

KIC 003867615

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})
003867615-01	OBS	2289.01	62.785059	157.303311	332.1	5.103	16.8	17.1	1.26	6053	2.71	18.73
003867615-02	OBS	2289.02	20.098367	147.282909	152.3	5.384	15.7	16.6	1.26	6053	1.80	85.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003867615-01	OBS	PC	0.94	0	0	0	0	NO_COMMENT
003867615-02	OBS	PC	0.93	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.

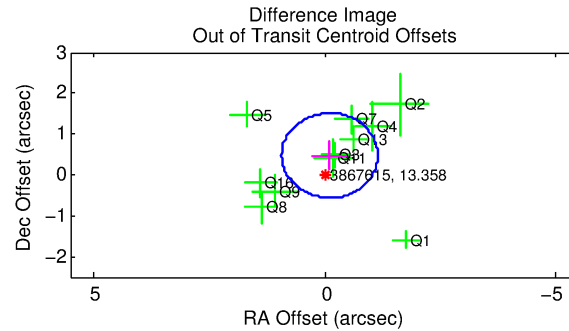
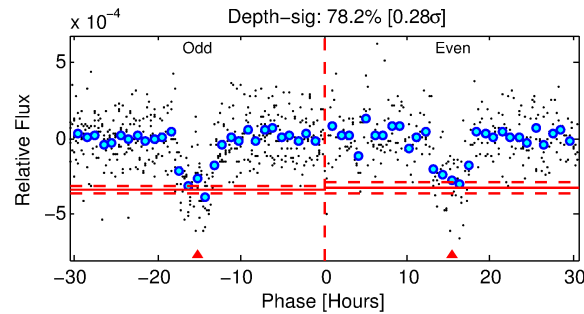
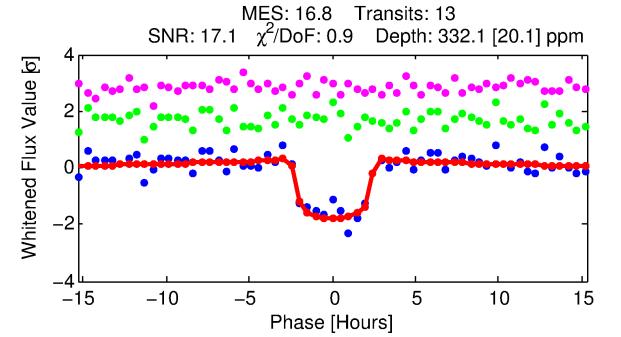
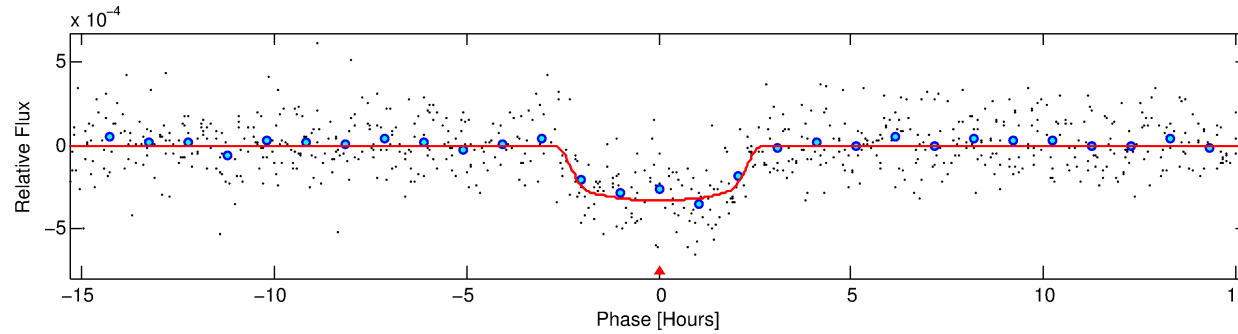
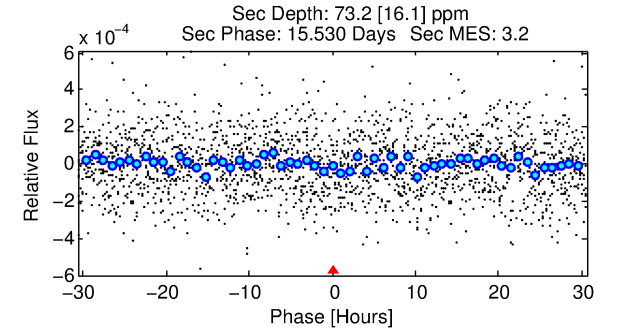
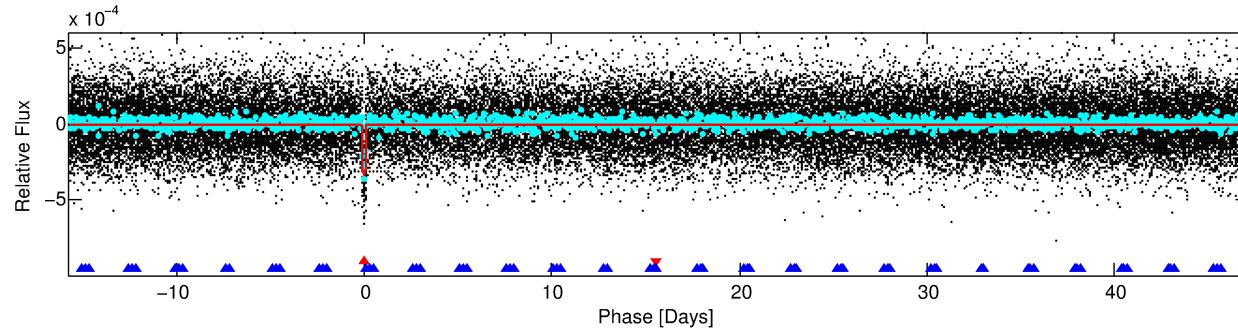
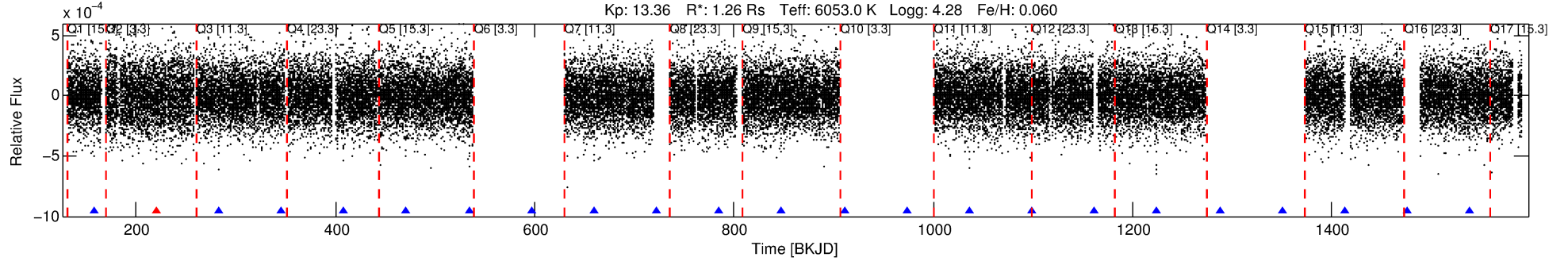
Ephemeris Match Information For 003867615-01

No Significant Match Found

DV One-Page Summary

KIC: 3867615 Candidate: 1 of 2 Period: 62.785 d
KOI: K02289.01 Name: Kepler-379c Corr: 0.966

Kp: 13.36 R*: 1.26 Rs Teff: 6053.0 K Logg: 4.28 Fe/H: 0.060



DV Fit Results:

Period = 62.78506 [0.00043] d
Epoch = 157.3033 [0.0044] BKJD
Rp/R* = 0.0197 [0.0024]
a/R* = 45.02 [25.53]
b = 0.90 [0.12]
Seff = 18.73 [4.39]
Teff = 530 [31] K
Rp = 2.71 [0.57] Re
a = 0.3193 [0.0470] AU
Ag = 558.41 [218.12] [2.56σ]
Teffp = 3987 [335] K [10.26σ]

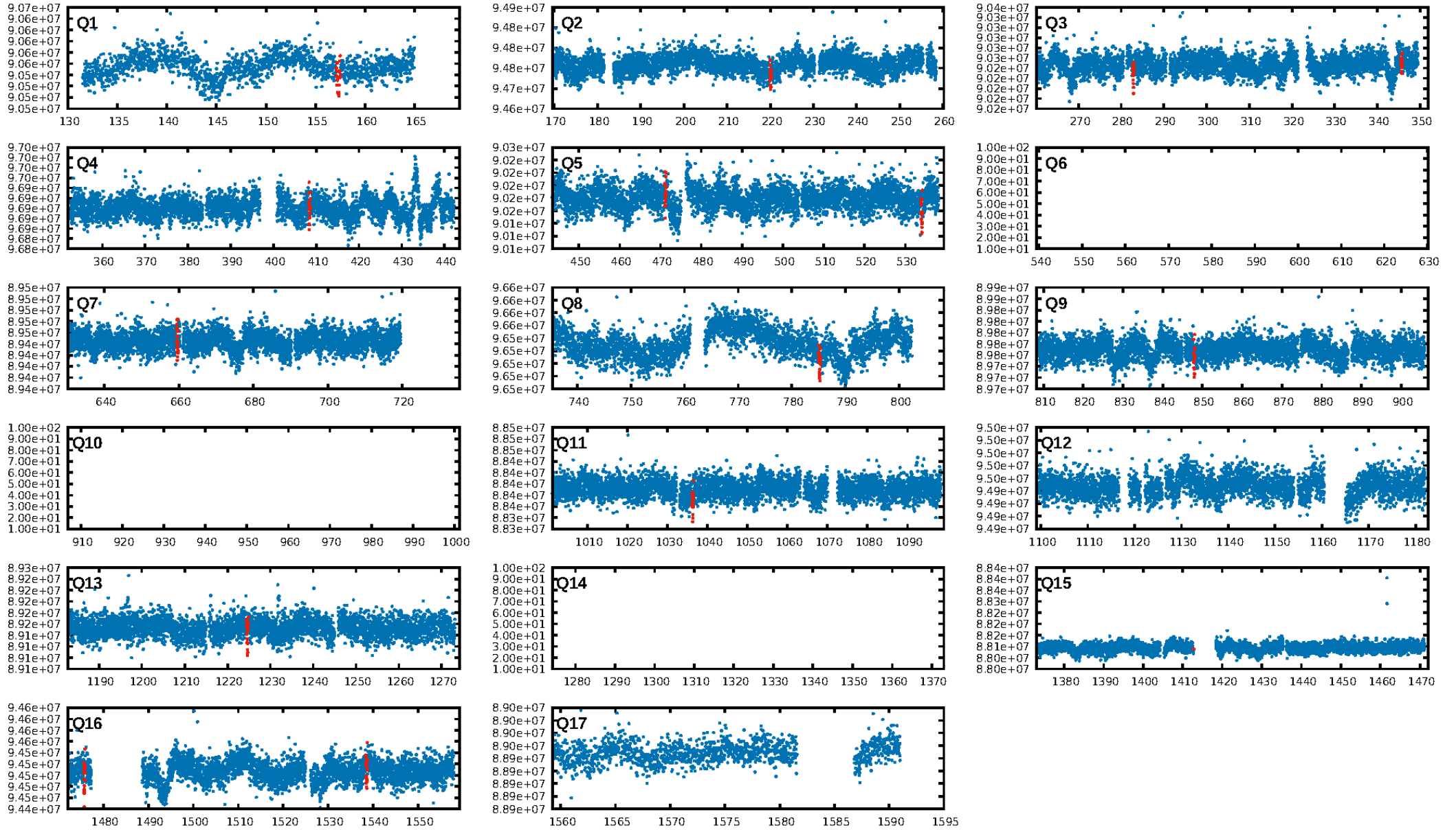
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [138.11σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 45.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.47e-59
RollingBand-fgt: 0.92 [11/12]
GhostDiagnostic-chr: 2.722
Centroid-sig: 10.9%
Centroid-so: 1.167 arcsec [1.51σ]
OotOffset-rm: 0.486 arcsec [1.40σ]
KicOffset-rm: 0.525 arcsec [1.59σ]
OotOffset-st: 1/3/3/4 [11]
KicOffset-st: 1/3/3/4 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 0.91 [10/11]

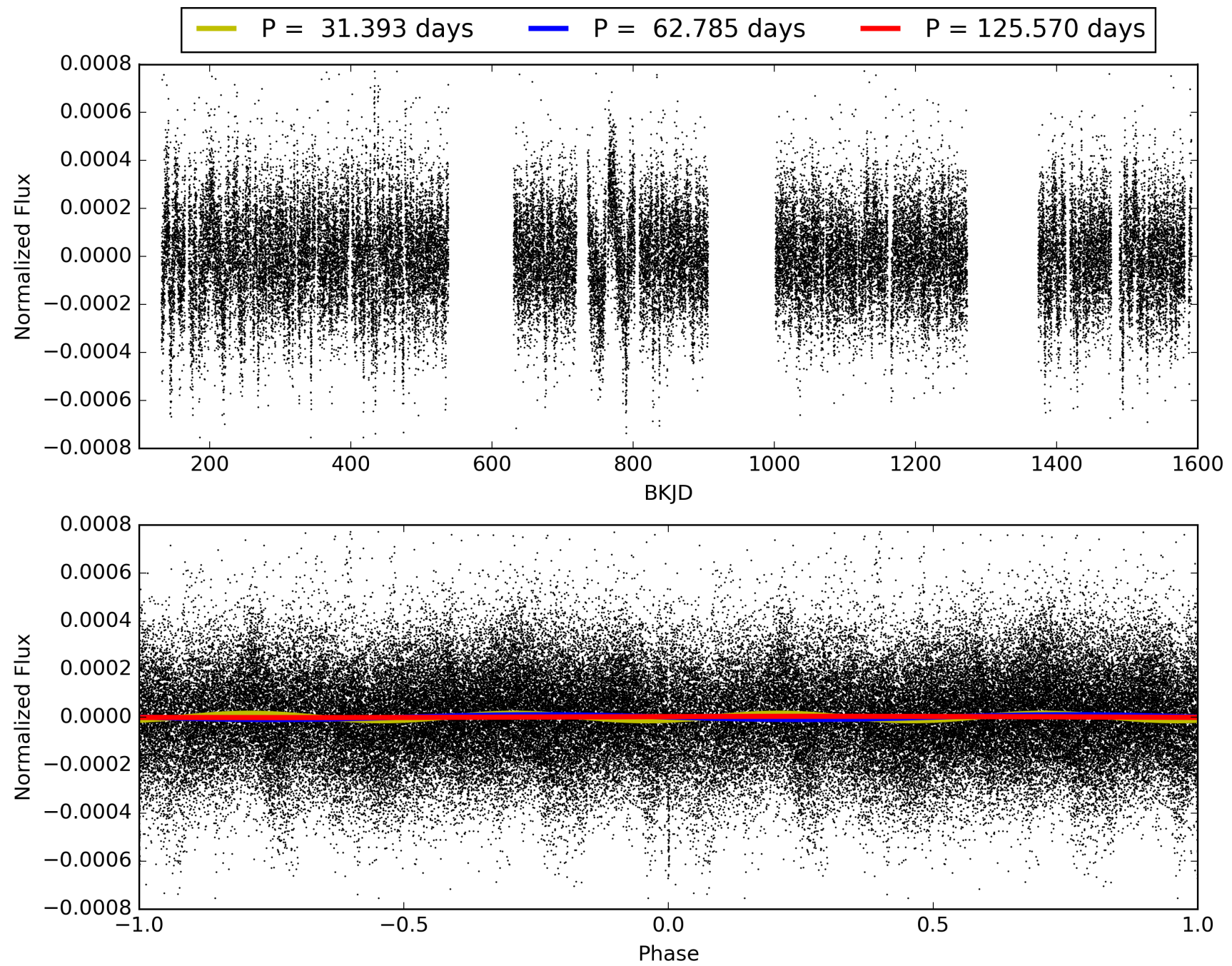
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:11:36 Z

