

KIC 008420752

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})
008420752-01	OBS	No	1.441004	131.698356	14.8	2.713	16.5	3.4	1.98	9610	0.88	27983.71
008420752-02	OBS	No	1.441302	131.919527	420.3	3.000	16.3	-1.0	1.98	9610	4.15	27976.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008420752-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008420752-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

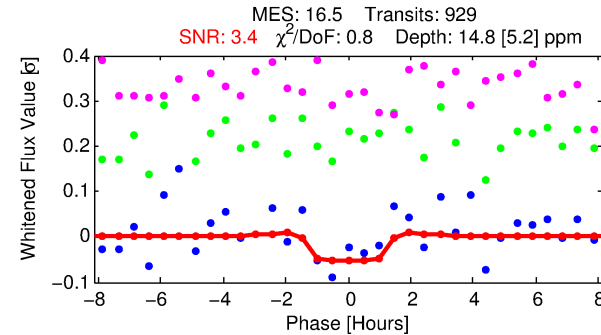
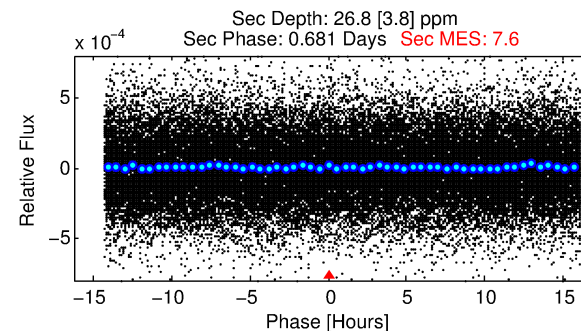
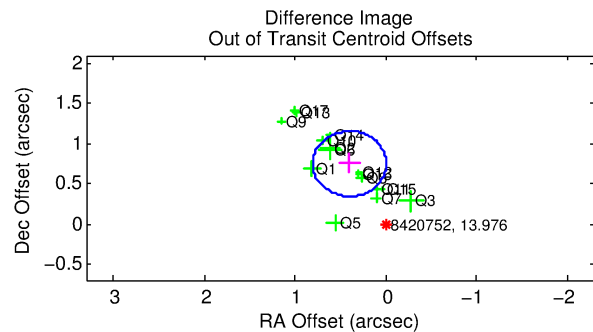
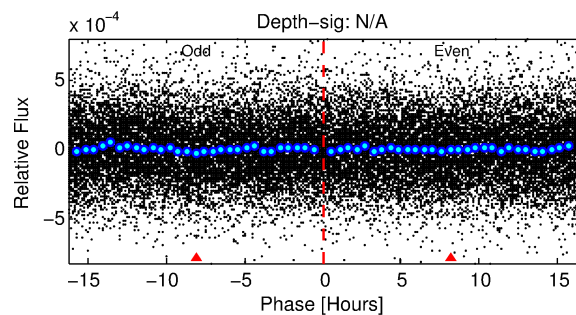
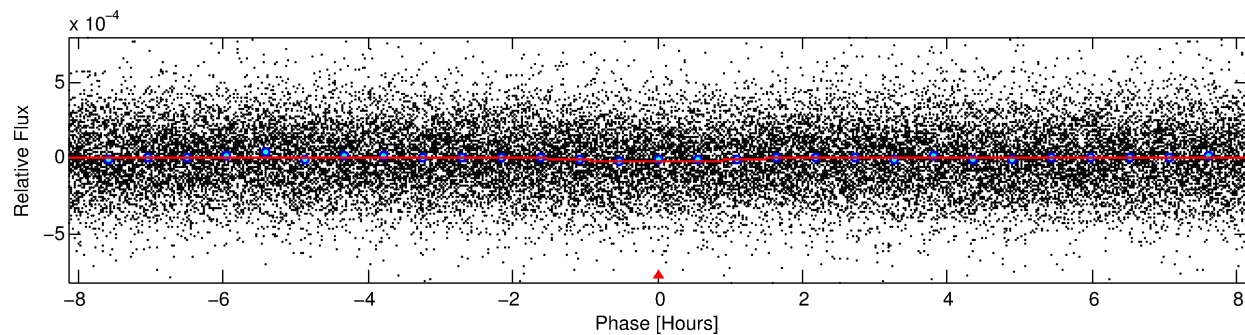
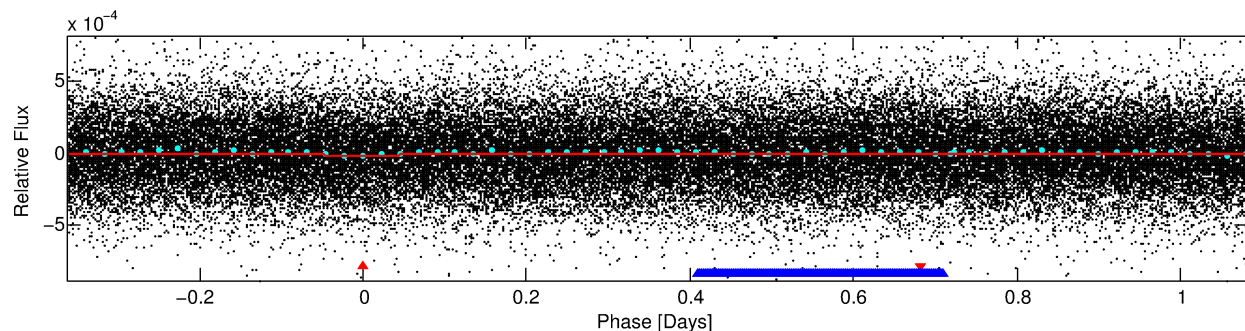
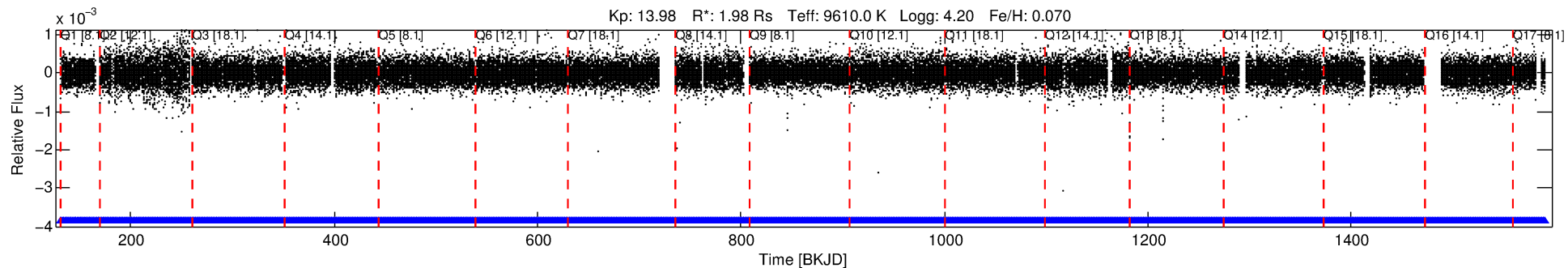
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008420752-01

No Significant Match Found

DV One-Page Summary

KIC: 8420752 Candidate: 1 of 2 Period: 1.441 d



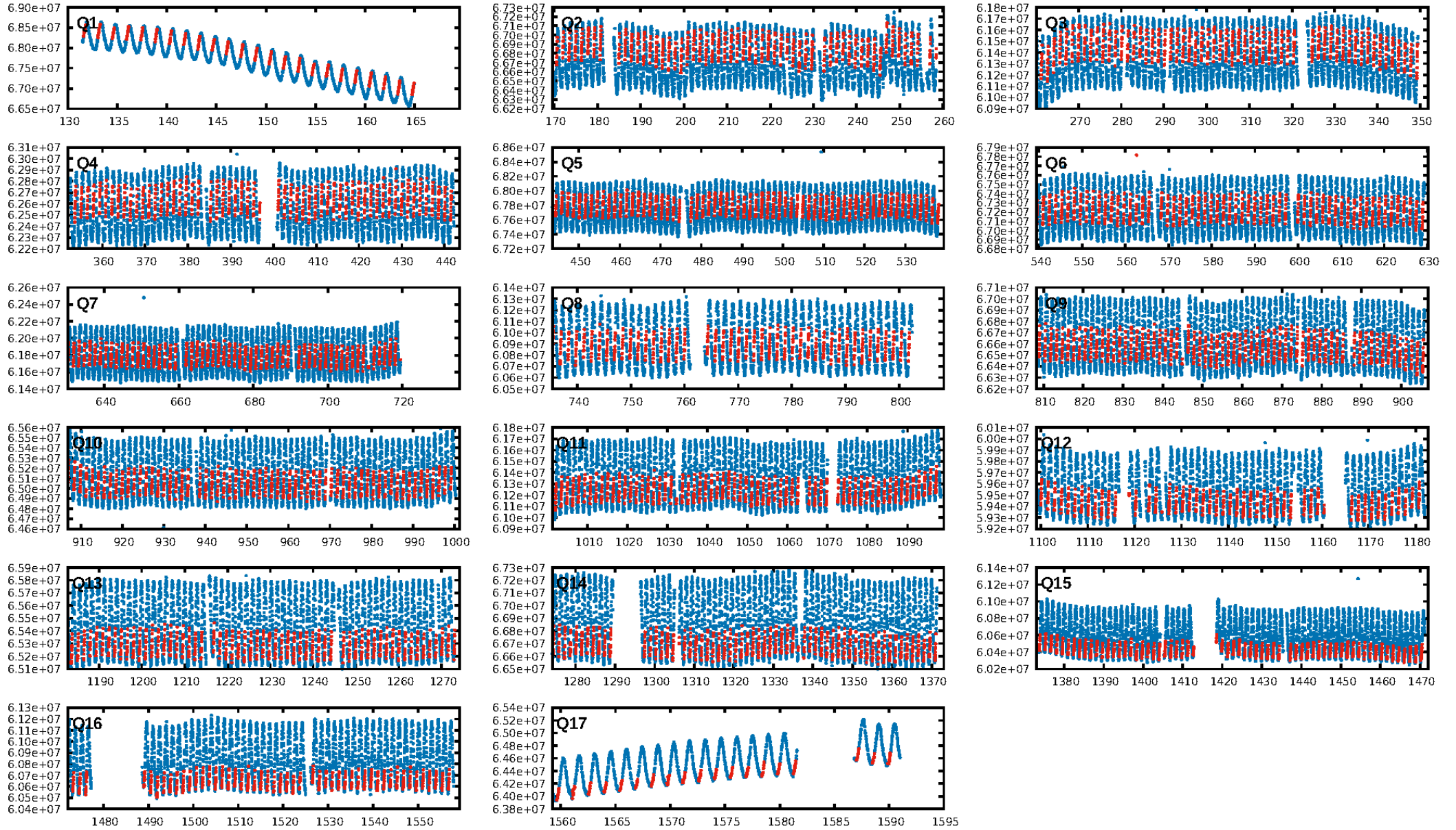
DV Fit Results:

Period = 1.44100 [0.00003] d
Epoch = 131.6984 [0.0086] BKJD
Rp/R* = 0.0041 [0.0020]
a/R* = 1.96 [5.33]
b = 0.91 [0.70]
Seff = 27983.71 [11550.96]
Teq = 3298 [340] K
Rp = 0.88 [0.54] Re
a = 0.0327 [0.0089] AU
Ag = 20.35 [21.66] [0.89σ]
Teffp = 10830 [2759] K [2.7σ]

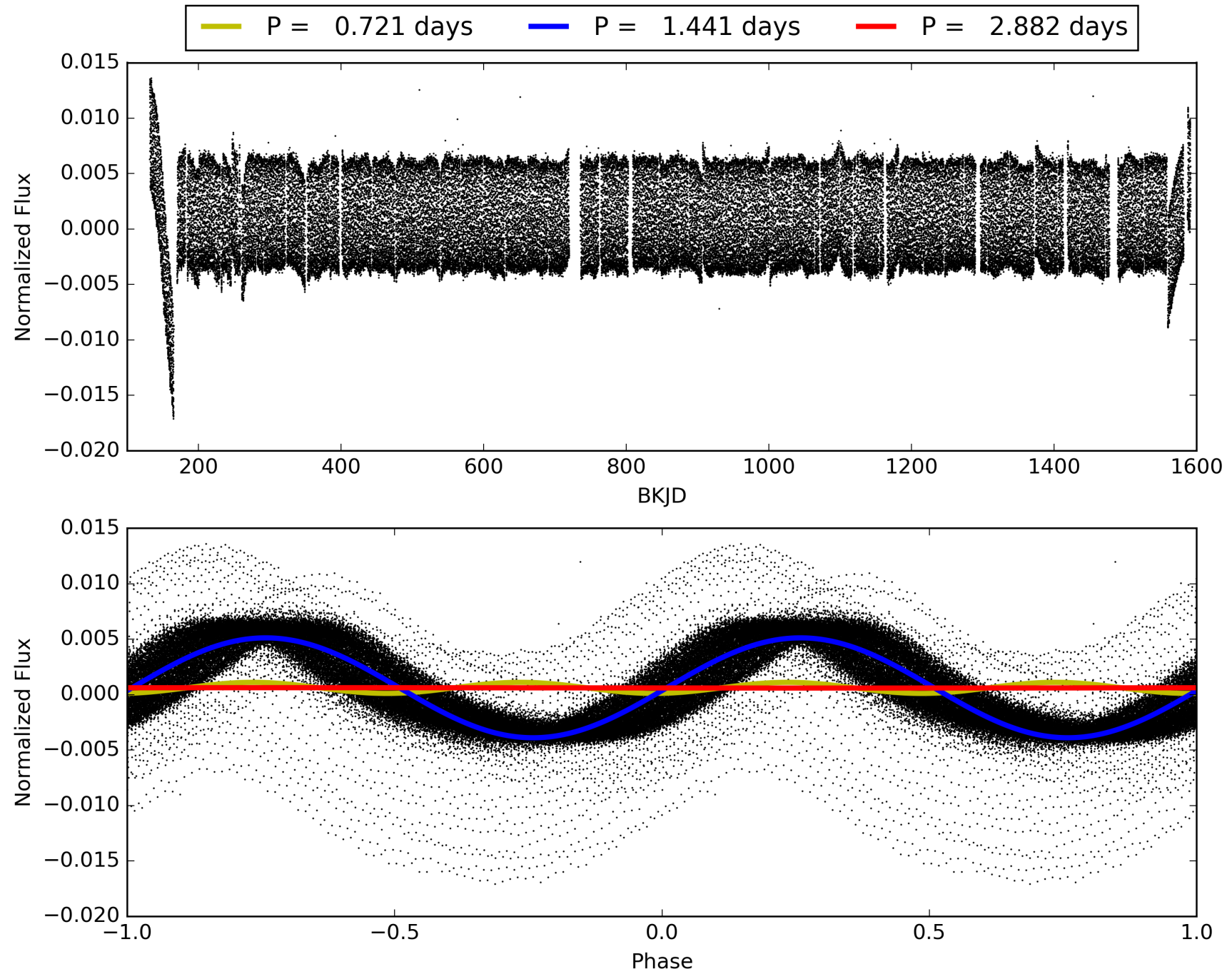
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.69e-47
RollingBand-fgt: 1.00 [886/886]
GhostDiagnostic-chr: -0.2967
Centroid-sig: 6.3%
Centroid-so: 3.315 arcsec [1.00σ]
OotOffset-rm: 0.849 arcsec [6.27σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-rm: 0.106 arcsec [1.31σ]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008420752-01, PDC Light Curves

