

KIC 005940273

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})
005940273-01	OBS	No	0.735262	131.751948	246.3	2.877	12.1	12.3	3.33	8207	6.09	114839.78
005940273-02	OBS	No	0.735253	132.109178	220.3	2.876	10.4	10.7	3.33	8207	5.77	114841.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005940273-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005940273-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

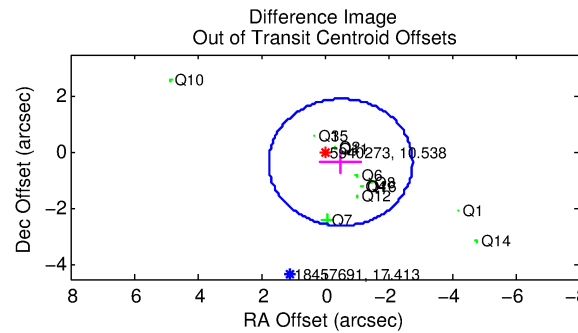
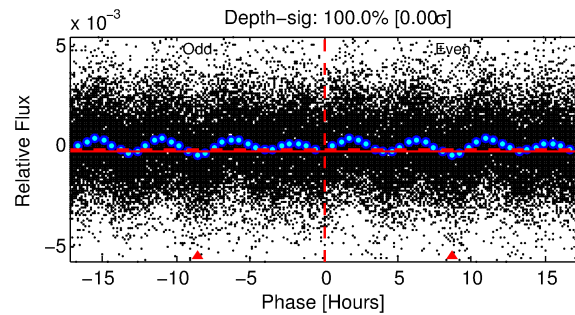
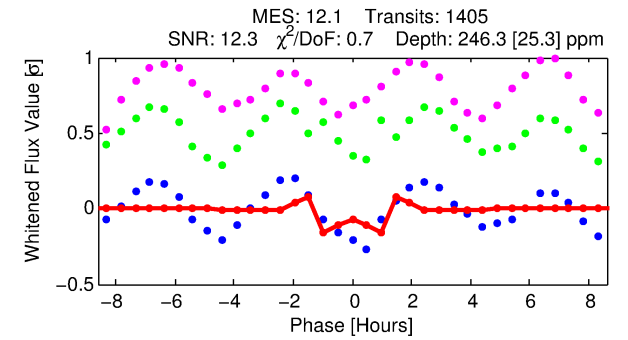
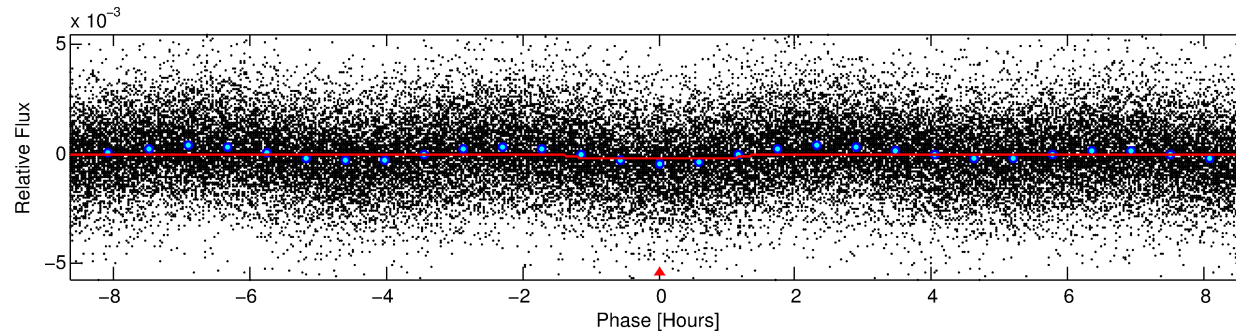
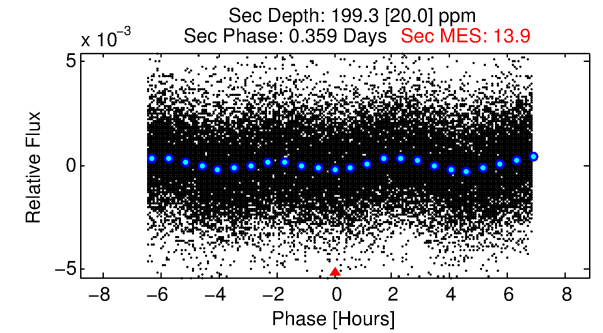
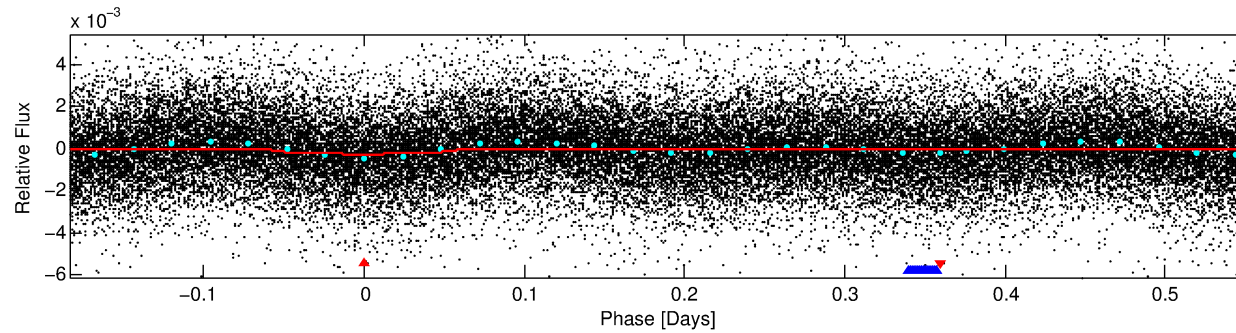
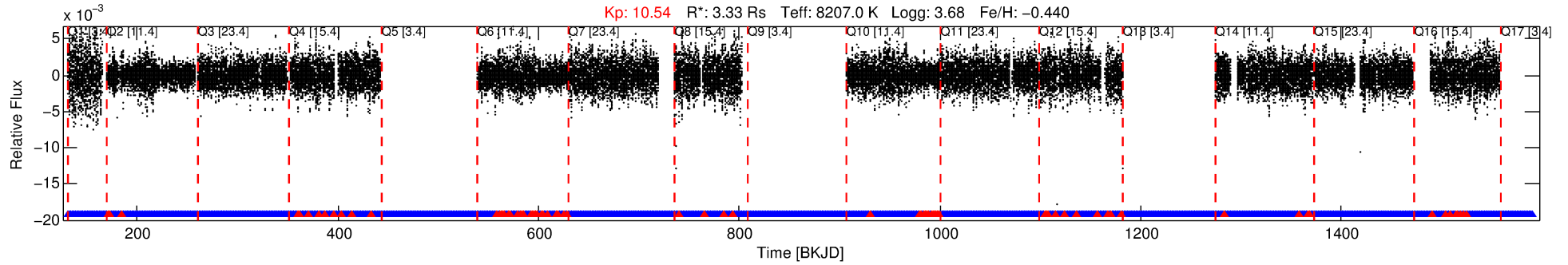
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005940273-01

No Significant Match Found

DV One-Page Summary

KIC: 5940273 Candidate: 1 of 2 Period: 0.735 d



DV Fit Results:

Period = 0.73526 [0.00001] d
Epoch = 131.7519 [0.0010] BKJD
 $R_p/R^* = 0.0168$ [0.0018]
 $a/R^* = 1.32$ [0.29]
 $b = 0.90$ [0.11]
 $S_{\text{eff}} = 114839.78$ [98490.75]
 $T_{\text{eq}} = 4694$ [1006] K
 $R_p = 6.09$ [3.17] R_e
 $a = 0.0198$ [0.0102] AU
 $A_g = 1.16$ [1.02] [0.16σ]
 $T_{\text{eff}} = 7534$ [544] K [2.48σ]

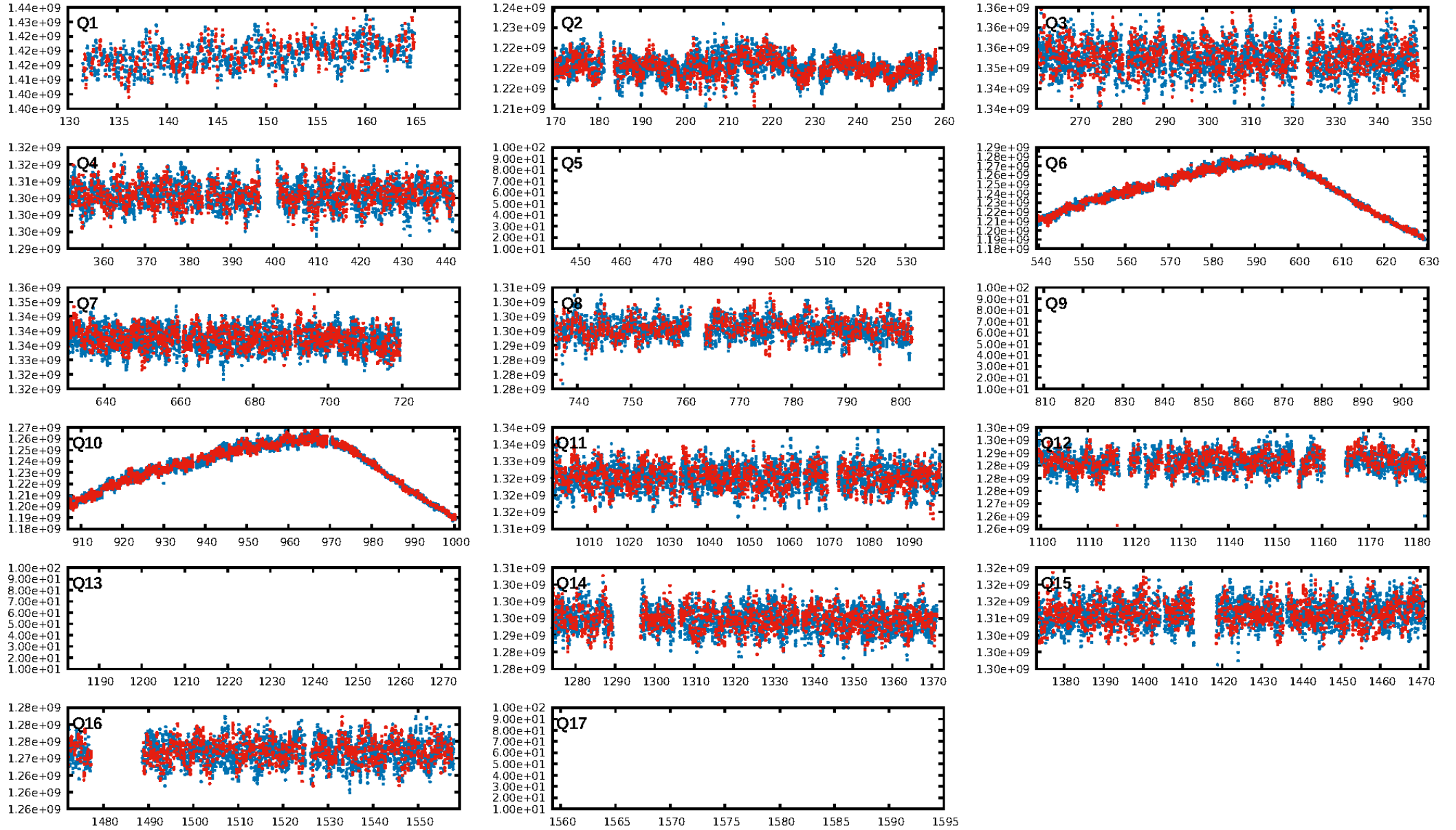
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.54e-151
RollingBand-fgt: 0.94 [1272/1359]
GhostDiagnostic-chr: 5.363
Centroid-sig: 0.0%
Centroid-so: 0.575 arcsec [3.53σ]
OotOffset-rm: 0.613 arcsec [0.81σ]
KicOffset-rm: 0.793 arcsec [1.04σ]
OotOffset-st: 4/4/4/1 [13]
KicOffset-st: 4/4/4/1 [13]
DiffImageQuality-fgm: 0.46 [6/13]
DiffImageOverlap-fno: 0.00 [0/13]

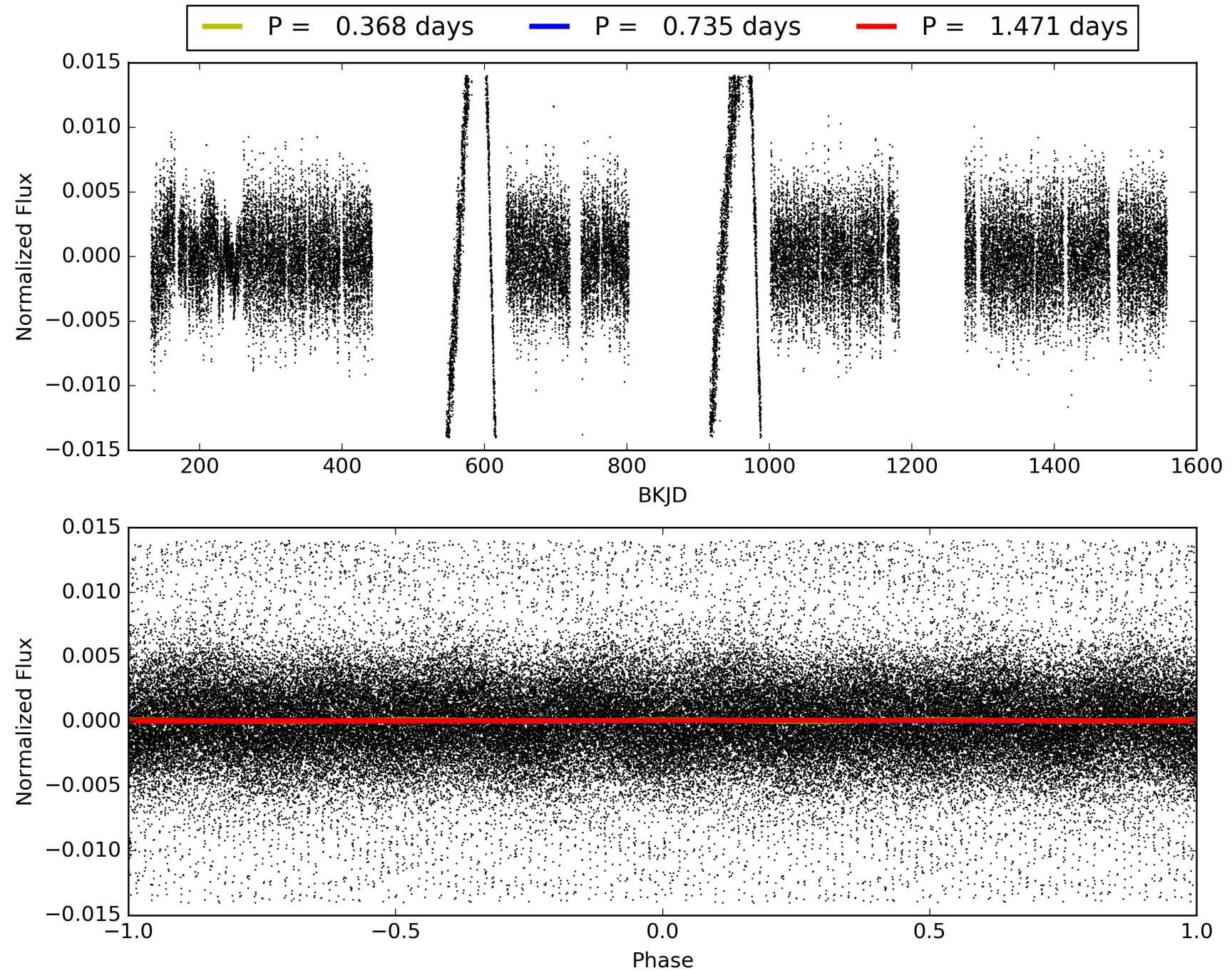
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:05:35 Z

