

KIC 011284772

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})
011284772-01	OBS	4622.01	207.248156	213.034425	844.2	6.350	9.7	10.4	0.55	4339	1.75	0.30
011284772-02	OBS	4622.02	4.501545	134.120802	164.3	1.876	7.4	8.2	0.55	4339	0.75	49.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011284772-01	OBS	PC	0.97	0	0	0	0	CENT_KIC_POS
011284772-02	OBS	PC	0.98	0	0	0	0	CENT_KIC_POS

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.

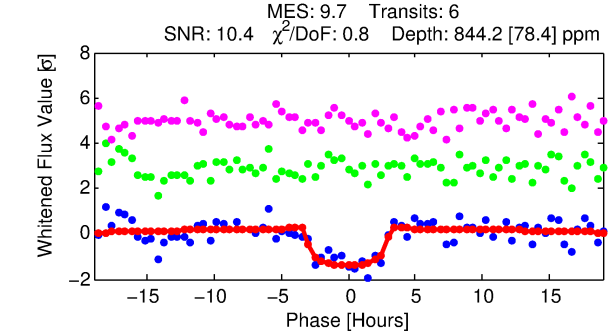
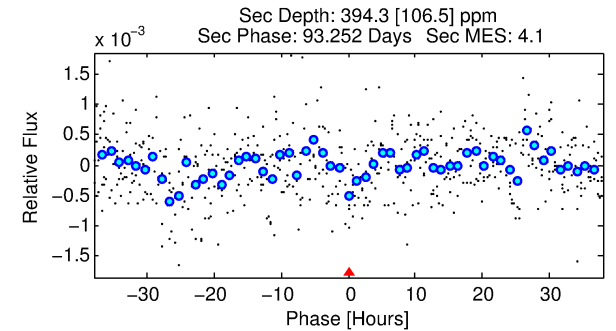
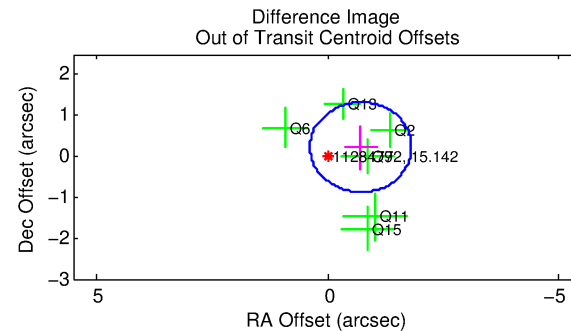
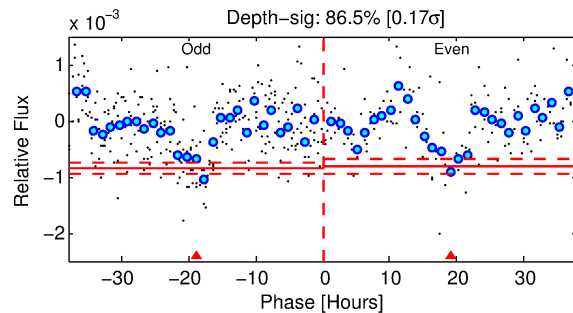
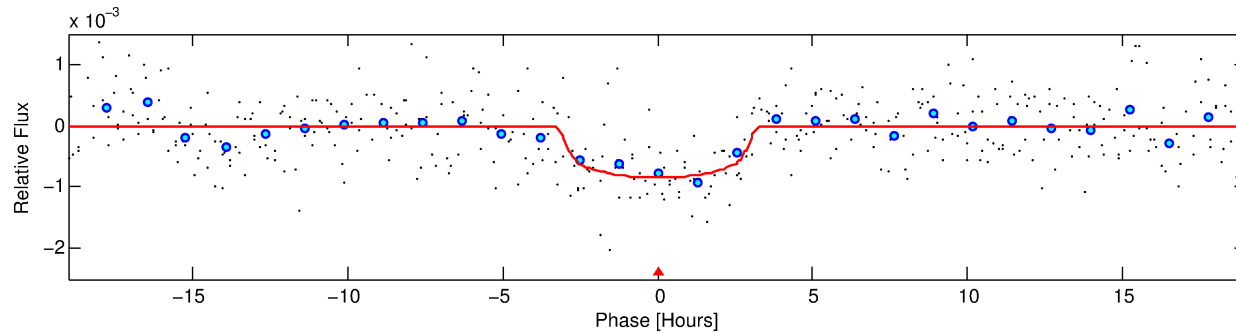
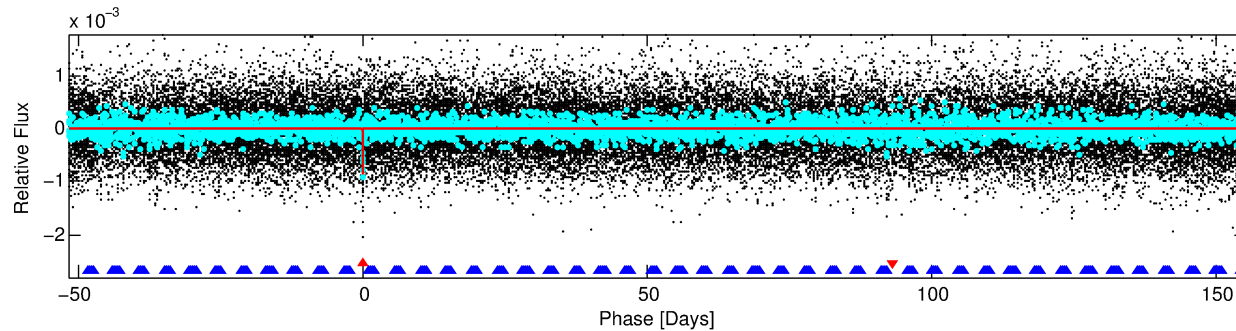
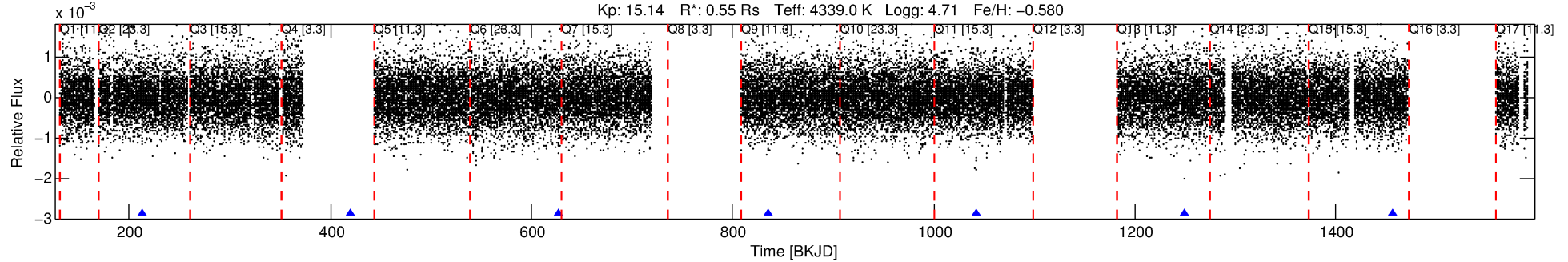
Ephemeris Match Information For 011284772-01

No Significant Match Found

DV One-Page Summary

KIC: 11284772 Candidate: 1 of 2 Period: 207.248 d
KOI: K04622.01 Name: Kepler-441b Corr: 0.973

Kp: 15.14 R*: 0.55 Rs Teff: 4339.0 K Logg: 4.71 Fe/H: -0.580



DV Fit Results:

Period = 207.24816 [0.00267] d
Epoch = 213.0344 [0.0111] BKJD
Rp/R* = 0.0289 [0.0135]
a/R* = 178.01 [308.39]
b = 0.74 [1.07]
Seff = 0.30 [0.03]
Teq = 189 [5] K
Rp = 1.74 [0.82] Re
a = 0.5695 [0.0255] AU
Ag = 23111.47 [22470.84] [1.03σ]
Teffp = 3596 [875] K [3.89σ]

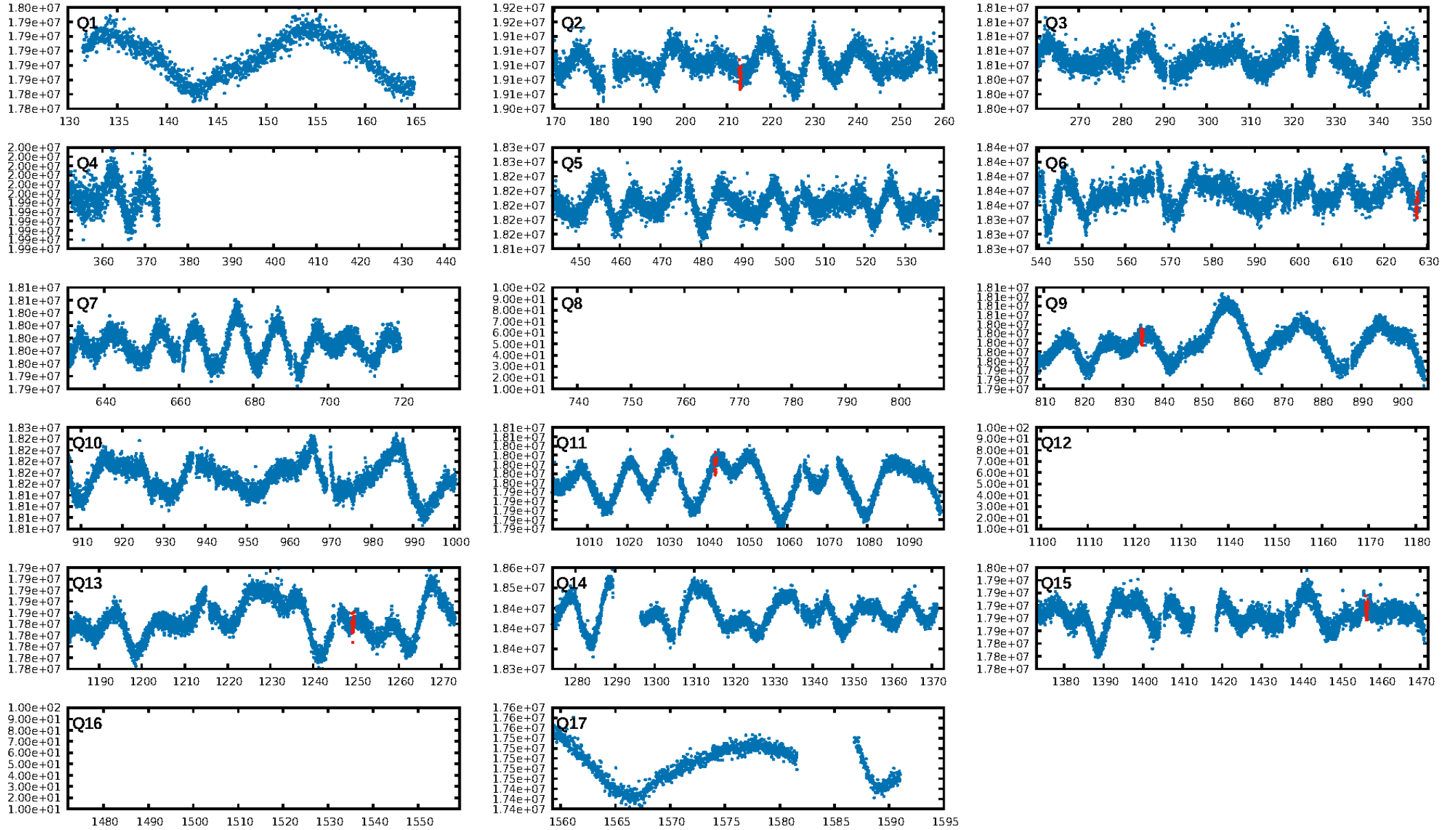
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [734.89σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 98.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.10e-21
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 1.879
Centroid-sig: 41.4%
Centroid-so: 1.085 arcsec [0.92σ]
OotOffset-rm: 0.752 arcsec [2.05σ]
OotOffset-st: 2/2/0/2 [6]
KicOffset-rm: 0.991 arcsec [2.02σ]
KicOffset-st: 2/2/0/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

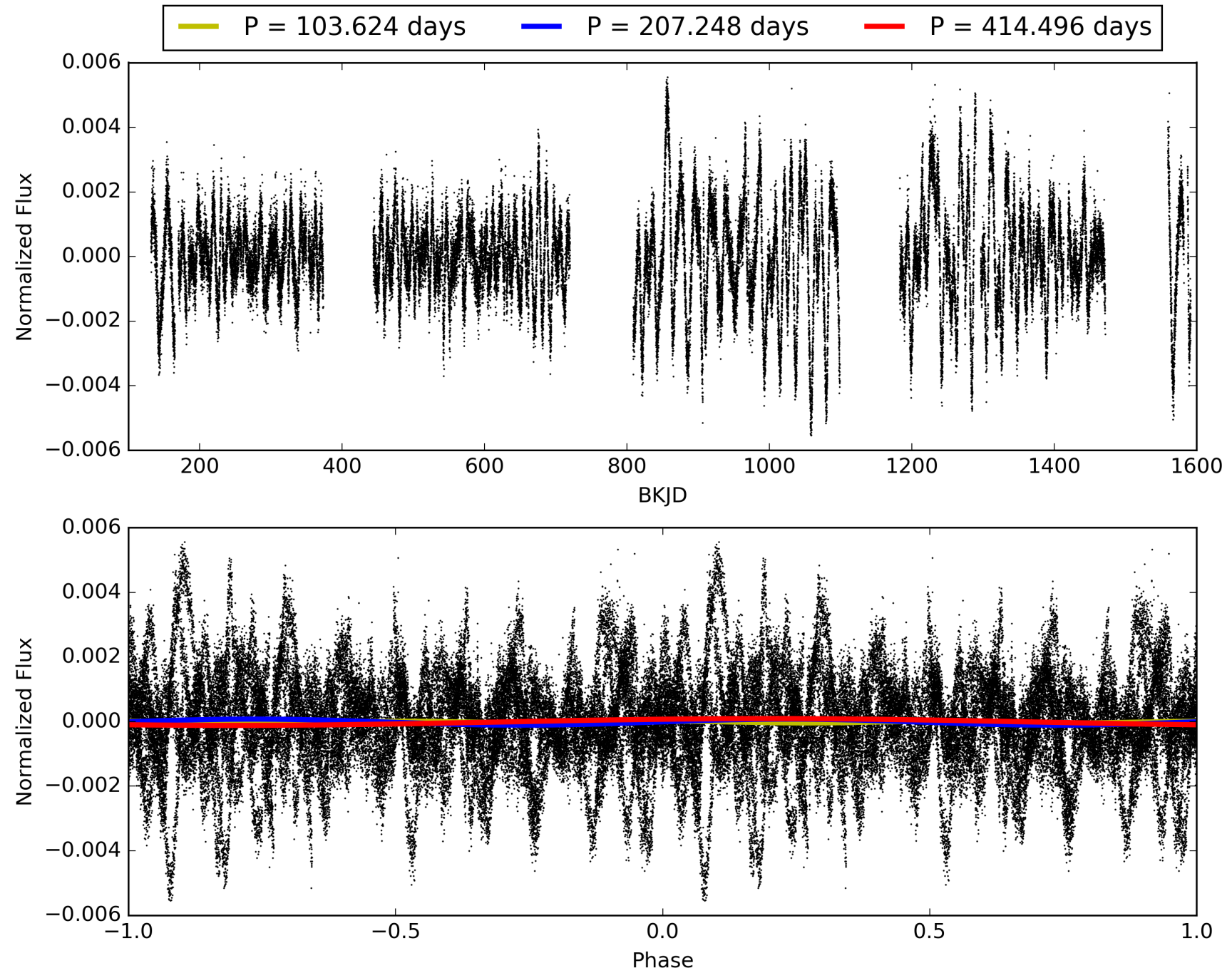
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:23:28 Z

