

KIC 007622059

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})
007622059-01	OBS	6161.01	10.402979	138.115741	178.1	12.877	38.1	33.9	1.44	6428	3.79	351.36
007622059-02	OBS	No	3.186695	133.764937	25.0	4.309	8.4	8.6	1.44	6428	0.84	1701.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007622059-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007622059-02	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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.

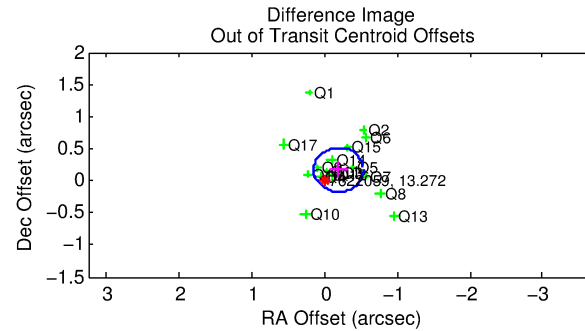
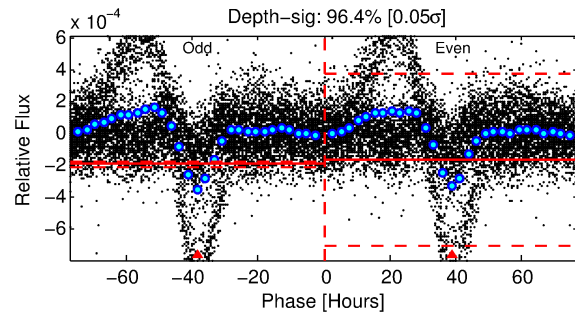
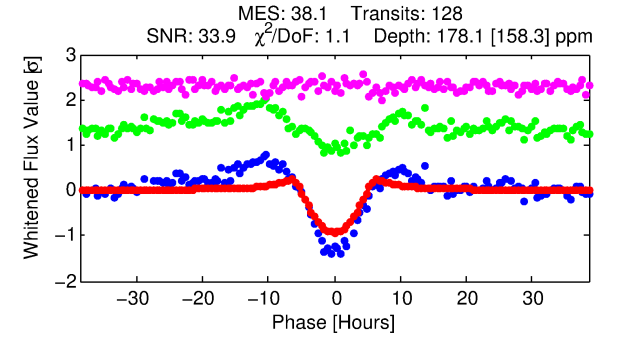
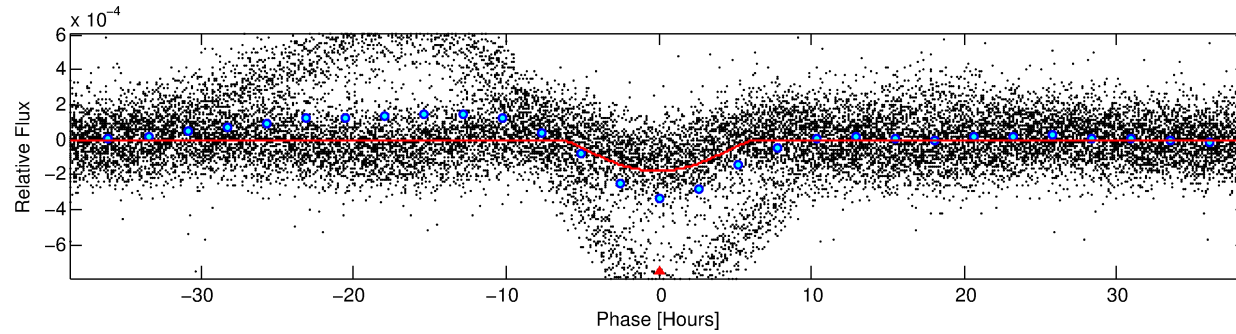
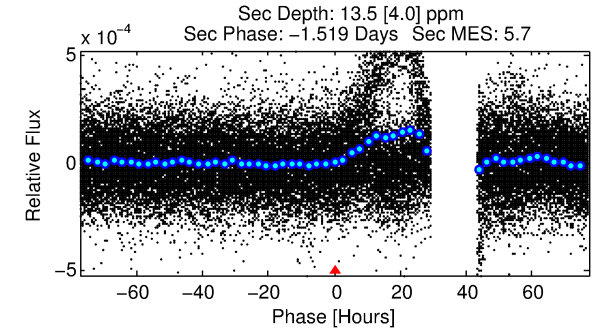
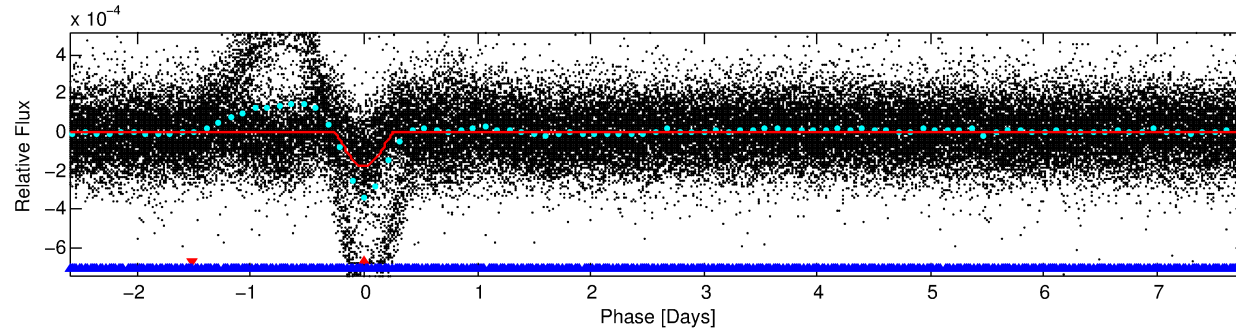
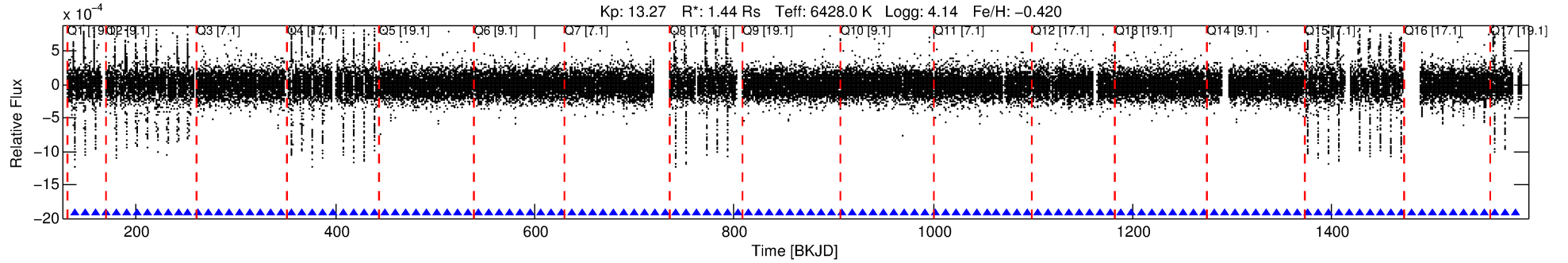
Ephemeris Match Information For 007622059-01

No Significant Match Found

DV One-Page Summary

KIC: 7622059 Candidate: 1 of 2 Period: 10.403 d

KOI: K06161.01 Corr: 0.858



DV Fit Results:

Period = 10.40298 [0.00011] d
Epoch = 138.1157 [0.0083] BKJD
Rp/R* = 0.0242 [0.0193]
a/R* = 1.70 [0.22]
b = 1.00 [0.04]
Seff = 351.36 [130.45]
Teq = 1104 [102] K
Rp = 3.79 [3.16] Re
a = 0.0947 [0.0211] AU
Ag = 4.64 [7.69] [0.47σ]
Teffp = 2505 [1018] K [1.37σ]

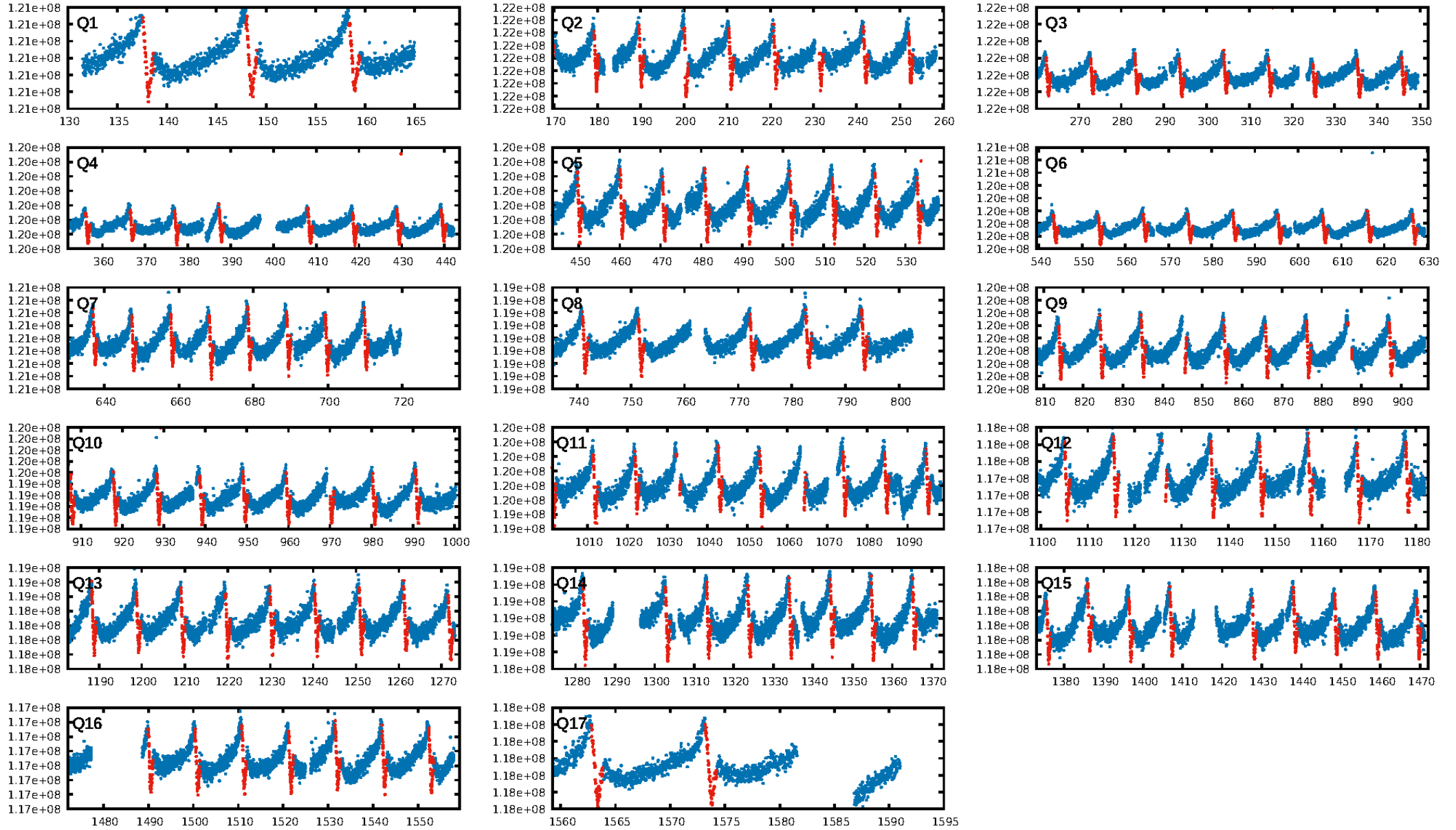
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.75σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.47e-281
RollingBand-fgt: 1.00 [123/123]
GhostDiagnostic-chr: 2.826
Centroid-sig: 72.4%
Centroid-so: 0.160 arcsec [0.55σ]
OotOffset-rm: 0.257 arcsec [2.25σ]
KicOffset-rm: 0.212 arcsec [1.88σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

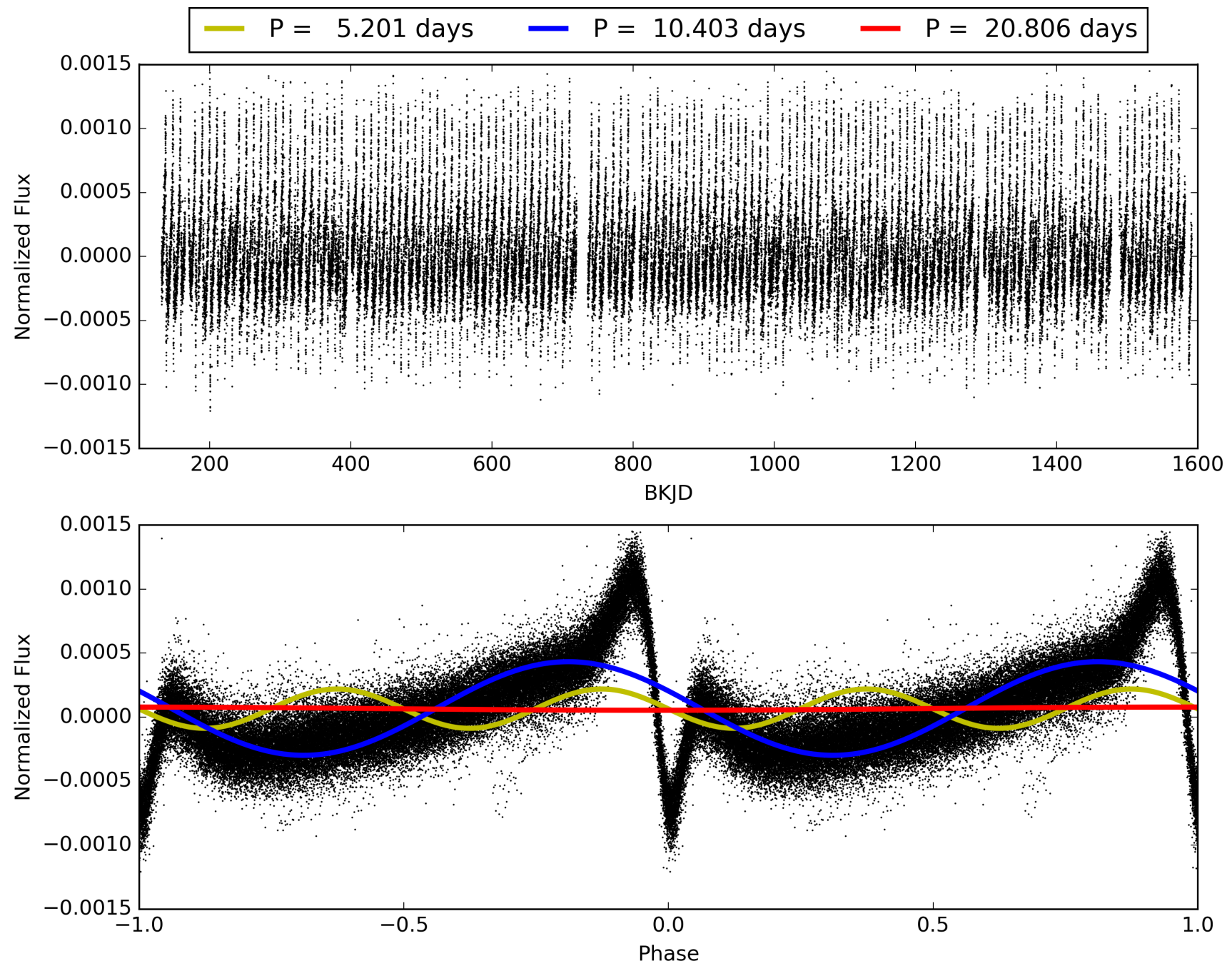
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:20:43 Z

