

KIC 005115178

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})
005115178-01	OBS	6524.01	12.851721	132.839581	42568.4	5.695	1765.5	1676.4	0.97	5838	31.50	88.23
005115178-02	OBS	No	12.851719	137.553001	34095.7	5.607	1470.8	1399.5	0.97	5838	28.32	88.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005115178-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
005115178-02	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.

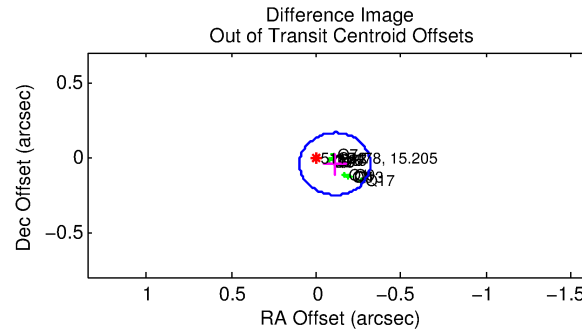
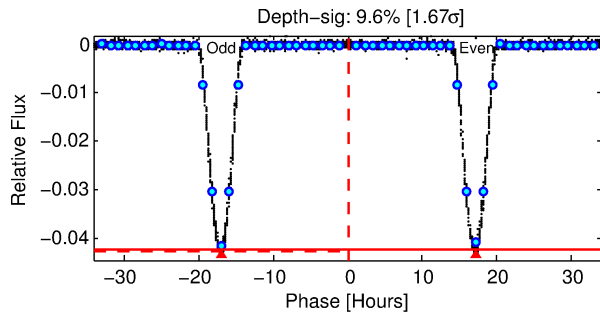
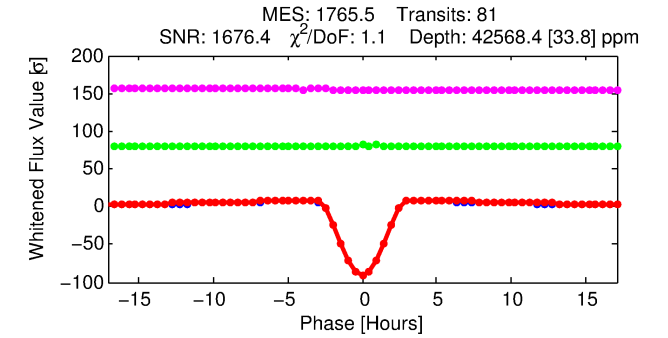
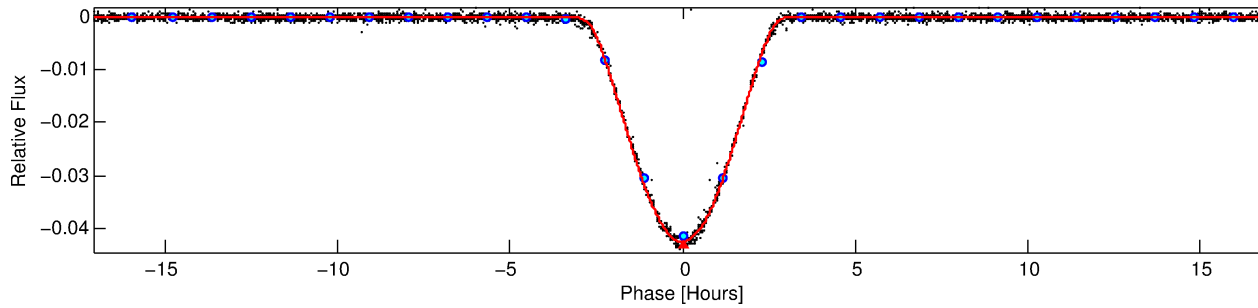
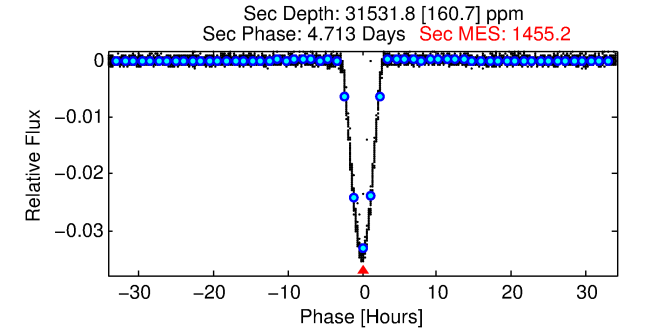
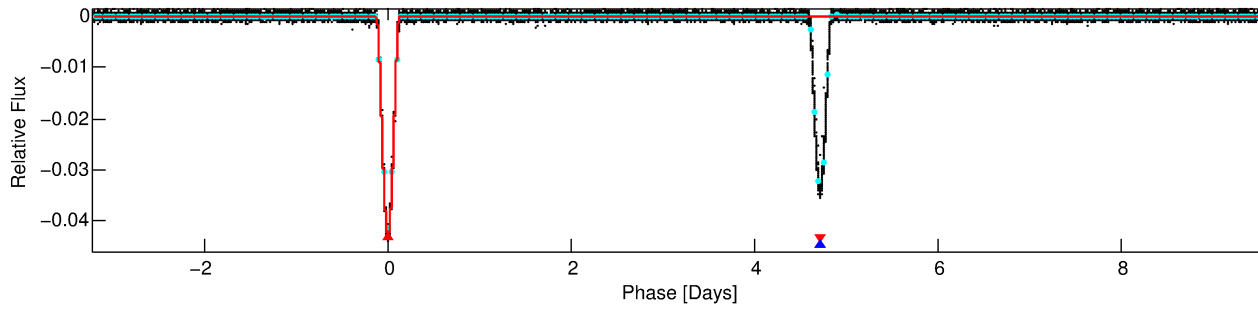
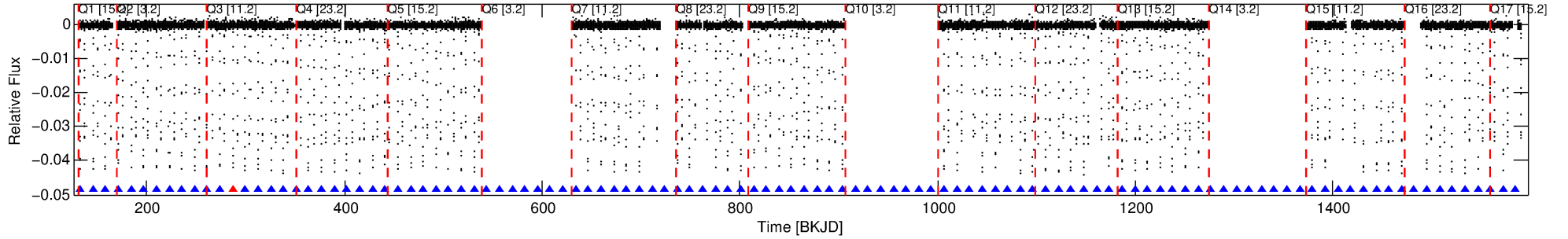
Ephemeris Match Information For 005115178-01

No Significant Match Found

DV One-Page Summary

KIC: 5115178 Candidate: 1 of 2 Period: 12.852 d
KOI: K06524.01 Corr: 0.998

Kp: 15.20 R*: 0.97 Rs Teff: 5838.0 K Logg: 4.44 Fe/H: -0.160



DV Fit Results:

Period = 12.85172 [0.00000] d
Epoch = 132.8396 [0.0001] BKJD
Rp/R* = 0.2986 [0.0120]
a/R* = 15.10 [0.04]
b = 0.96 [0.02]
Seff = 88.23 [33.71]
Teff = 782 [75] K
Rp = 31.50 [9.27] Re
a = 0.1050 [0.0258] AU
Ag = 192.78 [70.77] [2.71σ]
Teffp = 4502 [175] K [19.58σ]

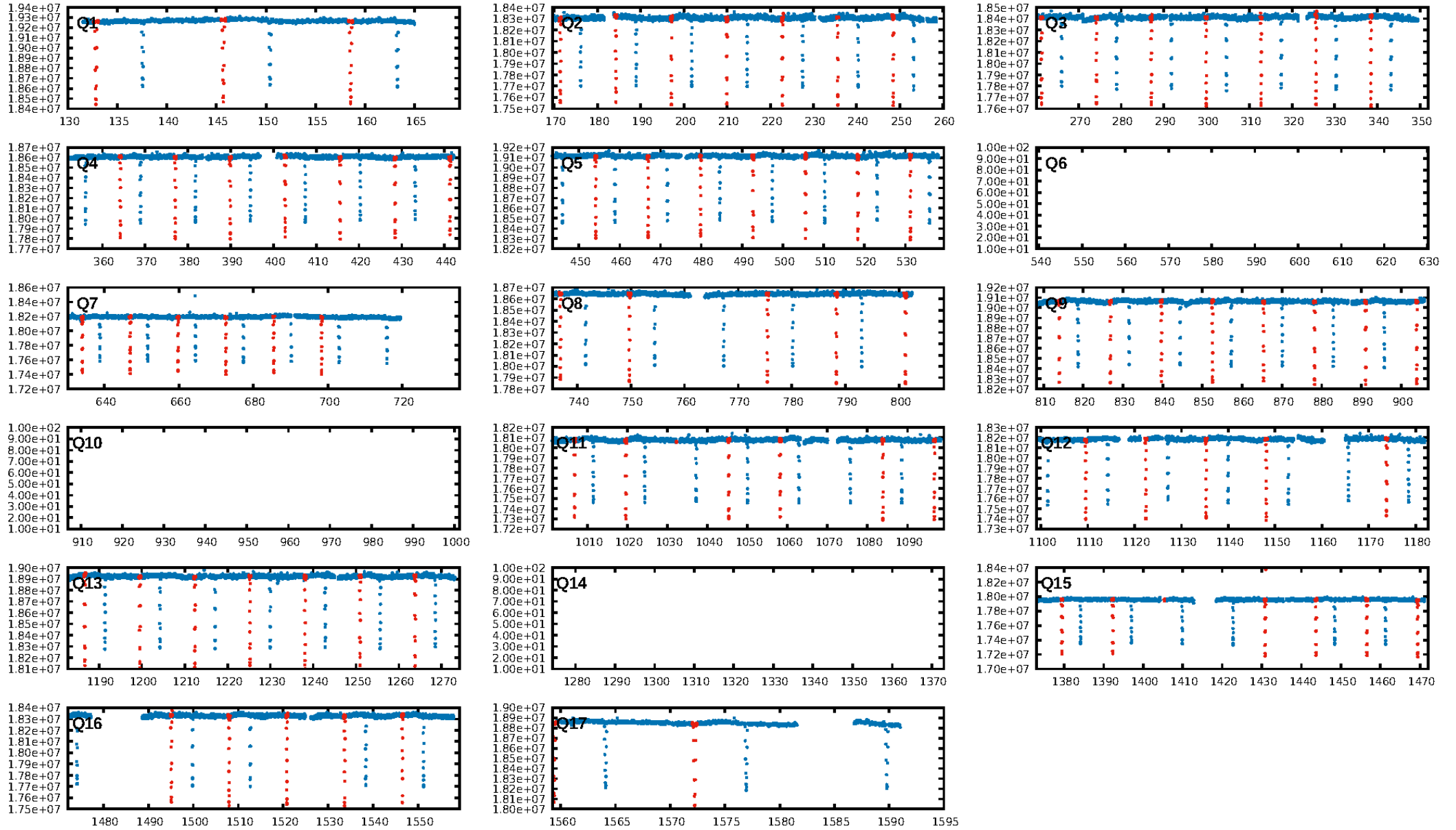
DV Diagnostic Results:

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: 0.99 [75/76]
GhostDiagnostic-chr: 4.41
Centroid-sig: 0.0%
Centroid-so: 0.082 arcsec [11.01σ]
OotOffset-rm: 0.120 arcsec [1.72σ]
KicOffset-rm: 0.049 arcsec [0.70σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
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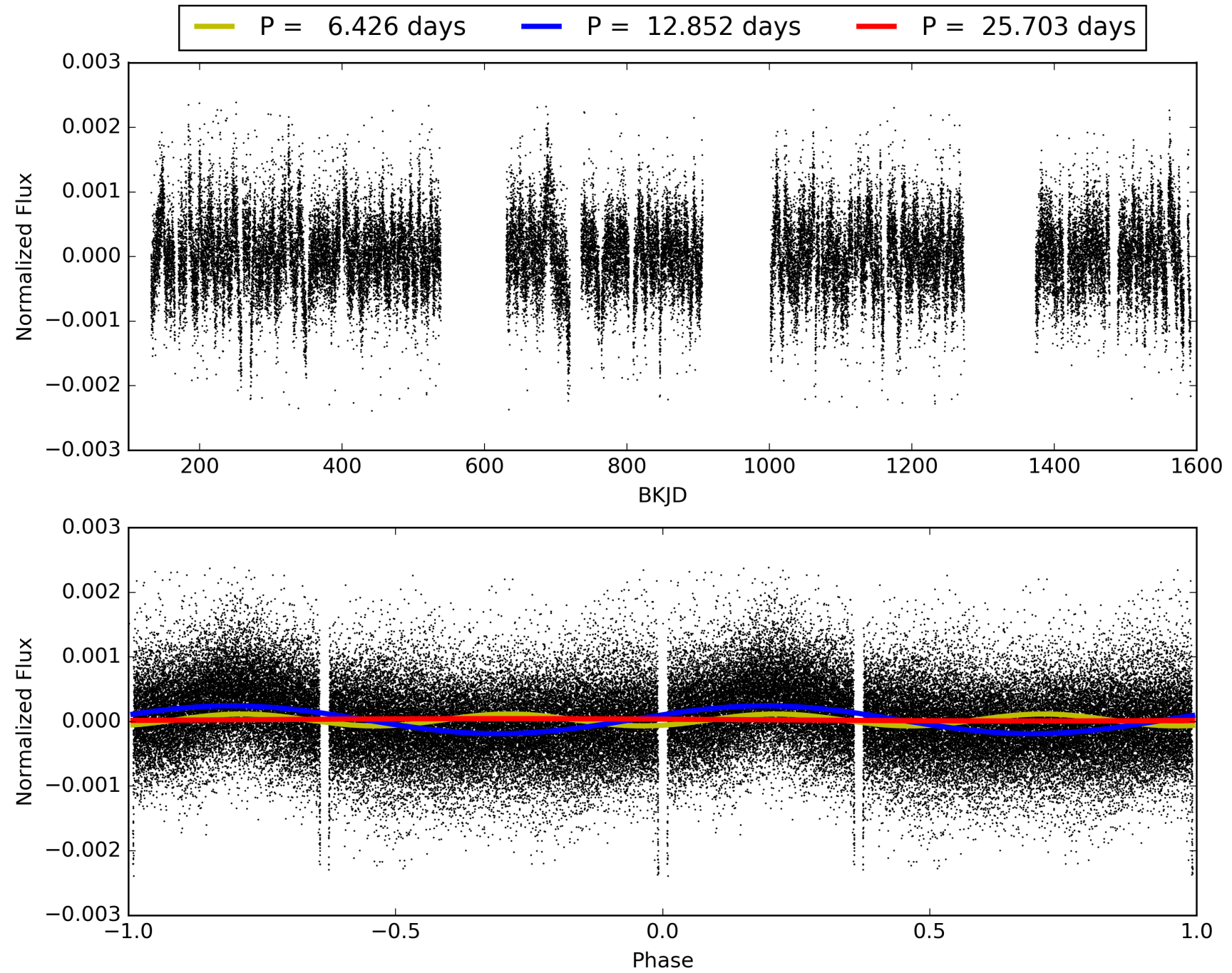
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:43:06 Z