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

TCE 003867615-01, PDC Light Curves

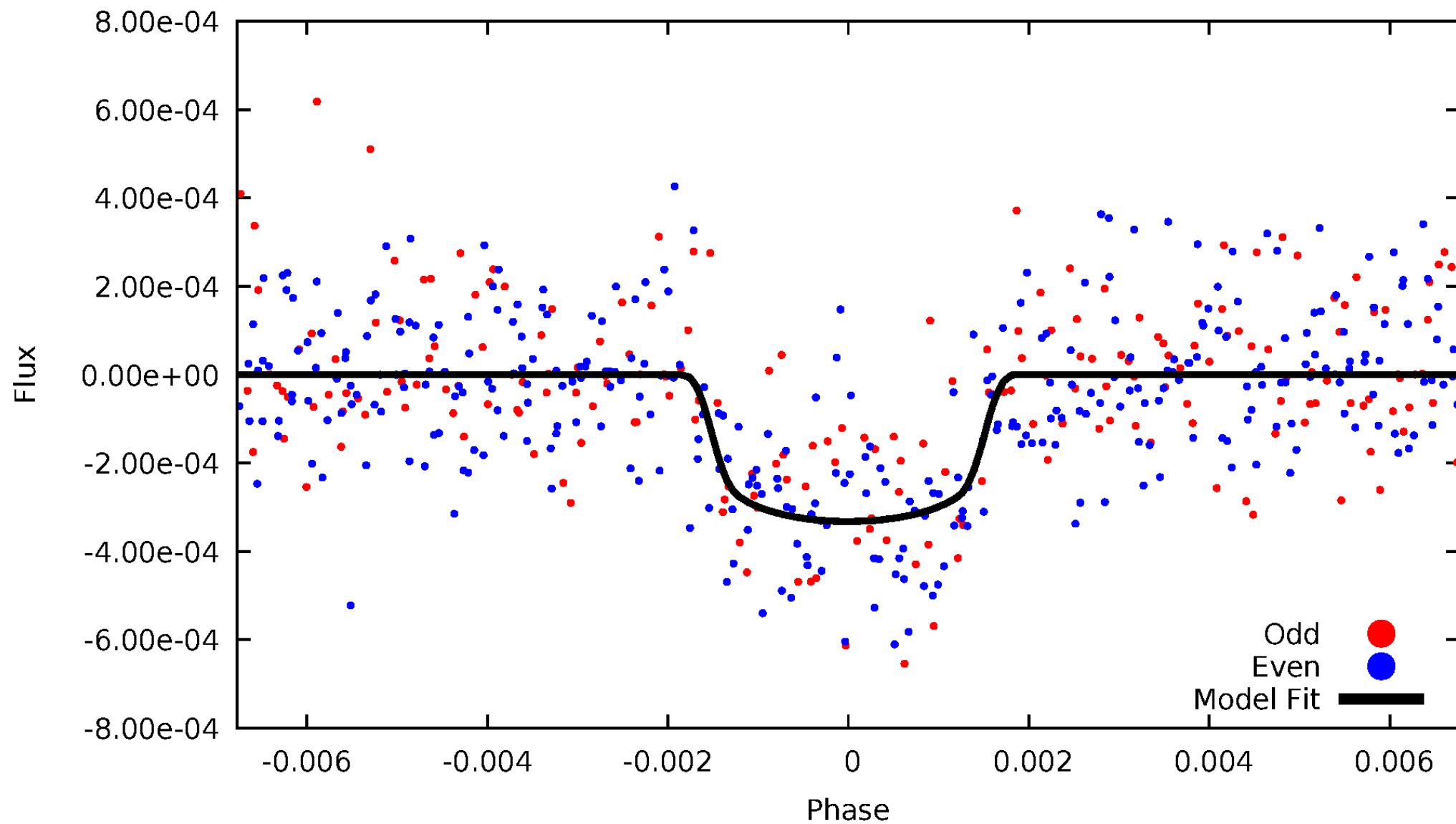


TCE 003867615-01



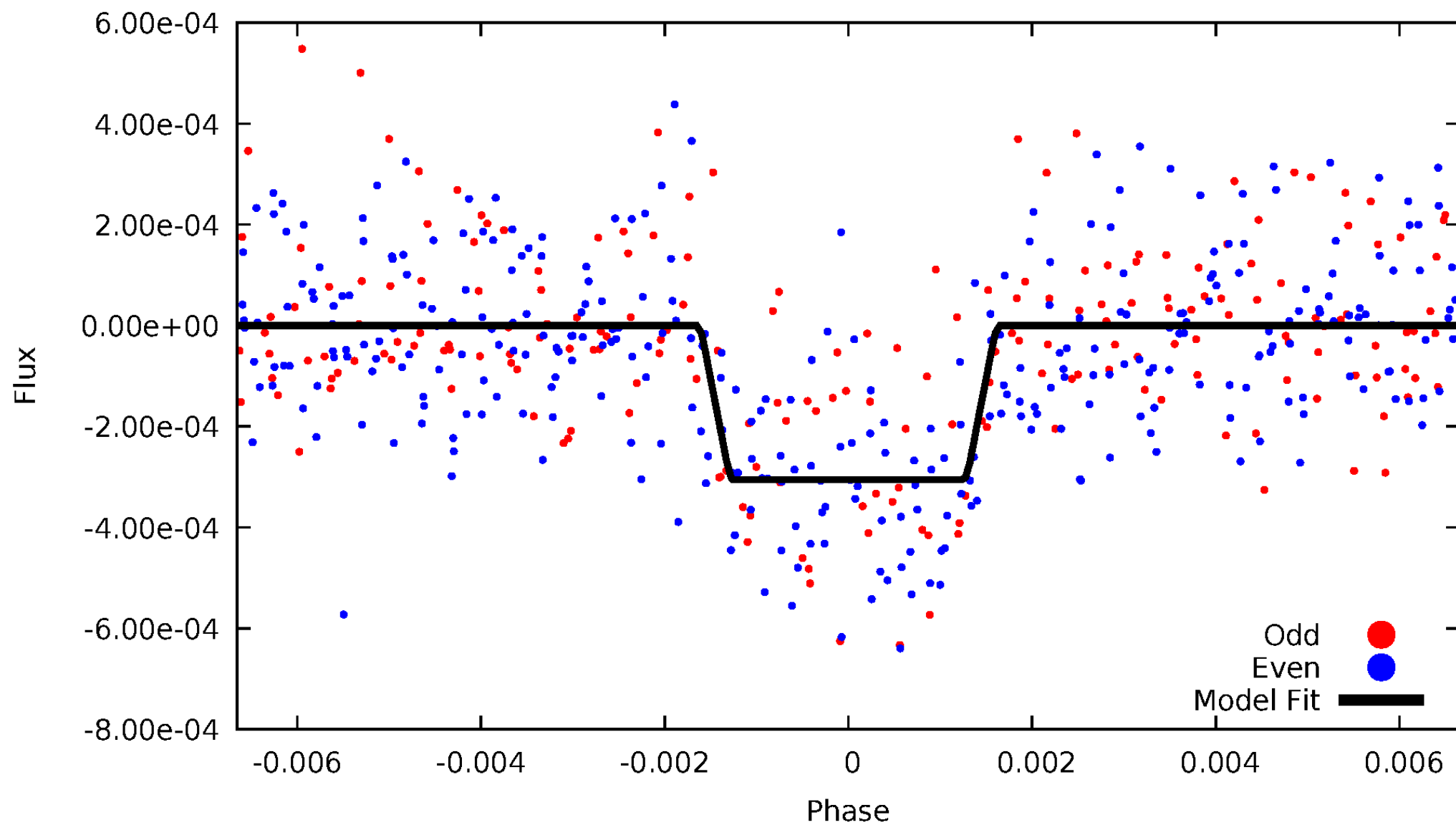
DV Odd/Even

TCE 003867615-01

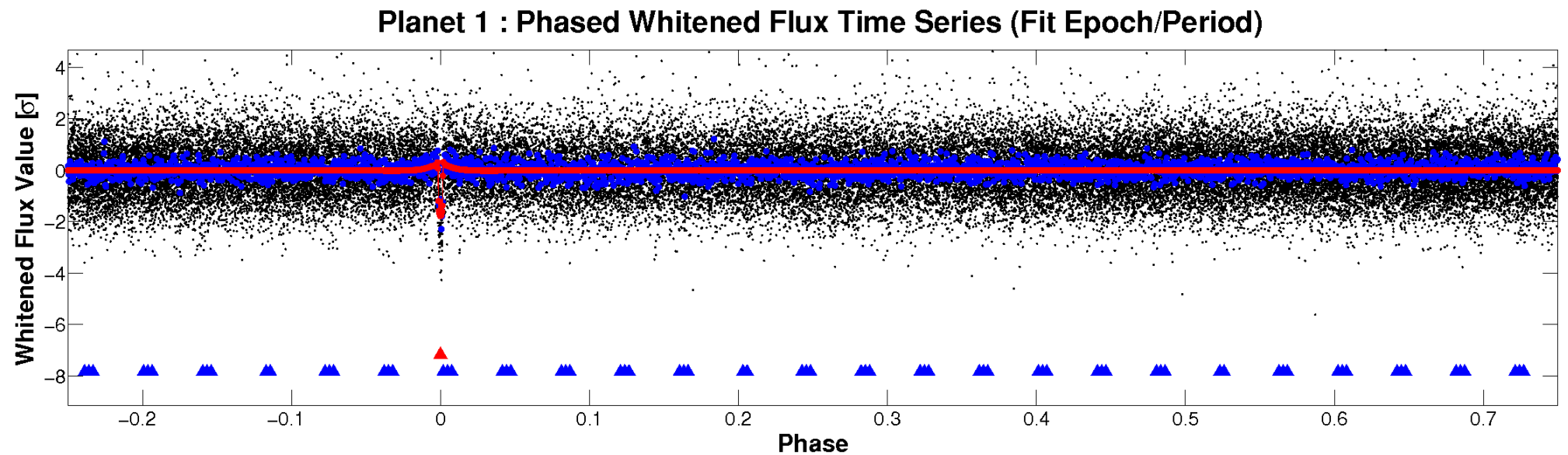
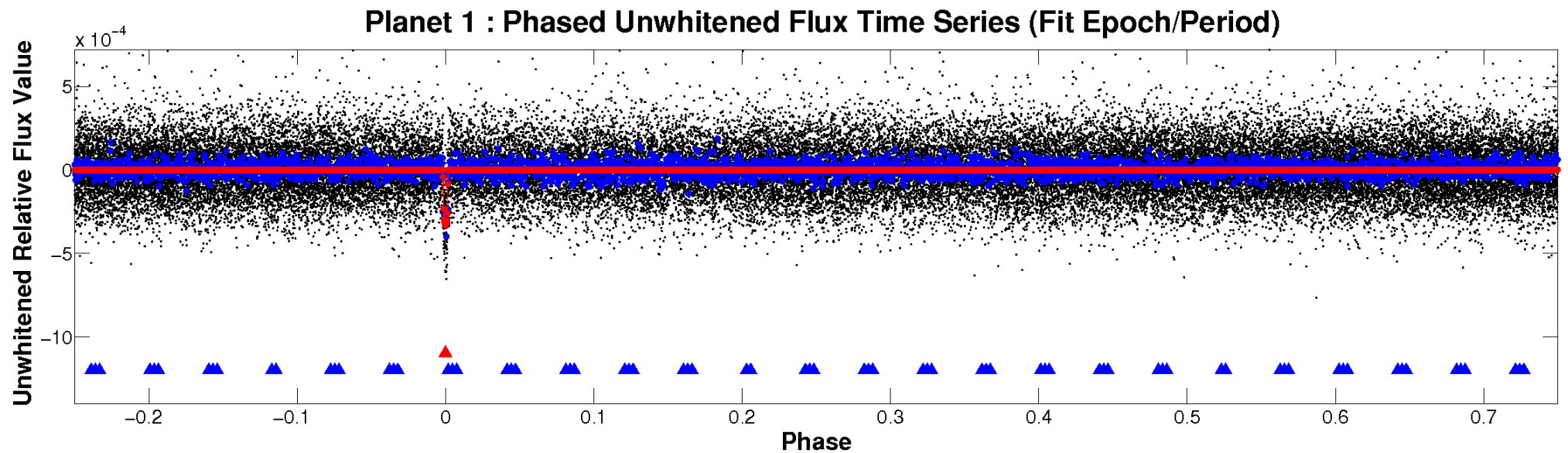


ALT Odd/Even

TCE 003867615-01

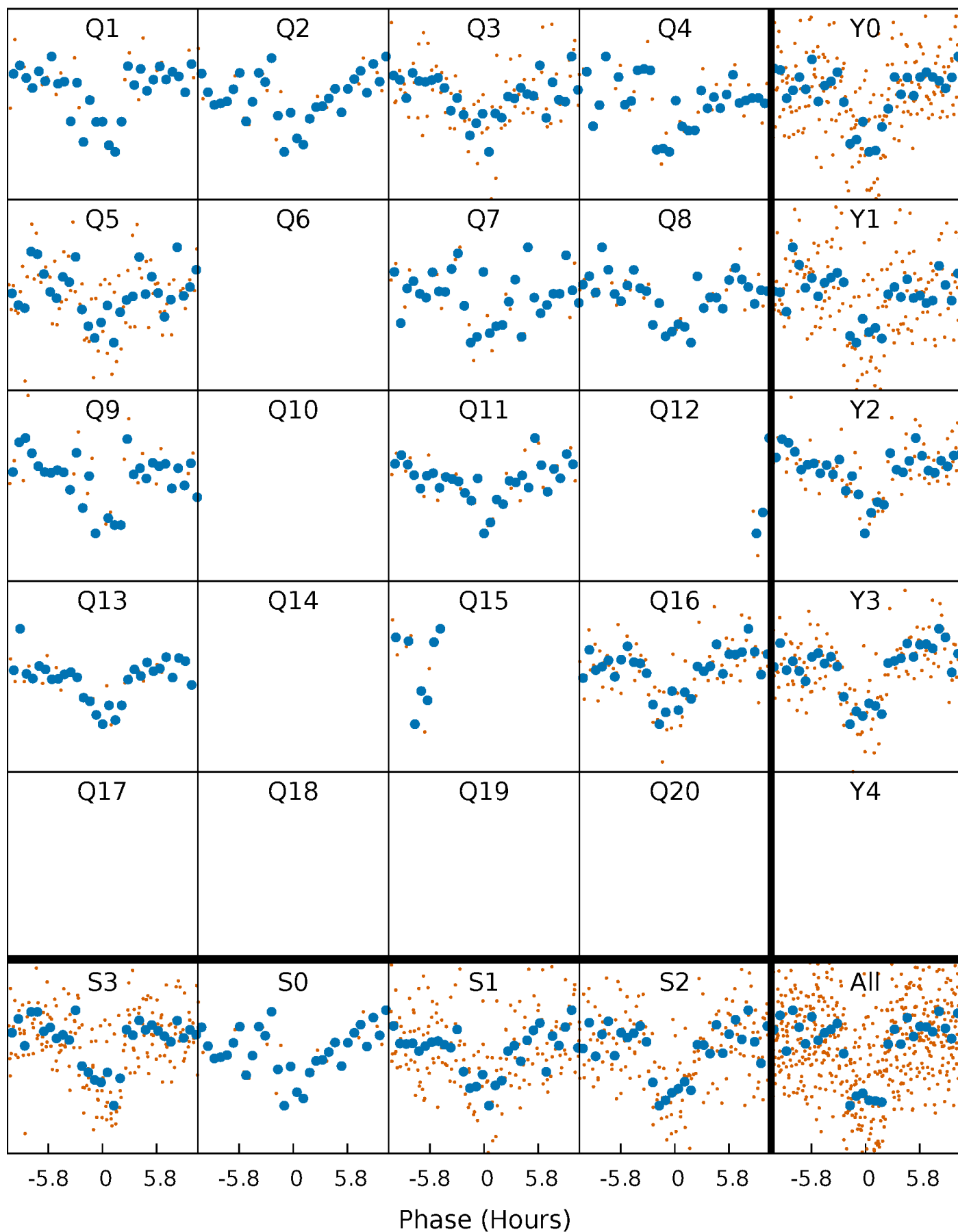


Non-Whitened Vs. Whitened Light Curve



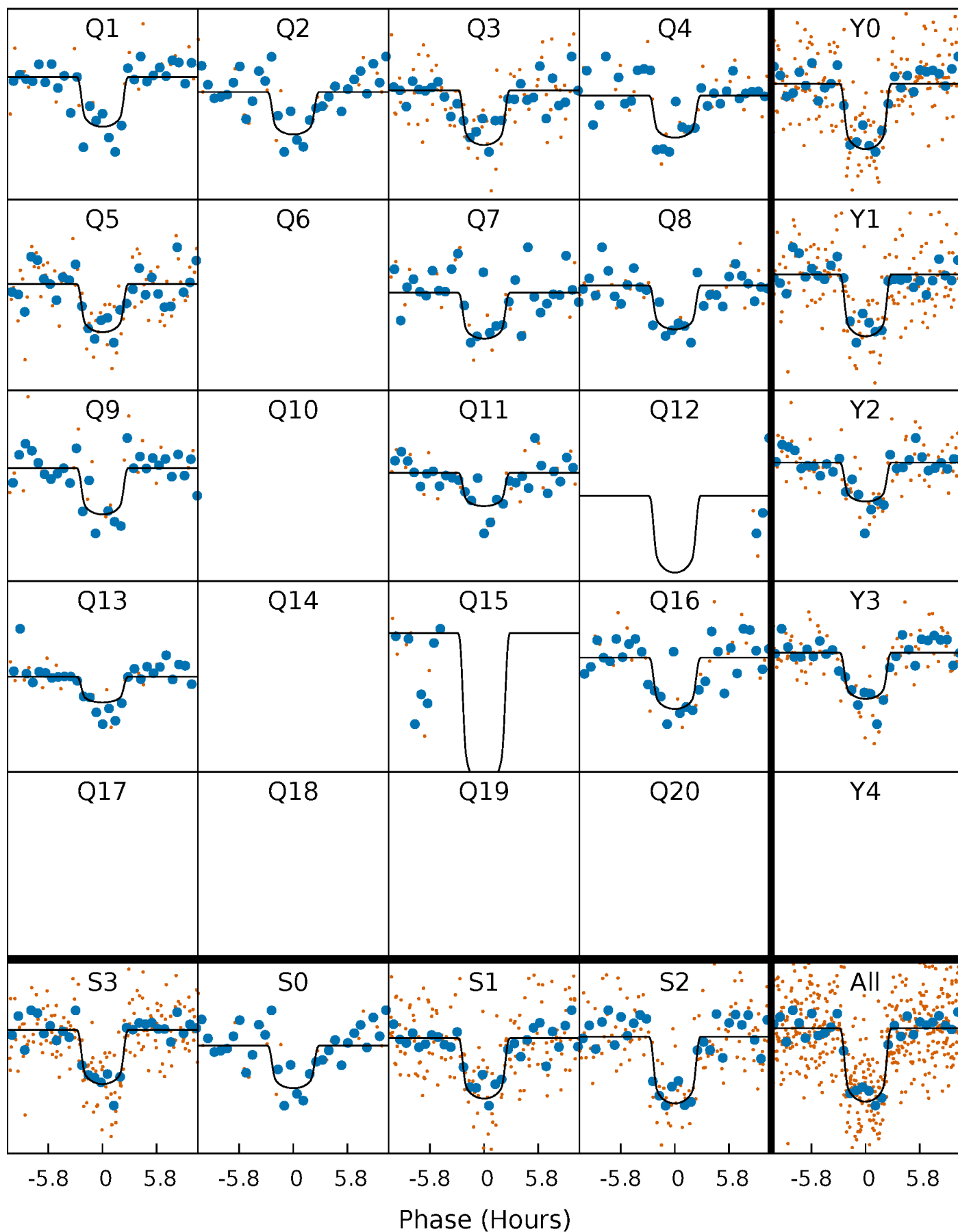
PDC Quarter-Phased Transit Curves

TCE 003867615-01 P= 62.785059 Days $T_0=157.303311$ (BKJD)



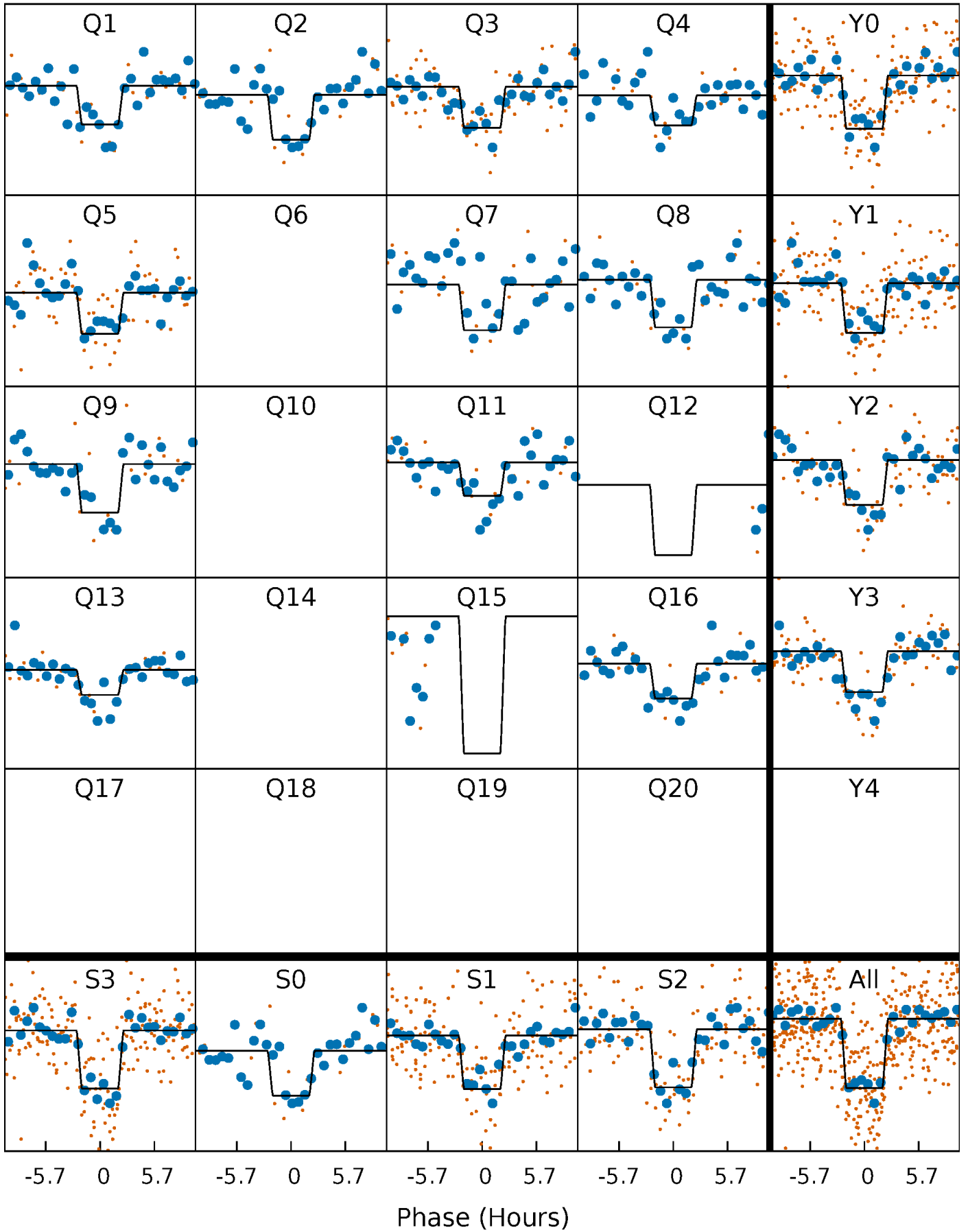
DV Quarter-Phased Transit Curves

TCE 003867615-01 P= 62.785059 Days $T_0=157.303311$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

