

KIC 012351927

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})
012351927-01	OBS	7522.01	10.116145	139.982498	57848.6	2.715	1289.0	1169.8	0.52	4717	18.11	21.59
012351927-02	OBS	No	10.116140	134.884483	5803.1	2.478	135.7	133.6	0.52	4717	5.94	21.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012351927-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
012351927-02	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.

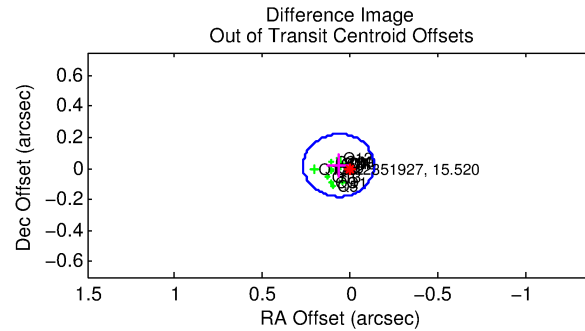
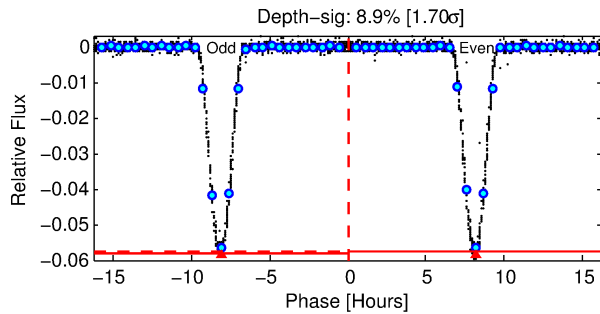
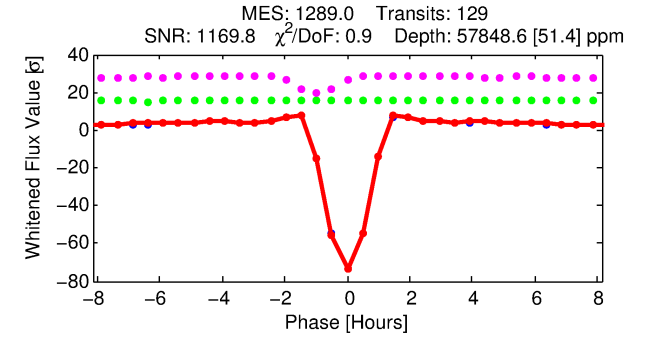
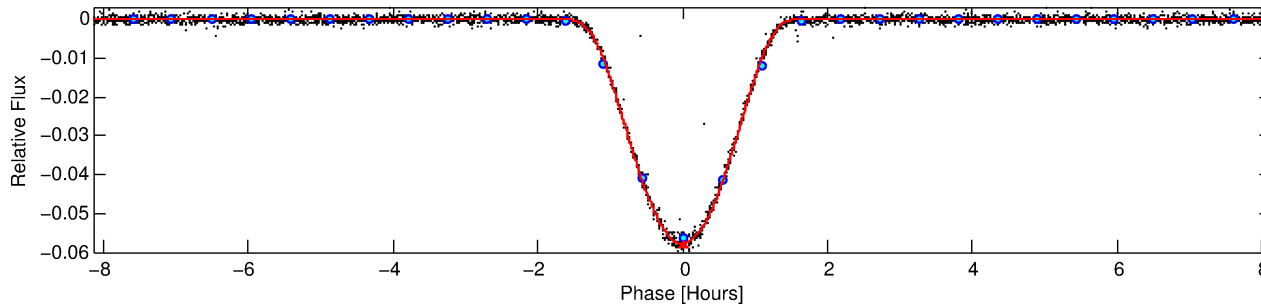
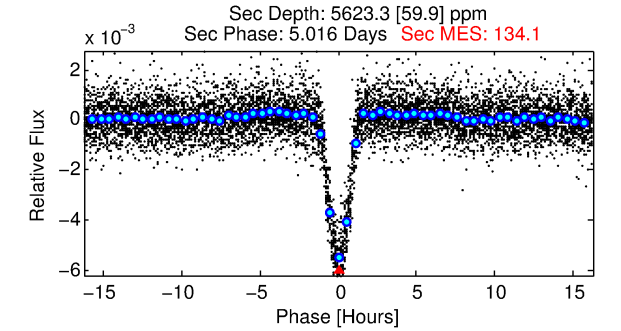
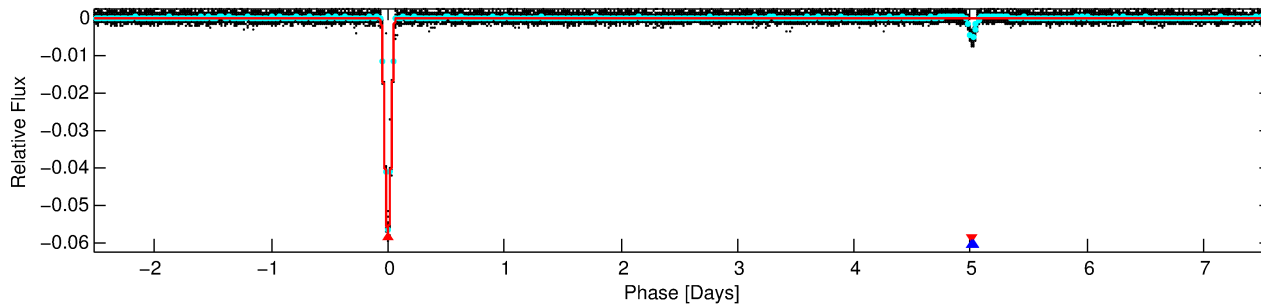
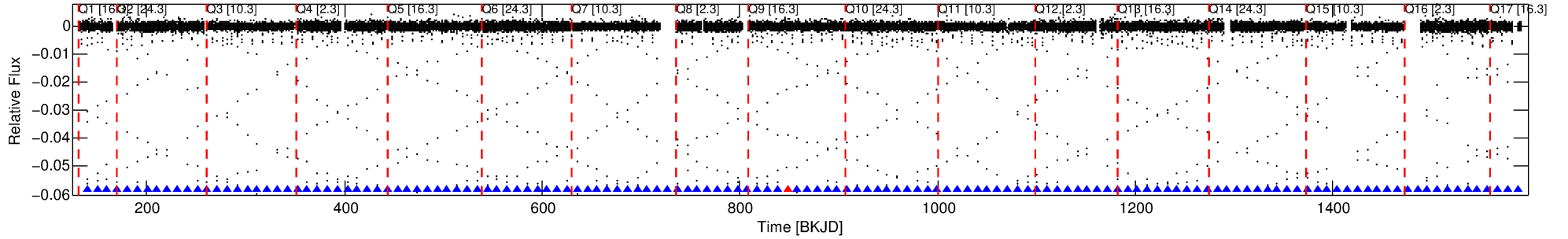
Ephemeris Match Information For 012351927-01

No Significant Match Found

DV One-Page Summary

KIC: 12351927 Candidate: 1 of 2 Period: 10.116 d
KOI: K07522.01 Corr: 0.999

Kp: 15.52 R*: 0.52 Rs Teff: 4717.0 K Logg: 4.74 Fe/H: -1.440



DV Fit Results:

Period = 10.11614 [0.00000] d
Epoch = 139.9825 [0.0000] BKJD
Rp/R* = 0.3198 [0.0136]
a/R* = 27.25 [0.08]
b = 0.91 [0.02]
Seff = 21.59 [3.22]
Teq = 550 [21] K
Rp = 18.11 [1.30] Re
a = 0.0744 [0.0037] AU
Ag = 52.20 [5.95] [8.60σ]
Teffp = 2284 [88] K [19.11σ]

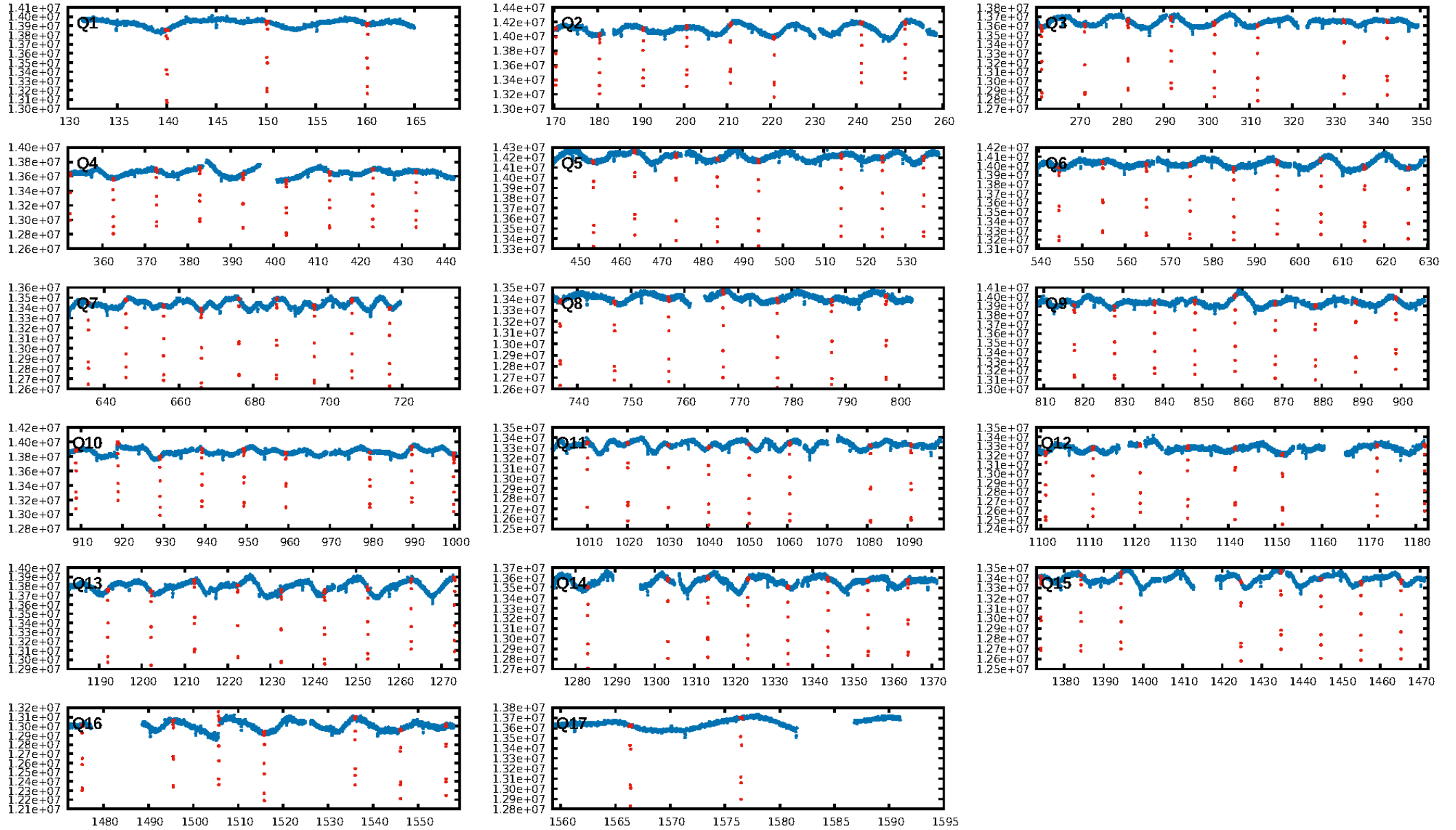
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [123/124]
GhostDiagnostic-chr: 3.429
Centroid-sig: 0.0%
Centroid-so: 0.676 arcsec [69.24σ]
OotOffset-rm: 0.070 arcsec [1.03σ]
KicOffset-rm: 0.073 arcsec [1.09σ]
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]

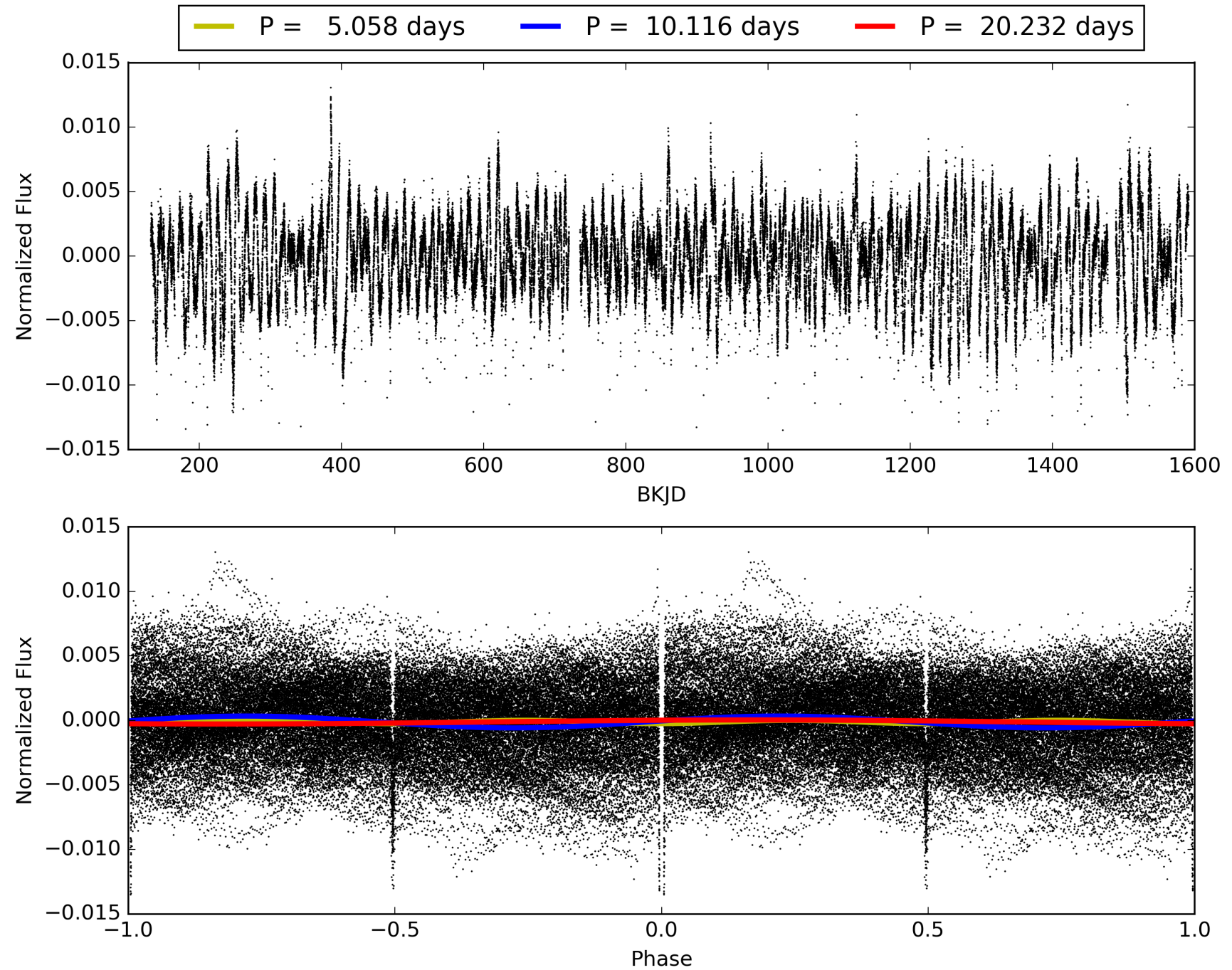
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:48:18 Z