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

TCE 005115178-01, PDC Light Curves

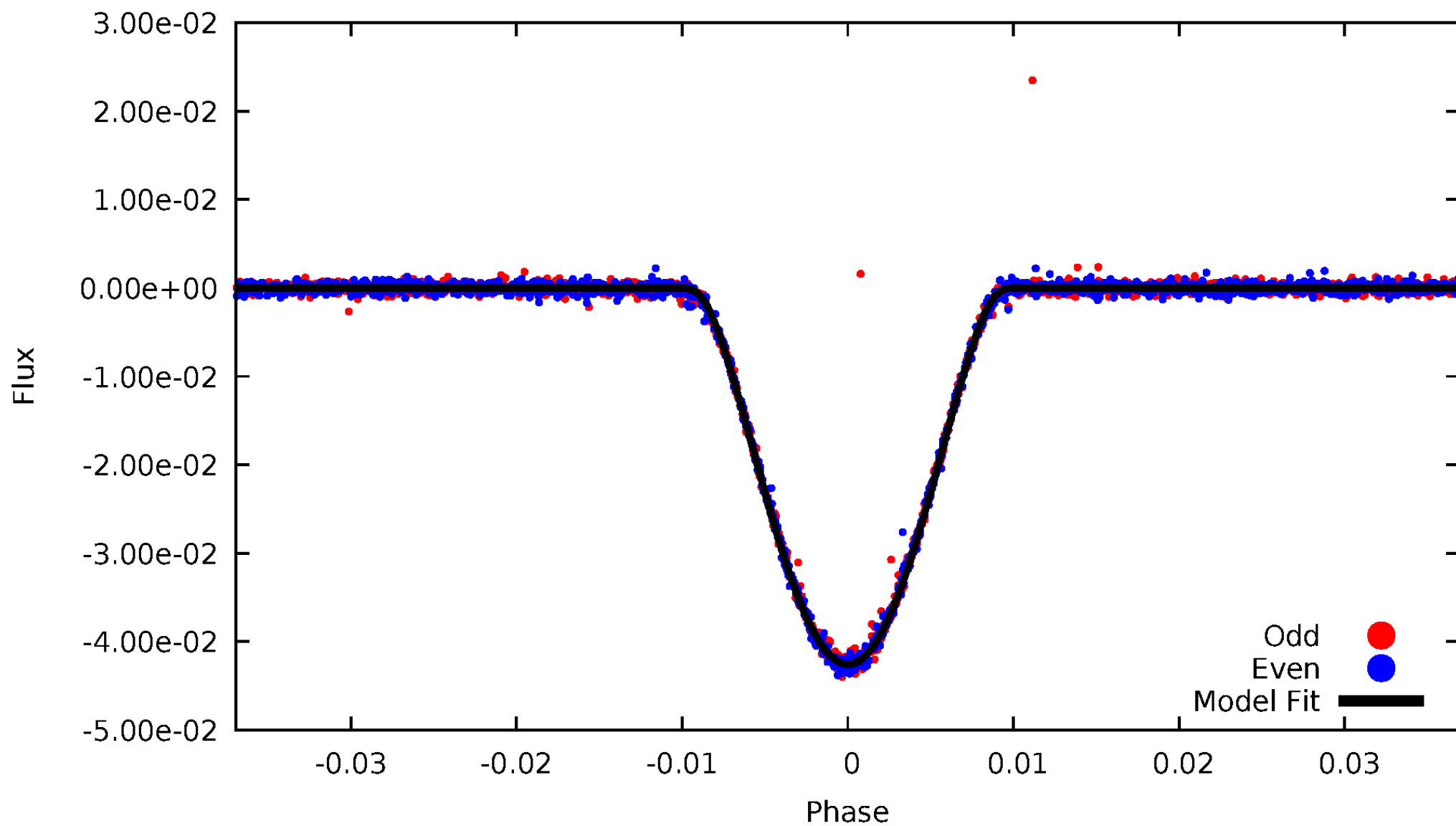


TCE 005115178-01



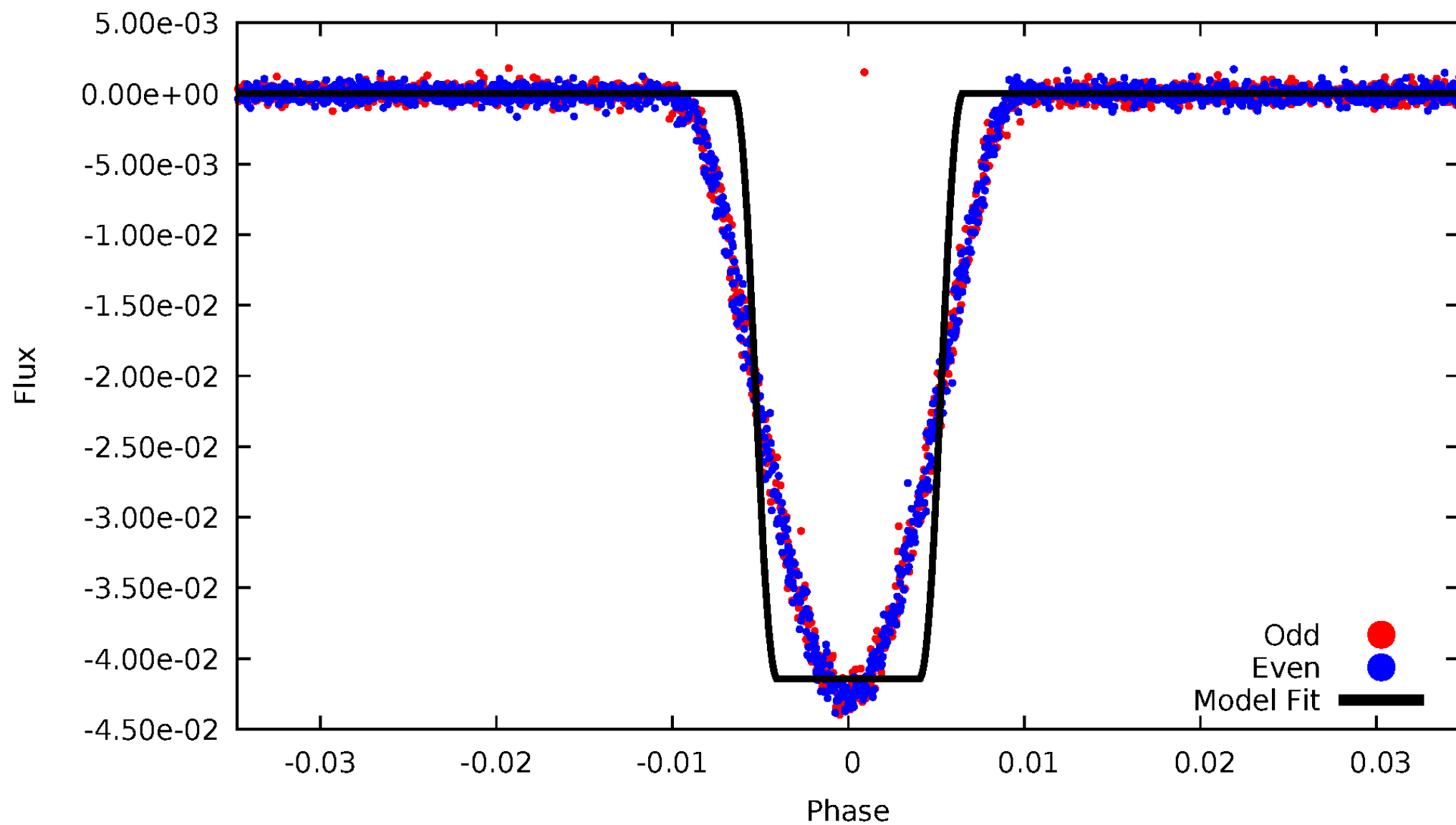
DV Odd/Even

TCE 005115178-01



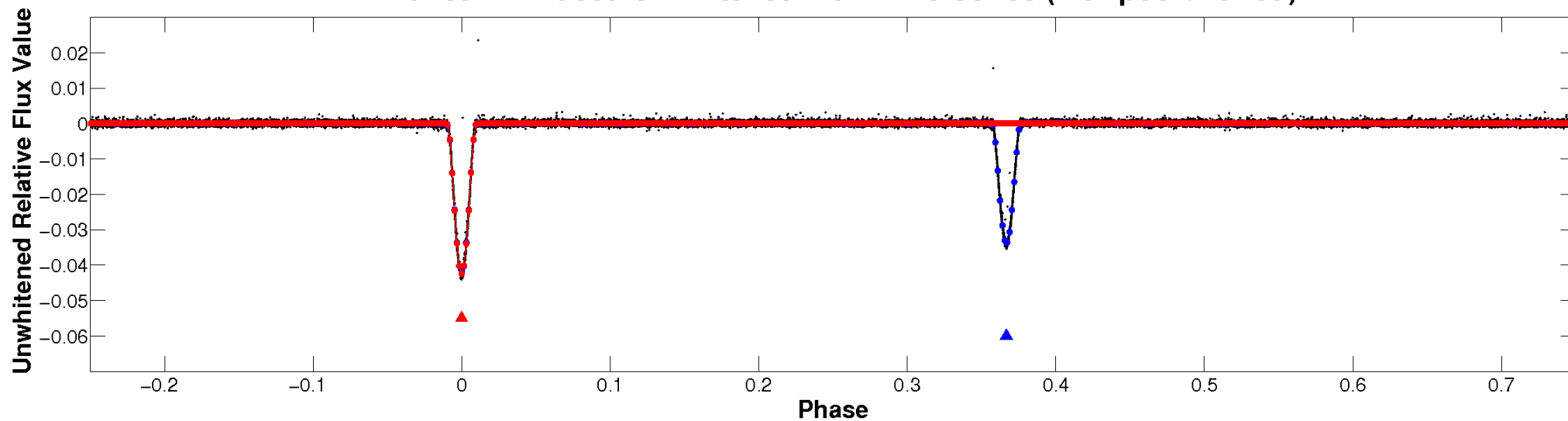
ALT Odd/Even

TCE 005115178-01

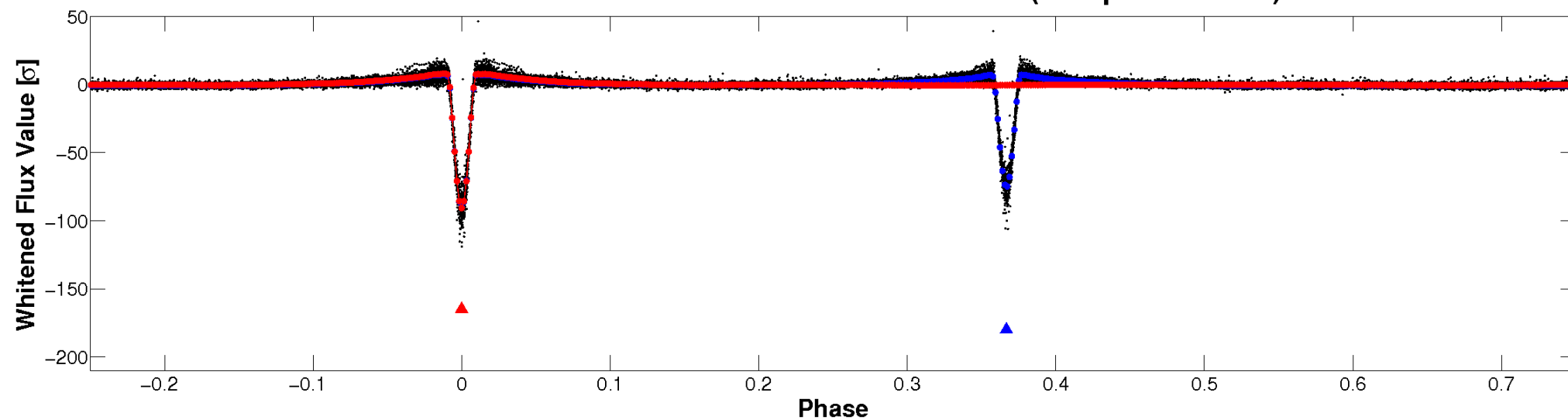


Non-Whitened Vs. Whitened Light Curve

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

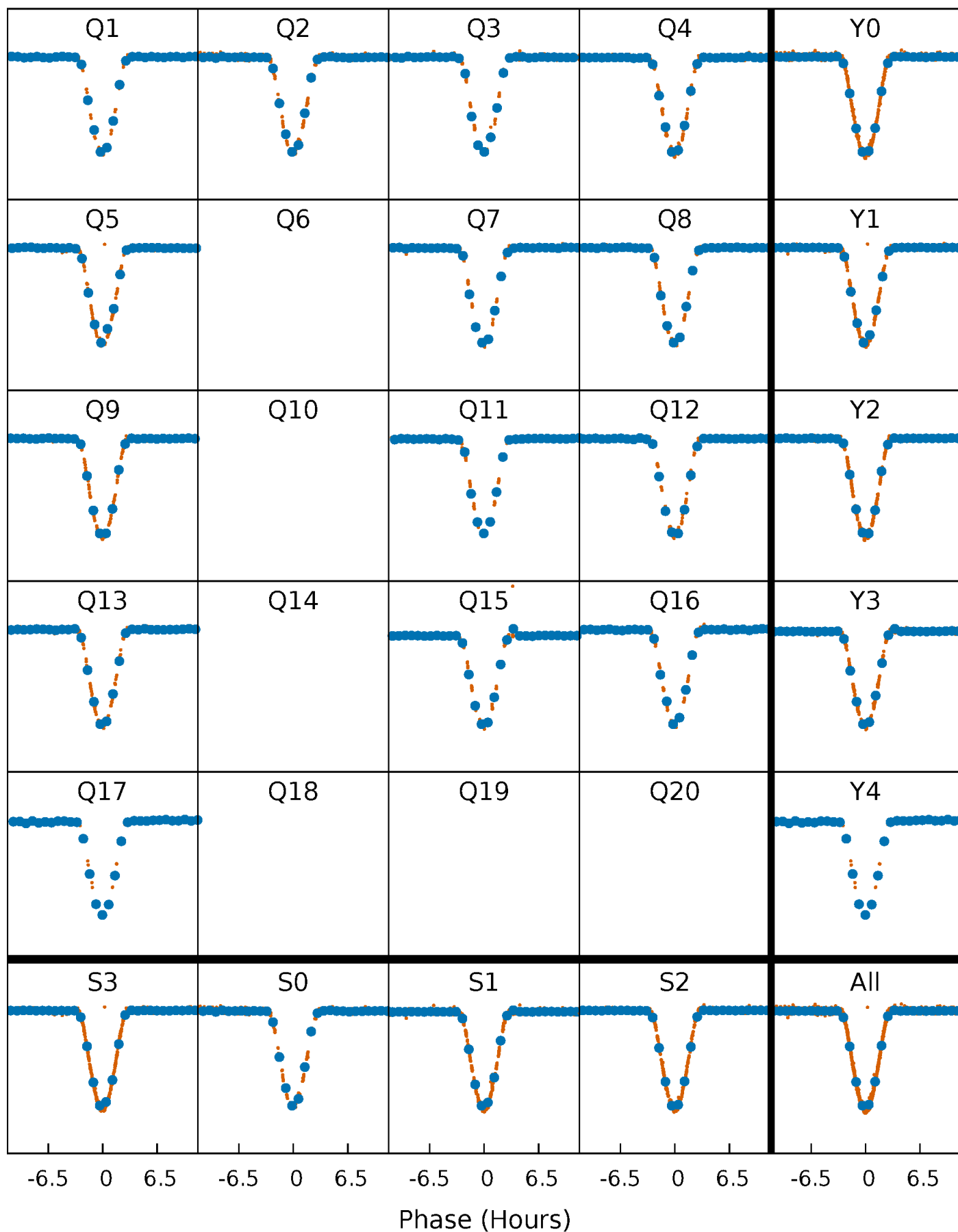


