

KIC 010602324

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})
010602324-01	OBS	No	3.162602	134.102904	24.7	9.451	8.7	7.7	2.98	6765	1.95	6922.21
010602324-02	OBS	No	447.667469	446.129083	259.9	10.482	10.8	7.0	2.98	6765	5.84	9.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010602324-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010602324-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

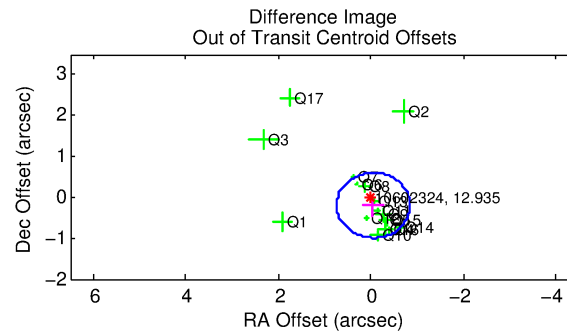
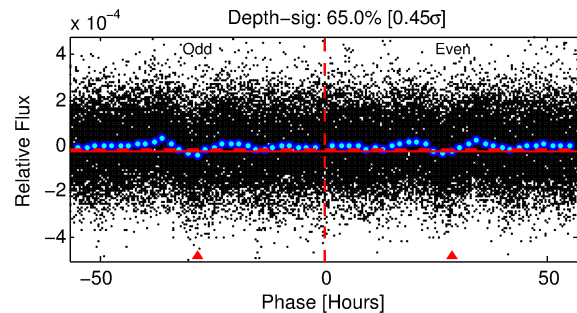
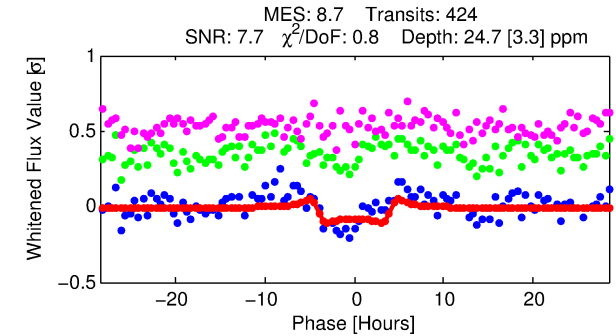
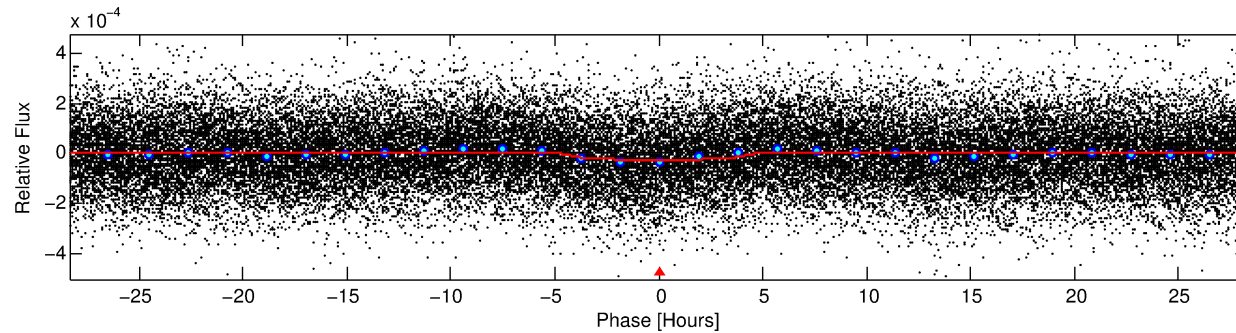
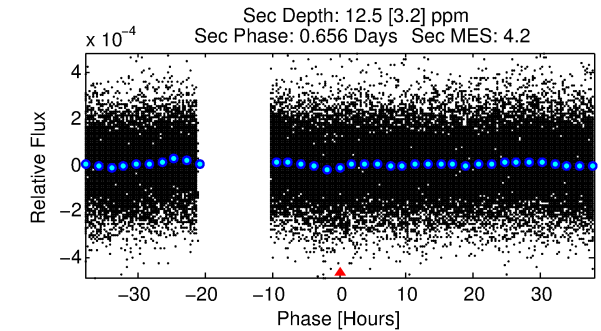
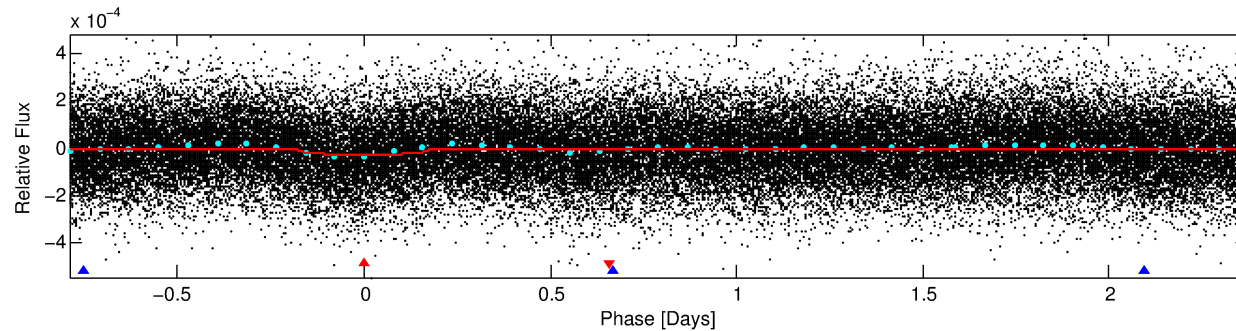
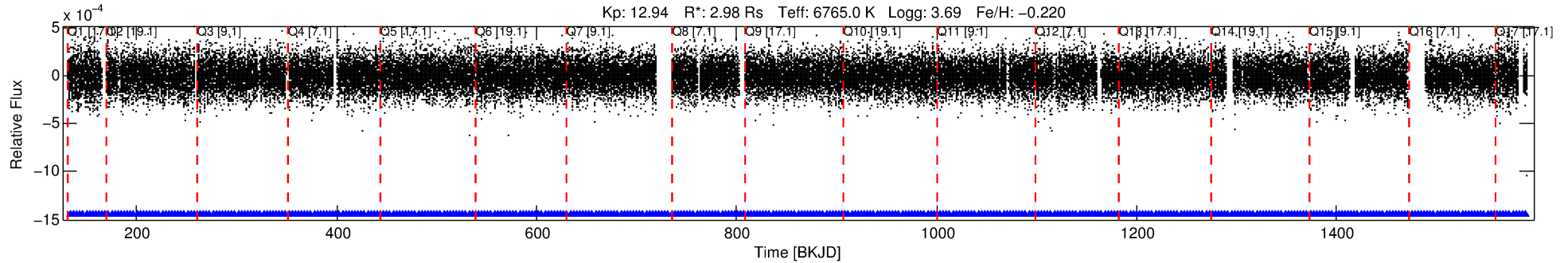
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010602324-01

No Significant Match Found

DV One-Page Summary

KIC: 10602324 Candidate: 1 of 2 Period: 3.163 d



DV Fit Results:

Period = 3.16260 [0.00005] d
Epoch = 134.1029 [0.0104] BKJD
Rp/R* = 0.0060 [0.0005]
a/R* = 1.14 [0.07]
b = 0.98 [0.01]
Seff = 6922.21 [6548.32]
Teq = 2326 [550] K
Rp = 1.95 [1.10] Re
a = 0.0491 [0.0278] AU
Ag = 4.37 [4.29] [0.79σ]
Teffp = 5199 [442] K [4.07σ]

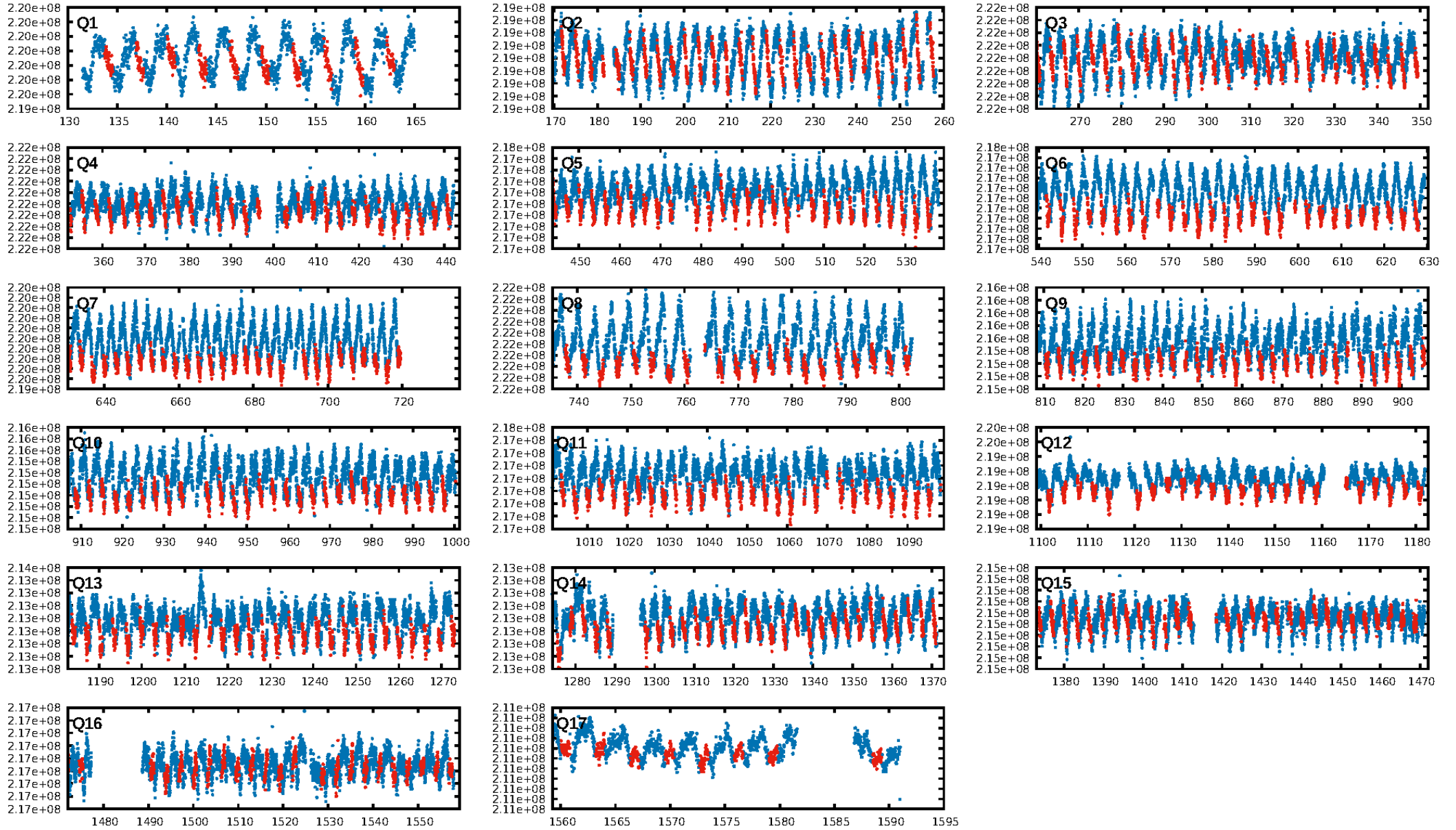
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [755.87σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.14e-13
RollingBand-fgt: 1.00 [406/406]
GhostDiagnostic-chr: 1.142
Centroid-sig: 22.5%
Centroid-so: 0.691 arcsec [1.23σ]
OotOffset-rm: 0.206 arcsec [0.78σ]
KicOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 1.00 [17/17]

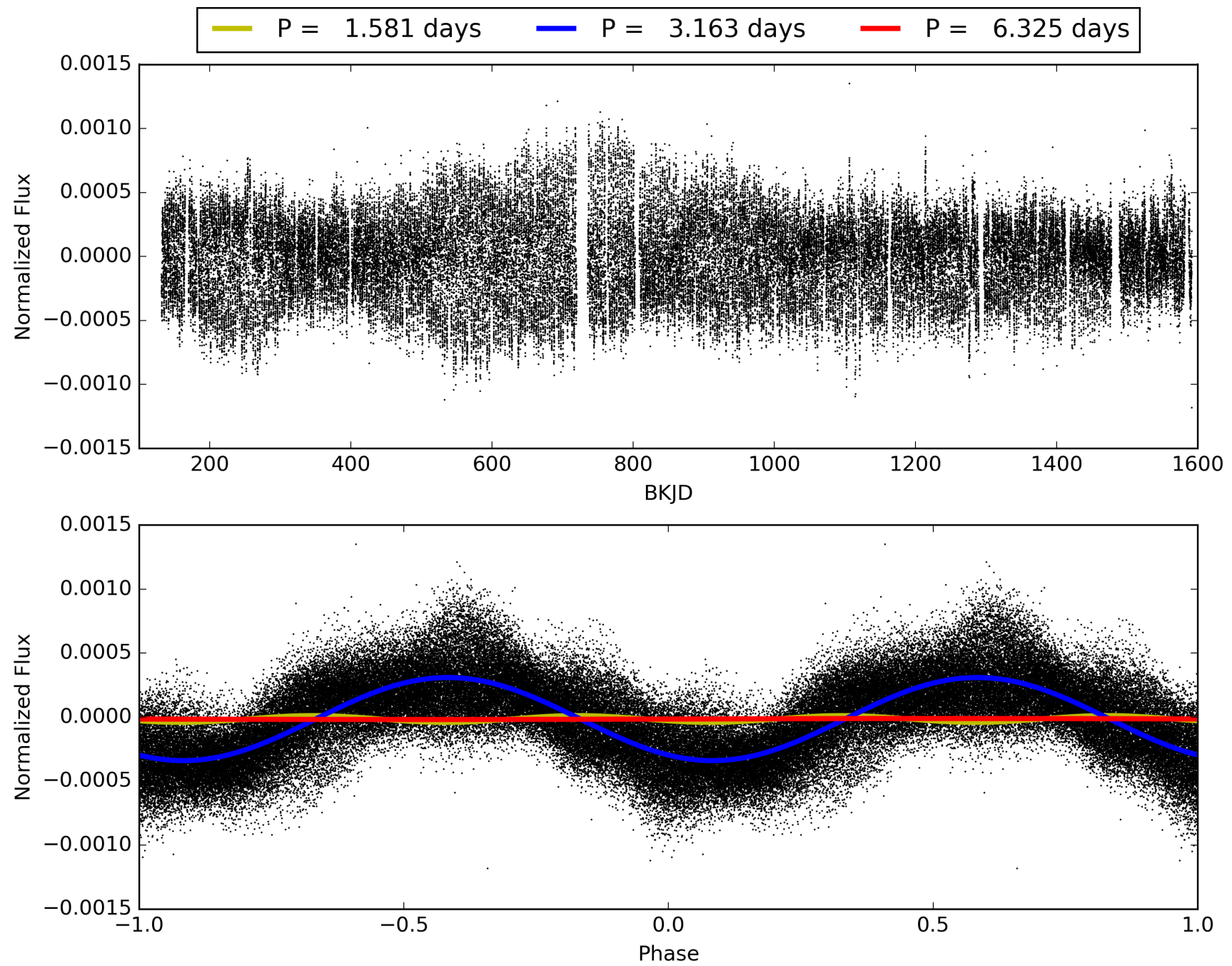
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010602324-01, PDC Light Curves