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

TCE 012351927-01, PDC Light Curves

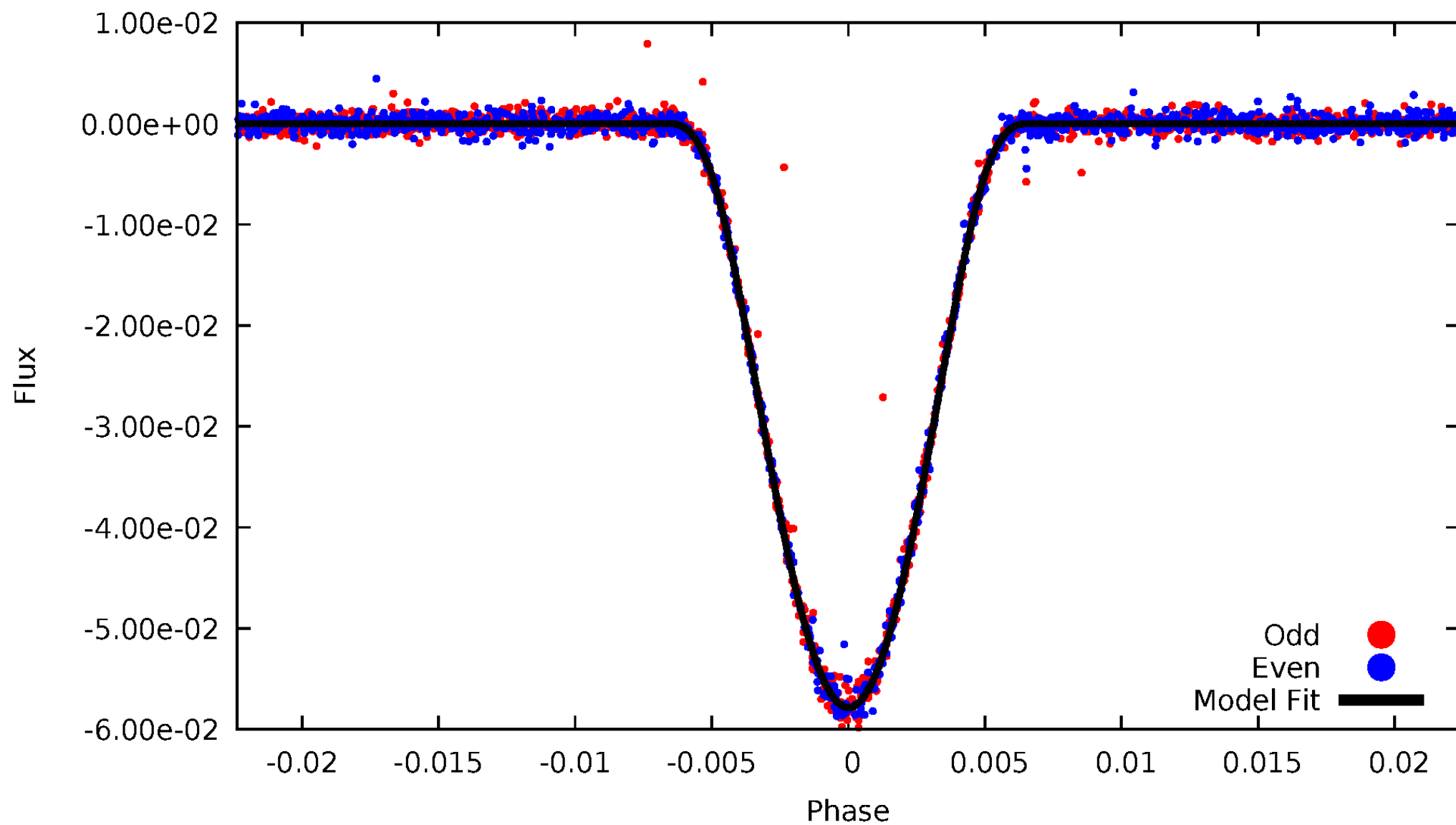


TCE 012351927-01



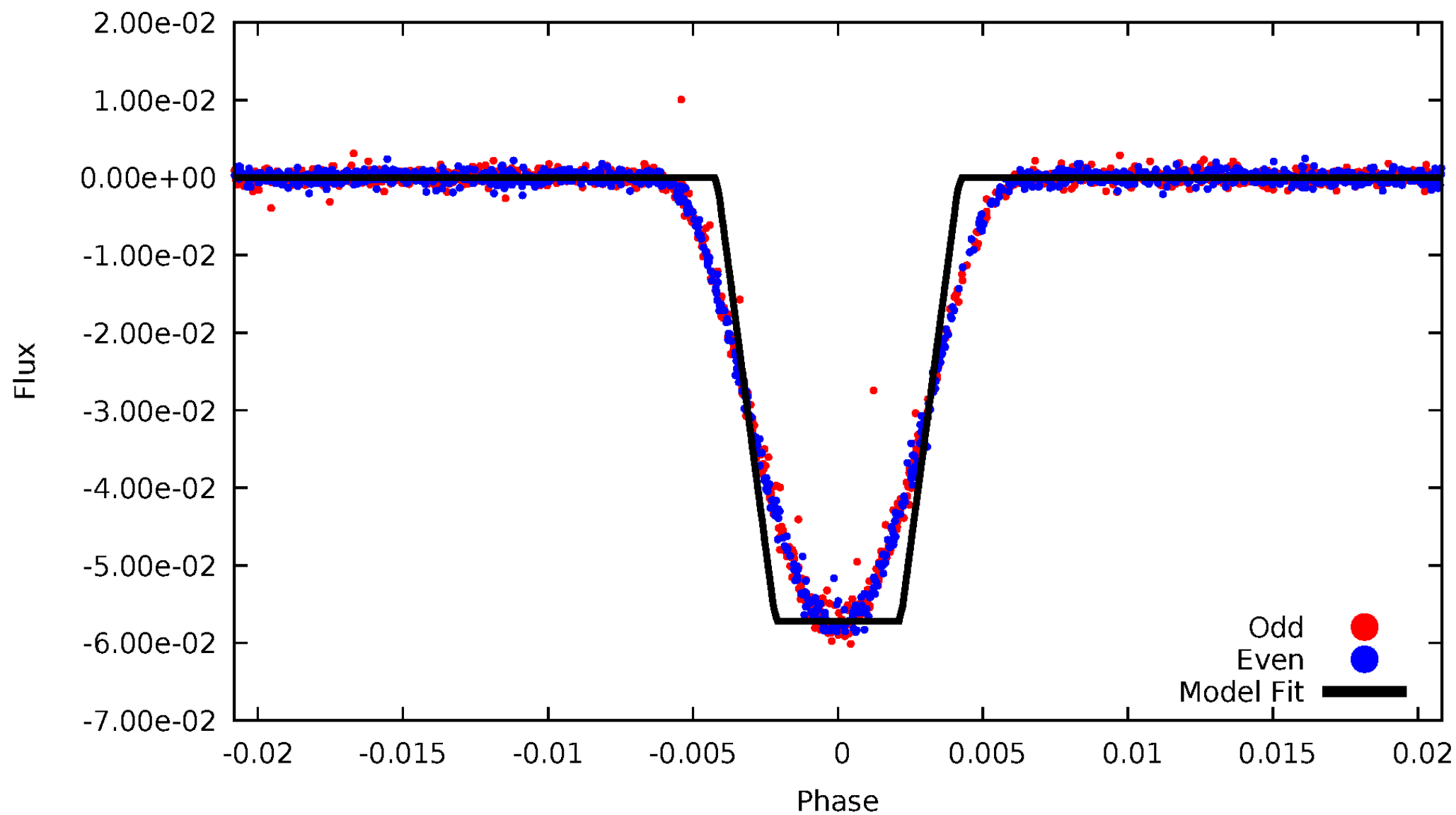
DV Odd/Even

TCE 012351927-01



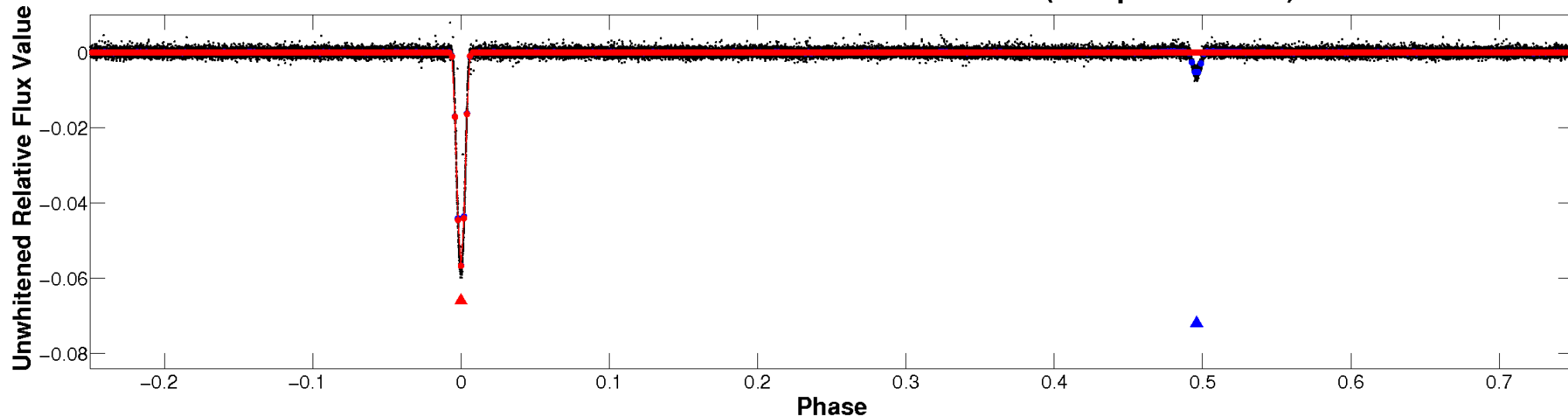
ALT Odd/Even

TCE 012351927-01

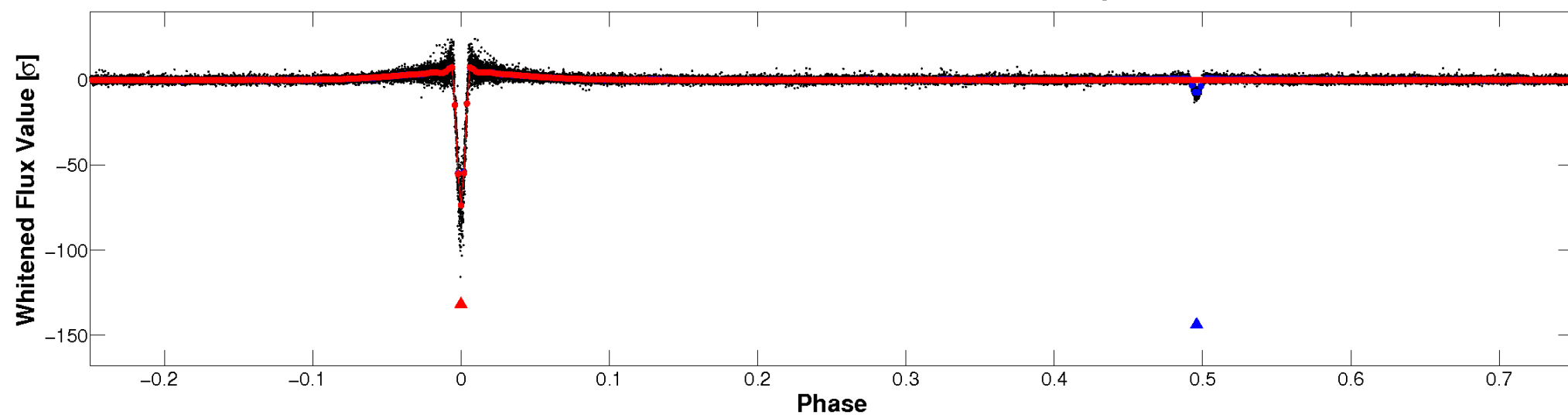


Non-Whitened Vs. Whitened Light Curve

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

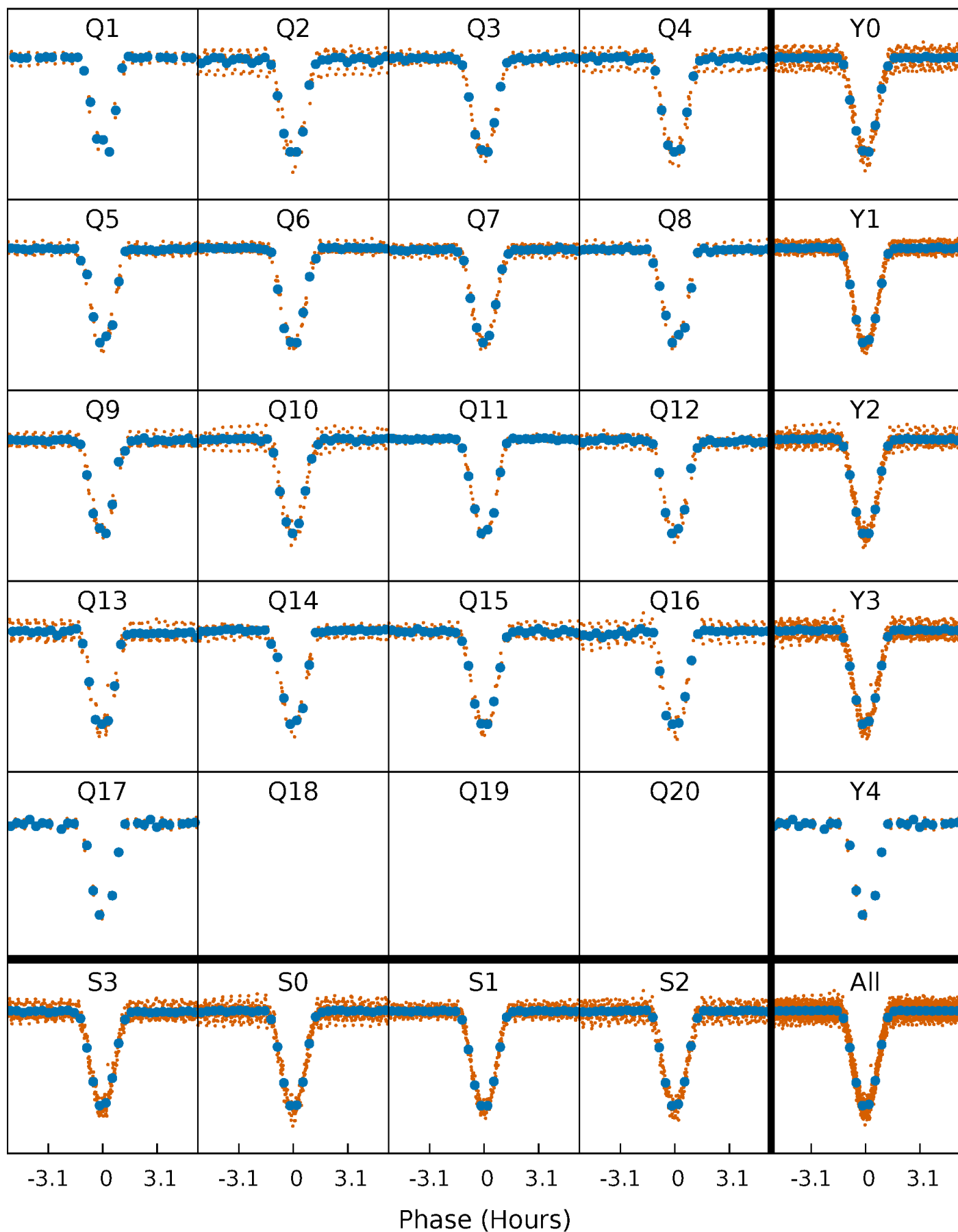


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



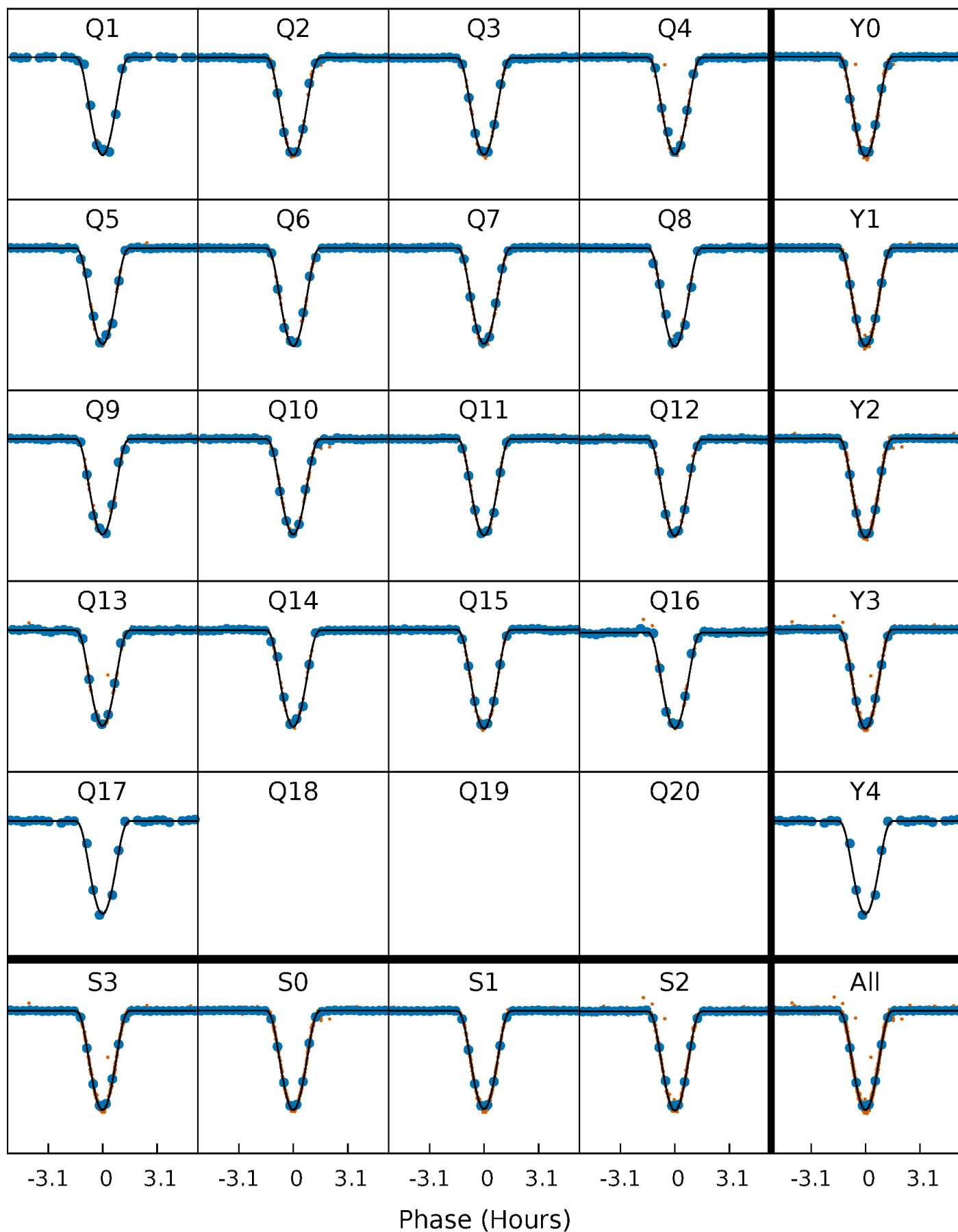
PDC Quarter-Phased Transit Curves

TCE 012351927-01 P= 10.116145 Days $T_0=139.982498$ (BKJD)



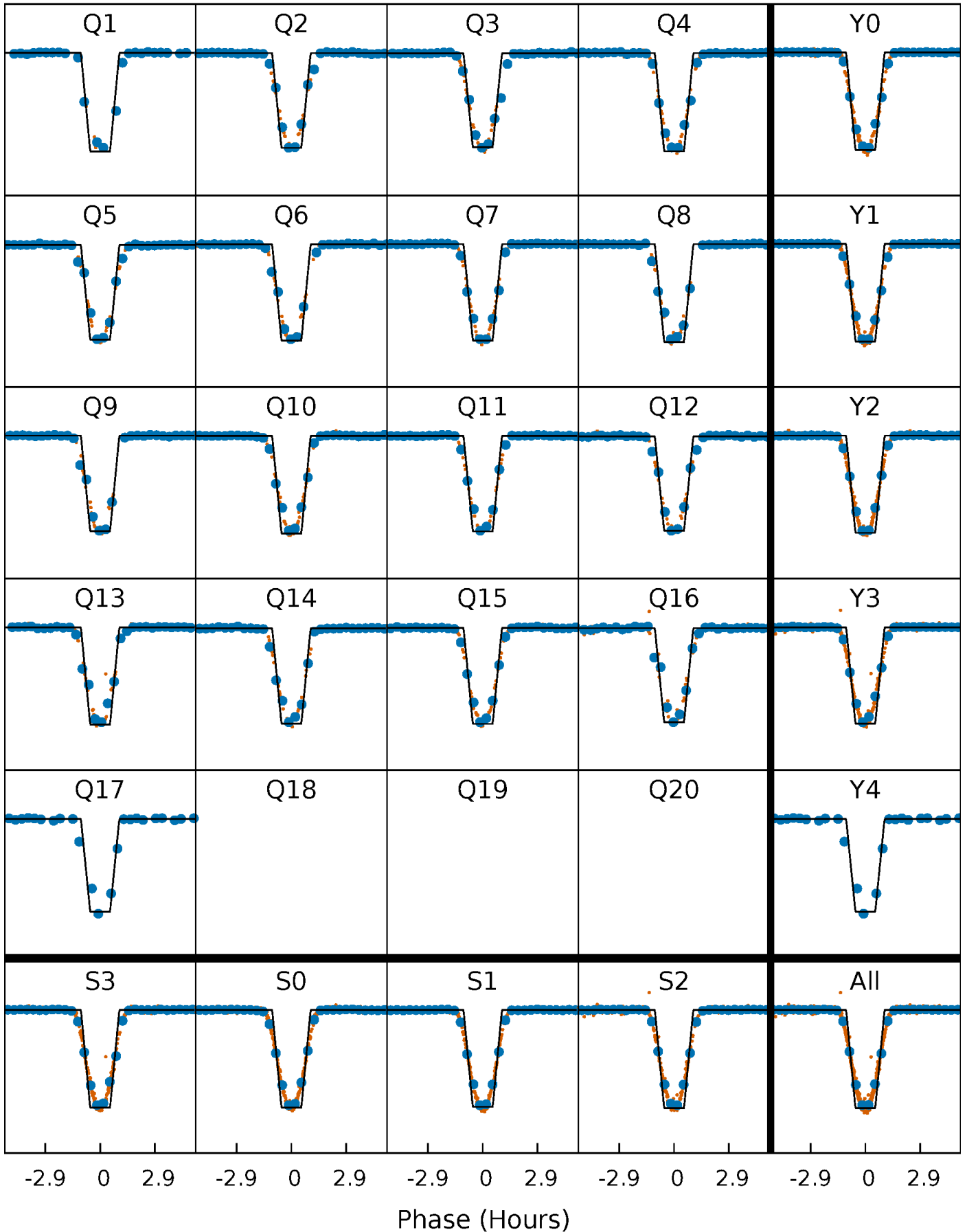
DV Quarter-Phased Transit Curves

TCE 012351927-01 P= 10.116145 Days $T_0=139.982498$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

