

KIC 005308387

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})
005308387-01	OBS	2724.01	0.620729	132.103799	58.4	2.034	21.8	20.2	1.60	6559	1.43	17871.07
005308387-02	OBS	No	327.712117	244.320249	385.0	5.045	7.4	7.4	1.60	6559	3.55	4.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005308387-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—EPHEM_MATCH
005308387-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

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

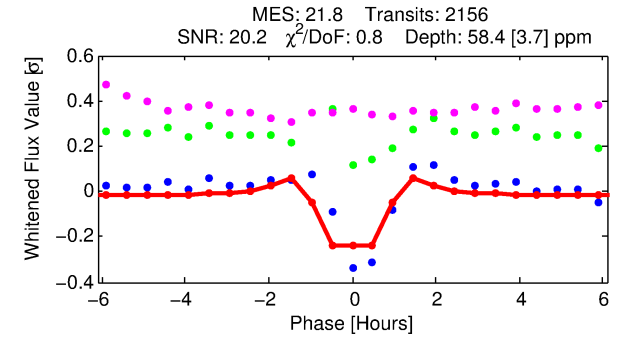
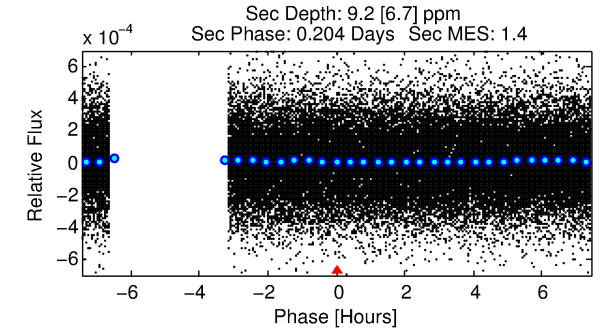
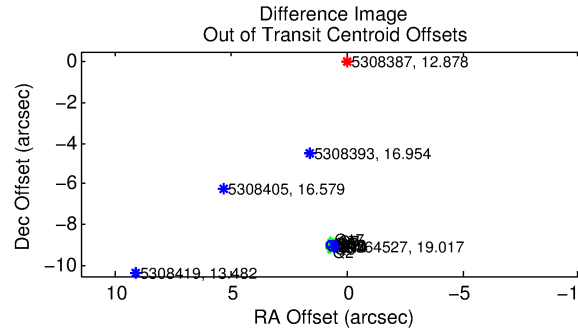
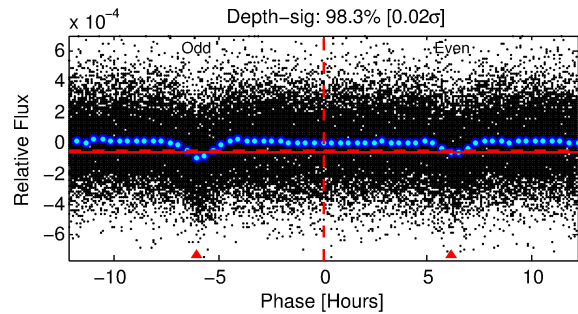
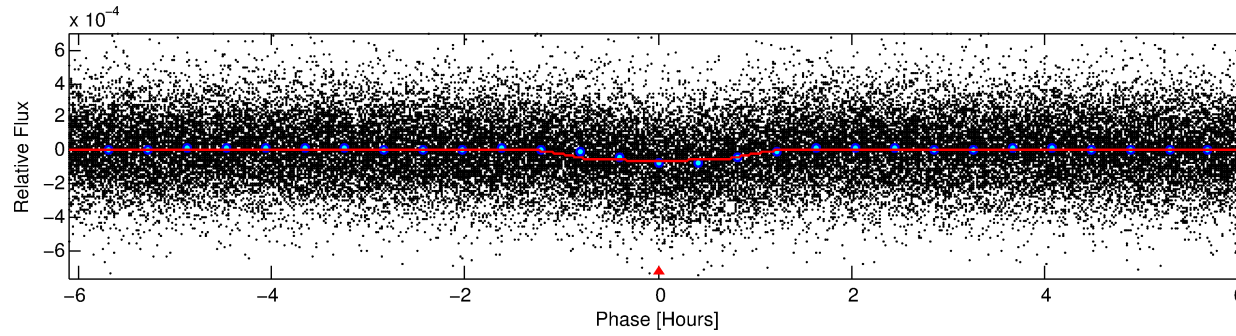
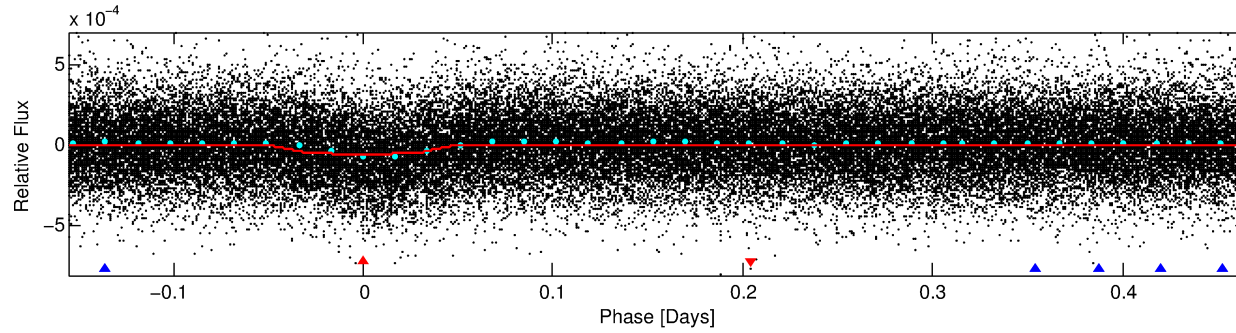
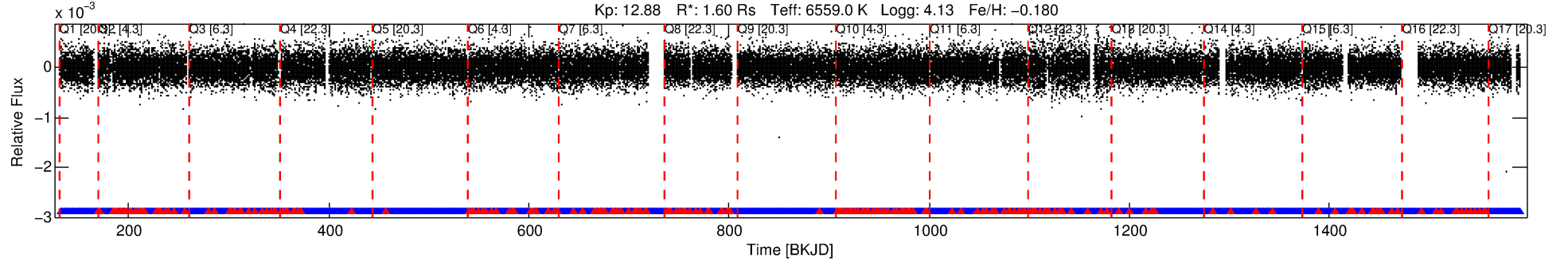
Ephemeris Match Information For 005308387-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005308387-01	5308387	3887.01	5308419	1:2	13.8	4	1	13.48	12.88	6.86	Direct-PRF	0	4.51	0.43

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5308387 Candidate: 1 of 2 Period: 0.621 d
KOI: K02724.01 Corr: 0.871



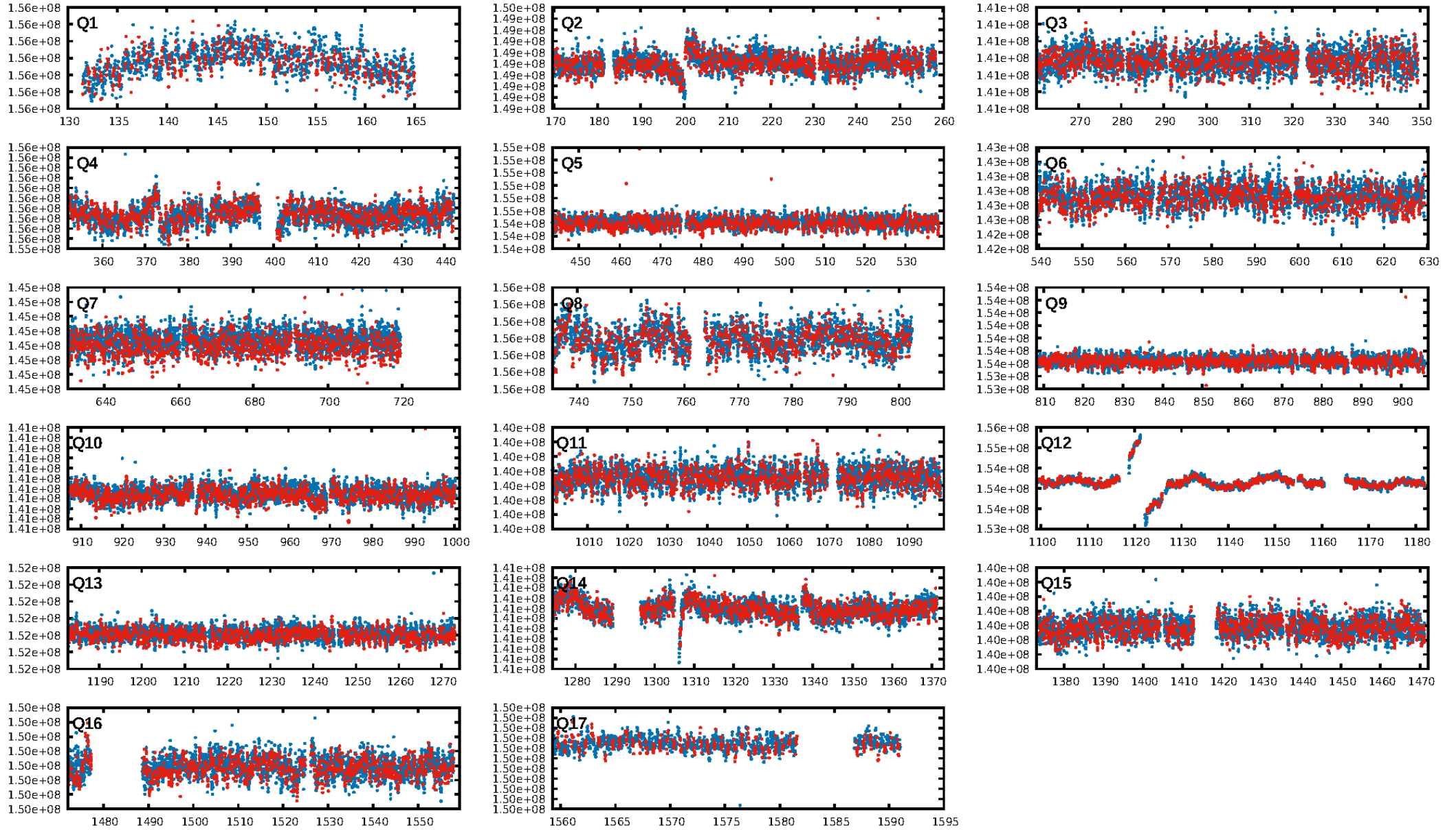
DV Fit Results:

Period = 0.62073 [0.00000] d
Epoch = 132.1038 [0.0010] BKJD
Rp/R* = 0.0082 [0.0014]
a/R* = 1.41 [0.70]
b = 0.90 [0.21]
Seff = 17871.07 [7173.27]
Teq = 2948 [296] K
Rp = 1.43 [0.48] Re
a = 0.0154 [0.0039] AU
Ag = 0.59 [0.53] [-0.79 σ]
Teffp = 3987 [821] K [1.19 σ]

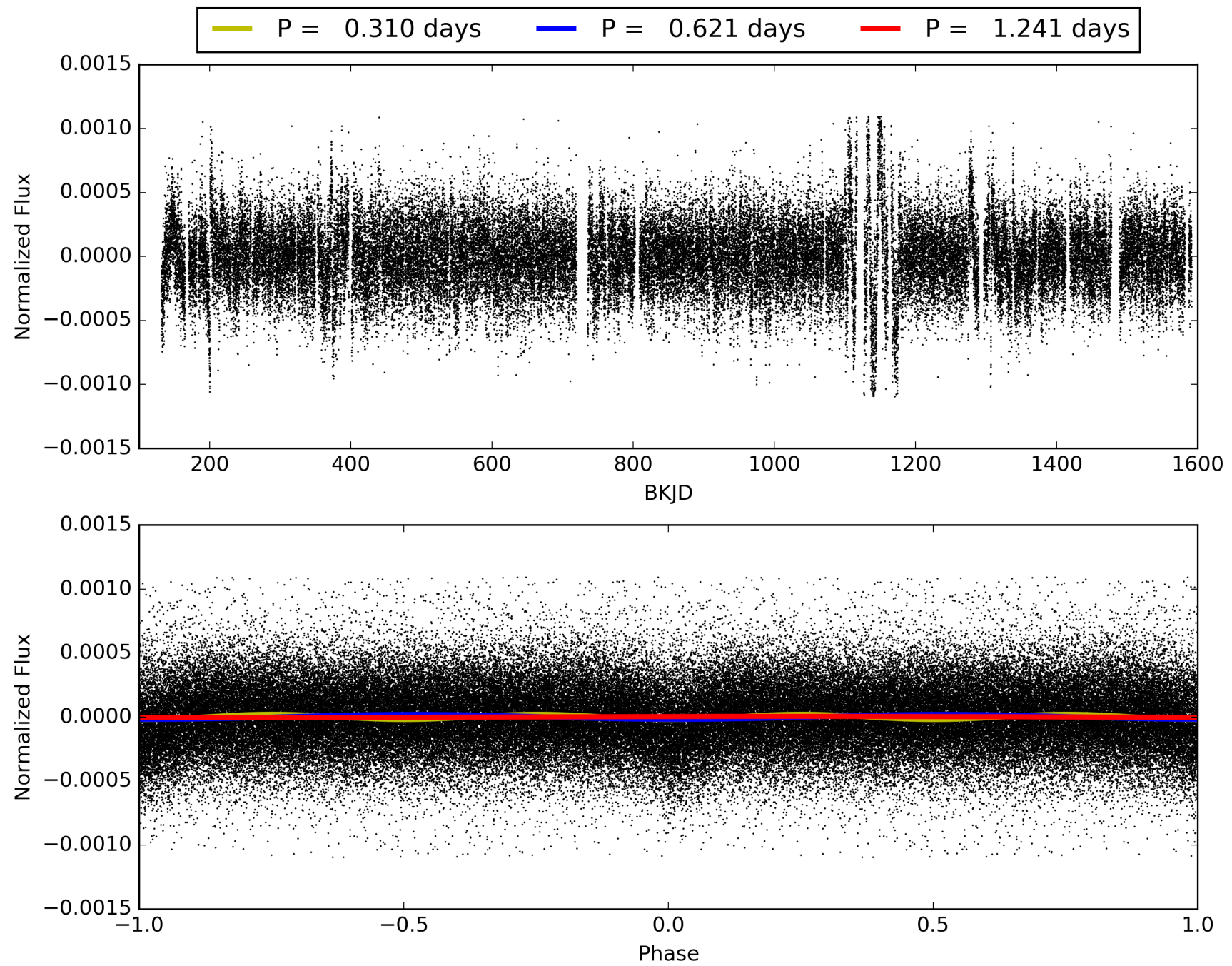
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1443.05 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.40e-82
RollingBand-fgt: 0.88 [1821/2058]
GhostDiagnostic-chr: -0.535
Centroid-sig: 0.0%
Centroid-so: 6.260 arcsec [17.17 σ]
OotOffset-rm: 9.040 arcsec [111.74 σ]
KicOffset-rm: 9.086 arcsec [114.70 σ]
OotOffset-st: 4/1/2/5 [12]
KicOffset-st: 4/1/2/5 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005308387-01, PDC Light Curves

