

KIC 008312222

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})
008312222-01	OBS	7017.01	12.823275	136.176612	121620.4	5.318	3967.2	3387.0	0.83	5973	42.26	72.16
008312222-02	OBS	No	12.823272	143.036811	82953.6	6.704	2878.3	2791.1	0.83	5973	35.03	72.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008312222-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008312222-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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 008312222-01

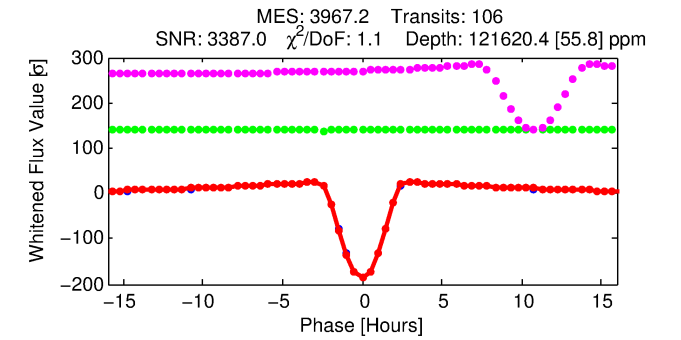
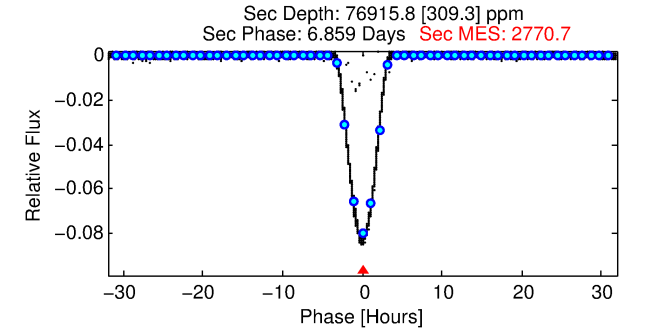
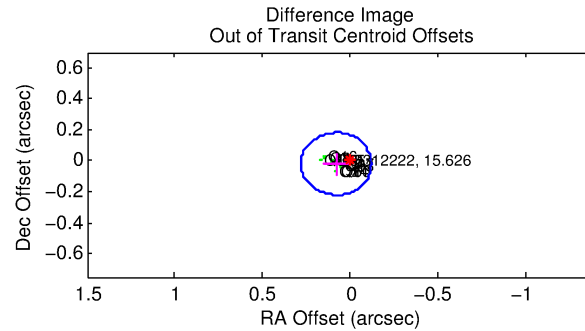
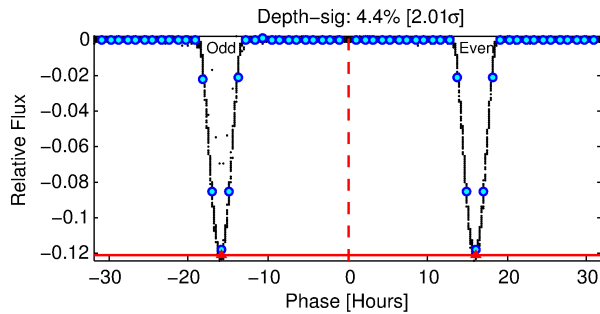
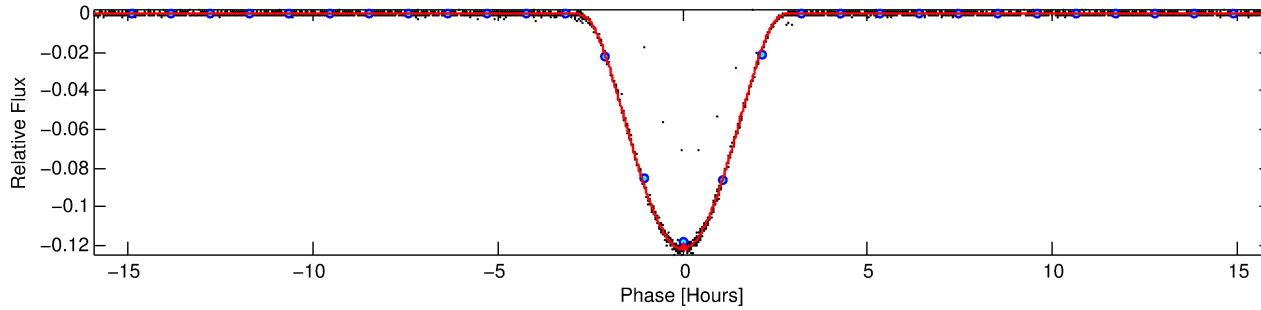
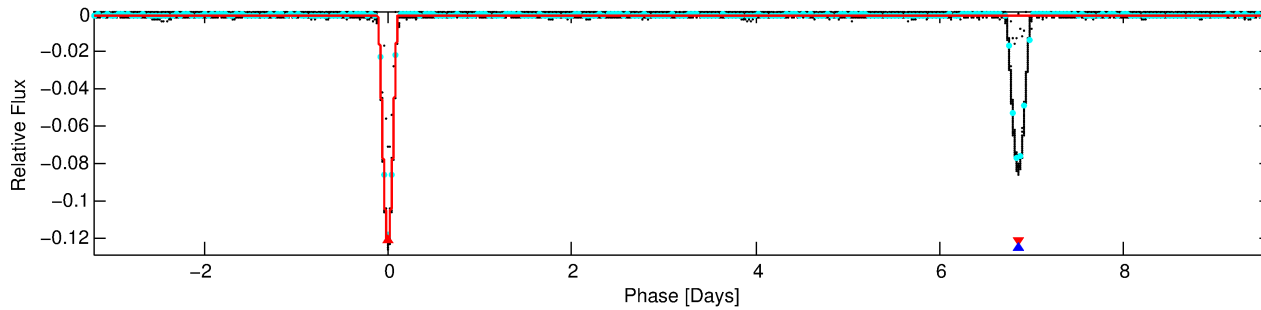
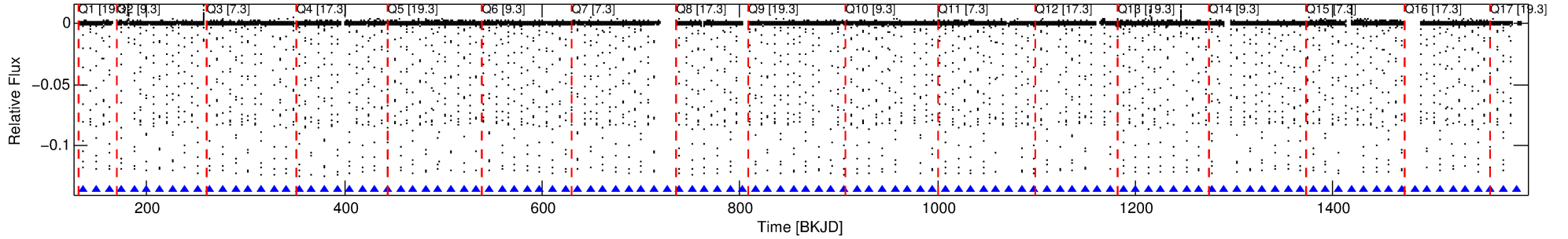
No Significant Match Found

DV One-Page Summary

KIC: 8312222 Candidate: 1 of 2 Period: 12.823 d

KOI: K07017.01 Corr: 1.000

Kp: 15.63 R*: 0.83 Rs Teff: 5973.0 K Logg: 4.56 Fe/H: -0.460



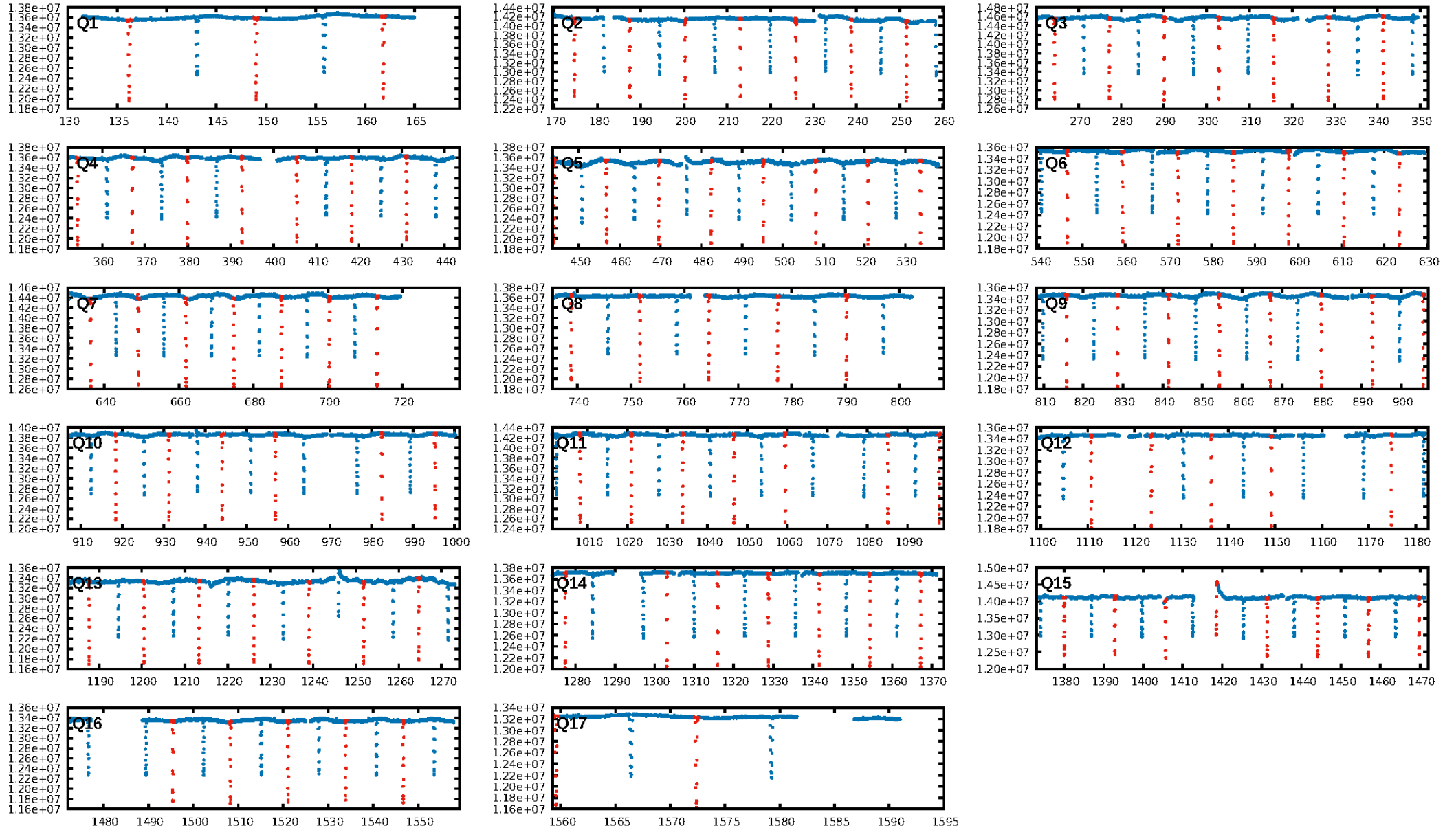
DV Fit Results:

Period = 12.82328 [0.00000] d
Epoch = 136.1766 [0.0000] BKJD
Rp/R* = 0.4688 [0.0213]
a/R* = 21.41 [0.05]
b = 0.90 [0.03]
Seff = 72.16 [28.17]
Teff = 743 [73] K
Rp = 42.26 [12.33] Re
a = 0.1038 [0.0257] AU
Ag = 255.49 [96.68] [2.63σ]
Teffp = 4594 [184] K [19.47σ]

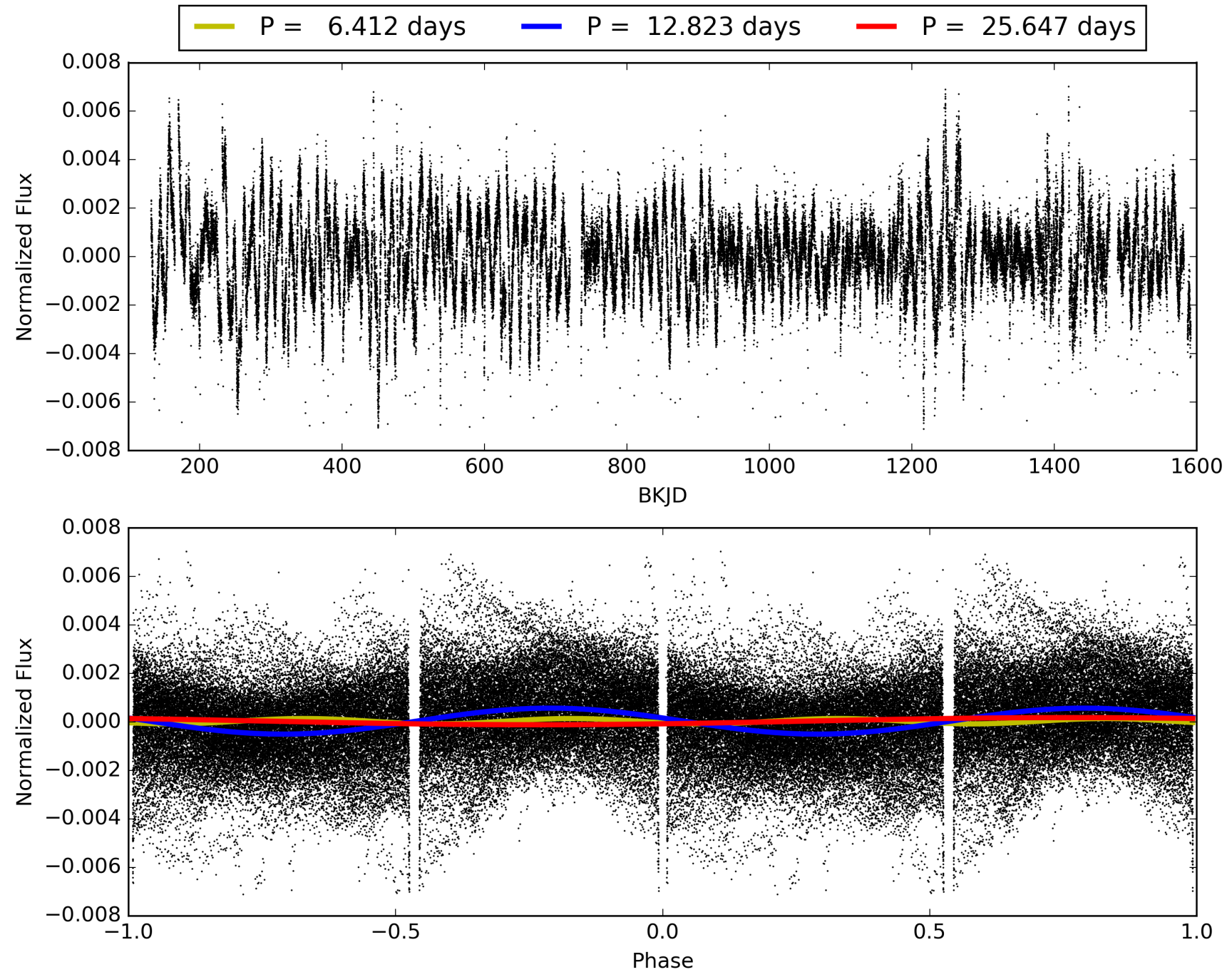
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [101/101]
GhostDiagnostic-chr: 3.89
Centroid-sig: 0.0%
Centroid-so: 0.107 arcsec [37.92σ]
OotOffset-rm: 0.083 arcsec [1.23σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.080 arcsec [1.16σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008312222-01, PDC Light Curves

