

KIC 010723367

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})
010723367-01	OBS	2236.01	19.986463	135.526402	670.1	4.533	19.3	21.3	1.24	5500	4.33	63.76
010723367-02	OBS	2236.02	12.125742	142.112689	322.8	3.411	11.8	13.4	1.24	5500	2.63	124.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010723367-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010723367-02	OBS	PC	0.96	0	0	0	0	NO_COMMENT

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

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

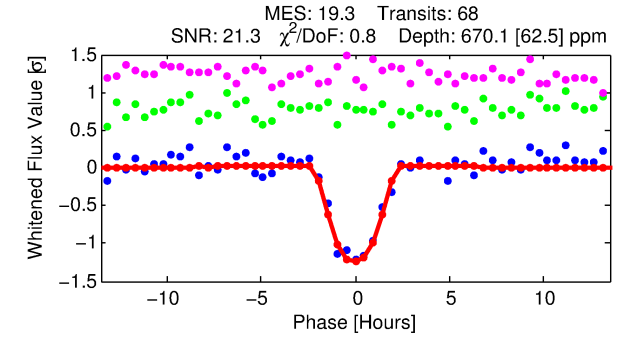
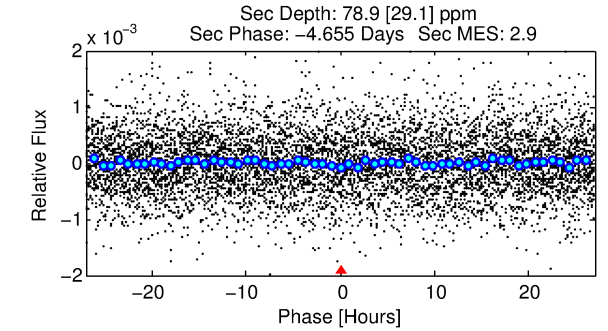
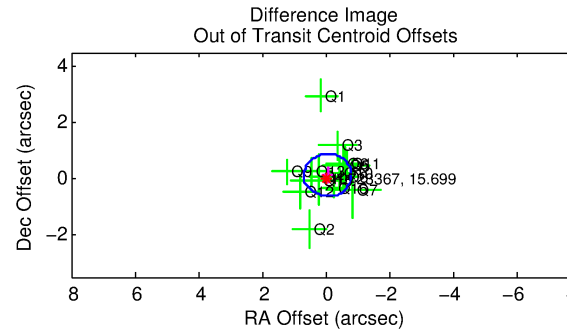
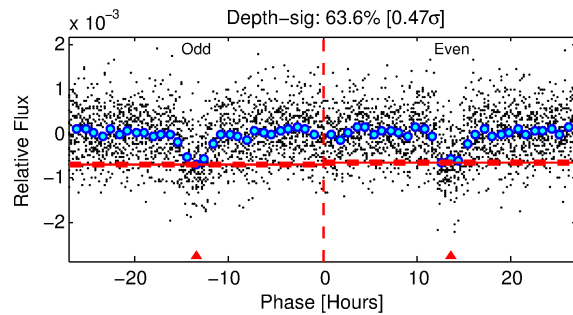
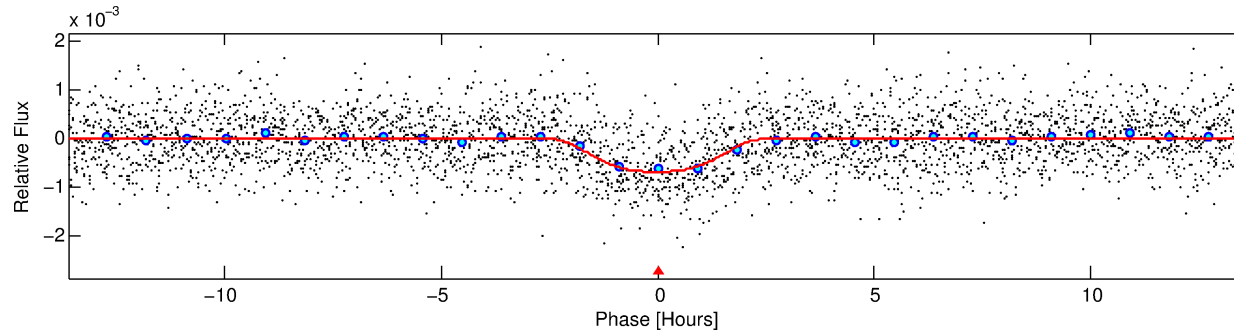
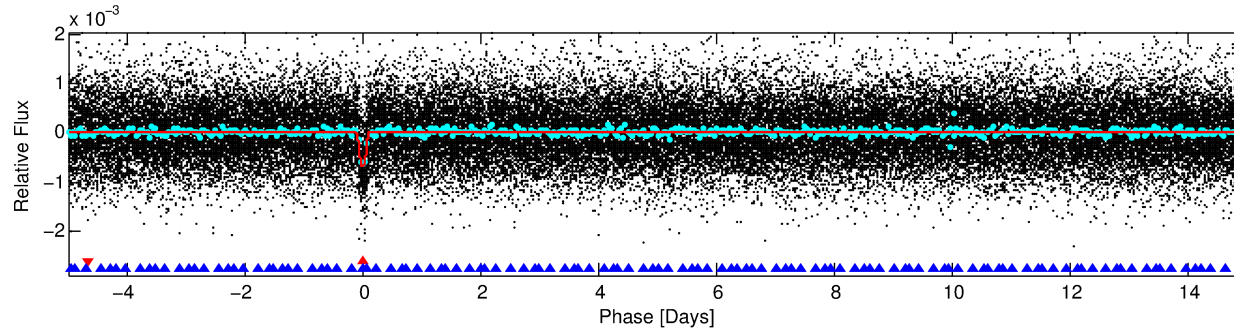
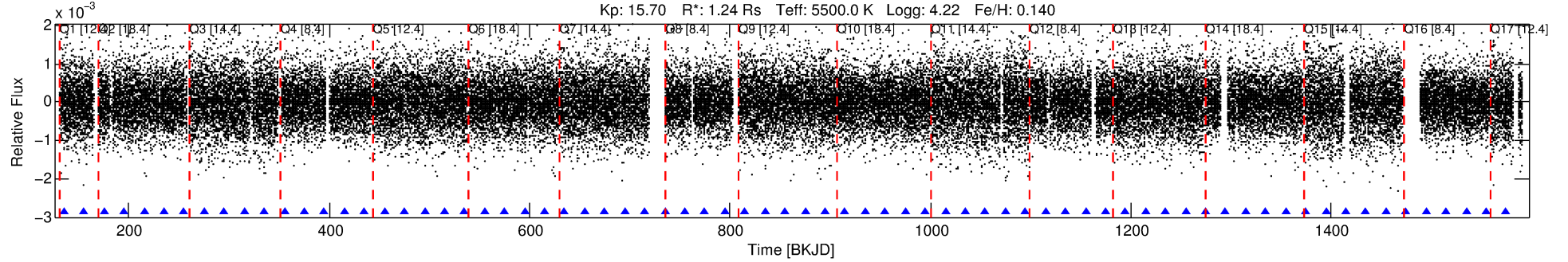
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010723367-01

No Significant Match Found

DV One-Page Summary

KIC: 10723367 Candidate: 1 of 2 Period: 19.986 d
KOI: K02236.01 Name: Kepler-375c Corr: 0.960



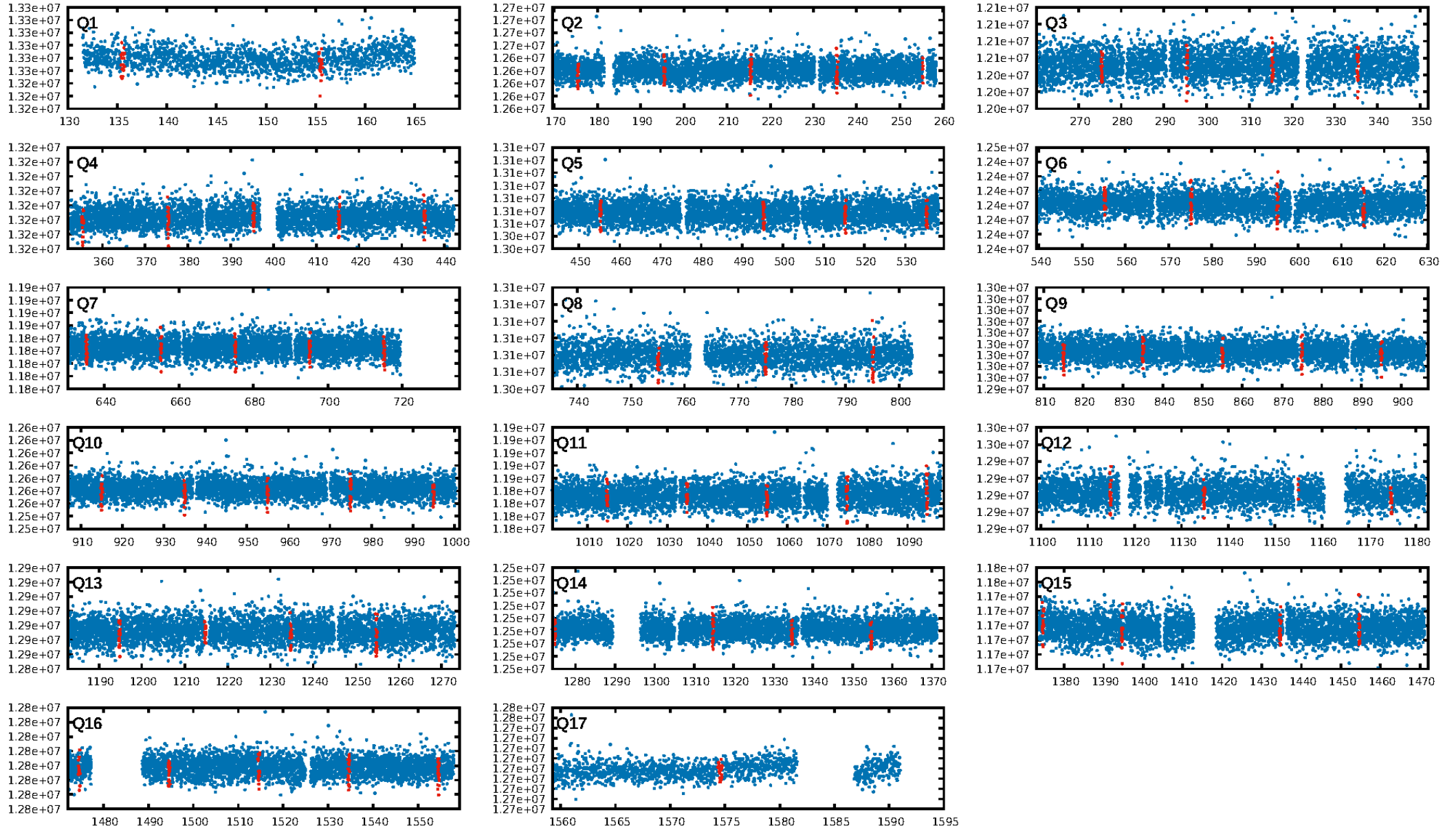
DV Fit Results:

Period = 19.98646 [0.00012] d
Epoch = 135.5264 [0.0051] BKJD
Rp/R* = 0.0321 [0.0025]
a/R* = 12.17 [1.40]
b = 0.97 [0.01]
Seff = 63.75 [21.23]
Teff = 721 [60] K
Rp = 4.33 [0.93] Re
a = 0.1404 [0.0281] AU
Ag = 45.56 [23.55] [1.89 σ]
Teffp = 2894 [293] K [7.28 σ]

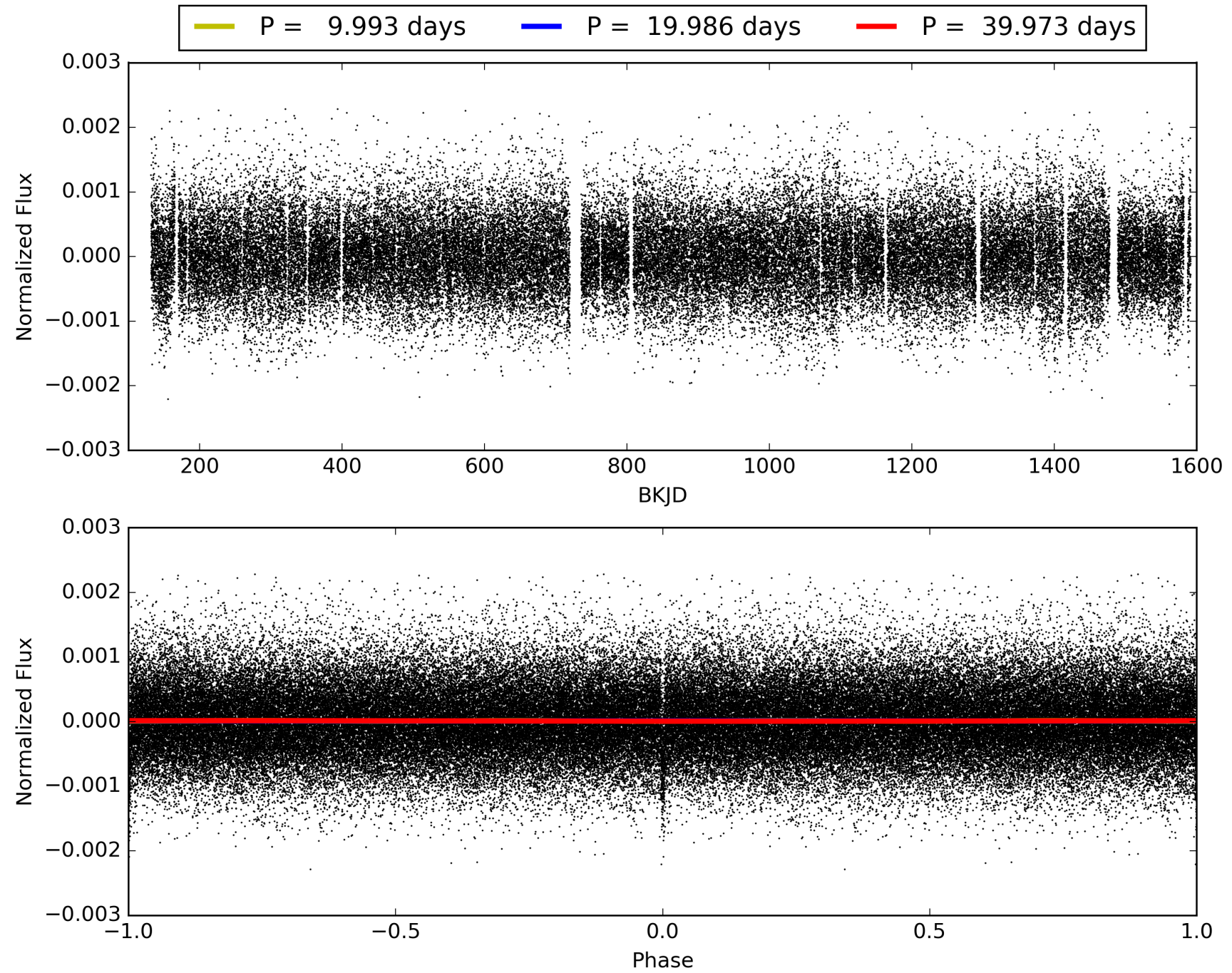
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [33.26 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.62e-85
RollingBand-fgt: 1.00 [65/65]
GhostDiagnostic-chr: 26.37
Centroid-sig: 33.8%
Centroid-so: 0.829 arcsec [1.08 σ]
OotOffset-rm: 0.145 arcsec [0.58 σ]
KicOffset-rm: 0.173 arcsec [0.88 σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.93 [14/15]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010723367-01, PDC Light Curves