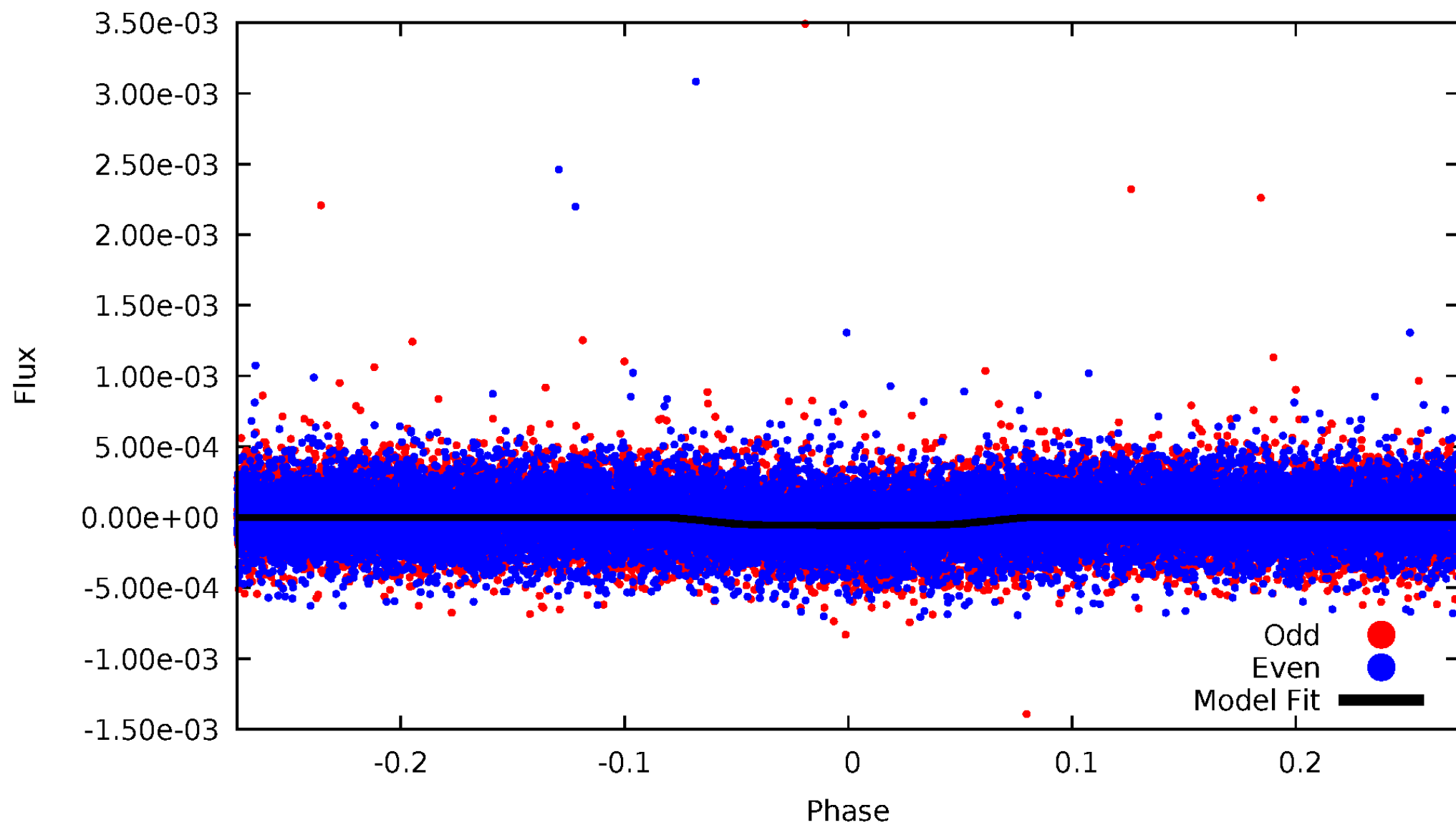


TCE 005308387-01



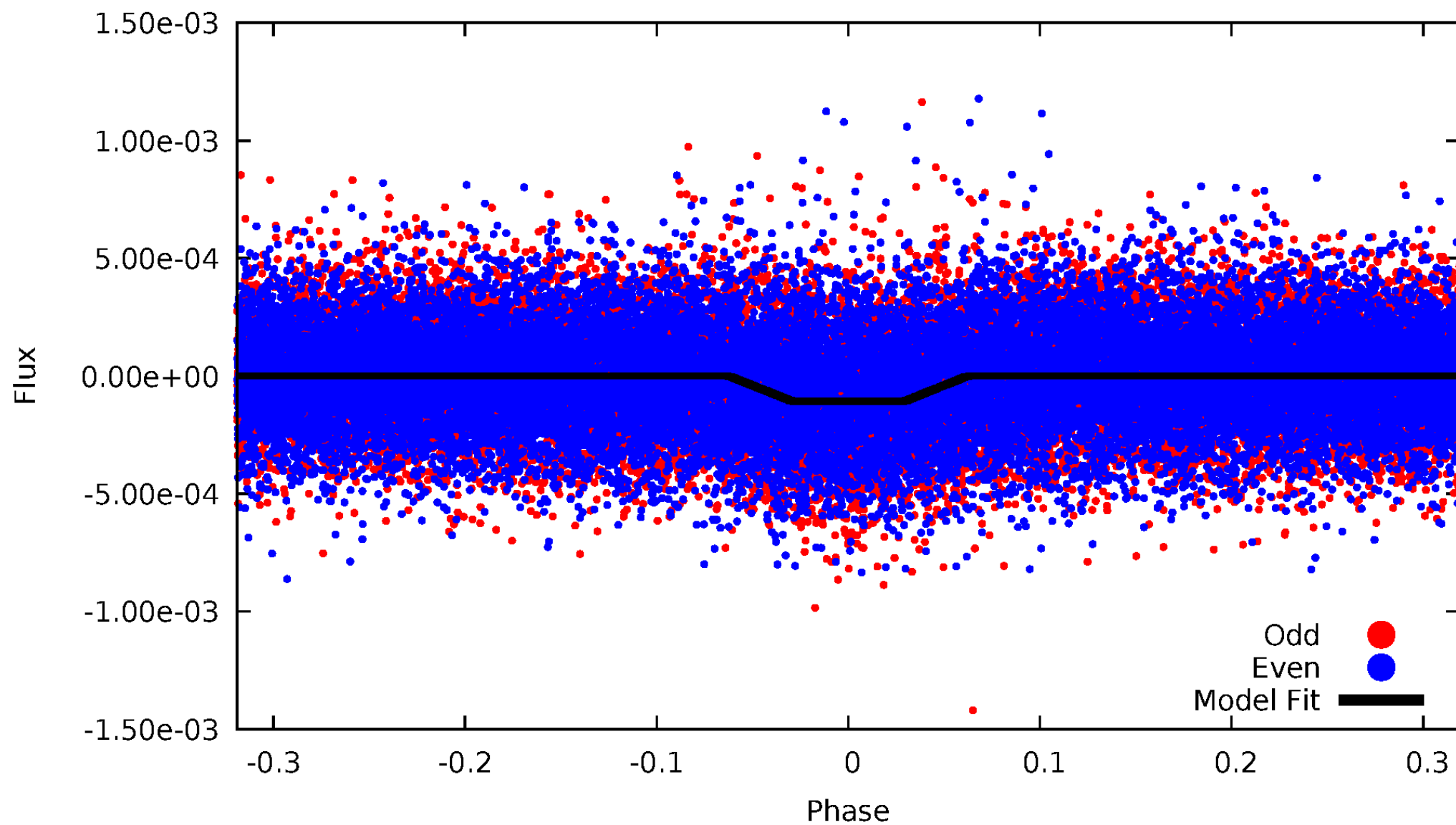
DV Odd/Even

TCE 005308387-01

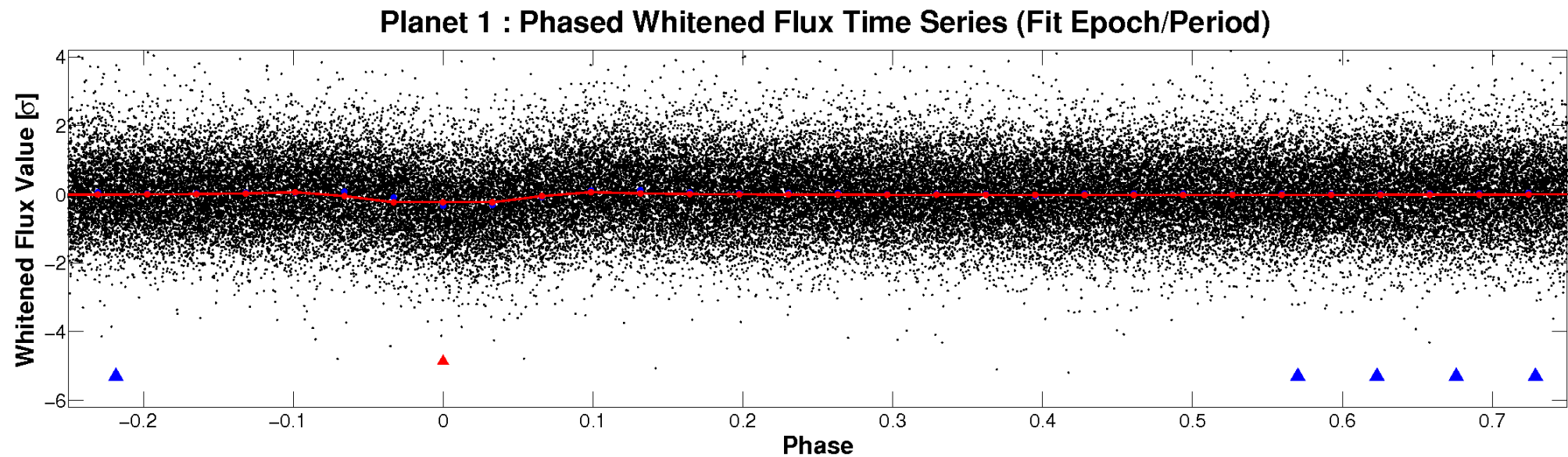
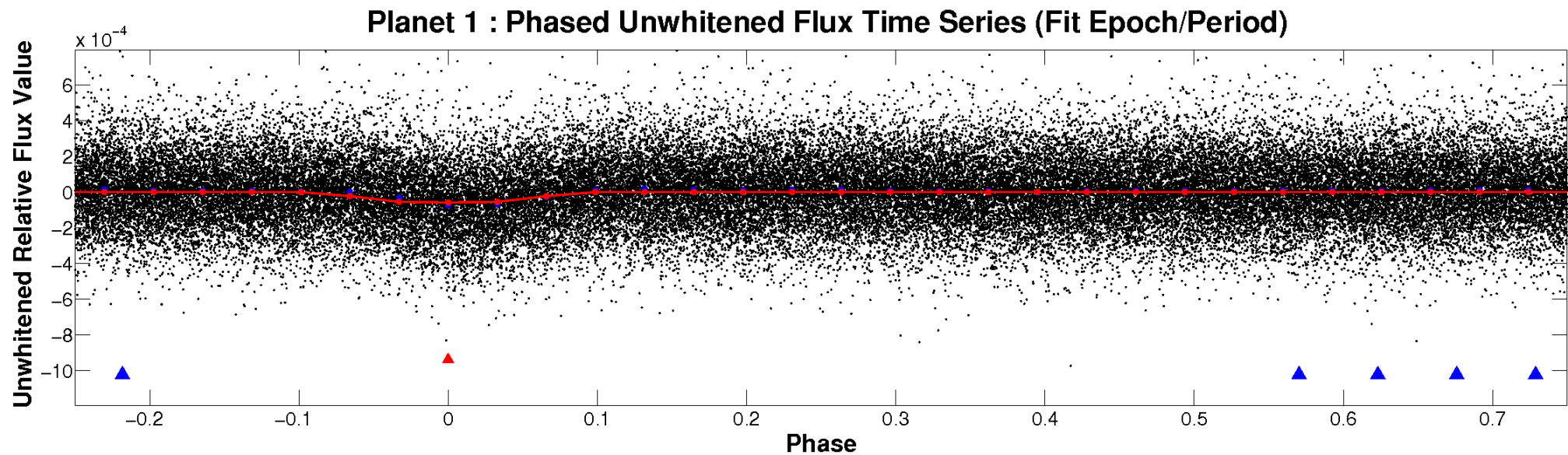


ALT Odd/Even

TCE 005308387-01

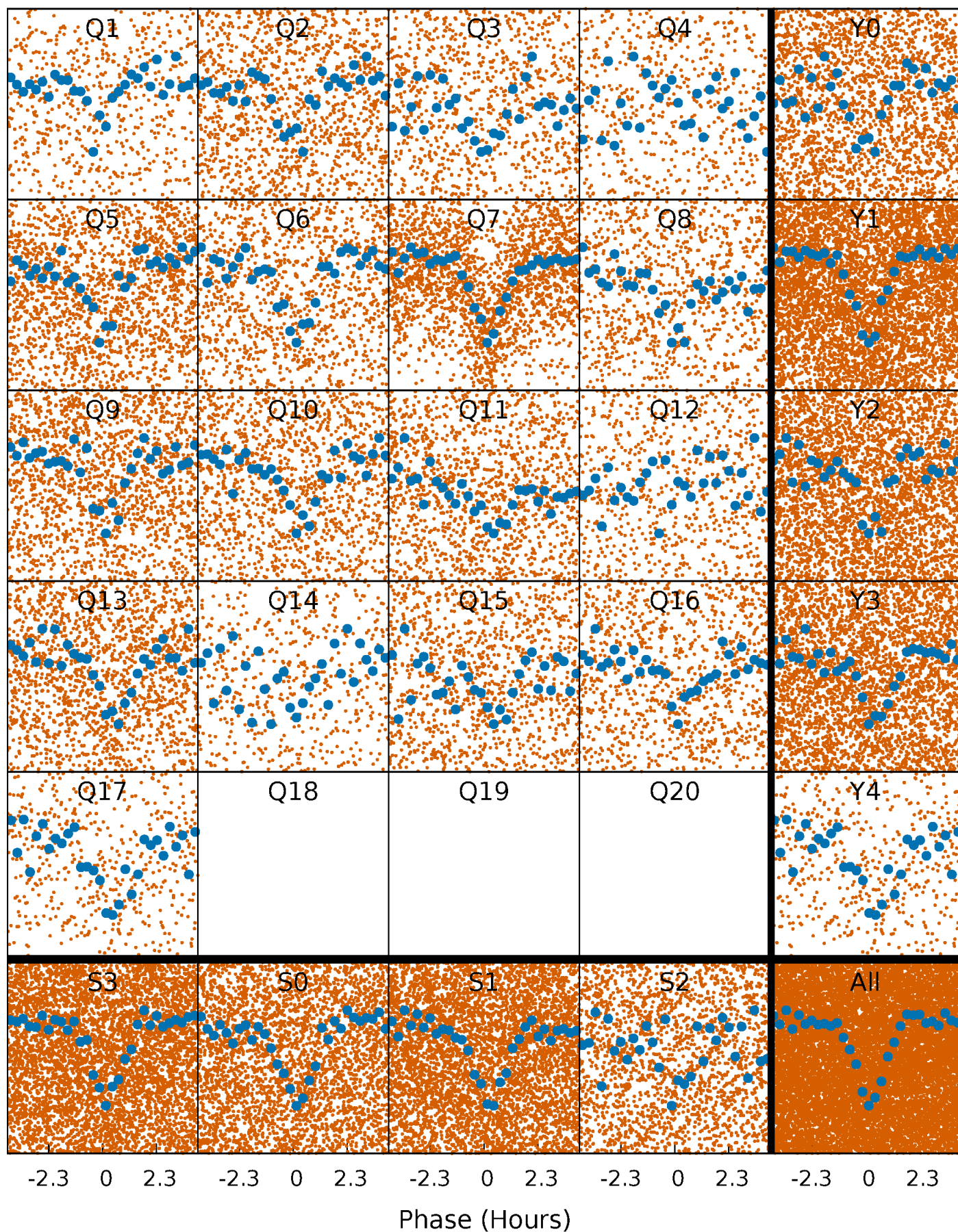


Non-Whitened Vs. Whitened Light Curve



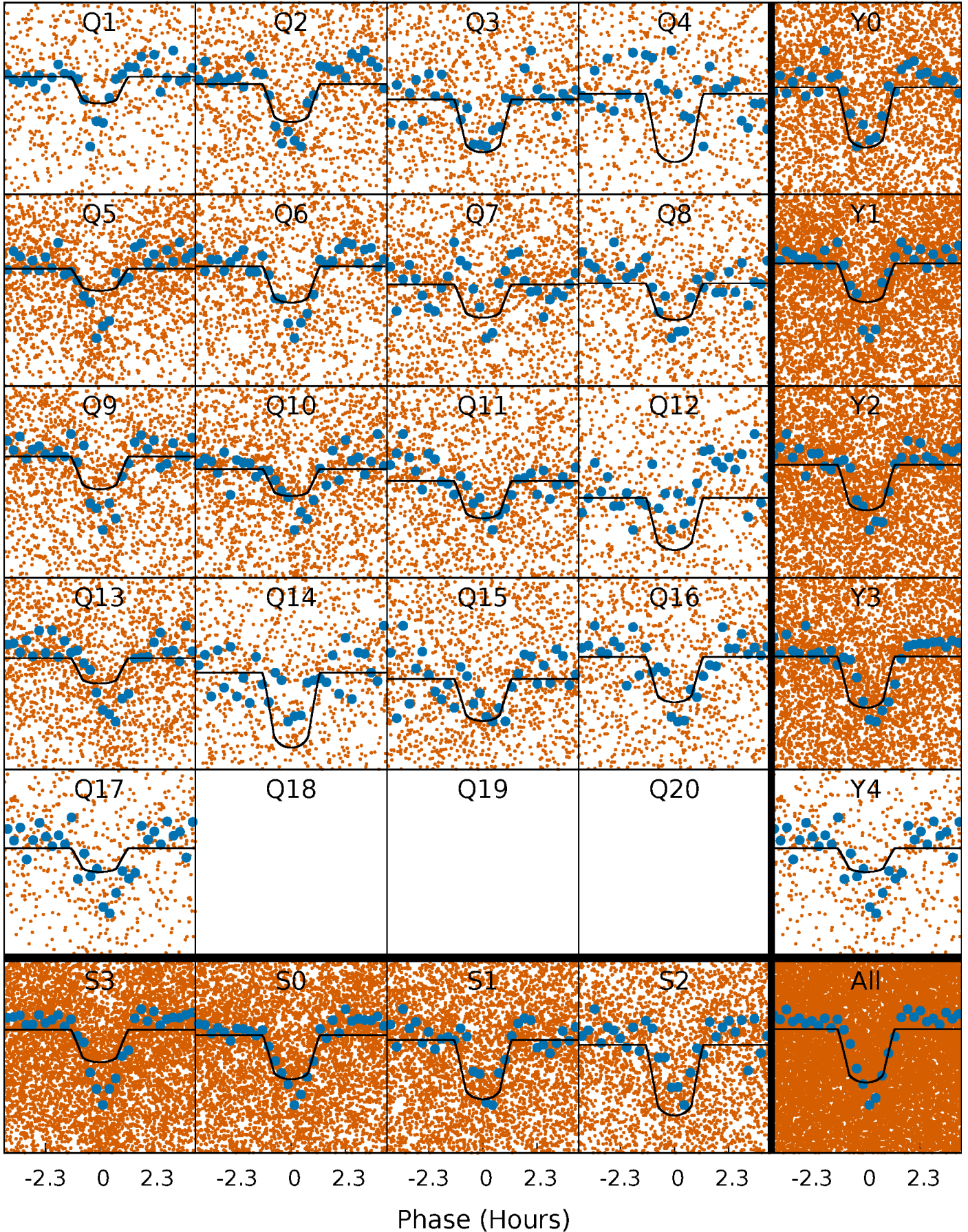
PDC Quarter-Phased Transit Curves

TCE 005308387-01 P= 0.620729 Days $T_0=132.103799$ (BKJD)



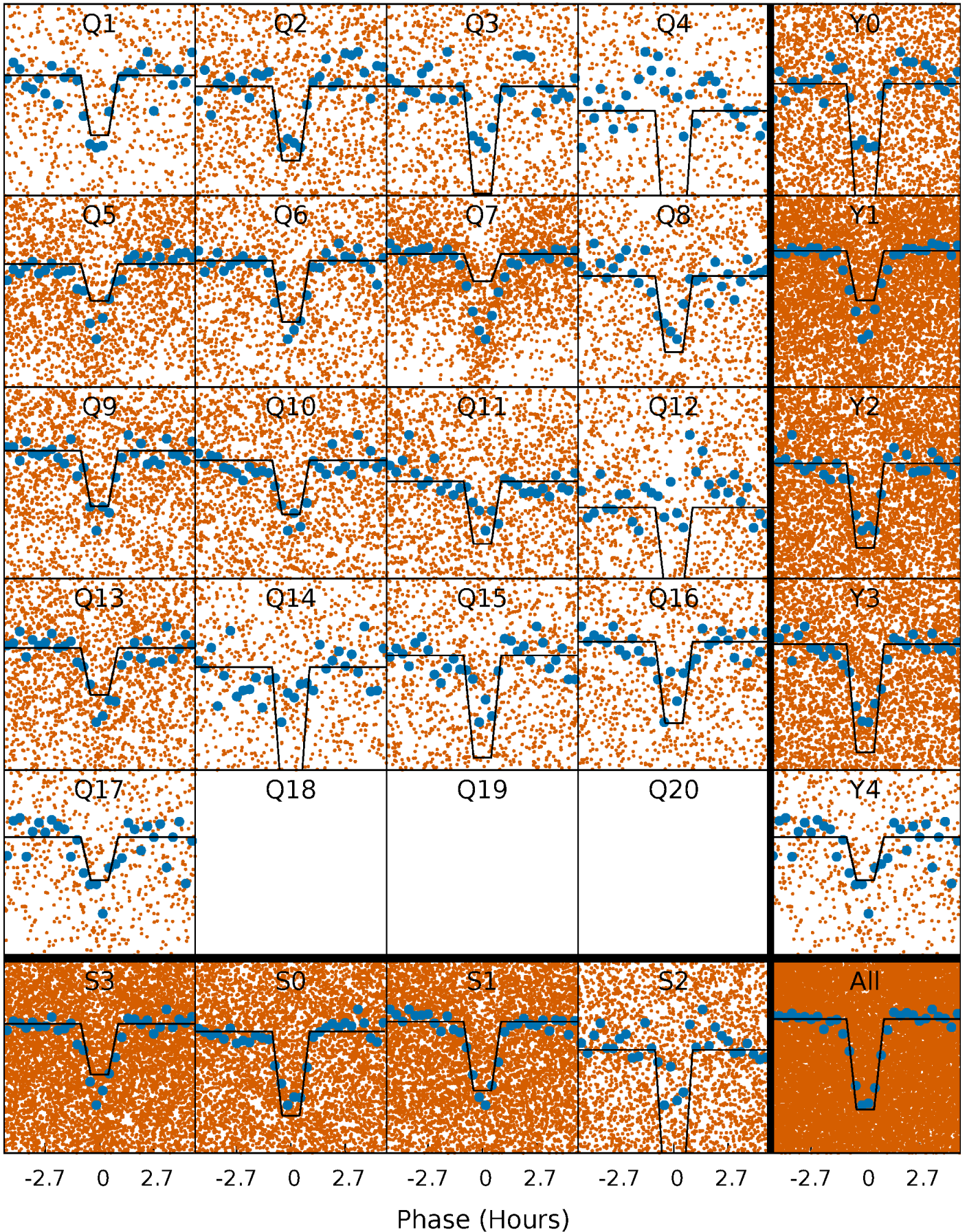
DV Quarter-Phased Transit Curves

TCE 005308387-01 P= 0.620729 Days $T_0=132.103799$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