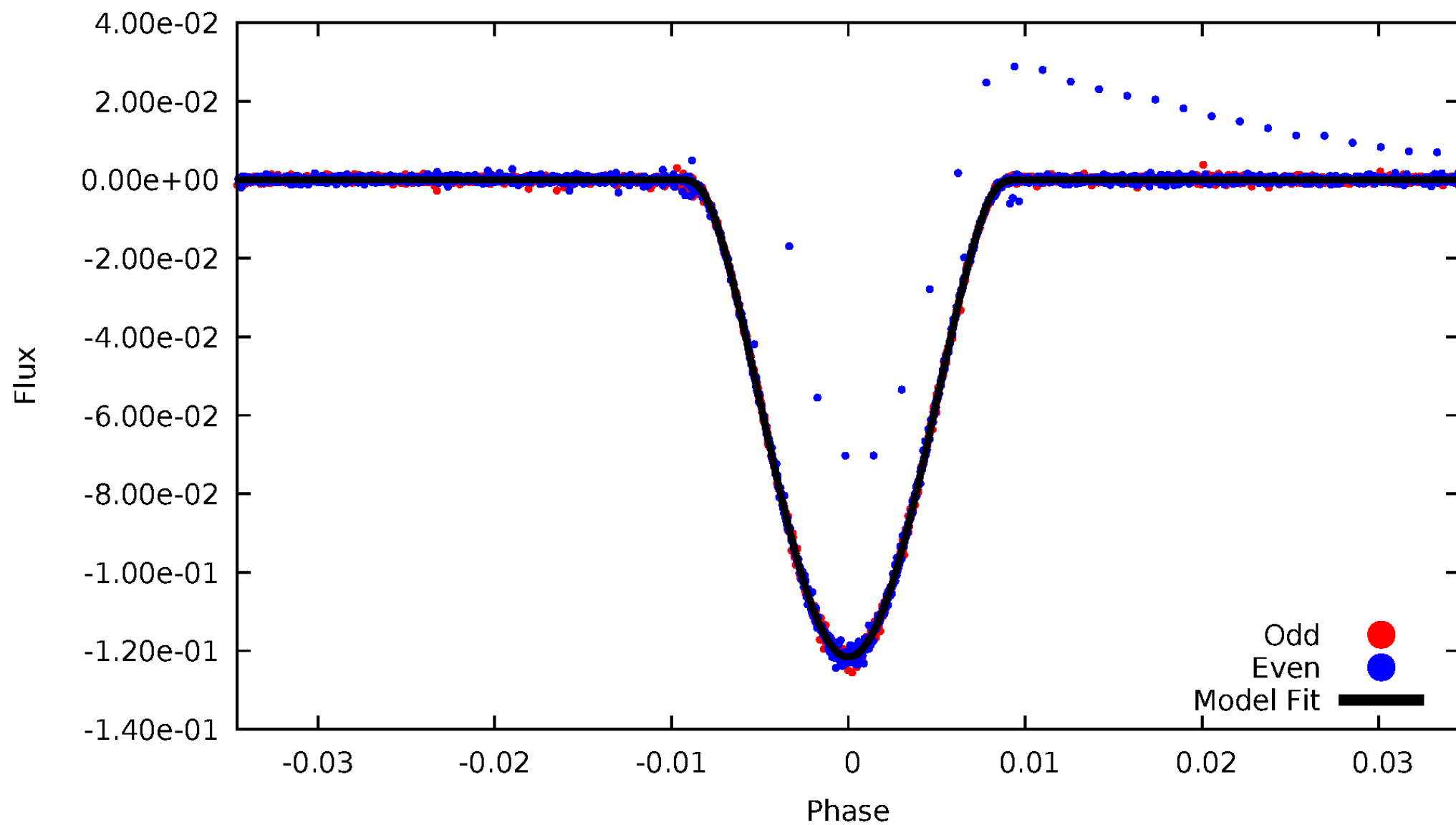


TCE 008312222-01



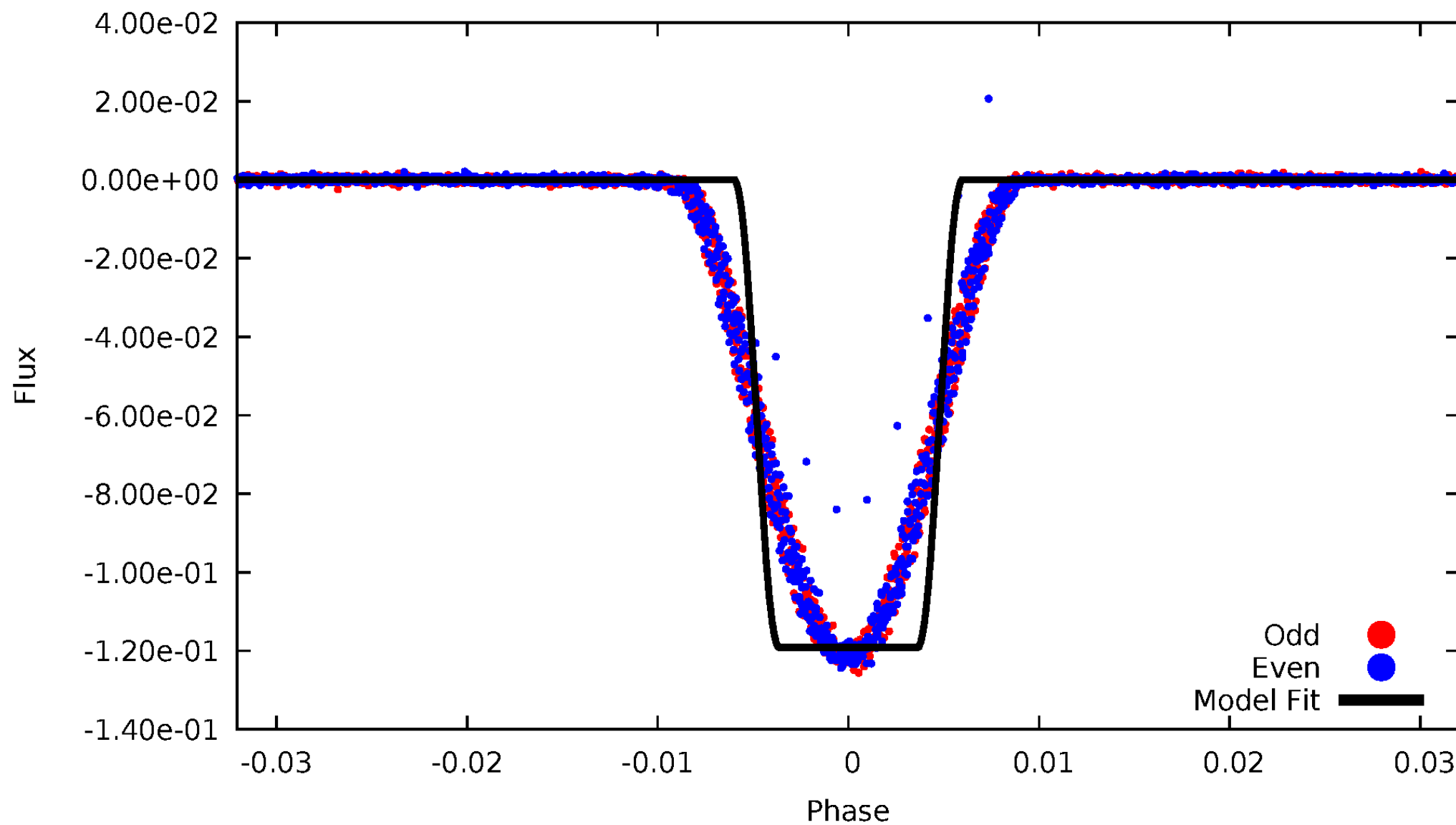
DV Odd/Even

TCE 008312222-01



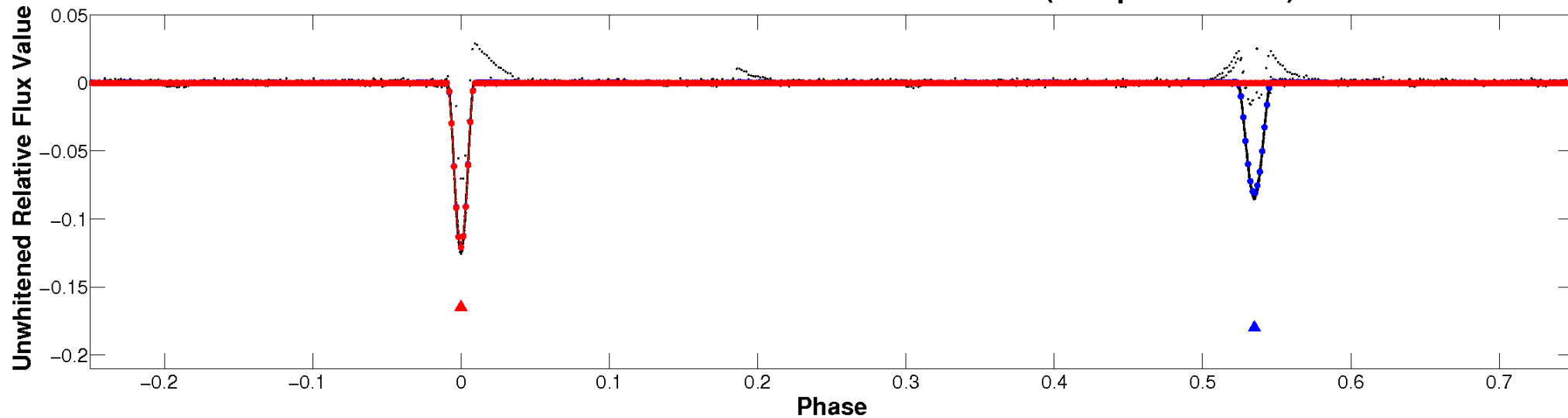
ALT Odd/Even

TCE 008312222-01

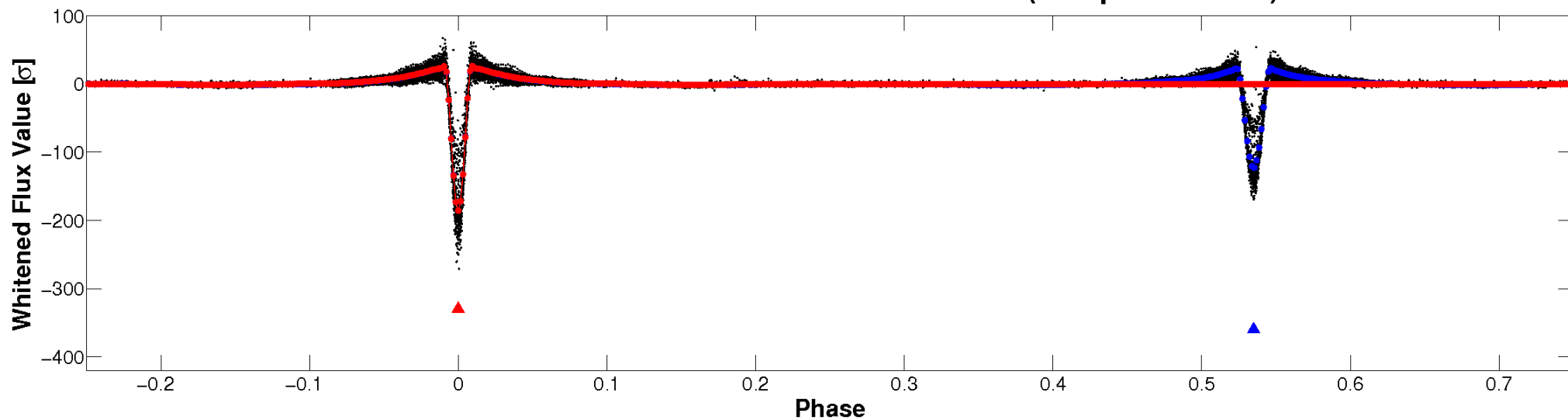


Non-Whitened Vs. Whitened Light Curve

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

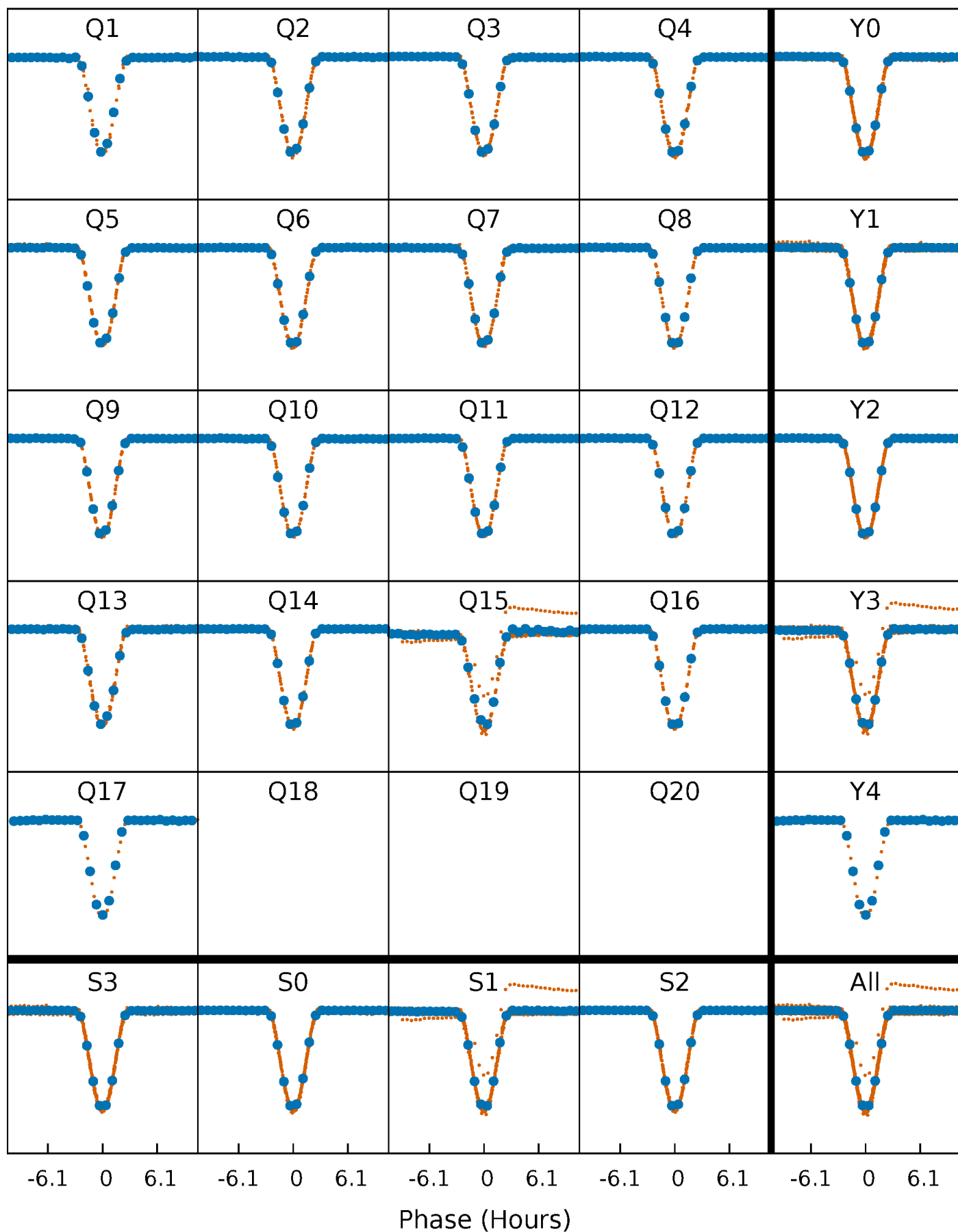


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



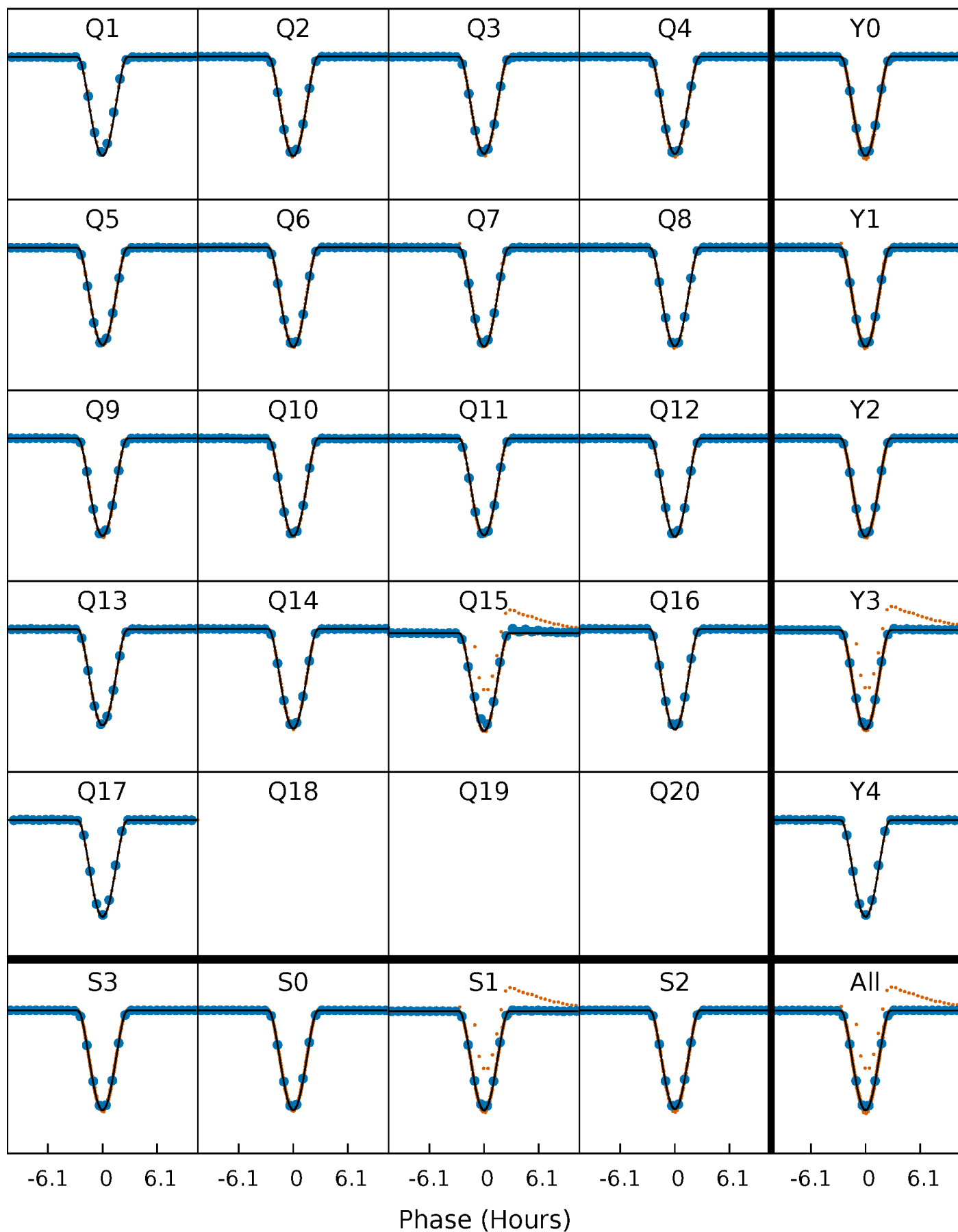
PDC Quarter-Phased Transit Curves

TCE 008312222-01 P= 12.823275 Days $T_0=136.176612$ (BKJD)



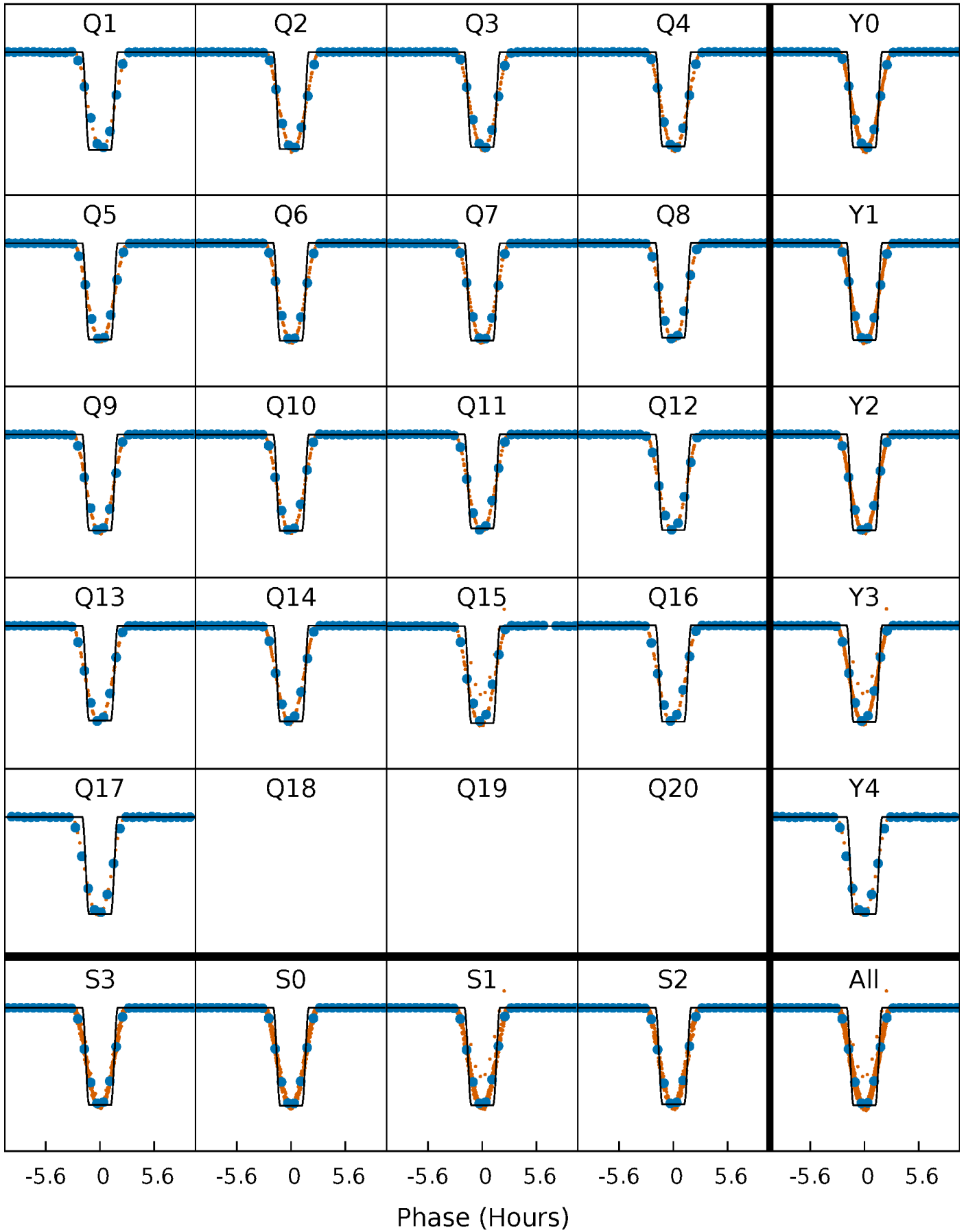
DV Quarter-Phased Transit Curves

TCE 008312222-01 P= 12.823275 Days $T_0=136.176612$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

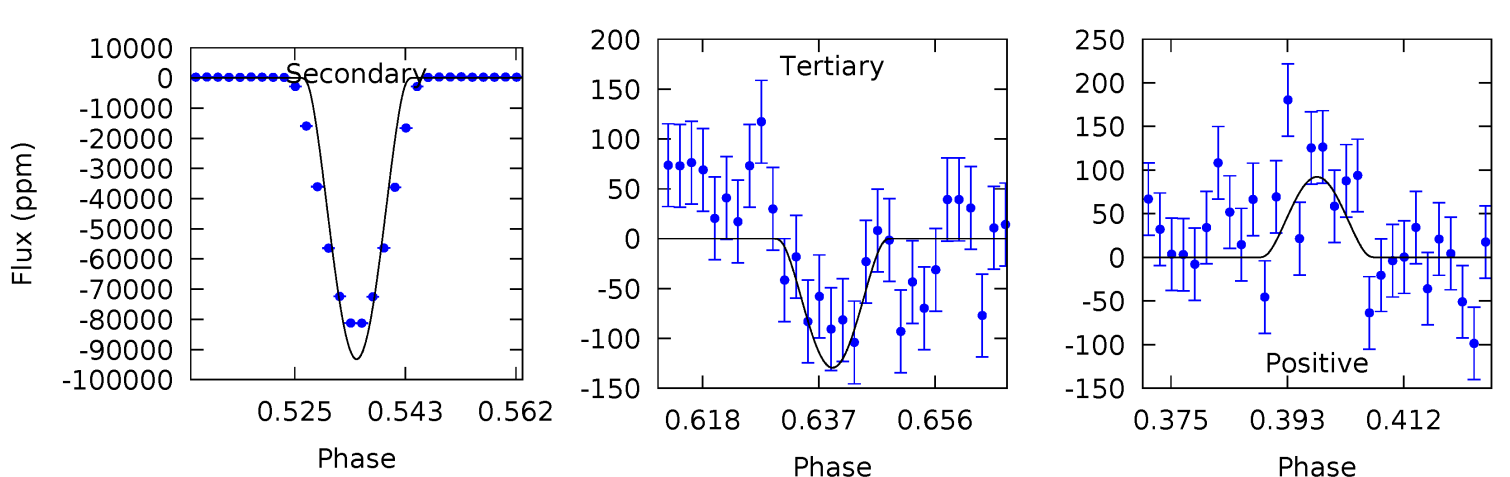
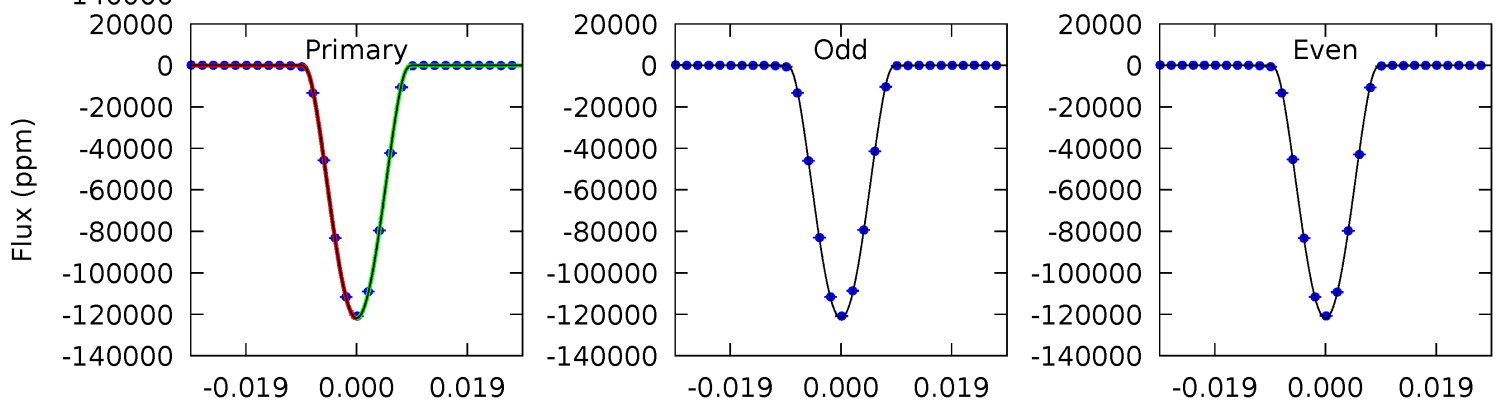
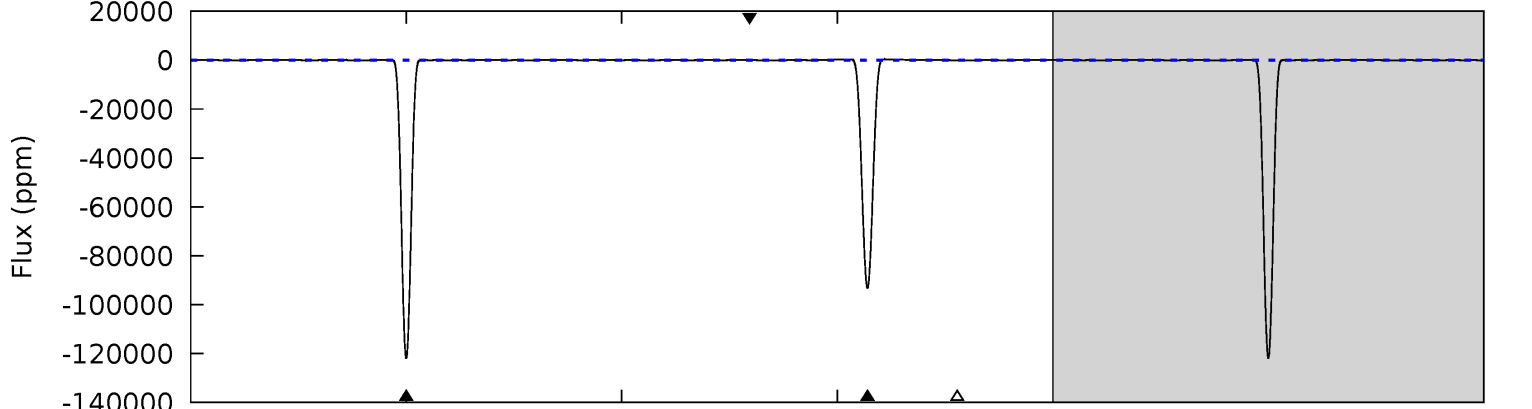
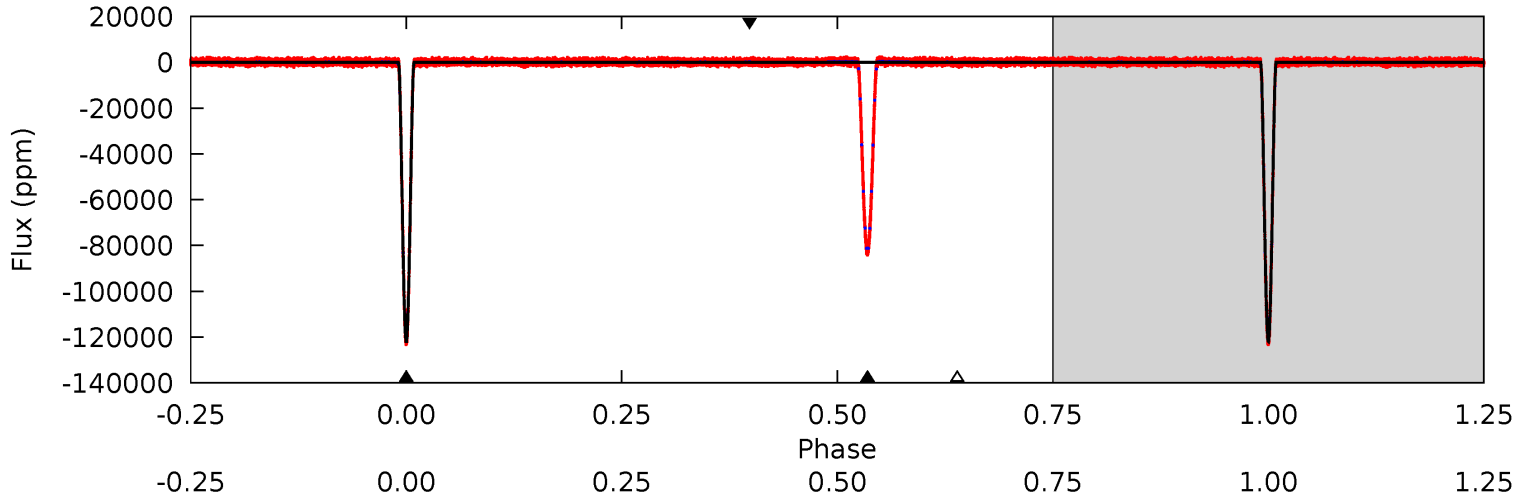
TCE 008312222-01 P= 12.823397 Days $T_0=136.170304$ (BKJD)