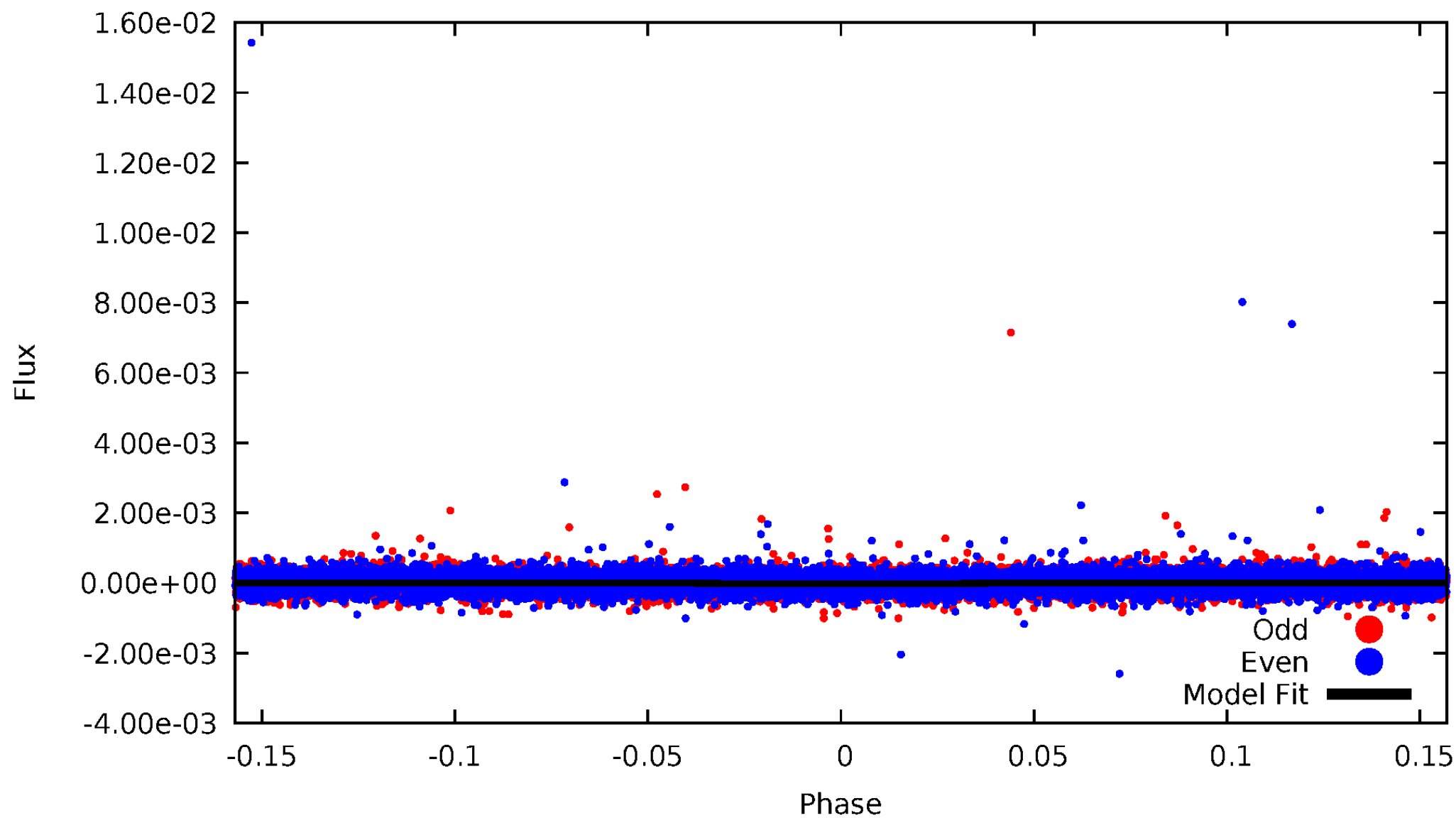


TCE 008420752-01



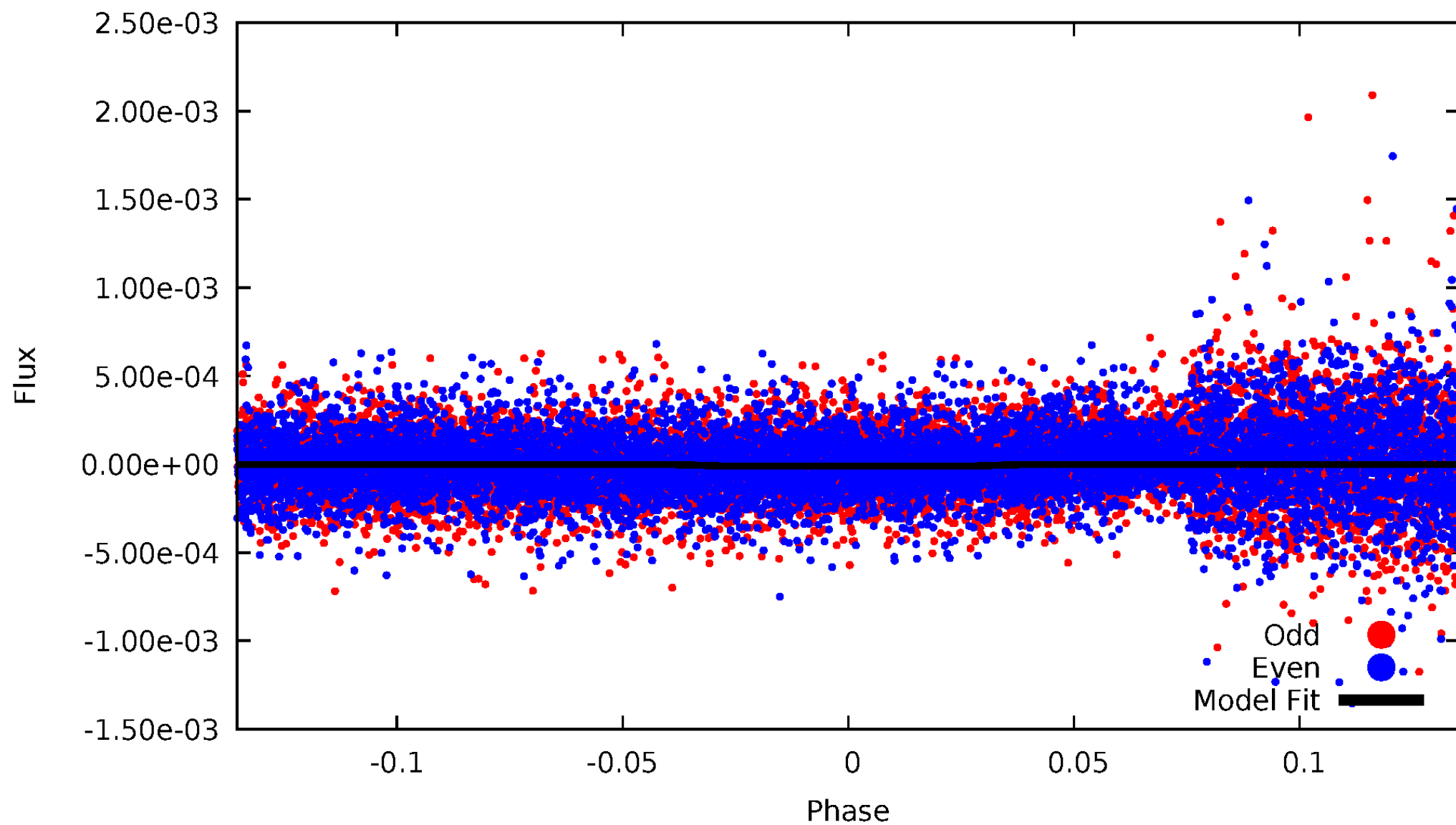
DV Odd/Even

TCE 008420752-01



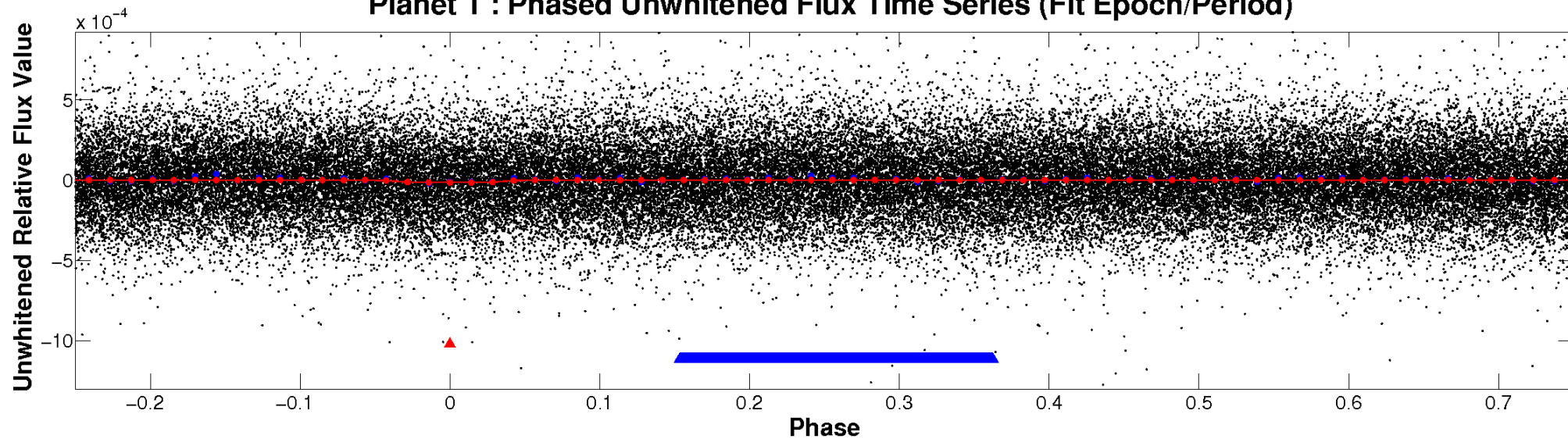
ALT Odd/Even

TCE 008420752-01

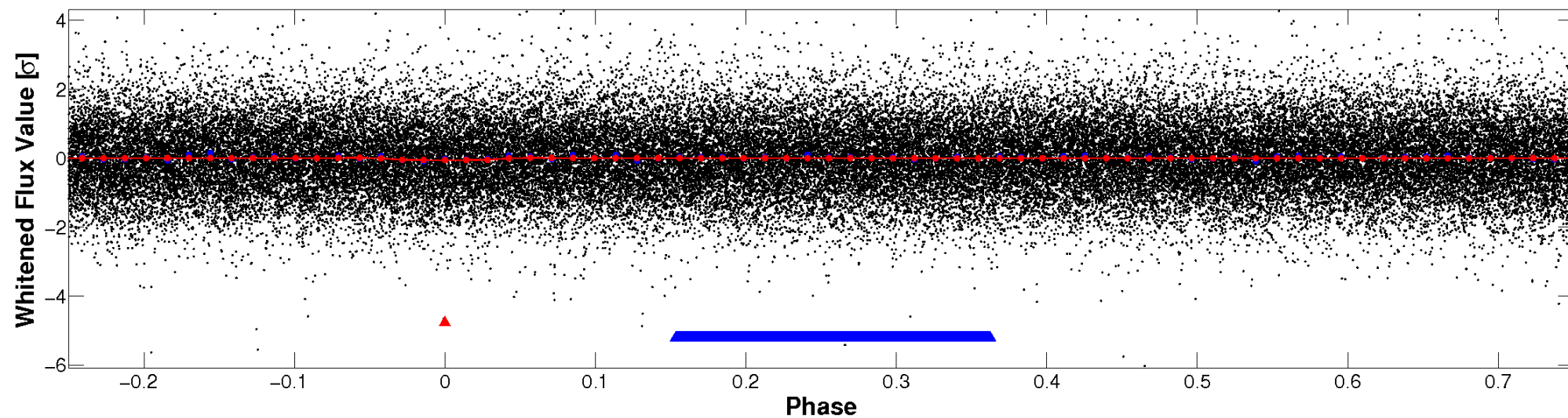


Non-Whitened Vs. Whitened Light Curve

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

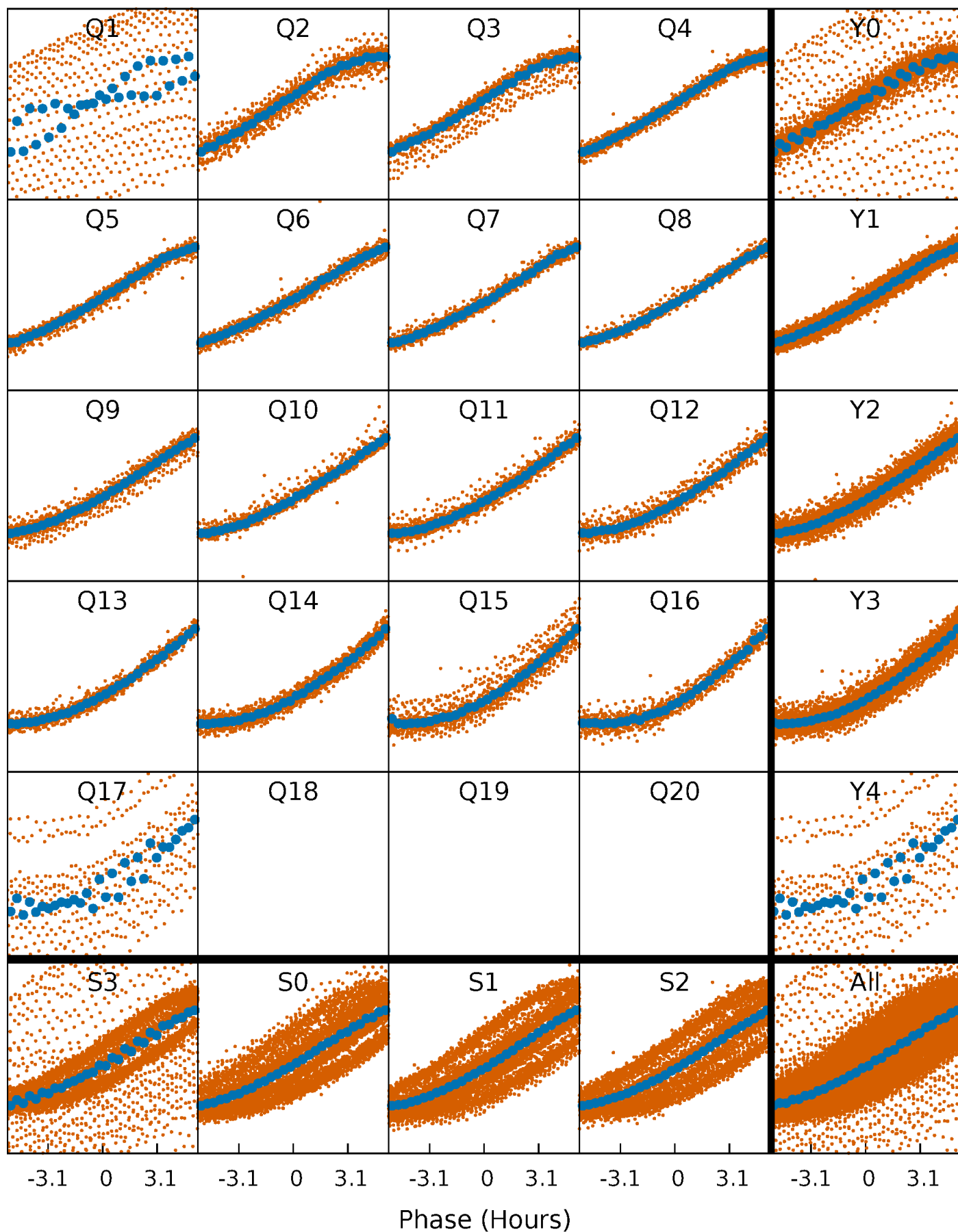


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



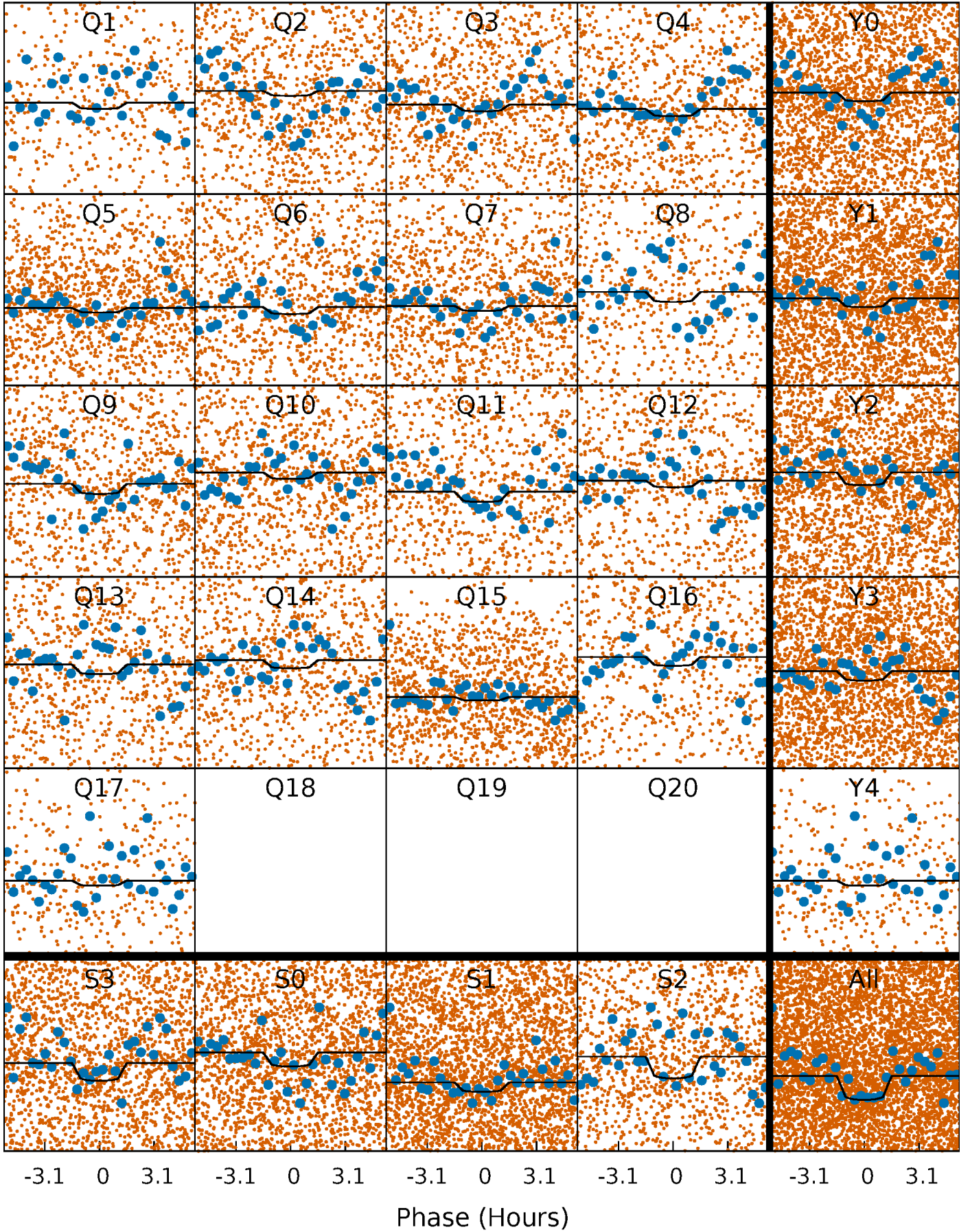
PDC Quarter-Phased Transit Curves

TCE 008420752-01 P= 1.441004 Days $T_0=131.698356$ (BKJD)