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



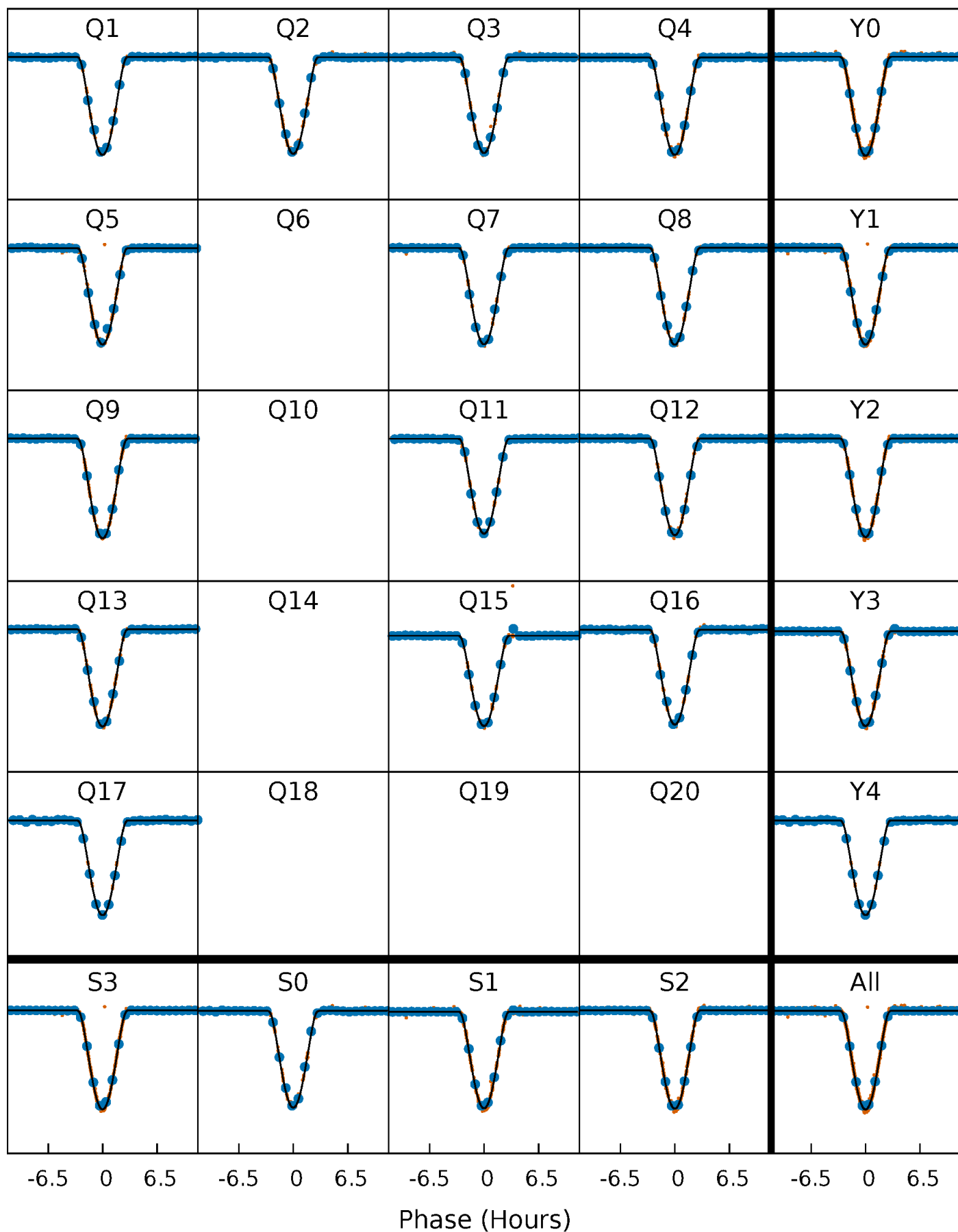
PDC Quarter-Phased Transit Curves

TCE 005115178-01 P= 12.851721 Days $T_0=132.839581$ (BKJD)



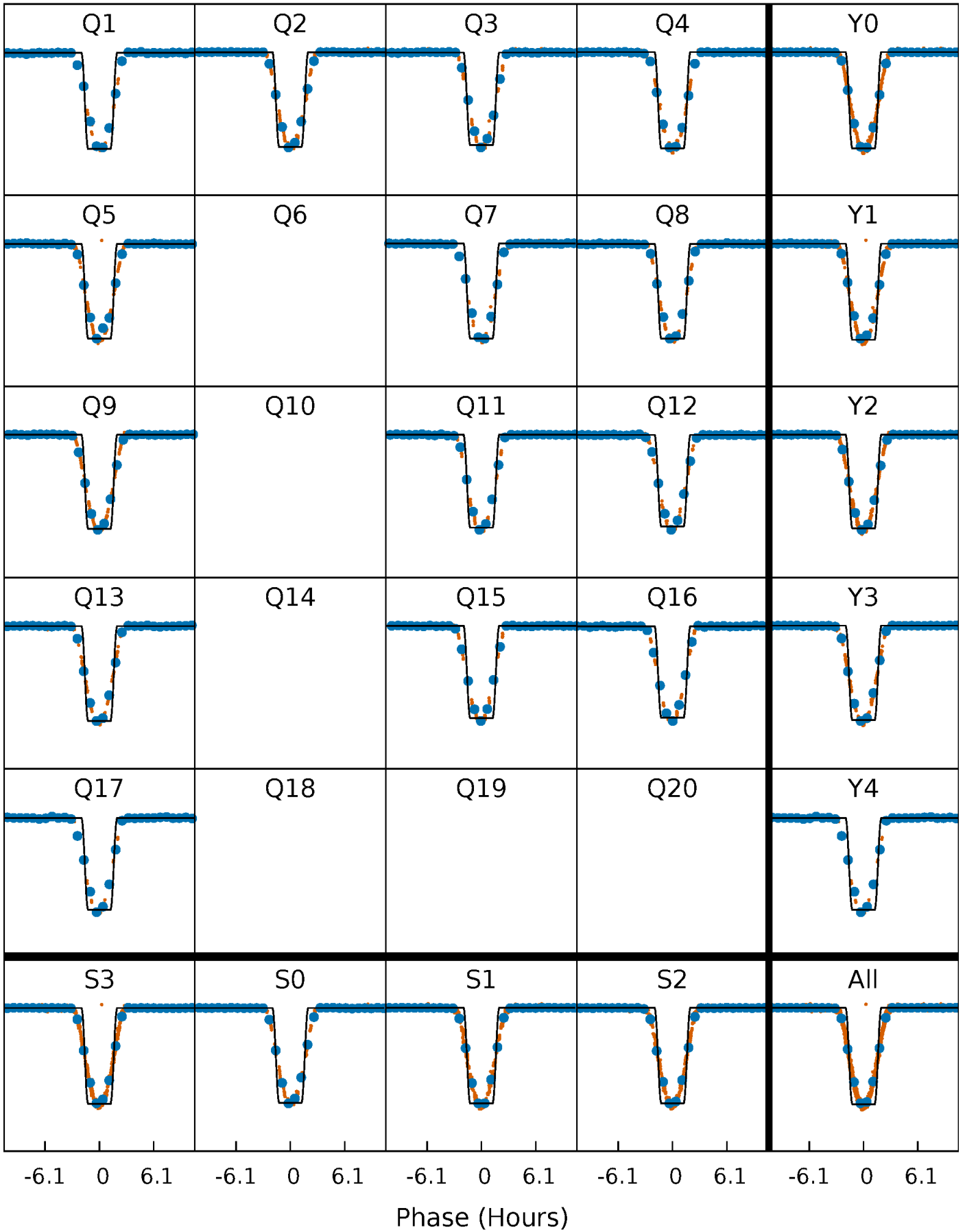
DV Quarter-Phased Transit Curves

TCE 005115178-01 P= 12.851721 Days $T_0=132.839581$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

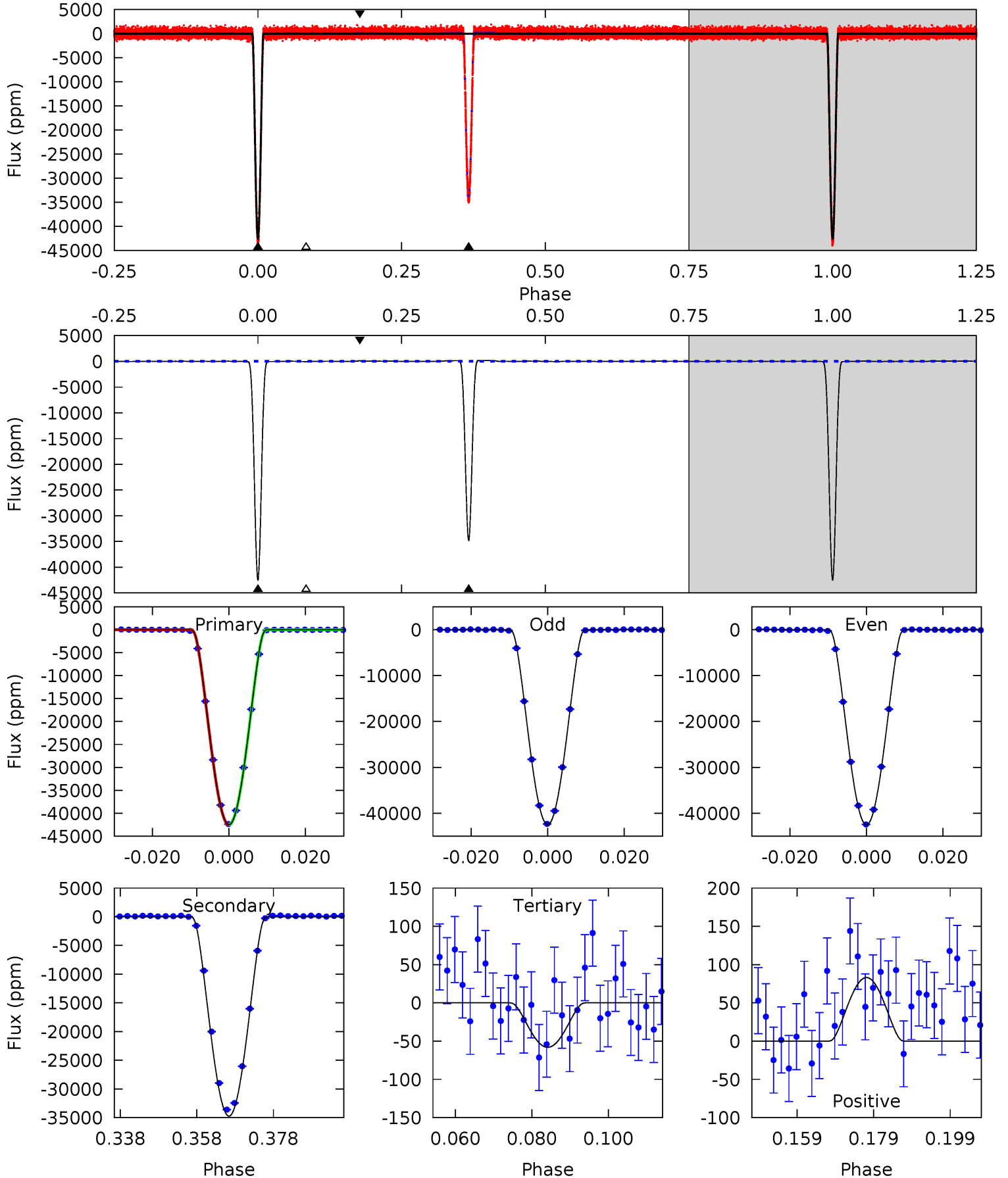
TCE 005115178-01 P= 12.851796 Days $T_0=132.835657$ (BKJD)