DV Model-Shift Uniqueness Test

008312222-01, P = 12.823275 Days, E = 123.353337 Days

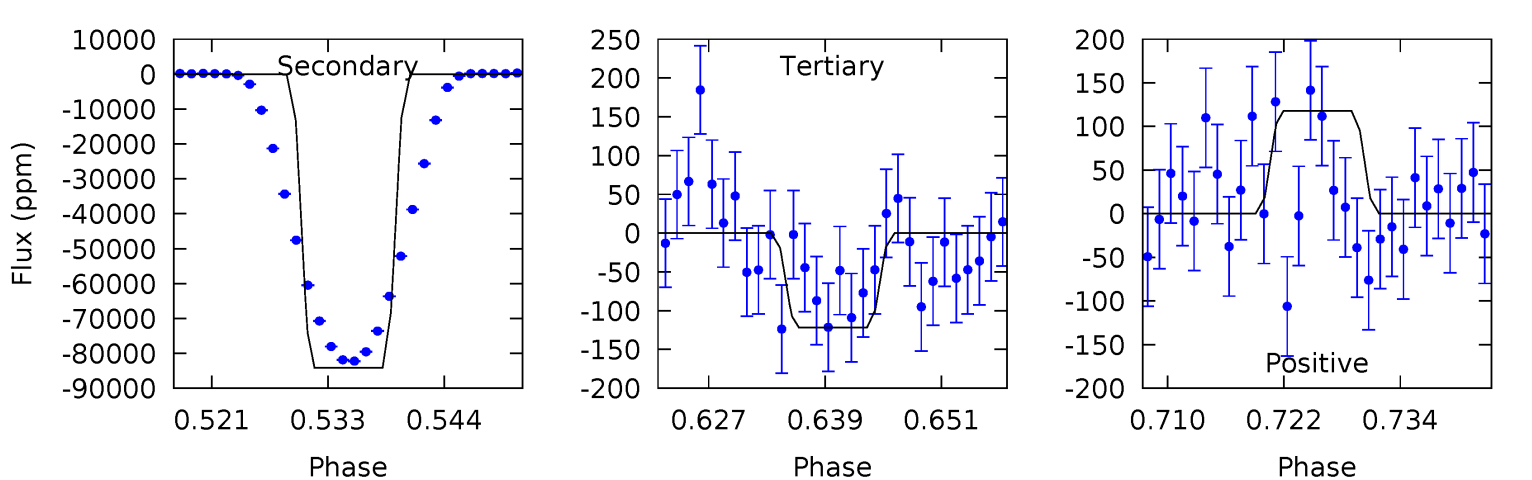
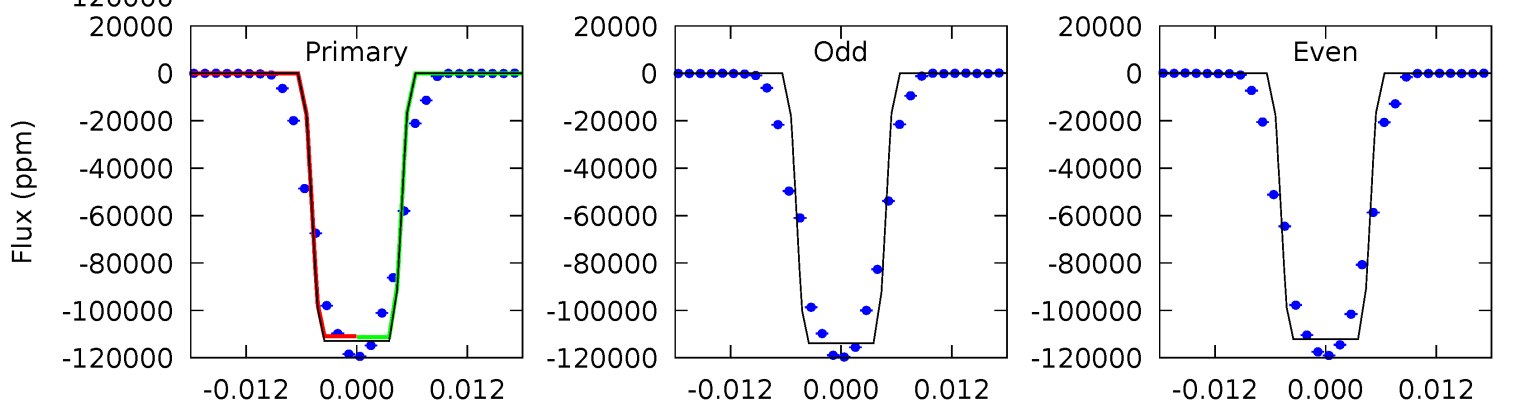
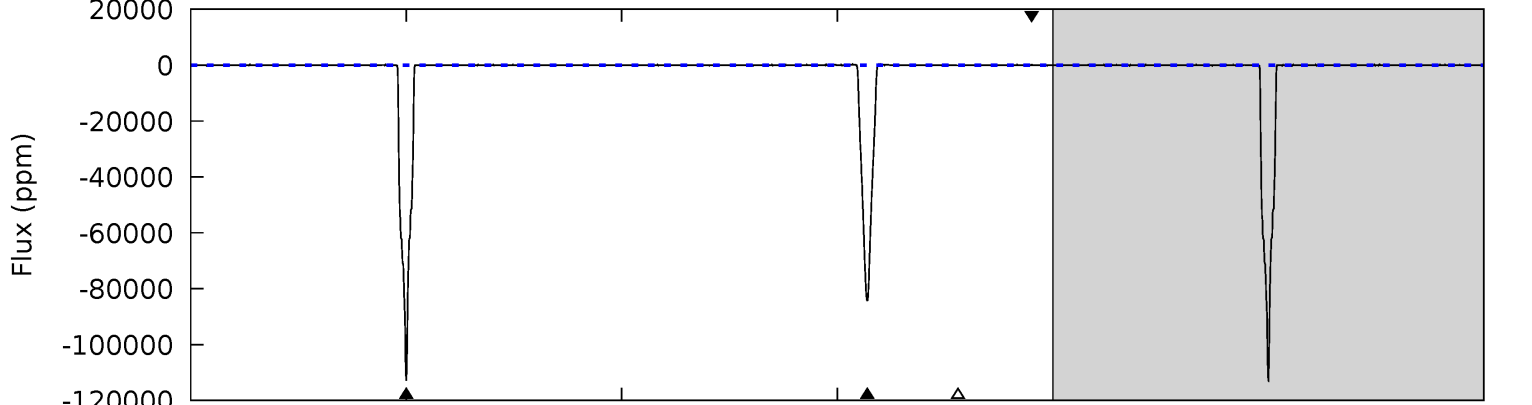
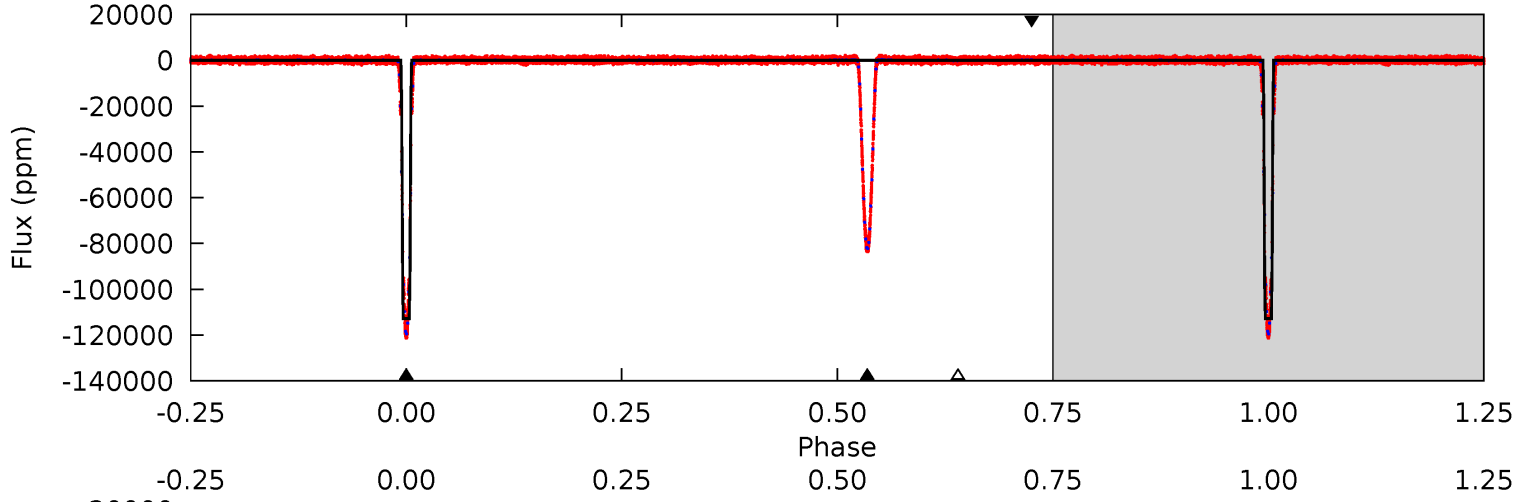
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7942	6074	8.44	6.01	4.90	2.35	4.74	7934	7936	6066	6068	1.96	0.99	0.00	0



Alt Model-Shift Uniqueness Test

008312222-01, P = 12.823397 Days, E = 123.346907 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3337	2488	3.60	3.48	4.99	2.52	1.33	3333	3333	2484	2484	23.7	1.00	0.00	0



Stellar Parameters For KIC 008312222

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5973^{+179}_{-197}	$4.562^{+0.036}_{-0.204}$	$-0.460^{+0.300}_{-0.300}$	$0.826^{+0.238}_{-0.074}$	$0.907^{+0.100}_{-0.110}$	$2.271^{+0.446}_{-1.161}$
	+3%/-3%	+1%/-4%	+65%/-65%	+29%/-9%	+11%/-12%	+20%/-51%
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 008312222-01 / KOI 7017.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-93183 ± 15	$44.12^{+6.38}_{-4.11}$	1062^{+83}_{-49}	5012^{+173}_{-174}	307^{+56}_{-70}
Alt.	-84146 ± 34	$32.31^{+5.20}_{-3.31}$	1064^{+72}_{-50}	5608^{+225}_{-237}	506^{+112}_{-120}

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

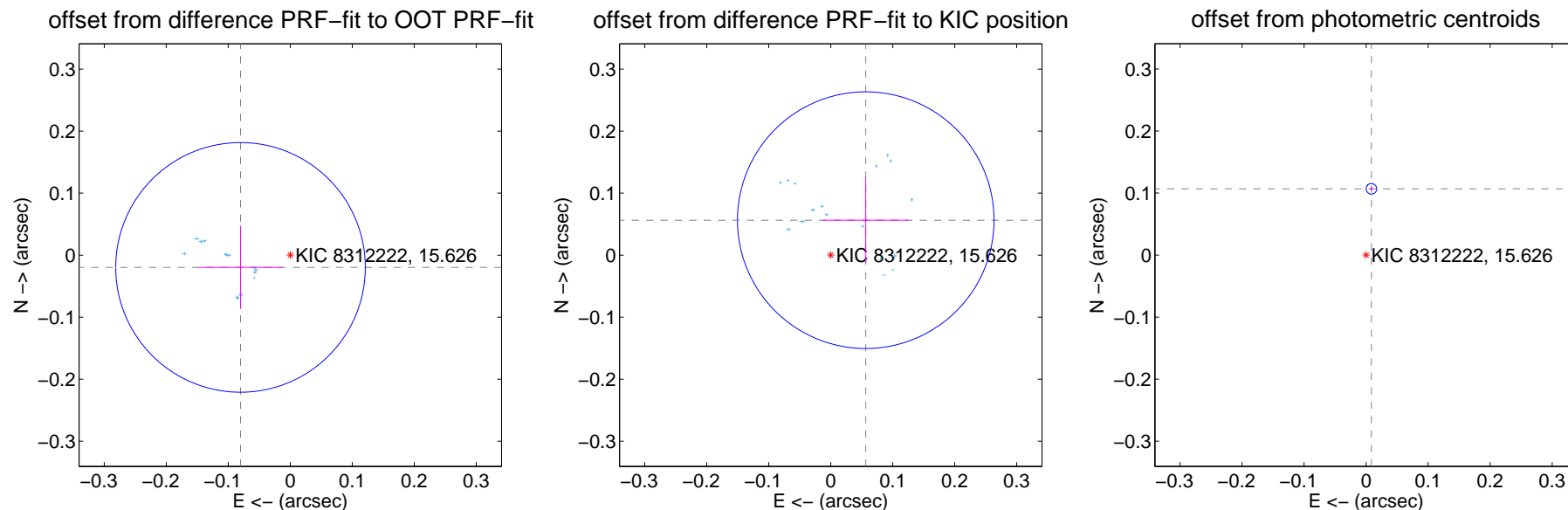
DV Centroid Data

Supplemental centroid analysis for 008312222-01. Kepler magnitude: 15.63. Transit SNR 3387.01

There are 17 quarters with good PRF difference image offsets

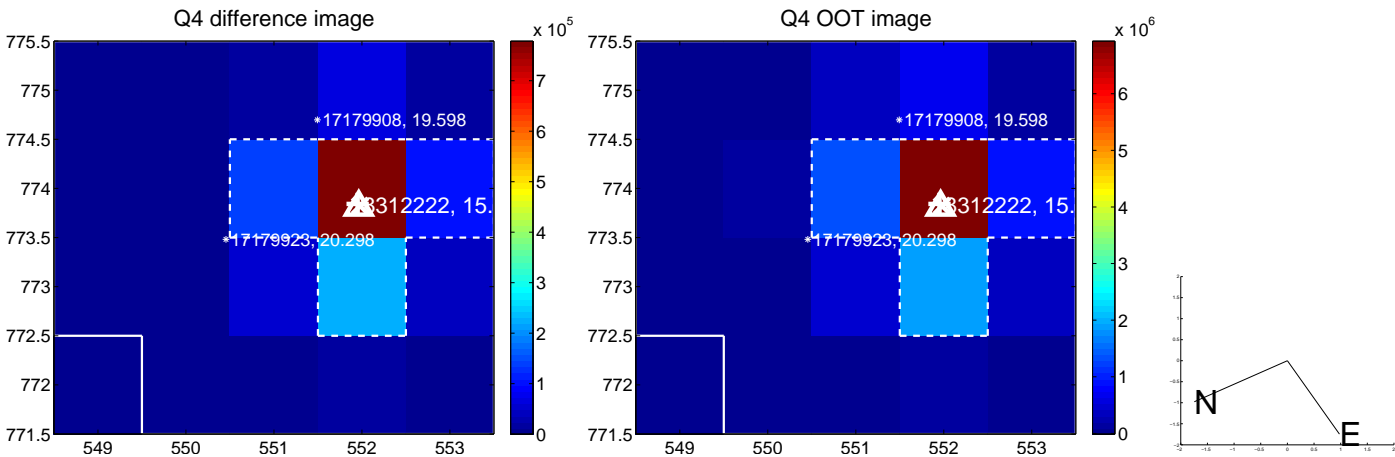
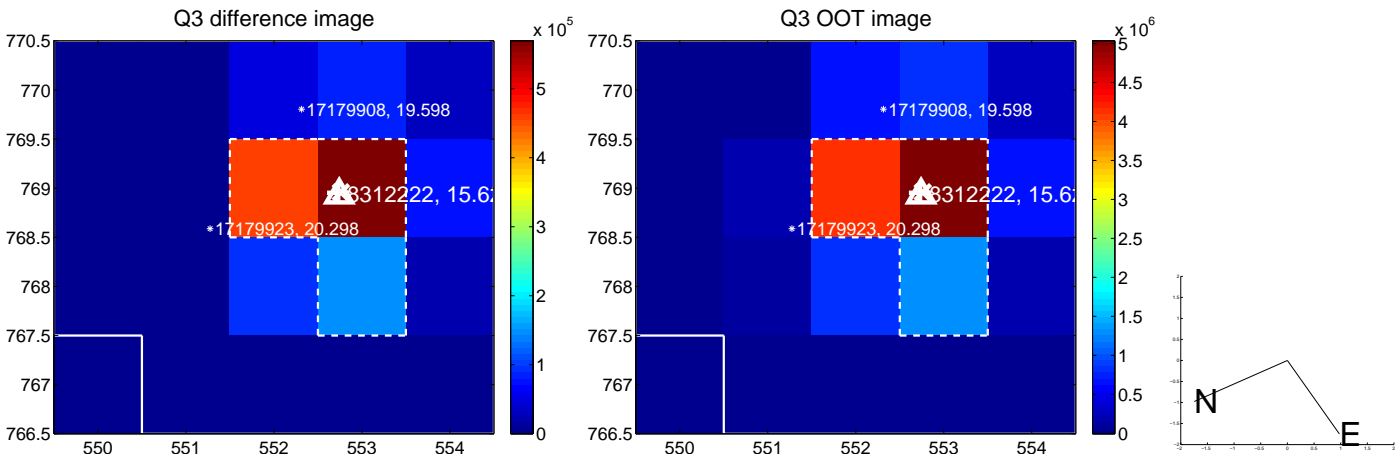
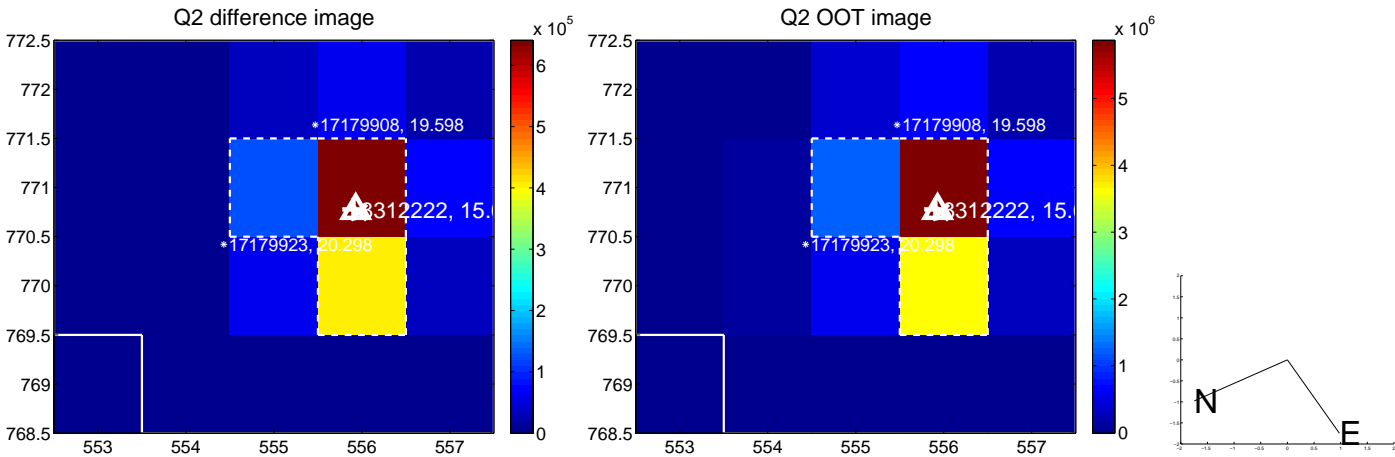
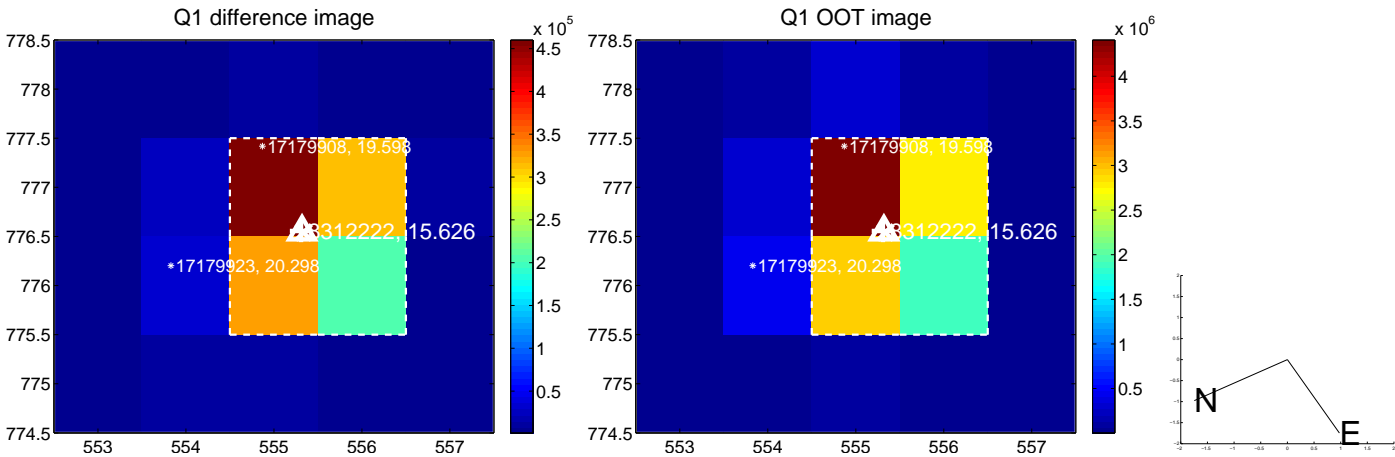
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.083 ± 0.067	1.23	0.080 ± 0.067	-0.020 ± 0.067
PRF-fit source offset from KIC position	0.080 ± 0.069	1.16	-0.057 ± 0.069	0.056 ± 0.069
photometric centroid source offset	0.11 ± 0.00	37.92	-0.01 ± 0.00	0.11 ± 0.00