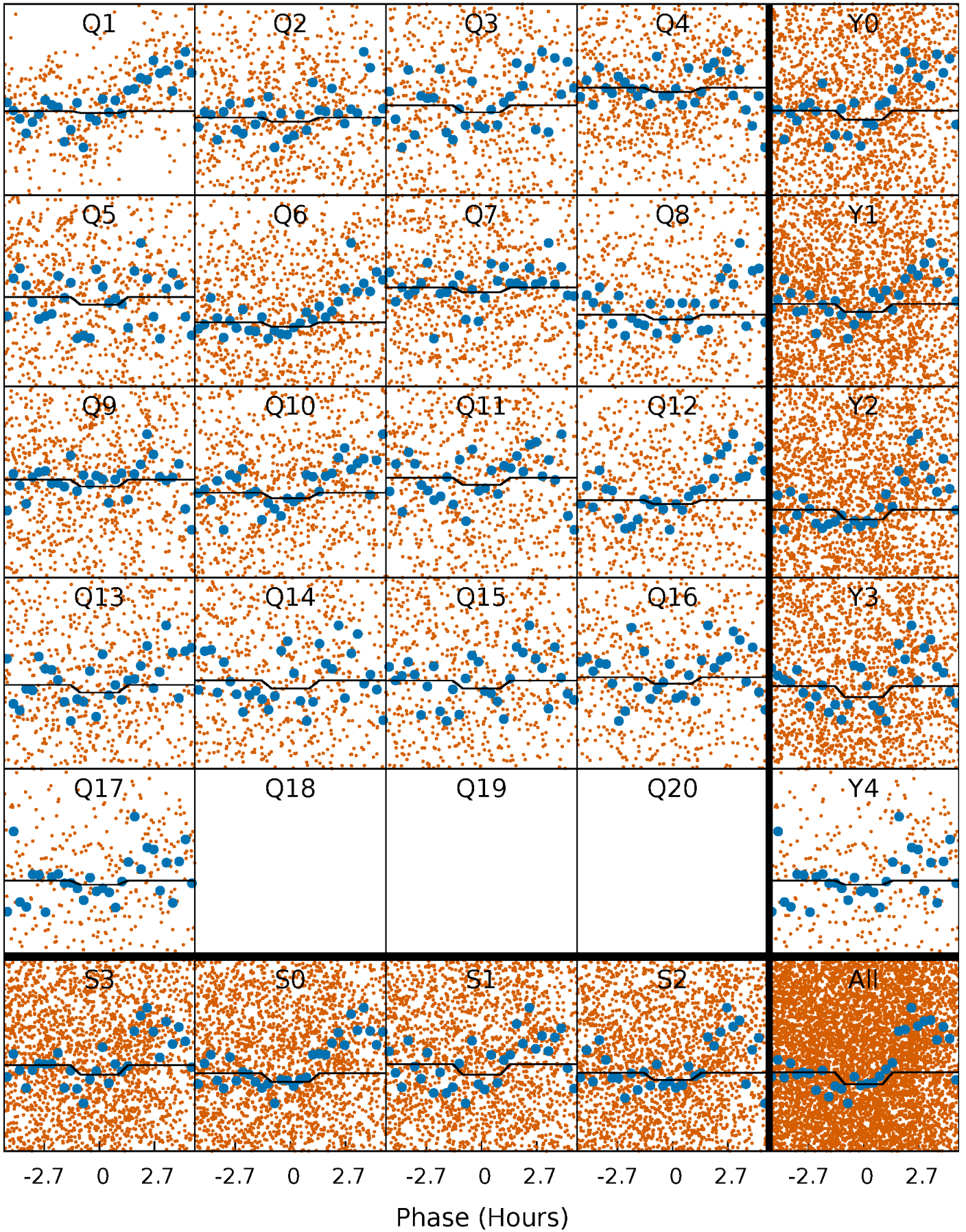
DV Quarter-Phased Transit Curves

TCE 008420752-01 P= 1.441004 Days $T_0=131.698356$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

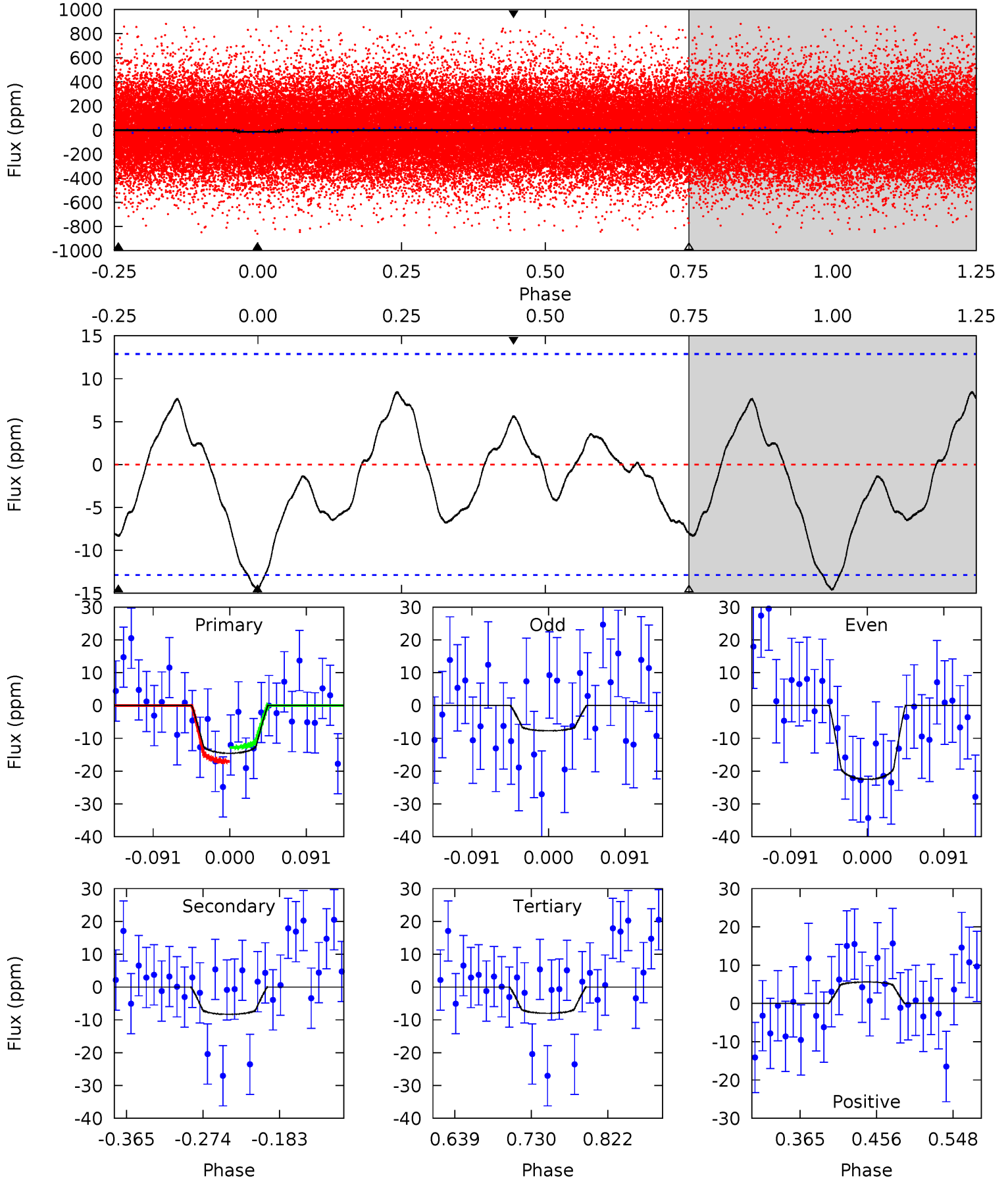
TCE 008420752-01 P= 1.441285 Days $T_0=131.702516$ (BKJD)



DV Model-Shift Uniqueness Test

008420752-01, P = 1.441004 Days, E = 130.257352 Days

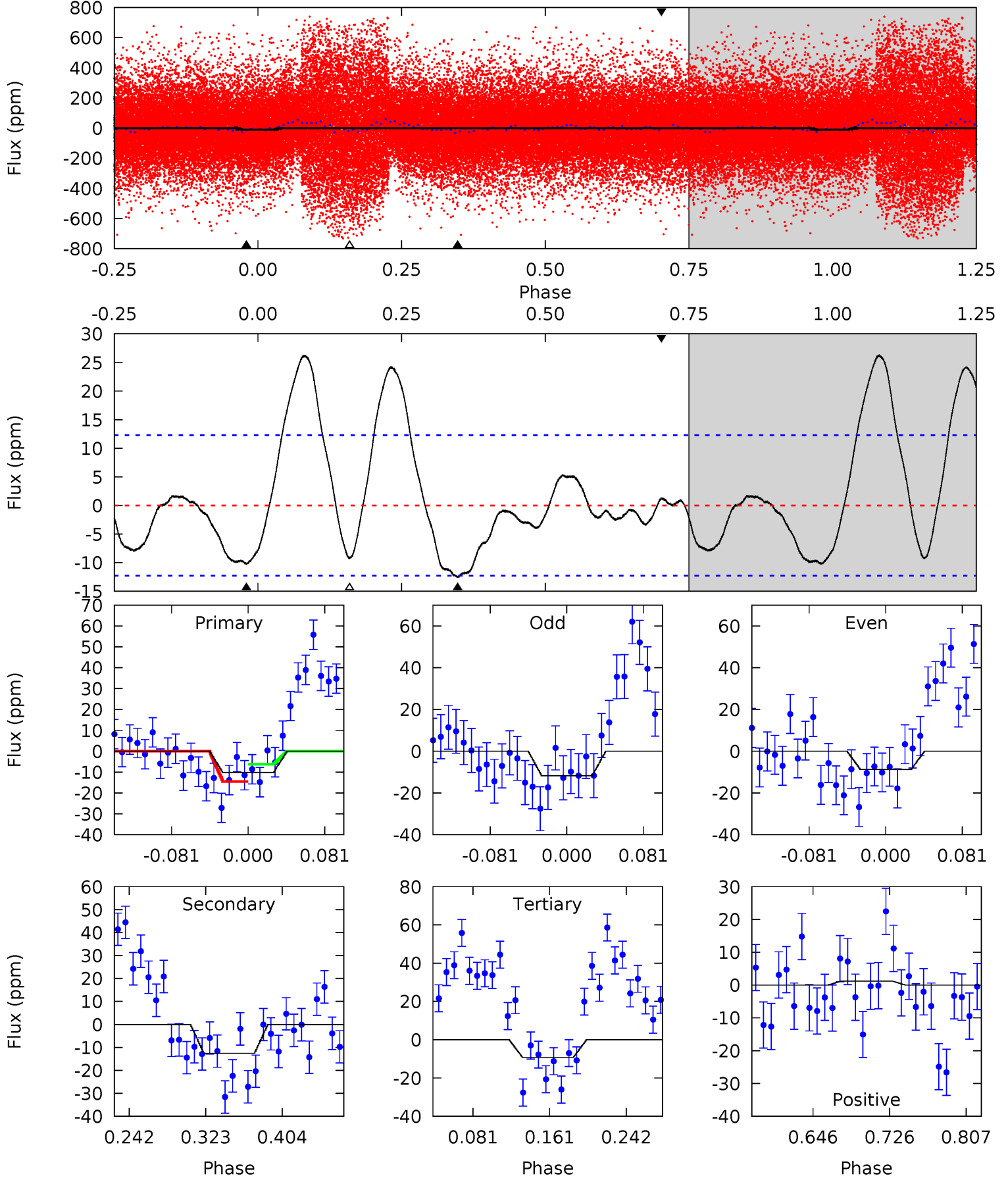
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.19	2.96	2.85	2.00	4.58	1.69	1.52	2.34	3.19	0.11	0.96	2.64	1.64	0.37	0.76



Alt Model-Shift Uniqueness Test

008420752-01, P = 1.441285 Days, E = 130.261231 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.84	4.71	3.47	0.46	4.61	1.75	3.42	0.37	3.38	1.24	4.25	0.59	0.99	0.68	1.80



Stellar Parameters For KIC 008420752

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9610^{+272}_{-467}	$4.196^{+0.132}_{-0.181}$	$0.070^{+0.050}_{-0.800}$	$1.977^{+0.698}_{-0.524}$	$2.238^{+0.384}_{-0.576}$	$0.408^{+0.334}_{-0.213}$
	+3%/-5%	+3%/-4%	+71%/-1143%	+35%/-27%	+17%/-26%	+82%/-52%
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 008420752-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-8 ± 3	$0.90^{+0.51}_{-0.44}$	4617^{+386}_{-302}	7401^{+4613}_{-1677}	$5.947^{+16.385}_{-3.776}$
Alt.	-13 ± 3	$0.69^{+0.44}_{-0.36}$	4588^{+380}_{-305}	10182^{+10211}_{-2962}	15^{+52}_{-9}

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

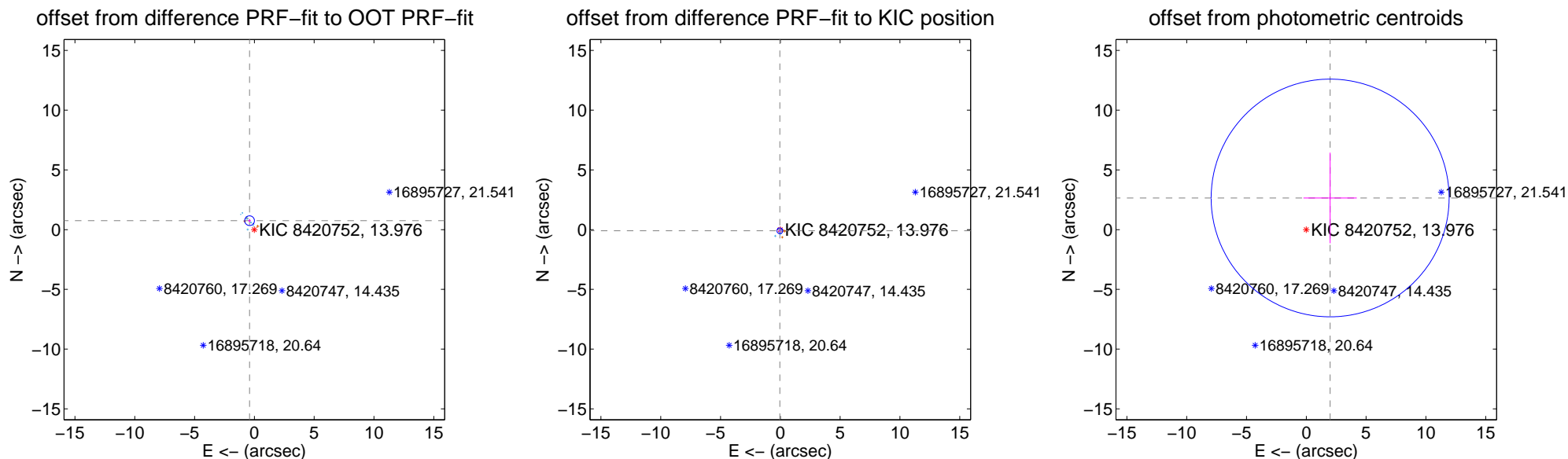
DV Centroid Data

Supplemental centroid analysis for 008420752-01. Kepler magnitude: 13.98. Transit SNR 3.42

There are 13 quarters with good PRF difference image offsets

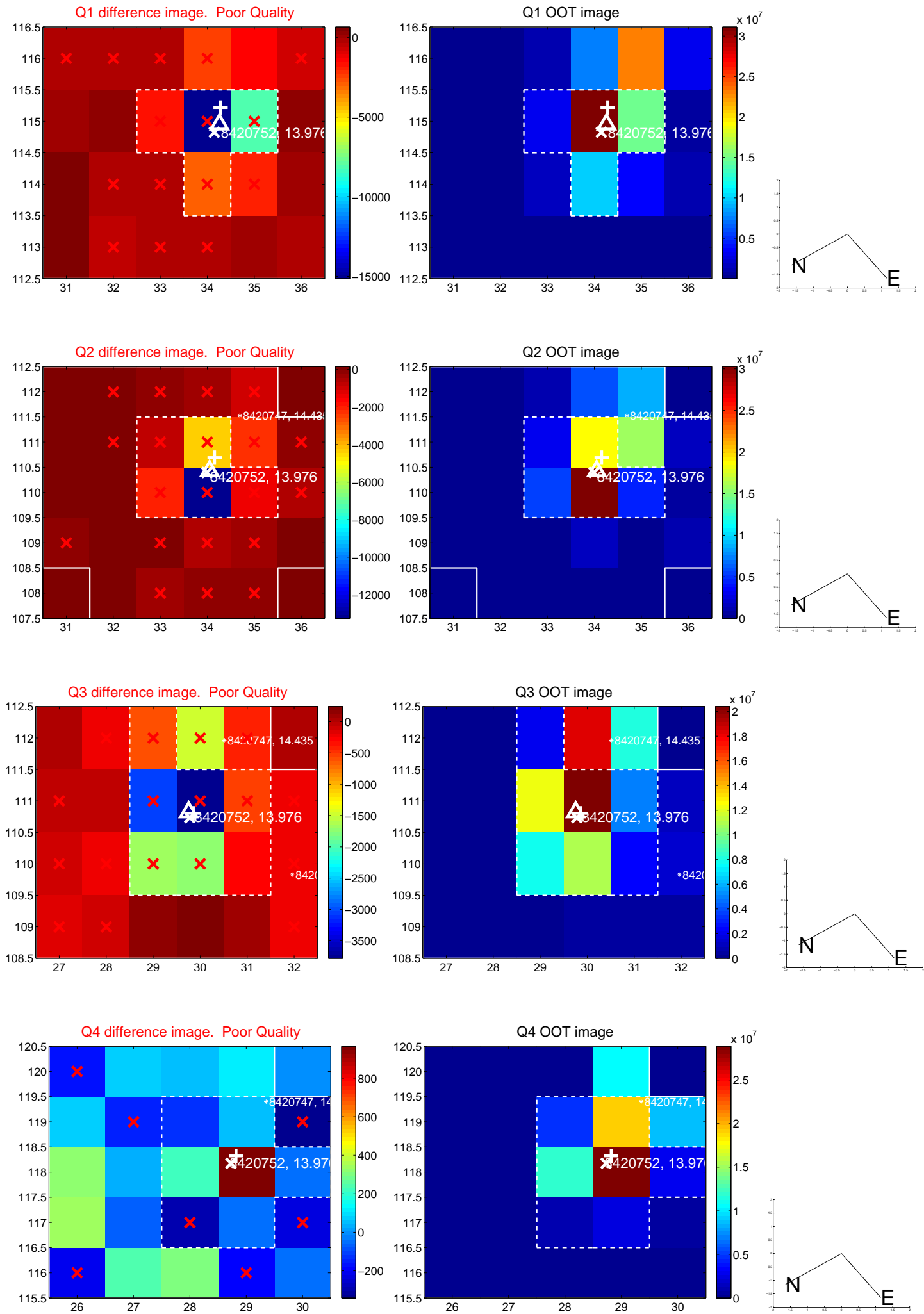
The direct PRF centroid is offset from the target star catalog position by about 1.79 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.849 ± 0.135	6.27	0.402 ± 0.110	0.749 ± 0.116
PRF-fit source offset from KIC position	0.106 ± 0.081	1.31	0.042 ± 0.077	-0.097 ± 0.079
photometric centroid source offset	3.32 ± 3.32	1.00	-1.99 ± 2.23	2.65 ± 3.79

