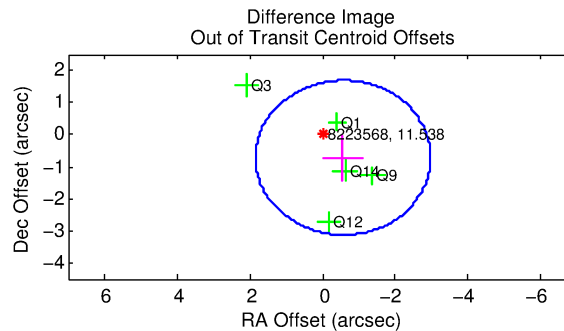
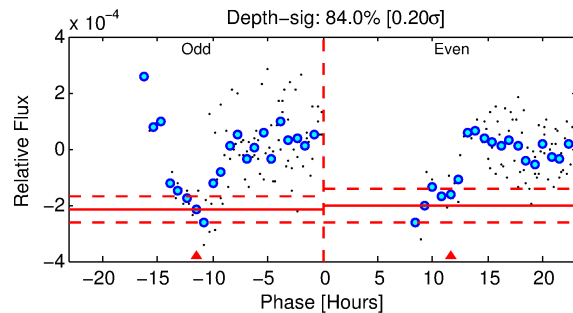
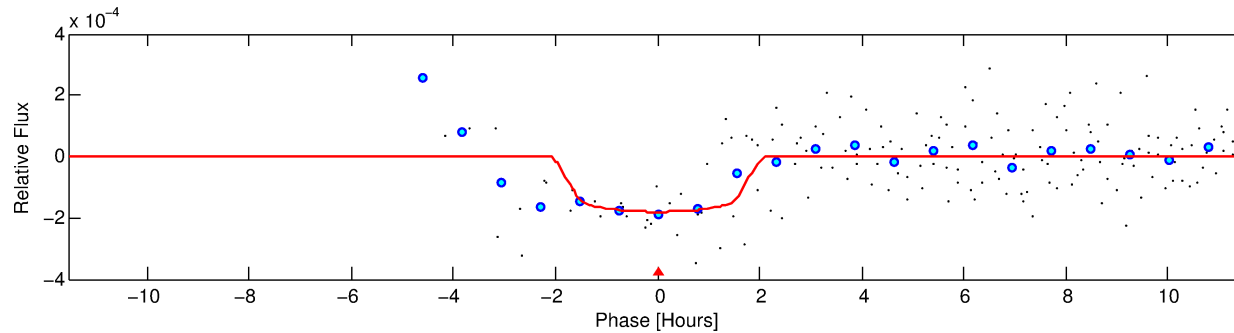
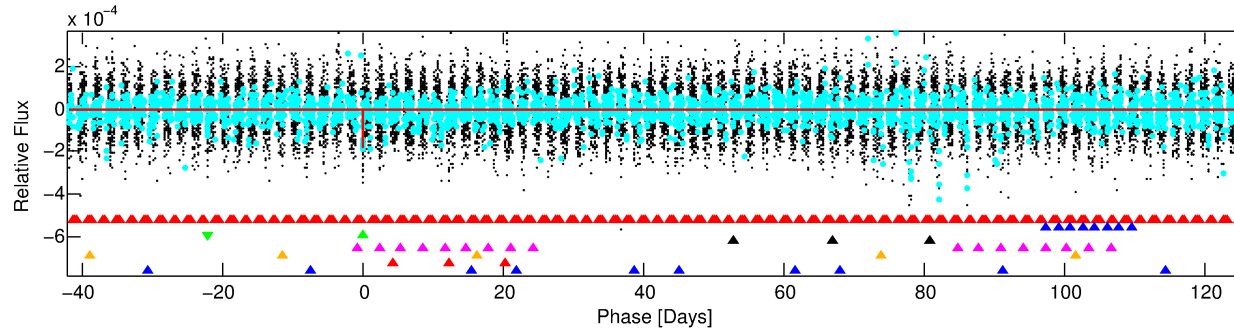
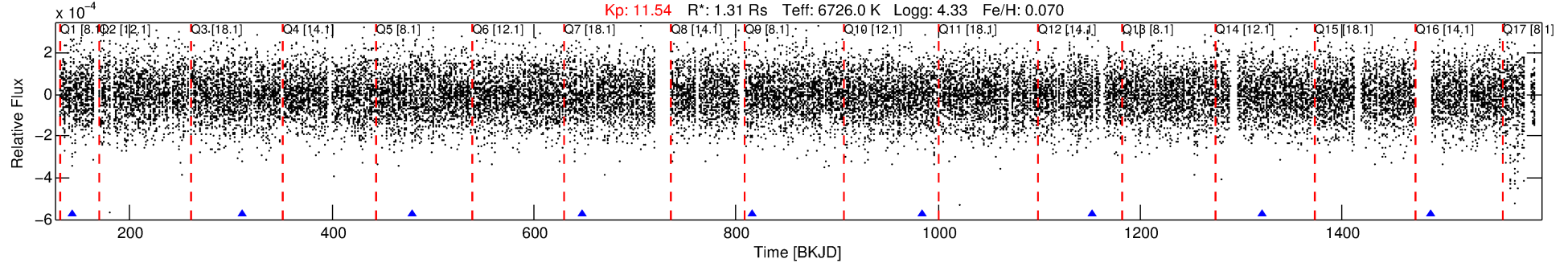
No Significant Match Found

DV One-Page Summary

KIC: 8223568 Candidate: 3 of 8 Period: 168.063 d

KOI: K06176 Corr: No Ephemeris Match

Kp: 11.54 R*: 1.31 Rs Teff: 6726.0 K Logg: 4.33 Fe/H: 0.070



DV Fit Results:

Period = 168.06321 [0.00557] d
Epoch = 143.6809 [0.0085] BKJD
Rp/R* = 0.0143 [0.0113]
a/R* = 160.62 [726.48]
b = 0.89 [1.03]
Seff = 7.24 [1.70]
Teq = 418 [25] K
Rp = 2.04 [1.65] Re
a = 0.6595 [0.0972] AU
Ag = 7443.74 [11929.17] [0.62σ]
Teffp = 6006 [2388] K [2.34σ]

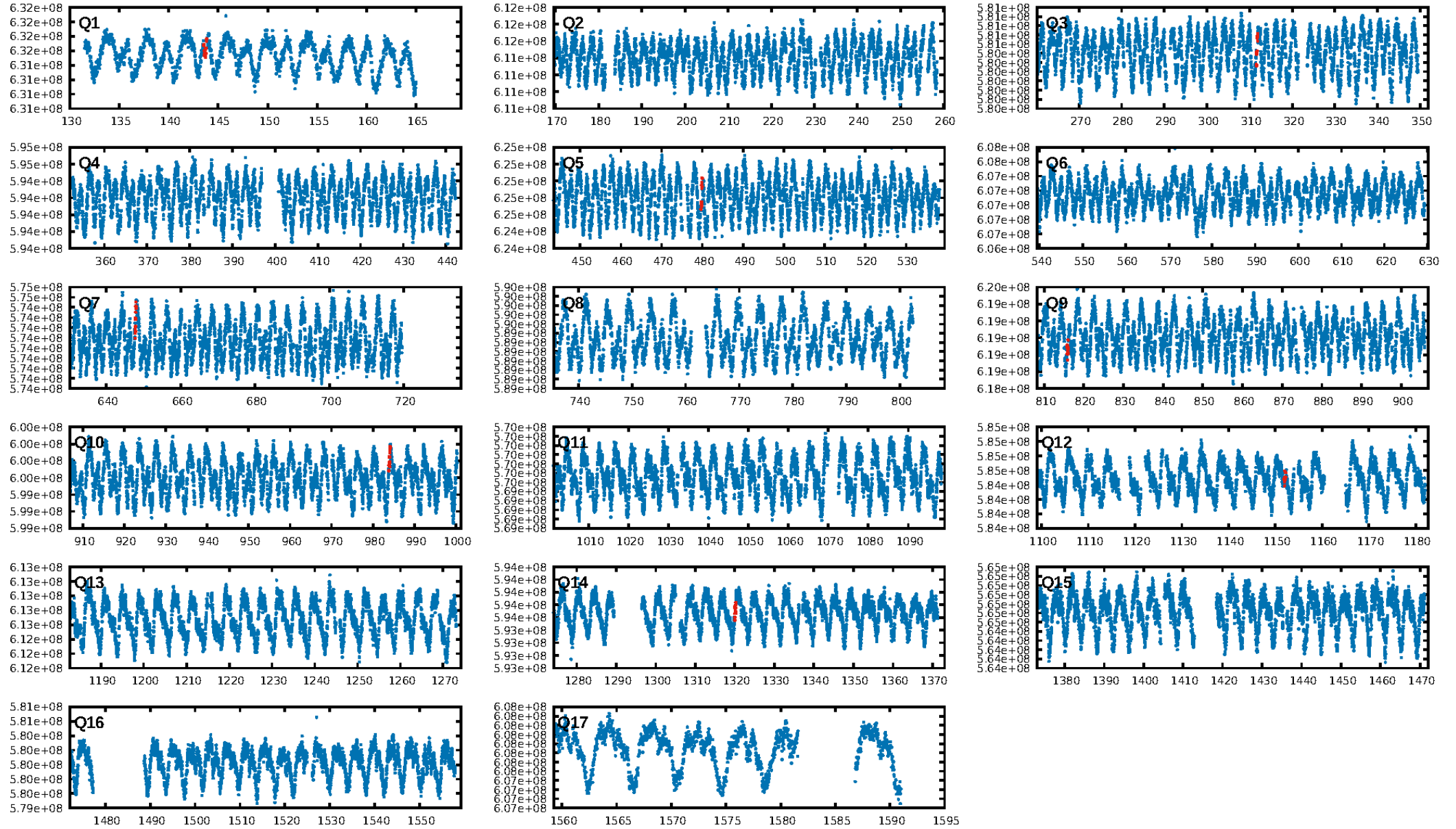
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [65.75σ]
LongPeriod-sig: 100.0% [4.99σ]
ModelChiSquare2-sig: 43.0%
ModelChiSquareGof-sig: 99.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 57
Centroid-sig: 47.4%
Centroid-so: 0.354 arcsec [0.61σ]
OotOffset-rm: 0.914 arcsec [1.14σ]
KicOffset-rm: 0.984 arcsec [0.98σ]
OotOffset-st: 1/1/1/2 [5]
KicOffset-st: 1/1/1/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.50 [4/8]

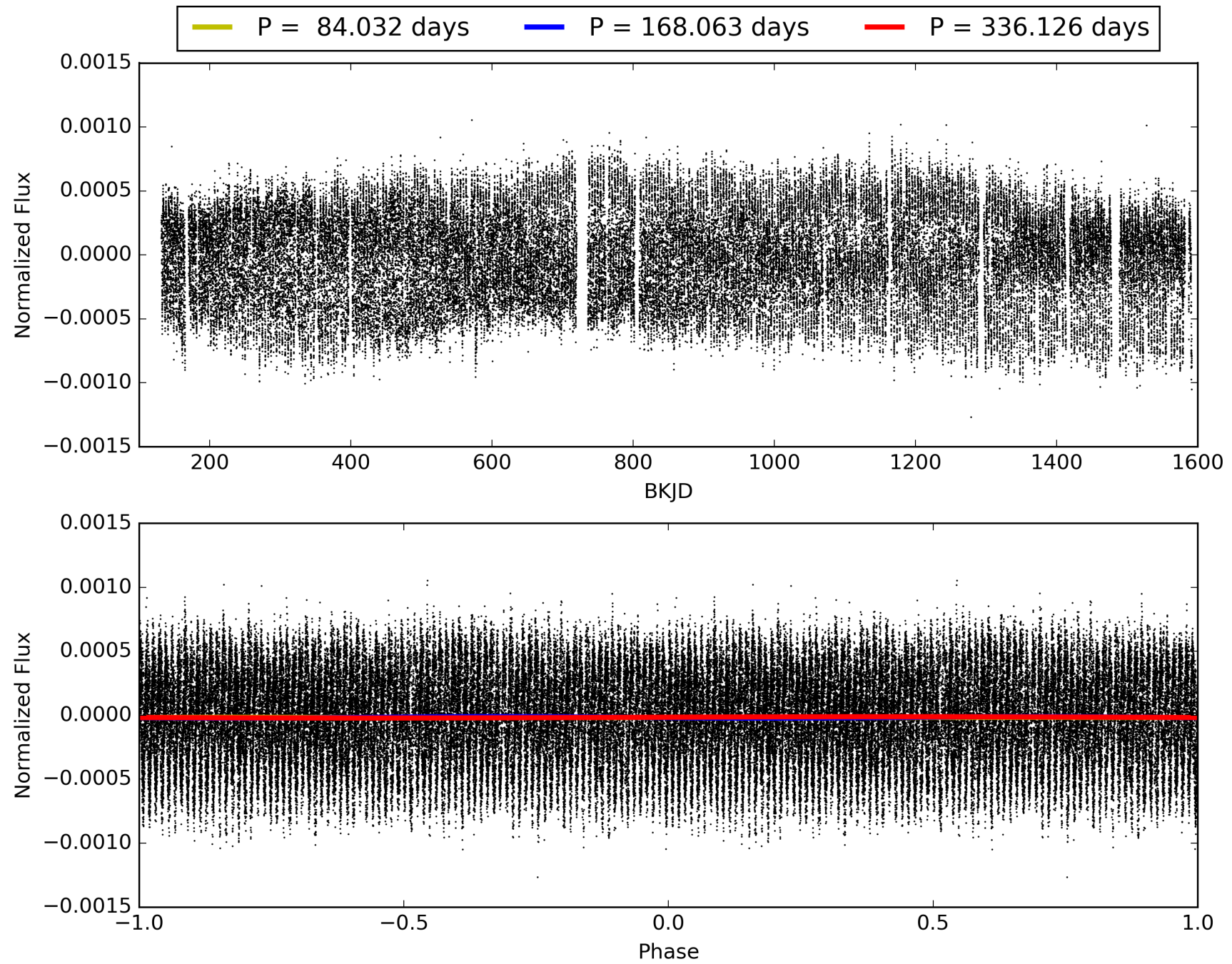
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:02:29 Z

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

TCE 008223568-03, PDC Light Curves

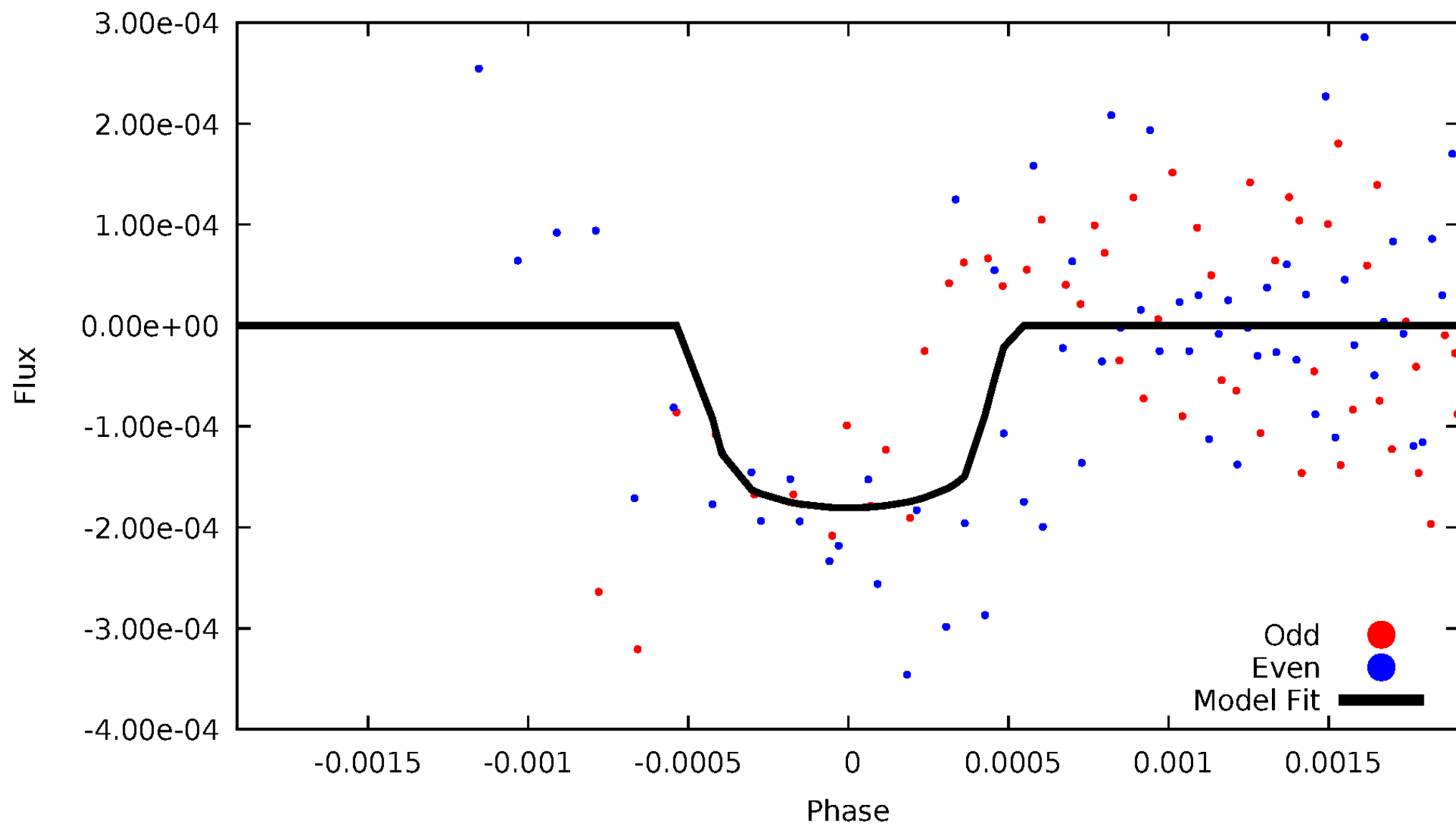


TCE 008223568-03



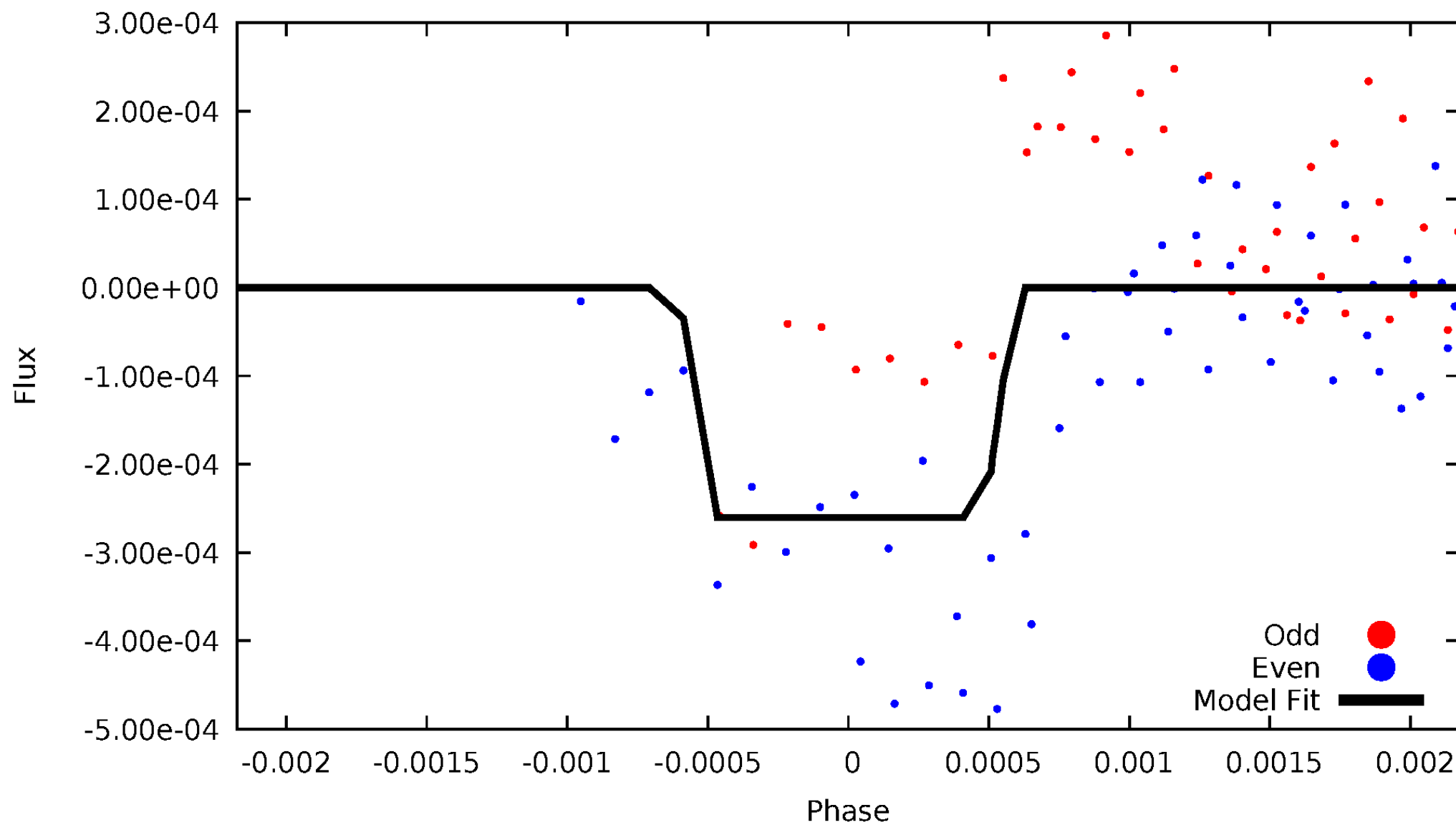
DV Odd/Even

TCE 008223568-03



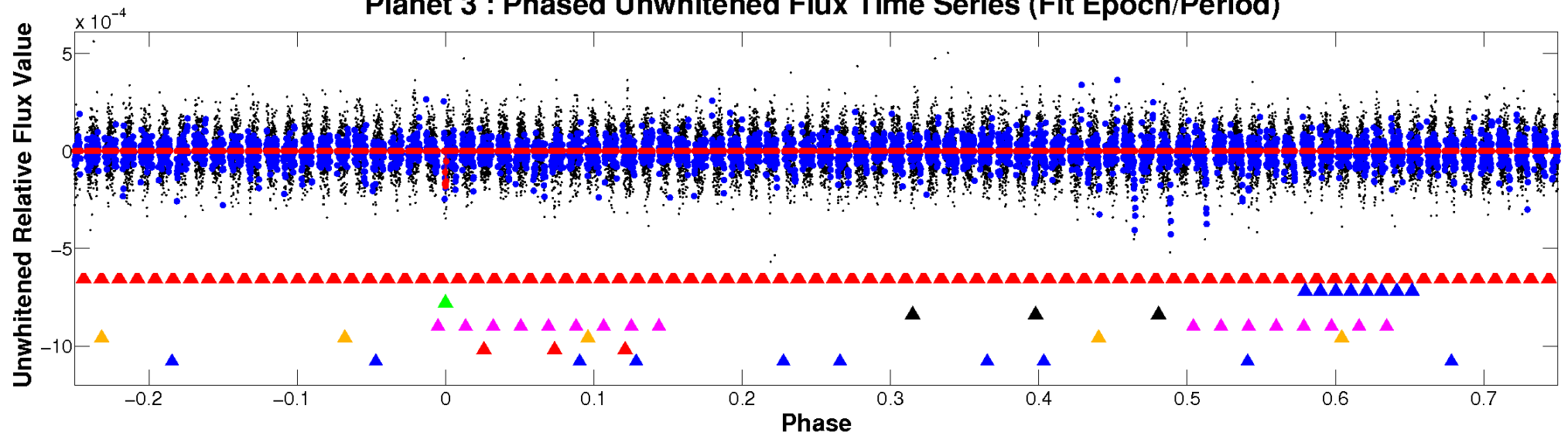
ALT Odd/Even

TCE 008223568-03

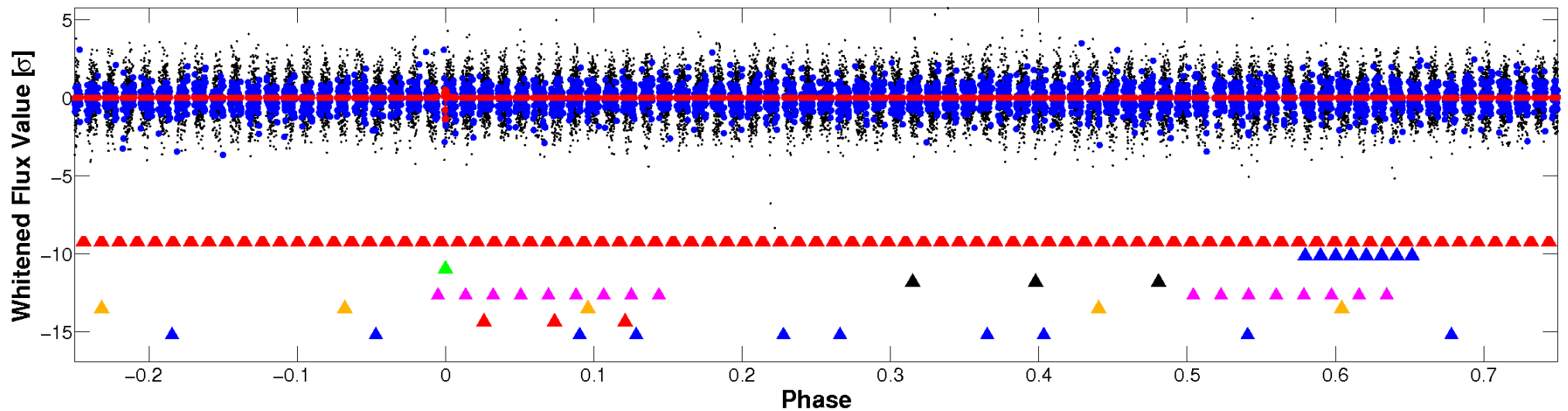


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

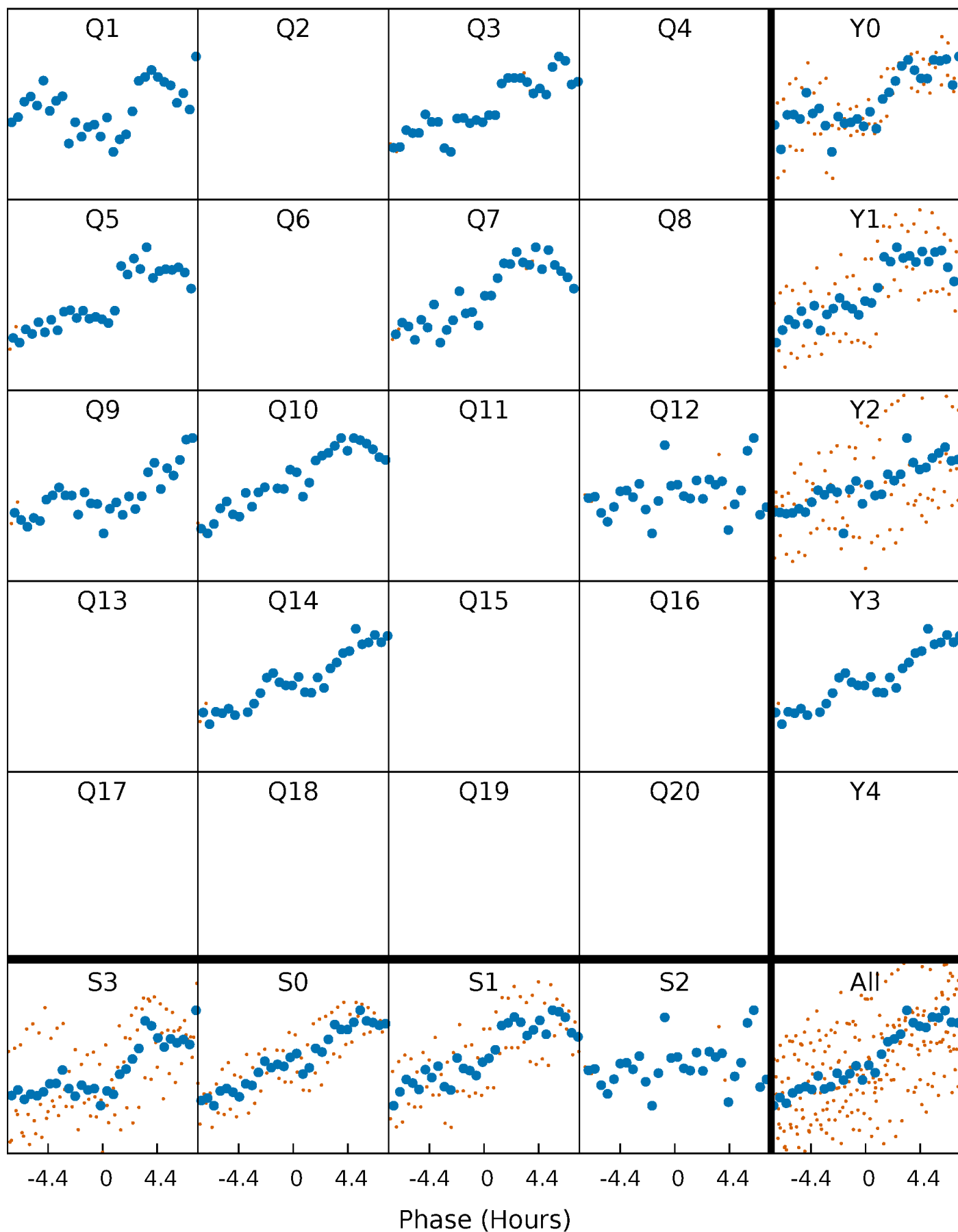


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



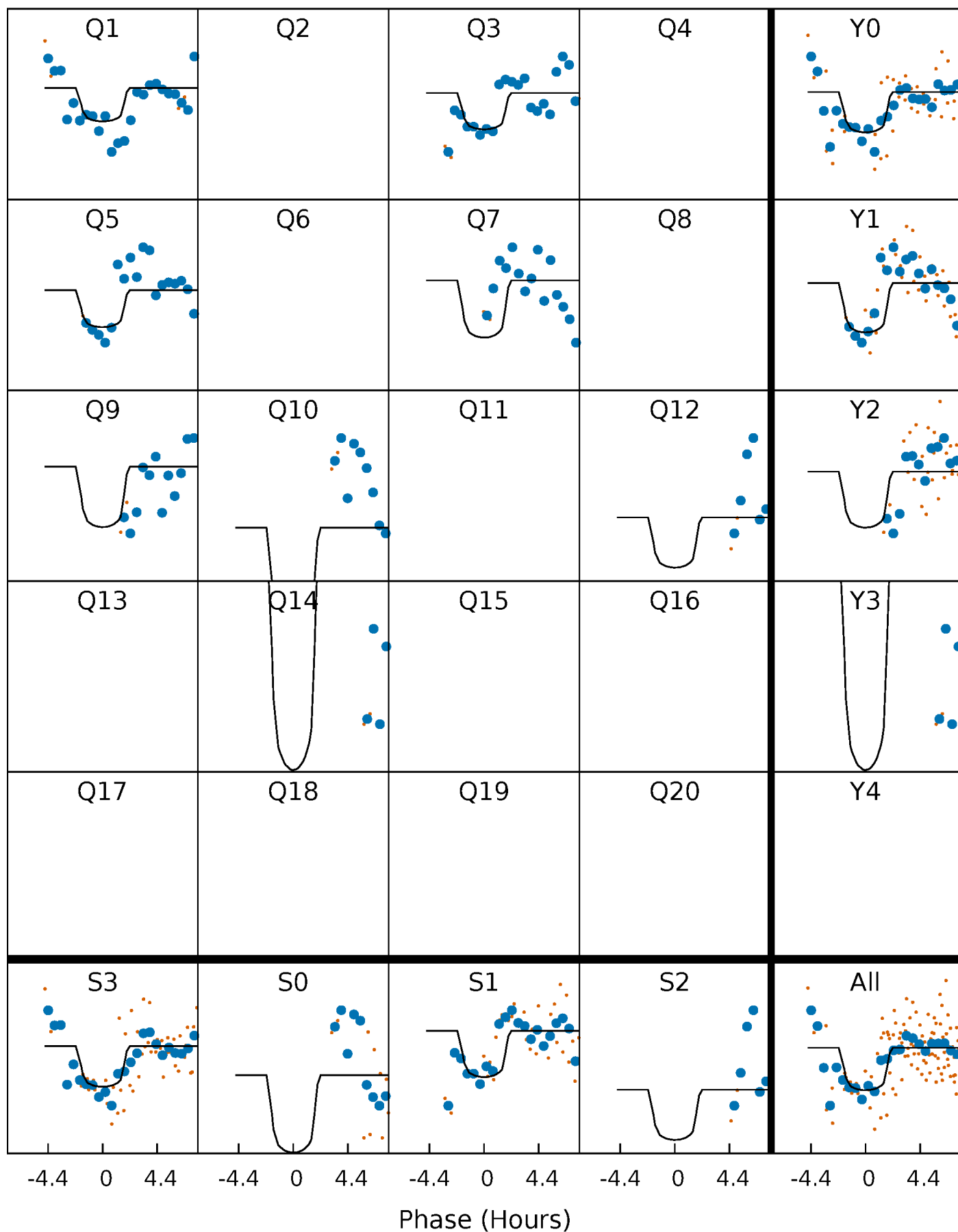
PDC Quarter-Phased Transit Curves

TCE 008223568-03 P=168.063214 Days $T_0=143.680942$ (BKJD)



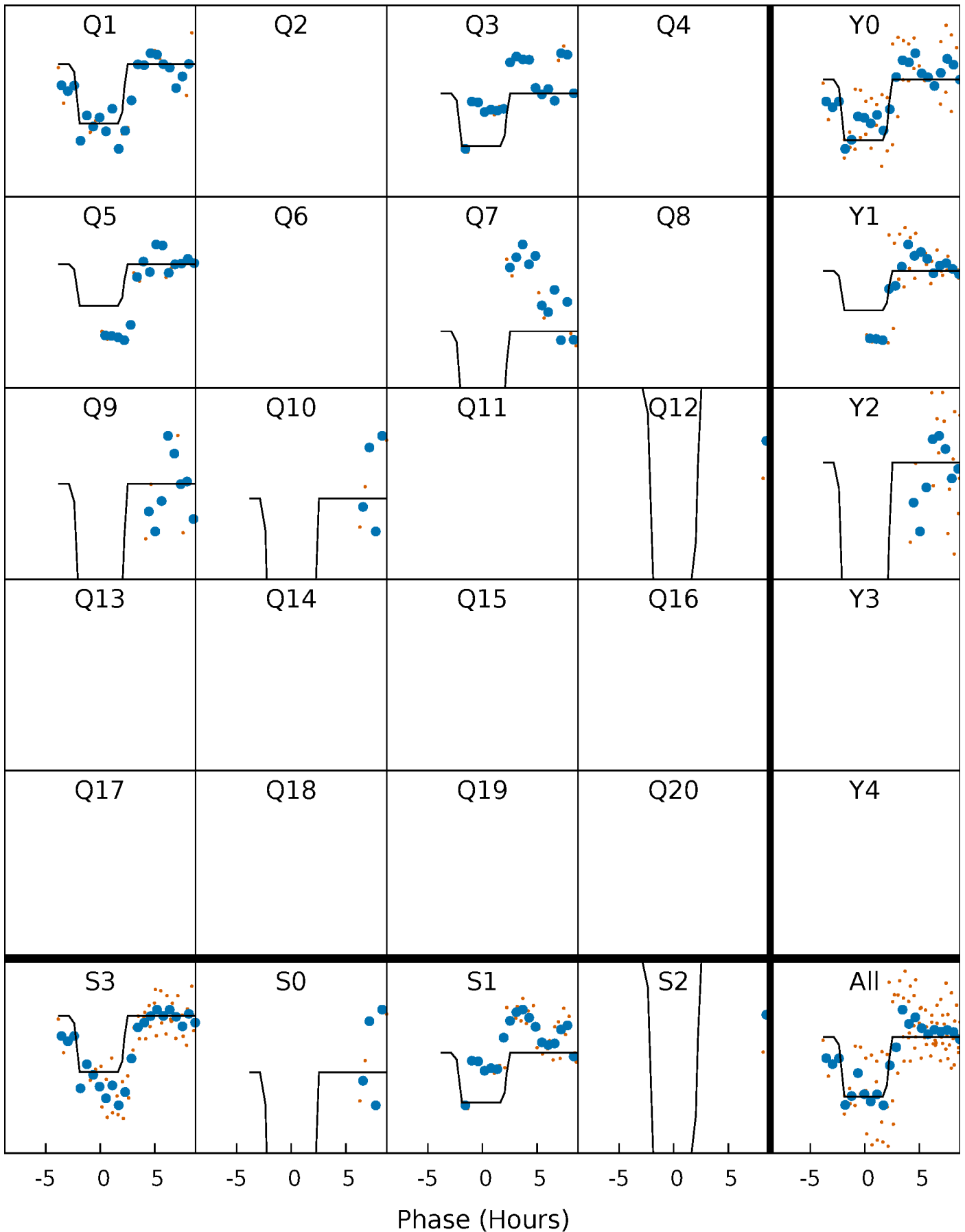
DV Quarter-Phased Transit Curves

TCE 008223568-03 P=168.063214 Days $T_0=143.680942$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

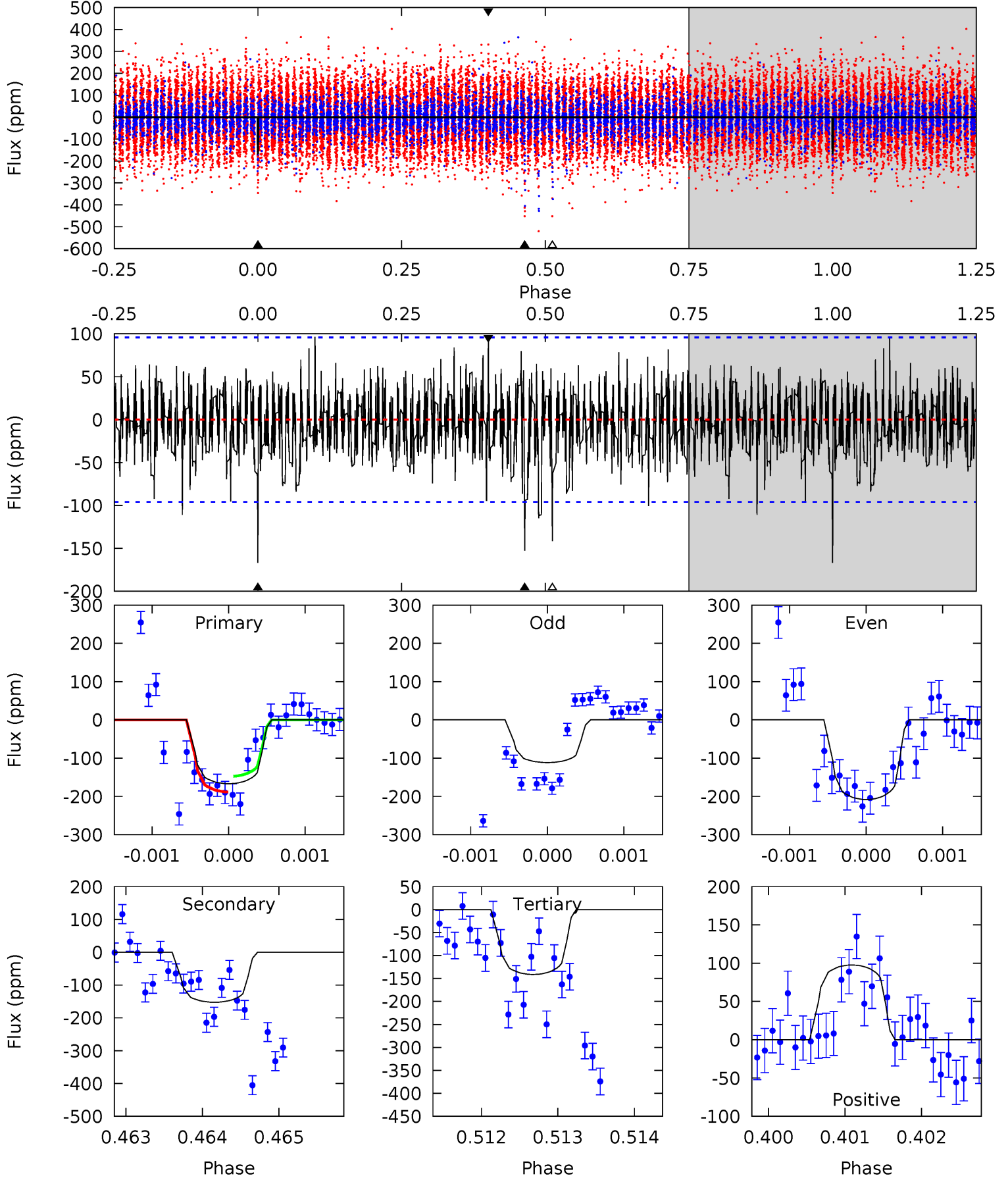
TCE 008223568-03 $P=168.043414$ Days $T_0=143.646916$ (BKJD)



DV Model-Shift Uniqueness Test

008223568-03, P = 168.063214 Days, E = 143.680942 Days

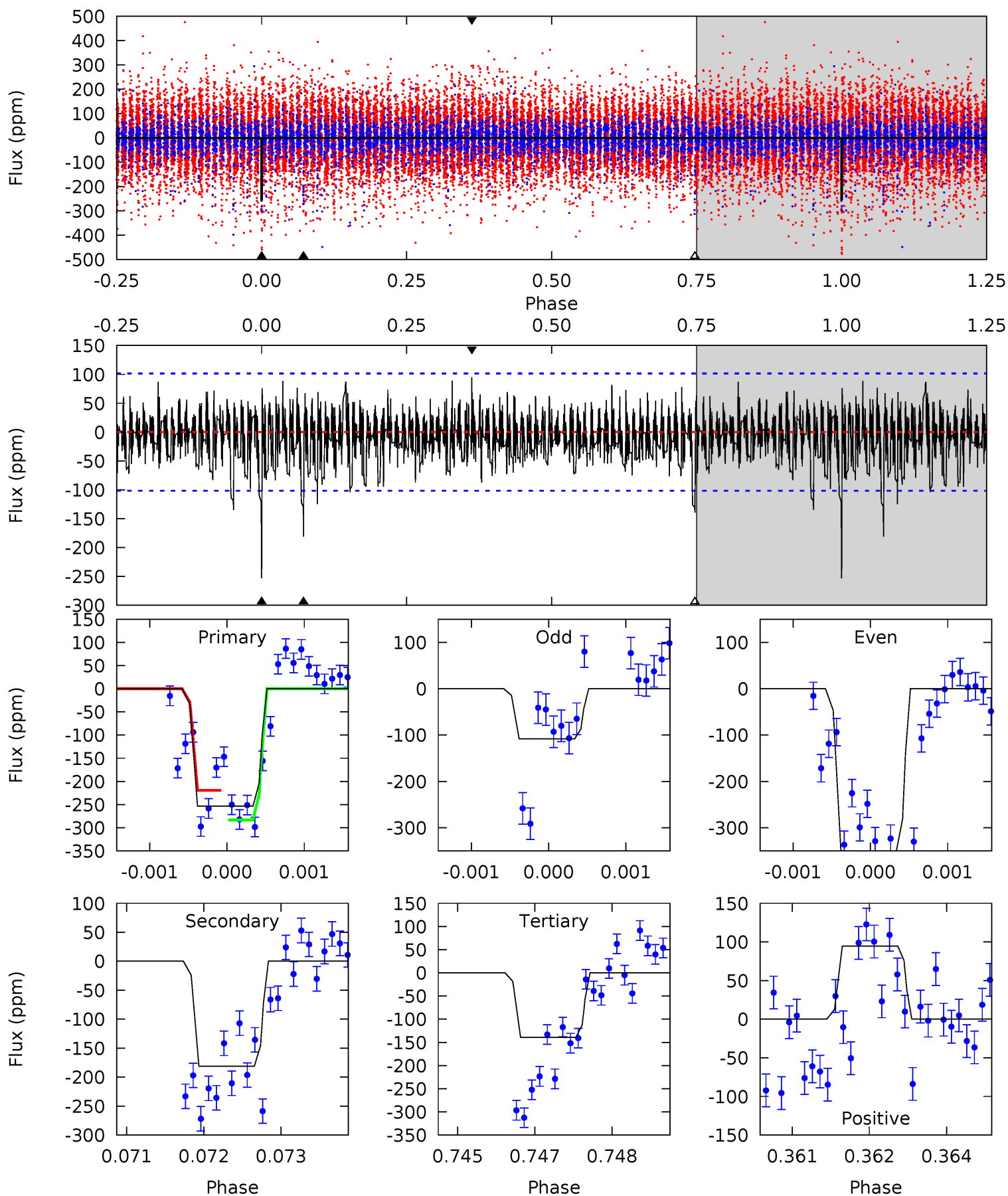
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.51	8.69	8.06	5.57	5.46	3.30	1.58	1.45	3.94	0.64	3.13	2.75	1.06	0.37	1.15



Alt Model-Shift Uniqueness Test

008223568-03, P = 168.043414 Days, E = 143.646916 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	9.65	7.43	5.05	5.42	3.24	1.44	6.06	8.44	2.23	4.61	6.29	1.04	0.27	1.60



Stellar Parameters For KIC 008223568

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6726^{+117}_{-150}	$4.335^{+0.032}_{-0.120}$	$0.070^{+0.100}_{-0.200}$	$1.310^{+0.226}_{-0.097}$	$1.354^{+0.075}_{-0.112}$	$0.848^{+0.131}_{-0.298}$
	+2%/-2%	+1%/-3%	+143%/-286%	+17%/-7%	+6%/-8%	+15%/-35%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 008223568-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-152 ± 18	$2.28^{+1.60}_{-1.39}$	590^{+24}_{-18}	5960^{+4843}_{-1311}	6928^{+40829}_{-4549}
Alt.	-181 ± 19	$2.46^{+1.53}_{-1.33}$	591^{+25}_{-18}	6016^{+3706}_{-1230}	6987^{+29486}_{-4353}

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 $A_{obs} \gg 1.0$

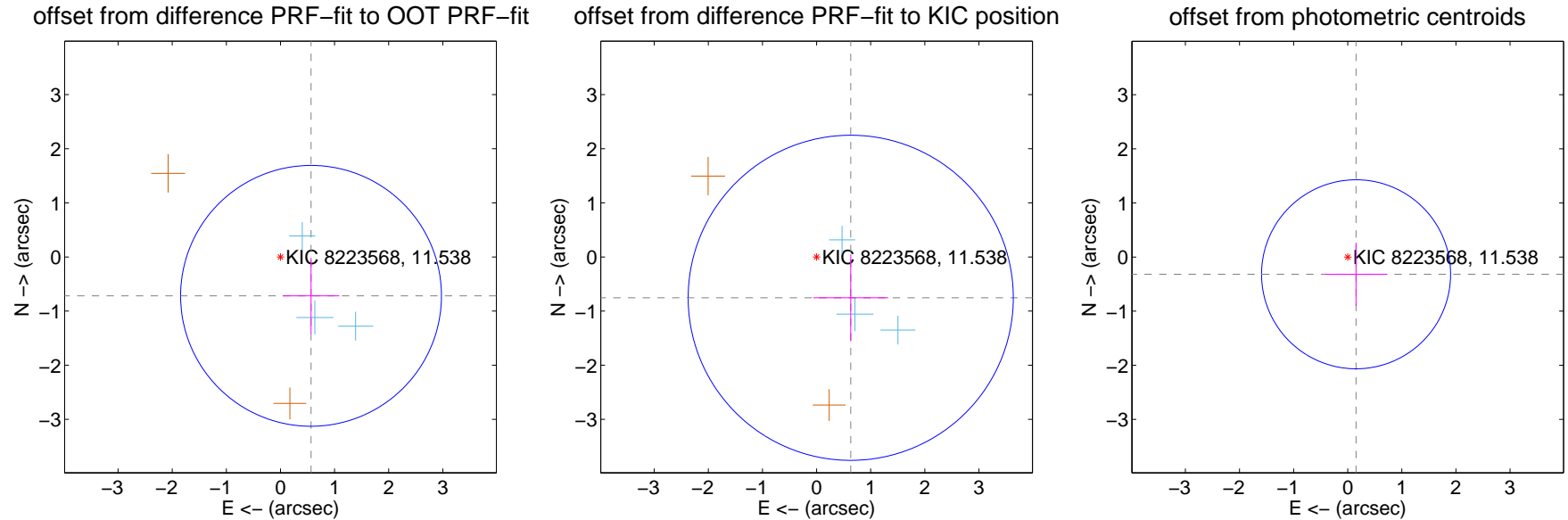
DV Centroid Data

Supplemental centroid analysis for 008223568-03. **Kepler magnitude: 11.54.** Transit SNR 6.79

There are 3 quarters with good PRF difference image offsets

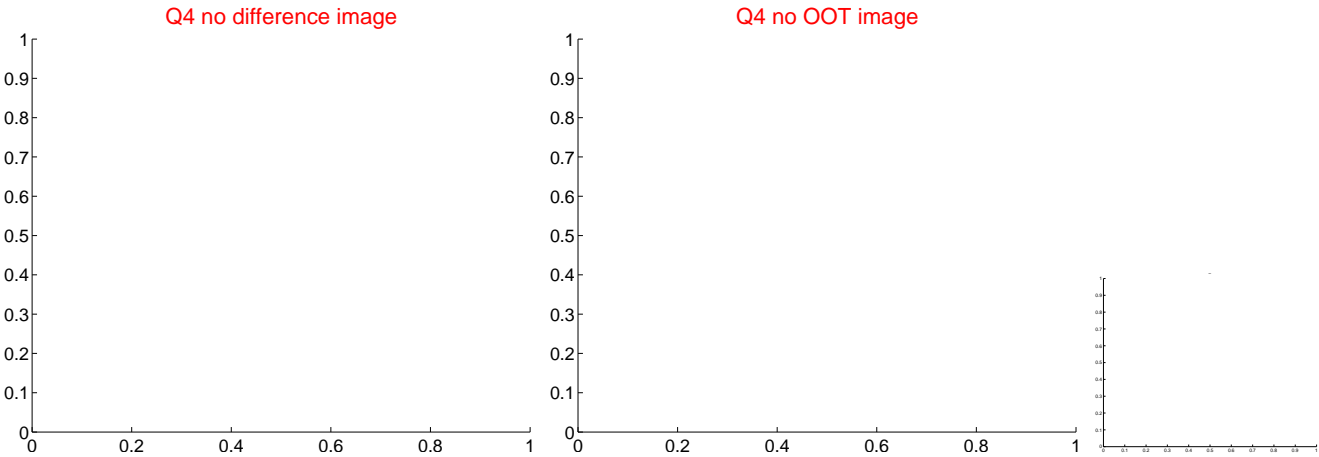
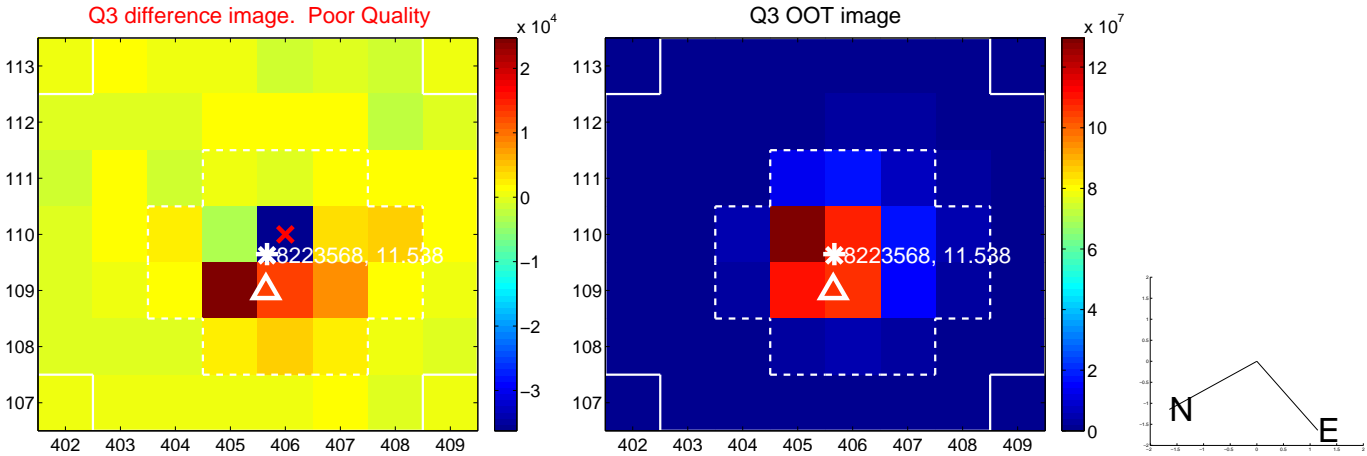
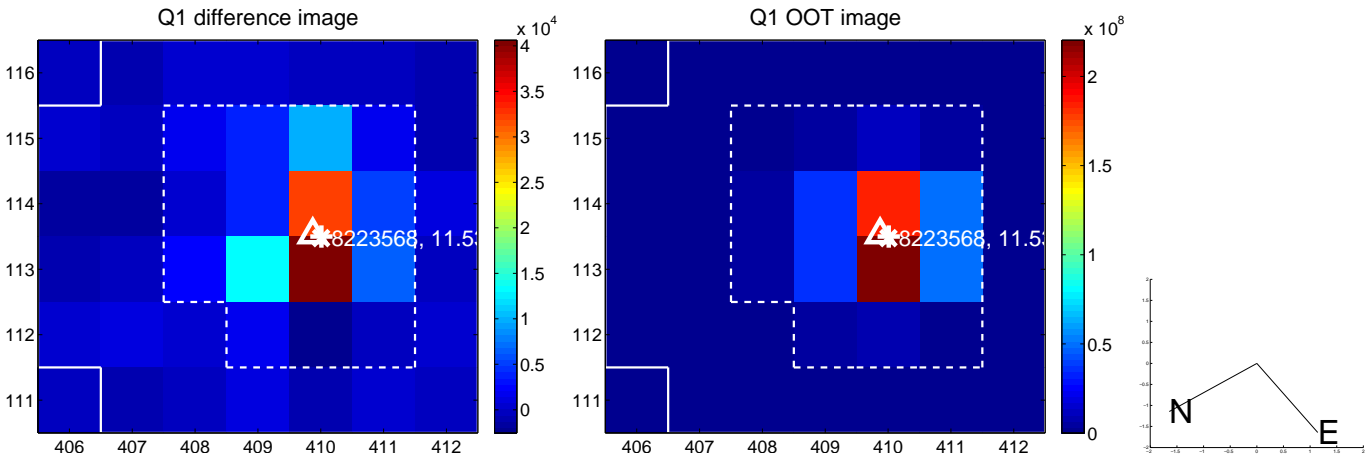
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.914 ± 0.803	1.14	-0.565 ± 0.524	-0.718 ± 0.701
PRF-fit source offset from KIC position	0.984 ± 1.001	0.98	-0.631 ± 0.693	-0.755 ± 0.802
photometric centroid source offset	0.35 ± 0.58	0.61	-0.15 ± 0.58	-0.32 ± 0.58