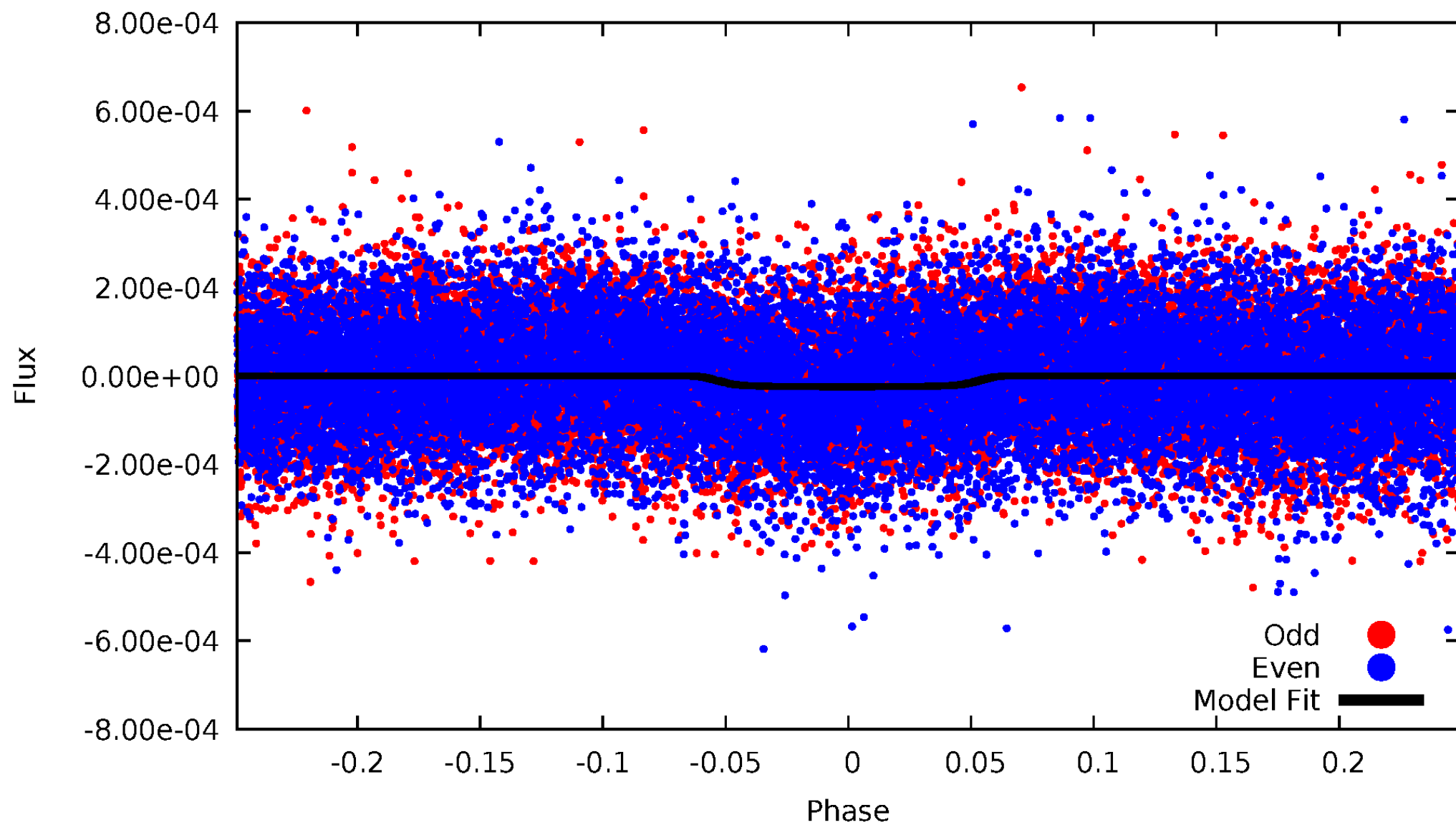


TCE 010602324-01



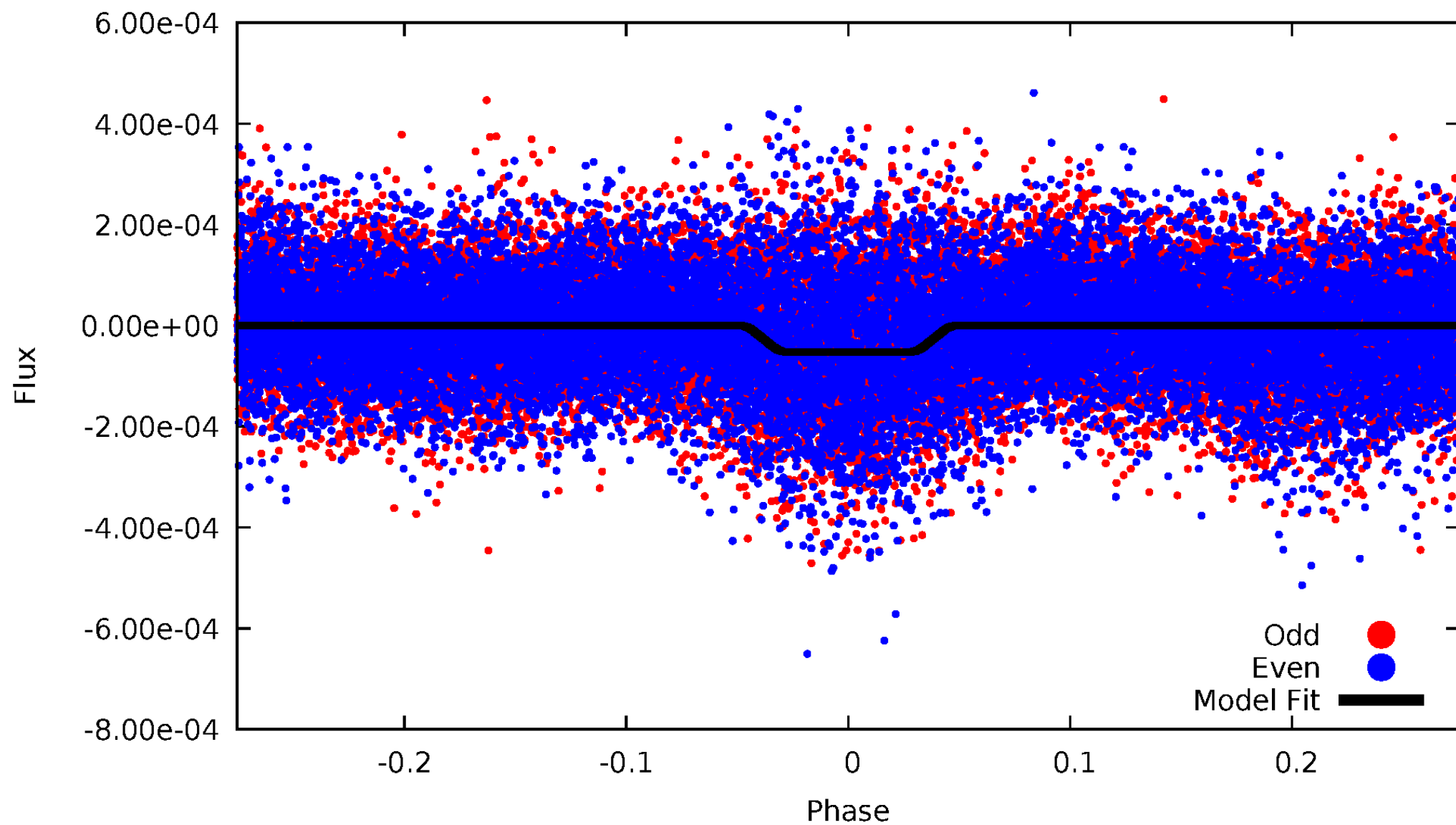
DV Odd/Even

TCE 010602324-01

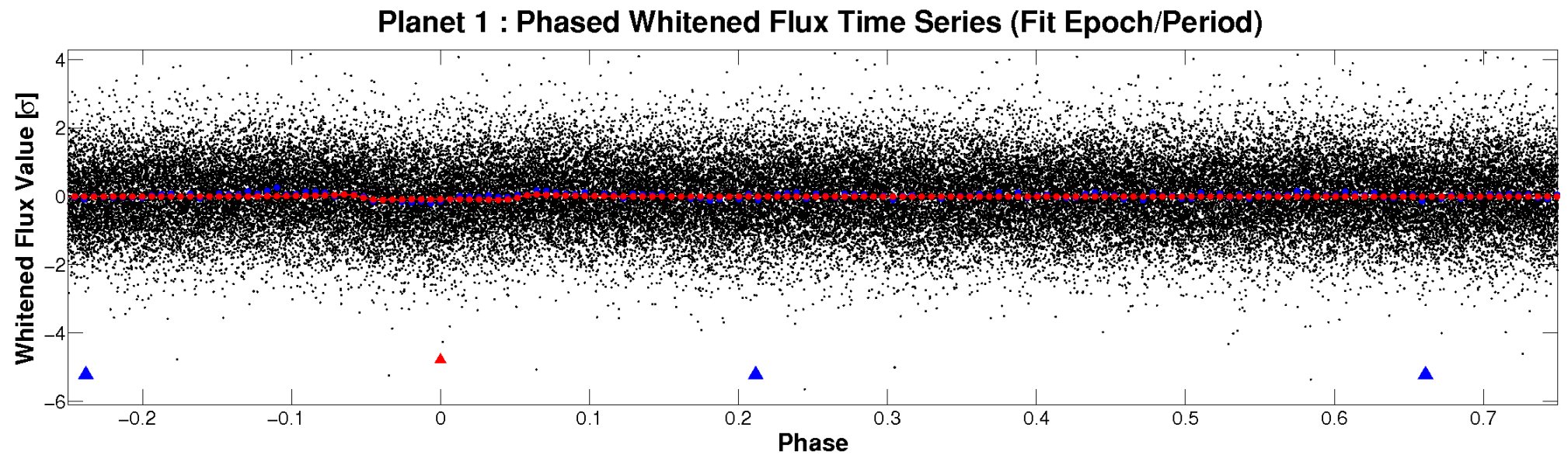
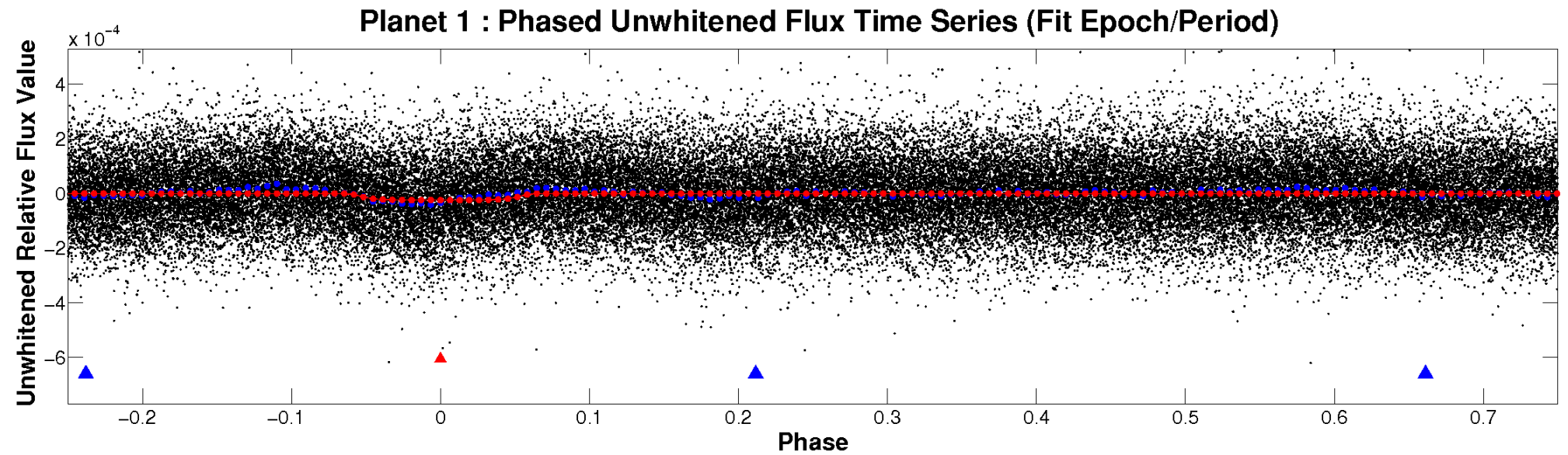


ALT Odd/Even

TCE 010602324-01

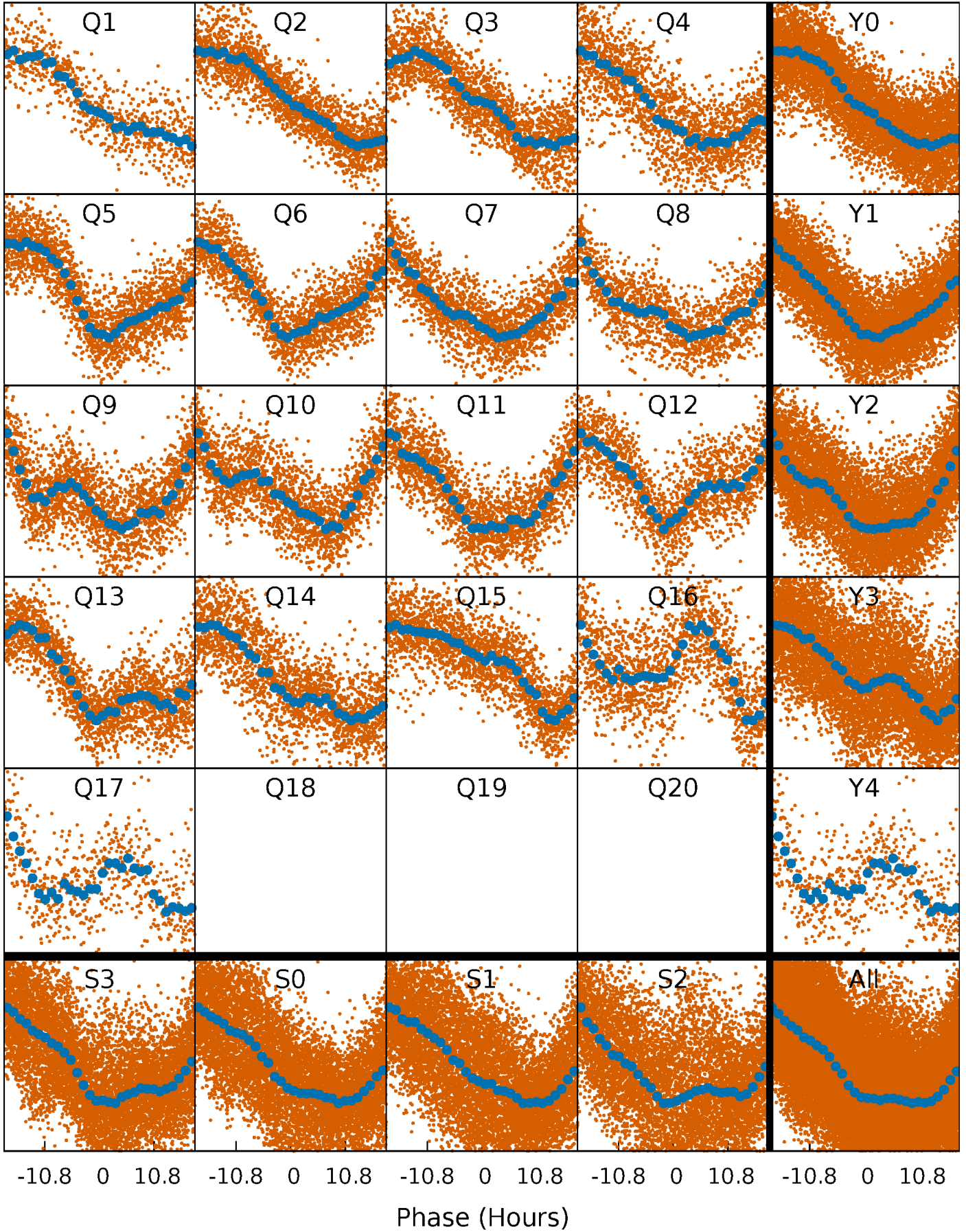


Non-Whitened Vs. Whitened Light Curve



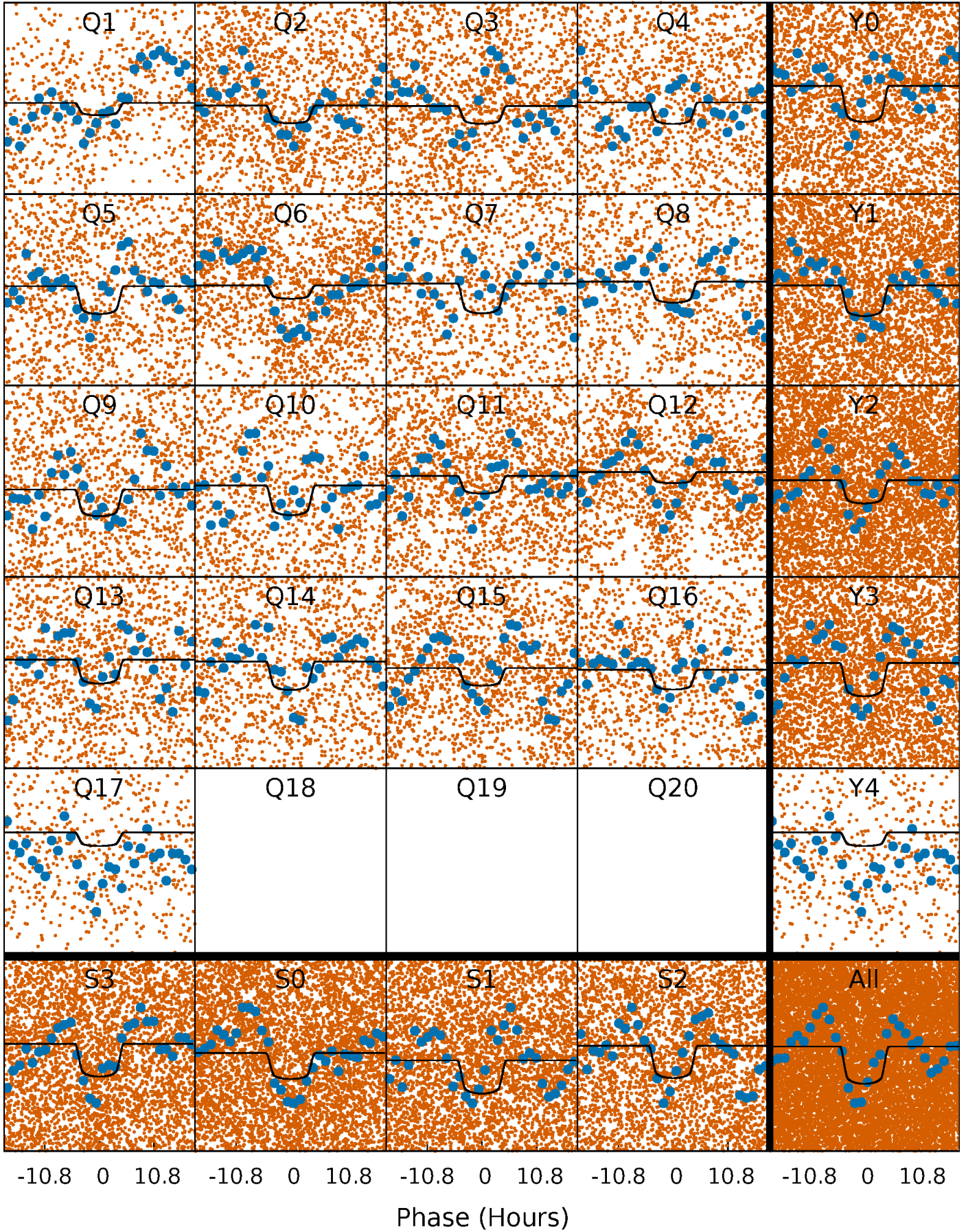
PDC Quarter-Phased Transit Curves

TCE 010602324-01 P= 3.162602 Days $T_0=134.102904$ (BKJD)



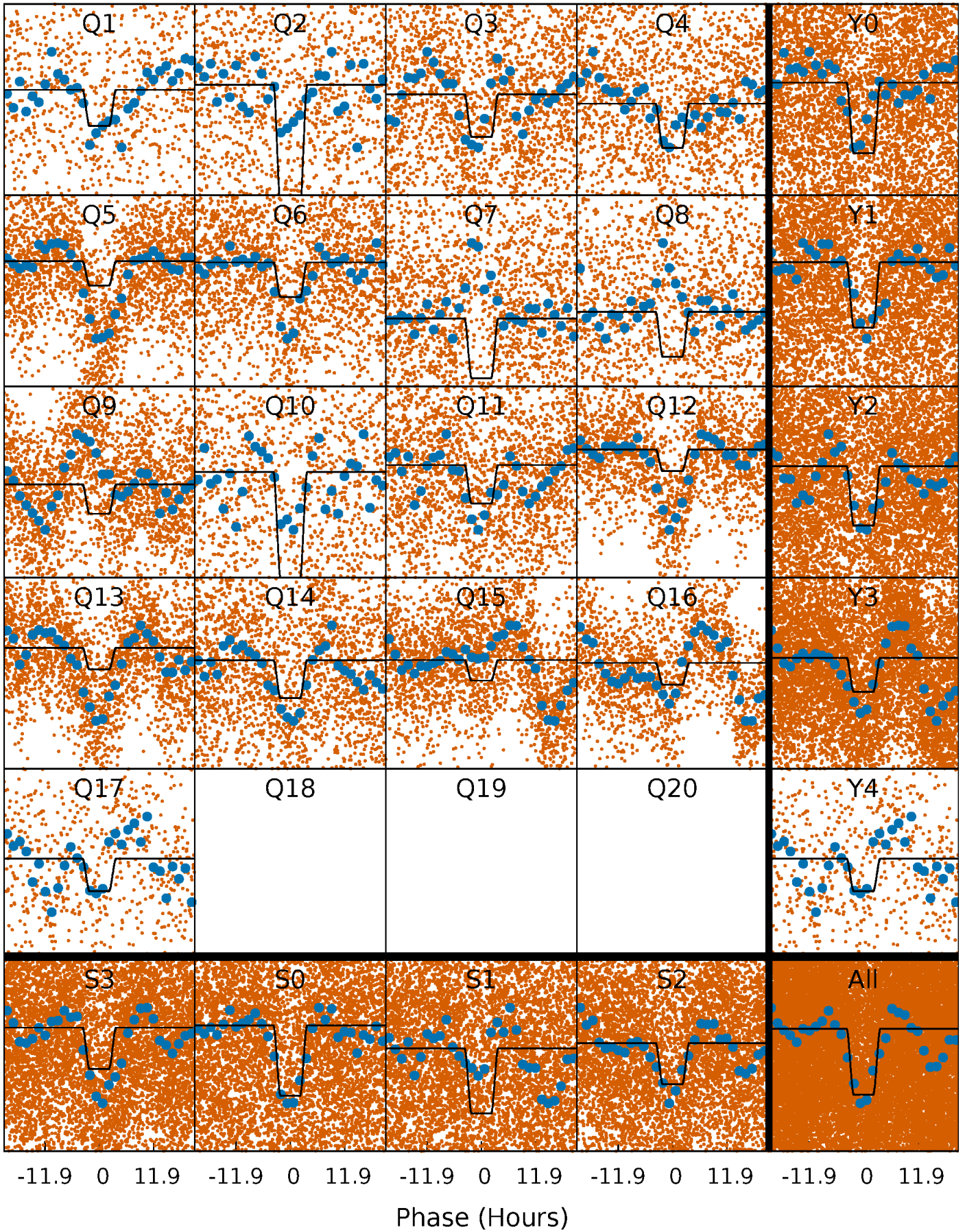
DV Quarter-Phased Transit Curves

TCE 010602324-01 P= 3.162602 Days $T_0=134.102904$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

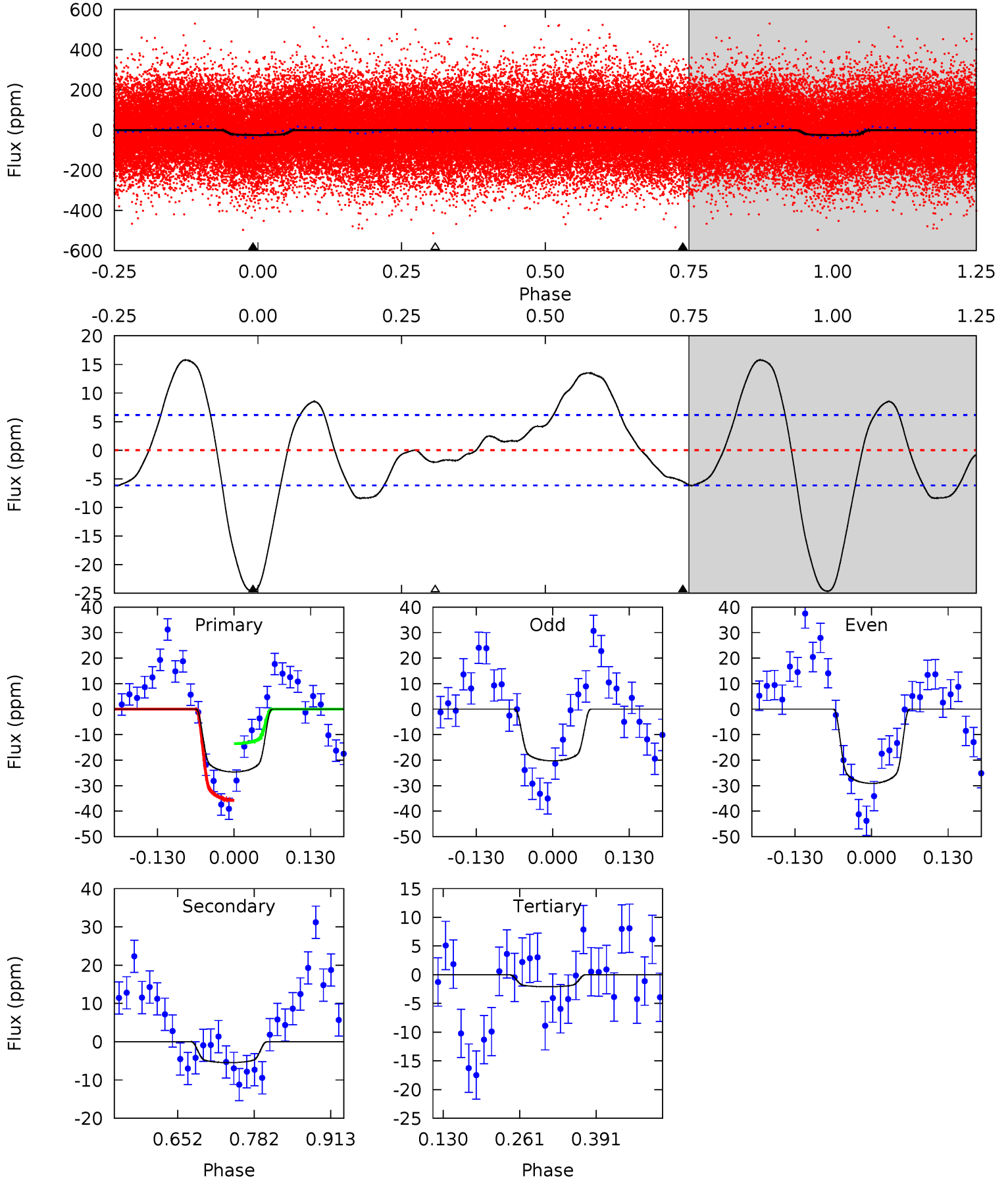
TCE 010602324-01 P= 3.162619 Days $T_0=134.050111$ (BKJD)



