

KIC 003247503

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})
003247503-01	OBS	4397.01	0.895716	131.979550	218.3	0.912	10.3	12.1	0.85	5901	1.50	2465.85
003247503-02	OBS	No	0.895713	131.534927	225.9	0.860	10.3	12.7	0.85	5901	1.29	2465.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003247503-01	OBS	FP	0.00	0	0	1	0	MOD_SEC_DV—MOD_SEC_ALT—PLANET_PERIOD_IS_HALF_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
003247503-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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 003247503-01

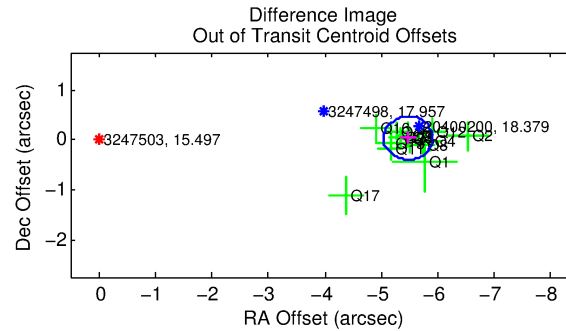
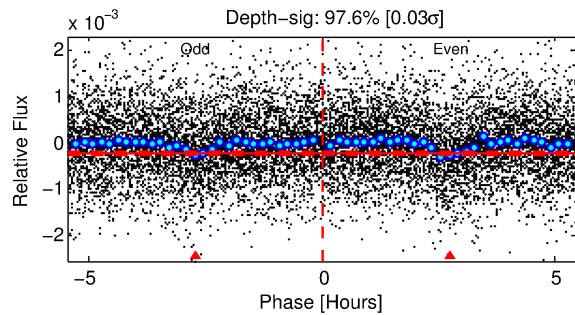
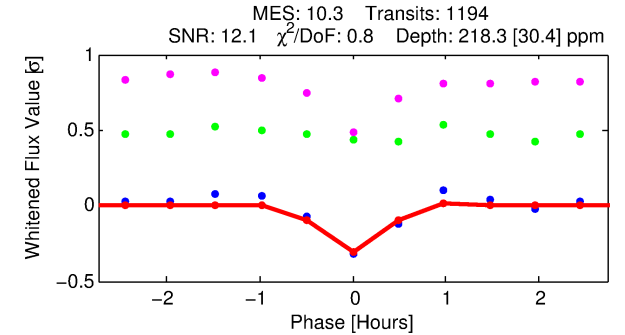
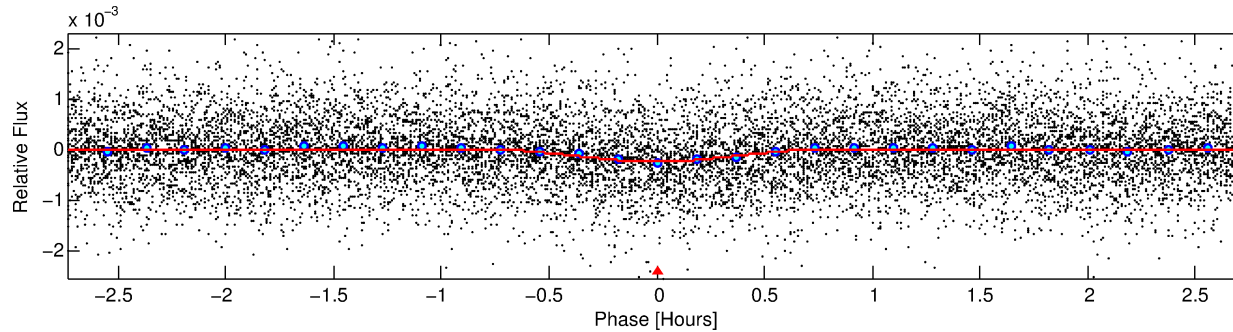
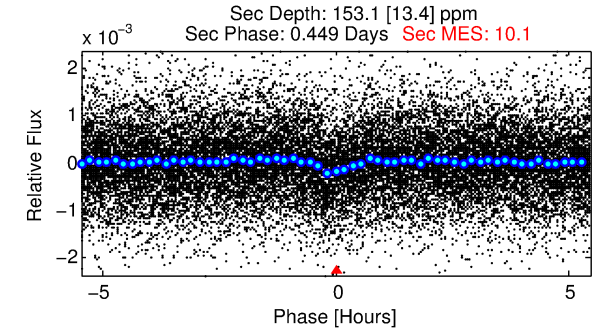
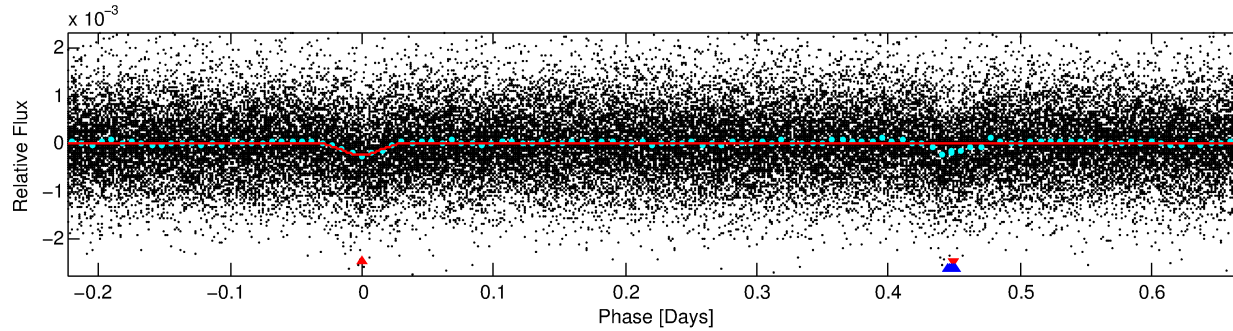
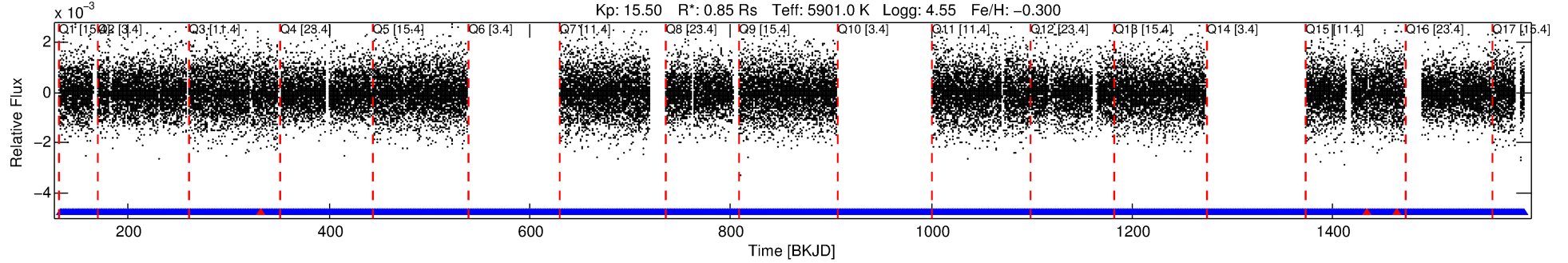
No Significant Match Found

DV One-Page Summary

KIC: 3247503 Candidate: 1 of 2 Period: 0.896 d

KOI: K04397.01 Corr: 0.888

Kp: 15.50 R*: 0.85 Rs Teff: 5901.0 K Logg: 4.55 Fe/H: -0.300



DV Fit Results:

Period = 0.89572 [0.00001] d
Epoch = 131.9795 [0.0013] BKJD
Rp/R* = 0.0162 [0.0120]
a/R* = 3.66 [12.76]
b = 0.90 [0.81]
Seff = 2465.85 [876.63]
Teq = 1797 [160] K
Rp = 1.49 [1.18] Re
a = 0.0178 [0.0040] AU
Ag = 11.94 [18.21] [0.60σ]
Teff = 5164 [1927] K [1.74σ]

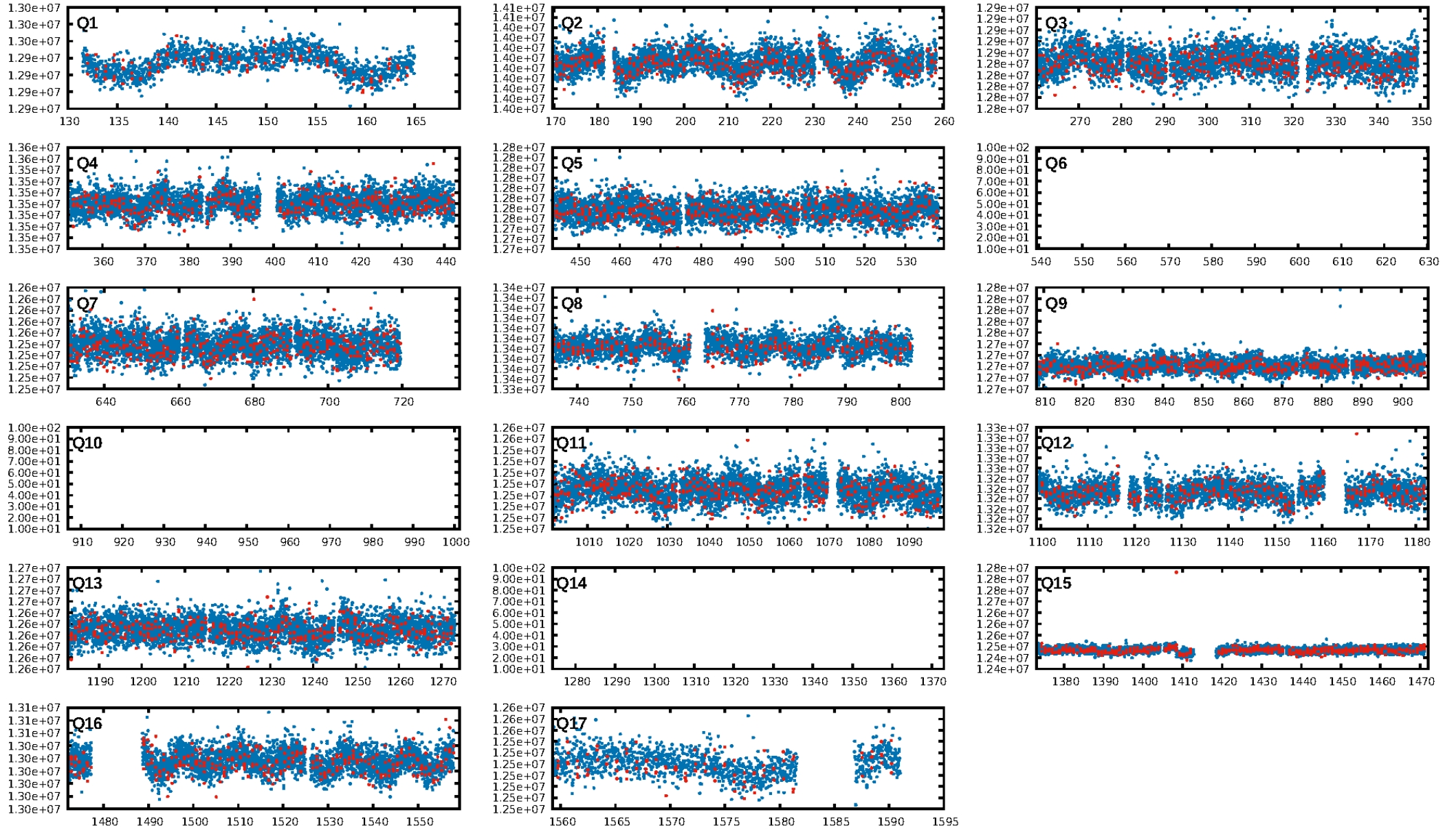
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.21e-26
RollingBand-fgt: 1.00 [1125/1128]
GhostDiagnostic-chr: 0.09271
Centroid-sig: 0.0%
Centroid-so: 13.967 arcsec [12.32σ]
OotOffset-rm: 5.473 arcsec [37.95σ]
KicOffset-rm: 5.711 arcsec [40.29σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

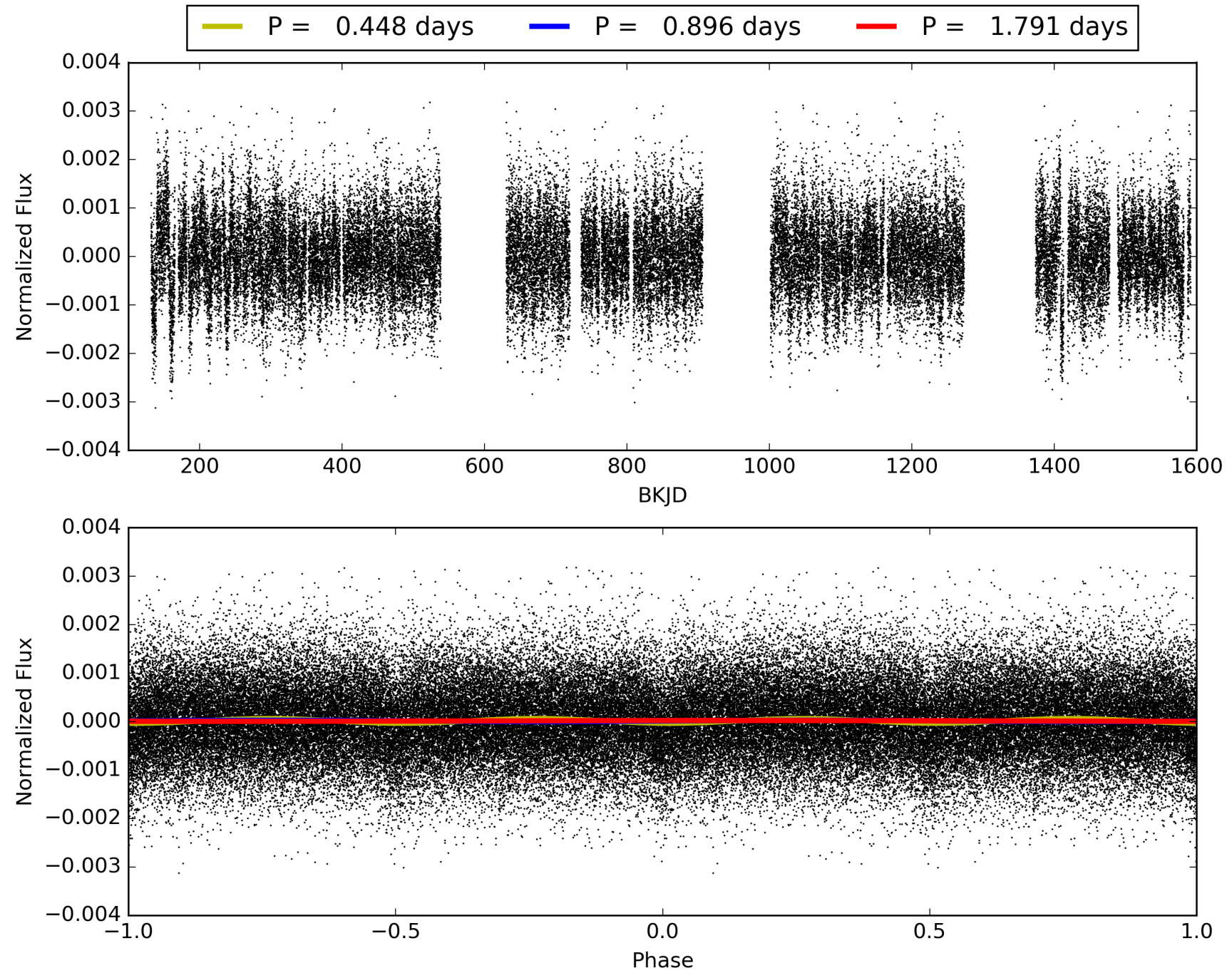
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:28:22 Z

