

KIC 010717220

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})
010717220-01	OBS	6228.01	21.090743	133.967117	441.8	4.951	16.1	18.2	0.82	5723	2.00	31.90
010717220-02	OBS	No	89.057605	220.566664	485.0	9.163	8.7	9.3	0.82	5723	1.91	4.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010717220-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010717220-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV

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

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

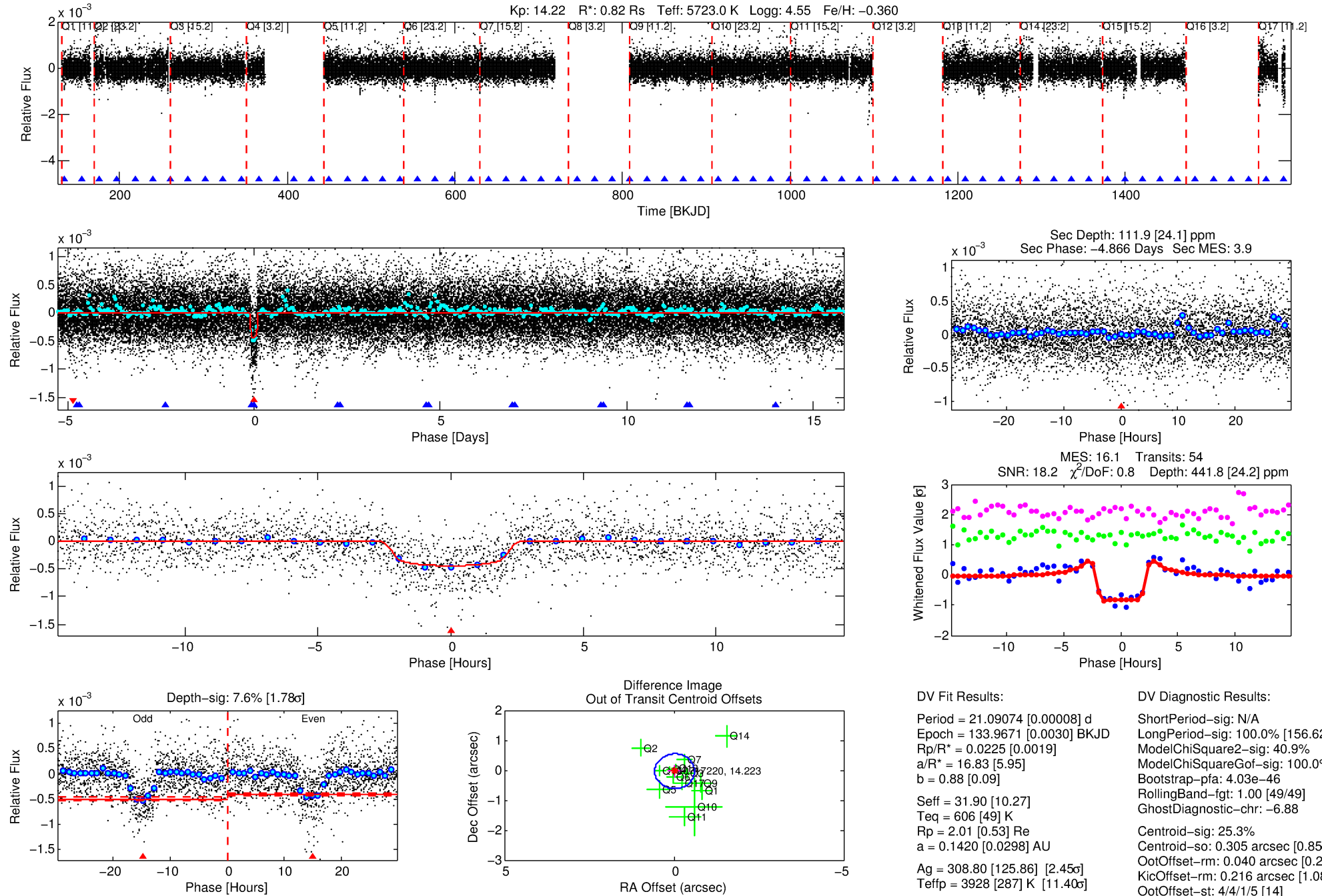
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010717220-01

No Significant Match Found

DV One-Page Summary

KIC: 10717220 Candidate: 1 of 2 Period: 21.091 d
KOI: K06228.01 Corr: 0.967



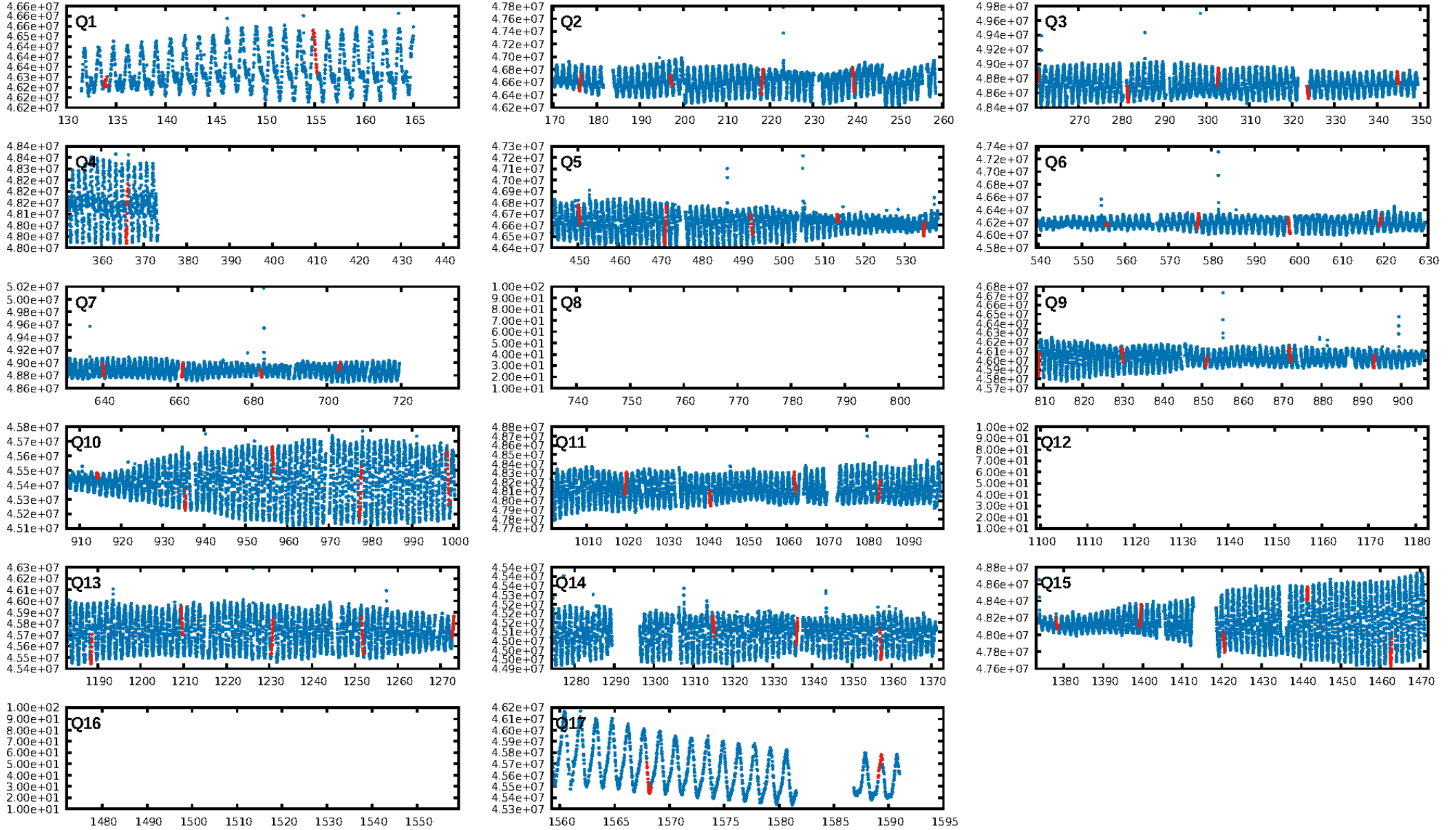
DV Fit Results:

Period = 21.09074 [0.00008] d
Epoch = 133.9671 [0.0030] BKJD
Rp/R* = 0.0225 [0.0019]
a/R* = 16.83 [5.95]
b = 0.88 [0.09]
Seff = 31.90 [10.27]
Teff = 606 [49] K
Rp = 2.01 [0.53] Re
a = 0.1420 [0.0298] AU
Ag = 308.80 [125.86] [2.45 σ]
Teffp = 3928 [287] K [11.40 σ]

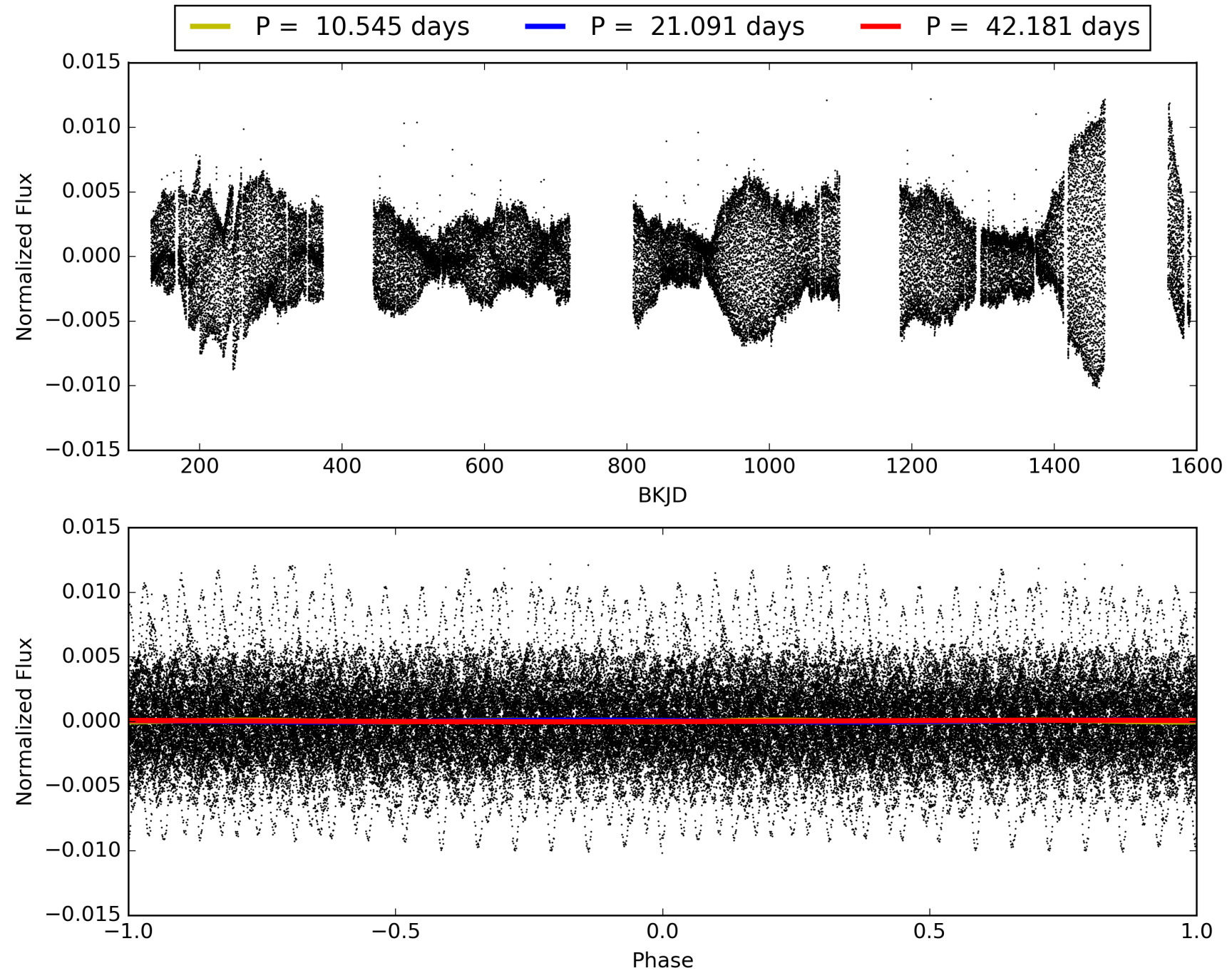
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [156.62 σ]
ModelChiSquare2-sig: 40.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.03e-46
RollingBand-fgt: 1.00 [49/49]
GhostDiagnostic-chr: -6.88
Centroid-sig: 25.3%
Centroid-so: 0.305 arcsec [0.85 σ]
OotOffset-rm: 0.040 arcsec [0.21 σ]
KicOffset-rm: 0.216 arcsec [1.08 σ]
OotOffset-st: 4/4/1/5 [14]
KicOffset-st: 4/4/1/5 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 010717220-01, PDC Light Curves

