

KIC 010407464

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})
010407464-01	OBS	7323.01	0.933692	131.564760	10.0	4.457	8.7	8.6	1.02	6300	0.33	4410.30
010407464-02	OBS	No	95.804186	223.286838	85.6	22.409	11.0	6.6	1.02	6300	1.00	9.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407464-01	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH
010407464-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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.

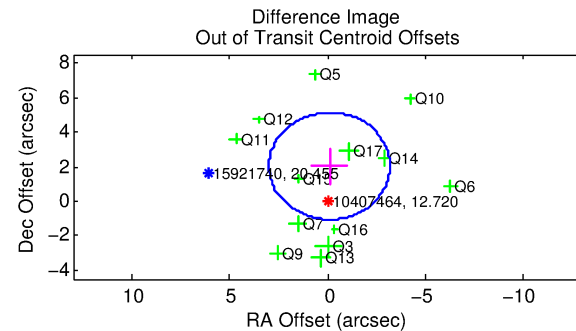
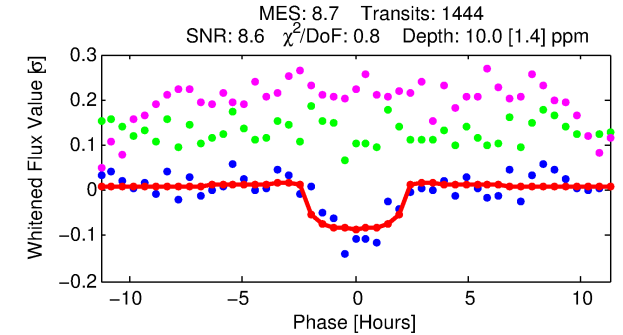
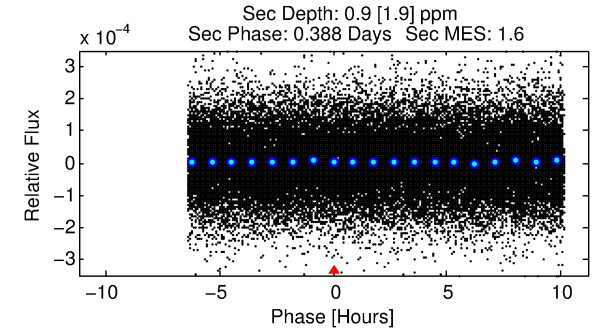
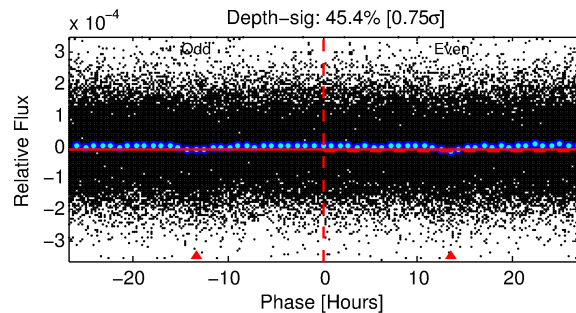
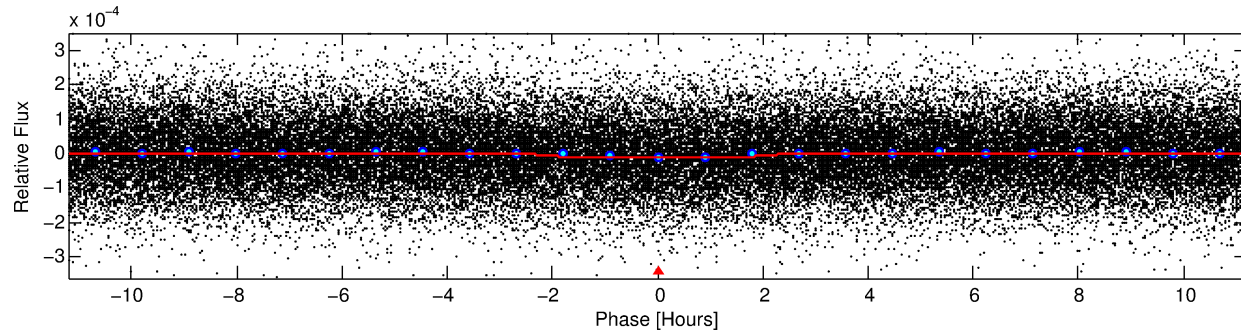
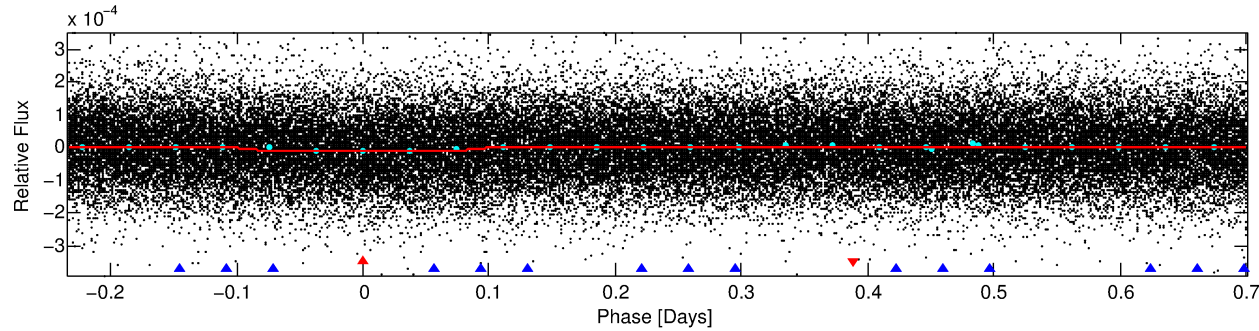
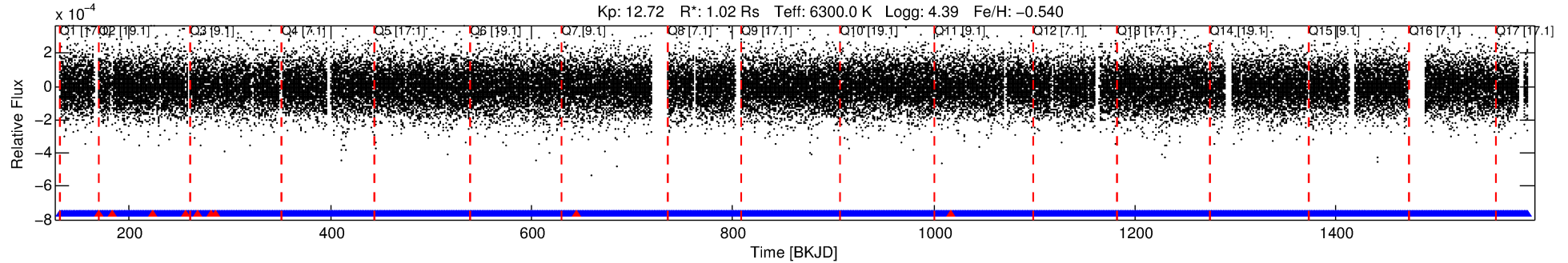
Ephemeris Match Information For 010407464-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist ($''$)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
010407464-01	10407464	V2083-Cyg-pri	10342012	1:2	352.3	-3	-87	6.90	12.72	19832.00	Direct-PRF	0	3.77	3.25

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10407464 Candidate: 1 of 2 Period: 0.934 d
KOI: K07323.01 Corr: 0.885



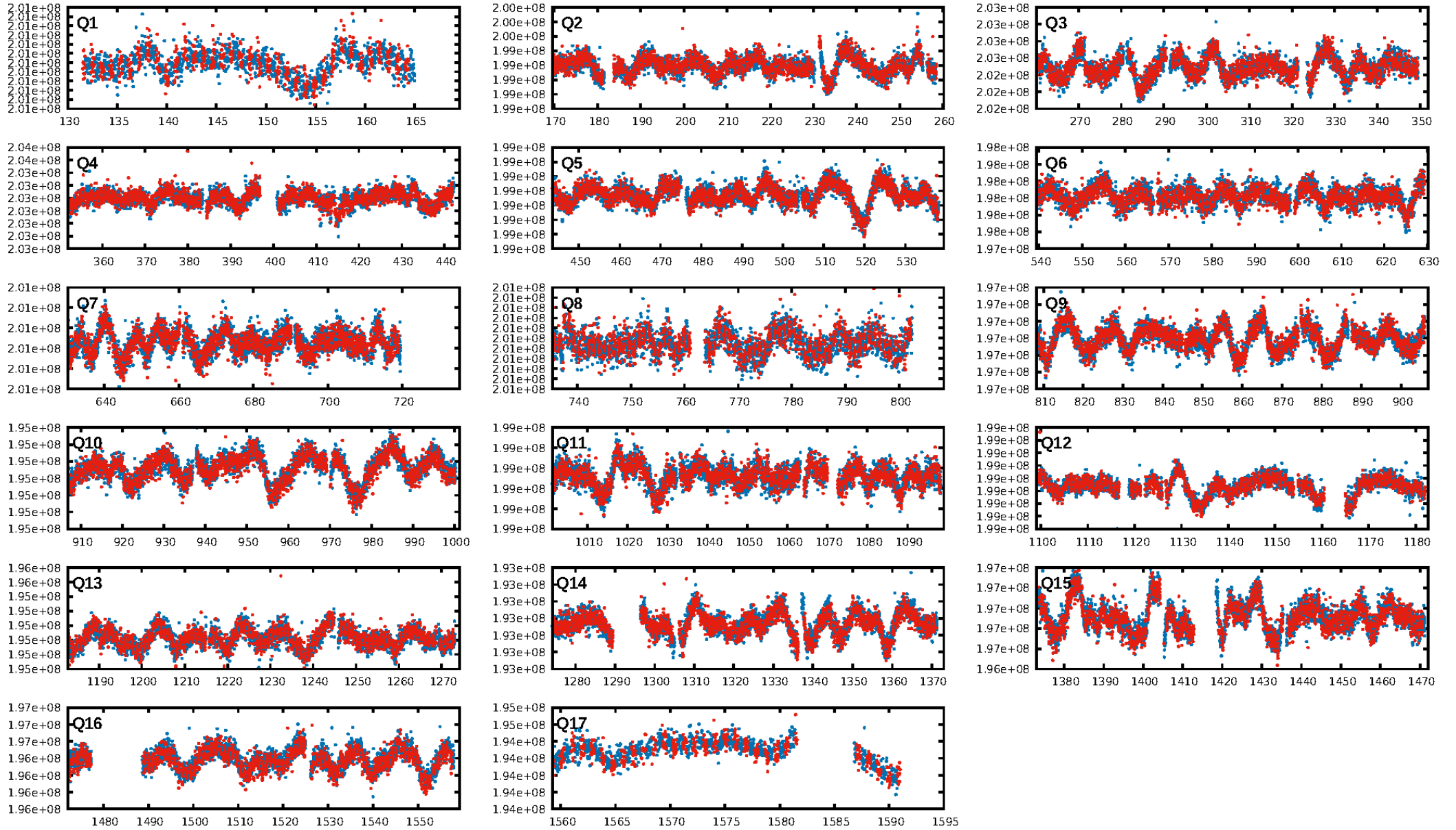
DV Fit Results:

Period = 0.93369 [0.00001] d
Epoch = 131.5648 [0.0051] BKJD
Rp/R* = 0.0030 [0.0011]
a/R* = 1.60 [1.85]
b = 0.44 [3.48]
Seff = 4410.30 [1174.18]
Teq = 2078 [138] K
Rp = 0.33 [0.13] Re
a = 0.0183 [0.0029] AU
Ag = 1.44 [3.28] [0.13 σ]
Teff = 3518 [1999] K [0.72 σ]

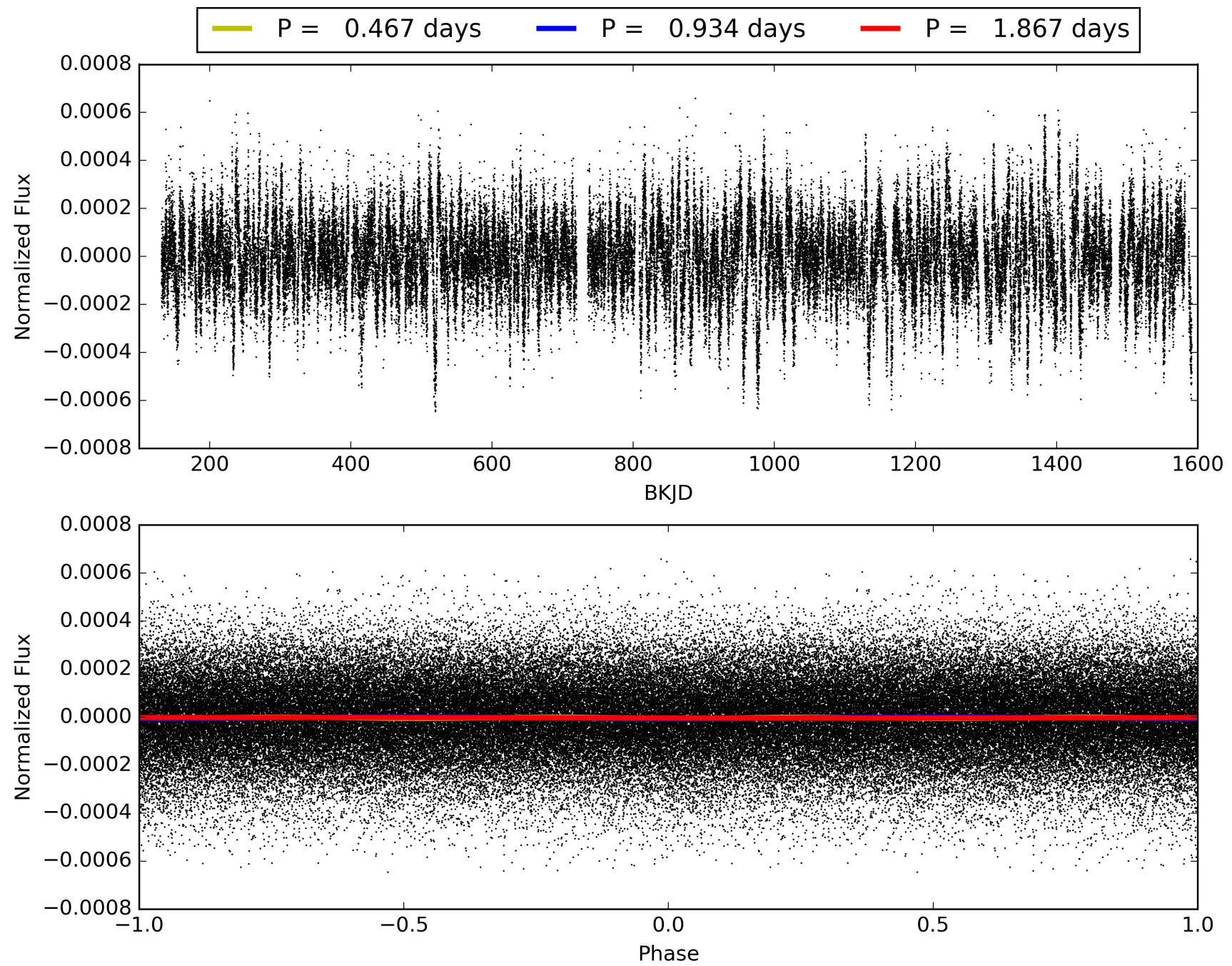
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [99.65 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.34e-17
RollingBand-fgt: 0.99 [1369/1378]
GhostDiagnostic-chr: 0.344
Centroid-sig: 0.0%
Centroid-so: 4.996 arcsec [4.22 σ]
OotOffset-rm: 2.037 arcsec [1.98 σ]
KicOffset-rm: 2.293 arcsec [2.27 σ]
OotOffset-st: 3/4/2/4 [13]
KicOffset-st: 3/4/2/4 [13]
DiffImageQuality-fgm: 0.08 [1/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010407464-01, PDC Light Curves