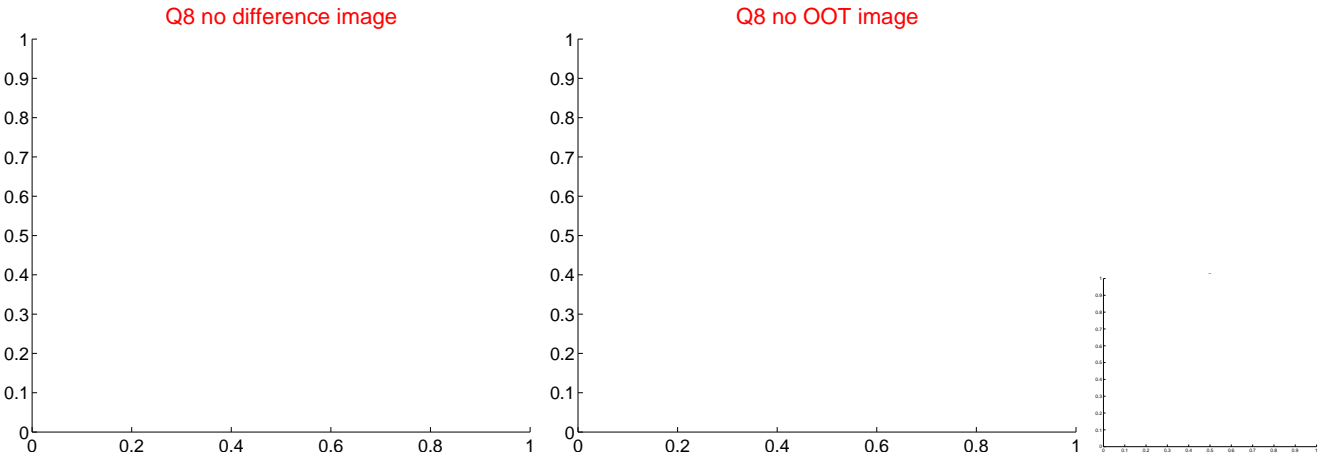
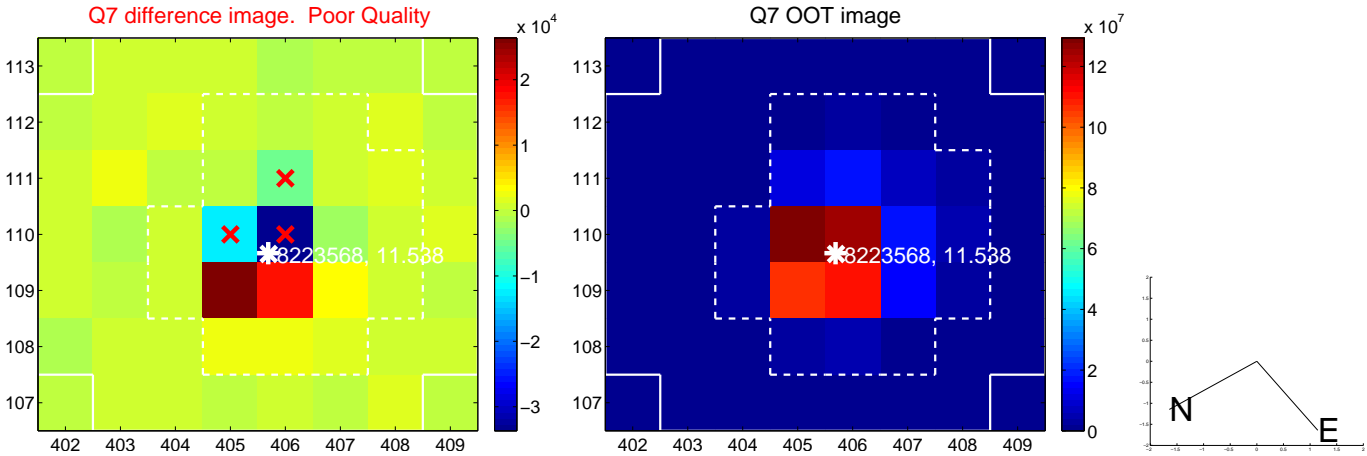
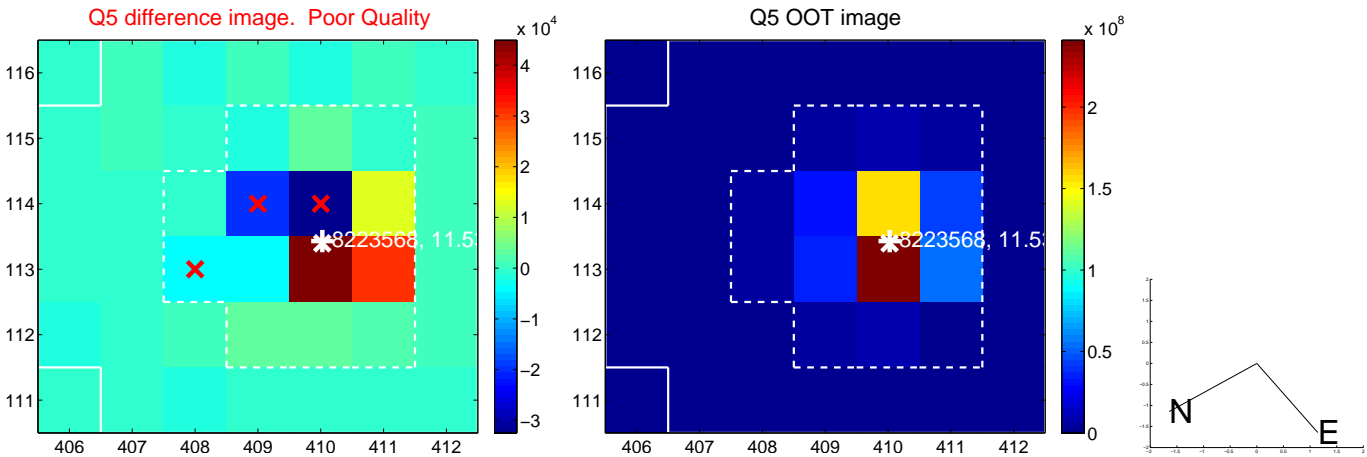


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

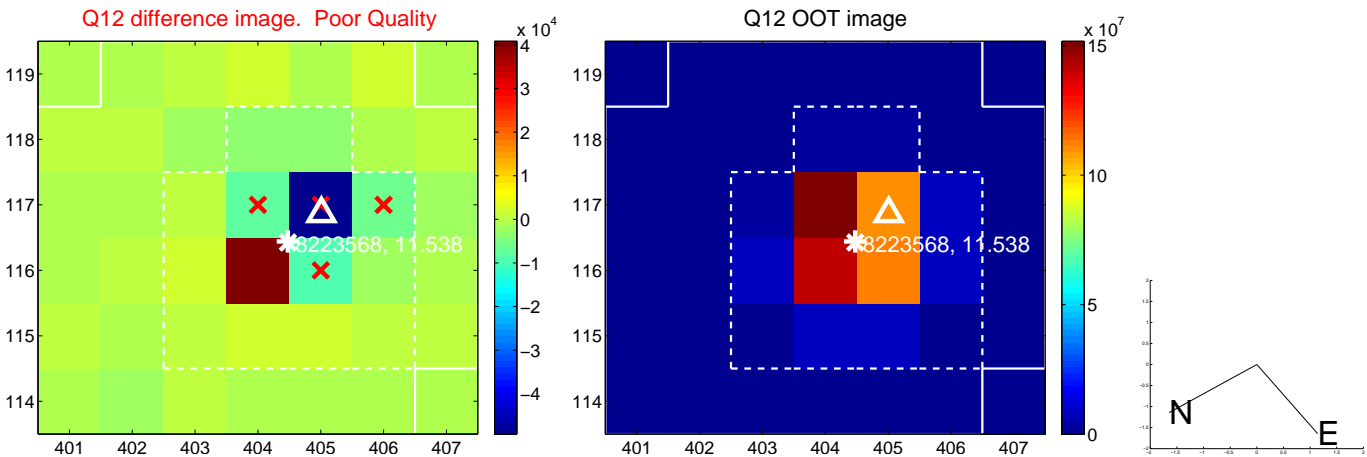
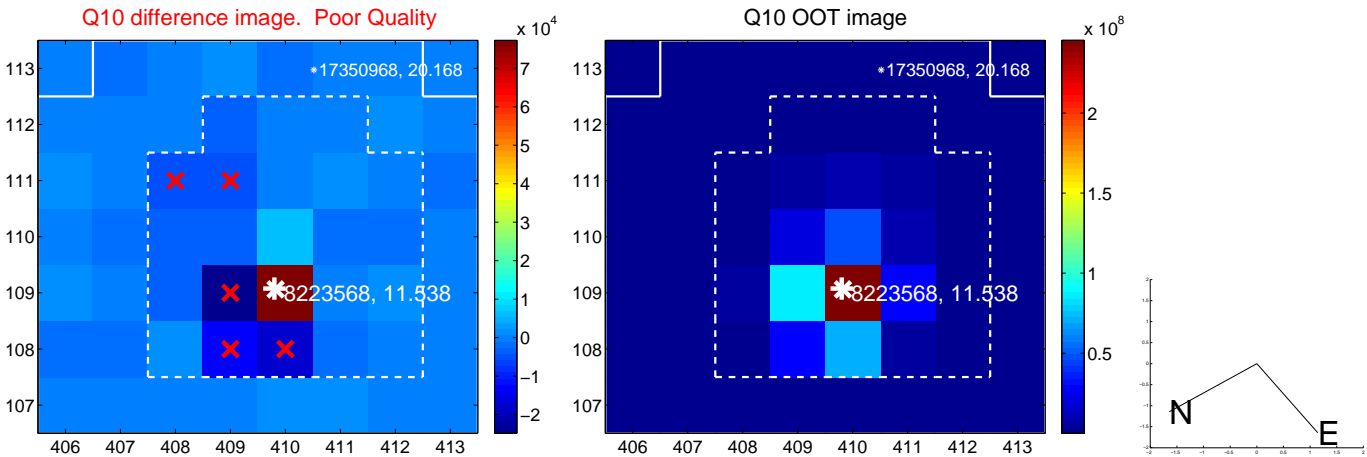
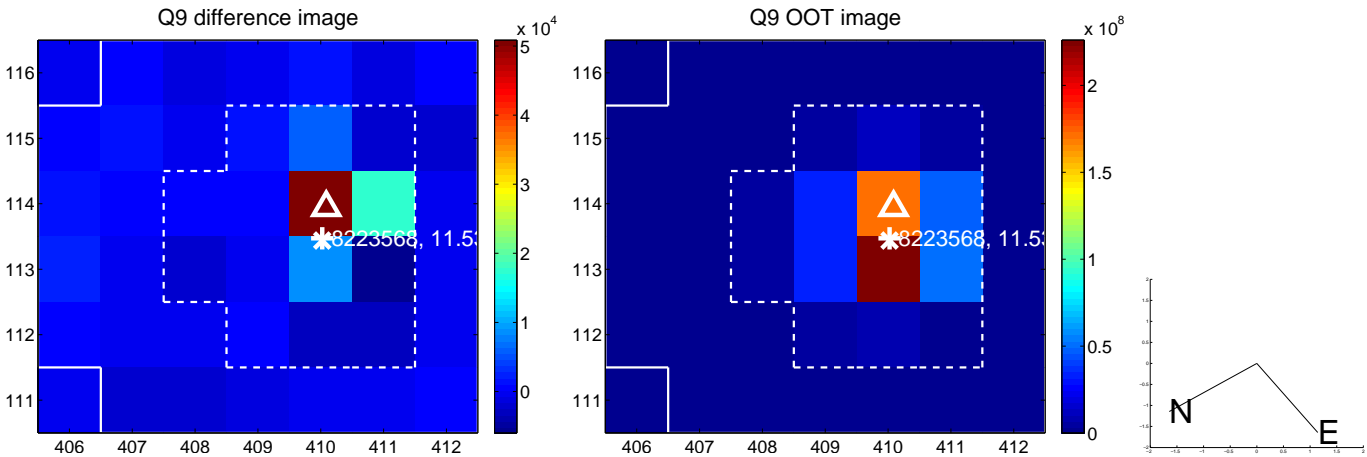
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



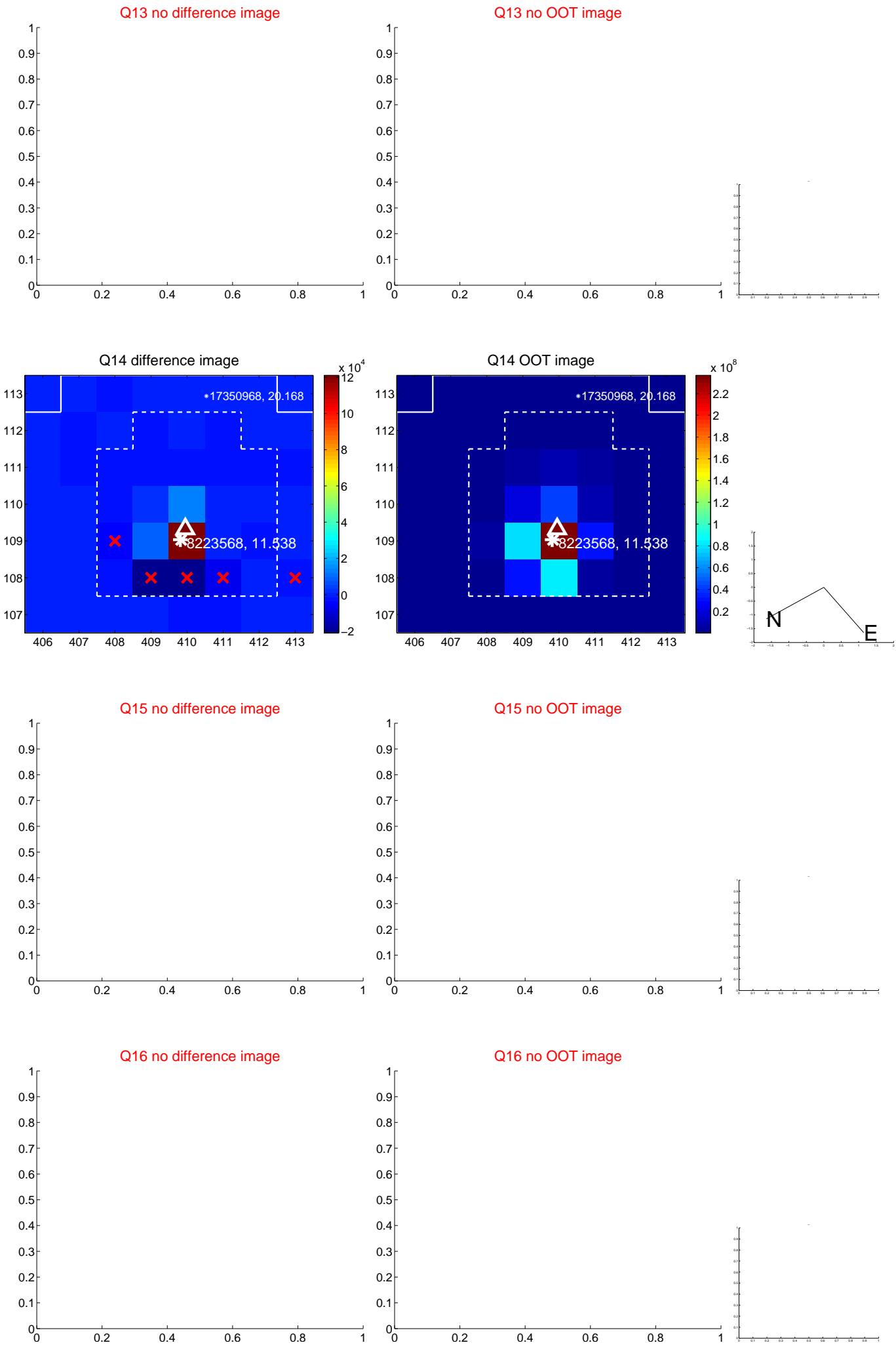
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



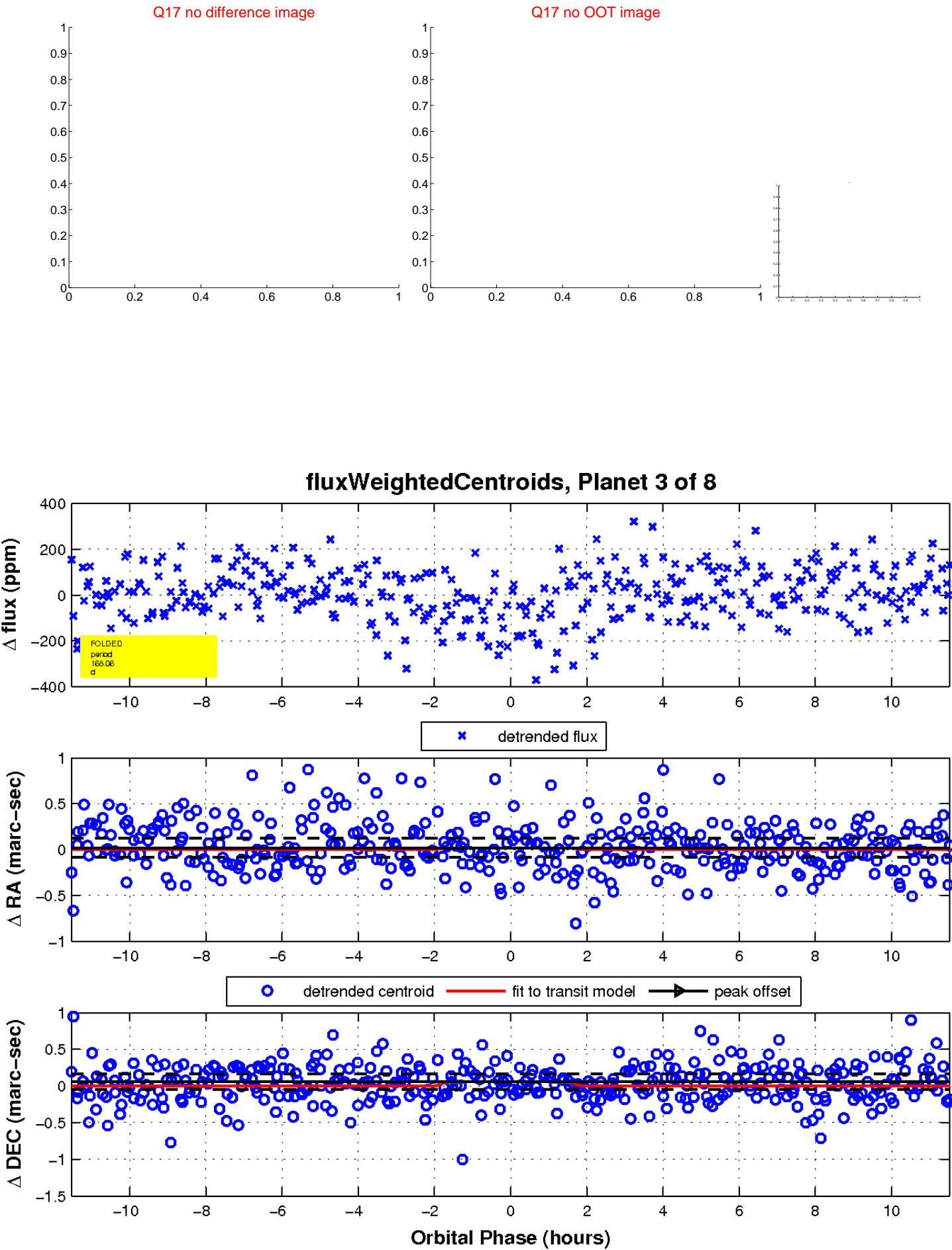
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

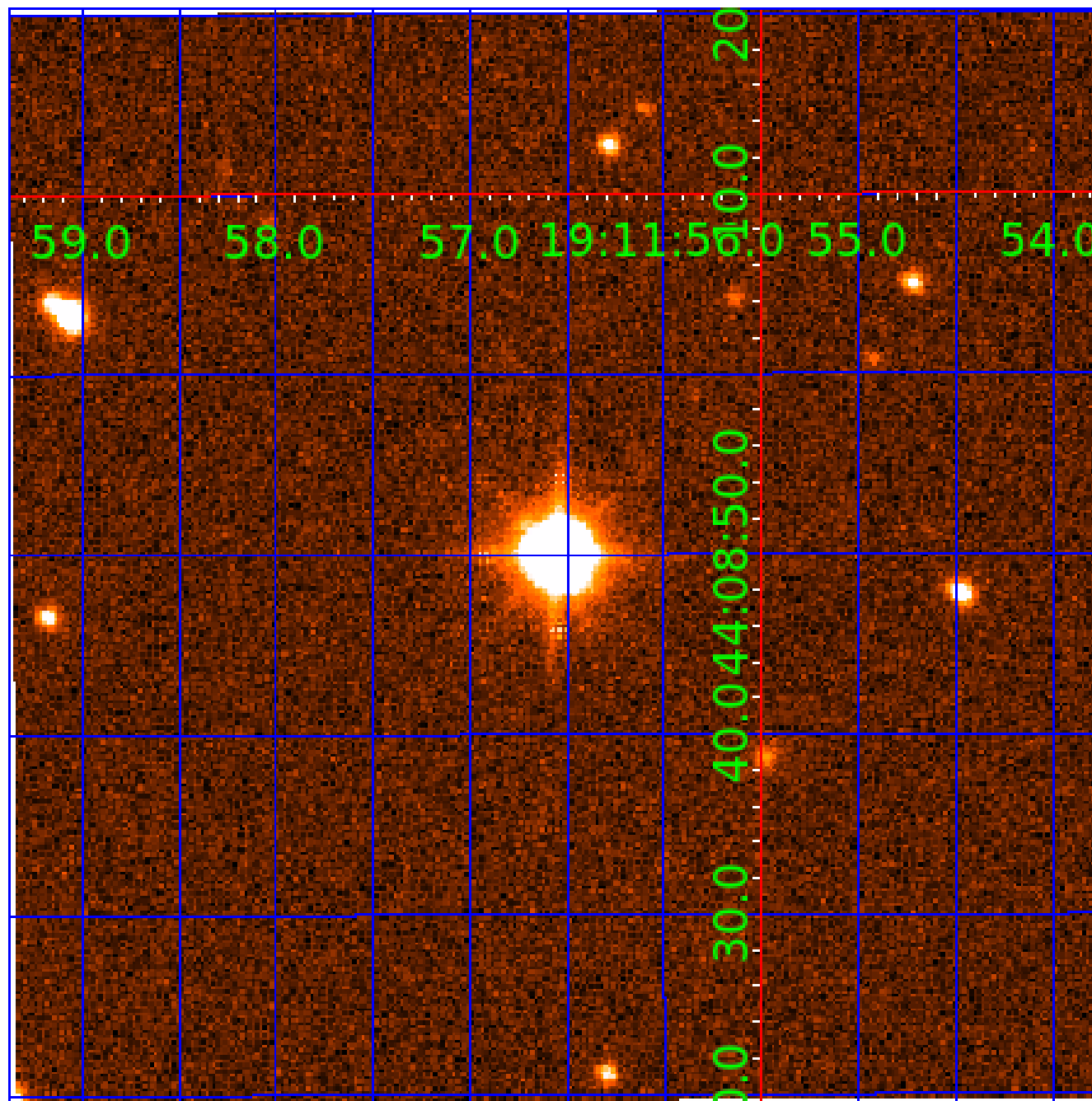


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008223568

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})
008223568-01	OBS	No	2.025610	132.782607	25.7	8.949	14.7	12.7	1.31	6726	0.68	2618.35
008223568-02	OBS	No	169.793123	241.103322	193.2	7.367	9.0	9.1	1.31	6726	1.99	7.14
008223568-03	OBS	No	168.063214	143.680942	180.7	3.849	8.3	6.8	1.31	6726	2.04	7.24
008223568-04	OBS	No	658.319006	224.483928	168.0	38.454	8.1	5.6	1.31	6726	1.79	1.17
008223568-05	OBS	No	85.596547	142.828876	165.4	4.464	7.8	8.8	1.31	6726	2.01	17.79
008223568-06	OBS	No	308.578133	327.887031	184.2	9.322	8.1	7.7	1.31	6726	1.85	3.22
008223568-07	OBS	No	496.193301	500.164082	227.6	6.720	8.4	8.6	1.31	6726	2.25	1.71
008223568-08	OBS	No	144.969324	205.071810	79.5	7.500	7.7	-1.0	1.31	6726	1.18	8.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008223568-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008223568-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
008223568-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008223568-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008223568-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008223568-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNCERTAIN
008223568-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_DIFFS
008223568-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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.

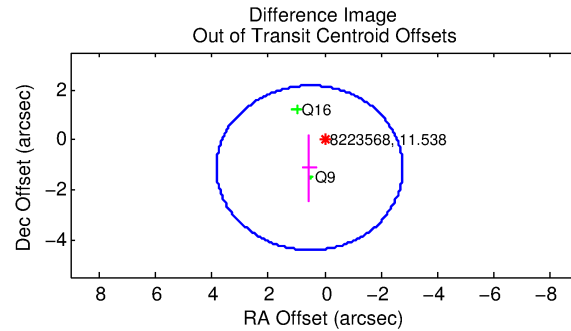
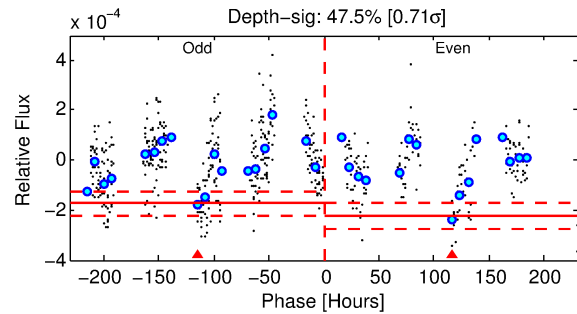
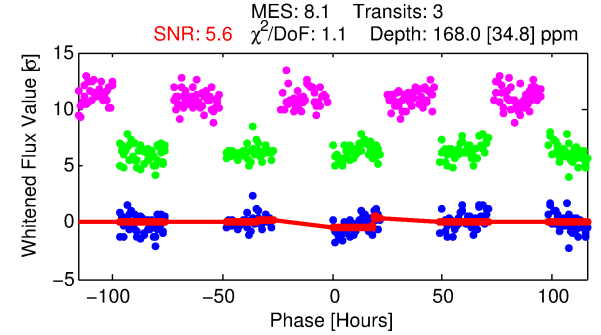
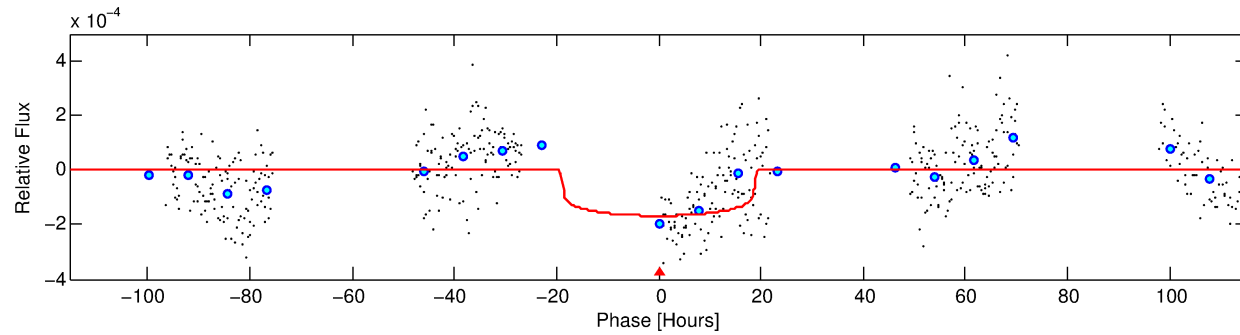
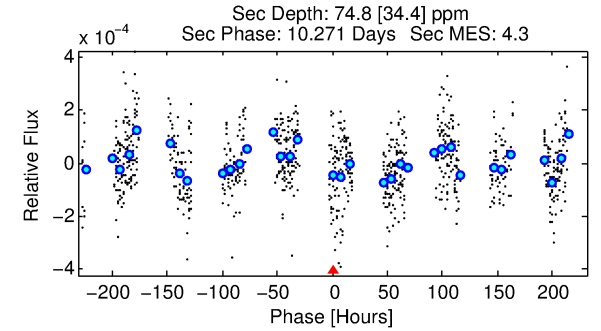
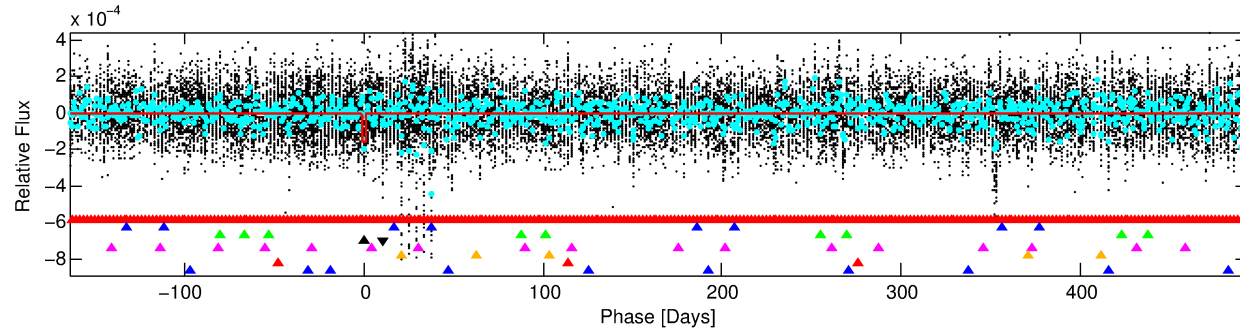
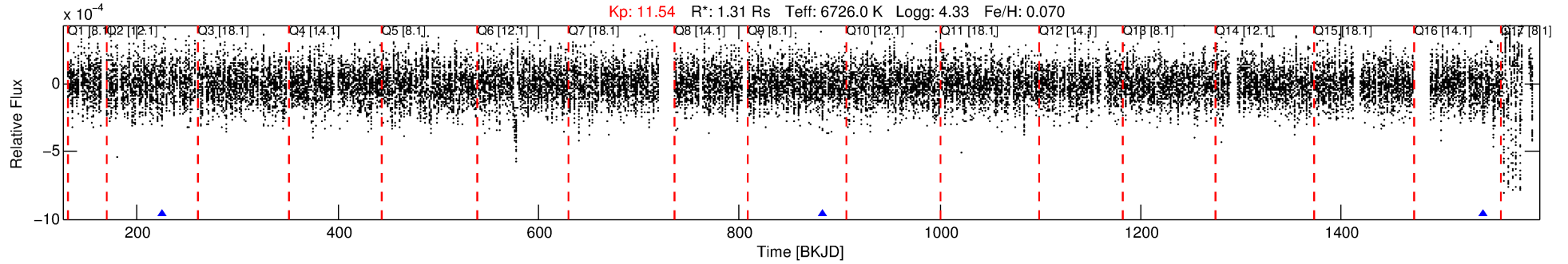
Ephemeris Match Information For 008223568-04

No Significant Match Found

DV One-Page Summary

KIC: 8223568 Candidate: 4 of 8 Period: 658.319 d

KOI: K06176 Corr: No Ephemeris Match



DV Fit Results:

Period = 658.31901 [0.01956] d
Epoch = 224.4839 [0.1898] BKJD
Rp/R* = 0.0125 [0.0038]
a/R* = 104.65 [168.48]
b = 0.62 [1.39]
Seff = 1.17 [0.28]
Teq = 265 [16] K
Rp = 1.79 [0.62] Re
a = 1.6387 [0.2415] AU
Ag = 34618.15 [27368.03] [1.26σ]
Teffp = 5595 [1071] K [4.98σ]

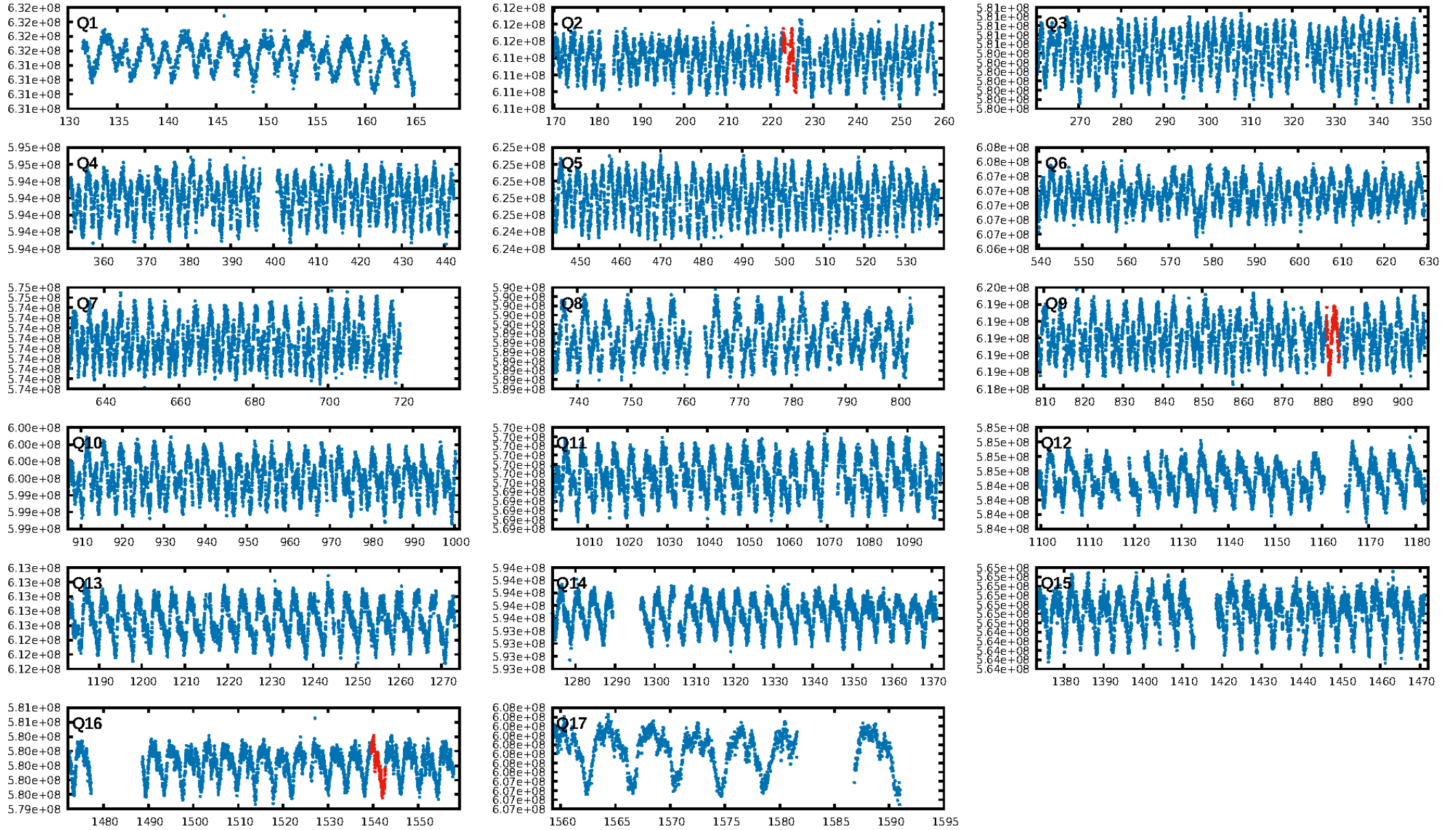
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [99.68σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 49.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.57
Centroid-sig: 12.3%
Centroid-so: 0.503 arcsec [1.18σ]
OotOffset-rm: 1.248 arcsec [1.14σ]
KicOffset-rm: 1.276 arcsec [1.19σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/2]

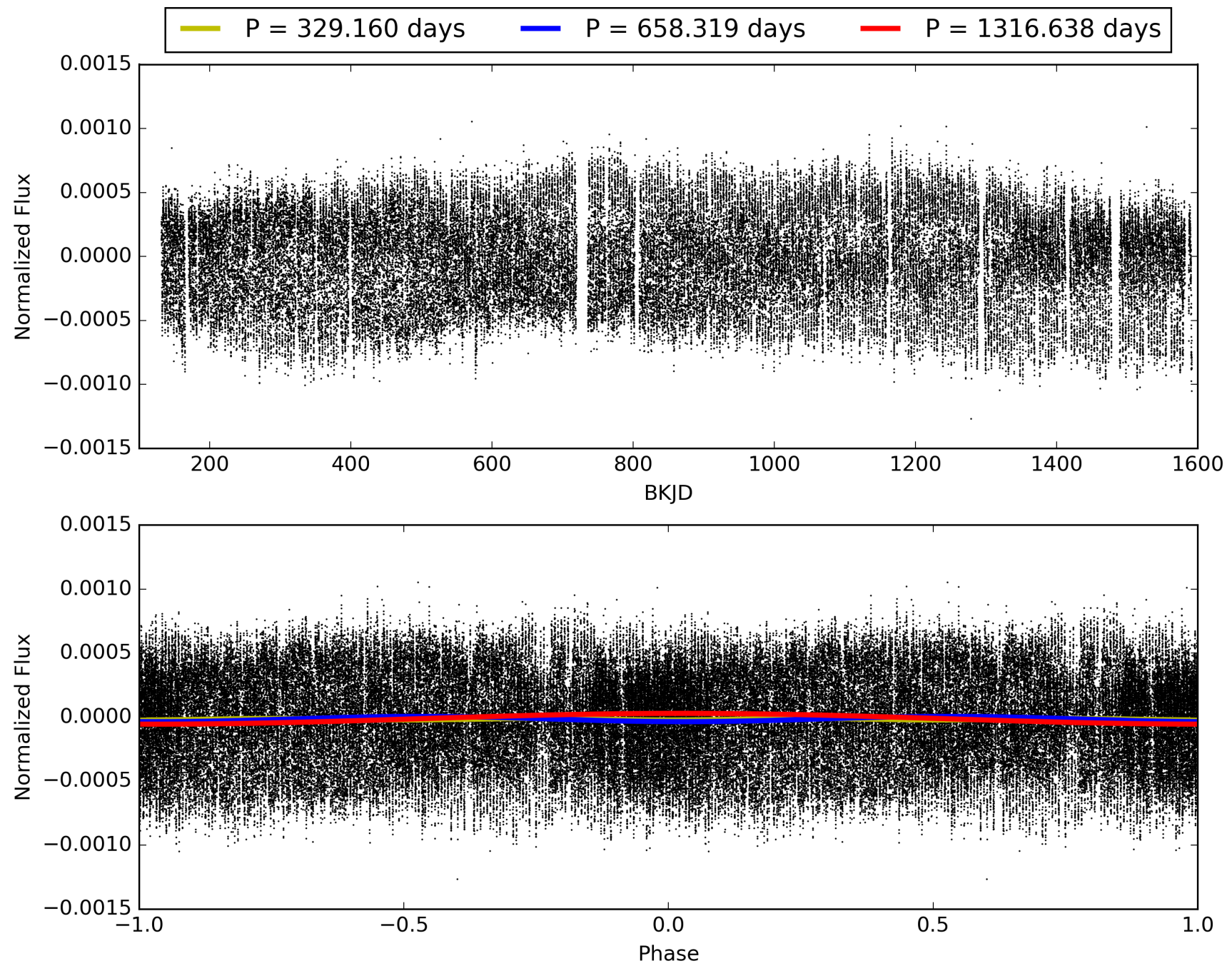
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:02:36 Z

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

TCE 008223568-04, PDC Light Curves

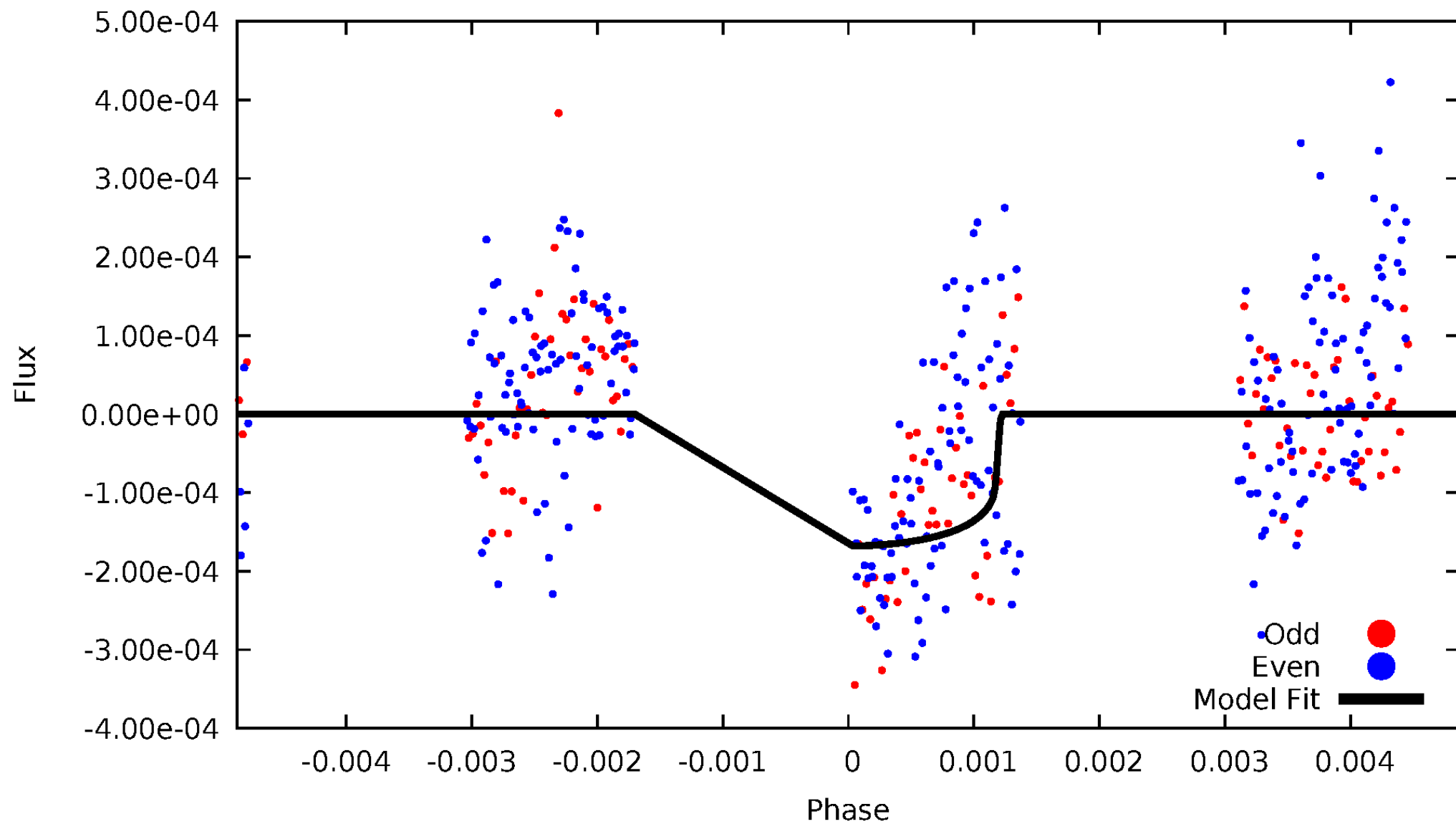


TCE 008223568-04



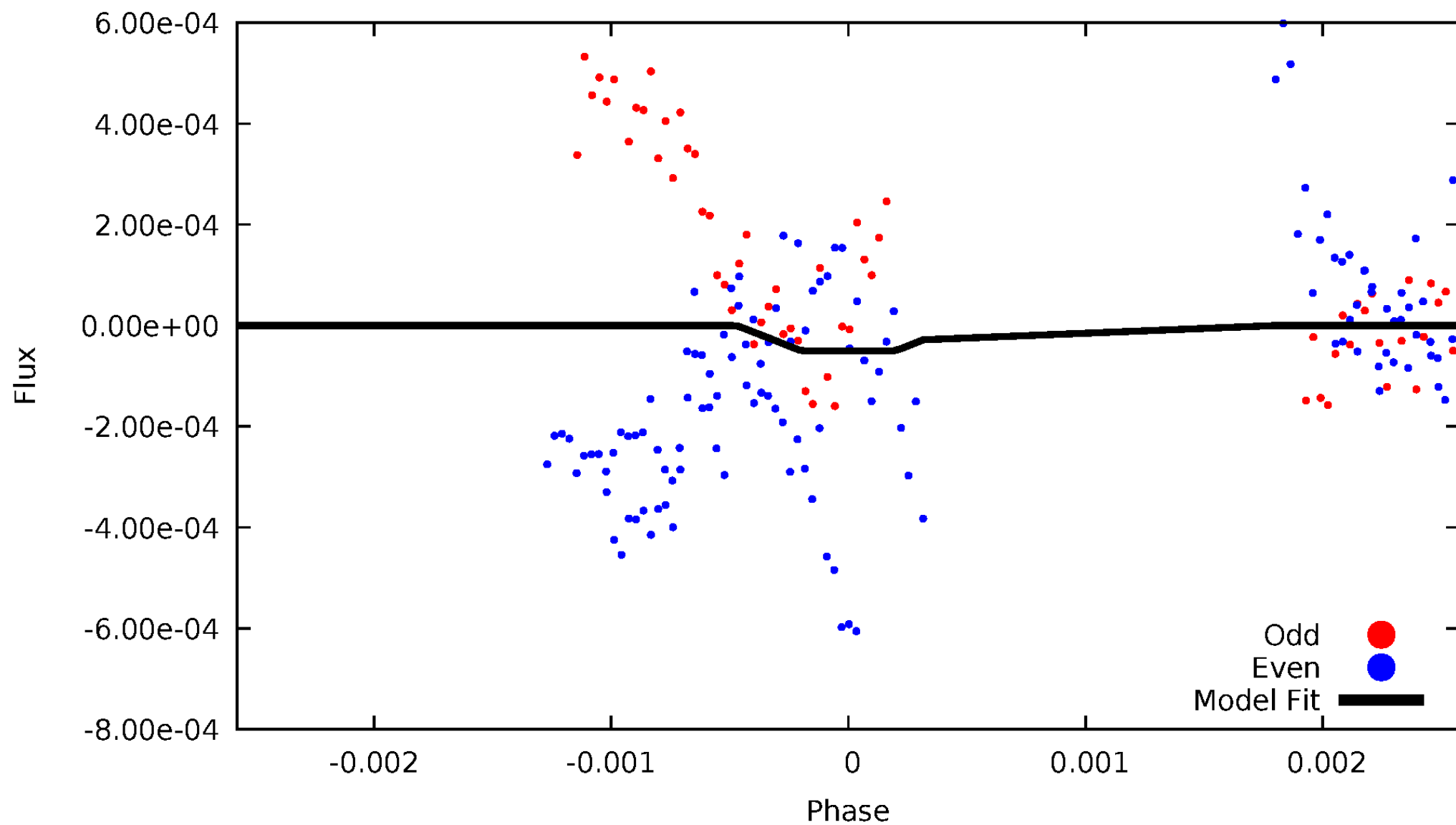
DV Odd/Even

TCE 008223568-04



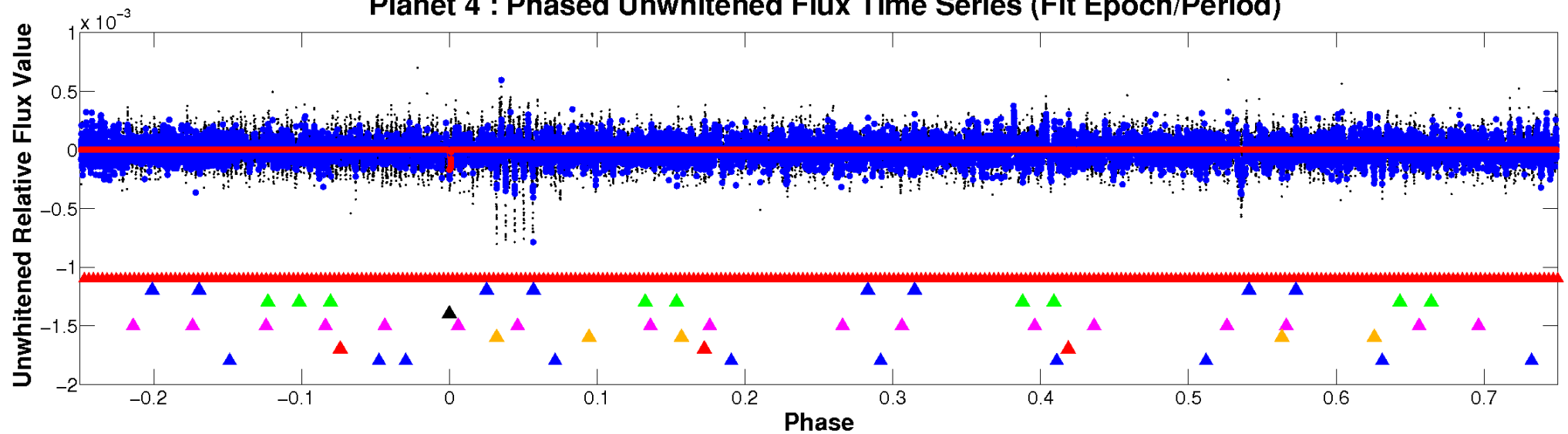
ALT Odd/Even

TCE 008223568-04

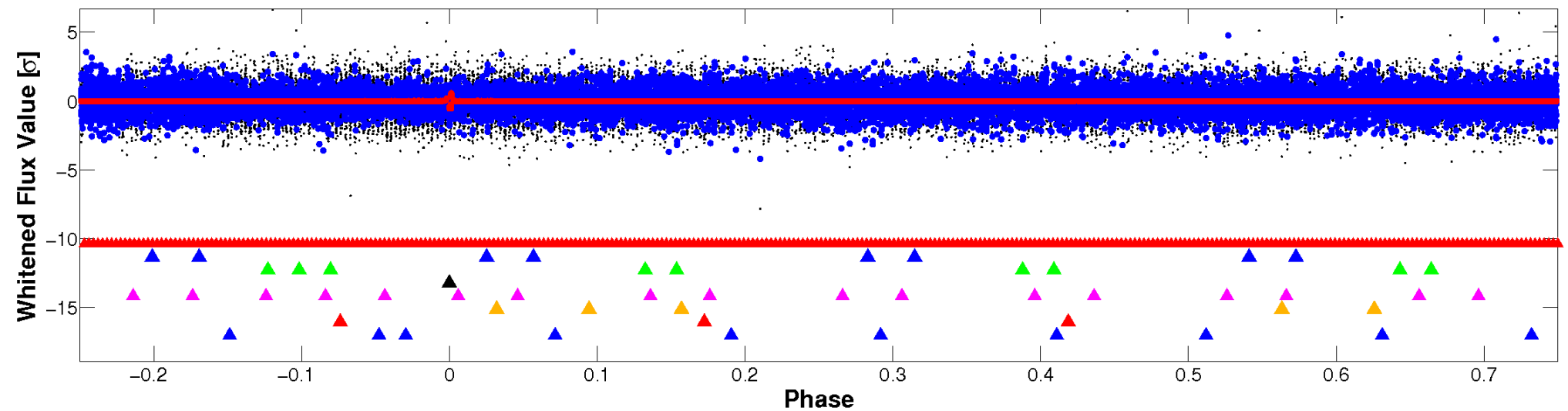


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

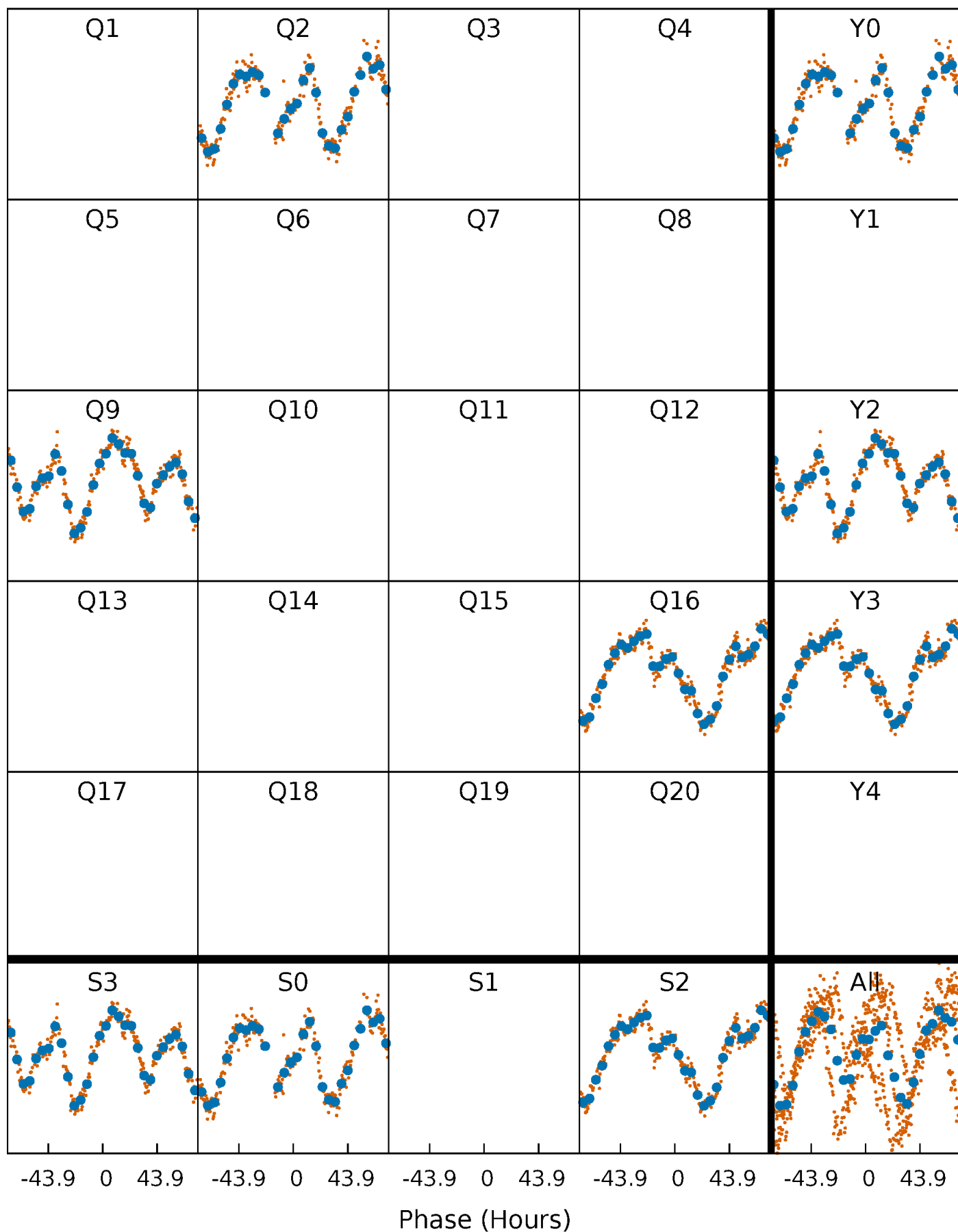


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



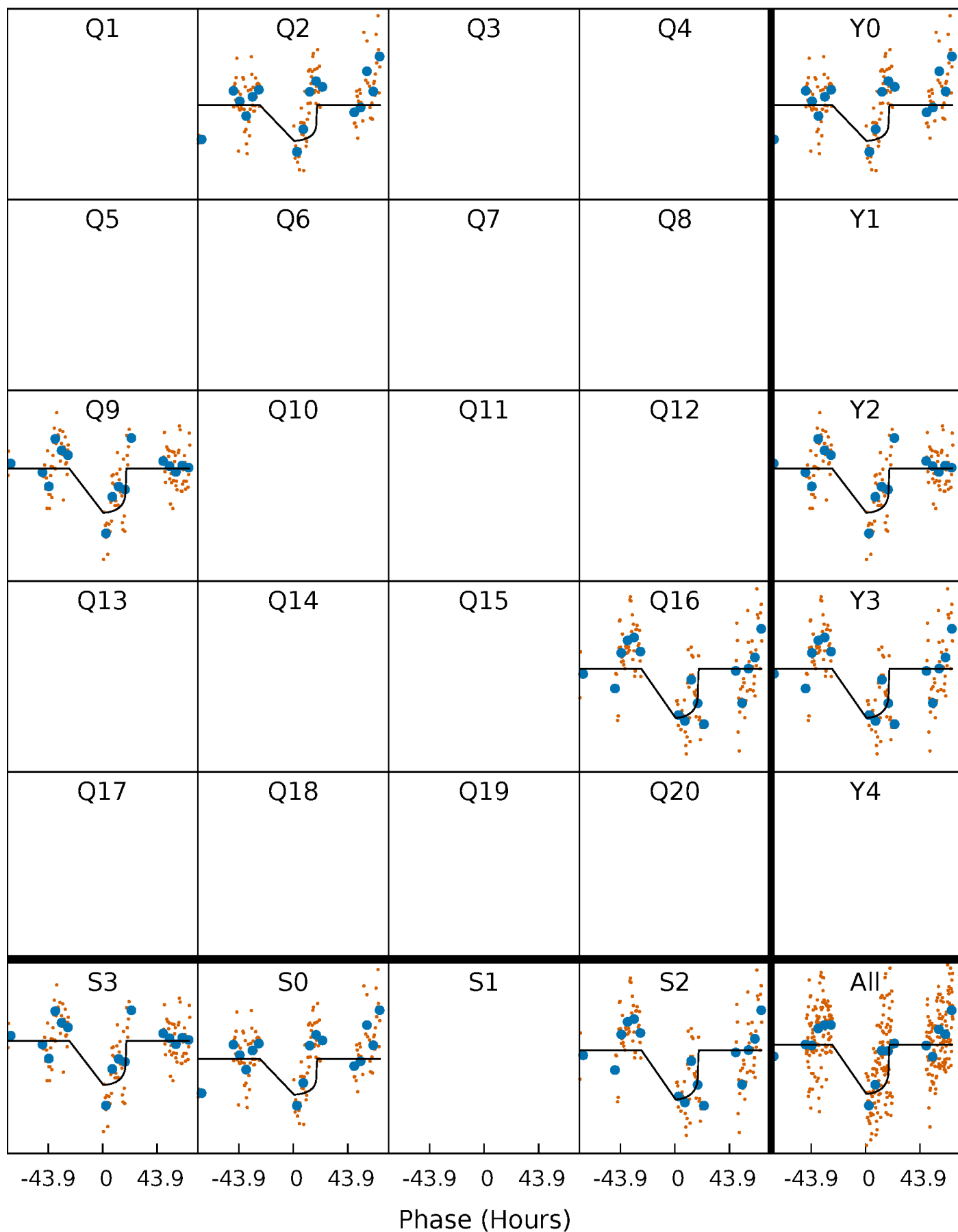
PDC Quarter-Phased Transit Curves

TCE 008223568-04 P=658.319006 Days $T_0=224.483928$ (BKJD)