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

TCE 003247503-01, PDC Light Curves

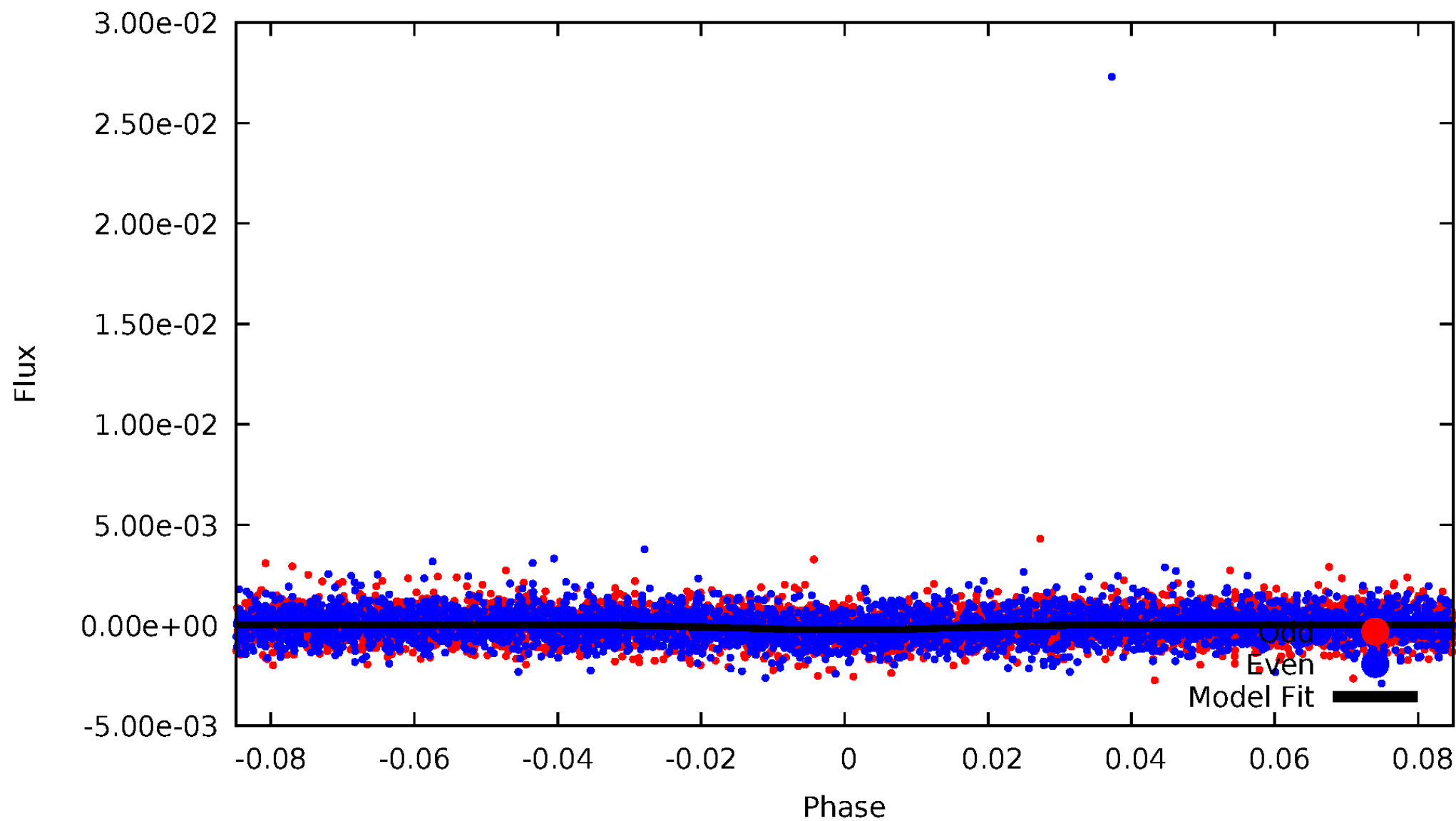


TCE 003247503-01



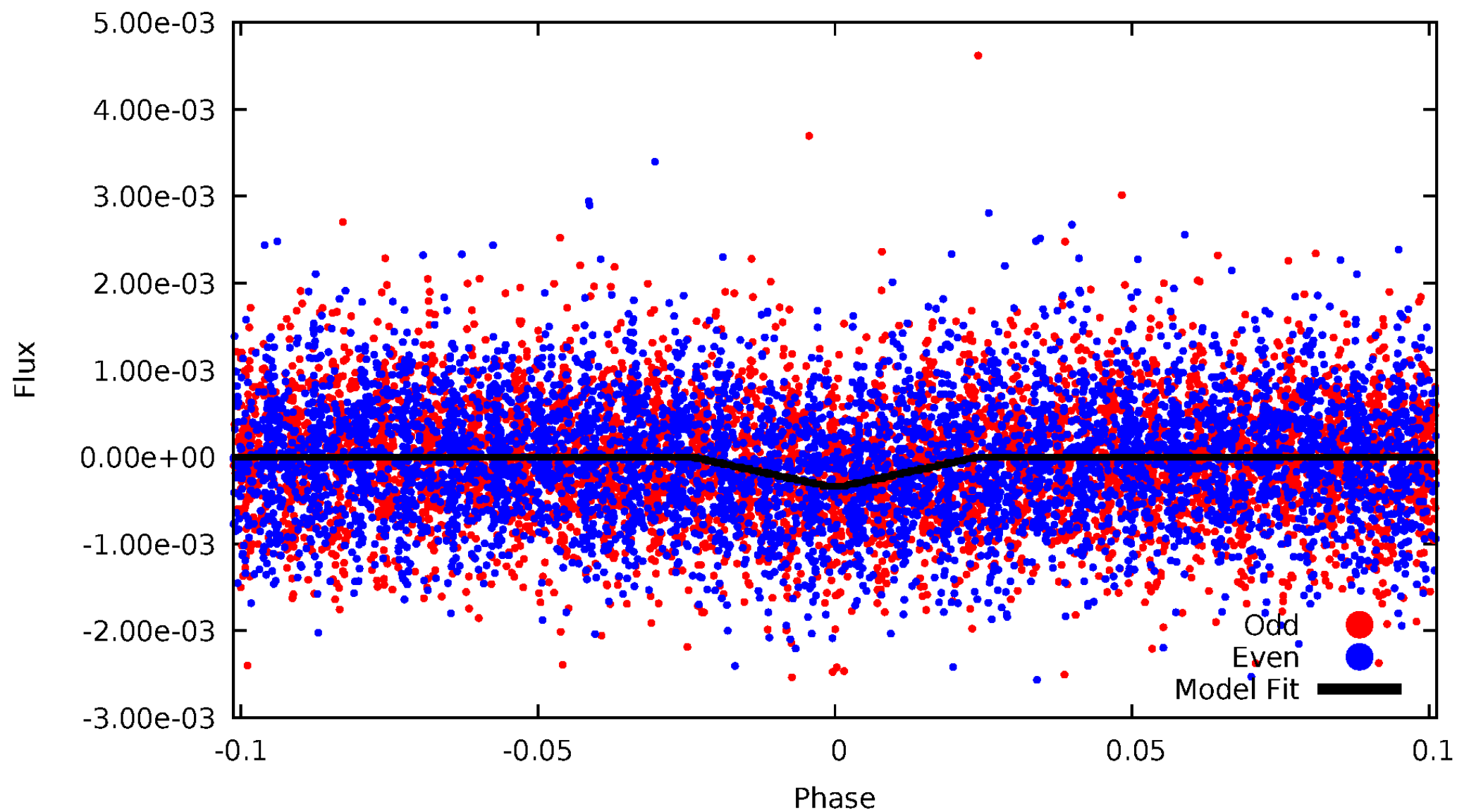
DV Odd/Even

TCE 003247503-01

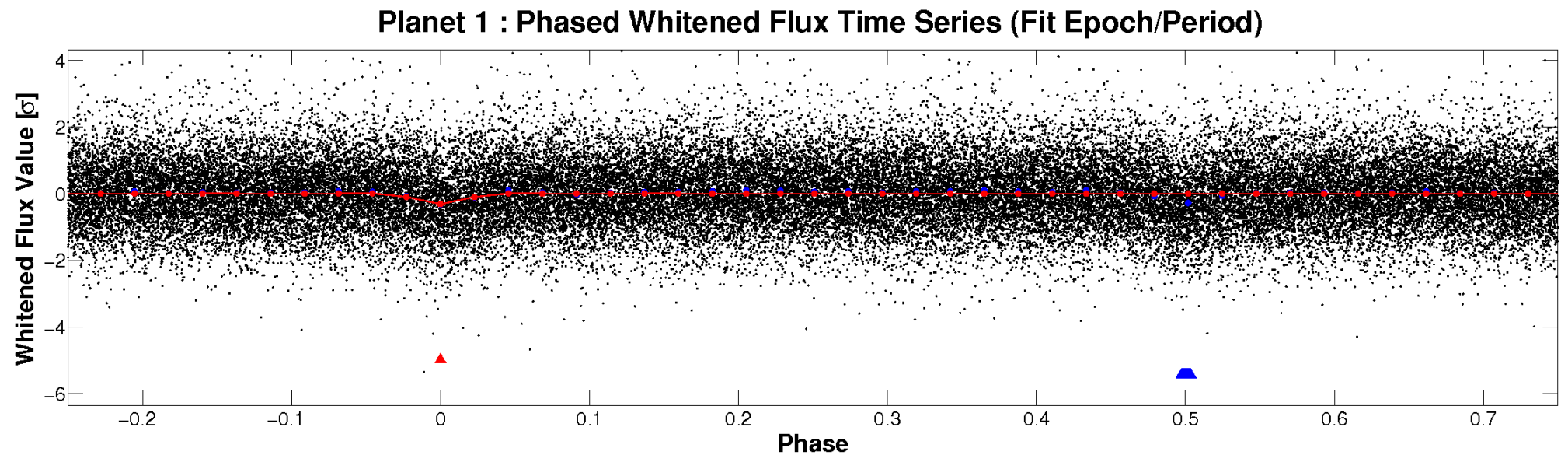
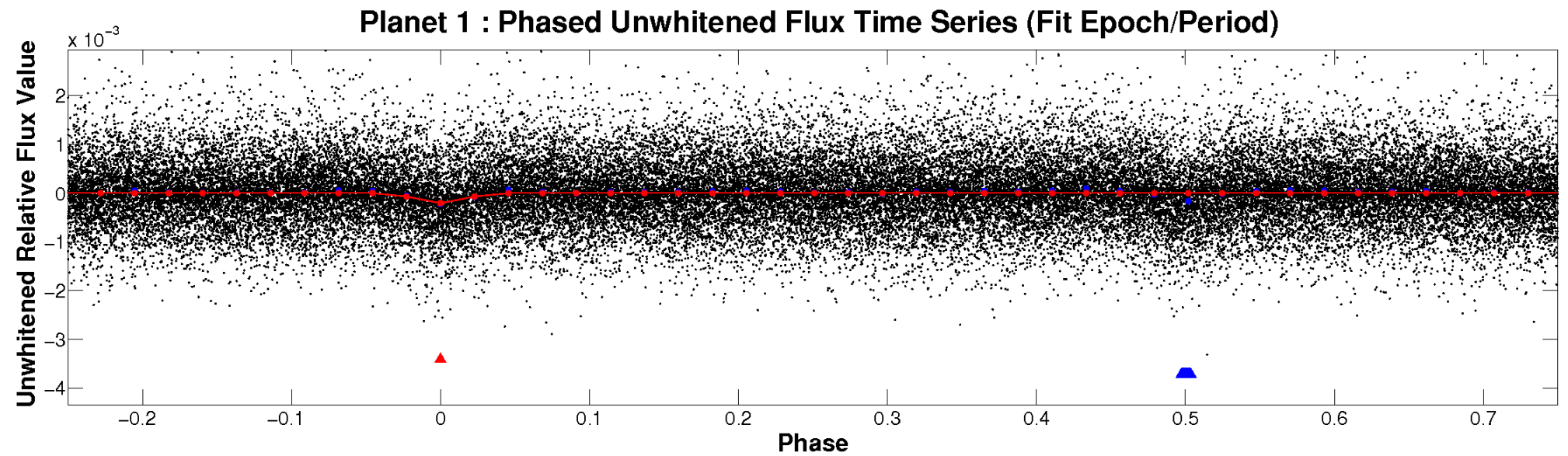


ALT Odd/Even

TCE 003247503-01

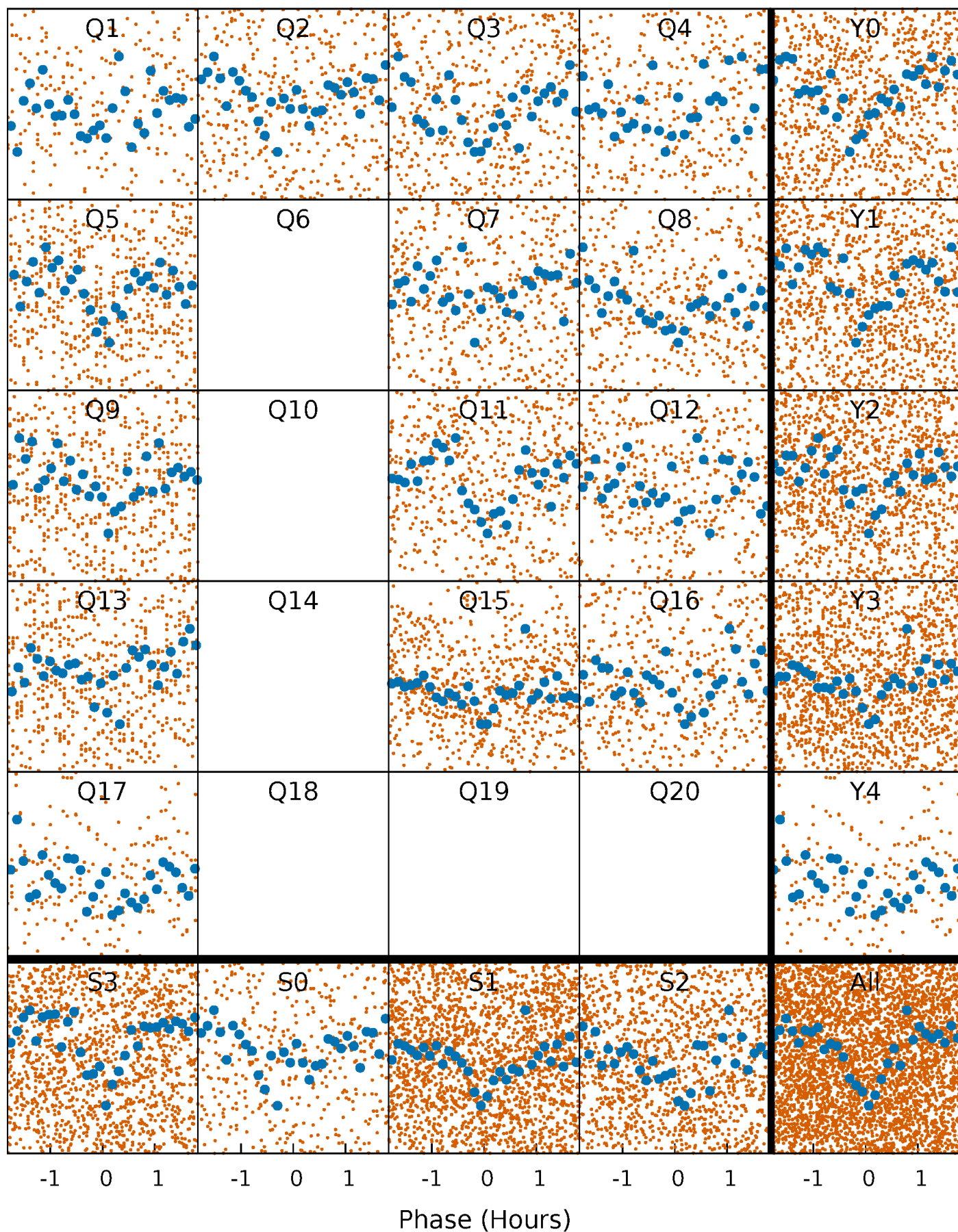


Non-Whitened Vs. Whitened Light Curve



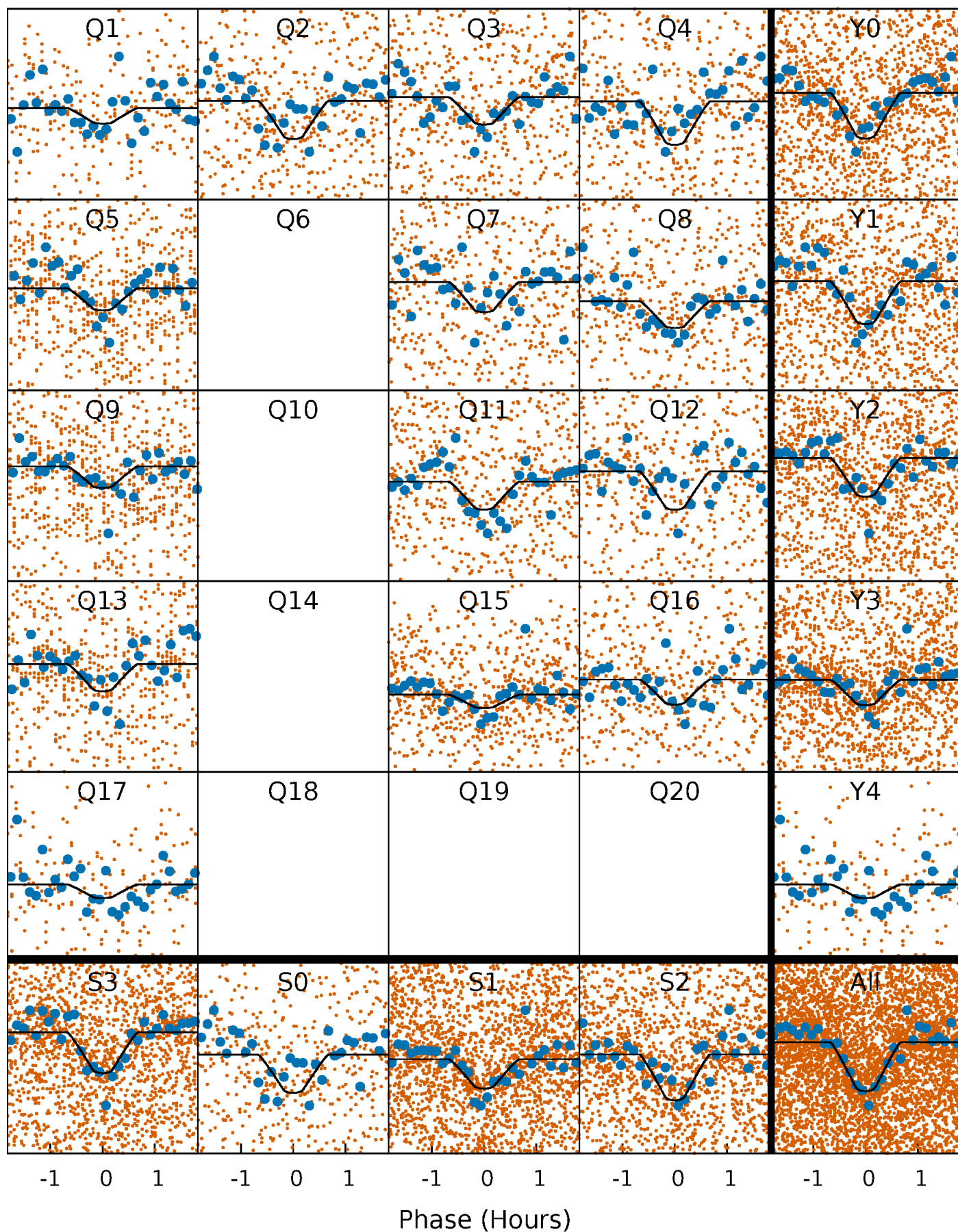
PDC Quarter-Phased Transit Curves

TCE 003247503-01 P= 0.895716 Days $T_0=131.979550$ (BKJD)



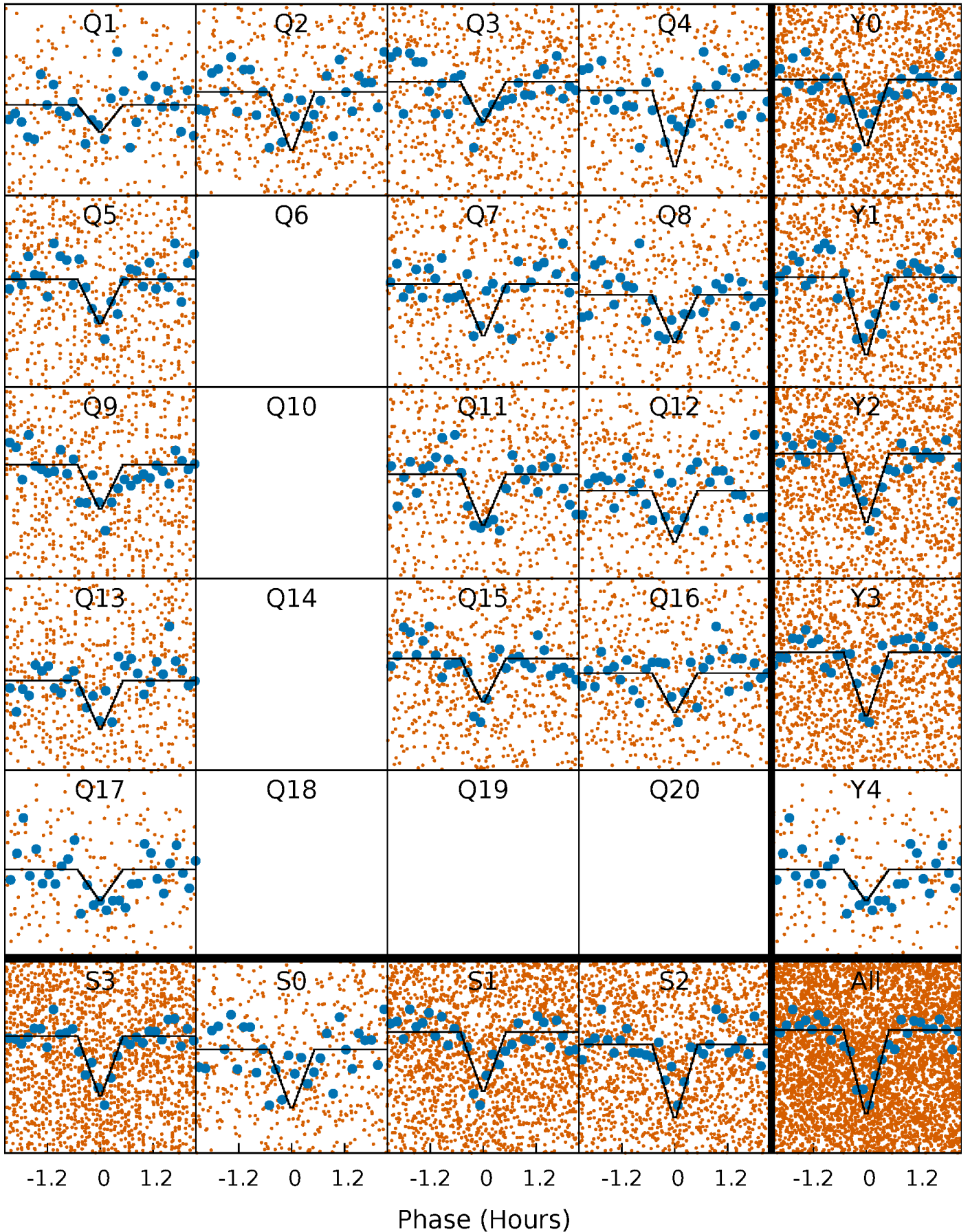
DV Quarter-Phased Transit Curves

TCE 003247503-01 P= 0.895716 Days $T_0=131.979550$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

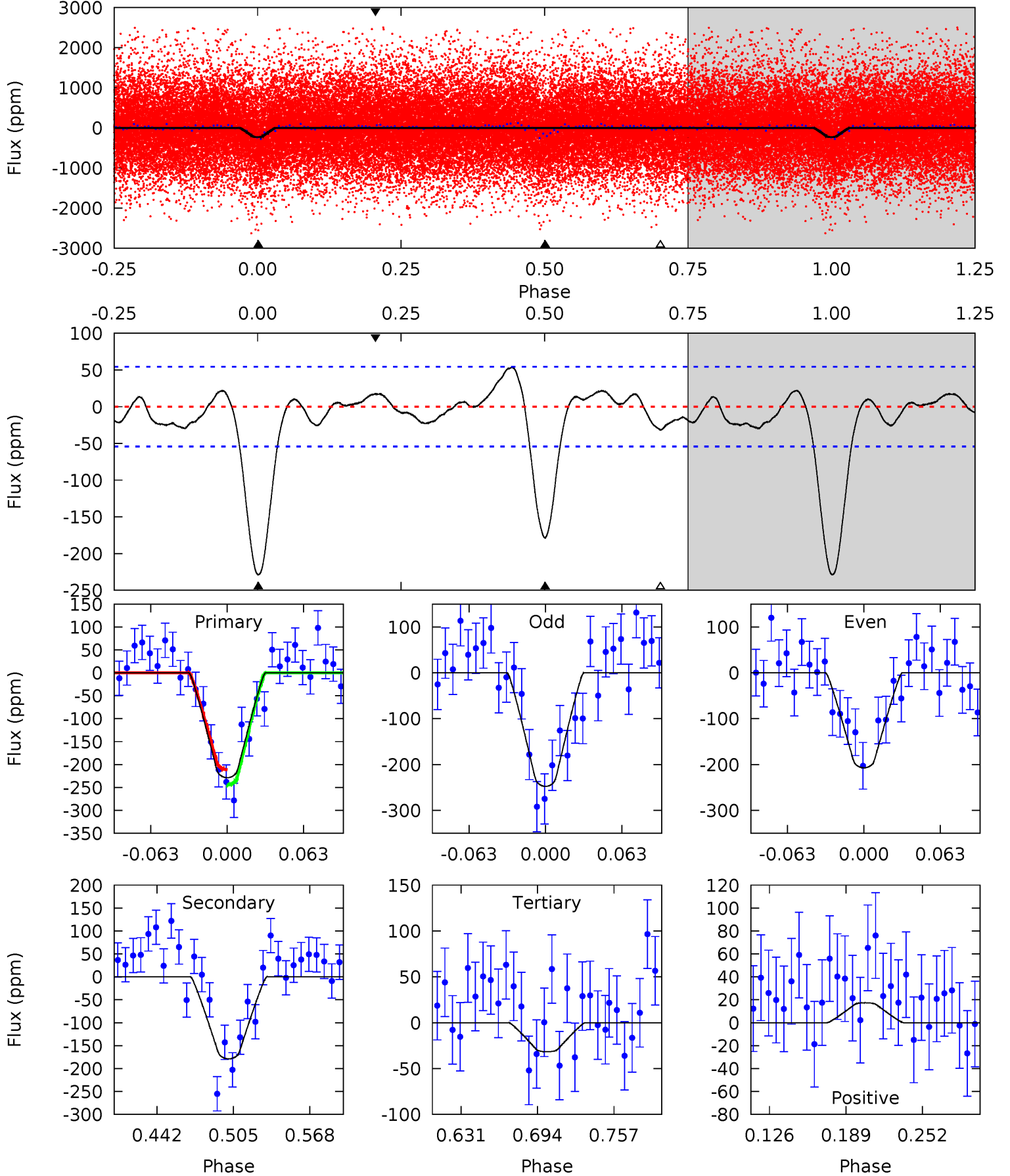
TCE 003247503-01 P= 0.895721 Days $T_0=131.976431$ (BKJD)