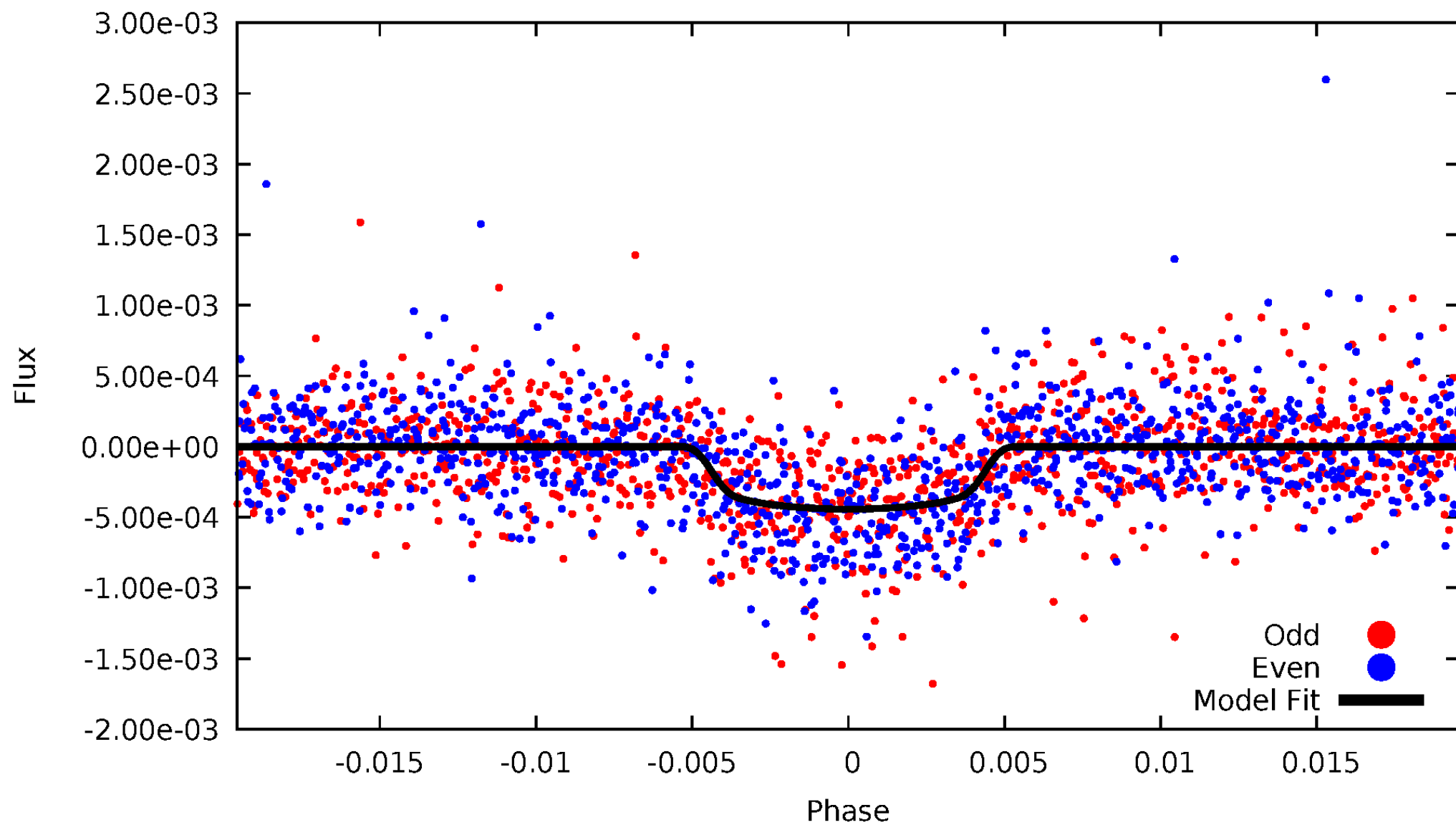


TCE 010717220-01



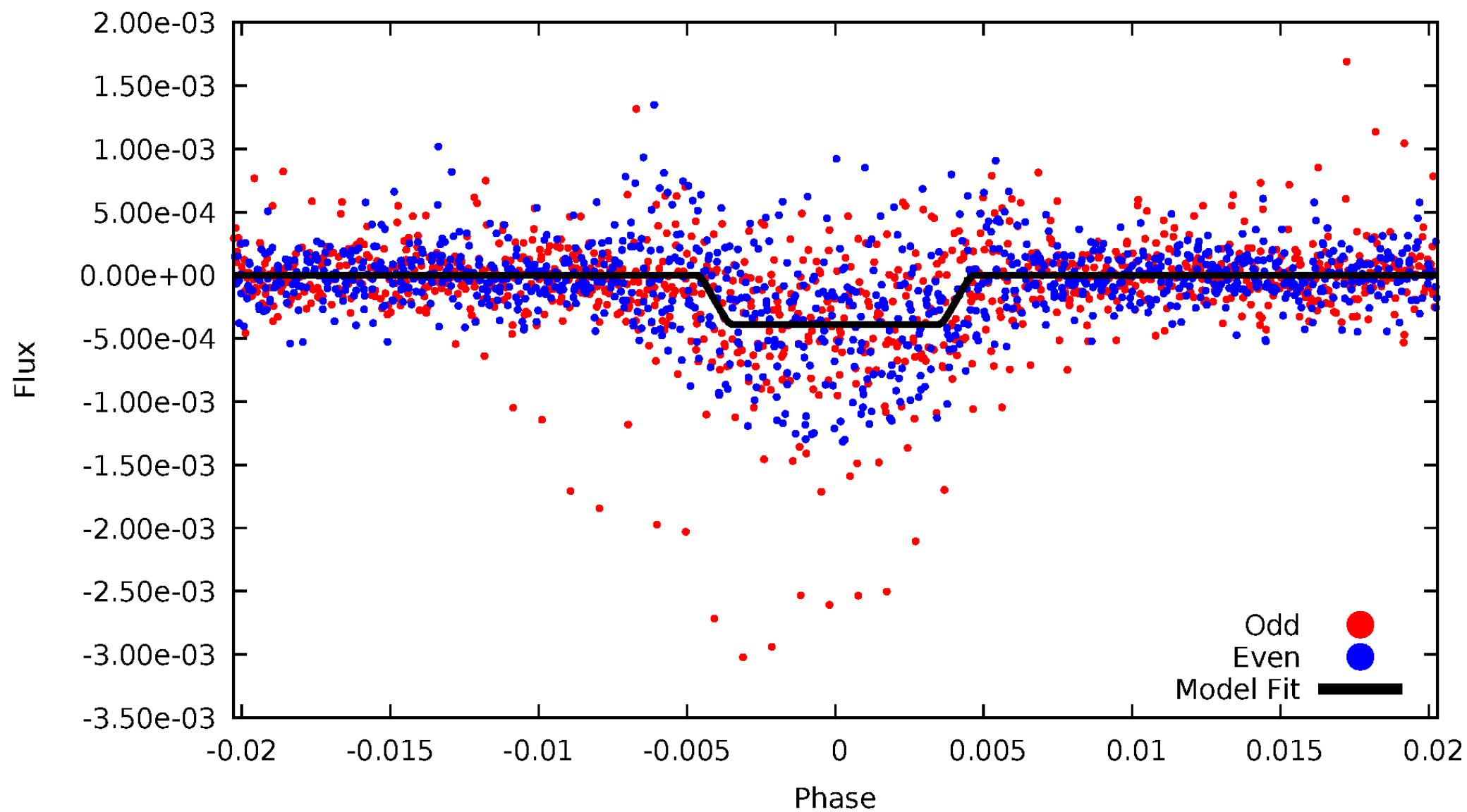
DV Odd/Even

TCE 010717220-01



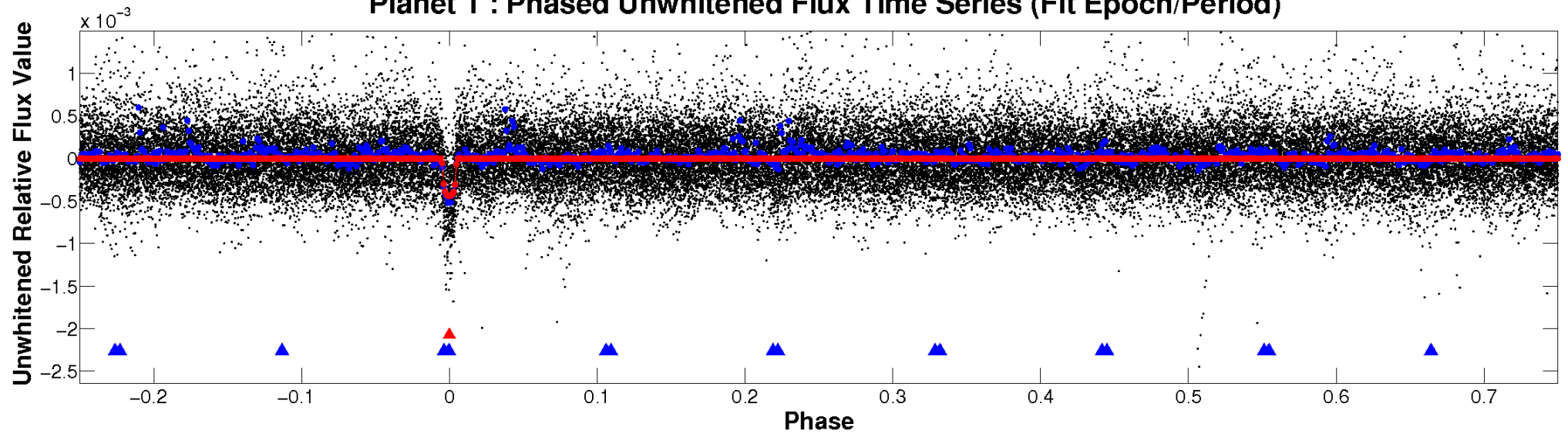
ALT Odd/Even

TCE 010717220-01

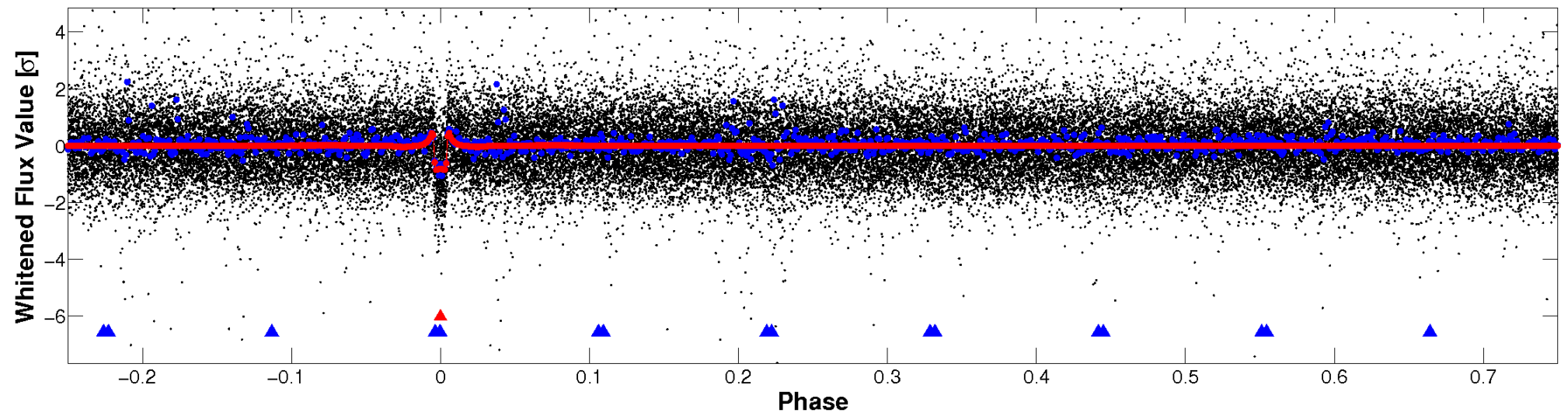


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

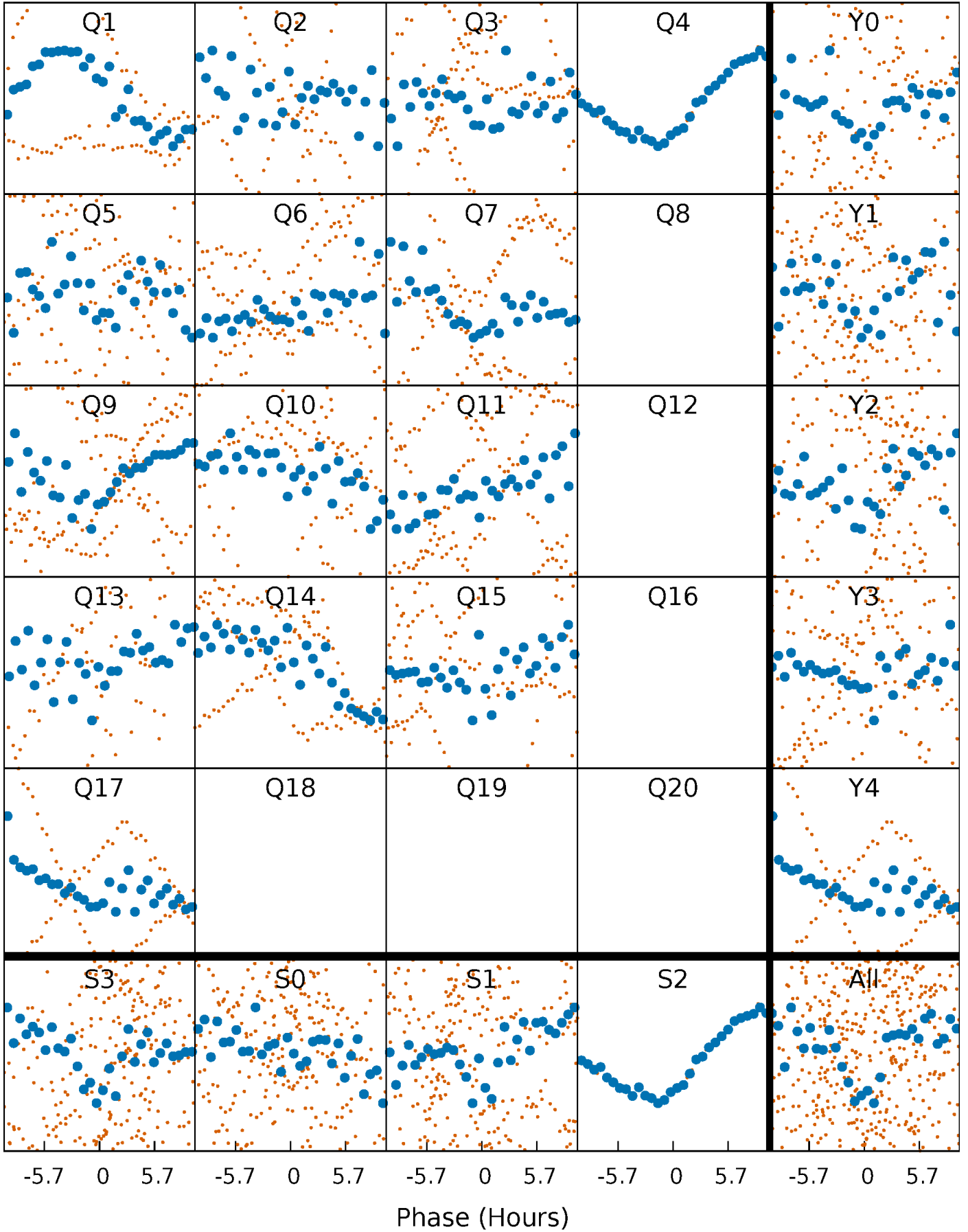


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



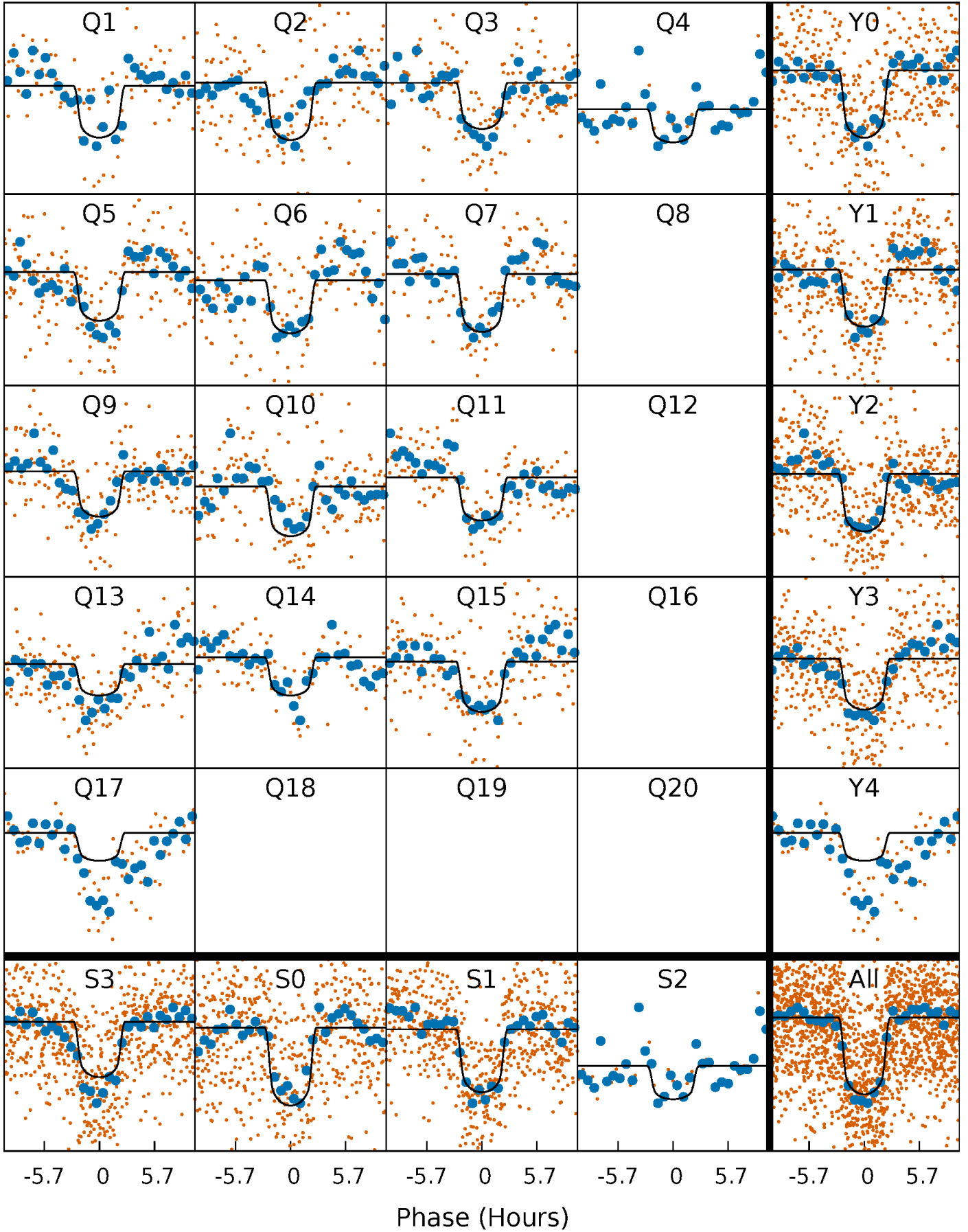
PDC Quarter-Phased Transit Curves

TCE 010717220-01 P= 21.090743 Days $T_0=133.967117$ (BKJD)



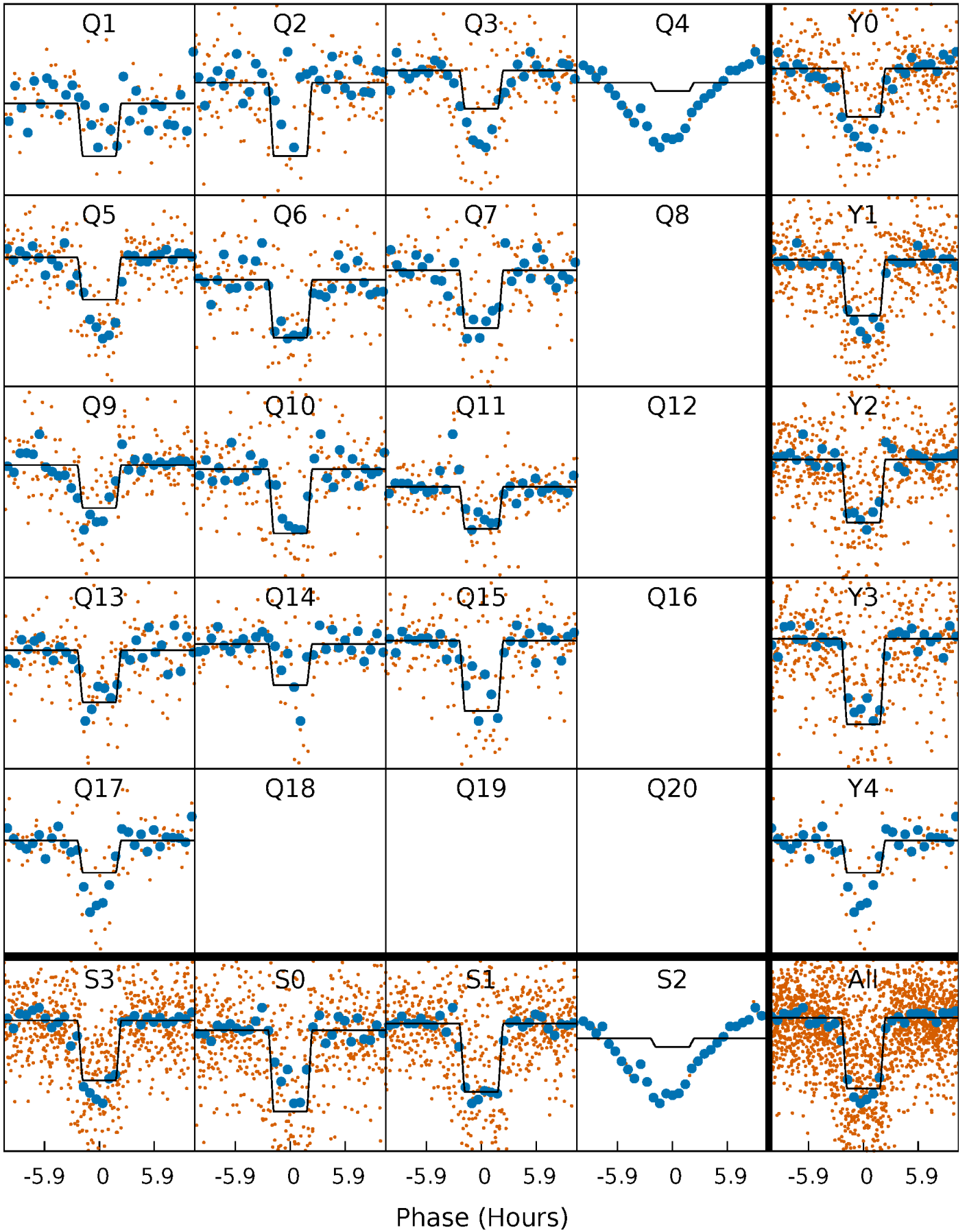
DV Quarter-Phased Transit Curves

TCE 010717220-01 P= 21.090743 Days $T_0=133.967117$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

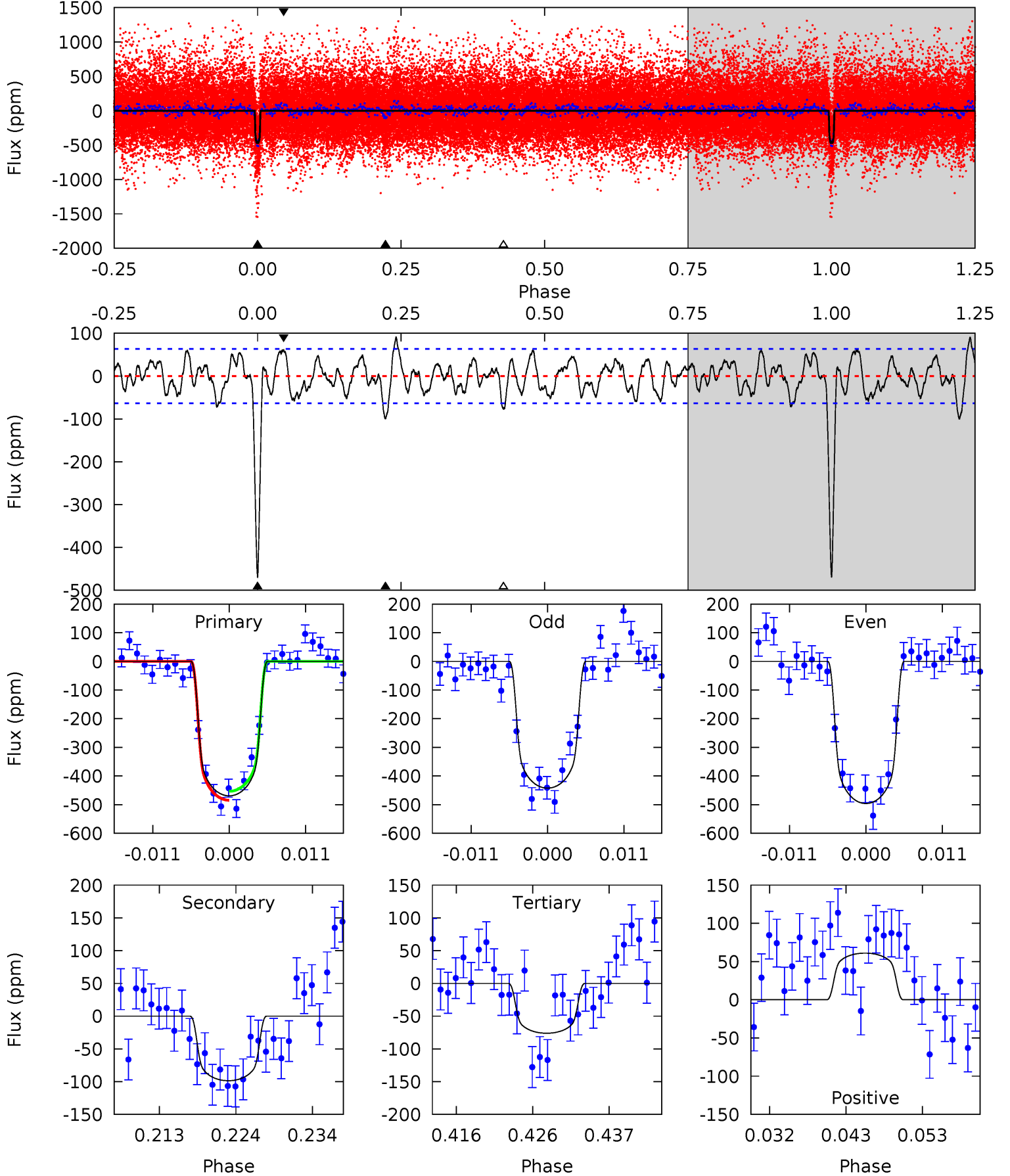
TCE 010717220-01 P= 21.090549 Days $T_0=133.973274$ (BKJD)



DV Model-Shift Uniqueness Test

010717220-01, P = 21.090743 Days, E = 112.876374 Days

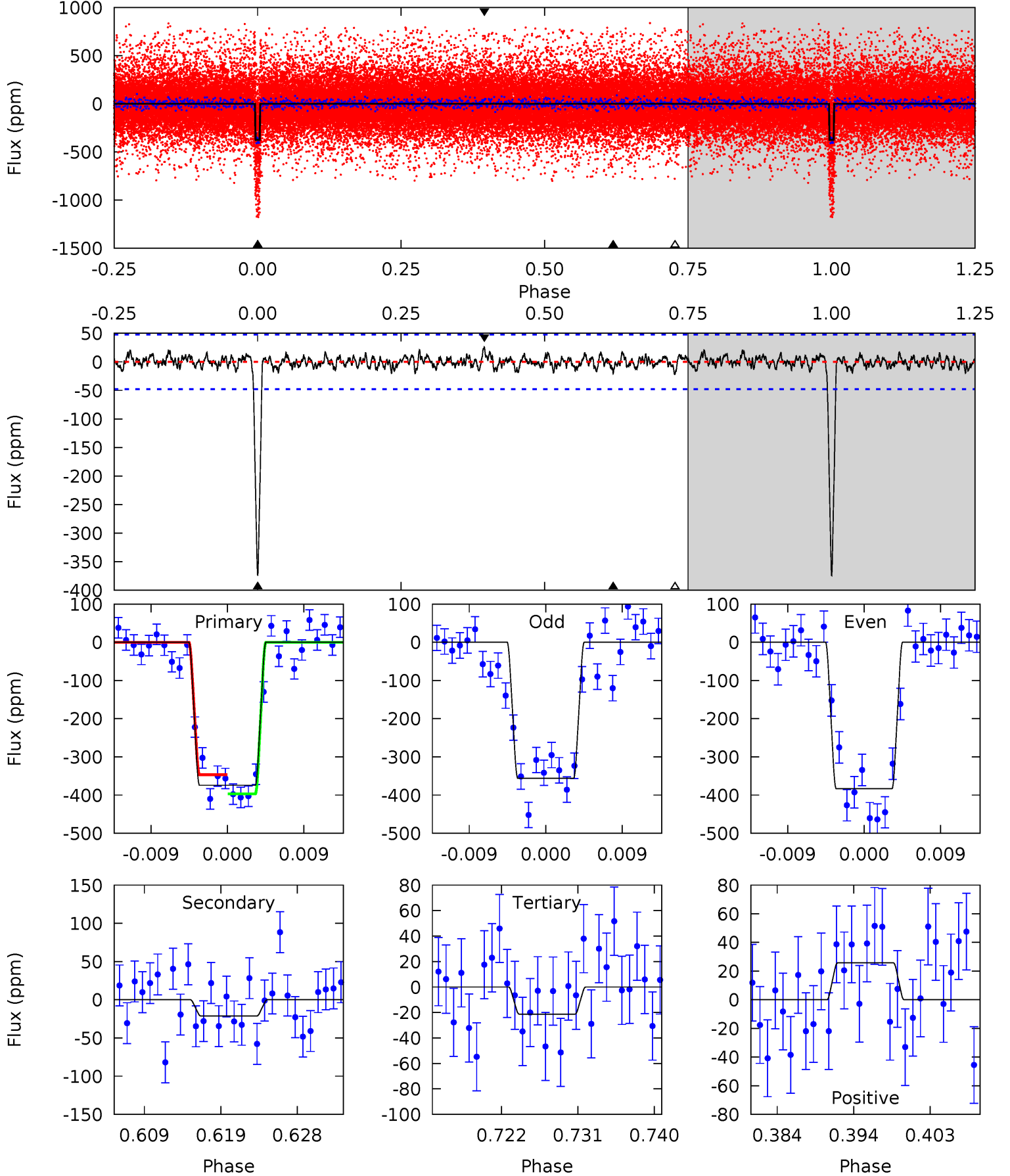
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.0	7.77	6.00	4.81	5.01	2.55	2.38	31.0	32.2	1.77	2.96	2.12	1.01	0.16	1.23



