

KIC 005428254

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})
005428254-01	OBS	No	0.637642	131.573167	63.1	1.304	10.3	8.2	2.41	7598	2.21	53954.42
005428254-02	OBS	No	0.544771	131.977360	67.5	4.696	9.6	12.3	2.41	7598	2.29	66554.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005428254-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005428254-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED

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

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

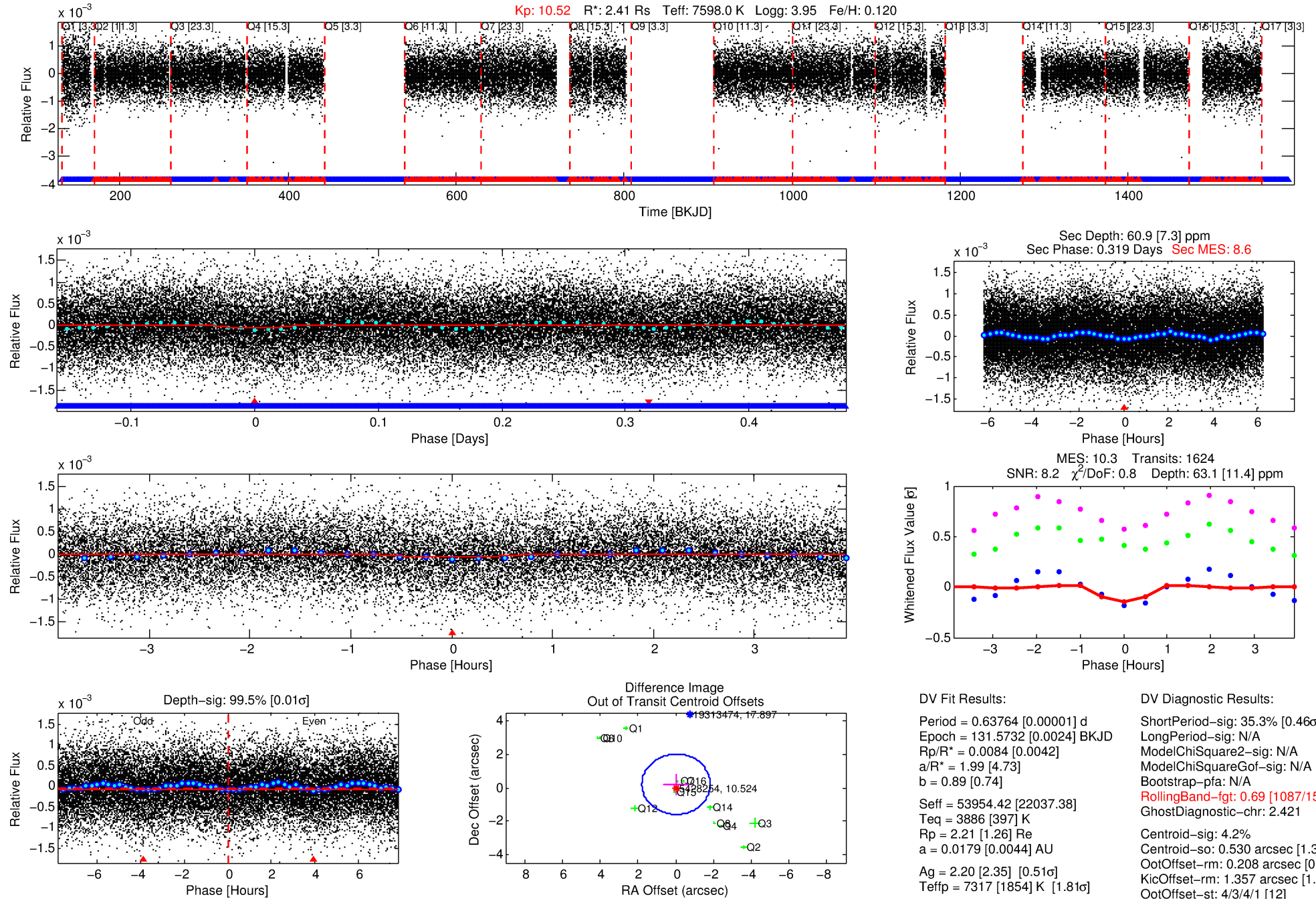
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005428254-01

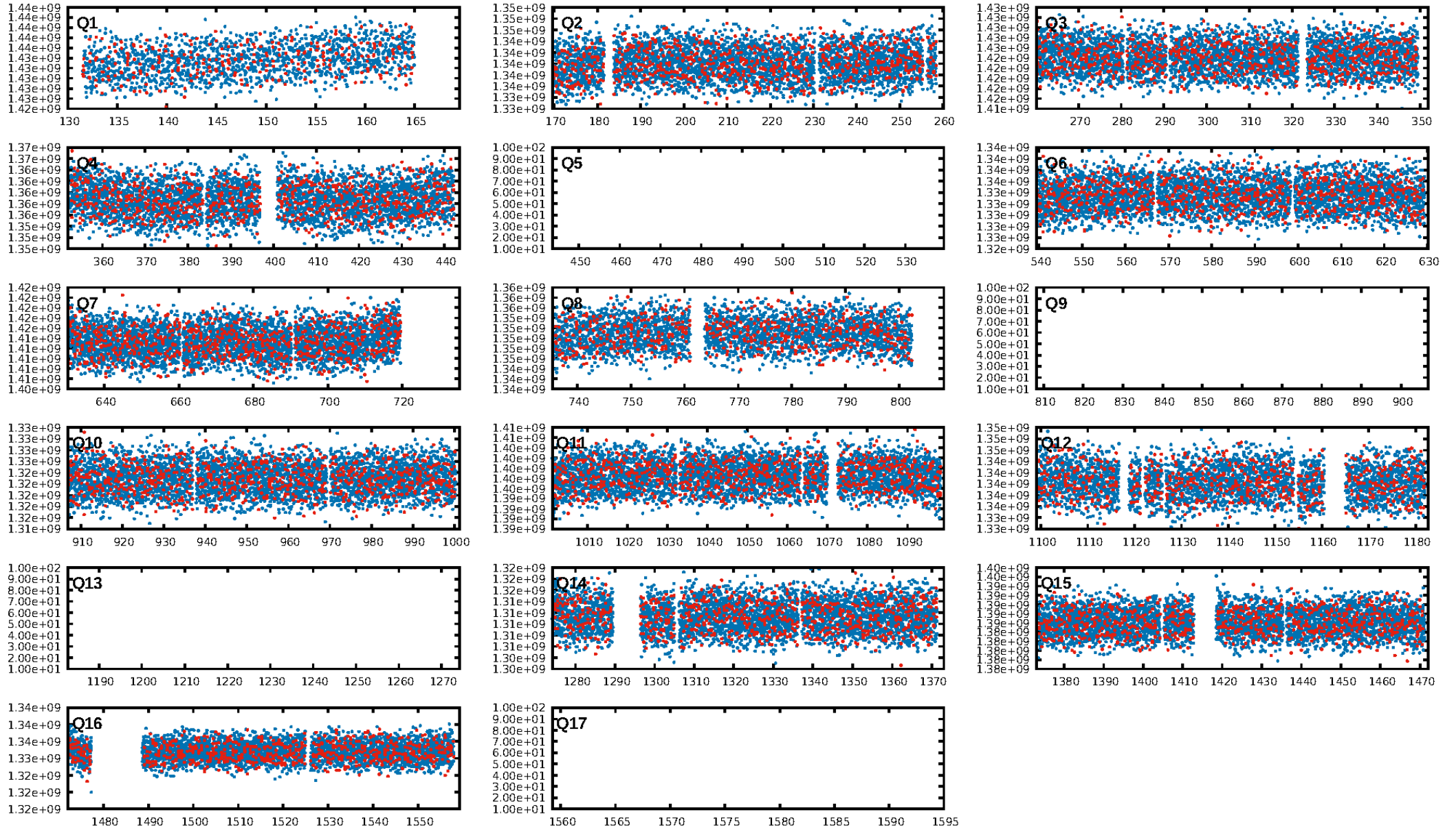
No Significant Match Found

DV One-Page Summary

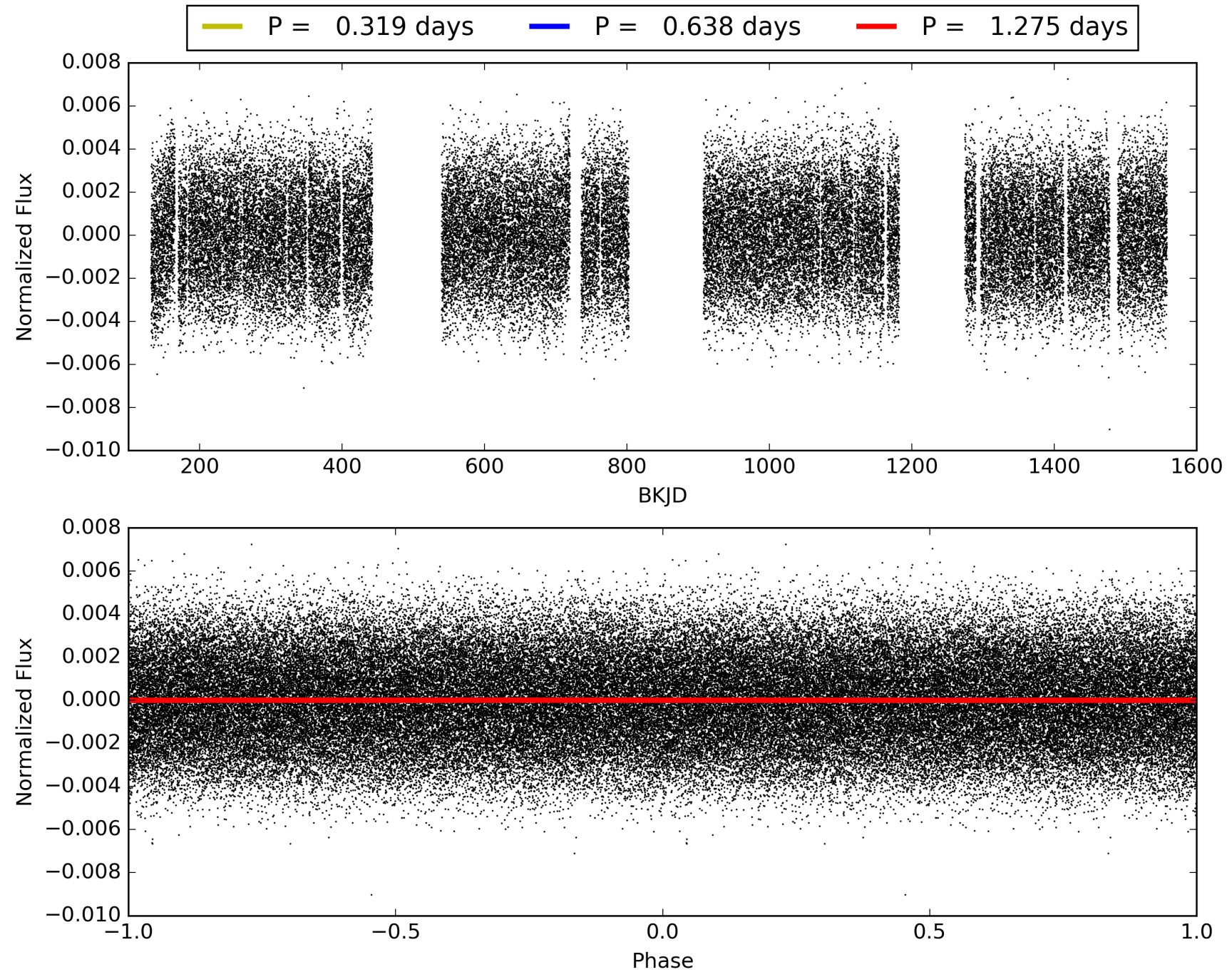
KIC: 5428254 Candidate: 1 of 2 Period: 0.638 d