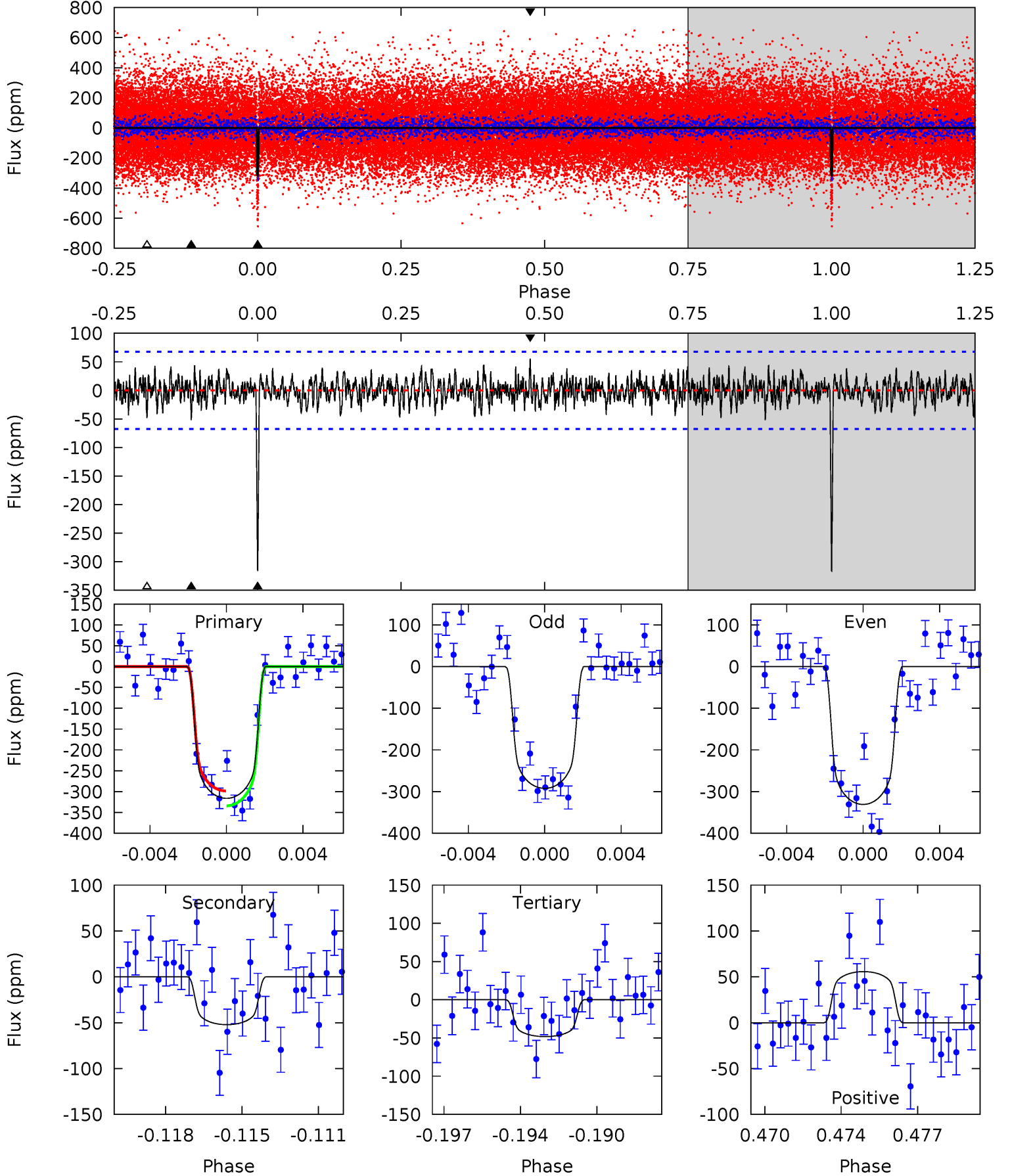
TCE 003867615-01 P= 62.785524 Days $T_0=157.299197$ (BKJD)



DV Model-Shift Uniqueness Test

003867615-01, P = 62.785059 Days, E = 94.518252 Days

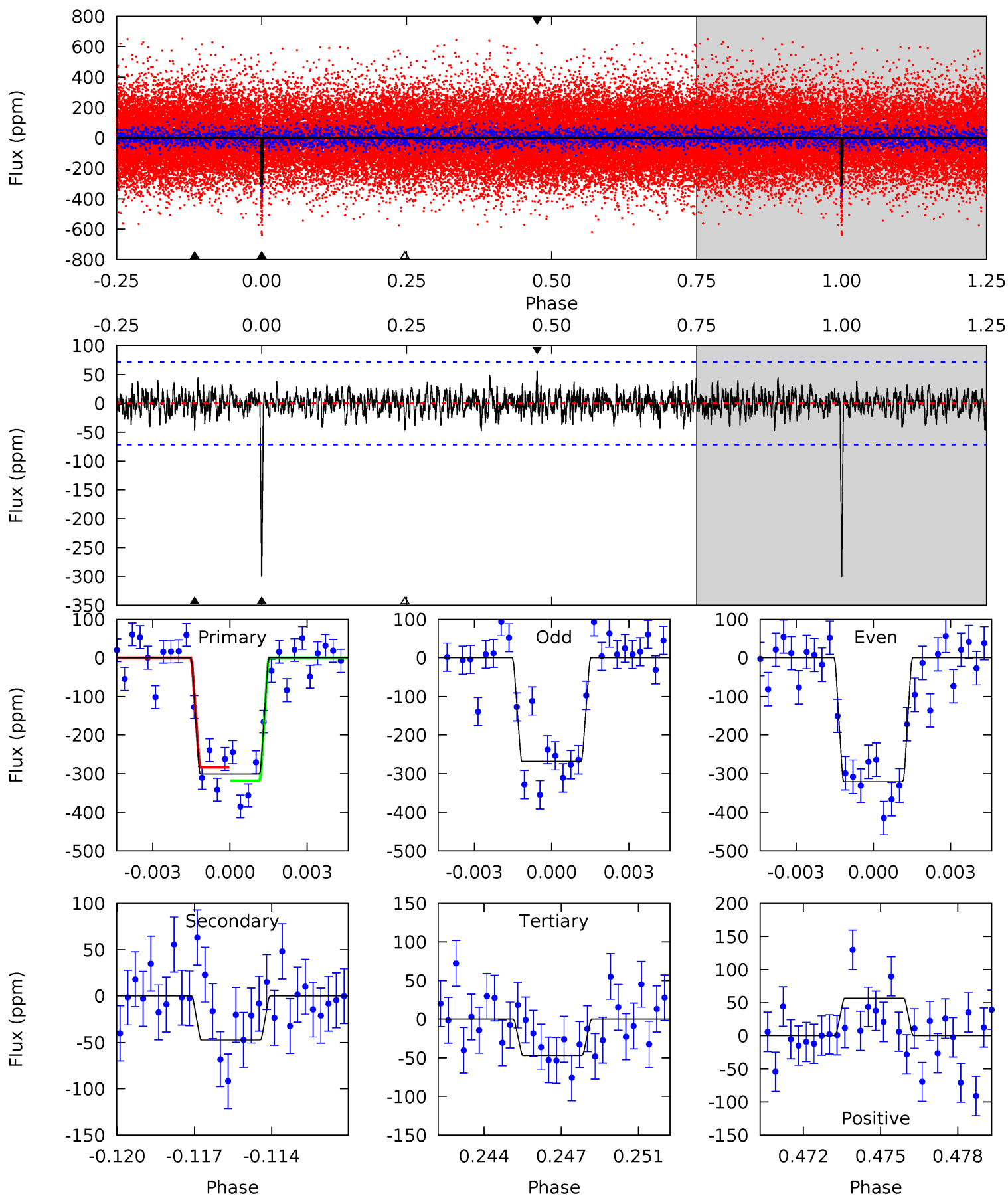
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.4	4.03	3.72	4.30	5.22	2.91	1.25	20.7	20.1	0.31	-0.27	1.45	1.01	0.15	1.38



Alt Model-Shift Uniqueness Test

003867615-01, P = 62.785524 Days, E = 94.513673 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	3.47	3.43	4.14	5.24	2.94	1.09	18.6	17.9	0.04	-0.67	1.87	0.96	0.16	1.27



Stellar Parameters For KIC 003867615

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6053^{+121}_{-133}	$4.279^{+0.120}_{-0.120}$	$0.060^{+0.150}_{-0.150}$	$1.260^{+0.217}_{-0.177}$	$1.098^{+0.100}_{-0.081}$	$0.774^{+0.418}_{-0.270}$
	+2%/-2%	+3%/-3%	+250%/-250%	+17%/-14%	+9%/-7%	+54%/-35%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 003867615-01 / KOI 2289.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-52 ± 13	$2.69^{+0.47}_{-0.38}$	742^{+37}_{-33}	4005^{+262}_{-266}	407^{+180}_{-146}
Alt.	-47 ± 14	$2.38^{+0.42}_{-0.36}$	740^{+33}_{-33}	4090^{+330}_{-285}	462^{+258}_{-159}

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

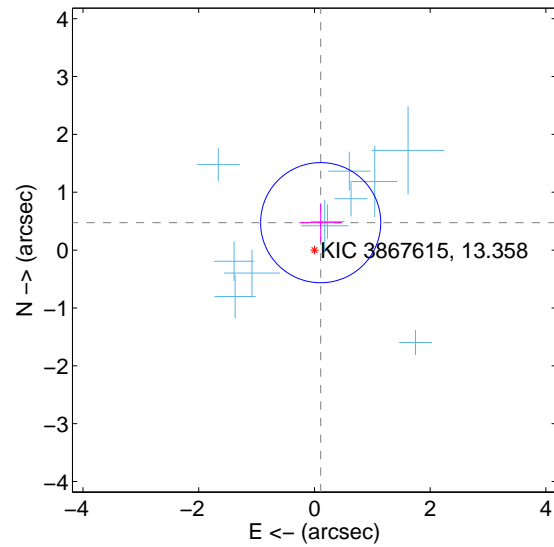
Supplemental centroid analysis for 003867615-01. Kepler magnitude: 13.36. Transit SNR 17.10

There are 11 quarters with good PRF difference image offsets

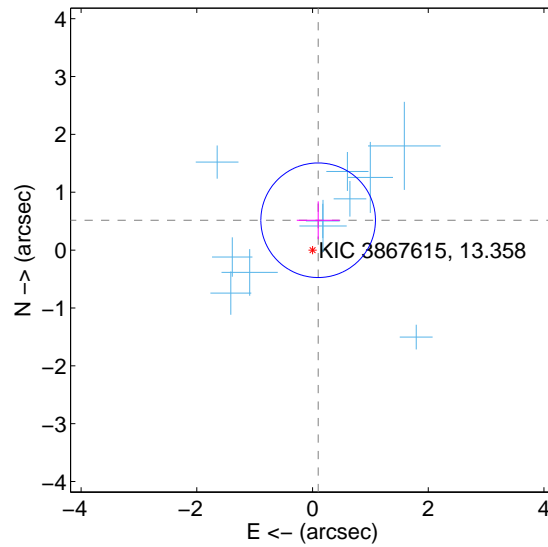
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.486 ± 0.346	1.40	-0.108 ± 0.370	0.474 ± 0.328
PRF-fit source offset from KIC position	0.525 ± 0.330	1.59	-0.097 ± 0.369	0.516 ± 0.327
photometric centroid source offset	1.17 ± 0.77	1.51	1.17 ± 0.77	-0.05 ± 0.82

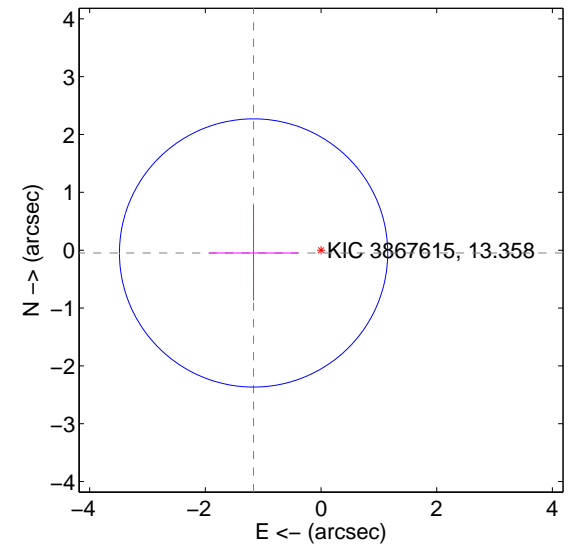
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

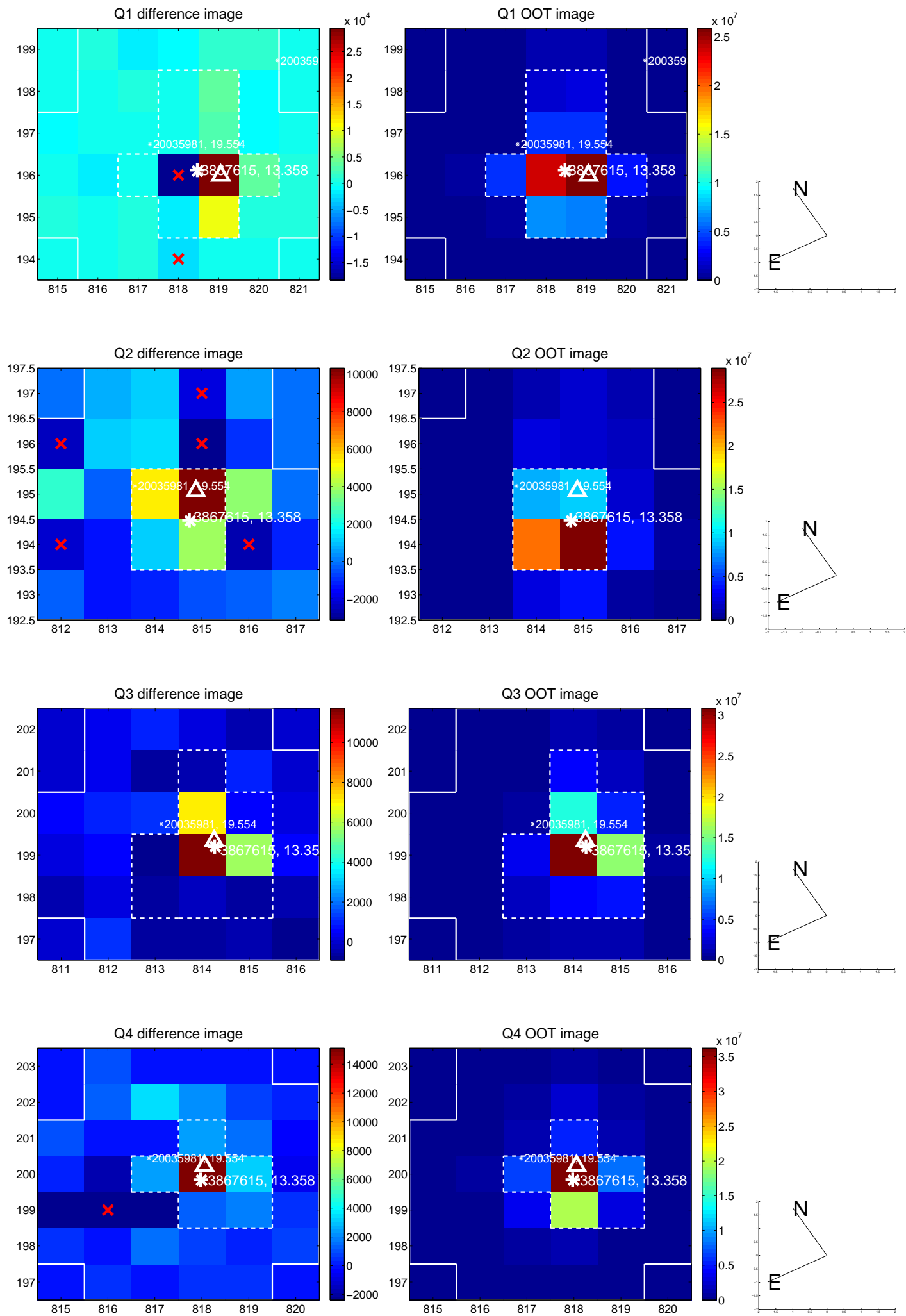


offset from photometric centroids

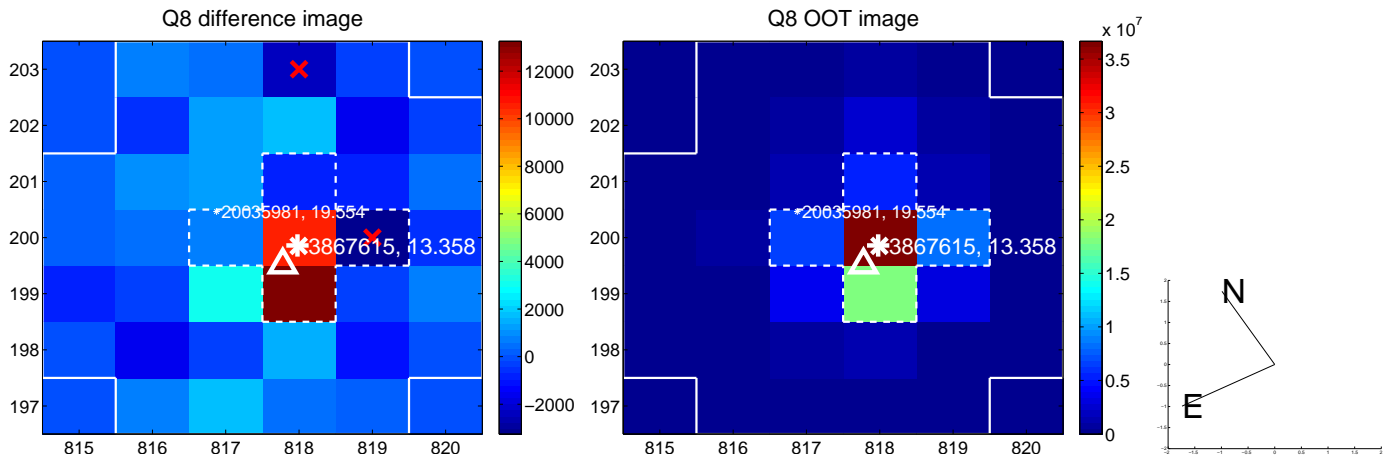
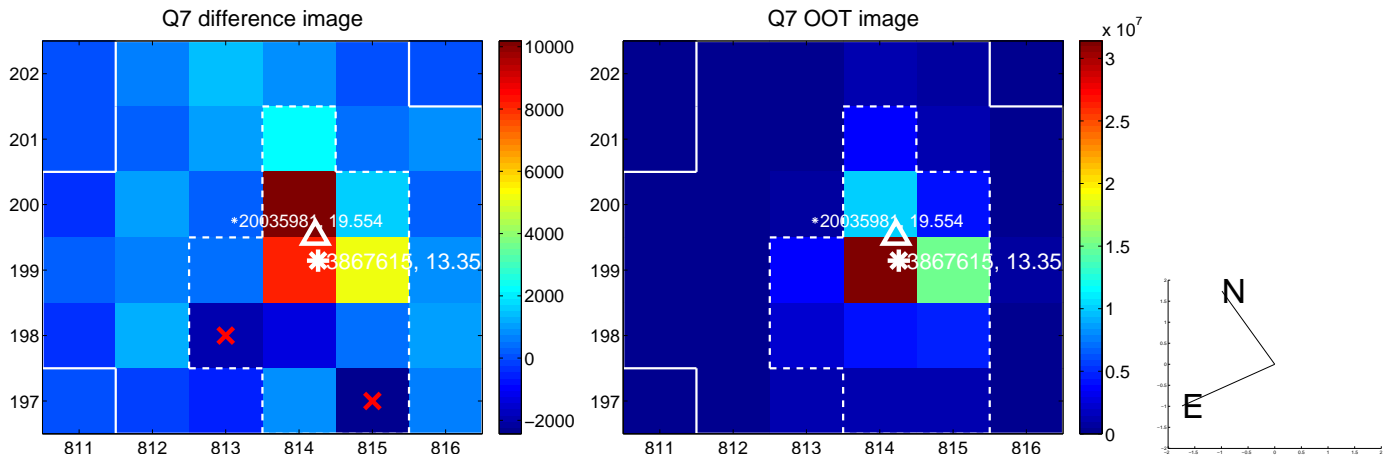
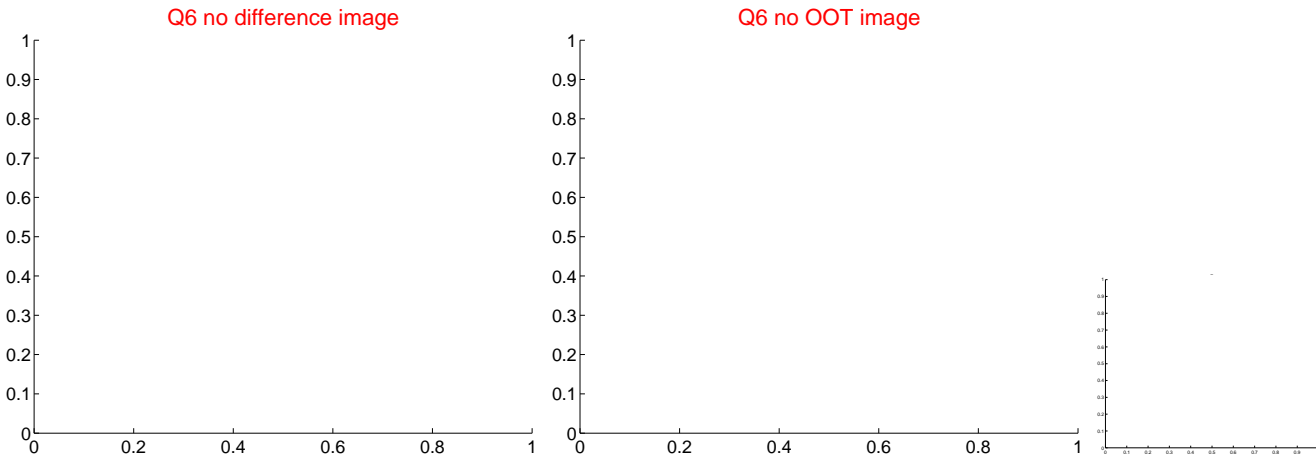
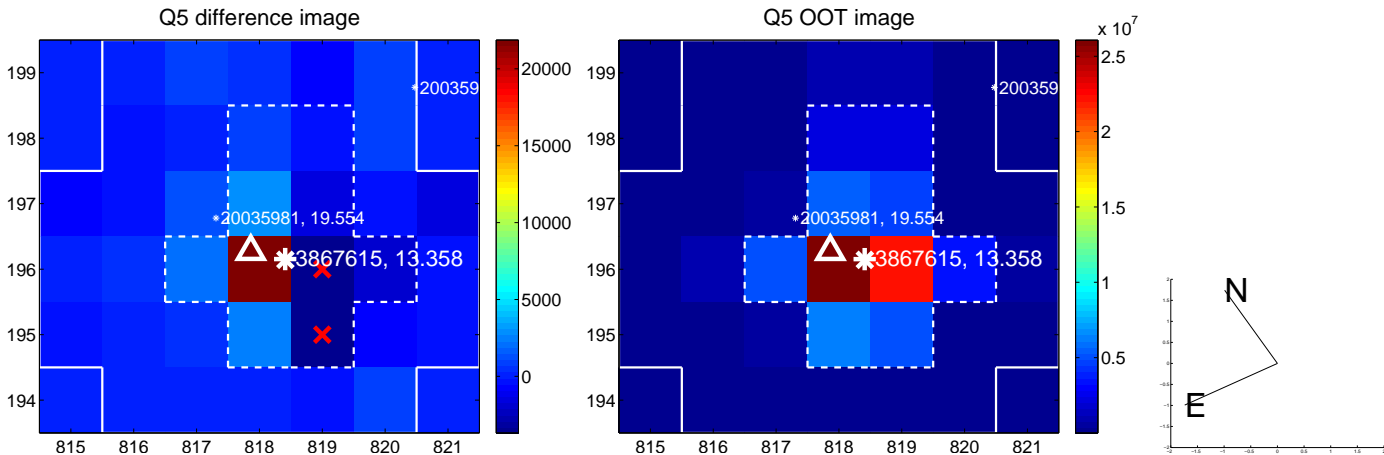