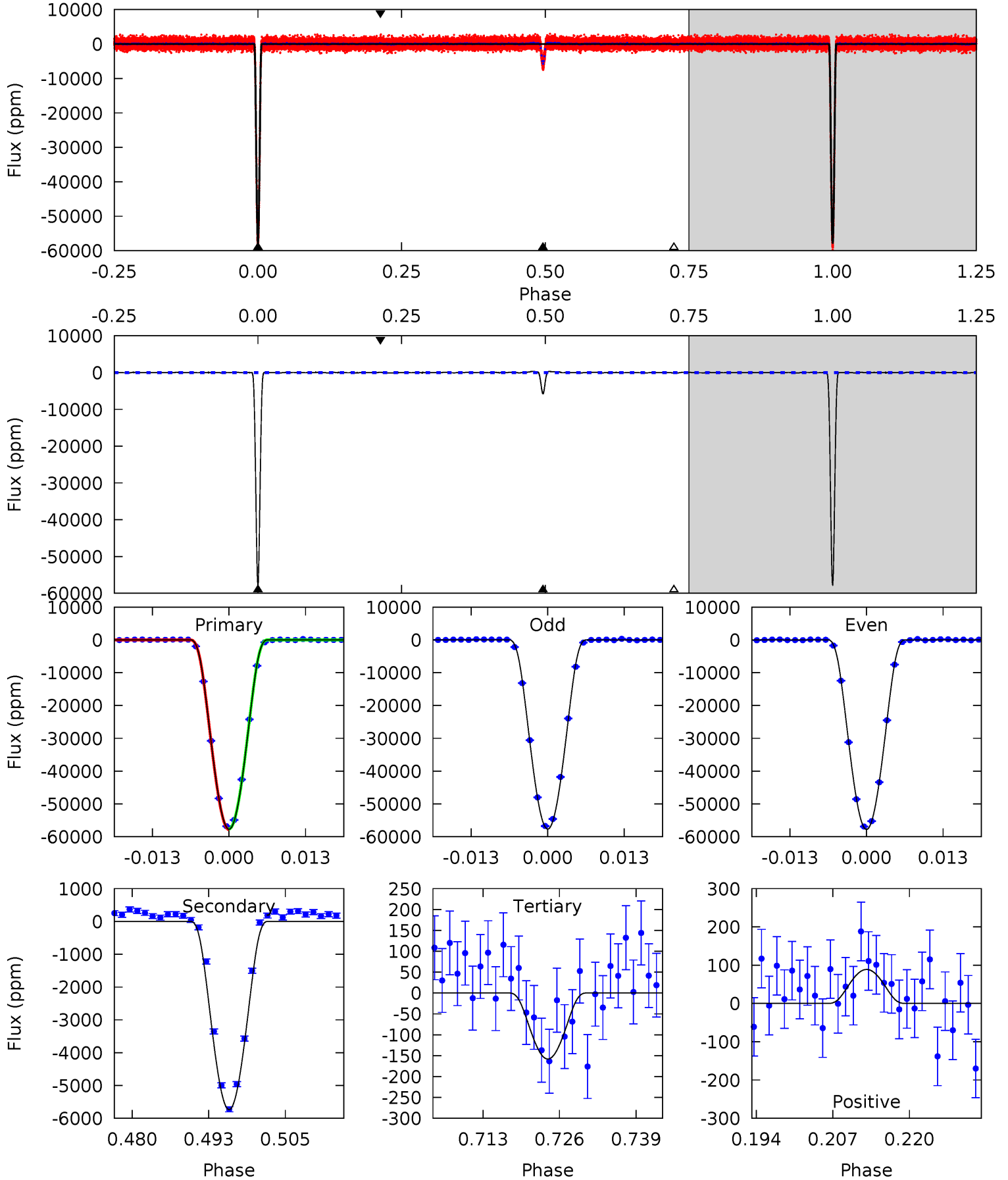
TCE 012351927-01 P= 10.116157 Days $T_0=139.981673$ (BKJD)



DV Model-Shift Uniqueness Test

012351927-01, P = 10.116145 Days, E = 129.866353 Days

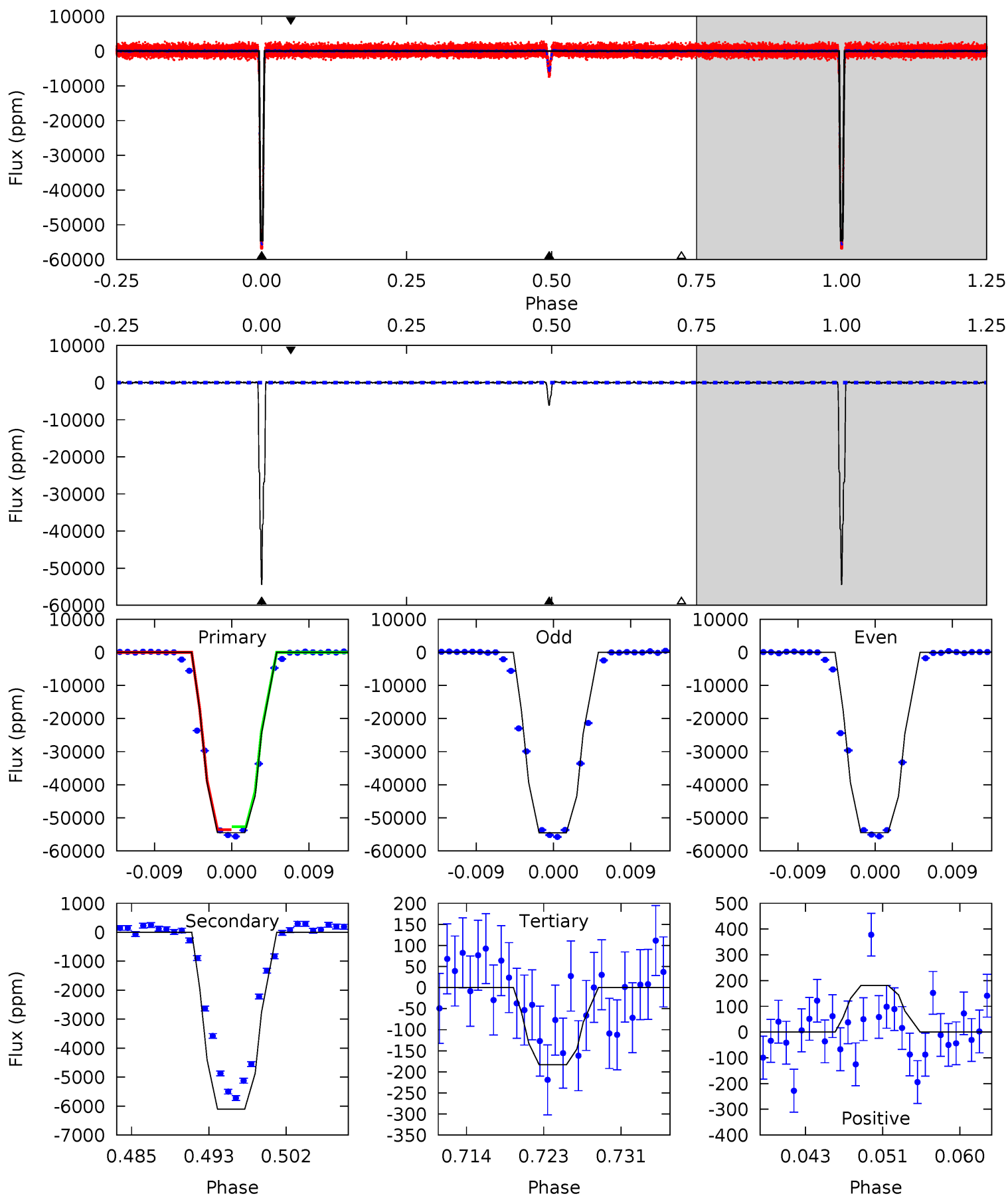
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2411	239.6	6.60	3.71	4.98	2.48	2.50	2405	2408	233.0	235.9	2.28	1.00	0.01	4.41



Alt Model-Shift Uniqueness Test

012351927-01, P = 10.116157 Days, E = 129.865516 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1146	128.4	3.85	3.80	5.06	2.63	1.23	1142	1142	124.5	124.6	0.26	0.99	0.00	0



Stellar Parameters For KIC 012351927

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4717^{+138}_{-152}	$4.737^{+0.042}_{-0.028}$	$-1.440^{+0.300}_{-0.300}$	$0.519^{+0.027}_{-0.030}$	$0.536^{+0.032}_{-0.024}$	$5.393^{+0.883}_{-0.563}$
	+3%/-3%	+1%/-1%	+21%/-21%	+5%/-6%	+6%/-4%	+16%/-10%
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 012351927-01 / KOI 7522.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5736 ± 24	$18.13^{+0.95}_{-0.92}$	766^{+24}_{-27}	2926^{+69}_{-68}	54^{+6}_{-5}
Alt.	-6104 ± 48	$13.52^{+0.90}_{-0.90}$	765^{+24}_{-26}	3209^{+85}_{-95}	103^{+14}_{-12}

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 $A_{obs} \gg 1.0$

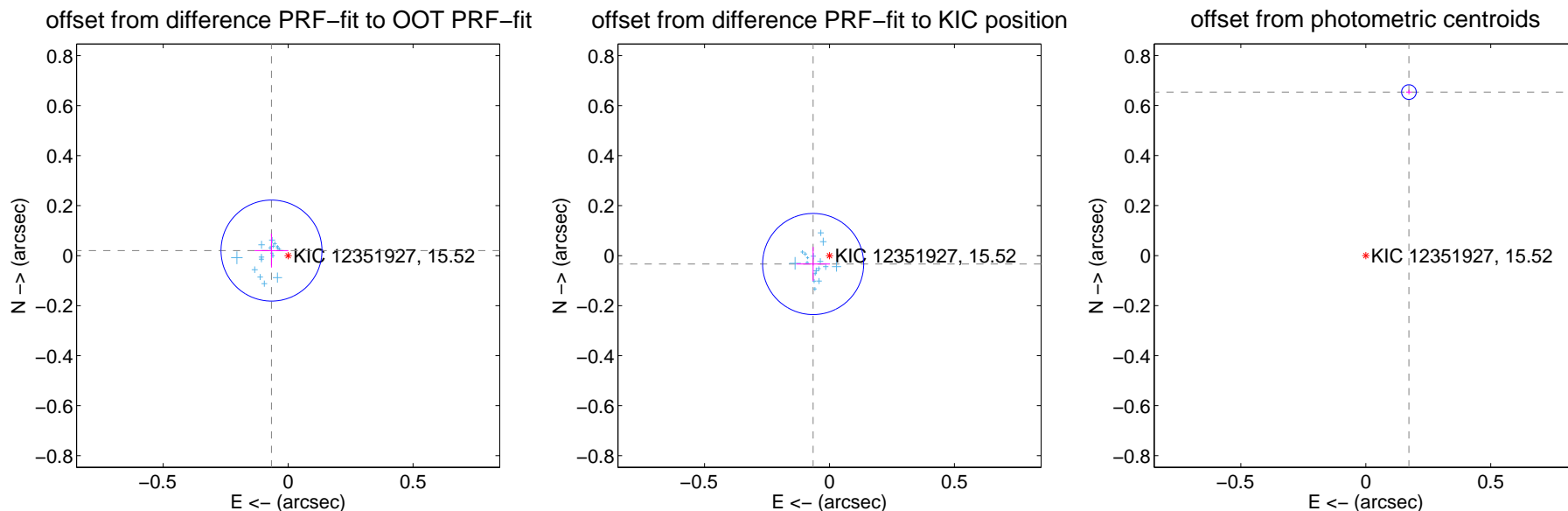
DV Centroid Data

Supplemental centroid analysis for 012351927-01. Kepler magnitude: 15.52. Transit SNR 1169.78

There are 17 quarters with good PRF difference image offsets

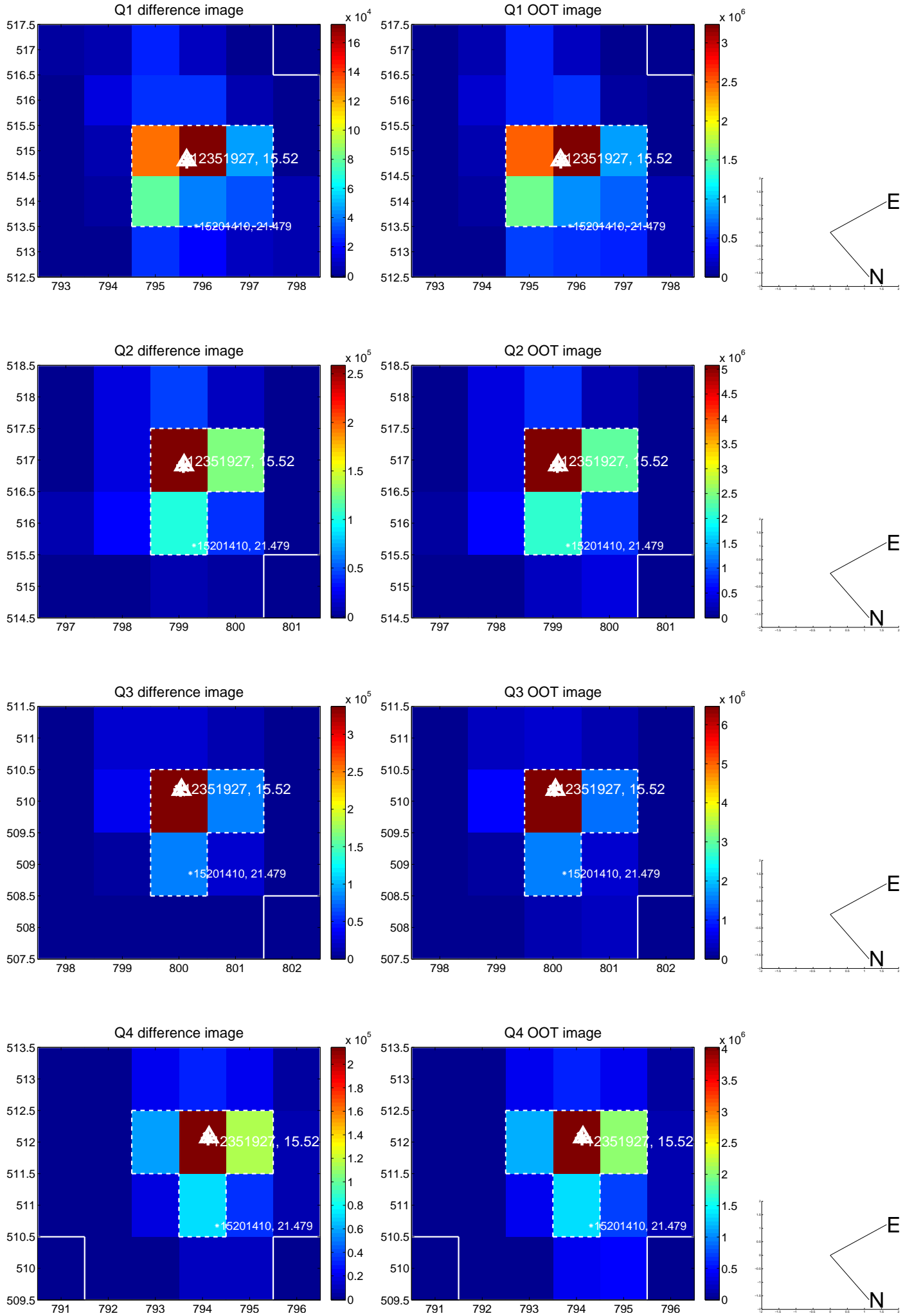
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.070 ± 0.067	1.03	0.067 ± 0.068	0.020 ± 0.068
PRF-fit source offset from KIC position	0.073 ± 0.067	1.09	0.065 ± 0.067	-0.033 ± 0.068
photometric centroid source offset	0.68 ± 0.01	69.24	-0.17 ± 0.01	0.65 ± 0.01

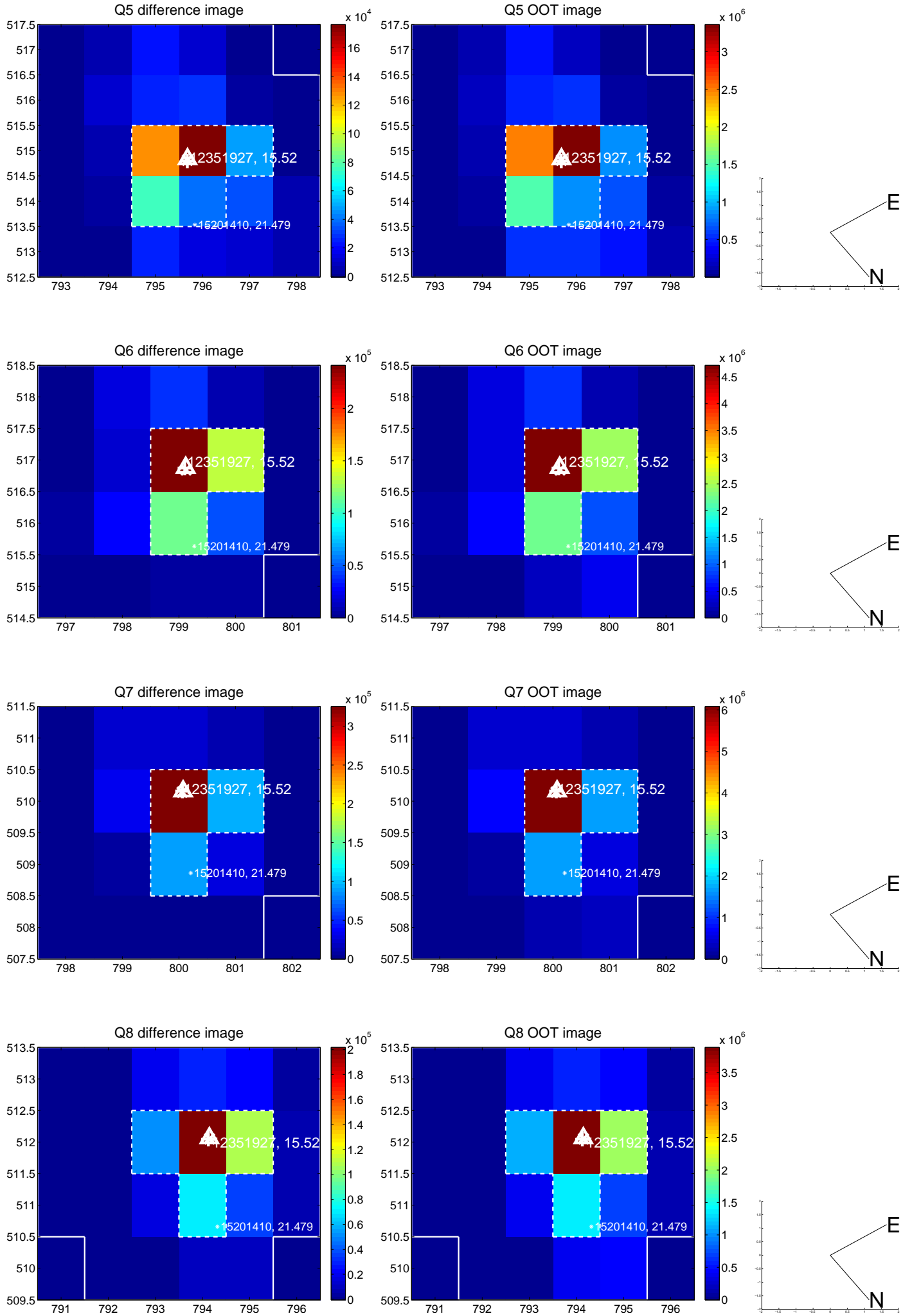


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

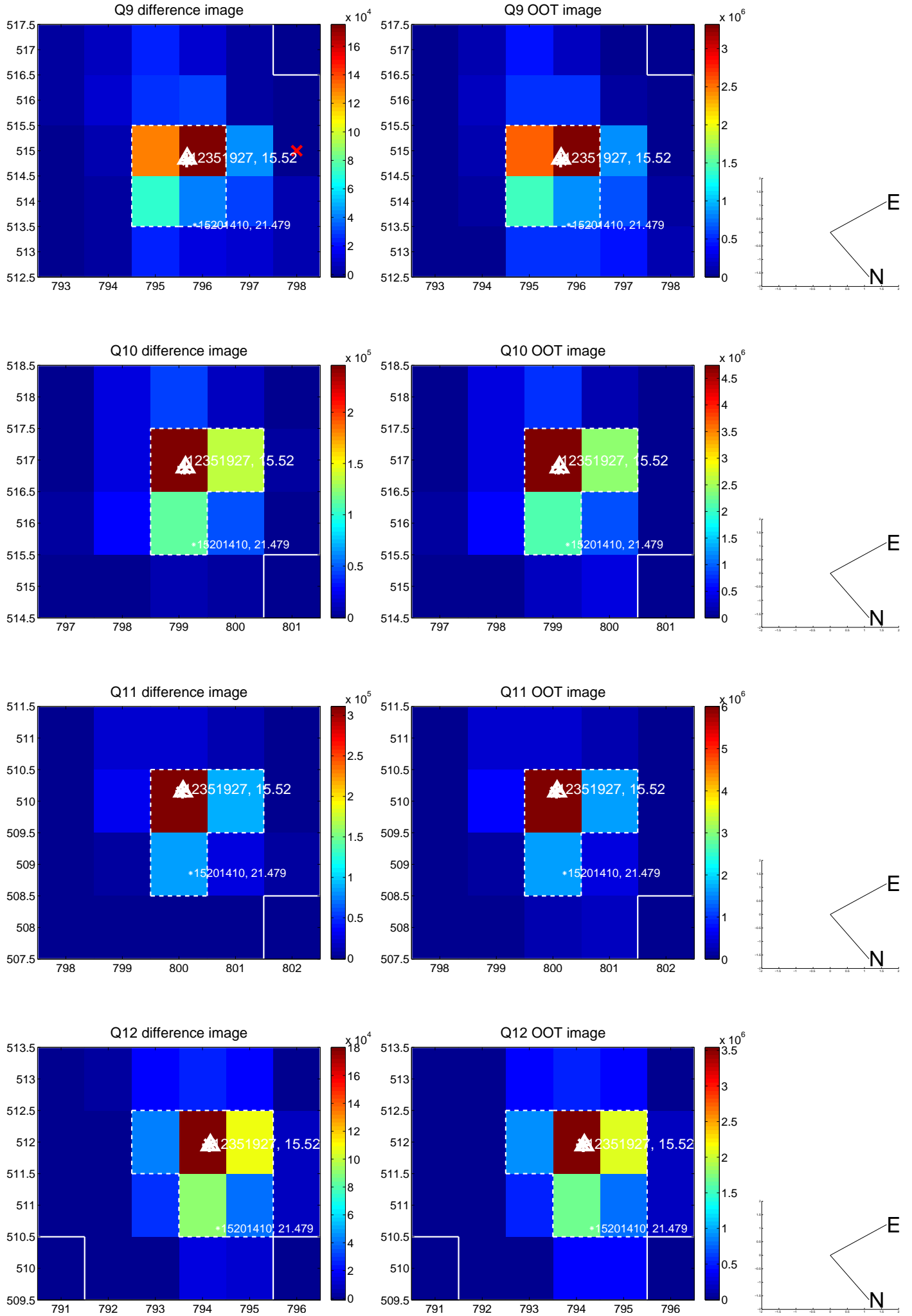
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