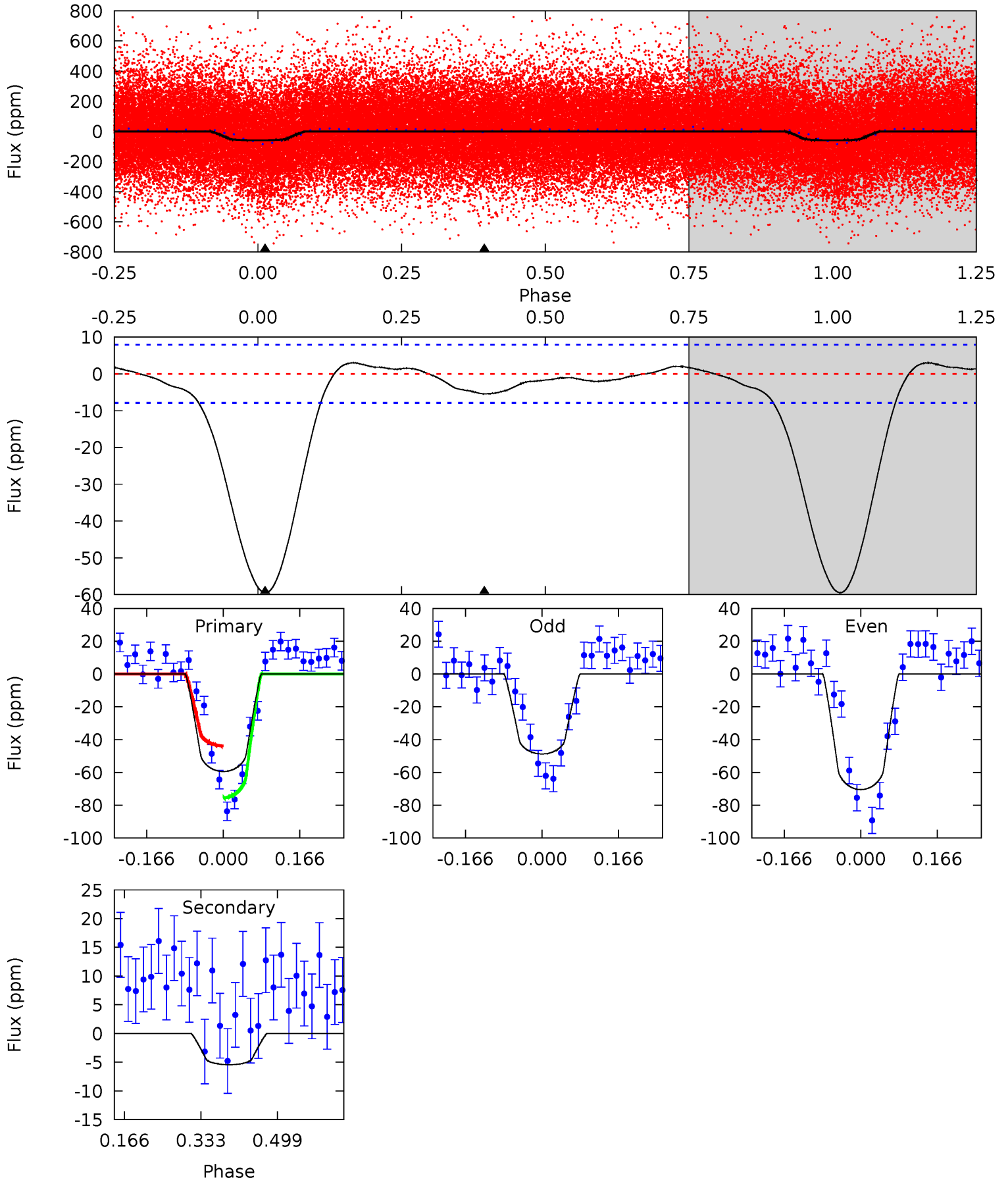
TCE 005308387-01 P= 0.620739 Days $T_0=132.101263$ (BKJD)



DV Model-Shift Uniqueness Test

005308387-01, P = 0.620729 Days, E = 131.483070 Days

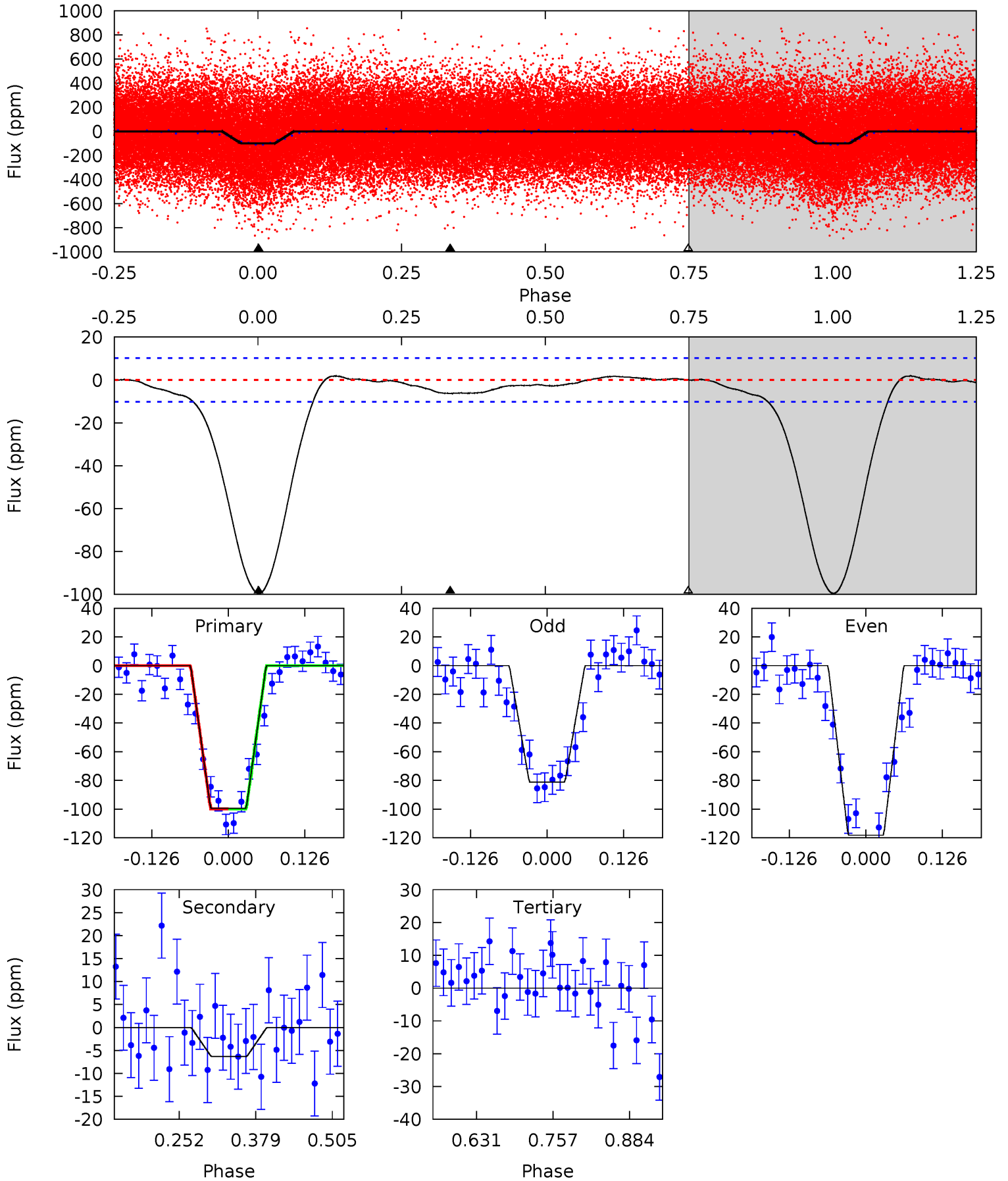
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.5	3.07	0	0	4.46	1.38	0.86	33.5	33.5	3.07	3.07	6.15	0.99	0.05	8.89



Alt Model-Shift Uniqueness Test

005308387-01, P = 0.620739 Days, E = 131.480524 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.1	2.81	0	0	4.52	1.53	0.98	44.1	44.1	2.81	2.81	8.21	0.98	0.02	0.01



Stellar Parameters For KIC 005308387

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6559^{+155}_{-214}	$4.133^{+0.214}_{-0.175}$	$-0.180^{+0.250}_{-0.300}$	$1.602^{+0.457}_{-0.457}$	$1.277^{+0.172}_{-0.214}$	$0.438^{+0.544}_{-0.214}$
	+2%/-3%	+5%/-4%	+139%/-167%	+29%/-29%	+13%/-17%	+124%/-49%
Source	PHO1	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 005308387-01 / KOI 2724.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5 ± 2	$1.40^{+0.36}_{-0.31}$	4094^{+301}_{-288}	2930^{+783}_{-6107}	$0.361^{+0.246}_{-0.156}$
Alt.	-6 ± 2	$1.80^{+0.37}_{-0.37}$	4110^{+312}_{-323}	-2819^{+6034}_{-666}	$0.257^{+0.177}_{-0.116}$

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

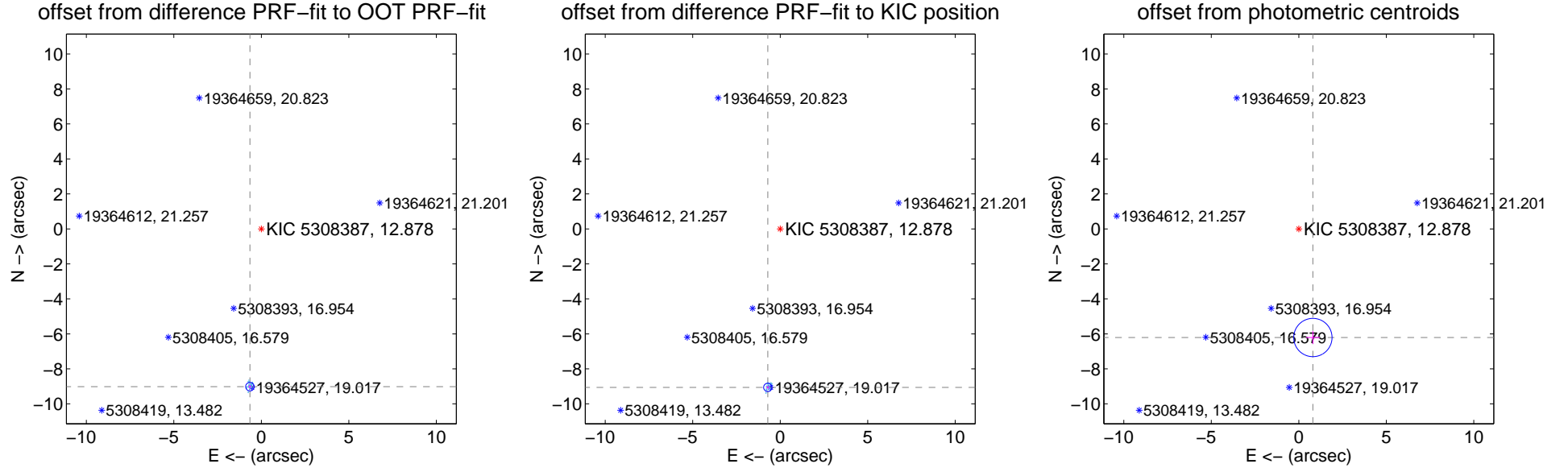
DV Centroid Data

Supplemental centroid analysis for 005308387-01. Kepler magnitude: 12.88. Transit SNR 20.20

There are 12 quarters with good PRF difference image offsets

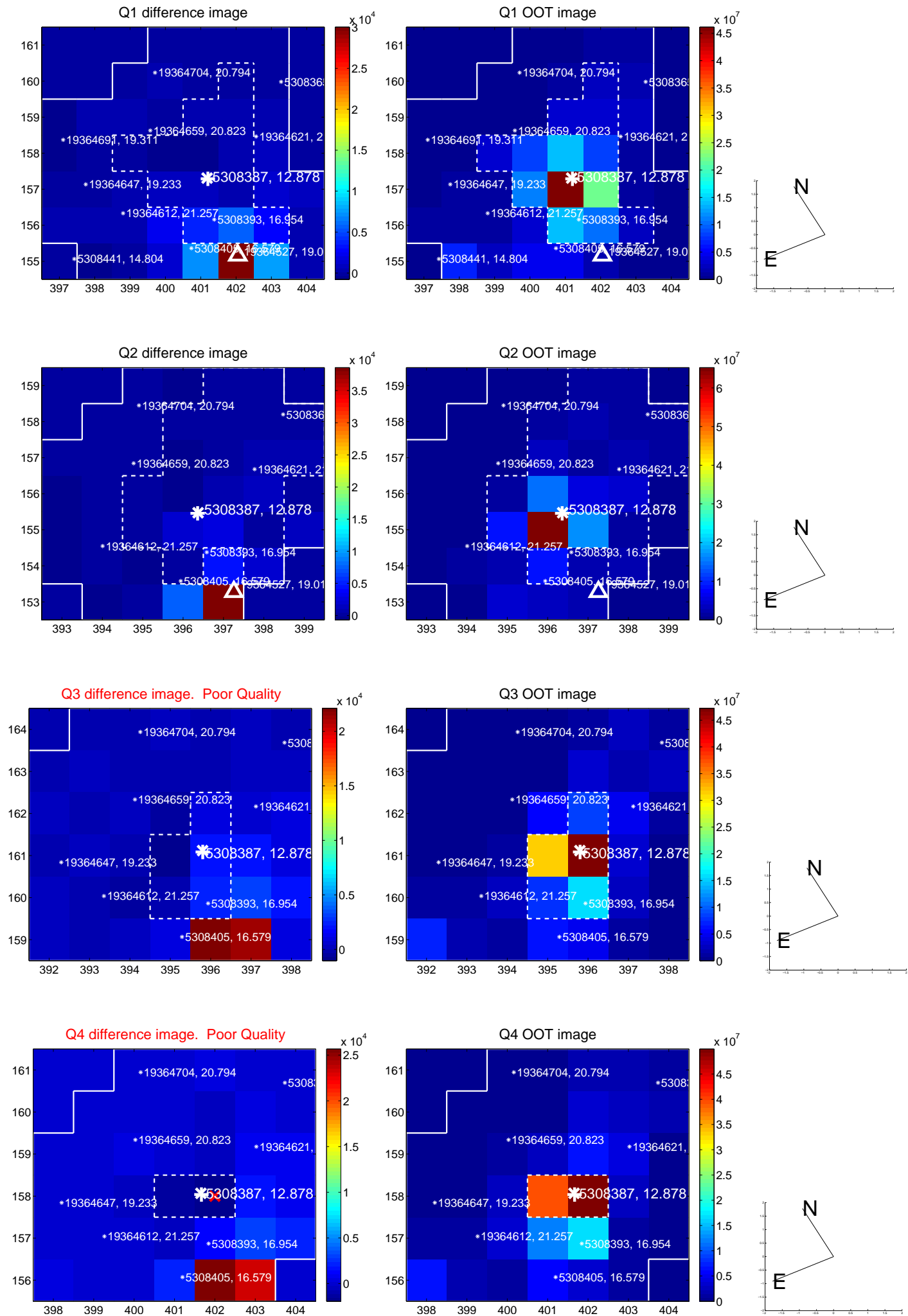
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.040 \pm 0.081	111.74	0.653 \pm 0.071	-9.016 \pm 0.081
PRF-fit source offset from KIC position	9.086 \pm 0.079	114.70	0.710 \pm 0.072	-9.058 \pm 0.078
photometric centroid source offset	6.26 \pm 0.36	17.17	-0.80 \pm 0.39	-6.21 \pm 0.36