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

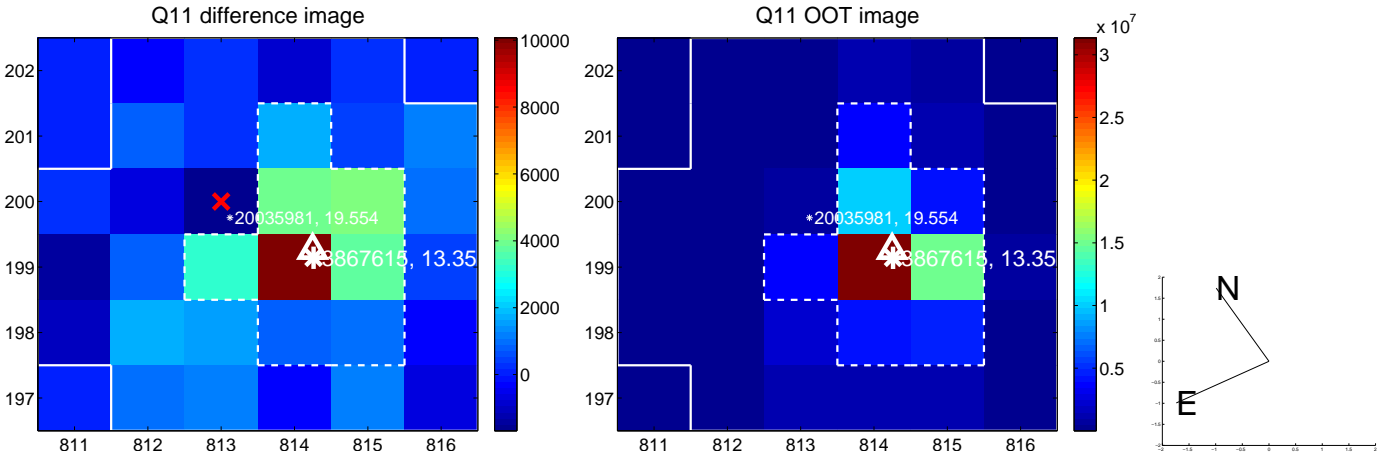
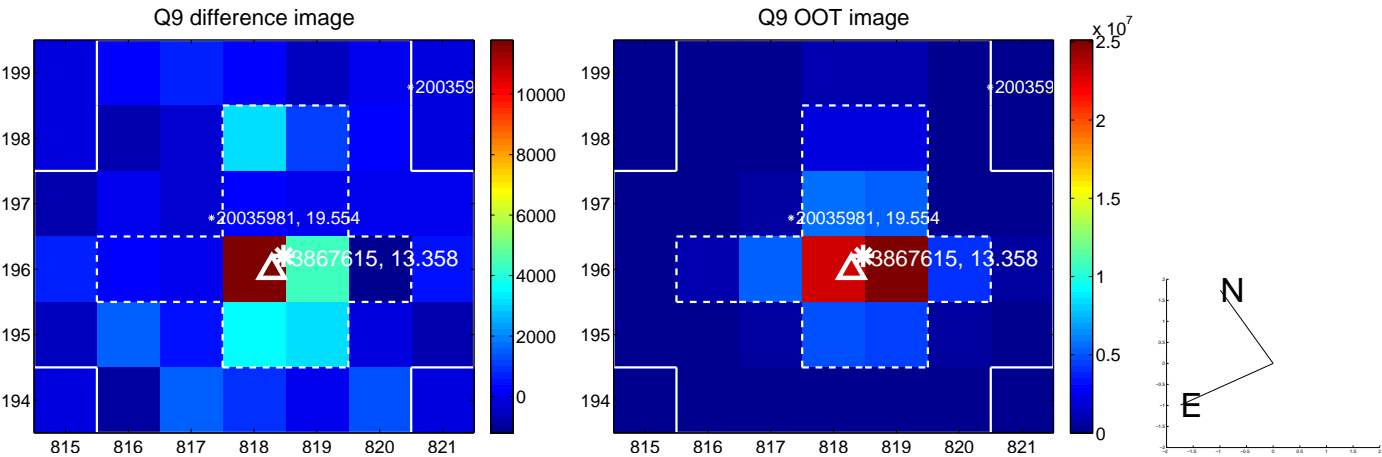
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



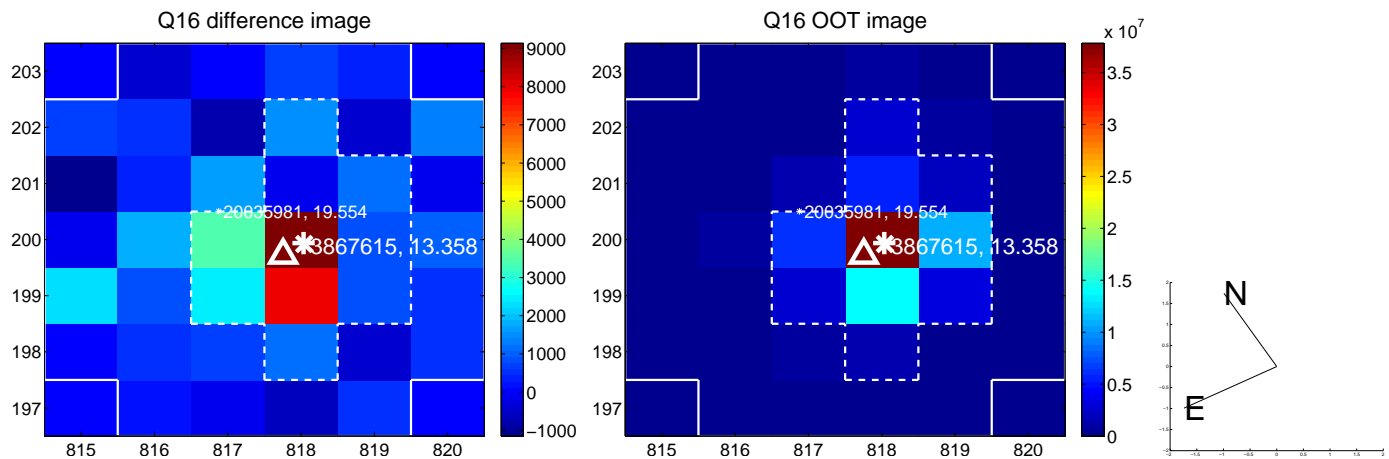
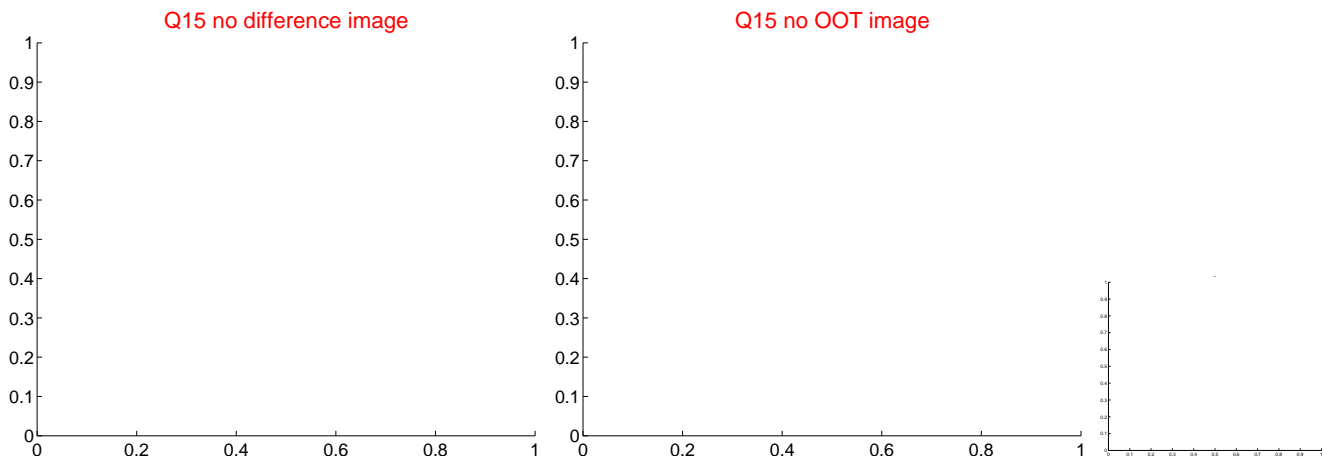
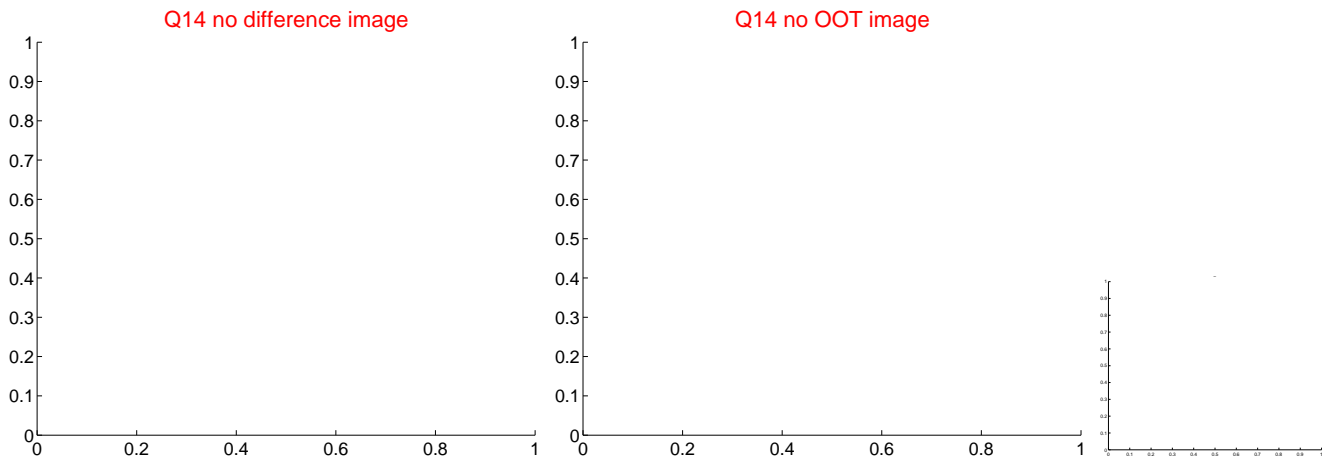
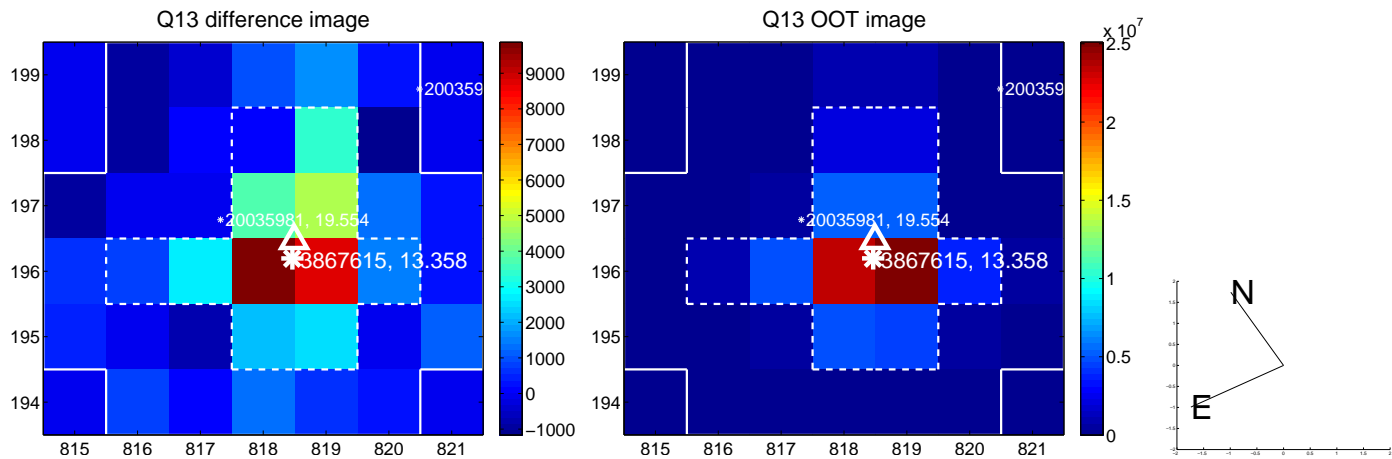
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



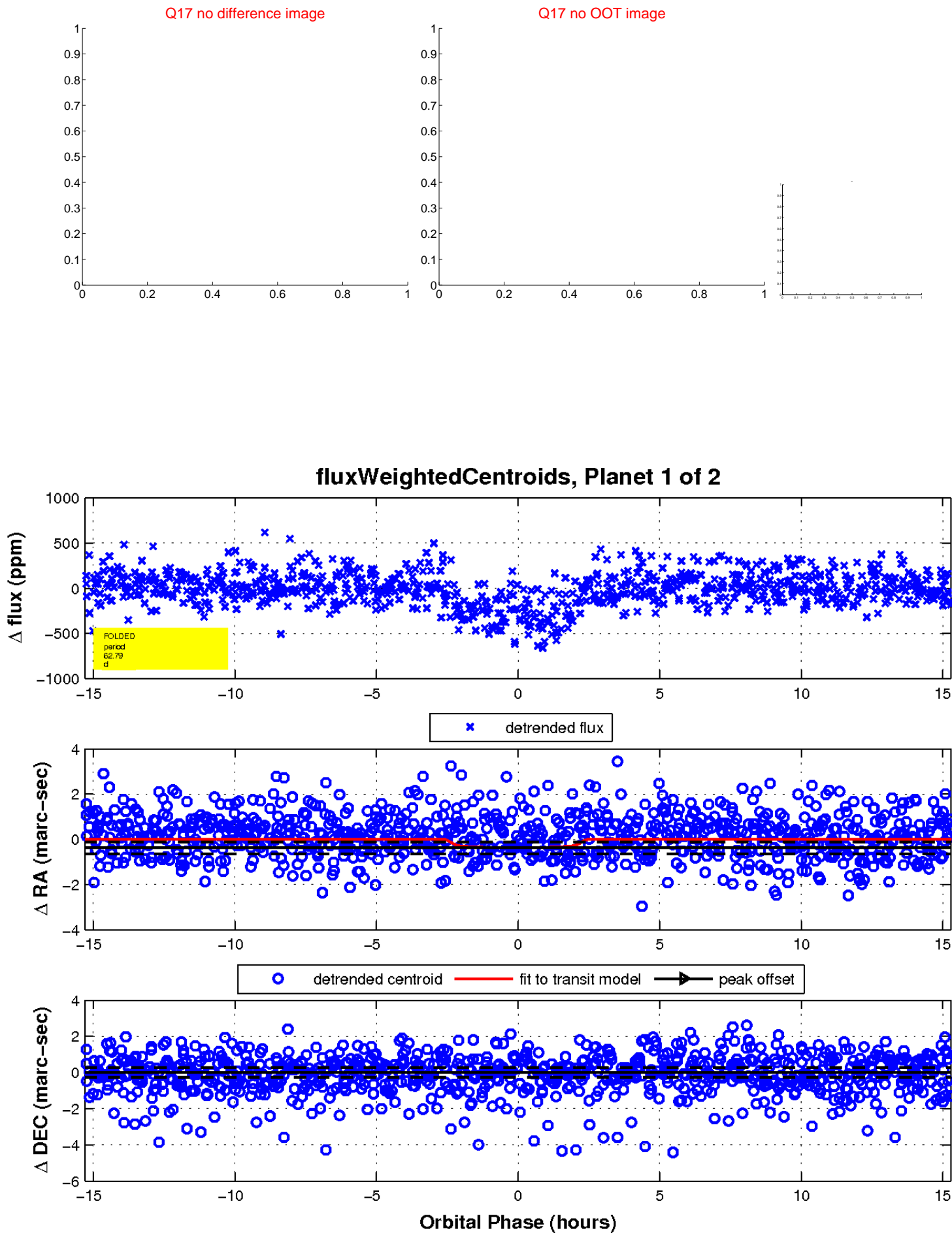
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

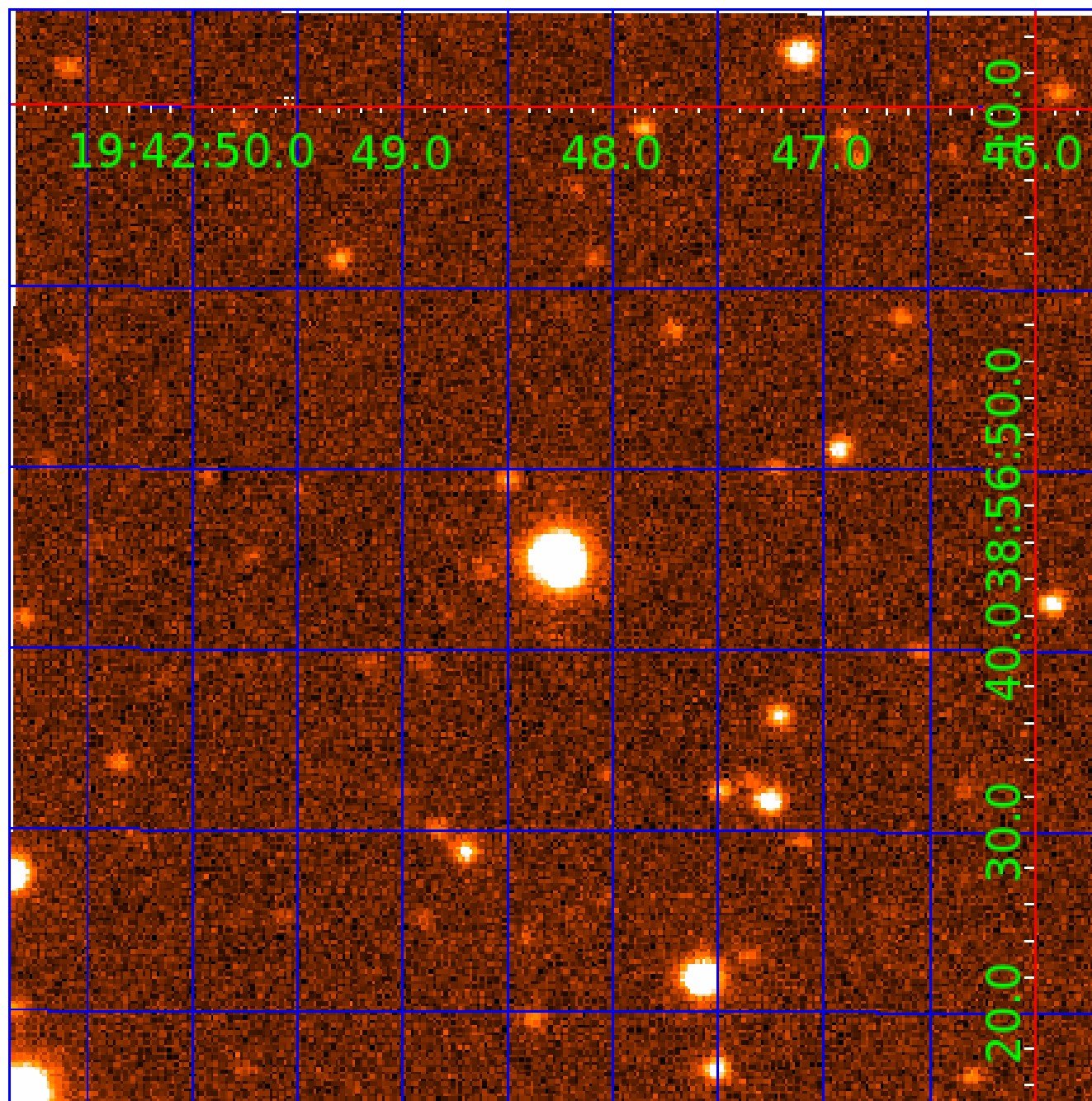


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003867615

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})
003867615-01	OBS	2289.01	62.785059	157.303311	332.1	5.103	16.8	17.1	1.26	6053	2.71	18.73
003867615-02	OBS	2289.02	20.098367	147.282909	152.3	5.384	15.7	16.6	1.26	6053	1.80	85.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003867615-01	OBS	PC	0.94	0	0	0	0	NO_COMMENT
003867615-02	OBS	PC	0.93	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.