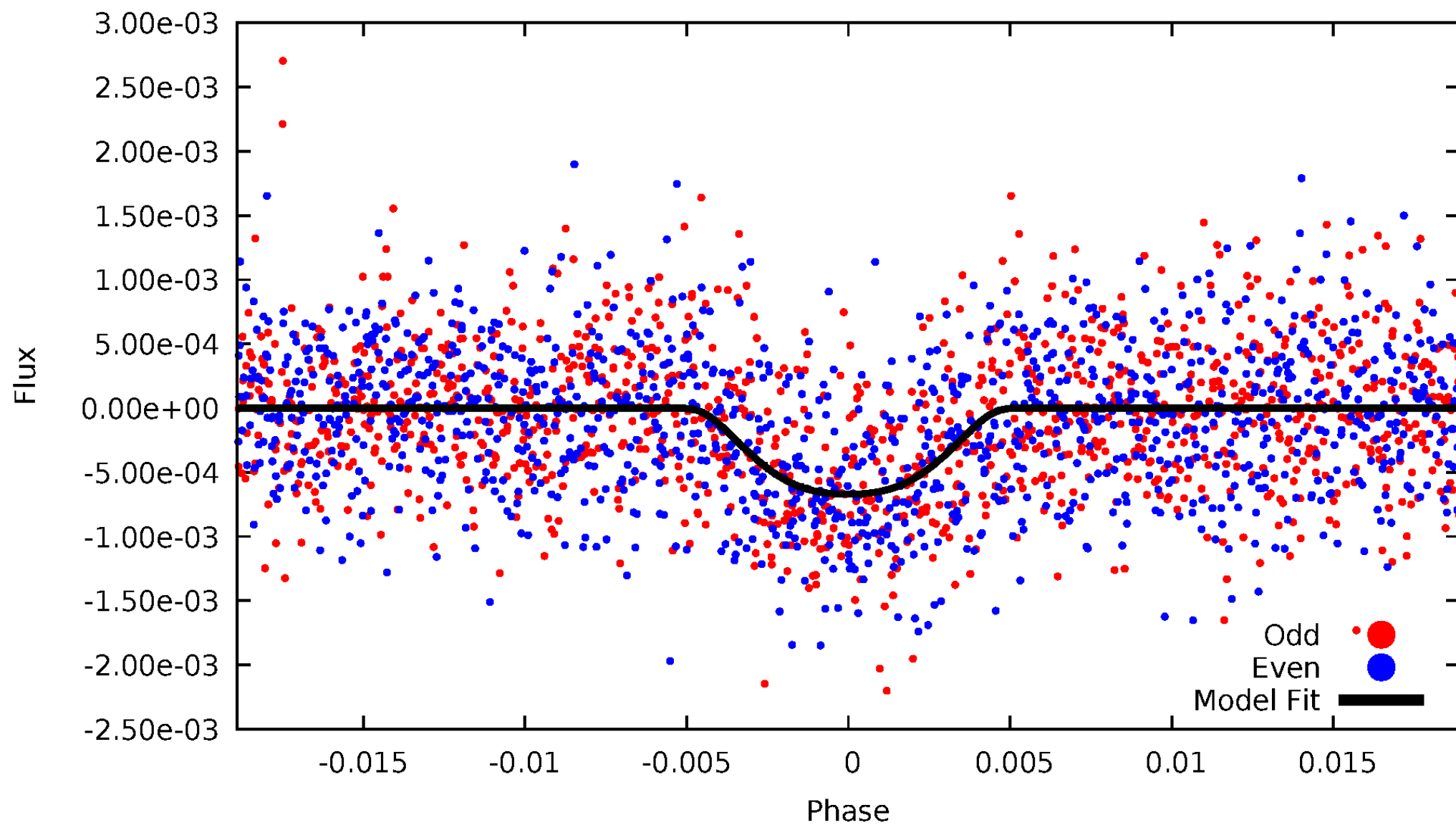


TCE 010723367-01



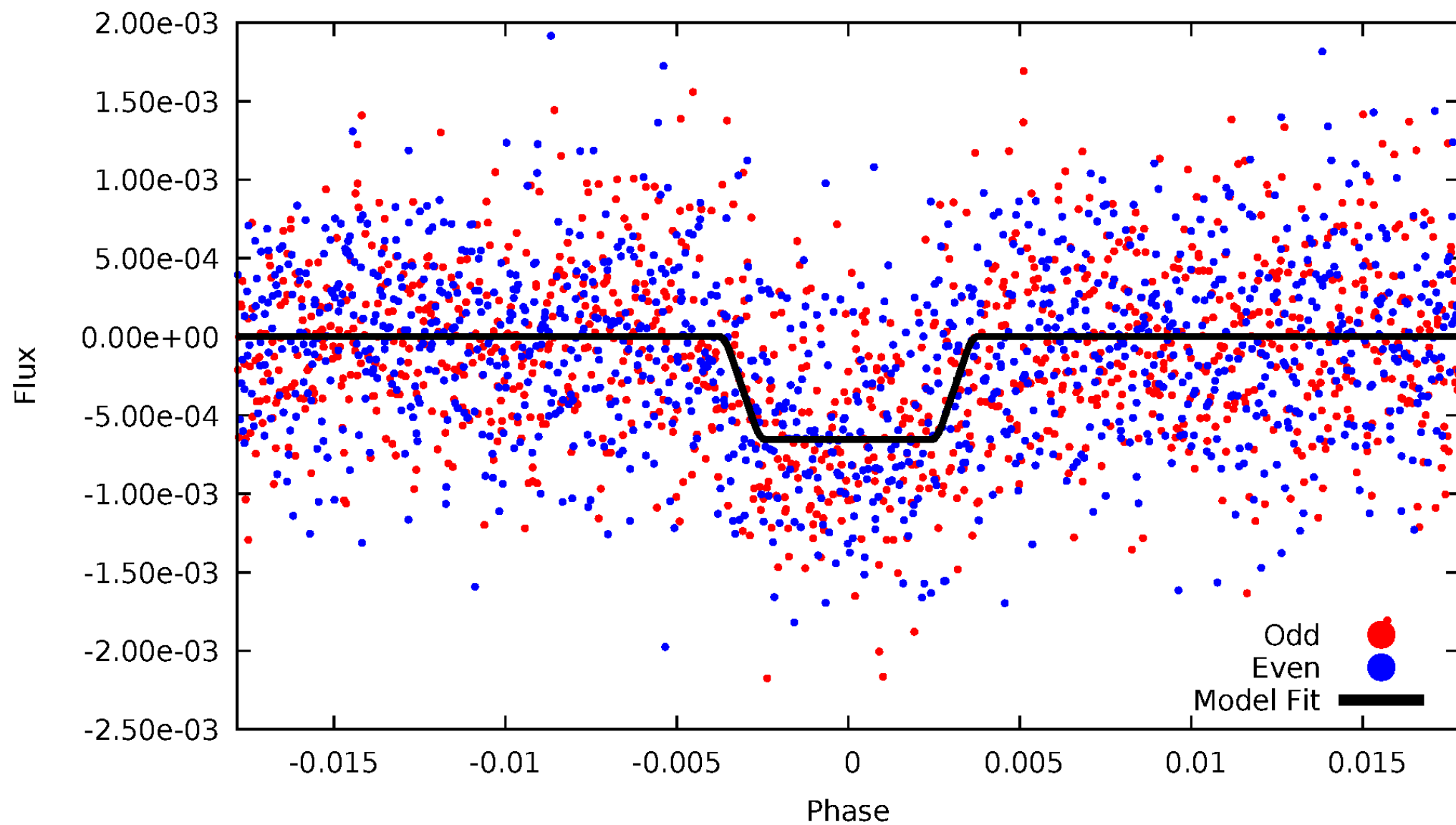
DV Odd/Even

TCE 010723367-01

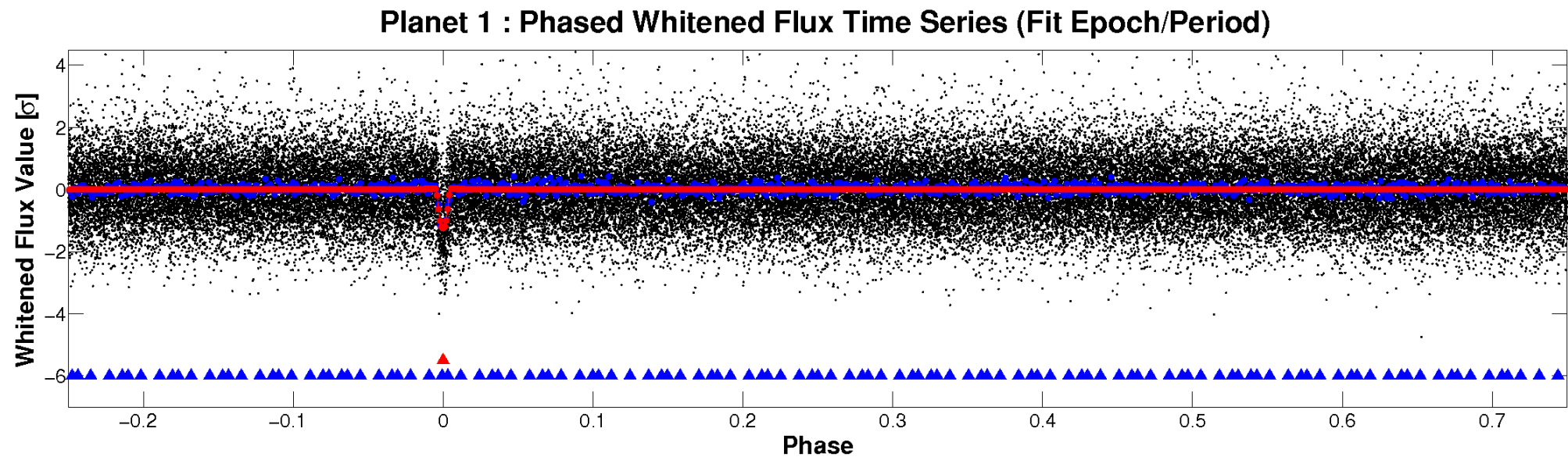
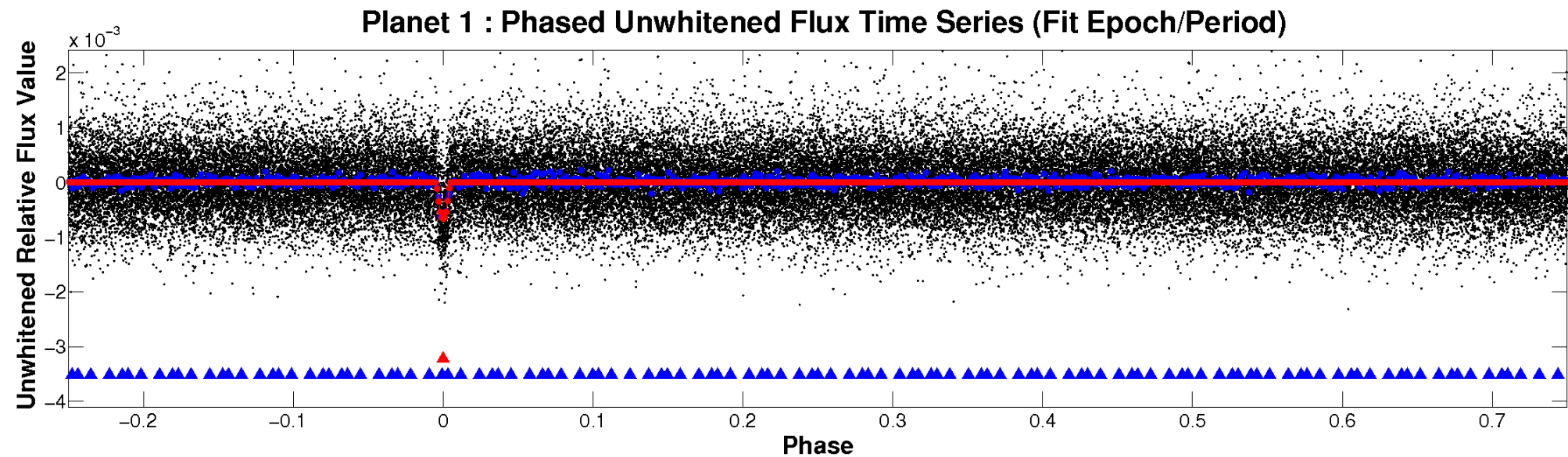


ALT Odd/Even

TCE 010723367-01

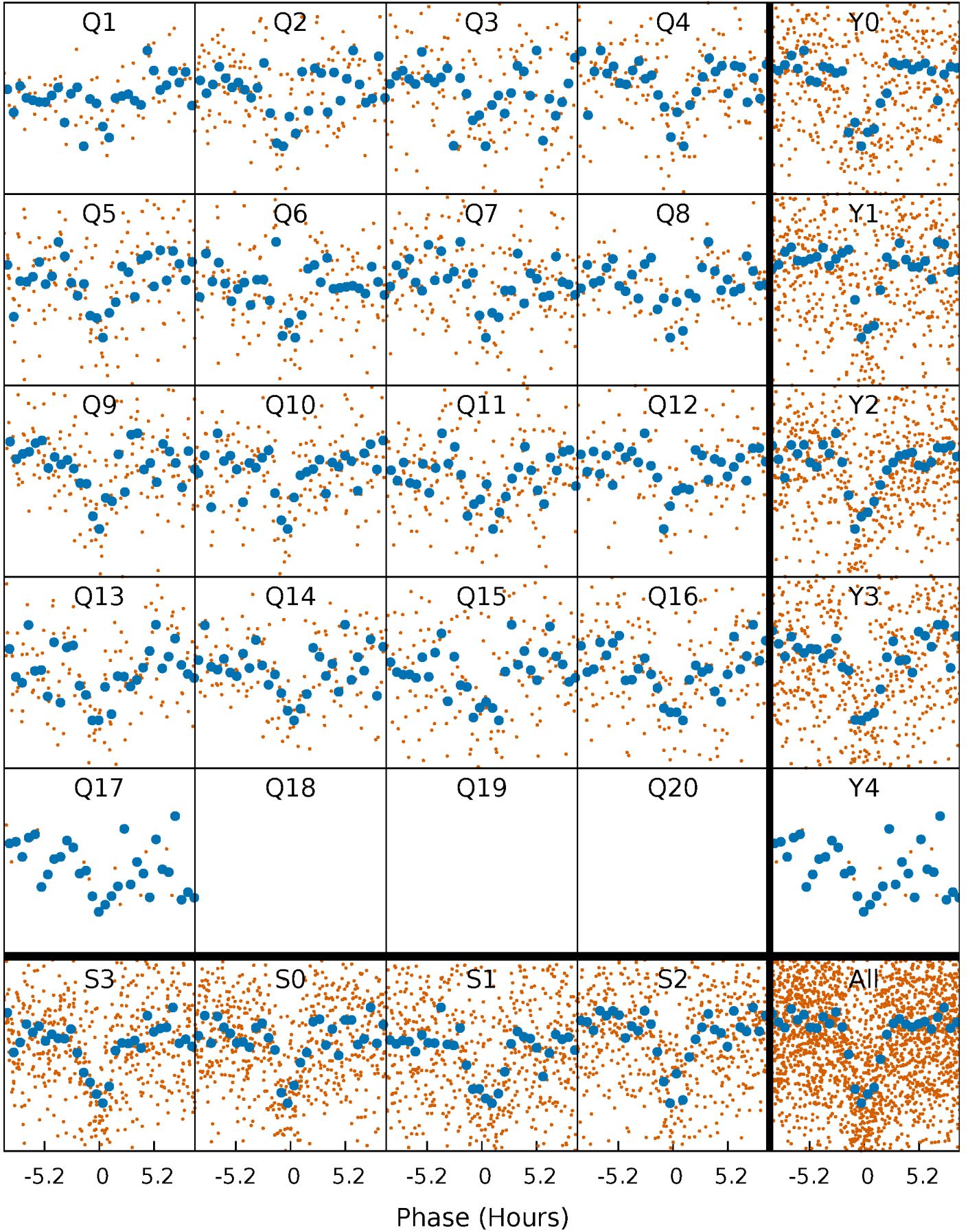


Non-Whitened Vs. Whitened Light Curve



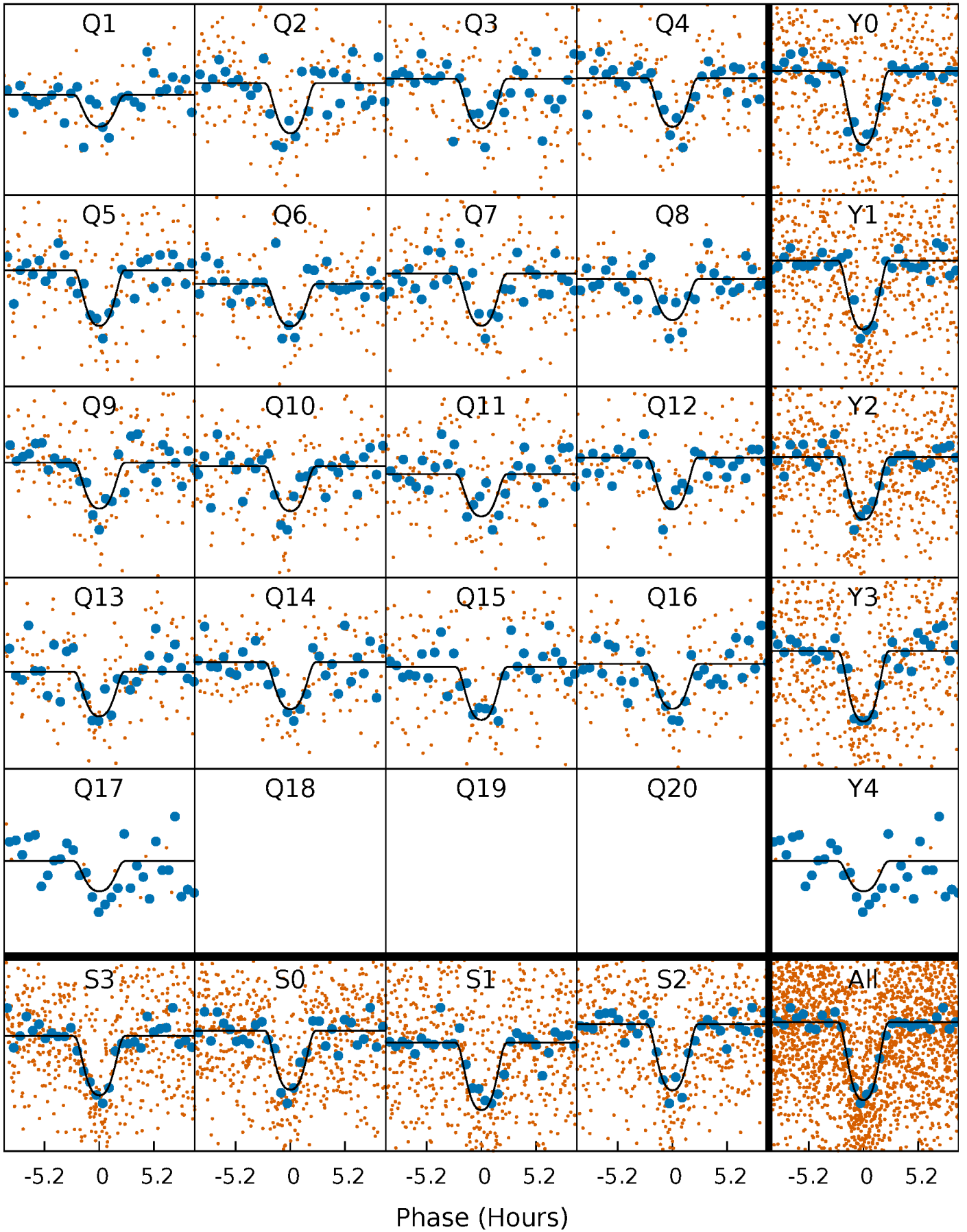
PDC Quarter-Phased Transit Curves

TCE 010723367-01 P= 19.986463 Days $T_0=135.526402$ (BKJD)



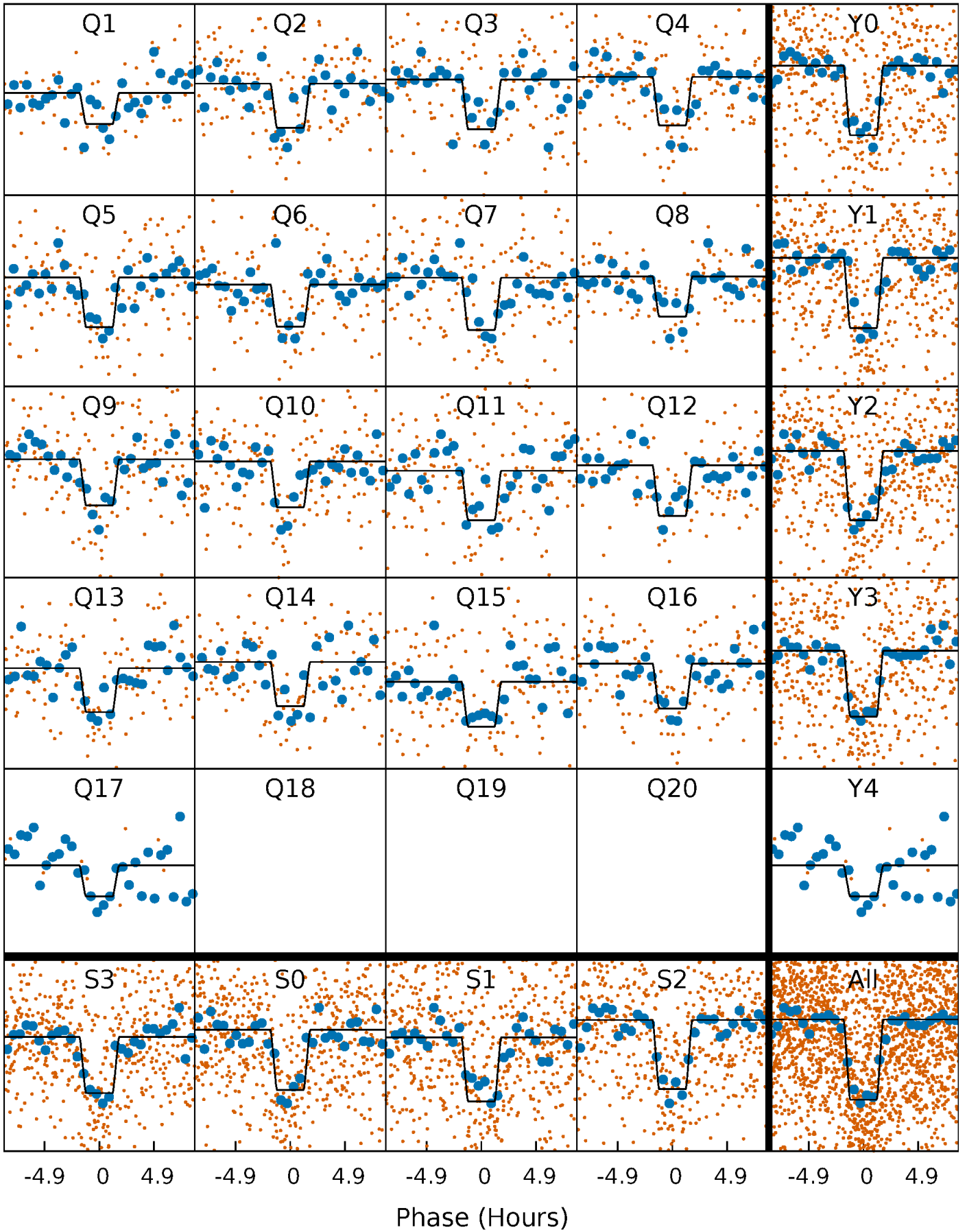
DV Quarter-Phased Transit Curves

TCE 010723367-01 P= 19.986463 Days $T_0=135.526402$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

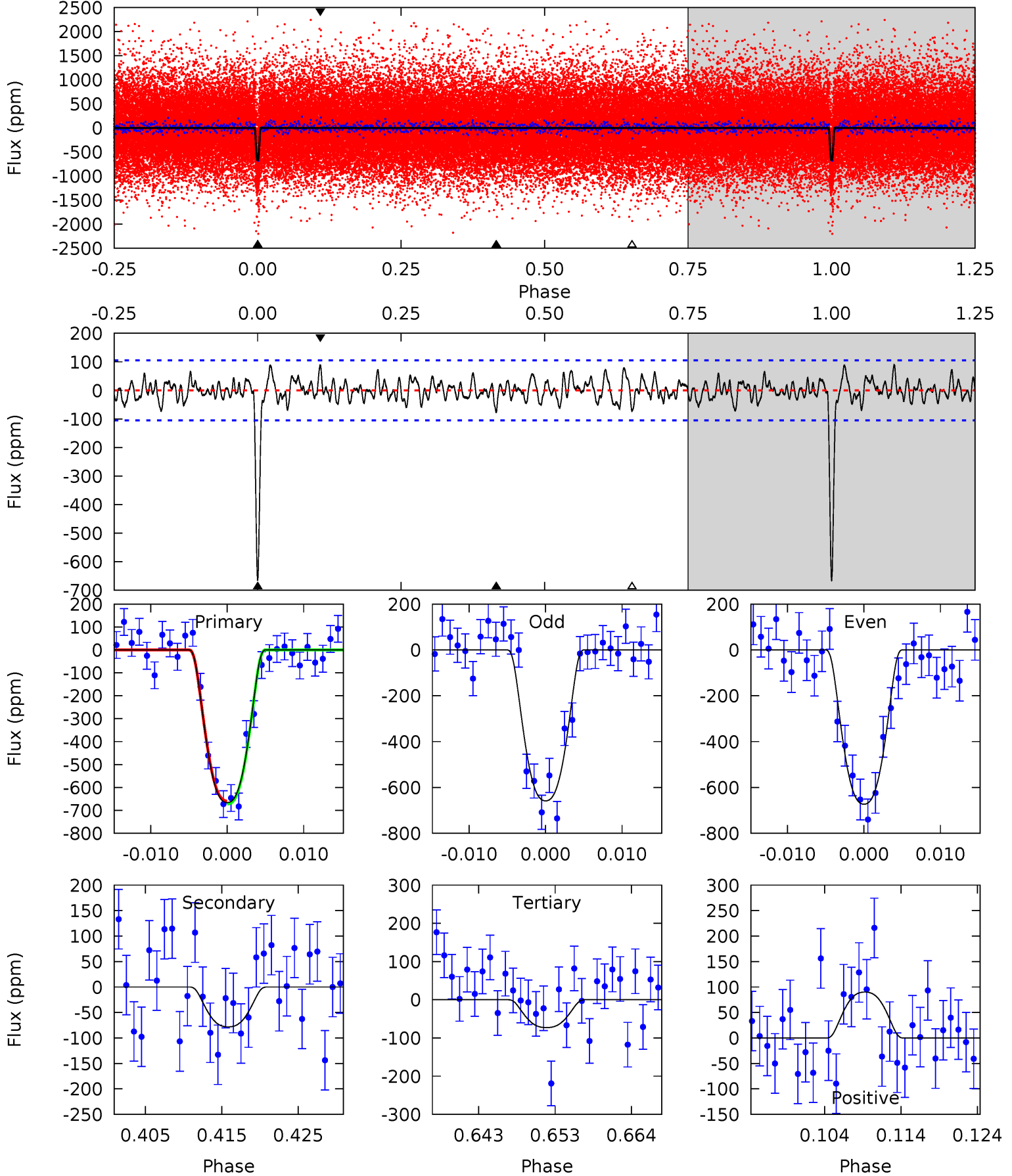
TCE 010723367-01 P= 19.986590 Days $T_0=135.521956$ (BKJD)



DV Model-Shift Uniqueness Test

010723367-01, P = 19.986463 Days, E = 115.539939 Days

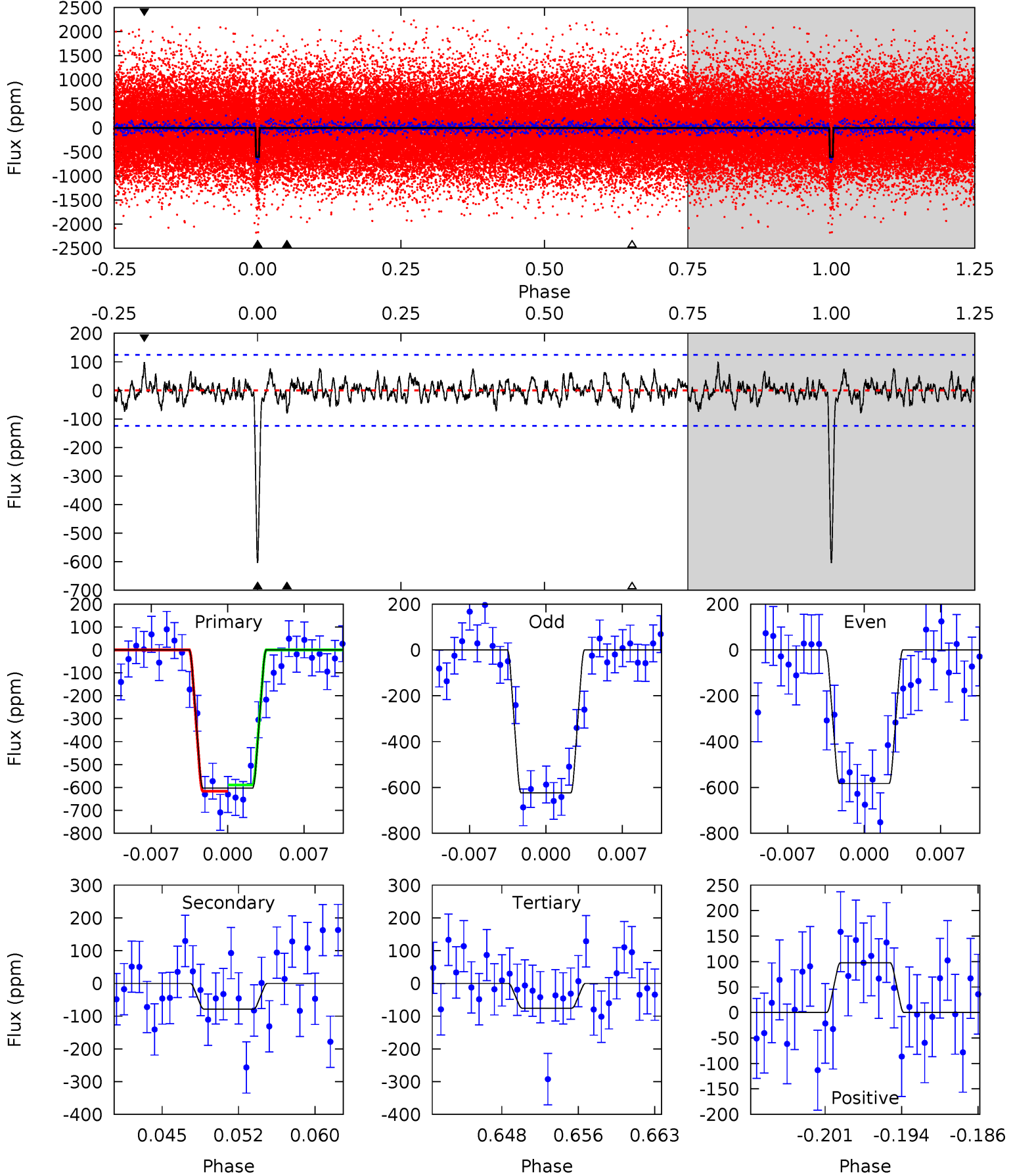
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.9	3.74	3.49	4.31	5.02	2.56	1.42	28.4	27.6	0.26	-0.57	0.35	1.04	0.12	0.30



