

KIC 004669417

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})
004669417-01	OBS	No	239.594588	330.072410	457.7	0.751	13.1	1.6	0.70	5211	1.53	0.74
004669417-02	OBS	No	0.594553	131.893367	99.3	2.325	9.6	7.0	0.70	5211	0.73	2193.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004669417-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004669417-02	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.

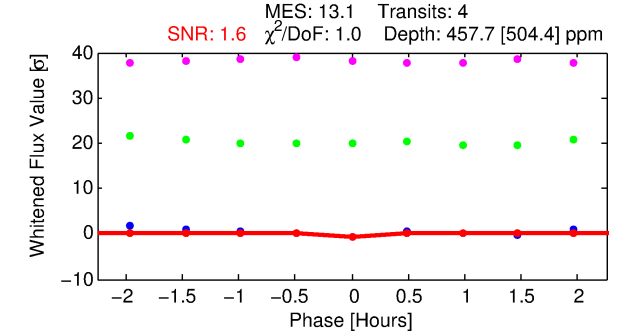
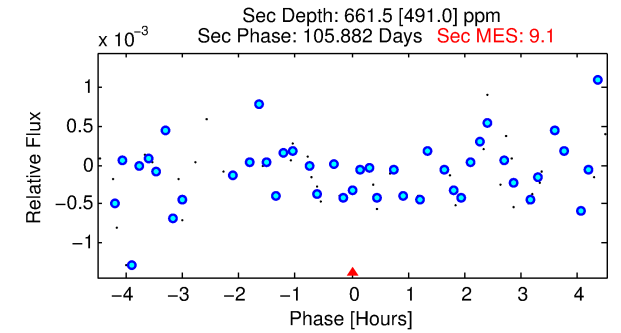
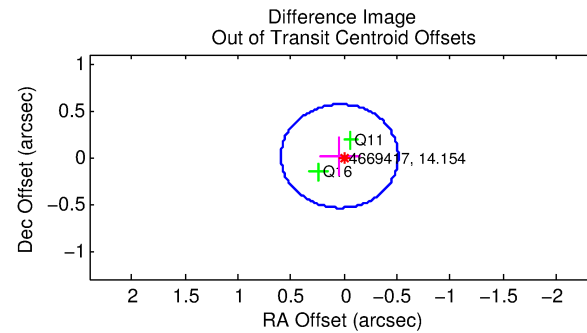
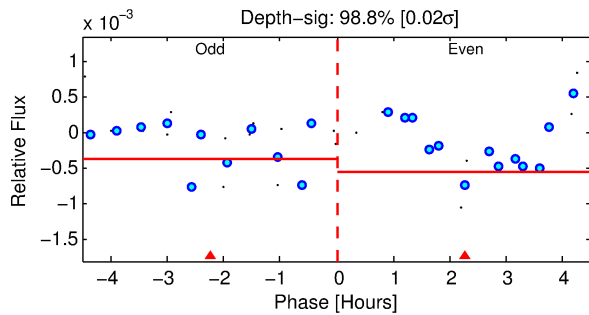
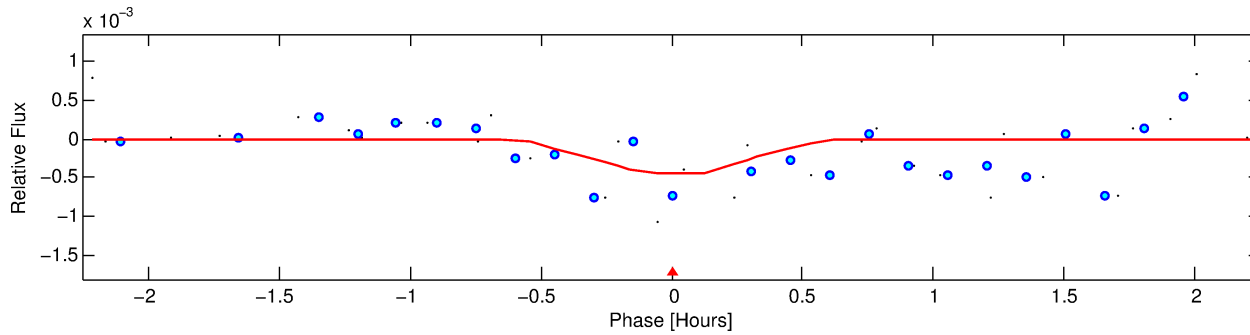
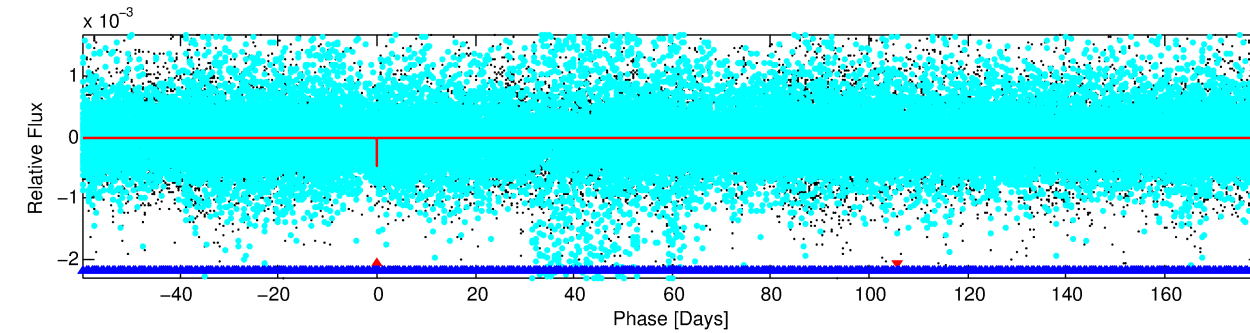
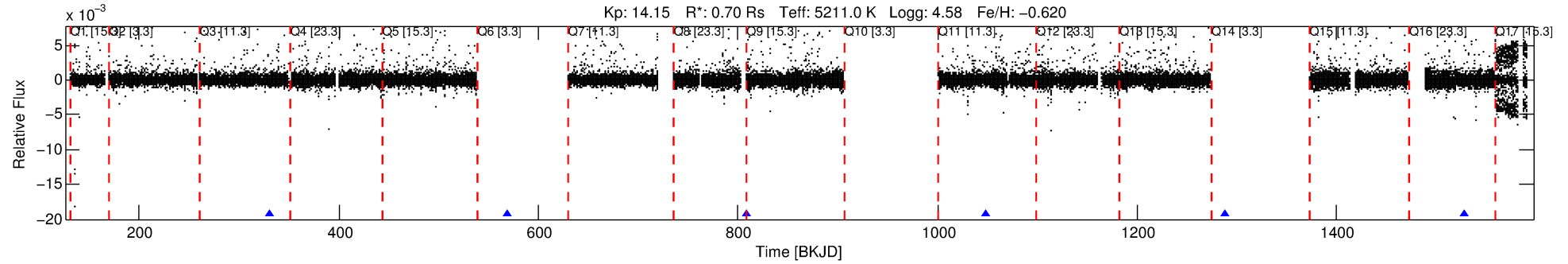
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004669417-01

No Significant Match Found

DV One-Page Summary

KIC: 4669417 Candidate: 1 of 2 Period: 239.595 d



DV Fit Results:

Period = 239.59459 [0.00801] d
Epoch = 330.0724 [0.0153] BKJD
Rp/R* = 0.0201 [0.5667]
a/R* = 2306.17 [262598.33]
b = 0.38 [260.25]
Seff = 0.74 [0.15]
Teq = 236 [12] K
Rp = 1.53 [43.10] Re
a = 0.6599 [0.0632] AU
Ag = 67902.27 [3831813.01] [0.02σ]
Teffp = 5897 [83187] K [0.07σ]

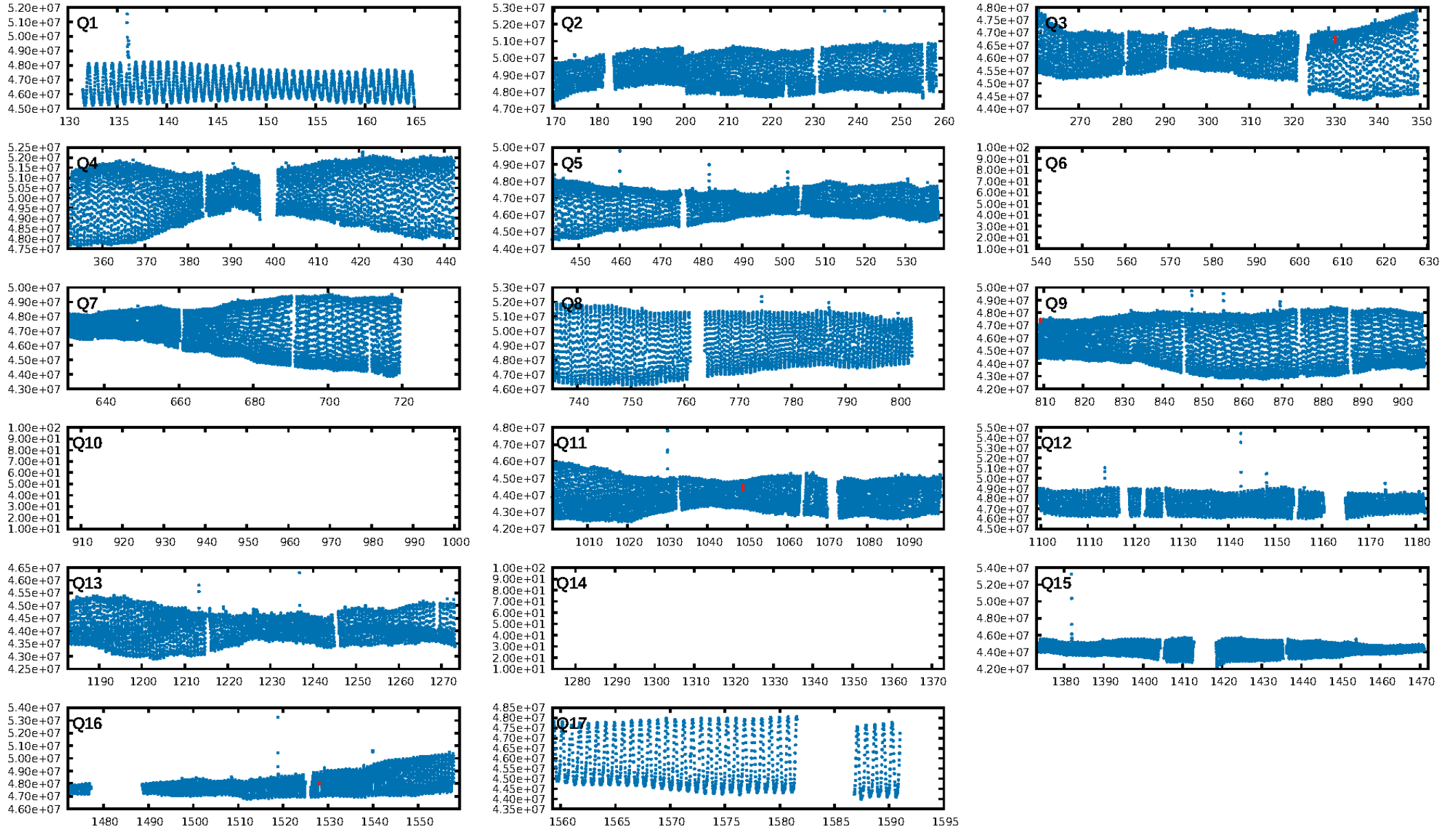
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [2347.41σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 88.6%
ModelChiSquareGof-sig: 98.5%
Bootstrap-pfa: 1.44e-17
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.3004
Centroid-sig: 12.9%
Centroid-so: 3.791 arcsec [0.71σ]
OotOffset-rm: 0.040 arcsec [0.22σ]
KicOffset-rm: 0.269 arcsec [1.53σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/3]

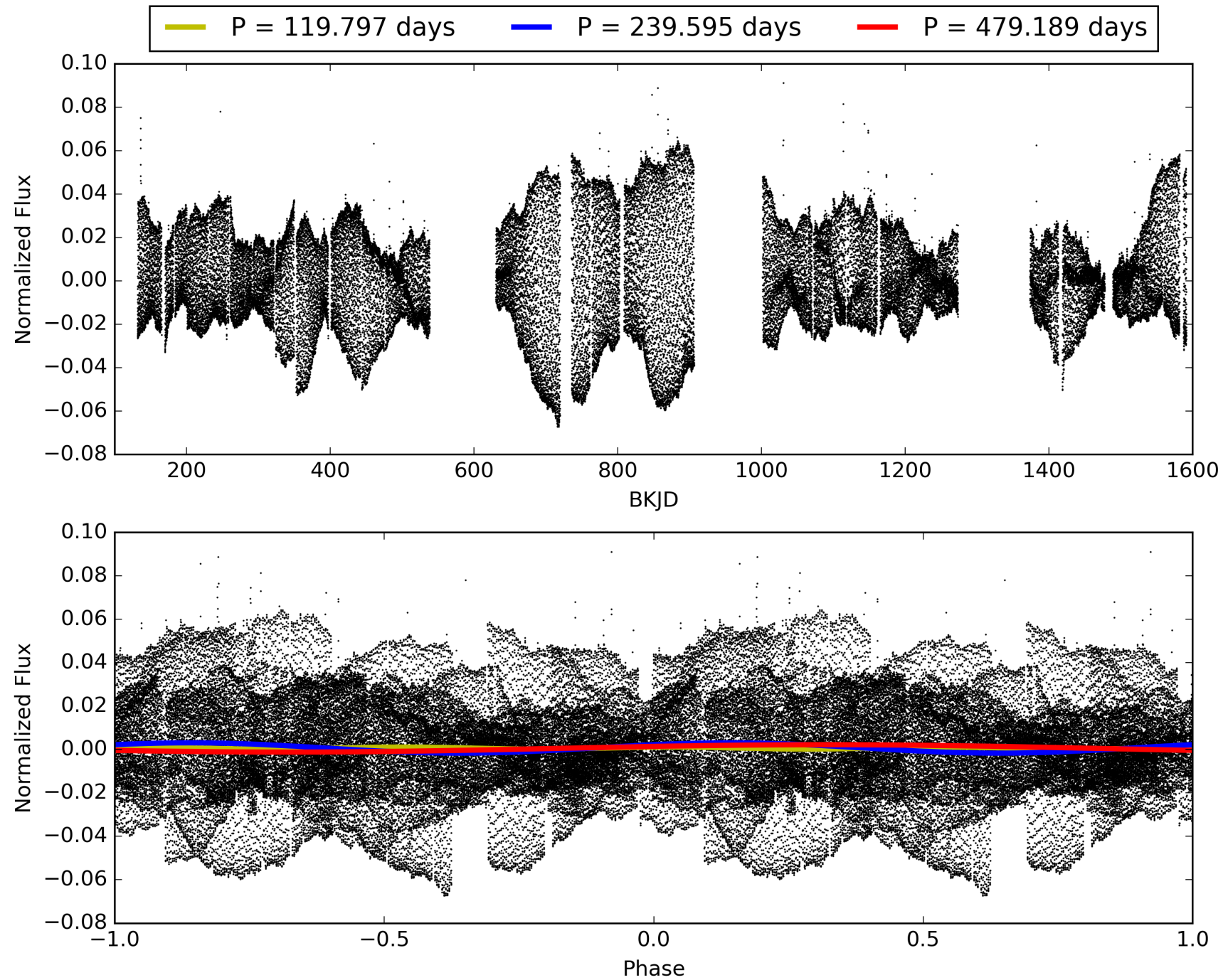
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:06:47 Z