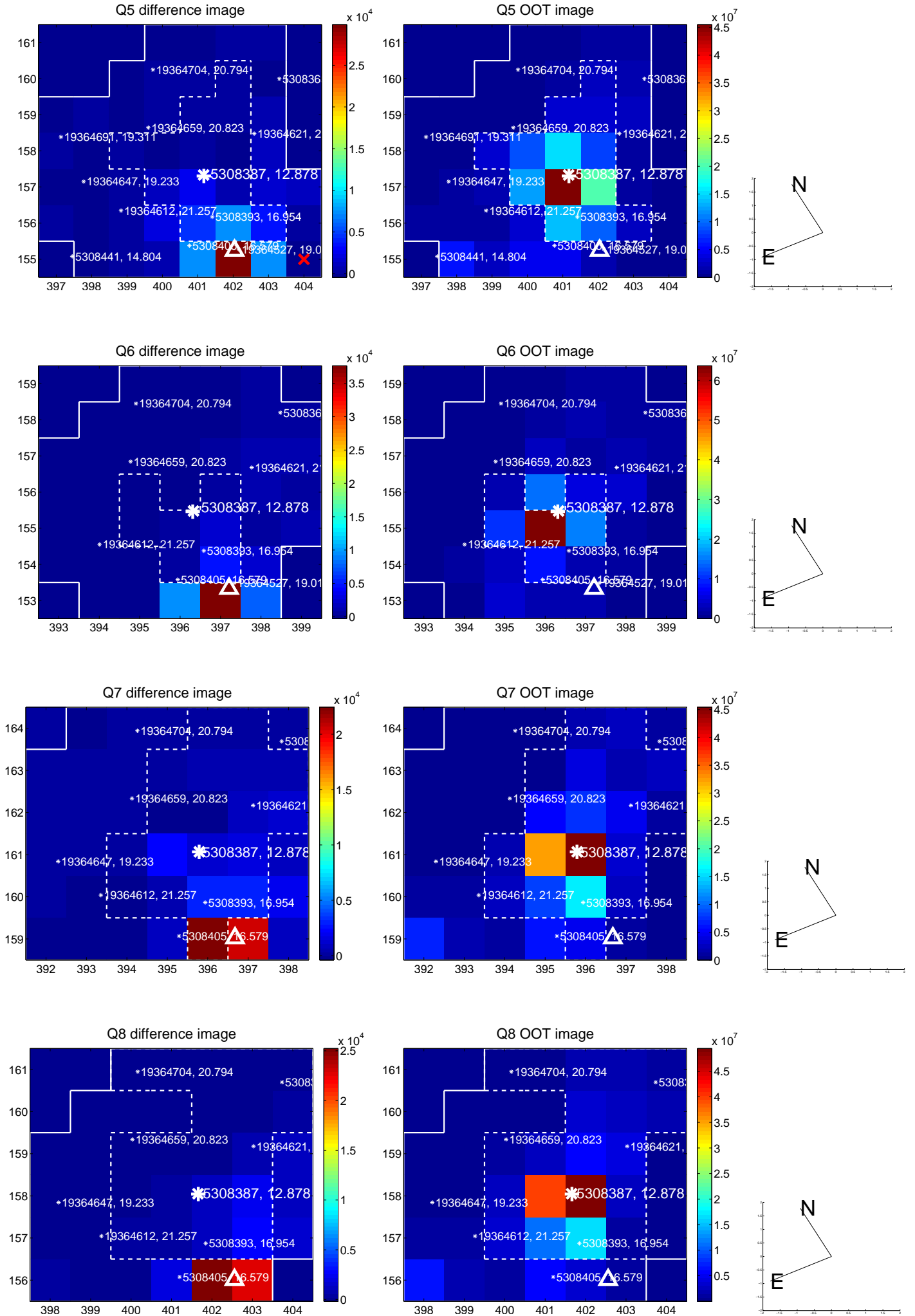


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

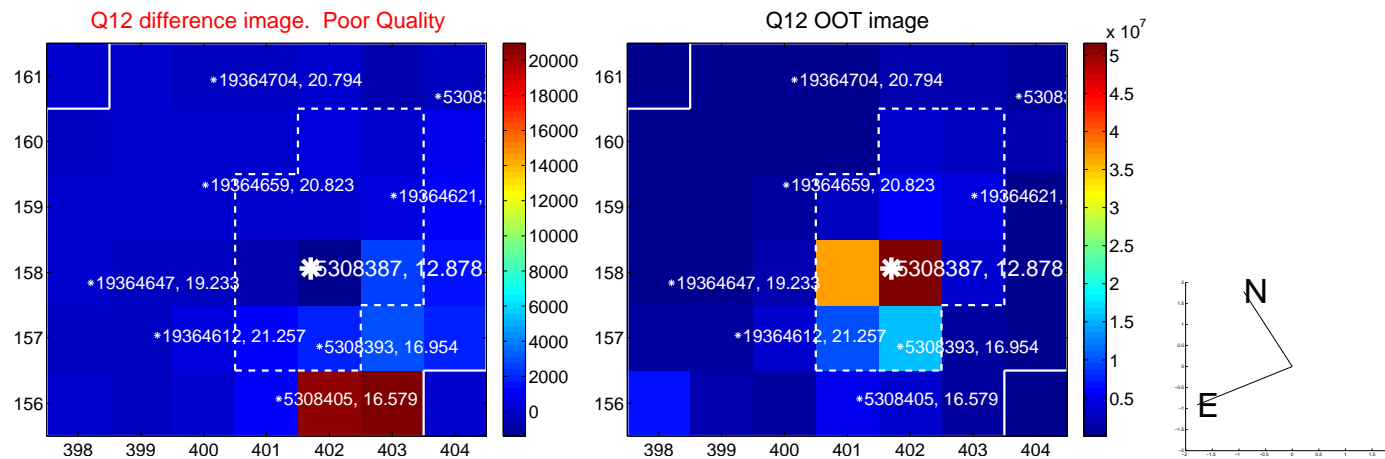
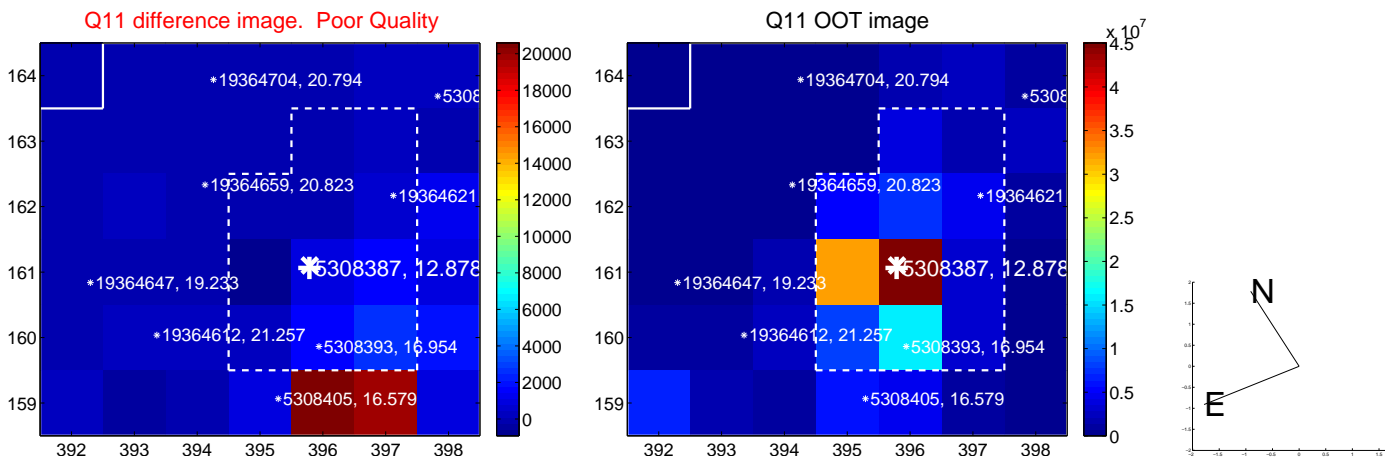
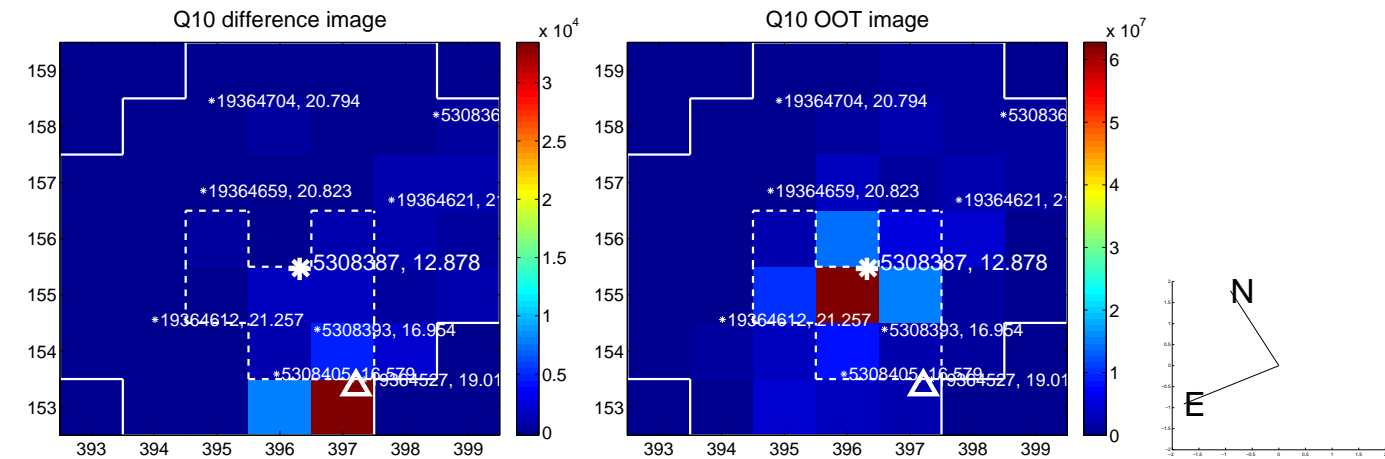
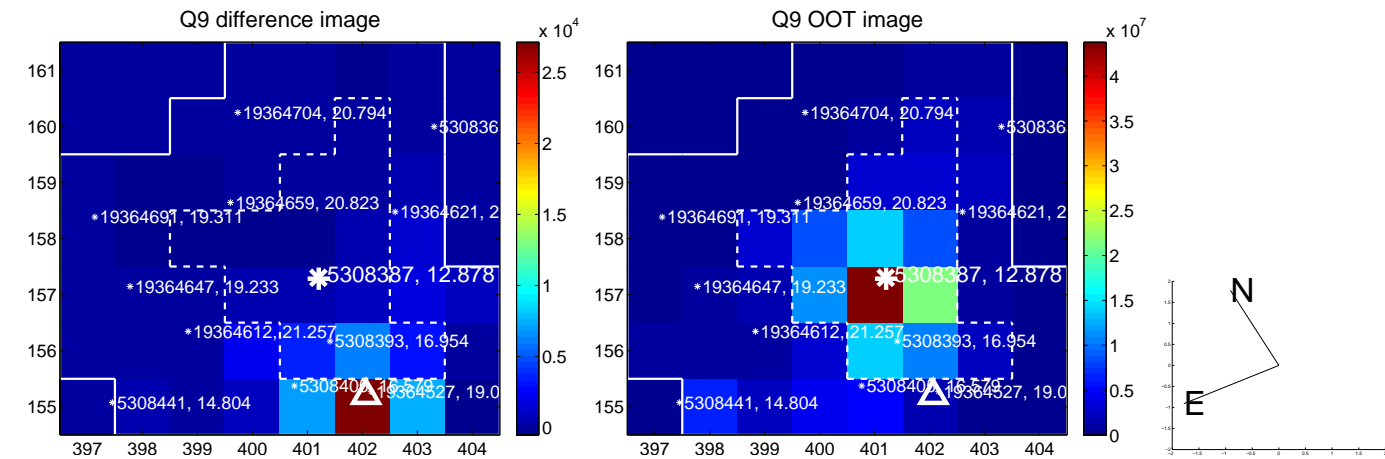
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



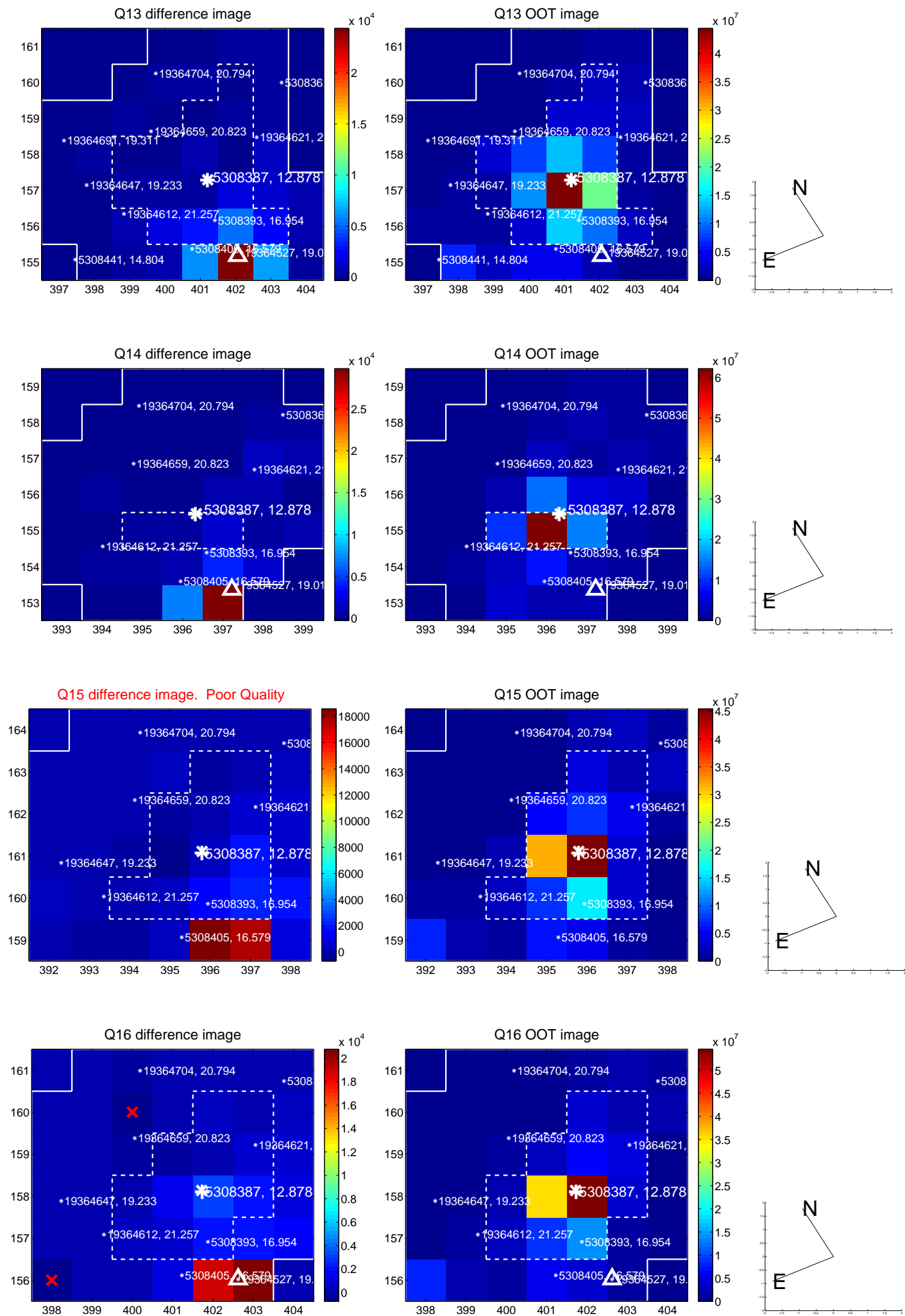
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



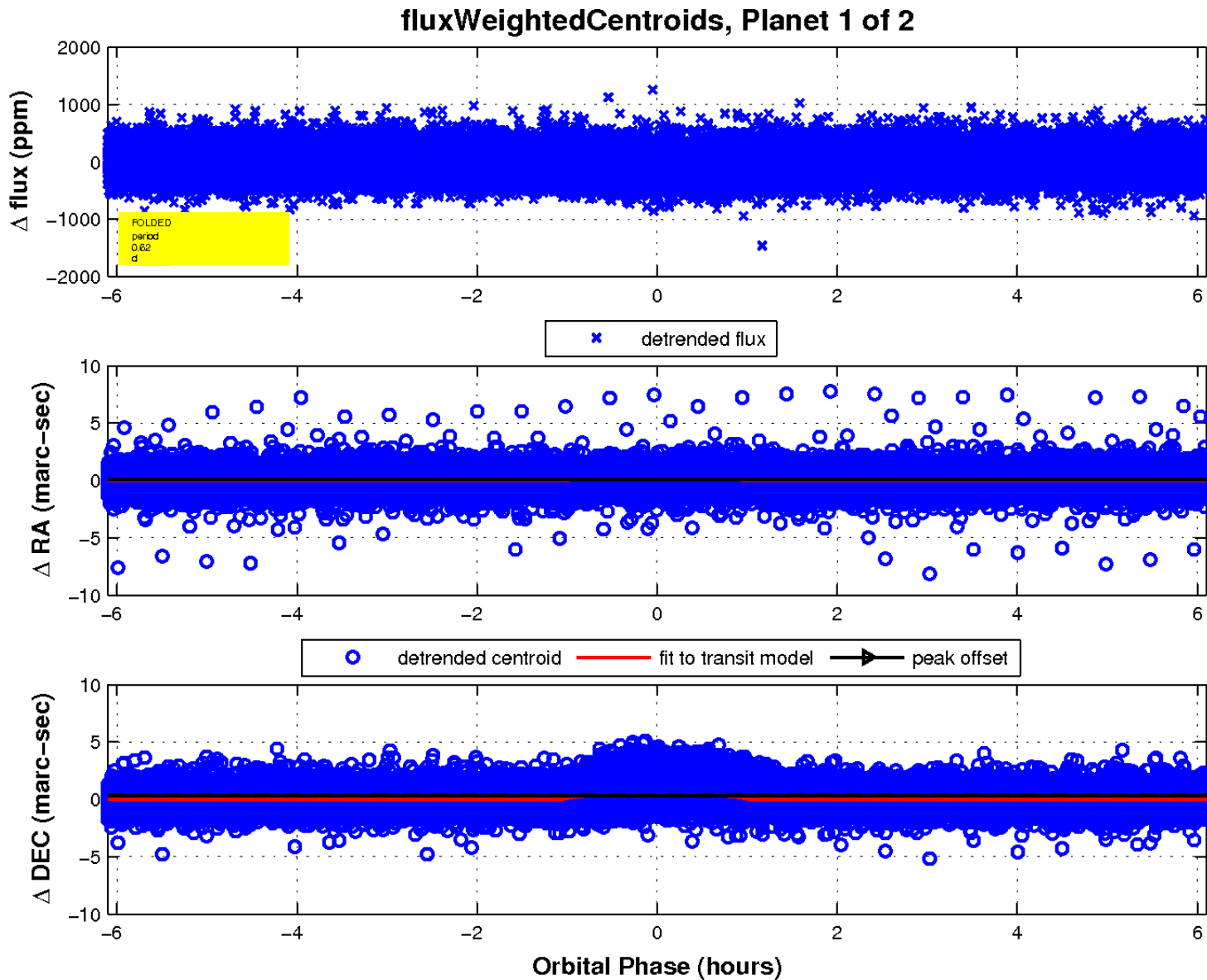
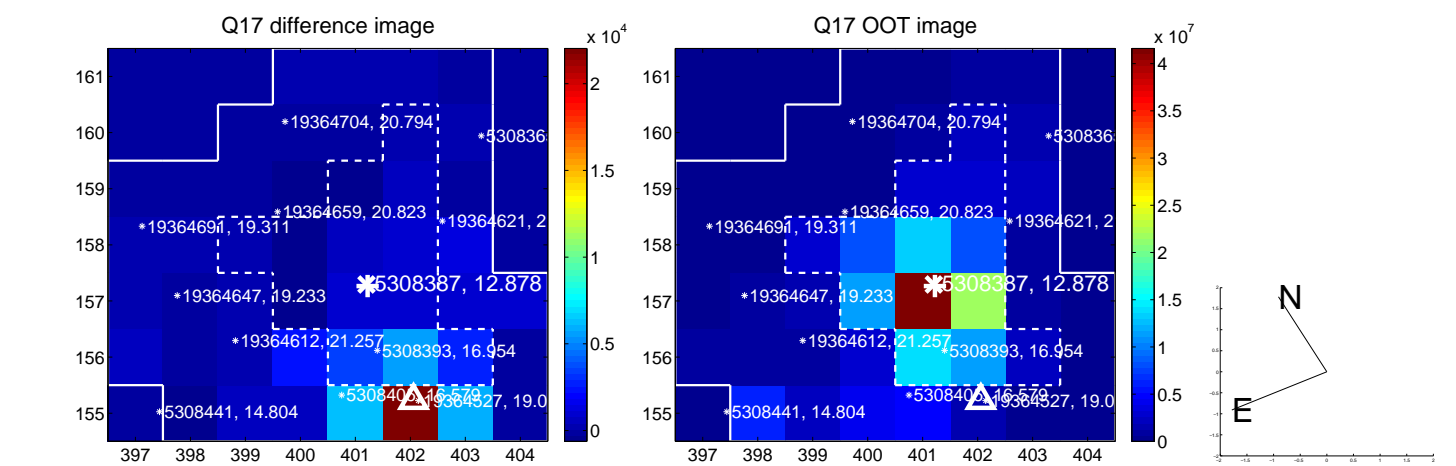
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