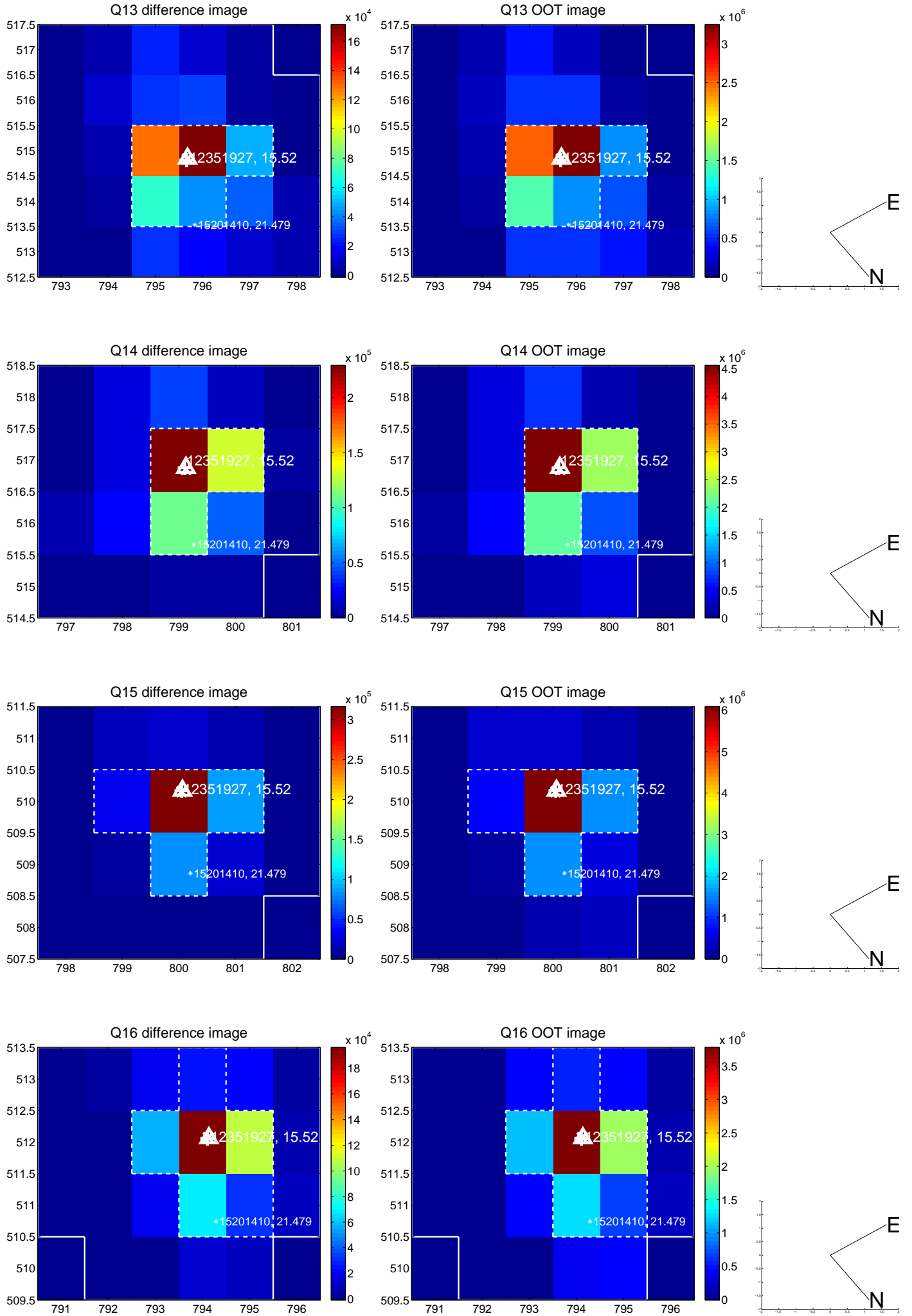
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



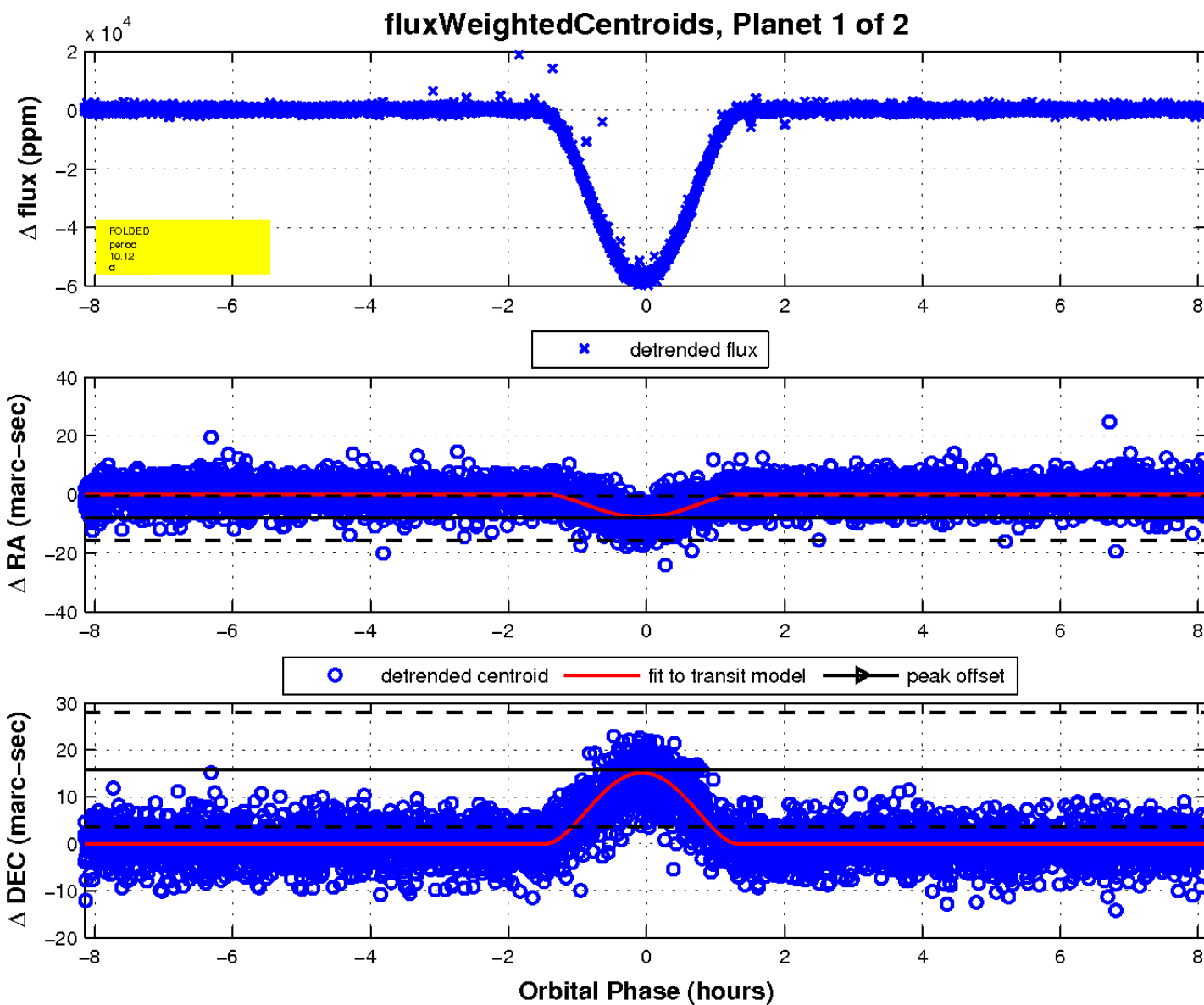
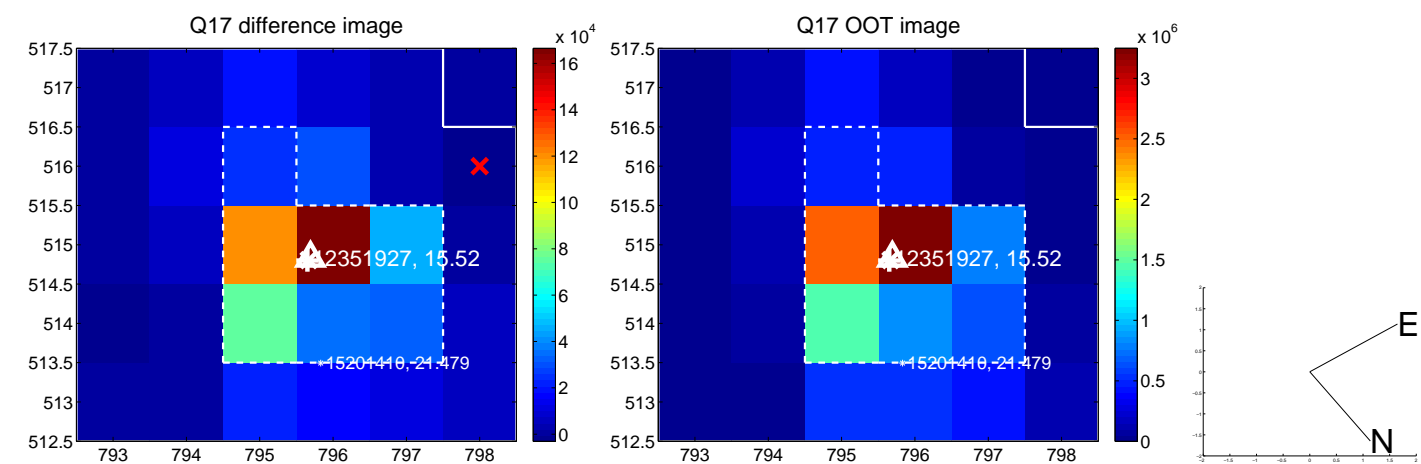
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

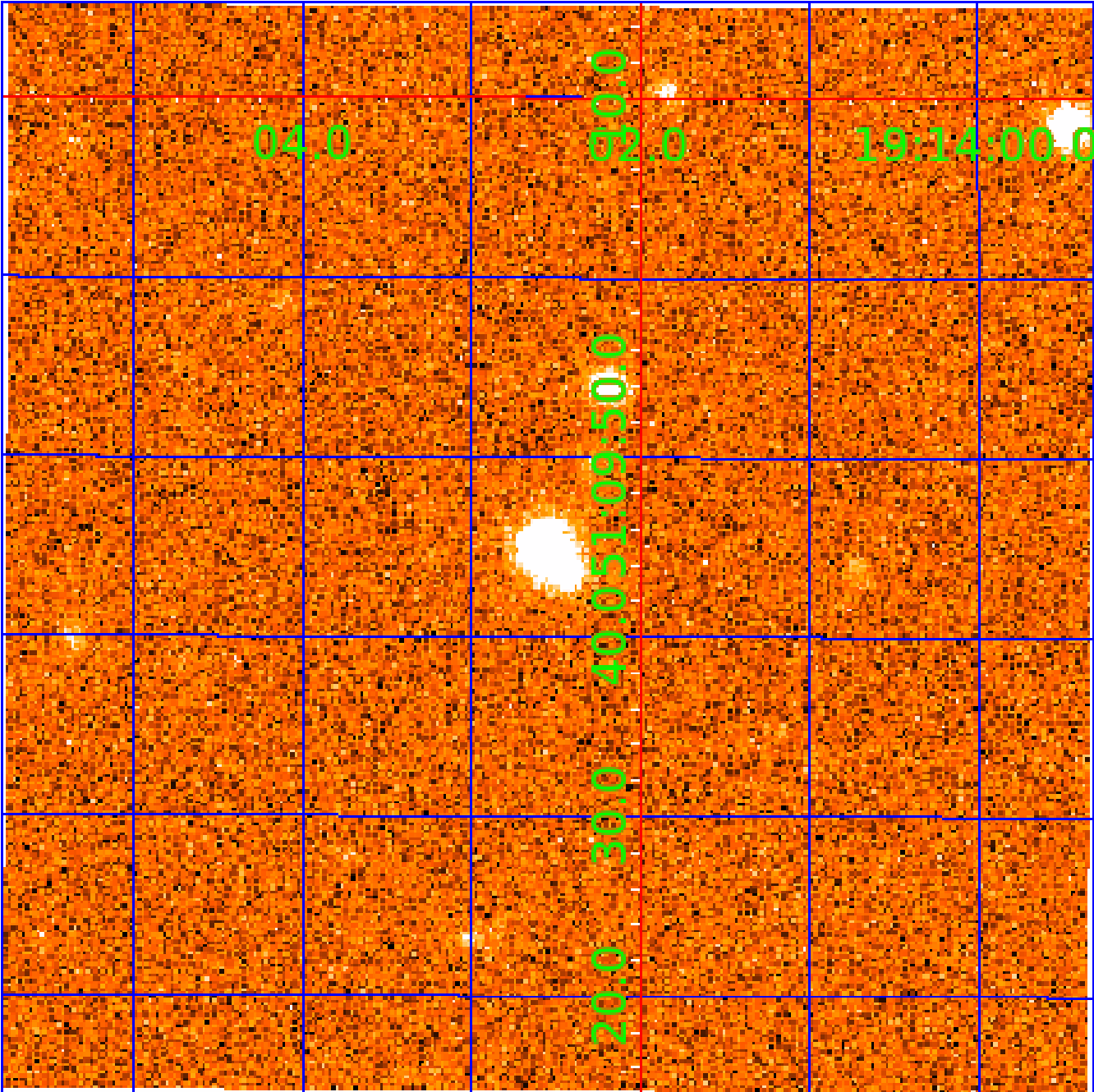


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012351927

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})
012351927-01	OBS	7522.01	10.116145	139.982498	57848.6	2.715	1289.0	1169.8	0.52	4717	18.11	21.59
012351927-02	OBS	No	10.116140	134.884483	5803.1	2.478	135.7	133.6	0.52	4717	5.94	21.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012351927-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
012351927-02	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.

