

KIC 003448456

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})
003448456-01	OBS	7656.01	0.776934	132.045960	145.0	1.117	8.9	8.8	0.86	5861	1.25	2971.30
003448456-02	OBS	No	0.776951	131.649415	261.0	0.849	8.0	14.0	0.86	5861	1.68	2971.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003448456-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003448456-02	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET

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

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

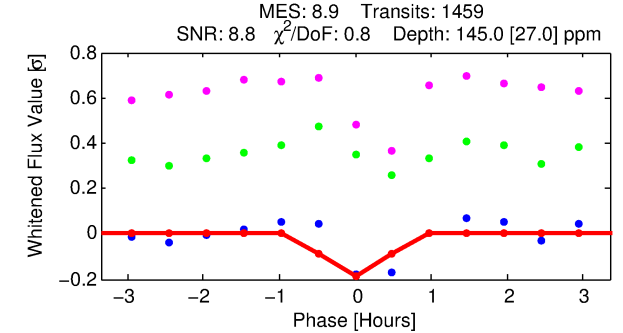
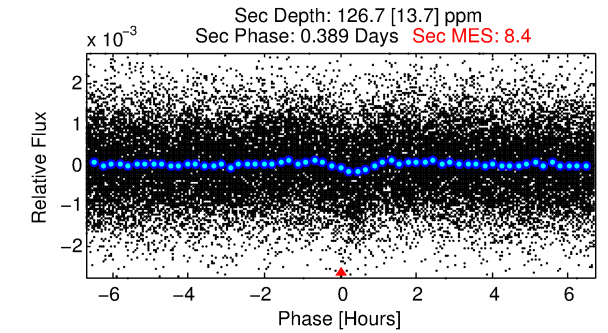
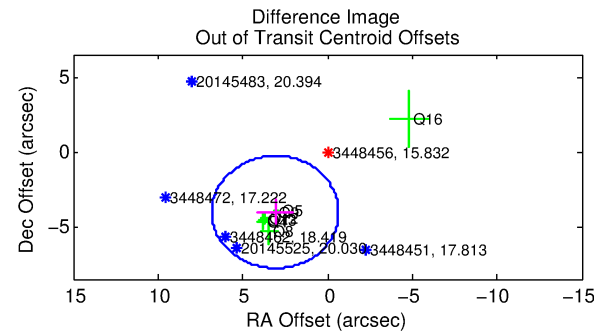
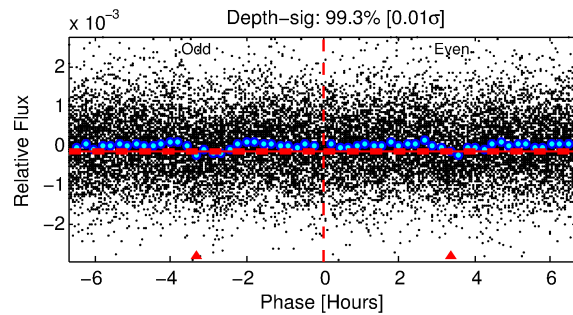
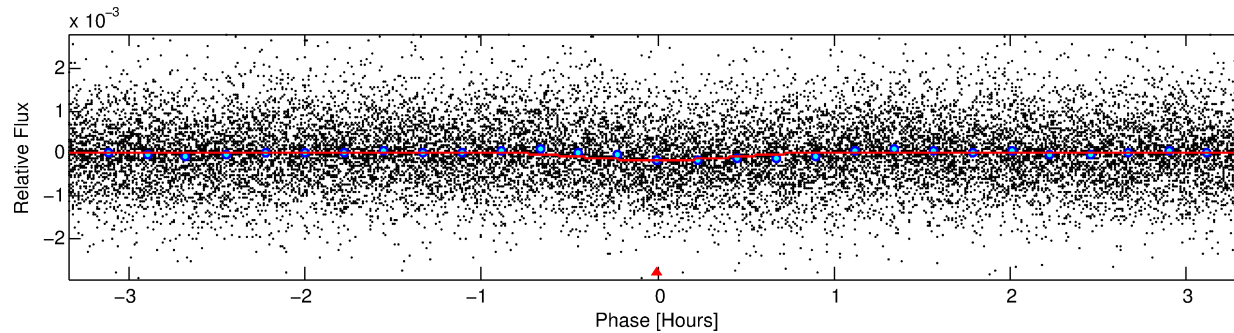
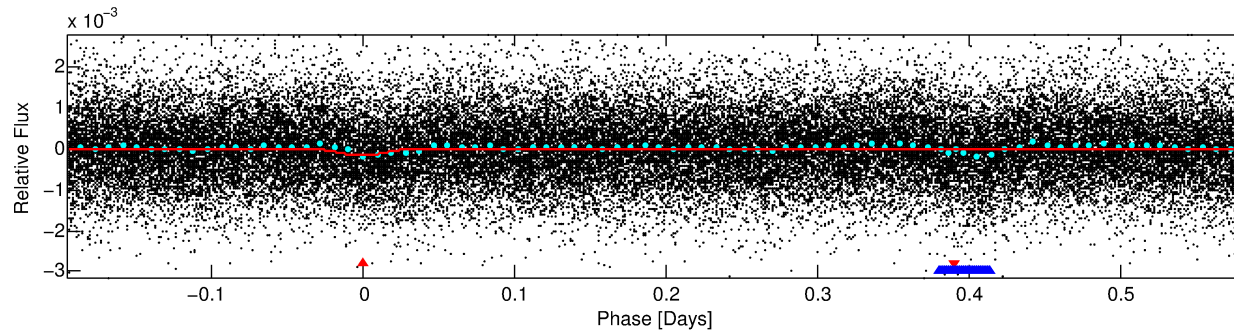
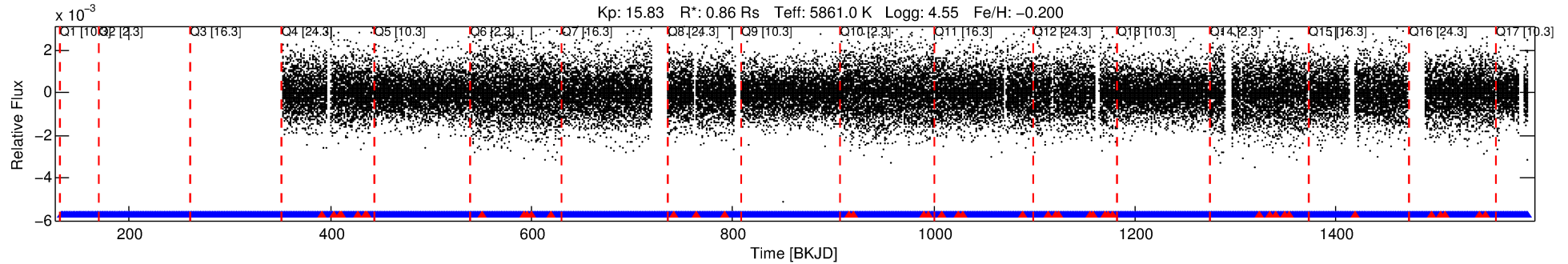
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003448456-01

No Significant Match Found

DV One-Page Summary

KIC: 3448456 Candidate: 1 of 2 Period: 0.777 d



DV Fit Results:

Period = 0.77693 [0.00001] d
Epoch = 132.0460 [0.0021] BKJD
Rp/R* = 0.0132 [0.0124]
a/R* = 2.61 [10.46]
b = 0.90 [0.98]
Seff = 2971.30 [1181.01]
Teff = 1883 [187] K
Rp = 1.24 [1.23] Re
a = 0.0163 [0.0041] AU
Ag = 11.97 [22.99] [0.48 σ]
Teffp = 5414 [2557] K [1.38 σ]

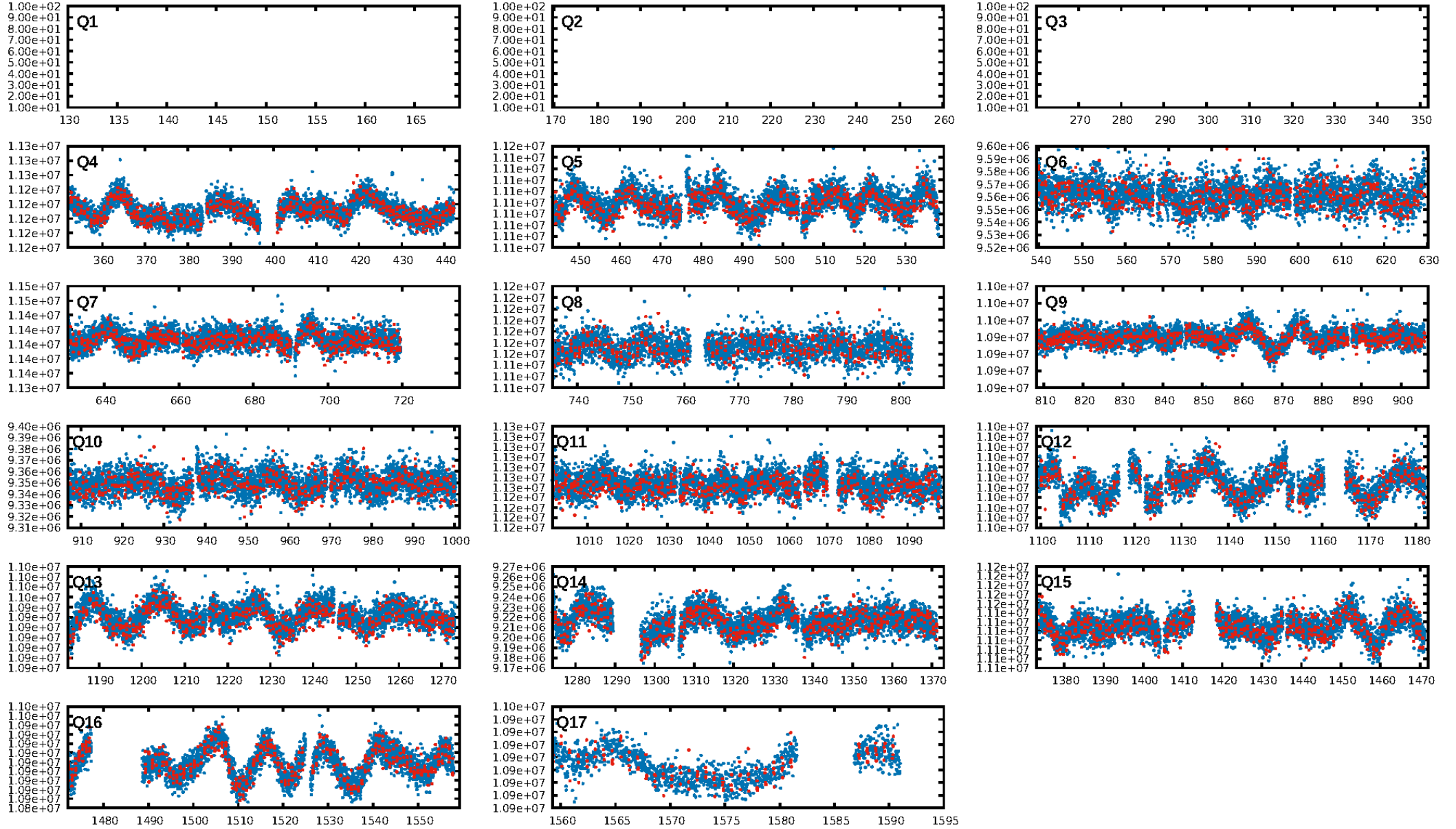
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.63e-18
RollingBand-fgt: 0.97 [1380/1425]
GhostDiagnostic-chr: 0.3409
Centroid-sig: 0.0%
Centroid-so: 7.044 arcsec [5.70 σ]
OotOffset-rm: 5.083 arcsec [4.07 σ]
KicOffset-rm: 5.034 arcsec [4.11 σ]
OotOffset-st: 0/0/4/3 [7]
KicOffset-st: 0/0/4/3 [7]
DiffImageQuality-fgm: 0.86 [6/7]
DiffImageOverlap-fno: 1.00 [14/14]




Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 09:39:49 Z

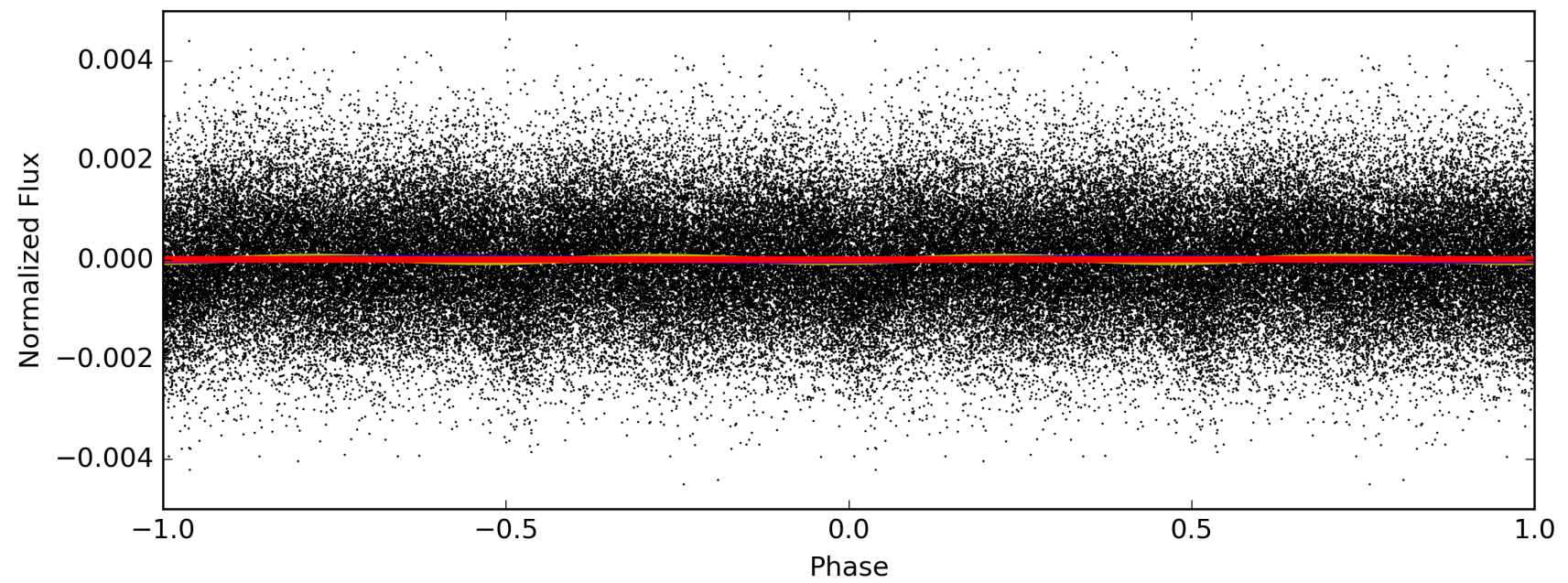
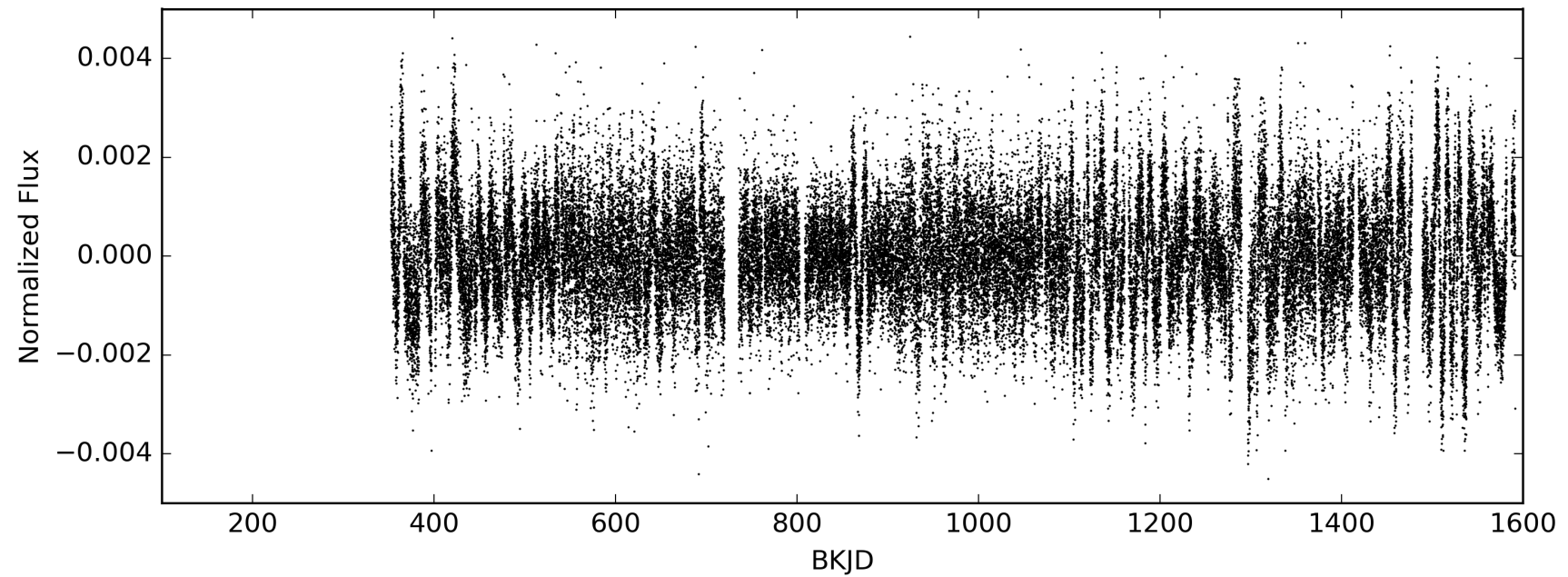
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 003448456-01, PDC Light Curves