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

TCE 011284772-01, PDC Light Curves

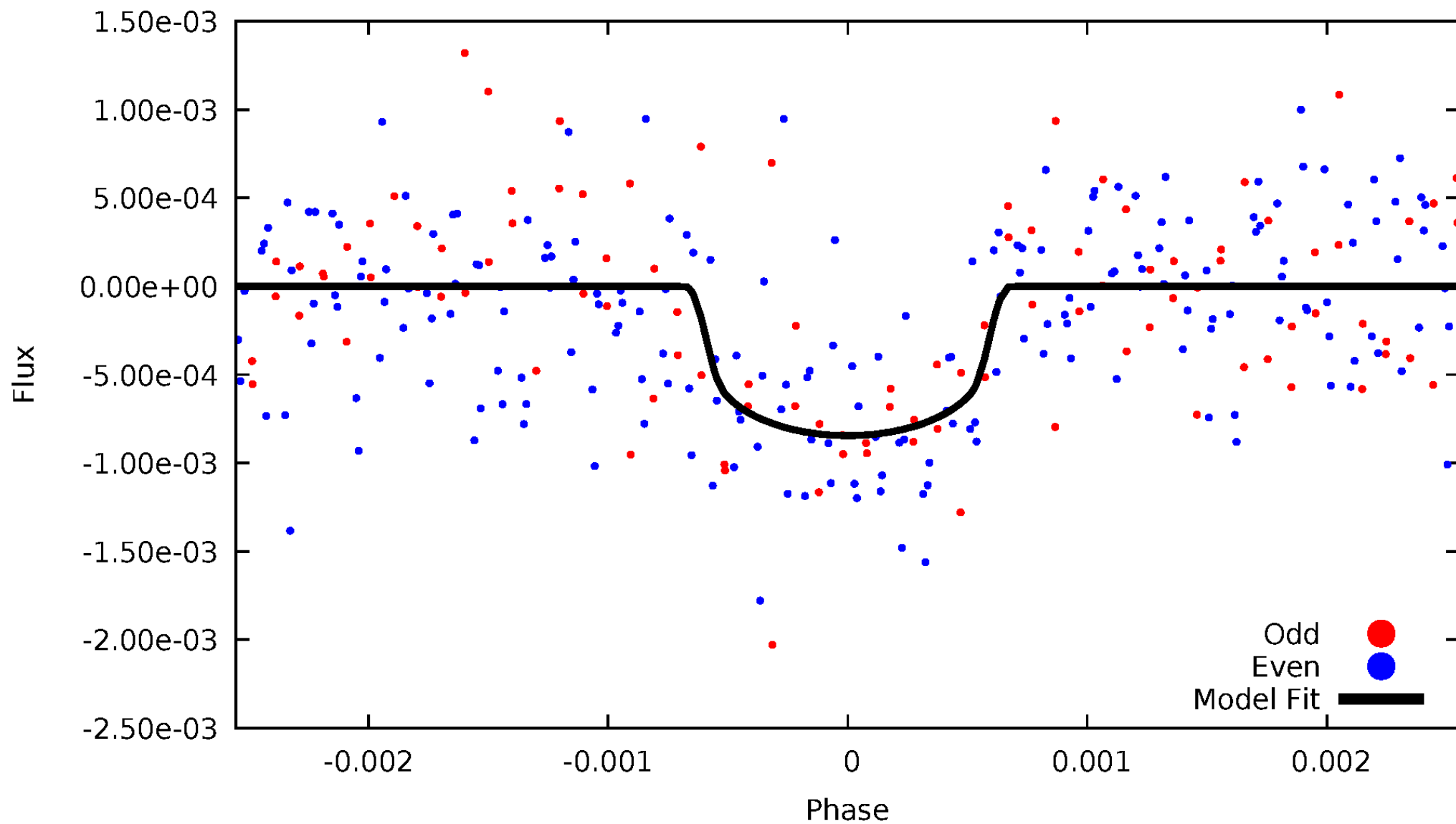


TCE 011284772-01



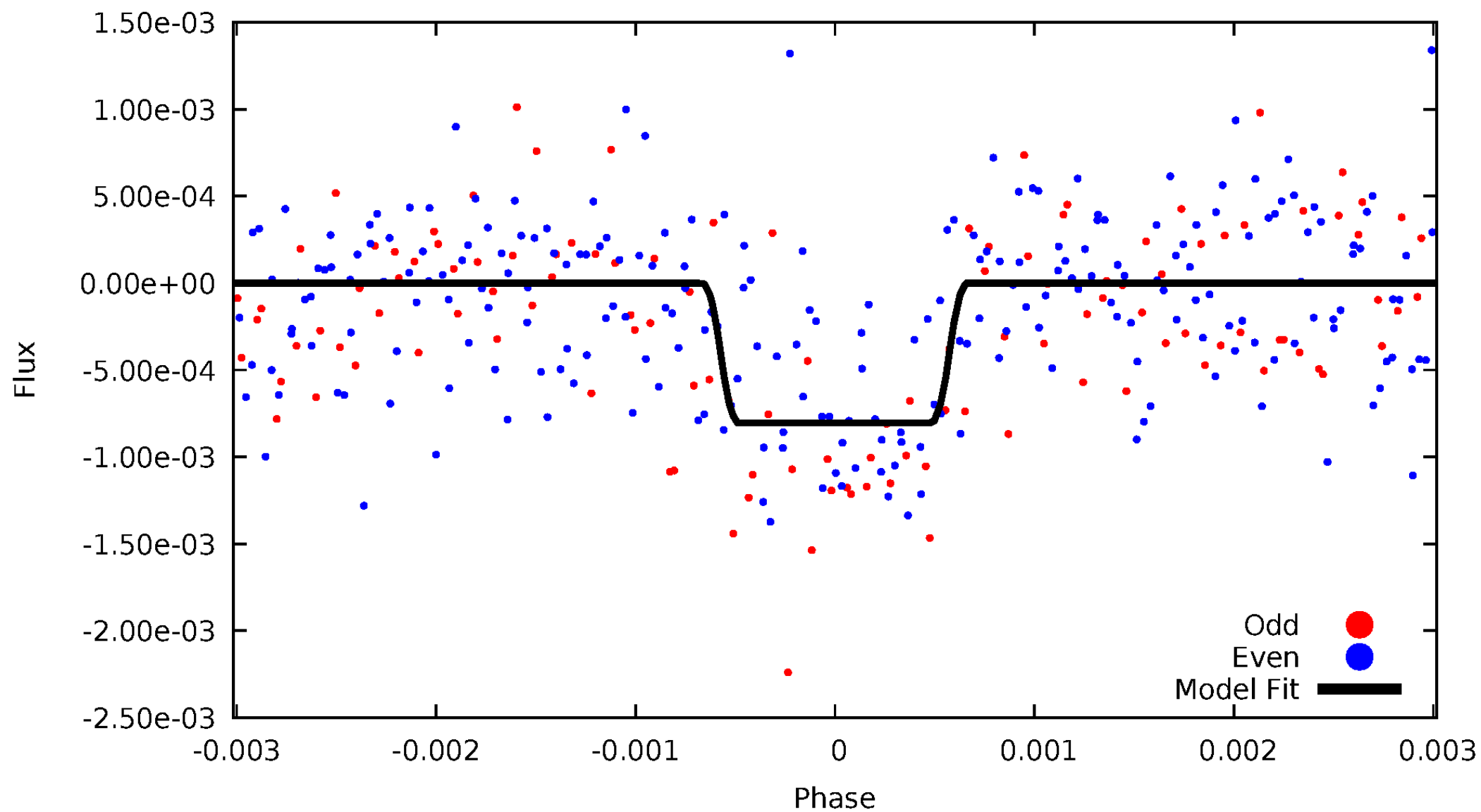
DV Odd/Even

TCE 011284772-01



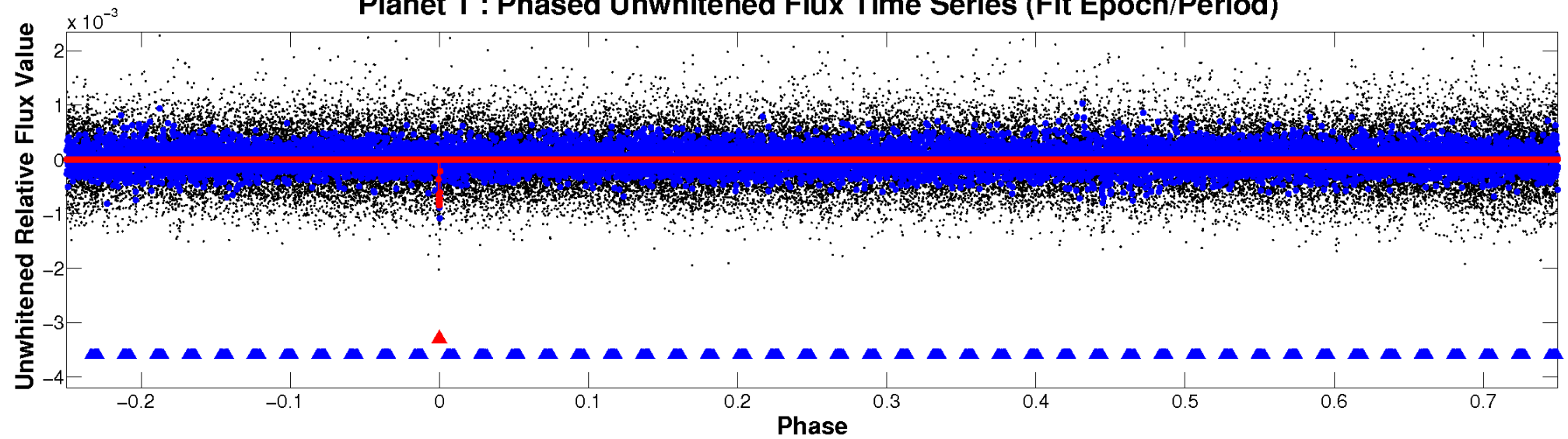
ALT Odd/Even

TCE 011284772-01

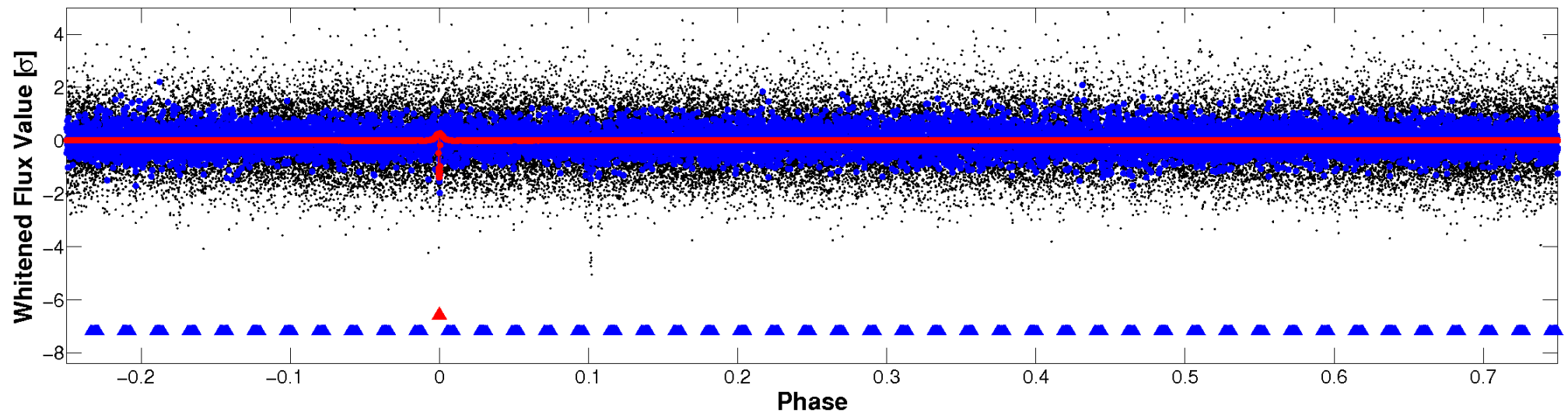


Non-Whitened Vs. Whitened Light Curve

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

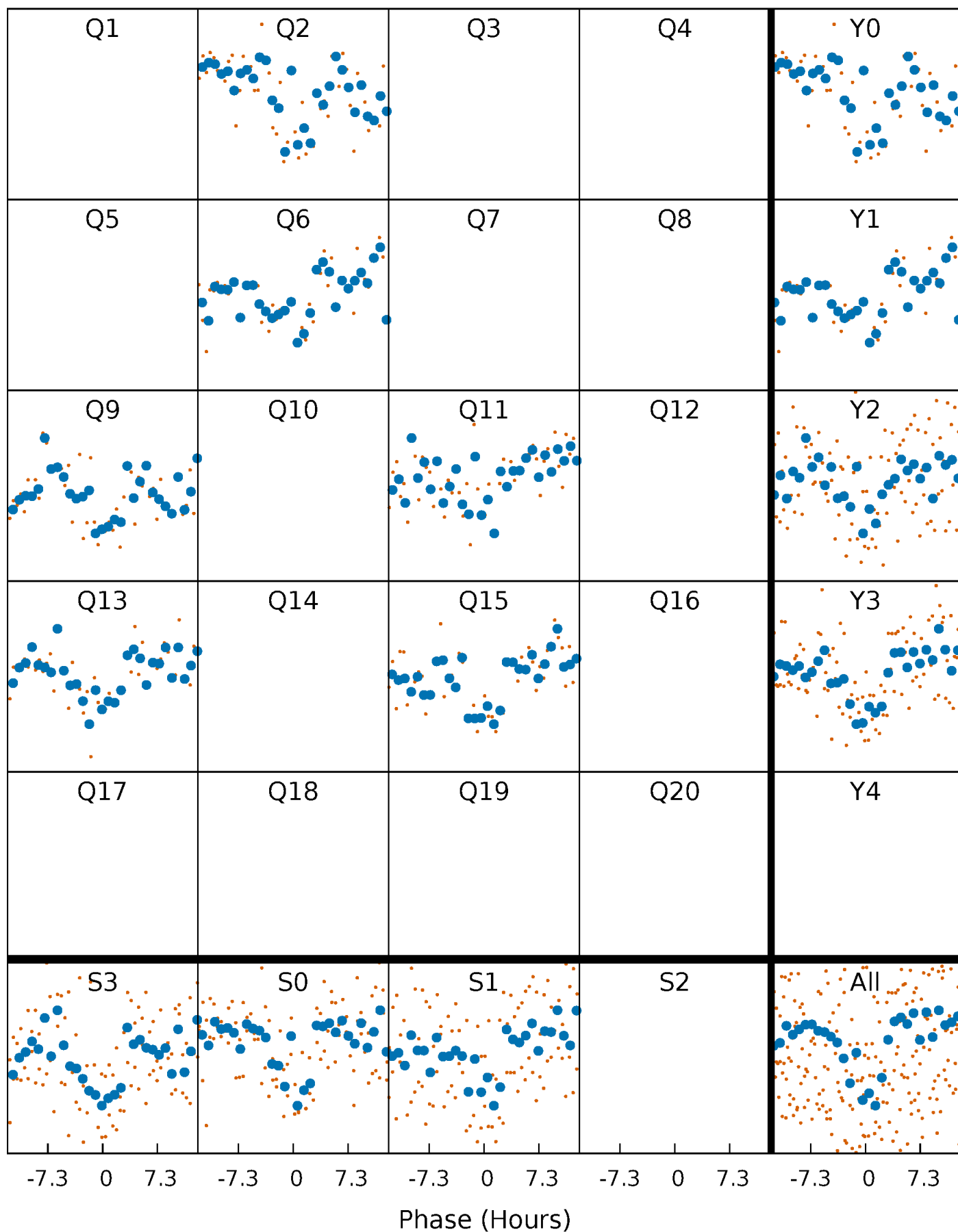


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



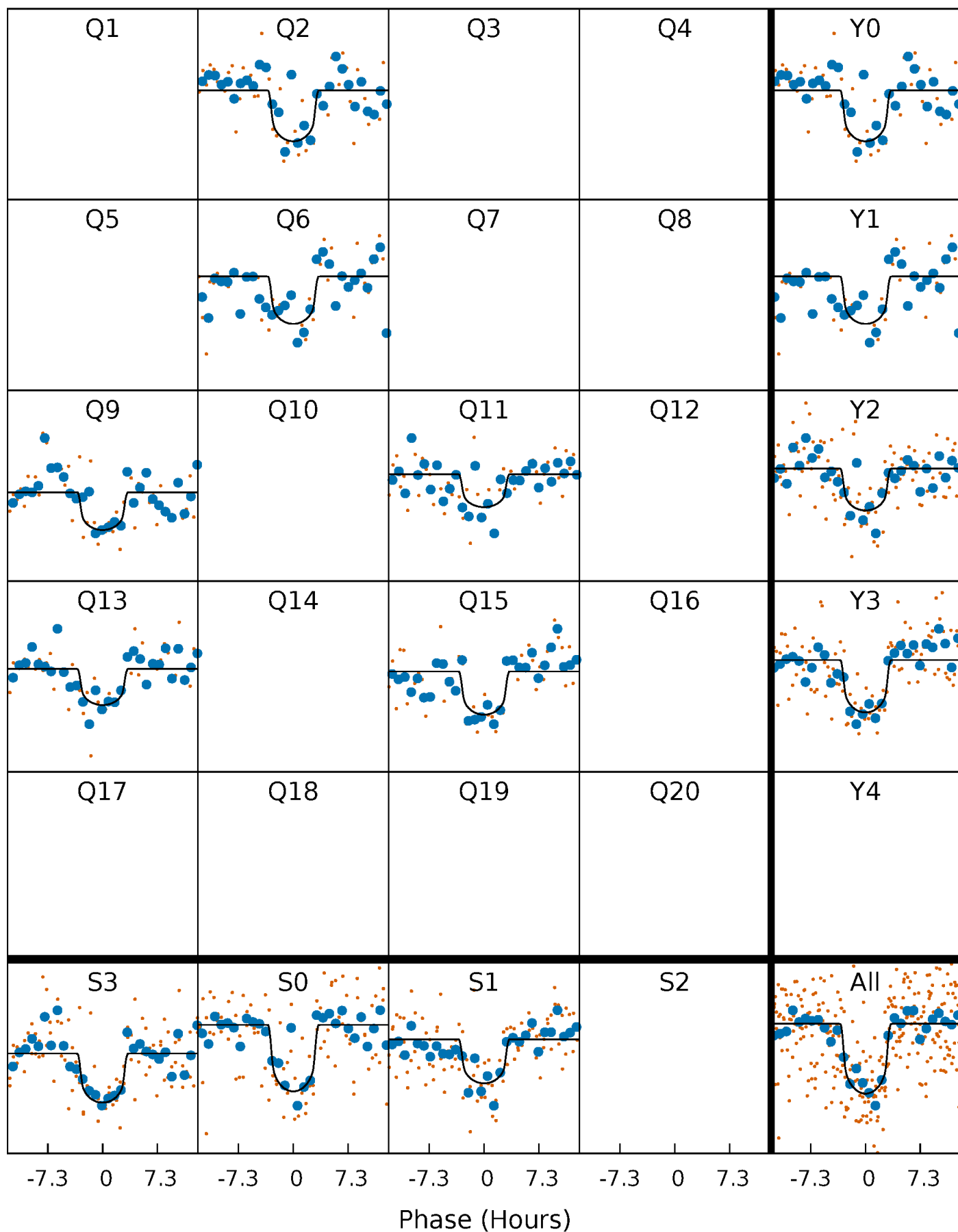
PDC Quarter-Phased Transit Curves

TCE 011284772-01 P=207.248156 Days $T_0=213.034425$ (BKJD)



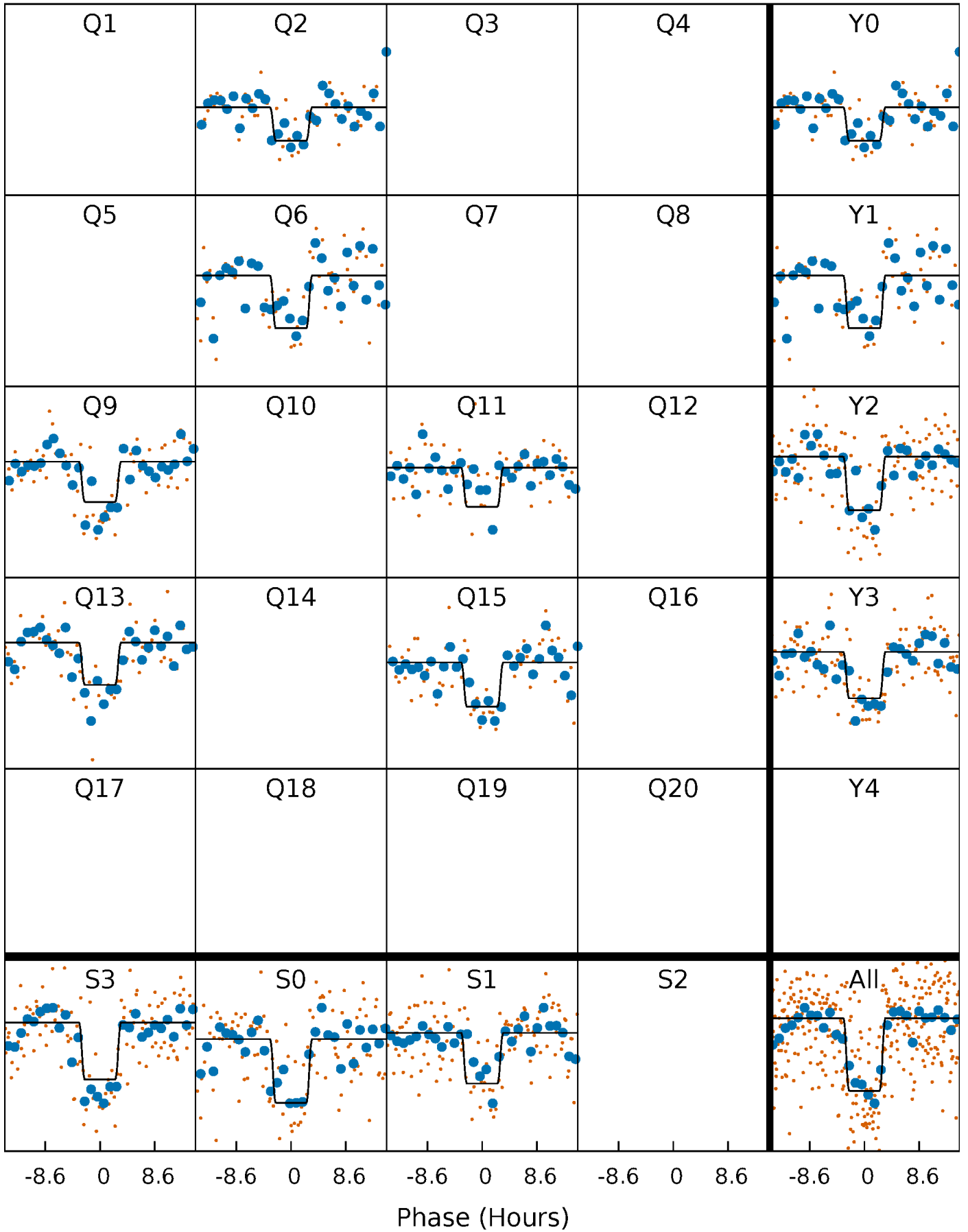
DV Quarter-Phased Transit Curves

TCE 011284772-01 P=207.248156 Days $T_0=213.034425$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