Alt Model-Shift Uniqueness Test

010723367-01, $P = 19.986590$ Days, $E = 115.535366$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.6	3.20	3.09	3.99	5.08	2.68	1.10	21.6	20.7	0.11	-0.79	0.84	1.07	0.14	0.55



Stellar Parameters For KIC 010723367

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5500^{+82}_{-71}	$4.218^{+0.195}_{-0.120}$	$0.140^{+0.150}_{-0.100}$	$1.238^{+0.202}_{-0.247}$	$0.922^{+0.066}_{-0.039}$	$0.685^{+0.689}_{-0.237}$
	+1%/-1%	+5%/-3%	+107%/-71%	+16%/-20%	+7%/-4%	+101%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 010723367-01 / KOI 2236.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-78 ± 21	$4.34^{+0.53}_{-0.60}$	1008^{+43}_{-57}	3389^{+153}_{-175}	44^{+21}_{-14}
Alt.	-78 ± 24	$3.42^{+0.53}_{-0.54}$	1004^{+50}_{-58}	3651^{+248}_{-224}	73^{+43}_{-25}

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

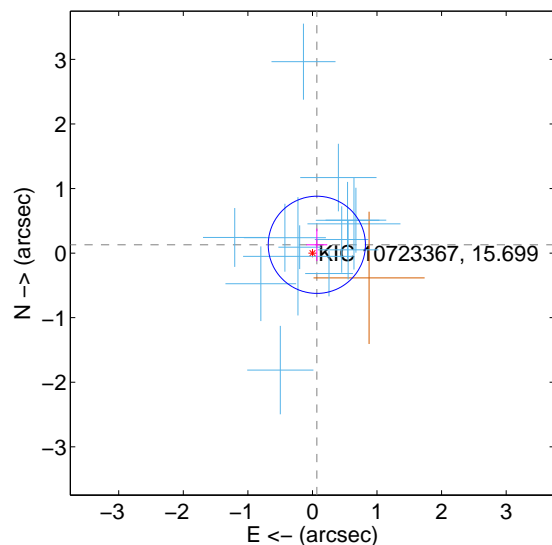
Supplemental centroid analysis for 010723367-01. Kepler magnitude: 15.70. Transit SNR 21.28

There are 14 quarters with good PRF difference image offsets

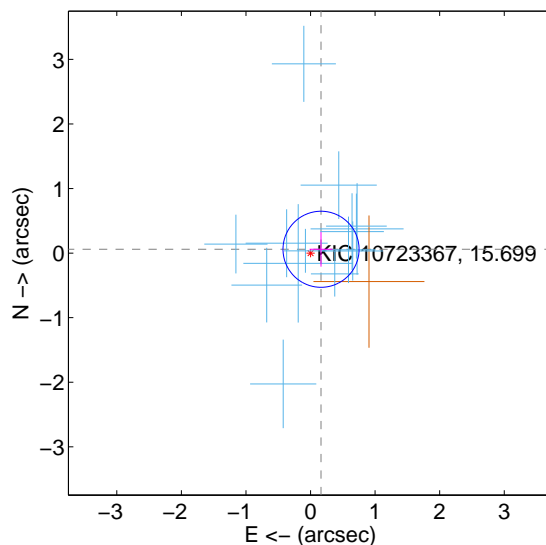
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.145 ± 0.251	0.58	-0.068 ± 0.161	0.128 ± 0.251
PRF-fit source offset from KIC position	0.173 ± 0.196	0.88	-0.163 ± 0.178	0.059 ± 0.269
photometric centroid source offset	0.83 ± 0.76	1.08	-0.83 ± 0.76	-0.08 ± 0.72

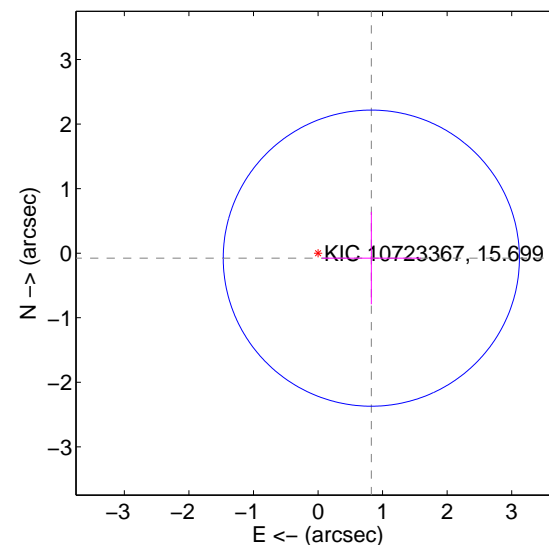
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

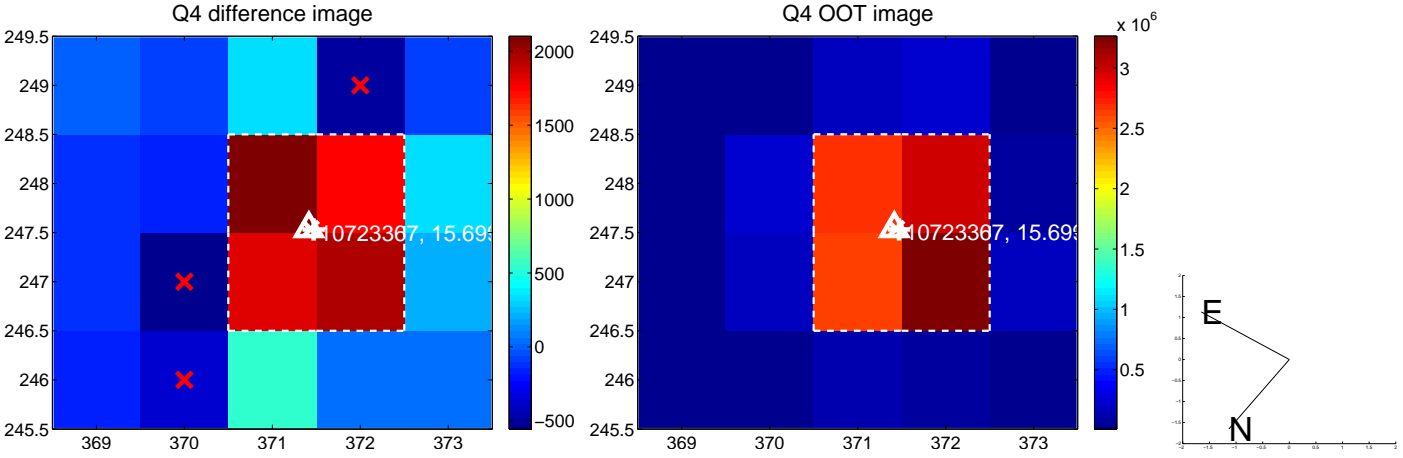
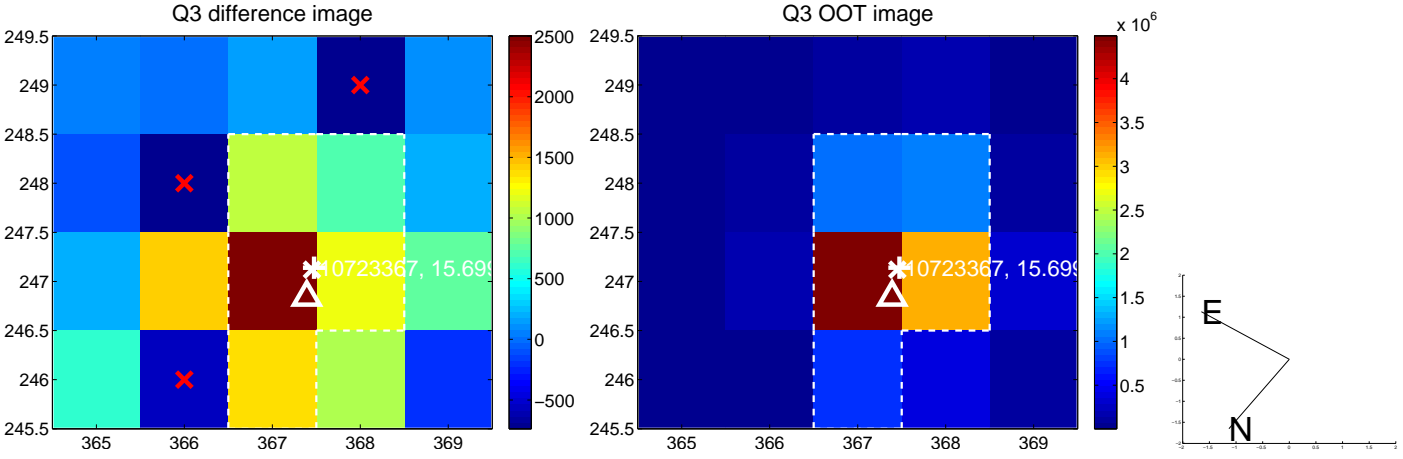
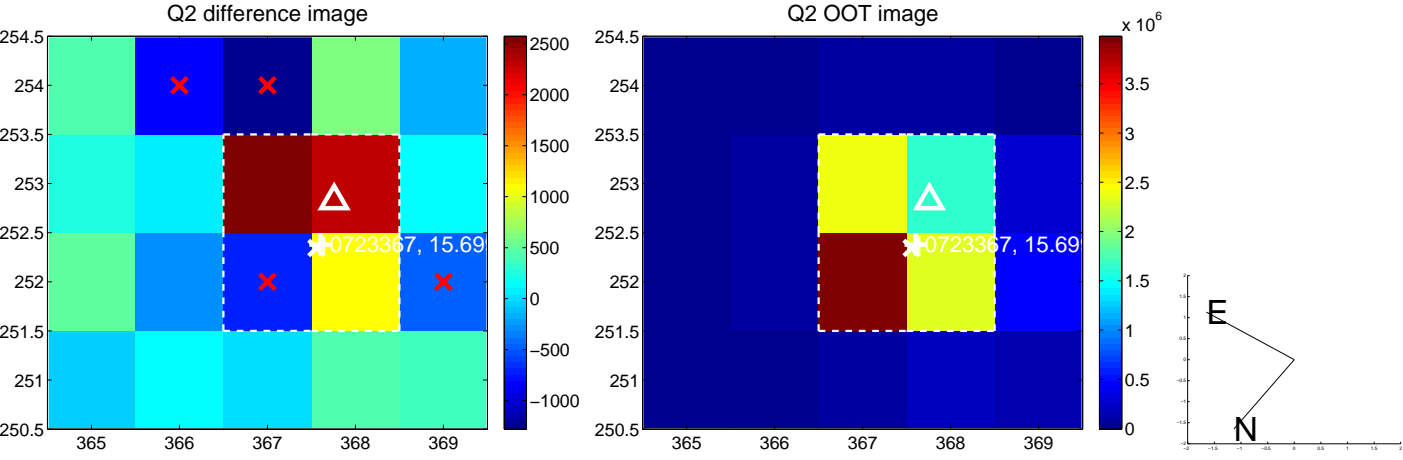
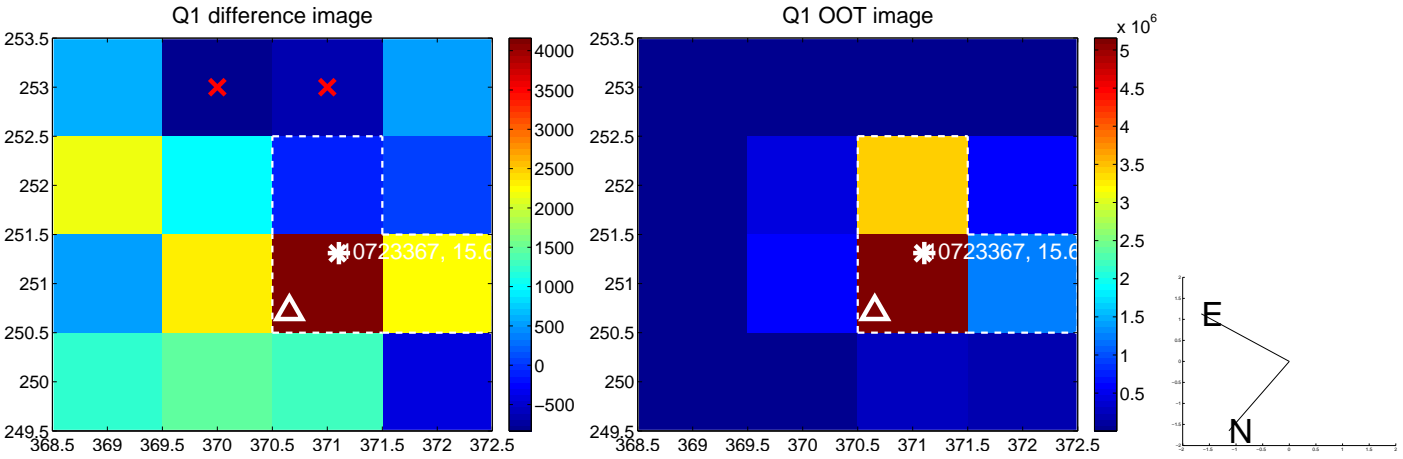


offset from photometric centroids

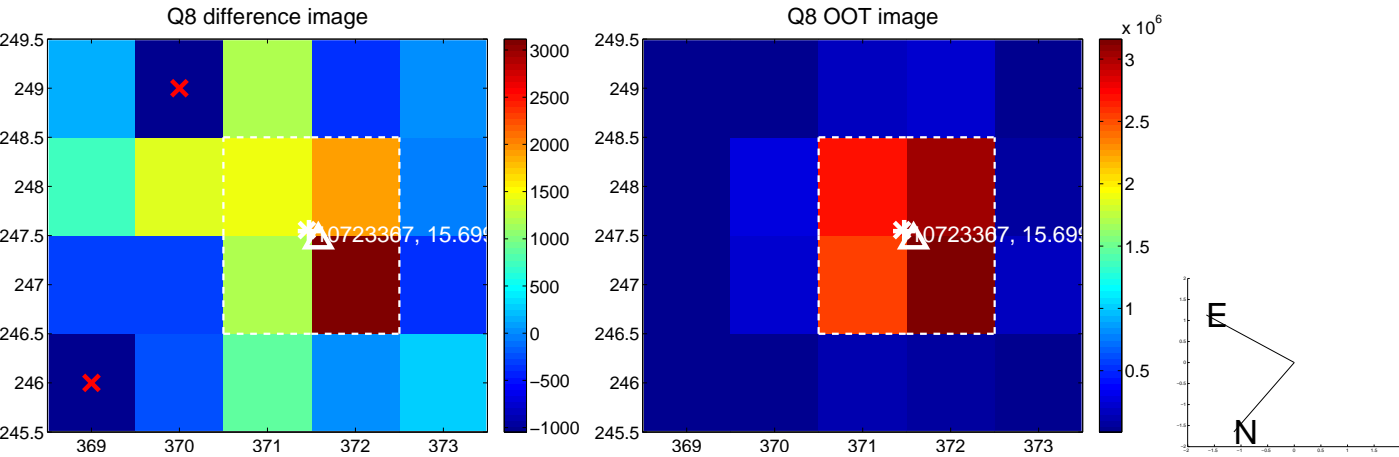
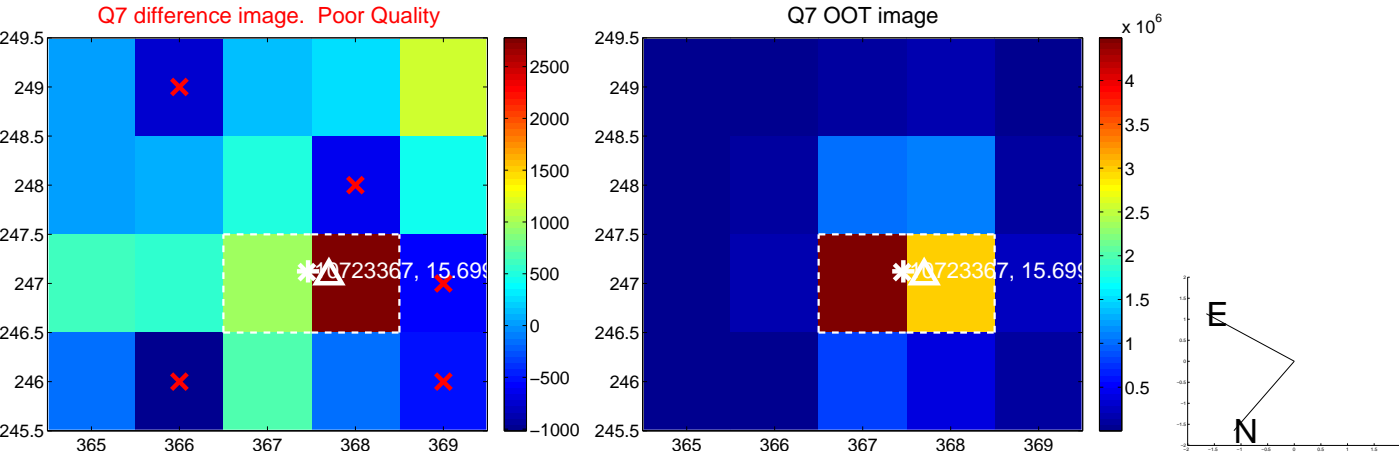
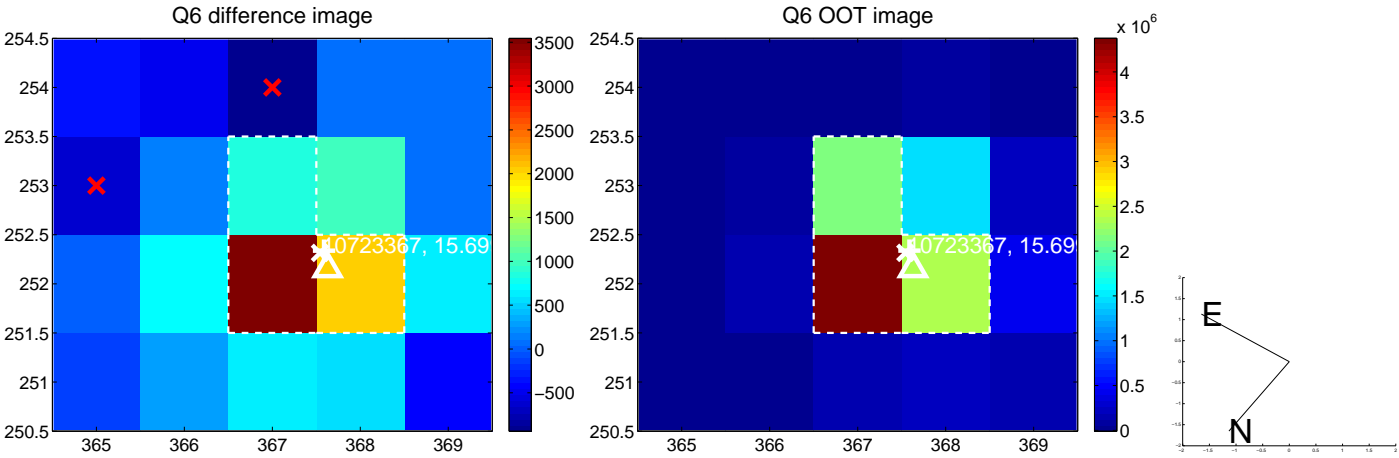
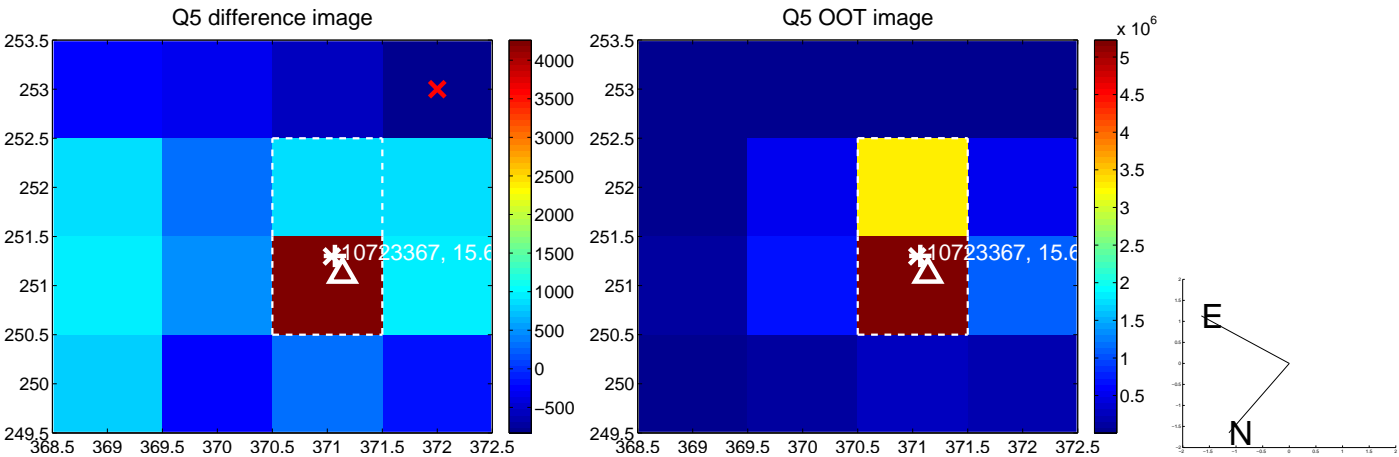