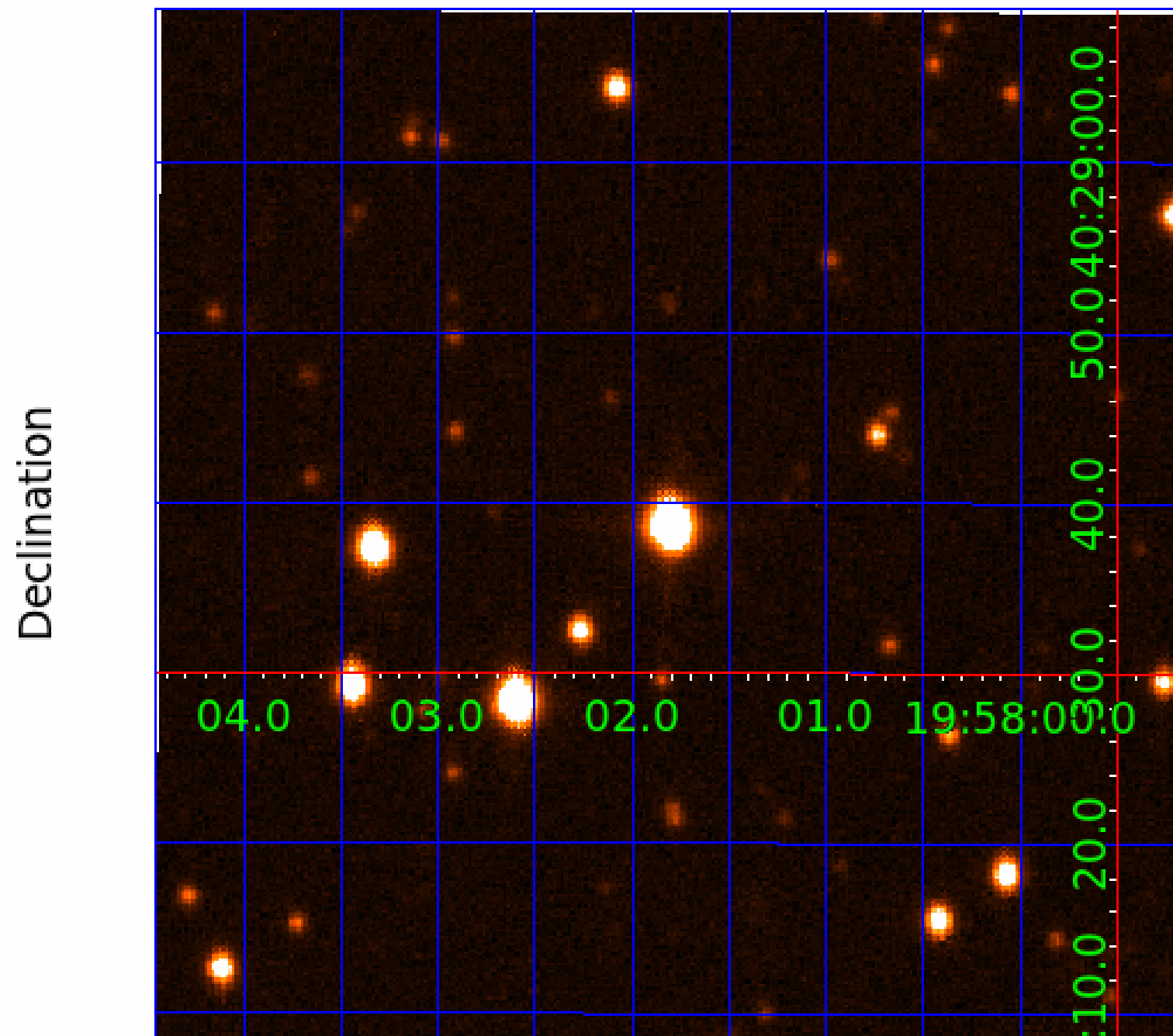
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005308387

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})
005308387-01	OBS	2724.01	0.620729	132.103799	58.4	2.034	21.8	20.2	1.60	6559	1.43	17871.07
005308387-02	OBS	No	327.712117	244.320249	385.0	5.045	7.4	7.4	1.60	6559	3.55	4.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005308387-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—EPHEM_MATCH
005308387-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

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

Ephemeris Match Information For 005308387-02

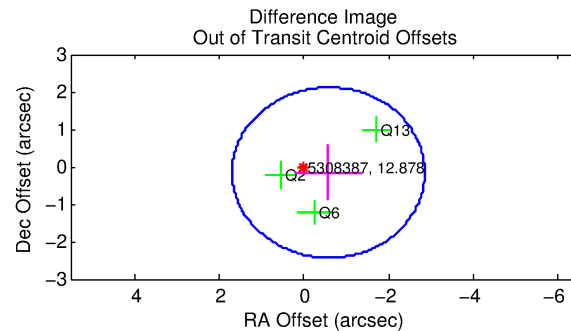
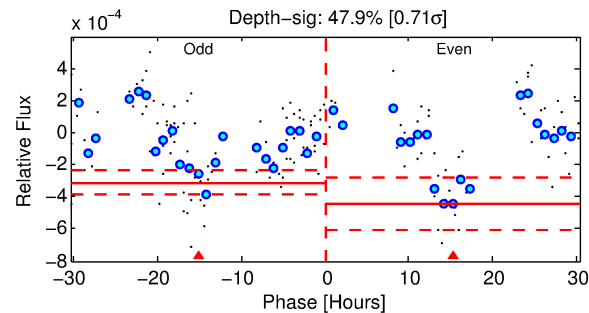
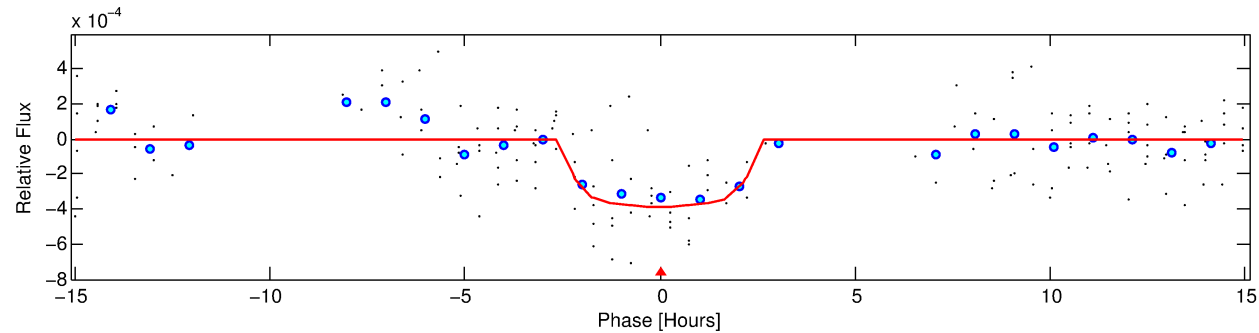
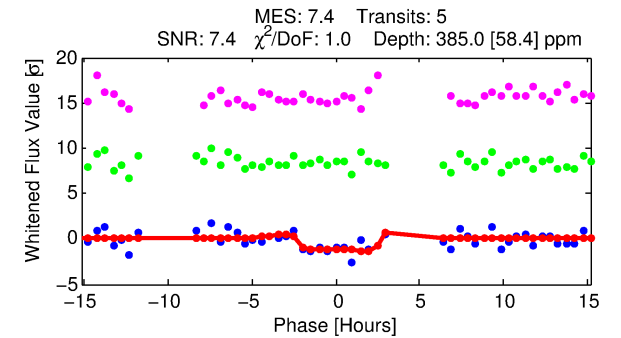
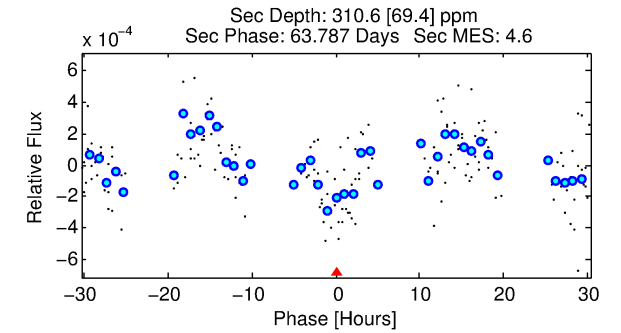
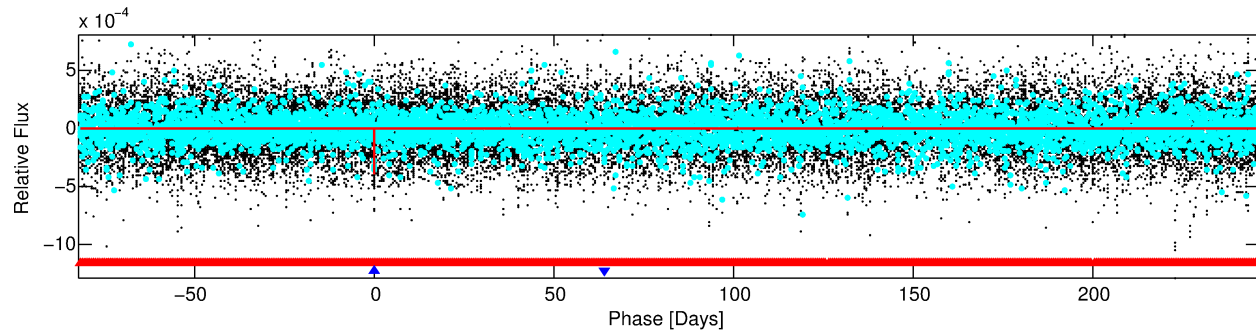
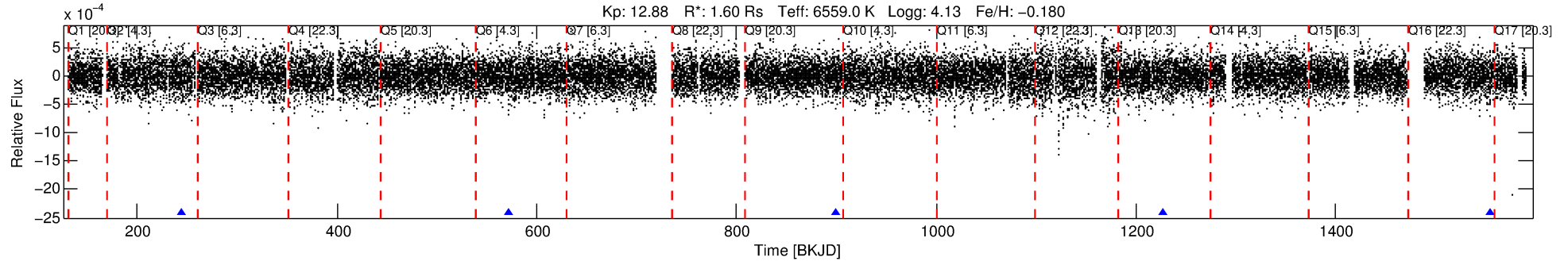
No Significant Match Found

DV One-Page Summary

KIC: 5308387 Candidate: 2 of 2 Period: 327.712 d

KOI: K02724 Corr: No Ephemeris Match

Kp: 12.88 R*: 1.60 Rs Teff: 6559.0 K Logg: 4.13 Fe/H: -0.180



DV Fit Results:

Period = 327.71212 [0.00388] d
Epoch = 244.3202 [0.0124] BKJD
Rp/R* = 0.0203 [0.0084]
a/R* = 282.44 [640.53]
b = 0.85 [0.75]
Seff = 4.19 [1.68]
Teq = 365 [37] K
Rp = 3.55 [1.79] Re
a = 1.0080 [0.2533] AU
Ag = 13789.74 [12967.48] [1.06σ]
Teffp = 6112 [1330] K [4.32σ]

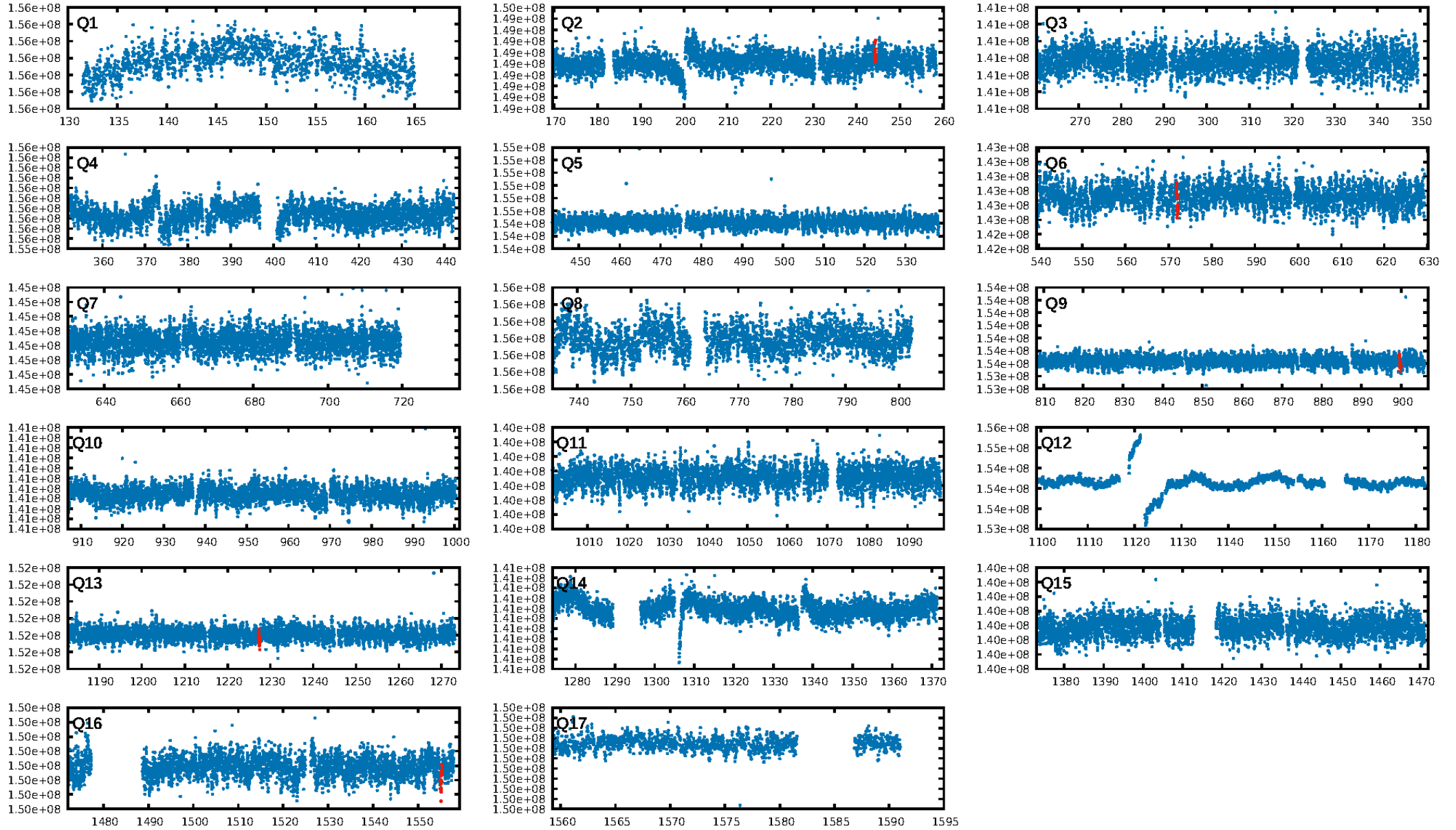
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1443.05σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 14.4%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 5.95e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -2.949
Centroid-sig: 0.7%
Centroid-so: 1.415 arcsec [1.35σ]
OotOffset-rm: 0.603 arcsec [0.80σ]
KicOffset-rm: 0.555 arcsec [0.73σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/5]

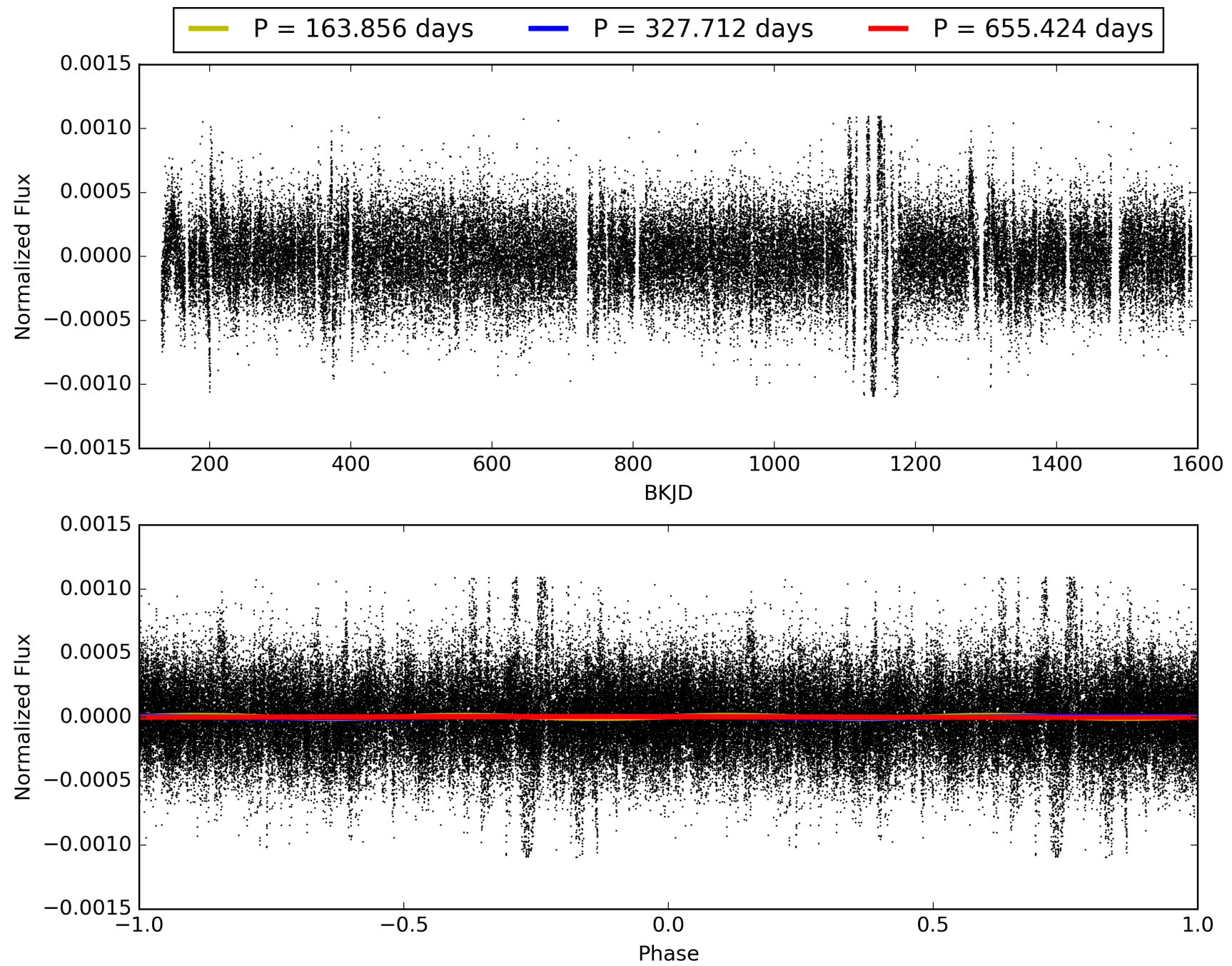
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:57:08 Z