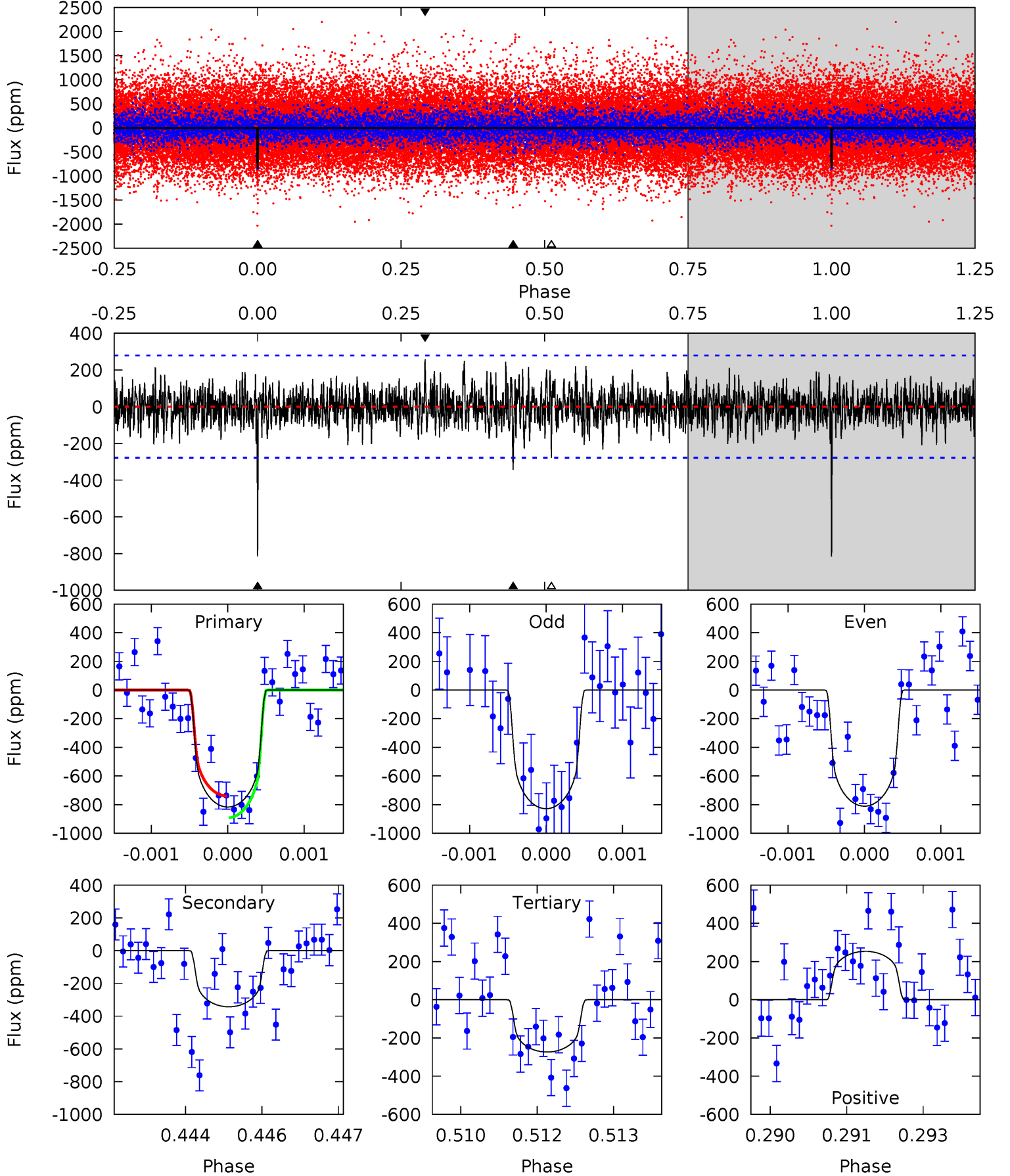
TCE 011284772-01 P=207.240323 Days $T_0=213.057062$ (BKJD)



DV Model-Shift Uniqueness Test

011284772-01, P = 207.248156 Days, E = 5.786269 Days

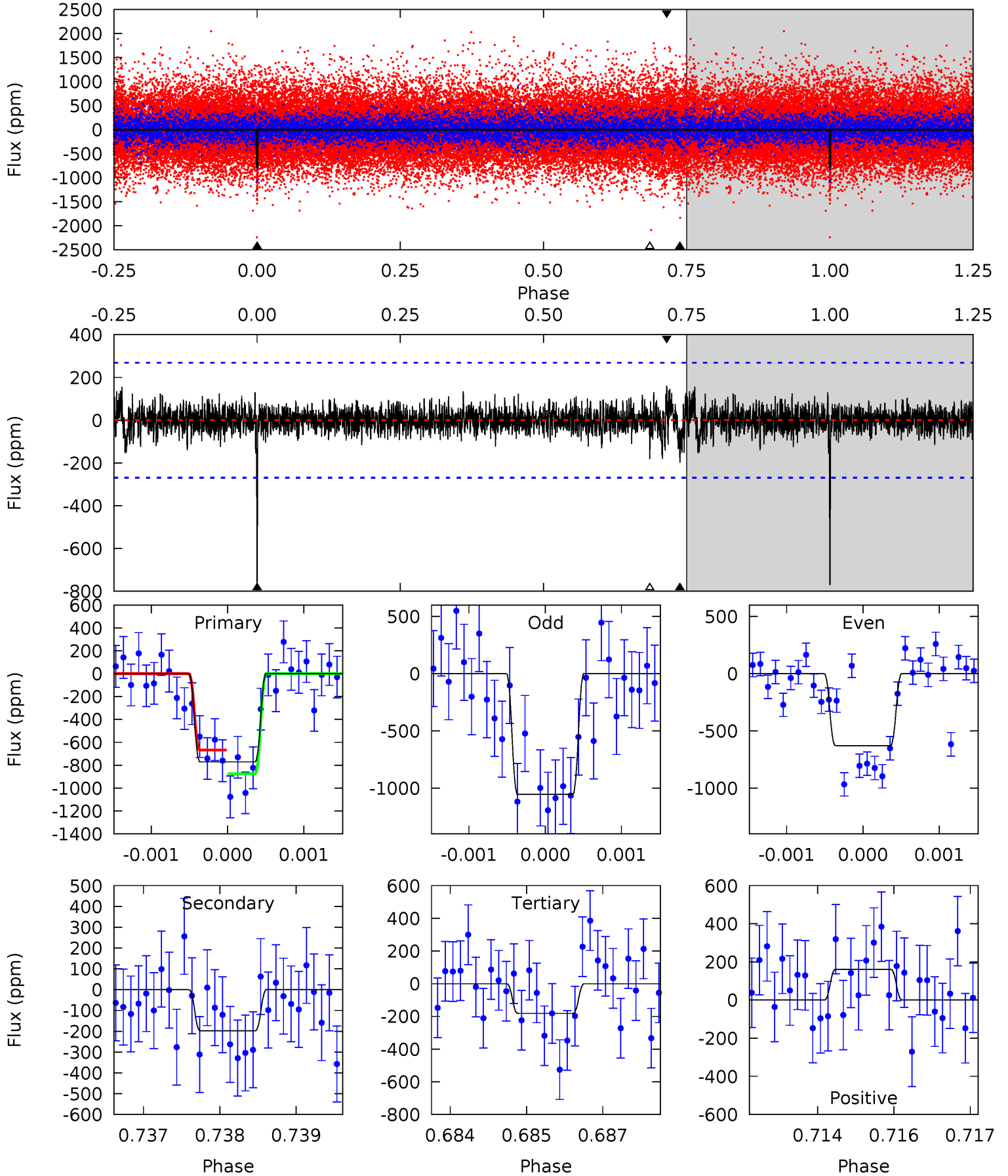
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	6.64	5.29	4.90	5.40	3.21	1.41	10.5	10.9	1.34	1.73	0.16	1.00	0.24	1.47



Alt Model-Shift Uniqueness Test

011284772-01, P = 207.240323 Days, E = 5.816739 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	3.98	3.65	3.24	5.40	3.21	0.87	11.9	12.3	0.32	0.73	4.04	1.07	0.17	2.09



Stellar Parameters For KIC 011284772

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4339^{+78}_{-87}	$4.711^{+0.020}_{-0.032}$	$-0.580^{+0.150}_{-0.150}$	$0.553^{+0.031}_{-0.022}$	$0.573^{+0.026}_{-0.026}$	$4.778^{+0.401}_{-0.568}$
	+2%/-2%	+0%/-1%	+26%/-26%	+6%/-4%	+5%/-5%	+8%/-12%
Source	SPE85	SPE85	SPE85	DSEP		

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

Secondary Eclipse Parameters for KIC 011284772-01 / KOI 4622.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-343 ± 52	$1.78^{+0.87}_{-0.76}$	264^{+6}_{-5}	3695^{+822}_{-432}	19110^{+41735}_{-10230}
Alt.	-198 ± 50	$1.75^{+0.79}_{-0.78}$	264^{+6}_{-6}	3372^{+784}_{-378}	11018^{+27315}_{-5974}

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

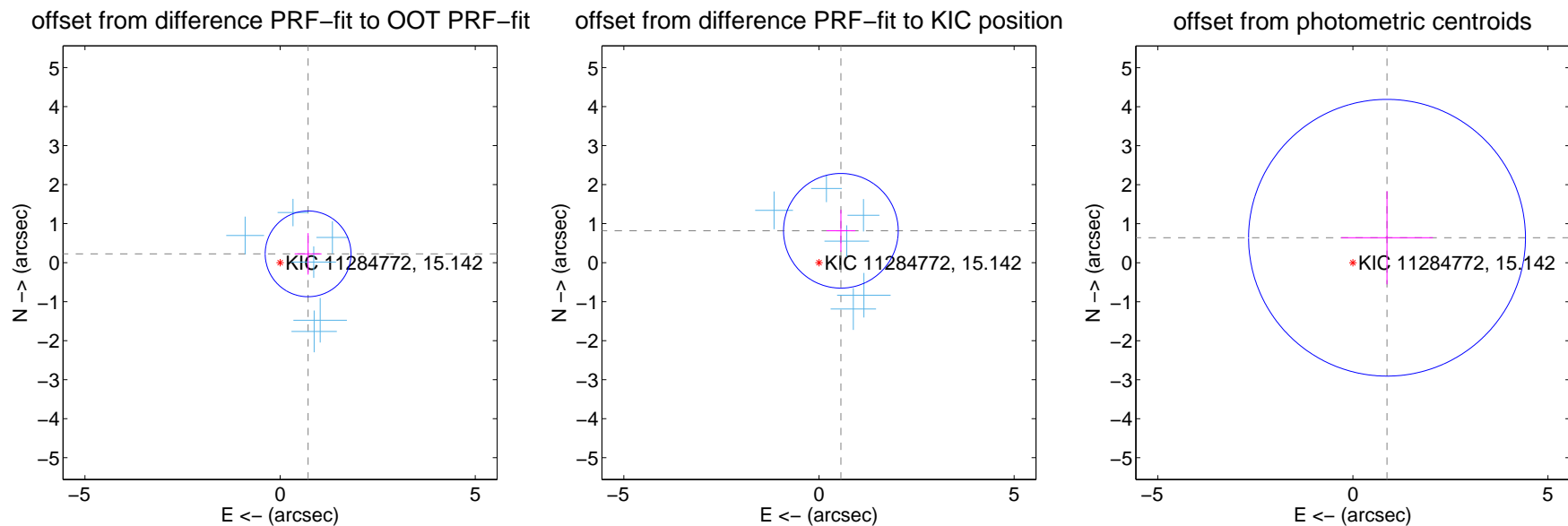
DV Centroid Data

Supplemental centroid analysis for 011284772-01. Kepler magnitude: 15.14. Transit SNR 10.40

There are 6 quarters with good PRF difference image offsets

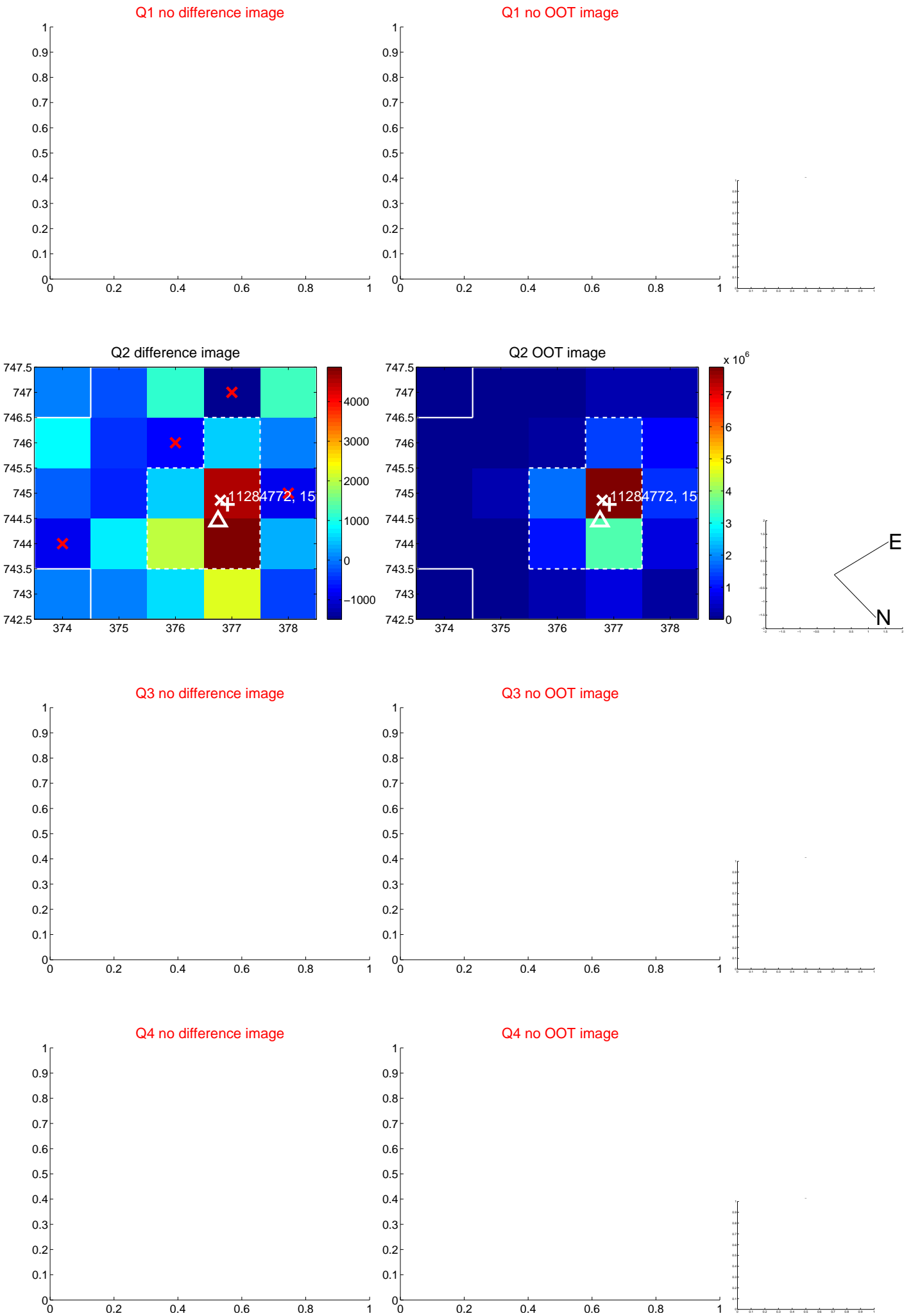
The direct PRF centroid is offset from the target star catalog position by about 0.57 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.752 ± 0.366	2.05	-0.717 ± 0.346	0.226 ± 0.531
PRF-fit source offset from KIC position	0.991 ± 0.490	2.02	-0.561 ± 0.370	0.817 ± 0.537
photometric centroid source offset	1.08 ± 1.18	0.92	-0.88 ± 1.18	0.64 ± 1.19