DV Model-Shift Uniqueness Test

005115178-01, P = 12.851721 Days, E = 119.987860 Days

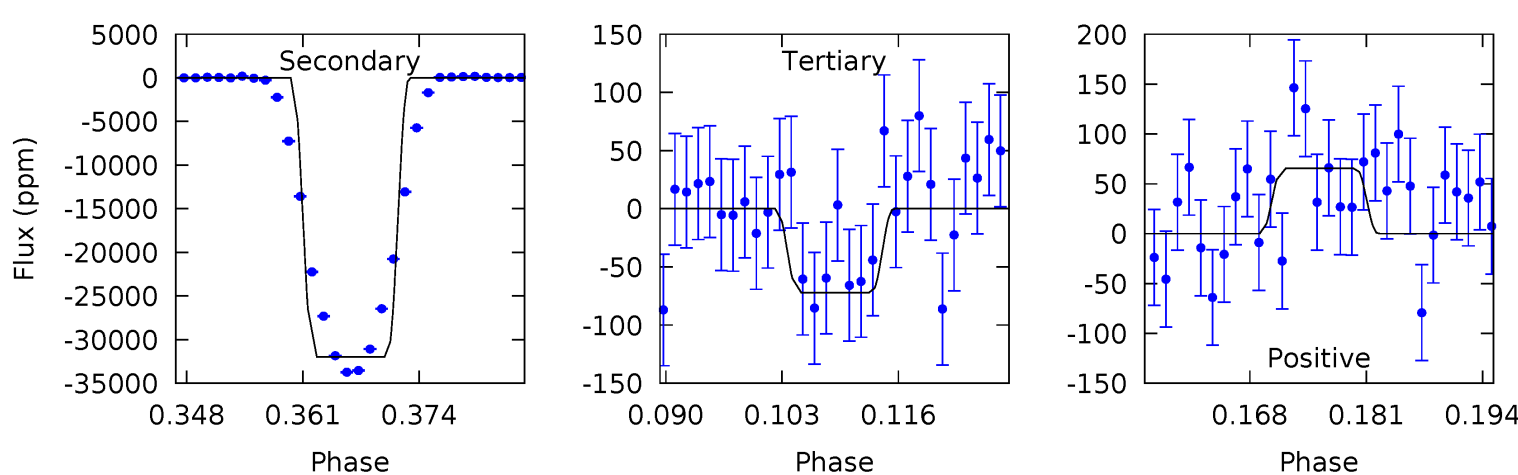
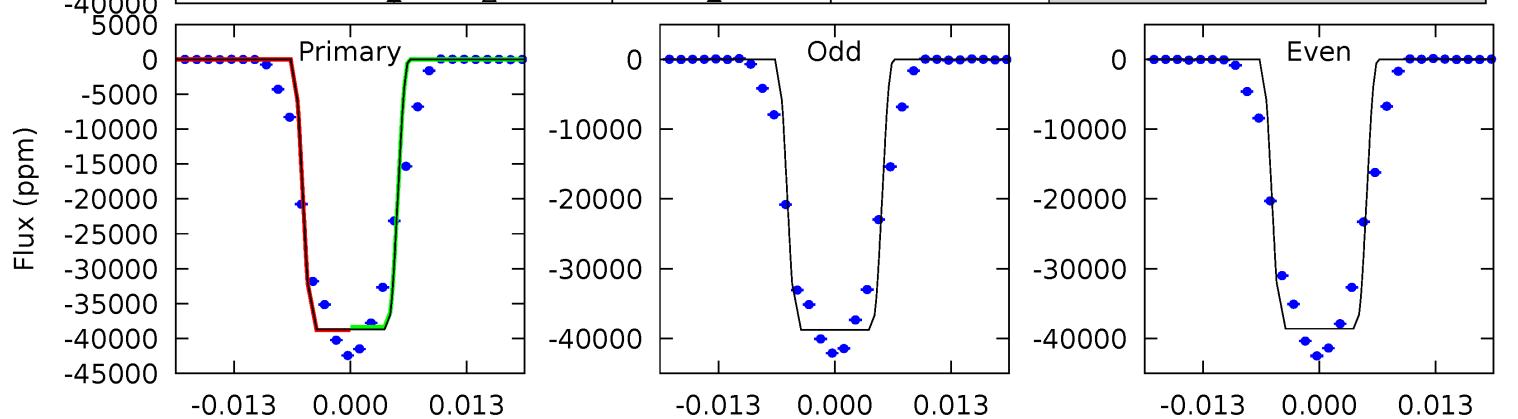
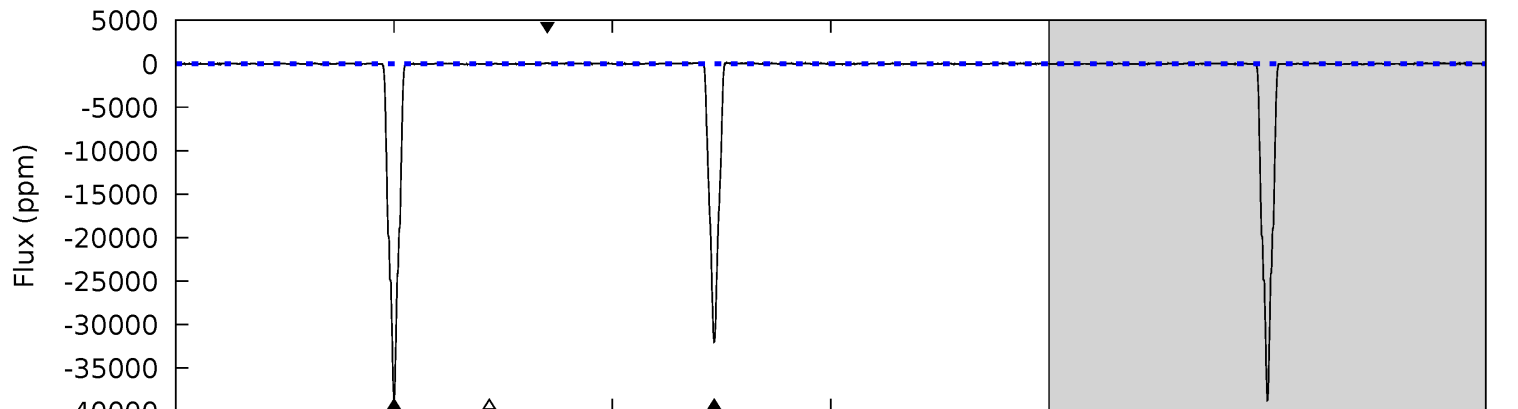
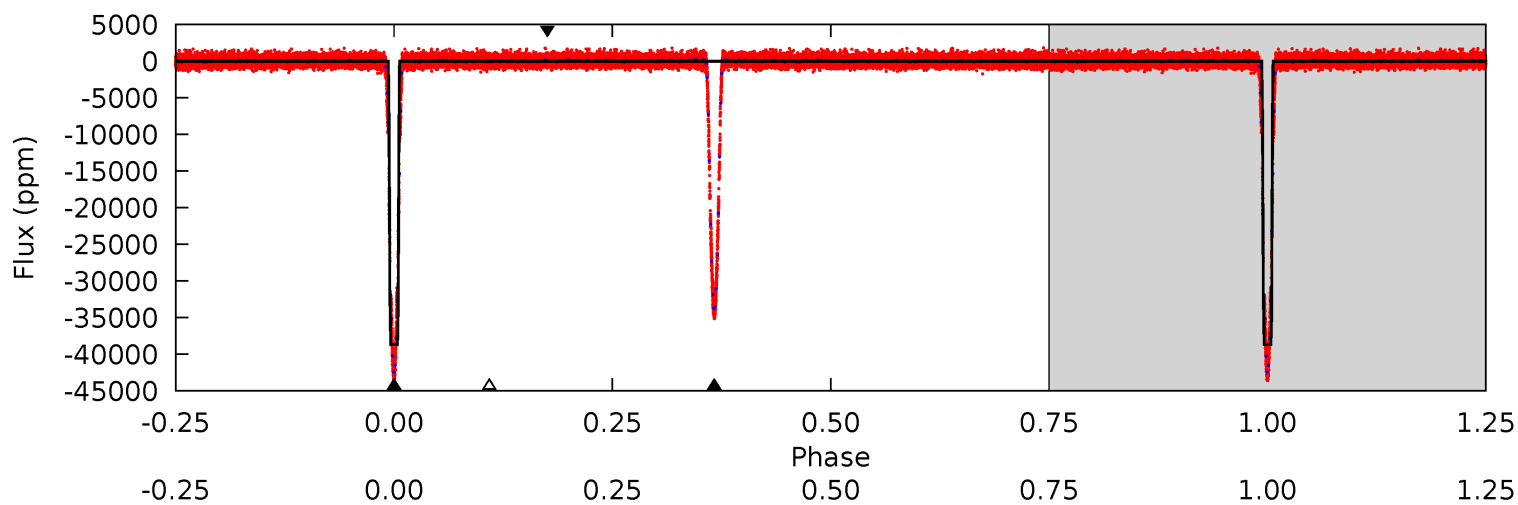
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3186	2604	4.35	6.23	4.89	2.33	2.99	3181	3180	2600	2598	1.69	1.00	0.00	0.18



Alt Model-Shift Uniqueness Test

005115178-01, P = 12.851796 Days, E = 119.983861 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1930	1594	3.59	3.27	4.98	2.49	1.32	1926	1926	1590	1590	3.35	1.00	0.00	1.64



Stellar Parameters For KIC 005115178

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5838^{+158}_{-194}	$4.438^{+0.098}_{-0.196}$	$-0.160^{+0.300}_{-0.300}$	$0.967^{+0.282}_{-0.121}$	$0.936^{+0.132}_{-0.099}$	$1.458^{+0.628}_{-0.705}$
	+3%/-3%	+2%/-4%	+188%/-188%	+29%/-13%	+14%/-11%	+43%/-48%
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 005115178-01 / KOI 6524.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-34733 ± 13	$31.90^{+5.20}_{-2.72}$	1100^{+82}_{-58}	4766^{+134}_{-148}	212^{+40}_{-51}
Alt.	-31958 ± 20	$21.91^{+3.72}_{-2.28}$	1102^{+82}_{-57}	5514^{+229}_{-184}	418^{+98}_{-109}

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

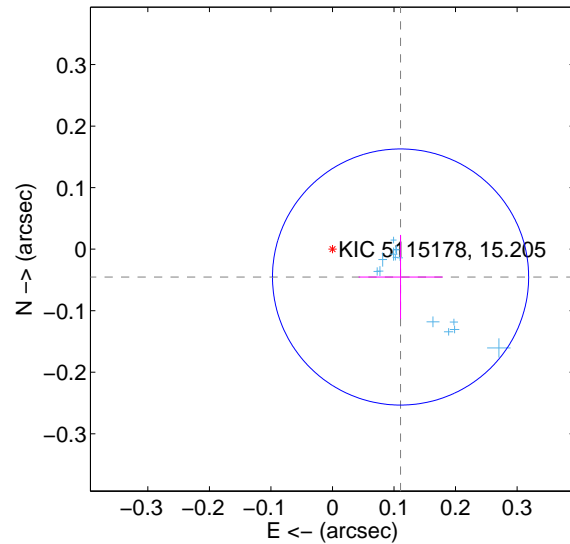
Supplemental centroid analysis for 005115178-01. Kepler magnitude: 15.21. Transit SNR 1676.39

There are 14 quarters with good PRF difference image offsets

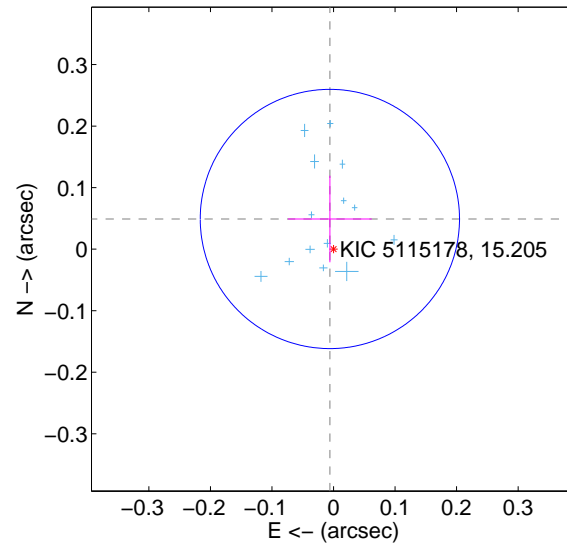
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.120 ± 0.069	1.72	-0.111 ± 0.068	-0.045 ± 0.068
PRF-fit source offset from KIC position	0.049 ± 0.070	0.70	0.006 ± 0.068	0.049 ± 0.070
photometric centroid source offset	0.08 ± 0.01	11.01	0.03 ± 0.01	0.08 ± 0.01

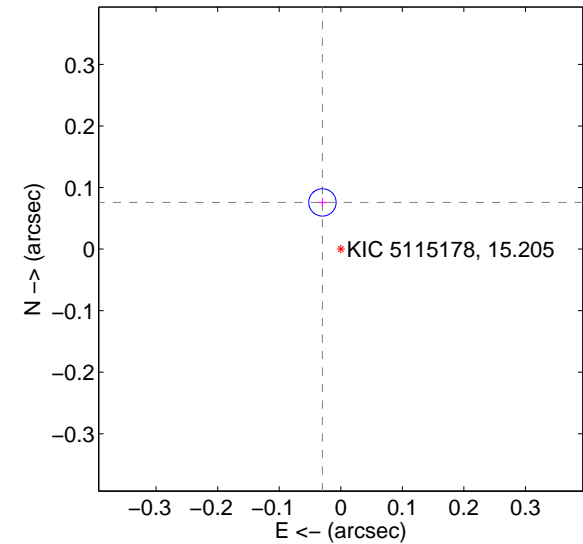
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

