

KIC 005370023

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})
005370023-01	OBS	No	5.922173	134.504824	18.0	19.461	8.4	4.2	3.60	6773	1.78	4087.88
005370023-02	OBS	No	5.921868	131.976432	0.0	36.576	9.4	0.0	3.60	6773	0.01	4088.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005370023-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005370023-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

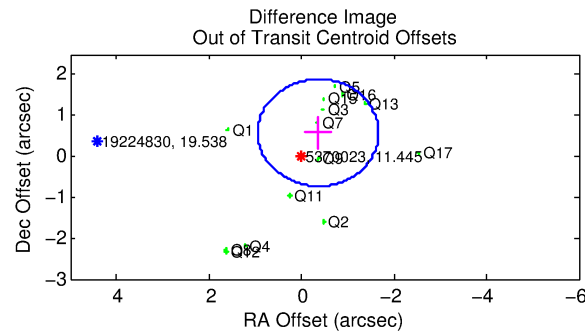
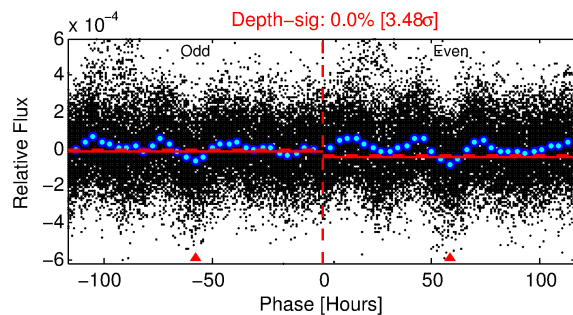
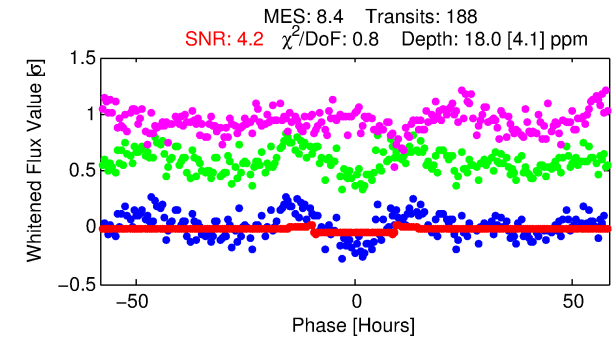
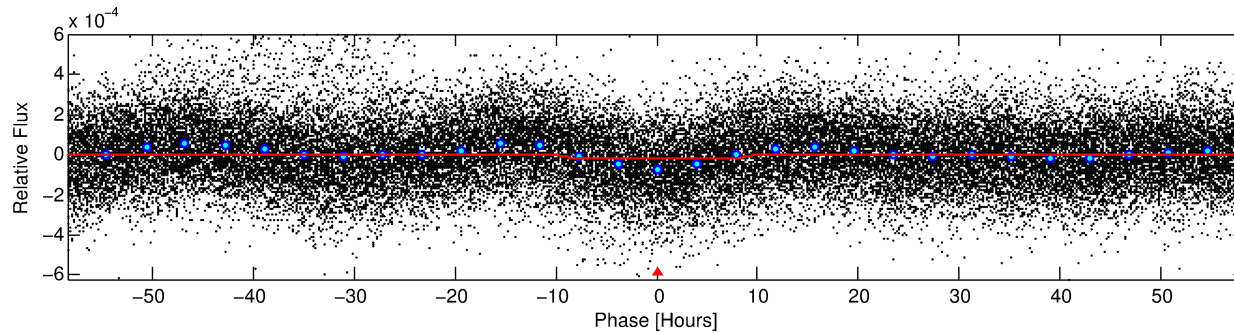
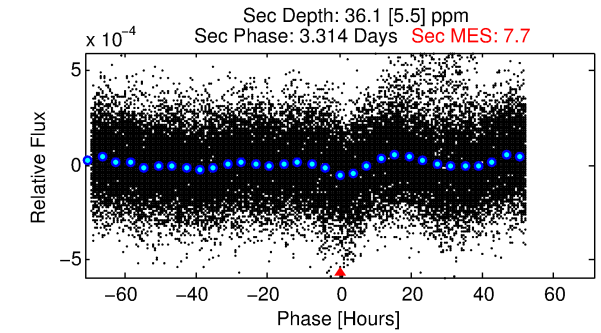
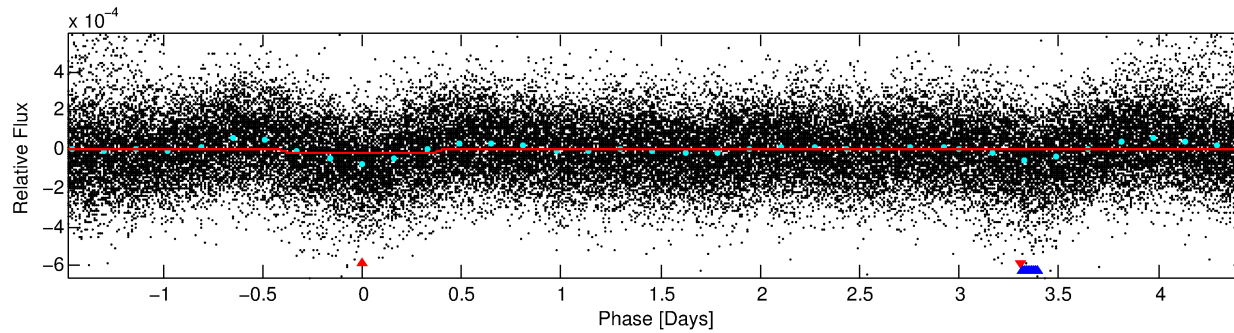
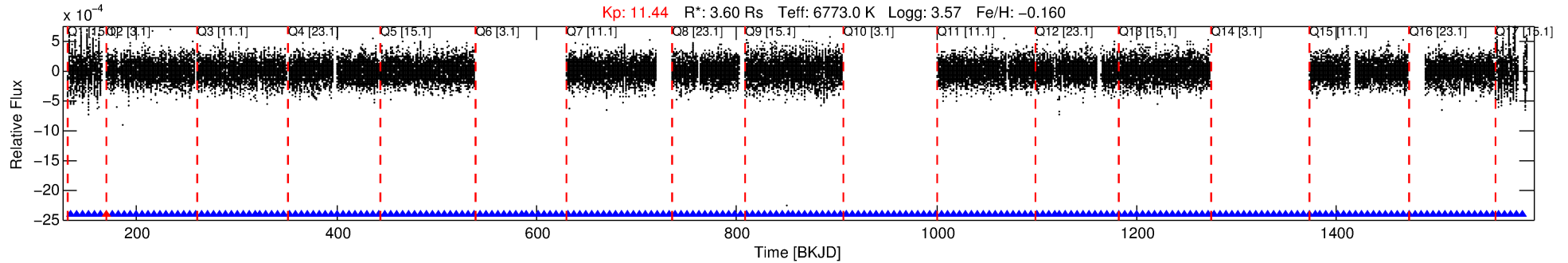
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005370023-01

No Significant Match Found

DV One-Page Summary

KIC: 5370023 Candidate: 1 of 2 Period: 5.922 d



DV Fit Results:

Period = 5.92217 [0.00015] d
Epoch = 134.5048 [0.0162] BKJD
 R_p/R^* = 0.0045 [0.0007]
 a/R^* = 1.40 [0.45]
 b = 0.90 [0.14]
 Seff = 4087.88 [2430.01]
 T_{eq} = 2039 [303] K
 R_p = 1.78 [0.76] R_e
 a = 0.0773 [0.0286] AU
 A_g = 37.57 [25.77] [1.42σ]
 T_{eff} = 7805 [733] K [7.27σ]

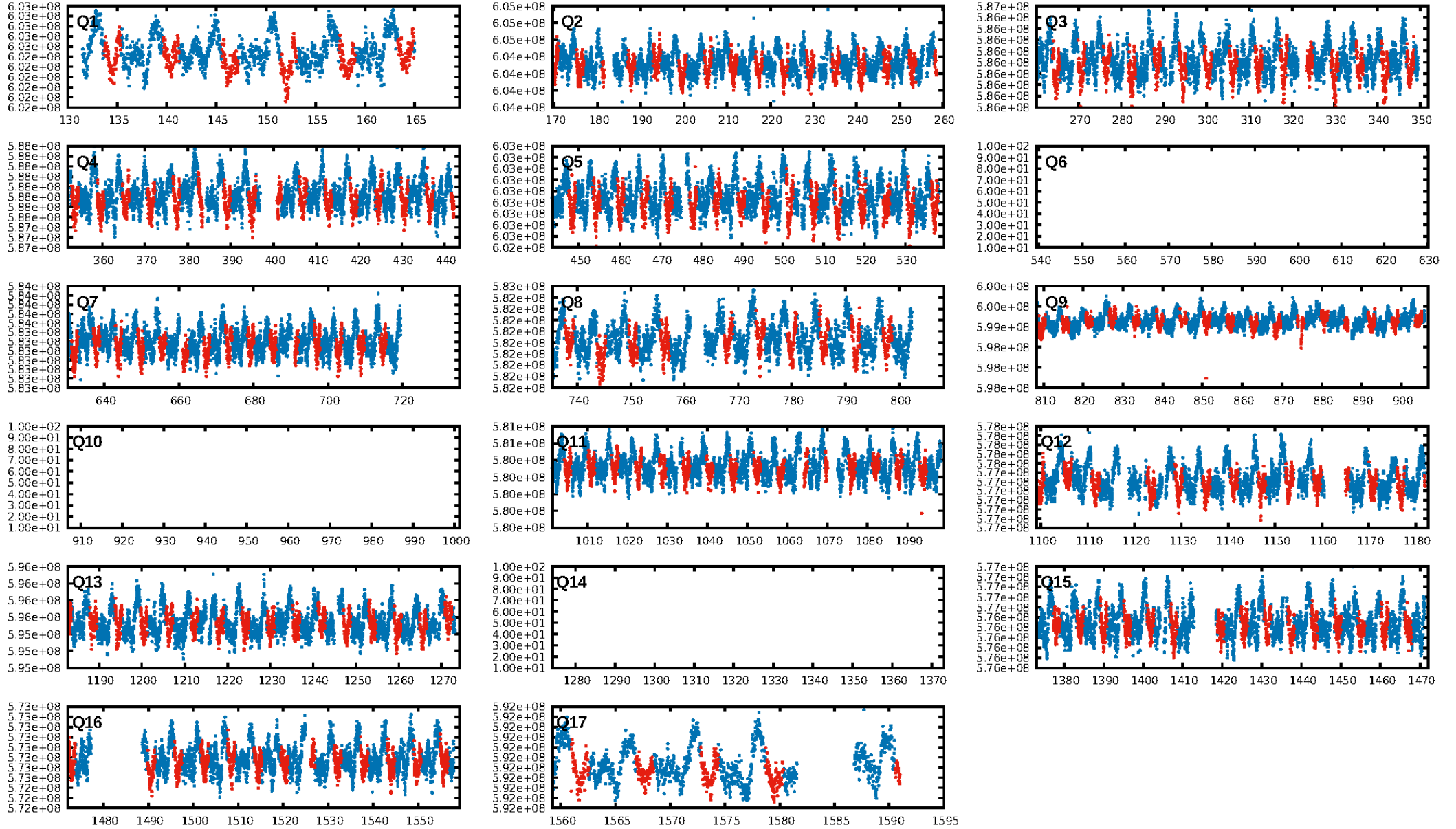
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [176/177]
GhostDiagnostic-chr: 1.074
Centroid-sig: 21.0%
Centroid-so: 0.853 arcsec [1.16σ]
OotOffset-rm: 0.683 arcsec [1.57σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 0.773 arcsec [1.76σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 1.00 [14/14]

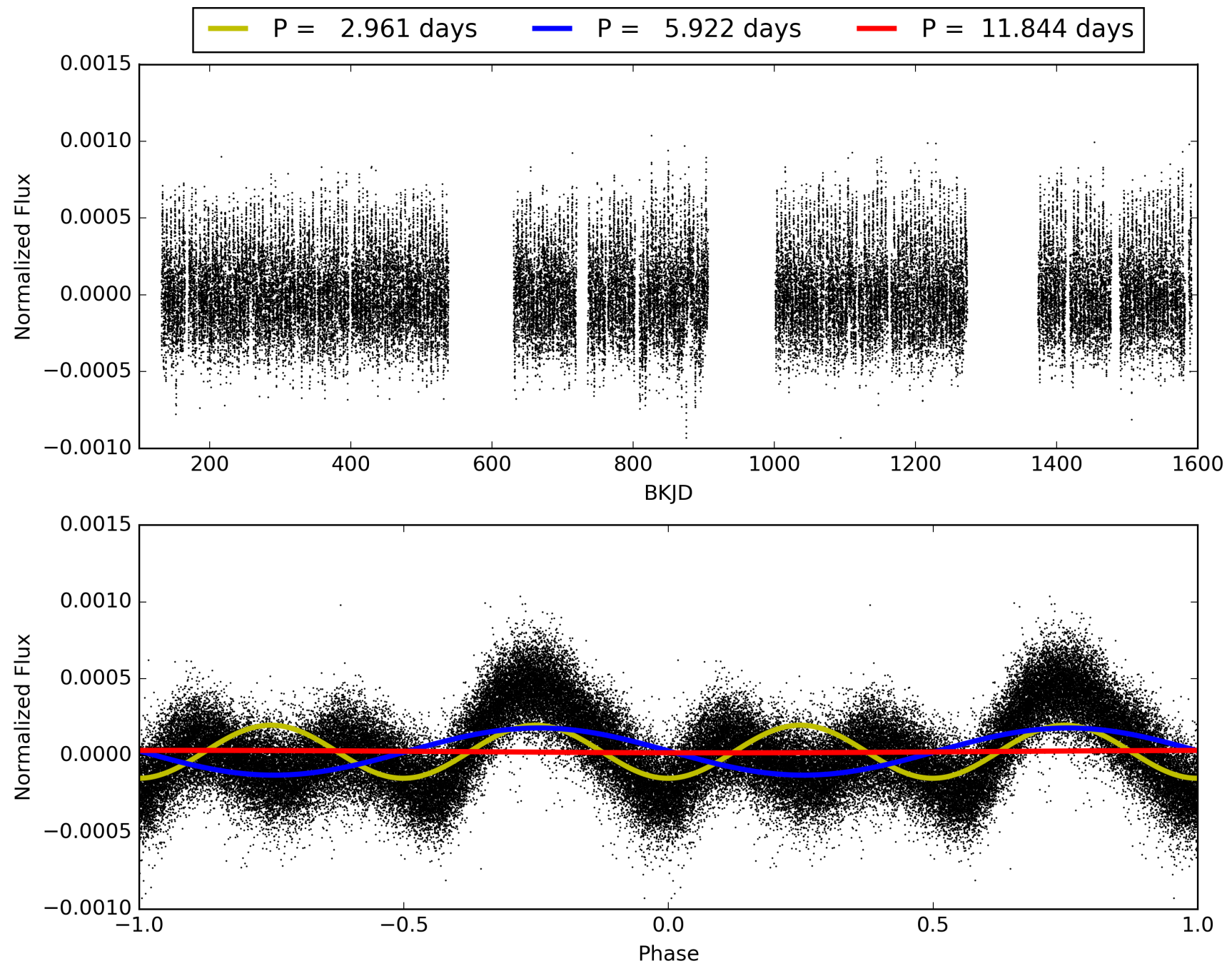
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:26:56 Z