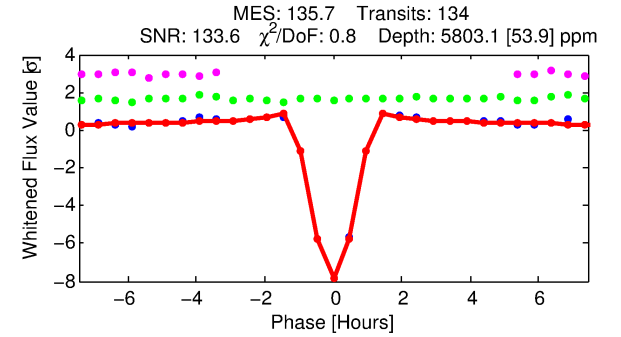
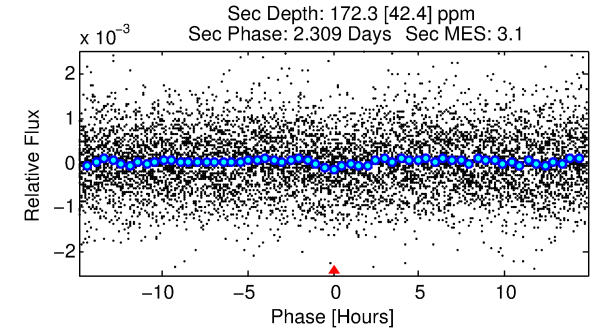
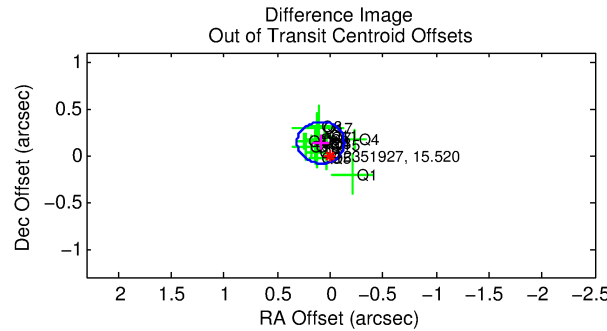
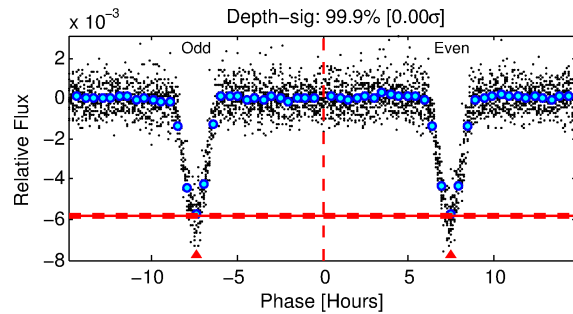
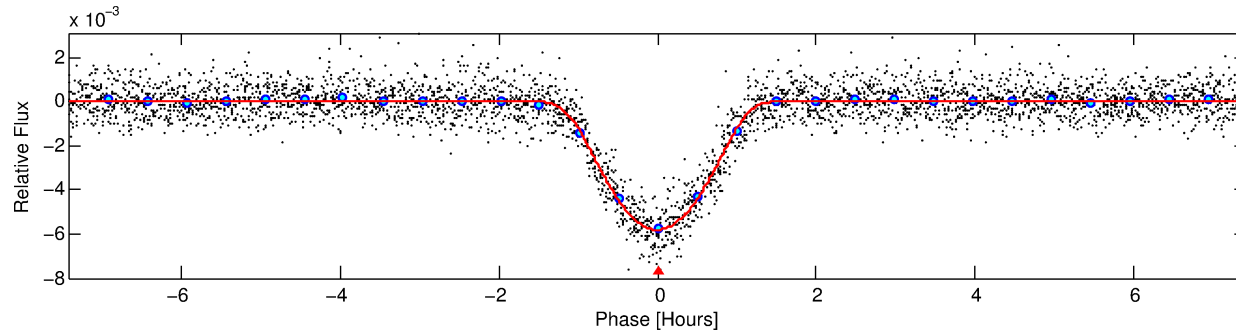
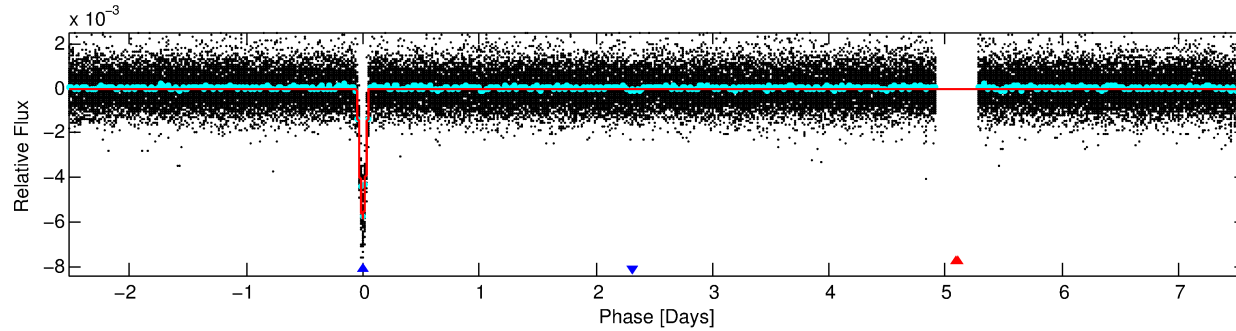
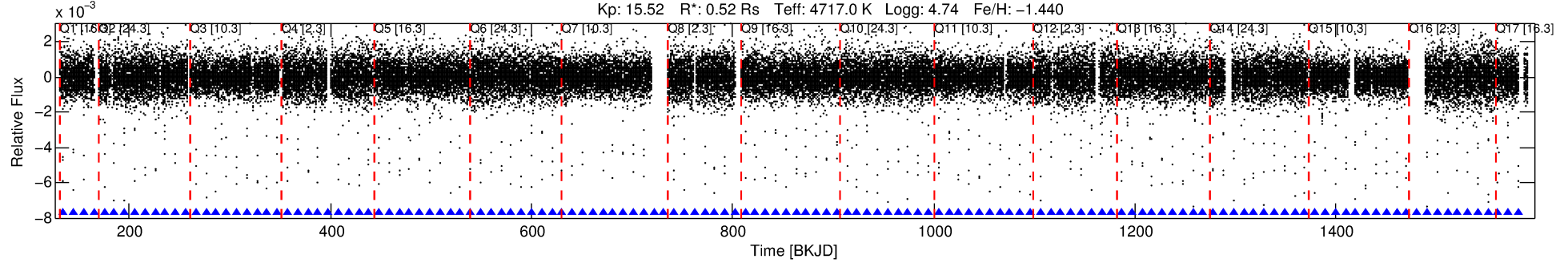
Ephemeris Match Information For 012351927-02

No Significant Match Found

DV One-Page Summary

KIC: 12351927 Candidate: 2 of 2 Period: 10.116 d
KOI: K07522 Corr: No Ephemeris Match

Kp: 15.52 R*: 0.52 Rs Teff: 4717.0 K Logg: 4.74 Fe/H: -1.440



DV Fit Results:

Period = 10.11614 [0.00001] d
Epoch = 134.8845 [0.0004] BKJD
Rp/R* = 0.1048 [0.0177]
a/R* = 17.15 [0.85]
b = 0.96 [0.03]
Seff = 21.59 [3.22]
Teff = 550 [21] K
Rp = 5.94 [1.06] Re
a = 0.0744 [0.0037] AU
Ag = 14.87 [6.33] [2.19σ]
Teffp = 1669 [183] K [6.09σ]

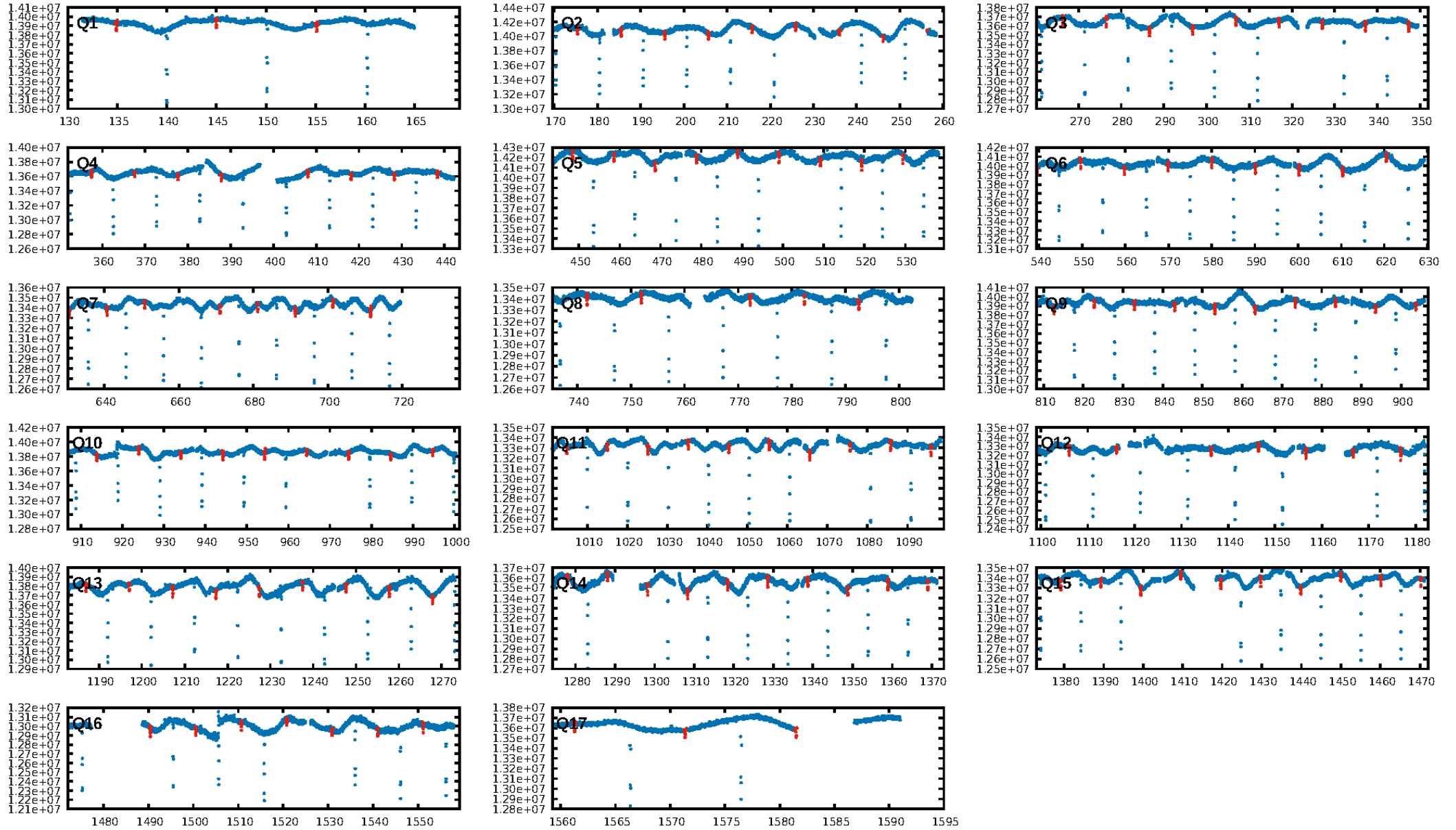
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 84.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [128/128]
GhostDiagnostic-chr: 3.347
Centroid-sig: 0.3%
Centroid-so: 0.881 arcsec [9.14σ]
OotOffset-rm: 0.162 arcsec [2.17σ]
KicOffset-rm: 0.124 arcsec [1.67σ]
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]

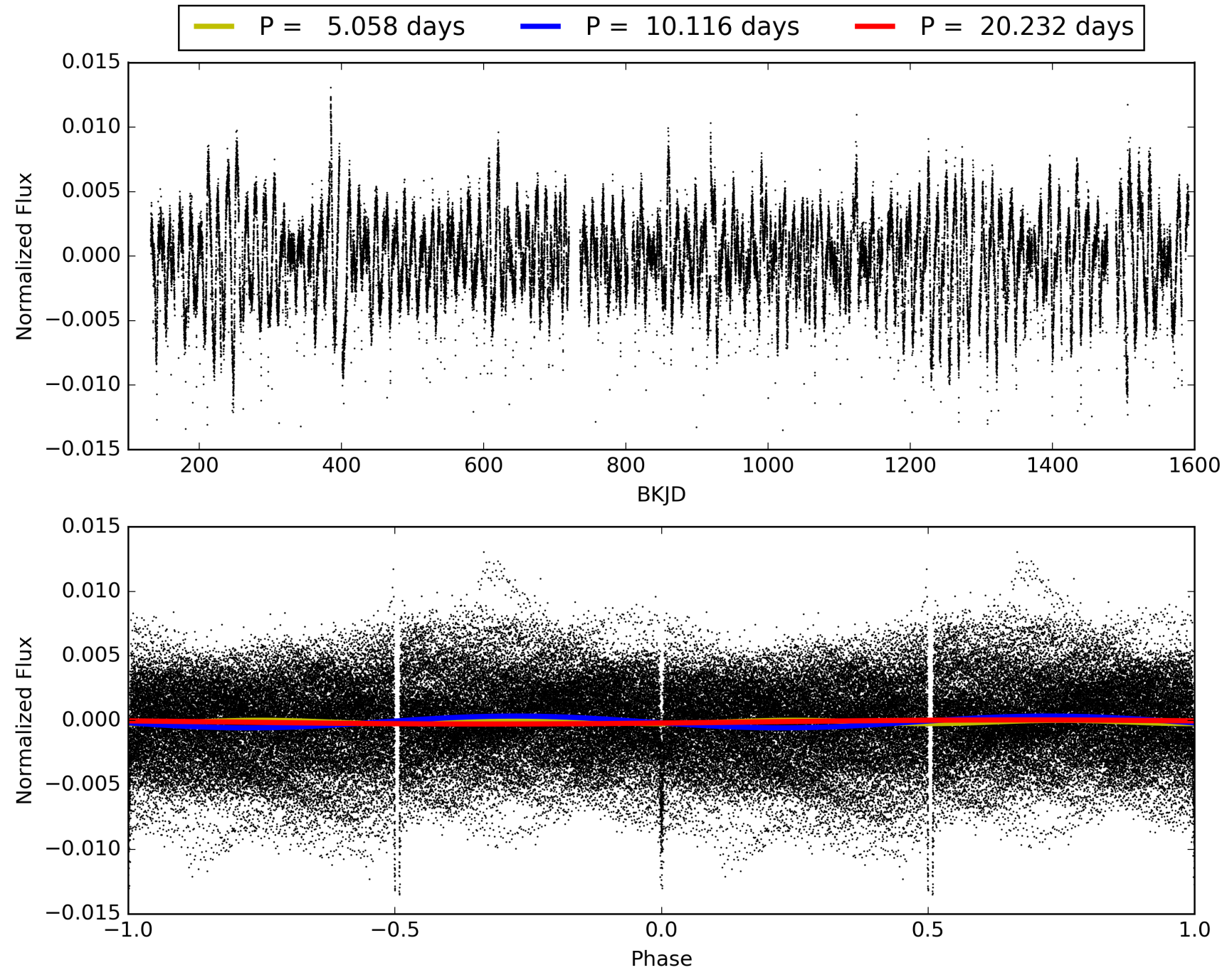
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:48:24 Z