TCE 005428254-01, PDC Light Curves

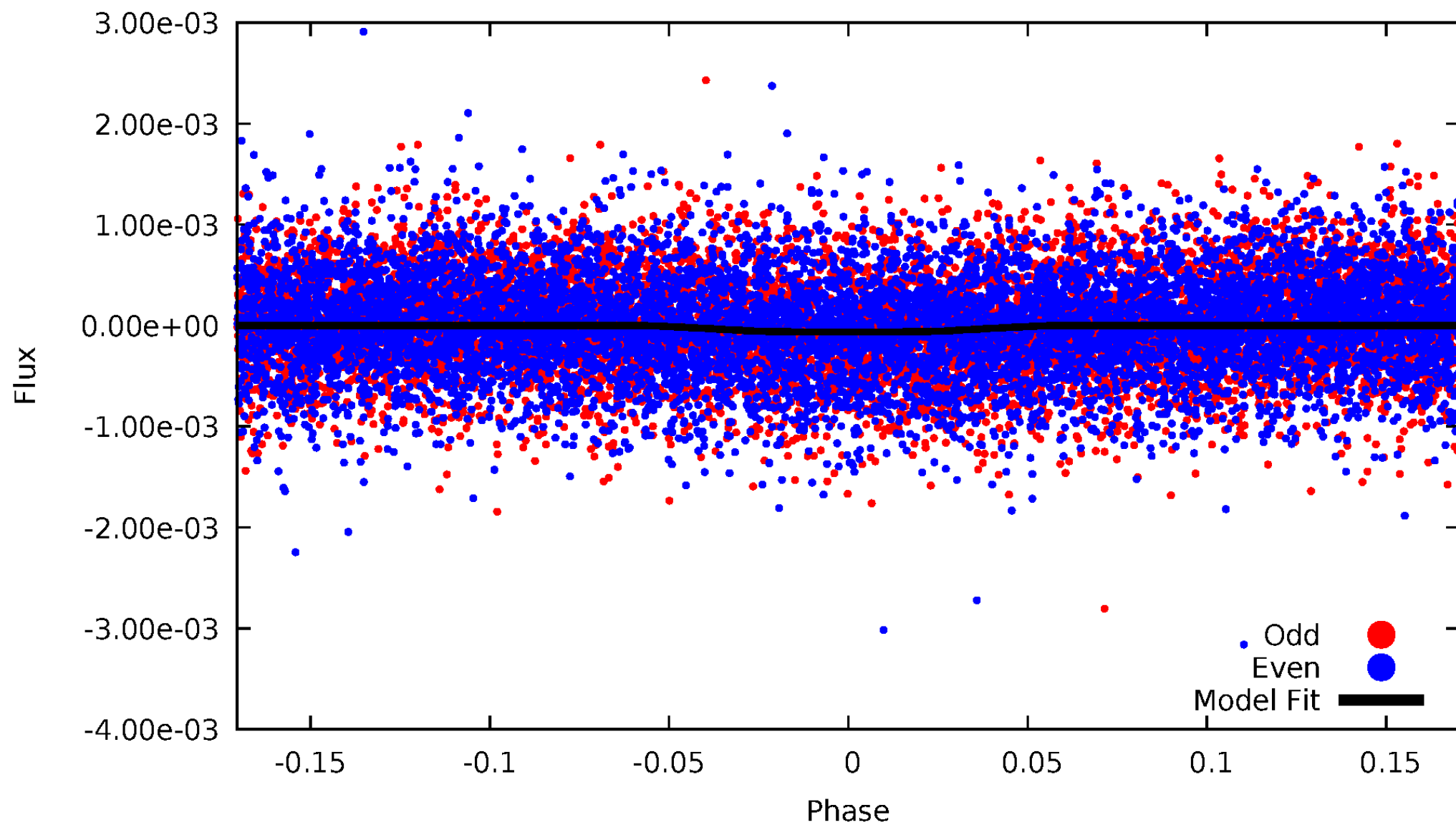


TCE 005428254-01



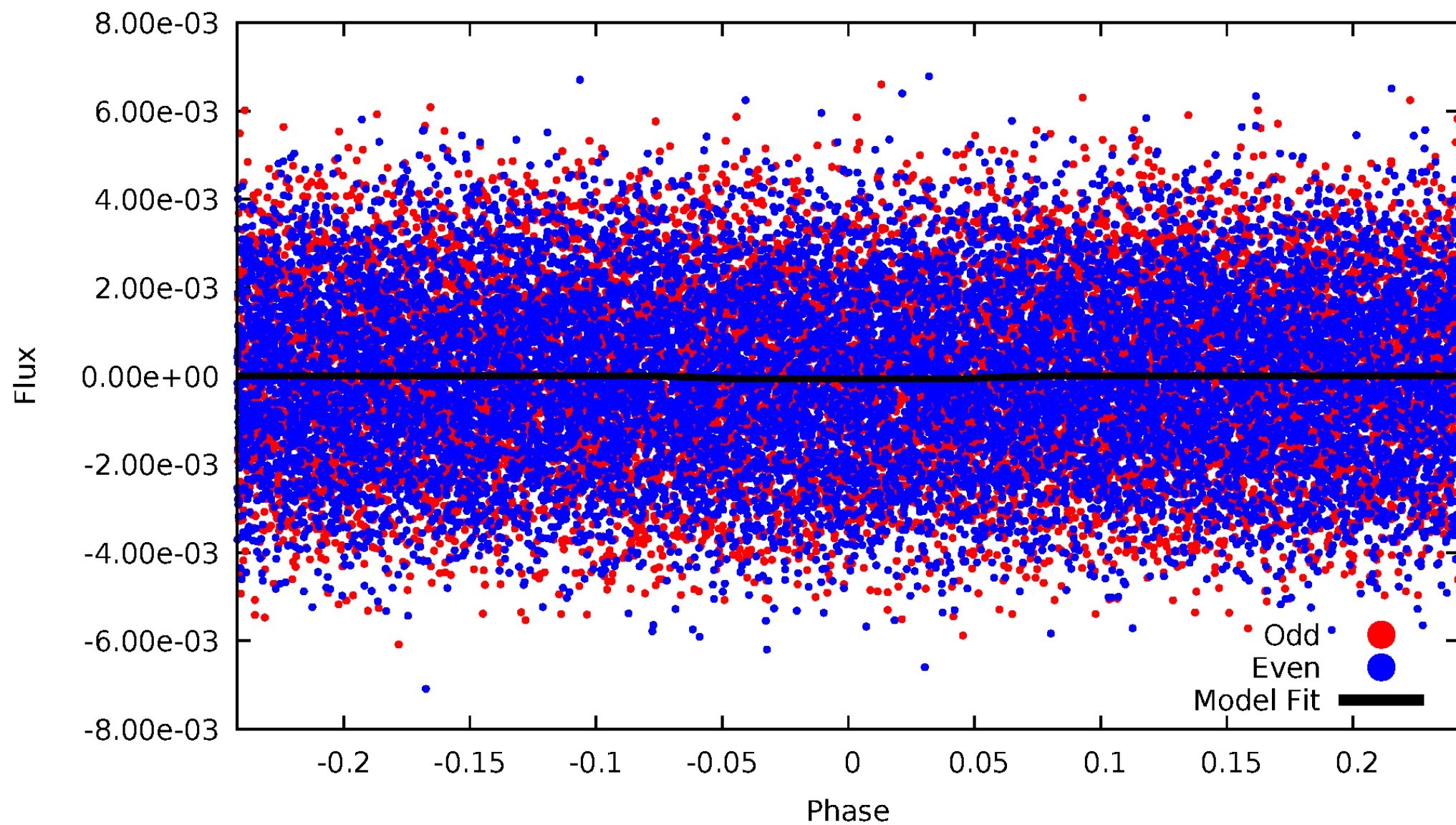
DV Odd/Even

TCE 005428254-01



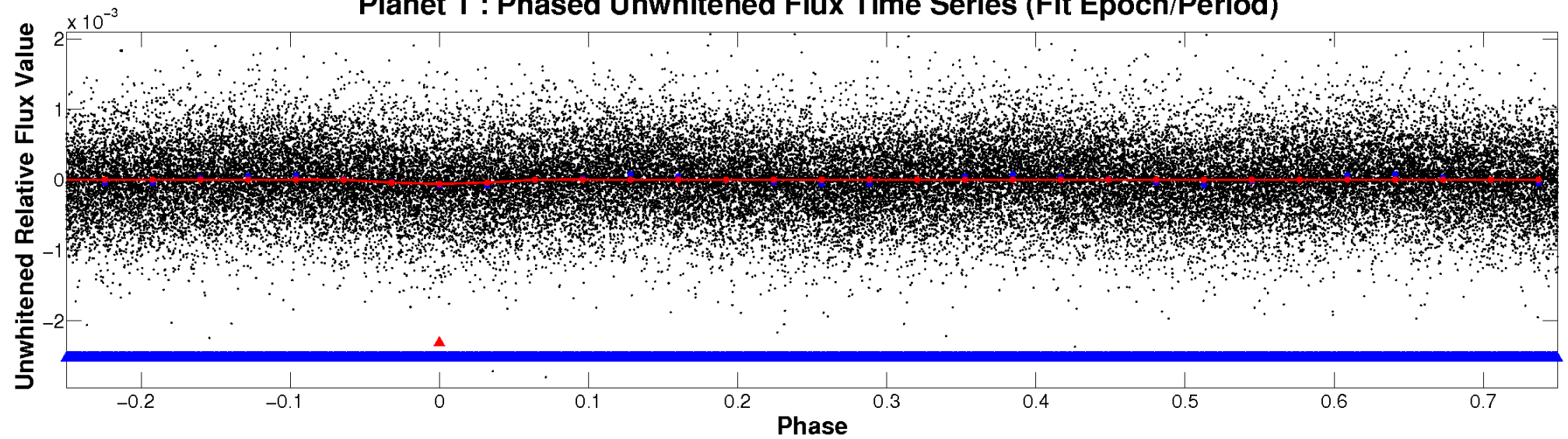
ALT Odd/Even

TCE 005428254-01

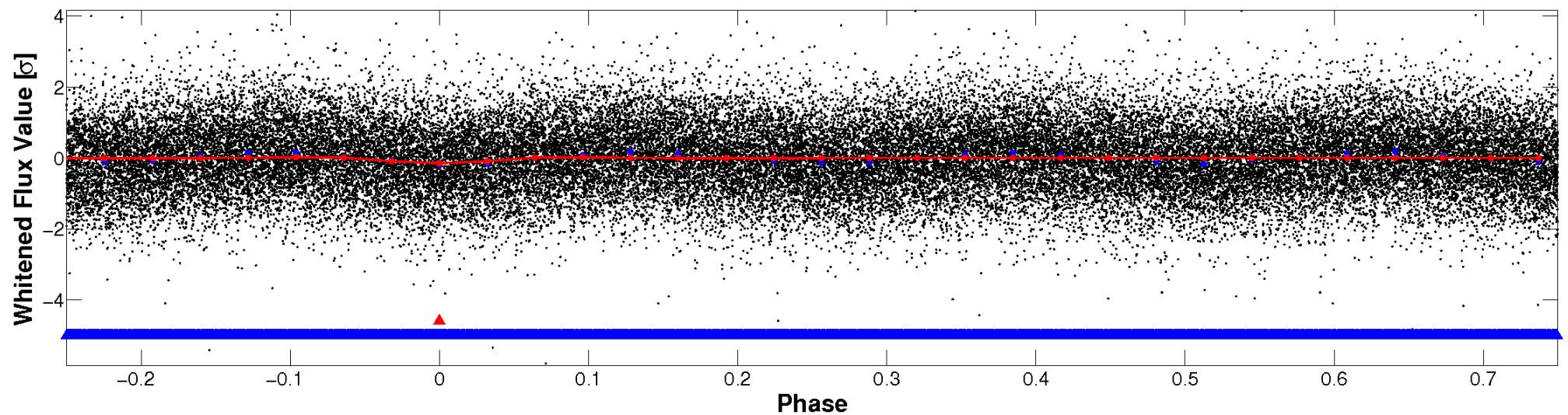


Non-Whitened Vs. Whitened Light Curve

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

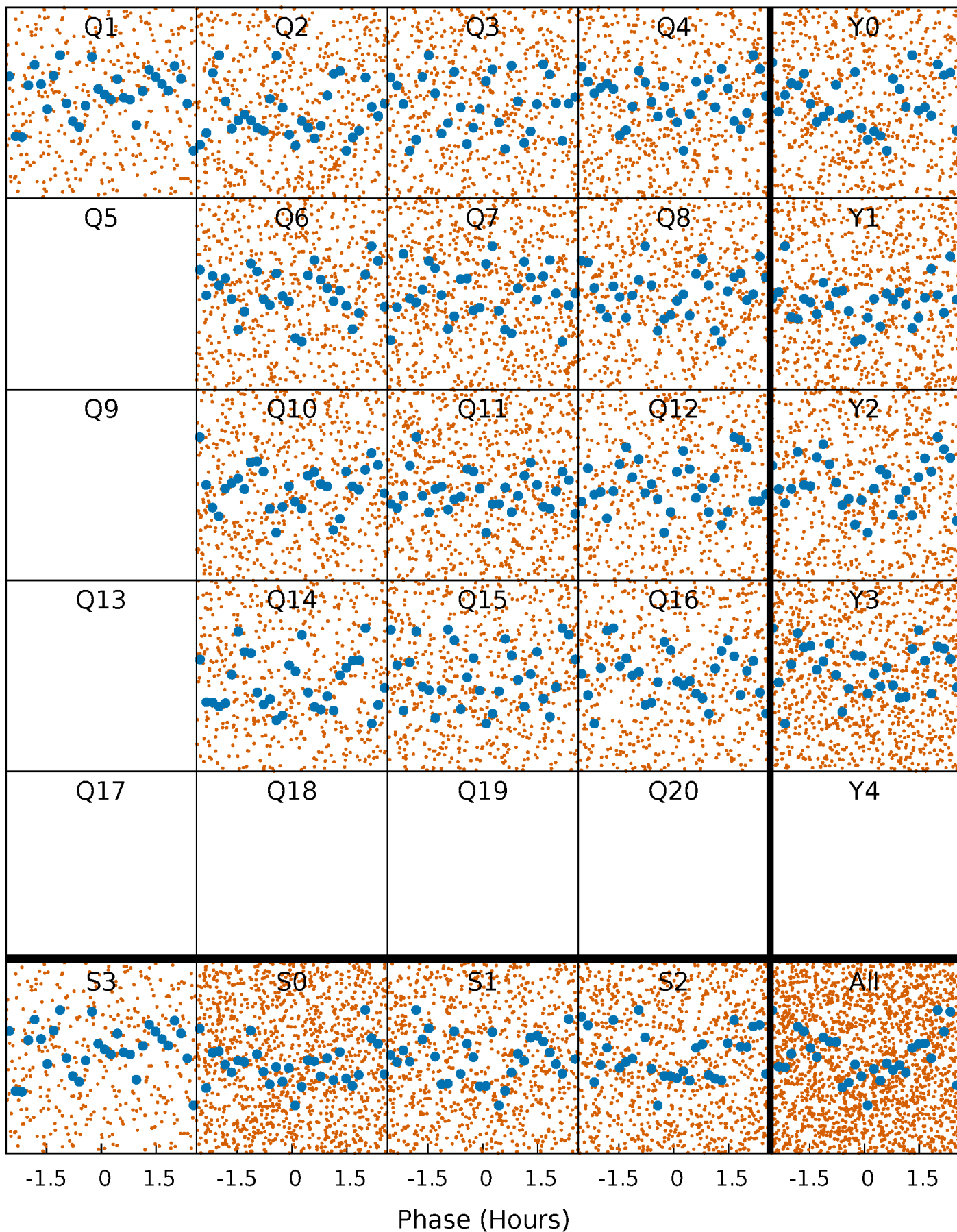


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



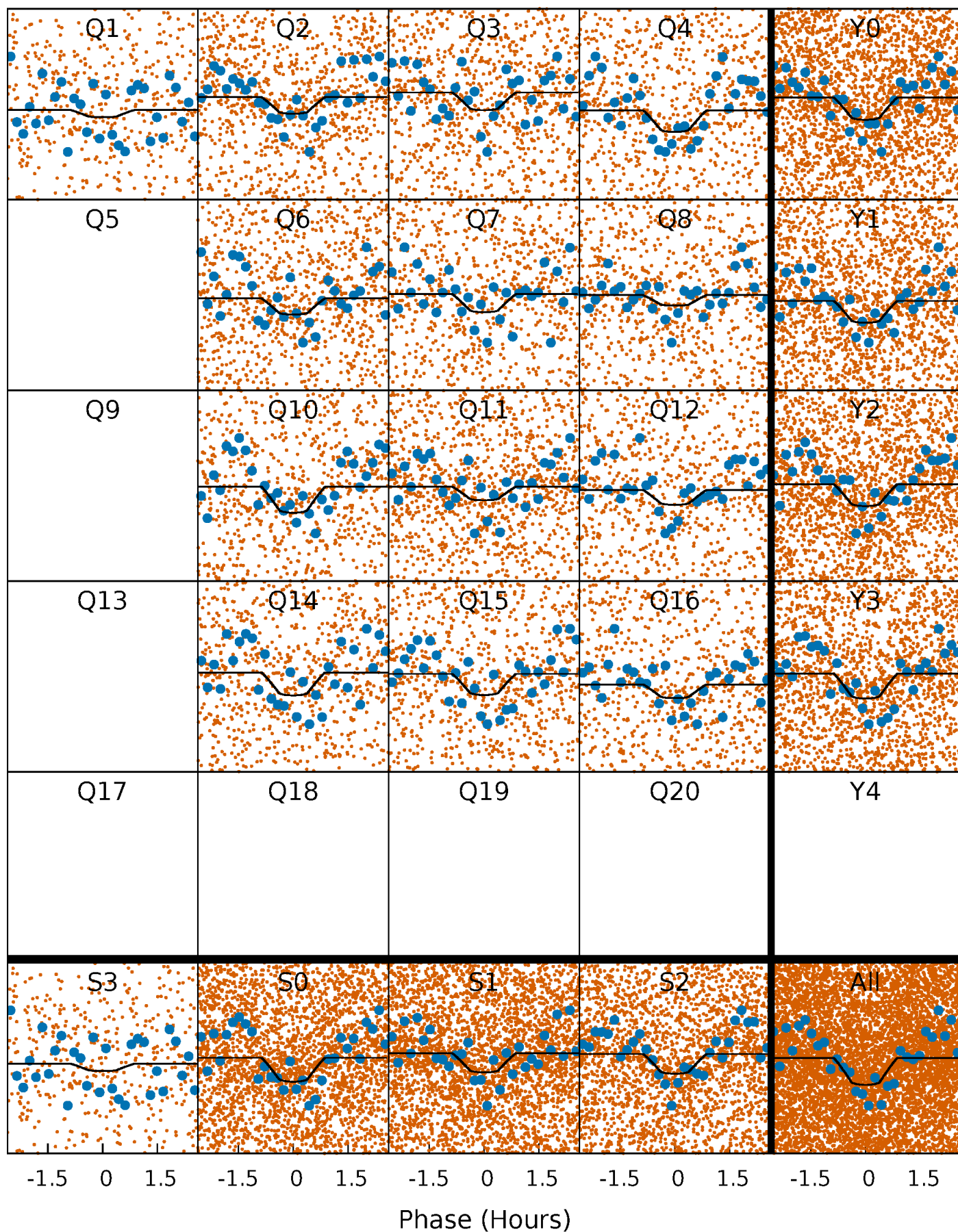
PDC Quarter-Phased Transit Curves

TCE 005428254-01 P= 0.637642 Days $T_0=131.573167$ (BKJD)



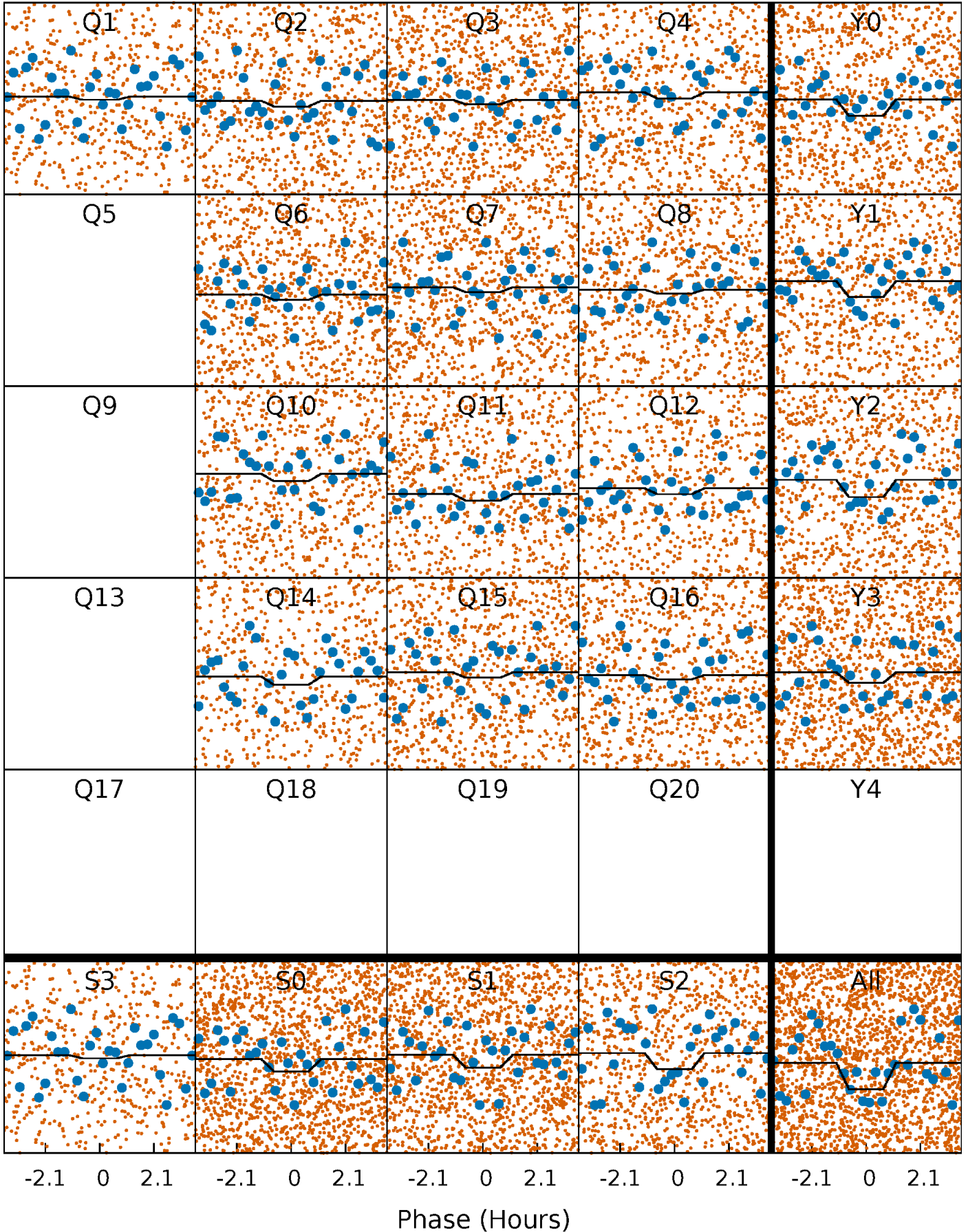
DV Quarter-Phased Transit Curves

TCE 005428254-01 P= 0.637642 Days $T_0=131.573167$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