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

TCE 004669417-01, PDC Light Curves

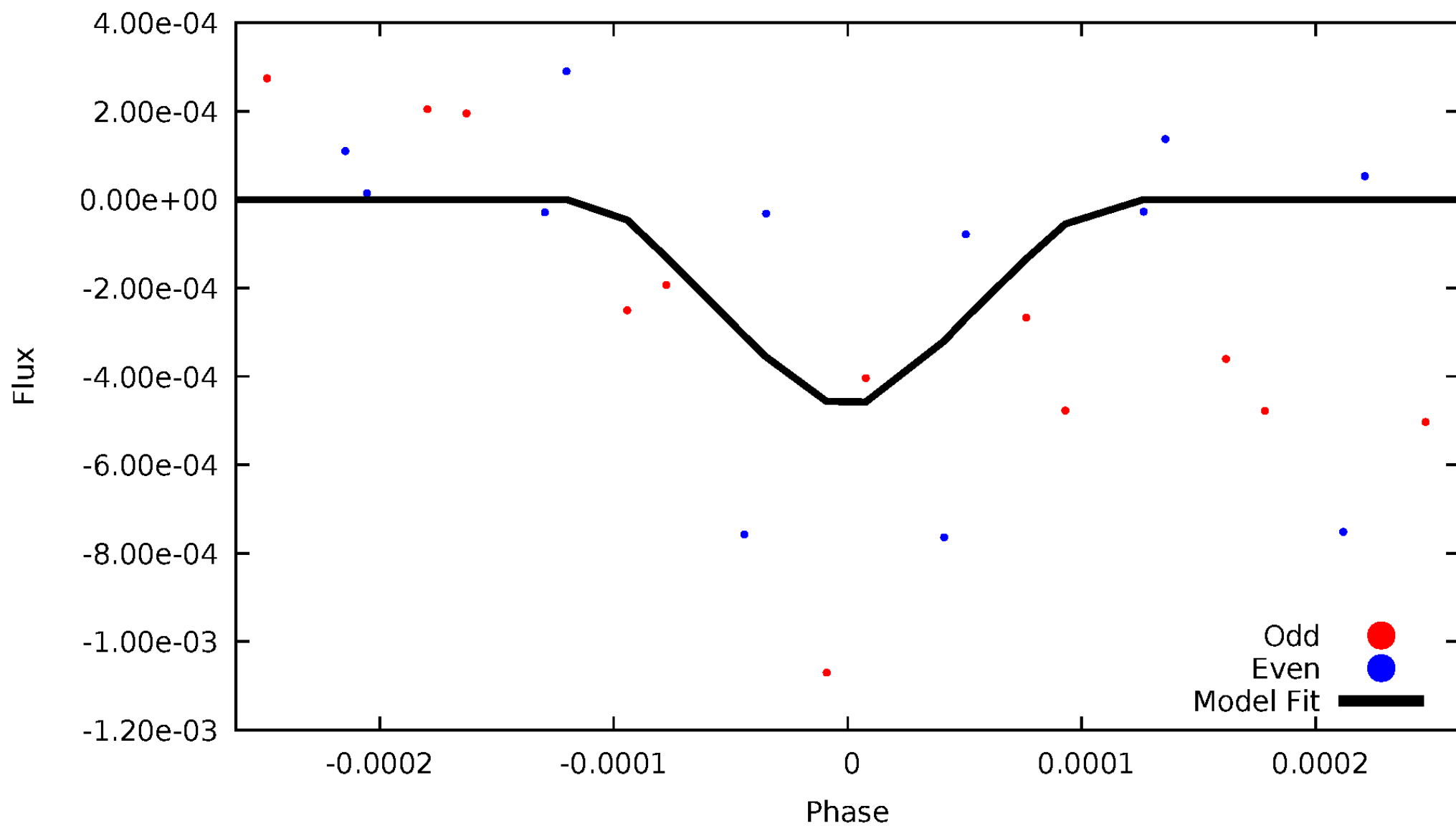


TCE 004669417-01



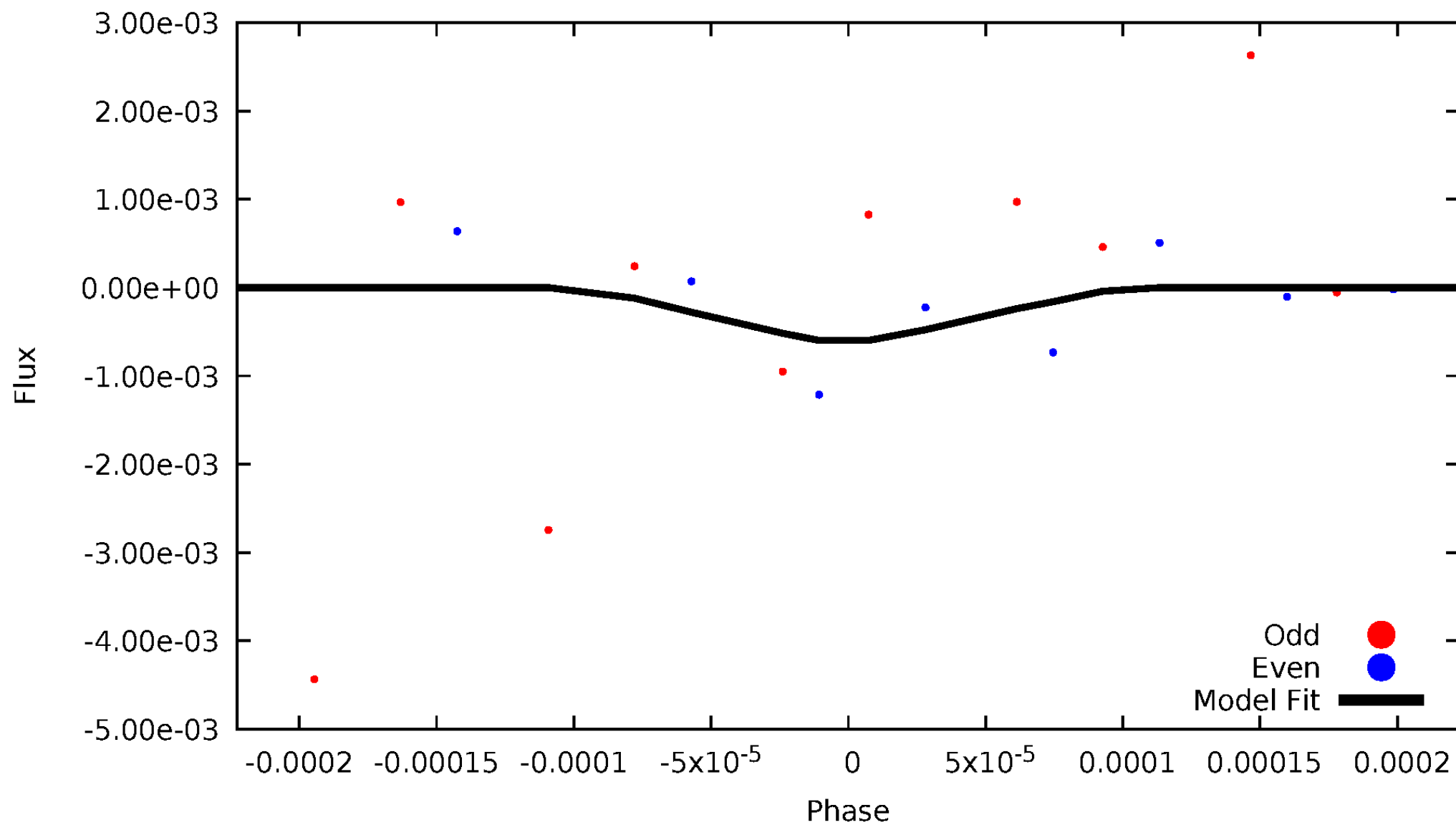
DV Odd/Even

TCE 004669417-01



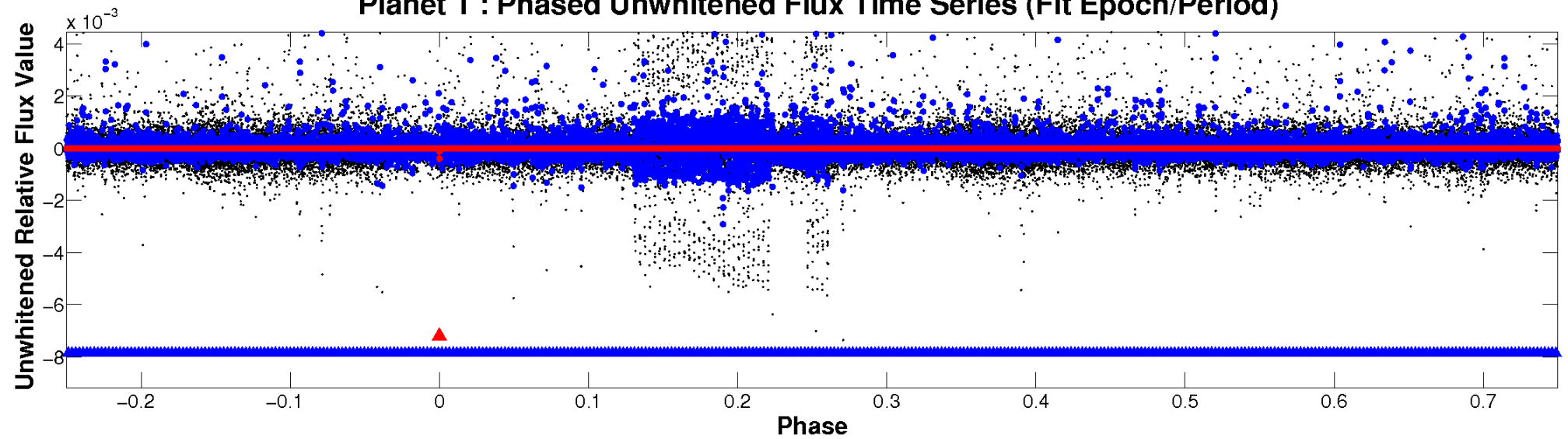
ALT Odd/Even

TCE 004669417-01

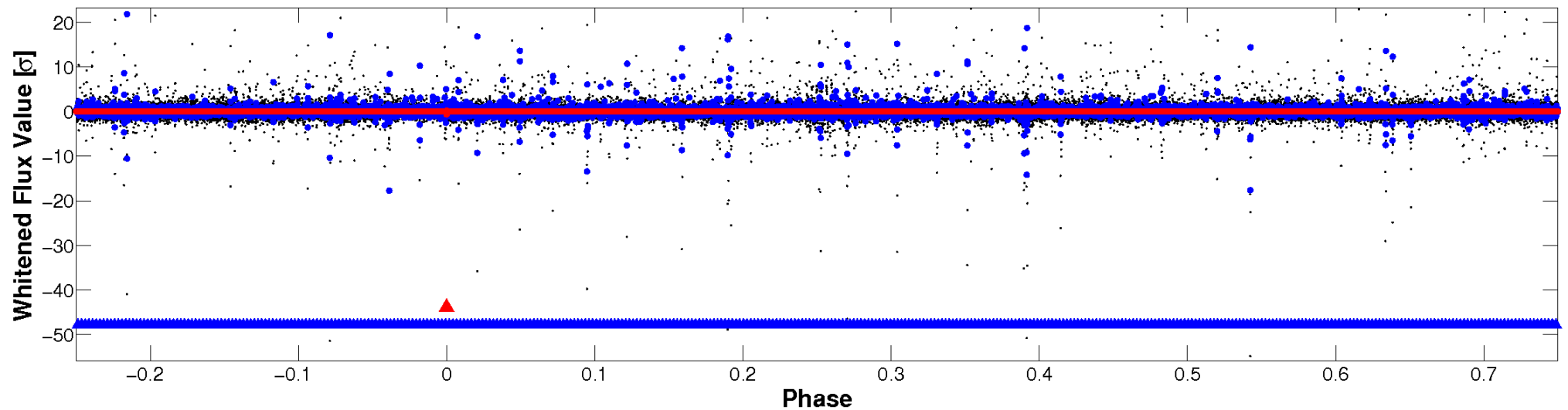


Non-Whitened Vs. Whitened Light Curve

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

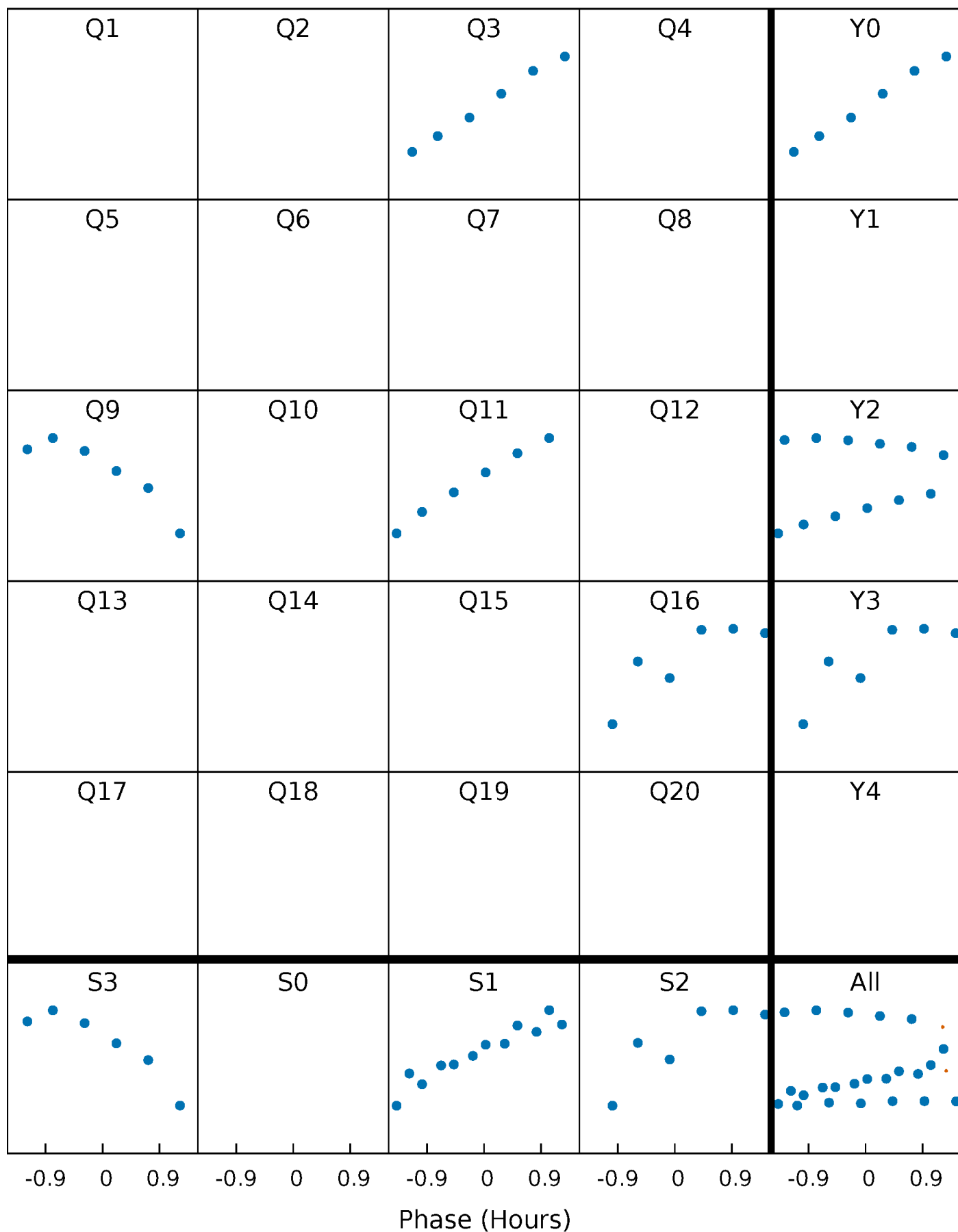


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



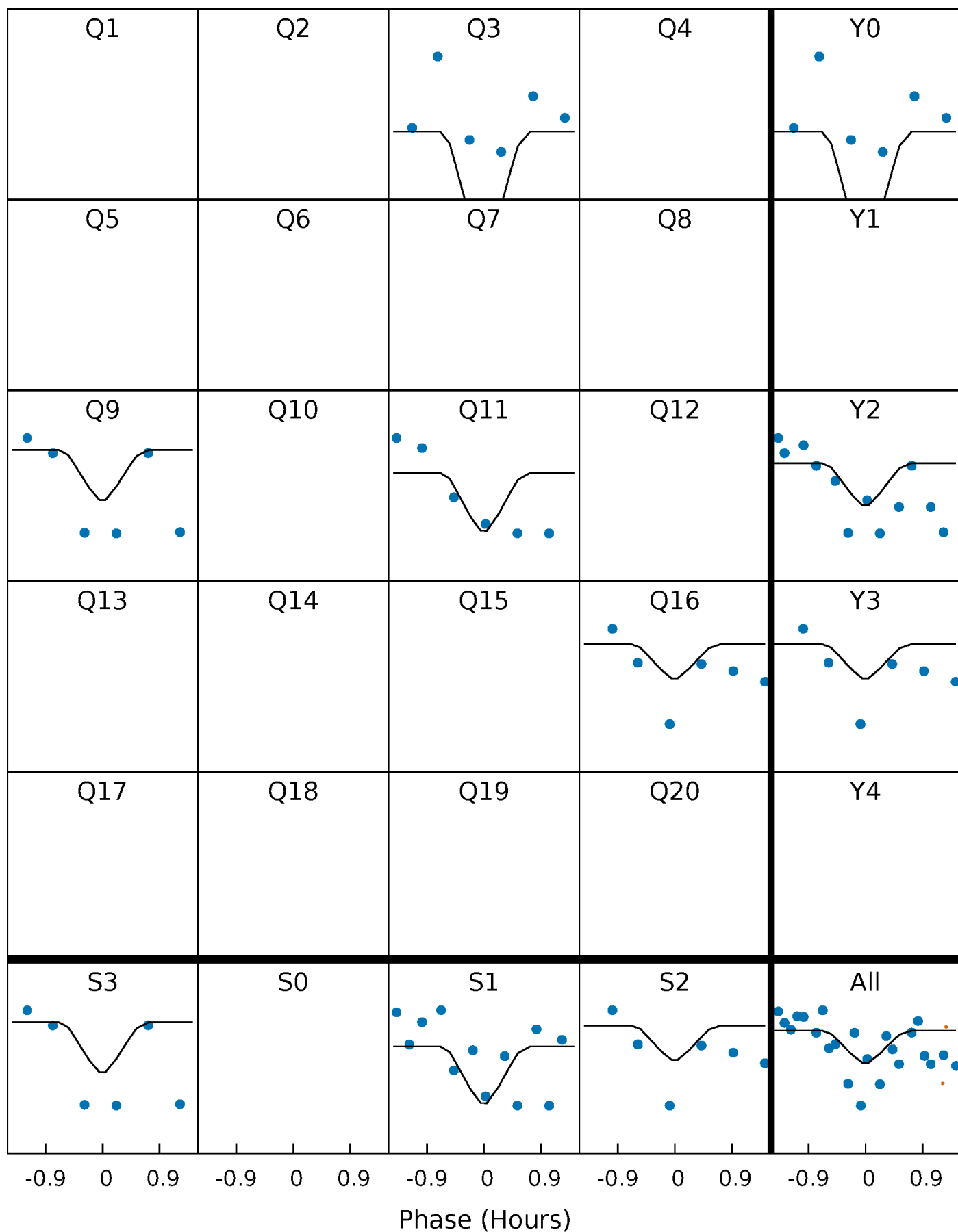
PDC Quarter-Phased Transit Curves

TCE 004669417-01 P=239.594588 Days $T_0=330.072410$ (BKJD)