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

TCE 005308387-02, PDC Light Curves

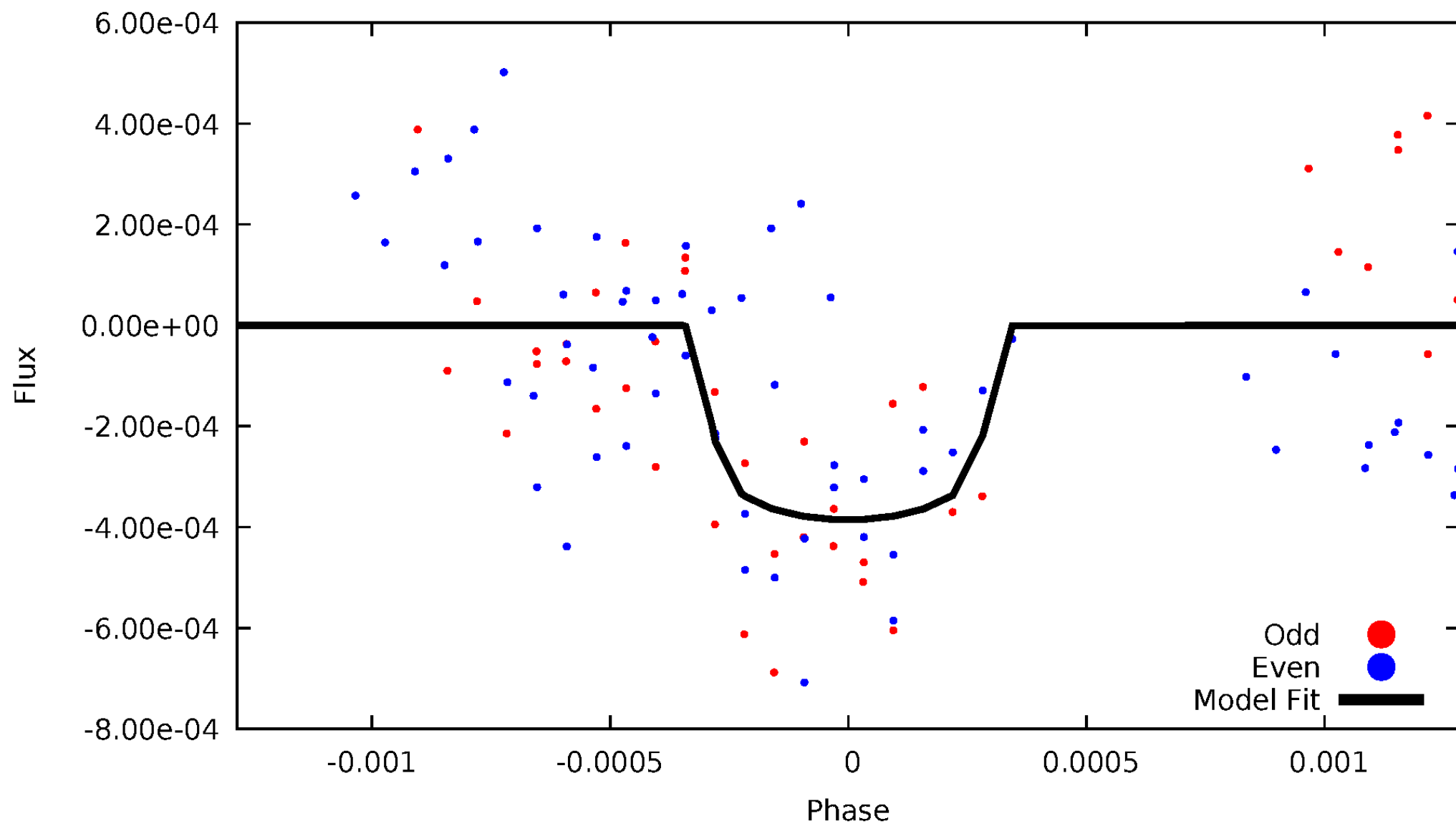


TCE 005308387-02



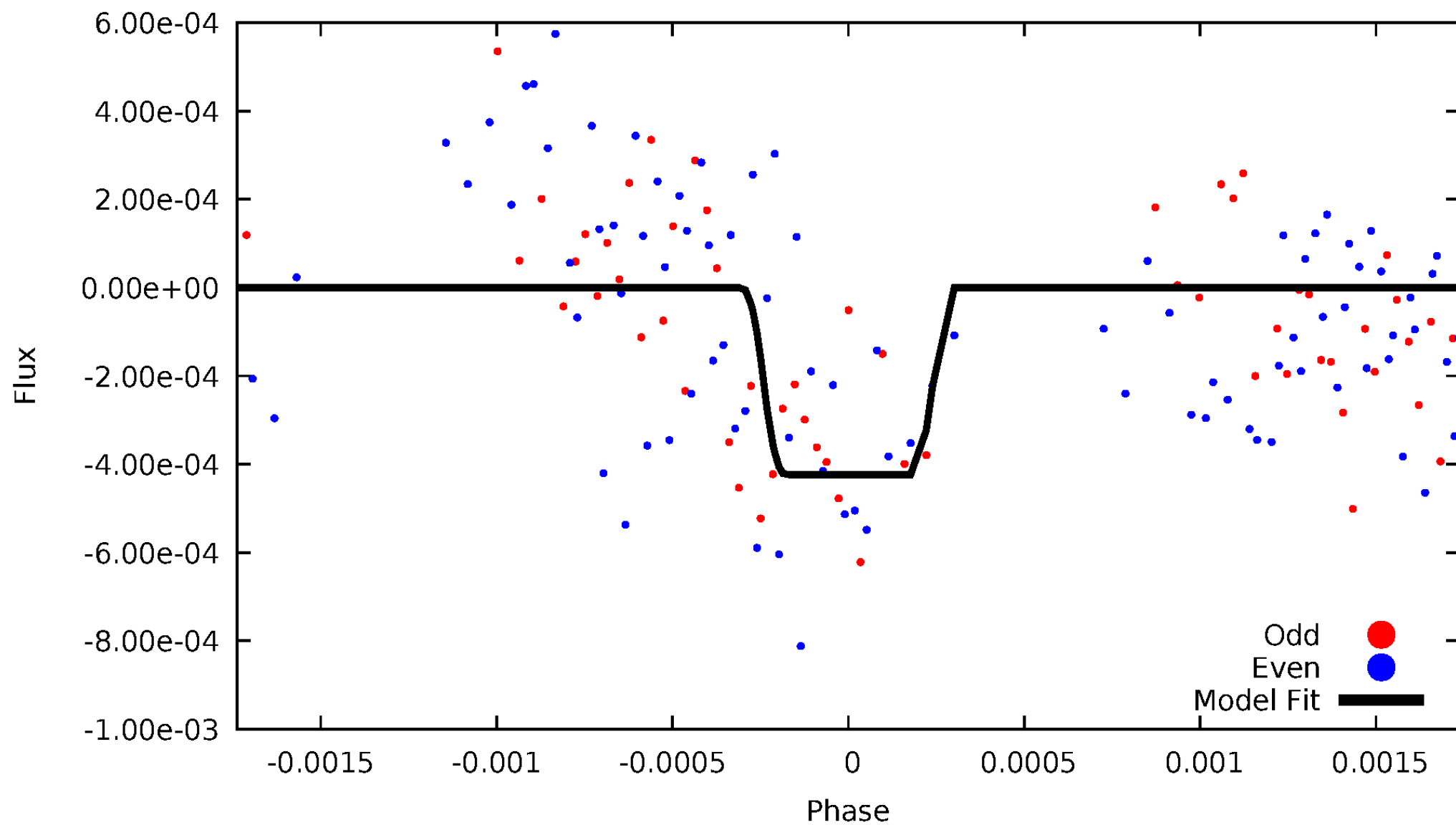
DV Odd/Even

TCE 005308387-02



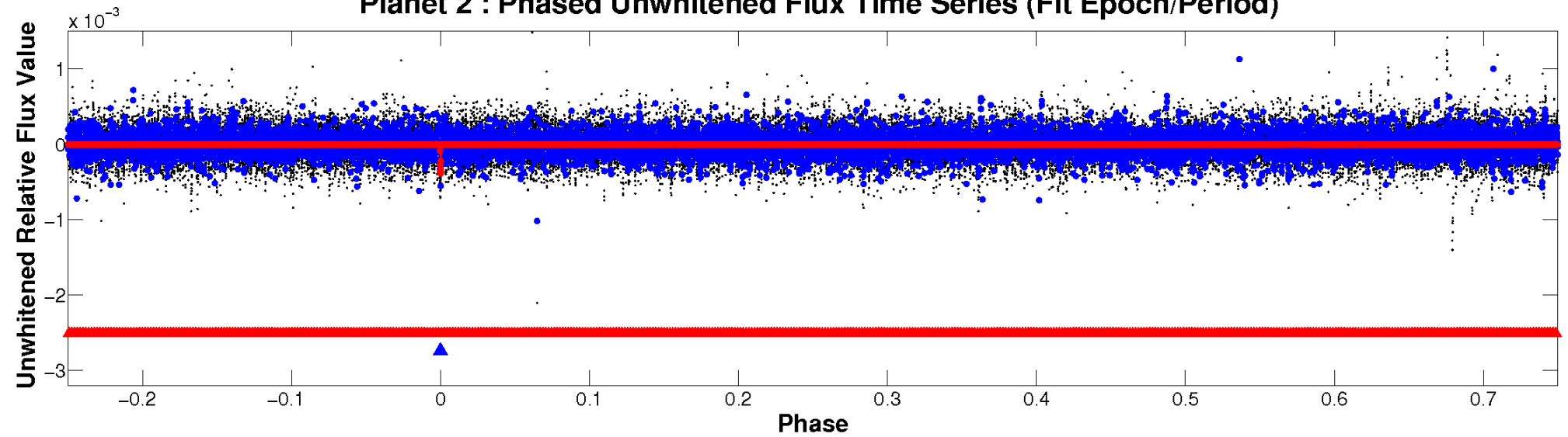
ALT Odd/Even

TCE 005308387-02

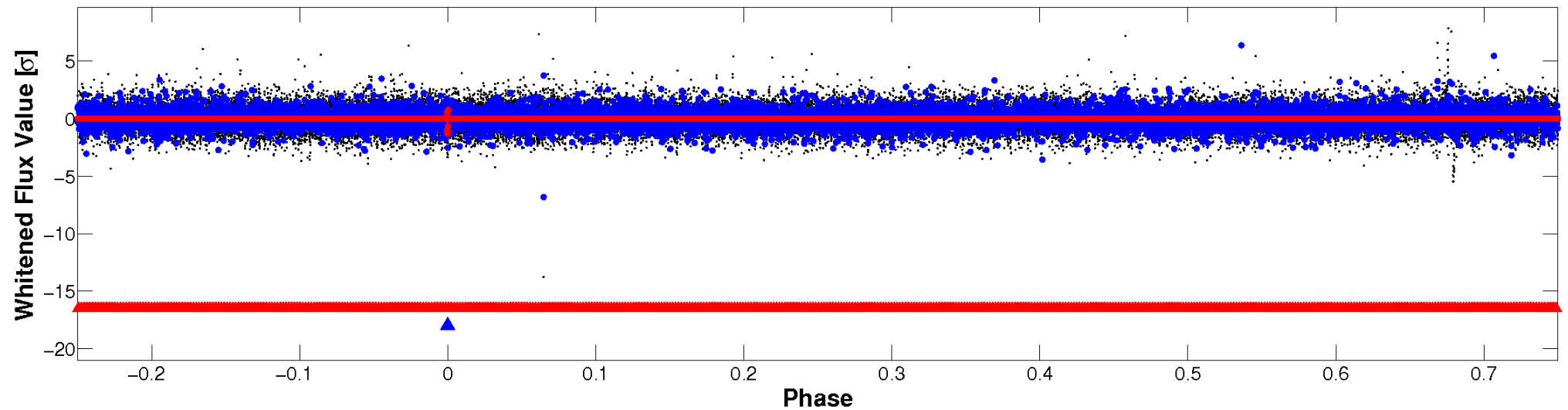


Non-Whitened Vs. Whitened Light Curve

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

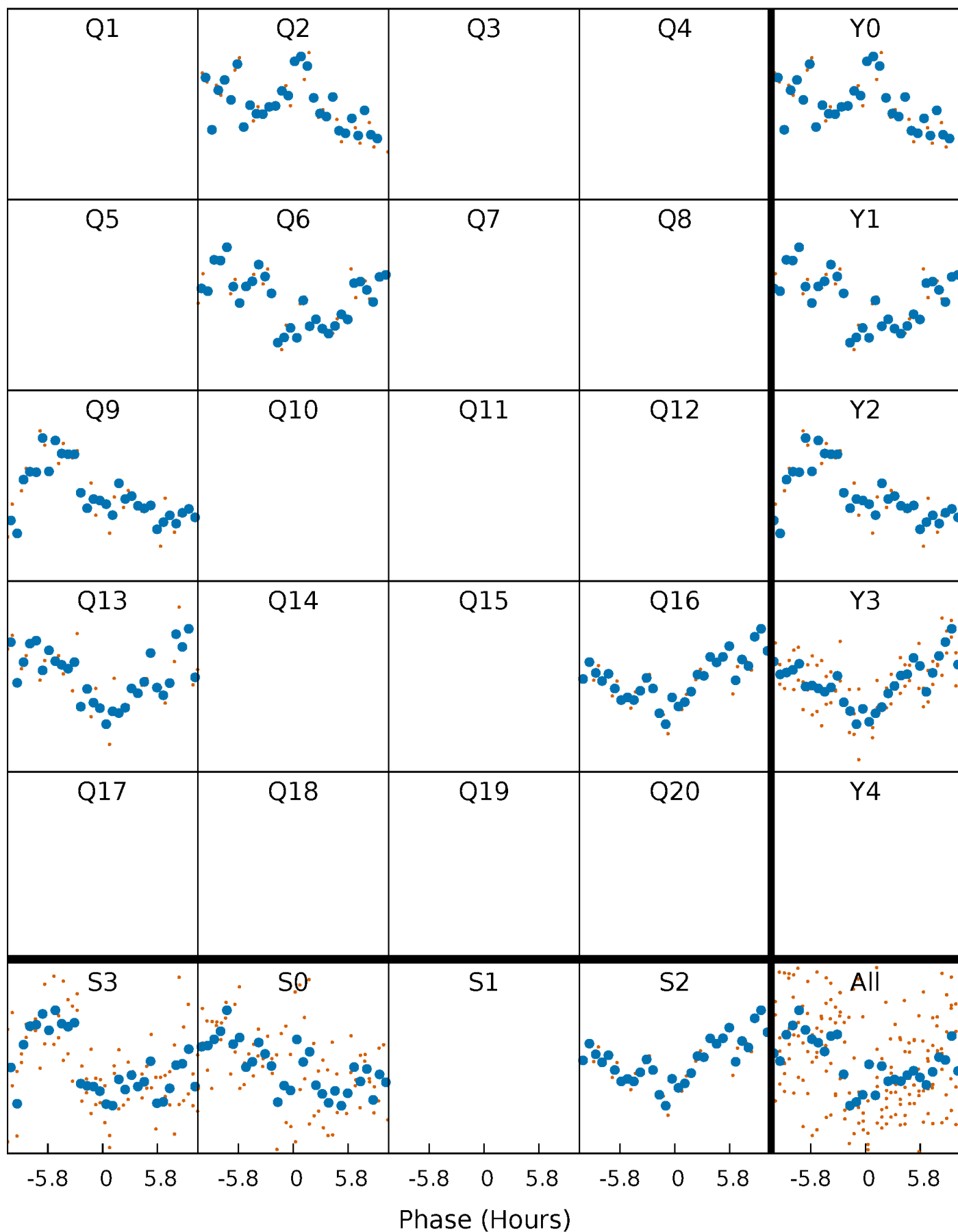


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



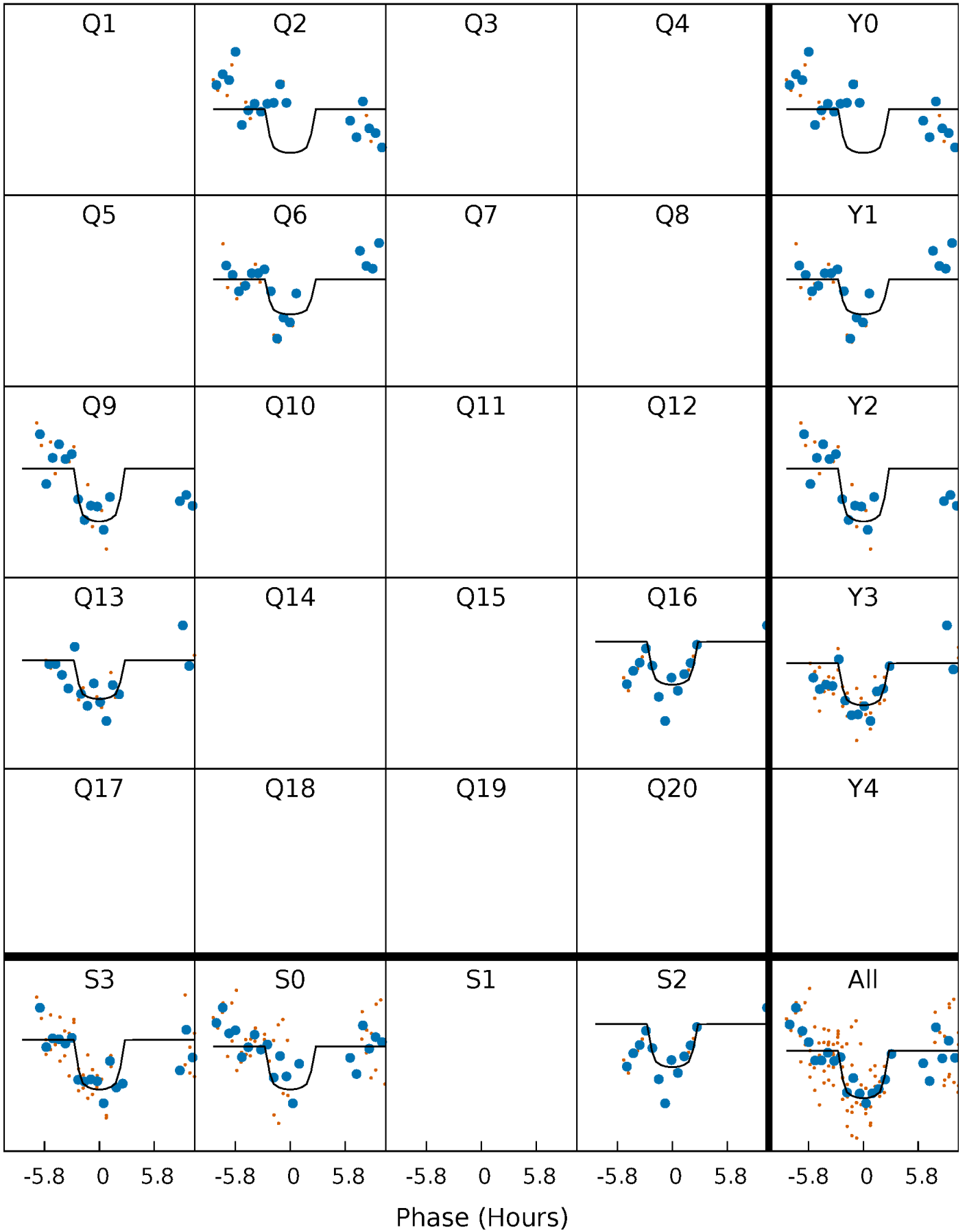
PDC Quarter-Phased Transit Curves

TCE 005308387-02 $P=327.712117$ Days $T_0=244.320249$ (BKJD)