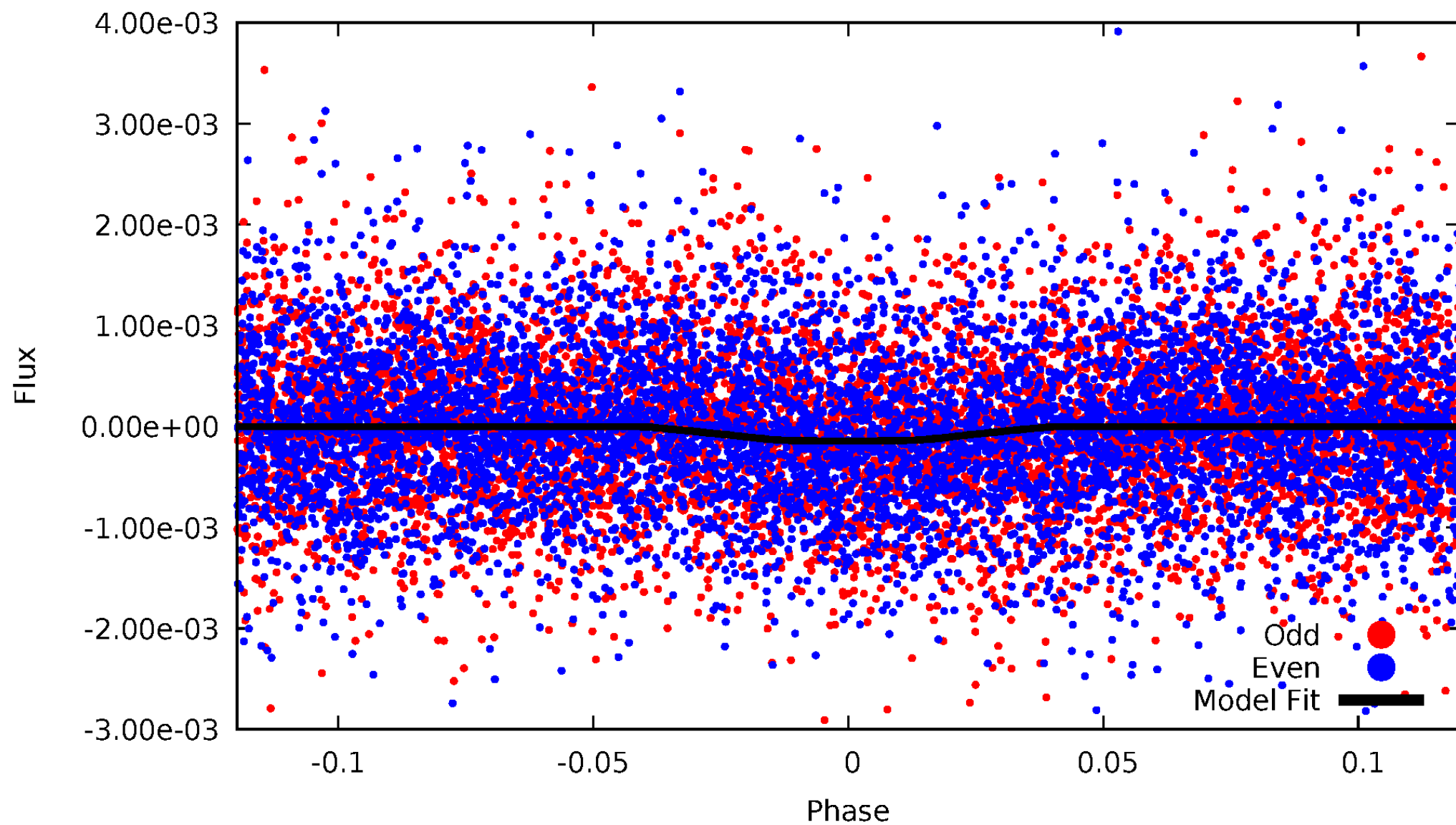
TCE 003448456-01

 P = 0.388 days  P = 0.777 days  P = 1.554 days



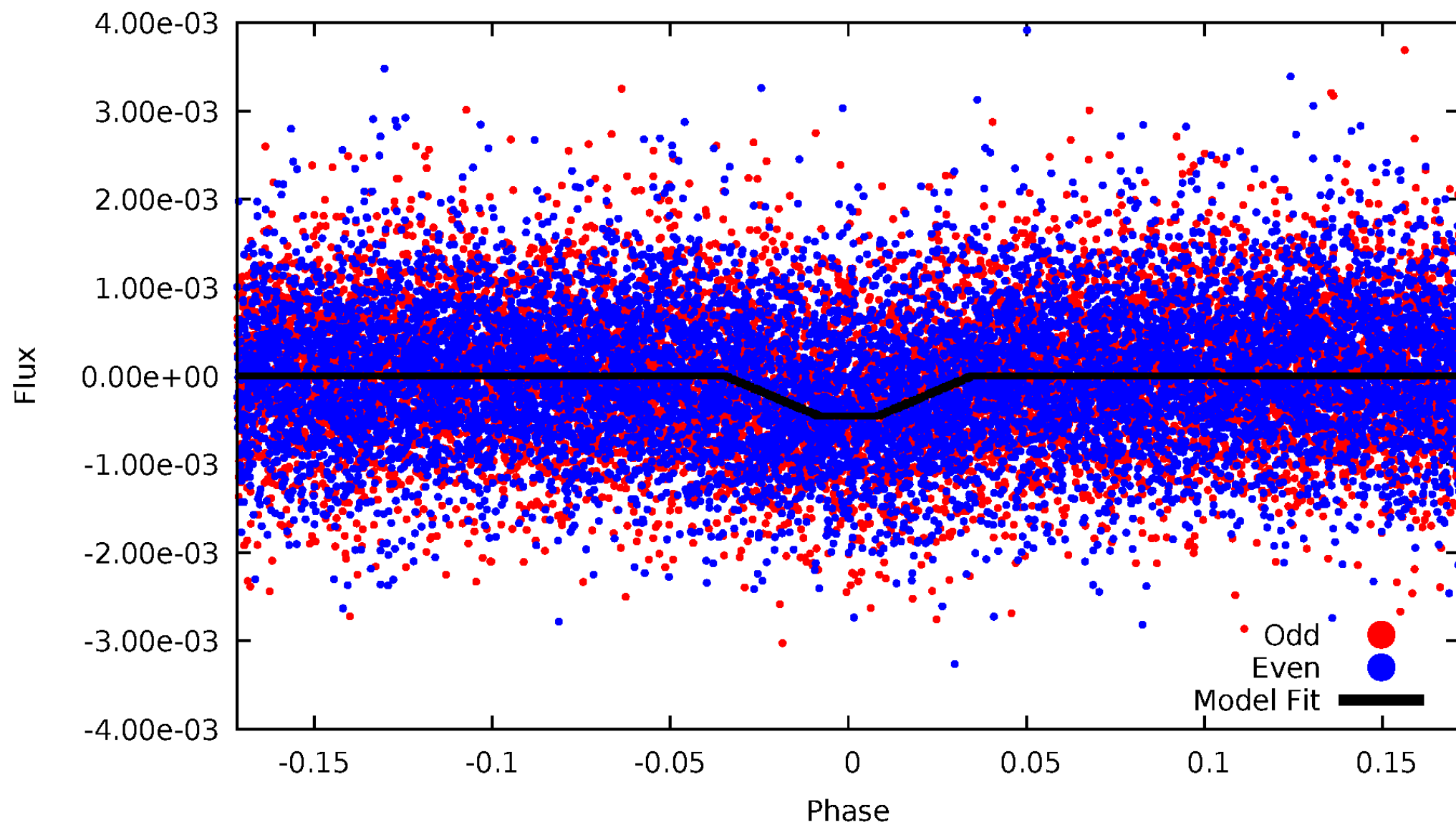
DV Odd/Even

TCE 003448456-01



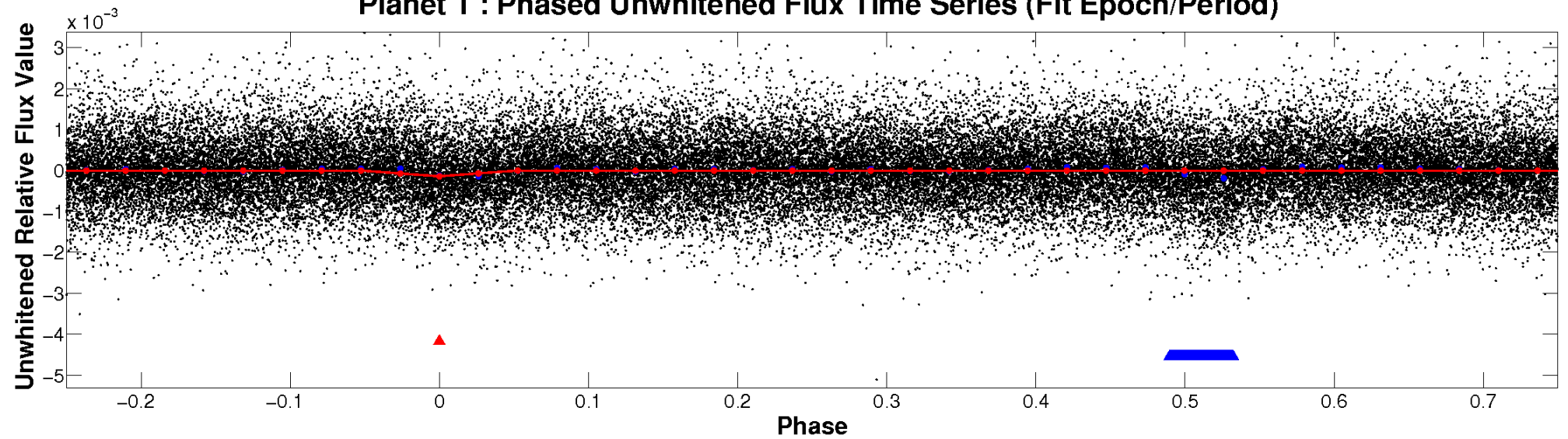
ALT Odd/Even

TCE 003448456-01

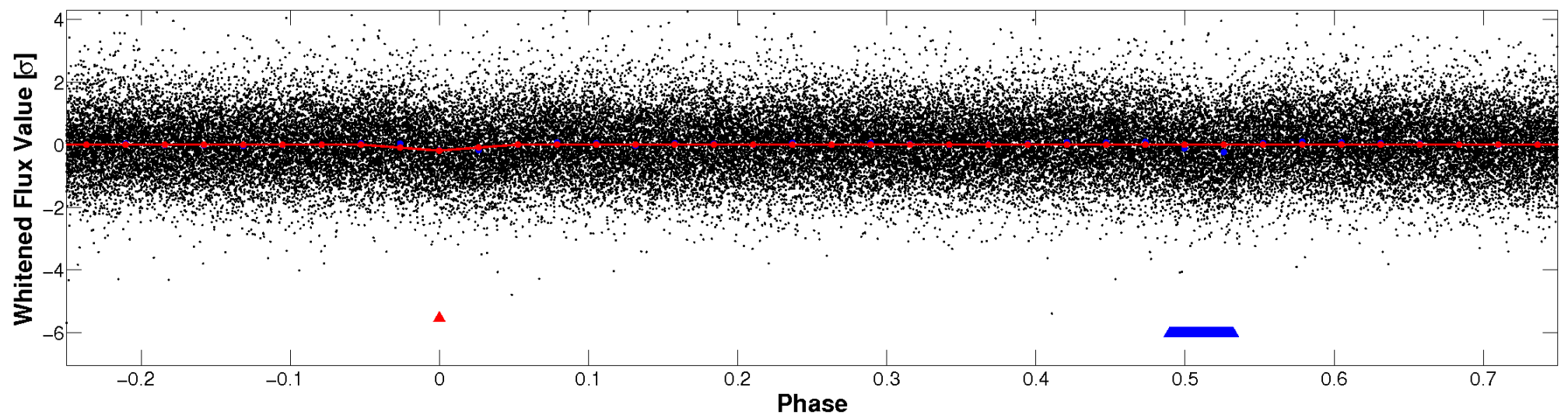


Non-Whitened Vs. Whitened Light Curve

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

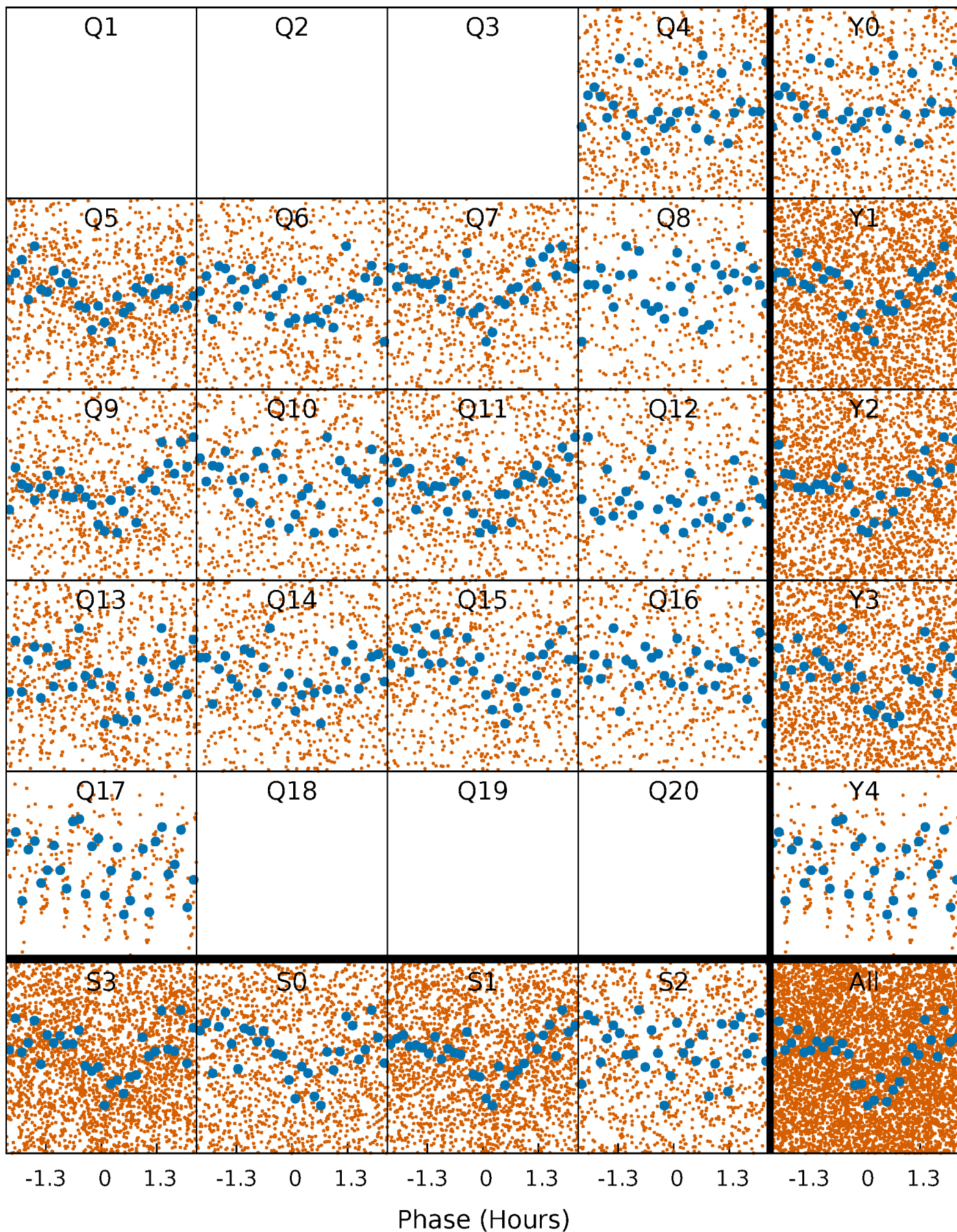


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



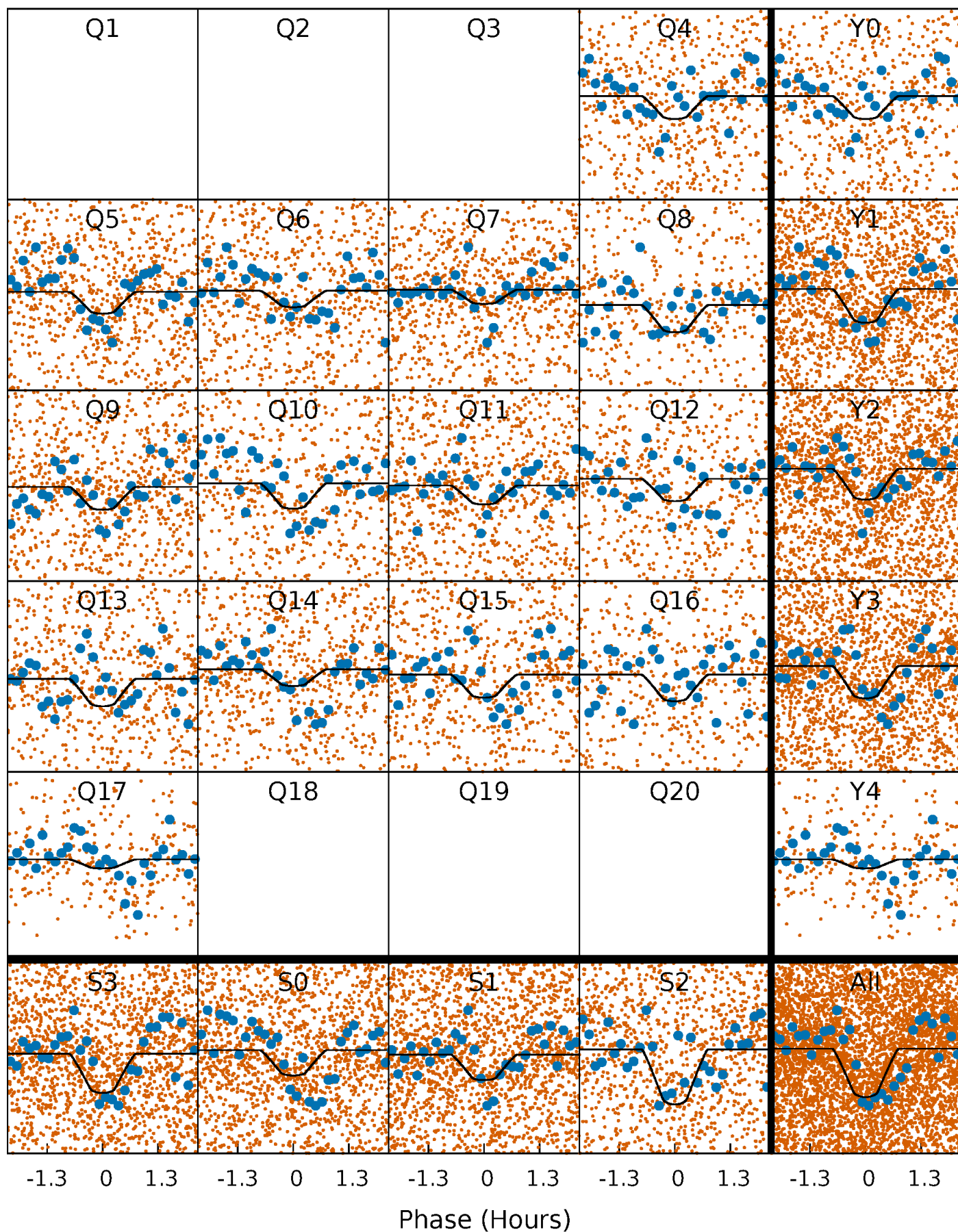
PDC Quarter-Phased Transit Curves

TCE 003448456-01 P= 0.776934 Days $T_0=132.045960$ (BKJD)



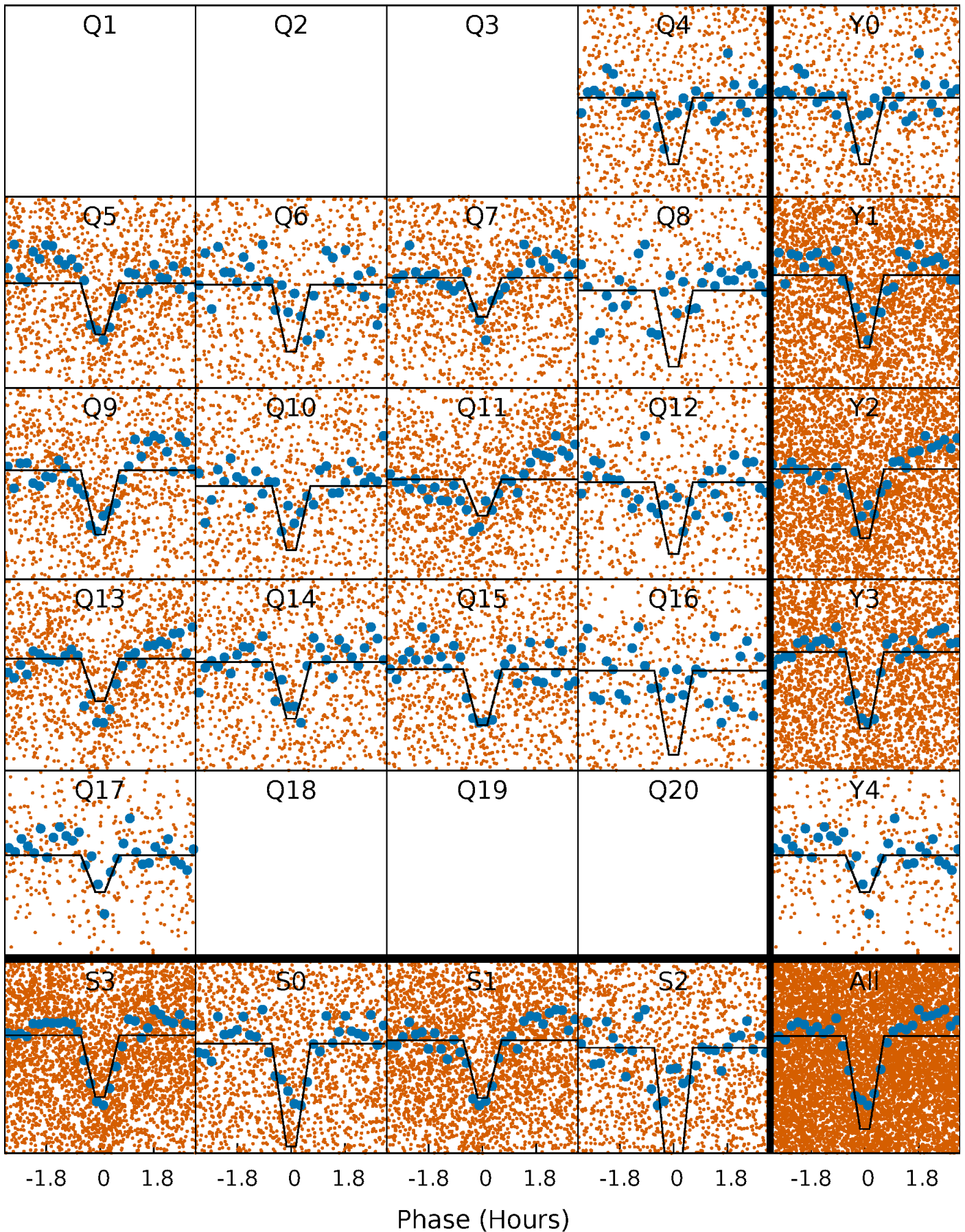
DV Quarter-Phased Transit Curves

TCE 003448456-01 P= 0.776934 Days $T_0=132.045960$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