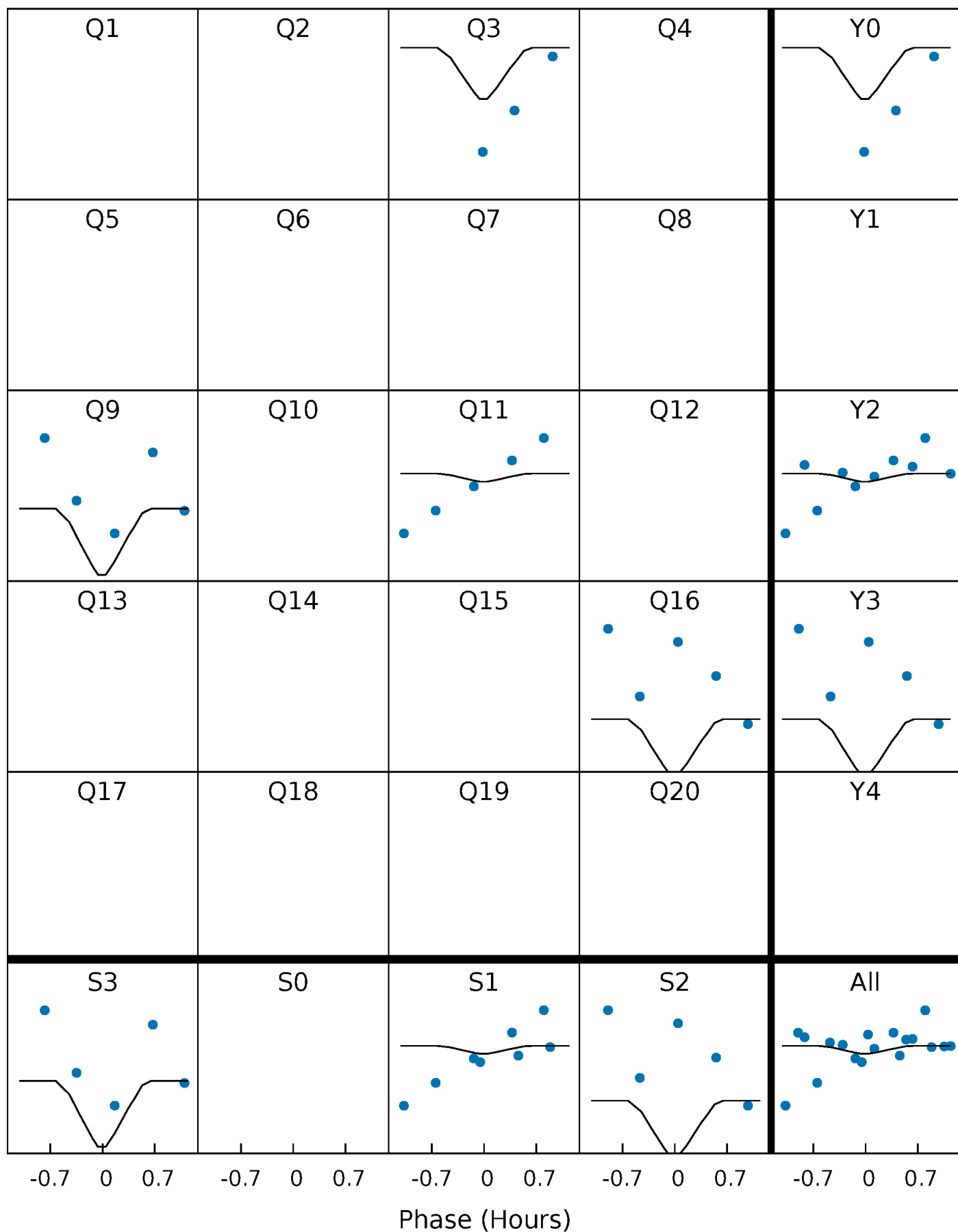
DV Quarter-Phased Transit Curves

TCE 004669417-01 P=239.594588 Days $T_0=330.072410$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

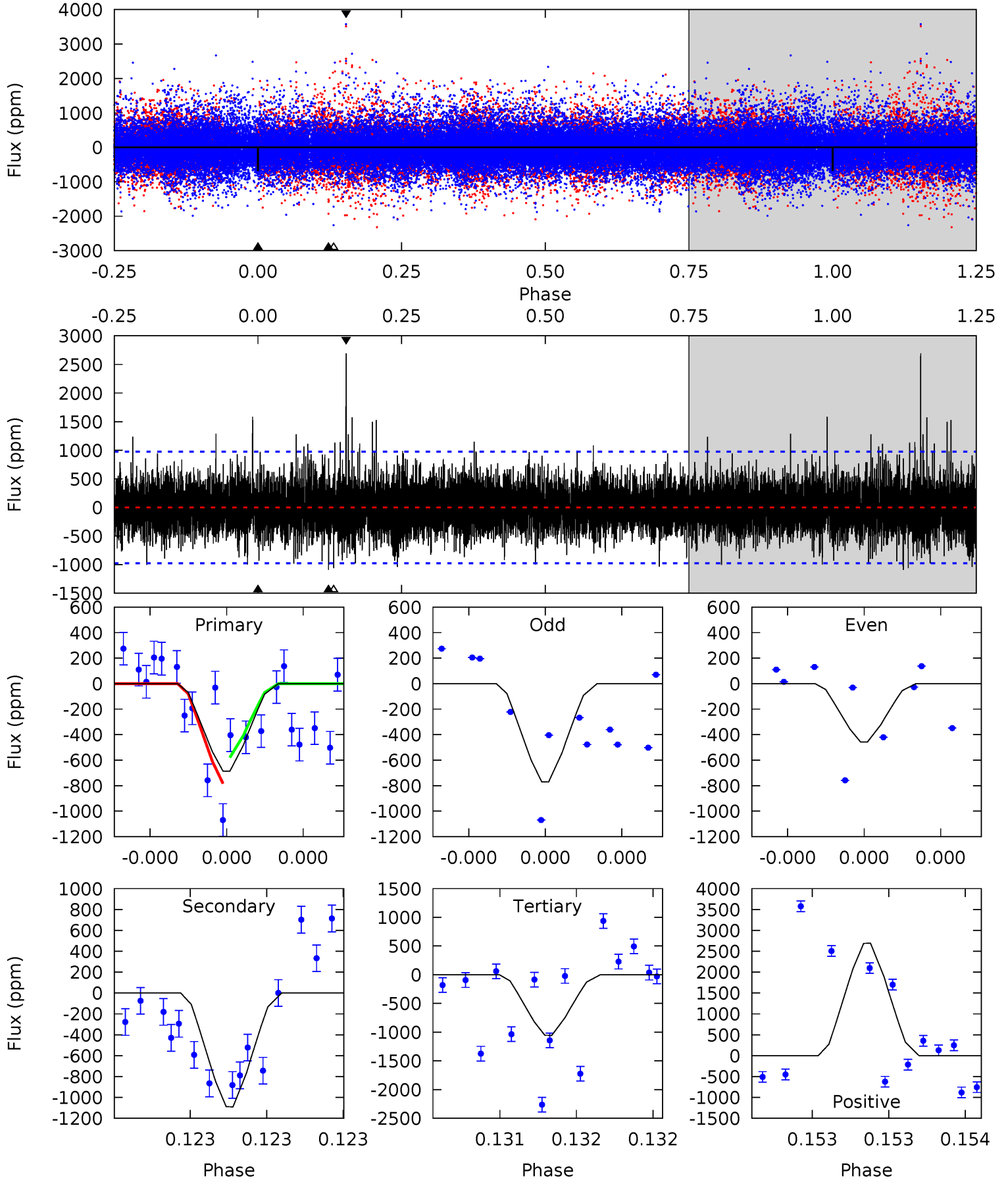
TCE 004669417-01 P=239.599050 Days $T_0=330.066610$ (BKJD)



DV Model-Shift Uniqueness Test

004669417-01, $P = 239.594588$ Days, $E = 90.477822$ Days

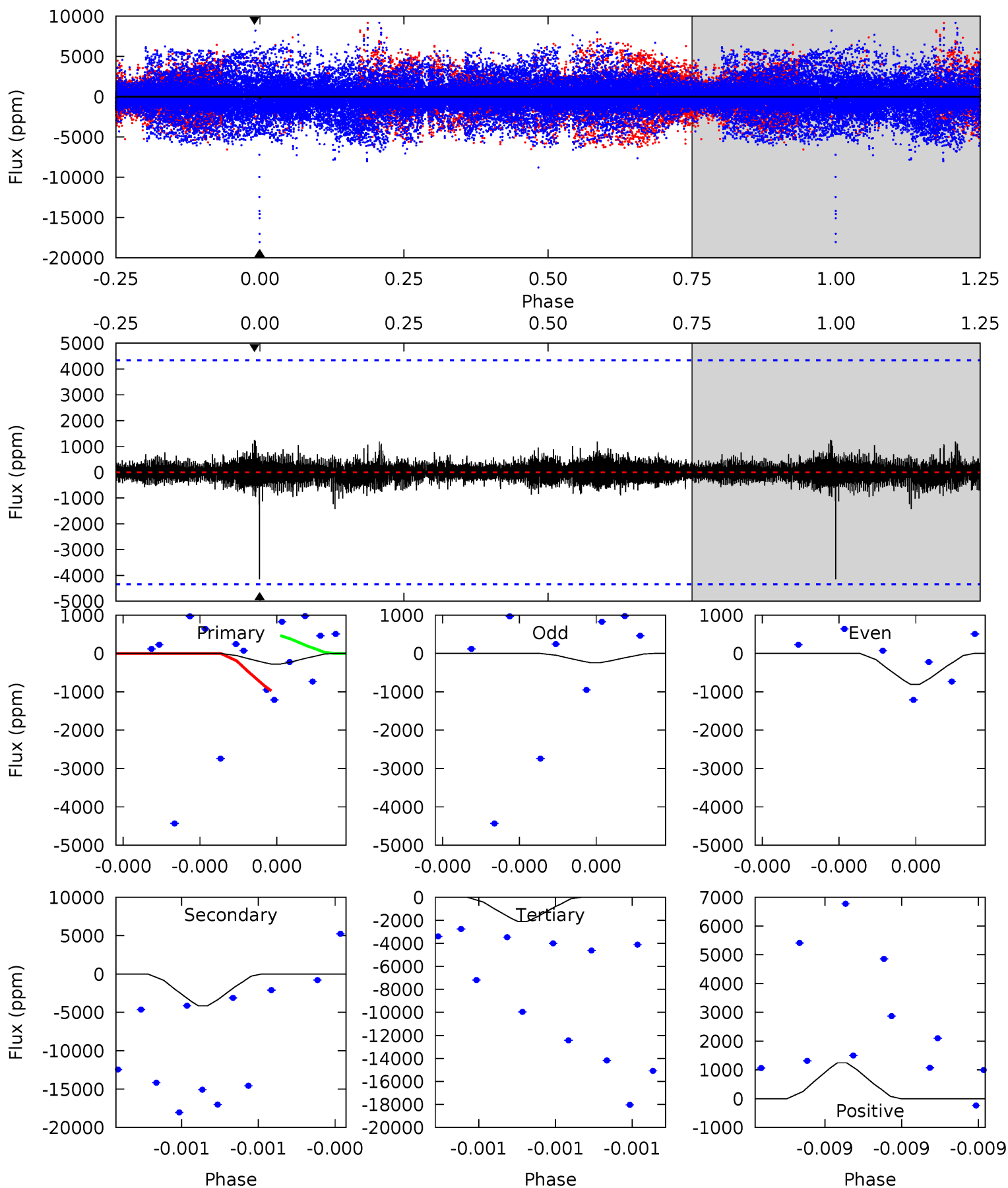
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.05	6.42	6.22	15.8	5.74	3.74	1.66	-2.17	-11.8	0.20	-9.43	0.75	0.88	0.71	0.60



Alt Model-Shift Uniqueness Test

004669417-01, P = 239.599050 Days, E = 90.467560 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.37	5.51	2.79	1.66	5.78	3.79	0.36	-2.42	-1.29	2.72	3.85	0.30	0.85	0.23	0.32



Stellar Parameters For KIC 004669417

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5211^{+173}_{-173}	$4.576^{+0.084}_{-0.056}$	$-0.620^{+0.350}_{-0.300}$	$0.697^{+0.074}_{-0.074}$	$0.667^{+0.082}_{-0.038}$	$2.775^{+0.985}_{-0.509}$
	+3%/-3%	+2%/-1%	+56%/-48%	+11%/-11%	+12%/-6%	+36%/-18%
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 004669417-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1091 ± 170	$29.63^{+34.60}_{-20.93}$	329^{+13}_{-14}	2384^{+916}_{-370}	290^{+3050}_{-225}
Alt.	-4142 ± 751	$27.23^{+35.52}_{-19.51}$	328^{+15}_{-14}	2887^{+1377}_{-539}	1396^{+14313}_{-1140}

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 $A_{obs} \gg 1.0$

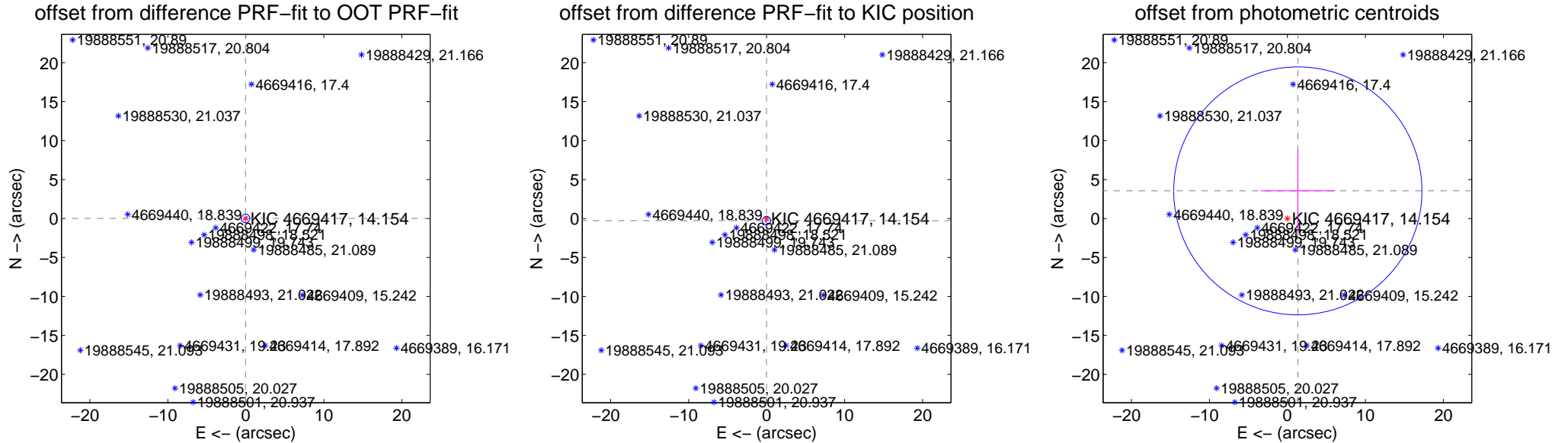
DV Centroid Data

Supplemental centroid analysis for 004669417-01. Kepler magnitude: 14.15. Transit SNR 1.61

There are 0 quarters with good PRF difference image offsets

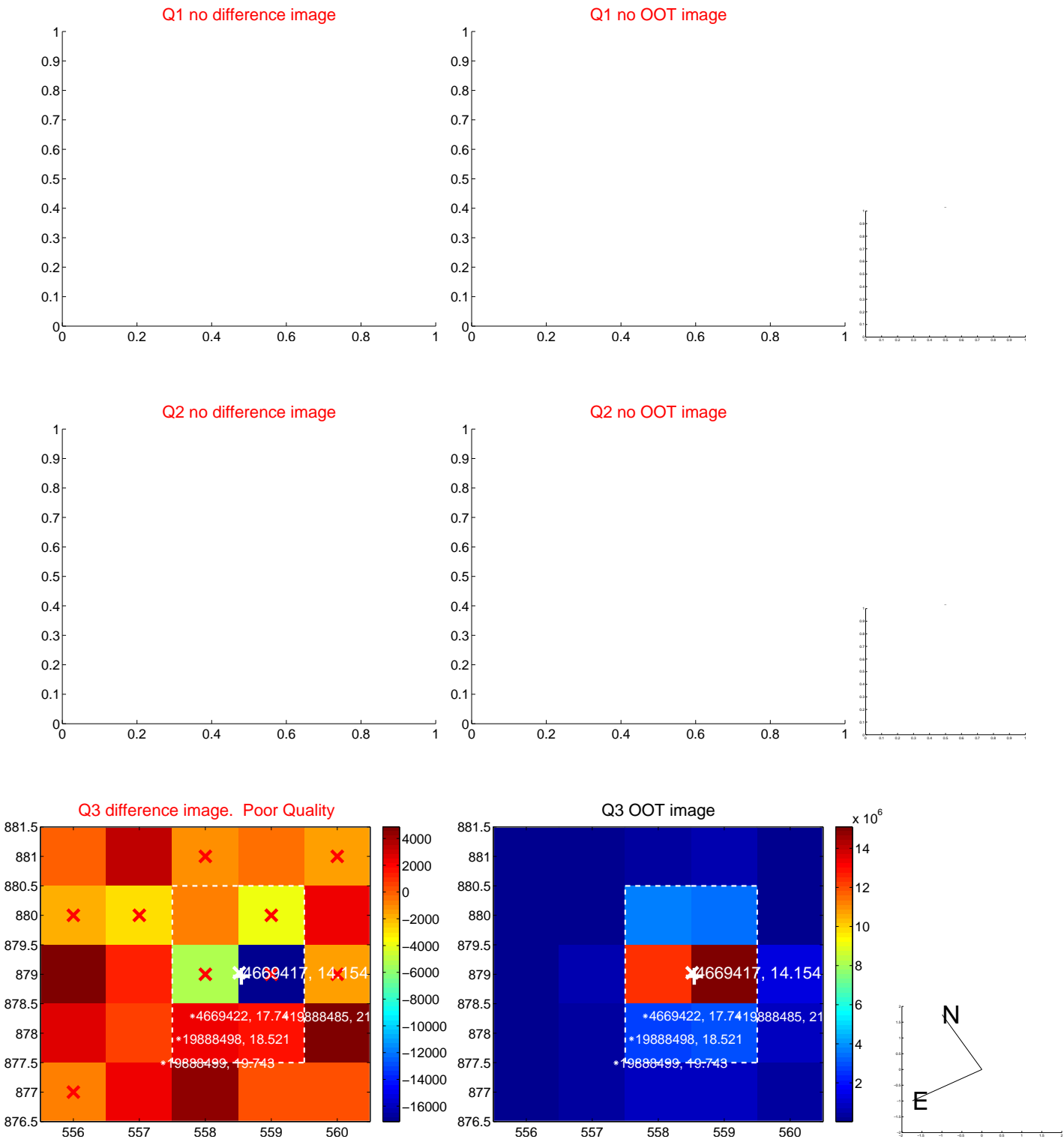
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.040 ± 0.184	0.22	0.038 ± 0.182	0.012 ± 0.208
PRF-fit source offset from KIC position	0.269 ± 0.176	1.53	0.011 ± 0.151	-0.269 ± 0.176
photometric centroid source offset	3.79 ± 5.30	0.71	-1.33 ± 4.77	3.55 ± 5.38



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.