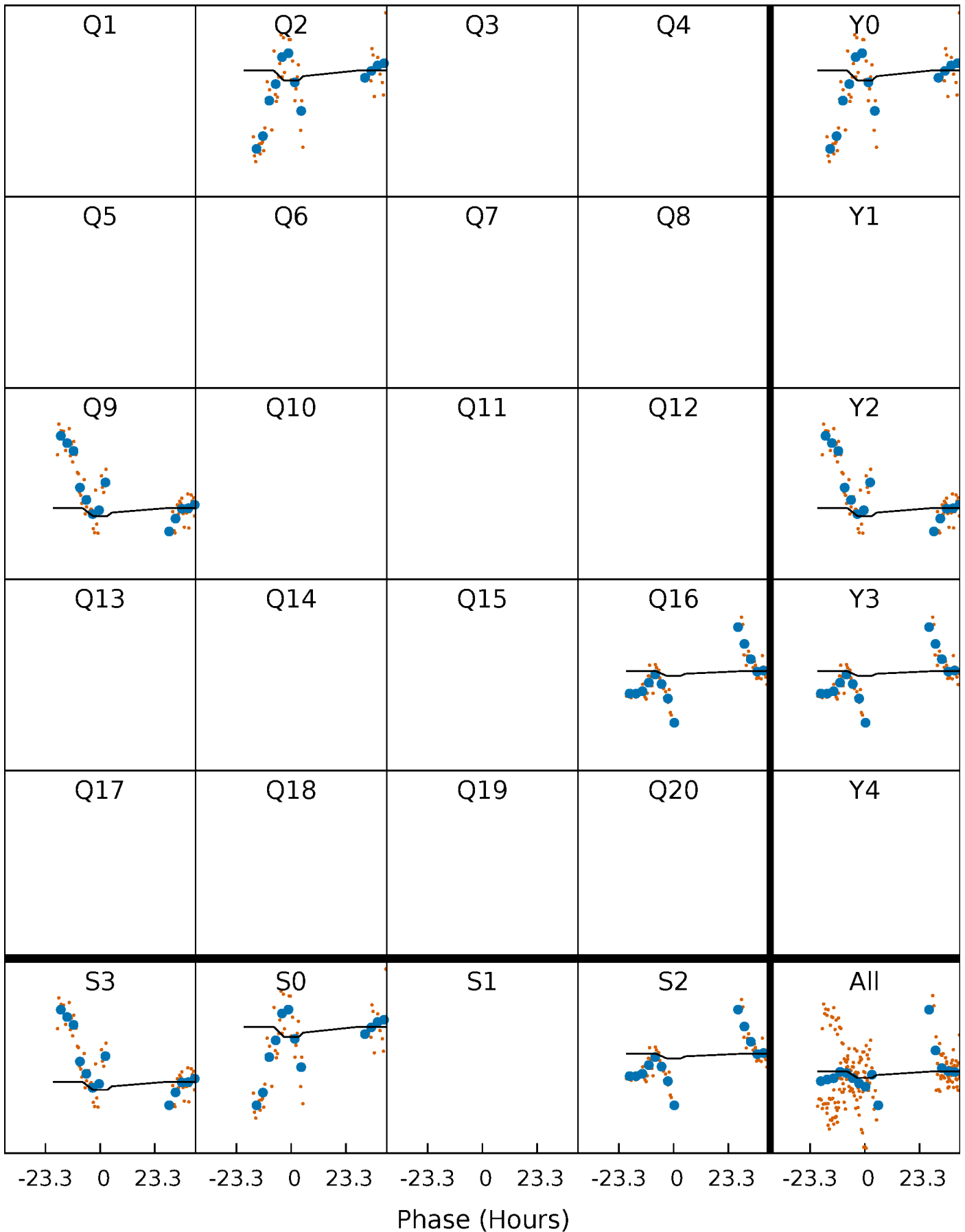
DV Quarter-Phased Transit Curves

TCE 008223568-04 $P=658.319006$ Days $T_0=224.483928$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

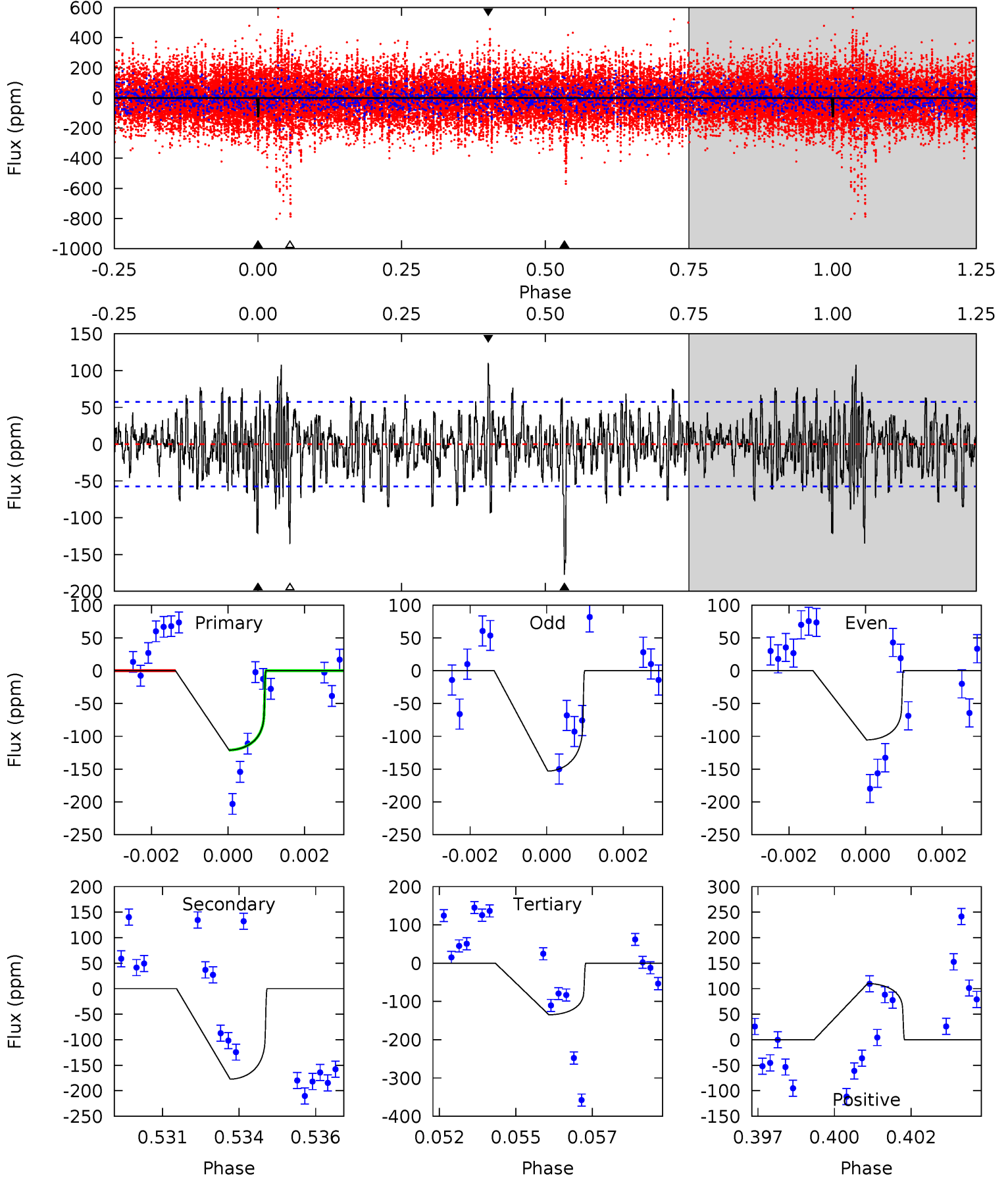
TCE 008223568-04 P=658.410170 Days $T_0=225.178191$ (BKJD)



DV Model-Shift Uniqueness Test

008223568-04, P = 658.319006 Days, E = 224.483928 Days

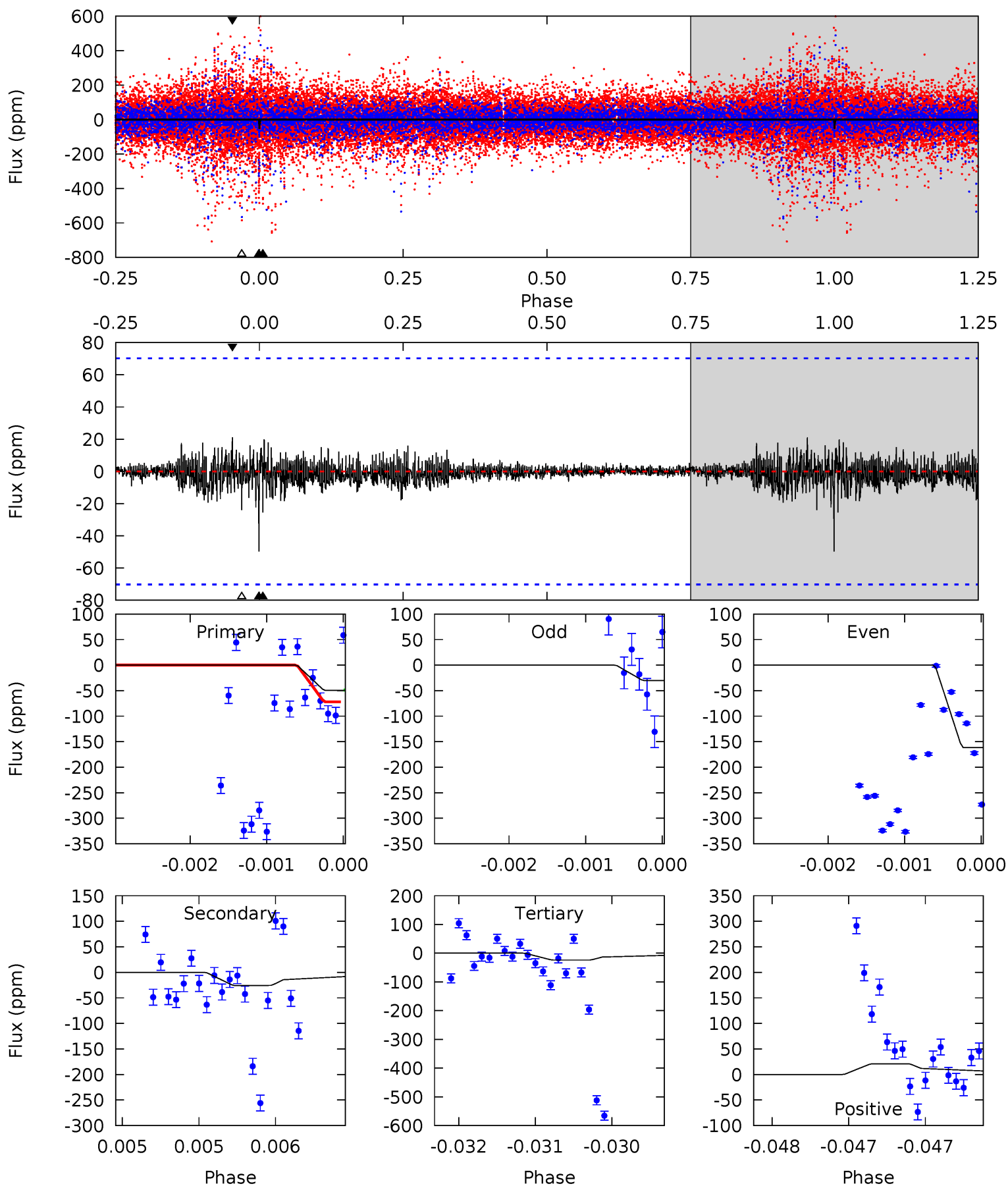
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	16.3	12.4	10.1	5.29	3.03	2.81	-1.27	1.00	3.90	6.17	2.12	0.91	0.38	0



Alt Model-Shift Uniqueness Test

008223568-04, P = 658.410170 Days, E = 225.178191 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.88	2.00	1.87	1.65	5.50	3.36	0.38	2.02	2.24	0.13	0.35	5.01	6.90	0.30	0.83



Stellar Parameters For KIC 008223568

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6726^{+117}_{-150}	$4.335^{+0.032}_{-0.120}$	$0.070^{+0.100}_{-0.200}$	$1.310^{+0.226}_{-0.097}$	$1.354^{+0.075}_{-0.112}$	$0.848^{+0.131}_{-0.298}$
	+2%/-2%	+1%/-3%	+143%/-286%	+17%/-7%	+6%/-8%	+15%/-35%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 008223568-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-177 ± 11	$1.83^{+0.57}_{-0.56}$	375^{+16}_{-11}	6980^{+1732}_{-941}	76697^{+79800}_{-32185}
Alt.	-26 ± 13	$1.10^{+0.52}_{-0.50}$	376^{+16}_{-13}	5575^{+2280}_{-1066}	32087^{+85482}_{-21209}

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 $A_{obs} \gg 1.0$

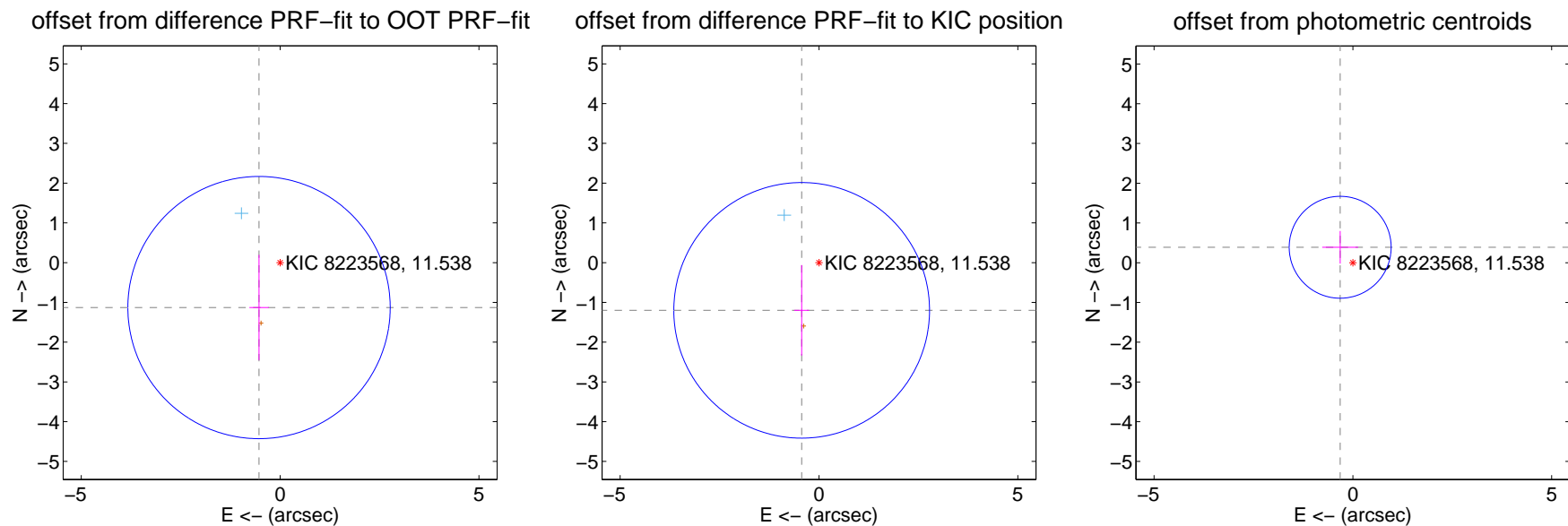
DV Centroid Data

Supplemental centroid analysis for 008223568-04. **Kepler magnitude: 11.54.** Transit SNR 5.63

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.248 ± 1.099	1.14	0.530 ± 0.244	-1.130 ± 1.324
PRF-fit source offset from KIC position	1.276 ± 1.071	1.19	0.435 ± 0.185	-1.200 ± 1.138
photometric centroid source offset	0.50 ± 0.43	1.18	0.32 ± 0.45	0.39 ± 0.41



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.

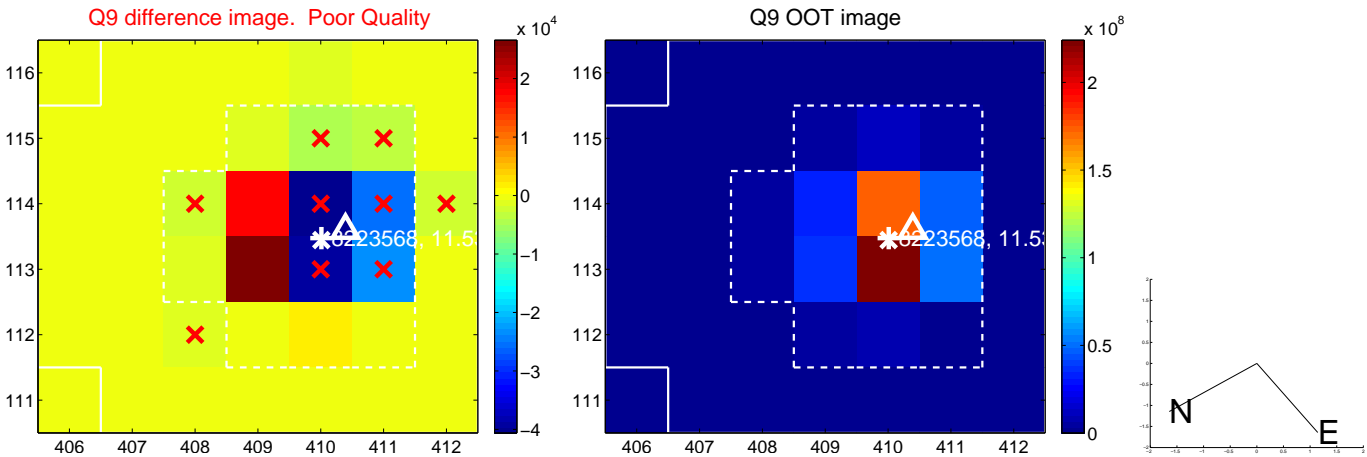
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



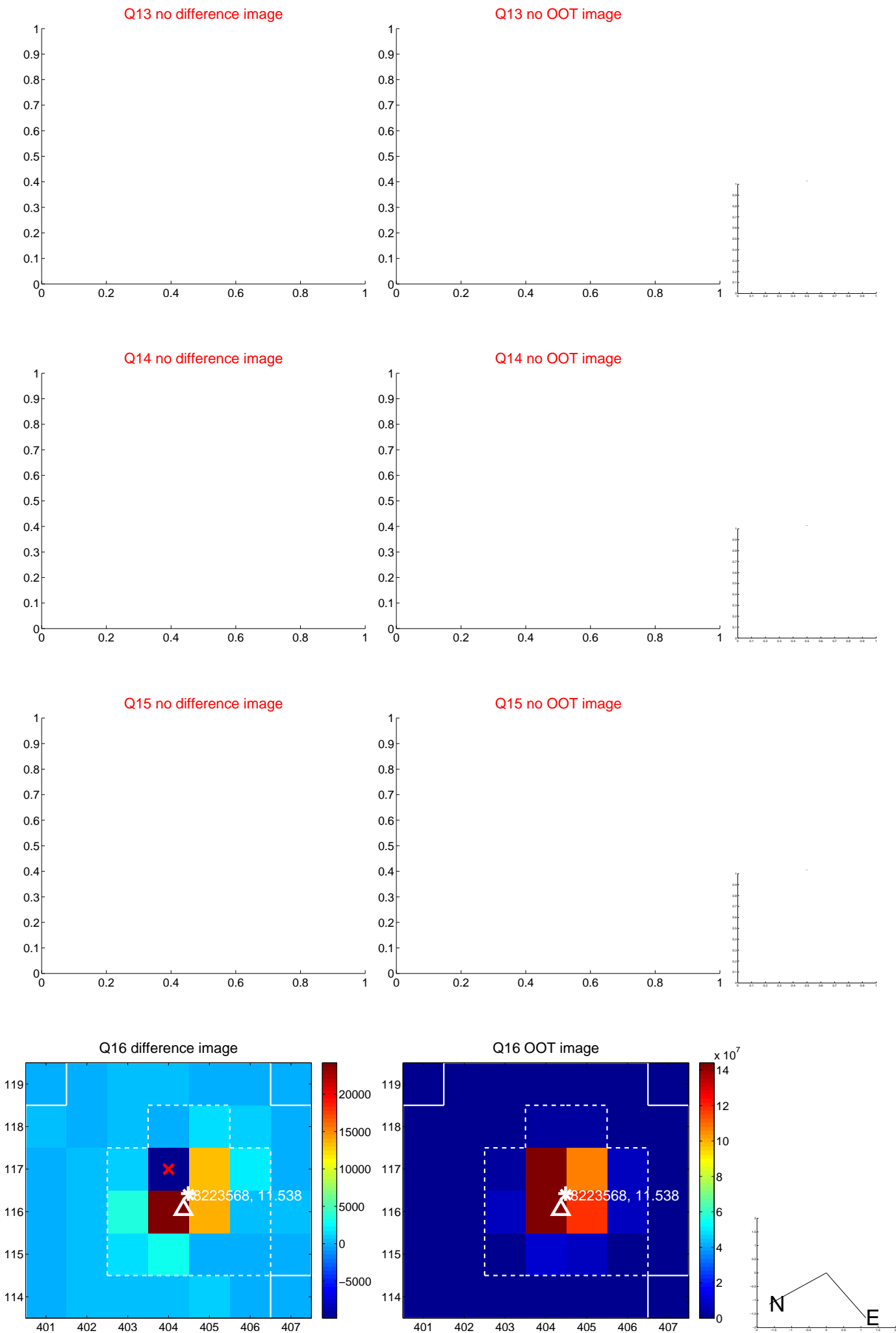
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



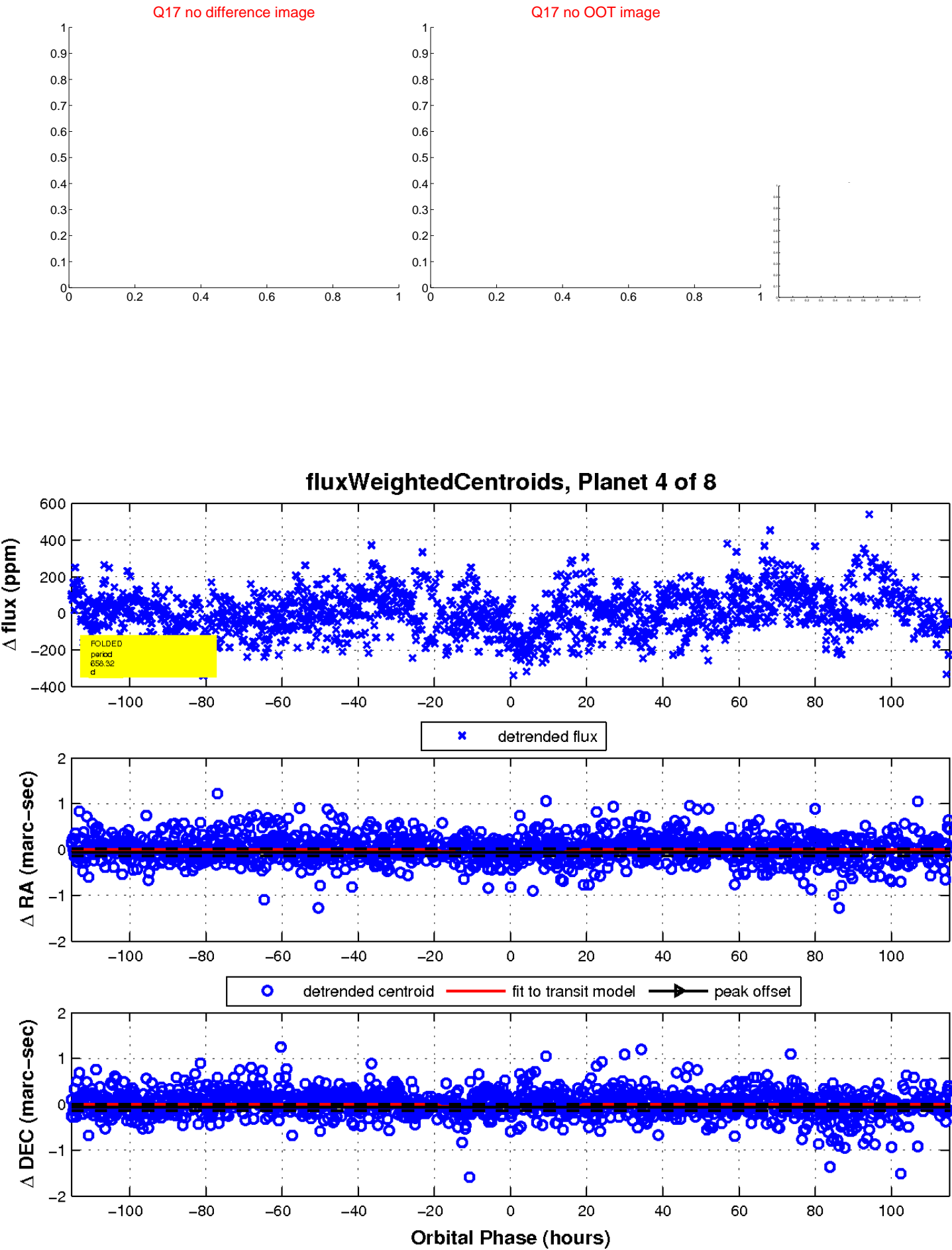
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

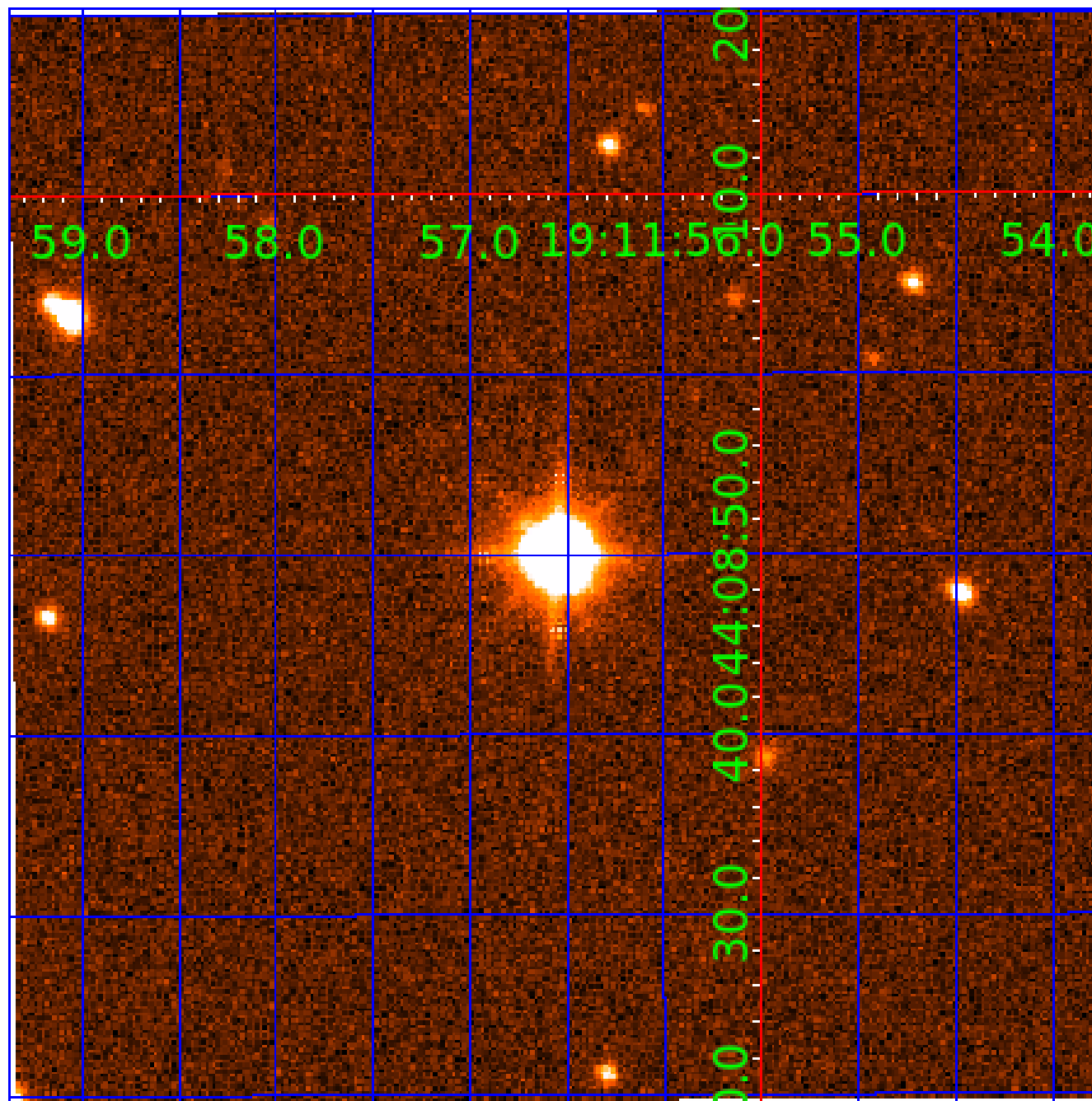


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008223568

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})
008223568-01	OBS	No	2.025610	132.782607	25.7	8.949	14.7	12.7	1.31	6726	0.68	2618.35
008223568-02	OBS	No	169.793123	241.103322	193.2	7.367	9.0	9.1	1.31	6726	1.99	7.14
008223568-03	OBS	No	168.063214	143.680942	180.7	3.849	8.3	6.8	1.31	6726	2.04	7.24
008223568-04	OBS	No	658.319006	224.483928	168.0	38.454	8.1	5.6	1.31	6726	1.79	1.17
008223568-05	OBS	No	85.596547	142.828876	165.4	4.464	7.8	8.8	1.31	6726	2.01	17.79
008223568-06	OBS	No	308.578133	327.887031	184.2	9.322	8.1	7.7	1.31	6726	1.85	3.22
008223568-07	OBS	No	496.193301	500.164082	227.6	6.720	8.4	8.6	1.31	6726	2.25	1.71
008223568-08	OBS	No	144.969324	205.071810	79.5	7.500	7.7	-1.0	1.31	6726	1.18	8.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008223568-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008223568-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
008223568-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008223568-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008223568-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008223568-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNCERTAIN
008223568-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_DIFFS
008223568-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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.

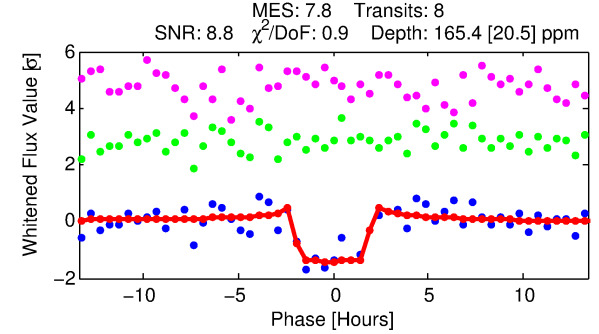
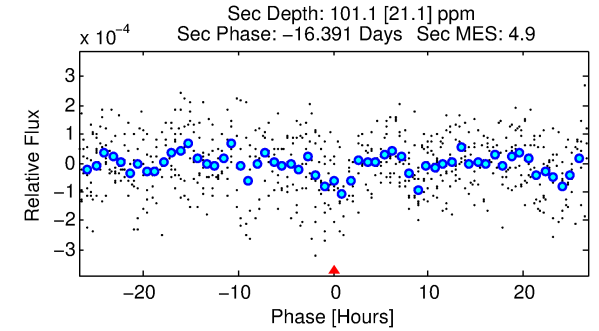
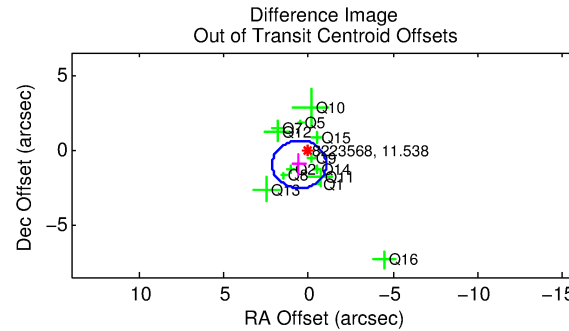
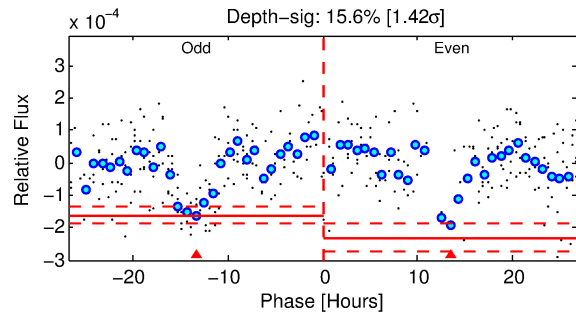
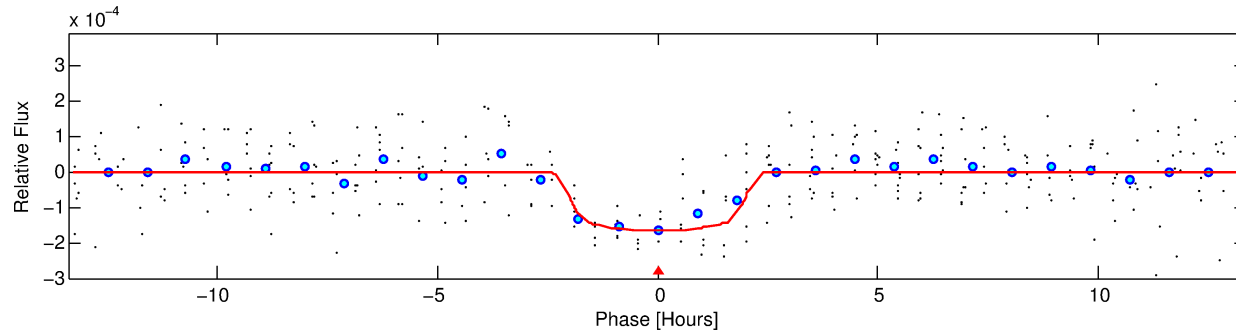
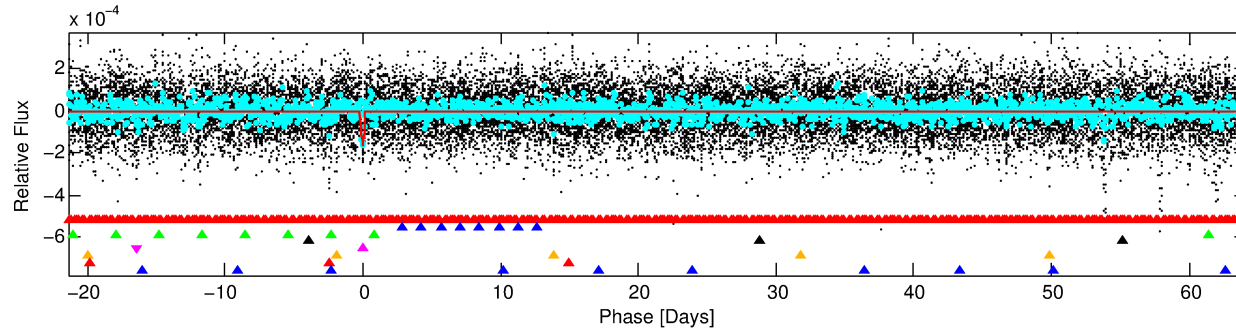
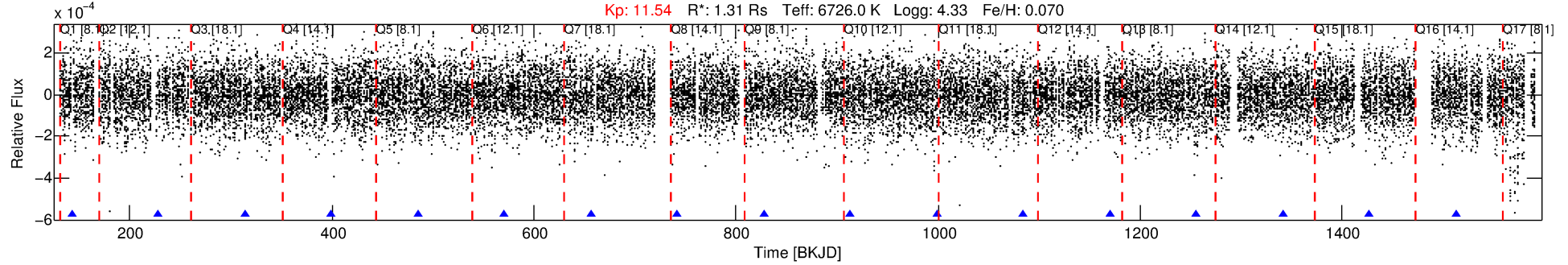
Ephemeris Match Information For 008223568-05

No Significant Match Found

DV One-Page Summary

KIC: 8223568 Candidate: 5 of 8 Period: 85.597 d
KOI: K06176 Corr: No Ephemeris Match

Kp: 11.54 R*: 1.31 Rs Teff: 6726.0 K Logg: 4.33 Fe/H: 0.070



DV Fit Results:

Period = 85.59655 [0.00085] d
Epoch = 142.8289 [0.0082] BKJD
Rp/R* = 0.0141 [0.0055]
a/R* = 61.21 [141.95]
b = 0.92 [0.37]
Seff = 17.79 [4.18]
Teq = 524 [31] K
Rp = 2.01 [0.85] Re
a = 0.4206 [0.0620] AU
Ag = 2438.16 [2032.07] [1.20σ]
Teffp = 5689 [1152] K [4.48σ]

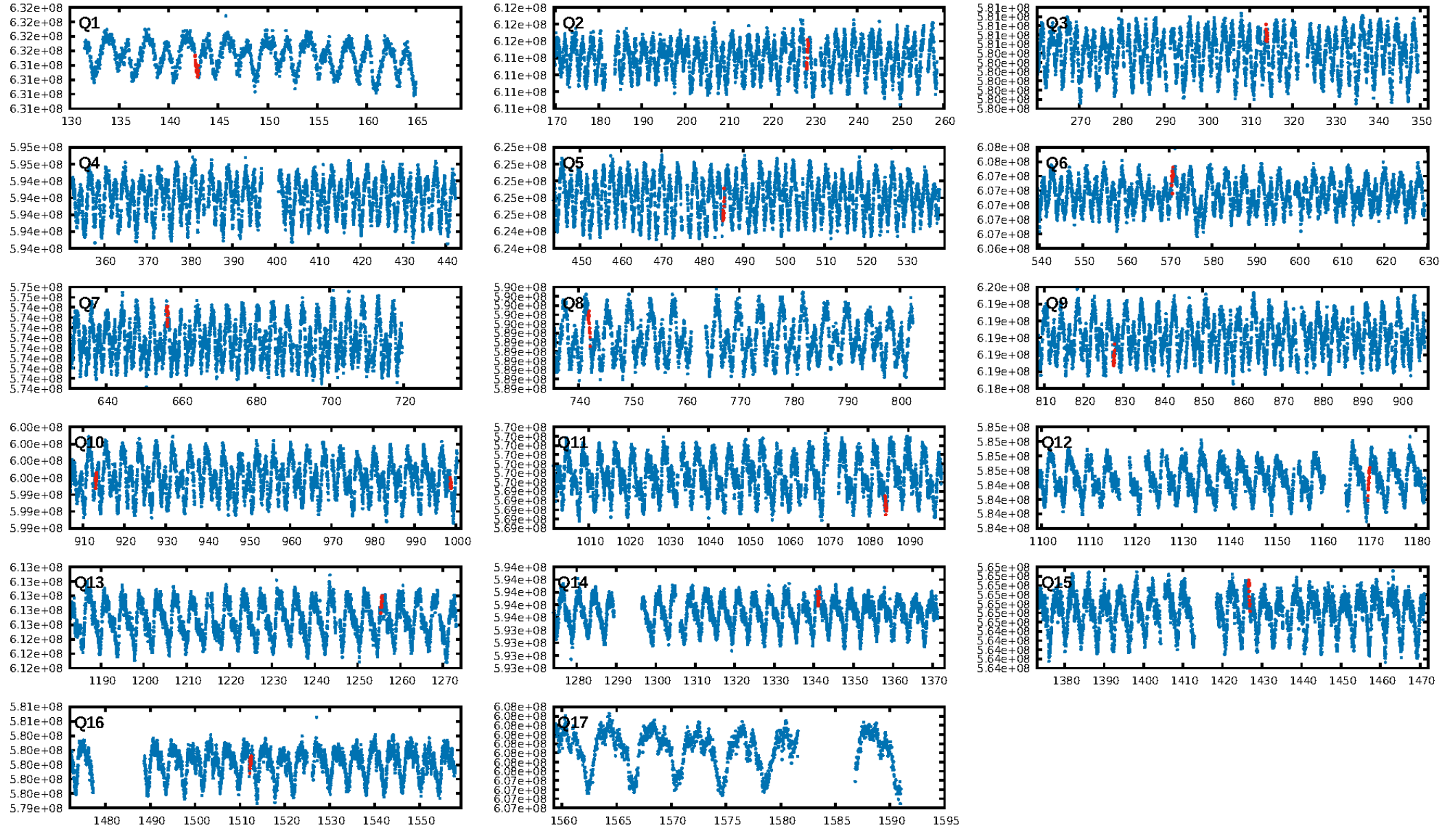
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [200.55σ]
LongPeriod-sig: 100.0% [163.26σ]
ModelChiSquare2-sig: 27.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 1.098
Centroid-sig: 10.1%
Centroid-so: 0.680 arcsec [1.58σ]
OotOffset-rm: 1.131 arcsec [2.13σ]
KicOffset-rm: 1.087 arcsec [1.98σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 0.46 [6/13]
DiffImageOverlap-fno: 0.33 [5/15]

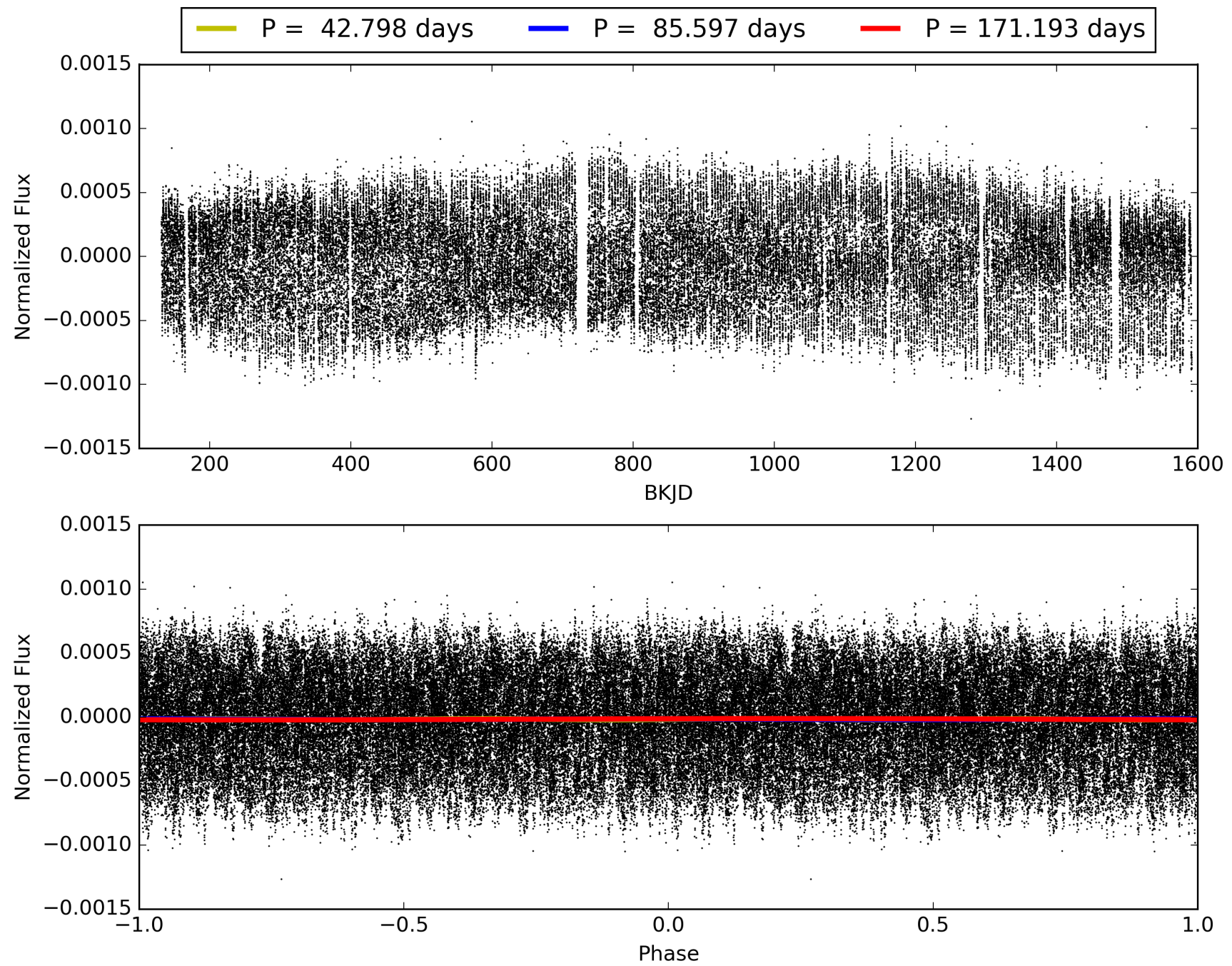
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:02:41 Z

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

TCE 008223568-05, PDC Light Curves

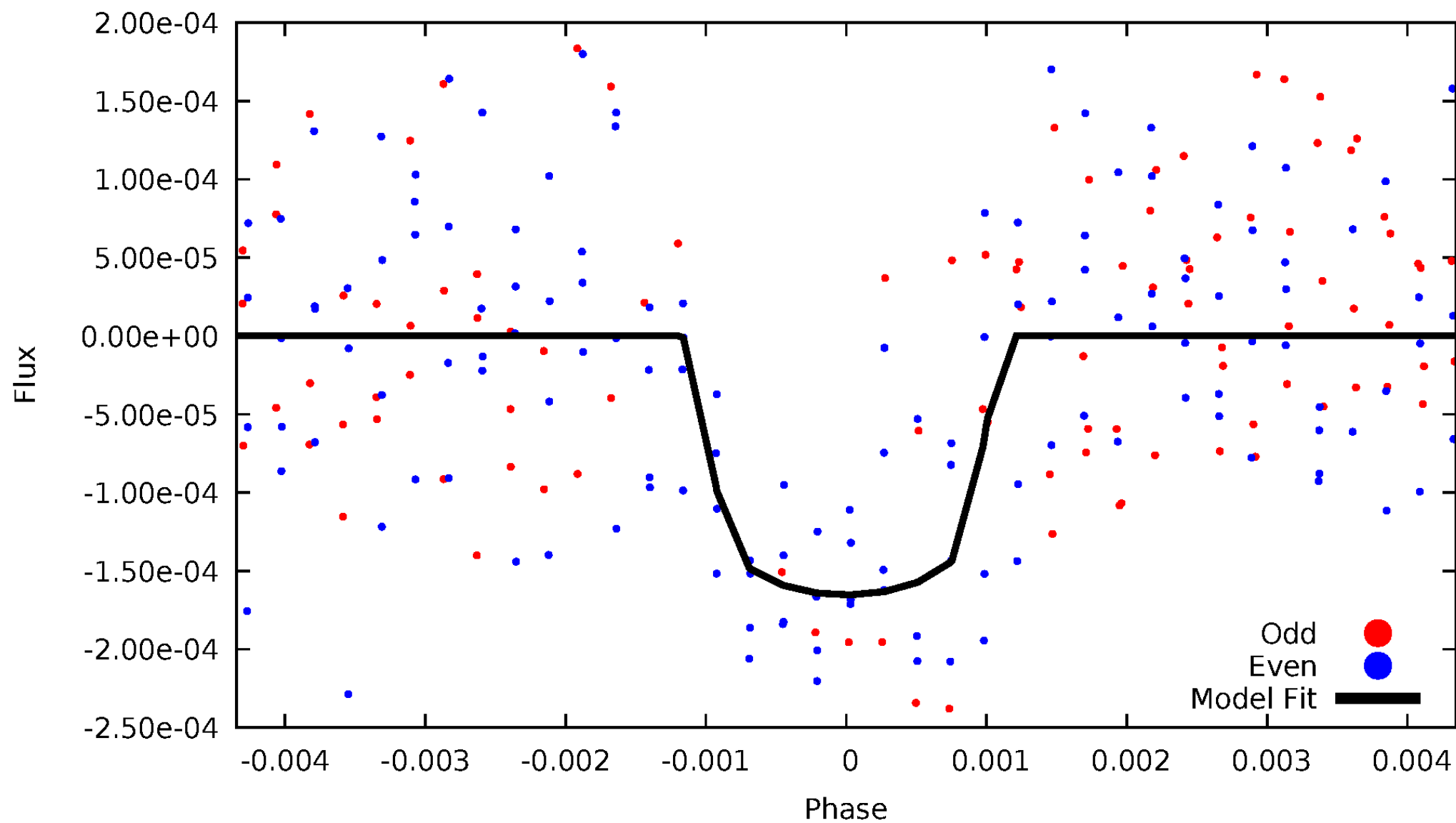


TCE 008223568-05



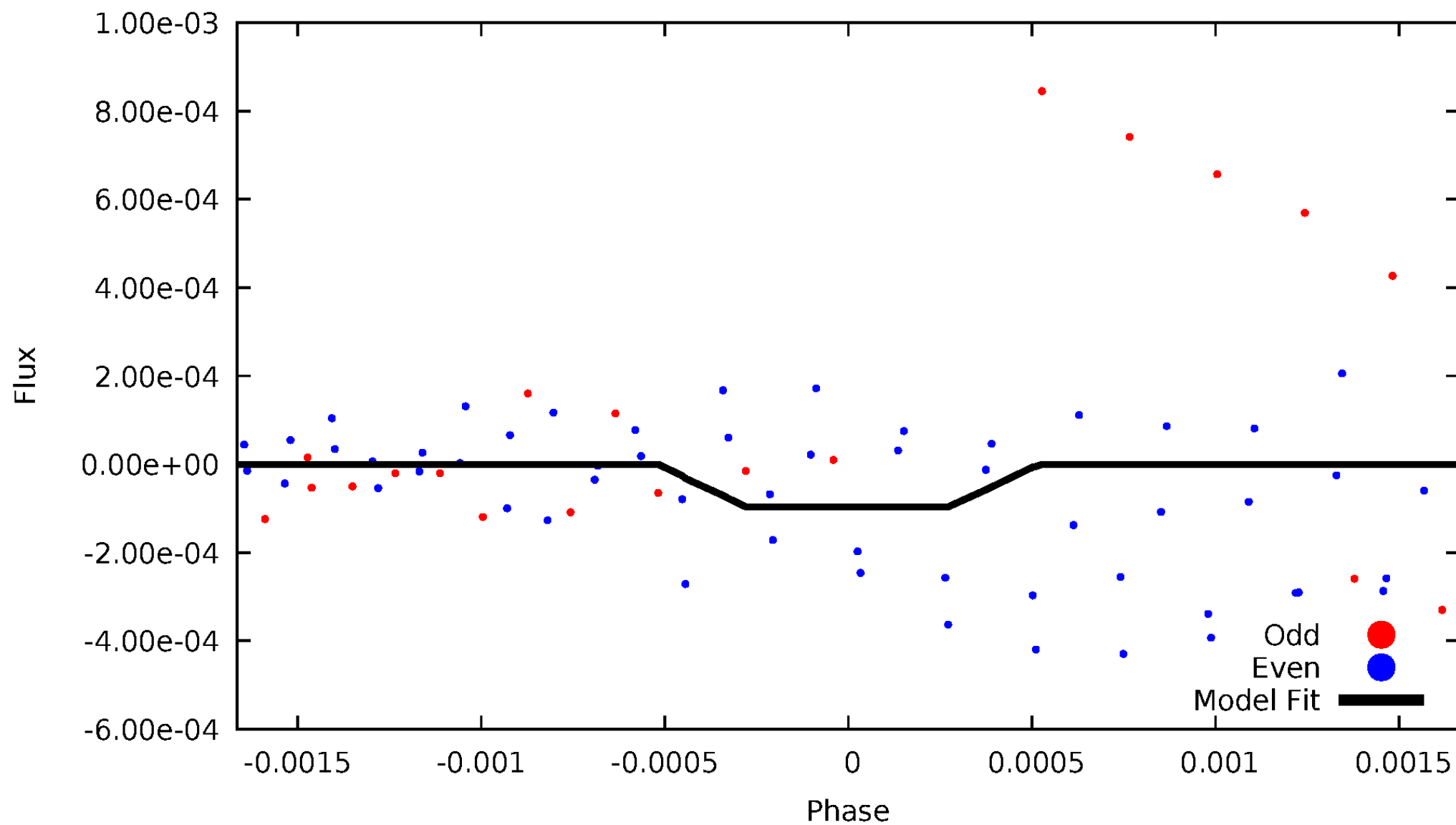
DV Odd/Even

TCE 008223568-05



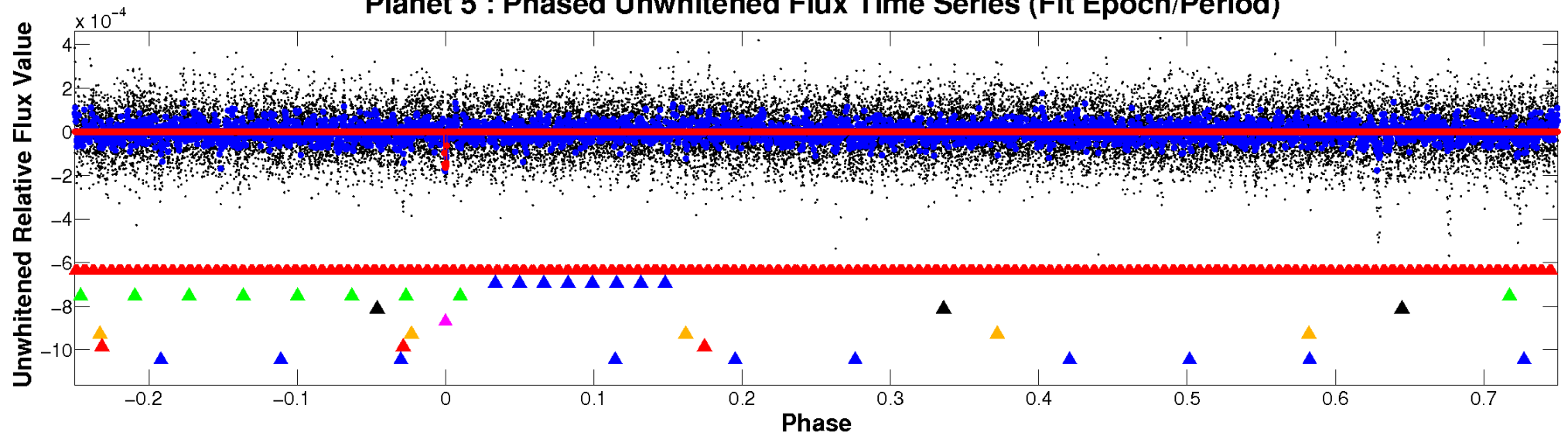
ALT Odd/Even

TCE 008223568-05

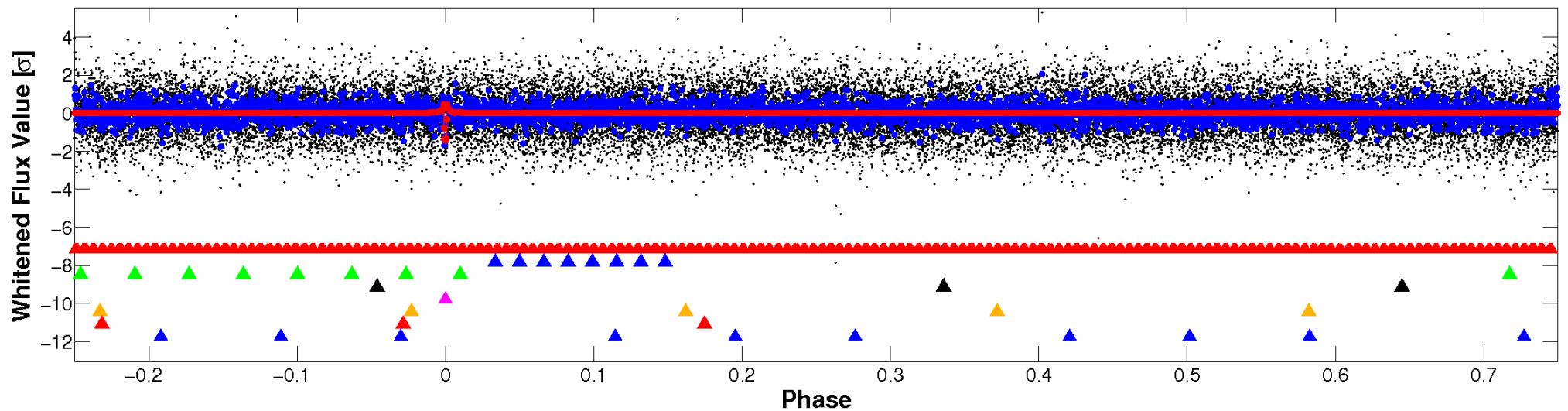


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

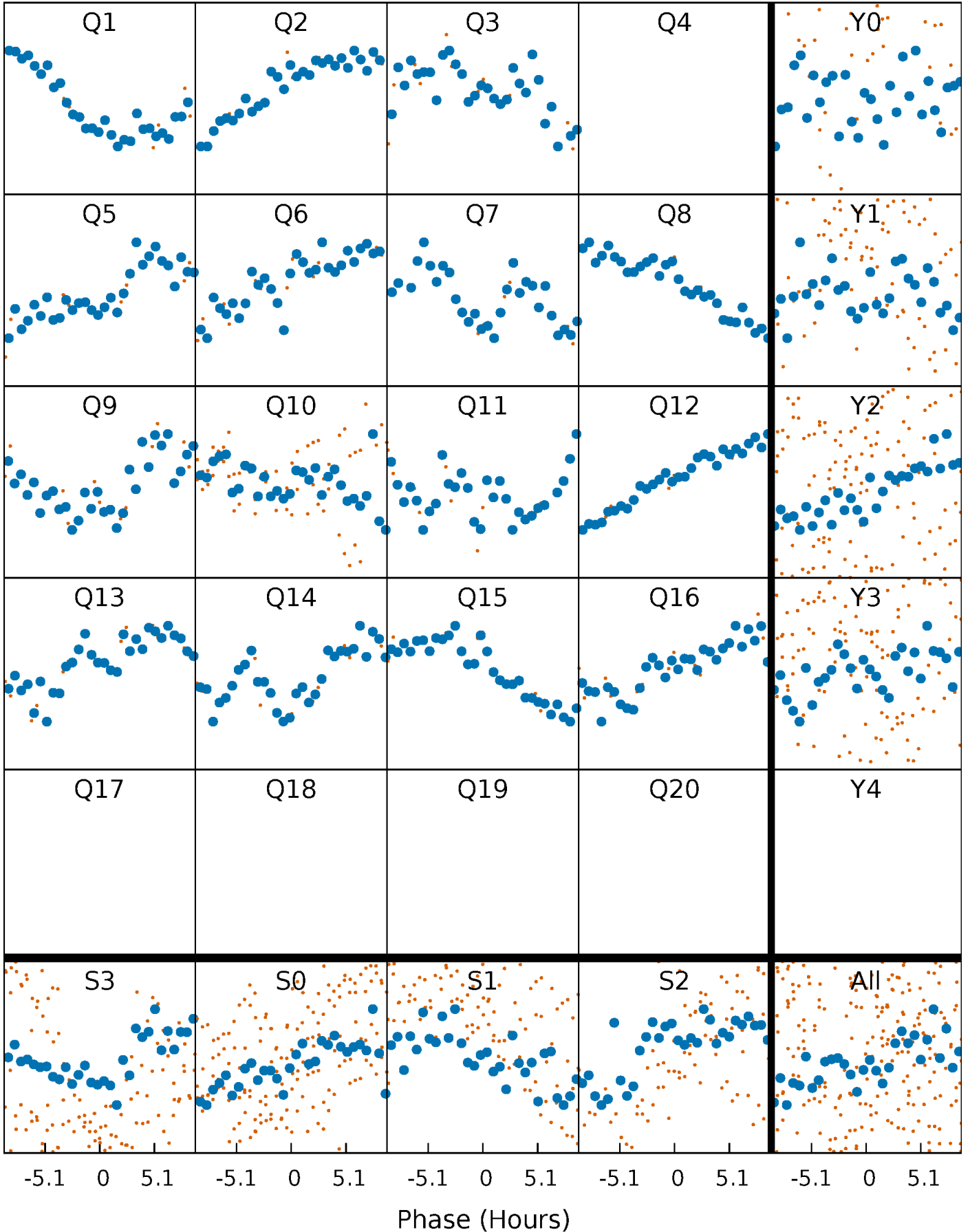


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



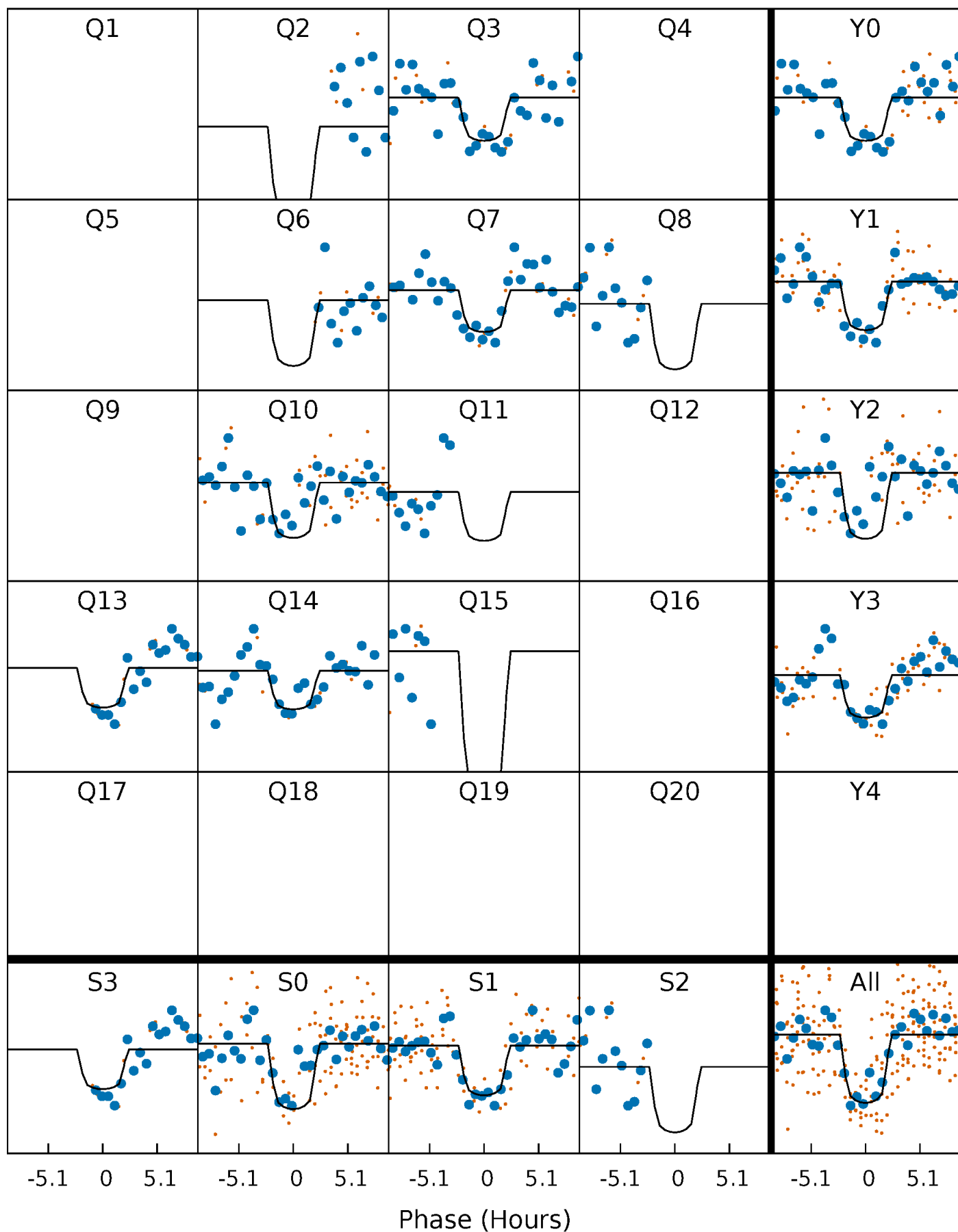
PDC Quarter-Phased Transit Curves

TCE 008223568-05 P= 85.596547 Days $T_0=142.828876$ (BKJD)