Alt Model-Shift Uniqueness Test

010717220-01, P = 21.090549 Days, E = 112.882725 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.5	2.25	2.24	2.71	5.04	2.60	0.82	37.2	36.8	0.01	-0.46	1.42	1.22	0.06	2.67



Stellar Parameters For KIC 010717220

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5723^{+154}_{-154}	$4.546^{+0.055}_{-0.165}$	$-0.360^{+0.300}_{-0.300}$	$0.818^{+0.205}_{-0.073}$	$0.857^{+0.098}_{-0.089}$	$2.209^{+0.491}_{-0.997}$
	+3%/-3%	+1%/-4%	+83%/-83%	+25%/-9%	+11%/-10%	+22%/-45%
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 010717220-01 / KOI 6228.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-99 ± 13	$2.05^{+0.32}_{-0.23}$	861^{+50}_{-38}	4080^{+192}_{-150}	252^{+73}_{-63}
Alt.	-21 ± 9	$1.80^{+0.28}_{-0.21}$	859^{+51}_{-37}	3306^{+223}_{-279}	69^{+40}_{-32}

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 $A_{obs} \gg 1.0$

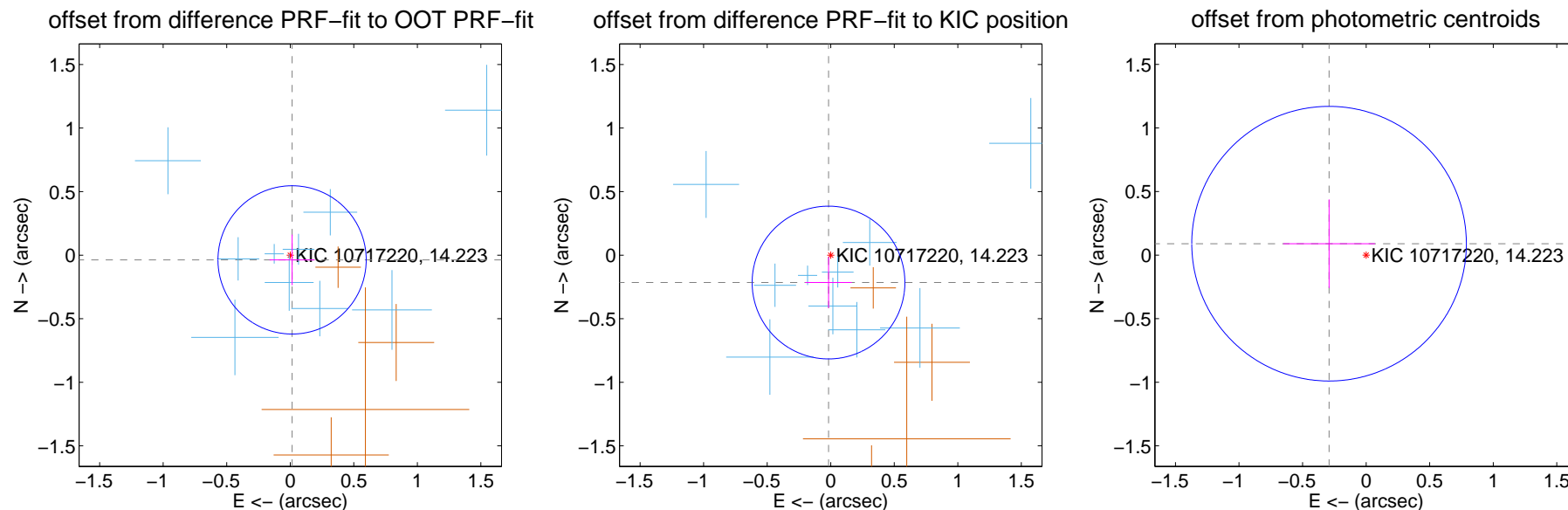
DV Centroid Data

Supplemental centroid analysis for 010717220-01. Kepler magnitude: 14.22. Transit SNR 18.20

There are 10 quarters with good PRF difference image offsets

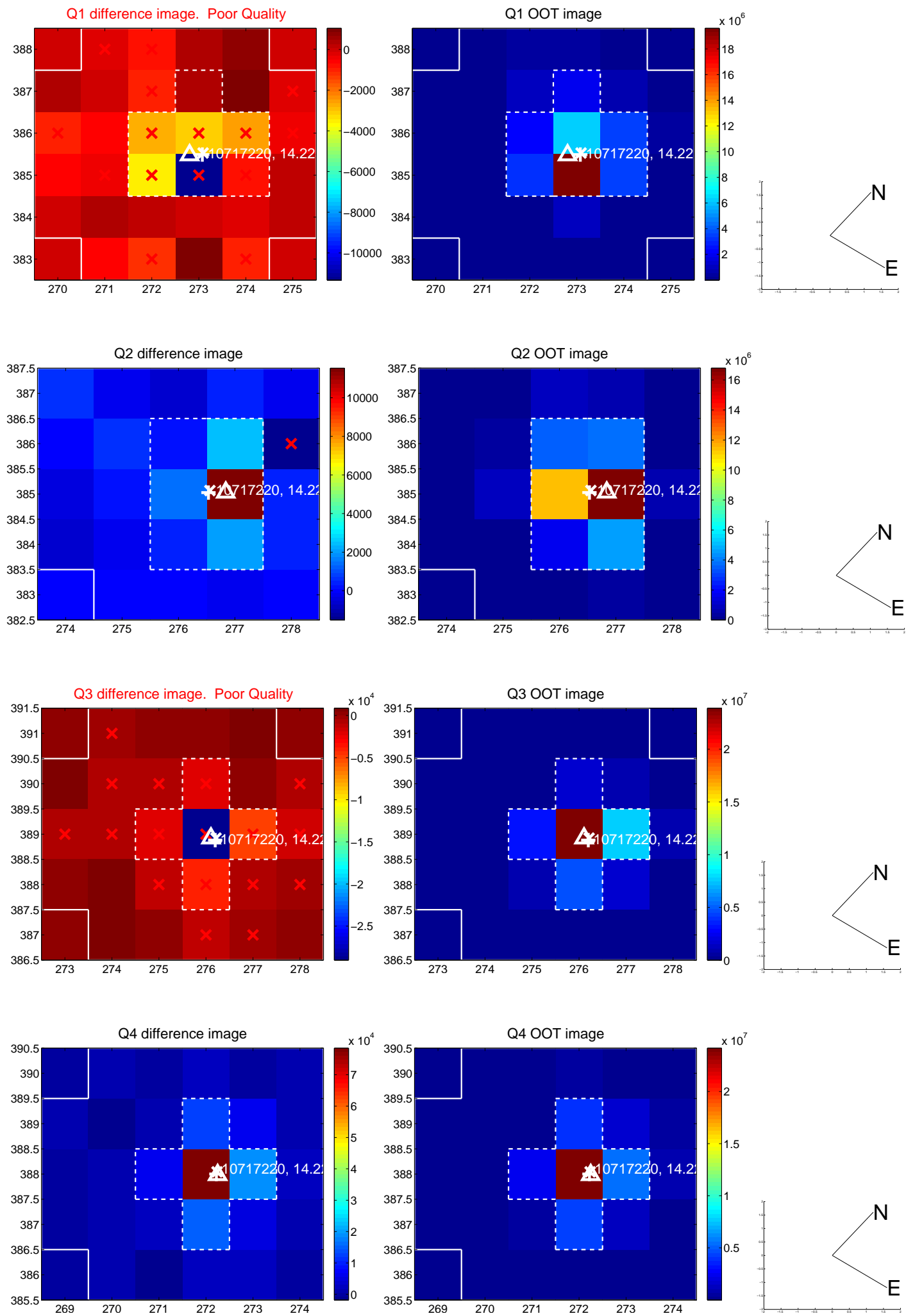
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.040 ± 0.194	0.21	-0.014 ± 0.177	-0.037 ± 0.199
PRF-fit source offset from KIC position	0.216 ± 0.200	1.08	0.017 ± 0.183	-0.215 ± 0.200
photometric centroid source offset	0.31 ± 0.36	0.85	0.29 ± 0.36	0.09 ± 0.35

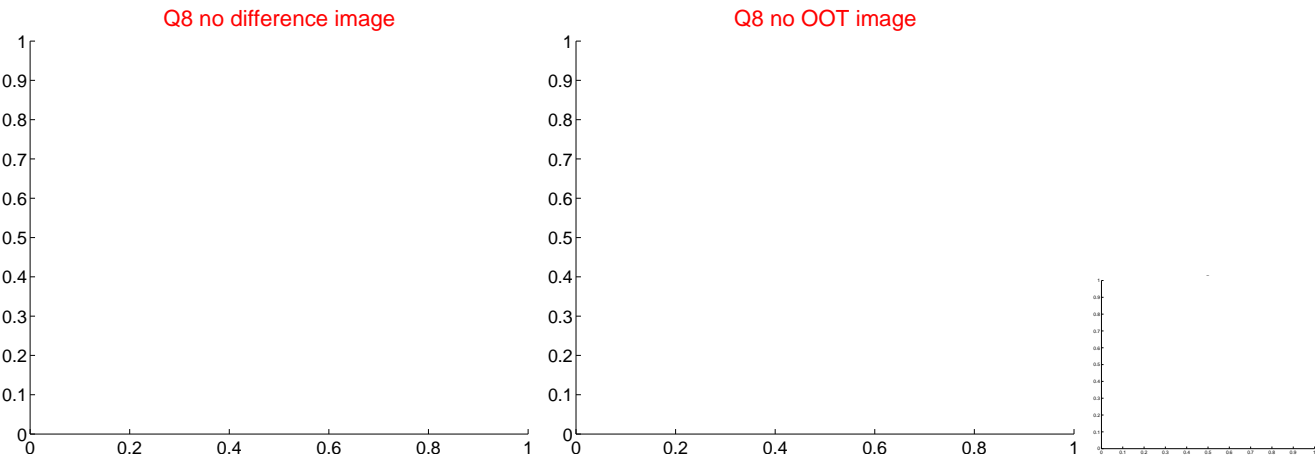
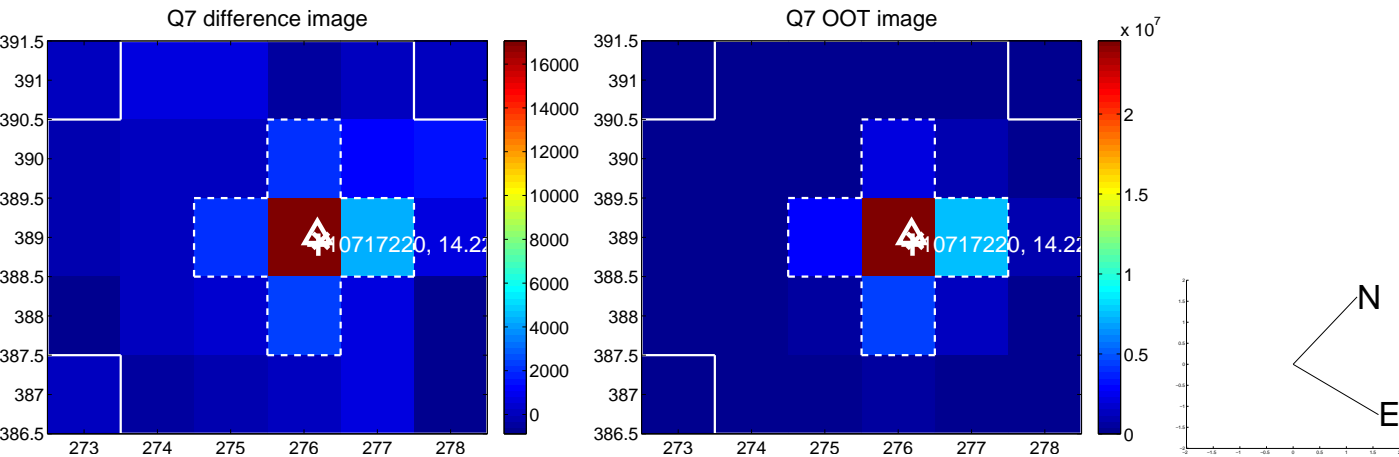
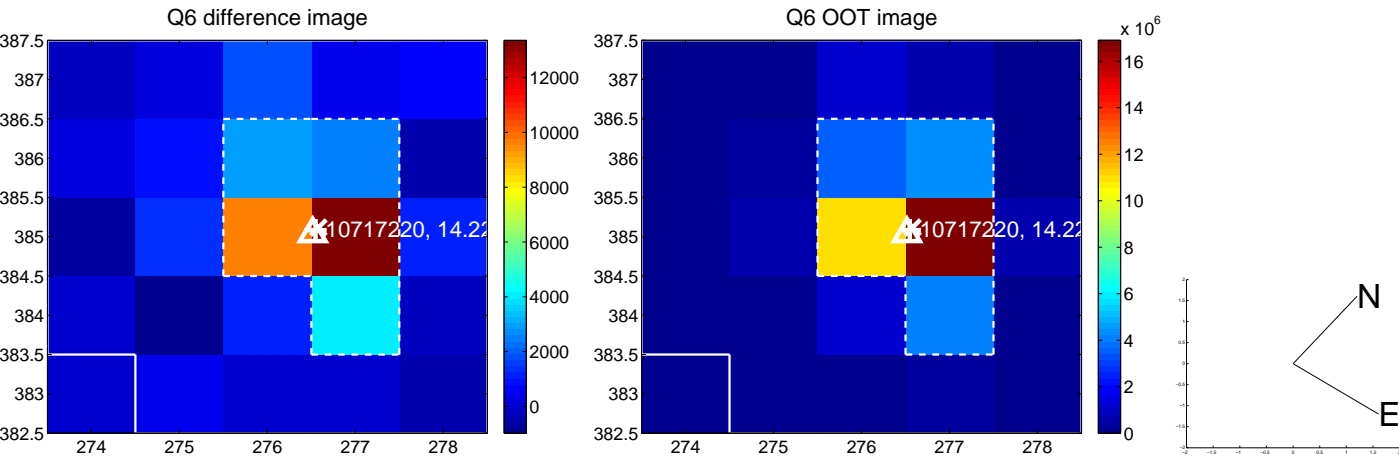
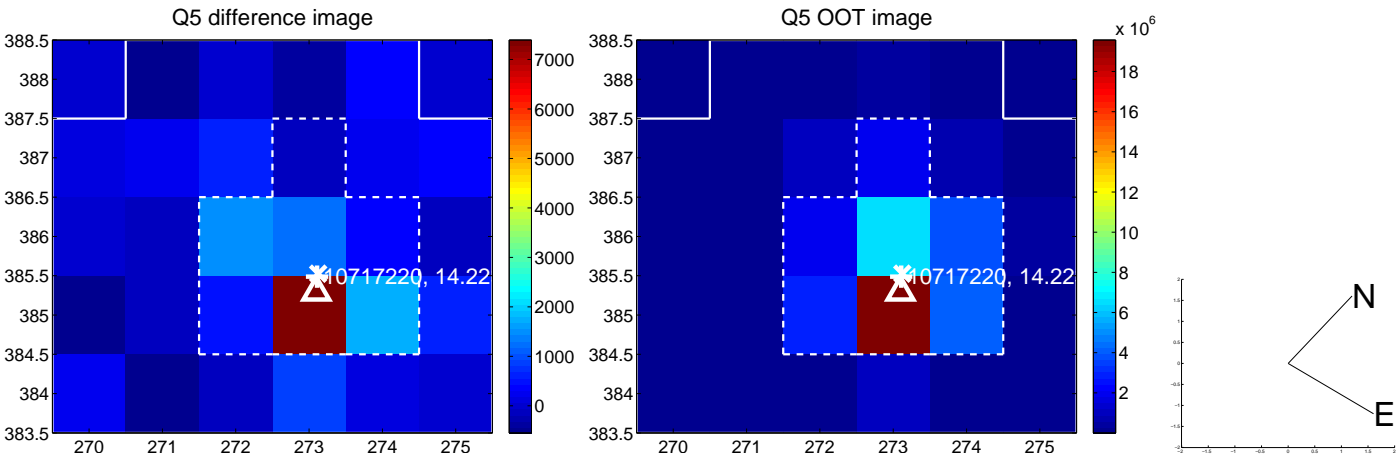