DV Model-Shift Uniqueness Test

003247503-01, P = 0.895716 Days, E = 131.083834 Days

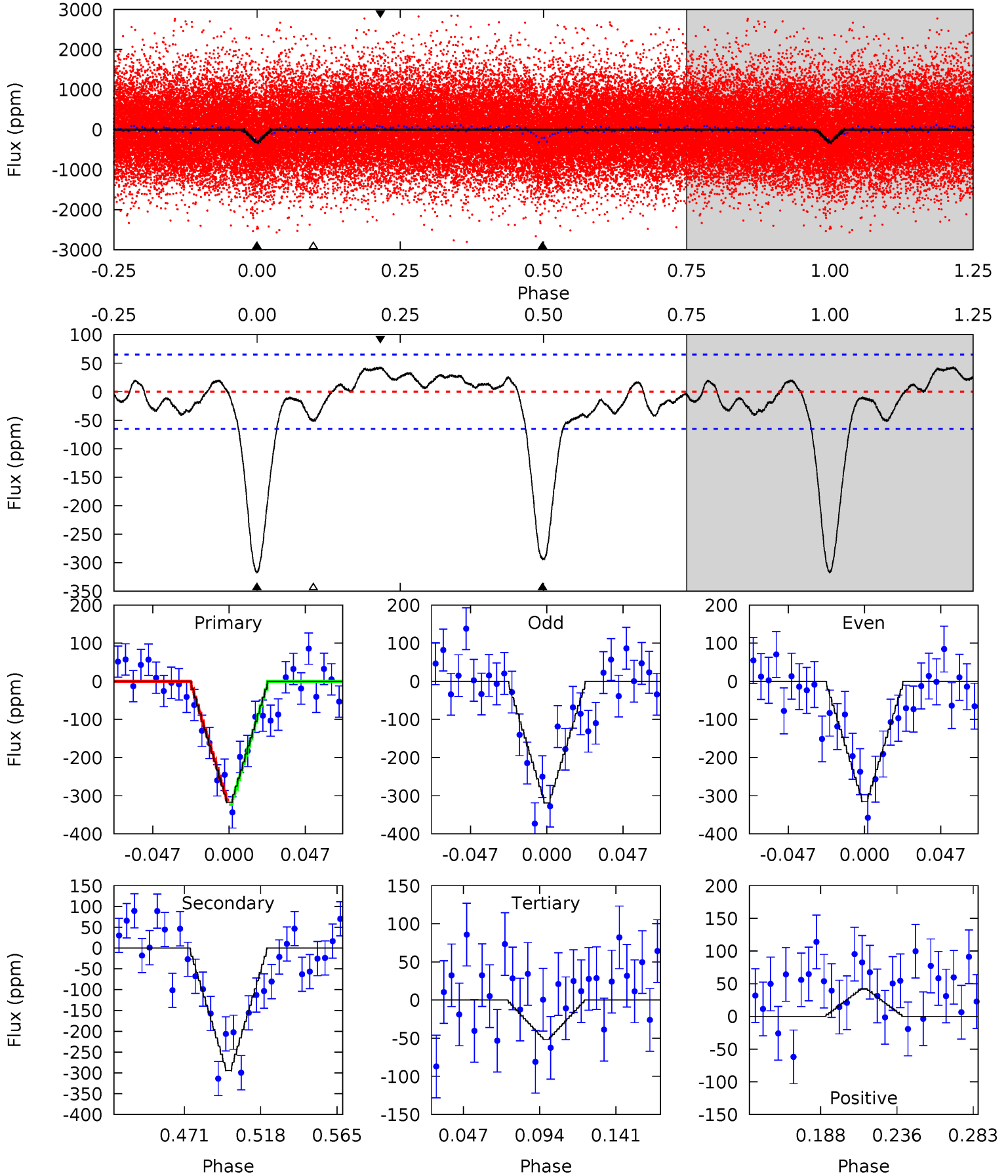
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.6	15.3	2.72	1.49	4.66	1.86	1.45	16.9	18.1	12.6	13.8	1.74	0.98	0.19	1.45



Alt Model-Shift Uniqueness Test

003247503-01, P = 0.895721 Days, E = 131.080710 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.0	21.3	3.74	3.08	4.72	1.99	1.77	19.2	19.9	17.6	18.2	0.12	1.05	0.12	0.45



Stellar Parameters For KIC 003247503

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5901^{+158}_{-175}	$4.553^{+0.044}_{-0.187}$	$-0.300^{+0.300}_{-0.300}$	$0.848^{+0.220}_{-0.079}$	$0.938^{+0.097}_{-0.119}$	$2.165^{+0.496}_{-0.997}$
	+3%/-3%	+1%/-4%	+100%/-100%	+26%/-9%	+10%/-13%	+23%/-46%
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 003247503-01 / KOI 4397.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-179 ± 12	$1.62^{+1.11}_{-0.92}$	2558^{+169}_{-114}	5246^{+2929}_{-995}	12^{+50}_{-8}
Alt.	-294 ± 14	$1.85^{+1.15}_{-1.10}$	2568^{+163}_{-113}	5598^{+3456}_{-1071}	15^{+72}_{-9}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

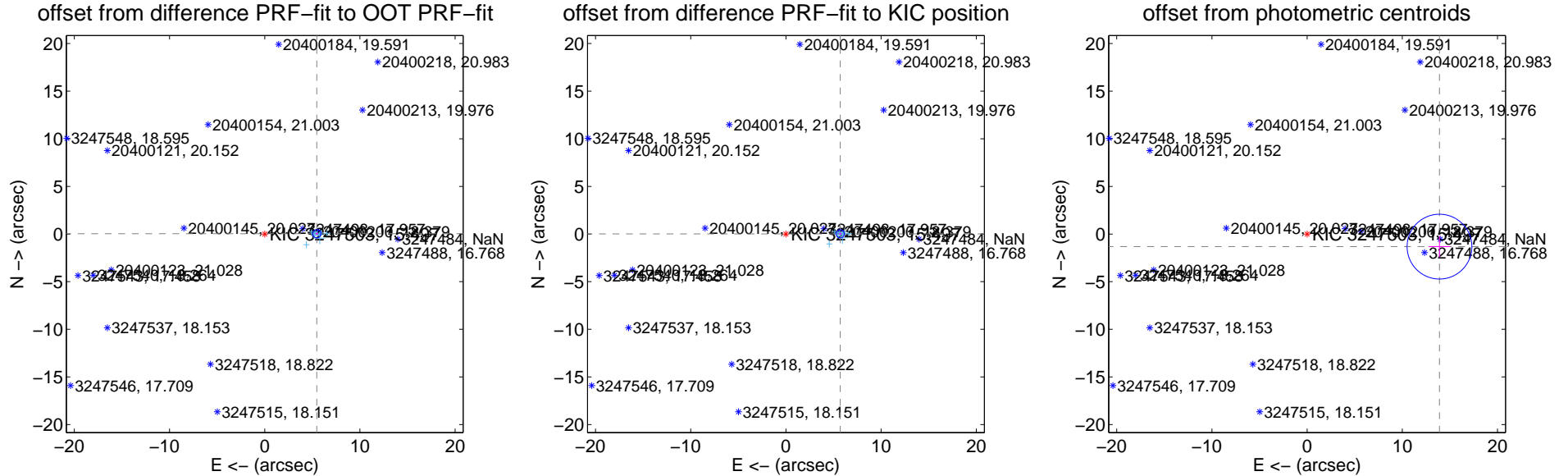
DV Centroid Data

Supplemental centroid analysis for 003247503-01. Kepler magnitude: 15.50. Transit SNR 12.13

There are 14 quarters with good PRF difference image offsets

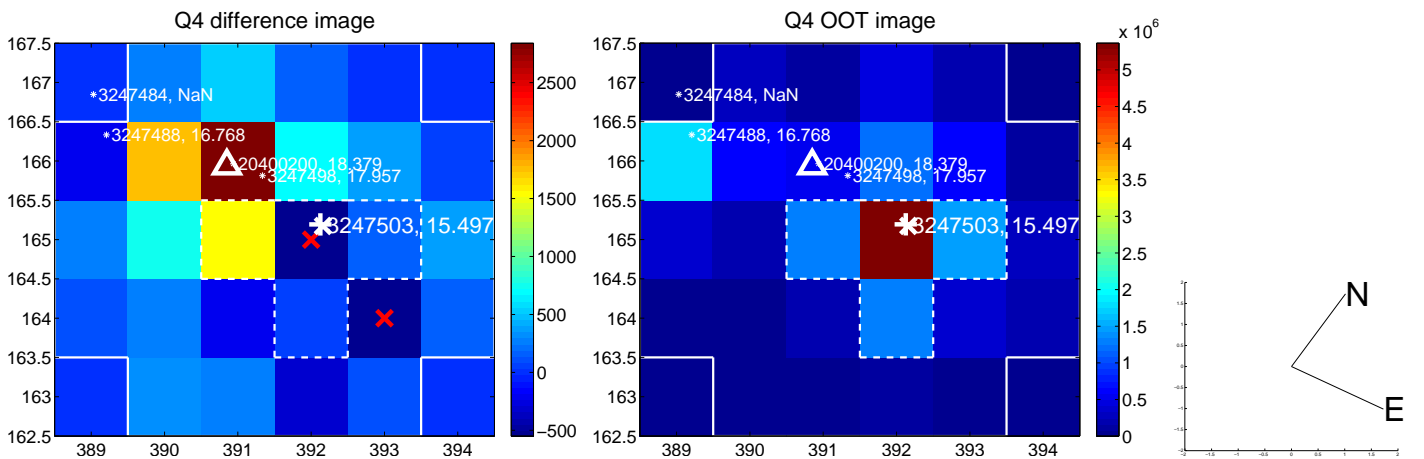
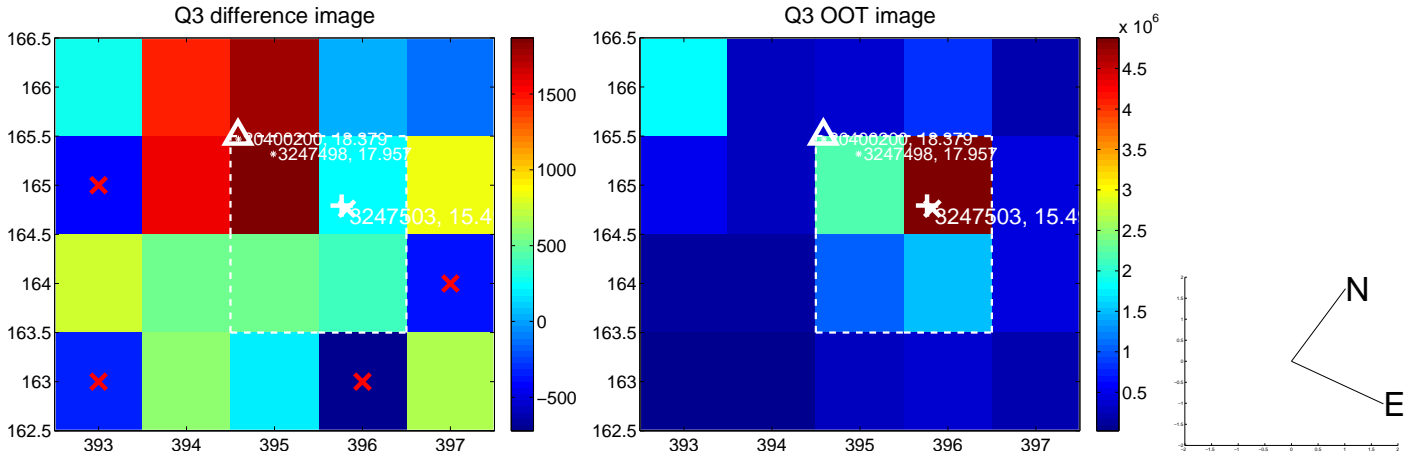
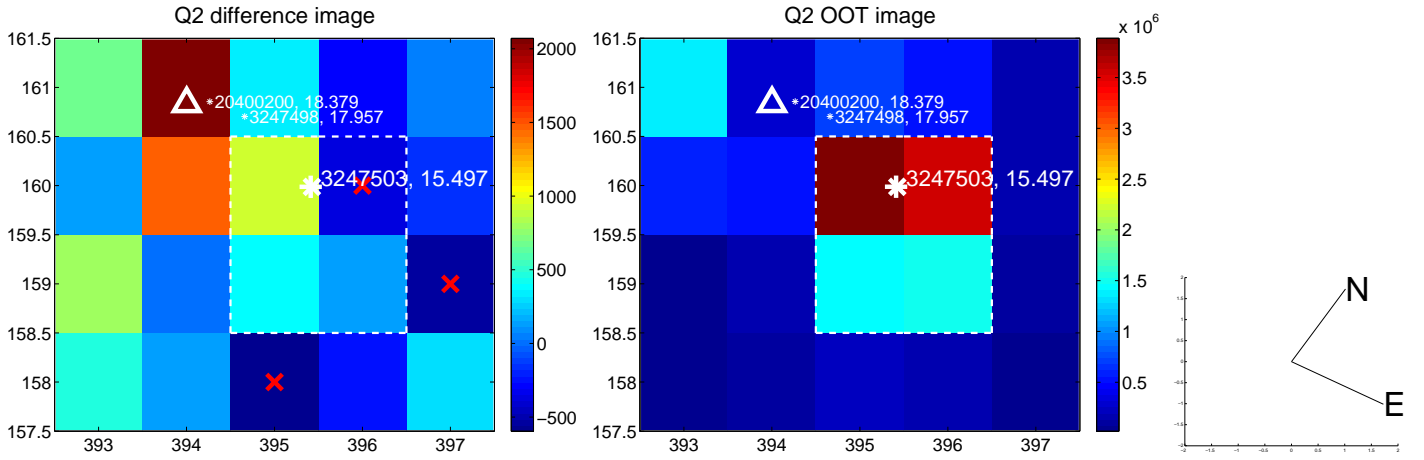
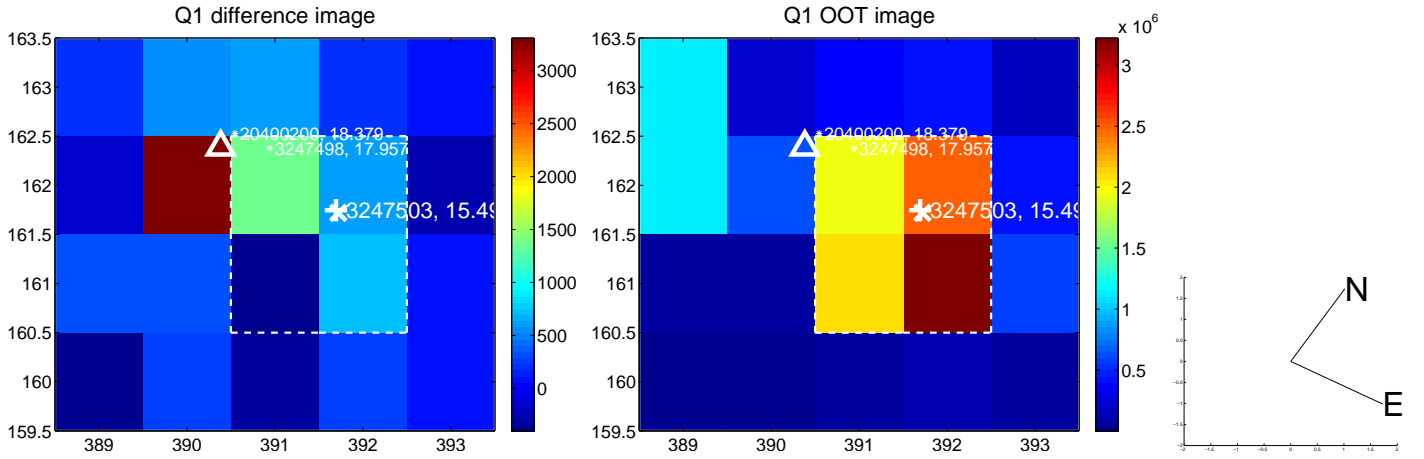
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.473 \pm 0.144	37.95	-5.473 \pm 0.144	0.033 \pm 0.112
PRF-fit source offset from KIC position	5.711 \pm 0.142	40.29	-5.711 \pm 0.142	0.019 \pm 0.108
photometric centroid source offset	13.97 \pm 1.13	12.32	-13.90 \pm 1.13	-1.32 \pm 1.12

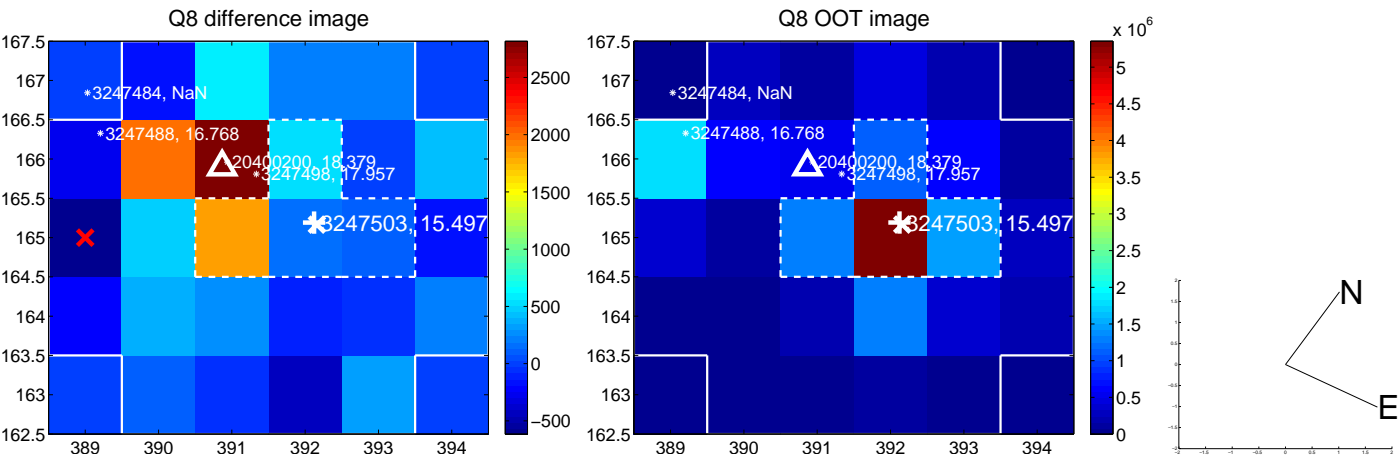
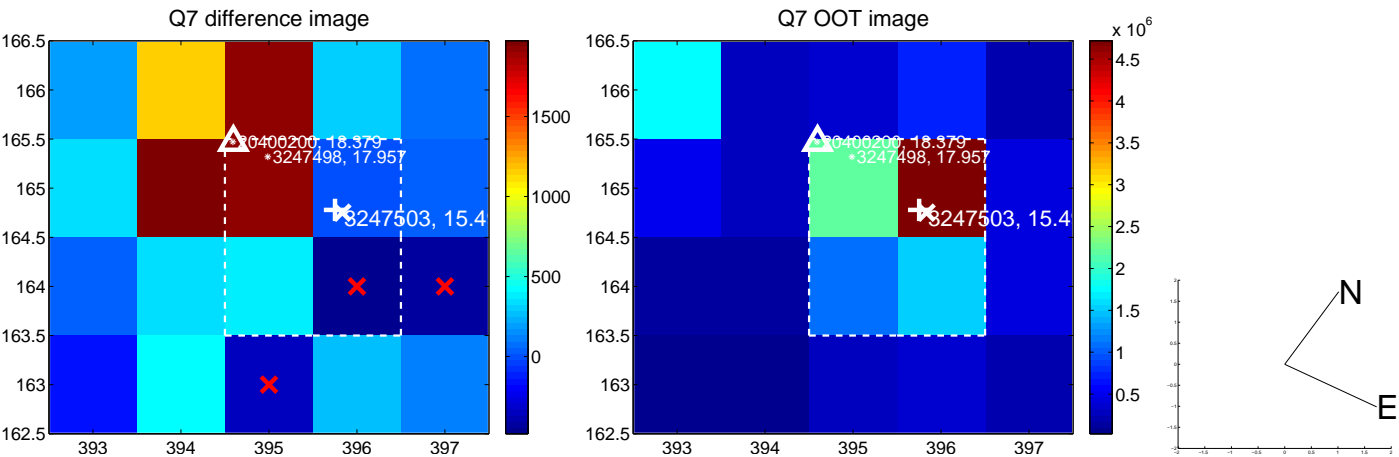
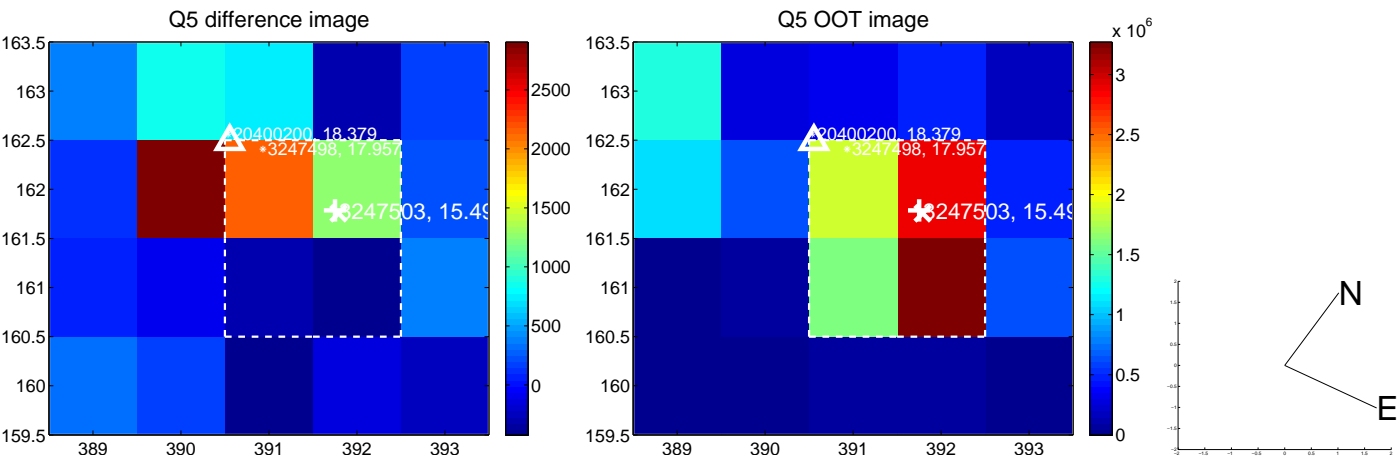