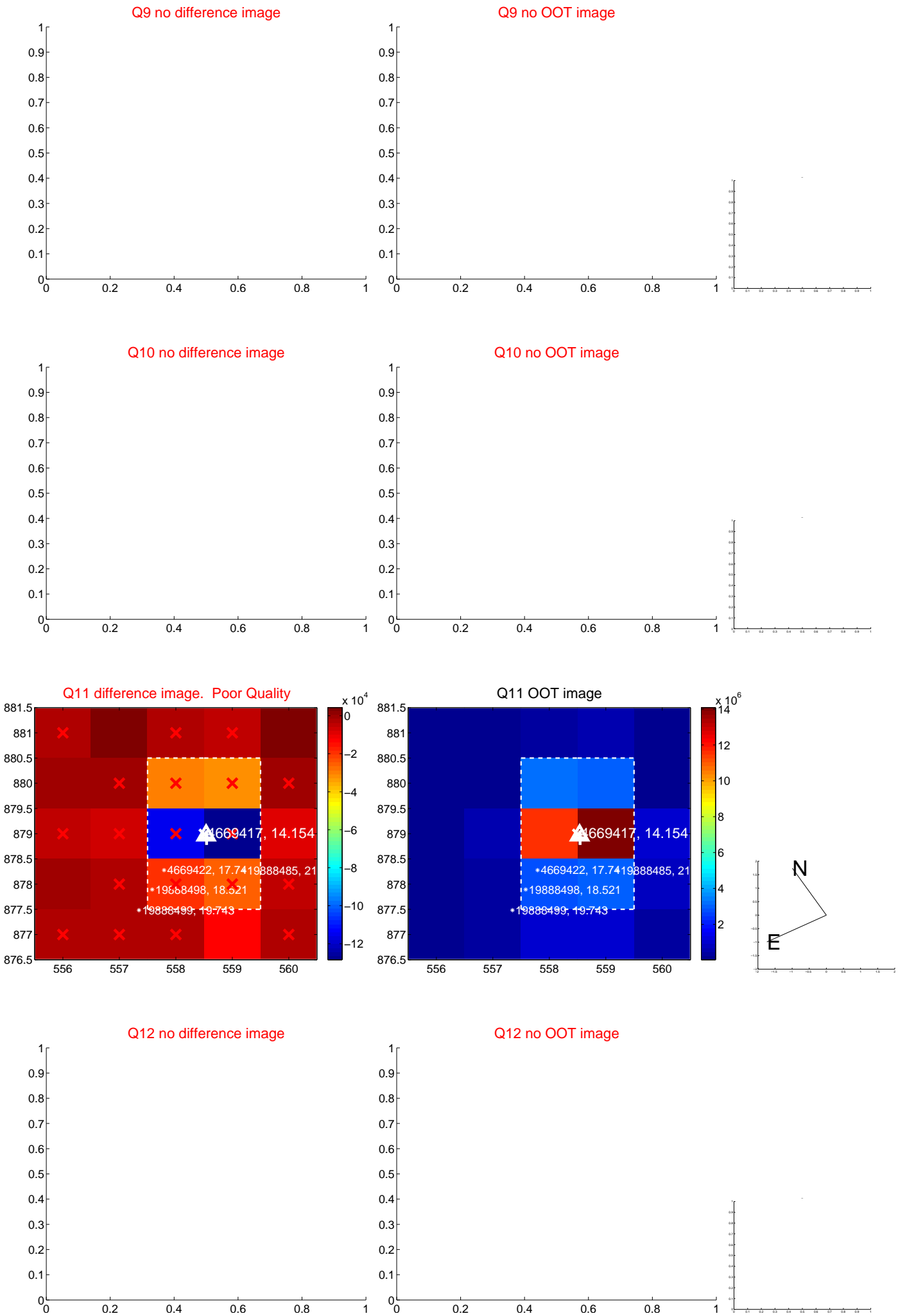
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



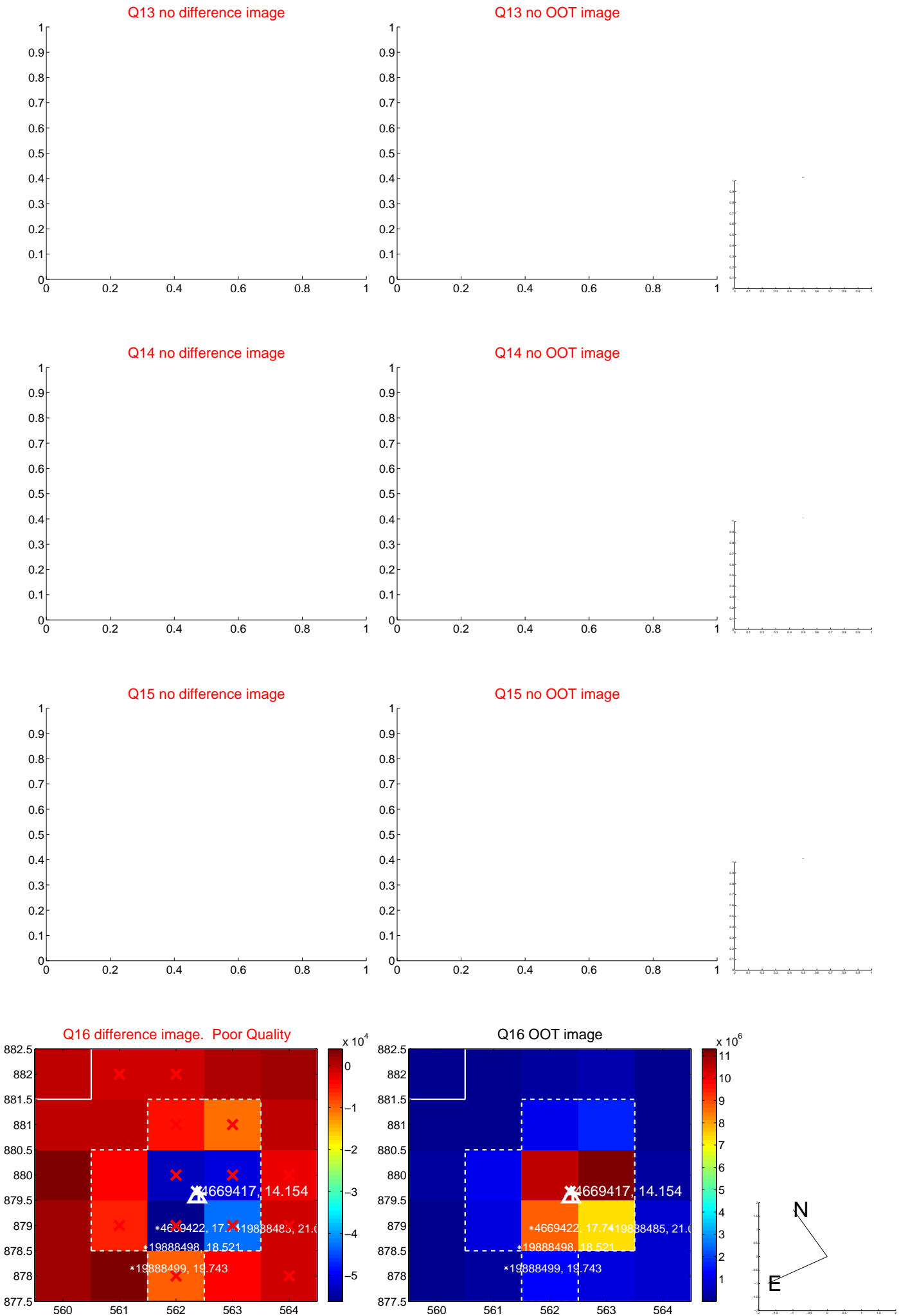
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

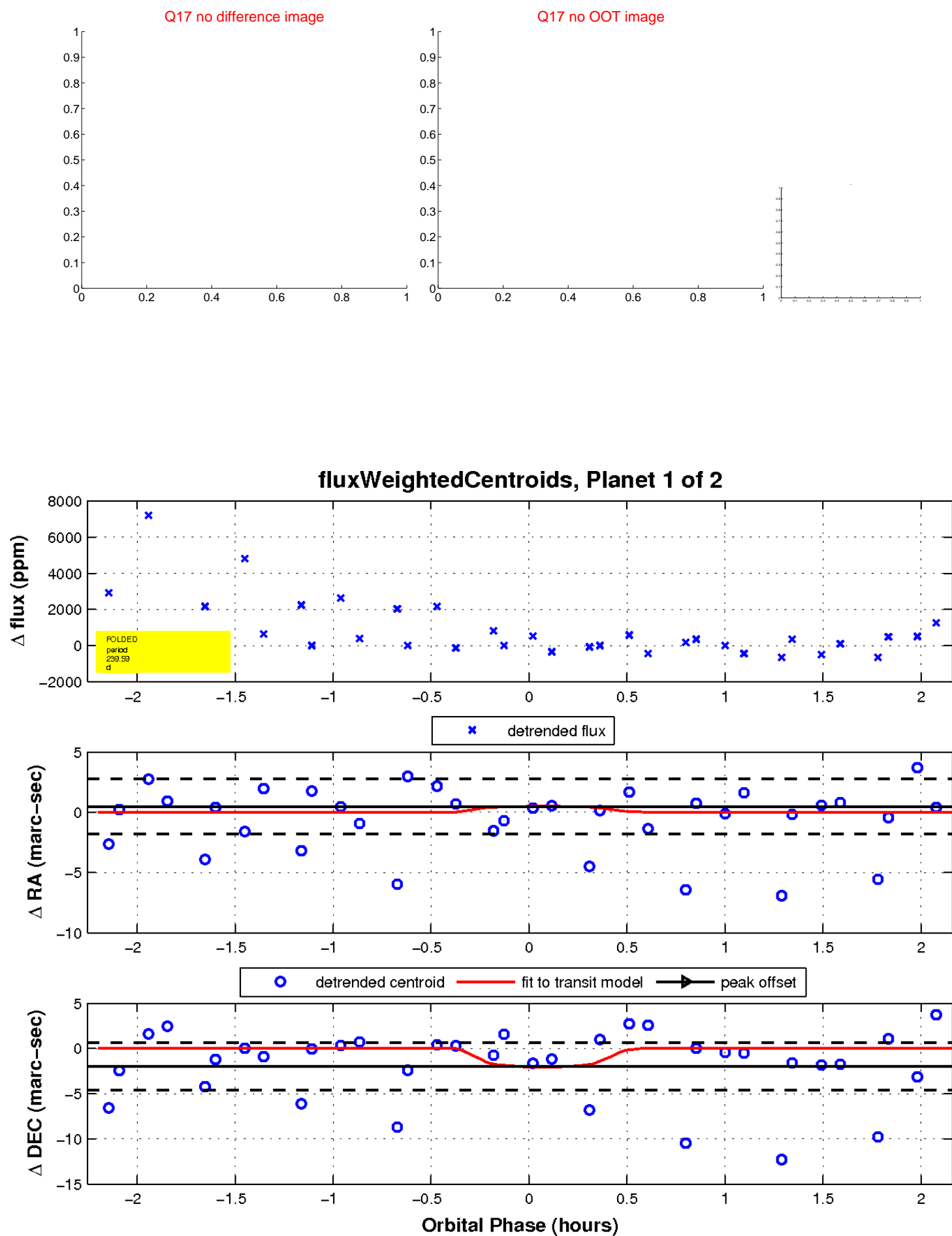


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



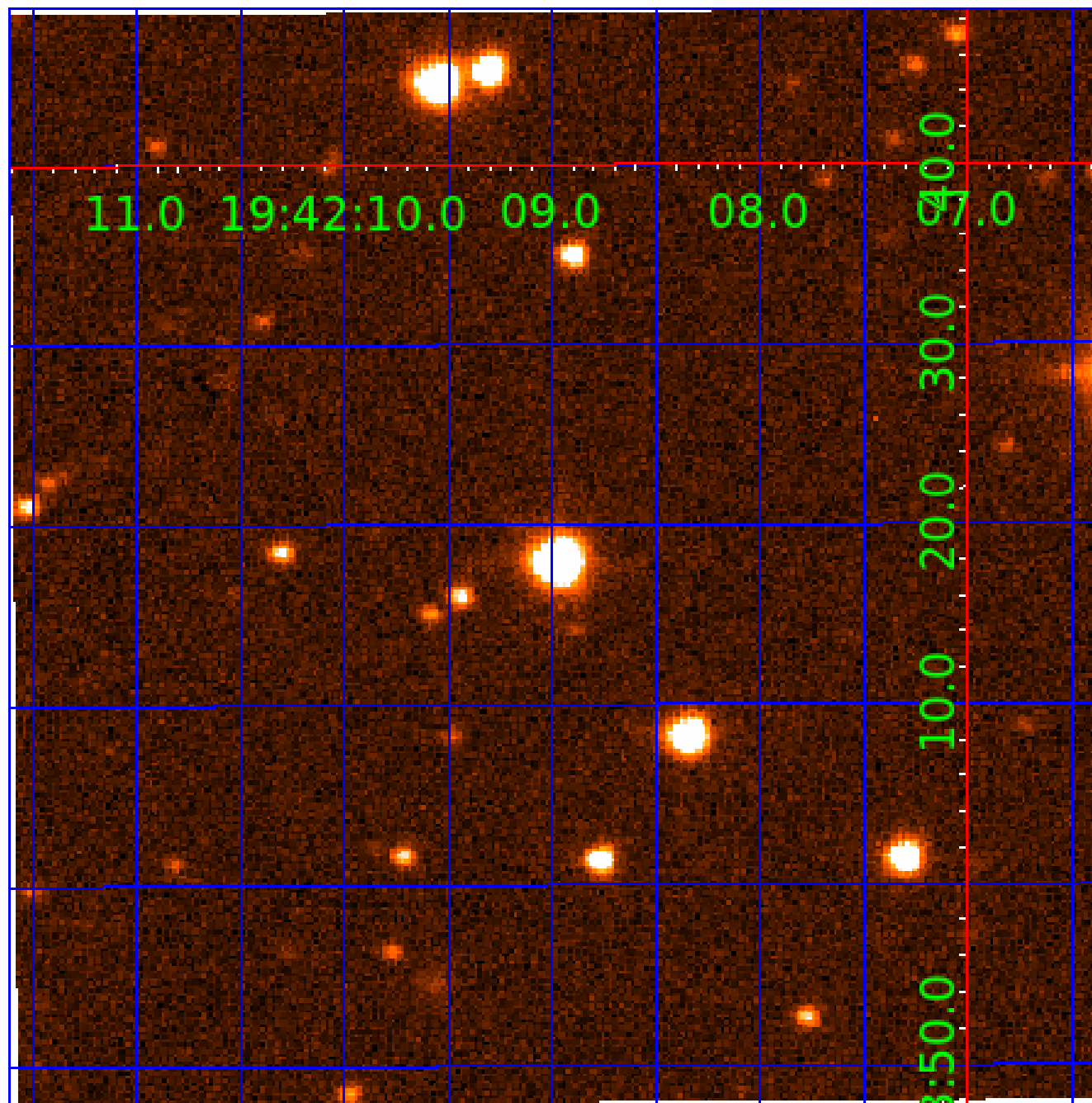
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.





UKIRT Image

Declination



KIC 004669417

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})
004669417-01	OBS	No	239.594588	330.072410	457.7	0.751	13.1	1.6	0.70	5211	1.53	0.74
004669417-02	OBS	No	0.594553	131.893367	99.3	2.325	9.6	7.0	0.70	5211	0.73	2193.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004669417-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004669417-02	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.

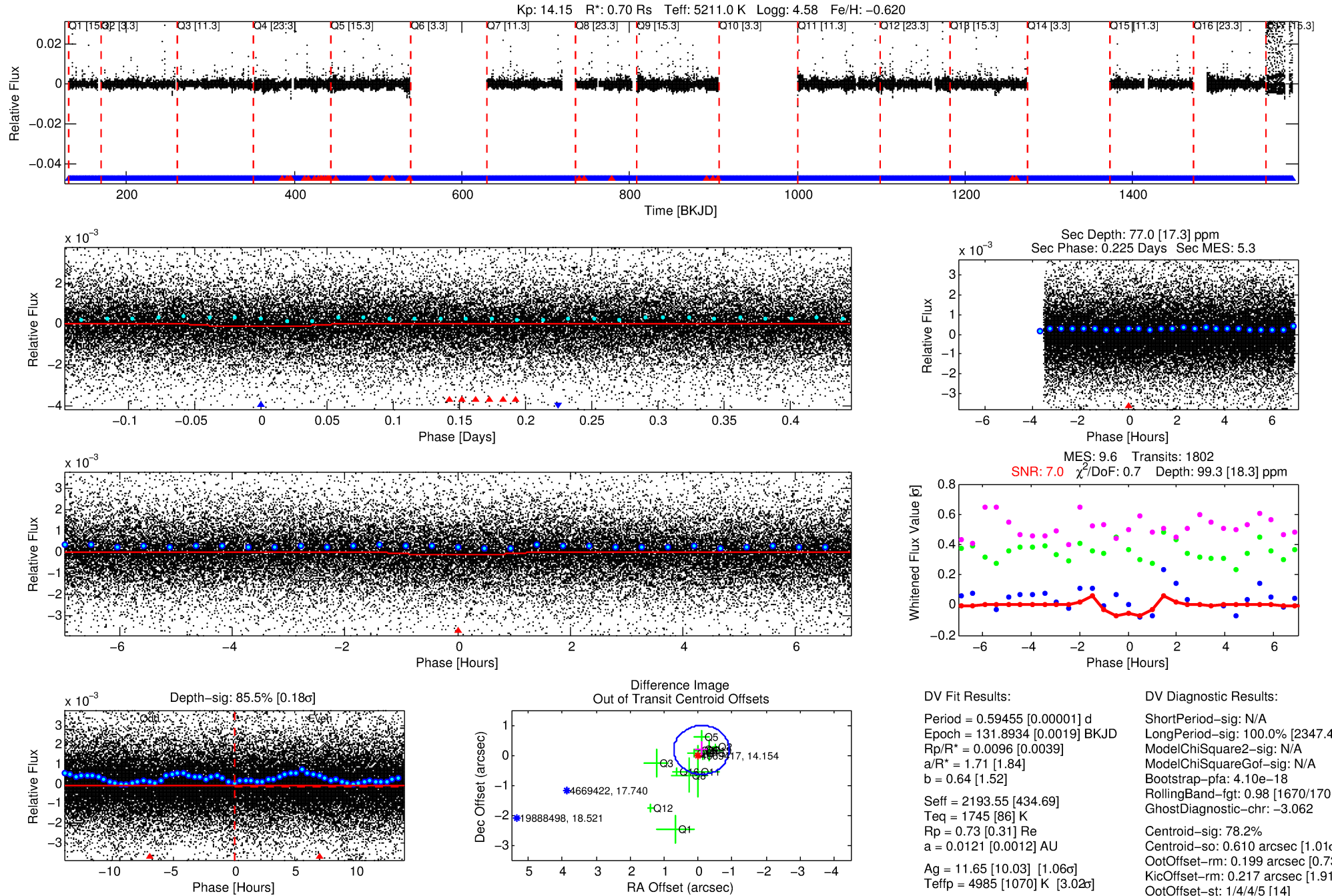
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004669417-02

No Significant Match Found

DV One-Page Summary

KIC: 4669417 Candidate: 2 of 2 Period: 0.595 d



DV Fit Results:

Period = 0.59455 [0.00001] d
Epoch = 131.8934 [0.0019] BKJD
Rp/R* = 0.0096 [0.0039]
a/R* = 1.71 [1.84]
b = 0.64 [1.52]
Seff = 2193.55 [434.69]
Teq = 1745 [86] K
Rp = 0.73 [0.31] Re
a = 0.0121 [0.0012] AU
Ag = 11.65 [10.03] [1.06 σ]
Teffp = 4985 [1070] K [3.02 σ]