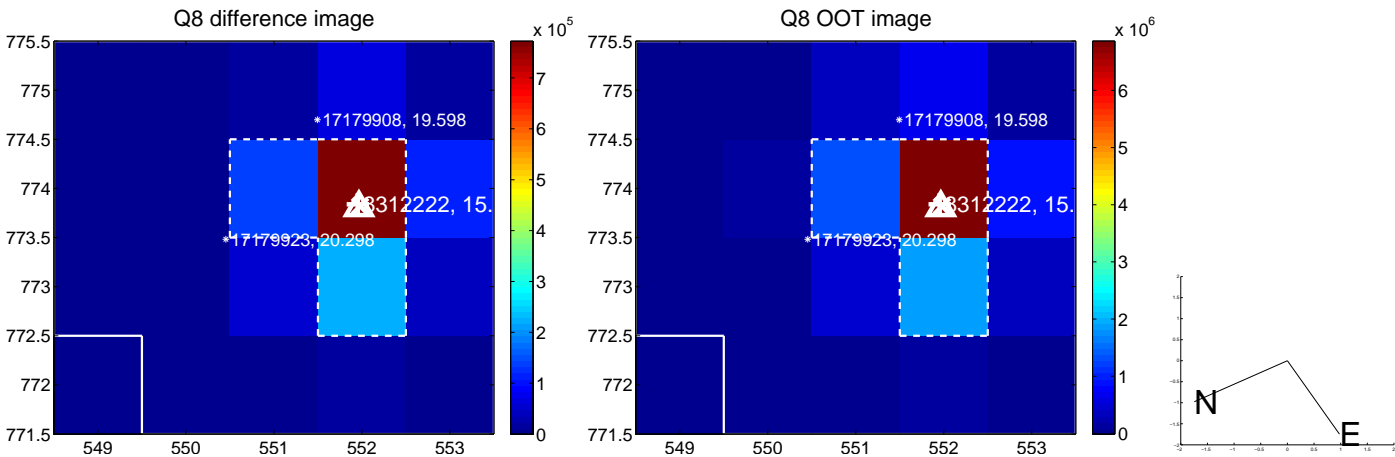
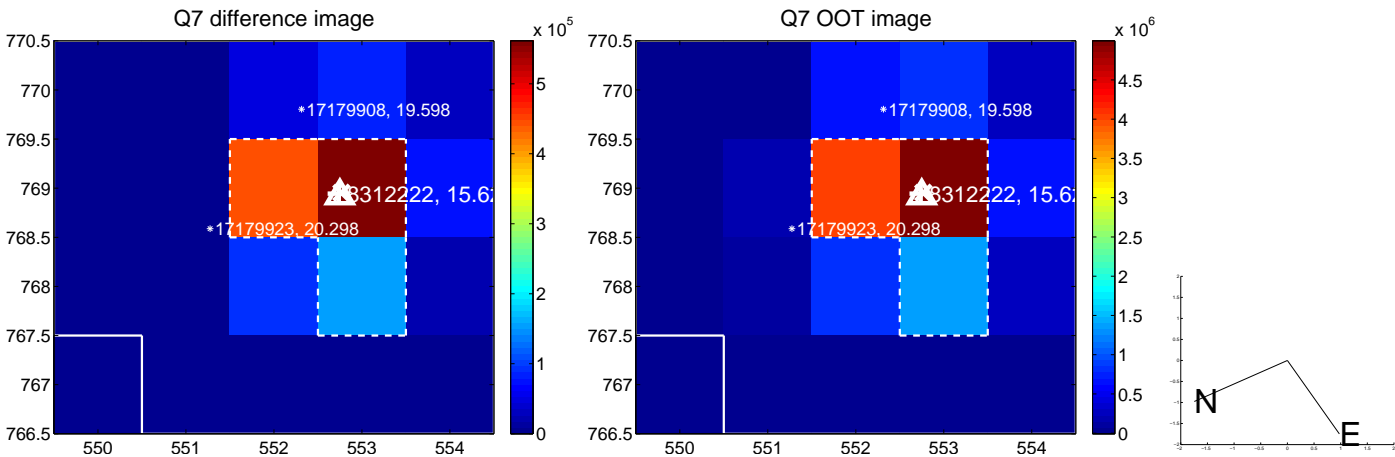
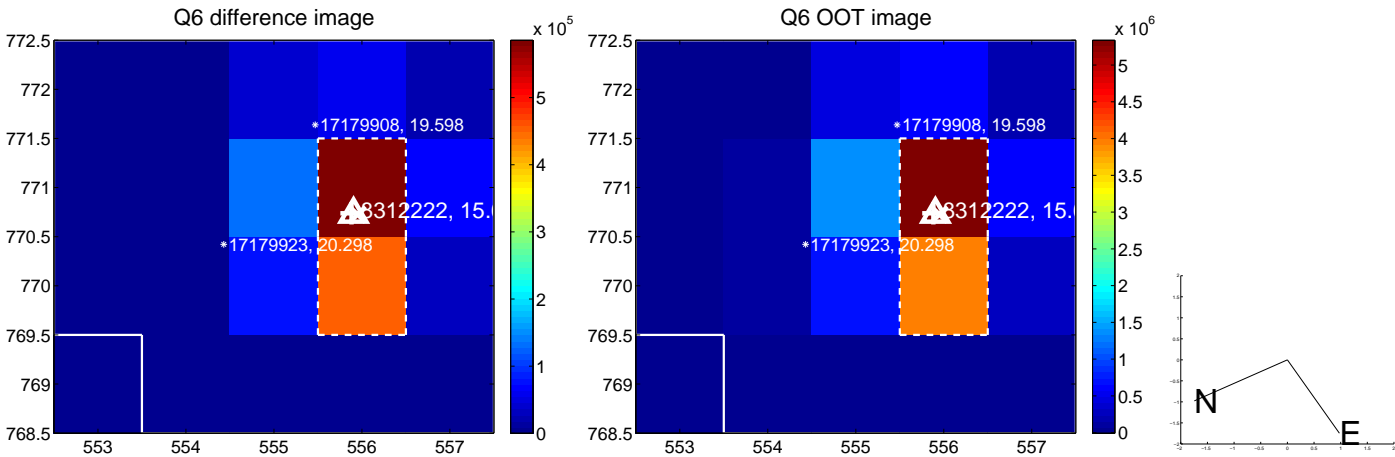
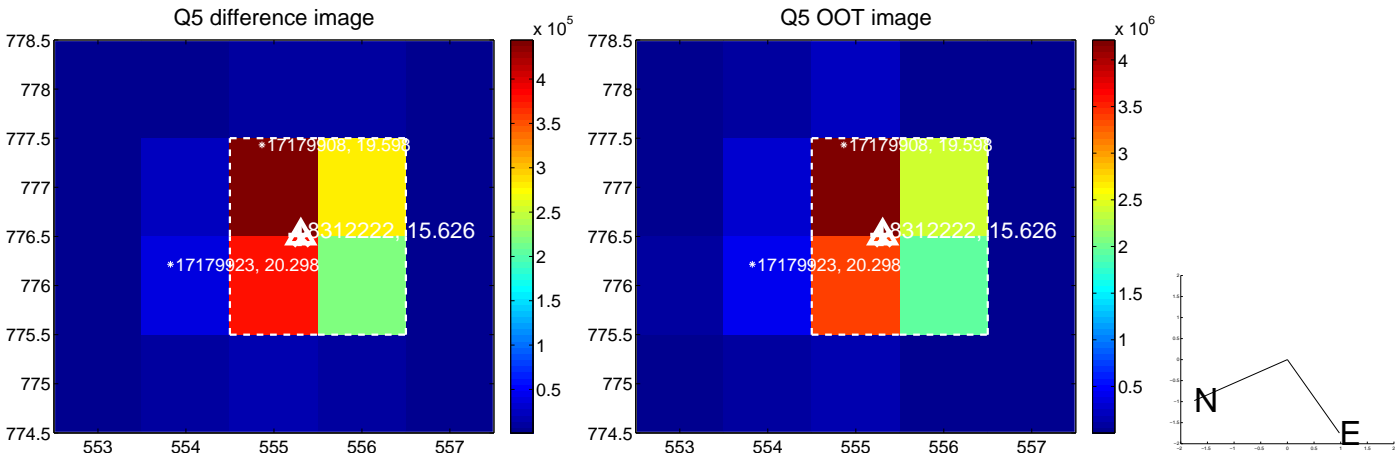


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

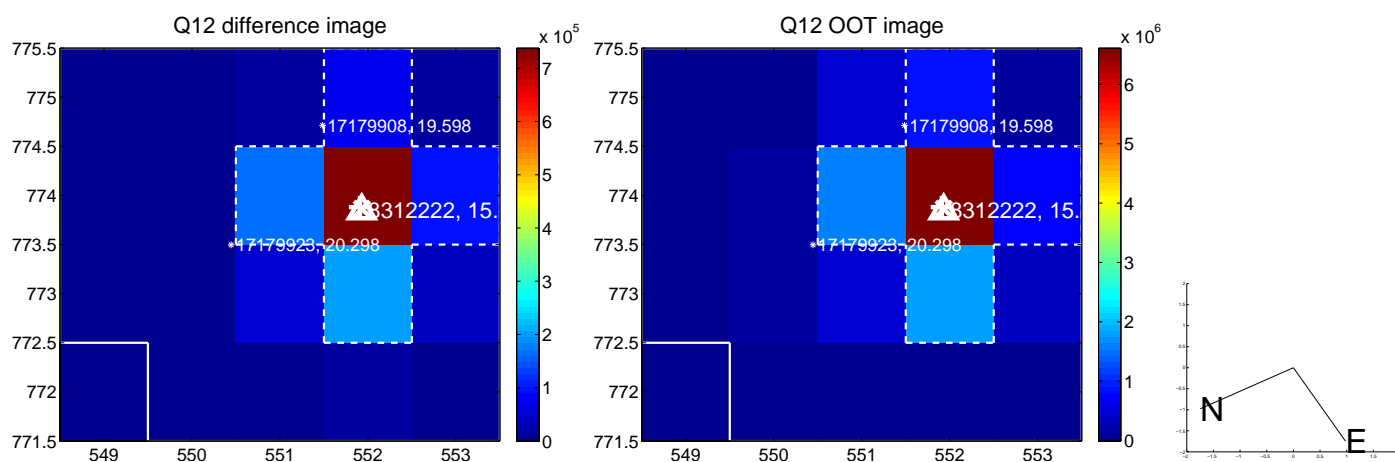
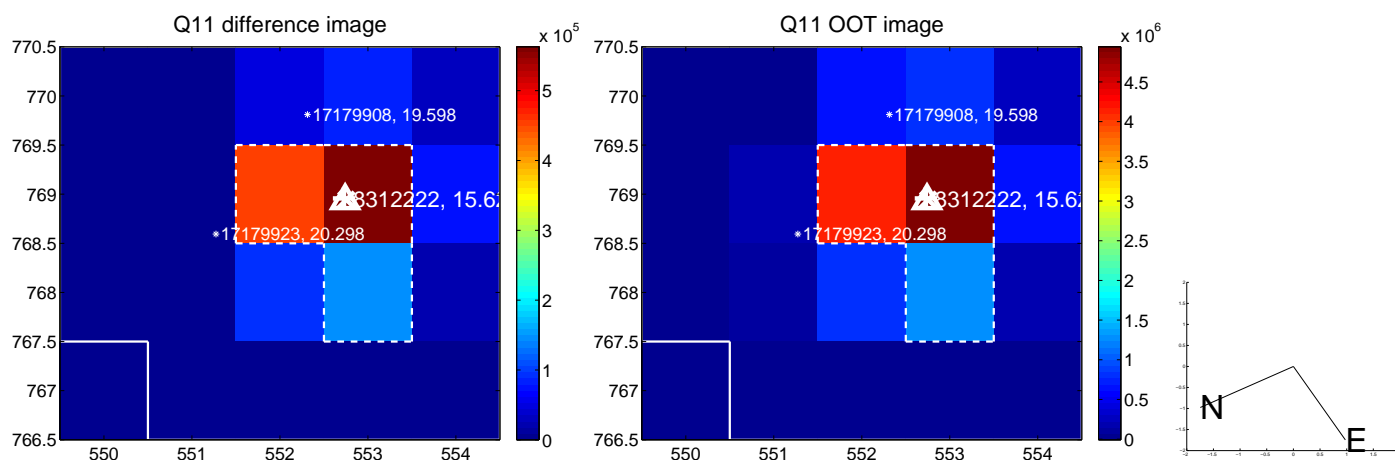
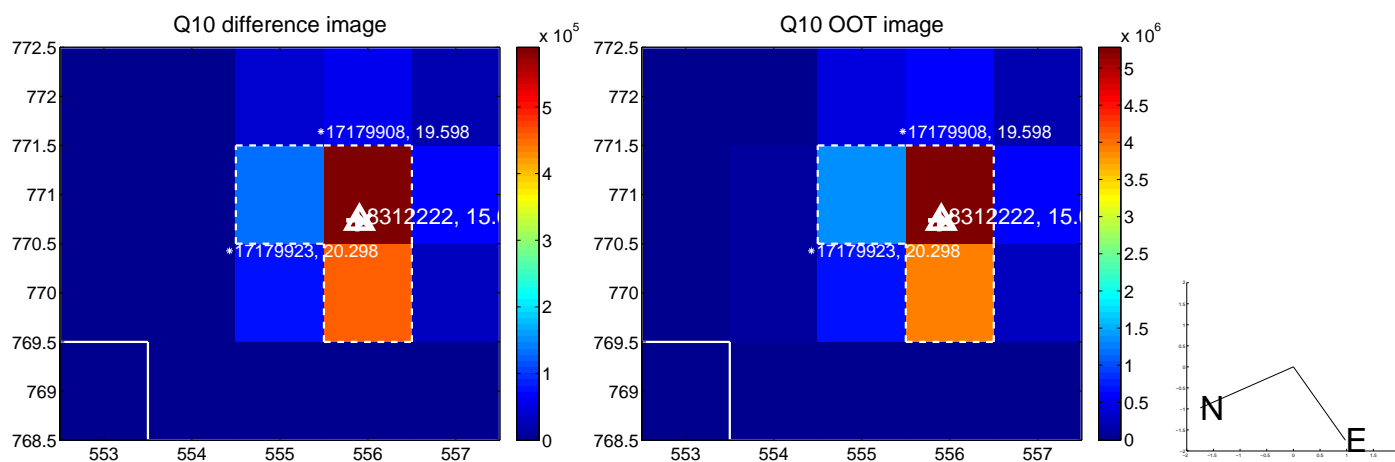
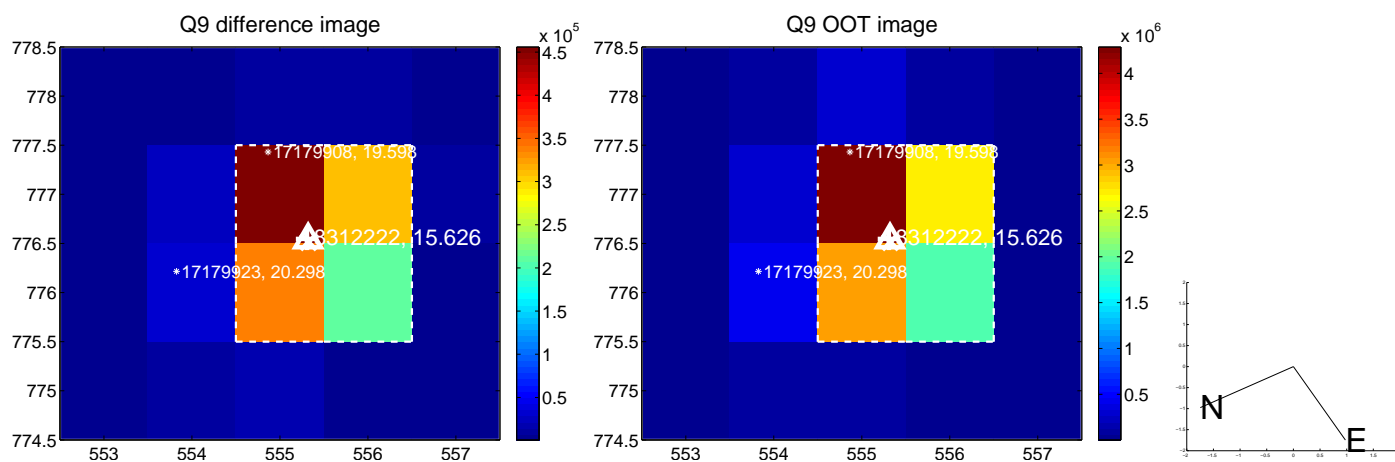
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



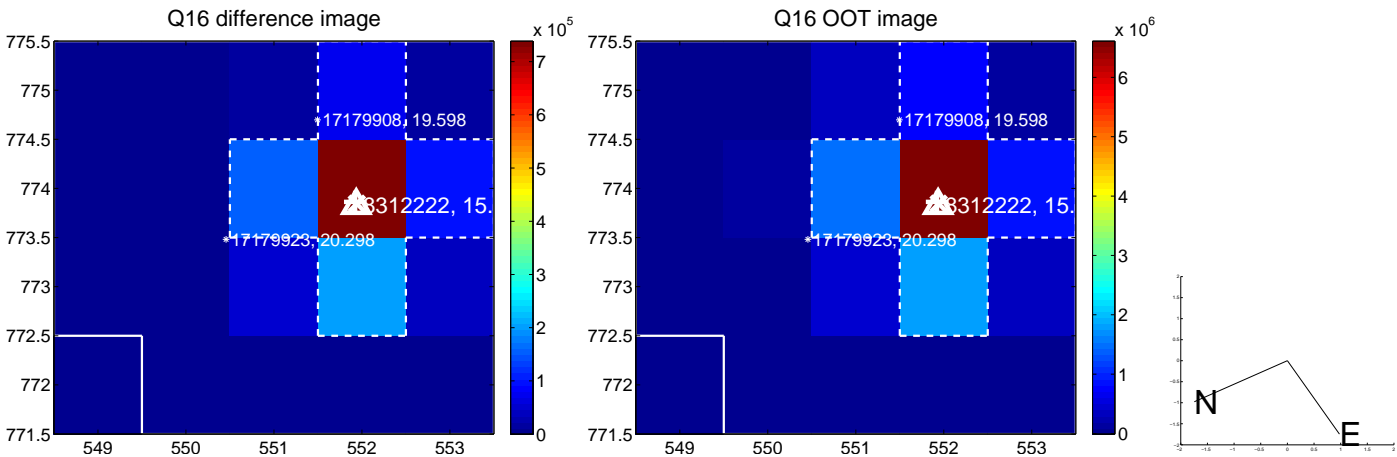
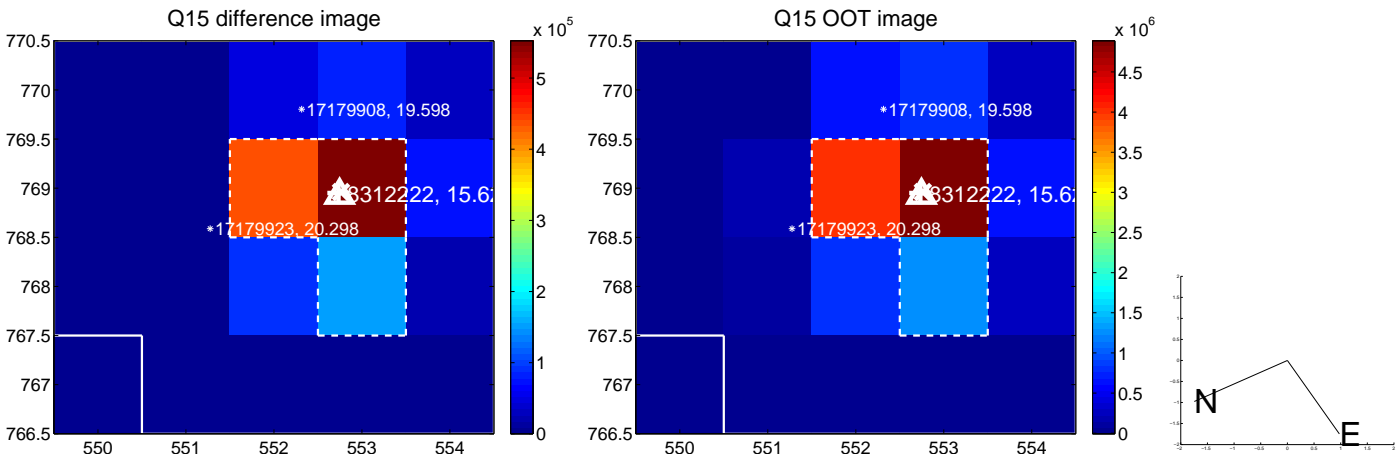
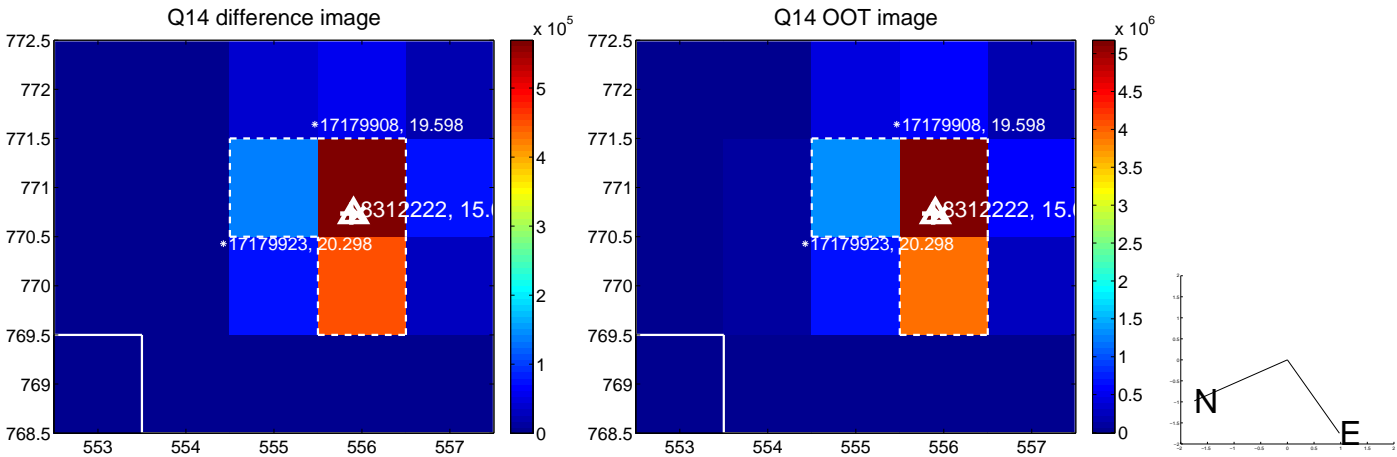
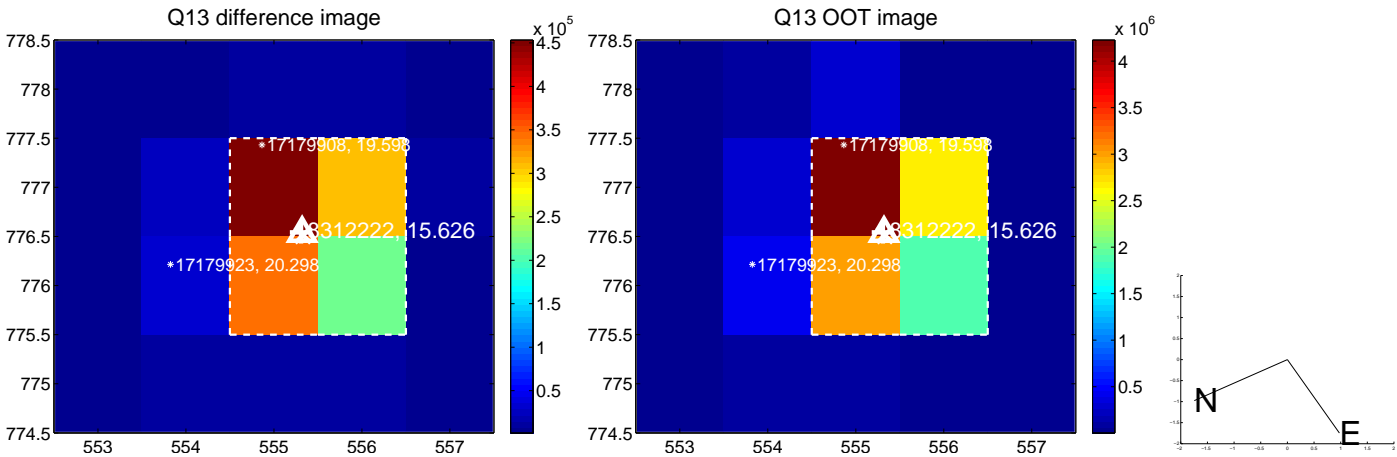
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



