

KIC 006867555

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})
006867555-01	OBS	2439.01	5.191070	135.212575	285.6	4.436	21.0	23.2	1.12	6321	2.16	463.94
006867555-02	OBS	2439.02	7.501848	138.820817	138.5	4.122	8.4	8.6	1.12	6321	1.55	283.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006867555-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
006867555-02	OBS	PC	1.00	0	0	0	0	CENT_FEW_MEAS

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

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

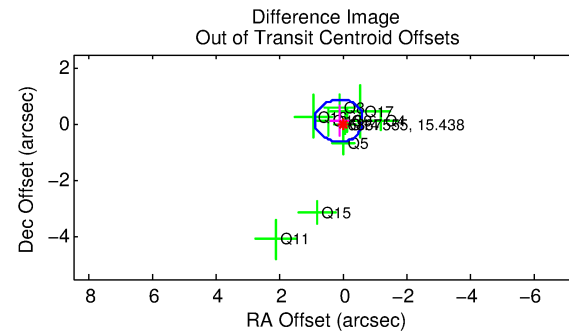
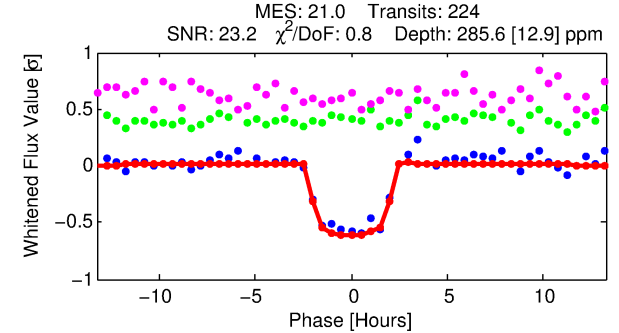
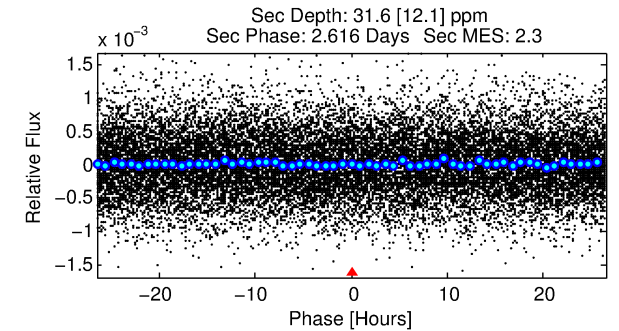
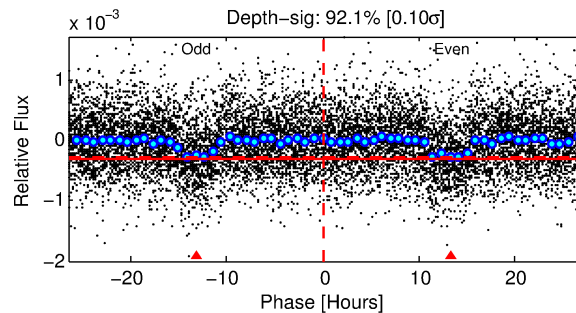
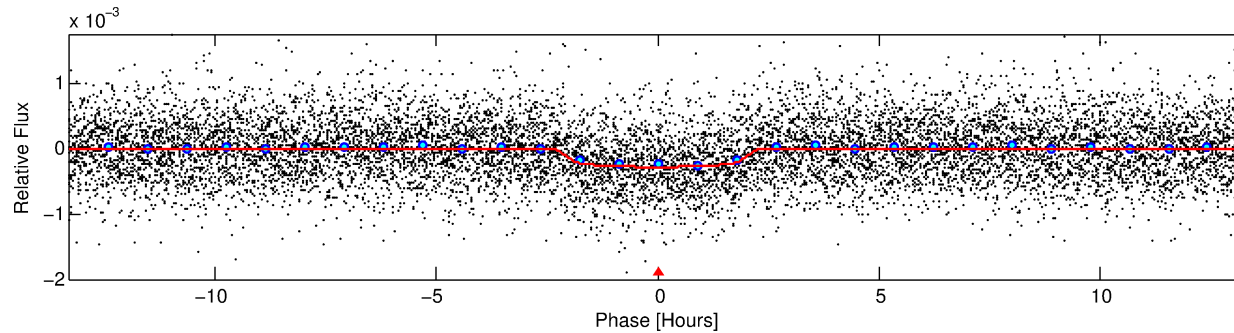
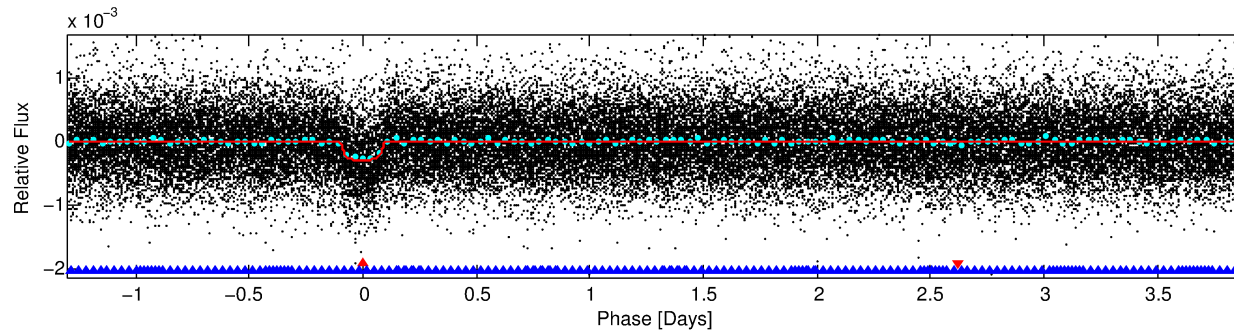
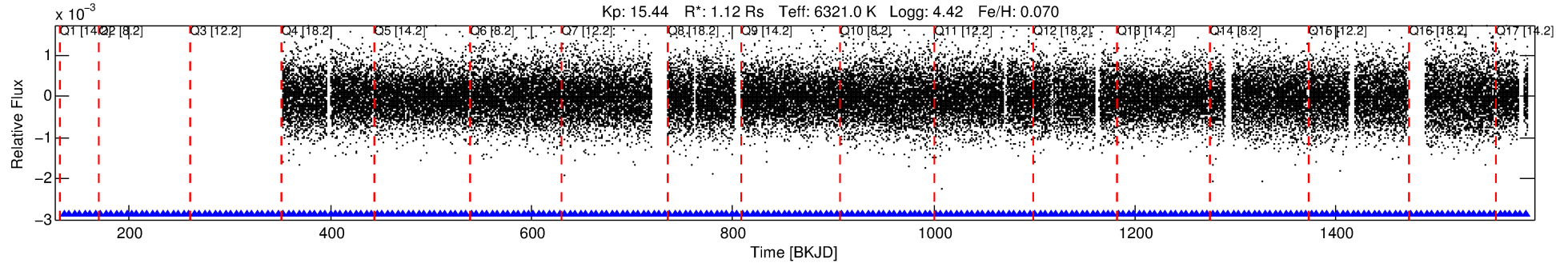
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006867555-01

No Significant Match Found

DV One-Page Summary

KIC: 6867555 Candidate: 1 of 2 Period: 5.191 d
KOI: K02439.01 Corr: 0.978



DV Fit Results:

Period = 5.19107 [0.00002] d
Epoch = 135.2126 [0.0034] BKJD
Rp/R* = 0.0176 [0.0035]
a/R* = 5.00 [5.00]
b = 0.86 [0.33]
Seff = 463.94 [204.13]
Teq = 1183 [130] K
Rp = 2.16 [0.83] Re
a = 0.0625 [0.0174] AU
Ag = 14.50 [9.93] [1.36 σ]
Teffp = 3570 [513] K [4.51 σ]

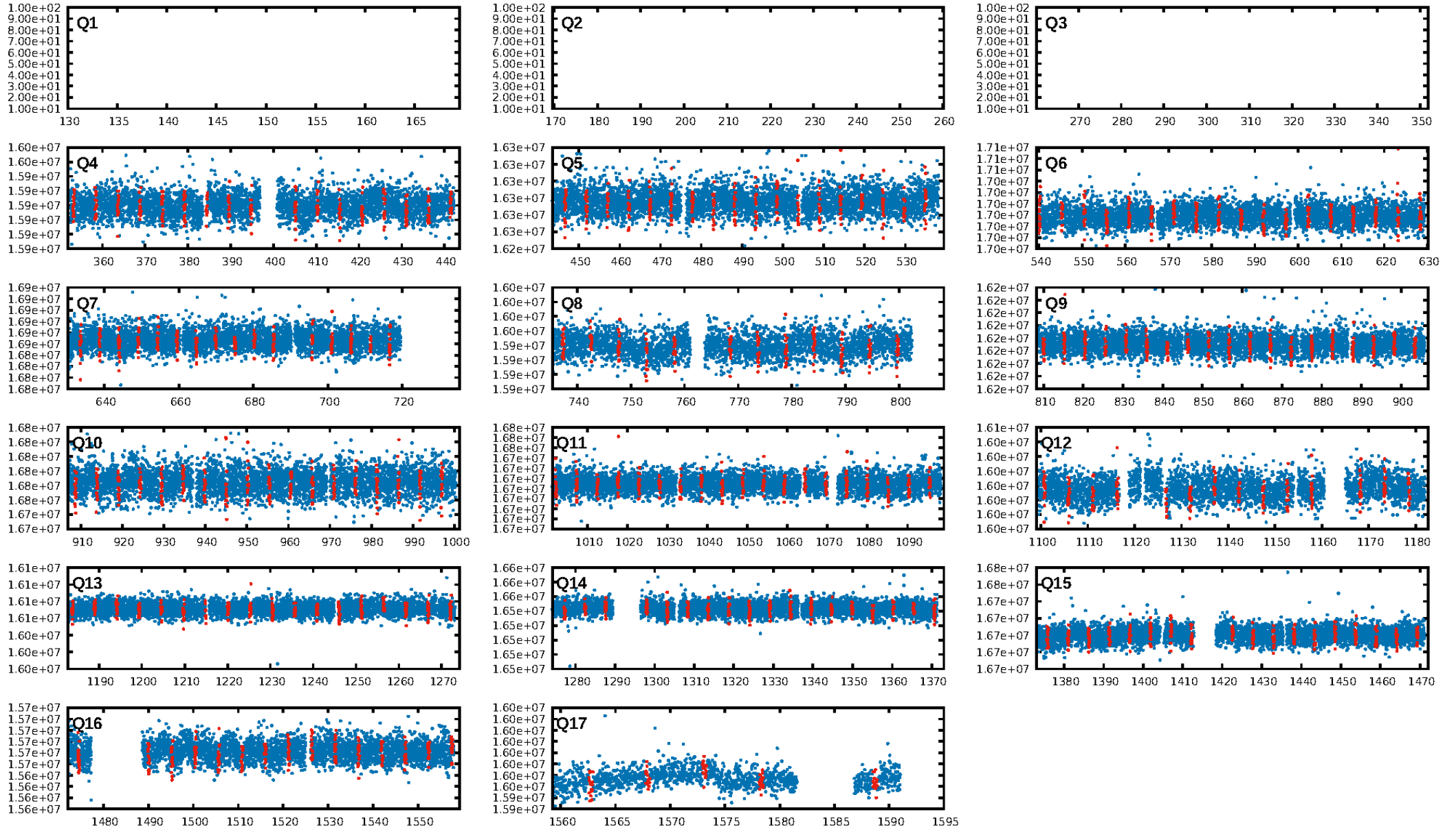
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [9.16 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.82e-95
RollingBand-fgt: 1.00 [219/219]
GhostDiagnostic-chr: 1.975
Centroid-sig: N/A
Centroid-so: 0.297 arcsec [0.51 σ]
OotOffset-rm: 0.195 arcsec [0.77 σ]
KicOffset-rm: 0.209 arcsec [1.09 σ]
OotOffset-st: 1/2/3/4 [10]
KicOffset-st: 1/2/3/4 [10]
DiffImageQuality-fgm: 0.80 [8/10]
DiffImageOverlap-fno: 1.00 [14/14]

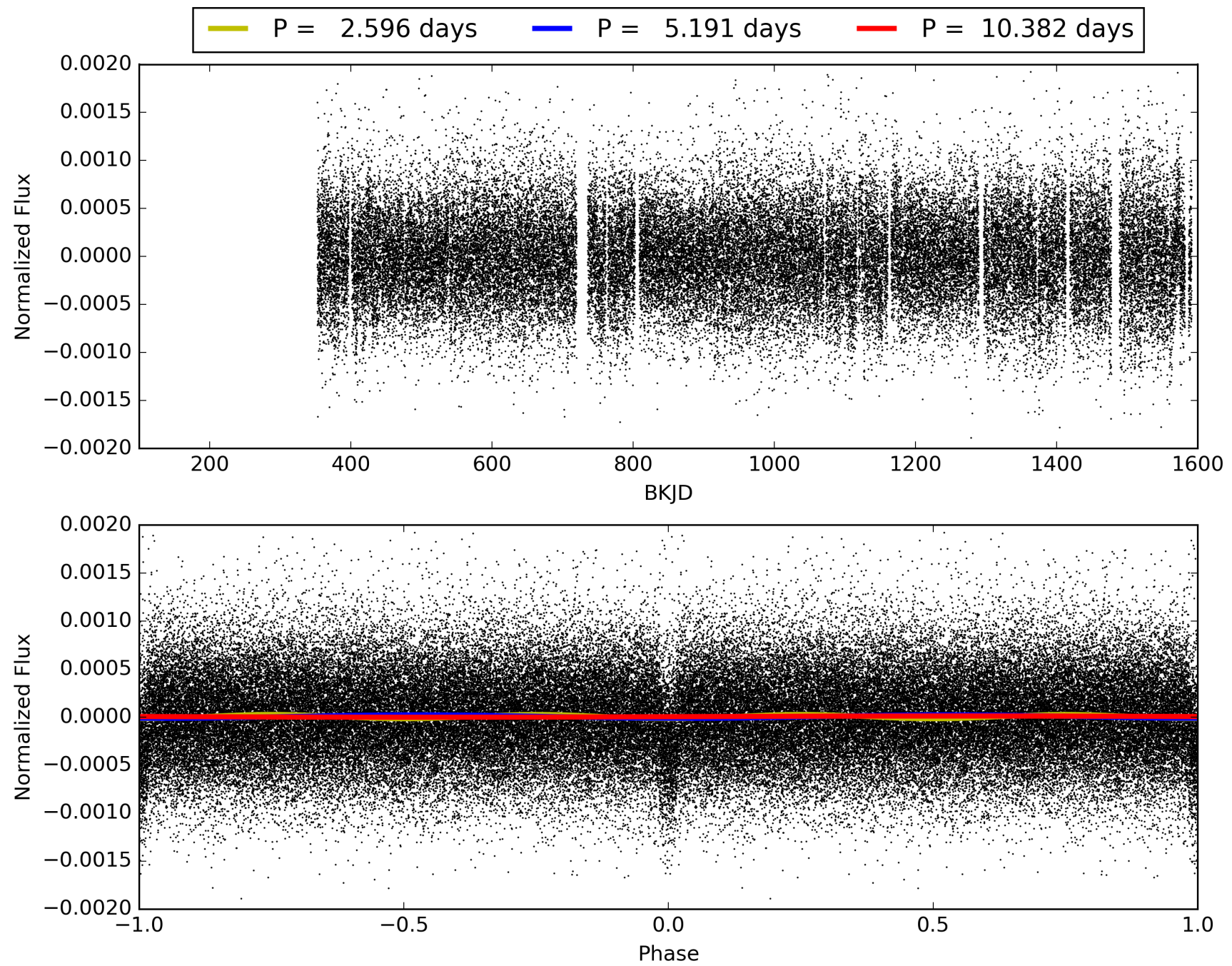
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:14:21 Z