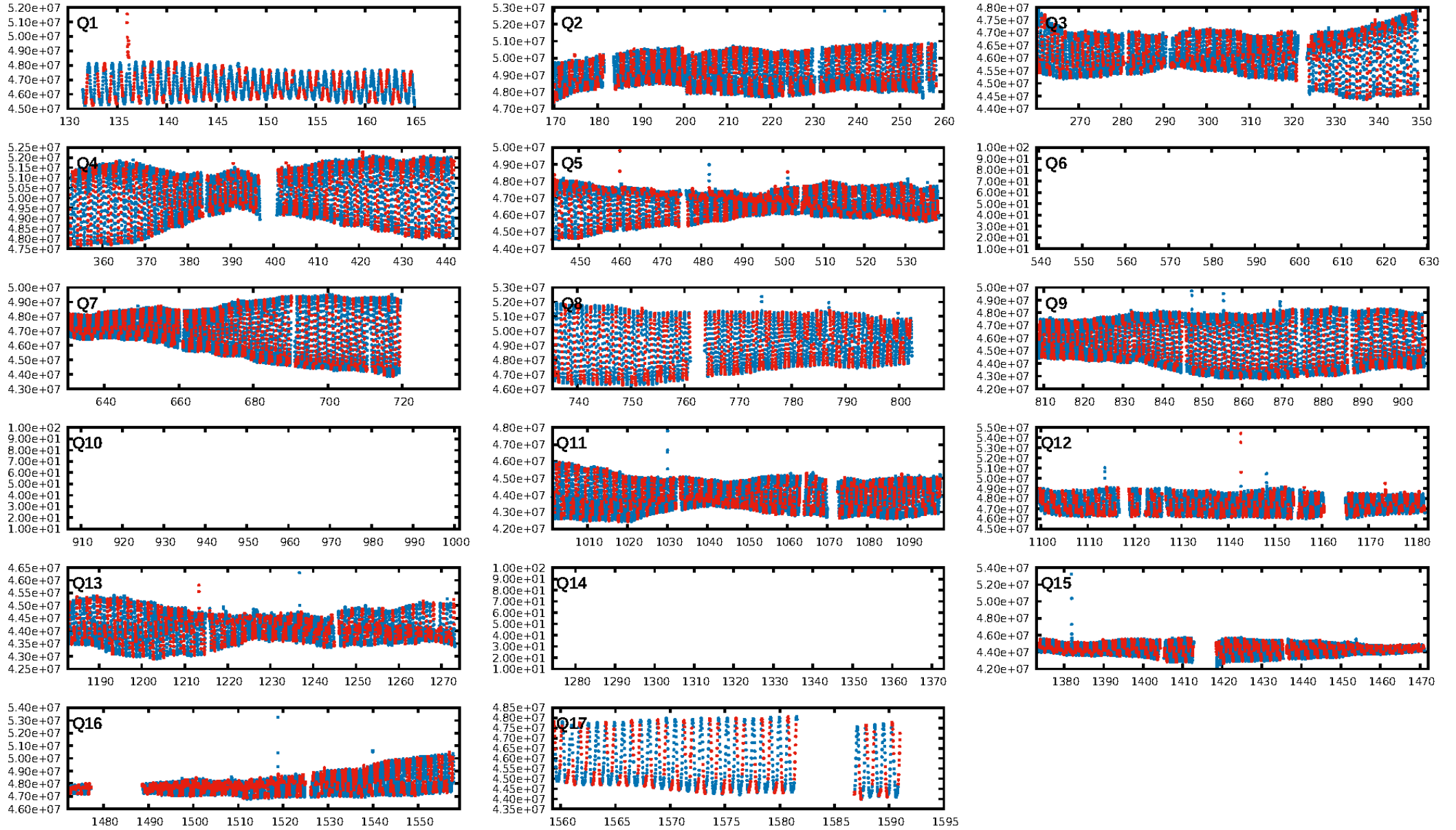
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [2347.41 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.10e-18
RollingBand-fgt: 0.98 [1670/1701]
GhostDiagnostic-chr: -3.062
Centroid-sig: 78.2%
Centroid-so: 0.610 arcsec [1.01 σ]
OotOffset-rm: 0.199 arcsec [0.73 σ]
KicOffset-rm: 0.217 arcsec [1.91 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 1.00 [14/14]

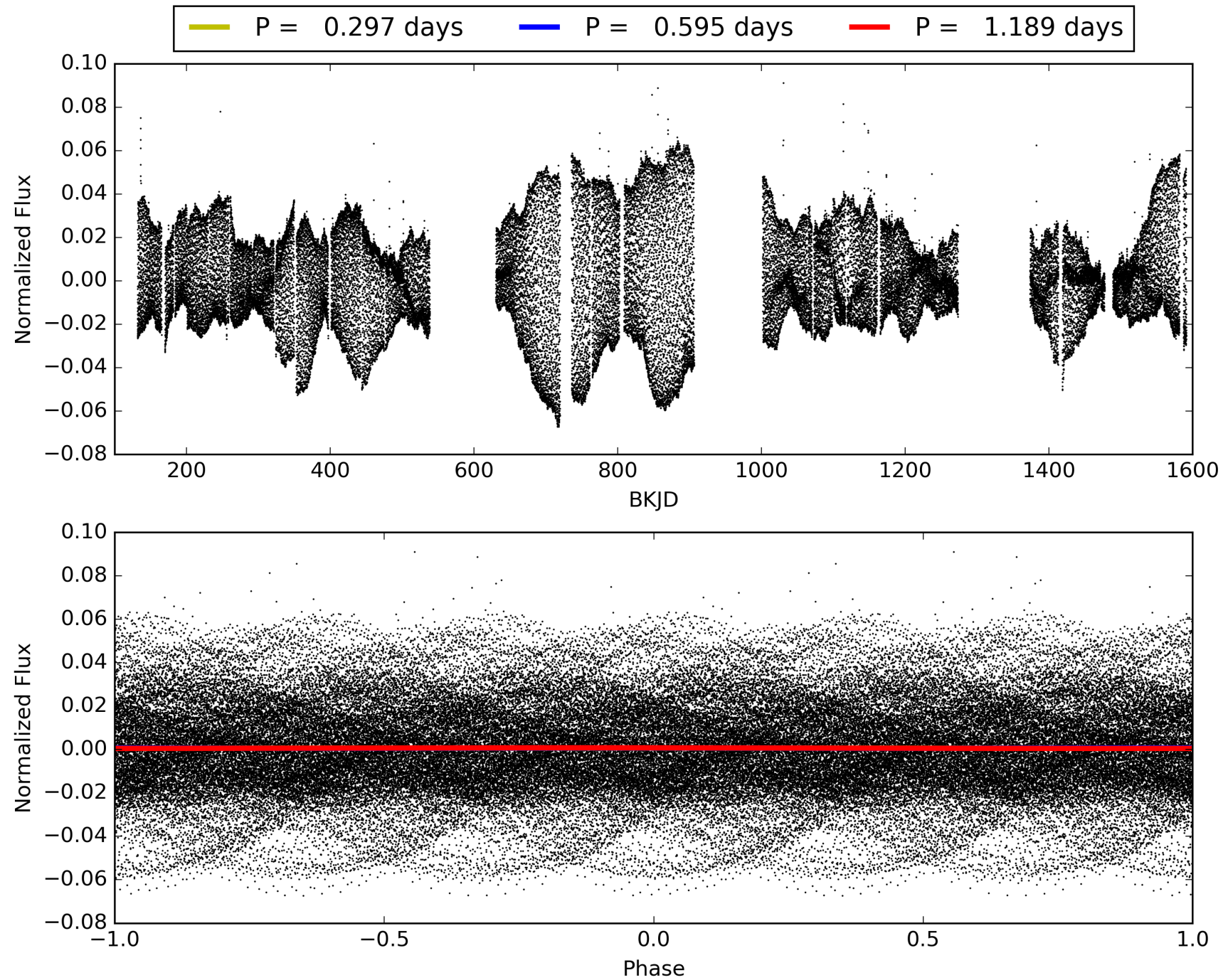
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:06:56 Z