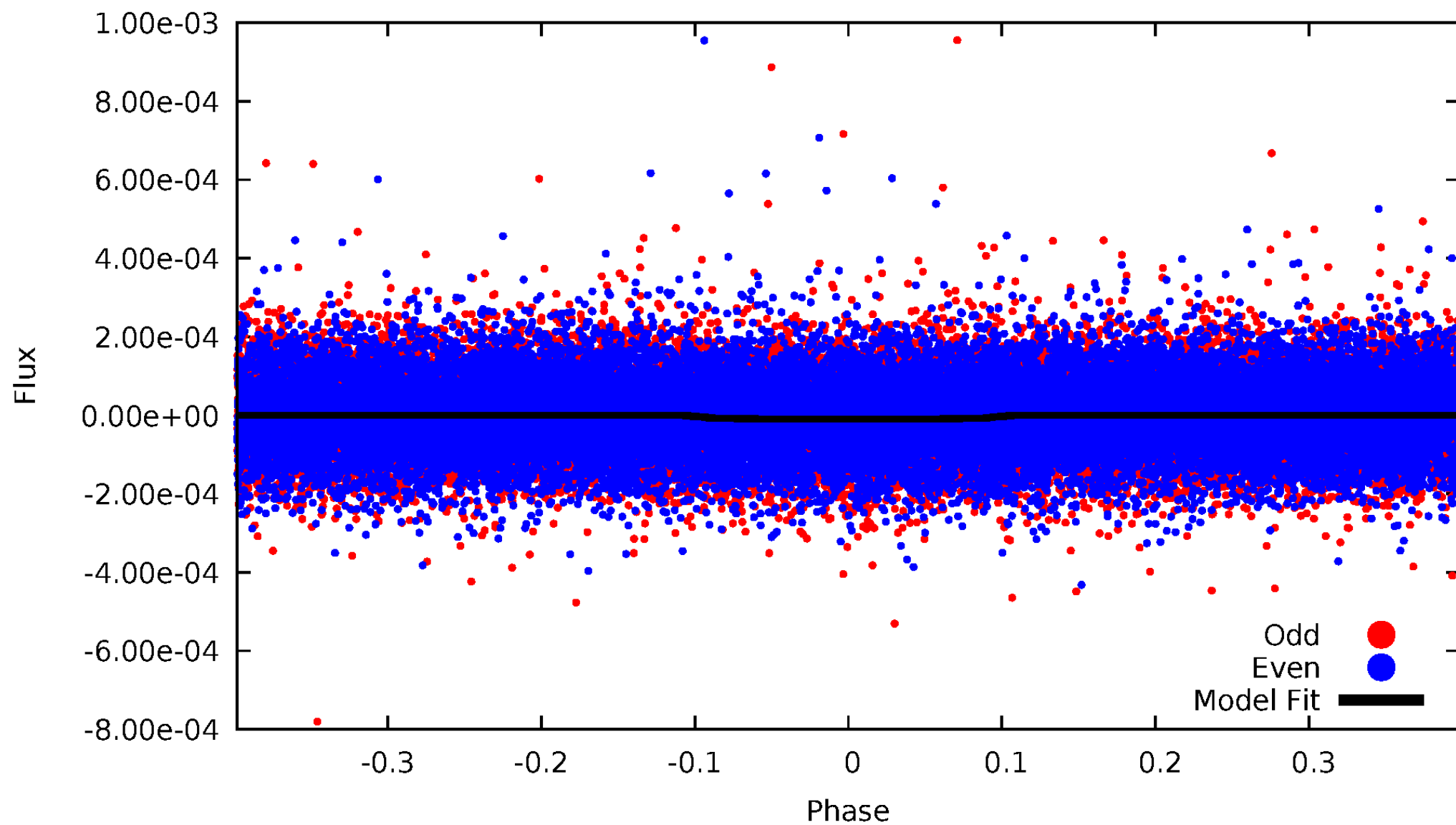


TCE 010407464-01



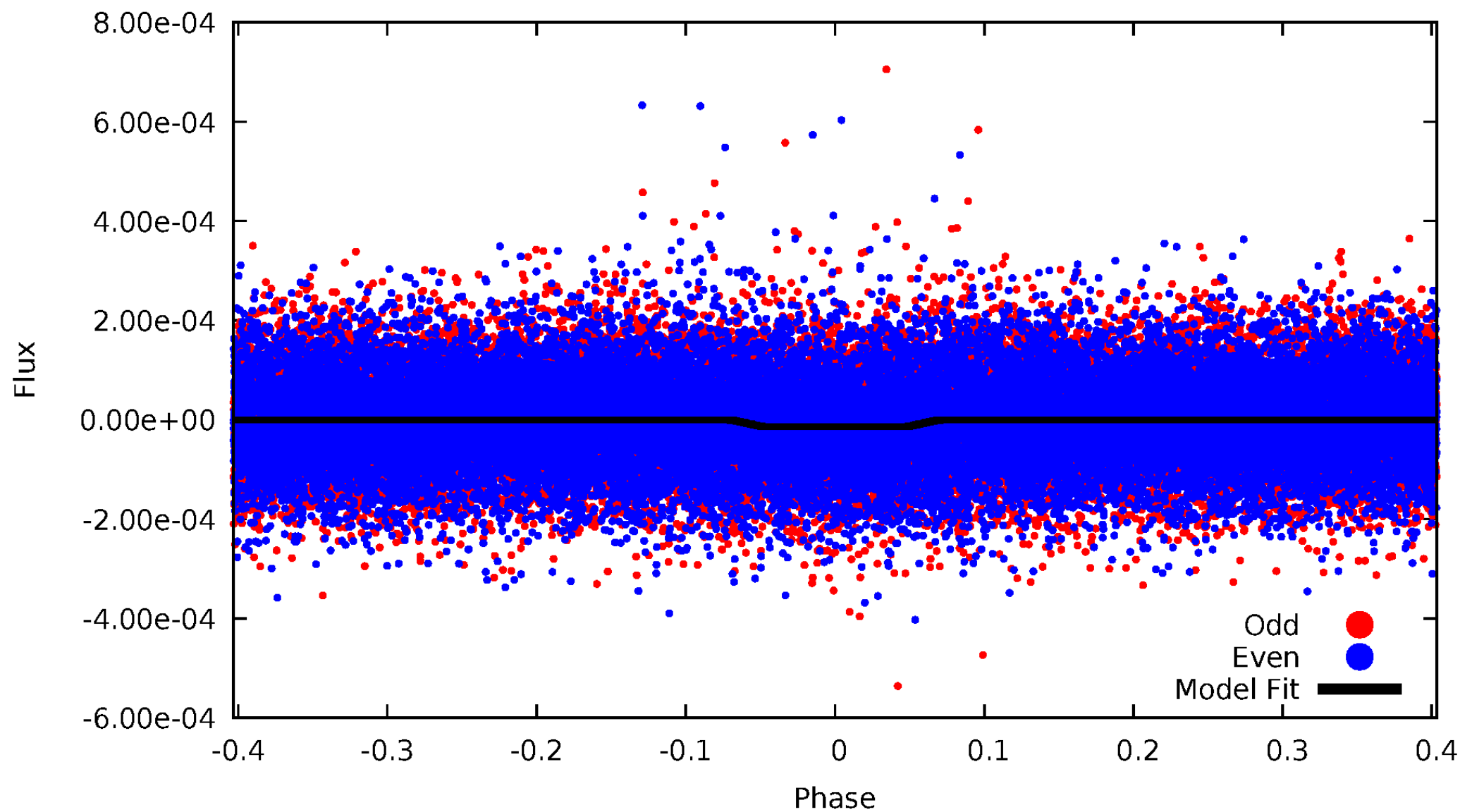
DV Odd/Even

TCE 010407464-01



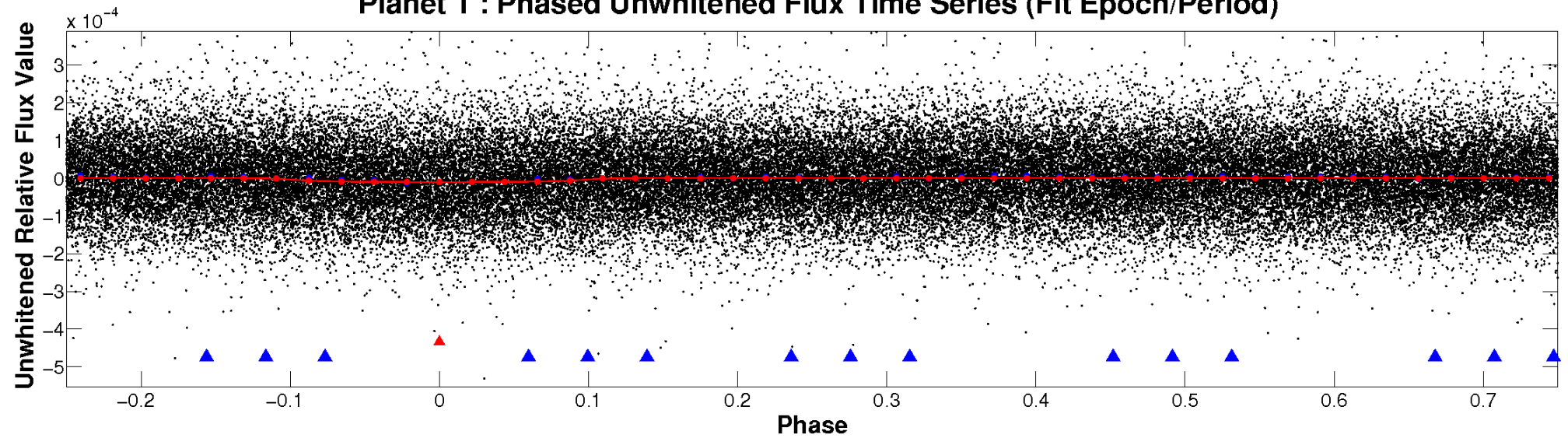
ALT Odd/Even

TCE 010407464-01

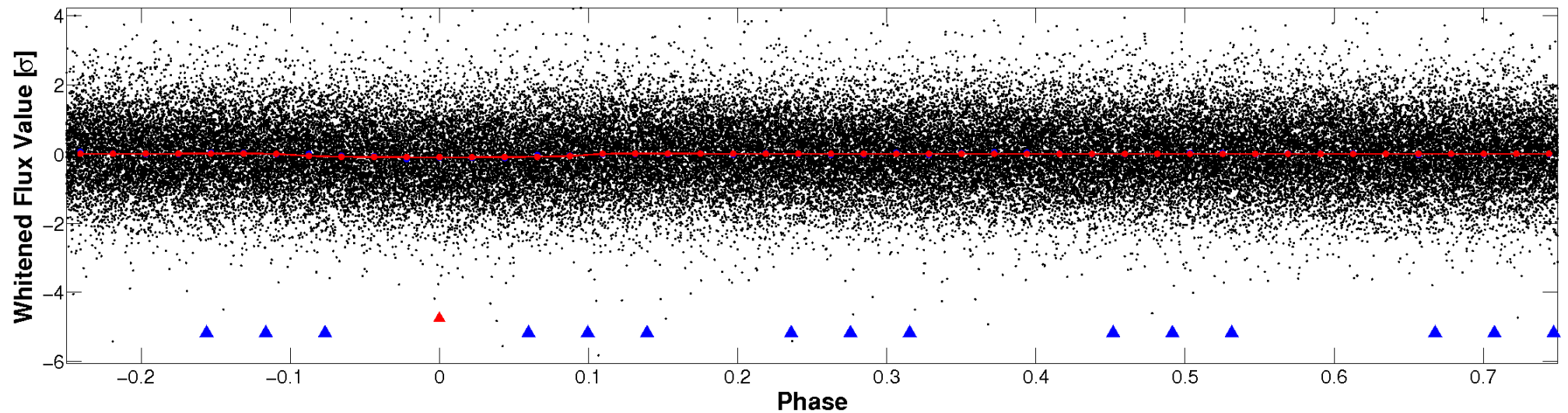


Non-Whitened Vs. Whitened Light Curve

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

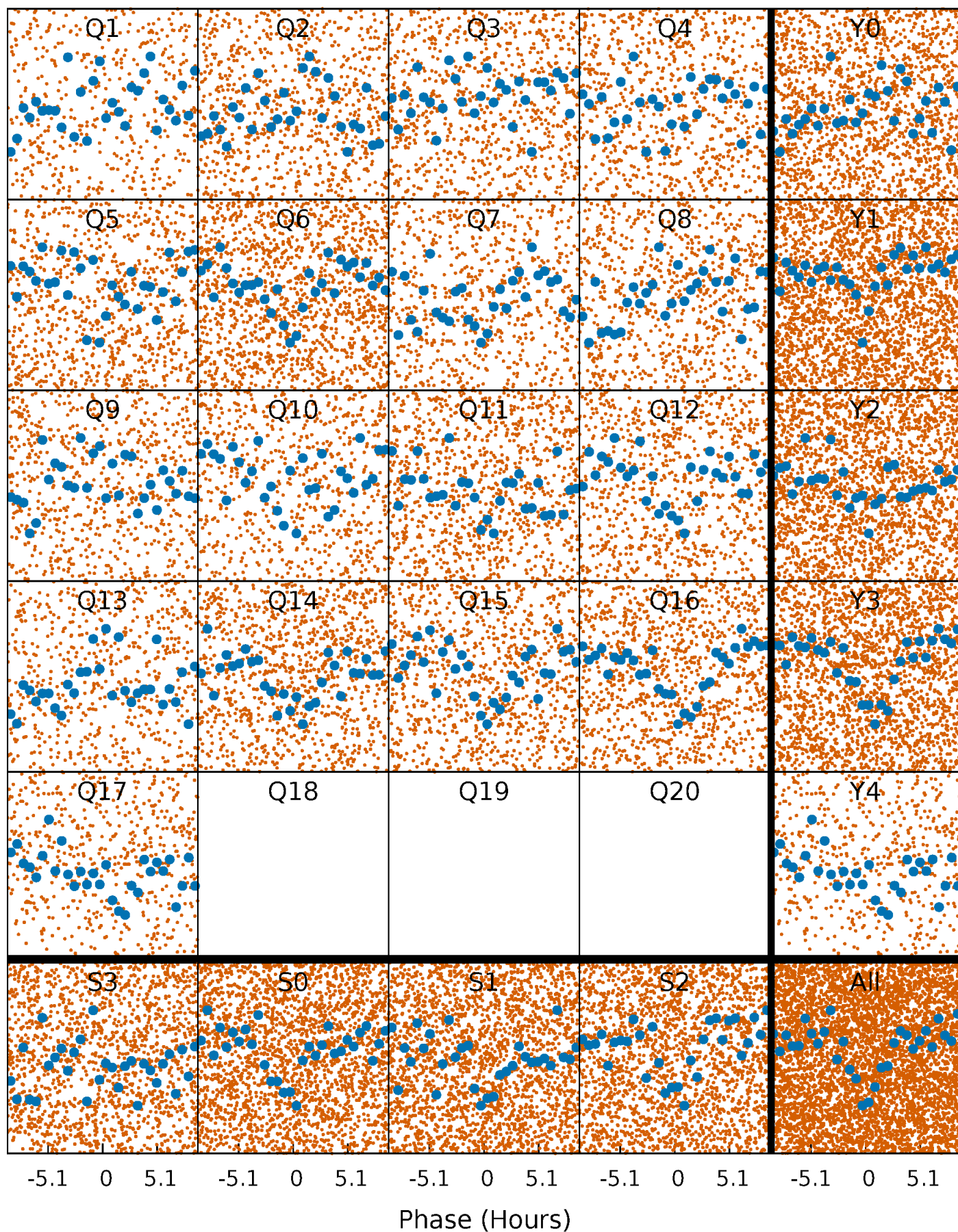


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



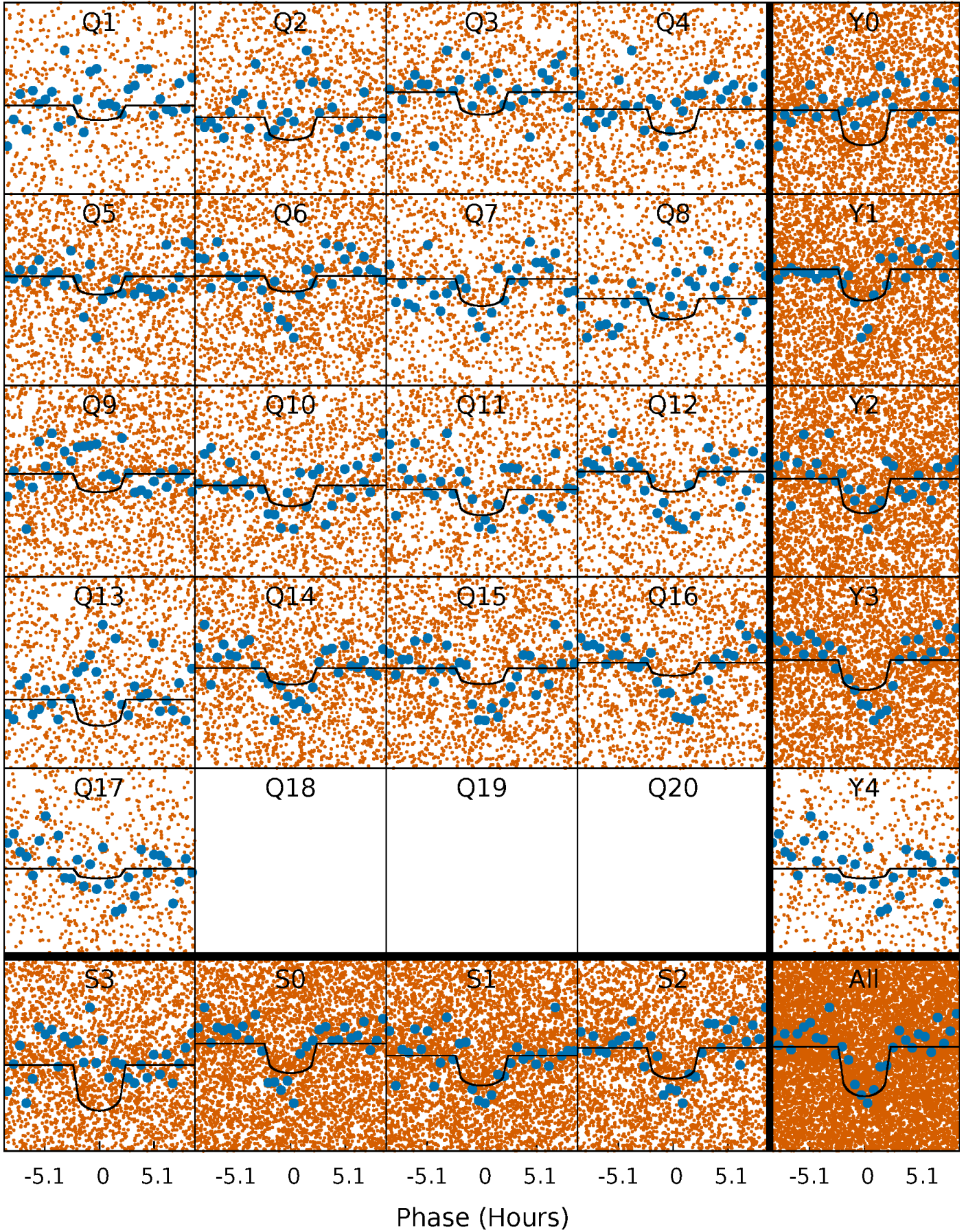
PDC Quarter-Phased Transit Curves

TCE 010407464-01 P= 0.933692 Days $T_0=131.564760$ (BKJD)



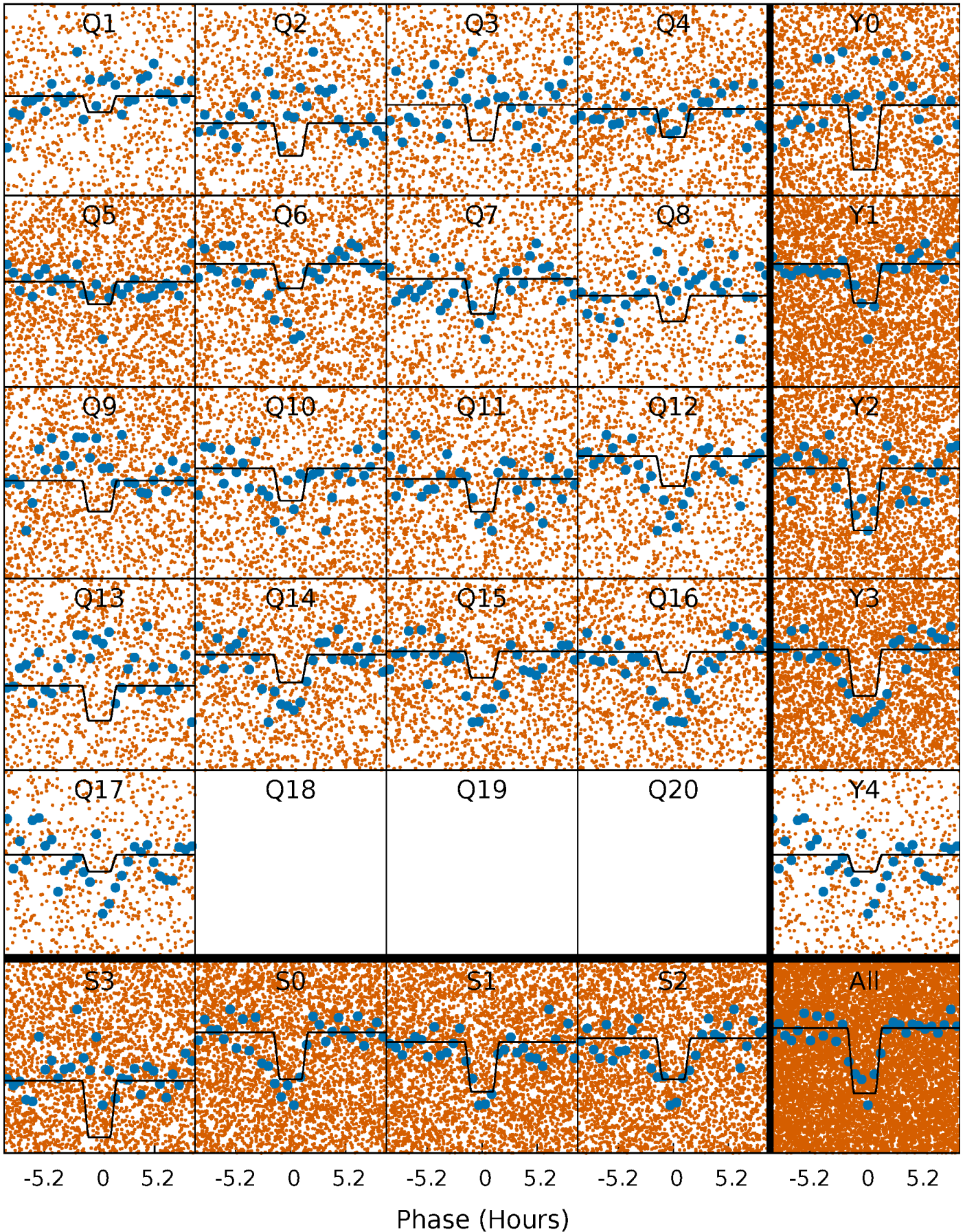
DV Quarter-Phased Transit Curves

TCE 010407464-01 P= 0.933692 Days $T_0=131.564760$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