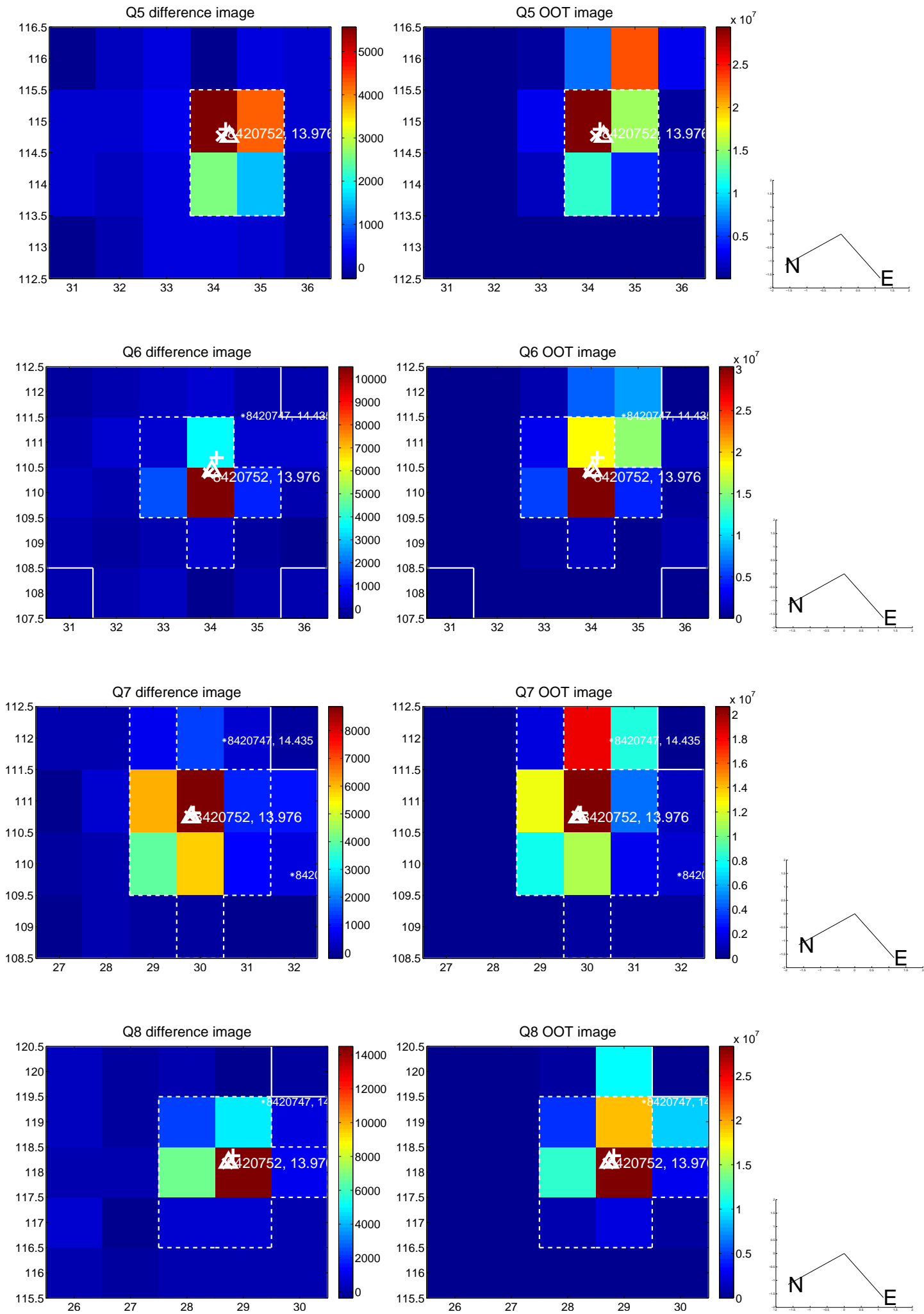


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

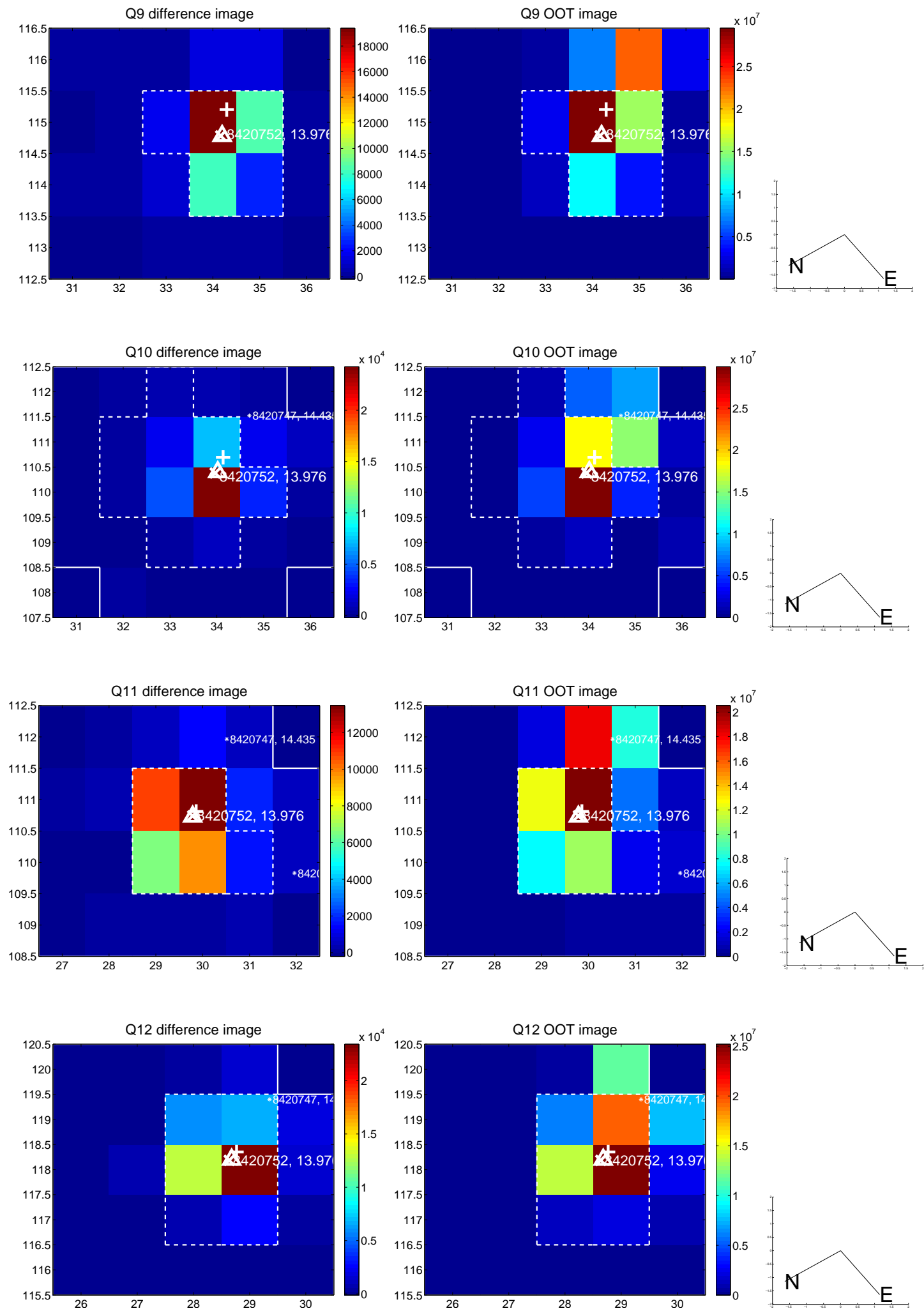
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



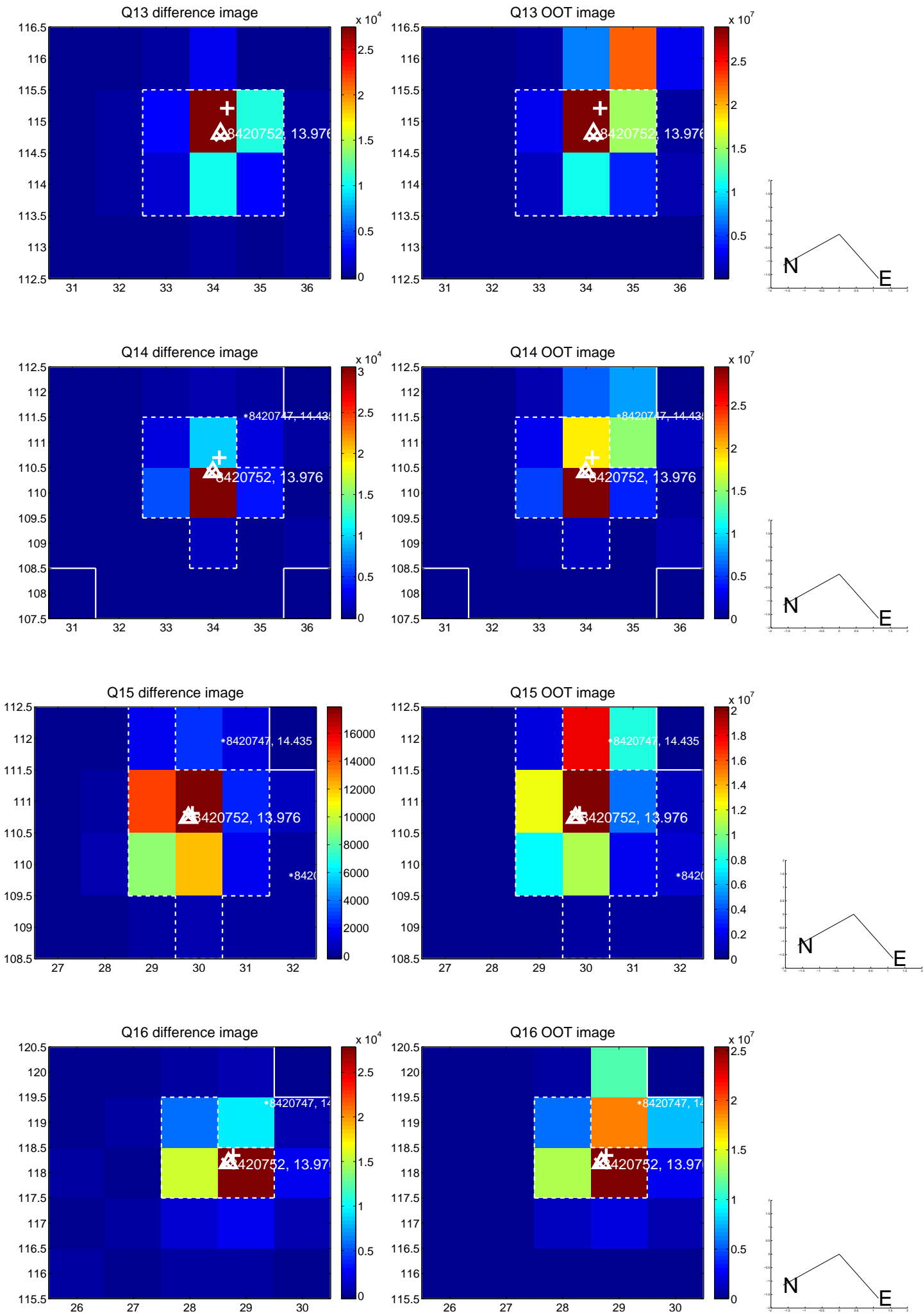
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



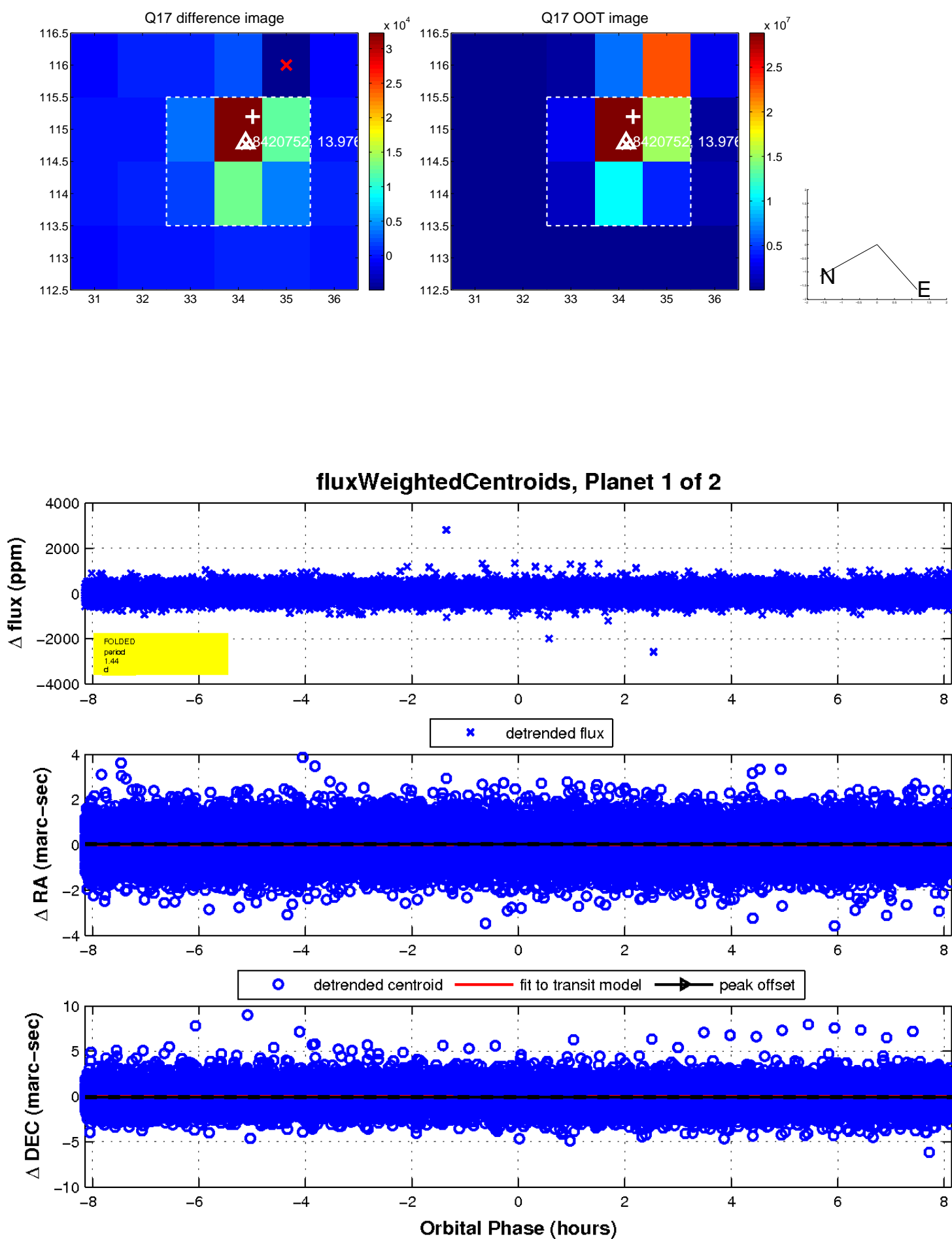
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

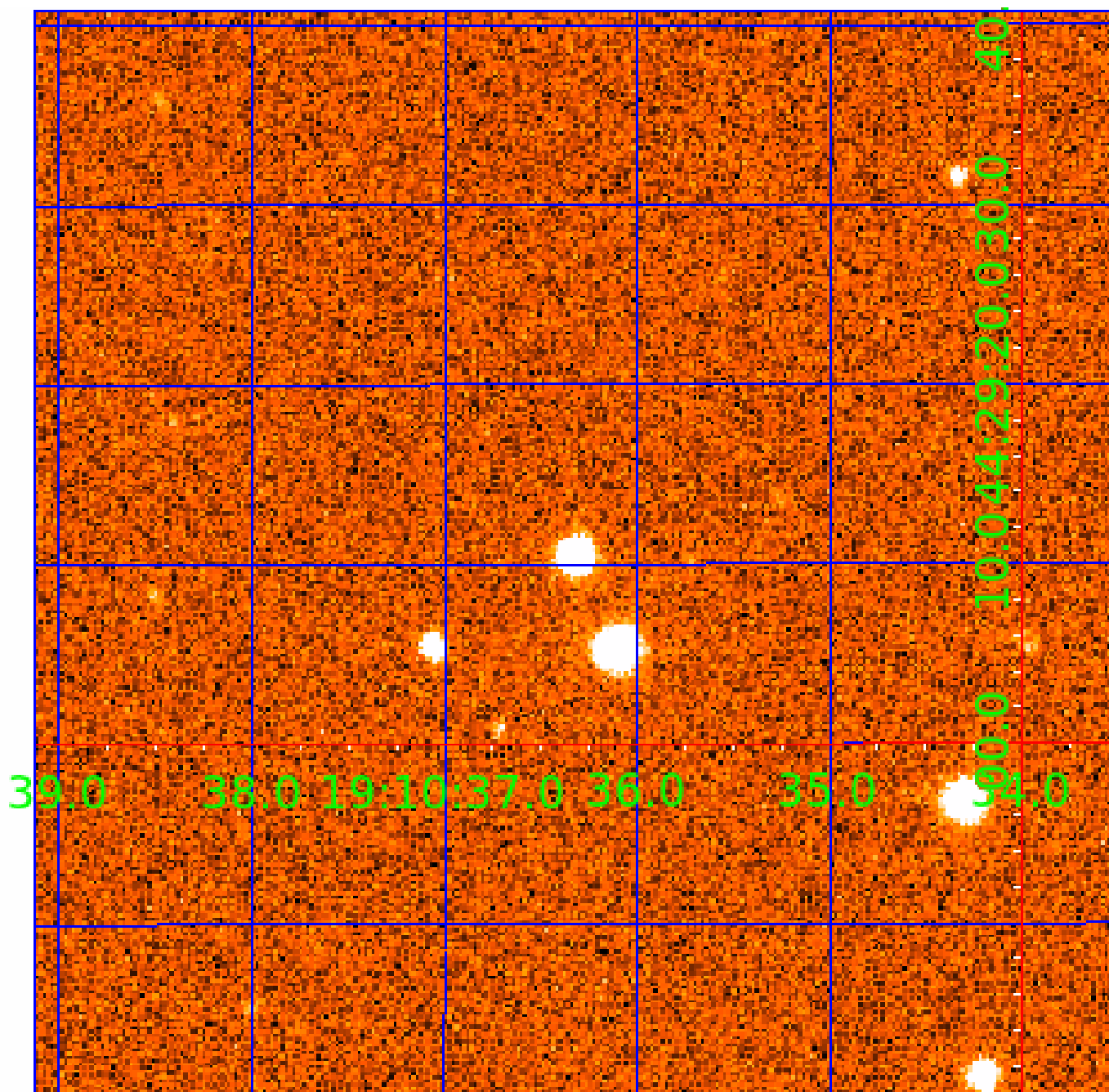


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008420752

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})
008420752-01	OBS	No	1.441004	131.698356	14.8	2.713	16.5	3.4	1.98	9610	0.88	27983.71
008420752-02	OBS	No	1.441302	131.919527	420.3	3.000	16.3	-1.0	1.98	9610	4.15	27976.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008420752-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008420752-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