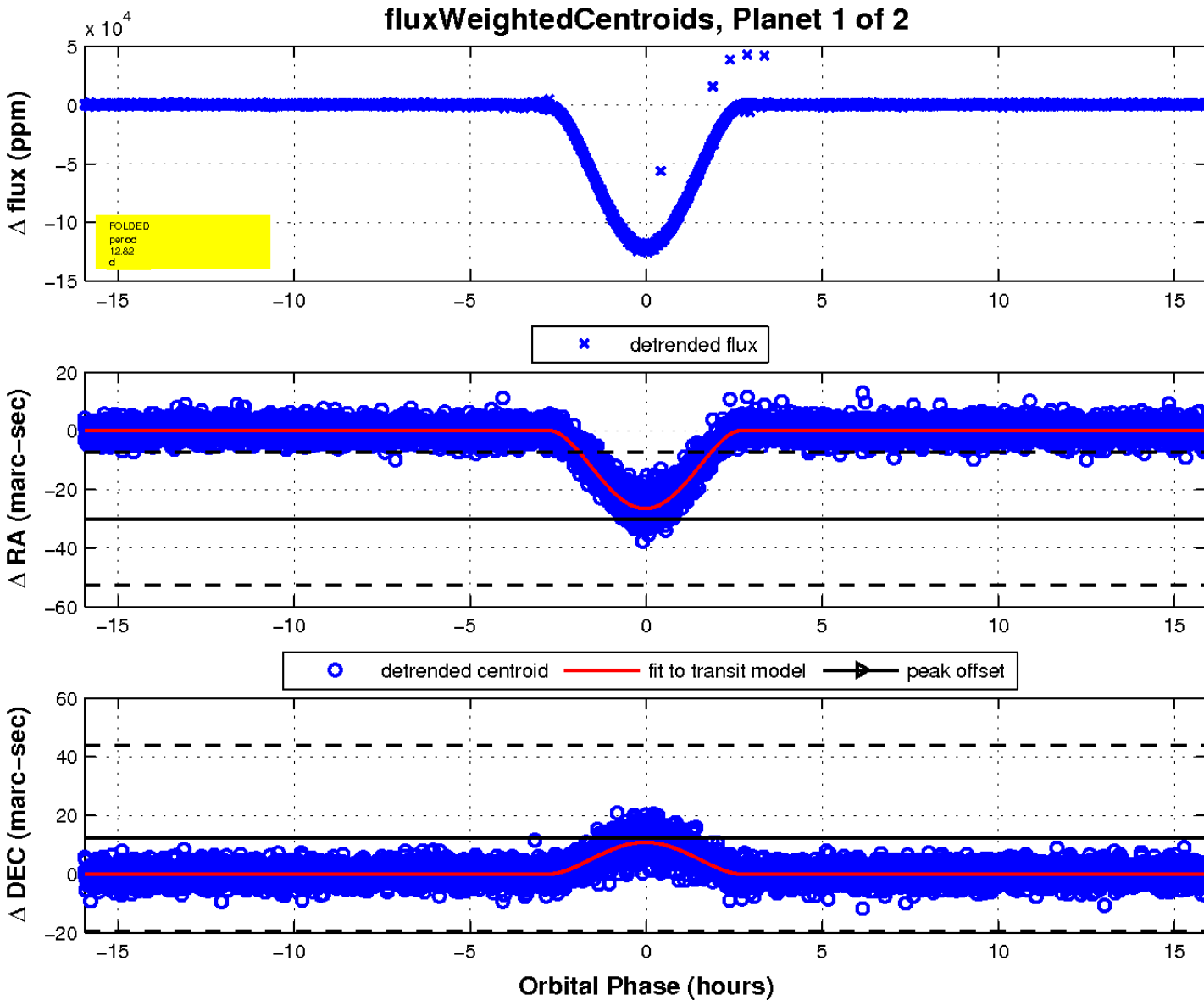
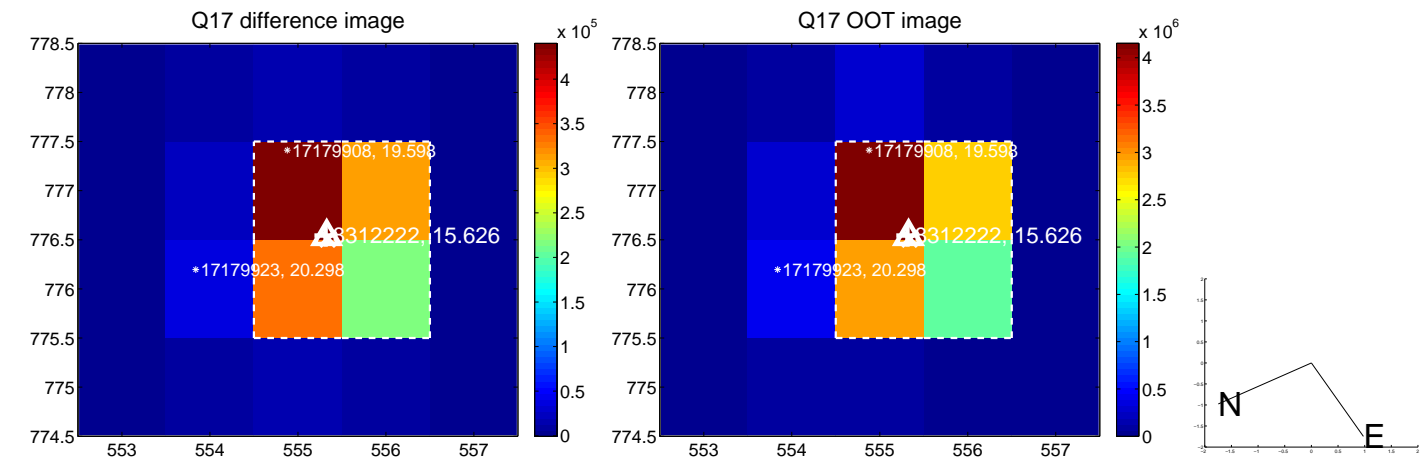
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

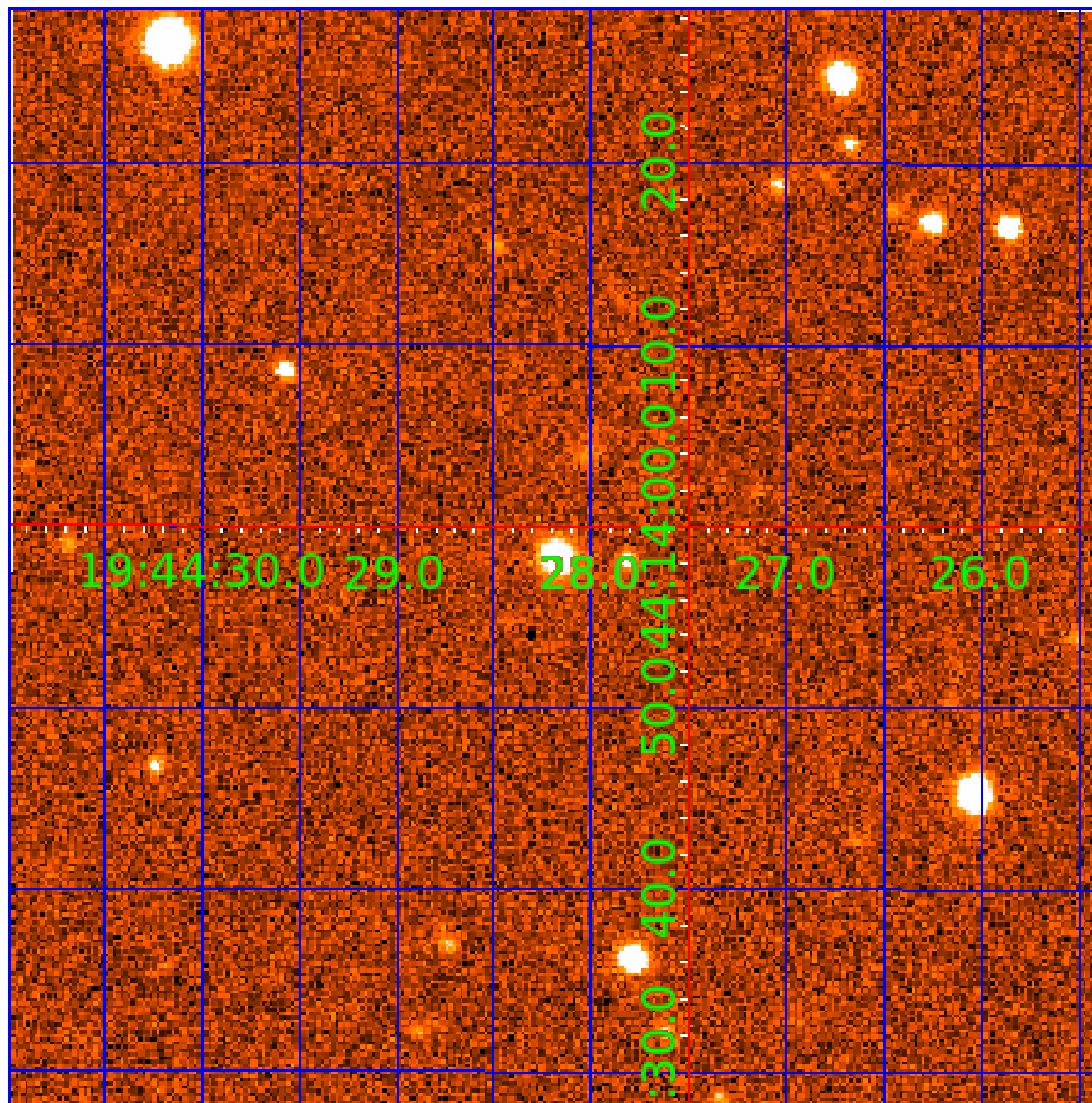


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008312222

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})
008312222-01	OBS	7017.01	12.823275	136.176612	121620.4	5.318	3967.2	3387.0	0.83	5973	42.26	72.16
008312222-02	OBS	No	12.823272	143.036811	82953.6	6.704	2878.3	2791.1	0.83	5973	35.03	72.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008312222-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008312222-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

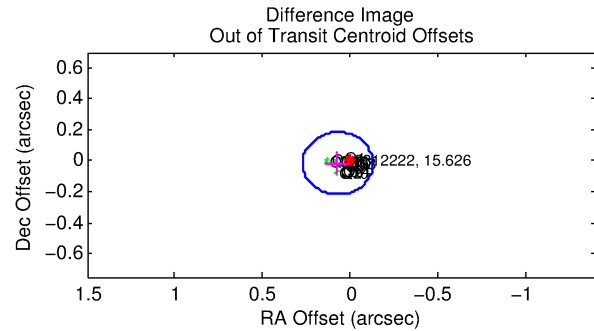
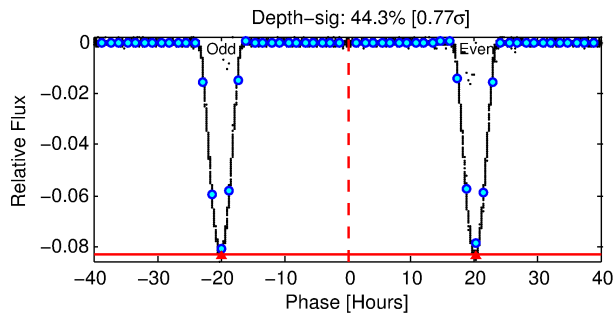
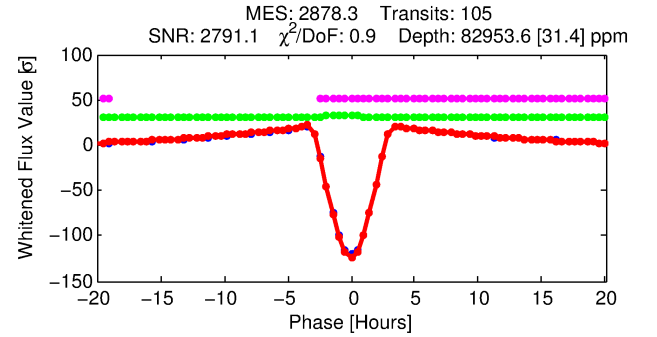
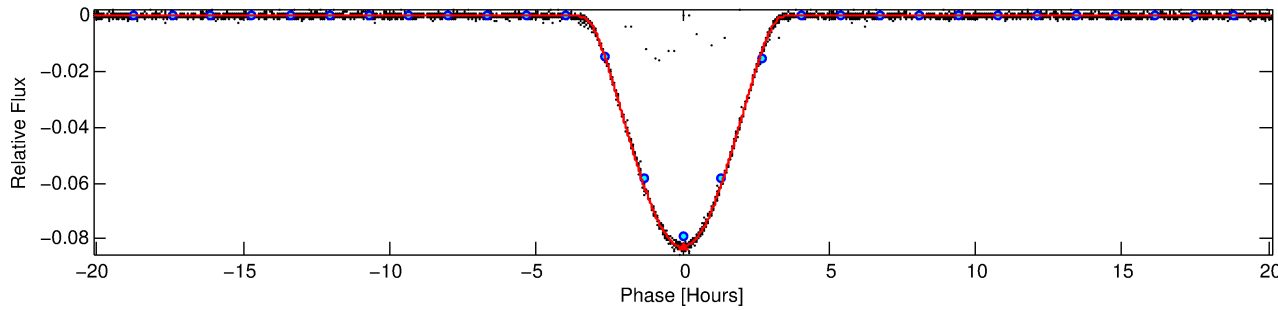
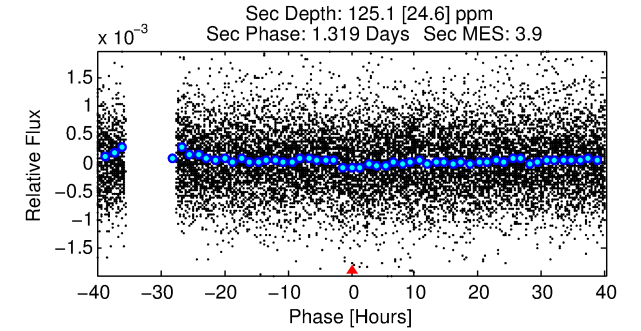
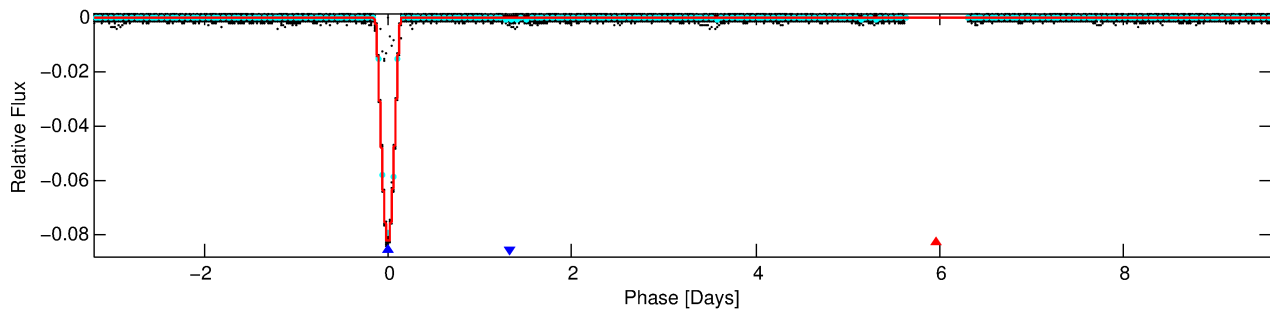
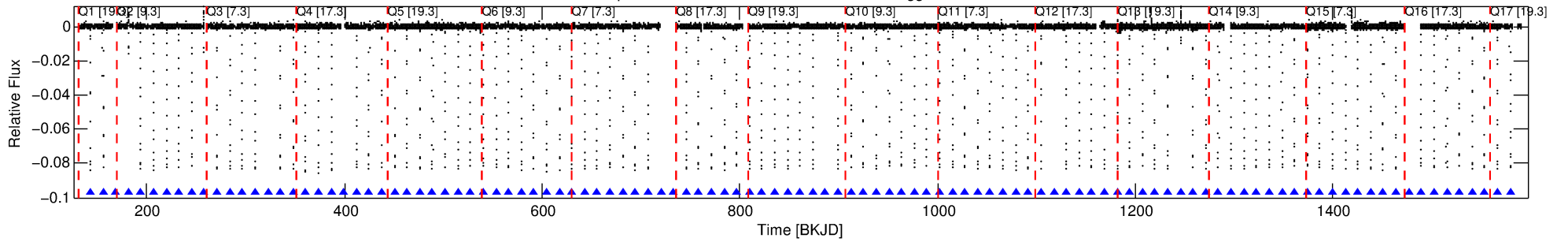
Ephemeris Match Information For 008312222-02

No Significant Match Found

DV One-Page Summary

KIC: 8312222 Candidate: 2 of 2 Period: 12.823 d
KOI: K07017 Corr: No Ephemeris Match

Kp: 15.63 R*: 0.83 Rs Teff: 5973.0 K Logg: 4.56 Fe/H: -0.460



DV Fit Results:

Period = 12.82327 [0.00000] d
Epoch = 143.0368 [0.0000] BKJD
Rp/R* = 0.3887 [0.0087]
a/R* = 15.28 [0.01]
b = 0.92 [0.01]
Seff = 72.16 [28.17]
Teq = 743 [73] K
Rp = 35.04 [10.13] Re
a = 0.1038 [0.0257] AU
Ag = 0.60 [0.25] [-1.56σ]
Teffp = 1013 [61] K [2.85σ]

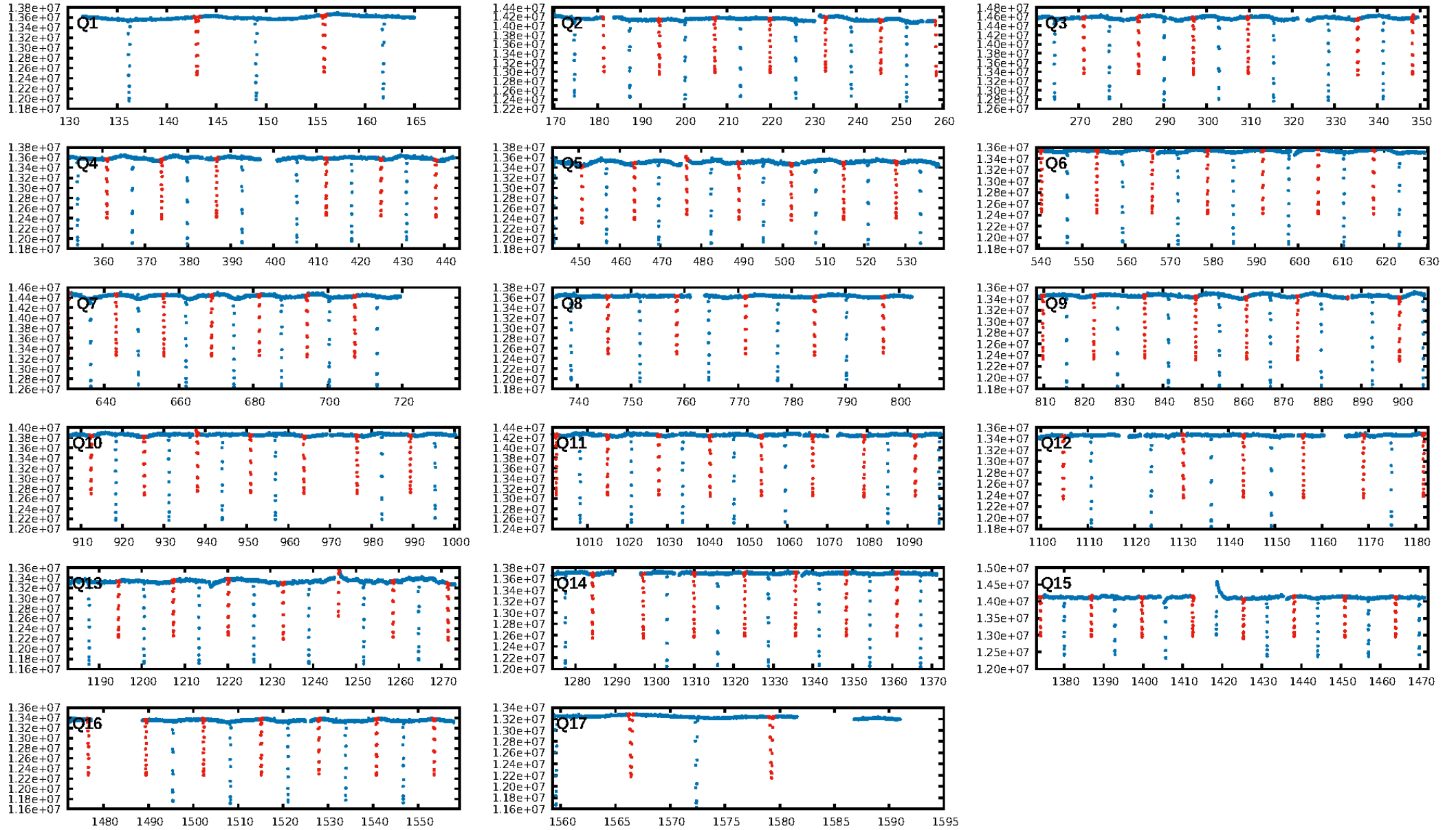
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [101/101]
GhostDiagnostic-chr: 3.731
Centroid-sig: 0.0%
Centroid-so: 0.109 arcsec [29.23σ]
OotOffset-rm: 0.074 arcsec [1.10σ]
KicOffset-rm: 0.082 arcsec [1.19σ]
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]