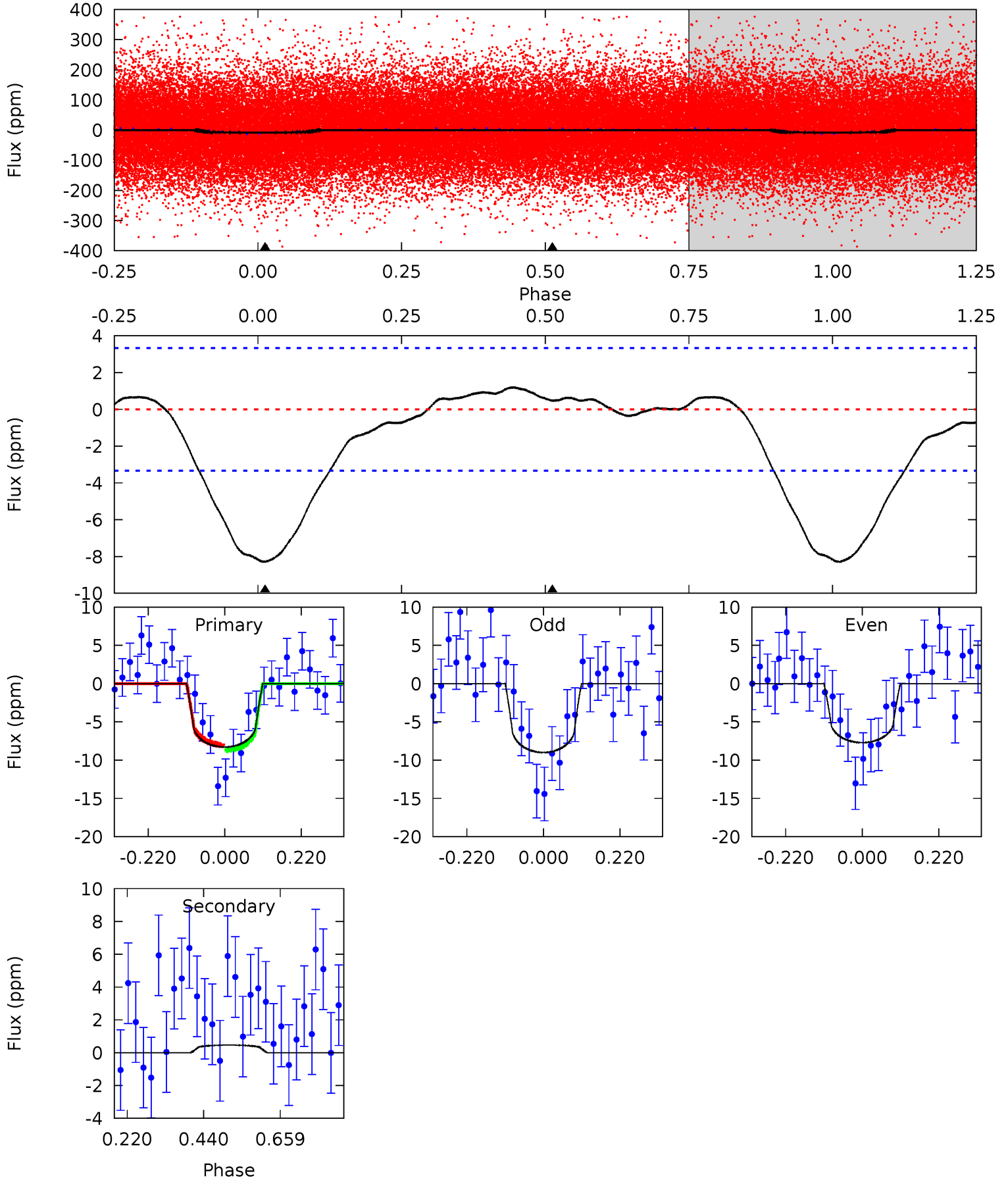
TCE 010407464-01 P= 0.933740 Days $T_0=131.526020$ (BKJD)



DV Model-Shift Uniqueness Test

010407464-01, P = 0.933692 Days, E = 130.631068 Days

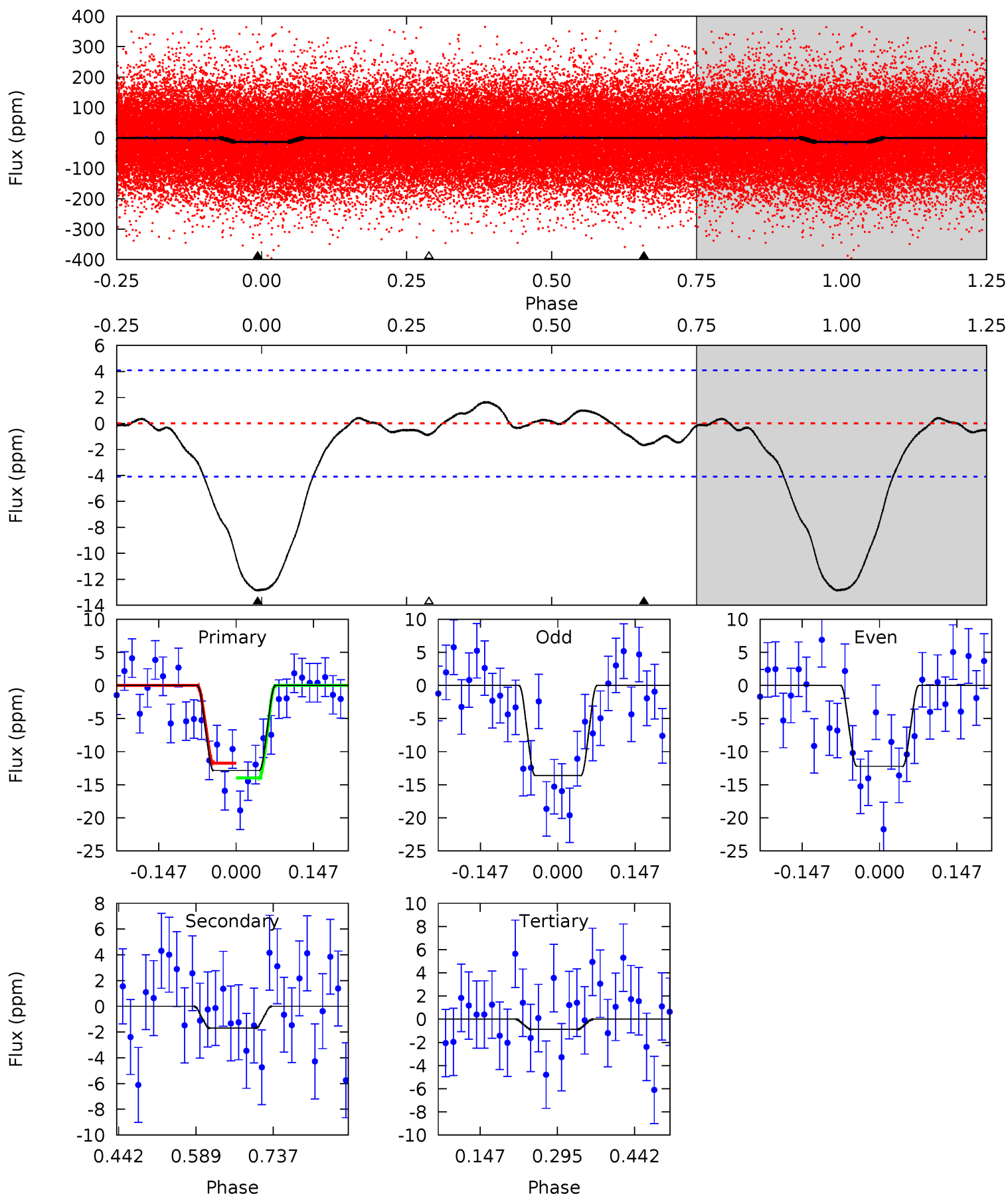
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	-0.61	0	0	4.40	1.23	0.70	10.9	10.9	-0.61	-0.61	0.86	0.99	0.13	0.44



Alt Model-Shift Uniqueness Test

010407464-01, P = 0.933740 Days, E = 130.592280 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	1.85	0.96	0	4.48	1.45	0.72	13.1	14.1	0.89	1.85	0.76	0.89	0.11	1.23



Stellar Parameters For KIC 010407464

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6300^{+152}_{-190}	$4.391^{+0.096}_{-0.132}$	$-0.540^{+0.300}_{-0.300}$	$1.025^{+0.190}_{-0.139}$	$0.942^{+0.112}_{-0.100}$	$1.234^{+0.588}_{-0.471}$
	+2%/-3%	+2%/-3%	+56%/-56%	+19%/-14%	+12%/-11%	+48%/-38%
Source	PHO1	FLK73	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 010407464-01 / KOI 7323.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1	$0.33^{+0.13}_{-0.13}$	2900^{+177}_{-126}	-3648^{+6298}_{-811}	$-0.724^{+1.150}_{-2.045}$
Alt.	-2 ± 1	$0.43^{+0.14}_{-0.13}$	2925^{+160}_{-136}	3812^{+764}_{-684}	$1.571^{+2.057}_{-0.940}$

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 $A_{obs} \gg 1.0$

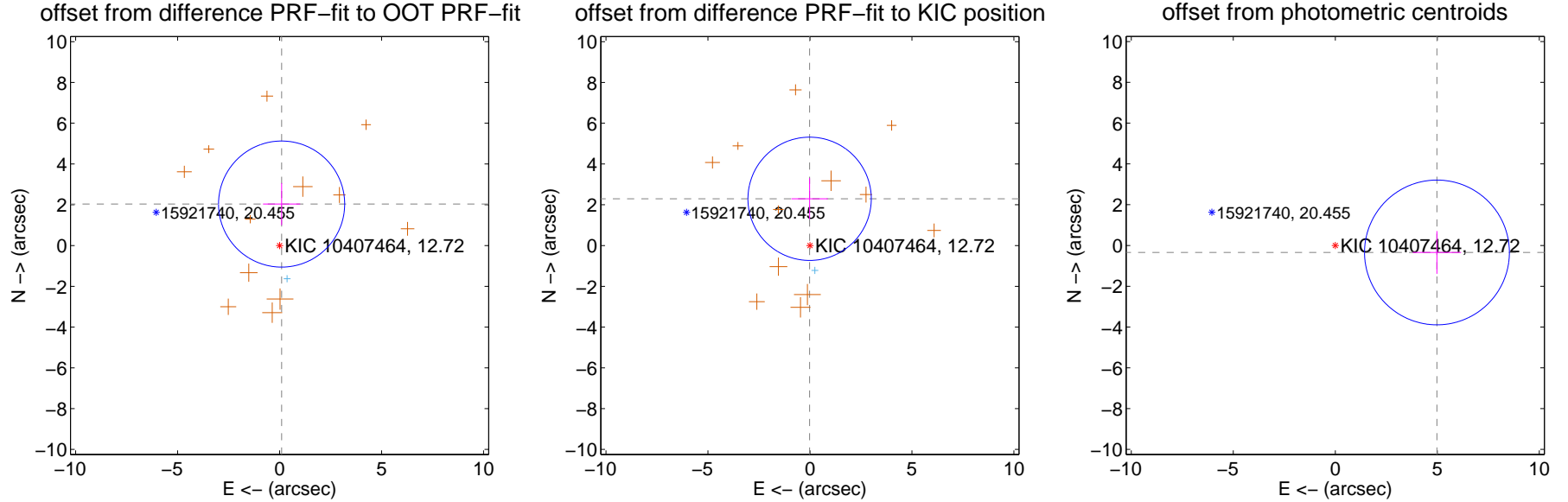
DV Centroid Data

Supplemental centroid analysis for 010407464-01. Kepler magnitude: 12.72. Transit SNR 8.58

There are 1 quarters with good PRF difference image offsets

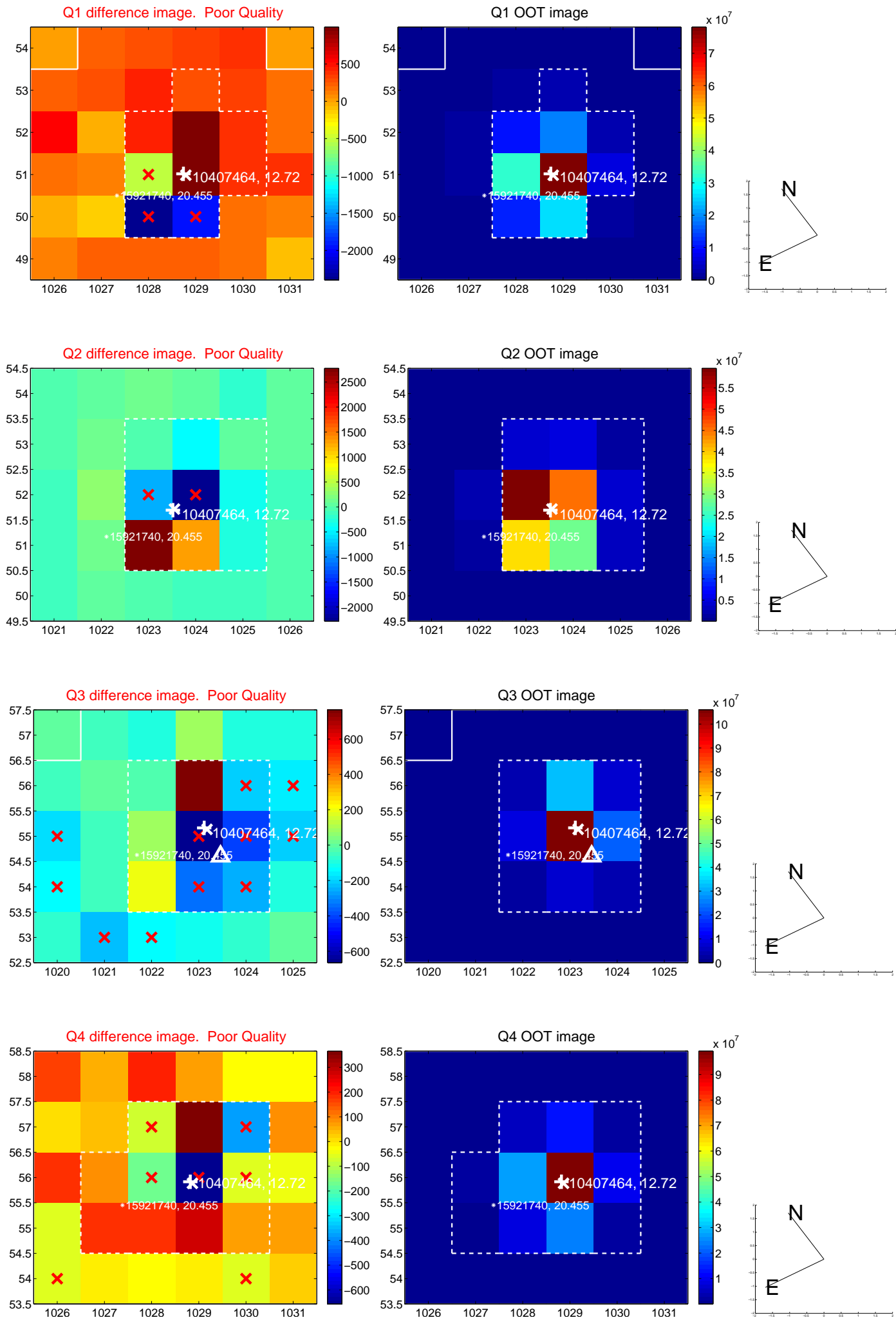
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.037 ± 1.031	1.98	-0.098 ± 0.909	2.035 ± 1.031
PRF-fit source offset from KIC position	2.293 ± 1.008	2.27	0.016 ± 0.893	2.293 ± 1.008
photometric centroid source offset	5.00 ± 1.18	4.22	-4.98 ± 1.18	-0.34 ± 1.05