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

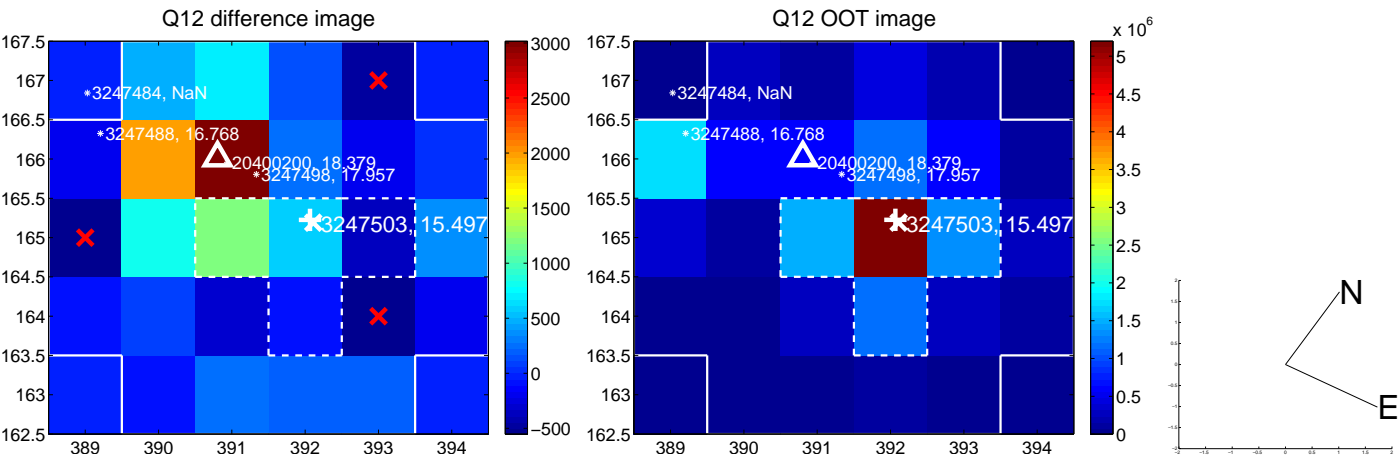
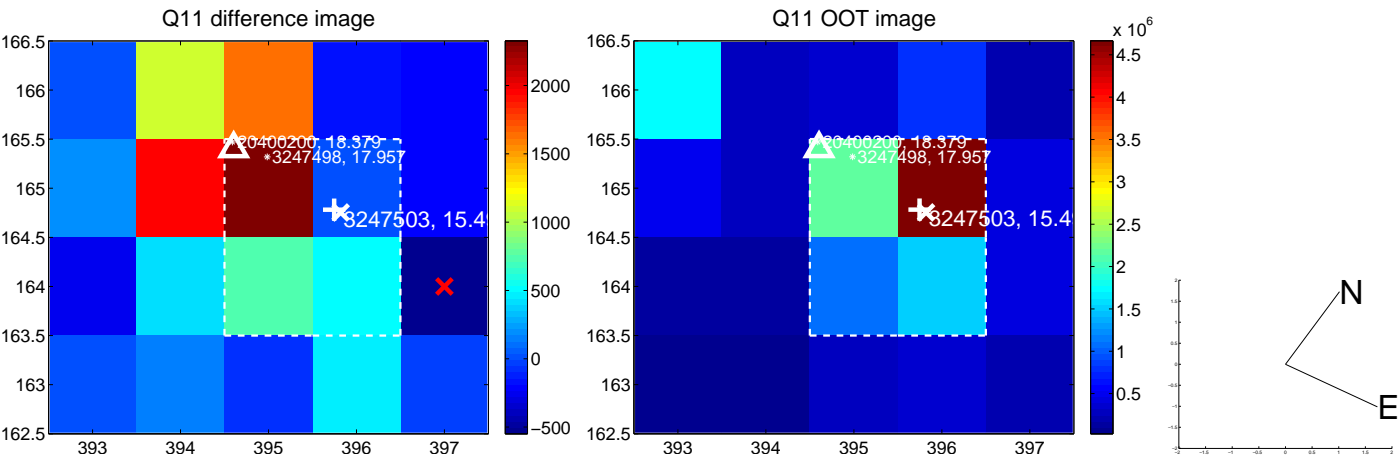
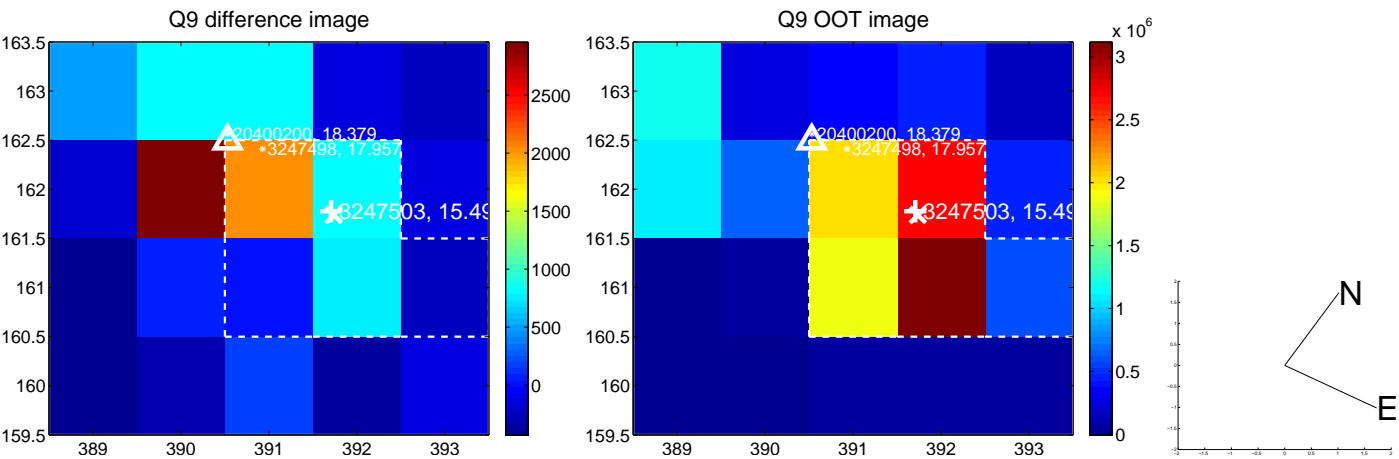
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



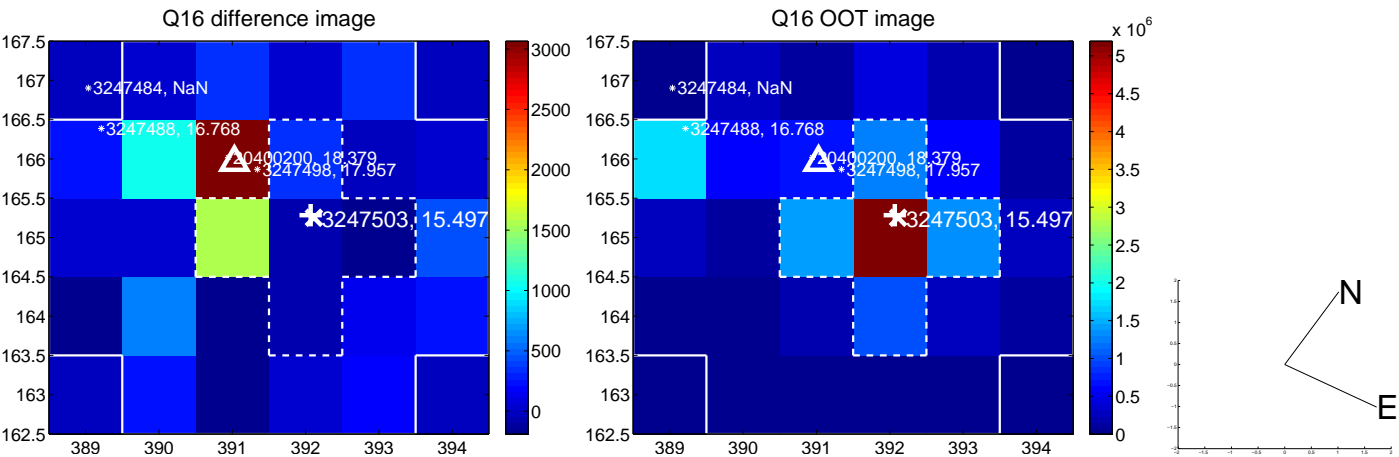
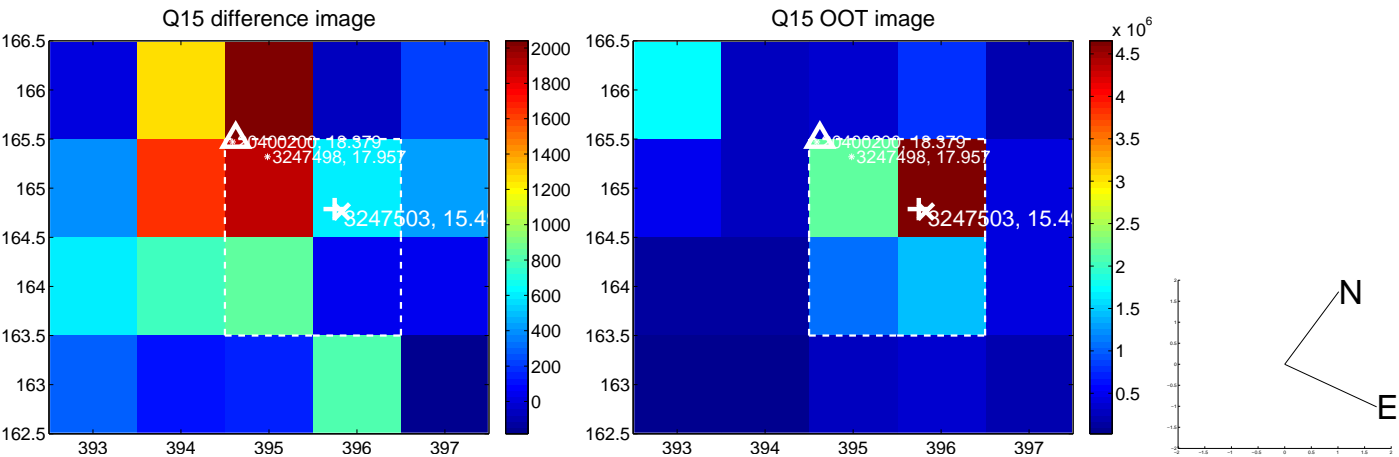
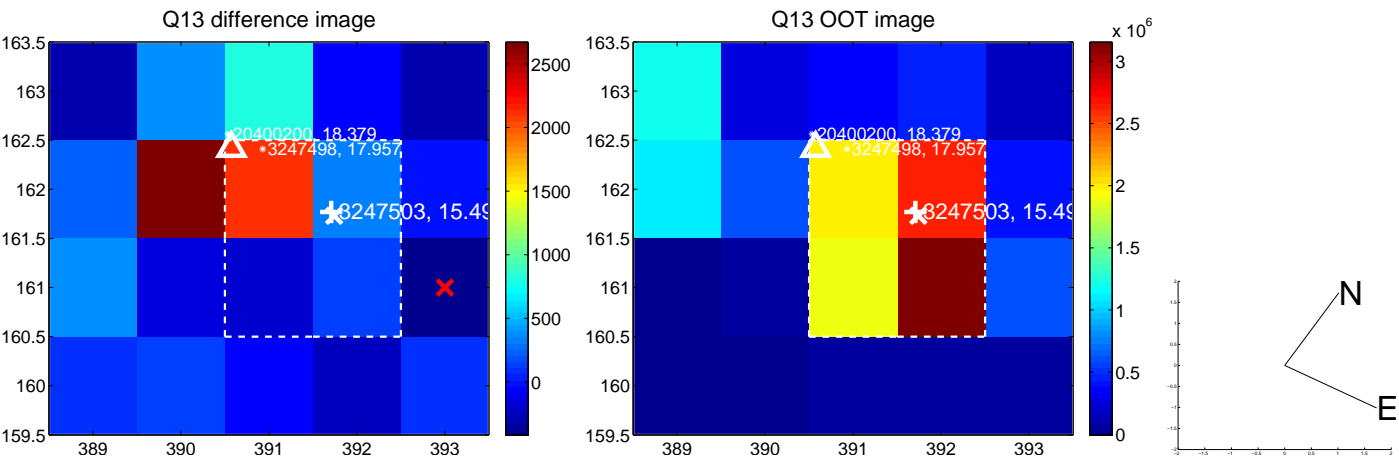
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



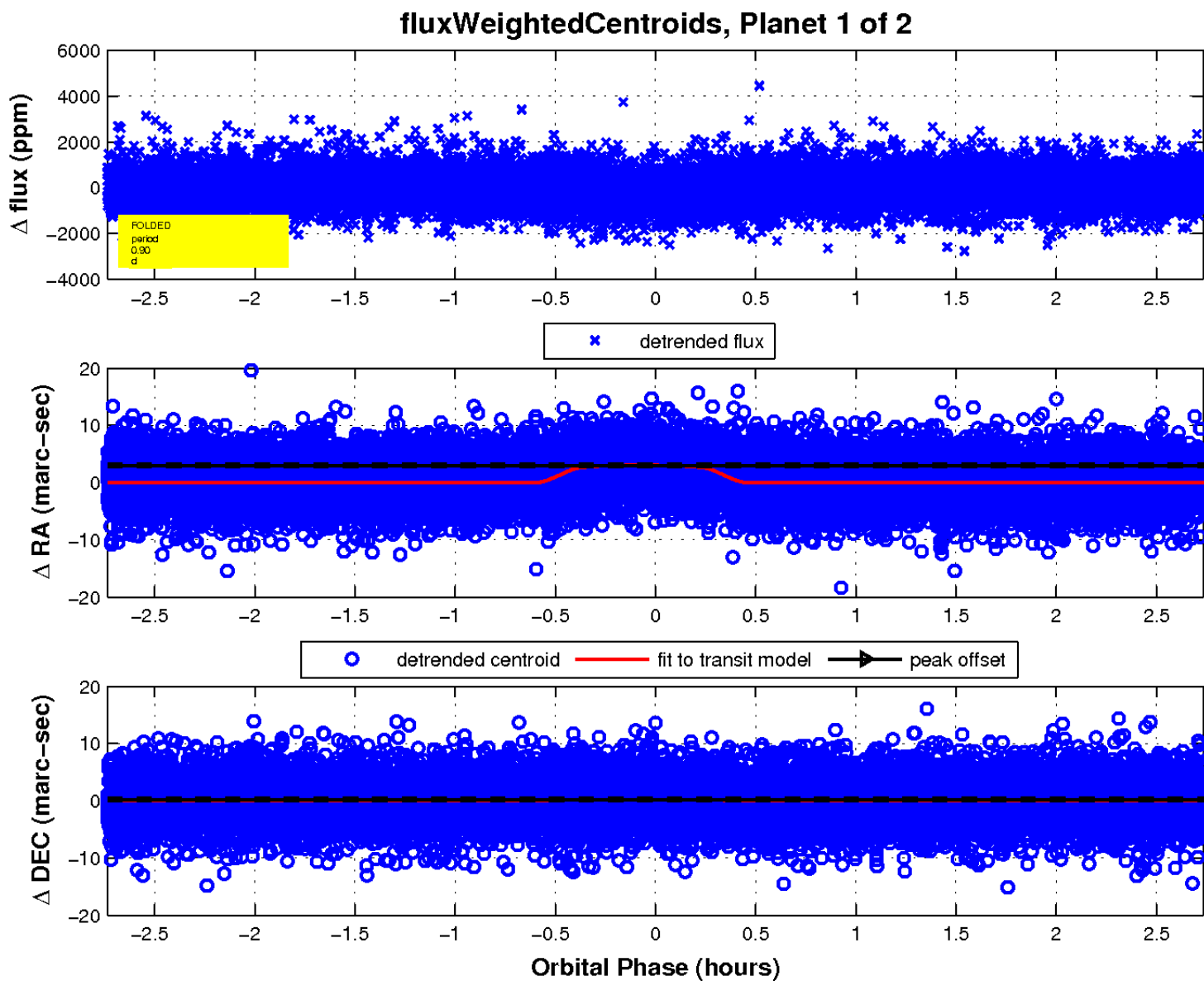
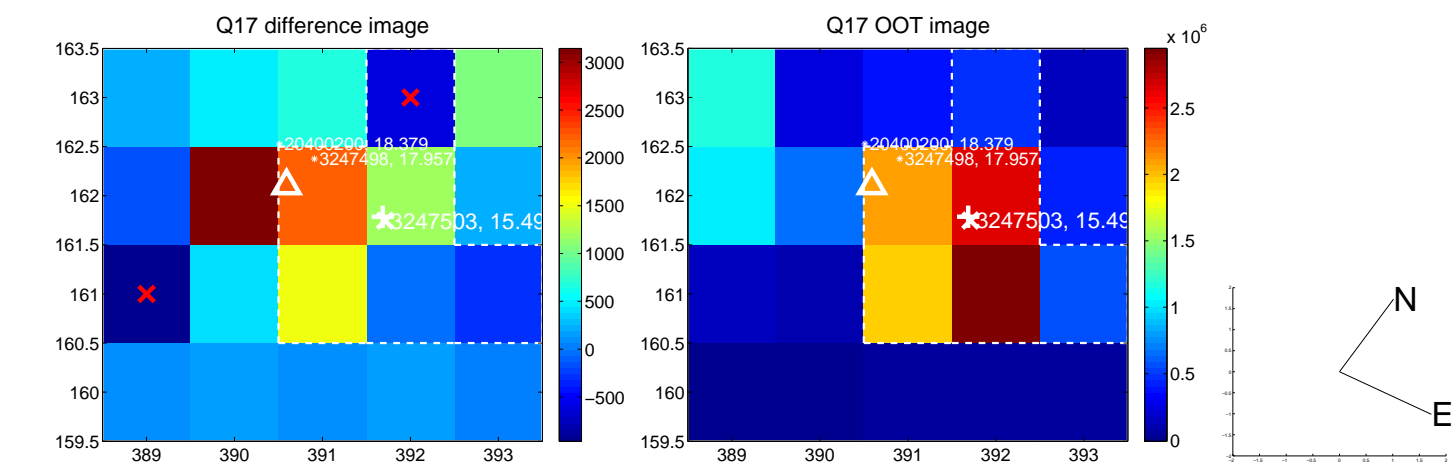
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

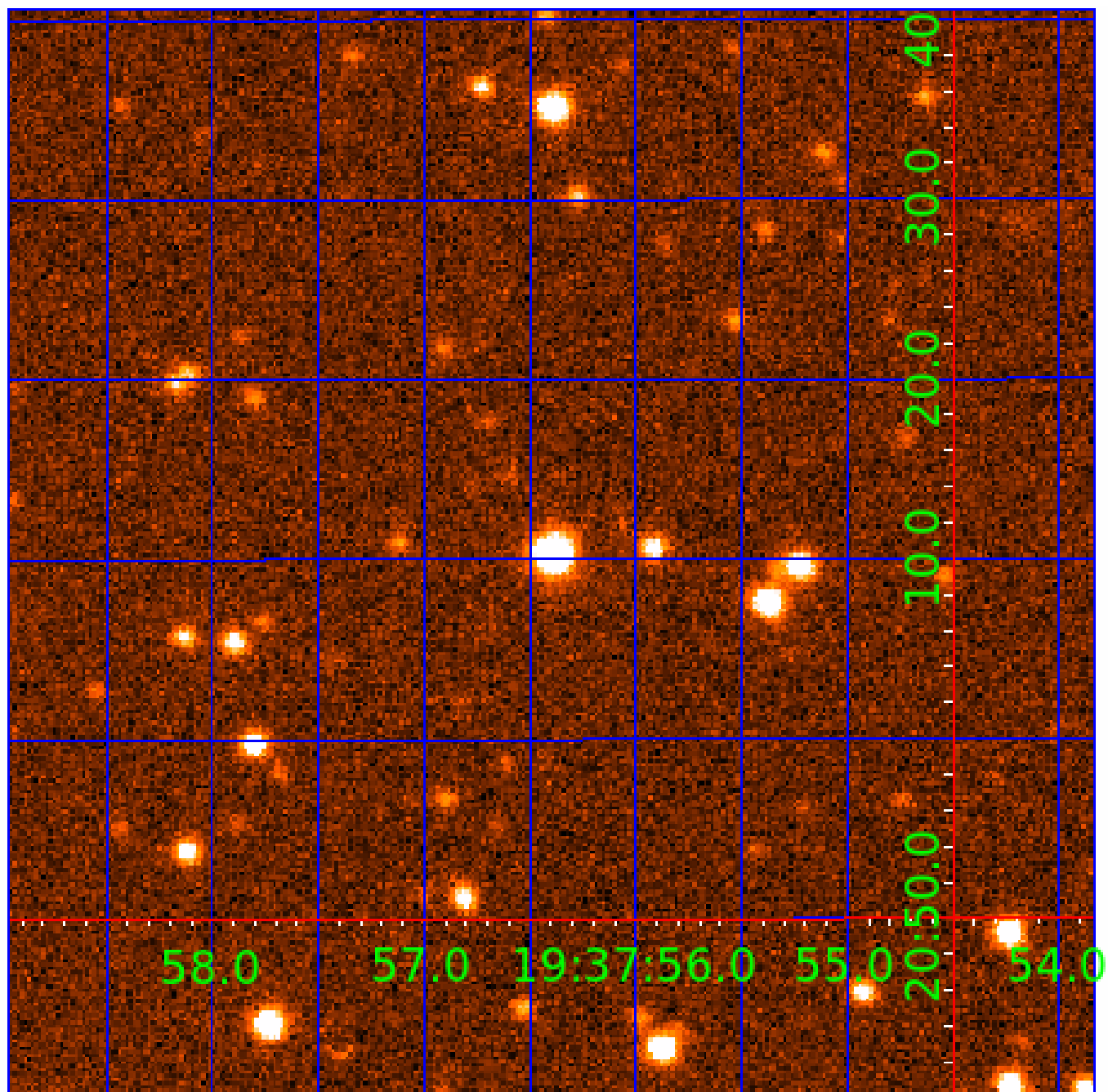


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003247503

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})
003247503-01	OBS	4397.01	0.895716	131.979550	218.3	0.912	10.3	12.1	0.85	5901	1.50	2465.85
003247503-02	OBS	No	0.895713	131.534927	225.9	0.860	10.3	12.7	0.85	5901	1.29	2465.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003247503-01	OBS	FP	0.00	0	0	1	0	MOD_SEC_DV—MOD_SEC_ALT—PLANET_PERIOD_IS_HALF_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
003247503-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