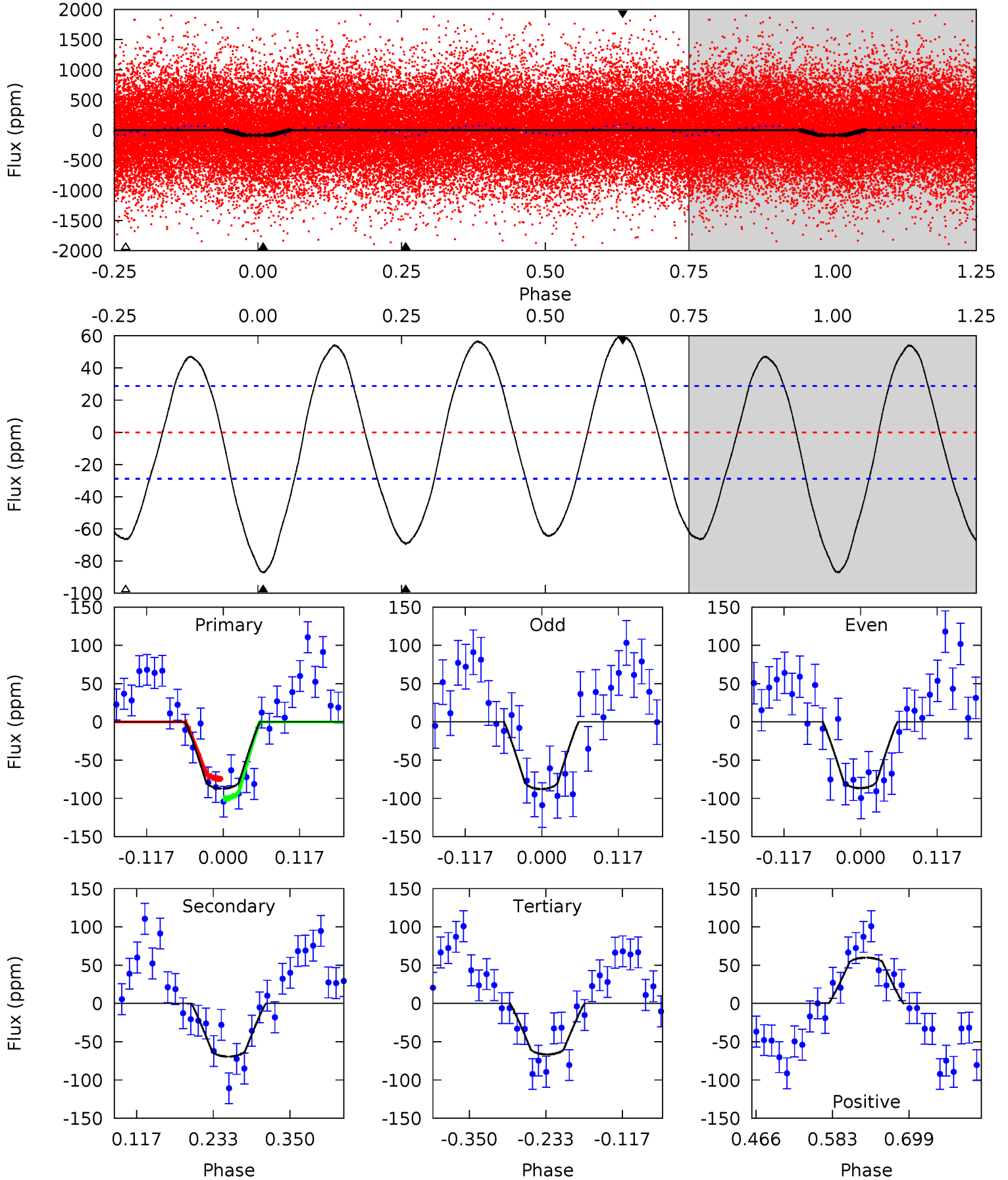
TCE 005428254-01 P= 0.637647 Days $T_0=131.572655$ (BKJD)



DV Model-Shift Uniqueness Test

005428254-01, P = 0.637642 Days, E = 130.935525 Days

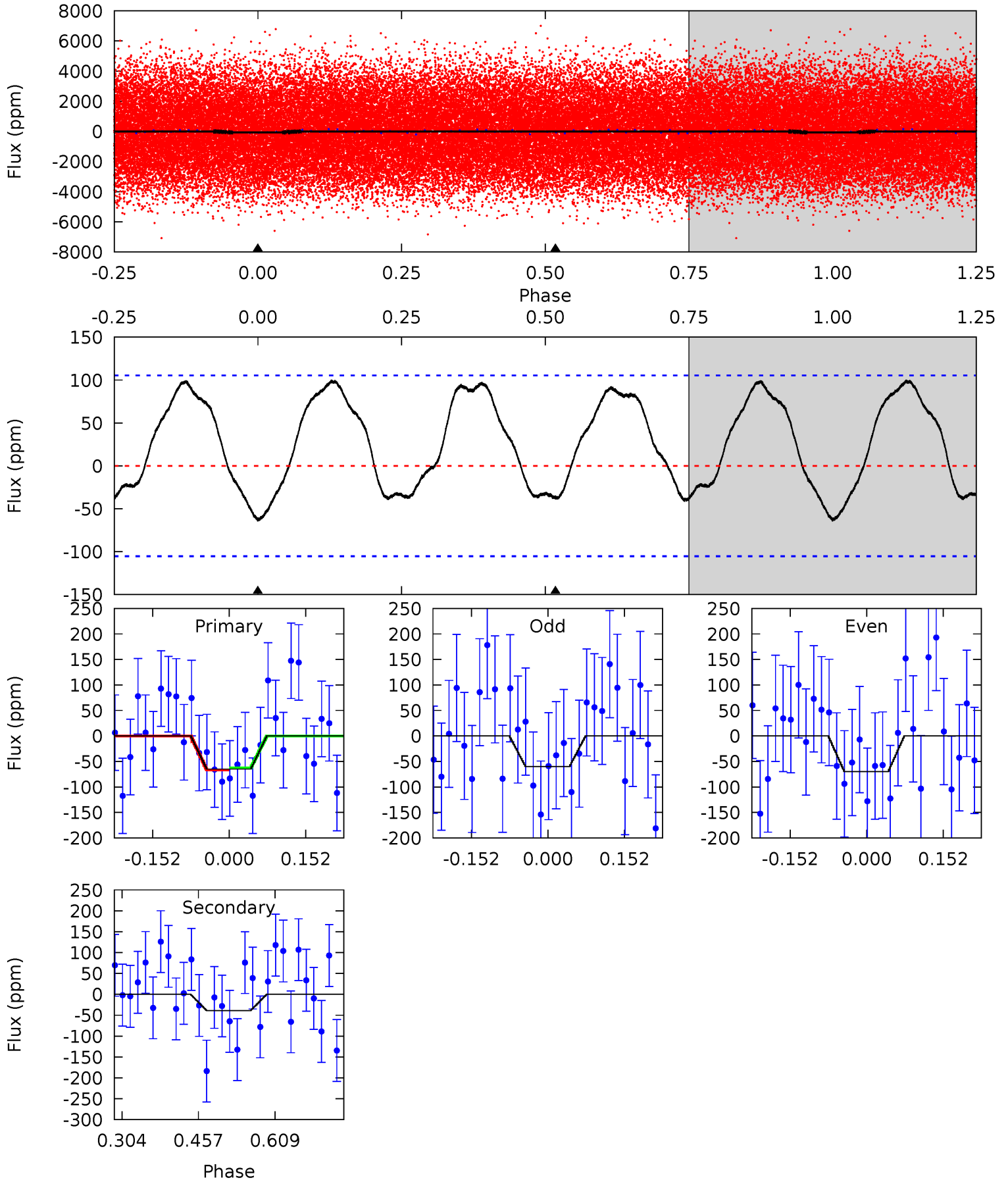
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	10.9	10.5	9.41	4.53	1.57	6.84	3.24	4.30	0.44	1.50	0.10	1.04	0.41	2.04



Alt Model-Shift Uniqueness Test

005428254-01, P = 0.637647 Days, E = 130.935008 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.76	1.66	0	0	4.48	1.43	1.72	2.76	2.76	1.66	1.66	0.20	0.77	0.61	0.08



Stellar Parameters For KIC 005428254

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7598^{+211}_{-316}	$3.950^{+0.210}_{-0.140}$	$0.120^{+0.200}_{-0.350}$	$2.408^{+0.493}_{-0.678}$	$1.885^{+0.130}_{-0.363}$	$0.190^{+0.245}_{-0.082}$
	+3%/-4%	+5%/-4%	+167%/-292%	+20%/-28%	+7%/-19%	+129%/-43%
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 005428254-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-69±6	$2.16^{+1.13}_{-0.95}$	5386^{+348}_{-403}	7154^{+3616}_{-1566}	$2.497^{+5.522}_{-1.381}$
Alt.	-39±24	$2.05^{+1.18}_{-0.92}$	5398^{+377}_{-421}	6006^{+3497}_{-2114}	$1.411^{+4.314}_{-0.972}$

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 $A_{obs} \gg 1.0$

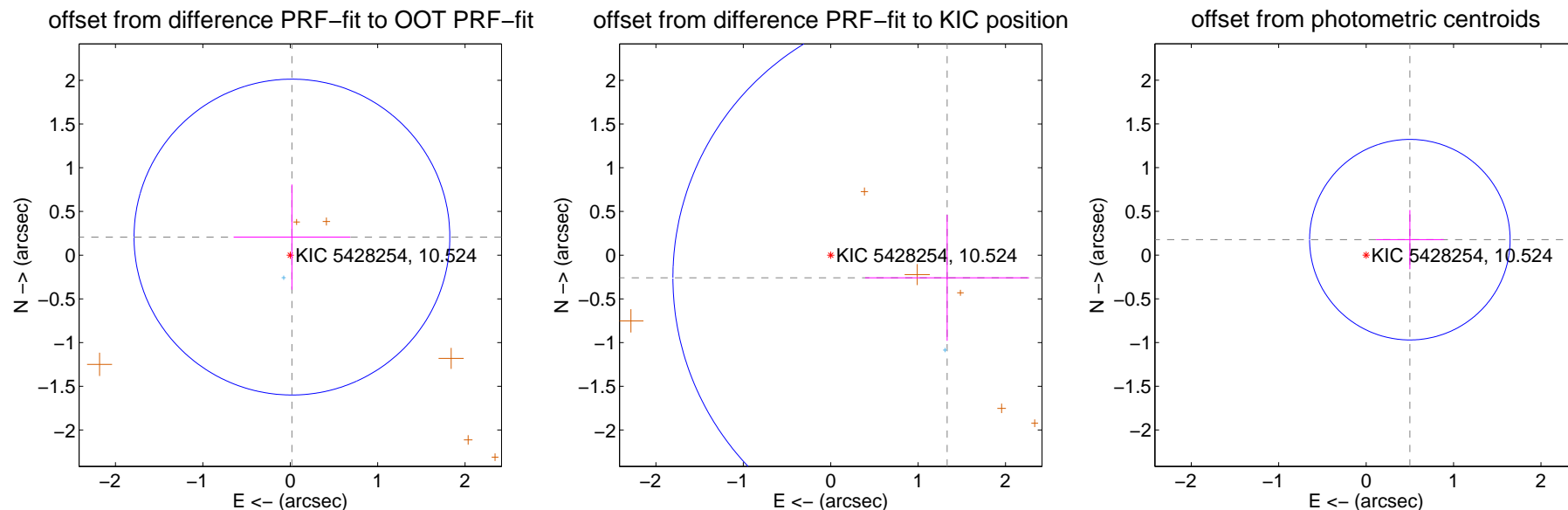
DV Centroid Data

Supplemental centroid analysis for 005428254-01. **Kepler magnitude: 10.52.** Transit SNR 8.15

There are 2 quarters with good PRF difference image offsets

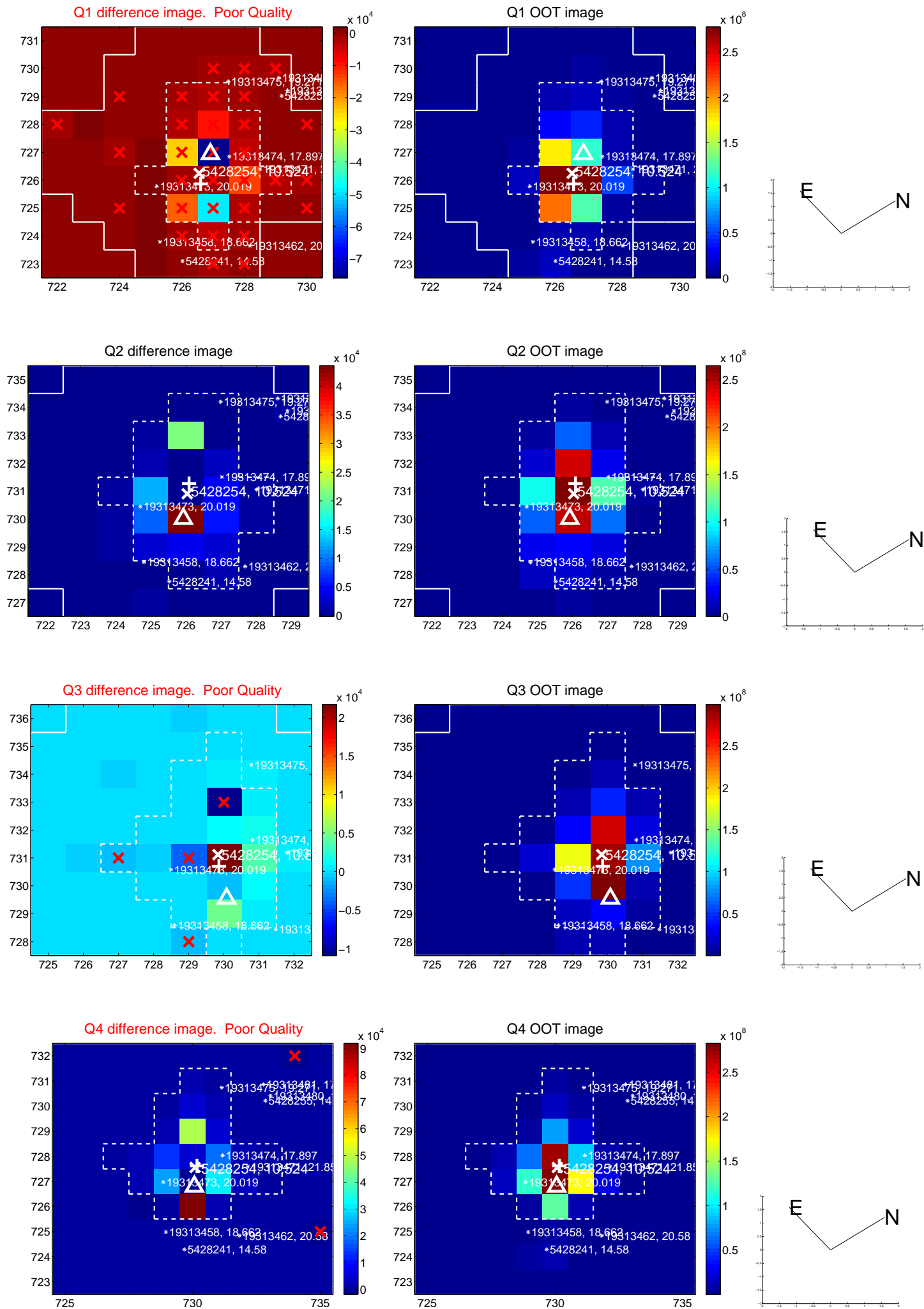
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.208 ± 0.602	0.34	-0.019 ± 0.667	0.207 ± 0.602
PRF-fit source offset from KIC position	1.357 ± 1.046	1.30	-1.332 ± 0.938	-0.259 ± 0.721
photometric centroid source offset	0.53 ± 0.38	1.39	-0.50 ± 0.39	0.18 ± 0.34



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.

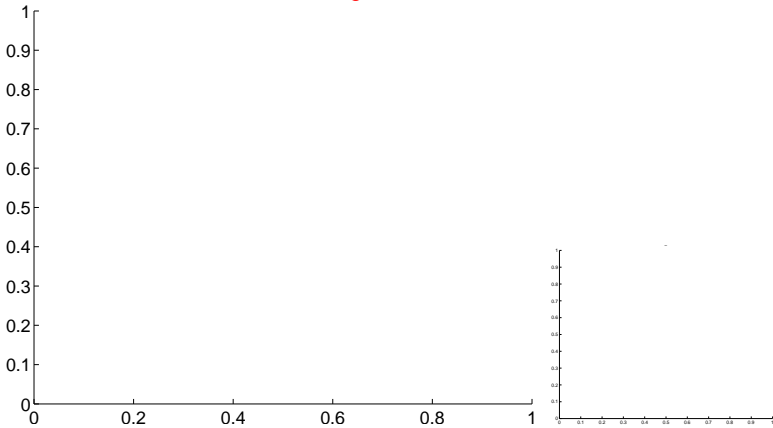


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

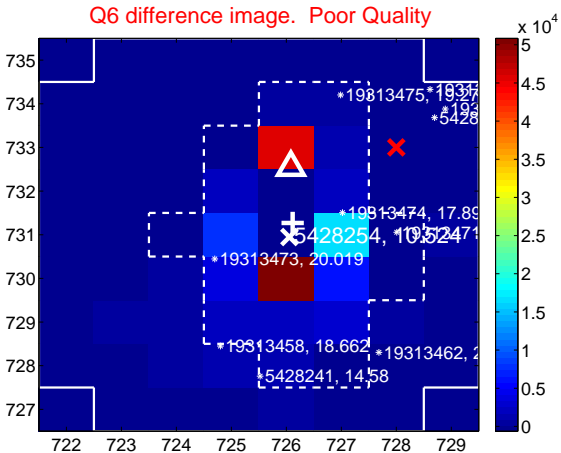
Q5 no difference image



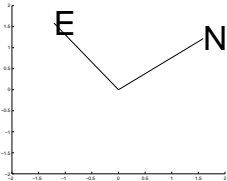
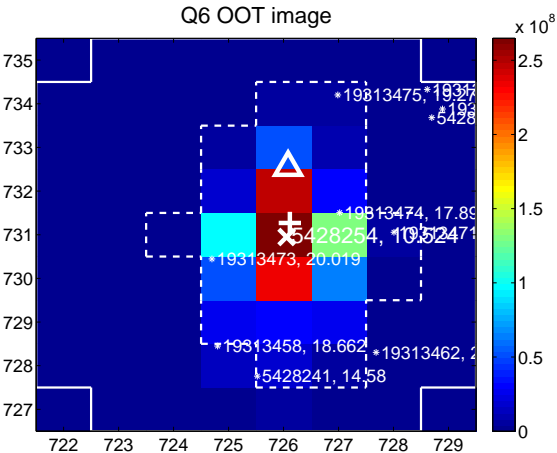
Q5 no OOT image