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

TCE 006867555-01, PDC Light Curves

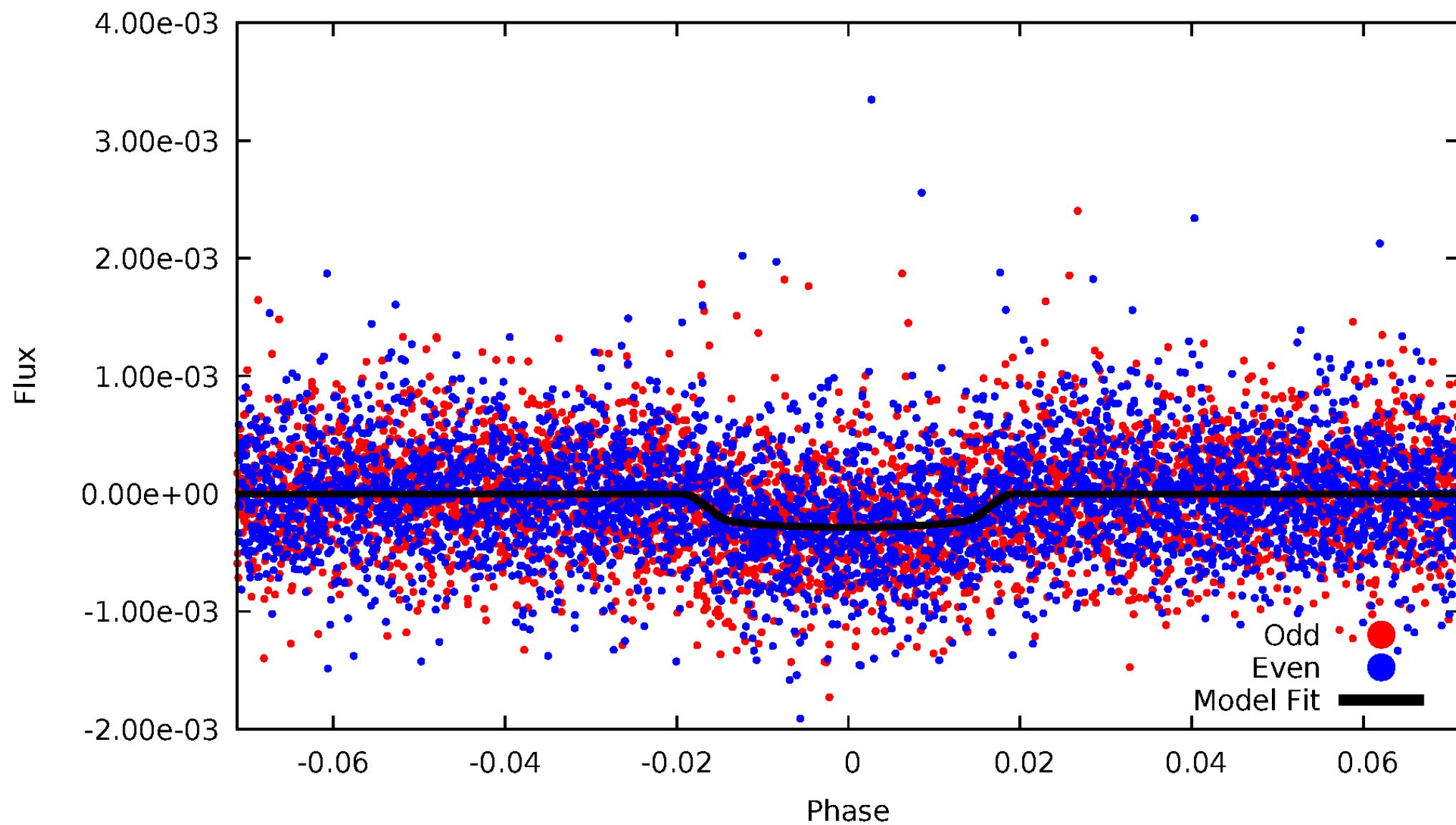


TCE 006867555-01



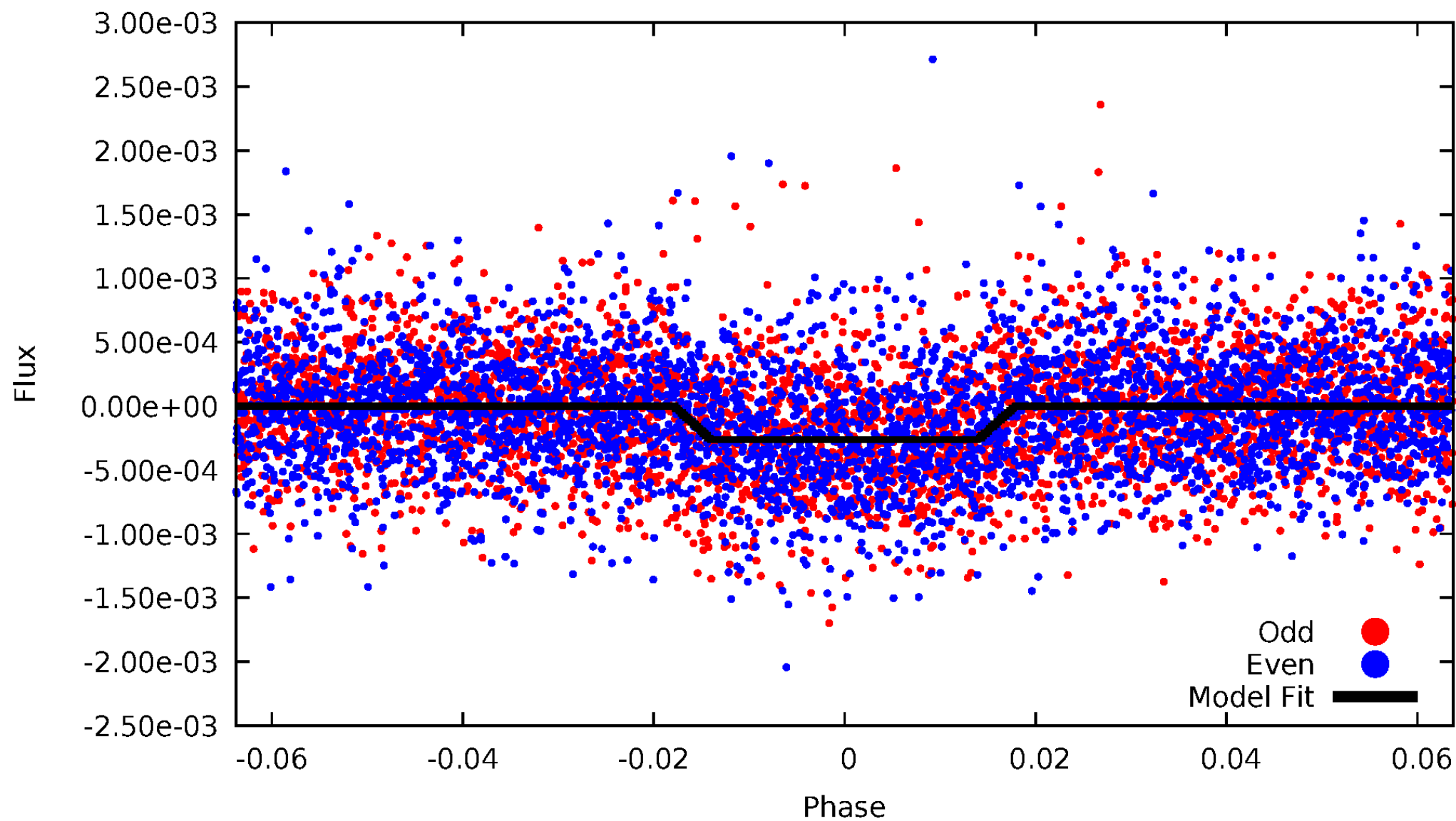
DV Odd/Even

TCE 006867555-01



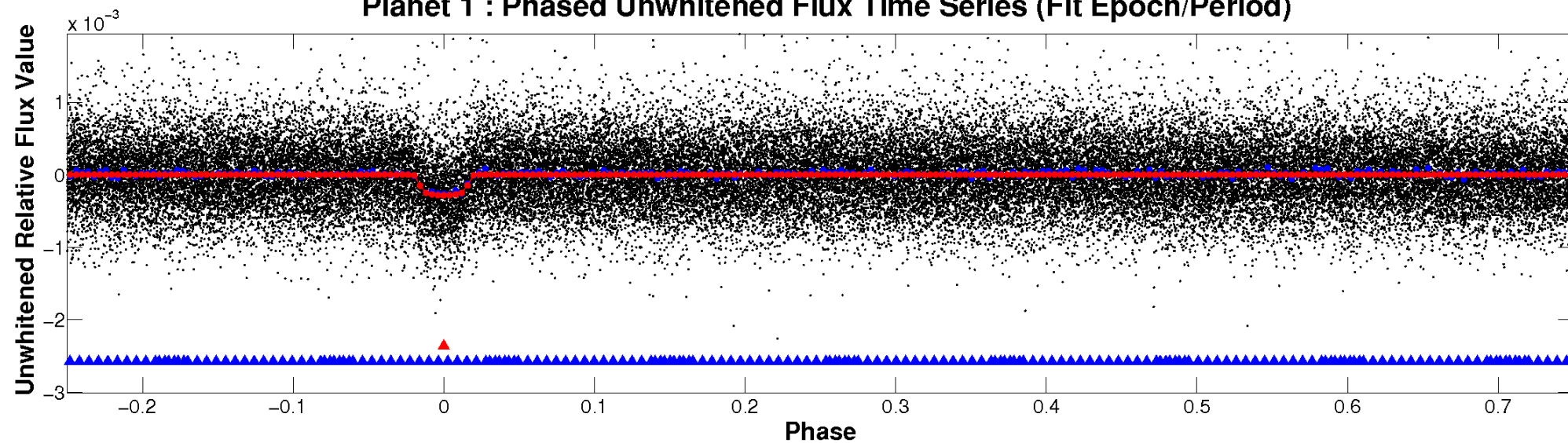
ALT Odd/Even

TCE 006867555-01

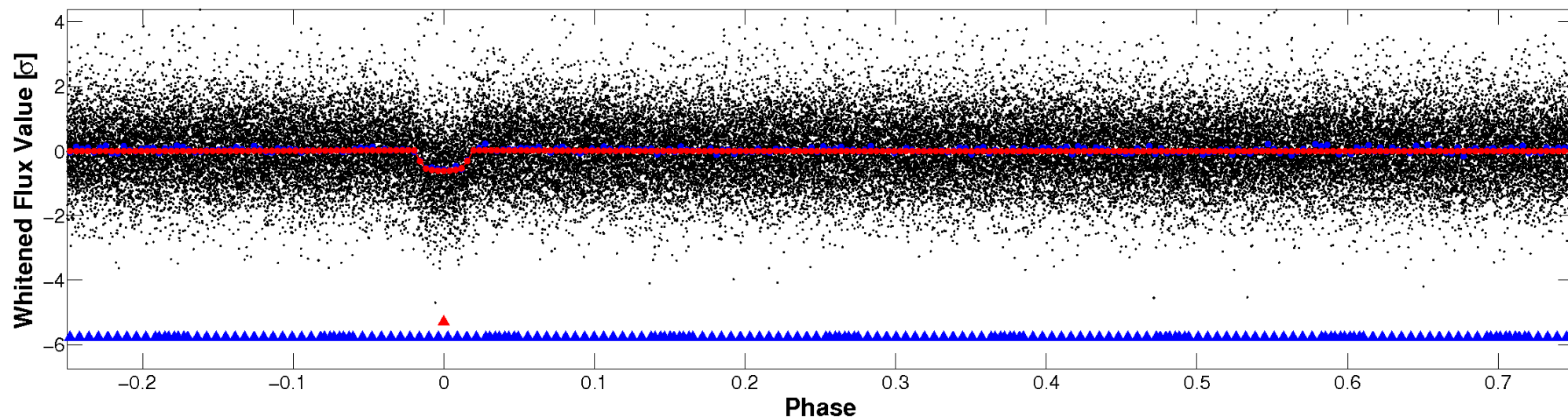


Non-Whitened Vs. Whitened Light Curve

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

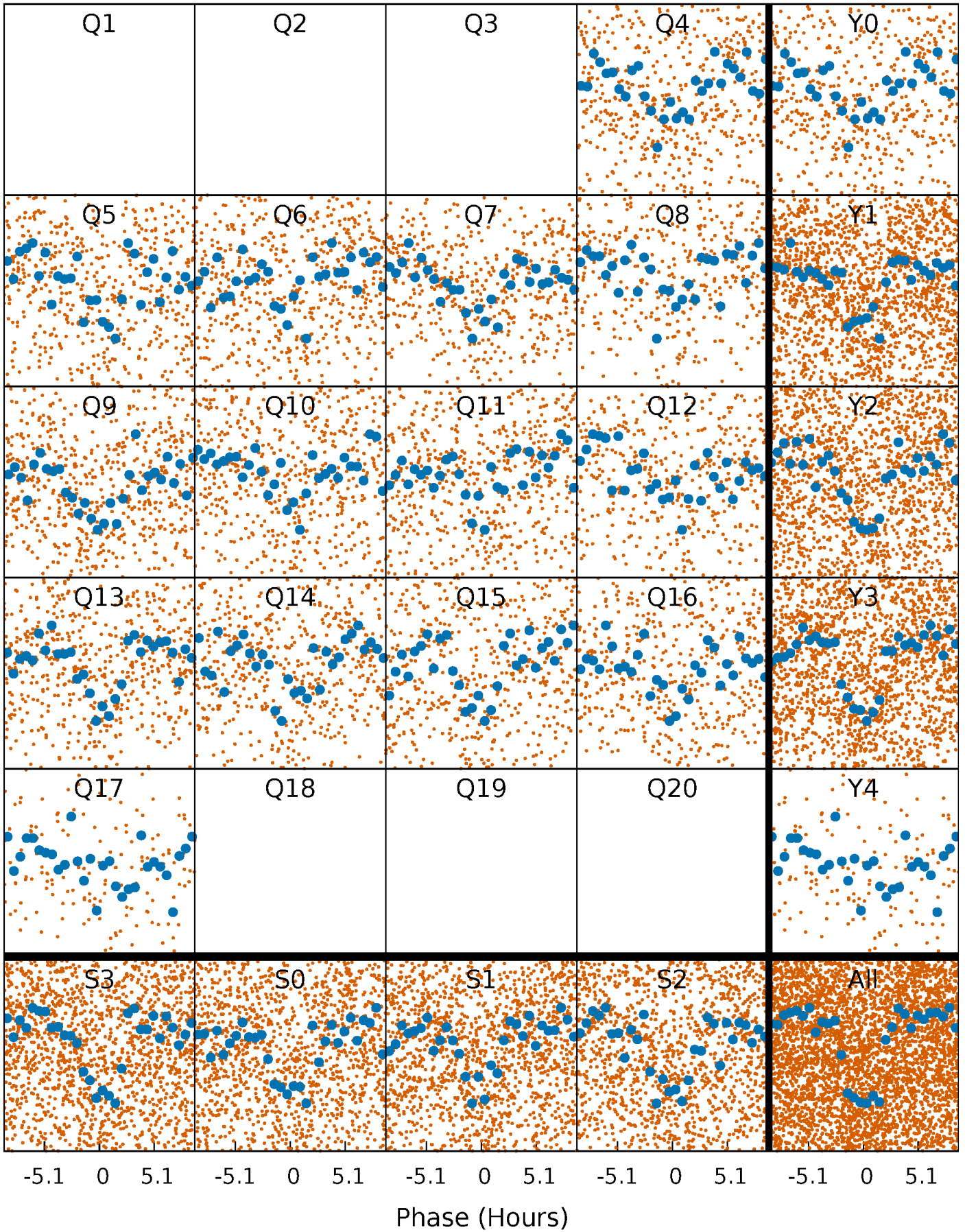


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



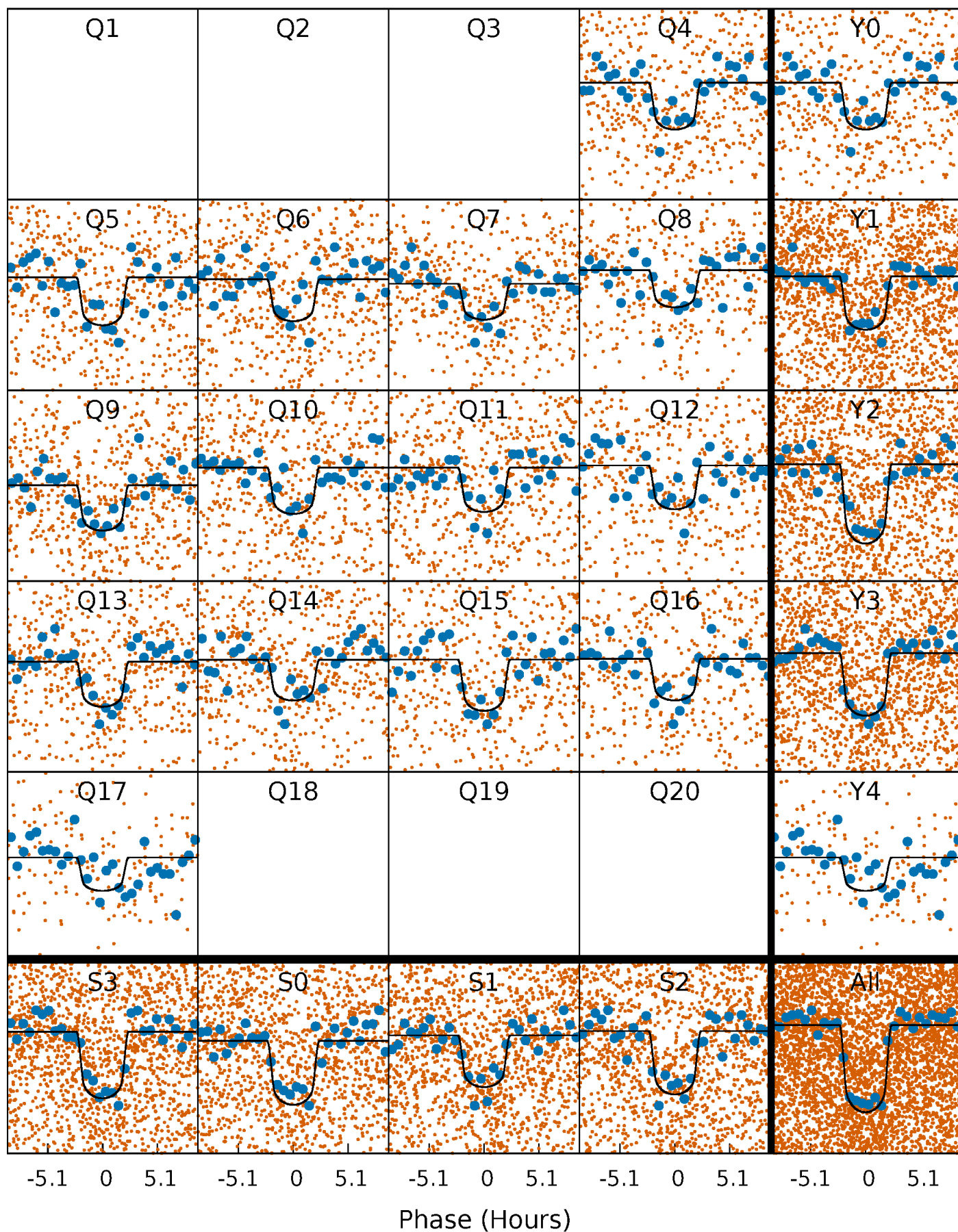
PDC Quarter-Phased Transit Curves

TCE 006867555-01 P= 5.191070 Days $T_0=135.212574$ (BKJD)



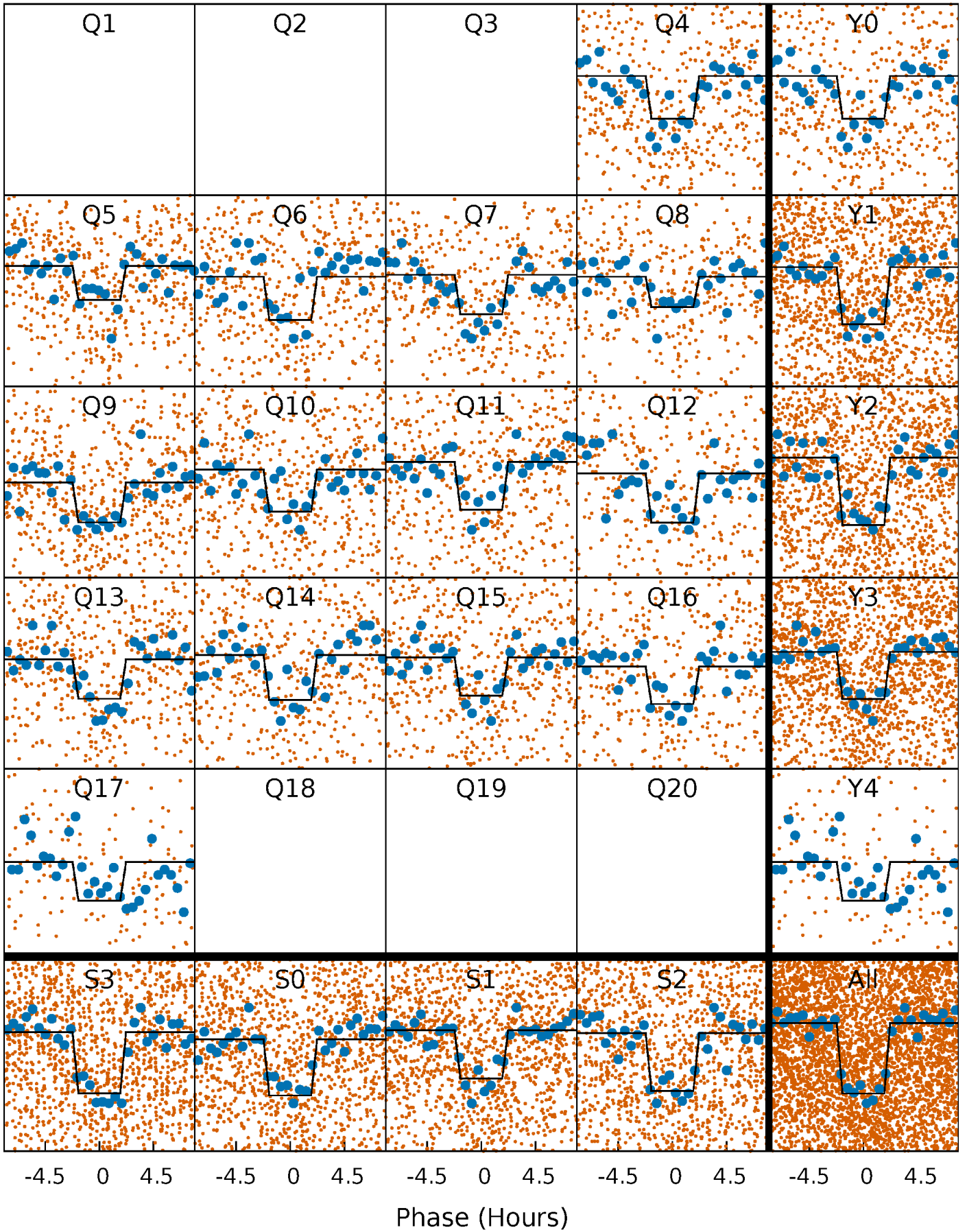
DV Quarter-Phased Transit Curves

TCE 006867555-01 P= 5.191070 Days $T_0=135.212574$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

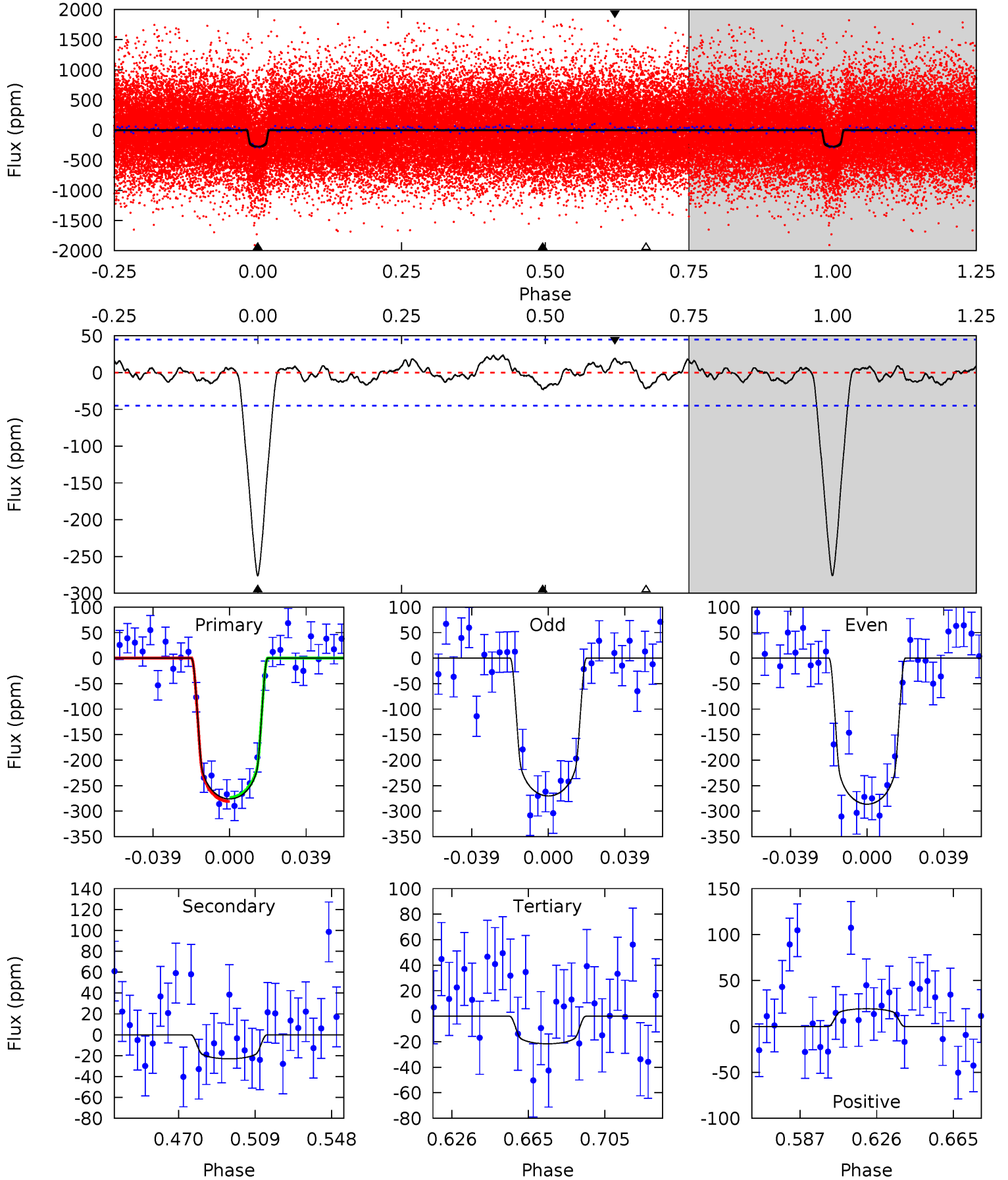
TCE 006867555-01 P= 5.190987 Days $T_0=135.223145$ (BKJD)



DV Model-Shift Uniqueness Test

006867555-01, P = 5.191070 Days, E = 135.212574 Days

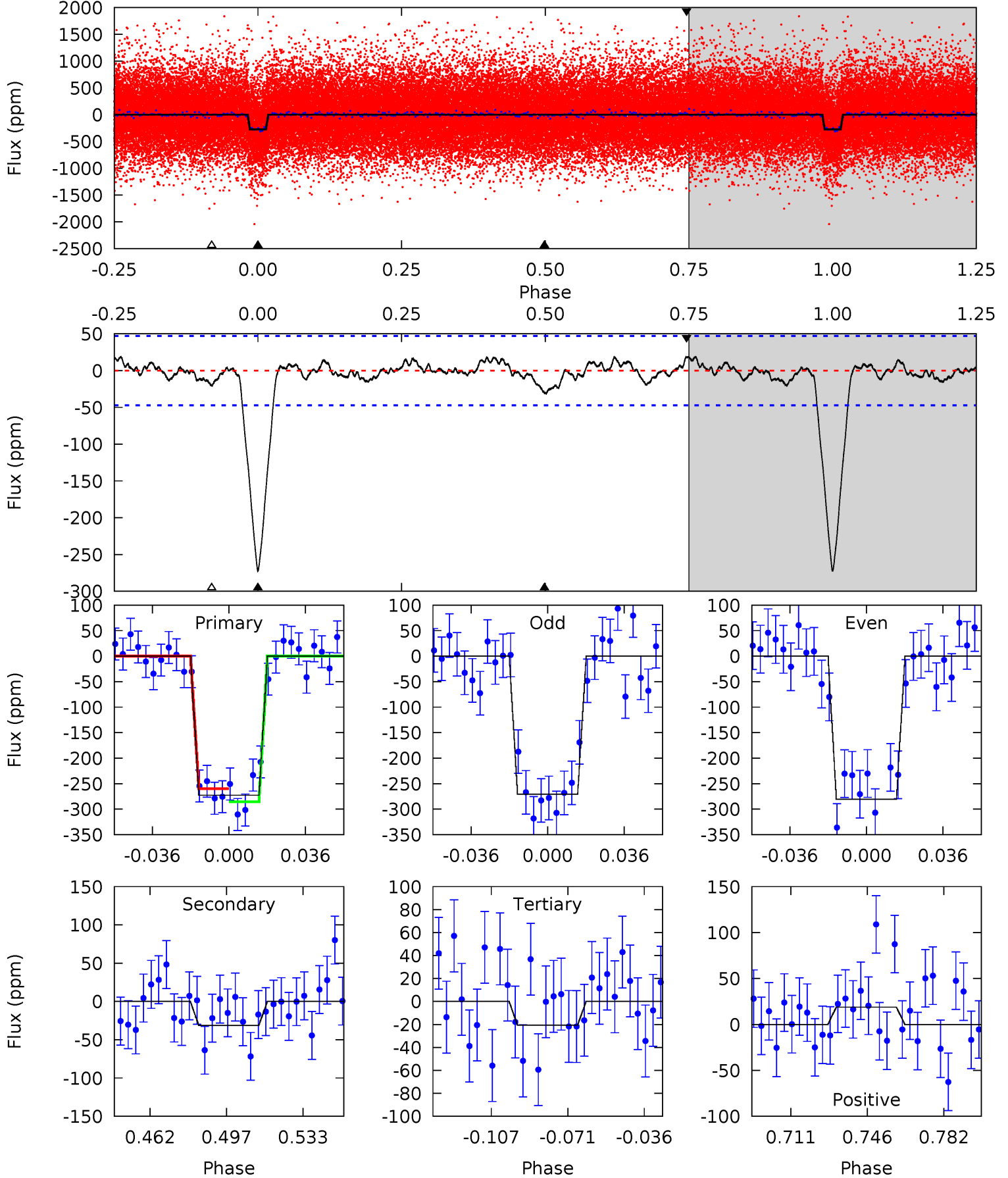
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.2	2.43	2.29	2.03	4.76	2.06	1.01	26.9	27.2	0.15	0.40	0.85	0.97	0.08	0.40