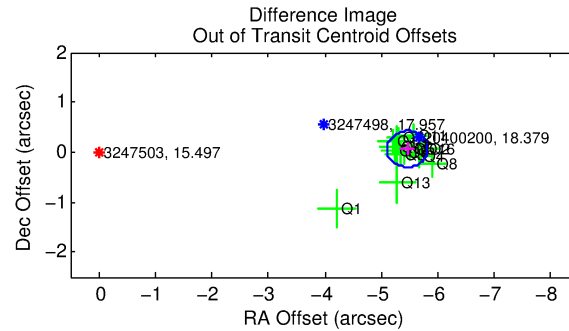
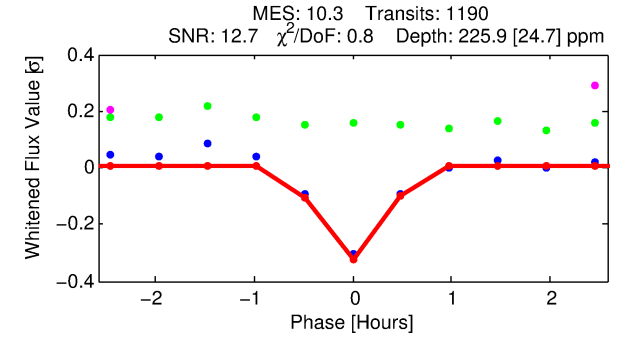
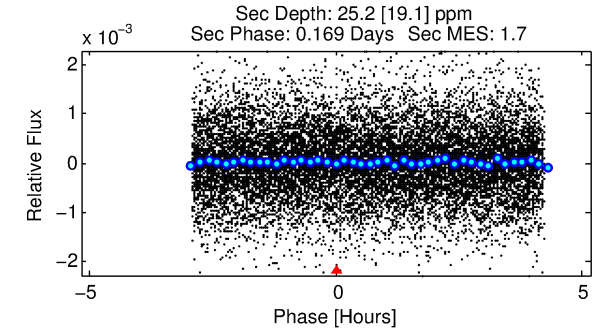
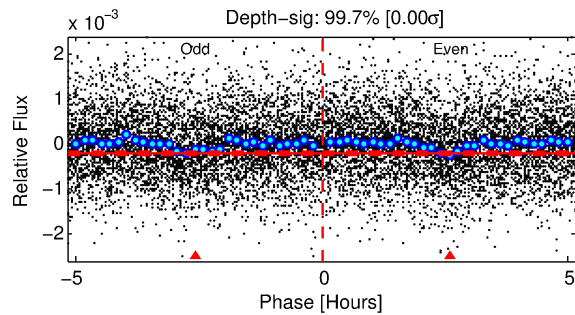
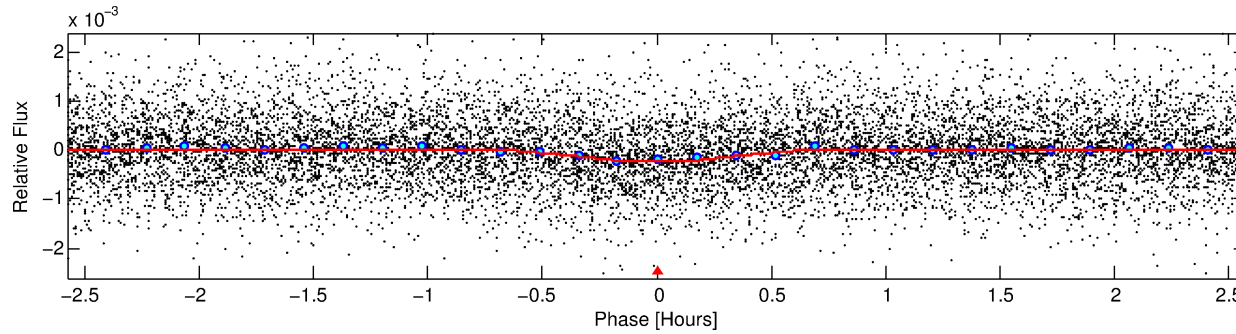
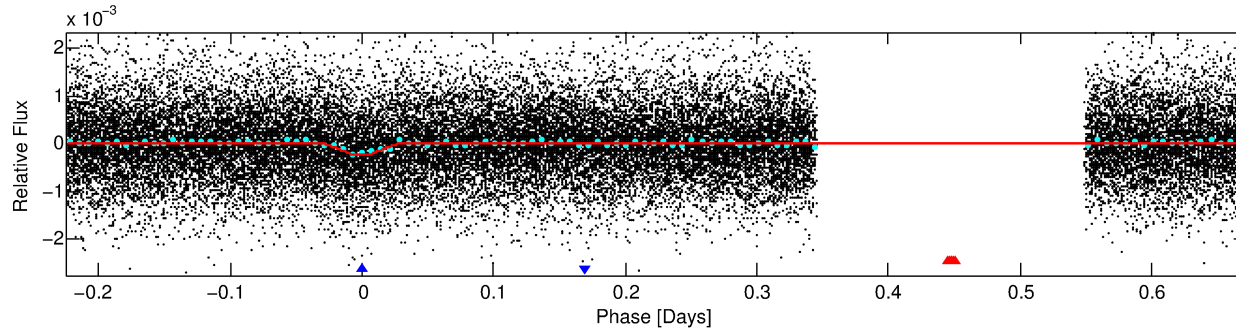
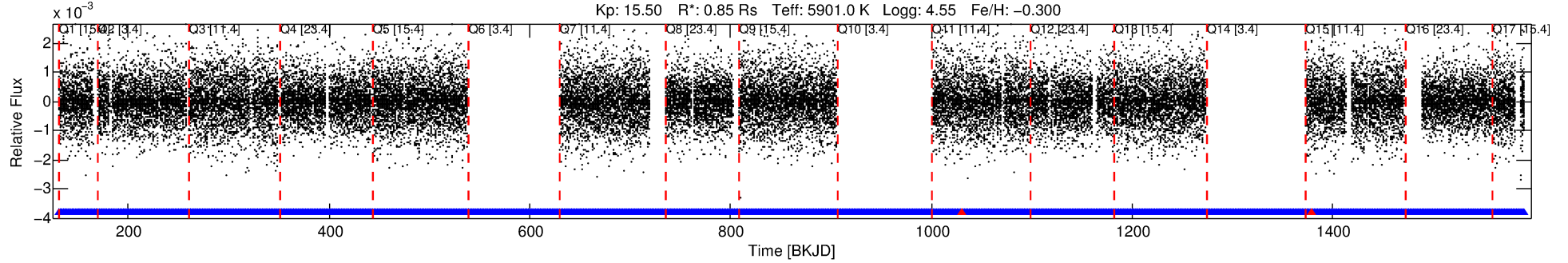
Ephemeris Match Information For 003247503-02

No Significant Match Found

DV One-Page Summary

KIC: 3247503 Candidate: 2 of 2 Period: 0.896 d
KOI: K04397 Corr: No Ephemeris Match

Kp: 15.50 R*: 0.85 Rs Teff: 5901.0 K Logg: 4.55 Fe/H: -0.300



DV Fit Results:

Period = 0.89571 [0.00001] d
Epoch = 131.5349 [0.0013] BKJD
Rp/R* = 0.0139 [0.0155]
a/R* = 7.98 [41.93]
b = 0.16 [32.43]
Seff = 2465.86 [876.64]
Teq = 1797 [160] K
Rp = 1.29 [1.47] Re
a = 0.0178 [0.0040] AU
Ag = 2.64 [6.26] [0.26σ]
Teff = 3541 [2082] K [0.84σ]

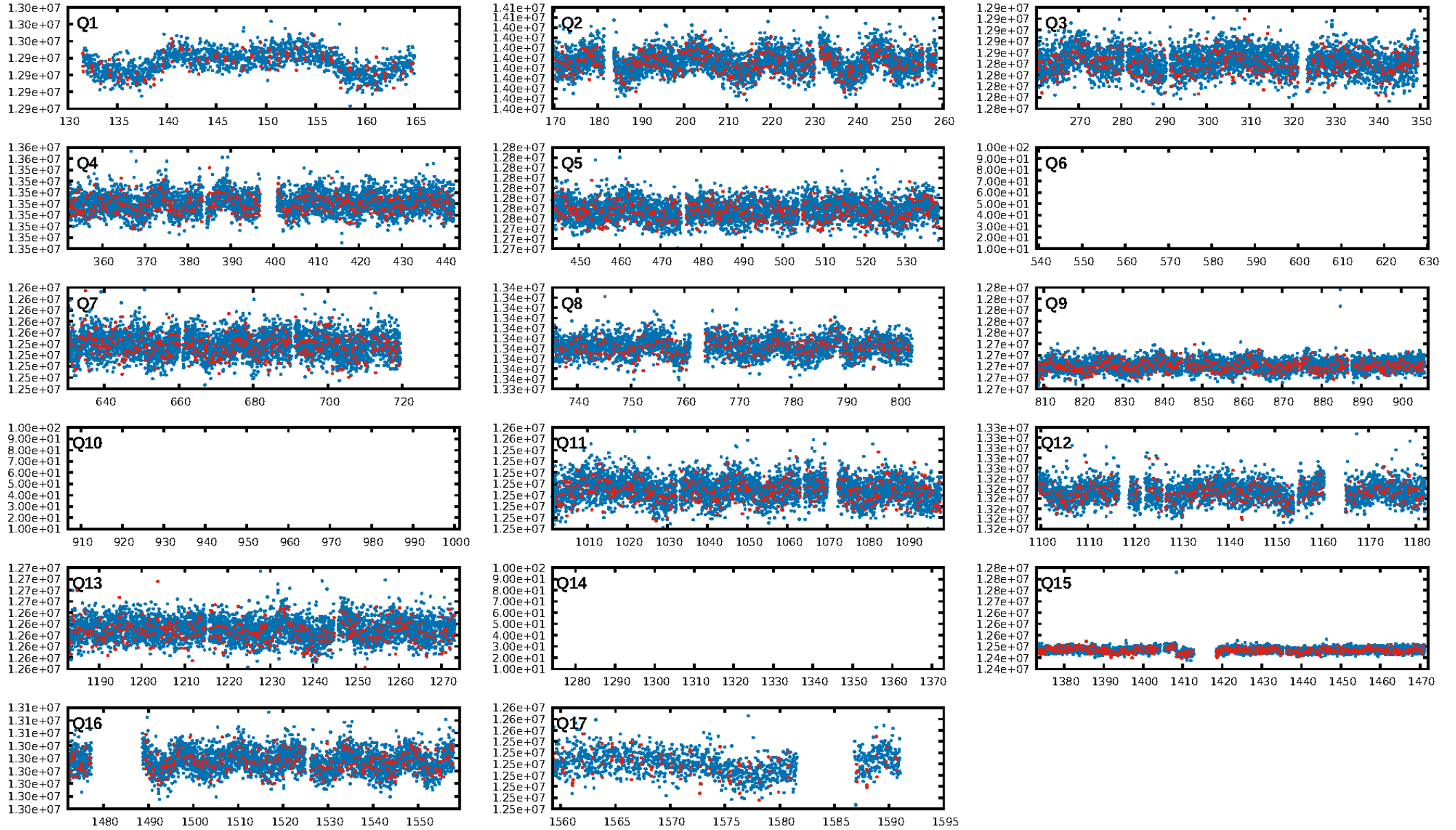
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.51e-26
RollingBand-fgt: 1.00 [1120/1122]
GhostDiagnostic-chr: 0.2488
Centroid-sig: 0.0%
Centroid-so: 13.232 arcsec [12.16σ]
OotOffset-rm: 5.456 arcsec [45.29σ]
KicOffset-rm: 5.685 arcsec [47.93σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

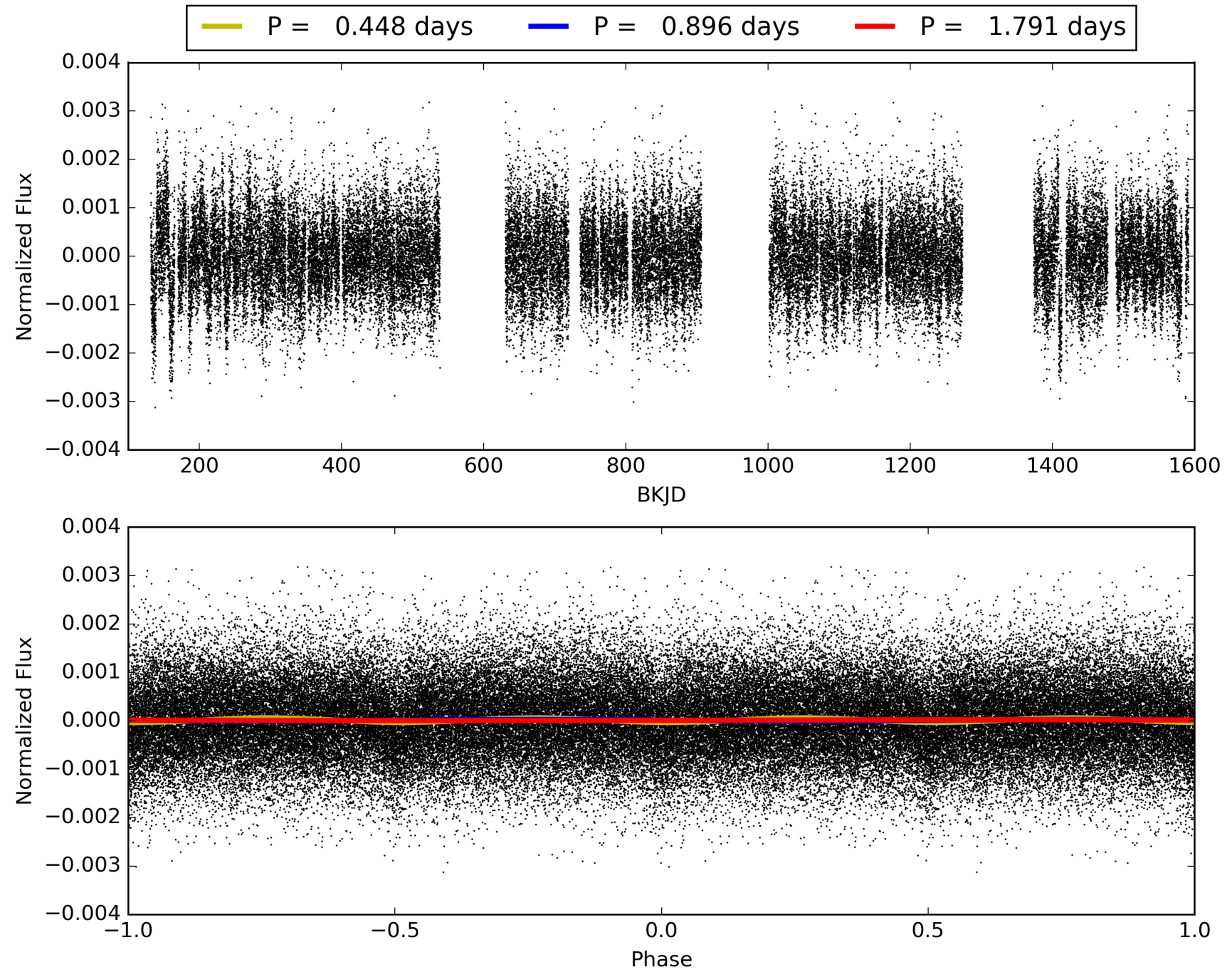
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:28:38 Z