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

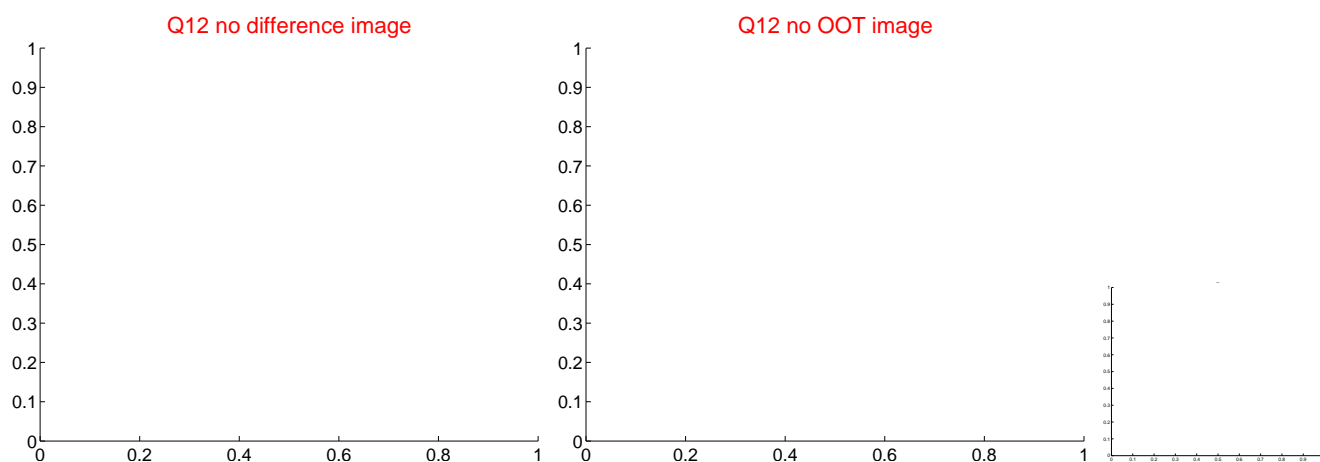
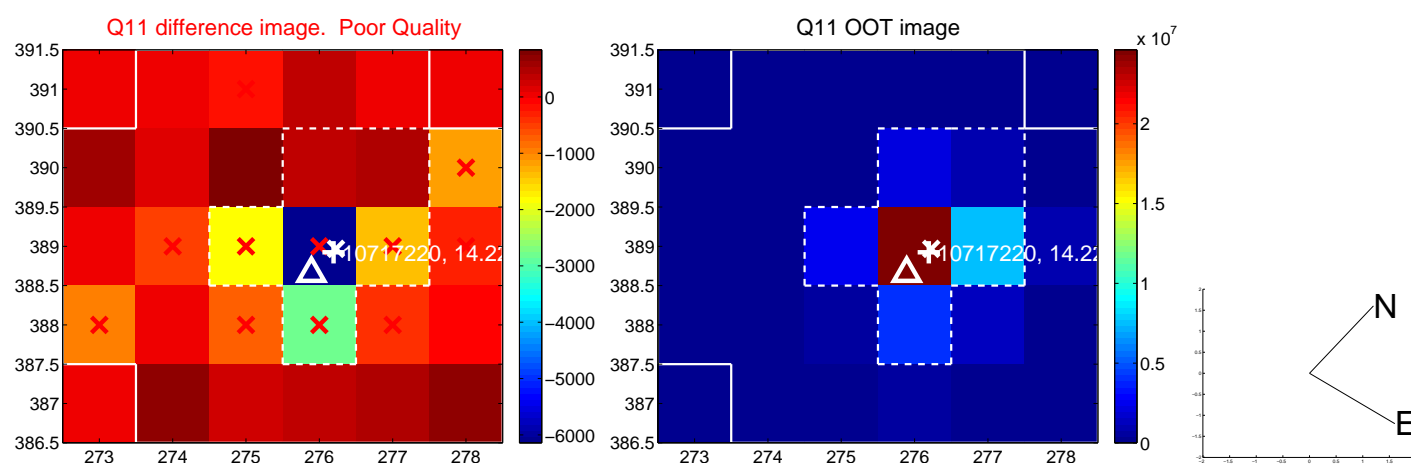
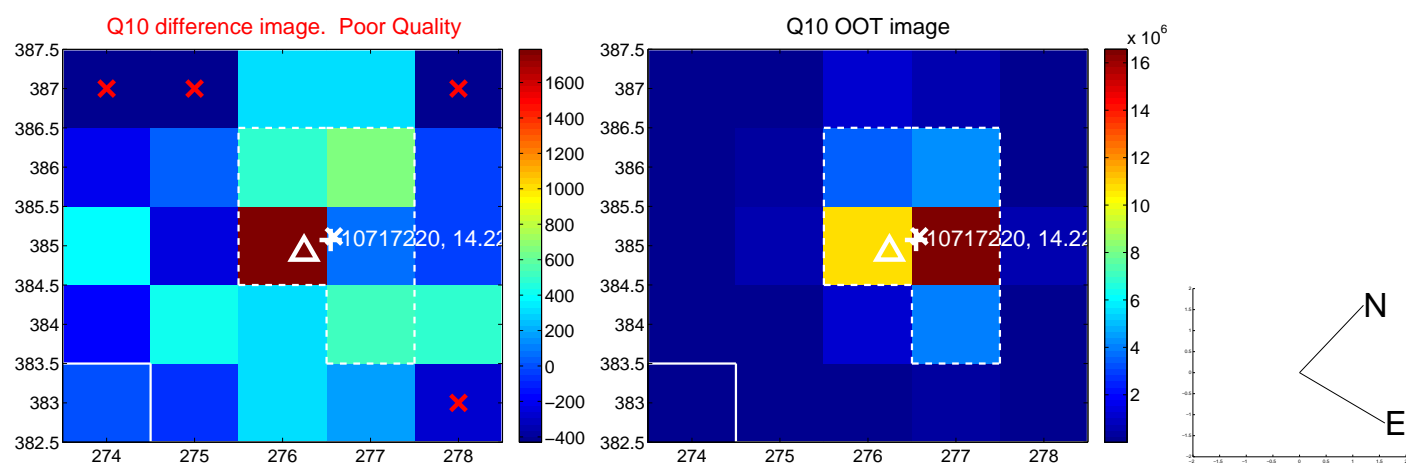
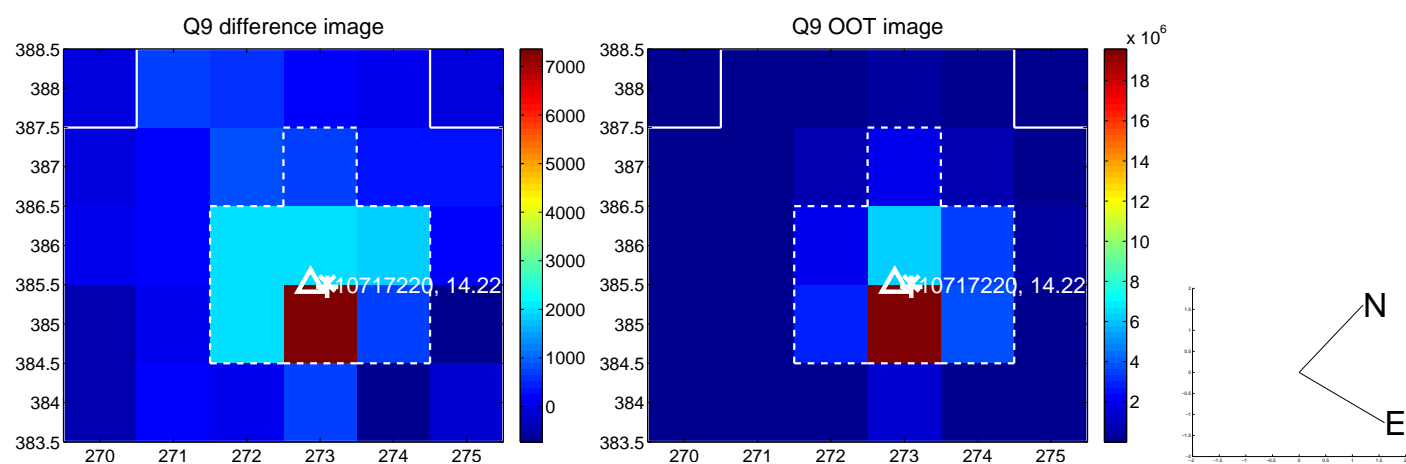
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



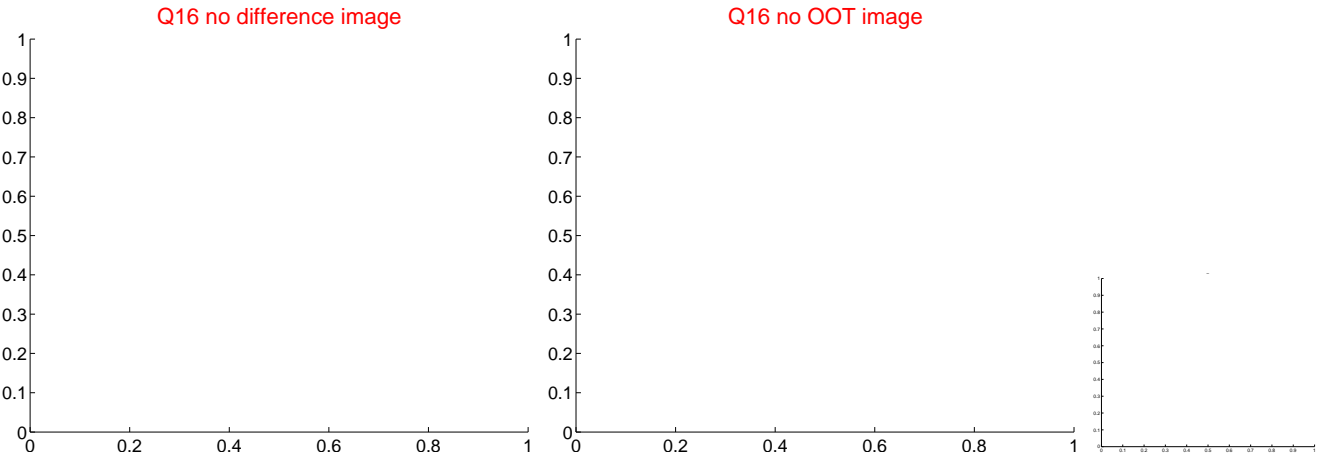
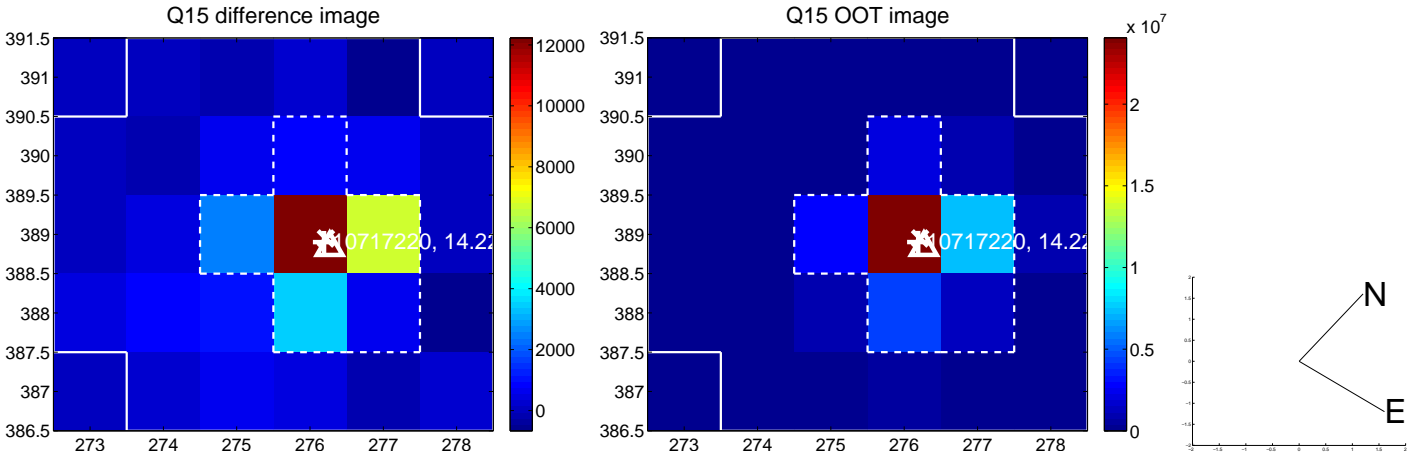
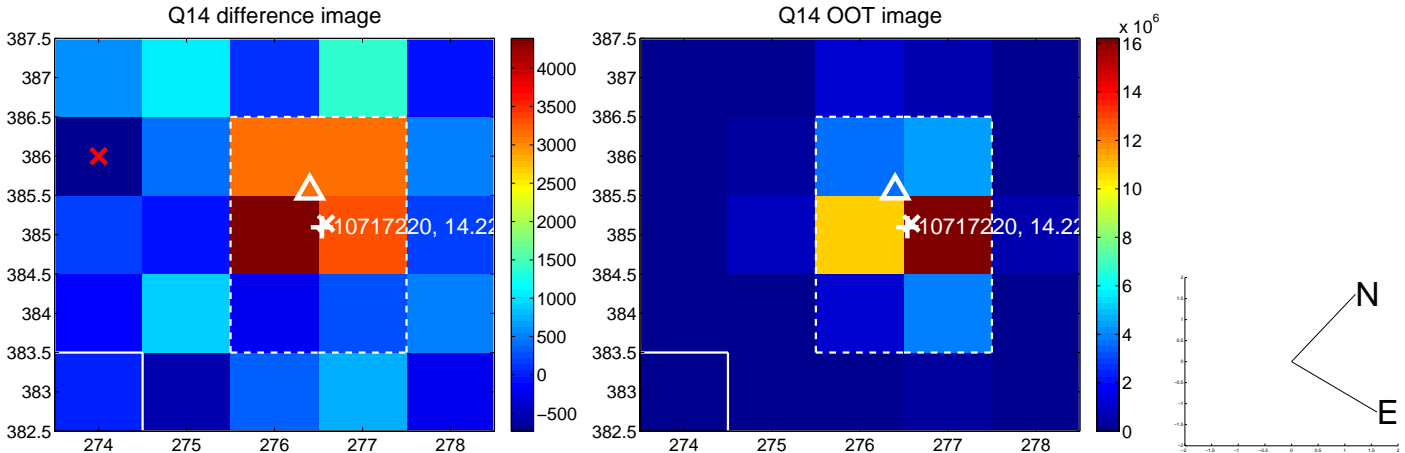
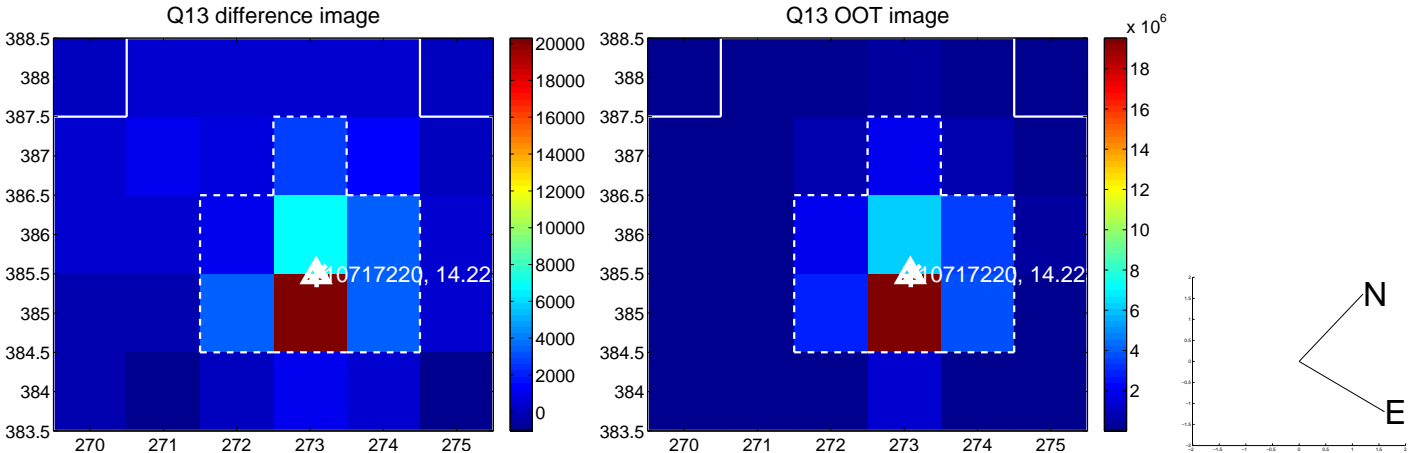
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



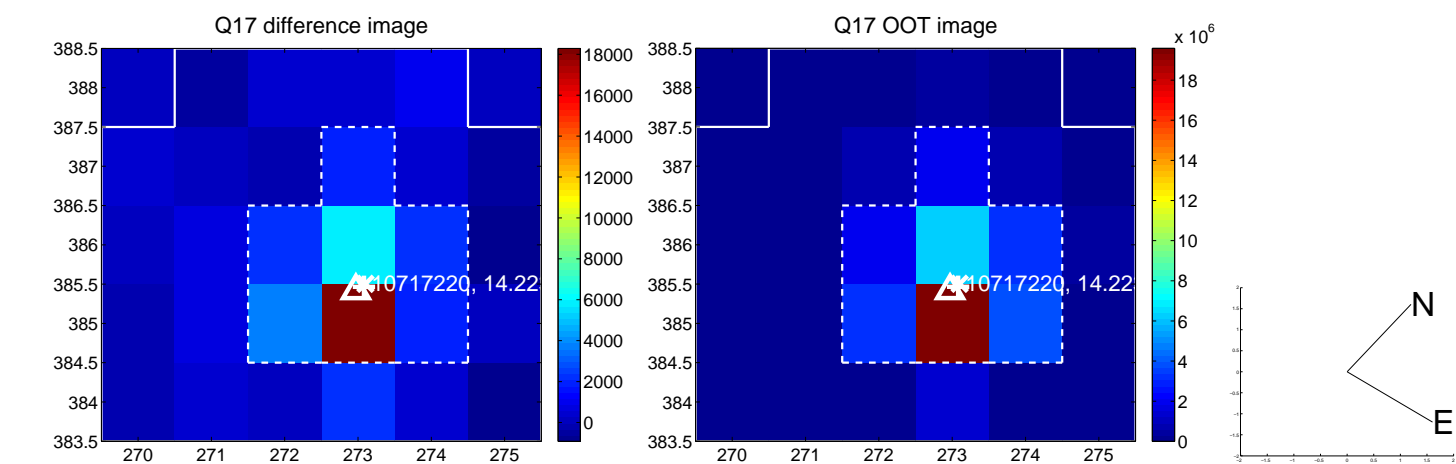
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



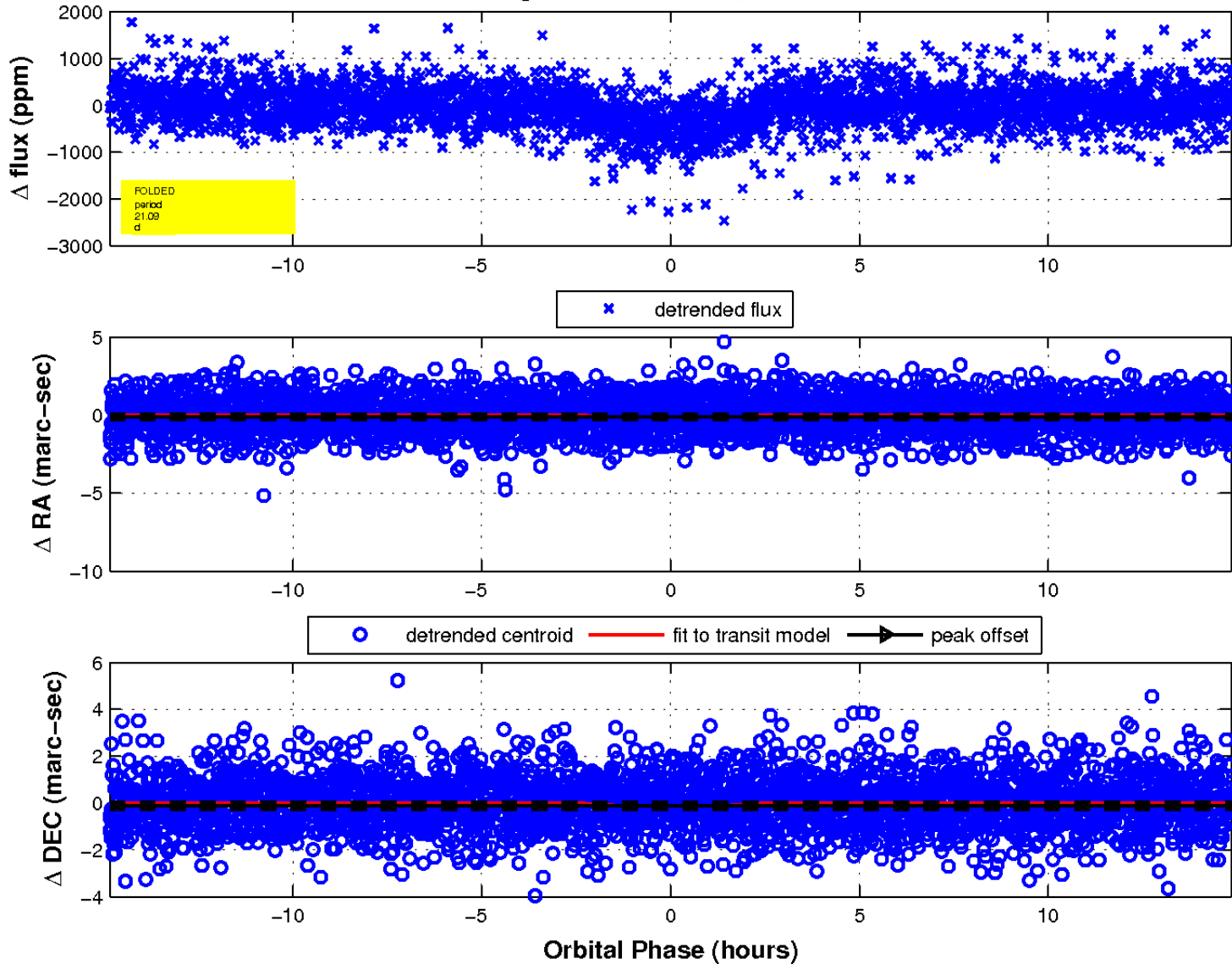
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



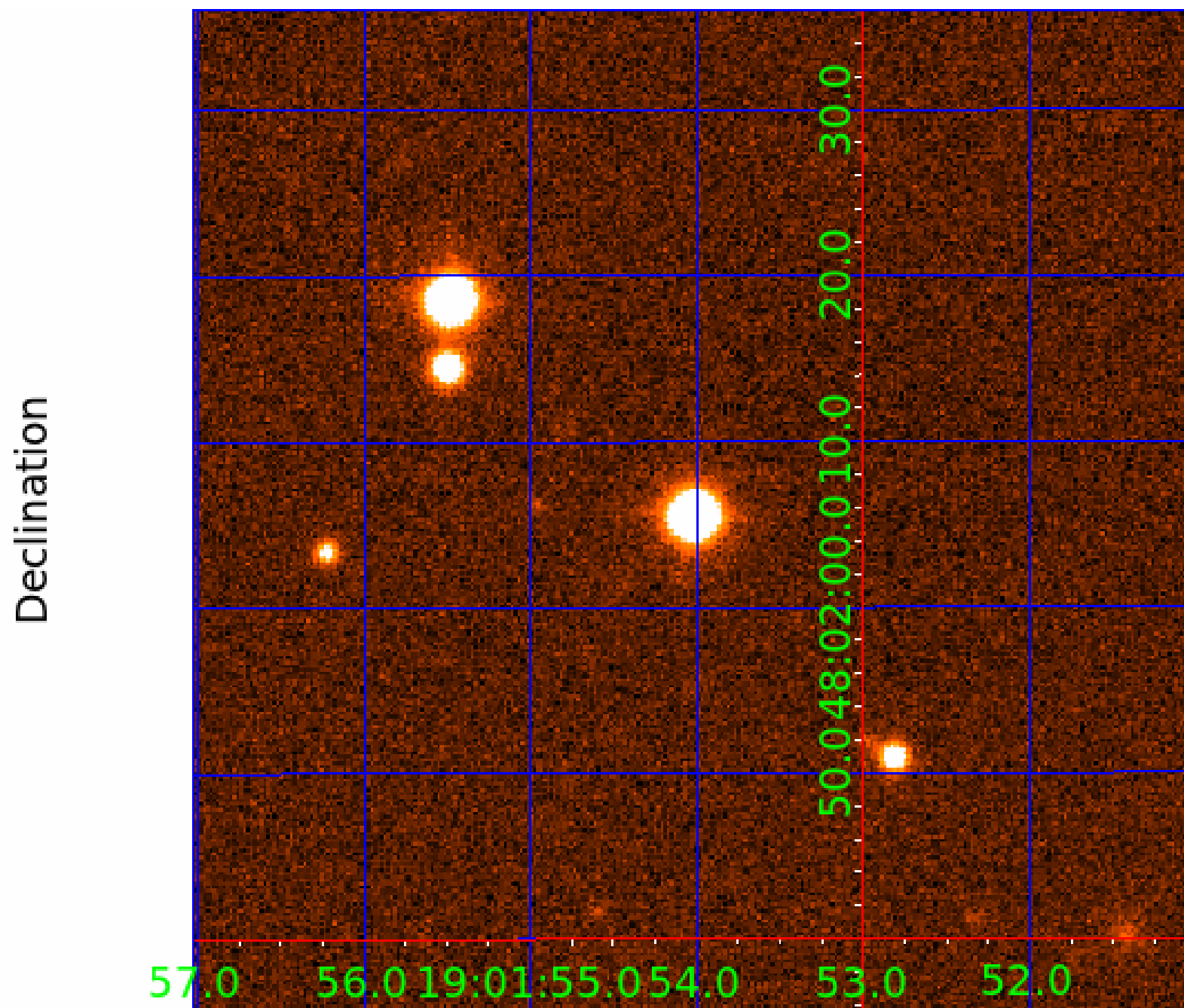
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 010717220

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})
010717220-01	OBS	6228.01	21.090743	133.967117	441.8	4.951	16.1	18.2	0.82	5723	2.00	31.90
010717220-02	OBS	No	89.057605	220.566664	485.0	9.163	8.7	9.3	0.82	5723	1.91	4.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010717220-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010717220-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV

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.