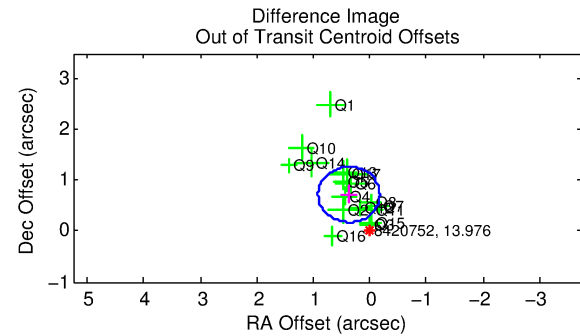
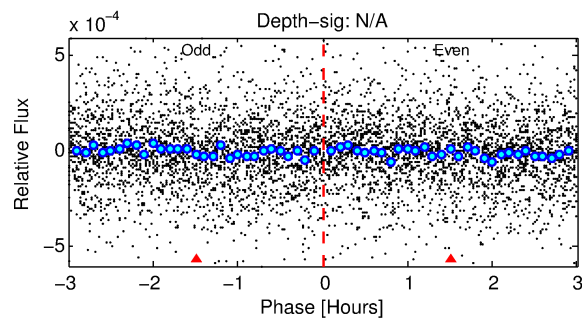
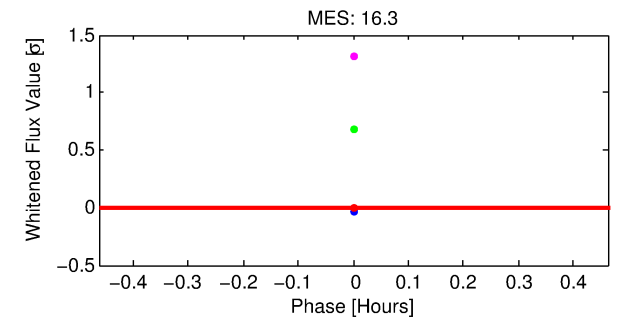
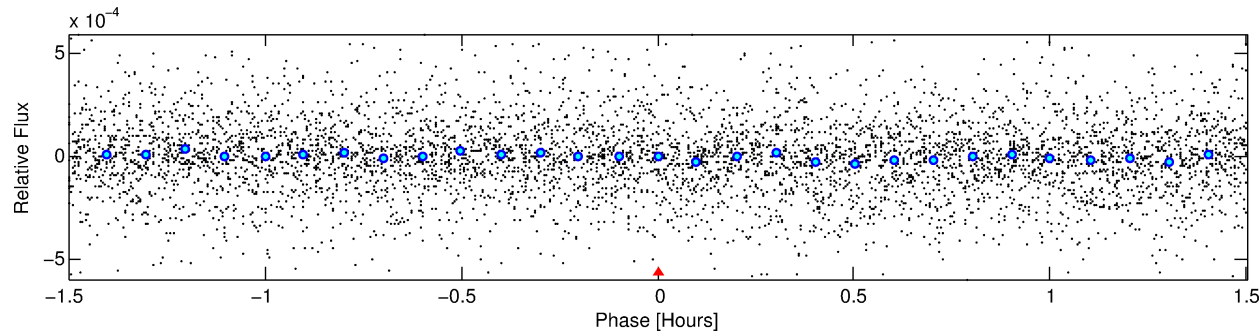
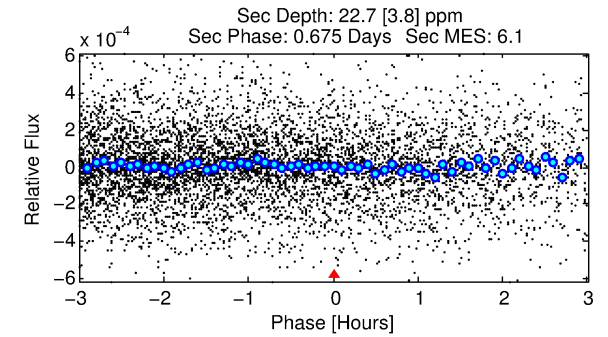
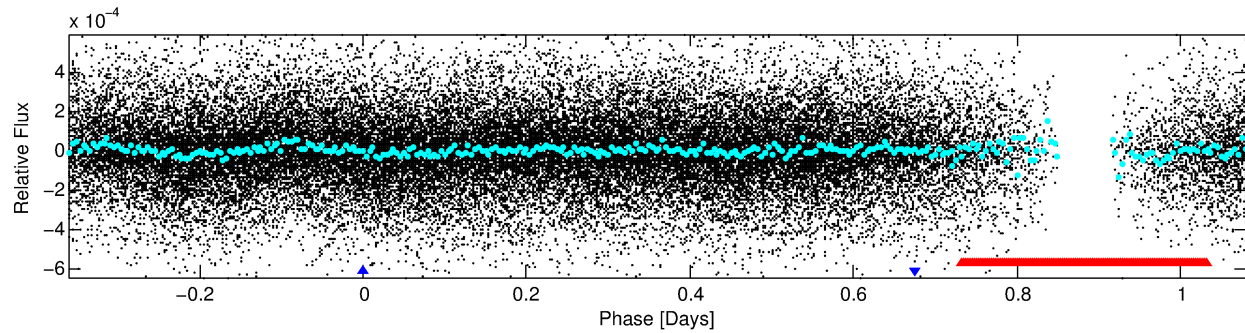
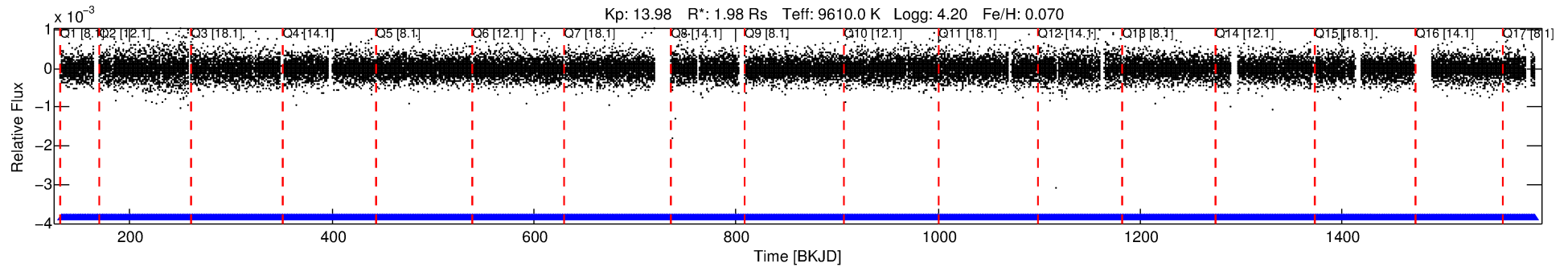
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008420752-02

No Significant Match Found

DV One-Page Summary

KIC: 8420752 Candidate: 2 of 2 Period: 1.441 d



TPS TCE Results:

Period = 1.44130 d
Epoch = 131.9195 BKJD

DV fit results are unavailable

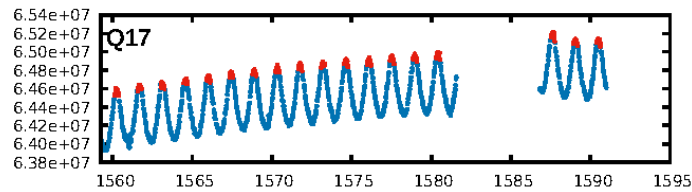
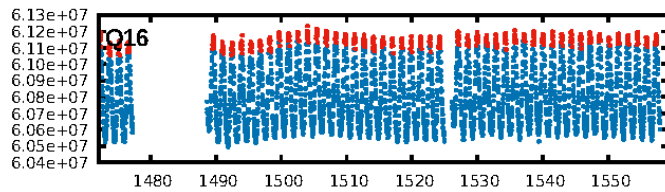
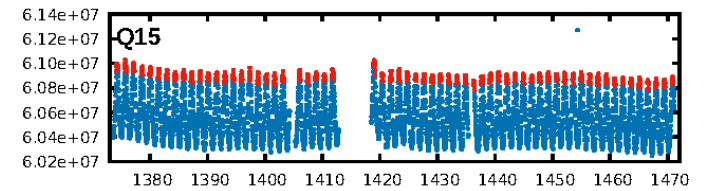
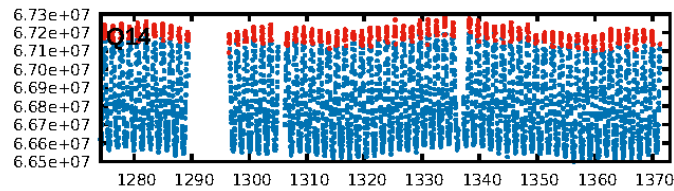
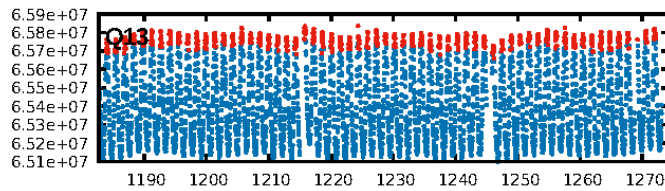
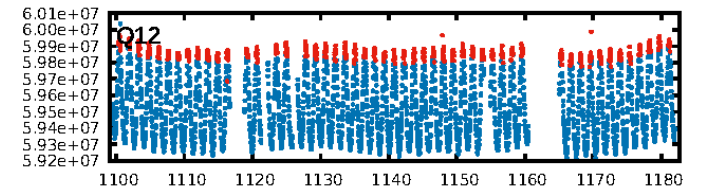
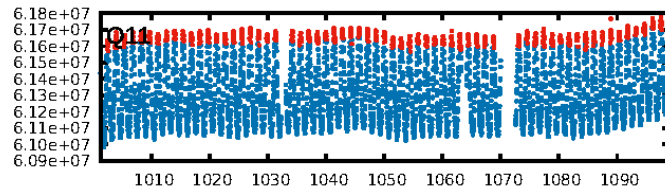
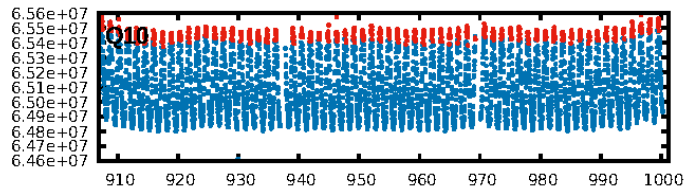
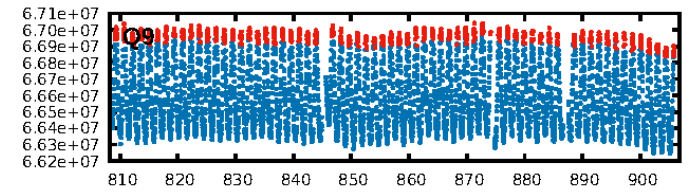
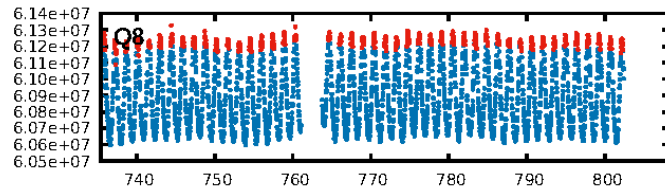
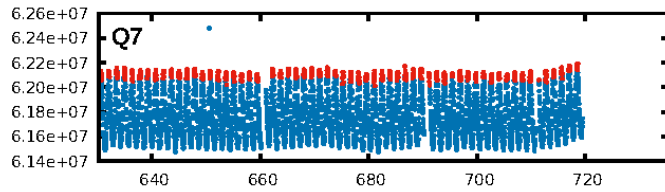
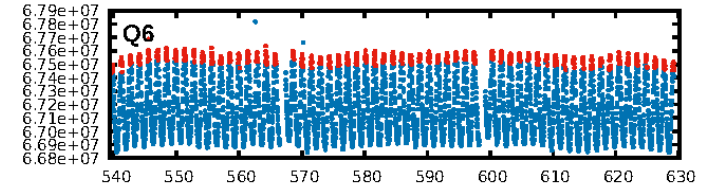
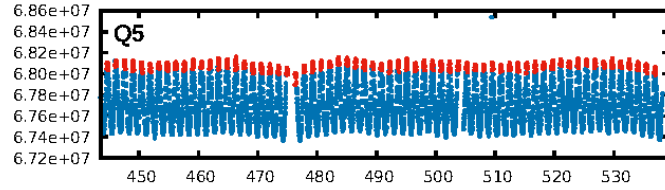
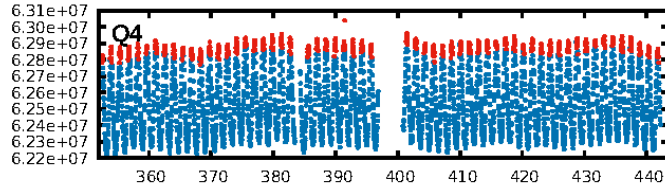
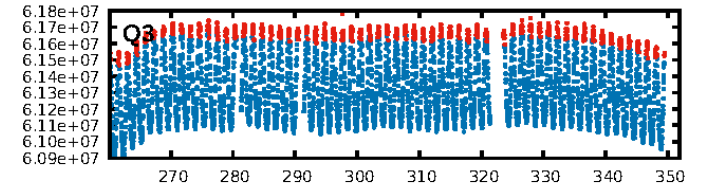
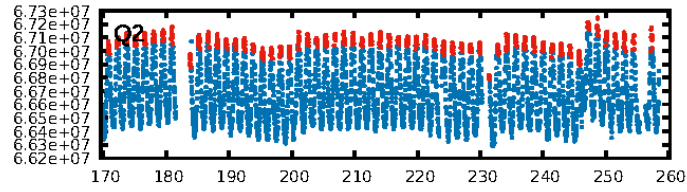
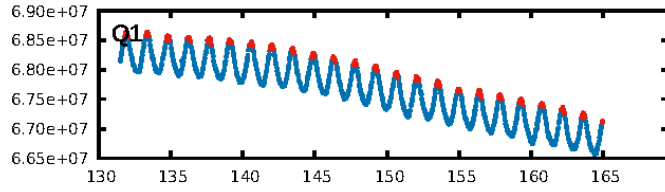
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.07e-45
RollingBand-fgt: 1.00 [889/889]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.812 arcsec [4.44σ]
KicOffset-rm: 0.114 arcsec [0.90σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 1.00 [17/17]

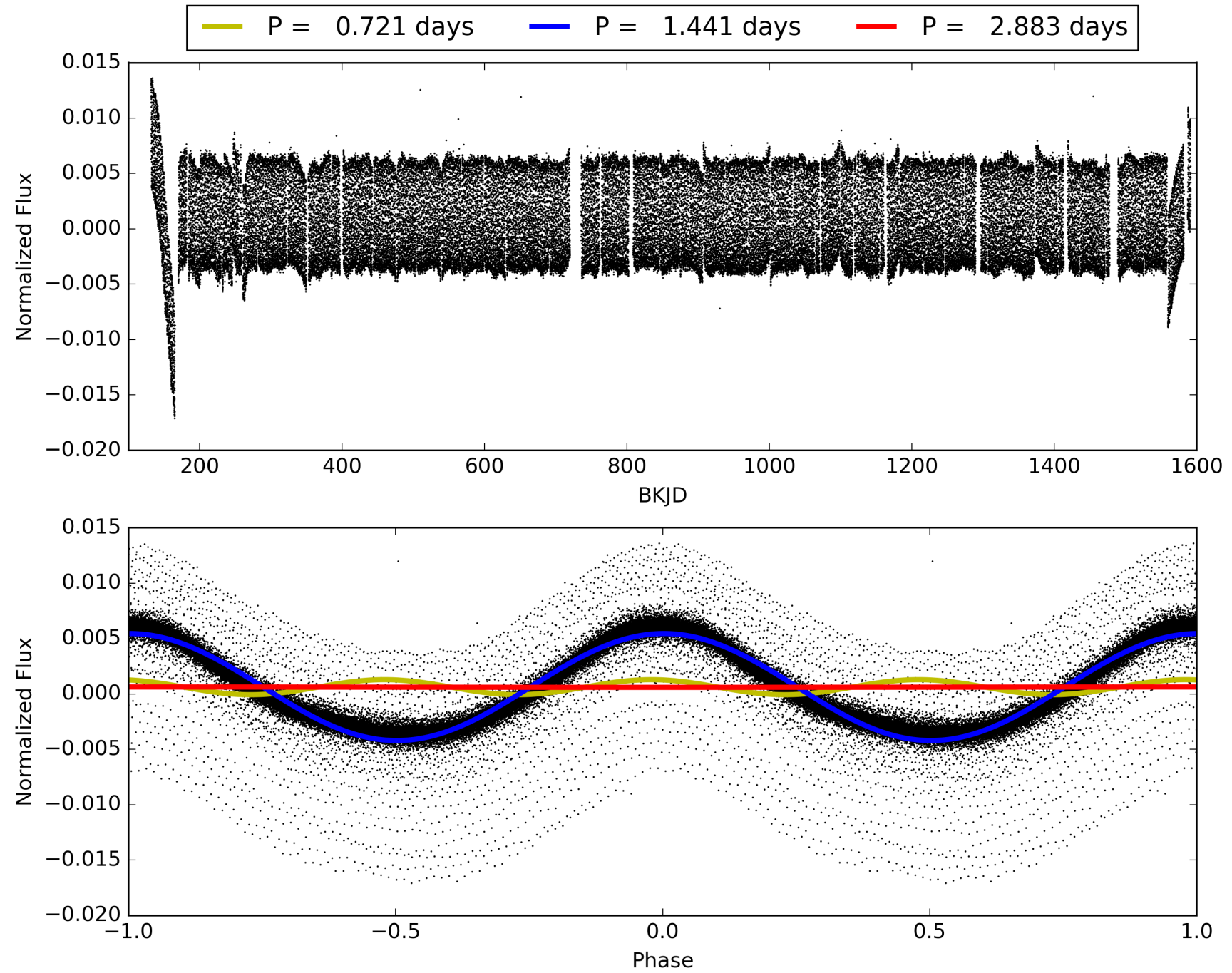
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:32:58 Z