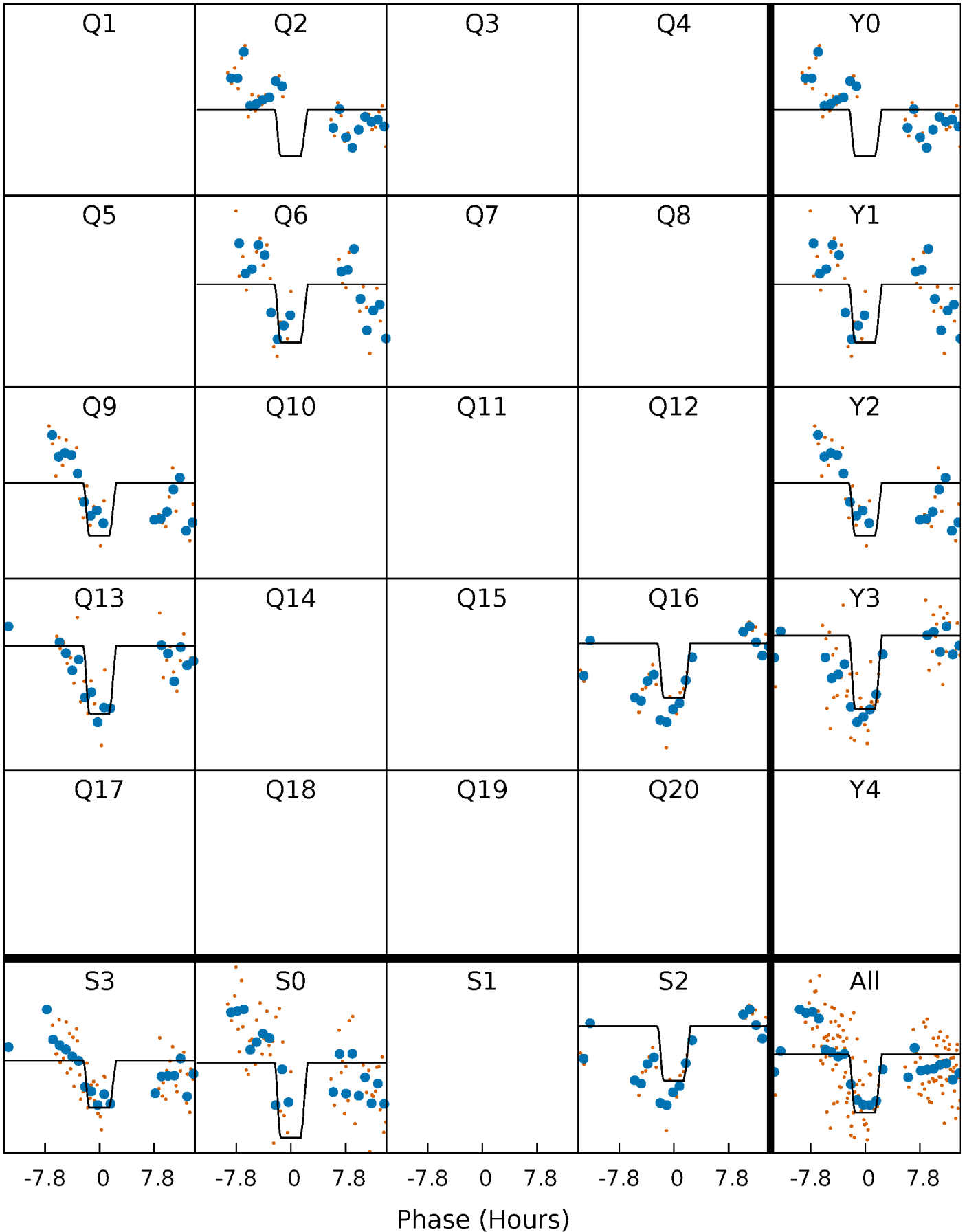
DV Quarter-Phased Transit Curves

TCE 005308387-02 $P=327.712117$ Days $T_0=244.320249$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

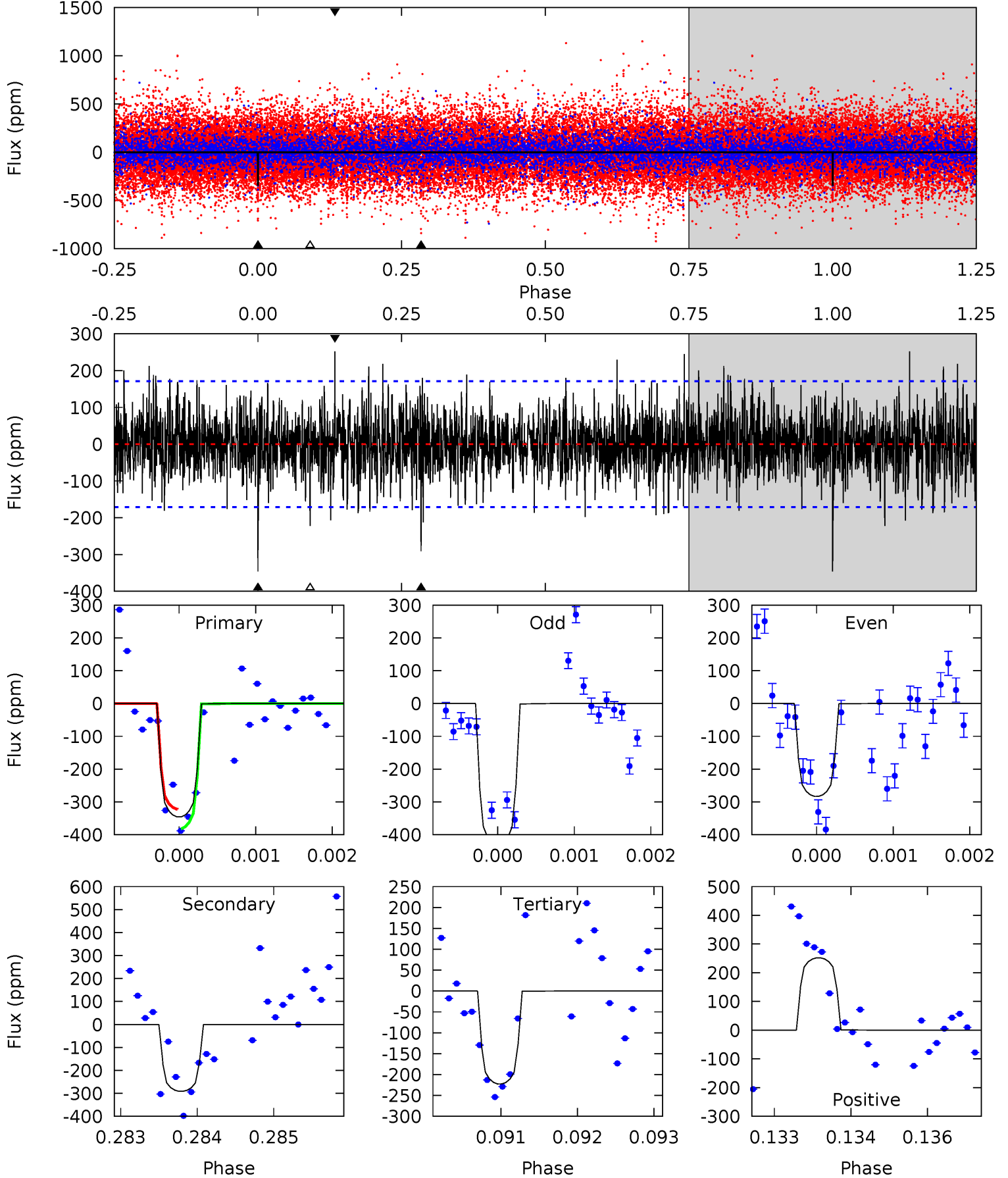
TCE 005308387-02 P=327.706624 Days $T_0=244.356241$ (BKJD)



DV Model-Shift Uniqueness Test

005308387-02, P = 327.712117 Days, E = 244.320249 Days

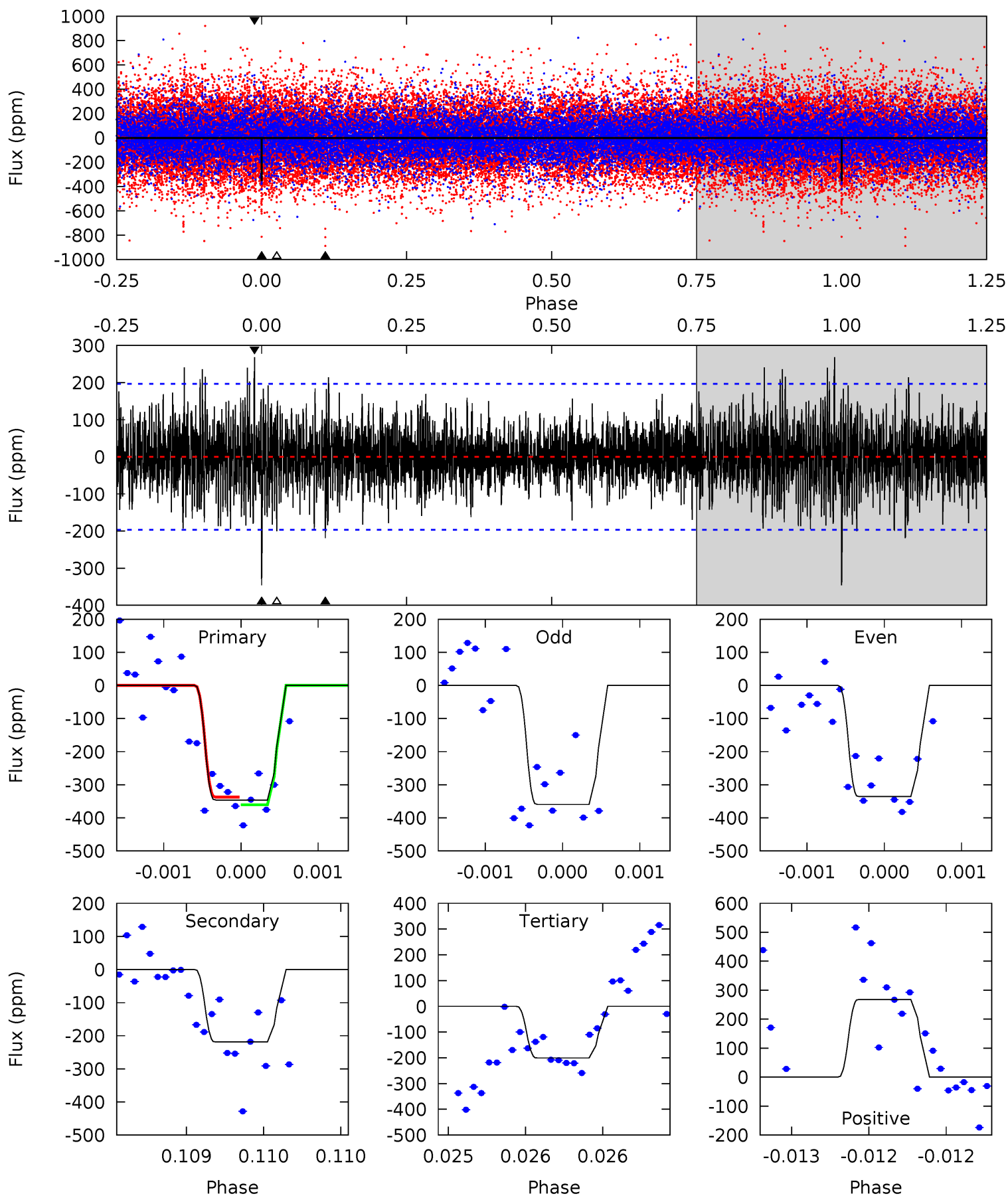
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	9.23	7.06	7.99	5.42	3.24	1.97	3.91	2.97	2.18	1.24	2.25	0.75	0.42	0.92



Alt Model-Shift Uniqueness Test

005308387-02, P = 327.706624 Days, E = 244.356241 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.81	6.20	5.68	7.59	5.57	3.47	1.76	4.12	2.22	0.51	-1.40	0.33	0.85	0.44	0.31



Stellar Parameters For KIC 005308387

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6559^{+155}_{-214}	$4.133^{+0.214}_{-0.175}$	$-0.180^{+0.250}_{-0.300}$	$1.602^{+0.457}_{-0.457}$	$1.277^{+0.172}_{-0.214}$	$0.438^{+0.544}_{-0.214}$
	+2%/-3%	+5%/-4%	+139%/-167%	+29%/-29%	+13%/-17%	+124%/-49%
Source	PHO1	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 005308387-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-291 ± 32	$3.52^{+1.61}_{-1.57}$	509^{+37}_{-38}	5986^{+2145}_{-881}	13257^{+29580}_{-7213}
Alt.	-219 ± 35	$3.62^{+1.52}_{-1.42}$	504^{+43}_{-35}	5496^{+1527}_{-740}	9263^{+16511}_{-4698}

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

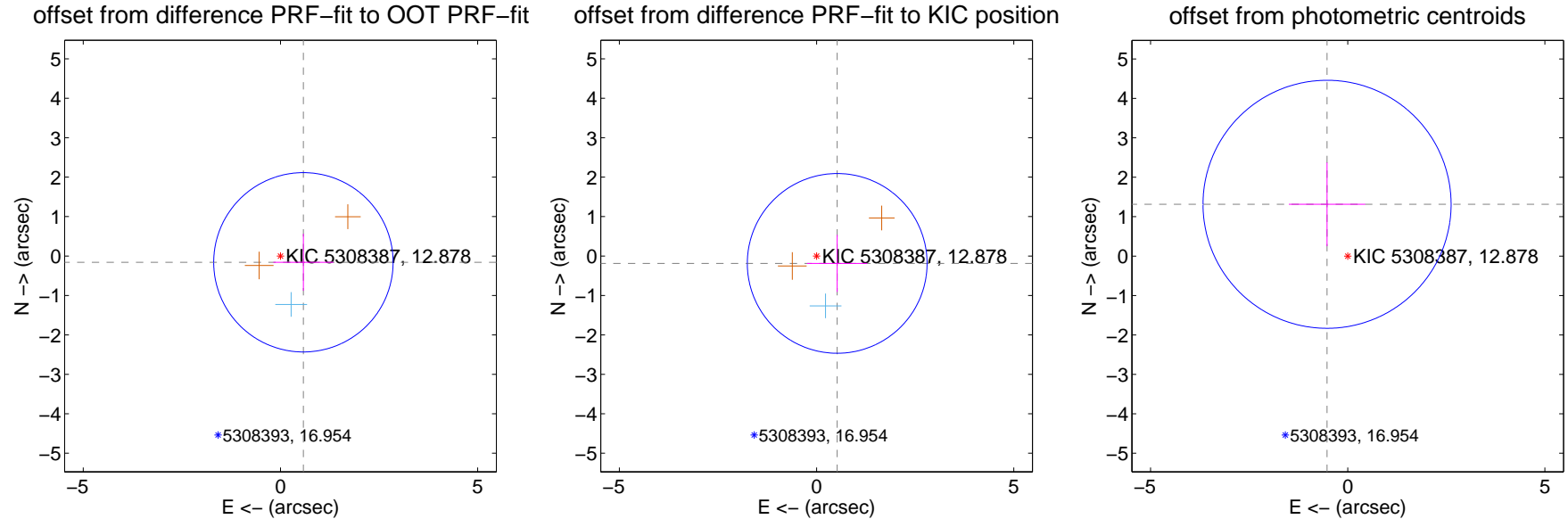
DV Centroid Data

Supplemental centroid analysis for 005308387-02. Kepler magnitude: 12.88. Transit SNR 7.39

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.603 ± 0.758	0.80	-0.582 ± 0.761	-0.159 ± 0.722
PRF-fit source offset from KIC position	0.555 ± 0.760	0.73	-0.523 ± 0.764	-0.187 ± 0.723
photometric centroid source offset	1.42 ± 1.05	1.35	0.52 ± 0.97	1.31 ± 1.06



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.