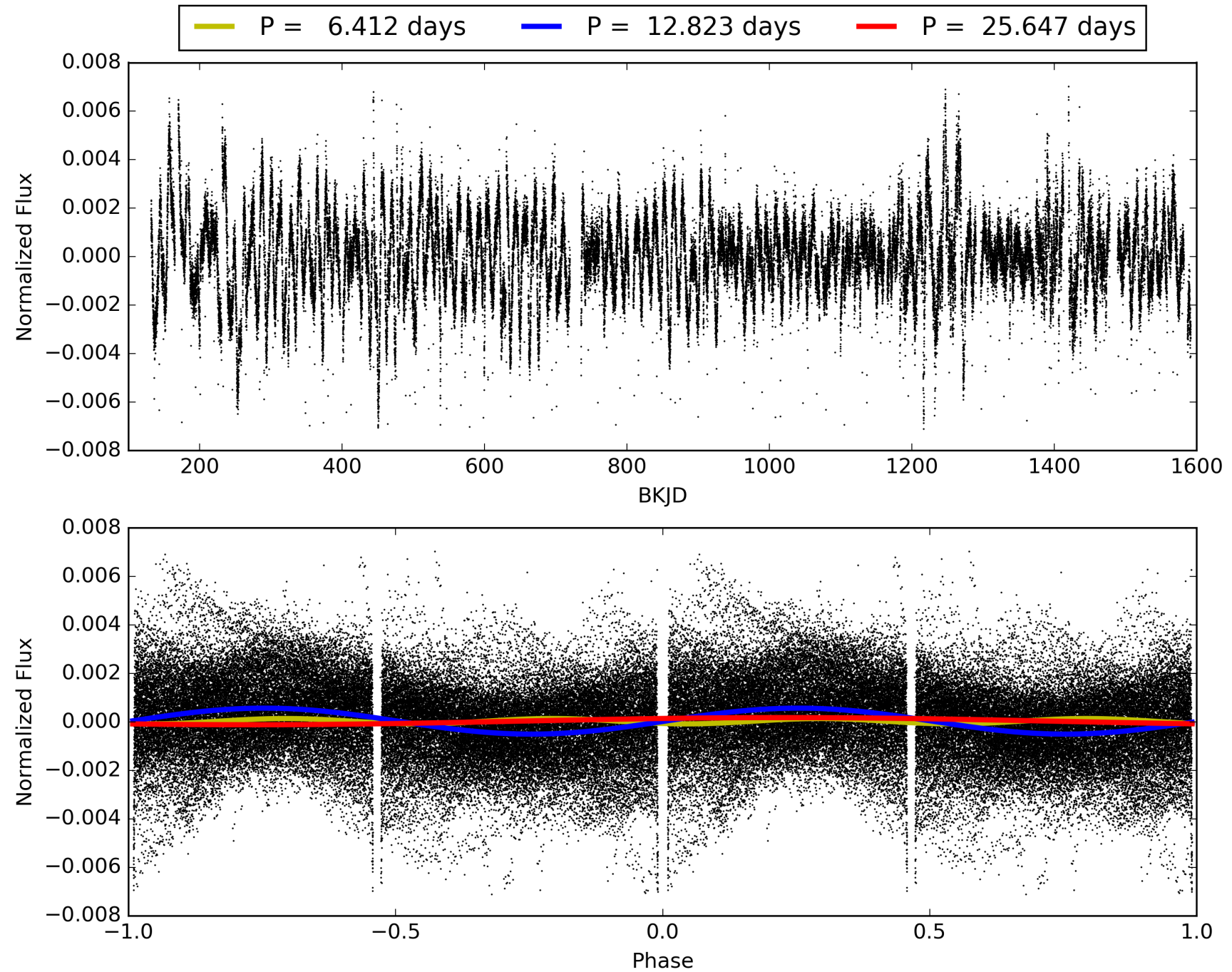
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:16:27 Z

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

TCE 008312222-02, PDC Light Curves

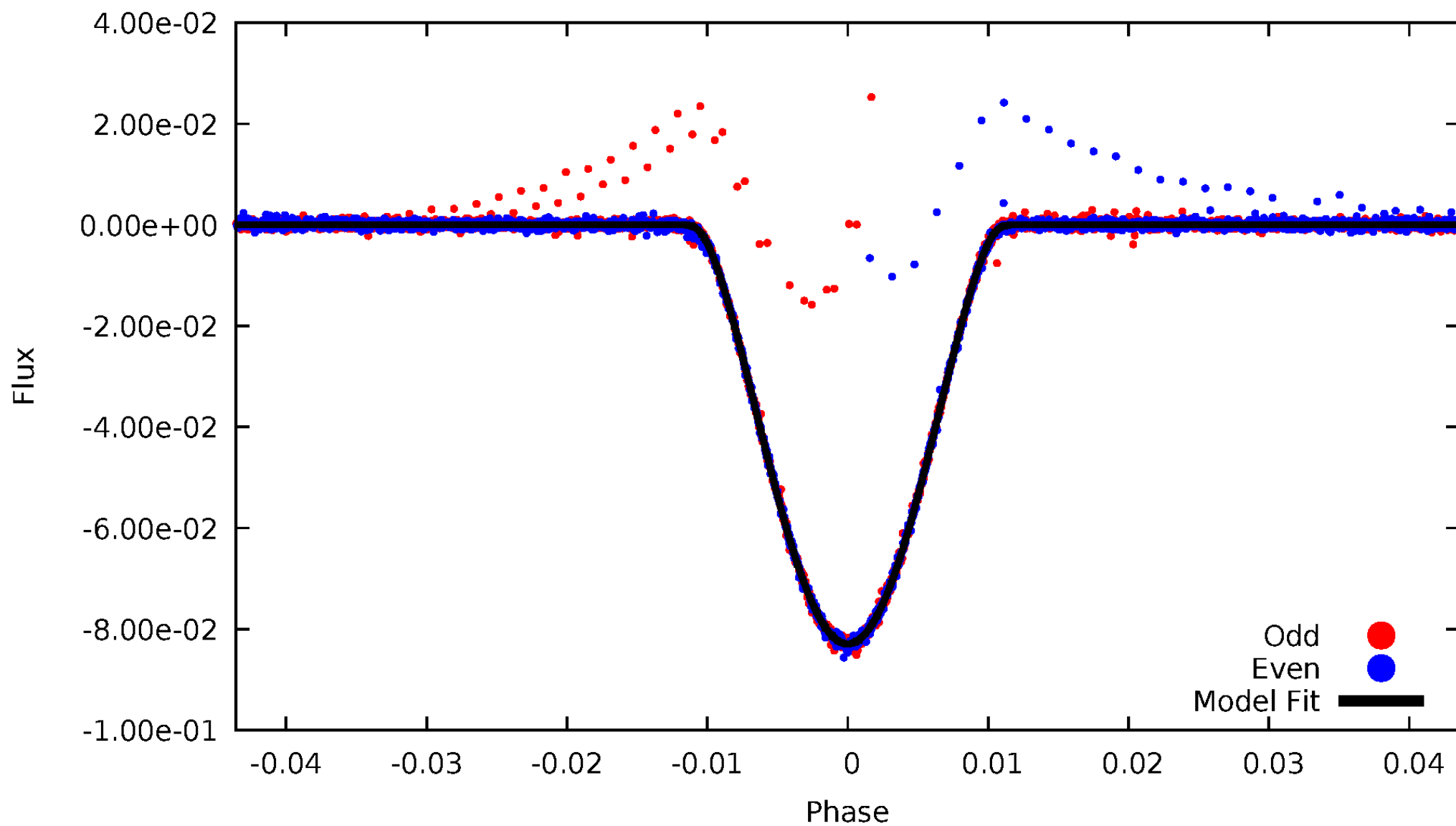


TCE 008312222-02



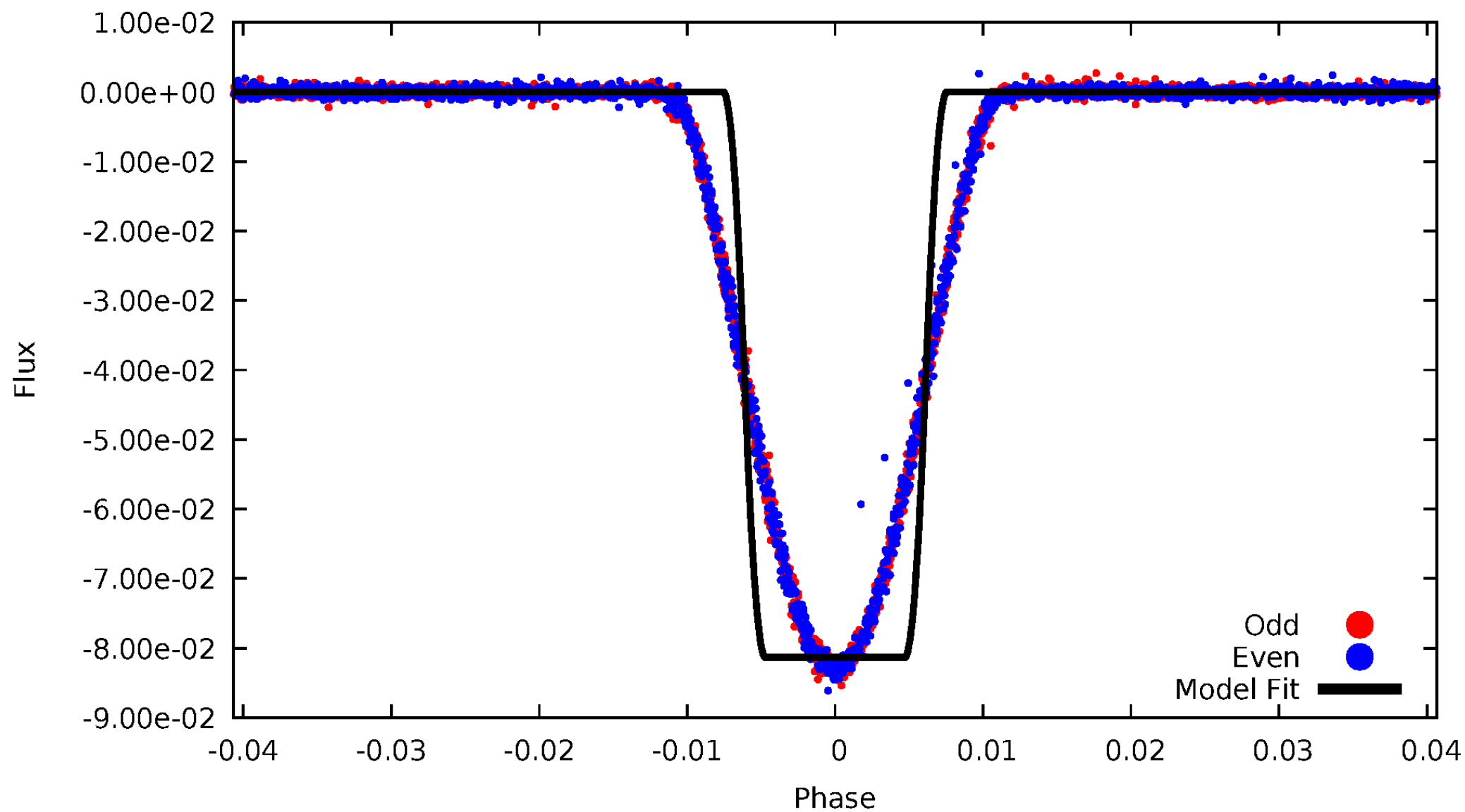
DV Odd/Even

TCE 008312222-02



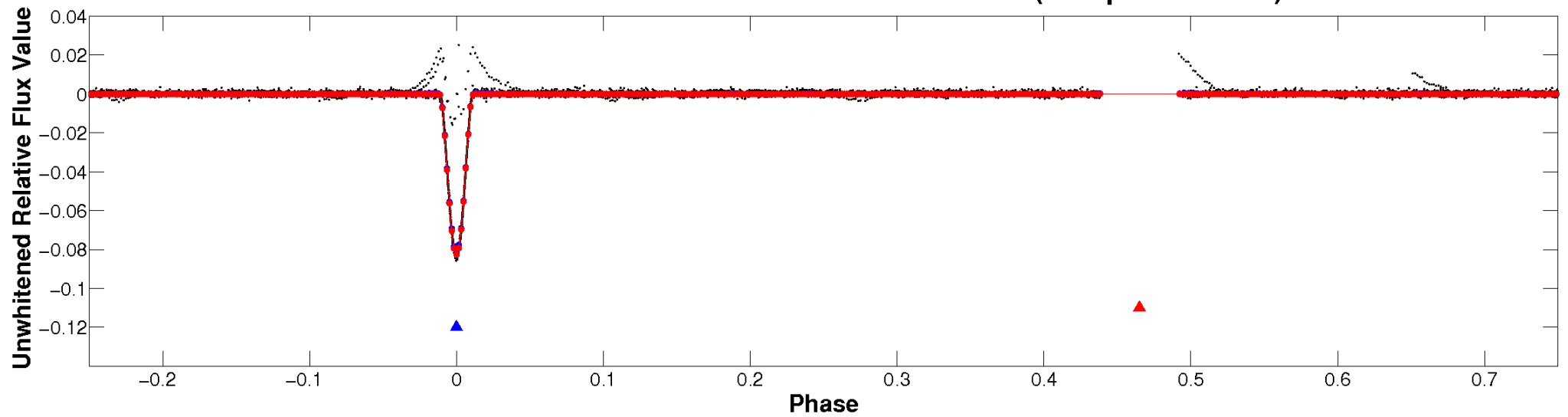
ALT Odd/Even

TCE 008312222-02

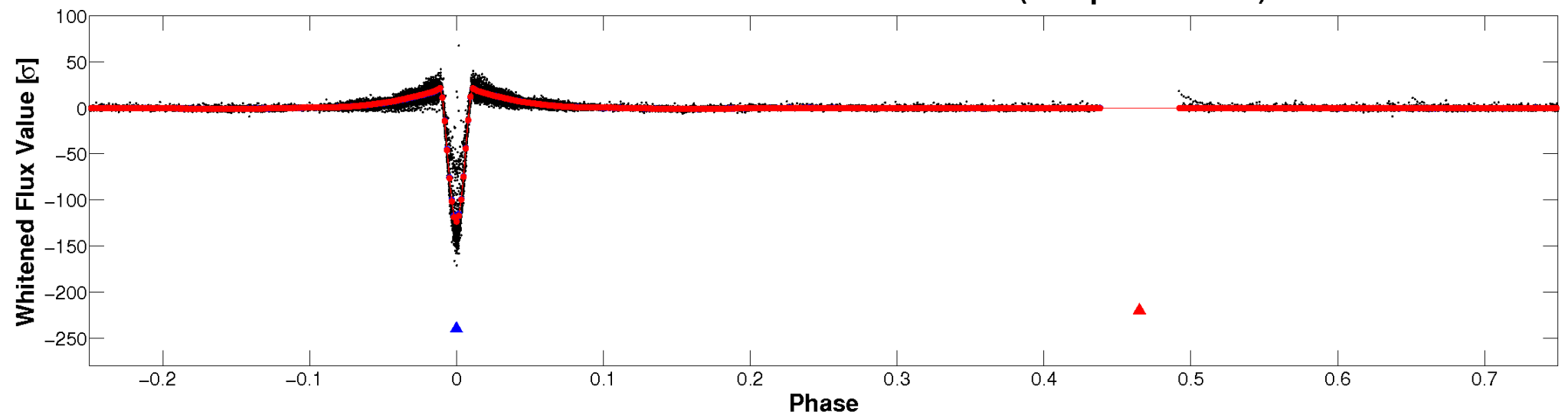


Non-Whitened Vs. Whitened Light Curve

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

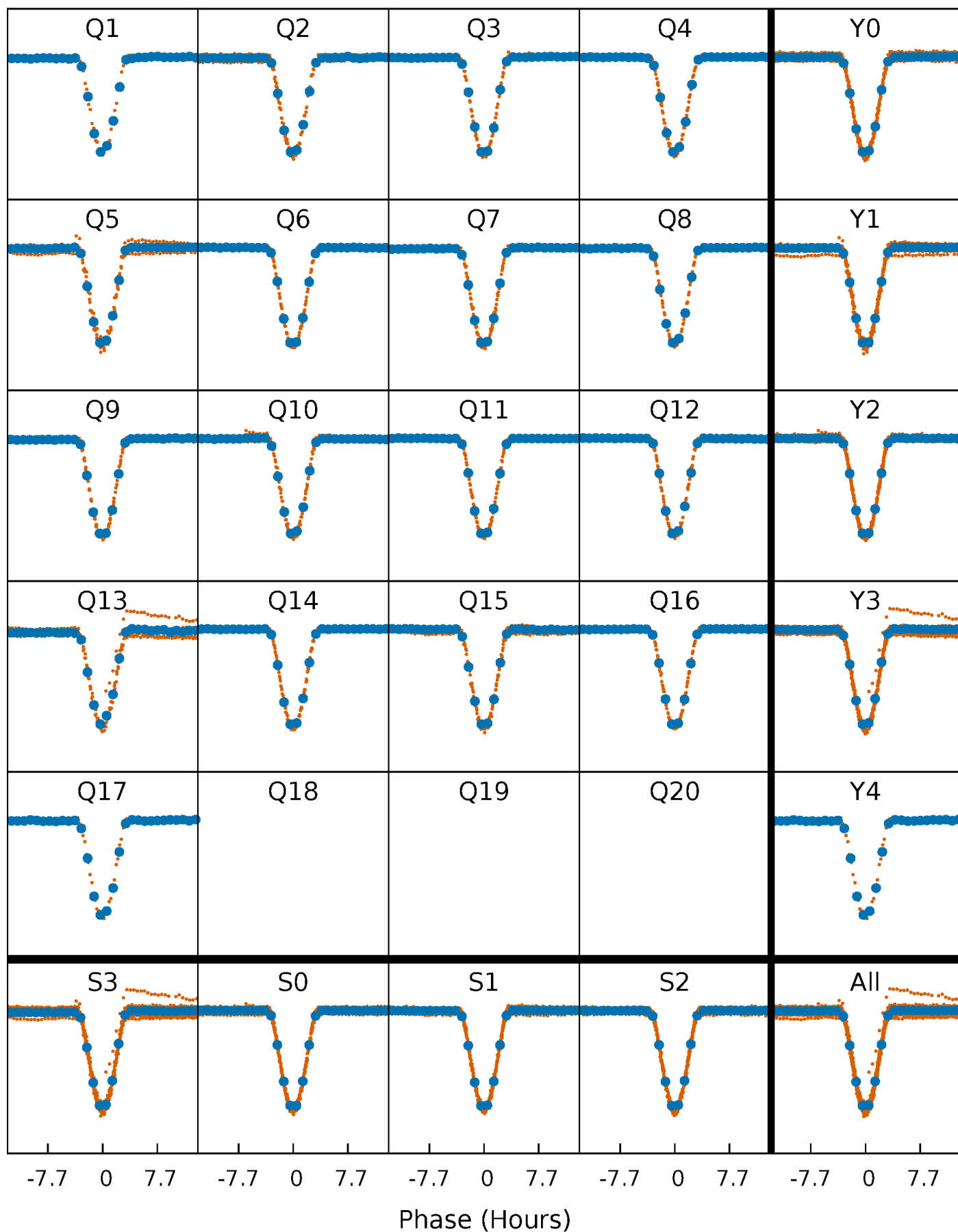


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



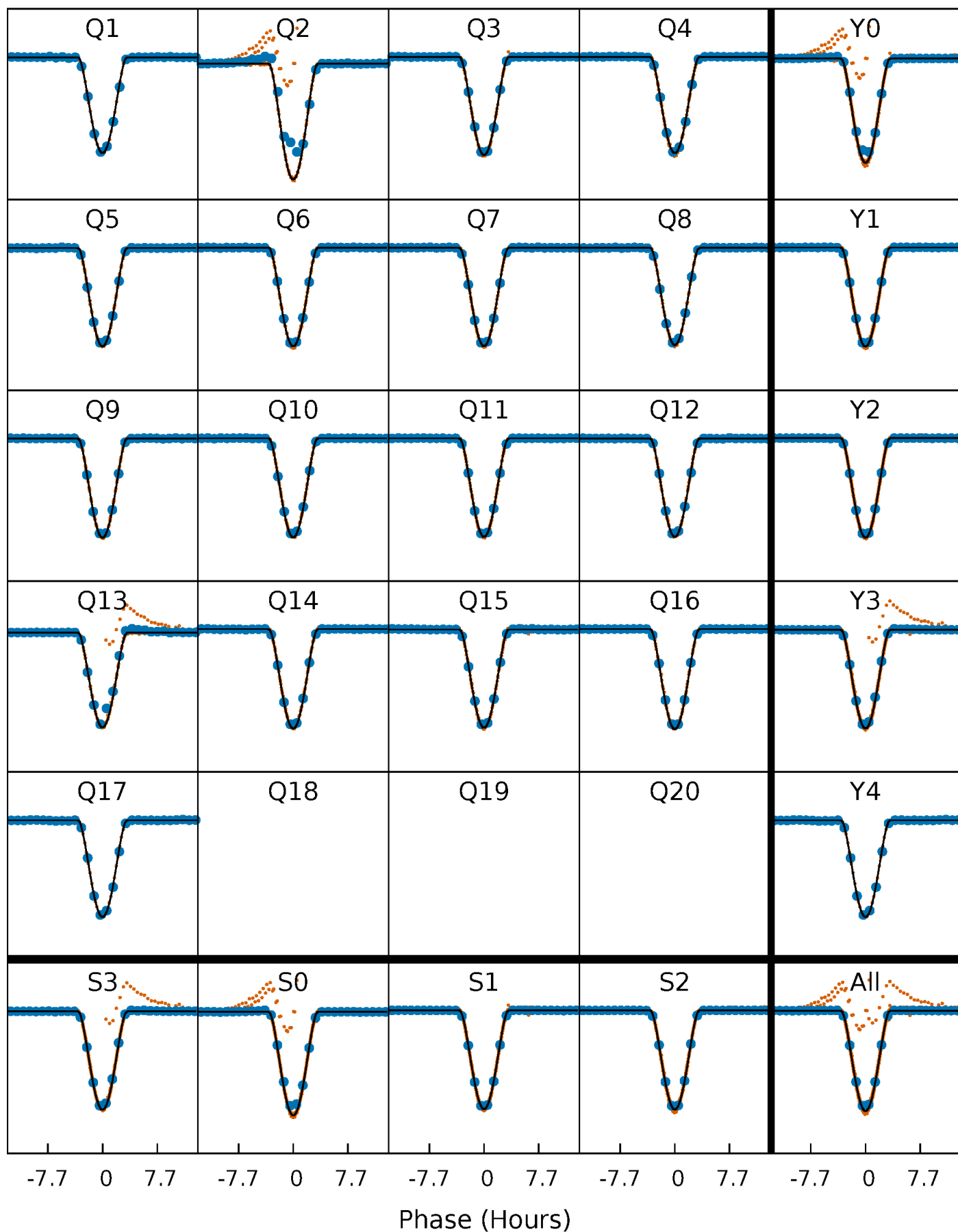
PDC Quarter-Phased Transit Curves

TCE 008312222-02 P= 12.823272 Days $T_0=143.036811$ (BKJD)