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

TCE 005370023-01, PDC Light Curves

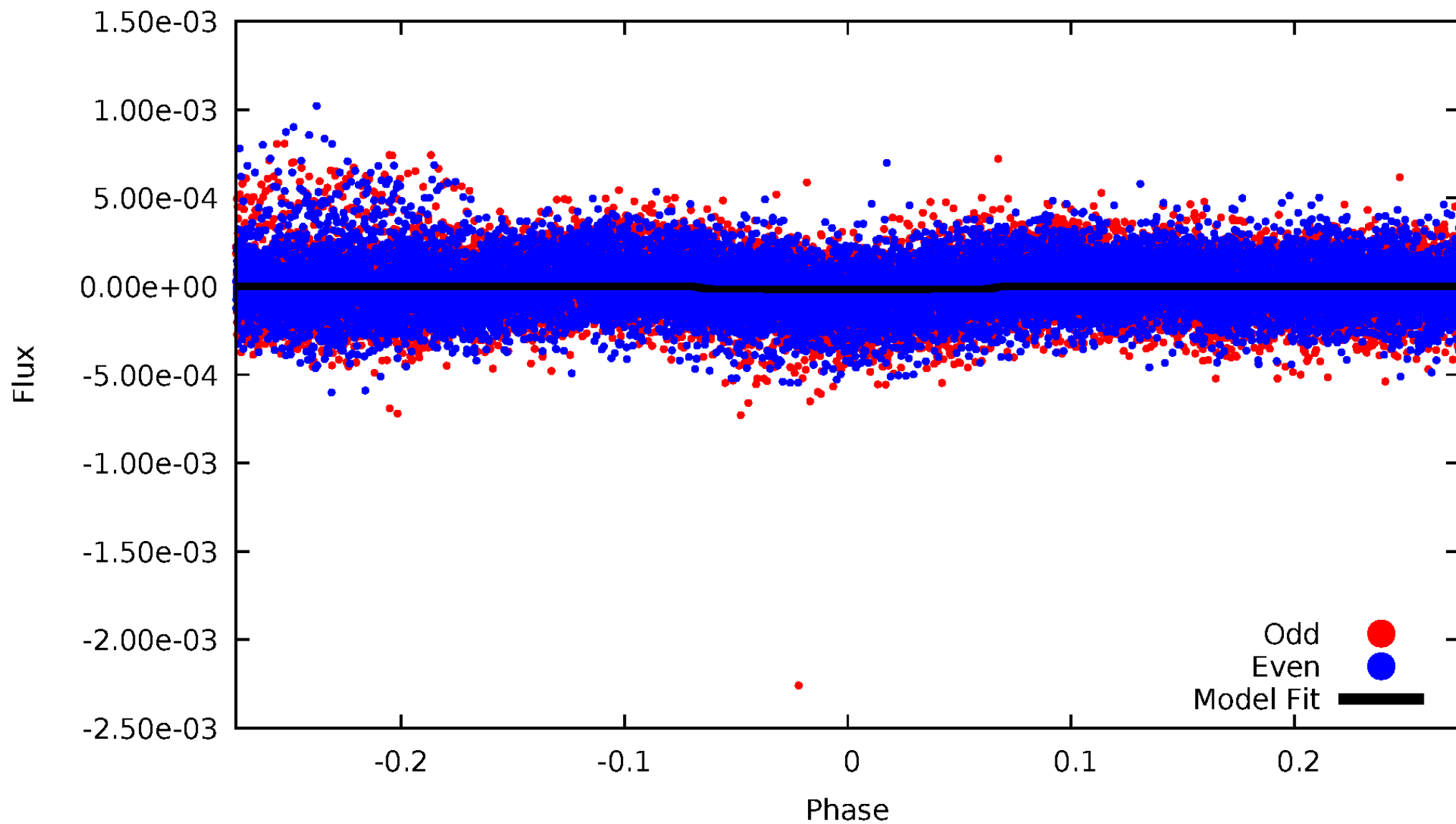


TCE 005370023-01



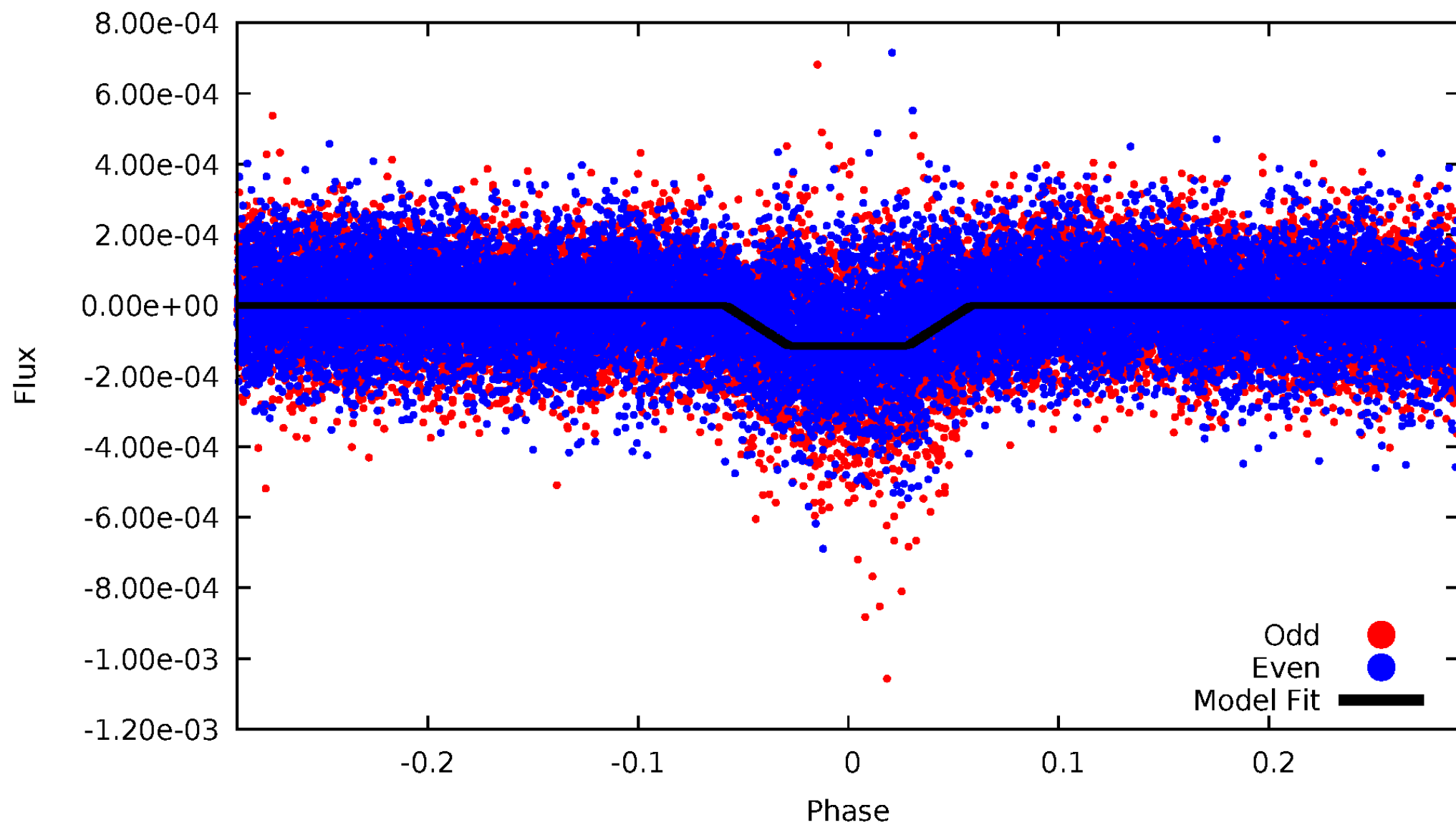
DV Odd/Even

TCE 005370023-01

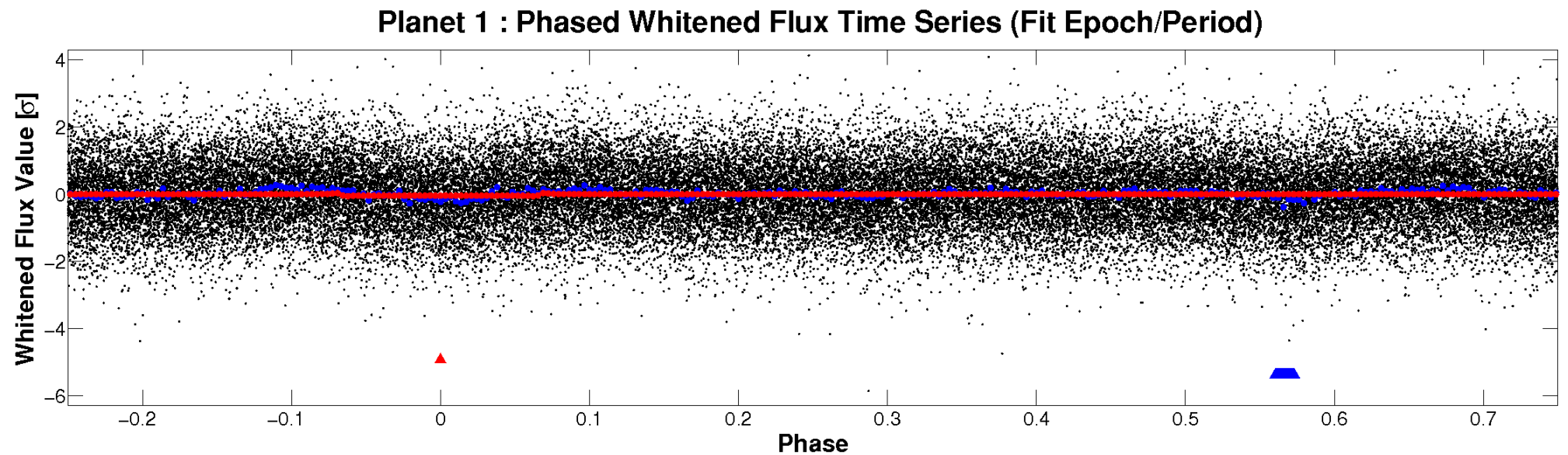
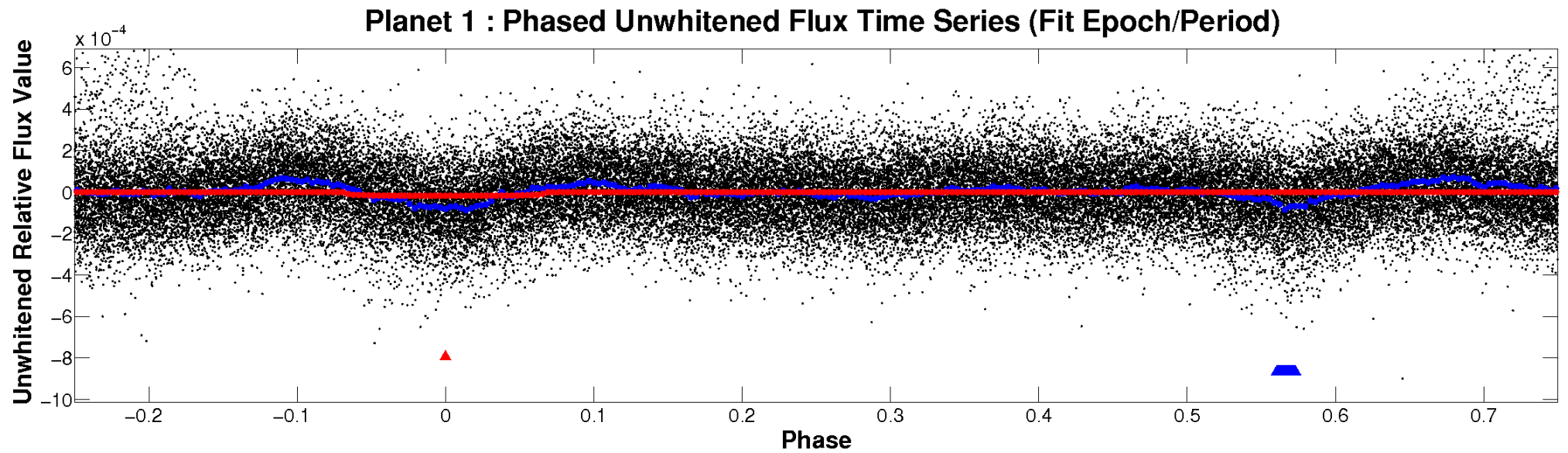


ALT Odd/Even

TCE 005370023-01

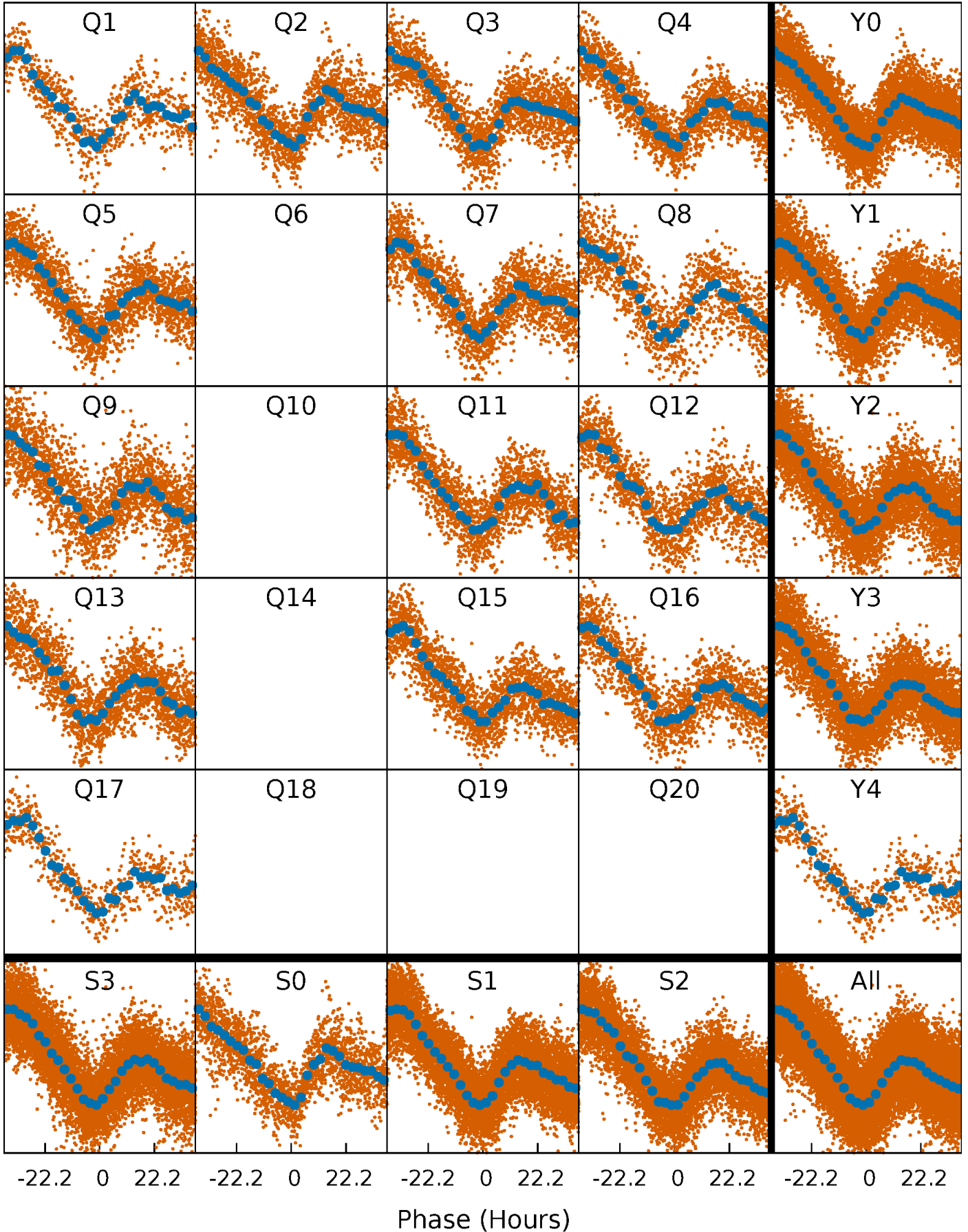


Non-Whitened Vs. Whitened Light Curve



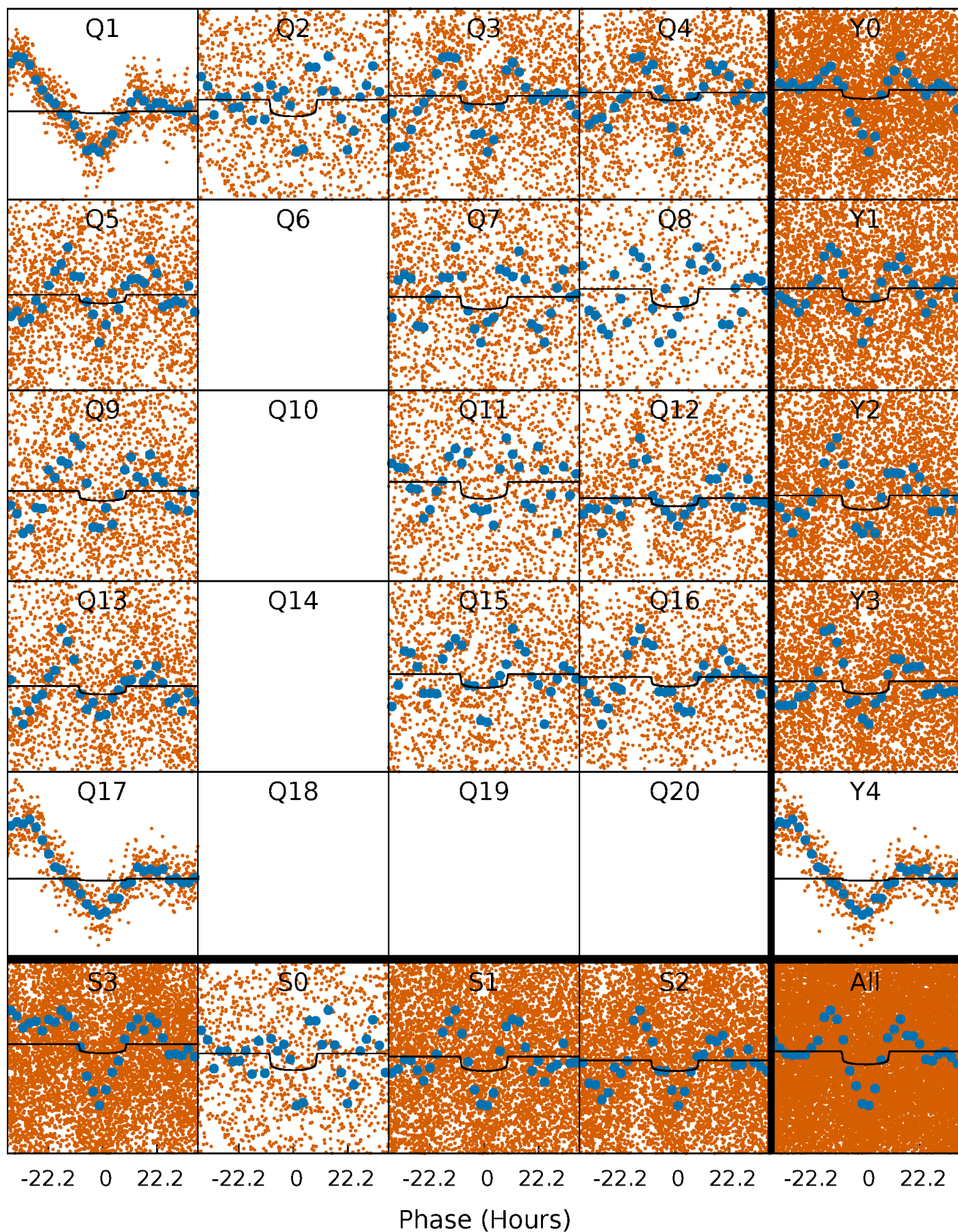
PDC Quarter-Phased Transit Curves

TCE 005370023-01 P= 5.922173 Days $T_0=134.504824$ (BKJD)