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

TCE 003247503-02, PDC Light Curves

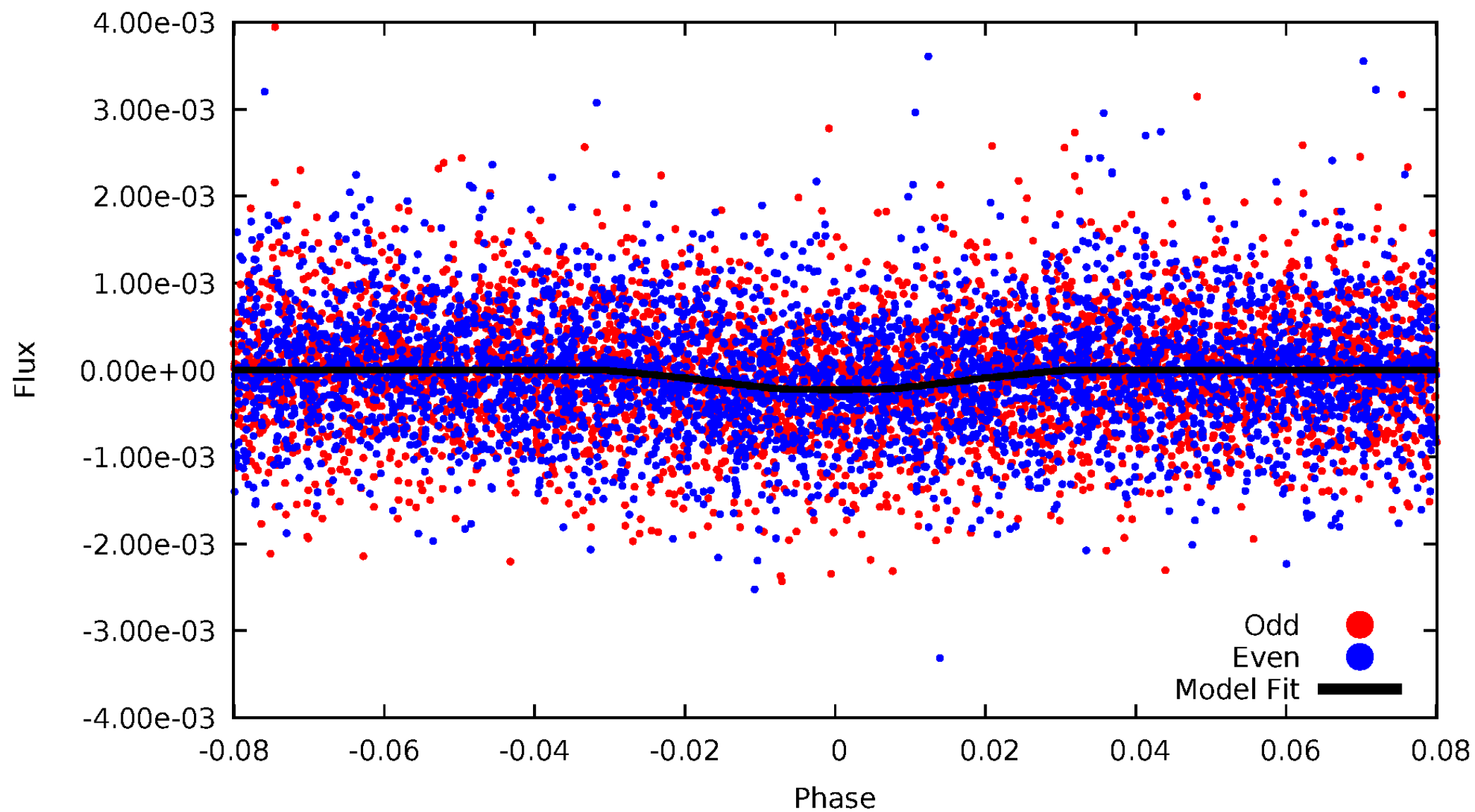


TCE 003247503-02



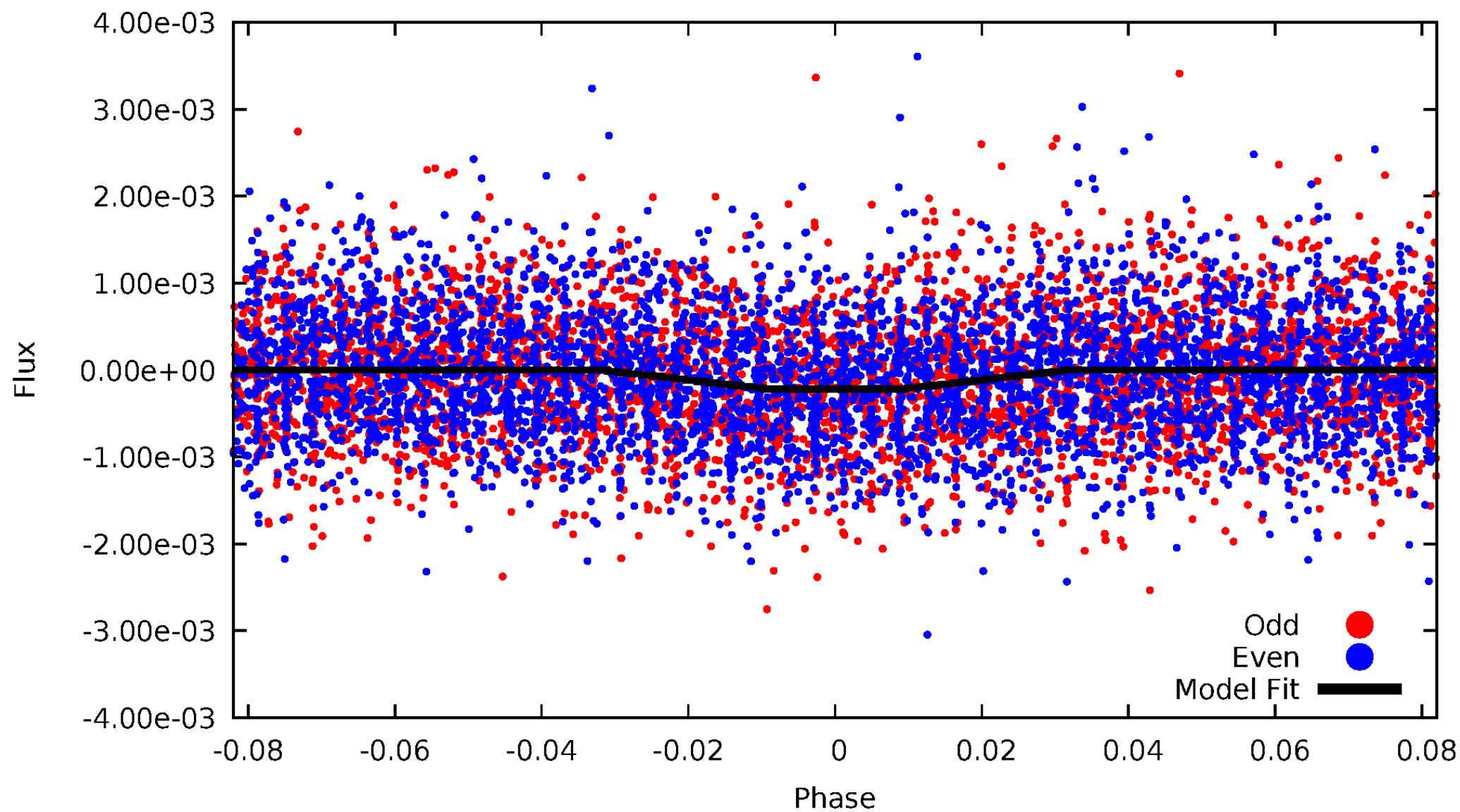
DV Odd/Even

TCE 003247503-02



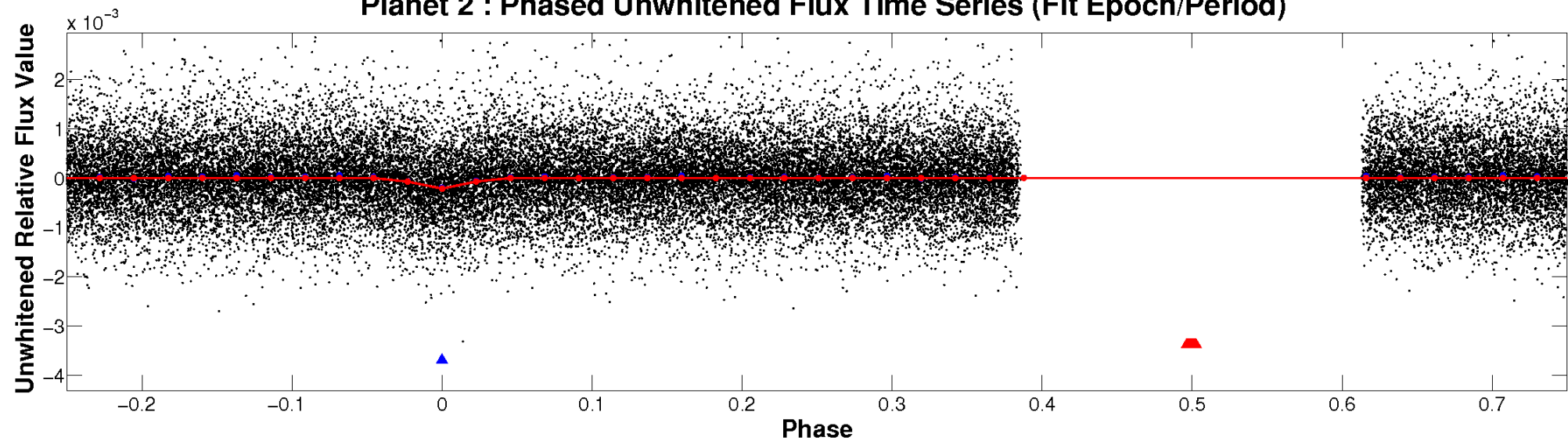
ALT Odd/Even

TCE 003247503-02

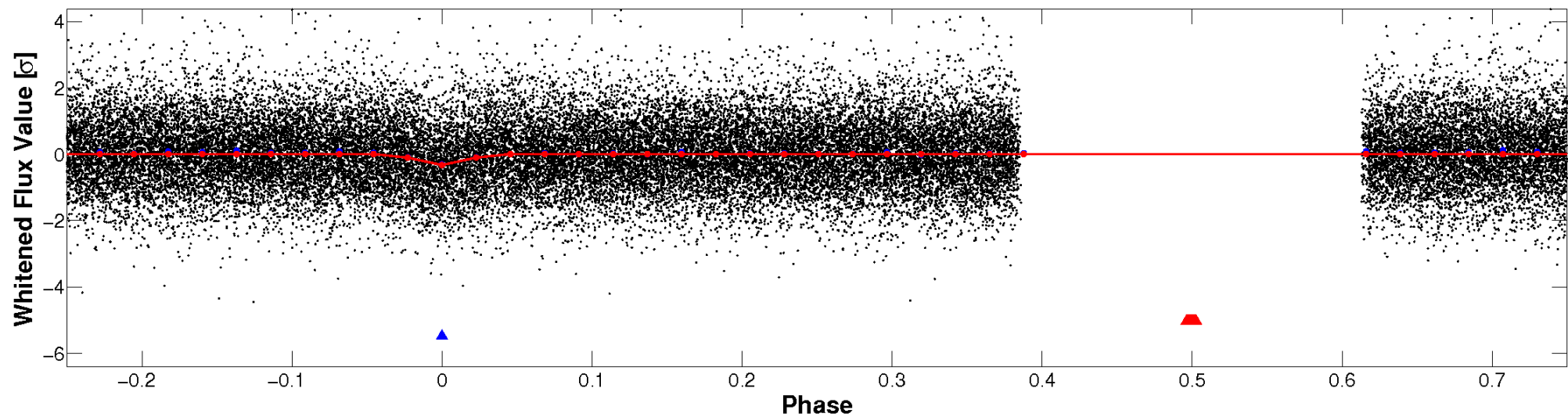


Non-Whitened Vs. Whitened Light Curve

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

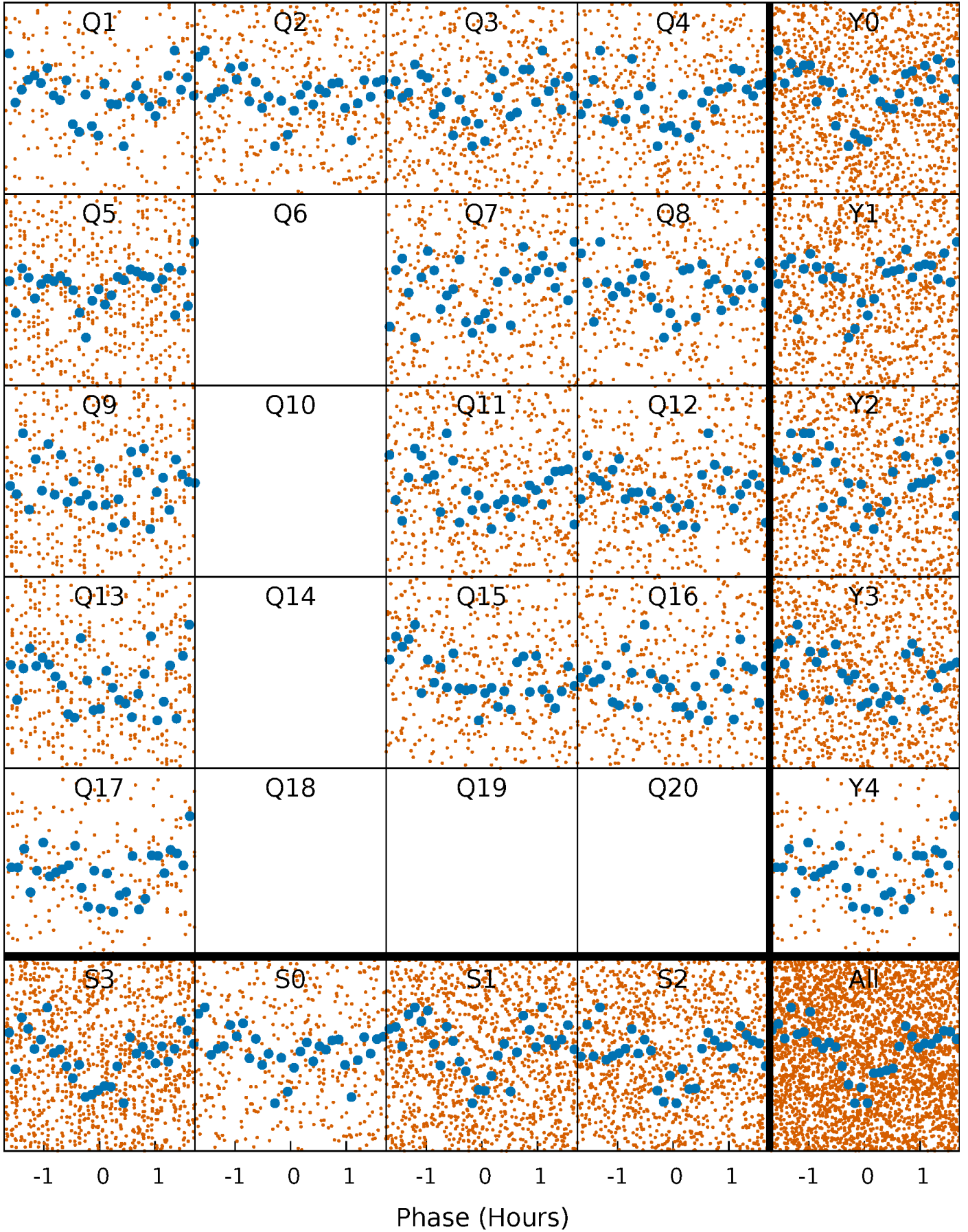


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



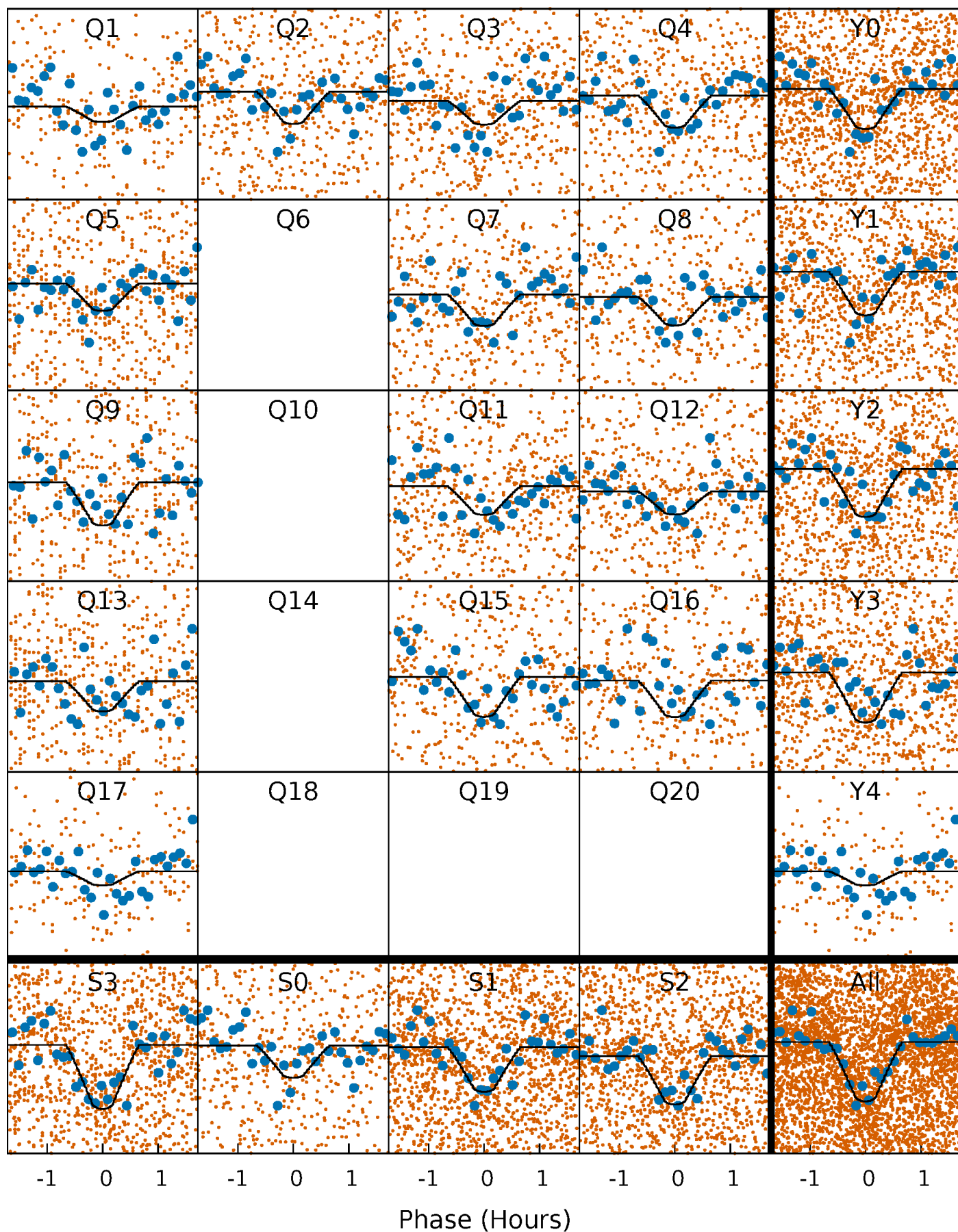
PDC Quarter-Phased Transit Curves

TCE 003247503-02 P= 0.895713 Days $T_0=131.534927$ (BKJD)



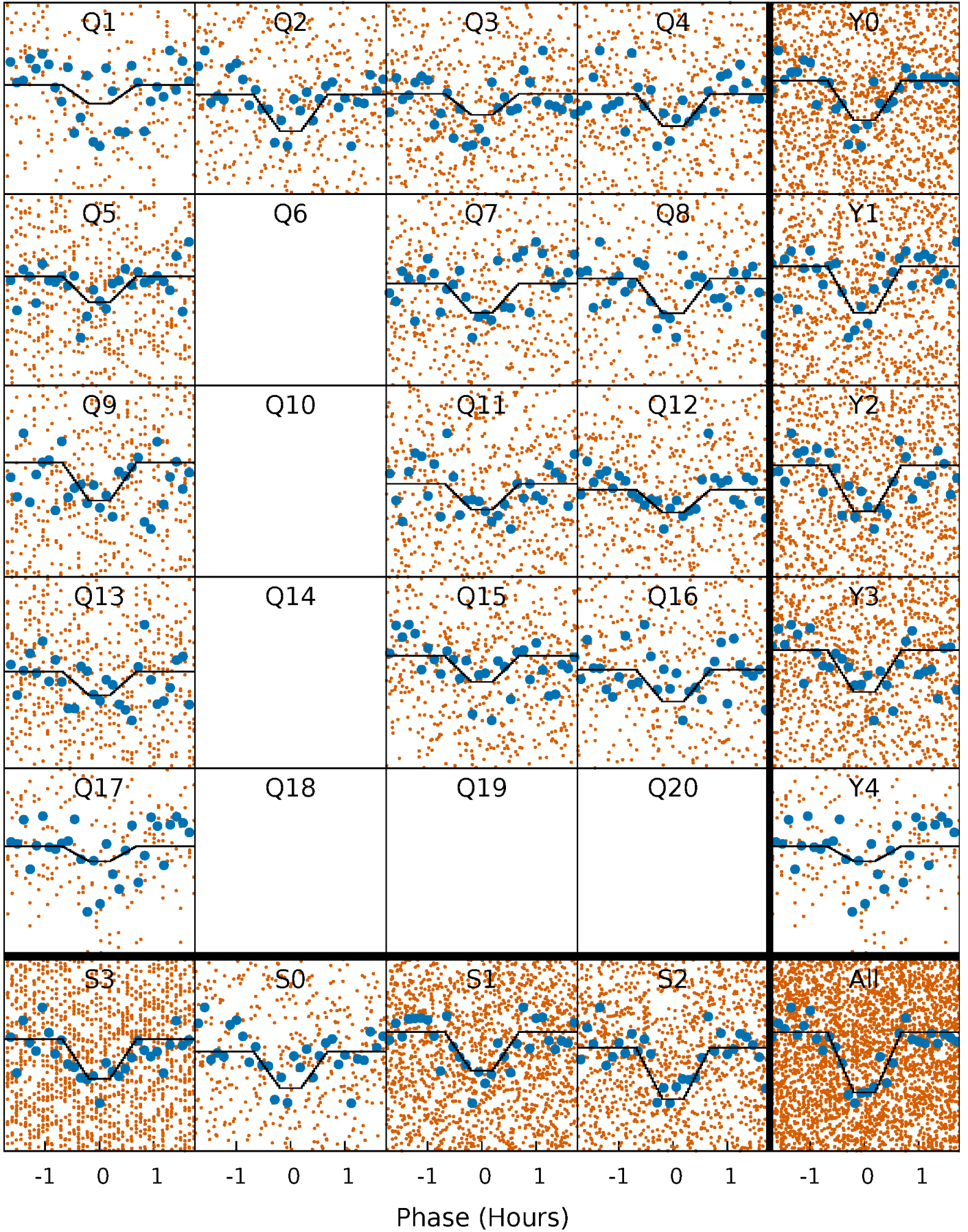
DV Quarter-Phased Transit Curves

TCE 003247503-02 P= 0.895713 Days $T_0=131.534927$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

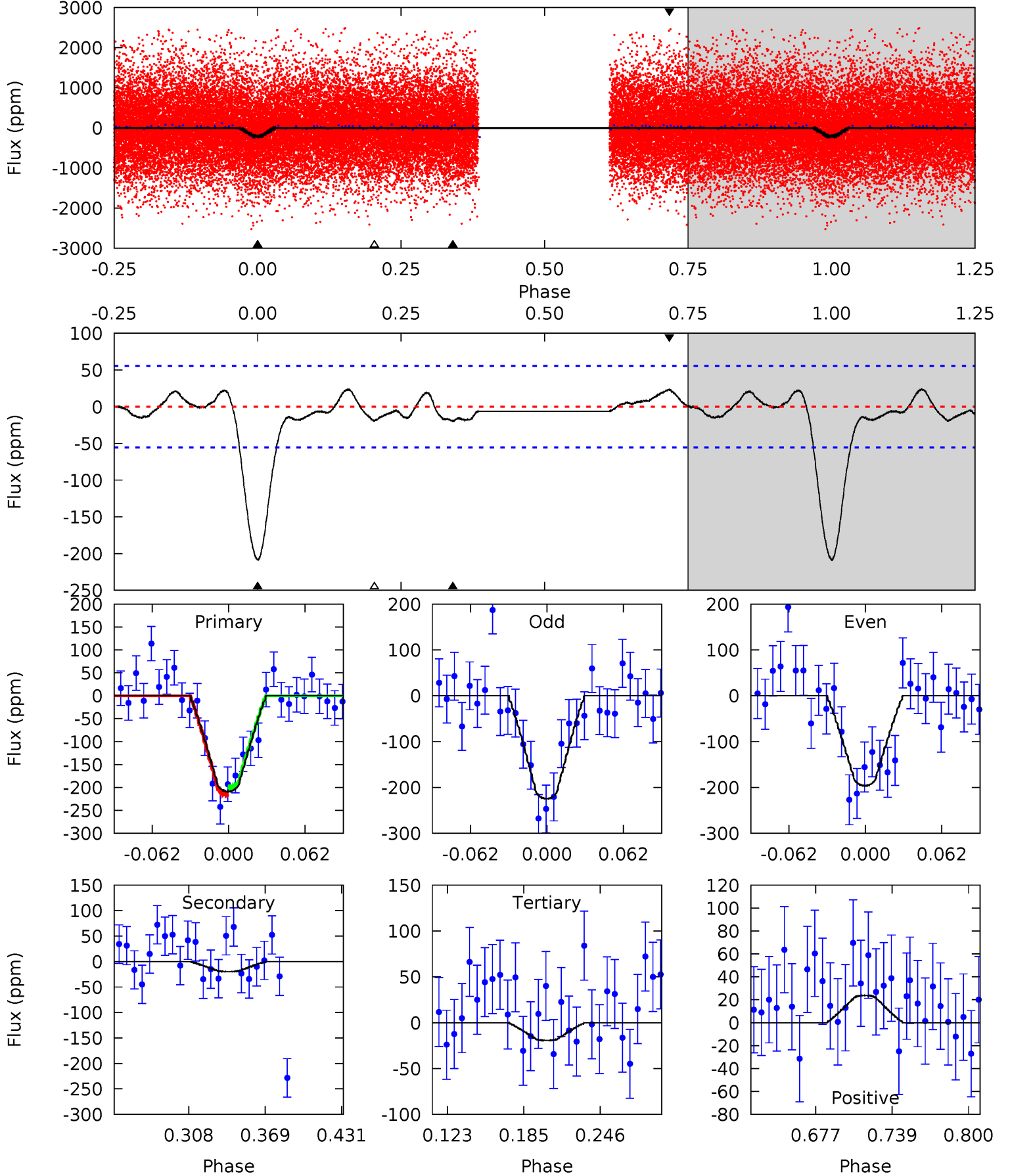
TCE 003247503-02 P= 0.895713 Days $T_0=131.535428$ (BKJD)