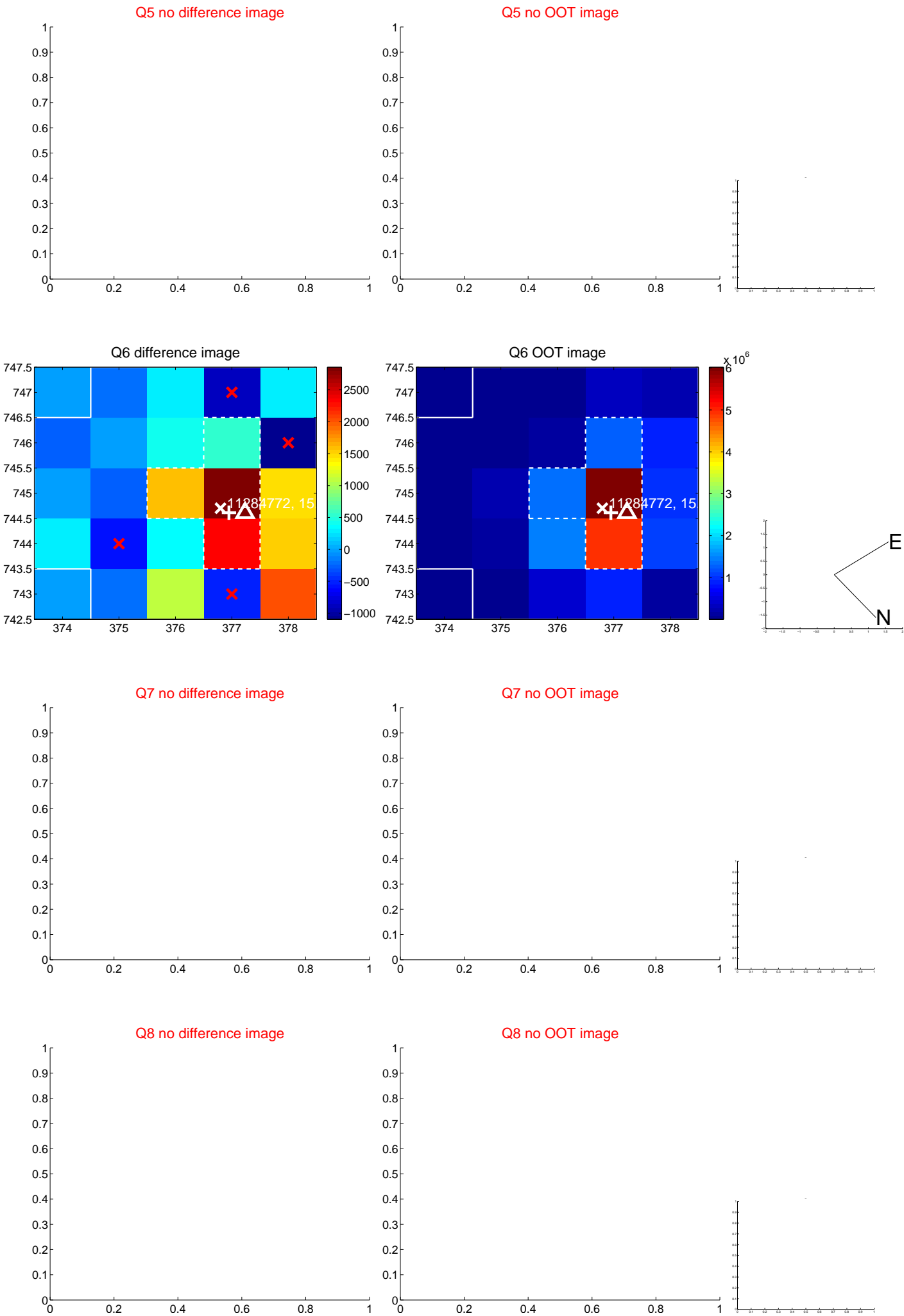


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

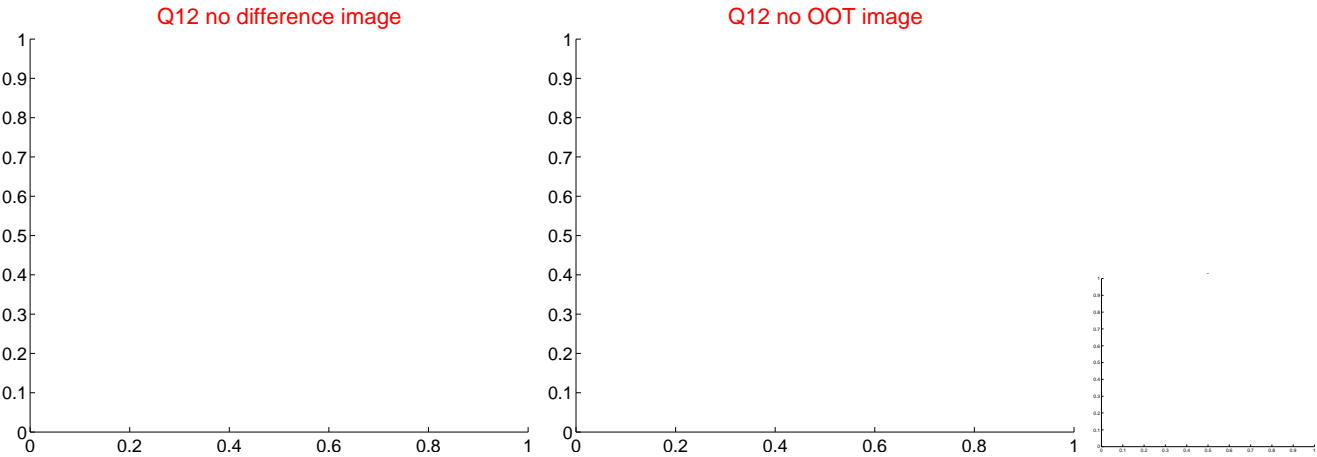
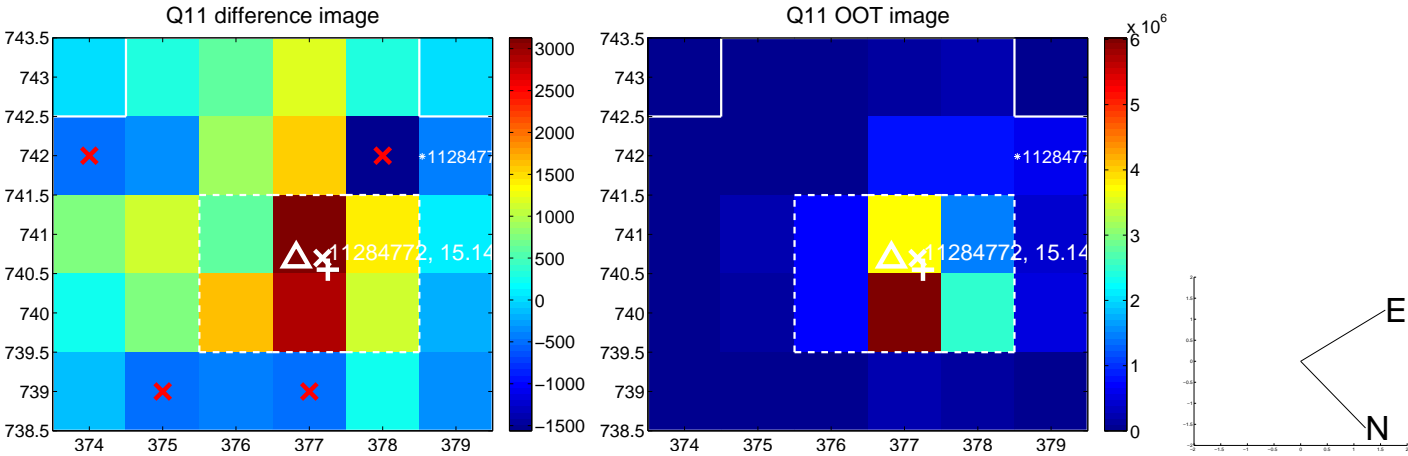
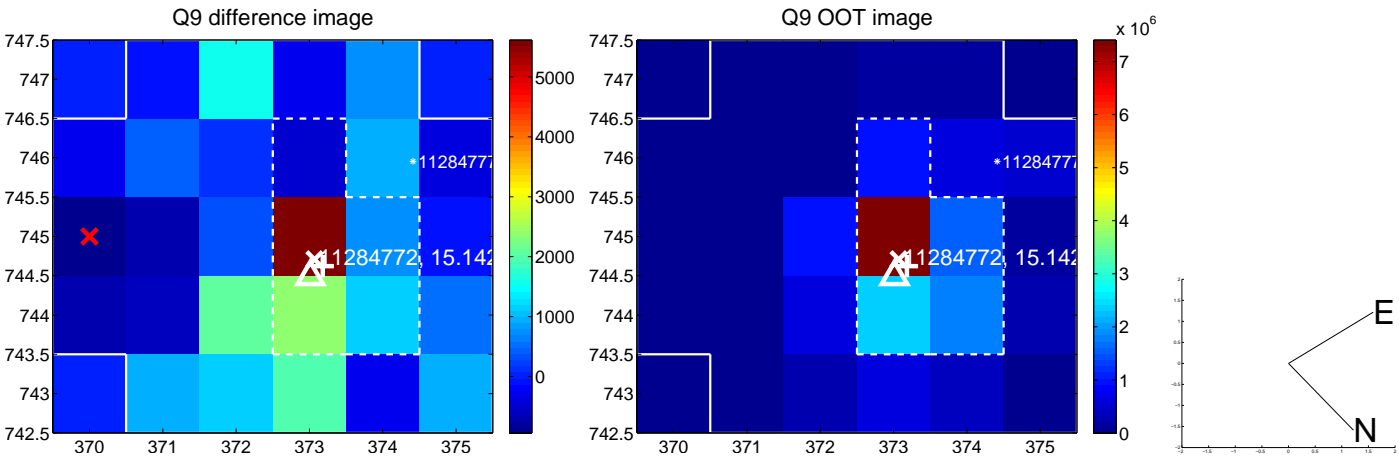
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



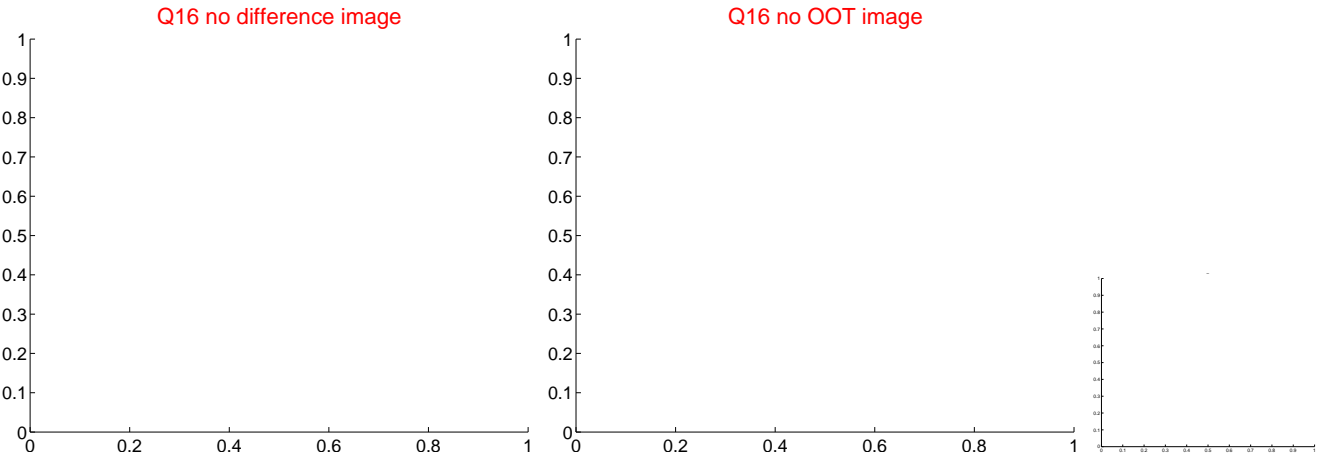
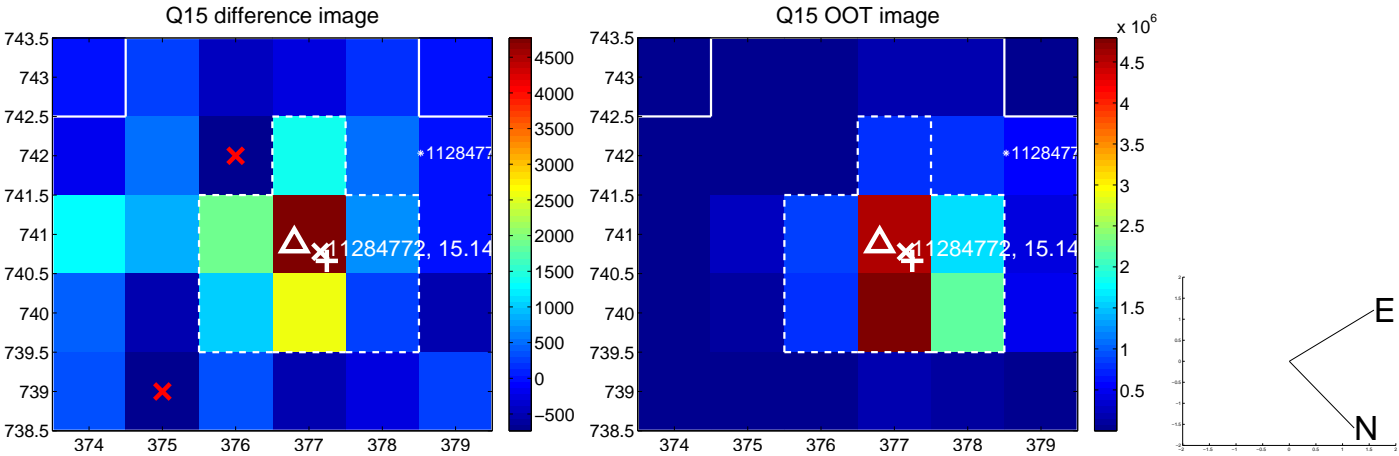
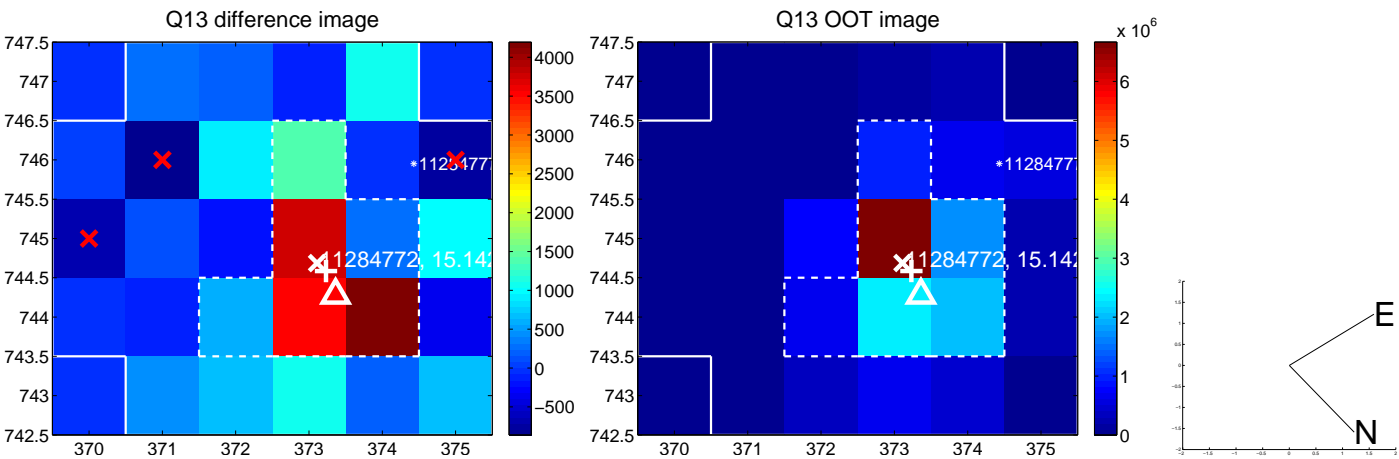
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



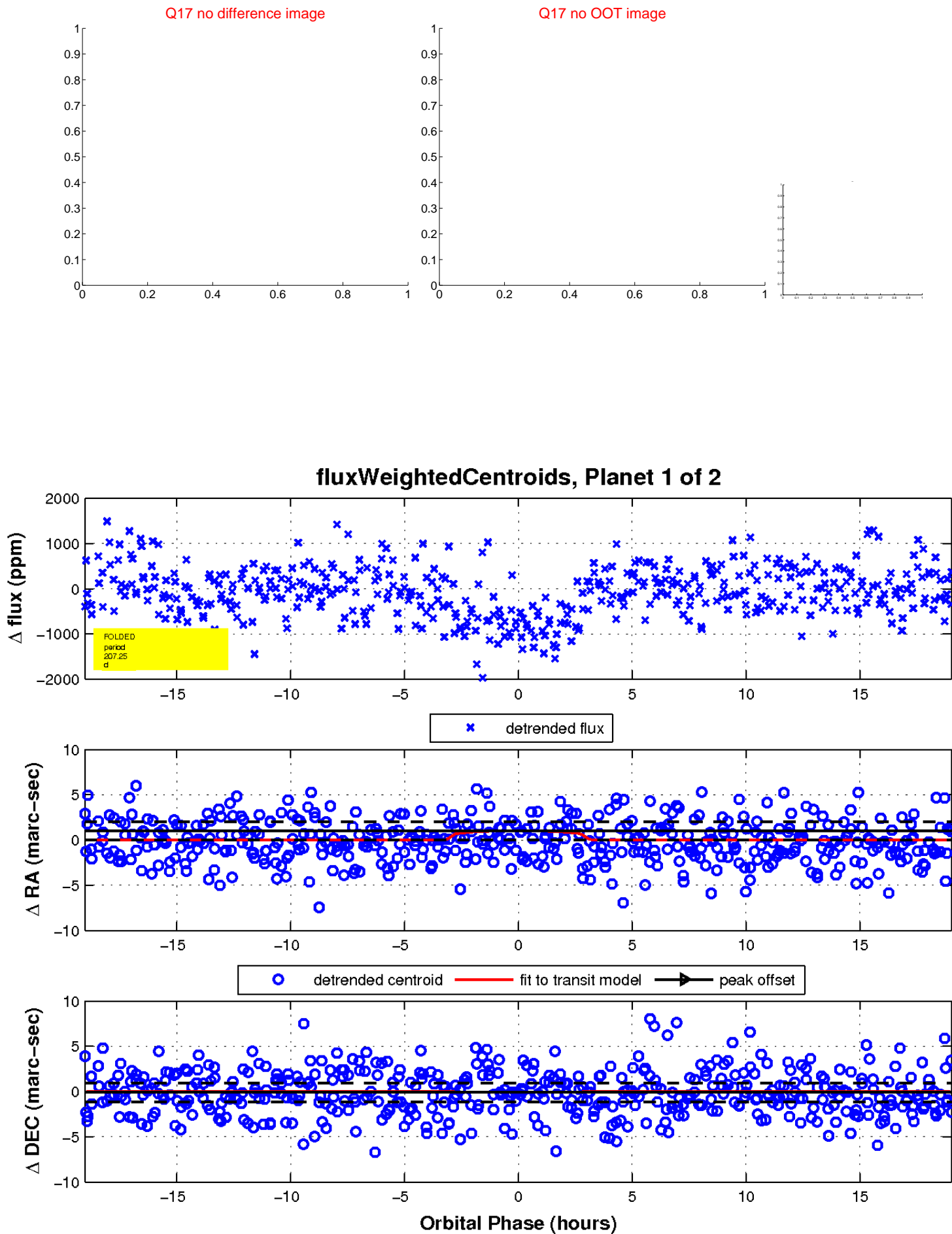
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