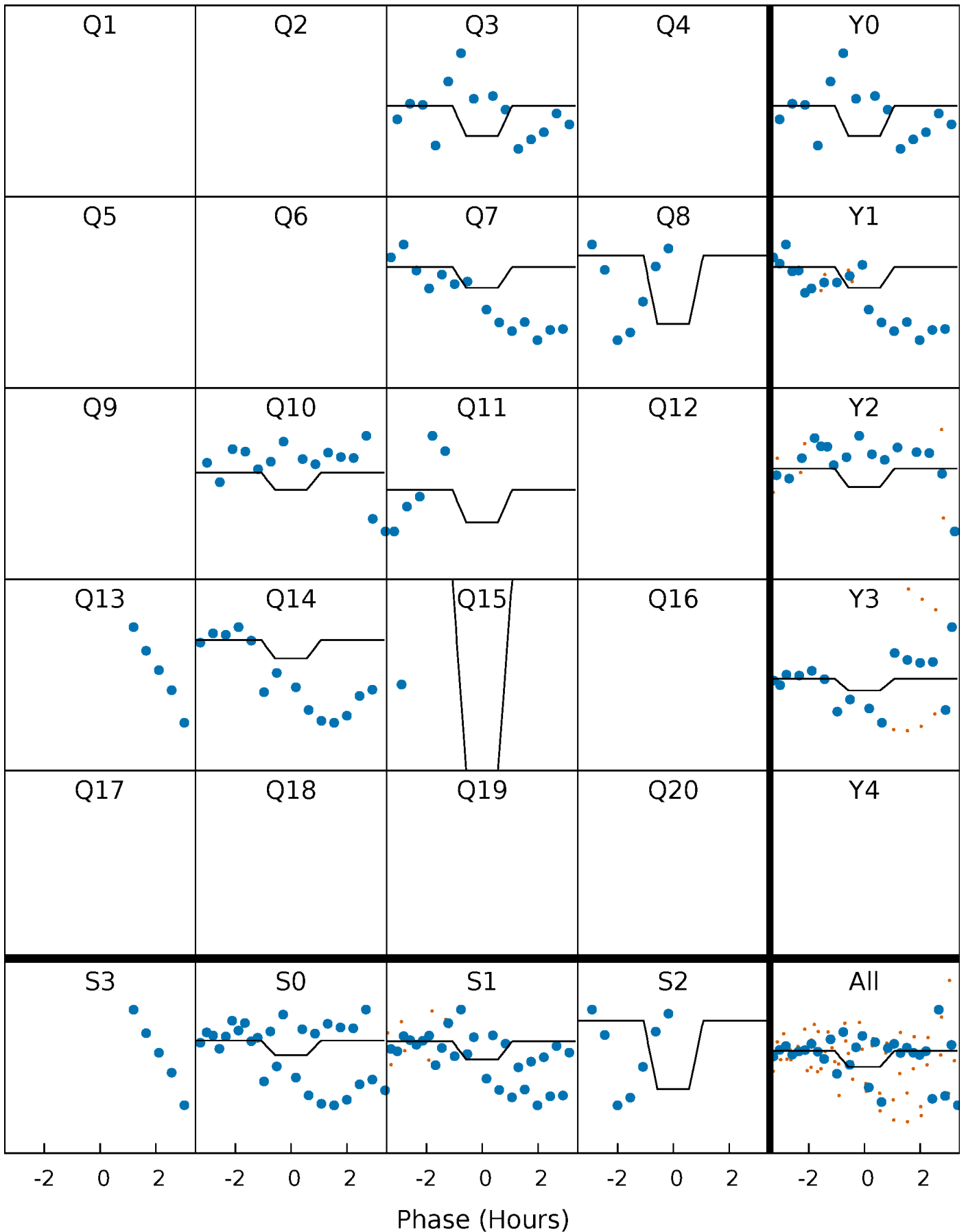
DV Quarter-Phased Transit Curves

TCE 008223568-05 $P = 85.596547$ Days $T_0 = 142.828876$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

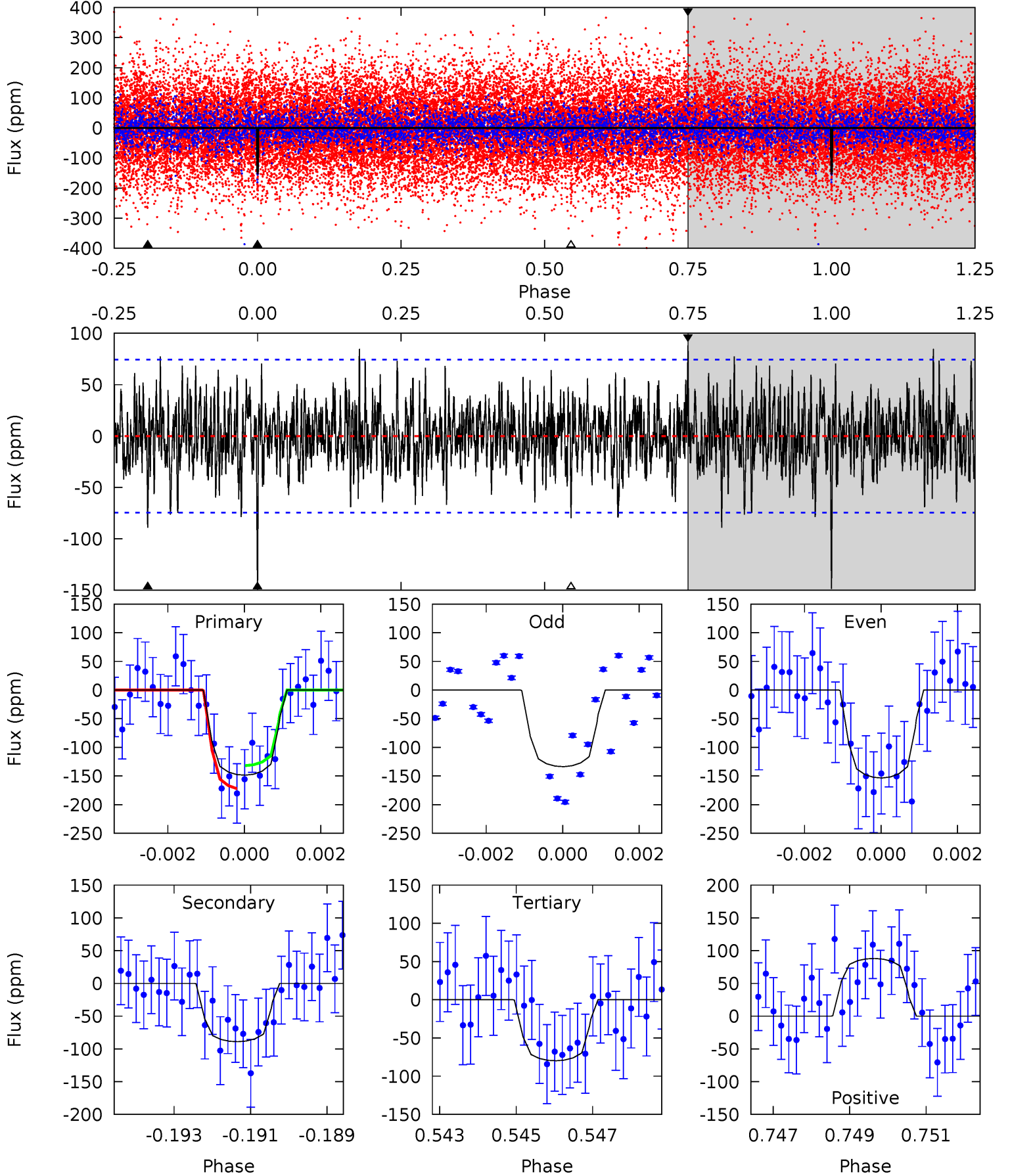
TCE 008223568-05 $P = 85.599018$ Days $T_0 = 142.712325$ (BKJD)



DV Model-Shift Uniqueness Test

008223568-05, P = 85.596547 Days, E = 57.232329 Days

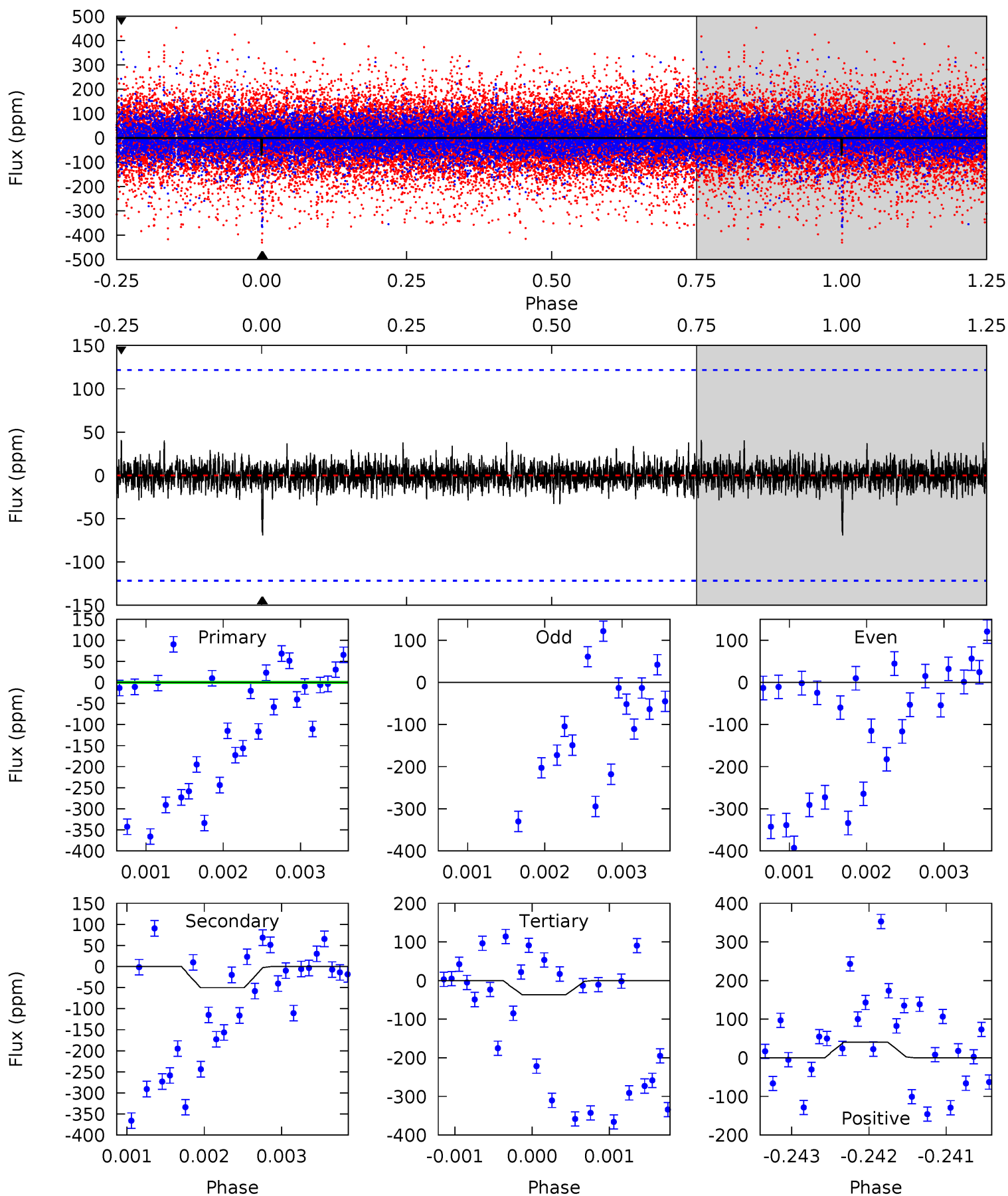
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	6.35	5.70	6.28	5.31	3.07	1.76	4.91	4.33	0.65	0.07	0.59	0.82	0.37	1.41



Alt Model-Shift Uniqueness Test

008223568-05, P = 85.599018 Days, E = 57.113307 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.11	2.24	1.64	1.82	5.46	3.30	0.44	1.47	1.29	0.61	0.43	1.08	22.3	0.37	3.29



Stellar Parameters For KIC 008223568

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6726^{+117}_{-150}	$4.335^{+0.032}_{-0.120}$	$0.070^{+0.100}_{-0.200}$	$1.310^{+0.226}_{-0.097}$	$1.354^{+0.075}_{-0.112}$	$0.848^{+0.131}_{-0.298}$
	+2%/-2%	+1%/-3%	+143%/-286%	+17%/-7%	+6%/-8%	+15%/-35%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 008223568-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-89±14	$2.07^{+0.80}_{-0.82}$	742^{+35}_{-25}	5526^{+1637}_{-775}	1976^{+3301}_{-1001}
Alt.	-50±22	$1.50^{+0.75}_{-0.74}$	739^{+32}_{-21}	5536^{+2504}_{-1059}	2085^{+6047}_{-1351}

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 $A_{obs} \gg 1.0$

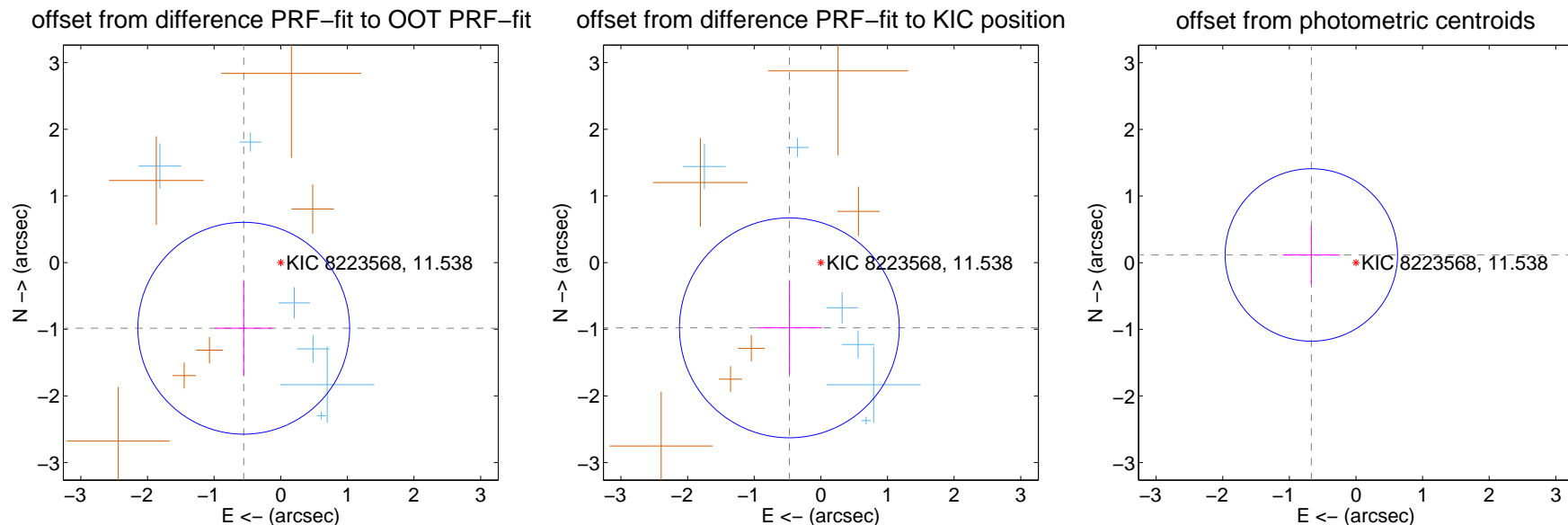
DV Centroid Data

Supplemental centroid analysis for 008223568-05. **Kepler magnitude: 11.54.** Transit SNR 8.79

There are 6 quarters with good PRF difference image offsets

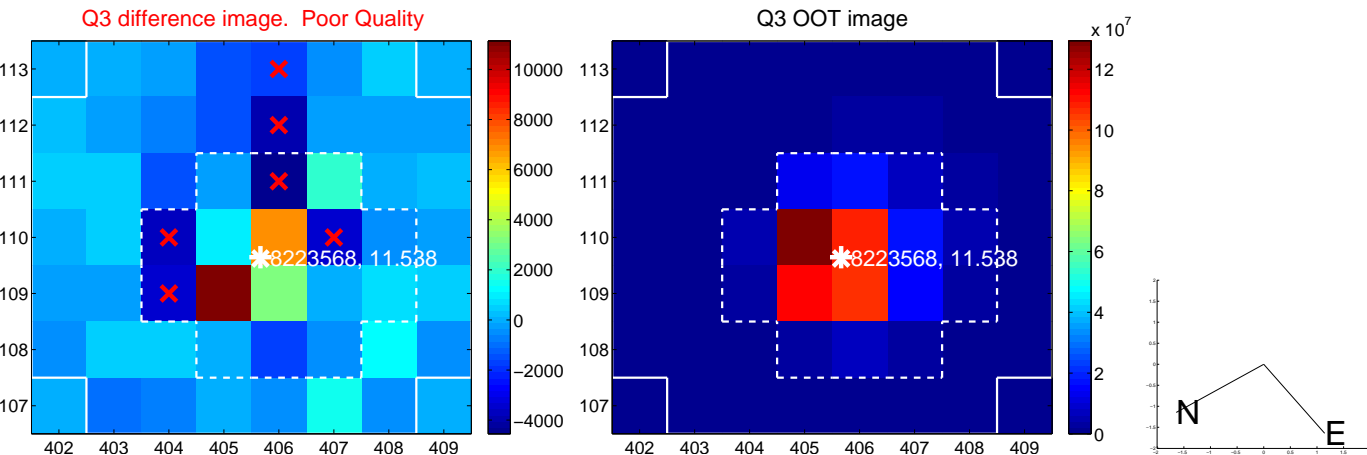
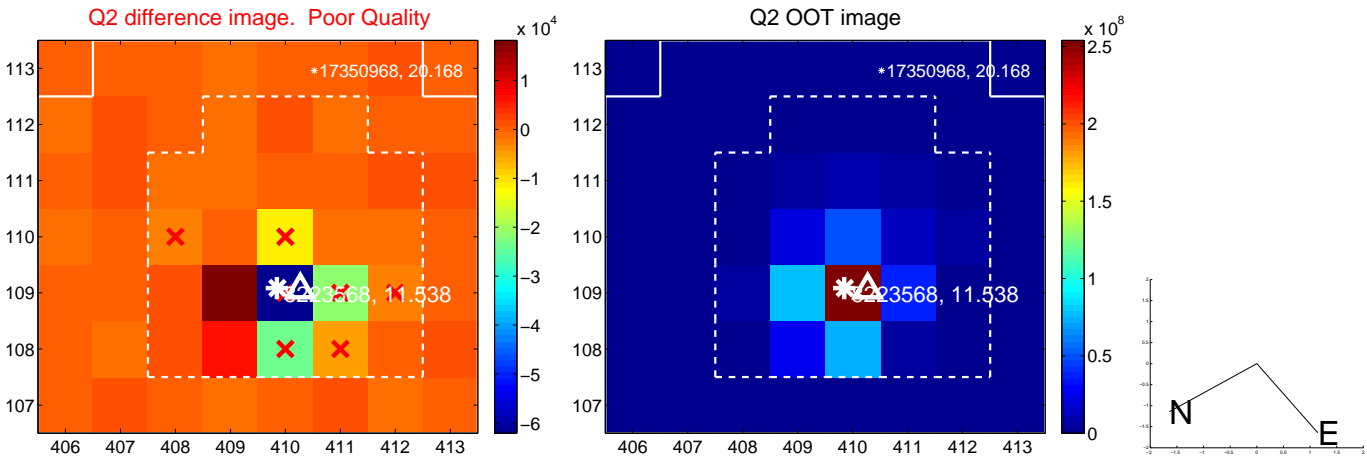
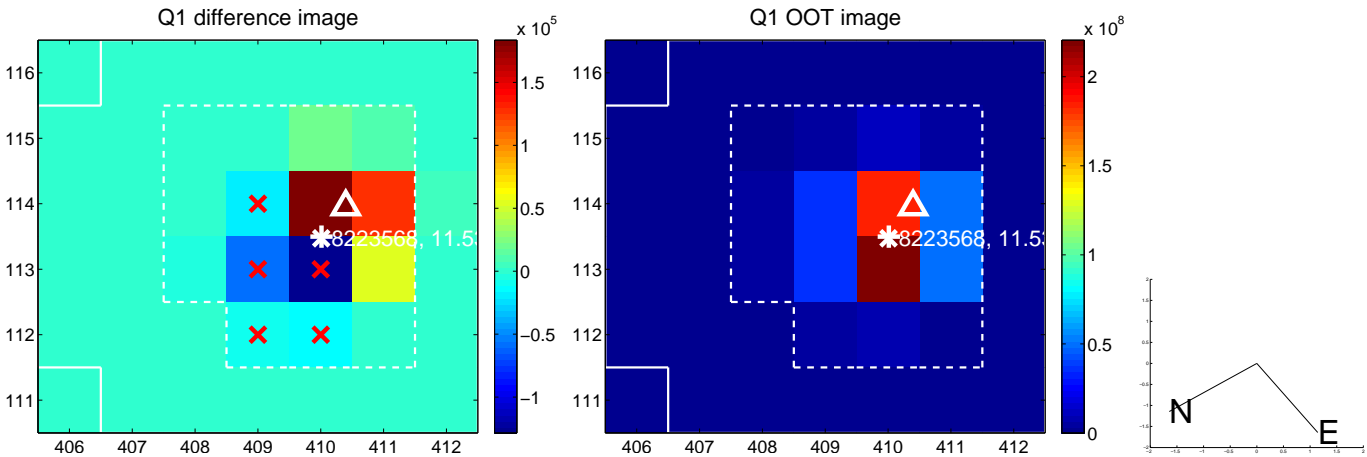
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.131 ± 0.530	2.13	0.555 ± 0.430	-0.985 ± 0.704
PRF-fit source offset from KIC position	1.087 ± 0.550	1.98	0.473 ± 0.486	-0.979 ± 0.701
photometric centroid source offset	0.68 ± 0.43	1.58	0.67 ± 0.43	0.12 ± 0.44

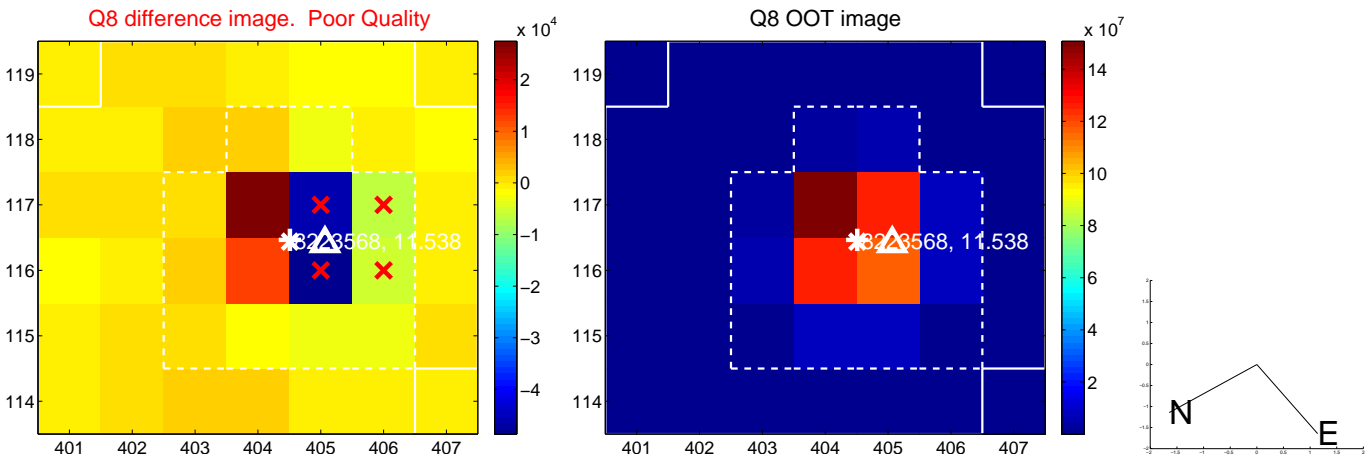
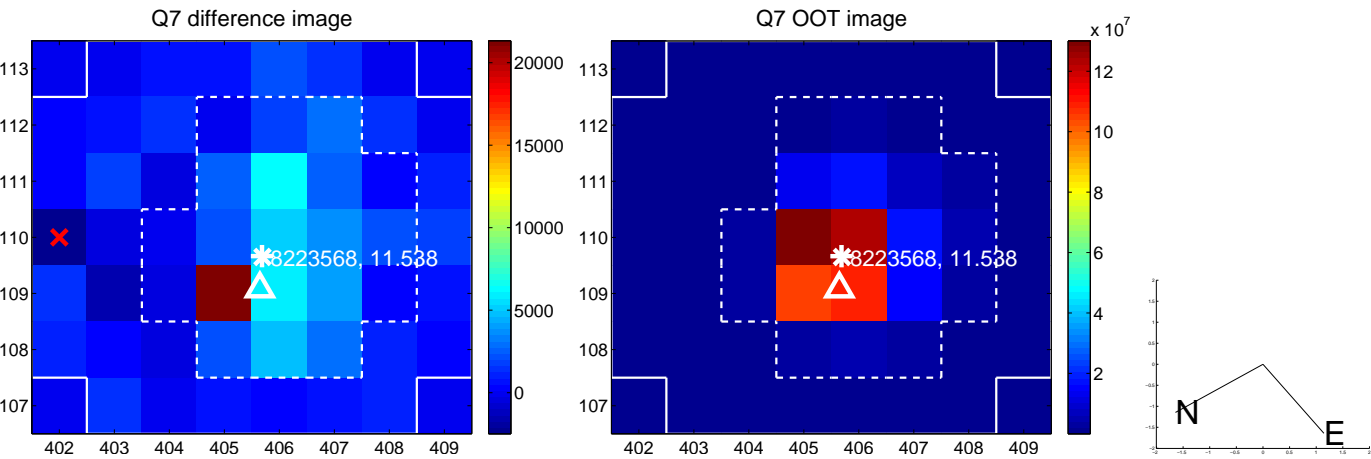
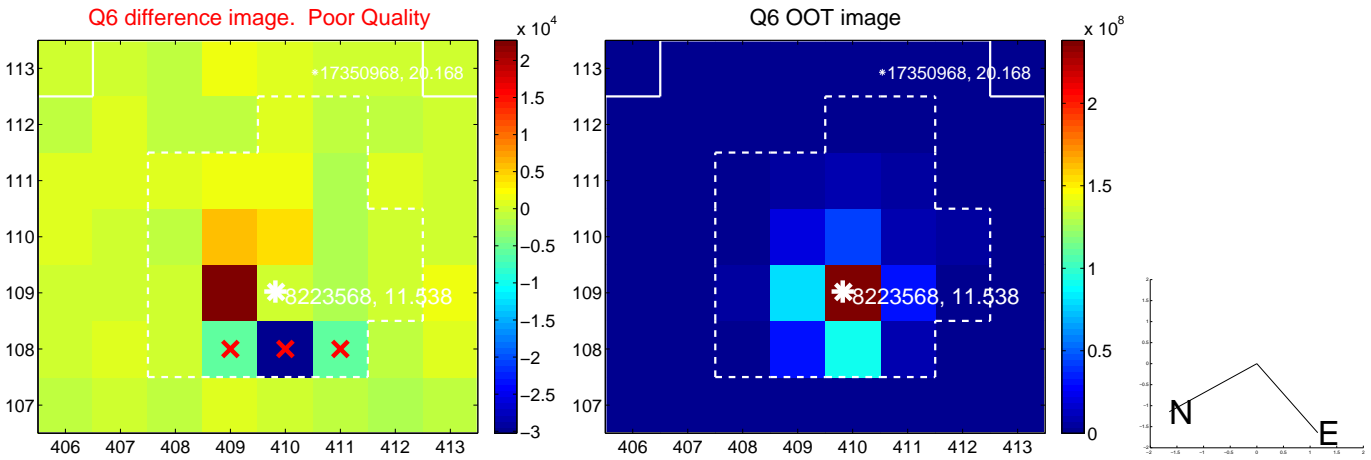
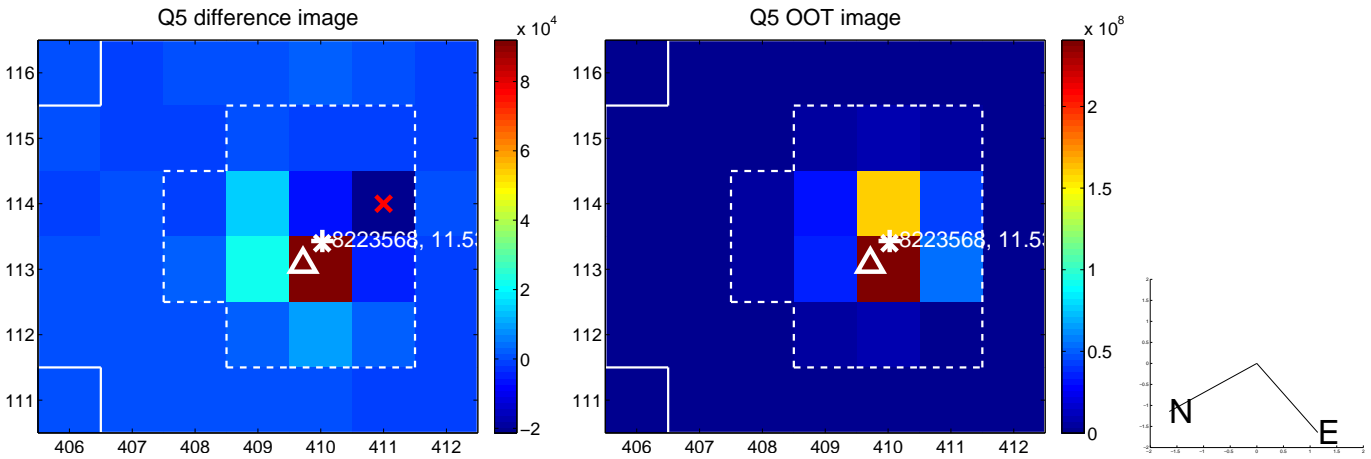


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

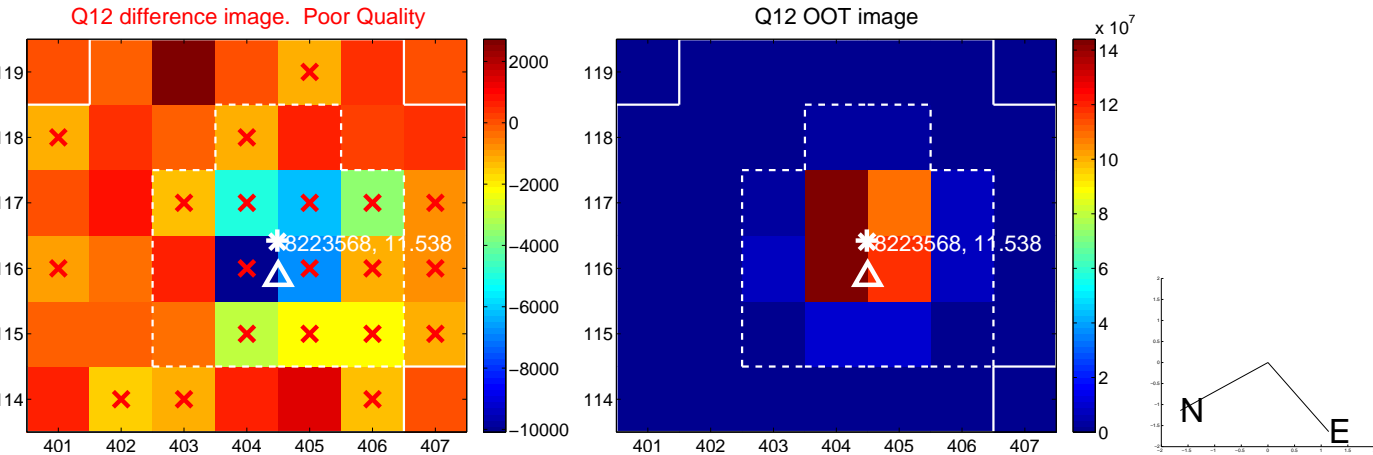
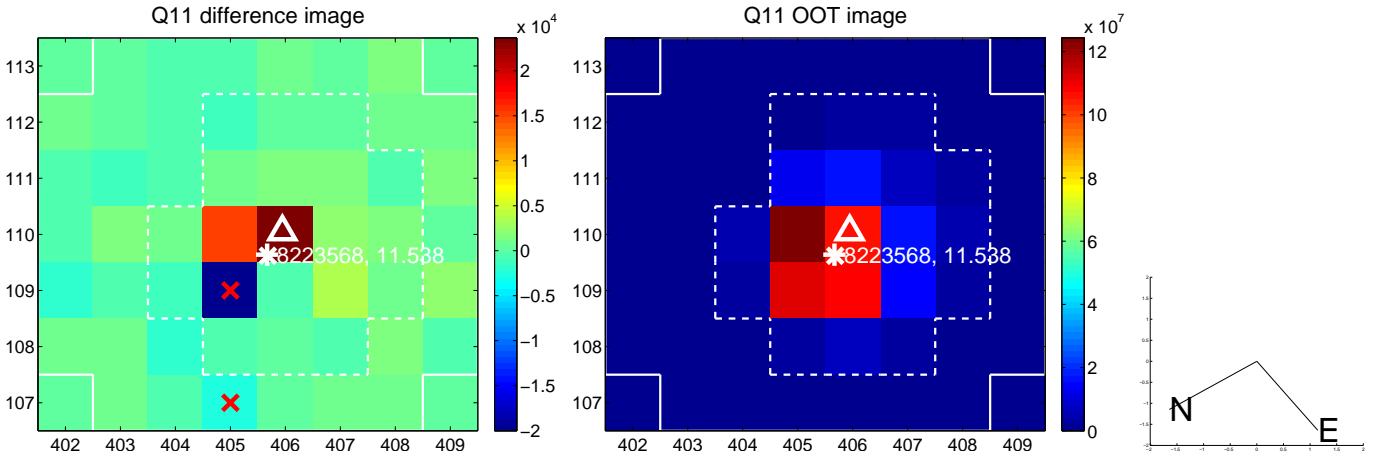
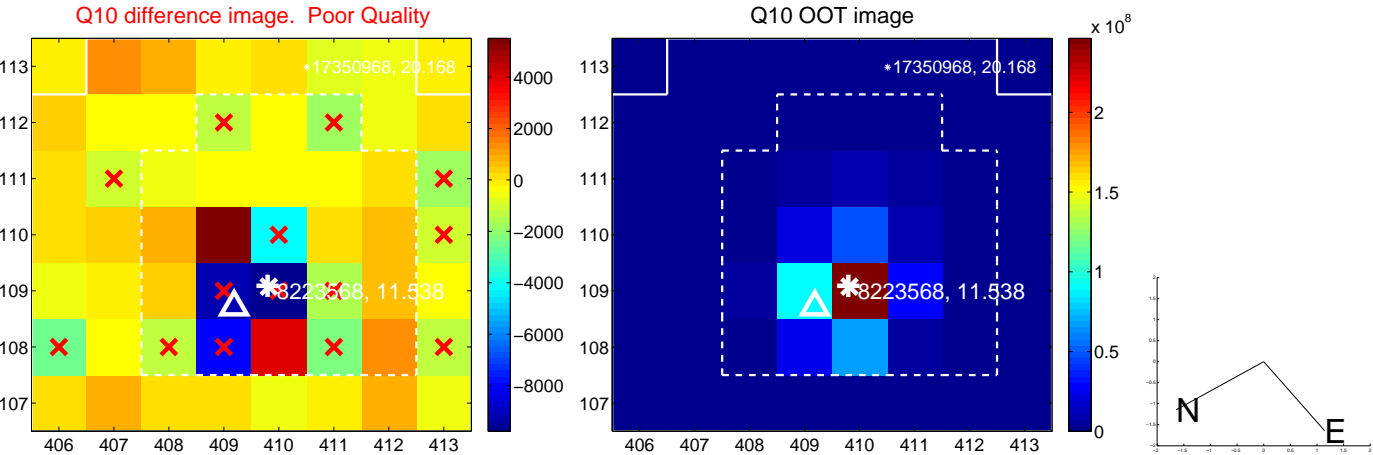
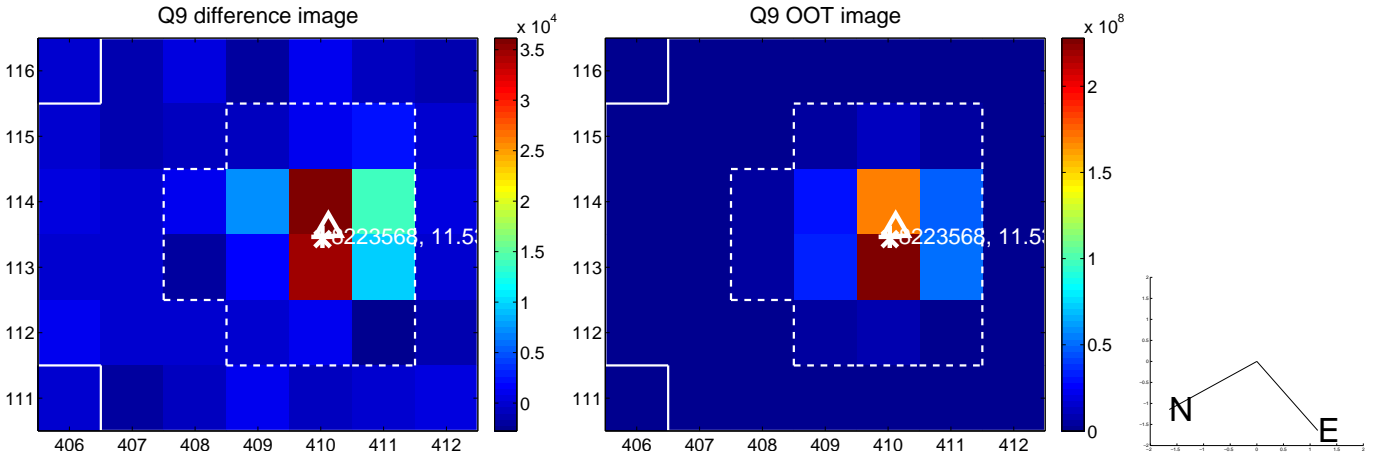
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



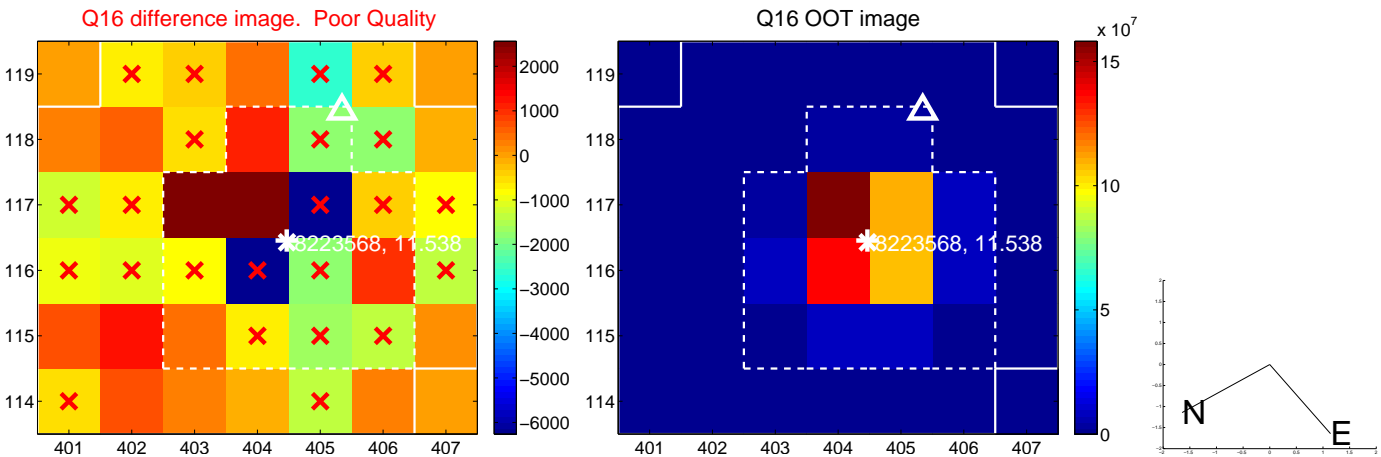
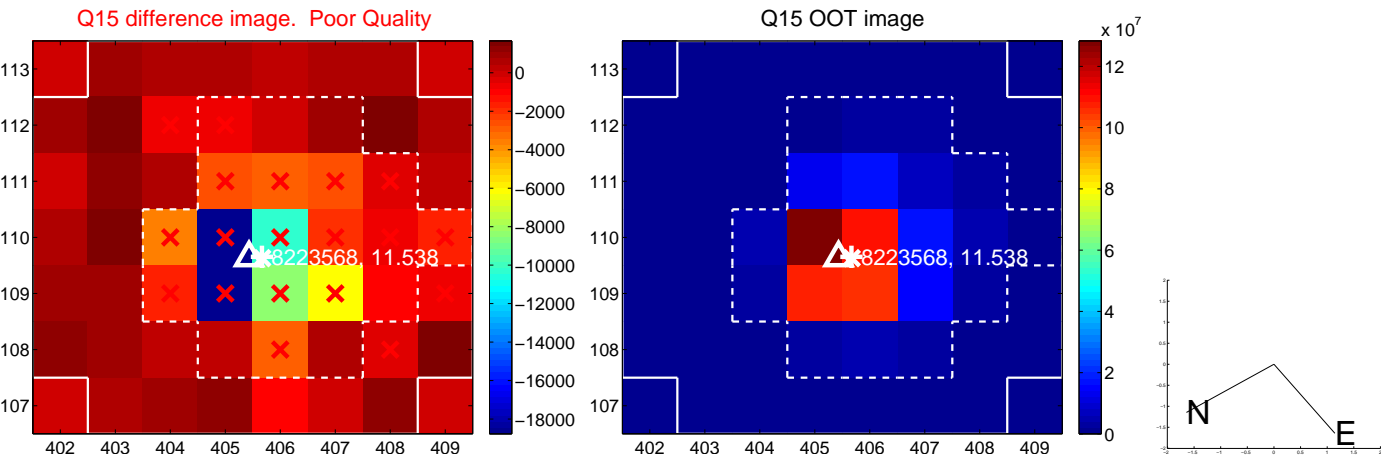
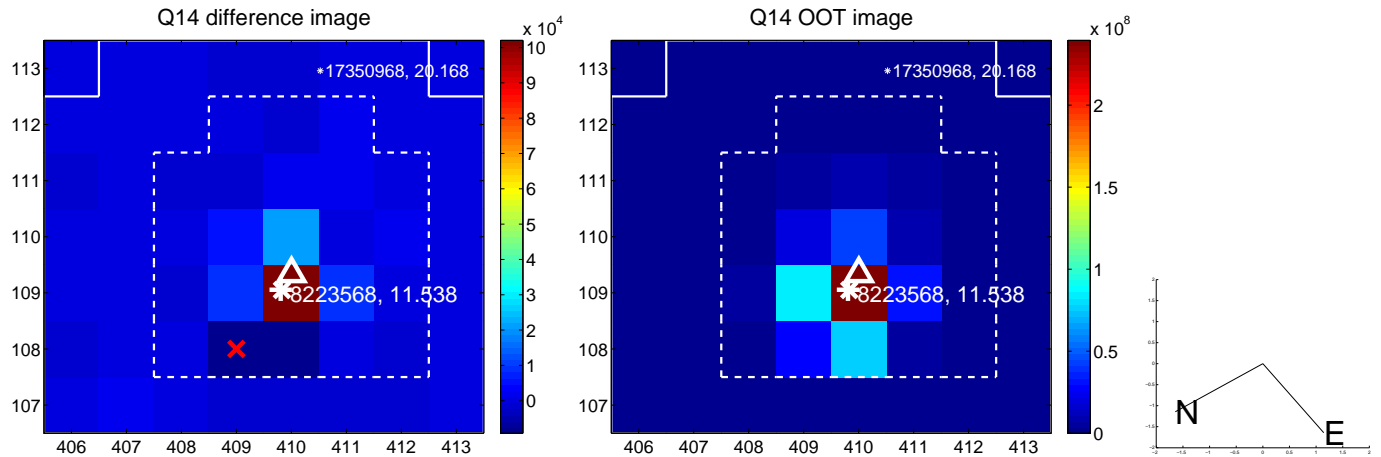
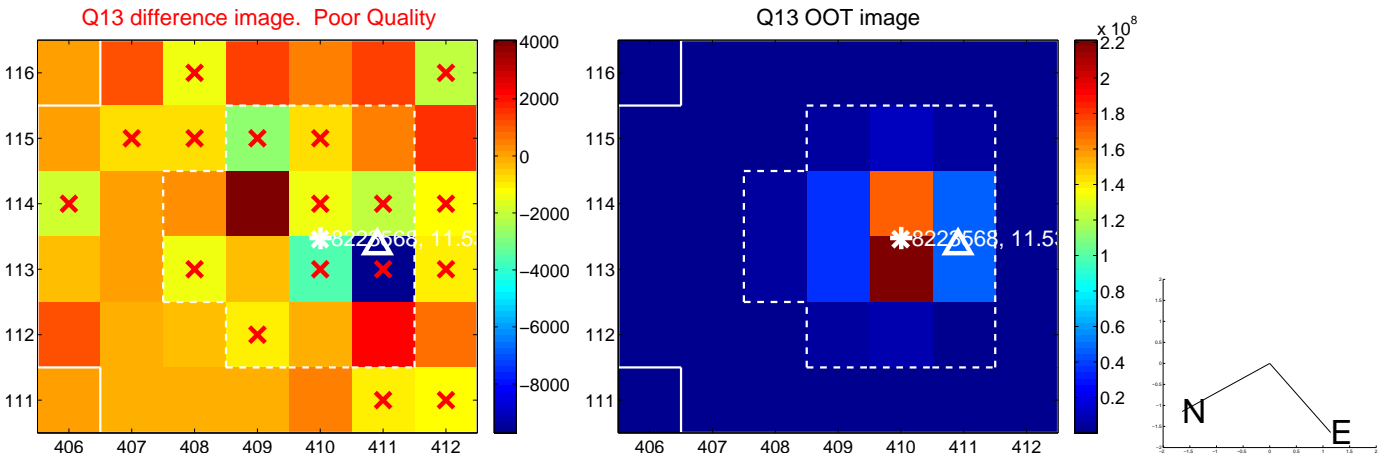
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



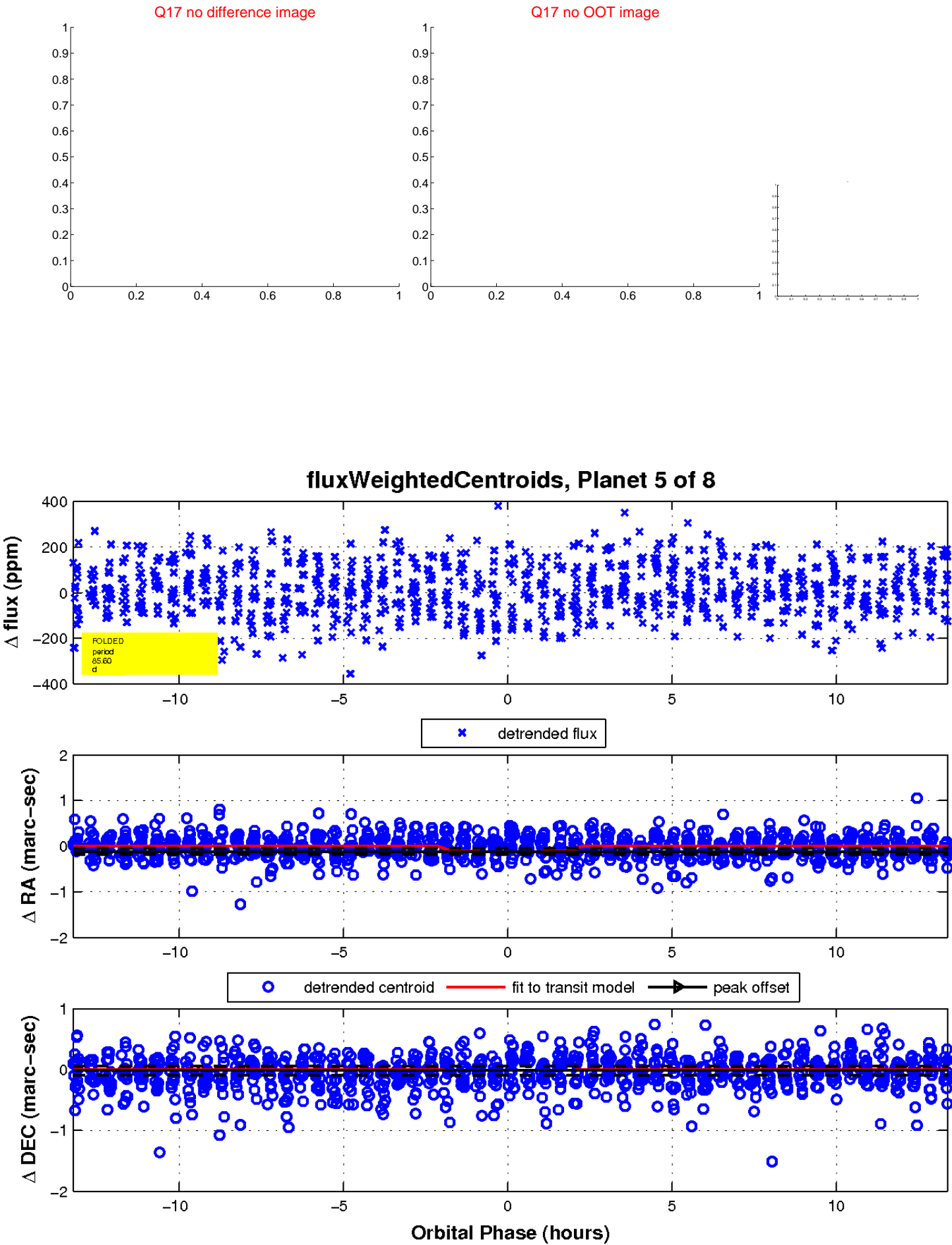
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