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

TCE 005940273-01, PDC Light Curves

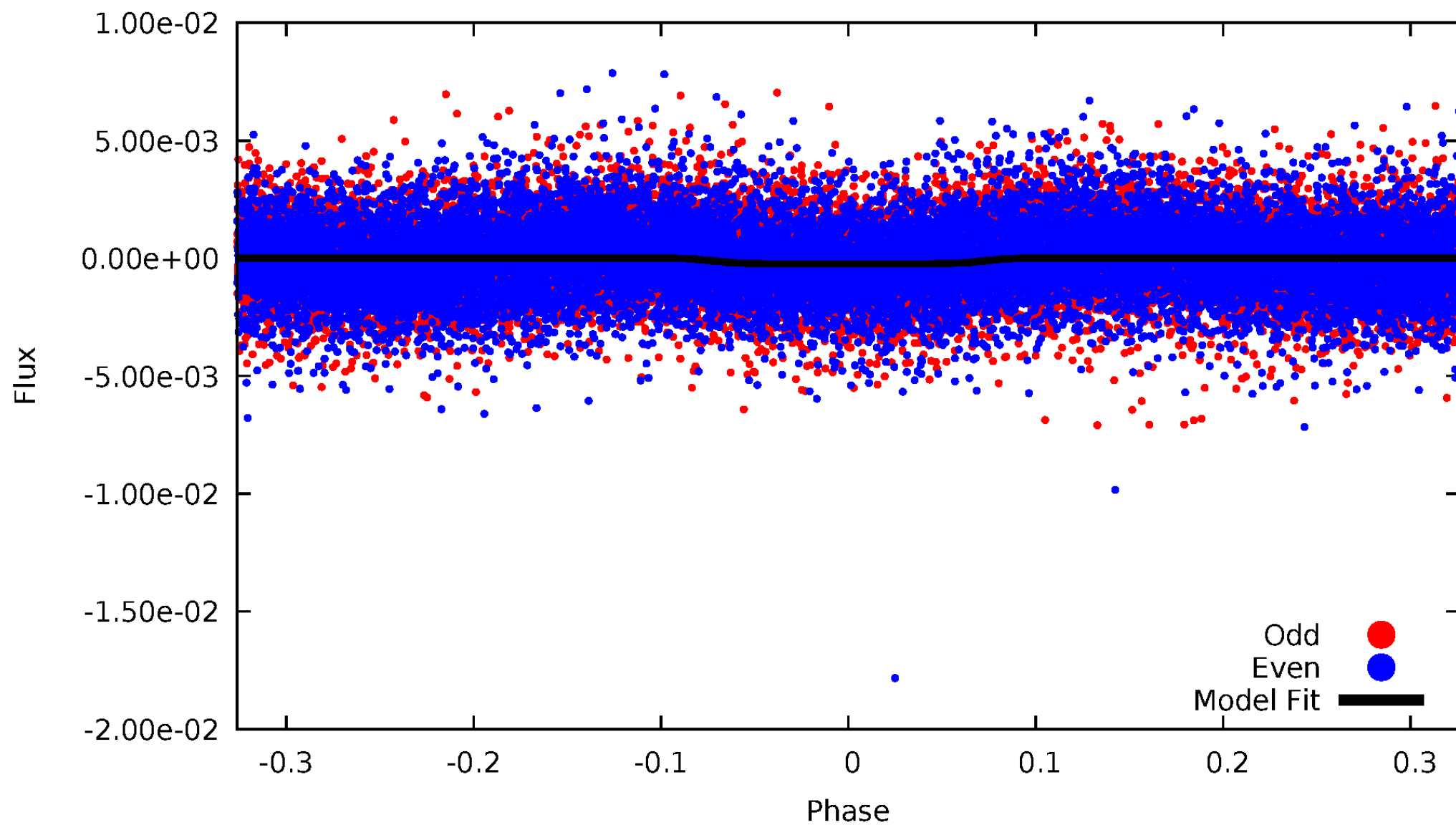


TCE 005940273-01



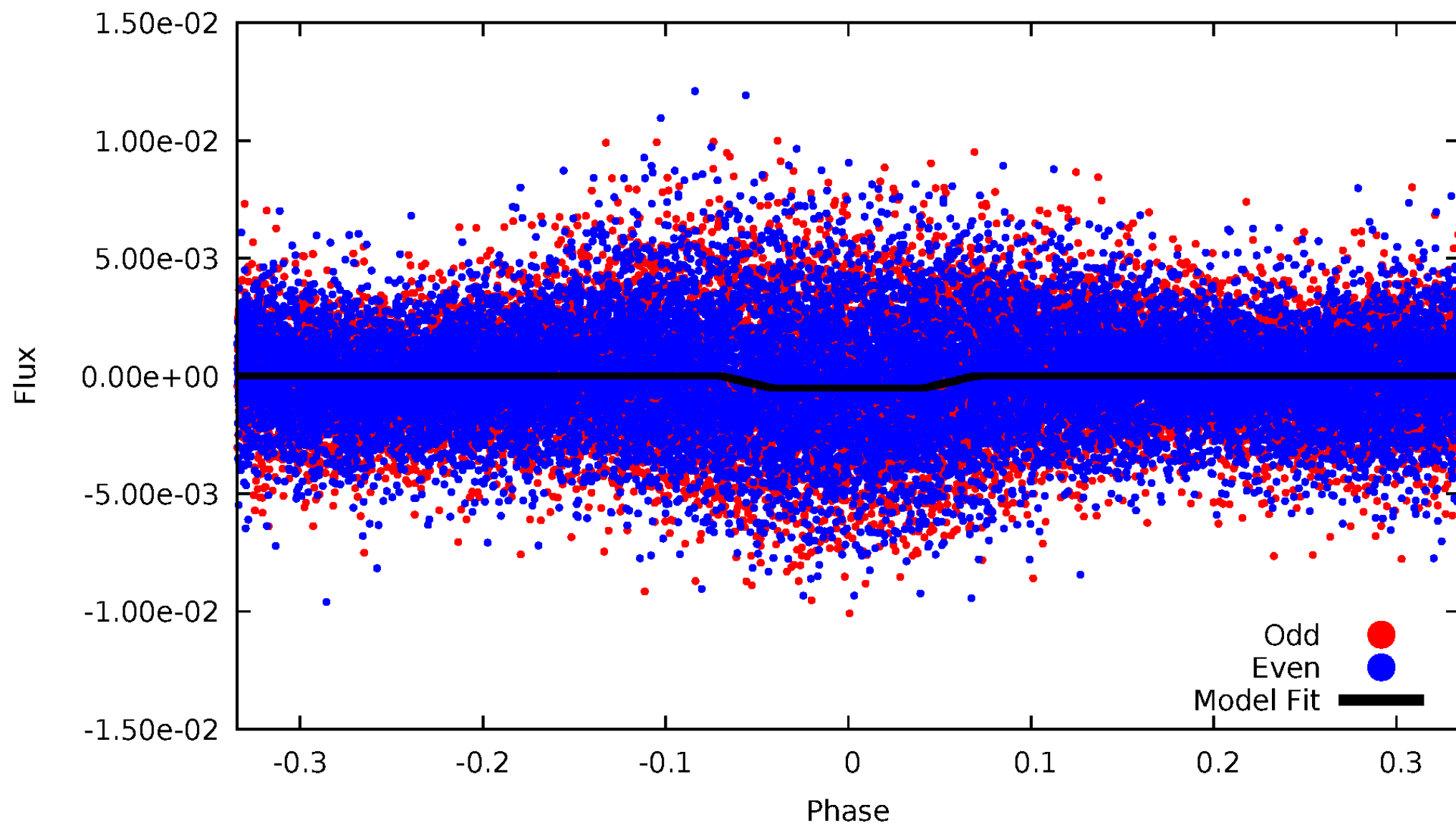
DV Odd/Even

TCE 005940273-01



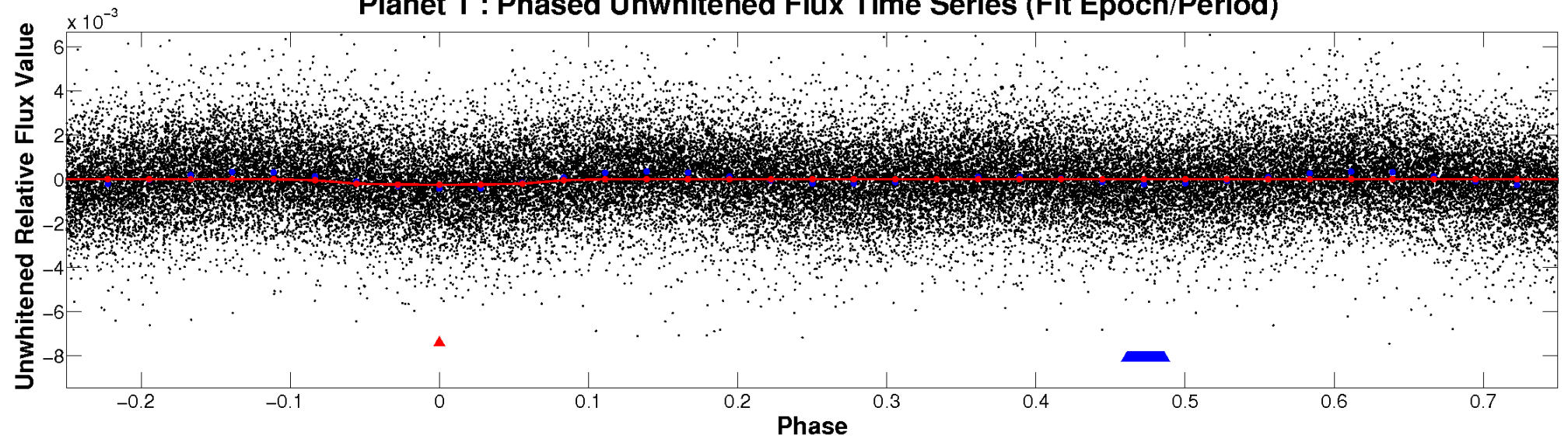
ALT Odd/Even

TCE 005940273-01

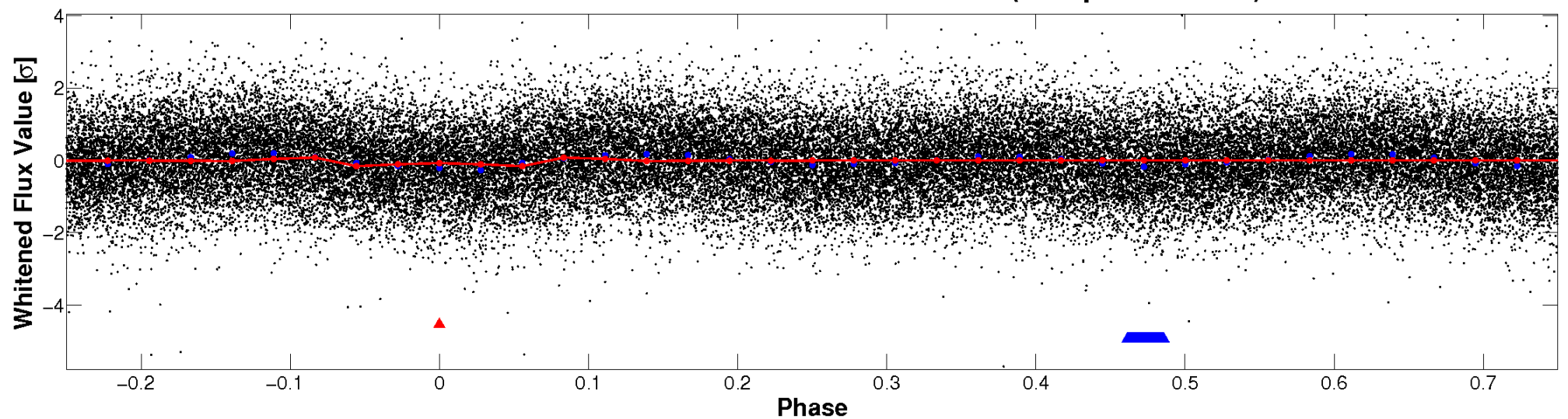


Non-Whitened Vs. Whitened Light Curve

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

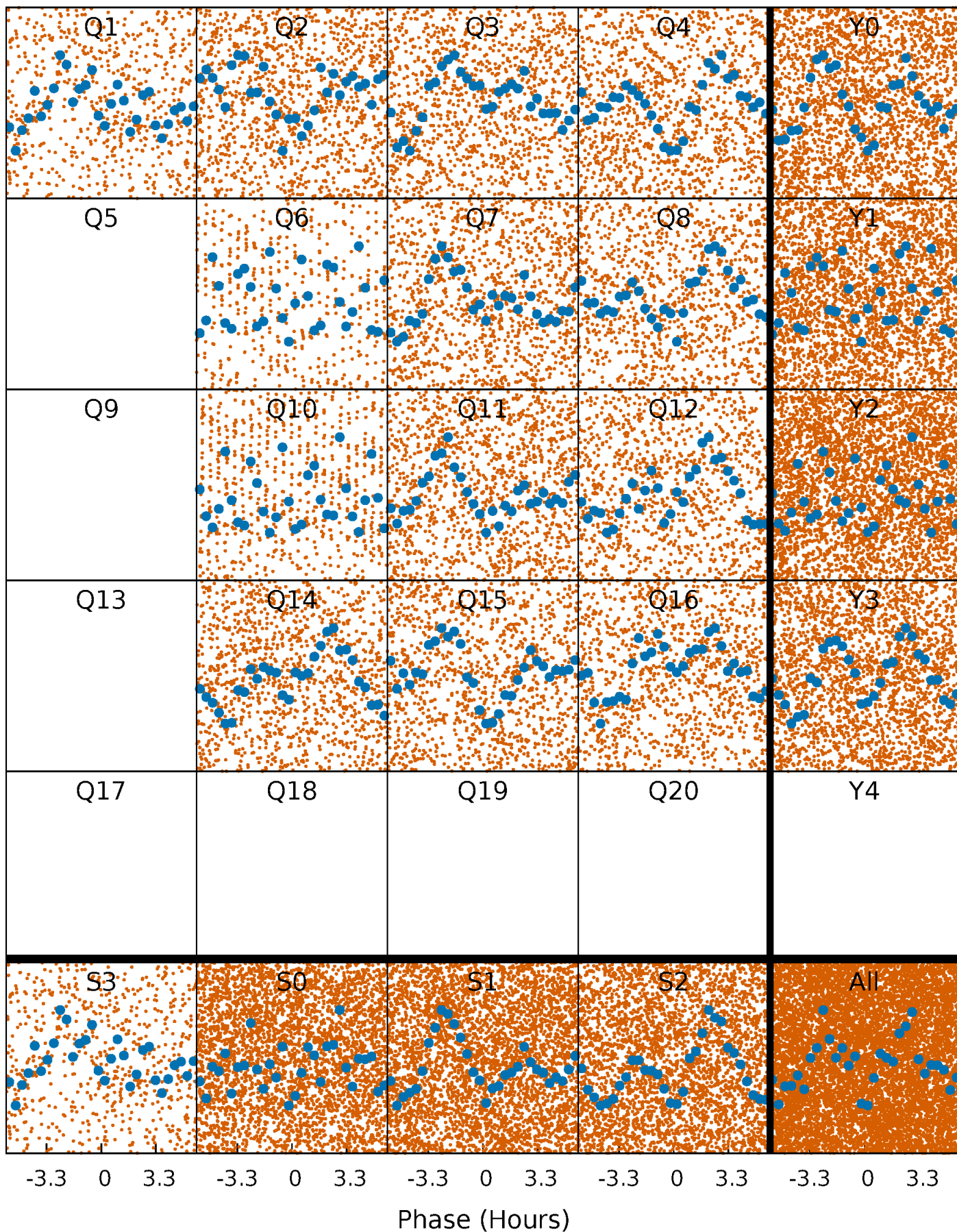


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



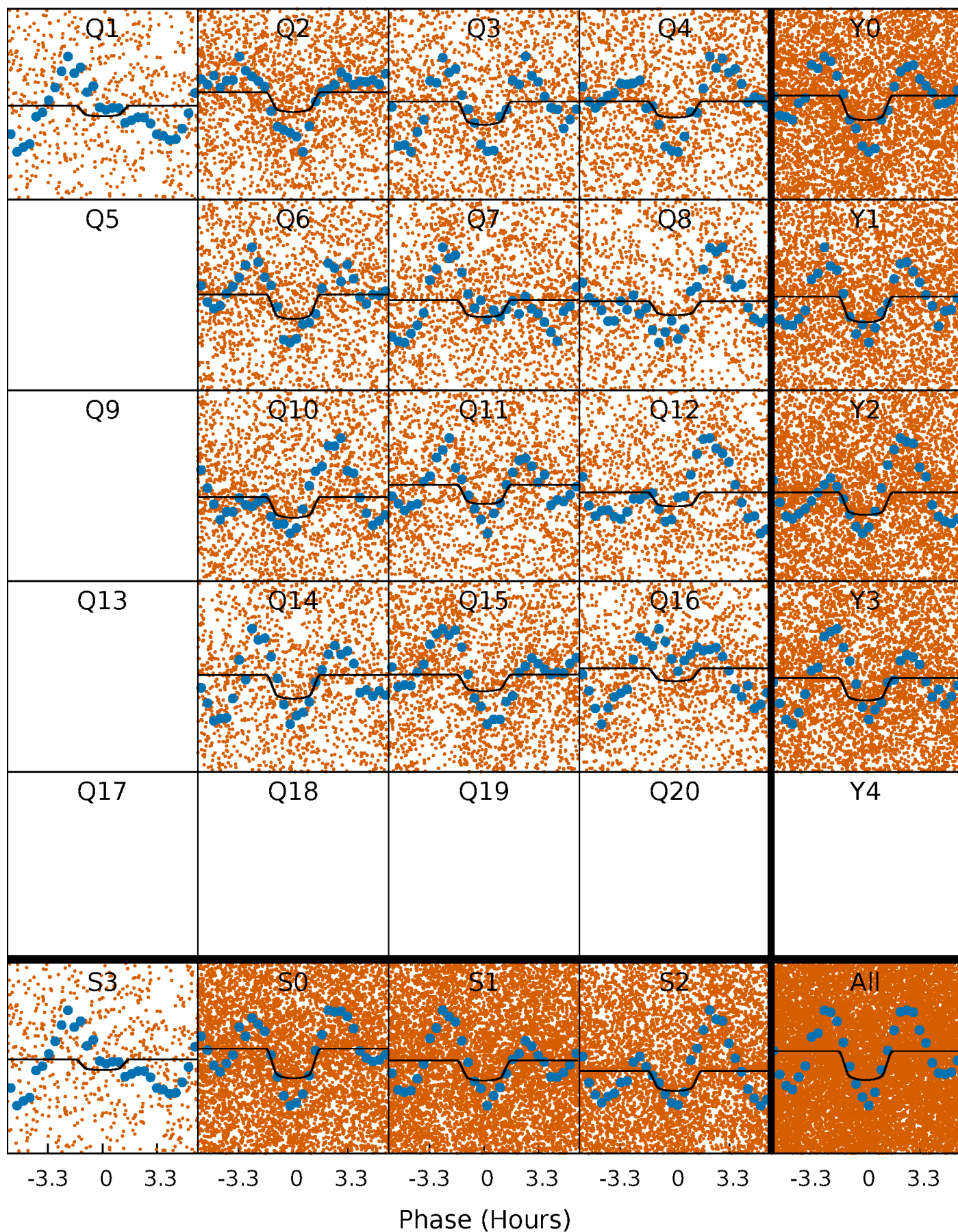
PDC Quarter-Phased Transit Curves

TCE 005940273-01 P= 0.735262 Days $T_0=131.751948$ (BKJD)



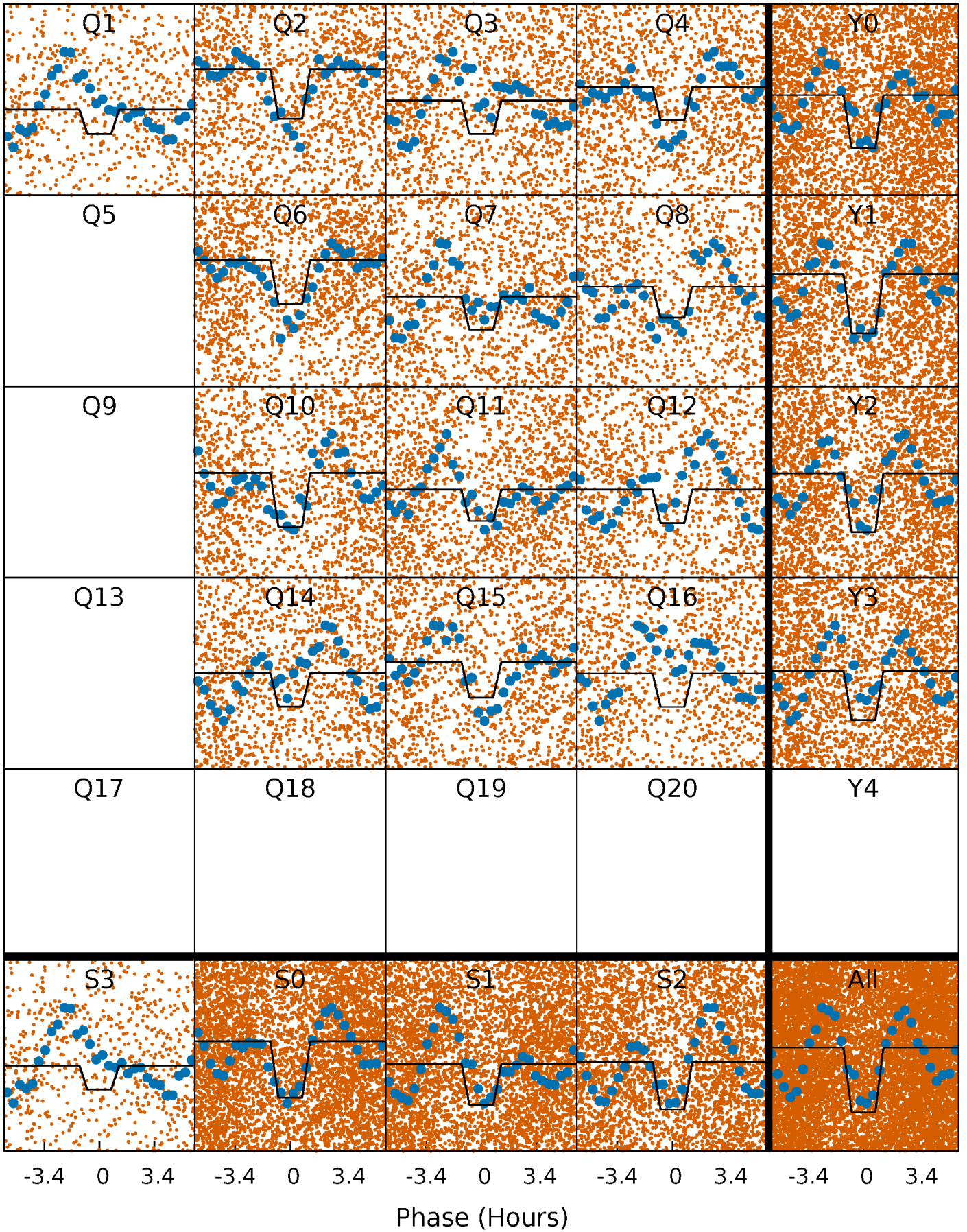
DV Quarter-Phased Transit Curves

TCE 005940273-01 P= 0.735262 Days $T_0=131.751948$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