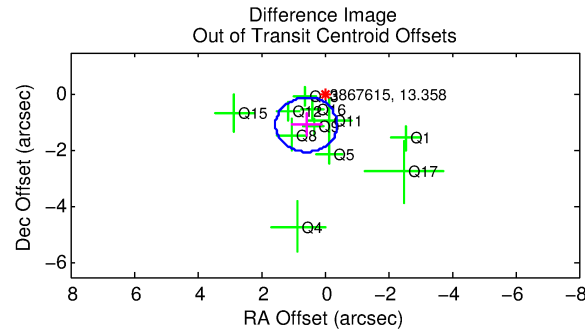
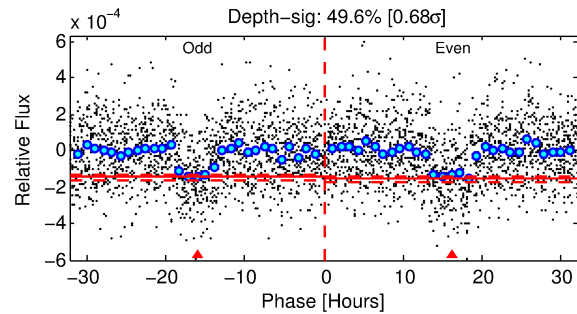
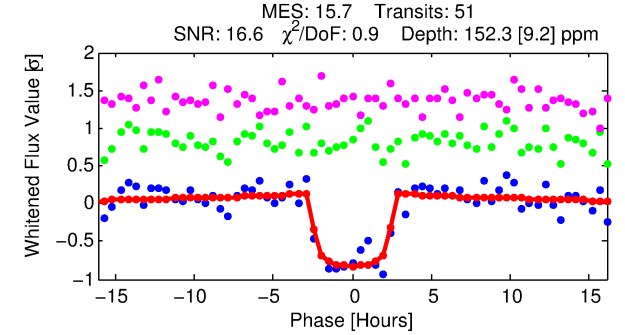
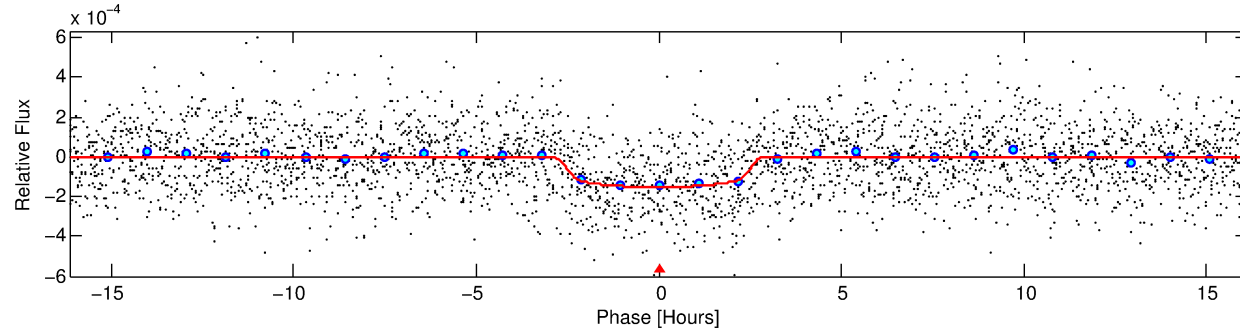
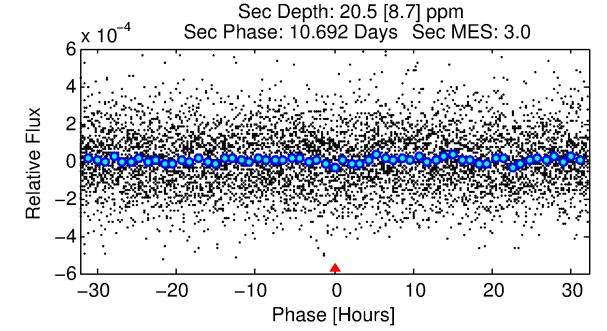
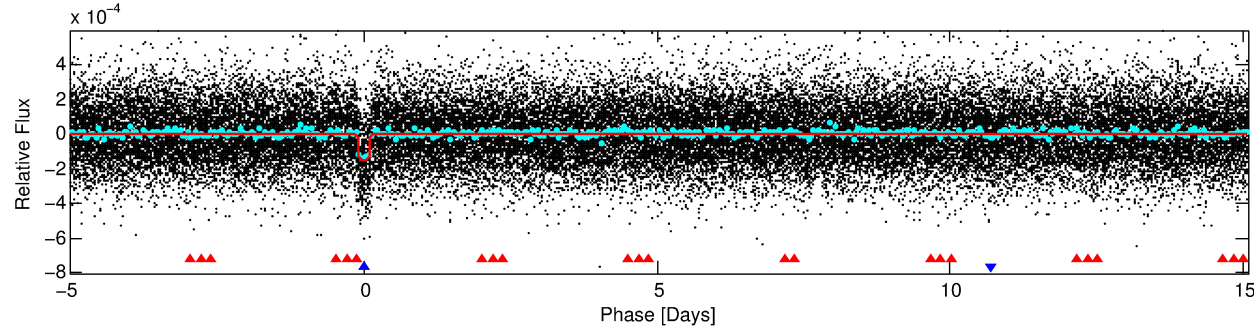
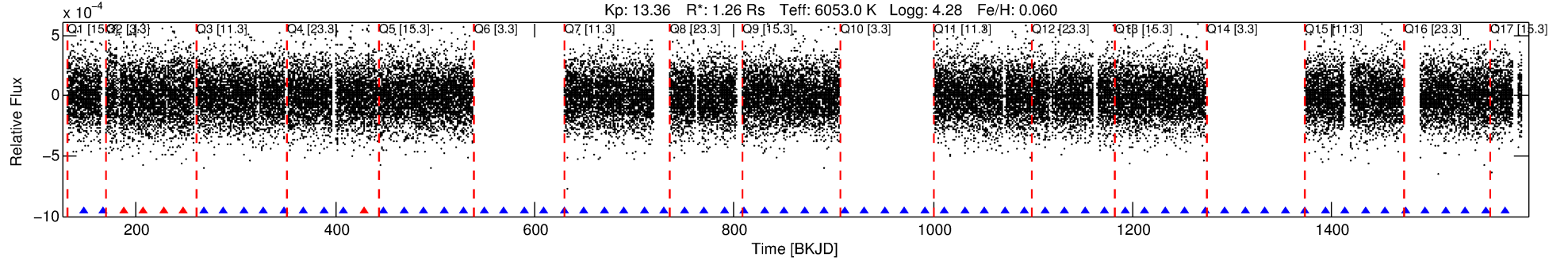
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003867615-02

No Significant Match Found

DV One-Page Summary

KIC: 3867615 Candidate: 2 of 2 Period: 20.098 d
KOI: K02289.02 Name: Kepler-379b Corr: 0.981



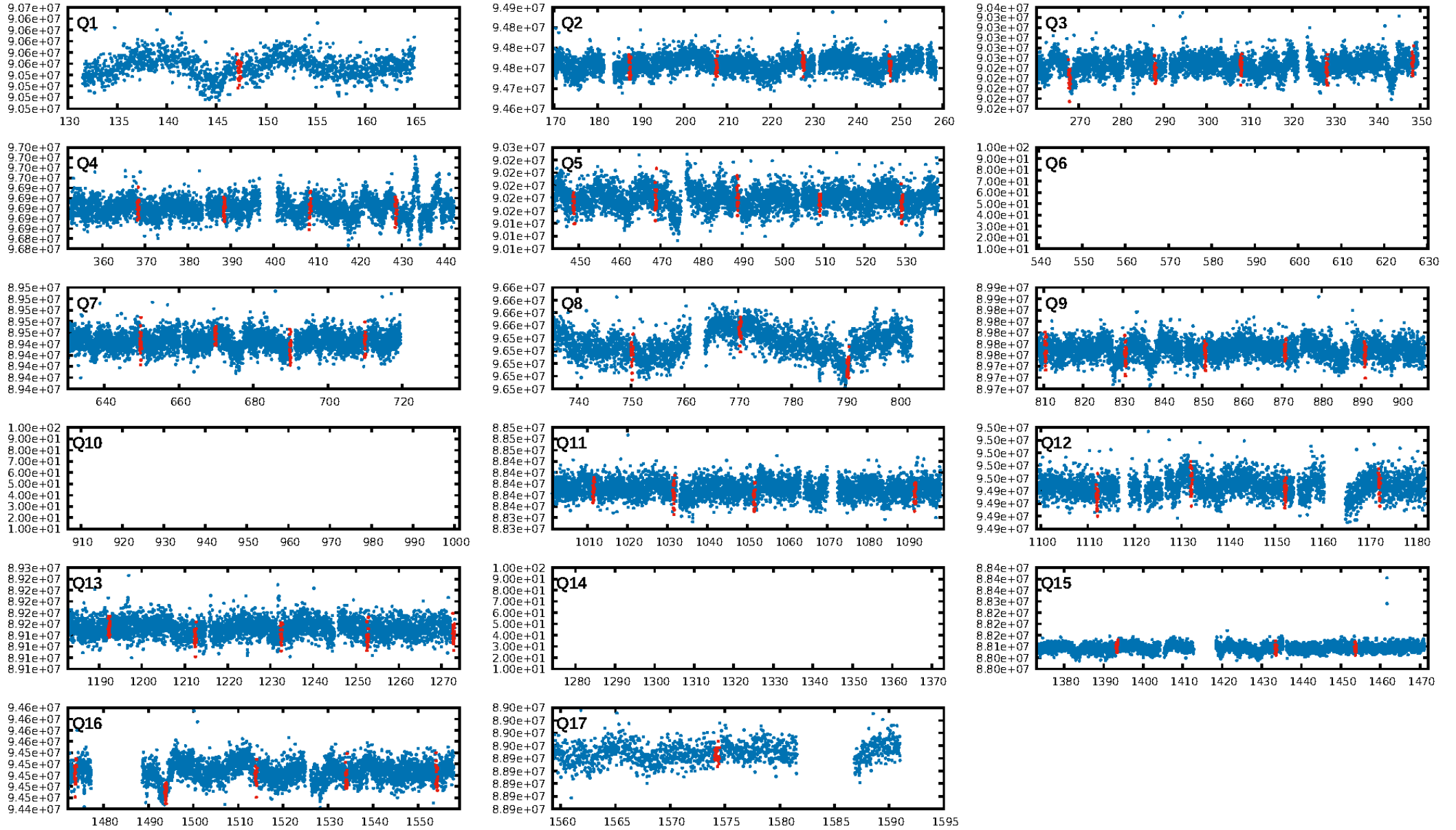
DV Fit Results:

Period = 20.09837 [0.00014] d
Epoch = 147.2829 [0.0056] BKJD
Rp/R* = 0.0131 [0.0031]
a/R* = 14.44 [17.17]
b = 0.88 [0.32]
Seff = 85.53 [20.03]
Teff = 775 [45] K
Rp = 1.80 [0.53] Re
a = 0.1494 [0.0220] AU
Ag = 77.44 [52.39] [1.46σ]
Teffp = 3557 [575] K [4.82σ]

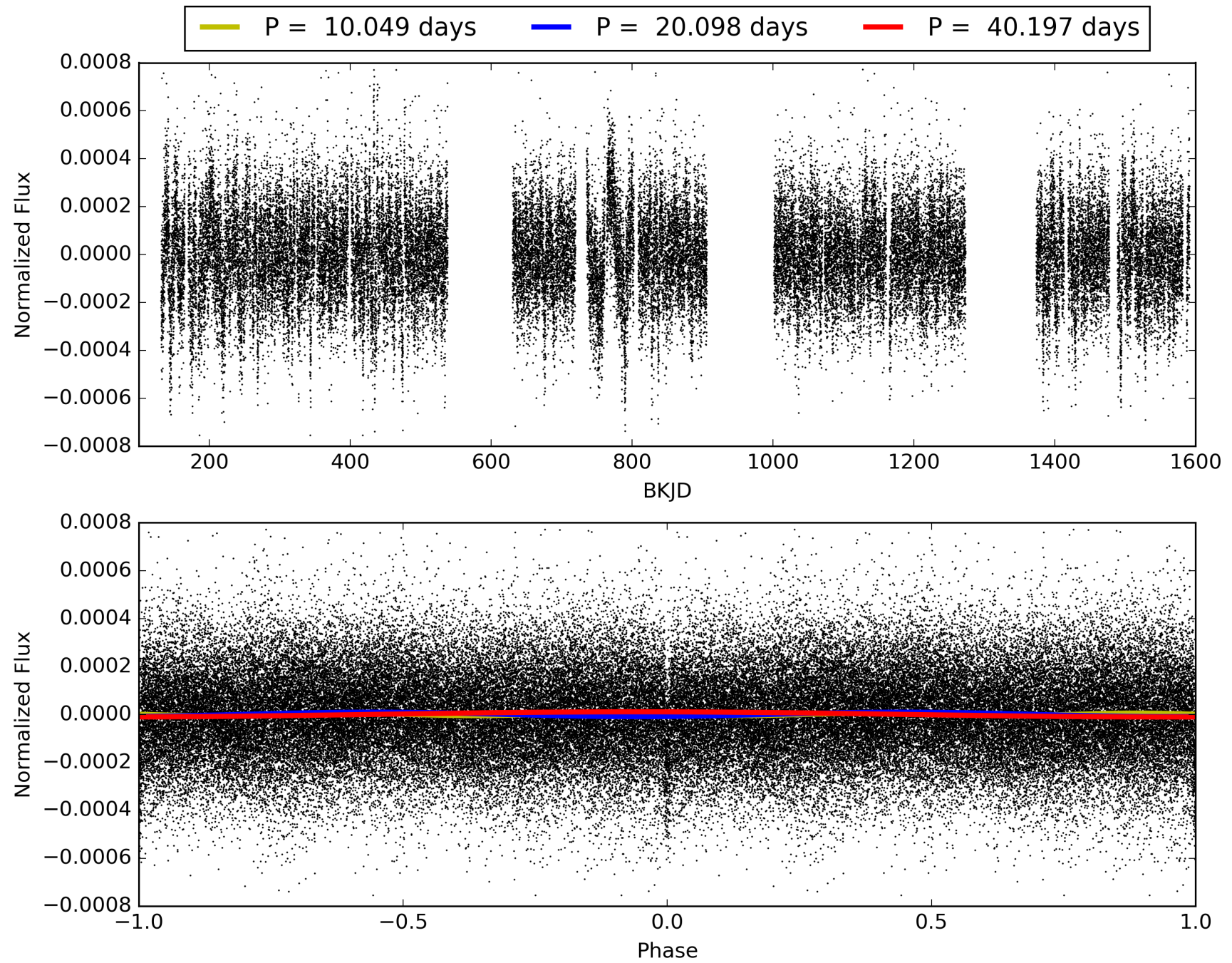
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [138.11σ]
ModelChiSquare2-sig: 95.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.80e-52
RollingBand-fgt: 0.90 [44/49]
GhostDiagnostic-chr: 9.205
Centroid-sig: 0.8%
Centroid-so: 1.898 arcsec [2.30σ]
OotOffset-rm: 1.219 arcsec [3.77σ]
KicOffset-rm: 1.190 arcsec [3.02σ]
OotOffset-st: 0/2/4/5 [11]
KicOffset-st: 0/2/4/5 [11]
DiffImageQuality-fgm: 0.73 [8/11]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 003867615-02, PDC Light Curves