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

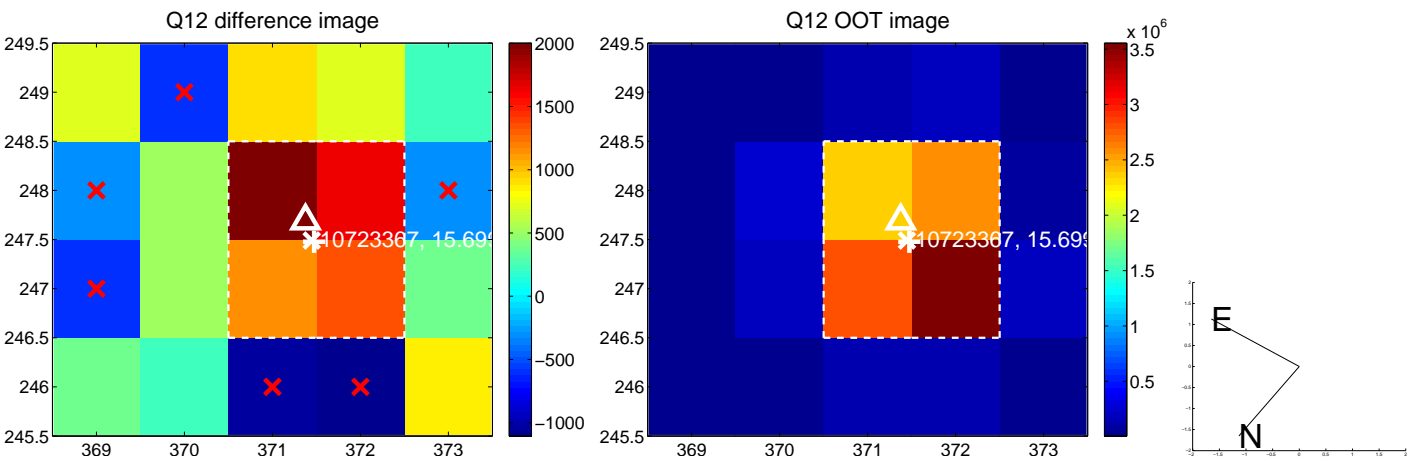
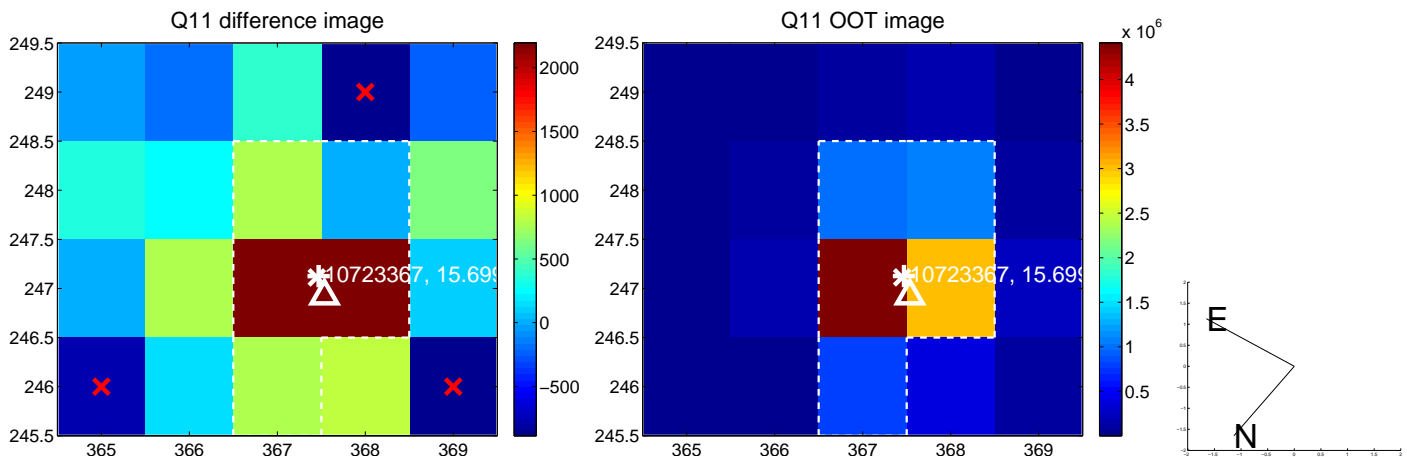
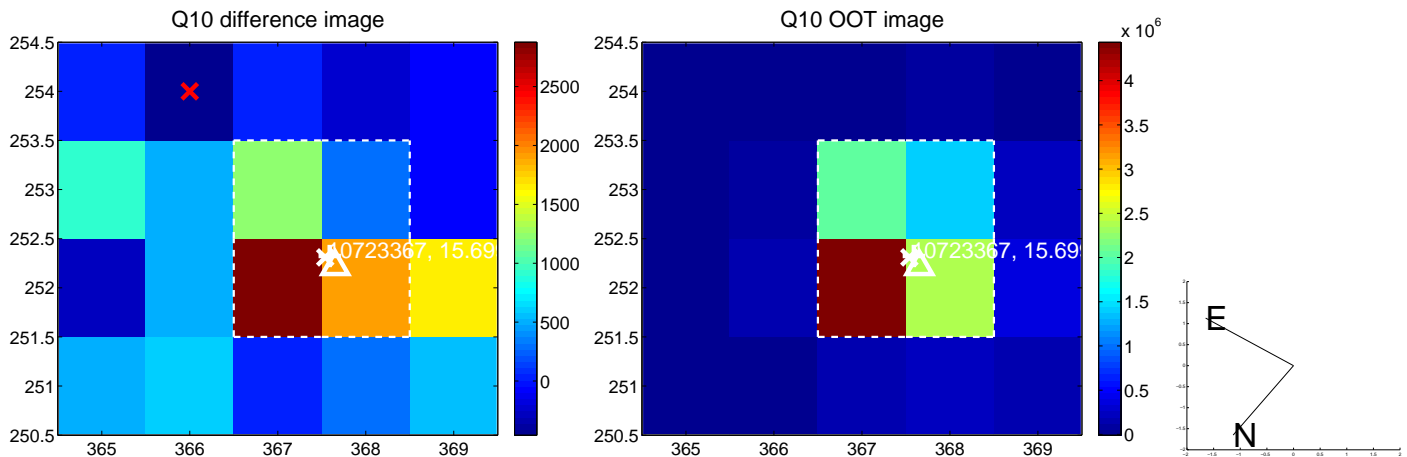
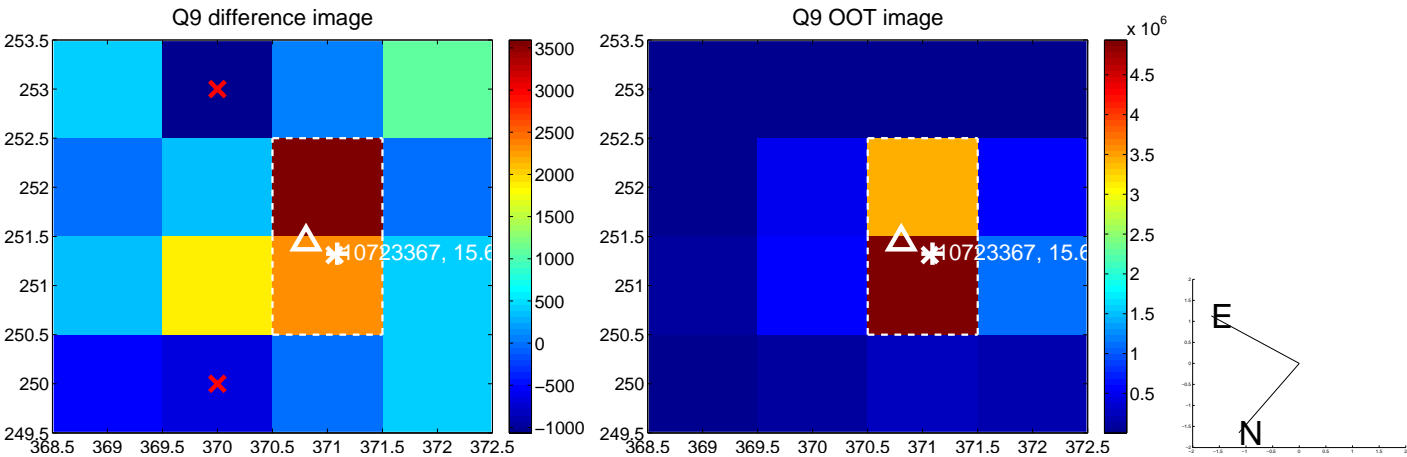
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



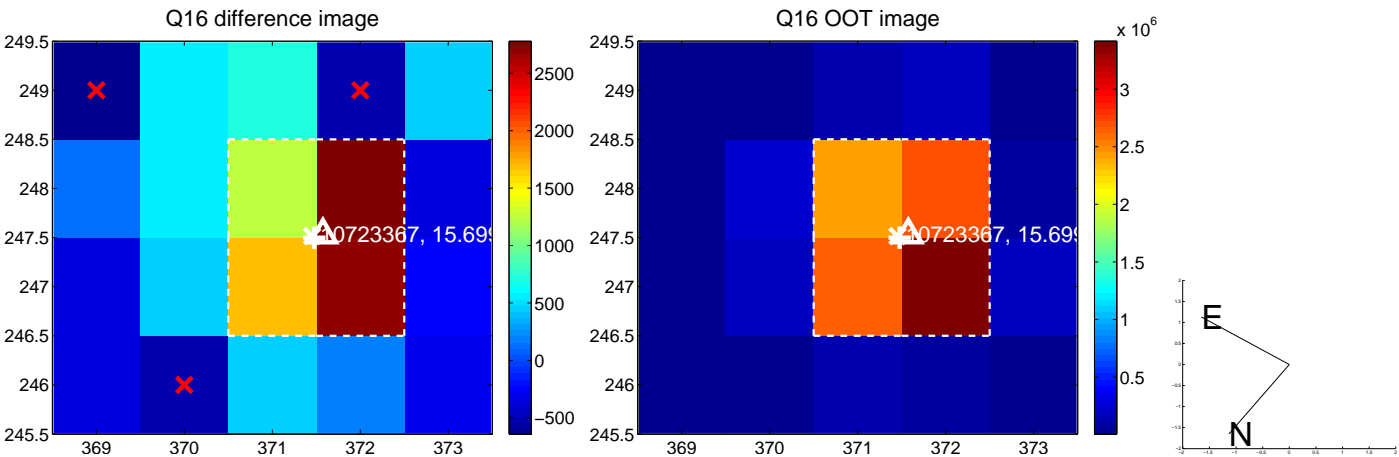
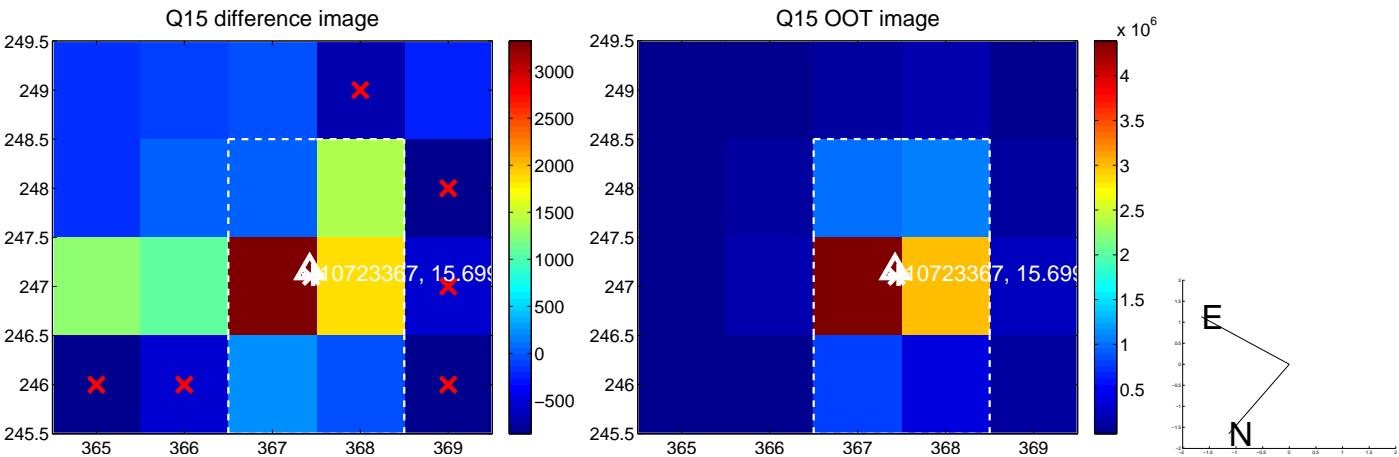
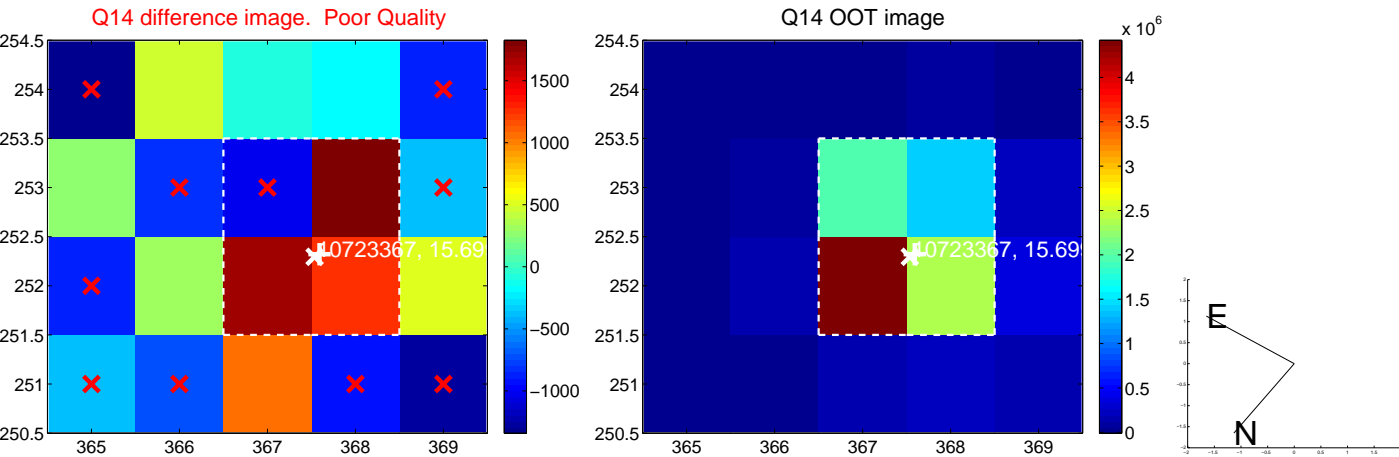
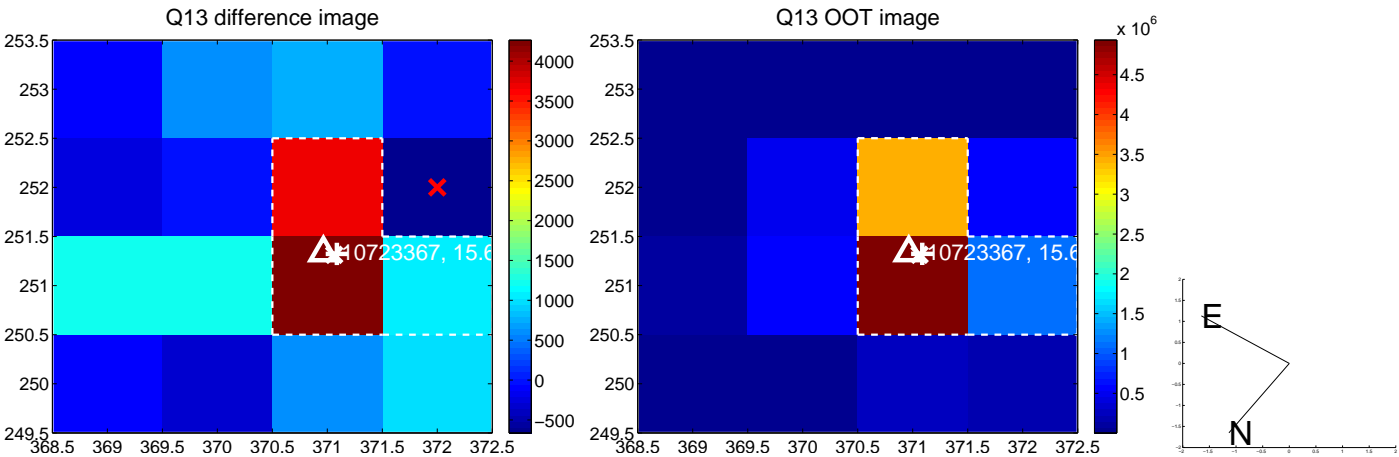
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



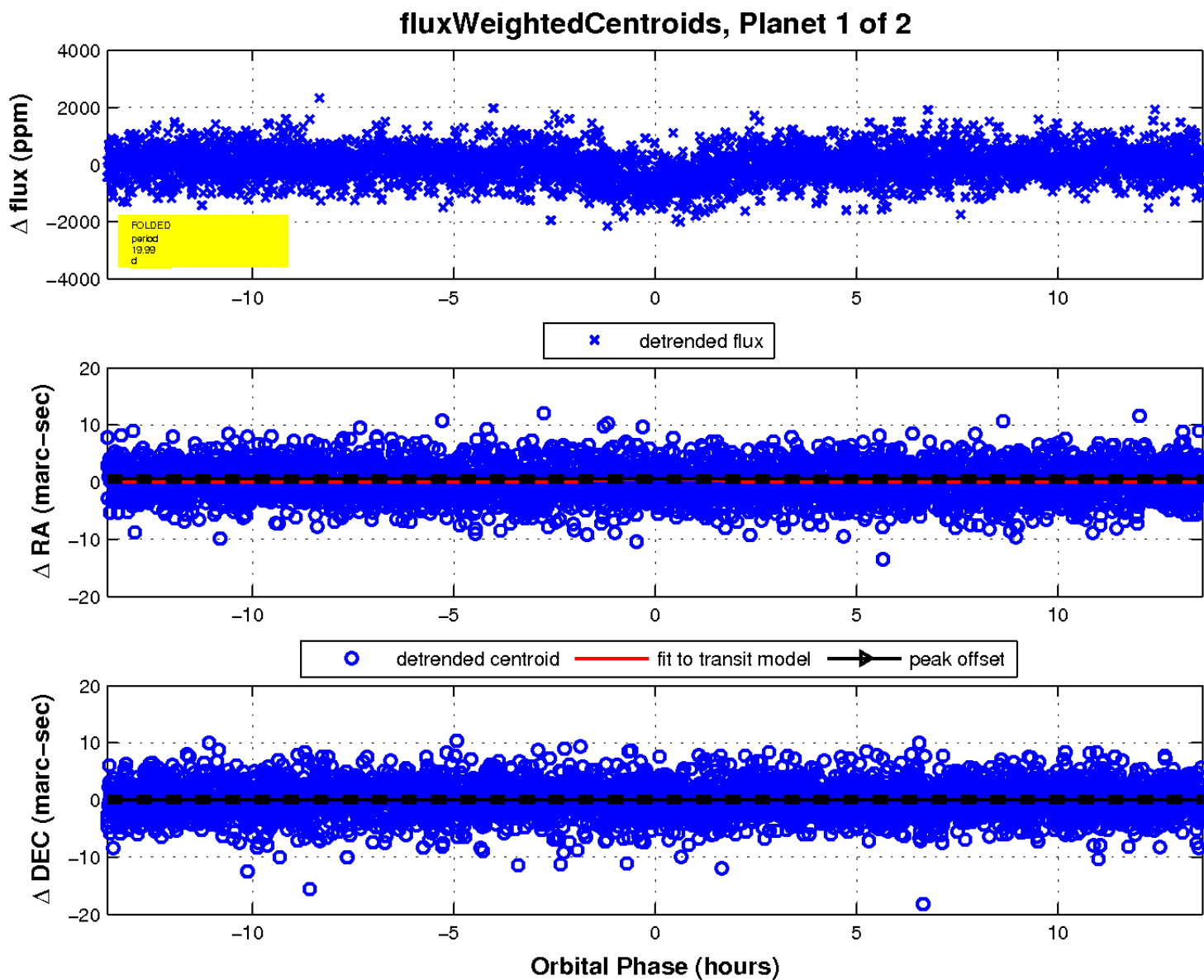
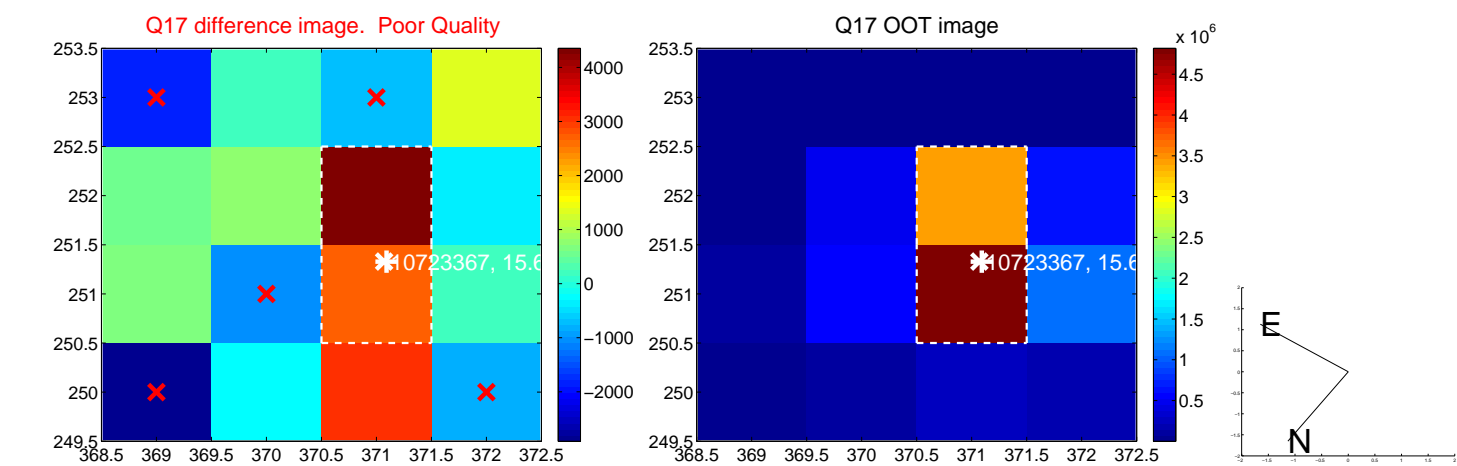
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

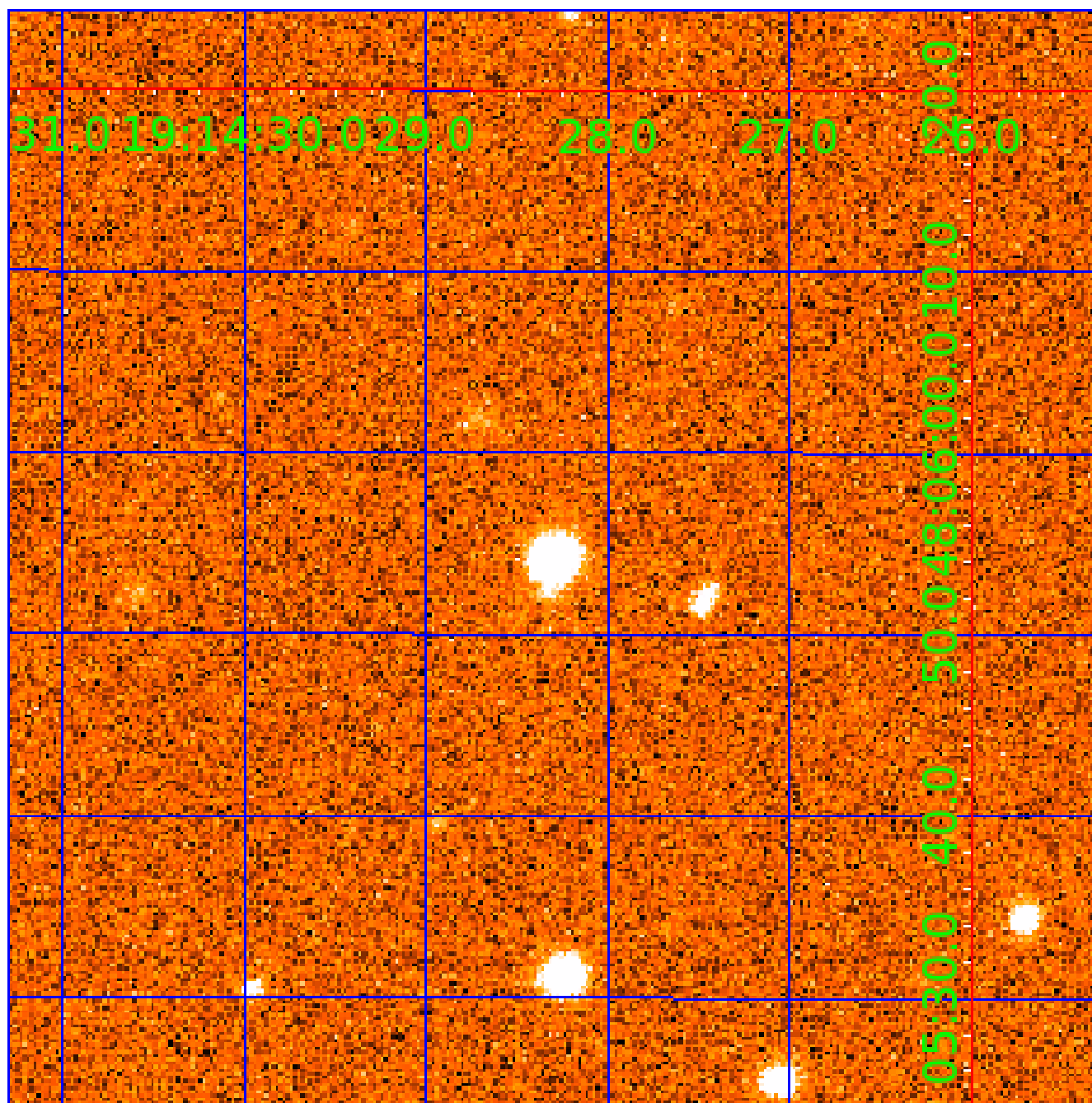


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010723367

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})
010723367-01	OBS	2236.01	19.986463	135.526402	670.1	4.533	19.3	21.3	1.24	5500	4.33	63.76
010723367-02	OBS	2236.02	12.125742	142.112689	322.8	3.411	11.8	13.4	1.24	5500	2.63	124.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010723367-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010723367-02	OBS	PC	0.96	0	0	0	0	NO_COMMENT

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.