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

TCE 008420752-02, PDC Light Curves

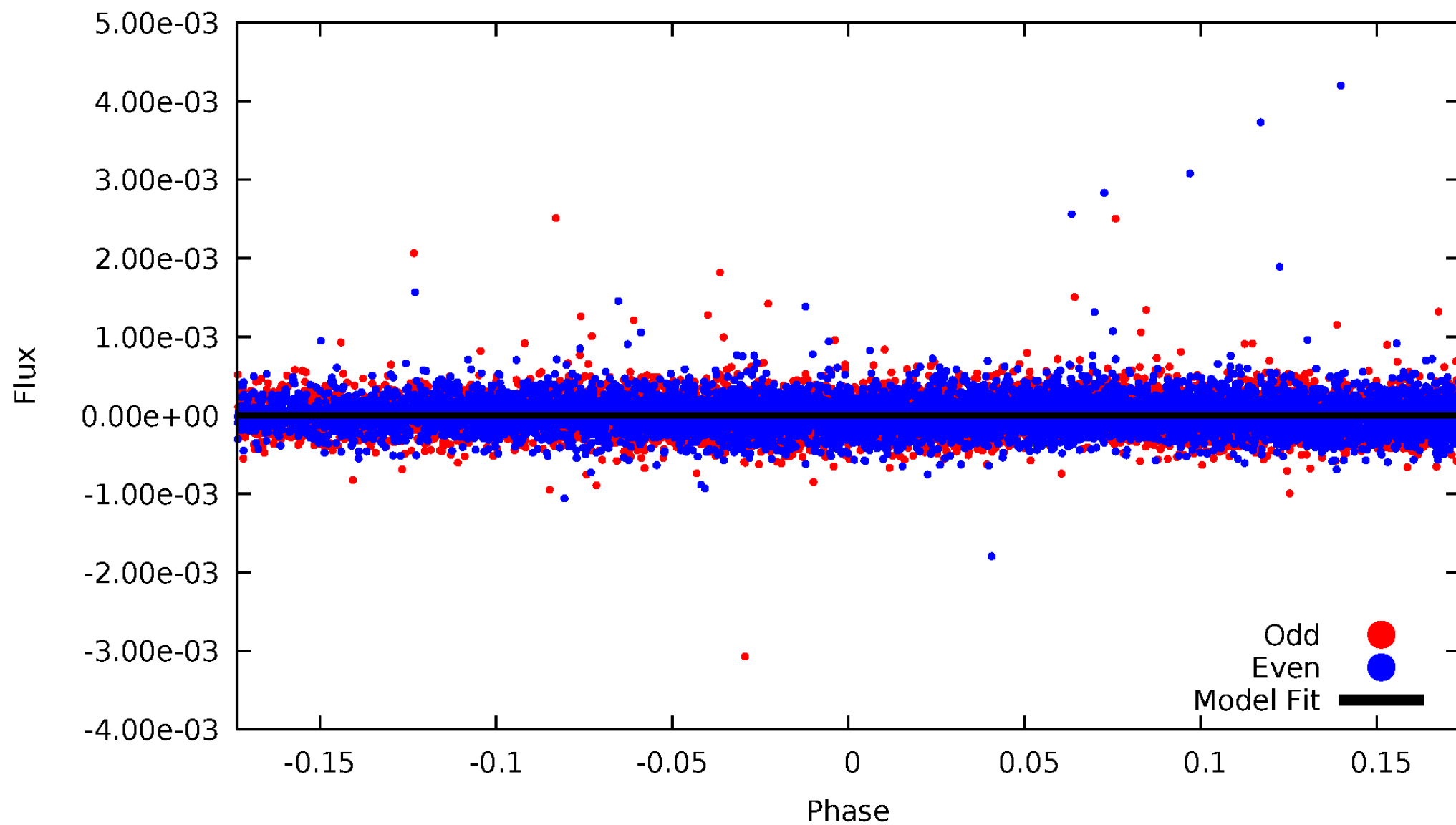


TCE 008420752-02



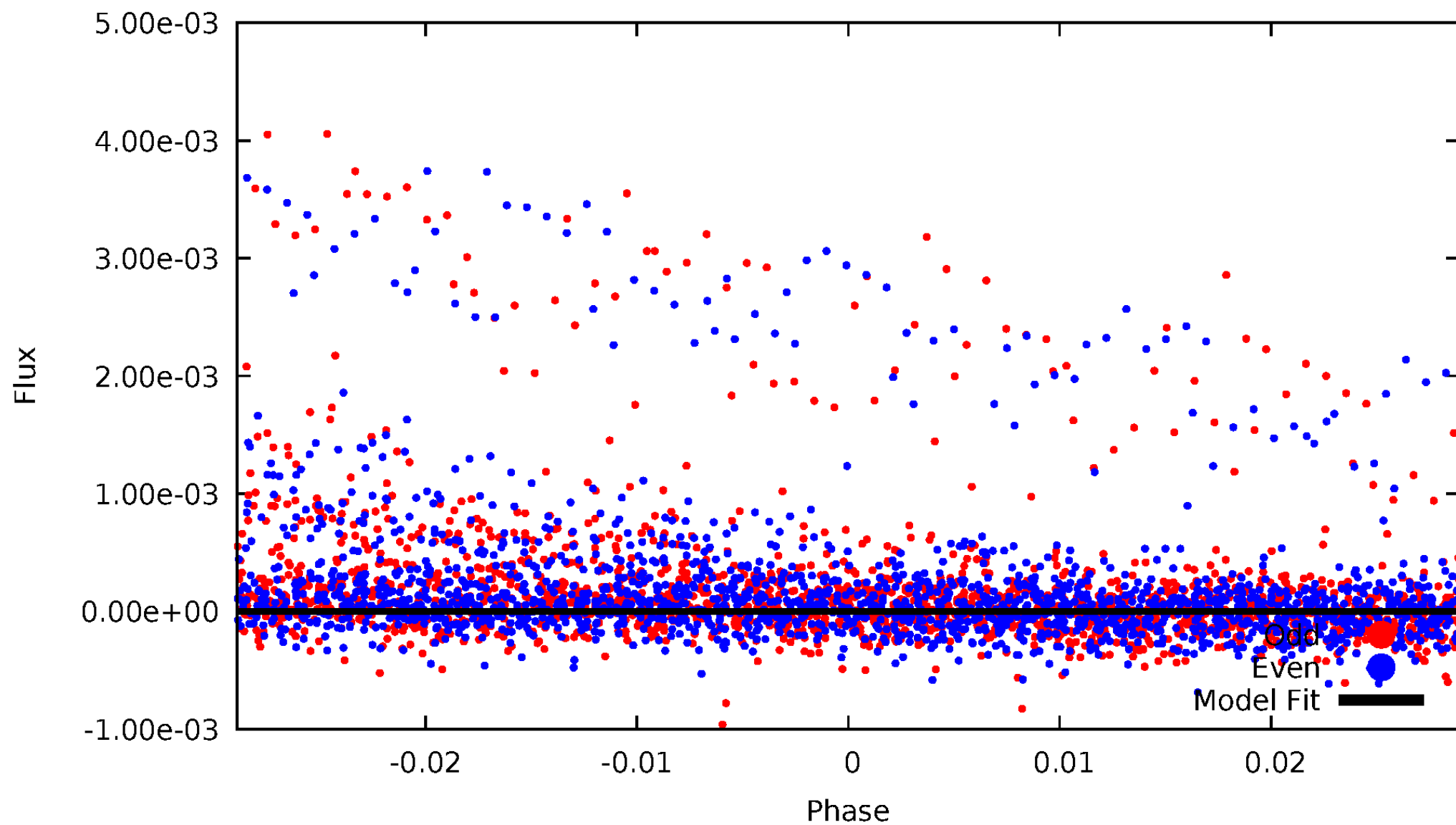
DV Odd/Even

TCE 008420752-02



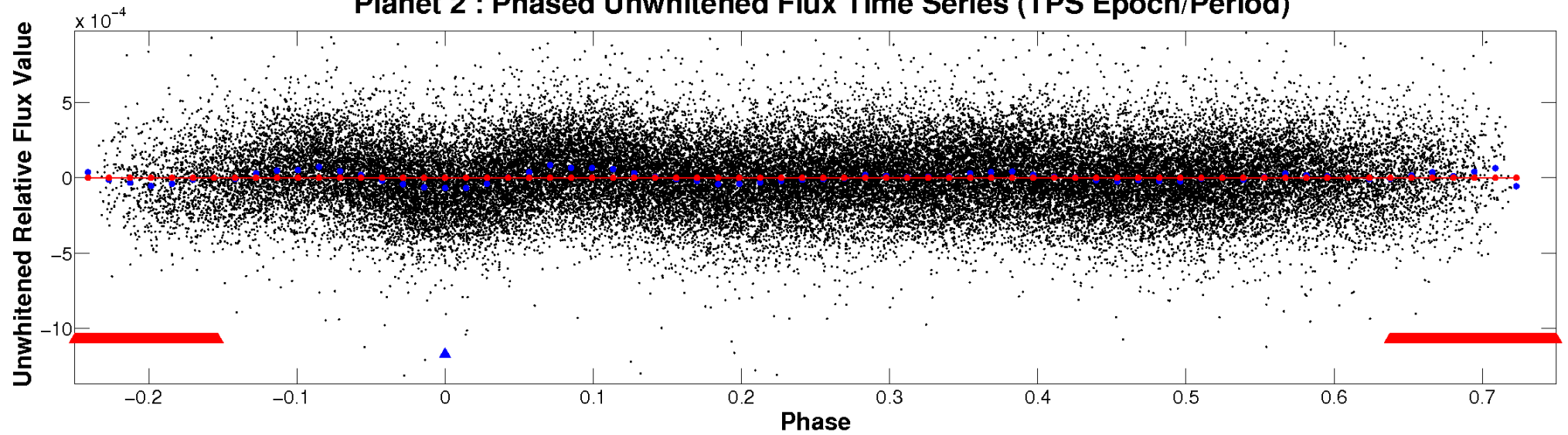
ALT Odd/Even

TCE 008420752-02

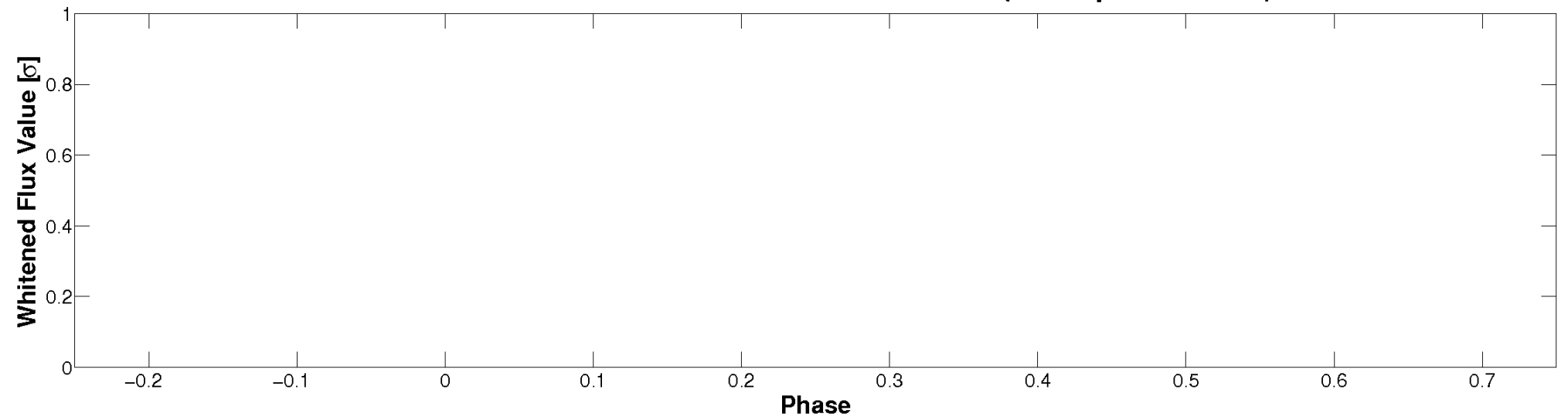


Non-Whitened Vs. Whitened Light Curve

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

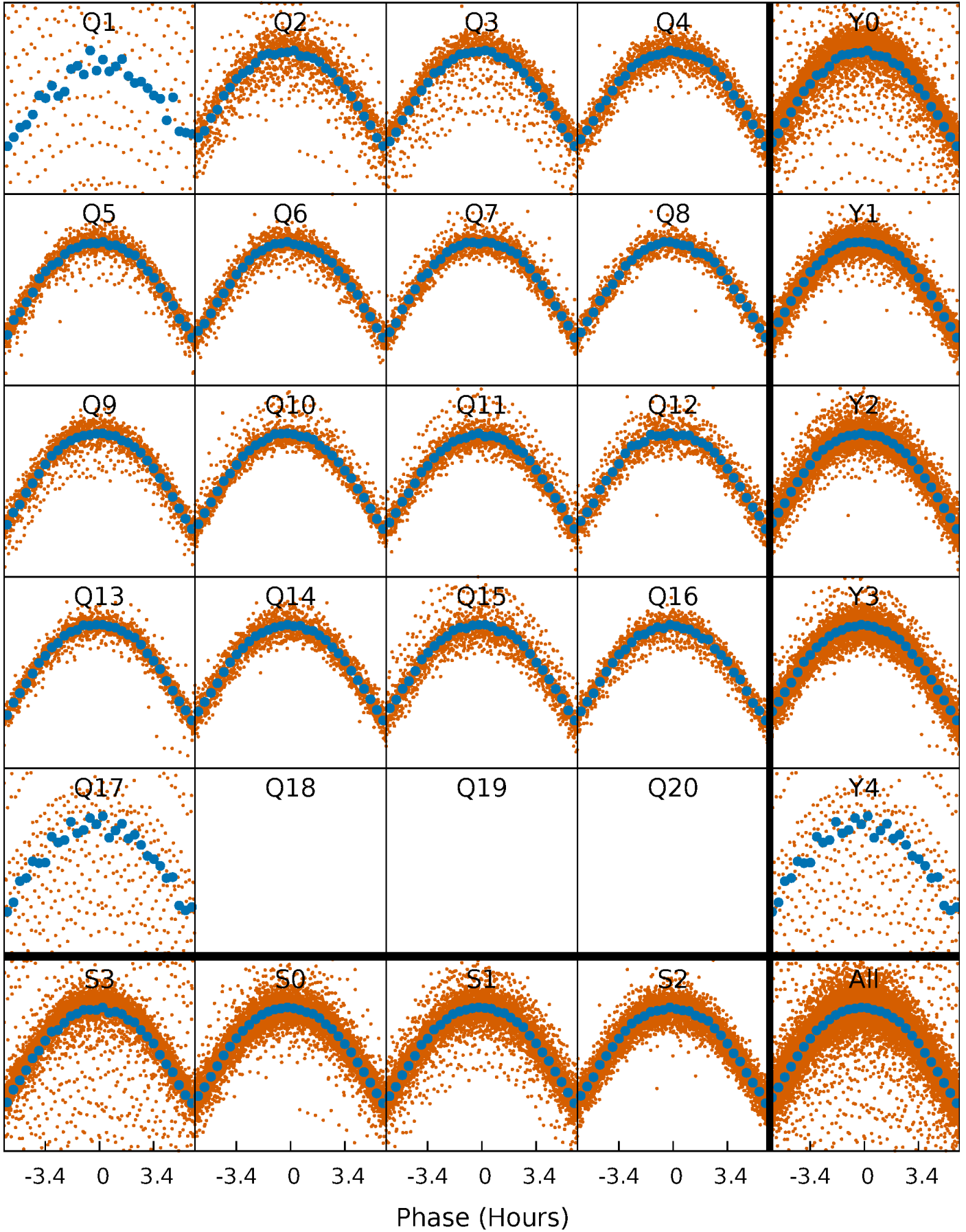


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



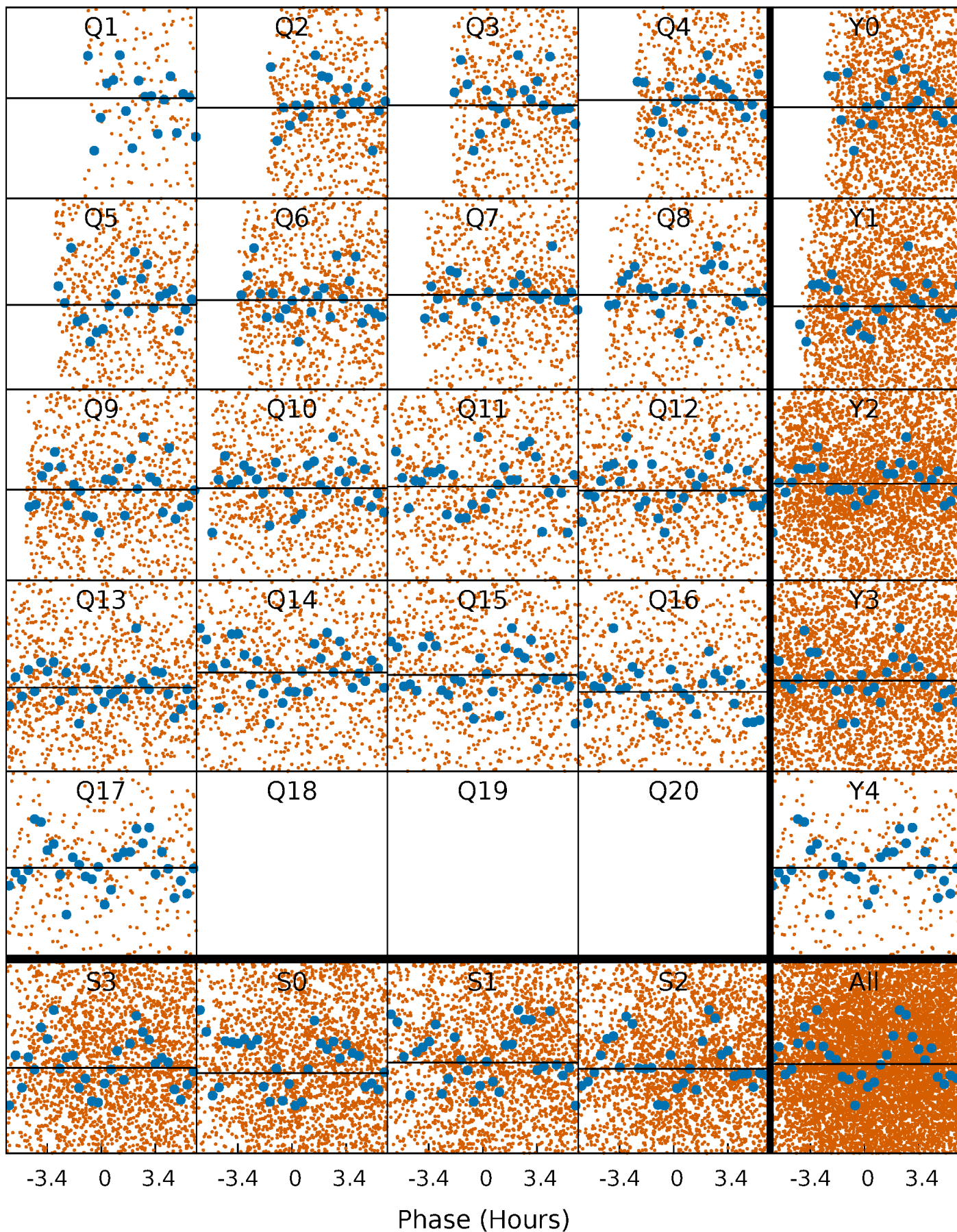
PDC Quarter-Phased Transit Curves

TCE 008420752-02 P= 1.441302 Days $T_0=131.919527$ (BKJD)



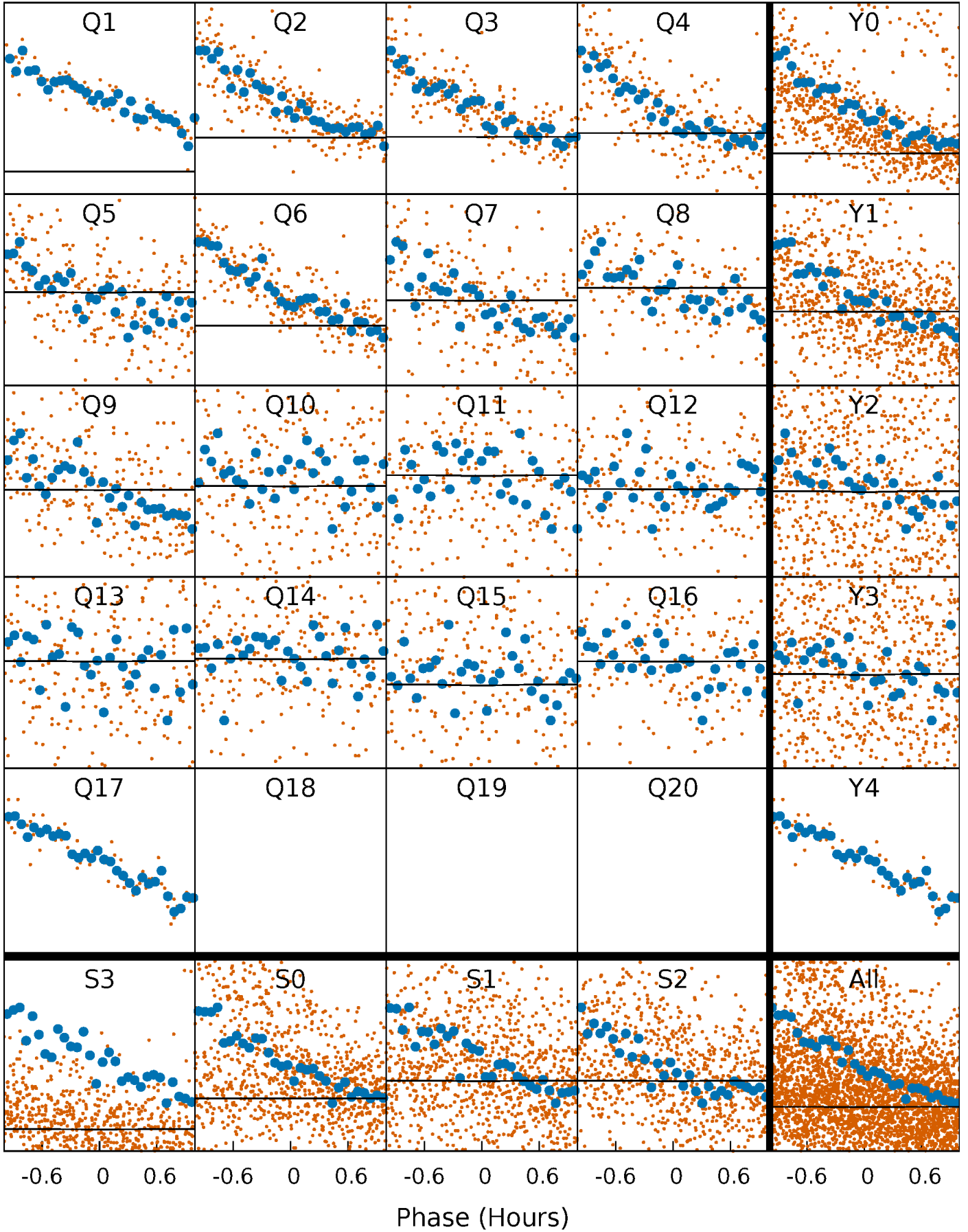
DV Quarter-Phased Transit Curves

TCE 008420752-02 P= 1.441302 Days $T_0=131.919527$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

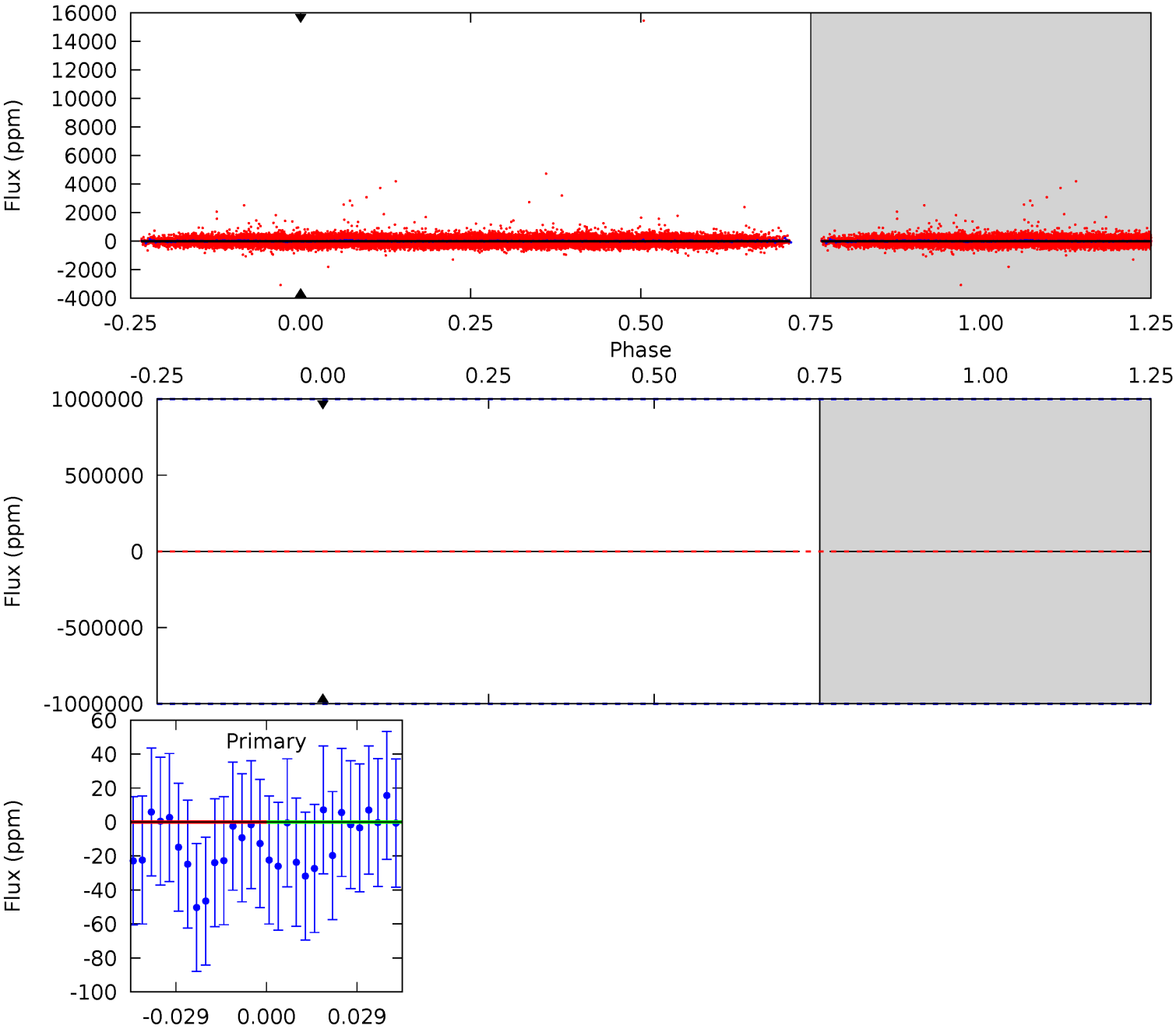
TCE 008420752-02 P= 1.441302 Days $T_0=132.107409$ (BKJD)



DV Model-Shift Uniqueness Test

008420752-02, P = 1.441302 Days, E = 130.478225 Days

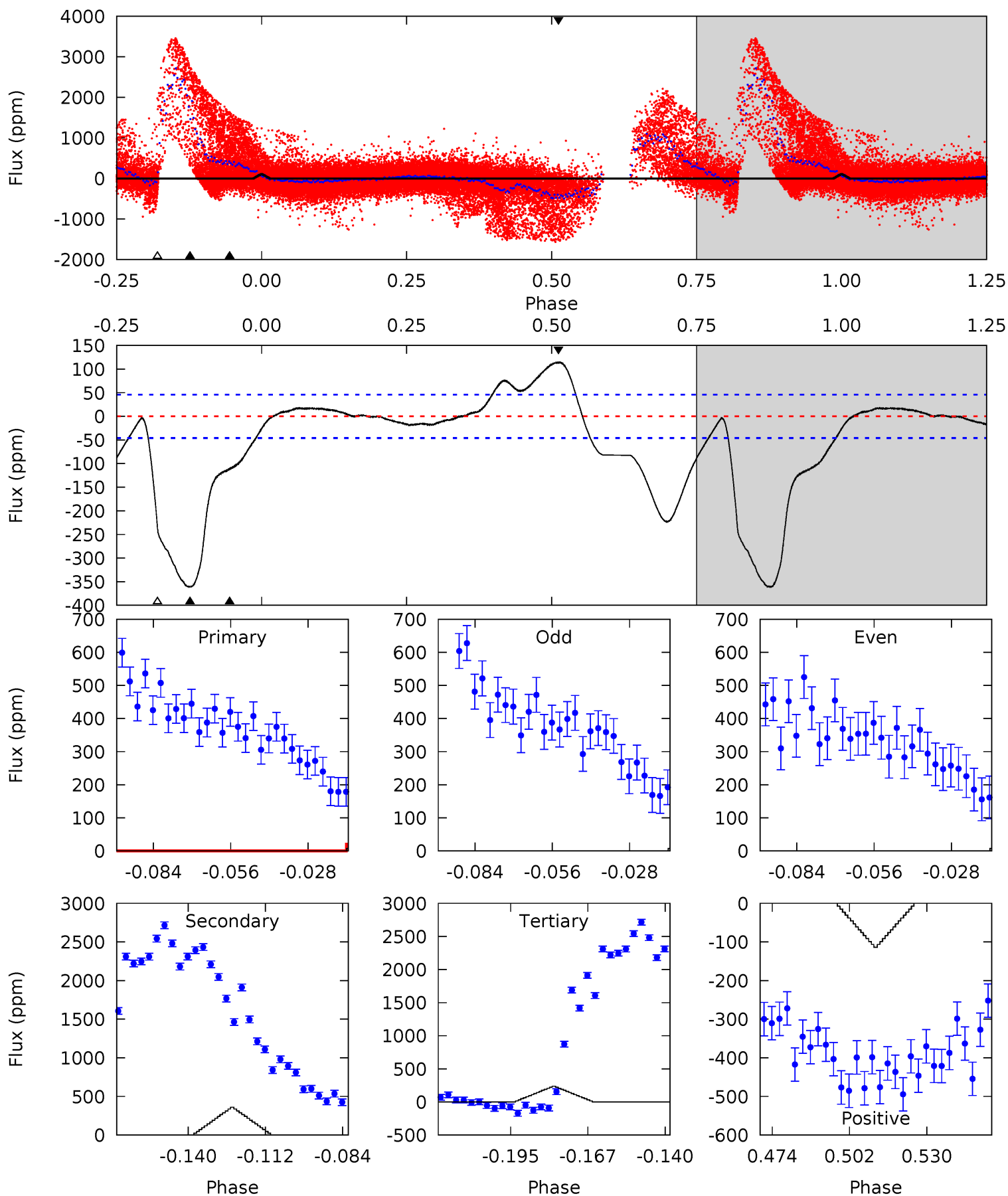