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

TCE 007622059-01, PDC Light Curves

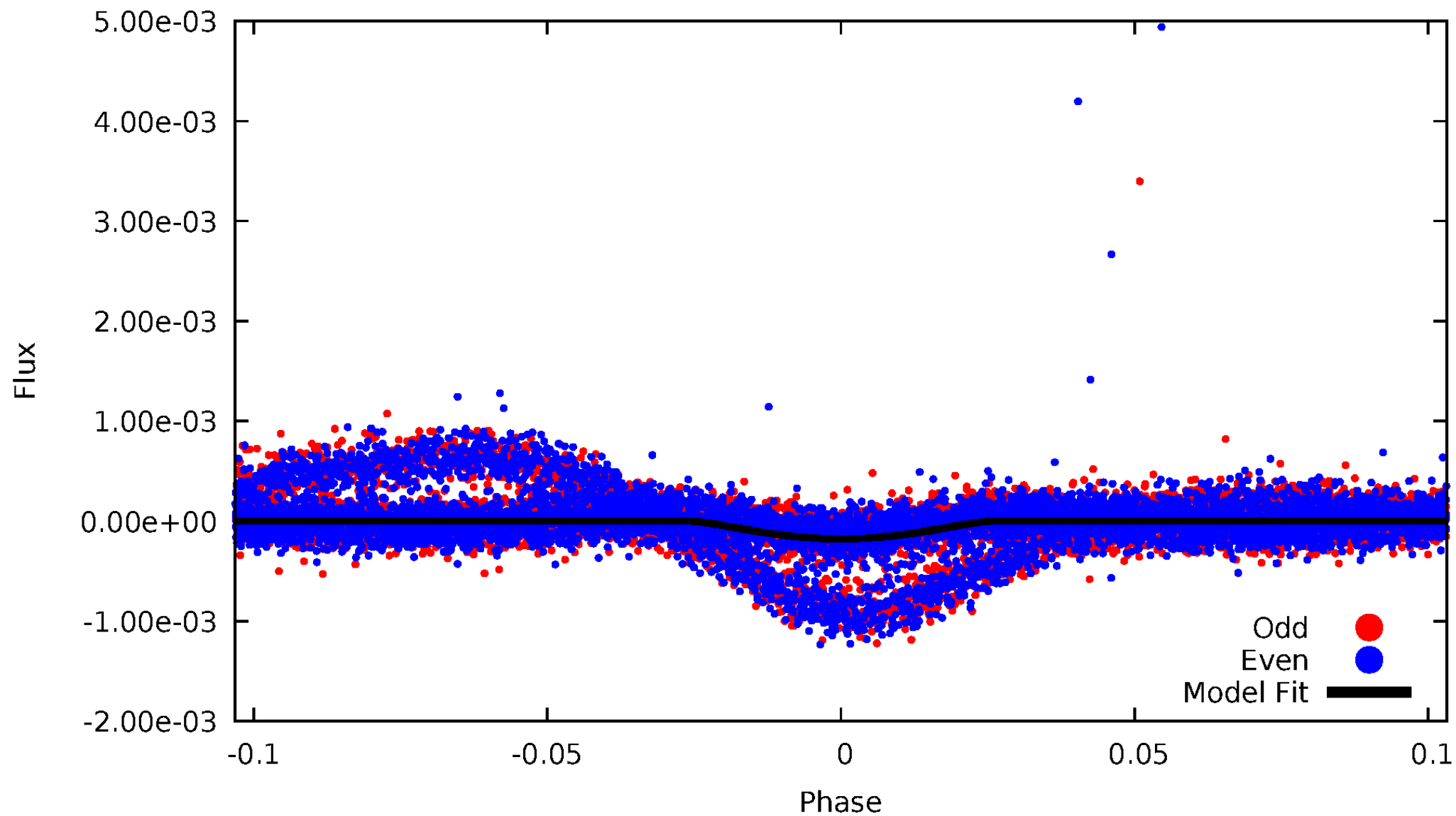


TCE 007622059-01



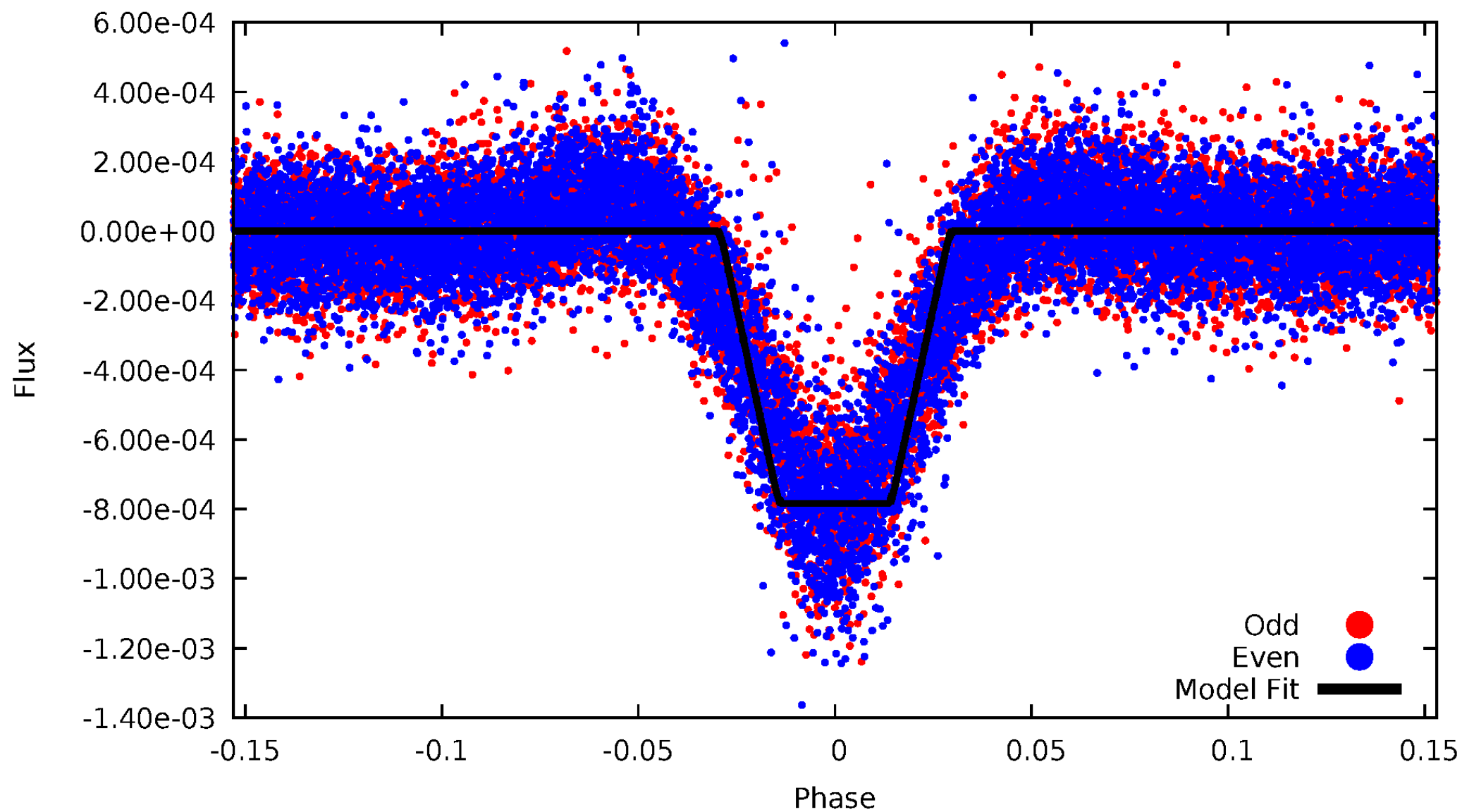
DV Odd/Even

TCE 007622059-01

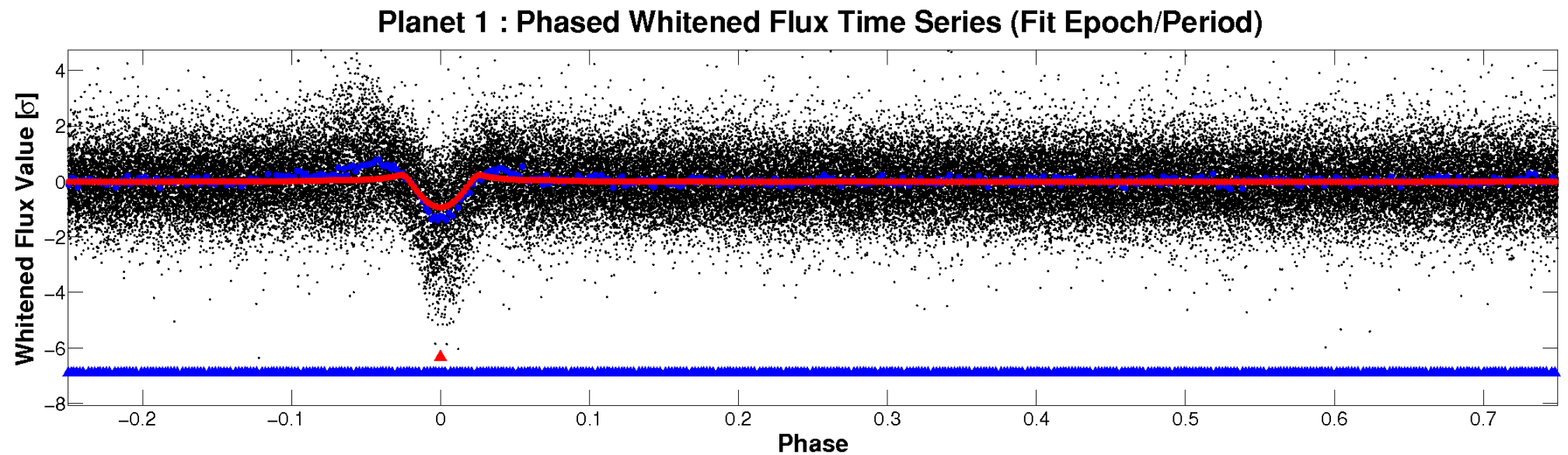
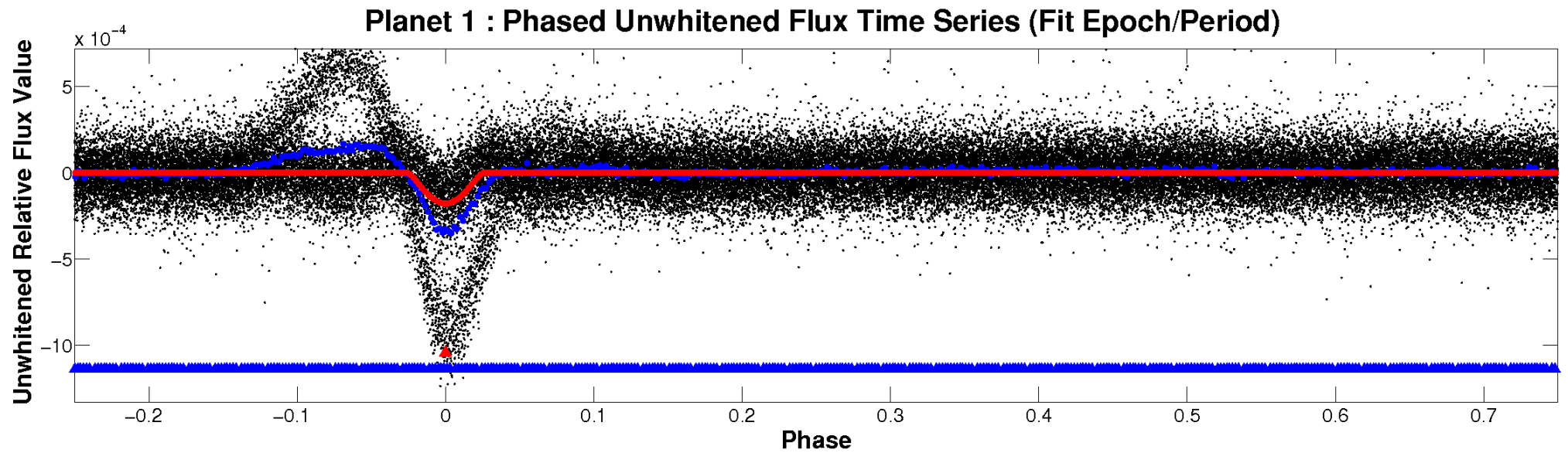


ALT Odd/Even

TCE 007622059-01

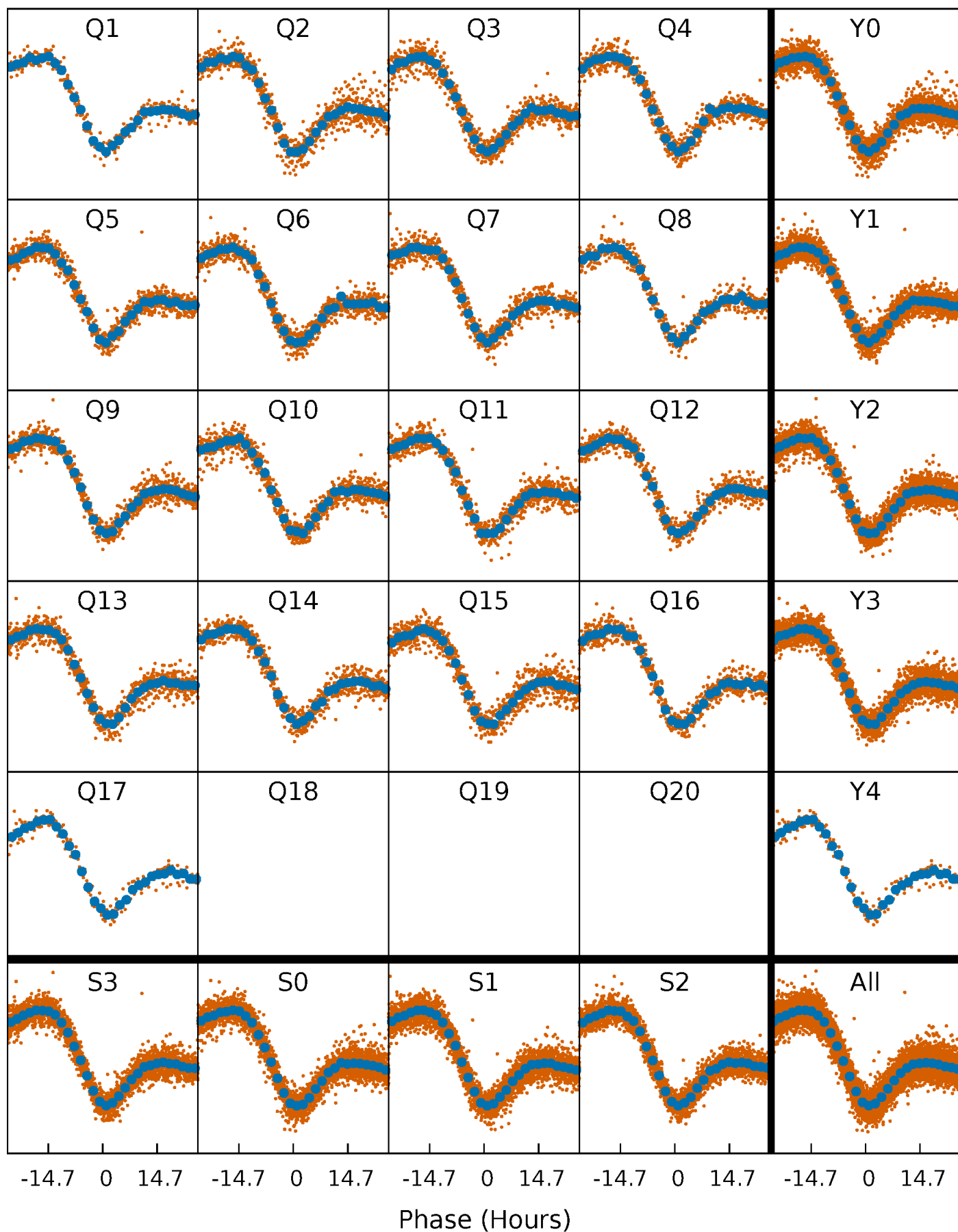


Non-Whitened Vs. Whitened Light Curve



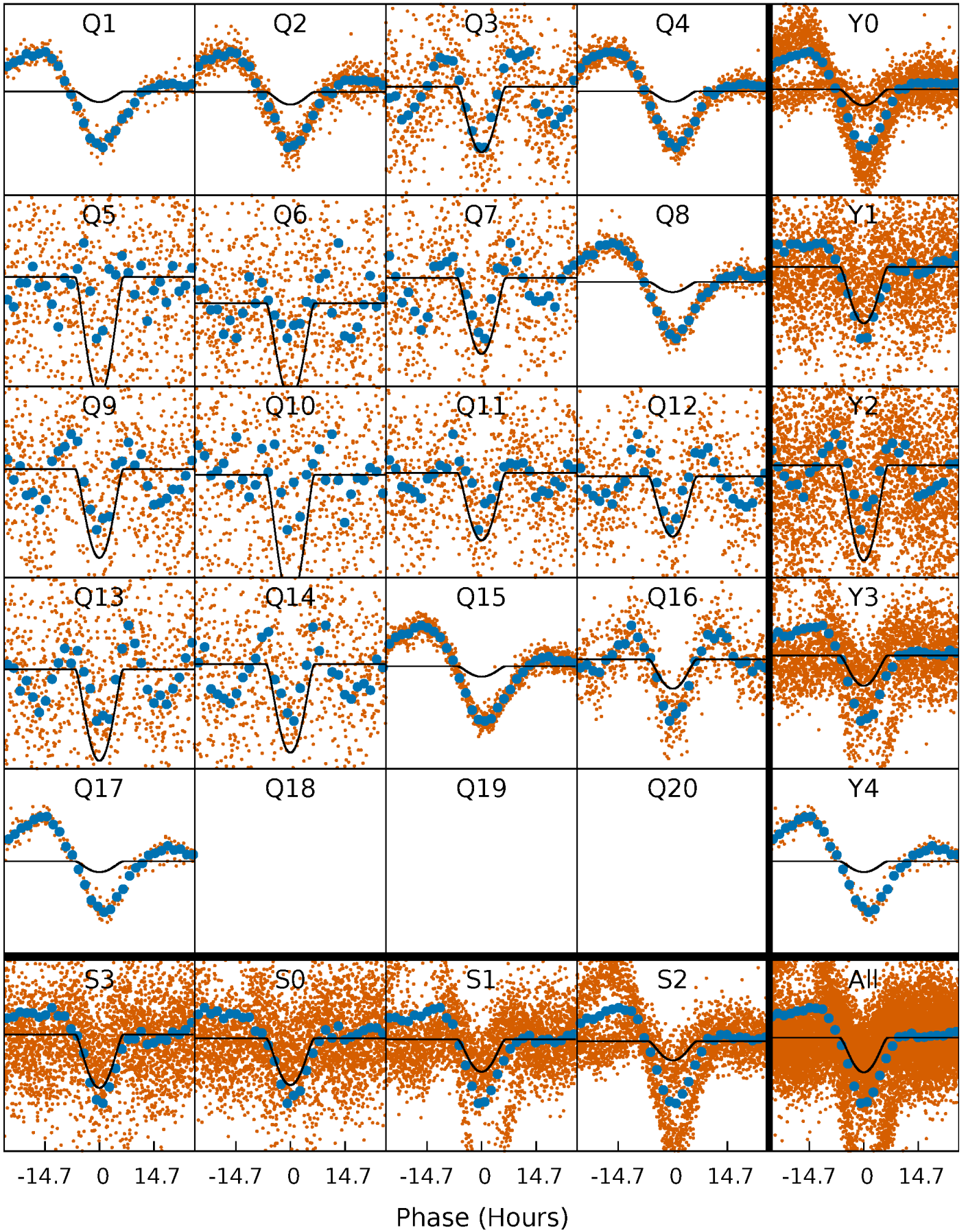
PDC Quarter-Phased Transit Curves

TCE 007622059-01 P= 10.402979 Days $T_0=138.115741$ (BKJD)



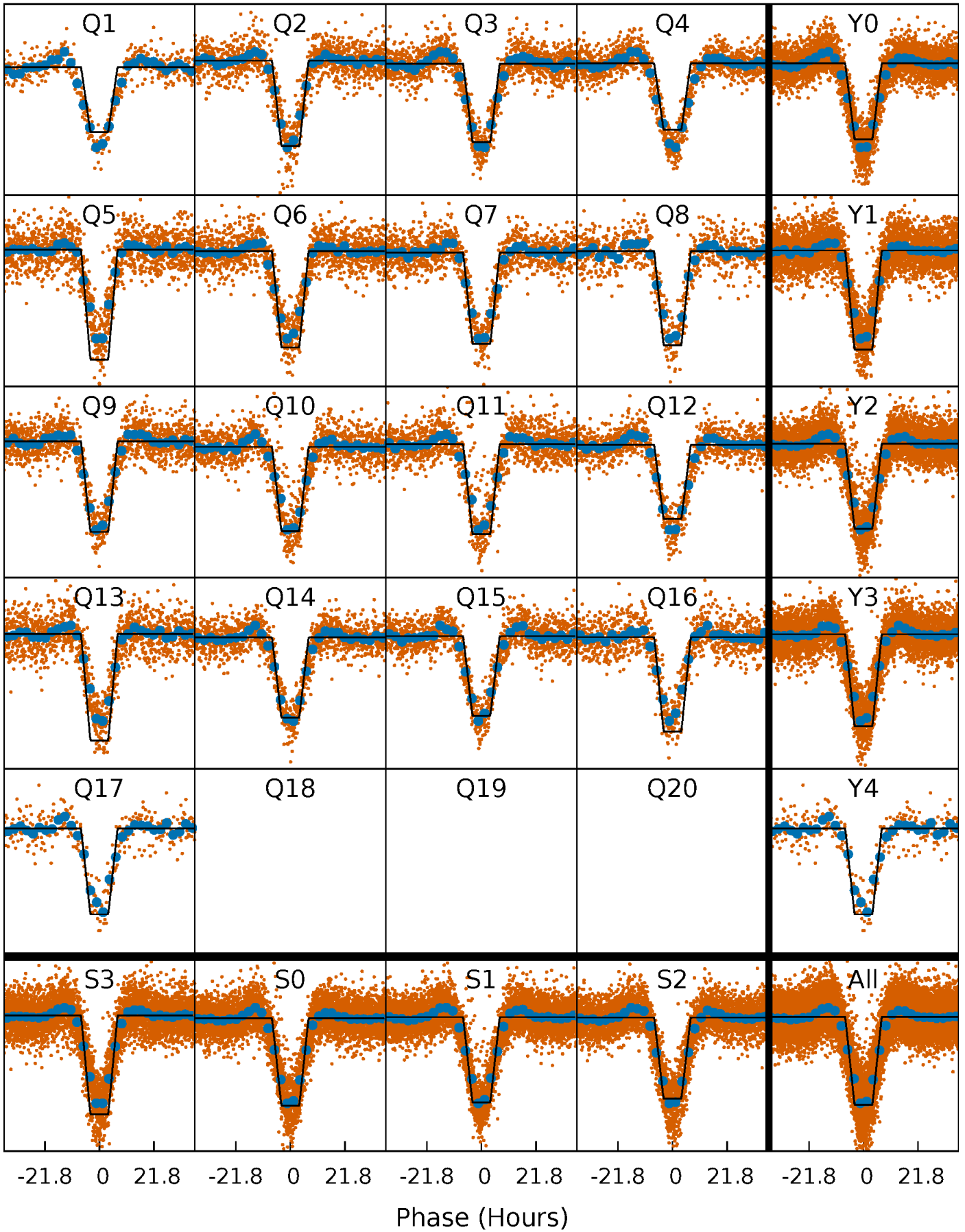
DV Quarter-Phased Transit Curves

TCE 007622059-01 P= 10.402979 Days $T_0=138.115741$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