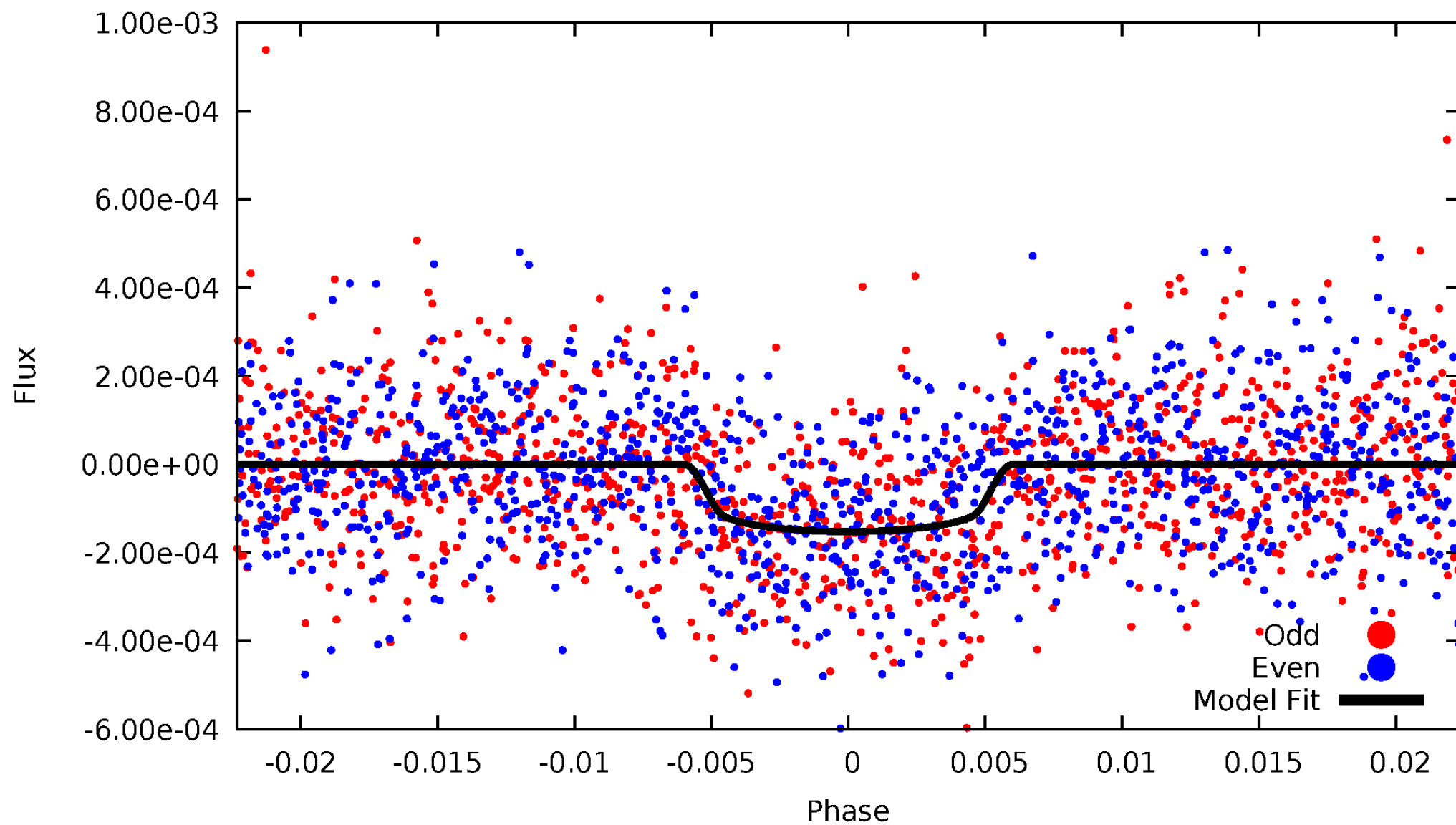


TCE 003867615-02



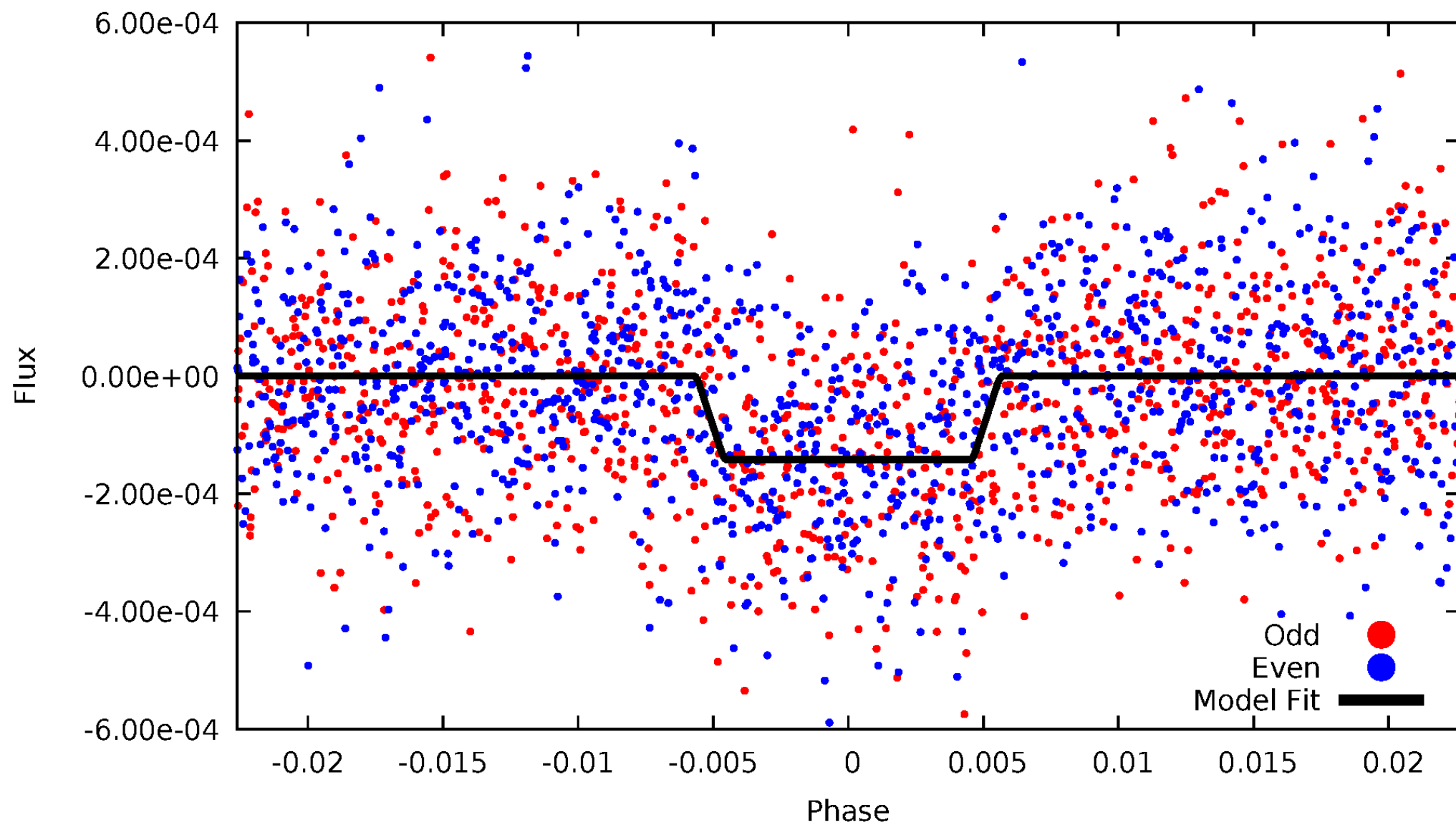
DV Odd/Even

TCE 003867615-02



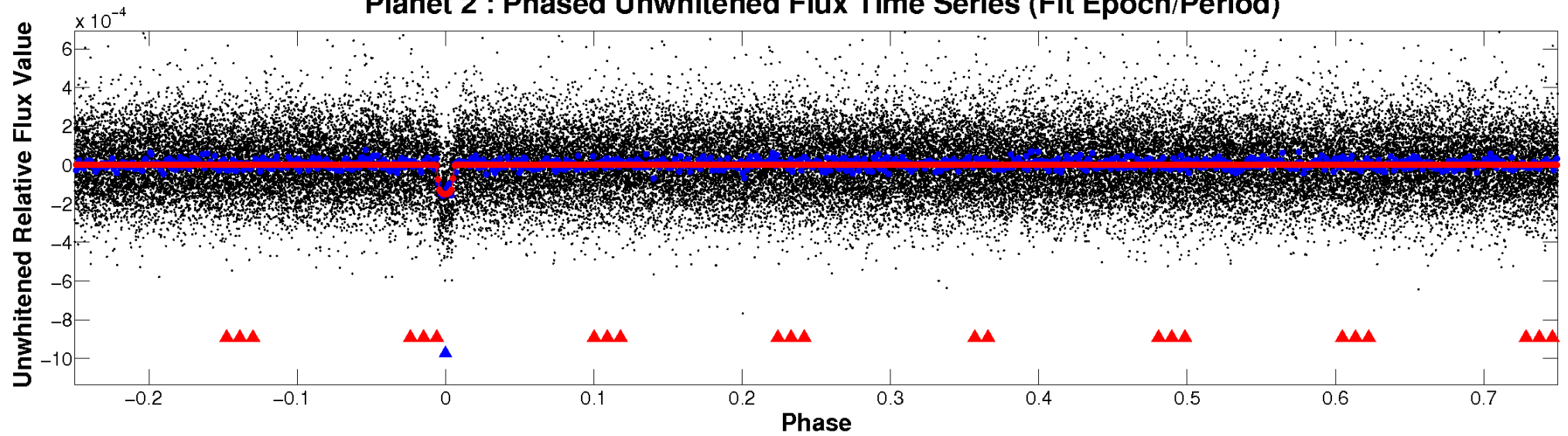
ALT Odd/Even

TCE 003867615-02

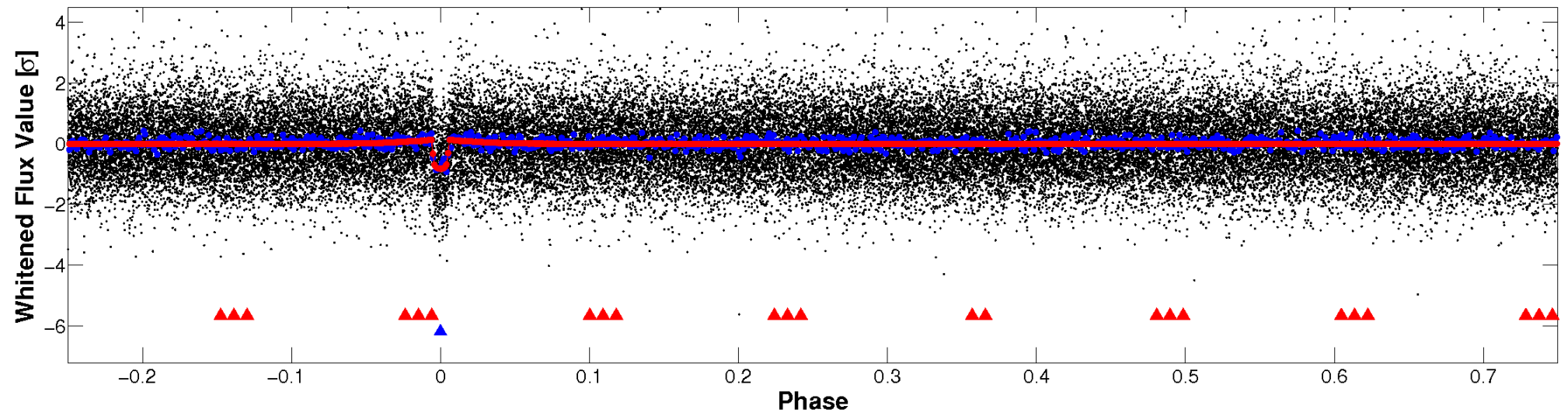


Non-Whitened Vs. Whitened Light Curve

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

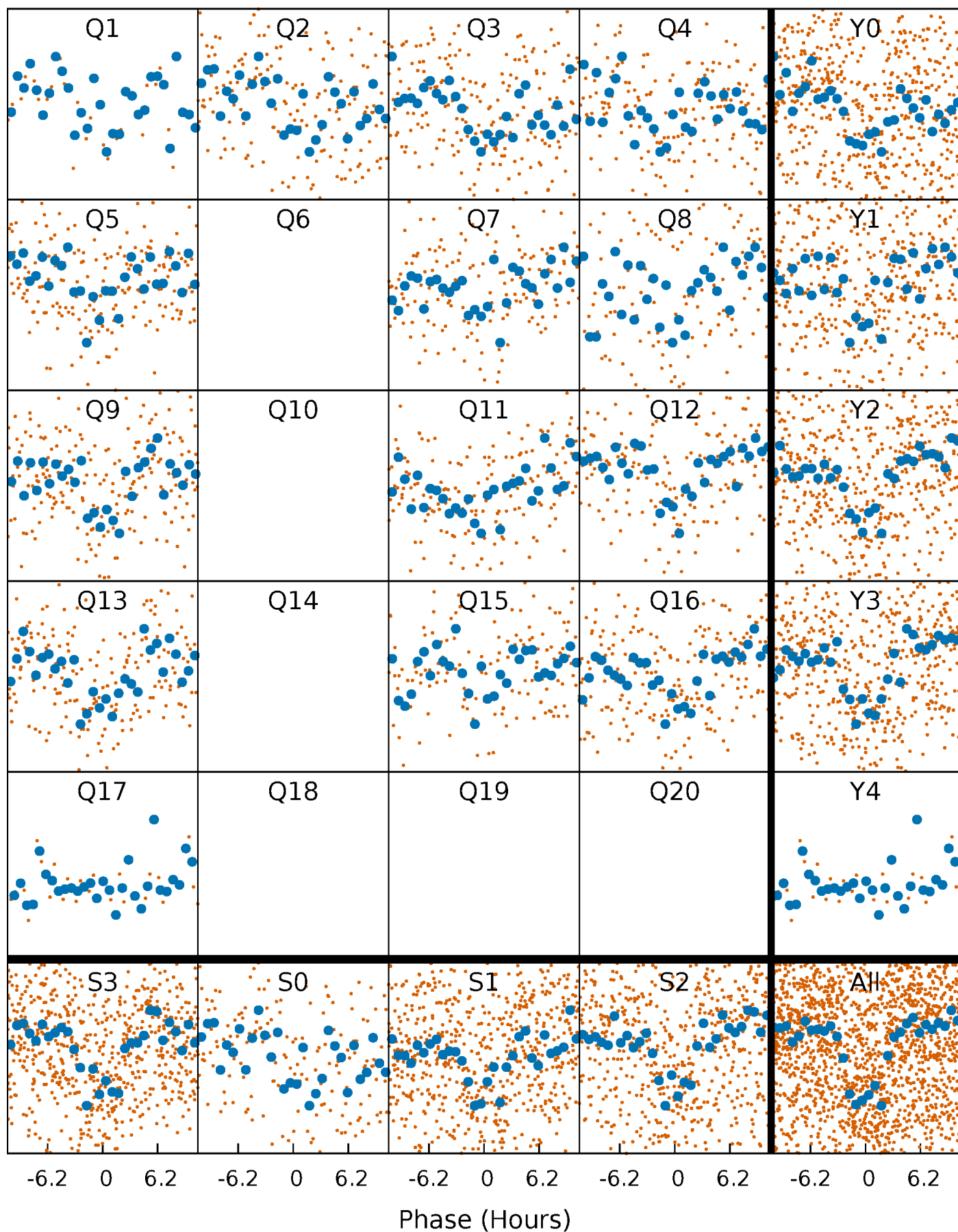


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



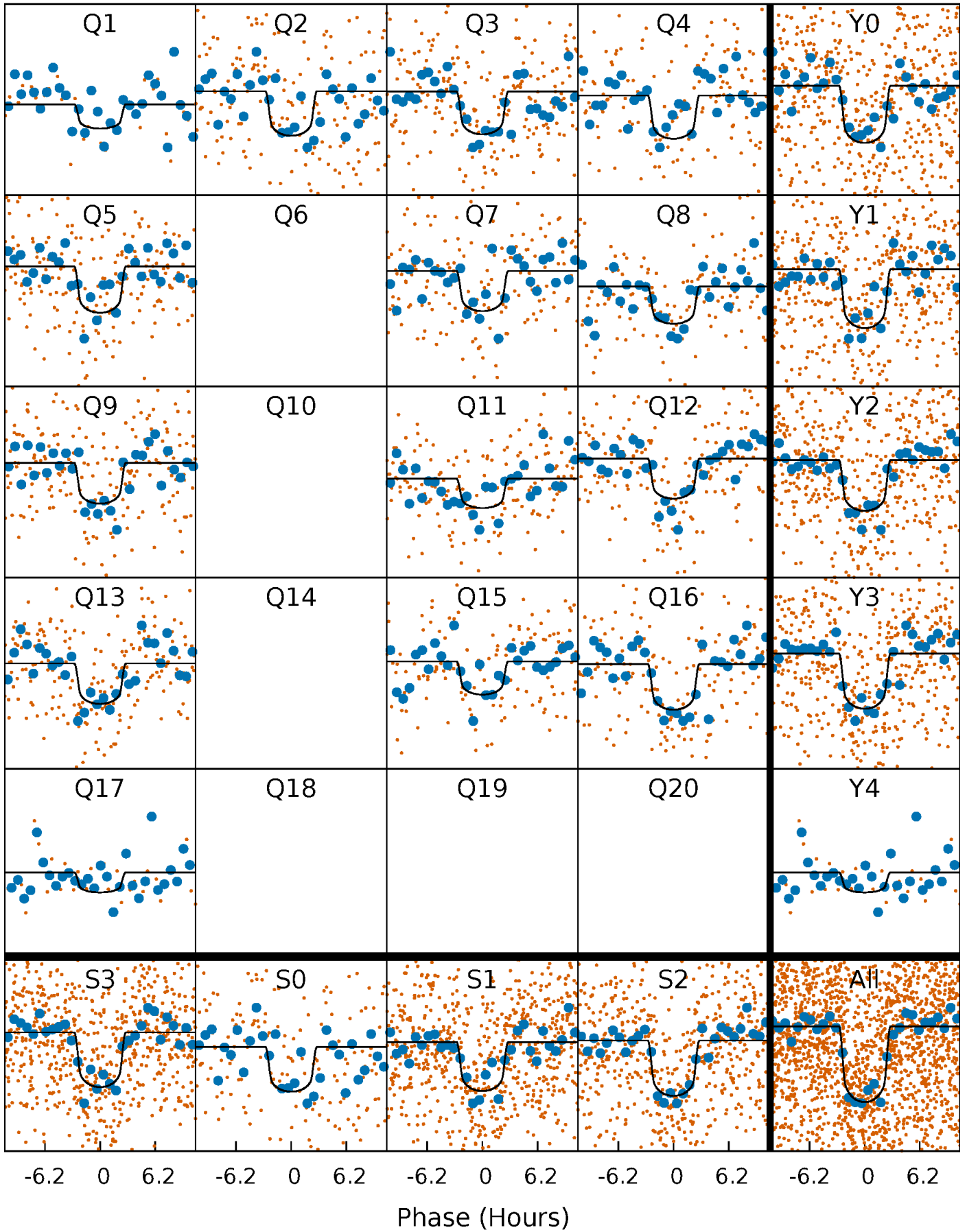
PDC Quarter-Phased Transit Curves

TCE 003867615-02 P= 20.098367 Days $T_0=147.282909$ (BKJD)



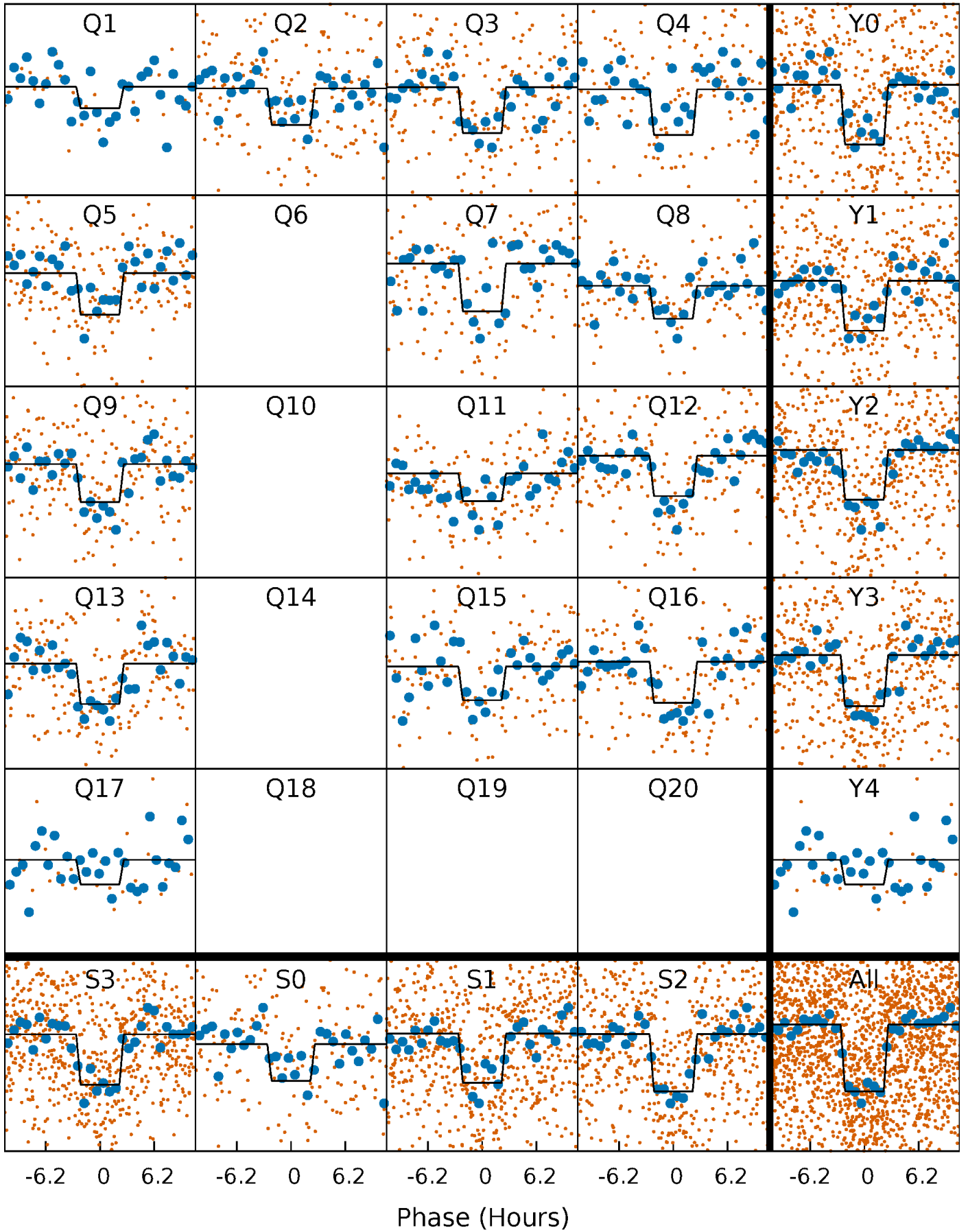
DV Quarter-Phased Transit Curves

TCE 003867615-02 P= 20.098367 Days $T_0=147.282909$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