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008420752-02, P = 1.441302 Days, E = 130.666107 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	37.9	25.0	12.0	4.83	2.20	6.21	-13.3	-0.24	12.9	25.9	0.08	3.28	0.24	5.97



Stellar Parameters For KIC 008420752

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9610^{+272}_{-467}	$4.196^{+0.132}_{-0.181}$	$0.070^{+0.050}_{-0.800}$	$1.977^{+0.698}_{-0.524}$	$2.238^{+0.384}_{-0.576}$	$0.408^{+0.334}_{-0.213}$
	+3%/-5%	+3%/-4%	+71%/-1143%	+35%/-27%	+17%/-26%	+82%/-52%
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 008420752-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$16.70^{+17.04}_{-11.54}$	4614^{+382}_{-337}	-6415^{+86706}_{-58679}	$-2.579^{+422.922}_{-389.545}$
Alt.	-361 ± 10	$15.28^{+16.77}_{-10.68}$	4630^{+360}_{-313}	4400^{+4549}_{-7645}	$0.870^{+9.258}_{-0.663}$

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

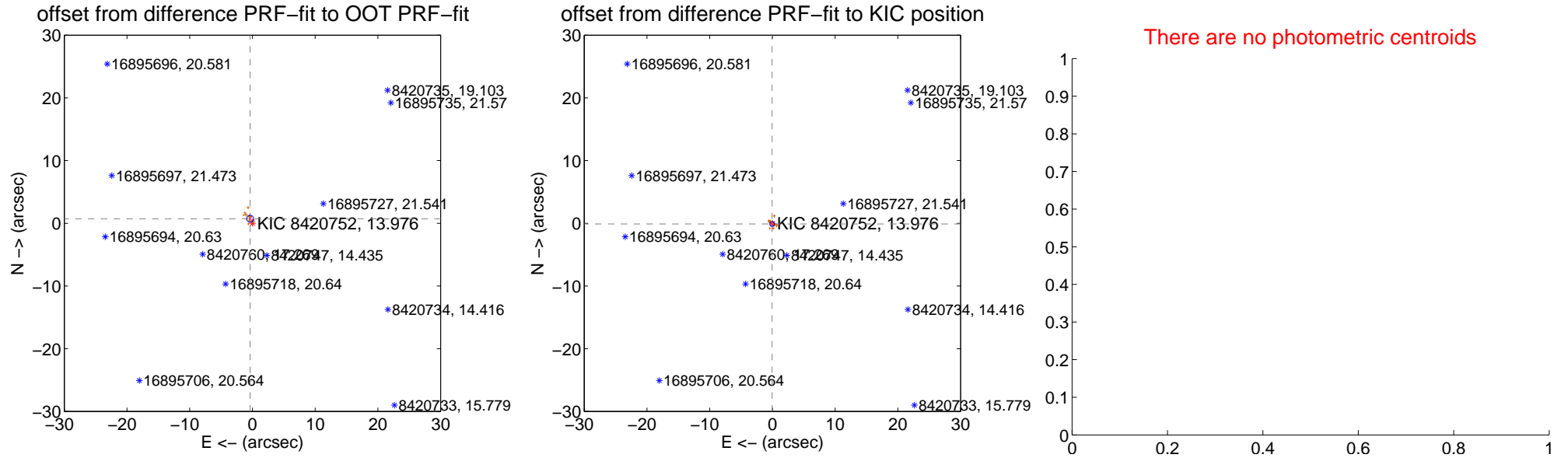
DV Centroid Data

Supplemental centroid analysis for 008420752-02. Kepler magnitude: 13.98. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