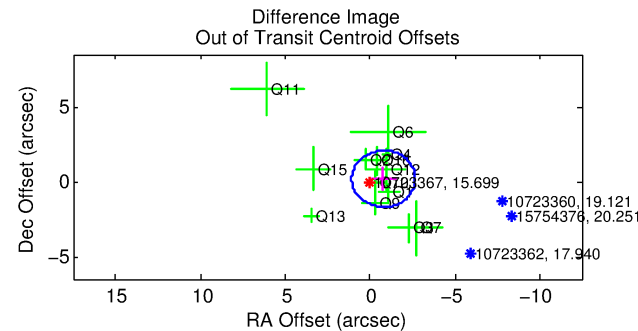
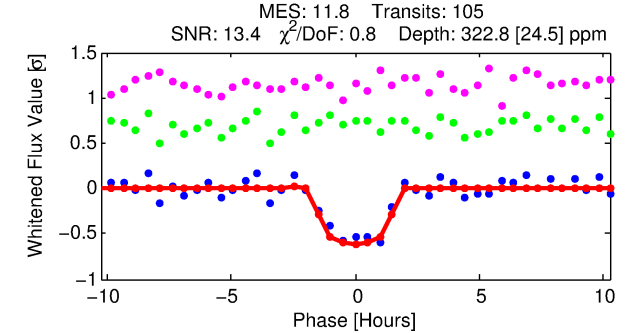
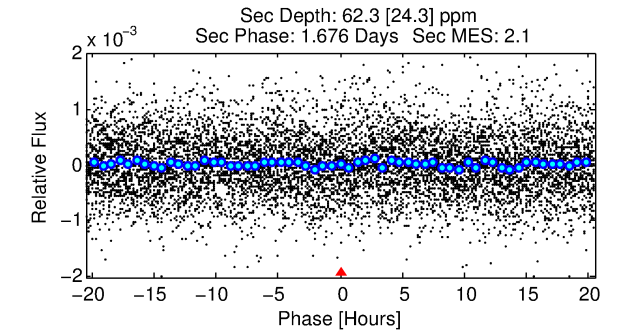
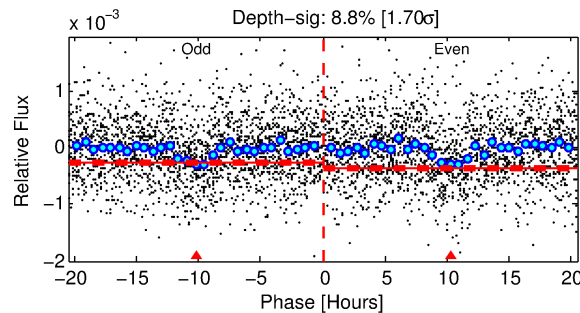
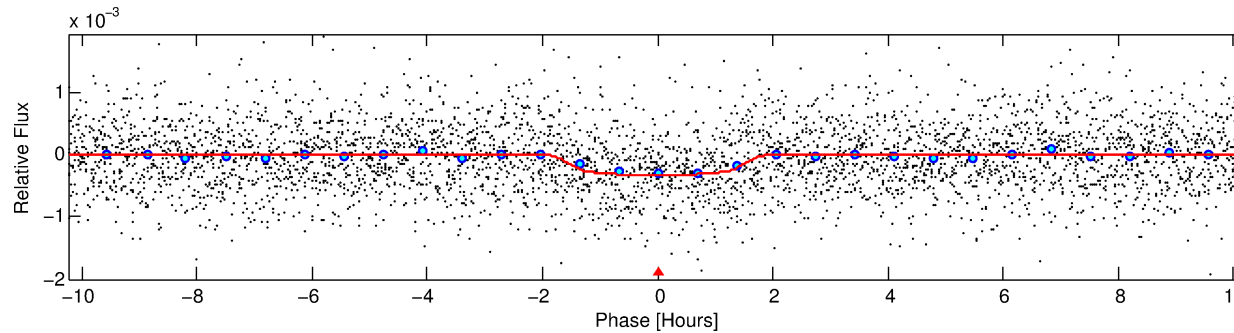
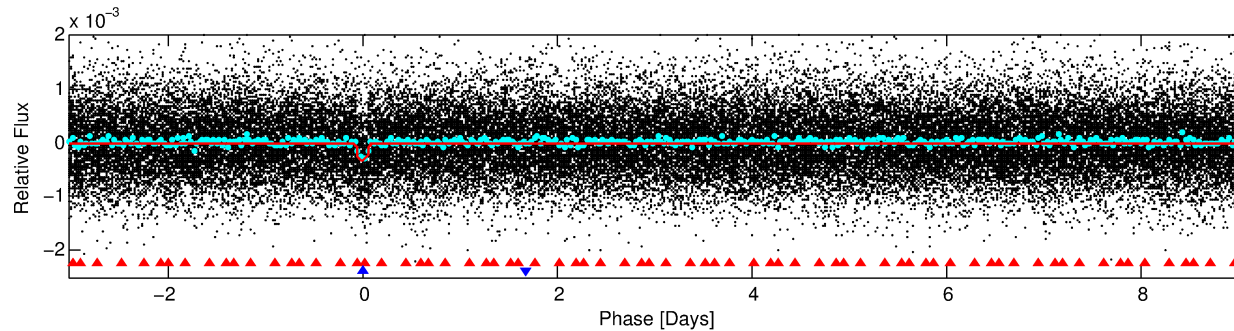
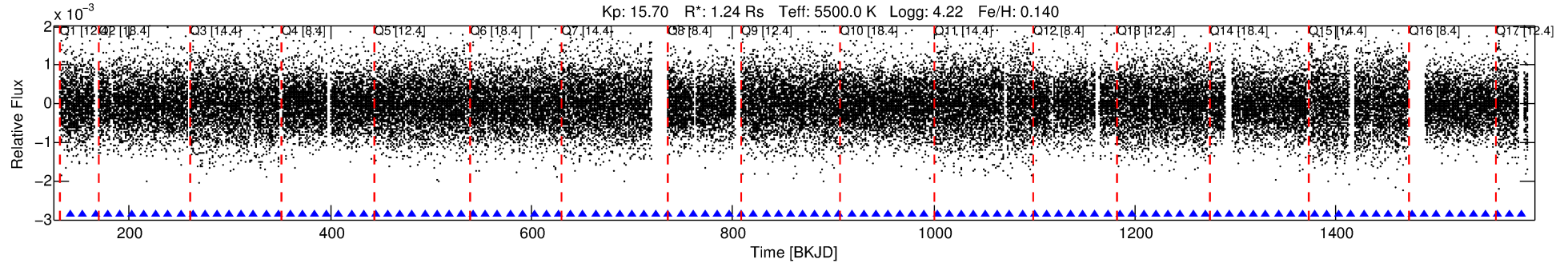
Ephemeris Match Information For 010723367-02

No Significant Match Found

DV One-Page Summary

KIC: 10723367 Candidate: 2 of 2 Period: 12.126 d
KOI: K02236.02 Name: Kepler-375b Corr: 0.962

Kp: 15.70 R*: 1.24 Rs Teff: 5500.0 K Logg: 4.22 Fe/H: 0.140



DV Fit Results:

Period = 12.12574 [0.00009] d
Epoch = 142.1127 [0.0055] BKJD
Rp/R* = 0.0195 [0.0079]
a/R* = 13.81 [23.93]
b = 0.88 [0.44]
Seff = 124.13 [41.33]
Teq = 851 [71] K
Rp = 2.63 [1.19] Re
a = 0.1006 [0.0201] AU
Ag = 50.19 [47.98] [1.03σ]
Teffp = 3503 [788] K [3.35σ]

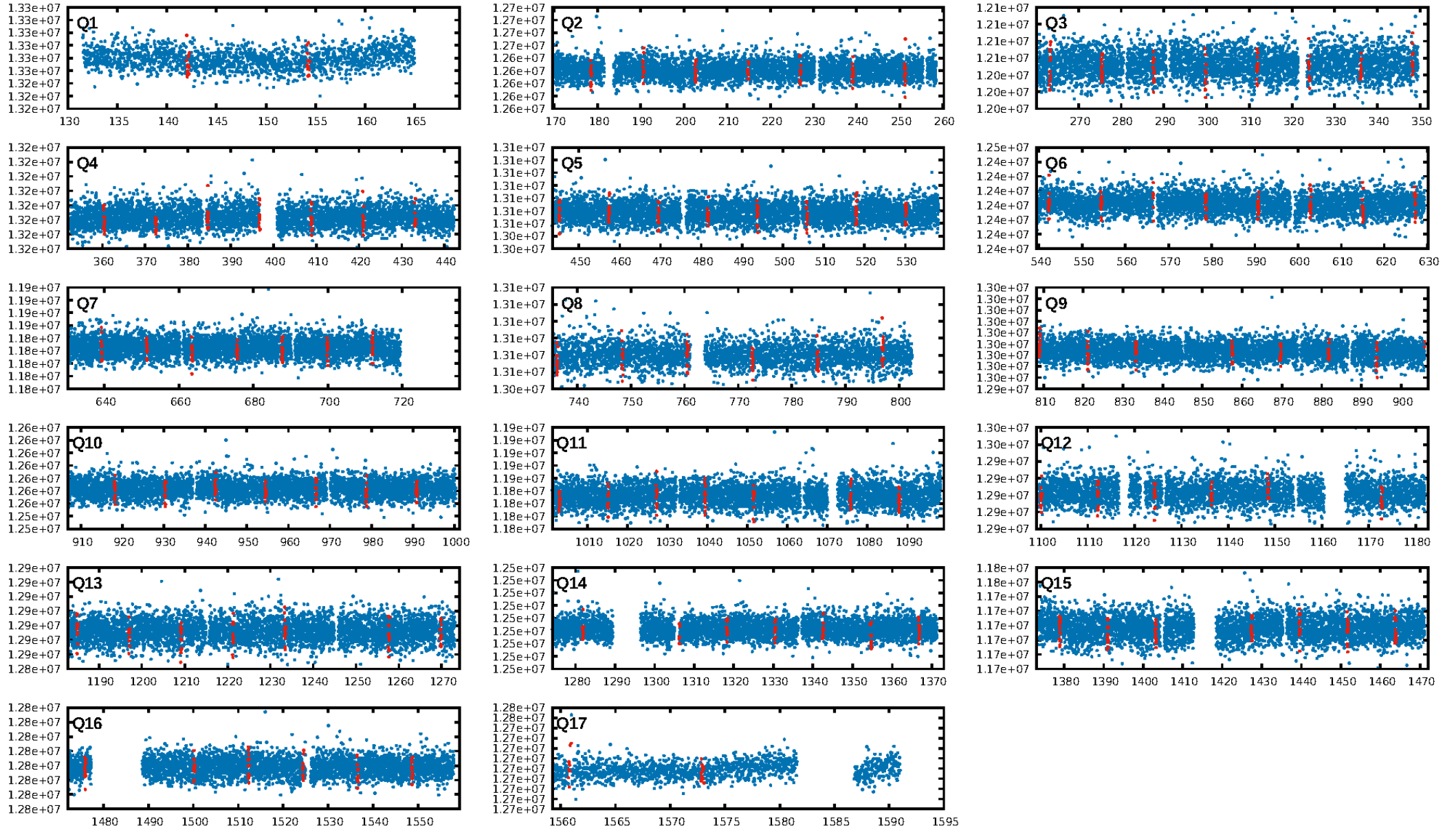
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [33.26σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.23e-32
RollingBand-fgt: 1.00 [101/101]
GhostDiagnostic-chr: 16.41
Centroid-sig: 68.2%
Centroid-so: 0.568 arcsec [0.49σ]
OotOffset-rm: 0.816 arcsec [1.30σ]
KicOffset-rm: 0.902 arcsec [1.23σ]
OotOffset-st: 3/4/3/3 [13]
KicOffset-st: 3/4/3/3 [13]
DiffImageQuality-fgm: 0.38 [5/13]
DiffImageOverlap-fno: 1.00 [17/17]

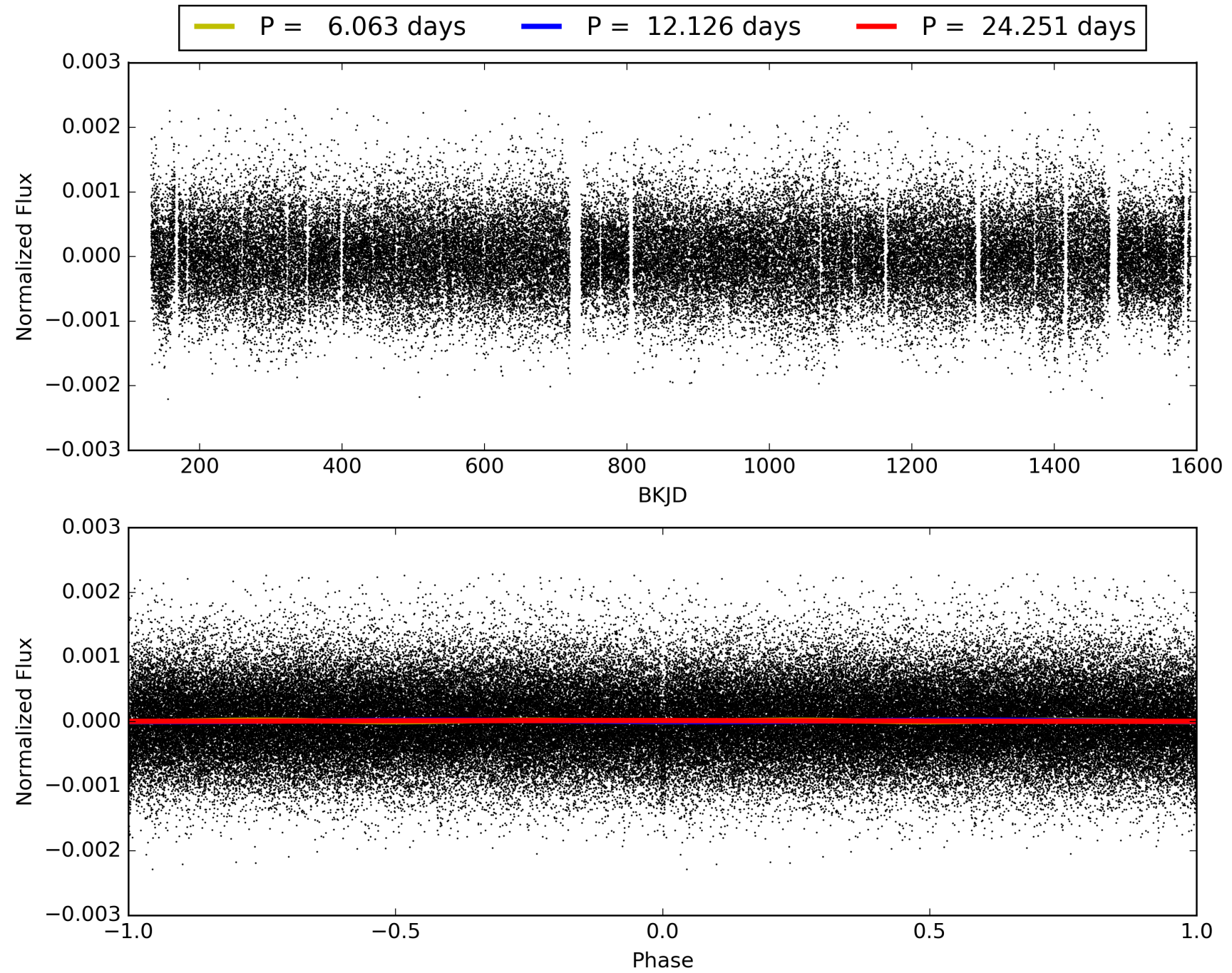
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:46:42 Z