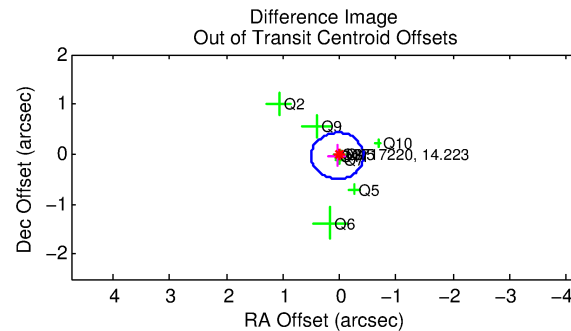
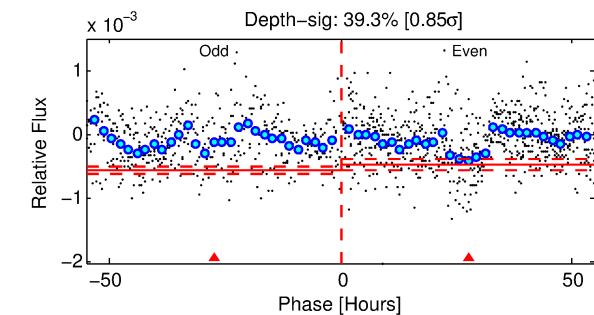
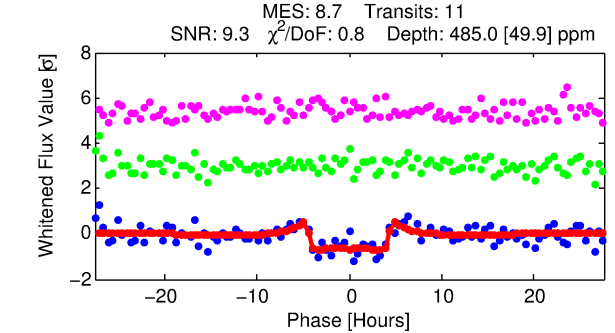
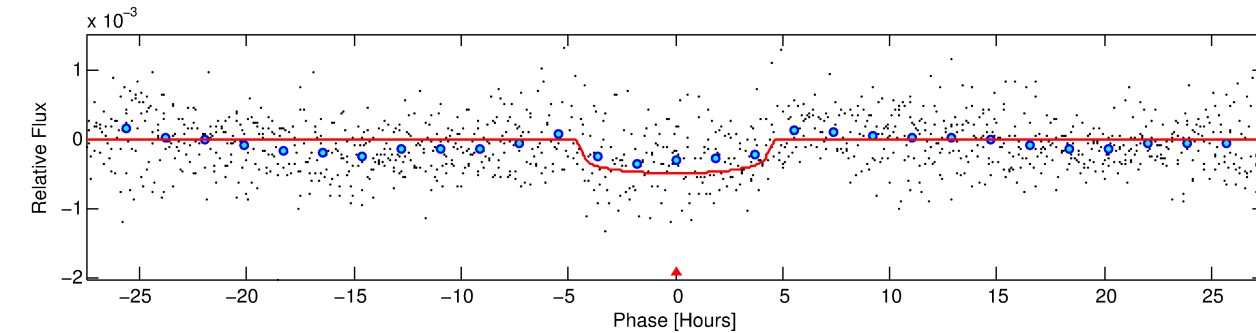
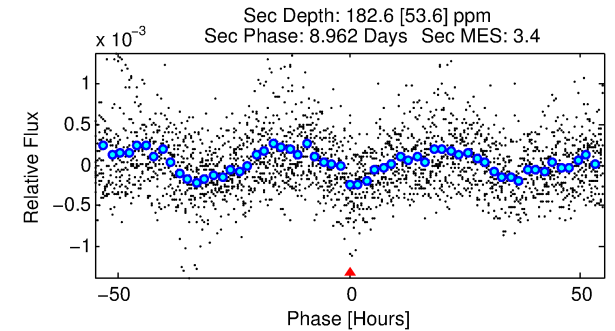
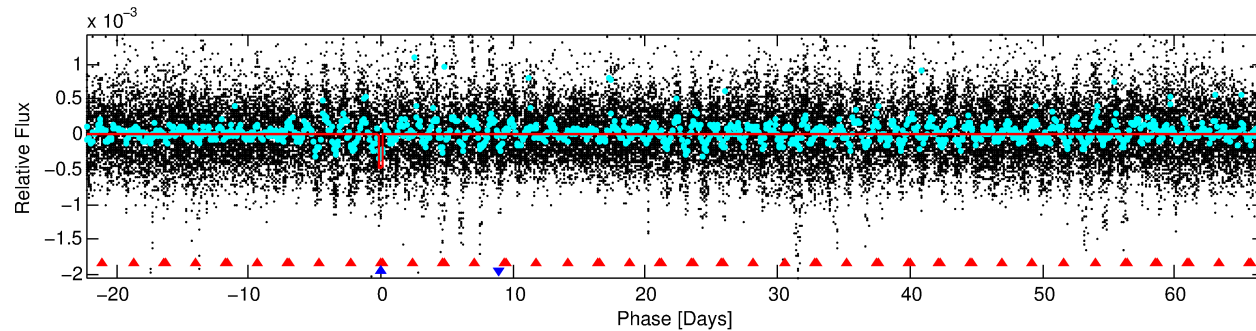
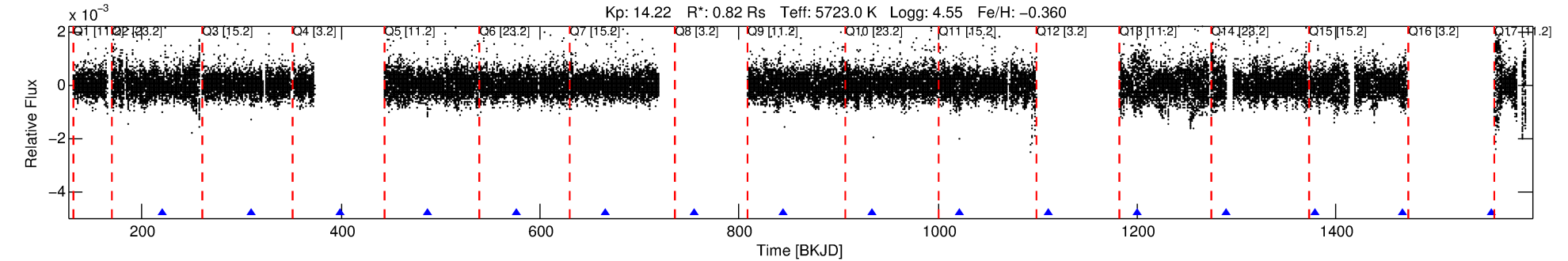
Ephemeris Match Information For 010717220-02

No Significant Match Found

DV One-Page Summary

KIC: 10717220 Candidate: 2 of 2 Period: 89.058 d
KOI: K06228 Corr: No Ephemeris Match

Kp: 14.22 R*: 0.82 Rs Teff: 5723.0 K Logg: 4.55 Fe/H: -0.360



DV Fit Results:

Period = 89.05760 [0.00085] d
Epoch = 220.5667 [0.0069] BKJD
Rp/R* = 0.0214 [0.0061]
a/R* = 56.46 [71.19]
b = 0.68 [1.00]
Seff = 4.67 [1.50]
Teq = 375 [30] K
Rp = 1.91 [0.72] Re
a = 0.3709 [0.0778] AU
Ag = 3775.13 [2671.70] [1.41σ]
Teff = 4544 [737] K [5.66σ]

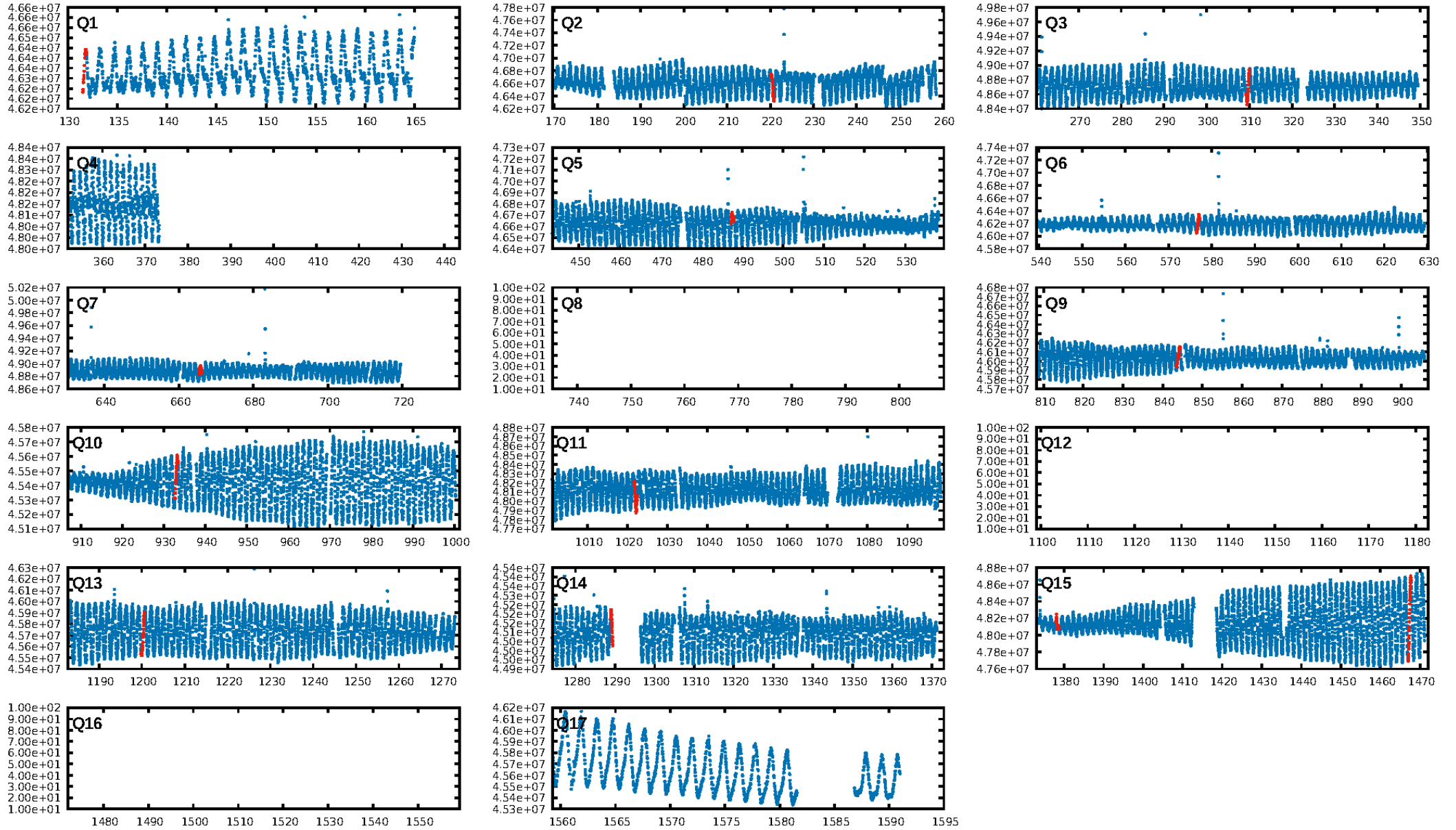
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [156.62σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 57.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.51e-14
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: 0.7875
Centroid-sig: 24.0%
Centroid-so: 0.713 arcsec [1.47σ]
OotOffset-rm: 0.053 arcsec [0.35σ]
KicOffset-rm: 0.254 arcsec [1.25σ]
OotOffset-st: 3/4/0/2 [9]
KicOffset-st: 3/4/0/2 [9]
DiffImageQuality-fgm: 0.33 [3/9]
DiffImageOverlap-fno: 0.89 [8/9]

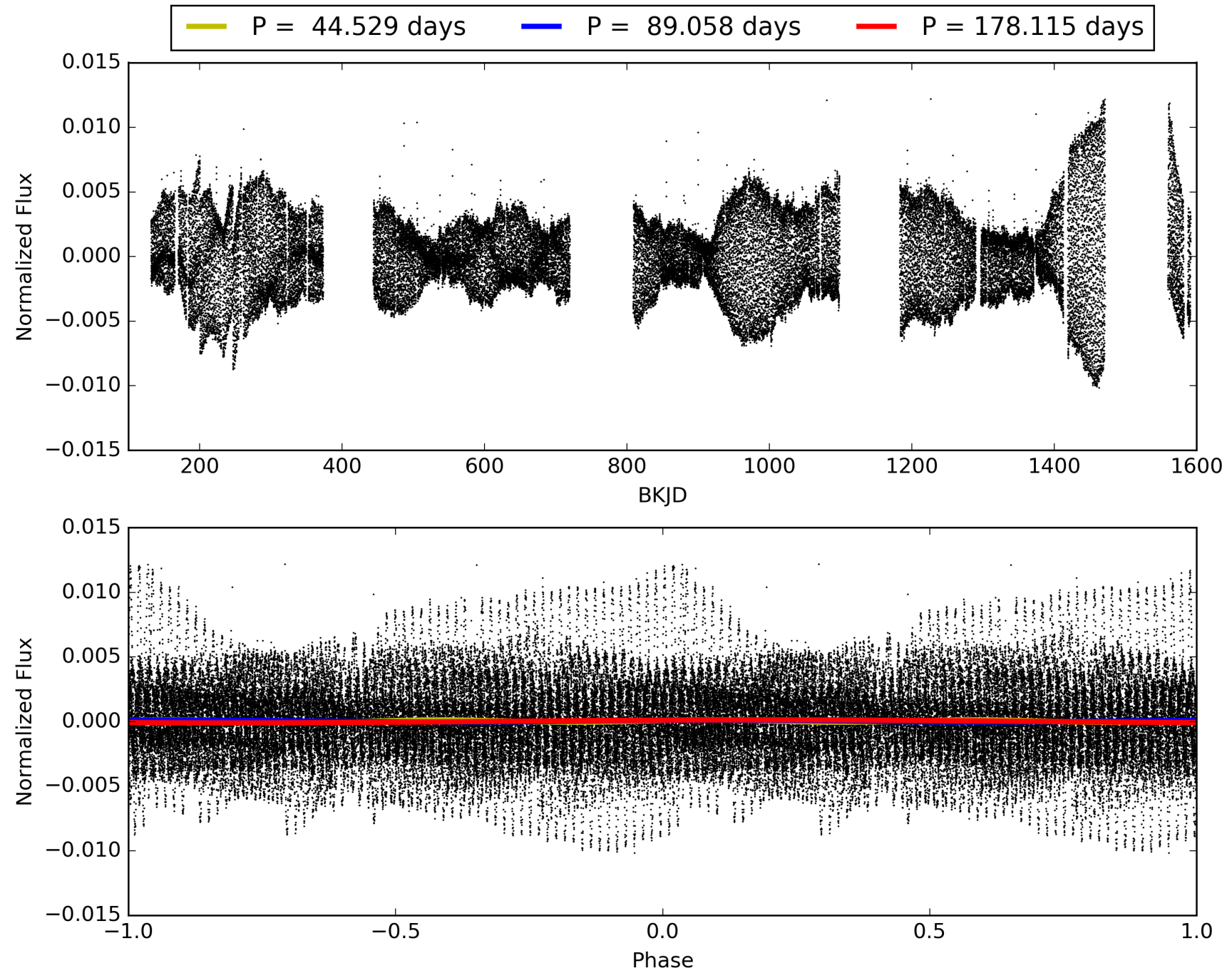
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:48:17 Z