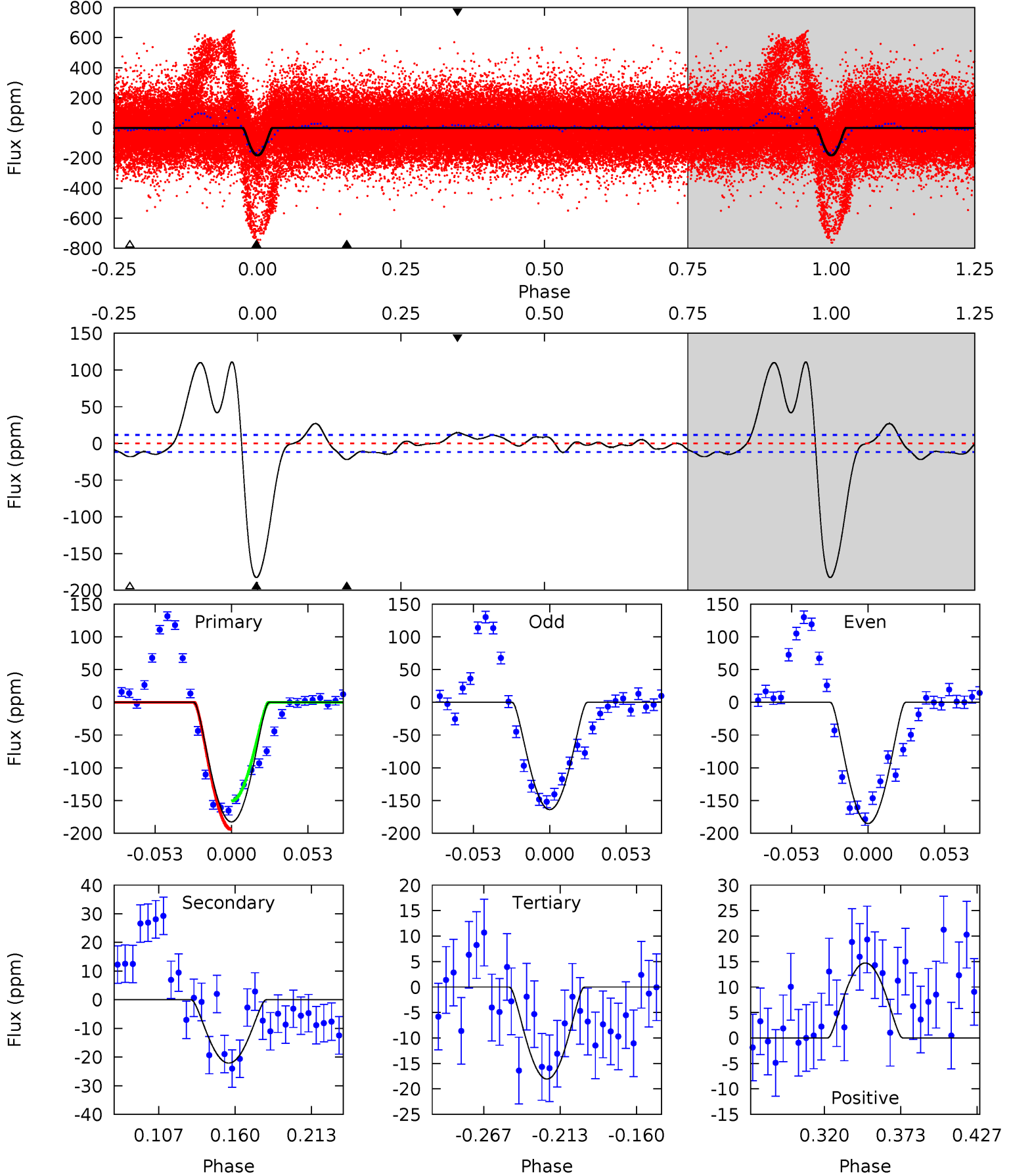
TCE 007622059-01 P= 10.403158 Days $T_0=138.105497$ (BKJD)



DV Model-Shift Uniqueness Test

007622059-01, P = 10.402979 Days, E = 127.712762 Days

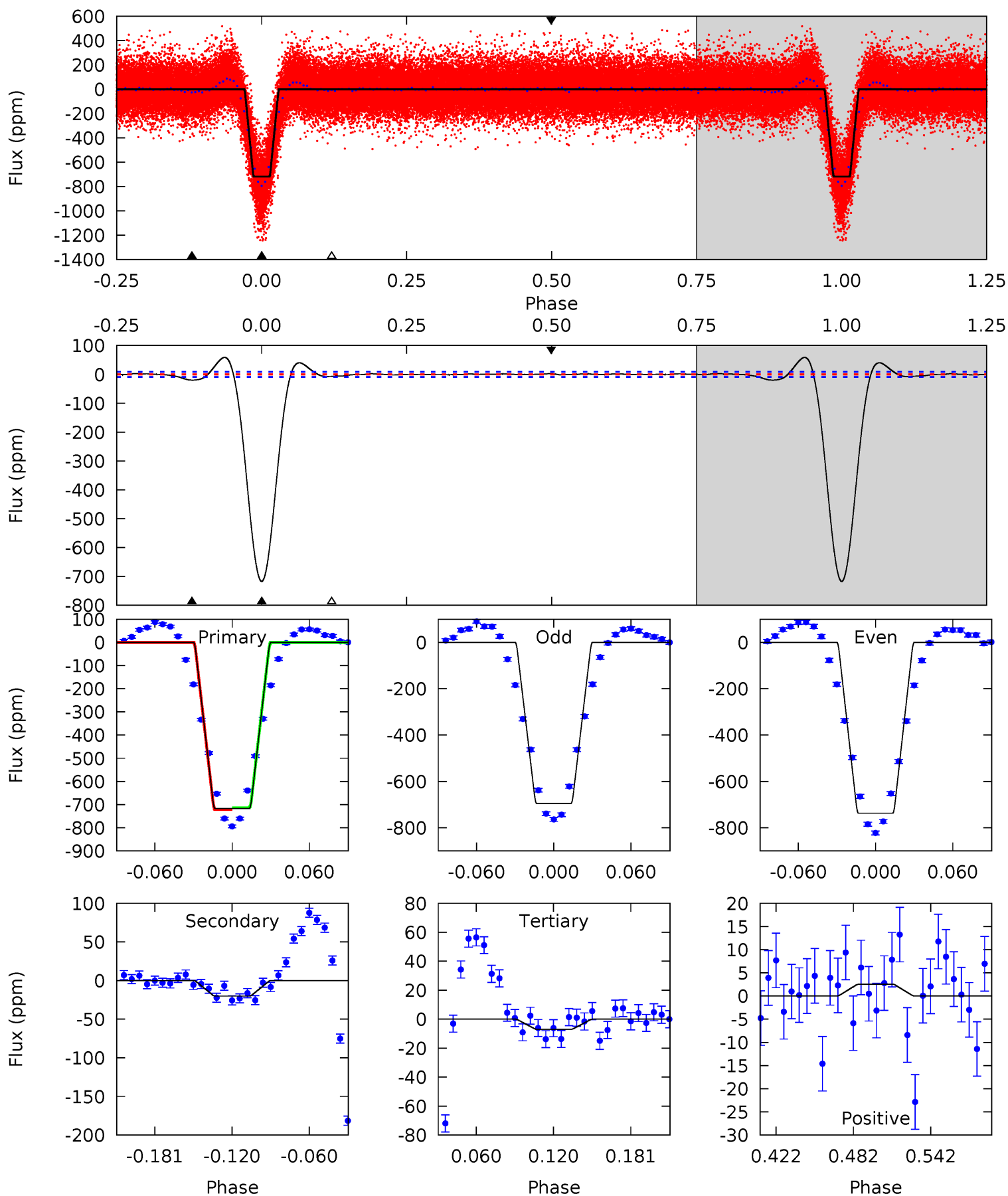
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.6	8.90	7.28	5.93	4.70	1.93	9.72	66.3	67.7	1.63	2.97	4.31	3.11	0.38	8.75



Alt Model-Shift Uniqueness Test

007622059-01, P = 10.403158 Days, E = 127.702339 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
380.0	10.6	3.69	1.34	4.67	1.88	3.29	376.3	378.7	6.94	9.29	11.0	1.02	0.08	2.02



Stellar Parameters For KIC 007622059

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6428^{+155}_{-194}	$4.144^{+0.204}_{-0.119}$	$-0.420^{+0.300}_{-0.300}$	$1.436^{+0.311}_{-0.342}$	$1.049^{+0.162}_{-0.133}$	$0.499^{+0.541}_{-0.194}$
	+2%/-3%	+5%/-3%	+71%/-71%	+22%/-24%	+15%/-13%	+109%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007622059-01 / KOI 6161.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-22 ± 2	$4.17^{+2.83}_{-2.48}$	1530^{+90}_{-102}	3202^{+1120}_{-447}	$6.164^{+31.960}_{-3.922}$
Alt.	-20 ± 2	$4.55^{+2.98}_{-2.48}$	1528^{+88}_{-102}	3063^{+902}_{-404}	$4.749^{+17.483}_{-2.933}$

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 $A_{obs} \gg 1.0$

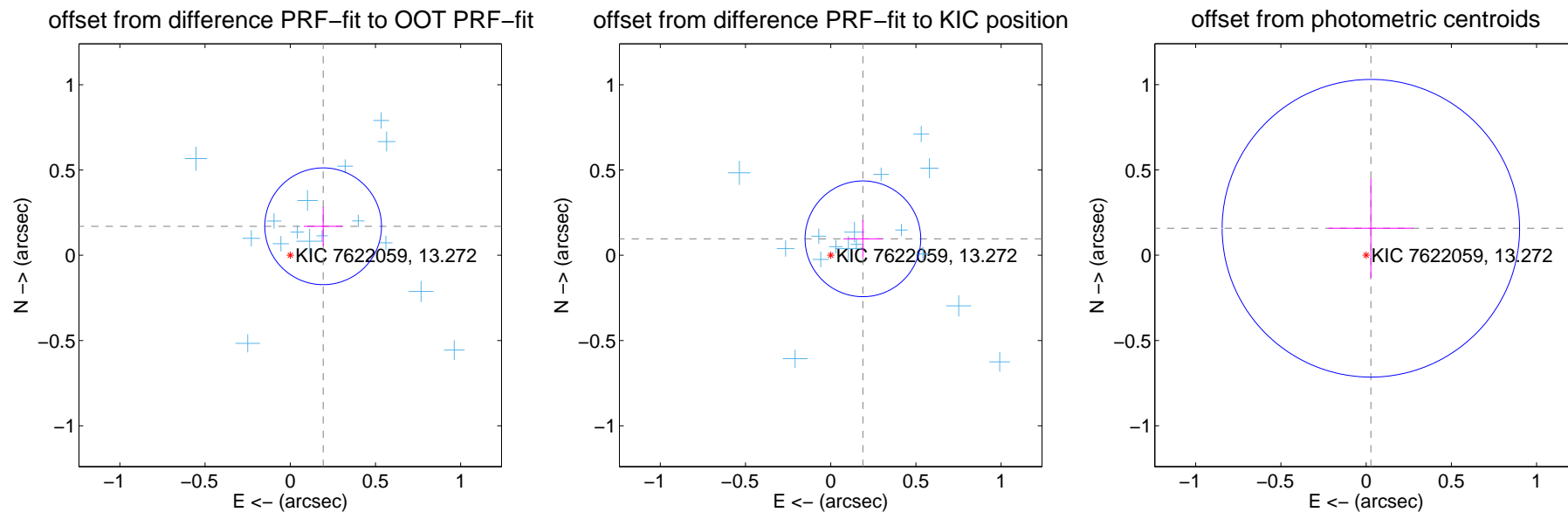
DV Centroid Data

Supplemental centroid analysis for 007622059-01. Kepler magnitude: 13.27. Transit SNR 33.88

There are 17 quarters with good PRF difference image offsets

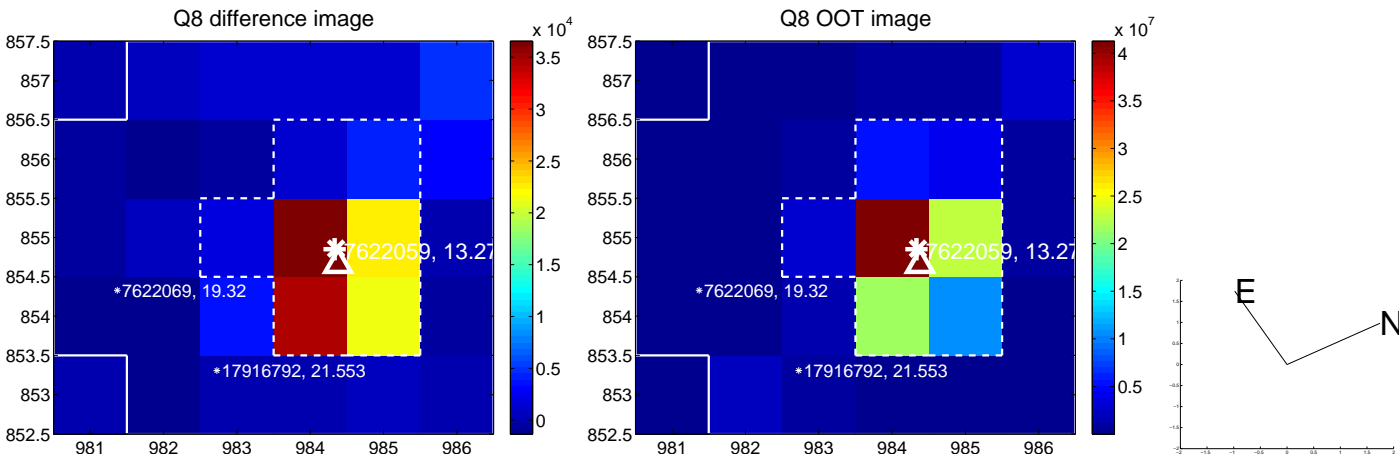
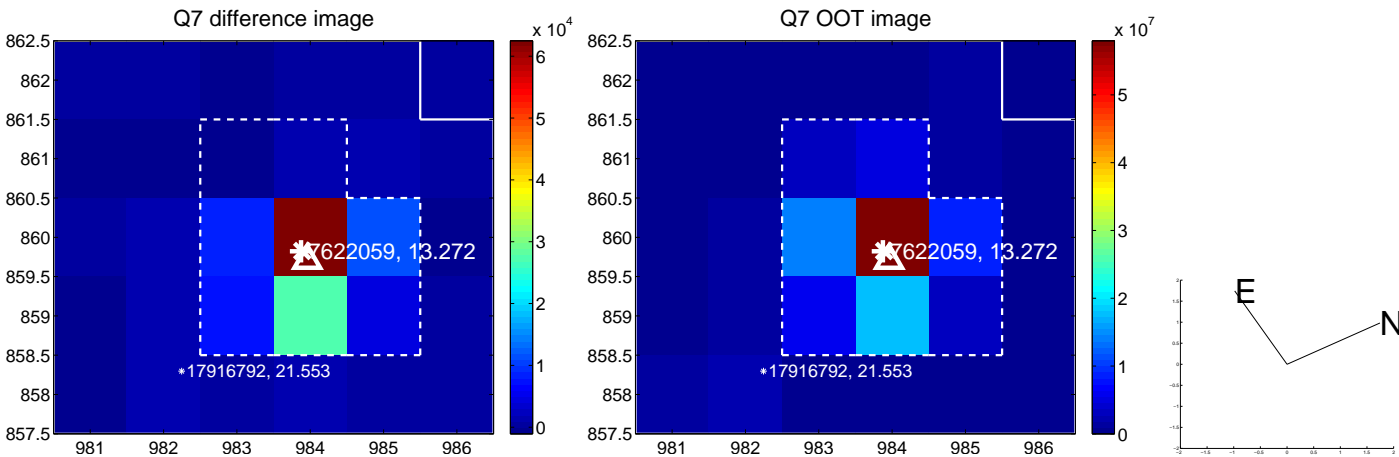
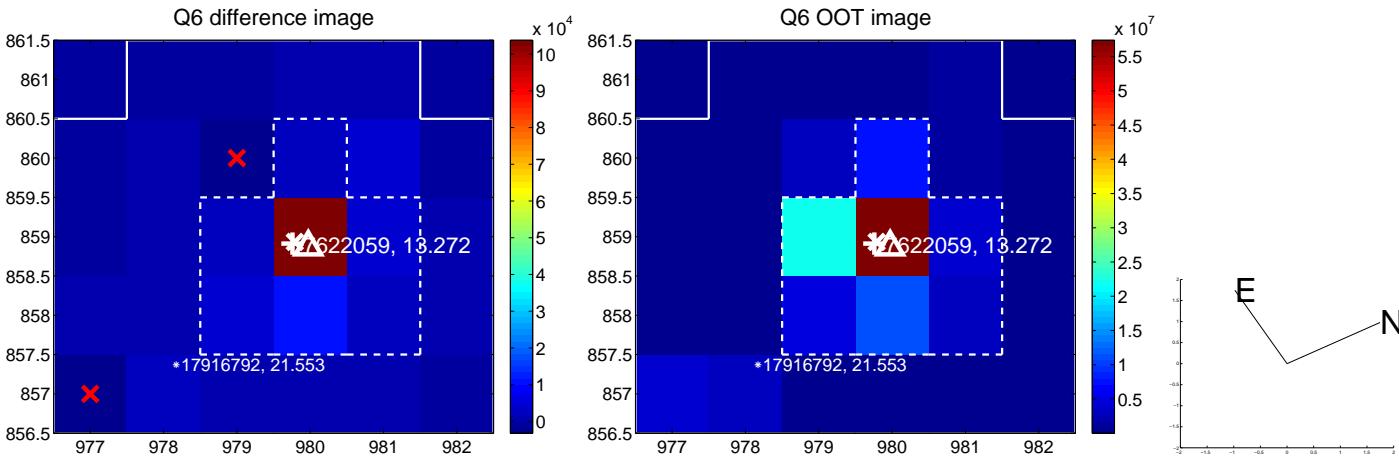
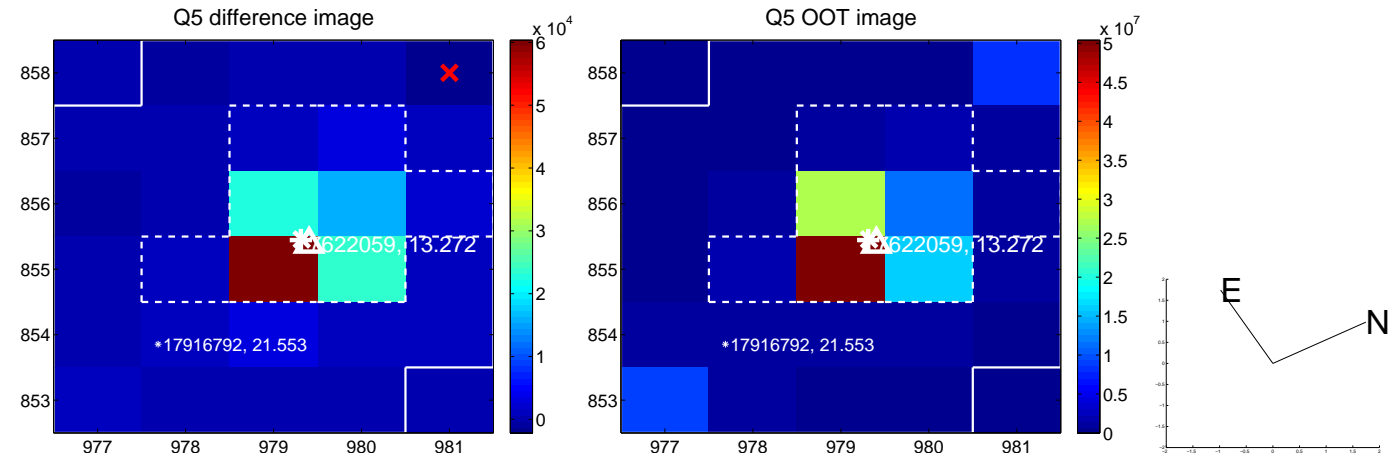
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.257 ± 0.114	2.25	-0.193 ± 0.114	0.170 ± 0.115
PRF-fit source offset from KIC position	0.212 ± 0.113	1.88	-0.189 ± 0.114	0.097 ± 0.110
photometric centroid source offset	0.16 ± 0.29	0.55	-0.03 ± 0.25	0.16 ± 0.29