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

TCE 010723367-02, PDC Light Curves

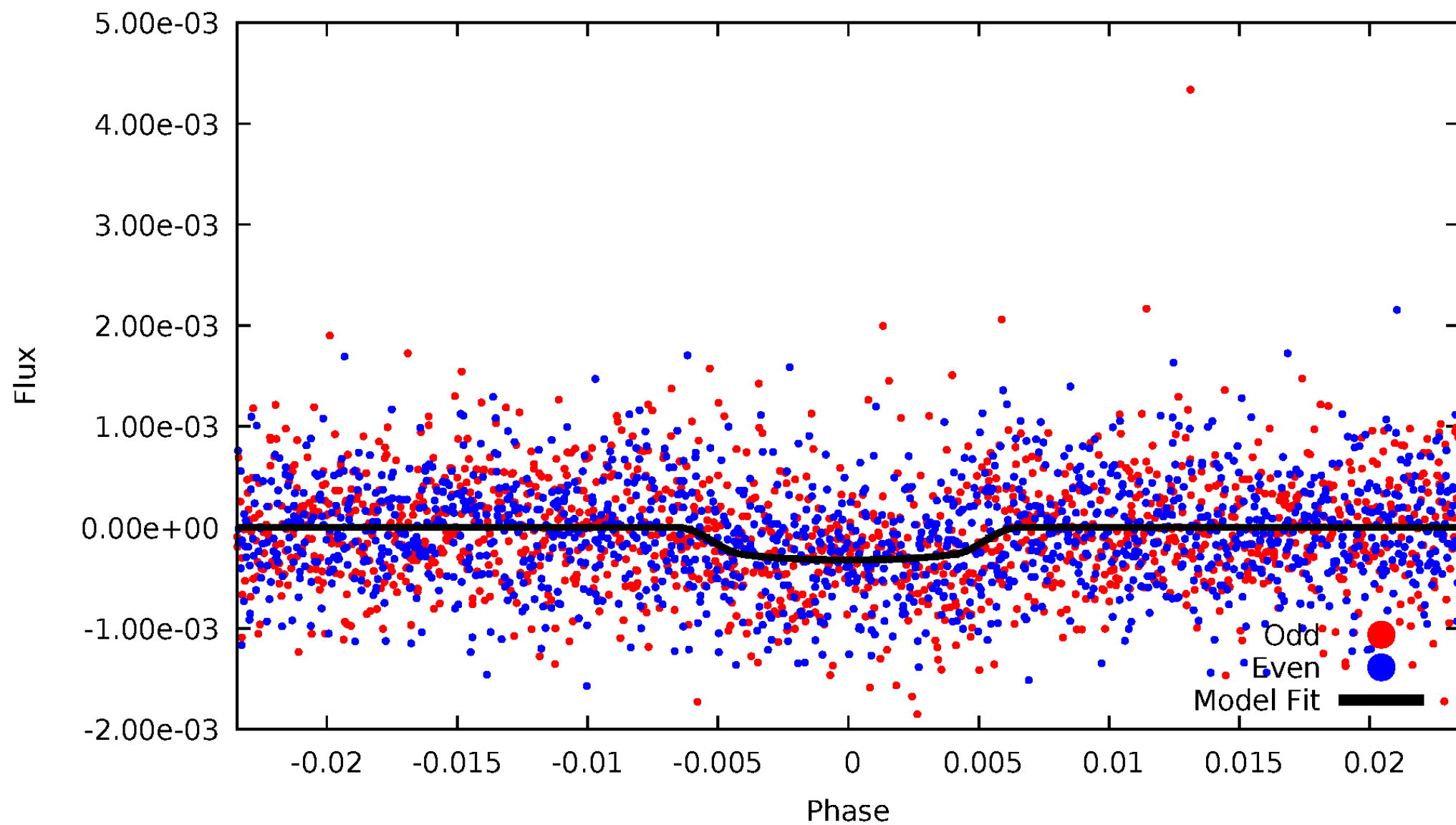


TCE 010723367-02



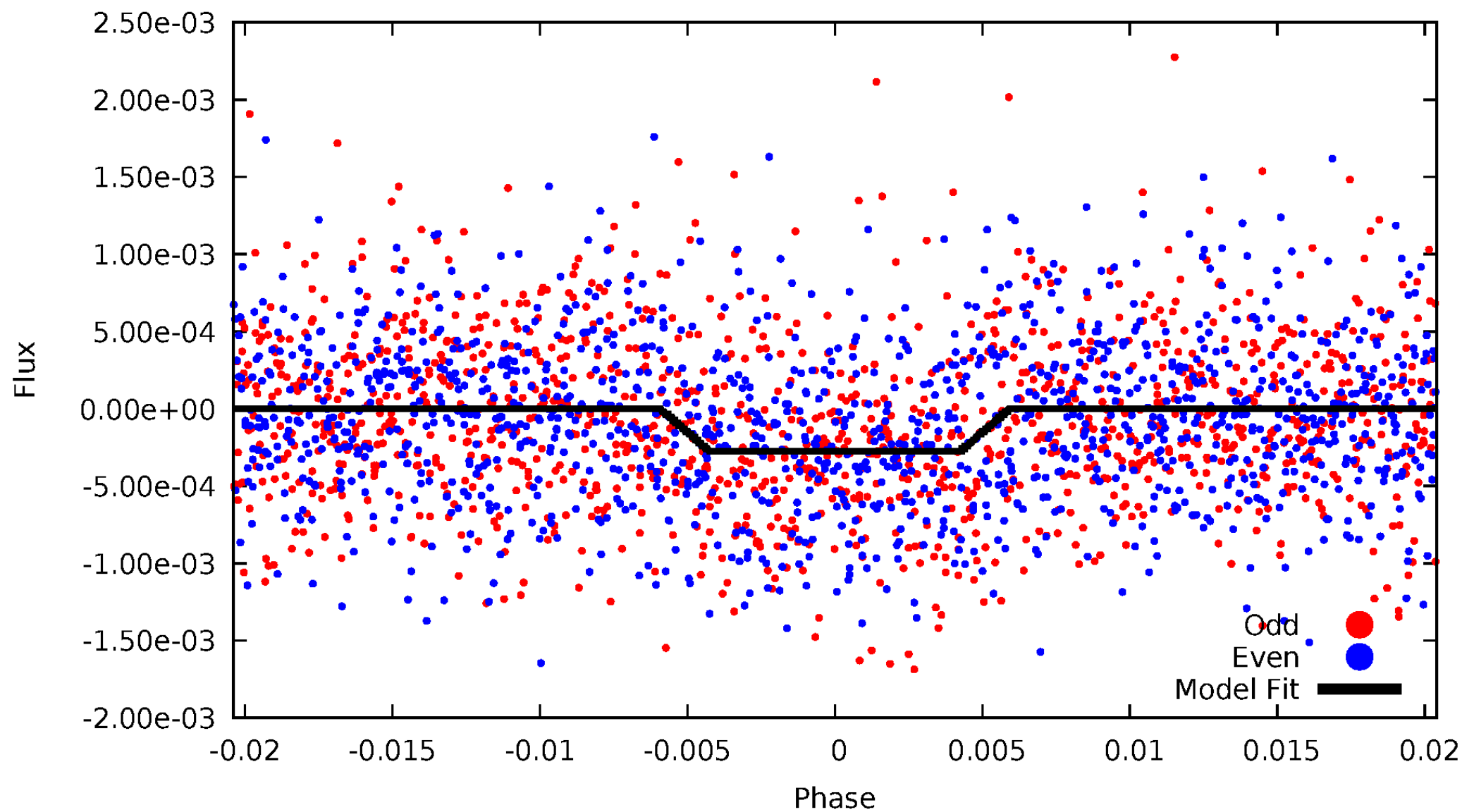
DV Odd/Even

TCE 010723367-02



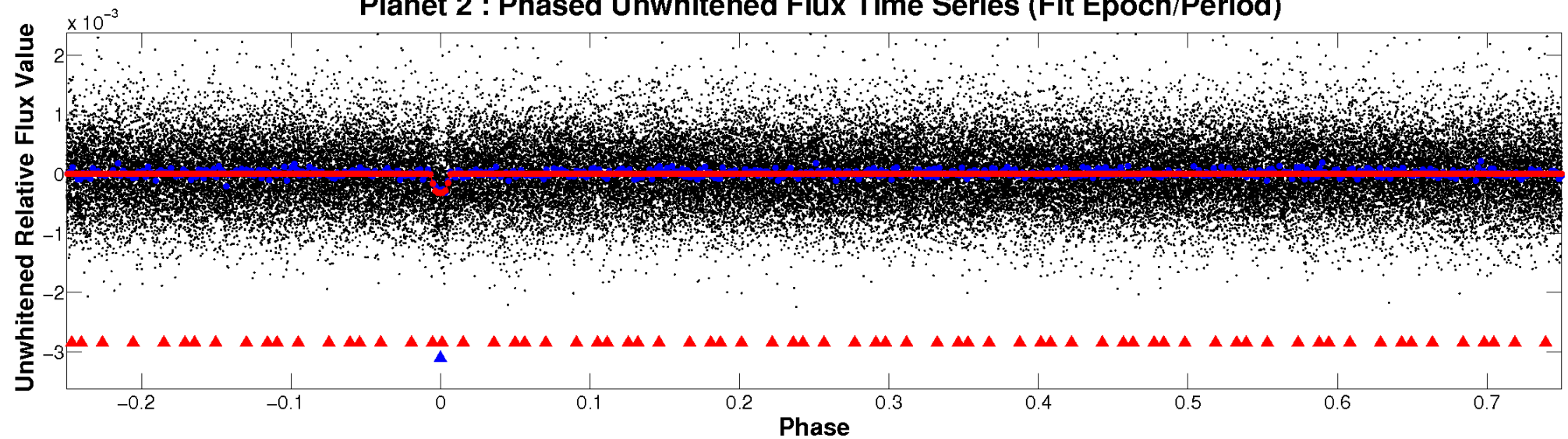
ALT Odd/Even

TCE 010723367-02

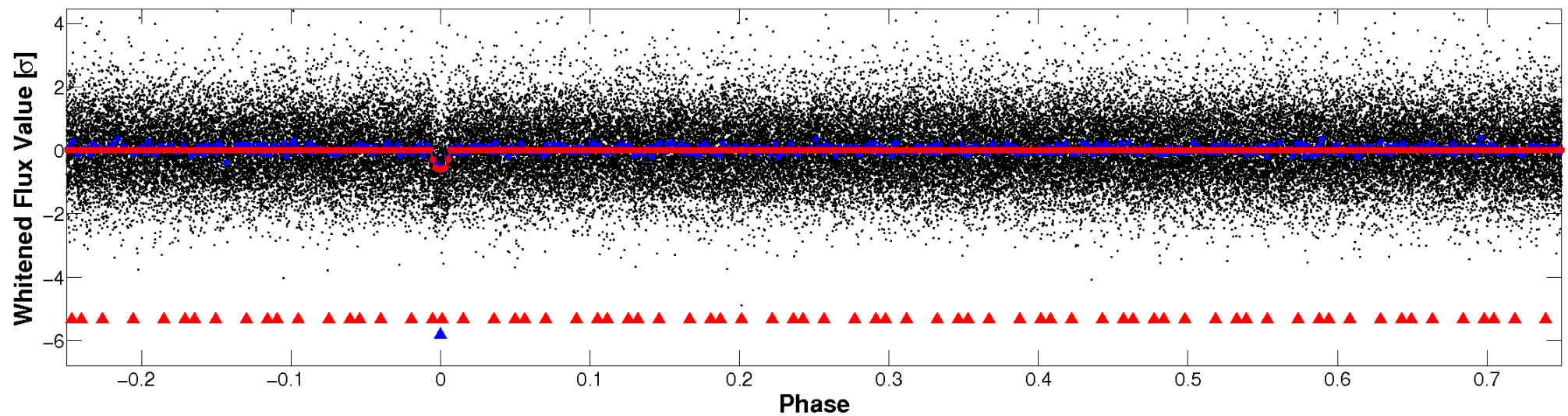


Non-Whitened Vs. Whitened Light Curve

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

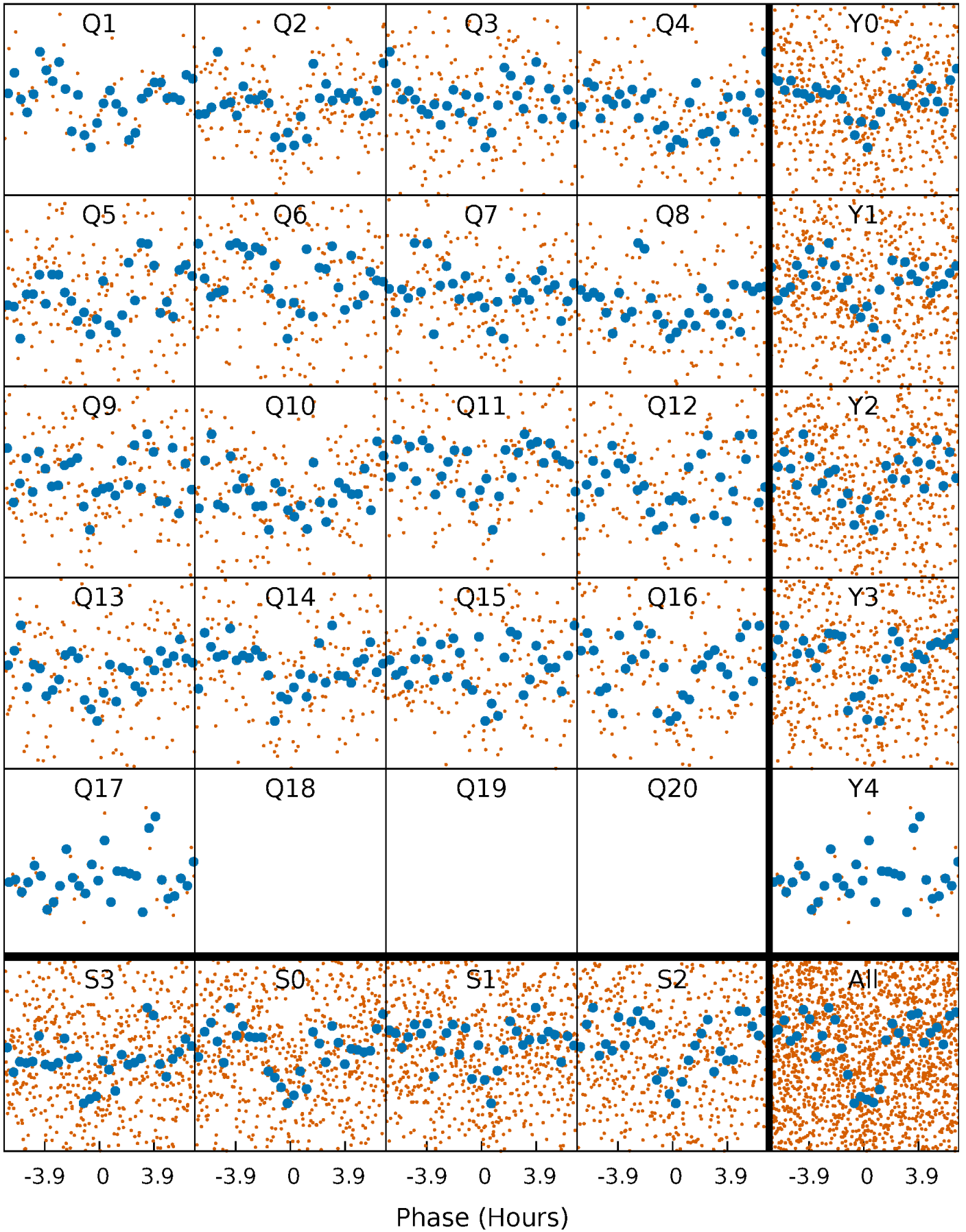


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



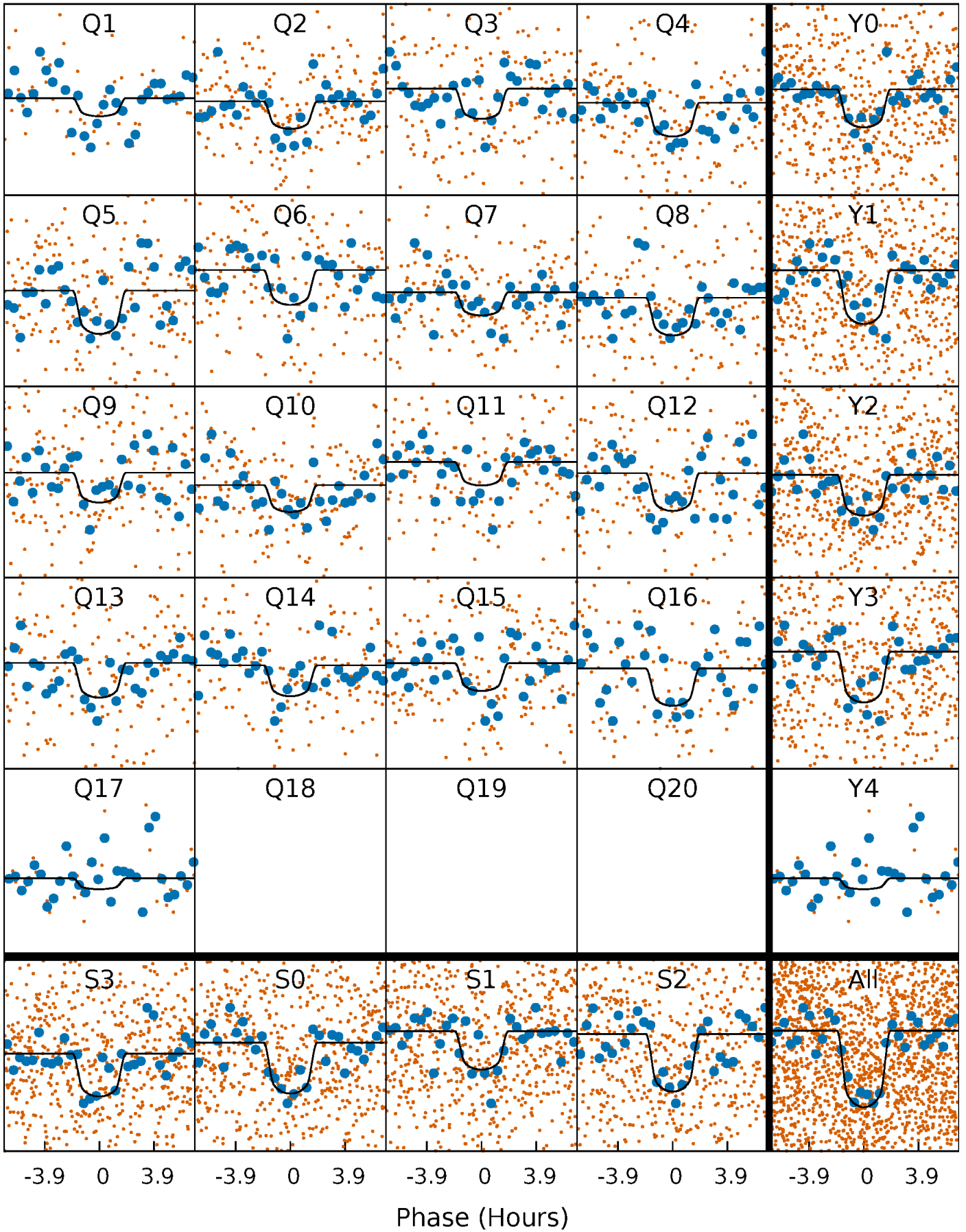
PDC Quarter-Phased Transit Curves

TCE 010723367-02 P= 12.125742 Days $T_0=142.112689$ (BKJD)



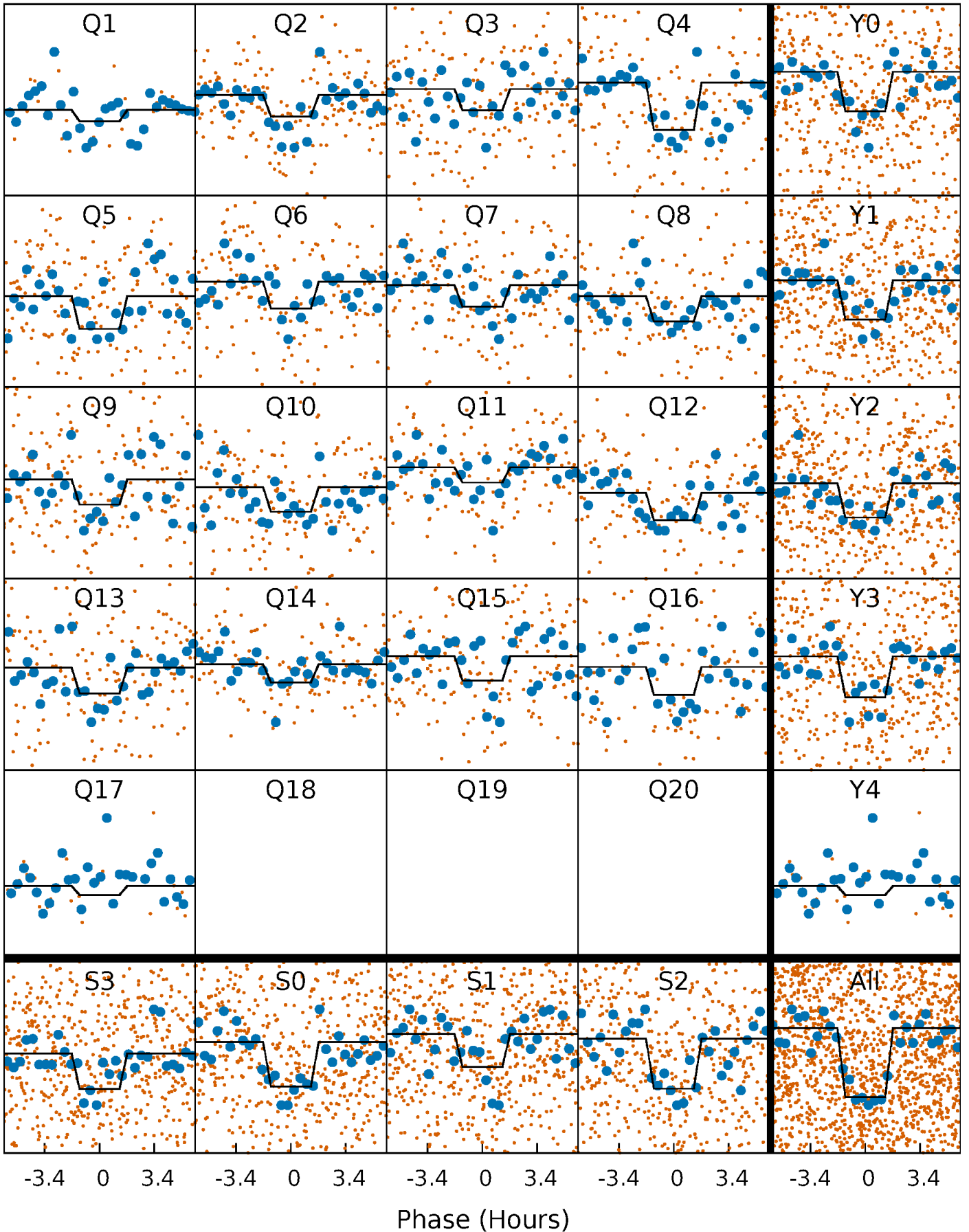
DV Quarter-Phased Transit Curves

TCE 010723367-02 P= 12.125742 Days $T_0=142.112689$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

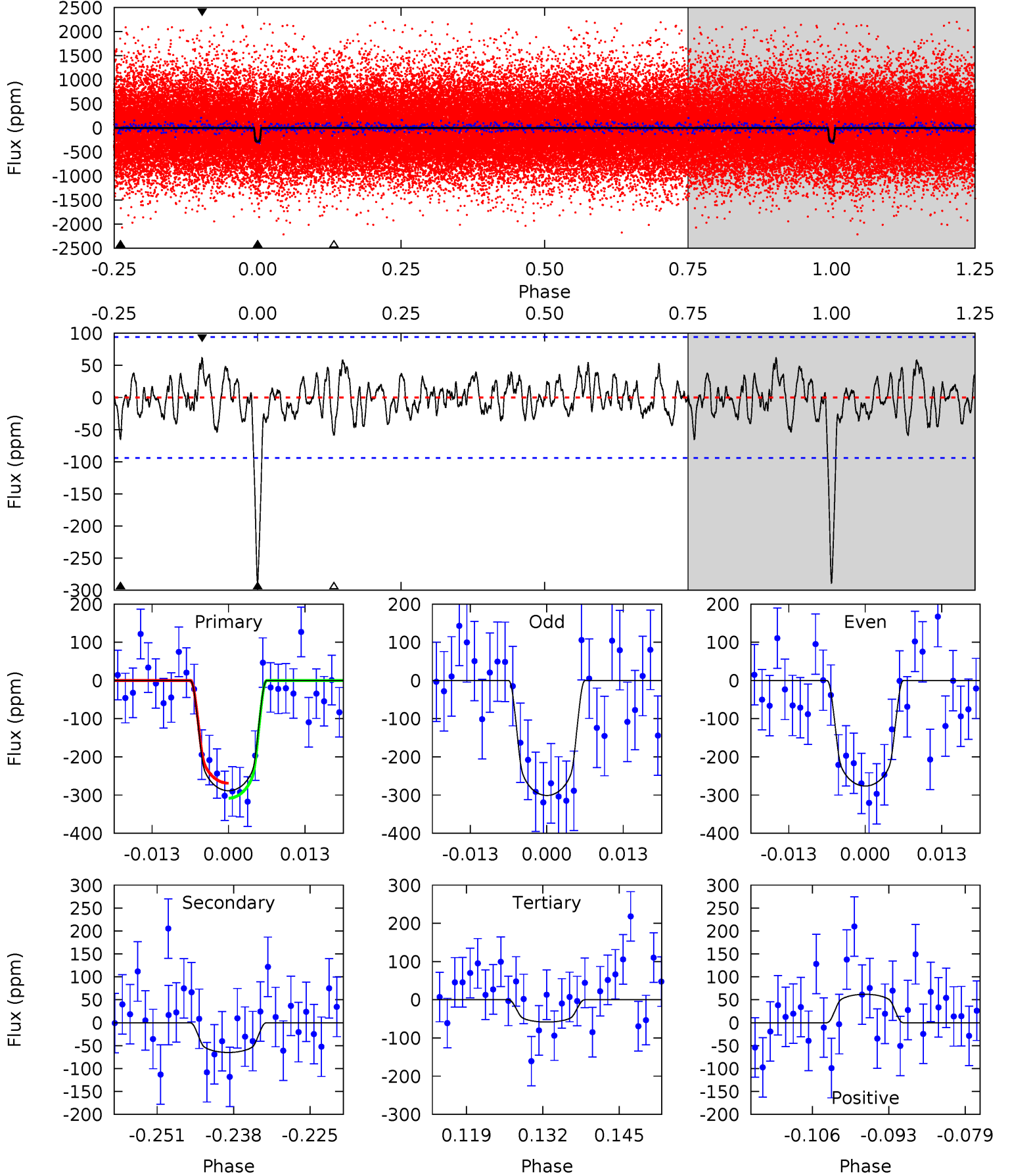
TCE 010723367-02 P= 12.125735 Days $T_0=142.112595$ (BKJD)