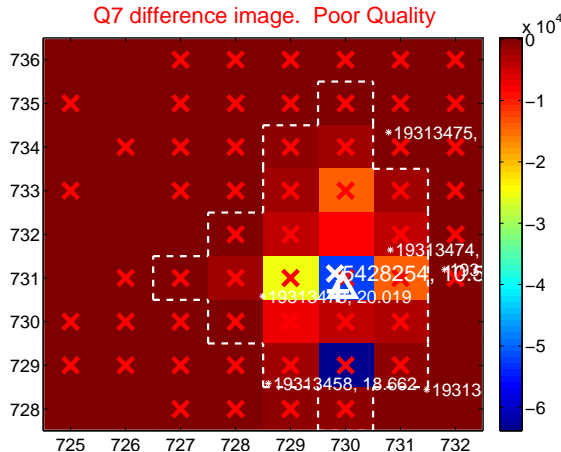
Q6 difference image. Poor Quality



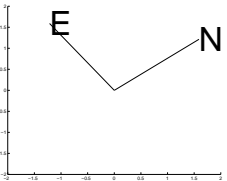
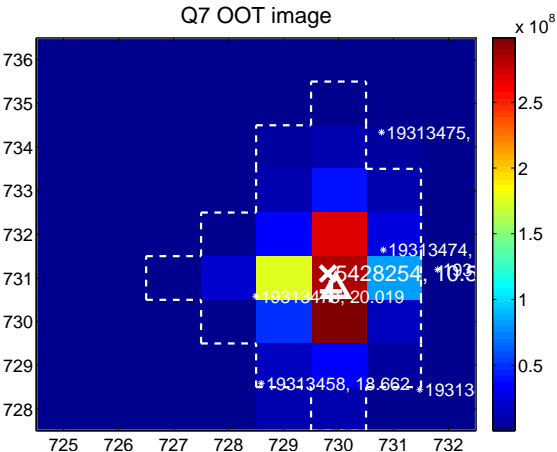
Q6 OOT image



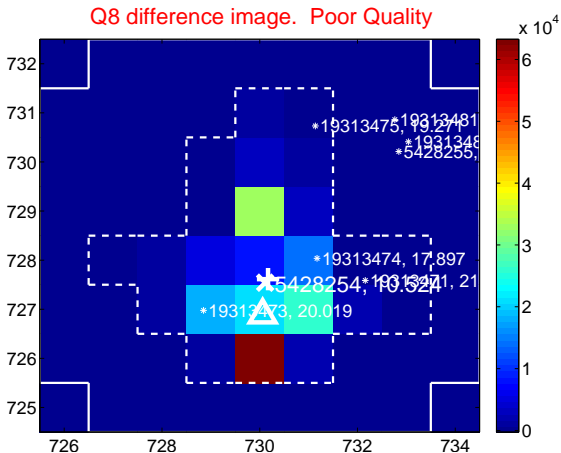
Q7 difference image. Poor Quality



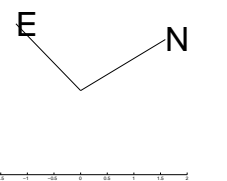
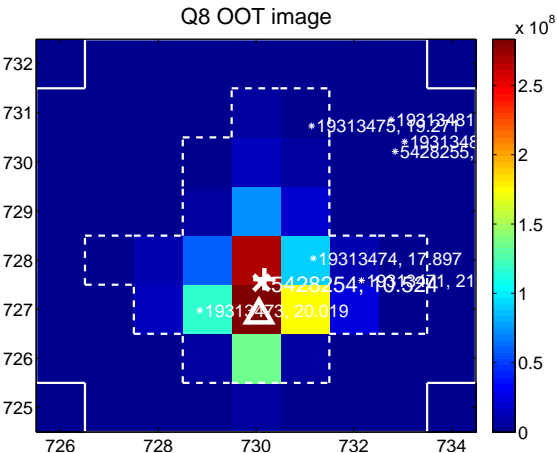
Q7 OOT image



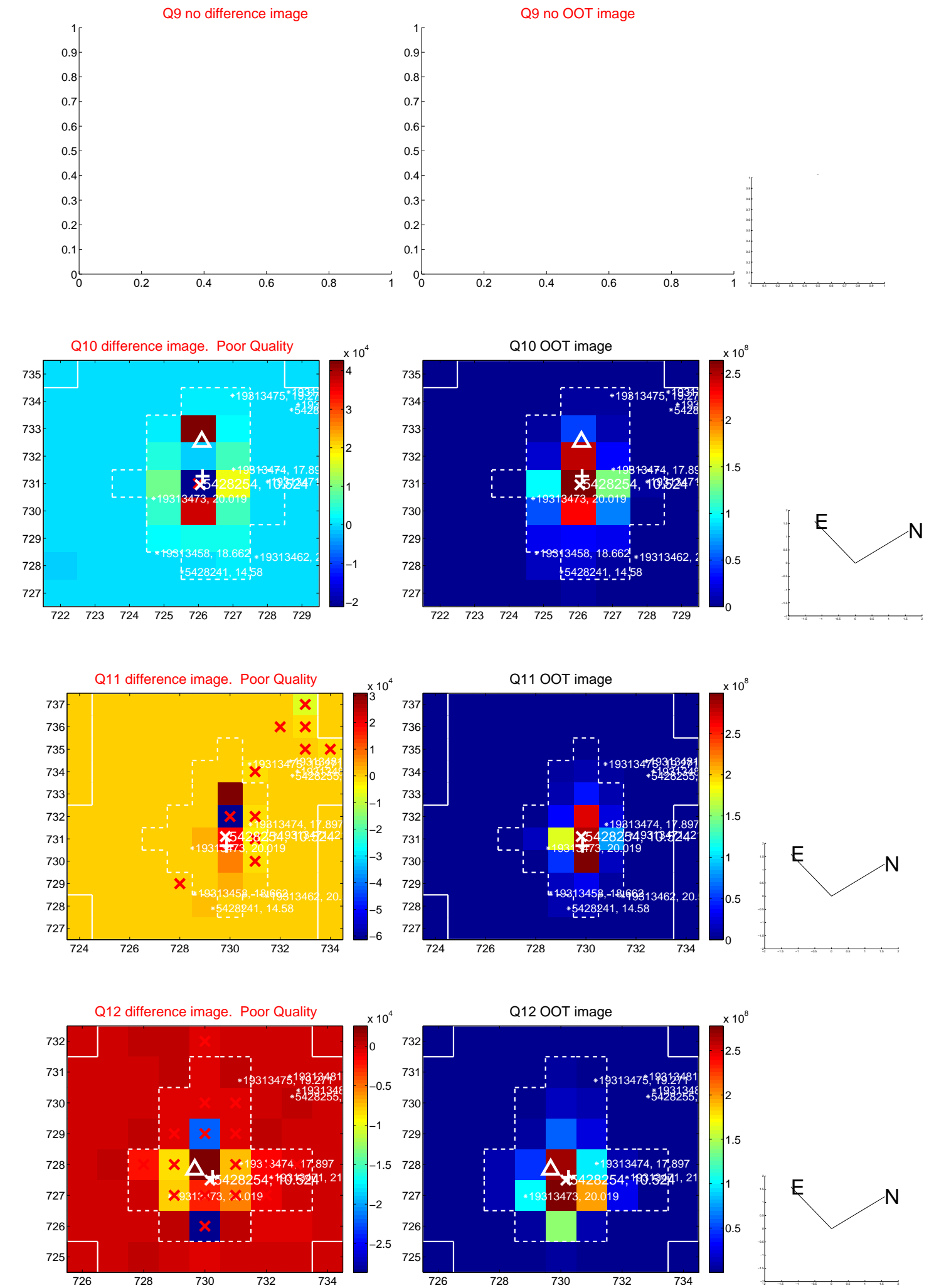
Q8 difference image. Poor Quality



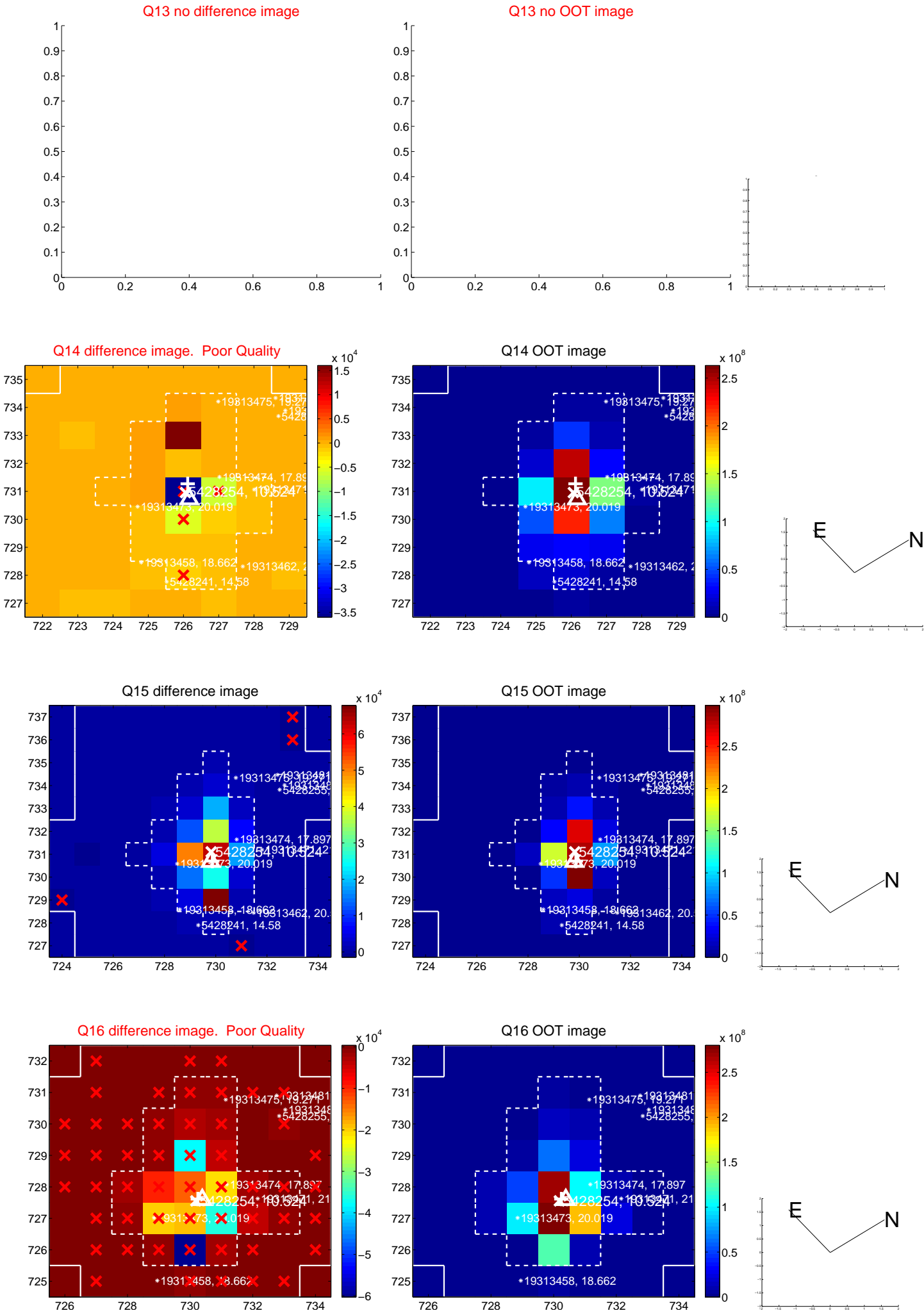
Q8 OOT image



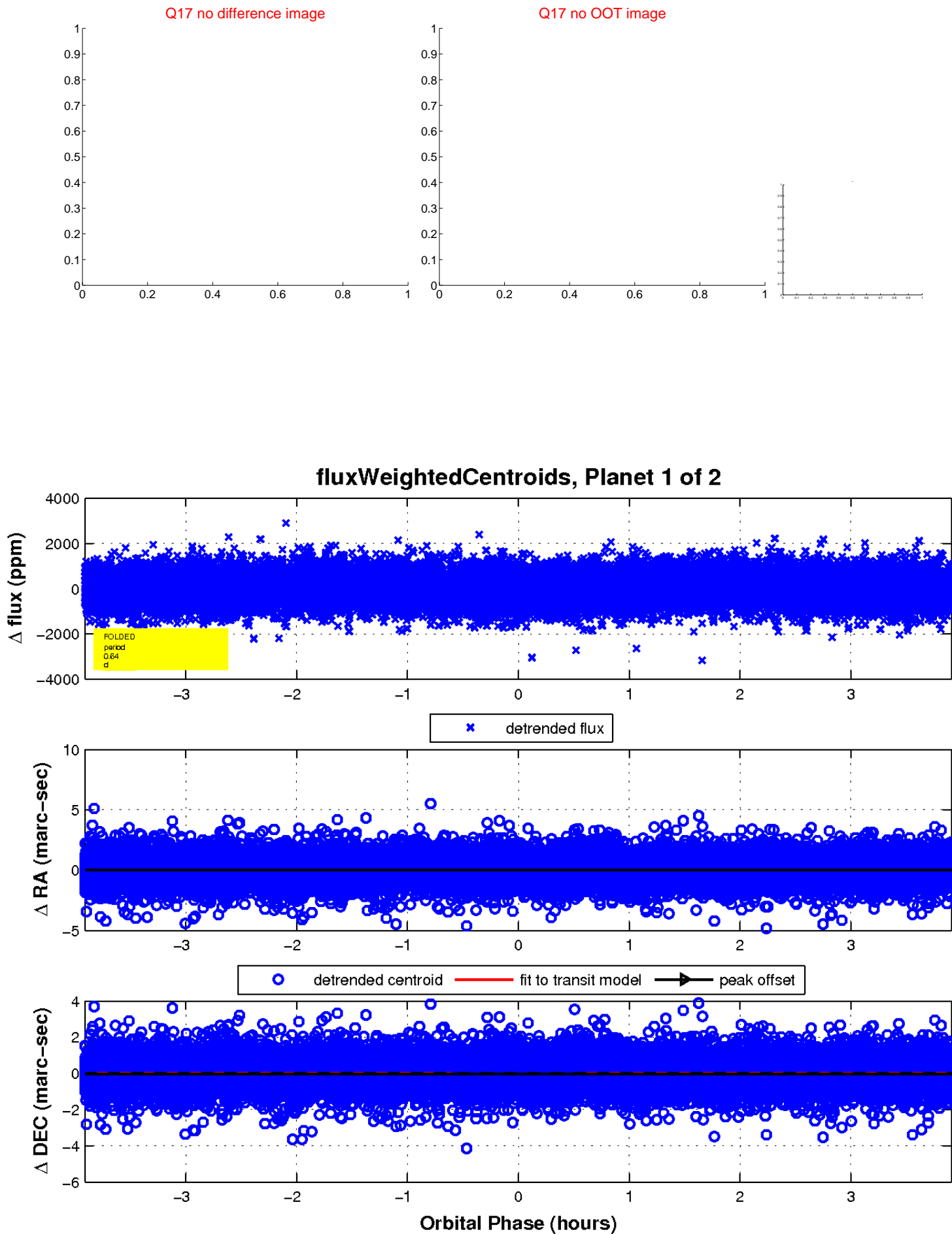
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

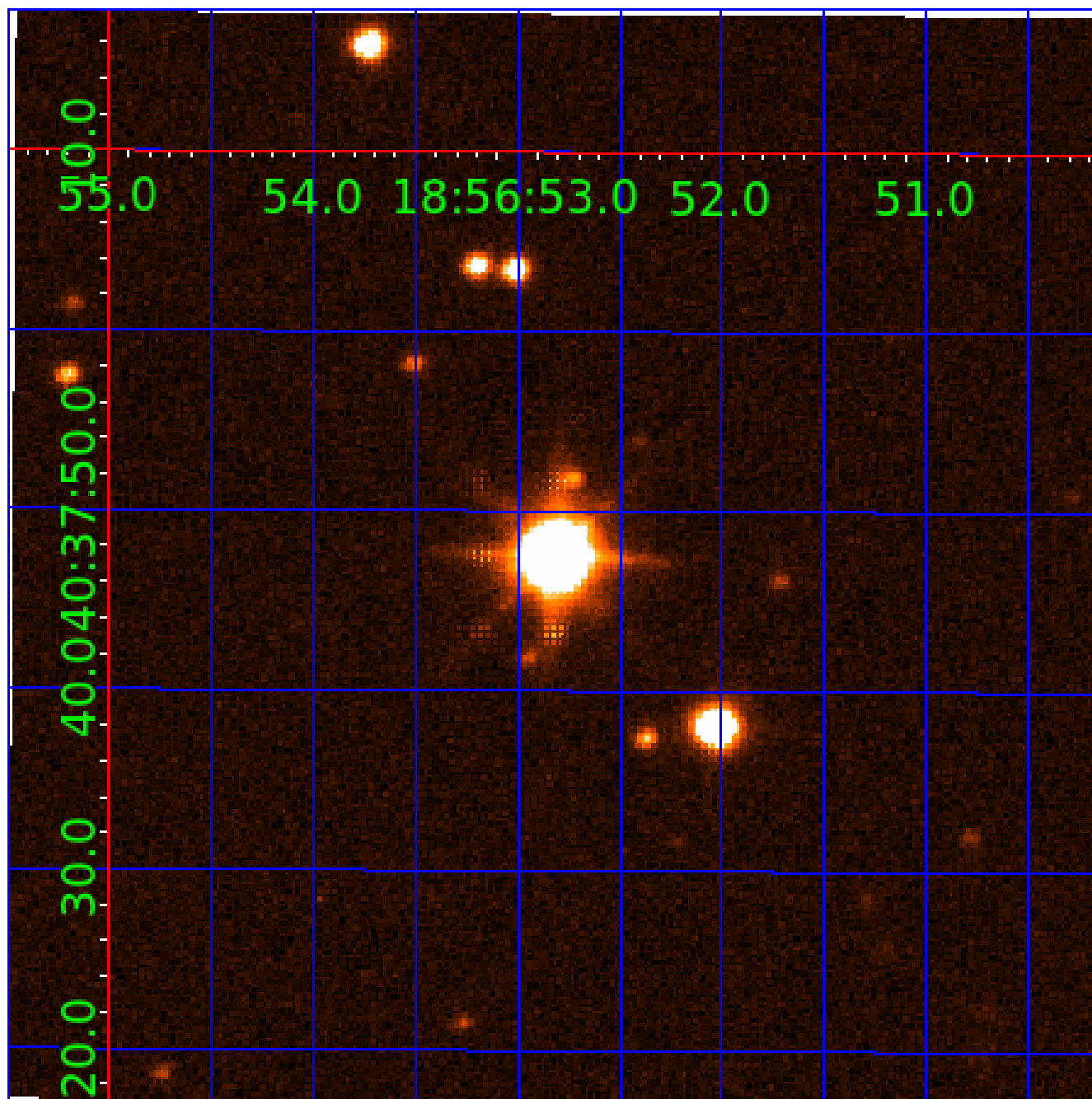


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005428254

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})
005428254-01	OBS	No	0.637642	131.573167	63.1	1.304	10.3	8.2	2.41	7598	2.21	53954.42
005428254-02	OBS	No	0.544771	131.977360	67.5	4.696	9.6	12.3	2.41	7598	2.29	66554.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005428254-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005428254-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED