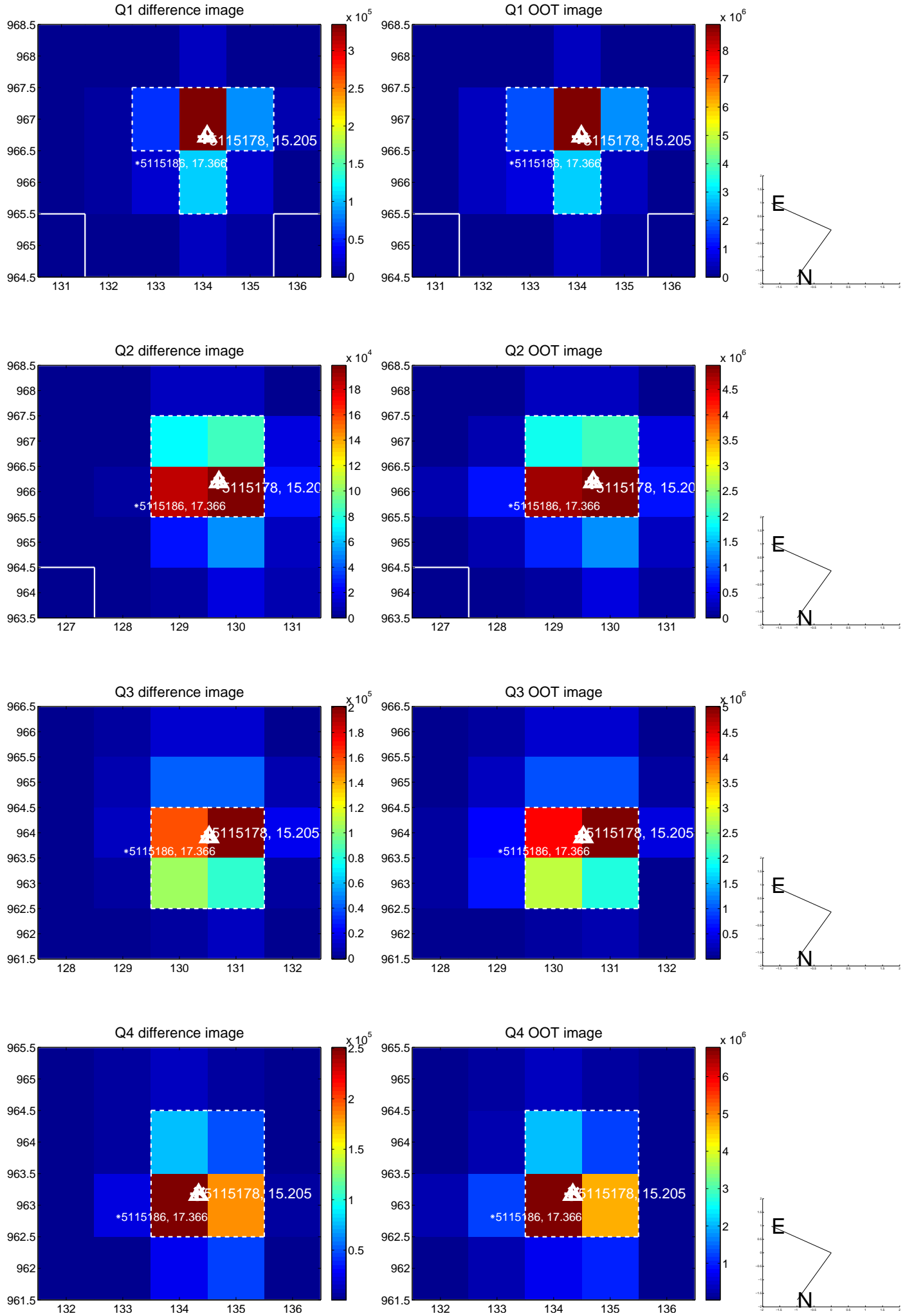


offset from photometric centroids

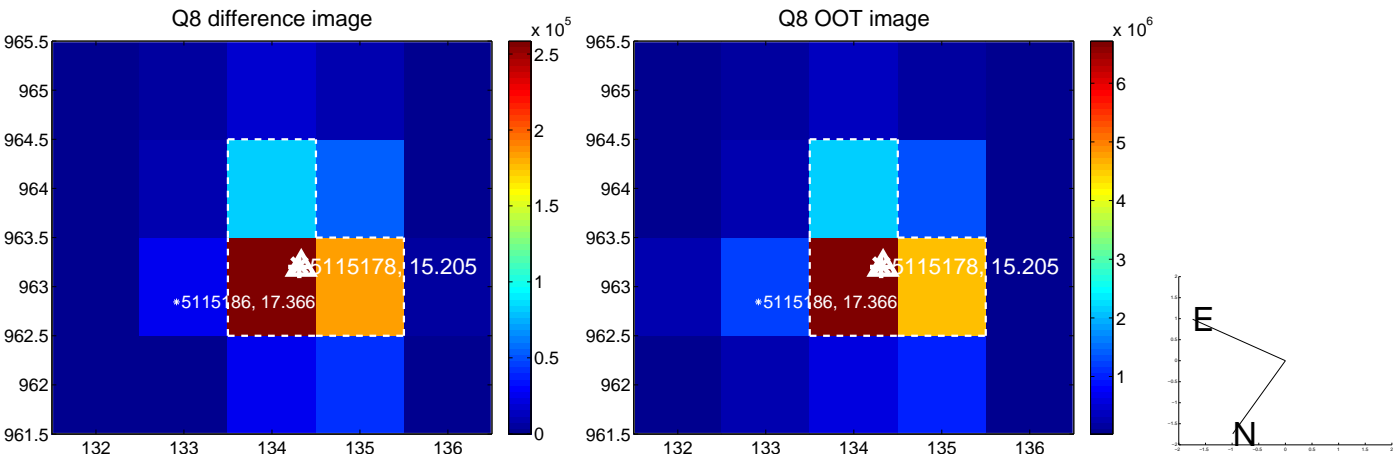
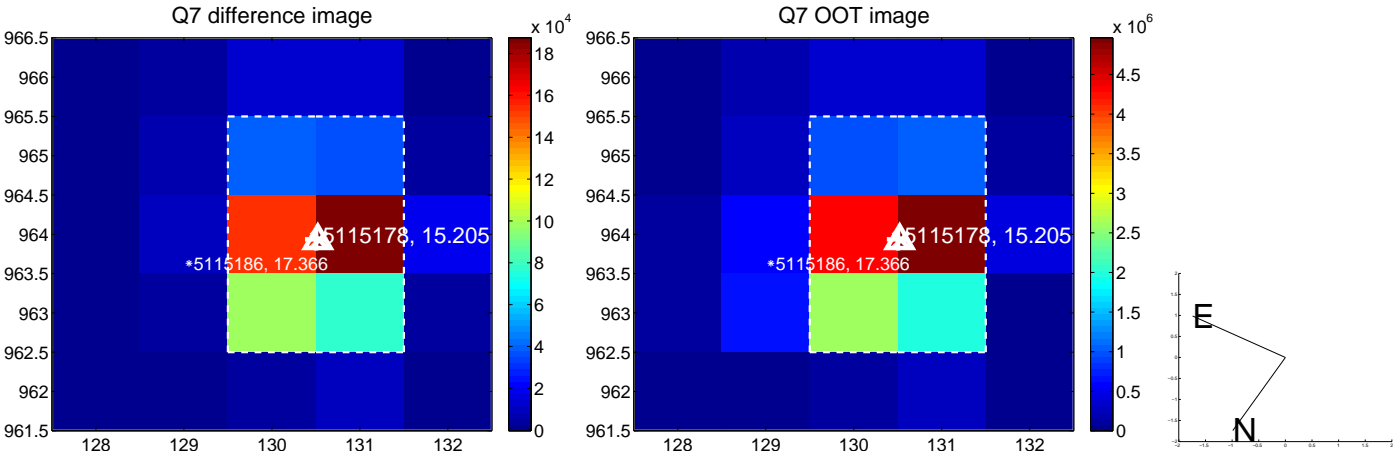
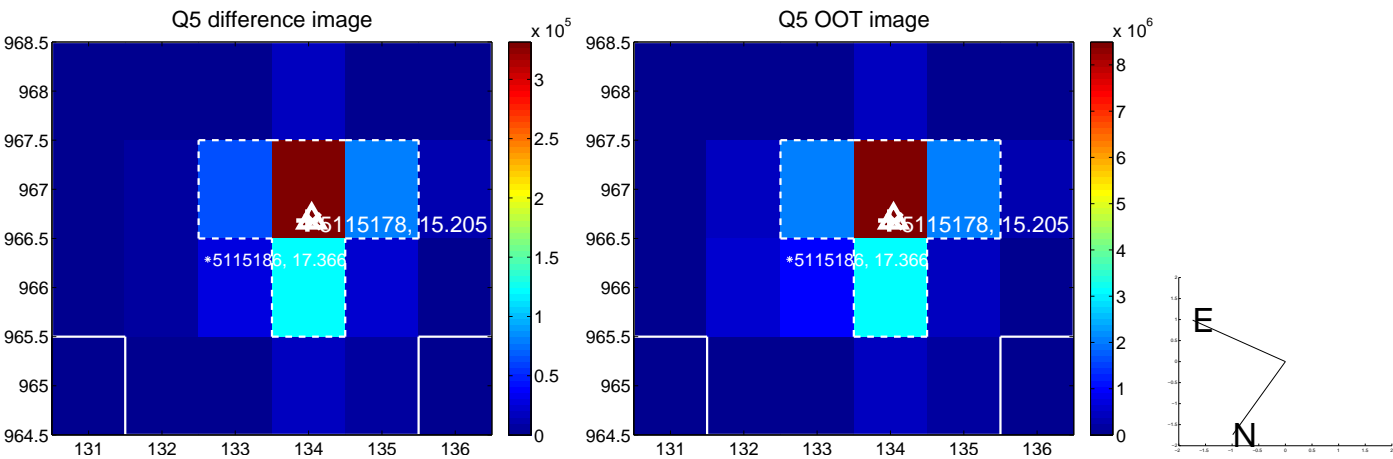


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

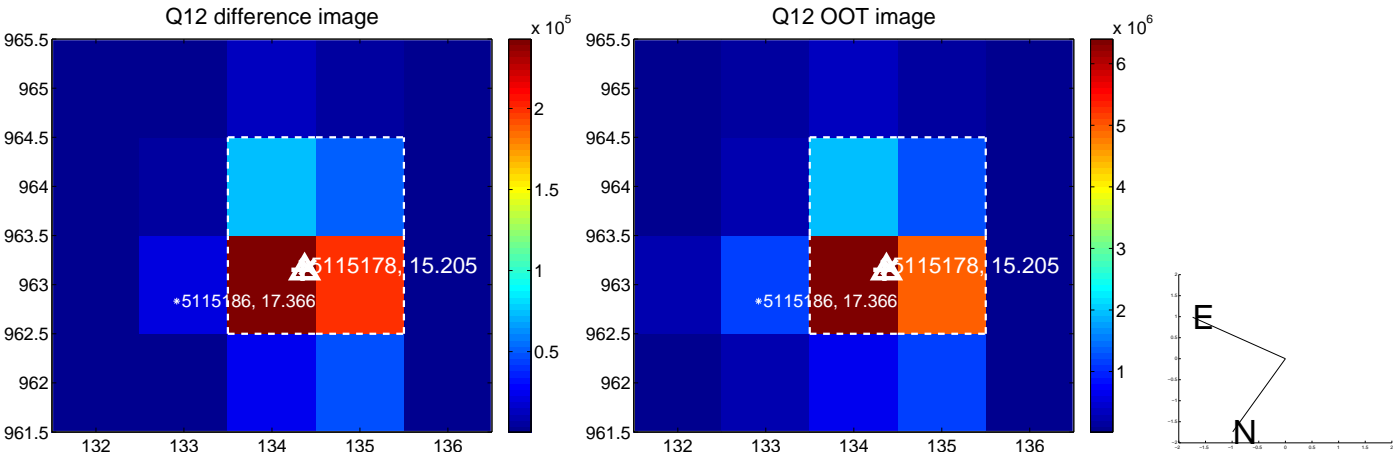
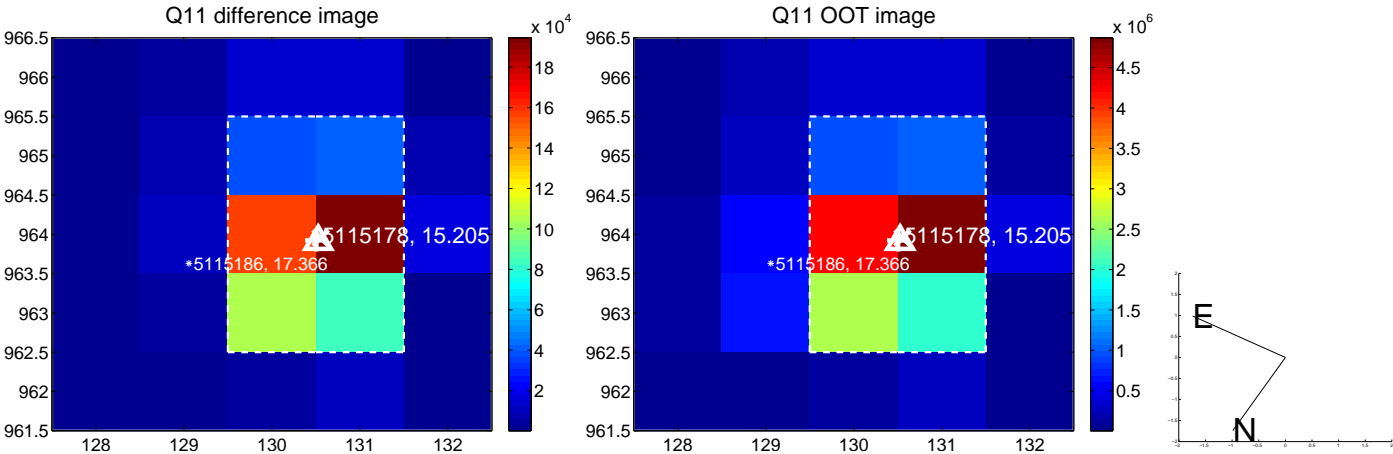
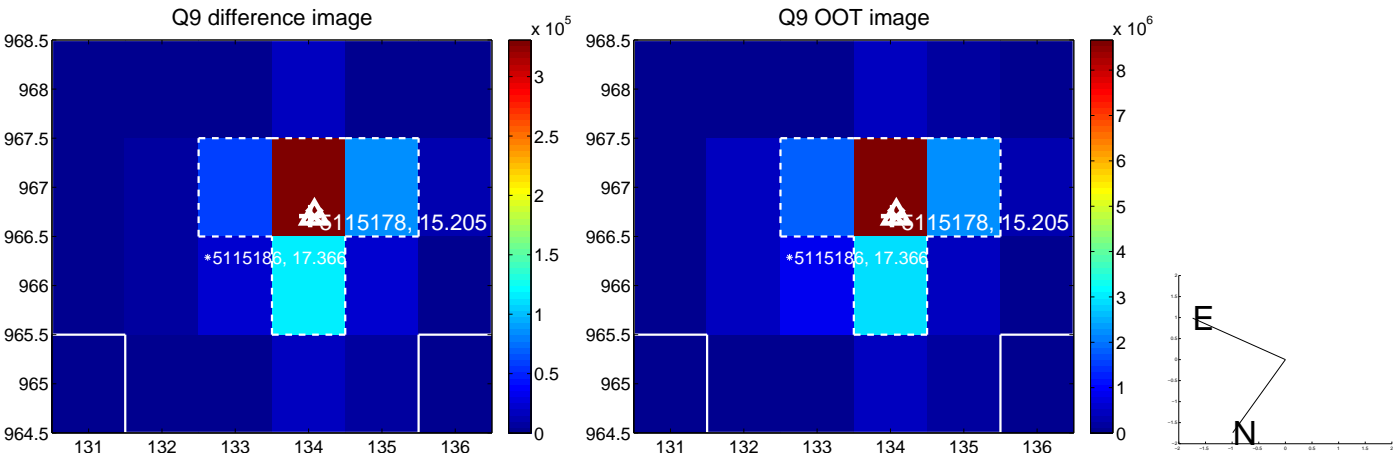
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



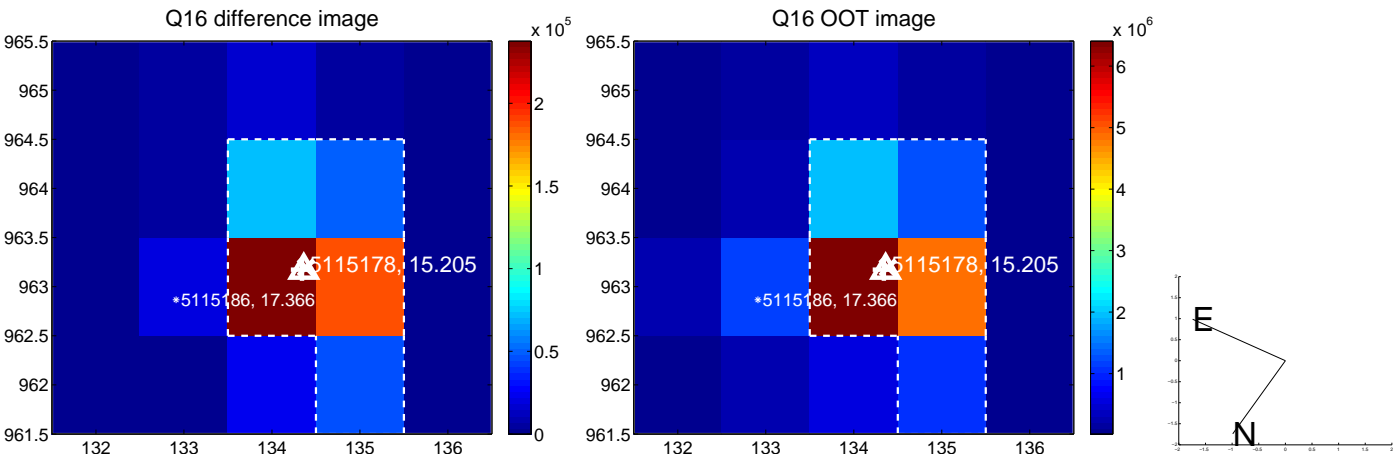
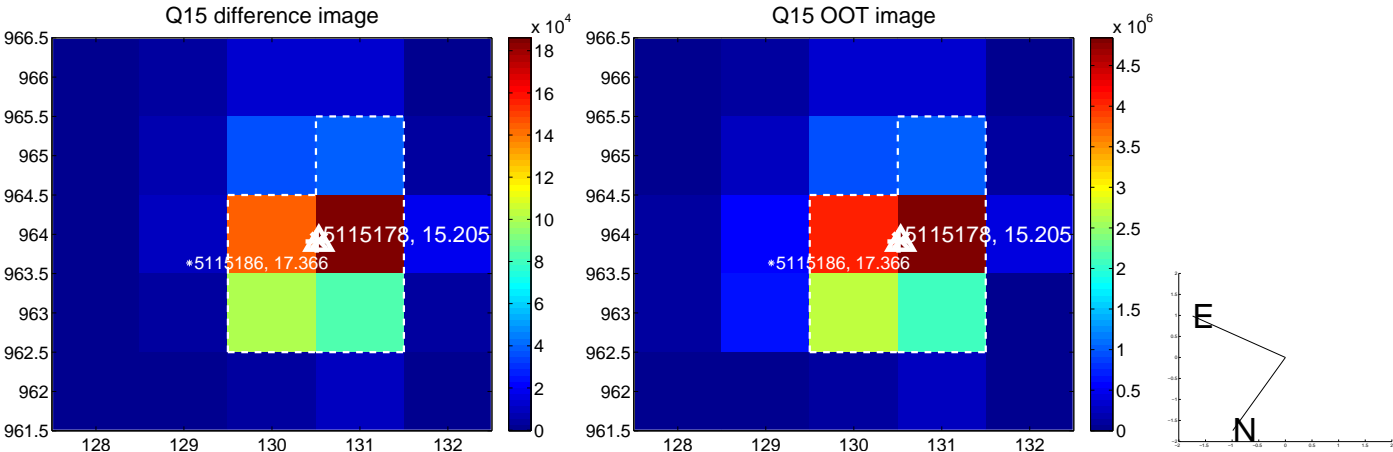
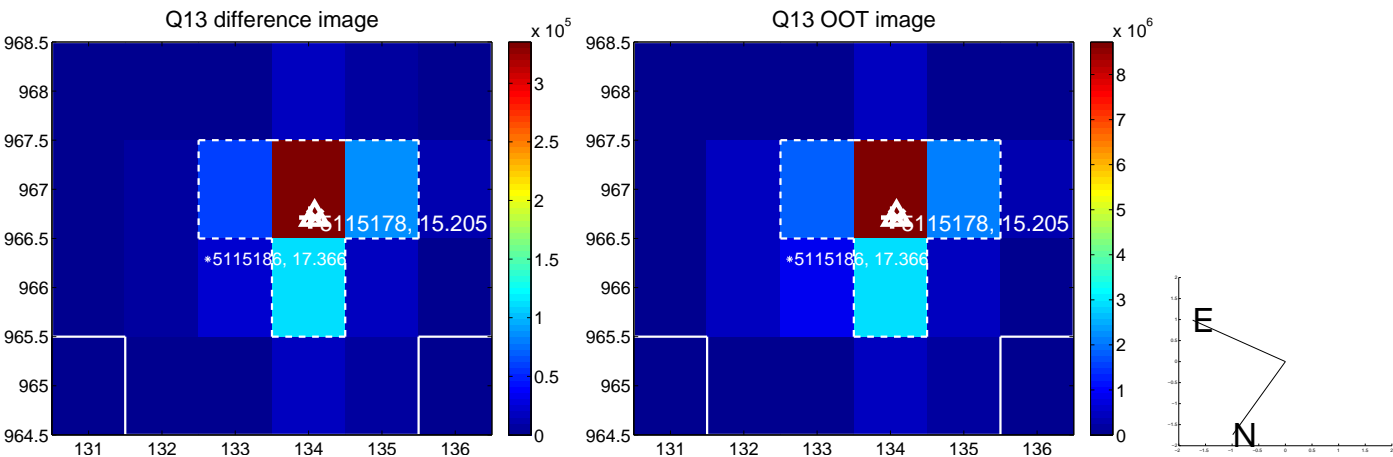
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