DV Model-Shift Uniqueness Test

010602324-01, P = 3.162602 Days, E = 130.940302 Days

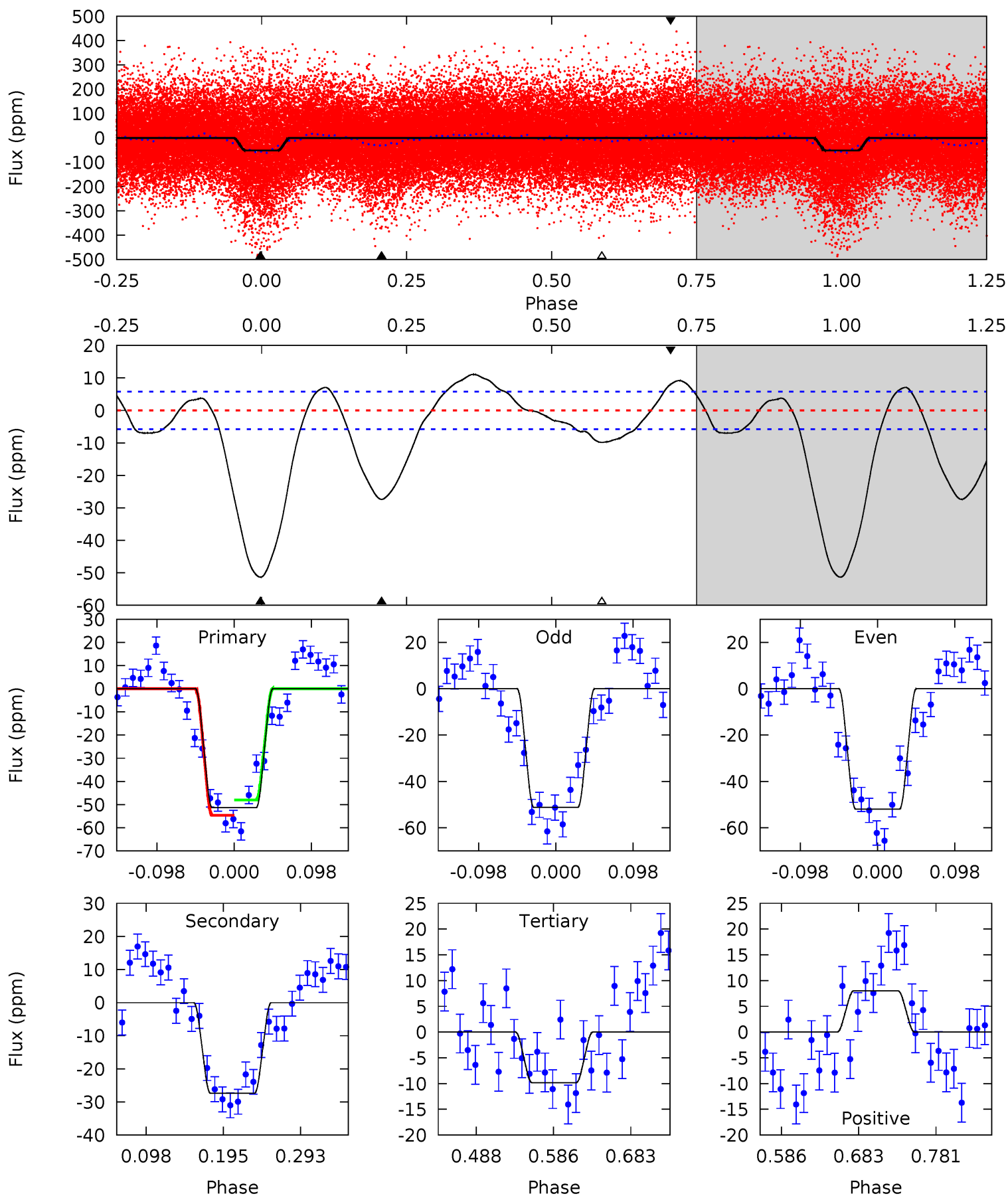
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	4.01	1.53	0	4.51	1.51	4.46	16.5	18.1	2.48	4.01	3.25	1.00	0.39	8.32



Alt Model-Shift Uniqueness Test

010602324-01, P = 3.162619 Days, E = 130.887492 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.5	21.6	7.76	6.33	4.57	1.66	4.97	32.8	34.2	13.9	15.3	0.28	1.03	0.18	2.58



Stellar Parameters For KIC 010602324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6765^{+189}_{-260}	$3.687^{+0.558}_{-0.093}$	$-0.220^{+0.250}_{-0.300}$	$2.982^{+0.519}_{-1.659}$	$1.577^{+0.219}_{-0.438}$	$0.084^{+0.527}_{-0.025}$
	+3%/-4%	+15%/-3%	+114%/-136%	+17%/-56%	+14%/-28%	+629%/-30%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010602324-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5 ± 1	$1.82^{+0.35}_{-0.50}$	3121^{+240}_{-434}	4273^{+294}_{-292}	$2.246^{+1.859}_{-0.775}$
Alt.	-27 ± 1	$2.23^{+0.39}_{-0.66}$	3146^{+224}_{-431}	5680^{+258}_{-264}	$7.429^{+6.282}_{-1.820}$

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

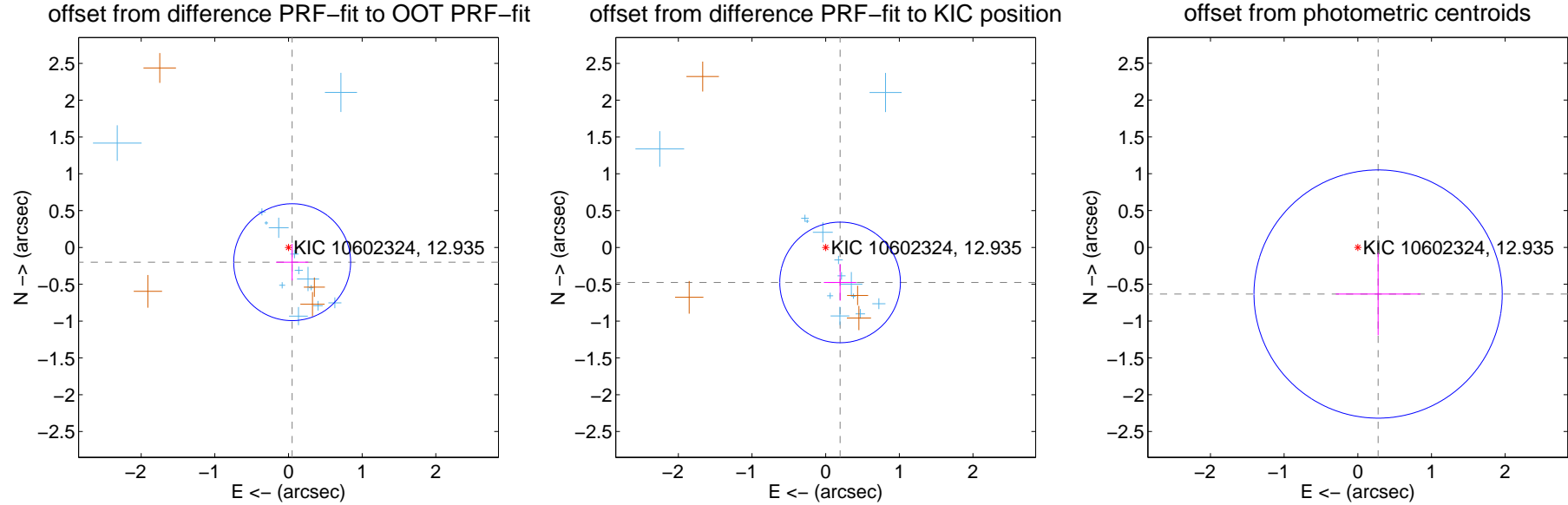
DV Centroid Data

Supplemental centroid analysis for 010602324-01. Kepler magnitude: 12.94. Transit SNR 7.67

There are 13 quarters with good PRF difference image offsets

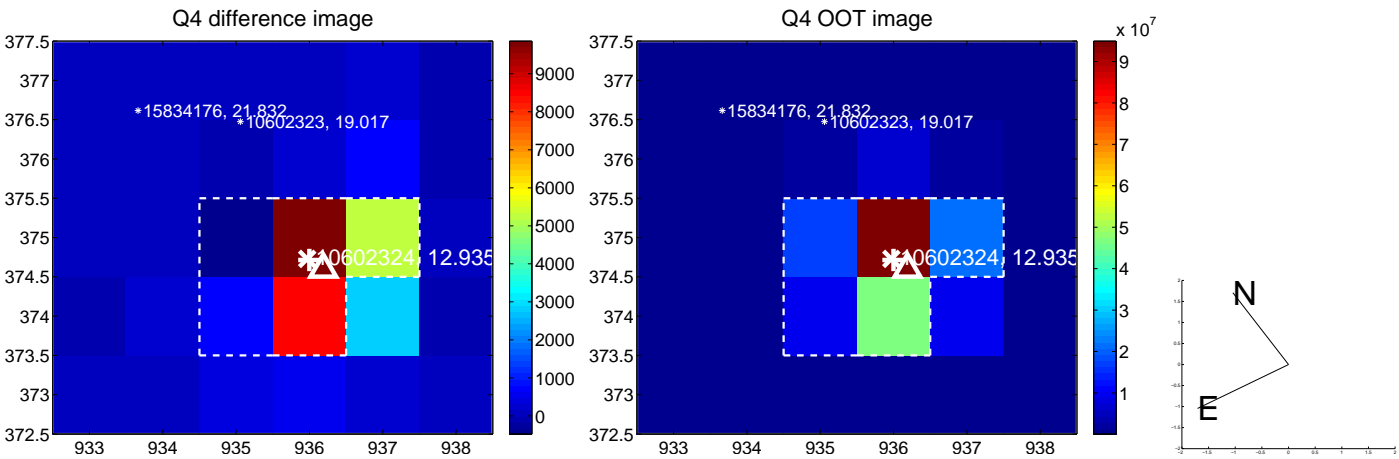
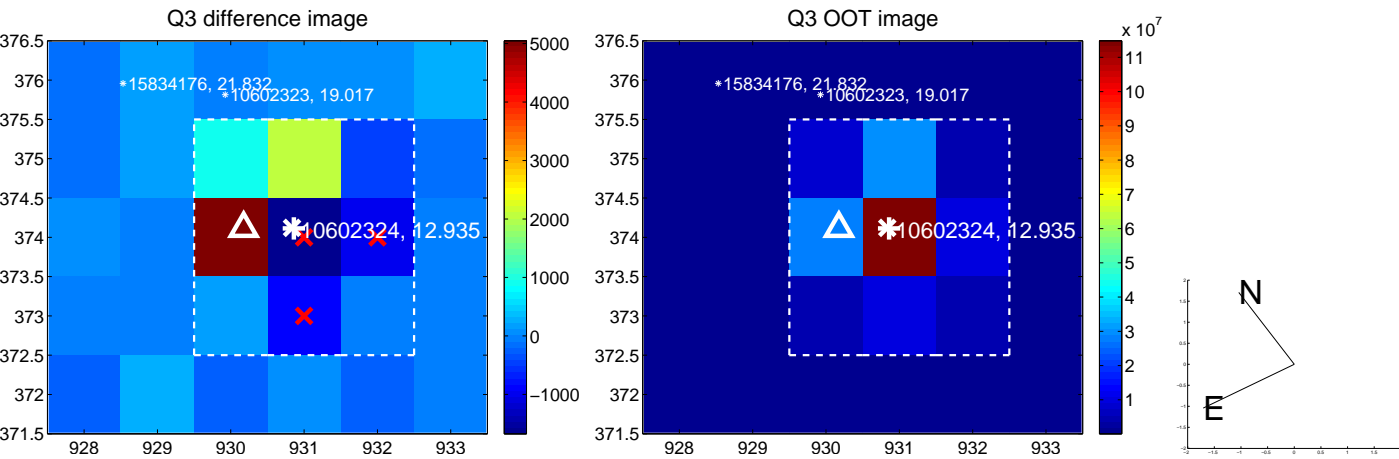
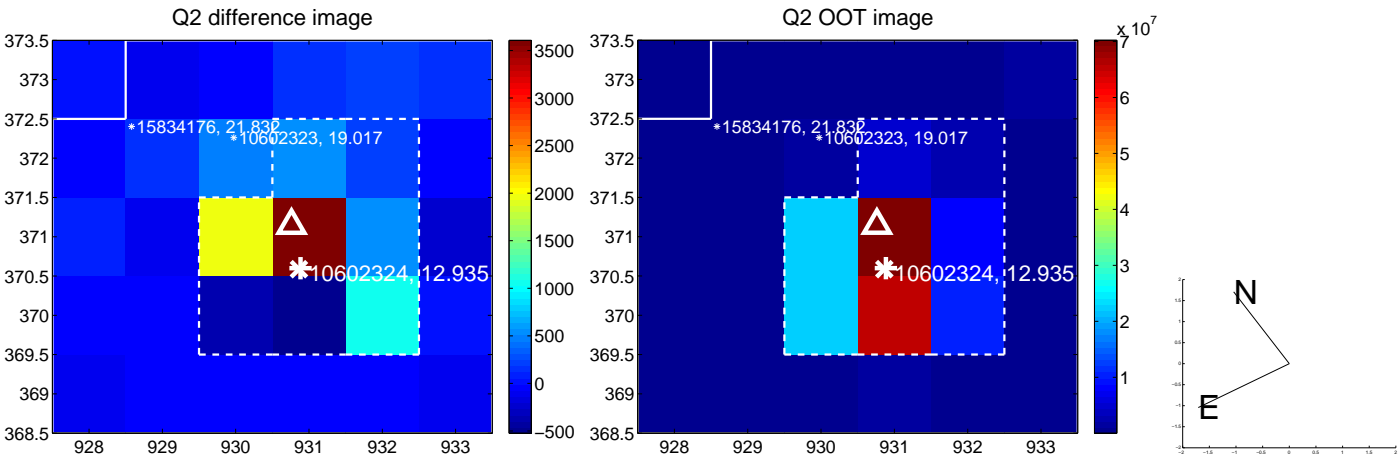
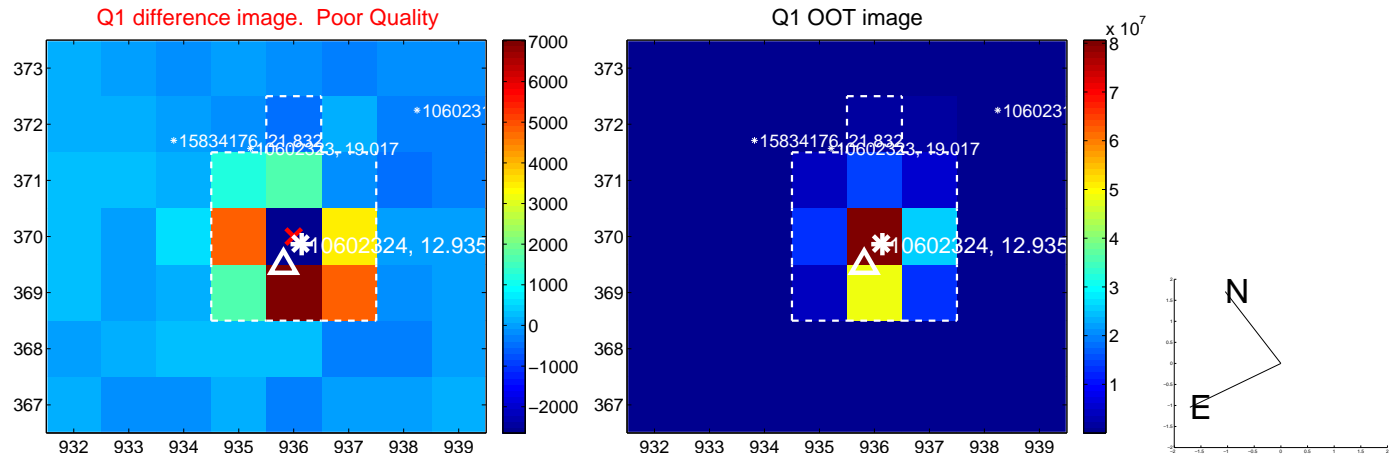
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.206 ± 0.265	0.78	-0.050 ± 0.220	-0.200 ± 0.249
PRF-fit source offset from KIC position	0.514 ± 0.273	1.88	-0.196 ± 0.221	-0.475 ± 0.248
photometric centroid source offset	0.69 ± 0.56	1.23	-0.28 ± 0.57	-0.63 ± 0.56