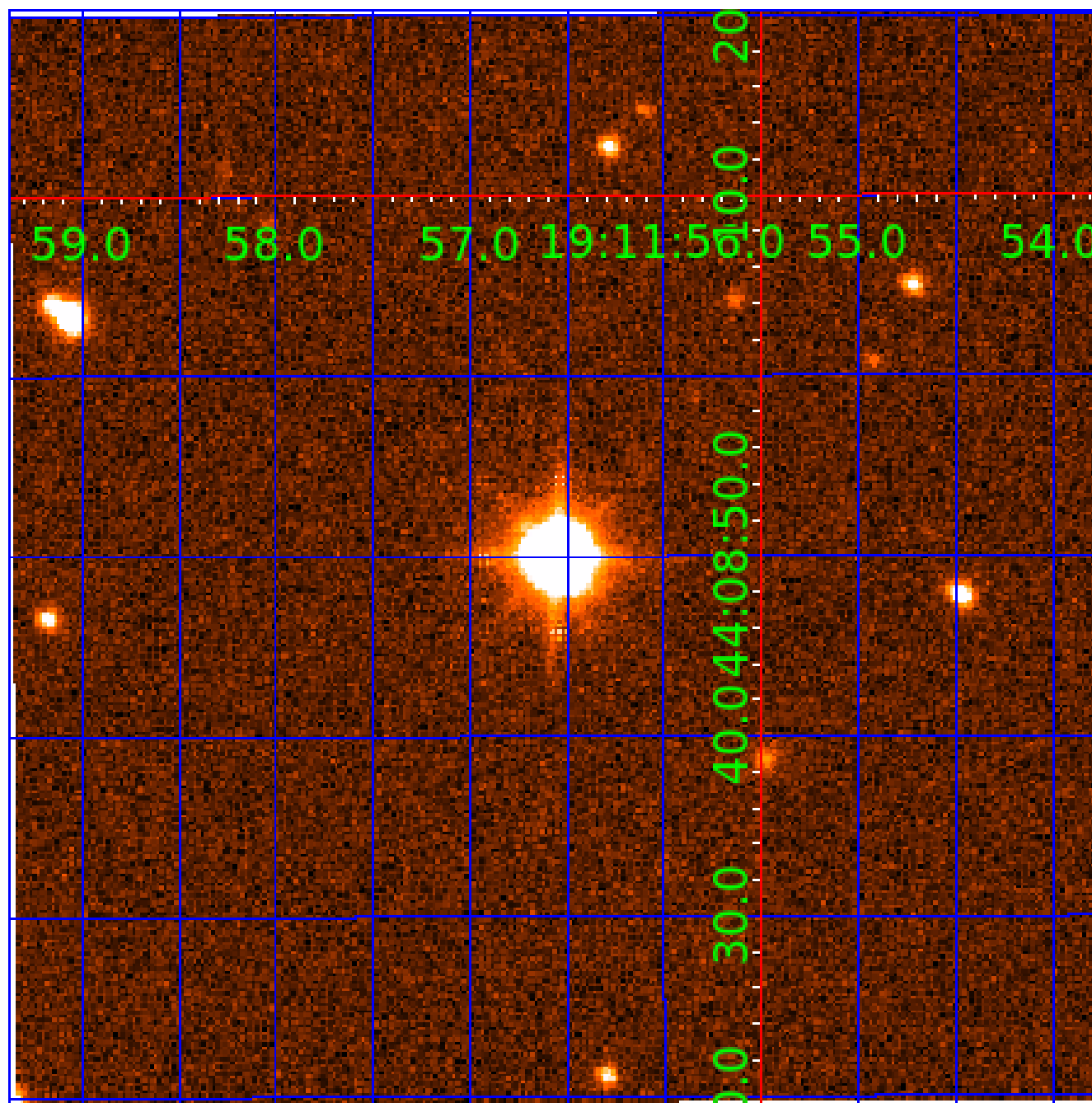


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008223568

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})
008223568-01	OBS	No	2.025610	132.782607	25.7	8.949	14.7	12.7	1.31	6726	0.68	2618.35
008223568-02	OBS	No	169.793123	241.103322	193.2	7.367	9.0	9.1	1.31	6726	1.99	7.14
008223568-03	OBS	No	168.063214	143.680942	180.7	3.849	8.3	6.8	1.31	6726	2.04	7.24
008223568-04	OBS	No	658.319006	224.483928	168.0	38.454	8.1	5.6	1.31	6726	1.79	1.17
008223568-05	OBS	No	85.596547	142.828876	165.4	4.464	7.8	8.8	1.31	6726	2.01	17.79
008223568-06	OBS	No	308.578133	327.887031	184.2	9.322	8.1	7.7	1.31	6726	1.85	3.22
008223568-07	OBS	No	496.193301	500.164082	227.6	6.720	8.4	8.6	1.31	6726	2.25	1.71
008223568-08	OBS	No	144.969324	205.071810	79.5	7.500	7.7	-1.0	1.31	6726	1.18	8.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008223568-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008223568-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
008223568-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008223568-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008223568-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008223568-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNCERTAIN
008223568-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_DIFFS
008223568-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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 008223568-06

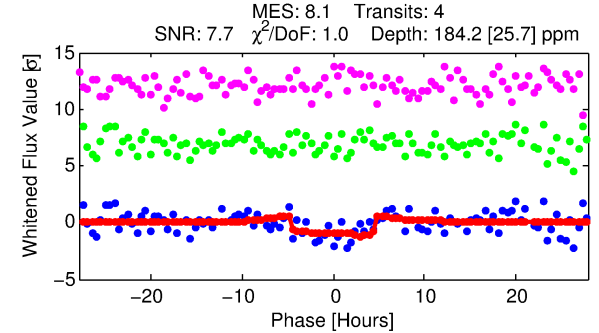
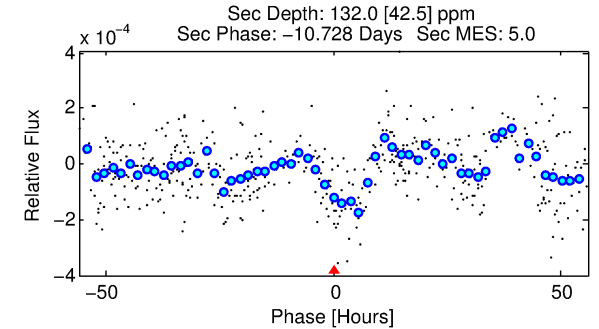
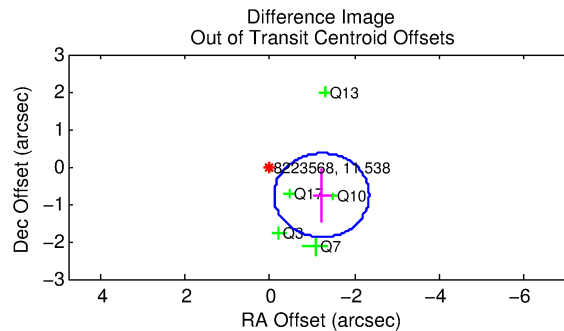
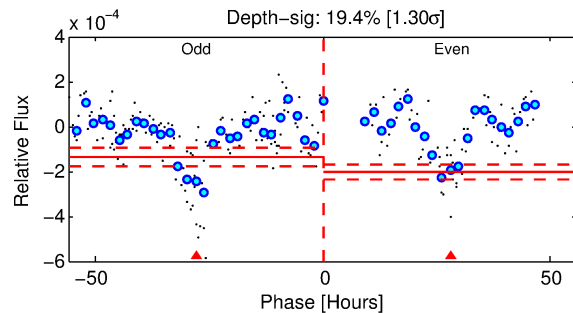
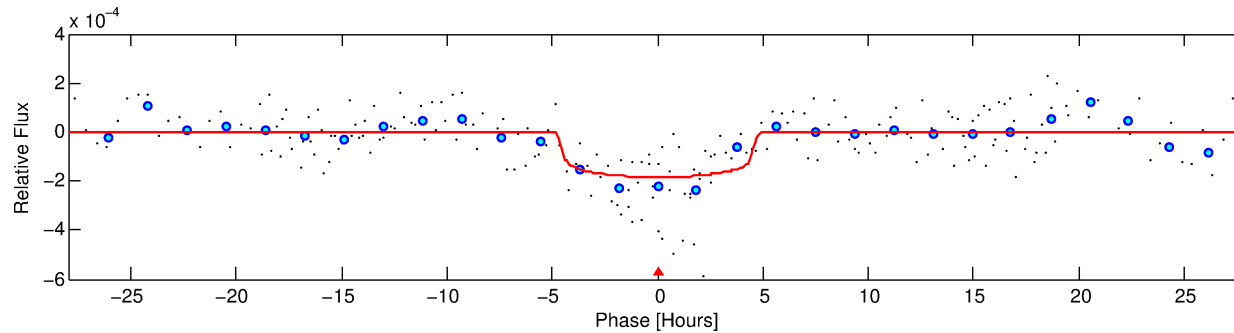
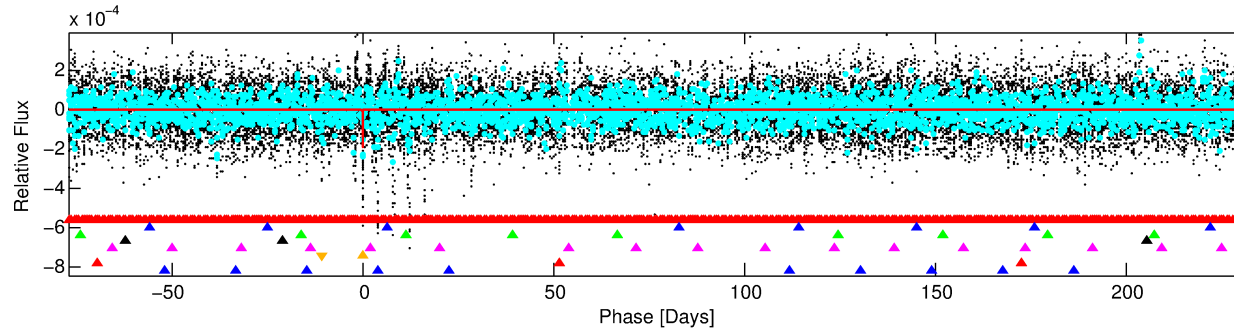
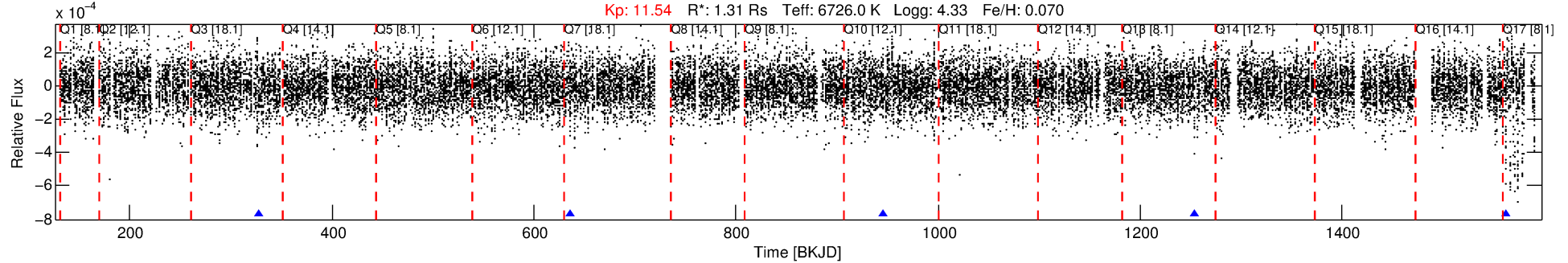
No Significant Match Found

DV One-Page Summary

KIC: 8223568 Candidate: 6 of 8 Period: 308.578 d

KOI: K06176 Corr: No Ephemeris Match

Kp: 11.54 R*: 1.31 Rs Teff: 6726.0 K Logg: 4.33 Fe/H: 0.070

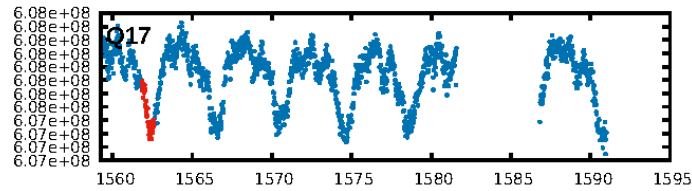
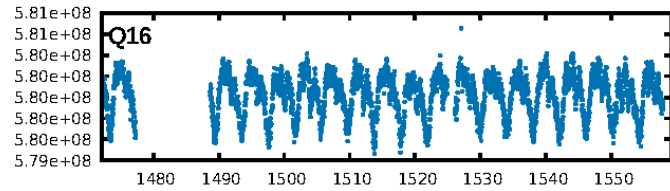
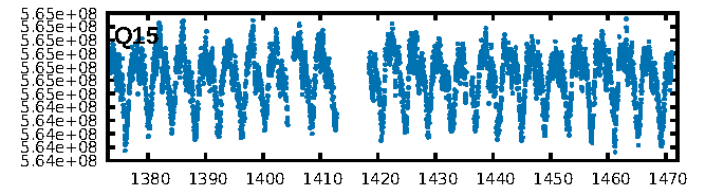
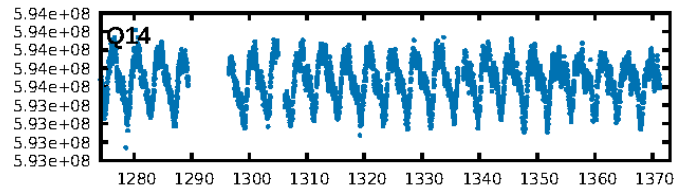
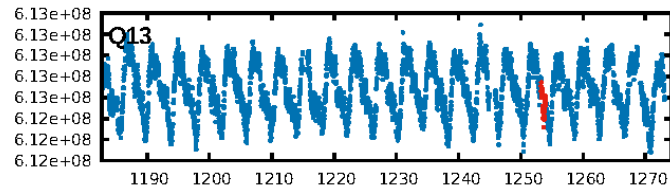
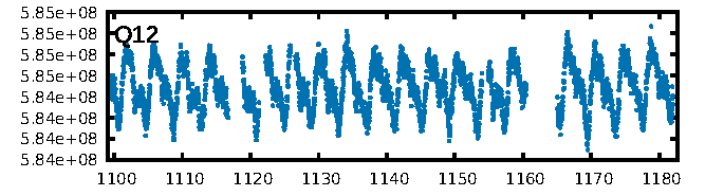
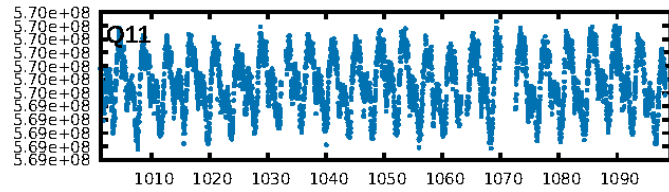
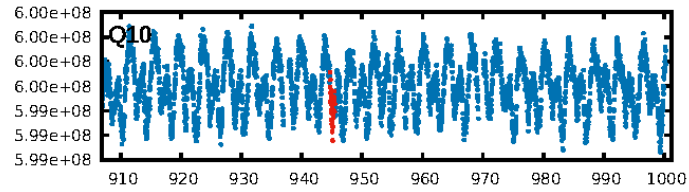
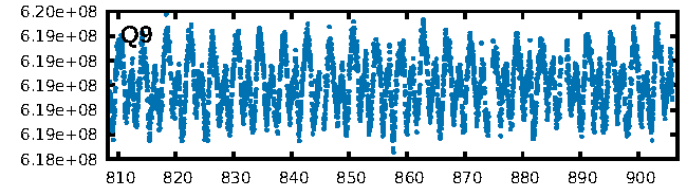
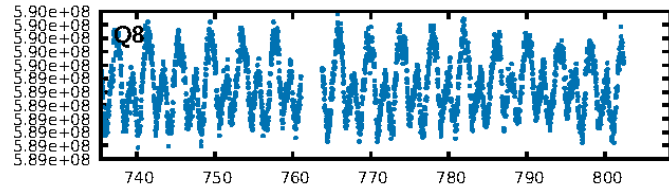
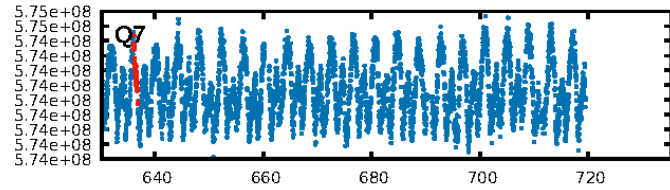
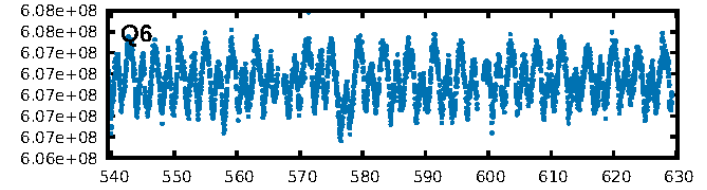
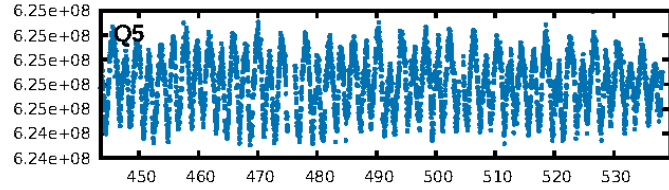
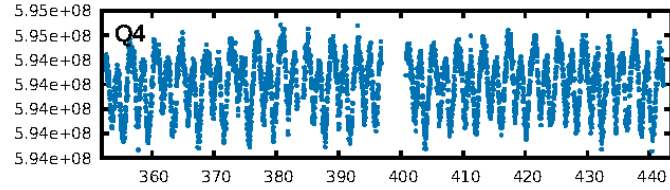
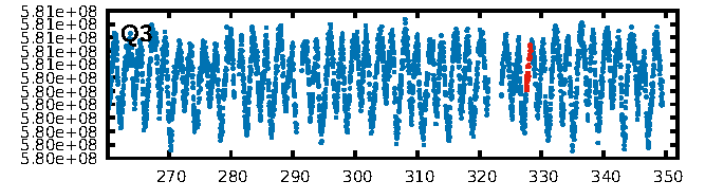
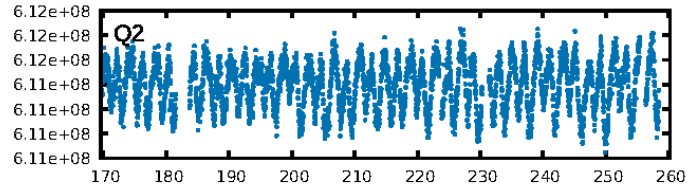
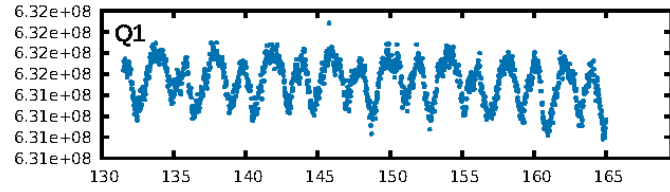


DV Fit Results:	DV Diagnostic Results:
Period = 308.57813 [0.00517] d	ShortPeriod-sig: 100.0% [280.33σ]
Epoch = 327.8870 [0.0115] BKJD	LongPeriod-sig: 100.0% [391.84σ]
Rp/R* = 0.0130 [0.0094]	ModelChiSquare2-sig: 21.8%
a/R* = 211.61 [845.48]	ModelChiSquareGof-sig: 100.0%
b = 0.57 [4.72]	Bootstrap-pfa: N/A
Seff = 3.22 [0.76]	RollingBand-fgt: 1.00 [3/3]
Teq = 342 [20] K	GhostDiagnostic-chr: 13.71
Rp = 1.86 [1.38] Re	Centroid-sig: 15.1%
a = 0.9888 [0.1457] AU	Centroid-so: 0.790 arcsec [1.59σ]
Ag = 20632.92 [30992.61] [0.67σ]	OotOffset-rm: 1.448 arcsec [3.87σ]
Teffp = 6329 [2356] K [2.54σ]	OotOffset-st: 1/2/0/2 [5]
	KicOffset-rm: 1.509 arcsec [4.53σ]
	KicOffset-st: 1/2/0/2 [5]
	DiffImageQuality-fgm: 0.60 [3/5]
	DiffImageOverlap-fno: 0.00 [0/5]

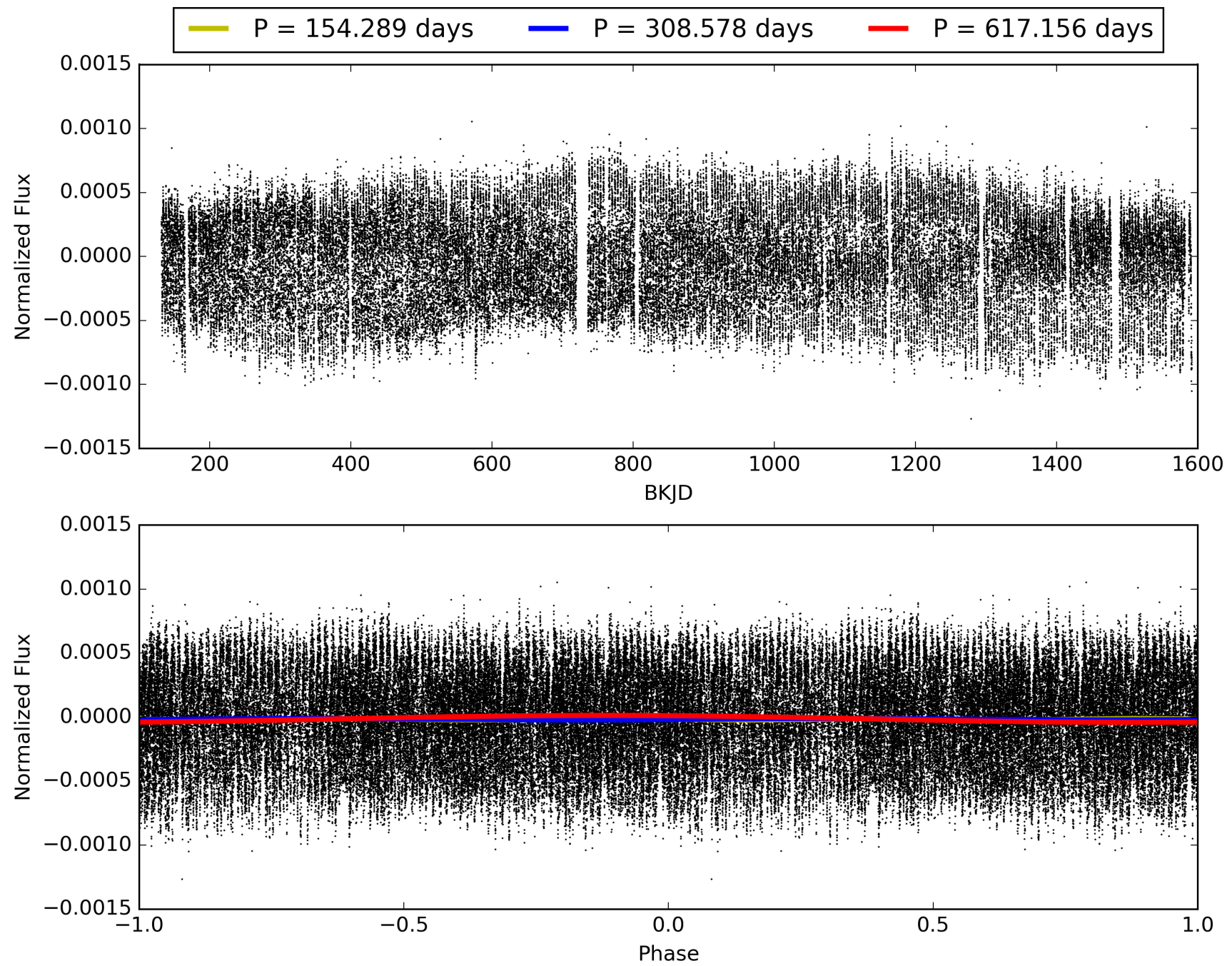
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:02:47 Z

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

TCE 008223568-06, PDC Light Curves

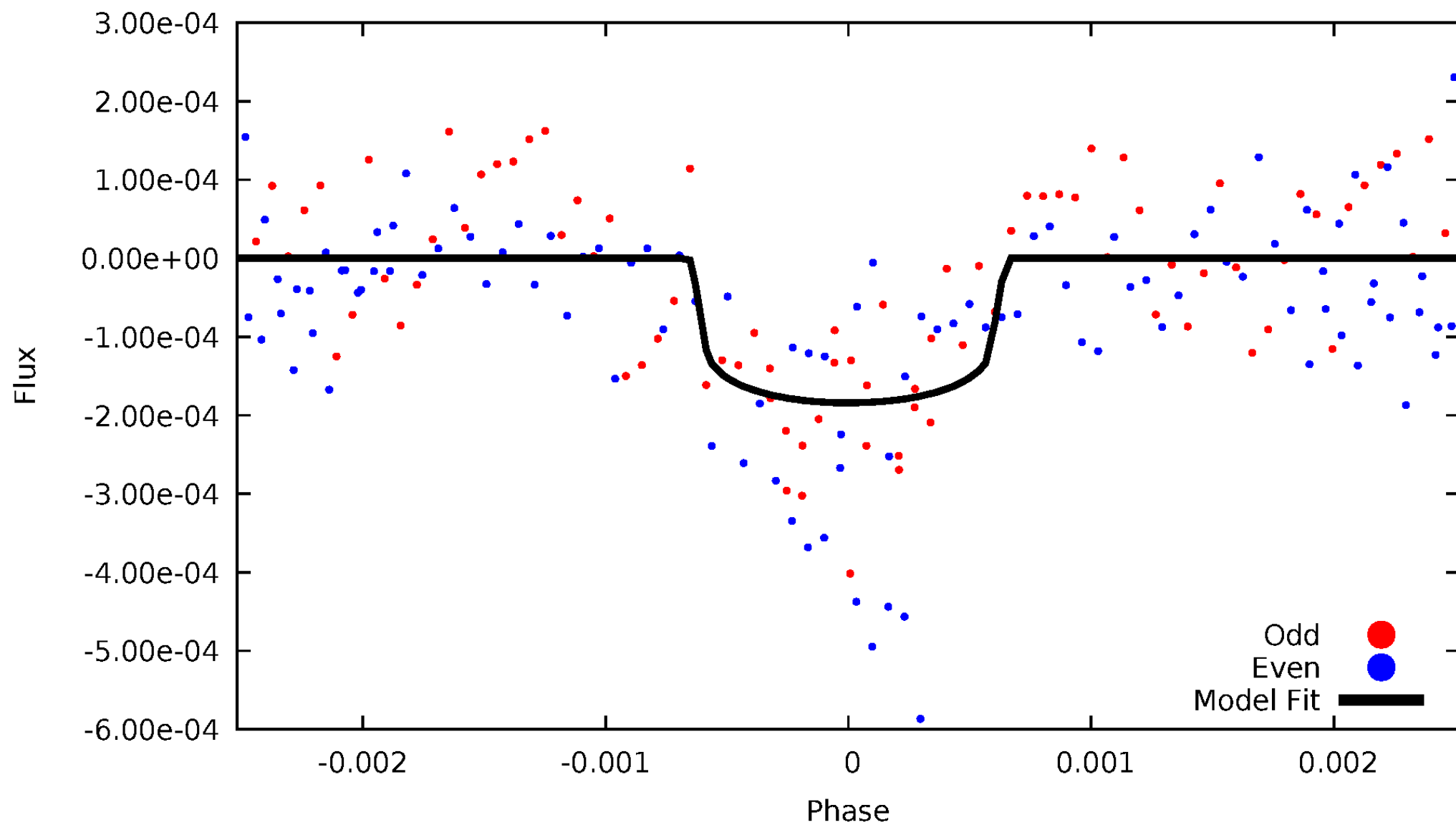


TCE 008223568-06



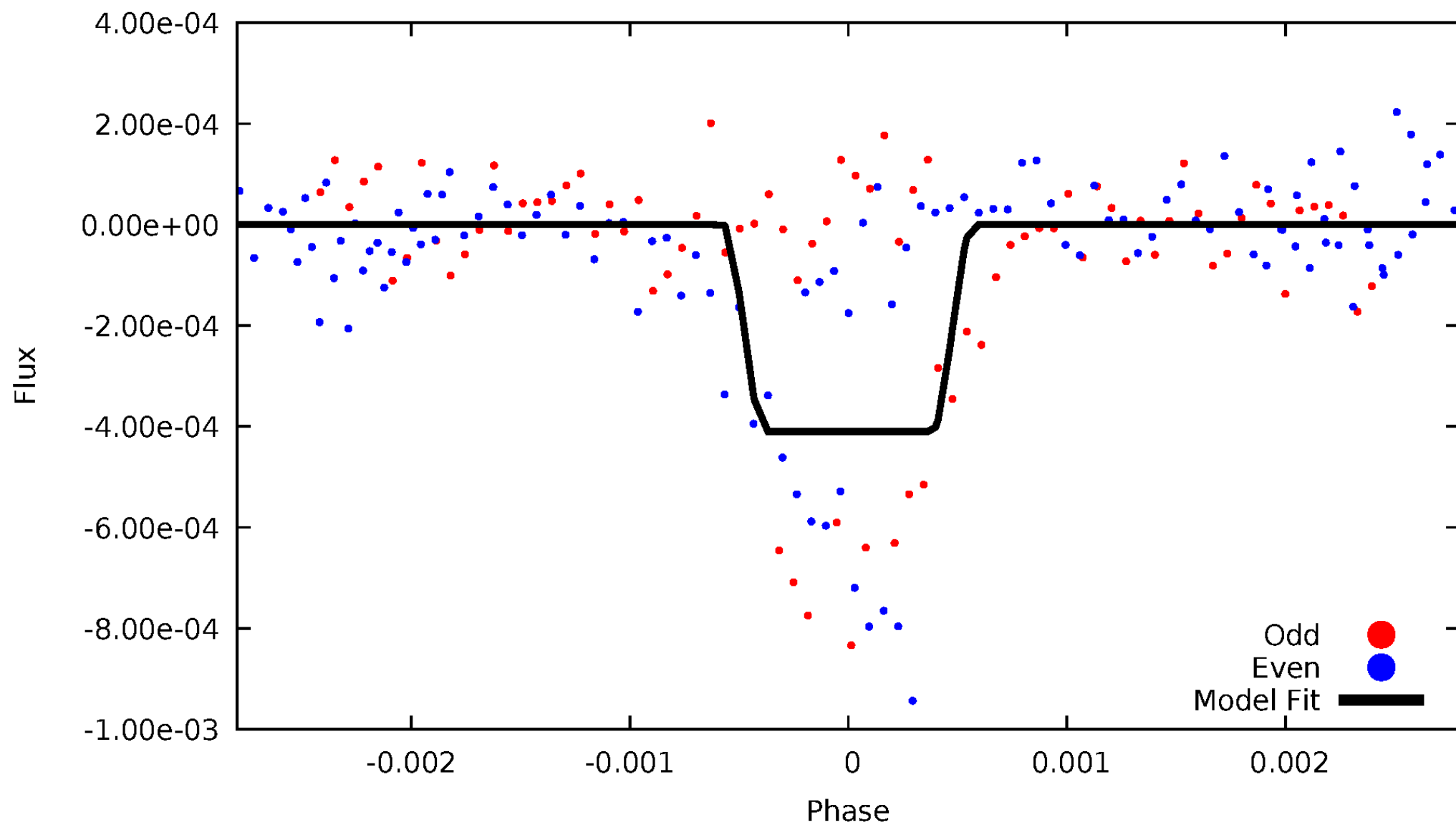
DV Odd/Even

TCE 008223568-06



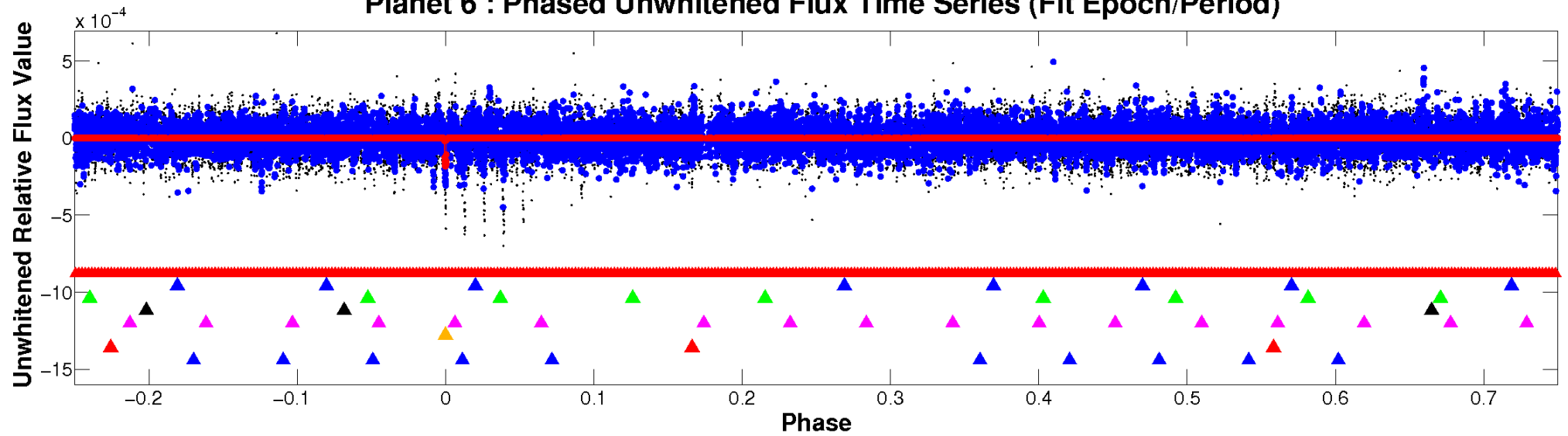
ALT Odd/Even

TCE 008223568-06

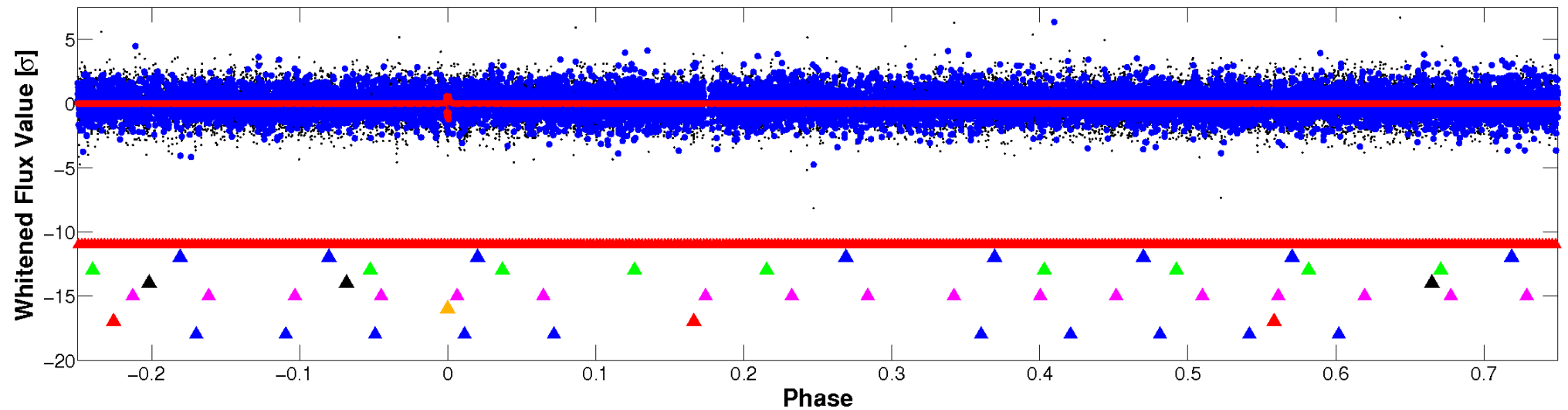


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

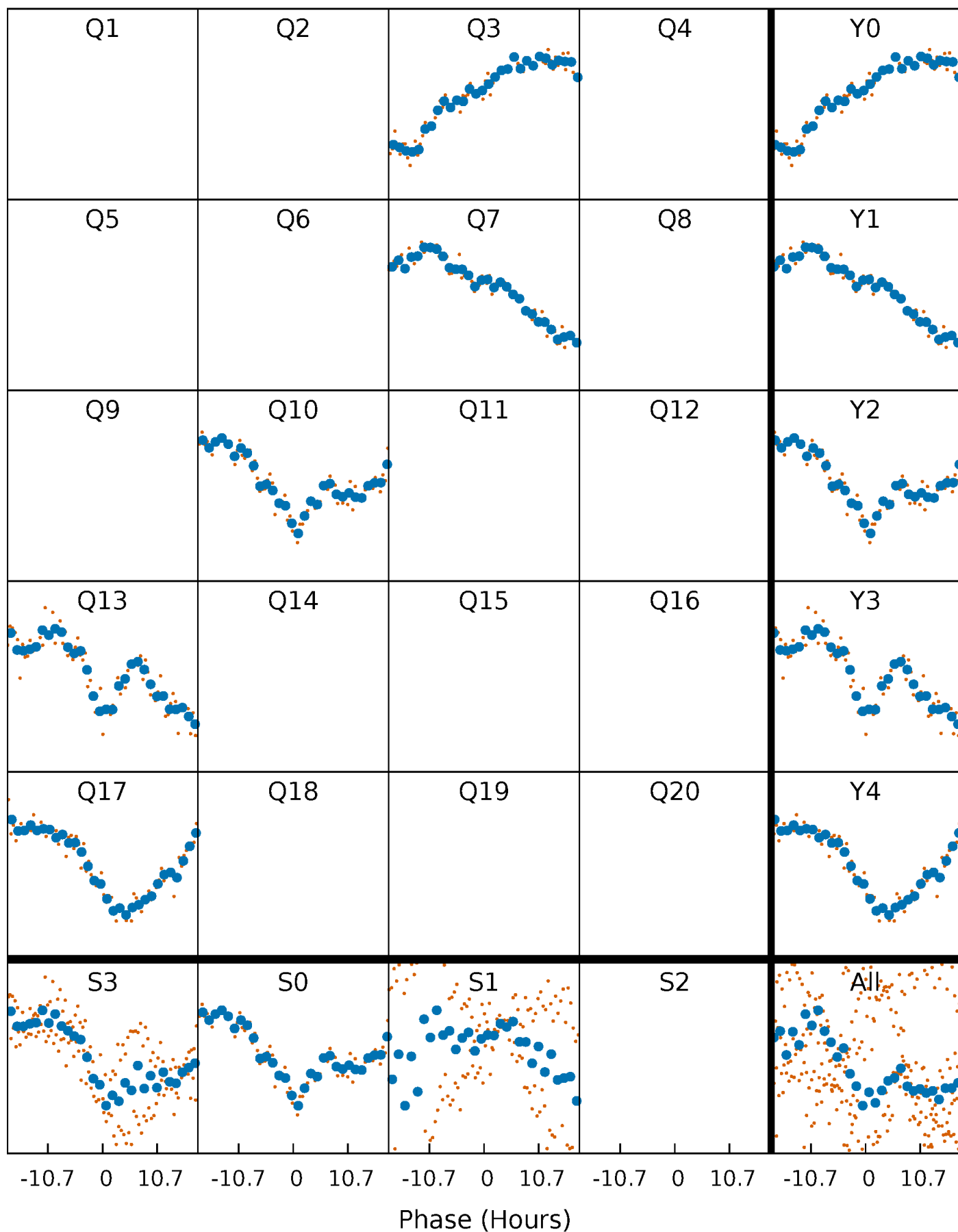


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



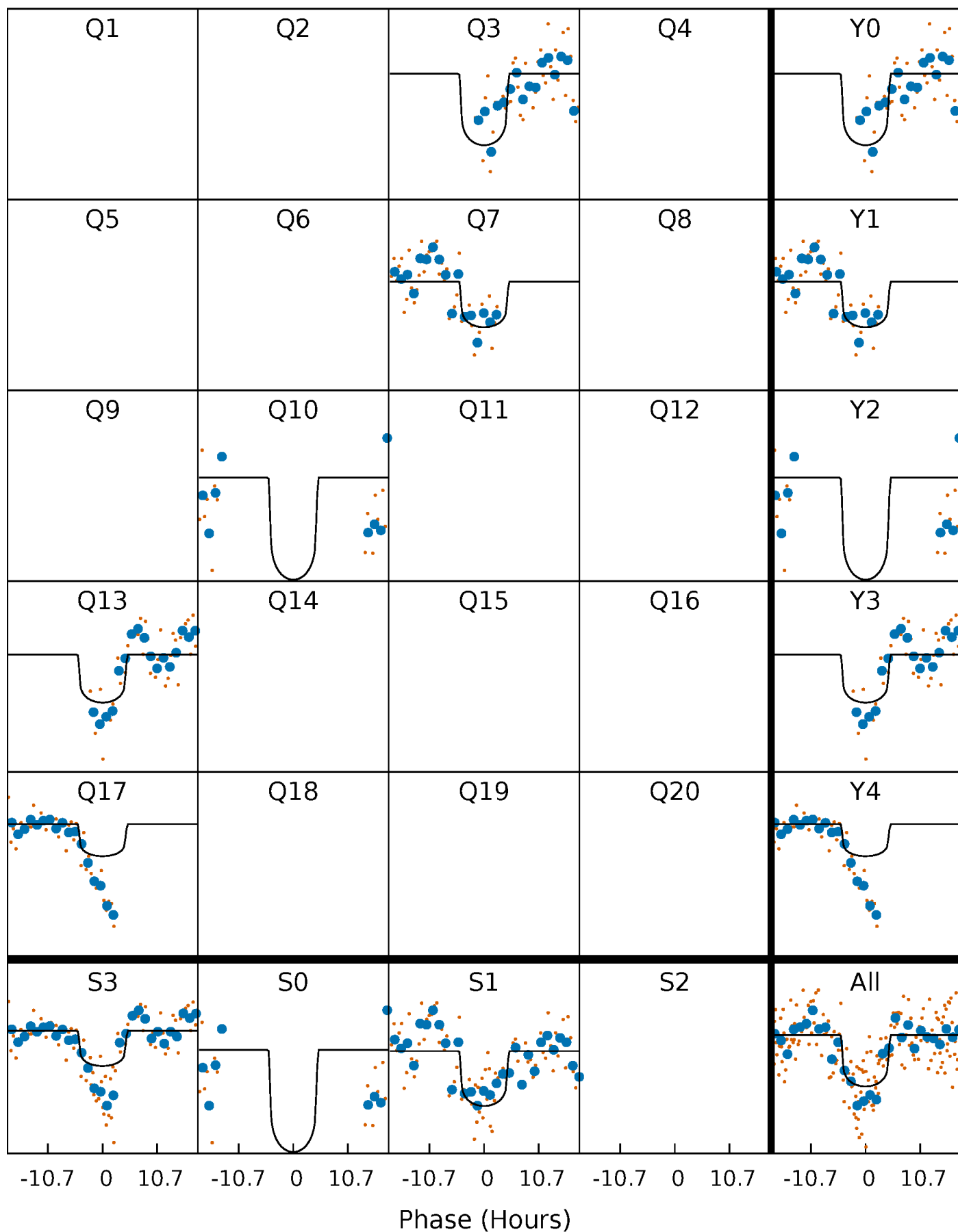
PDC Quarter-Phased Transit Curves

TCE 008223568-06 $P=308.578133$ Days $T_0=327.887031$ (BKJD)



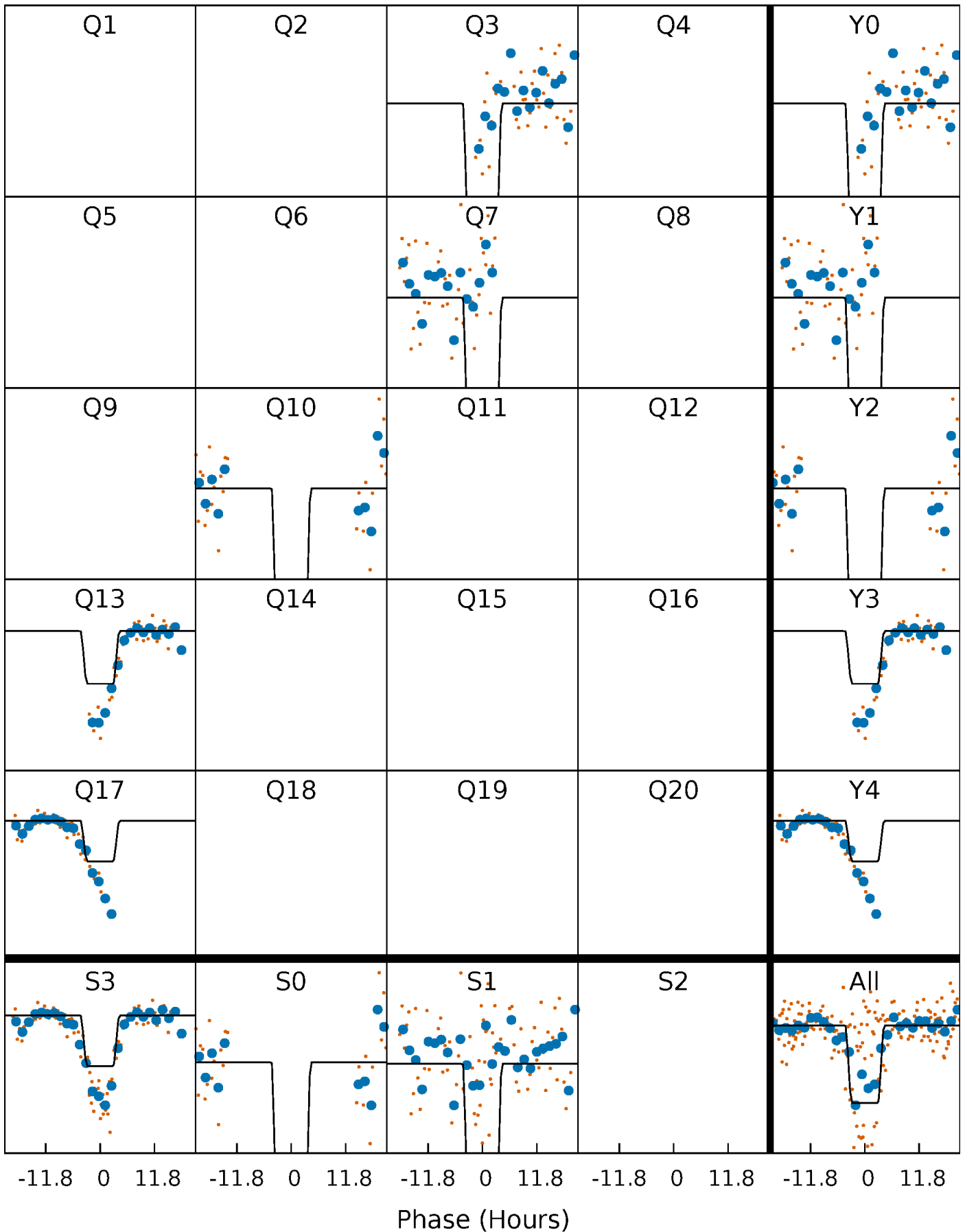
DV Quarter-Phased Transit Curves

TCE 008223568-06 $P=308.578133$ Days $T_0=327.887031$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

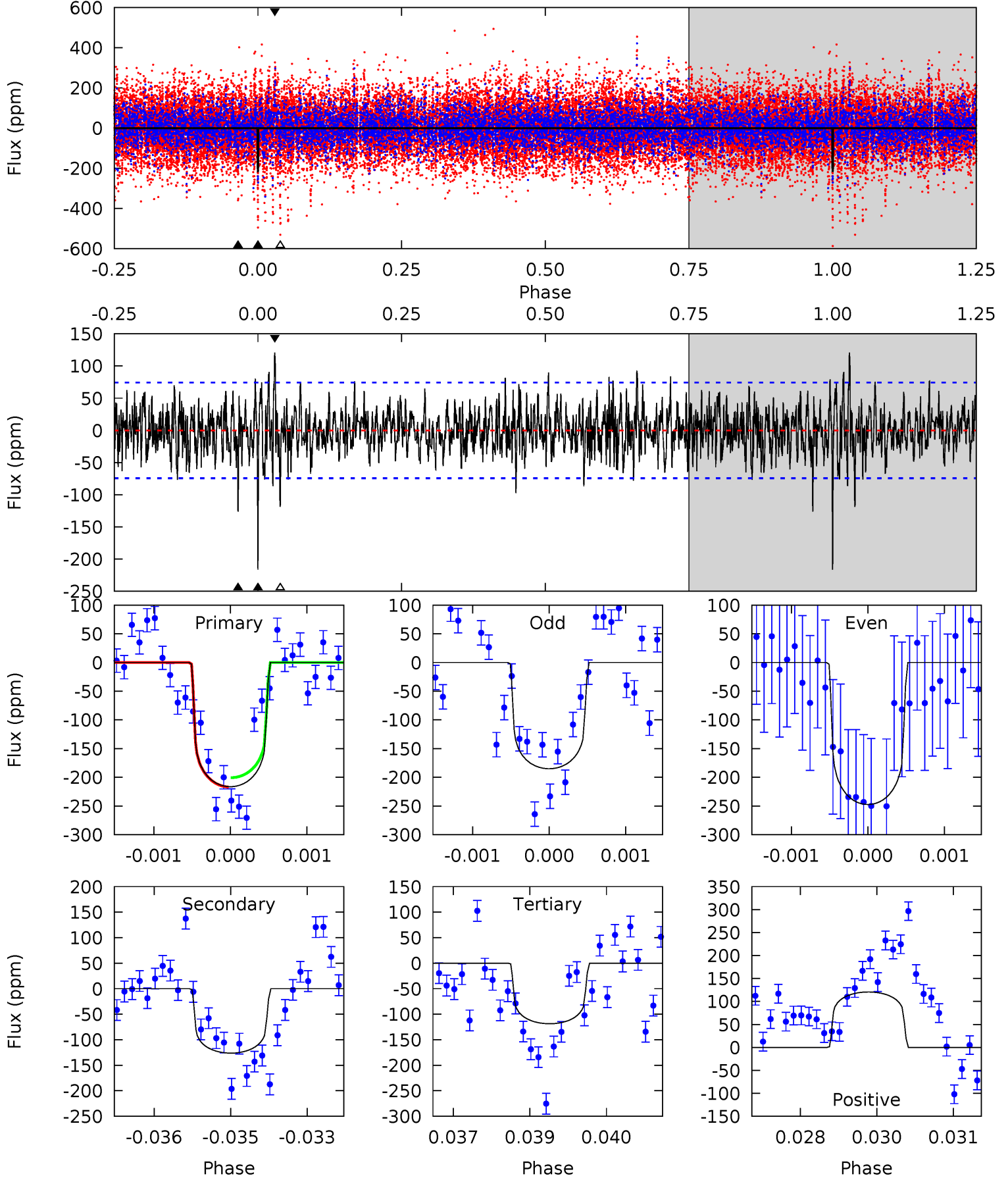
TCE 008223568-06 P=308.580812 Days $T_0=327.877306$ (BKJD)



DV Model-Shift Uniqueness Test

008223568-06, P = 308.578133 Days, E = 19.308898 Days

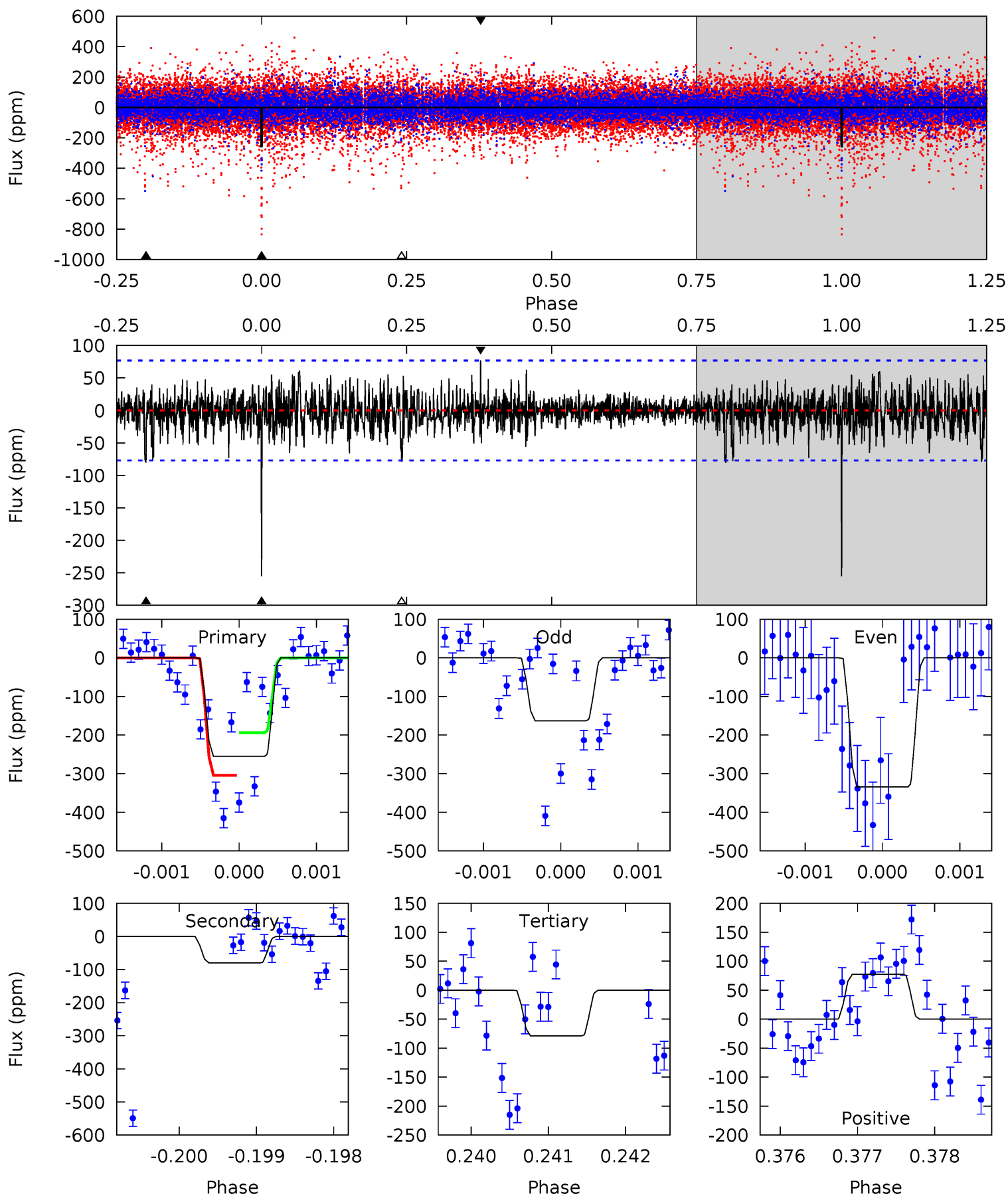
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	9.18	8.63	8.77	5.41	3.22	2.10	7.11	6.96	0.55	0.41	2.28	1.15	0.36	0.59



Alt Model-Shift Uniqueness Test

008223568-06, P = 308.580812 Days, E = 19.296494 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	5.66	5.57	5.46	5.43	3.26	1.27	12.5	12.6	0.09	0.20	5.92	0.94	0.23	3.83



Stellar Parameters For KIC 008223568

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6726^{+117}_{-150}	$4.335^{+0.032}_{-0.120}$	$0.070^{+0.100}_{-0.200}$	$1.310^{+0.226}_{-0.097}$	$1.354^{+0.075}_{-0.112}$	$0.848^{+0.131}_{-0.298}$
	+2%/-2%	+1%/-3%	+143%/-286%	+17%/-7%	+6%/-8%	+15%/-35%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 008223568-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-126 ± 14	$2.07^{+1.34}_{-1.20}$	481^{+21}_{-14}	5952^{+3814}_{-1167}	15576^{+73268}_{-9687}
Alt.	-80 ± 14	$2.98^{+1.45}_{-1.40}$	483^{+21}_{-14}	4631^{+1497}_{-667}	4862^{+12738}_{-2721}