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

TCE 004669417-02, PDC Light Curves

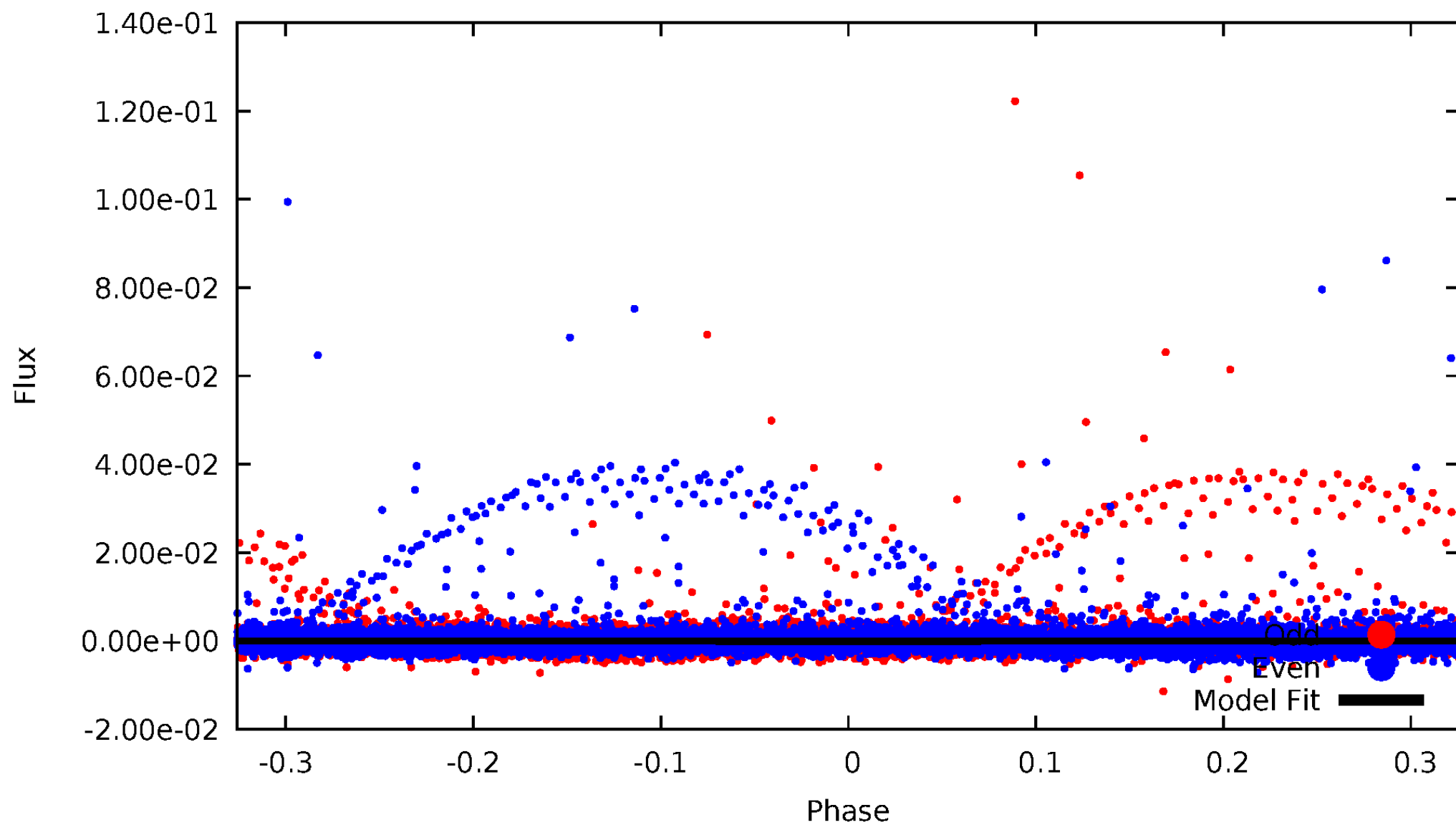


TCE 004669417-02



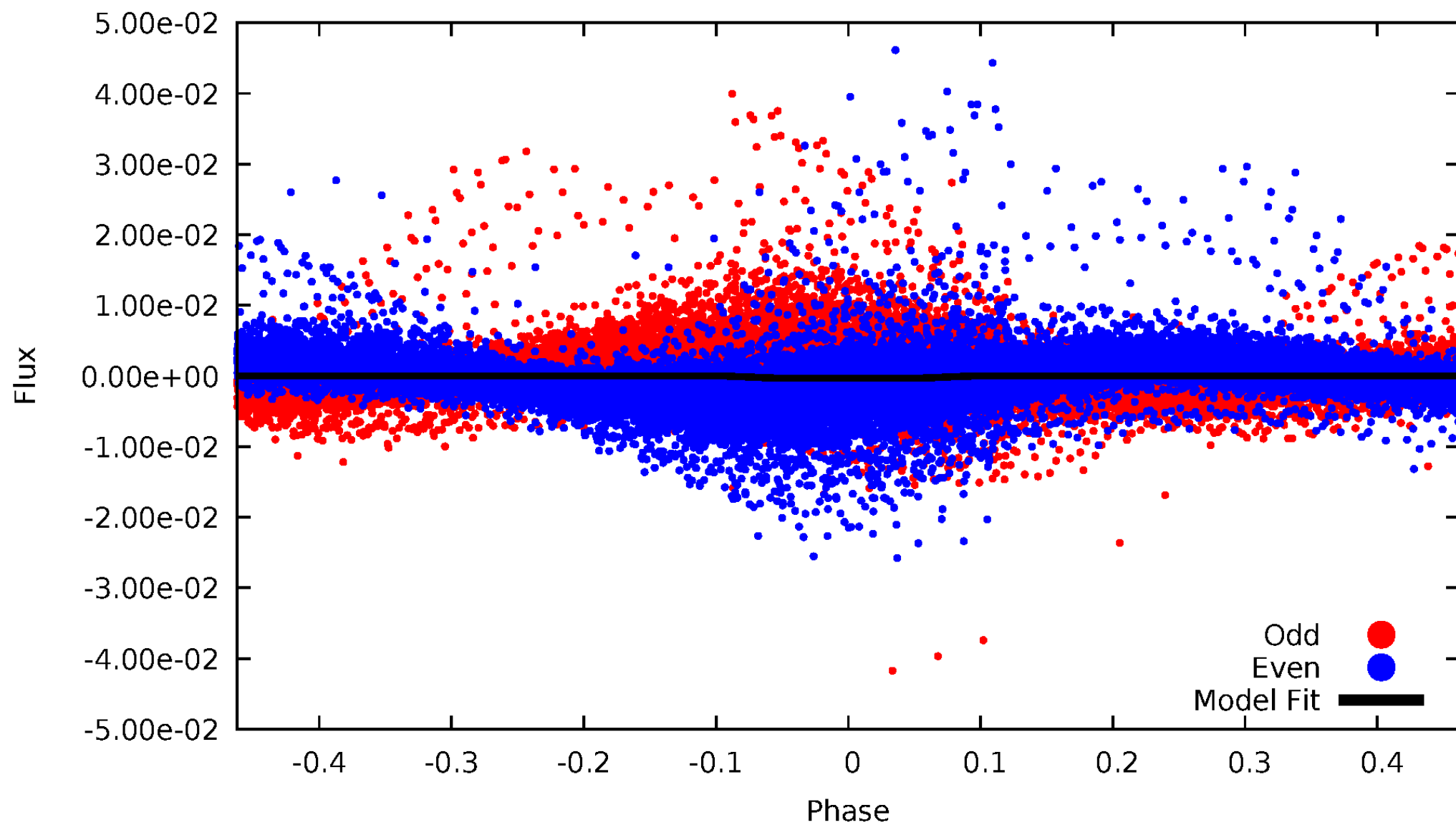
DV Odd/Even

TCE 004669417-02



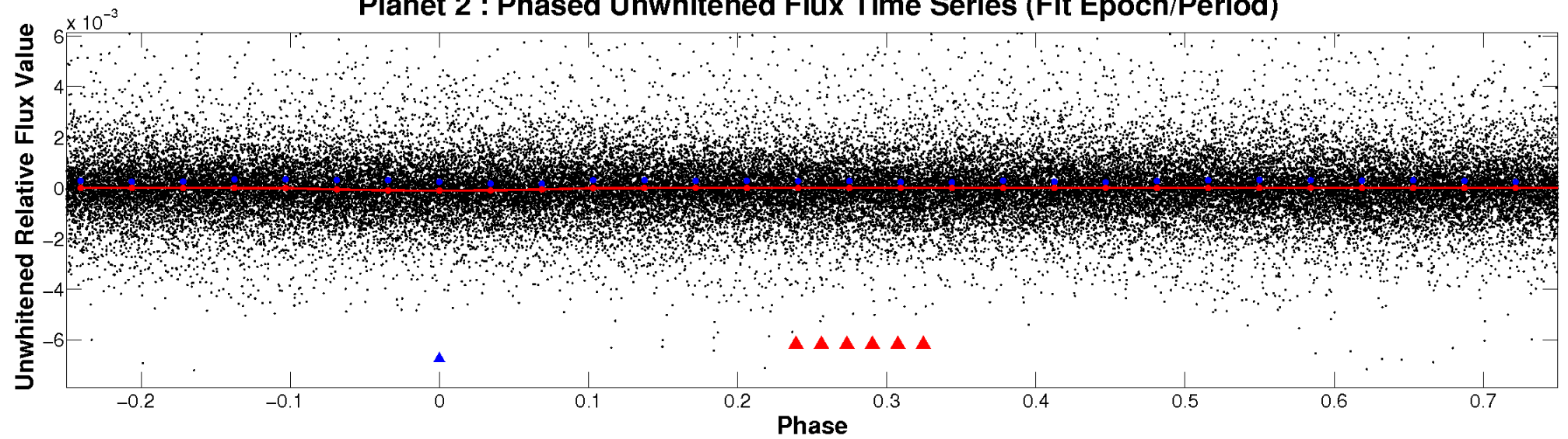
ALT Odd/Even

TCE 004669417-02

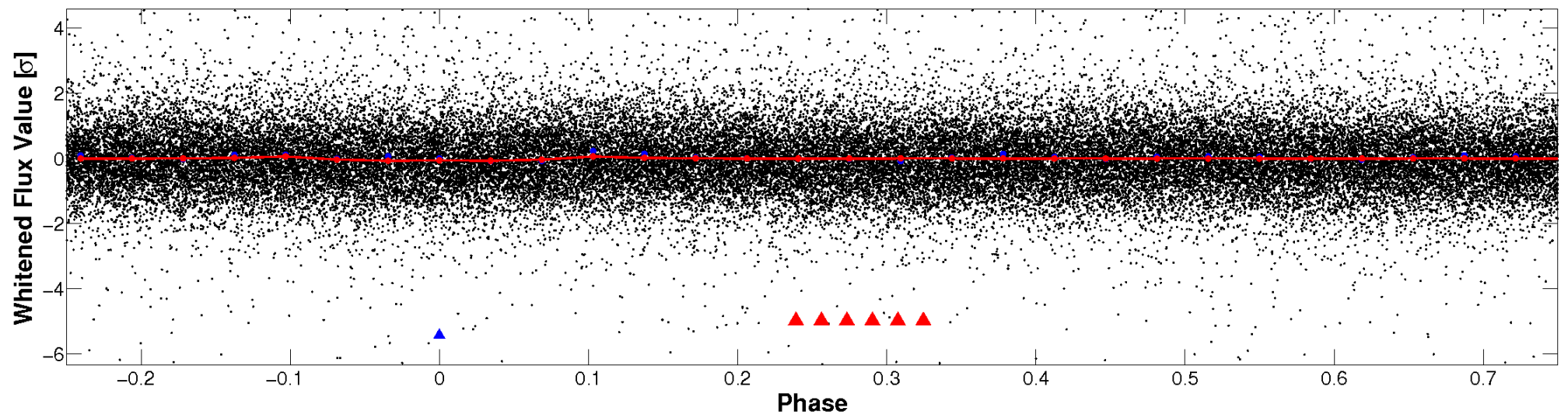


Non-Whitened Vs. Whitened Light Curve

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

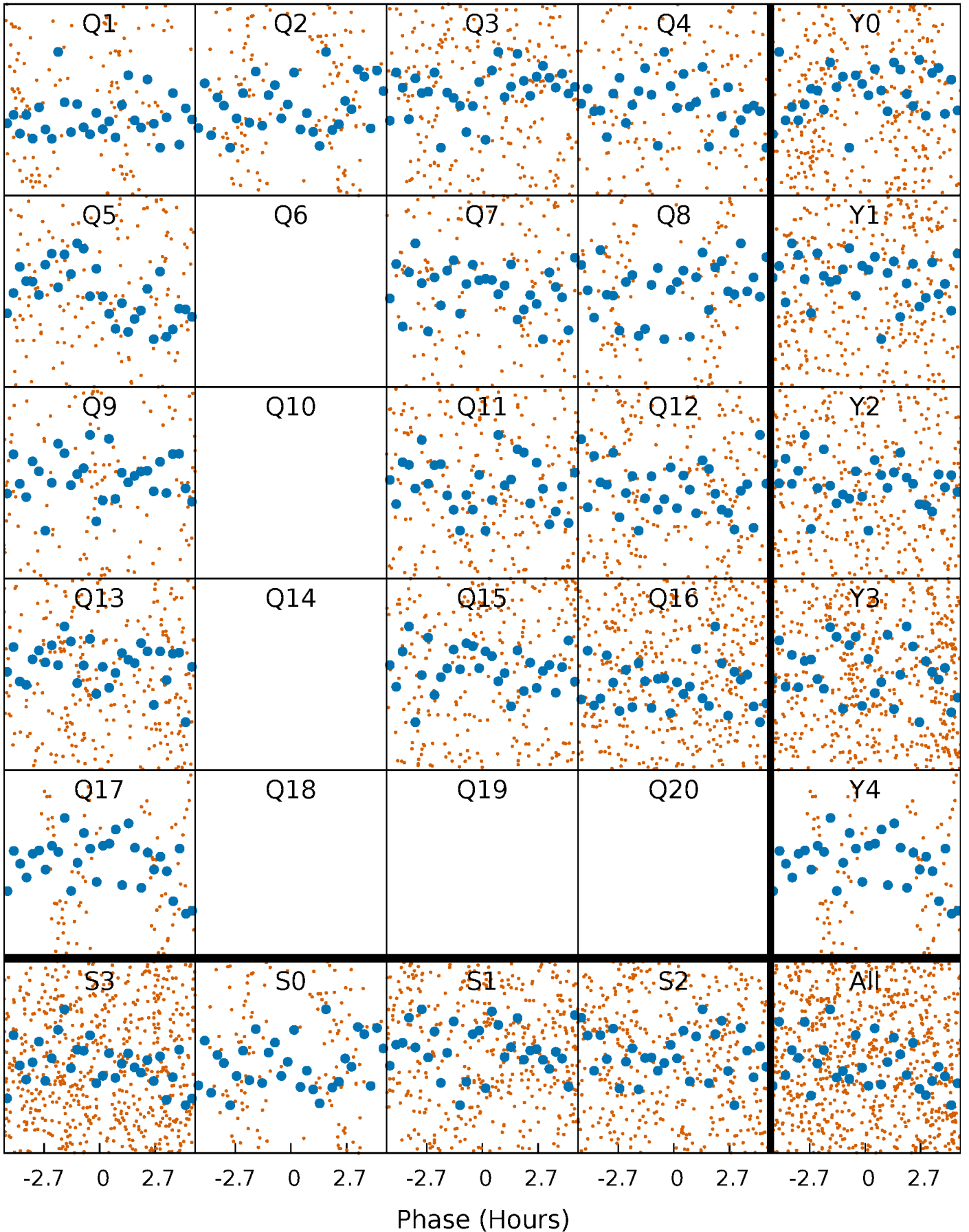


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



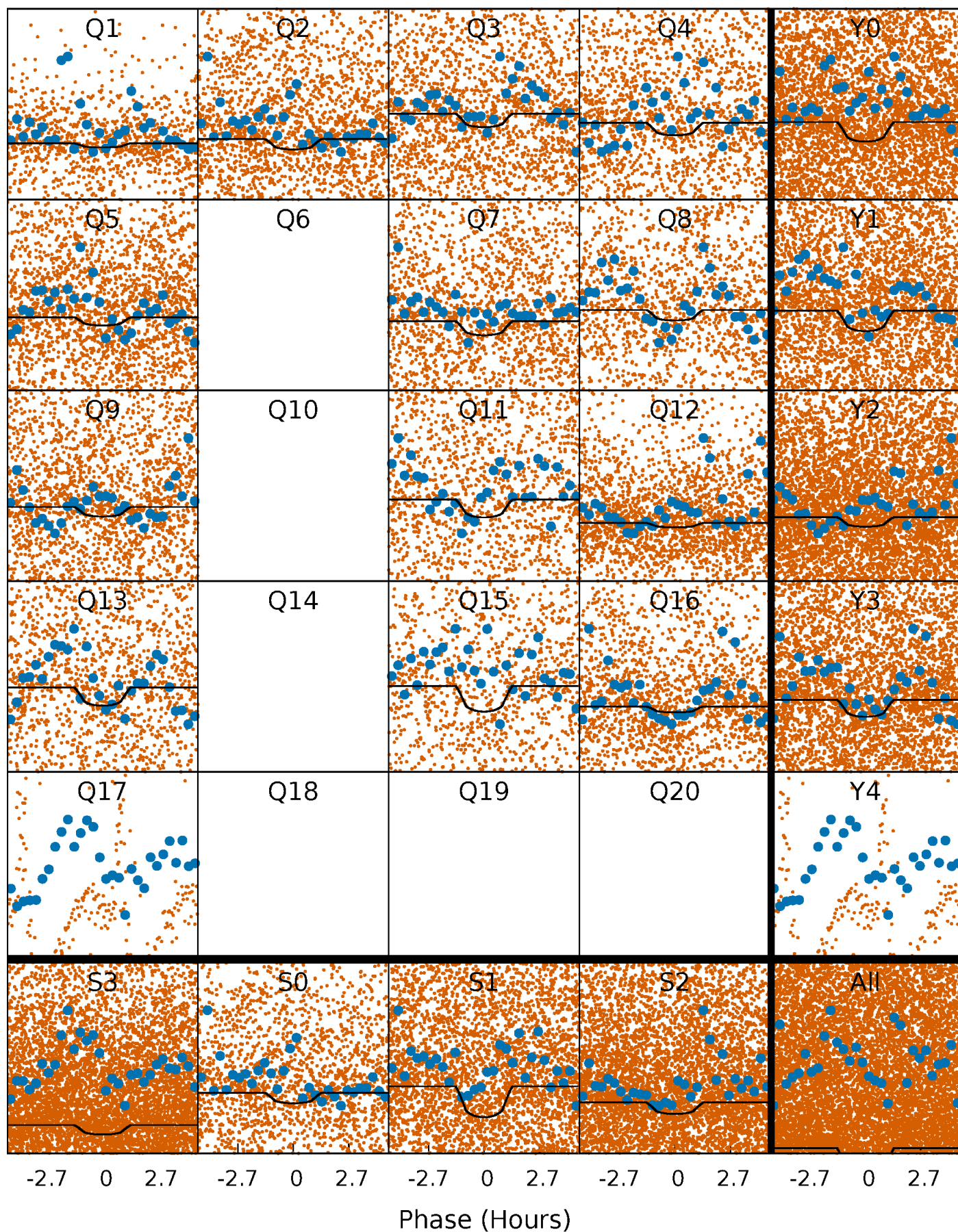
PDC Quarter-Phased Transit Curves

TCE 004669417-02 P= 0.594553 Days $T_0=131.893367$ (BKJD)



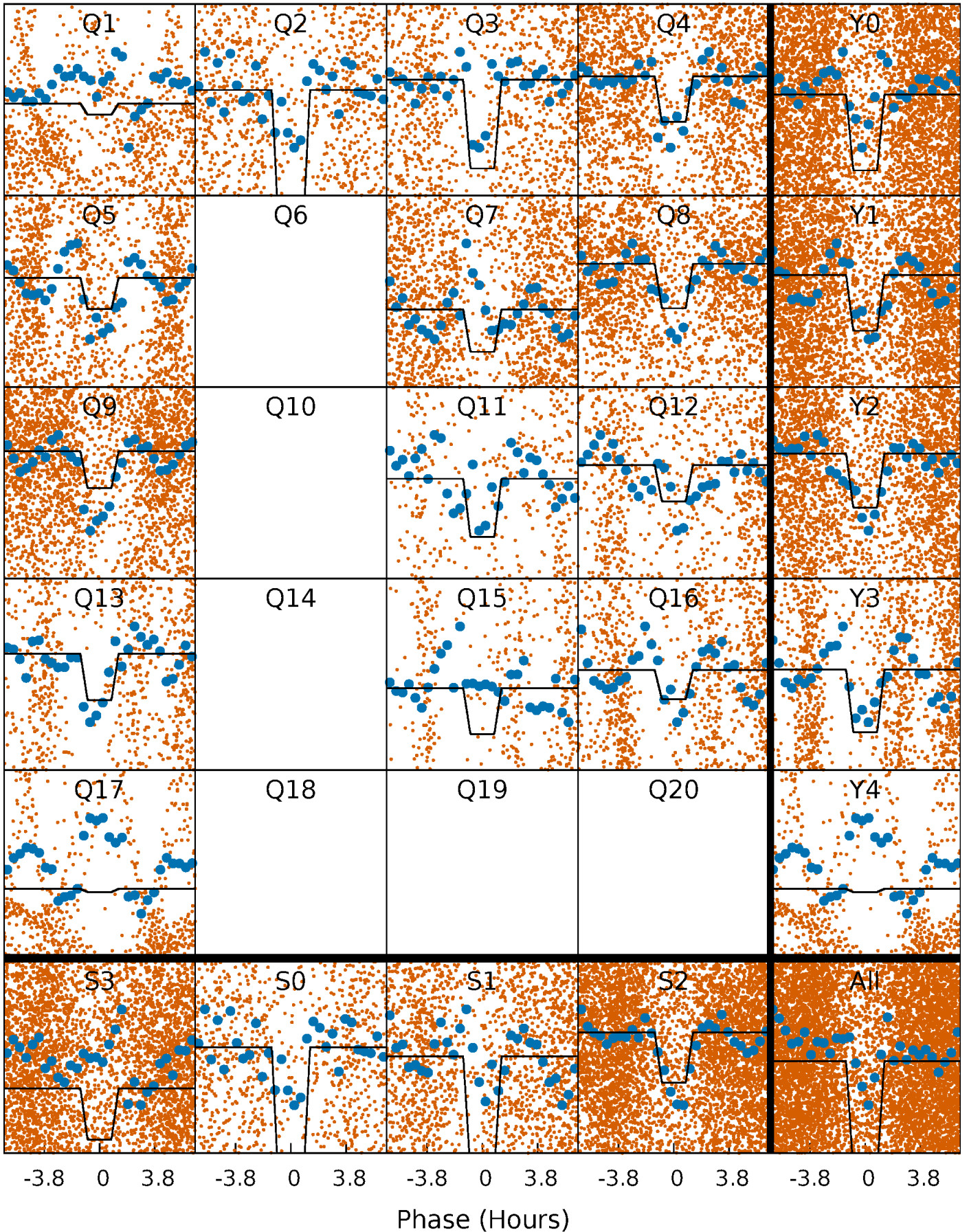
DV Quarter-Phased Transit Curves

TCE 004669417-02 P= 0.594553 Days $T_0=131.893367$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

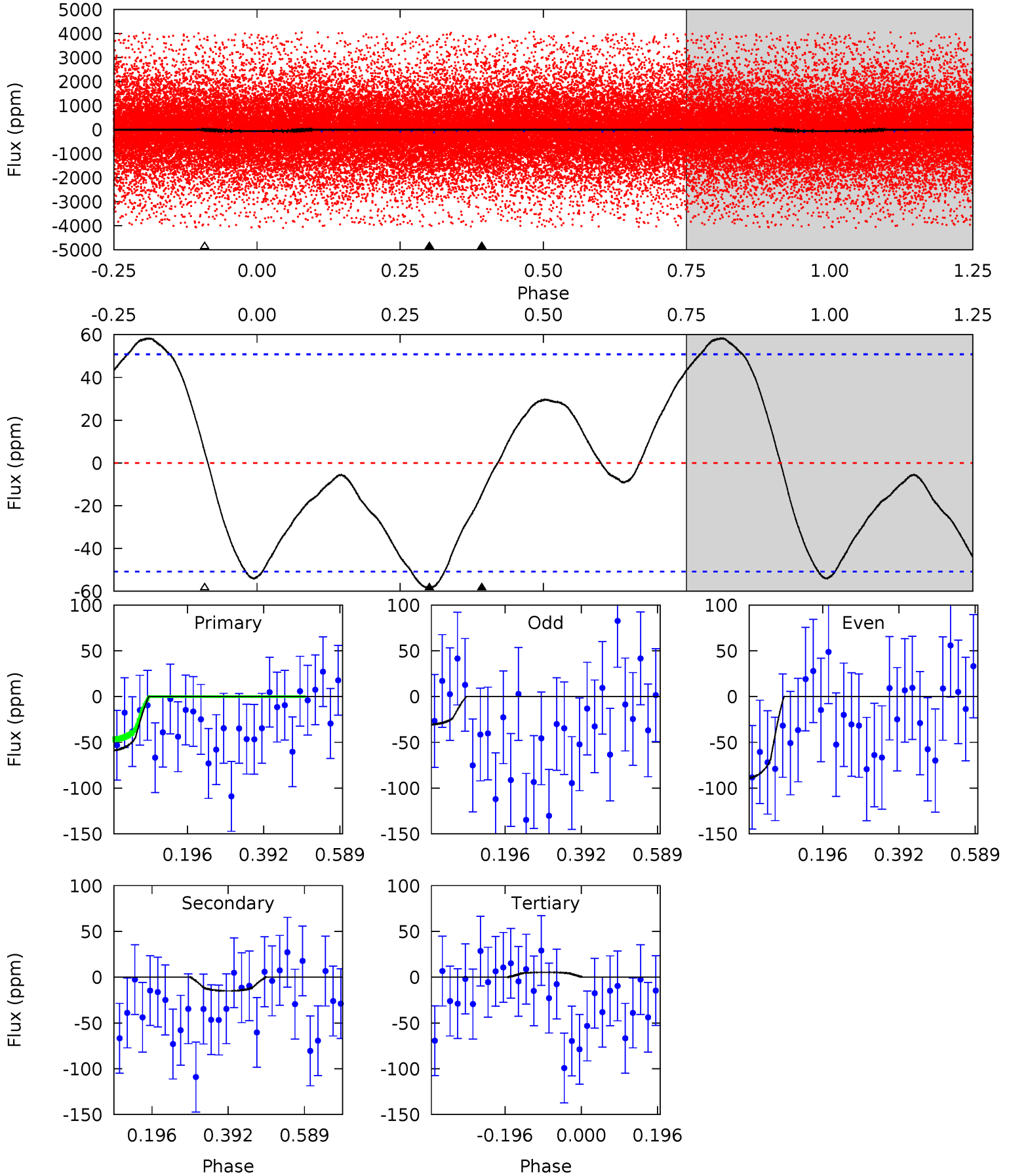
TCE 004669417-02 P= 0.595328 Days $T_0=131.829735$ (BKJD)