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

TCE 010717220-02, PDC Light Curves

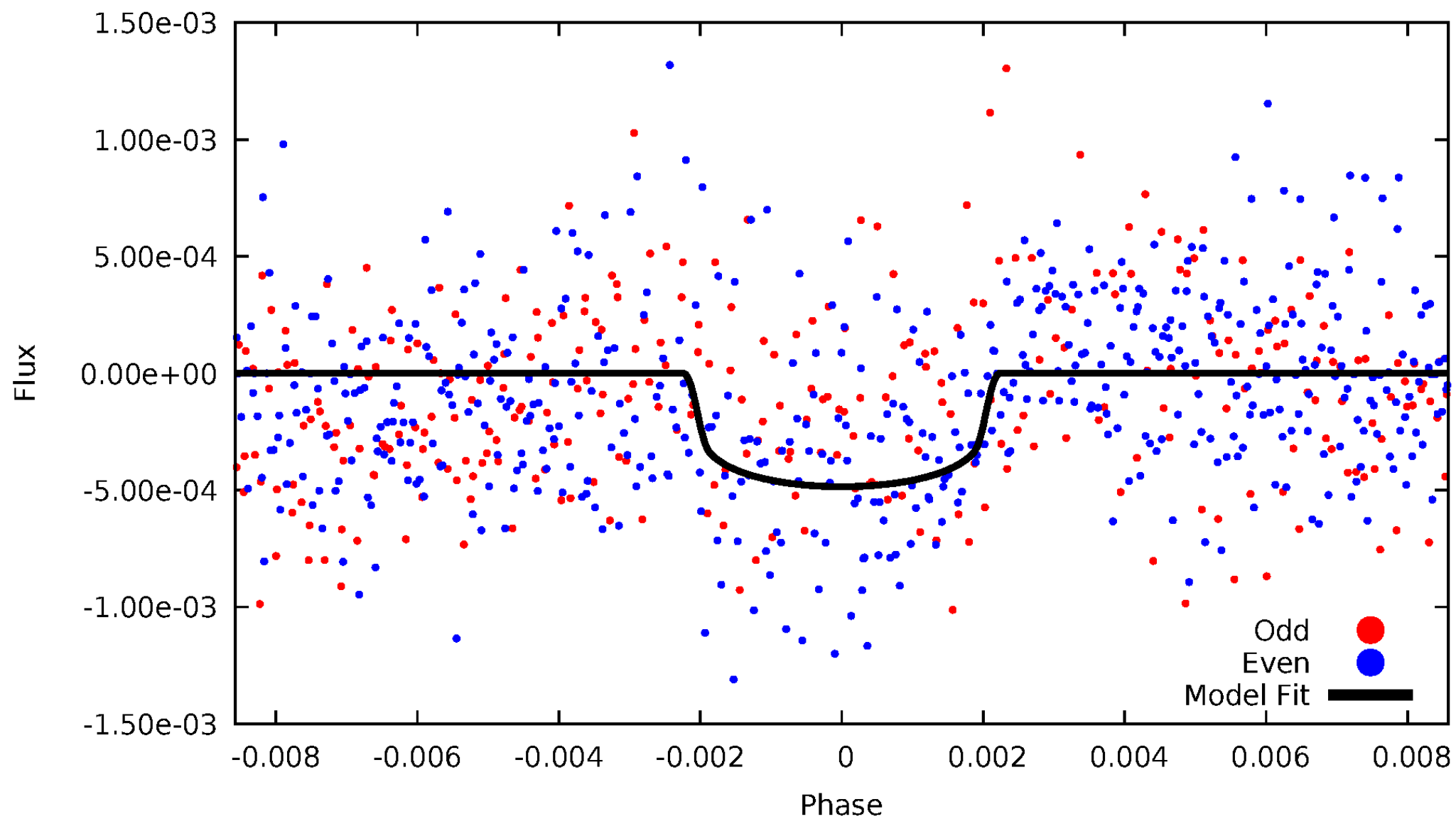


TCE 010717220-02



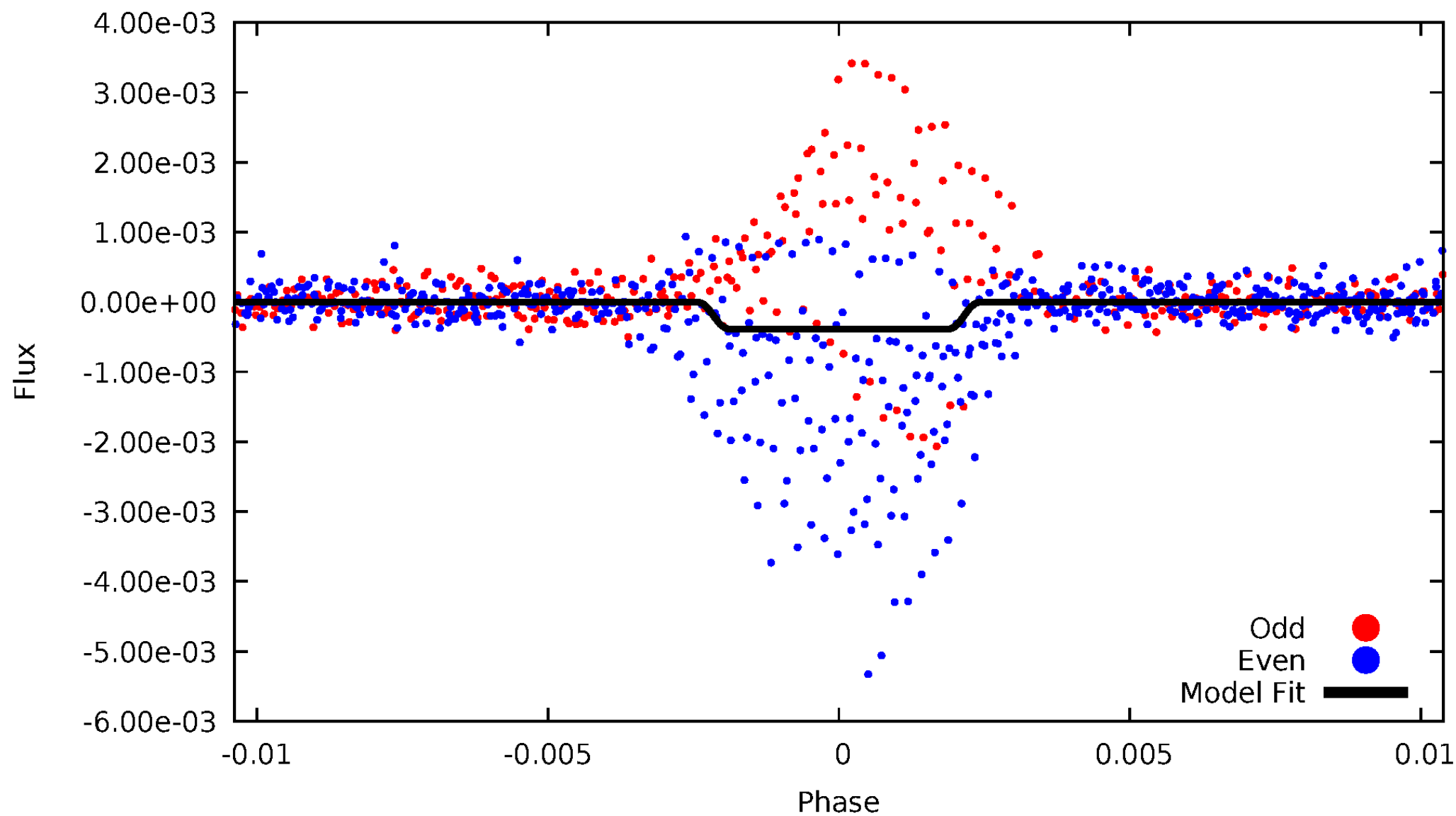
DV Odd/Even

TCE 010717220-02



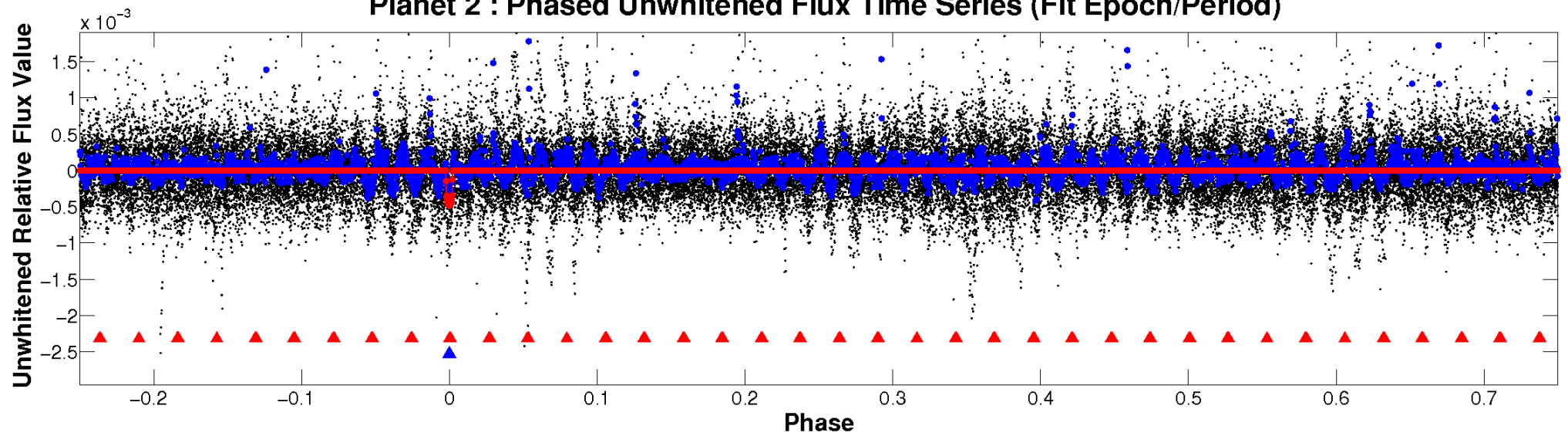
ALT Odd/Even

TCE 010717220-02

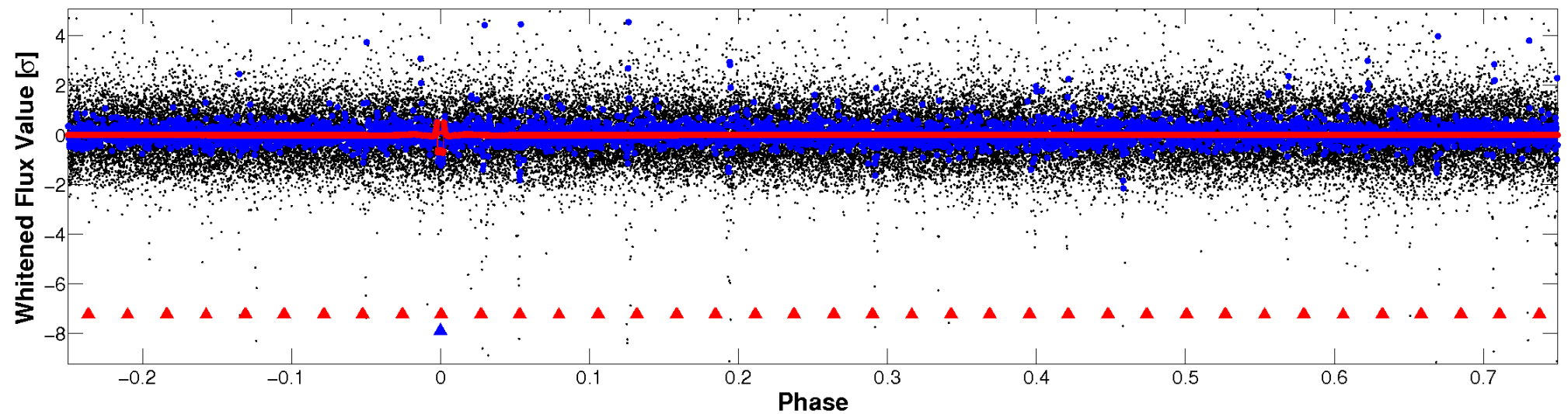


Non-Whitened Vs. Whitened Light Curve

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

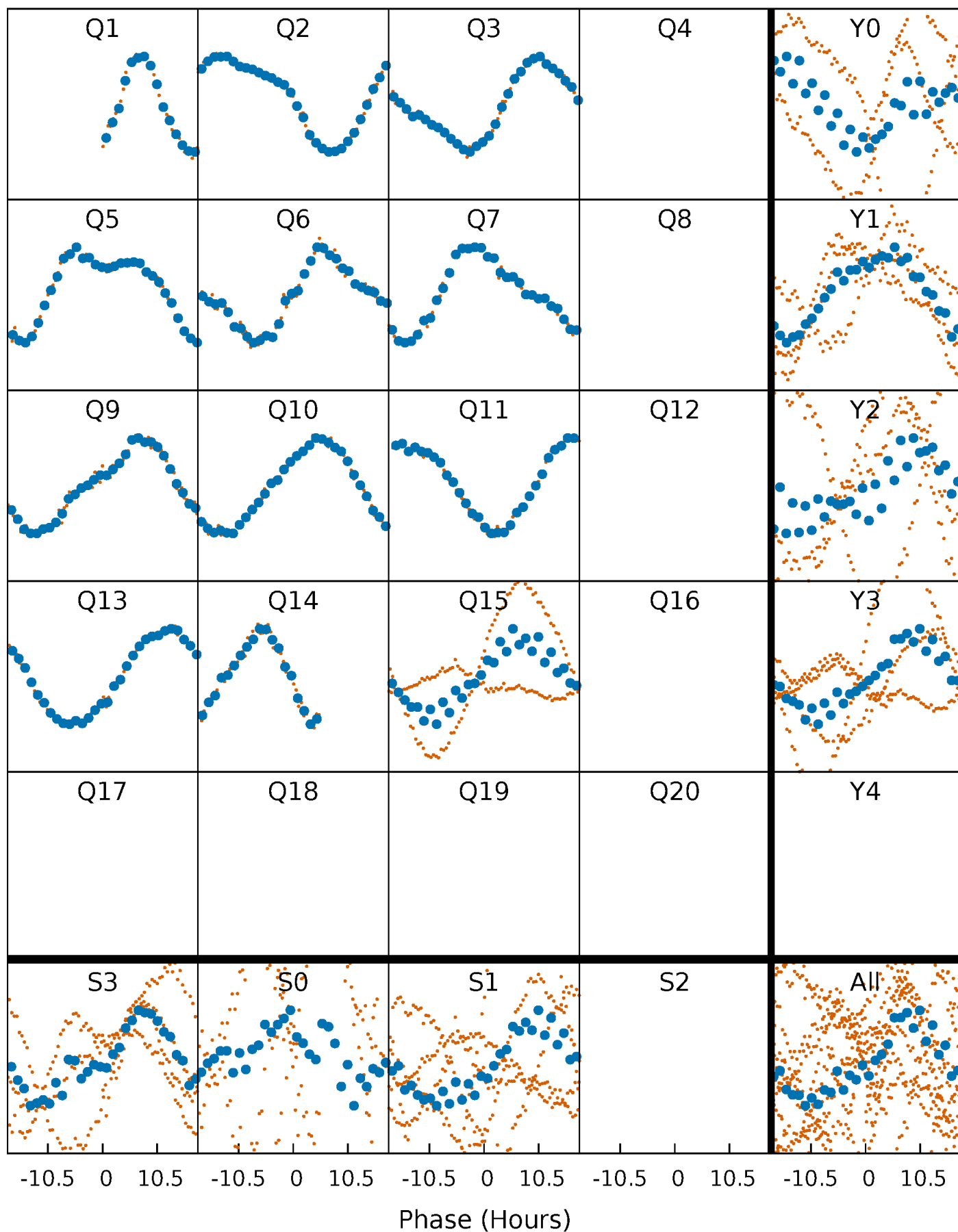


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



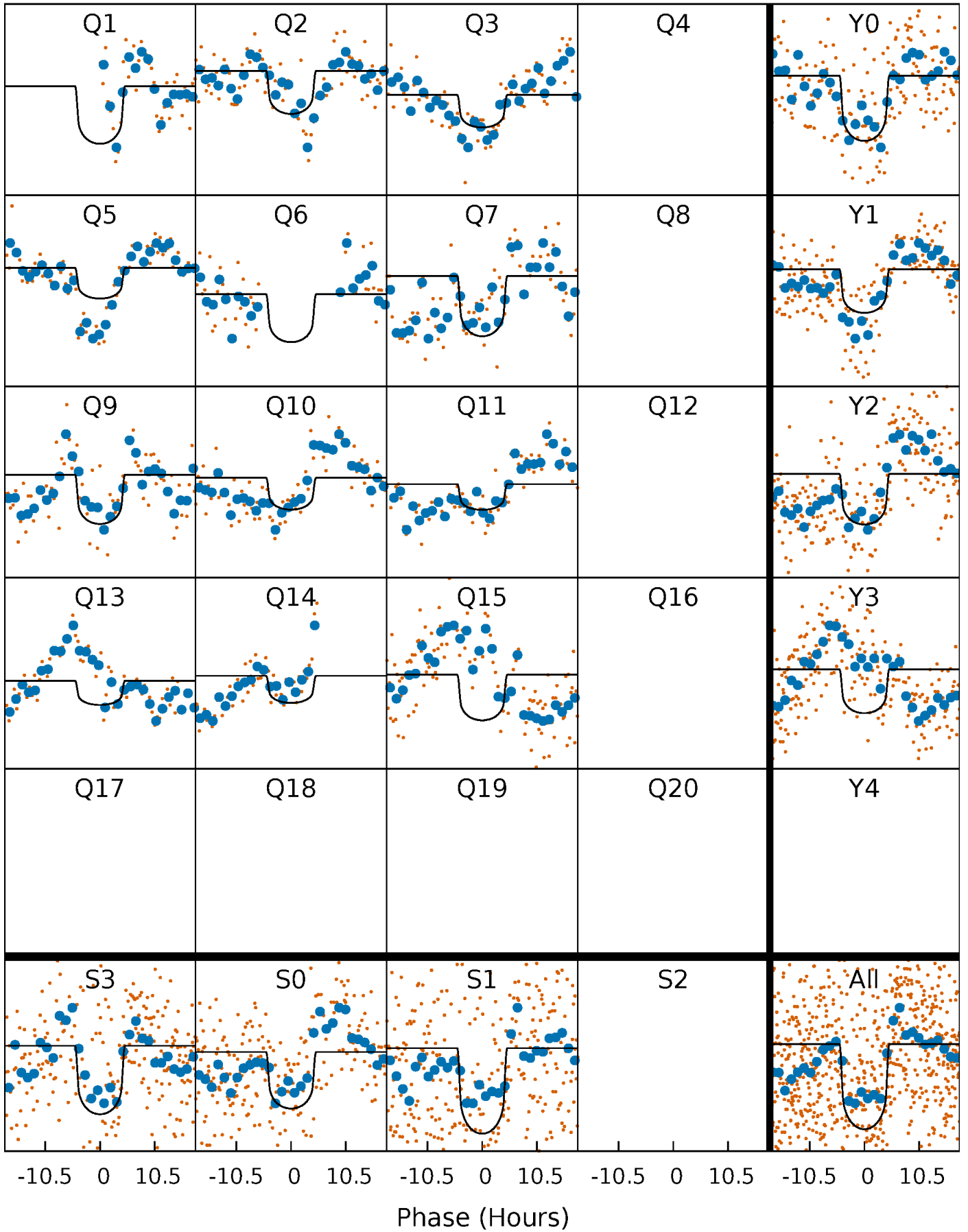
PDC Quarter-Phased Transit Curves

TCE 010717220-02 $P = 89.057605$ Days $T_0 = 220.566664$ (BKJD)



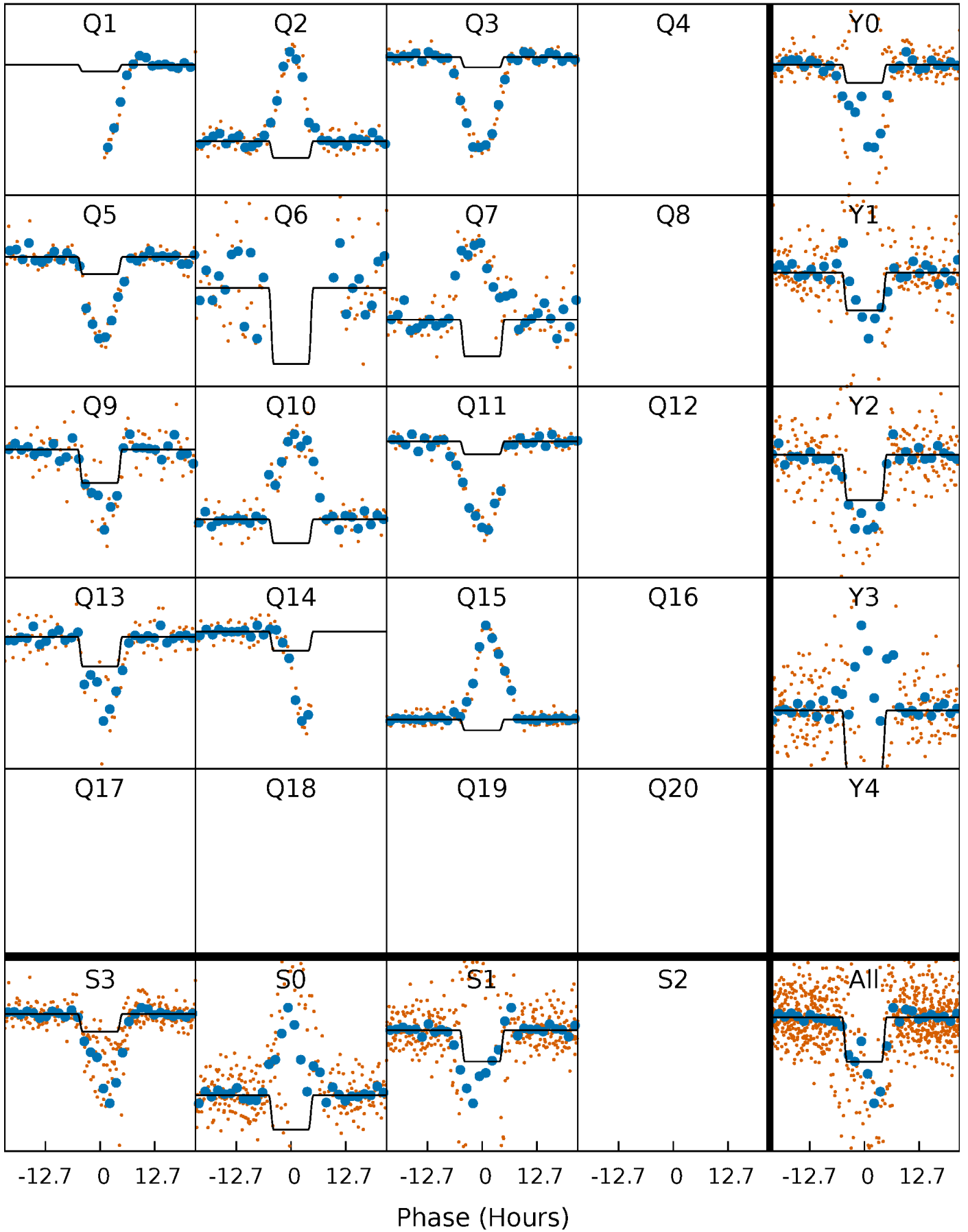
DV Quarter-Phased Transit Curves

TCE 010717220-02 P= 89.057605 Days $T_0=220.566664$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