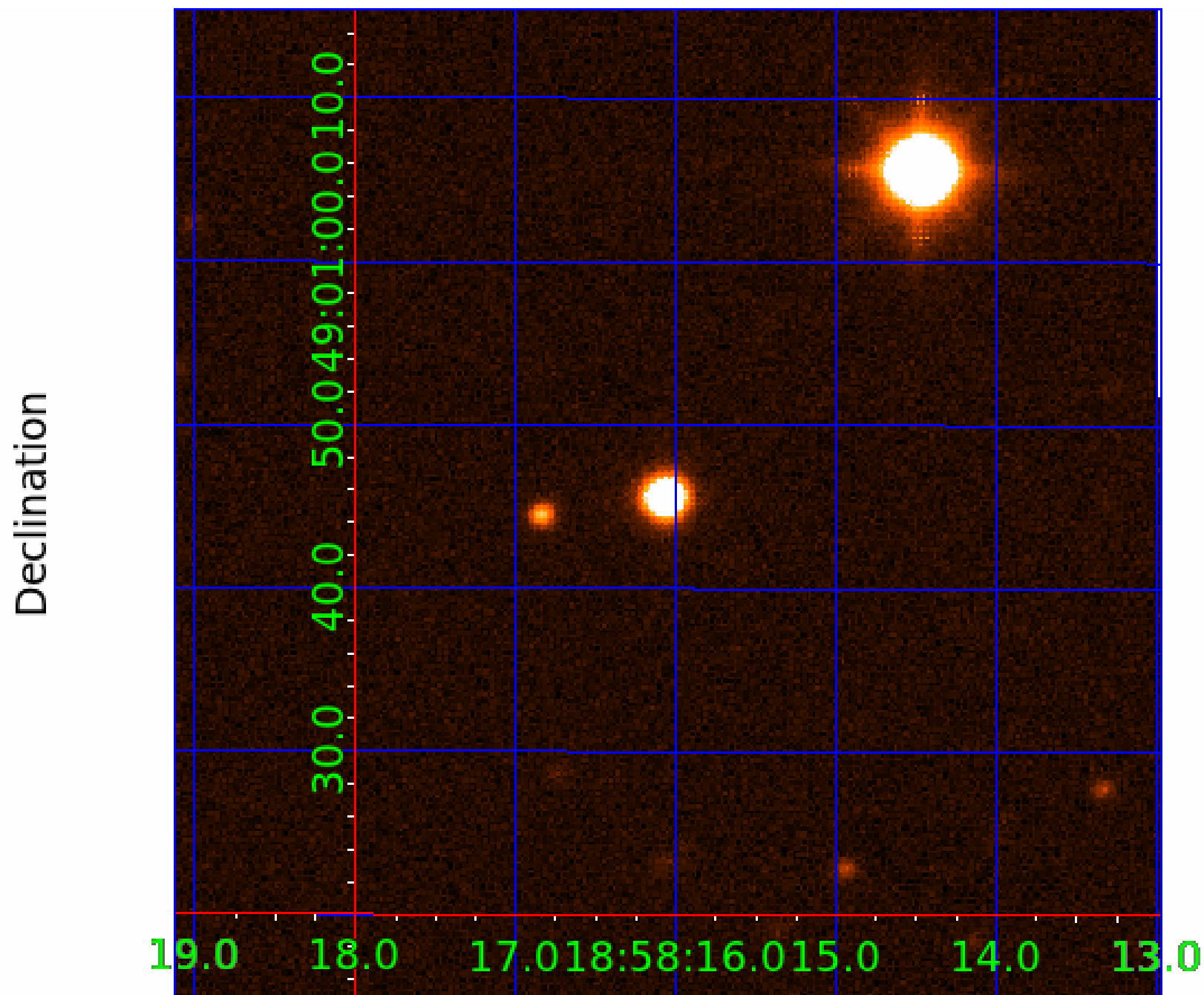
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011284772

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})
011284772-01	OBS	4622.01	207.248156	213.034425	844.2	6.350	9.7	10.4	0.55	4339	1.75	0.30
011284772-02	OBS	4622.02	4.501545	134.120802	164.3	1.876	7.4	8.2	0.55	4339	0.75	49.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011284772-01	OBS	PC	0.97	0	0	0	0	CENT_KIC_POS
011284772-02	OBS	PC	0.98	0	0	0	0	CENT_KIC_POS

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

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

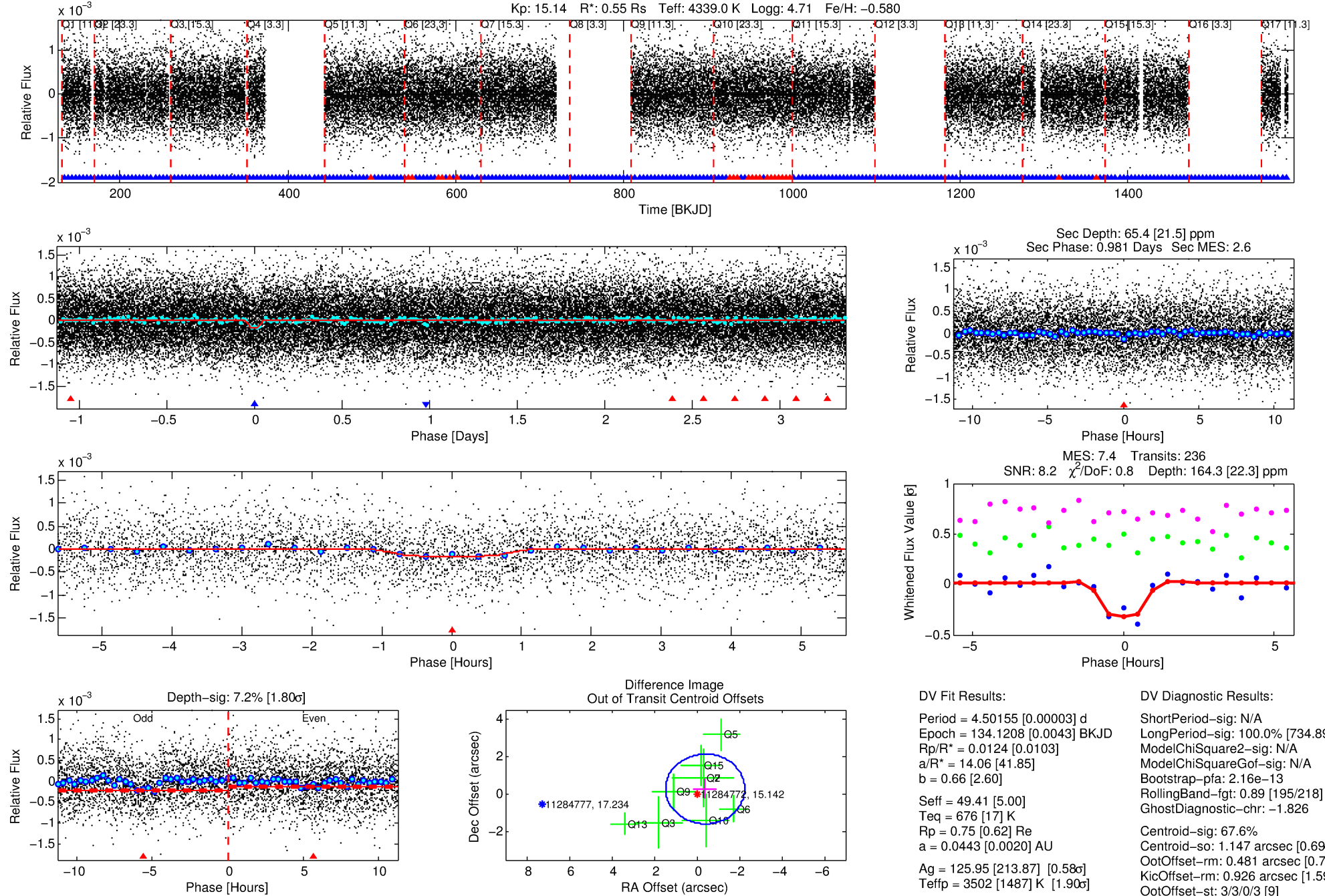
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011284772-02

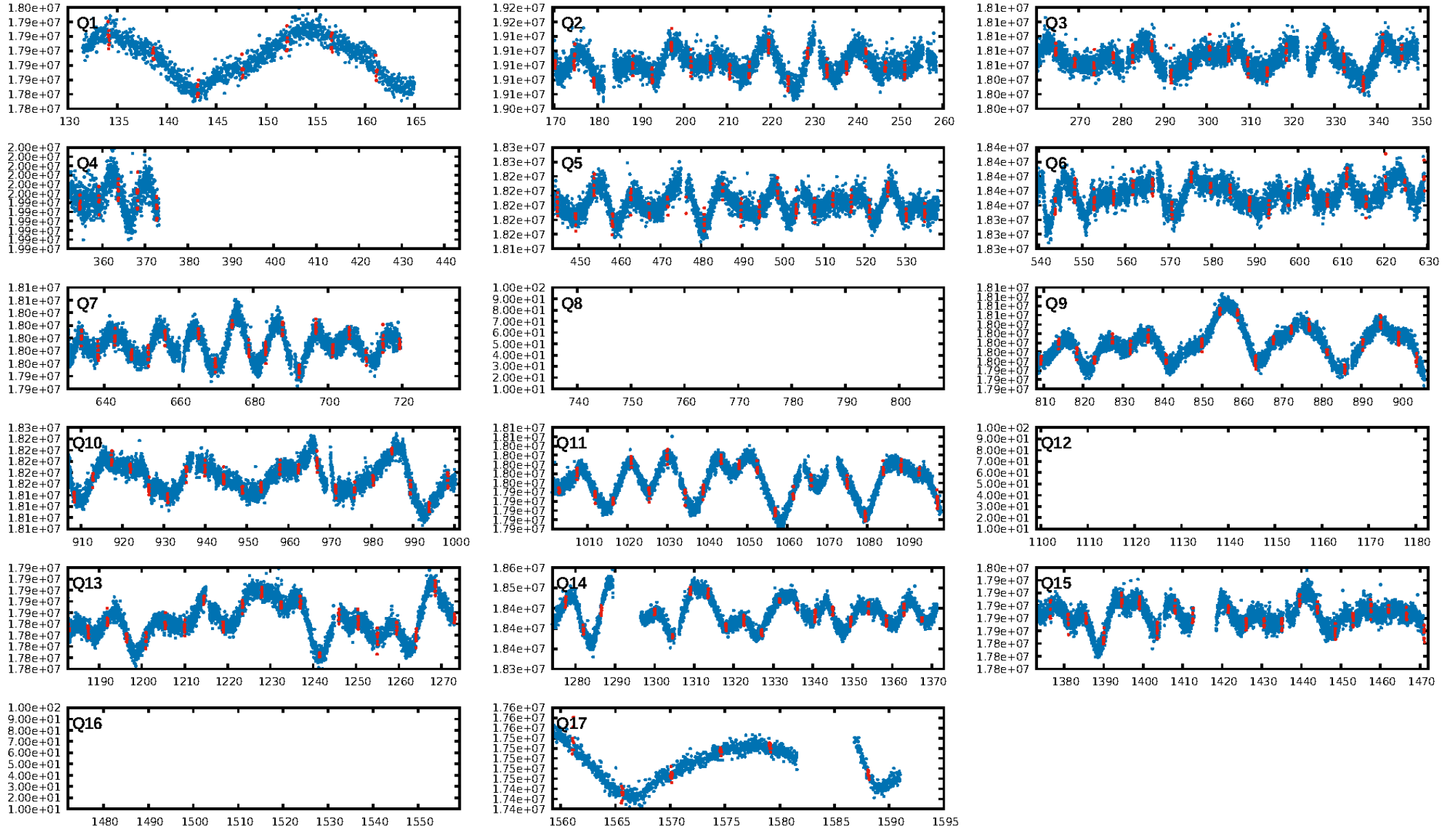
No Significant Match Found

DV One-Page Summary

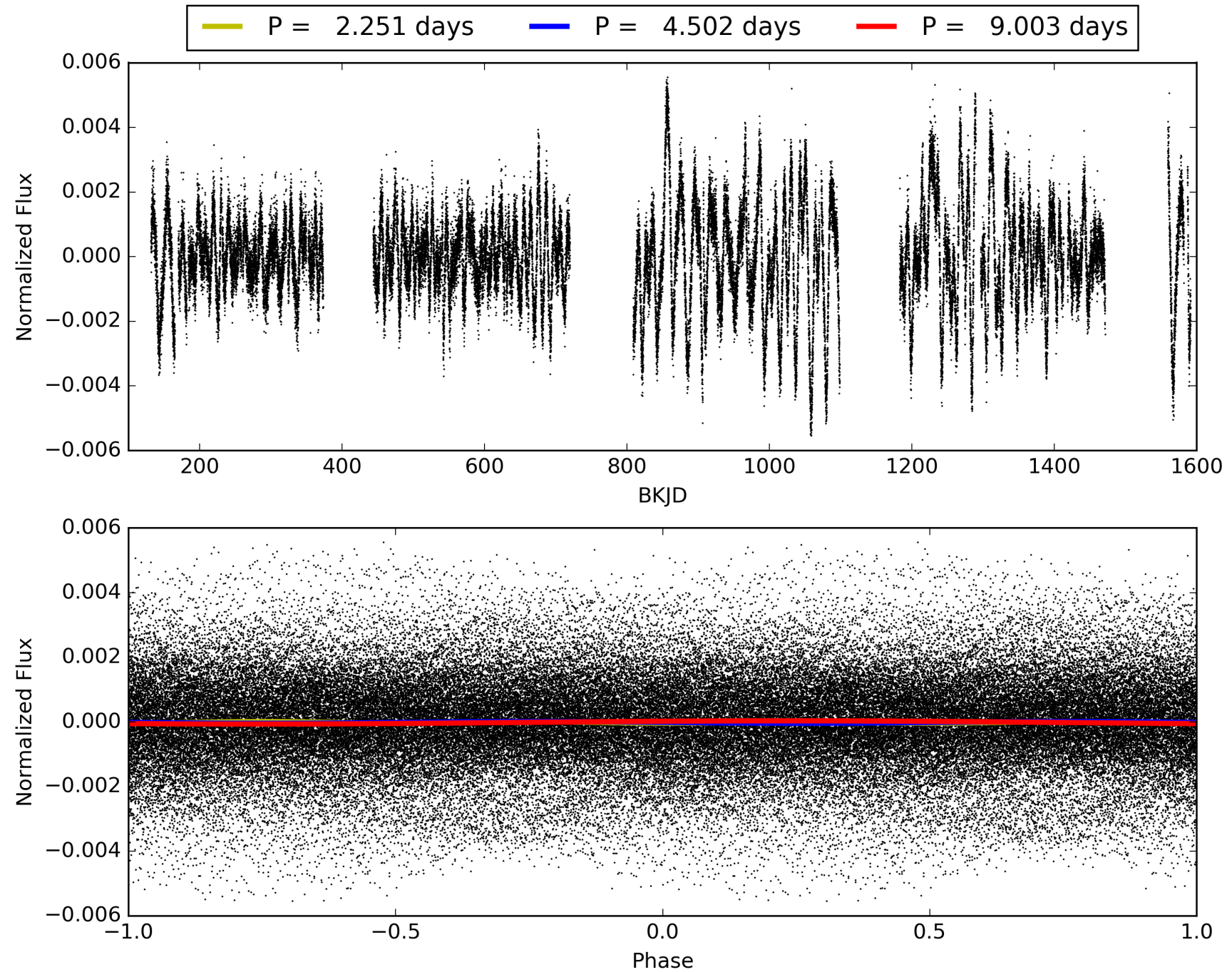
KIC: 11284772 Candidate: 2 of 2 Period: 4.502 d
KOI: K04622 Name: Kepler-441 Corr: No Ephemeris Match