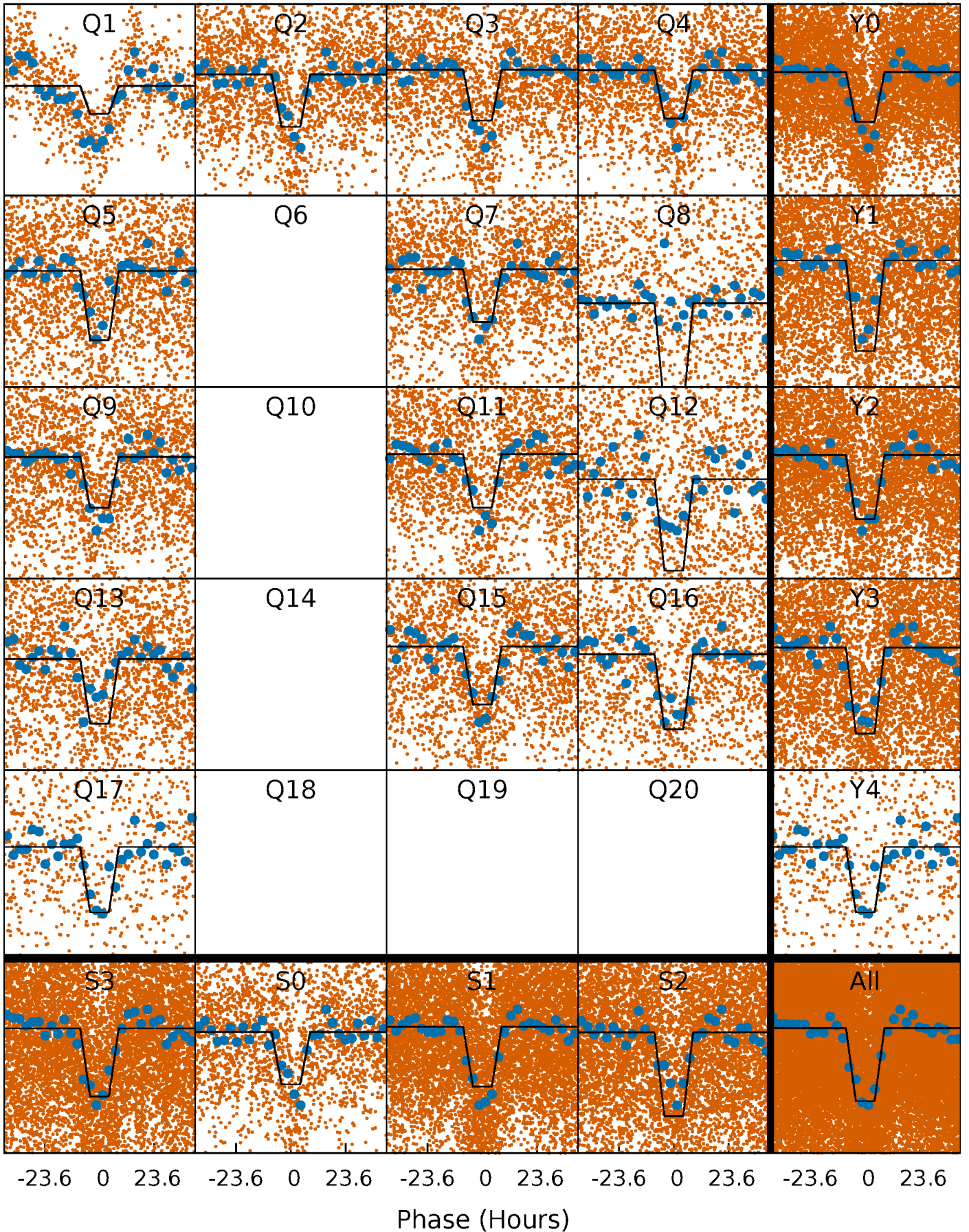
DV Quarter-Phased Transit Curves

TCE 005370023-01 P= 5.922173 Days $T_0=134.504824$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

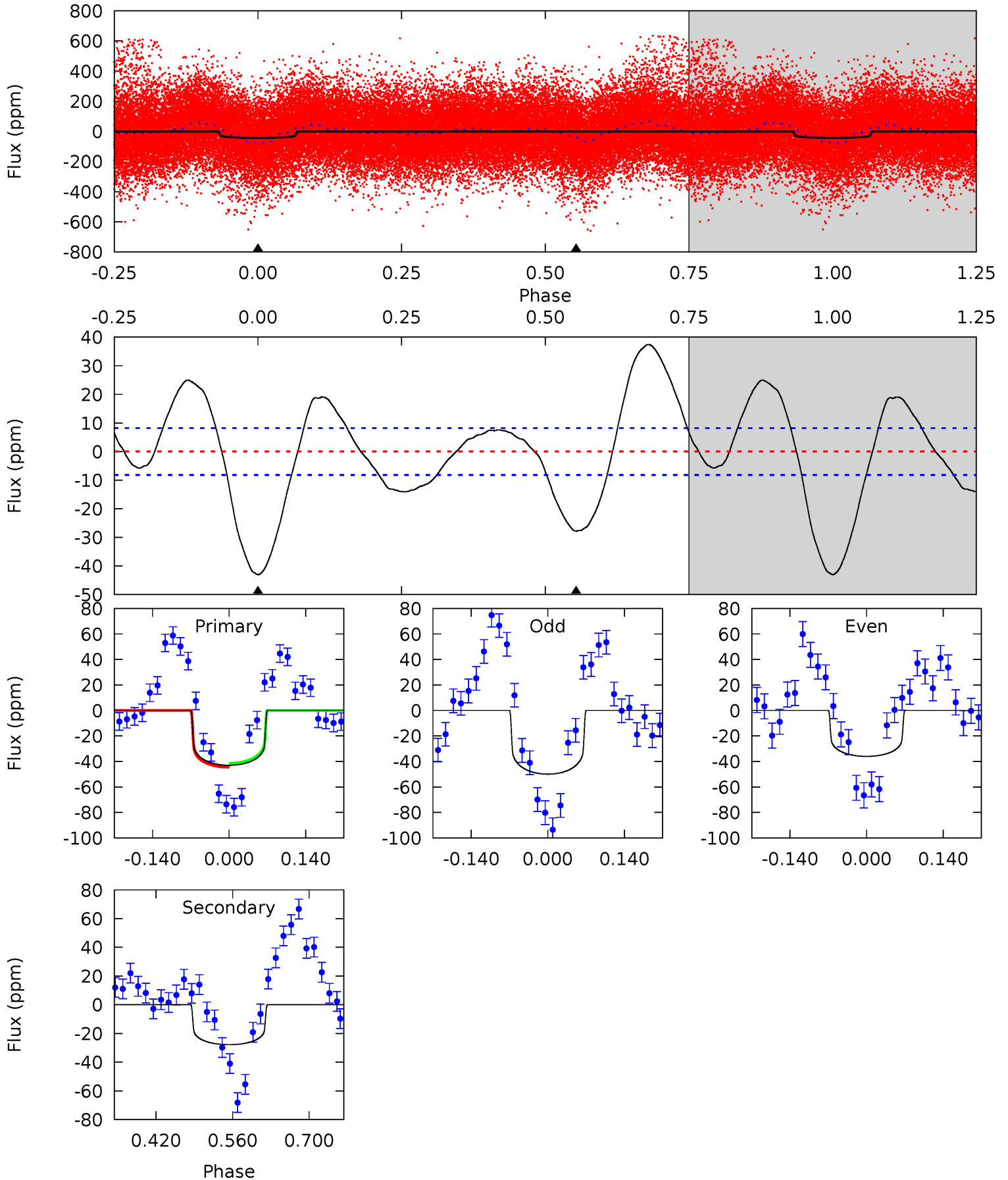
TCE 005370023-01 P= 5.922204 Days $T_0=134.481874$ (BKJD)



DV Model-Shift Uniqueness Test

005370023-01, P = 5.922173 Days, E = 128.582651 Days

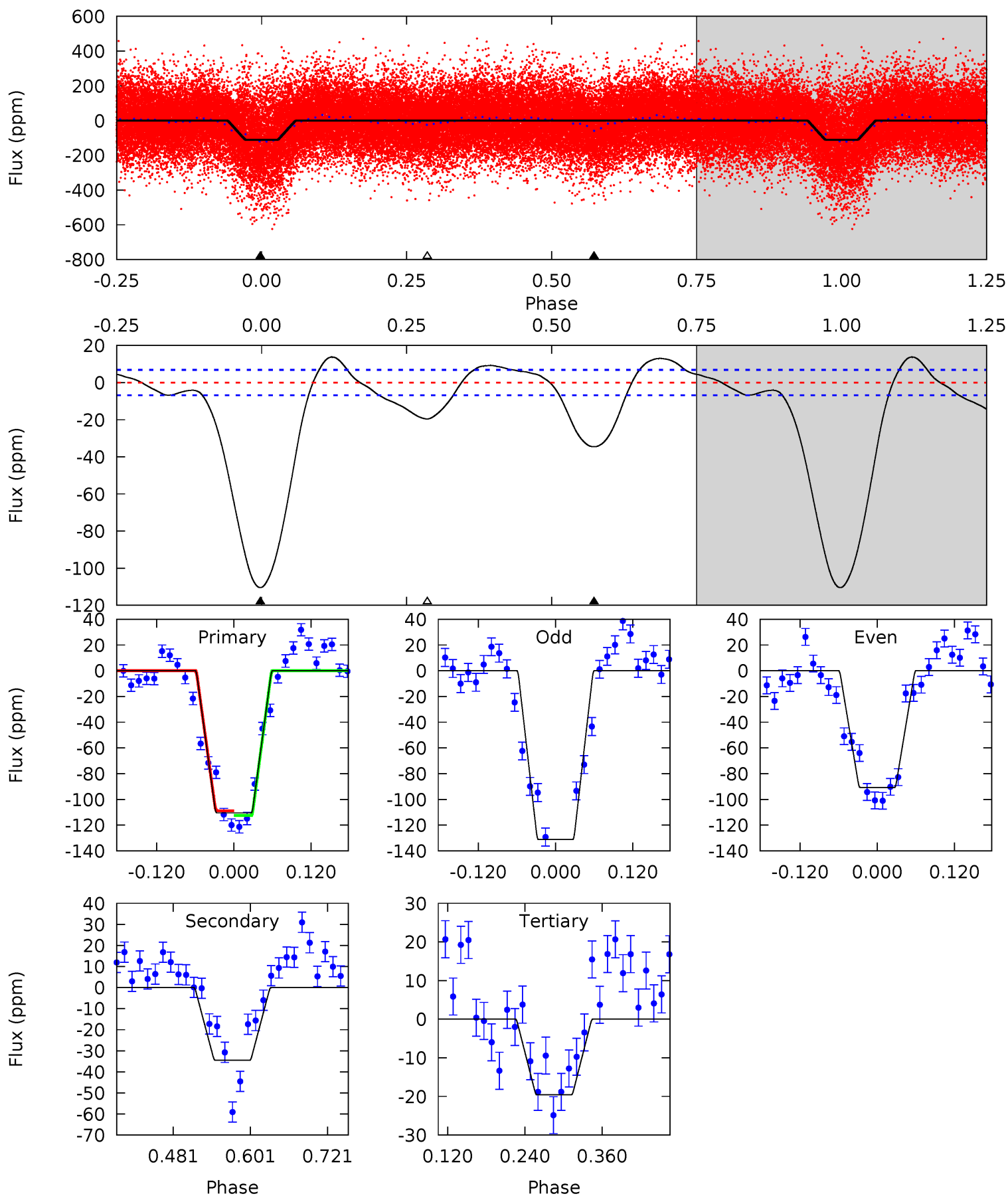
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.6	15.3	0	0	4.49	1.48	6.38	23.6	23.6	15.3	15.3	3.84	1.07	0.47	0.77



Alt Model-Shift Uniqueness Test

005370023-01, P = 5.922204 Days, E = 128.559670 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
72.9	22.8	12.9	0	4.53	1.55	6.12	60.0	72.9	9.86	22.8	13.4	1.17	0.11	1.23



Stellar Parameters For KIC 005370023

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6773^{+169}_{-186}	$3.570^{+0.340}_{-0.060}$	$-0.160^{+0.300}_{-0.250}$	$3.599^{+0.354}_{-1.417}$	$1.756^{+0.185}_{-0.344}$	$0.053^{+0.137}_{-0.011}$
	+2%/-3%	+10%/-2%	+188%/-156%	+10%/-39%	+11%/-20%	+258%/-21%
Source	PHO1	FLK73	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 005370023-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-28 ± 2	$1.67^{+0.38}_{-0.39}$	2782^{+143}_{-275}	7301^{+905}_{-599}	33^{+23}_{-10}
Alt.	-35 ± 2	$4.04^{+0.53}_{-0.77}$	2788^{+134}_{-264}	5016^{+201}_{-184}	$7.011^{+3.436}_{-1.432}$

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

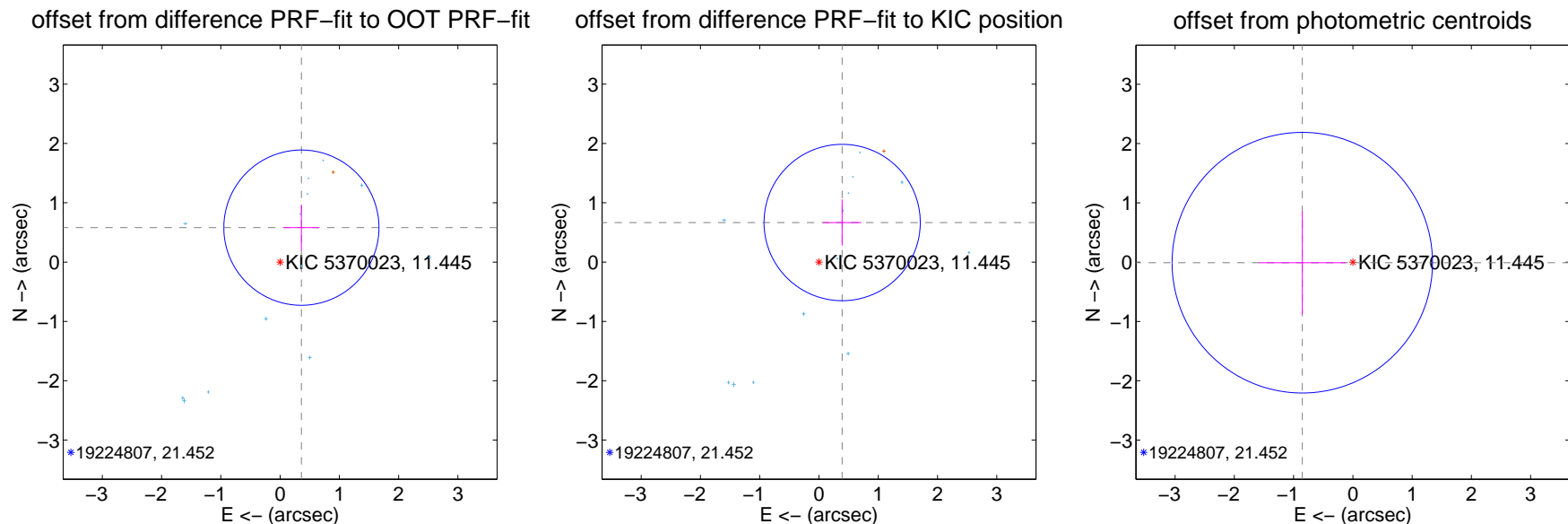
DV Centroid Data

Supplemental centroid analysis for 005370023-01. **Kepler magnitude: 11.45.** Transit SNR 4.21

There are 13 quarters with good PRF difference image offsets

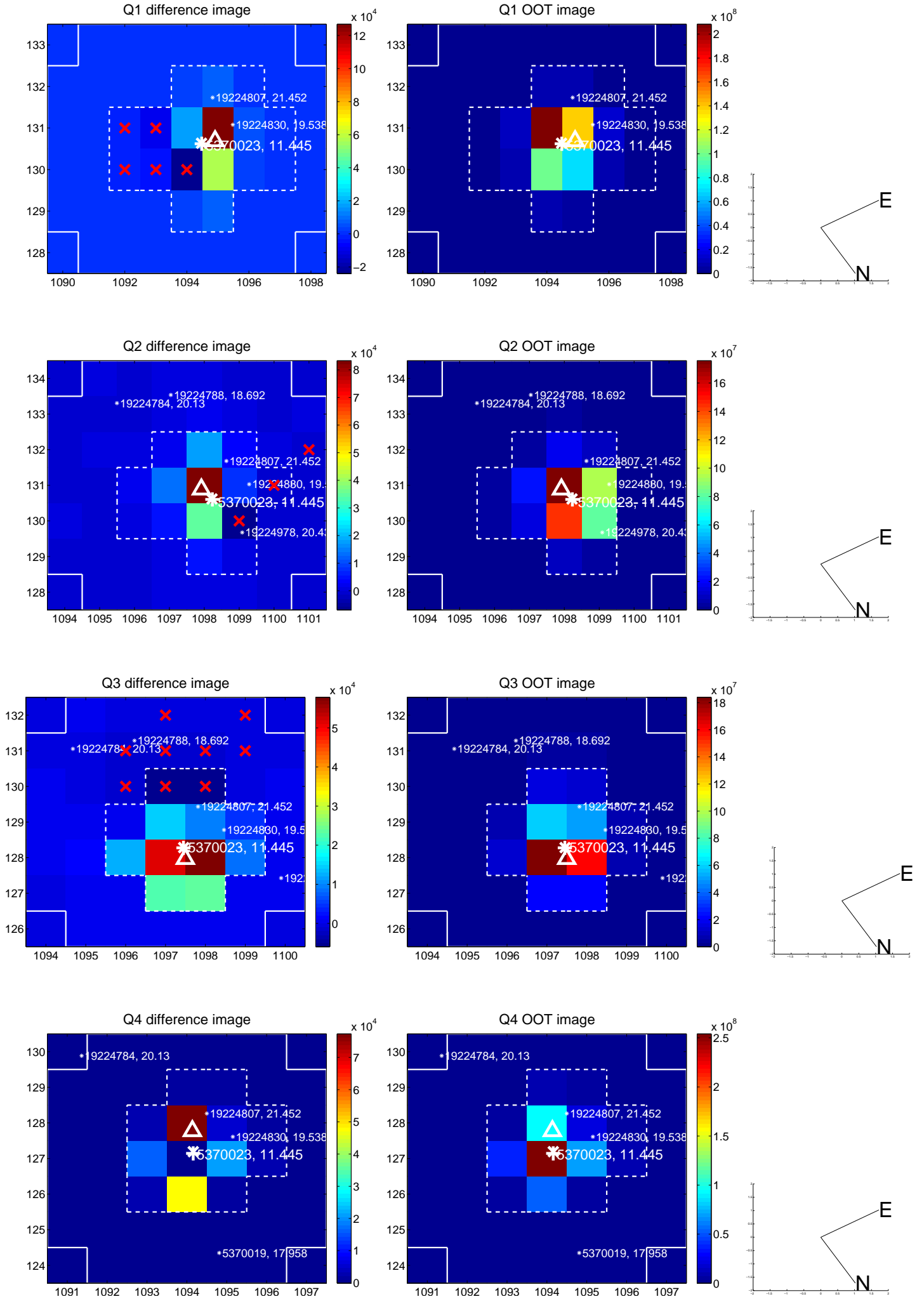
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.683 ± 0.436	1.57	-0.359 ± 0.297	0.580 ± 0.386
PRF-fit source offset from KIC position	0.773 ± 0.439	1.76	-0.391 ± 0.324	0.667 ± 0.389
photometric centroid source offset	0.85 ± 0.73	1.16	0.85 ± 0.73	-0.01 ± 0.87