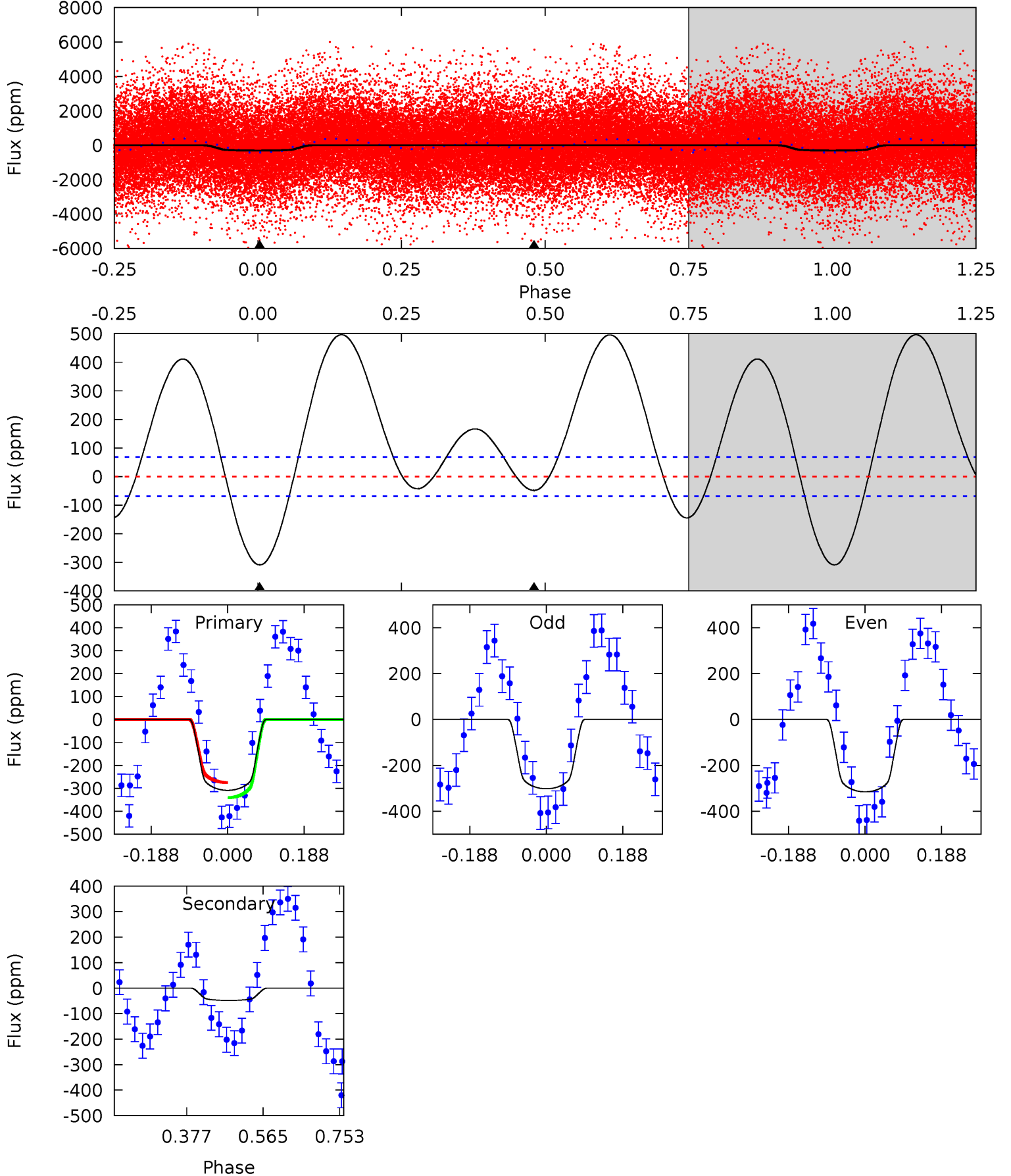
TCE 005940273-01 P= 0.735266 Days $T_0=131.749602$ (BKJD)



DV Model-Shift Uniqueness Test

005940273-01, P = 0.735262 Days, E = 131.016686 Days

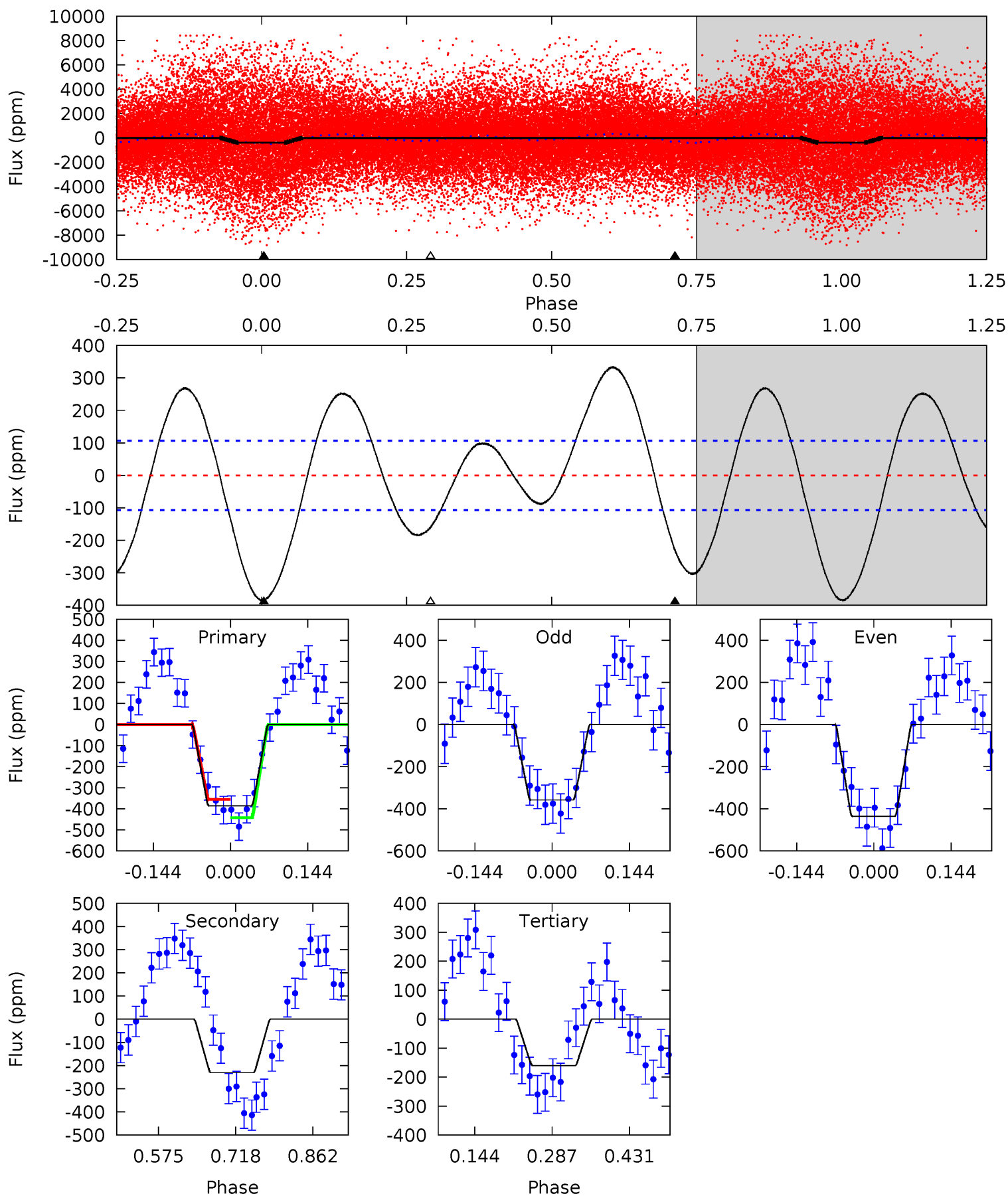
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.9	3.12	0	0	4.43	1.32	8.03	19.9	19.9	3.12	3.12	0.43	1.02	0.62	2.13



Alt Model-Shift Uniqueness Test

005940273-01, P = 0.735266 Days, E = 131.014336 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	9.69	6.73	0	4.49	1.46	4.93	9.47	16.2	2.96	9.69	1.63	0.94	0.46	1.50



Stellar Parameters For KIC 005940273

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8207^{+223}_{-334}	$3.676^{+0.502}_{-0.089}$	$-0.440^{+0.200}_{-0.300}$	$3.331^{+0.565}_{-1.696}$	$1.920^{+0.111}_{-0.473}$	$0.073^{+0.398}_{-0.020}$
	+3%/-4%	+14%/-2%	+45%/-68%	+17%/-51%	+6%/-25%	+544%/-27%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005940273-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-48 ± 16	$5.59^{+1.12}_{-1.51}$	6305^{+478}_{-829}	3368^{+1370}_{-7628}	$0.333^{+0.286}_{-0.142}$
Alt.	-231 ± 24	$7.64^{+1.36}_{-2.04}$	6326^{+442}_{-813}	5855^{+509}_{-574}	$0.849^{+0.639}_{-0.250}$

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

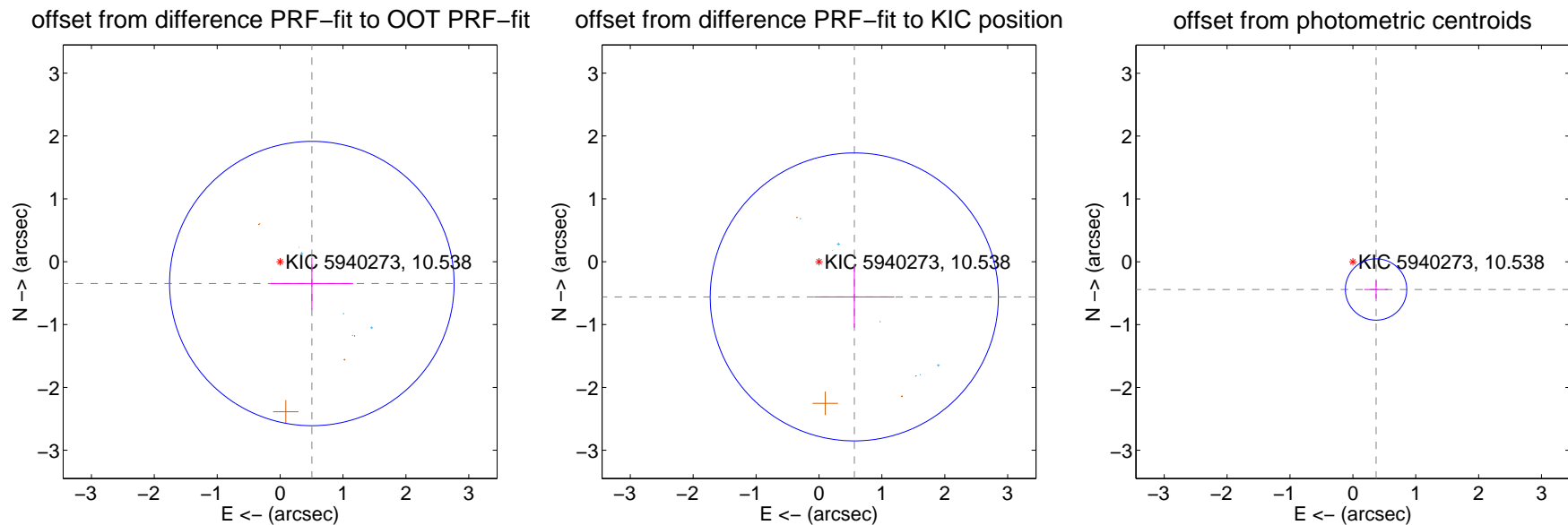
DV Centroid Data

Supplemental centroid analysis for 005940273-01. **Kepler magnitude: 10.54.** Transit SNR 12.29

There are 6 quarters with good PRF difference image offsets

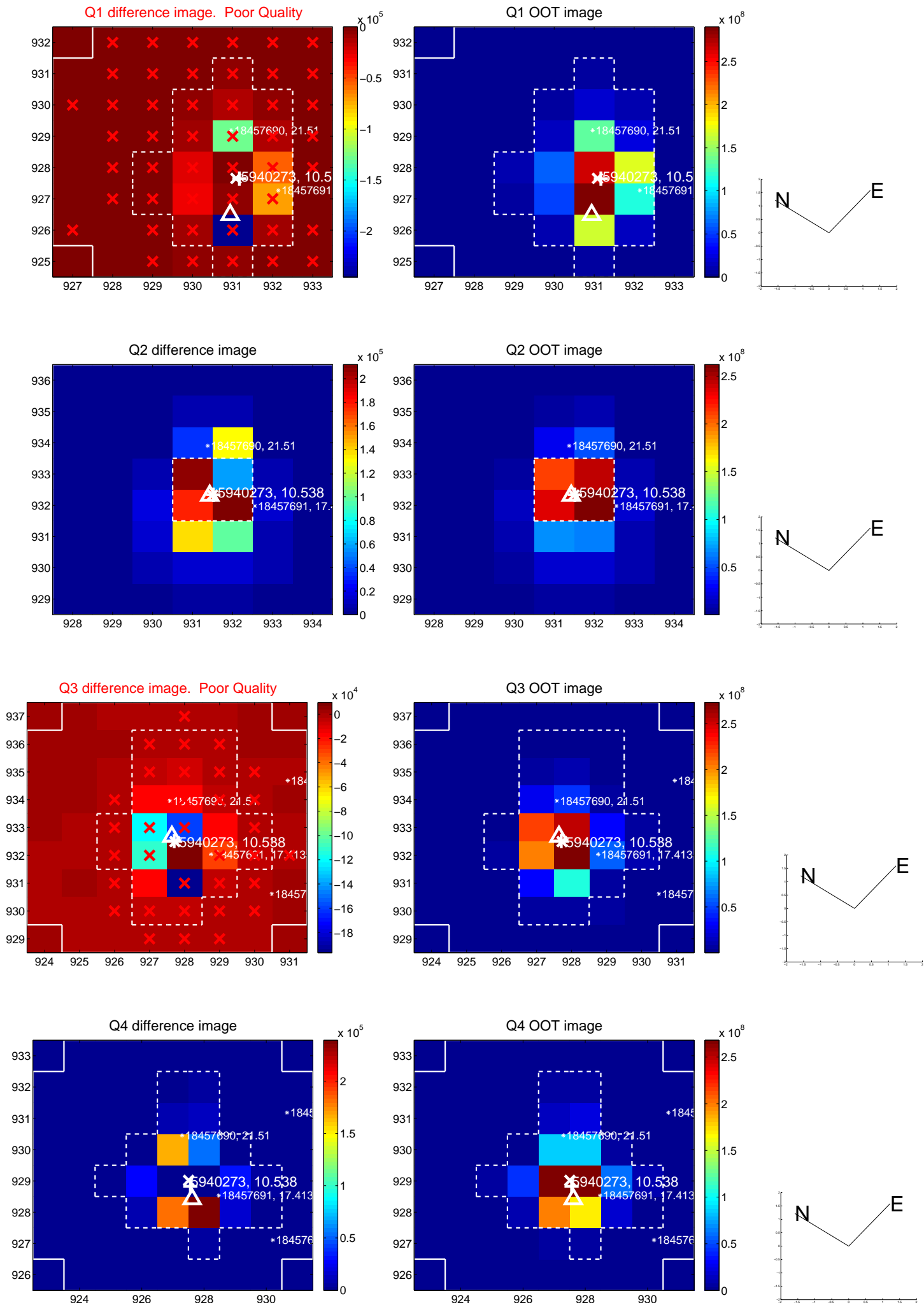
The direct PRF centroid is offset from the target star catalog position by about 0.73 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.613 ± 0.754	0.81	-0.504 ± 0.656	-0.347 ± 0.414
PRF-fit source offset from KIC position	0.793 ± 0.763	1.04	-0.562 ± 0.635	-0.560 ± 0.489
photometric centroid source offset	0.57 ± 0.16	3.53	-0.37 ± 0.19	-0.44 ± 0.14



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.