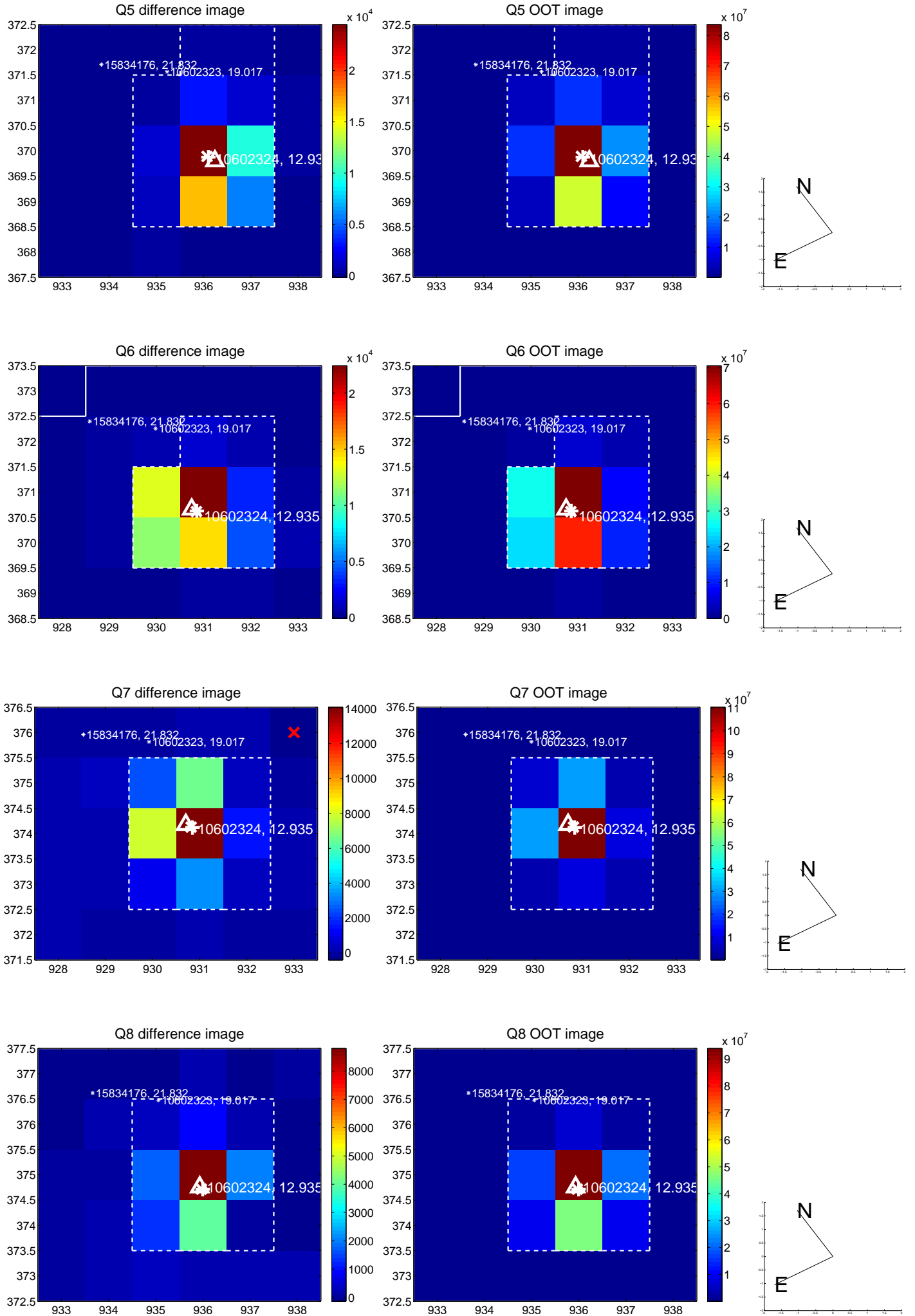


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

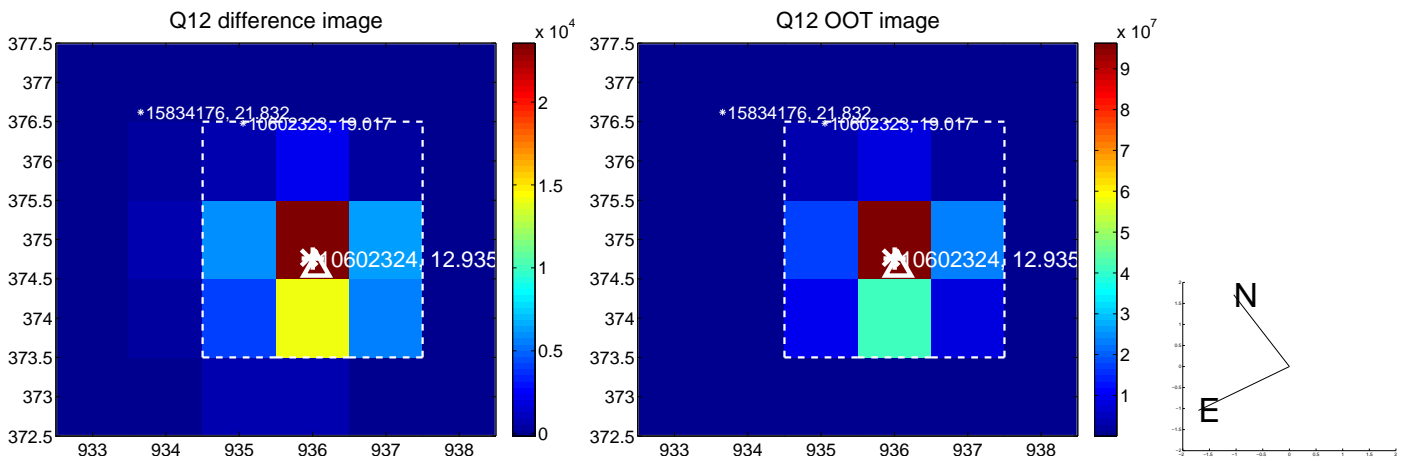
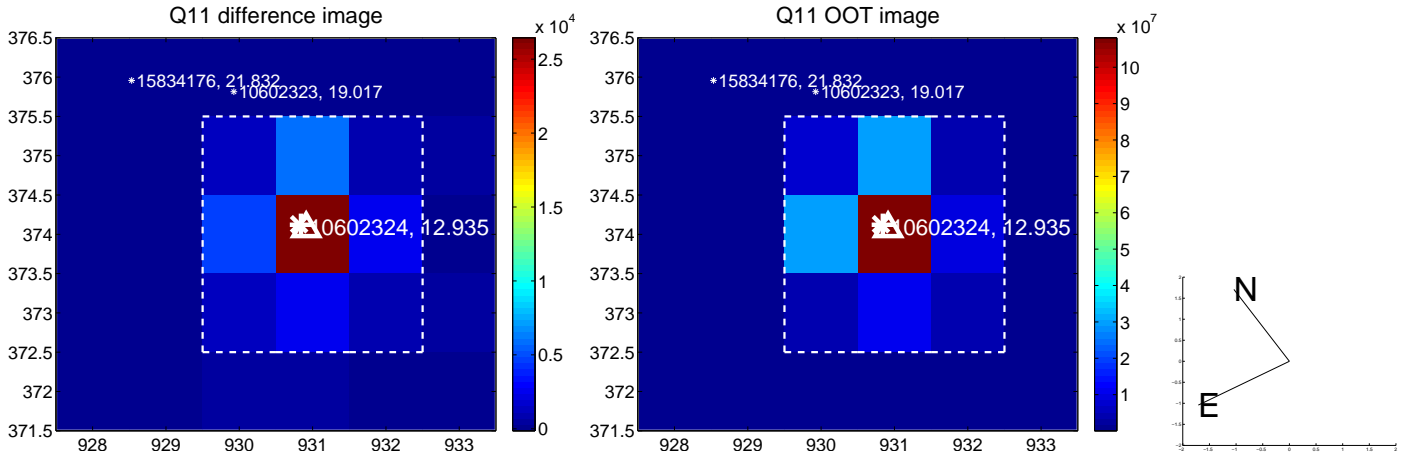
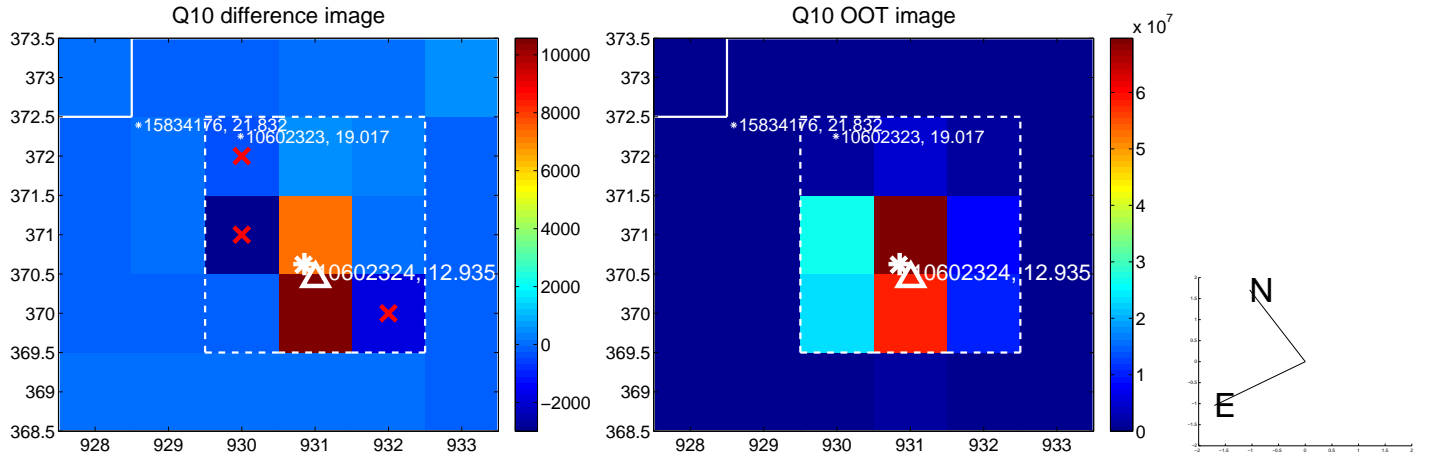
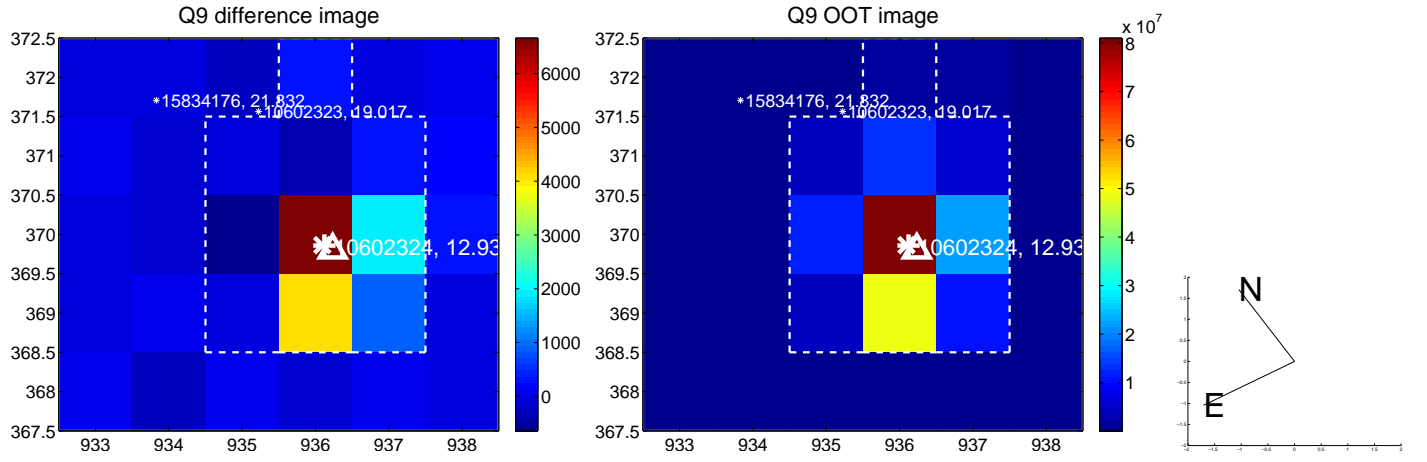
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



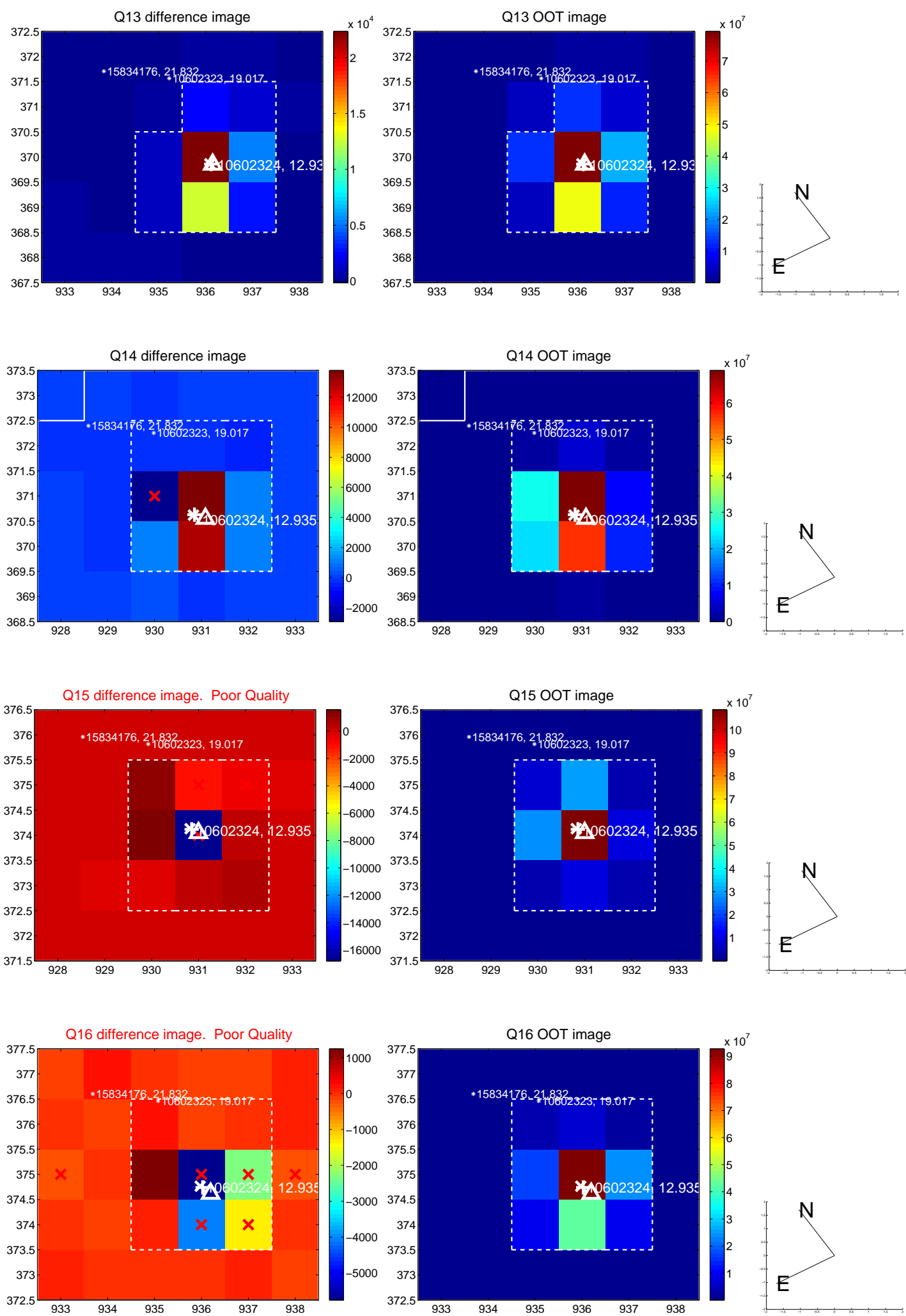
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



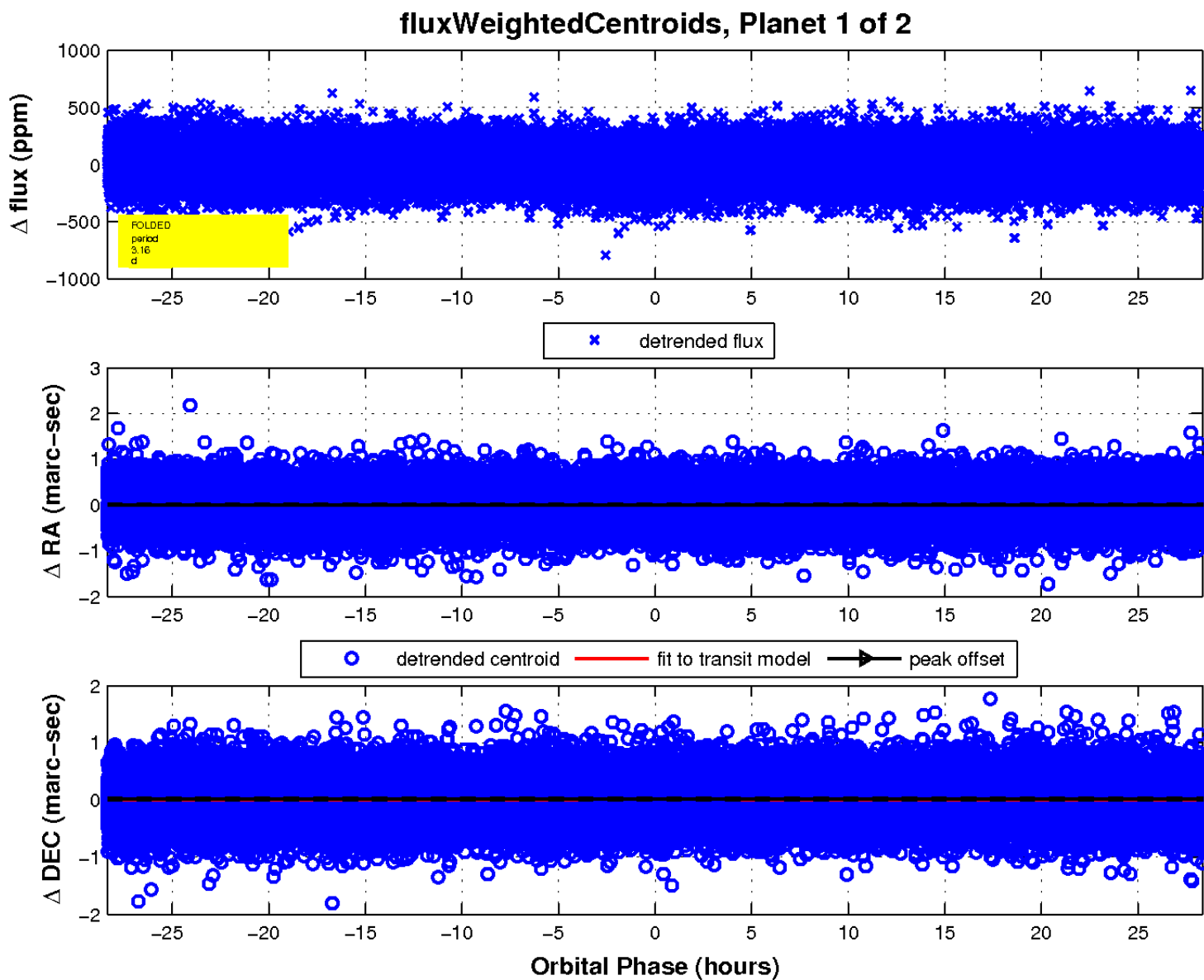
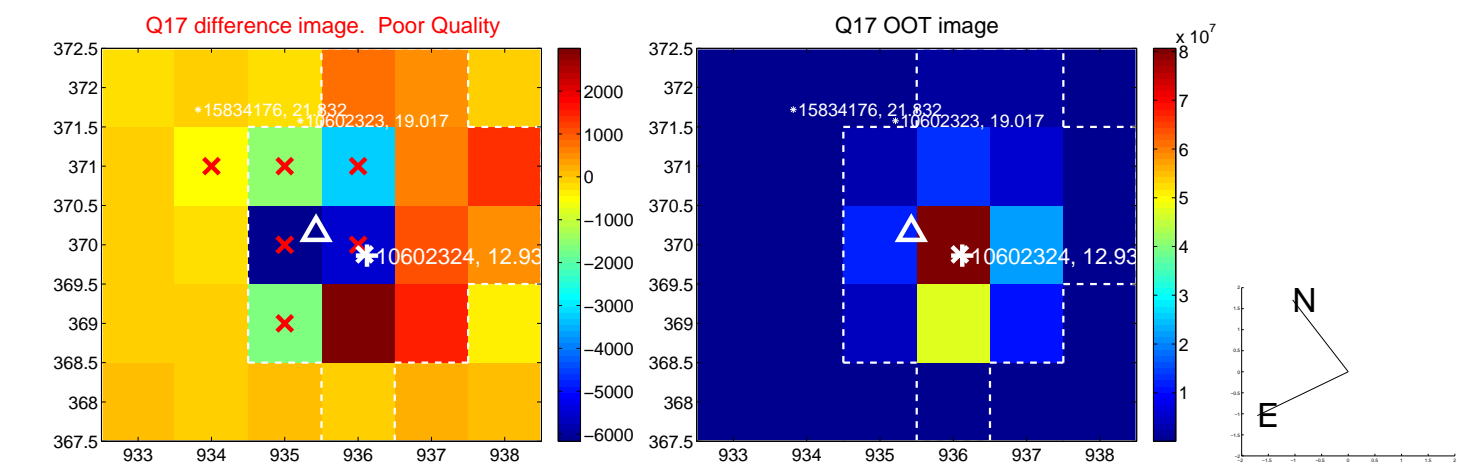
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

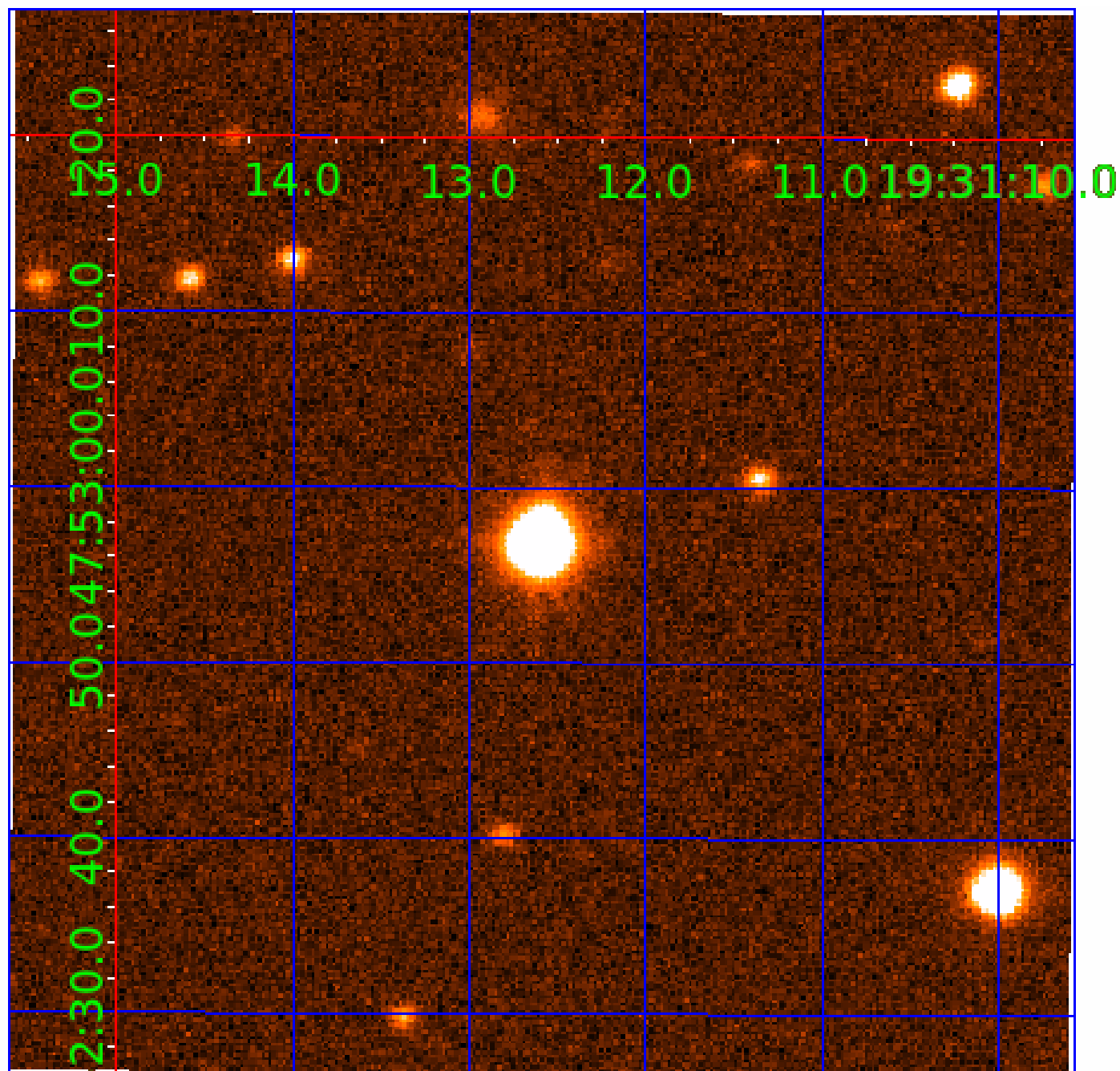


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010602324

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})
010602324-01	OBS	No	3.162602	134.102904	24.7	9.451	8.7	7.7	2.98	6765	1.95	6922.21
010602324-02	OBS	No	447.667469	446.129083	259.9	10.482	10.8	7.0	2.98	6765	5.84	9.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010602324-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010602324-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