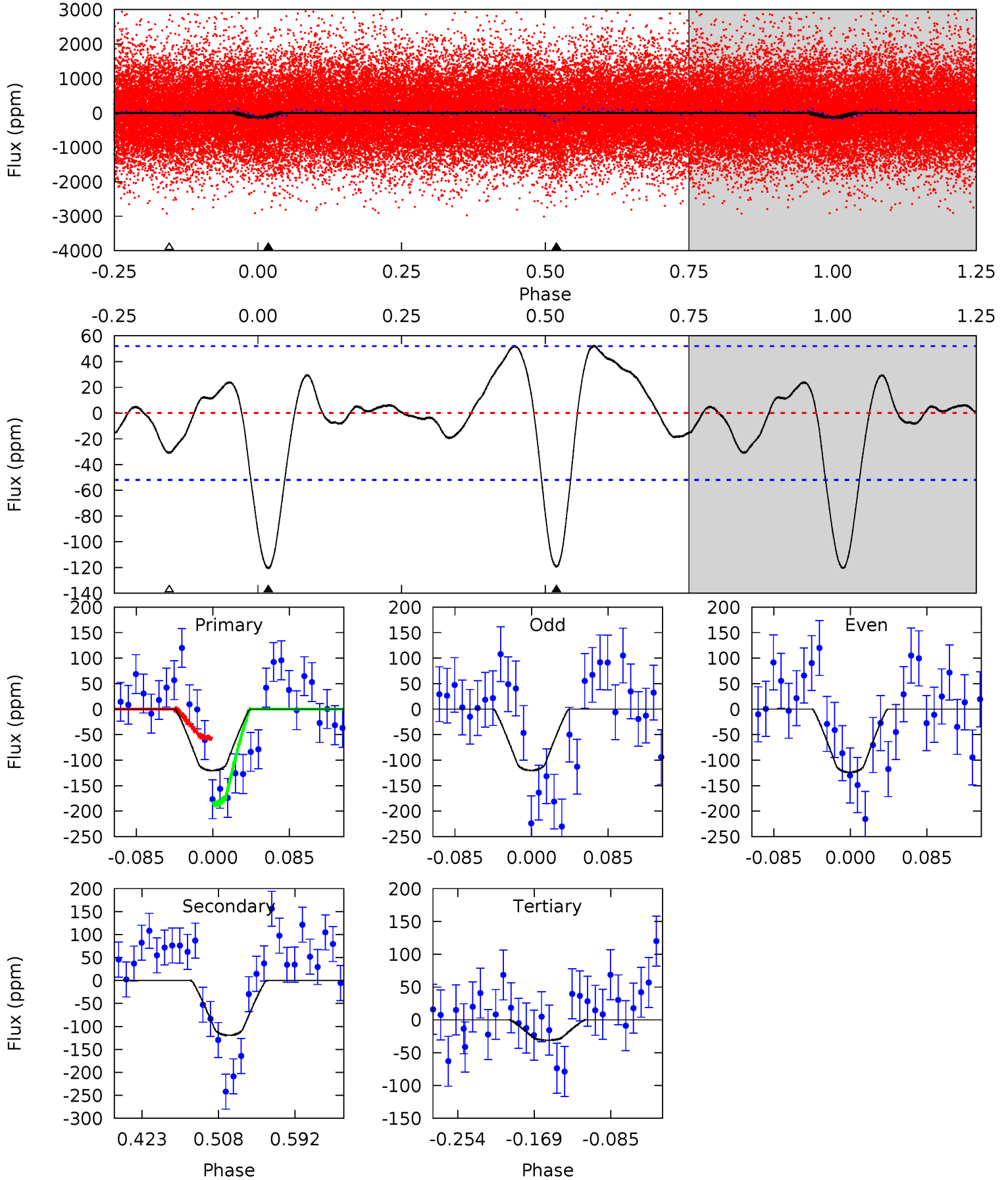
TCE 003448456-01 P= 0.776953 Days $T_0=132.037136$ (BKJD)



DV Model-Shift Uniqueness Test

003448456-01, P = 0.776934 Days, E = 132.045960 Days

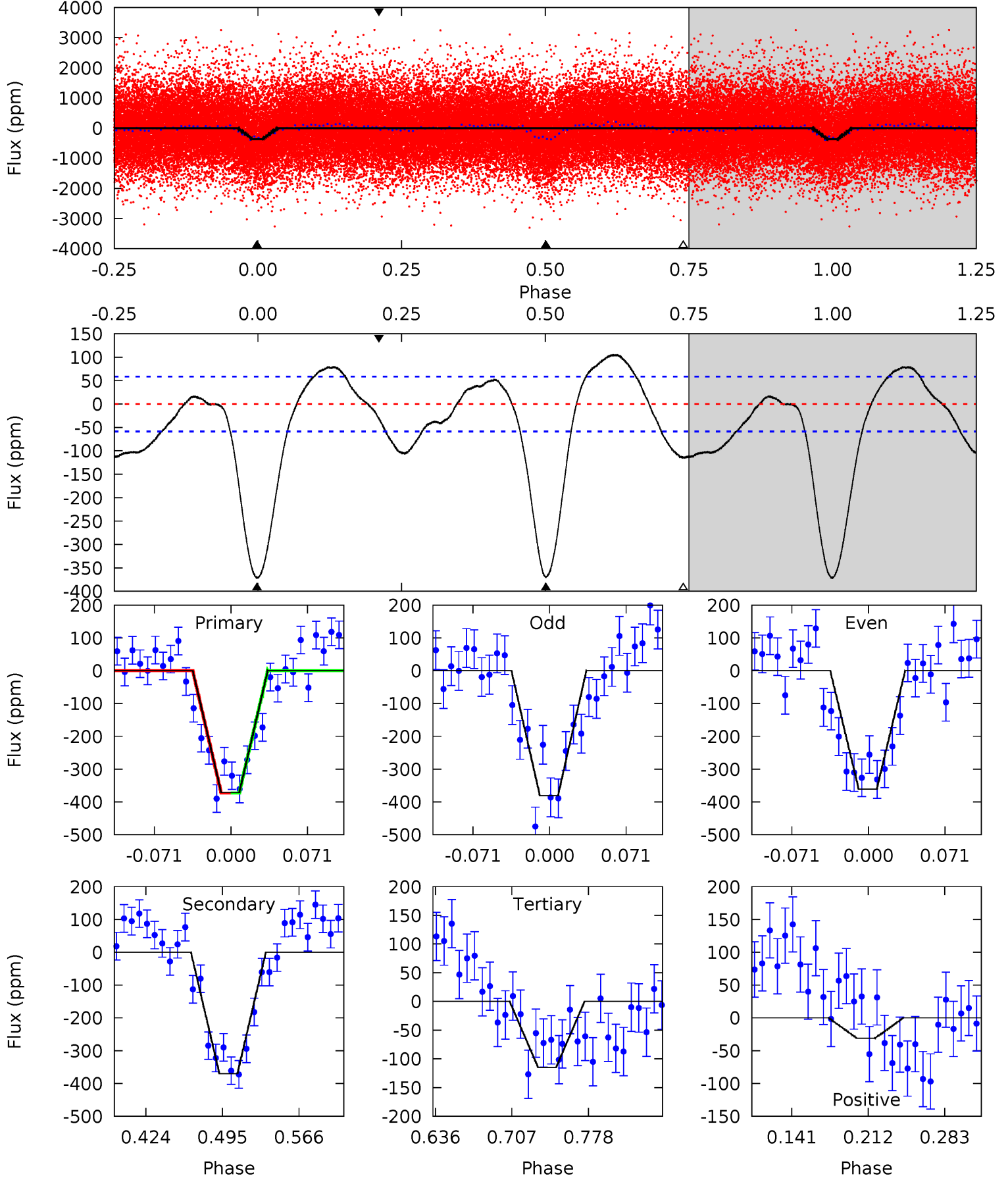
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	10.6	2.74	0	4.60	1.72	1.53	7.93	10.7	7.83	10.6	0.16	0.80	0.30	5.76



Alt Model-Shift Uniqueness Test

003448456-01, P = 0.776953 Days, E = 132.037136 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.4	29.2	9.08	-2.46	4.64	1.81	5.19	20.3	31.8	20.2	31.7	0.80	0.91	0.22	0.03



Stellar Parameters For KIC 003448456

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5861^{+186}_{-206}	$4.546^{+0.036}_{-0.204}$	$-0.200^{+0.300}_{-0.300}$	$0.865^{+0.260}_{-0.087}$	$0.957^{+0.108}_{-0.120}$	$2.084^{+0.423}_{-1.090}$
	+3%/-4%	+1%/-4%	+150%/-150%	+30%/-10%	+11%/-13%	+20%/-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 003448456-01 / KOI 7656.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-119 ± 11	$1.53^{+1.17}_{-0.92}$	2711^{+168}_{-136}	4979^{+3063}_{-1013}	$7.242^{+38.191}_{-4.854}$
Alt.	-370 ± 13	$2.18^{+1.31}_{-1.14}$	2702^{+178}_{-143}	5465^{+2807}_{-983}	11^{+39}_{-7}

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

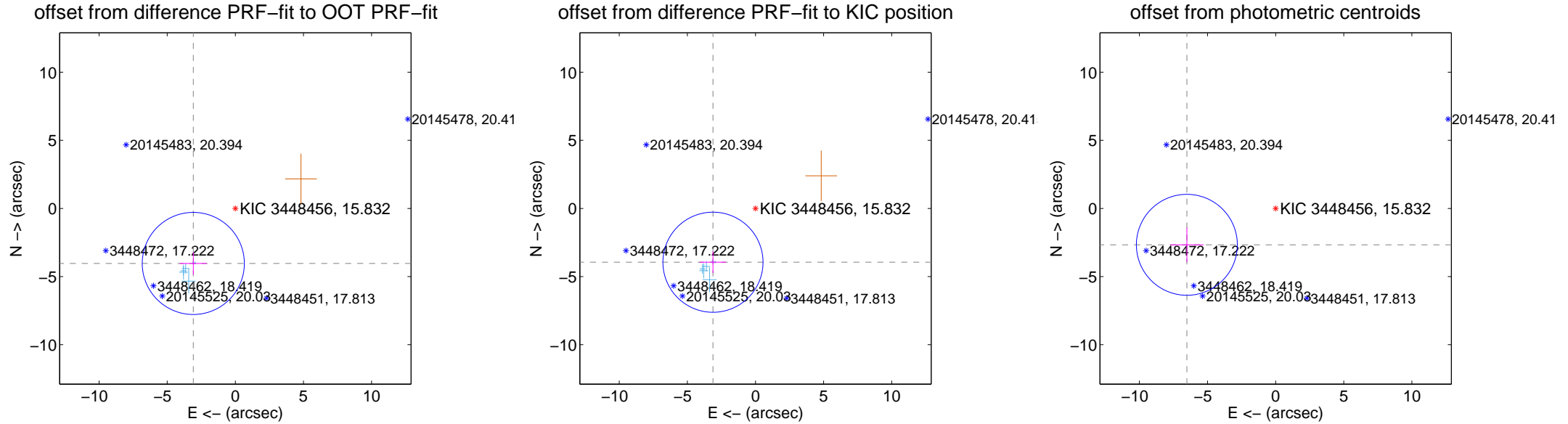
DV Centroid Data

Supplemental centroid analysis for 003448456-01. Kepler magnitude: 15.83. Transit SNR 8.78

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.083 ± 1.249	4.07	3.087 ± 0.997	-4.038 ± 0.820
PRF-fit source offset from KIC position	5.034 ± 1.225	4.11	3.122 ± 0.975	-3.949 ± 0.799
photometric centroid source offset	7.04 ± 1.24	5.70	6.52 ± 1.23	-2.67 ± 1.27



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



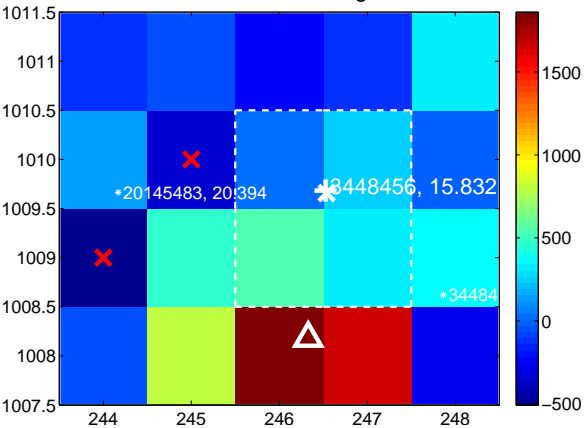
Q3 no difference image



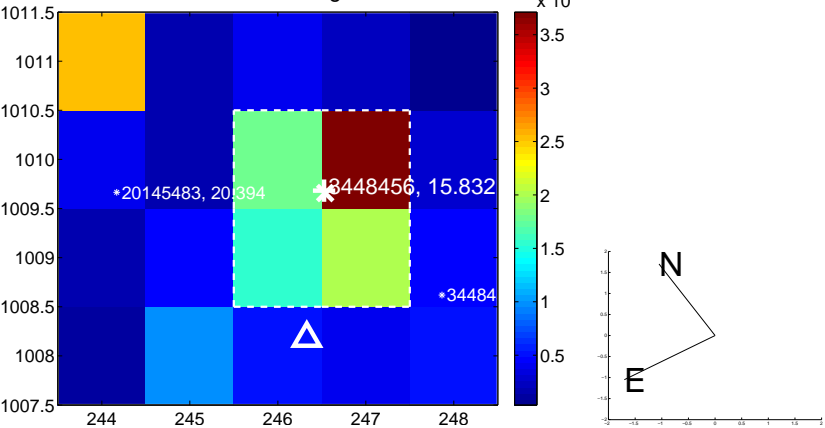
Q3 no OOT image



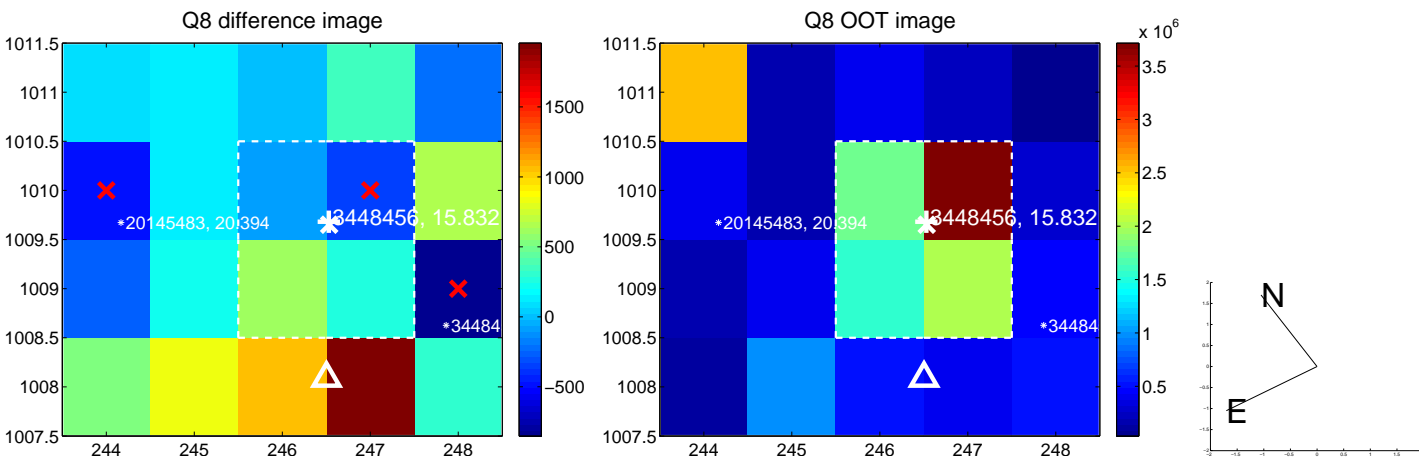
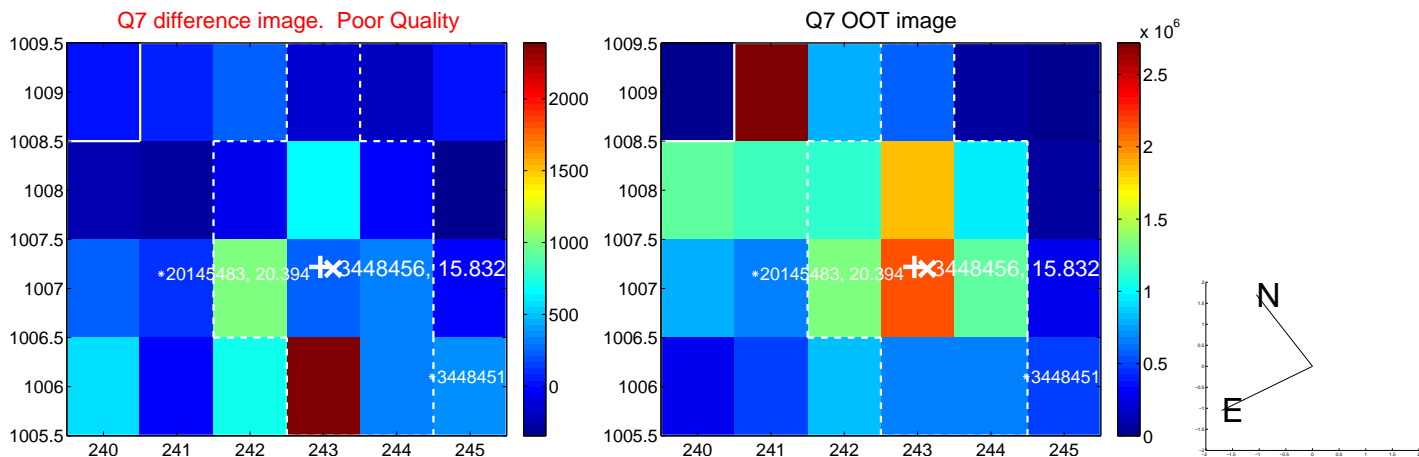
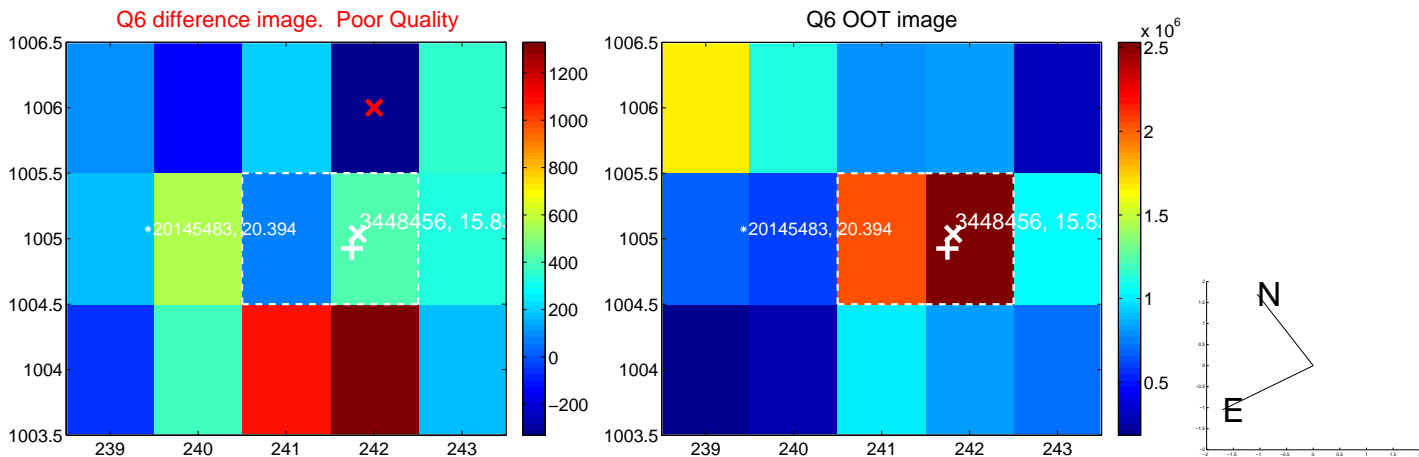
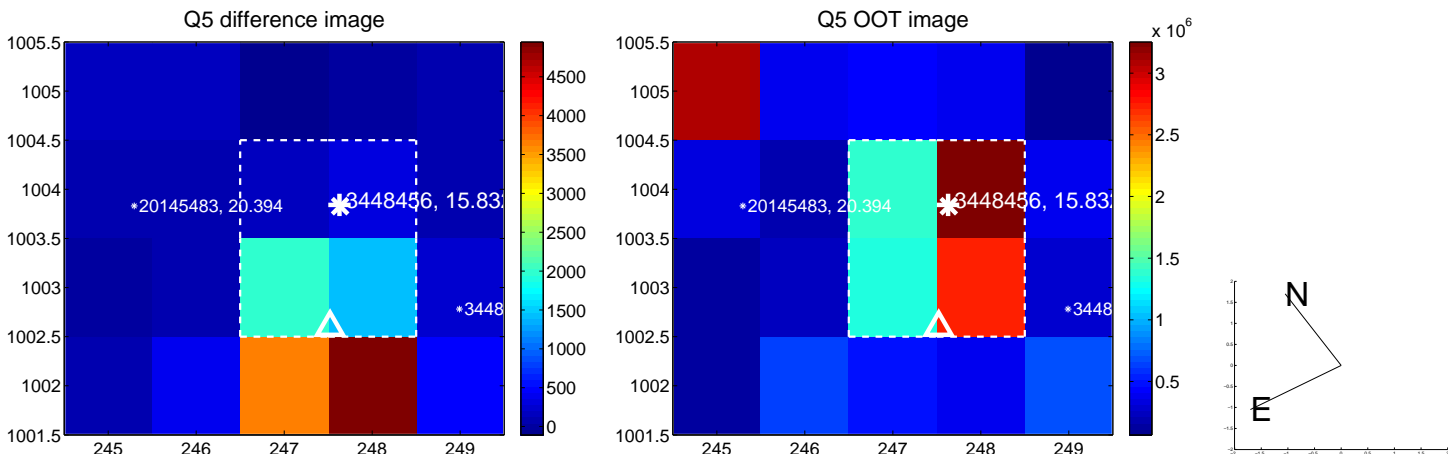
Q4 difference image