Alt Model-Shift Uniqueness Test

006867555-01, P = 5.190987 Days, E = 135.223145 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	3.18	2.09	1.90	4.78	2.10	0.85	25.6	25.7	1.09	1.27	0.50	1.00	0.06	1.30



Stellar Parameters For KIC 006867555

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6321^{+174}_{-261}	$4.417^{+0.056}_{-0.224}$	$0.070^{+0.250}_{-0.350}$	$1.125^{+0.370}_{-0.123}$	$1.207^{+0.169}_{-0.169}$	$1.195^{+0.359}_{-0.655}$
	+3%/-4%	+1%/-5%	+357%/-500%	+33%/-11%	+14%/-14%	+30%/-55%
Source	KIC0	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 006867555-01 / KOI 2439.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-23 ± 9	$2.28^{+0.55}_{-0.50}$	1690^{+136}_{-98}	3692^{+377}_{-367}	$9.331^{+7.163}_{-4.301}$
Alt.	-31 ± 10	$2.11^{+0.51}_{-0.51}$	1688^{+128}_{-90}	3977^{+461}_{-376}	15^{+11}_{-7}

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 $A_{obs} \gg 1.0$

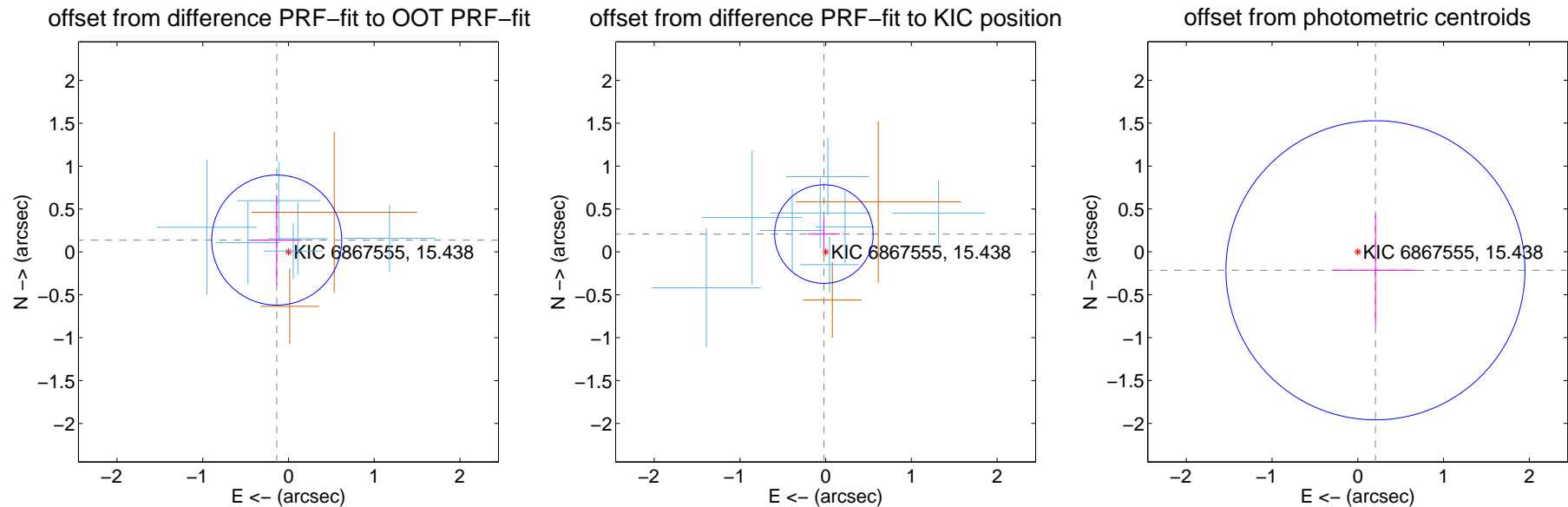
DV Centroid Data

Supplemental centroid analysis for 006867555-01. Kepler magnitude: 15.44. Transit SNR 23.18

There are 8 quarters with good PRF difference image offsets

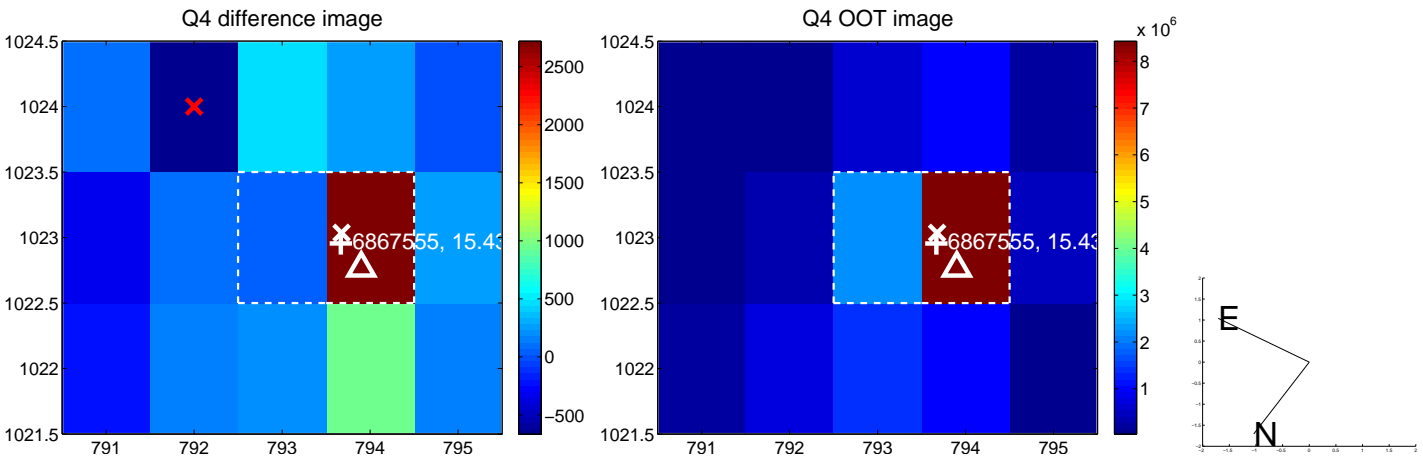
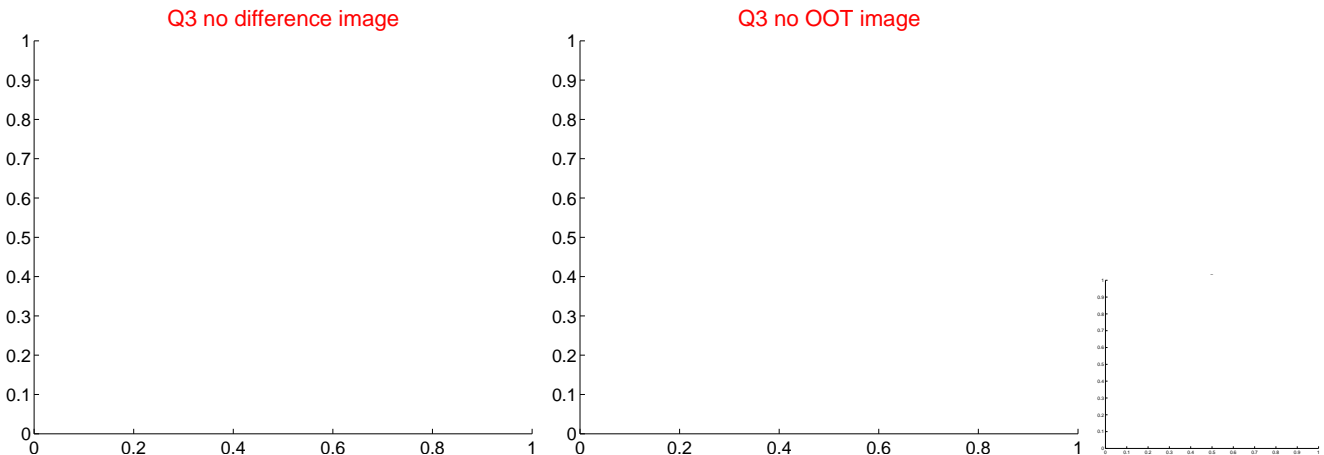
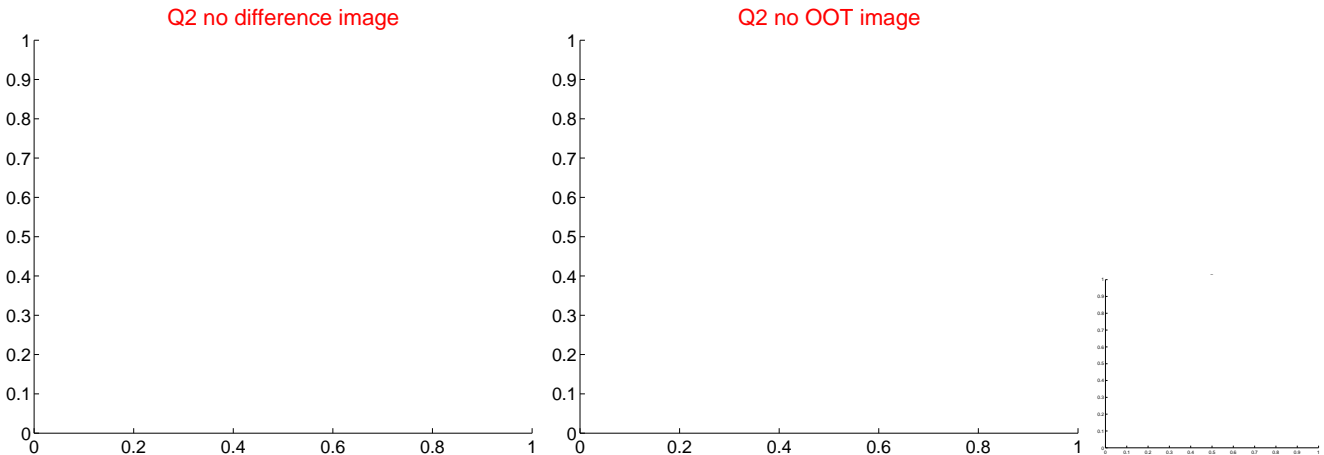
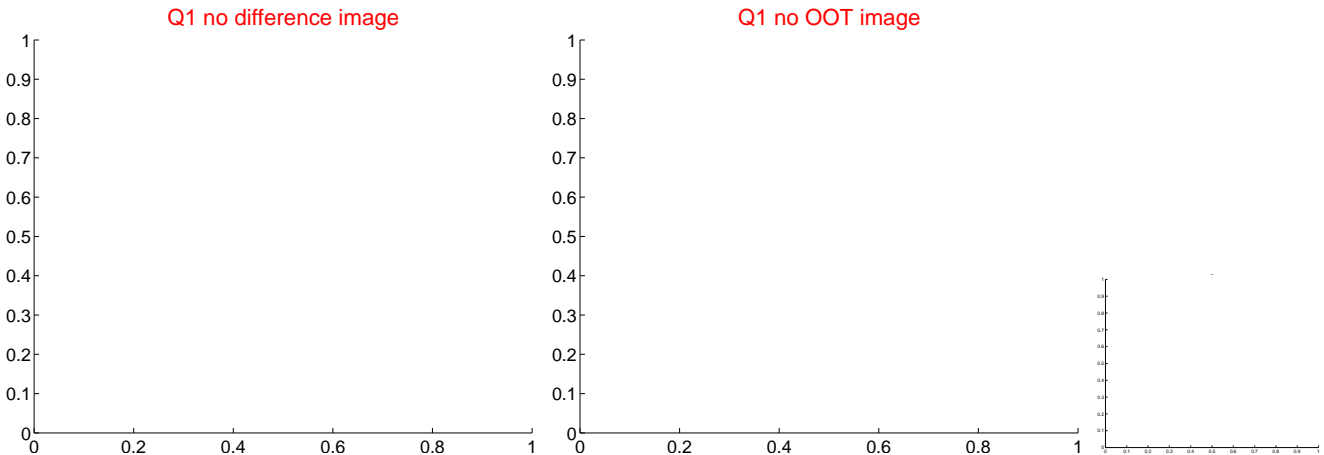
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.195 ± 0.253	0.77	0.137 ± 0.295	0.138 ± 0.522
PRF-fit source offset from KIC position	0.209 ± 0.192	1.09	0.021 ± 0.187	0.208 ± 0.192
photometric centroid source offset	0.30 ± 0.58	0.51	-0.21 ± 0.50	-0.21 ± 0.65

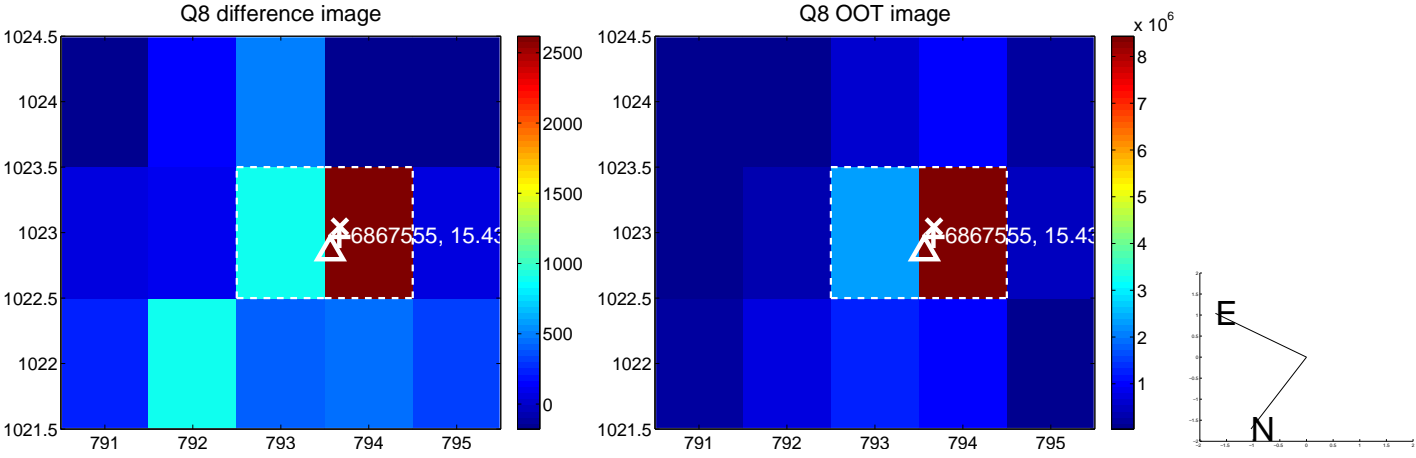
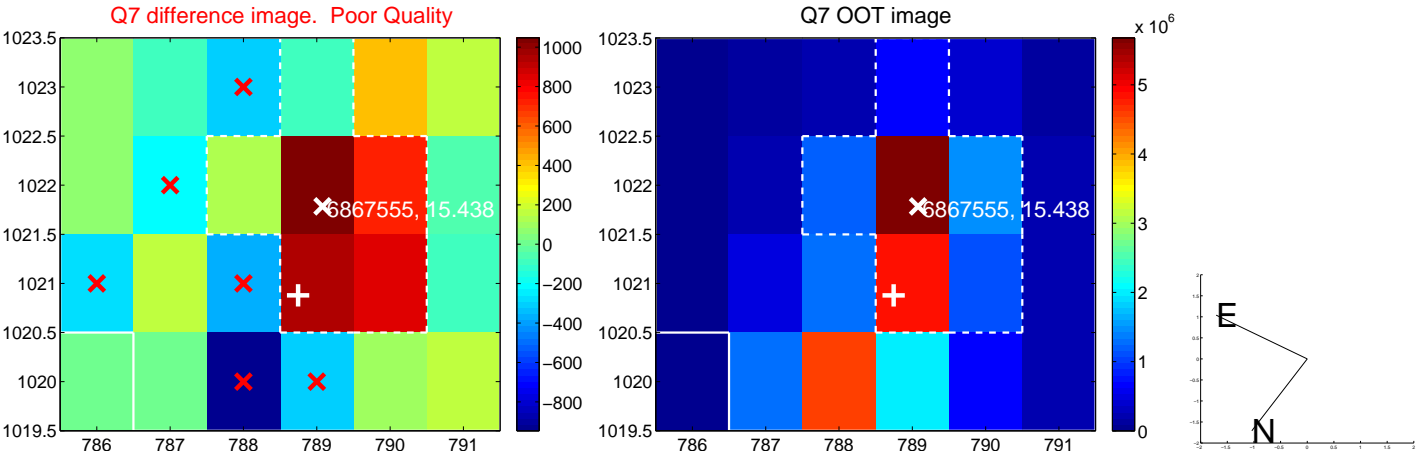
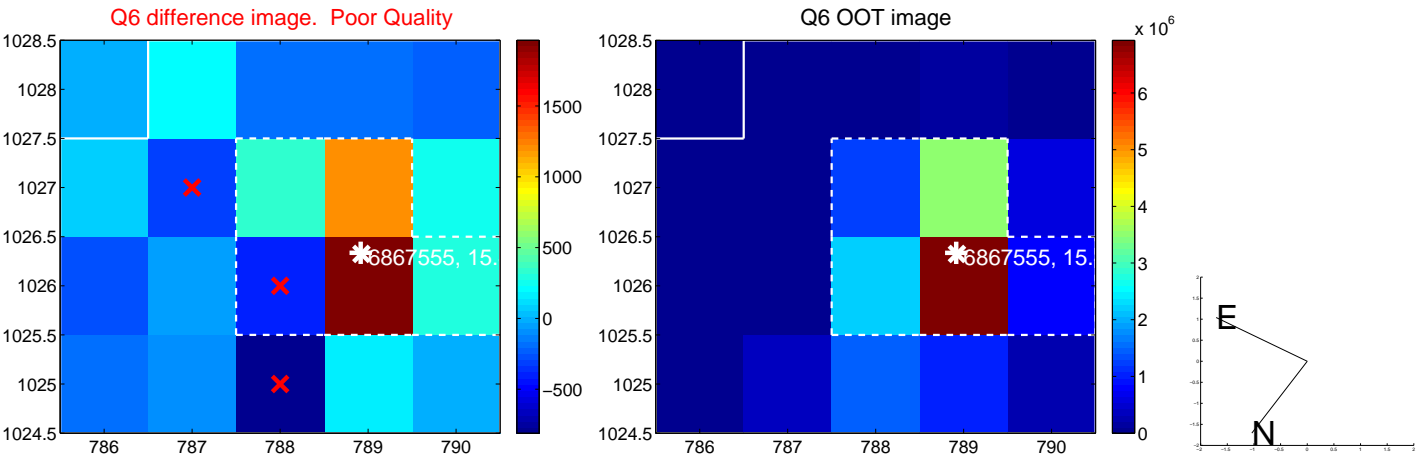
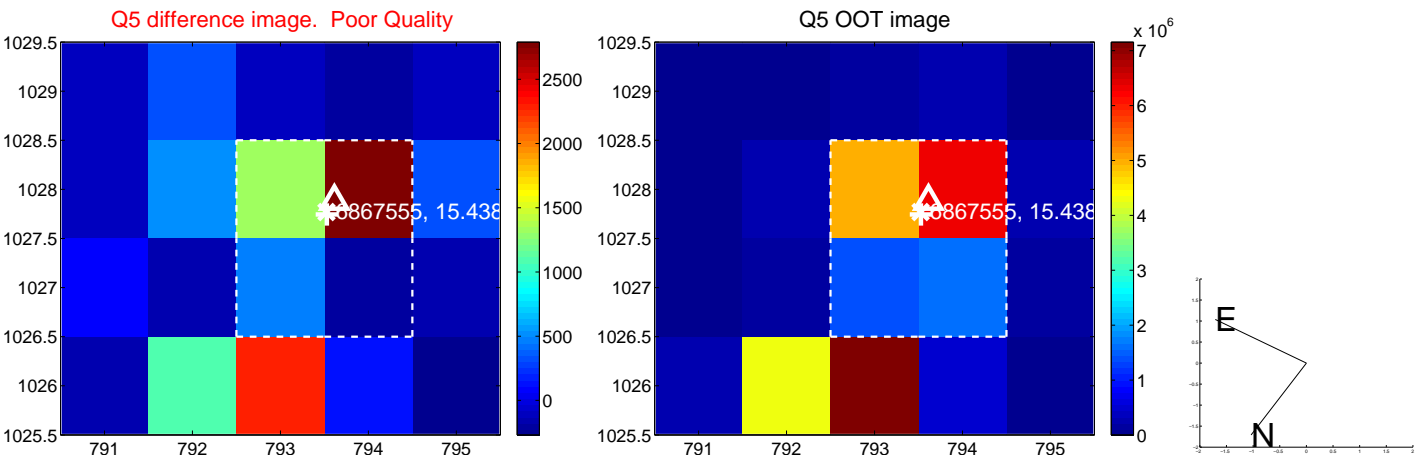