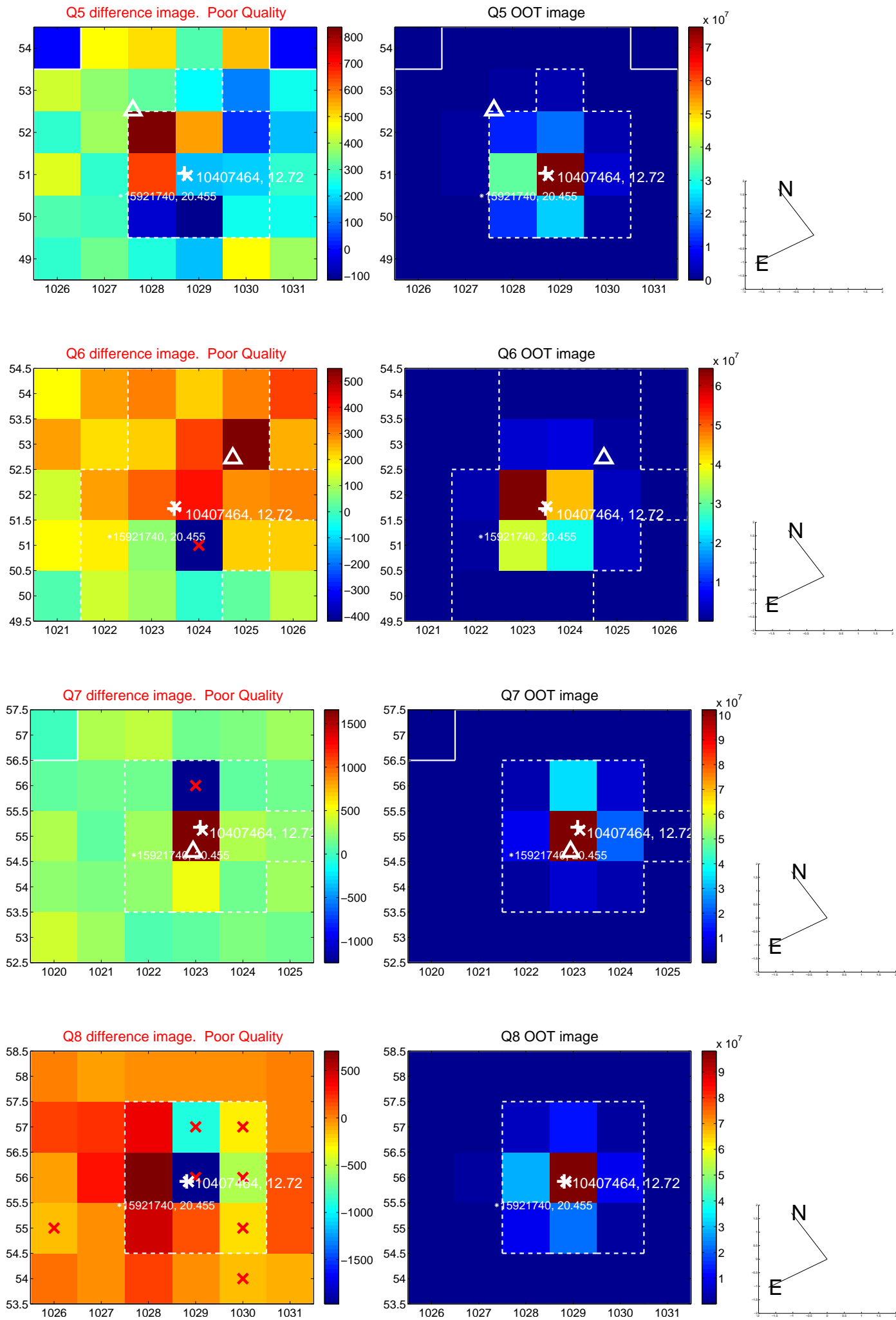


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

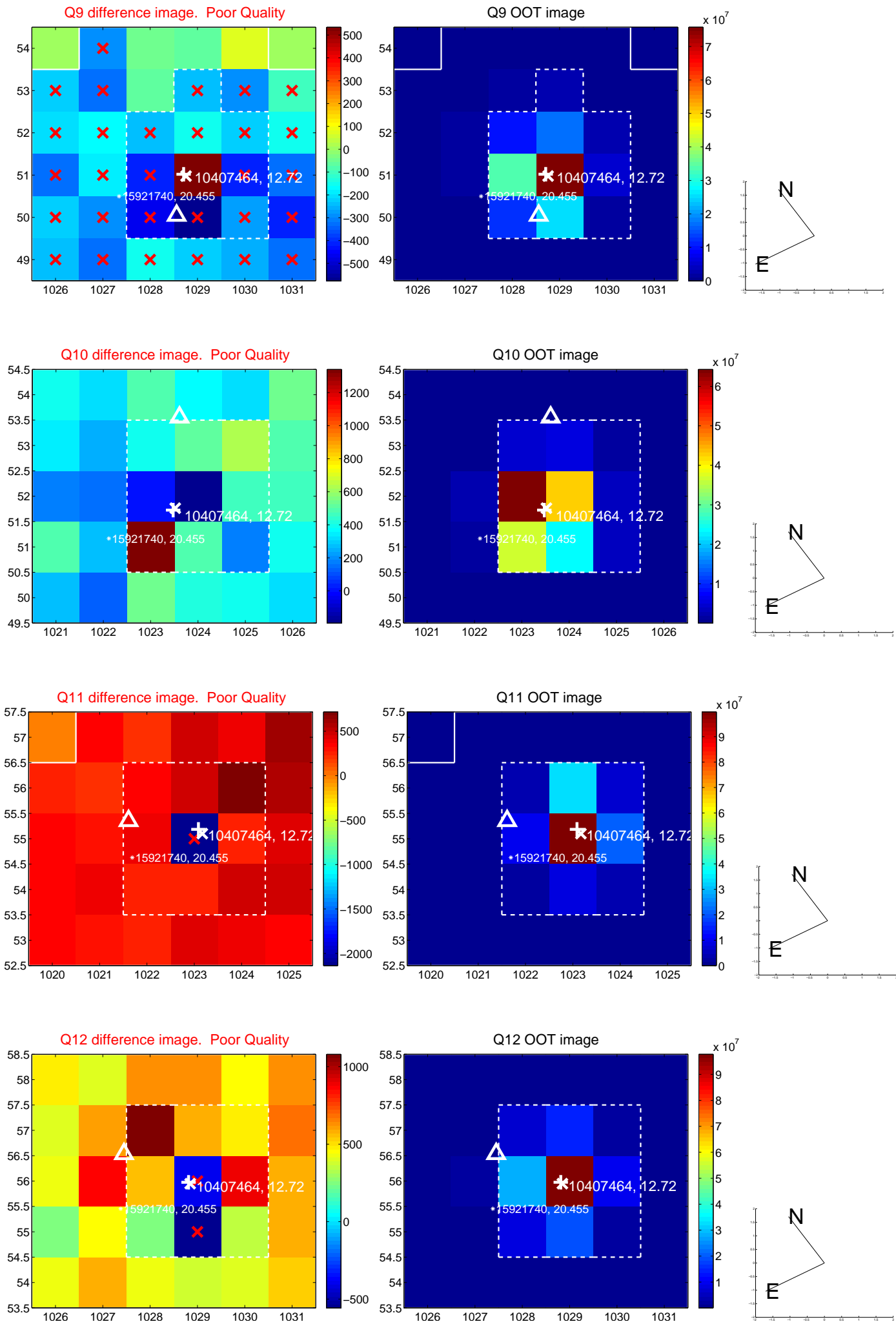
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



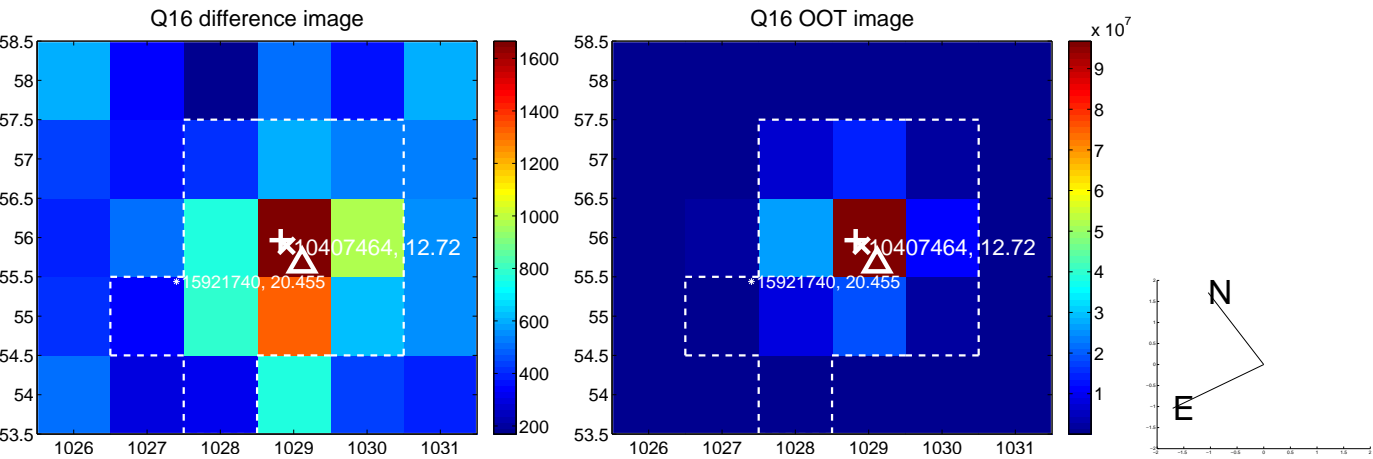
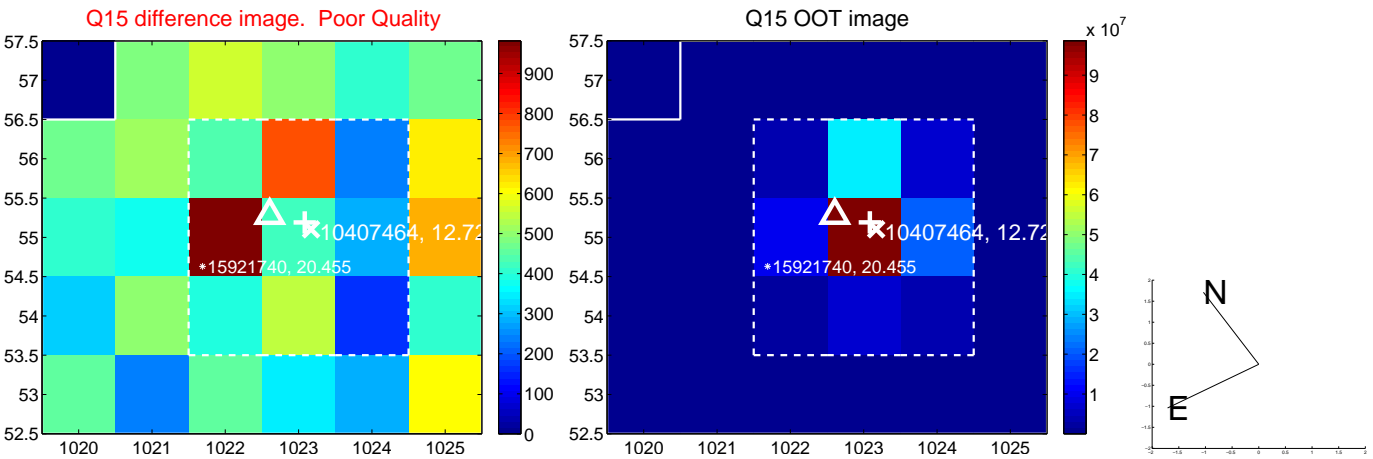
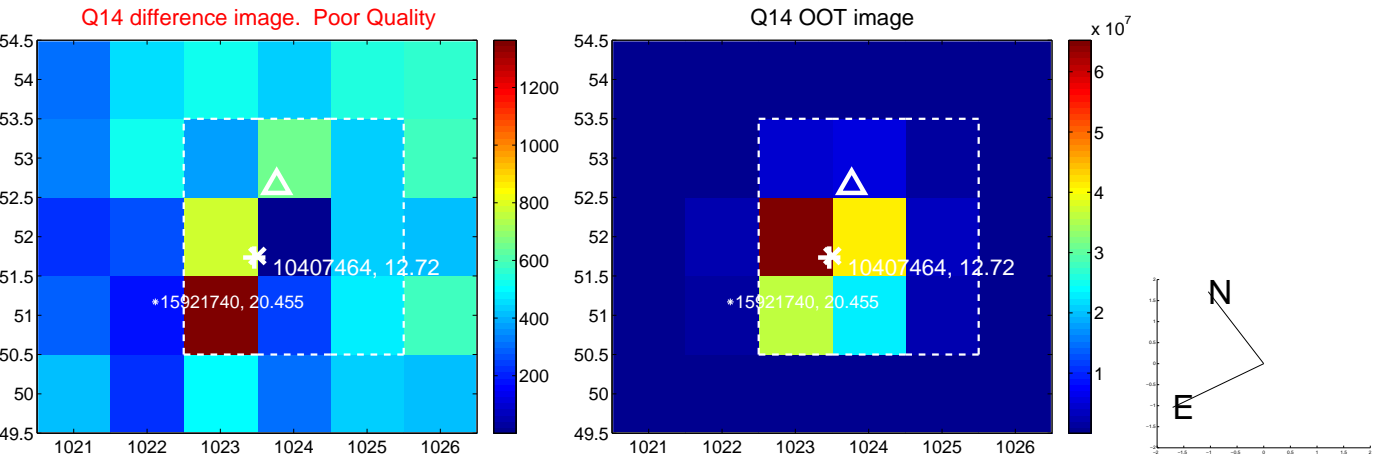
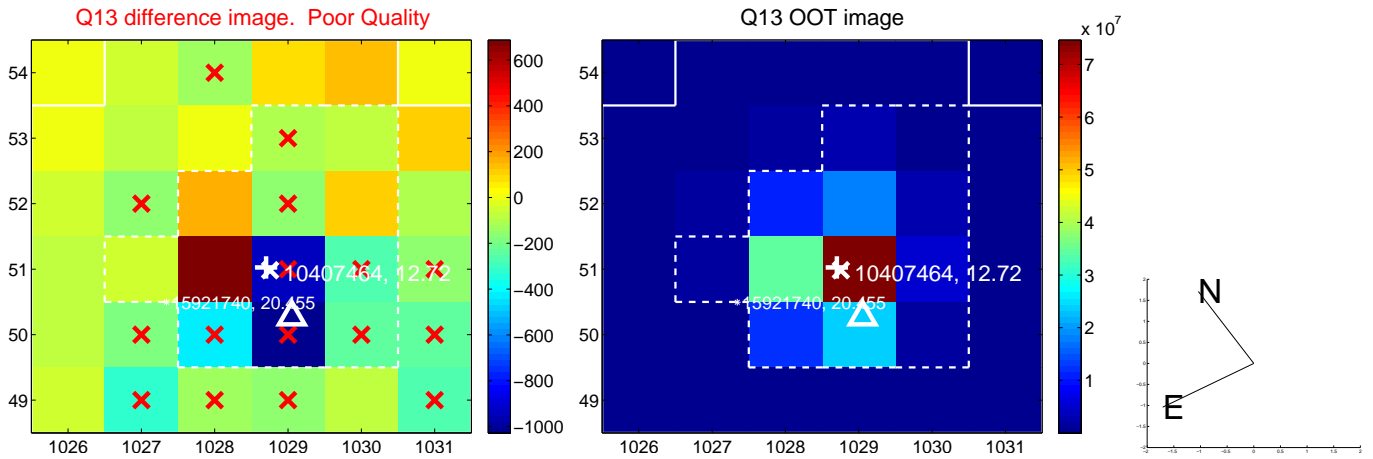
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



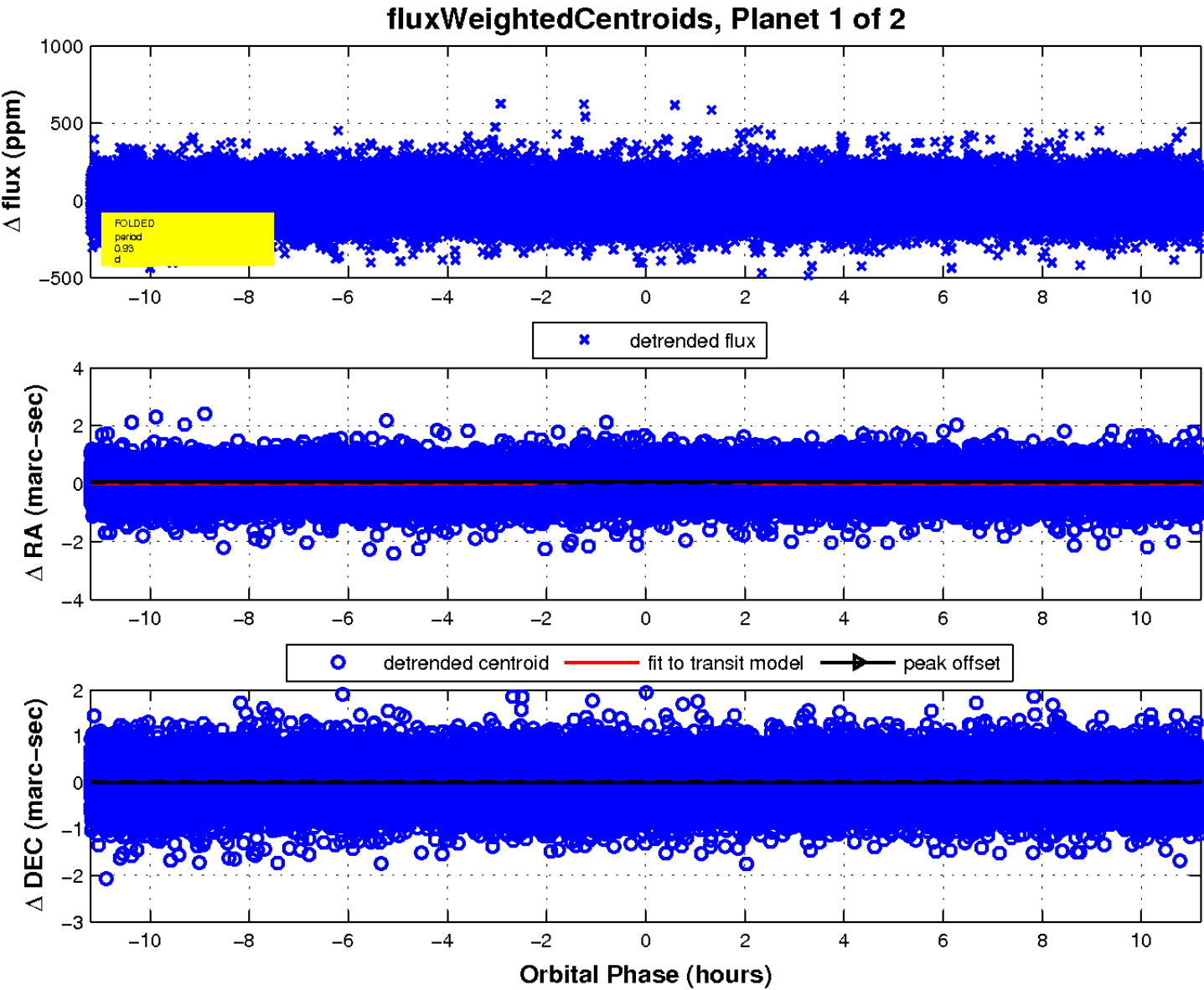
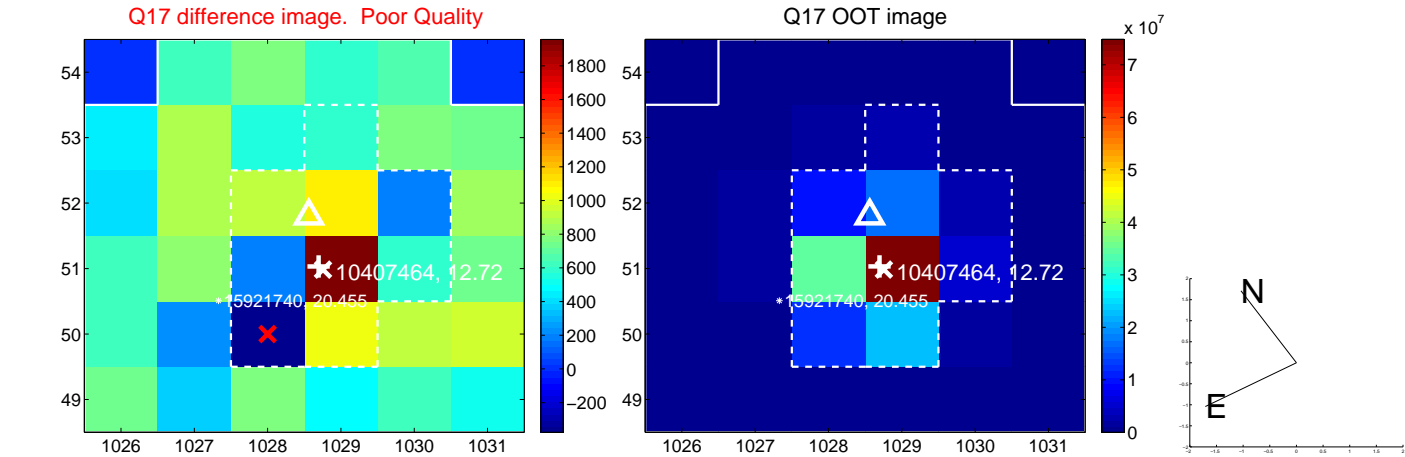
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