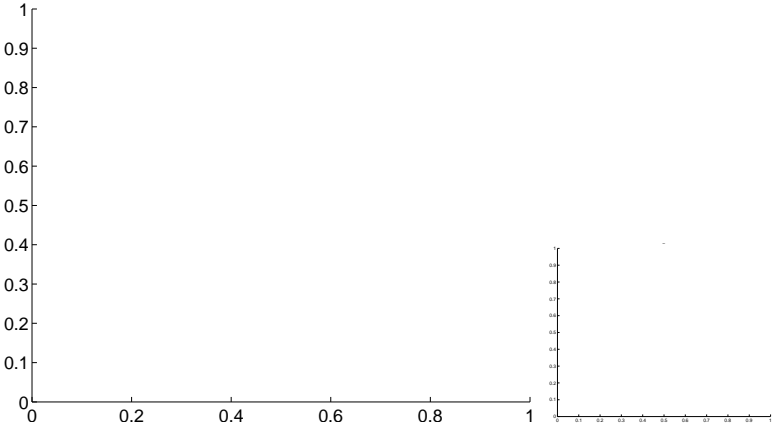


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

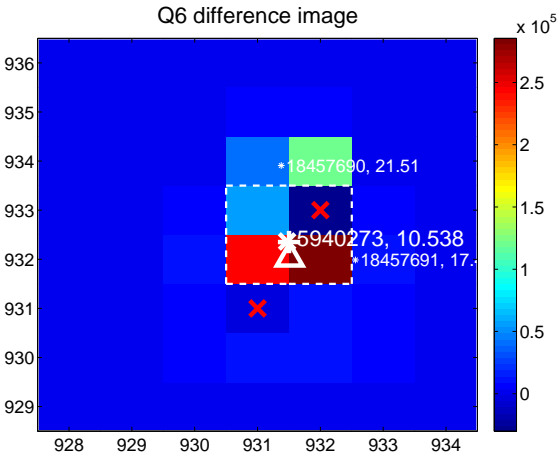
Q5 no difference image



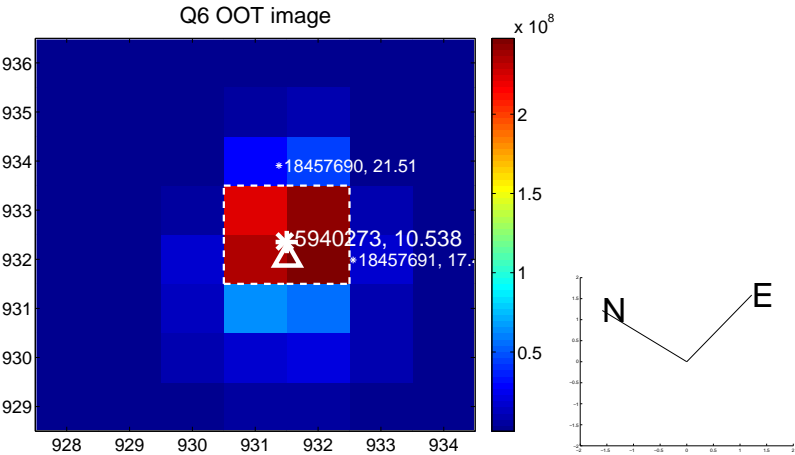
Q5 no OOT image



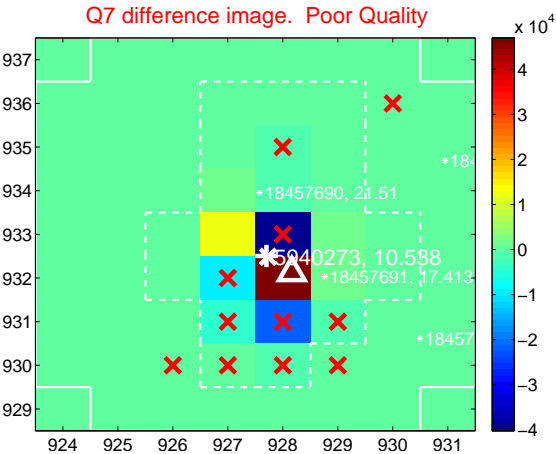
Q6 difference image



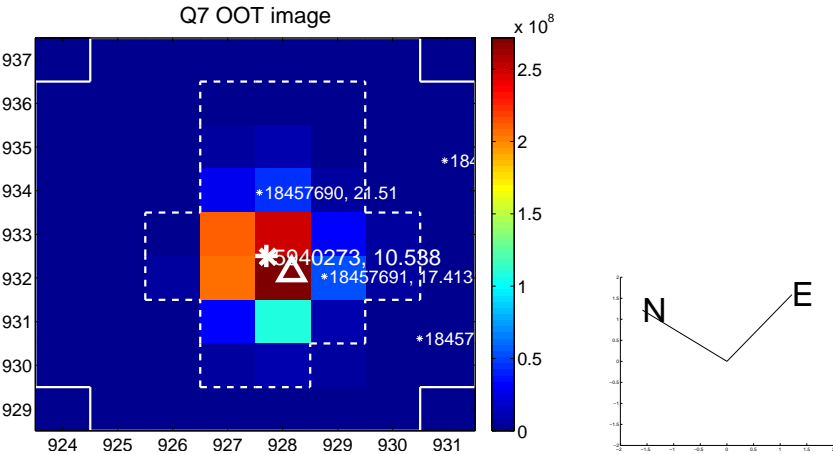
Q6 OOT image



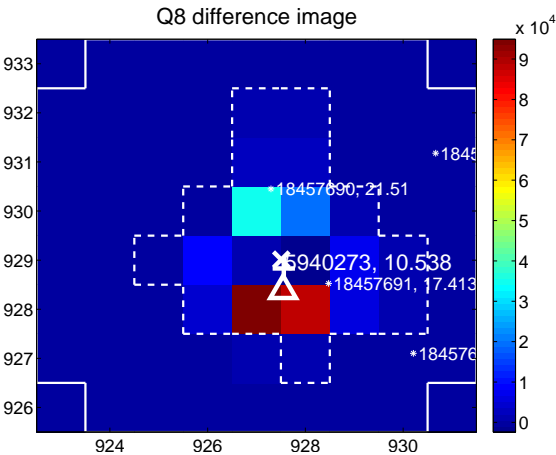
Q7 difference image. Poor Quality



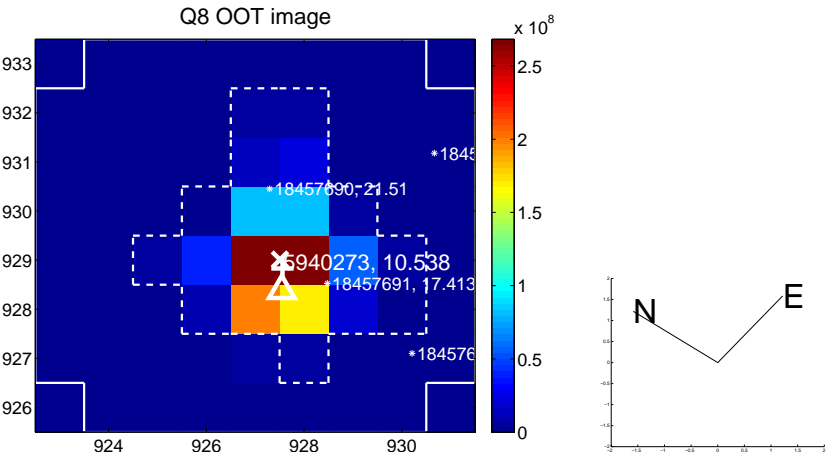
Q7 OOT image



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

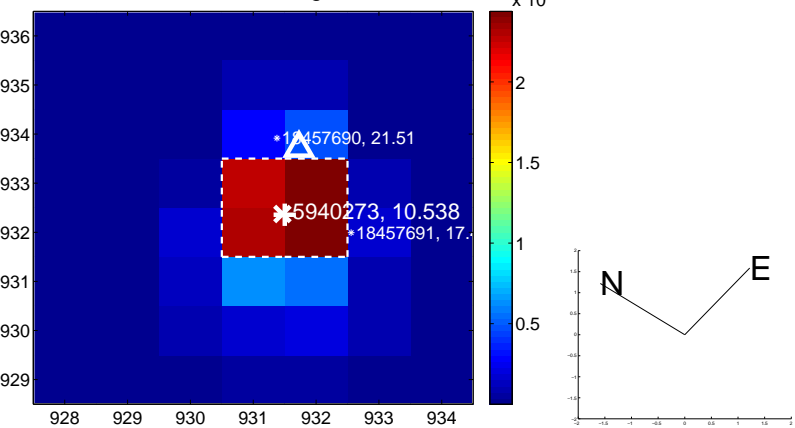
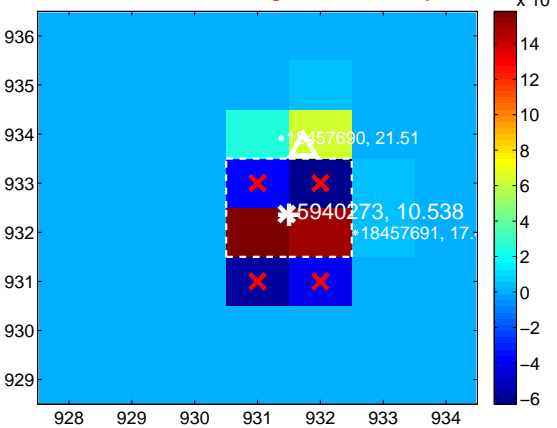


Q9 no OOT image



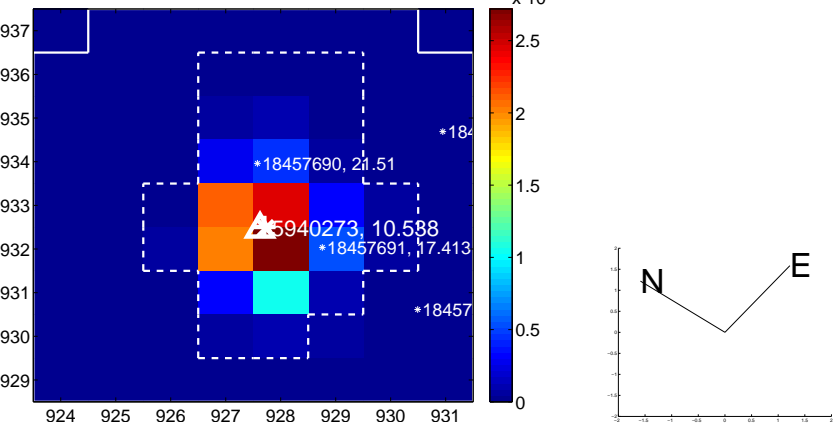
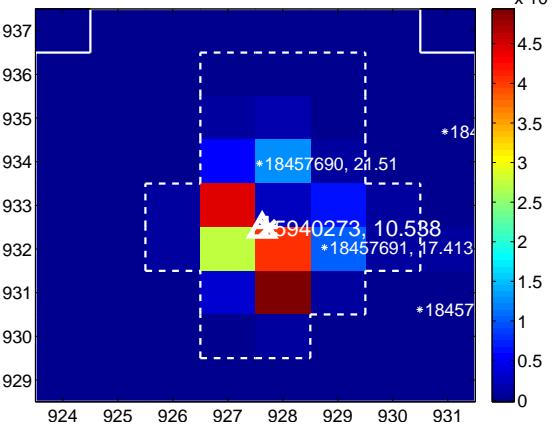
Q10 difference image. Poor Quality

Q10 OOT image



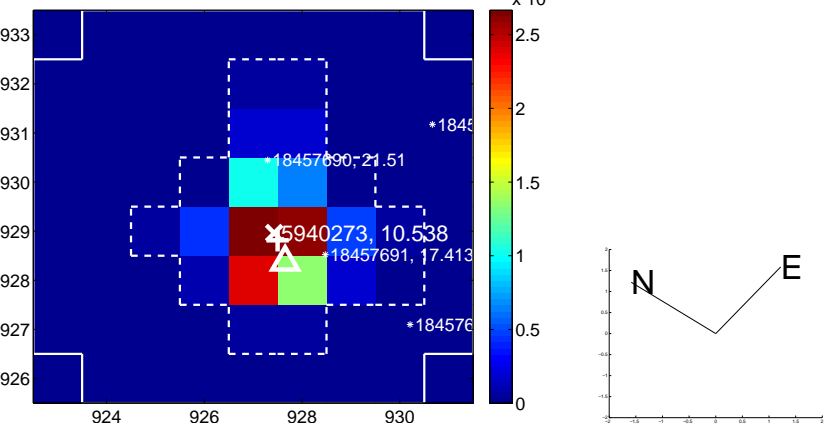
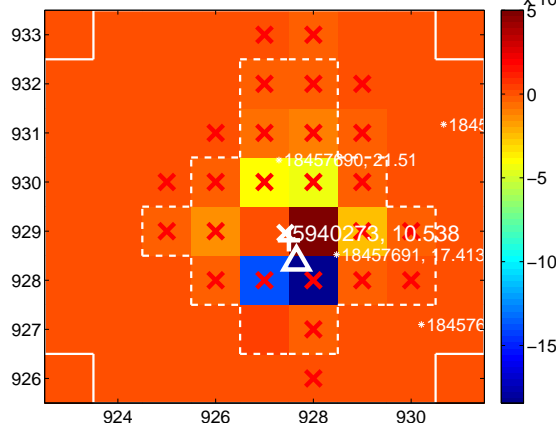
Q11 difference image

Q11 OOT image

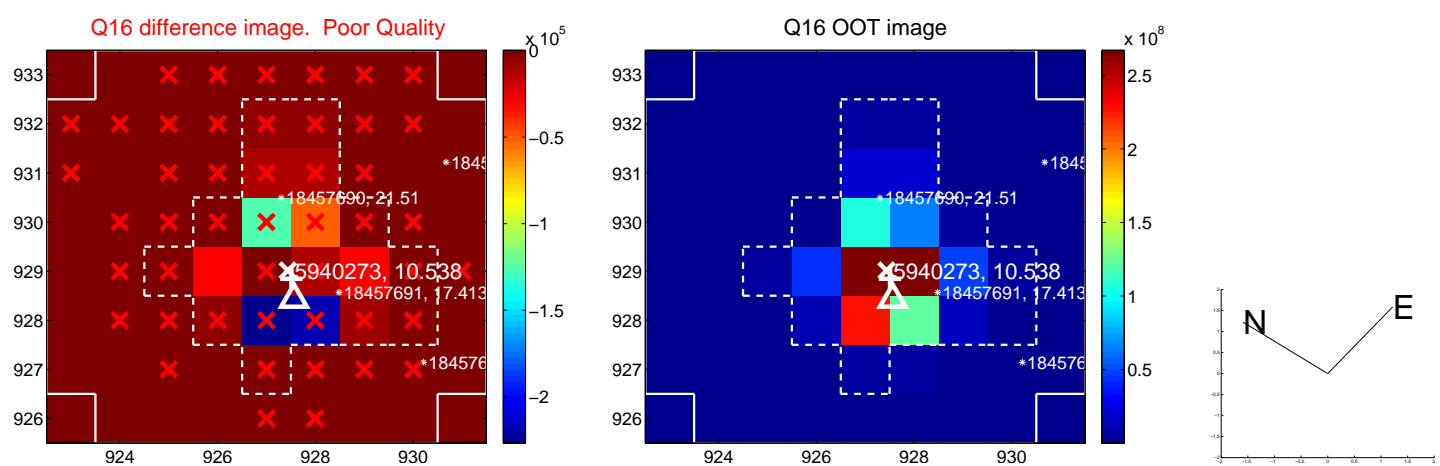
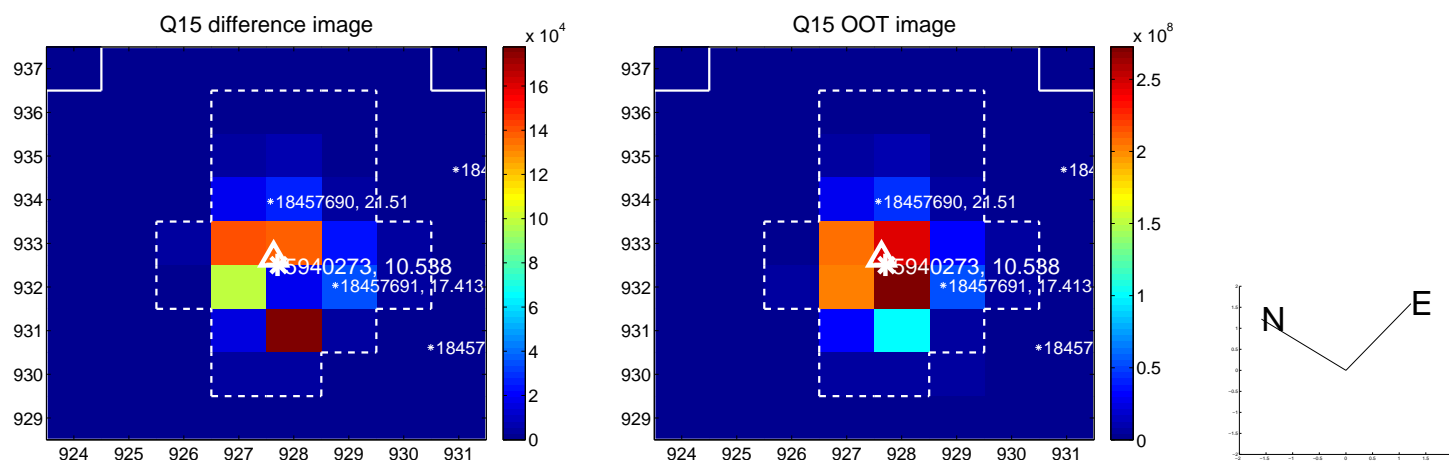
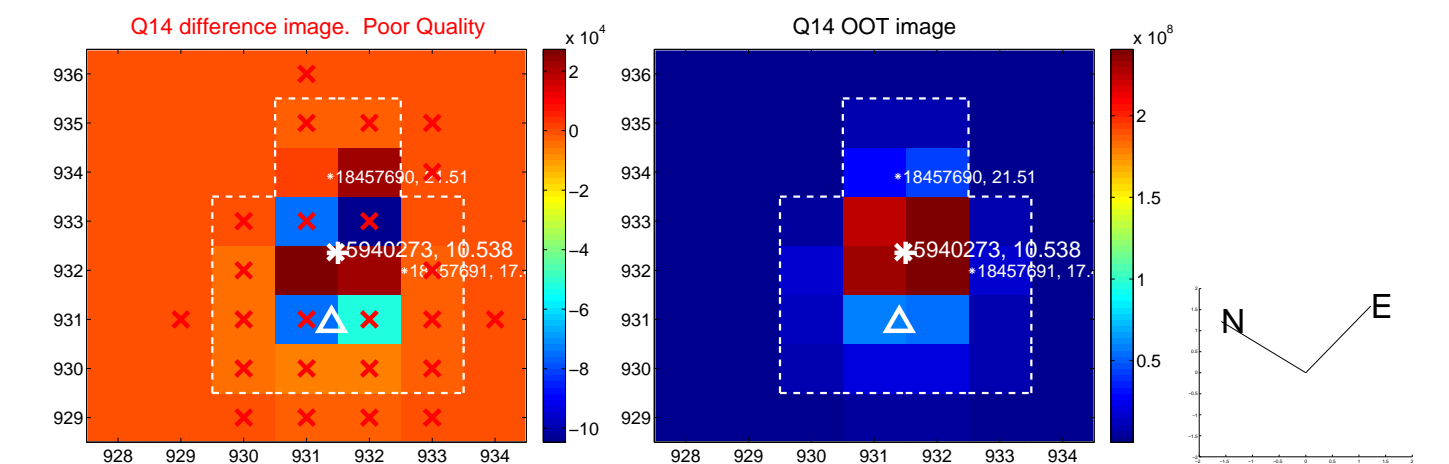
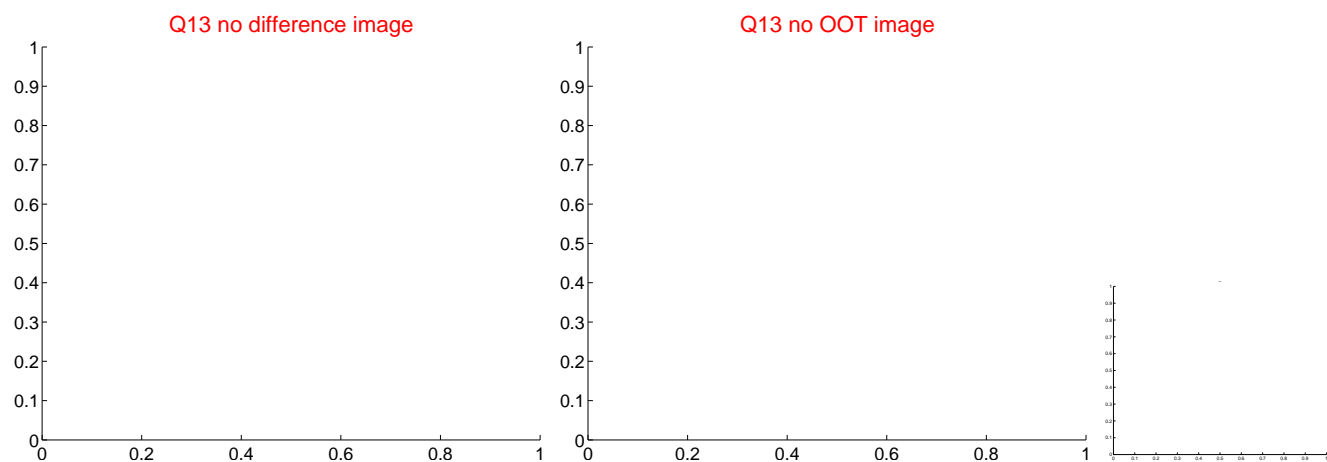