TCE 011284772-02, PDC Light Curves

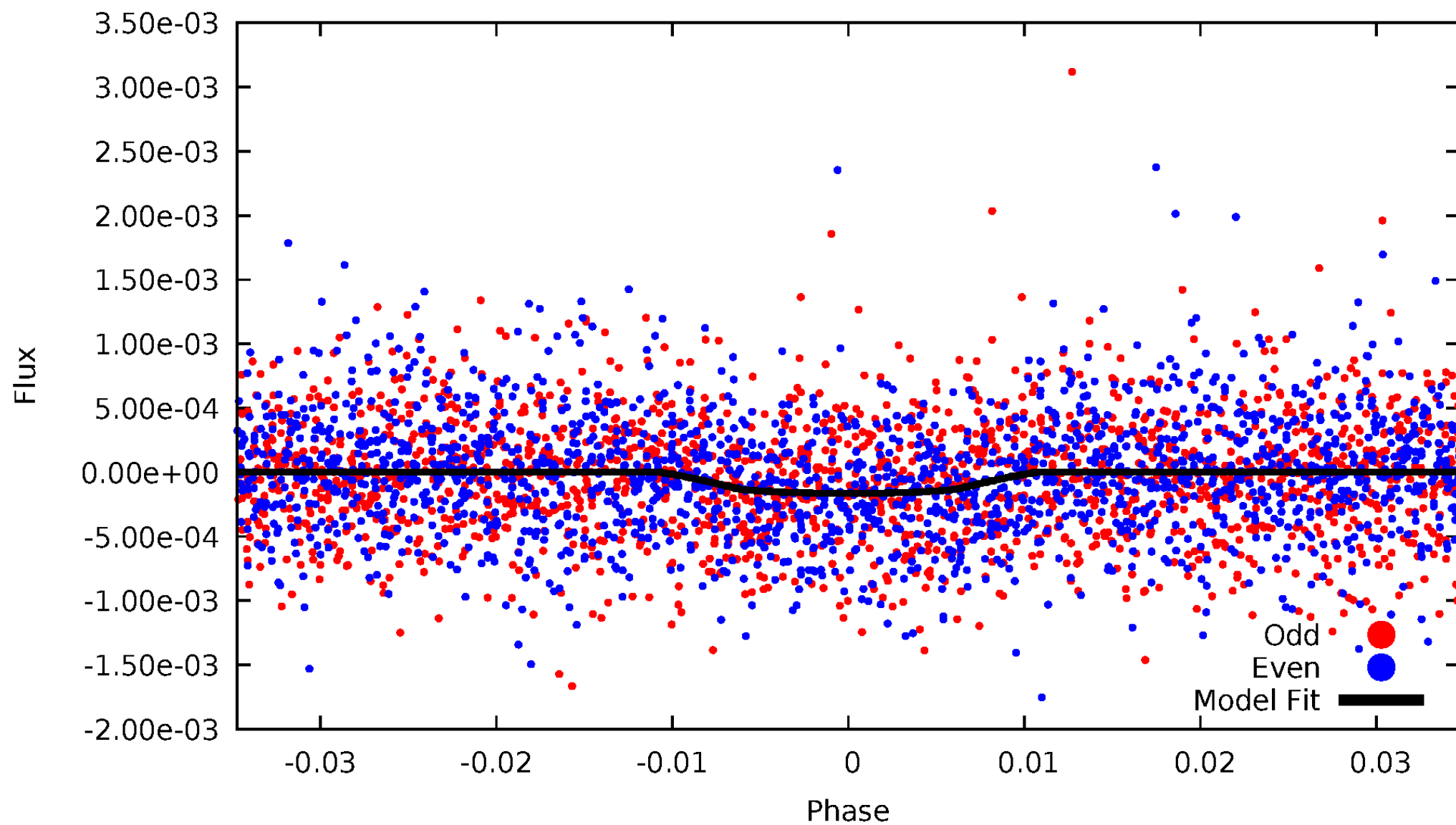


TCE 011284772-02



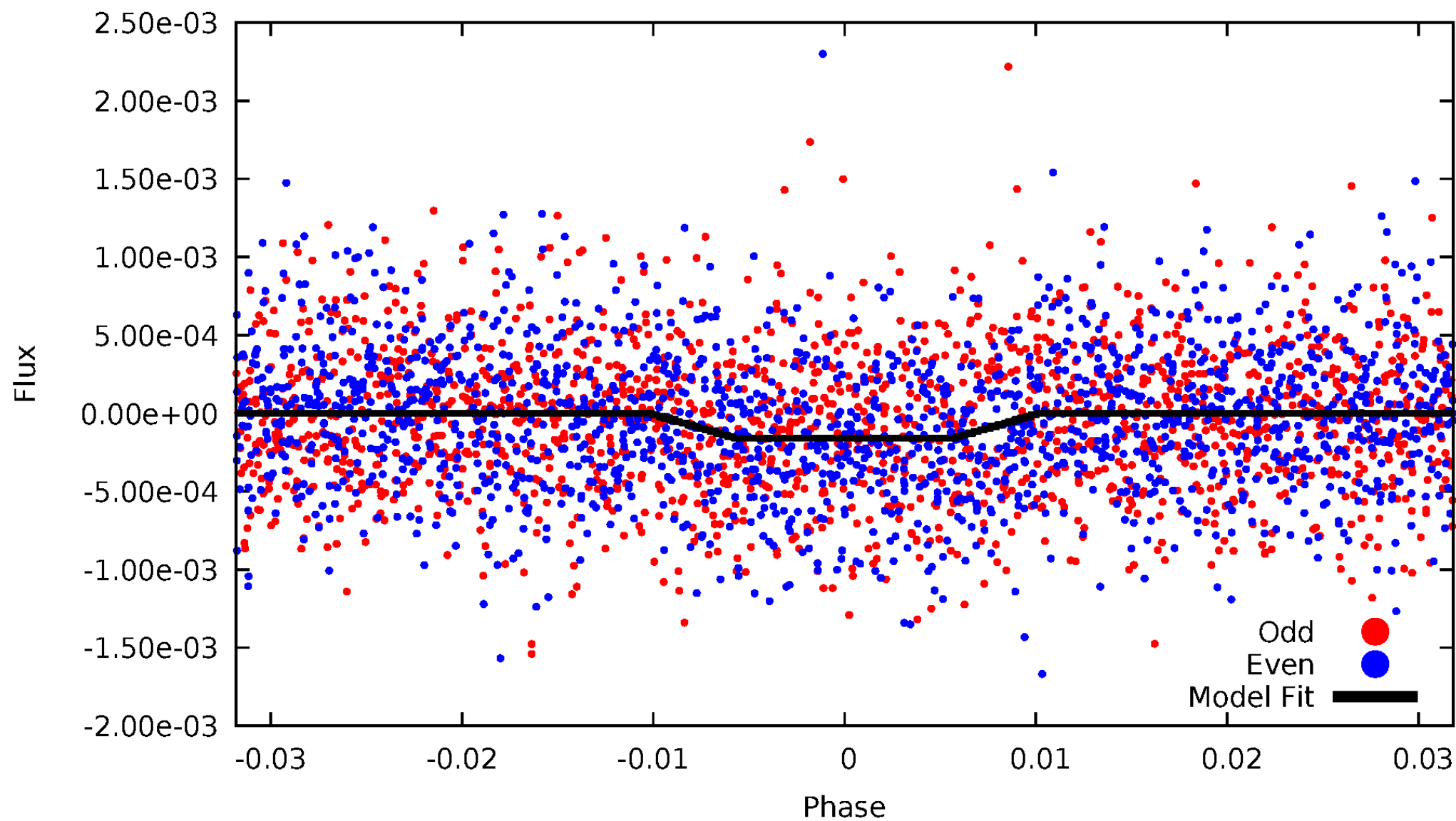
DV Odd/Even

TCE 011284772-02



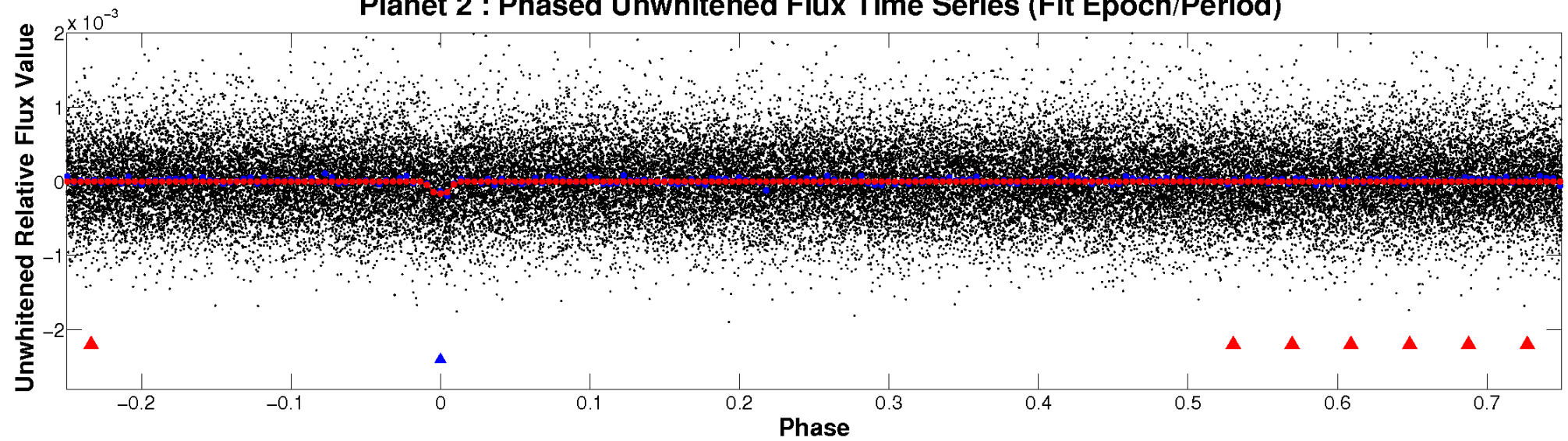
ALT Odd/Even

TCE 011284772-02

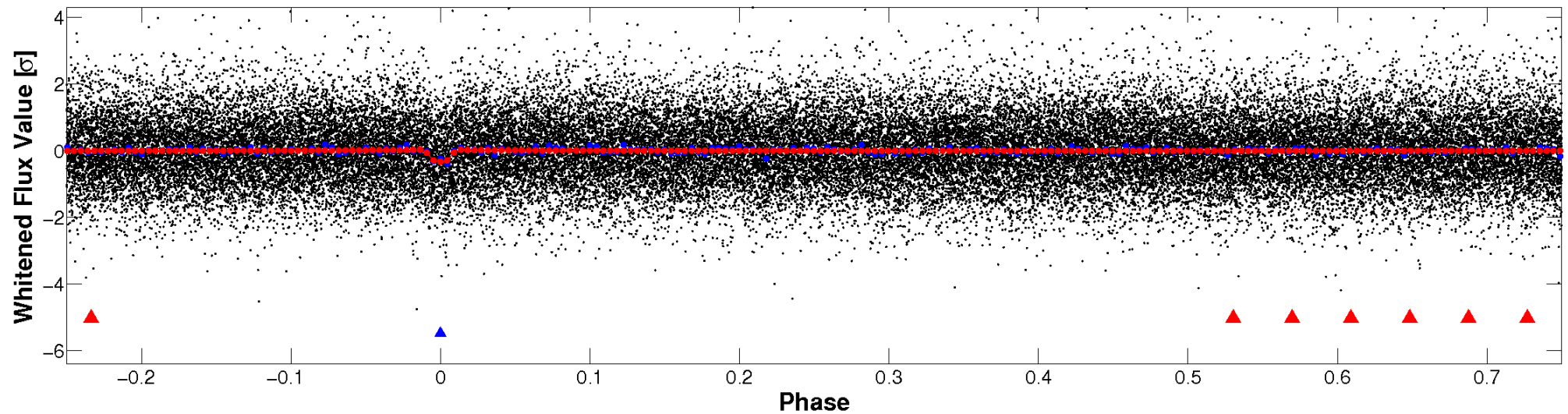


Non-Whitened Vs. Whitened Light Curve

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

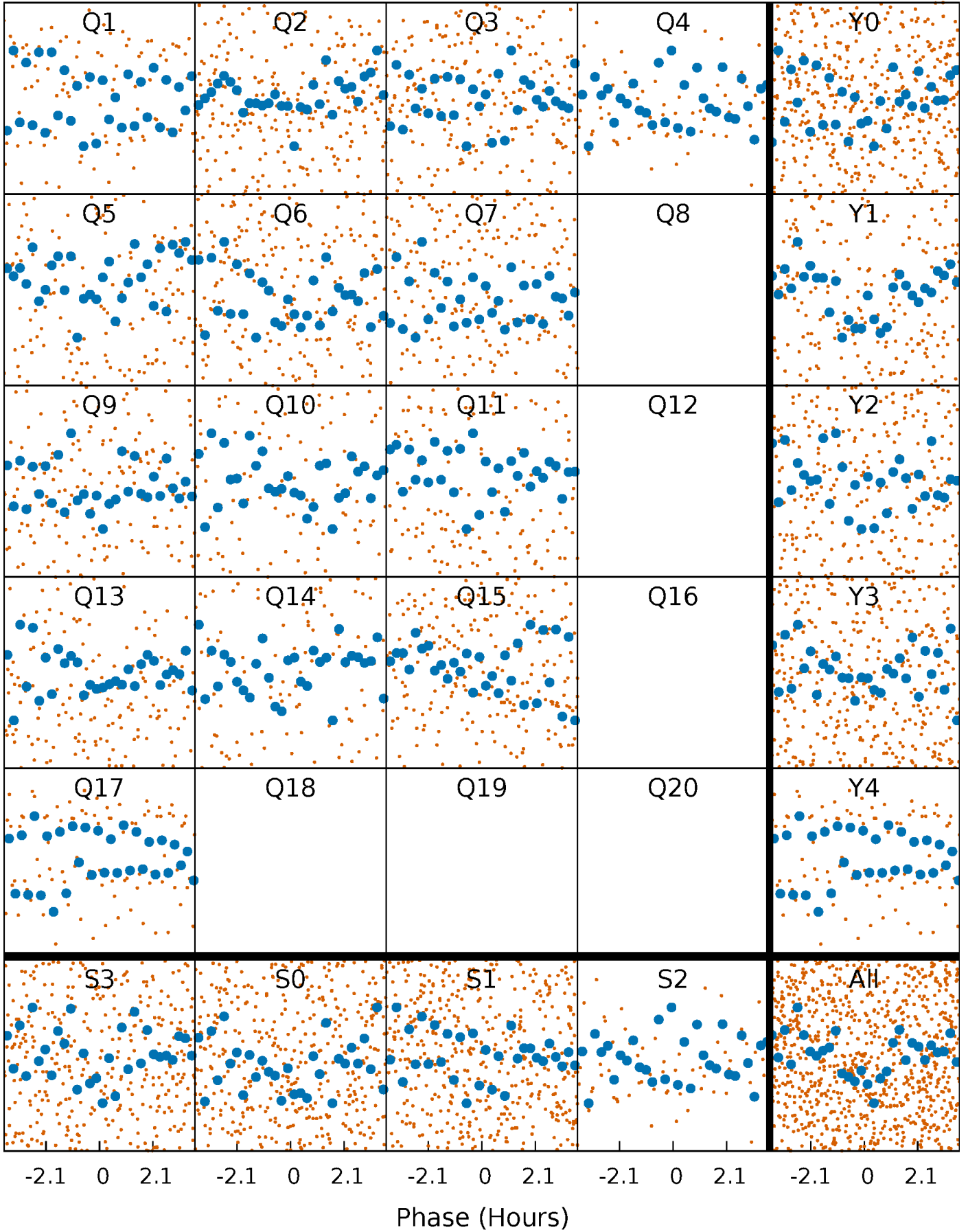


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



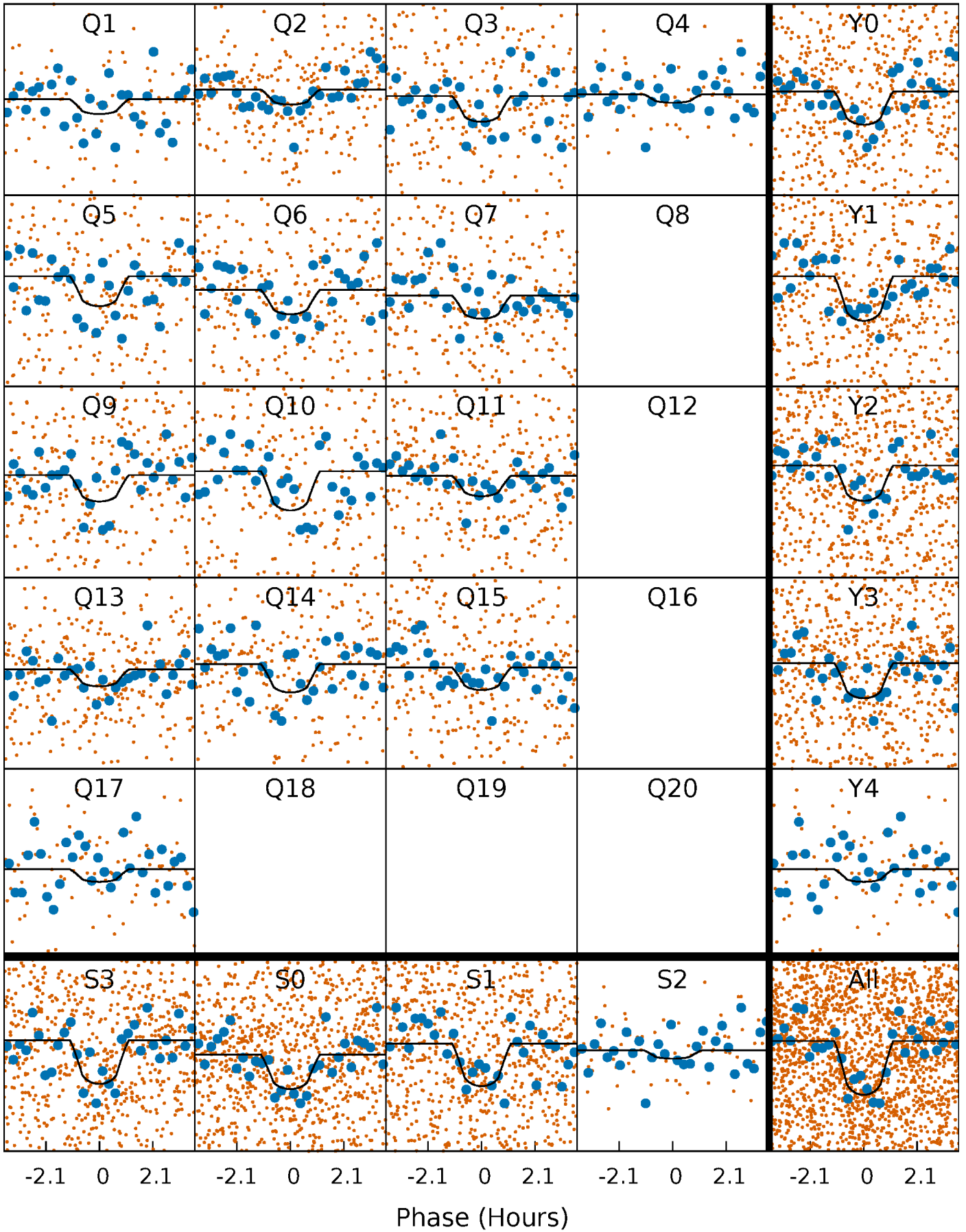
PDC Quarter-Phased Transit Curves

TCE 011284772-02 P= 4.501545 Days $T_0=134.120802$ (BKJD)



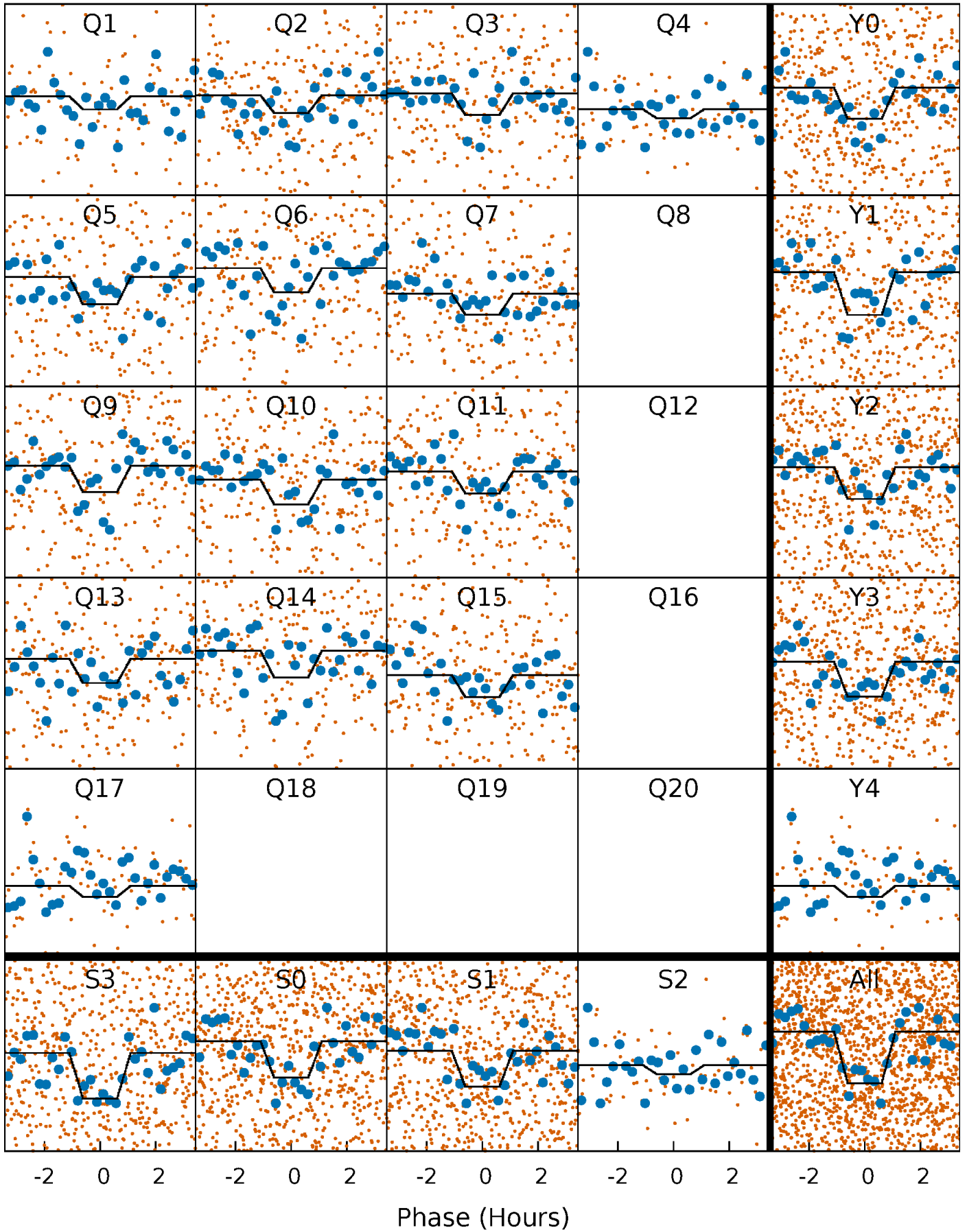
DV Quarter-Phased Transit Curves

TCE 011284772-02 P= 4.501545 Days $T_0=134.120802$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