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

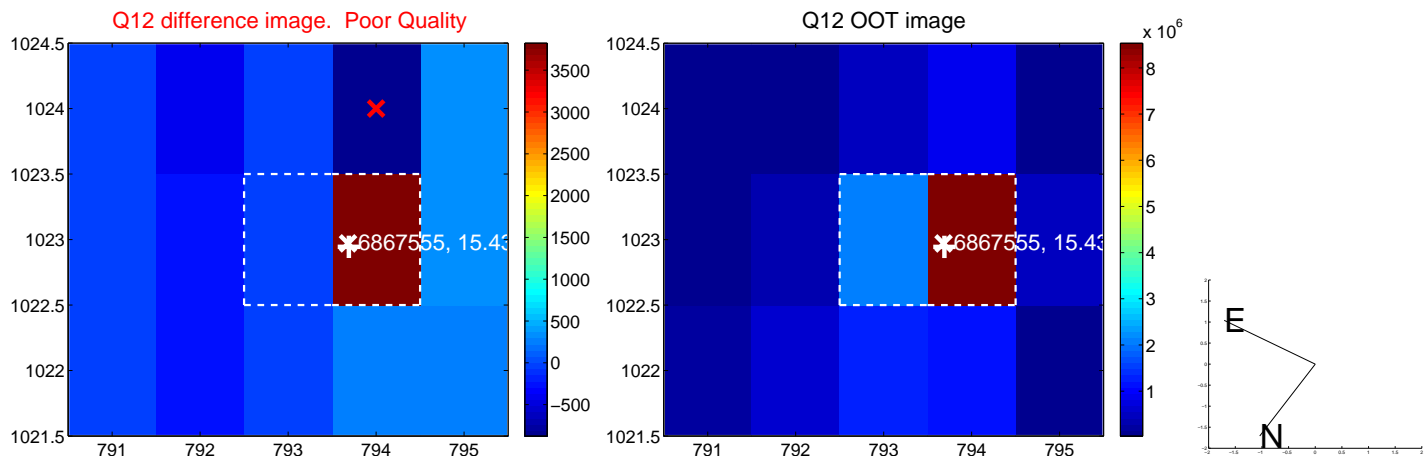
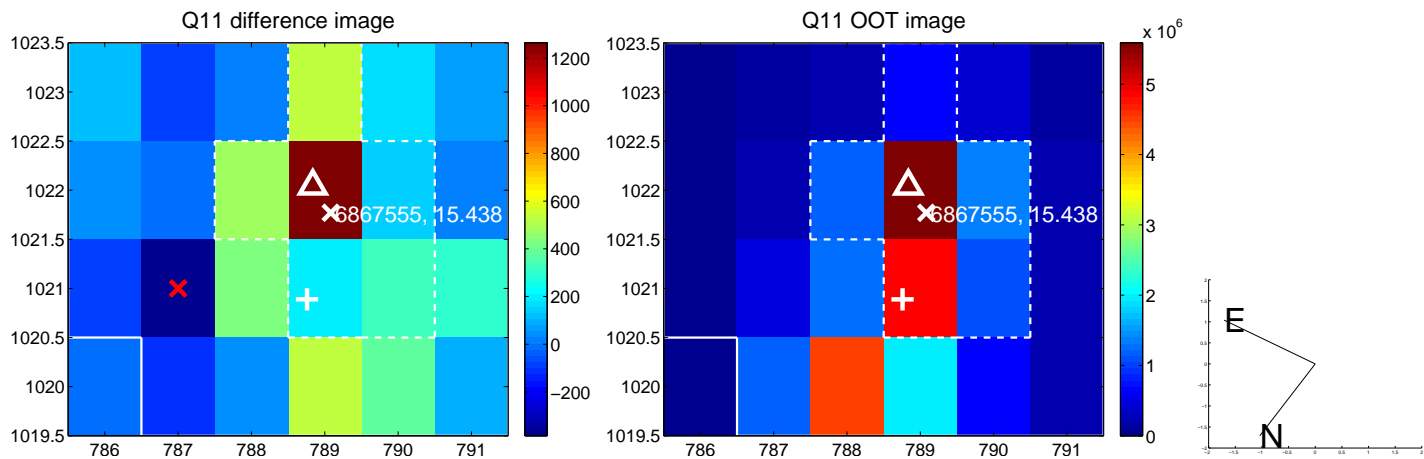
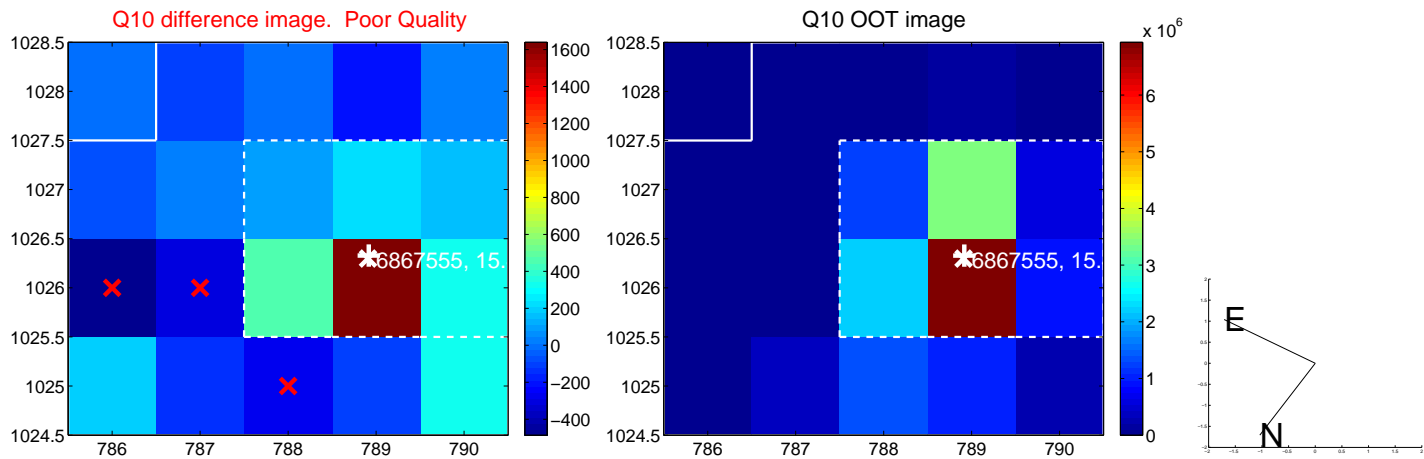
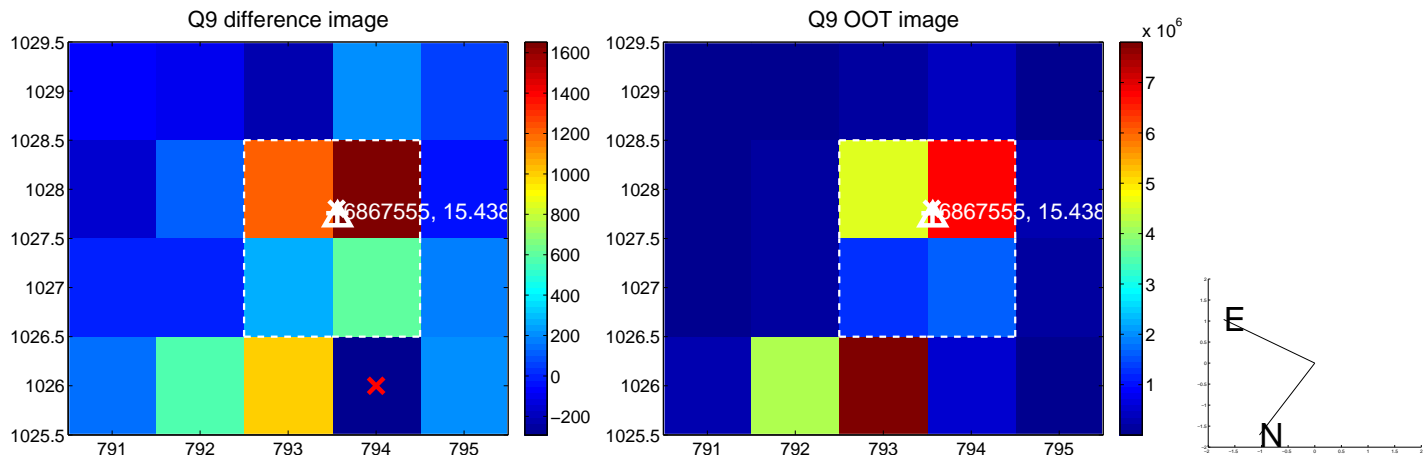
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



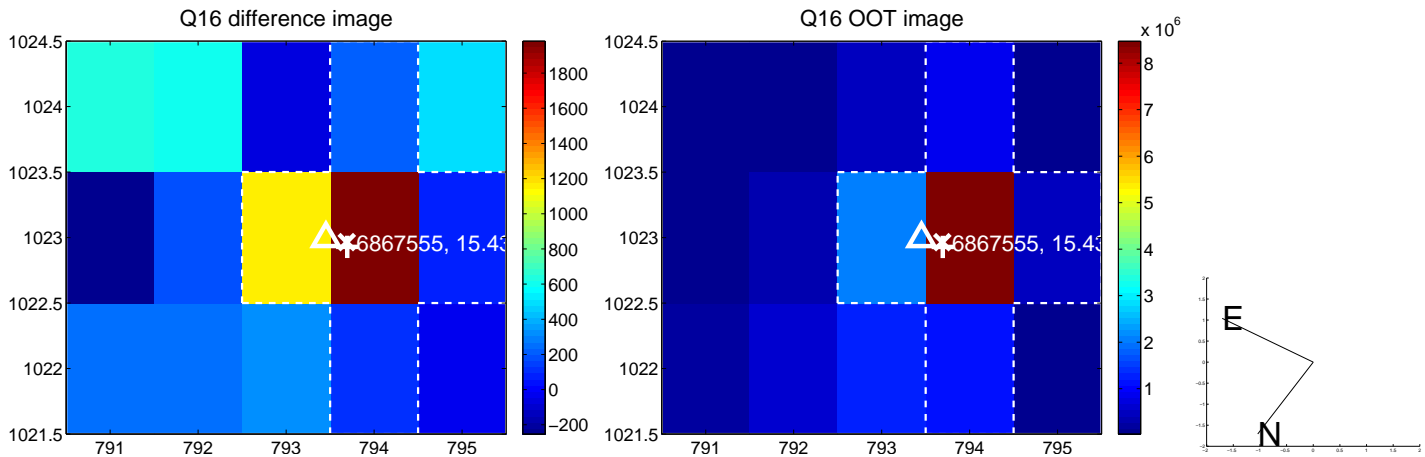
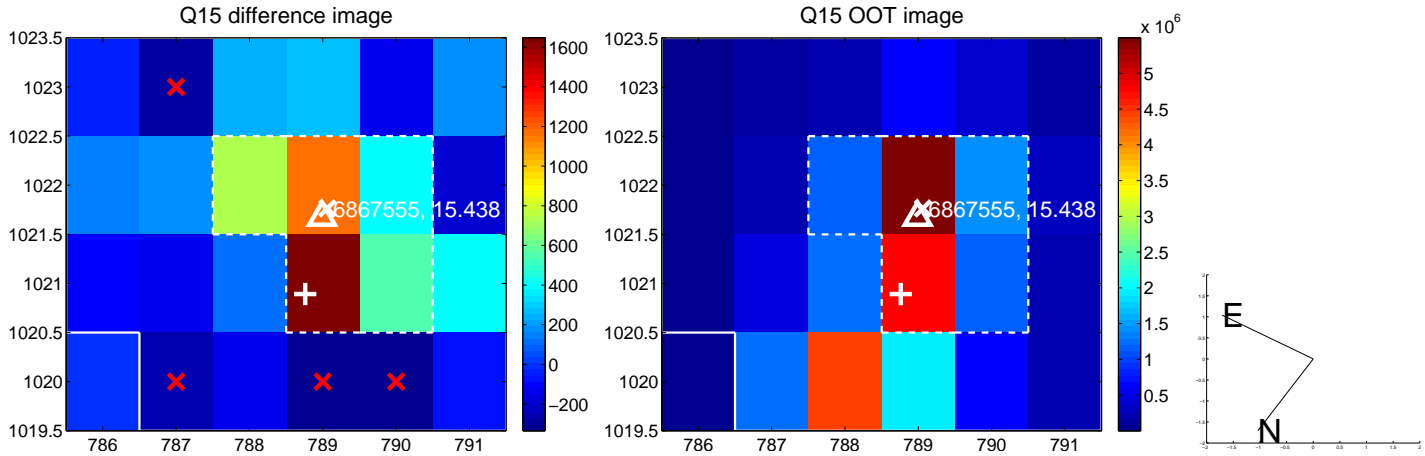
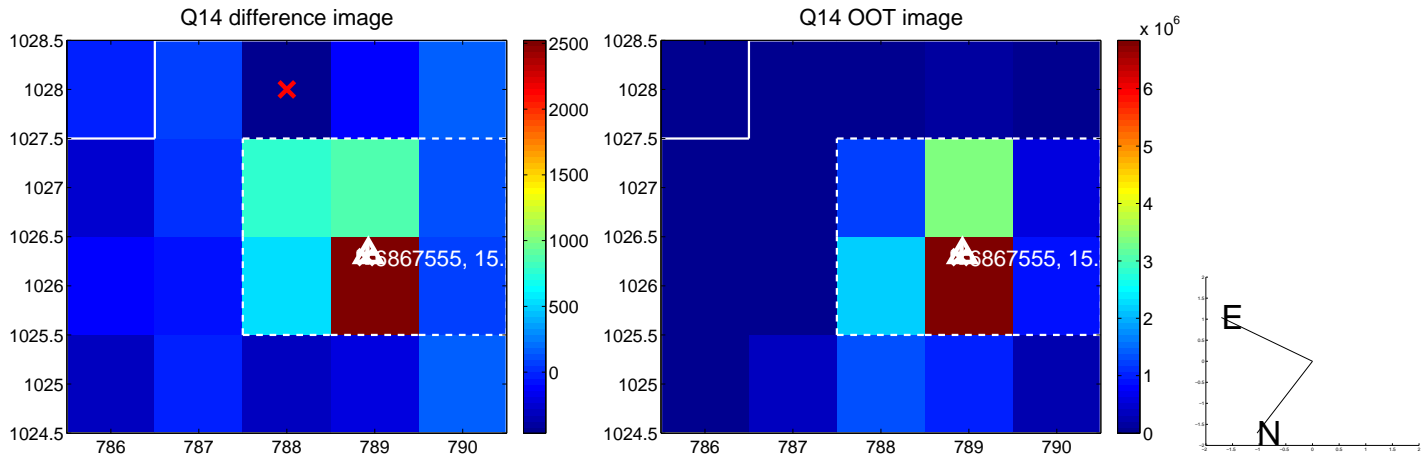
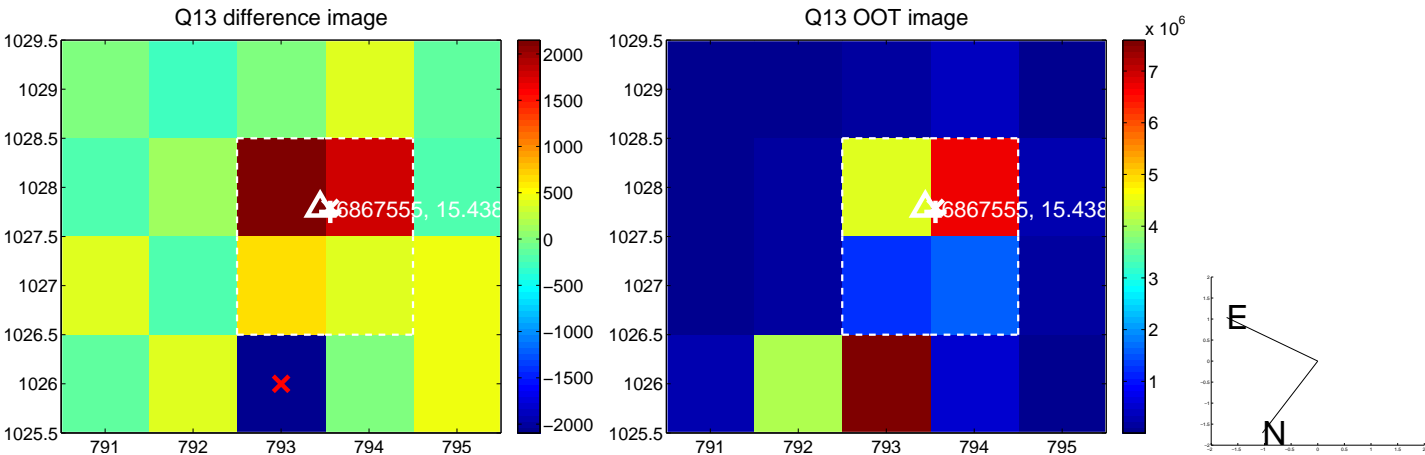
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



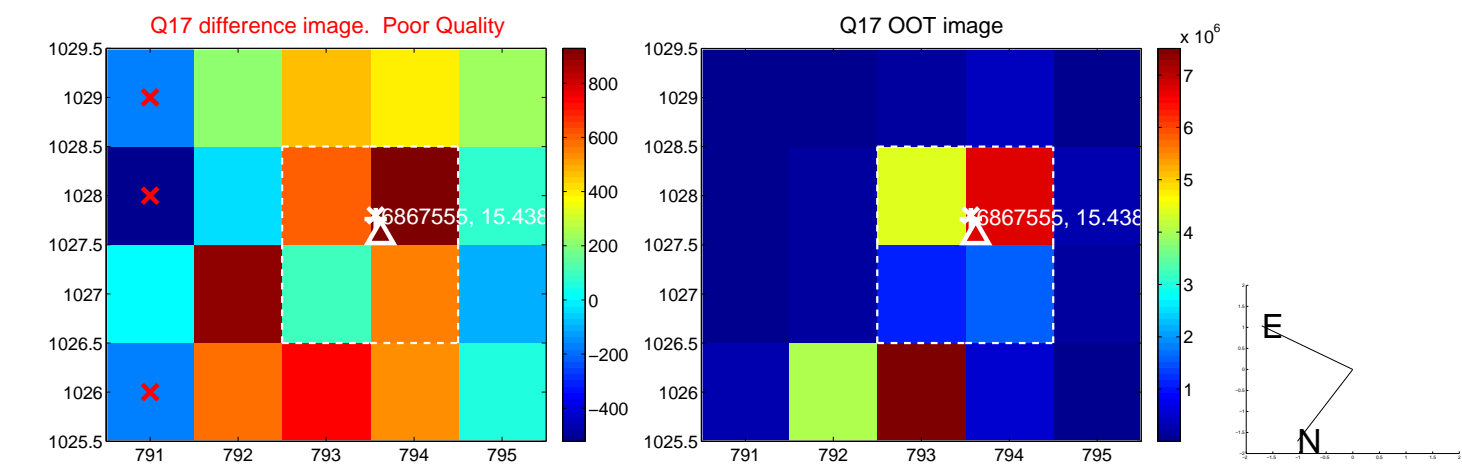
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



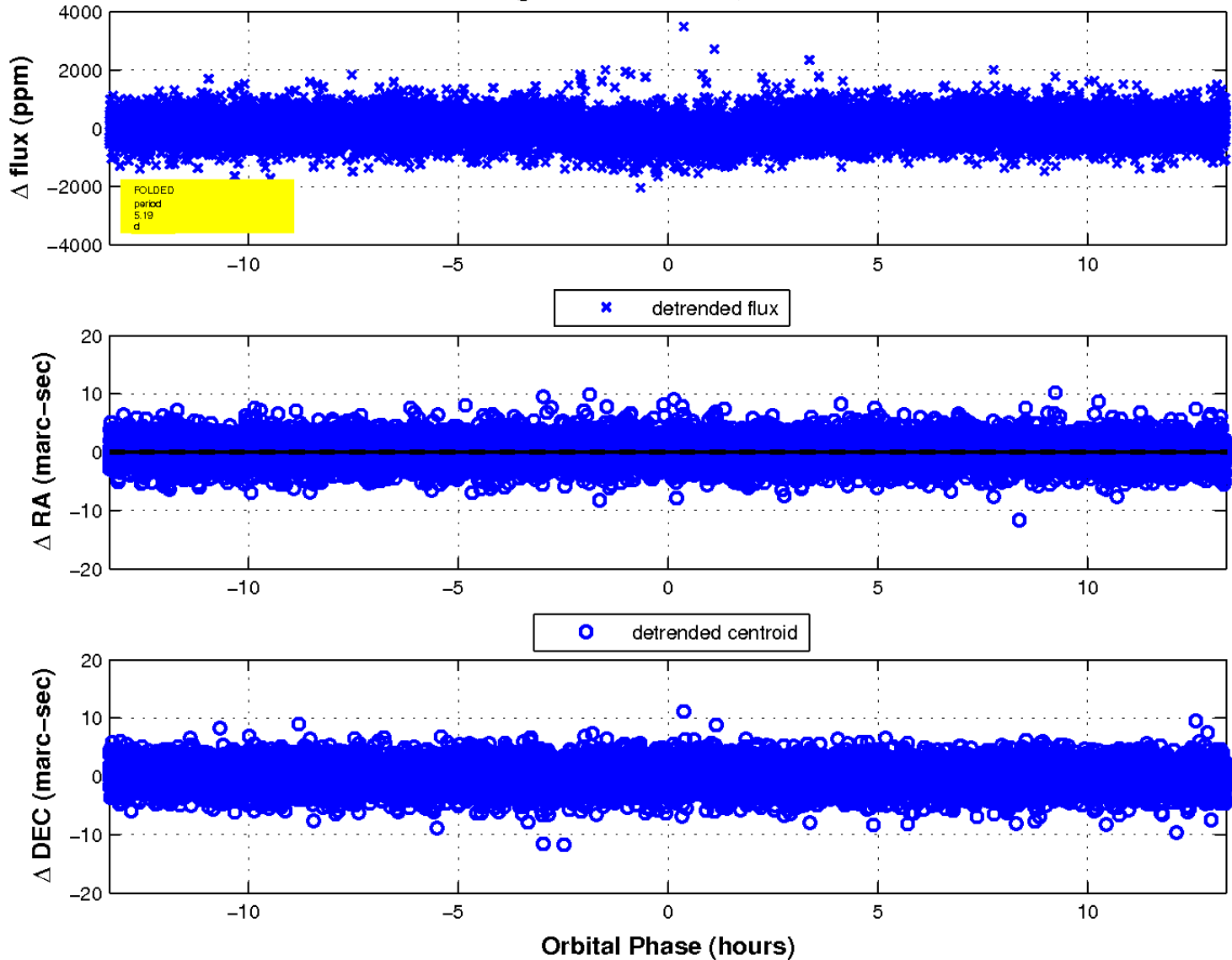
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