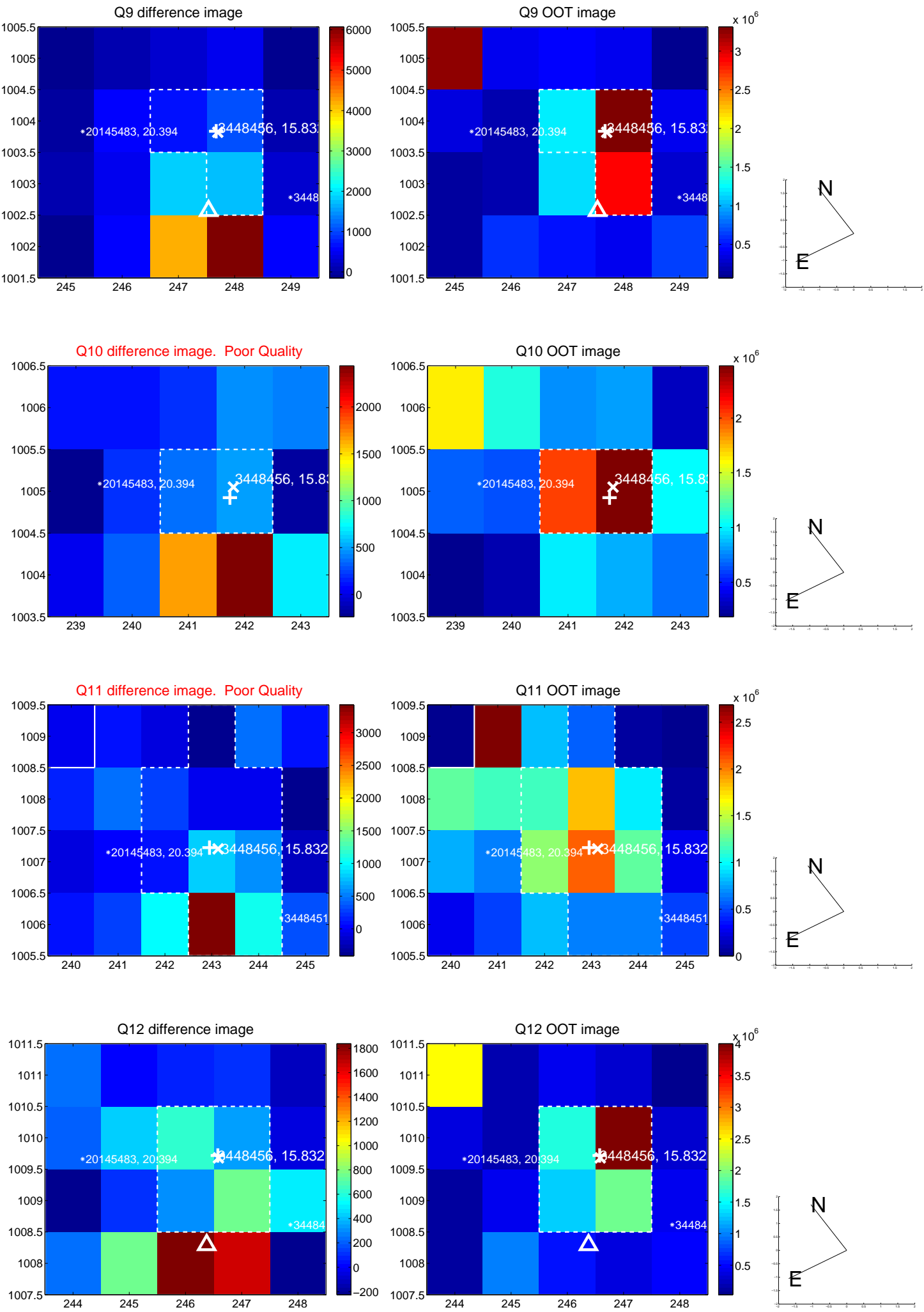
Q4 OOT image



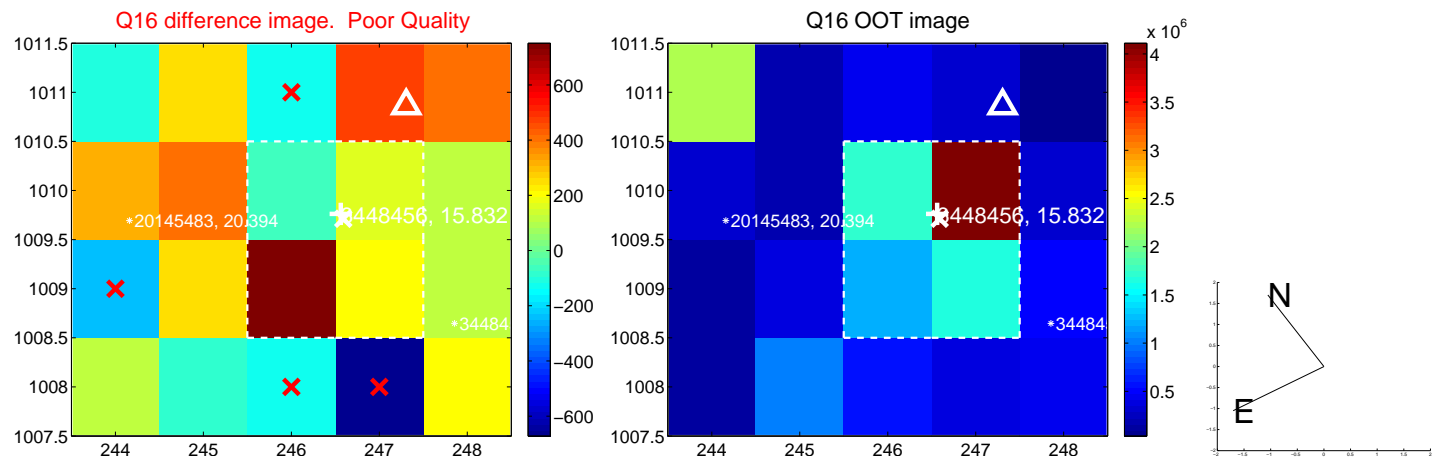
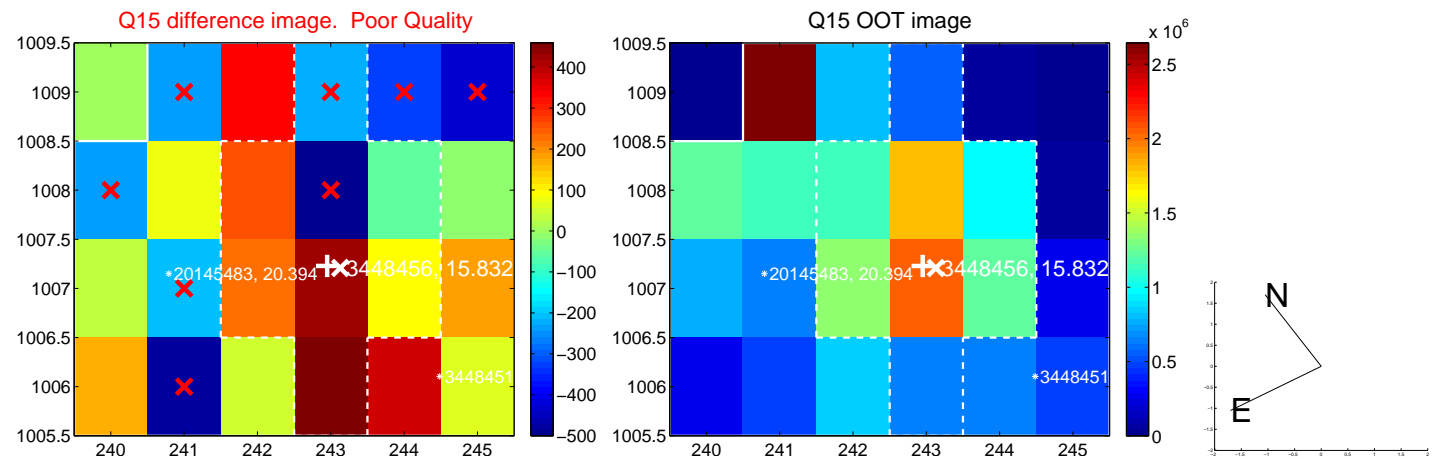
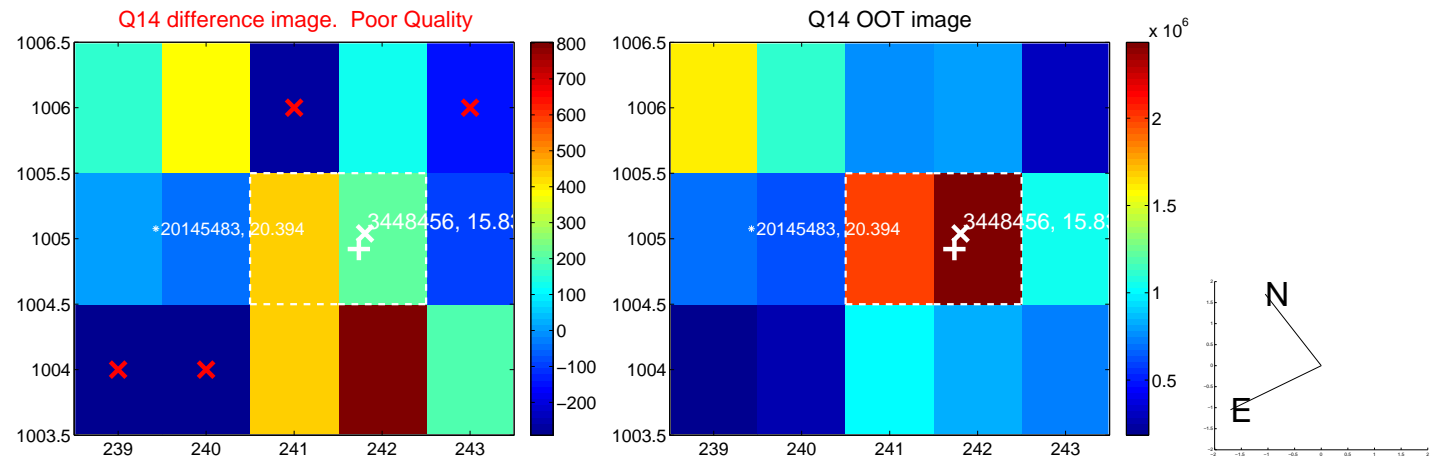
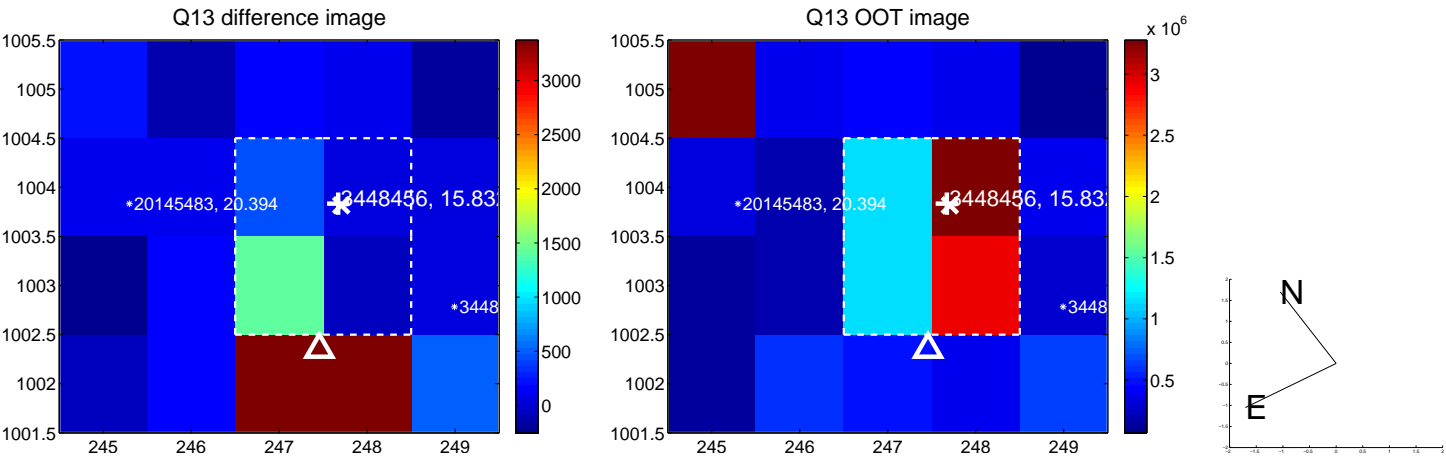
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



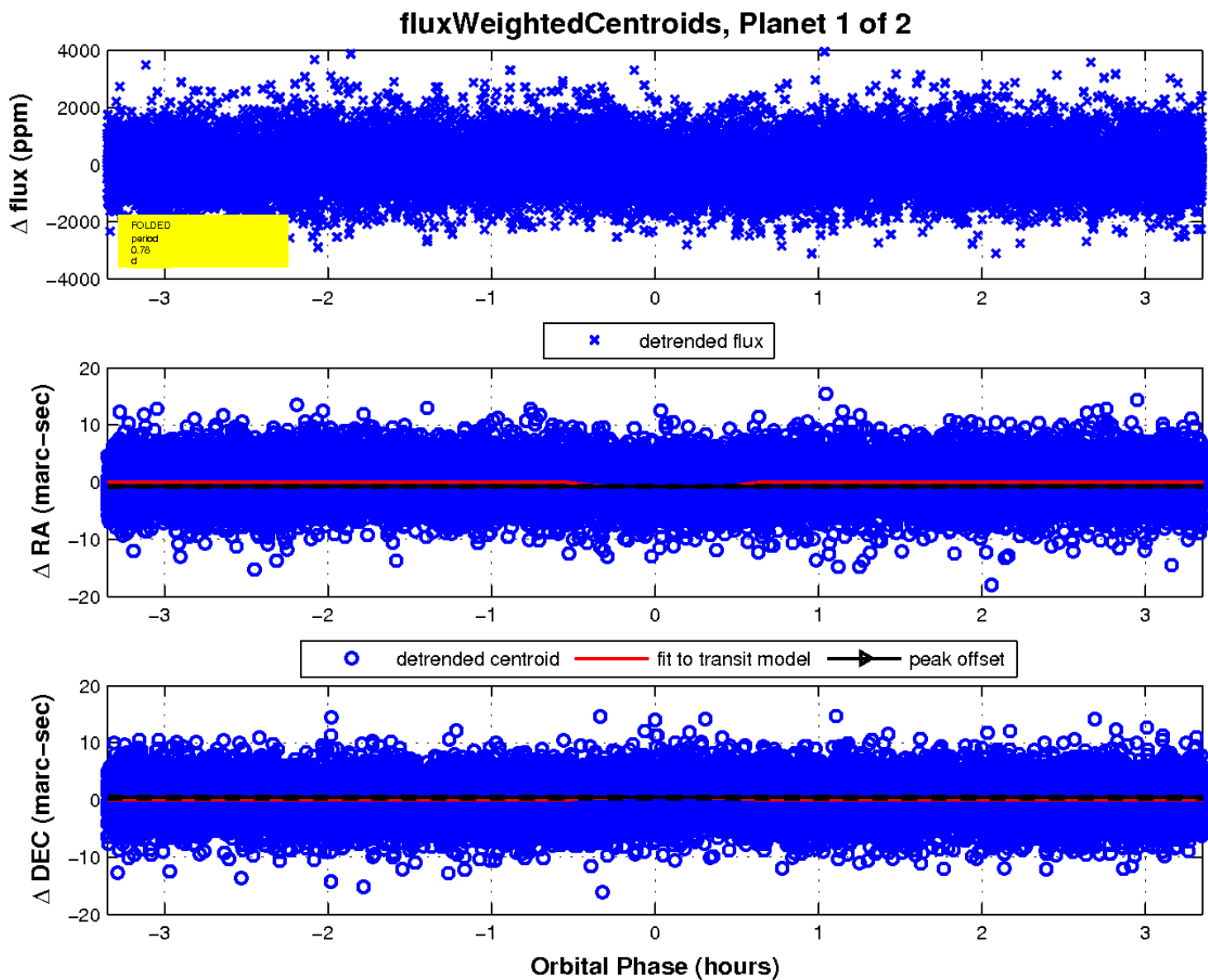
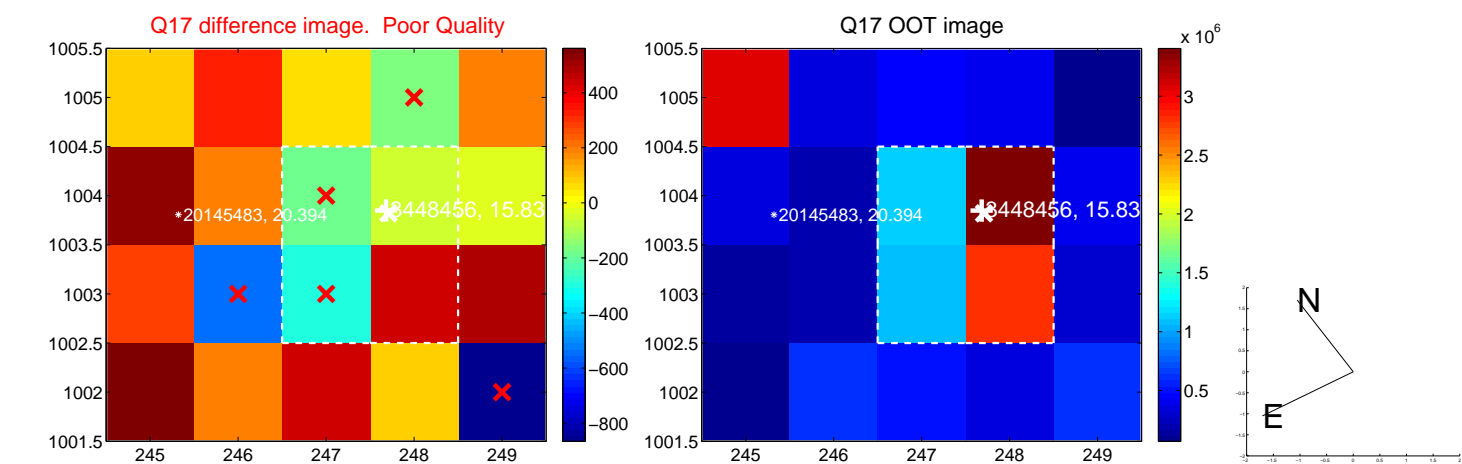
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



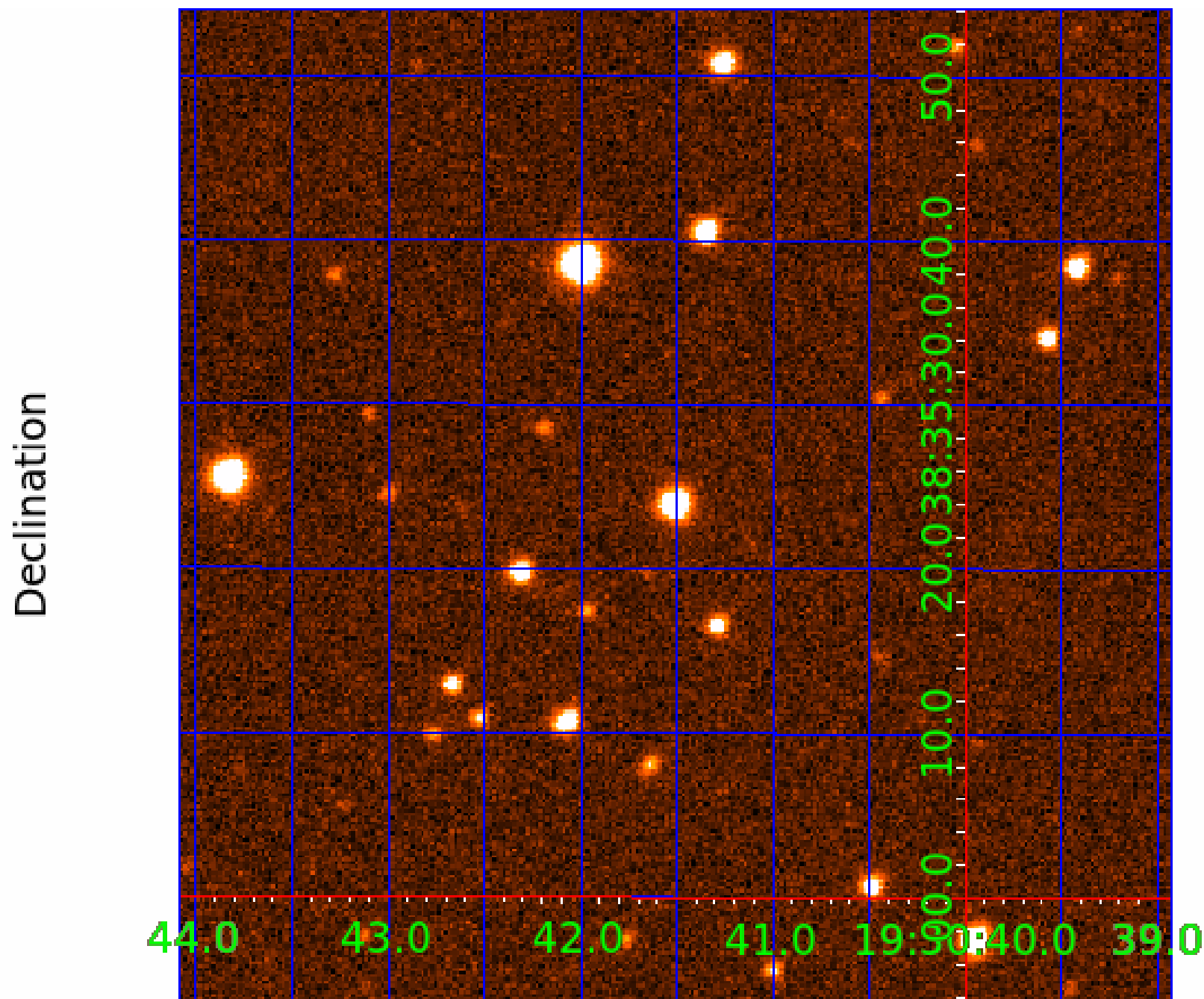
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003448456