DV Model-Shift Uniqueness Test

010723367-02, P = 12.125742 Days, E = 129.986947 Days

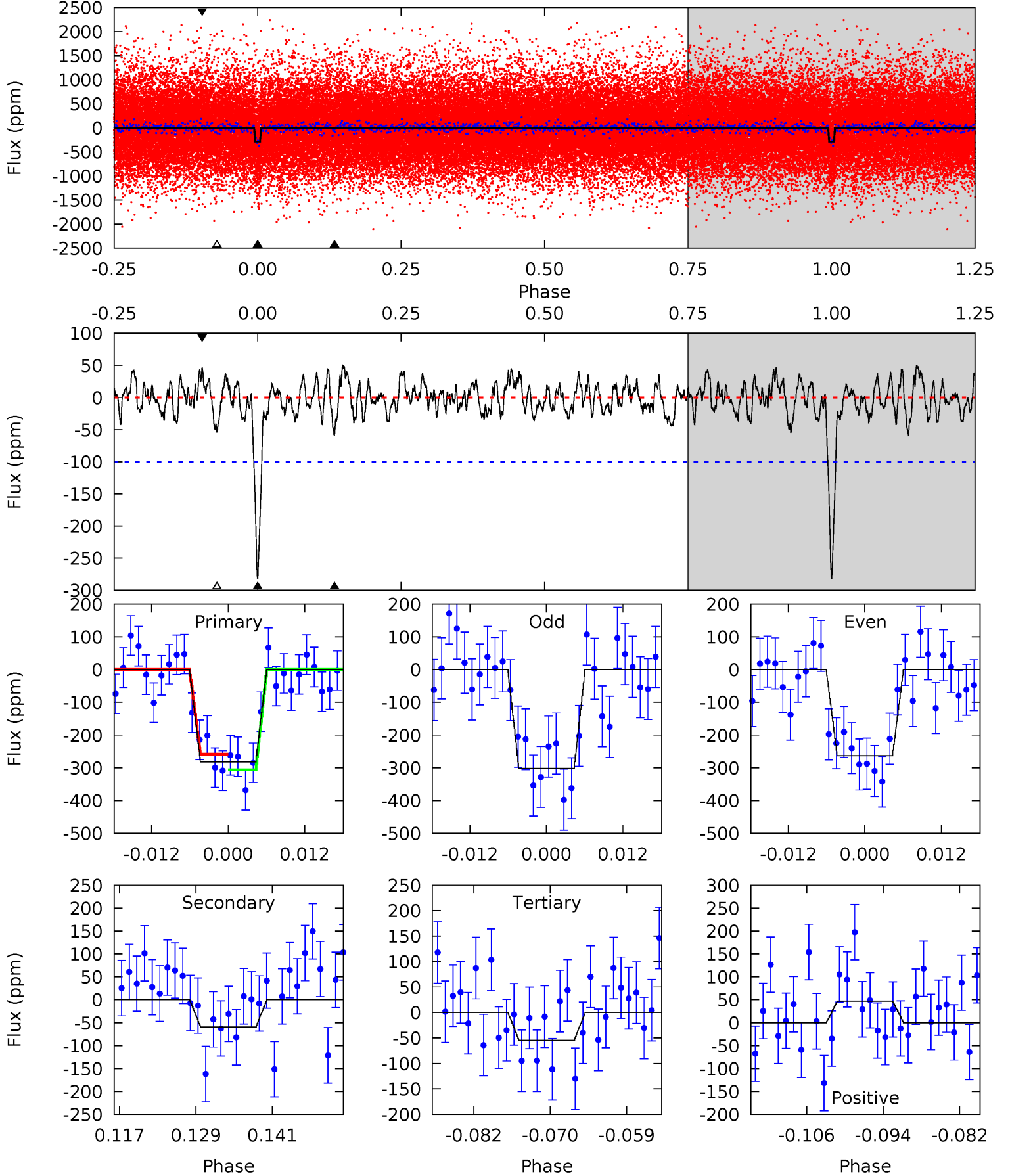
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	3.43	3.09	3.27	4.97	2.48	1.19	12.2	12.0	0.35	0.16	0.65	0.93	0.18	1.04



Alt Model-Shift Uniqueness Test

010723367-02, P = 12.125735 Days, E = 129.986860 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	2.96	2.72	2.35	5.00	2.52	1.00	11.4	11.8	0.24	0.62	0.96	0.90	0.15	1.19



Stellar Parameters For KIC 010723367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5500^{+82}_{-71}	$4.218^{+0.195}_{-0.120}$	$0.140^{+0.150}_{-0.100}$	$1.238^{+0.202}_{-0.247}$	$0.922^{+0.066}_{-0.039}$	$0.685^{+0.689}_{-0.237}$
	+1%/-1%	+5%/-3%	+107%/-71%	+16%/-20%	+7%/-4%	+101%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 010723367-02 / KOI 2236.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-65 ± 19	$2.55^{+1.11}_{-1.00}$	1181^{+59}_{-70}	3861^{+823}_{-462}	55^{+98}_{-31}
Alt.	-59 ± 20	$2.29^{+1.09}_{-1.04}$	1191^{+56}_{-72}	4005^{+1039}_{-534}	64^{+152}_{-37}

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

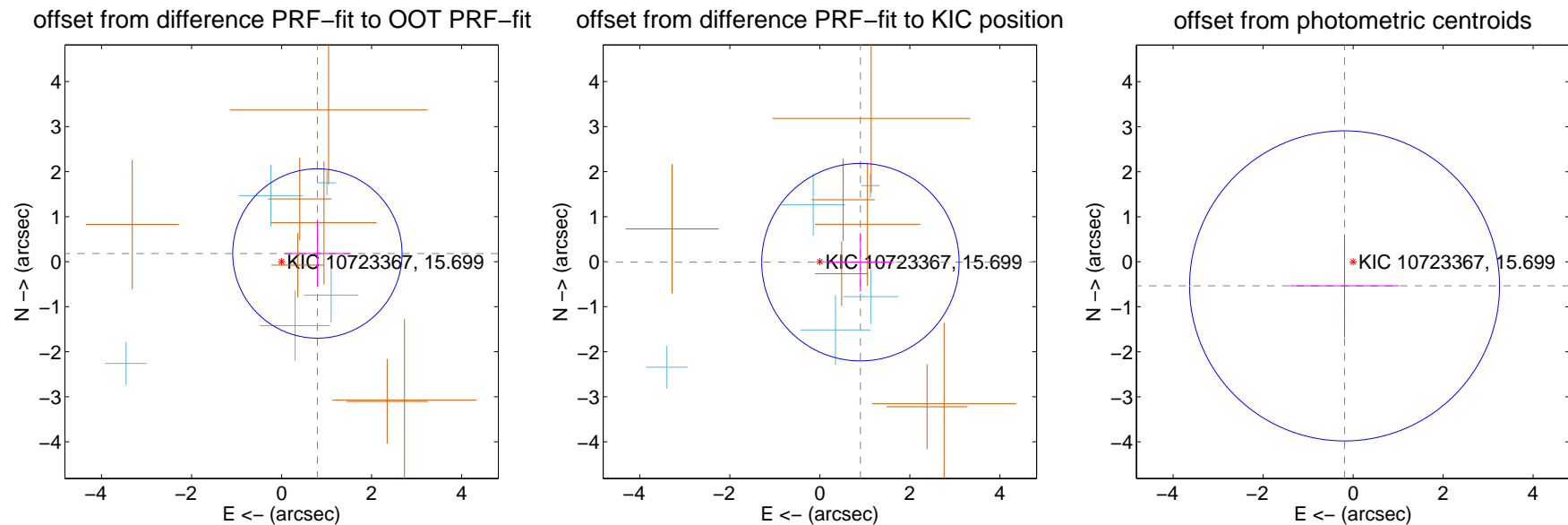
DV Centroid Data

Supplemental centroid analysis for 010723367-02. Kepler magnitude: 15.70. Transit SNR 13.40

There are 5 quarters with good PRF difference image offsets

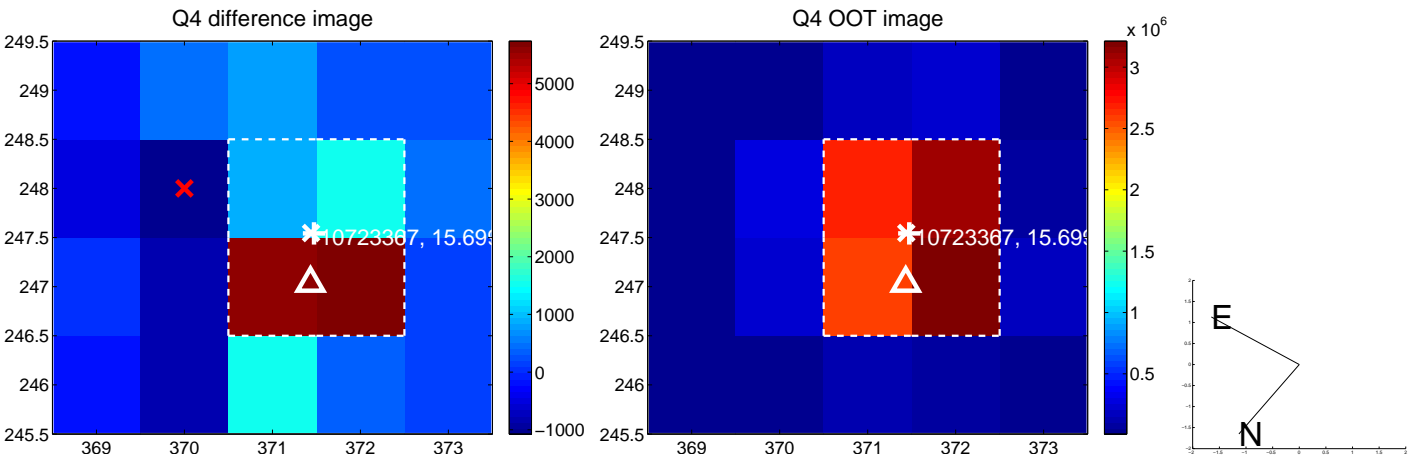
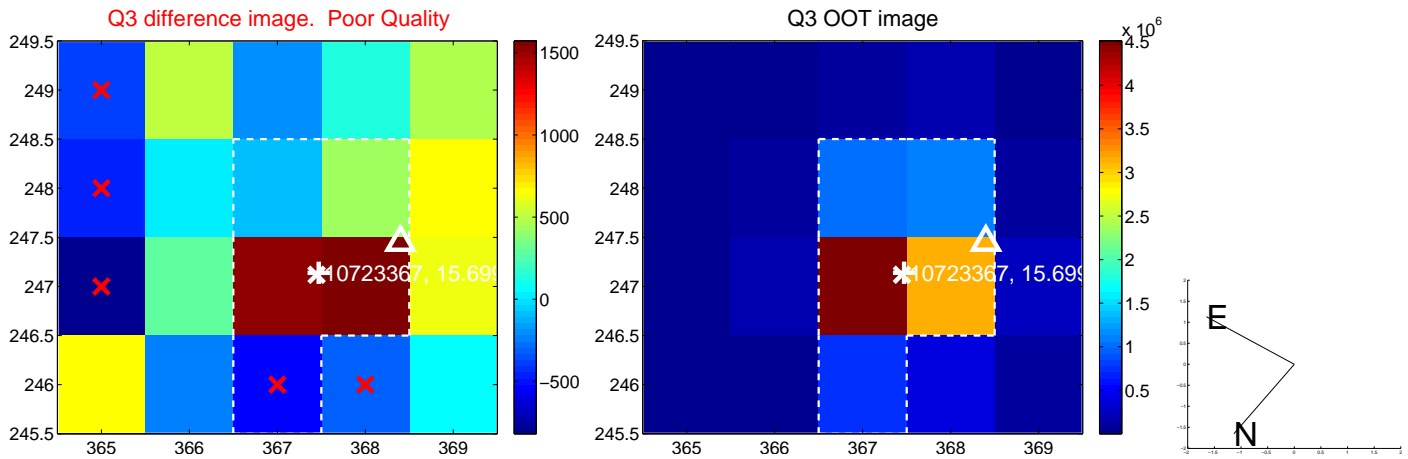
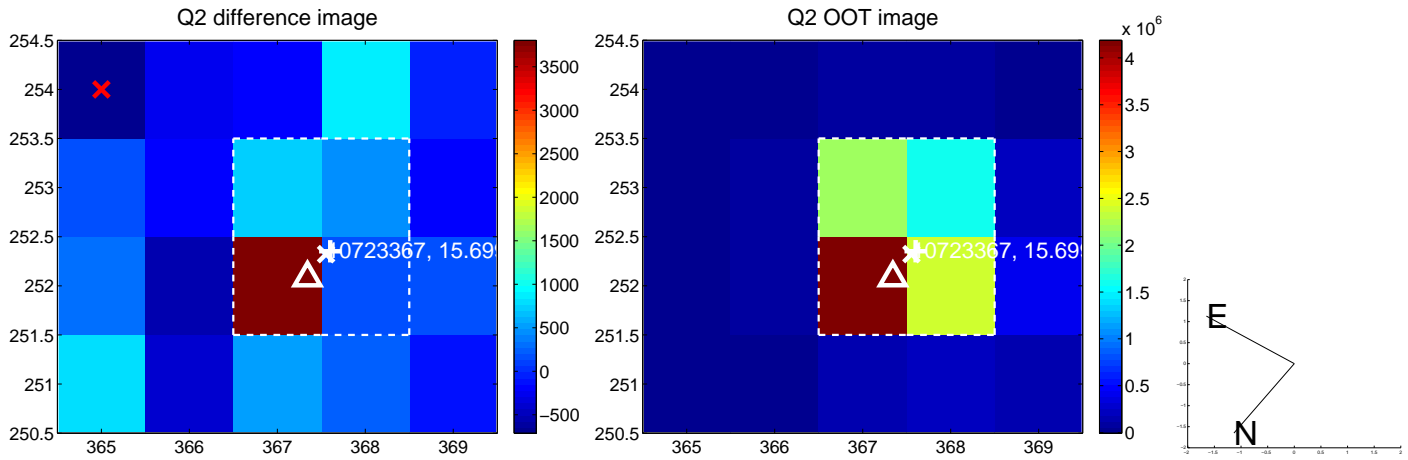
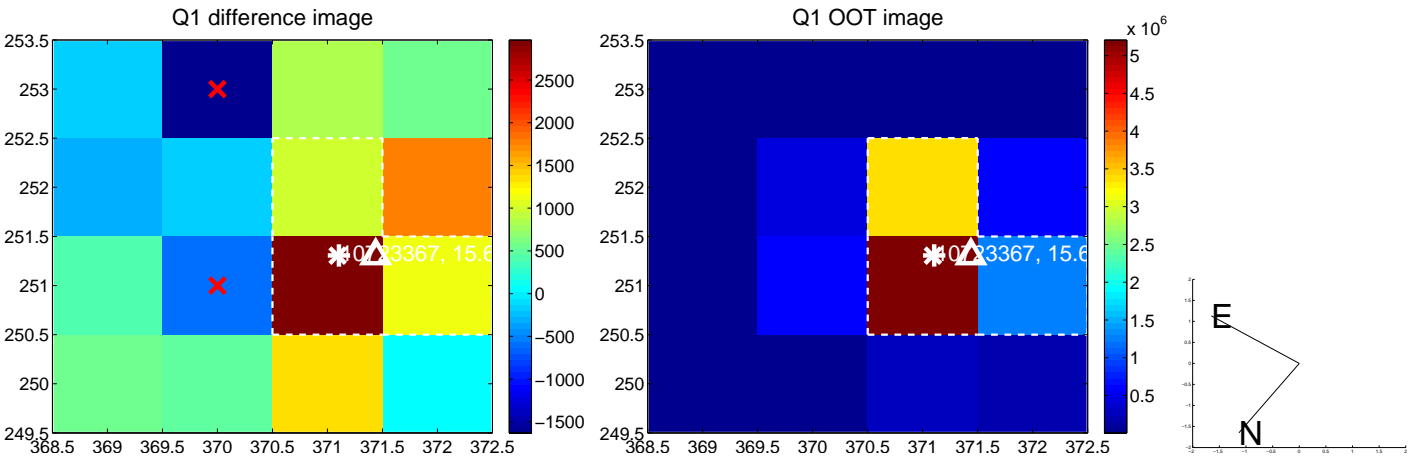
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.816 ± 0.627	1.30	-0.796 ± 0.733	0.182 ± 0.743
PRF-fit source offset from KIC position	0.902 ± 0.731	1.23	-0.902 ± 0.727	-0.010 ± 0.647
photometric centroid source offset	0.57 ± 1.15	0.49	0.19 ± 1.21	-0.54 ± 1.14

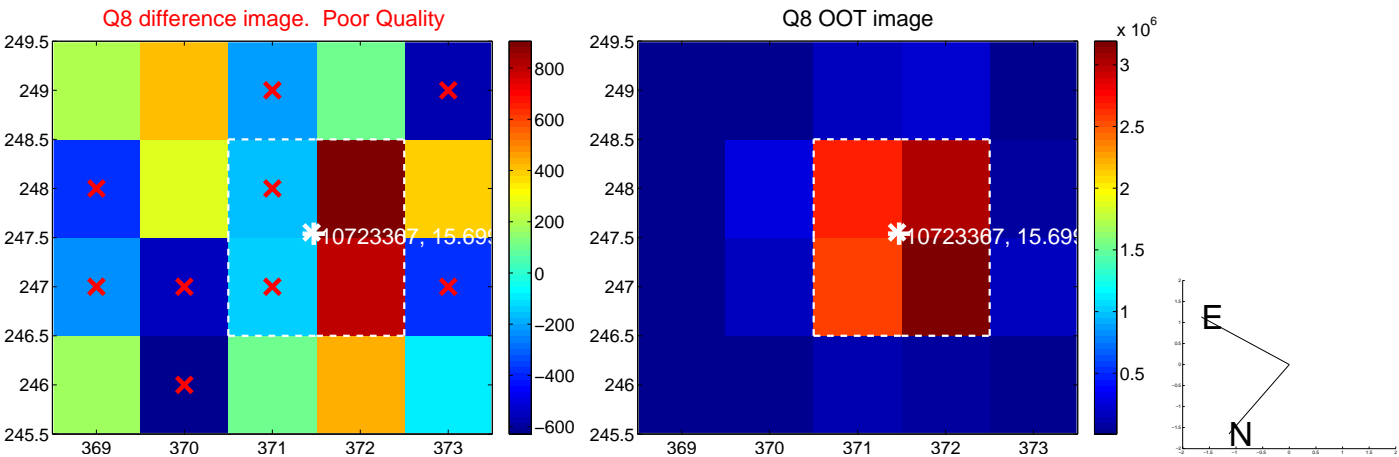
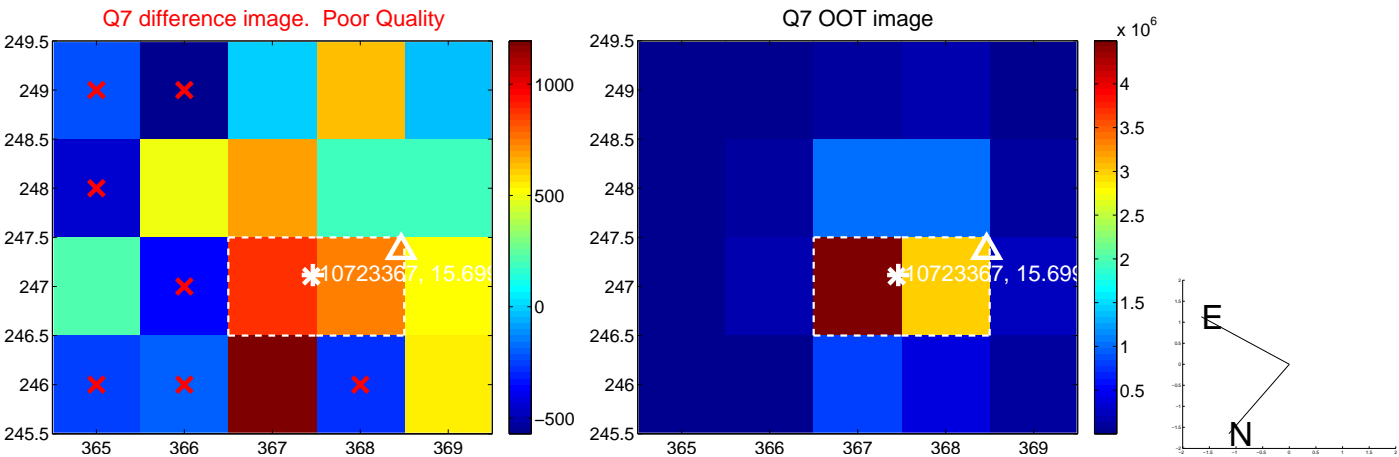
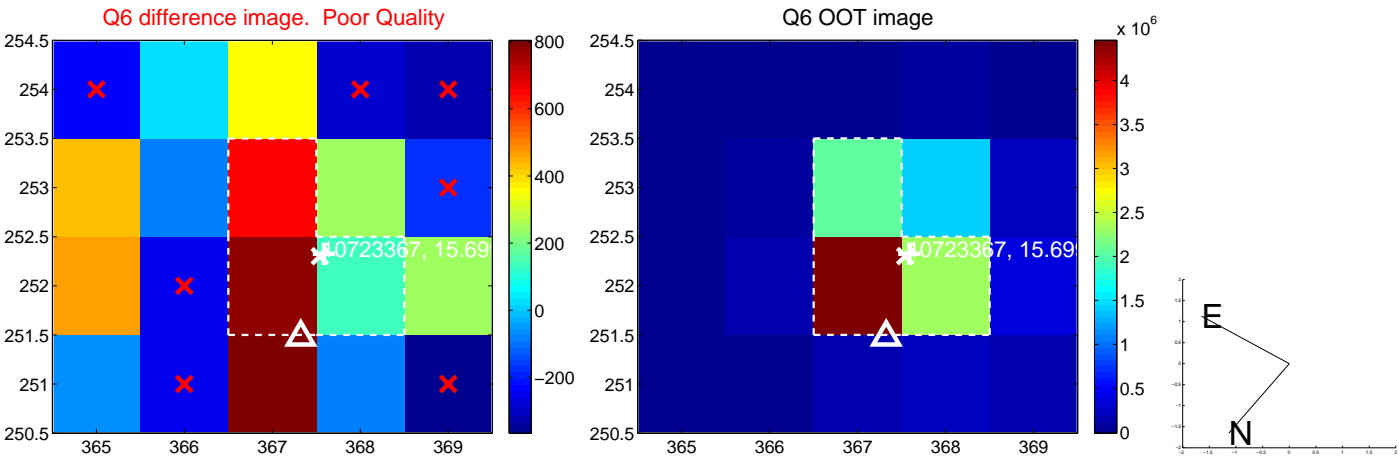
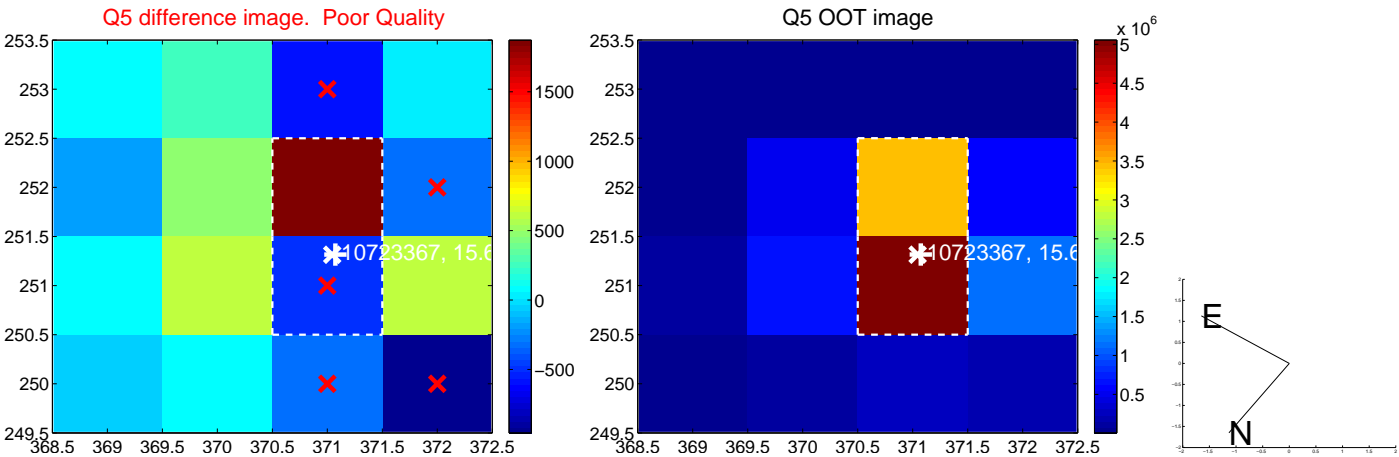