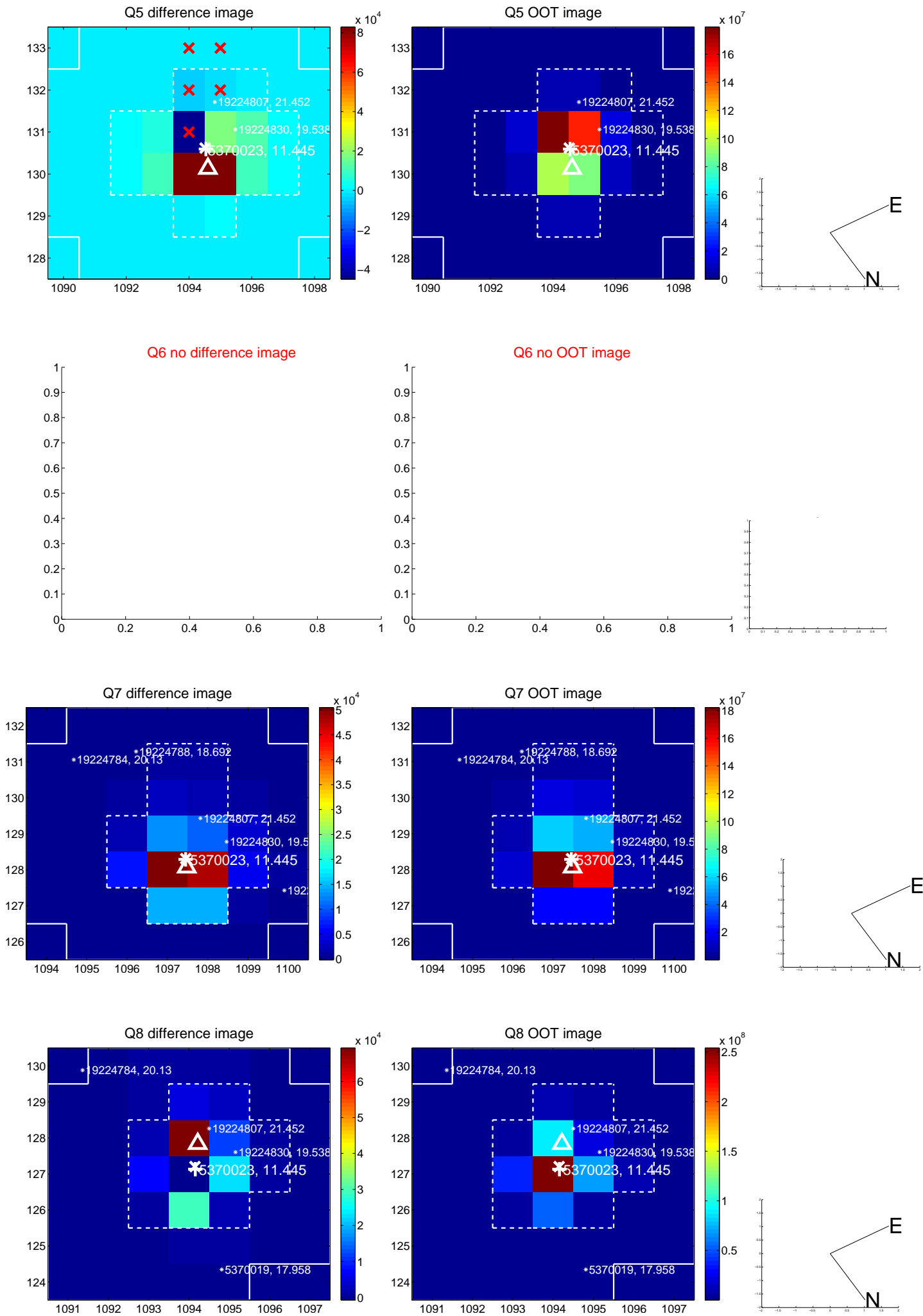


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

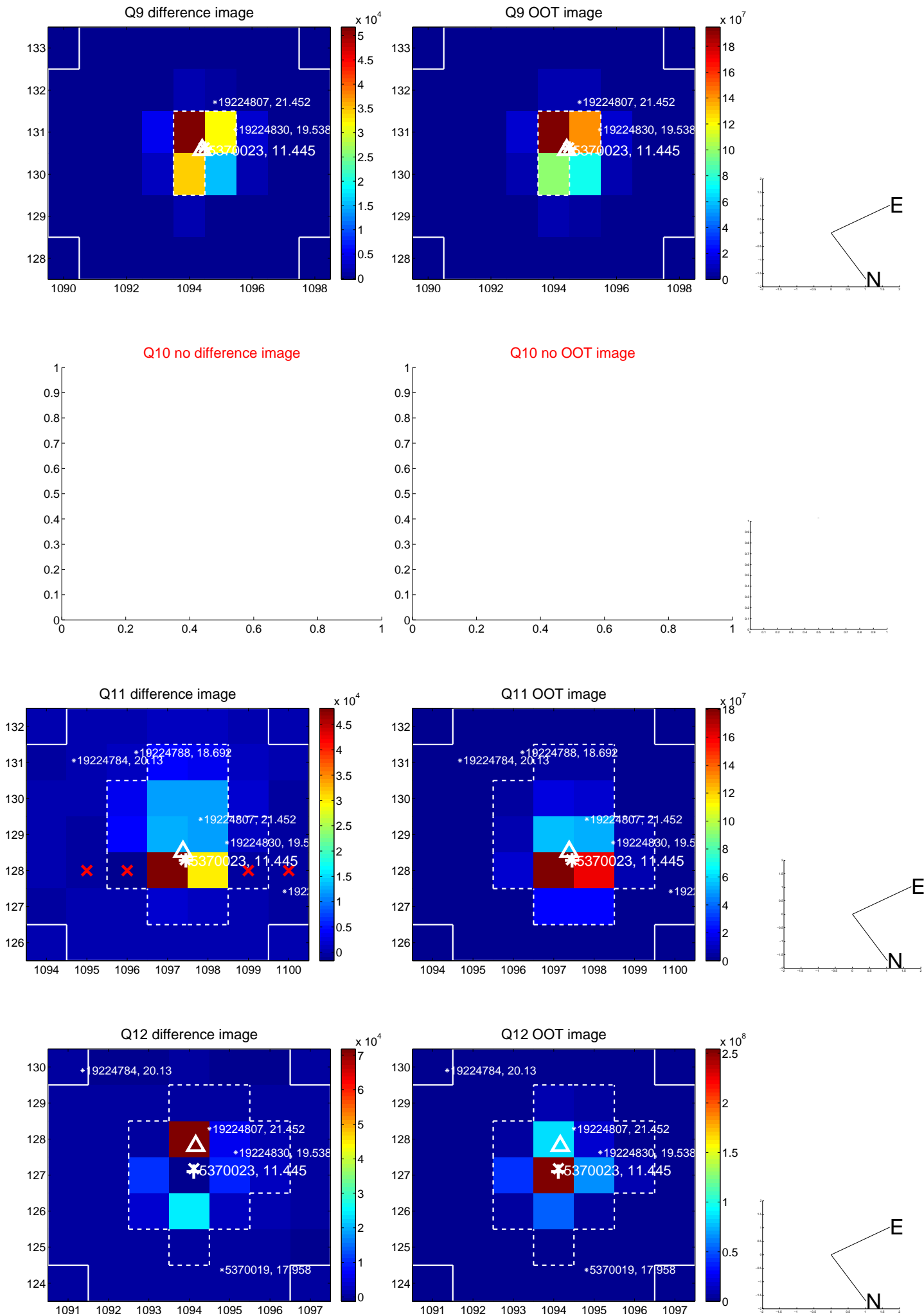
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



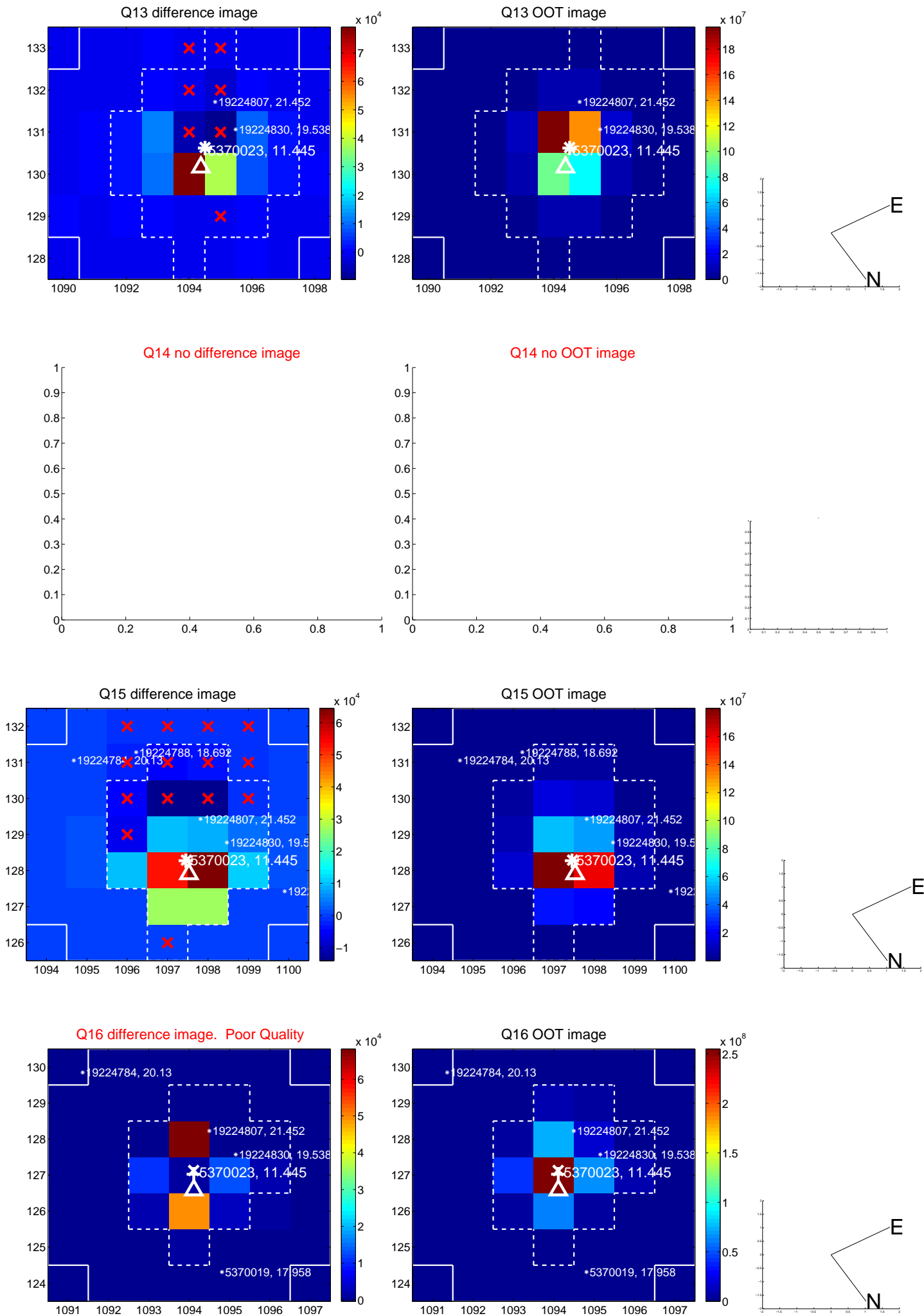
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



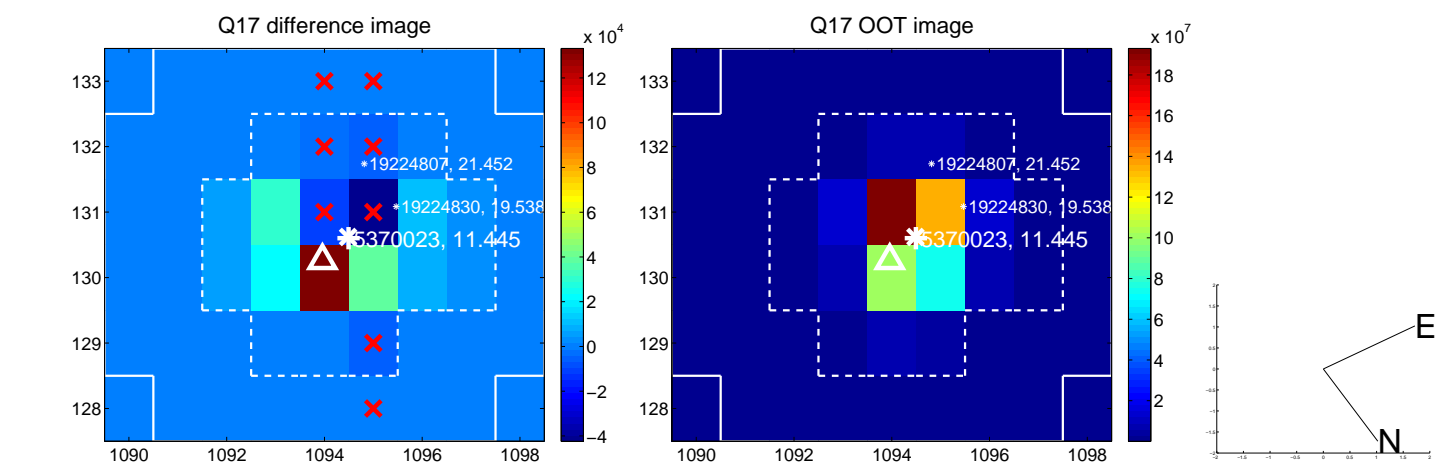
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



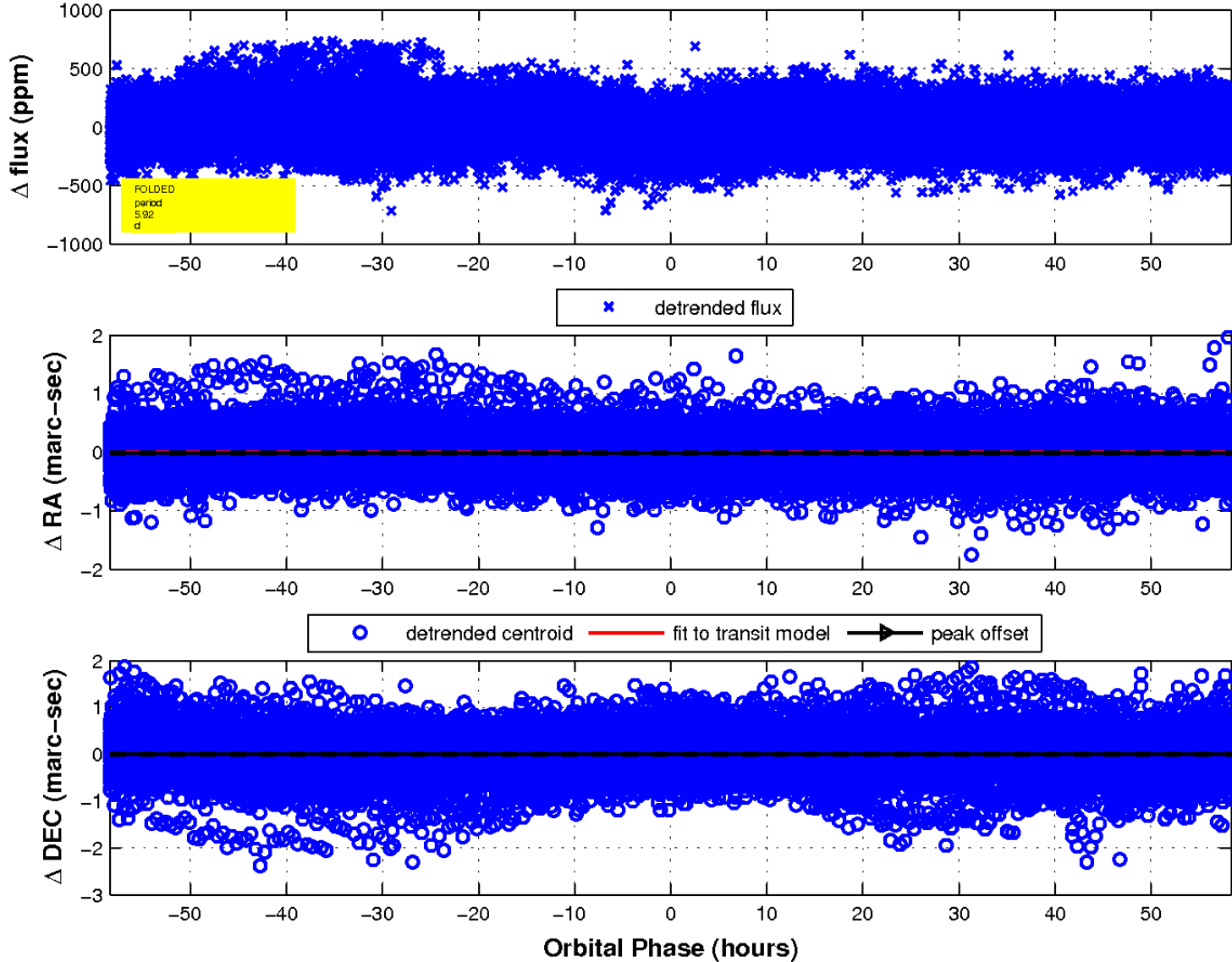
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