DV Model-Shift Uniqueness Test

004669417-02, P = 0.594553 Days, E = 131.298814 Days

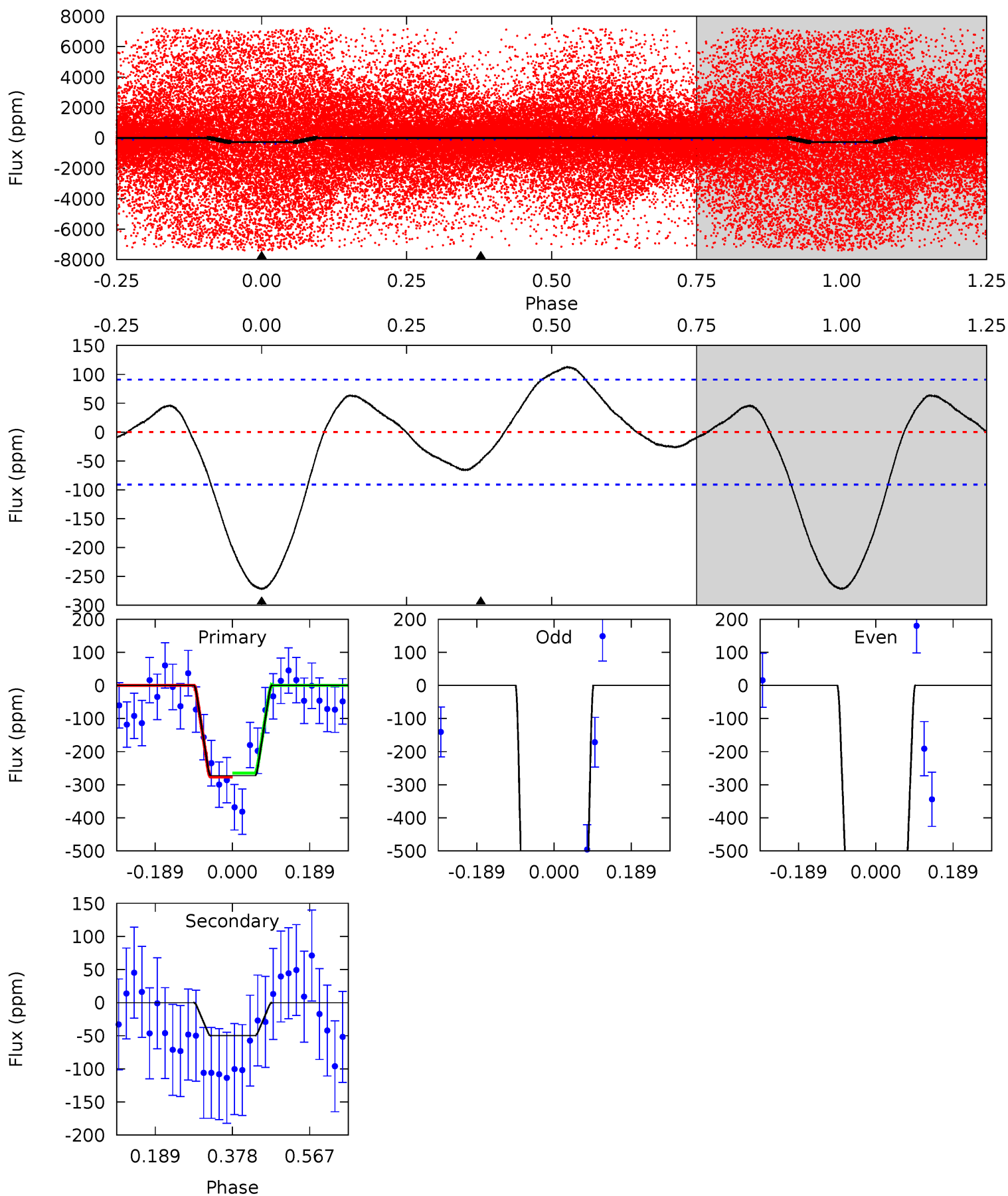
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.12	1.31	-0.46	0	4.42	1.29	3.11	5.58	5.12	1.77	1.31	2.59	-8.00	0.50	1.12



Alt Model-Shift Uniqueness Test

004669417-02, P = 0.595328 Days, E = 131.234407 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	2.42	0	0	4.43	1.31	1.38	13.3	13.3	2.42	2.42	16.1	0.14	0.29	0.29



Stellar Parameters For KIC 004669417

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5211^{+173}_{-173}	$4.576^{+0.084}_{-0.056}$	$-0.620^{+0.350}_{-0.300}$	$0.697^{+0.074}_{-0.074}$	$0.667^{+0.082}_{-0.038}$	$2.775^{+0.985}_{-0.509}$
	+3%/-3%	+2%/-1%	+56%/-48%	+11%/-11%	+12%/-6%	+36%/-18%
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 004669417-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-15 ± 11	$0.73^{+0.30}_{-0.27}$	2430^{+111}_{-96}	3593^{+784}_{-1074}	$2.195^{+4.285}_{-1.731}$
Alt.	-50 ± 21	$1.30^{+0.29}_{-0.32}$	2425^{+101}_{-101}	3611^{+490}_{-425}	$2.291^{+2.331}_{-1.104}$

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

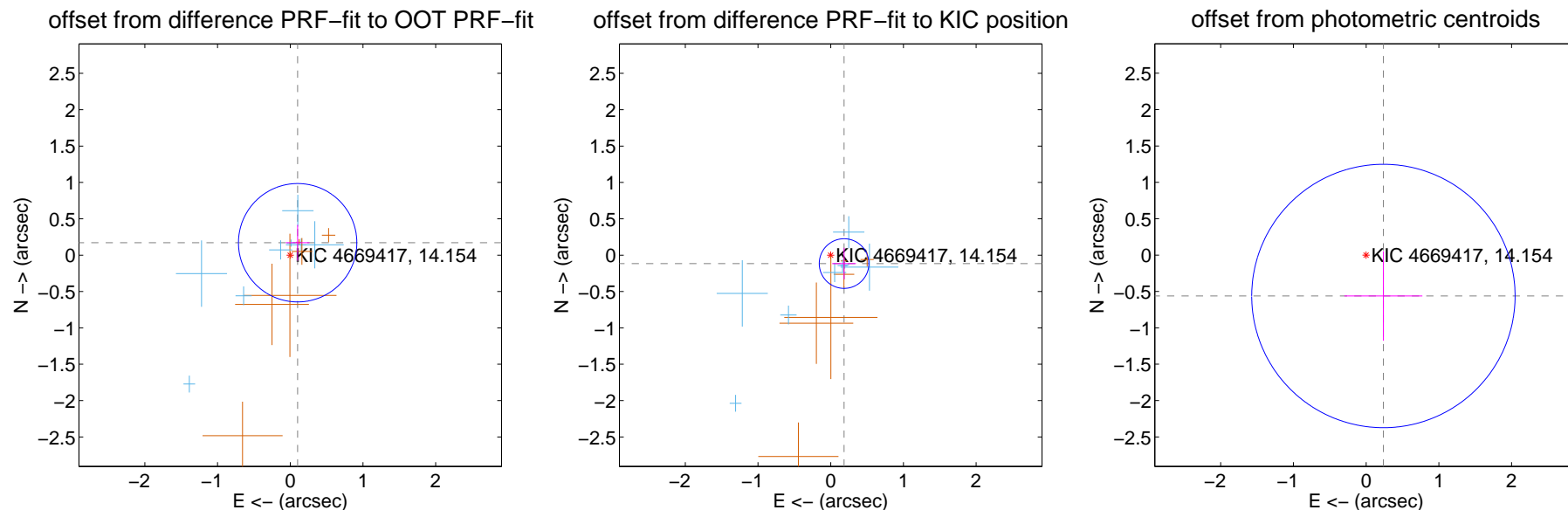
DV Centroid Data

Supplemental centroid analysis for 004669417-02. Kepler magnitude: 14.15. Transit SNR 6.95

There are 8 quarters with good PRF difference image offsets

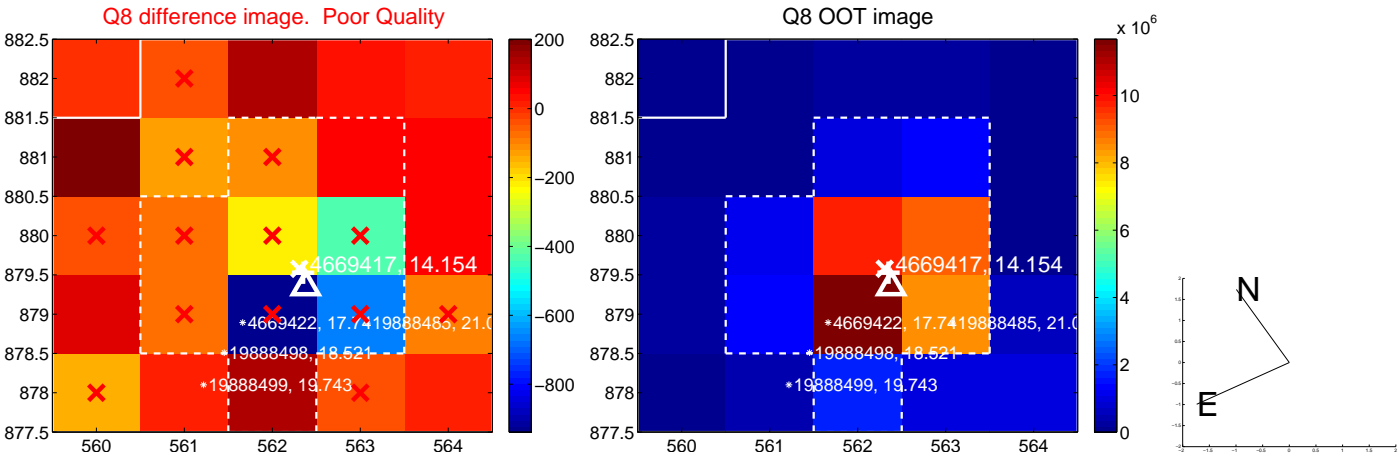
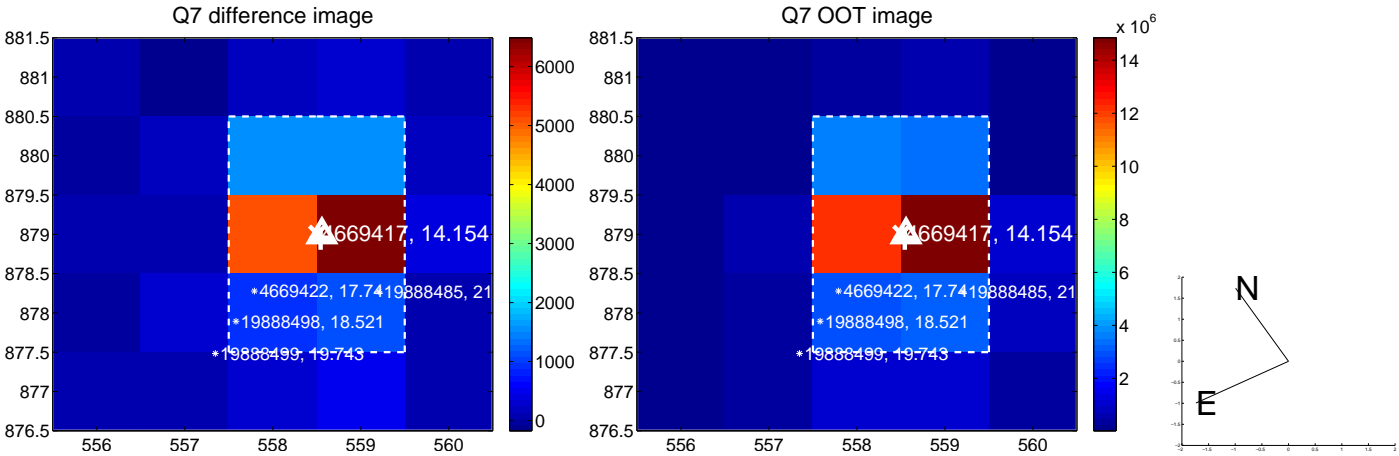
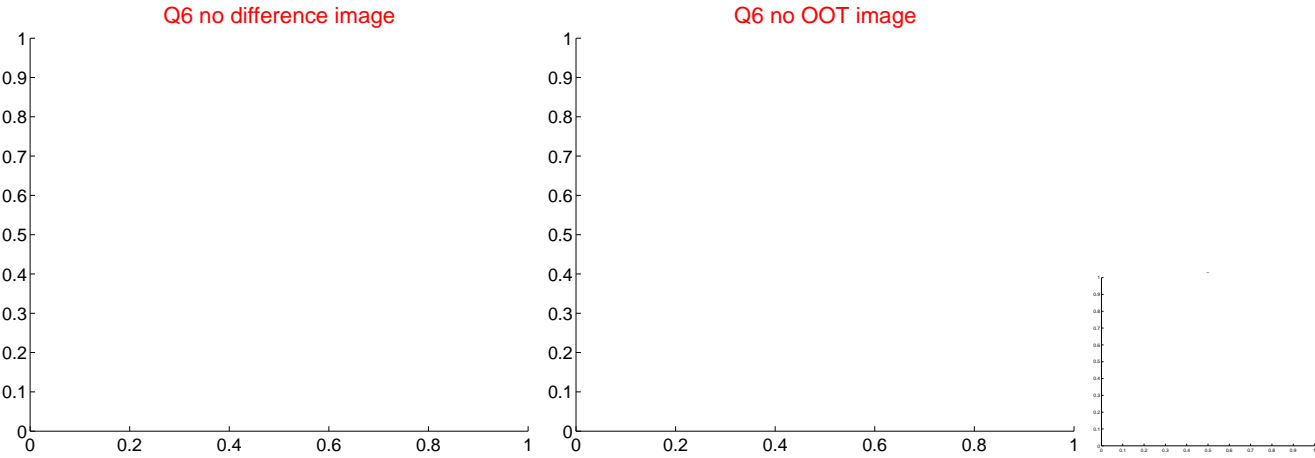
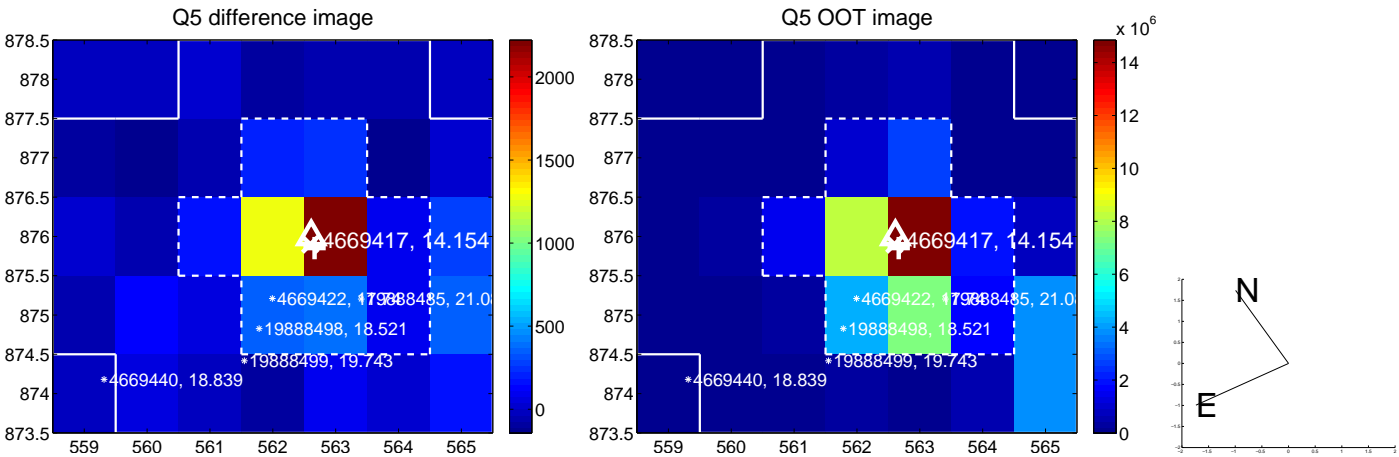
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.199 ± 0.271	0.73	-0.102 ± 0.162	0.171 ± 0.246
PRF-fit source offset from KIC position	0.217 ± 0.114	1.91	-0.184 ± 0.164	-0.116 ± 0.217
photometric centroid source offset	0.61 ± 0.60	1.01	-0.24 ± 0.54	-0.56 ± 0.61