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

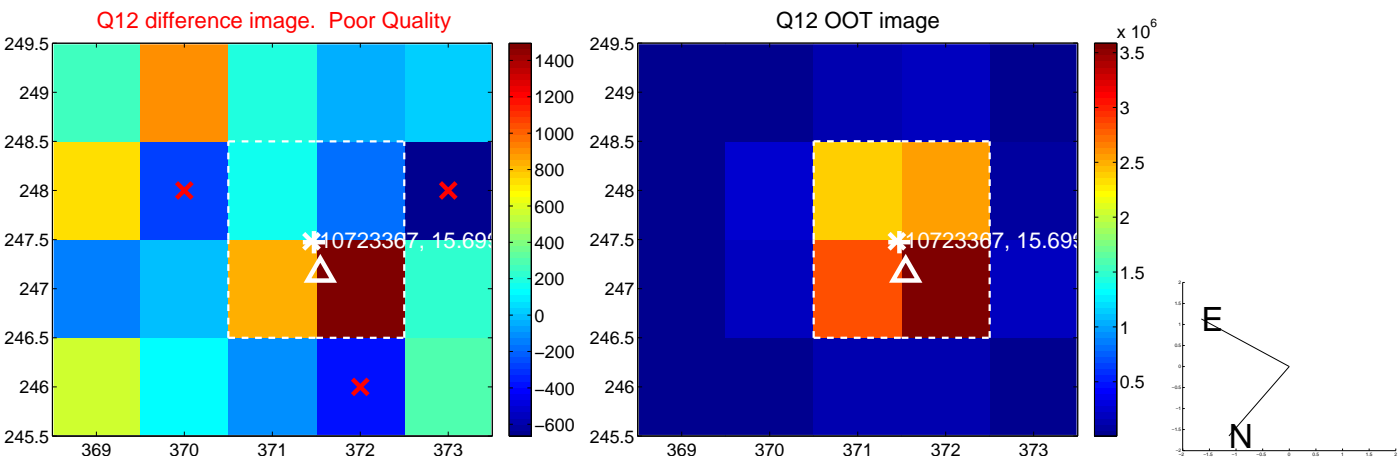
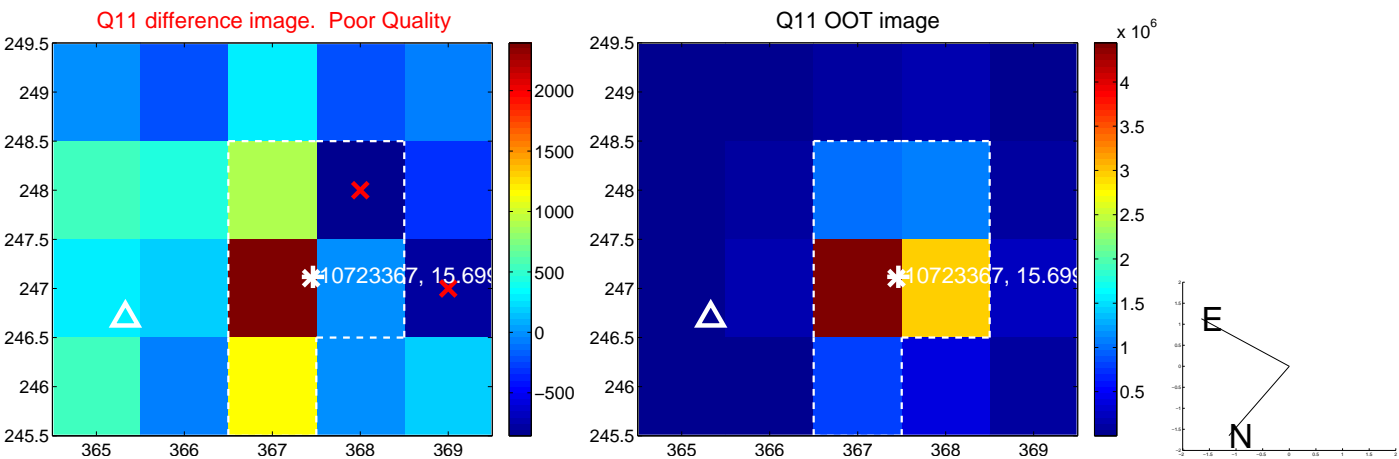
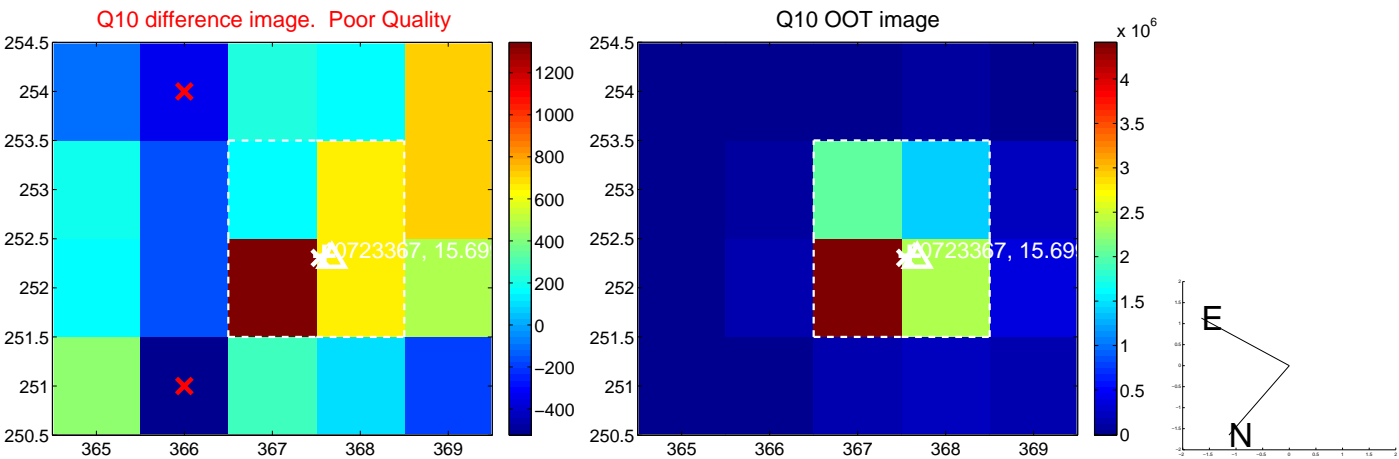
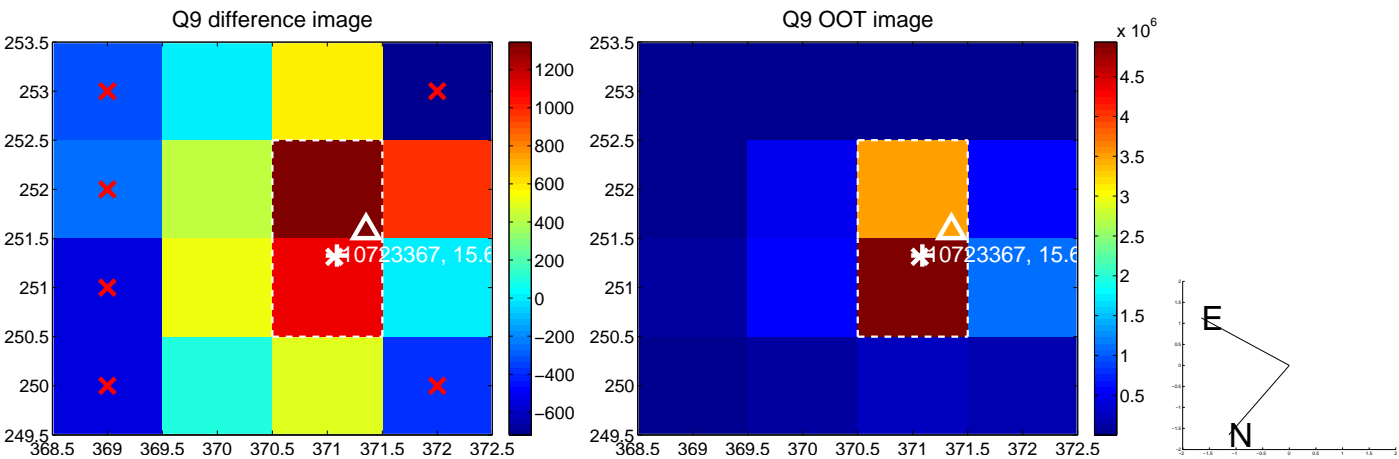
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



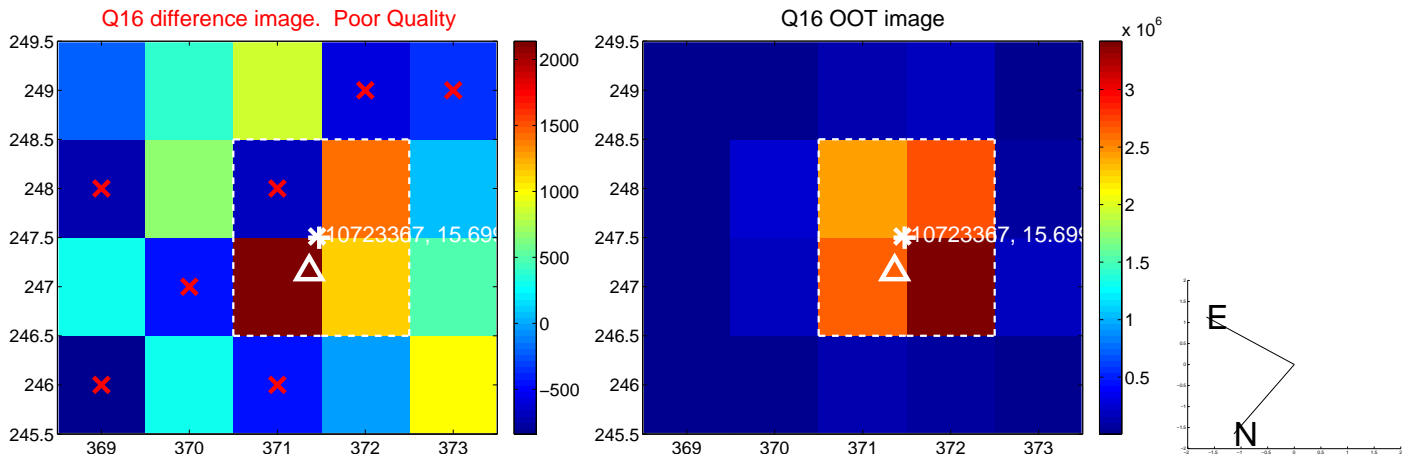
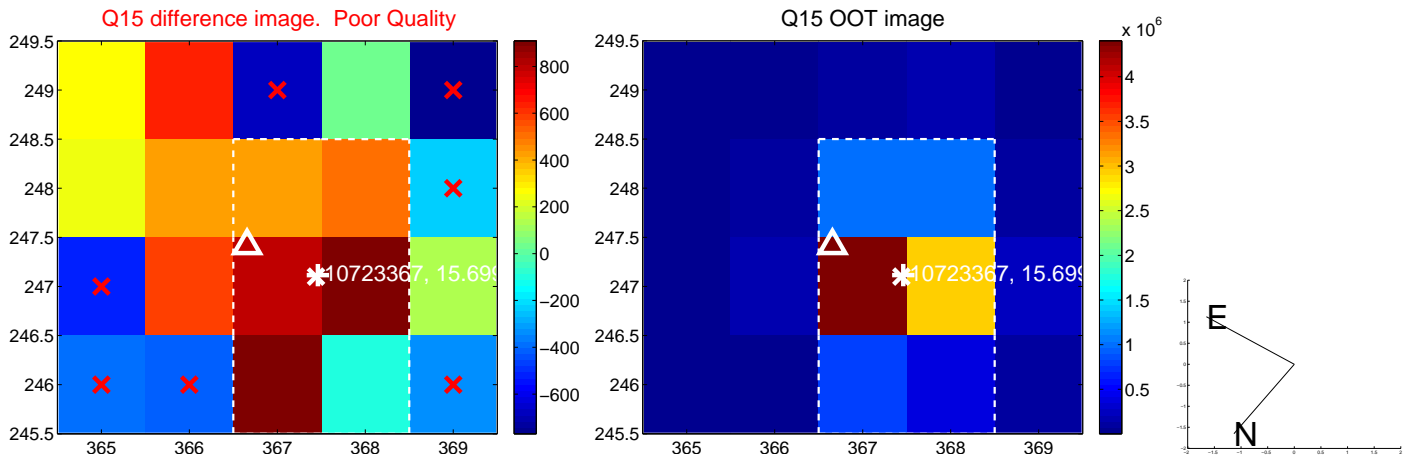
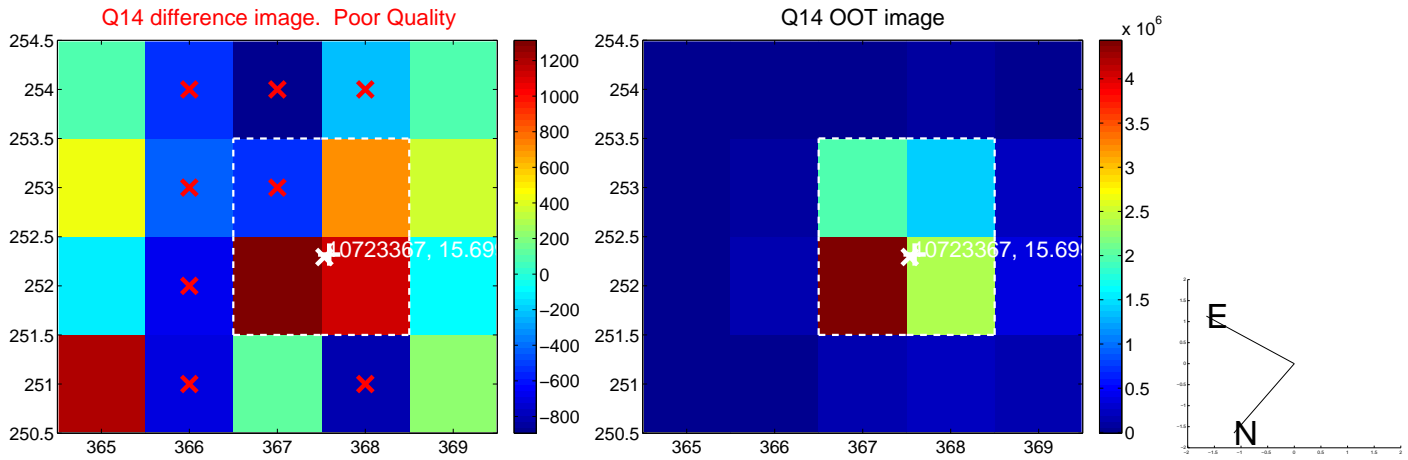
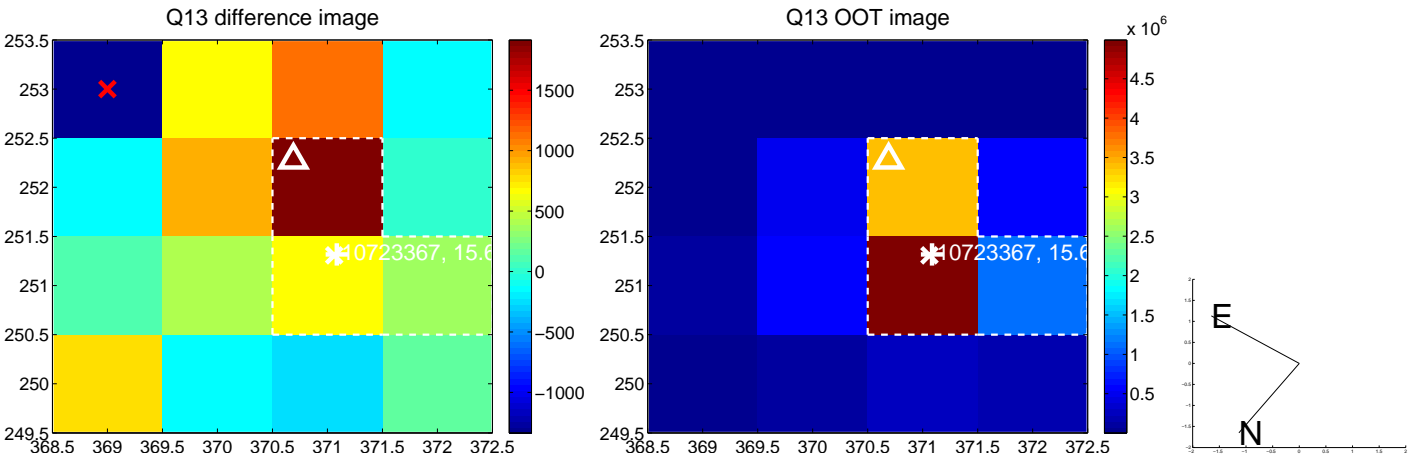
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



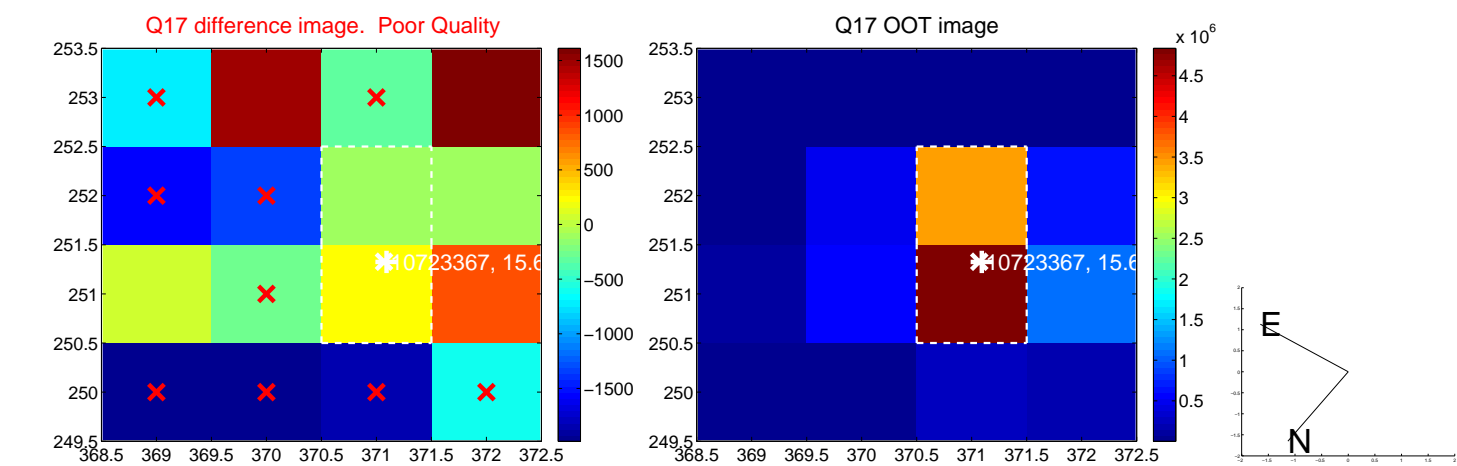
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



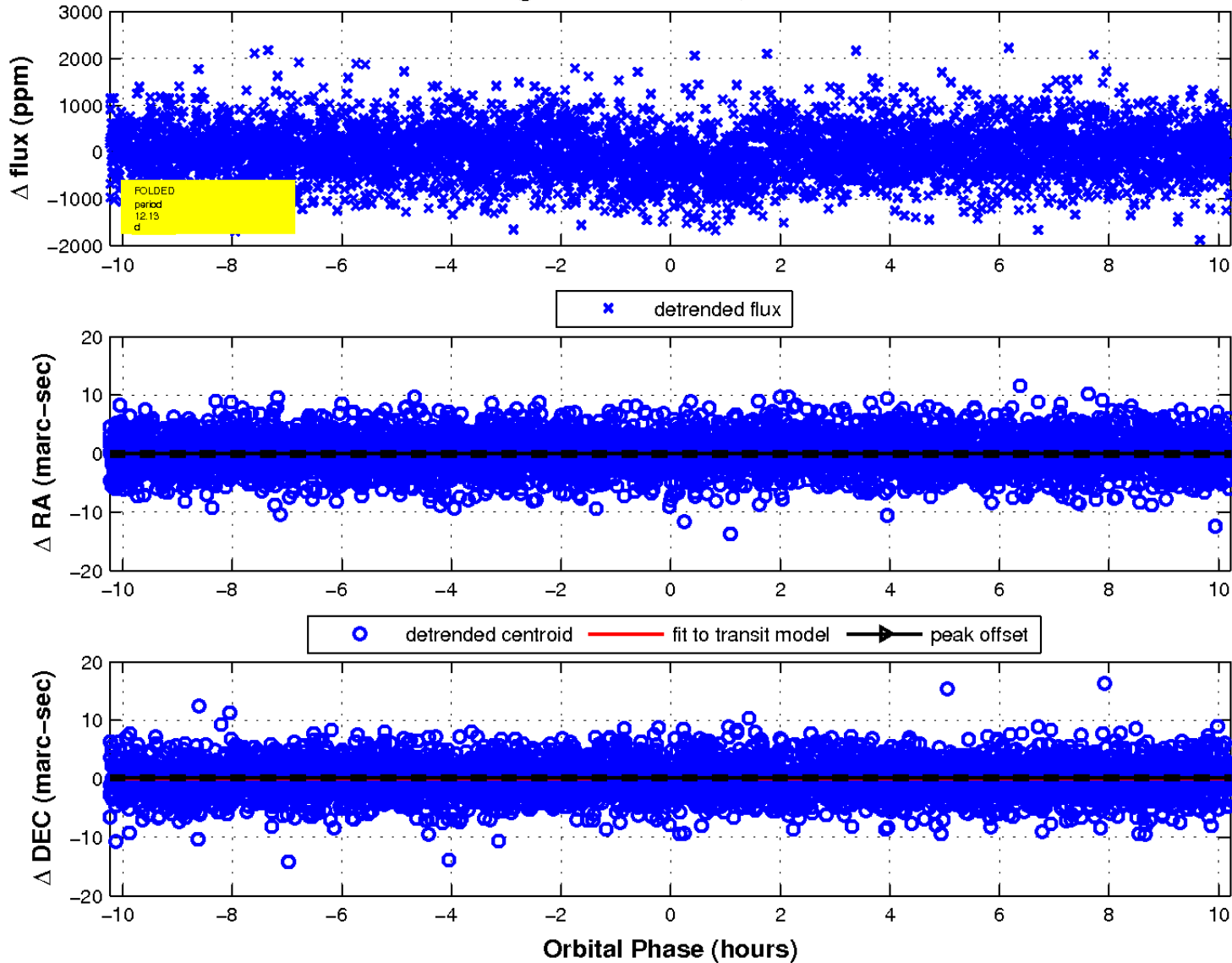
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