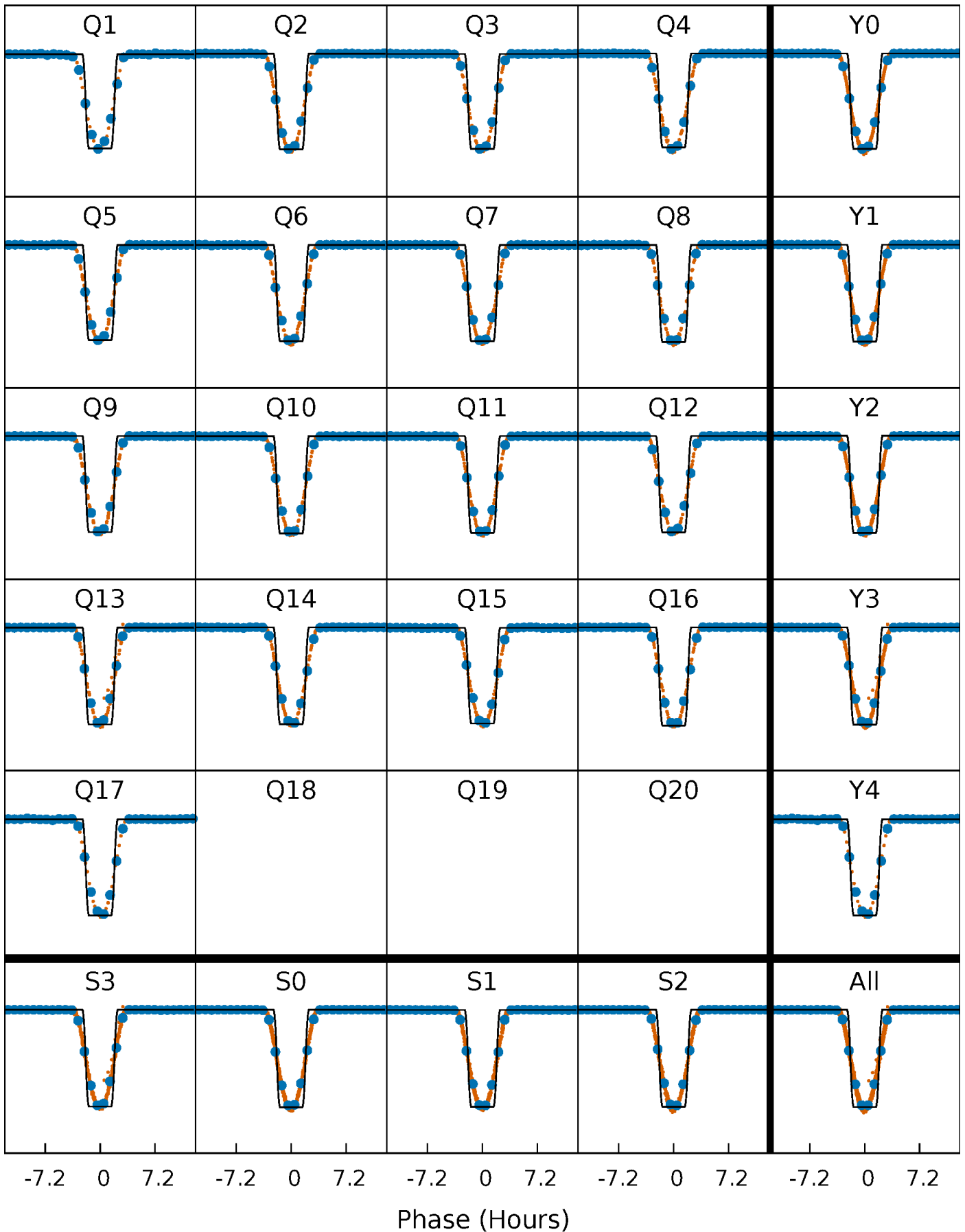
DV Quarter-Phased Transit Curves

TCE 008312222-02 P= 12.823272 Days $T_0=143.036811$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

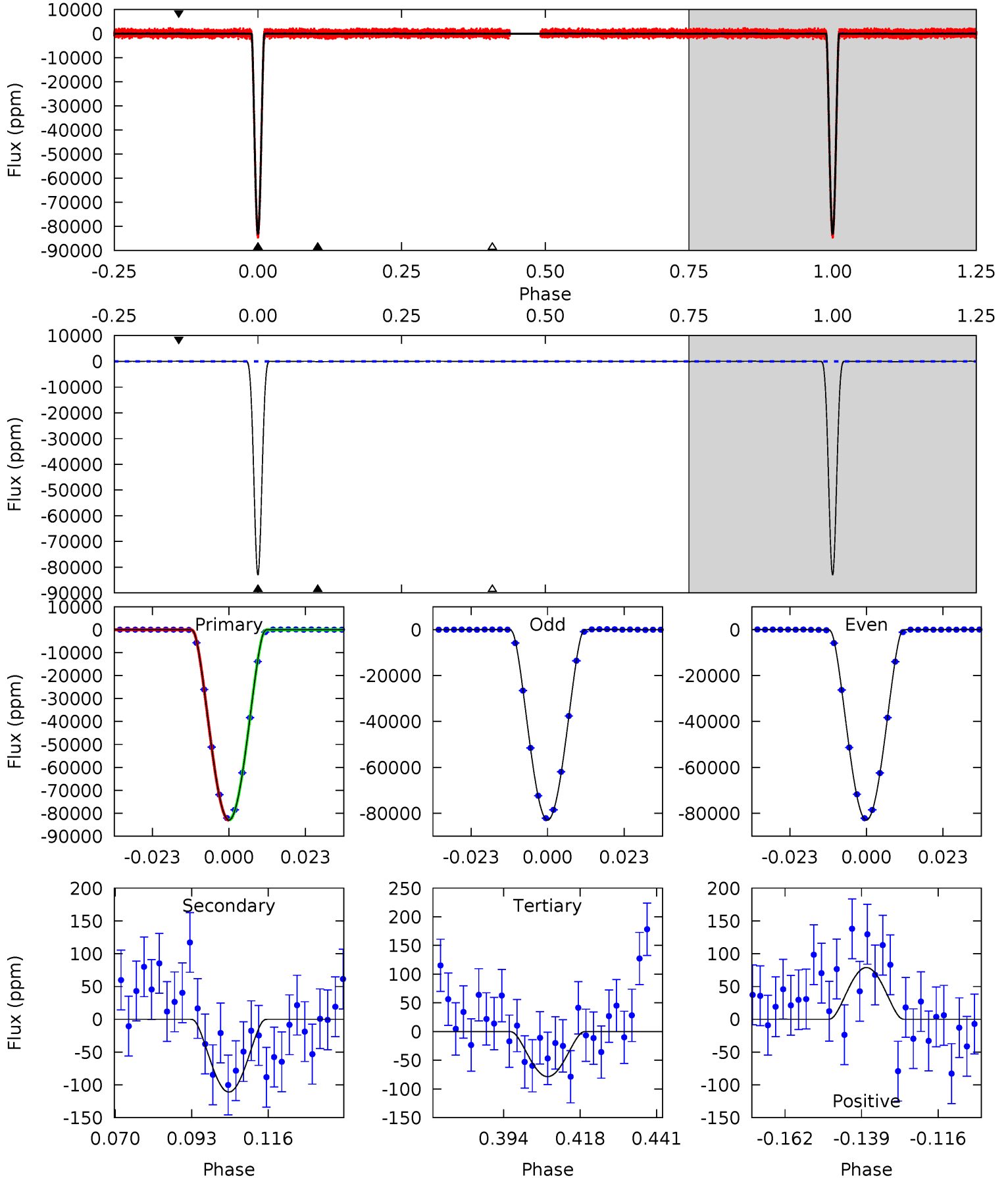
TCE 008312222-02 P= 12.823202 Days $T_0=143.040477$ (BKJD)



DV Model-Shift Uniqueness Test

008312222-02, P = 12.823272 Days, E = 130.213539 Days

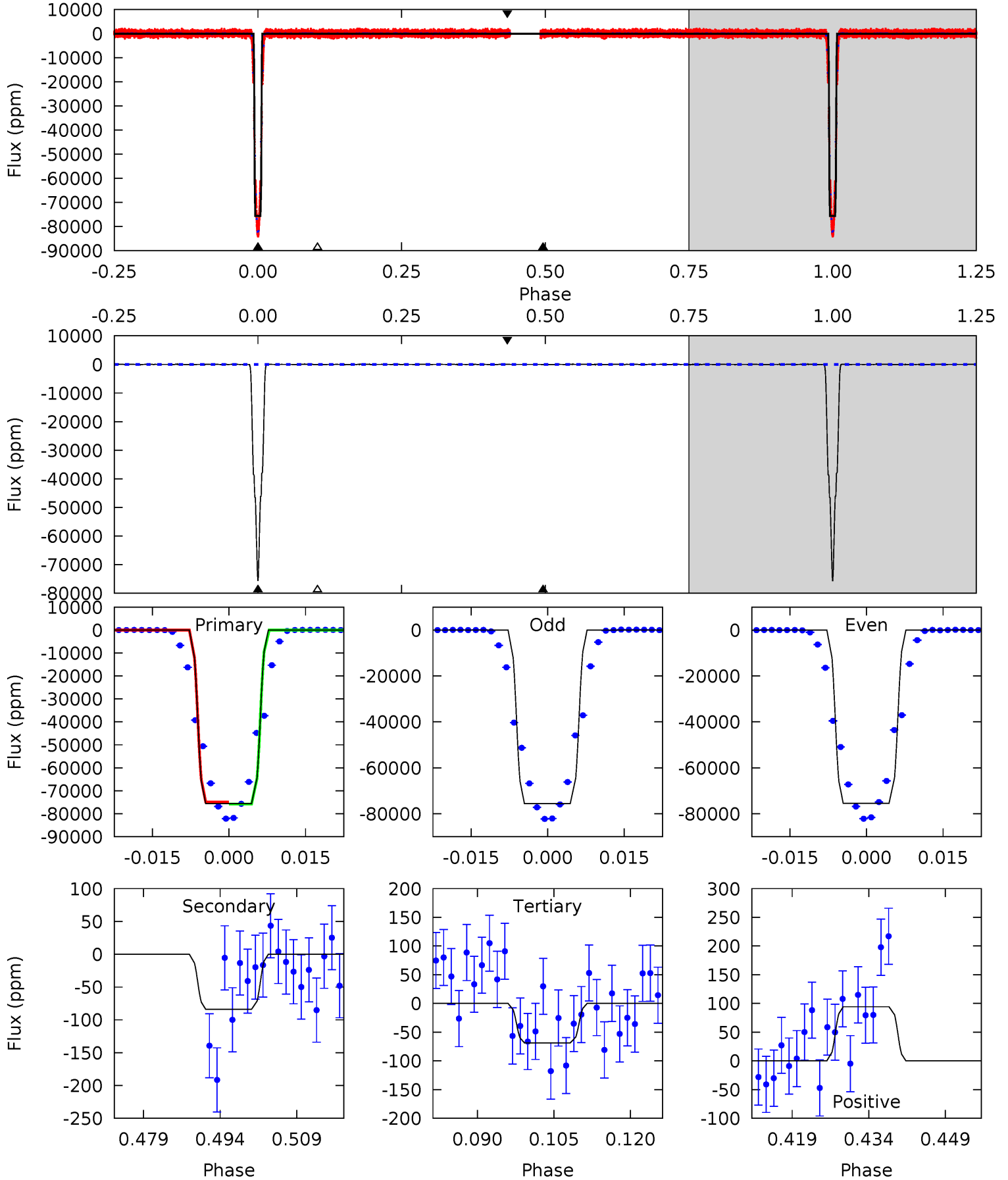
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6015	8.04	5.70	5.72	4.86	2.27	2.17	6009	6009	2.35	2.32	0.53	0.97	0.00	2.32



Alt Model-Shift Uniqueness Test

008312222-02, P = 12.823202 Days, E = 130.217275 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3682	4.09	3.35	4.59	4.95	2.43	1.22	3679	3678	0.74	-0.50	3.30	1.00	0.00	22.0



Stellar Parameters For KIC 008312222

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5973^{+179}_{-197}	$4.562^{+0.036}_{-0.204}$	$-0.460^{+0.300}_{-0.300}$	$0.826^{+0.238}_{-0.074}$	$0.907^{+0.100}_{-0.110}$	$2.271^{+0.446}_{-1.161}$
	+3%/-3%	+1%/-4%	+65%/-65%	+29%/-9%	+11%/-12%	+20%/-51%
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 008312222-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-111 ± 14	$36.29^{+5.40}_{-2.83}$	1065^{+69}_{-50}	1796^{+65}_{-123}	$0.475^{+0.100}_{-0.111}$
Alt.	-84 ± 21	$26.87^{+3.94}_{-2.48}$	1067^{+75}_{-55}	1930^{+92}_{-145}	$0.651^{+0.242}_{-0.214}$

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

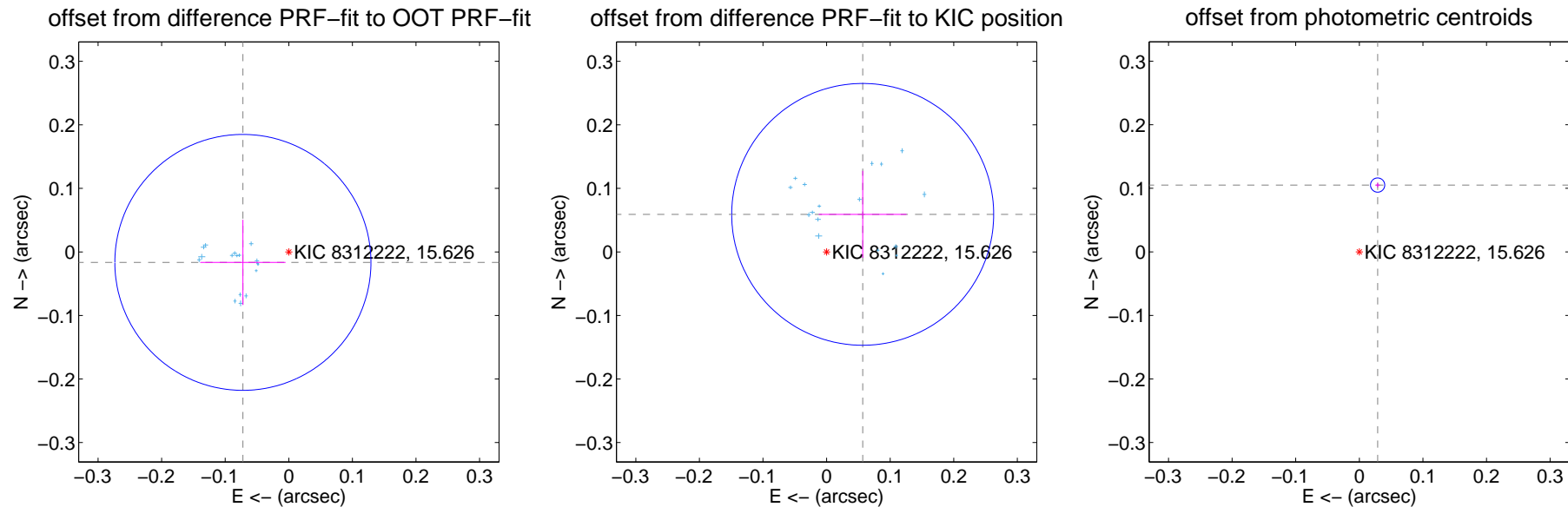
DV Centroid Data

Supplemental centroid analysis for 008312222-02. Kepler magnitude: 15.63. Transit SNR 2791.12

There are 17 quarters with good PRF difference image offsets

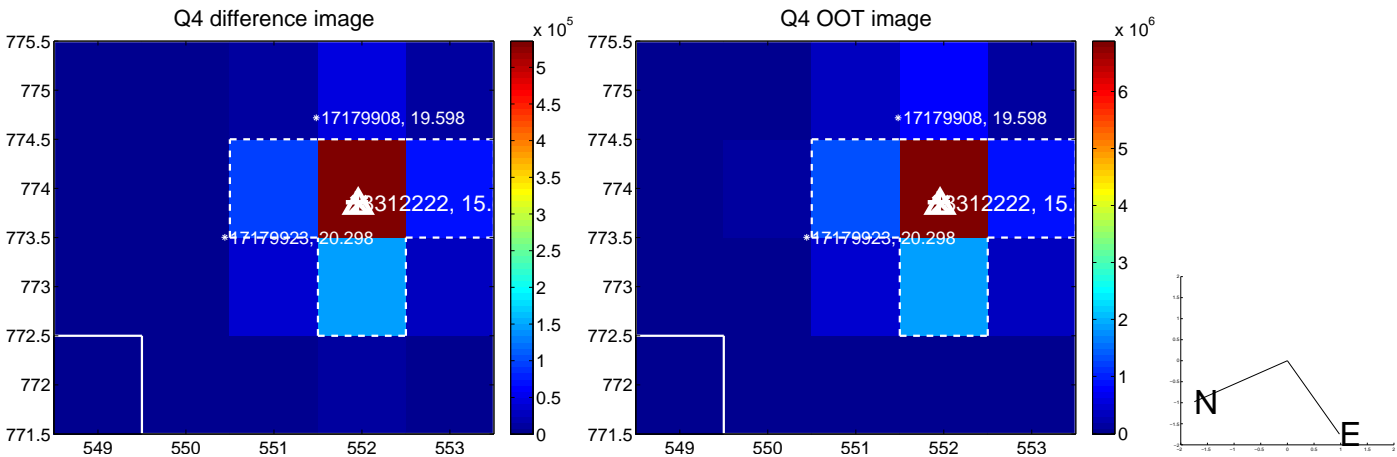
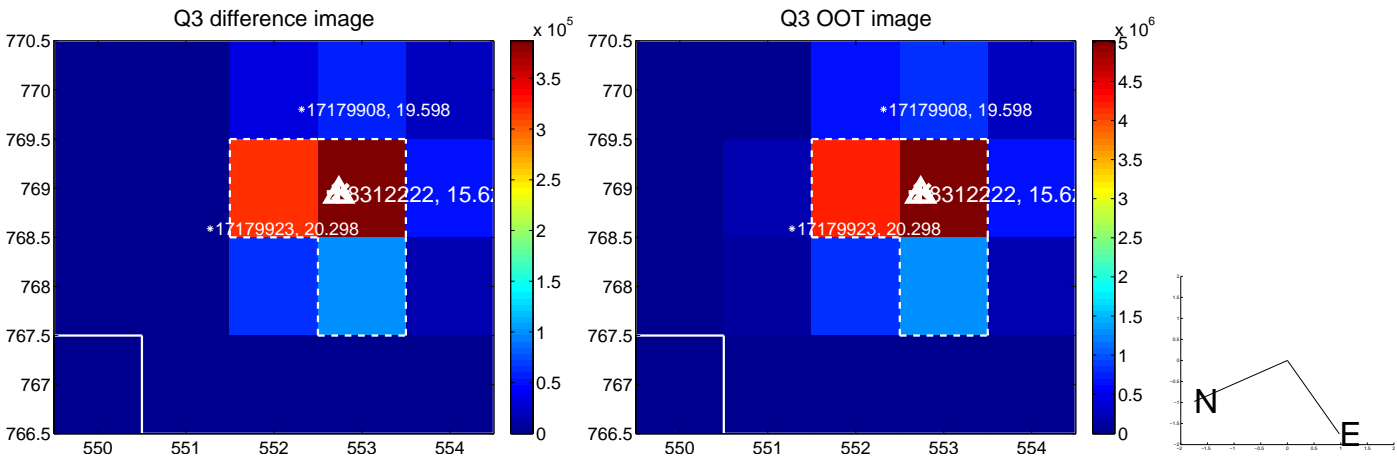
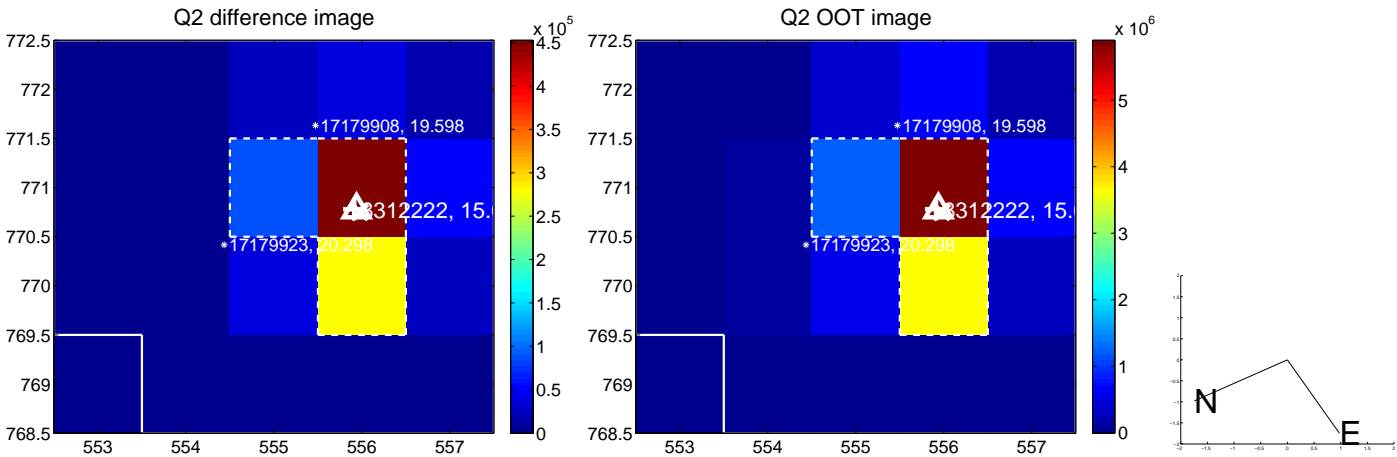
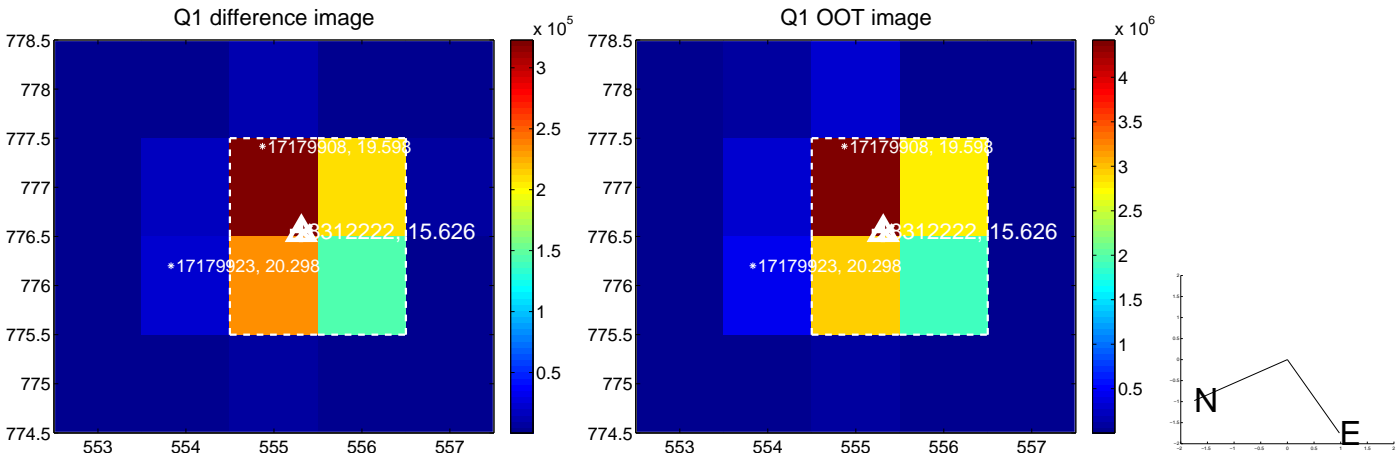
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.074 ± 0.067	1.10	0.072 ± 0.067	-0.016 ± 0.067
PRF-fit source offset from KIC position	0.082 ± 0.069	1.19	-0.057 ± 0.069	0.059 ± 0.068
photometric centroid source offset	0.11 ± 0.00	29.23	-0.03 ± 0.00	0.11 ± 0.00