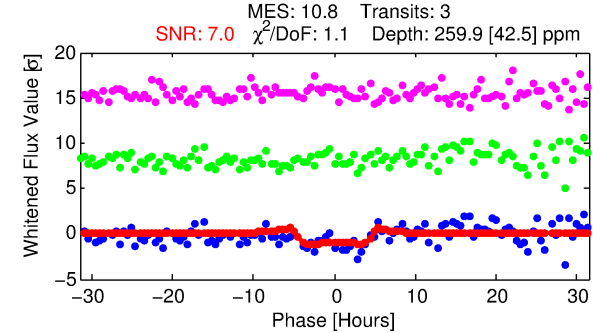
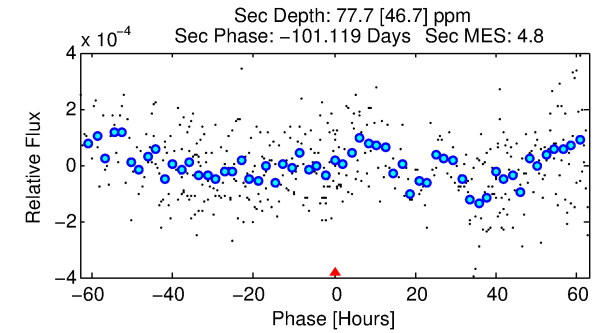
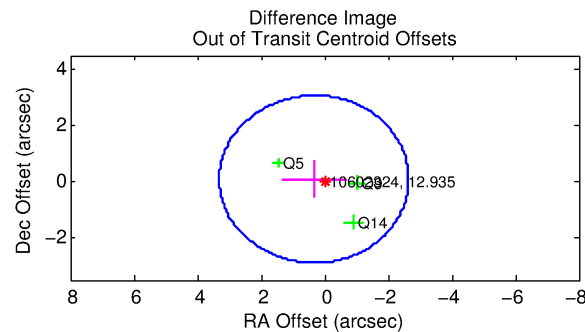
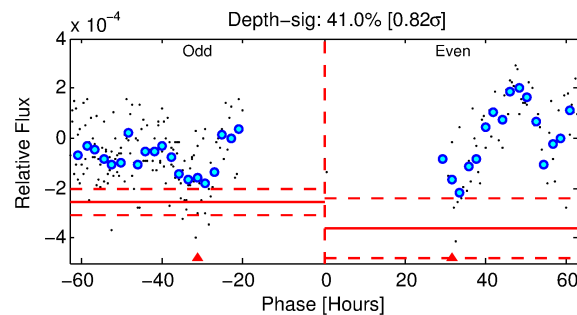
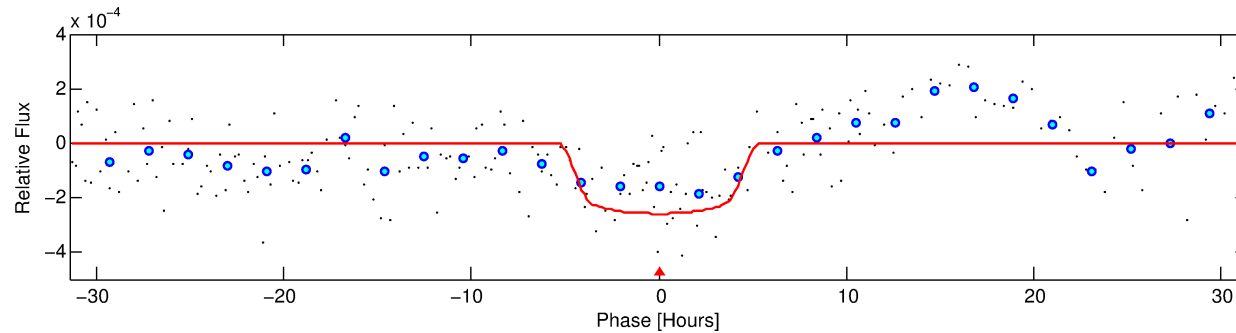
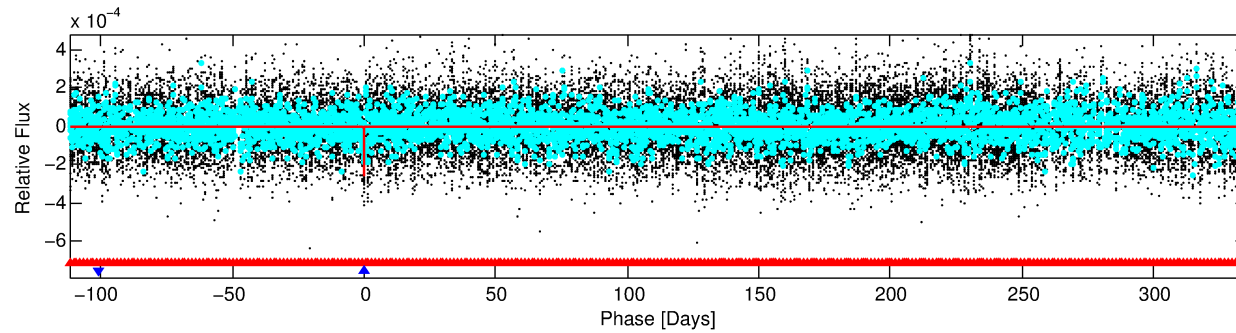
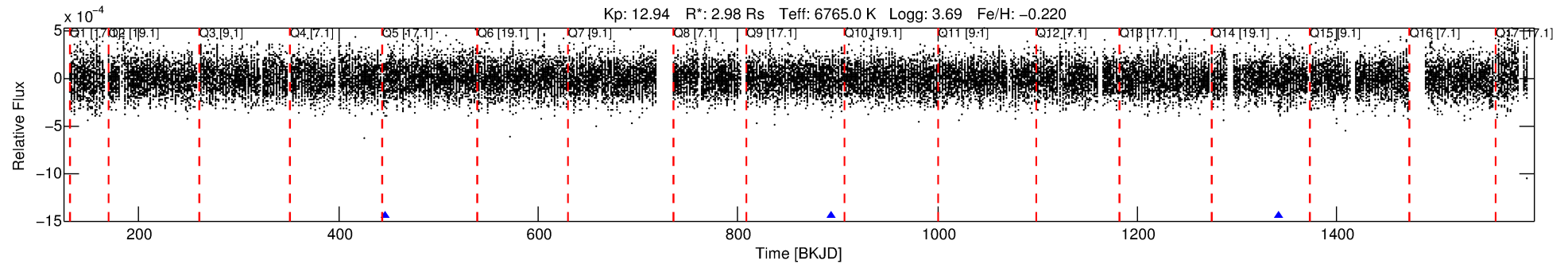
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010602324-02

No Significant Match Found

DV One-Page Summary

KIC: 10602324 Candidate: 2 of 2 Period: 447.667 d



DV Fit Results:

Period = 447.66747 [0.01464] d
Epoch = 446.1291 [0.0161] BKJD
Rp/R* = 0.0179 [0.0020]
a/R* = 125.79 [50.14]
b = 0.94 [0.05]
Seff = 9.38 [8.88]
Teq = 446 [106] K
Rp = 5.84 [3.31] Re
a = 1.3335 [0.7555] AU
Ag = 2230.16 [2526.82] [0.88 σ]
Teffp = 4742 [783] K [5.44 σ]

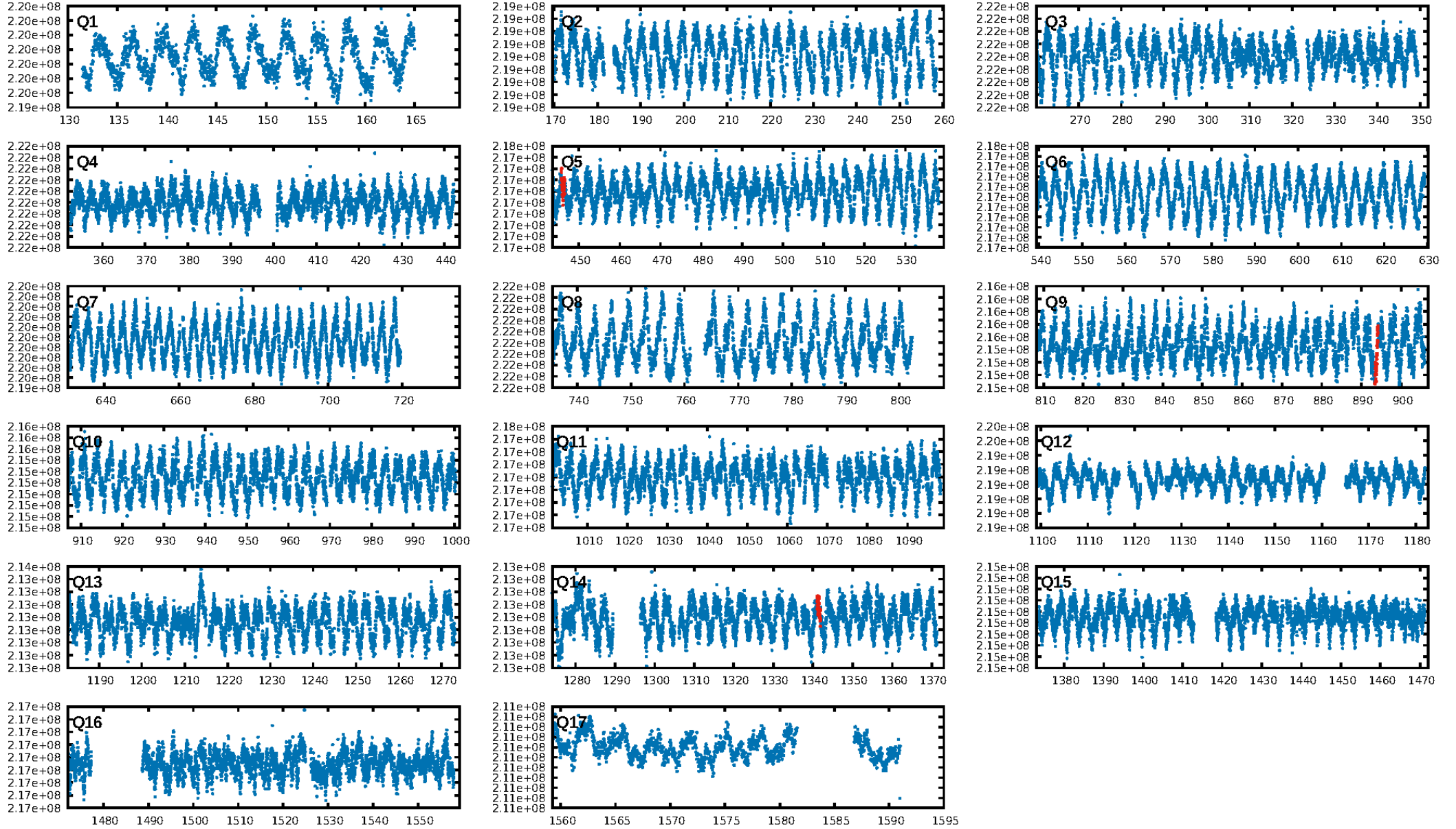
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [755.87 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 3.0%
ModelChiSquareGof-sig: 98.6%
Bootstrap-pfa: 4.51e-17
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.35
Centroid-sig: 0.1%
Centroid-so: 1.132 arcsec [1.64 σ]
OotOffset-rm: 0.346 arcsec [0.35 σ]
KicOffset-rm: 0.259 arcsec [0.26 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.33 [1/3]

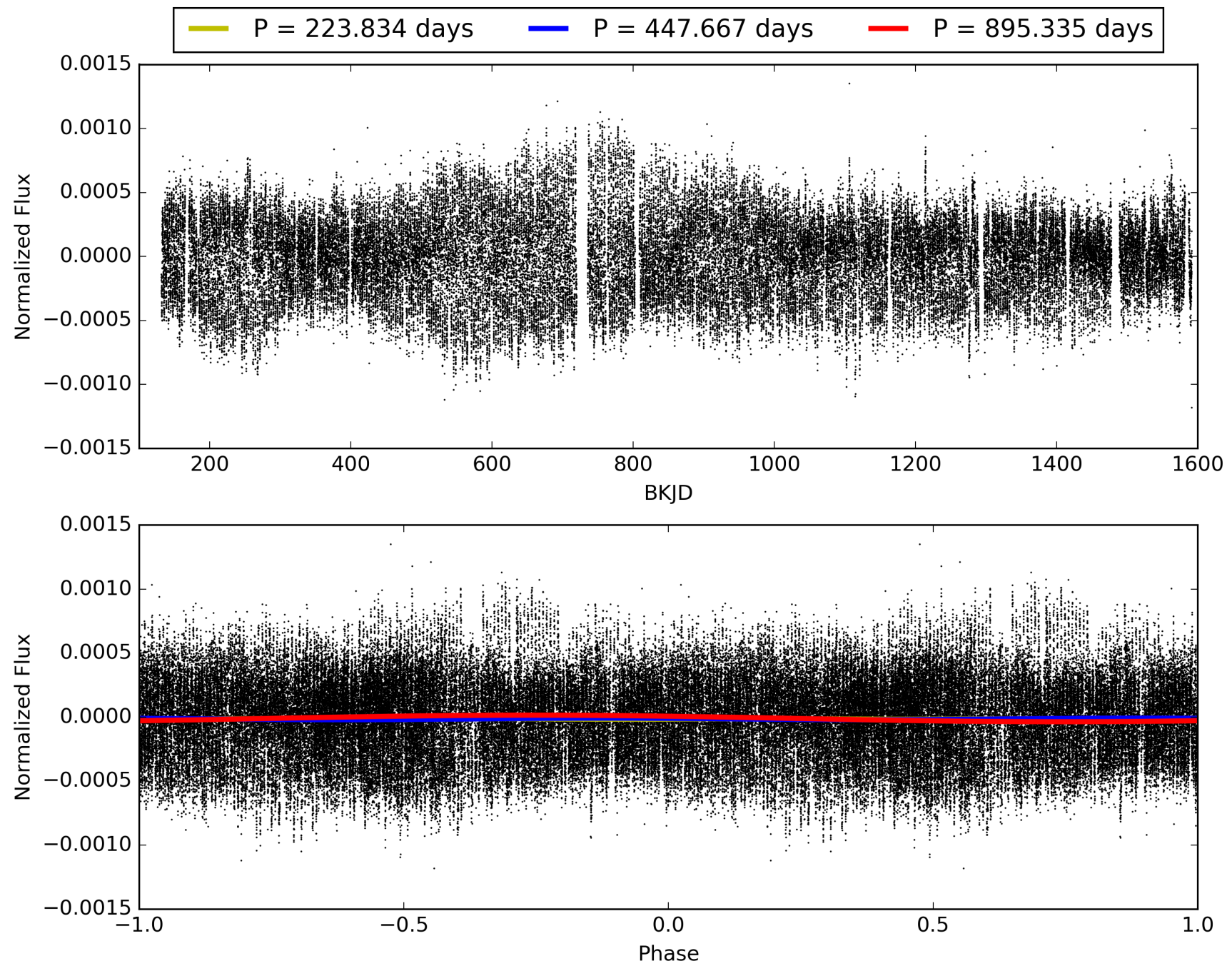
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:52:12 Z