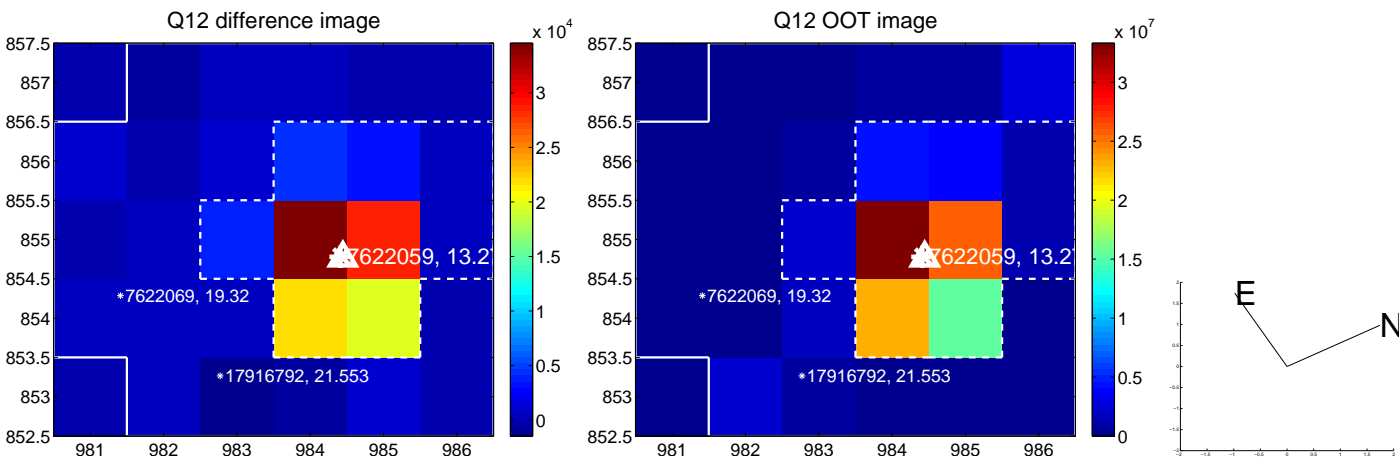
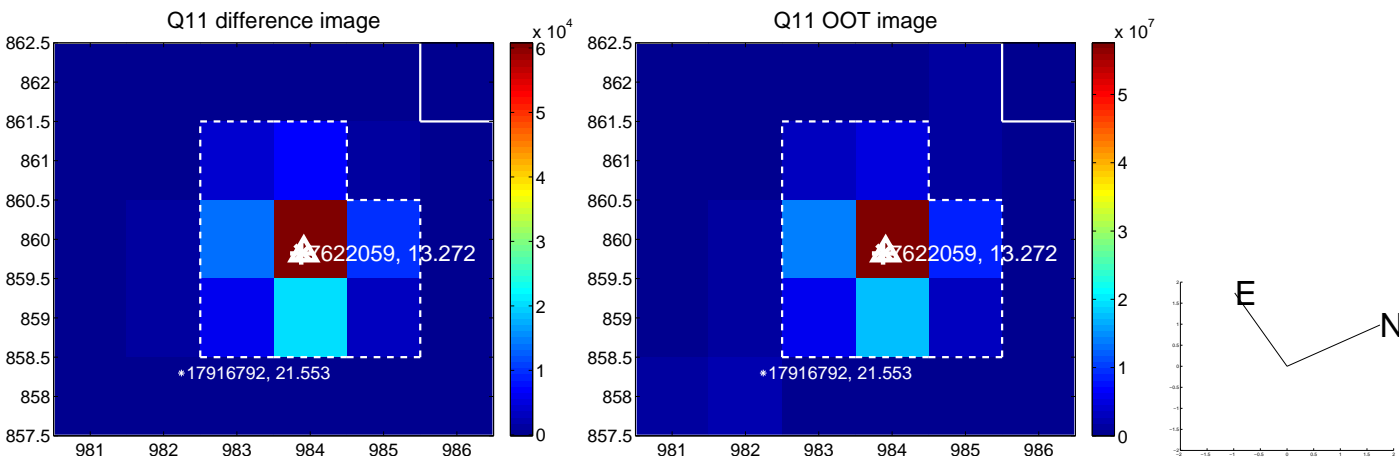
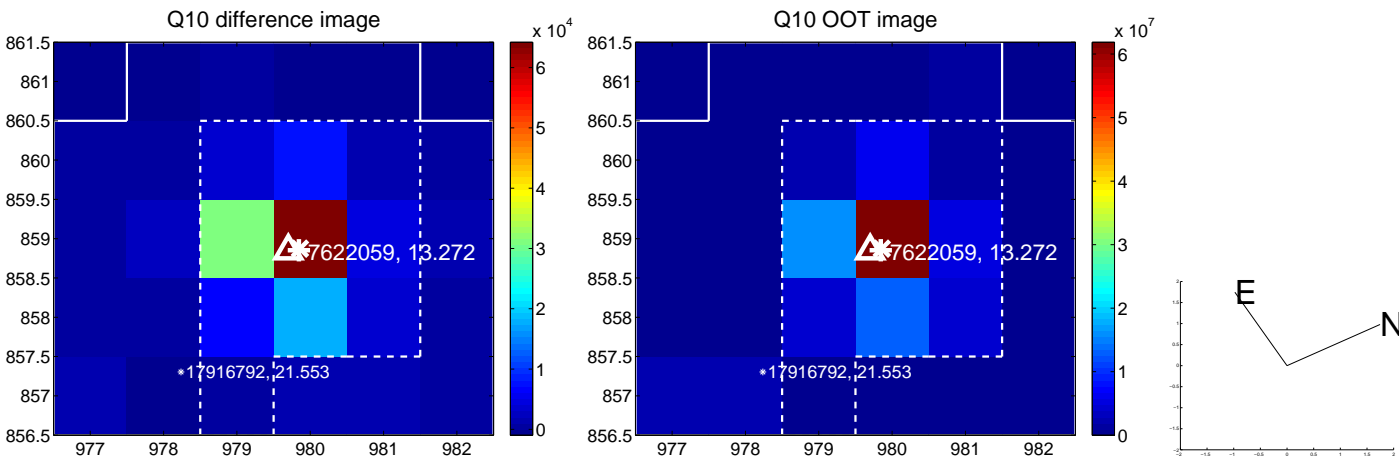
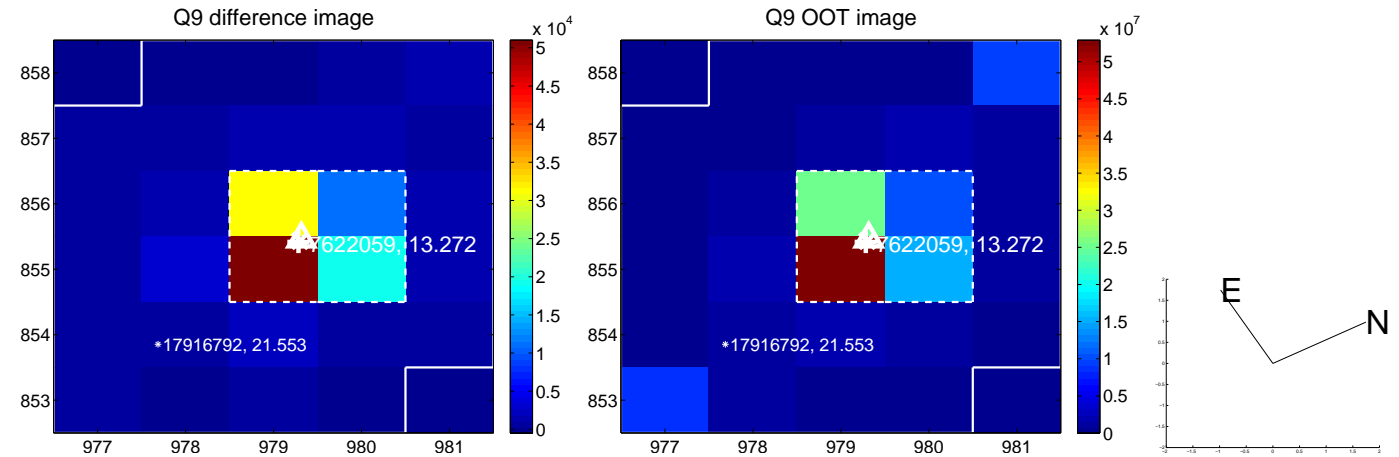


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

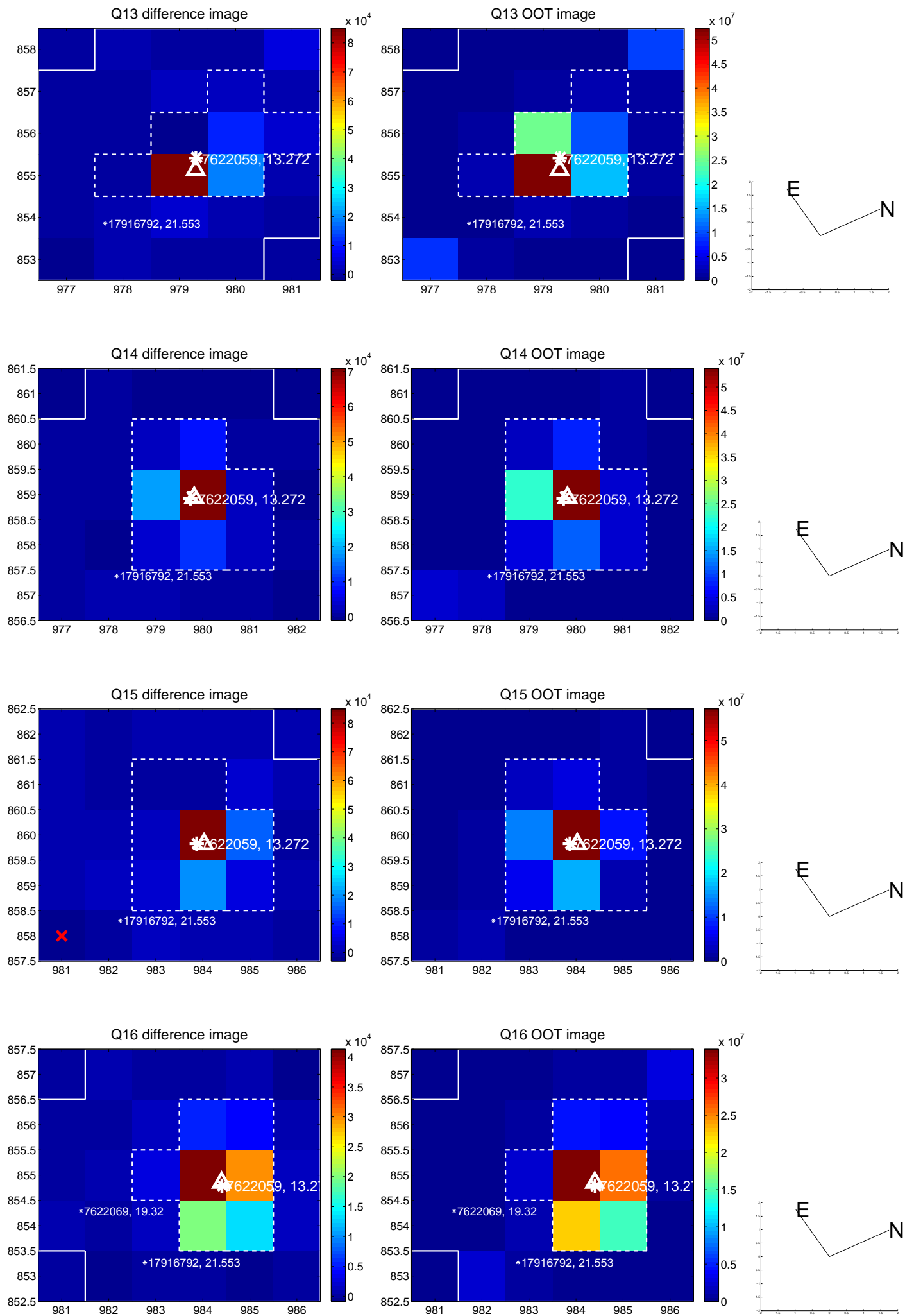
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



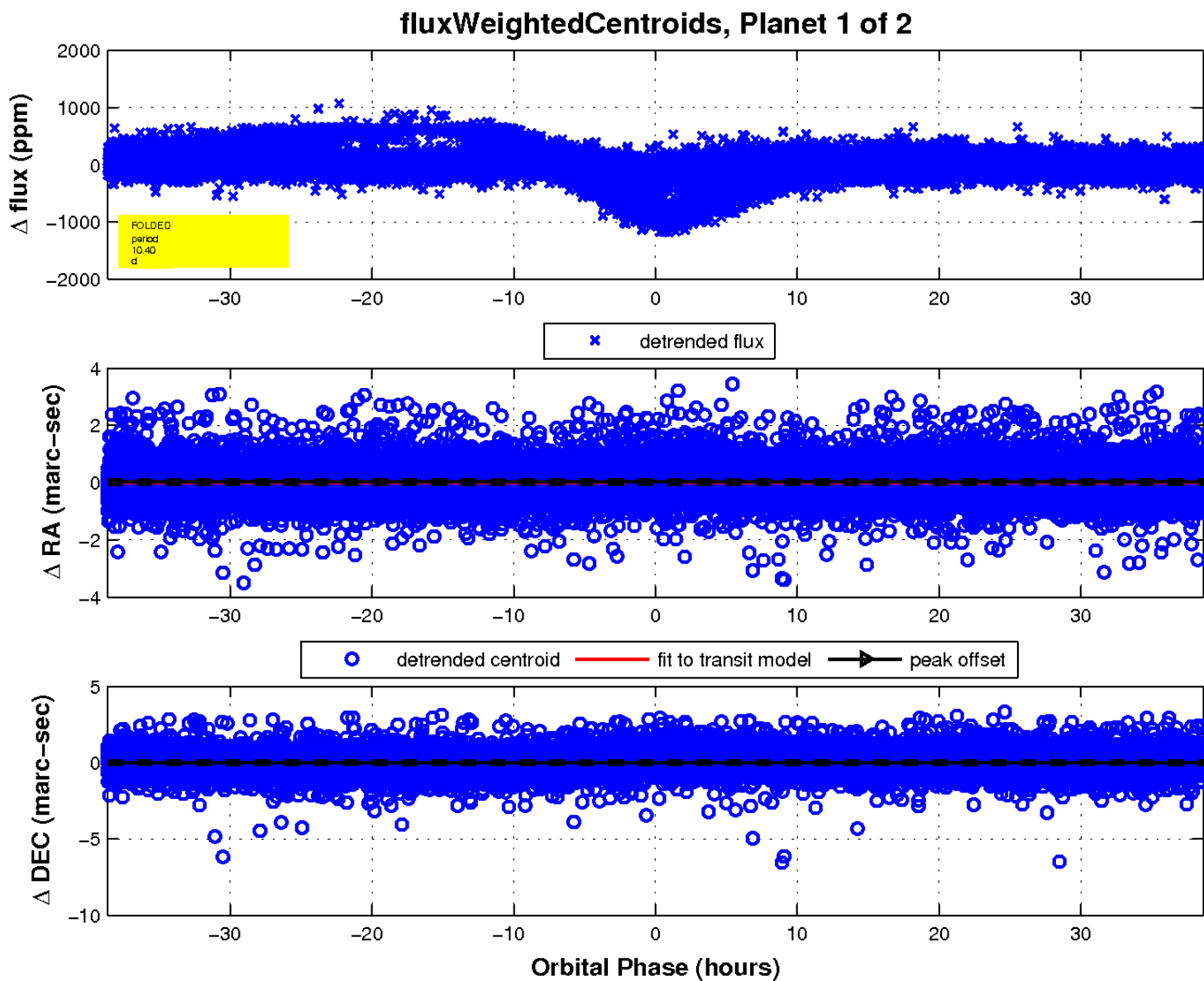
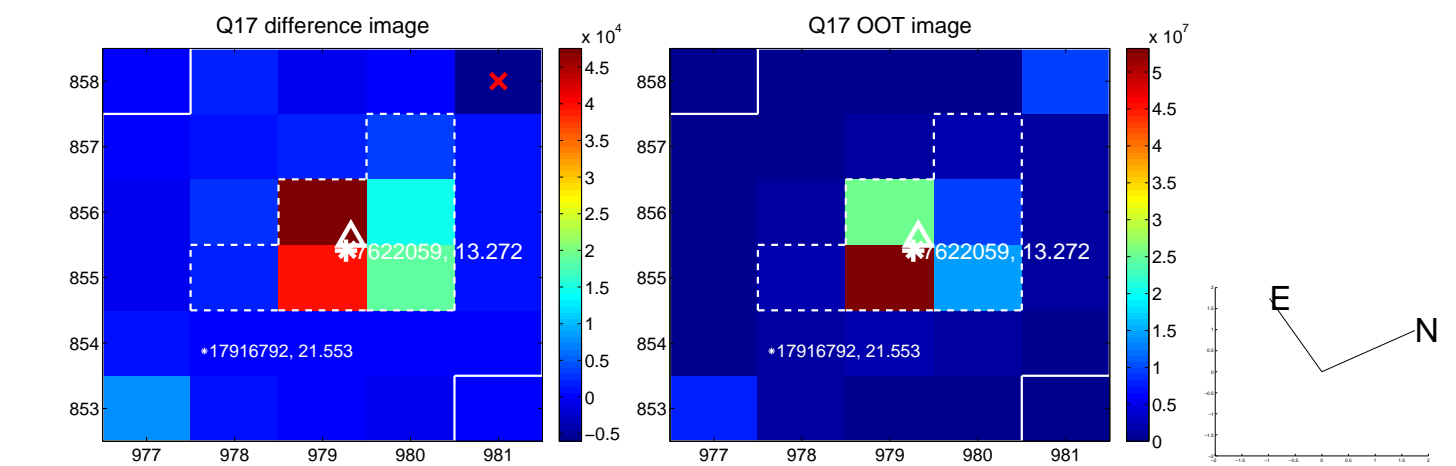
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

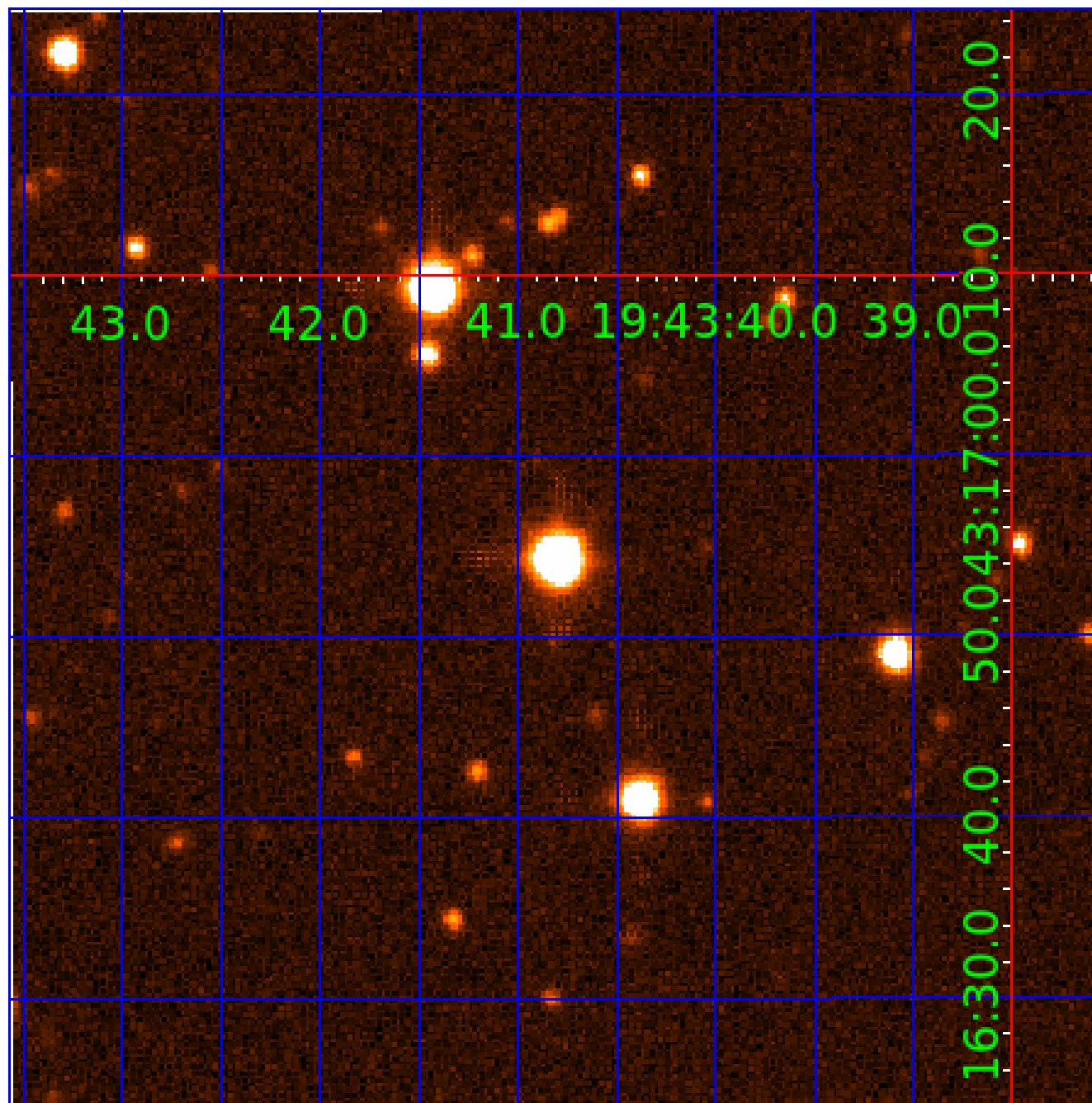


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007622059

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})
007622059-01	OBS	6161.01	10.402979	138.115741	178.1	12.877	38.1	33.9	1.44	6428	3.79	351.36
007622059-02	OBS	No	3.186695	133.764937	25.0	4.309	8.4	8.6	1.44	6428	0.84	1701.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007622059-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007622059-02	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 007622059-02