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})
003448456-01	OBS	7656.01	0.776934	132.045960	145.0	1.117	8.9	8.8	0.86	5861	1.25	2971.30
003448456-02	OBS	No	0.776951	131.649415	261.0	0.849	8.0	14.0	0.86	5861	1.68	2971.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003448456-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003448456-02	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET

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

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

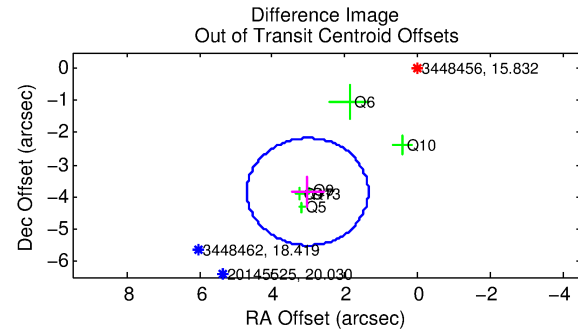
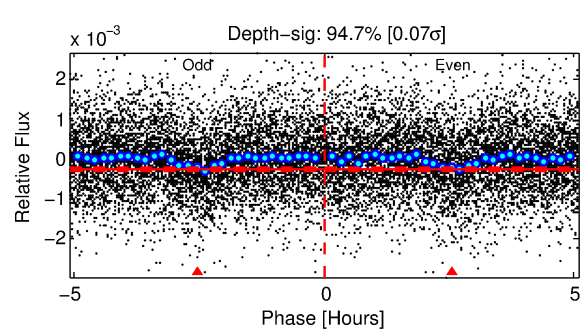
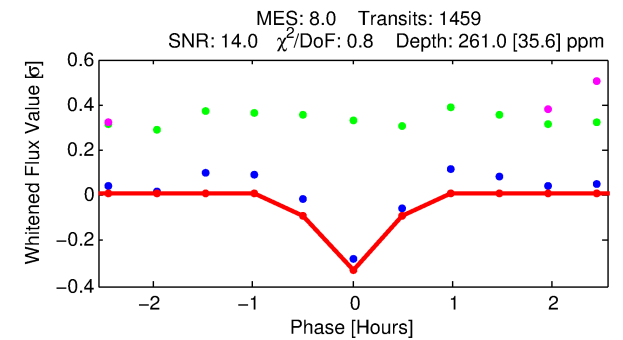
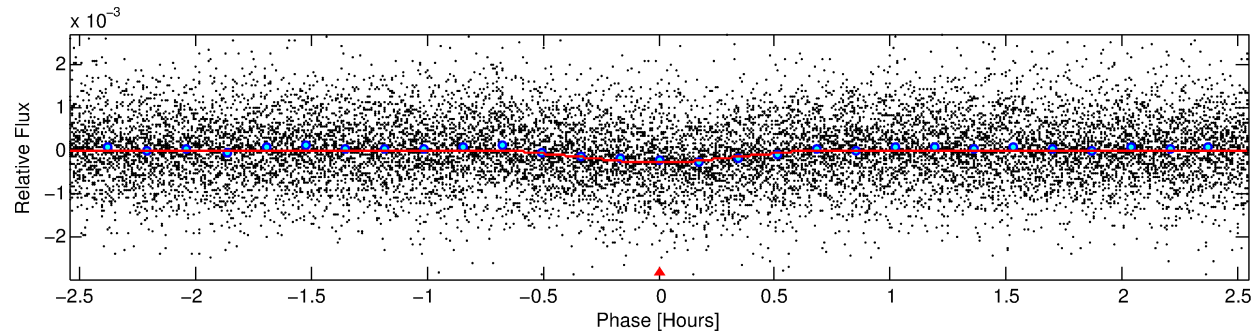
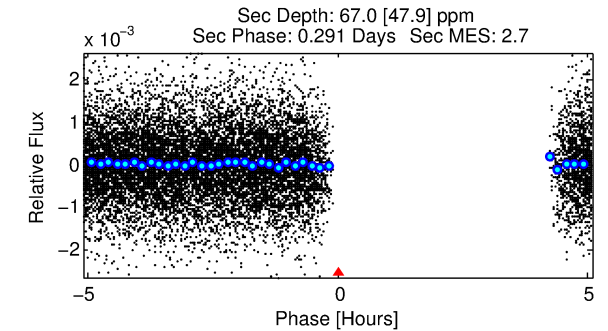
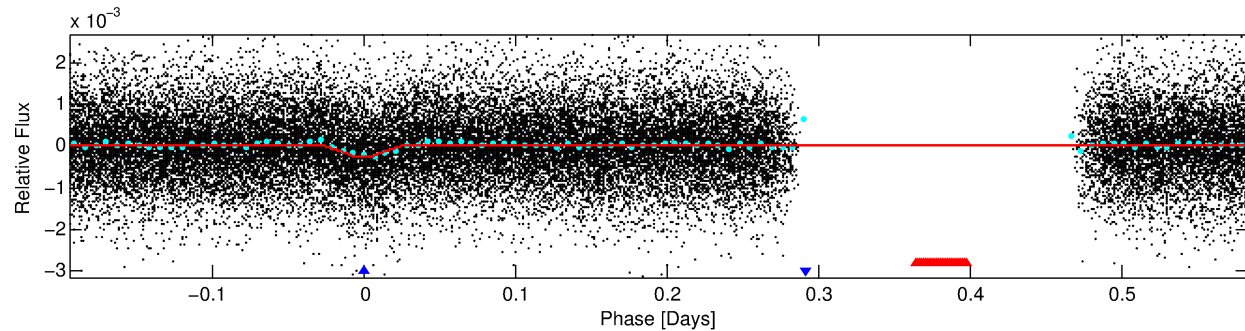
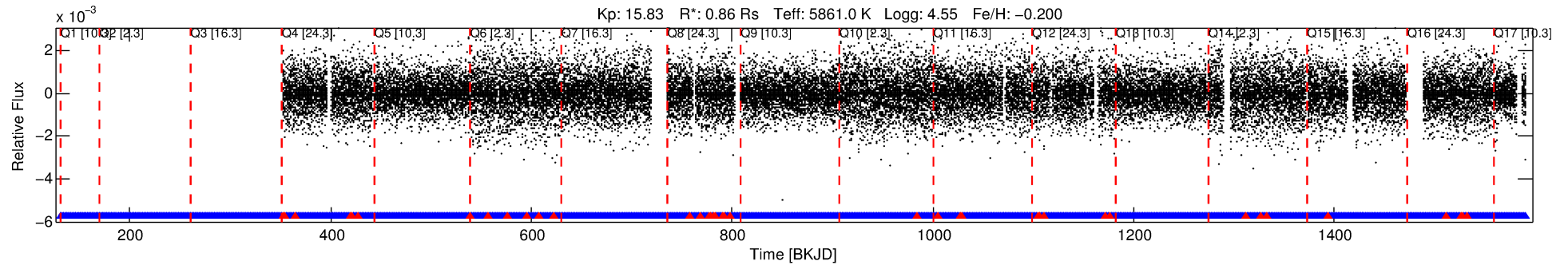
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003448456-02

No Significant Match Found

DV One-Page Summary

KIC: 3448456 Candidate: 2 of 2 Period: 0.777 d



DV Fit Results:

Period = 0.77695 [0.00001] d
Epoch = 131.6494 [0.0011] BKJD
Rp/R* = 0.0178 [0.0115]
a/R* = 3.44 [9.94]
b = 0.90 [0.67]
Seff = 2971.21 [1180.97]
Teq = 1883 [187] K
Rp = 1.68 [1.19] Re
a = 0.0163 [0.0041] AU
Ag = 3.48 [5.30] [0.47σ]
Teff = 3977 [1472] K [1.41σ]

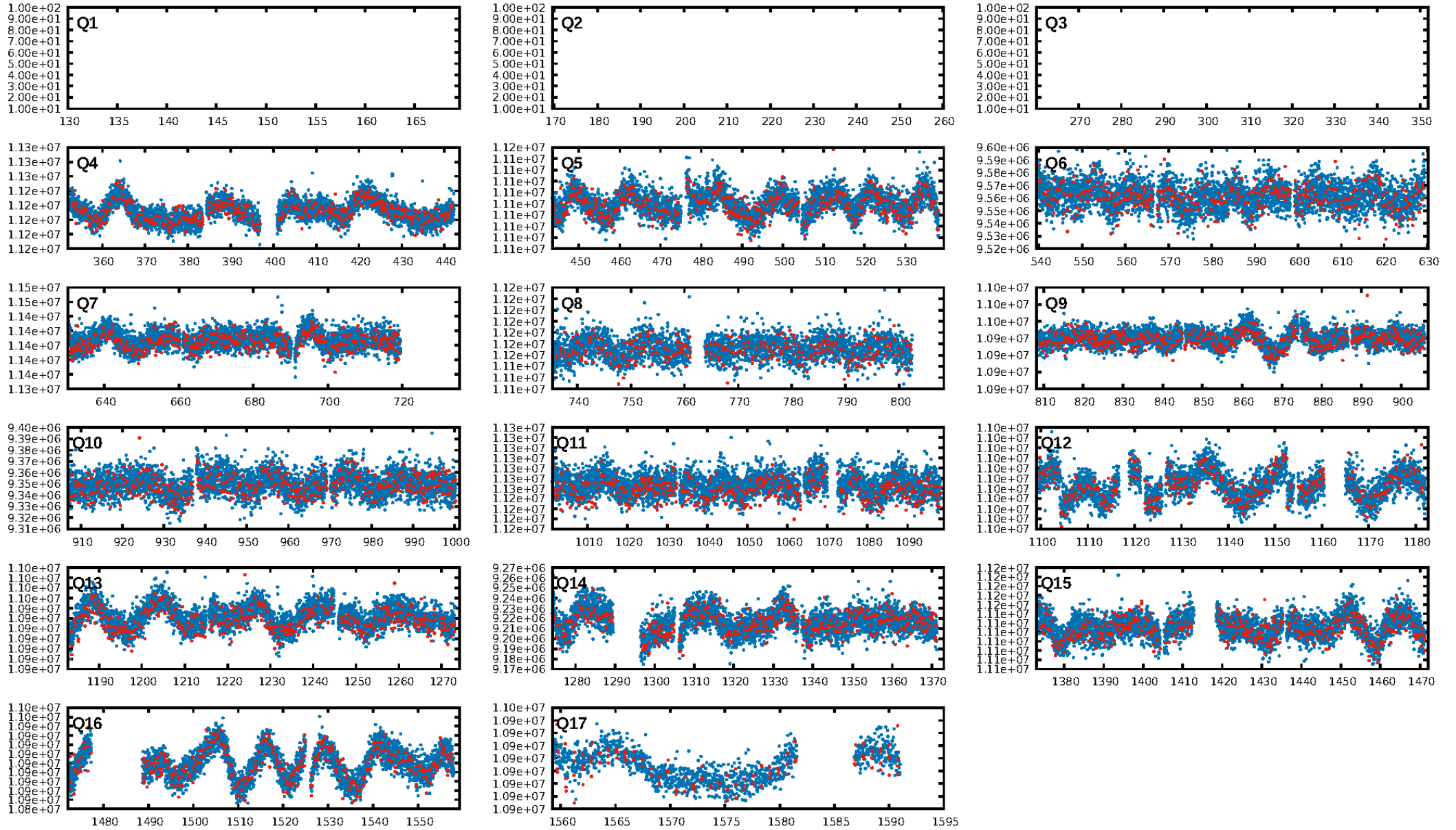
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.49e-15
RollingBand-fgt: 0.97 [1386/1424]
GhostDiagnostic-chr: 0.3537
Centroid-sig: 0.0%
Centroid-so: 6.231 arcsec [7.71σ]
OotOffset-rm: 4.894 arcsec [8.79σ]
KicOffset-rm: 4.848 arcsec [11.06σ]
OotOffset-st: 2/0/0/4 [6]
KicOffset-st: 2/0/0/4 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [14/14]




Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 09:39:58 Z

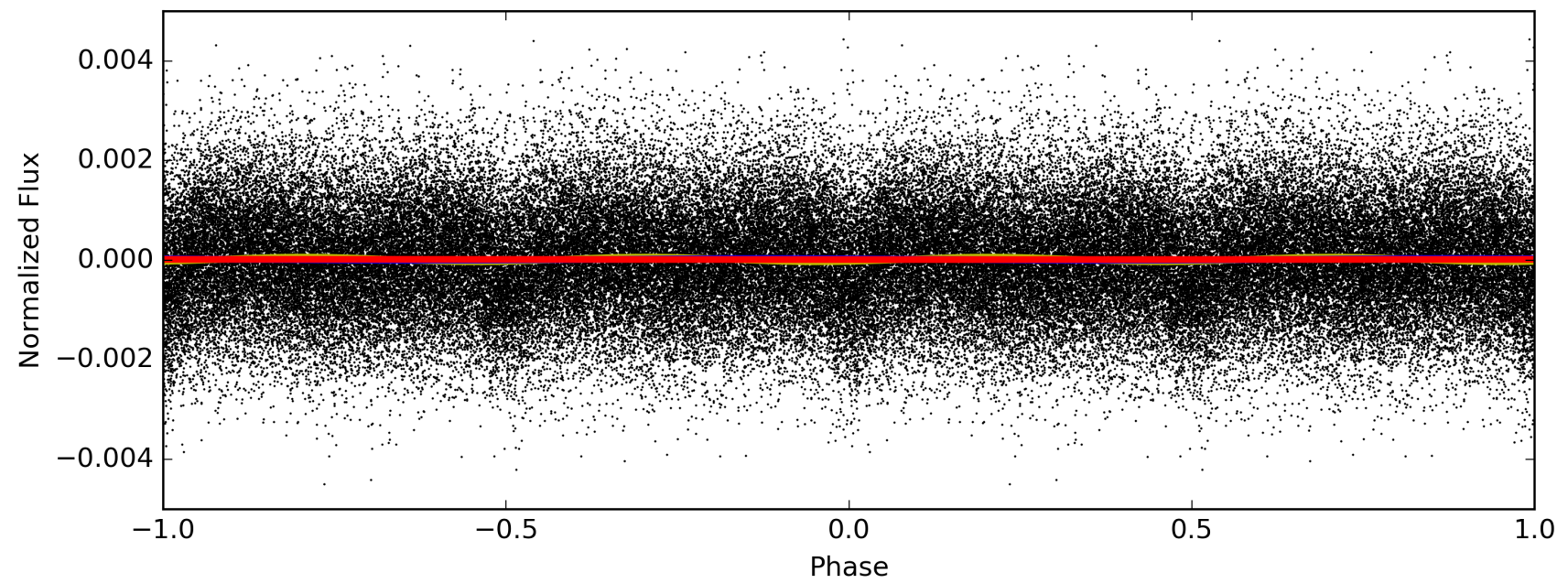
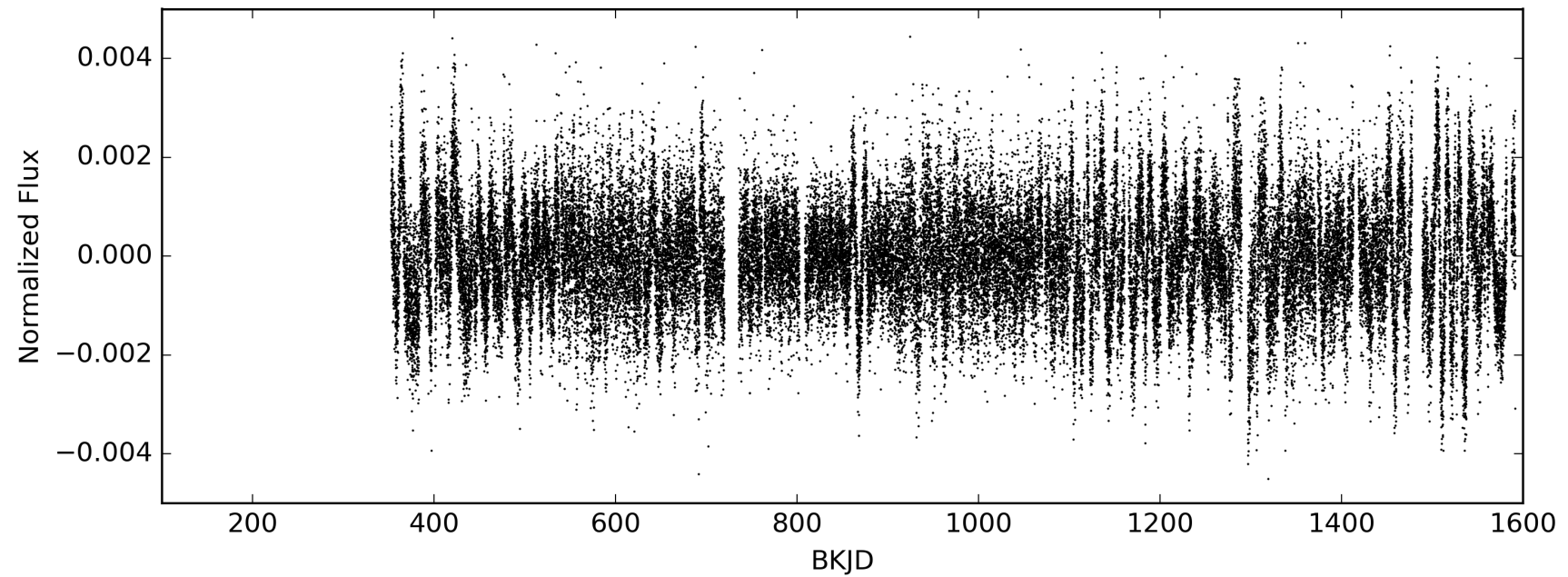
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TCE 003448456-02, PDC Light Curves