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

TCE 012351927-02, PDC Light Curves

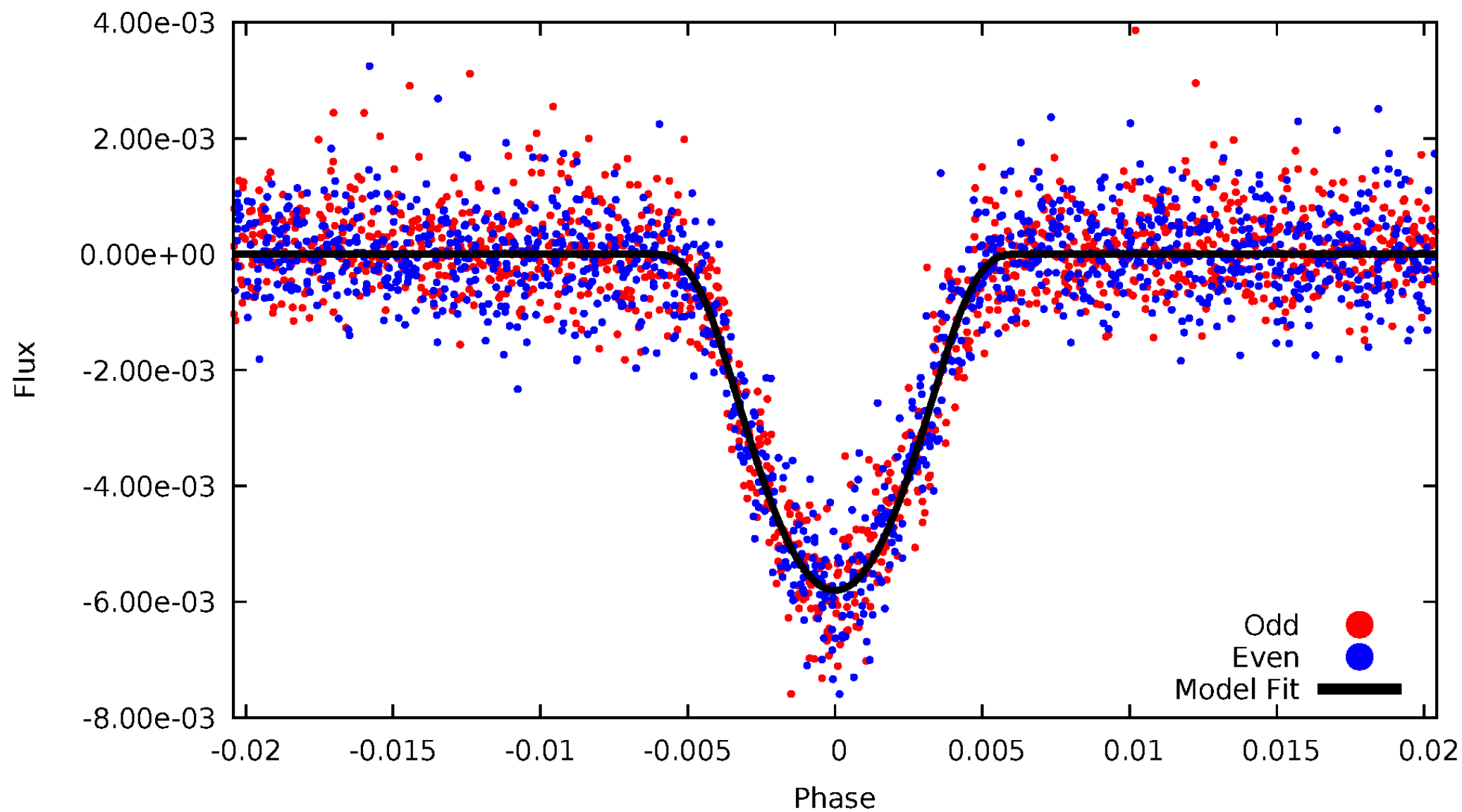


TCE 012351927-02



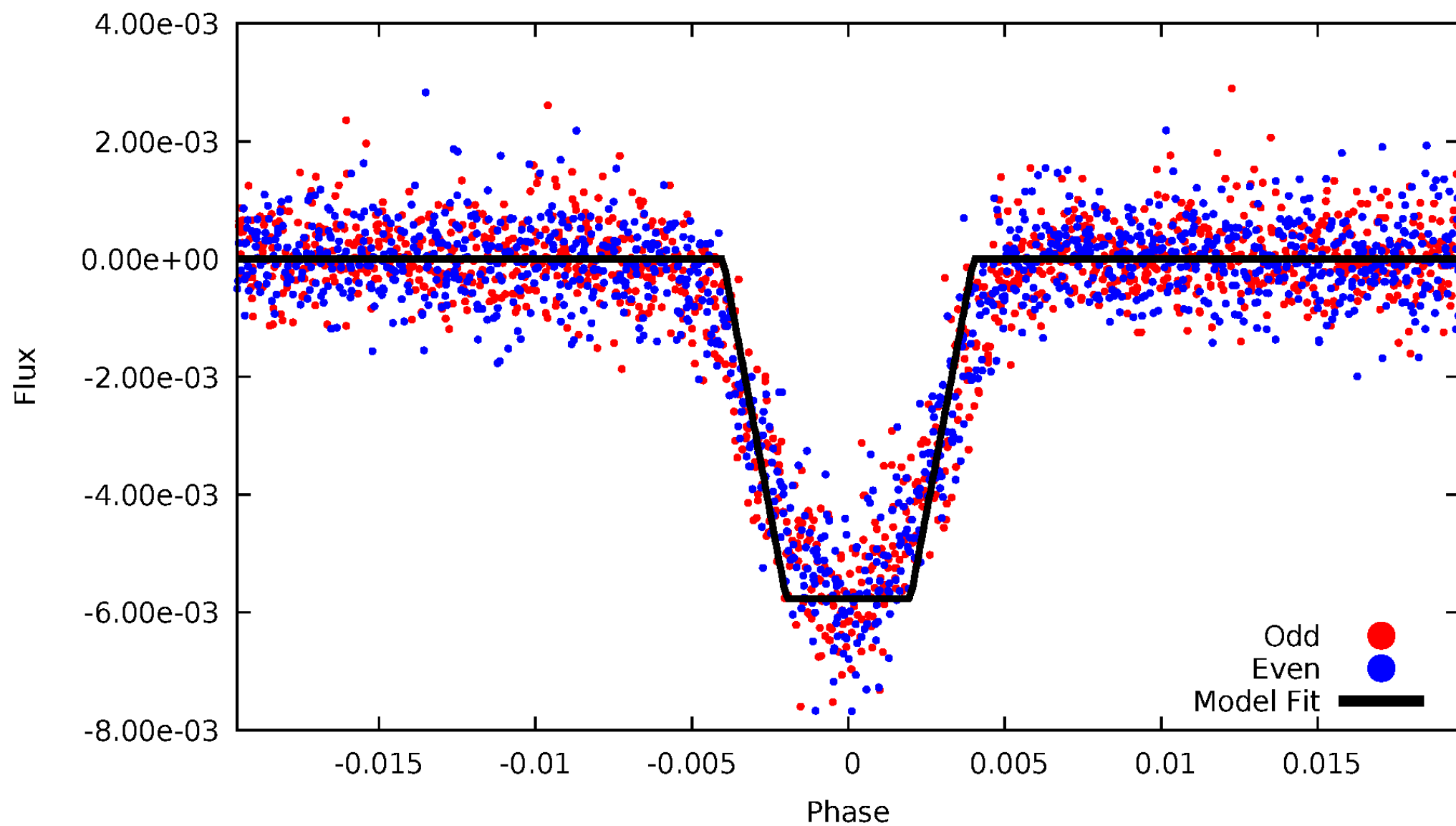
DV Odd/Even

TCE 012351927-02



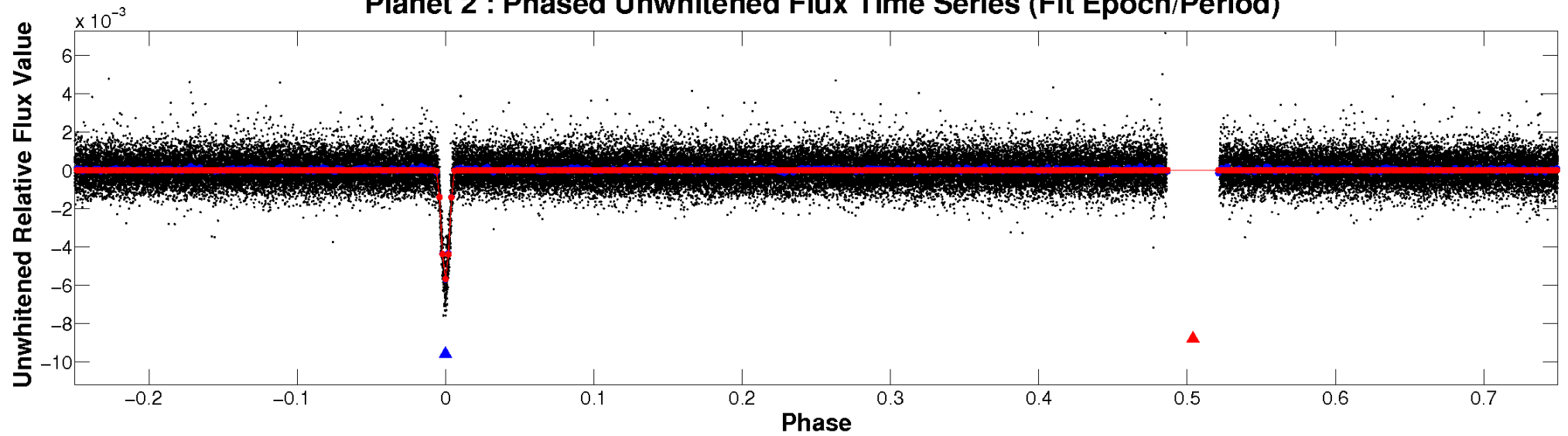
ALT Odd/Even

TCE 012351927-02

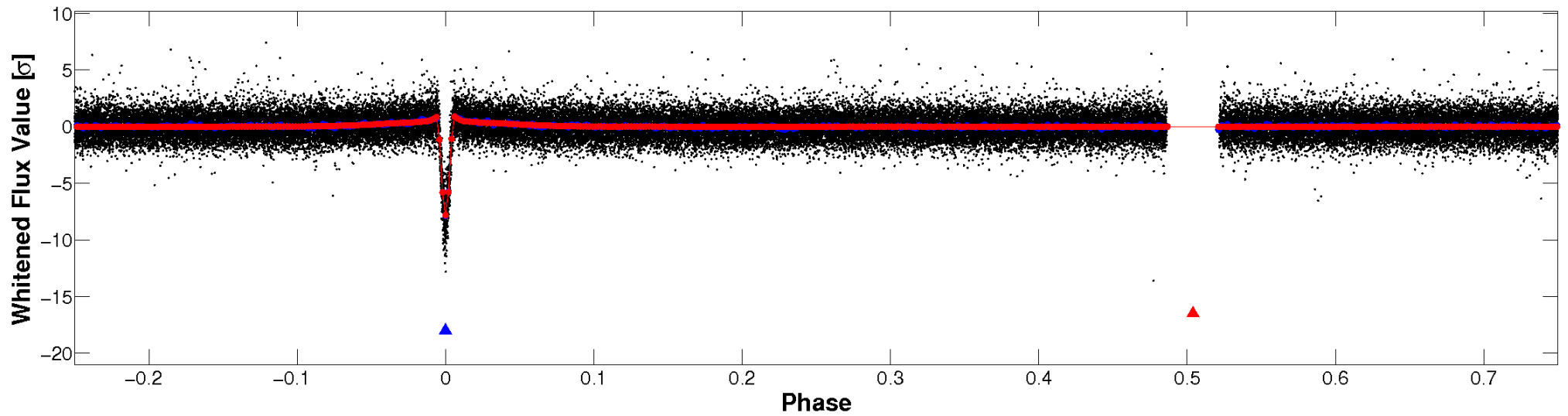


Non-Whitened Vs. Whitened Light Curve

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

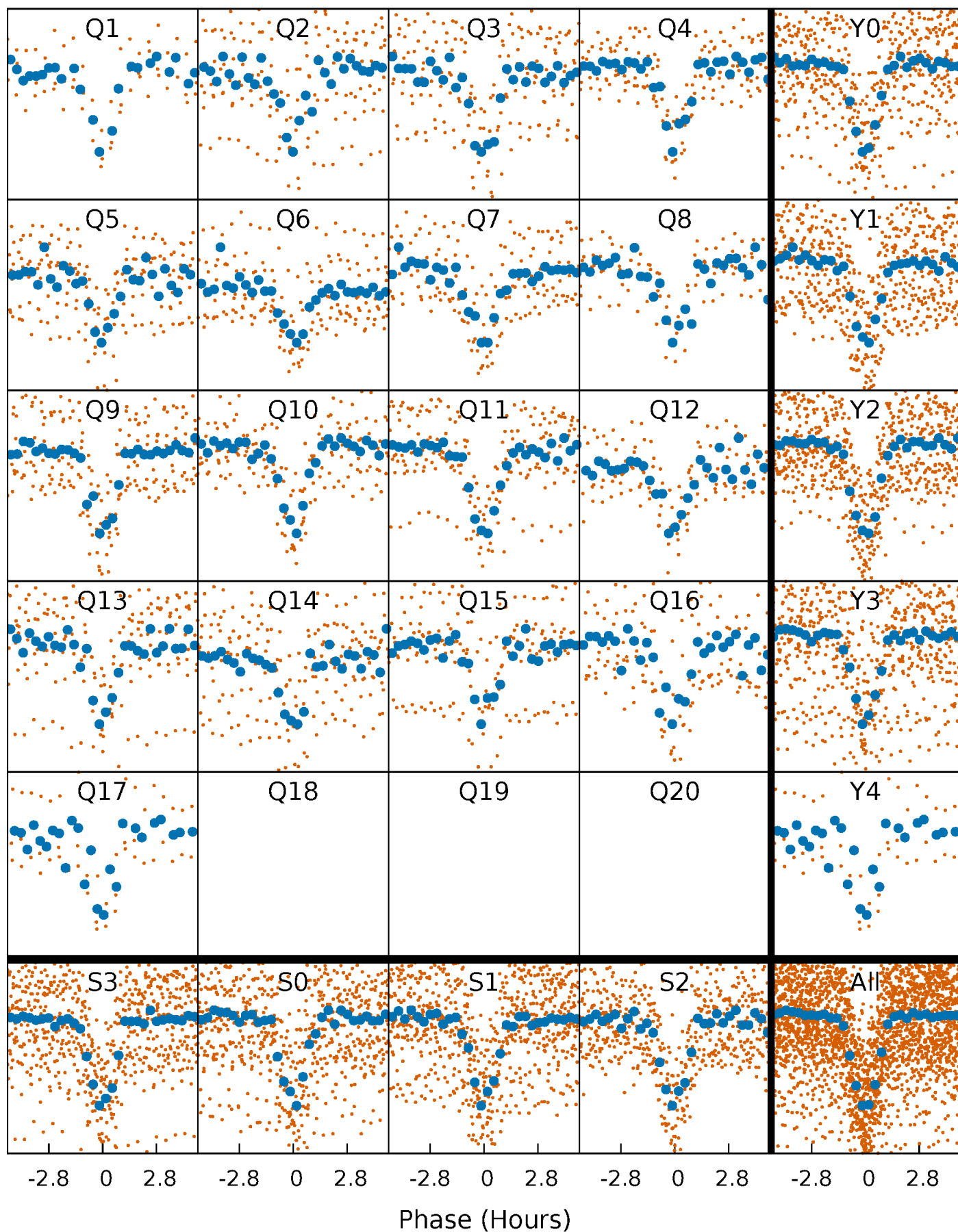


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



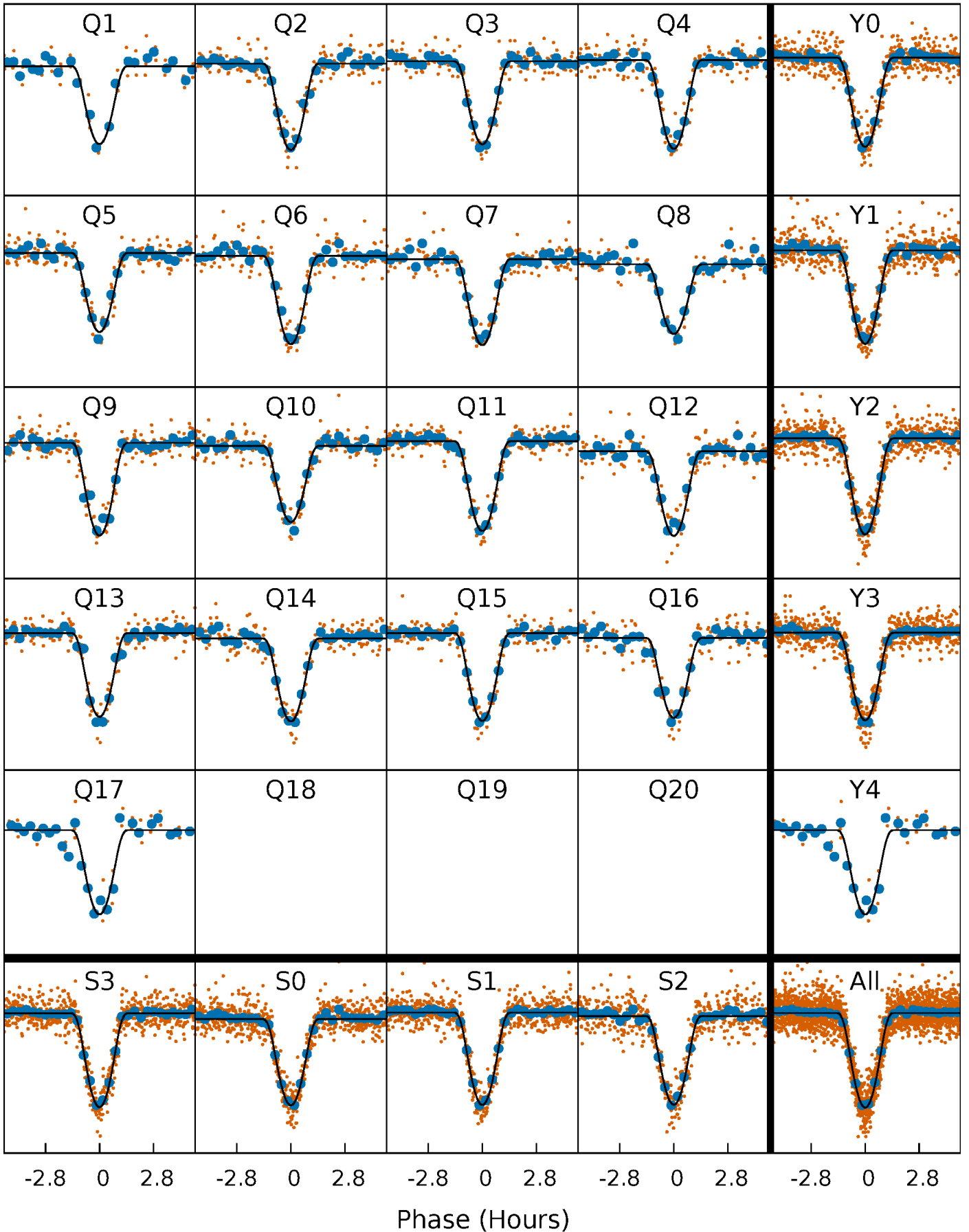
PDC Quarter-Phased Transit Curves

TCE 012351927-02 P= 10.116140 Days $T_0=134.884483$ (BKJD)



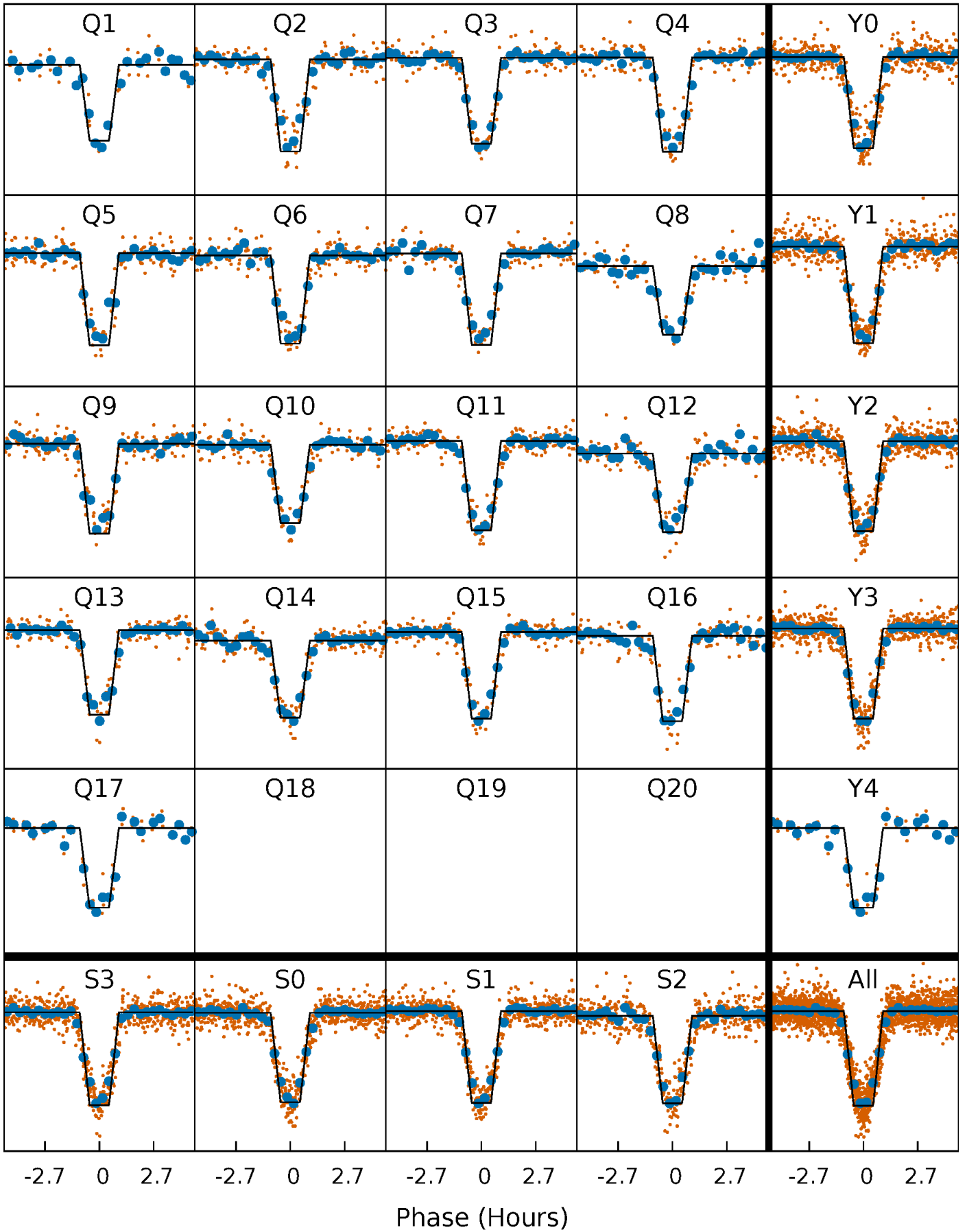
DV Quarter-Phased Transit Curves

TCE 012351927-02 P= 10.116140 Days $T_0=134.884483$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

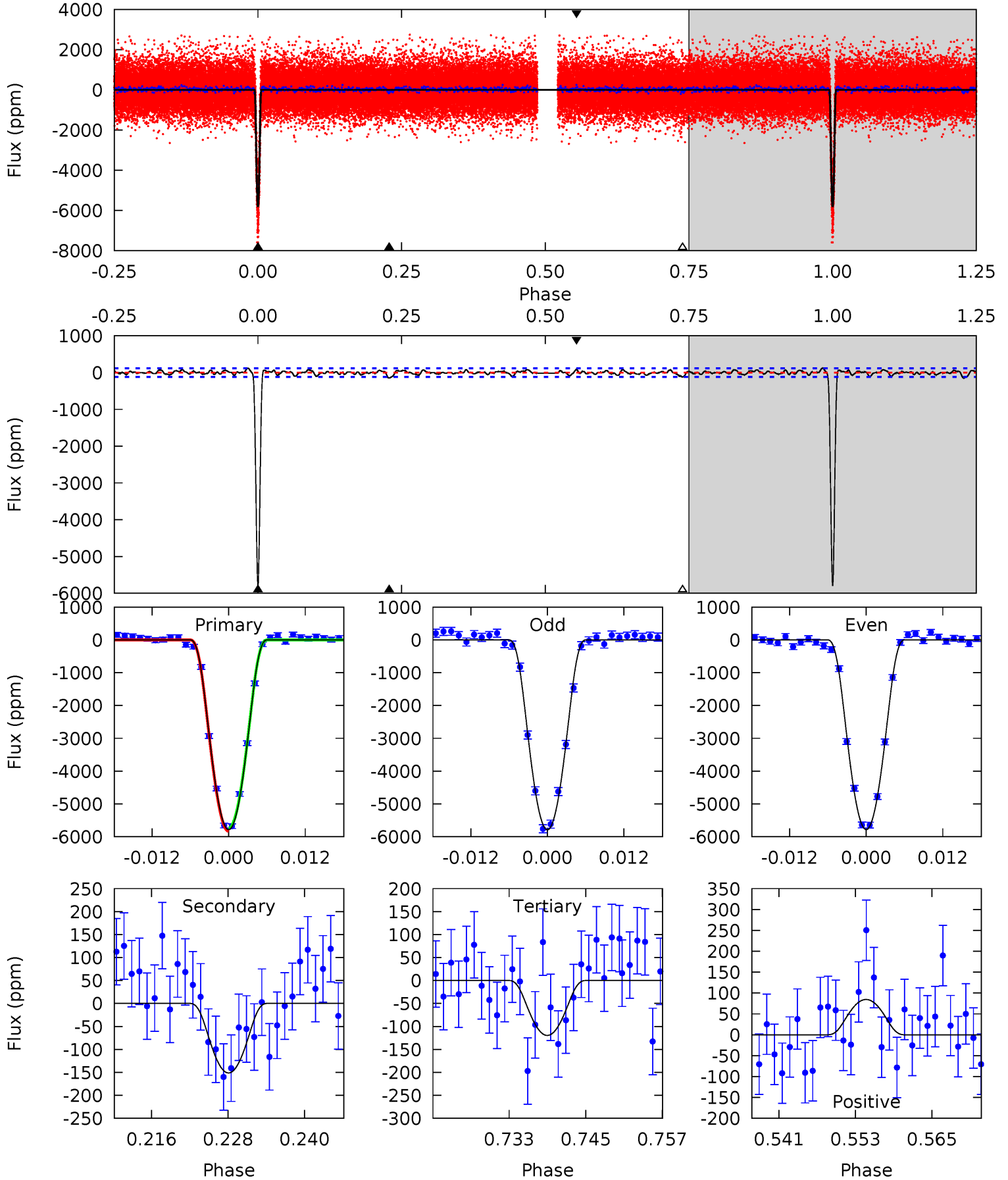
TCE 012351927-02 $P = 10.116157$ Days $T_0 = 134.883186$ (BKJD)