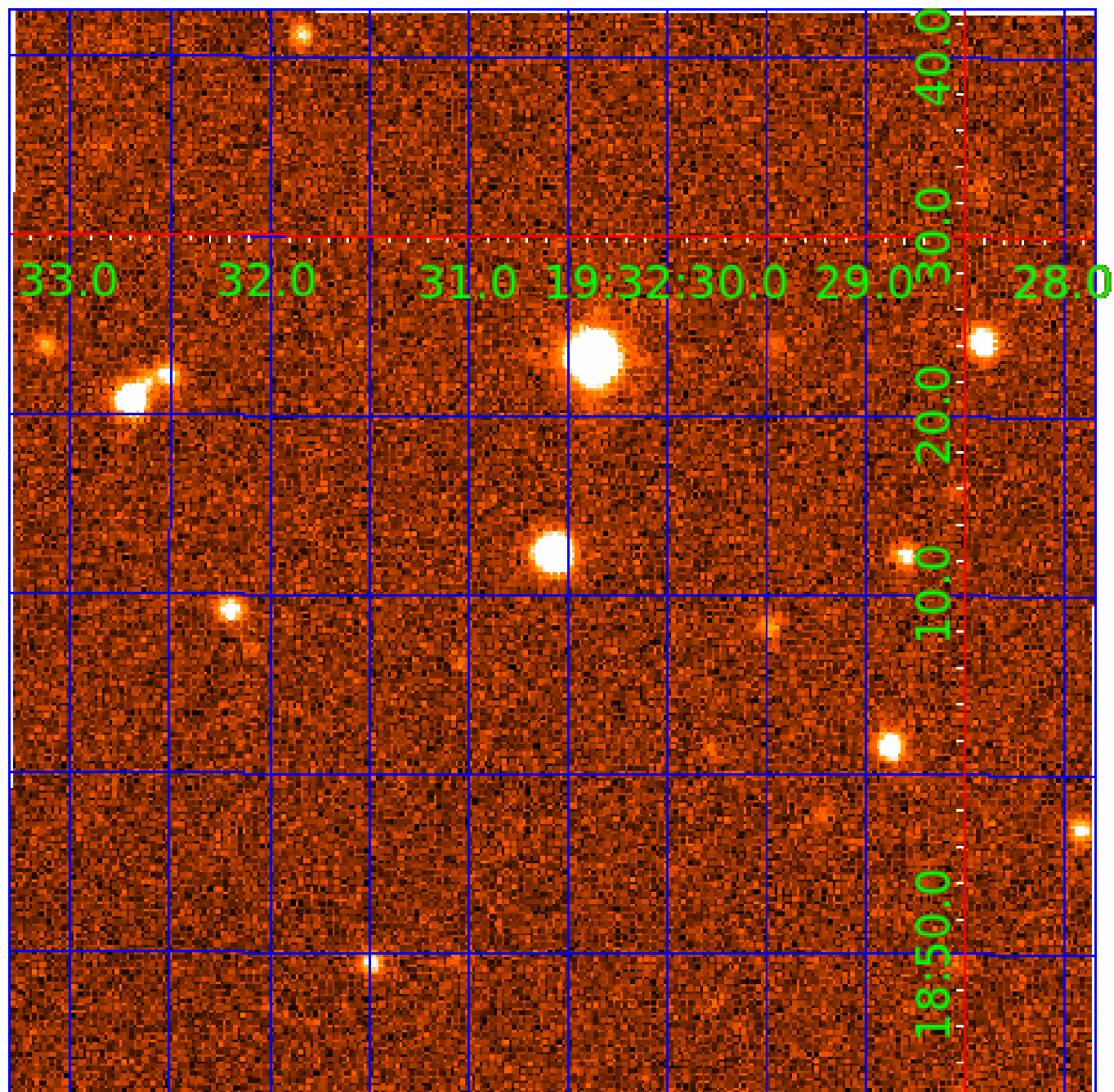


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 006867555

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})
006867555-01	OBS	2439.01	5.191070	135.212575	285.6	4.436	21.0	23.2	1.12	6321	2.16	463.94
006867555-02	OBS	2439.02	7.501848	138.820817	138.5	4.122	8.4	8.6	1.12	6321	1.55	283.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006867555-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
006867555-02	OBS	PC	1.00	0	0	0	0	CENT_FEW_MEAS

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

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

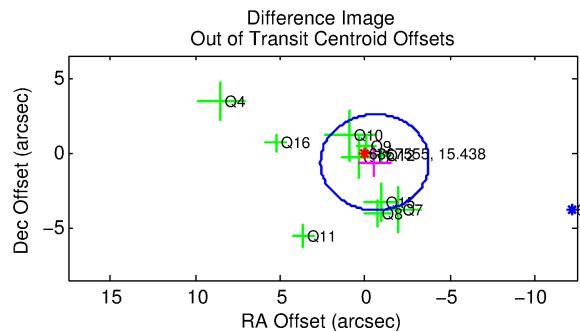
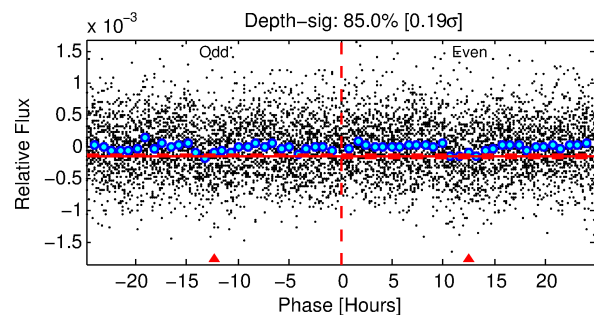
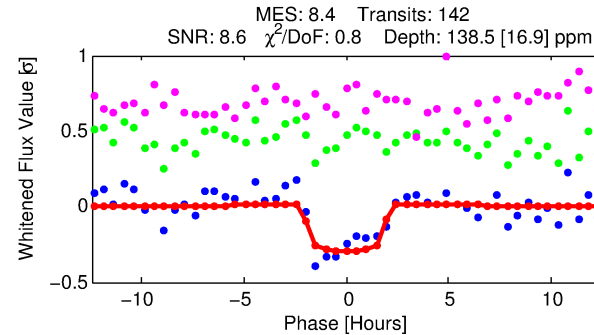
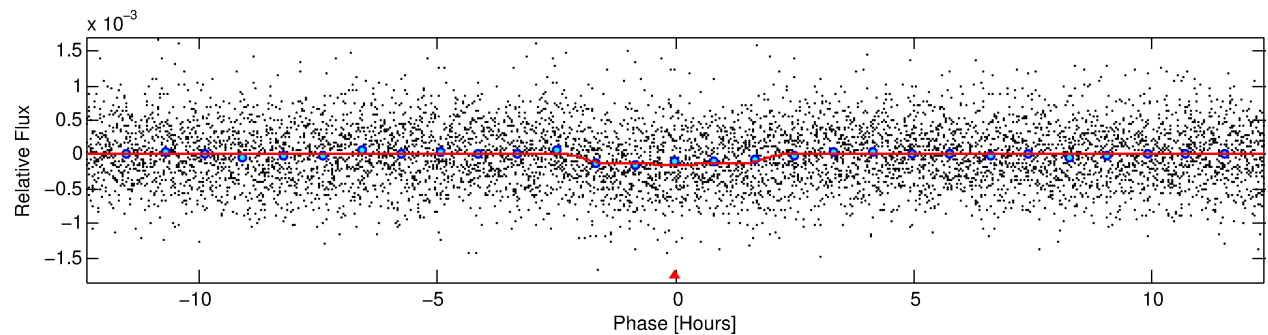
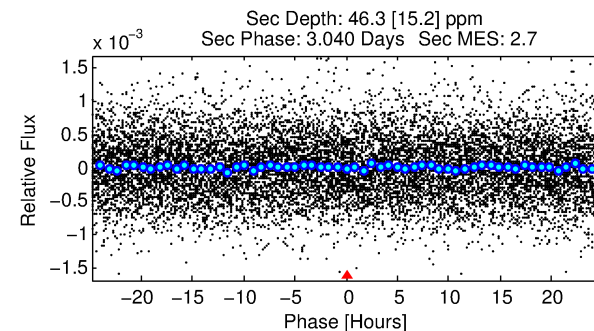
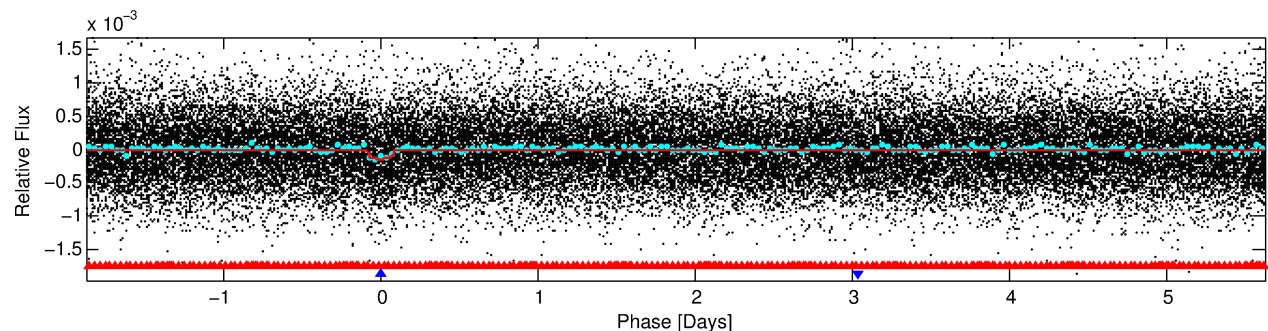
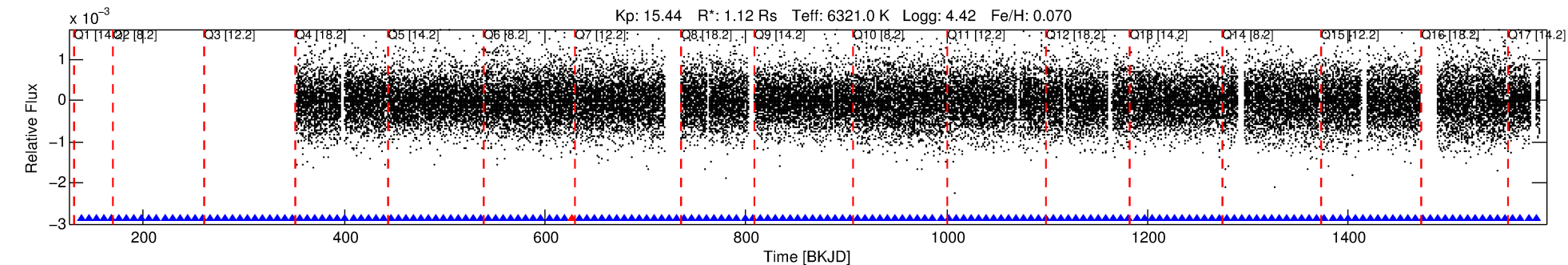
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006867555-02

No Significant Match Found

DV One-Page Summary

KIC: 6867555 Candidate: 2 of 2 Period: 7.502 d
KOI: K02439.02 Corr: 0.971



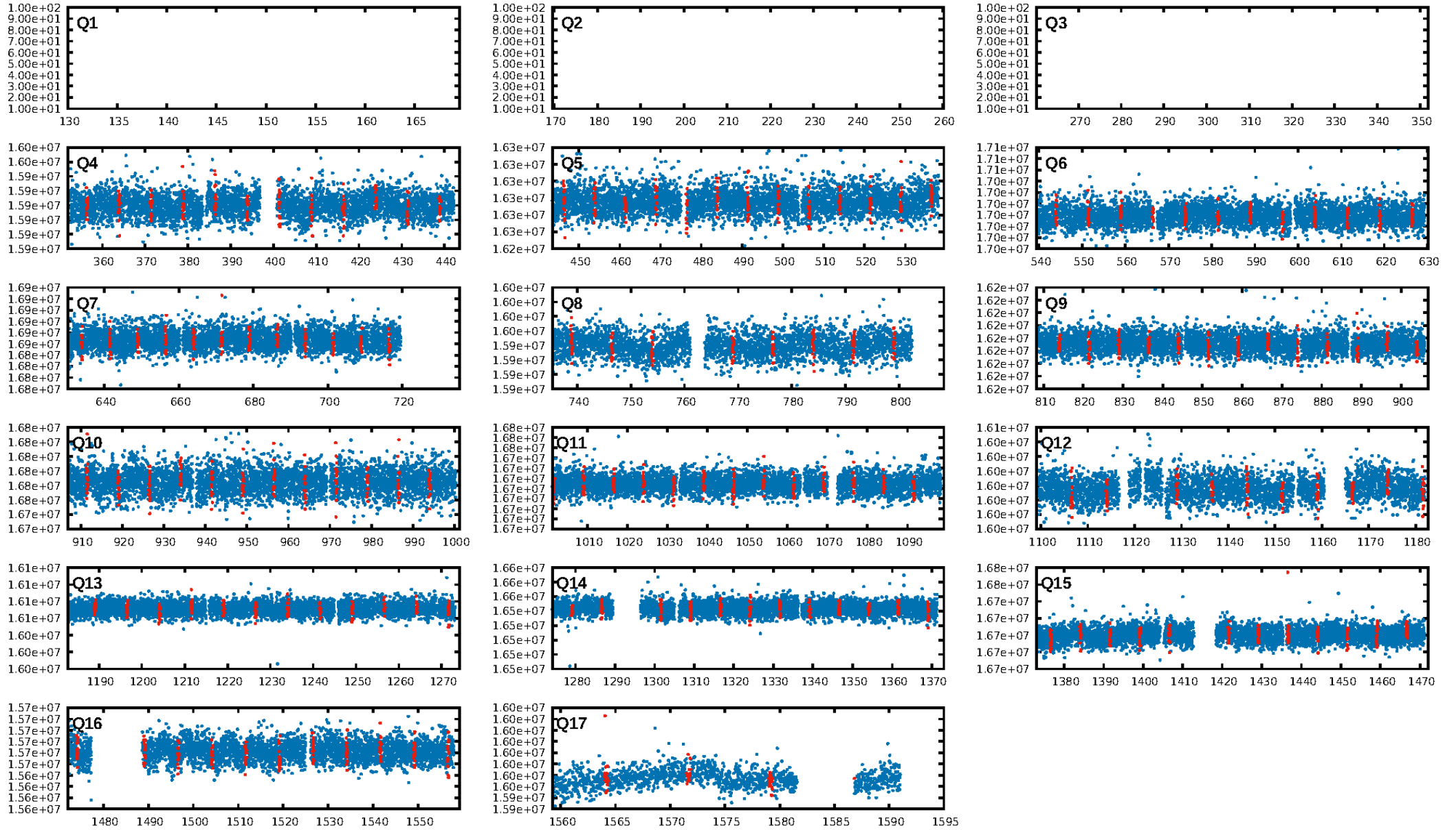
DV Fit Results:

Period = 7.50185 [0.00009] d
Epoch = 138.8208 [0.0102] BKJD
Rp/R* = 0.0126 [0.0068]
a/R* = 6.56 [18.59]
b = 0.90 [0.63]
Seff = 283.95 [124.94]
Teff = 1047 [115] K
Rp = 1.55 [0.98] Re
a = 0.0798 [0.0222] AU
Ag = 67.40 [80.36] [0.83σ]
Teffp = 4637 [1313] K [2.72σ]

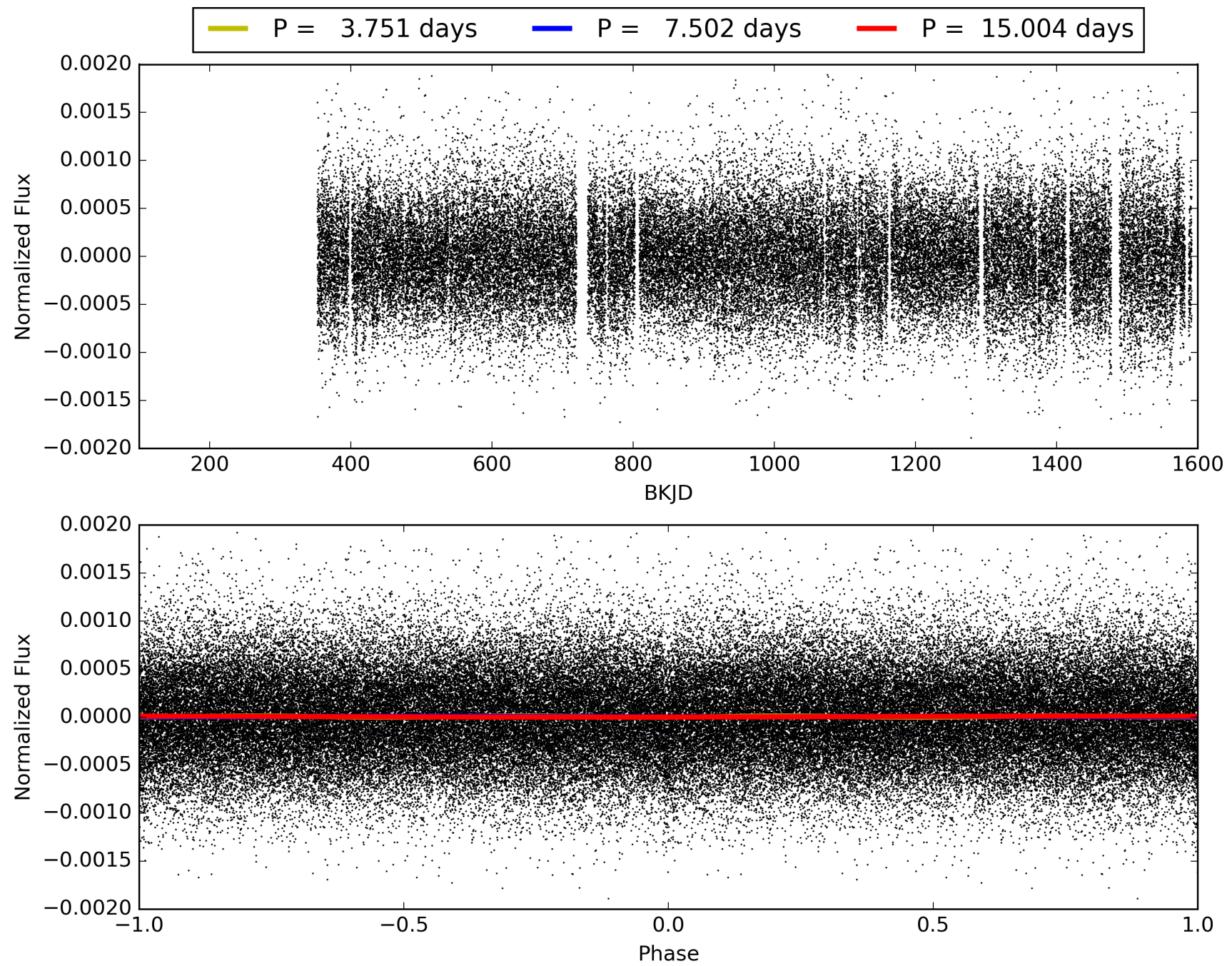
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.16σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.99e-17
RollingBand-fgt: 0.99 [138/139]
GhostDiagnostic-chr: 19.75
Centroid-sig: N/A
Centroid-so: 2.975 arcsec [2.04σ]
OotOffset-rm: 0.869 arcsec [0.81σ]
KicOffset-rm: 0.735 arcsec [0.64σ]
OotOffset-st: 1/3/4/2 [10]
KicOffset-st: 1/3/4/2 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 006867555-02, PDC Light Curves