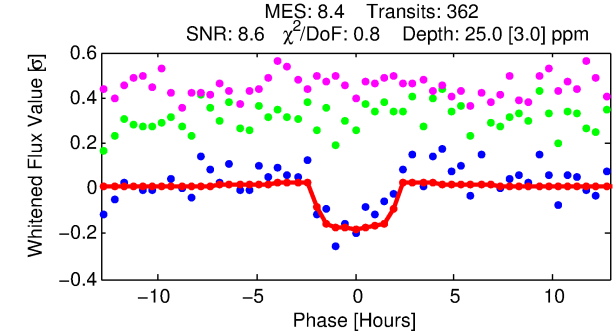
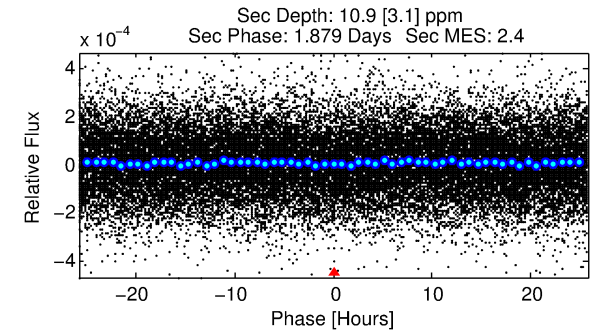
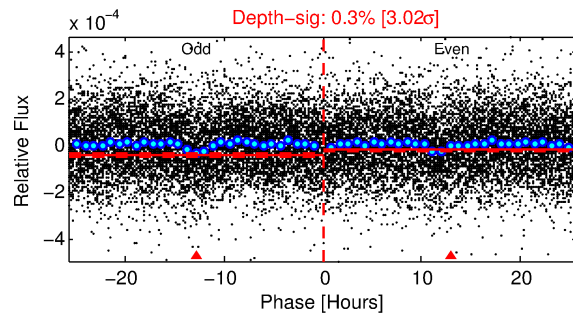
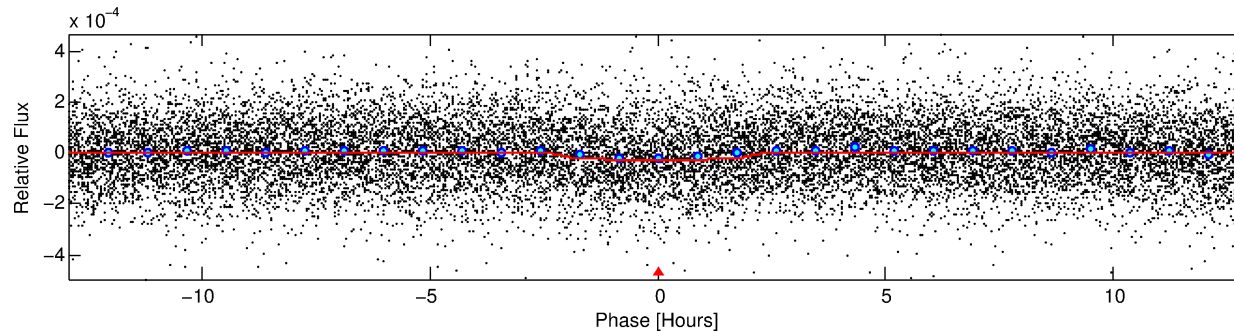
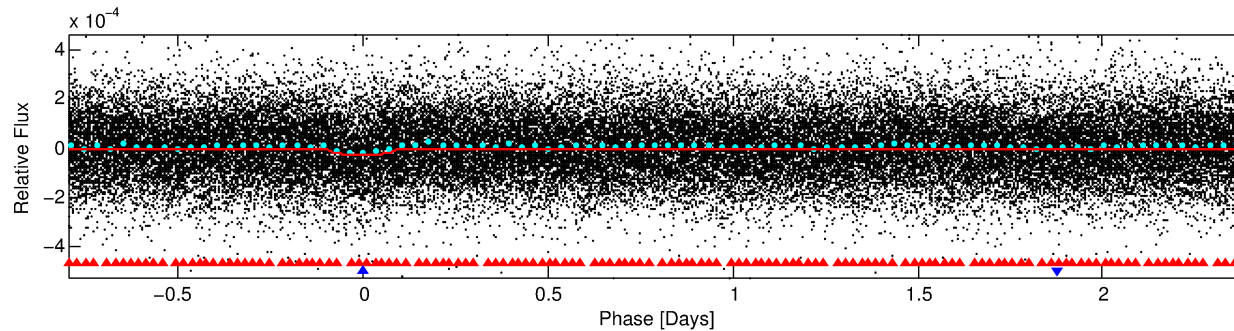
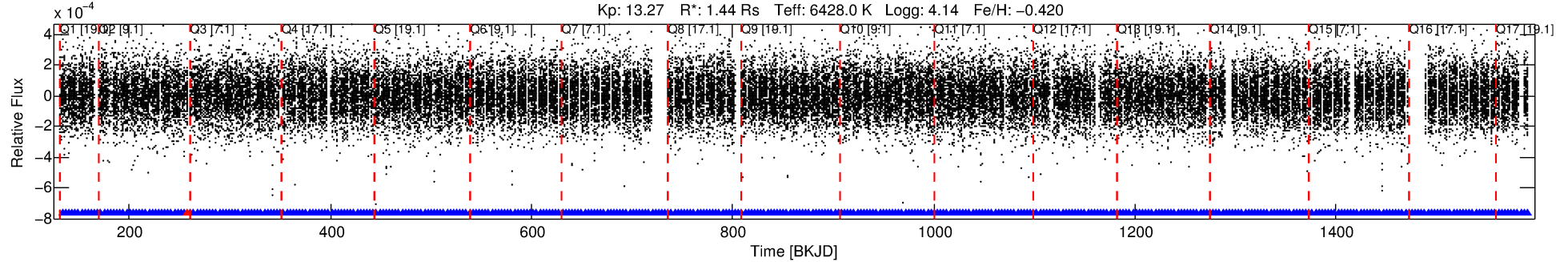
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
007622059-02	7622059	6894.01	7622072	1:2	16.5	-3	-2	13.58	13.27	316.96	Direct-PRF	0	1.25	2.49

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 7622059 Candidate: 2 of 2 Period: 3.187 d
KOI: K06161 Corr: No Ephemeris Match

Kp: 13.27 R*: 1.44 Rs Teff: 6428.0 K Logg: 4.14 Fe/H: -0.420



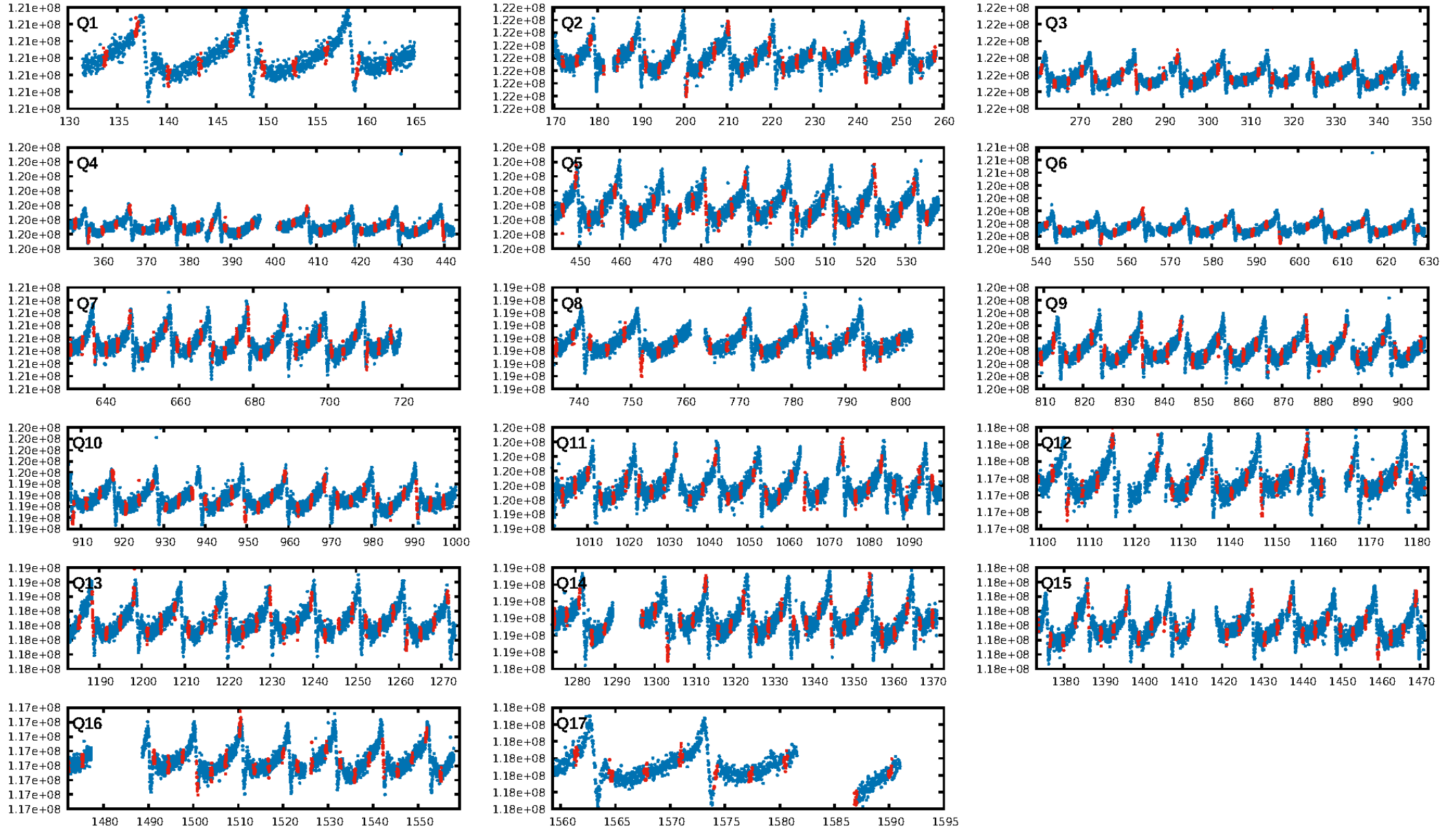
DV Fit Results:

Period = 3.18669 [0.00003] d
Epoch = 133.7649 [0.0062] BKJD
Rp/R* = 0.0054 [0.0018]
a/R* = 2.63 [4.34]
b = 0.91 [0.38]
Seff = 1701.56 [631.75]
Teff = 1638 [152] K
Rp = 0.84 [0.35] Re
a = 0.0431 [0.0096] AU
Ag = 15.63 [12.62] [1.16σ]
Teffp = 5035 [928] K [3.61σ]

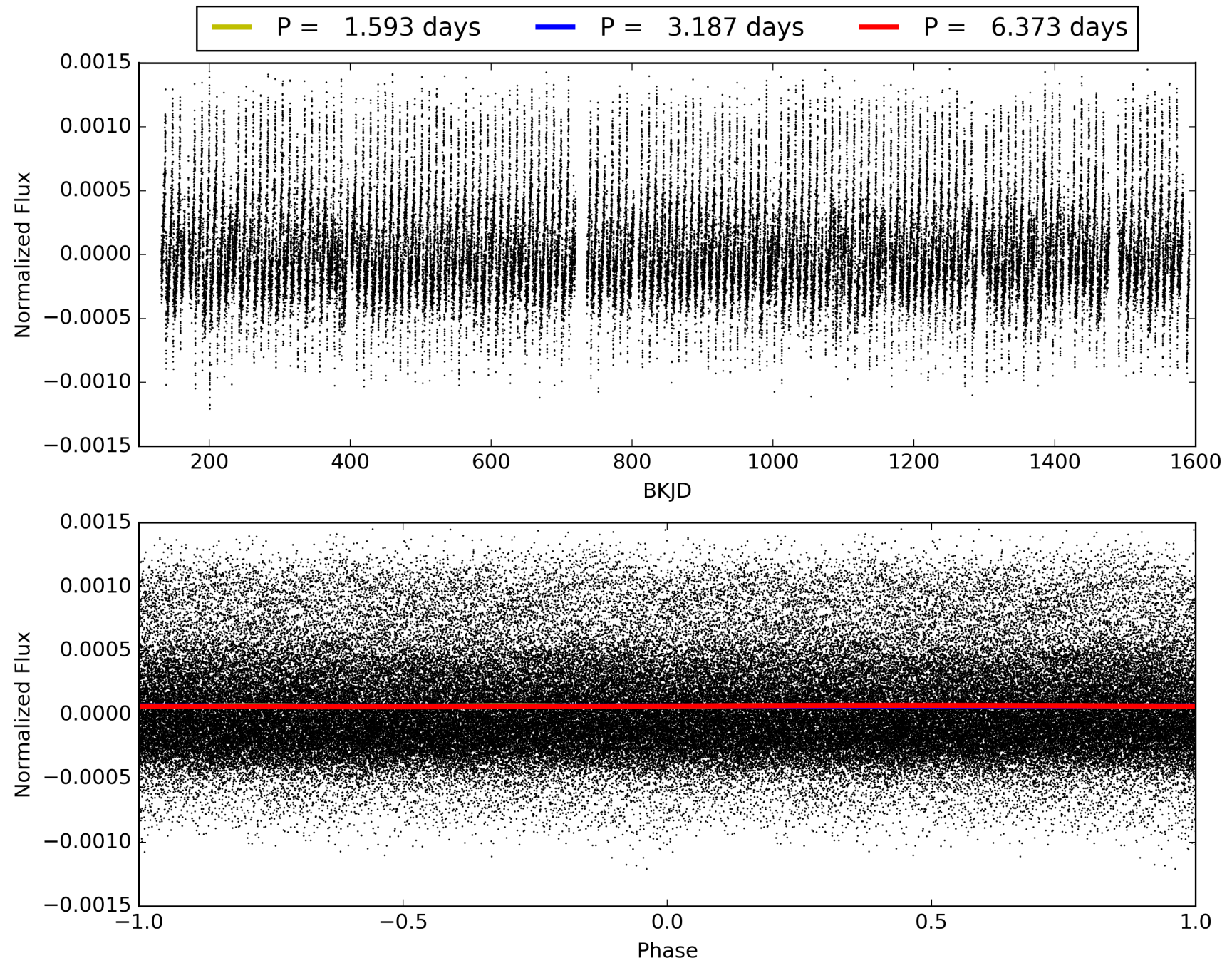
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [12.75σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.01e-15
RollingBand-fgt: 1.00 [344/345]
GhostDiagnostic-chr: -0.2903
Centroid-sig: 0.0%
Centroid-so: N/A
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007622059-02, PDC Light Curves

