

KIC 004448737

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})
004448737-01	OBS	No	440.771259	209.167041	26.9	13.093	33.8	4.8	2.40	9386	1.32	17.72
004448737-02	OBS	No	0.612038	132.164381	2.0	3.444	8.4	7.5	2.40	9386	0.36	114410.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004448737-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_SATURATED
004448737-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQU_ALT—CENT_SATURATED

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

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

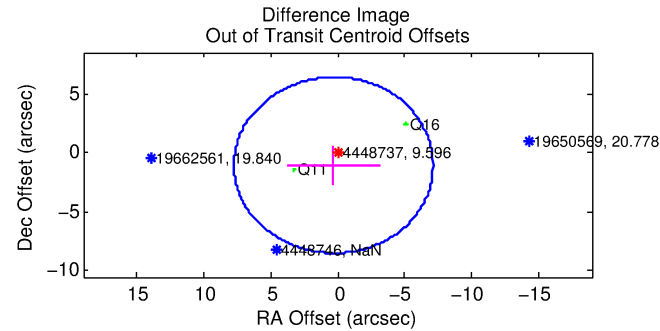
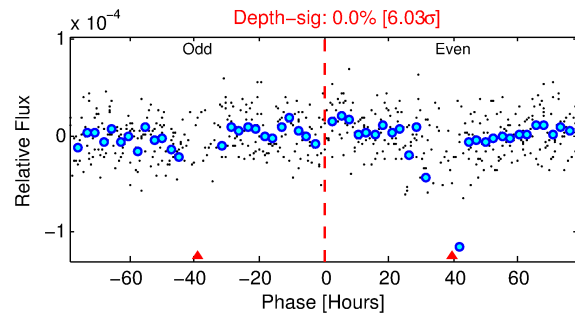
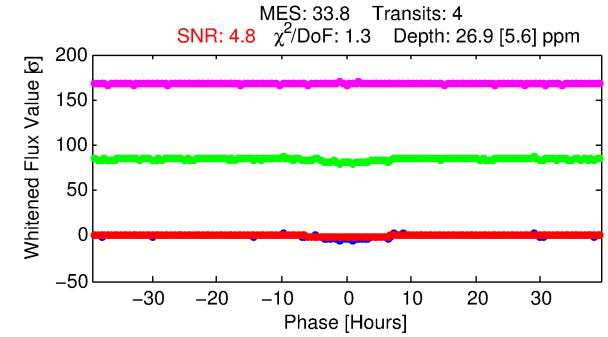
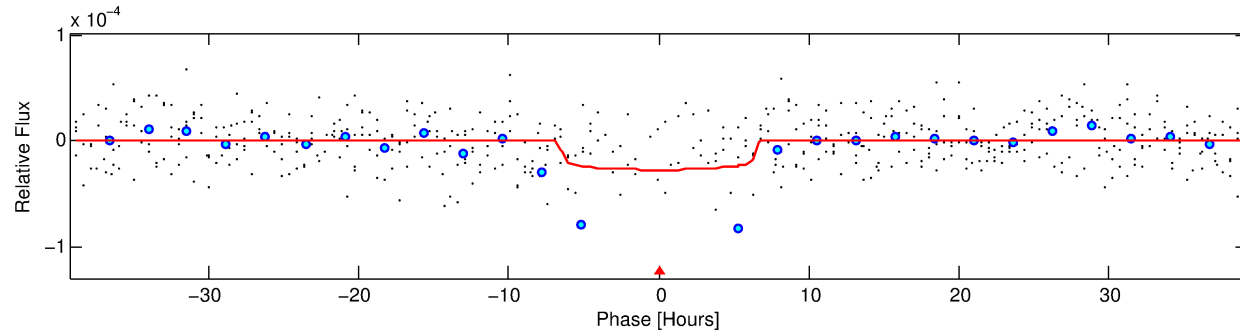
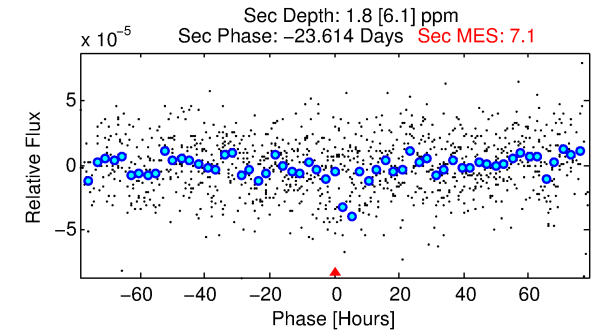
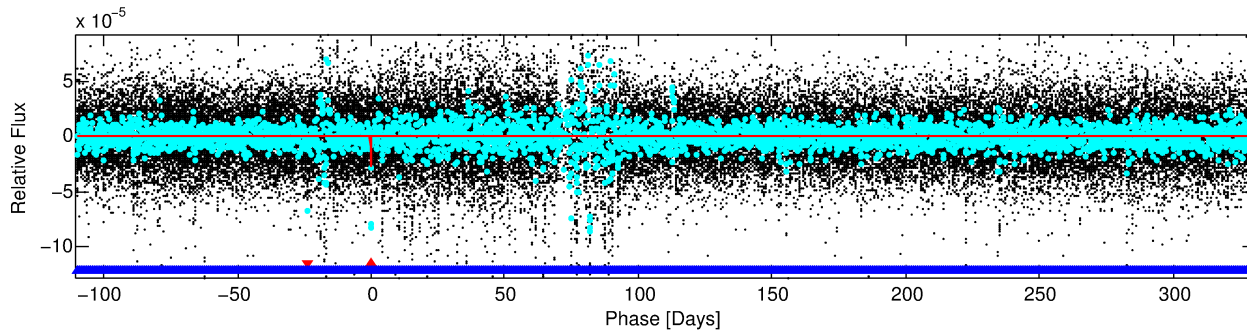
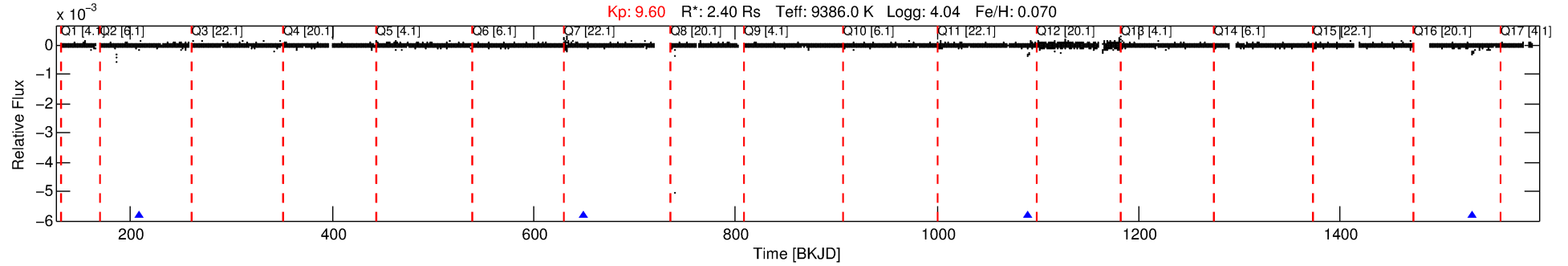
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004448737-01

No Significant Match Found

DV One-Page Summary

KIC: 4448737 Candidate: 1 of 2 Period: 440.771 d



DV Fit Results:

Period = 440.77126 [0.00927] d
Epoch = 209.1670 [0.0197] BKJD
Rp/R* = 0.0050 [0.0010]
a/R* = 200.42 [214.11]
b = 0.63 [1.00]
Seff = 17.72 [7.60]
Teq = 523 [56] K
Rp = 1.32 [0.56] Re
a = 1.5027 [0.4332] AU
Ag = 1248.06 [4412.03] [0.28 σ]
Teffp = 4808 [4230] K [1.01 σ]

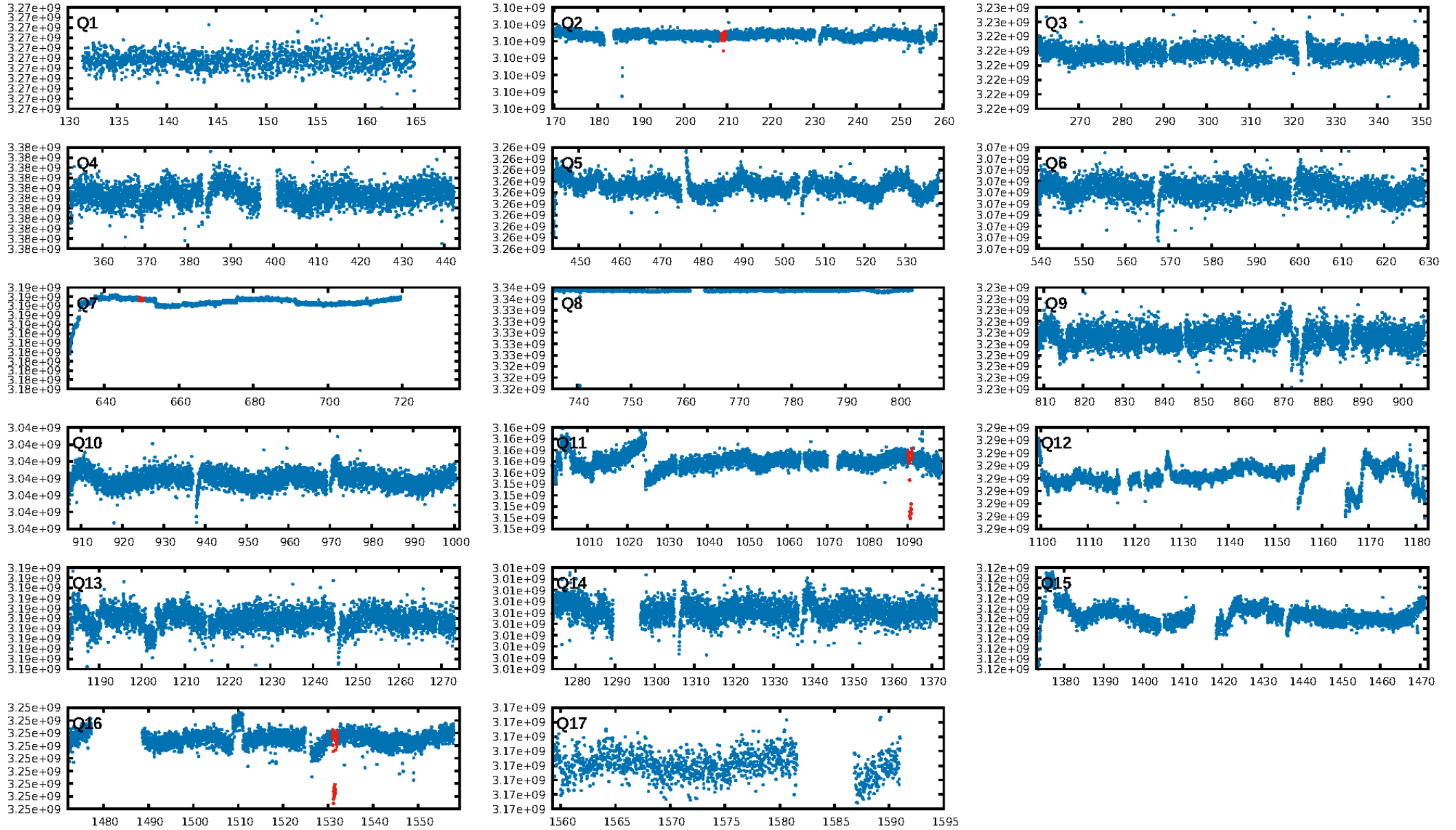
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [780.28 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 26.7%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 22.5%
Centroid-so: 5.485 arcsec [0.92 σ]
OotOffset-rm: 1.084 arcsec [0.44 σ]
KicOffset-rm: 2.000 arcsec [0.45 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/4]

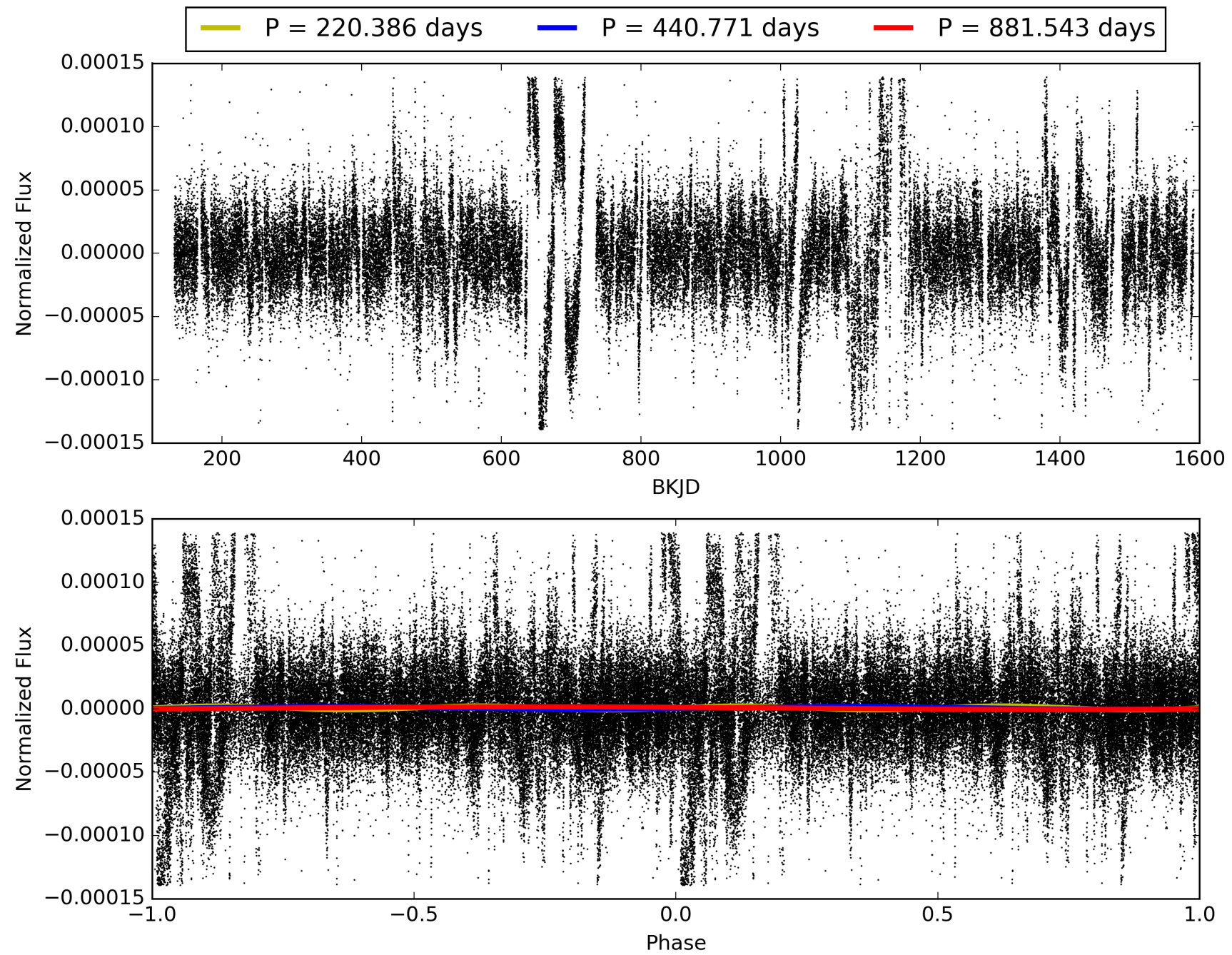
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:08:46 Z