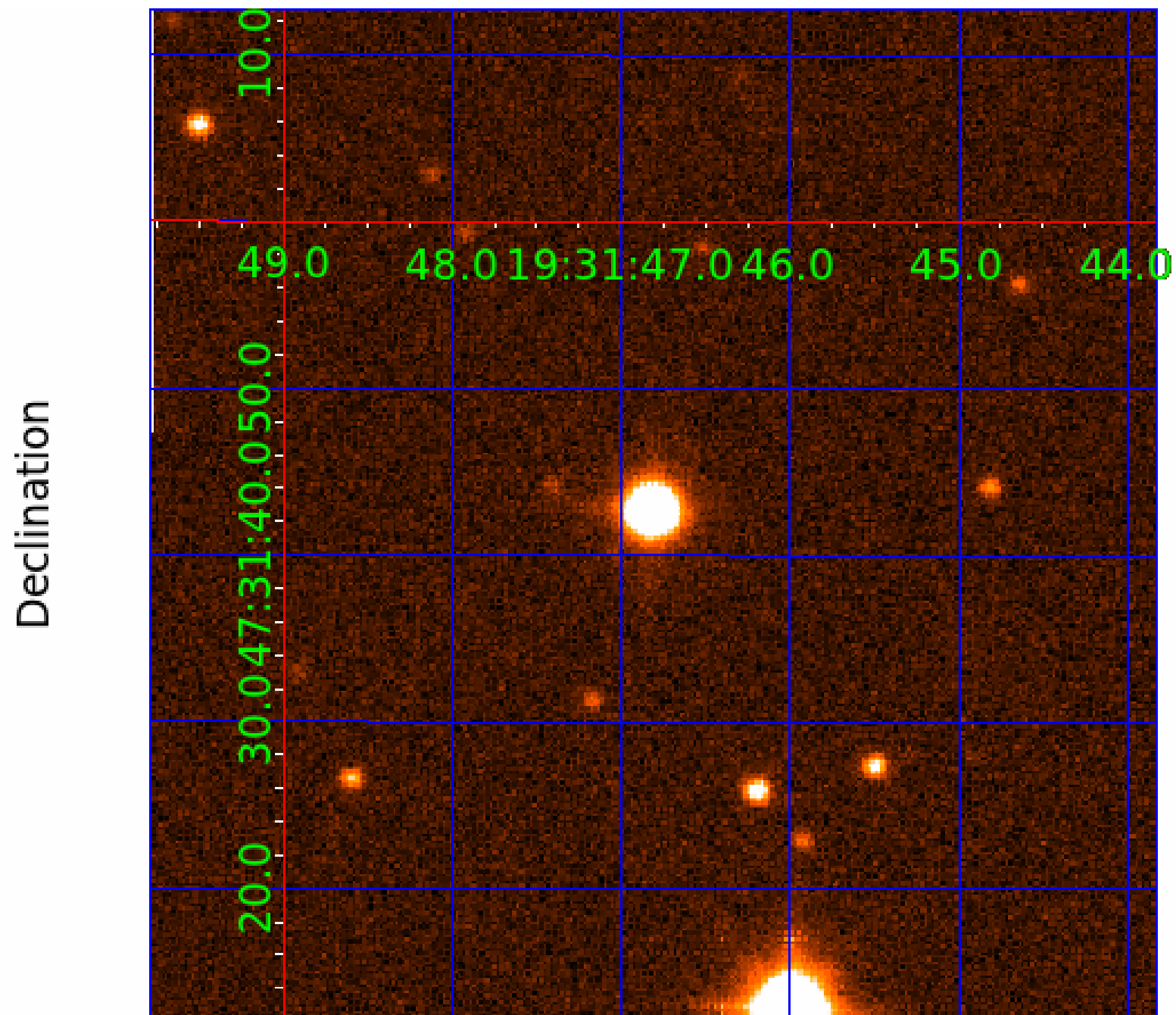
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010407464

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})
010407464-01	OBS	7323.01	0.933692	131.564760	10.0	4.457	8.7	8.6	1.02	6300	0.33	4410.30
010407464-02	OBS	No	95.804186	223.286838	85.6	22.409	11.0	6.6	1.02	6300	1.00	9.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407464-01	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH
010407464-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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.

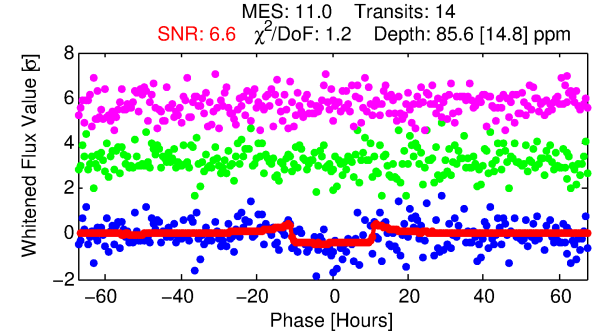
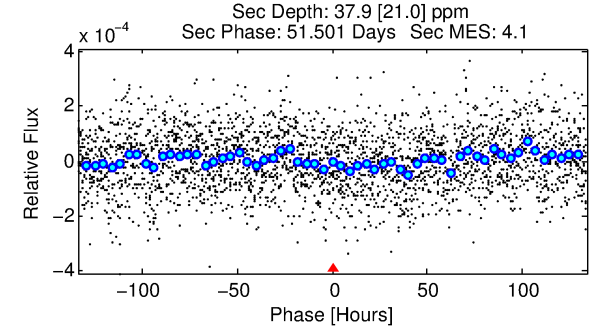
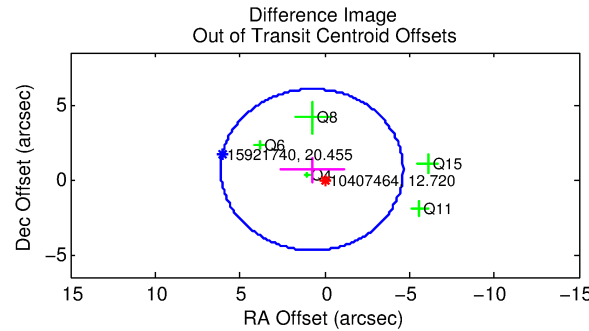
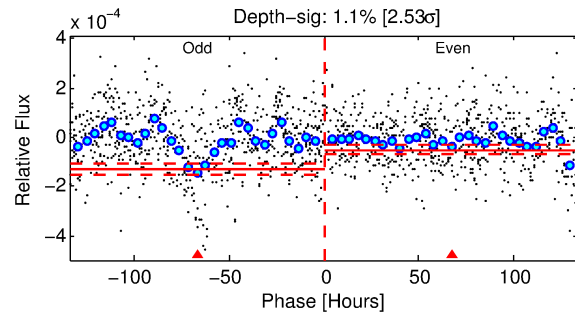
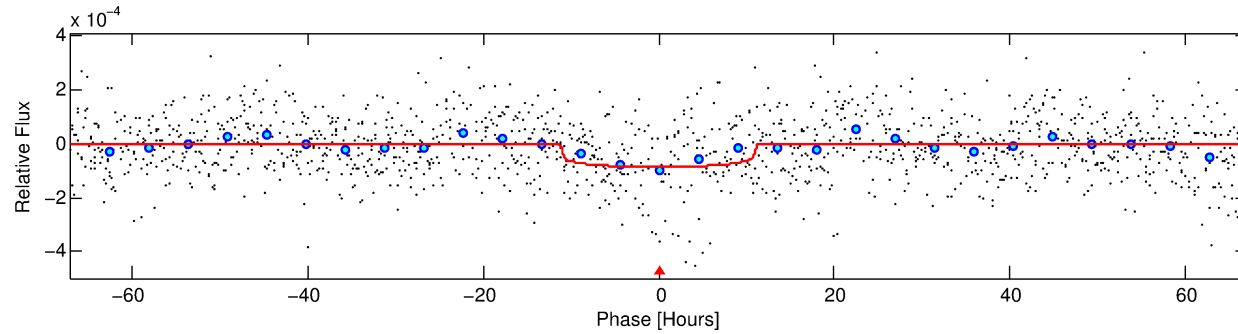
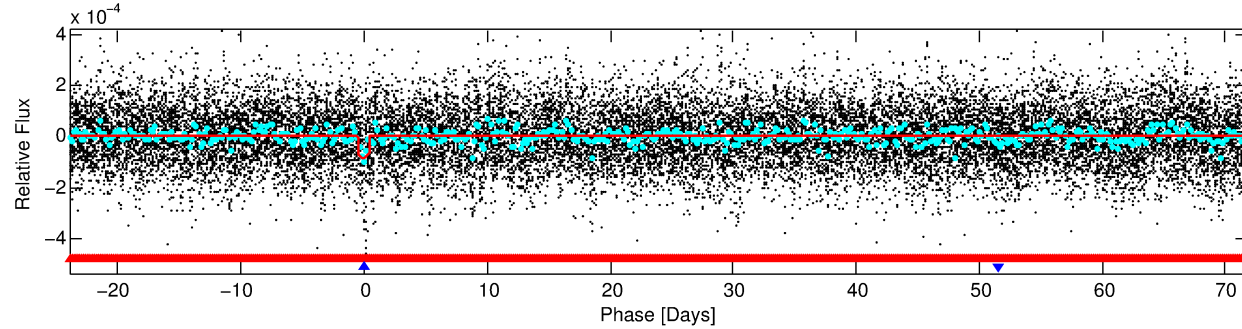
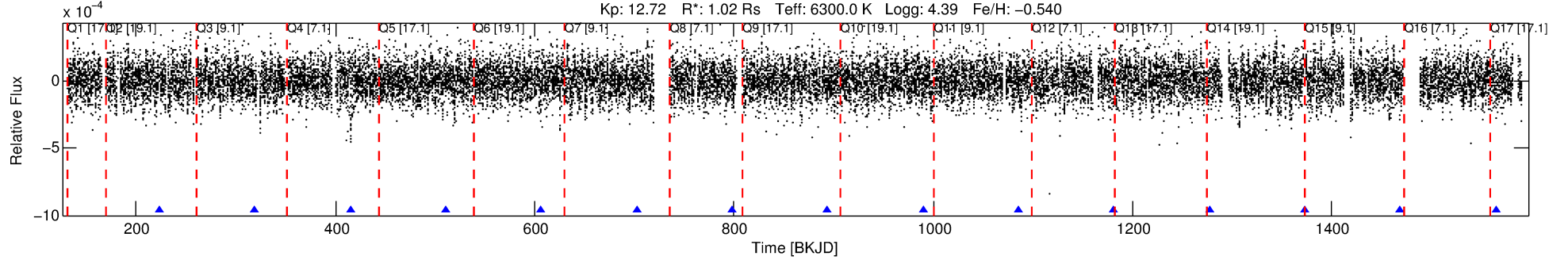
Ephemeris Match Information For 010407464-02

No Significant Match Found

DV One-Page Summary

KIC: 10407464 Candidate: 2 of 2 Period: 95.804 d
KOI: K07323 Corr: No Ephemeris Match

Kp: 12.72 R*: 1.02 Rs Teff: 6300.0 K Logg: 4.39 Fe/H: -0.540



DV Fit Results:

Period = 95.80419 [0.00328] d
Epoch = 223.2868 [0.0272] BKJD
Rp/R* = 0.0090 [0.0030]
a/R* = 25.34 [43.57]
b = 0.65 [1.56]
Seff = 9.18 [2.44]
Teq = 444 [30] K
Rp = 1.00 [0.38] Re
a = 0.4019 [0.0642] AU
Ag = 3356.33 [3016.85] [1.11σ]
Teffp = 5223 [1143] K [4.18σ]

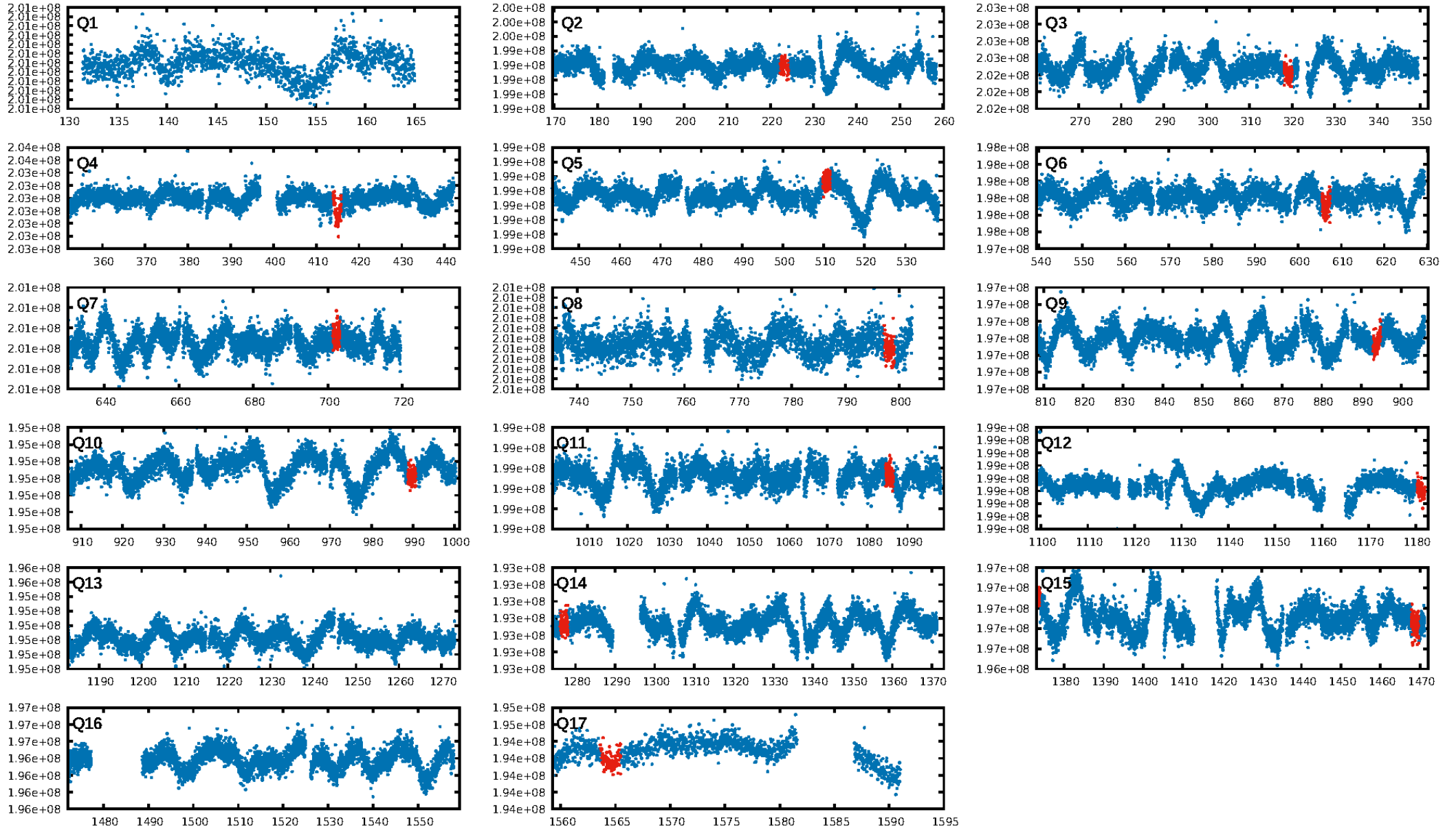
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [99.65σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.84e-17
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: -1.001
Centroid-sig: 2.6%
Centroid-so: 1.841 arcsec [2.24σ]
OotOffset-rm: 0.997 arcsec [0.56σ]
KicOffset-rm: 1.188 arcsec [0.63σ]
OotOffset-st: 1/2/2/0 [5]
KicOffset-st: 1/2/2/0 [5]
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DiffImageOverlap-fno: 0.00 [0/11]

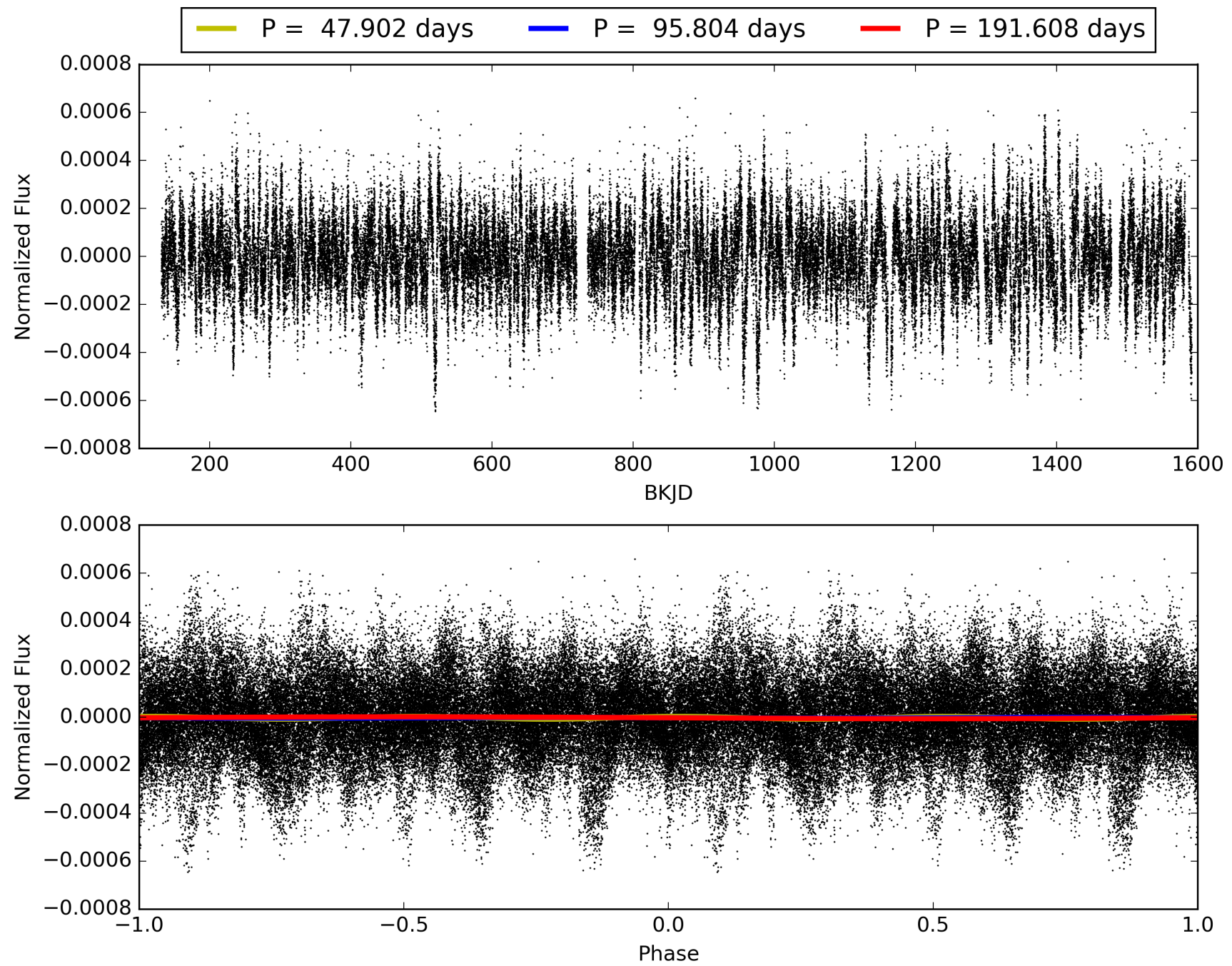
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:47:04 Z