DV Model-Shift Uniqueness Test

003247503-02, P = 0.895713 Days, E = 130.639214 Days

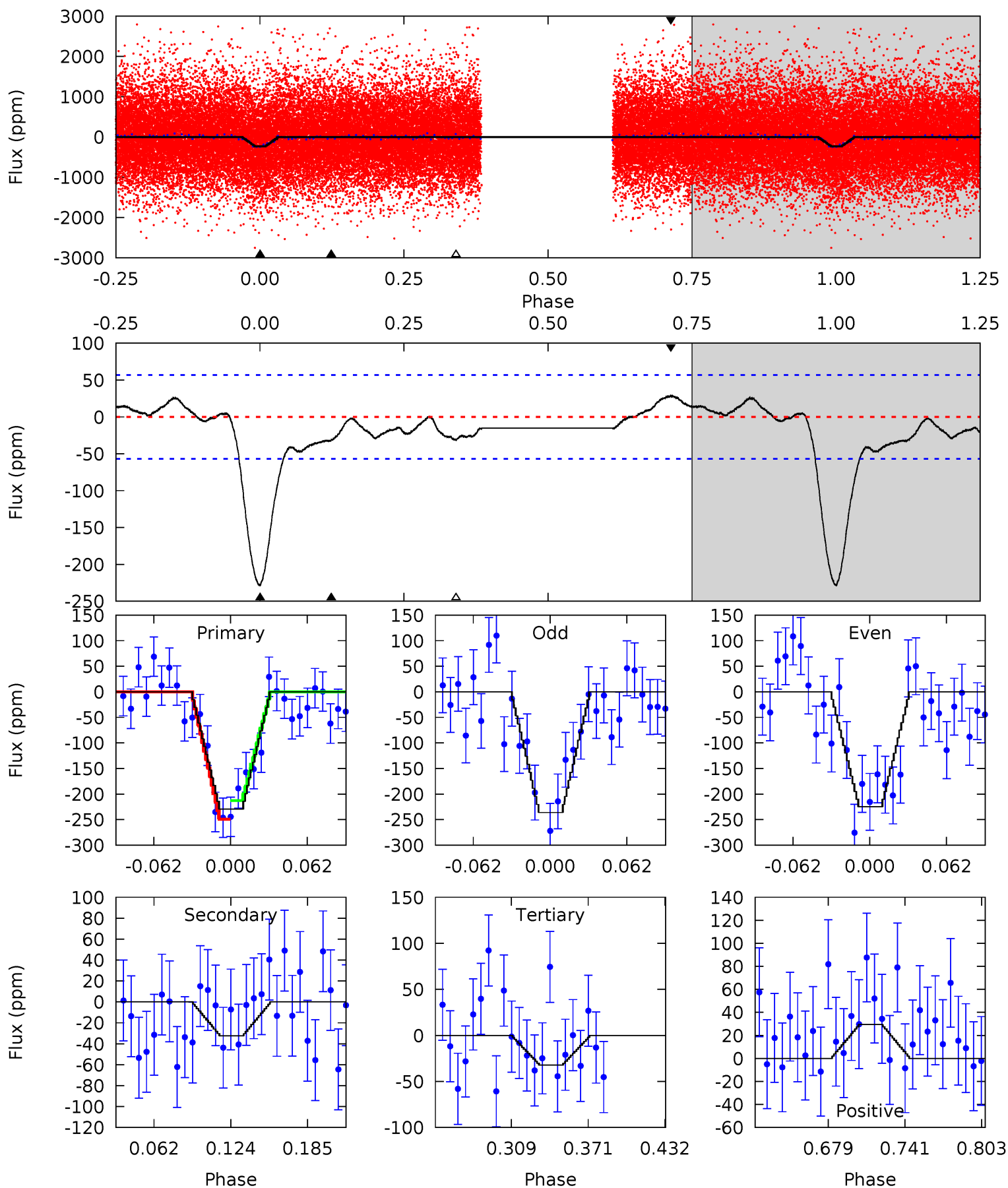
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	1.67	1.64	2.00	4.67	1.87	0.98	16.0	15.6	0.03	-0.34	1.21	0.93	0.10	0.70



Alt Model-Shift Uniqueness Test

003247503-02, P = 0.895713 Days, E = 130.639715 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	2.67	2.66	2.42	4.66	1.87	1.41	16.2	16.4	0.01	0.25	0.46	0.96	0.11	1.49



Stellar Parameters For KIC 003247503

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5901^{+158}_{-175}	$4.553^{+0.044}_{-0.187}$	$-0.300^{+0.300}_{-0.300}$	$0.848^{+0.220}_{-0.079}$	$0.938^{+0.097}_{-0.119}$	$2.165^{+0.496}_{-0.997}$
	+3%/-3%	+1%/-4%	+100%/-100%	+26%/-9%	+10%/-13%	+23%/-46%
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 003247503-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-20 ± 12	$1.73^{+1.50}_{-1.12}$	2571^{+167}_{-116}	3212^{+1707}_{-5648}	$0.993^{+7.568}_{-0.793}$
Alt.	-32 ± 12	$1.76^{+1.28}_{-1.08}$	2563^{+167}_{-118}	3589^{+1684}_{-850}	$1.719^{+10.144}_{-1.188}$

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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

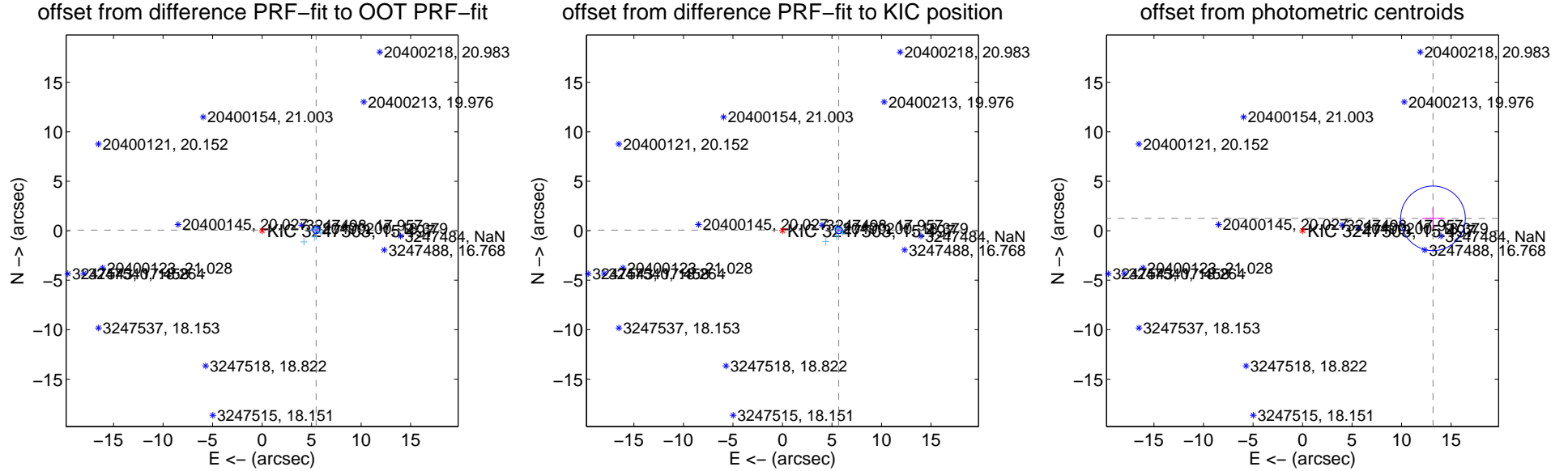
DV Centroid Data

Supplemental centroid analysis for 003247503-02. Kepler magnitude: 15.50. Transit SNR 12.66

There are 14 quarters with good PRF difference image offsets

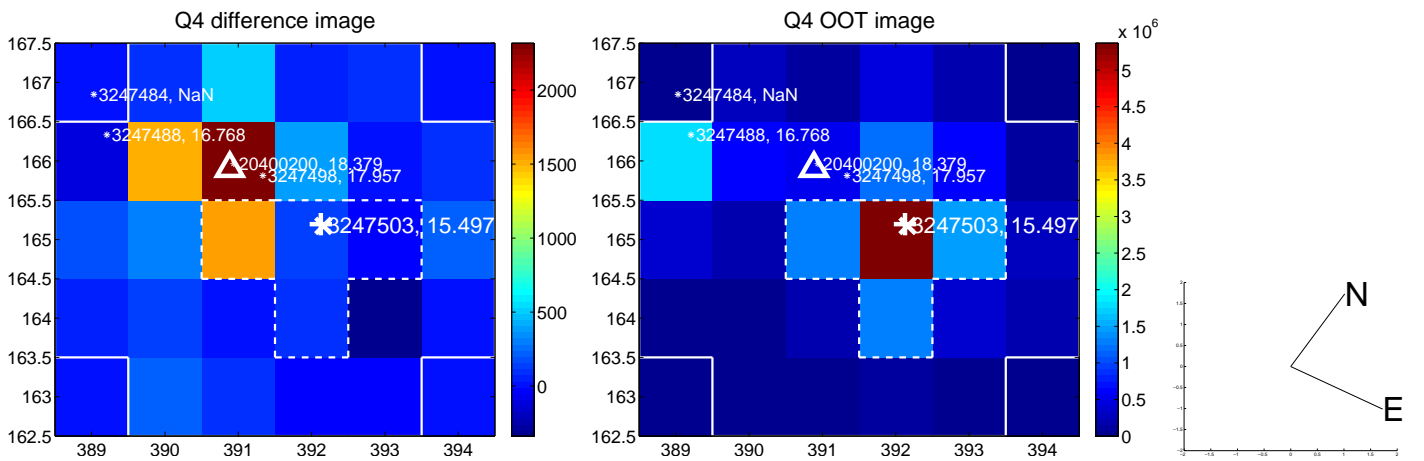
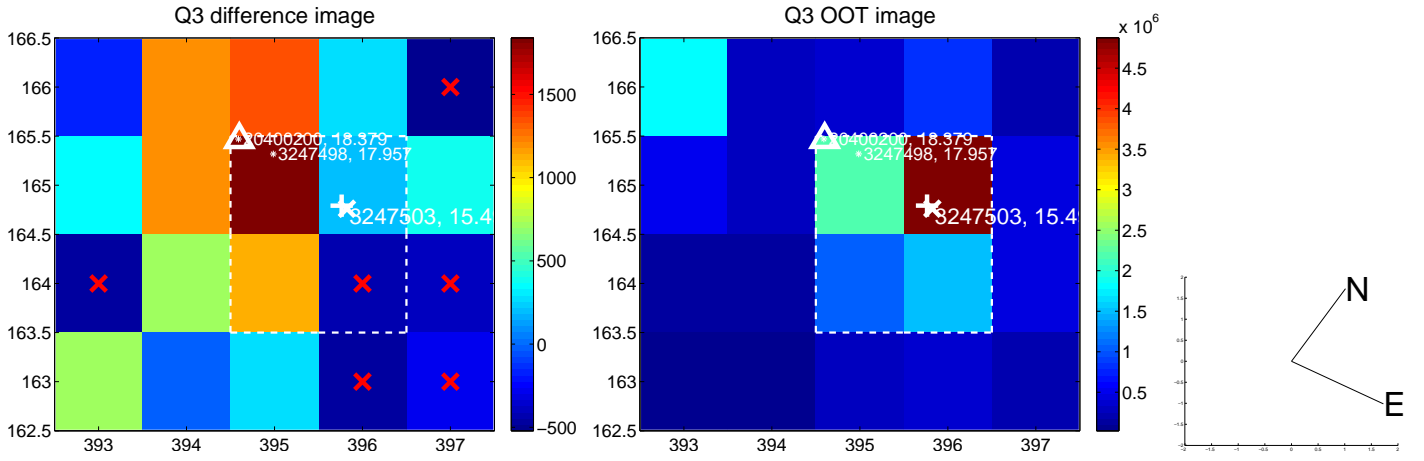
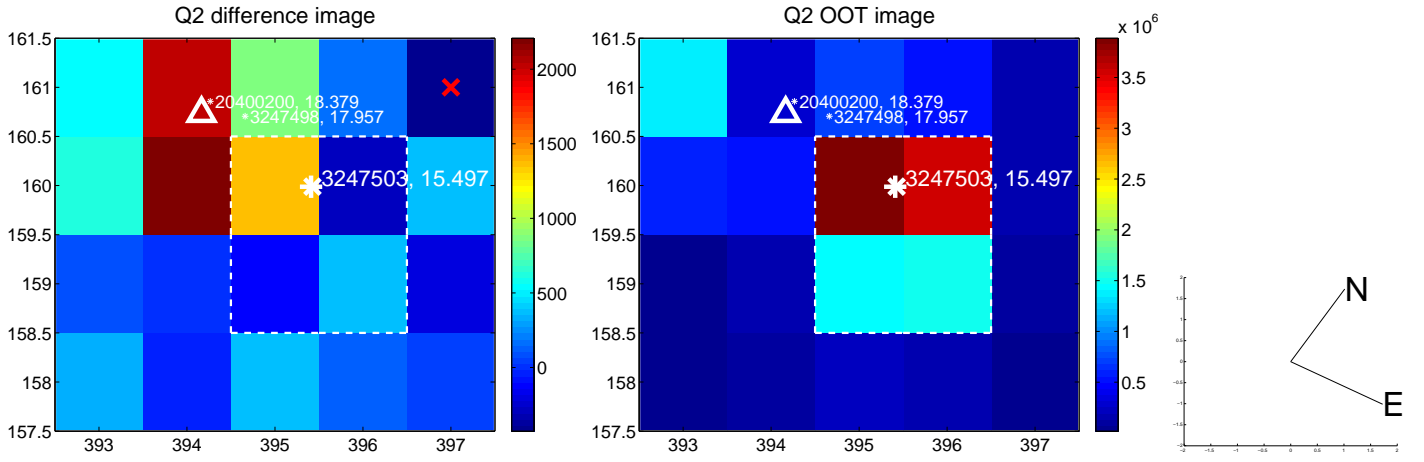
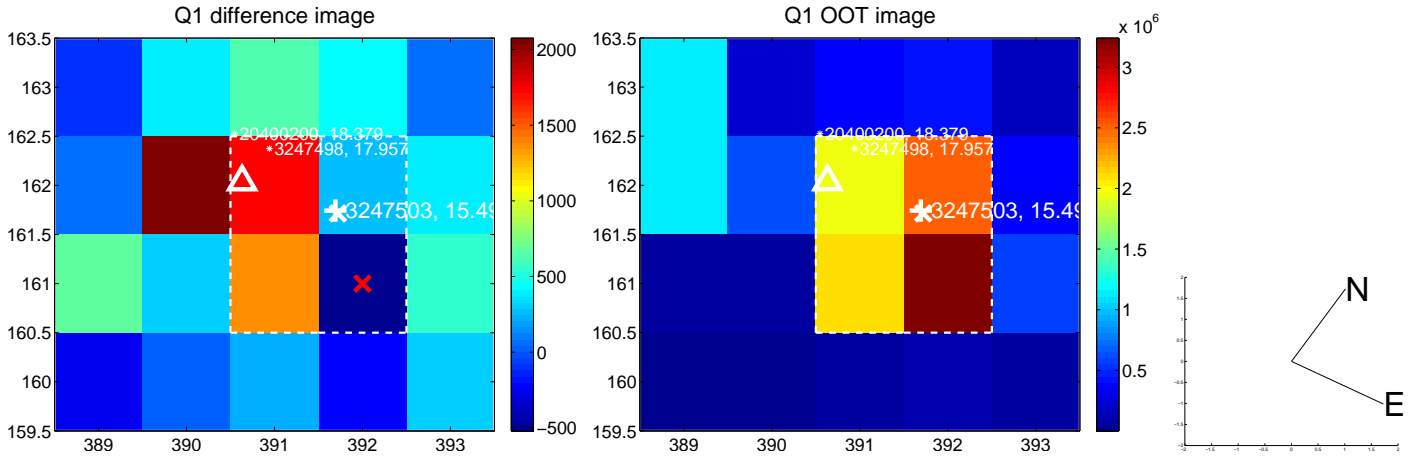
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.456 \pm 0.120	45.29	-5.456 \pm 0.120	0.065 \pm 0.117
PRF-fit source offset from KIC position	5.685 \pm 0.119	47.93	-5.685 \pm 0.118	0.062 \pm 0.113
photometric centroid source offset	13.23 \pm 1.09	12.16	-13.17 \pm 1.09	1.25 \pm 1.09

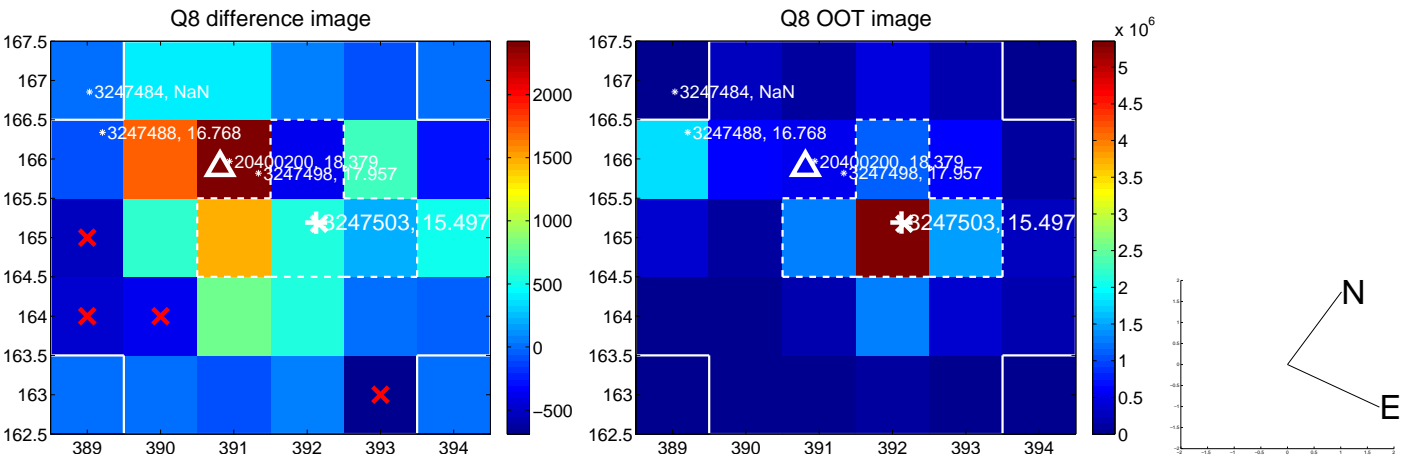
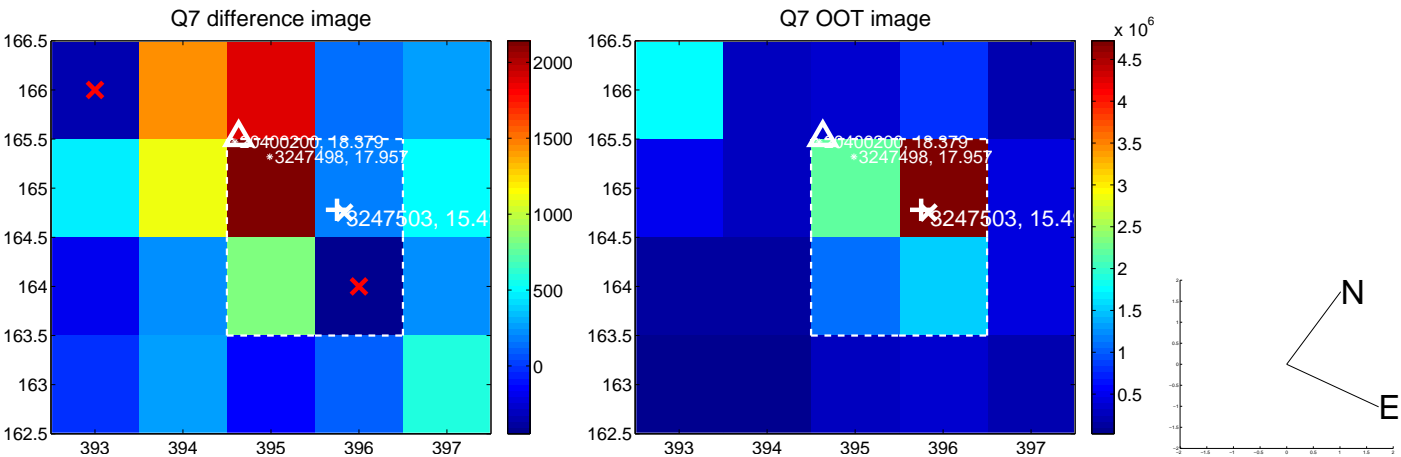
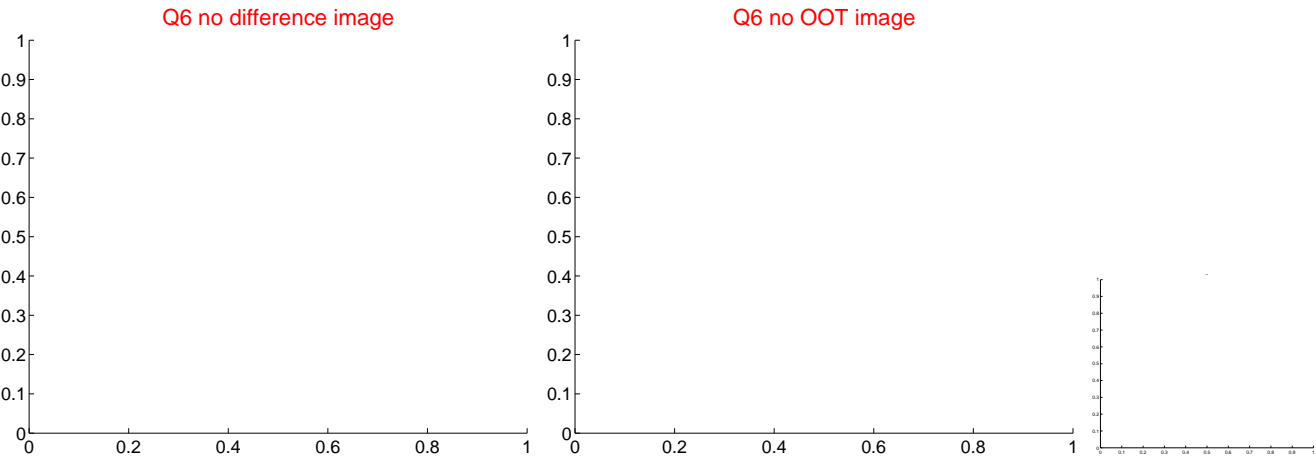
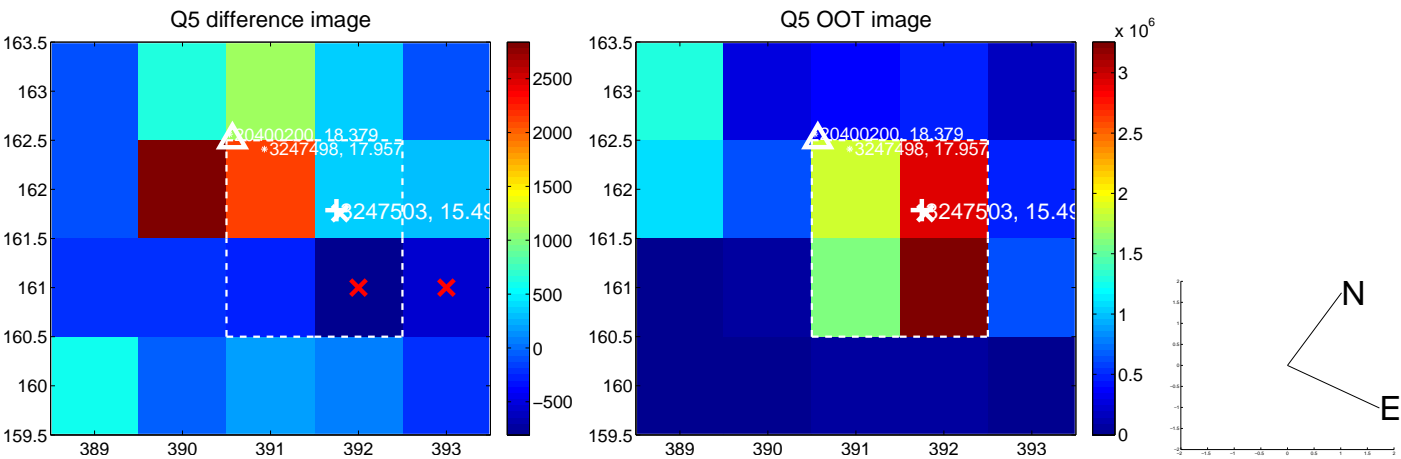