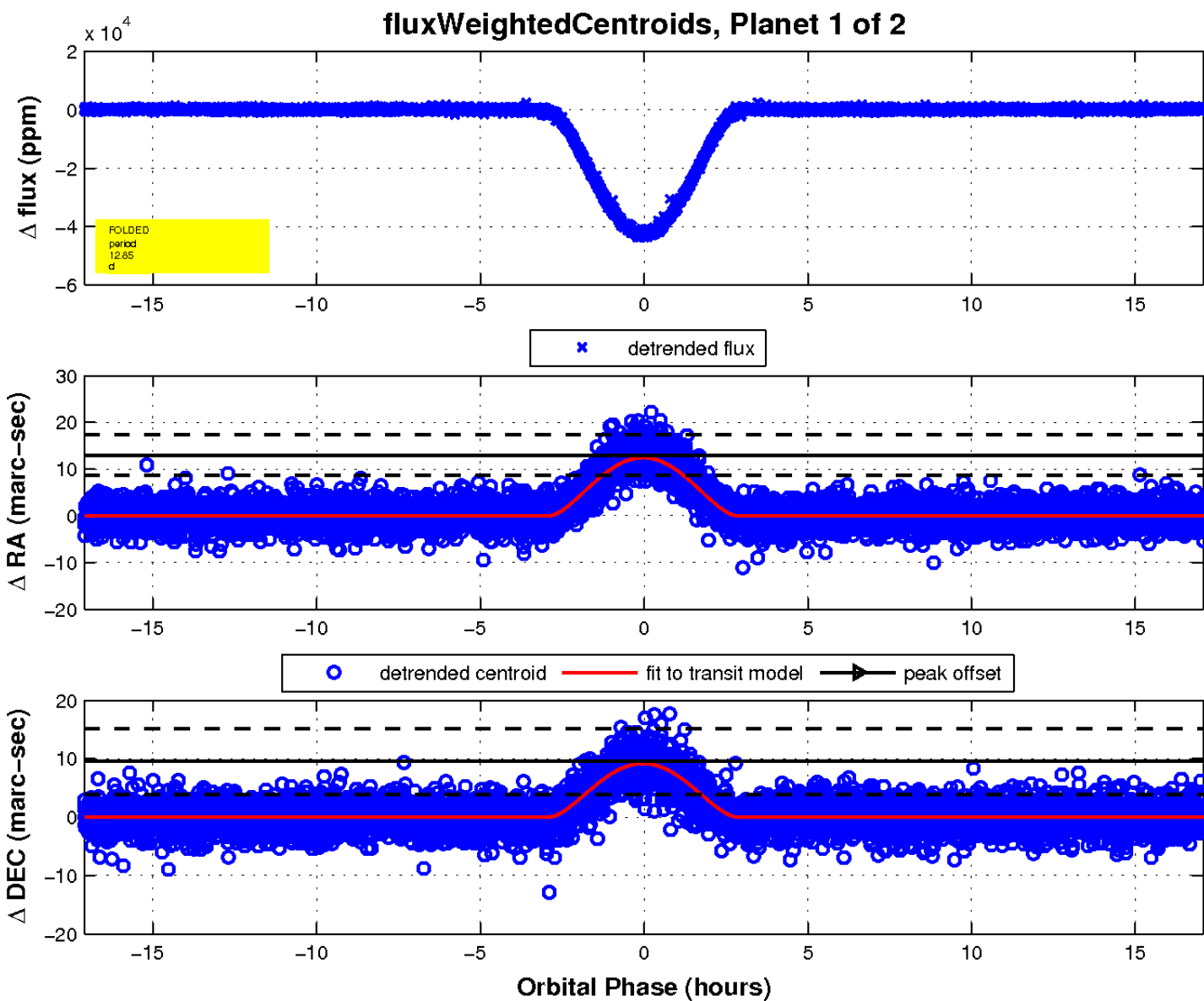
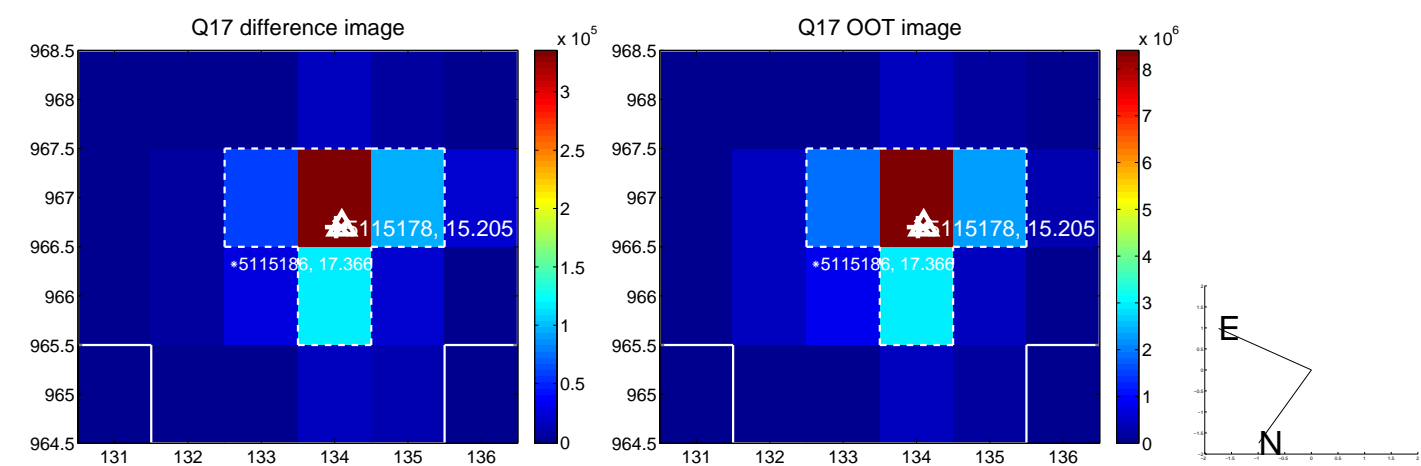
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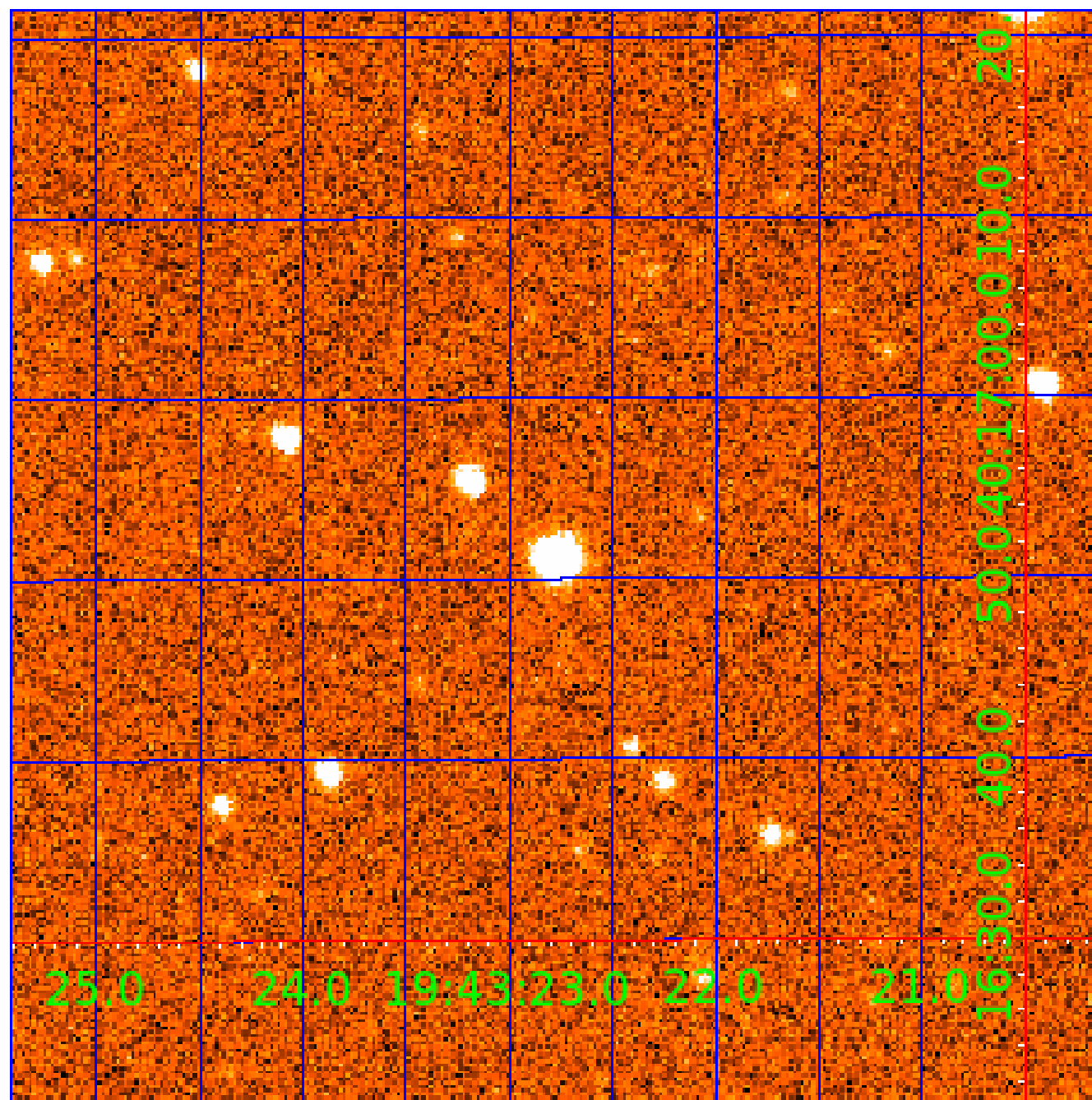


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005115178

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})
005115178-01	OBS	6524.01	12.851721	132.839581	42568.4	5.695	1765.5	1676.4	0.97	5838	31.50	88.23
005115178-02	OBS	No	12.851719	137.553001	34095.7	5.607	1470.8	1399.5	0.97	5838	28.32	88.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005115178-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
005115178-02	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.

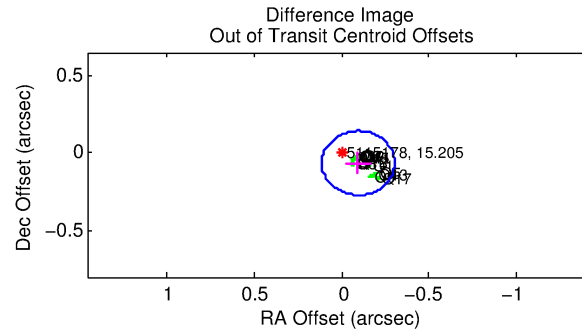
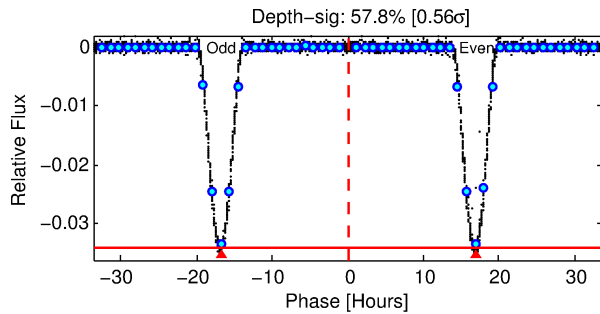
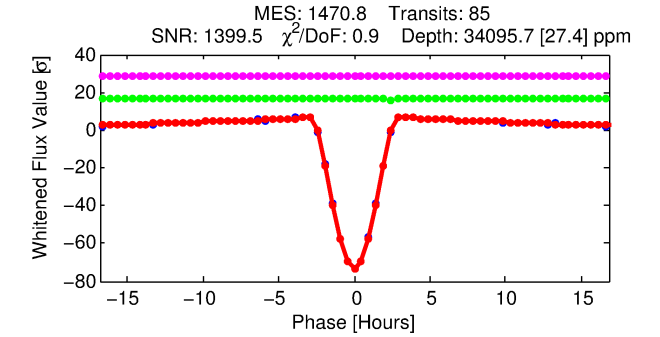
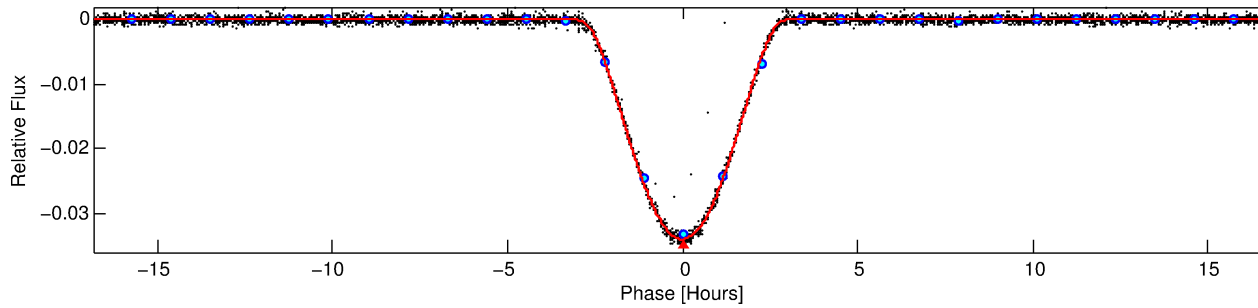
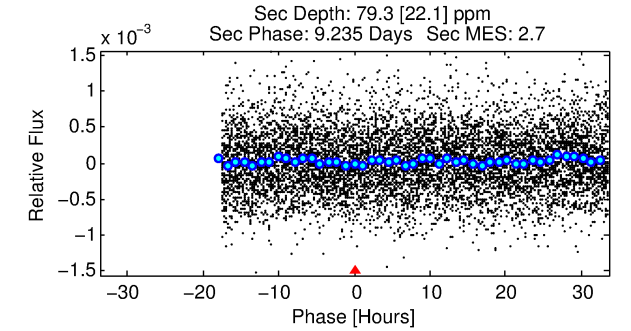
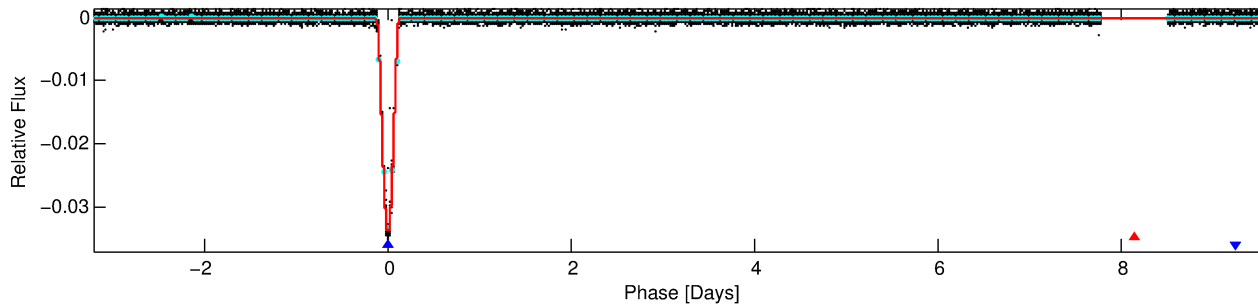
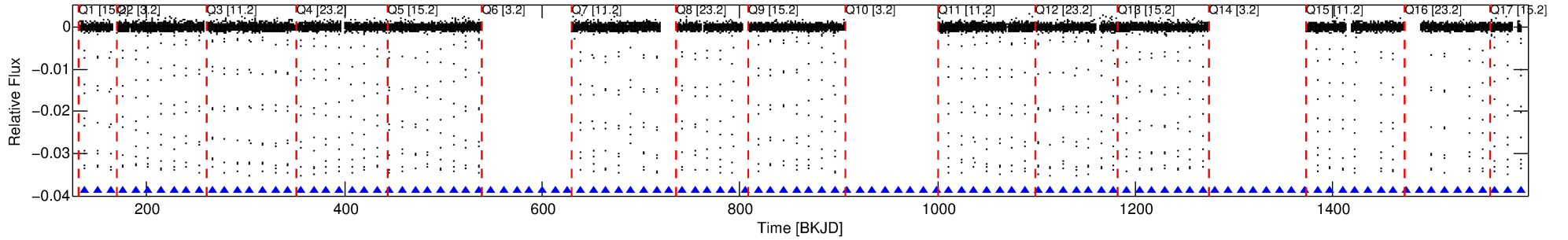
Ephemeris Match Information For 005115178-02