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

TCE 010602324-02, PDC Light Curves

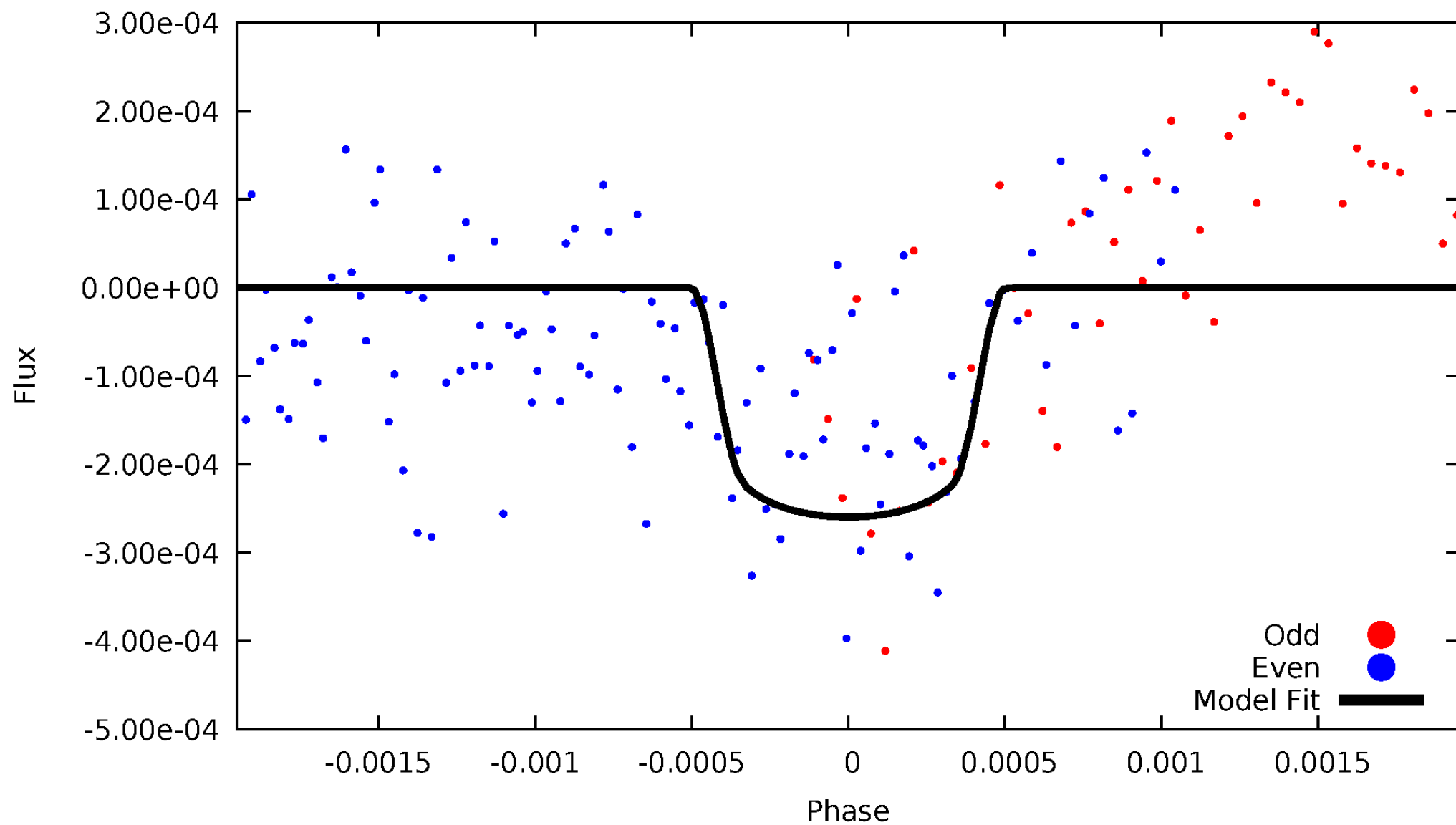


TCE 010602324-02



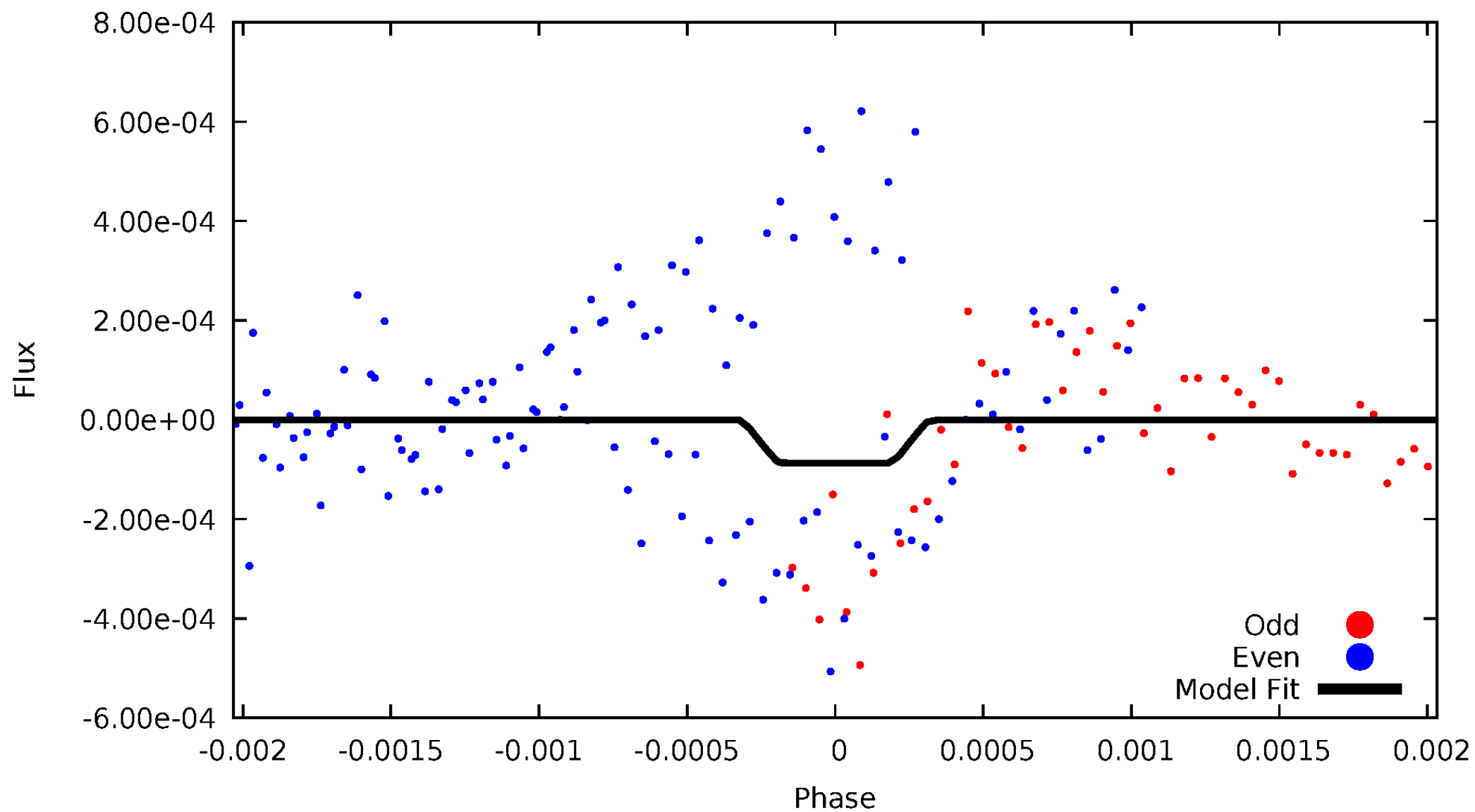
DV Odd/Even

TCE 010602324-02



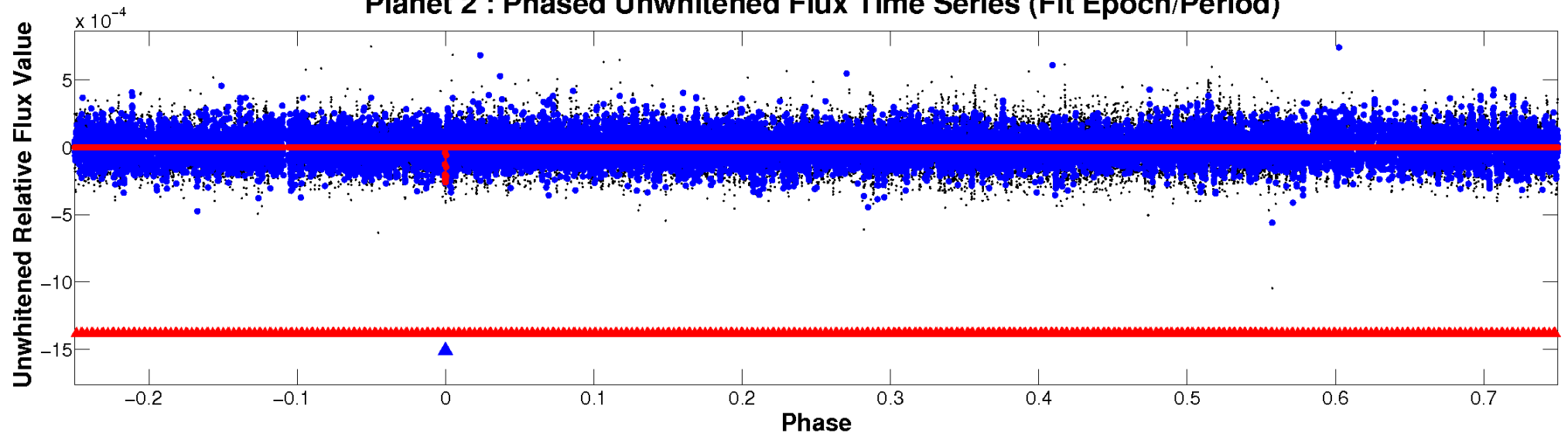
ALT Odd/Even

TCE 010602324-02

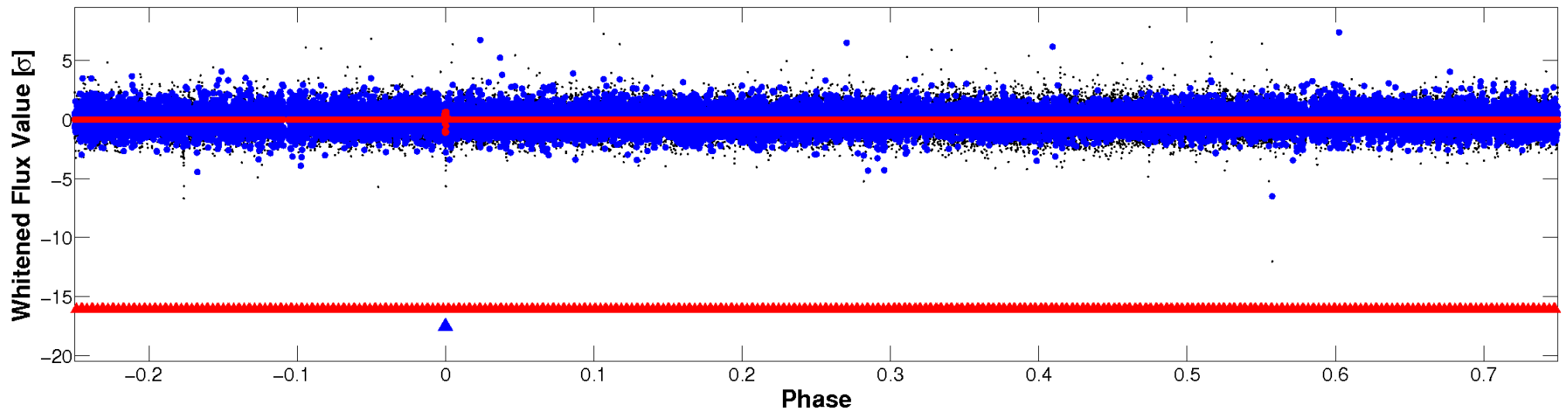


Non-Whitened Vs. Whitened Light Curve

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

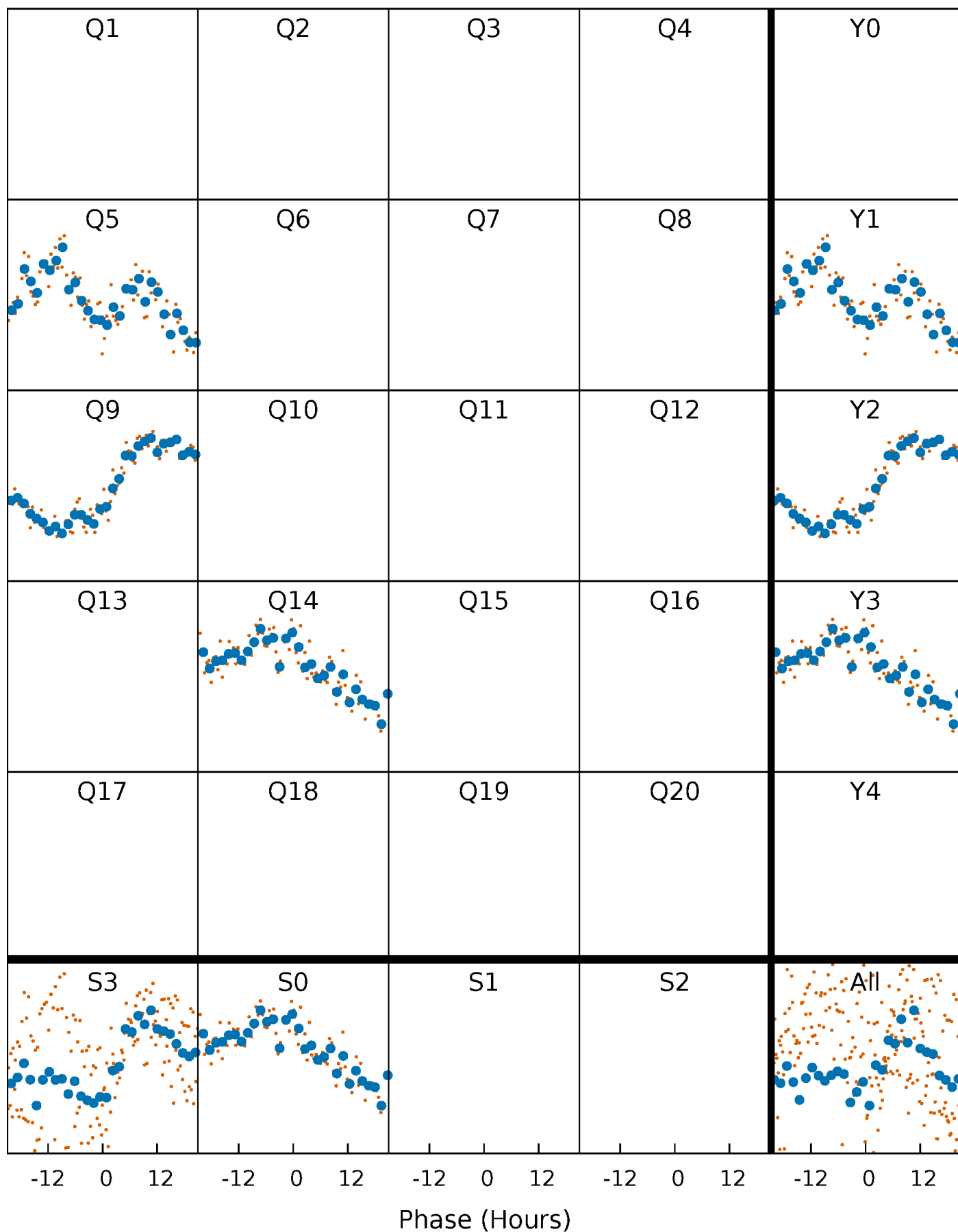


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



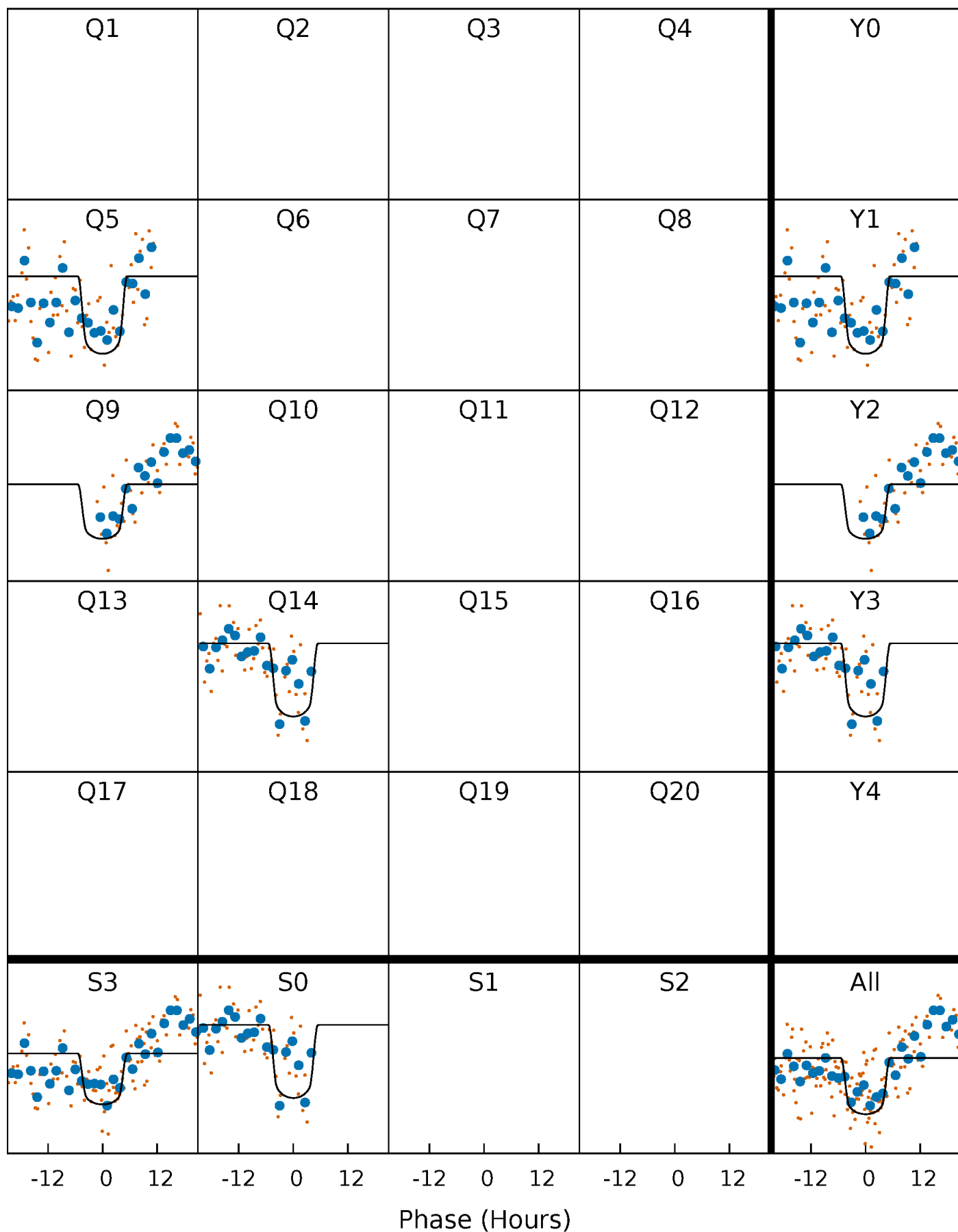
PDC Quarter-Phased Transit Curves

TCE 010602324-02 $P=447.667469$ Days $T_0=446.129083$ (BKJD)



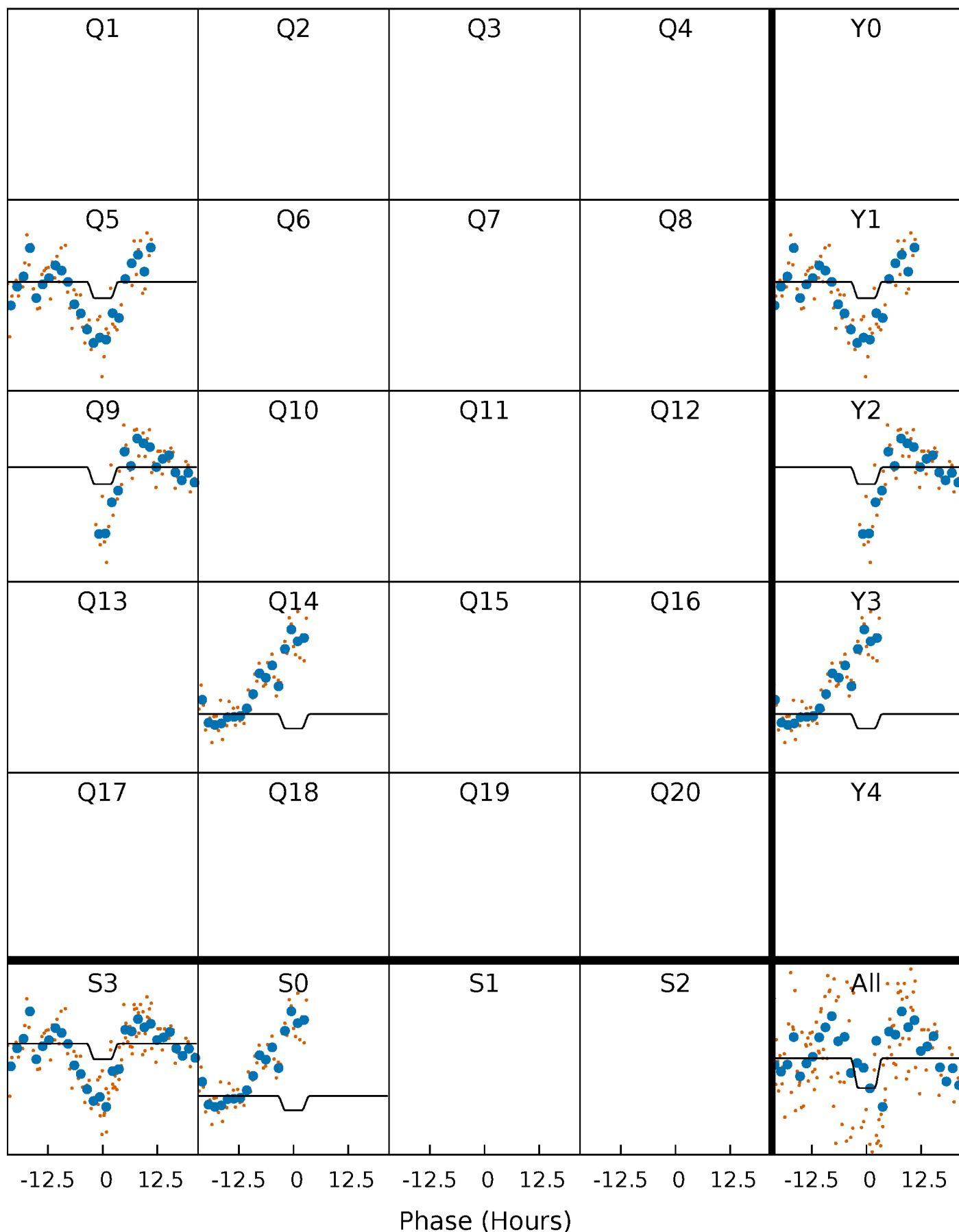
DV Quarter-Phased Transit Curves

TCE 010602324-02 $P=447.667469$ Days $T_0=446.129083$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

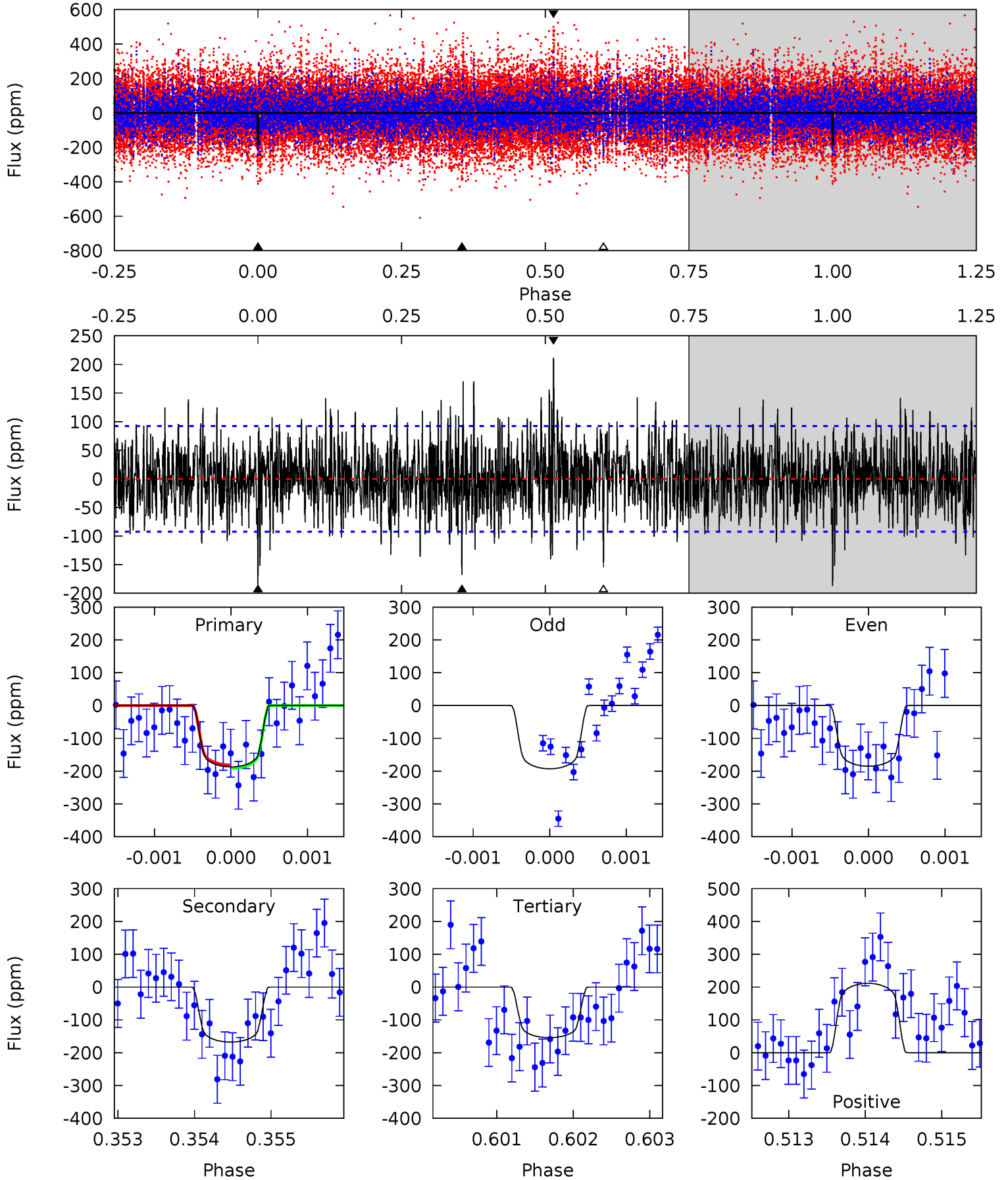
TCE 010602324-02 P=447.678866 Days $T_0=446.133022$ (BKJD)