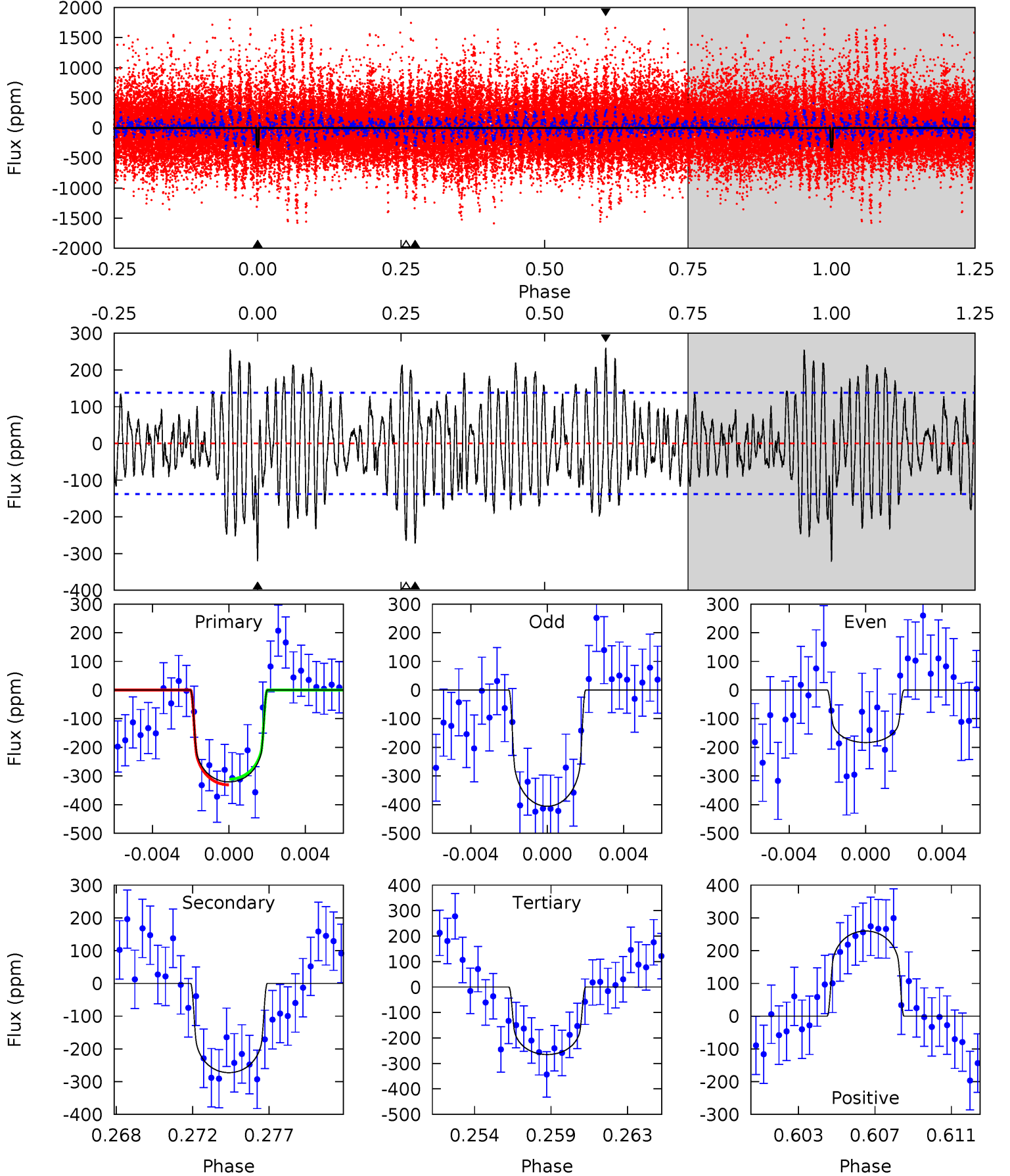
TCE 010717220-02 P= 89.062046 Days $T_0=220.529744$ (BKJD)



DV Model-Shift Uniqueness Test

010717220-02, P = 89.057605 Days, E = 131.509059 Days

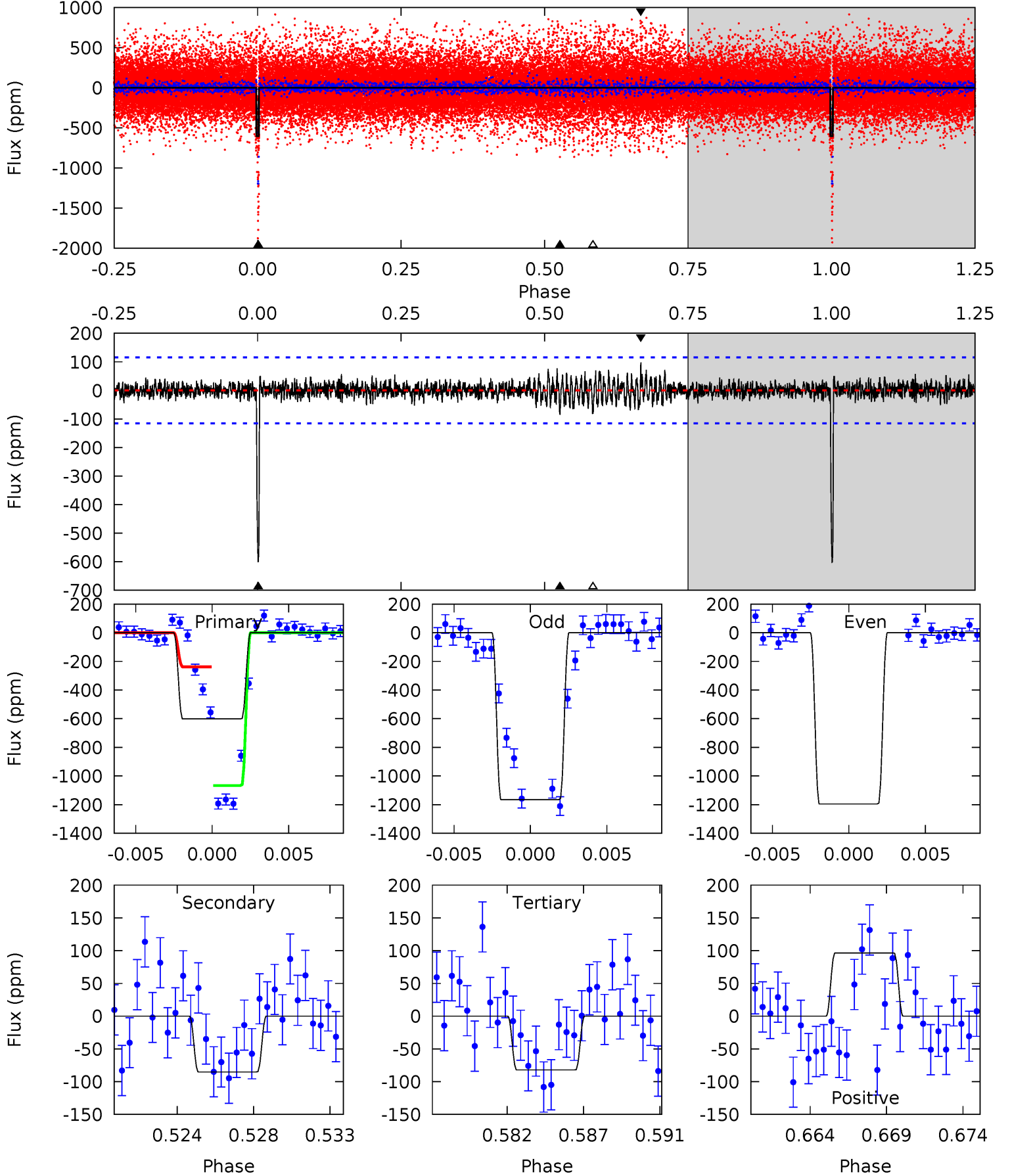
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	10.2	9.95	9.76	5.18	2.84	3.63	2.09	2.28	0.28	0.47	4.04	0.84	0.45	0.37



Alt Model-Shift Uniqueness Test

010717220-02, P = 89.062046 Days, E = 131.467698 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.9	3.81	3.68	4.32	5.16	2.82	0.94	23.2	22.6	0.14	-0.51	0.81	0.92	0.14	0



Stellar Parameters For KIC 010717220

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5723^{+154}_{-154}	$4.546^{+0.055}_{-0.165}$	$-0.360^{+0.300}_{-0.300}$	$0.818^{+0.205}_{-0.073}$	$0.857^{+0.098}_{-0.089}$	$2.209^{+0.491}_{-0.997}$
	+3%/-3%	+1%/-4%	+83%/-83%	+25%/-9%	+11%/-10%	+22%/-45%
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 010717220-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-273 ± 27	$2.00^{+0.64}_{-0.59}$	533^{+31}_{-22}	5053^{+875}_{-488}	5010^{+5258}_{-2045}
Alt.	-85 ± 22	$1.84^{+0.59}_{-0.59}$	532^{+31}_{-22}	4146^{+721}_{-420}	1854^{+2162}_{-890}

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 $A_{obs} \gg 1.0$

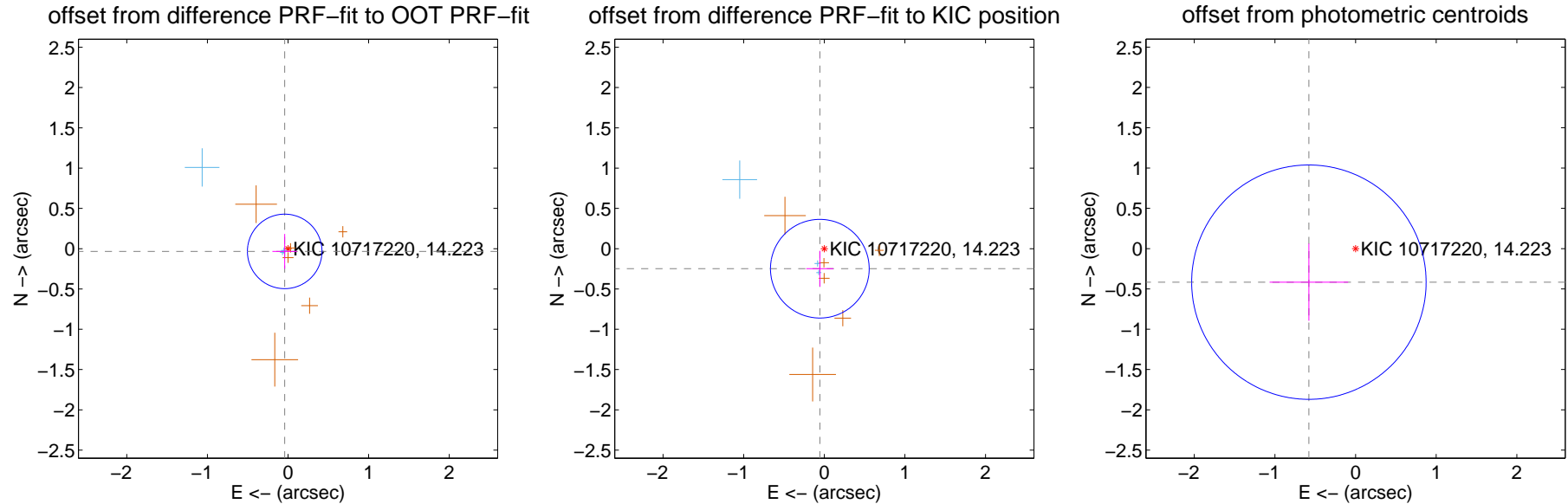
DV Centroid Data

Supplemental centroid analysis for 010717220-02. Kepler magnitude: 14.22. Transit SNR 9.32

There are 3 quarters with good PRF difference image offsets

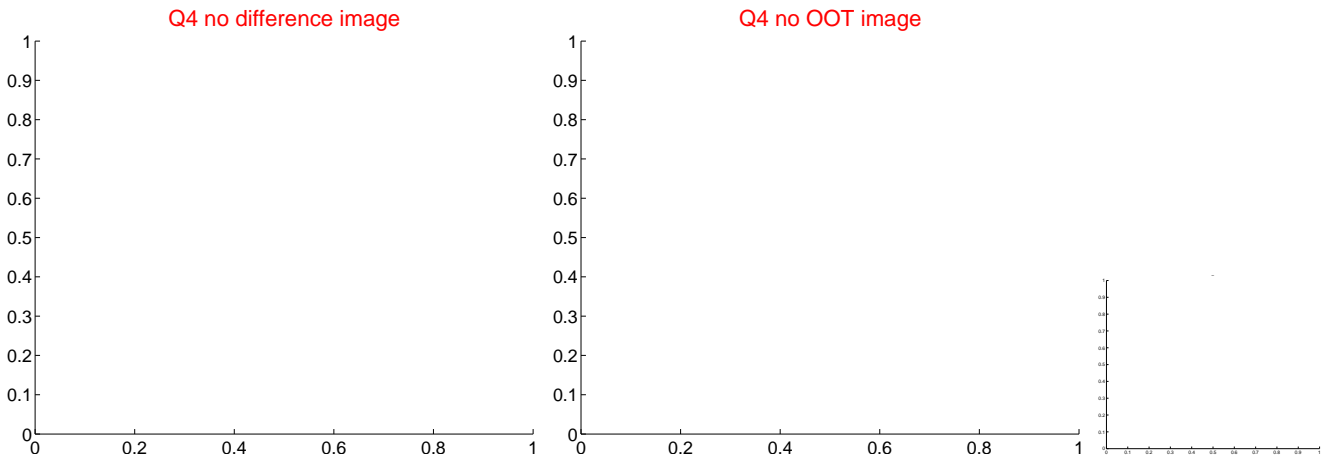
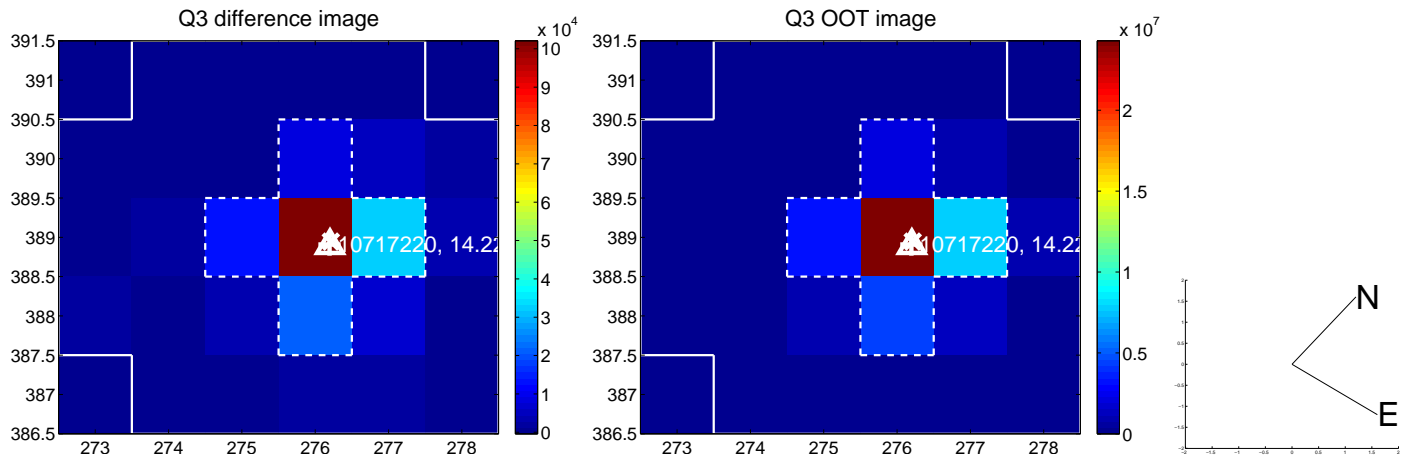
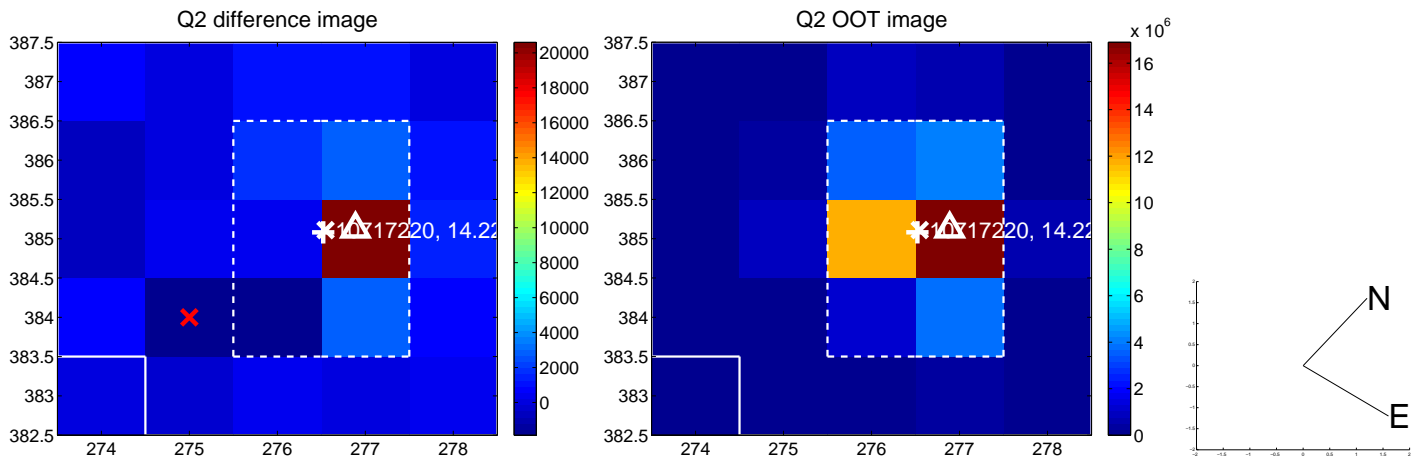
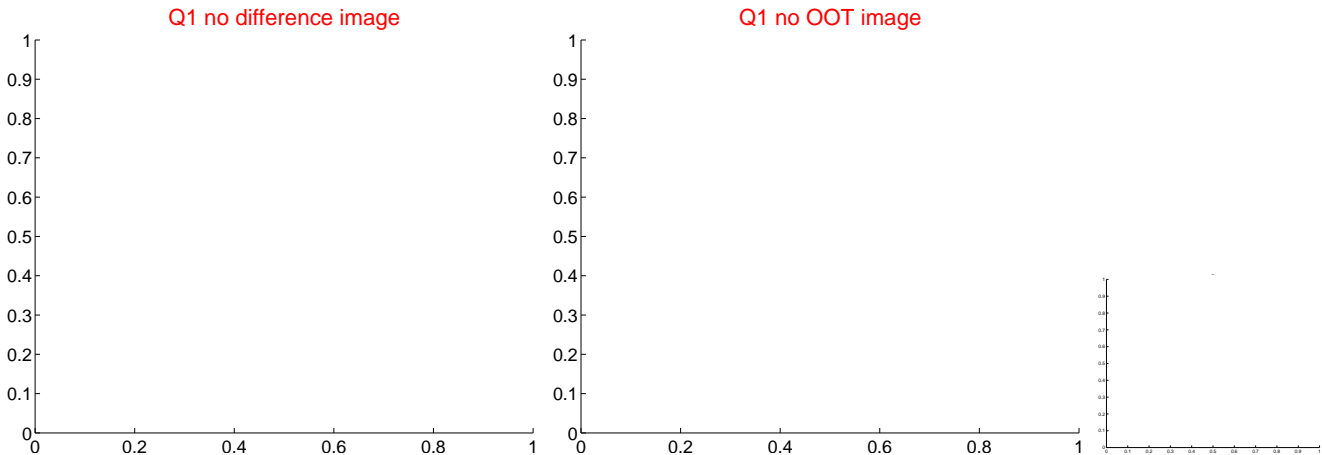
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.053 ± 0.154	0.35	0.041 ± 0.153	-0.034 ± 0.216
PRF-fit source offset from KIC position	0.254 ± 0.204	1.25	0.055 ± 0.168	-0.248 ± 0.222
photometric centroid source offset	0.71 ± 0.48	1.47	0.58 ± 0.49	-0.42 ± 0.48