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

TCE 004448737-01, PDC Light Curves

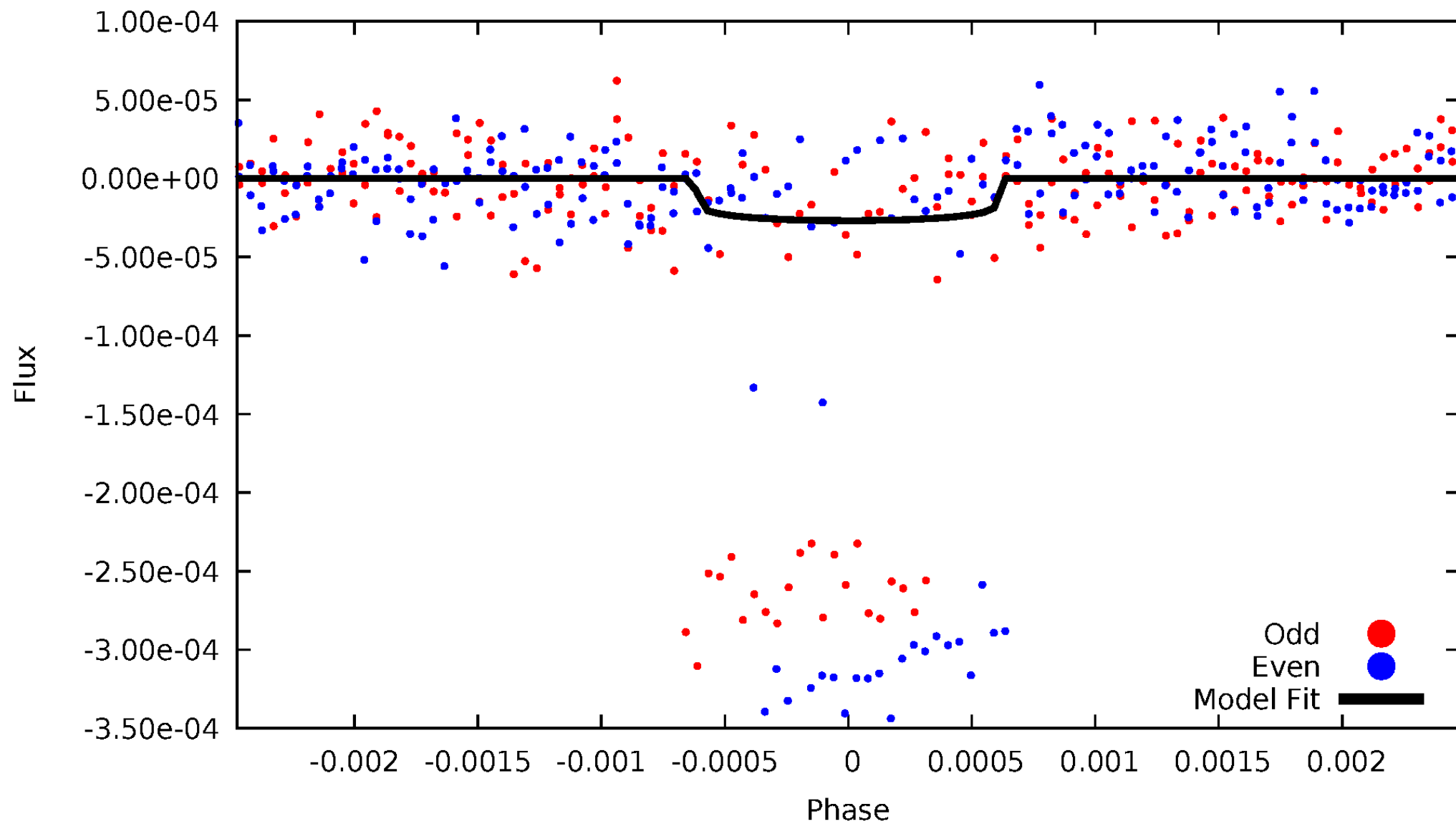


TCE 004448737-01



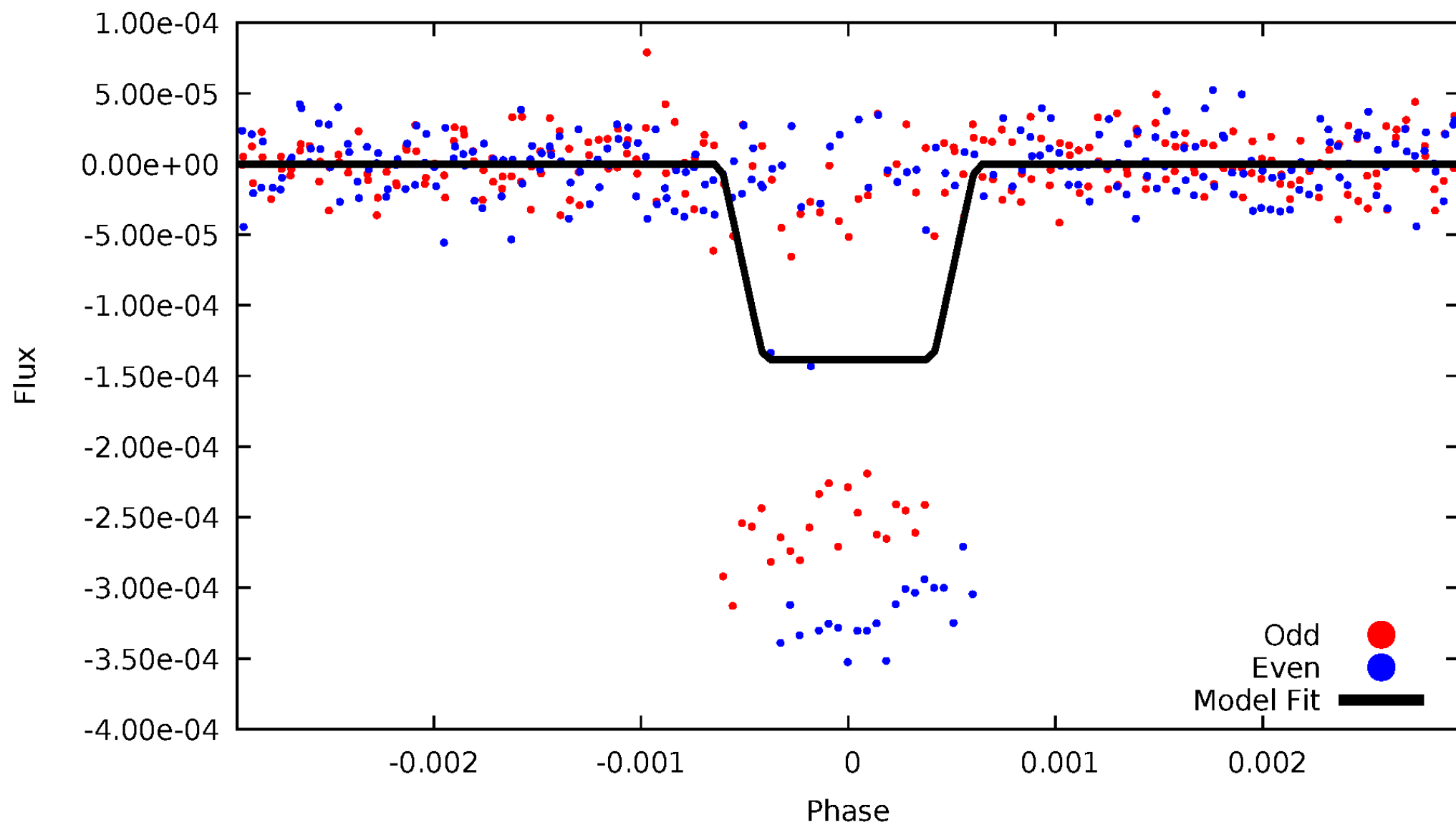
DV Odd/Even

TCE 004448737-01



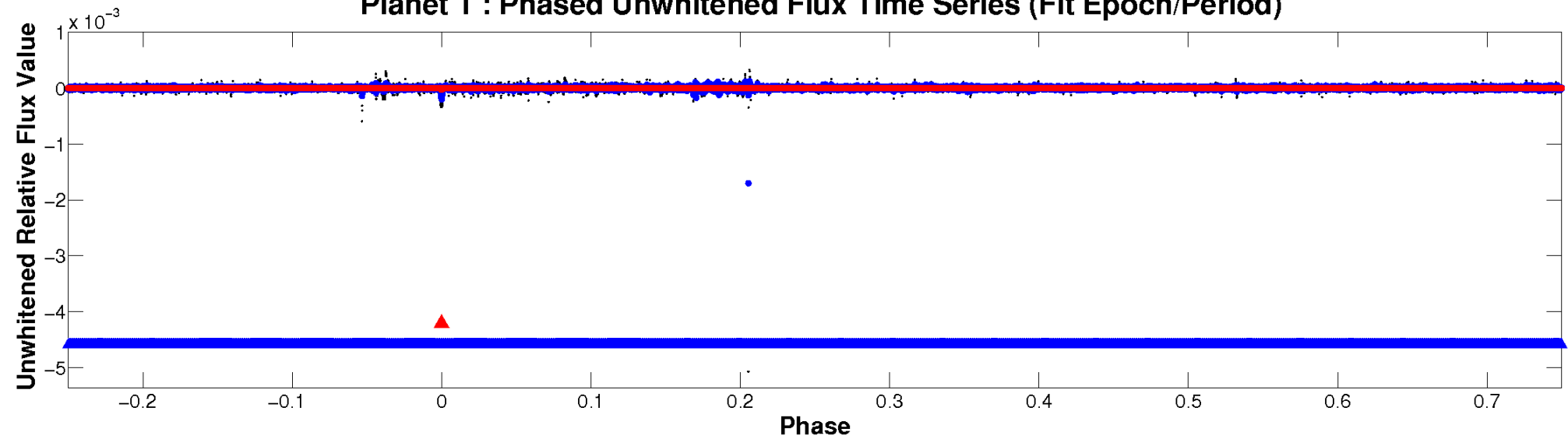
ALT Odd/Even

TCE 004448737-01

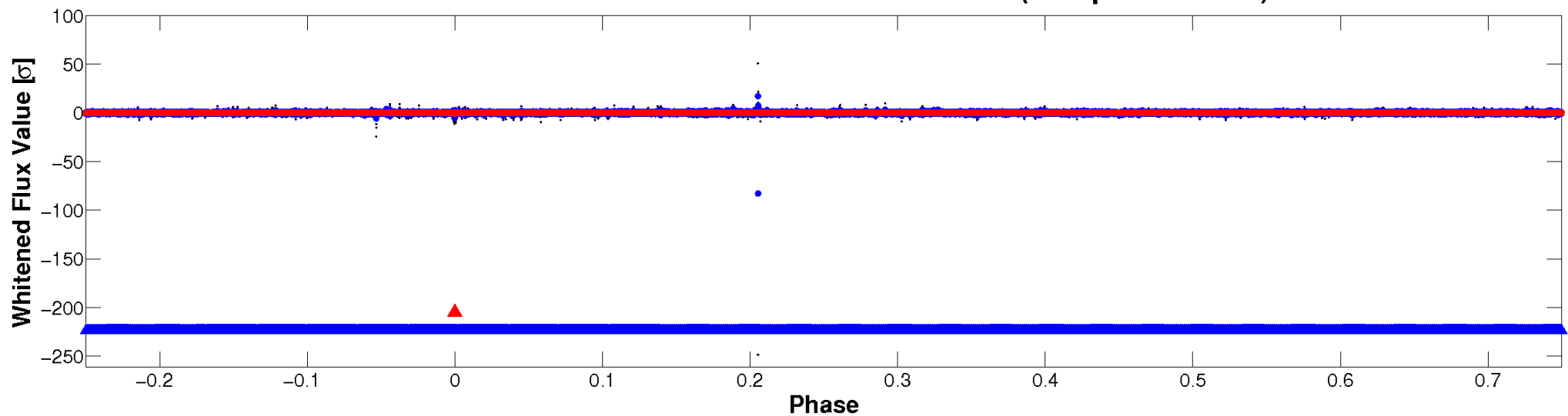


Non-Whitened Vs. Whitened Light Curve

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

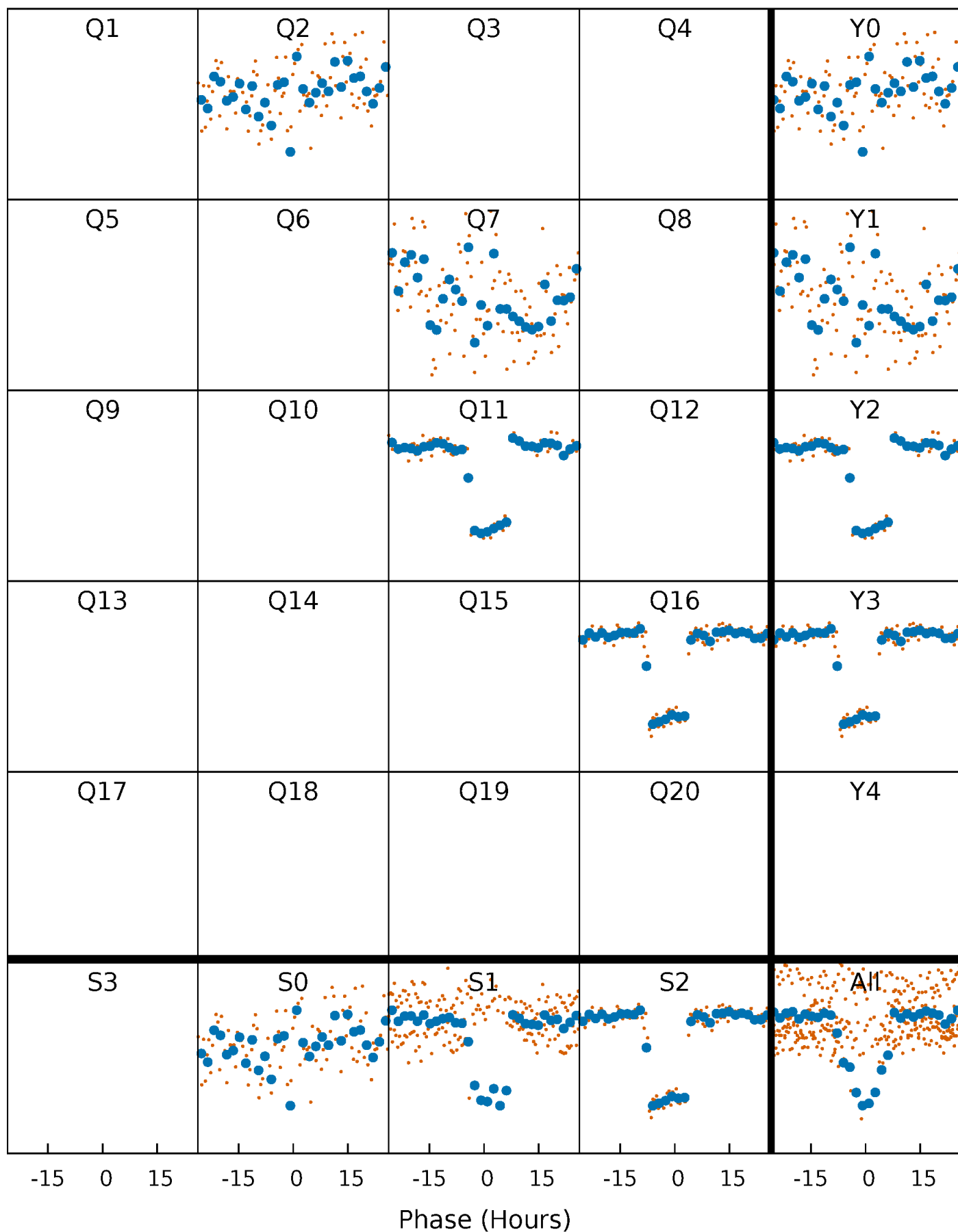


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



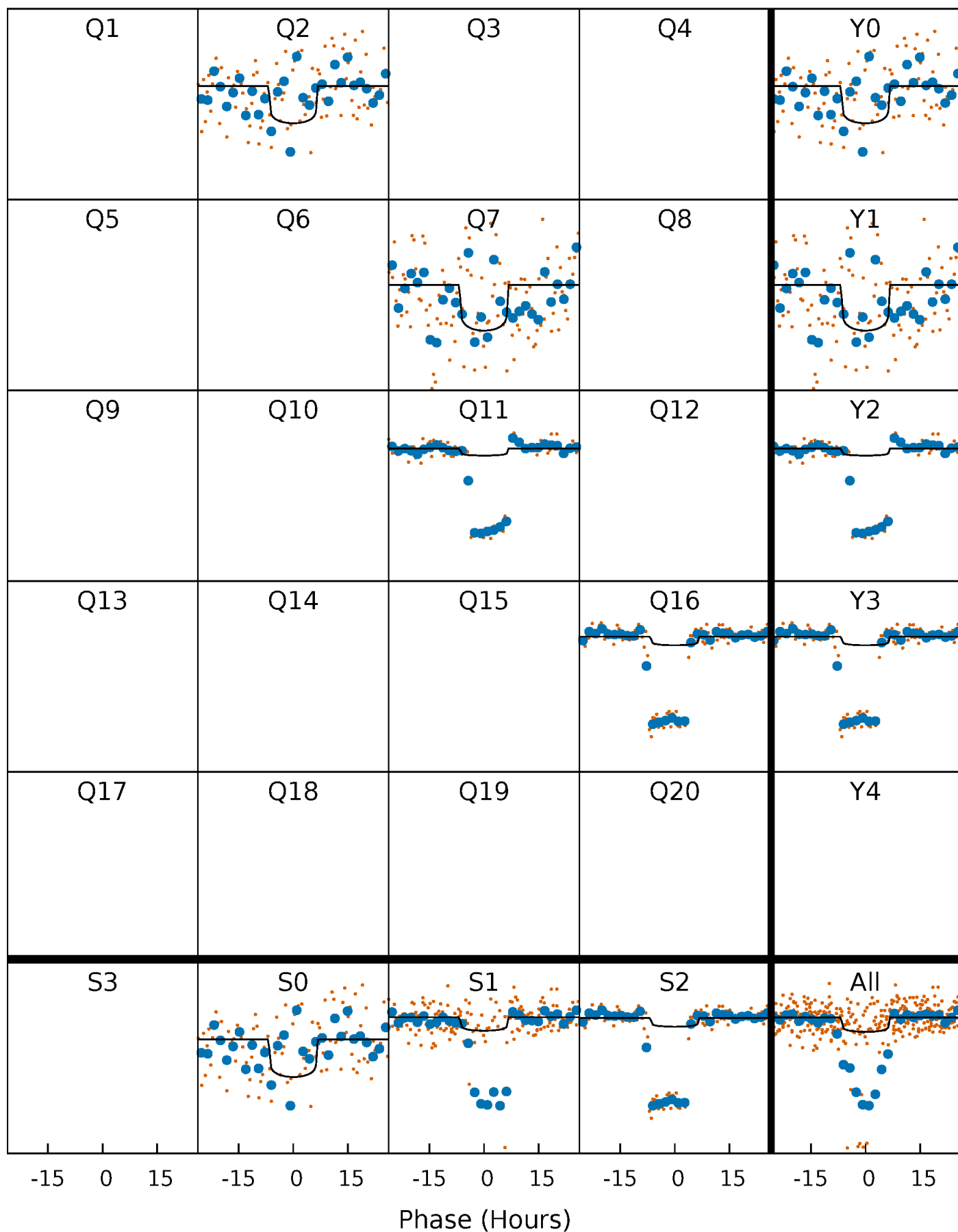
PDC Quarter-Phased Transit Curves

TCE 004448737-01 P=440.771259 Days $T_0=209.167041$ (BKJD)