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

TCE 010407464-02, PDC Light Curves

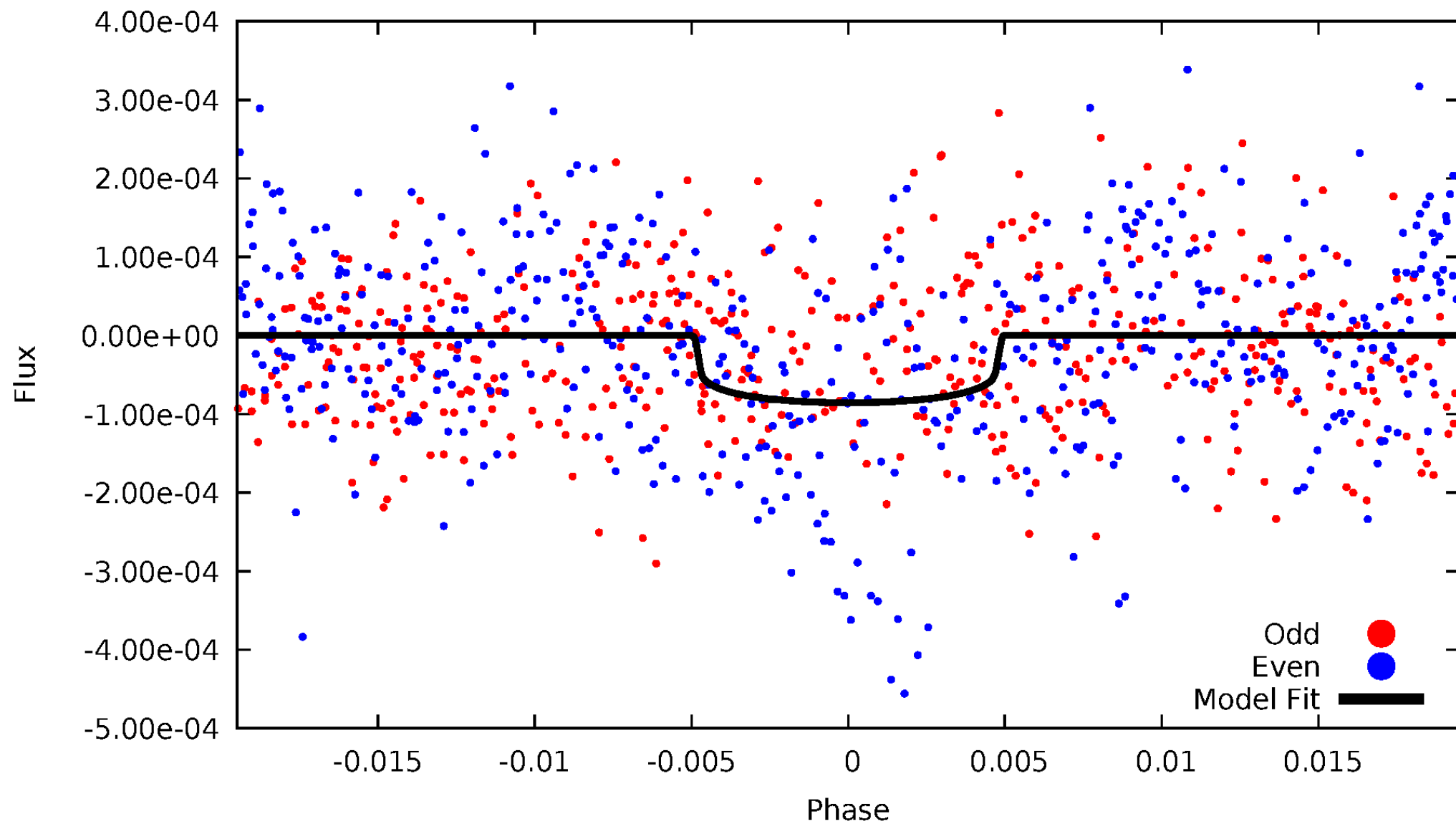


TCE 010407464-02



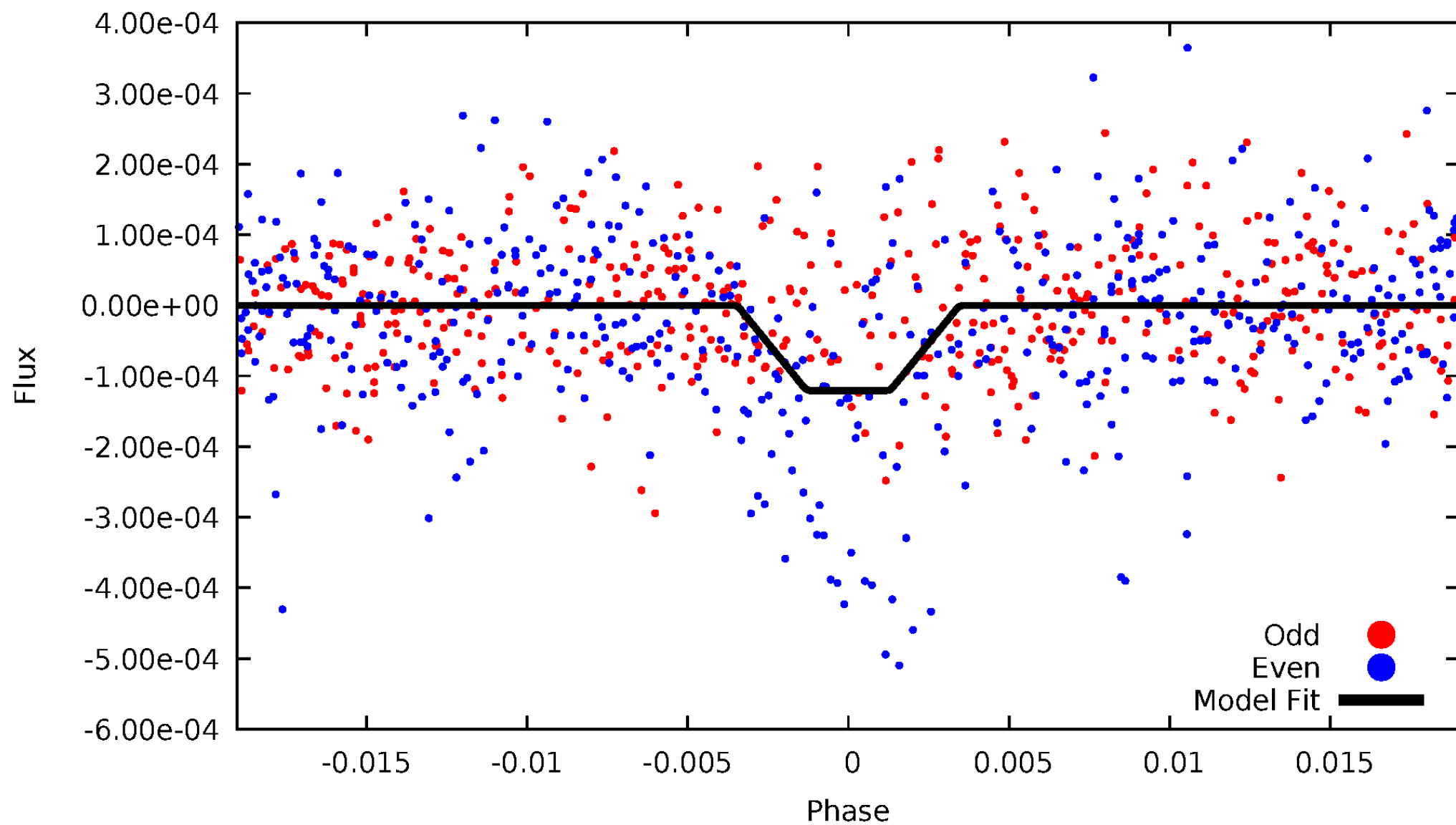
DV Odd/Even

TCE 010407464-02



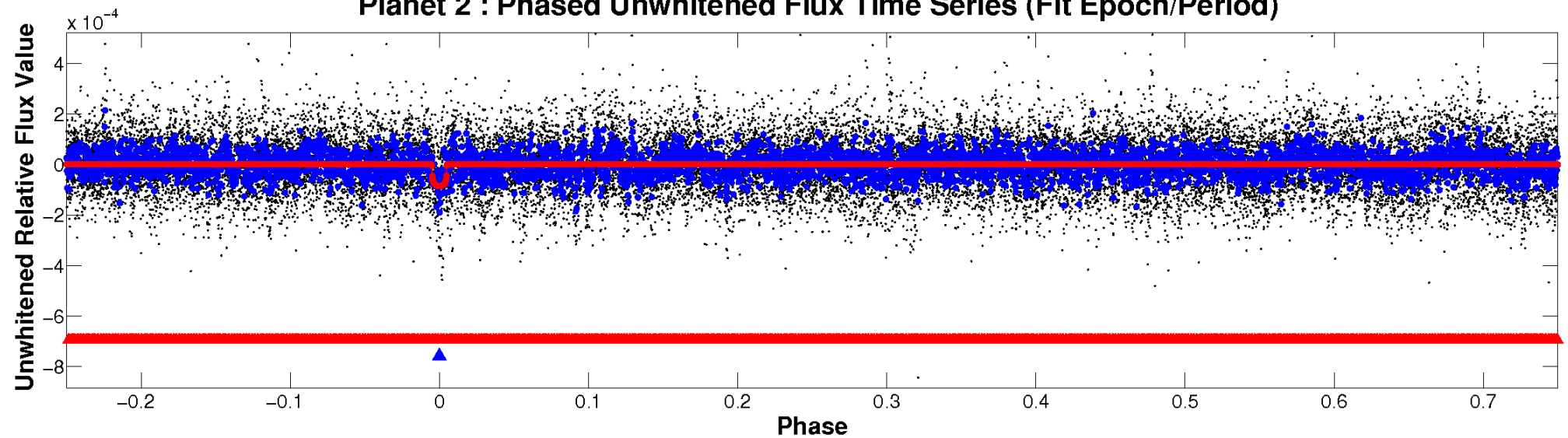
ALT Odd/Even

TCE 010407464-02

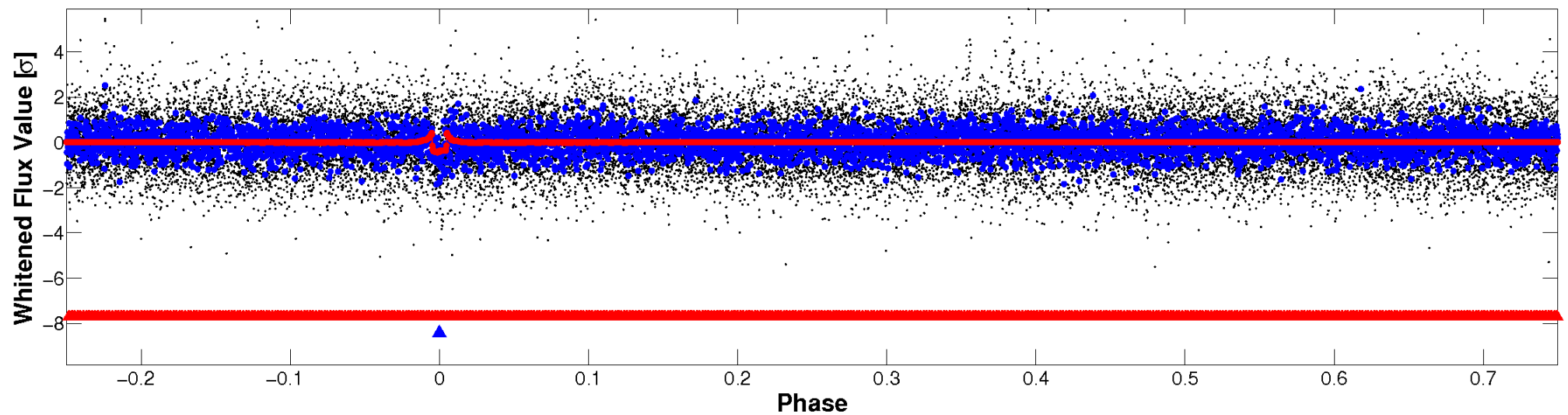


Non-Whitened Vs. Whitened Light Curve

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

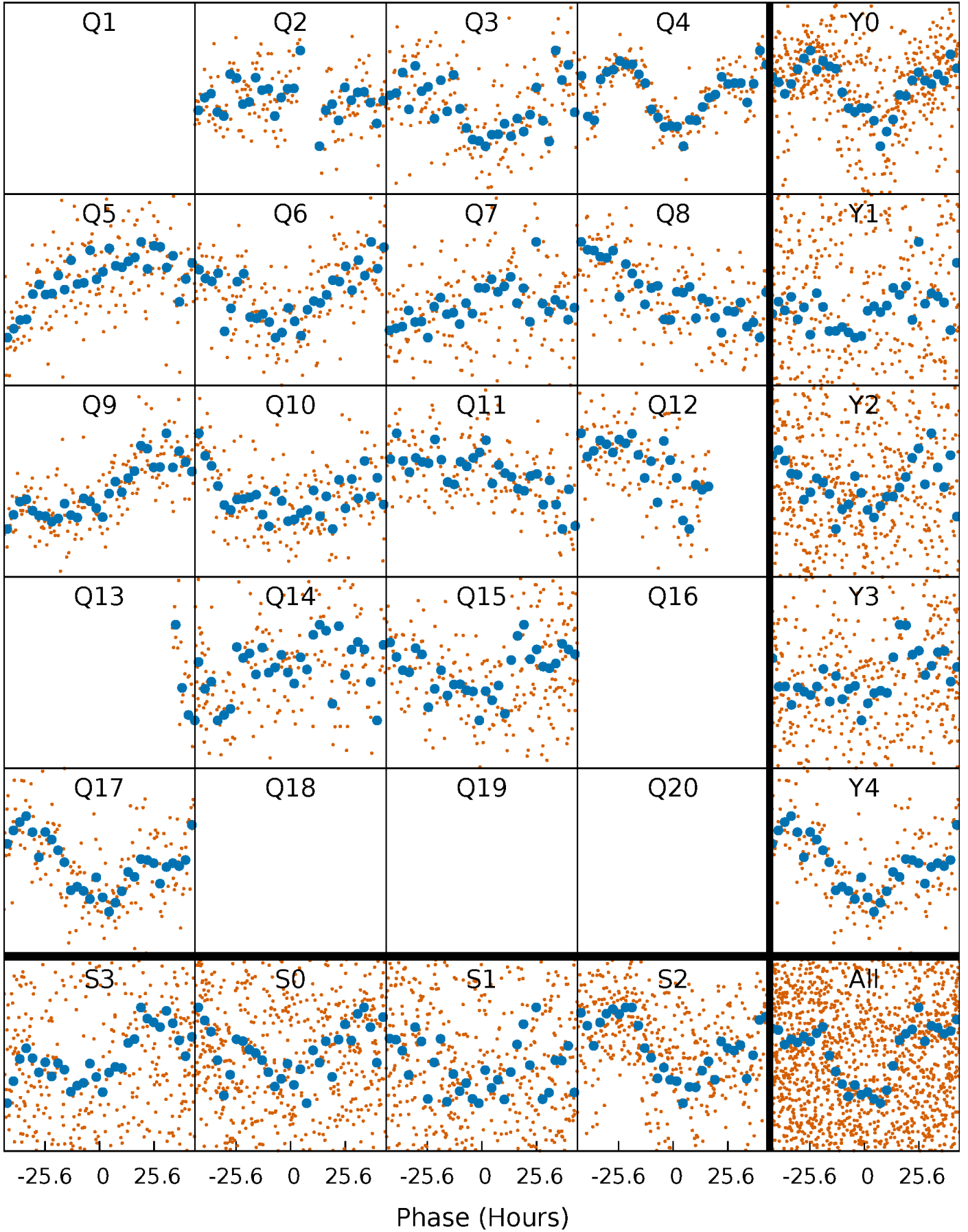


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



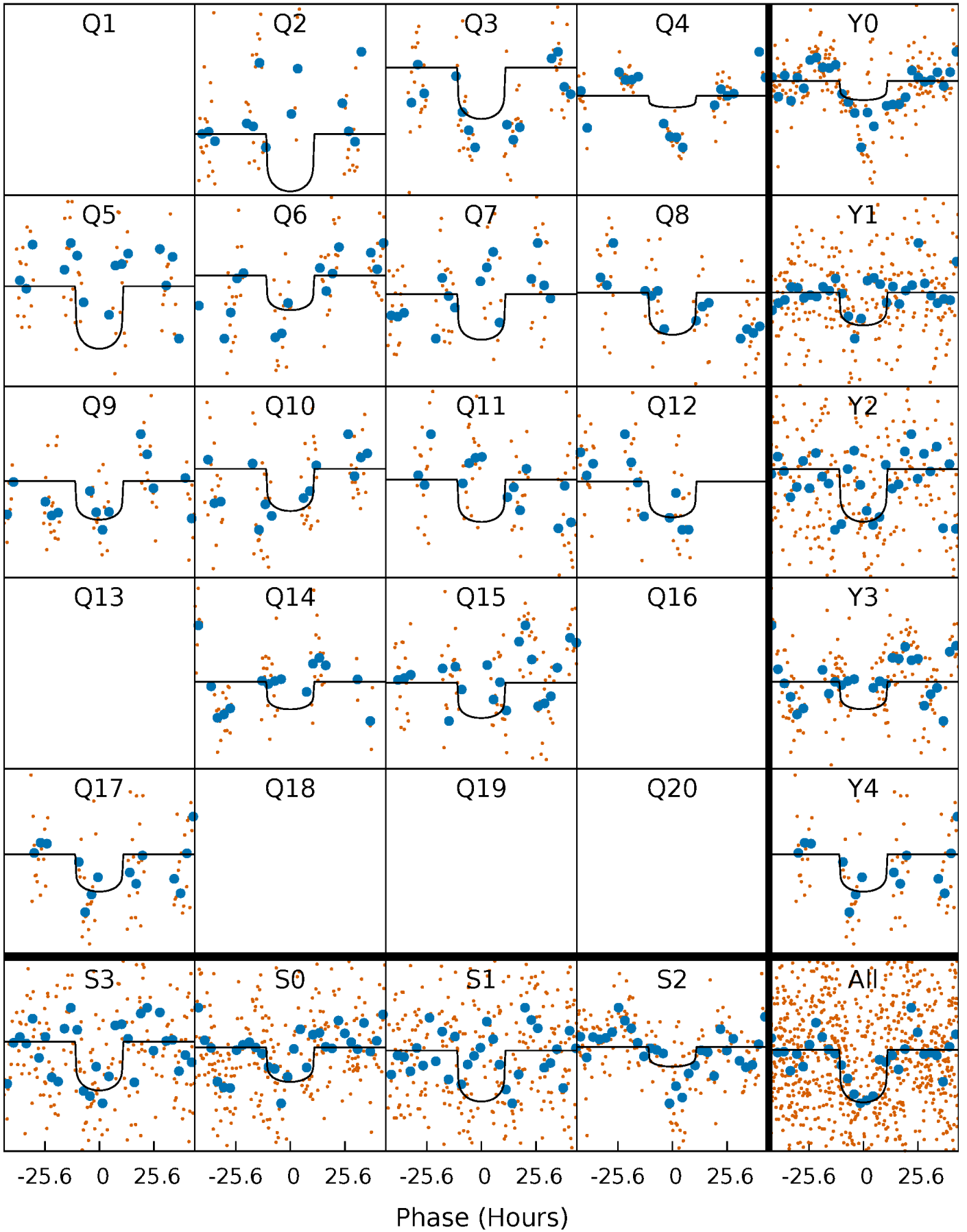
PDC Quarter-Phased Transit Curves

TCE 010407464-02 P= 95.804186 Days $T_0=223.286838$ (BKJD)