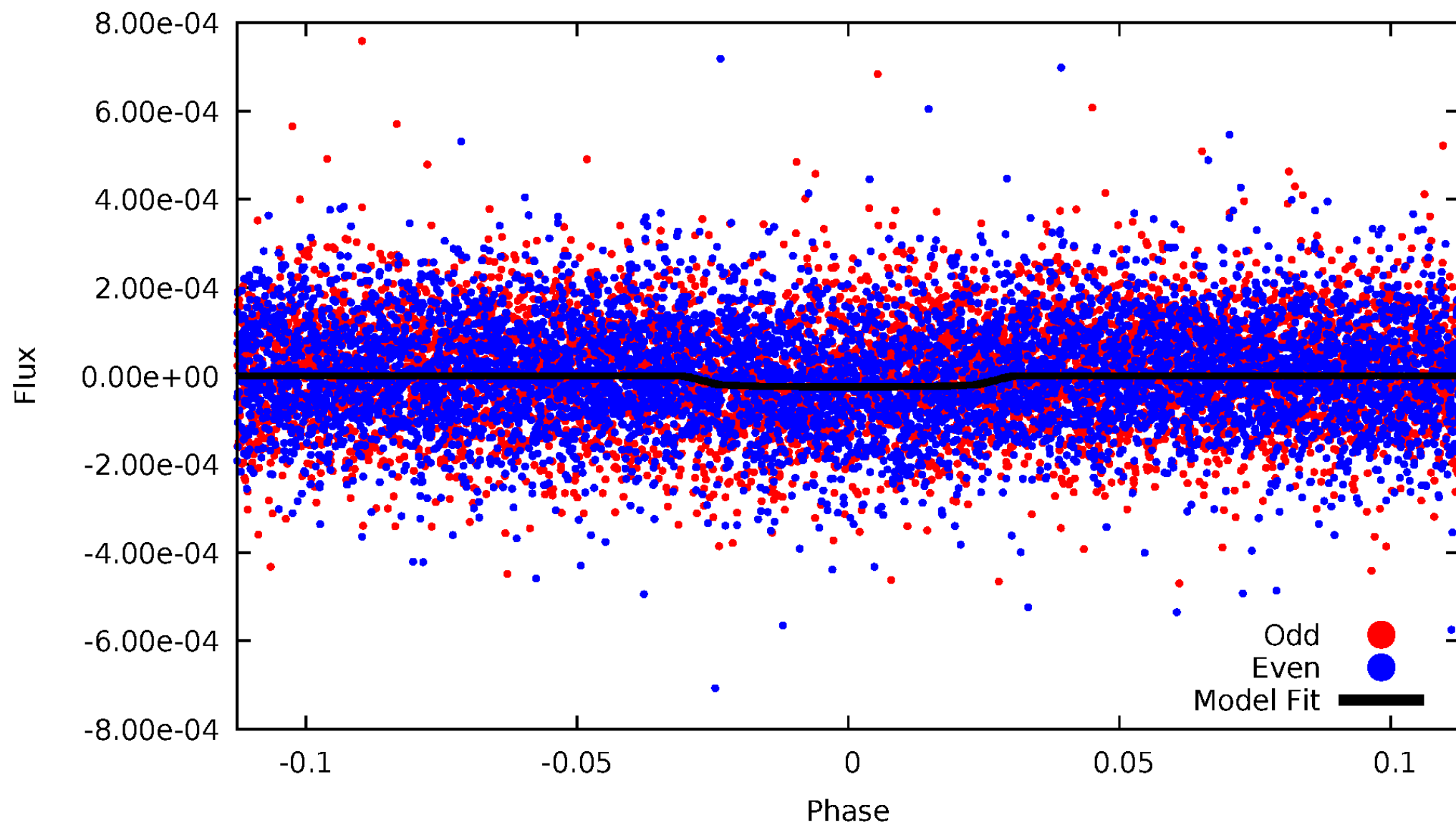


TCE 007622059-02



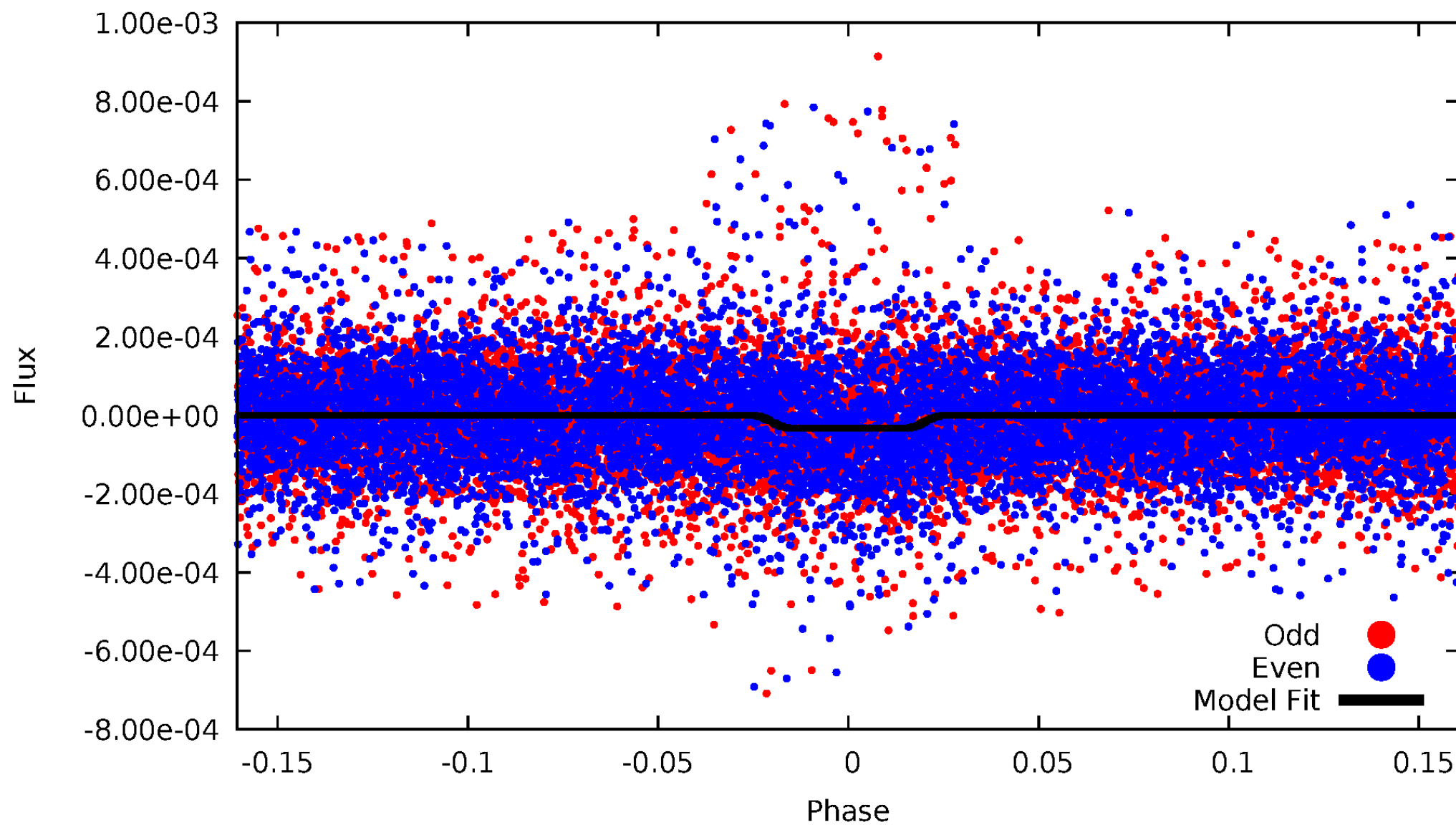
DV Odd/Even

TCE 007622059-02



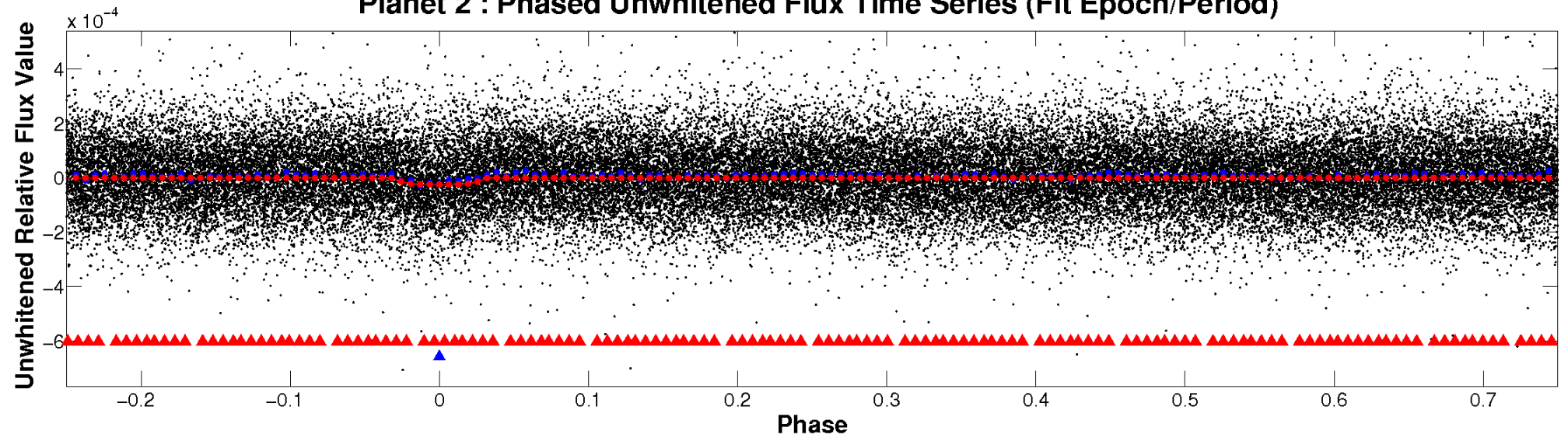
ALT Odd/Even

TCE 007622059-02

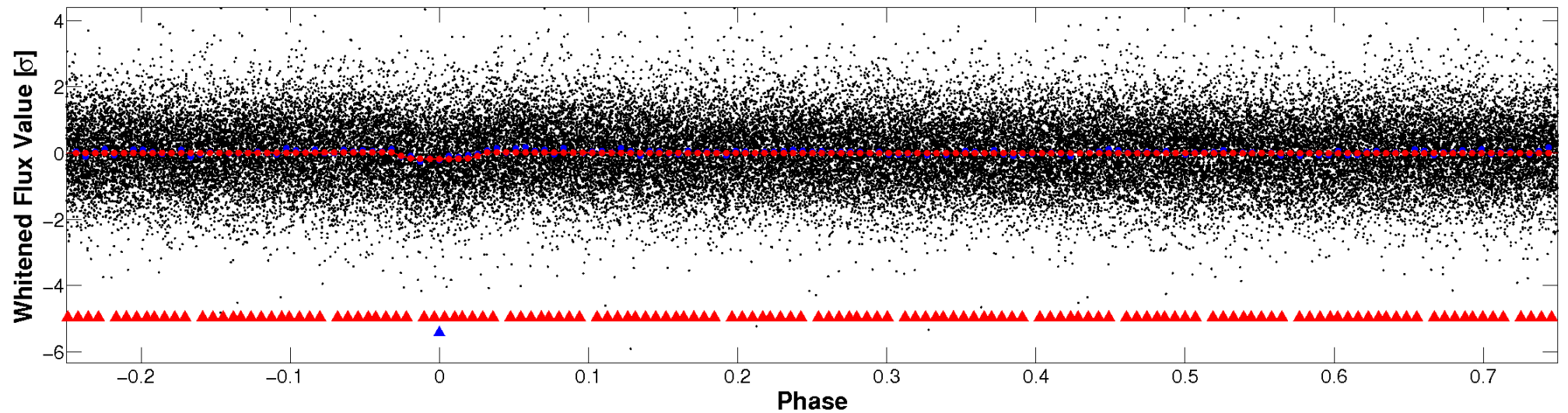


Non-Whitened Vs. Whitened Light Curve

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

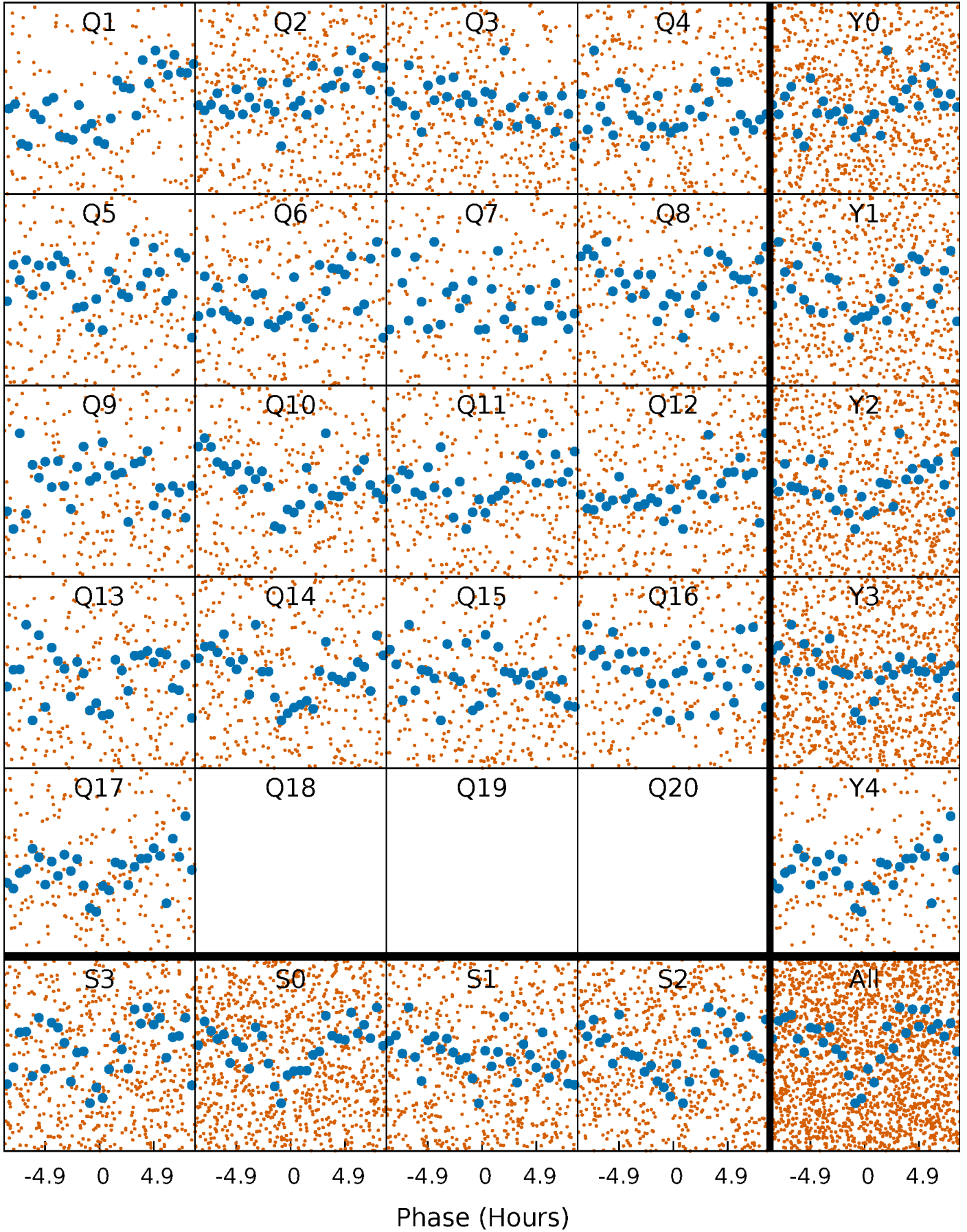


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



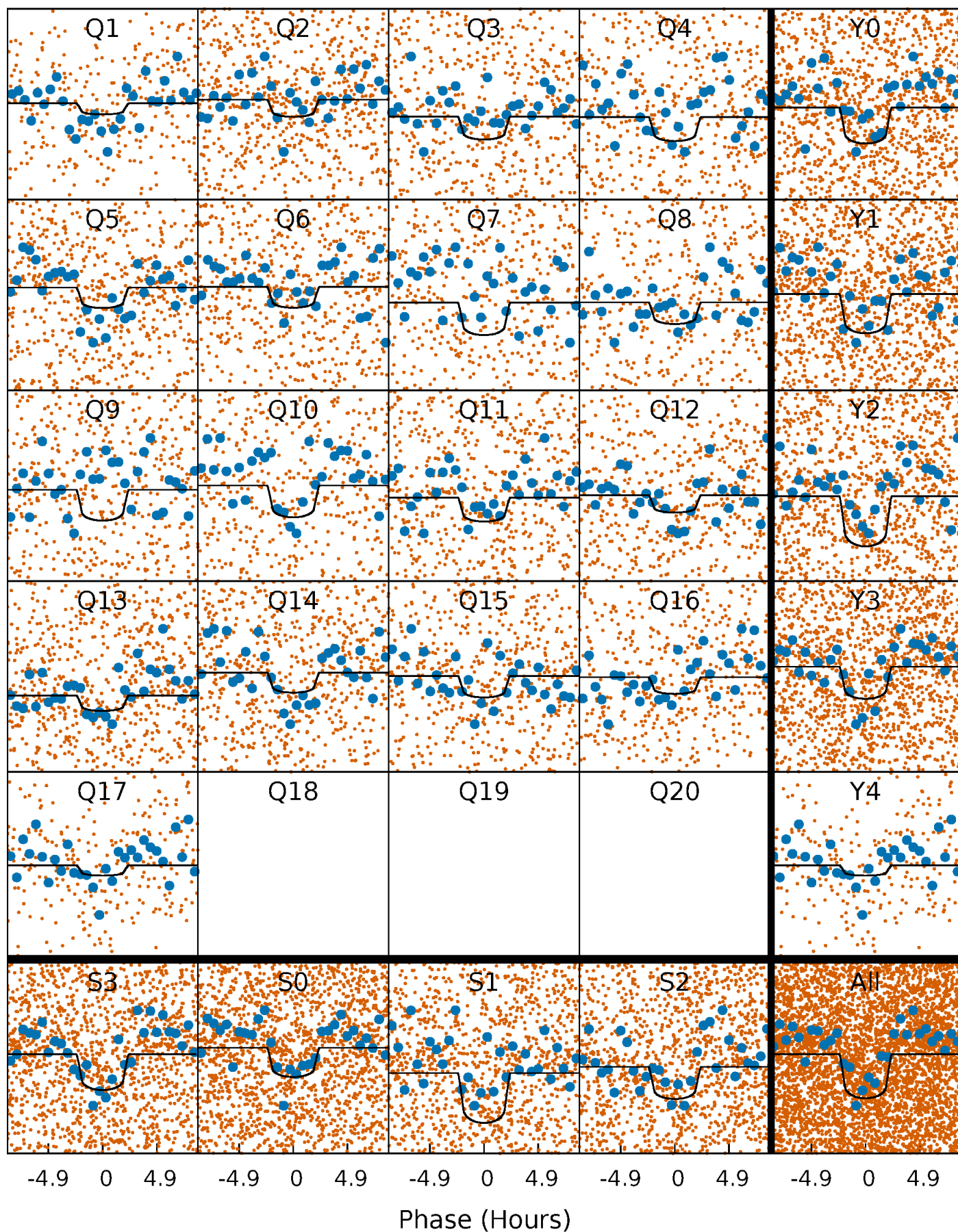
PDC Quarter-Phased Transit Curves

TCE 007622059-02 $P = 3.186695$ Days $T_0 = 133.764937$ (BKJD)



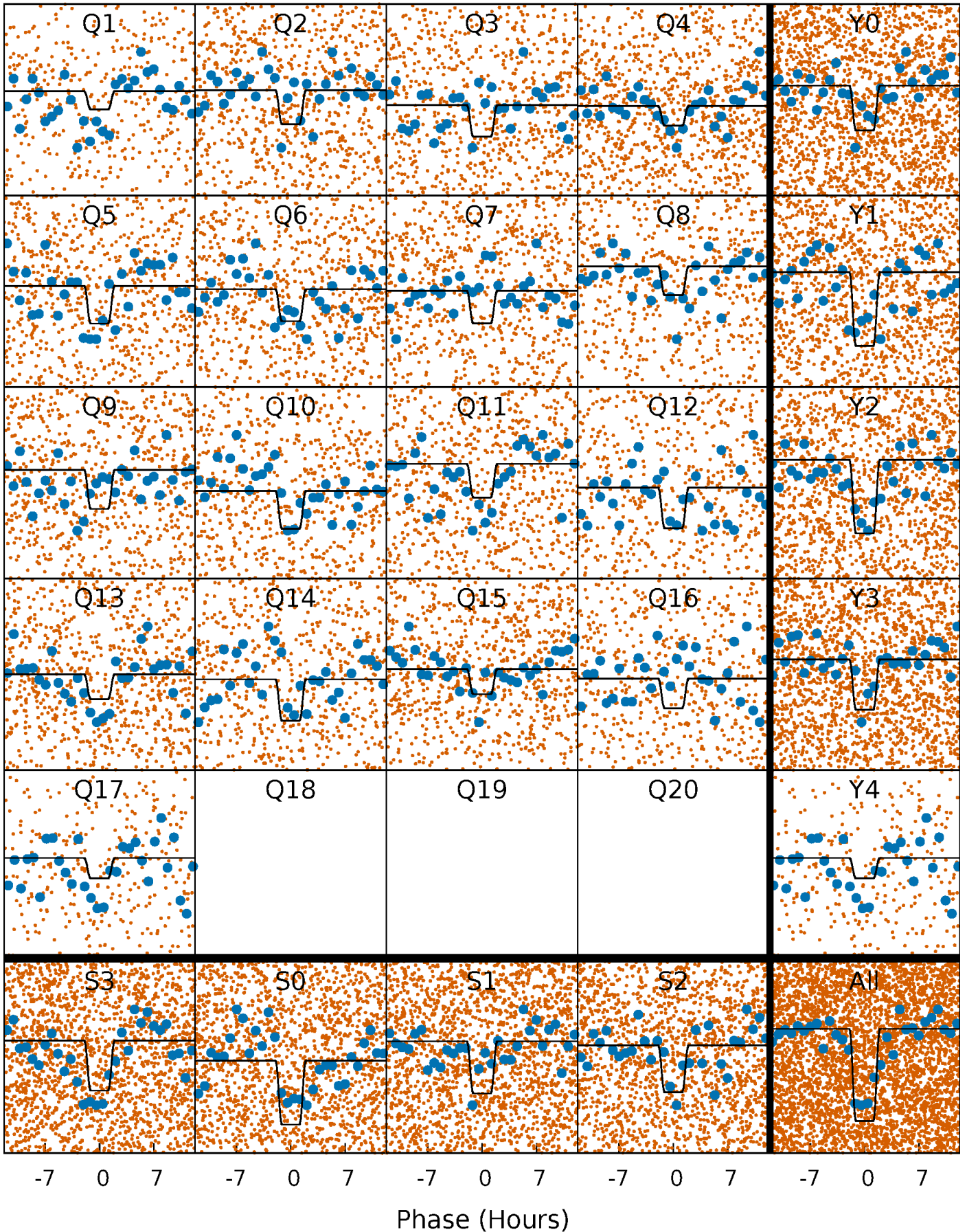
DV Quarter-Phased Transit Curves

TCE 007622059-02 P= 3.186695 Days $T_0=133.764937$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

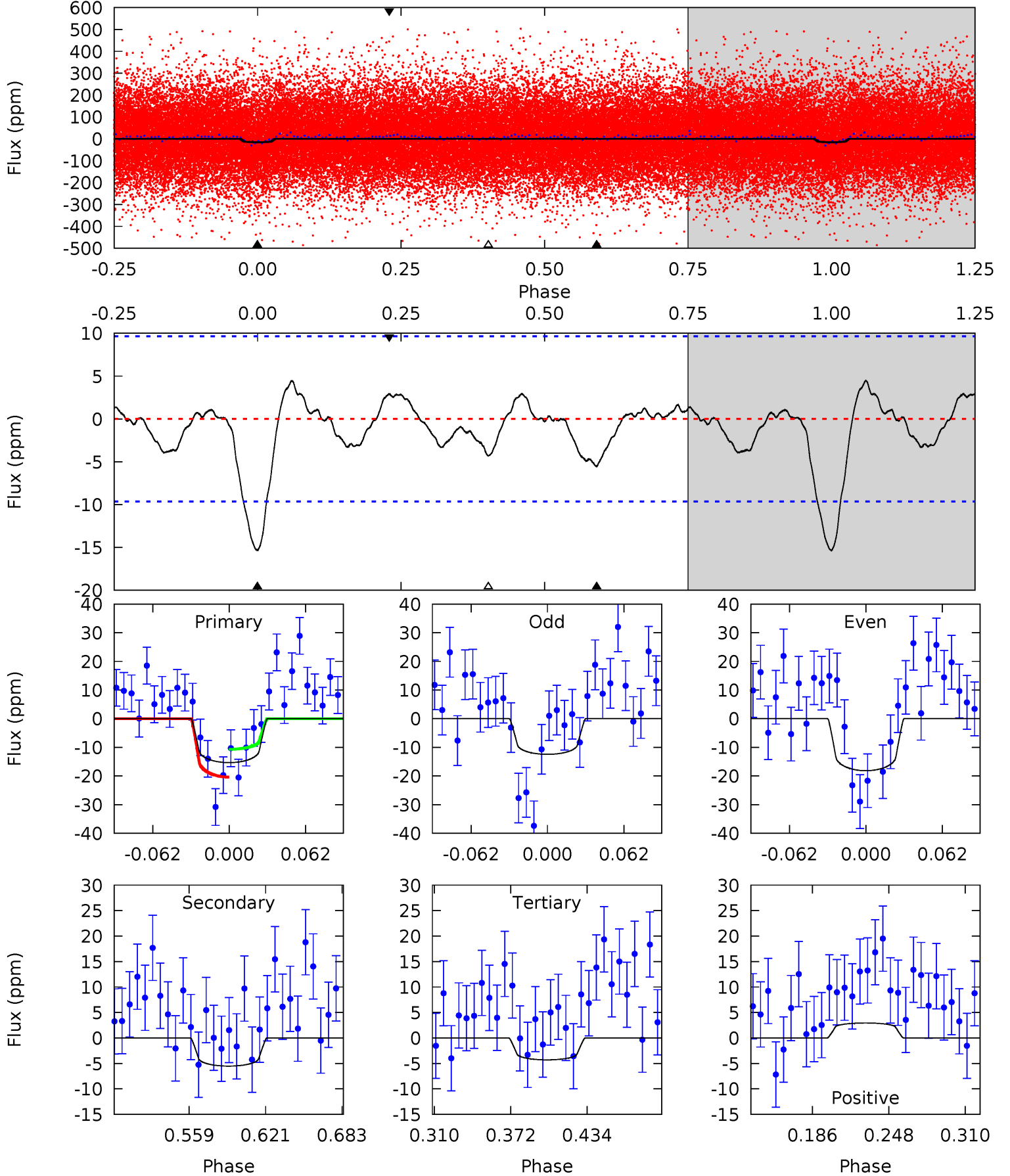
TCE 007622059-02 P= 3.186649 Days $T_0=133.770153$ (BKJD)