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

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

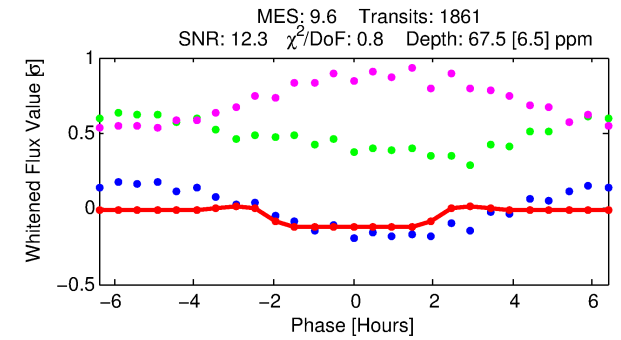
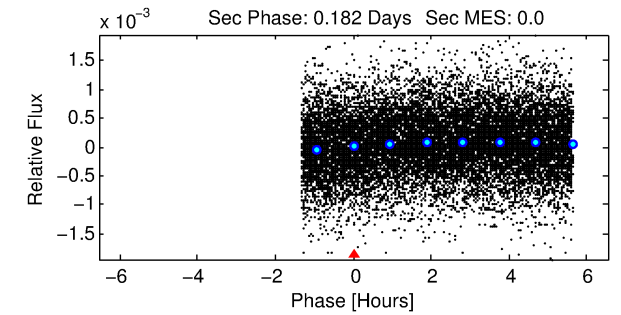
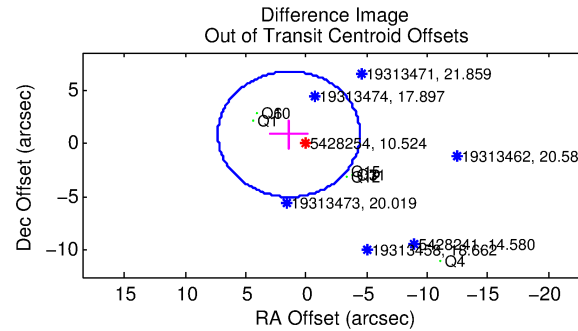
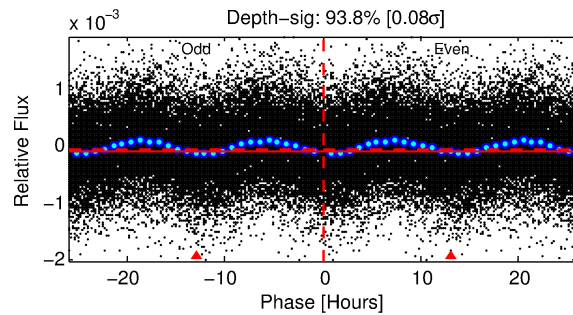
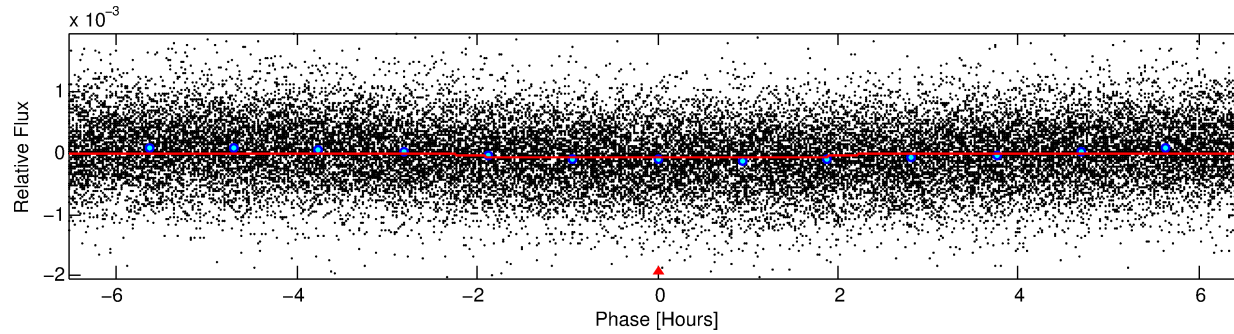
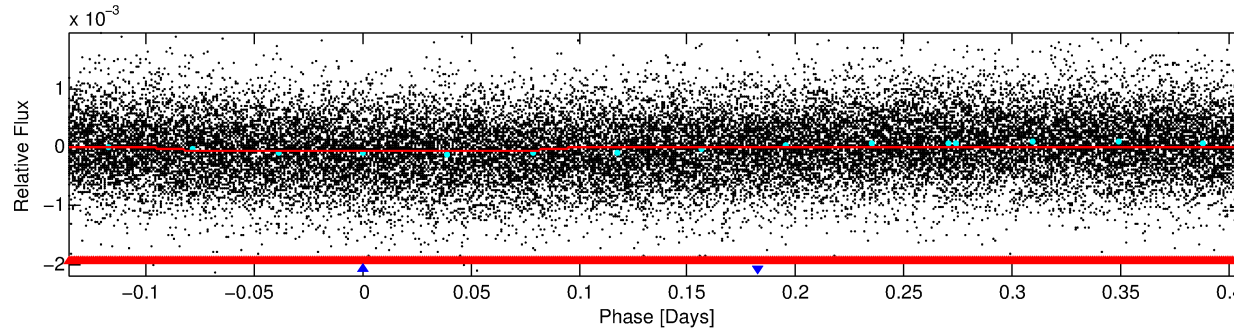
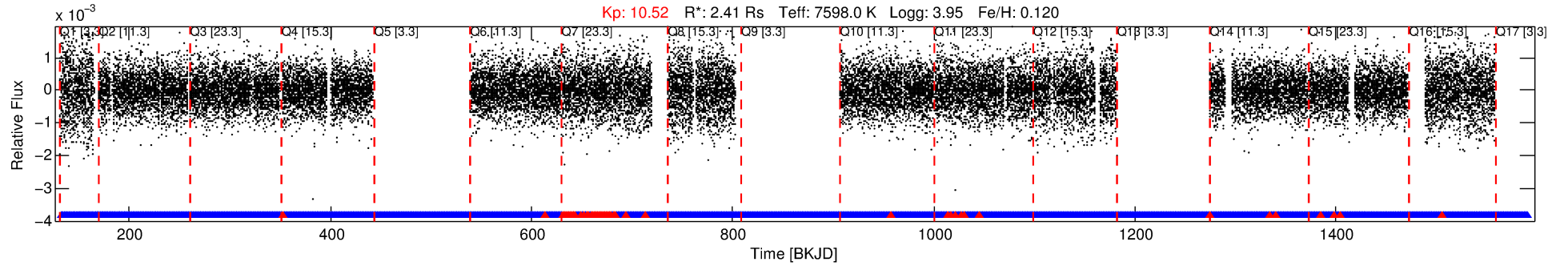
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005428254-02

No Significant Match Found

DV One-Page Summary

KIC: 5428254 Candidate: 2 of 2 Period: 0.545 d



DV Fit Results:

Period = 0.54477 [0.00001] d
Epoch = 131.9774 [0.0039] BKJD
Rp/R* = 0.0087 [0.0023]
a/R* = 1.03 [0.10]
b = 0.90 [0.36]
Seff = 66554.46 [27183.80]
Teq = 4096 [418] K
Rp = 2.29 [0.89] Re
a = 0.0161 [0.0040] AU
Ag = N/A
Teffp = N/A

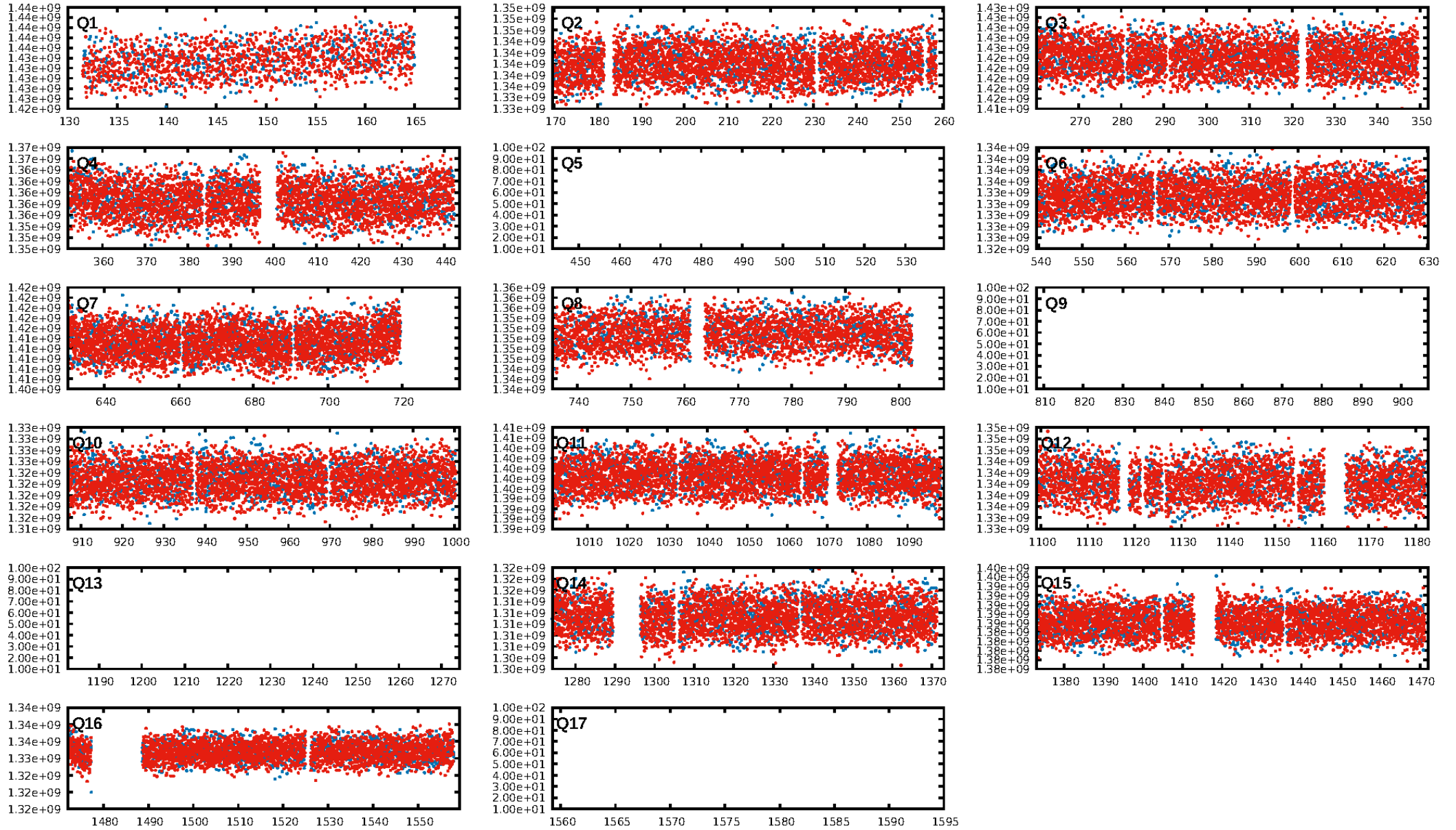
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 35.3% [0.46σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [1733/1802]
GhostDiagnostic-chr: 1.998
Centroid-sig: 0.9%
Centroid-so: 0.736 arcsec [3.18σ]
OotOffset-rm: 1.652 arcsec [0.84σ]
KicOffset-rm: 2.058 arcsec [0.82σ]
OotOffset-st: 2/4/2/1 [9]
KicOffset-st: 2/4/2/1 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 0.00 [0/13]

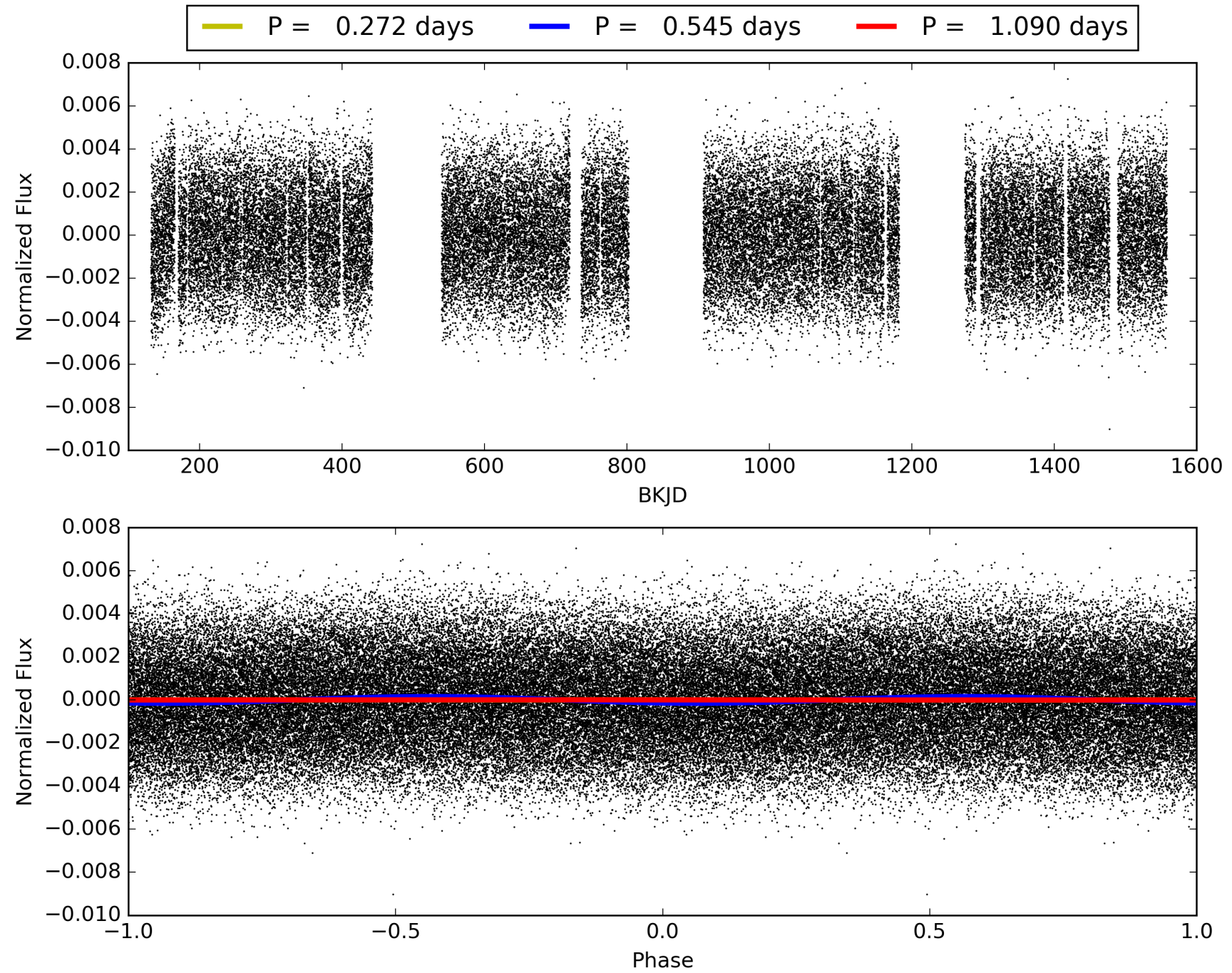
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:06:22 Z