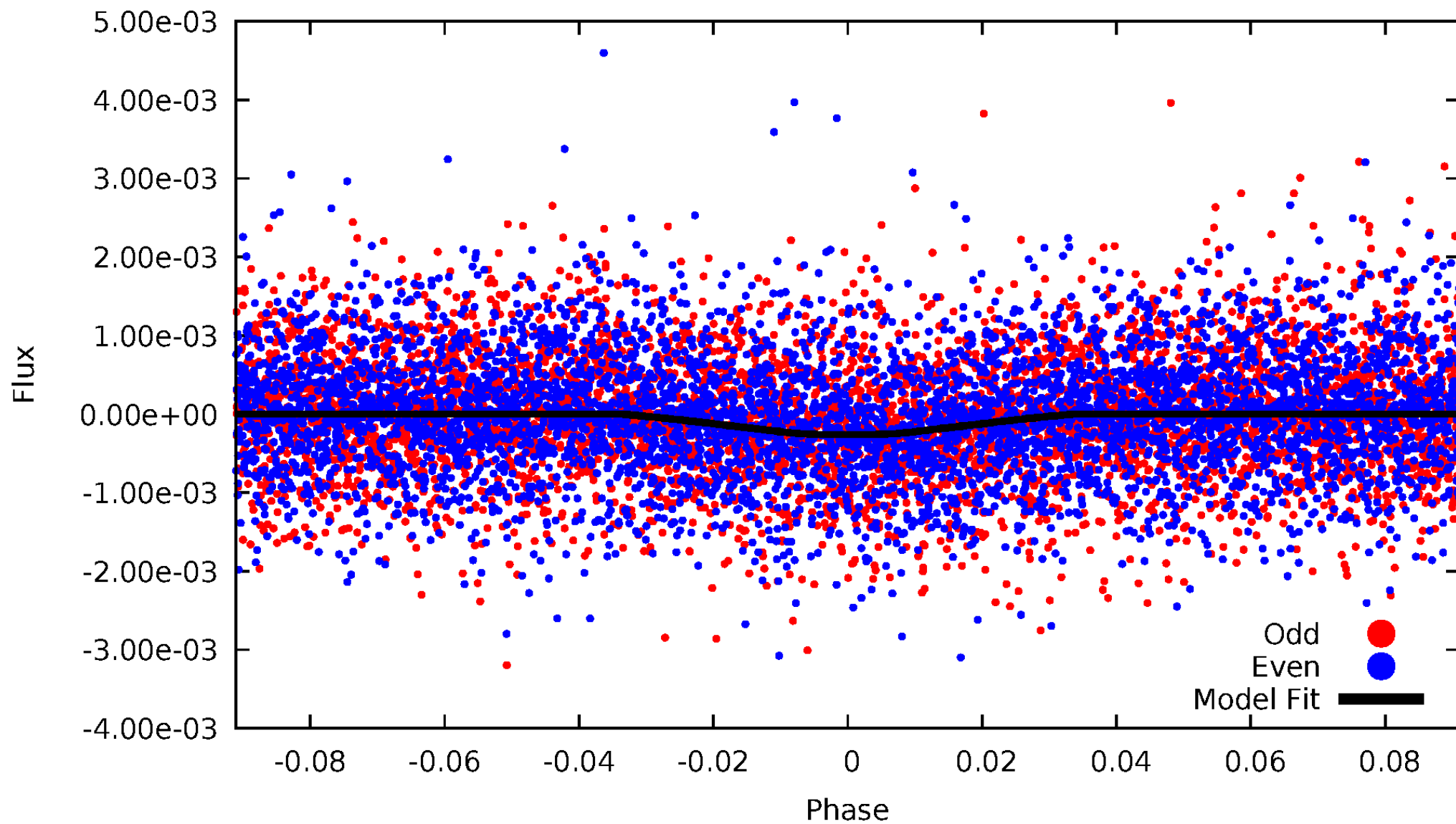
TCE 003448456-02

 P = 0.388 days  P = 0.777 days  P = 1.554 days



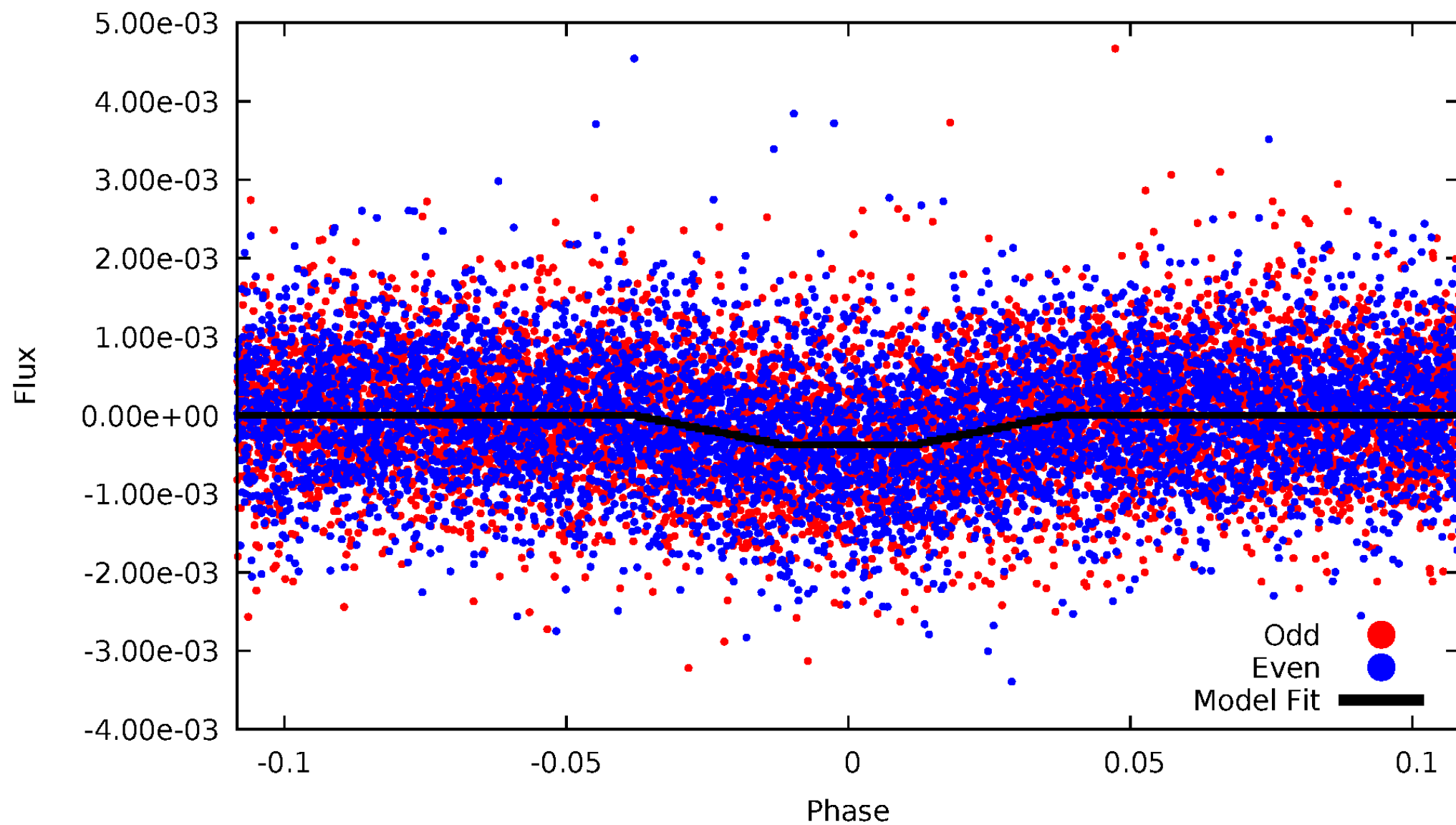
DV Odd/Even

TCE 003448456-02



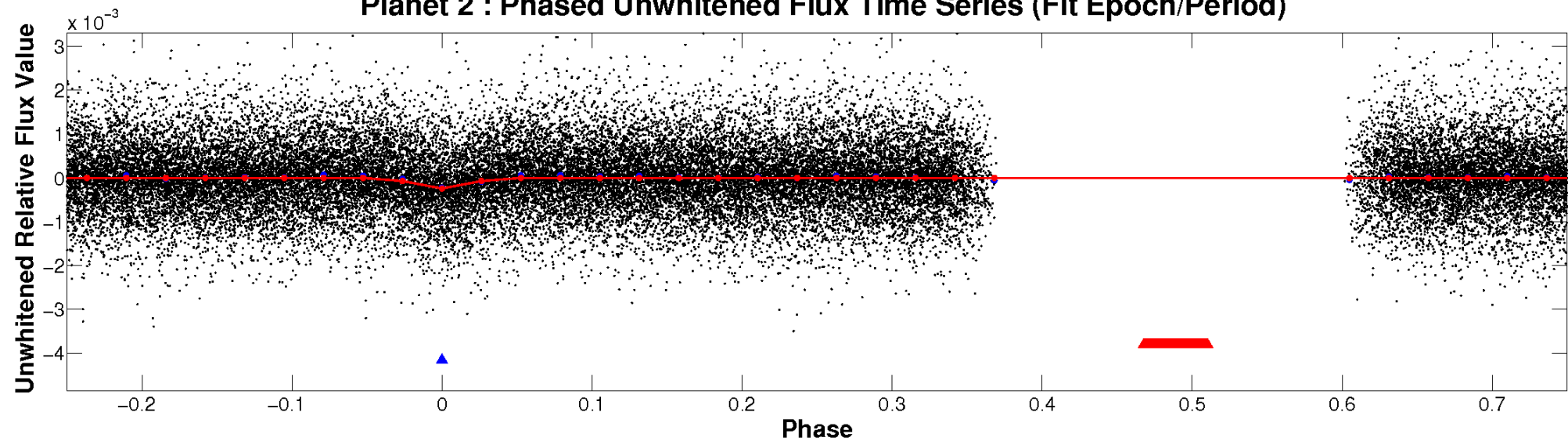
ALT Odd/Even

TCE 003448456-02

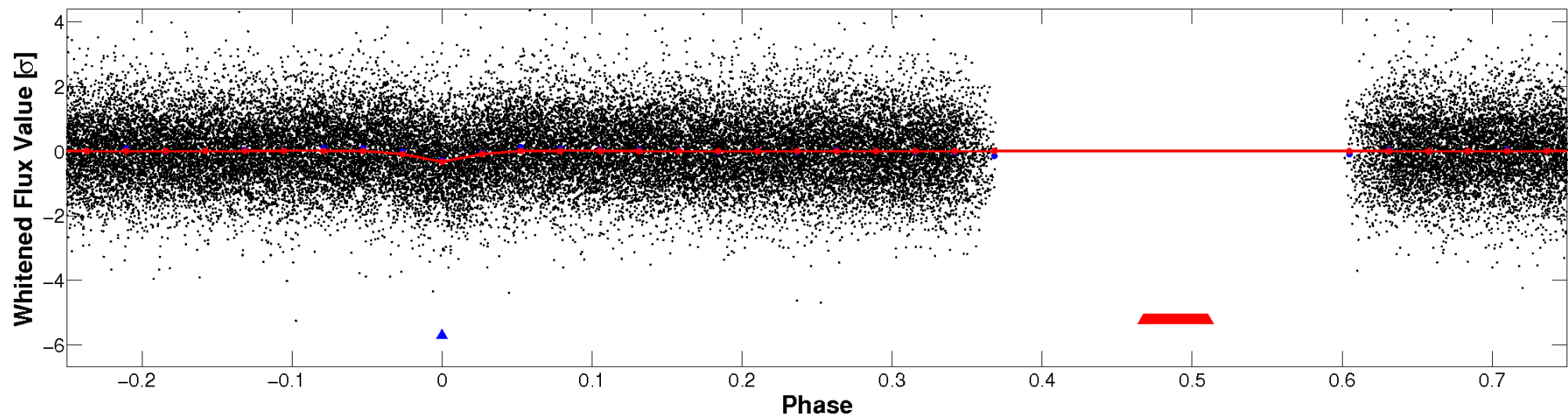


Non-Whitened Vs. Whitened Light Curve

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

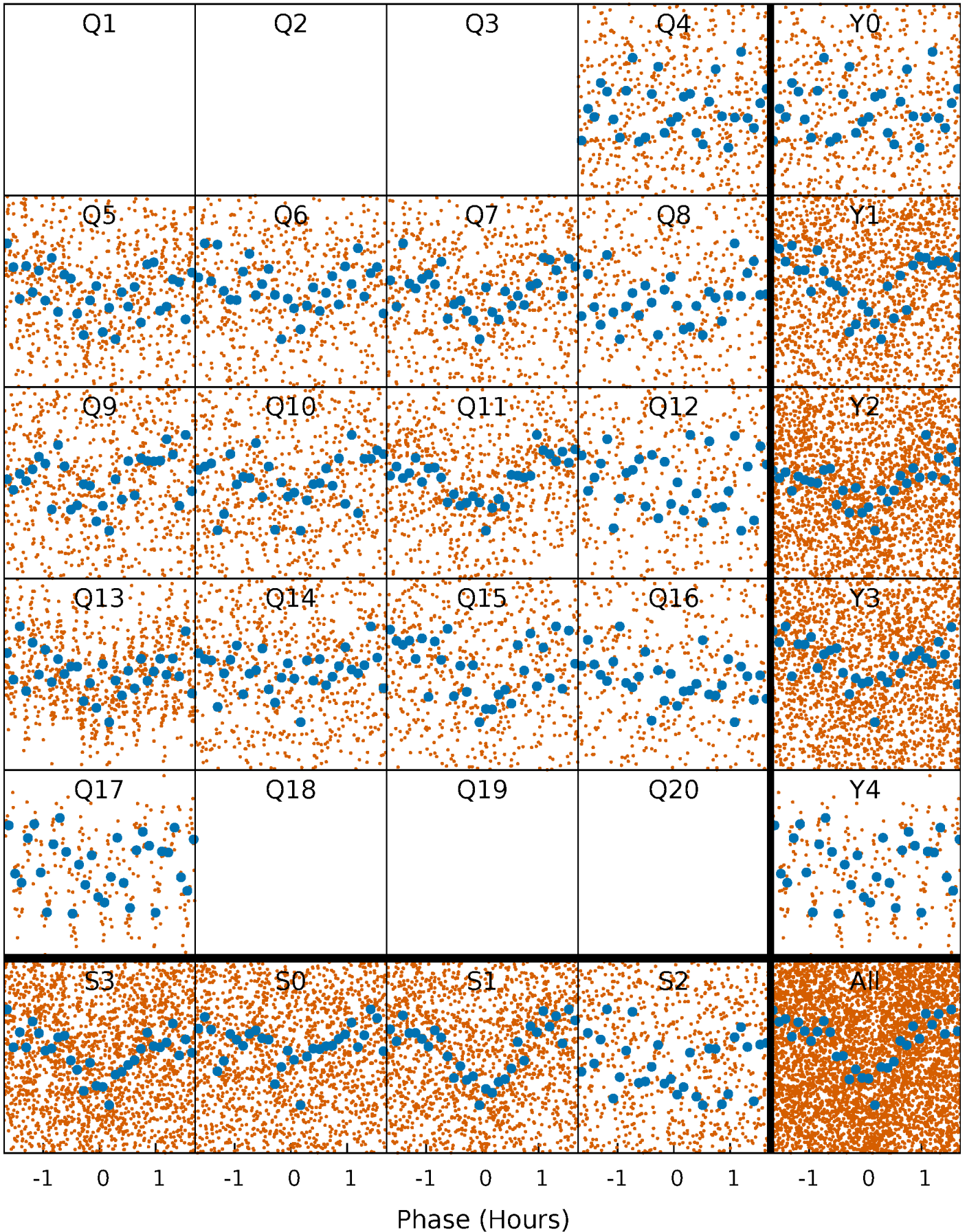


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



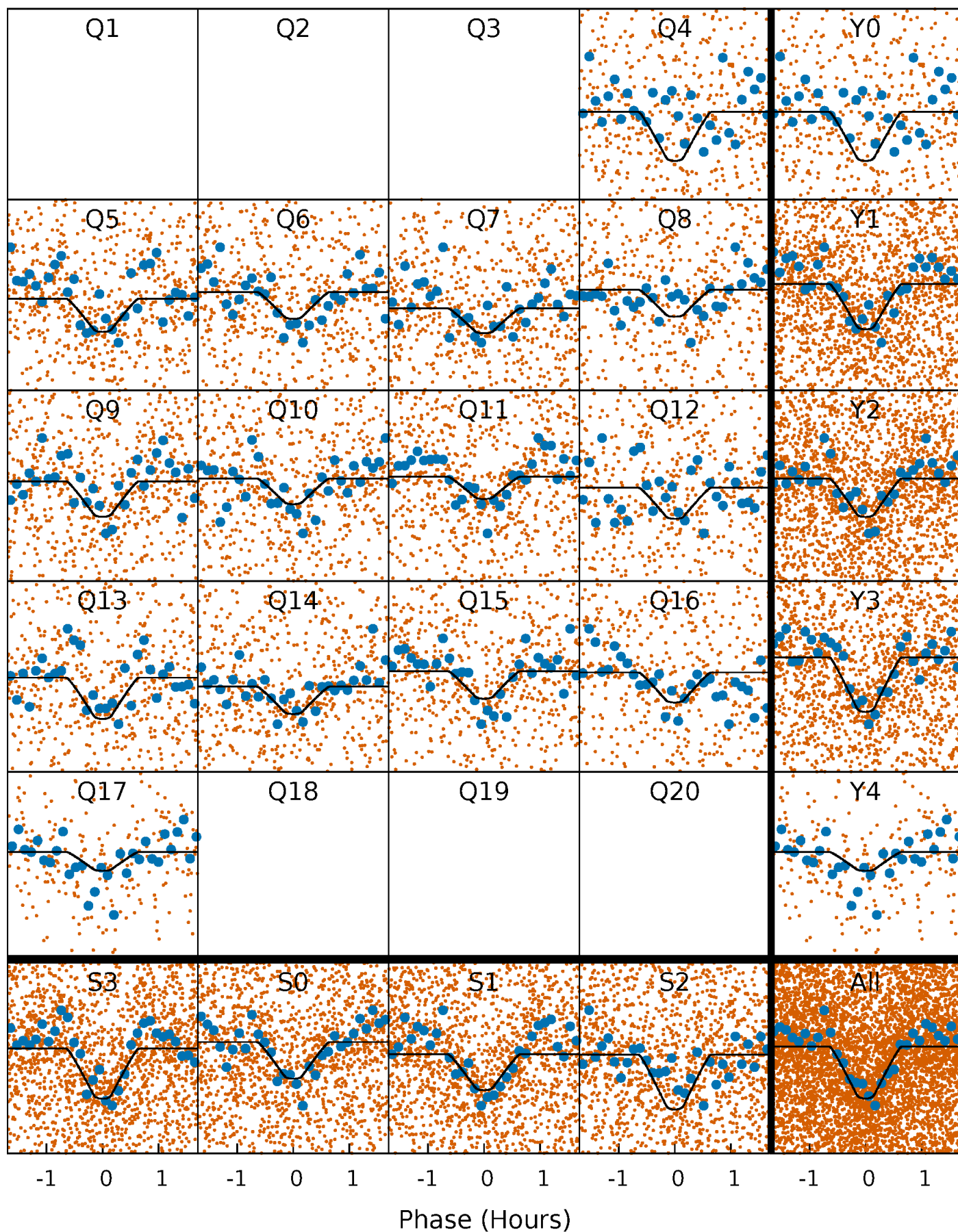
PDC Quarter-Phased Transit Curves

TCE 003448456-02 P= 0.776951 Days $T_0=131.649415$ (BKJD)



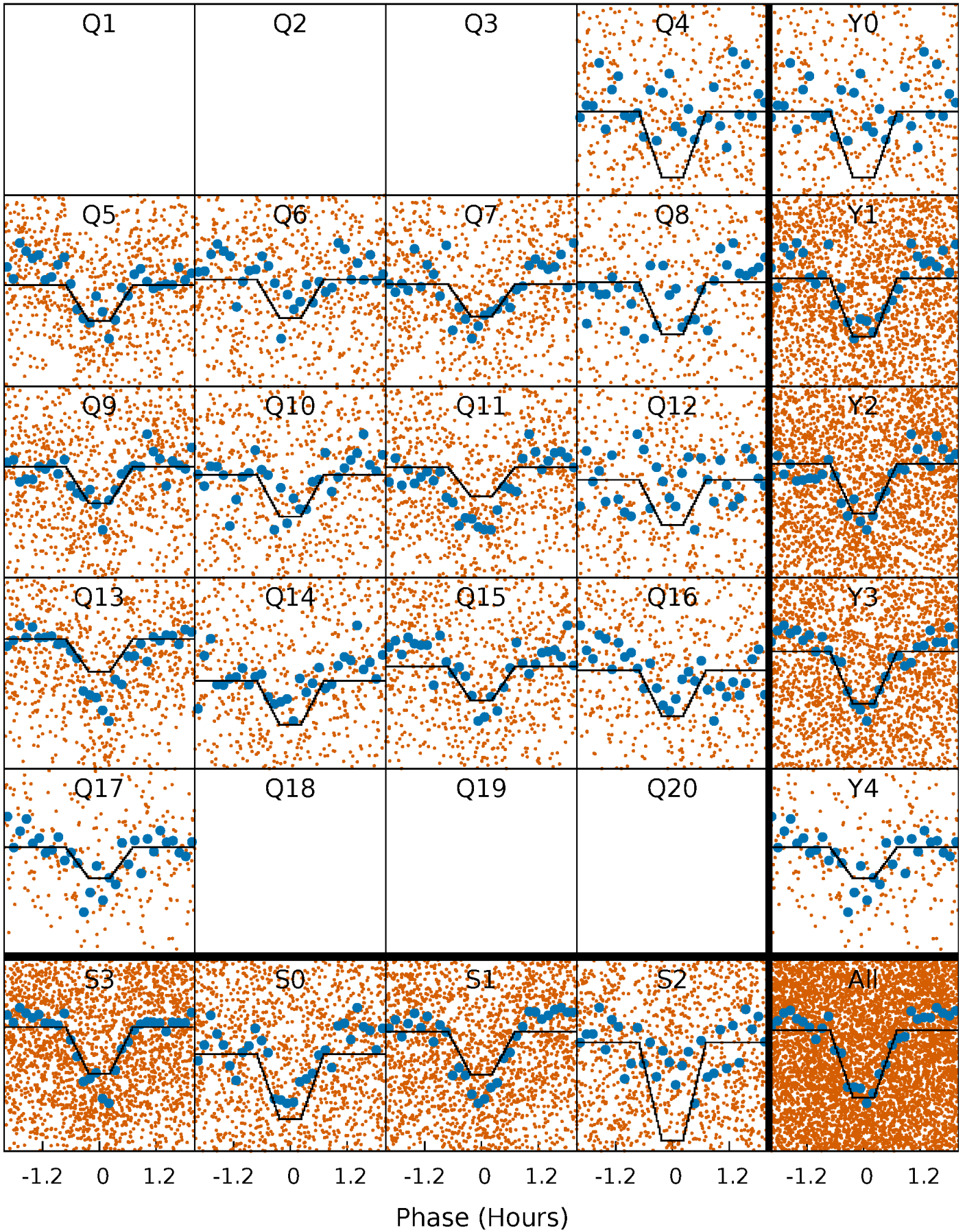
DV Quarter-Phased Transit Curves

TCE 003448456-02 P= 0.776951 Days $T_0=131.649415$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