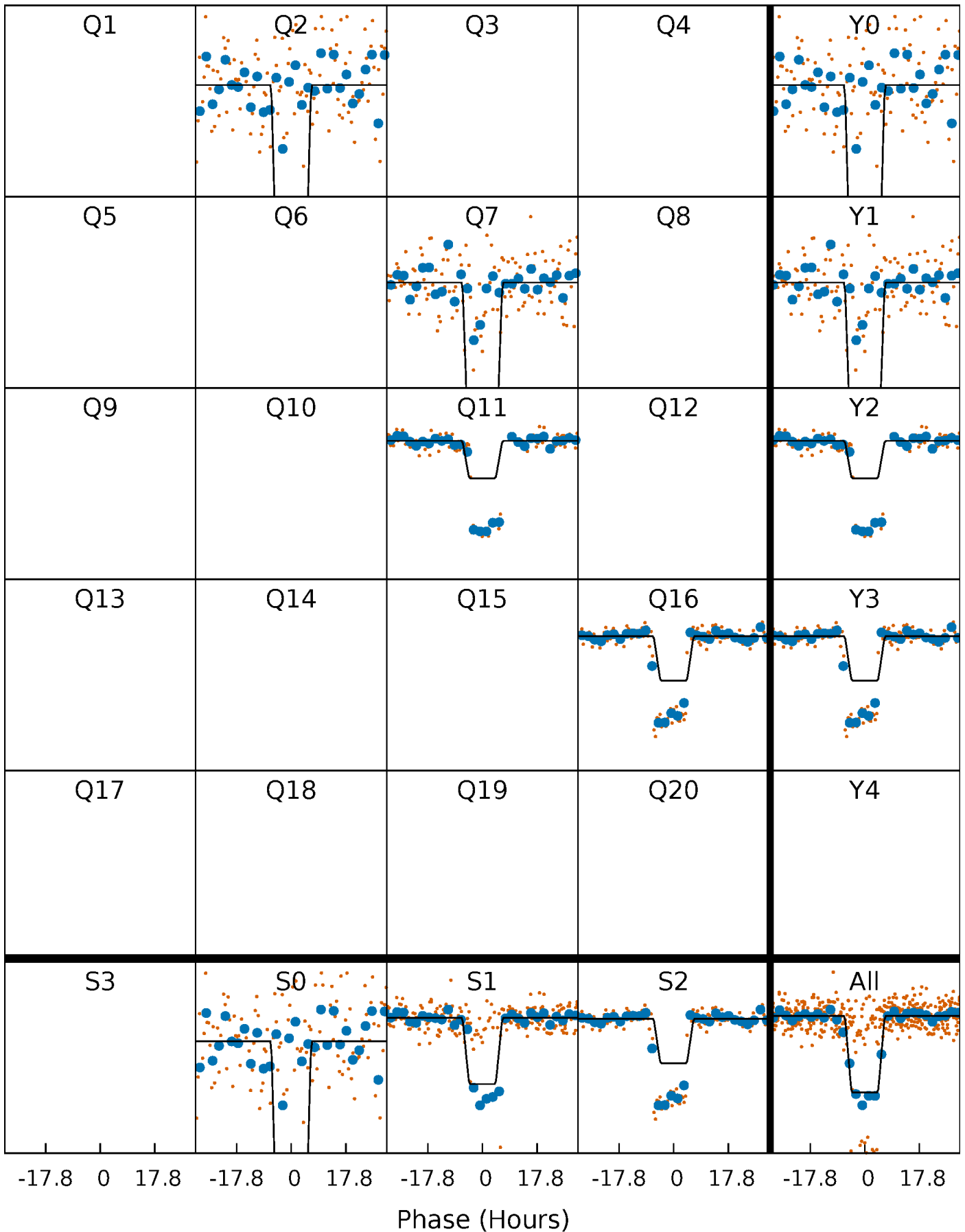
DV Quarter-Phased Transit Curves

TCE 004448737-01 P=440.771259 Days $T_0=209.167041$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

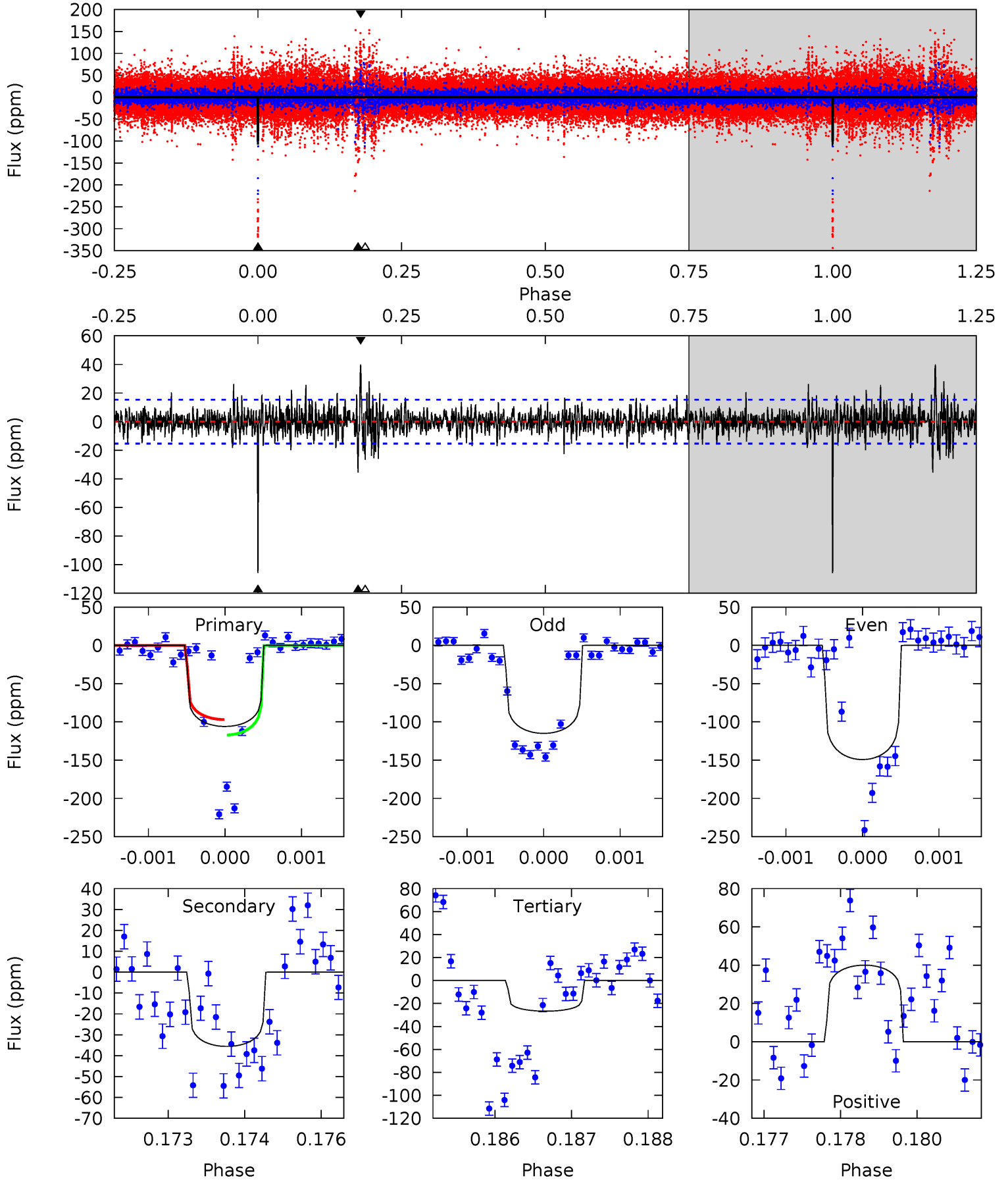
TCE 004448737-01 P=440.751889 Days $T_0=209.201186$ (BKJD)



DV Model-Shift Uniqueness Test

004448737-01, P = 440.771259 Days, E = 209.167041 Days

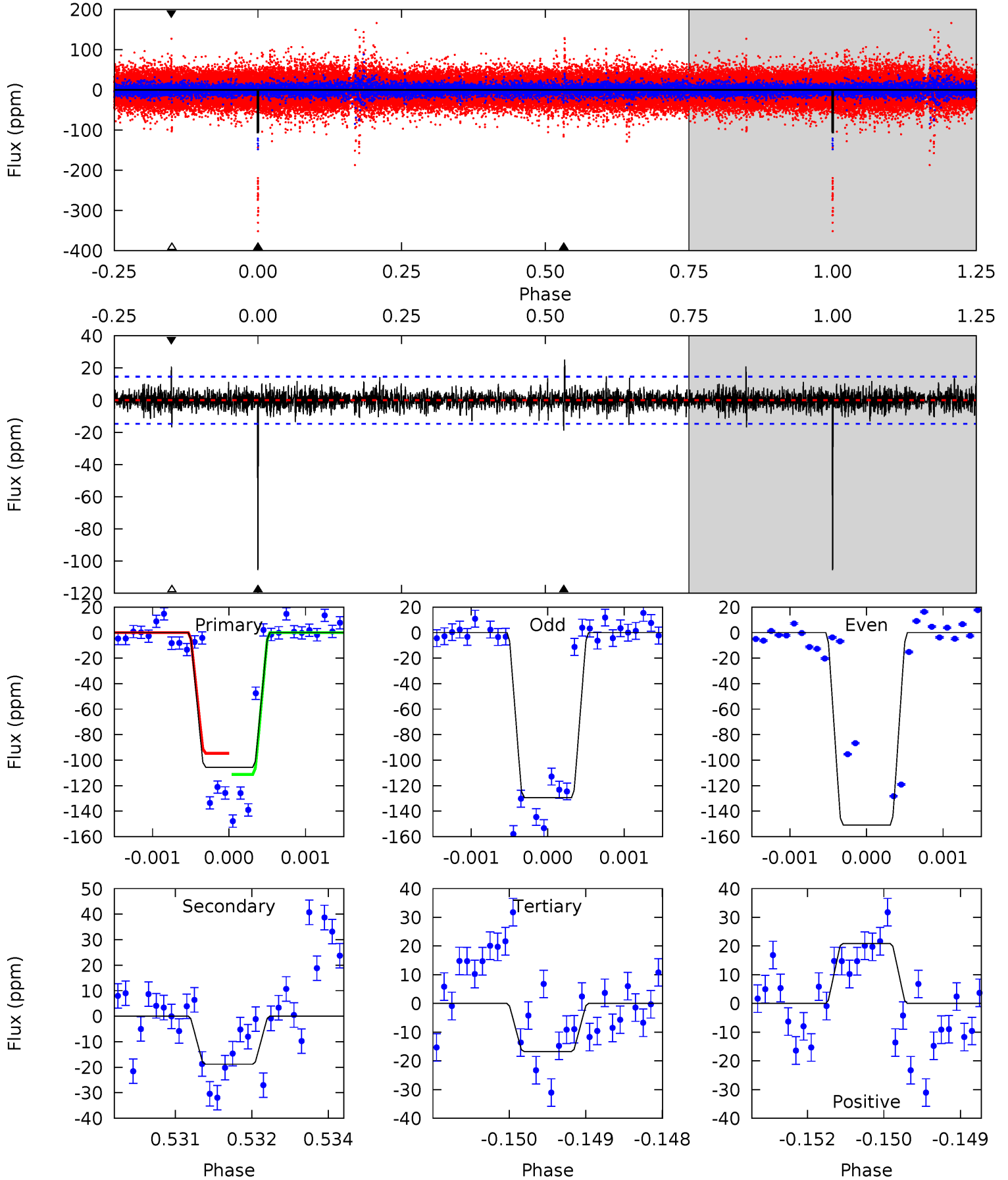
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.2	12.5	9.38	14.1	5.41	3.23	2.11	27.8	23.2	3.11	-1.56	6.46	1.11	0.27	3.52



Alt Model-Shift Uniqueness Test

004448737-01, P = 440.751889 Days, E = 209.201186 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.9	6.94	6.19	7.71	5.42	3.24	1.34	32.8	31.2	0.76	-0.77	3.76	1.09	0.19	2.98



Stellar Parameters For KIC 004448737

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	9386^{+263}_{-451}	$4.045^{+0.190}_{-0.190}$	$0.070^{+0.200}_{-0.750}$	$2.399^{+0.895}_{-0.732}$	$2.326^{+0.361}_{-0.722}$	$0.237^{+0.299}_{-0.135}$
	+3%/-5%	+5%/-5%	+286%/-1071%	+37%/-31%	+16%/-31%	+126%/-57%
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 004448737-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-36 ± 3	$1.28^{+0.37}_{-0.33}$	728^{+59}_{-59}	10646^{+2125}_{-1492}	26292^{+18366}_{-10510}
Alt.	-19 ± 3	$3.08^{+0.59}_{-0.56}$	731^{+60}_{-62}	5356^{+301}_{-291}	2377^{+1114}_{-706}

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

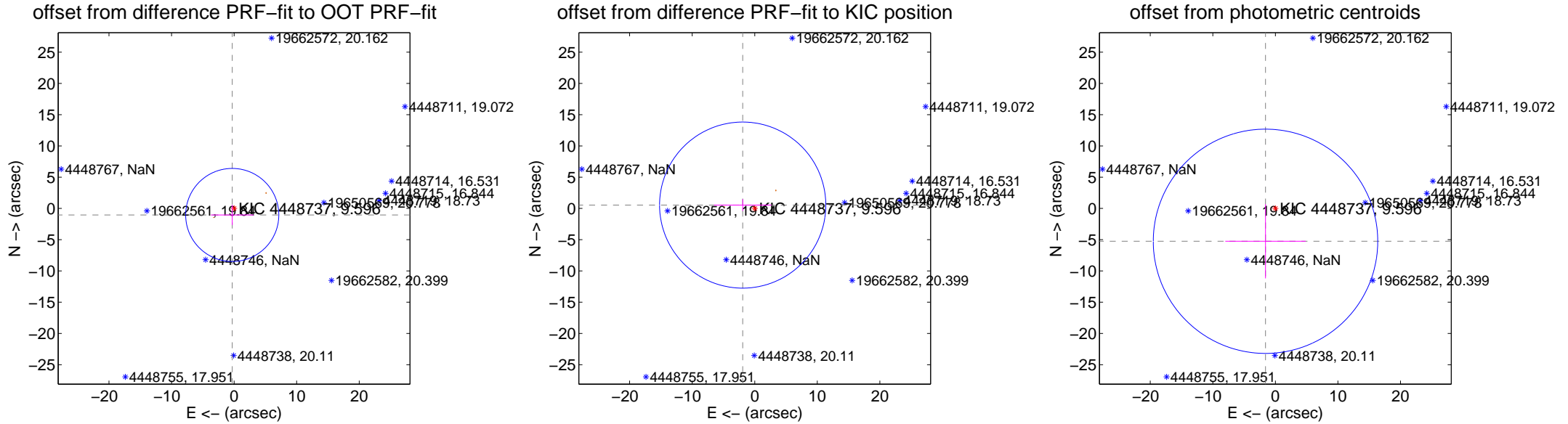
DV Centroid Data

Supplemental centroid analysis for 004448737-01. **Kepler magnitude: 9.60.** Transit SNR 4.84

There are 0 quarters with good PRF difference image offsets

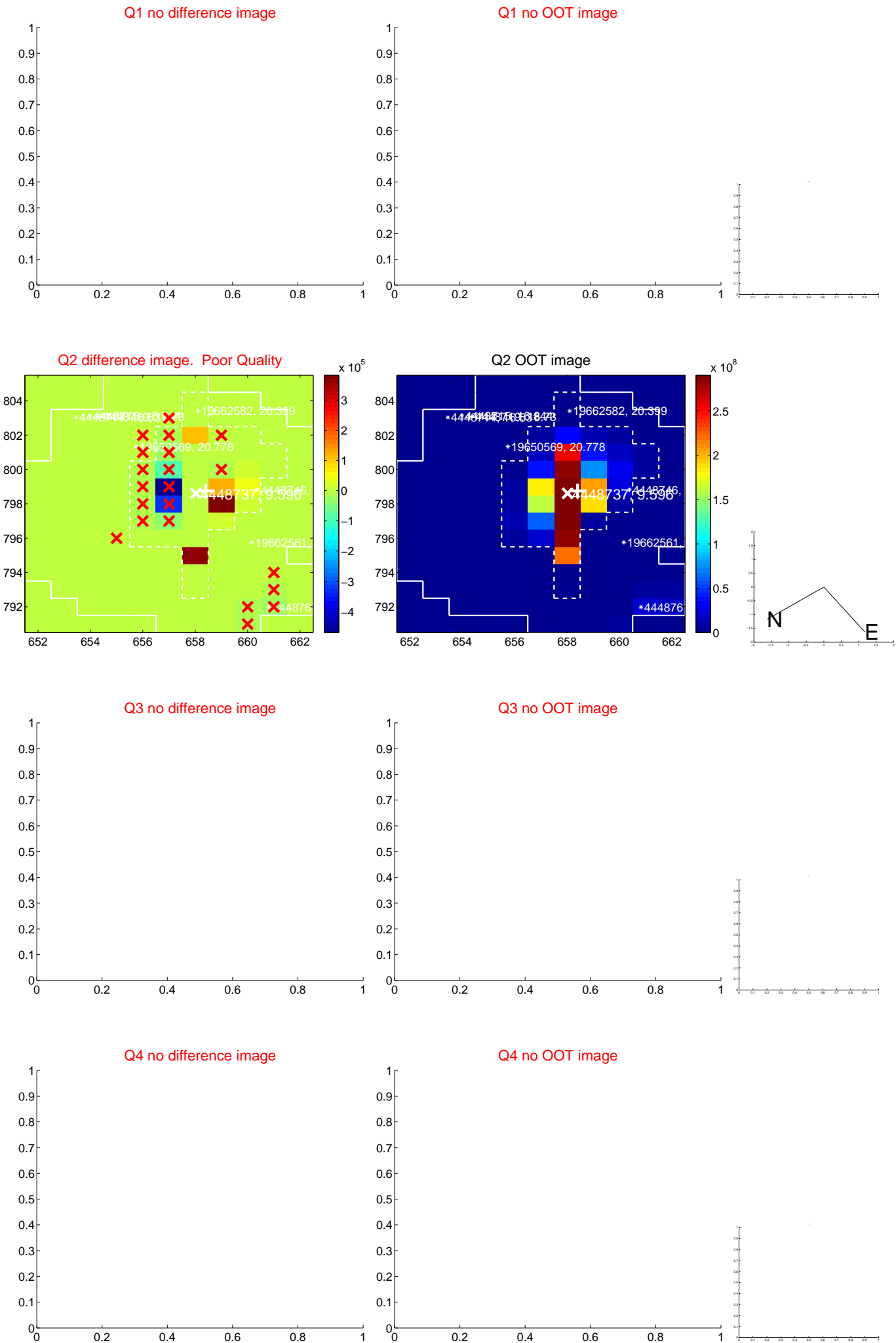
The direct PRF centroid is offset from the target star catalog position by about 1.78 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.084 ± 2.481	0.44	0.298 ± 3.418	-1.042 ± 1.605
PRF-fit source offset from KIC position	2.000 ± 4.429	0.45	1.926 ± 4.589	0.536 ± 0.941
photometric centroid source offset	5.49 ± 5.98	0.92	1.58 ± 6.42	-5.25 ± 5.94