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

TCE 005428254-02, PDC Light Curves

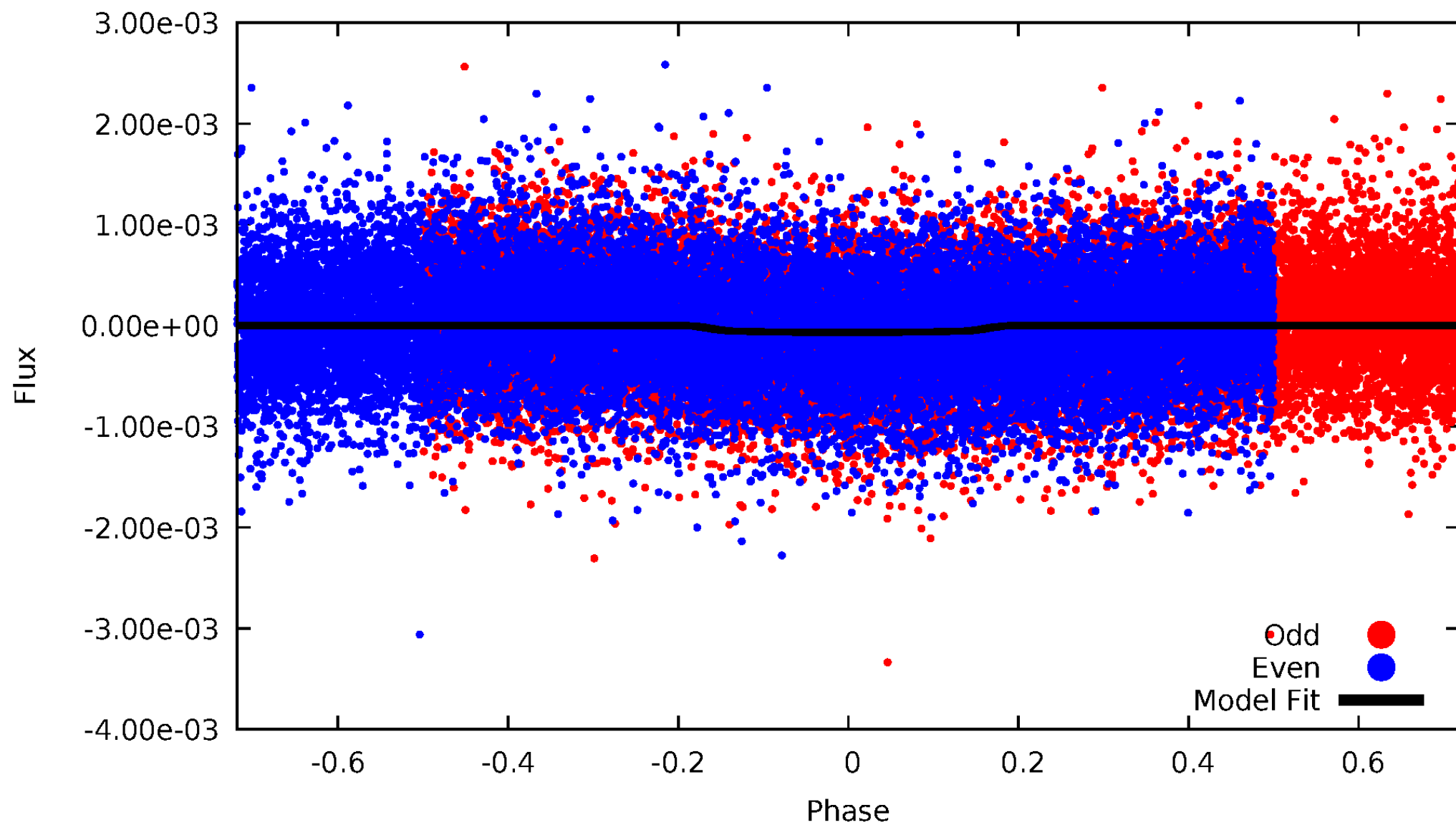


TCE 005428254-02



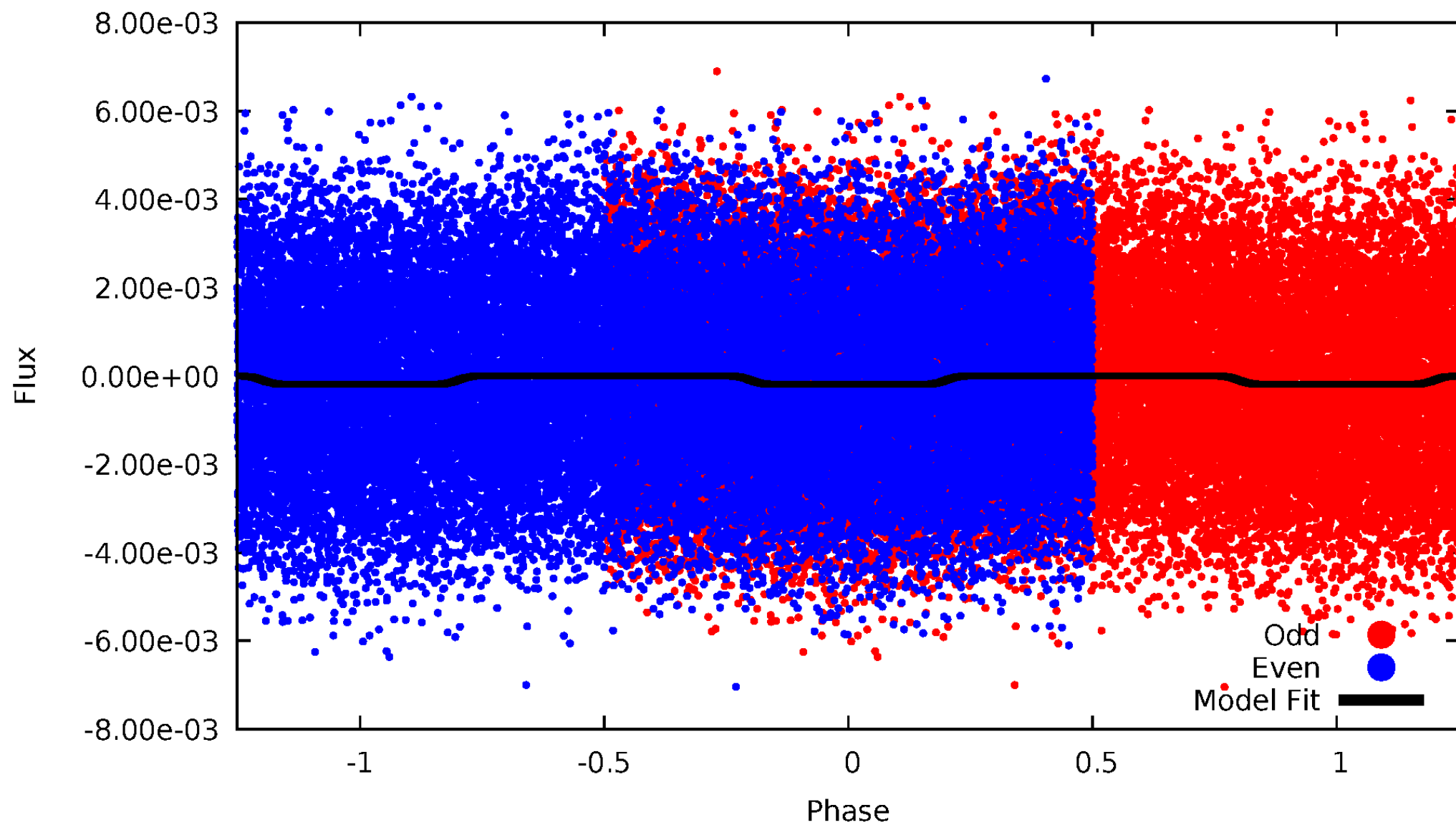
DV Odd/Even

TCE 005428254-02



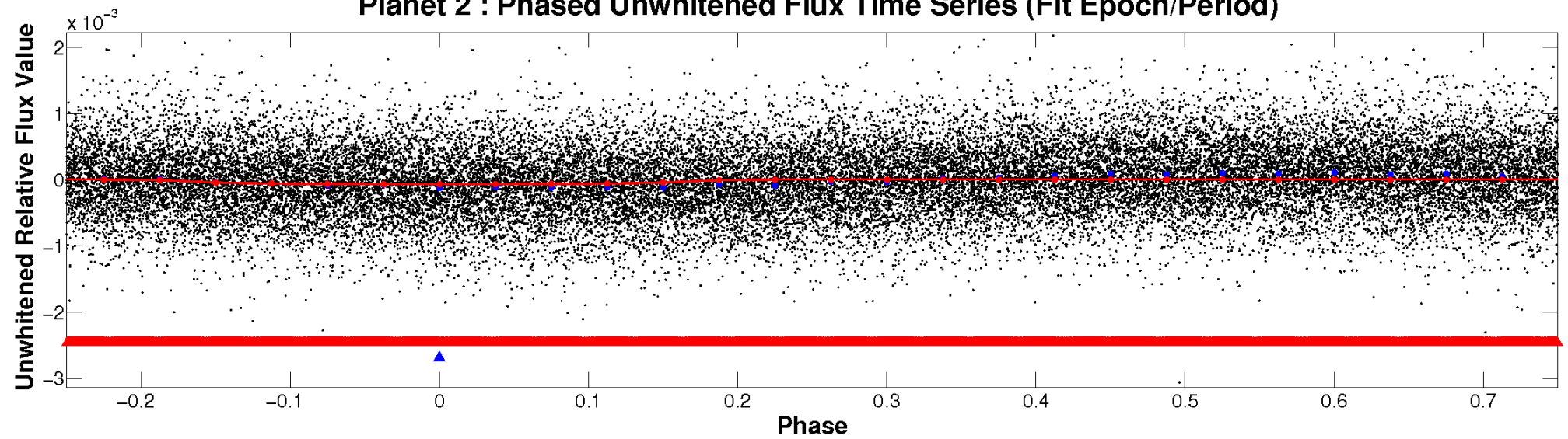
ALT Odd/Even

TCE 005428254-02

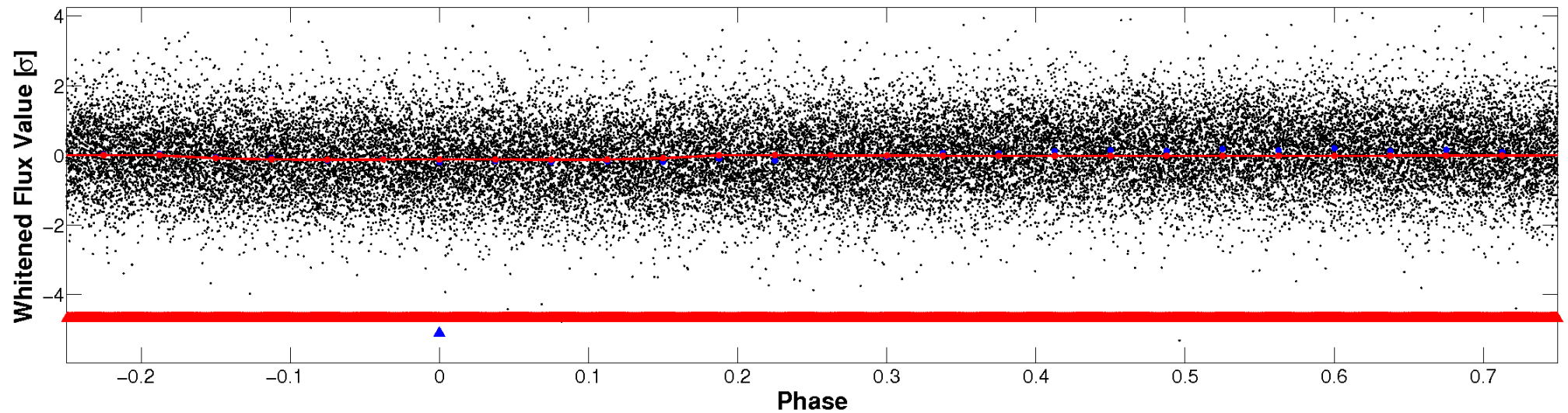


Non-Whitened Vs. Whitened Light Curve

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

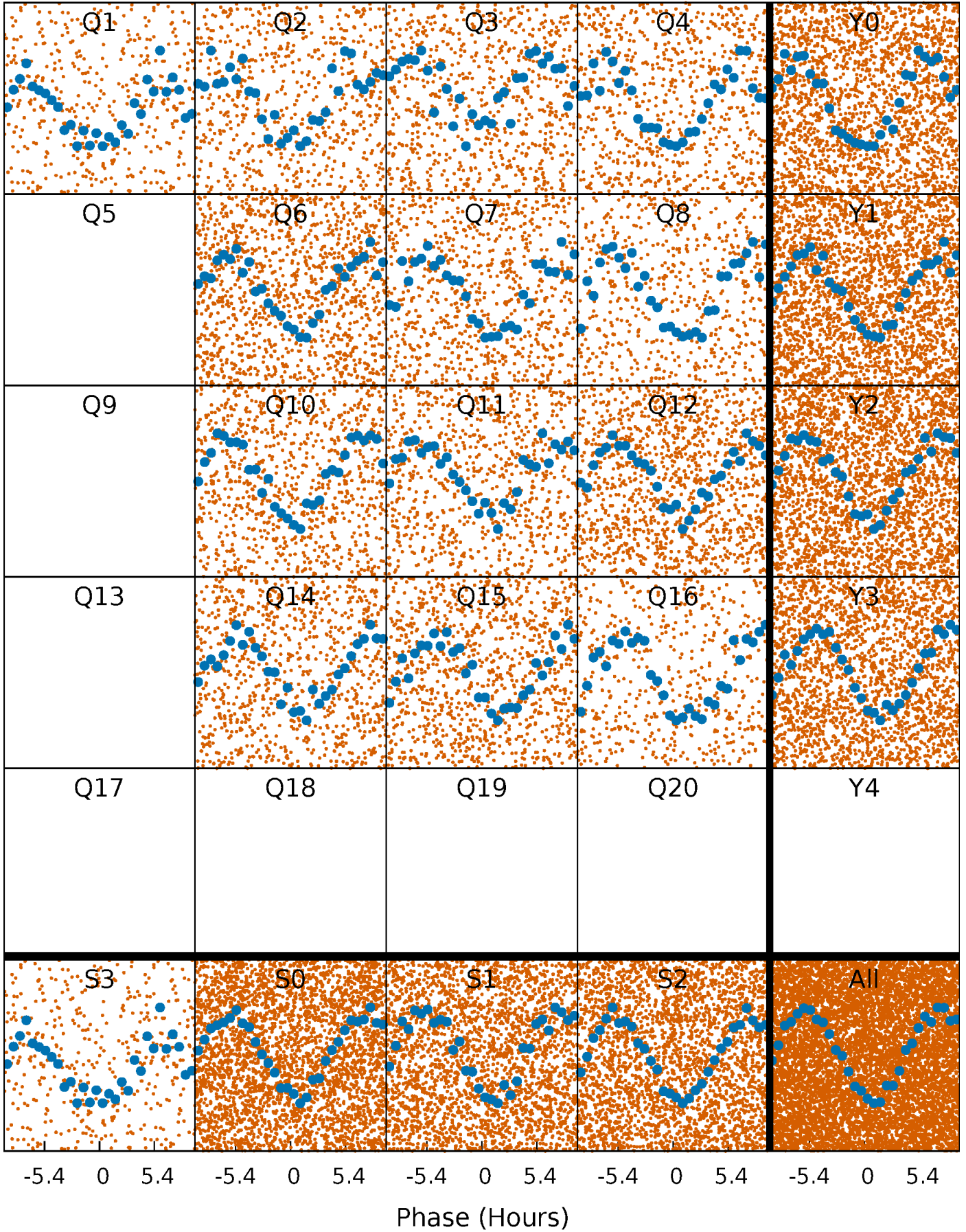


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



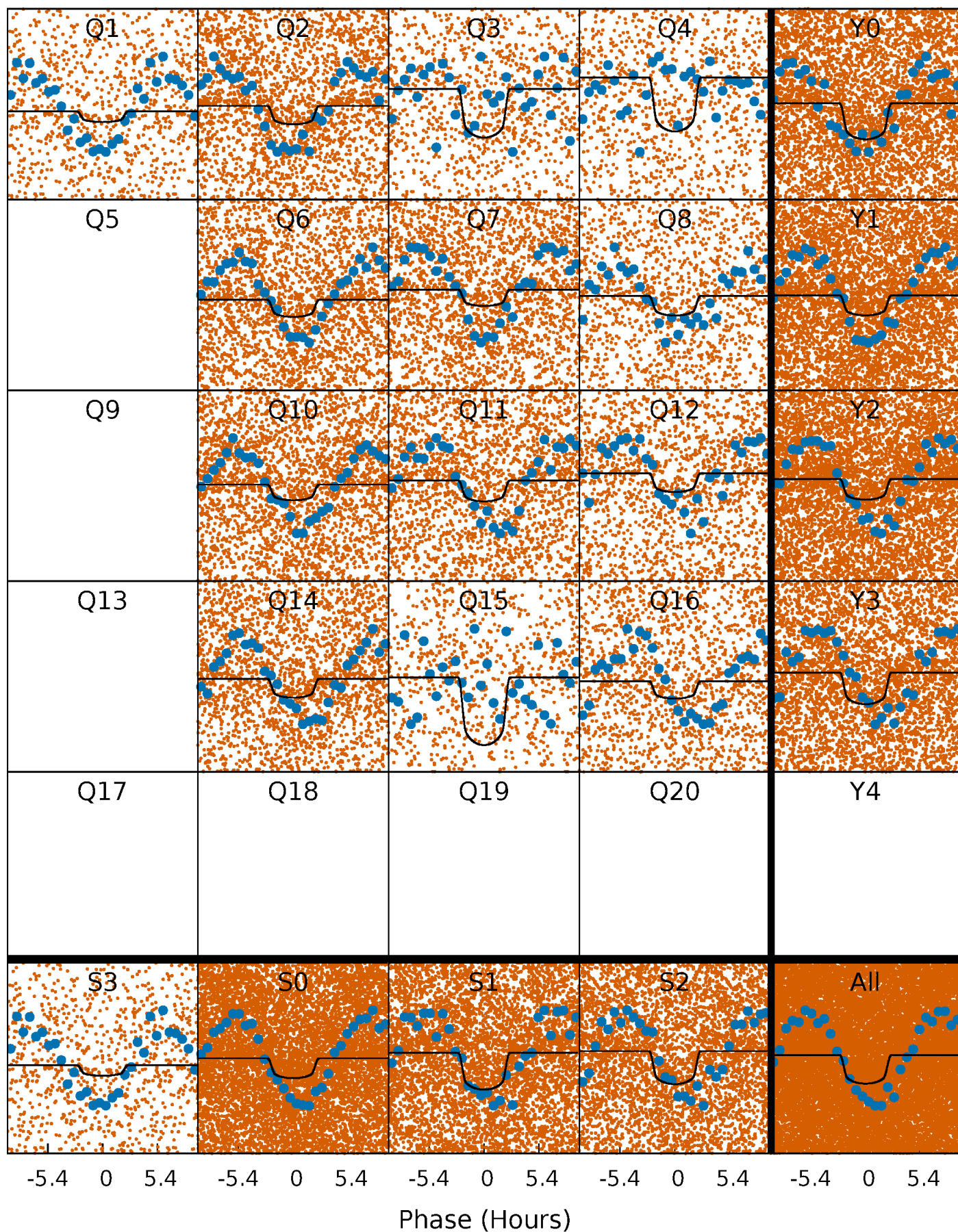
PDC Quarter-Phased Transit Curves

TCE 005428254-02 P= 0.544771 Days $T_0=131.977361$ (BKJD)