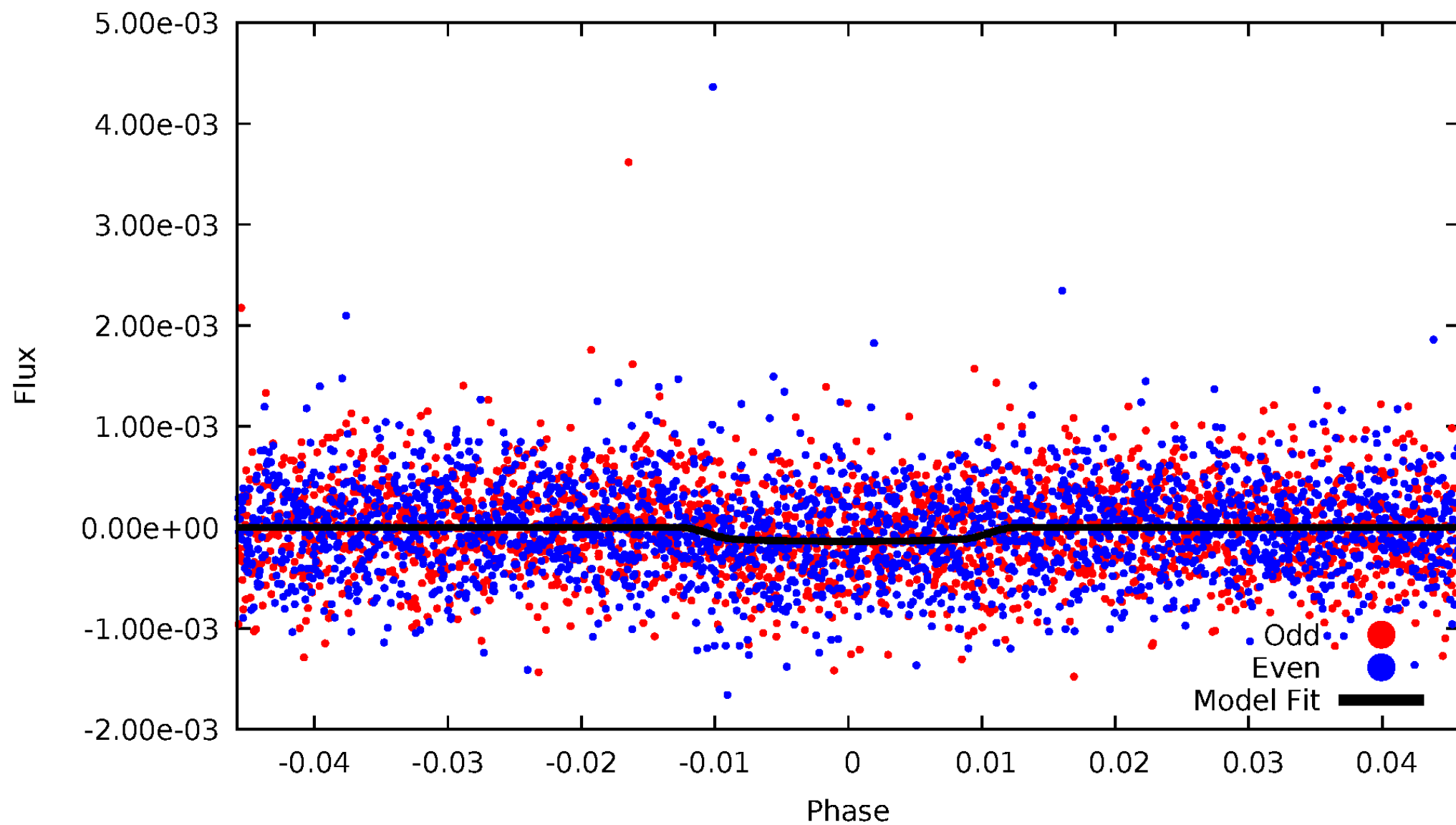


TCE 006867555-02



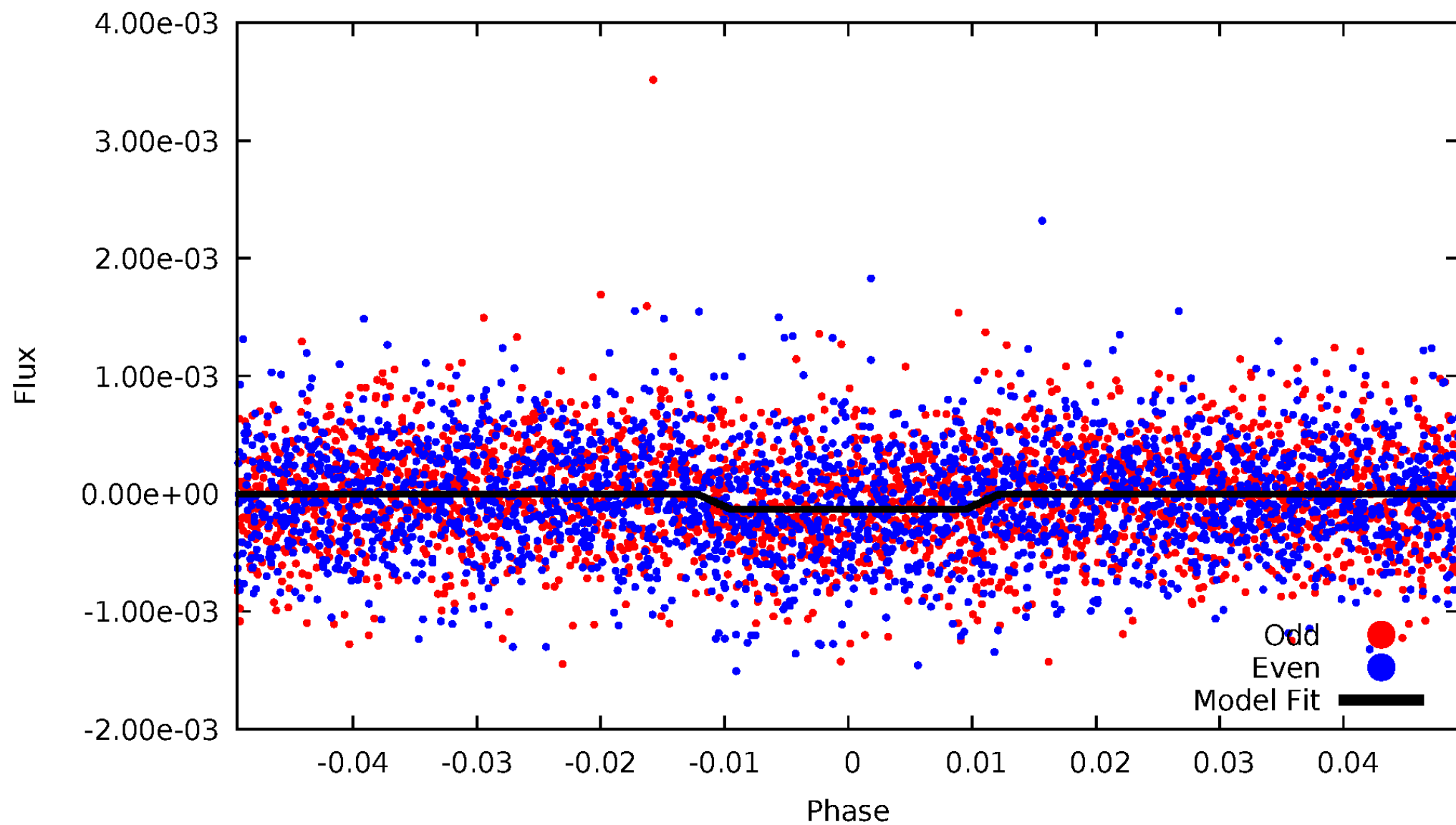
DV Odd/Even

TCE 006867555-02



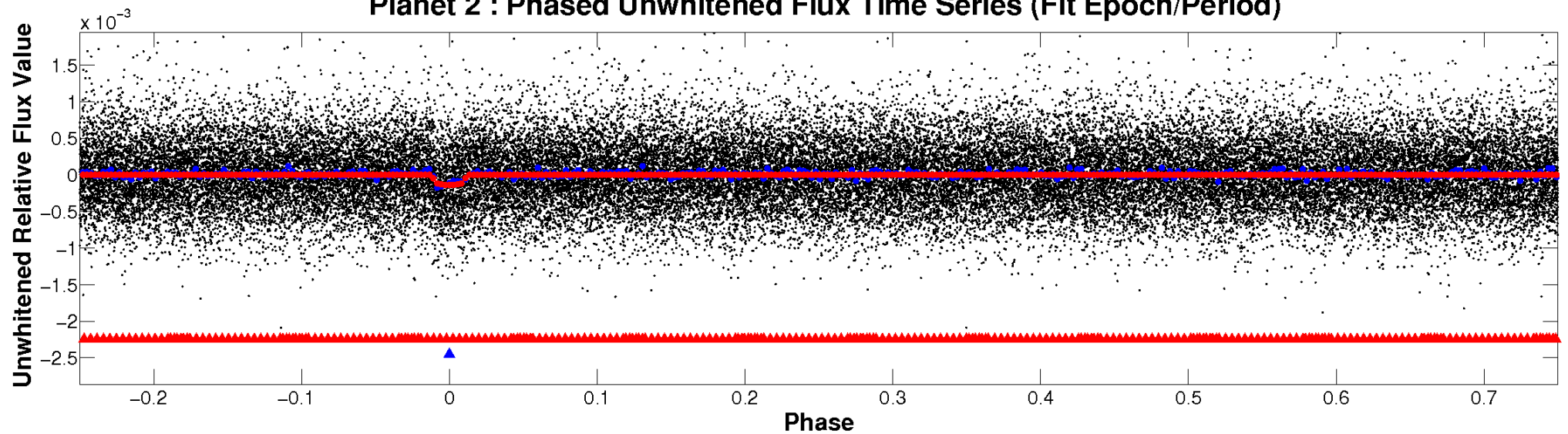
ALT Odd/Even

TCE 006867555-02

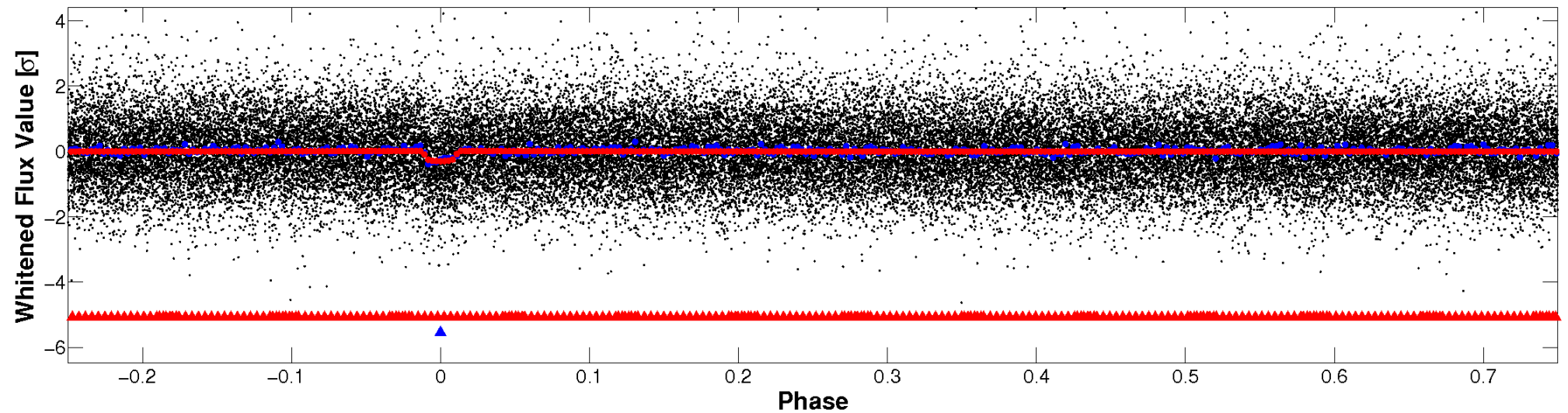


Non-Whitened Vs. Whitened Light Curve

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

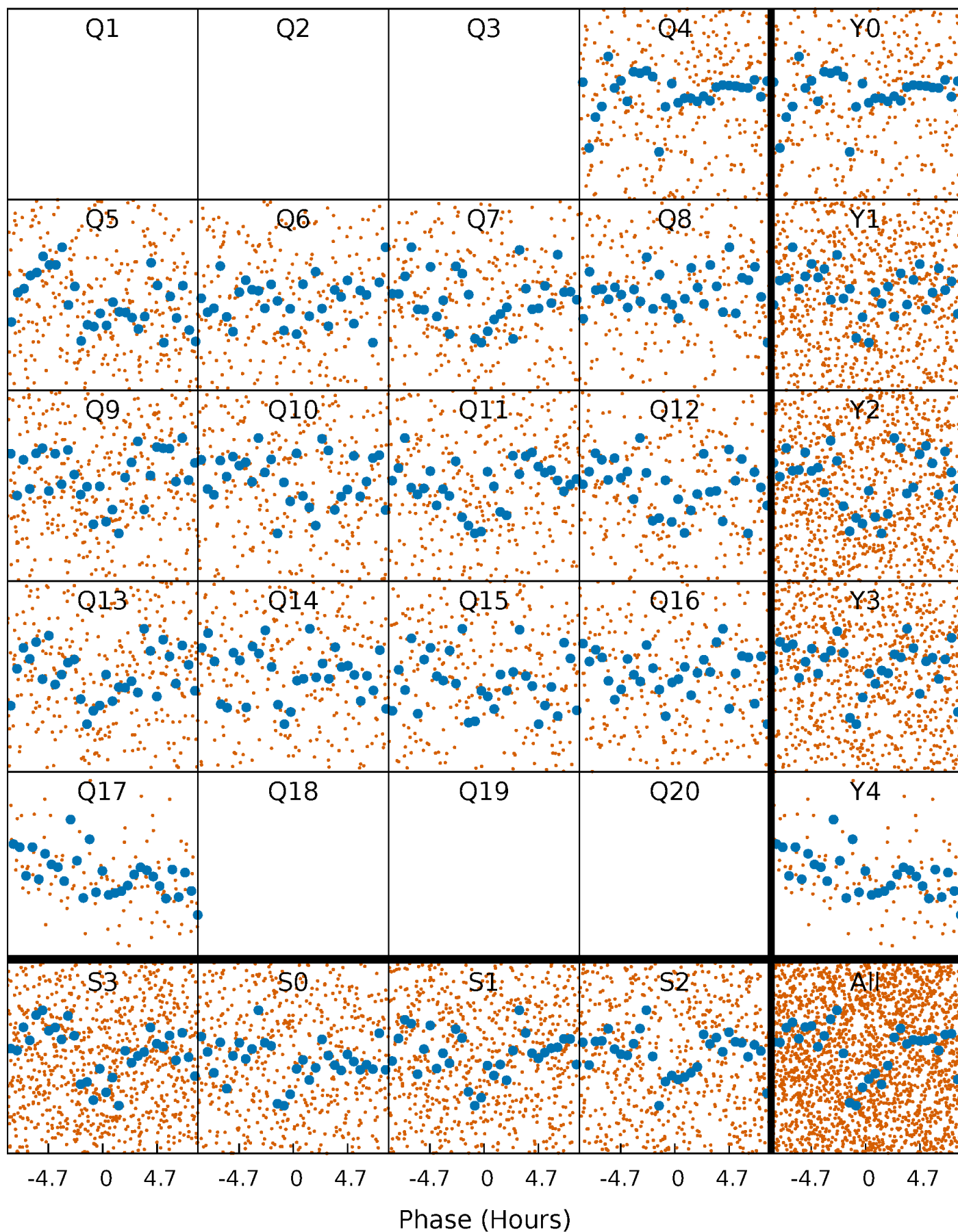


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



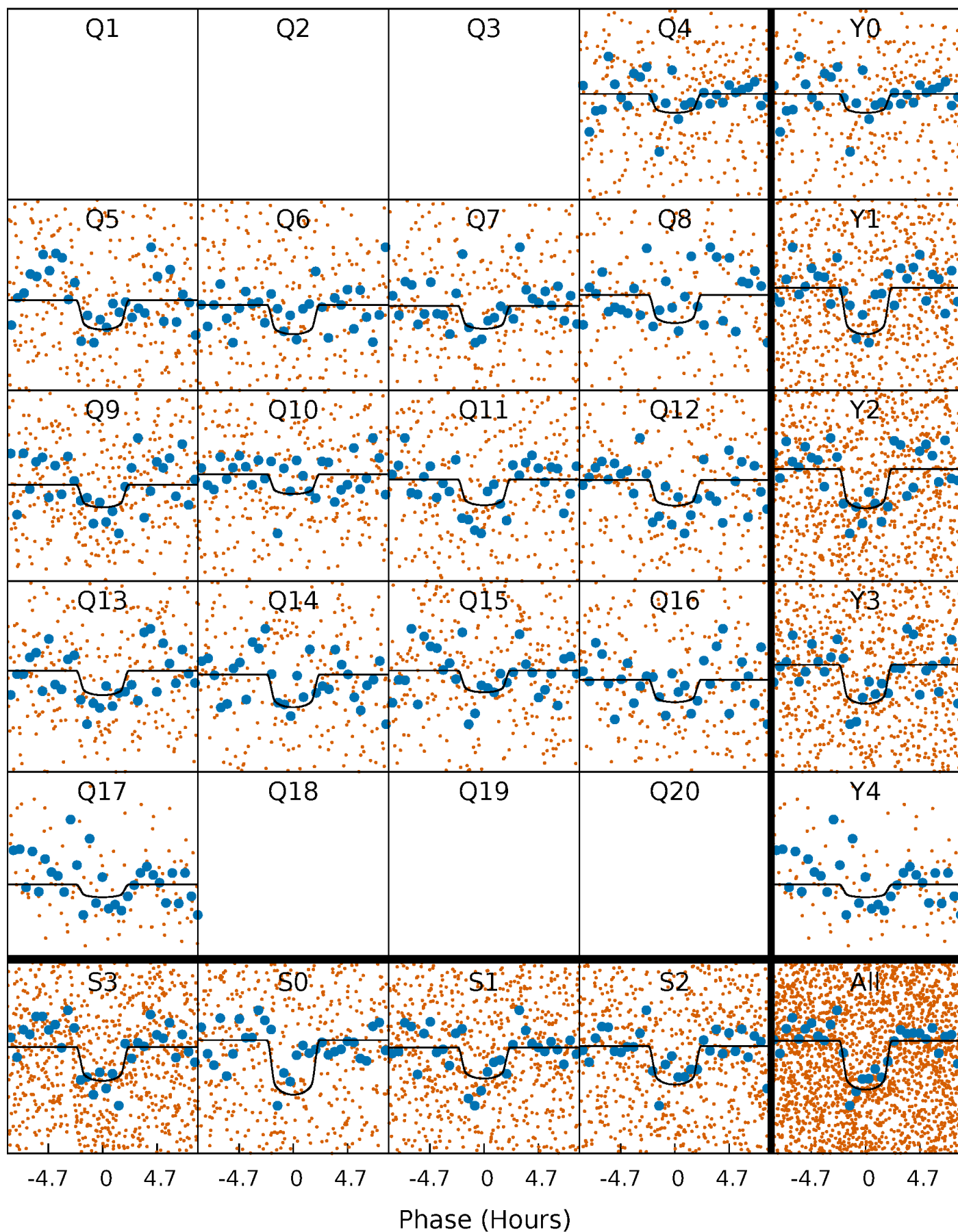
PDC Quarter-Phased Transit Curves

TCE 006867555-02 P= 7.501848 Days $T_0=138.820817$ (BKJD)



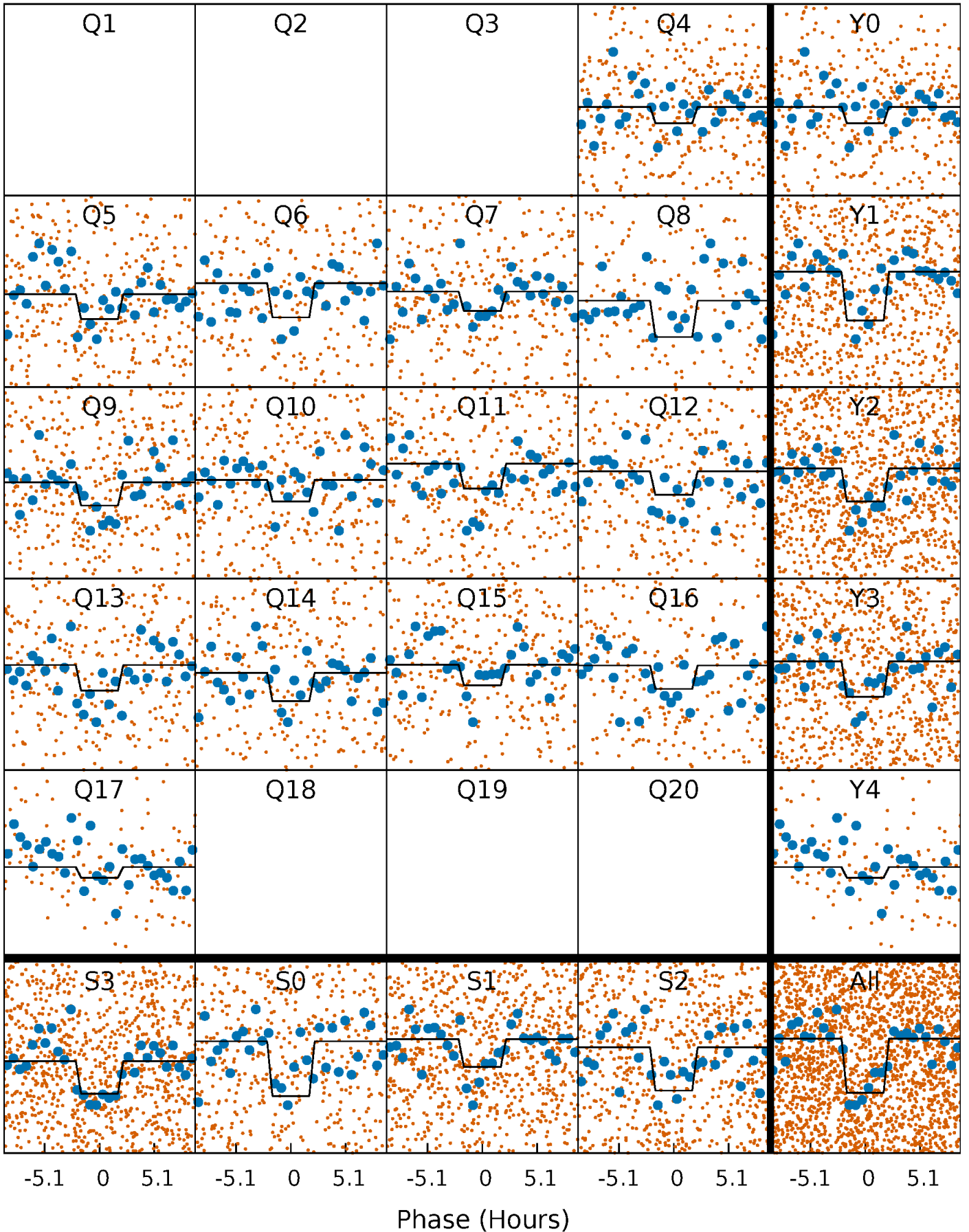
DV Quarter-Phased Transit Curves

TCE 006867555-02 P= 7.501848 Days $T_0=138.820817$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