Q12 difference image. Poor Quality

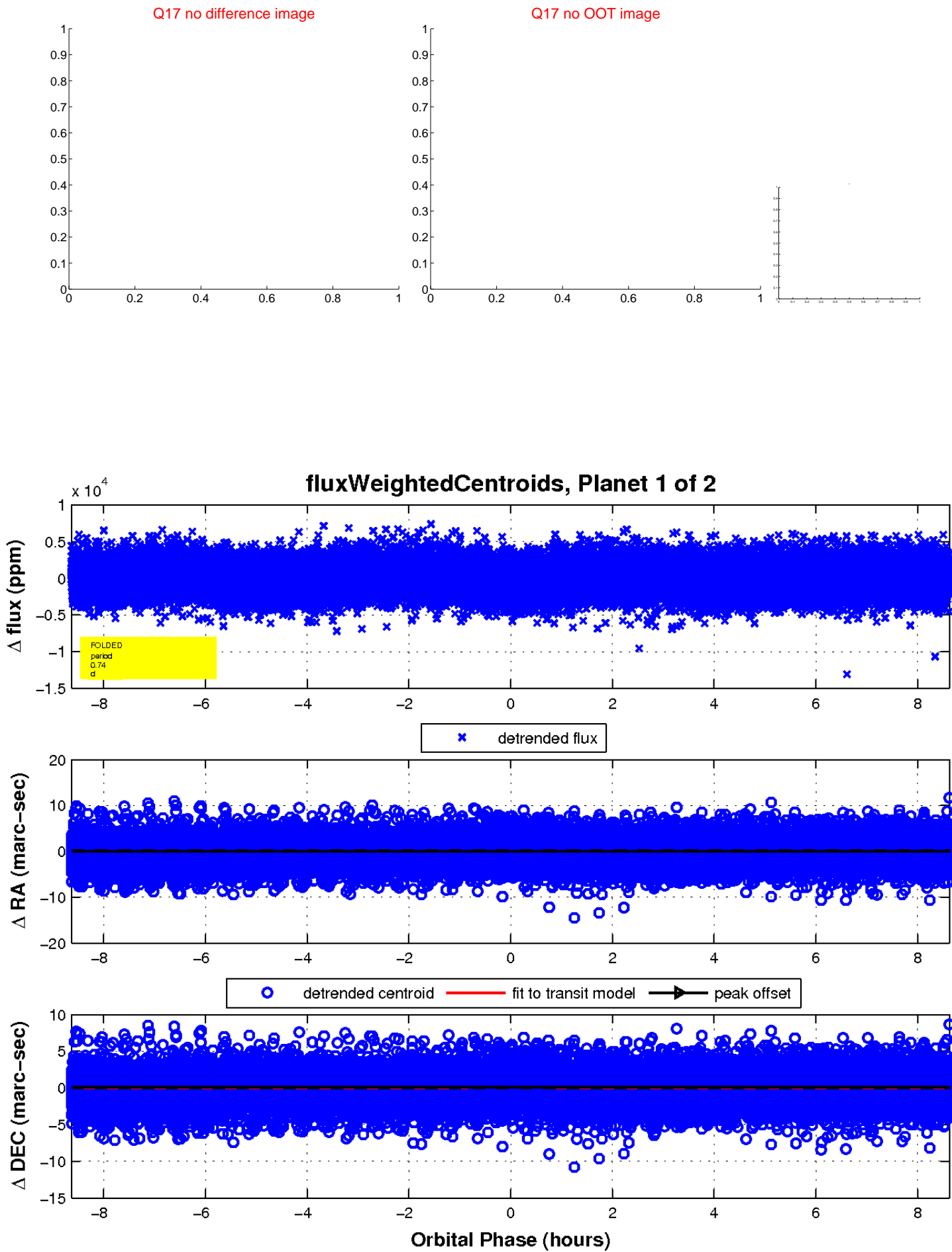
Q12 OOT image



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

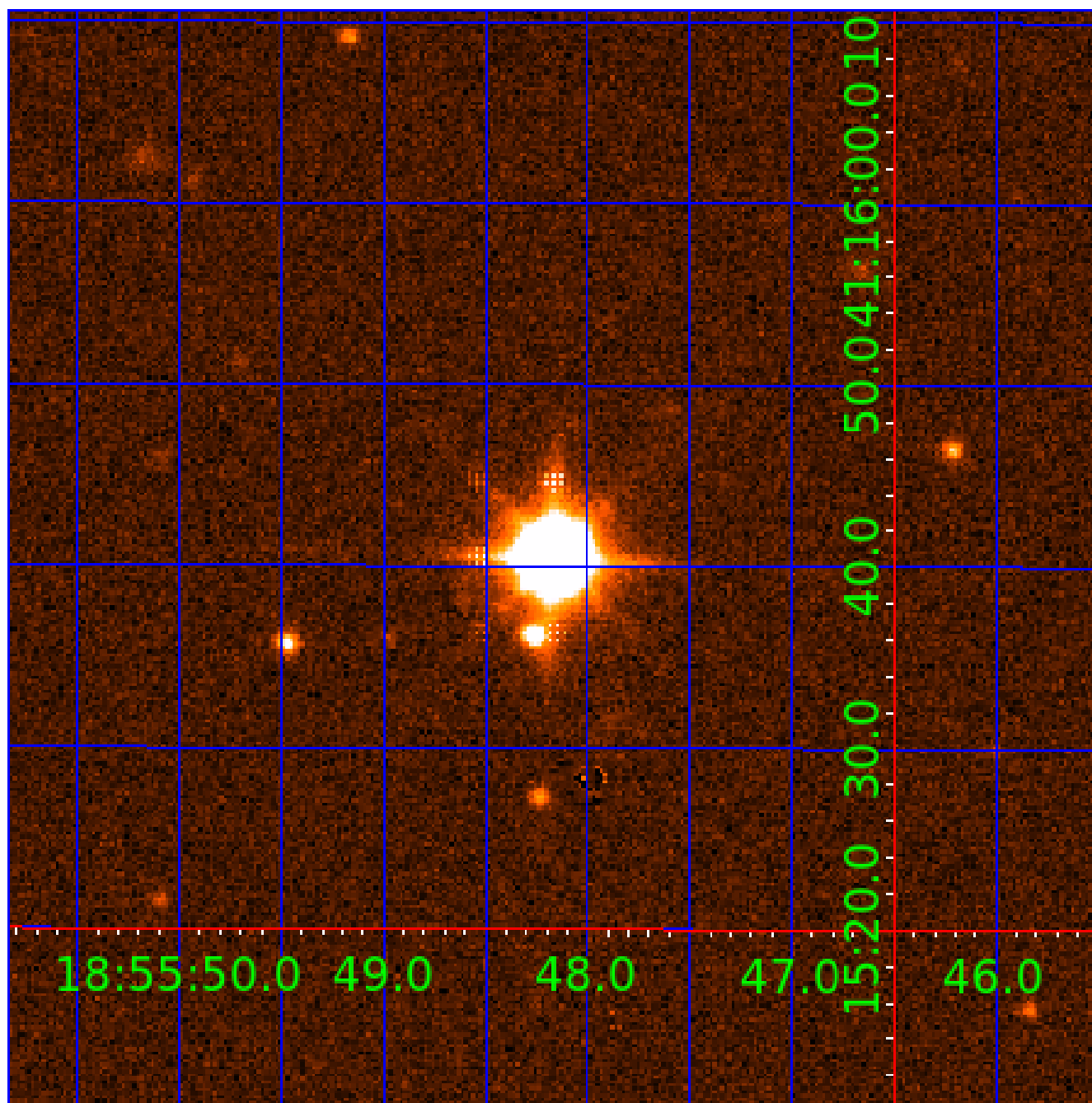


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005940273

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})
005940273-01	OBS	No	0.735262	131.751948	246.3	2.877	12.1	12.3	3.33	8207	6.09	114839.78
005940273-02	OBS	No	0.735253	132.109178	220.3	2.876	10.4	10.7	3.33	8207	5.77	114841.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005940273-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005940273-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

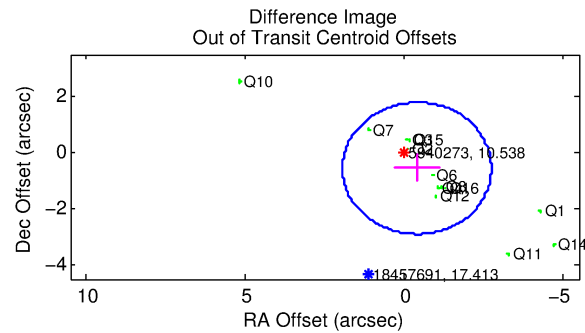
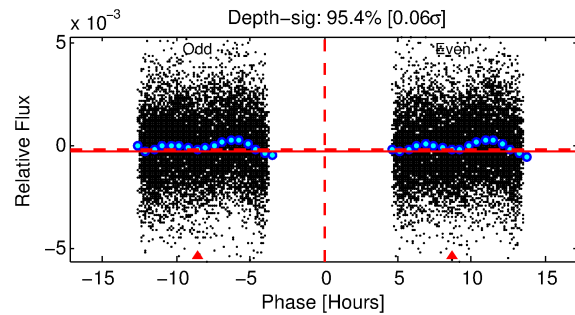
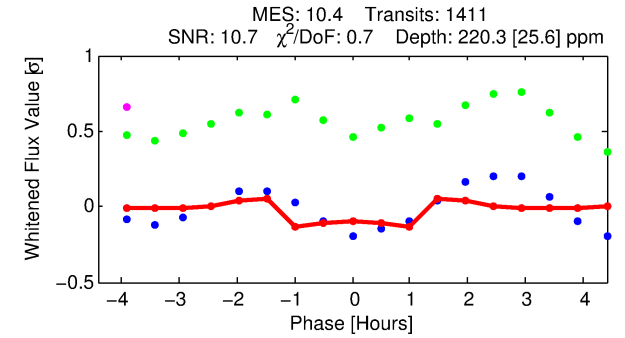
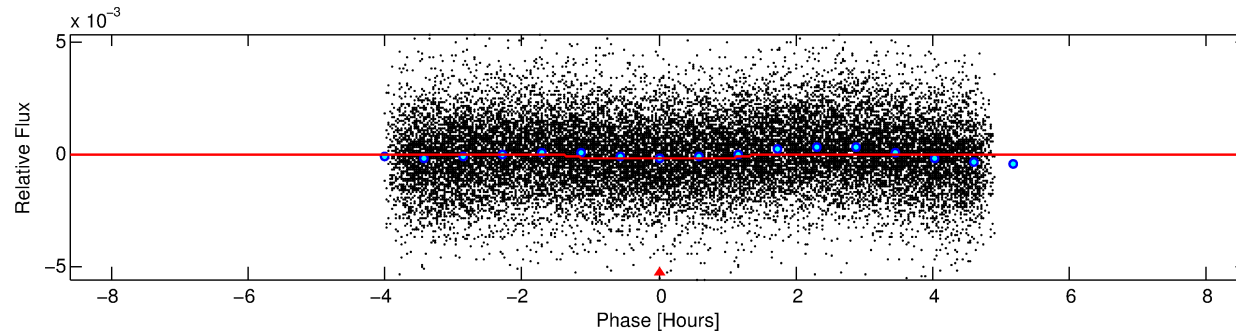
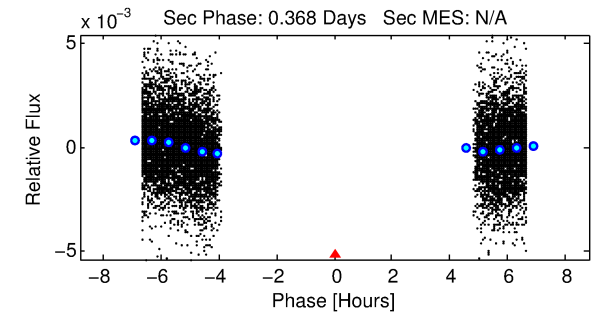
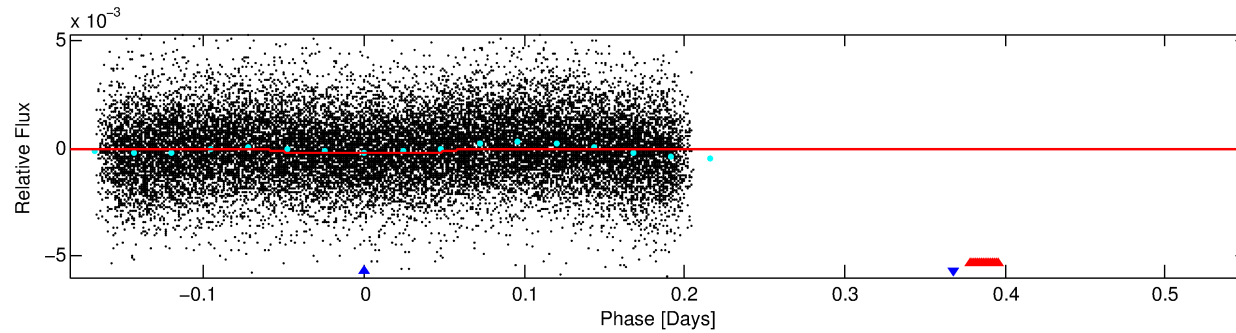
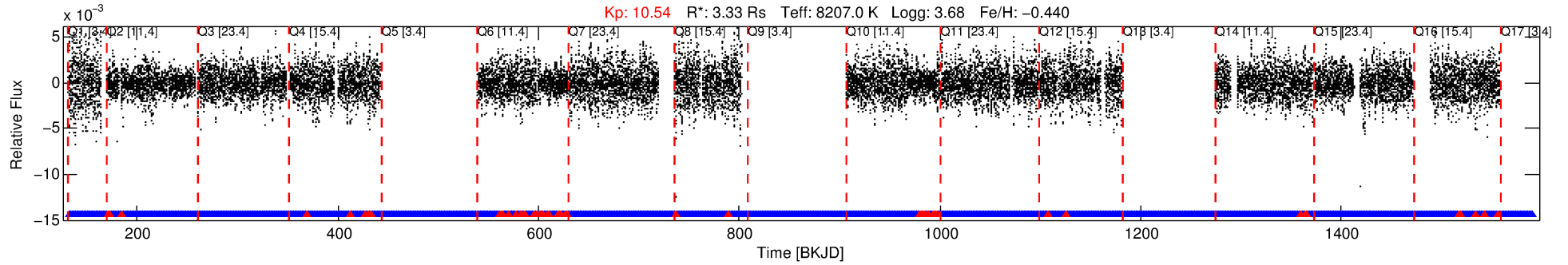
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005940273-02

No Significant Match Found

DV One-Page Summary

KIC: 5940273 Candidate: 2 of 2 Period: 0.735 d



DV Fit Results:

Period = 0.73525 [0.00001] d
Epoch = 132.1092 [0.0015] BKJD
Rp/R* = 0.0159 [0.0023]
a/R* = 1.31 [0.43]
b = 0.90 [0.16]
Seff = 114841.67 [98492.37]
Teq = 4694 [1006] K
Rp = 5.77 [3.06] Re
a = 0.0198 [0.0102] AU

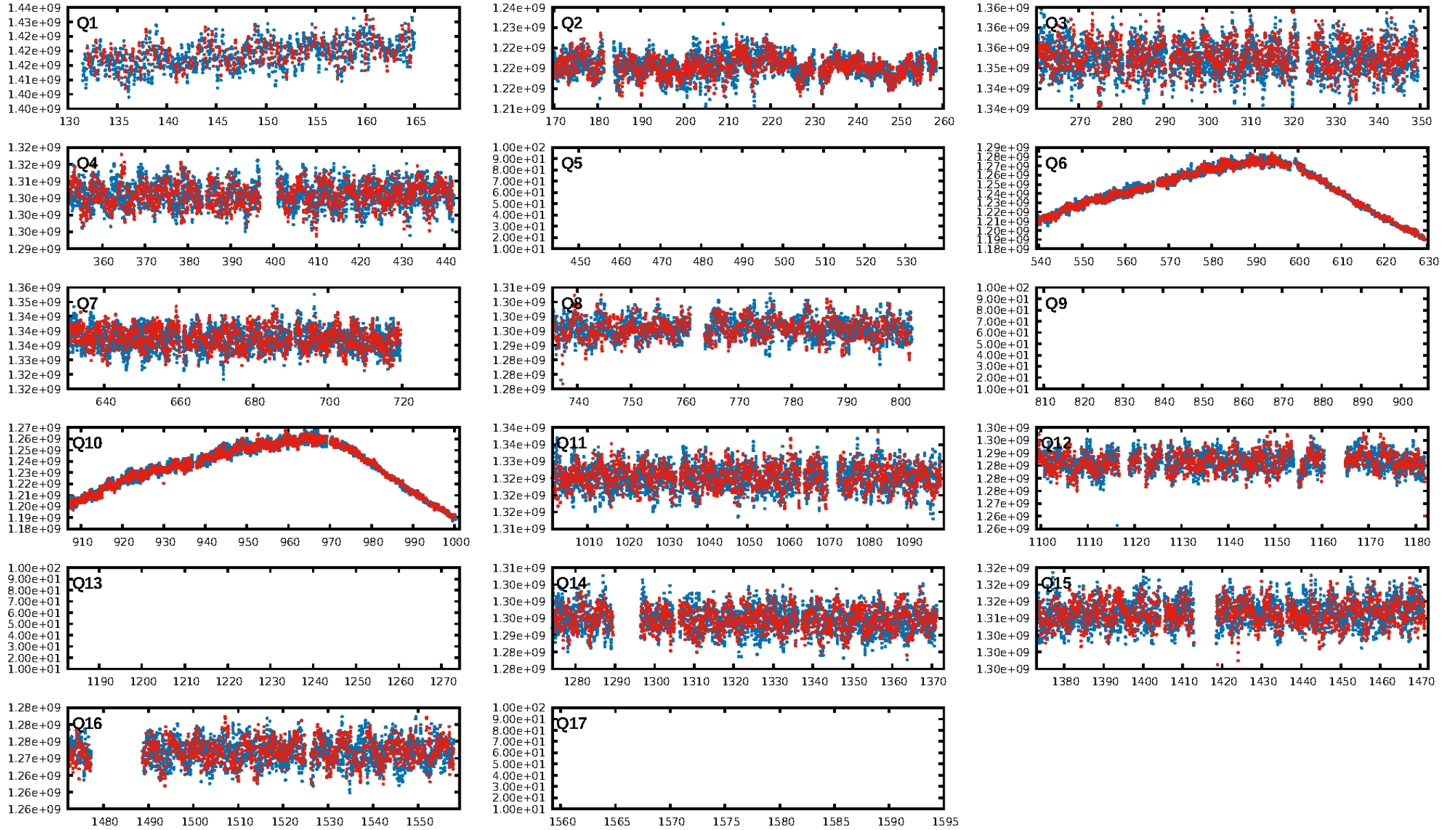
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.28e-122
RollingBand-fgt: 0.96 [1306/1366]
GhostDiagnostic-chr: 1.975
Centroid-sig: 3.8%
Centroid-so: 0.466 arcsec [2.37σ]
OotOffset-rm: 0.690 arcsec [0.88σ]
KicOffset-rm: 0.896 arcsec [1.23σ]
OotOffset-st: 4/4/4/1 [13]
KicOffset-st: 4/4/4/1 [13]
DiffImageQuality-fgm: 0.38 [5/13]
DiffImageOverlap-fno: 0.00 [0/13]

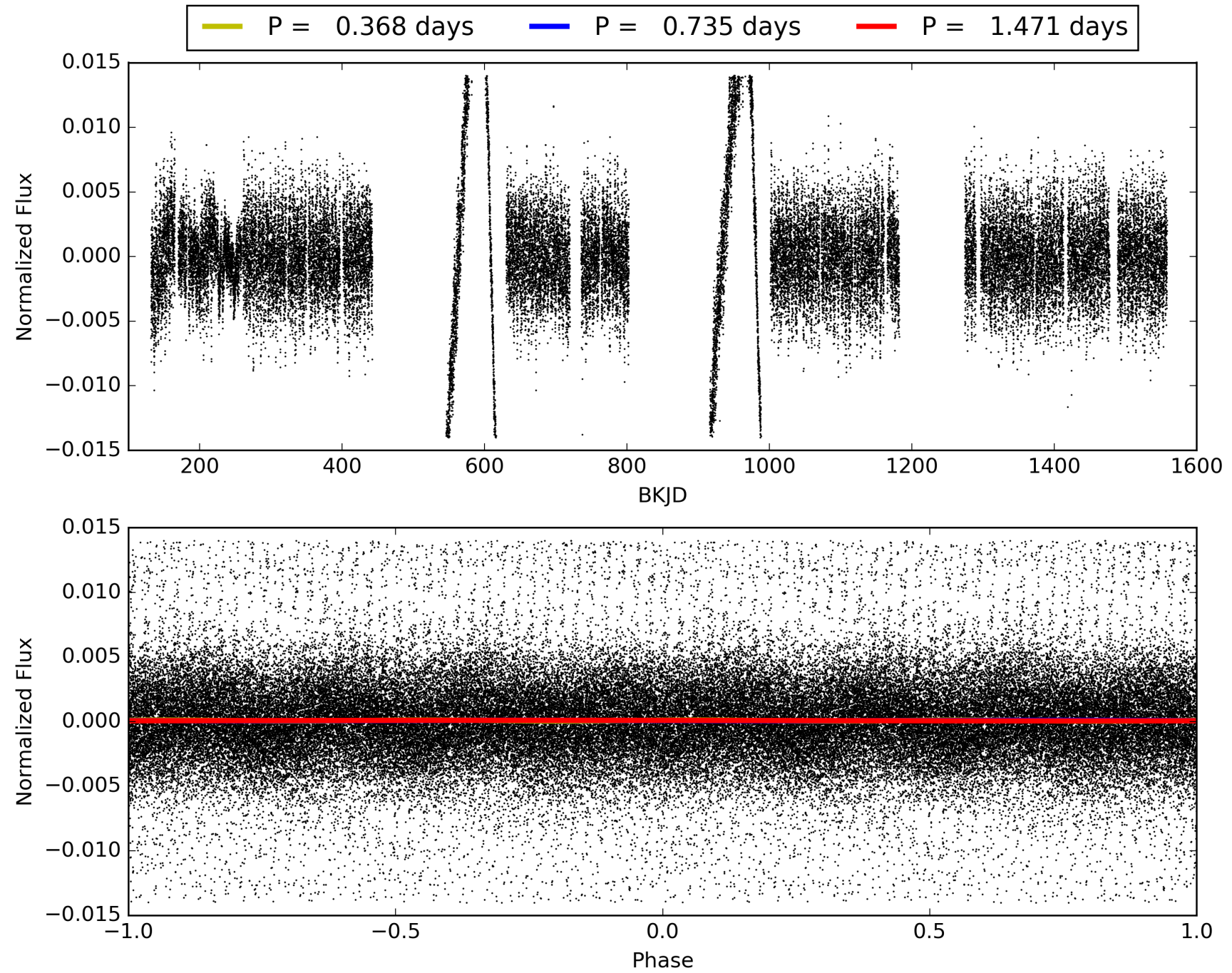
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:05:46 Z