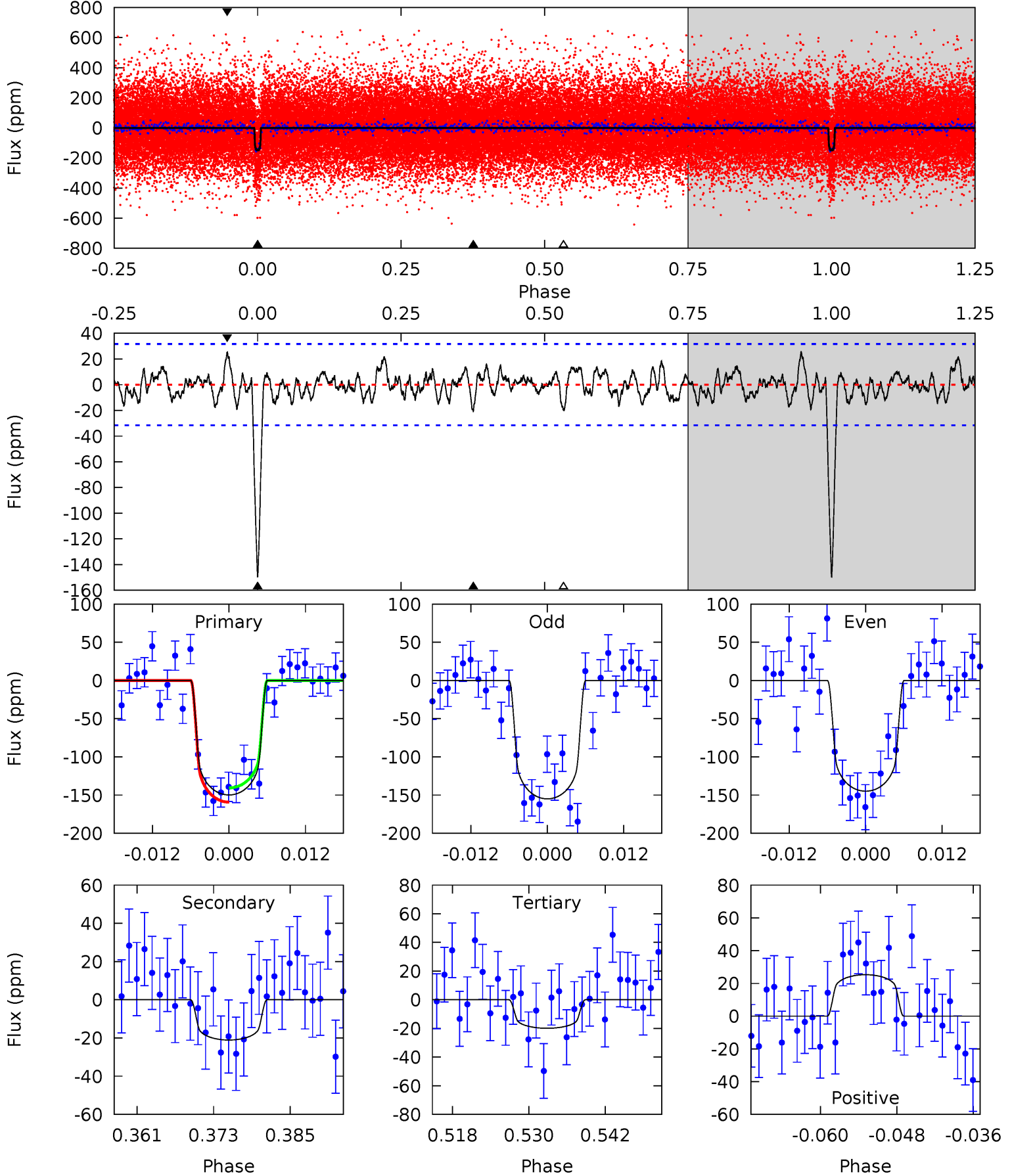
TCE 003867615-02 P= 20.098125 Days $T_0=147.292600$ (BKJD)



DV Model-Shift Uniqueness Test

003867615-02, $P = 20.098367$ Days, $E = 127.184542$ Days

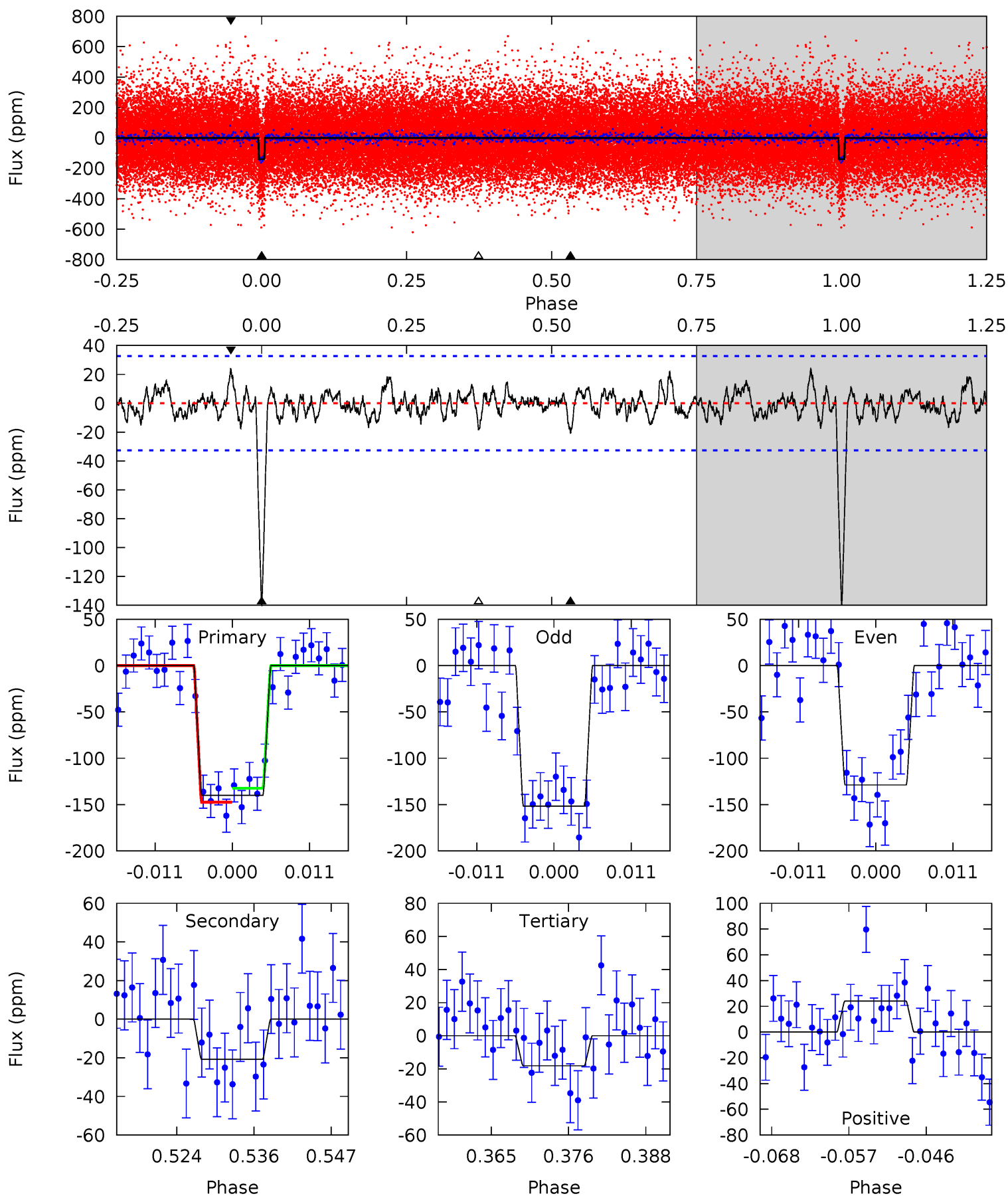
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.7	3.33	3.14	3.99	4.99	2.51	1.24	20.5	19.7	0.19	-0.67	0.80	1.00	0.14	1.49



Alt Model-Shift Uniqueness Test

003867615-02, $P = 20.098125$ Days, $E = 127.194475$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.4	3.18	2.77	3.68	5.00	2.53	1.07	18.7	17.7	0.41	-0.50	1.75	1.01	0.15	1.15



Stellar Parameters For KIC 003867615

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6053^{+121}_{-133}	$4.279^{+0.120}_{-0.120}$	$0.060^{+0.150}_{-0.150}$	$1.260^{+0.217}_{-0.177}$	$1.098^{+0.100}_{-0.081}$	$0.774^{+0.418}_{-0.270}$
	+2%/-2%	+3%/-3%	+250%/-250%	+17%/-14%	+9%/-7%	+54%/-35%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 003867615-02 / KOI 2289.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-21 ± 6	$1.79^{+0.52}_{-0.45}$	1083^{+54}_{-46}	3922^{+487}_{-352}	80^{+73}_{-37}
Alt.	-21 ± 7	$1.64^{+0.49}_{-0.48}$	1080^{+57}_{-47}	4031^{+576}_{-402}	94^{+103}_{-44}

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

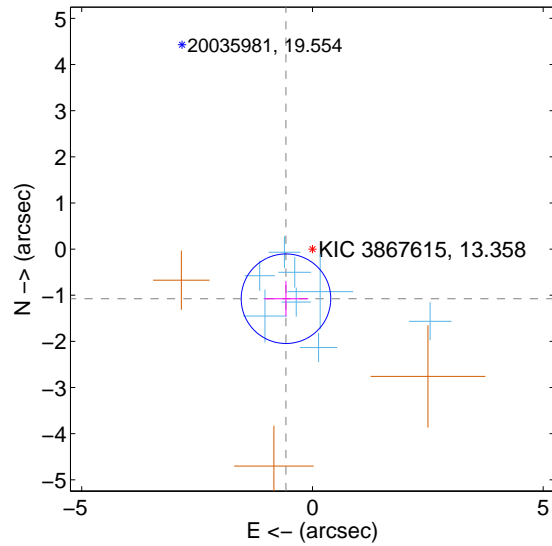
Supplemental centroid analysis for 003867615-02. Kepler magnitude: 13.36. Transit SNR 16.63

There are 8 quarters with good PRF difference image offsets

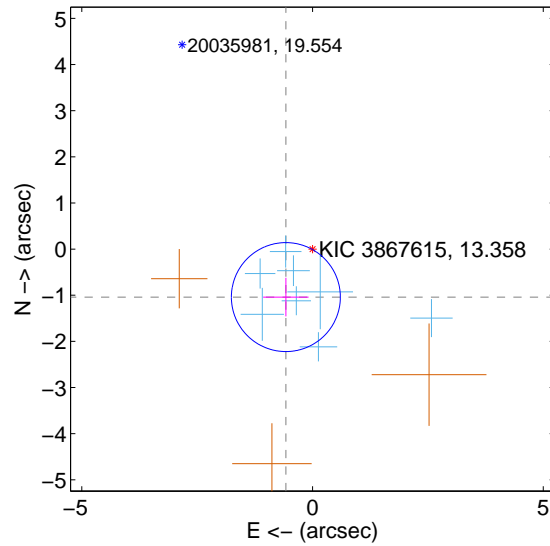
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.219 ± 0.323	3.77	0.573 ± 0.482	-1.075 ± 0.383
PRF-fit source offset from KIC position	1.190 ± 0.394	3.02	0.578 ± 0.492	-1.040 ± 0.418
photometric centroid source offset	1.90 ± 0.82	2.30	1.90 ± 0.82	0.06 ± 0.89

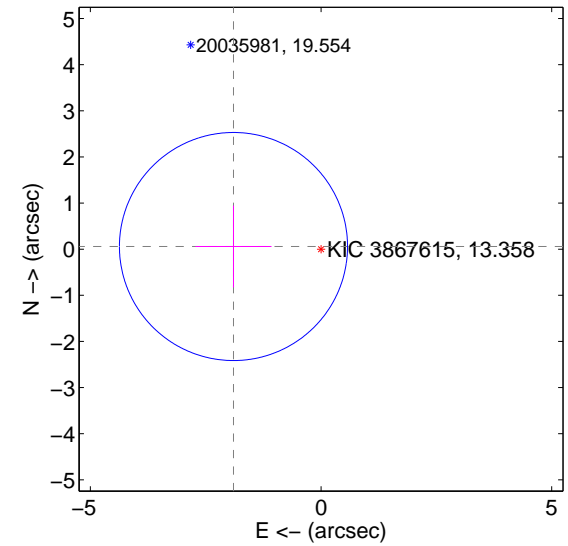
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

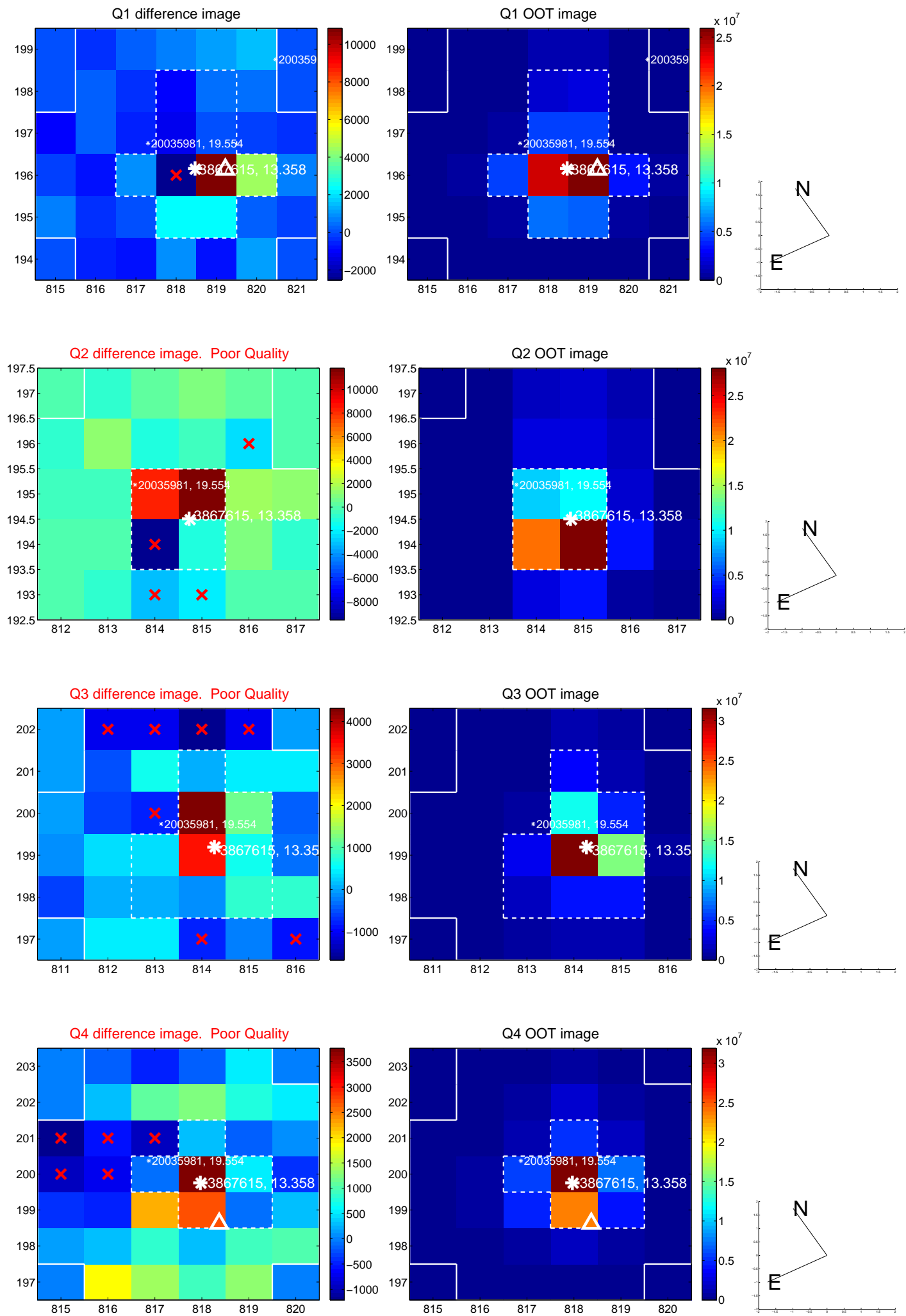


offset from photometric centroids

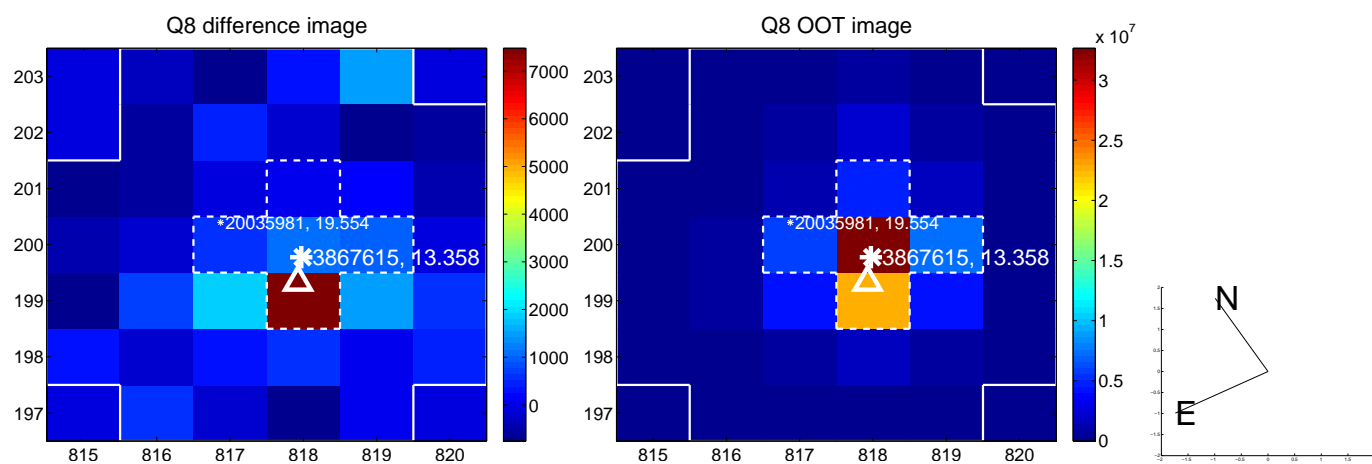
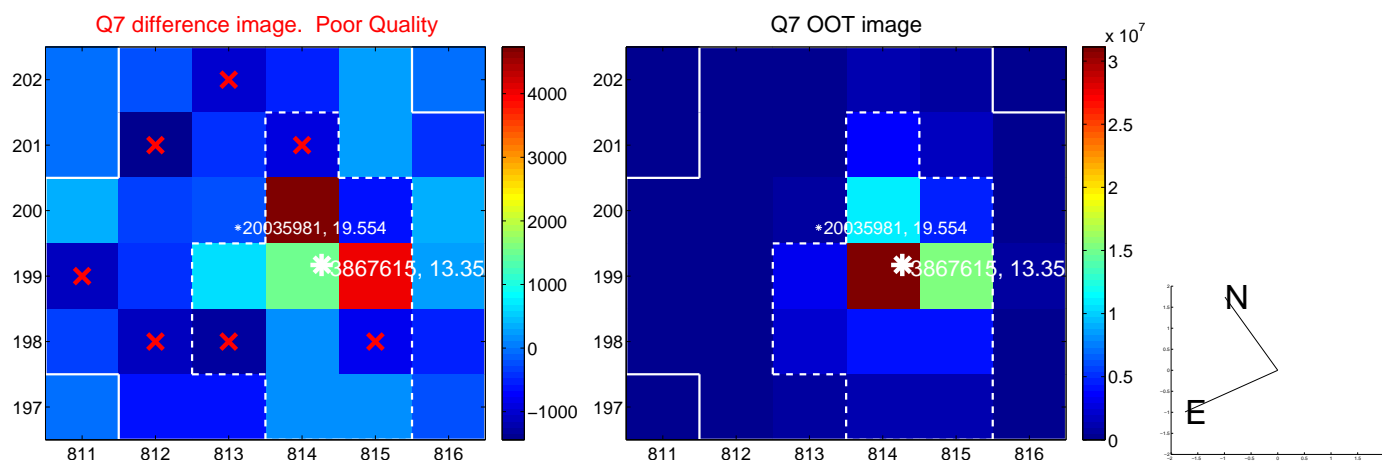
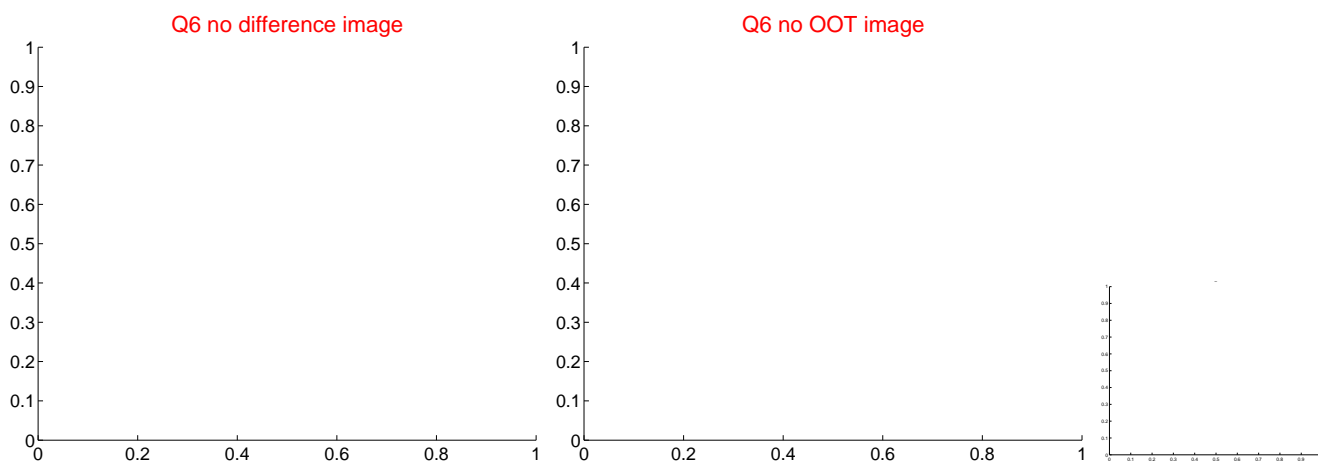
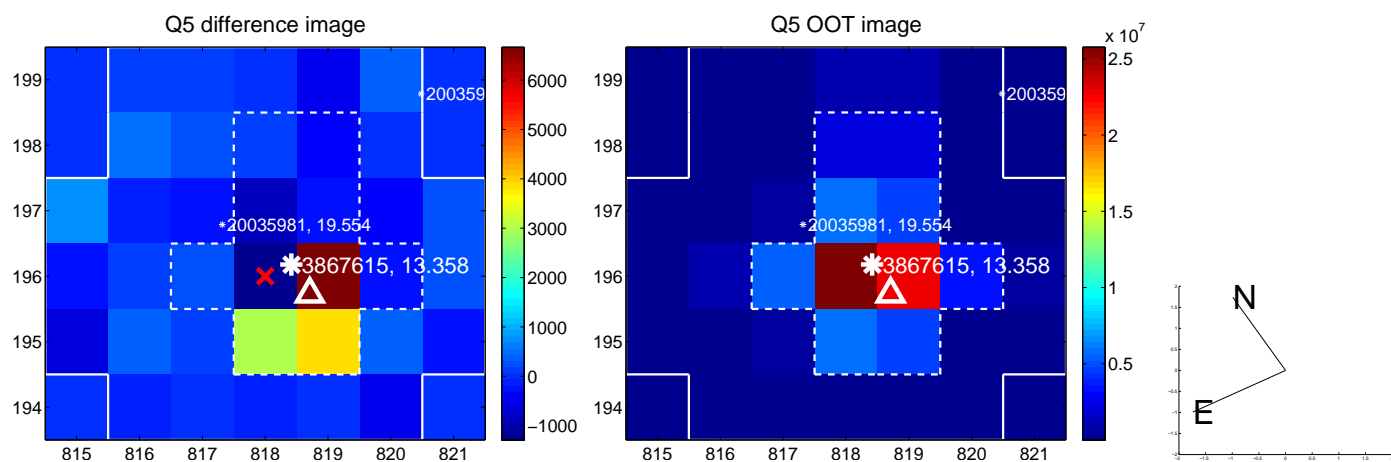