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 $A_{obs} \gg 1.0$

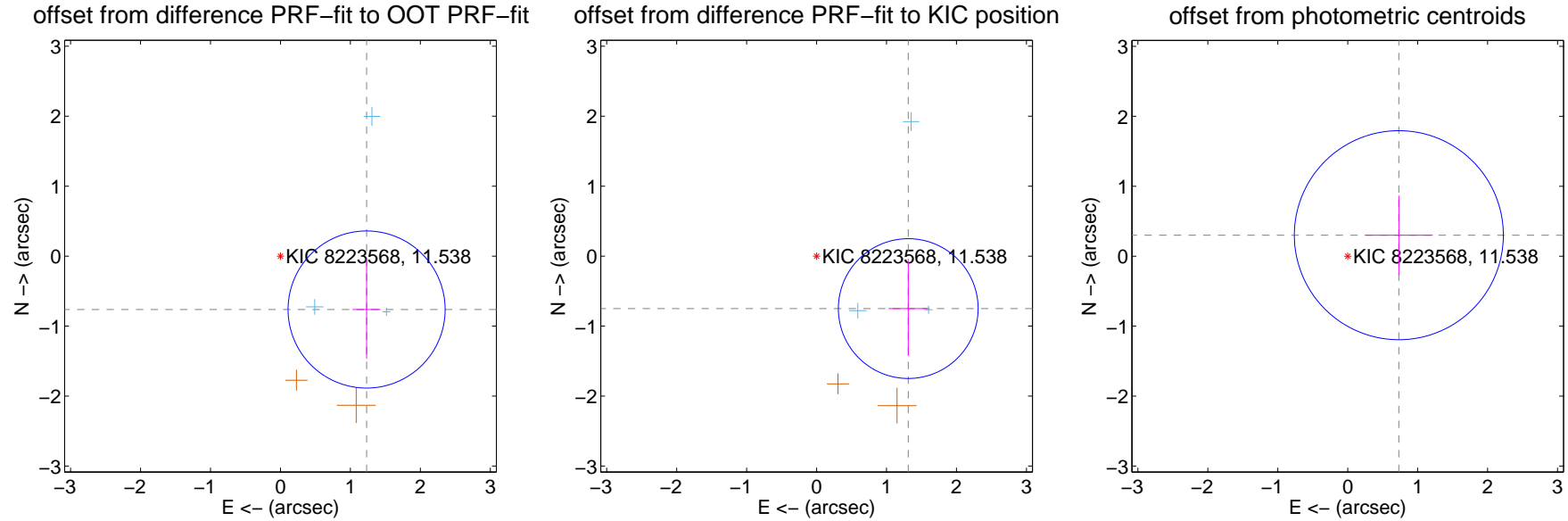
DV Centroid Data

Supplemental centroid analysis for 008223568-06. **Kepler magnitude: 11.54.** Transit SNR 7.70

There are 3 quarters with good PRF difference image offsets

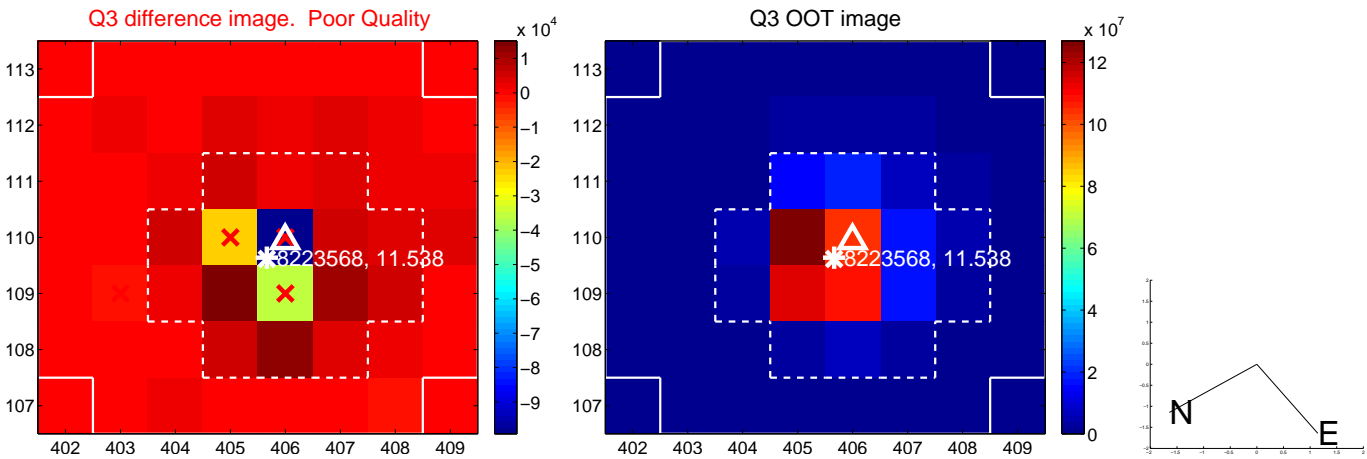
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.448 ± 0.374	3.87	-1.231 ± 0.201	-0.763 ± 0.703
PRF-fit source offset from KIC position	1.509 ± 0.333	4.53	-1.310 ± 0.281	-0.749 ± 0.677
photometric centroid source offset	0.79 ± 0.50	1.59	-0.73 ± 0.49	0.30 ± 0.57

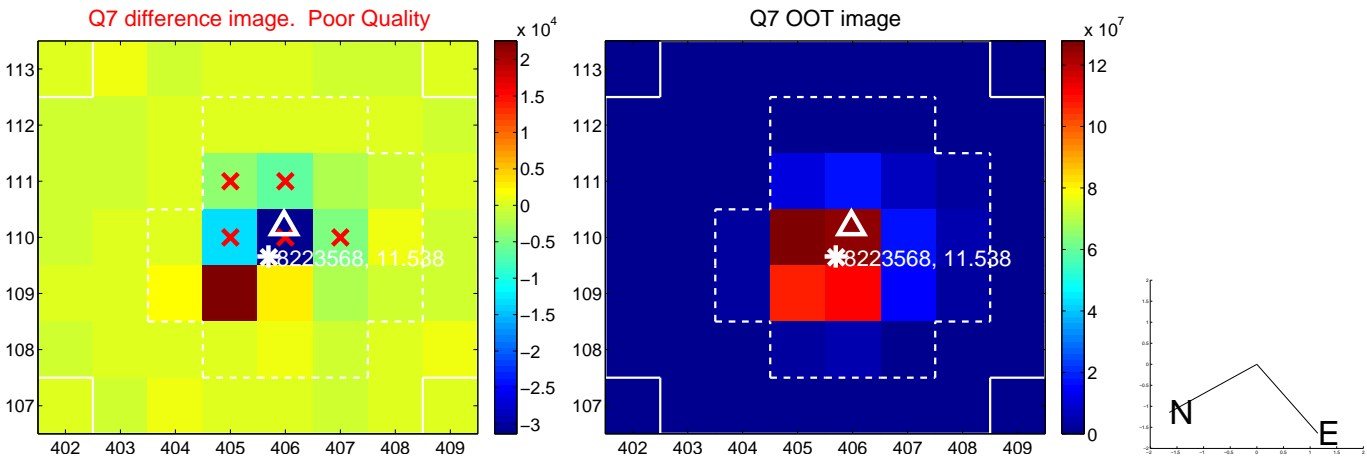


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

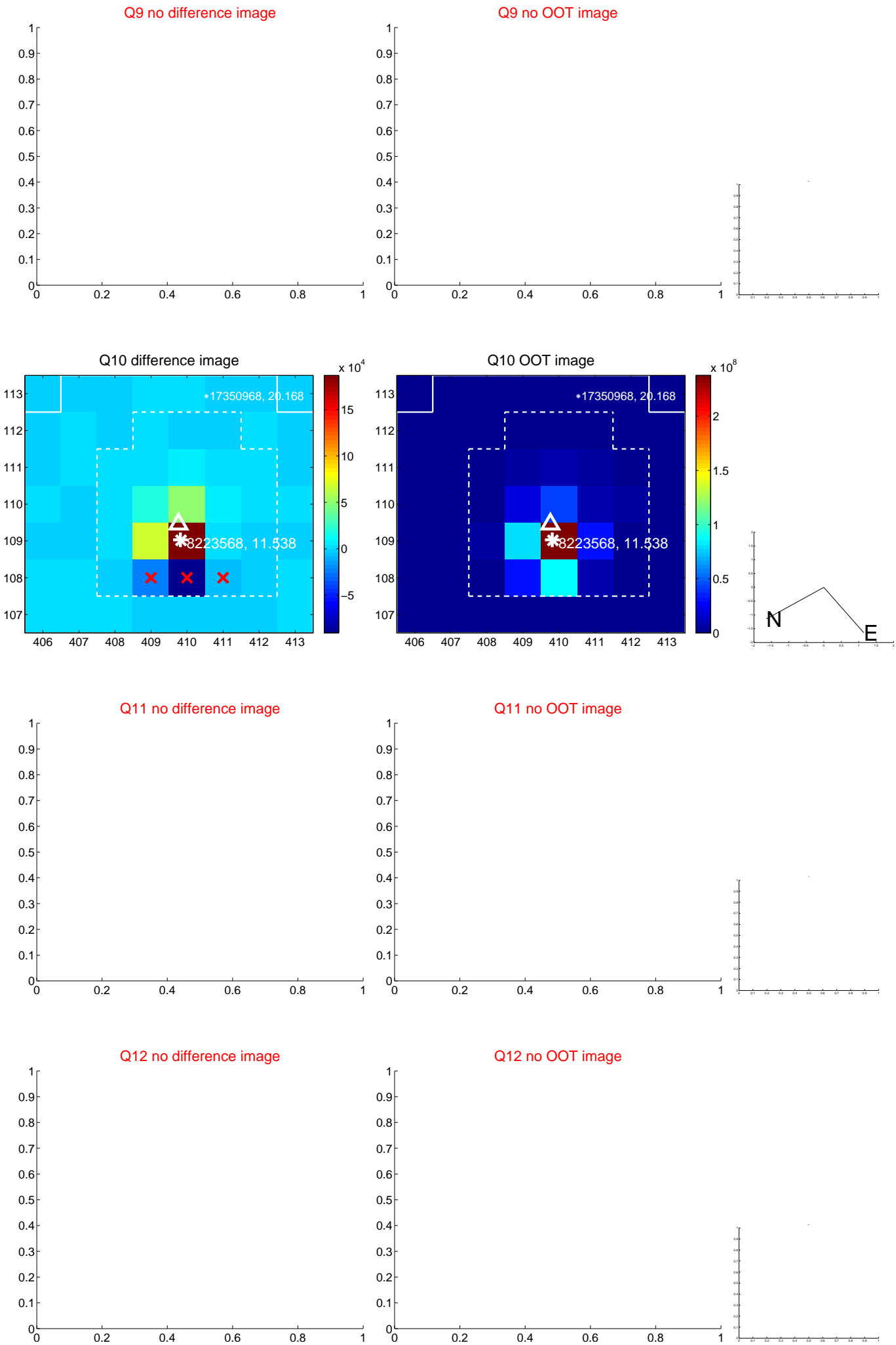
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



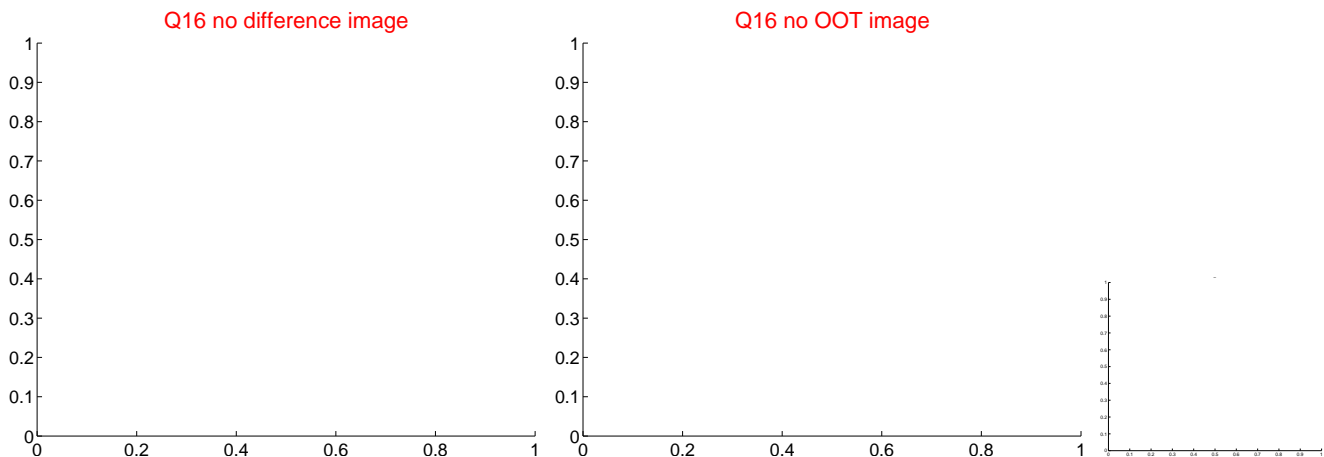
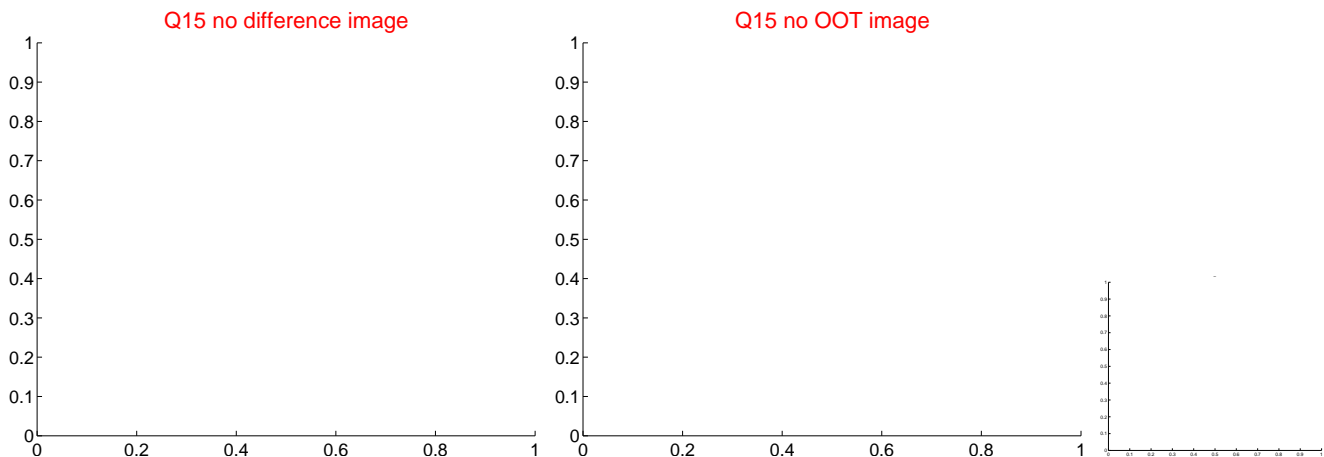
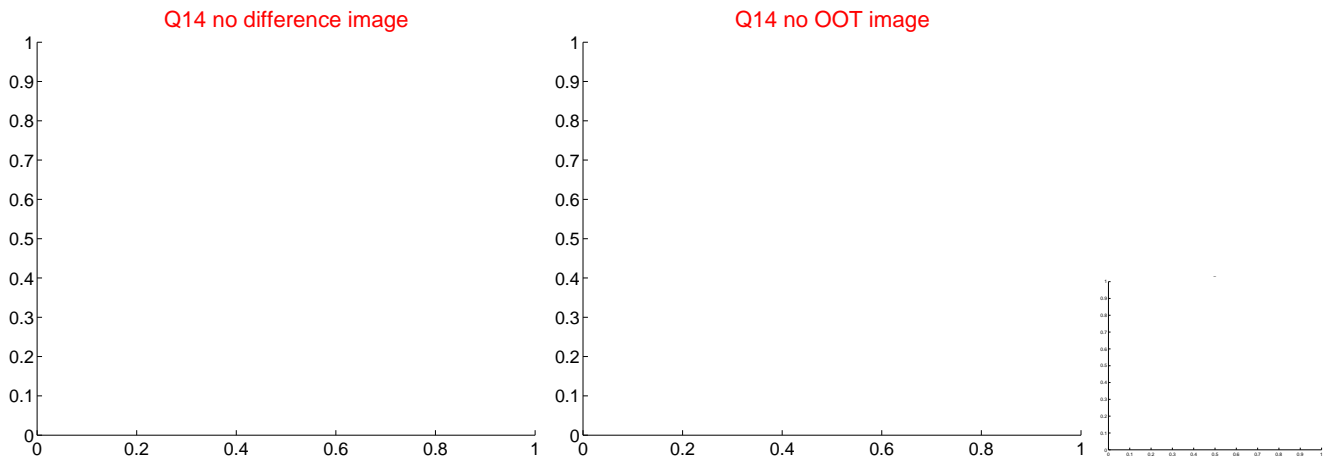
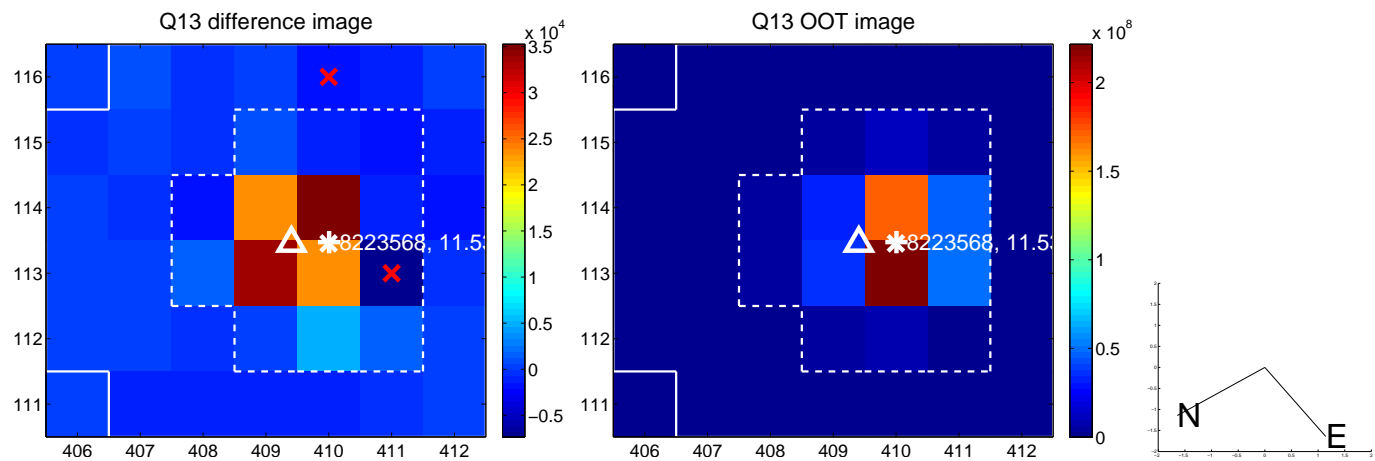
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



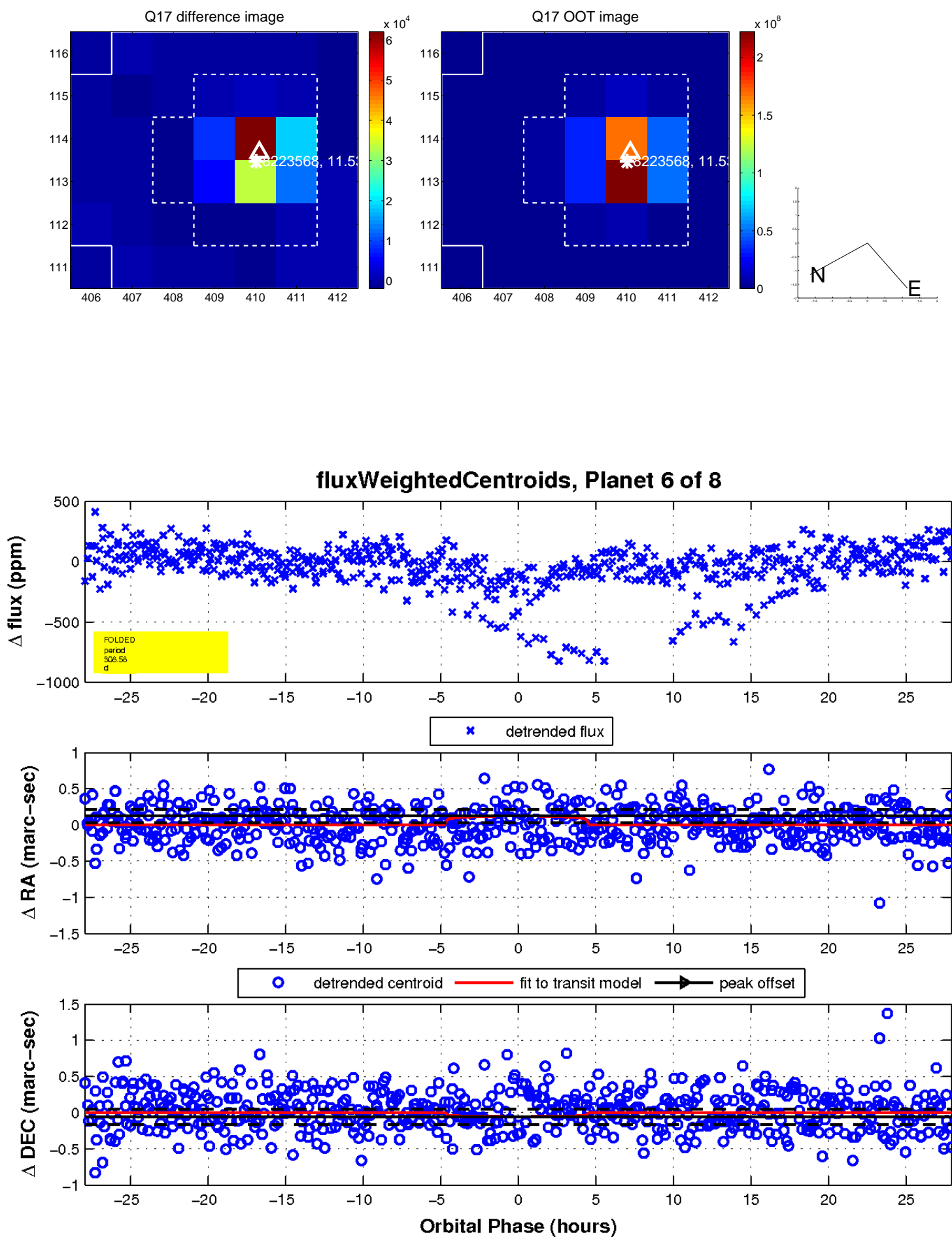
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

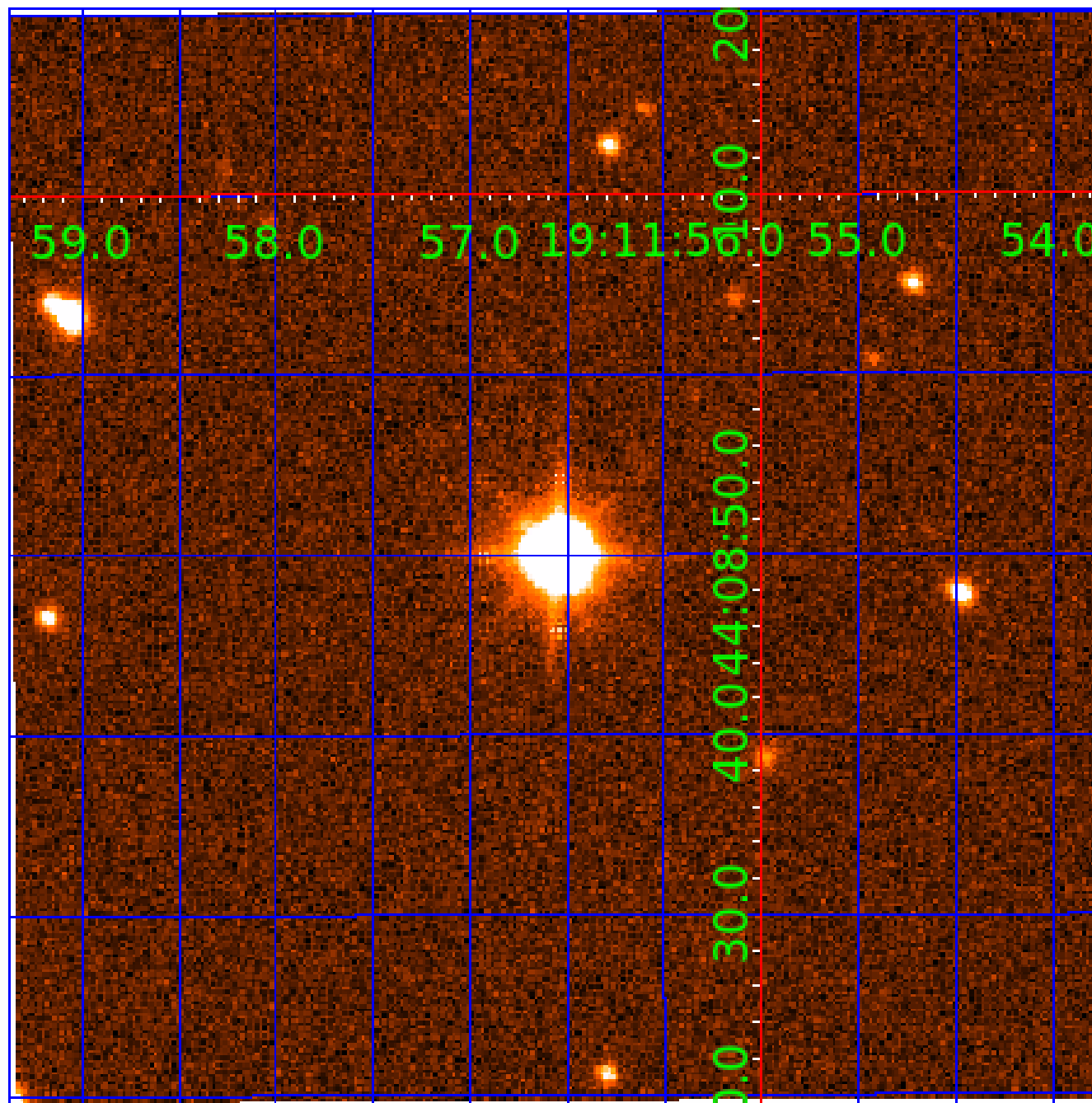


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008223568

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})
008223568-01	OBS	No	2.025610	132.782607	25.7	8.949	14.7	12.7	1.31	6726	0.68	2618.35
008223568-02	OBS	No	169.793123	241.103322	193.2	7.367	9.0	9.1	1.31	6726	1.99	7.14
008223568-03	OBS	No	168.063214	143.680942	180.7	3.849	8.3	6.8	1.31	6726	2.04	7.24
008223568-04	OBS	No	658.319006	224.483928	168.0	38.454	8.1	5.6	1.31	6726	1.79	1.17
008223568-05	OBS	No	85.596547	142.828876	165.4	4.464	7.8	8.8	1.31	6726	2.01	17.79
008223568-06	OBS	No	308.578133	327.887031	184.2	9.322	8.1	7.7	1.31	6726	1.85	3.22
008223568-07	OBS	No	496.193301	500.164082	227.6	6.720	8.4	8.6	1.31	6726	2.25	1.71
008223568-08	OBS	No	144.969324	205.071810	79.5	7.500	7.7	-1.0	1.31	6726	1.18	8.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008223568-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008223568-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
008223568-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008223568-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008223568-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008223568-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNCERTAIN
008223568-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_DIFFS
008223568-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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 008223568-07

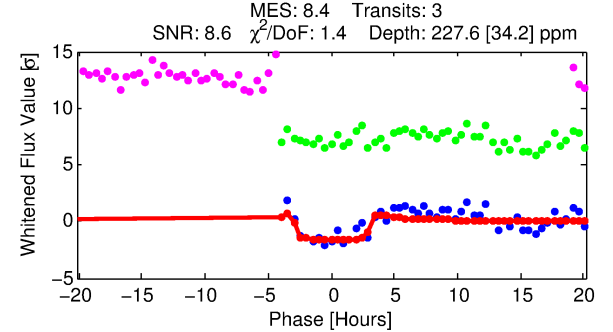
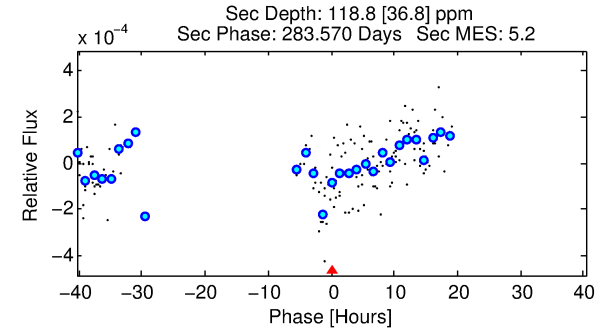
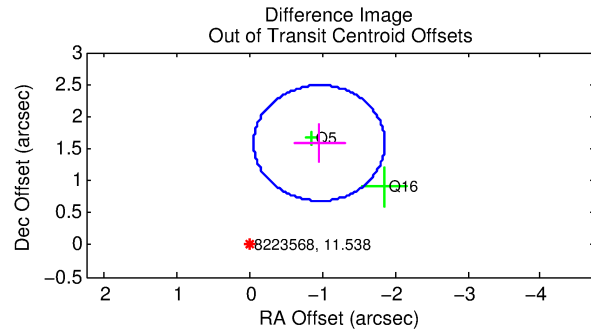
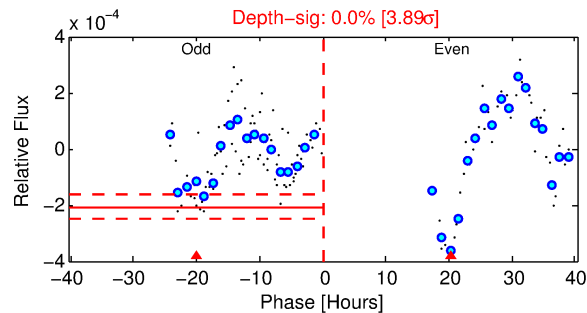
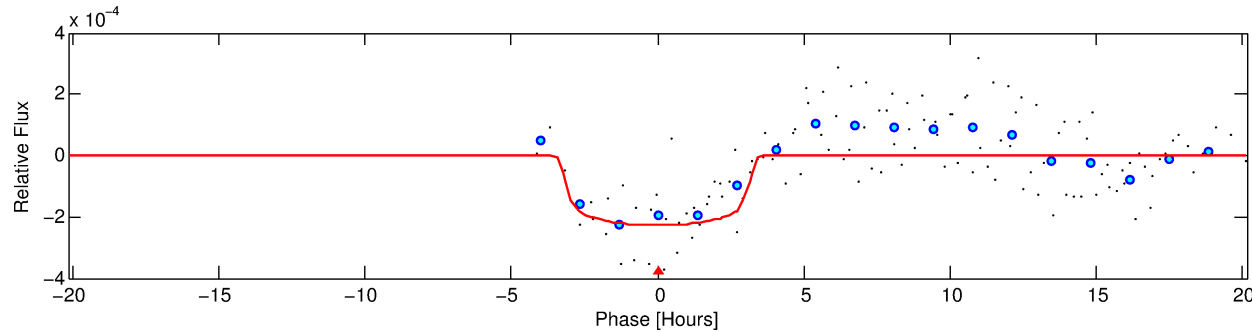
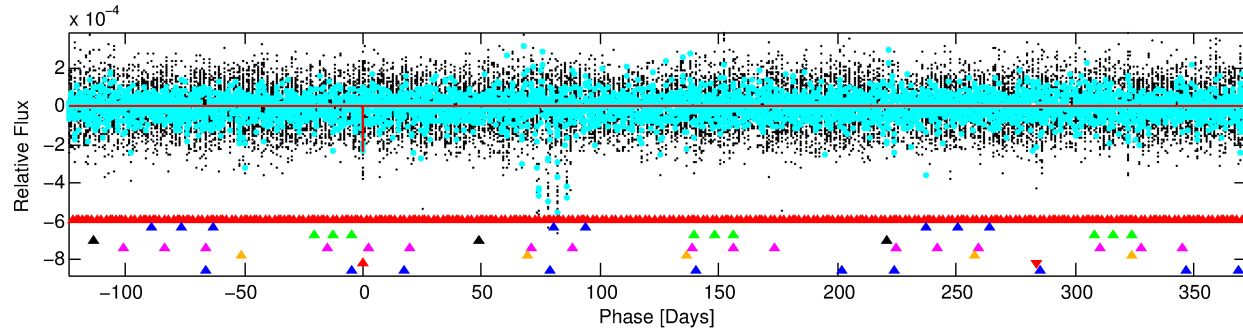
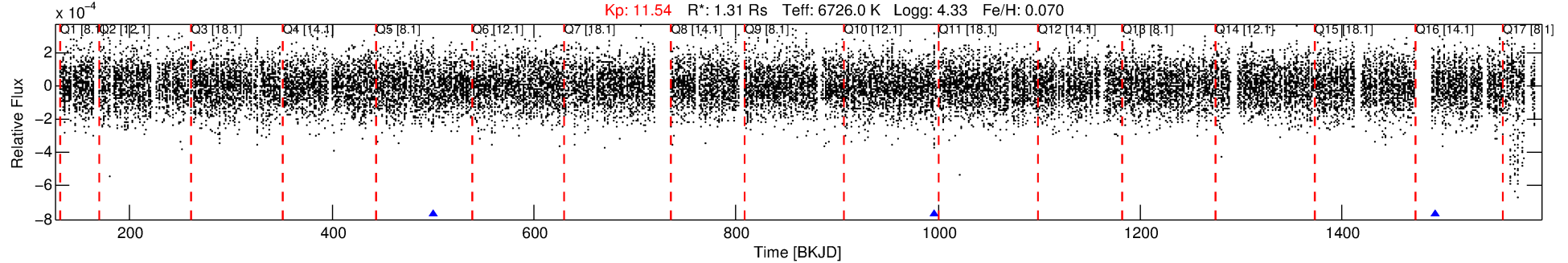
No Significant Match Found

DV One-Page Summary

KIC: 8223568 Candidate: 7 of 8 Period: 496.193 d

KOI: K06176 Corr: No Ephemeris Match

Kp: 11.54 R*: 1.31 Rs Teff: 6726.0 K Logg: 4.33 Fe/H: 0.070



DV Fit Results:

Period = 496.19330 [0.01018] d
Epoch = 500.1641 [0.0077] BKJD
Rp/R* = 0.0158 [0.0064]
a/R* = 299.03 [686.12]
b = 0.87 [0.67]
Seff = 1.71 [0.40]
Teq = 292 [17] K
Rp = 2.25 [1.00] Re
a = 1.3572 [0.2000] AU
Ag = 23732.69 [21347.70] [1.11σ]
Teffp = 5594 [1227] K [4.32σ]

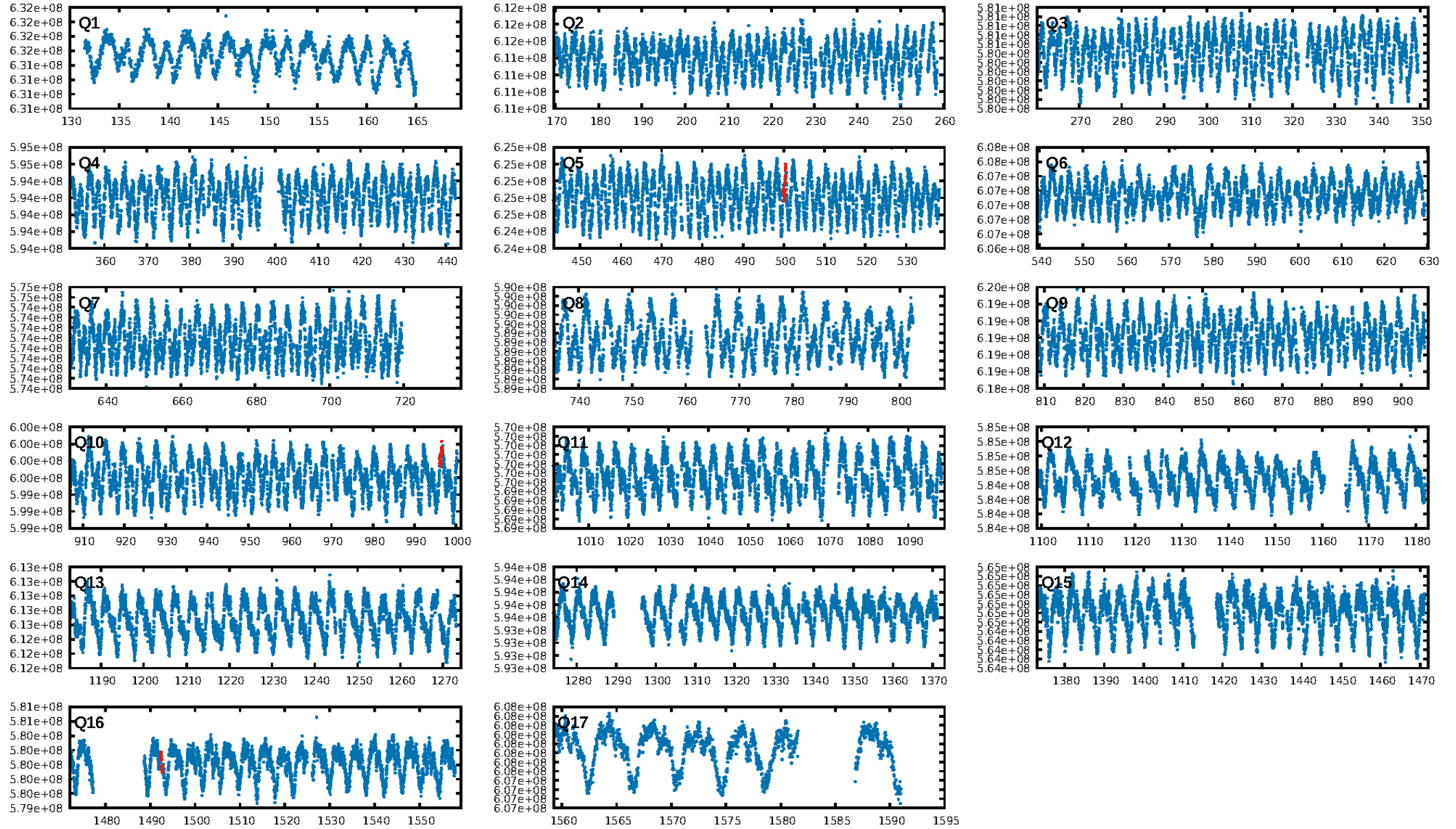
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [391.84σ]
LongPeriod-sig: 100.0% [99.68σ]
ModelChiSquare2-sig: 64.3%
ModelChiSquareGof-sig: 99.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.543
Centroid-sig: 85.1%
Centroid-so: 0.311 arcsec [0.52σ]
OotOffset-rm: 1.852 arcsec [6.17σ]
KicOffset-rm: 1.841 arcsec [6.19σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.33 [1/3]

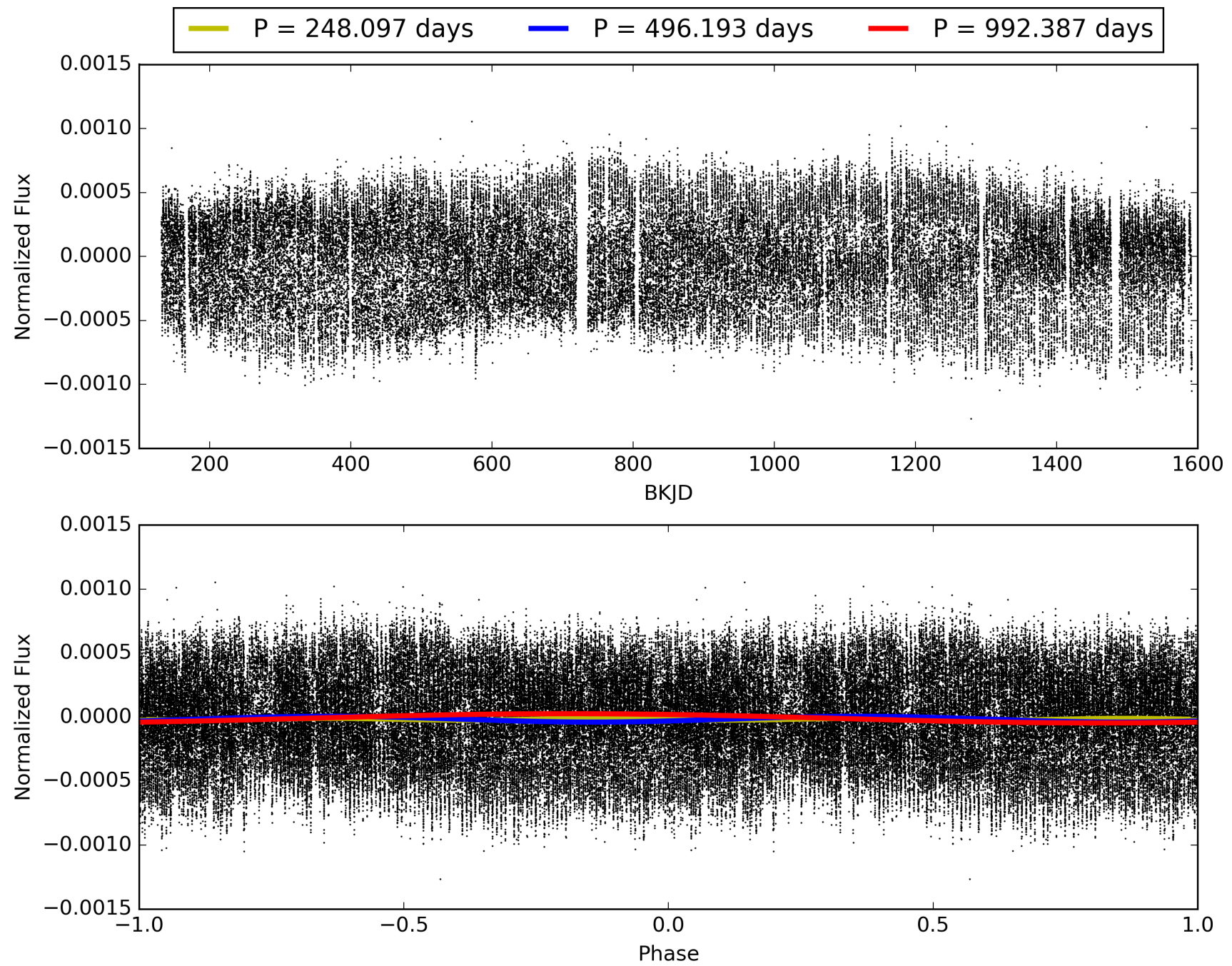
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:02:54 Z

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

TCE 008223568-07, PDC Light Curves

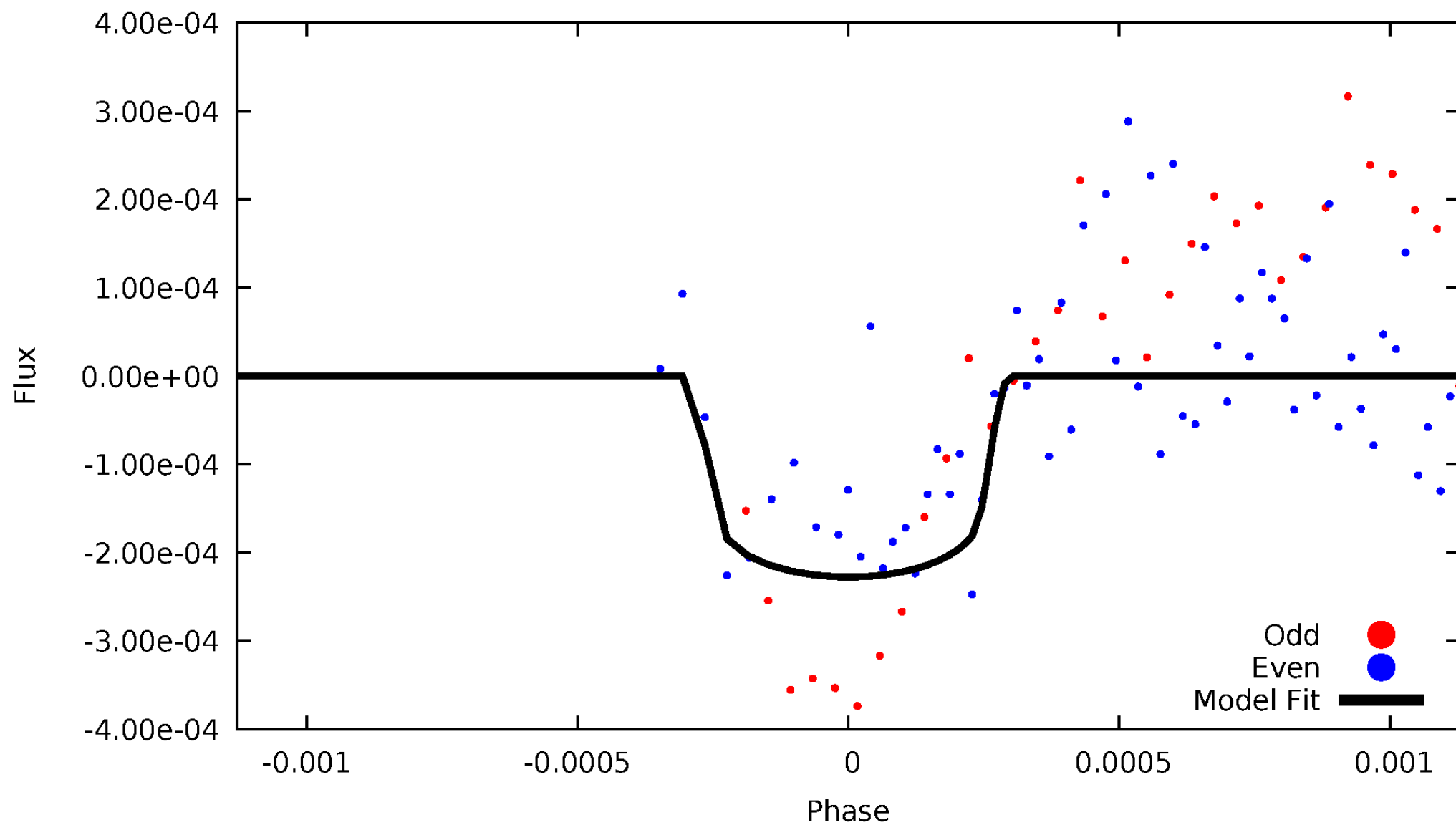


TCE 008223568-07



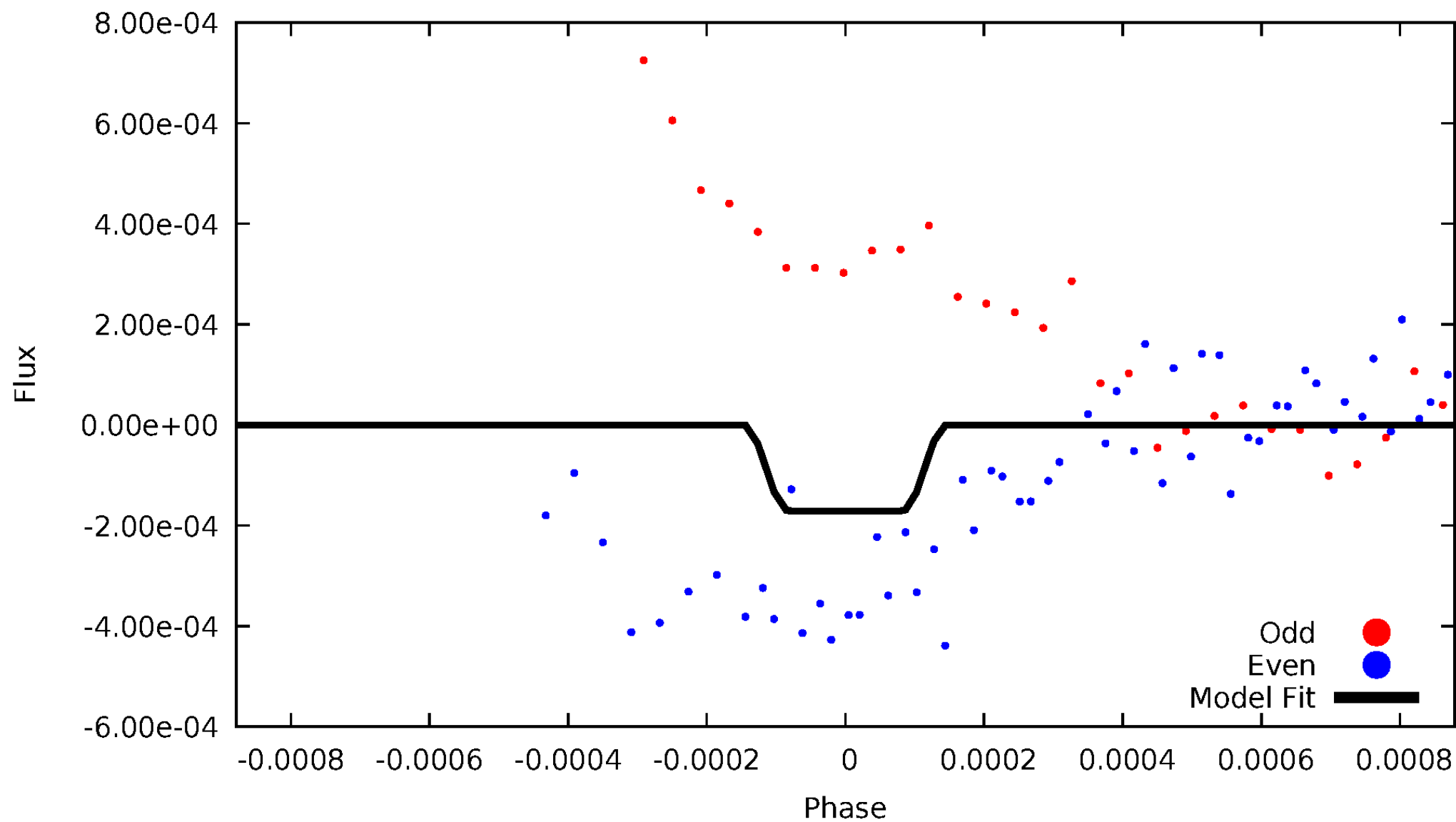
DV Odd/Even

TCE 008223568-07



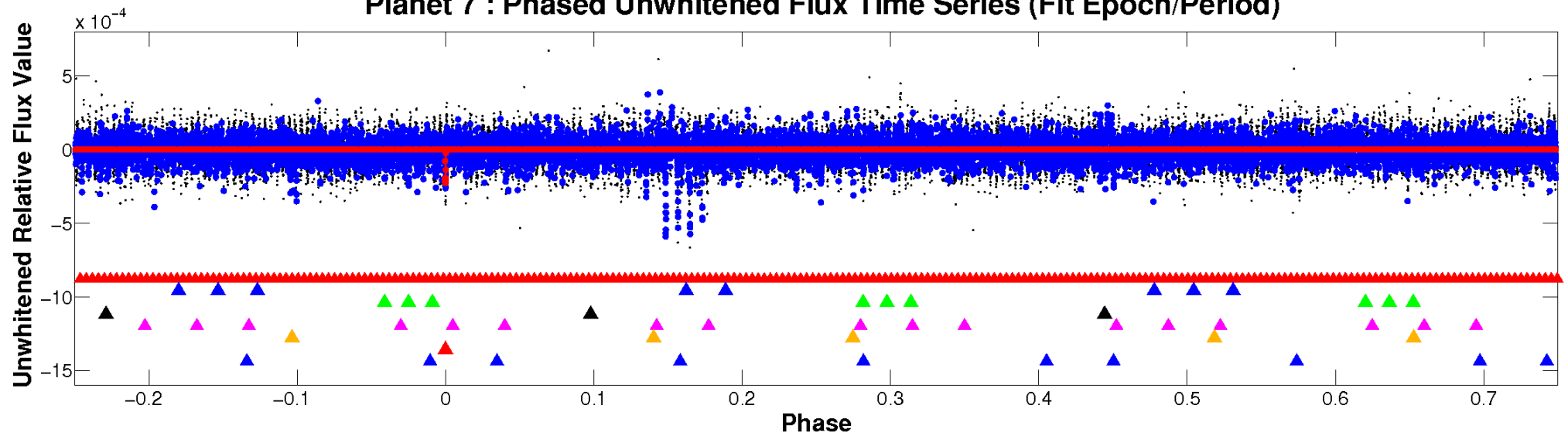
ALT Odd/Even

TCE 008223568-07

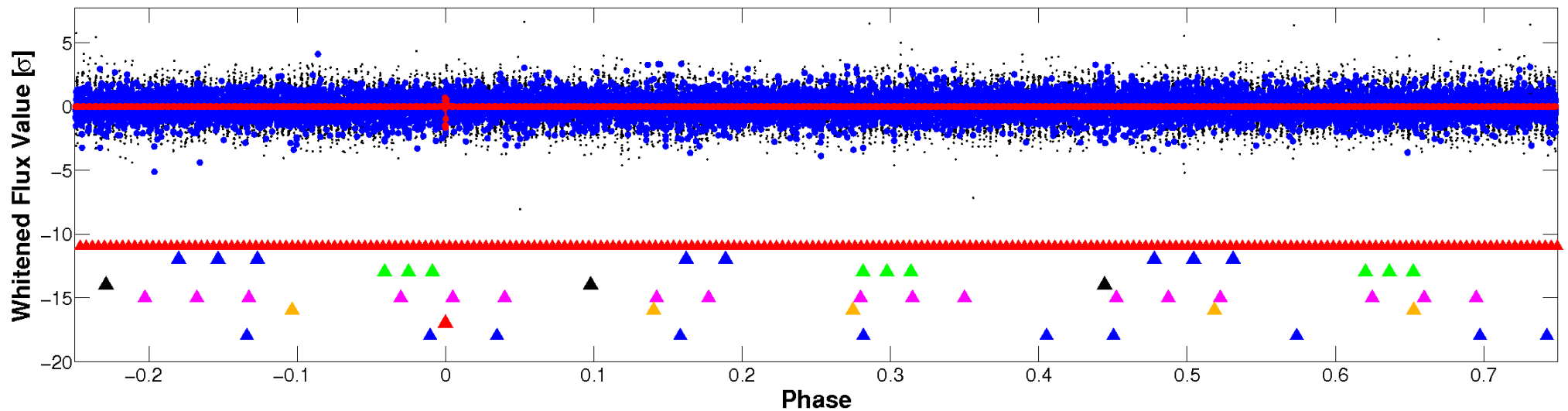


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

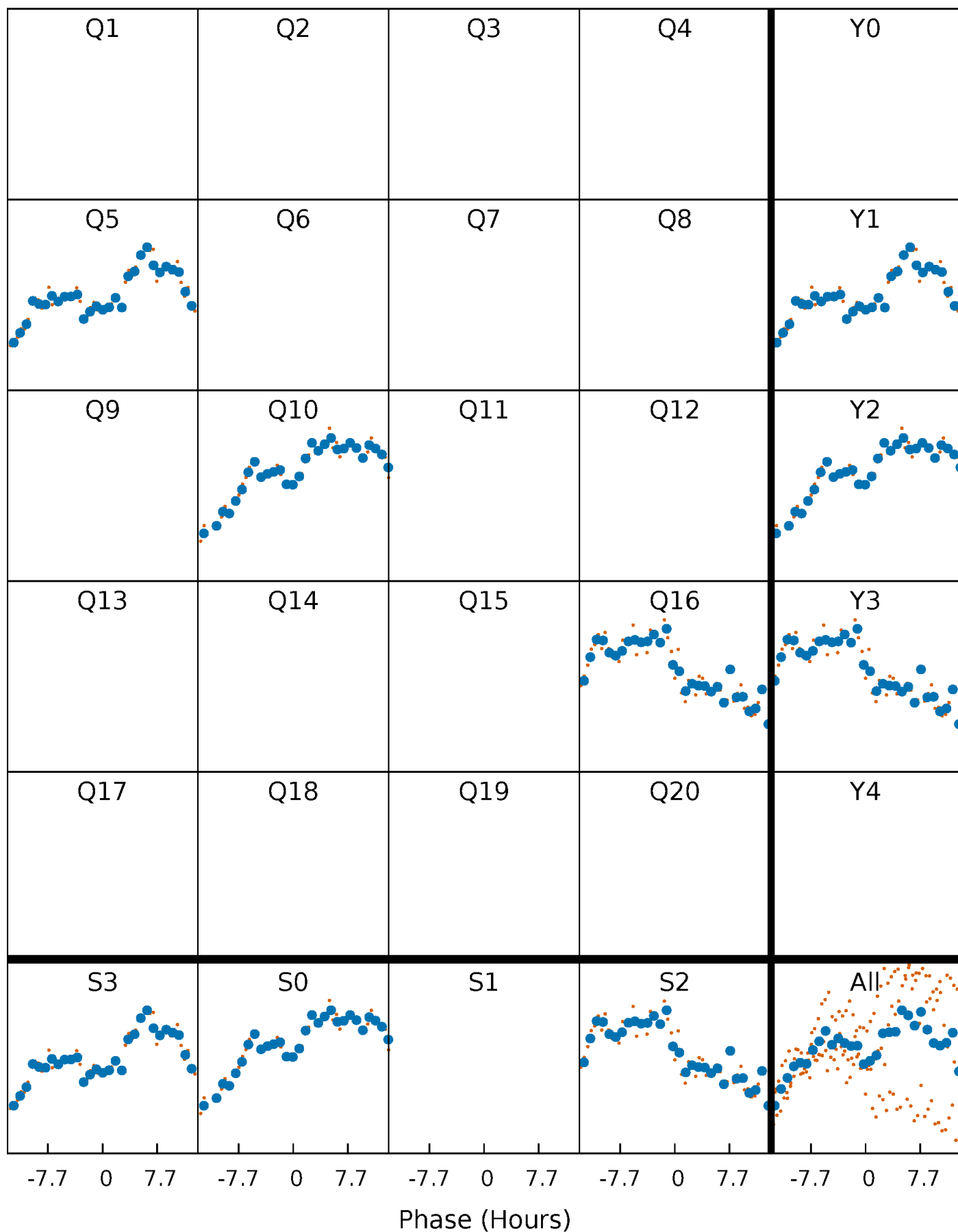


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



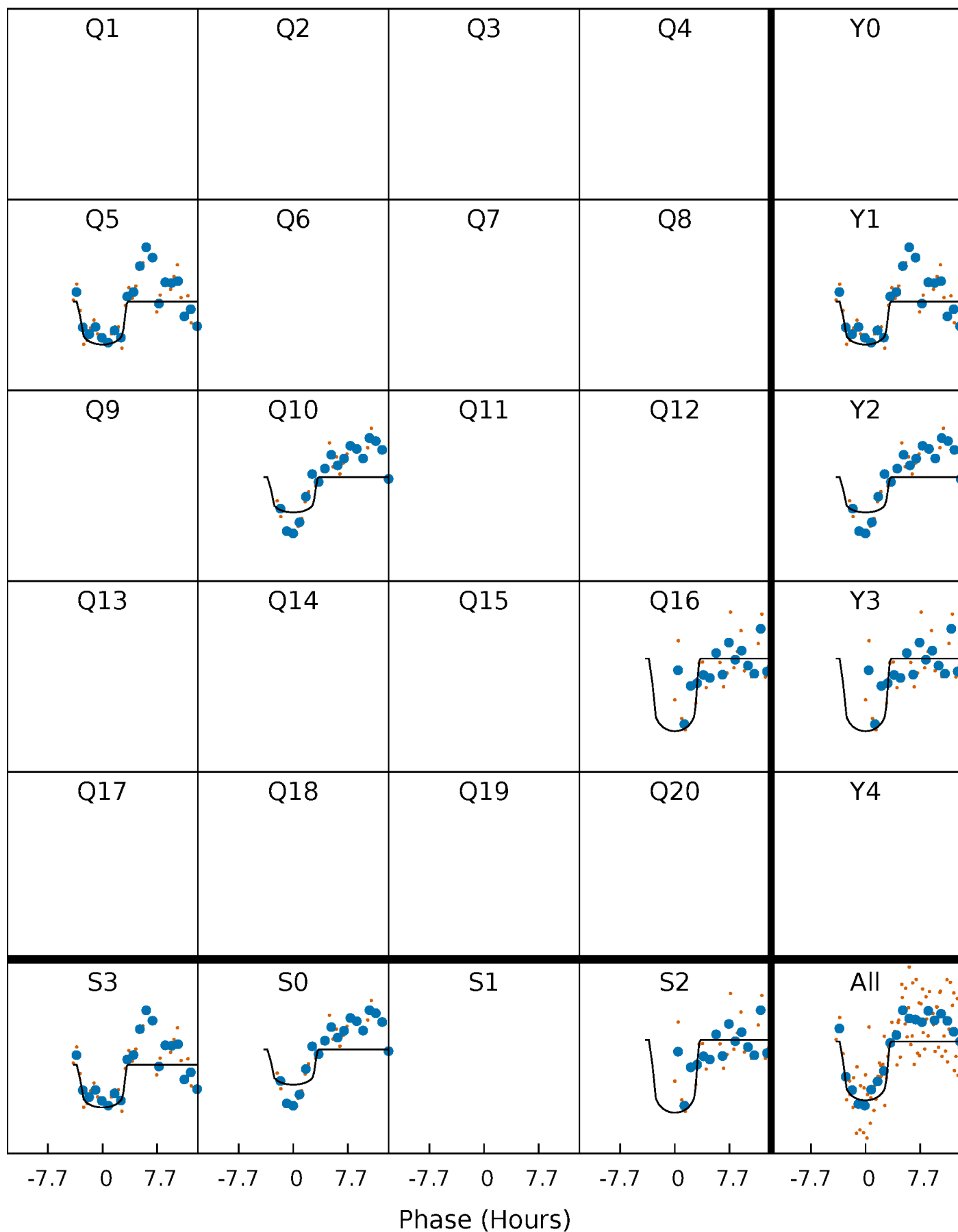
PDC Quarter-Phased Transit Curves

TCE 008223568-07 $P=496.193301$ Days $T_0=500.164082$ (BKJD)