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

TCE 005940273-02, PDC Light Curves

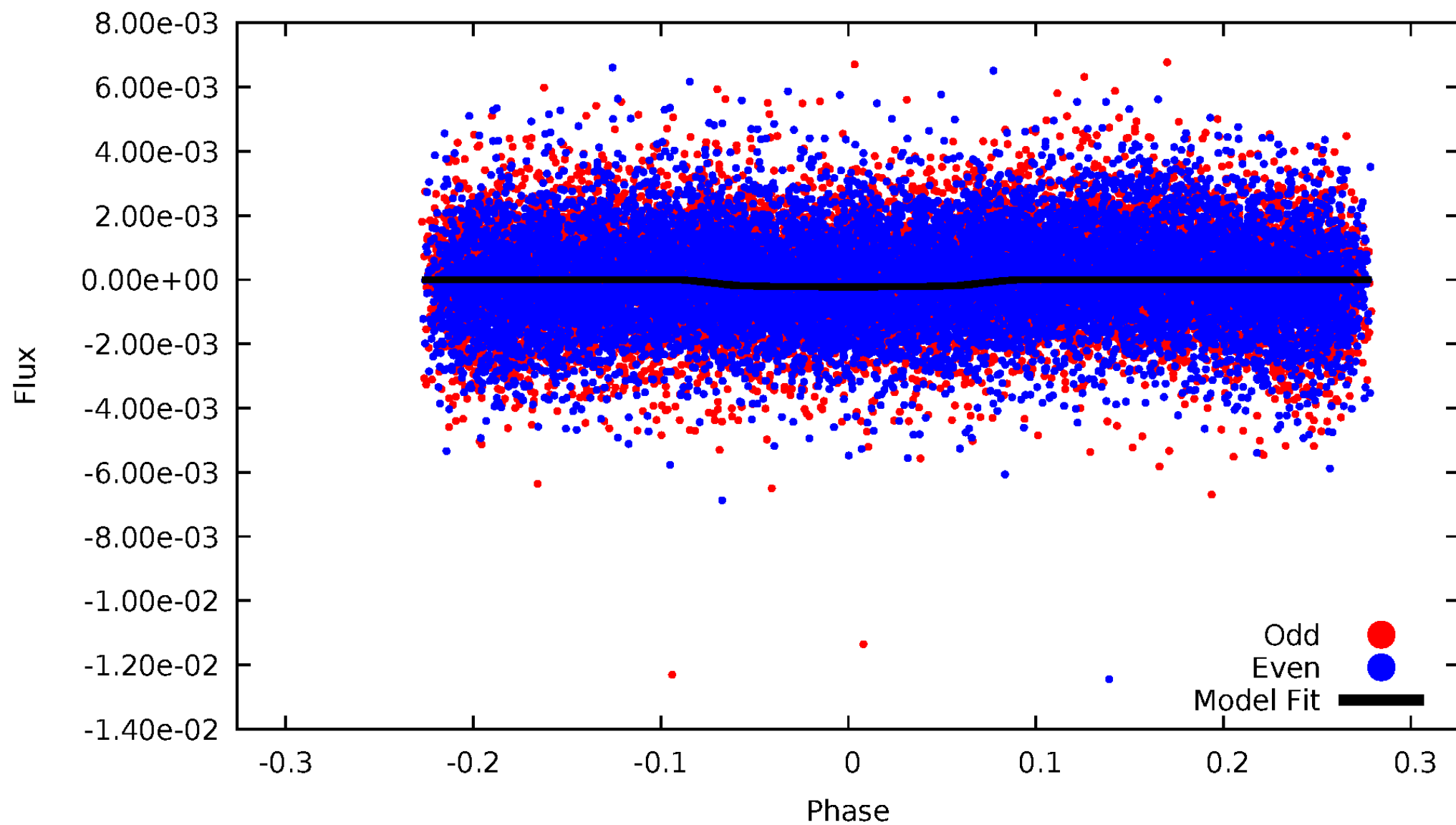


TCE 005940273-02



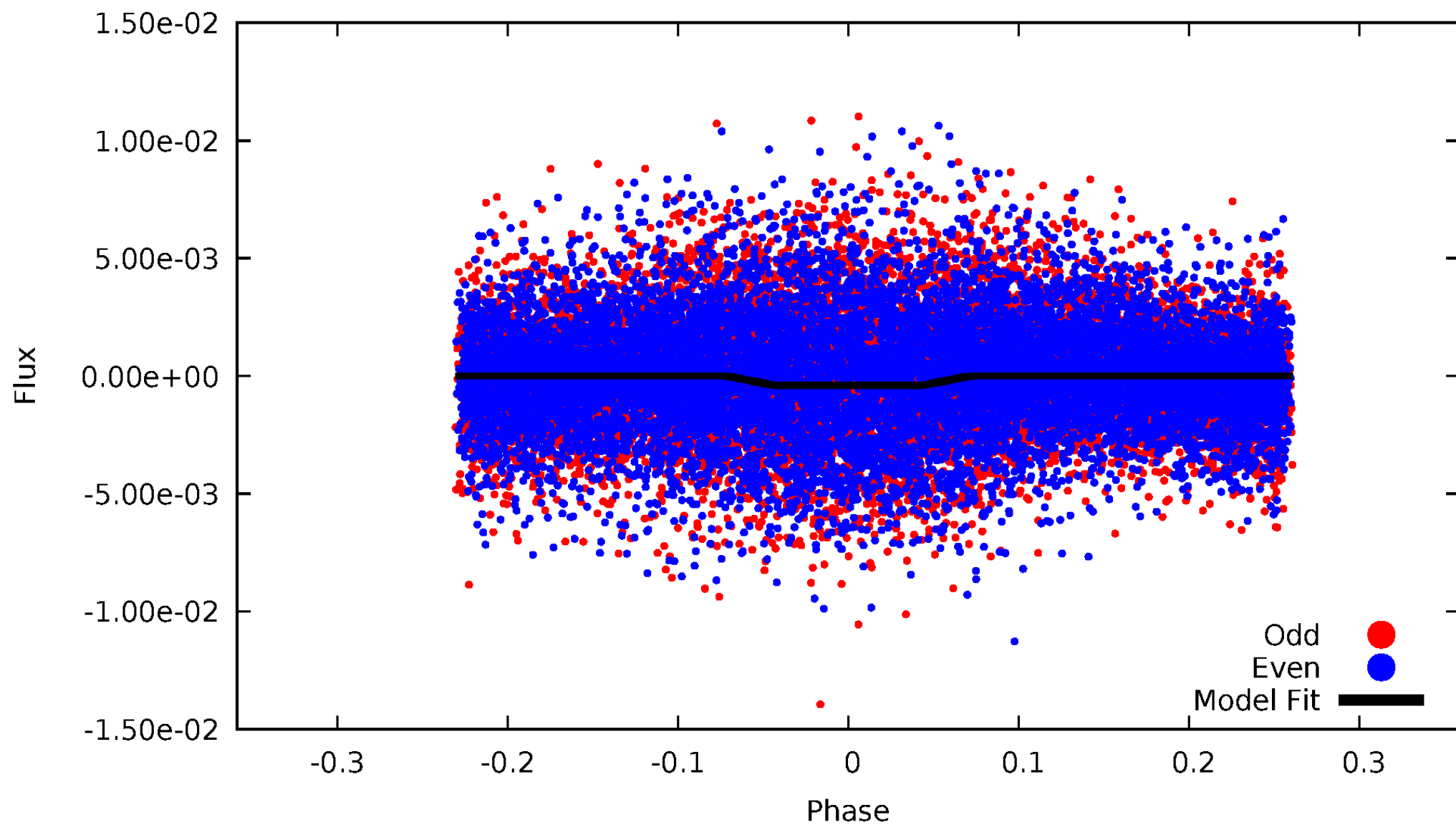
DV Odd/Even

TCE 005940273-02



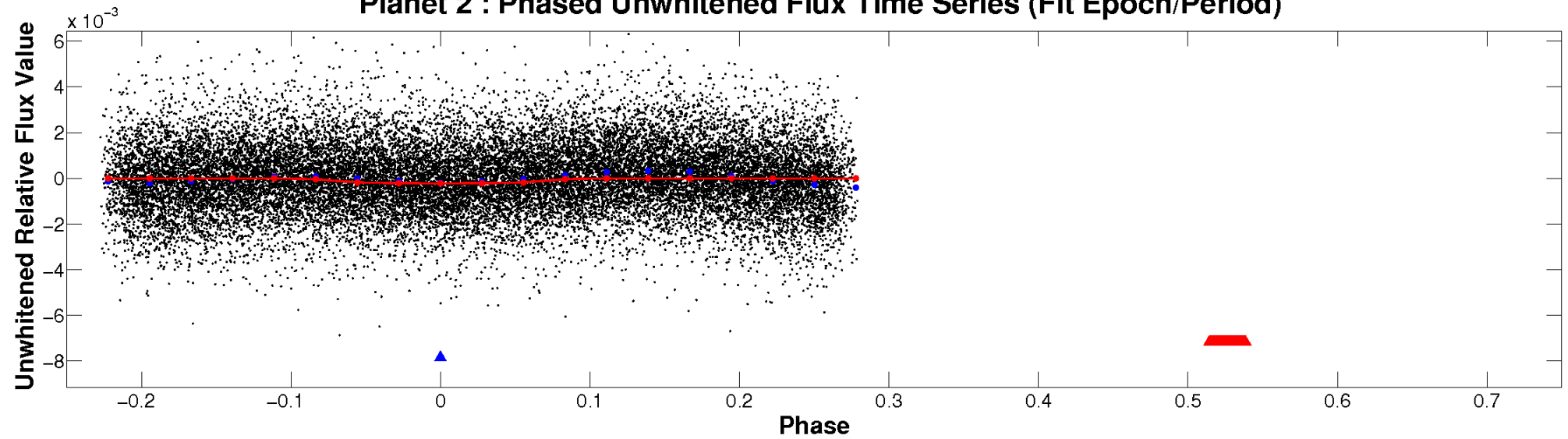
ALT Odd/Even

TCE 005940273-02

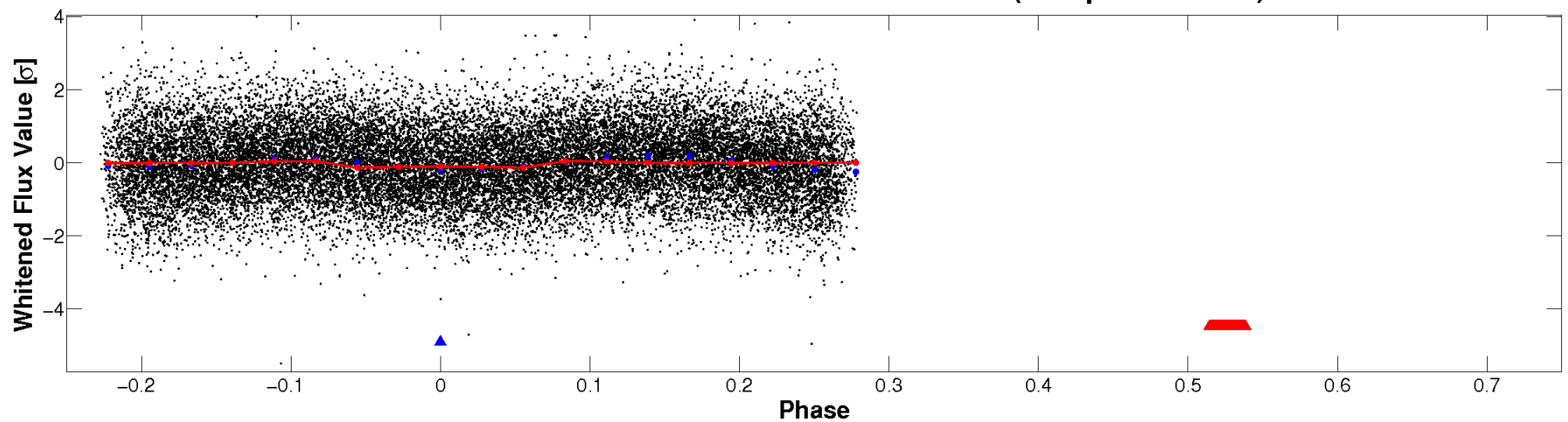


Non-Whitened Vs. Whitened Light Curve

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

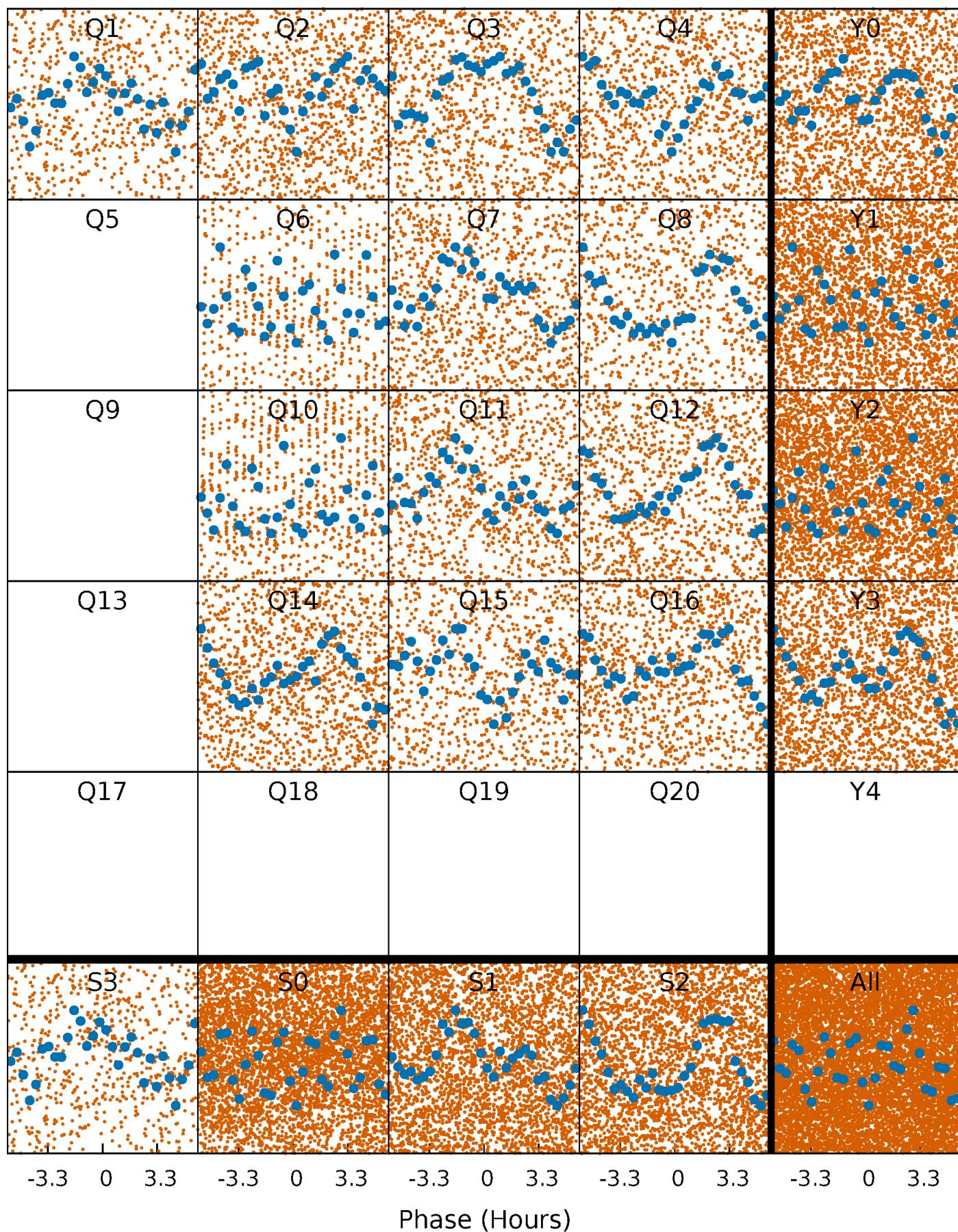


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



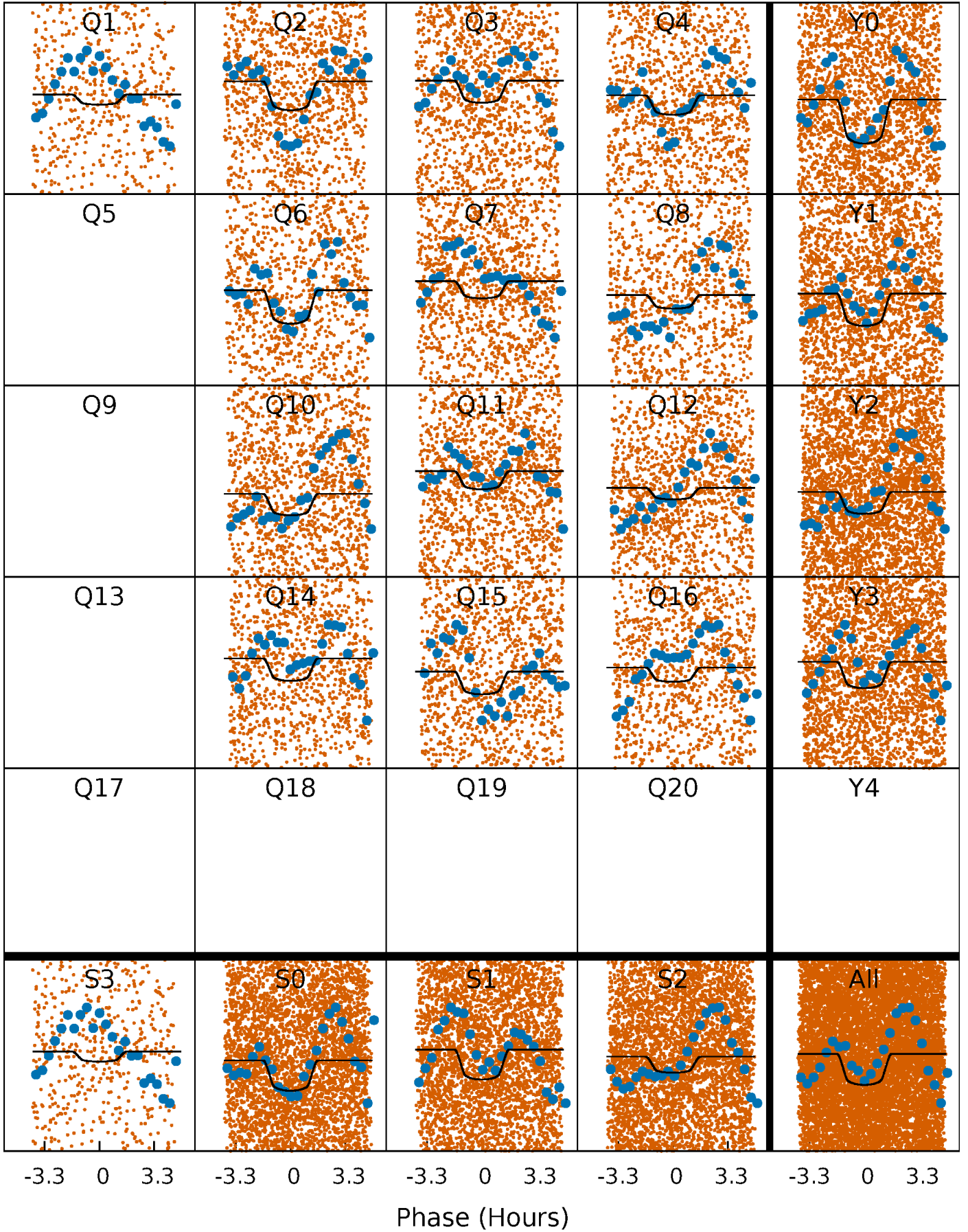
PDC Quarter-Phased Transit Curves

TCE 005940273-02 P= 0.735253 Days $T_0=132.109177$ (BKJD)