No Significant Match Found

DV One-Page Summary

KIC: 5115178 Candidate: 2 of 2 Period: 12.852 d
KOI: K06524 Corr: No Ephemeris Match

Kp: 15.20 R*: 0.97 Rs Teff: 5838.0 K Logg: 4.44 Fe/H: -0.160



DV Fit Results:

Period = 12.85172 [0.00000] d
Epoch = 137.5530 [0.0001] BKJD
Rp/R* = 0.2684 [0.0101]
a/R* = 14.48 [0.05]
b = 0.96 [0.01]
Seff = 88.23 [33.71]
Teq = 782 [75] K
Rp = 28.32 [8.33] Re
a = 0.1050 [0.0258] AU
Ag = 0.60 [0.28] [-1.45σ]
Teffp = 1063 [84] K [2.50σ]

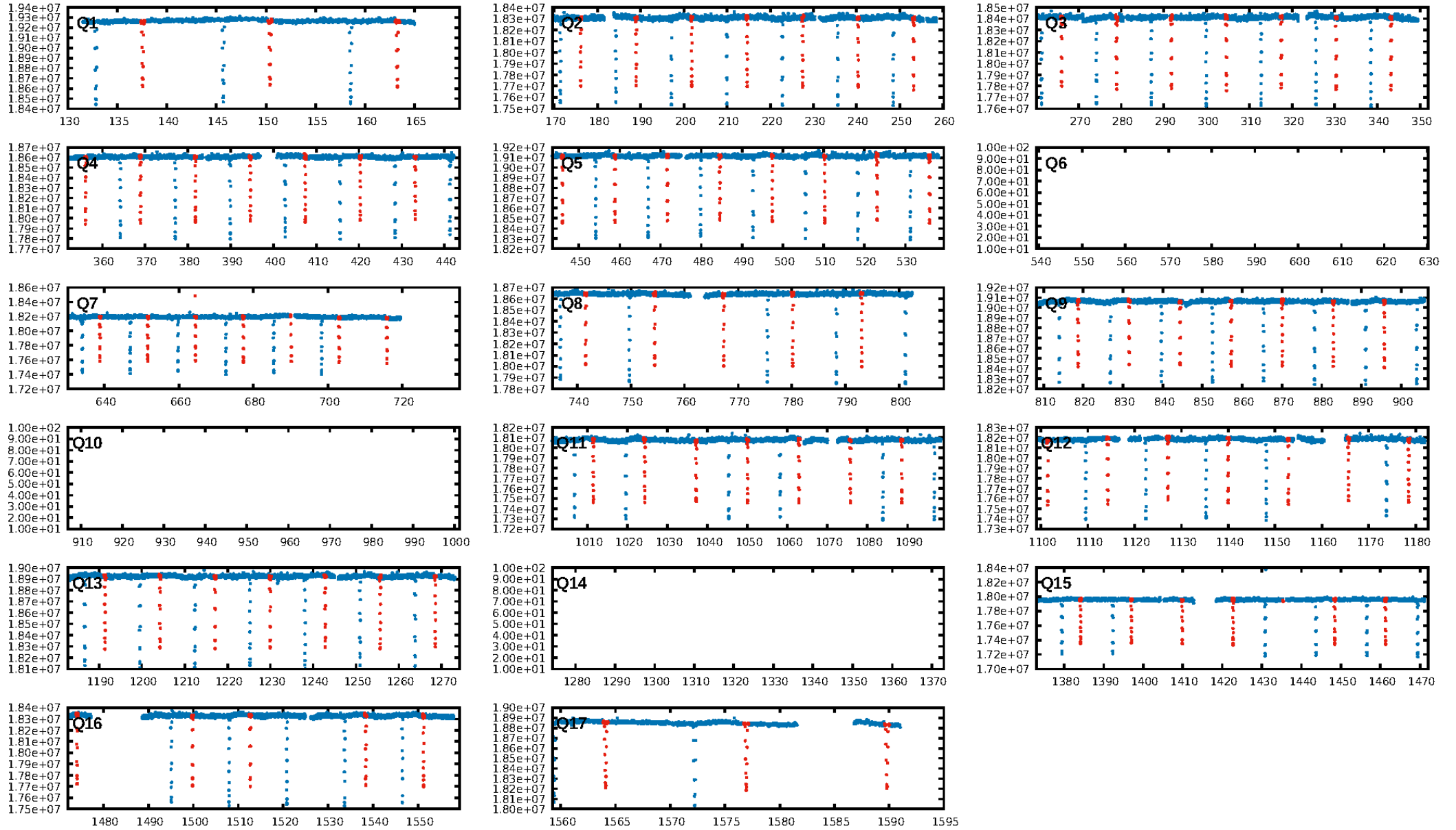
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [79/79]
GhostDiagnostic-chr: 4.428
Centroid-sig: 0.0%
Centroid-so: 0.079 arcsec [8.72σ]
OotOffset-rm: 0.114 arcsec [1.65σ]
KicOffset-rm: 0.043 arcsec [0.61σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

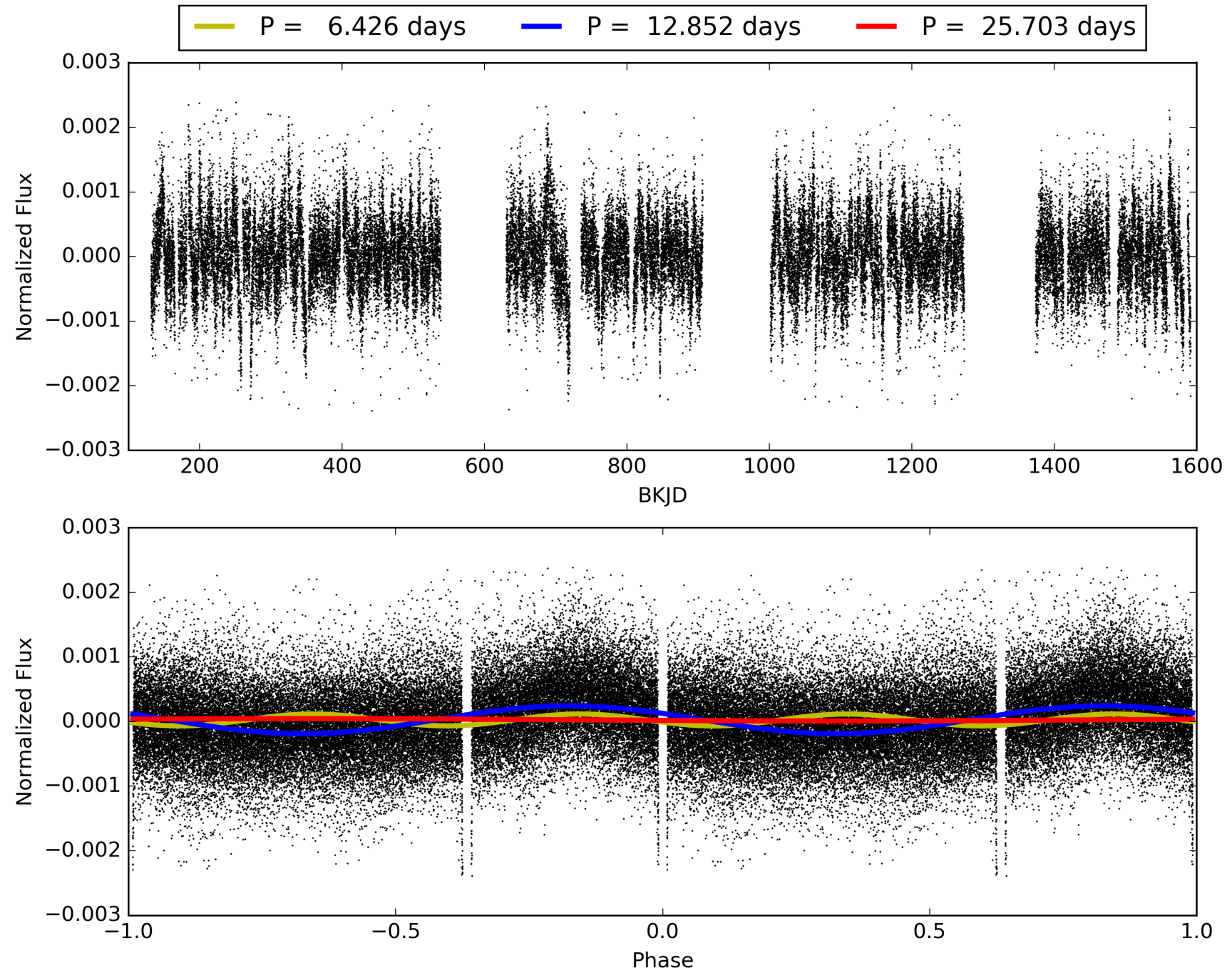
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:43:11 Z