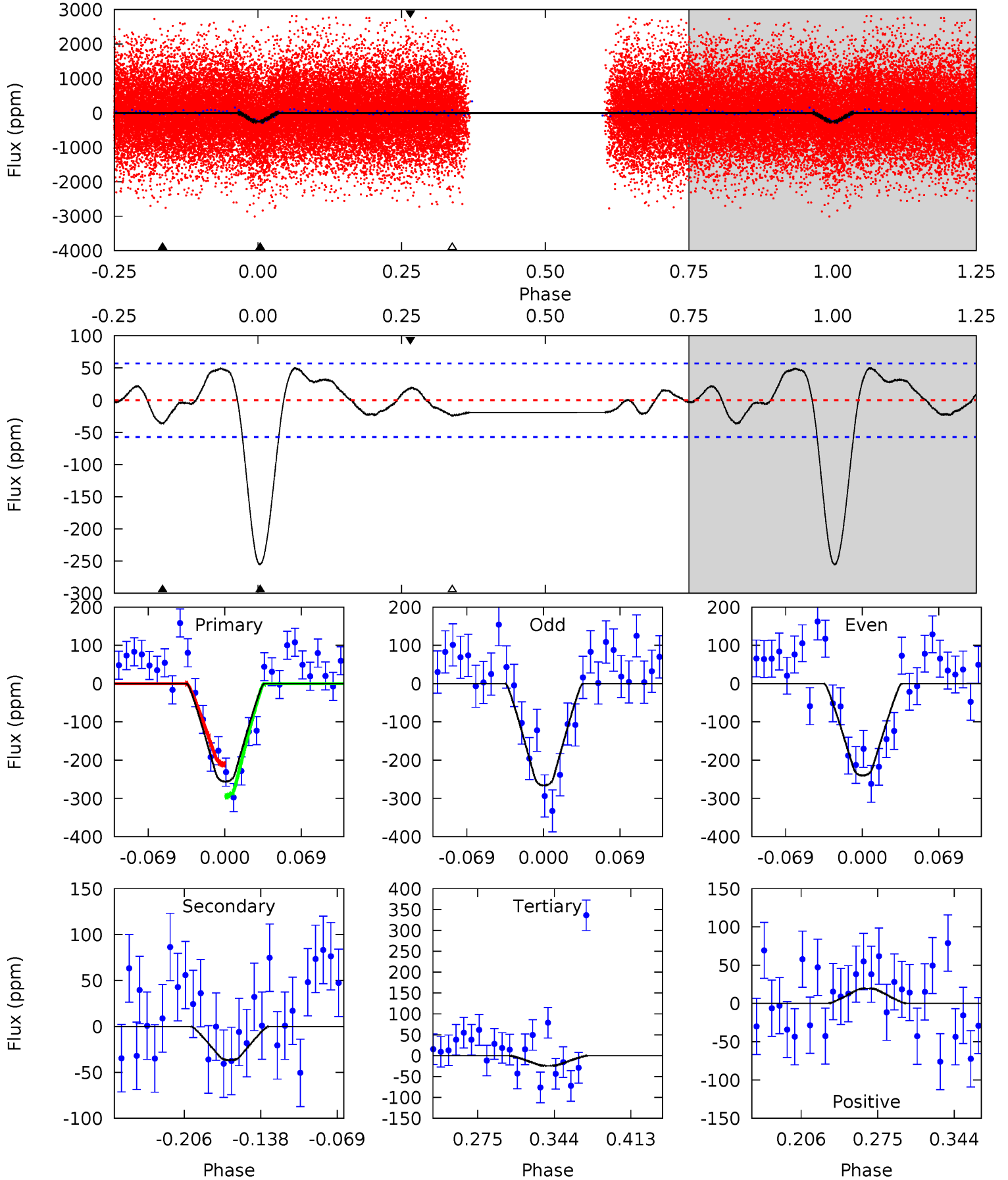
TCE 003448456-02 $P = 0.776953$ Days $T_0 = 131.649630$ (BKJD)



DV Model-Shift Uniqueness Test

003448456-02, P = 0.776951 Days, E = 131.649415 Days

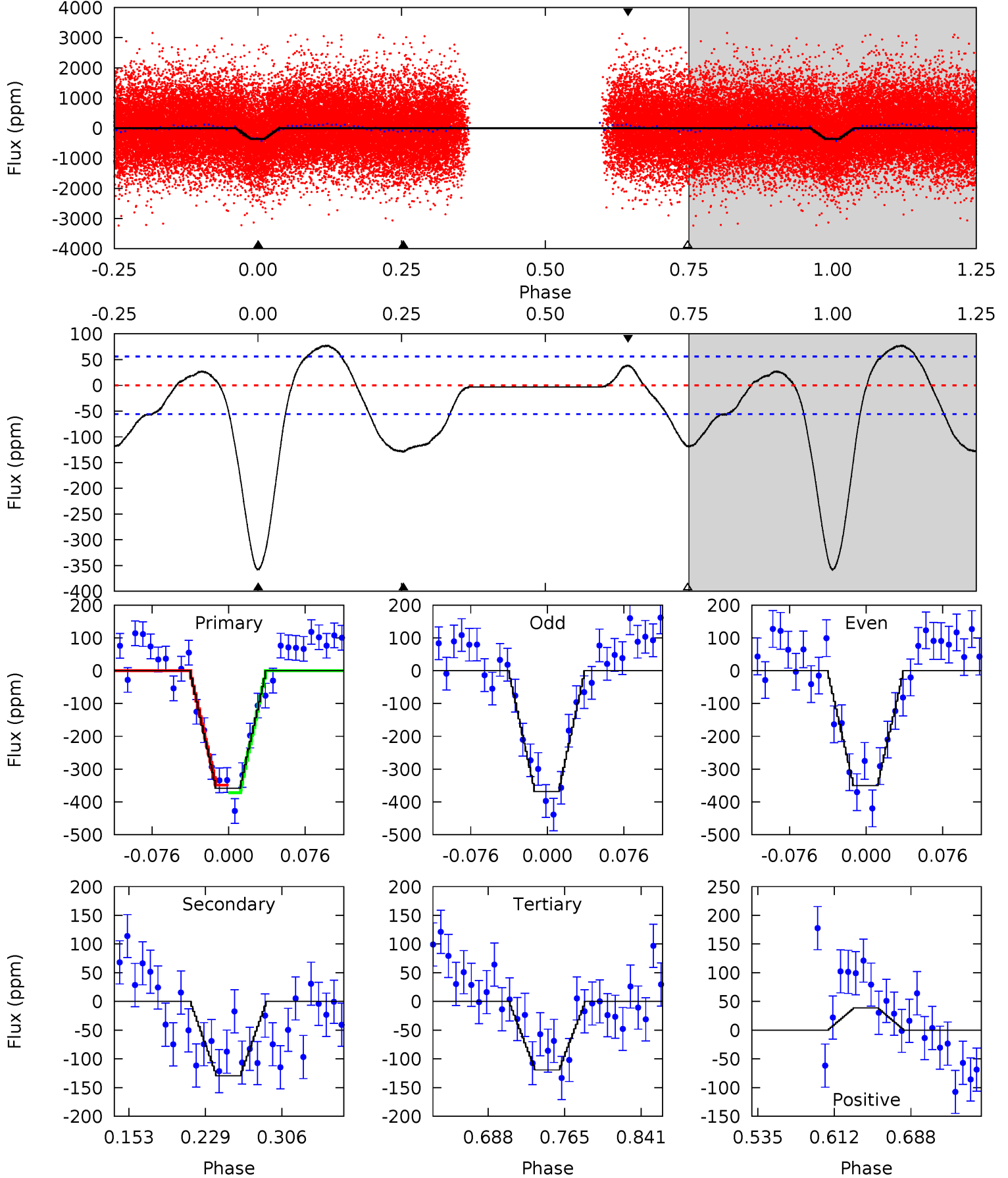
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.7	2.97	1.97	1.59	4.64	1.82	1.62	18.8	19.1	1.00	1.37	1.06	0.97	0.16	3.41



Alt Model-Shift Uniqueness Test

003448456-02, P = 0.776953 Days, E = 131.649630 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.6	10.7	9.85	3.21	4.62	1.77	4.61	19.7	26.4	0.84	7.49	0.77	0.92	0.18	0.98



Stellar Parameters For KIC 003448456

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5861^{+186}_{-206}	$4.546^{+0.036}_{-0.204}$	$-0.200^{+0.300}_{-0.300}$	$0.865^{+0.260}_{-0.087}$	$0.957^{+0.108}_{-0.120}$	$2.084^{+0.423}_{-1.090}$
	+3%/-4%	+1%/-4%	+150%/-150%	+30%/-10%	+11%/-13%	+20%/-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 003448456-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-37 ± 12	$1.90^{+1.22}_{-1.01}$	2700^{+204}_{-138}	3555^{+1283}_{-820}	$1.432^{+5.077}_{-0.953}$
Alt.	-129 ± 12	$2.00^{+1.14}_{-1.04}$	2698^{+210}_{-126}	4531^{+1770}_{-756}	$4.673^{+14.823}_{-2.795}$

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

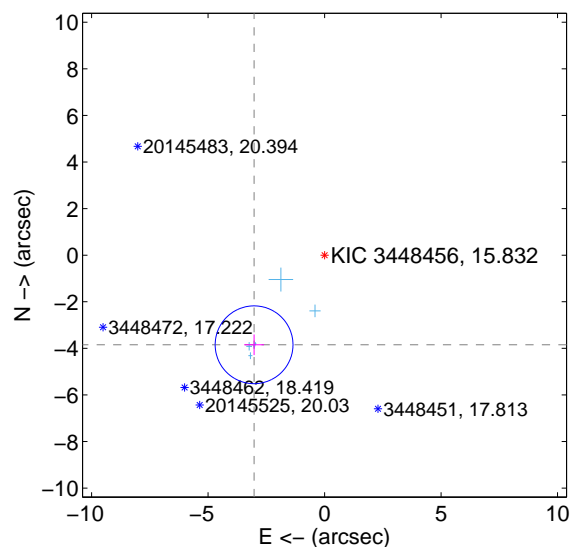
Supplemental centroid analysis for 003448456-02. Kepler magnitude: 15.83. Transit SNR 14.02

There are 6 quarters with good PRF difference image offsets

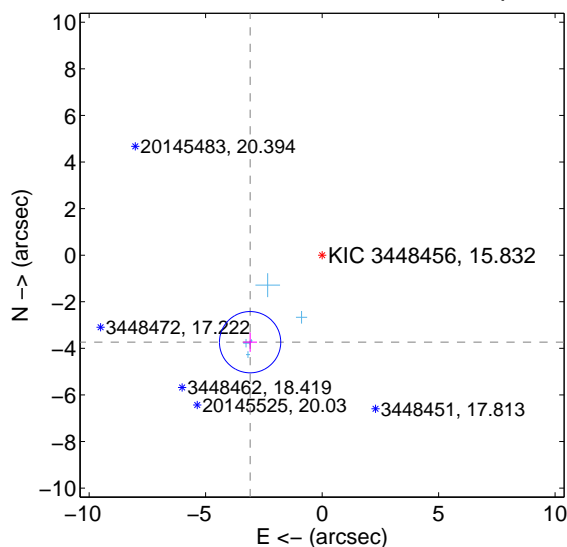
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.894 ± 0.557	8.79	3.026 ± 0.426	-3.846 ± 0.444
PRF-fit source offset from KIC position	4.848 ± 0.438	11.06	3.092 ± 0.297	-3.735 ± 0.414
photometric centroid source offset	6.23 ± 0.81	7.71	4.21 ± 0.80	-4.59 ± 0.82

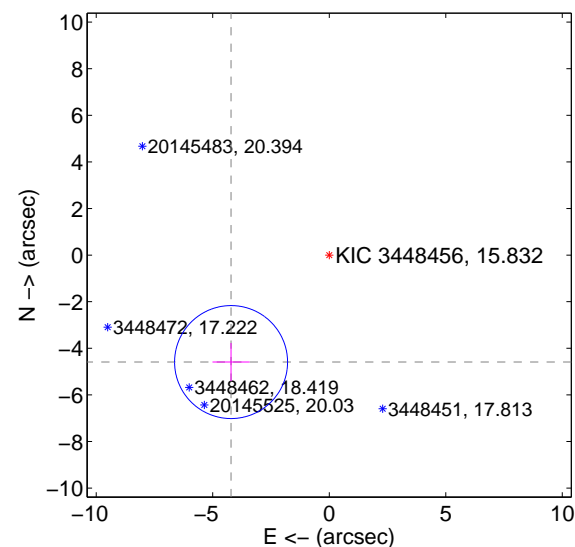
offset from difference PRF-fit to OOT PRF-fit



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 are from the UKIRT catalog.