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

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



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

Q5 no difference image



Q5 no OOT image



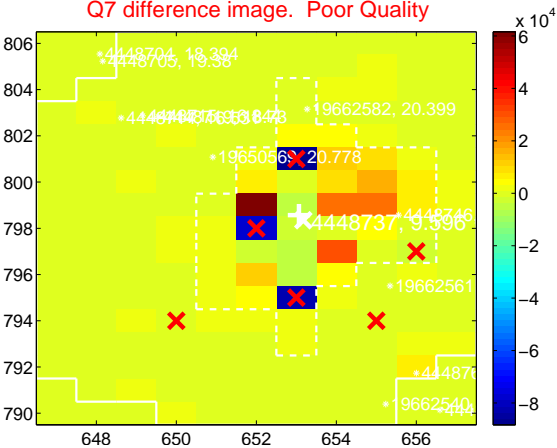
Q6 no difference image



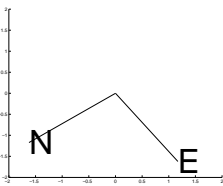
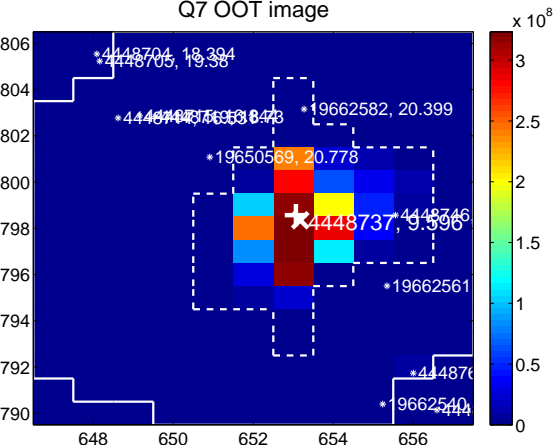
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



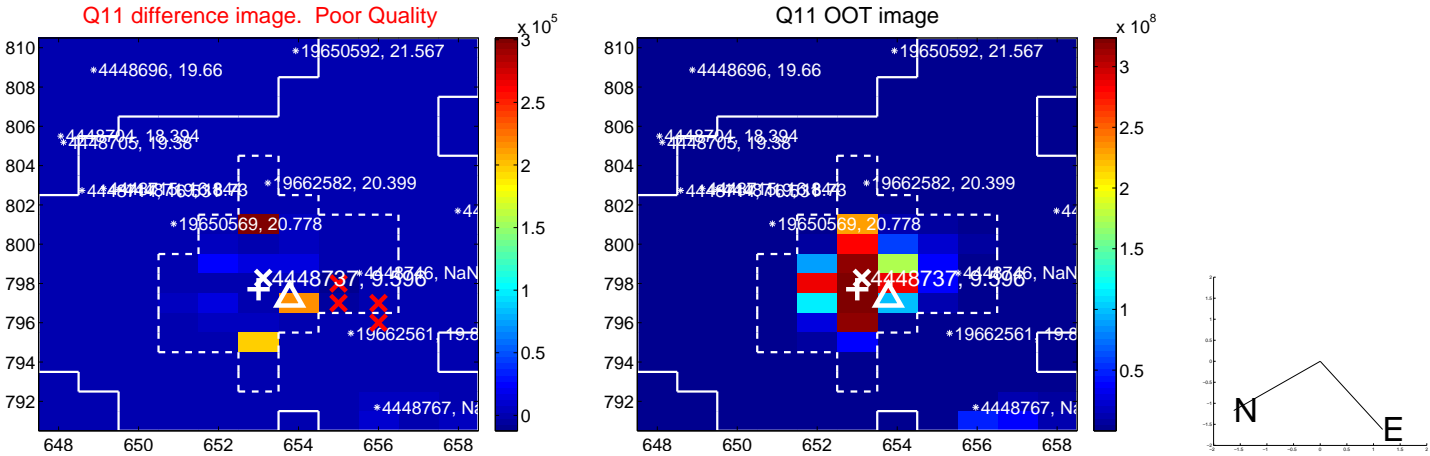
Q8 no difference image



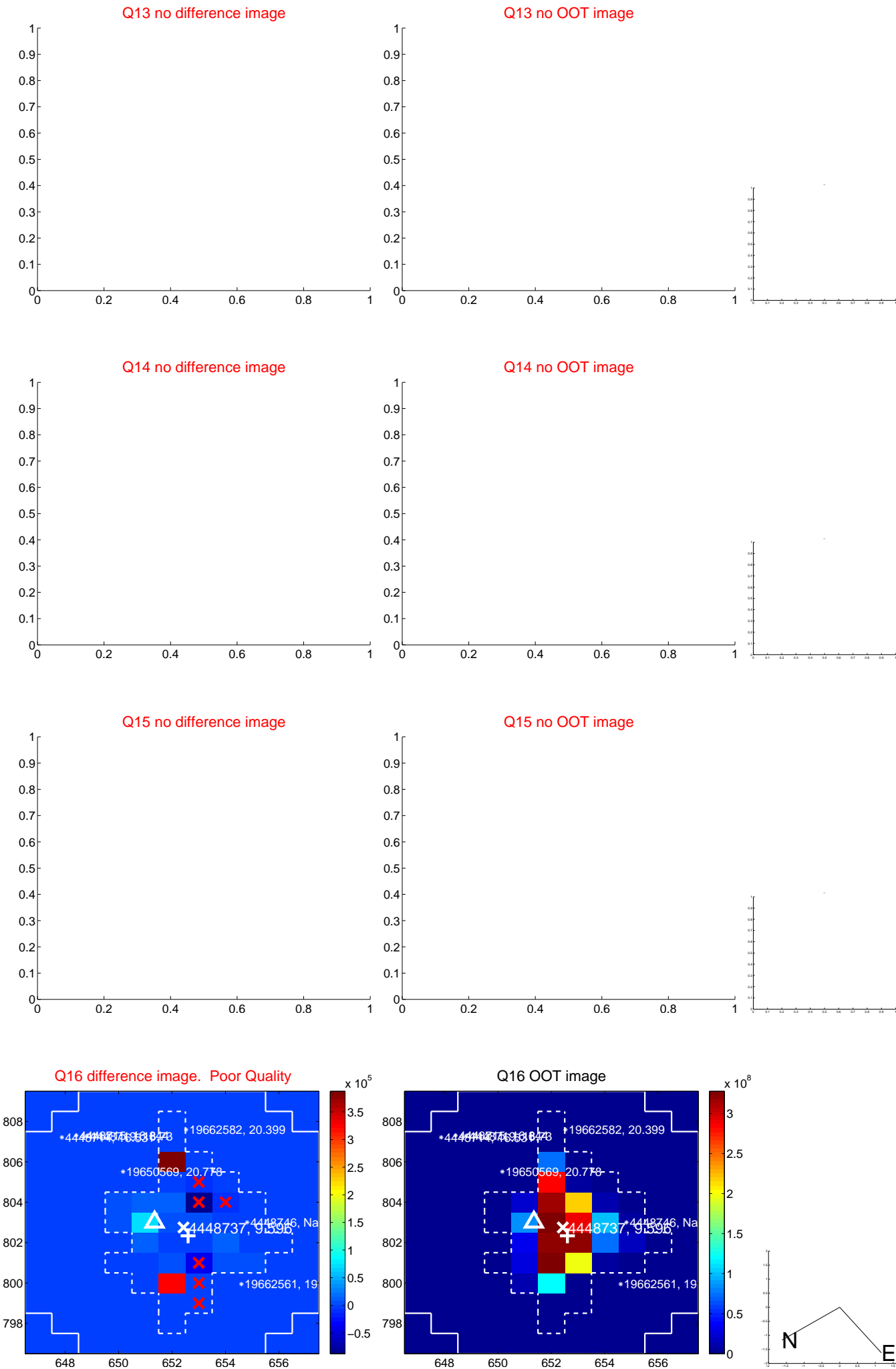
Q8 no OOT image



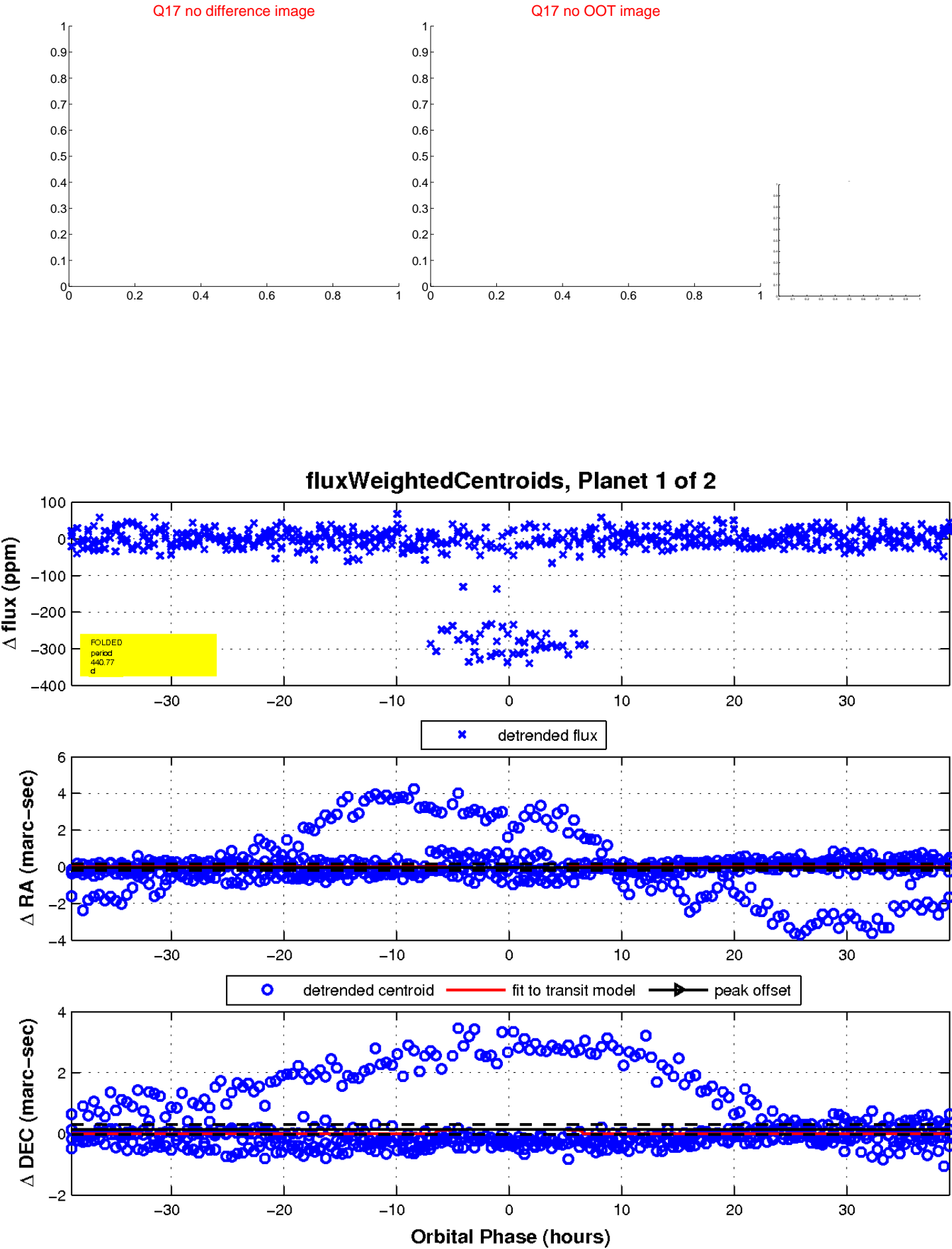
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

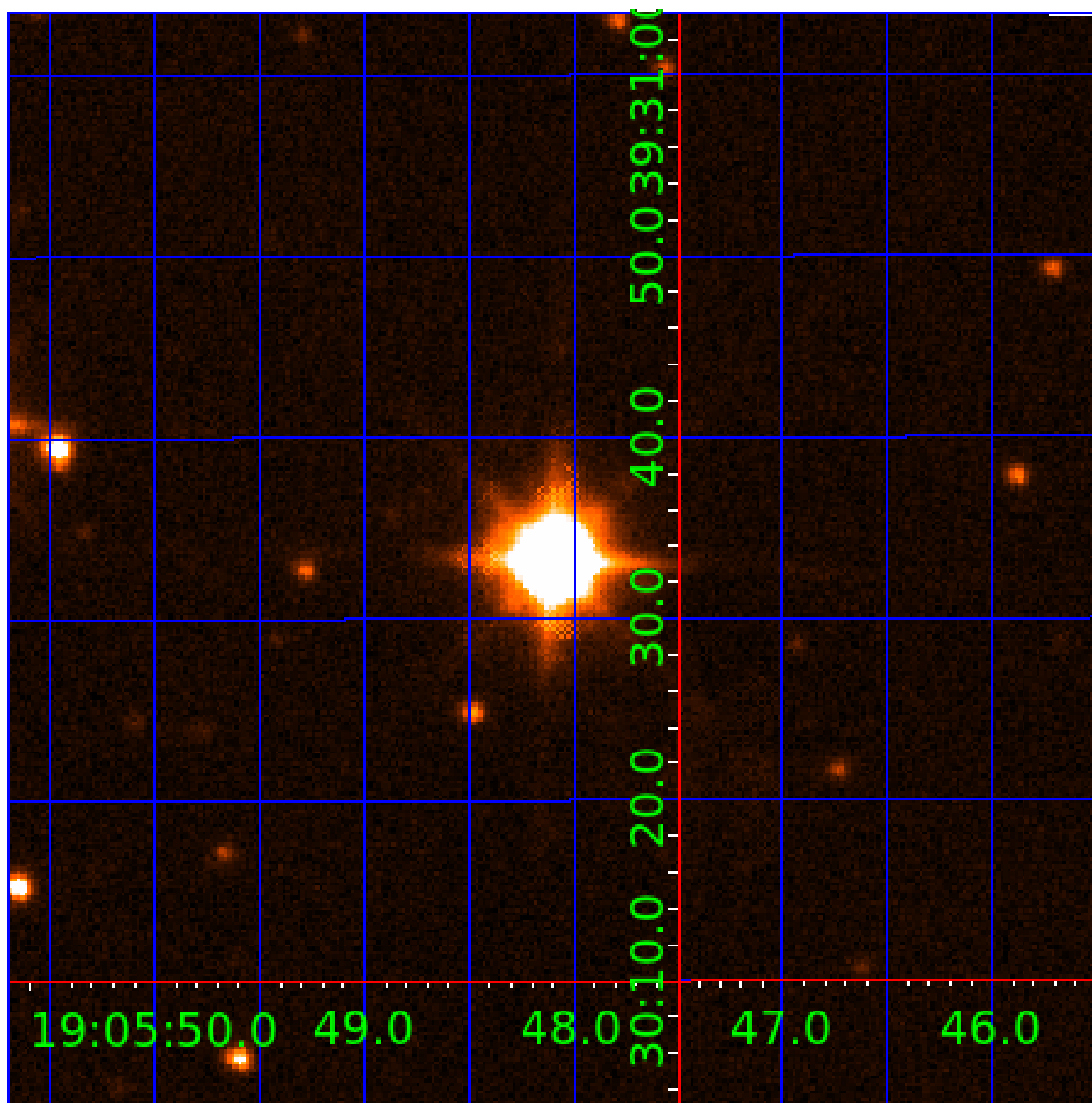


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004448737

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})
004448737-01	OBS	No	440.771259	209.167041	26.9	13.093	33.8	4.8	2.40	9386	1.32	17.72
004448737-02	OBS	No	0.612038	132.164381	2.0	3.444	8.4	7.5	2.40	9386	0.36	114410.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004448737-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_SATURATED
004448737-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