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

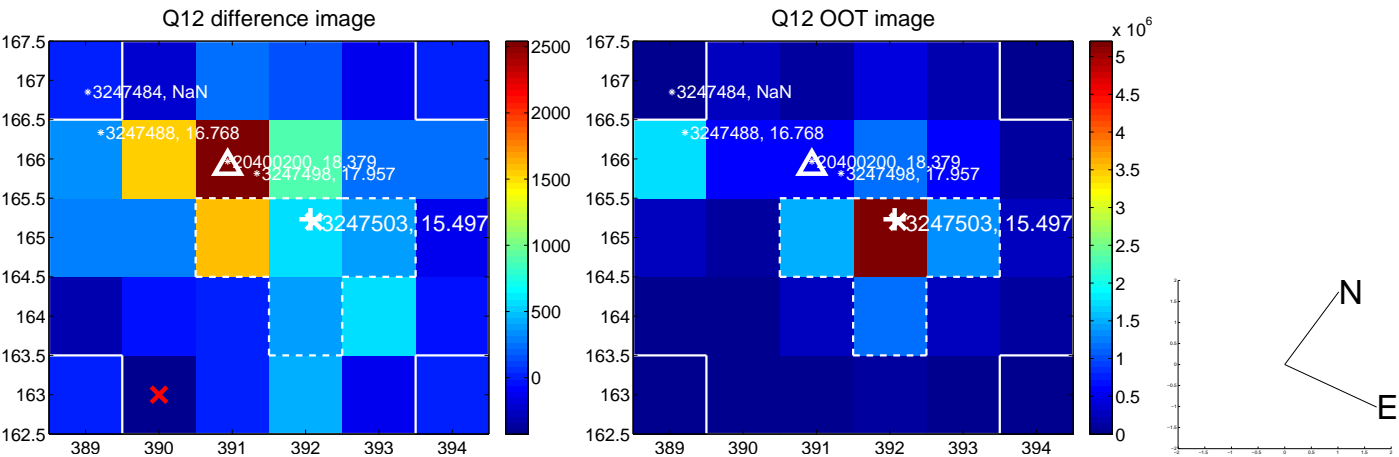
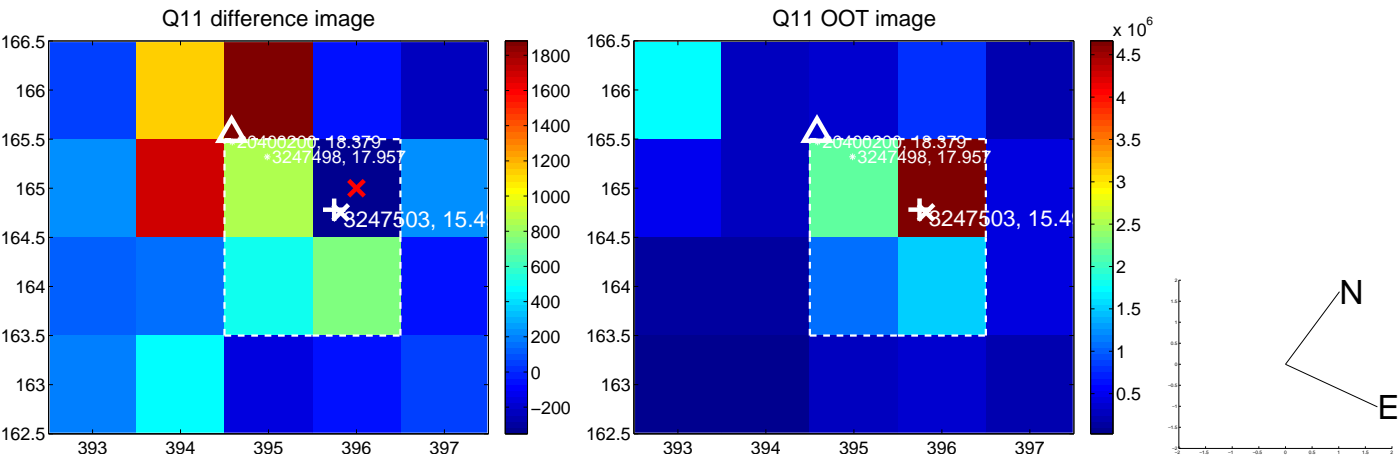
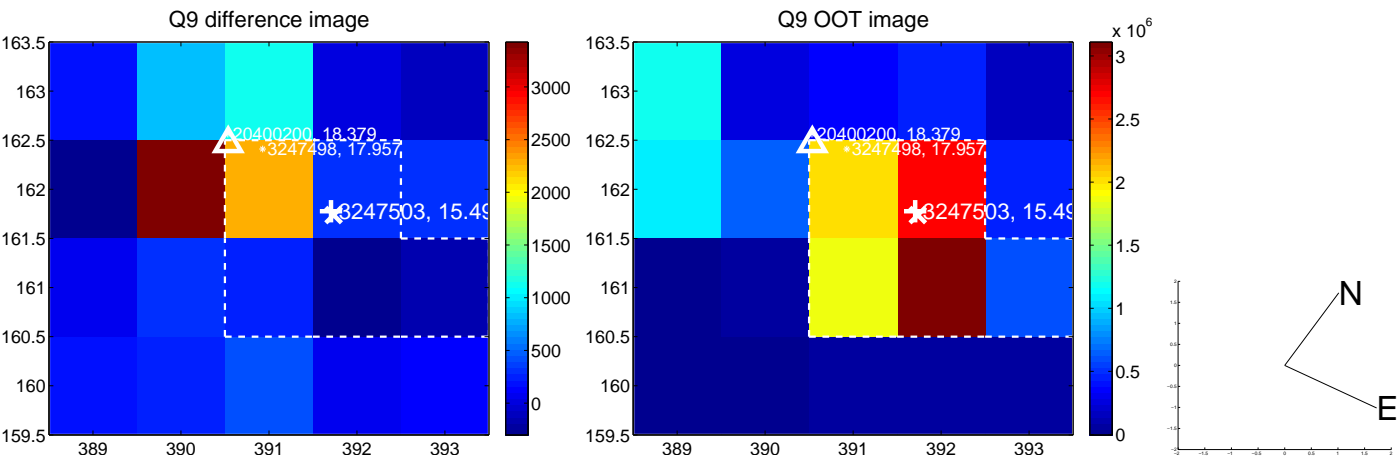
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



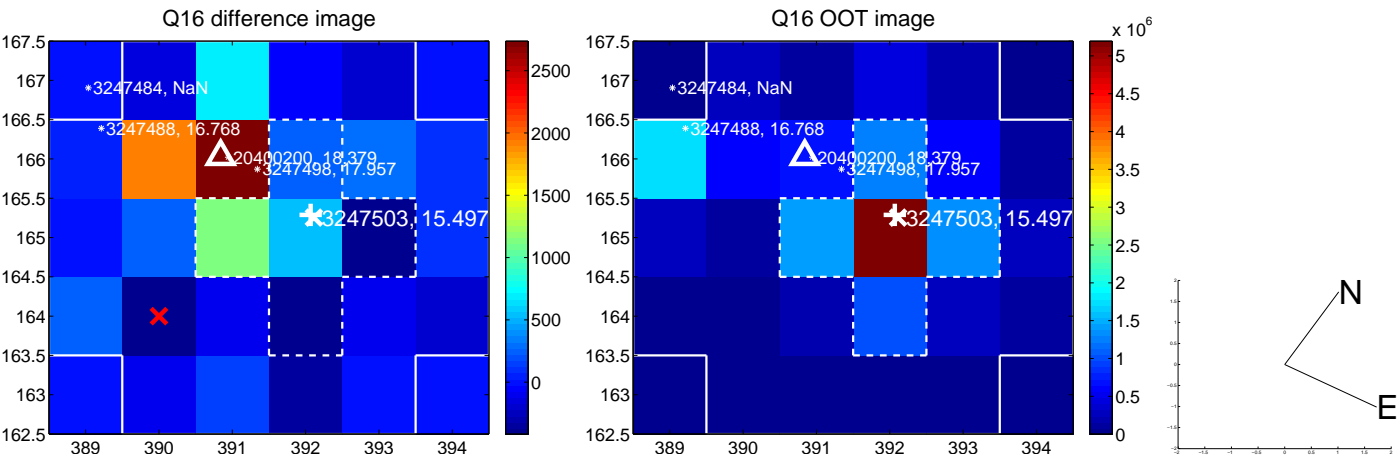
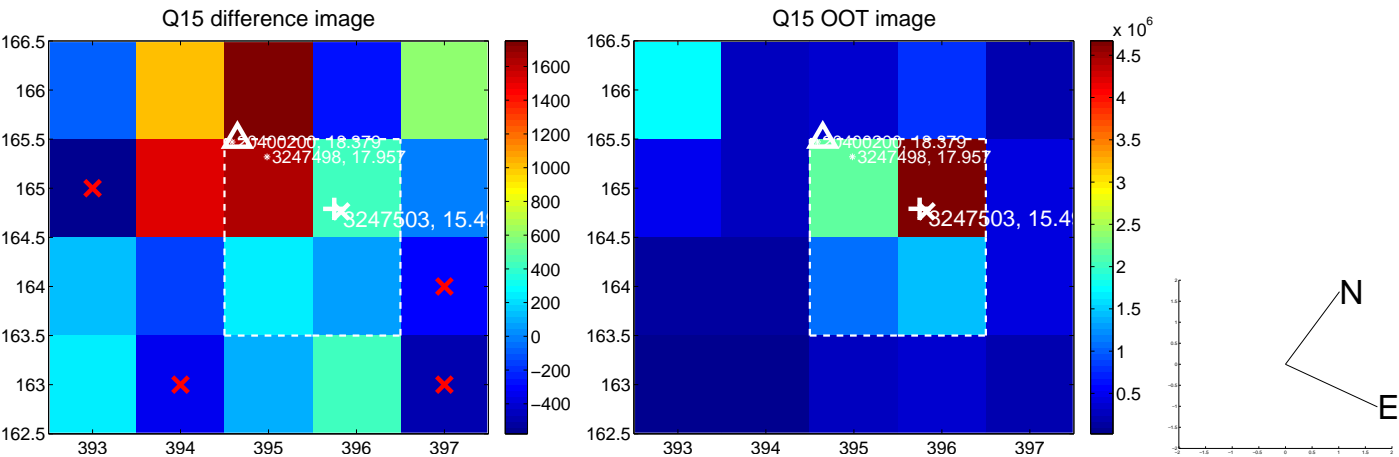
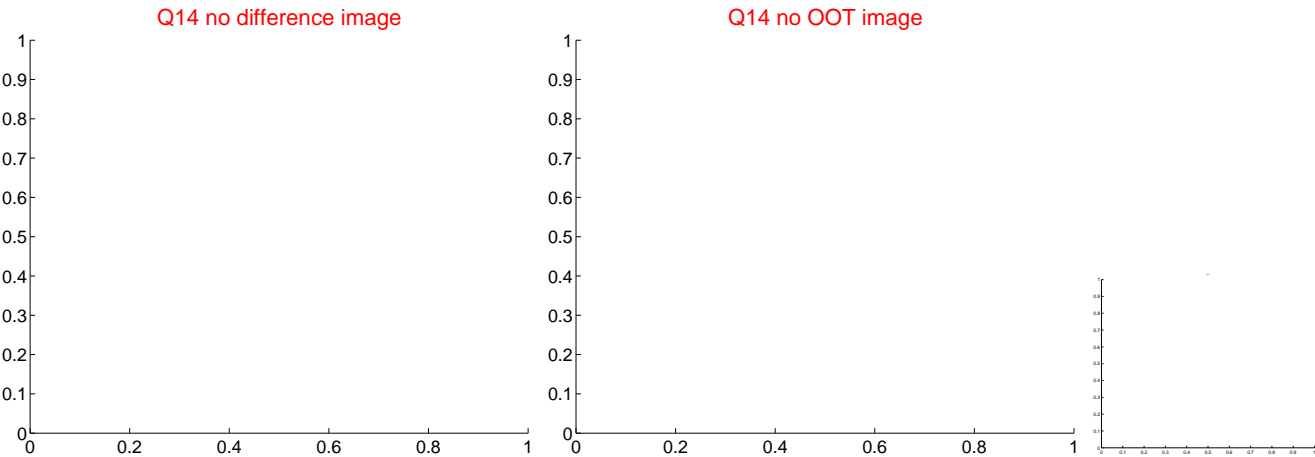
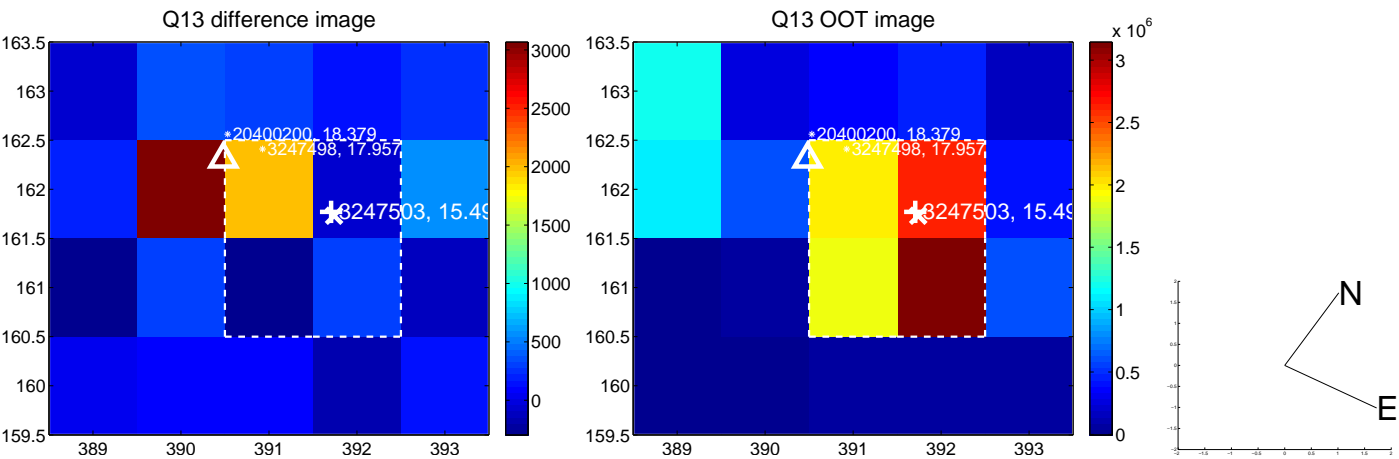
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



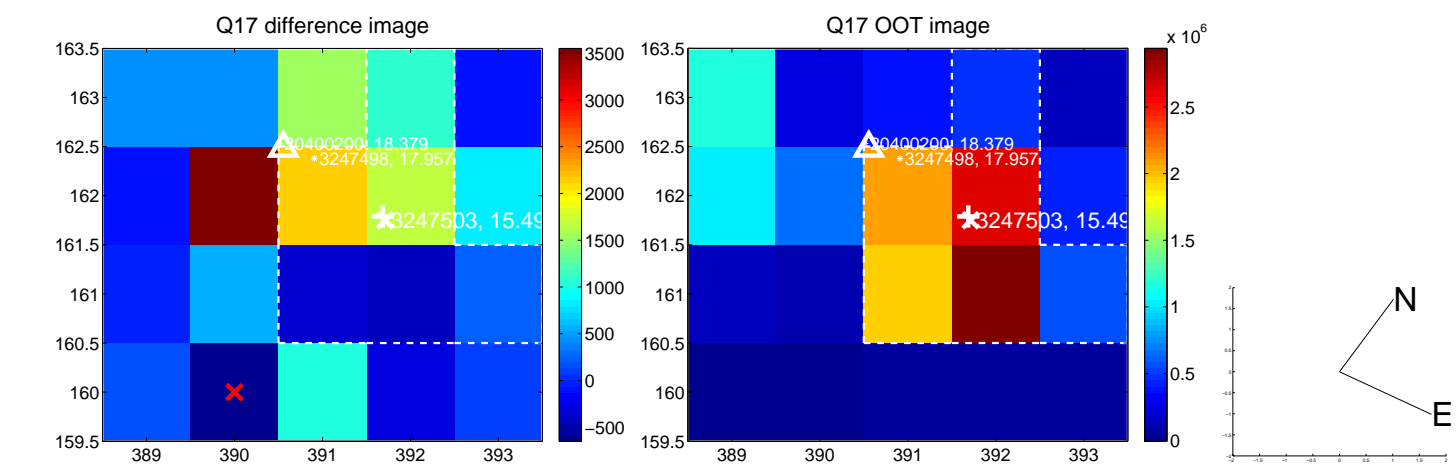
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



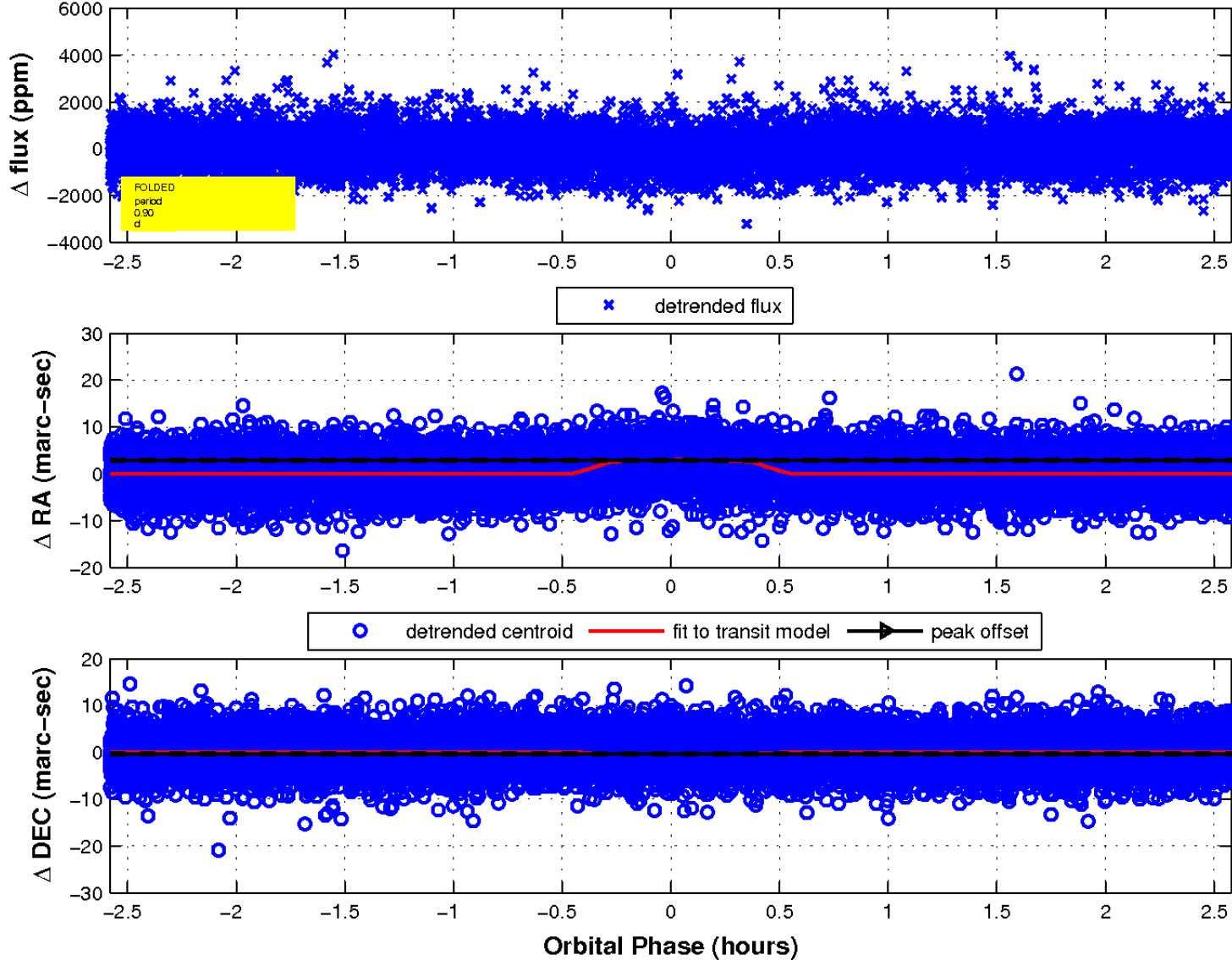
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