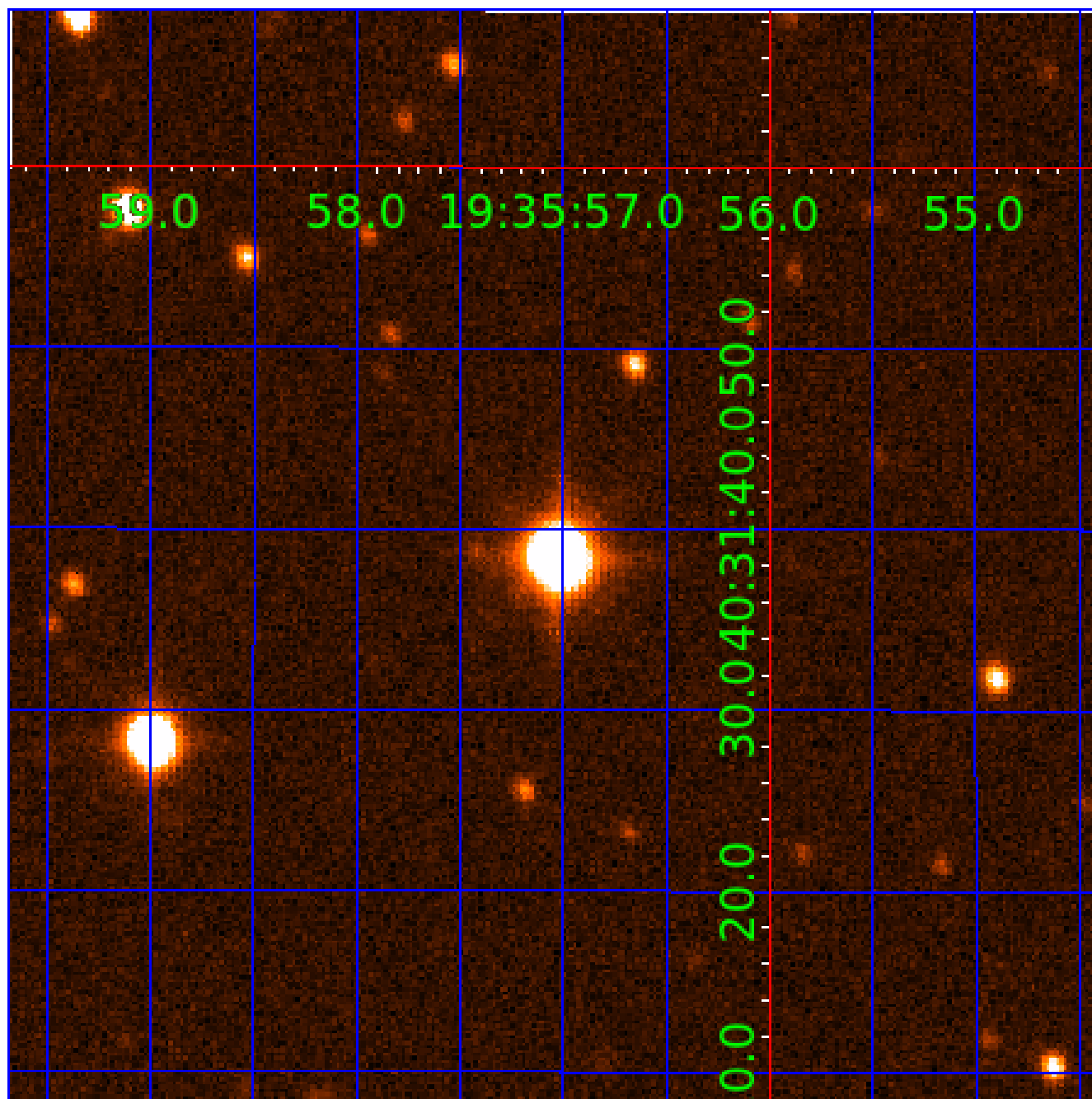


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005370023

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})
005370023-01	OBS	No	5.922173	134.504824	18.0	19.461	8.4	4.2	3.60	6773	1.78	4087.88
005370023-02	OBS	No	5.921868	131.976432	0.0	36.576	9.4	0.0	3.60	6773	0.01	4088.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005370023-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005370023-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

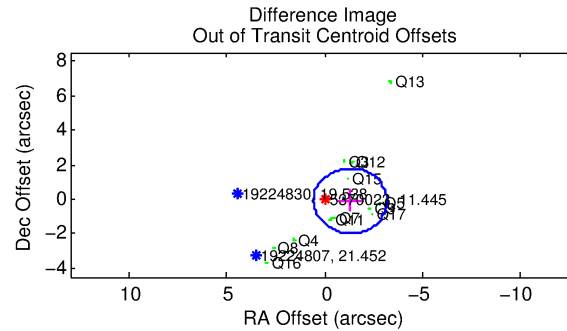
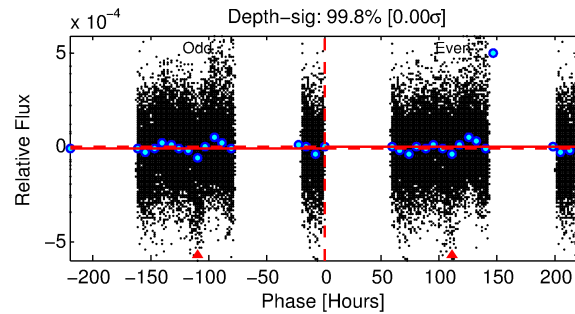
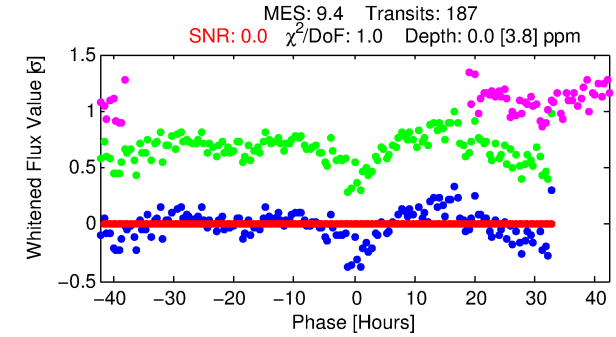
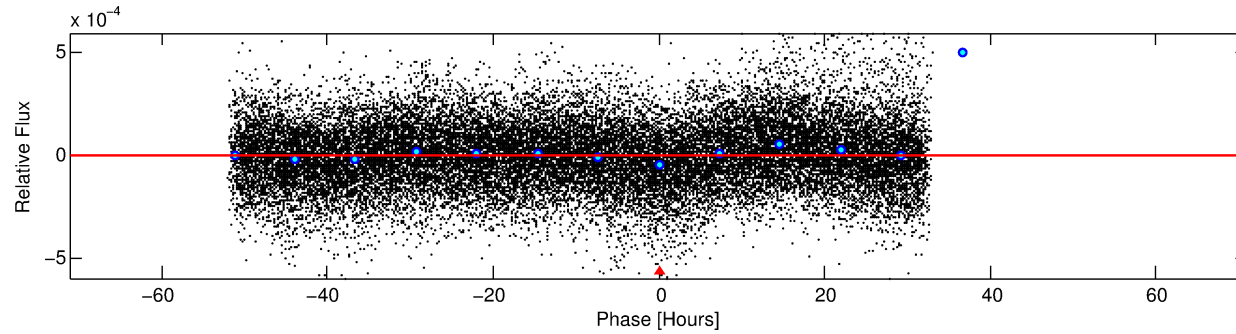
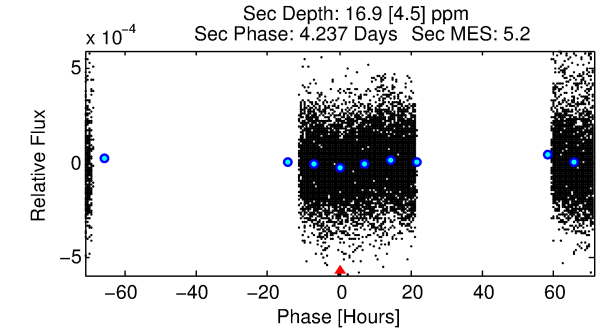
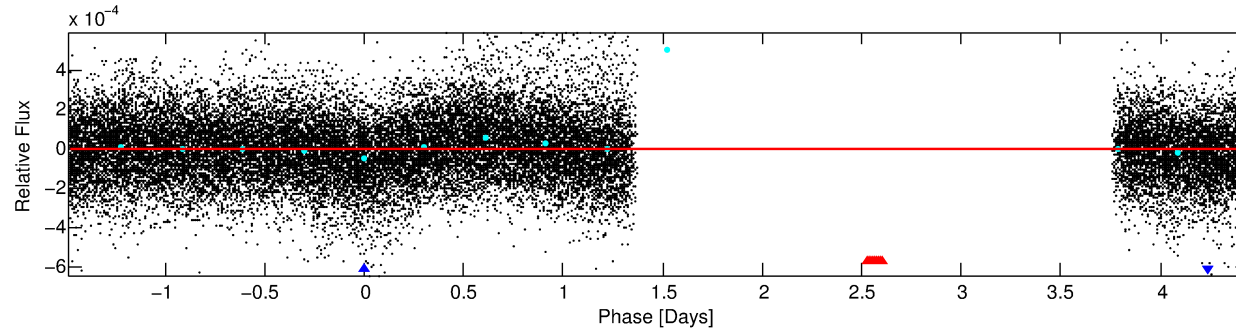
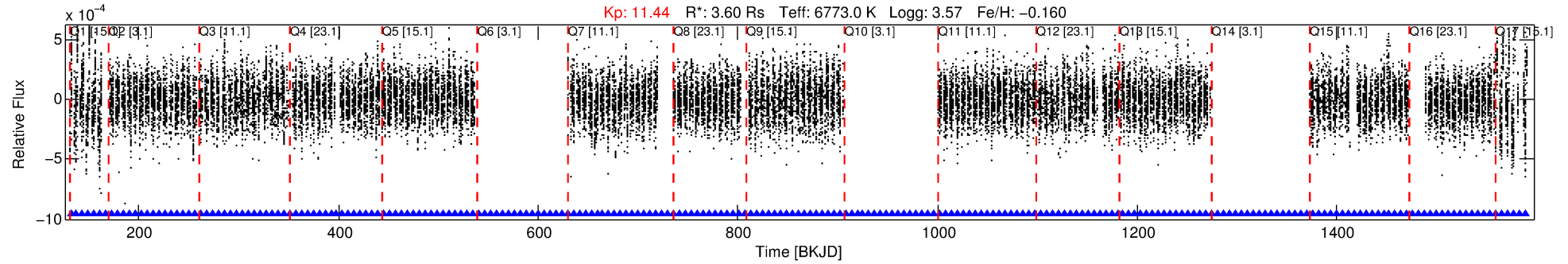
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005370023-02

No Significant Match Found

DV One-Page Summary

KIC: 5370023 Candidate: 2 of 2 Period: 5.922 d



DV Fit Results:

Period = 5.92187 [1.62792] d
Epoch = 131.9764 [188.8238] BKJD
Rp/R* = 0.0000 [0.0442]
a/R* = 1.36 [127.77]
b = 0.25 [823.90]
Seff = 4088.16 [2855.02]
Teq = 2039 [356] K
Rp = 0.01 [17.36] Re
a = 0.0773 [0.0319] AU
Ag = 252692.42 [592132503.12] [0.00σ]
Teffp = 70680 [41406671] K [0.00σ]

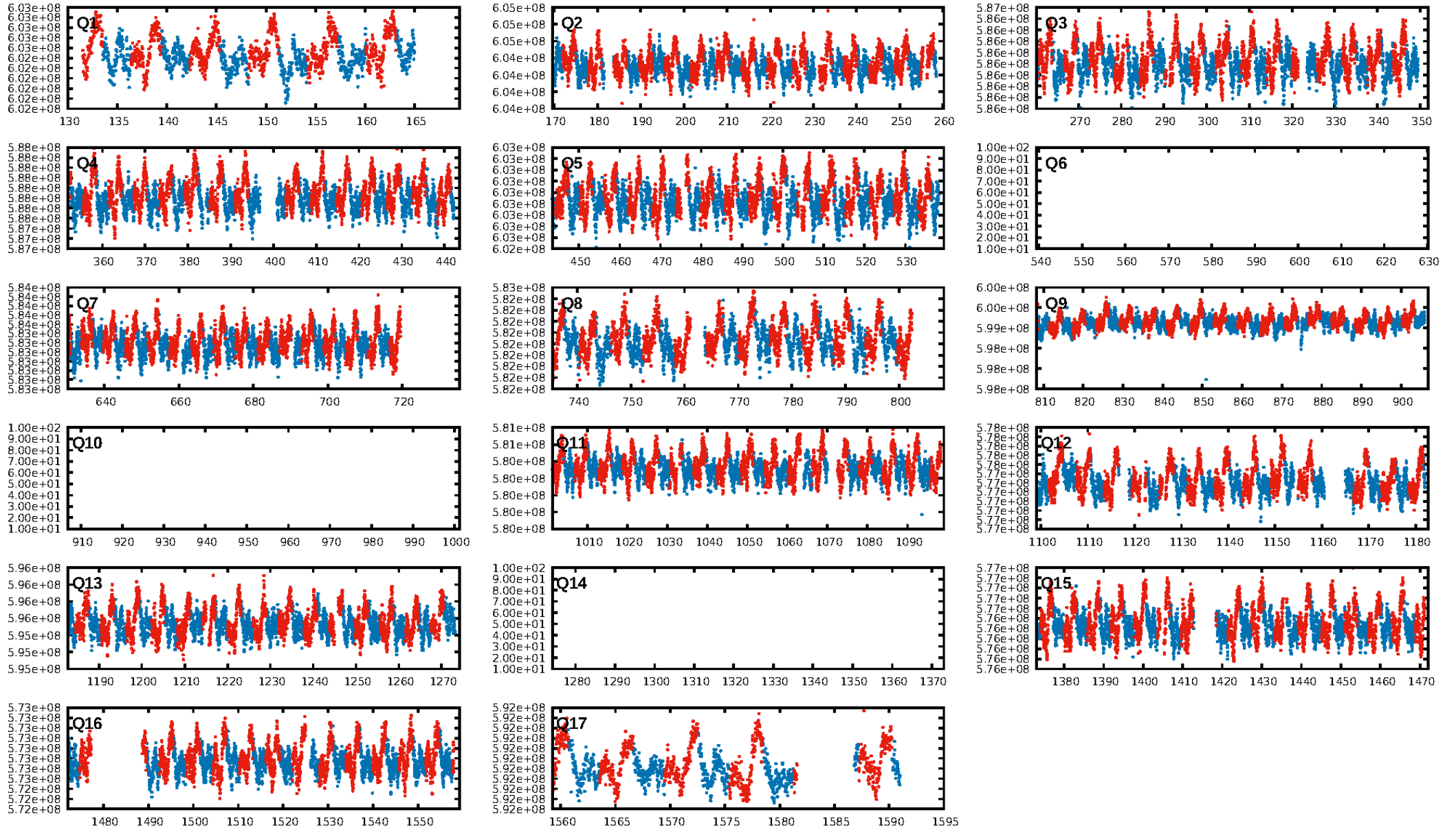
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 72.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [176/176]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.310 arcsec [2.09σ]
KicOffset-rm: 1.393 arcsec [2.30σ]
OotOffset-st: 0/4/4/4 [12]
KicOffset-st: 0/4/4/4 [12]
DiffImageQuality-fgm: 0.75 [9/12]
DiffImageOverlap-fno: 0.00 [0/14]

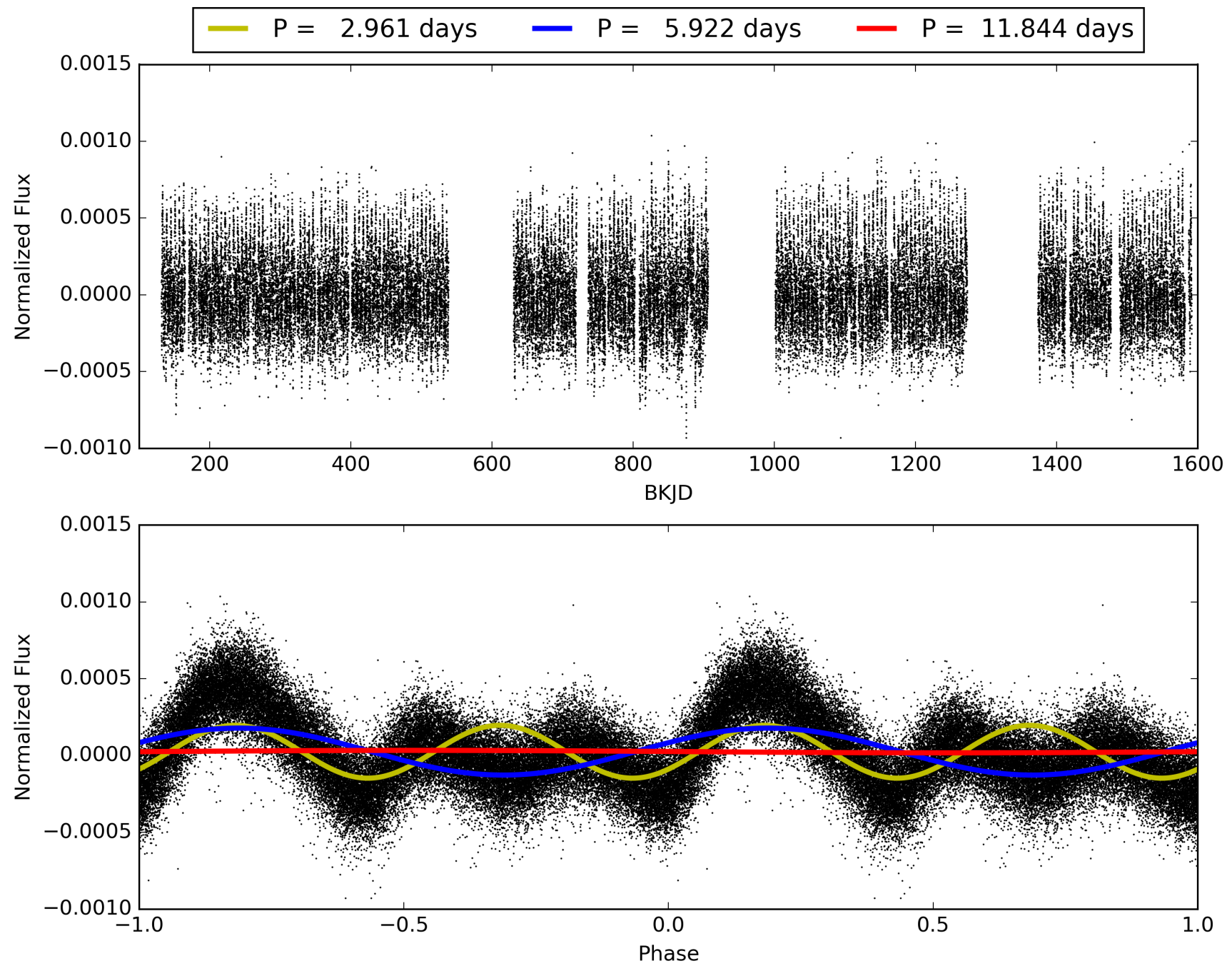
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:27:09 Z