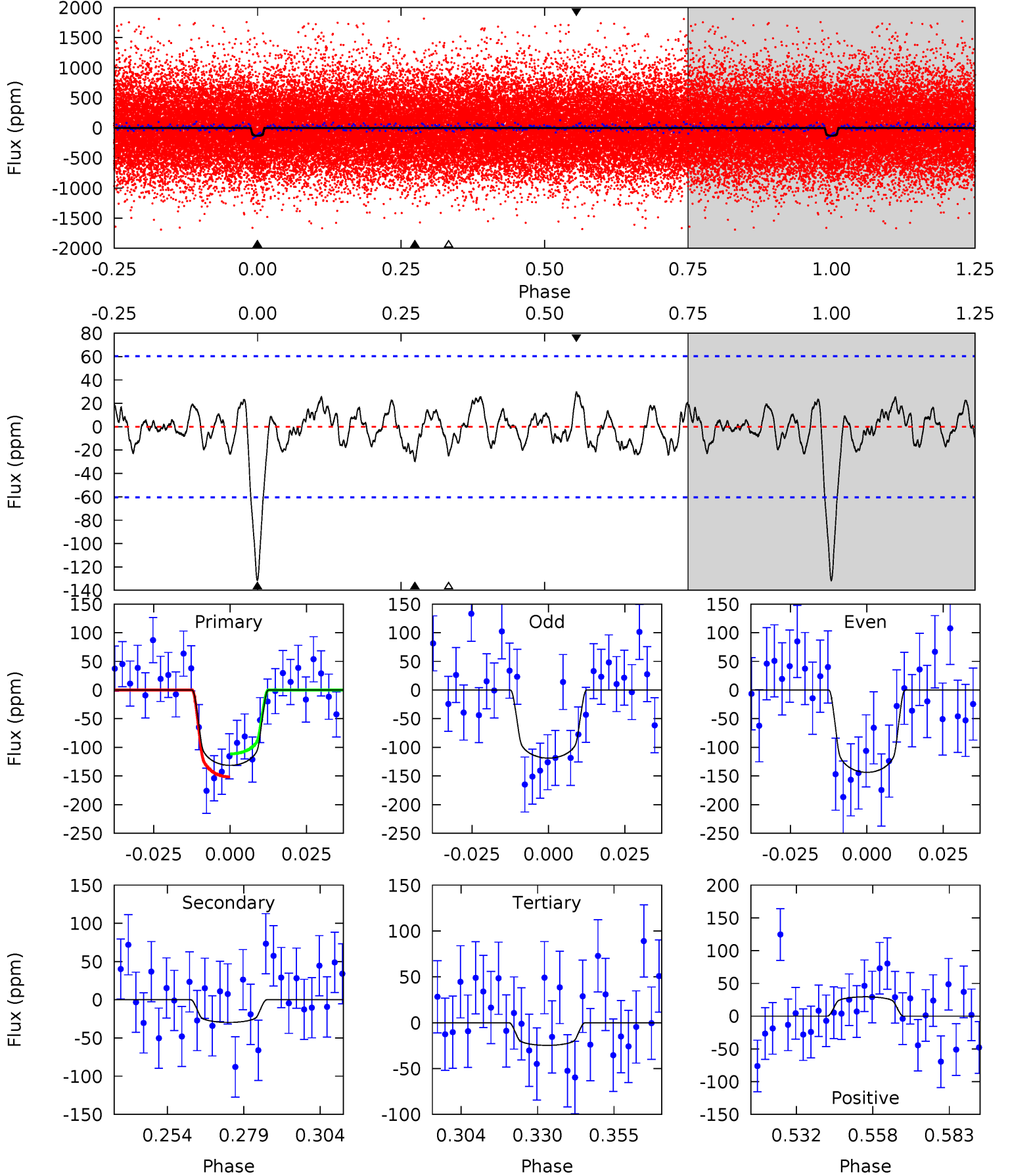
TCE 006867555-02 P= 7.501781 Days $T_0=138.828270$ (BKJD)



DV Model-Shift Uniqueness Test

006867555-02, P = 7.501848 Days, E = 138.820817 Days

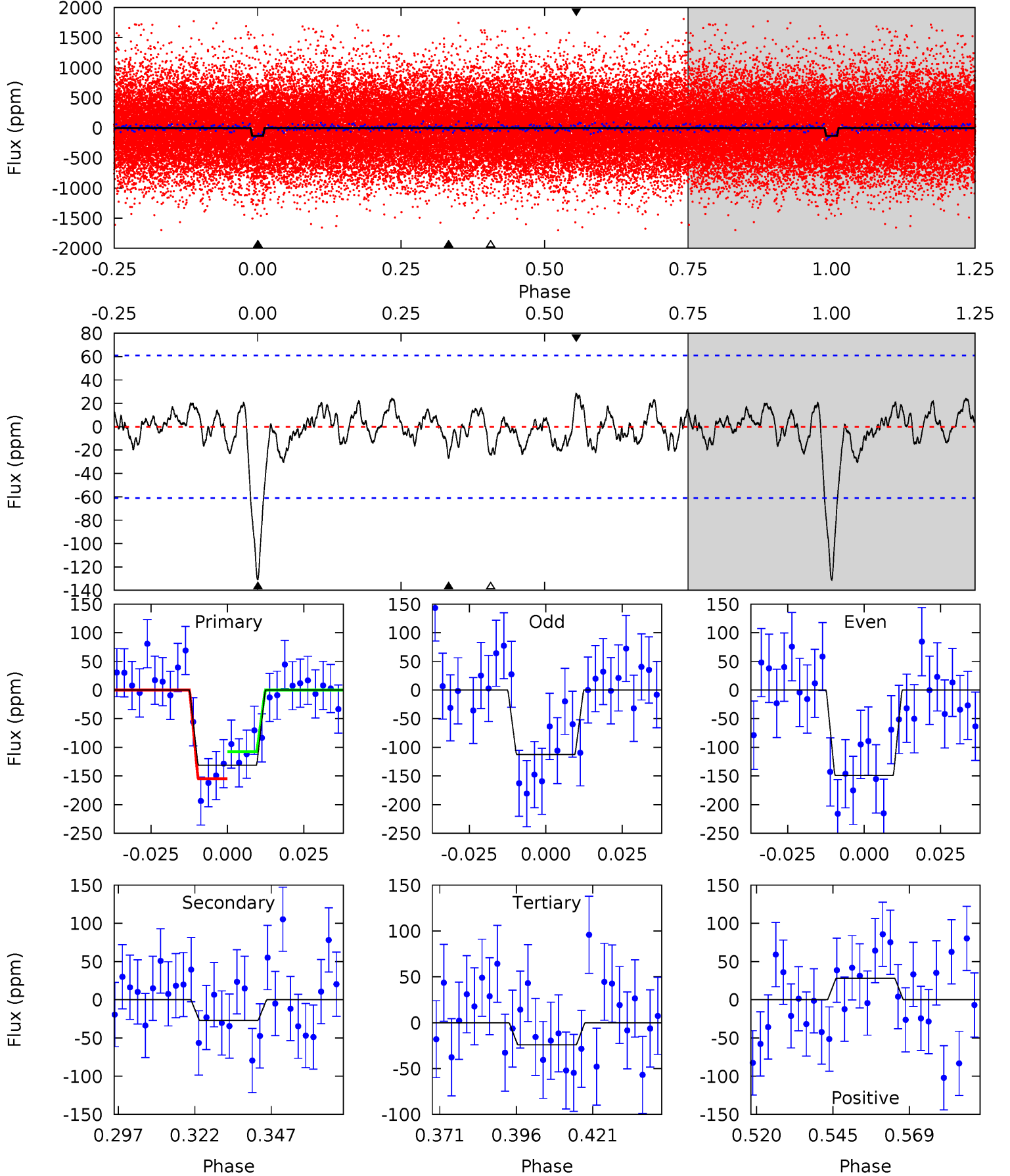
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	2.38	1.98	2.36	4.84	2.24	0.96	8.55	8.17	0.40	0.01	1.00	1.05	0.18	1.62



Alt Model-Shift Uniqueness Test

006867555-02, P = 7.501781 Days, E = 138.828270 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	2.16	1.92	2.25	4.85	2.25	0.91	8.51	8.17	0.24	-0.09	1.44	1.04	0.18	1.89



Stellar Parameters For KIC 006867555

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6321^{+174}_{-261}	$4.417^{+0.056}_{-0.224}$	$0.070^{+0.250}_{-0.350}$	$1.125^{+0.370}_{-0.123}$	$1.207^{+0.169}_{-0.169}$	$1.195^{+0.359}_{-0.655}$
	+3%/-4%	+1%/-5%	+357%/-500%	+33%/-11%	+14%/-14%	+30%/-55%
Source	KIC0	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 006867555-02 / KOI 2439.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-30 ± 12	$1.64^{+0.92}_{-0.81}$	1491^{+107}_{-83}	4304^{+1415}_{-704}	36^{+107}_{-23}
Alt.	-27 ± 13	$1.50^{+0.87}_{-0.80}$	1490^{+103}_{-86}	4323^{+1652}_{-792}	37^{+141}_{-25}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

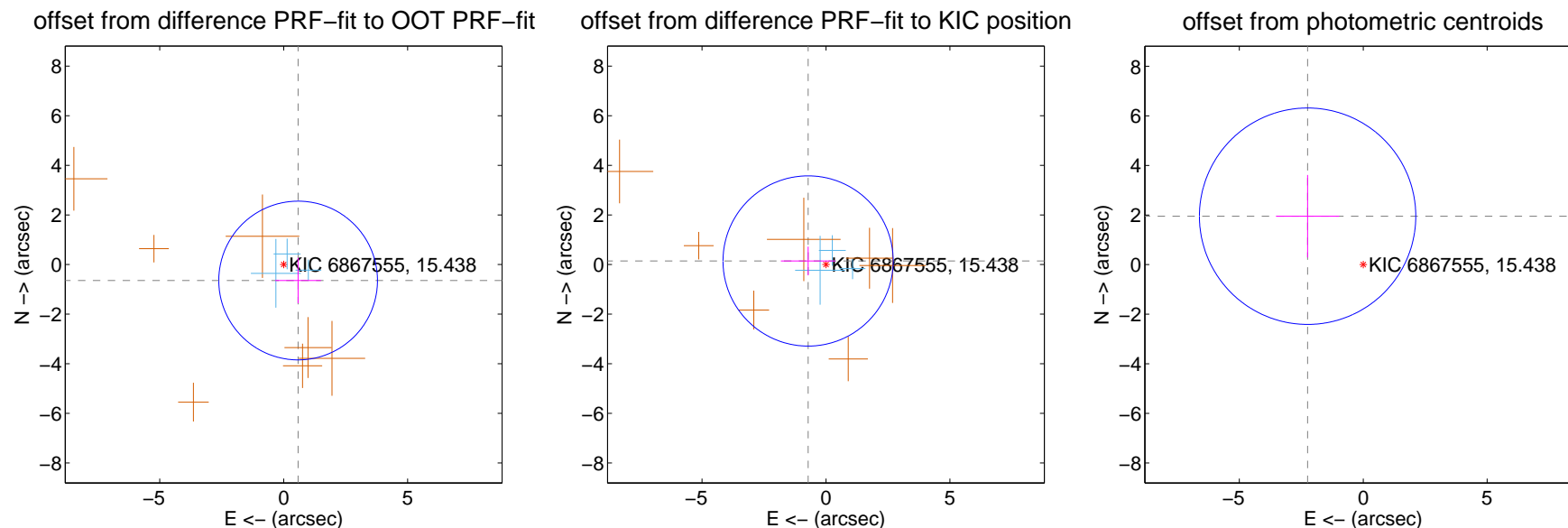
DV Centroid Data

Supplemental centroid analysis for 006867555-02. Kepler magnitude: 15.44. Transit SNR 8.56

There are 3 quarters with good PRF difference image offsets

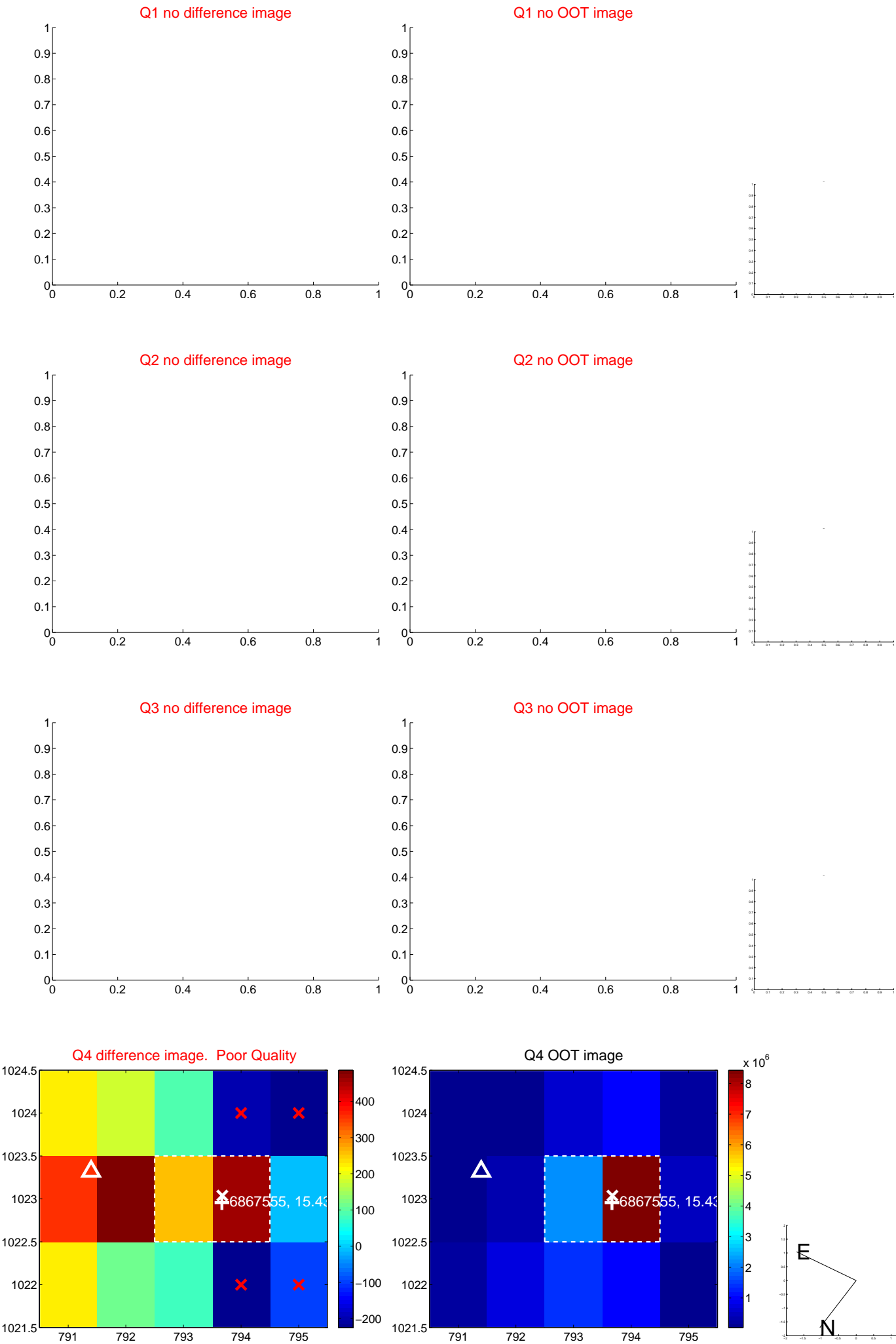
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.869 ± 1.067	0.81	-0.583 ± 0.923	-0.644 ± 0.915
PRF-fit source offset from KIC position	0.735 ± 1.144	0.64	0.721 ± 1.100	0.144 ± 0.578
photometric centroid source offset	2.98 ± 1.45	2.04	2.24 ± 1.28	1.95 ± 1.66

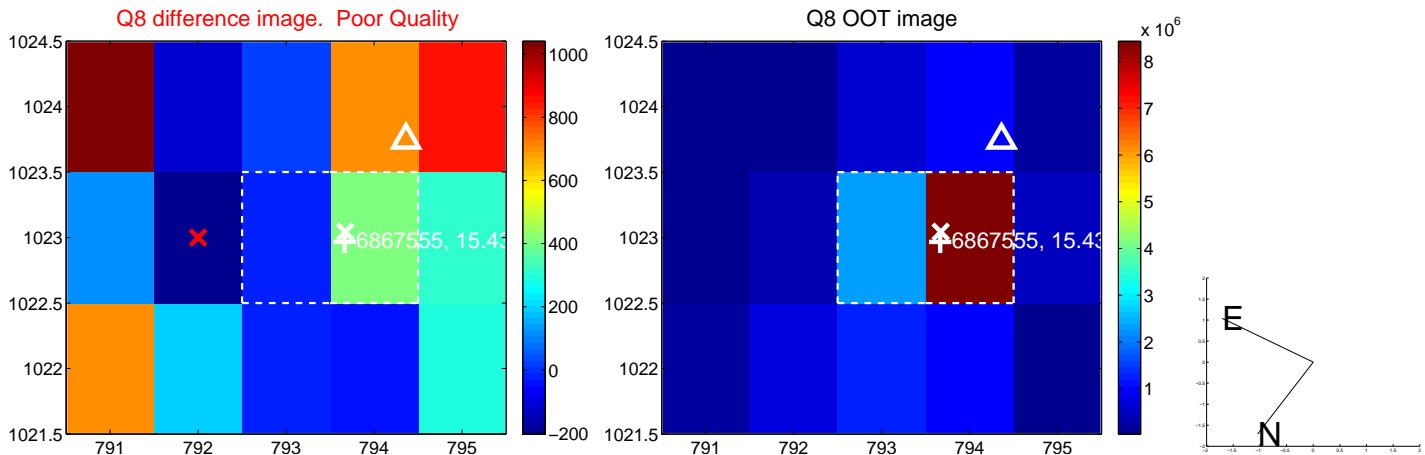
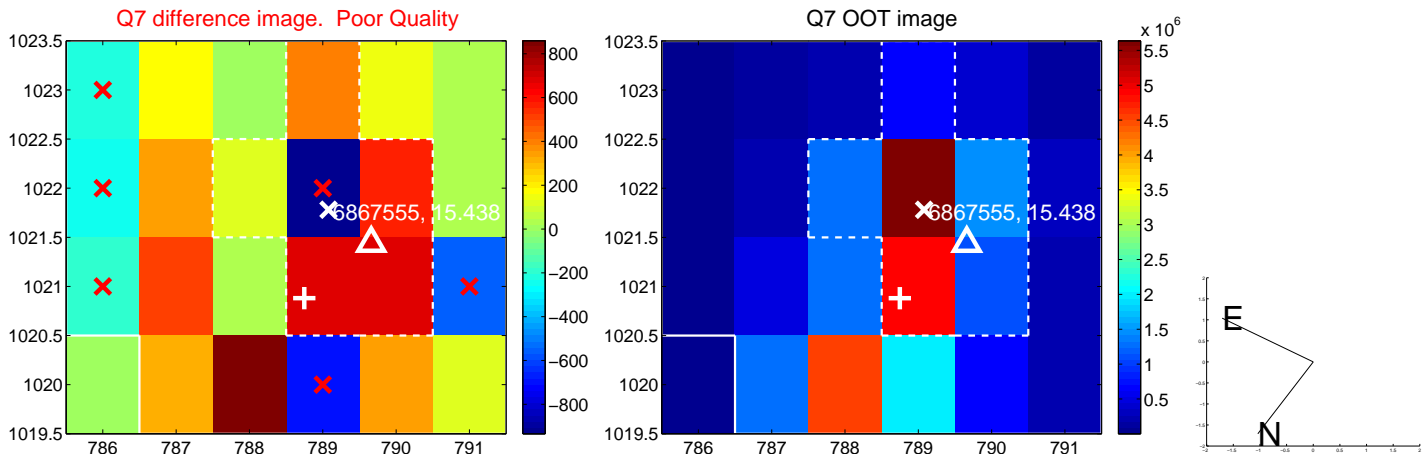
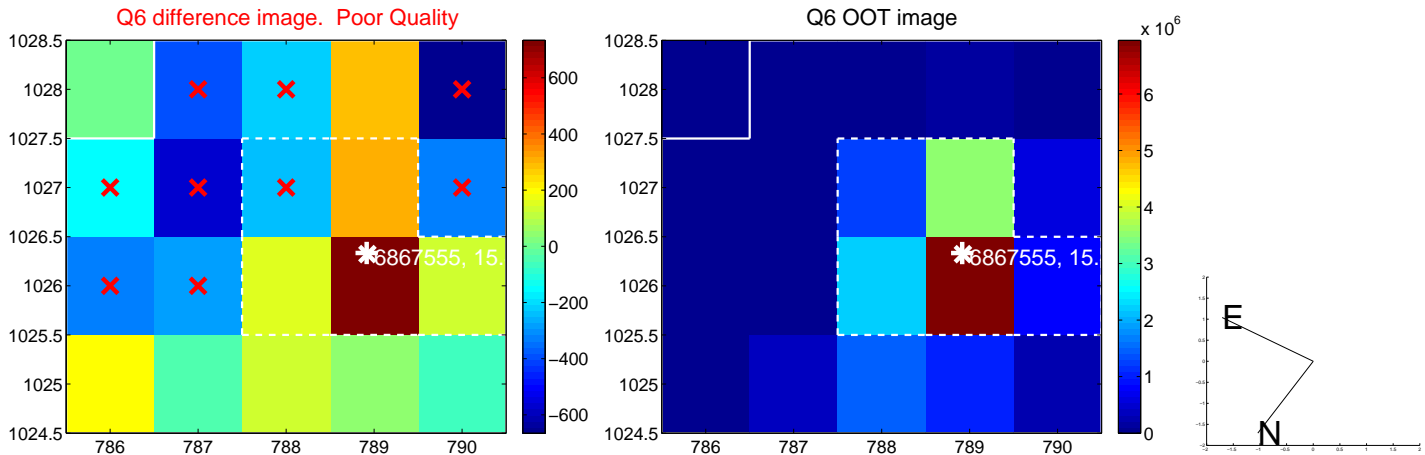
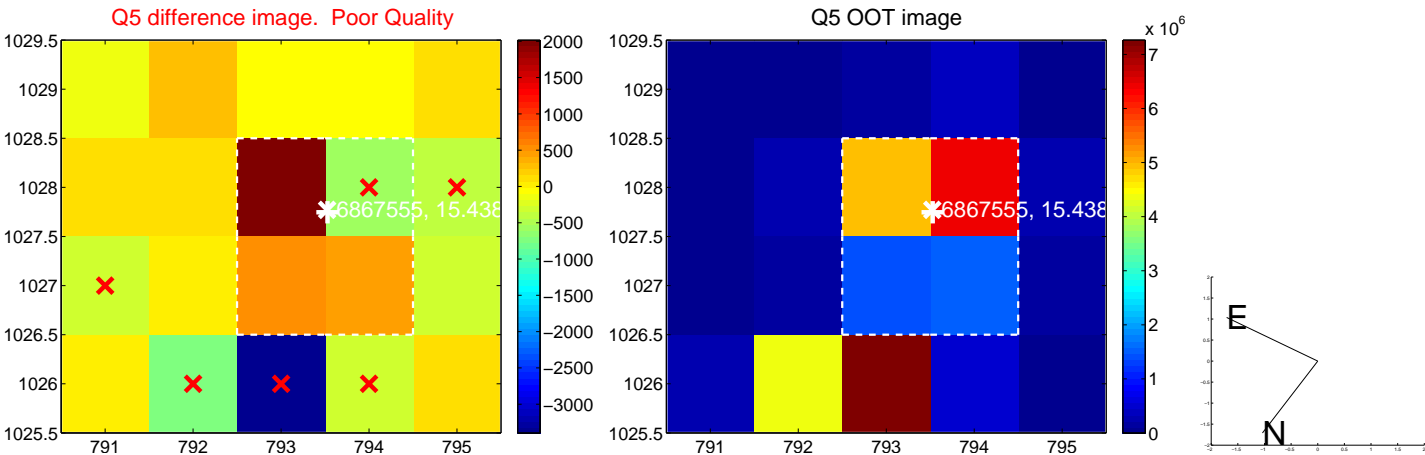