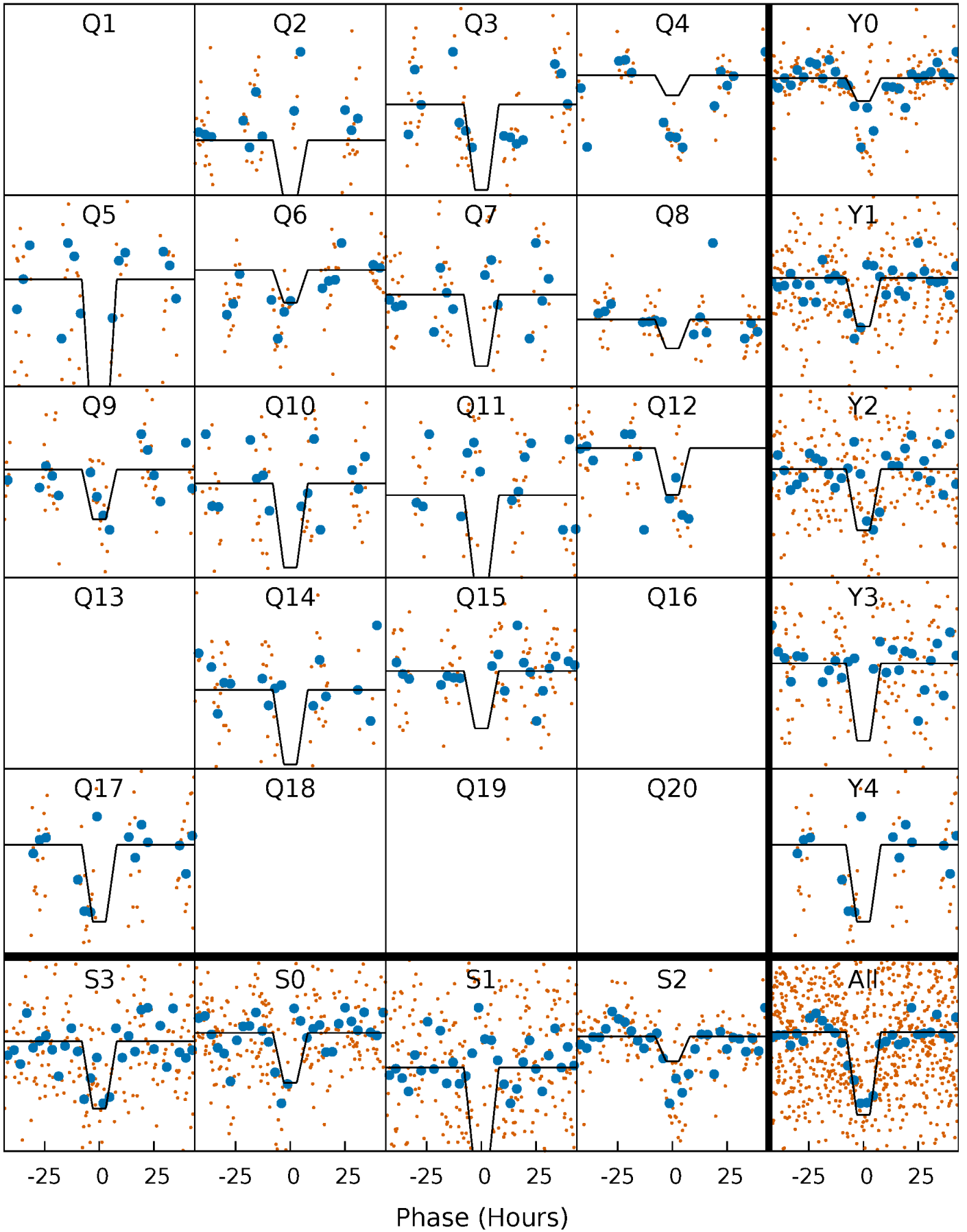
DV Quarter-Phased Transit Curves

TCE 010407464-02 P= 95.804186 Days $T_0=223.286838$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

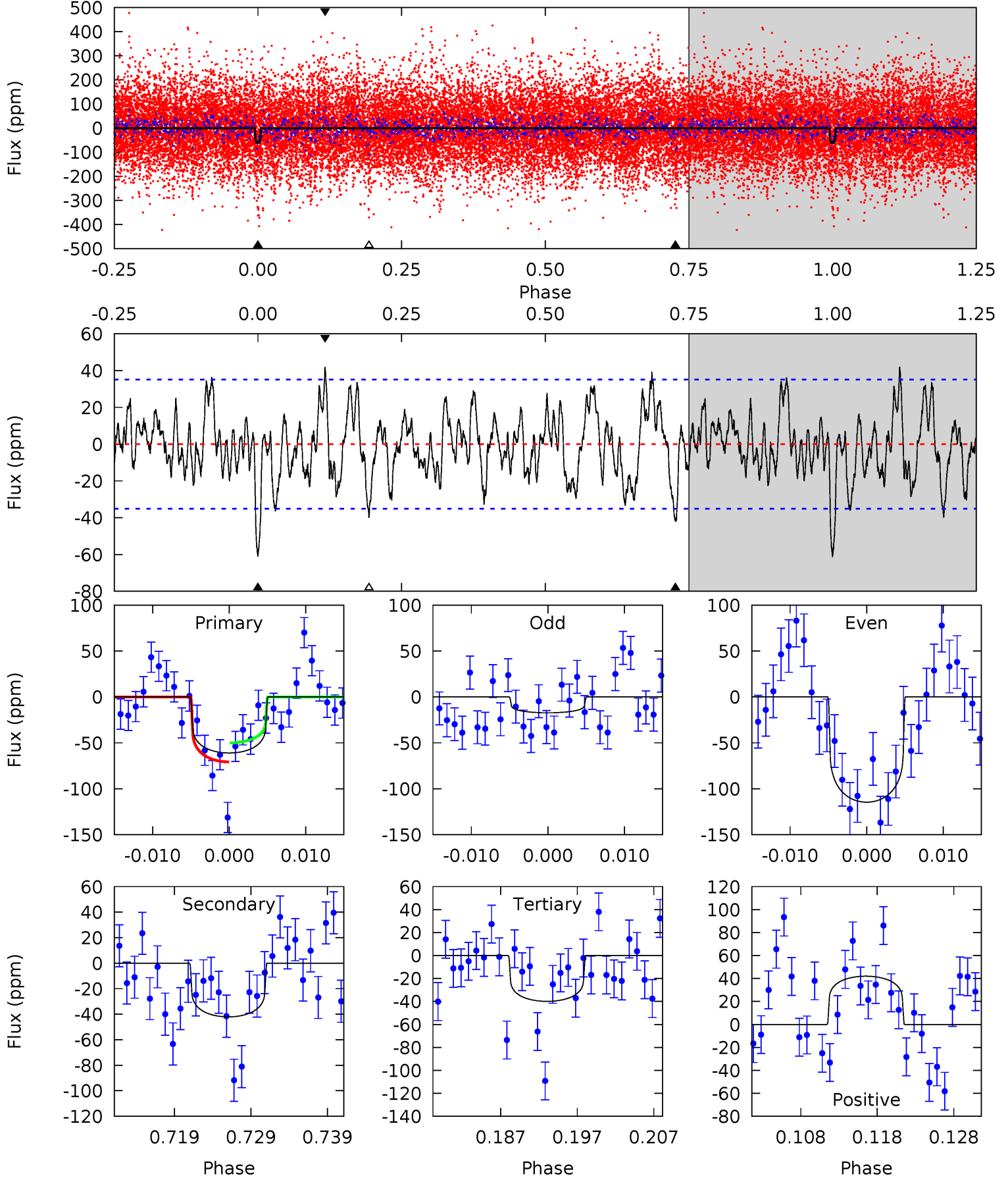
TCE 010407464-02 P= 95.801346 Days $T_0=223.312236$ (BKJD)



DV Model-Shift Uniqueness Test

010407464-02, P = 95.804186 Days, E = 127.482652 Days

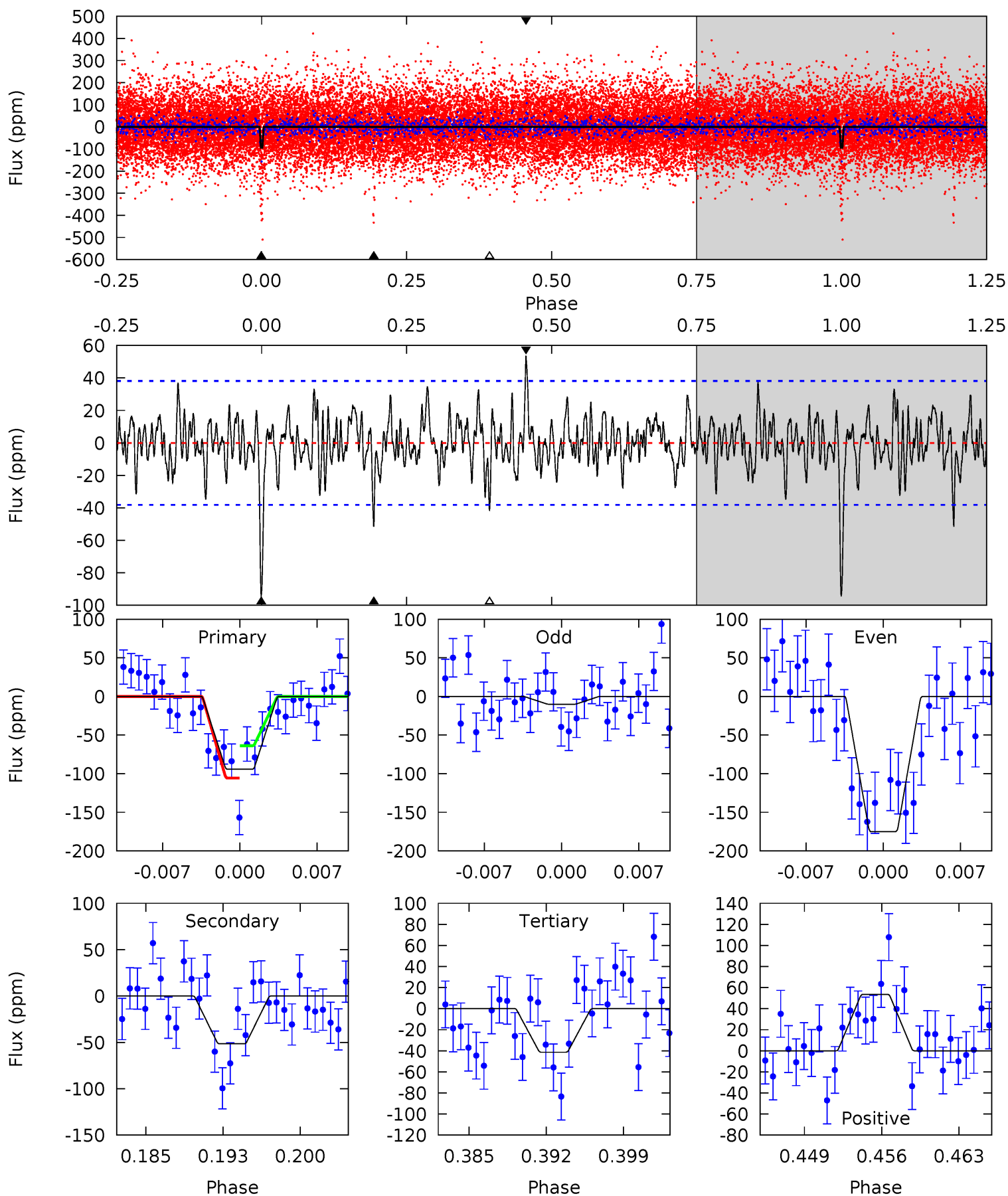
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.75	6.03	5.72	6.02	5.03	2.58	2.16	3.03	2.73	0.31	0.01	6.98	0.97	0.41	1.48



Alt Model-Shift Uniqueness Test

010407464-02, $P = 95.801346$ Days, $E = 127.510890$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	6.87	5.52	7.15	5.09	2.69	1.67	7.06	5.43	1.35	-0.28	11.1	1.29	0.36	2.76



Stellar Parameters For KIC 010407464

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6300^{+152}_{-190}	$4.391^{+0.096}_{-0.132}$	$-0.540^{+0.300}_{-0.300}$	$1.025^{+0.190}_{-0.139}$	$0.942^{+0.112}_{-0.100}$	$1.234^{+0.588}_{-0.471}$
	+2%/-3%	+2%/-3%	+56%/-56%	+19%/-14%	+12%/-11%	+48%/-38%
Source	PHO1	FLK73	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 010407464-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-42 ± 7	$1.04^{+0.33}_{-0.39}$	621^{+35}_{-30}	5309^{+1284}_{-578}	3461^{+5039}_{-1530}
Alt.	-52 ± 7	$1.23^{+0.36}_{-0.33}$	621^{+31}_{-30}	5135^{+832}_{-526}	2934^{+2833}_{-1186}

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

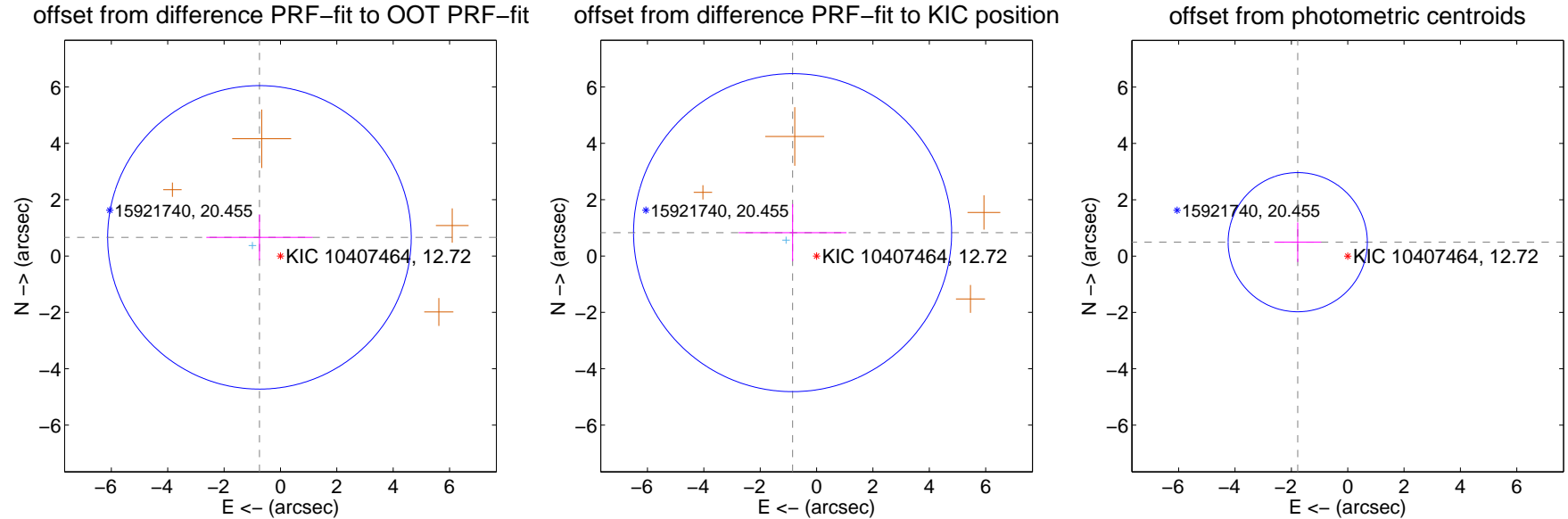
DV Centroid Data

Supplemental centroid analysis for 010407464-02. Kepler magnitude: 12.72. Transit SNR 6.62

There are 1 quarters with good PRF difference image offsets

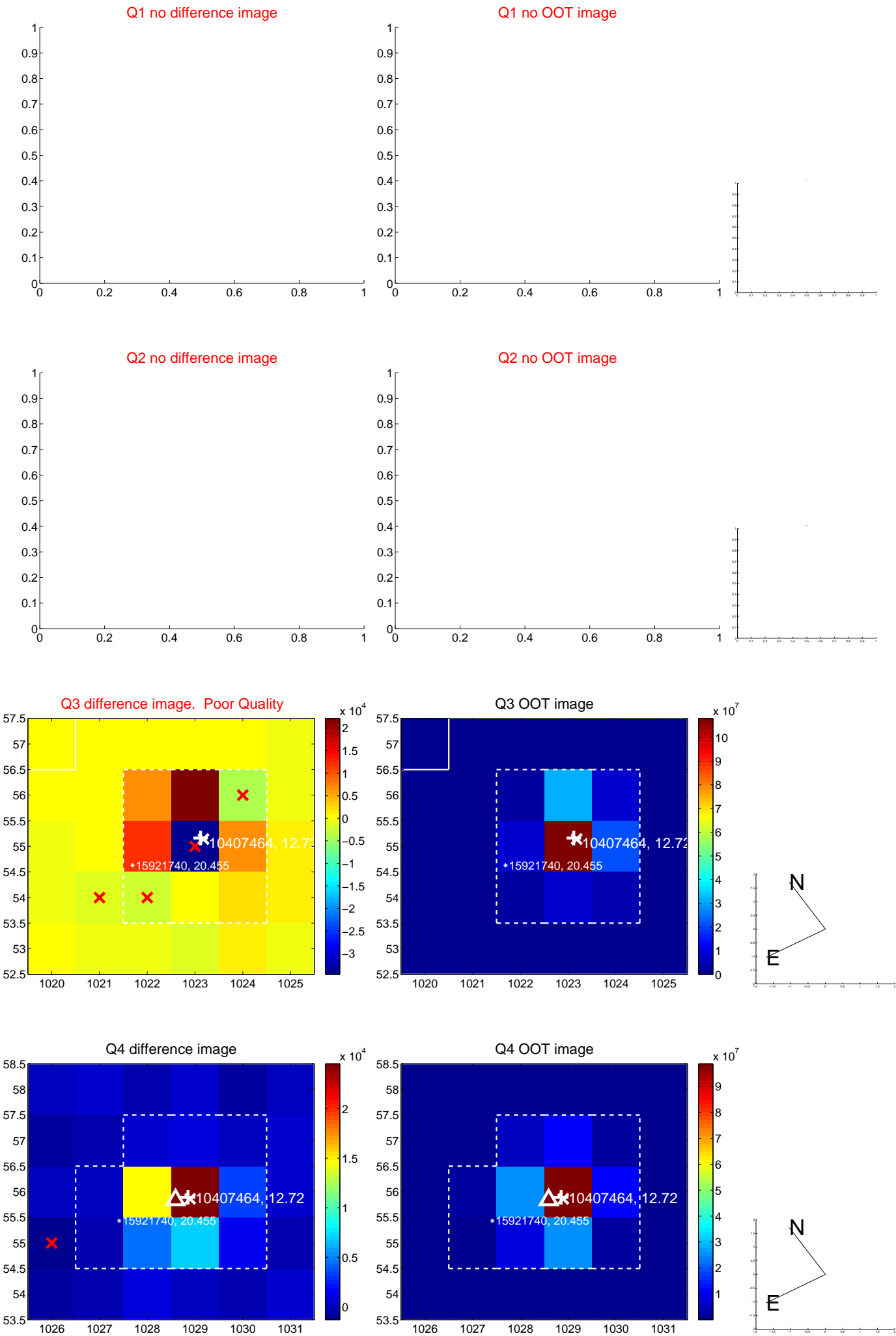
The direct PRF centroid is offset from the target star catalog position by about 0.49 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.997 ± 1.795	0.56	0.745 ± 1.884	0.662 ± 0.807
PRF-fit source offset from KIC position	1.188 ± 1.881	0.63	0.851 ± 1.912	0.829 ± 1.012
photometric centroid source offset	1.84 ± 0.82	2.24	1.77 ± 0.83	0.49 ± 0.70