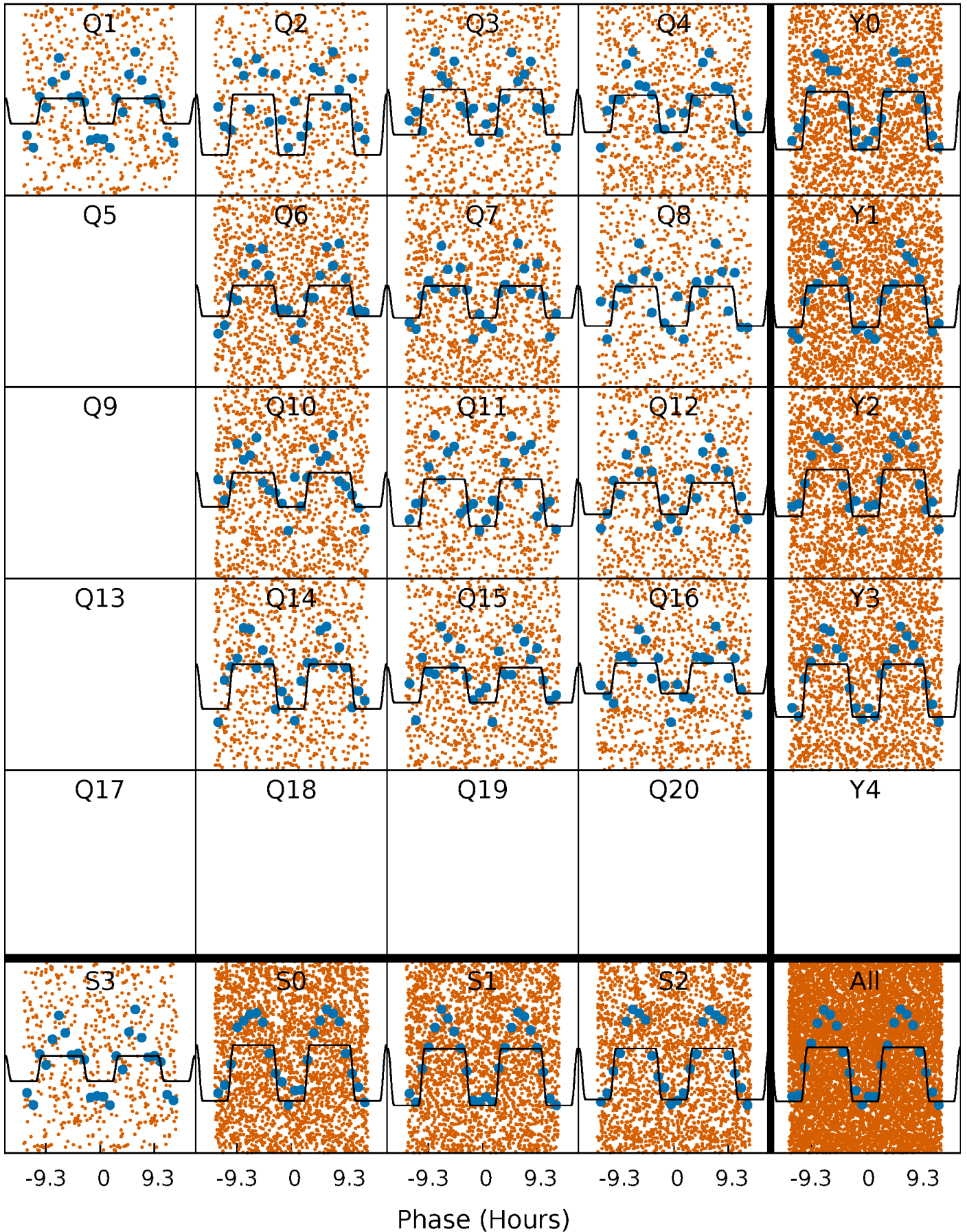
DV Quarter-Phased Transit Curves

TCE 005428254-02 P= 0.544771 Days $T_0=131.977361$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

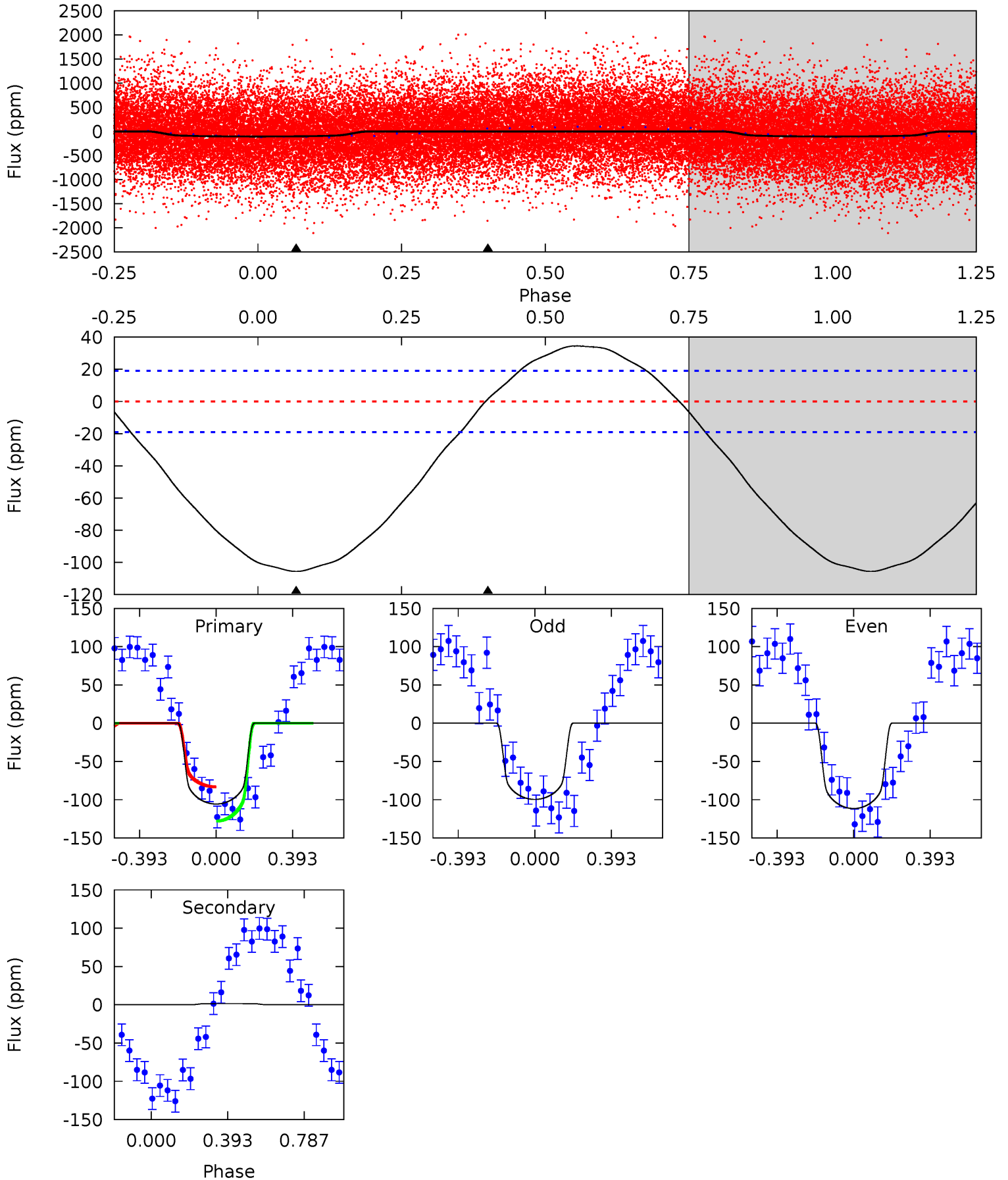
TCE 005428254-02 P= 0.544810 Days $T_0=131.964175$ (BKJD)



DV Model-Shift Uniqueness Test

005428254-02, P = 0.544771 Days, E = 131.432590 Days

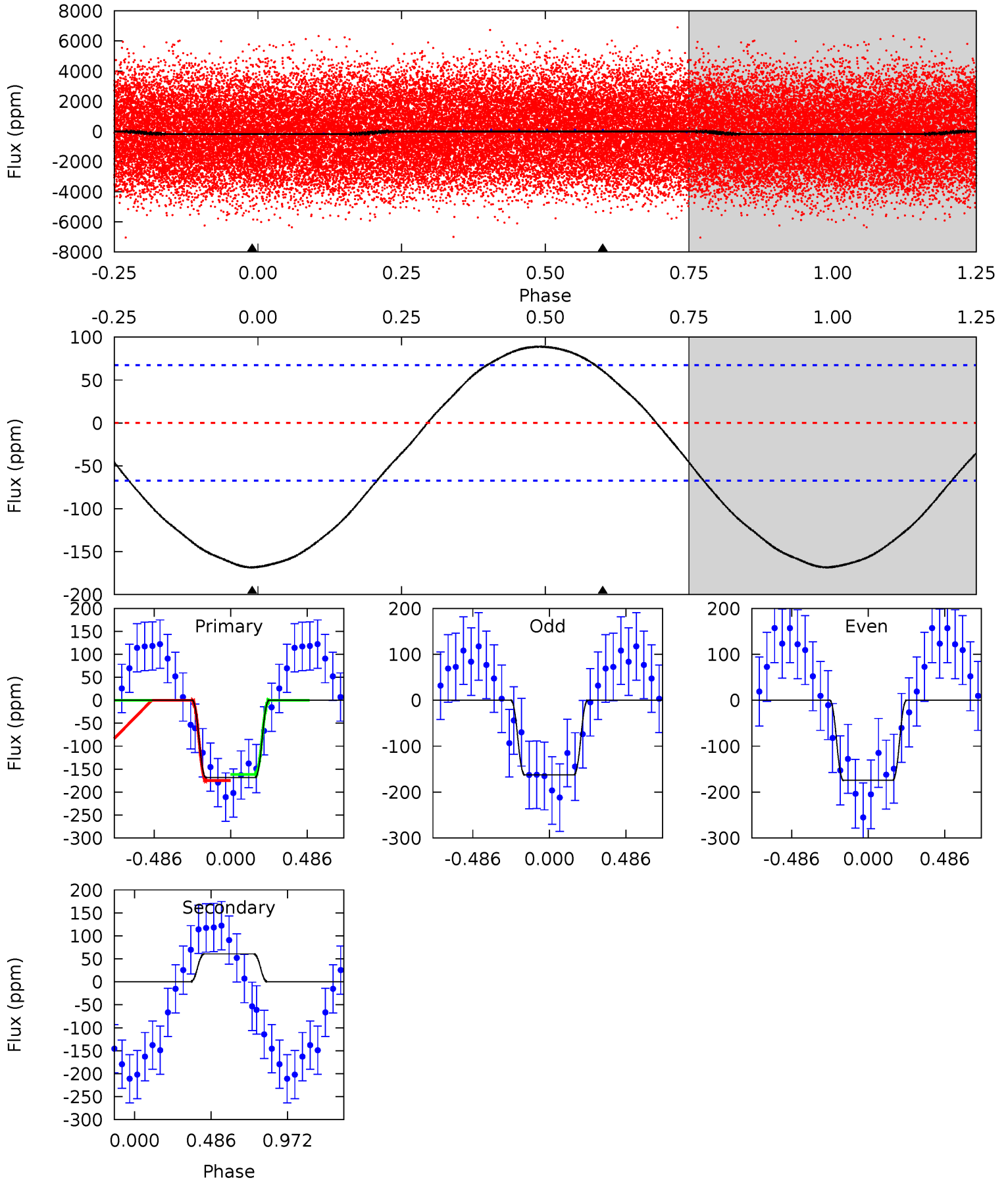
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.6	-0.34	0	0	4.27	0.85	2.47	23.6	23.6	-0.34	-0.34	1.34	1.04	0.25	5.00



Alt Model-Shift Uniqueness Test

005428254-02, P = 0.544810 Days, E = 131.419365 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	-3.81	0	0	4.22	0.70	1.45	10.6	10.6	-3.81	-3.81	0.37	1.09	0.35	0.40



Stellar Parameters For KIC 005428254

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7598^{+211}_{-316}	$3.950^{+0.210}_{-0.140}$	$0.120^{+0.200}_{-0.350}$	$2.408^{+0.493}_{-0.678}$	$1.885^{+0.130}_{-0.363}$	$0.190^{+0.245}_{-0.082}$
	+3%/-4%	+5%/-4%	+167%/-292%	+20%/-28%	+7%/-19%	+129%/-43%
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 005428254-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	2 ± 4	$2.20^{+0.76}_{-0.64}$	5672^{+394}_{-454}	-4847^{+559}_{-482}	$-0.043^{+0.139}_{-0.159}$
Alt.	61 ± 16	$3.54^{+0.79}_{-0.79}$	5664^{+423}_{-418}	-6128^{+452}_{-588}	$-0.672^{+0.272}_{-0.448}$

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

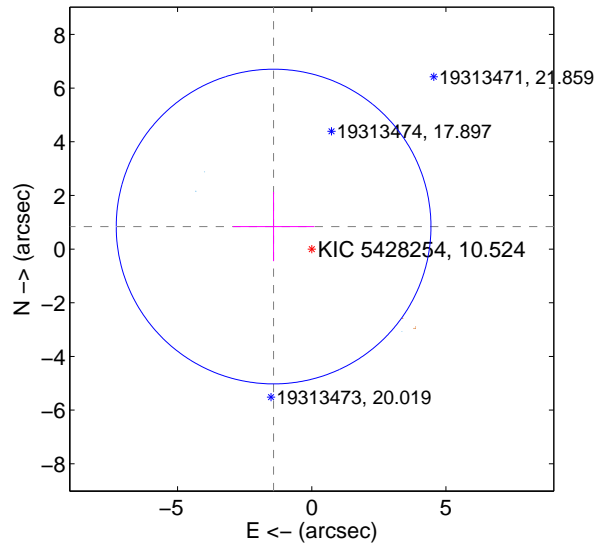
Supplemental centroid analysis for 005428254-02. **Kepler magnitude: 10.52**. Transit SNR 12.31

There are 4 quarters with good PRF difference image offsets

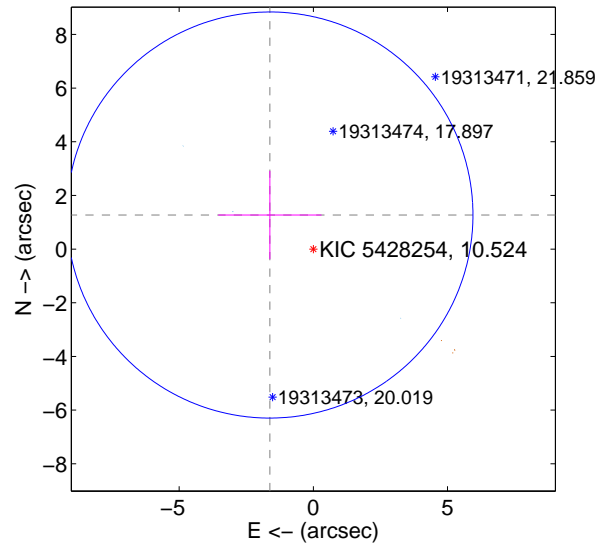
The direct PRF centroid is offset from the target star catalog position by about 1.61 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.652 ± 1.955	0.84	1.422 ± 1.516	0.840 ± 1.290
PRF-fit source offset from KIC position	2.058 ± 2.522	0.82	1.619 ± 1.926	1.270 ± 1.642
photometric centroid source offset	0.74 ± 0.23	3.18	-0.73 ± 0.23	-0.06 ± 0.20

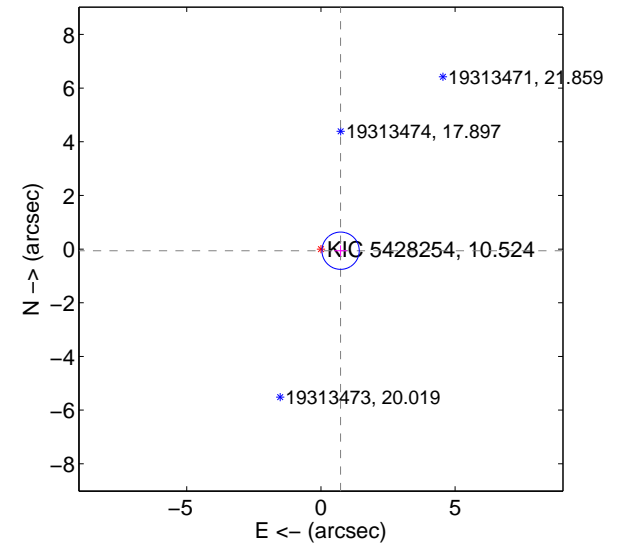
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