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

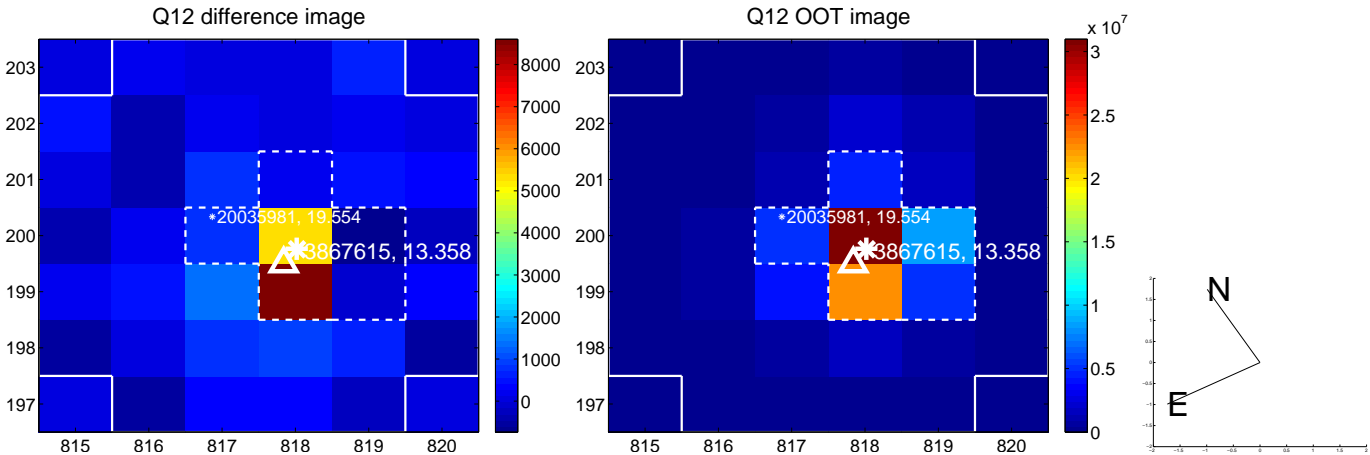
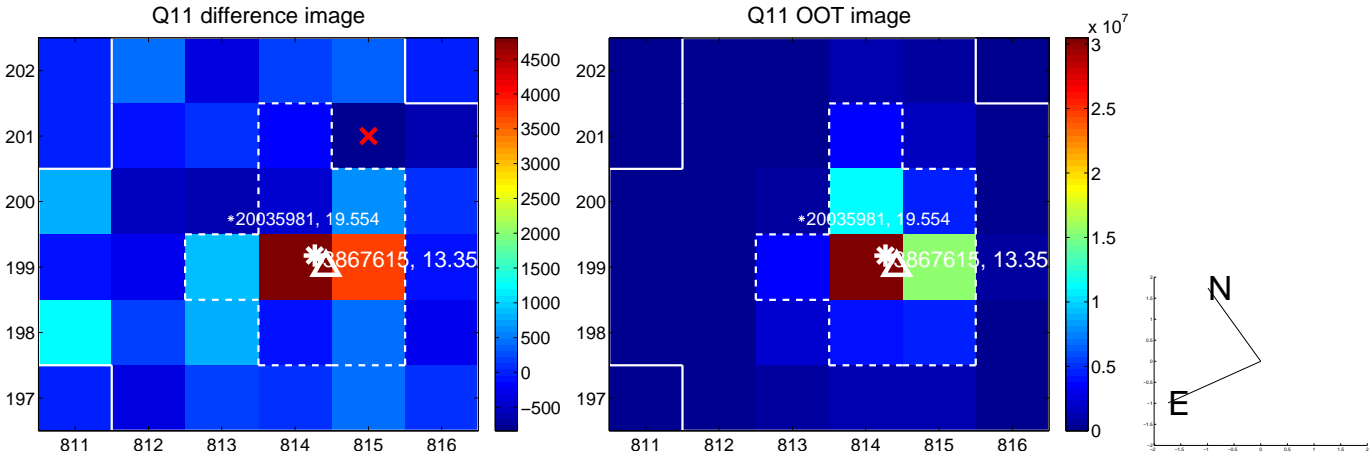
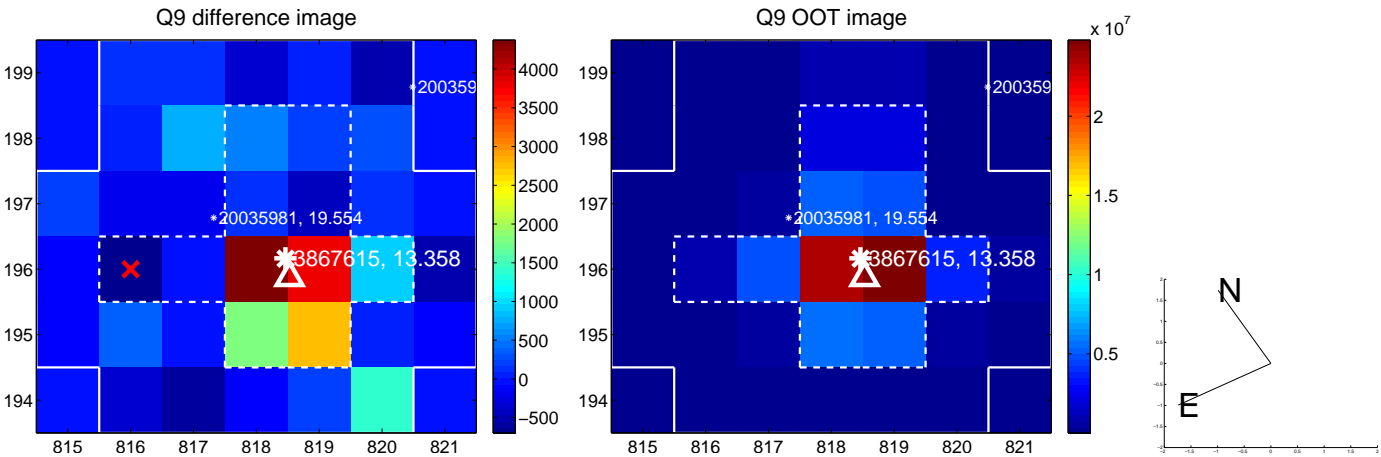
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



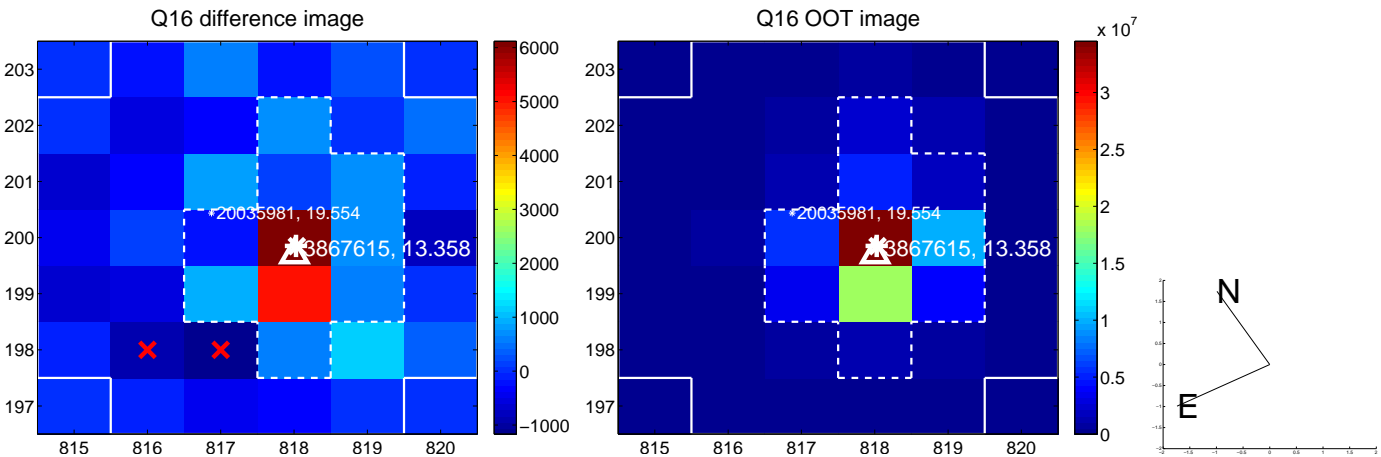
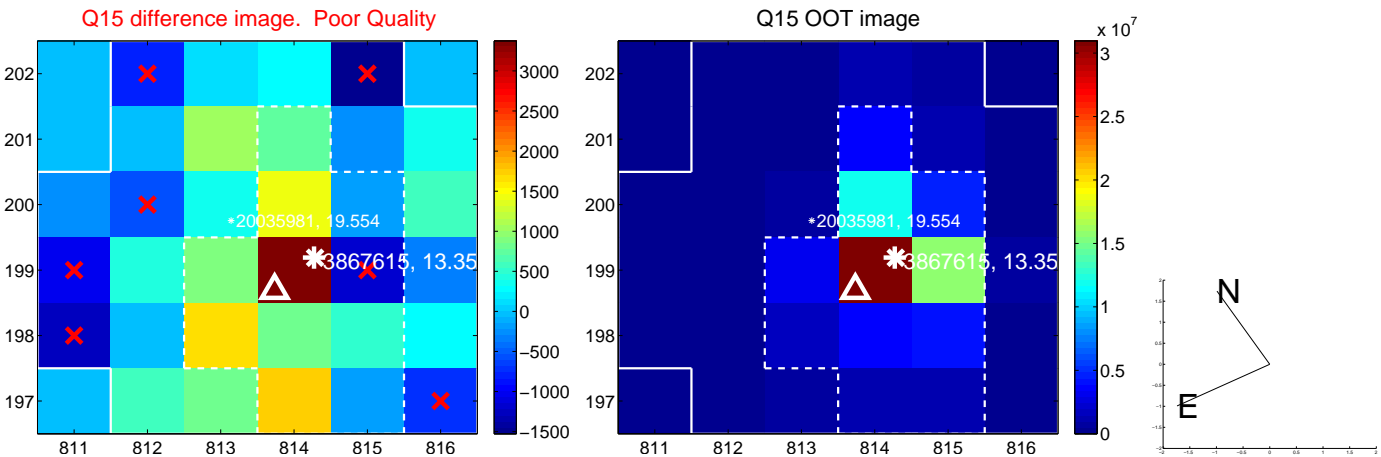
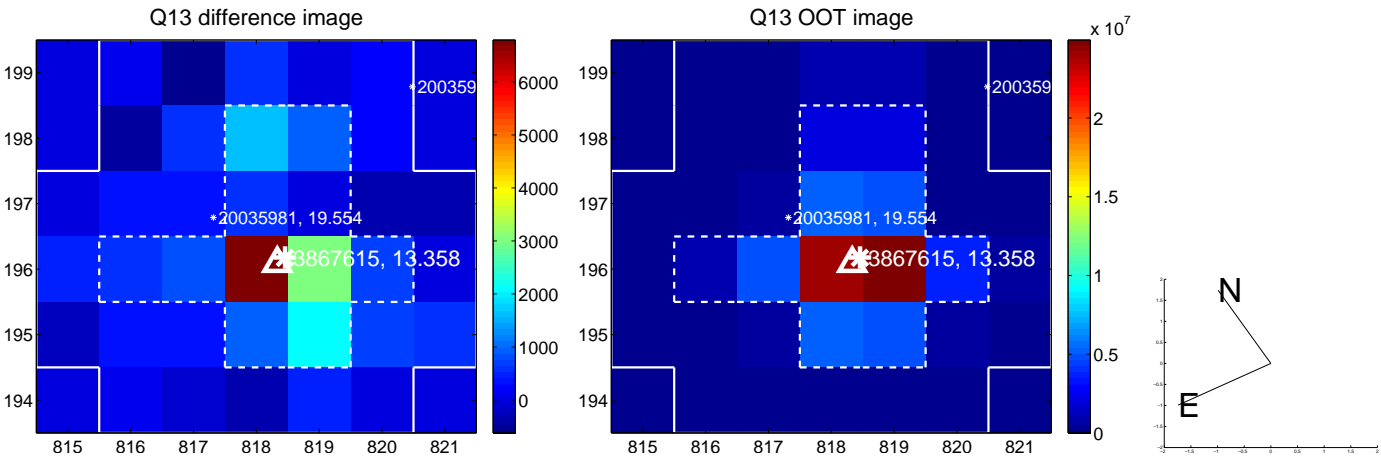
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



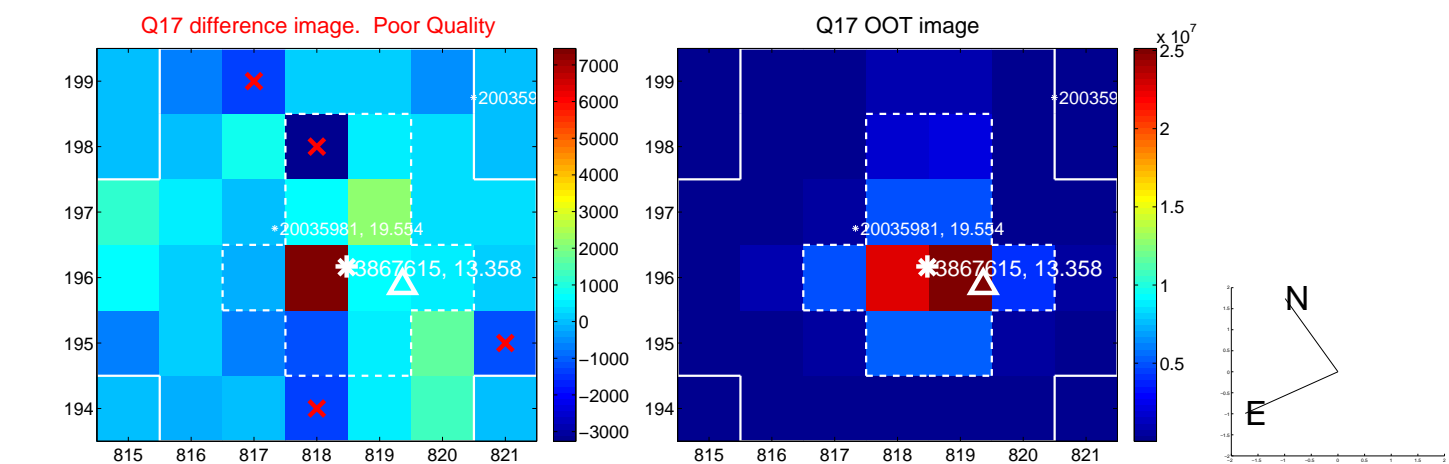
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



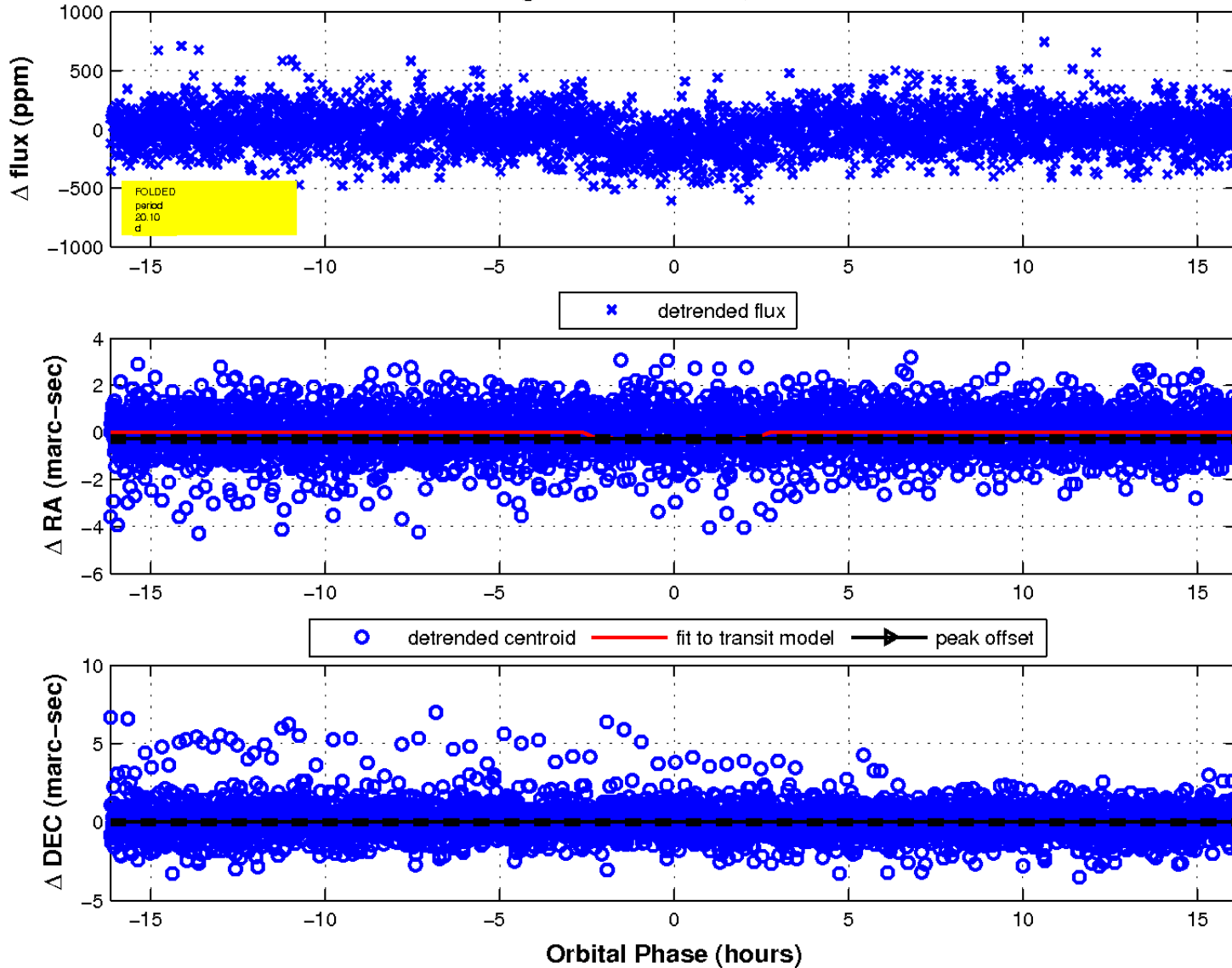
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