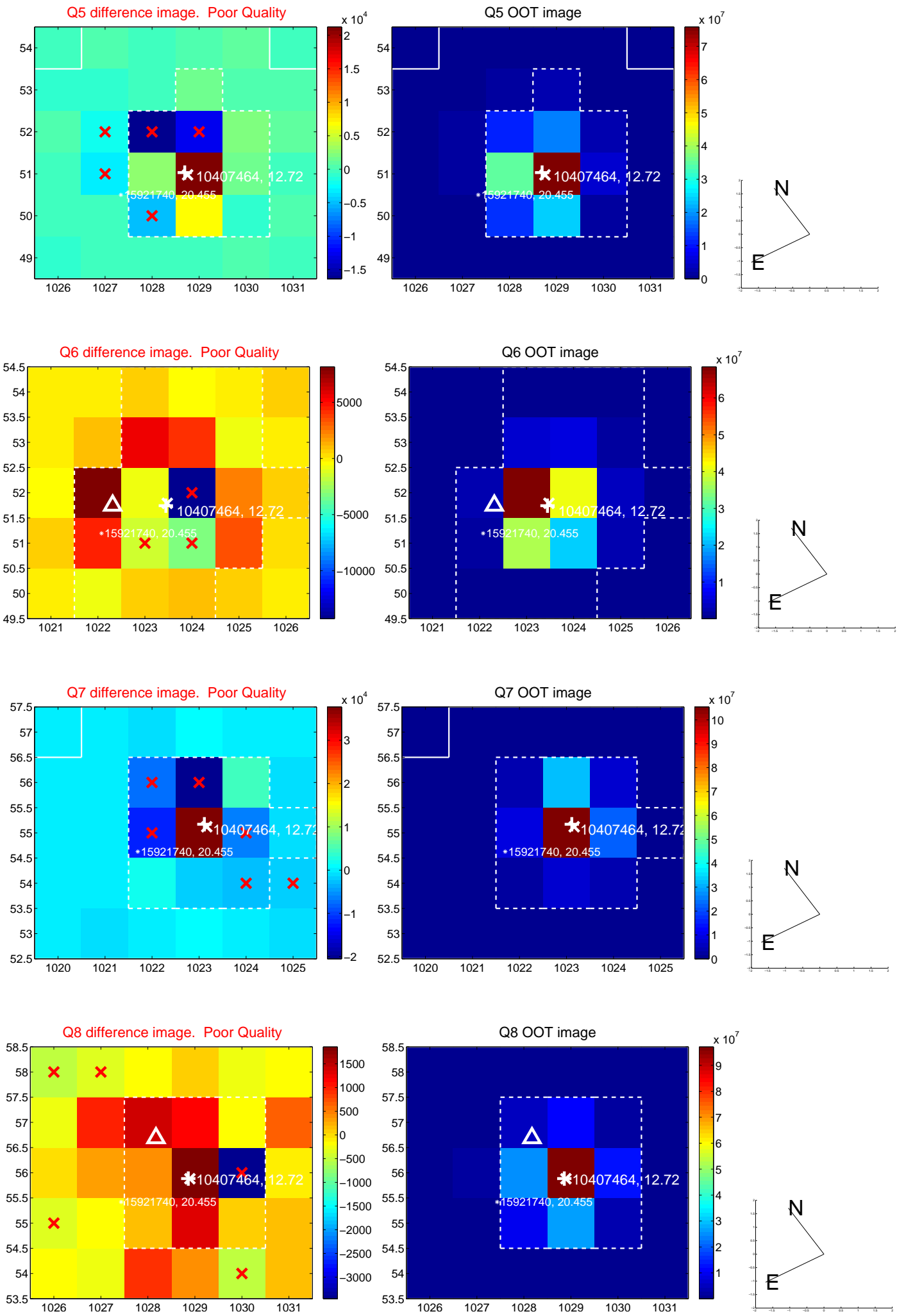


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

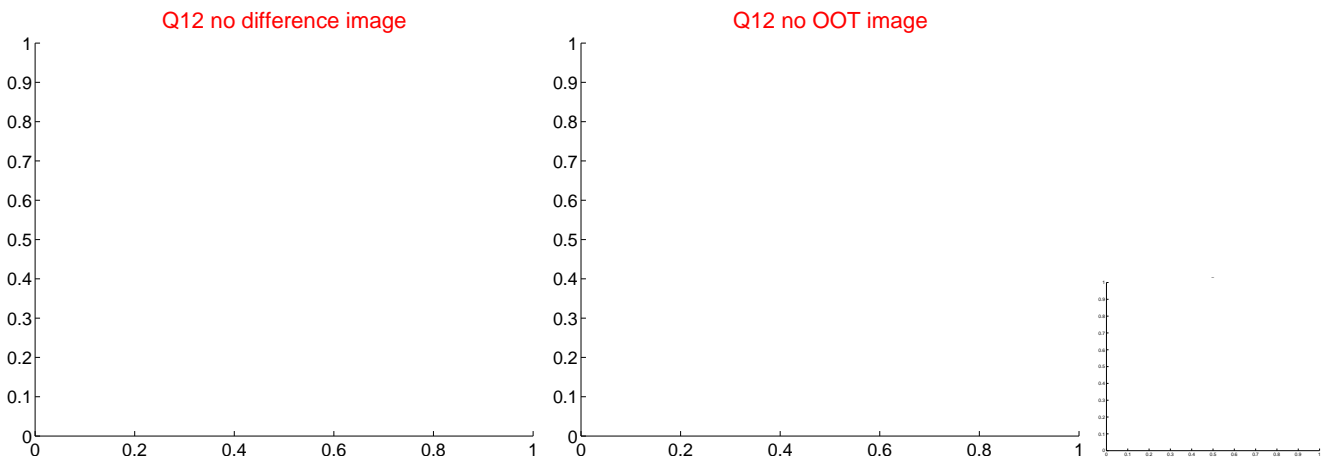
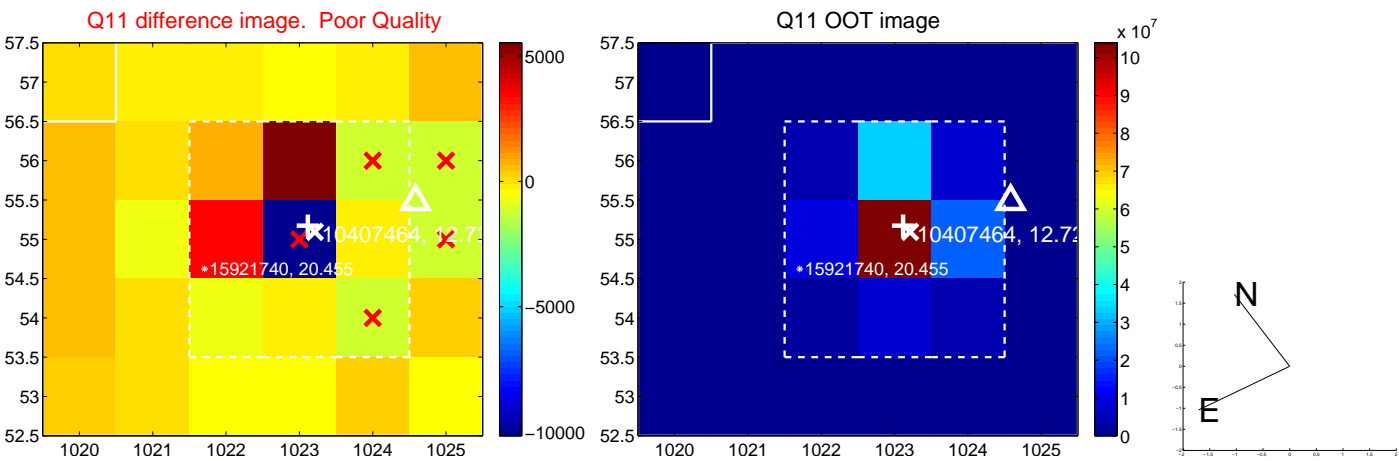
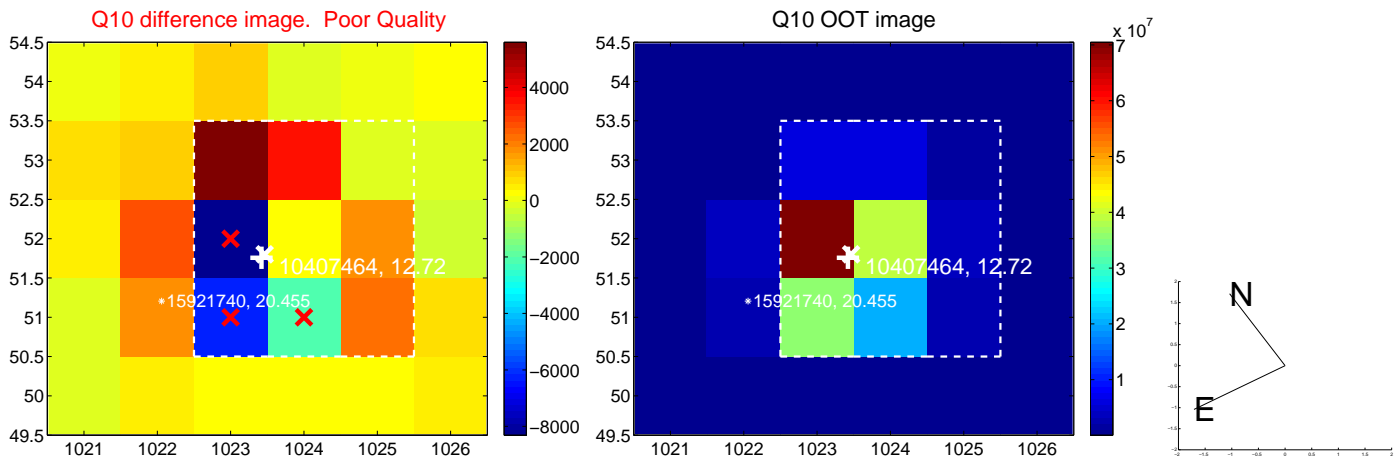
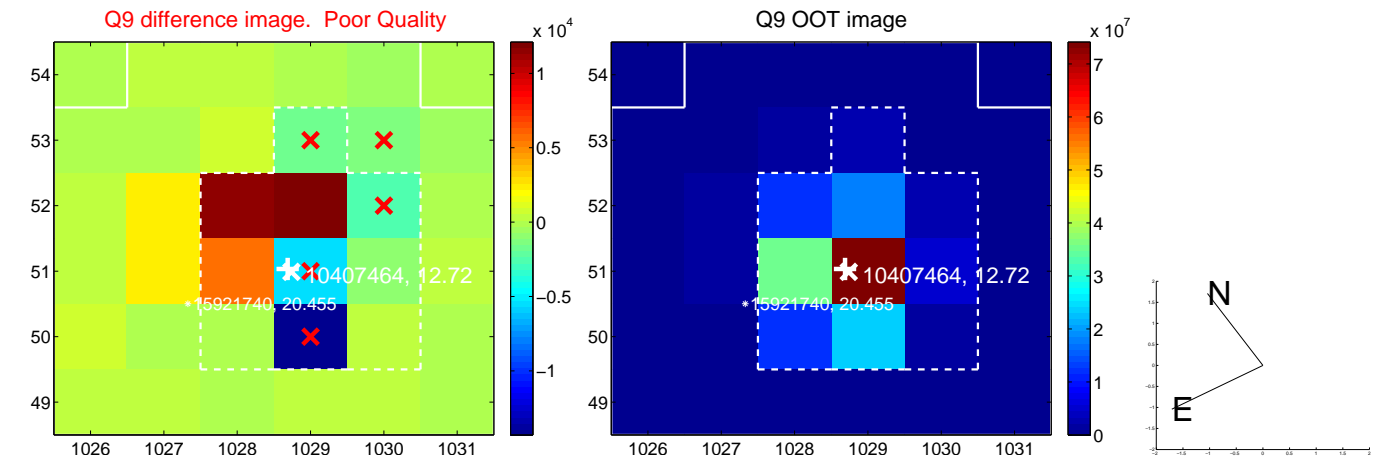
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



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

Q13 no difference image



Q13 no OOT image



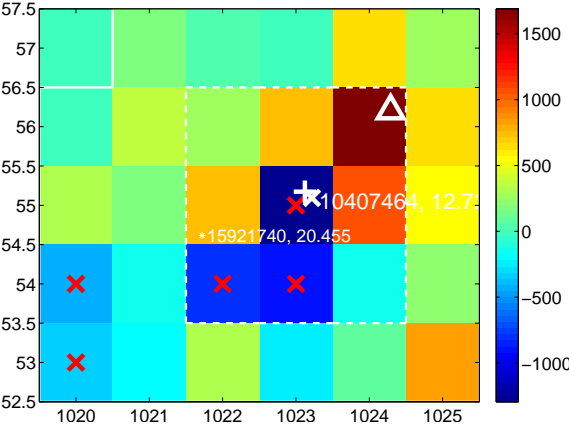
Q14 no difference image



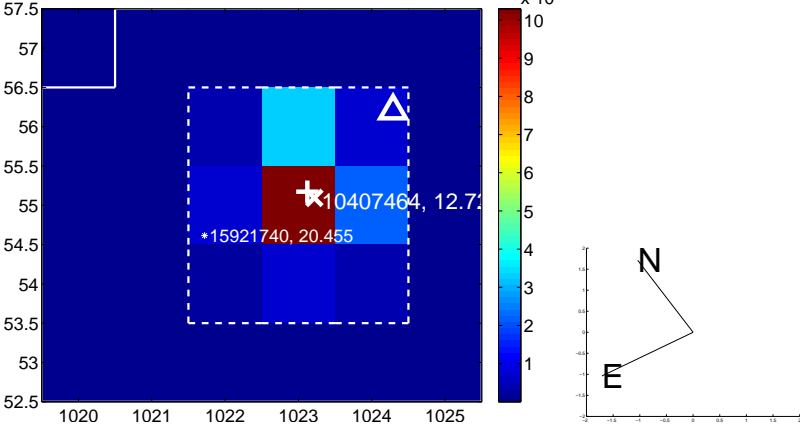
Q14 no OOT image



Q15 difference image. Poor Quality



Q15 OOT image



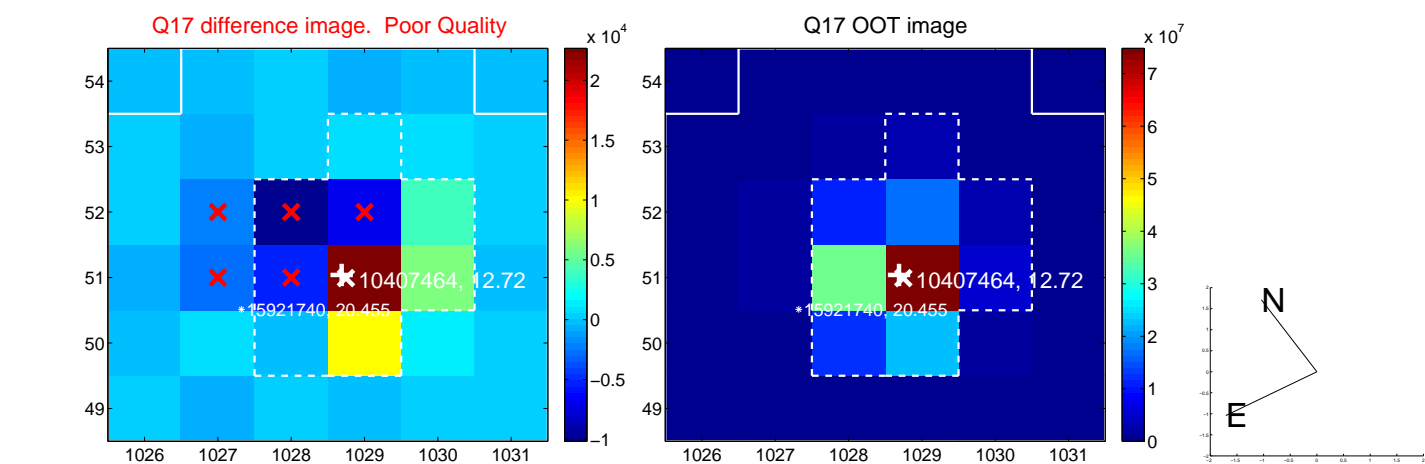
Q16 no difference image



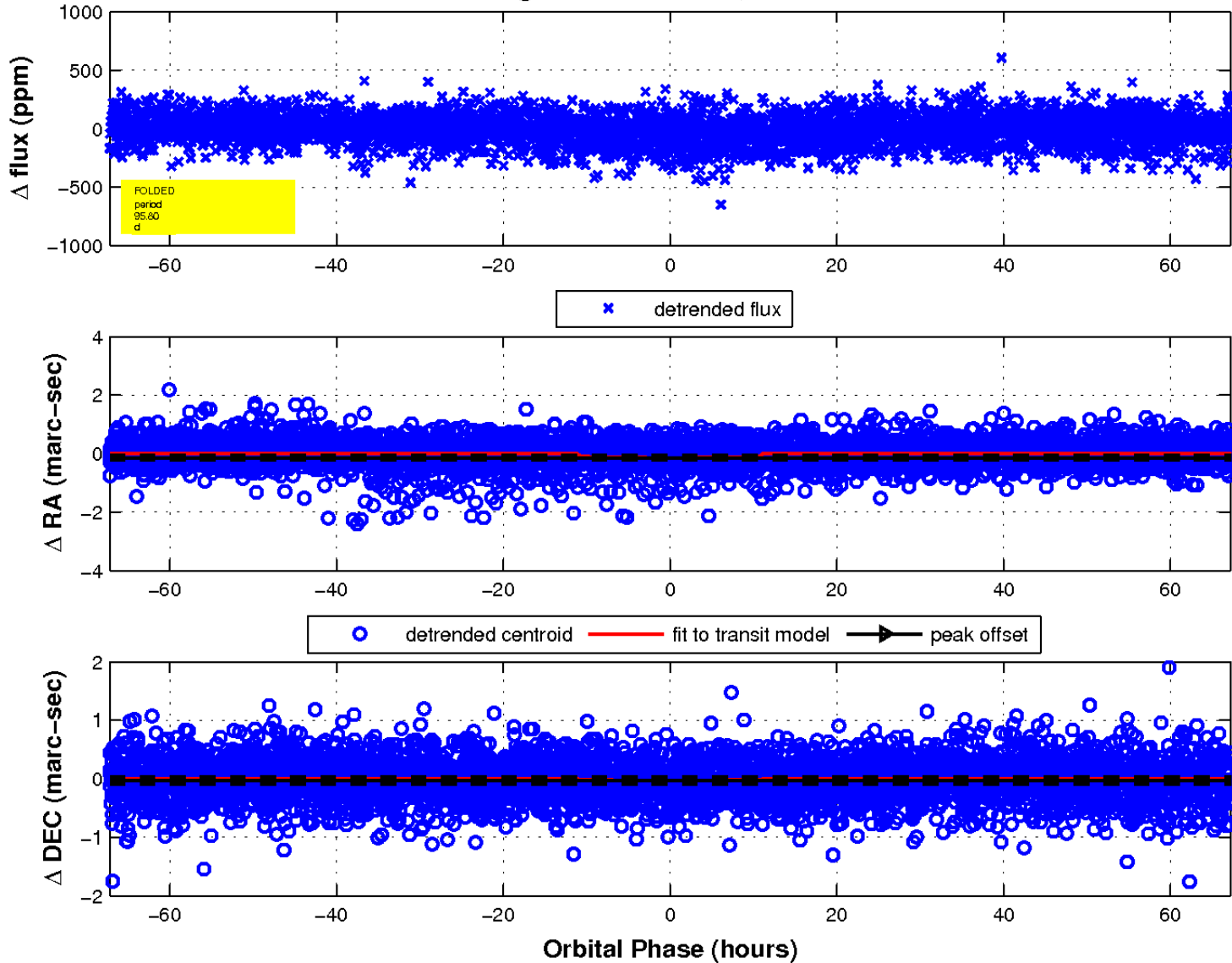
Q16 no OOT image



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