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

TCE 005370023-02, PDC Light Curves

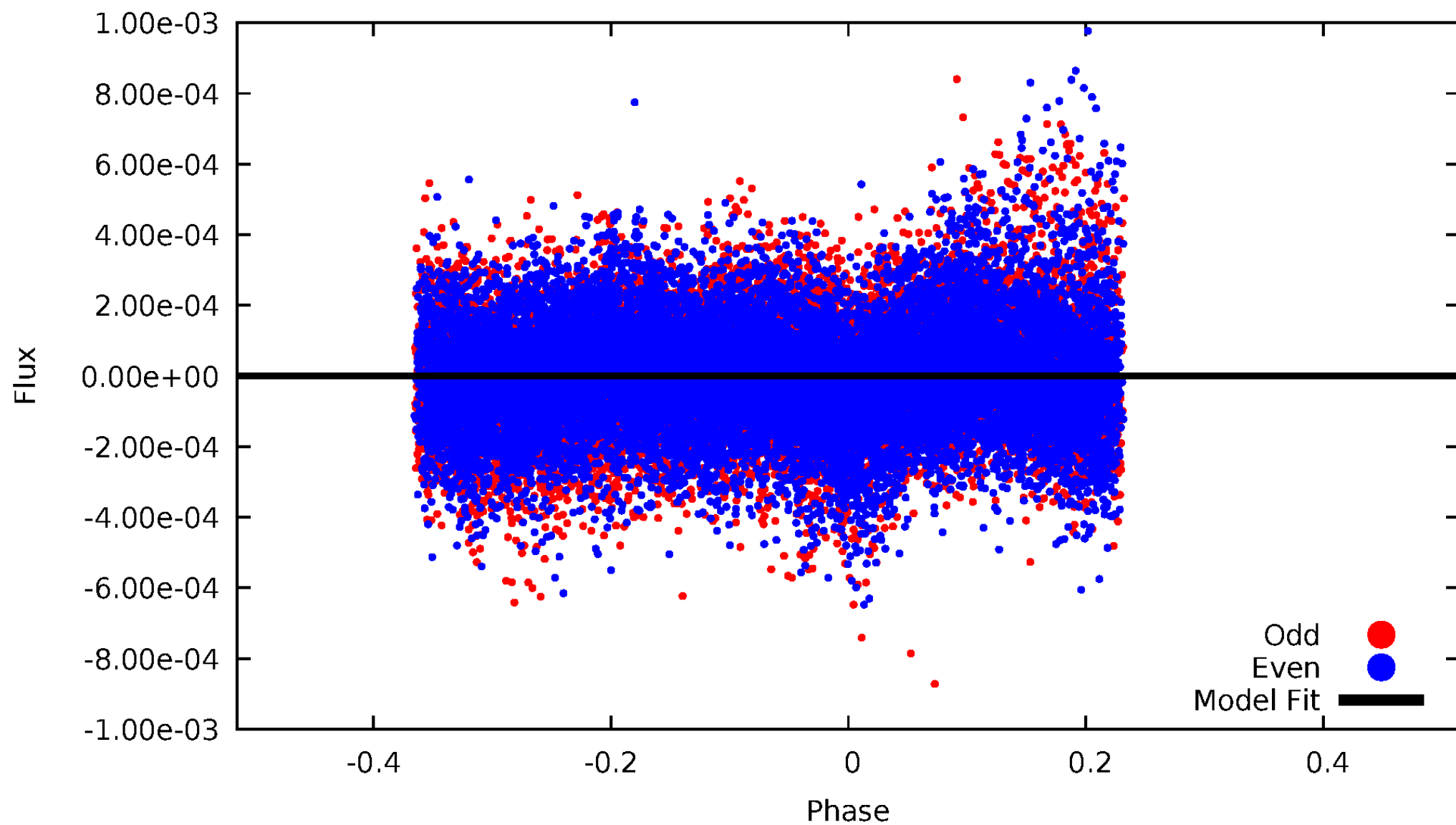


TCE 005370023-02



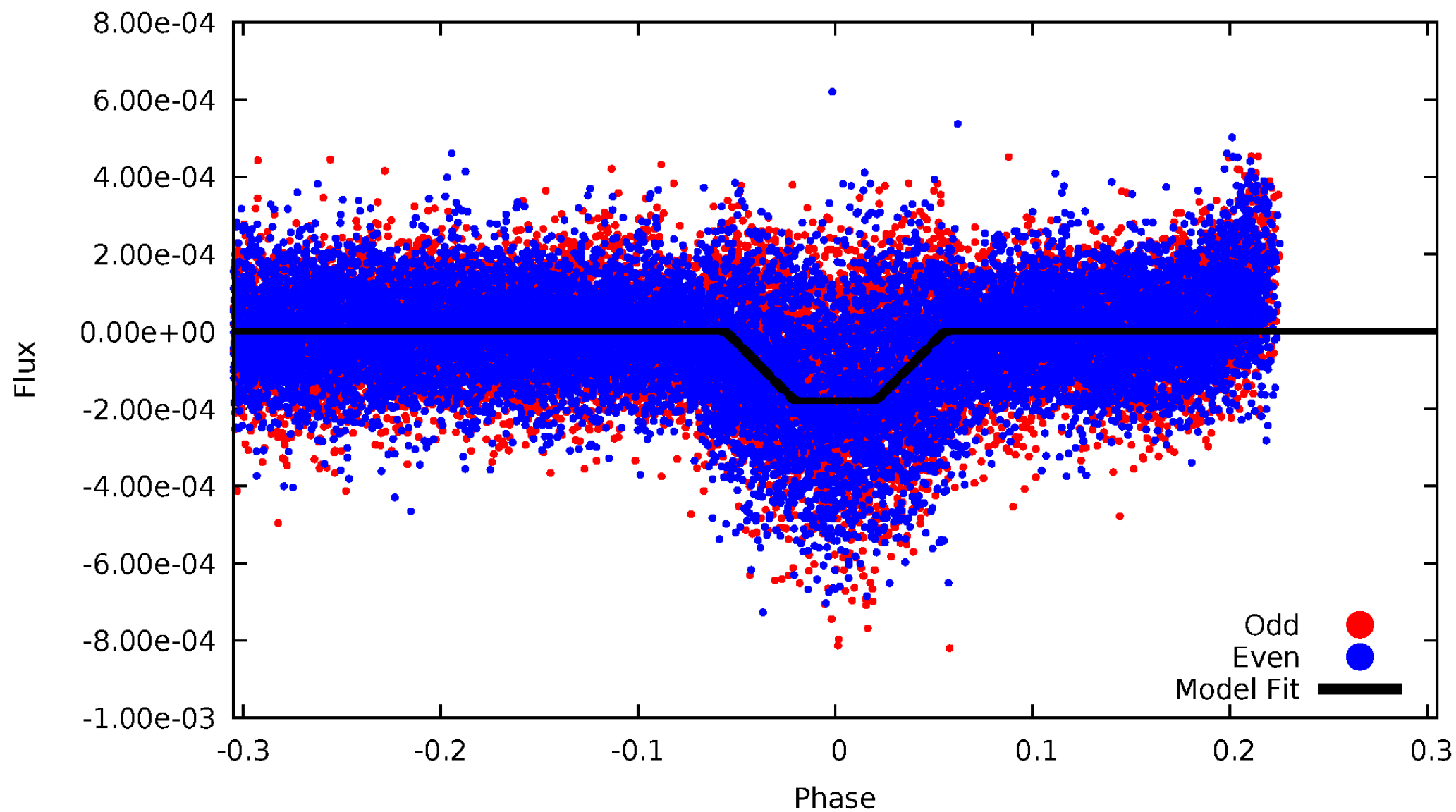
DV Odd/Even

TCE 005370023-02



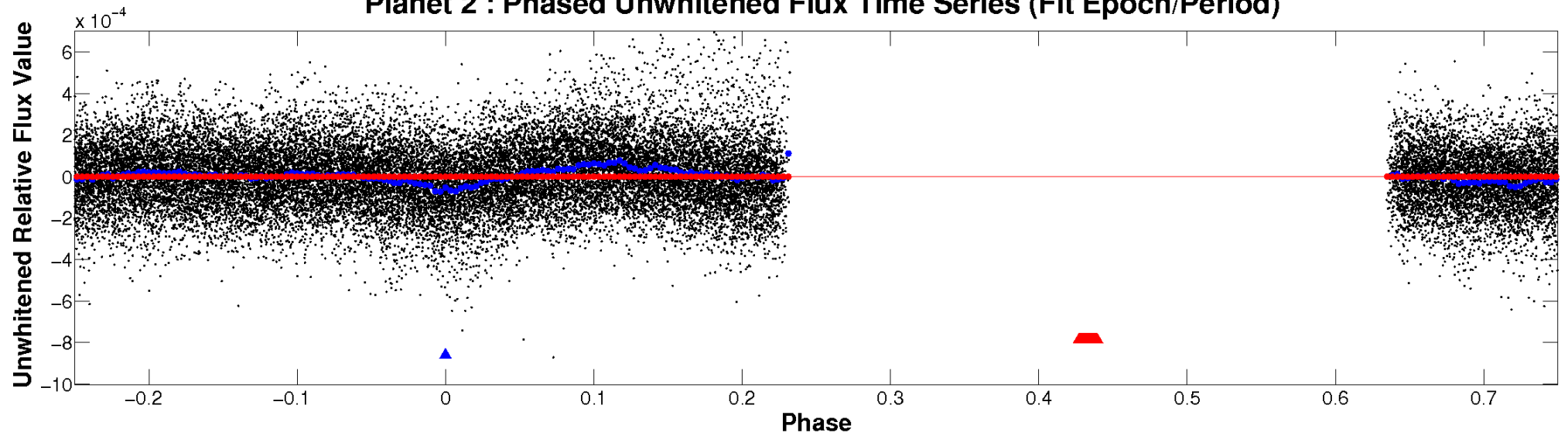
ALT Odd/Even

TCE 005370023-02

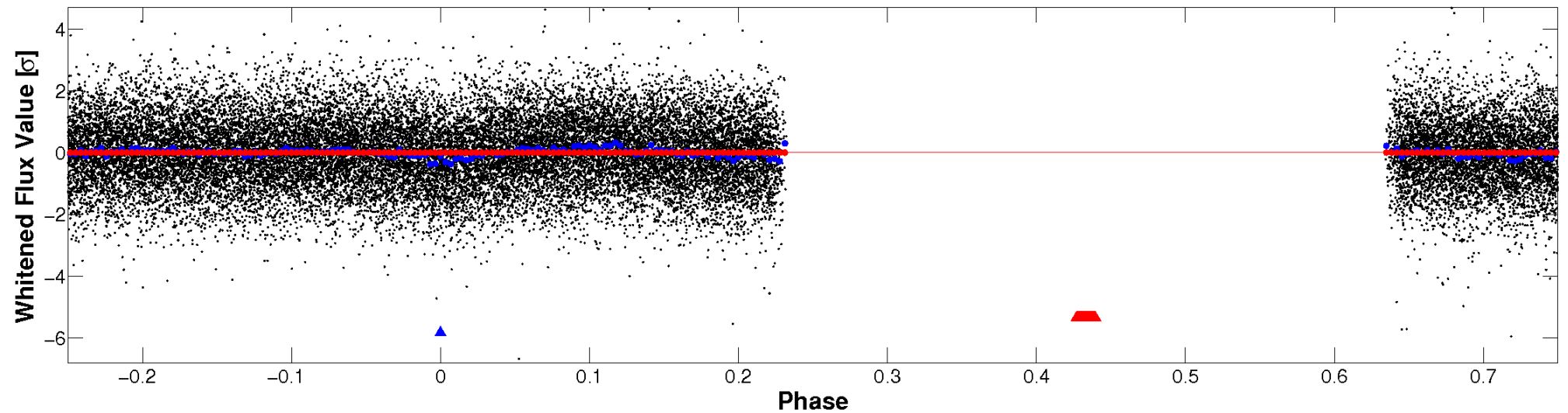


Non-Whitened Vs. Whitened Light Curve

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

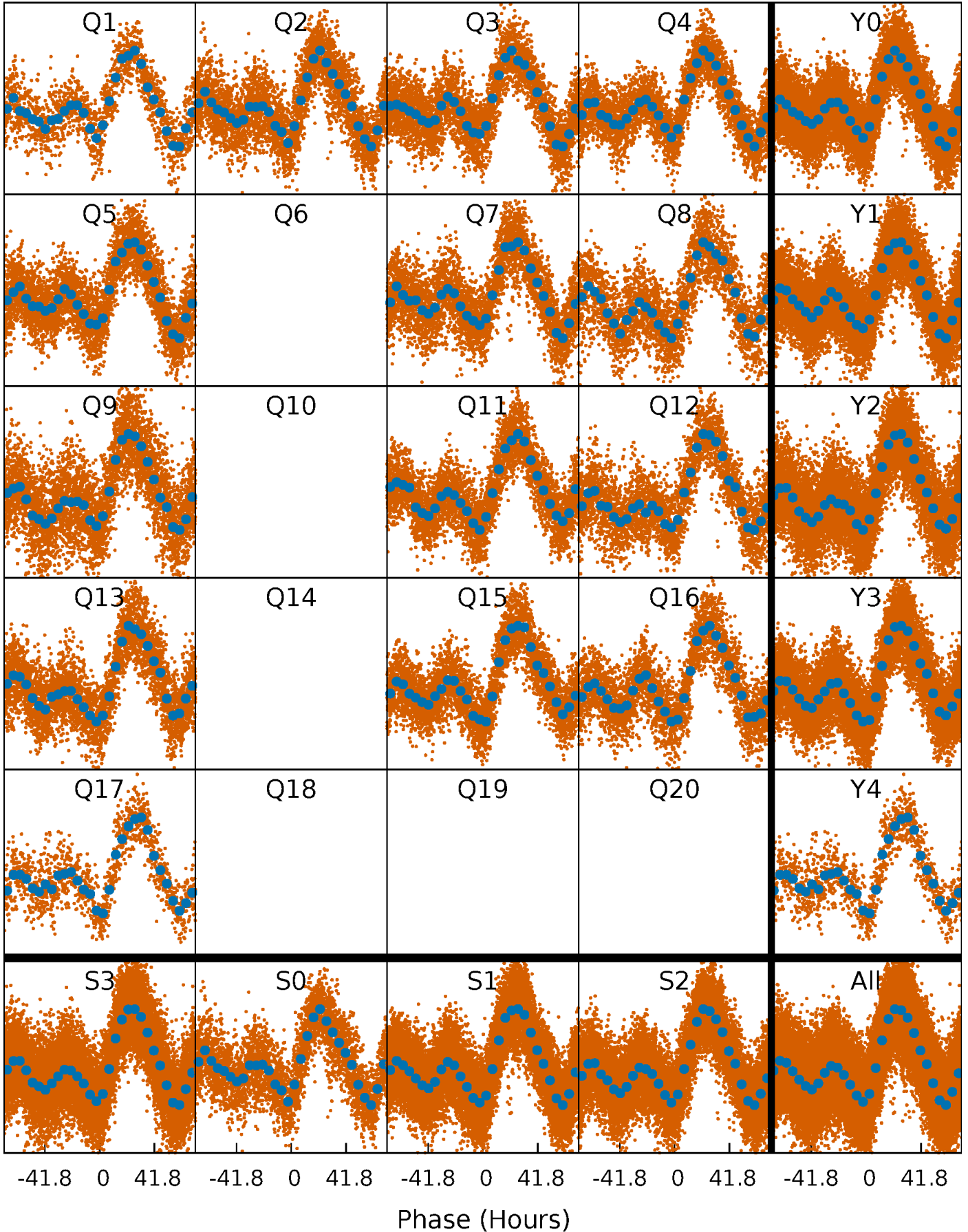


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



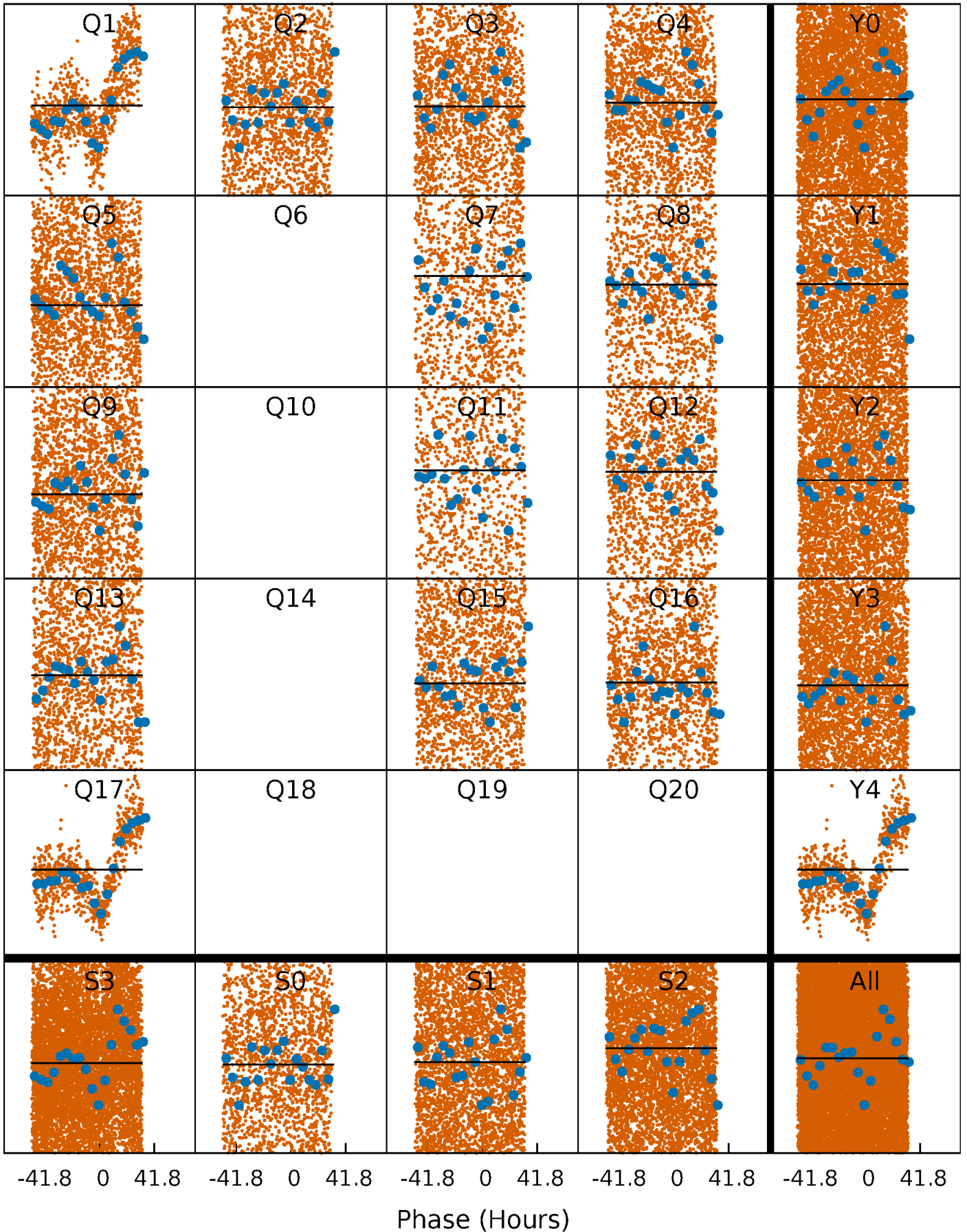
PDC Quarter-Phased Transit Curves

TCE 005370023-02 P= 5.921868 Days $T_0=131.976432$ (BKJD)