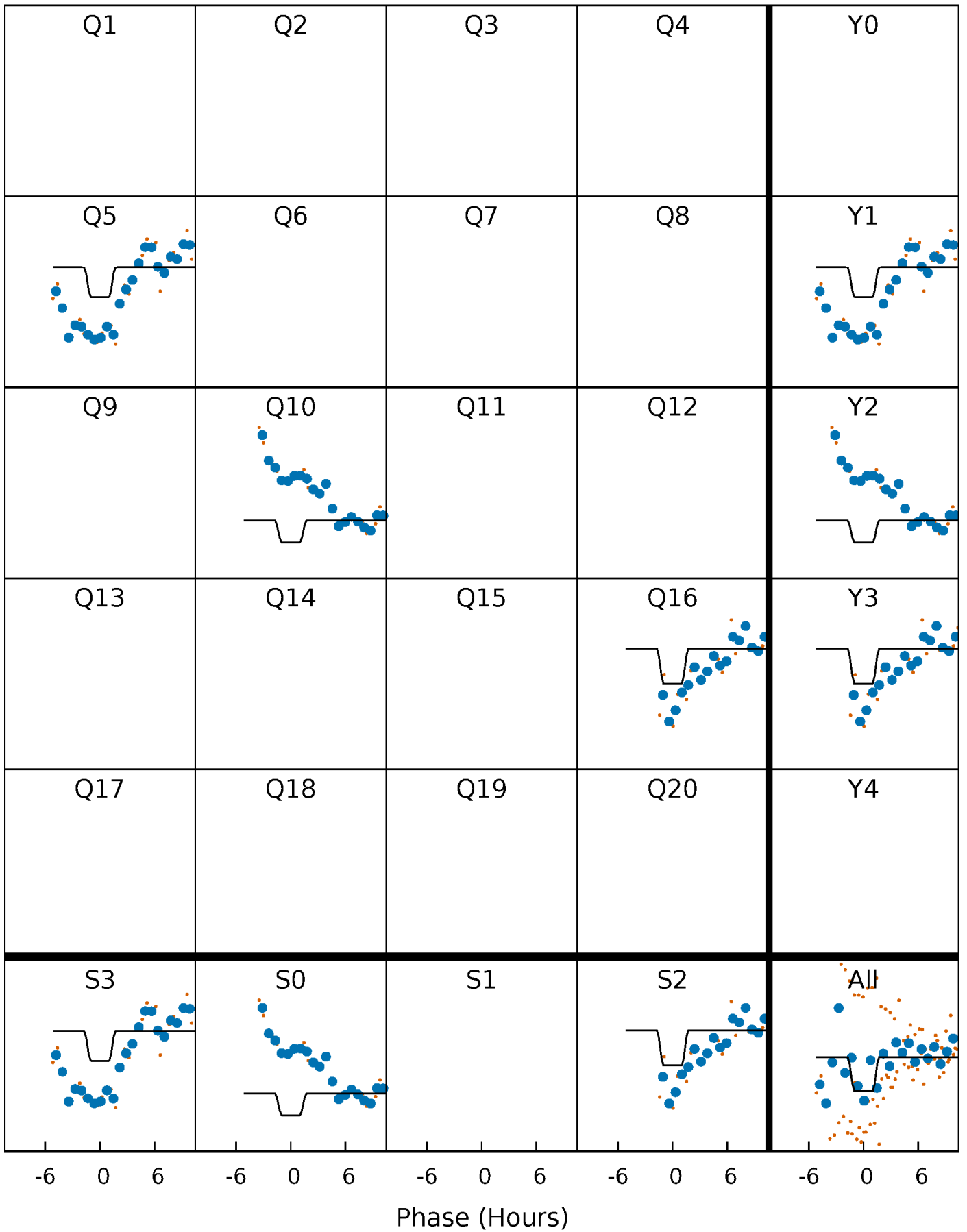
DV Quarter-Phased Transit Curves

TCE 008223568-07 $P=496.193301$ Days $T_0=500.164082$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

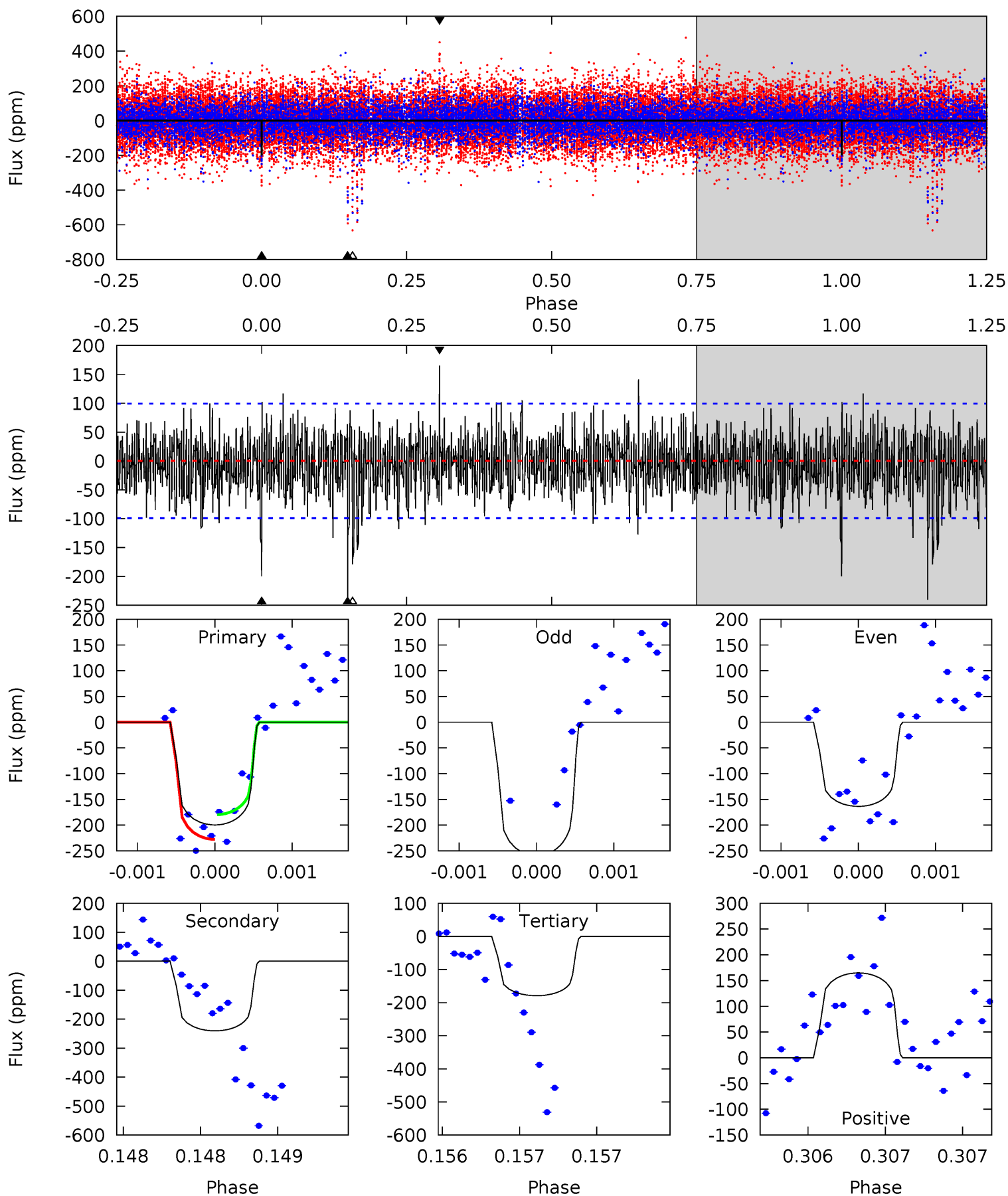
TCE 008223568-07 $P=496.201760$ Days $T_0=500.206127$ (BKJD)



DV Model-Shift Uniqueness Test

008223568-07, P = 496.193301 Days, E = 3.970781 Days

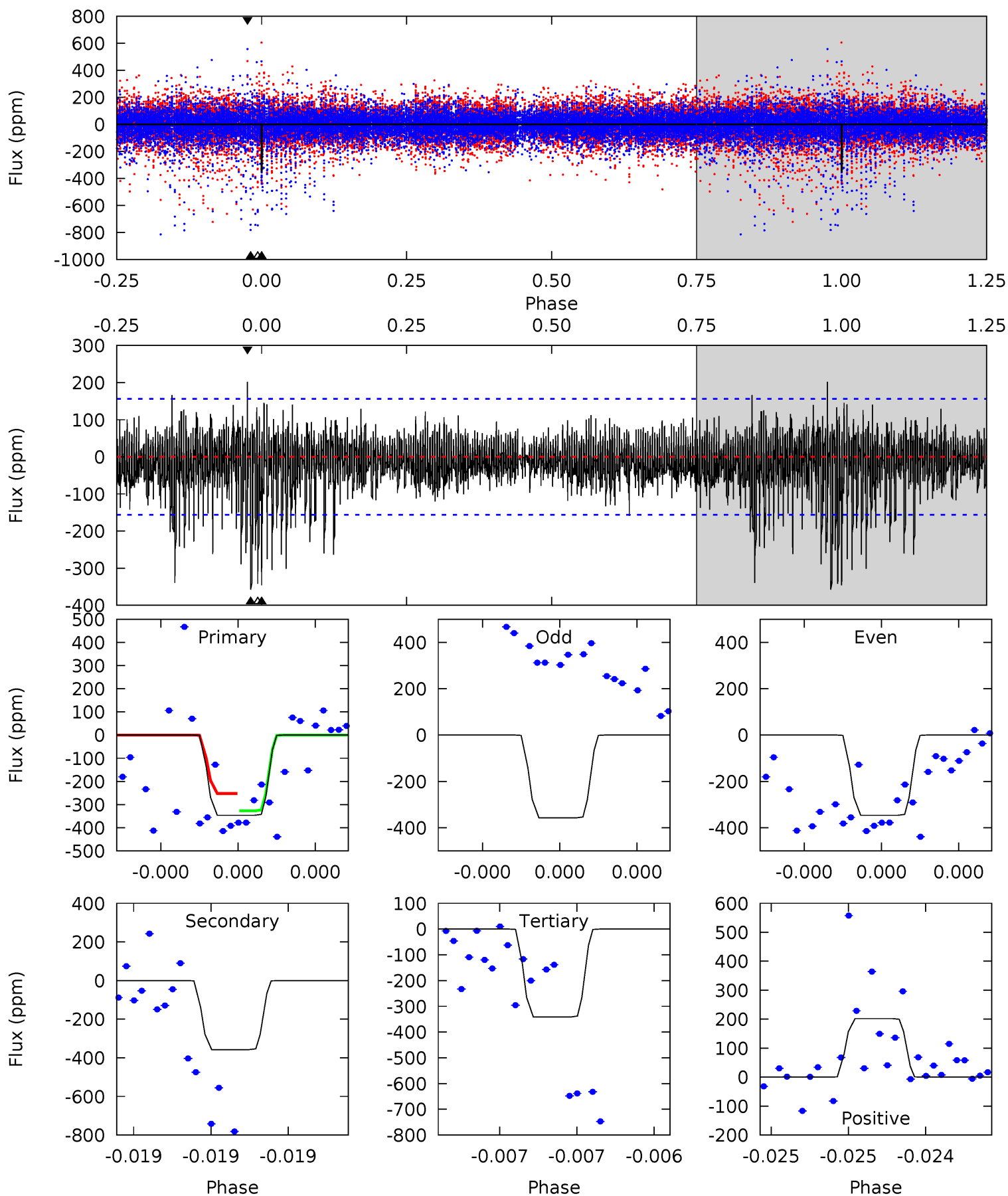
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	13.5	10.0	9.23	5.56	3.47	2.04	1.15	1.95	3.43	4.22	2.62	1.01	0.41	1.28



Alt Model-Shift Uniqueness Test

008223568-07, P = 496.201760 Days, E = 4.004367 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	13.0	12.4	7.33	5.67	3.63	1.65	0.16	5.22	0.58	5.63	0.24	0.39	0.36	1.42



Stellar Parameters For KIC 008223568

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6726^{+117}_{-150}	$4.335^{+0.032}_{-0.120}$	$0.070^{+0.100}_{-0.200}$	$1.310^{+0.226}_{-0.097}$	$1.354^{+0.075}_{-0.112}$	$0.848^{+0.131}_{-0.298}$
	+2%/-2%	+1%/-3%	+143%/-286%	+17%/-7%	+6%/-8%	+15%/-35%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 008223568-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-240 ± 18	$2.32^{+1.03}_{-0.89}$	412^{+17}_{-12}	6630^{+2199}_{-1049}	44730^{+72618}_{-23323}
Alt.	-358 ± 28	$1.95^{+0.93}_{-0.90}$	411^{+17}_{-13}	8199^{+4479}_{-1582}	$94354^{+214092}_{-51977}$

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

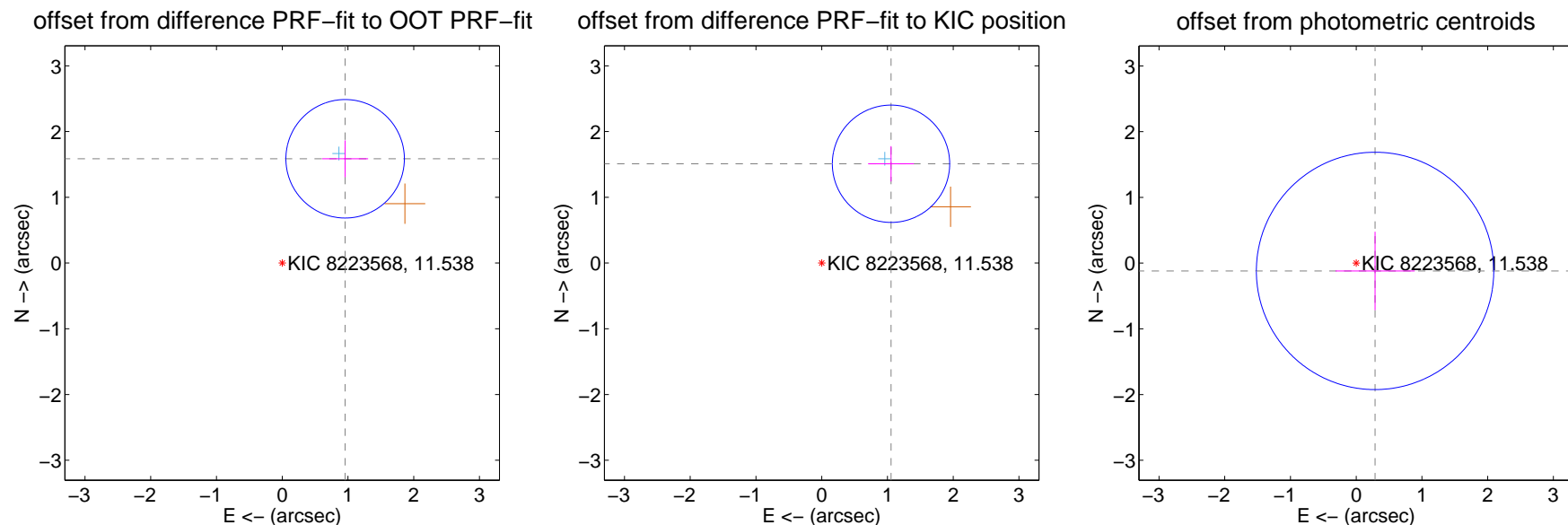
DV Centroid Data

Supplemental centroid analysis for 008223568-07. **Kepler magnitude: 11.54.** Transit SNR 8.56

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.852 ± 0.300	6.17	-0.957 ± 0.350	1.586 ± 0.280
PRF-fit source offset from KIC position	1.841 ± 0.297	6.19	-1.054 ± 0.348	1.510 ± 0.269
photometric centroid source offset	0.31 ± 0.60	0.52	-0.29 ± 0.60	-0.12 ± 0.60

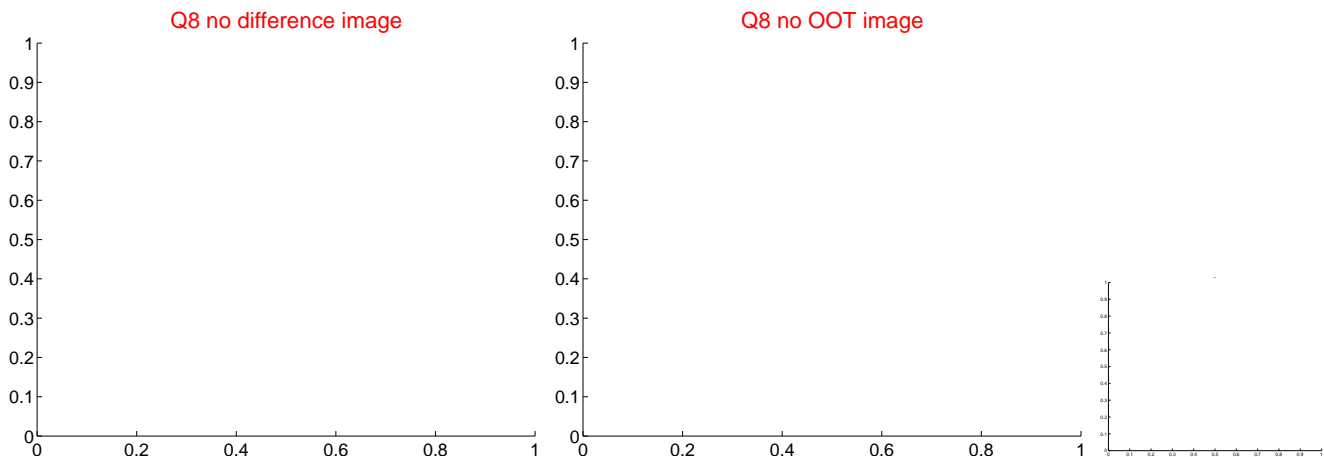
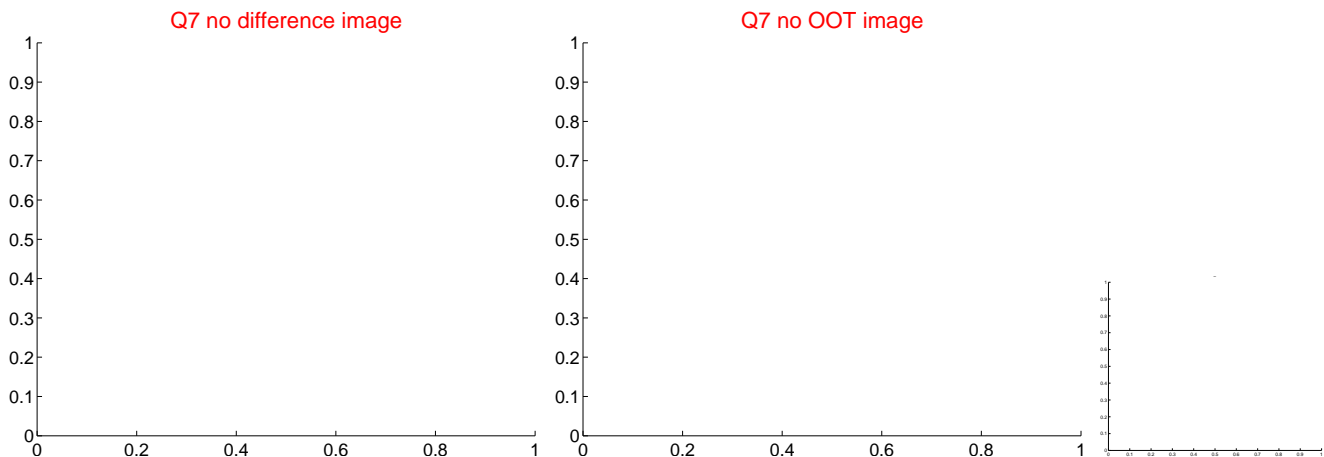
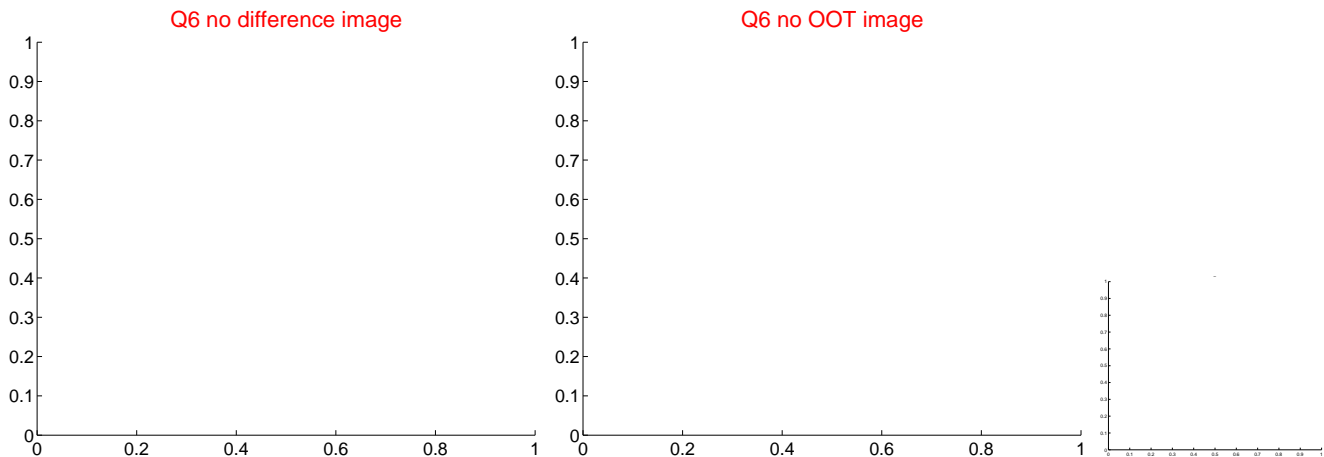
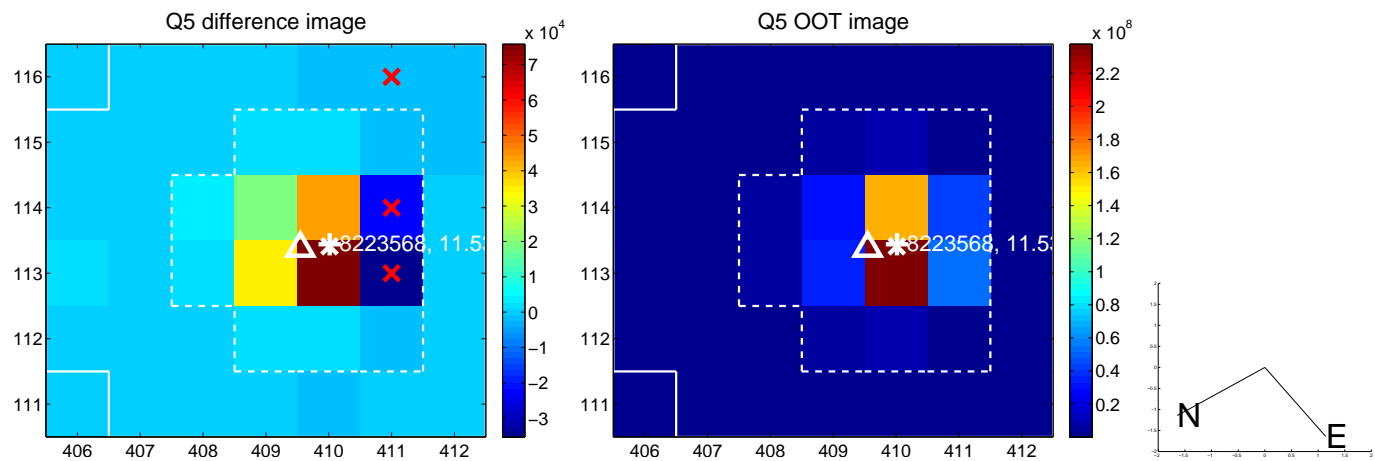


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

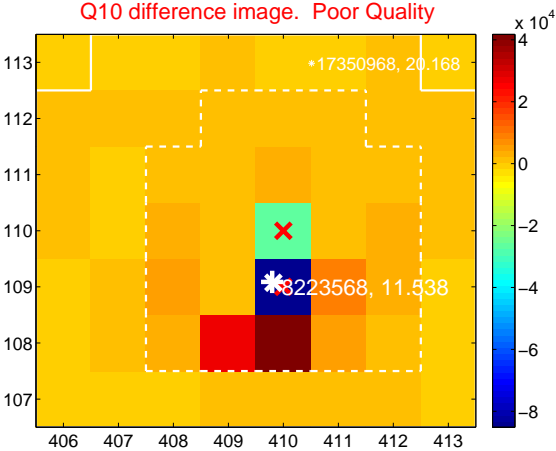
Q9 no difference image



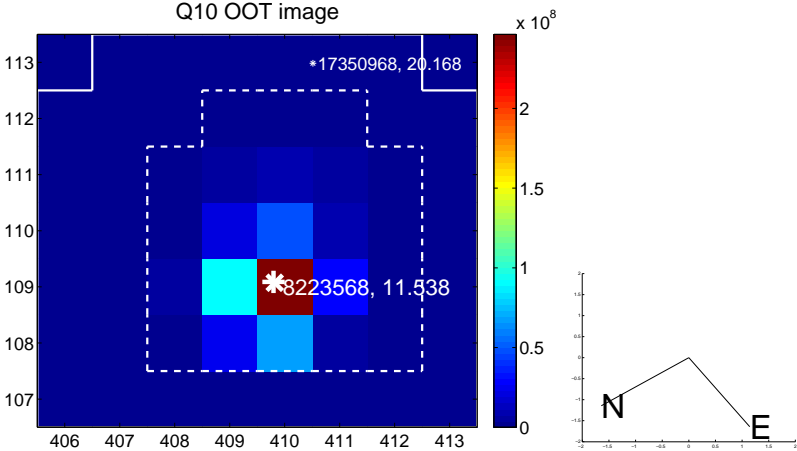
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



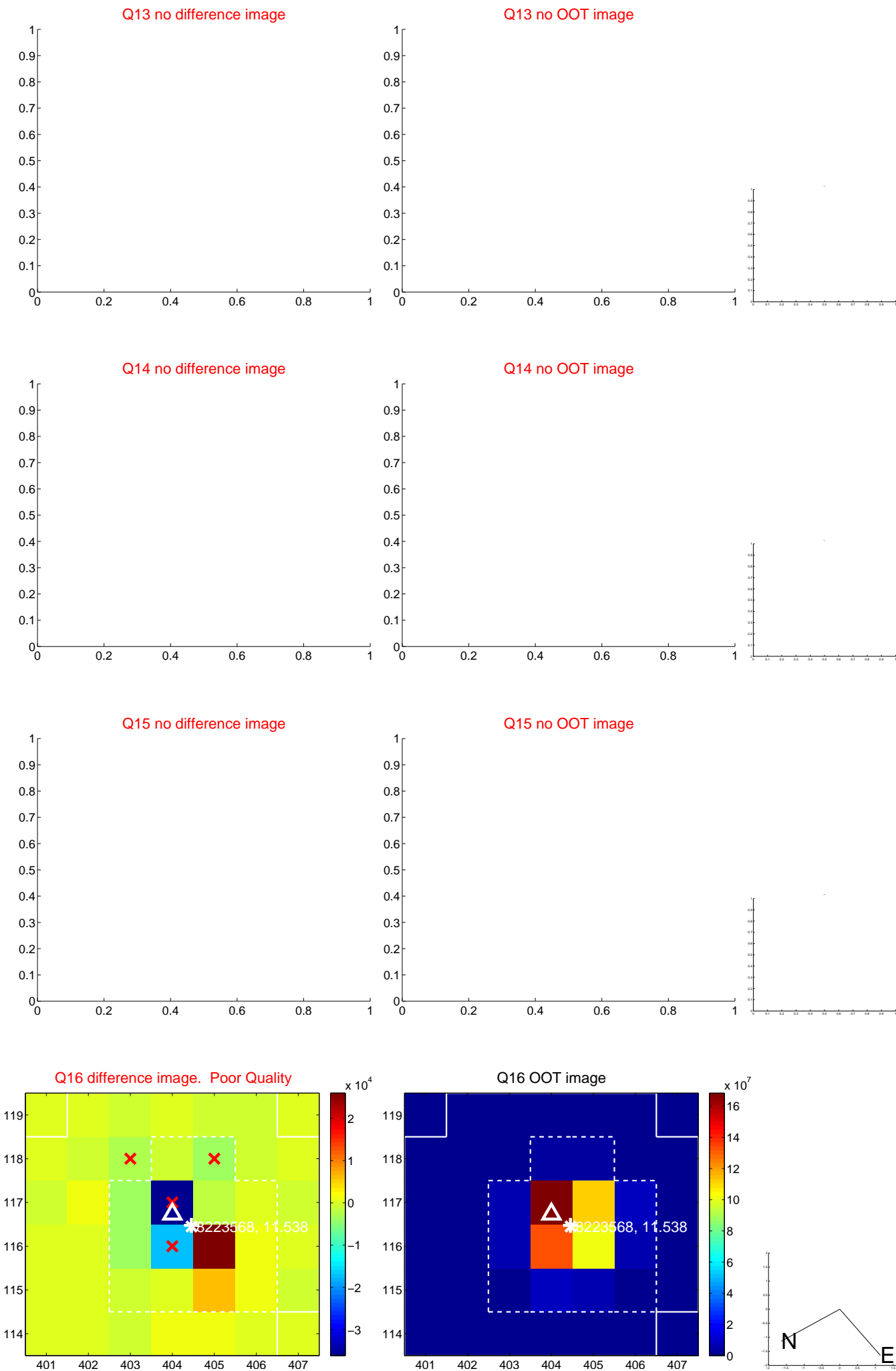
Q12 no difference image



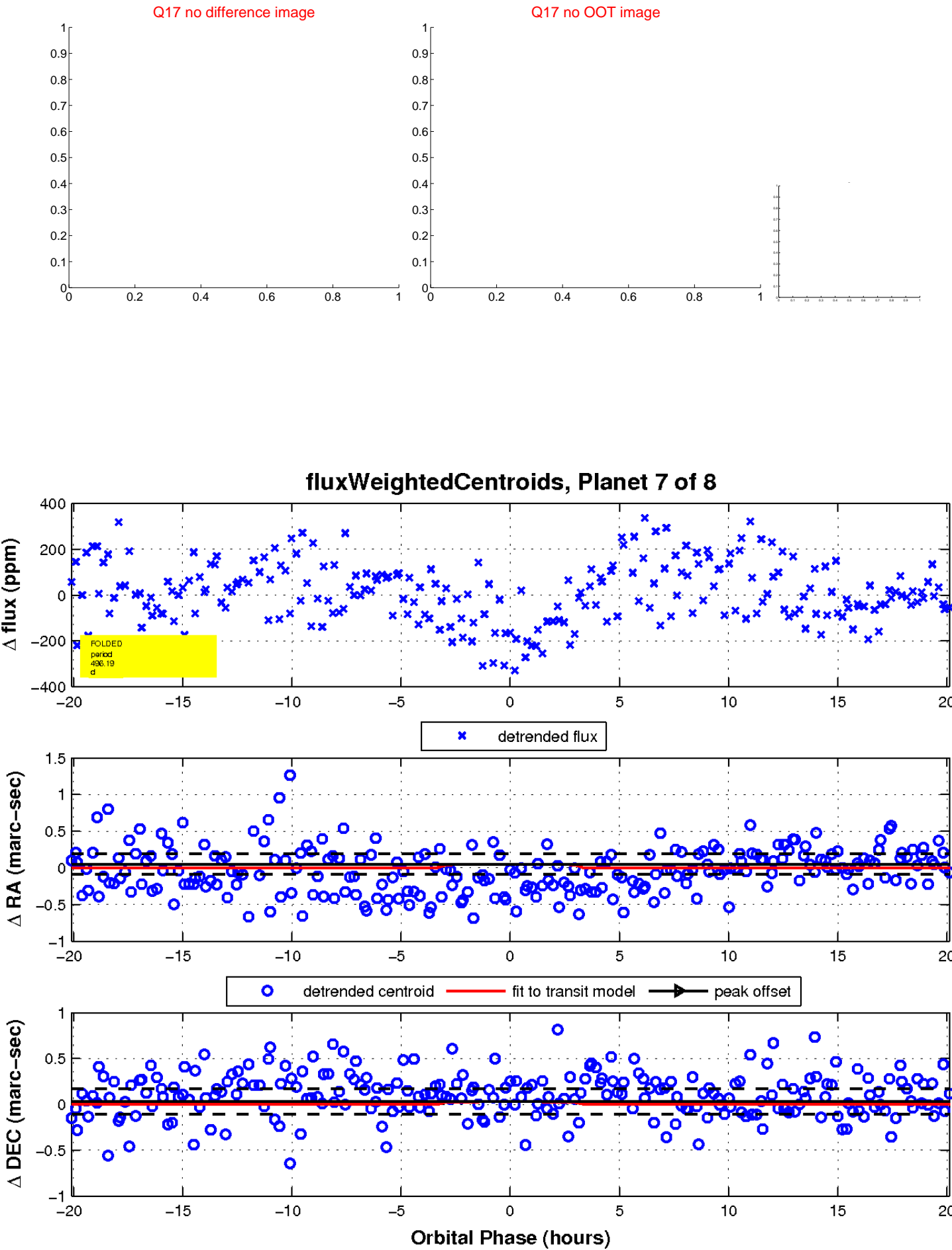
Q12 no OOT image



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

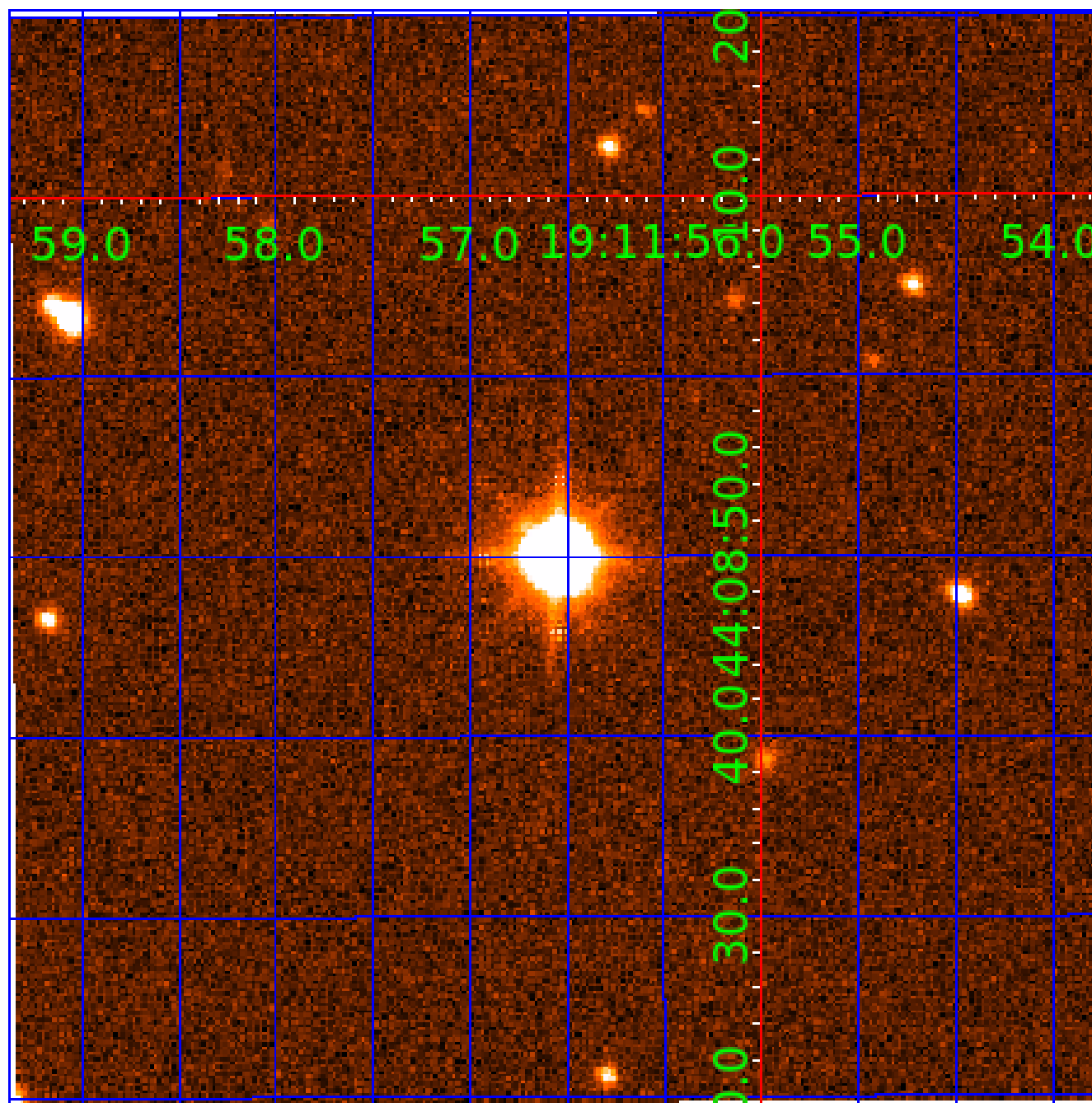


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008223568

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})
008223568-01	OBS	No	2.025610	132.782607	25.7	8.949	14.7	12.7	1.31	6726	0.68	2618.35
008223568-02	OBS	No	169.793123	241.103322	193.2	7.367	9.0	9.1	1.31	6726	1.99	7.14
008223568-03	OBS	No	168.063214	143.680942	180.7	3.849	8.3	6.8	1.31	6726	2.04	7.24
008223568-04	OBS	No	658.319006	224.483928	168.0	38.454	8.1	5.6	1.31	6726	1.79	1.17
008223568-05	OBS	No	85.596547	142.828876	165.4	4.464	7.8	8.8	1.31	6726	2.01	17.79
008223568-06	OBS	No	308.578133	327.887031	184.2	9.322	8.1	7.7	1.31	6726	1.85	3.22
008223568-07	OBS	No	496.193301	500.164082	227.6	6.720	8.4	8.6	1.31	6726	2.25	1.71
008223568-08	OBS	No	144.969324	205.071810	79.5	7.500	7.7	-1.0	1.31	6726	1.18	8.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008223568-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008223568-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
008223568-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008223568-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008223568-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008223568-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNCERTAIN
008223568-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_DIFFS
008223568-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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.

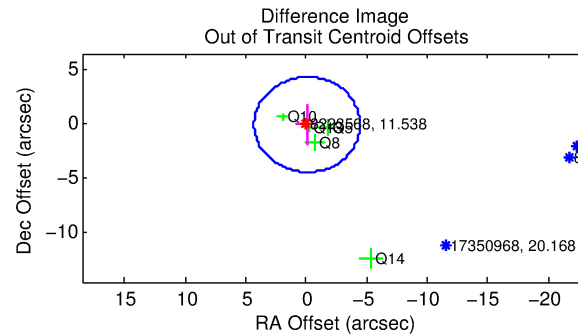
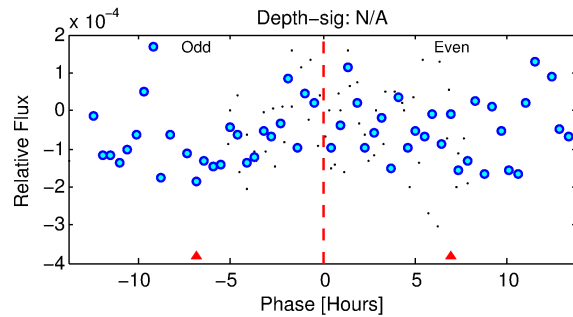
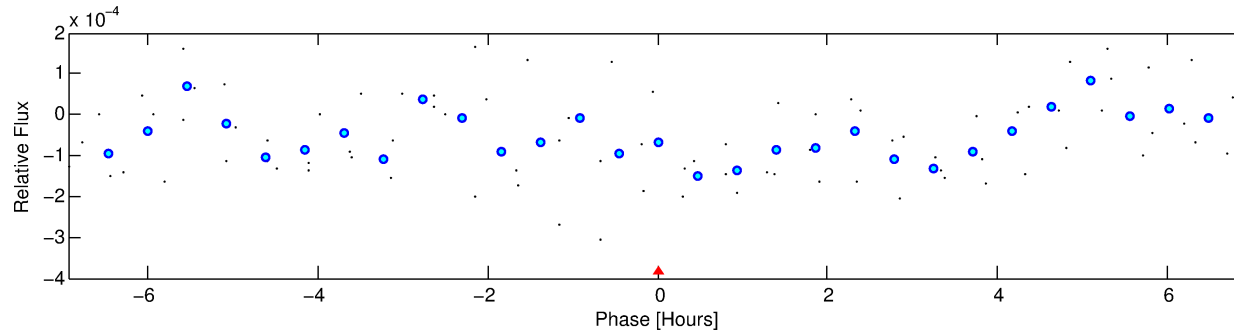
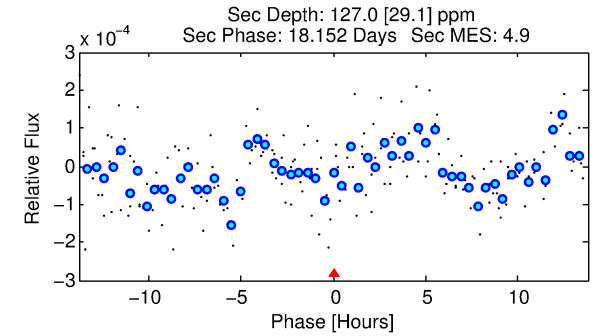
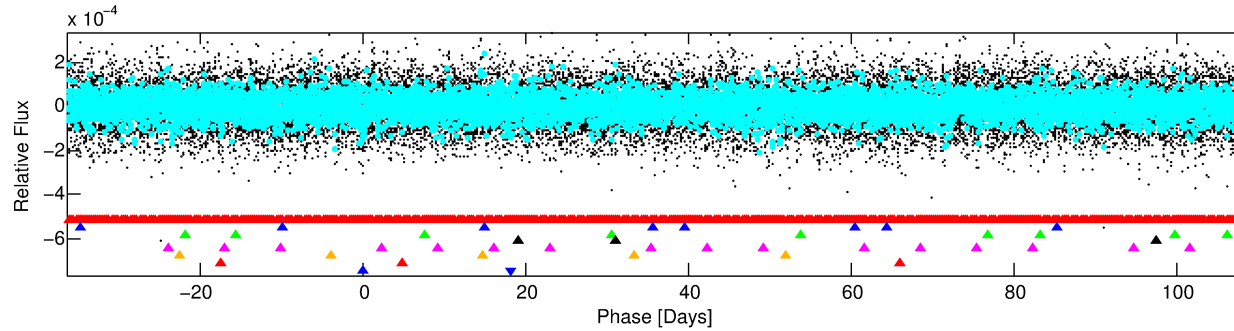
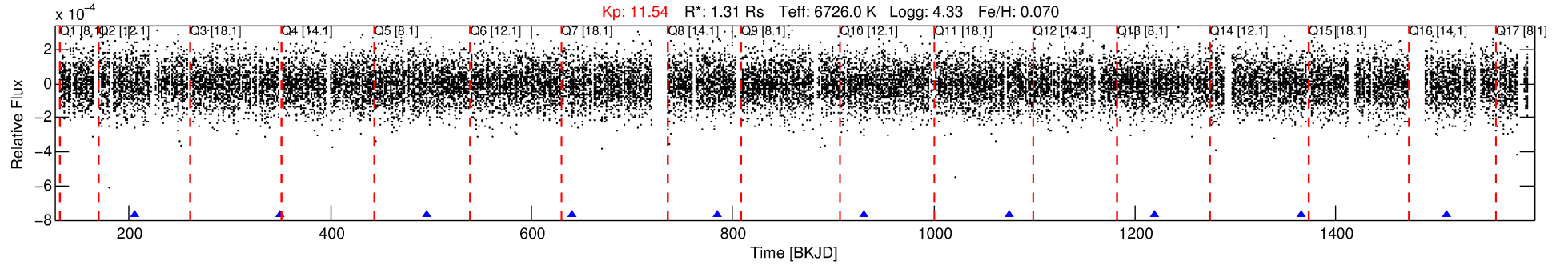
Ephemeris Match Information For 008223568-08

No Significant Match Found

DV One-Page Summary

KIC: 8223568 Candidate: 8 of 8 Period: 144.969 d

KOI: K06176 Corr: No Ephemeris Match



TPS TCE Results:

Period = 144.96932 d
Epoch = 205.0718 BKJD

DV fit results are unavailable

DV Diagnostic Results:

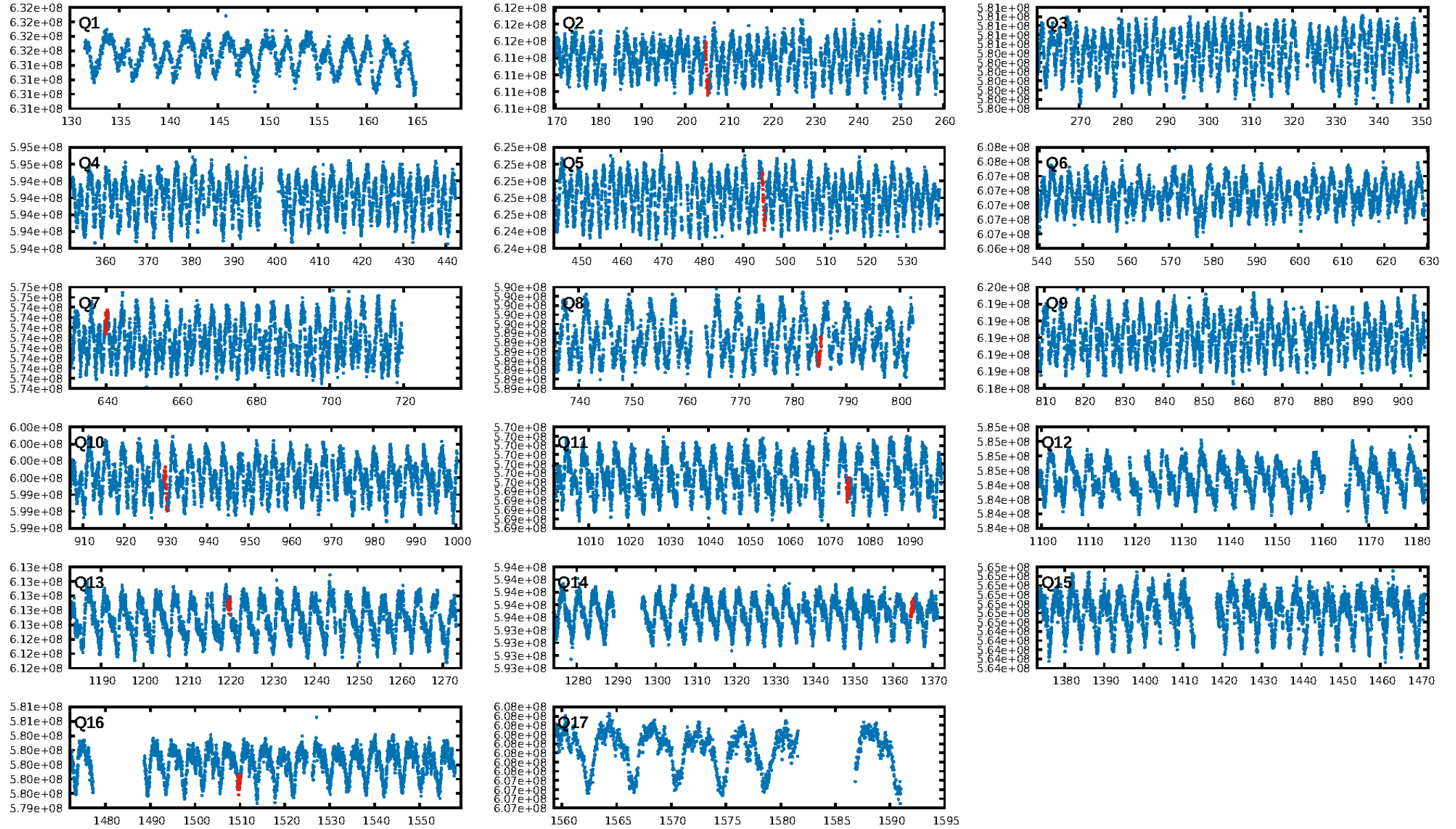
ShortPeriod-sig: 100.0% [163.26σ]
LongPeriod-sig: 100.0% [65.75σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -4.246

Centroid-sig: 74.4%
Centroid-so: 0.338 arcsec [0.61σ]
OotOffset-rm: 0.071 arcsec [0.05σ]
KicOffset-rm: 0.150 arcsec [0.07σ]
OotOffset-st: 2/0/1/2 [5]
KicOffset-st: 2/0/1/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.50 [4/8]

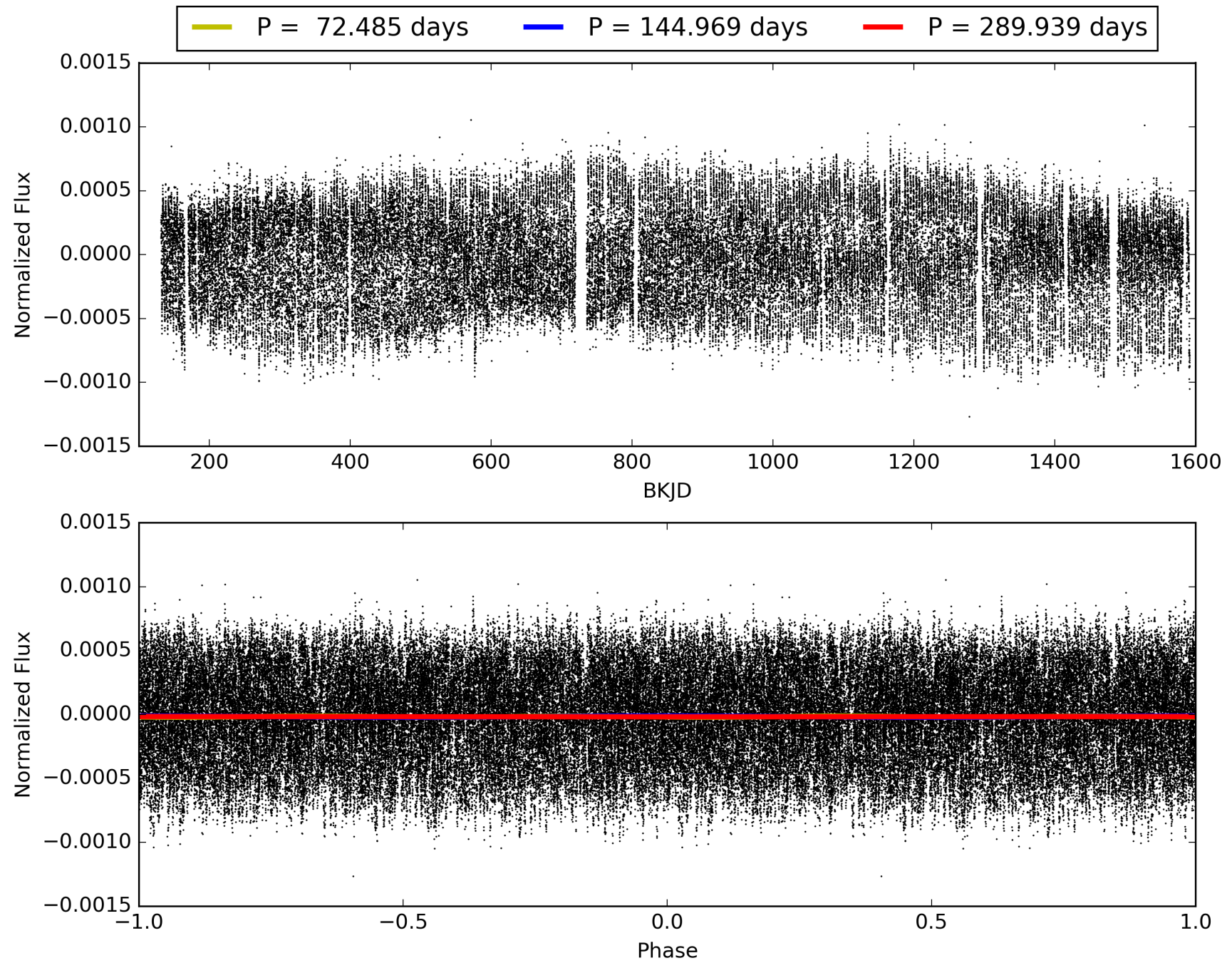
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:03:01 Z