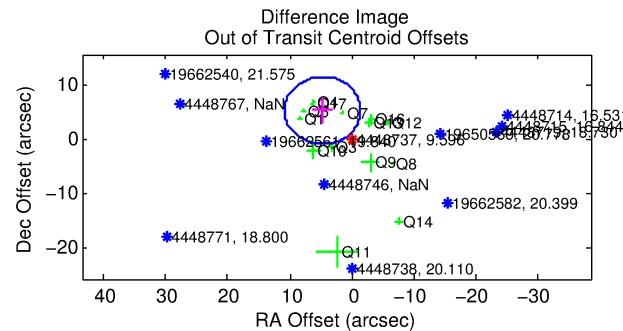
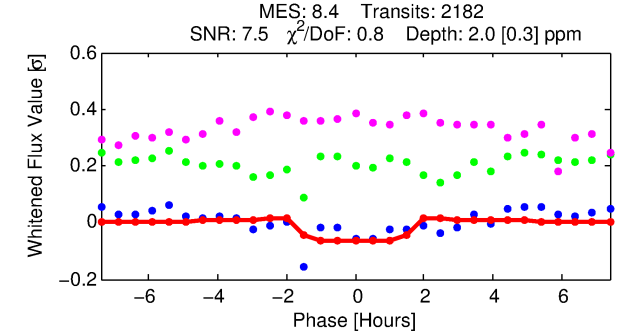
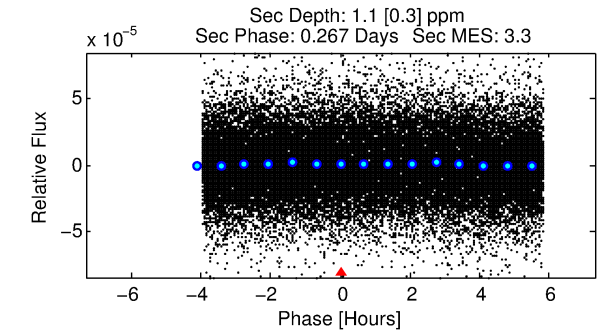
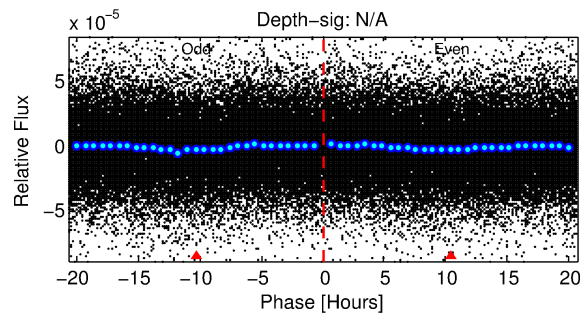
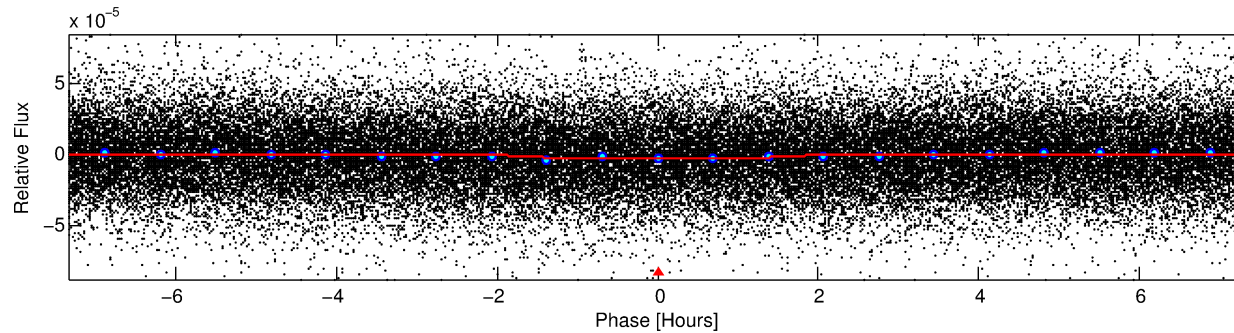
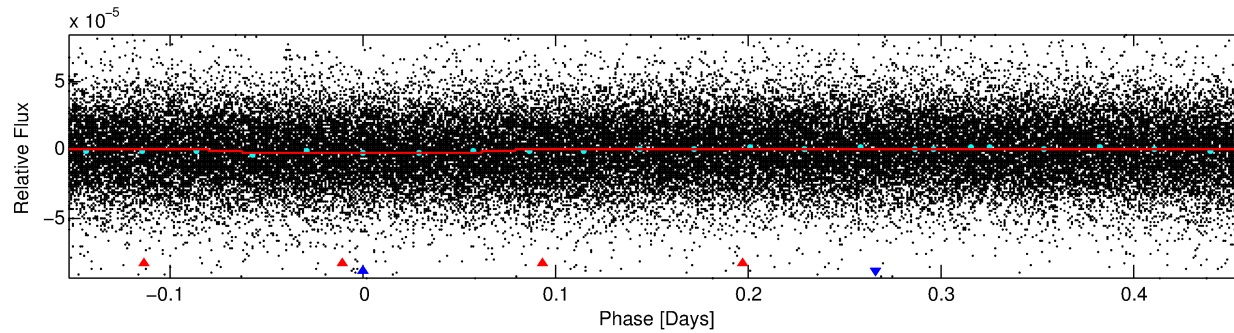
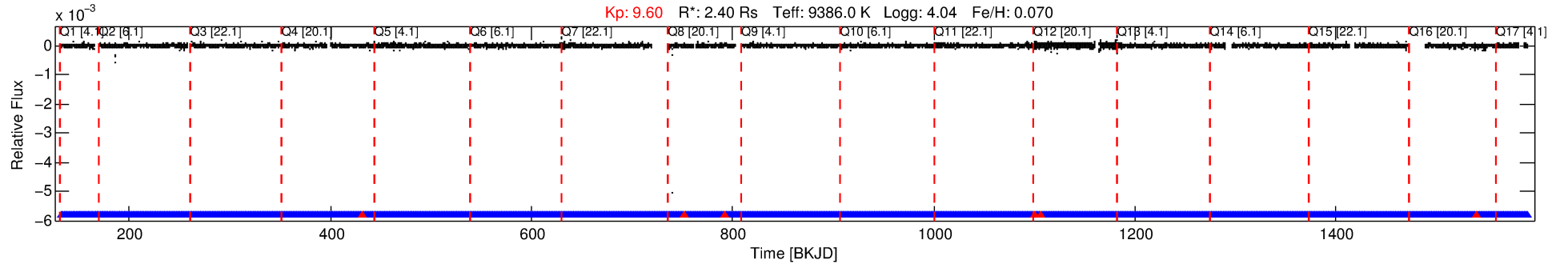
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004448737-02

No Significant Match Found

DV One-Page Summary

KIC: 4448737 Candidate: 2 of 2 Period: 0.612 d



DV Fit Results:

Period = 0.61204 [0.00001] d
Epoch = 132.1644 [0.0041] BKJD
Rp/R* = 0.0014 [0.0002]
a/R* = 1.39 [0.44]
b = 0.50 [0.99]
Seff = 114410.38 [49058.75]
Teq = 4690 [503] K
Rp = 0.36 [0.14] Re
a = 0.0187 [0.0054] AU
Ag = 1.63 [0.89] [0.71] σ
Teffp = 8189 [889] K [3.43] σ

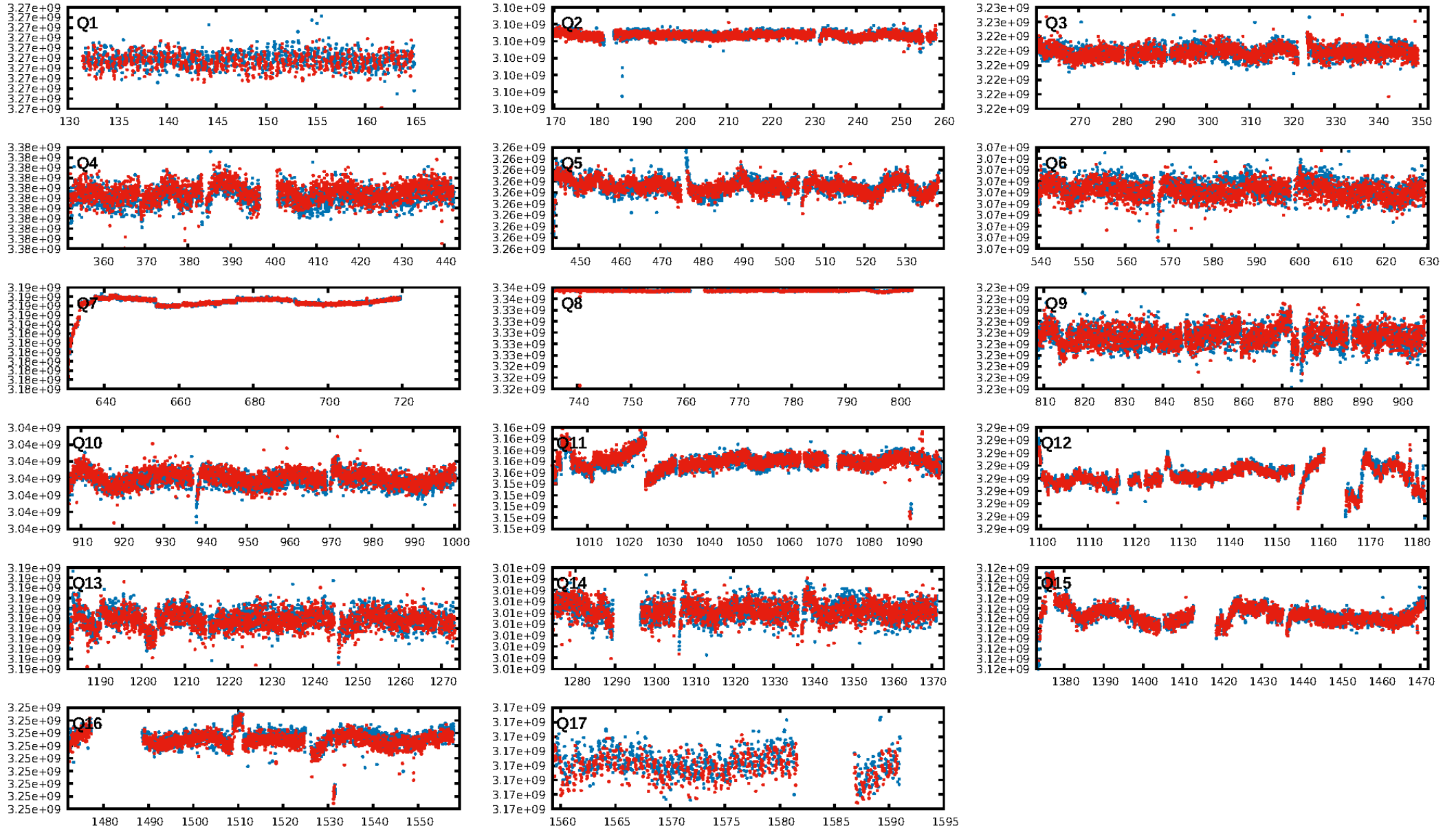
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [780.28] σ
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2077/2083]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 7.099 arcsec [3.47] σ
KicOffset-rm: 8.732 arcsec [3.85] σ
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.14 [2/14]
DiffImageOverlap-fno: 1.00 [17/17]

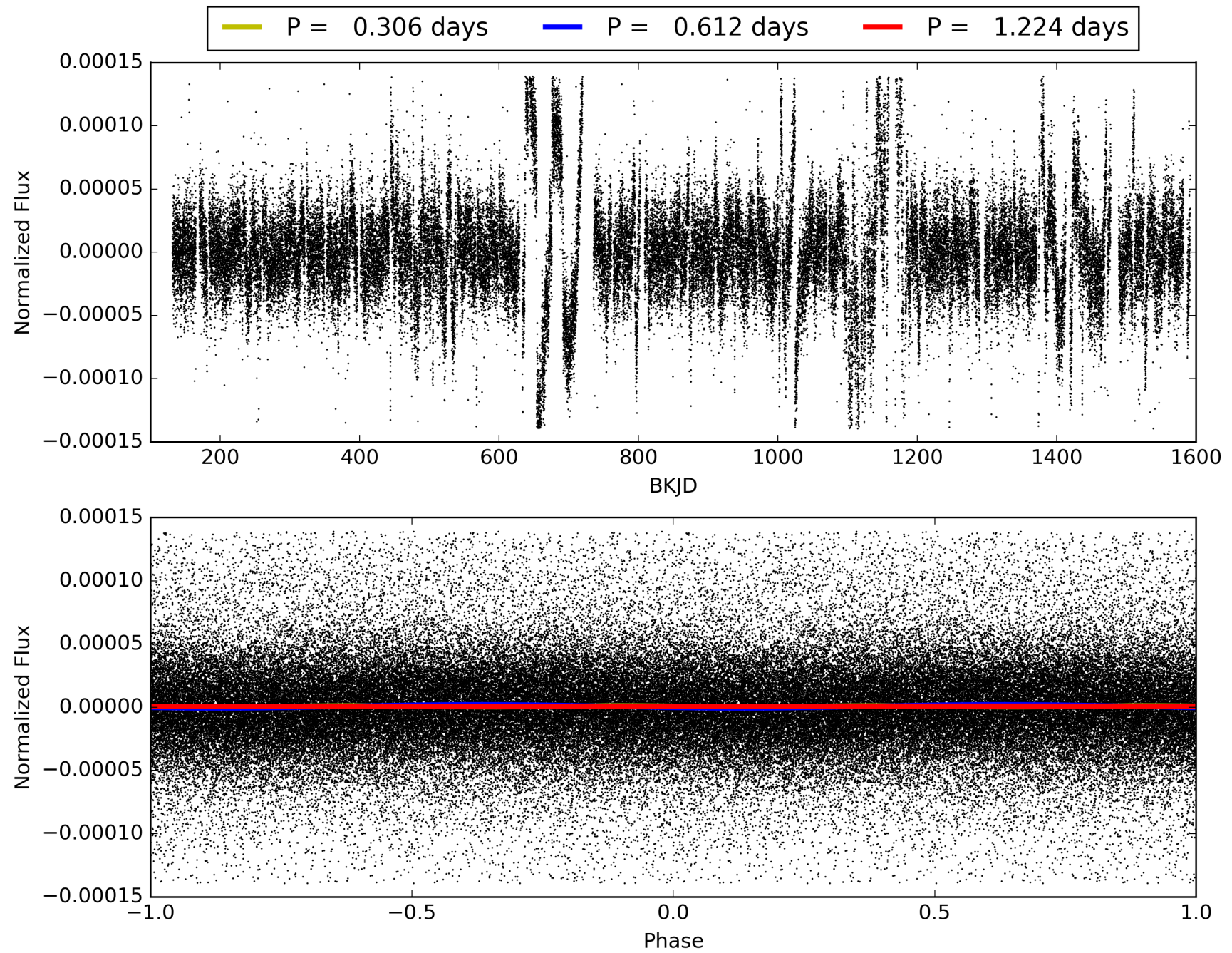
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:08:55 Z