DV Model-Shift Uniqueness Test

007622059-02, P = 3.186695 Days, E = 130.578242 Days

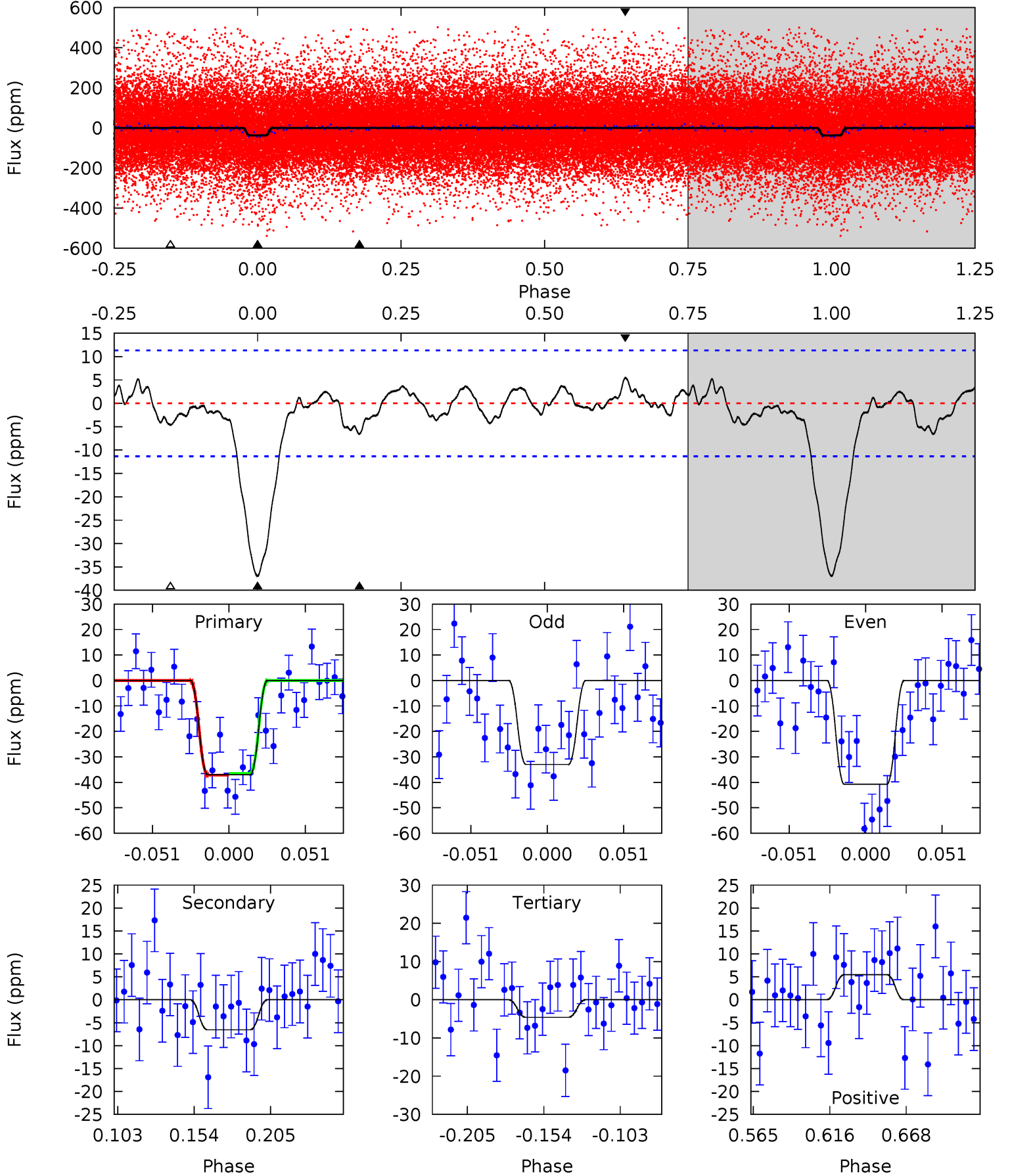
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.41	2.67	2.08	1.42	4.66	1.87	0.91	5.34	5.99	0.59	1.25	1.38	0.78	0.23	2.35



Alt Model-Shift Uniqueness Test

007622059-02, P = 3.186649 Days, E = 130.583504 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	2.72	1.91	2.27	4.70	1.95	0.94	13.4	13.1	0.81	0.45	1.62	0.69	0.13	0.14



Stellar Parameters For KIC 007622059

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6428^{+155}_{-194}	$4.144^{+0.204}_{-0.119}$	$-0.420^{+0.300}_{-0.300}$	$1.436^{+0.311}_{-0.342}$	$1.049^{+0.162}_{-0.133}$	$0.499^{+0.541}_{-0.194}$
	+2%/-3%	+5%/-3%	+71%/-71%	+22%/-24%	+15%/-13%	+109%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007622059-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 2	$0.81^{+0.32}_{-0.29}$	2258^{+132}_{-148}	4405^{+904}_{-596}	$8.472^{+11.964}_{-4.783}$
Alt.	-7 ± 2	$0.89^{+0.30}_{-0.29}$	2262^{+137}_{-153}	4393^{+807}_{-527}	$7.989^{+11.320}_{-3.947}$

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 007622059-02. Kepler magnitude: 13.27. Transit SNR 8.58

There are 0 quarters with good PRF difference image offsets

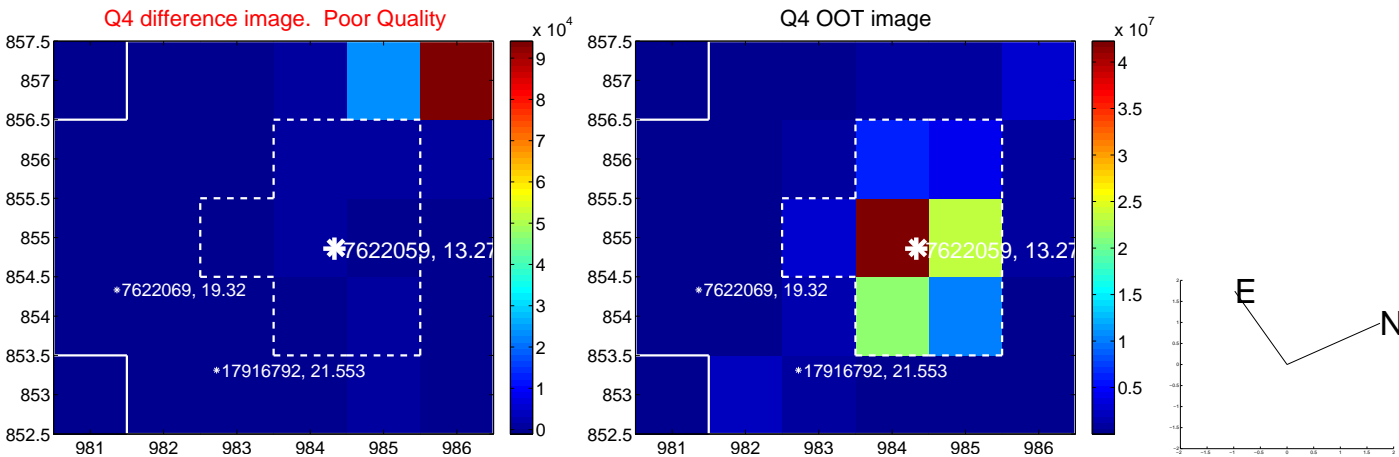
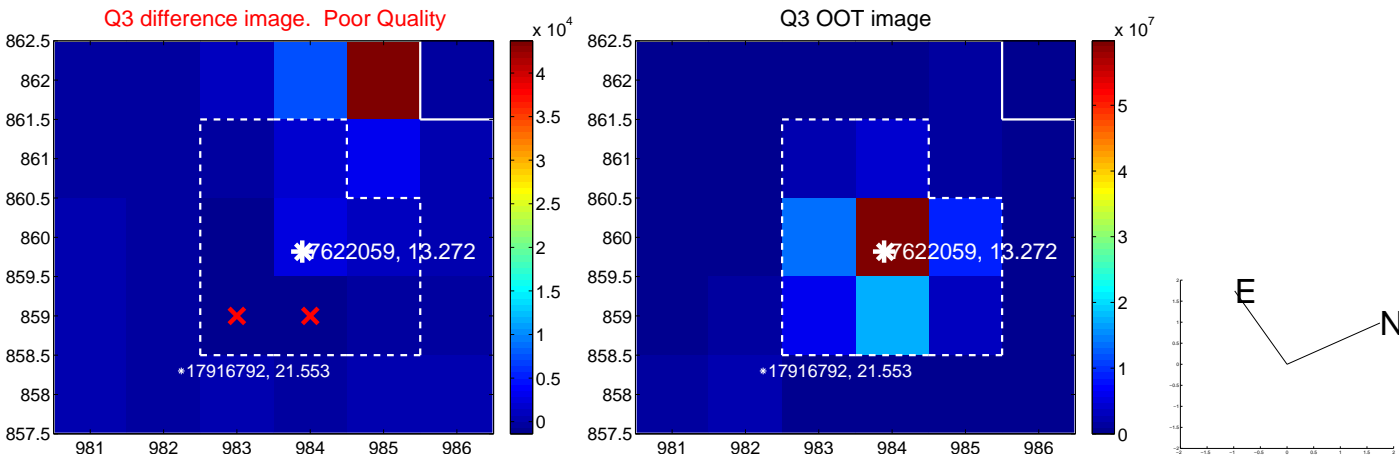
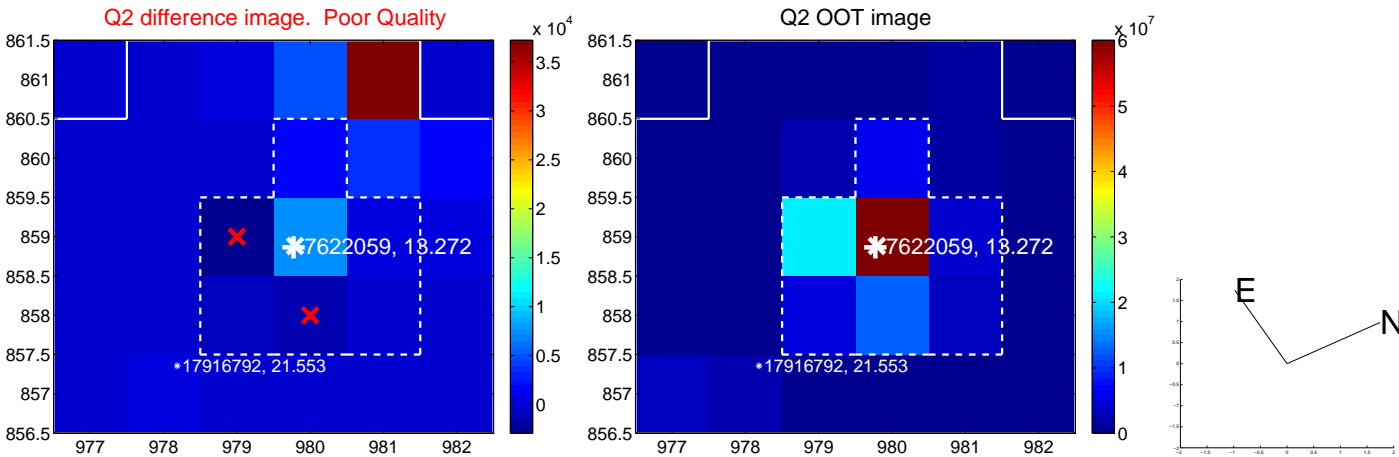
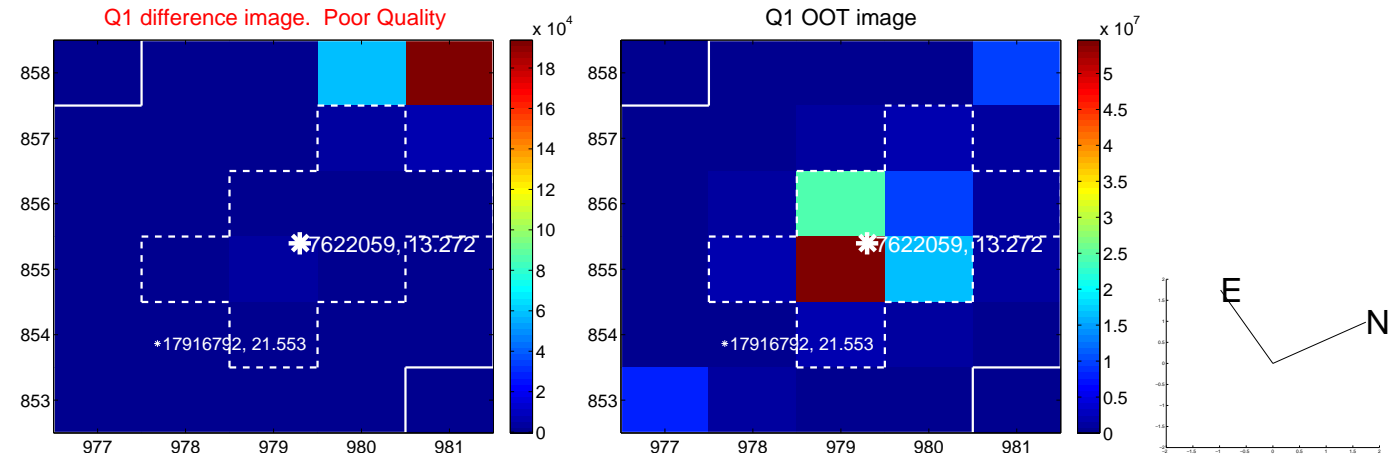
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	—	—	—	—

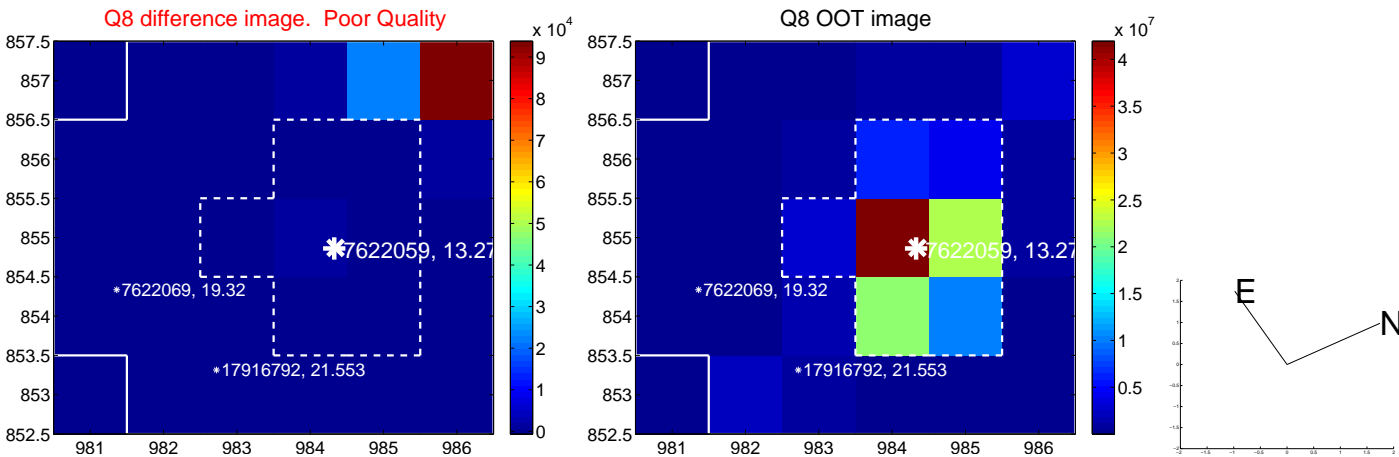
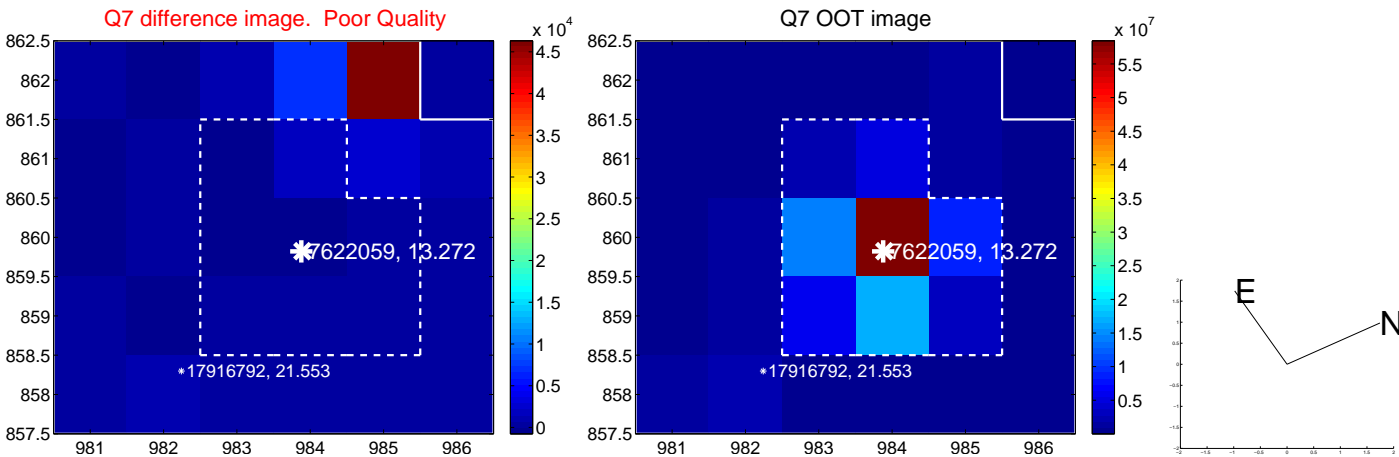
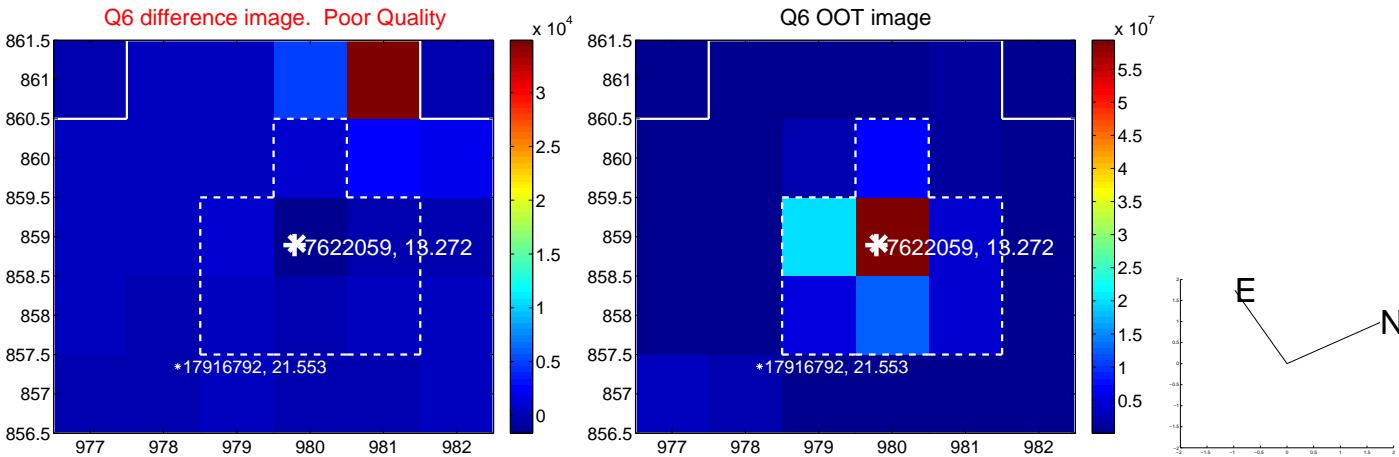
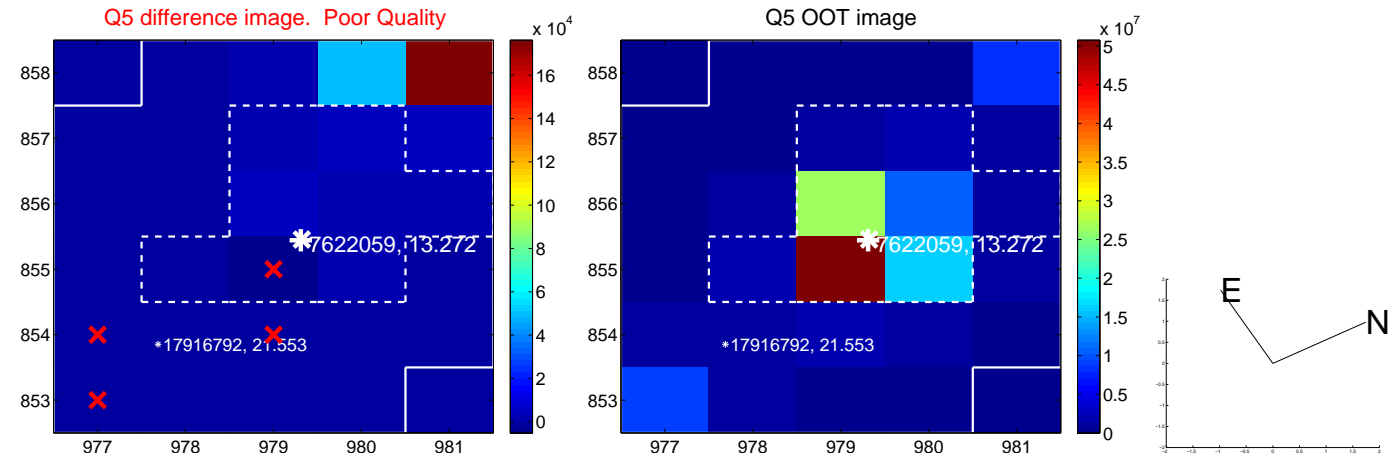