DV Model-Shift Uniqueness Test

012351927-02, P = 10.116140 Days, E = 124.768343 Days

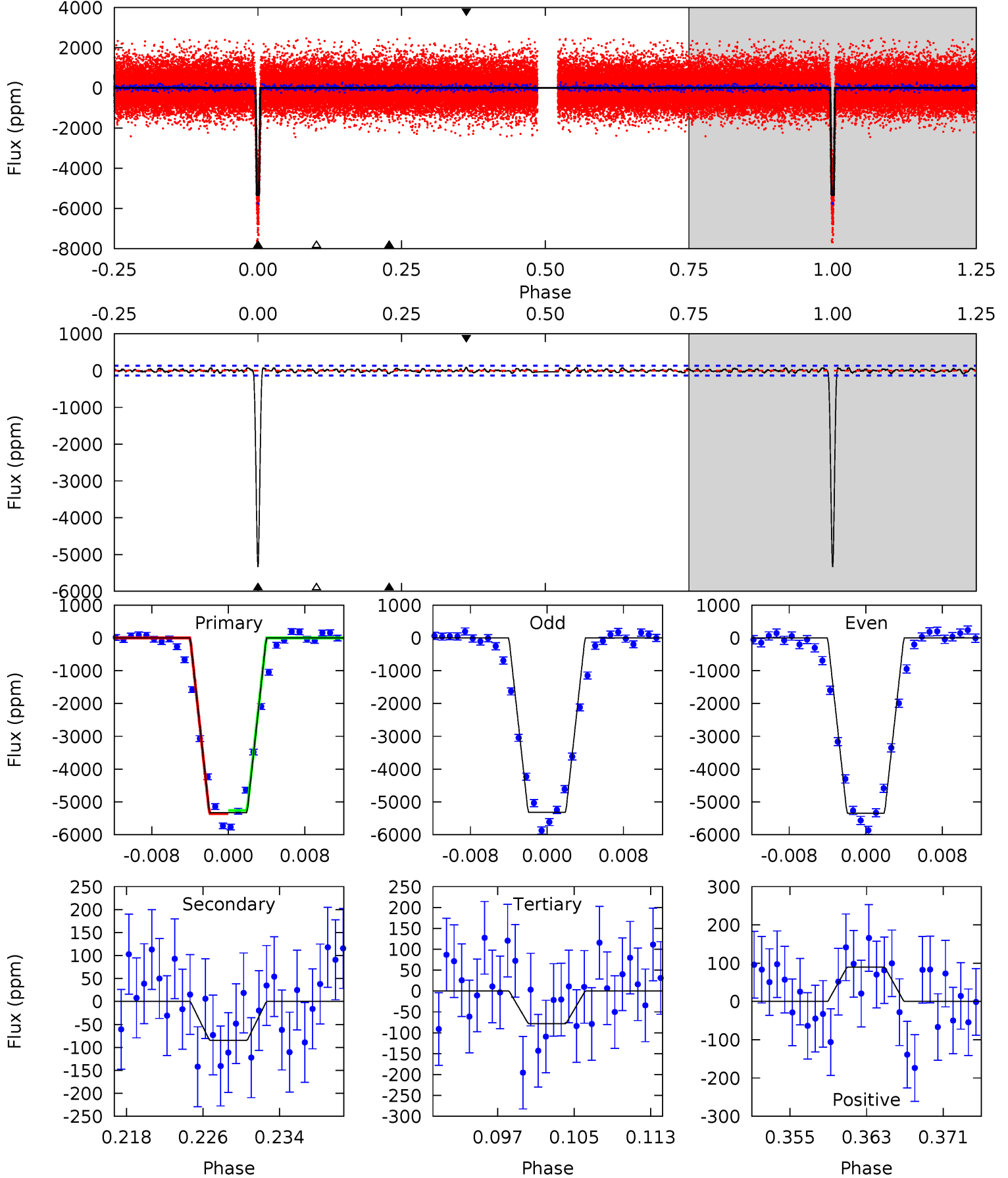
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
241.6	6.32	4.99	3.53	4.99	2.51	1.59	236.6	238.1	1.32	2.79	0.13	1.00	0.02	1.99



Alt Model-Shift Uniqueness Test

012351927-02, P = 10.116157 Days, E = 124.767029 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
199.4	3.17	2.92	3.36	5.07	2.65	1.06	196.5	196.0	0.24	-0.19	0.42	1.01	0.02	1.80



Stellar Parameters For KIC 012351927

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4717^{+138}_{-152}	$4.737^{+0.042}_{-0.028}$	$-1.440^{+0.300}_{-0.300}$	$0.519^{+0.027}_{-0.030}$	$0.536^{+0.032}_{-0.024}$	$5.393^{+0.883}_{-0.563}$
	+3%/-3%	+1%/-1%	+21%/-21%	+5%/-6%	+6%/-4%	+16%/-10%
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 012351927-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-151 ± 24	$5.93^{+0.92}_{-1.04}$	766^{+24}_{-26}	2437^{+131}_{-108}	13^{+7}_{-4}
Alt.	-85 ± 27	$4.31^{+0.98}_{-0.95}$	765^{+25}_{-26}	2440^{+195}_{-166}	14^{+11}_{-6}

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

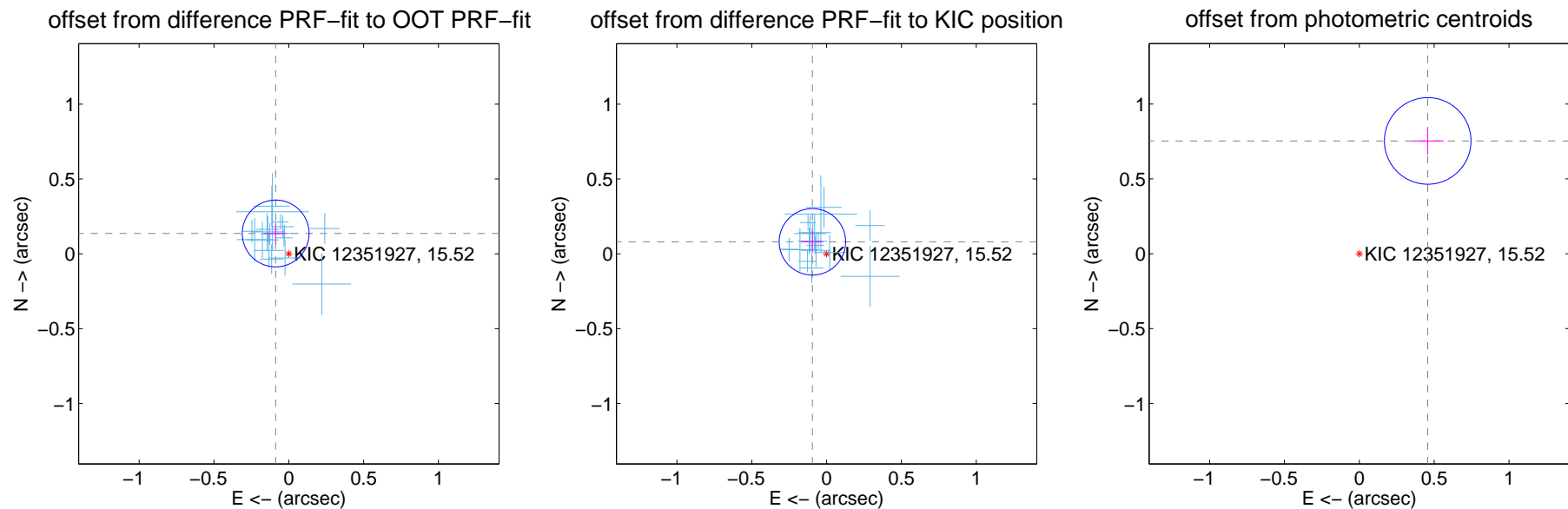
DV Centroid Data

Supplemental centroid analysis for 012351927-02. Kepler magnitude: 15.52. Transit SNR 133.62

There are 17 quarters with good PRF difference image offsets

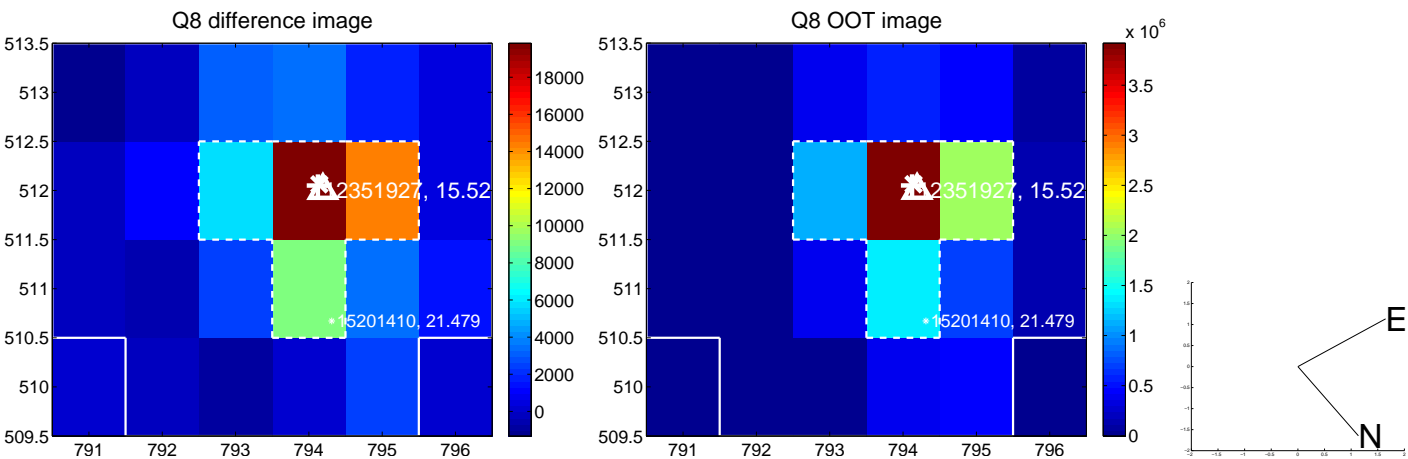
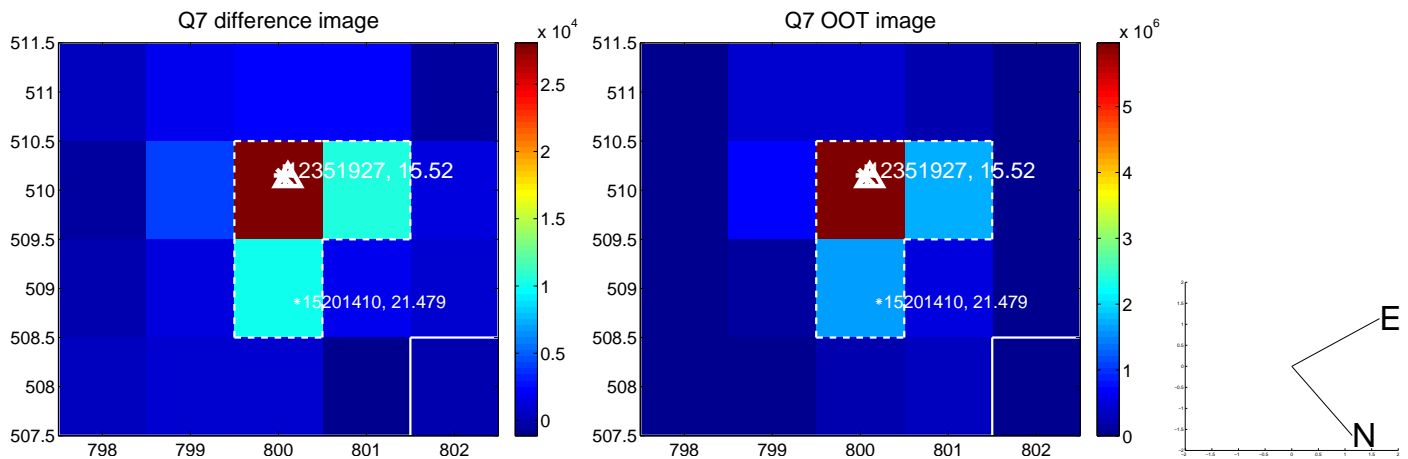
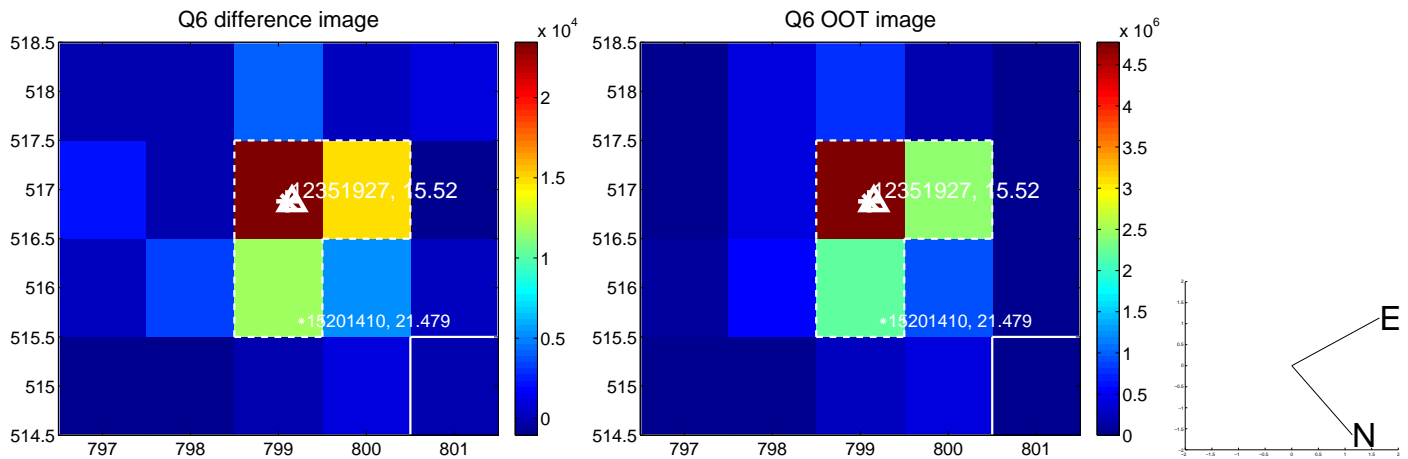
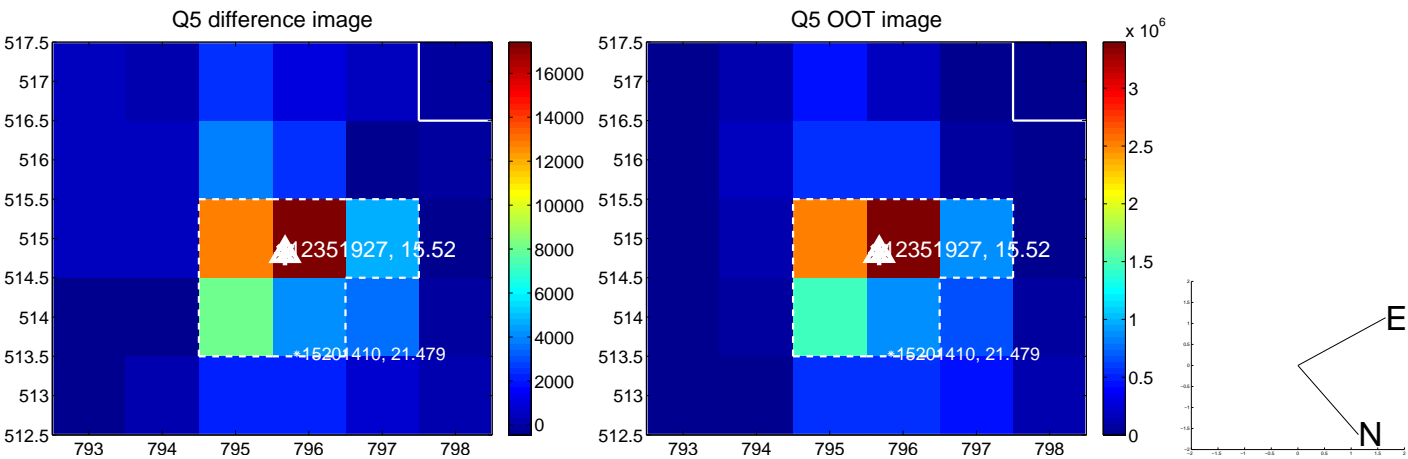
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.162 ± 0.074	2.17	0.088 ± 0.074	0.136 ± 0.072
PRF-fit source offset from KIC position	0.124 ± 0.074	1.67	0.095 ± 0.074	0.080 ± 0.073
photometric centroid source offset	0.88 ± 0.10	9.14	-0.46 ± 0.11	0.75 ± 0.09