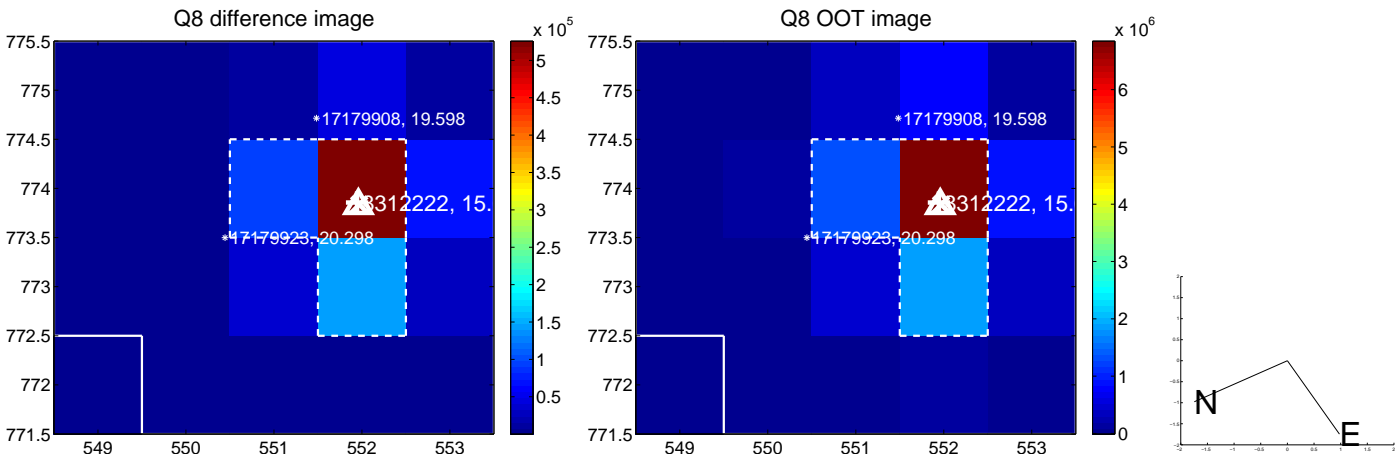
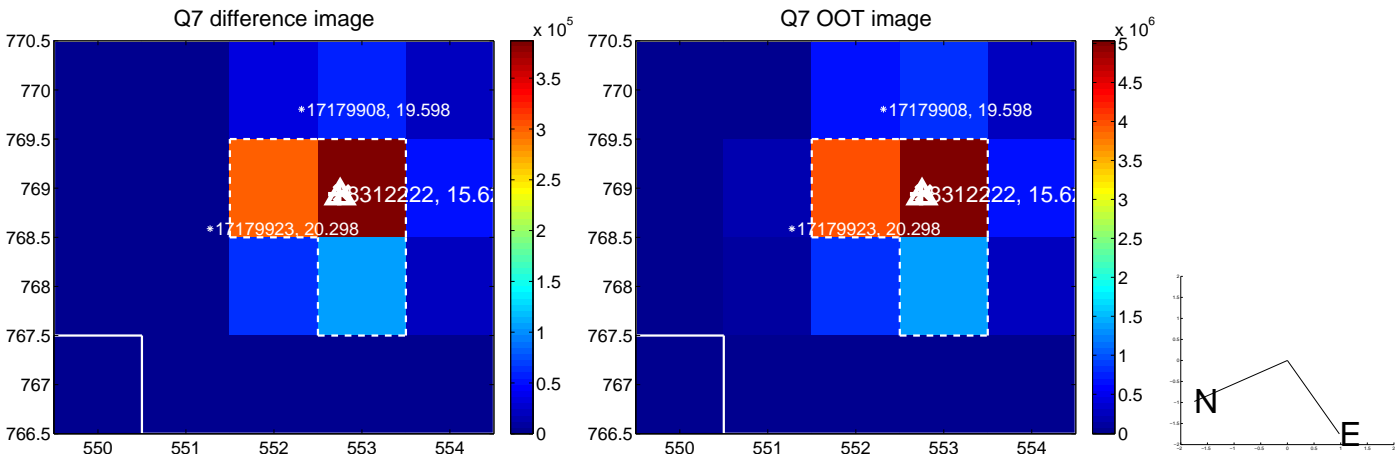
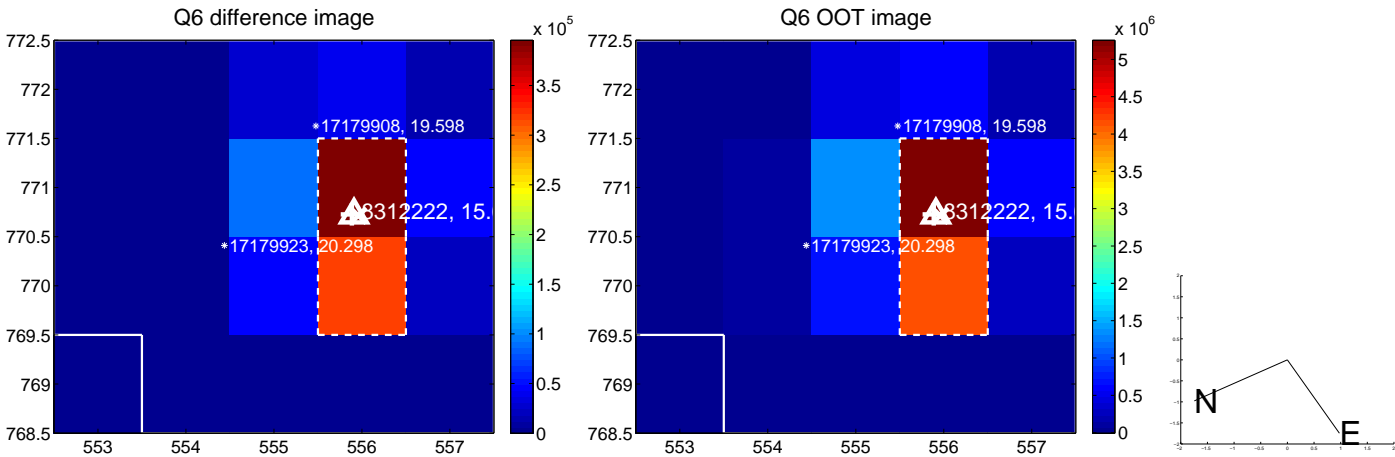
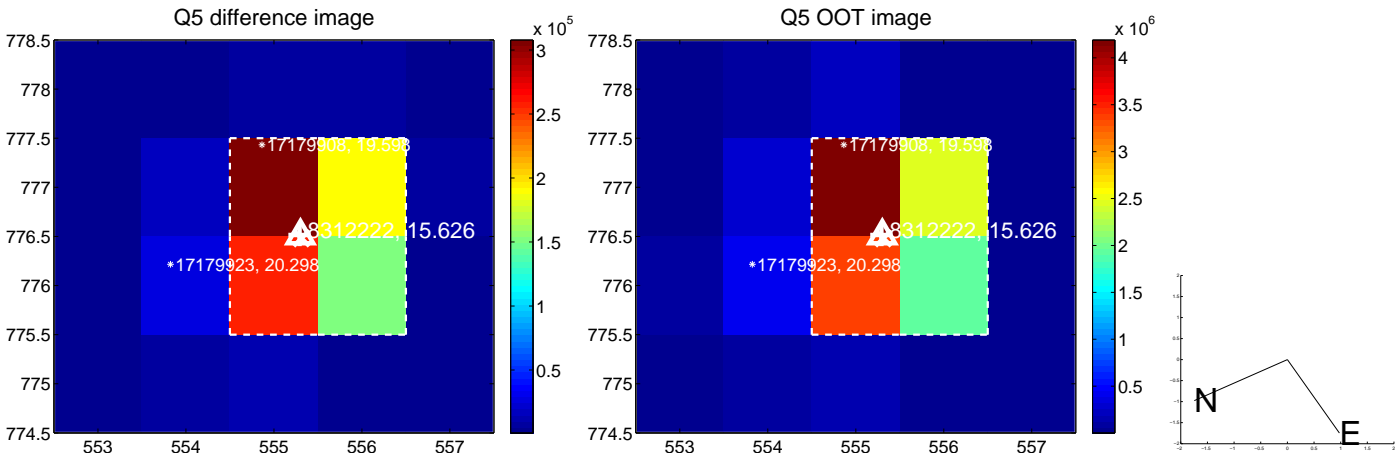


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

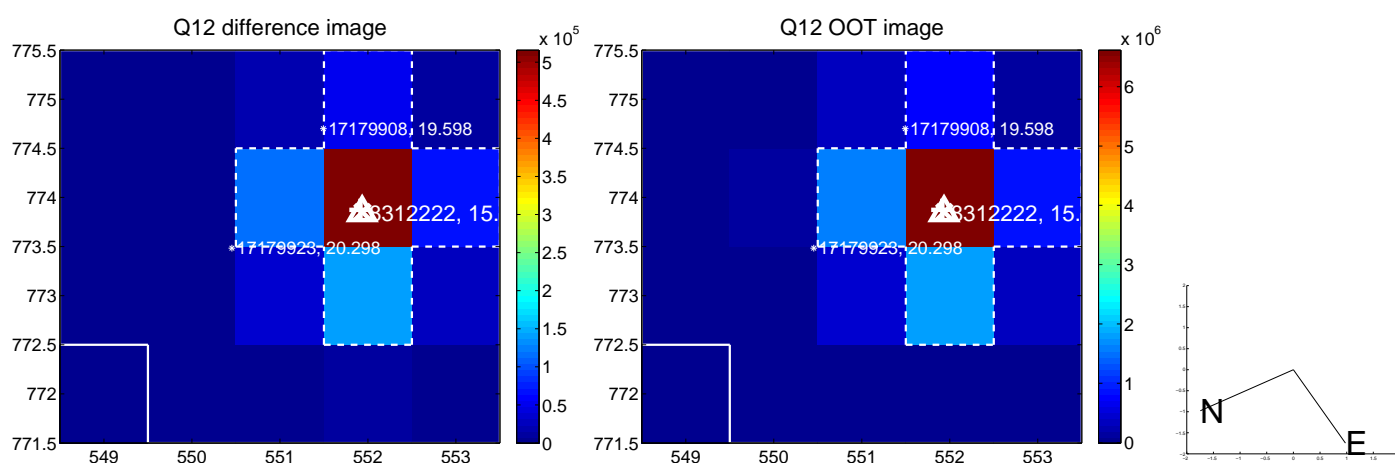
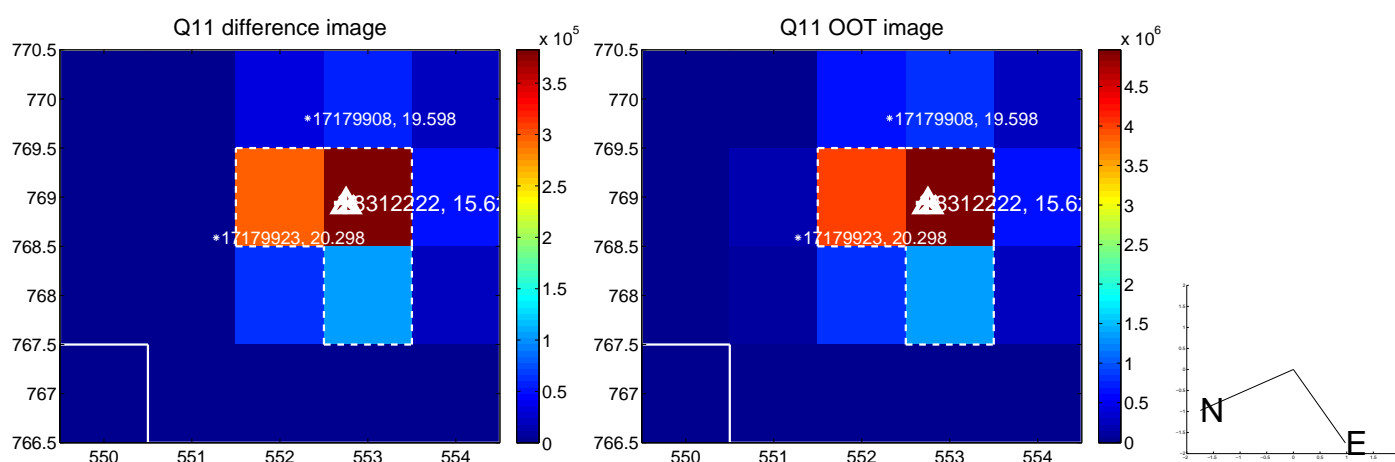
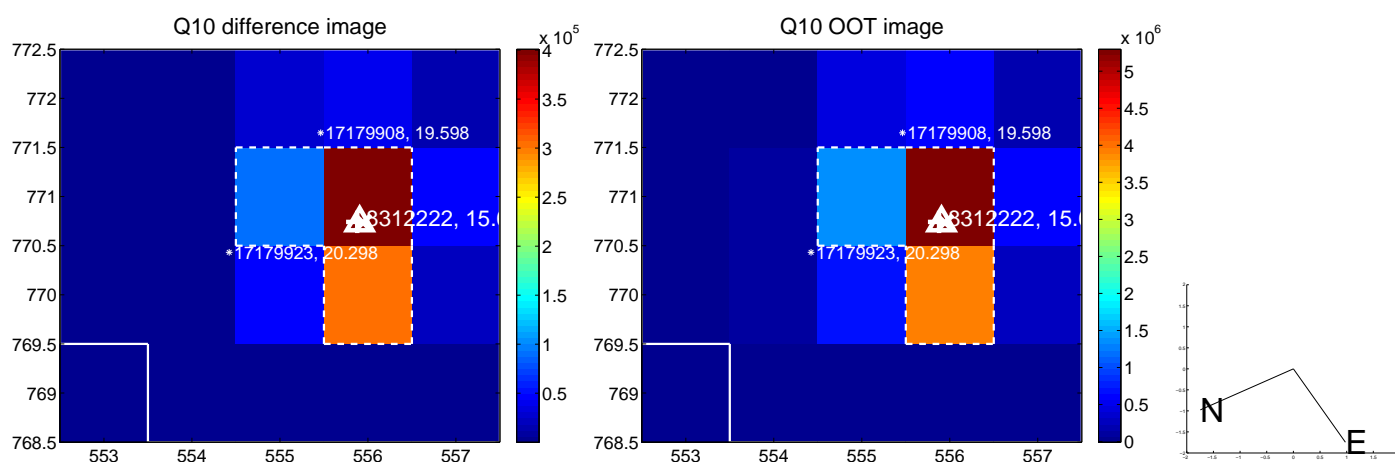
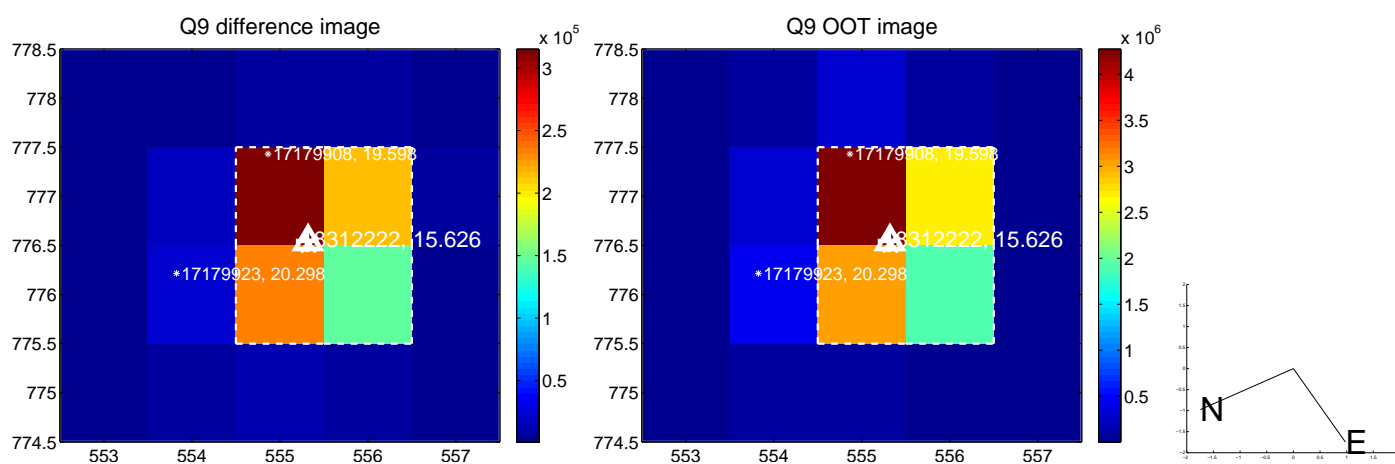
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



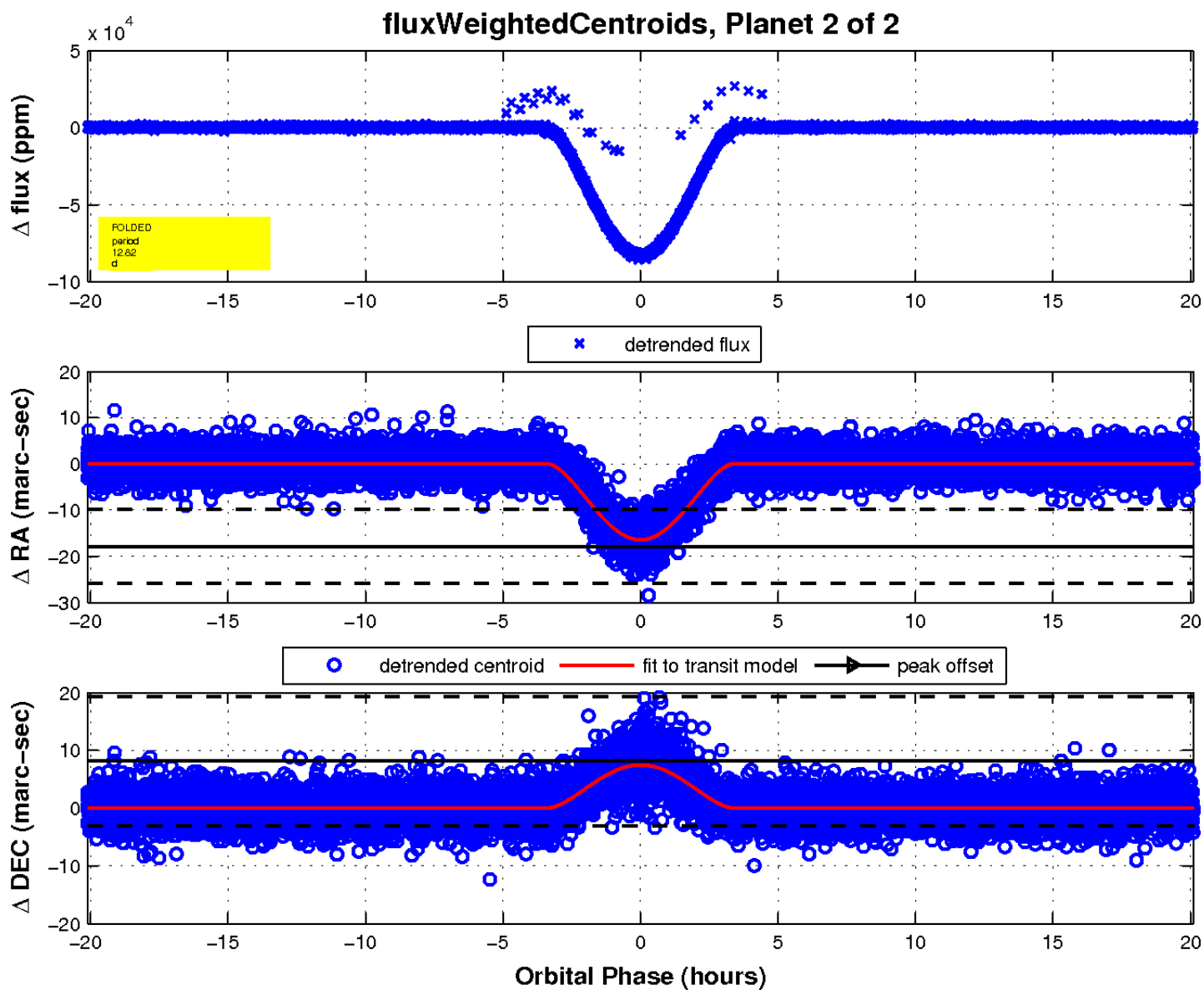
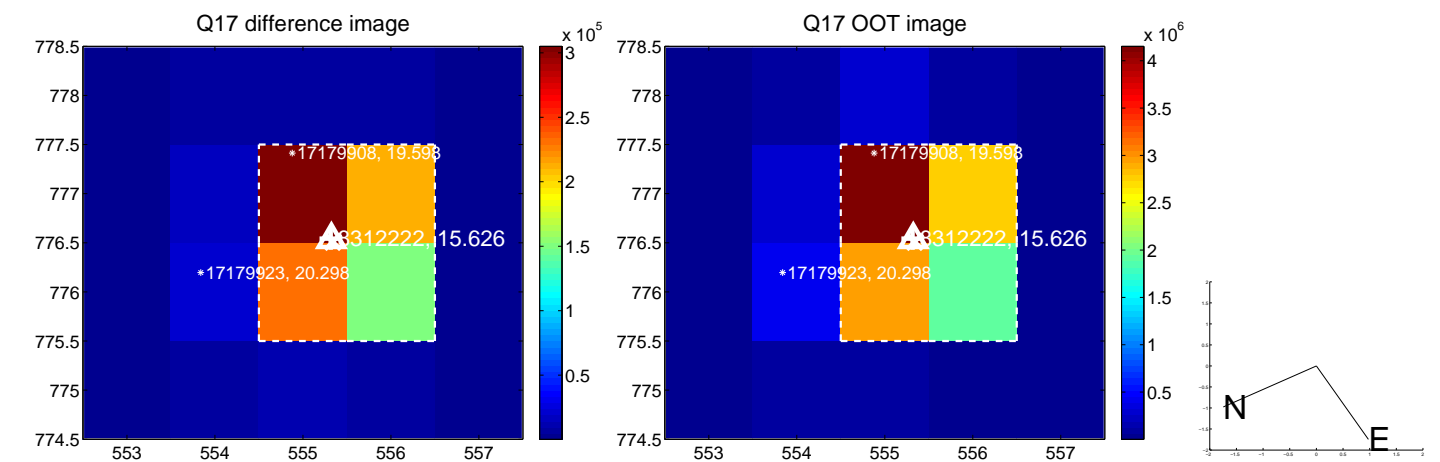
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