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

TCE 008223568-08, PDC Light Curves

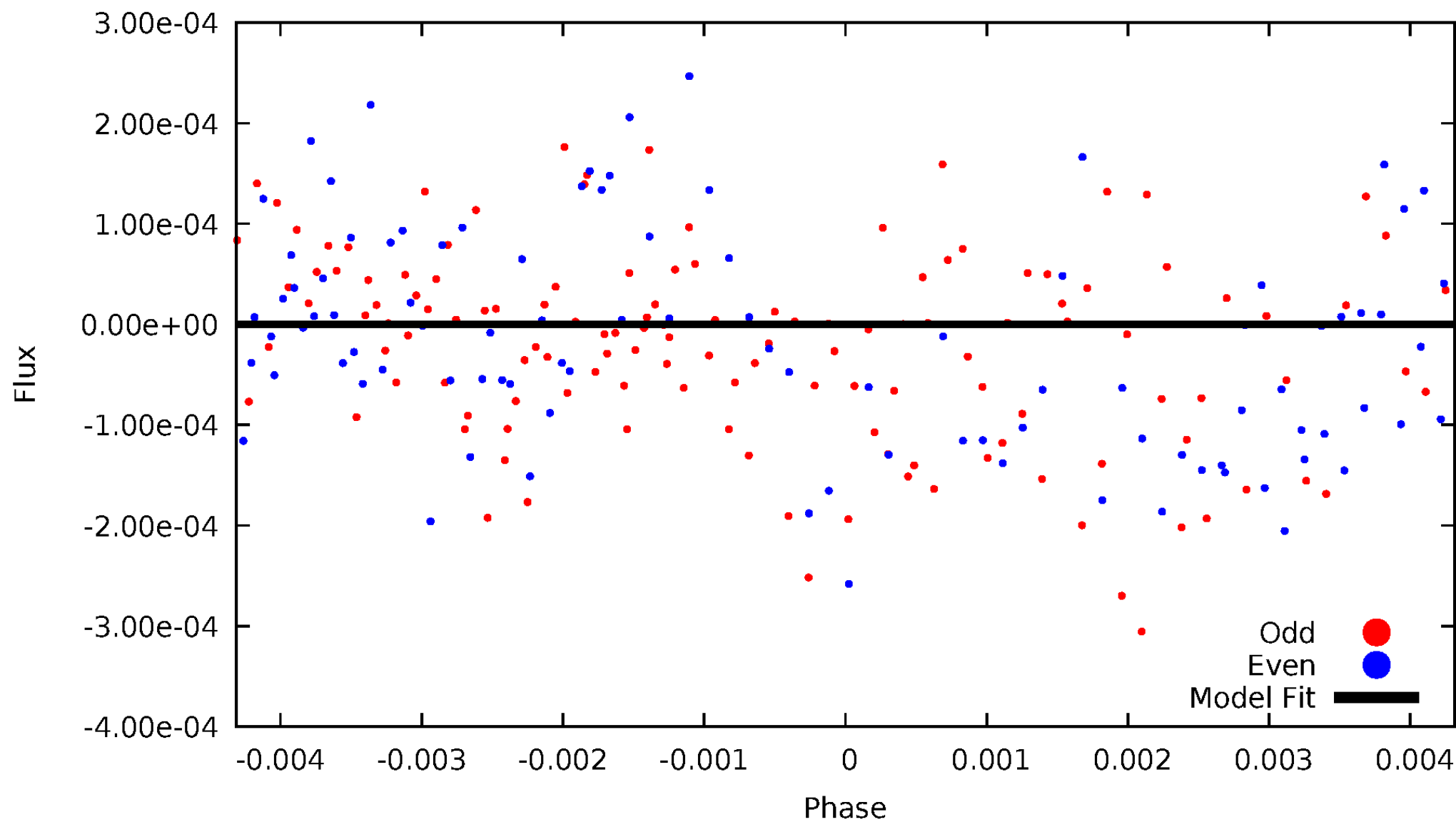


TCE 008223568-08



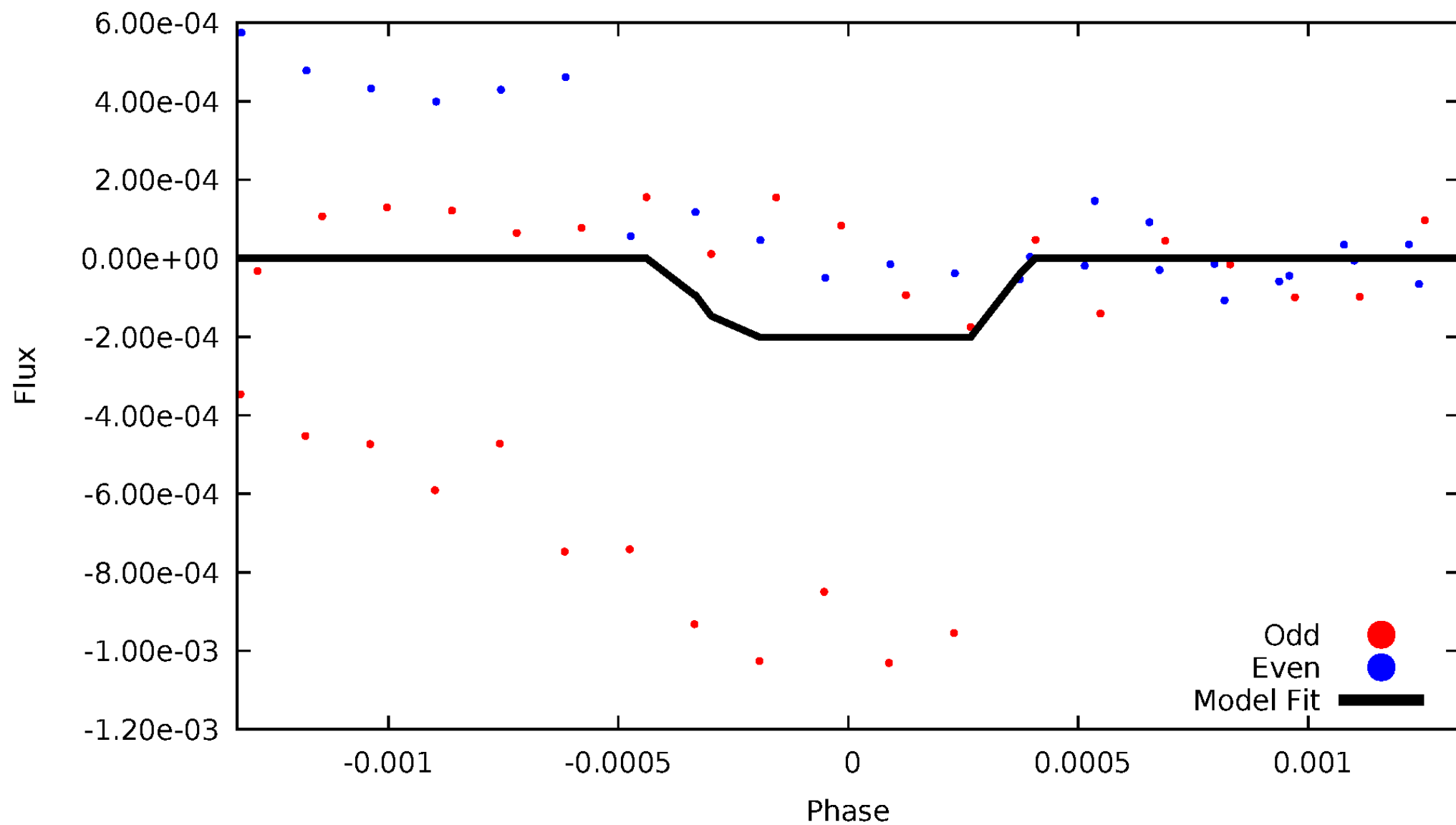
DV Odd/Even

TCE 008223568-08



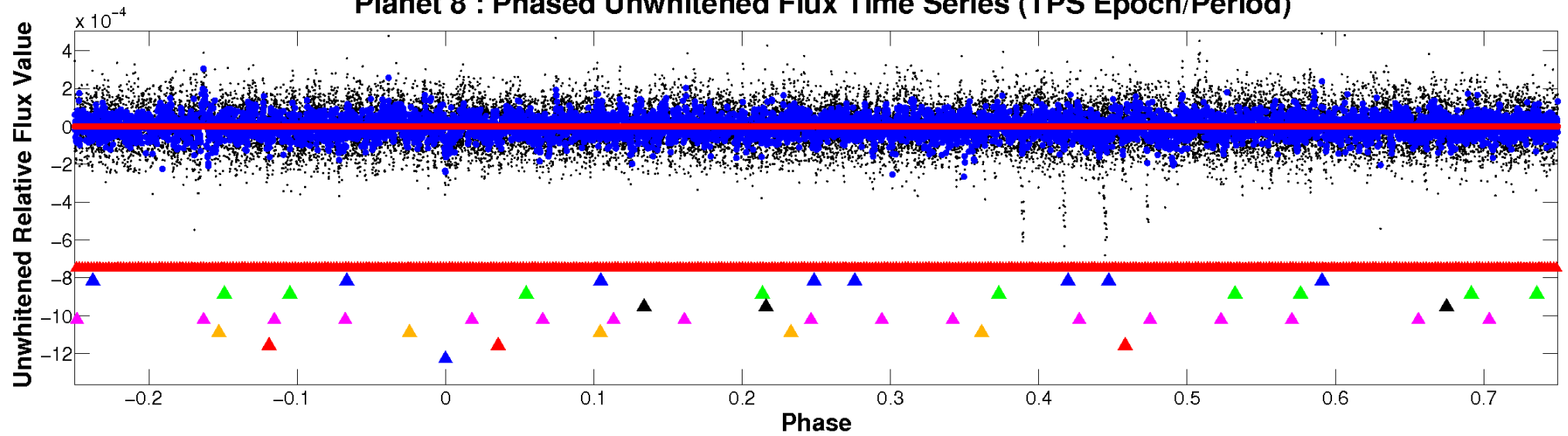
ALT Odd/Even

TCE 008223568-08



Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

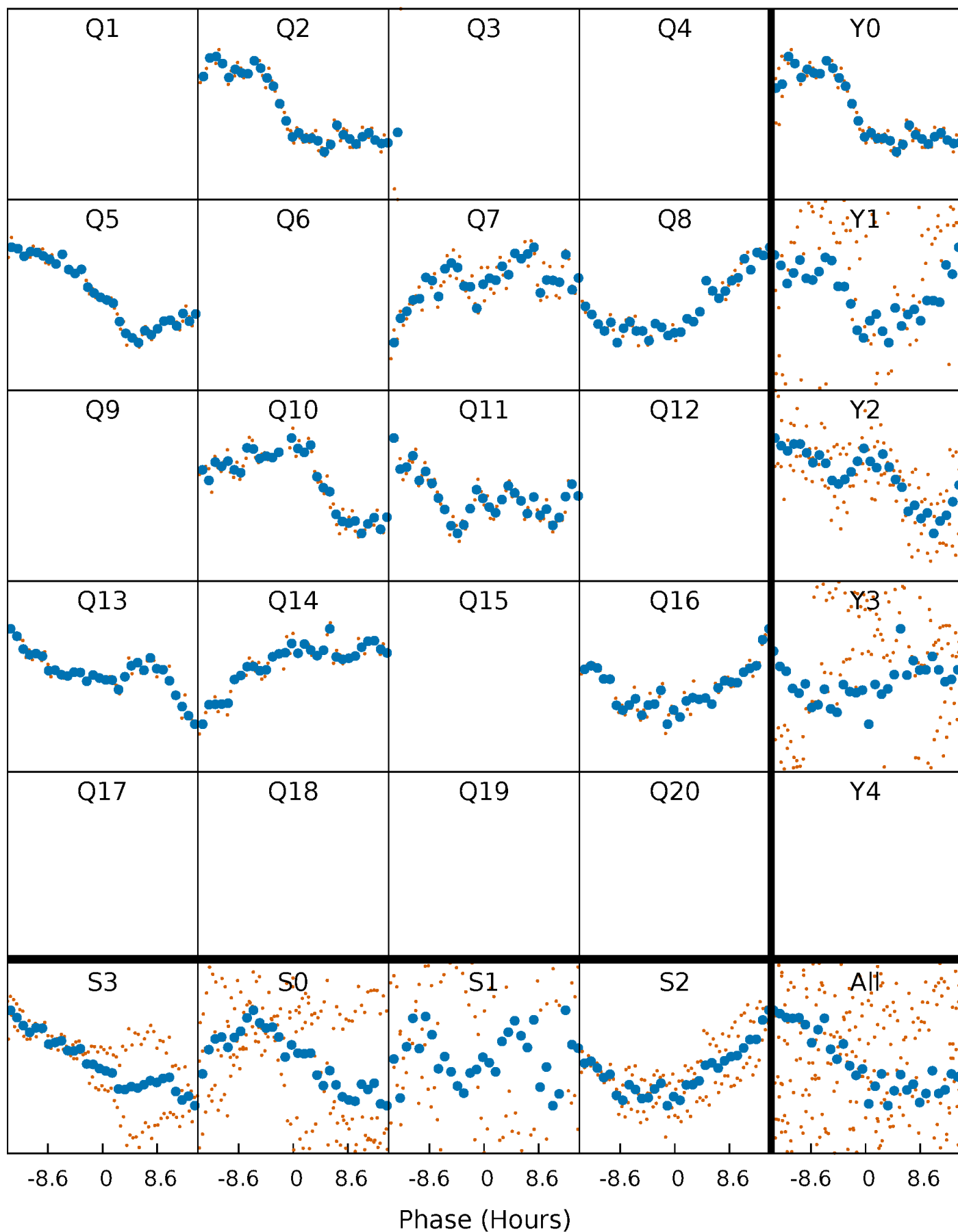


Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)



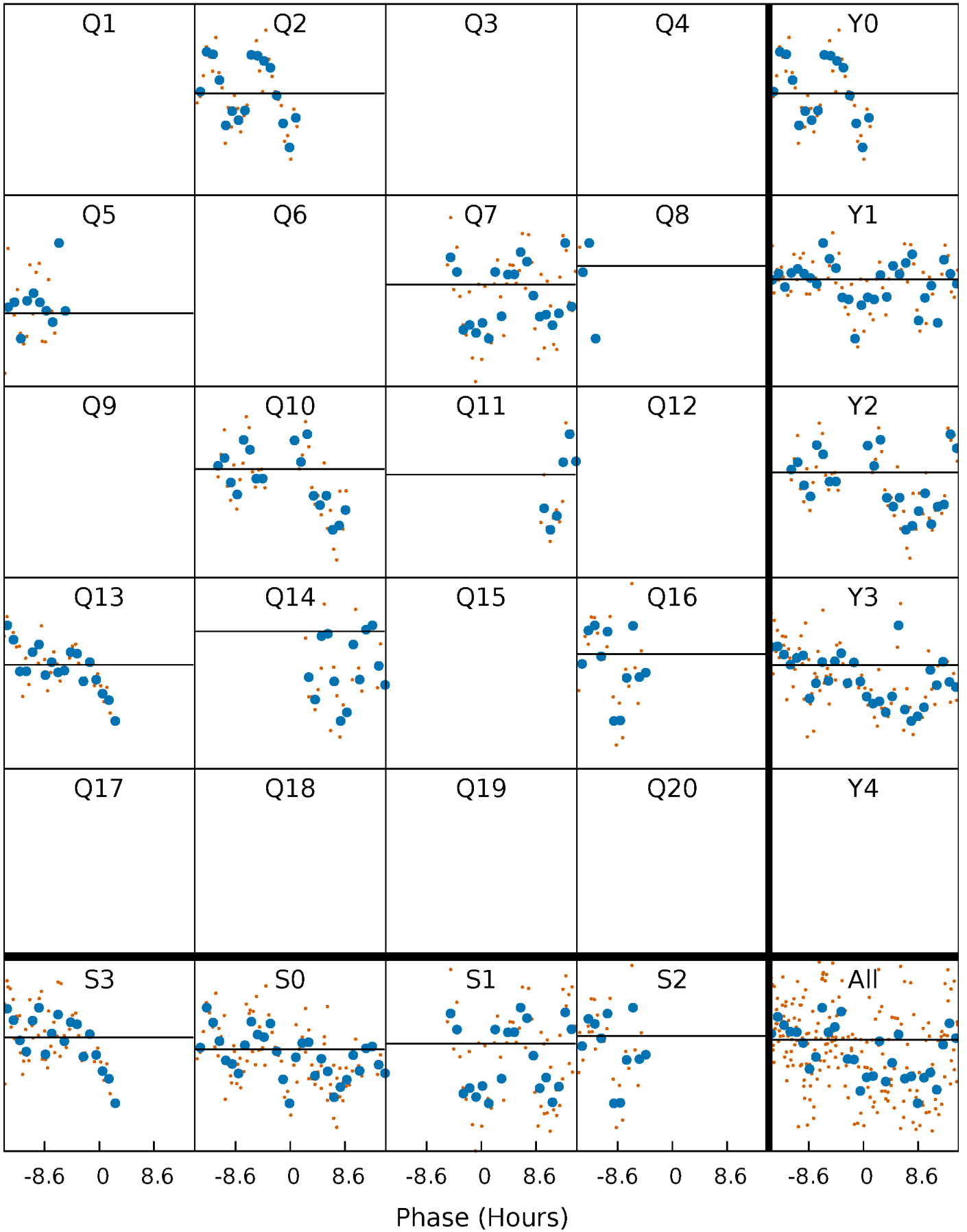
PDC Quarter-Phased Transit Curves

TCE 008223568-08 $P=144.969324$ Days $T_0=205.071810$ (BKJD)



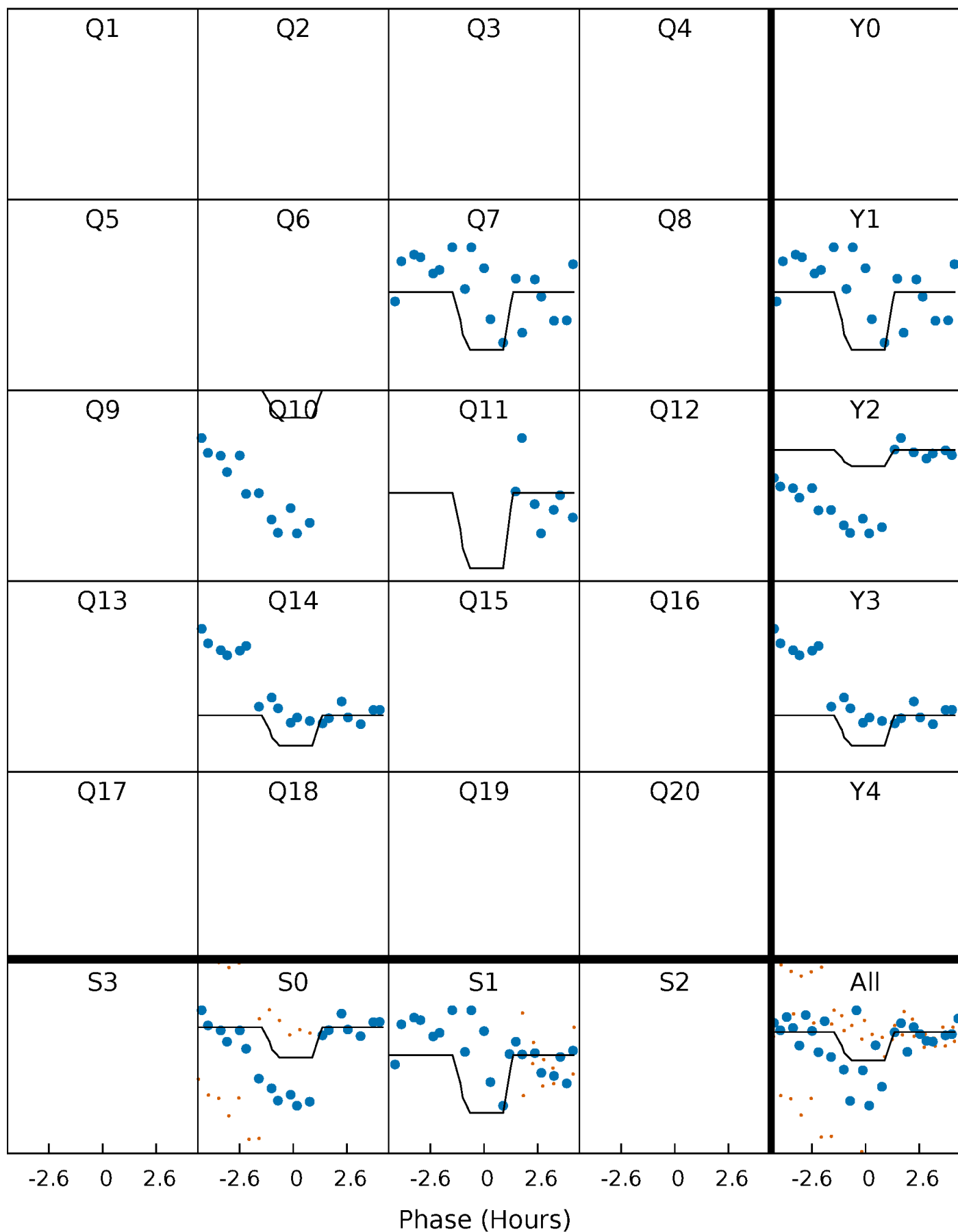
DV Quarter-Phased Transit Curves

TCE 008223568-08 P=144.969324 Days $T_0=205.071810$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

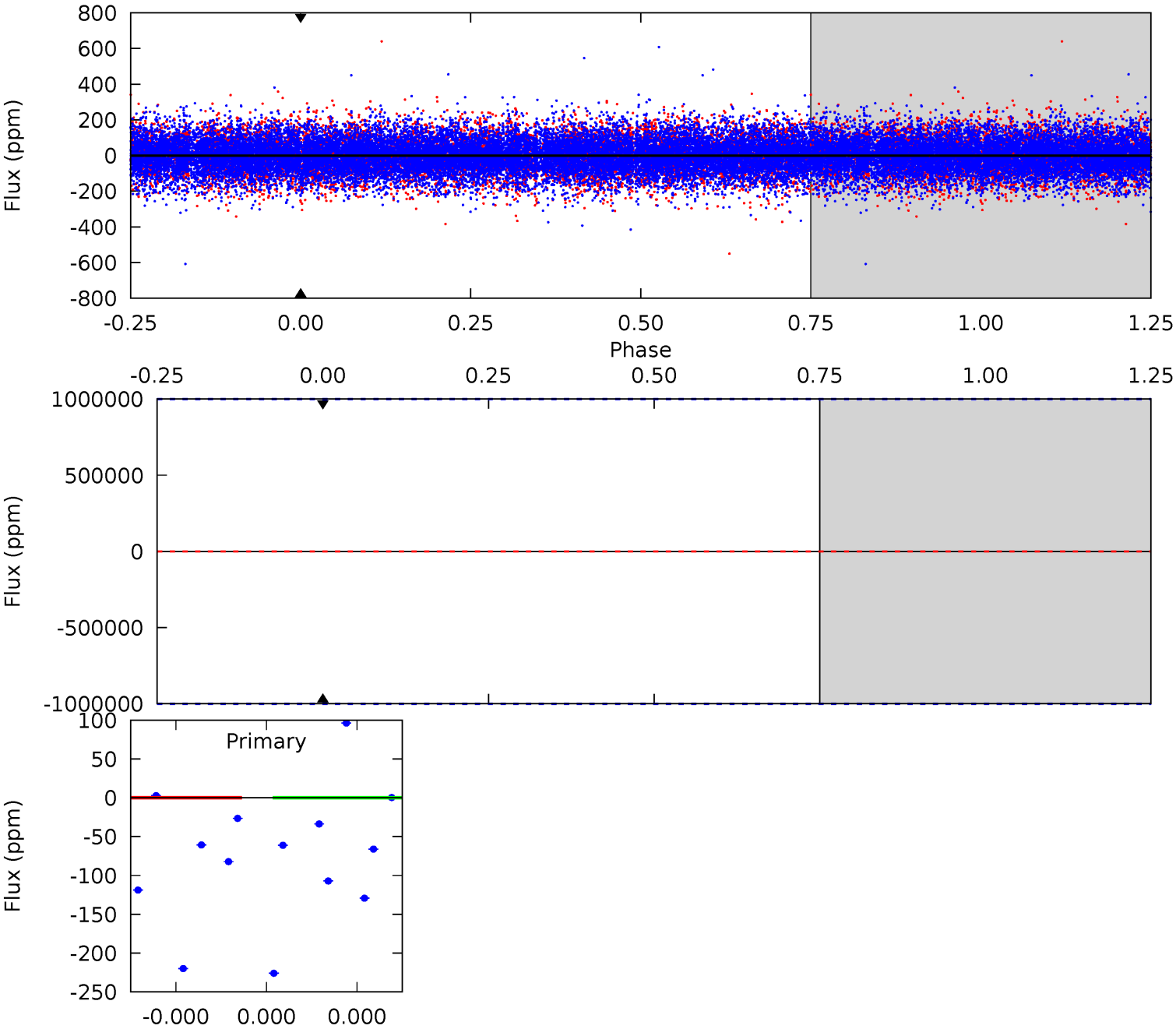
TCE 008223568-08 P=144.969324 Days $T_0=205.404010$ (BKJD)



DV Model-Shift Uniqueness Test

008223568-08, P = 144.969324 Days, E = 60.102486 Days

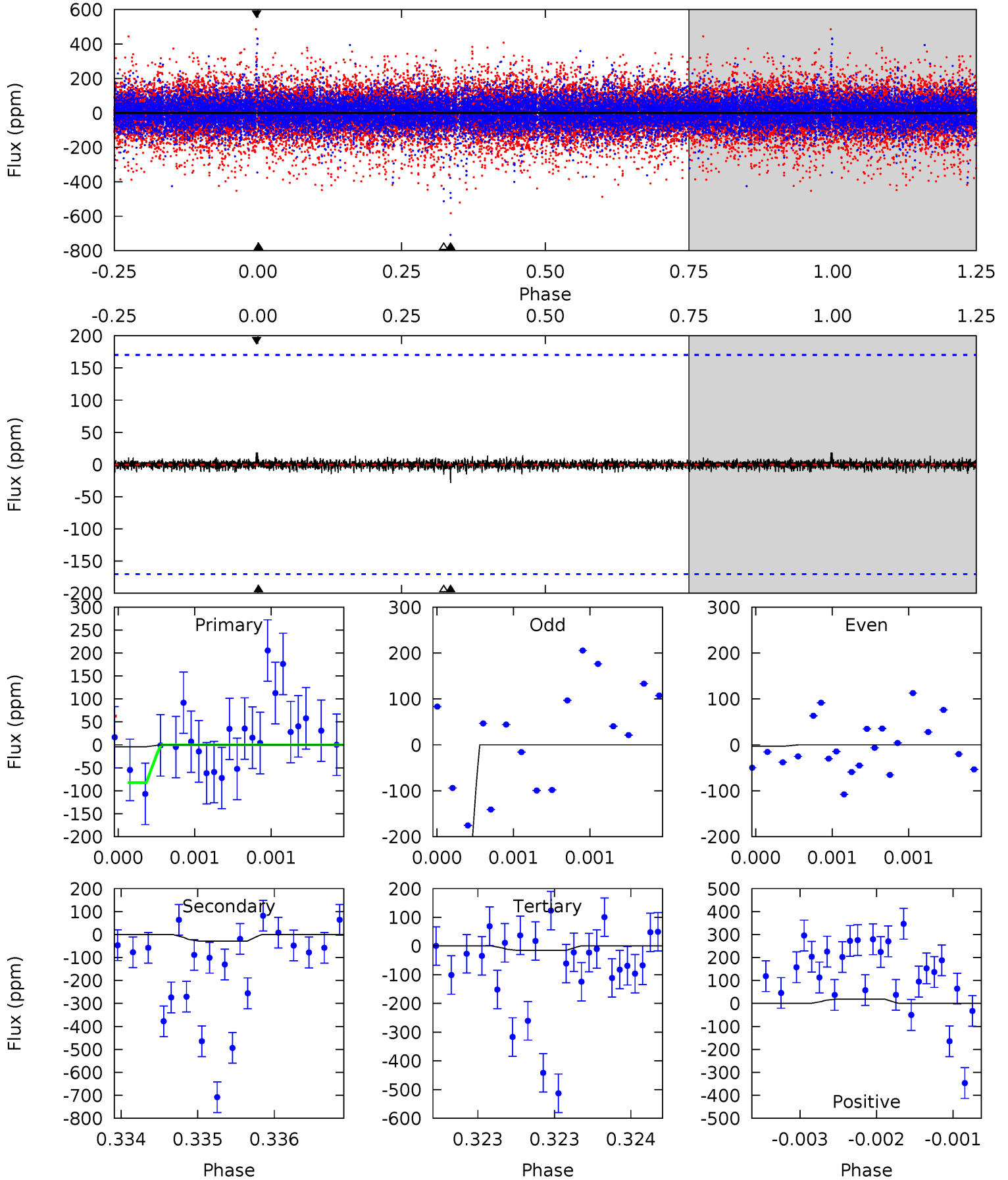
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008223568-08, $P = 144.969324$ Days, $E = 60.434686$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.13	0.92	0.49	0.61	5.51	3.38	0.12	-0.36	-0.48	0.43	0.31	7.47	67.5	0.40	0.32



Stellar Parameters For KIC 008223568

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6726^{+117}_{-150}	$4.335^{+0.032}_{-0.120}$	$0.070^{+0.100}_{-0.200}$	$1.310^{+0.226}_{-0.097}$	$1.354^{+0.075}_{-0.112}$	$0.848^{+0.131}_{-0.298}$
	+2%/-2%	+1%/-3%	+143%/-286%	+17%/-7%	+6%/-8%	+15%/-35%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 008223568-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$10.30^{+11.64}_{-7.18}$	621^{+25}_{-20}	5437^{+34629}_{-35298}	$3468^{+445587}_{-279206}$
Alt.	-28 ± 31	$10.77^{+10.93}_{-7.75}$	621^{+24}_{-20}	2493^{+1172}_{-4450}	32^{+439}_{-35}

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 $A_{obs} \gg 1.0$

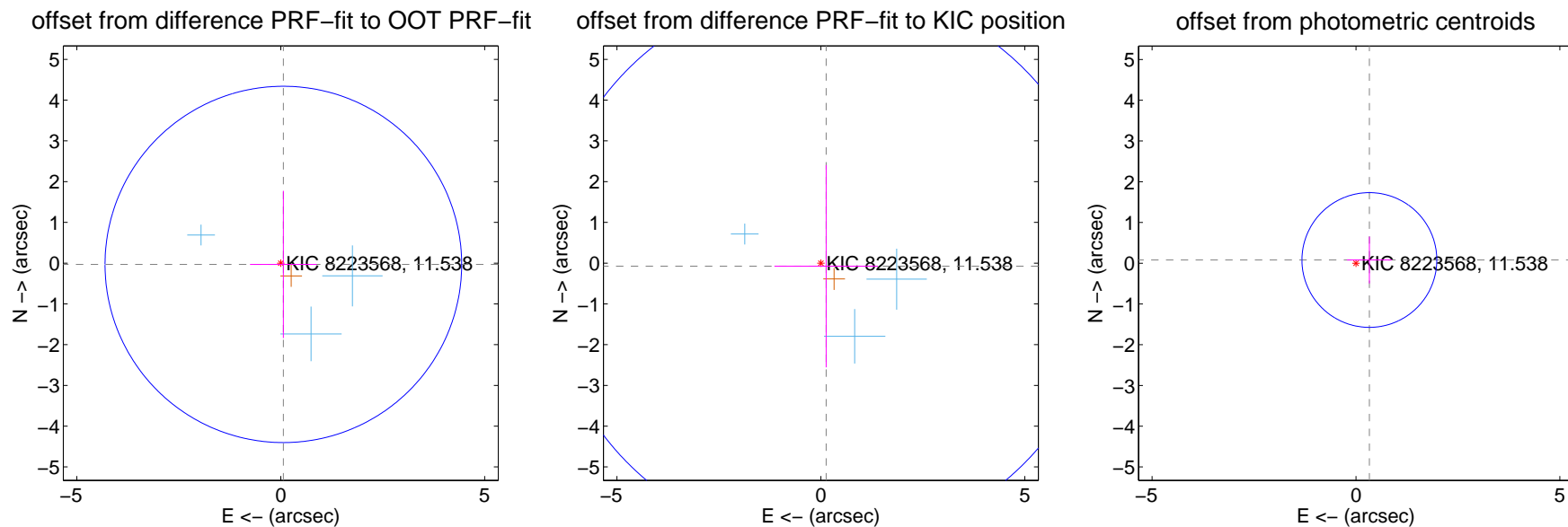
DV Centroid Data

Supplemental centroid analysis for 008223568-08. **Kepler magnitude: 11.54.** Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

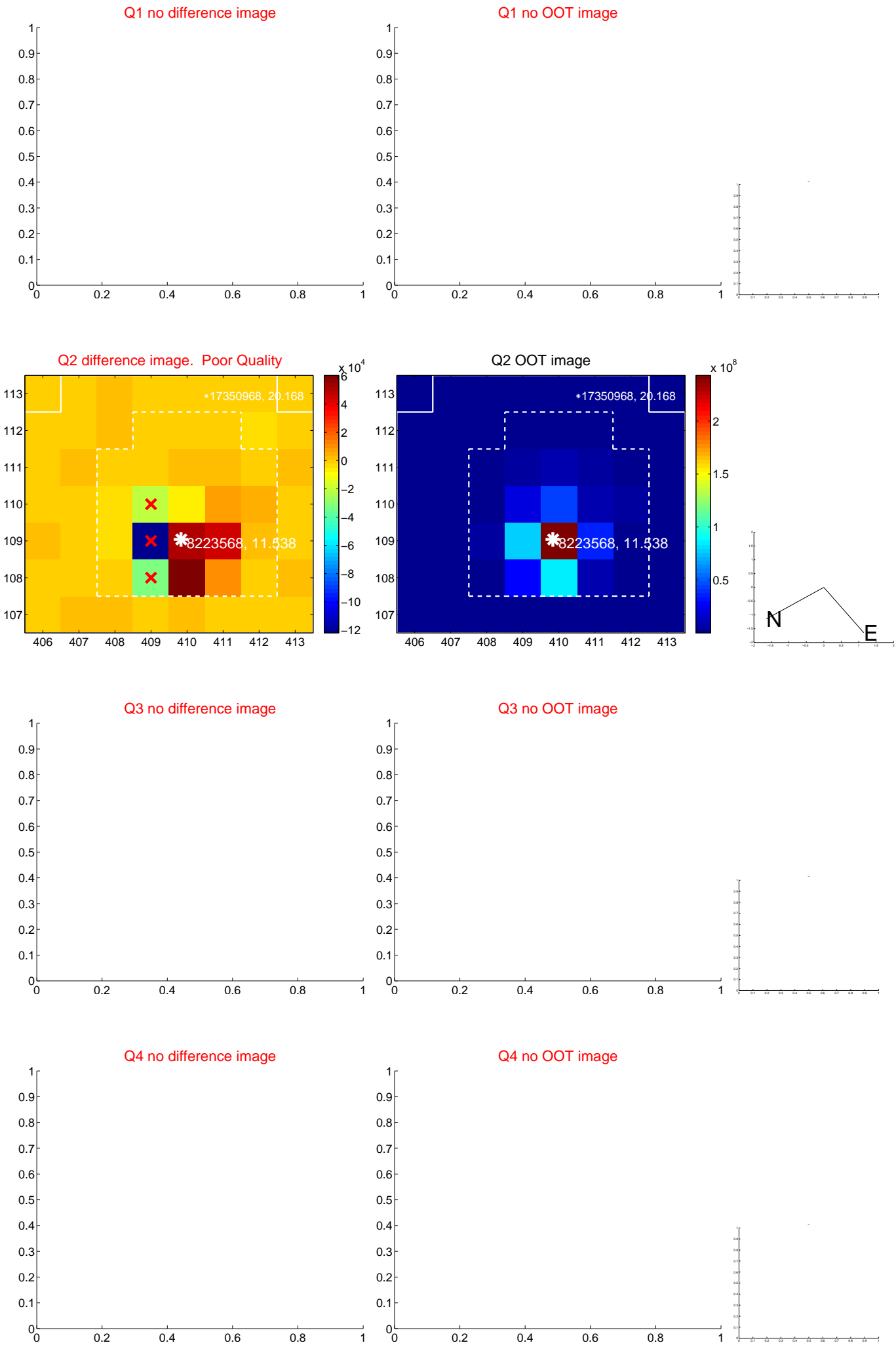
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.071 ± 1.457	0.05	-0.064 ± 0.818	-0.031 ± 1.807
PRF-fit source offset from KIC position	0.150 ± 2.285	0.07	-0.130 ± 1.269	-0.075 ± 2.481
photometric centroid source offset	0.34 ± 0.55	0.61	-0.33 ± 0.55	0.08 ± 0.57

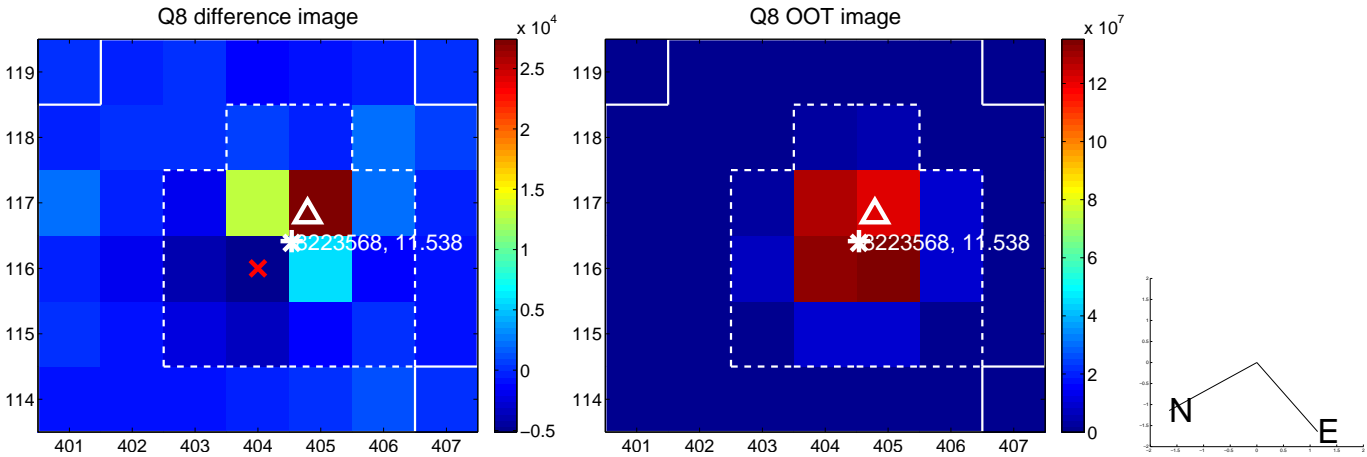
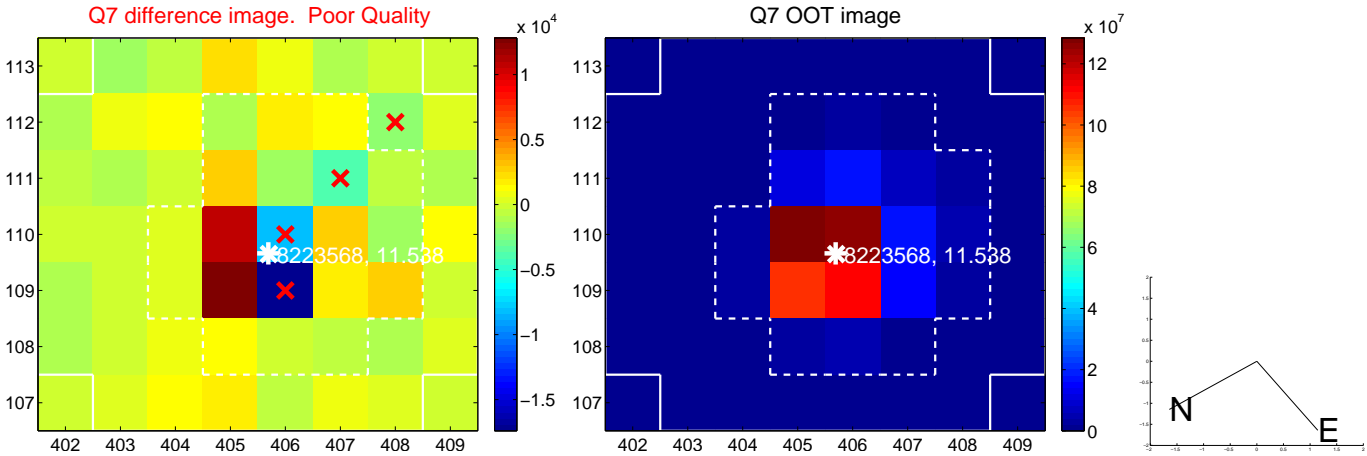
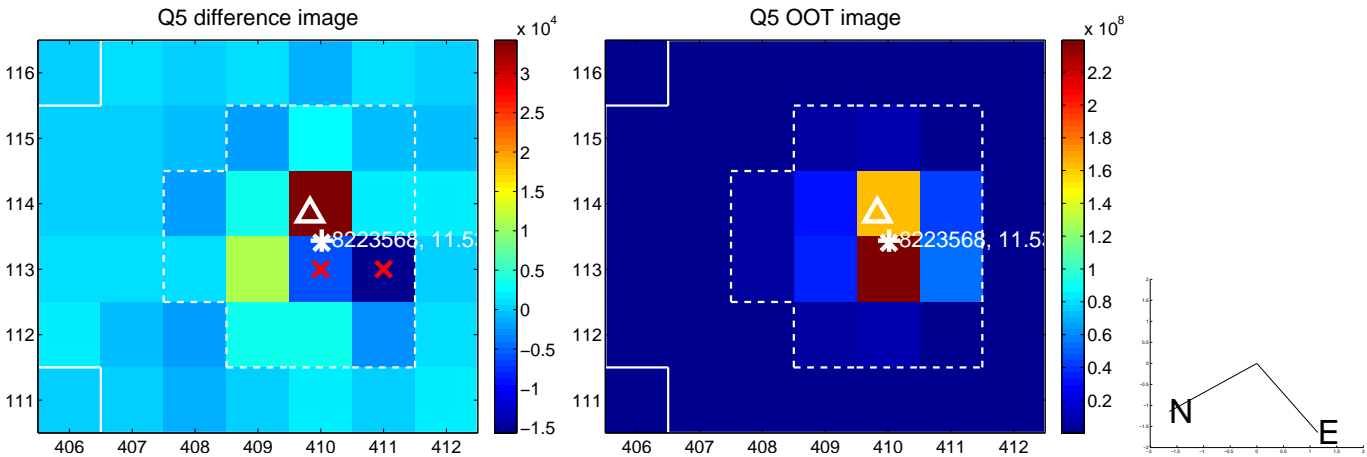


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

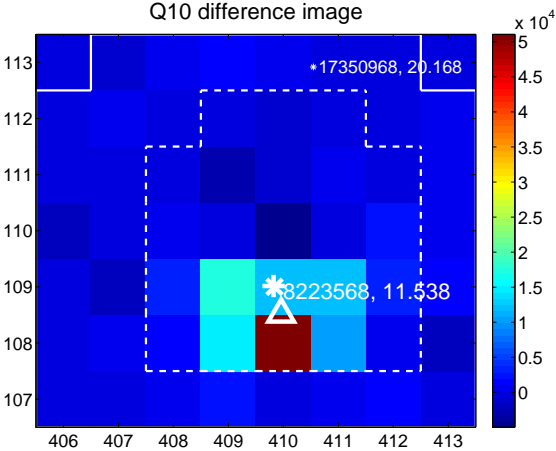
Q9 no difference image



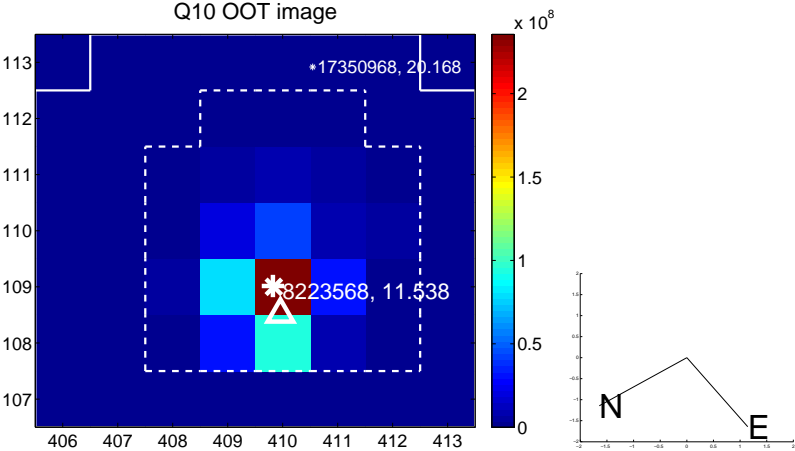
Q9 no OOT image



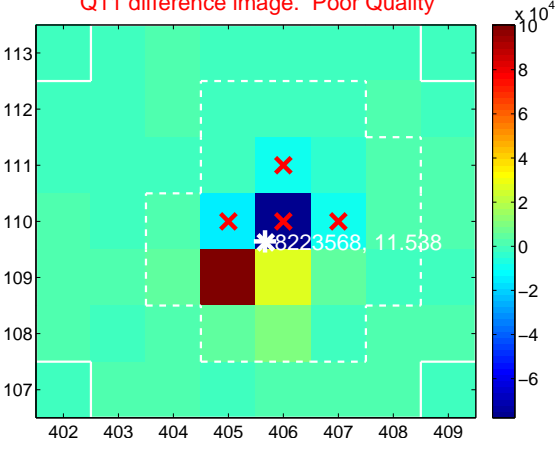
Q10 difference image



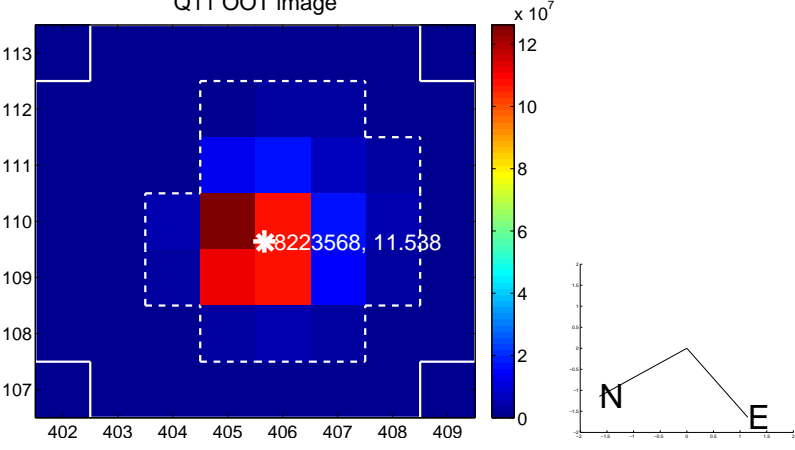
Q10 OOT image



Q11 difference image. Poor Quality



Q11 OOT image



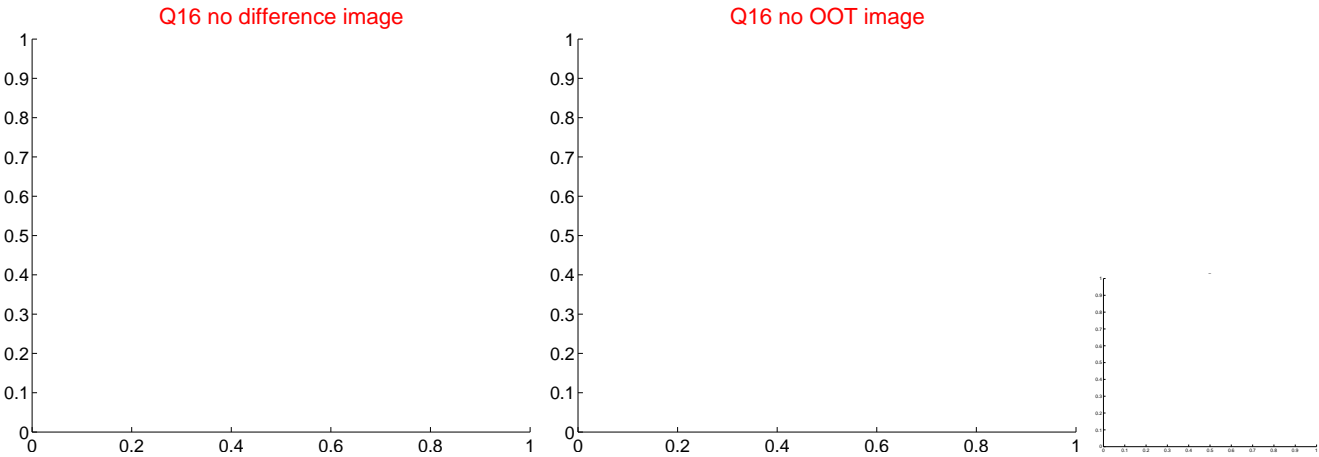
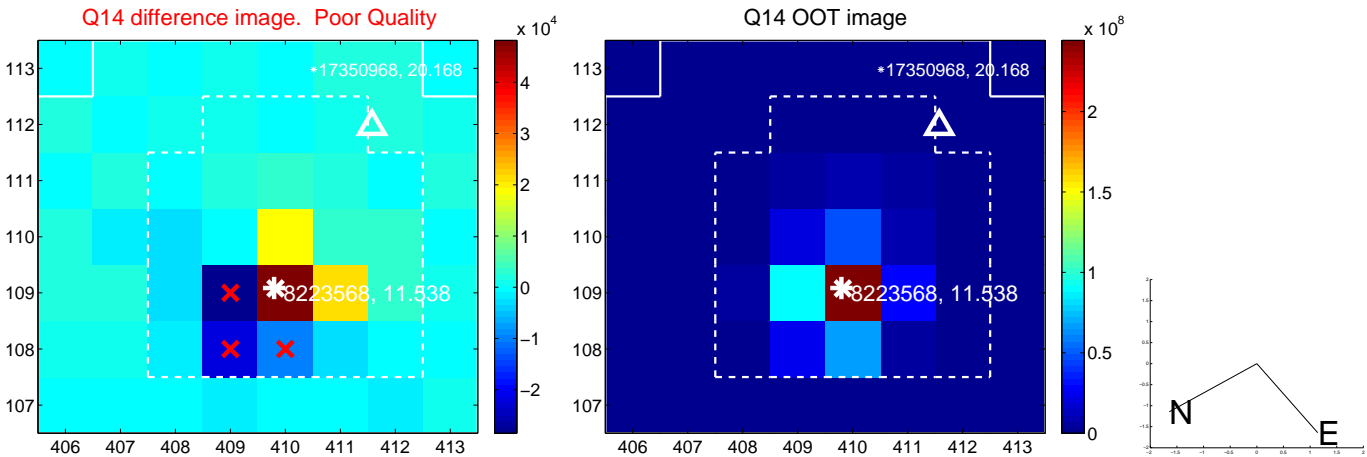
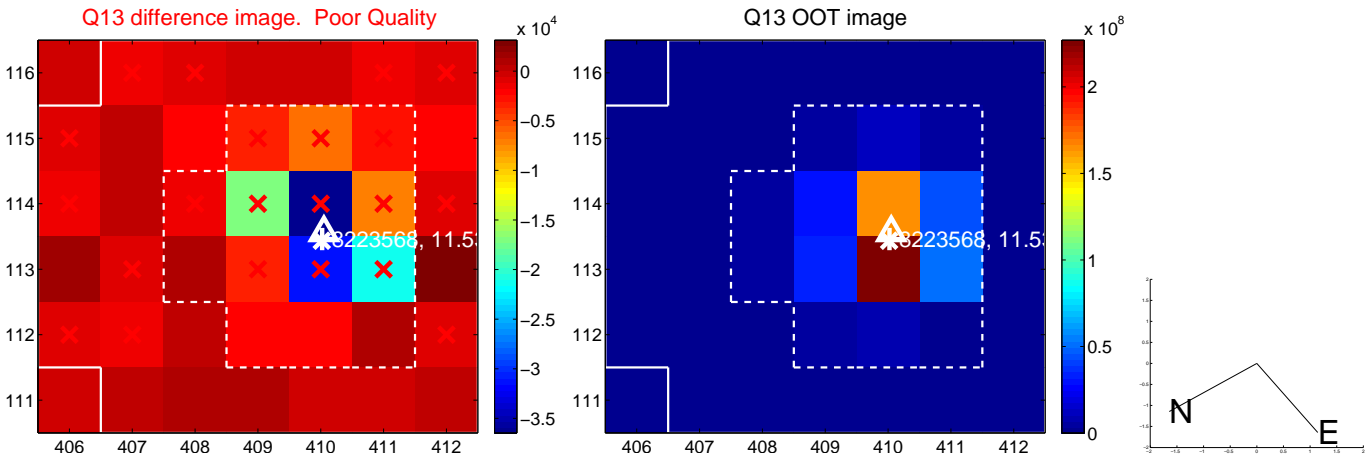
Q12 no difference image



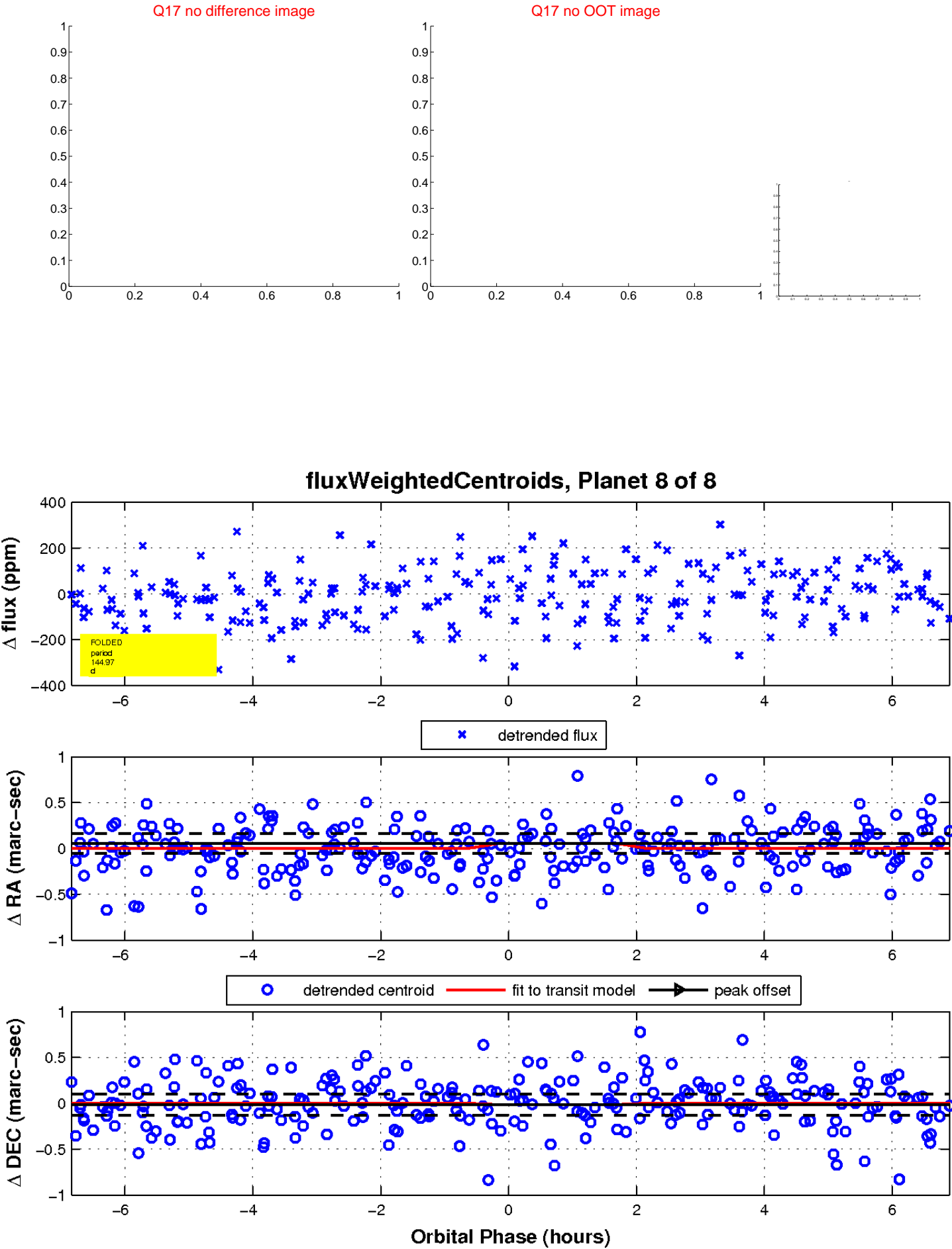
Q12 no OOT image



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.



UKIRT Image

Declination