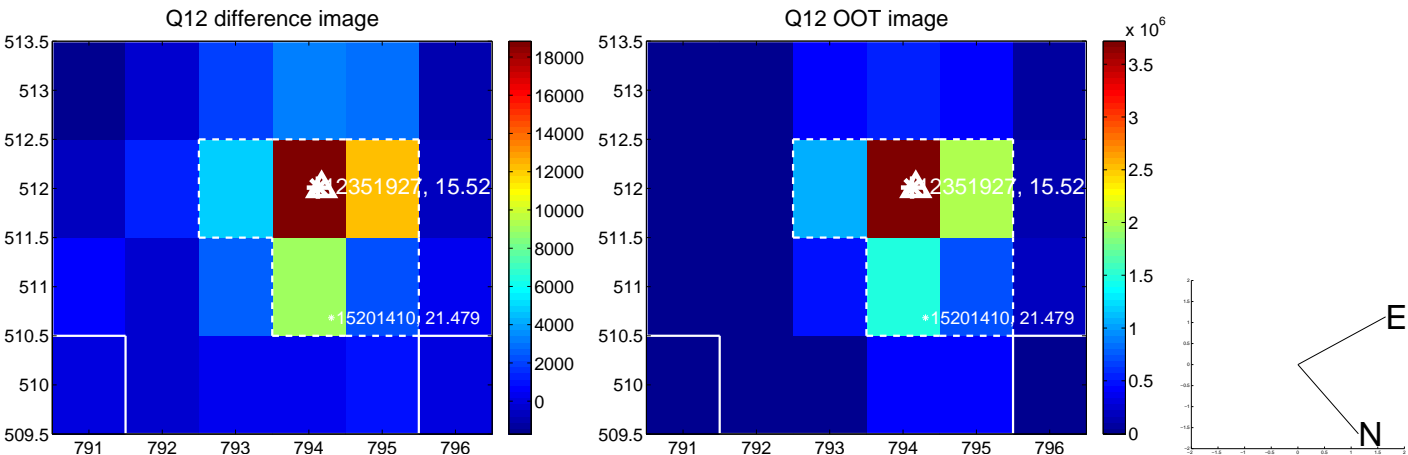
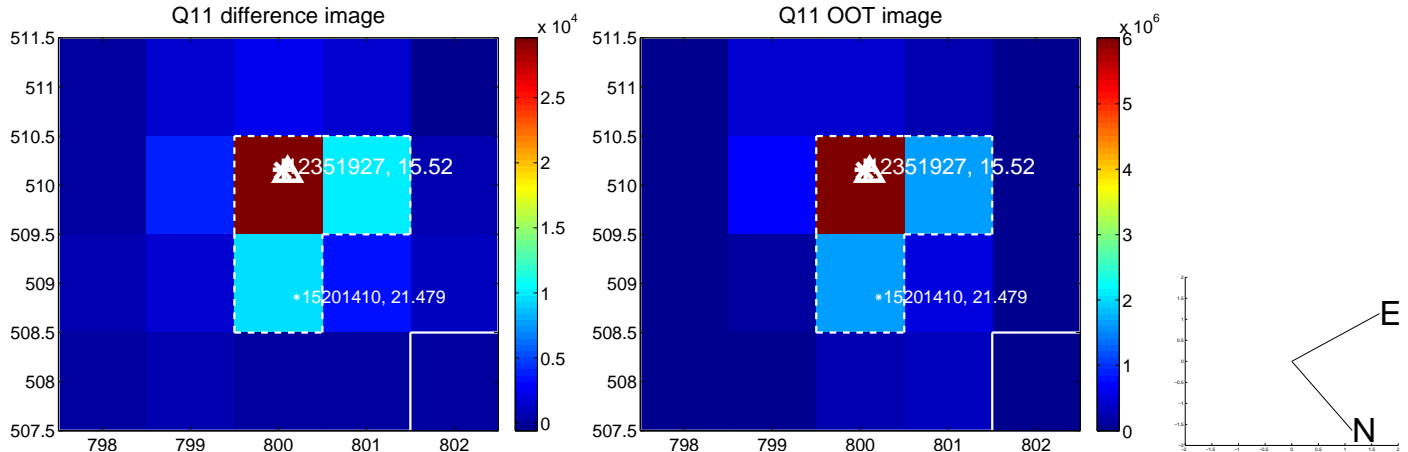
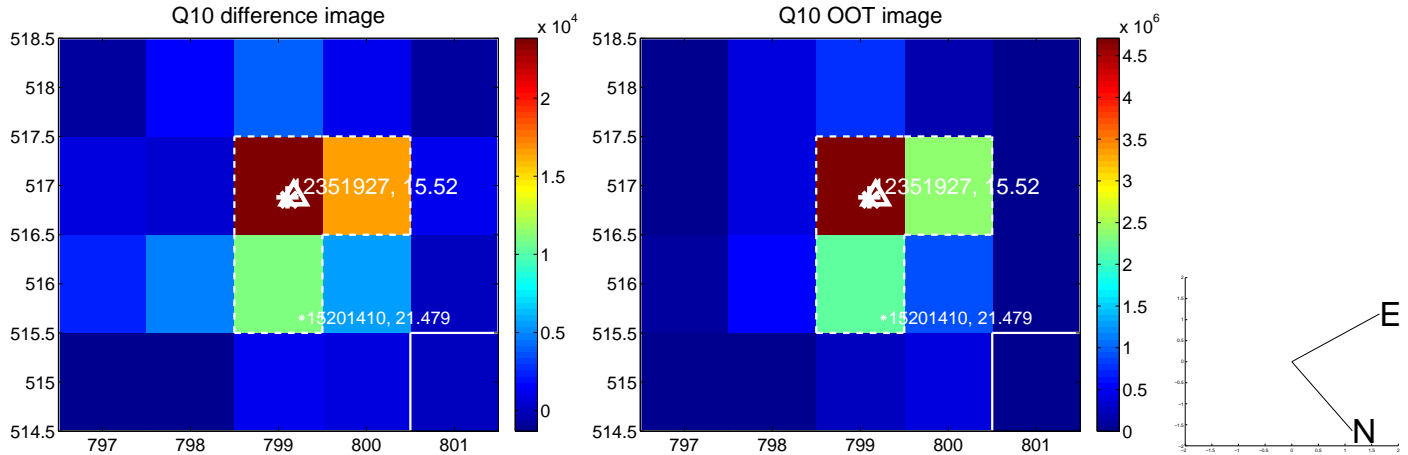
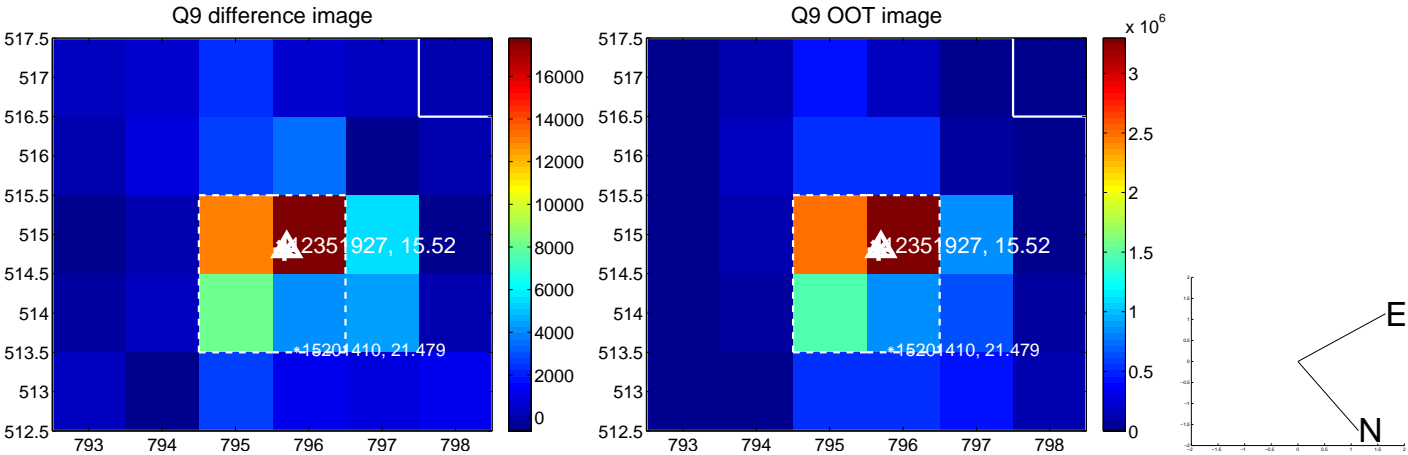


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

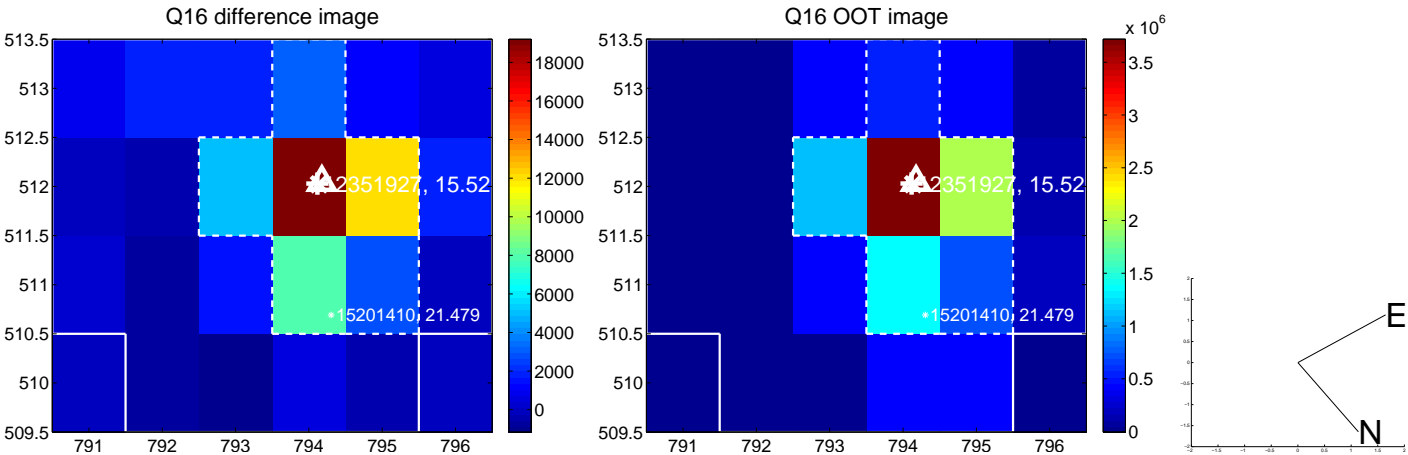
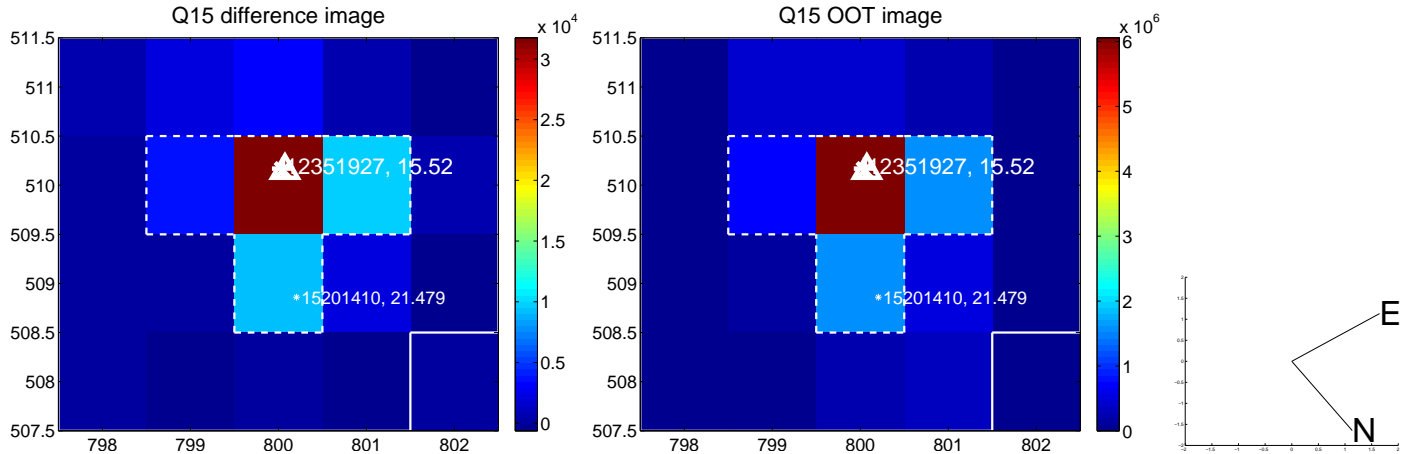
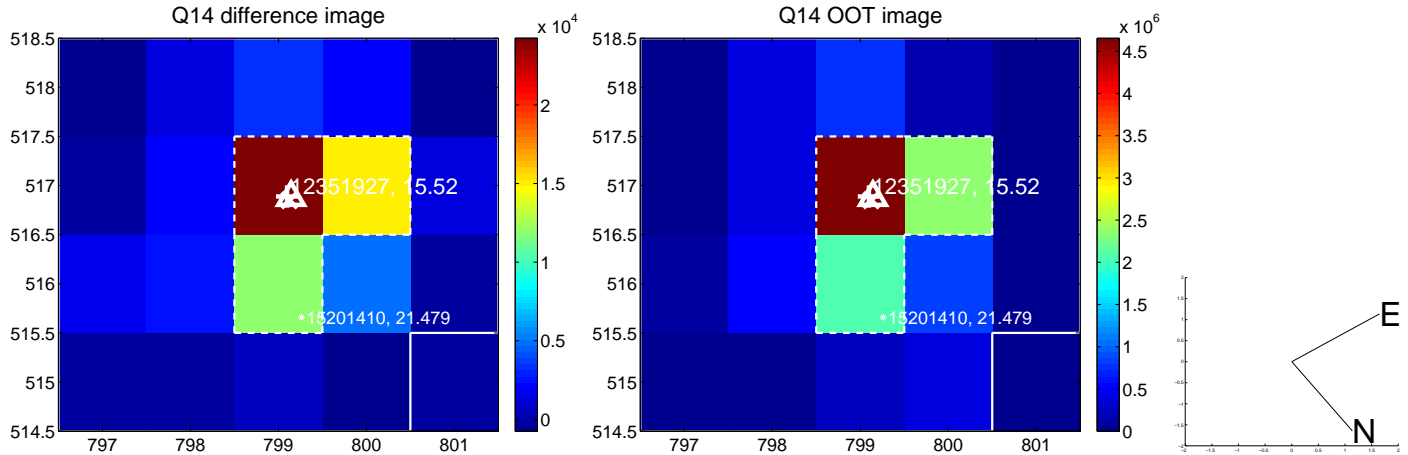
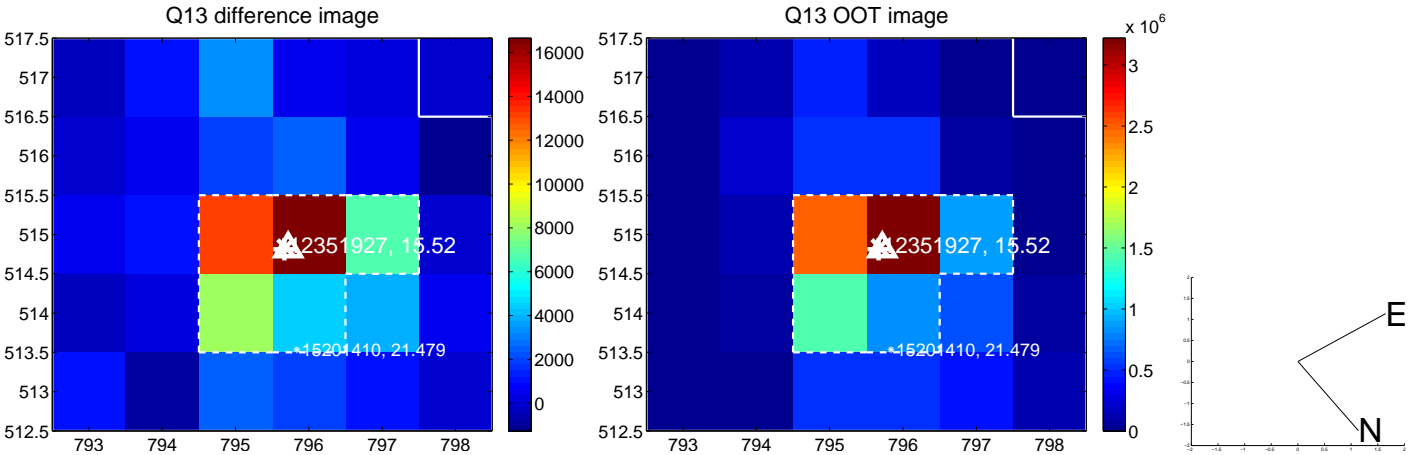
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



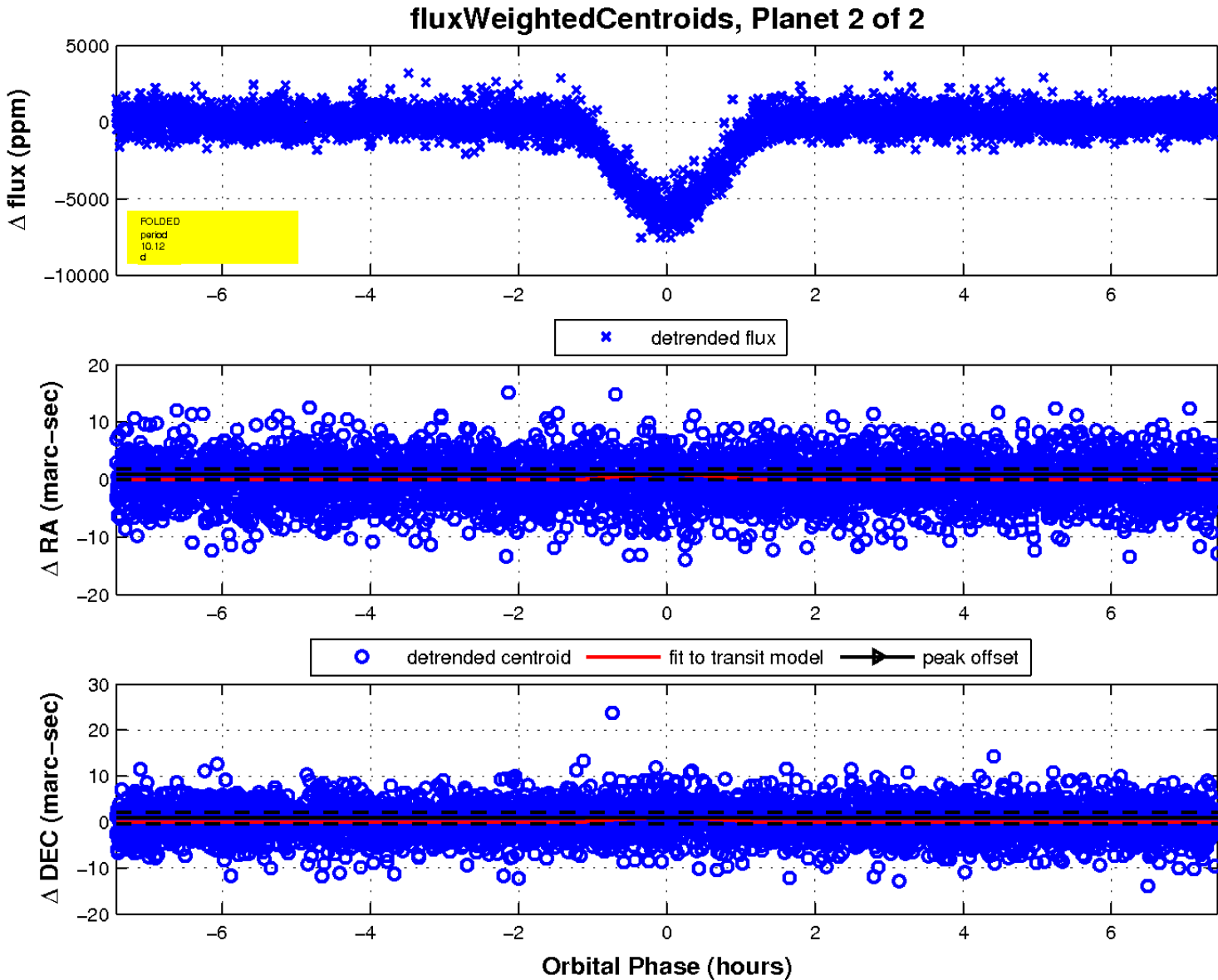
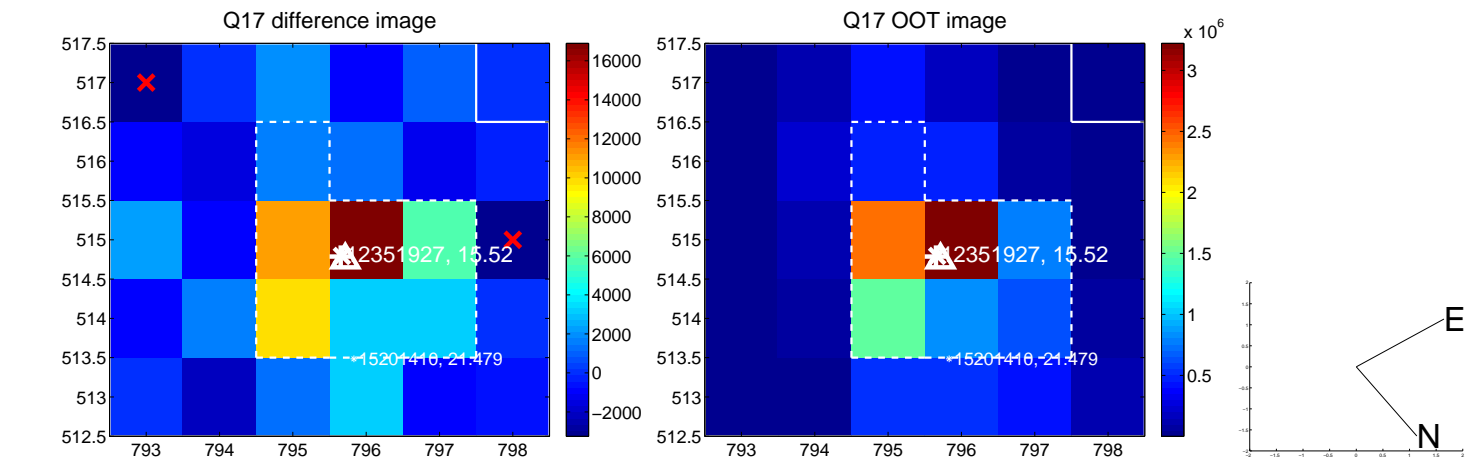
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