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

TCE 004448737-02, PDC Light Curves

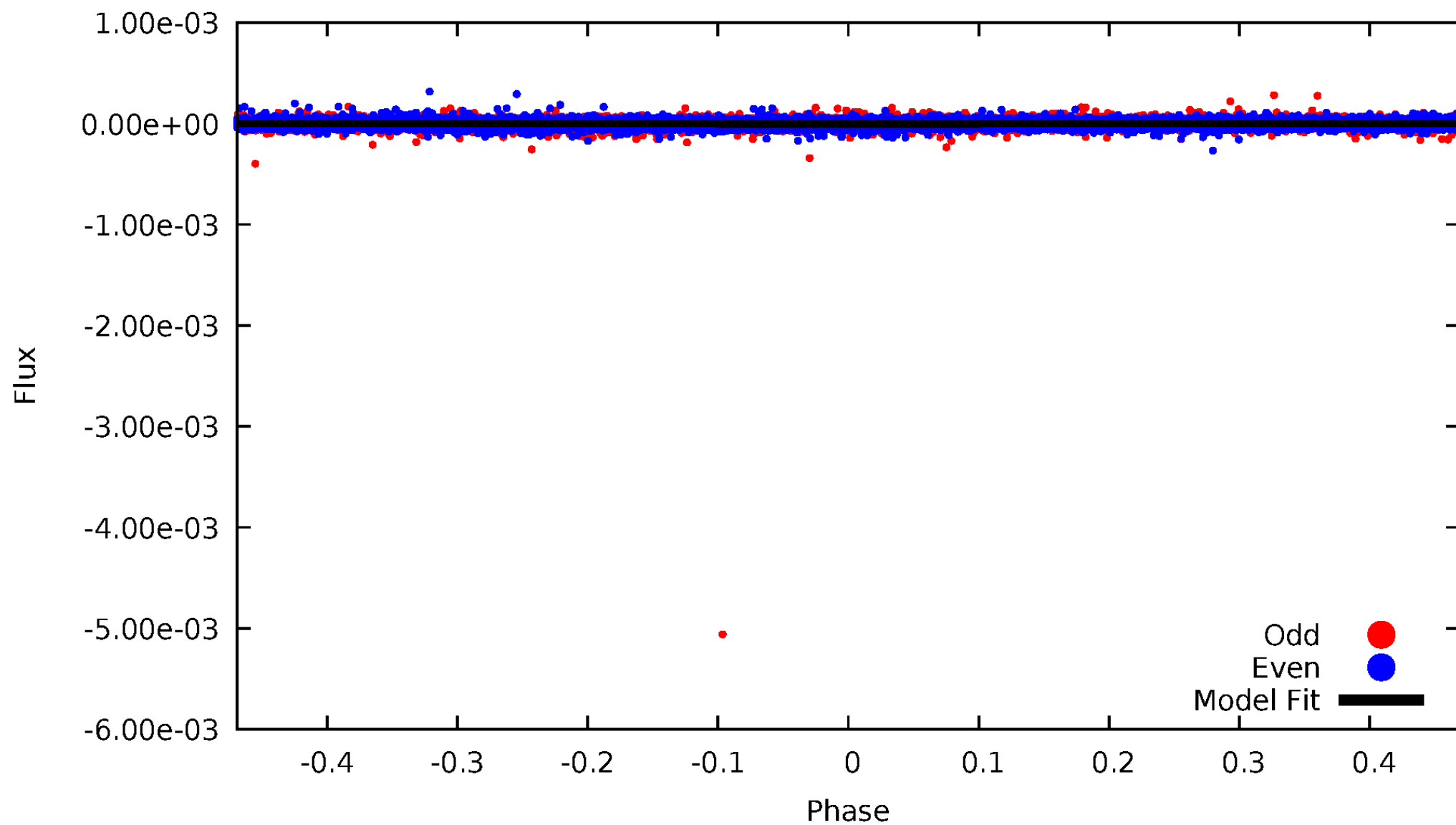


TCE 004448737-02



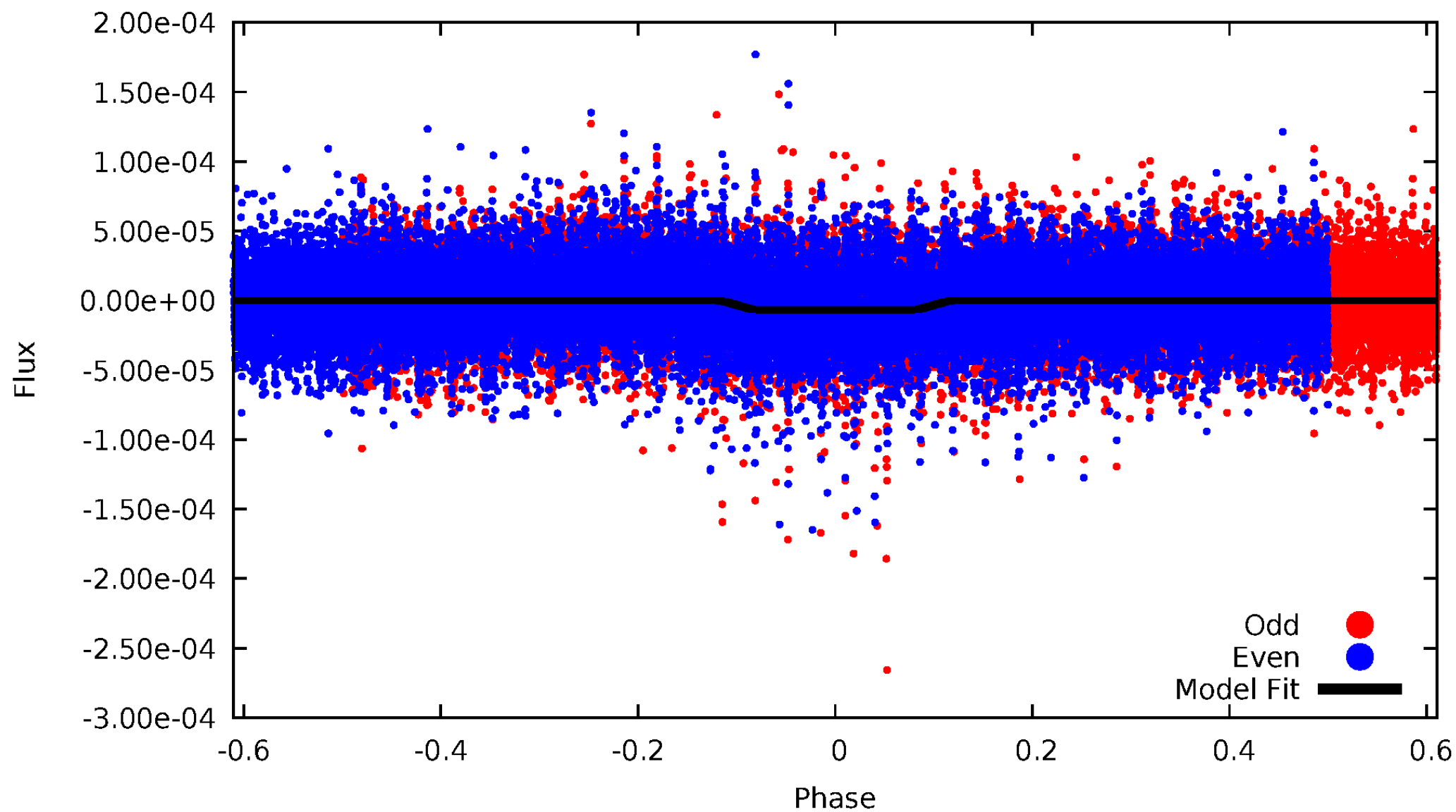
DV Odd/Even

TCE 004448737-02



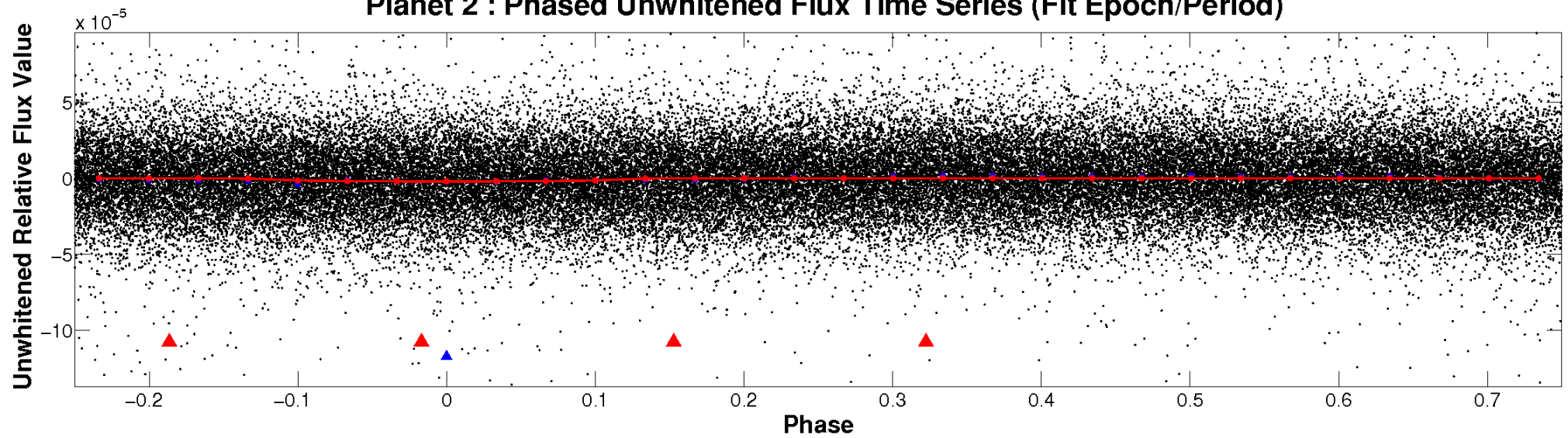
ALT Odd/Even

TCE 004448737-02

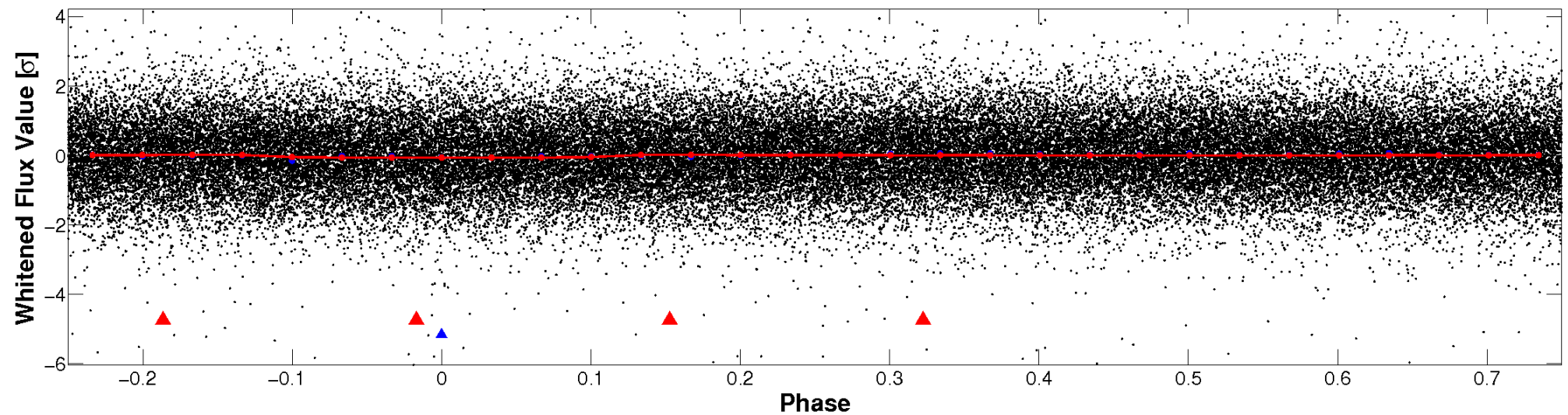


Non-Whitened Vs. Whitened Light Curve

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

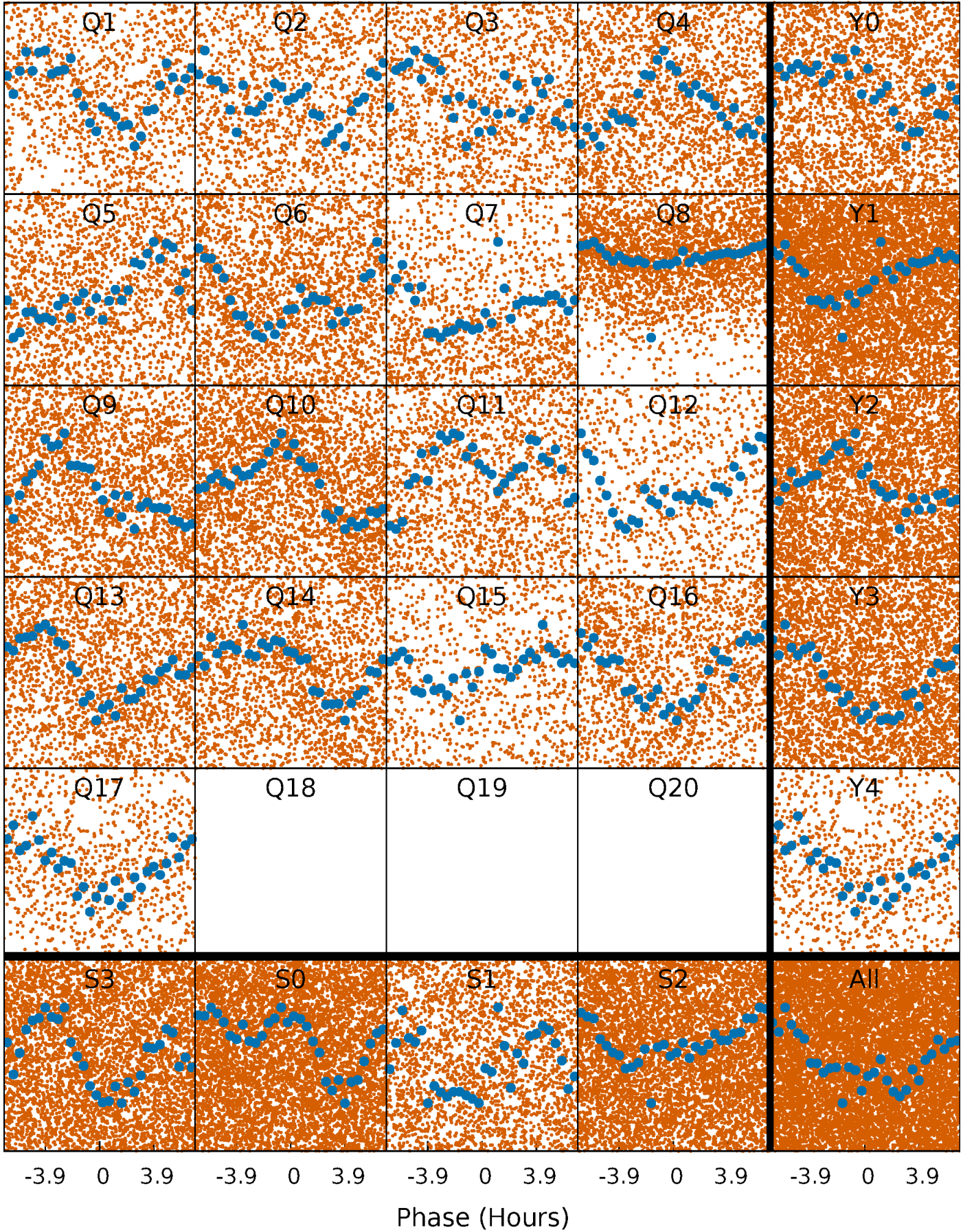


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



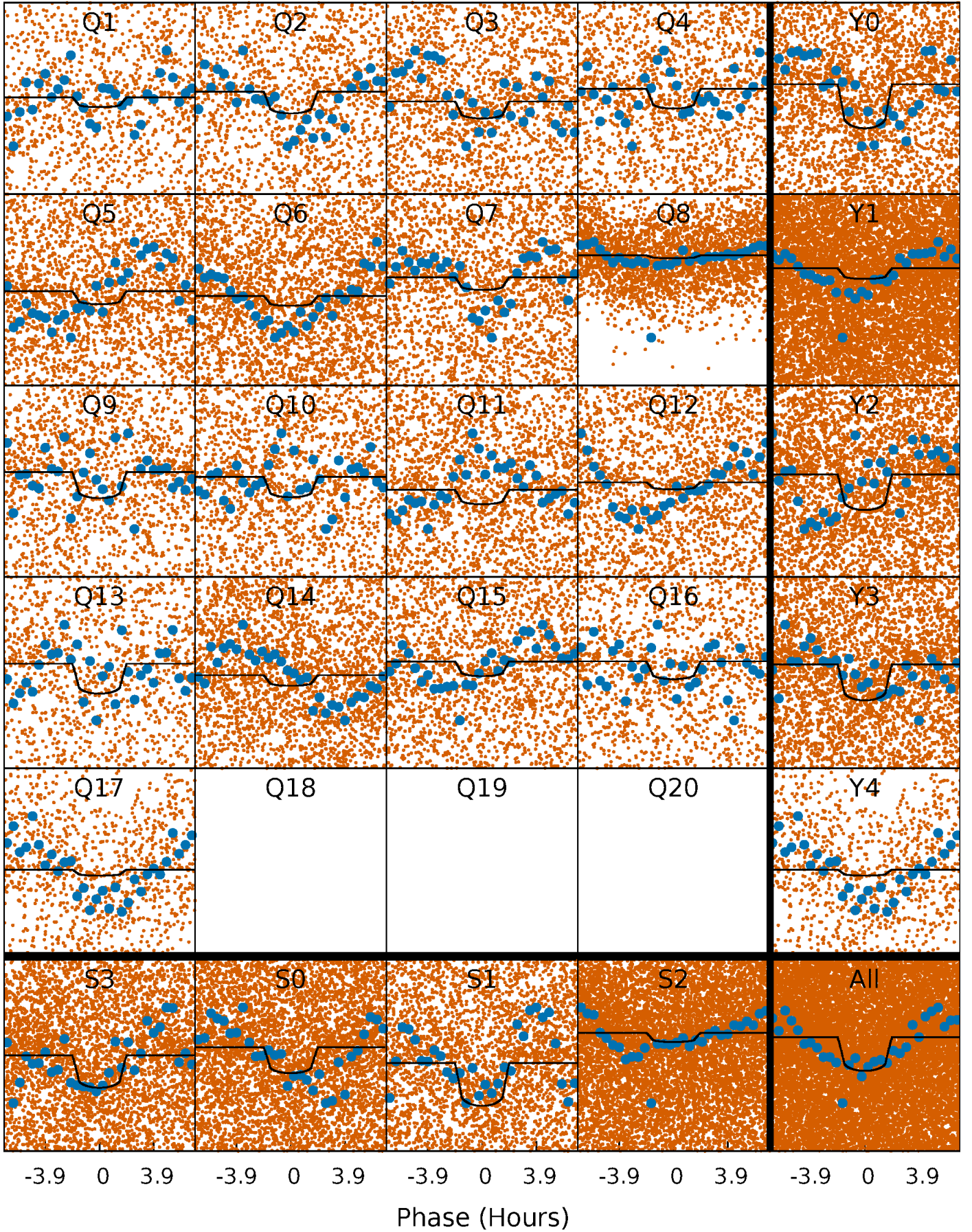
PDC Quarter-Phased Transit Curves

TCE 004448737-02 P= 0.612038 Days $T_0=132.164381$ (BKJD)



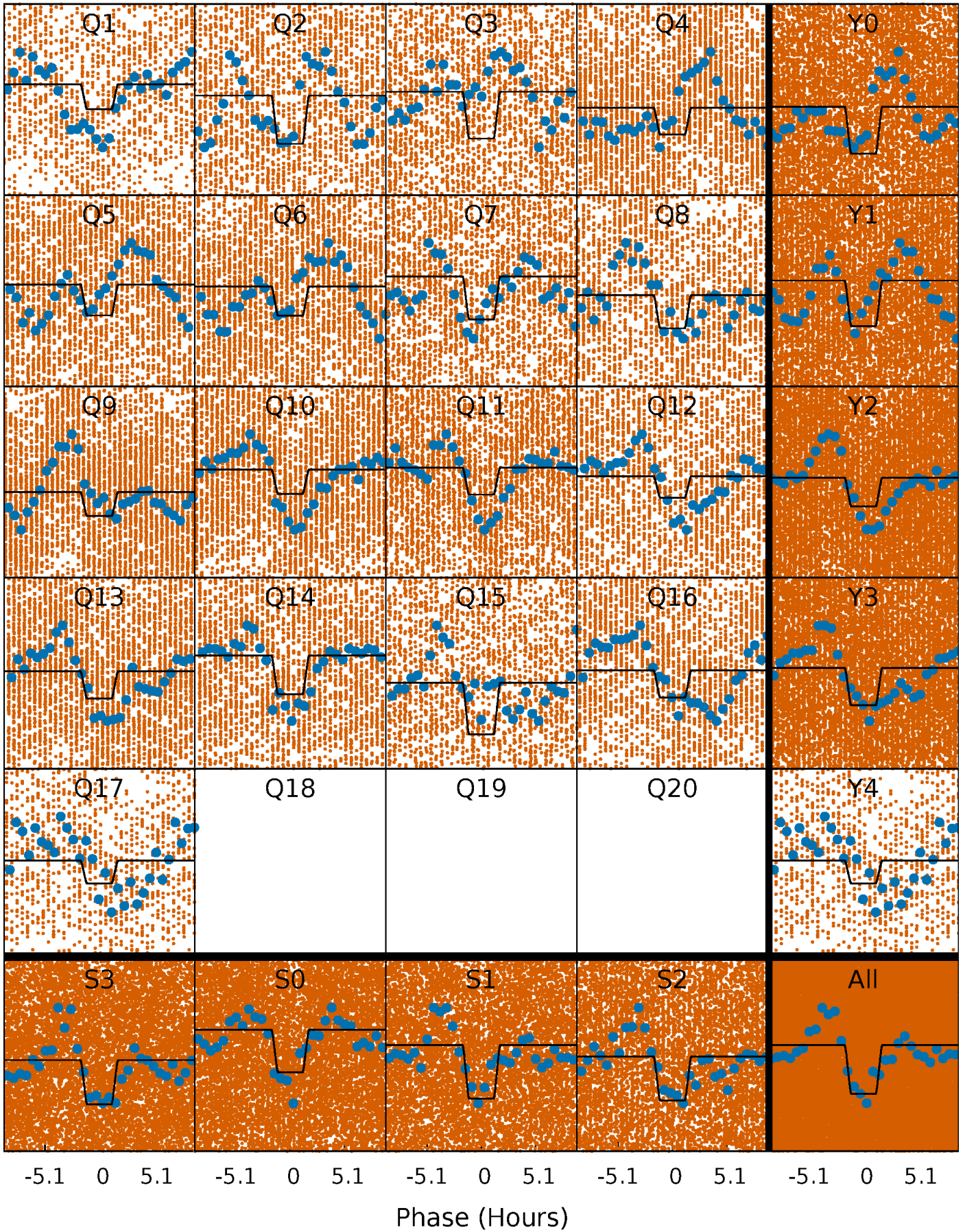
DV Quarter-Phased Transit Curves

TCE 004448737-02 P= 0.612038 Days $T_0=132.164381$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