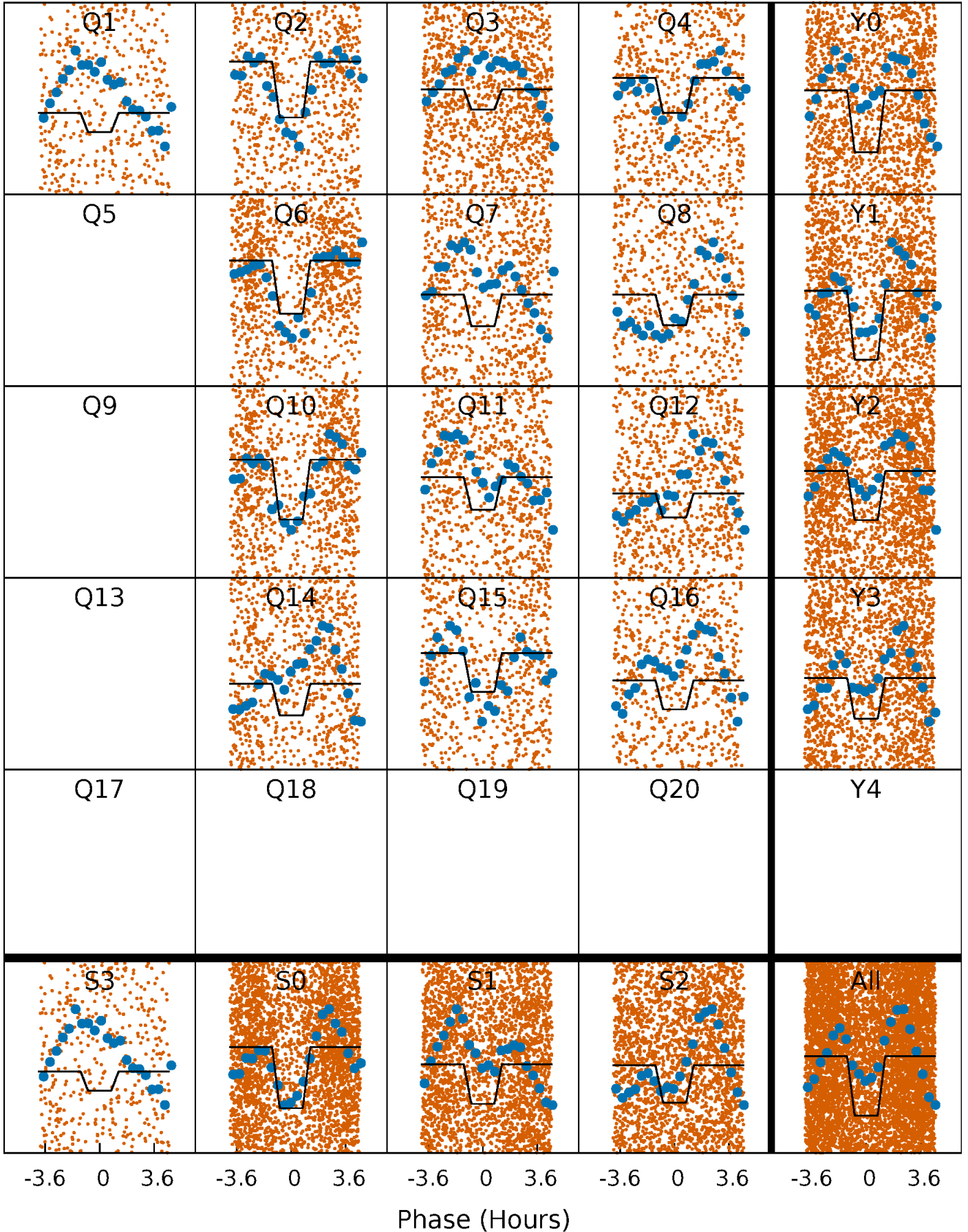
DV Quarter-Phased Transit Curves

TCE 005940273-02 $P = 0.735253$ Days $T_0 = 132.109177$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

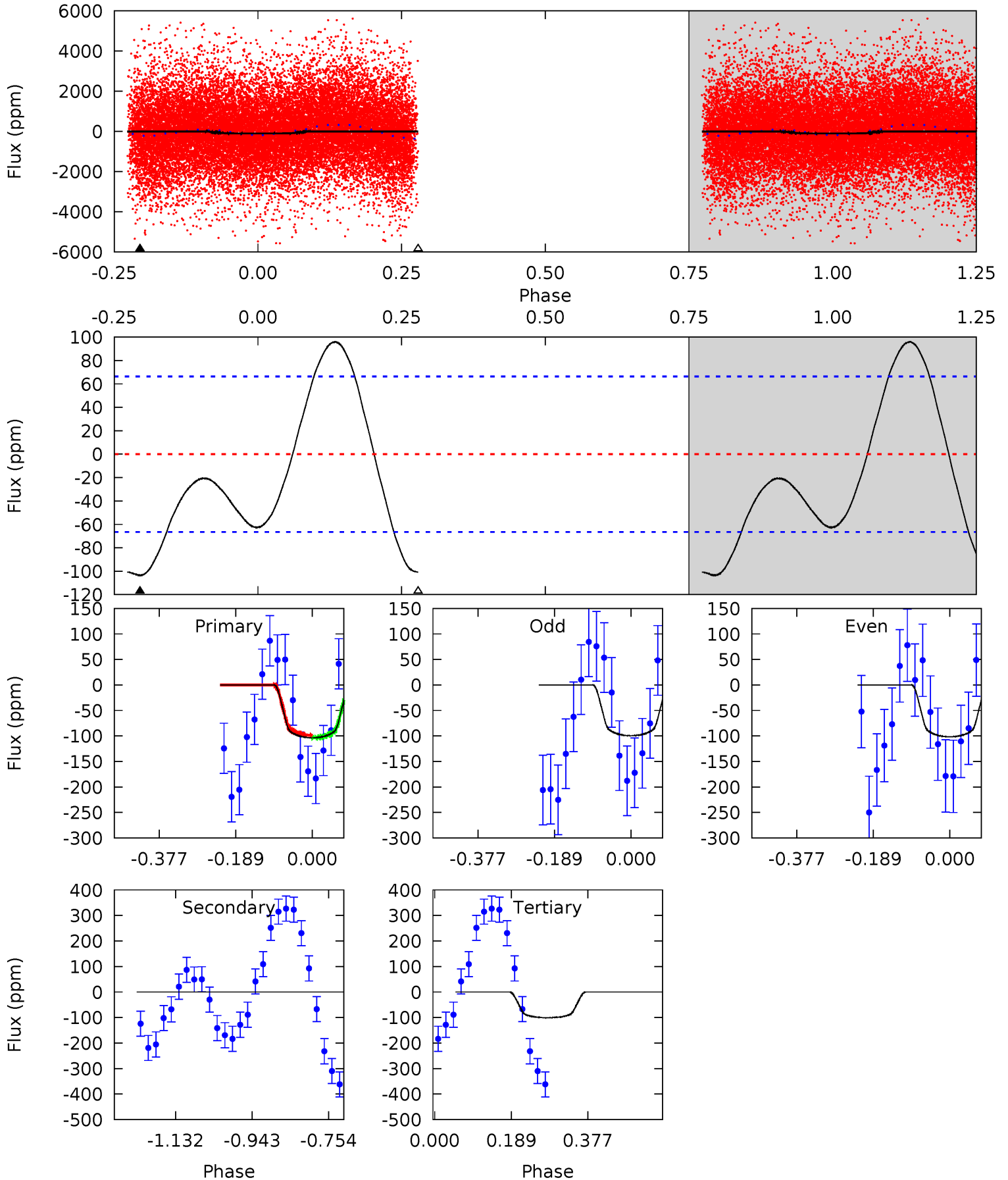
TCE 005940273-02 $P = 0.735266$ Days $T_0 = 132.105062$ (BKJD)



DV Model-Shift Uniqueness Test

005940273-02, P = 0.735253 Days, E = 131.373924 Days

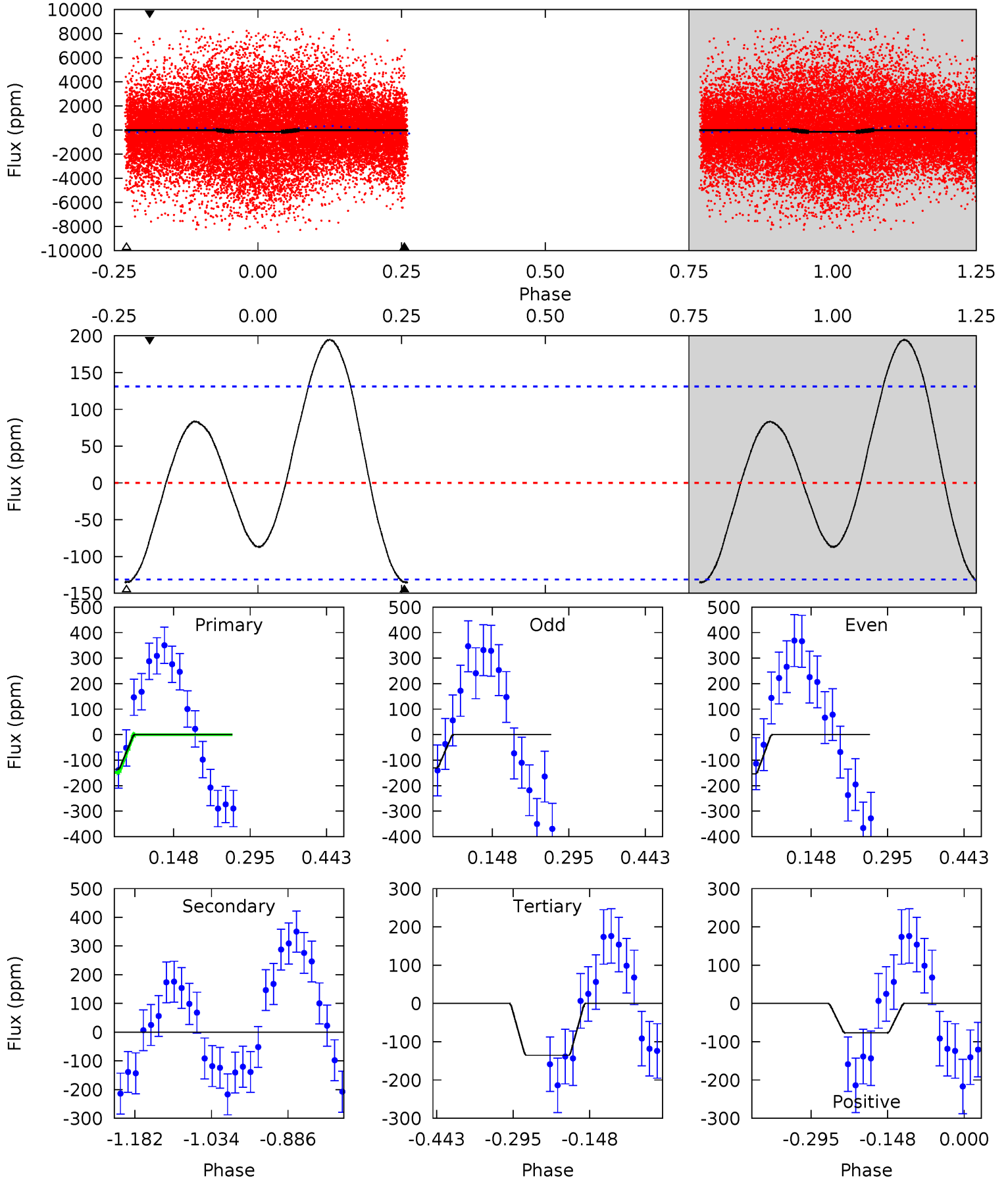
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.91	0	6.72	0	4.43	1.31	4.14	0.18	6.91	-6.72	0	0.07	0.69	0.48	0.17



Alt Model-Shift Uniqueness Test

005940273-02, P = 0.735266 Days, E = 131.369796 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.63	0	4.62	-2.62	4.48	1.45	2.66	0.00	7.24	-4.62	2.62	0.42	0.70	0.59	0.18



Stellar Parameters For KIC 005940273

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8207^{+223}_{-334}	$3.676^{+0.502}_{-0.089}$	$-0.440^{+0.200}_{-0.300}$	$3.331^{+0.565}_{-1.696}$	$1.920^{+0.111}_{-0.473}$	$0.073^{+0.398}_{-0.020}$
	+3%/-4%	+14%/-2%	+45%/-68%	+17%/-51%	+6%/-25%	+544%/-27%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005940273-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 15	$5.07^{+1.35}_{-1.32}$	6267^{+503}_{-833}	-5030^{+800}_{-500}	$0.003^{+0.127}_{-0.129}$
Alt.	0 ± 29	$6.63^{+1.37}_{-1.74}$	6345^{+441}_{-887}	-5040^{+769}_{-545}	$0.008^{+0.146}_{-0.158}$

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

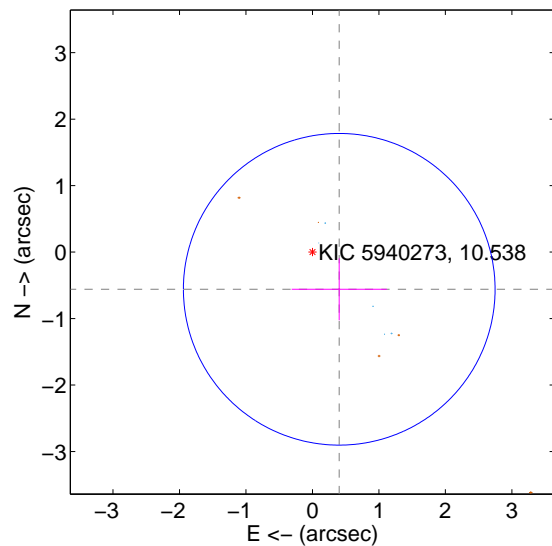
Supplemental centroid analysis for 005940273-02. **Kepler magnitude: 10.54.** Transit SNR 10.73

There are 5 quarters with good PRF difference image offsets

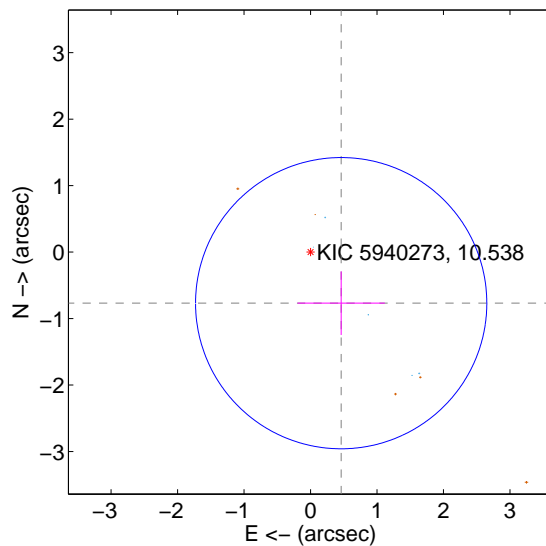
The direct PRF centroid is offset from the target star catalog position by about 0.72 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.690 ± 0.781	0.88	-0.403 ± 0.716	-0.559 ± 0.466
PRF-fit source offset from KIC position	0.896 ± 0.730	1.23	-0.461 ± 0.656	-0.768 ± 0.479
photometric centroid source offset	0.47 ± 0.20	2.37	-0.40 ± 0.21	-0.24 ± 0.16

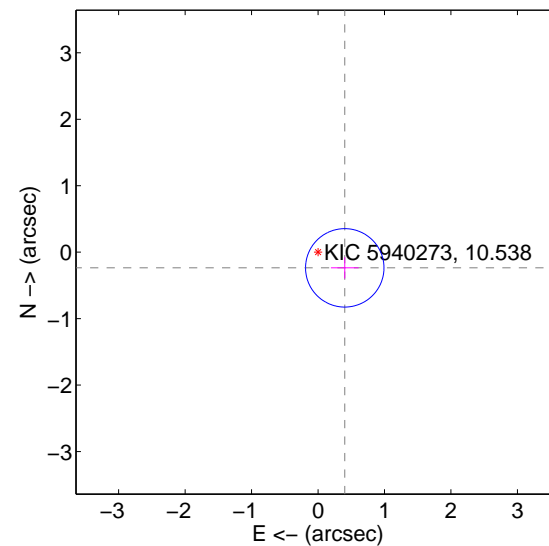
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