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

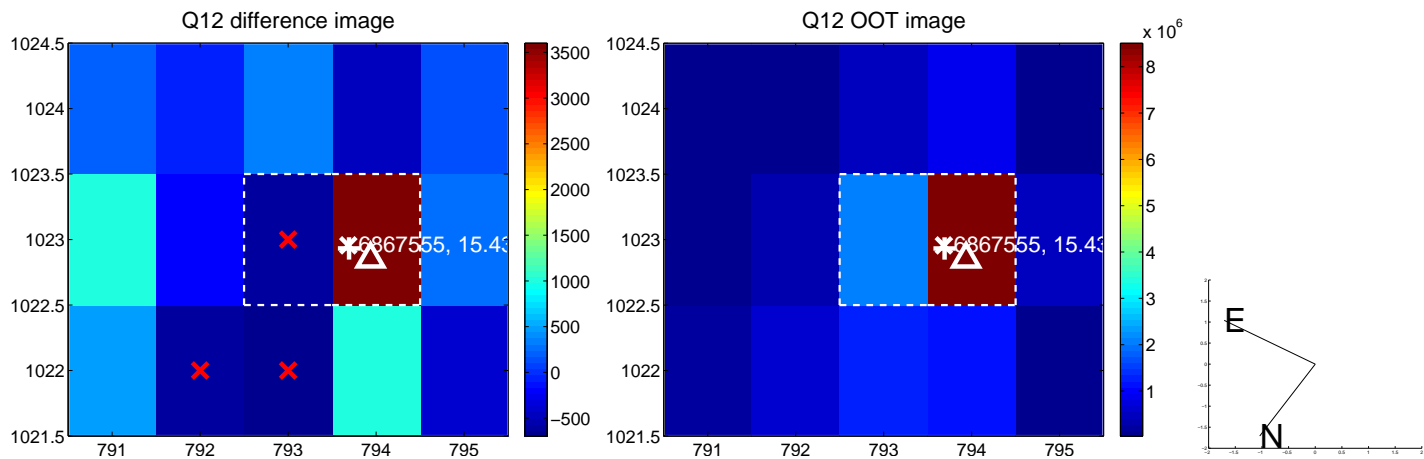
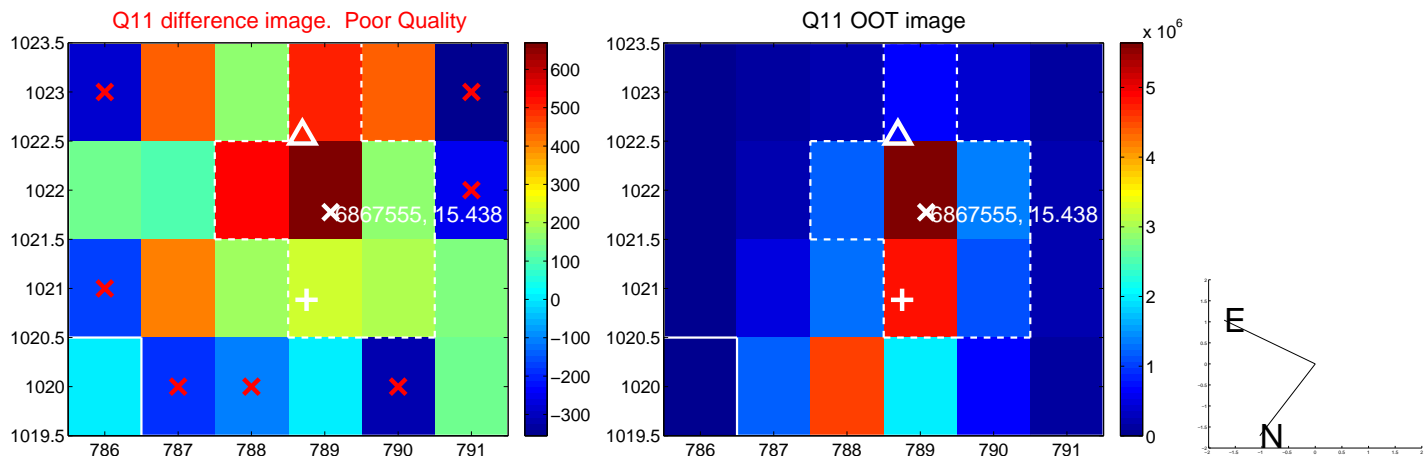
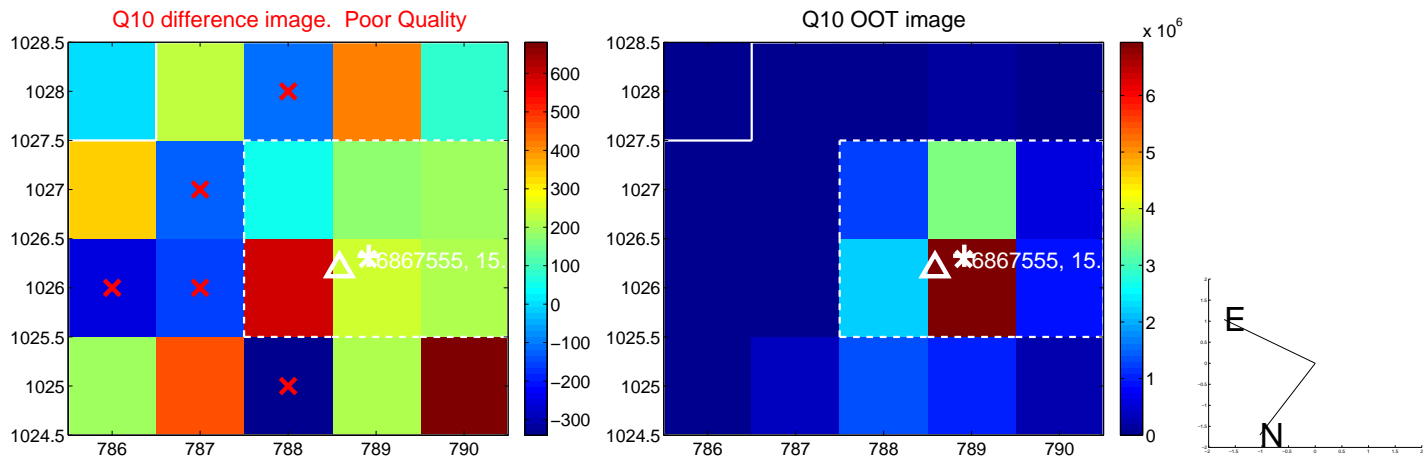
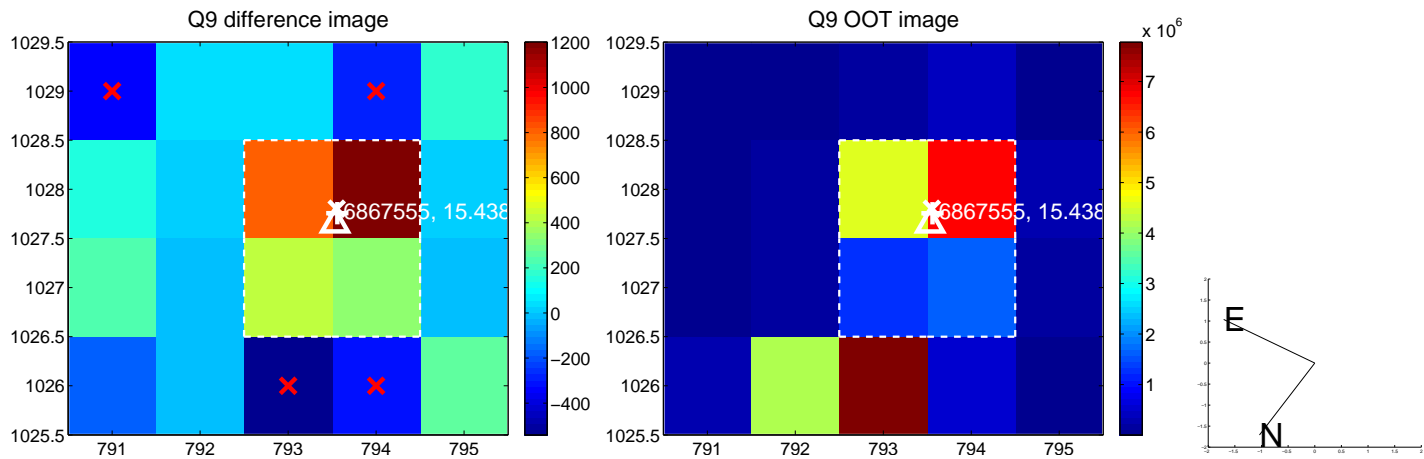
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



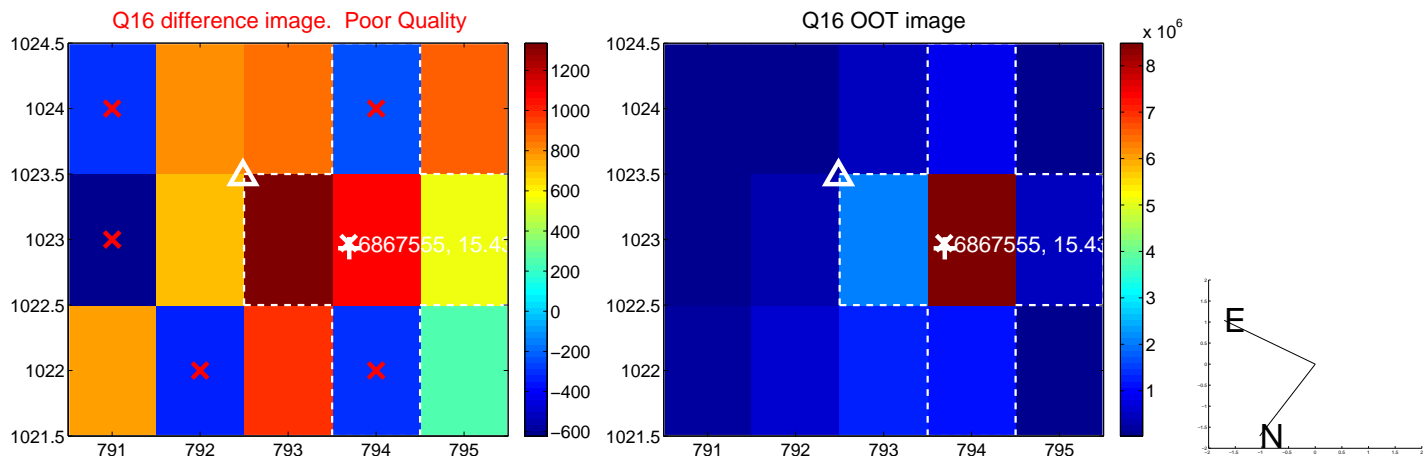
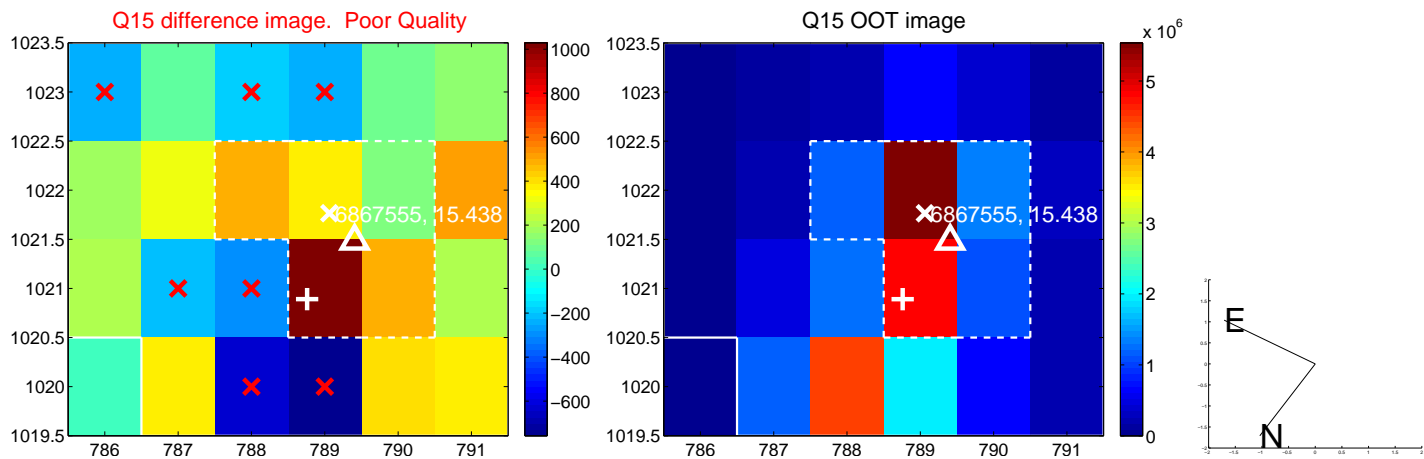
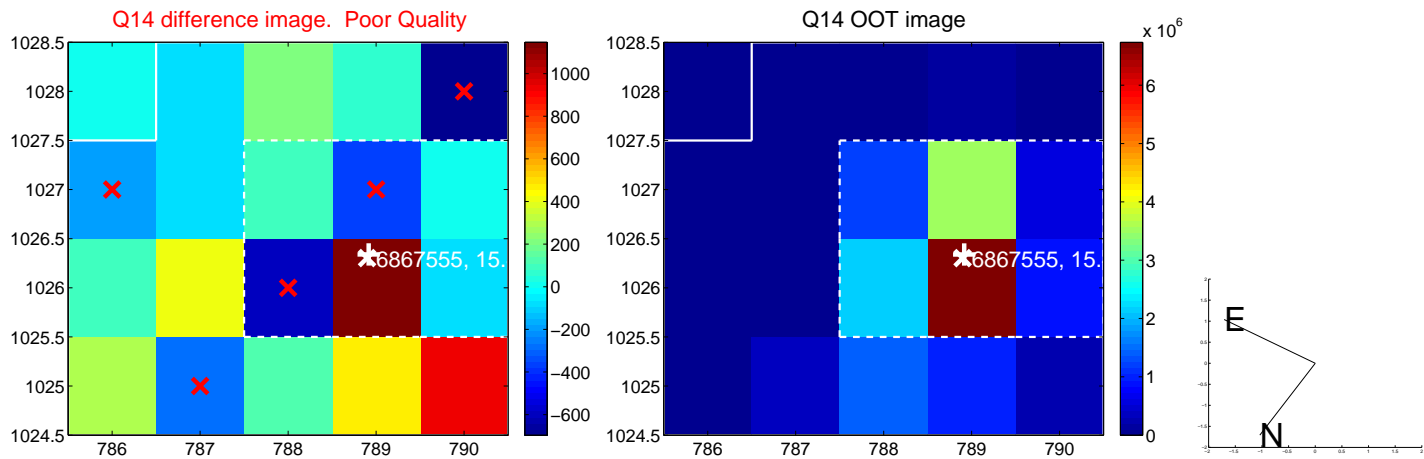
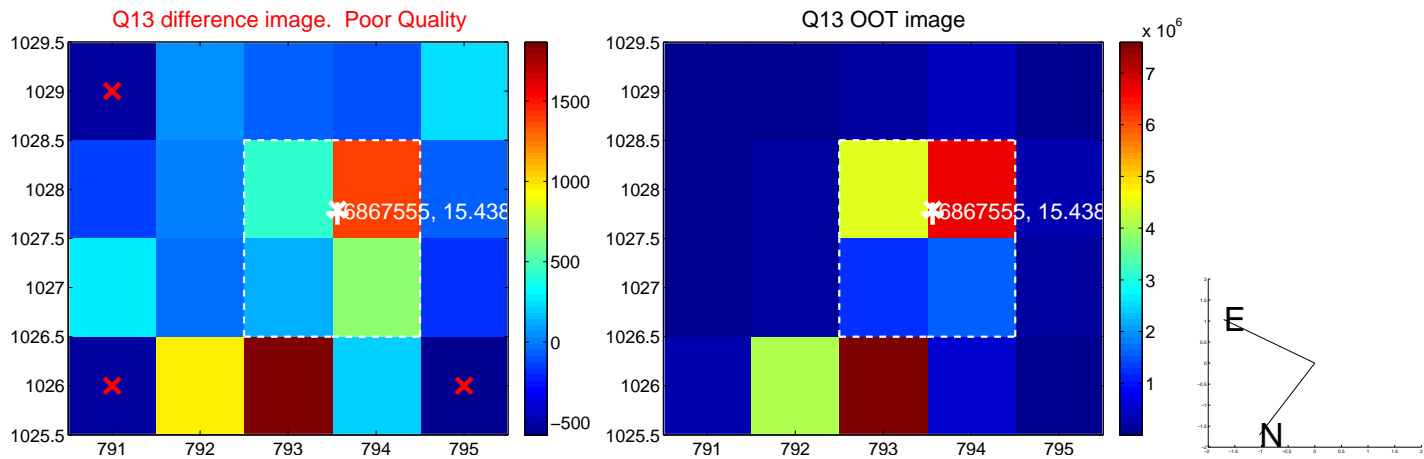
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



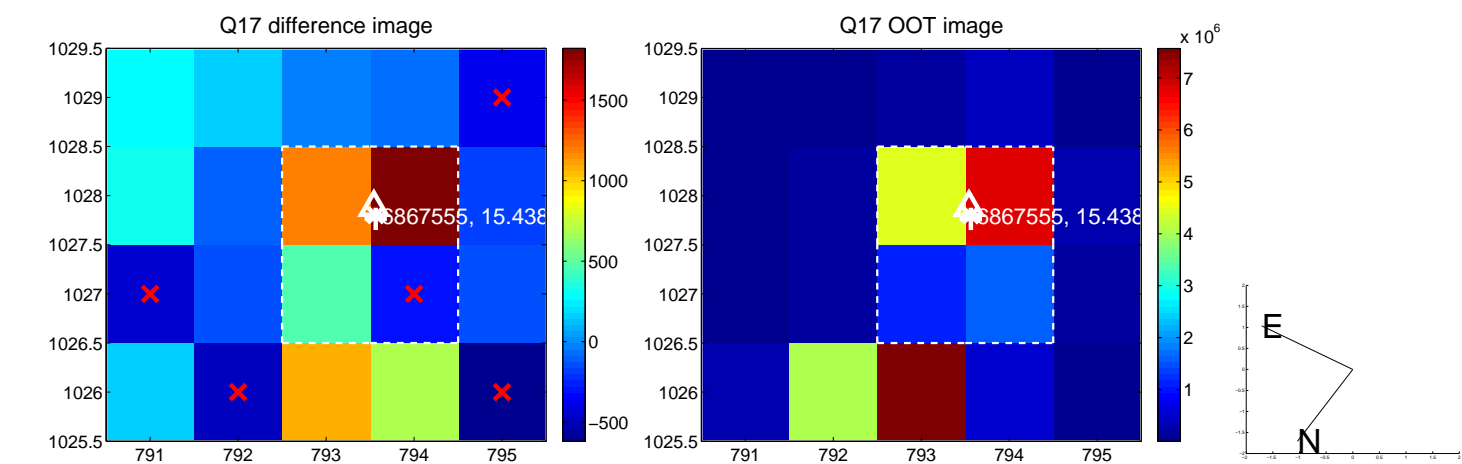
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



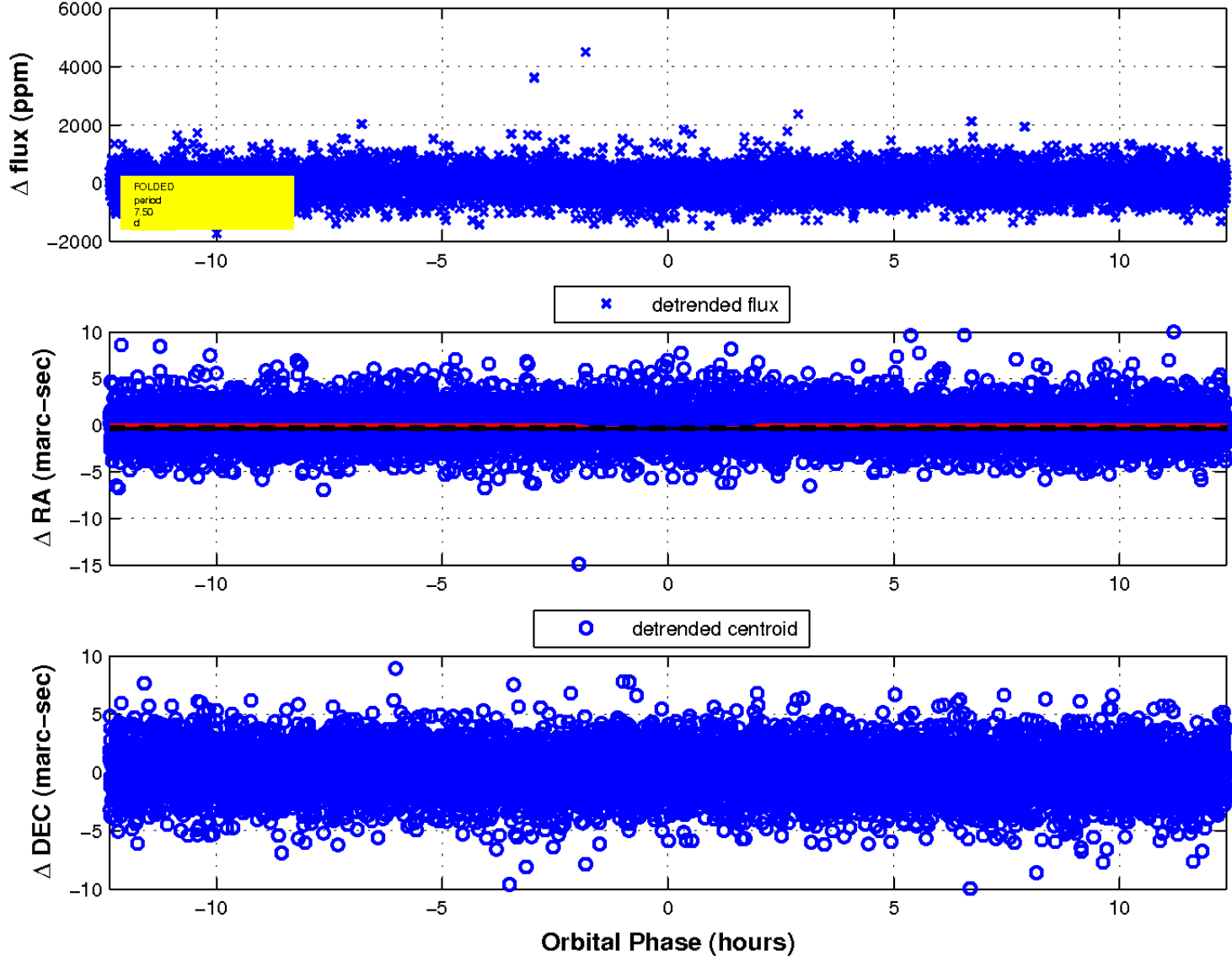
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