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

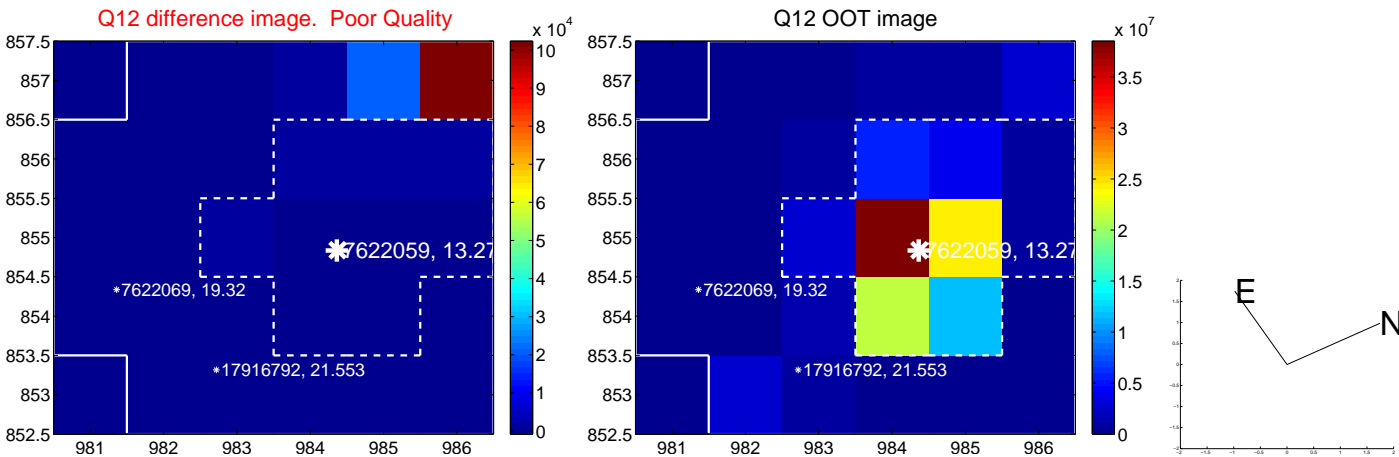
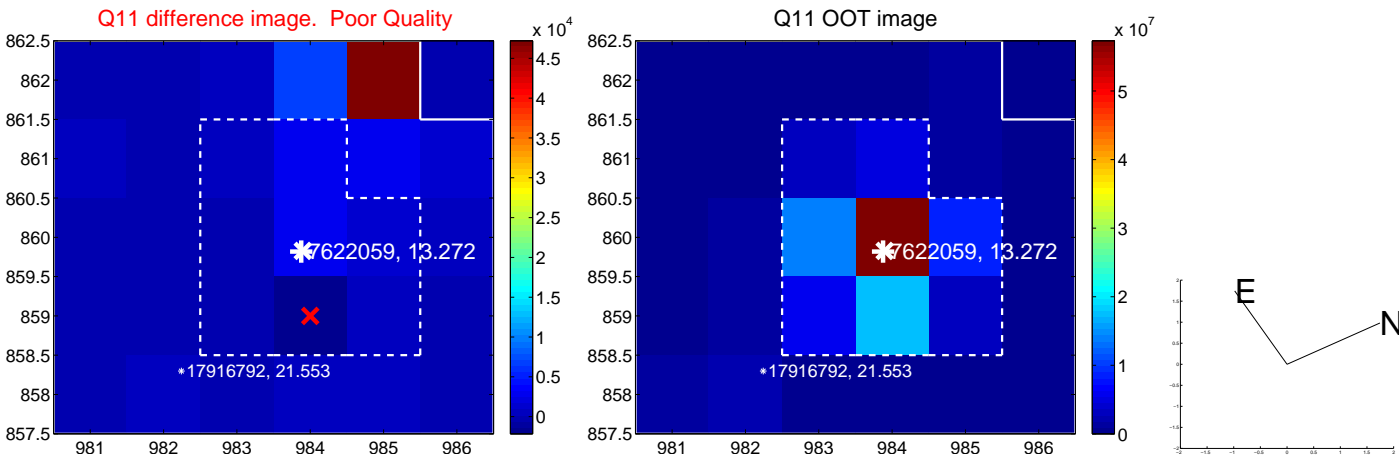
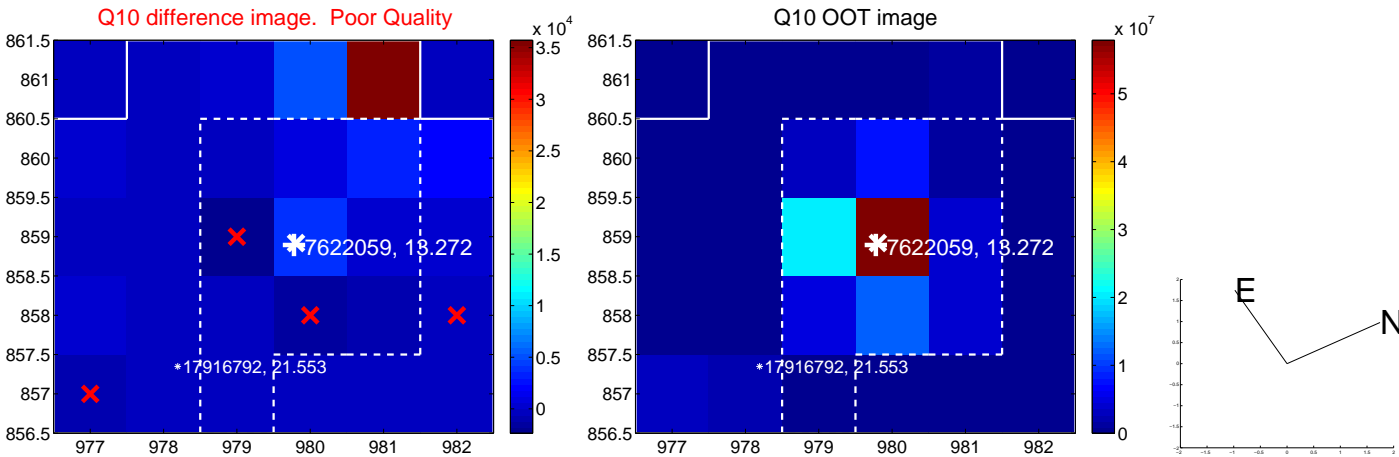
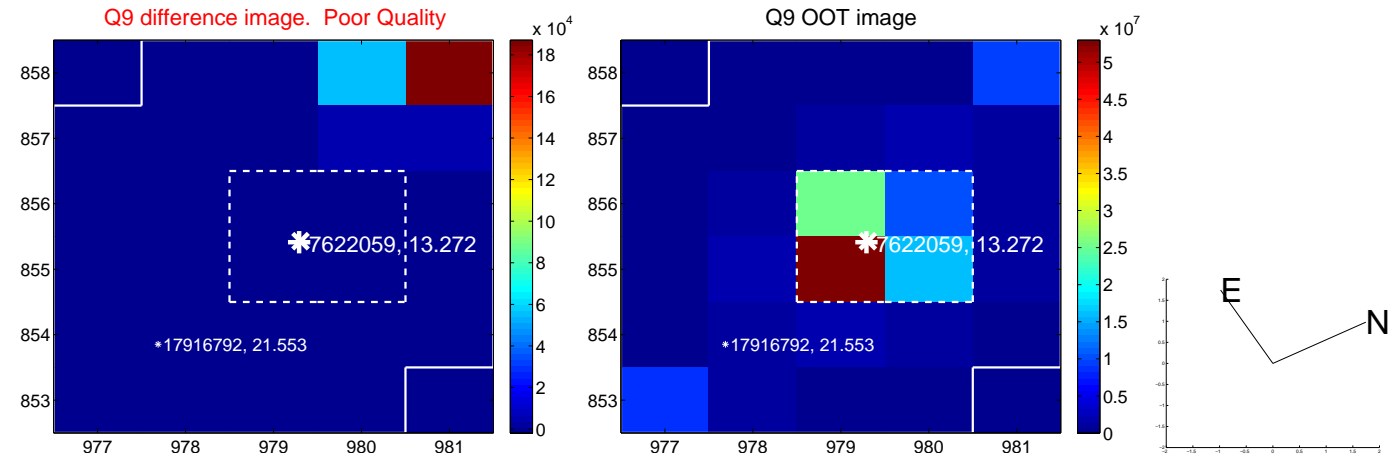
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



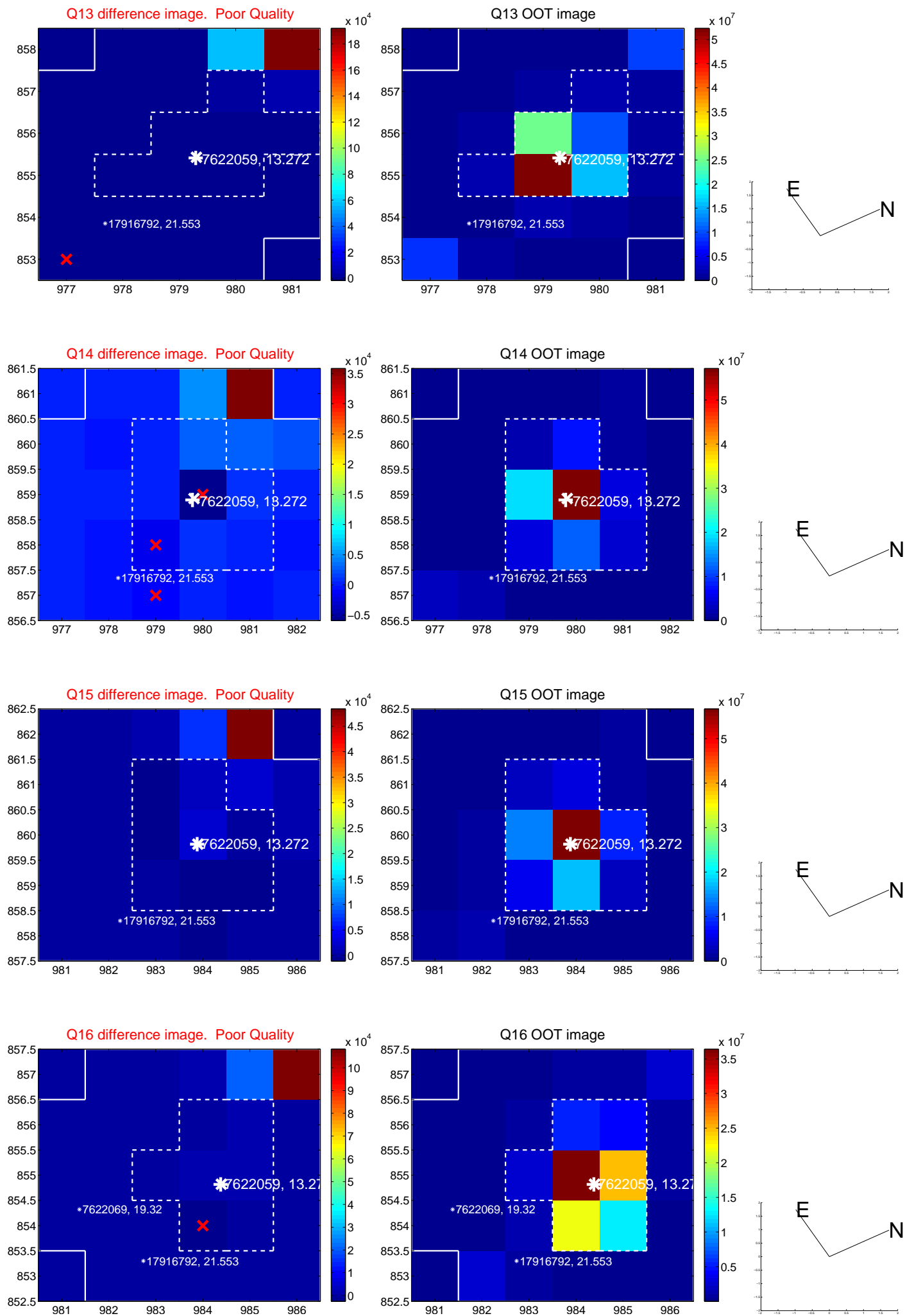
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



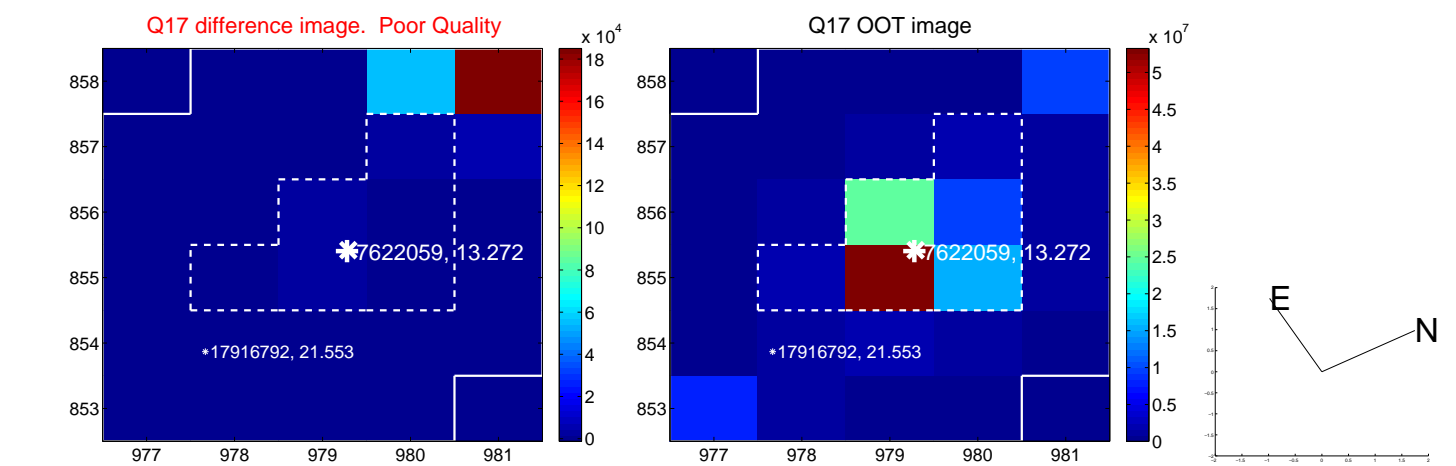
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



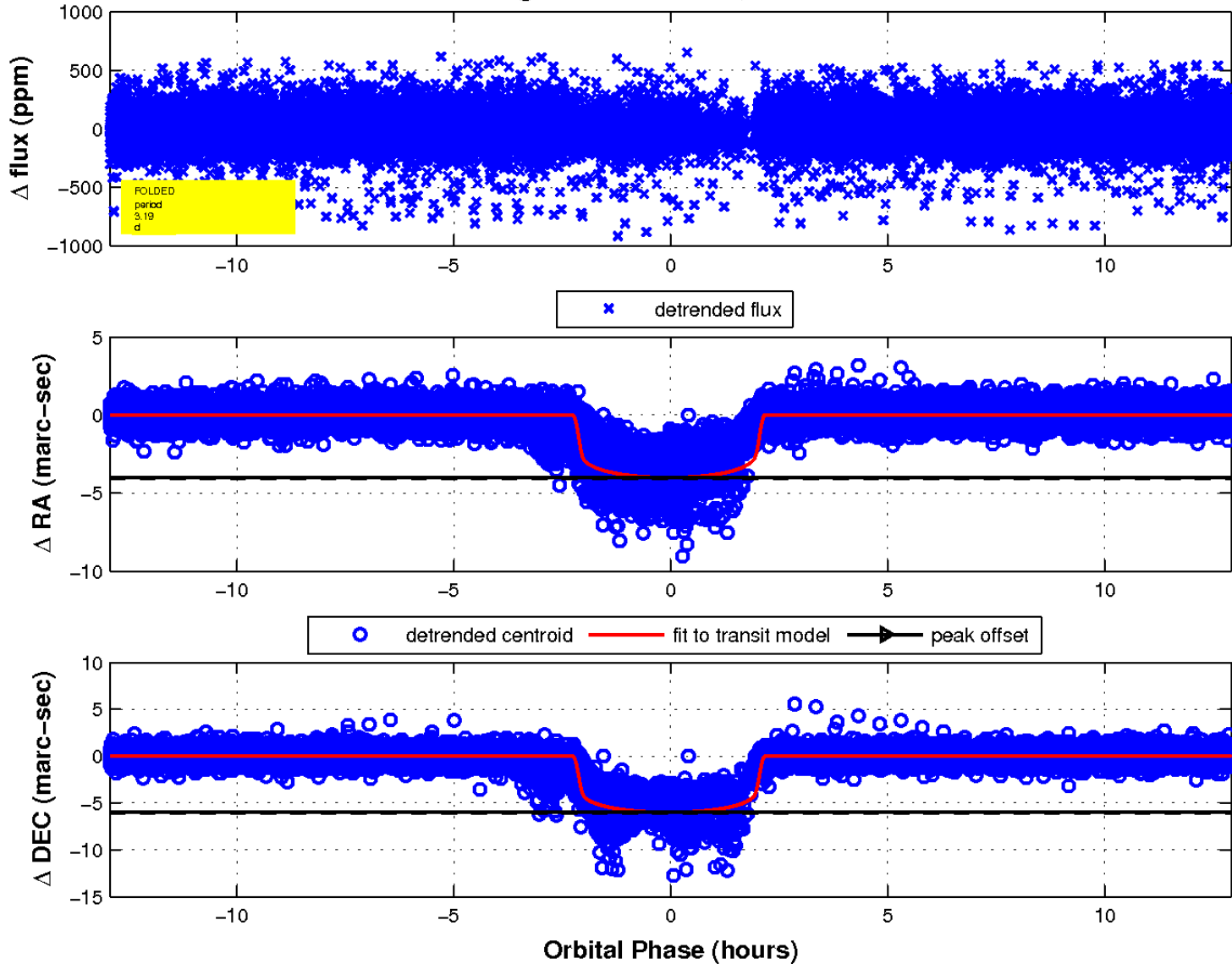
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