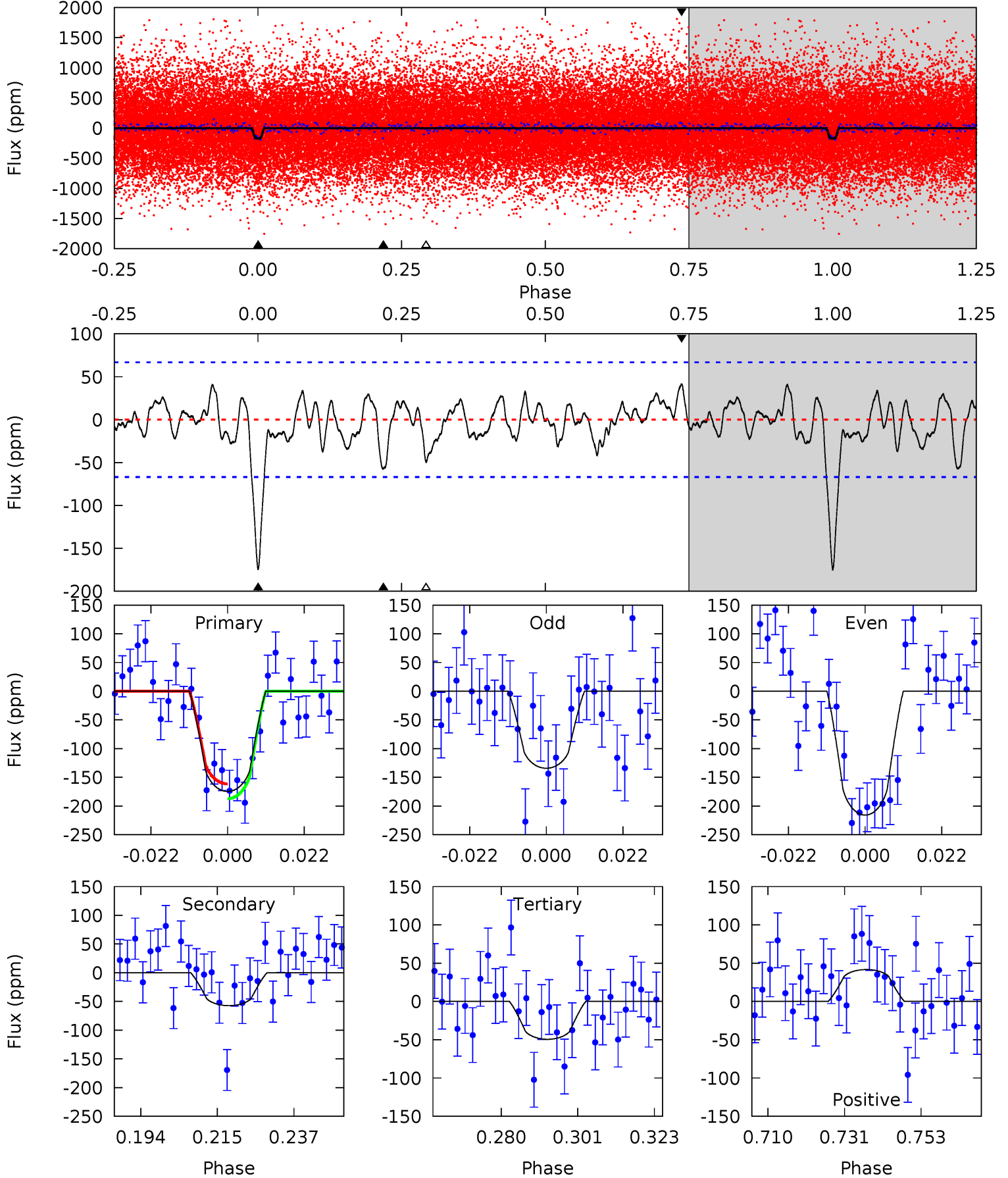
TCE 011284772-02 P= 4.501526 Days $T_0=134.125297$ (BKJD)



DV Model-Shift Uniqueness Test

011284772-02, P = 4.501545 Days, E = 129.619257 Days

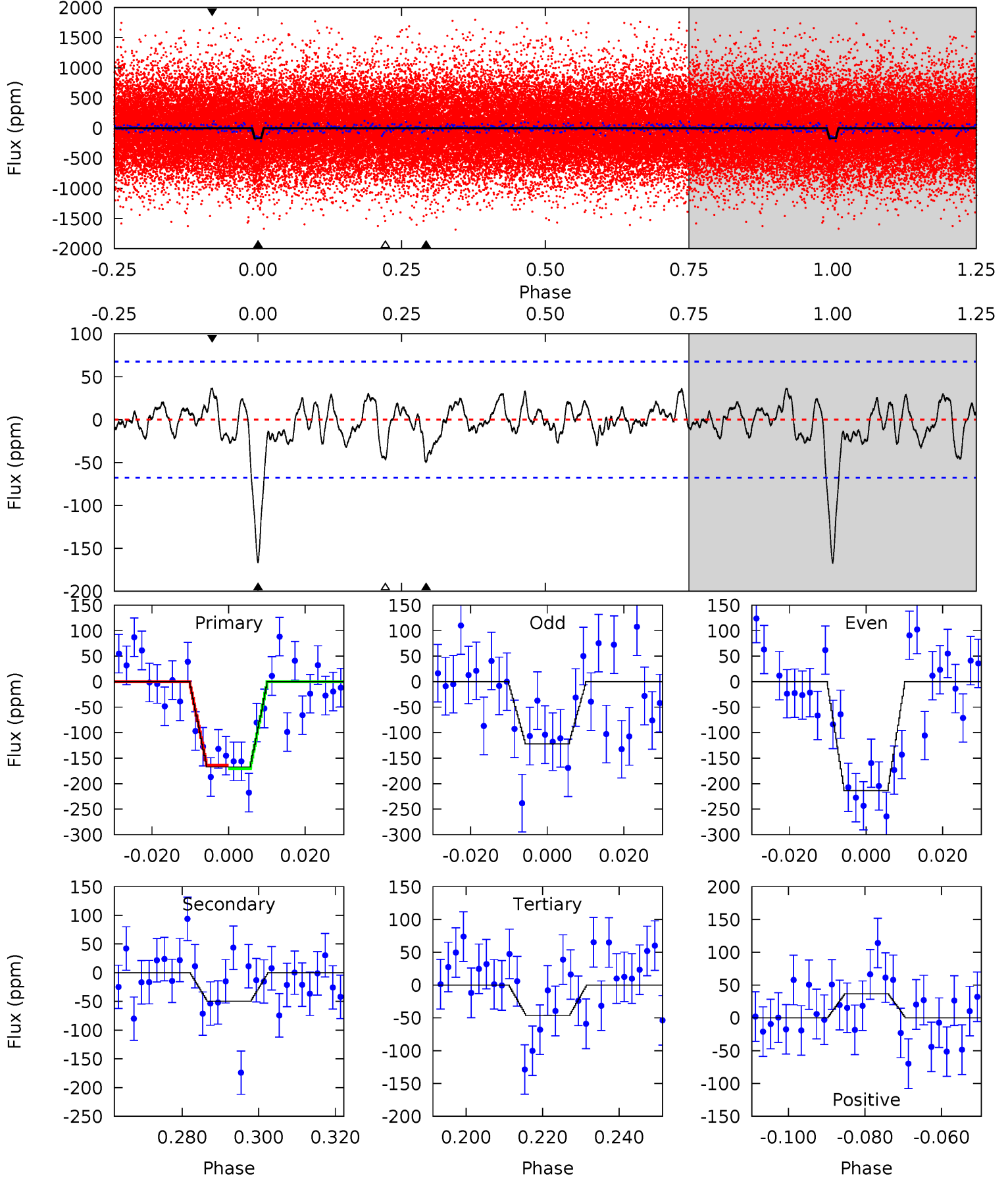
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	4.18	3.61	3.04	4.88	2.30	1.30	9.14	9.70	0.57	1.14	2.98	1.03	0.19	0.94



Alt Model-Shift Uniqueness Test

011284772-02, P = 4.501526 Days, E = 129.623771 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	3.58	3.35	2.65	4.89	2.33	1.11	8.73	9.43	0.24	0.94	3.31	1.25	0.18	0.24



Stellar Parameters For KIC 011284772

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4339^{+78}_{-87}	$4.711^{+0.020}_{-0.032}$	$-0.580^{+0.150}_{-0.150}$	$0.553^{+0.031}_{-0.022}$	$0.573^{+0.026}_{-0.026}$	$4.778^{+0.401}_{-0.568}$
	+2%/-2%	+0%/-1%	+26%/-26%	+6%/-4%	+5%/-5%	+8%/-12%
Source	SPE85	SPE85	SPE85	DSEP		

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

Secondary Eclipse Parameters for KIC 011284772-02 / KOI 4622.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-57 ± 14	$0.83^{+0.59}_{-0.49}$	947^{+21}_{-21}	3544^{+1304}_{-578}	92^{+430}_{-64}
Alt.	-50 ± 14	$0.84^{+0.62}_{-0.50}$	946^{+22}_{-21}	3421^{+1278}_{-512}	73^{+366}_{-49}

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

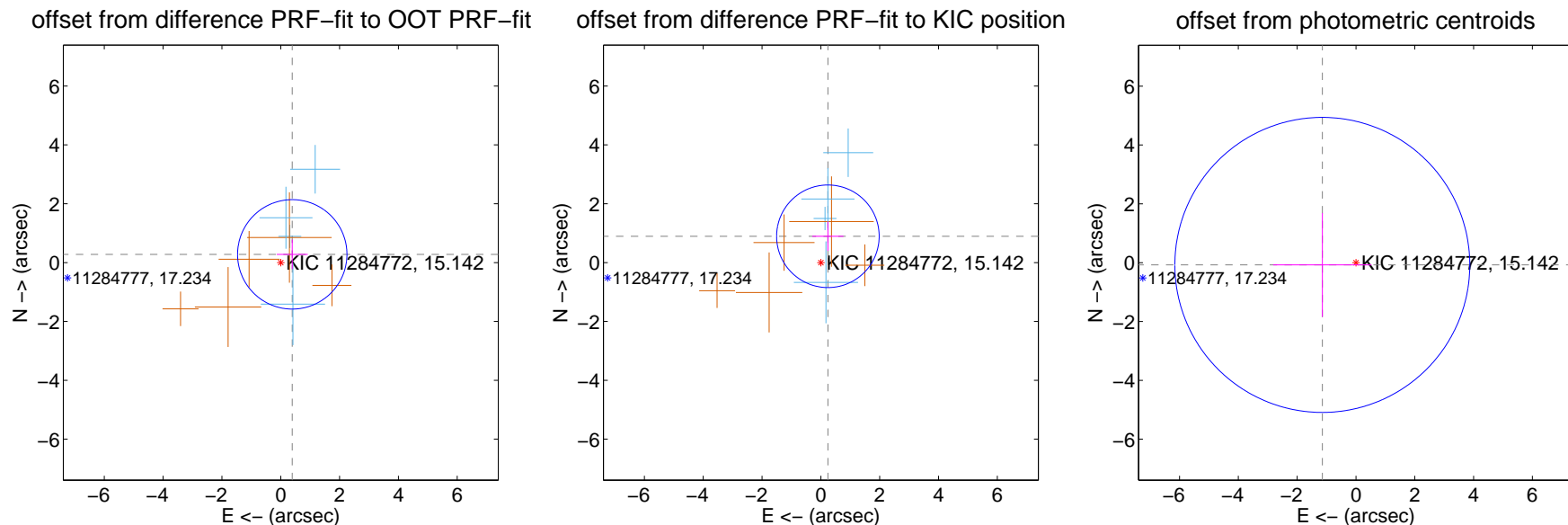
DV Centroid Data

Supplemental centroid analysis for 011284772-02. Kepler magnitude: 15.14. Transit SNR 8.15

There are 4 quarters with good PRF difference image offsets

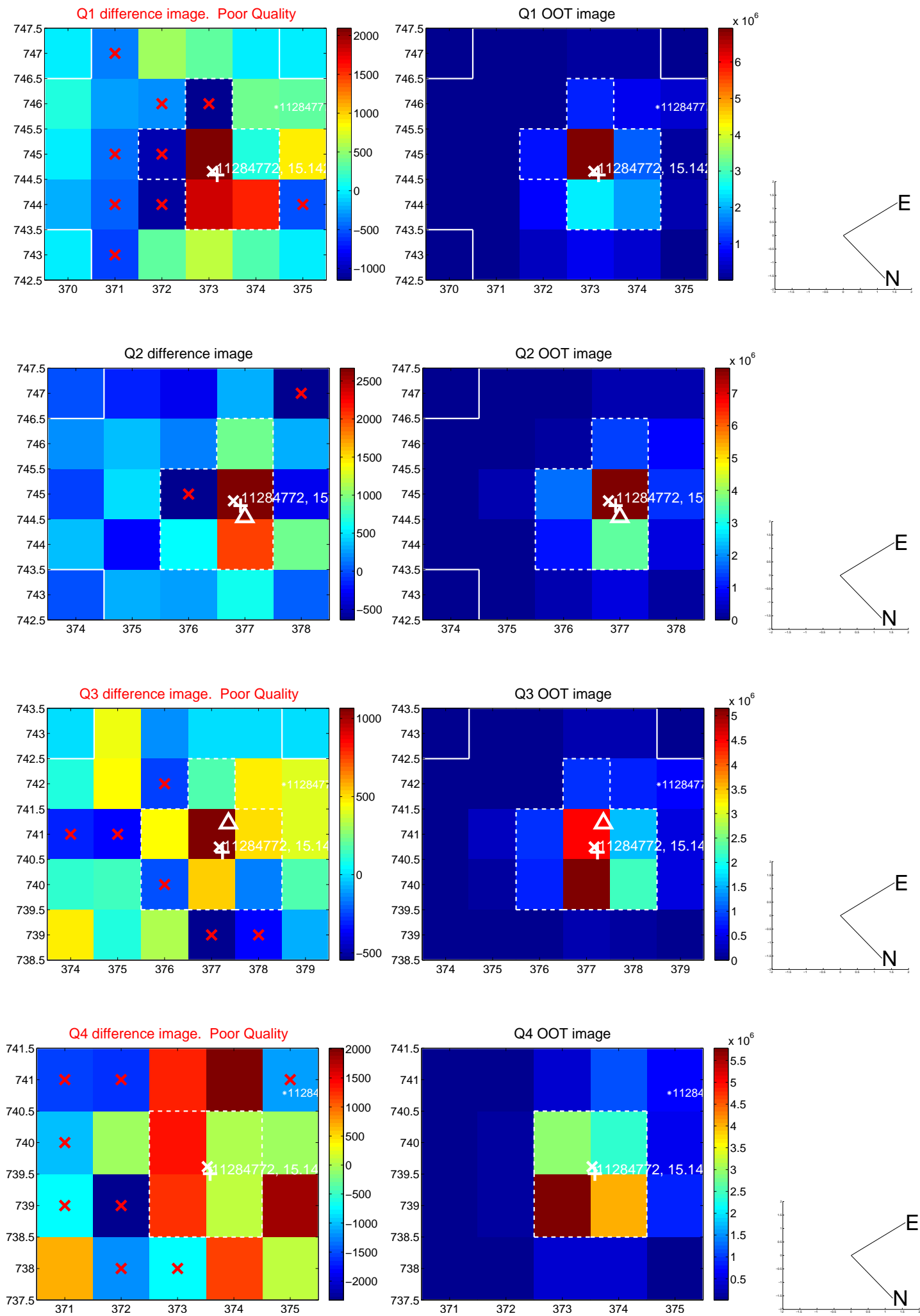
The direct PRF centroid is offset from the target star catalog position by about 0.64 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.481 ± 0.620	0.78	-0.391 ± 0.527	0.280 ± 0.501
PRF-fit source offset from KIC position	0.926 ± 0.581	1.59	-0.239 ± 0.530	0.894 ± 0.498
photometric centroid source offset	1.15 ± 1.67	0.69	1.14 ± 1.67	-0.08 ± 1.77