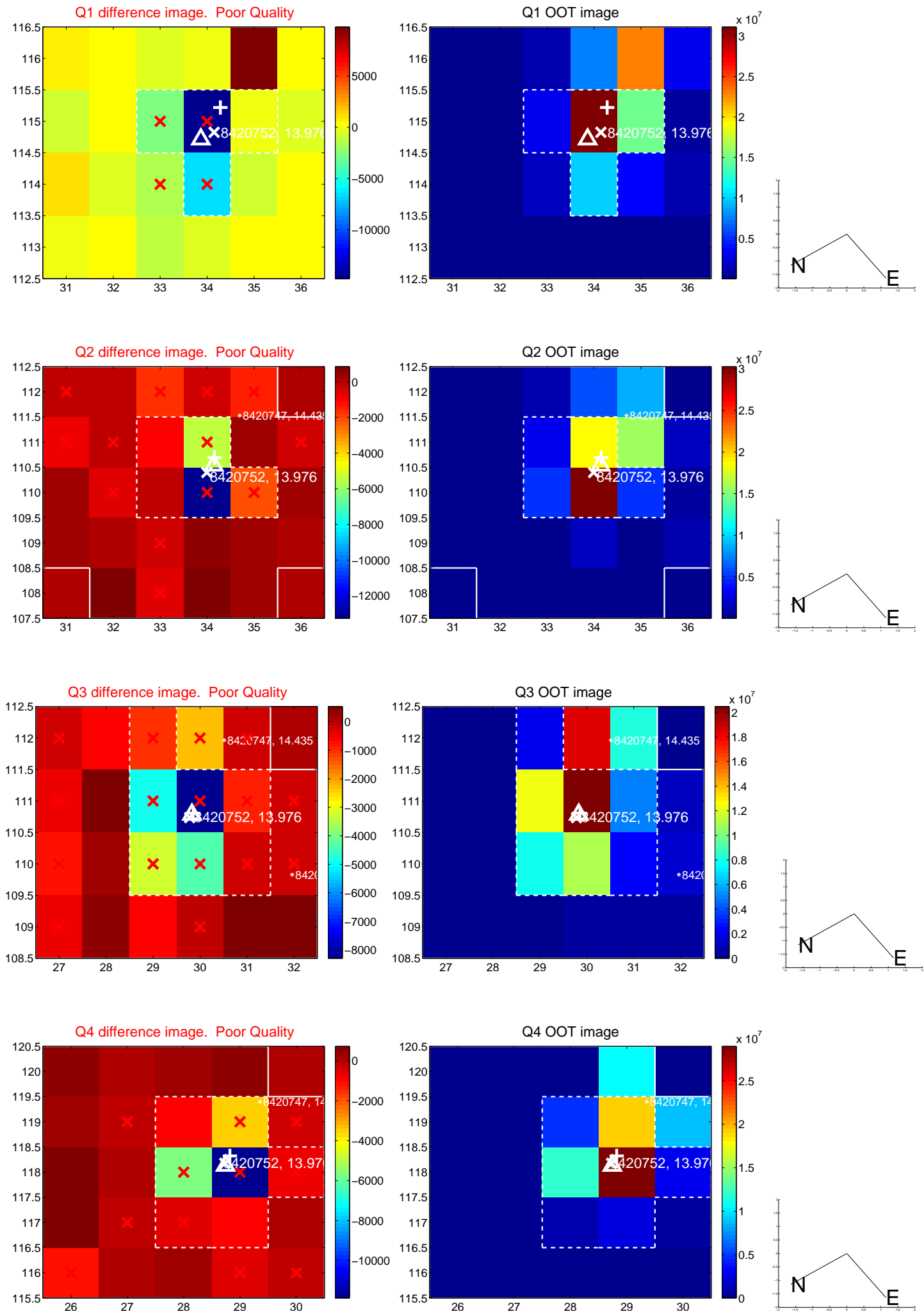
The direct PRF centroid is offset from the target star catalog position by about 1.78 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.812 ± 0.183	4.44	0.370 ± 0.118	0.722 ± 0.171
PRF-fit source offset from KIC position	0.114 ± 0.126	0.90	0.047 ± 0.106	-0.104 ± 0.131
photometric centroid source offset	—	—	—	—

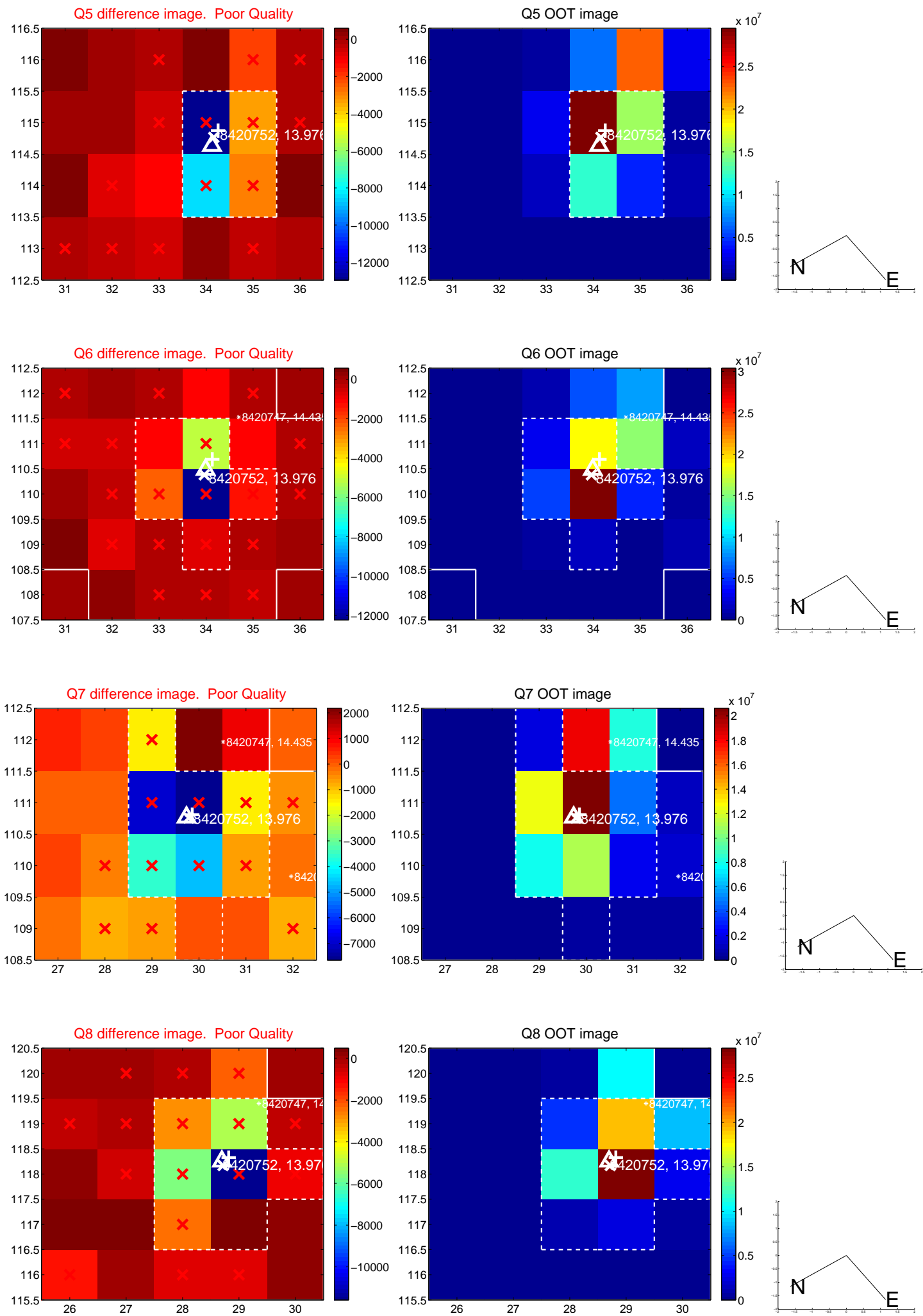


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

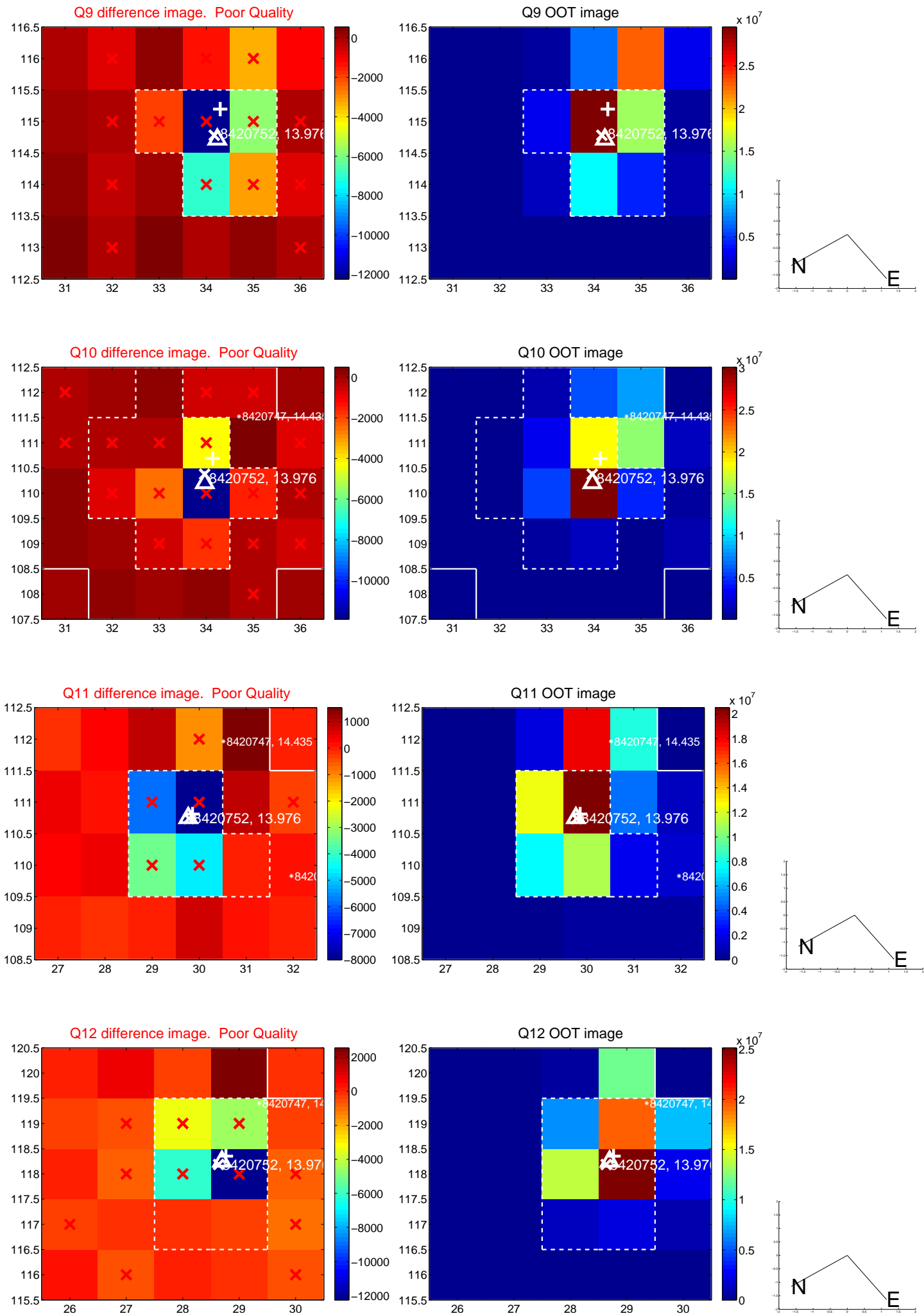
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



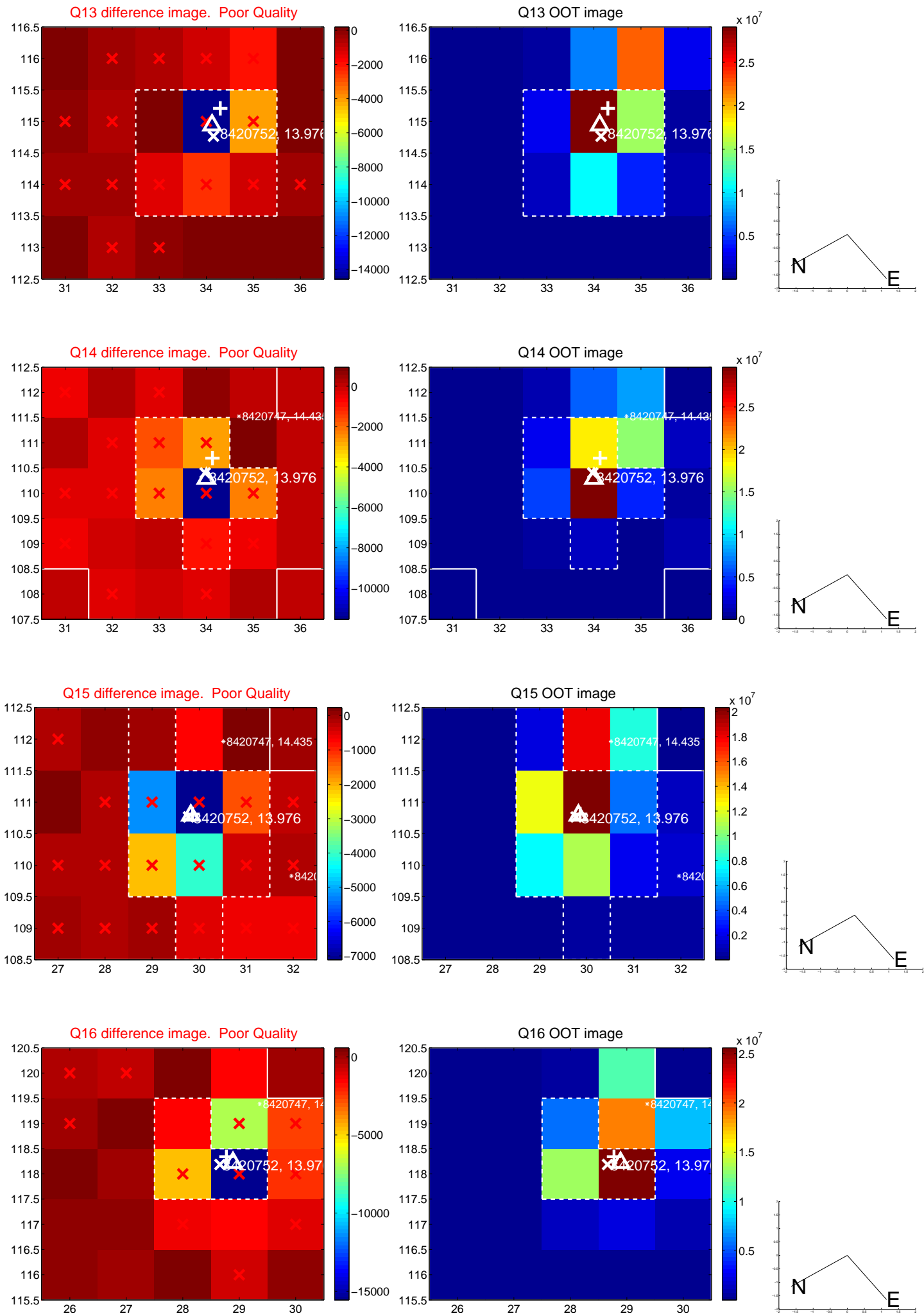
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



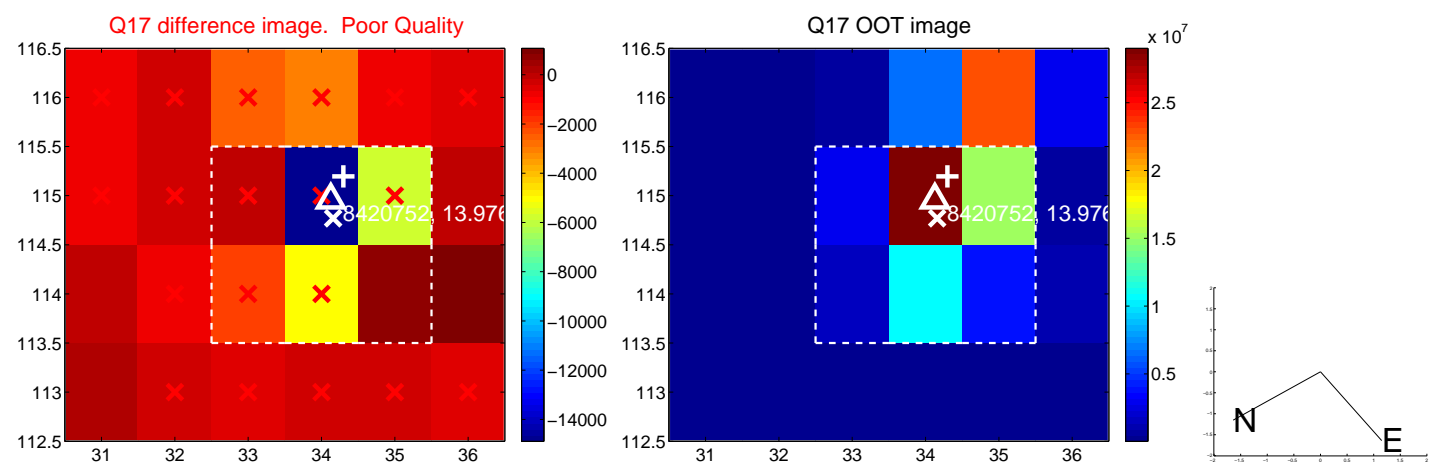
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