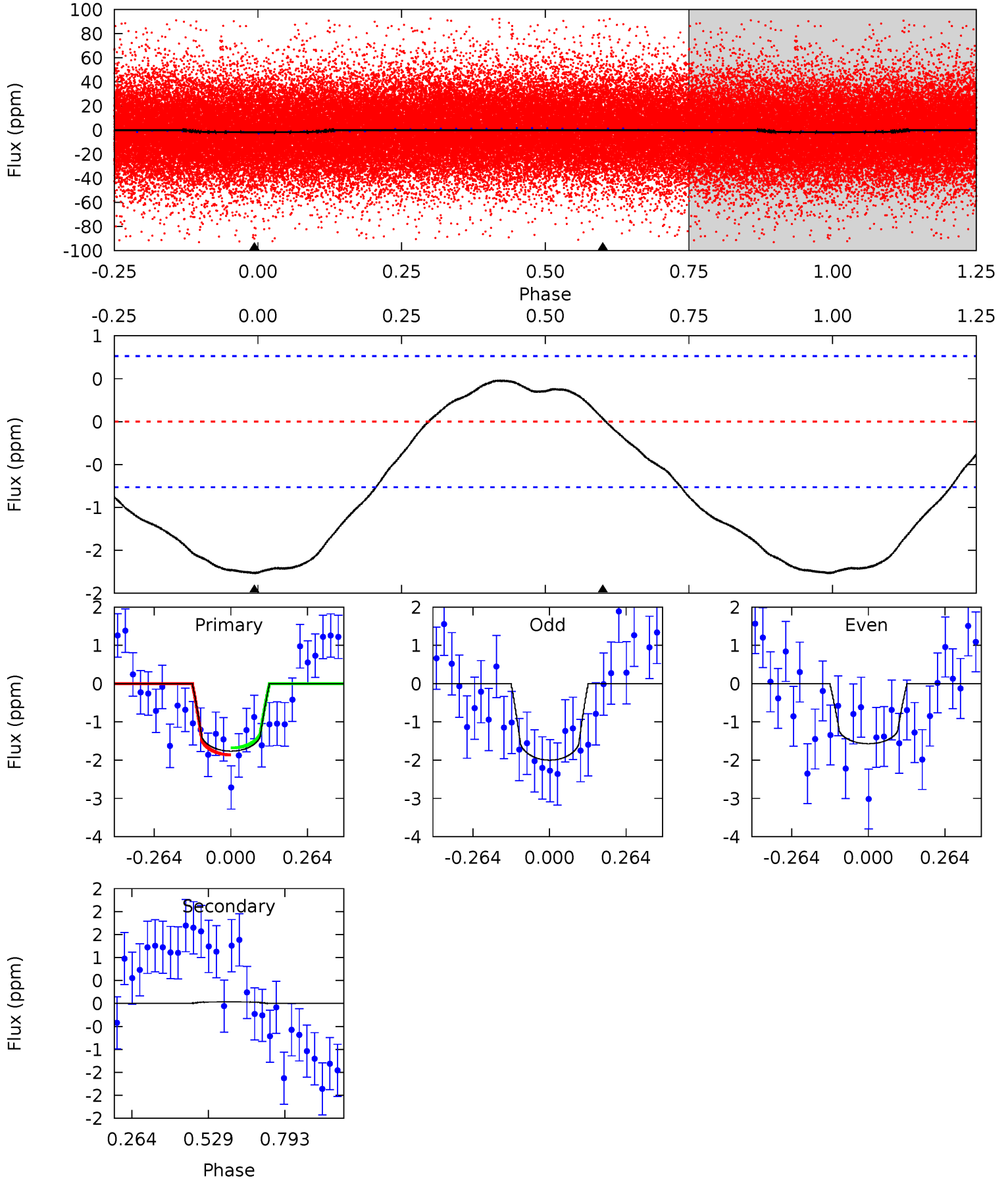
TCE 004448737-02 P= 0.613020 Days $T_0=131.620421$ (BKJD)



DV Model-Shift Uniqueness Test

004448737-02, P = 0.612038 Days, E = 130.940305 Days

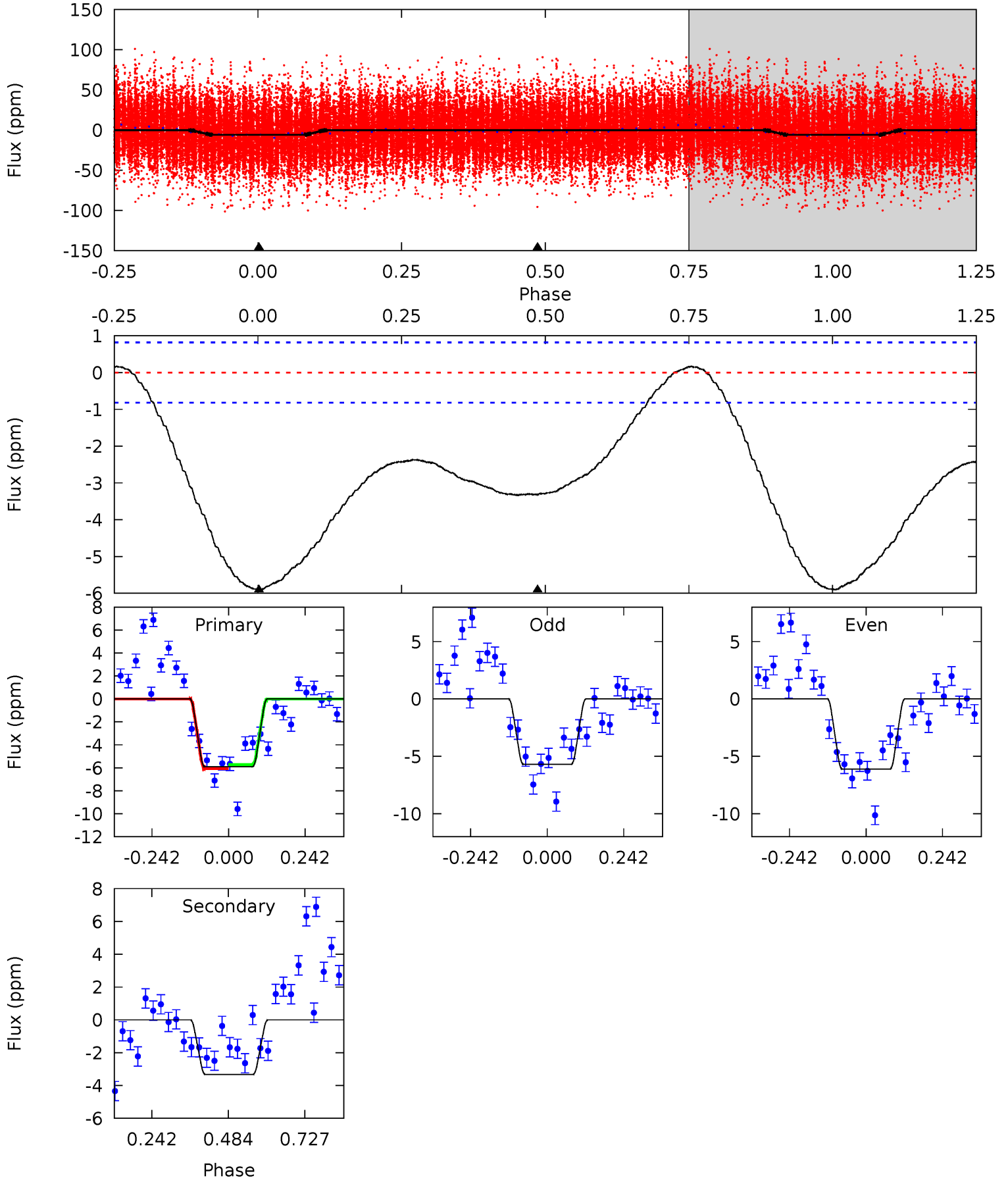
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	-0.19	0	0	4.36	1.12	1.14	10.1	10.1	-0.19	-0.19	1.23	1.33	0.21	0.52



Alt Model-Shift Uniqueness Test

004448737-02, P = 0.613020 Days, E = 131.007401 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.5	17.7	0	0	4.38	1.17	6.30	31.5	31.5	17.7	17.7	1.12	1.06	0.03	0.92



Stellar Parameters For KIC 004448737

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9386^{+263}_{-451}	$4.045^{+0.190}_{-0.190}$	$0.070^{+0.200}_{-0.750}$	$2.399^{+0.895}_{-0.732}$	$2.326^{+0.361}_{-0.722}$	$0.237^{+0.299}_{-0.135}$
	+3%/-5%	+5%/-5%	+286%/-1071%	+37%/-31%	+16%/-31%	+126%/-57%
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 004448737-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 0	$0.35^{+0.09}_{-0.07}$	6512^{+577}_{-548}	-5300^{+1555}_{-775}	$-0.049^{+0.287}_{-0.296}$
Alt.	-3 ± 0	$0.69^{+0.13}_{-0.12}$	6537^{+602}_{-505}	6873^{+504}_{-439}	$1.347^{+0.514}_{-0.379}$

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

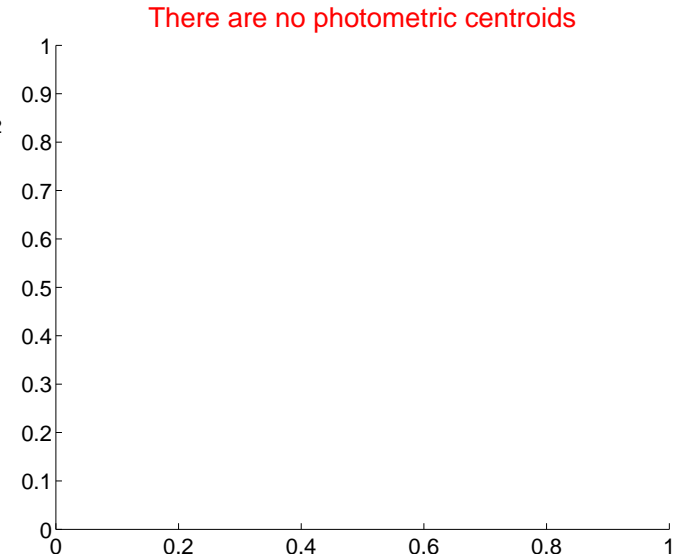
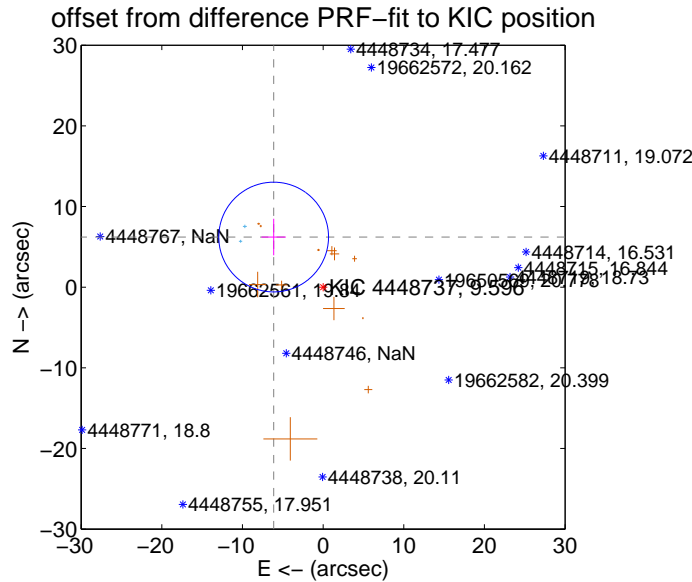
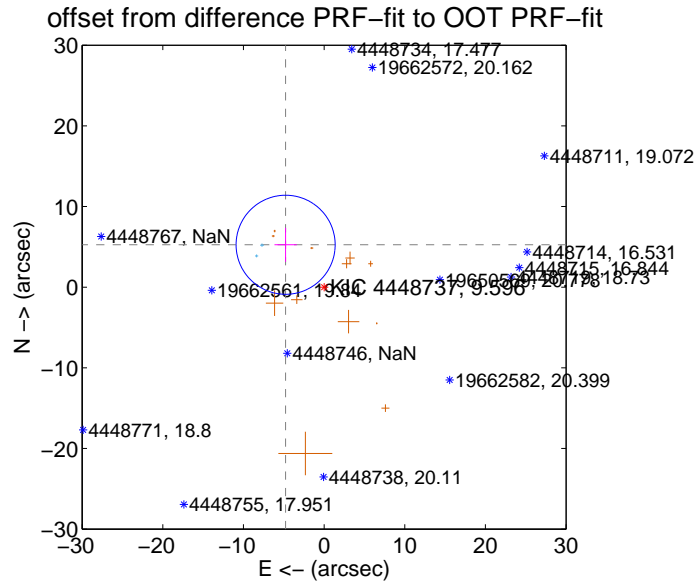
DV Centroid Data

Supplemental centroid analysis for 004448737-02. **Kepler magnitude: 9.60.** Transit SNR 7.46

There are 2 quarters with good PRF difference image offsets

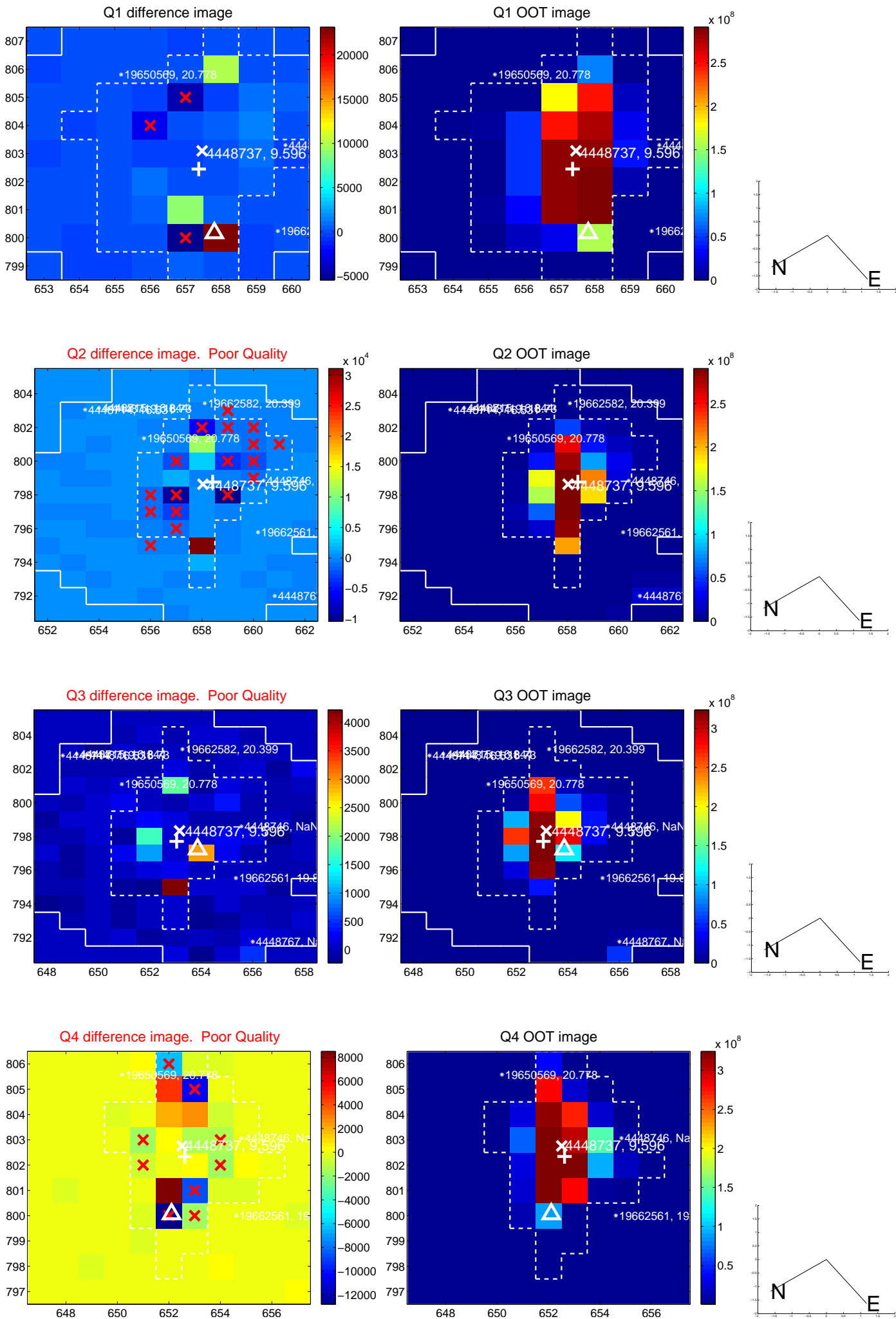
The OOT PRF centroid is offset from the target star catalog position by about 2.27 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.099 ± 2.047	3.47	4.771 ± 1.386	5.257 ± 2.108
PRF-fit source offset from KIC position	8.732 ± 2.268	3.85	6.133 ± 1.512	6.215 ± 2.264
photometric centroid source offset	—	—	—	—