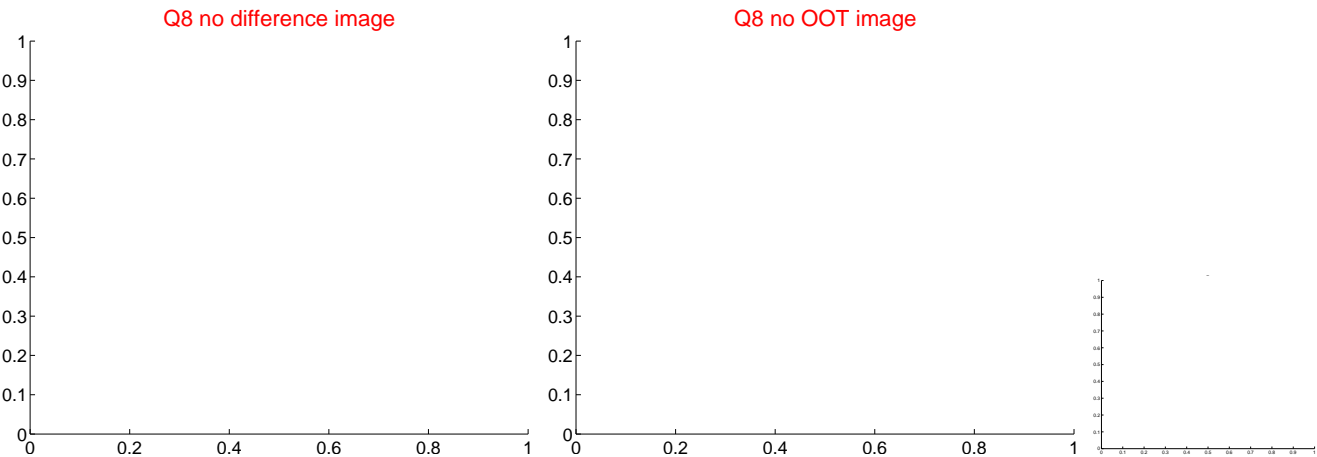
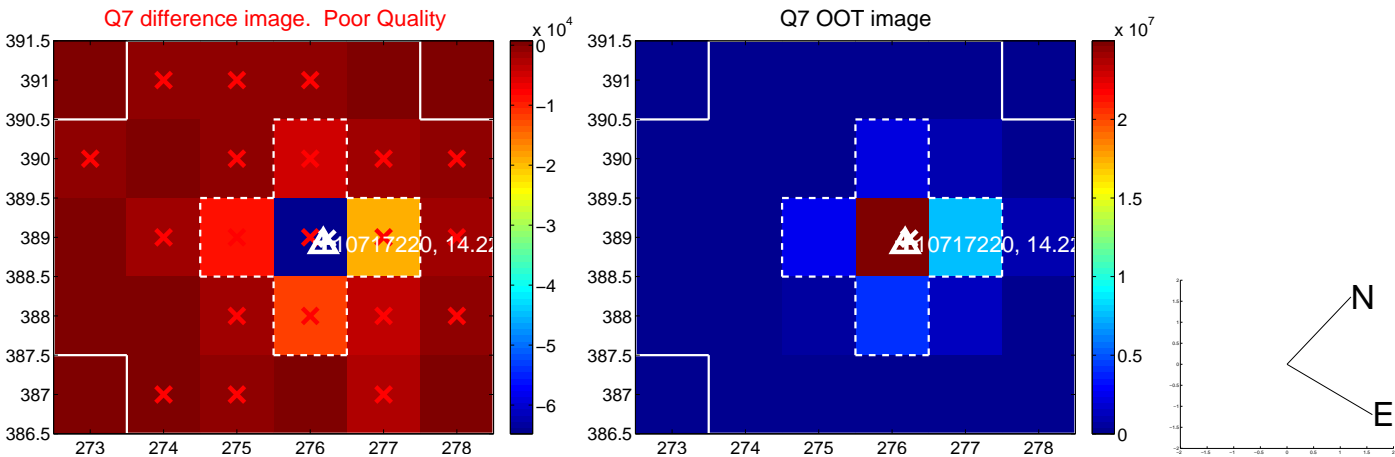
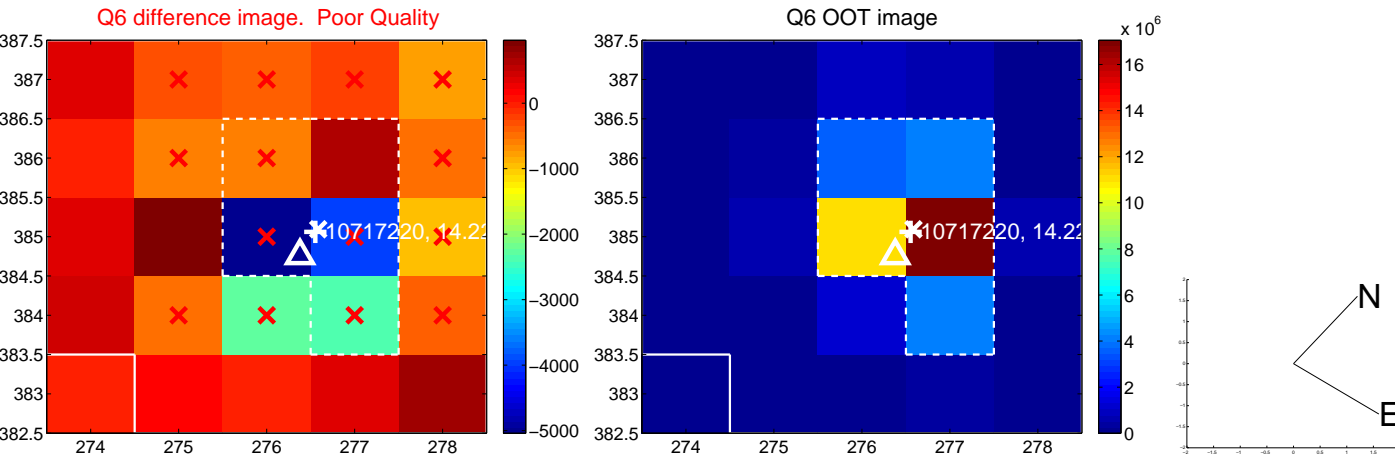
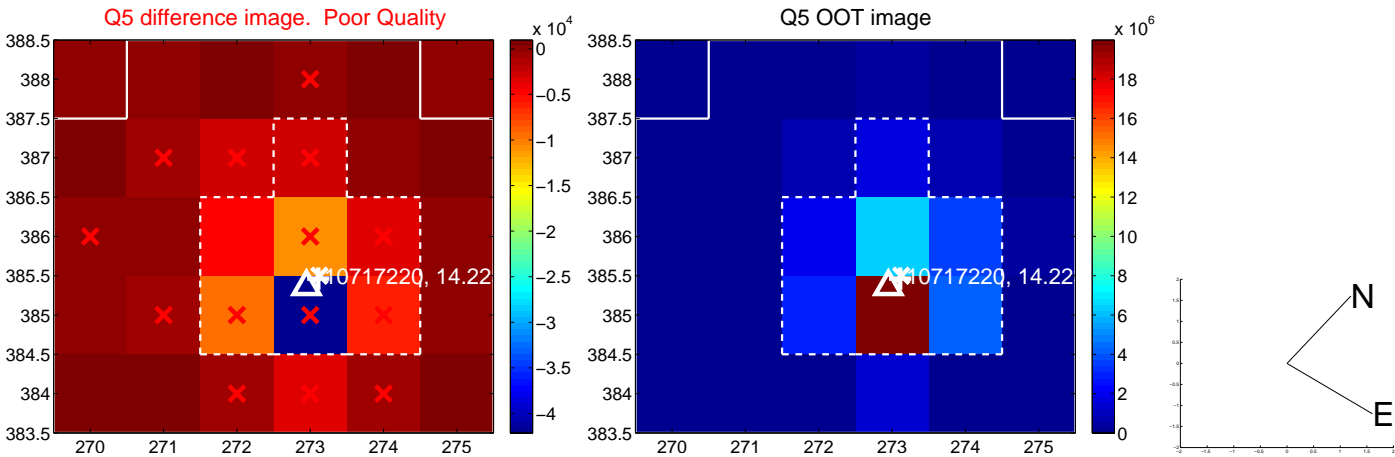


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

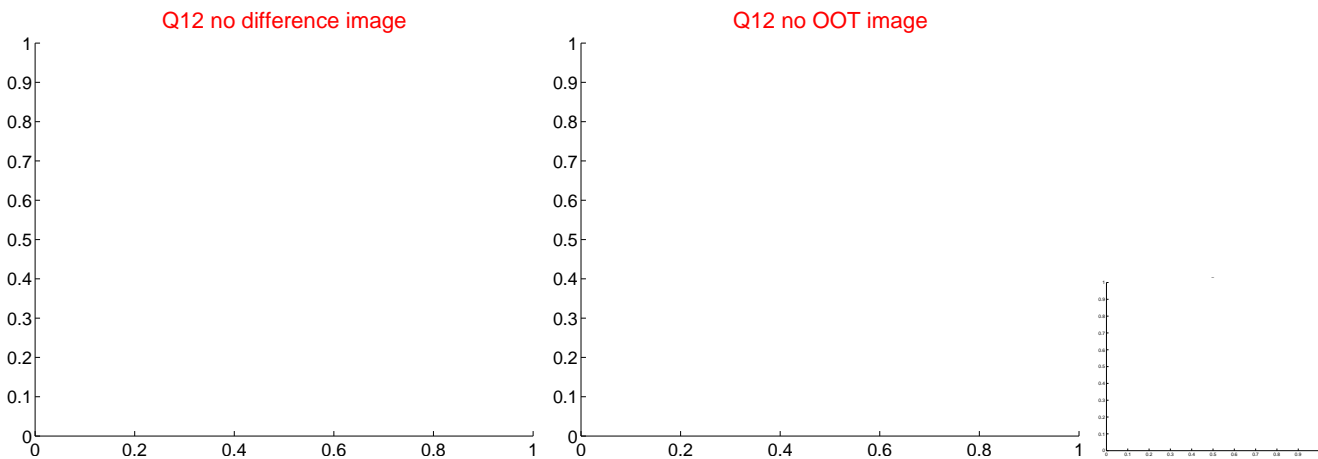
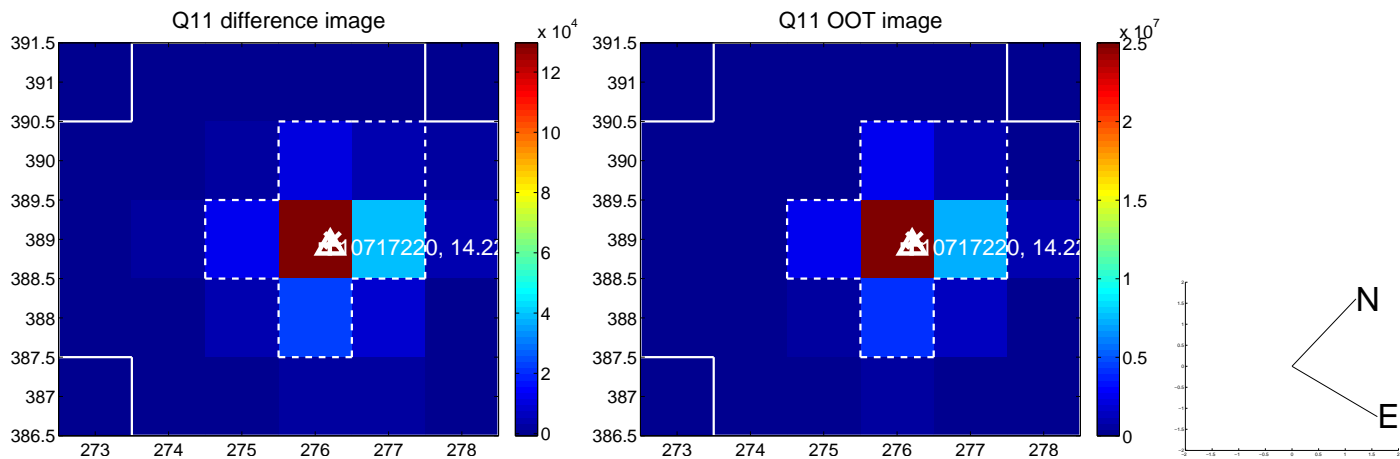
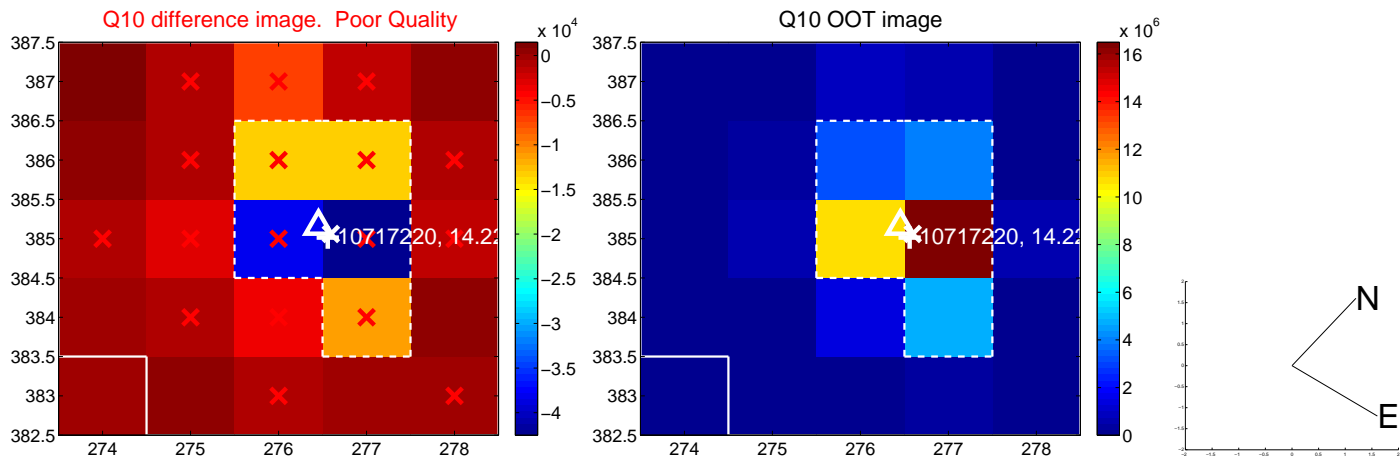
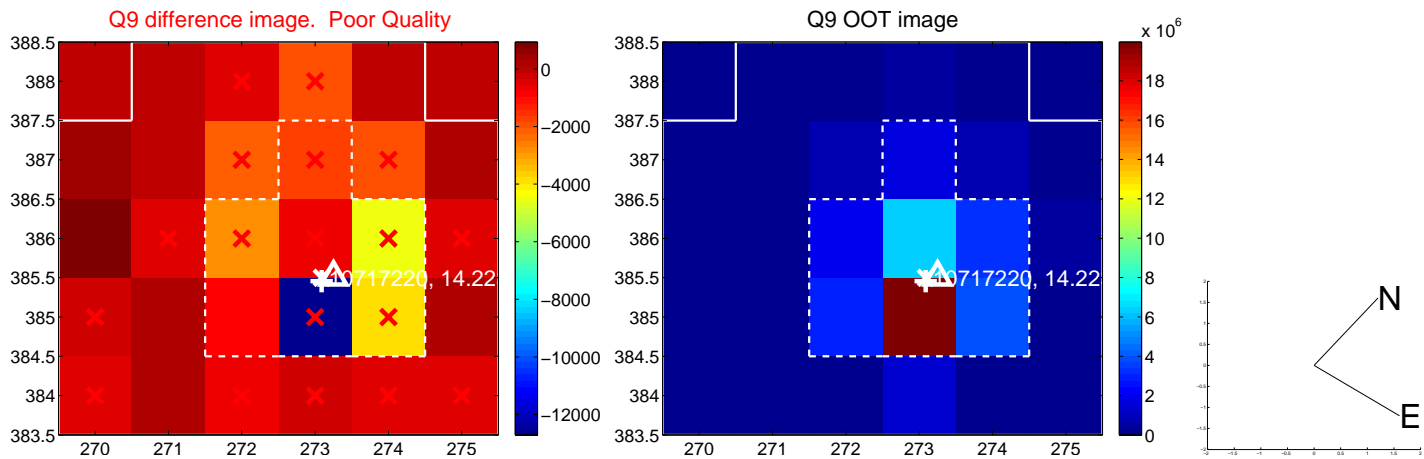
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



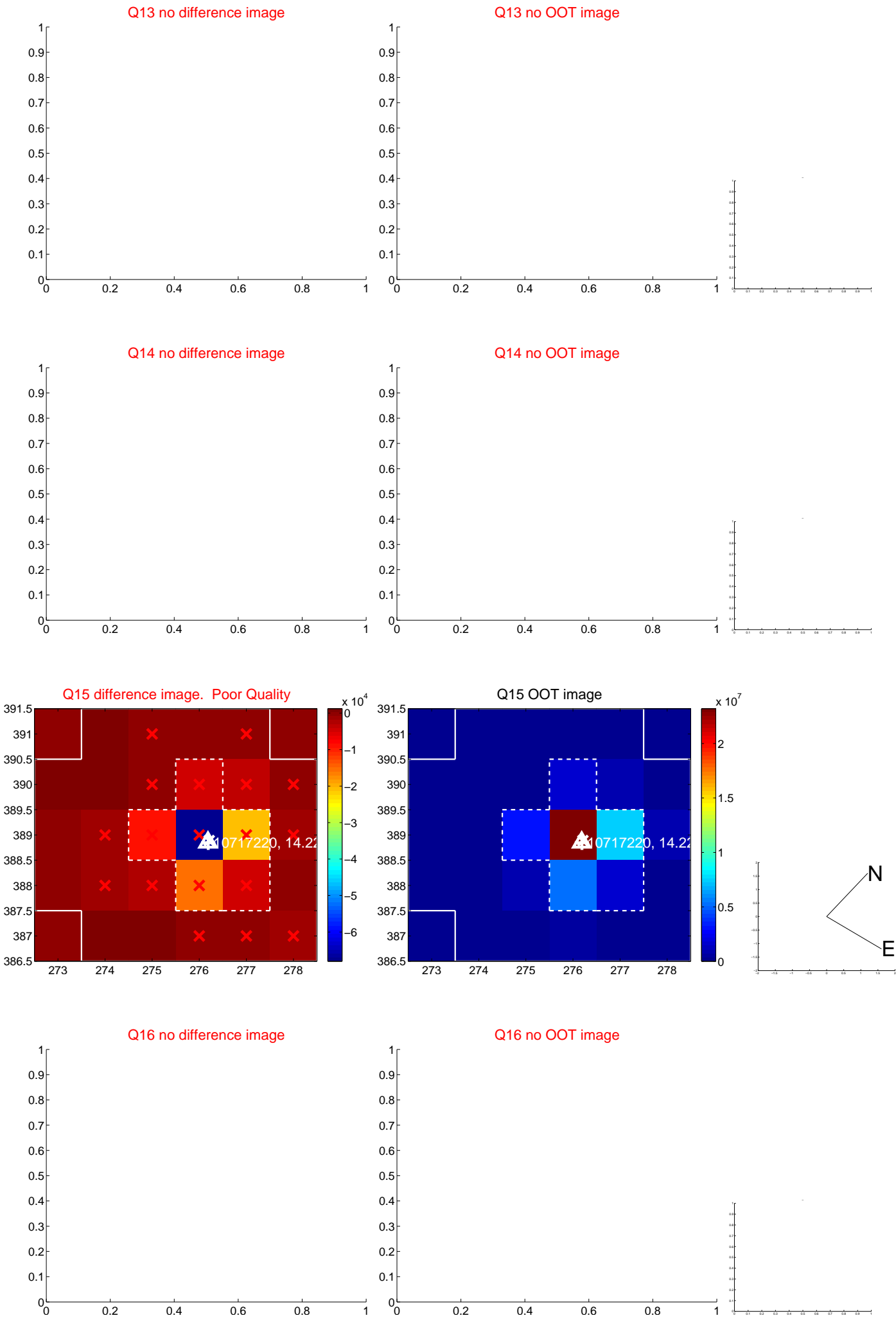
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



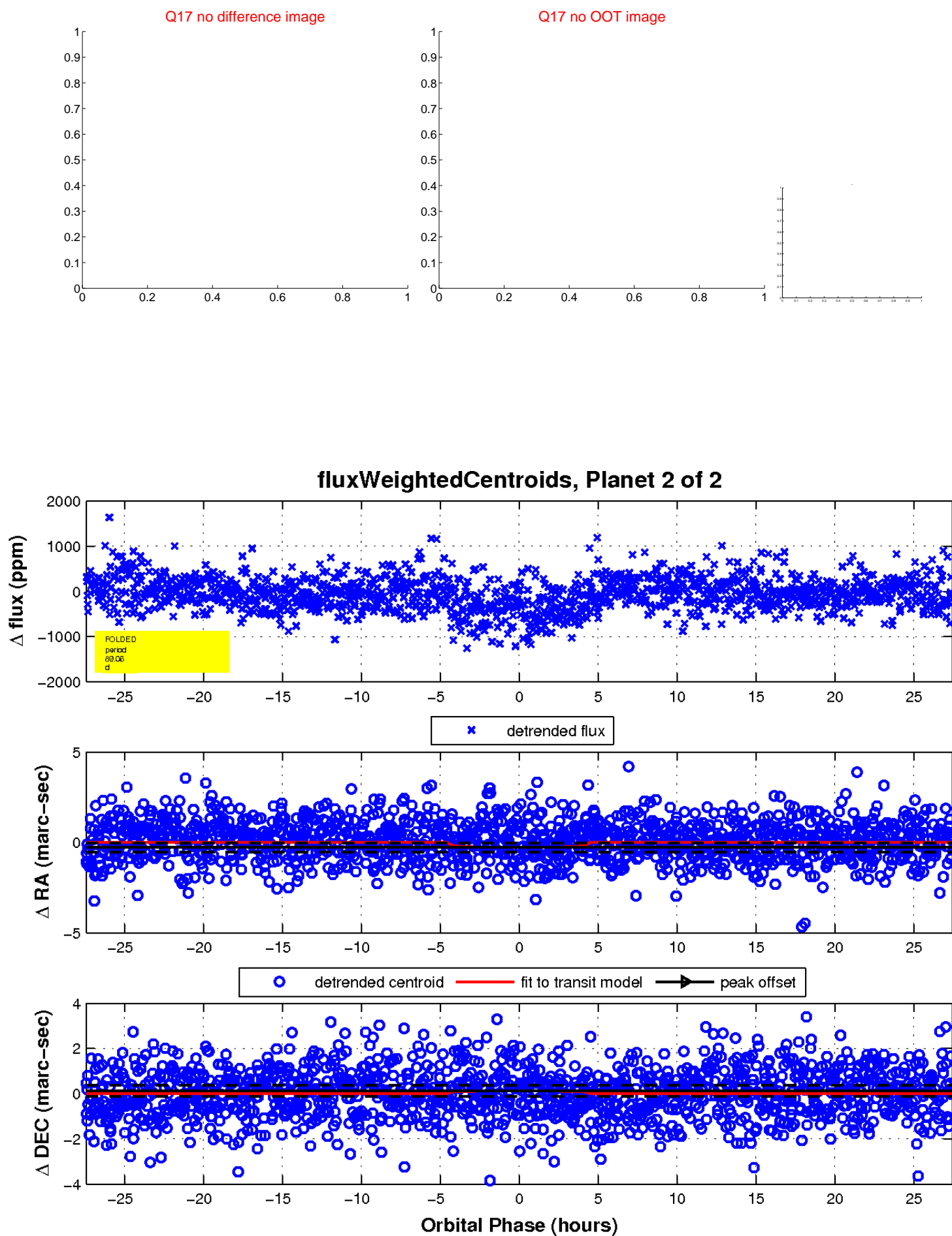
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