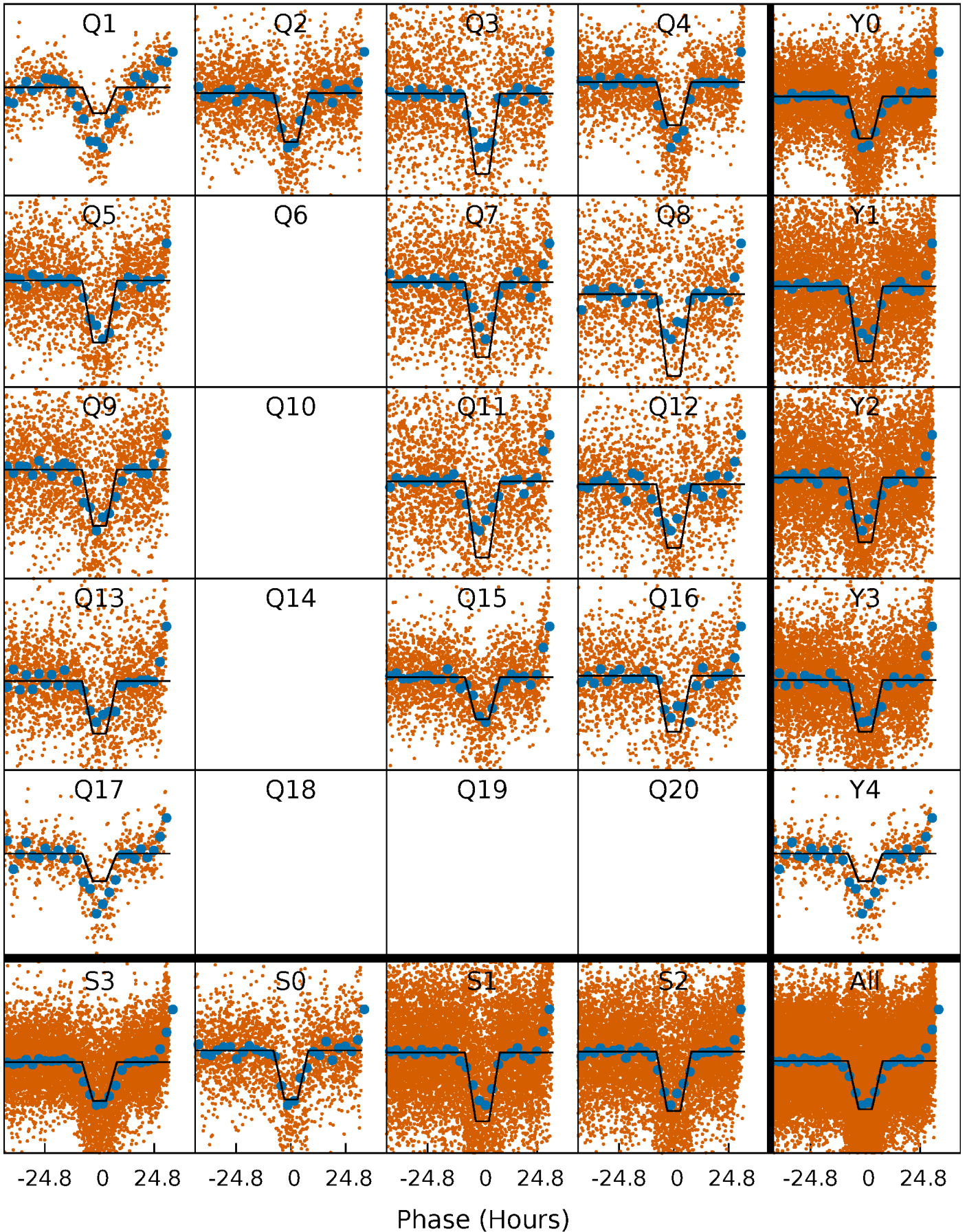
DV Quarter-Phased Transit Curves

TCE 005370023-02 $P = 5.921868$ Days $T_0 = 131.976432$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

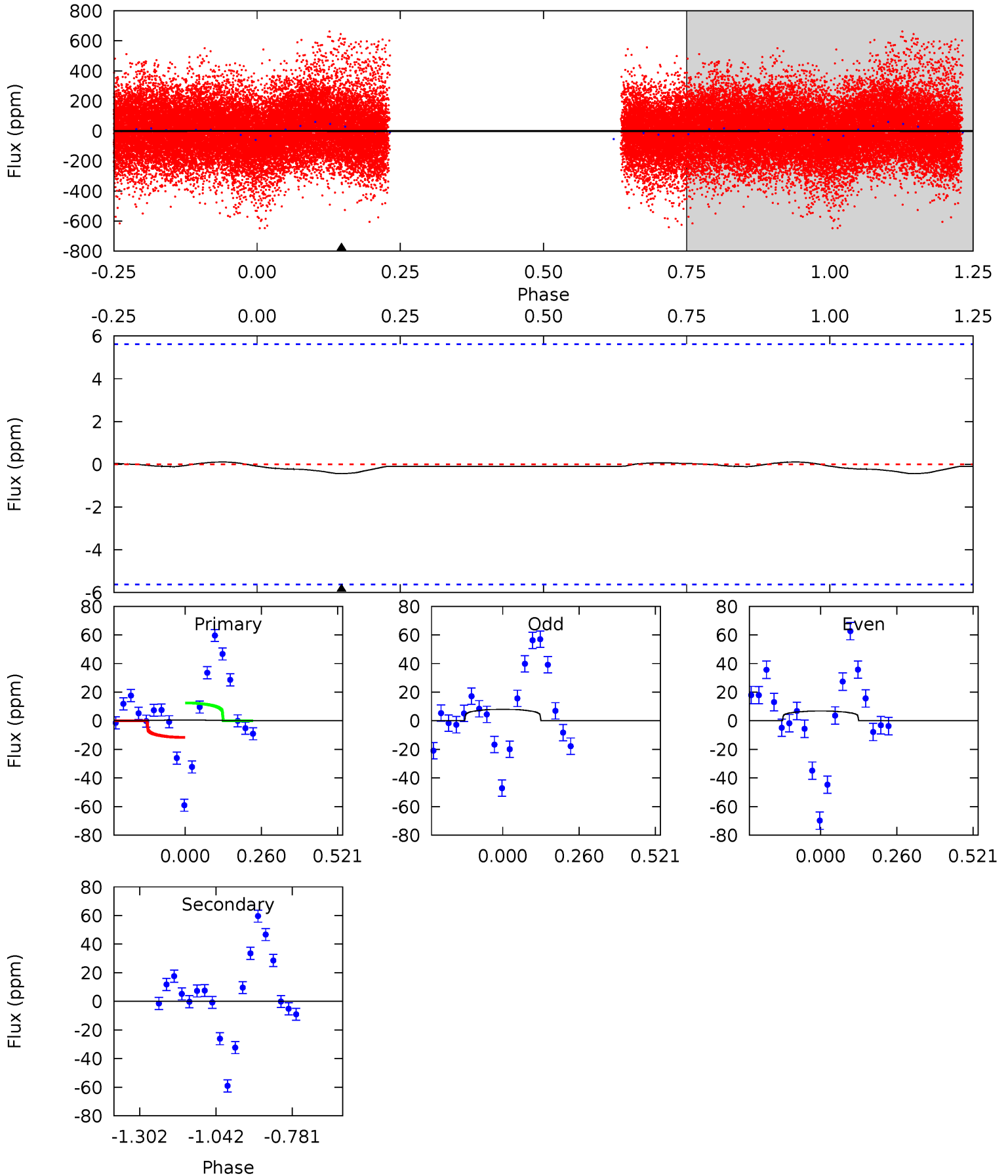
TCE 005370023-02 P= 5.922552 Days $T_0=131.941922$ (BKJD)



DV Model-Shift Uniqueness Test

005370023-02, P = 5.921868 Days, E = 126.054564 Days

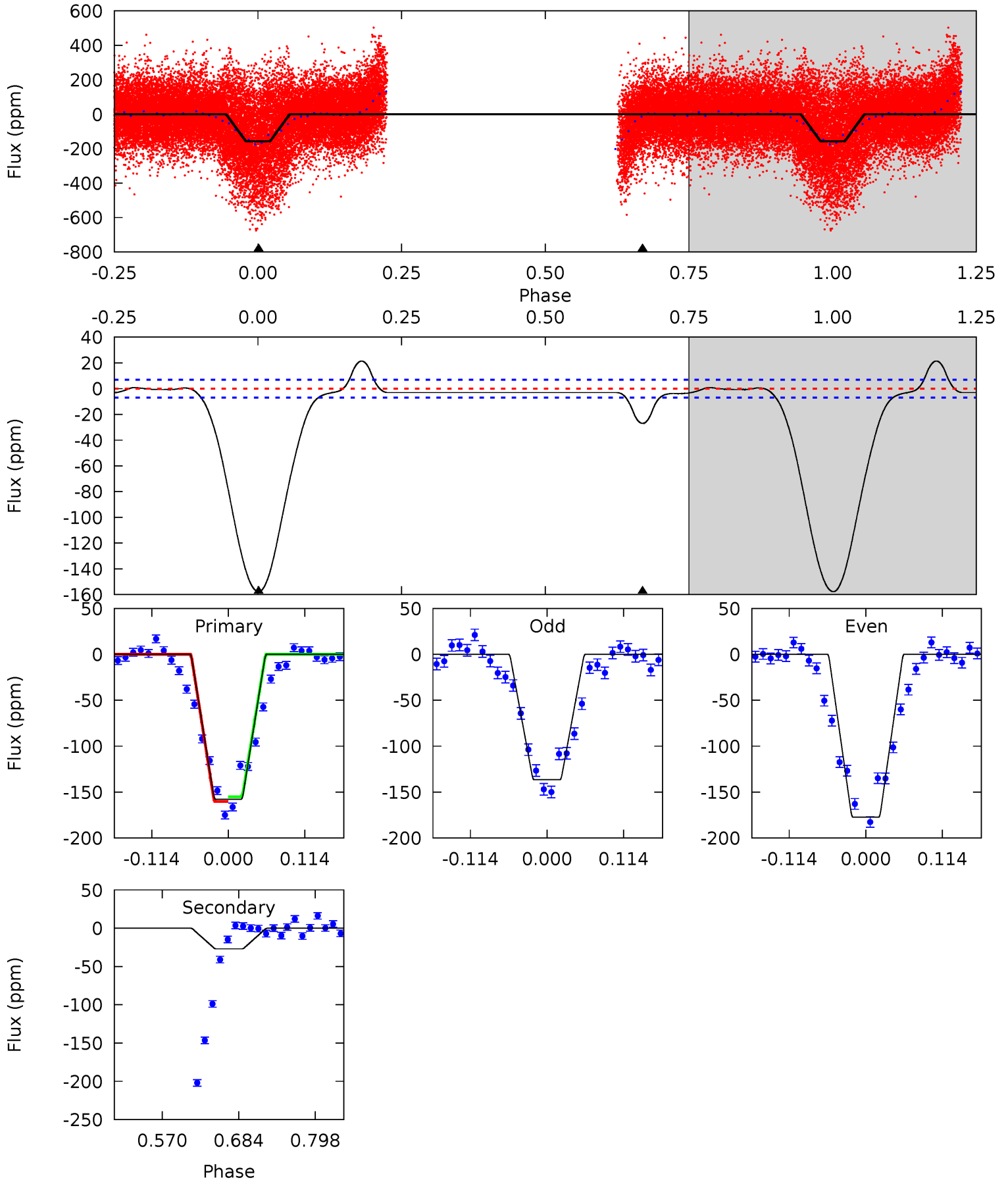
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.34	0	0	0	4.36	1.13	0.05	0.34	0.34	0	0	0.48	-1.09	0.19	0.27



Alt Model-Shift Uniqueness Test

005370023-02, P = 5.922552 Days, E = 126.019370 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
102.9	17.6	0	0	4.54	1.58	4.77	102.9	102.9	17.6	17.6	13.2	1.08	0.12	1.75



Stellar Parameters For KIC 005370023

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6773^{+169}_{-186}	$3.570^{+0.340}_{-0.060}$	$-0.160^{+0.300}_{-0.250}$	$3.599^{+0.354}_{-1.417}$	$1.756^{+0.185}_{-0.344}$	$0.053^{+0.137}_{-0.011}$
	+2%/-3%	+10%/-2%	+188%/-156%	+10%/-39%	+11%/-20%	+258%/-21%
Source	PHO1	FLK73	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 005370023-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1	$10.84^{+13.01}_{-7.80}$	2805^{+349}_{-323}	-2983^{+286}_{-277}	$-0.001^{+0.056}_{-0.063}$
Alt.	-27 ± 2	$13.32^{+13.47}_{-9.32}$	2756^{+358}_{-327}	2732^{+1918}_{-5540}	$0.507^{+5.168}_{-0.388}$

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

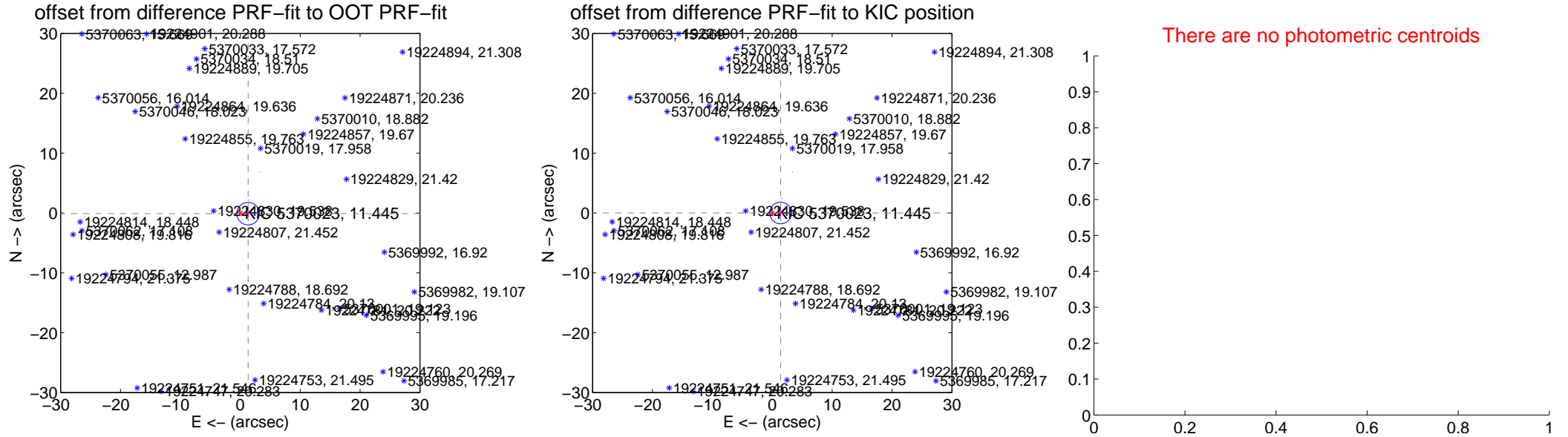
DV Centroid Data

Supplemental centroid analysis for 005370023-02. **Kepler magnitude: 11.45.** Transit SNR 0.00

There are 9 quarters with good PRF difference image offsets

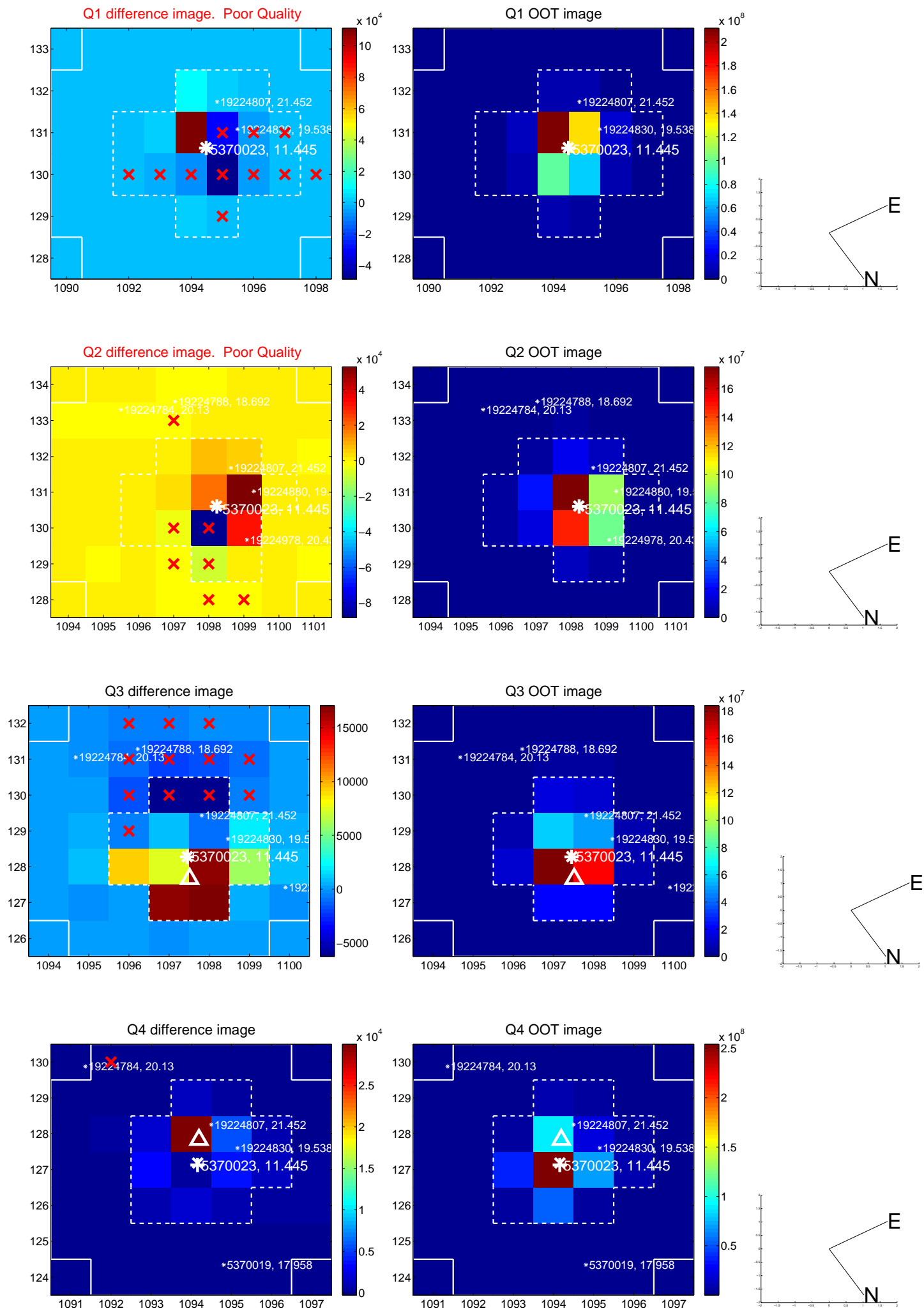
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.310 ± 0.627	2.09	-1.307 ± 0.627	-0.100 ± 0.608
PRF-fit source offset from KIC position	1.393 ± 0.604	2.30	-1.393 ± 0.604	0.008 ± 0.582
photometric centroid source offset	—	—	—	—