DV Model-Shift Uniqueness Test

010602324-02, P = 447.667469 Days, E = 446.129083 Days

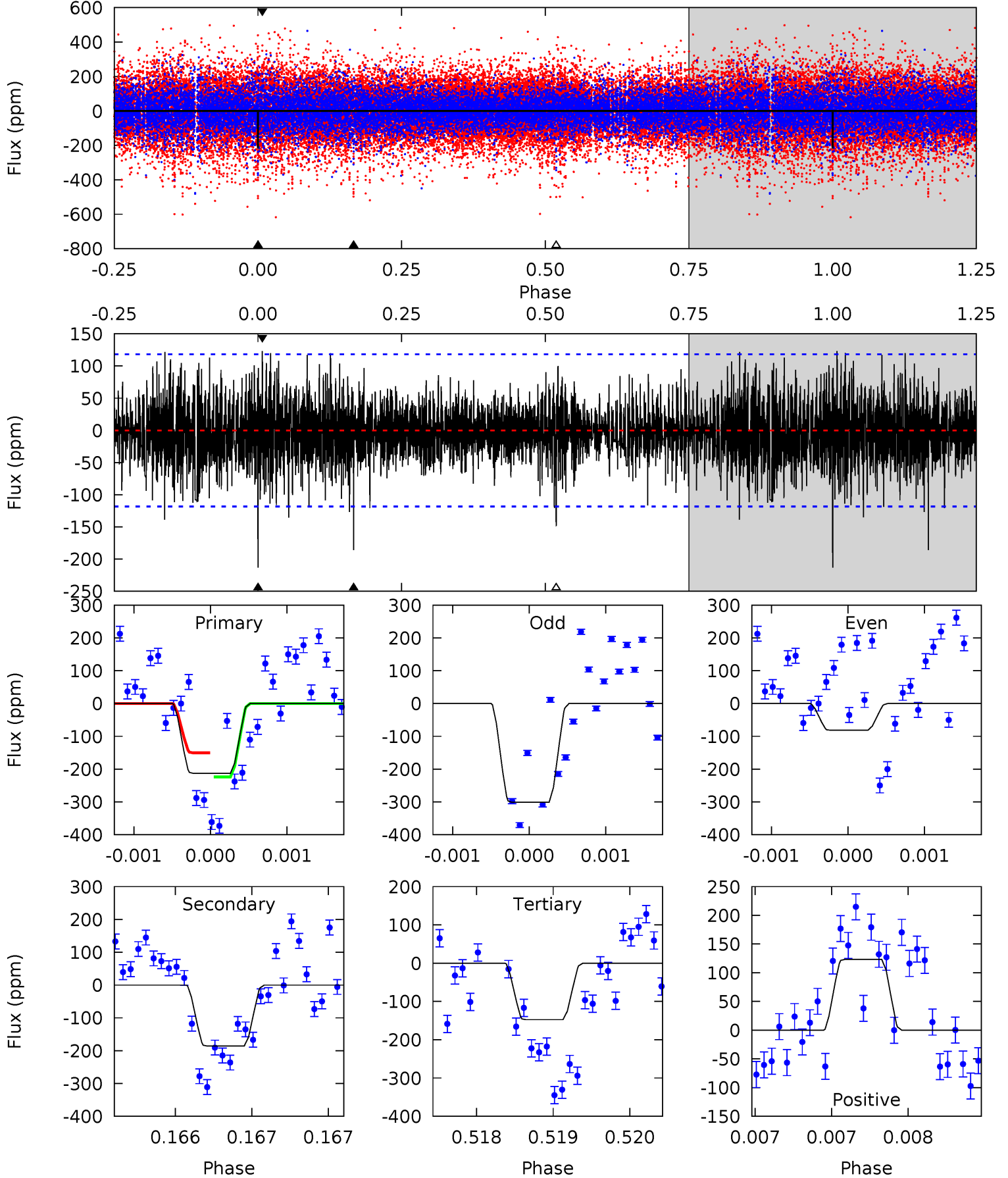
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	9.89	9.11	12.5	5.45	3.29	2.71	1.94	-1.43	0.78	-2.59	0.21	0.97	0.53	0.30



Alt Model-Shift Uniqueness Test

010602324-02, P = 447.678866 Days, E = 446.133022 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.93	8.67	6.89	5.75	5.52	3.40	1.62	3.05	4.19	1.79	2.92	5.25	0.13	0.37	1.75



Stellar Parameters For KIC 010602324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6765^{+189}_{-260}	$3.687^{+0.558}_{-0.093}$	$-0.220^{+0.250}_{-0.300}$	$2.982^{+0.519}_{-1.659}$	$1.577^{+0.219}_{-0.438}$	$0.084^{+0.527}_{-0.025}$
	+3%/-4%	+15%/-3%	+114%/-136%	+17%/-56%	+14%/-28%	+629%/-30%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010602324-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-168 ± 17	$5.31^{+1.18}_{-1.45}$	599^{+47}_{-84}	5724^{+399}_{-359}	5833^{+4212}_{-1912}
Alt.	-186 ± 21	$2.78^{+0.85}_{-0.96}$	598^{+45}_{-82}	8395^{+1629}_{-1041}	24379^{+30091}_{-10152}

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

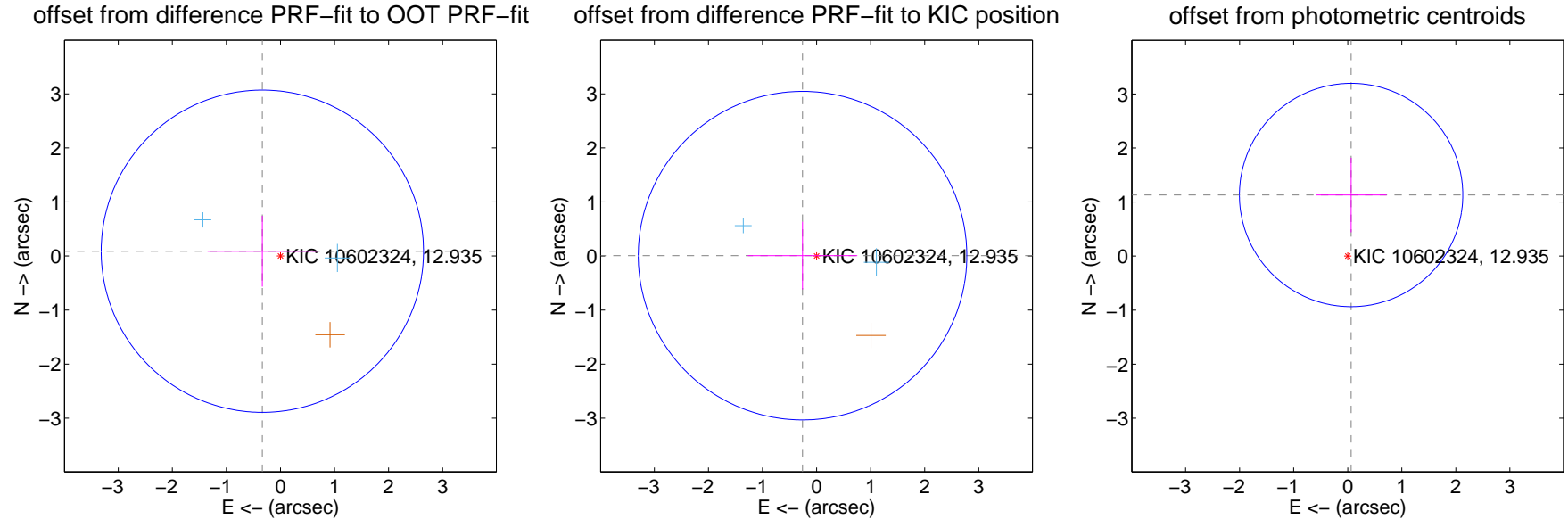
DV Centroid Data

Supplemental centroid analysis for 010602324-02. Kepler magnitude: 12.94. Transit SNR 6.96

There are 2 quarters with good PRF difference image offsets

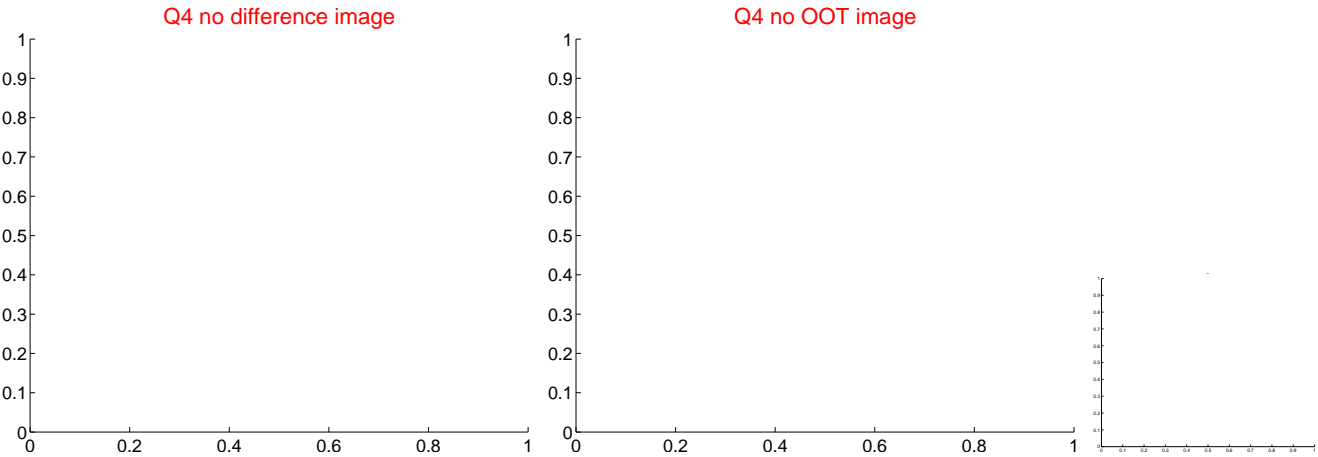
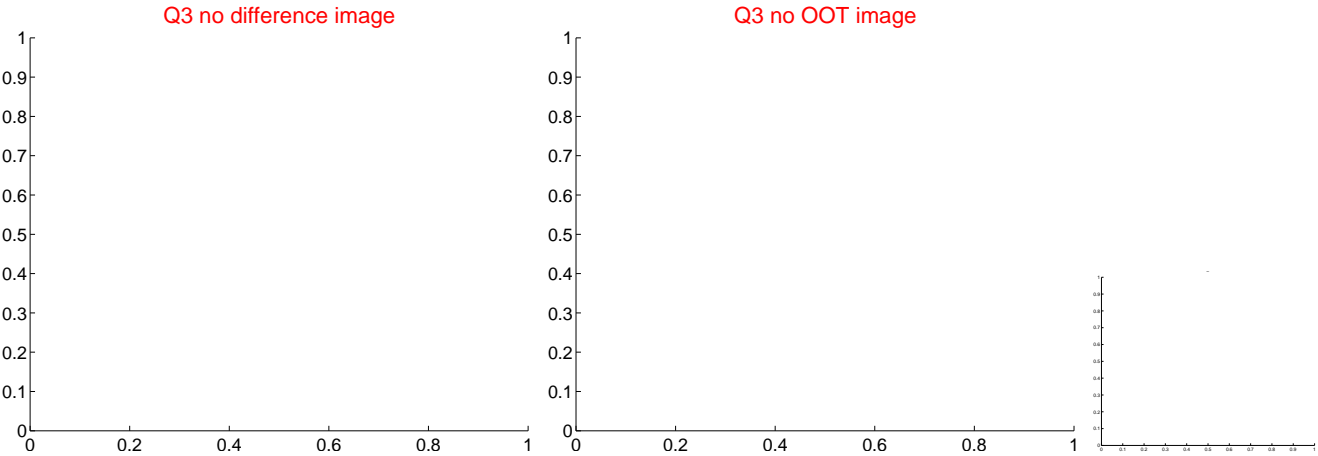
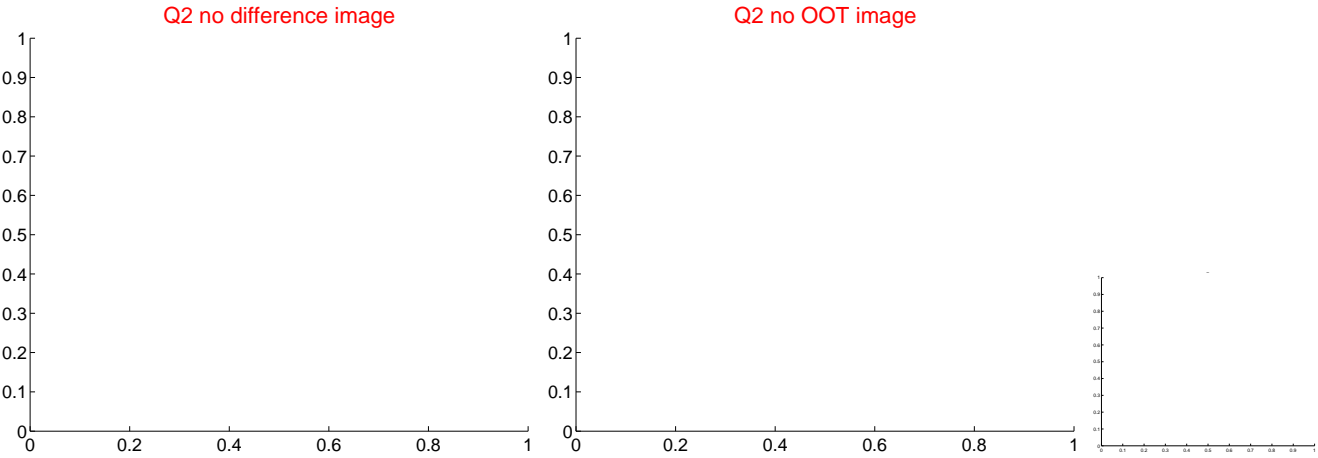
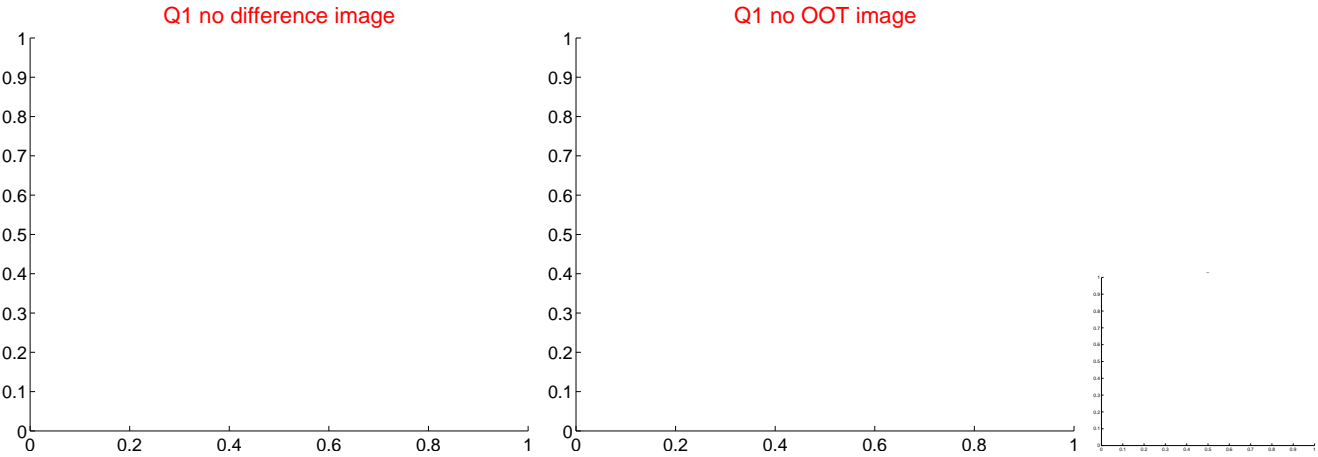
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.346 ± 0.993	0.35	0.335 ± 1.013	0.089 ± 0.655
PRF-fit source offset from KIC position	0.259 ± 1.013	0.26	0.259 ± 1.013	0.007 ± 0.626
photometric centroid source offset	1.13 ± 0.69	1.64	-0.06 ± 0.66	1.13 ± 0.69

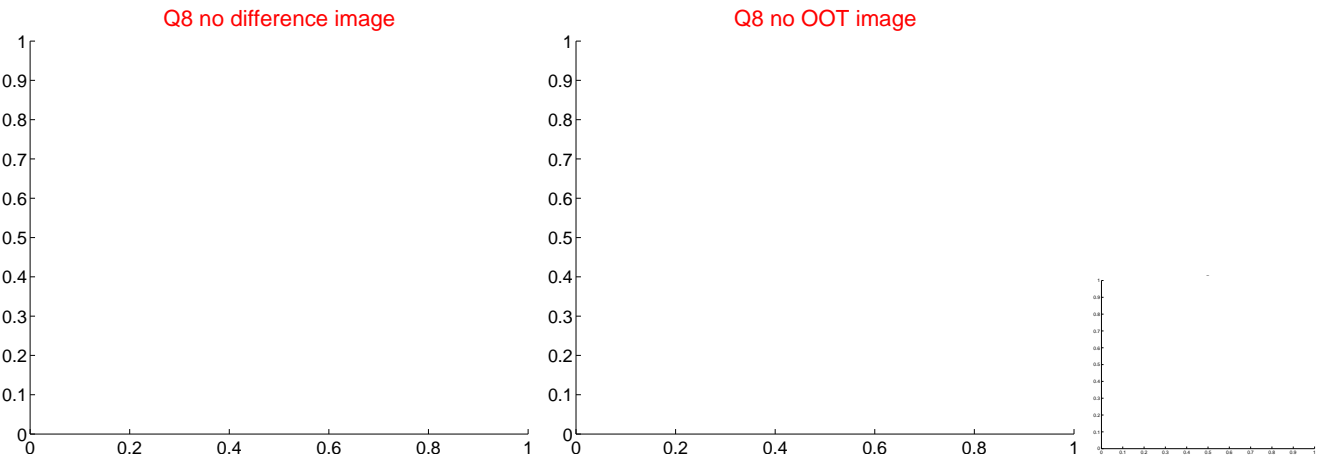
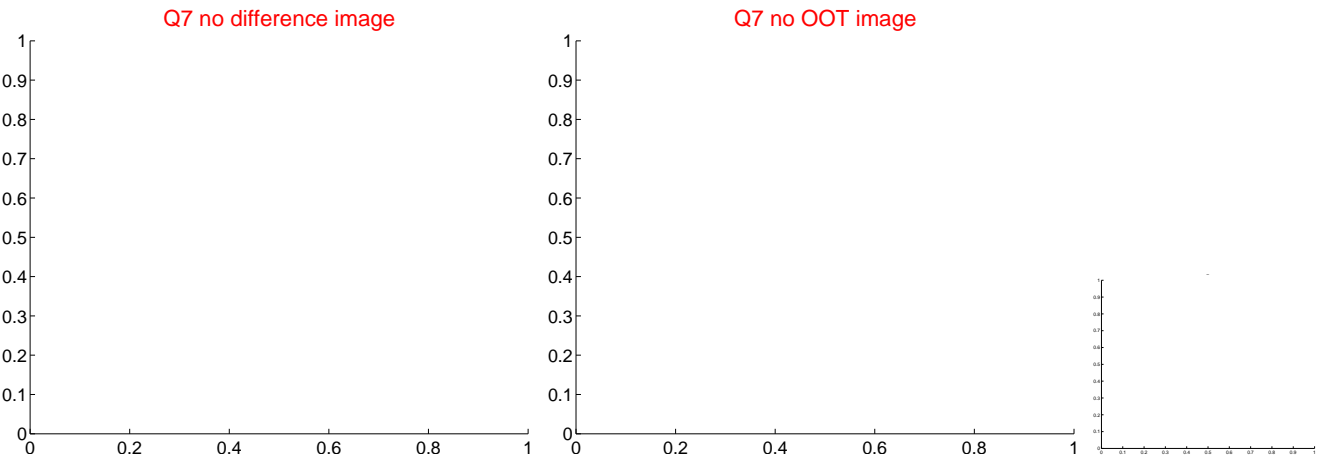
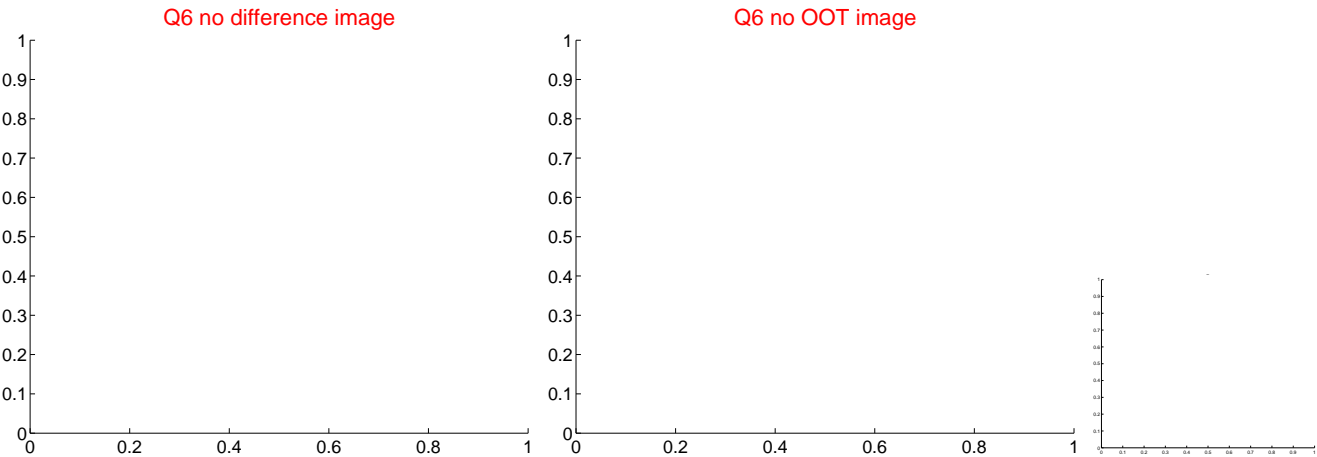
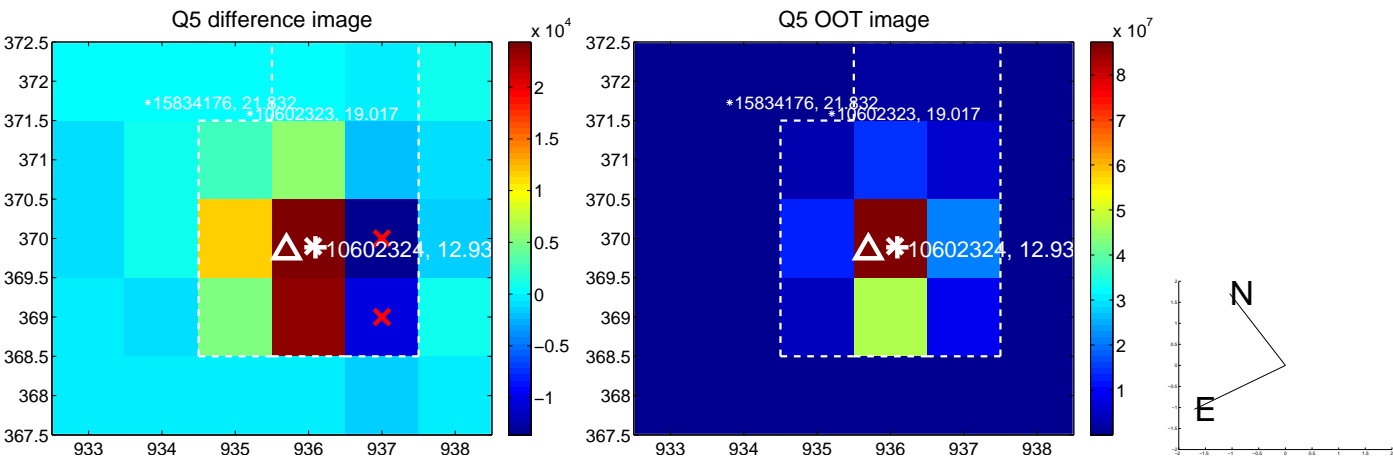