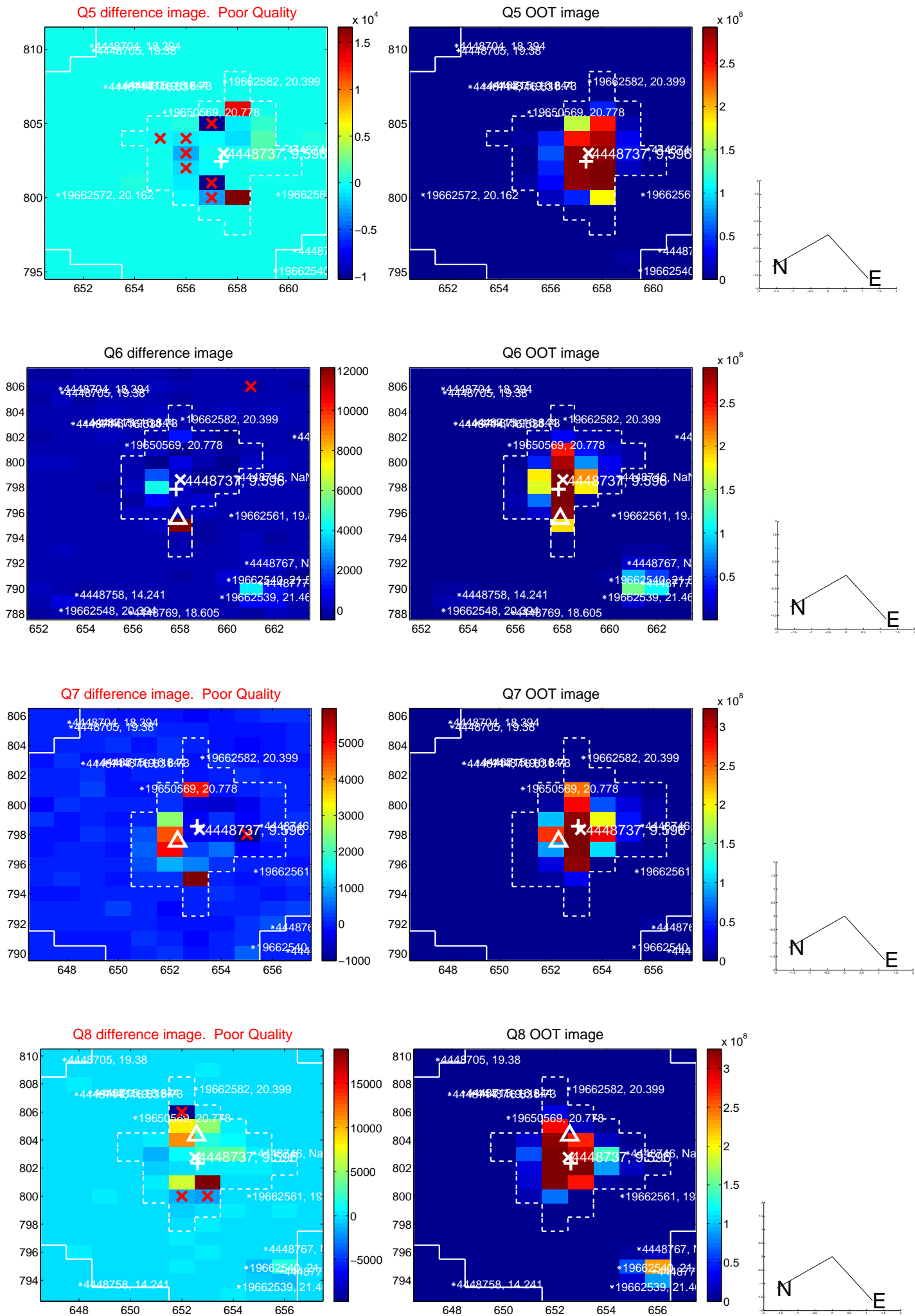


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

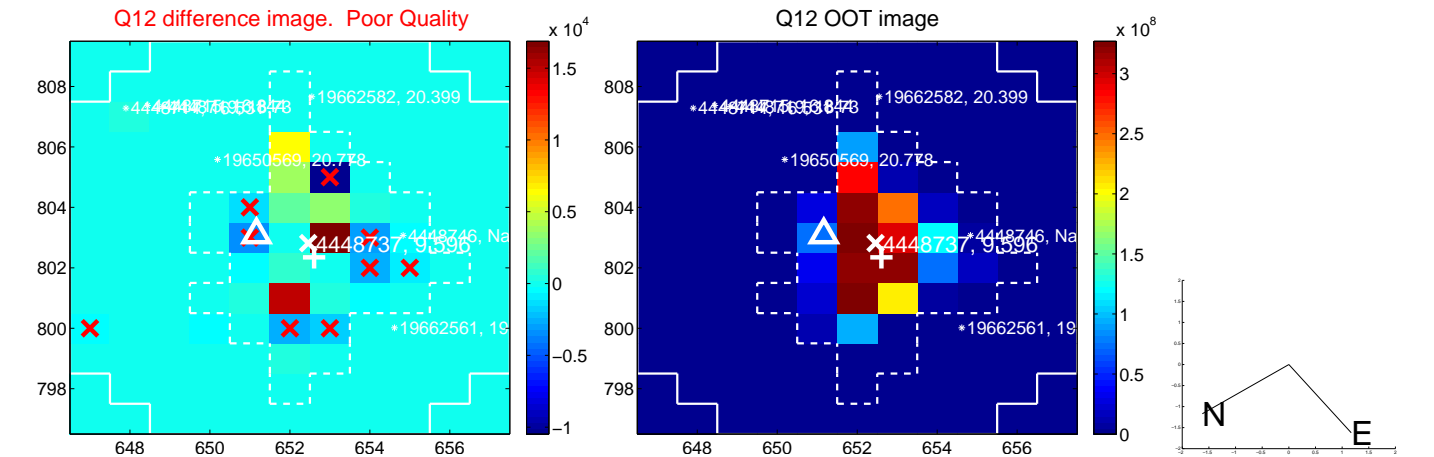
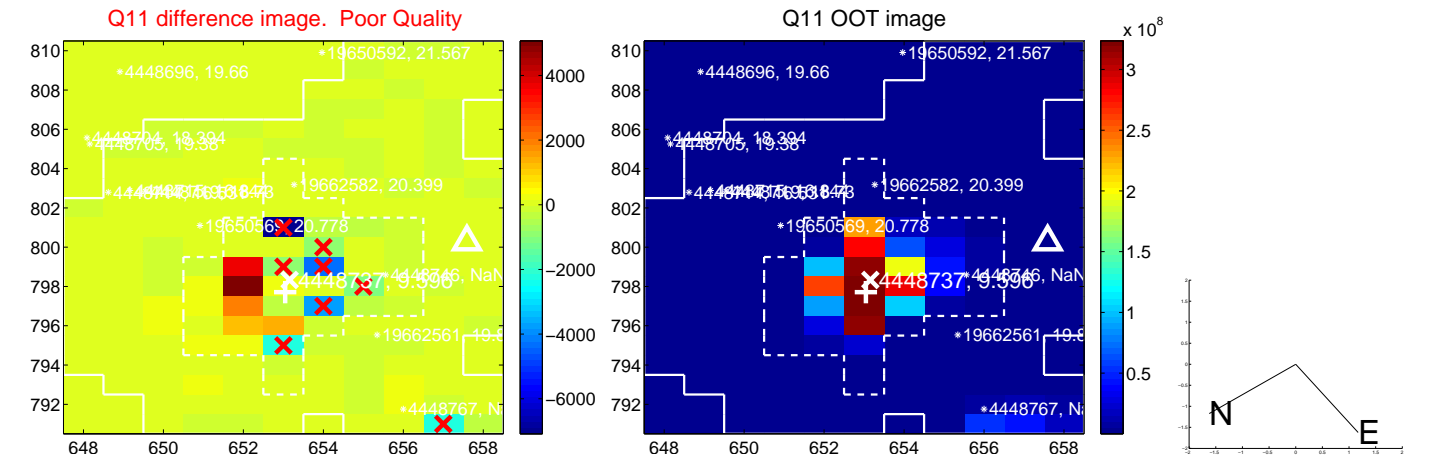
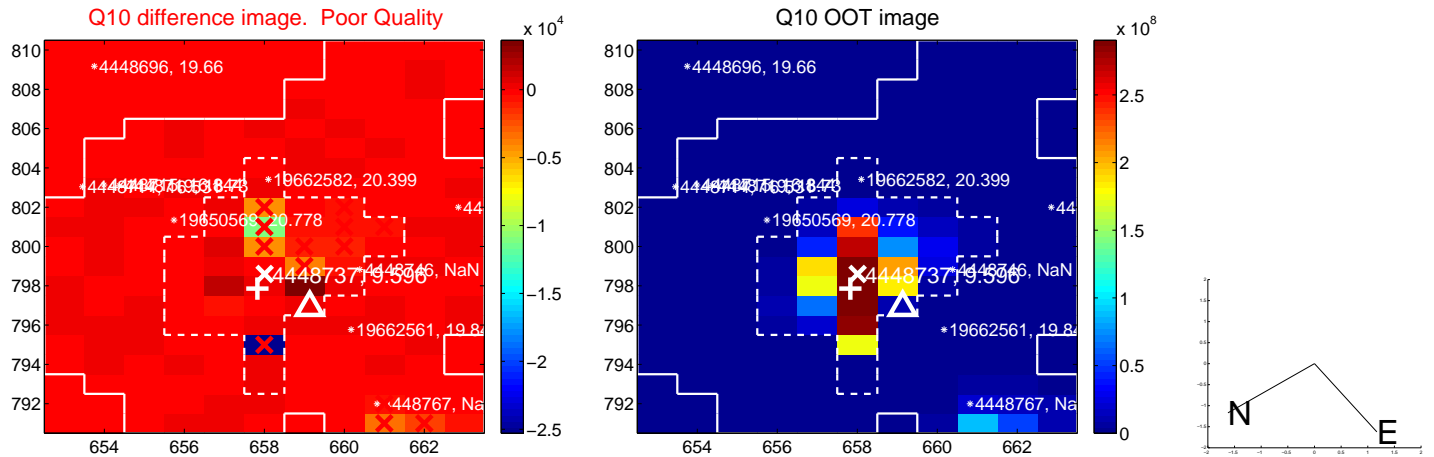
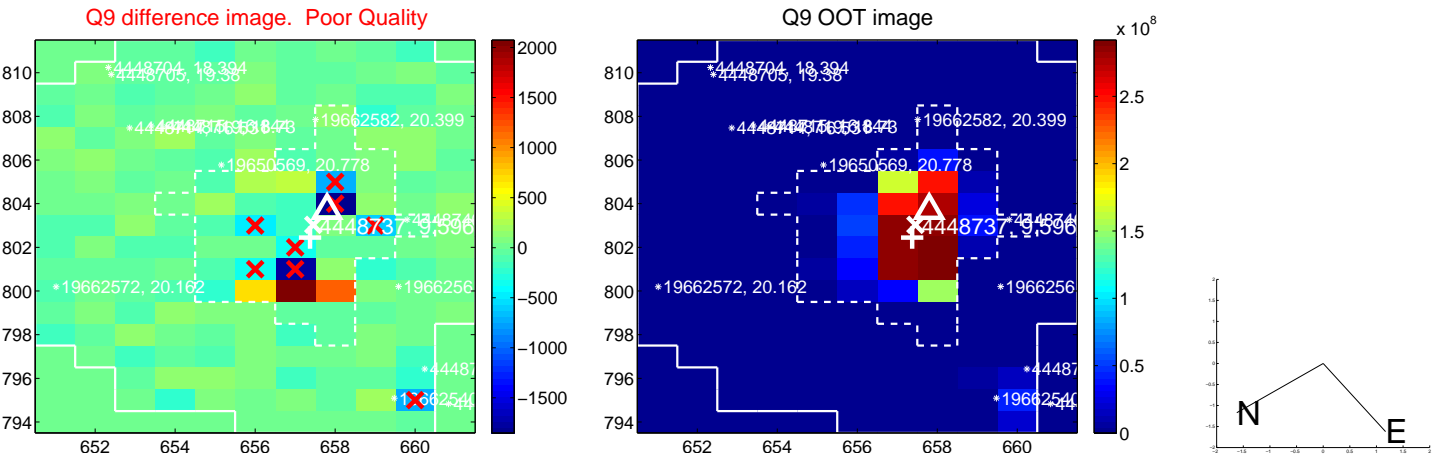
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



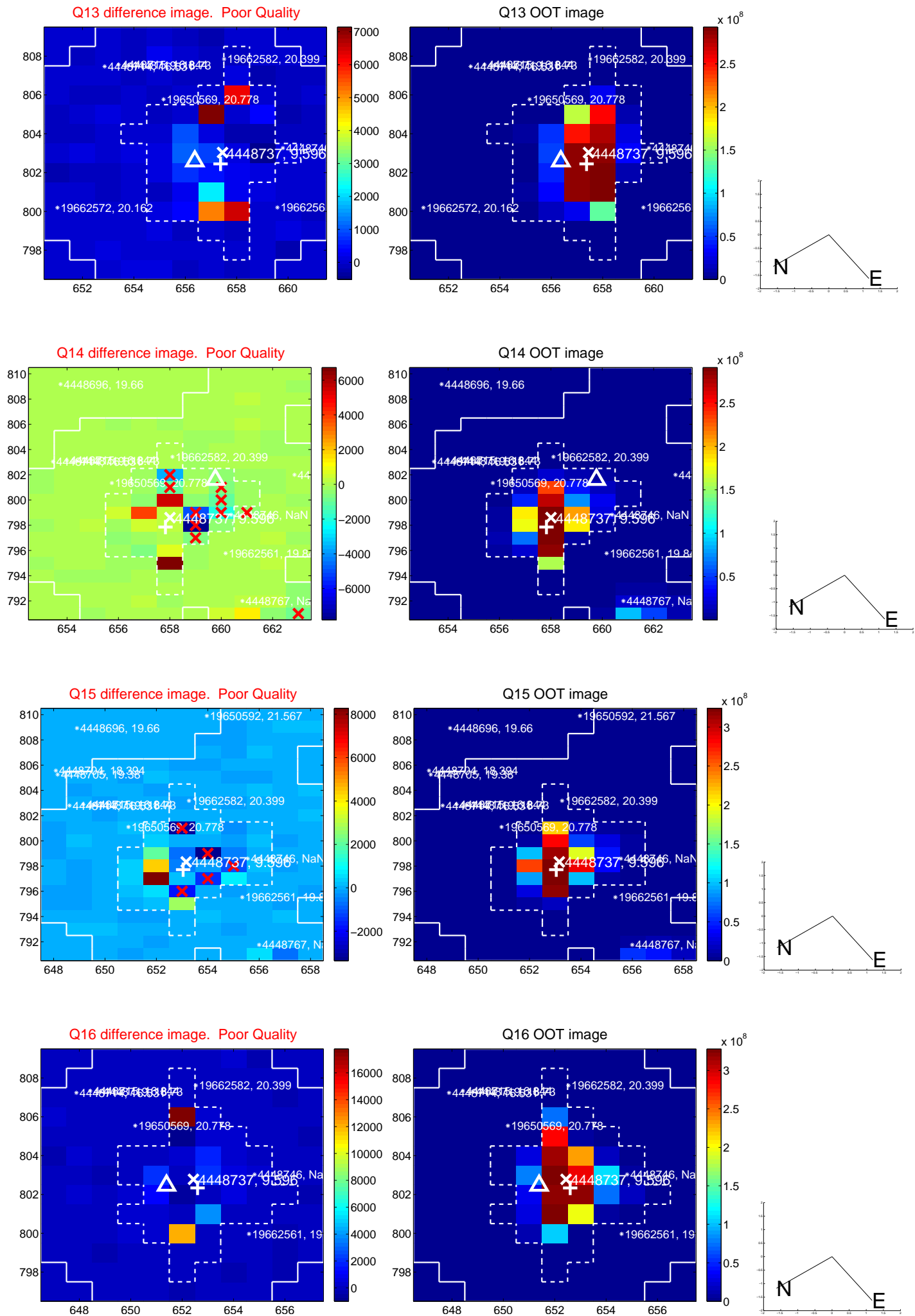
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



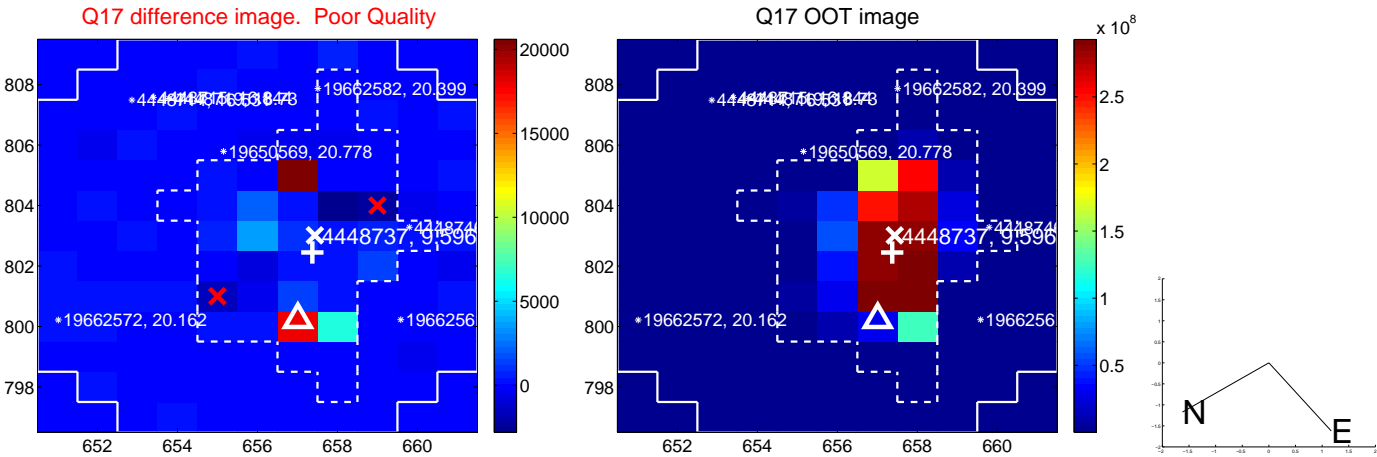
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