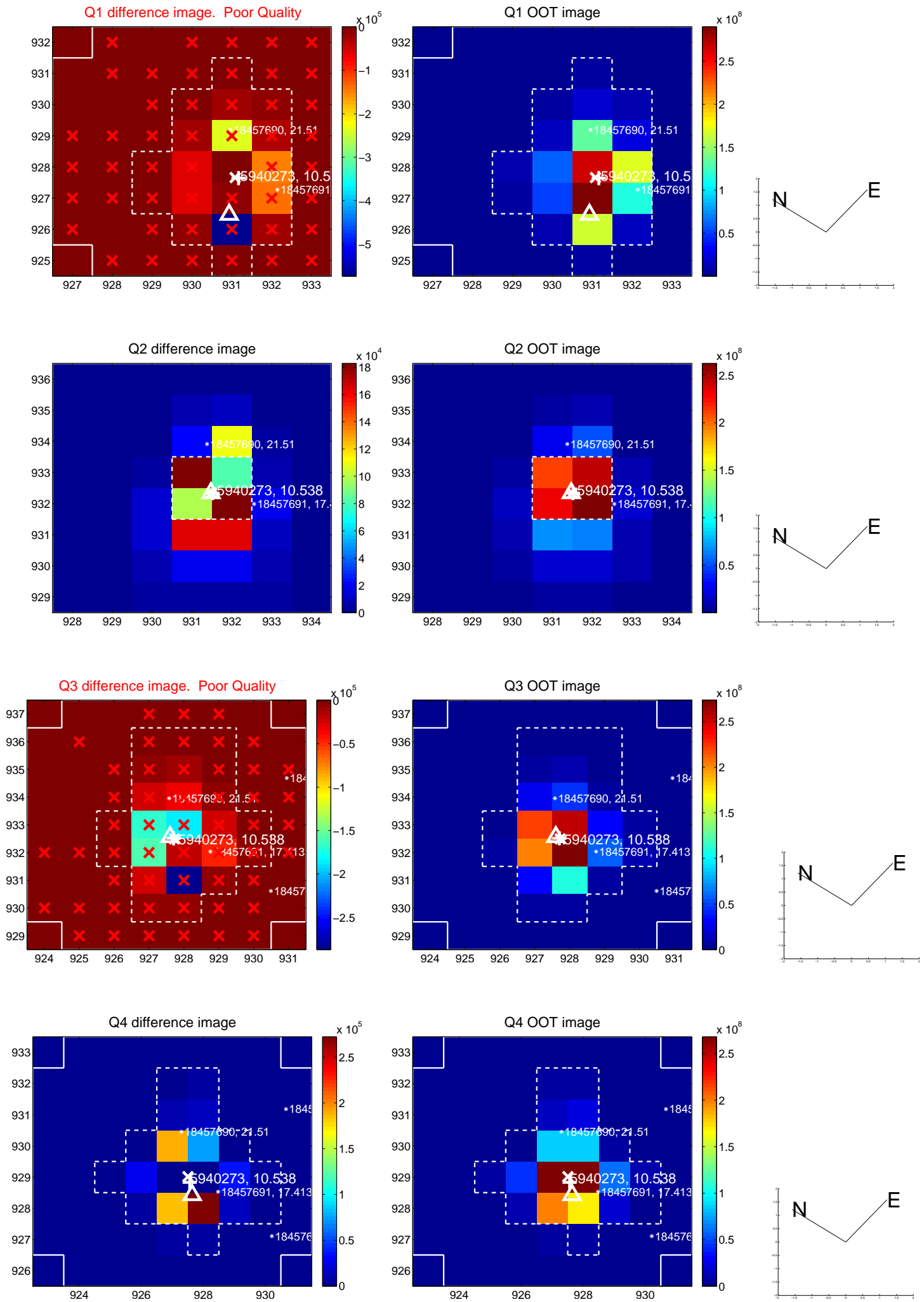


offset from photometric centroids

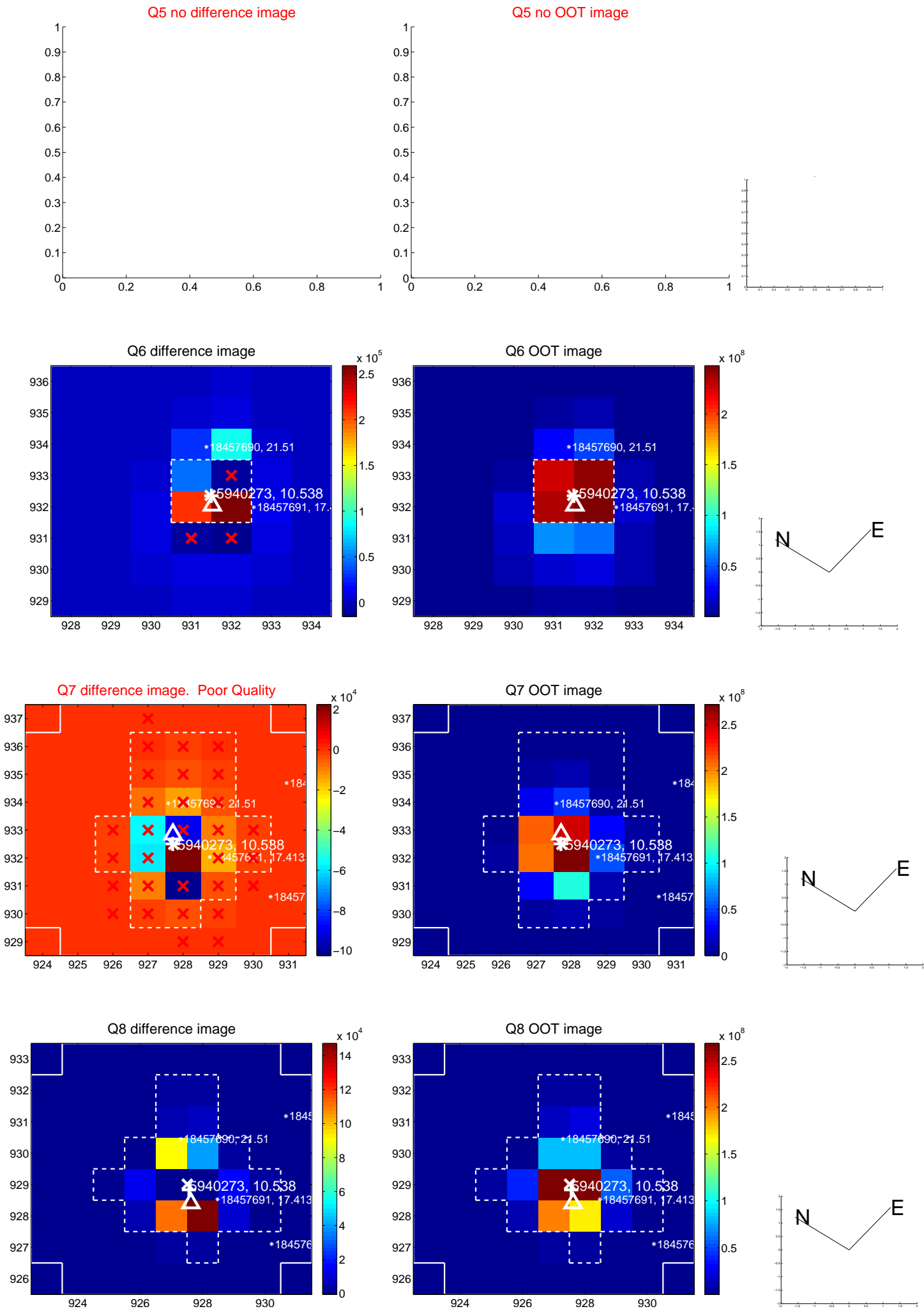


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

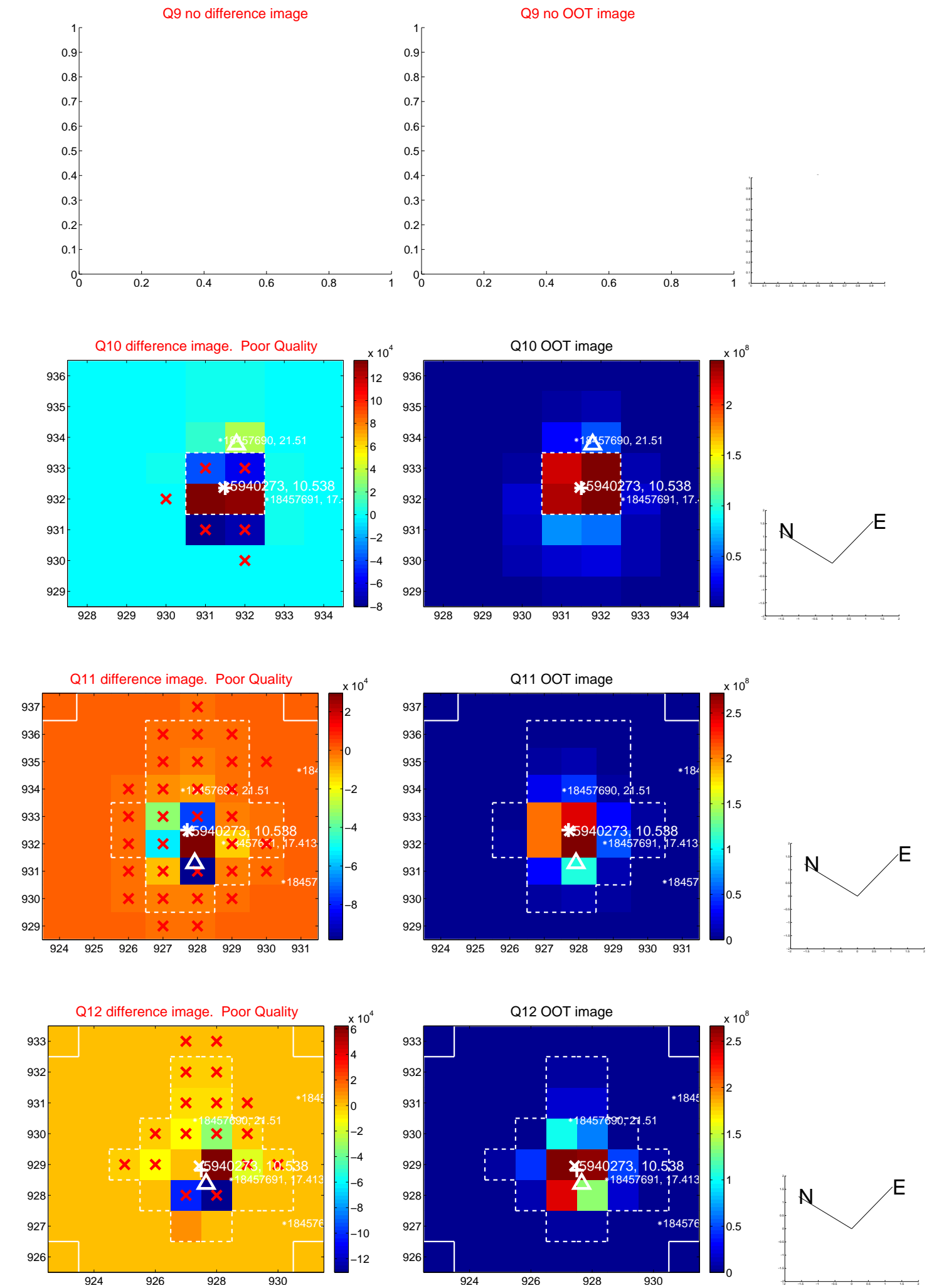
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



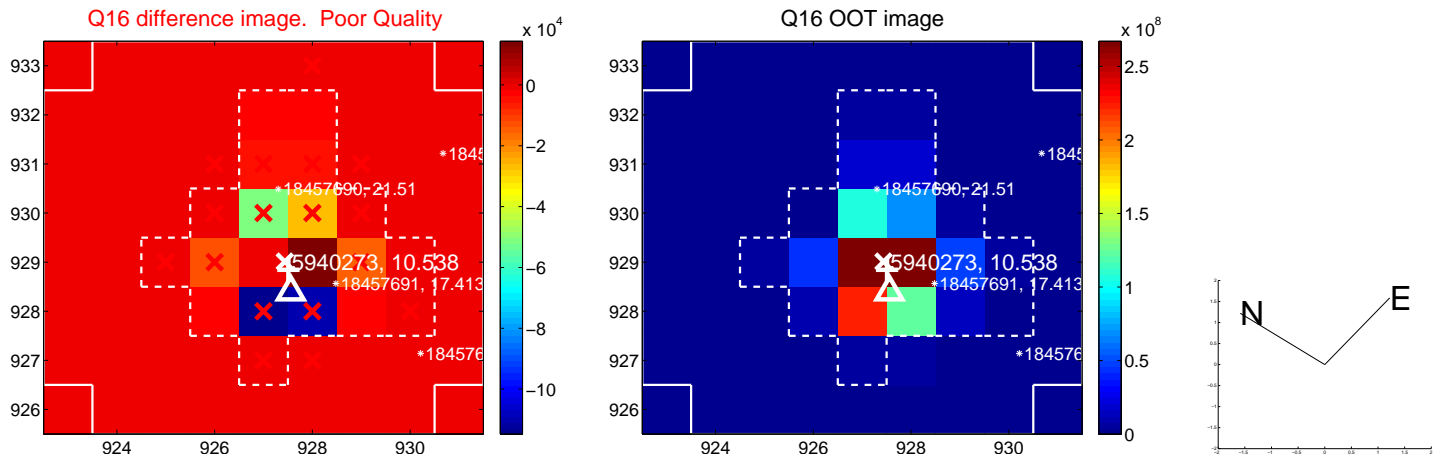
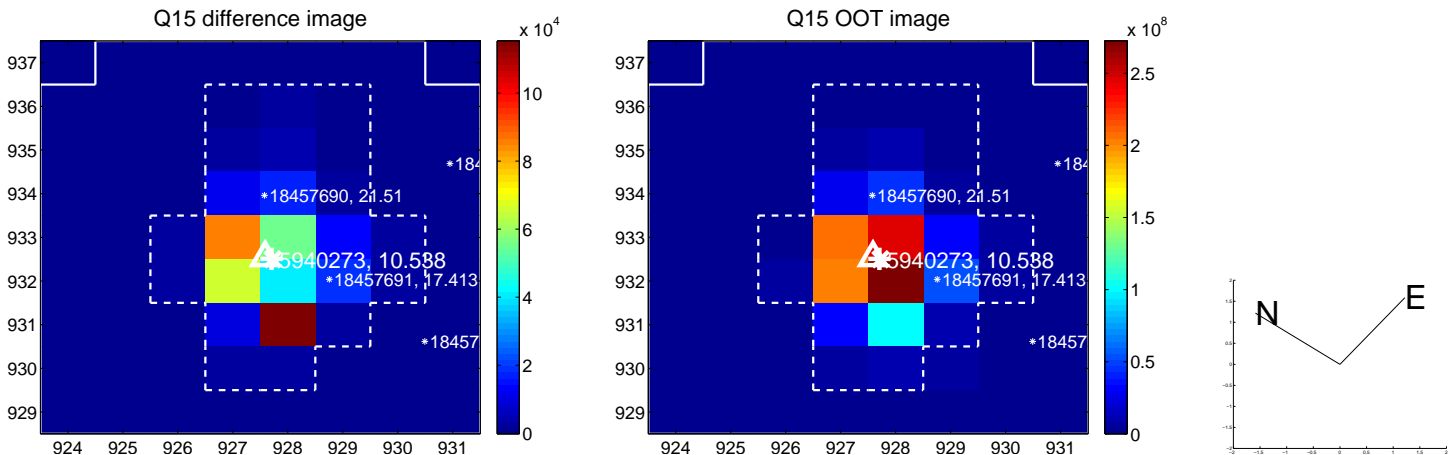
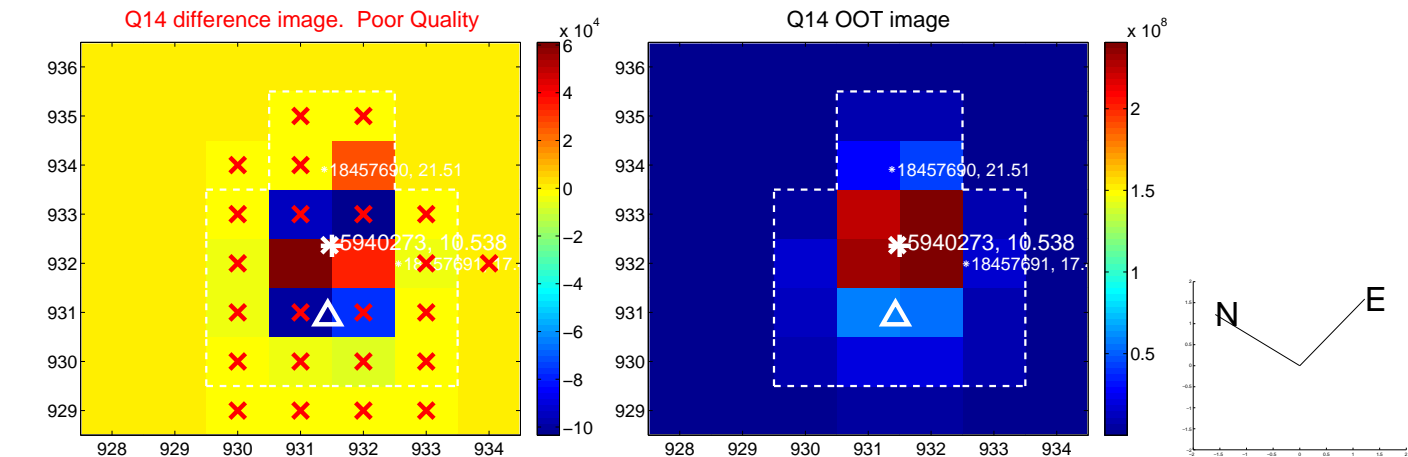
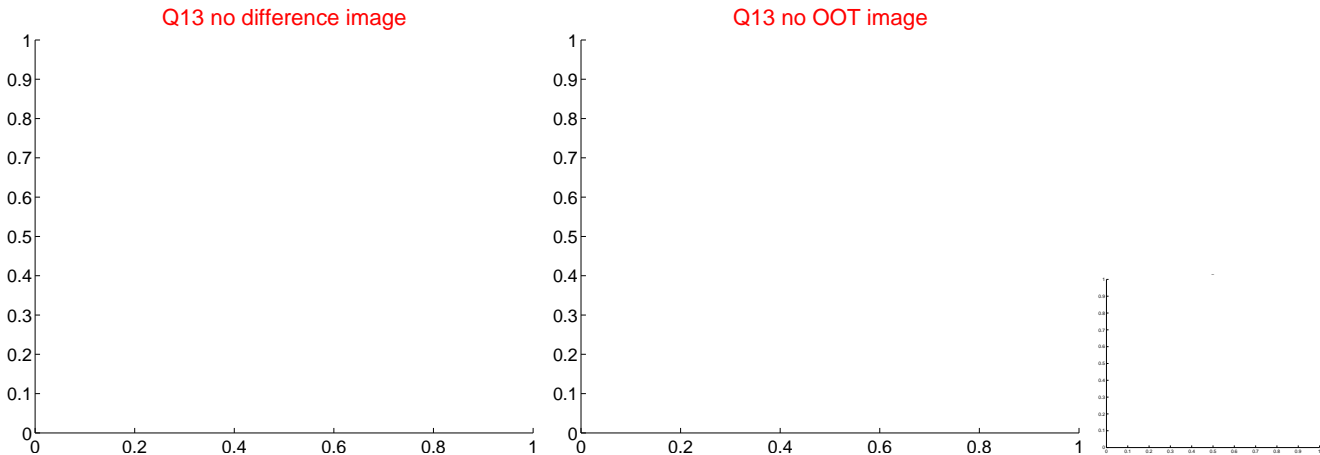
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



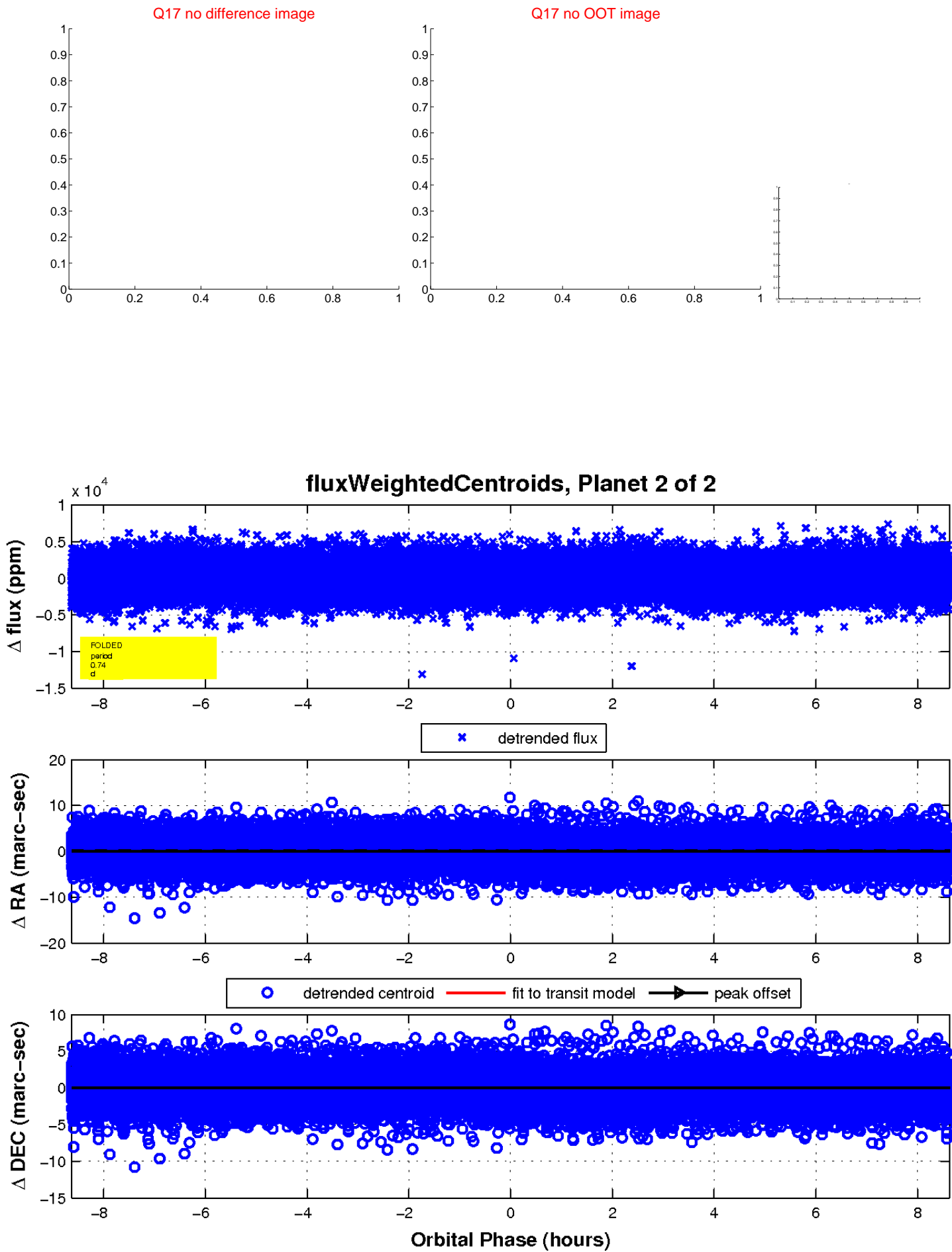
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