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

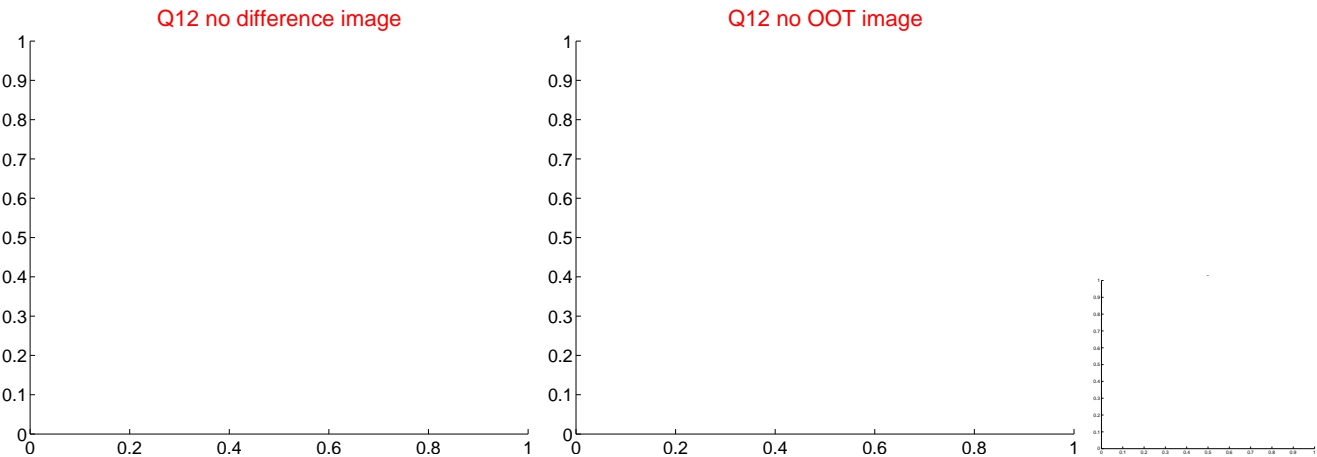
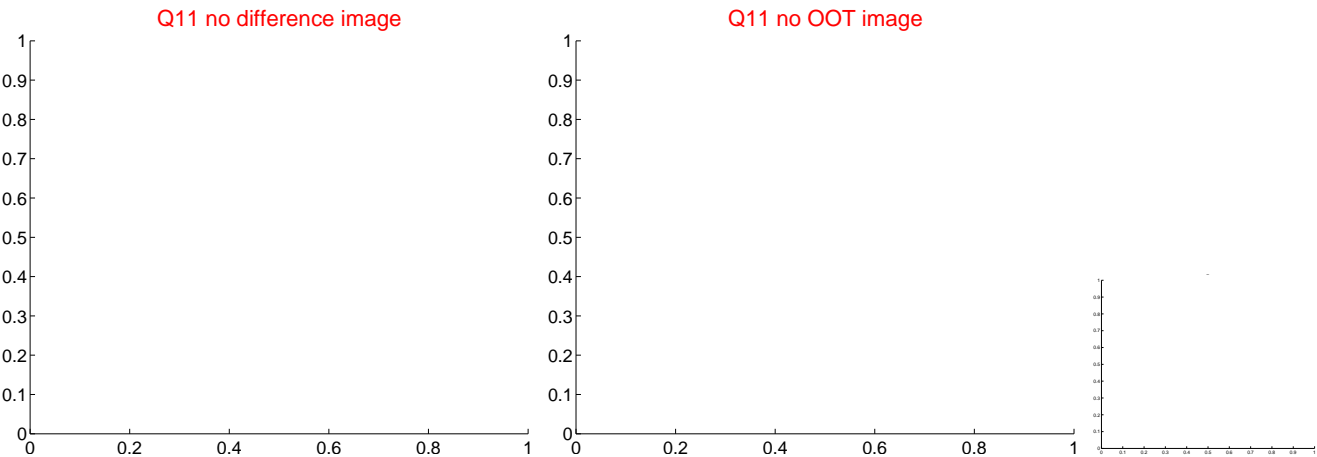
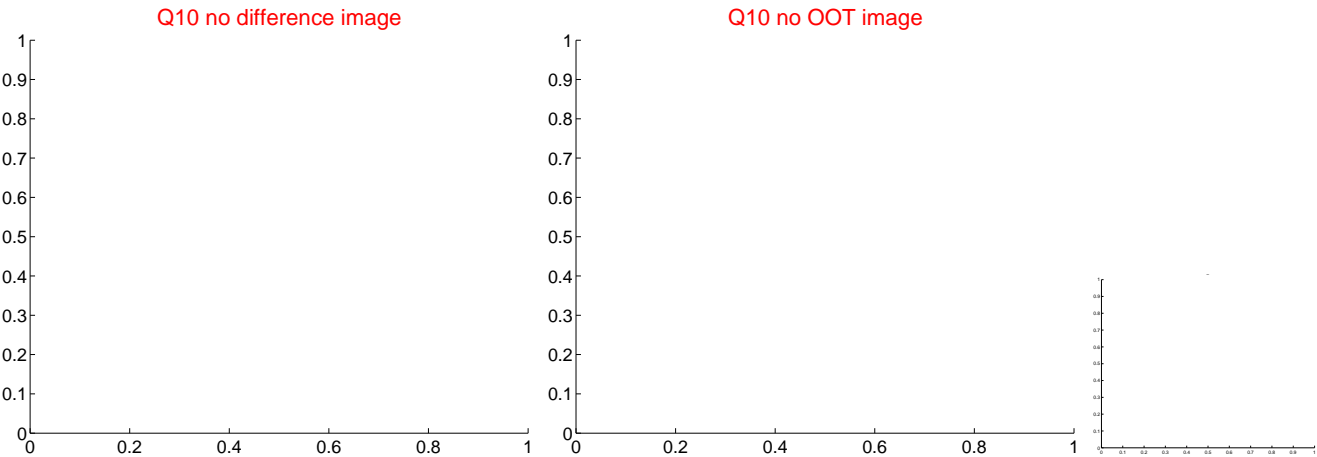
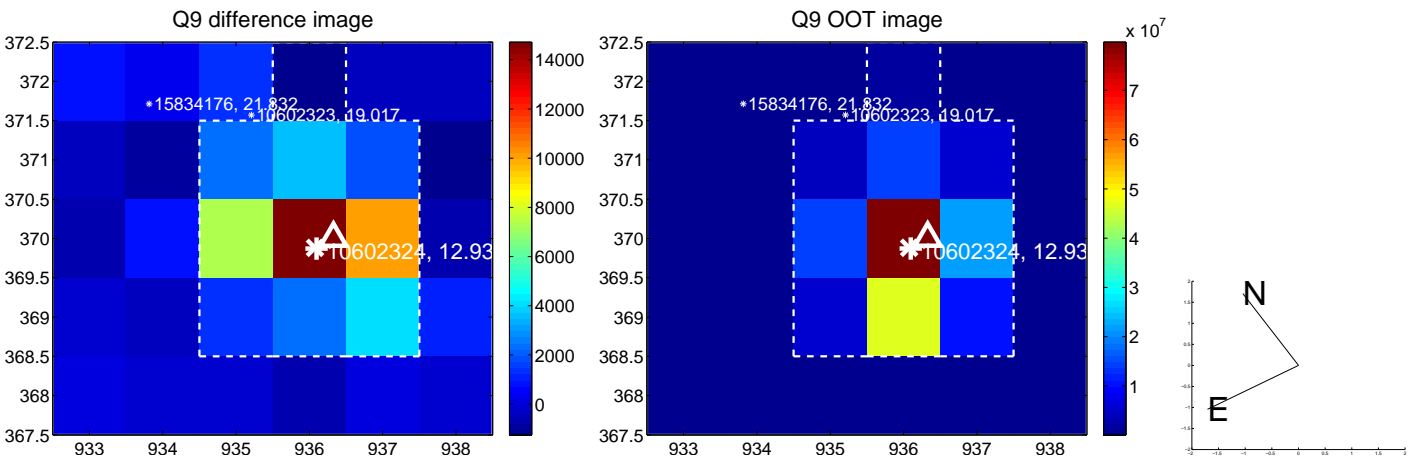
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



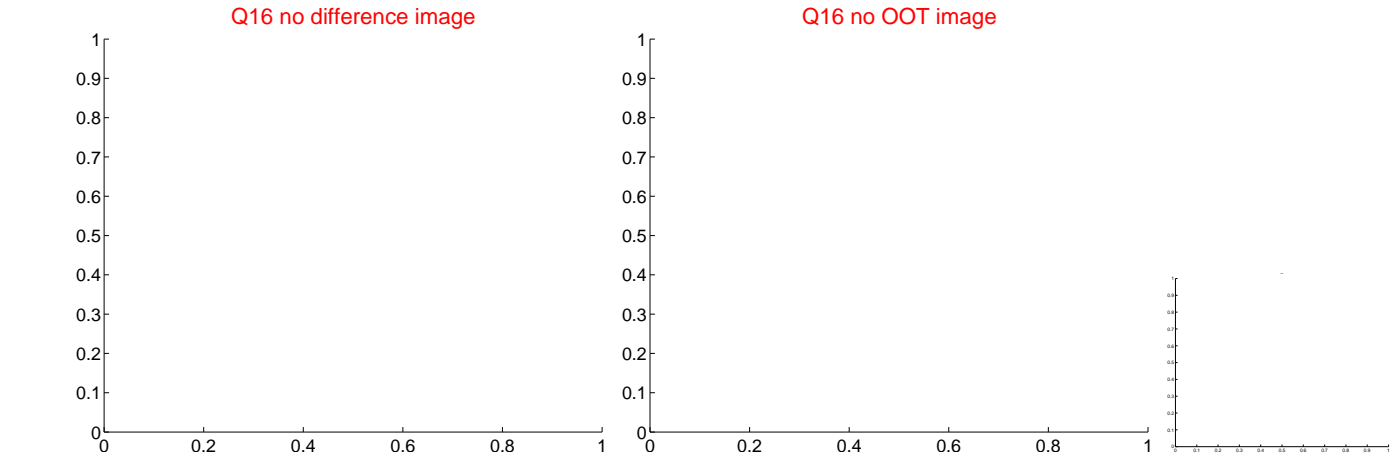
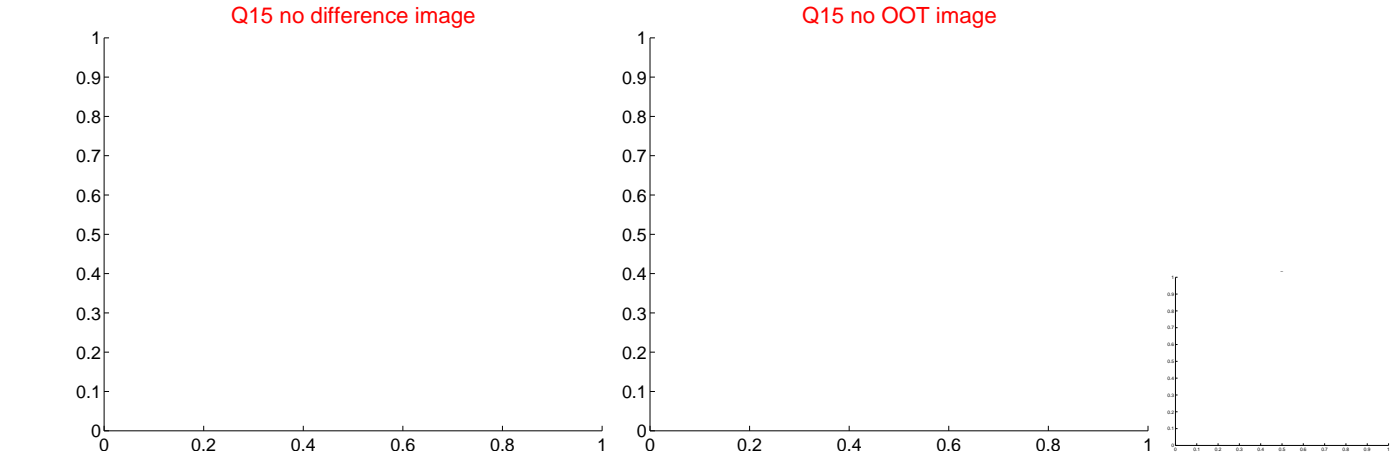
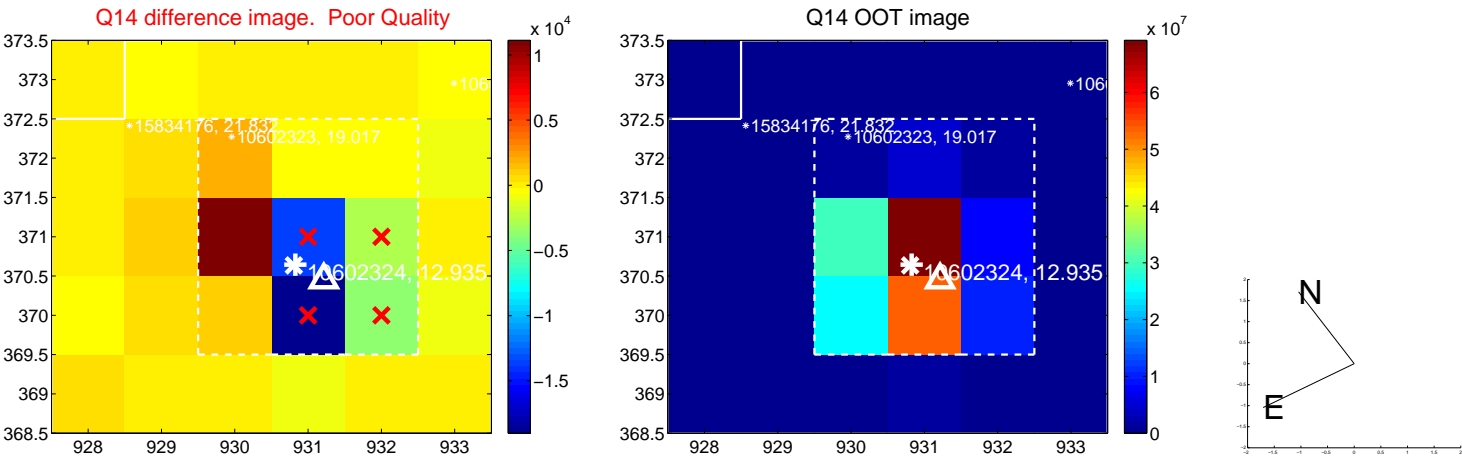
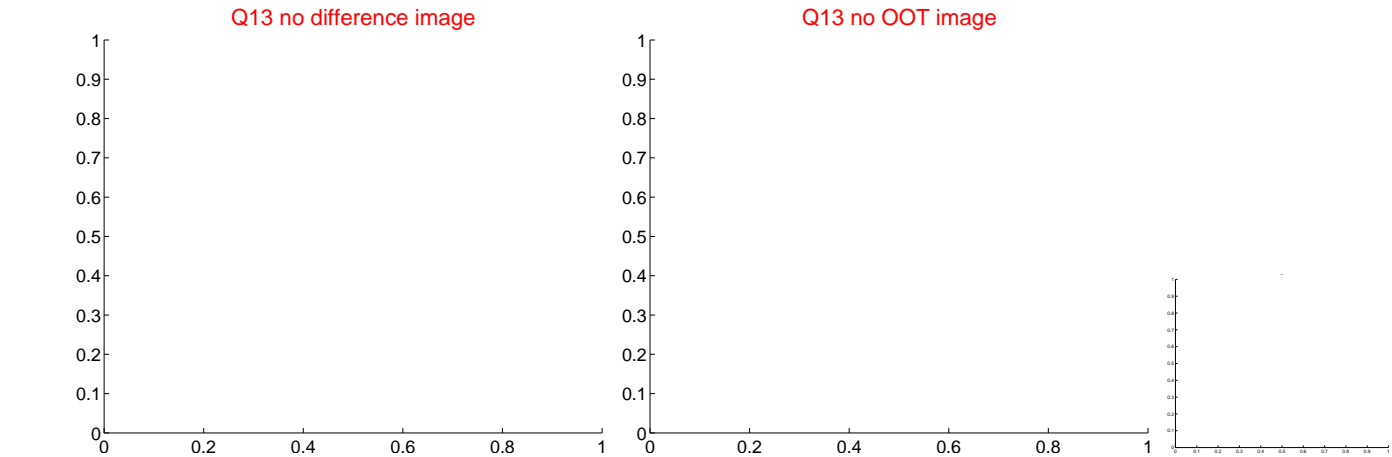
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



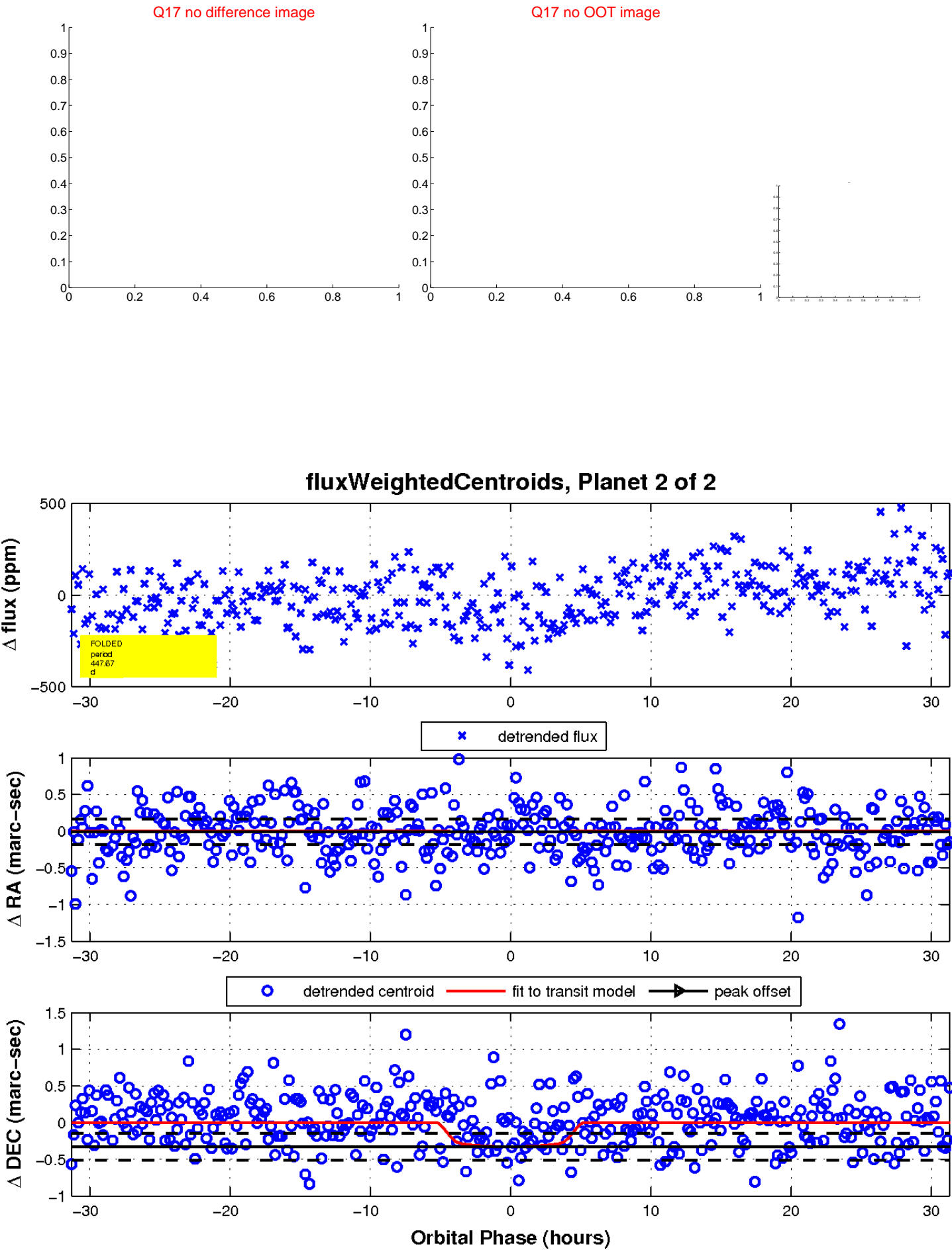
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