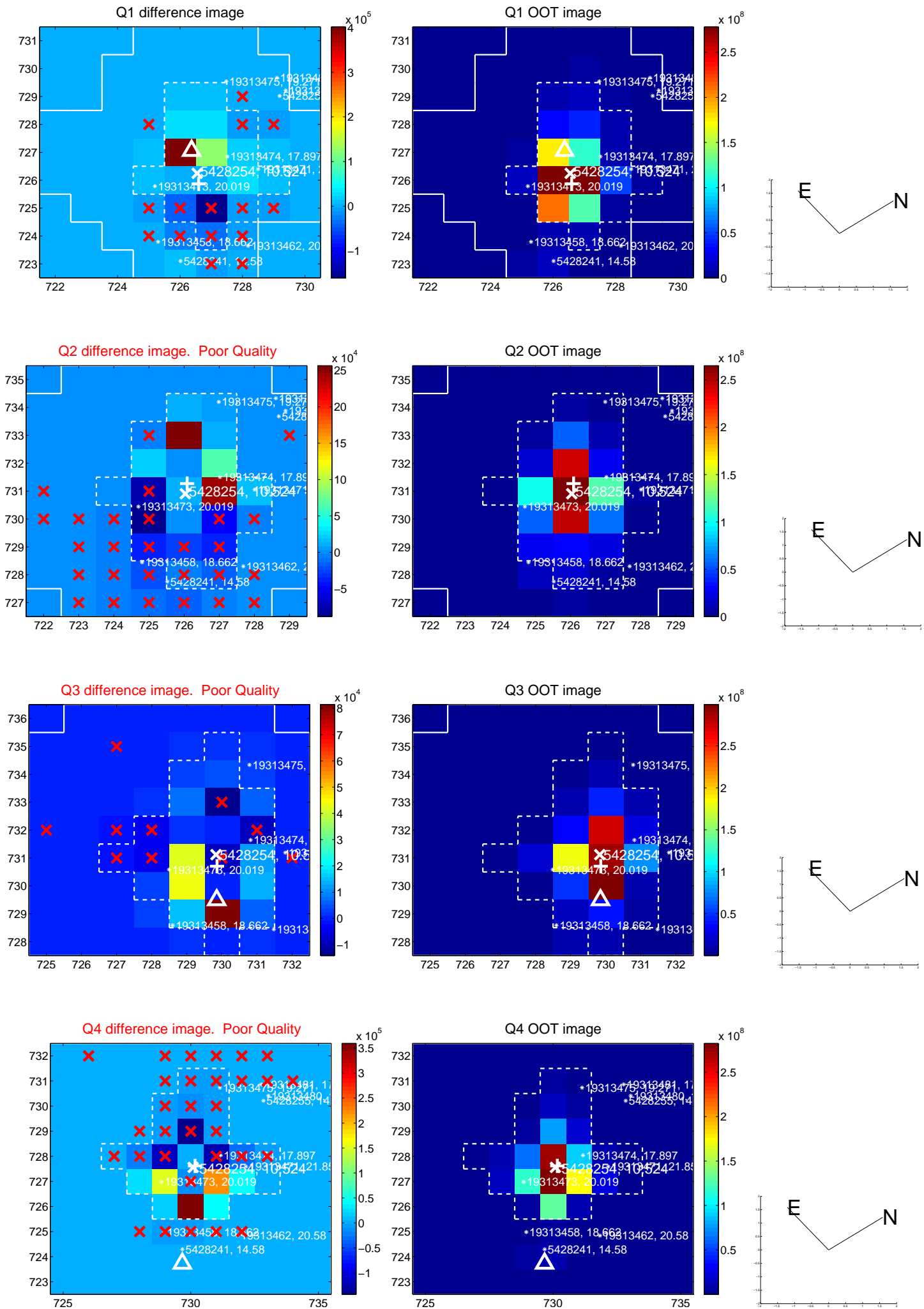


offset from photometric centroids

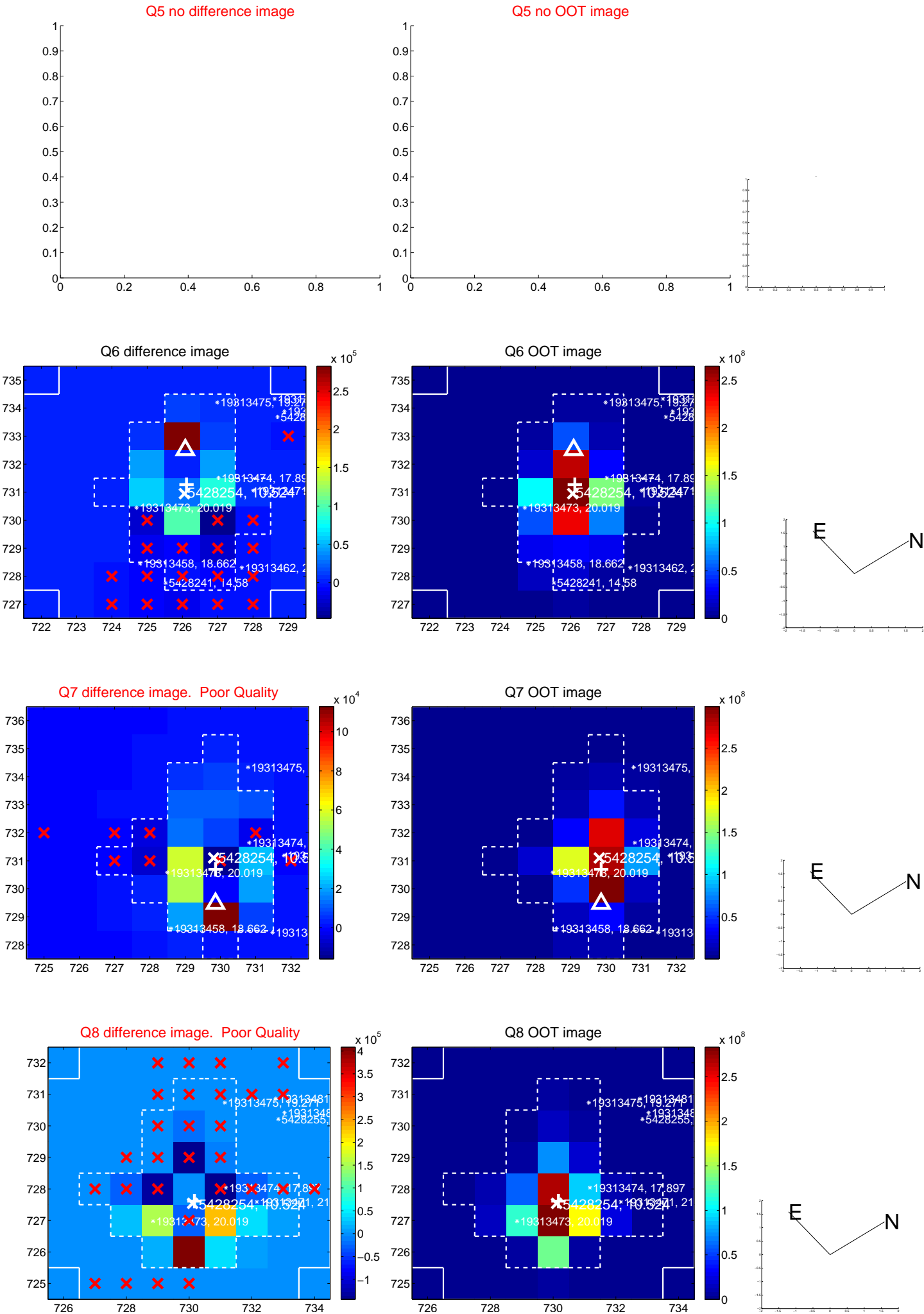


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

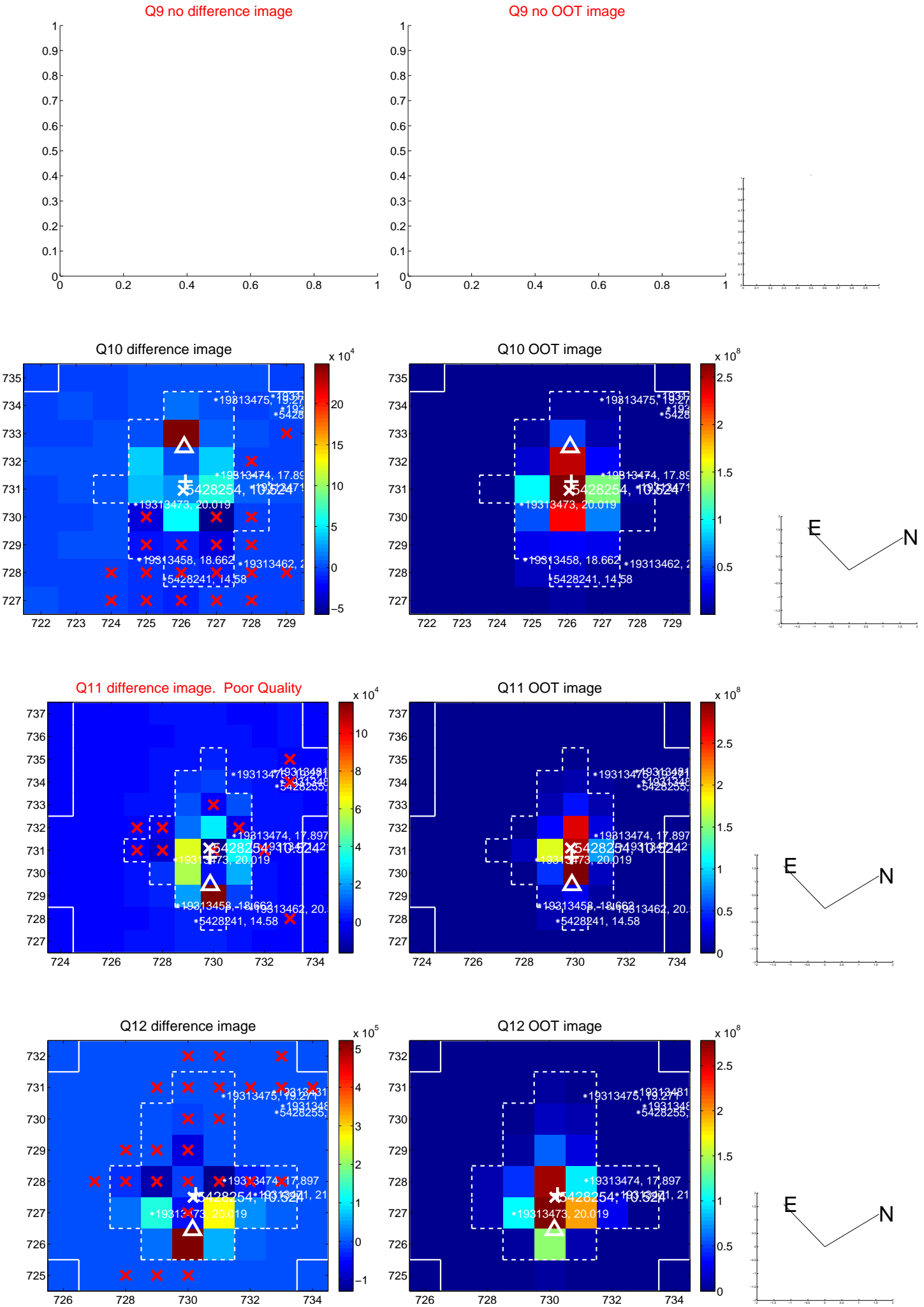
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



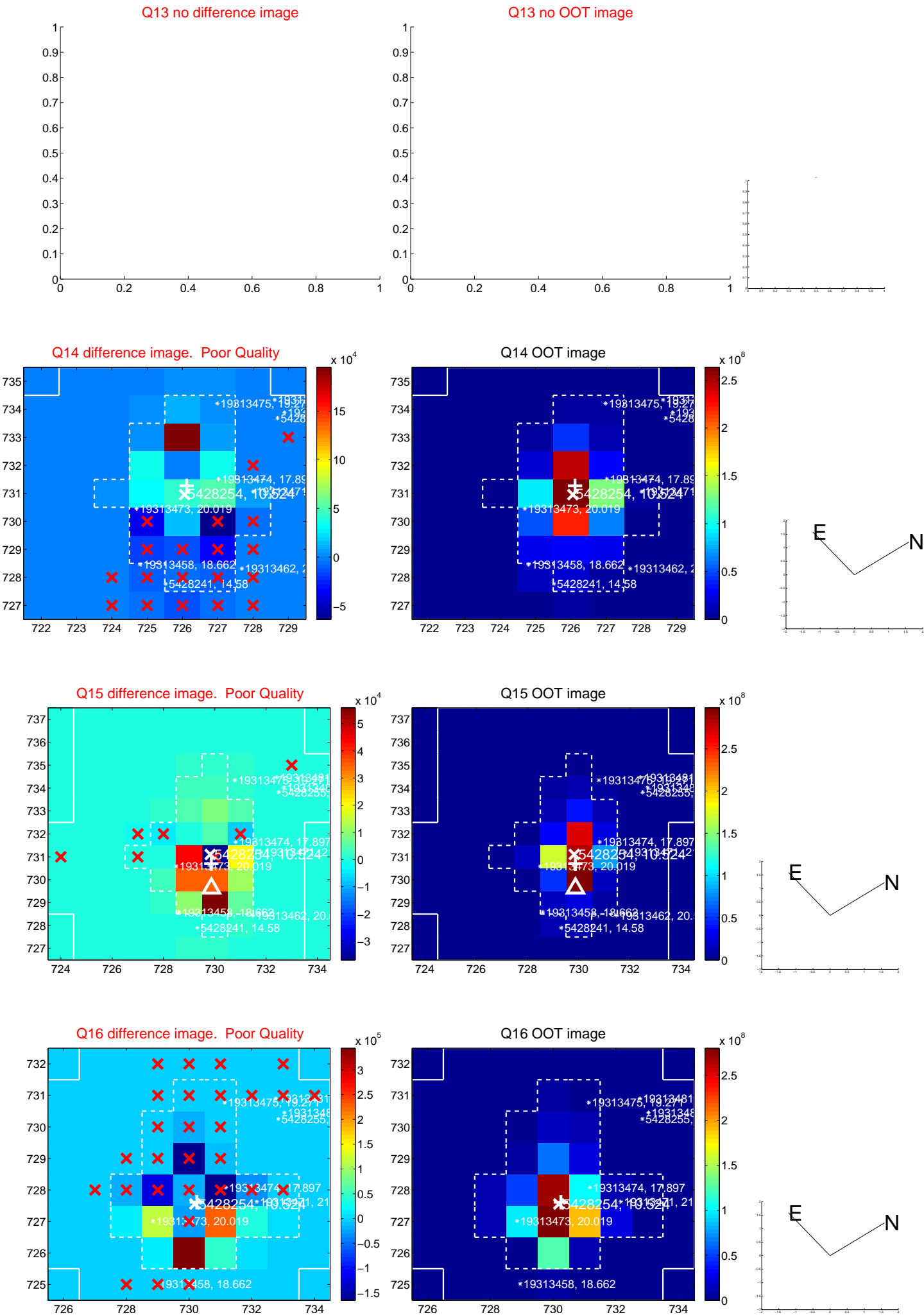
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



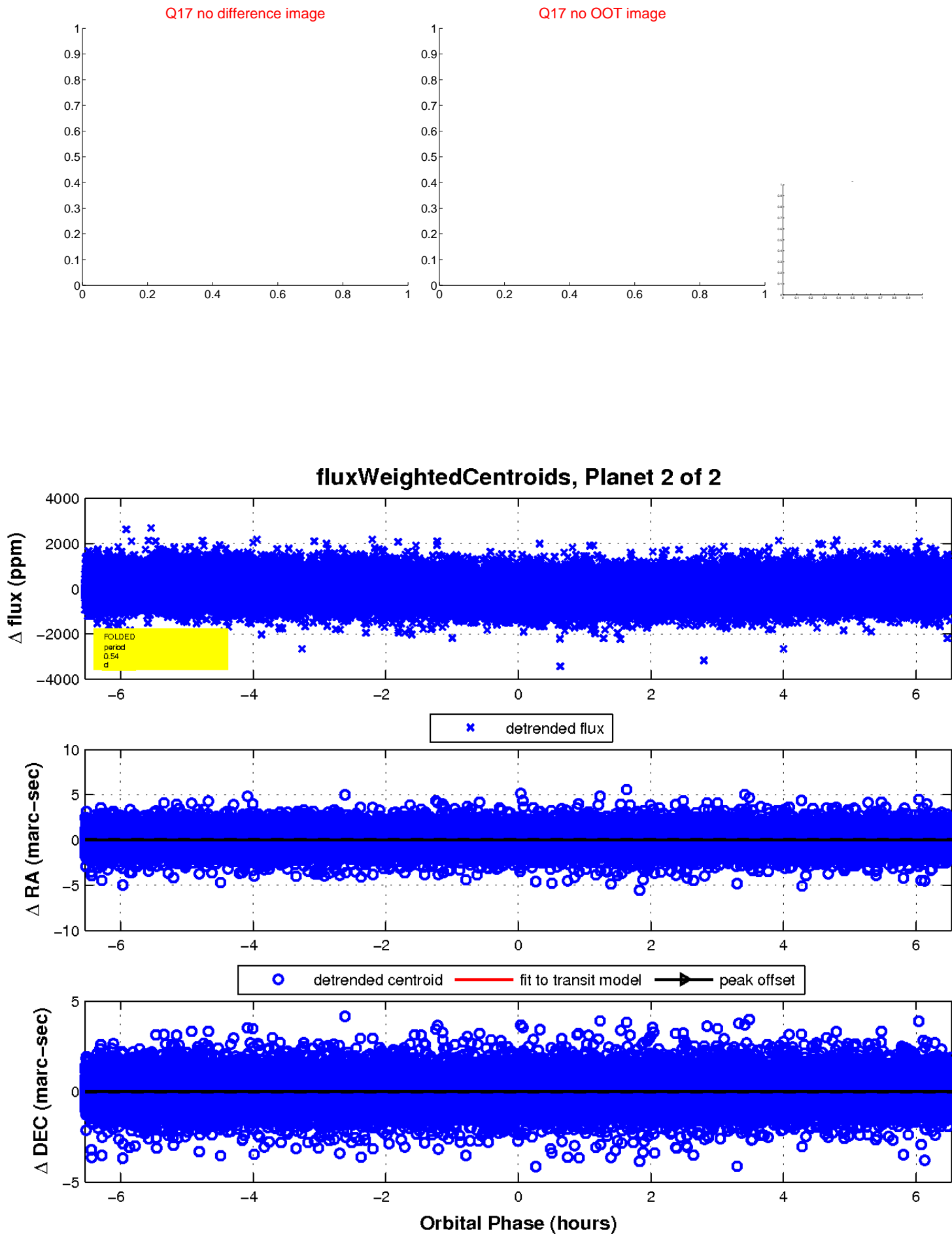
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