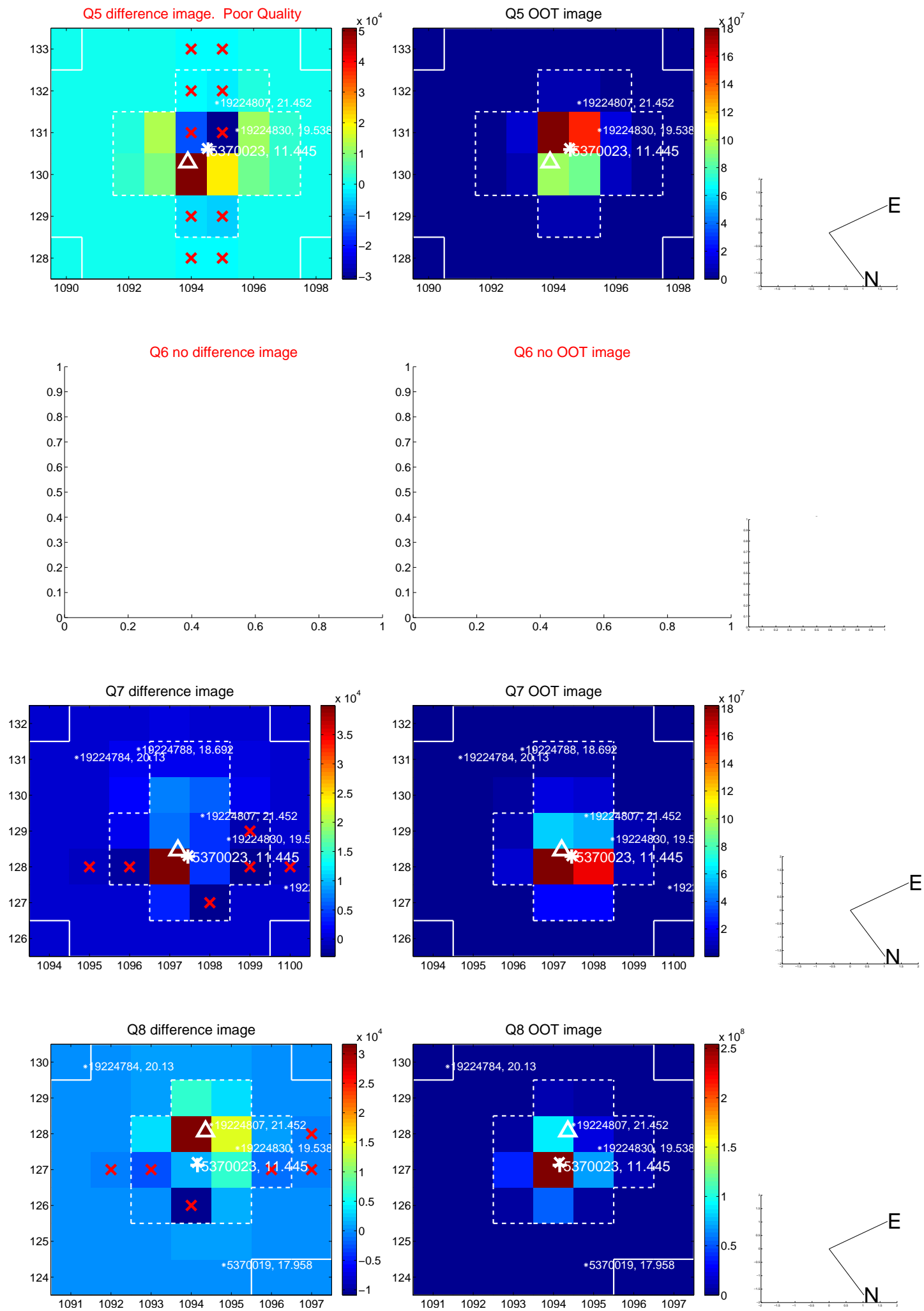


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

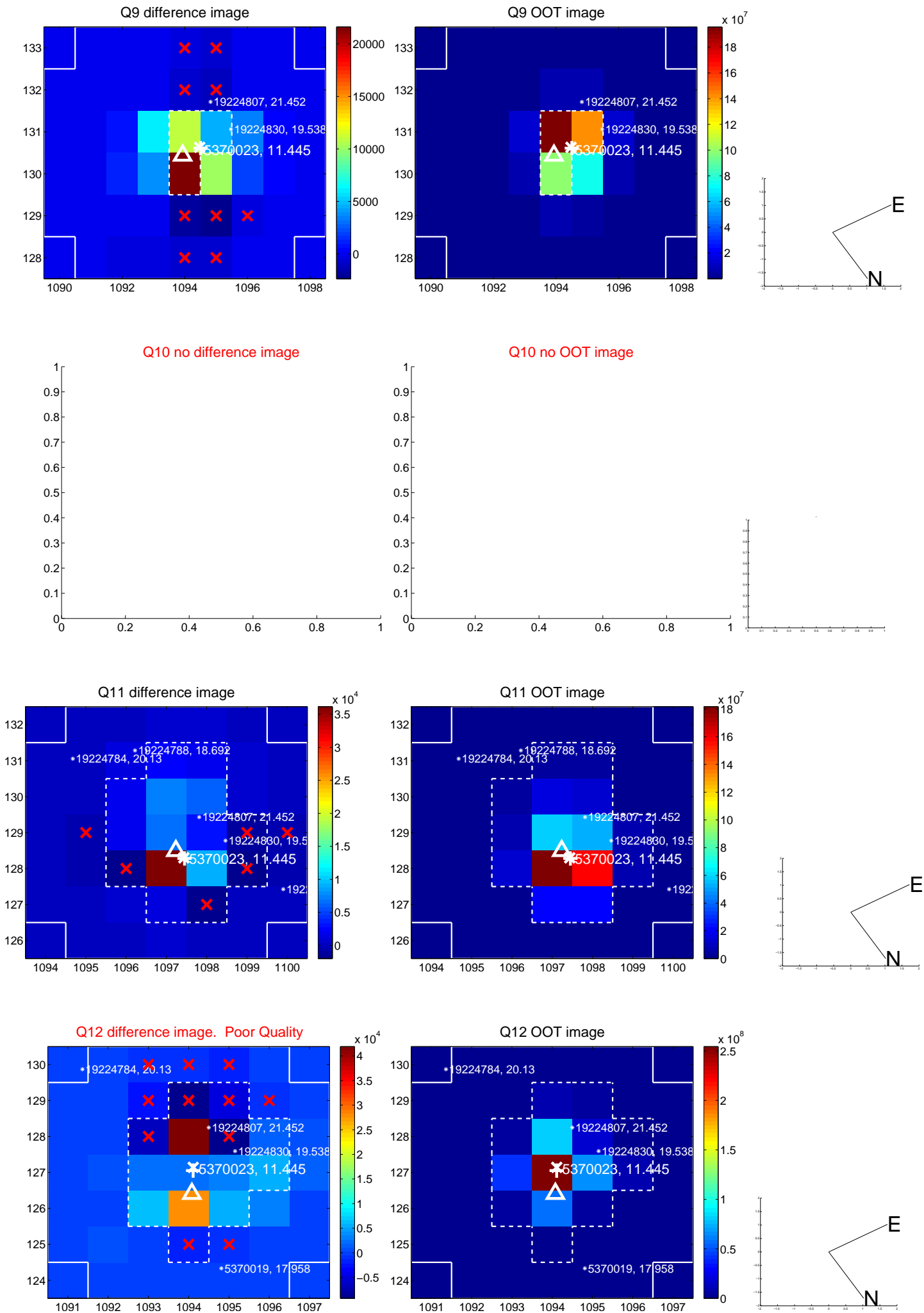
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



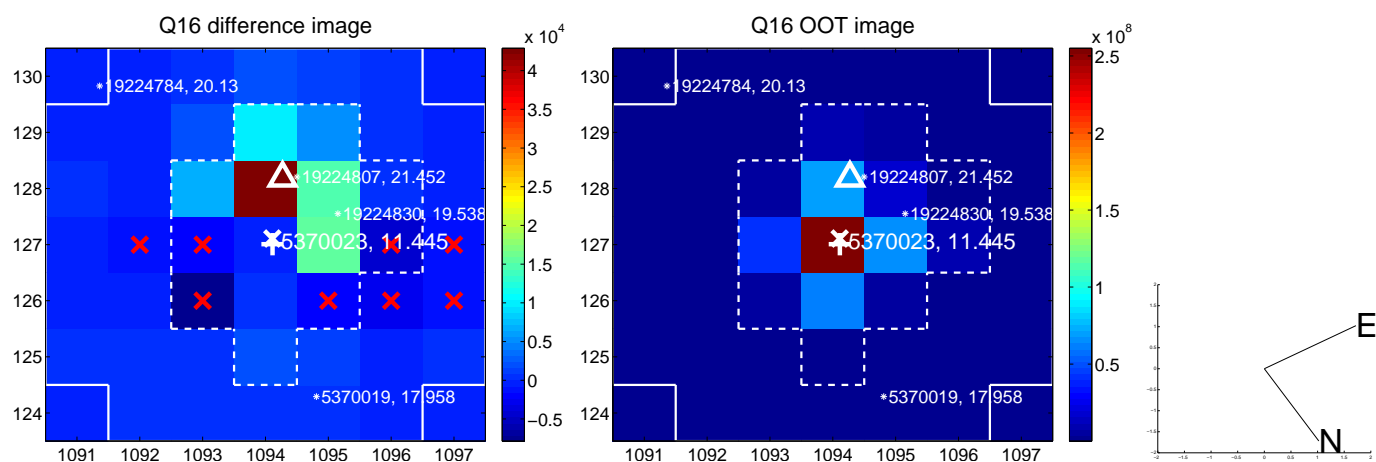
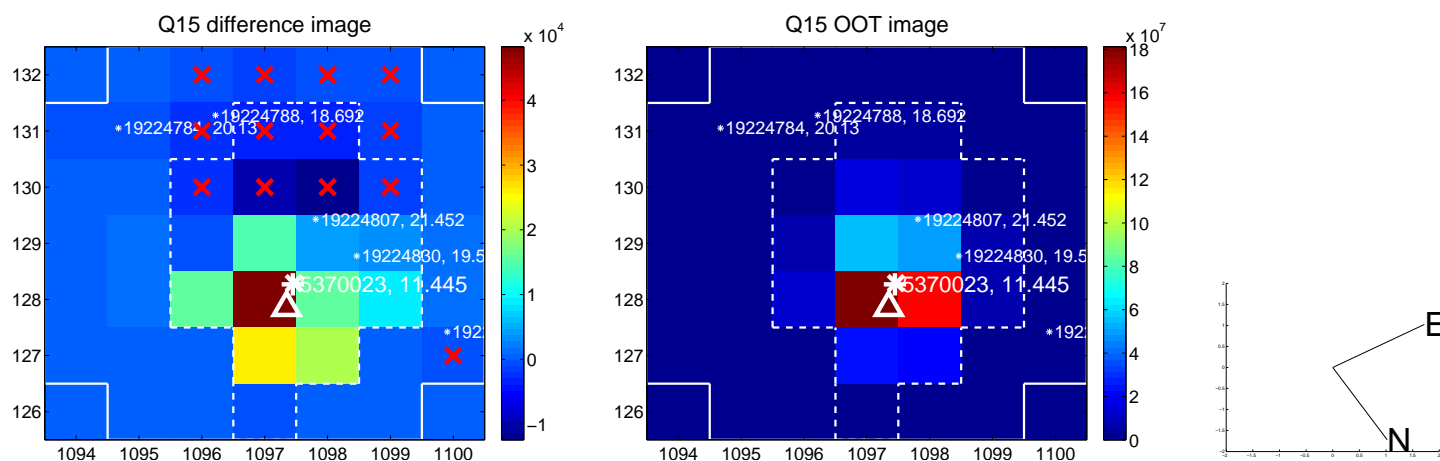
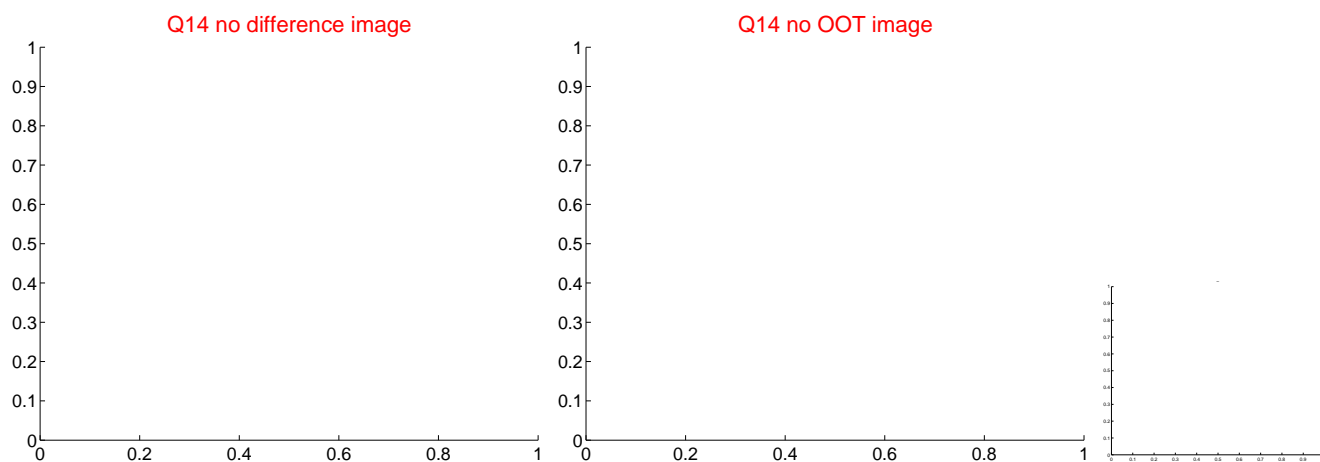
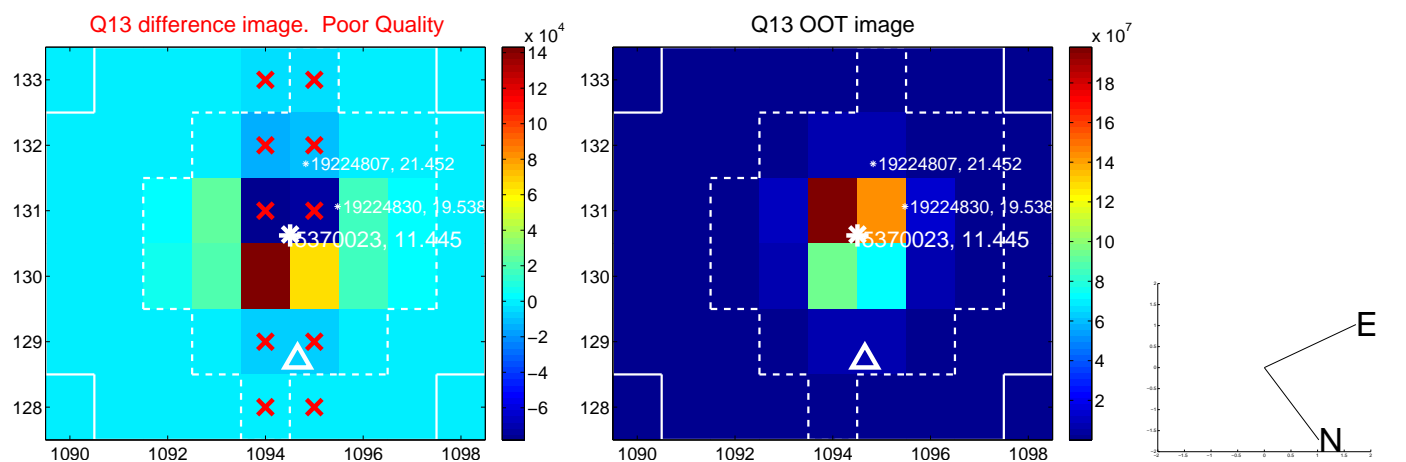
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



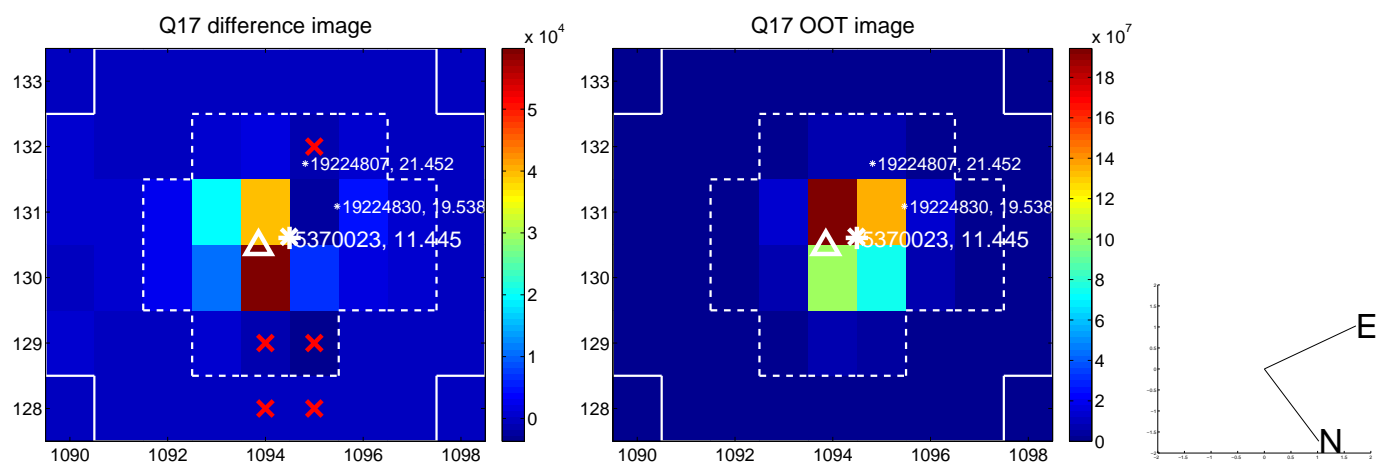
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



folded centroid time series figure for this object.



UKIRT Image

Declination