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

Q1 no difference image



Q1 no OOT image



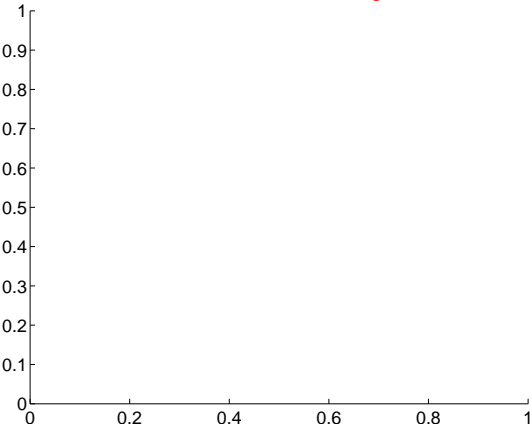
Q2 no difference image



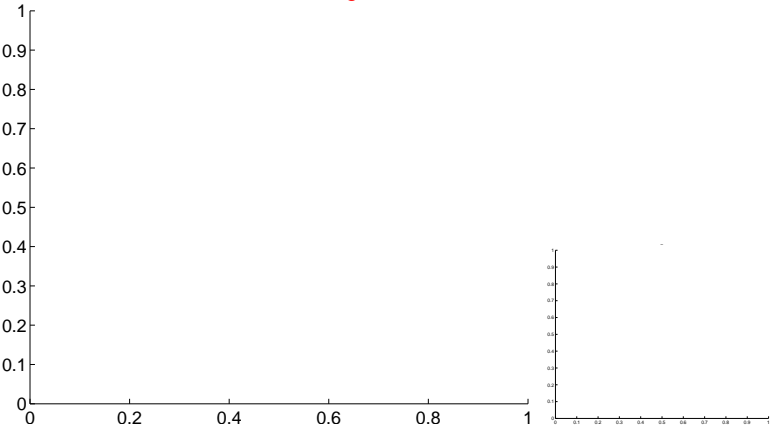
Q2 no OOT image



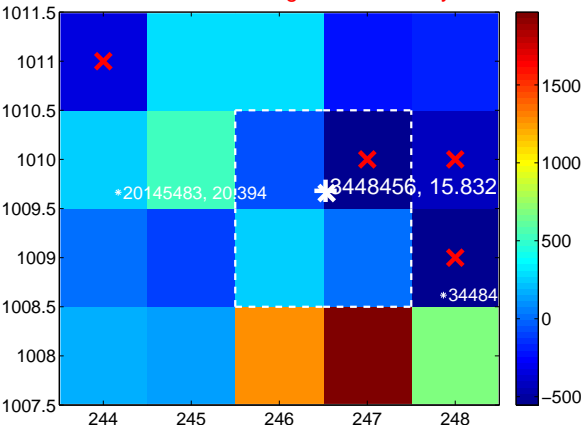
Q3 no difference image



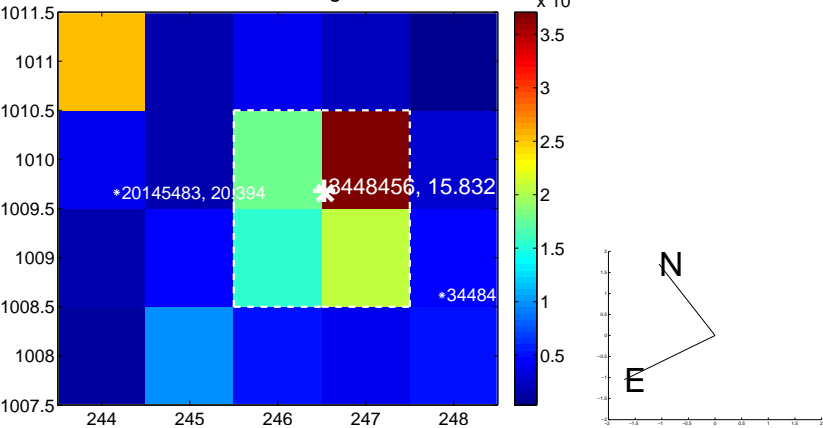
Q3 no OOT image



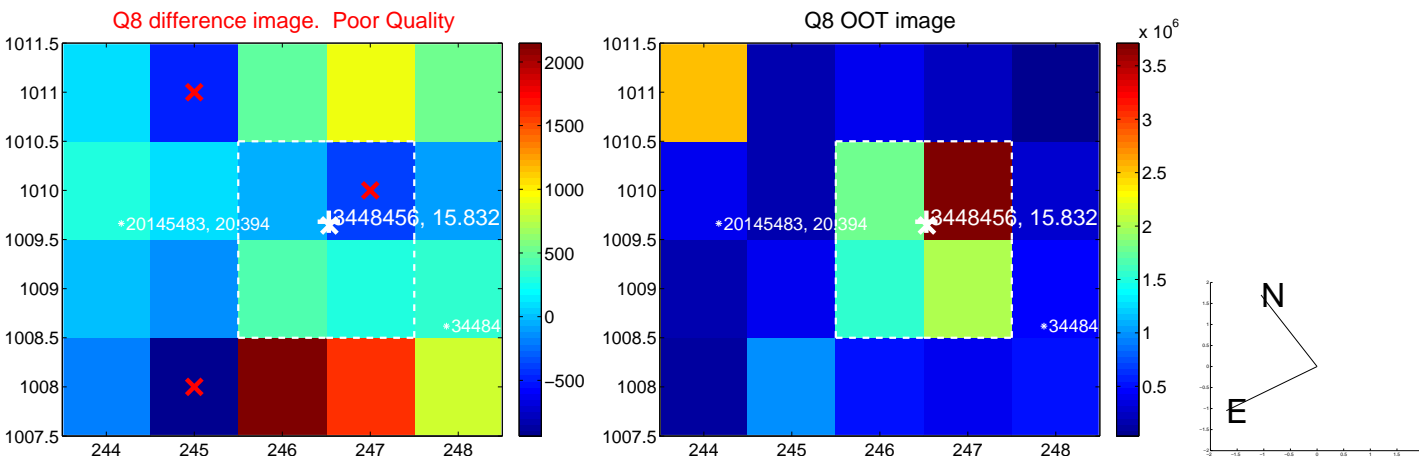
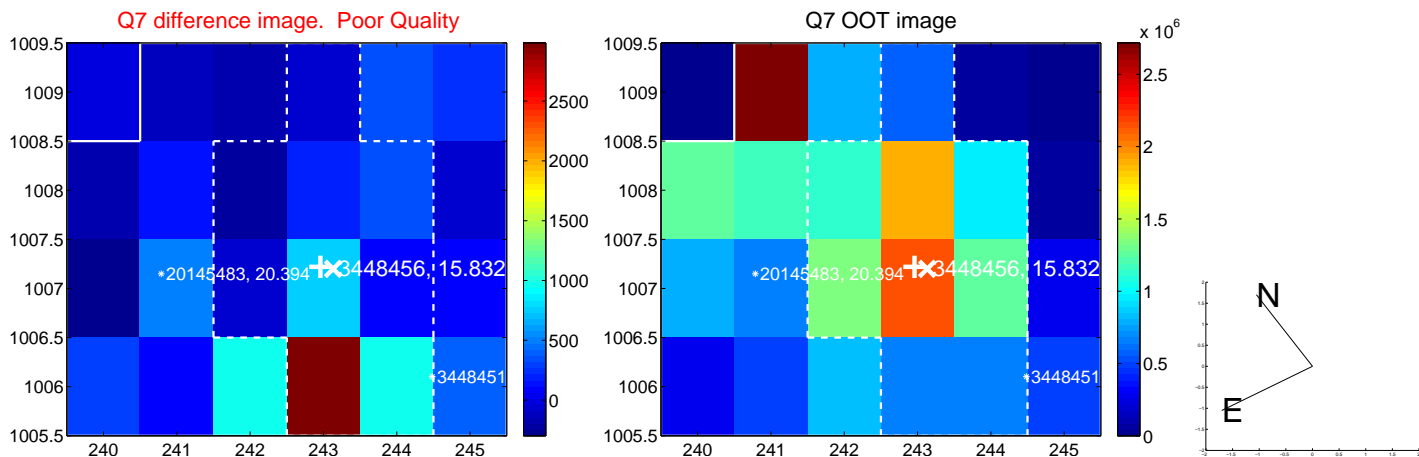
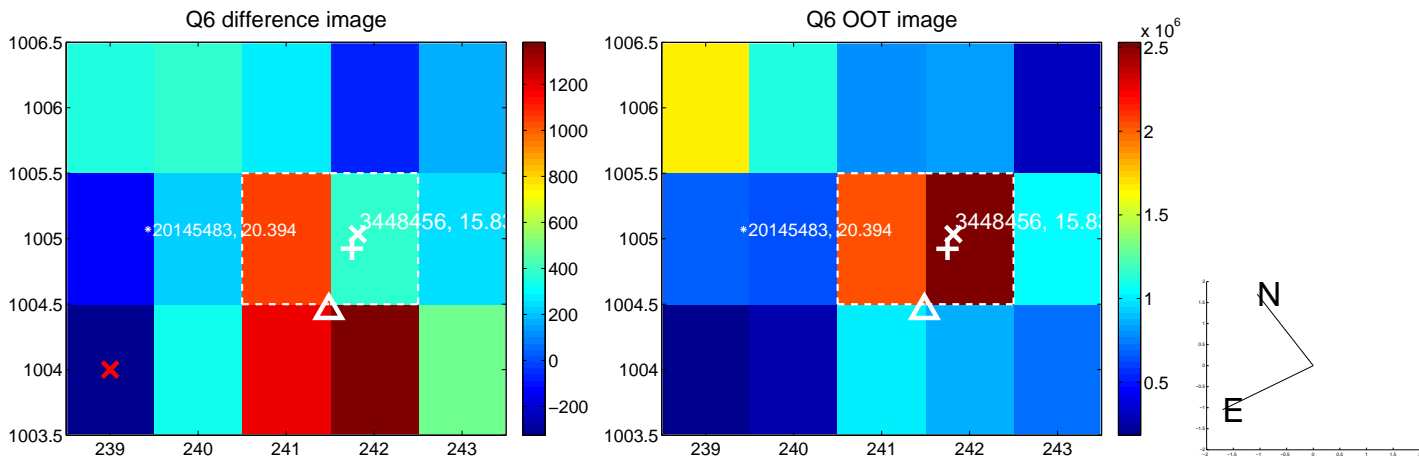
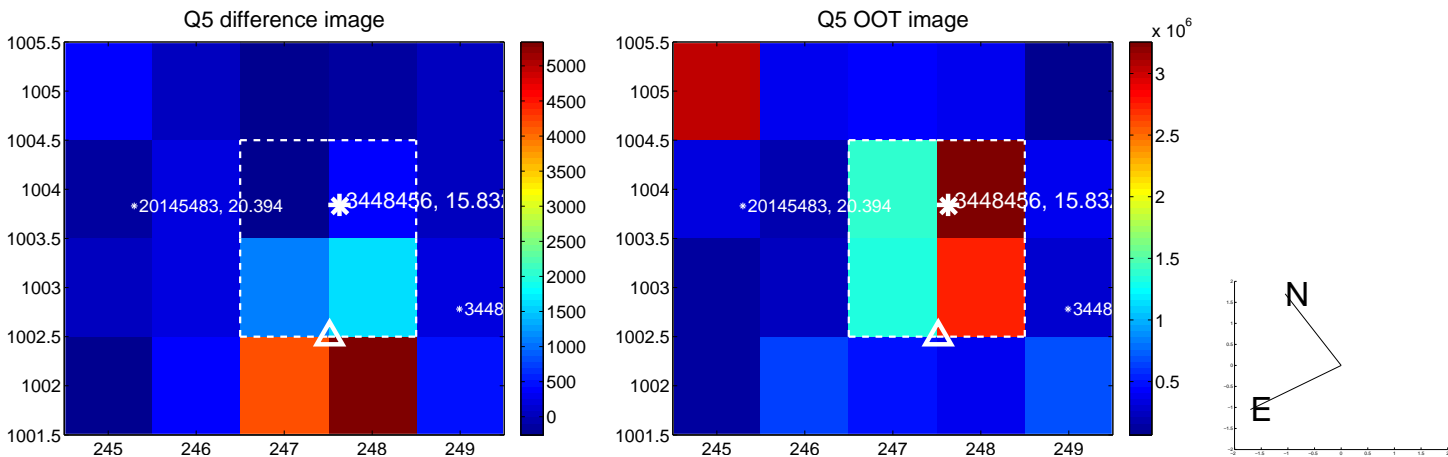
Q4 difference image. Poor Quality



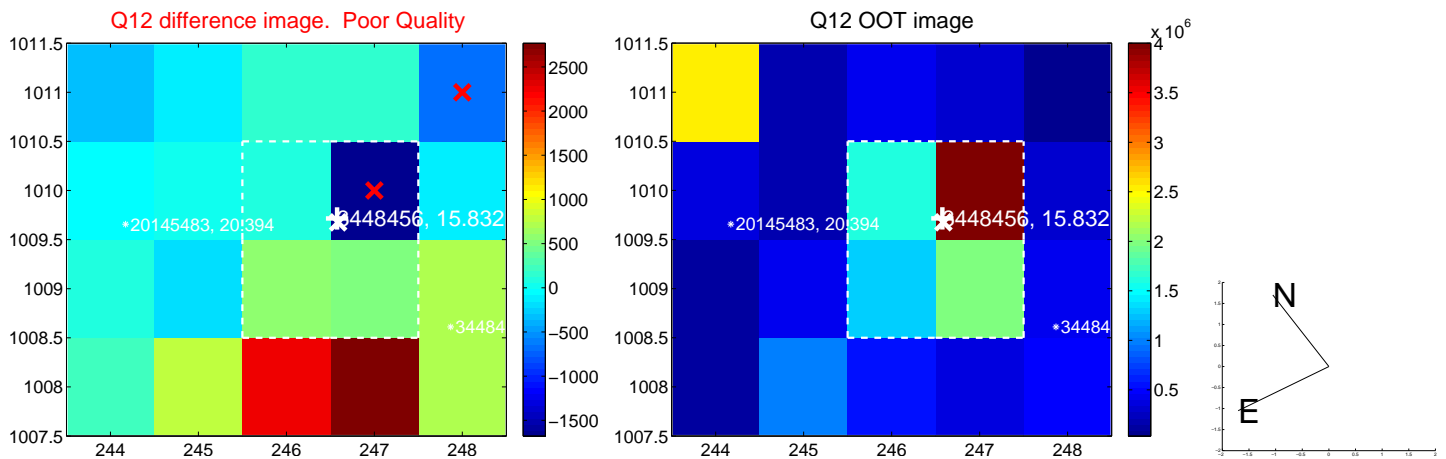
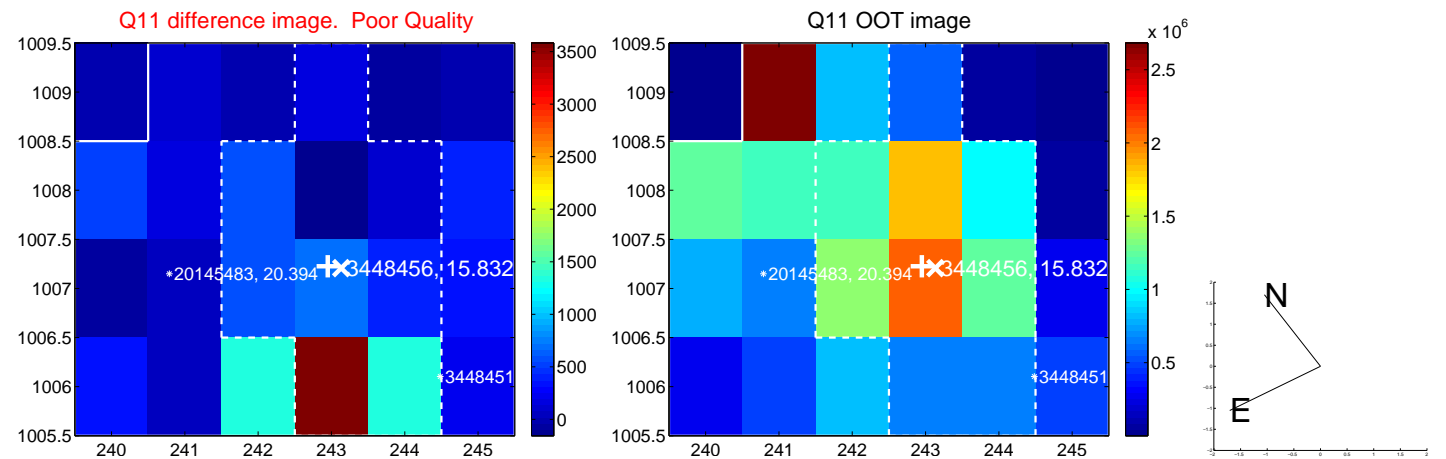
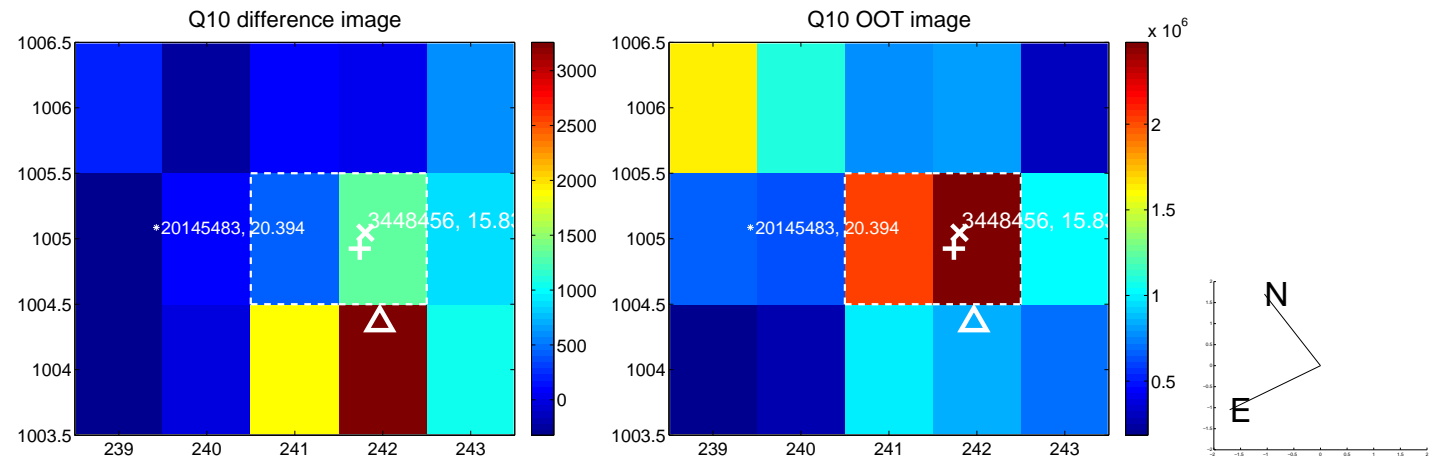
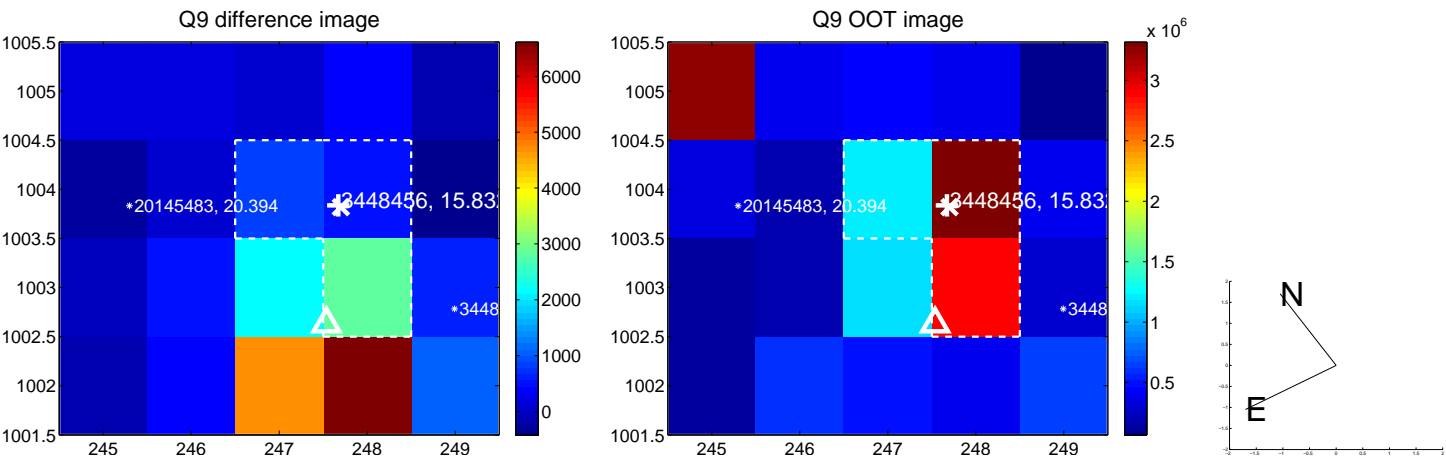
Q4 OOT image



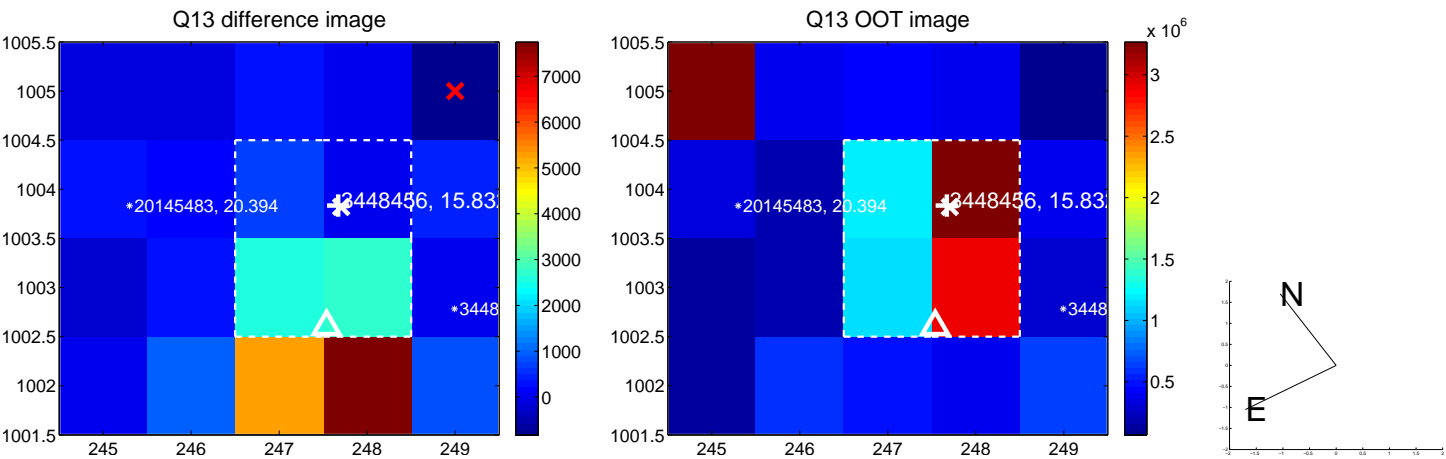
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



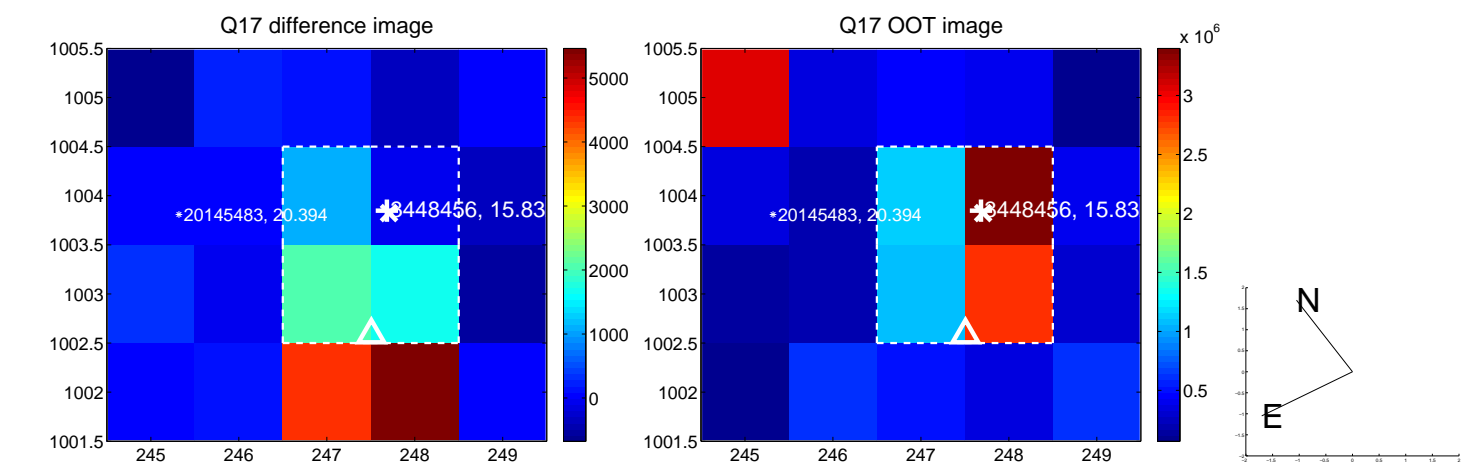
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



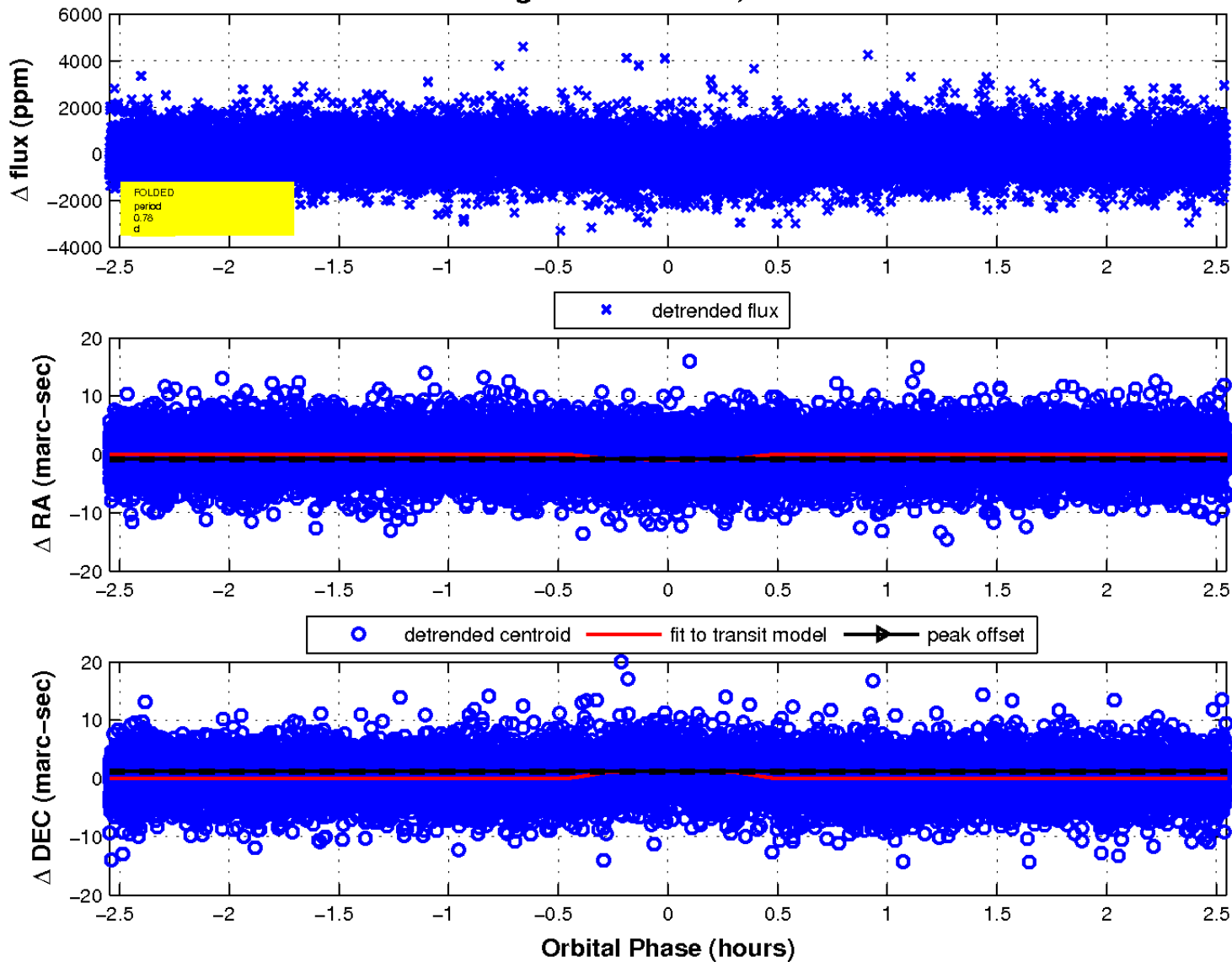
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