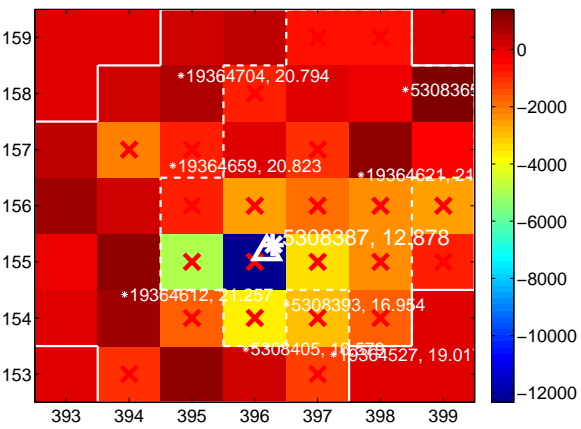
Q1 no difference image



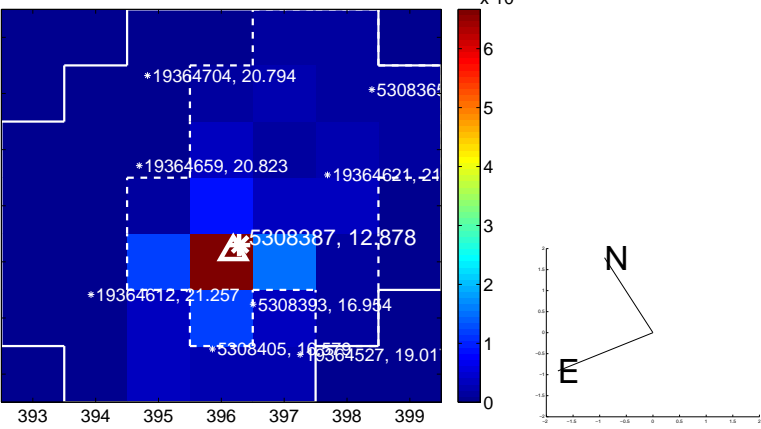
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



Q3 no difference image



Q3 no OOT image



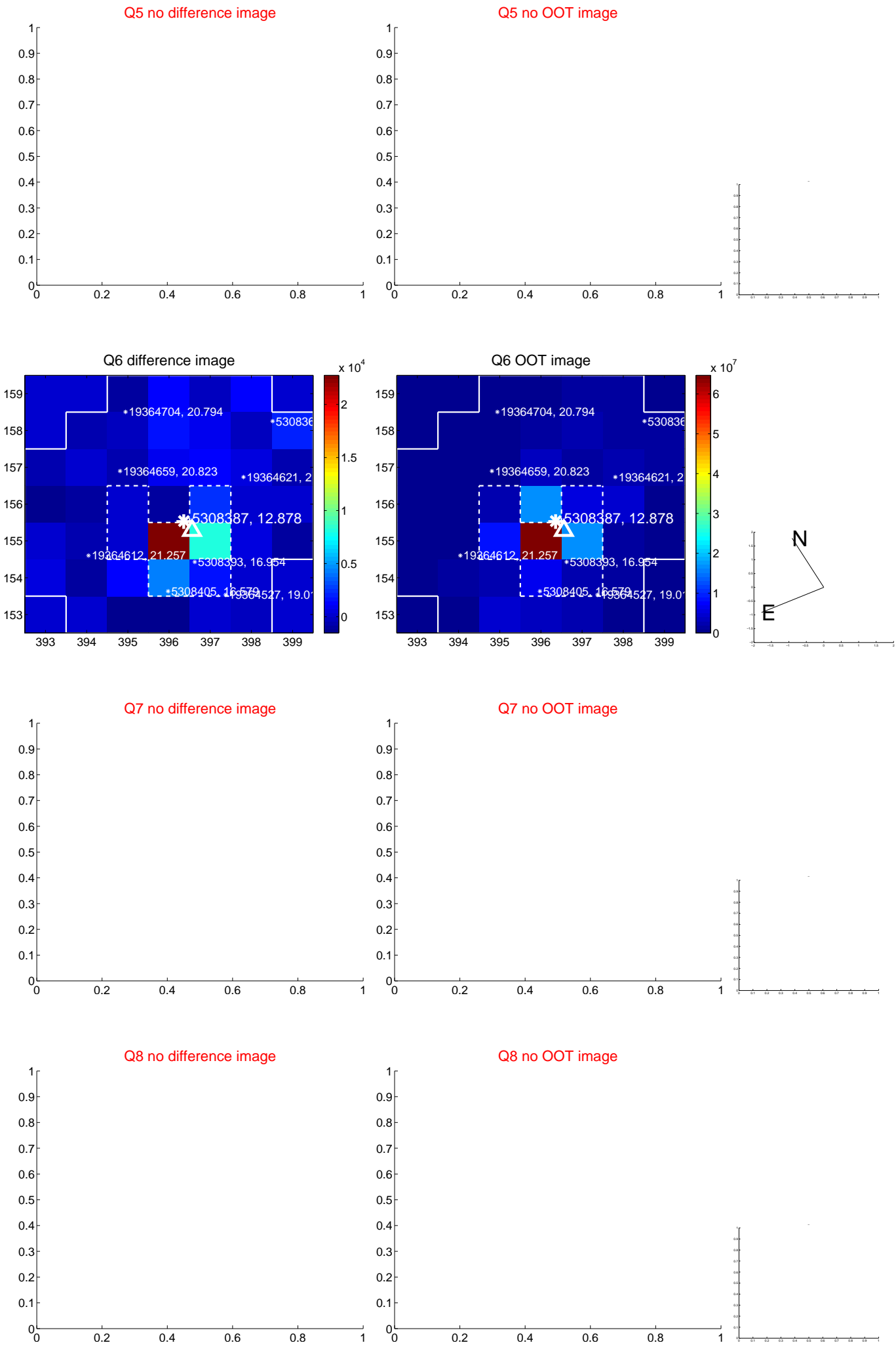
Q4 no difference image



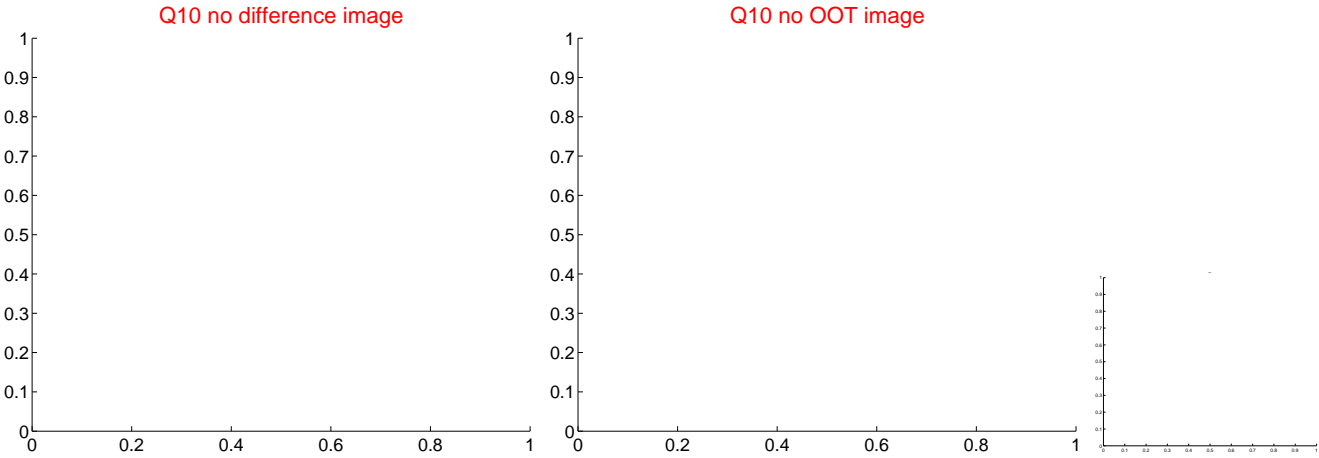
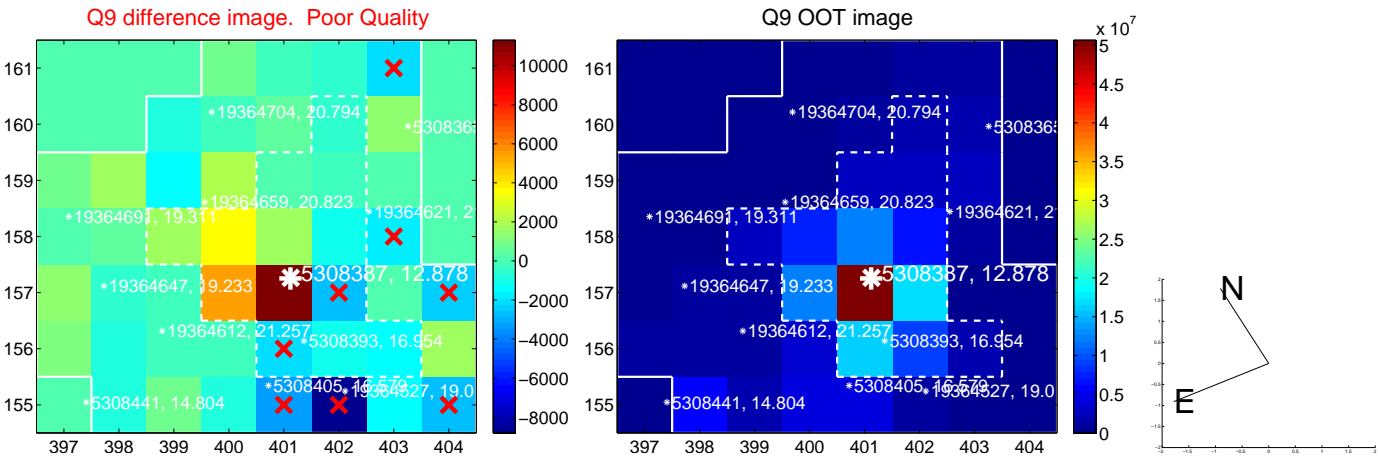
Q4 no OOT image



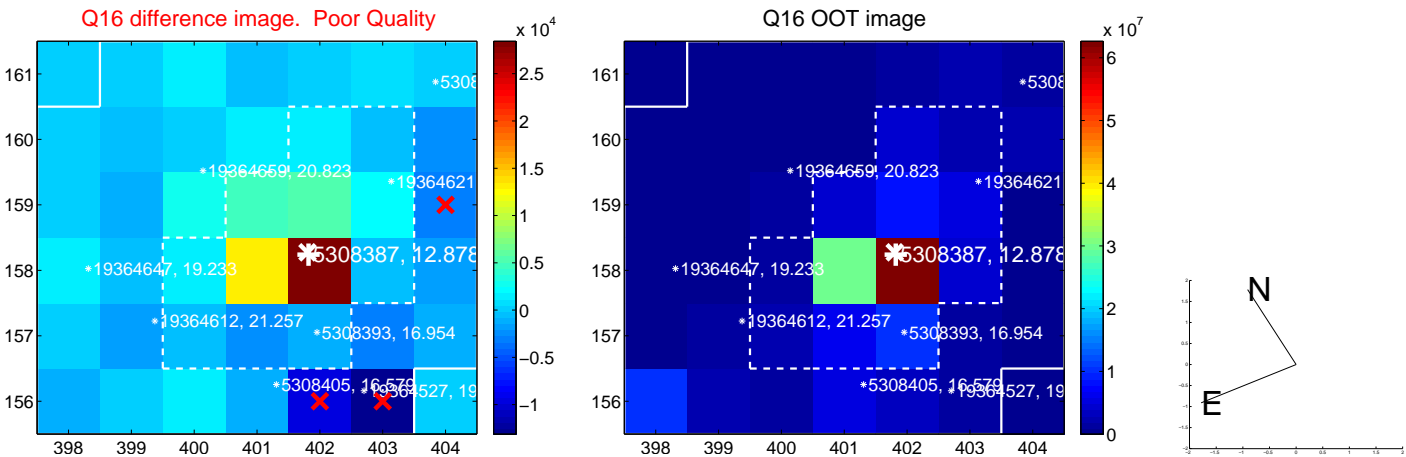
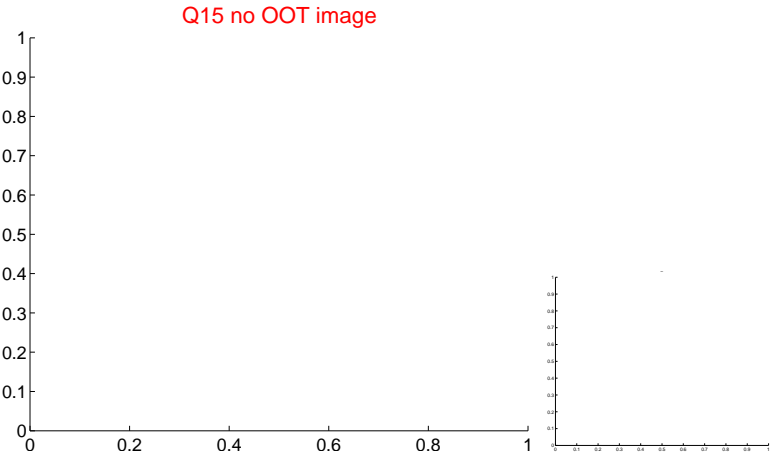
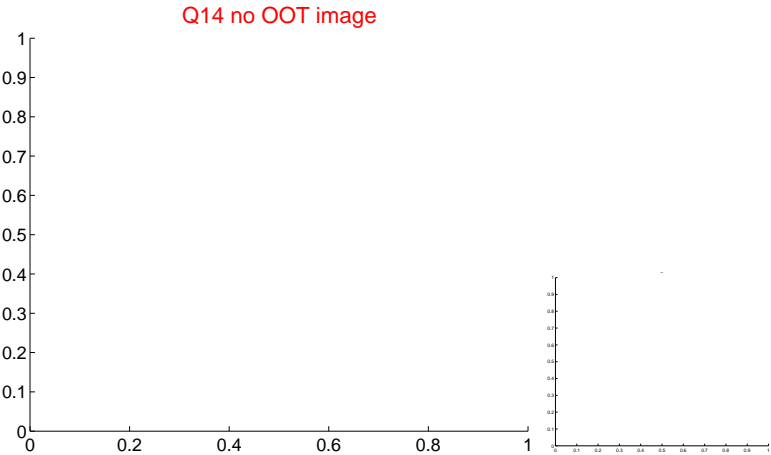
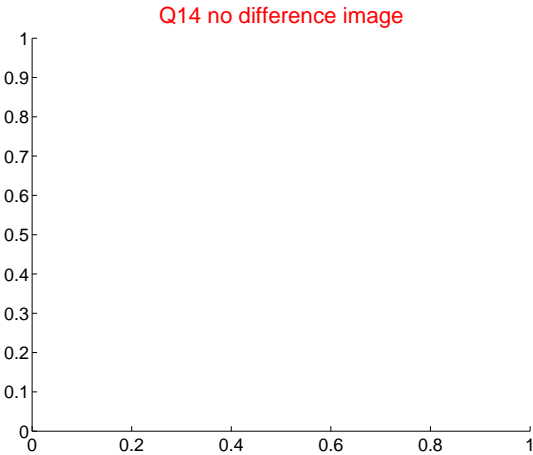
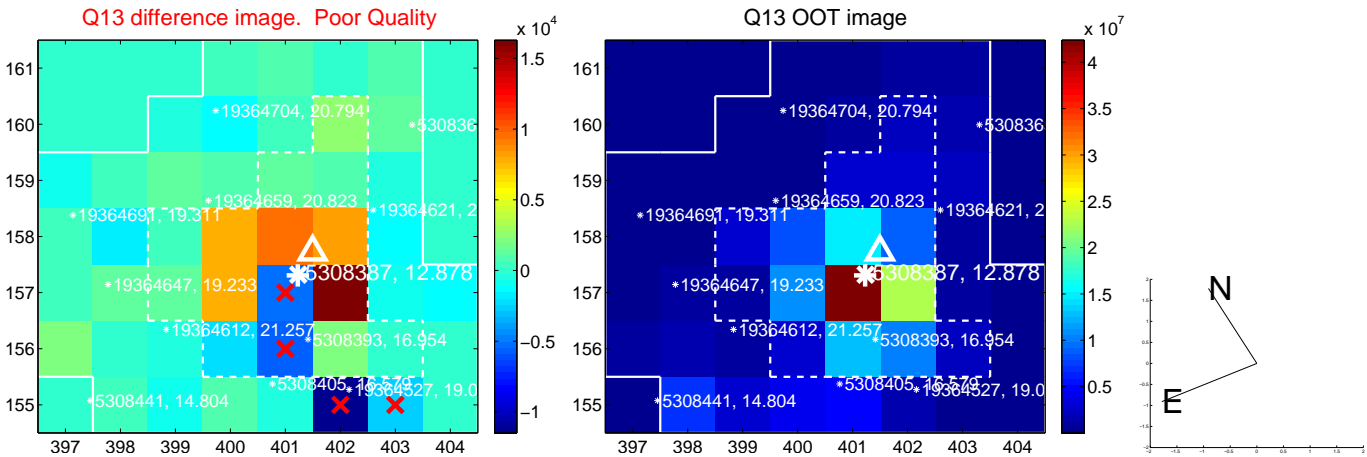
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



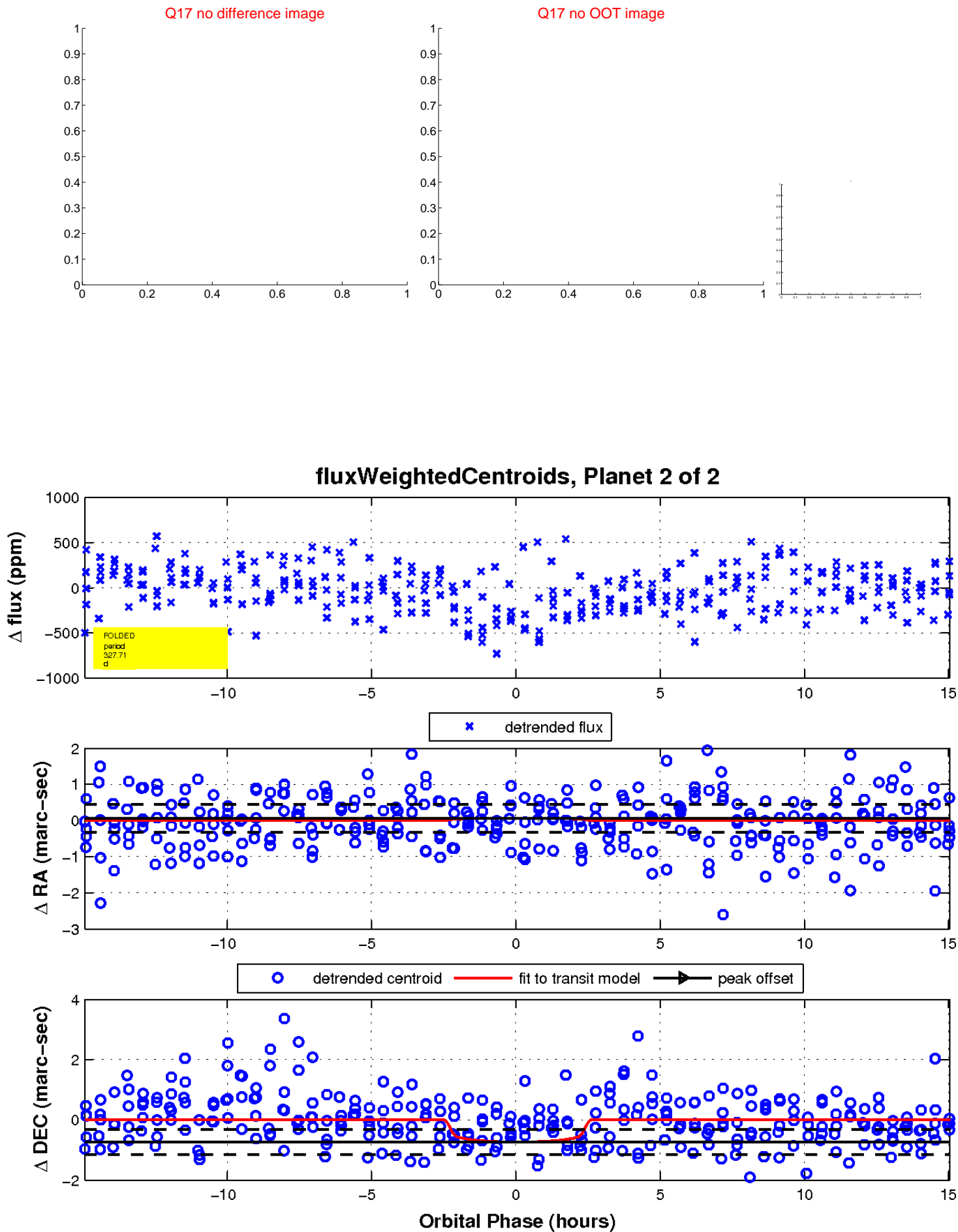
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