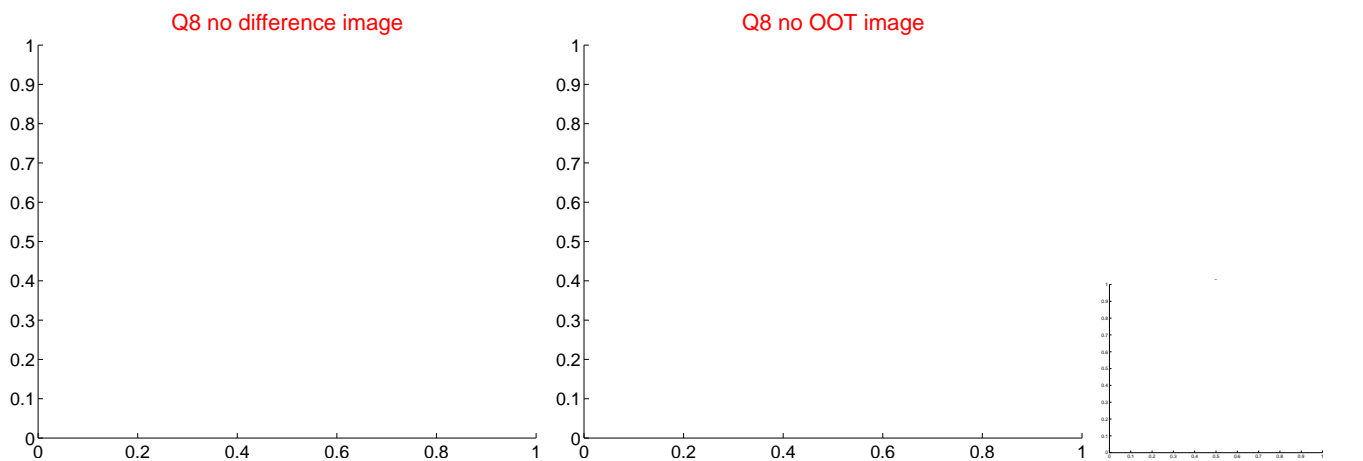
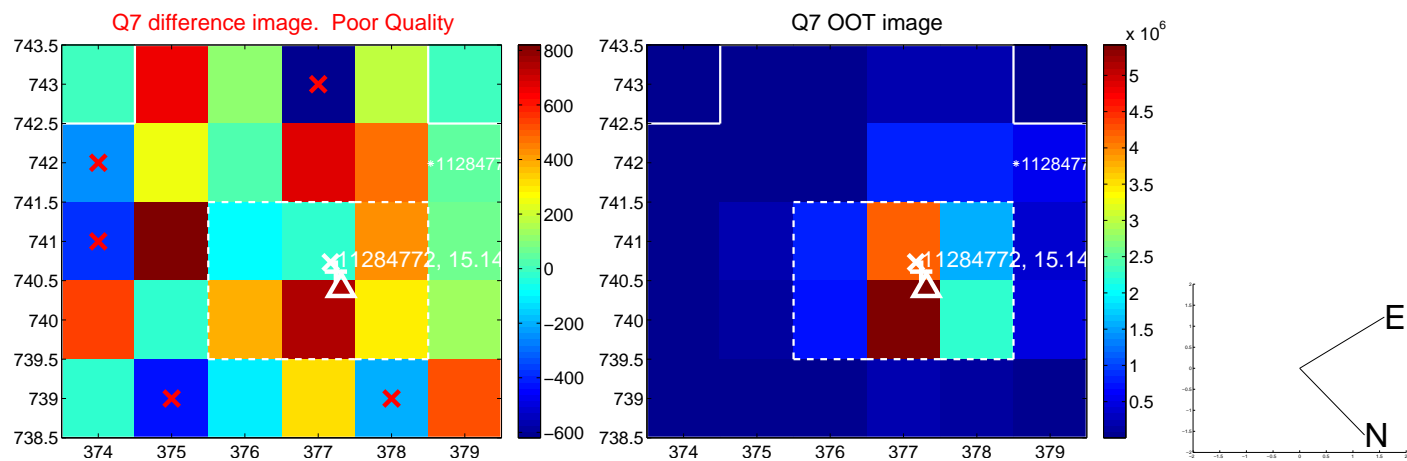
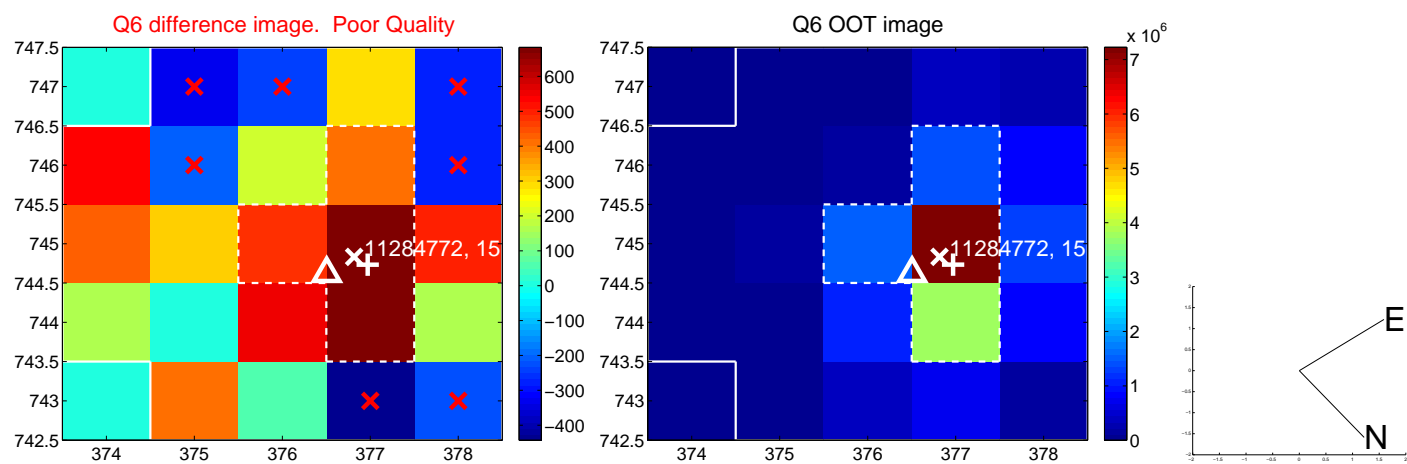
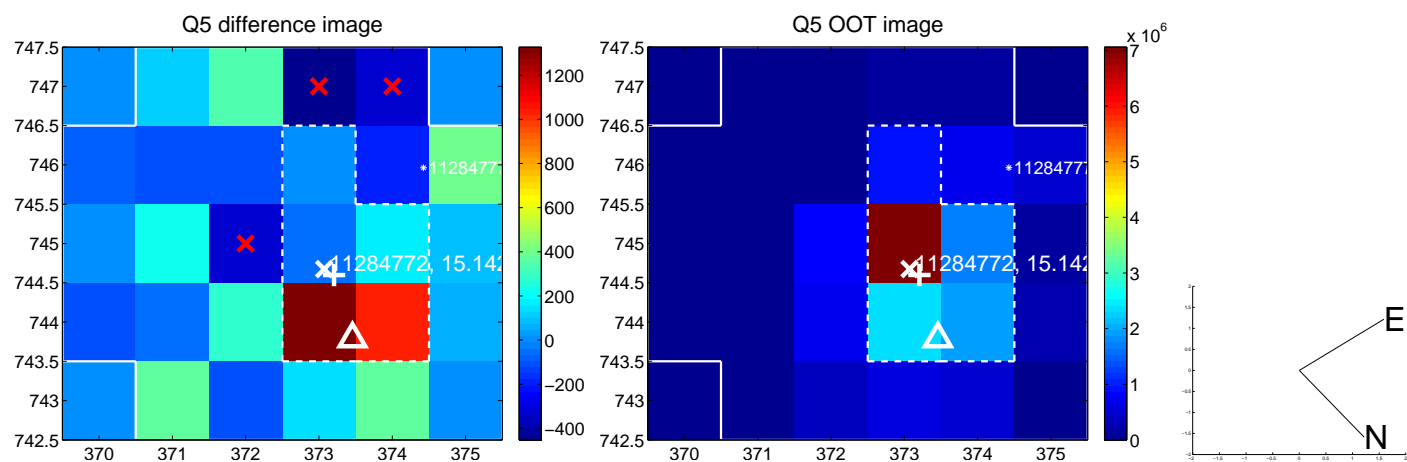


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

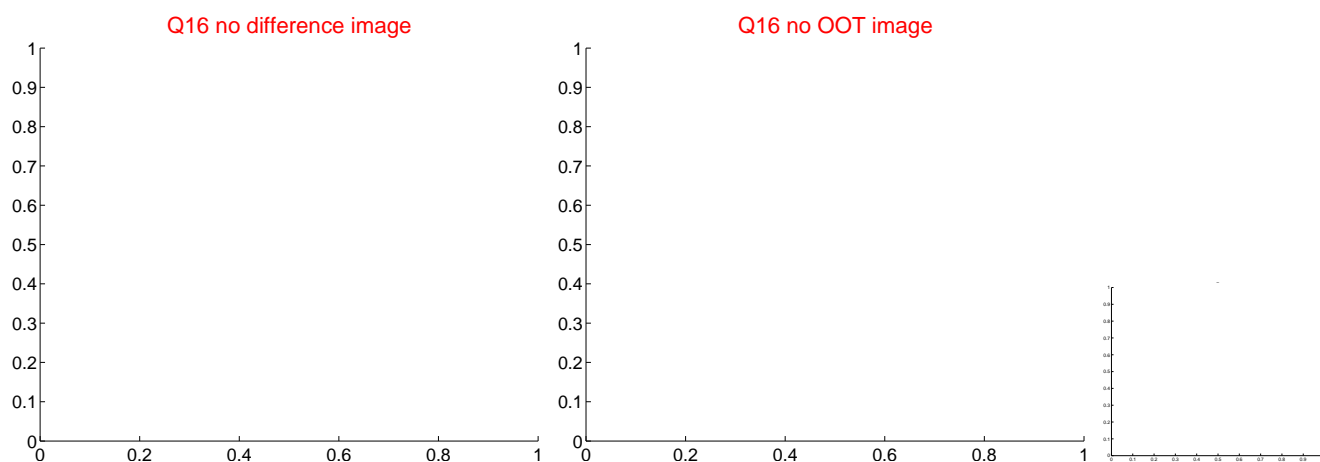
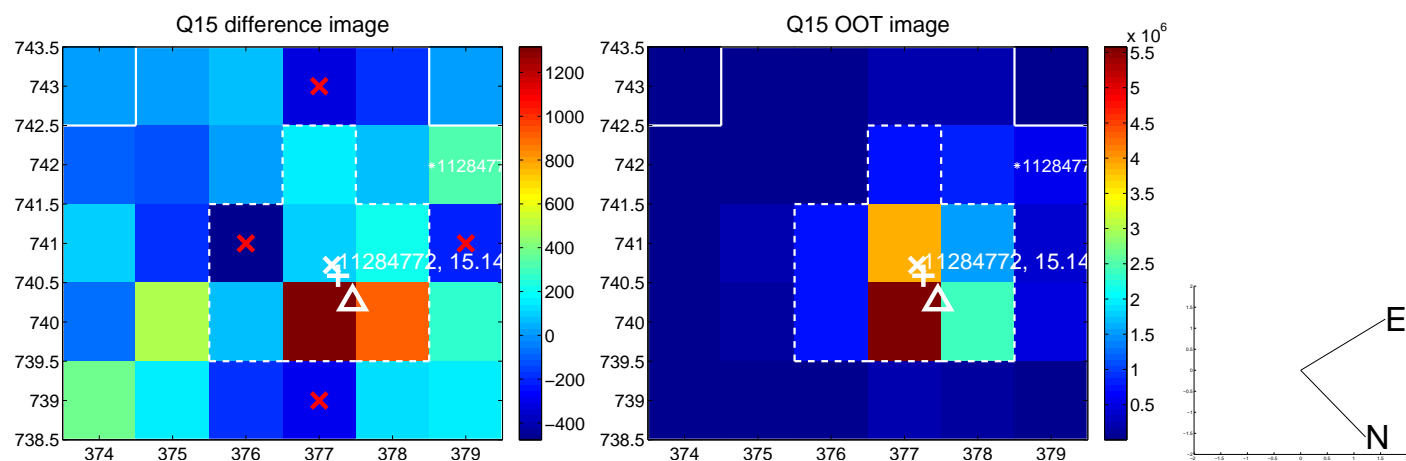
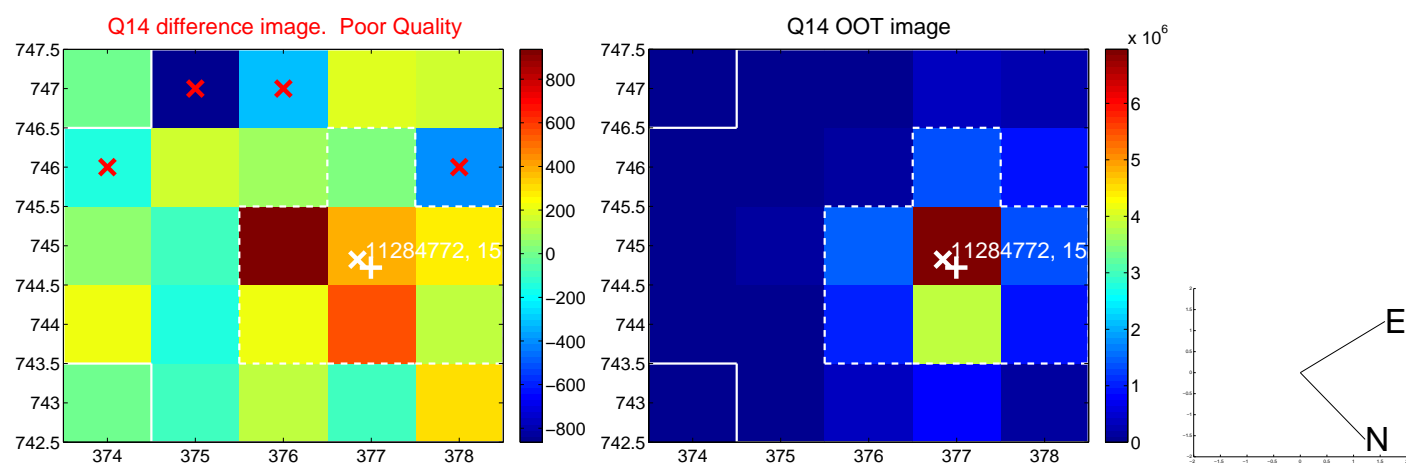
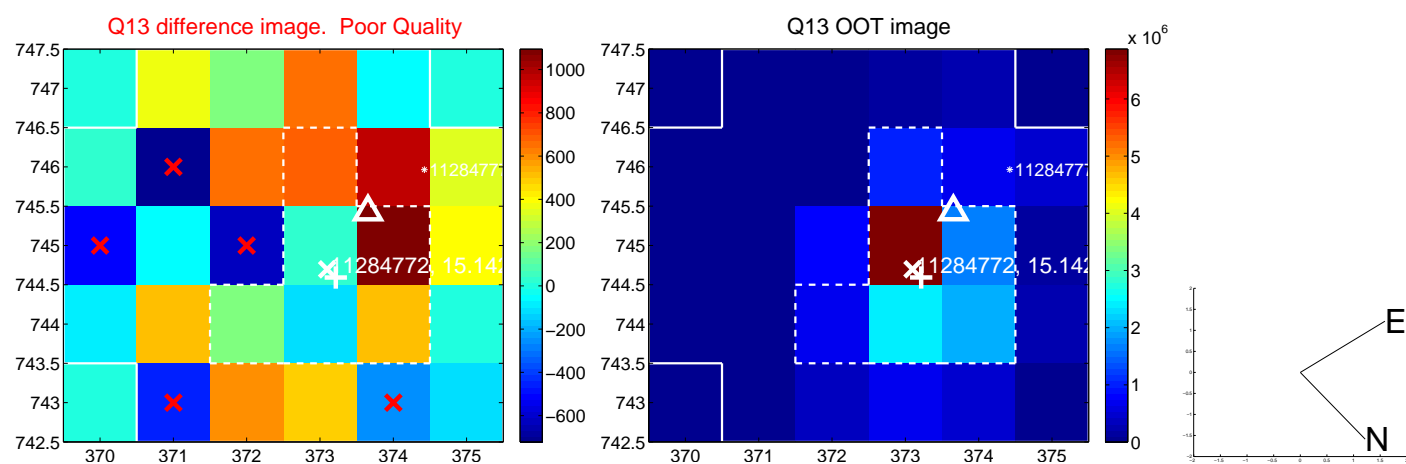
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



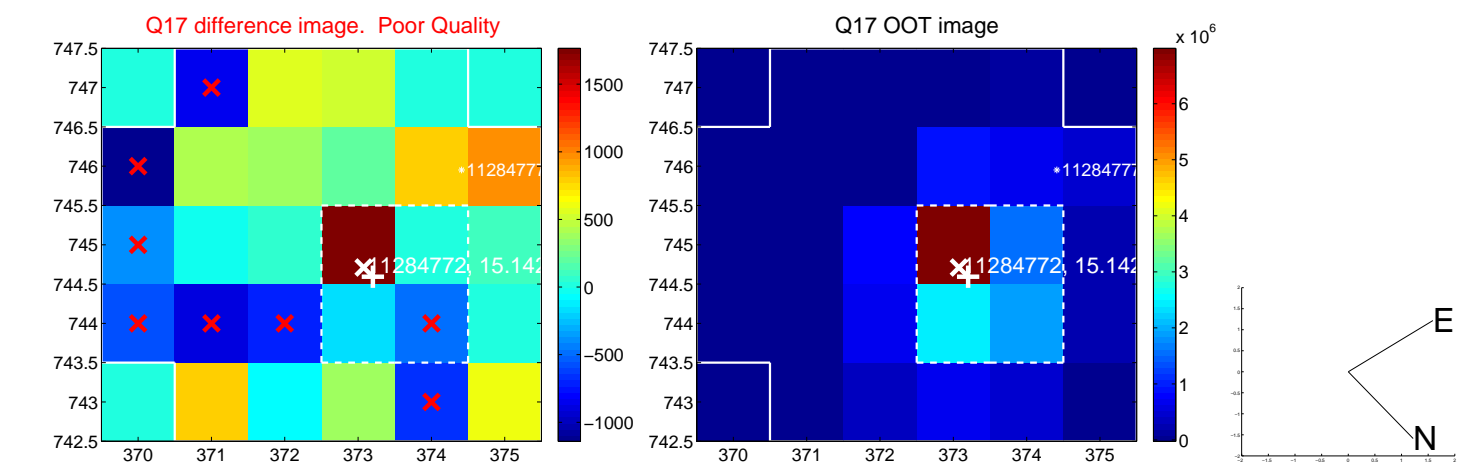
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



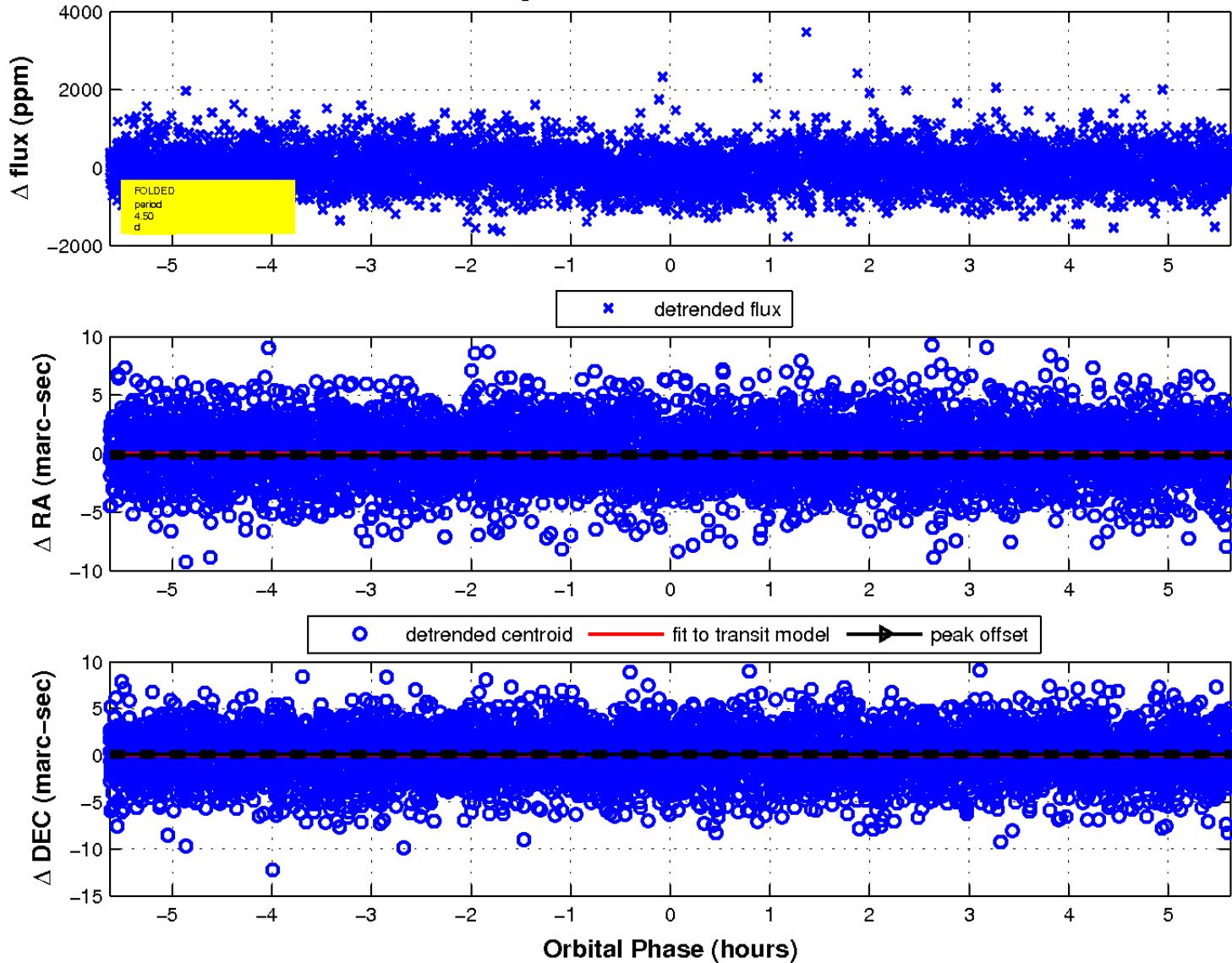
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