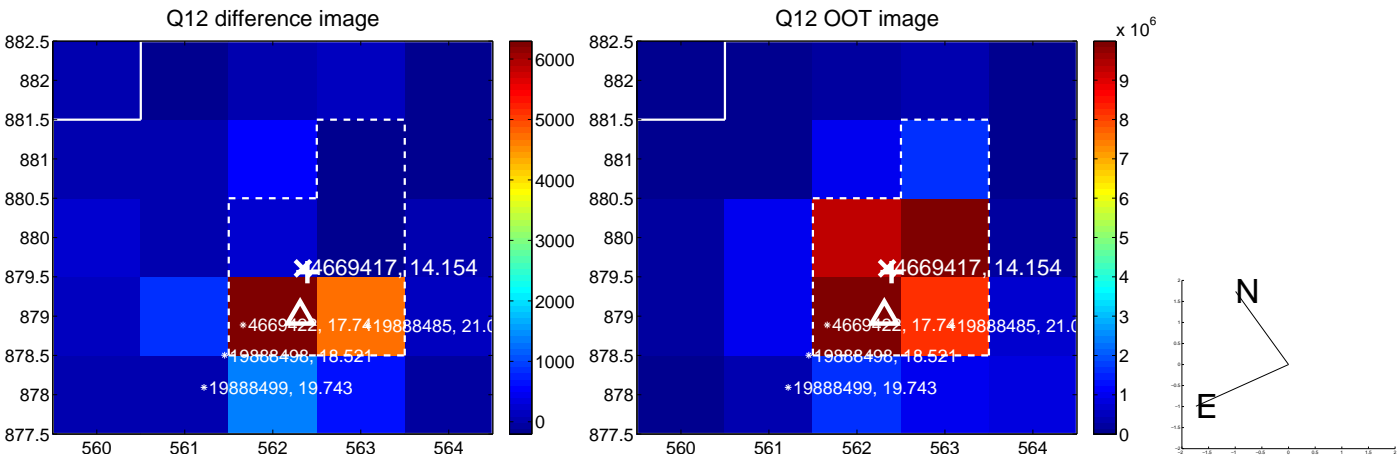
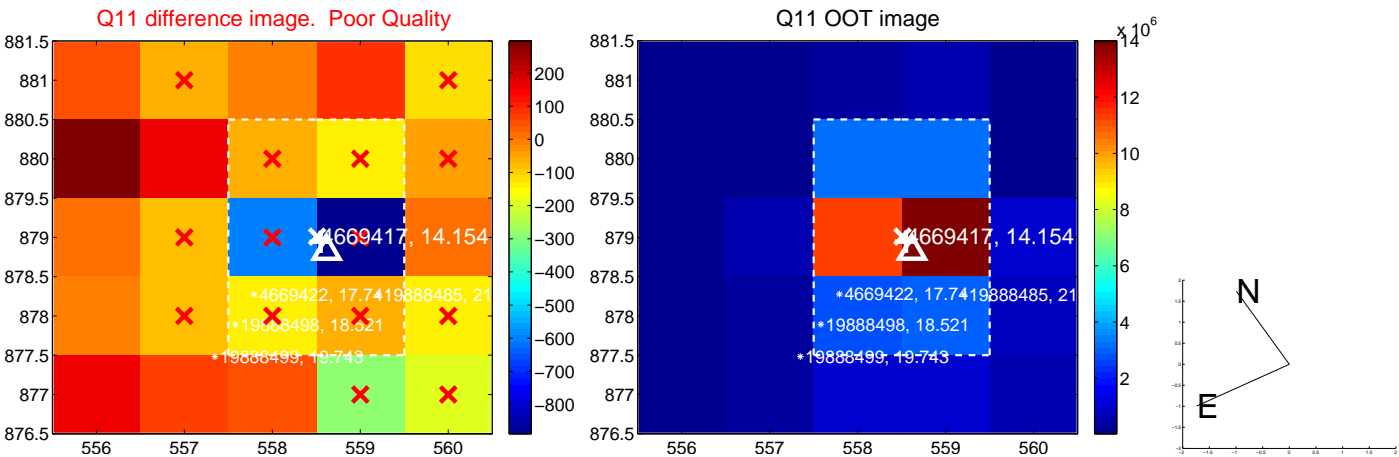
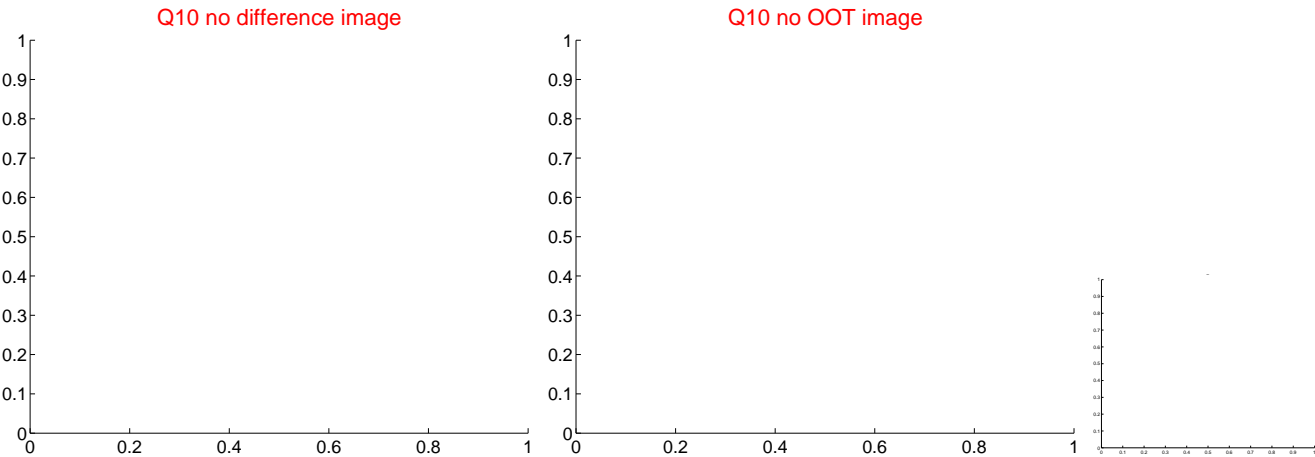
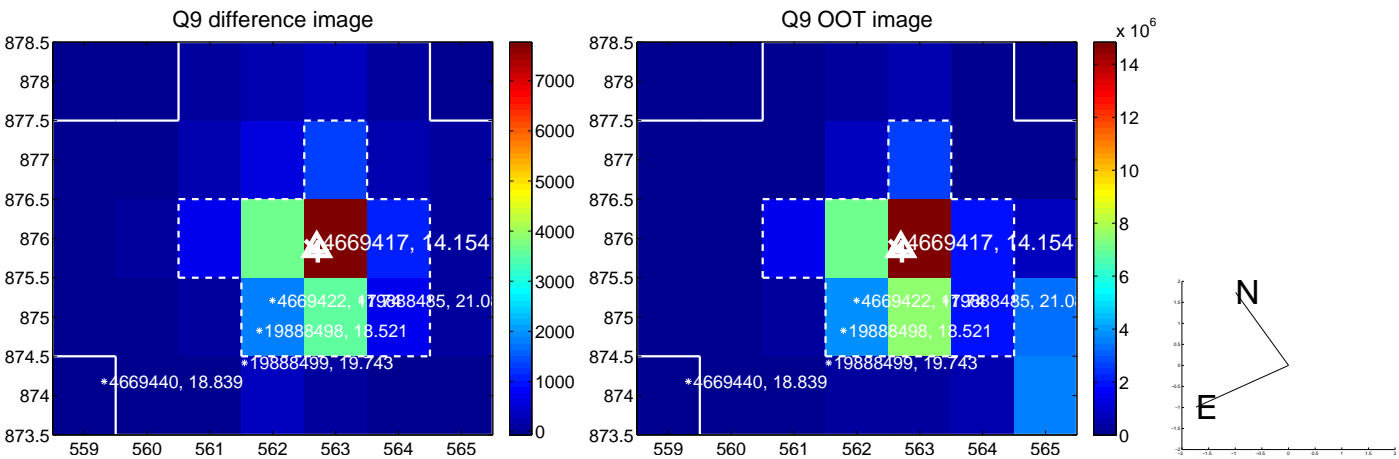


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

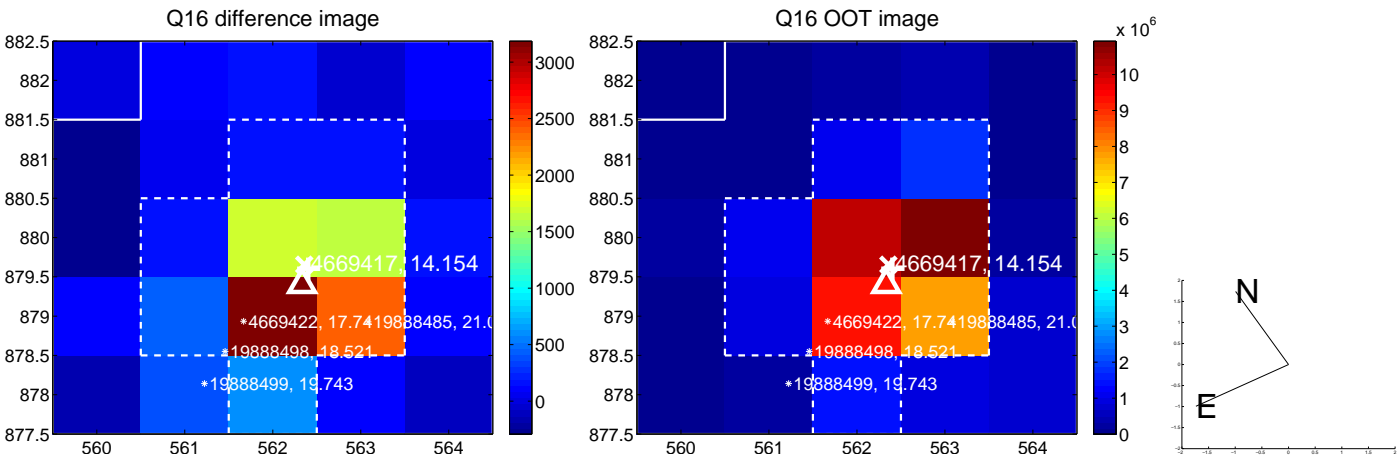
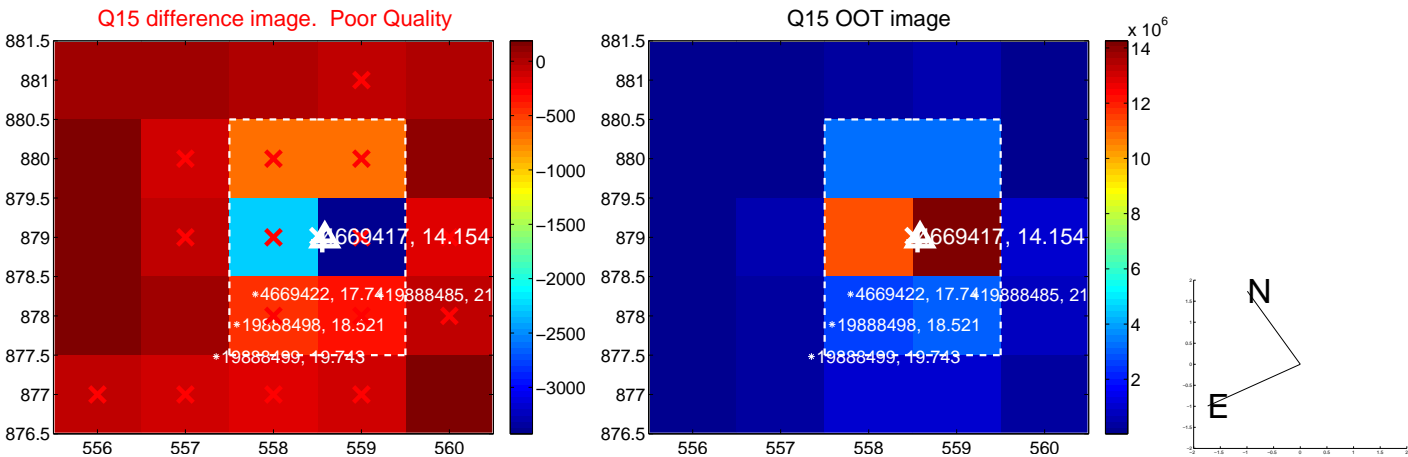
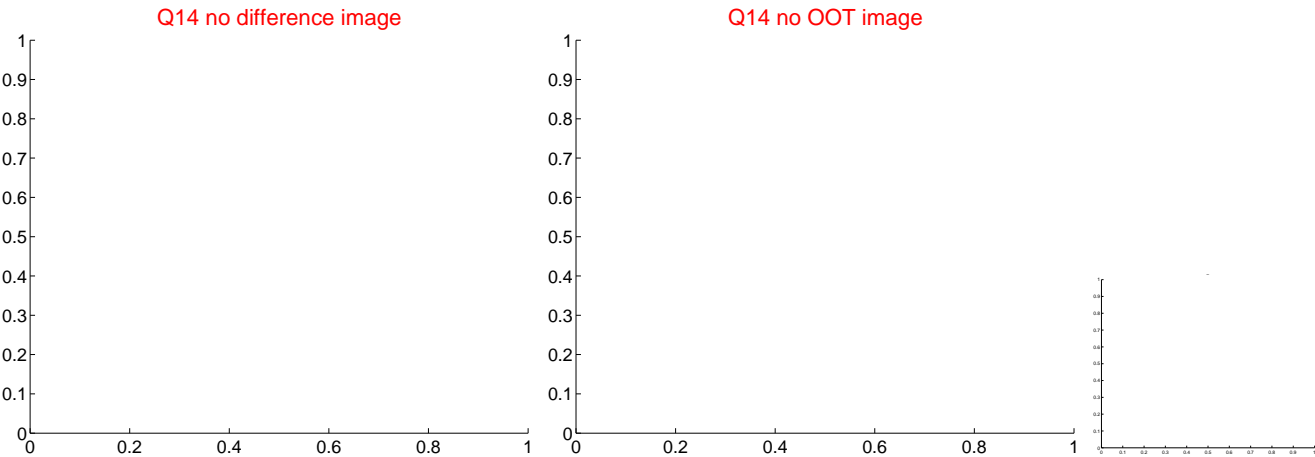
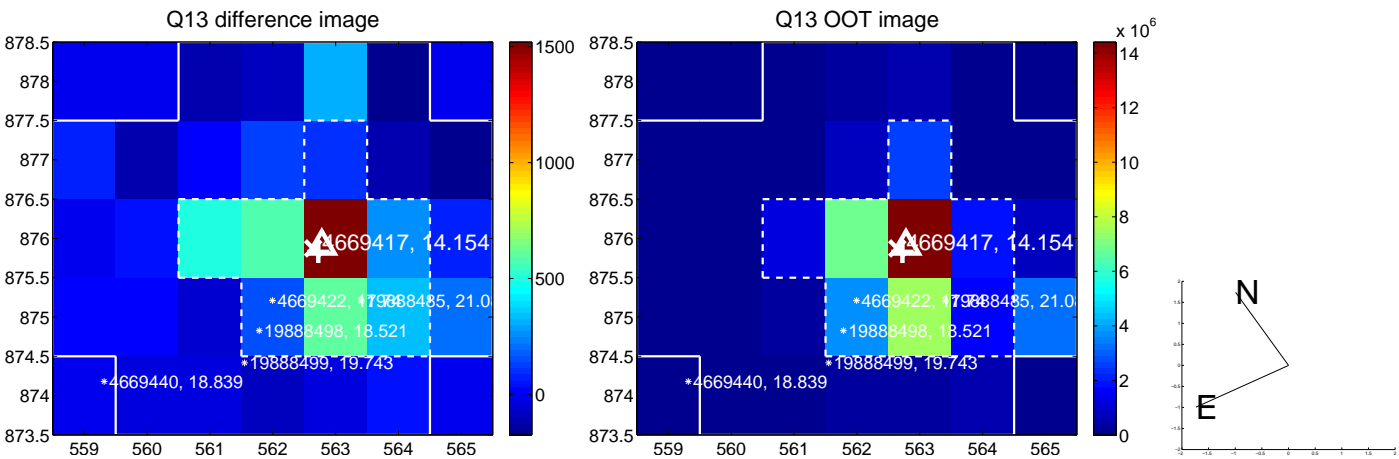
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



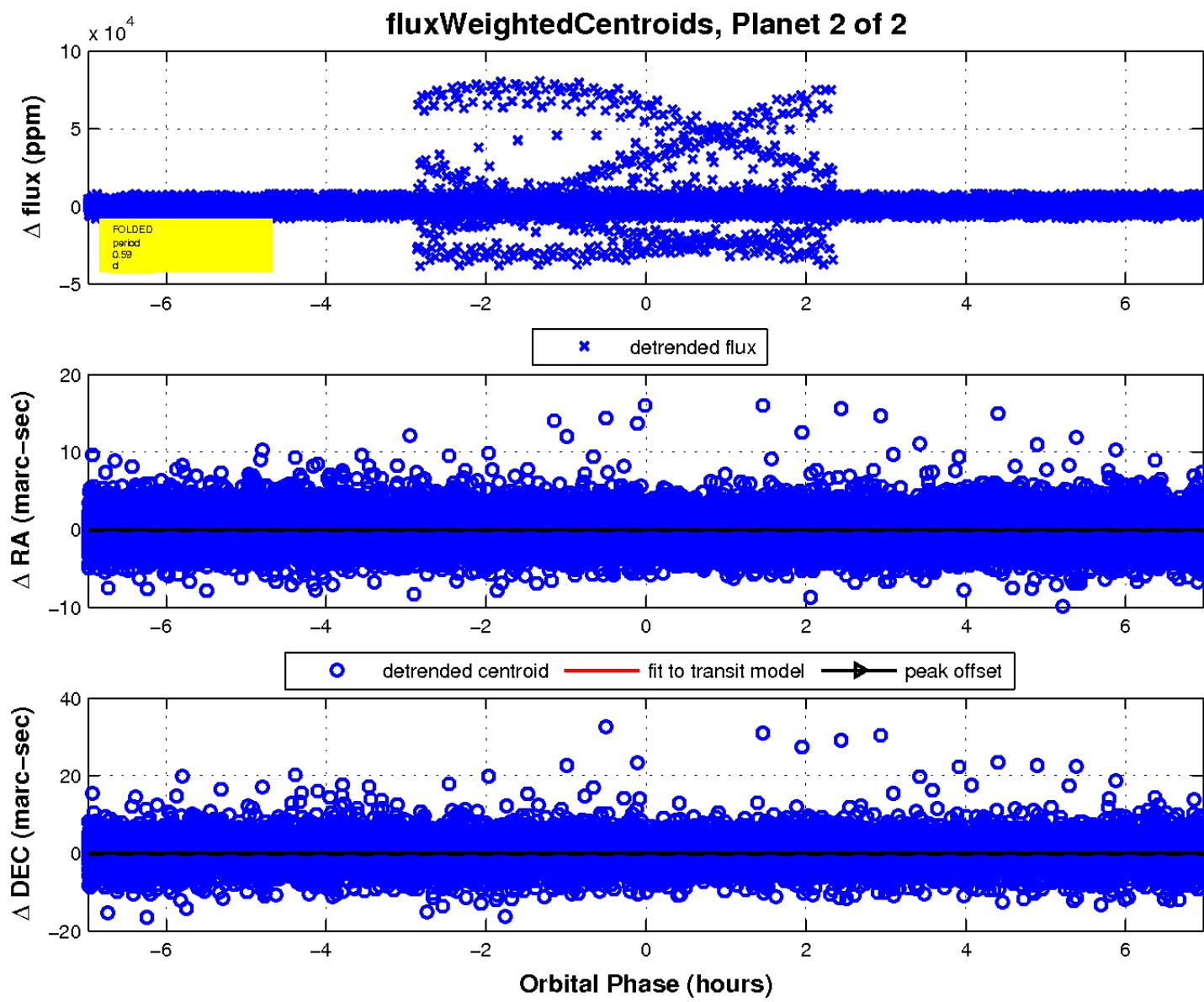
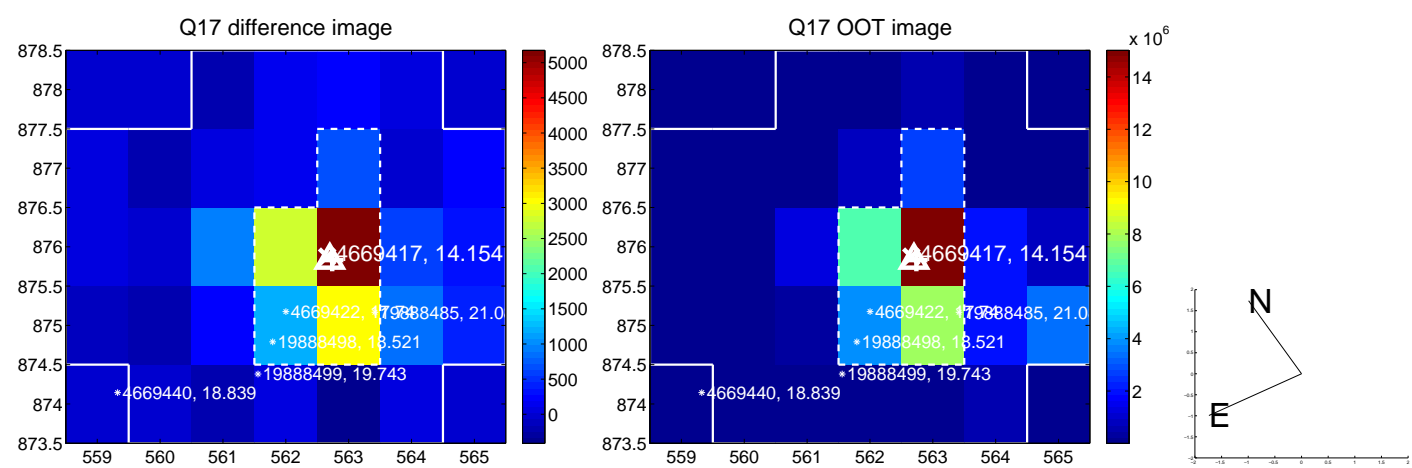
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