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

TCE 005115178-02, PDC Light Curves

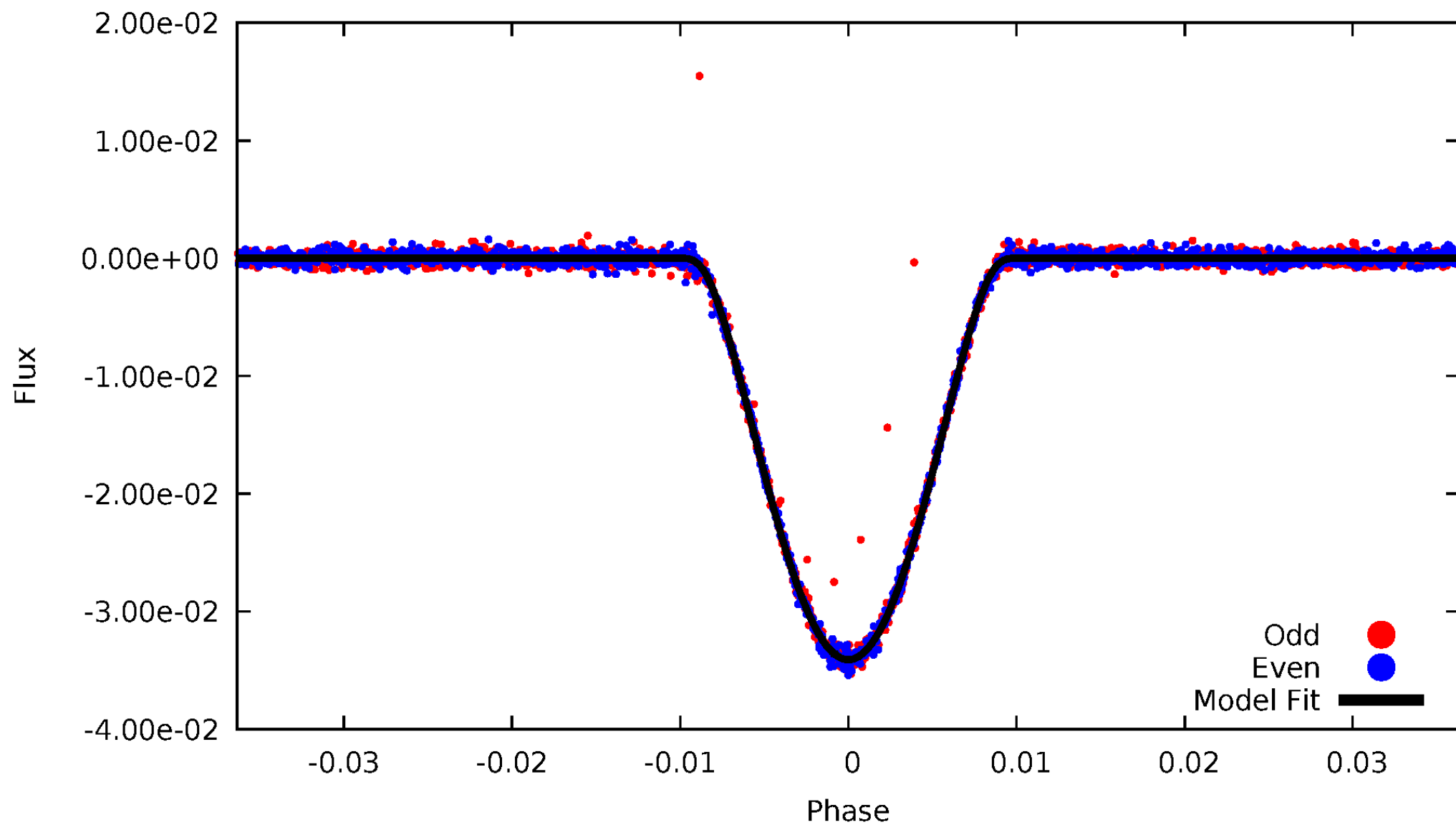


TCE 005115178-02



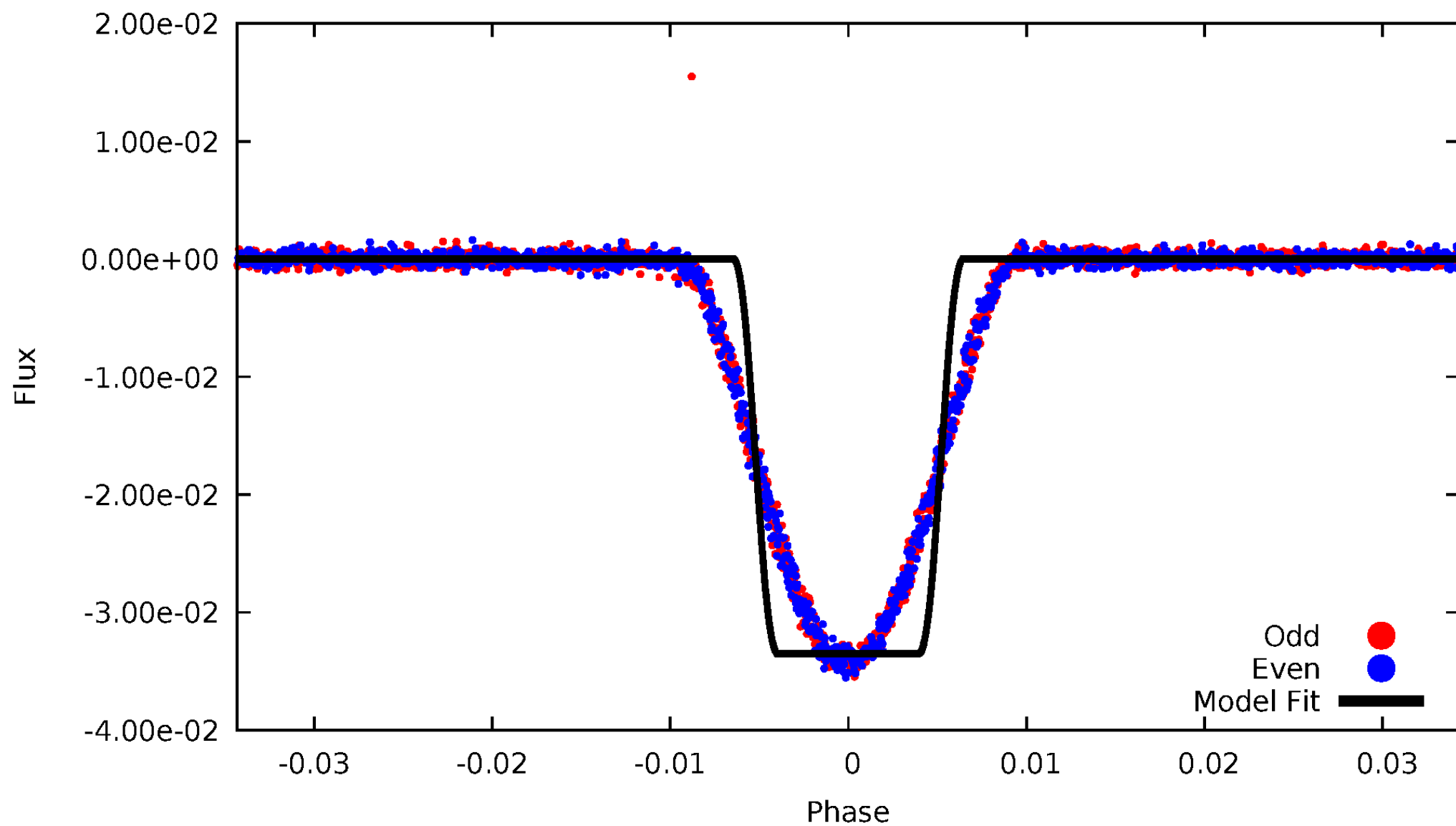
DV Odd/Even

TCE 005115178-02



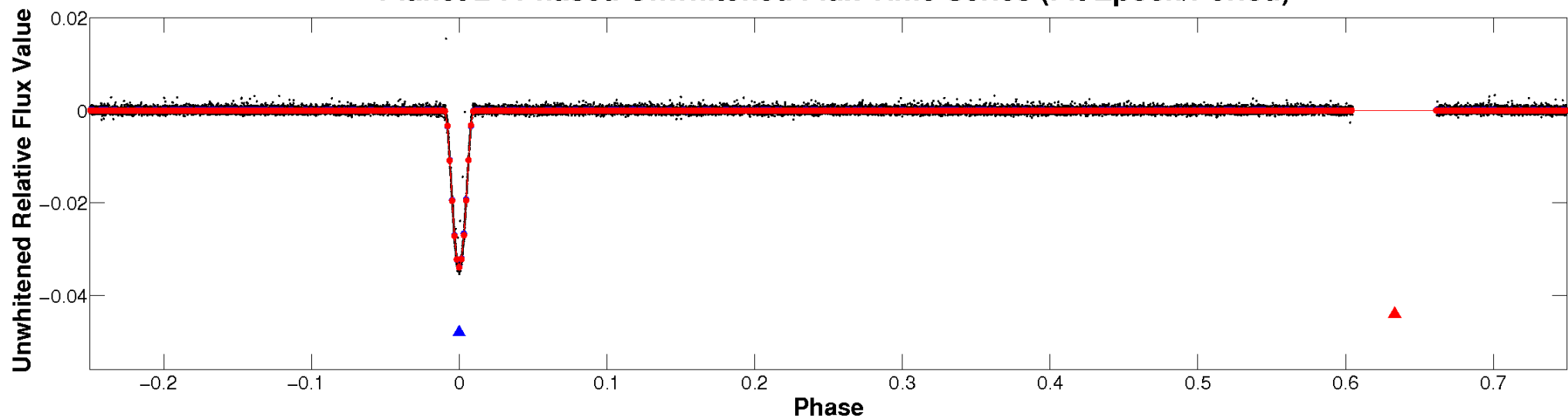
ALT Odd/Even

TCE 005115178-02

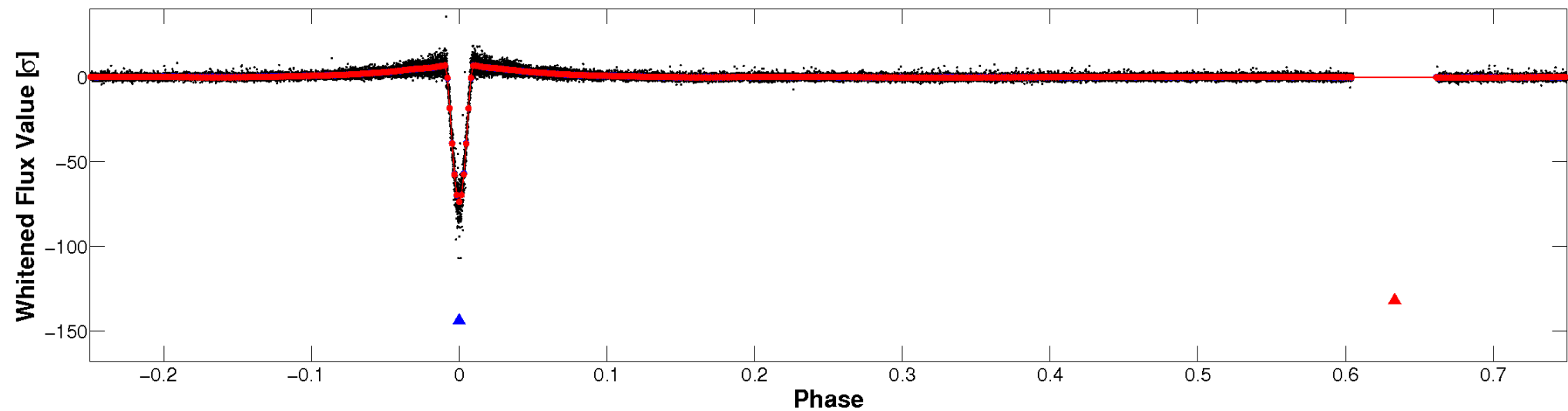


Non-Whitened Vs. Whitened Light Curve

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

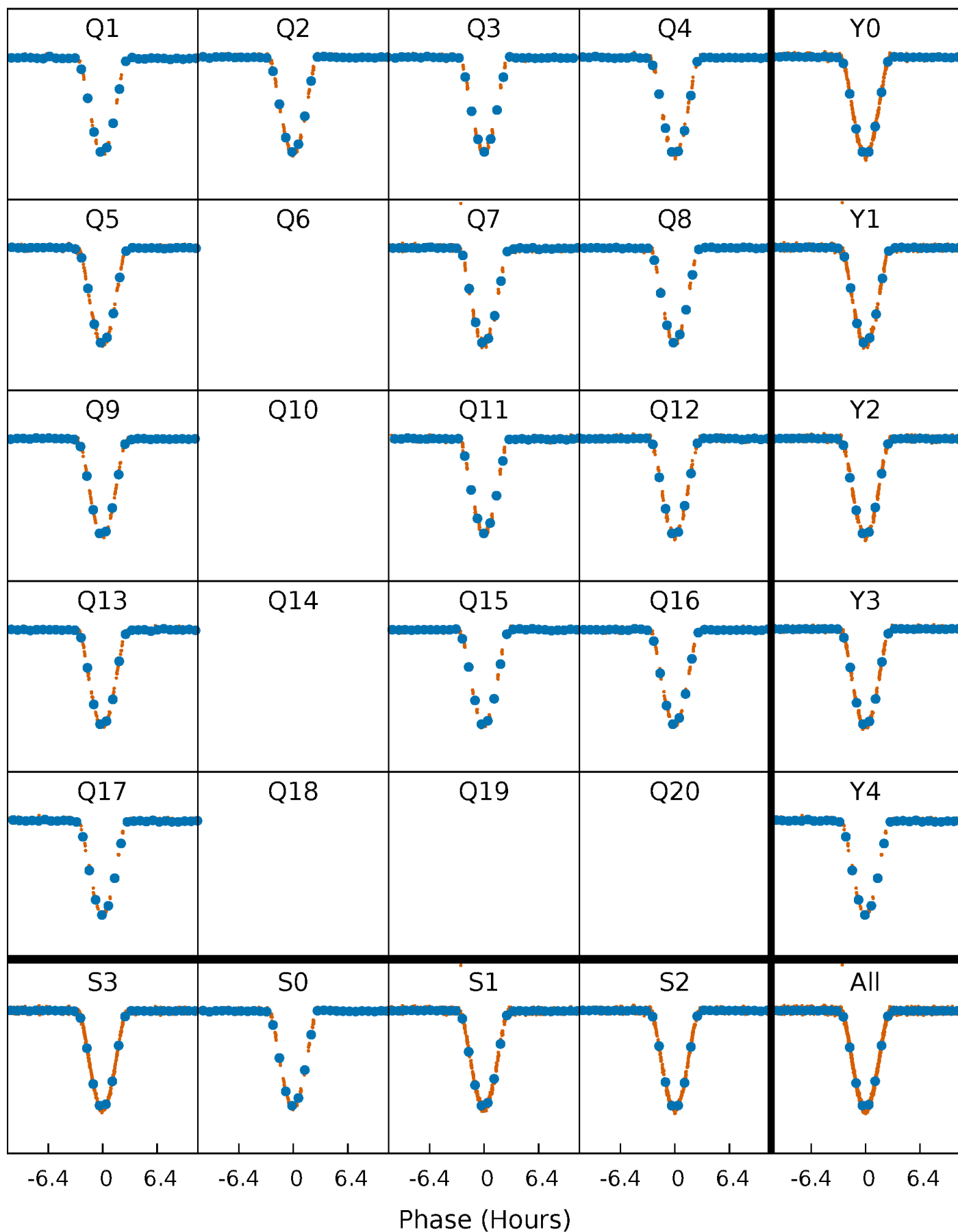


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



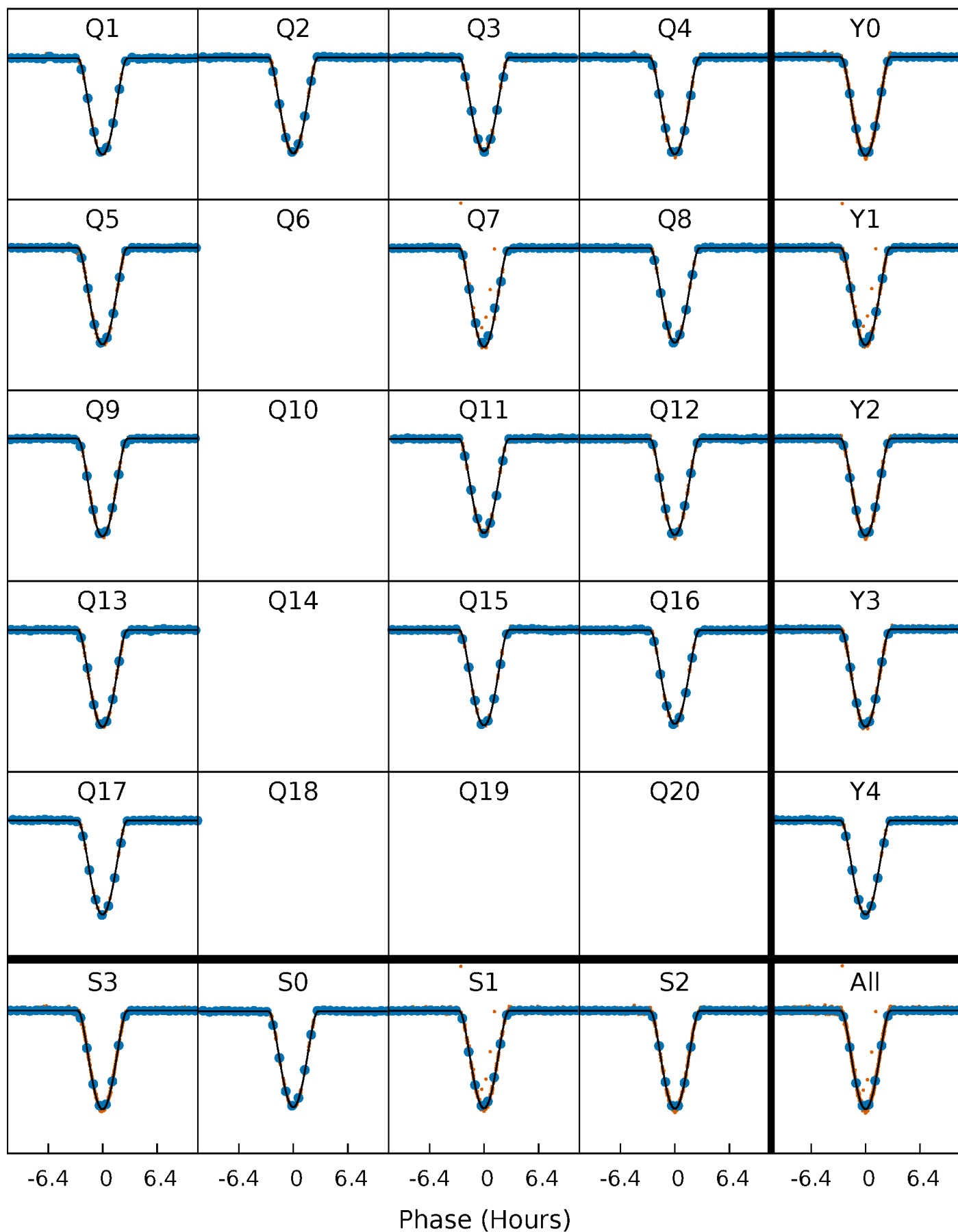
PDC Quarter-Phased Transit Curves

TCE 005115178-02 P= 12.851719 Days $T_0=137.553001$ (BKJD)



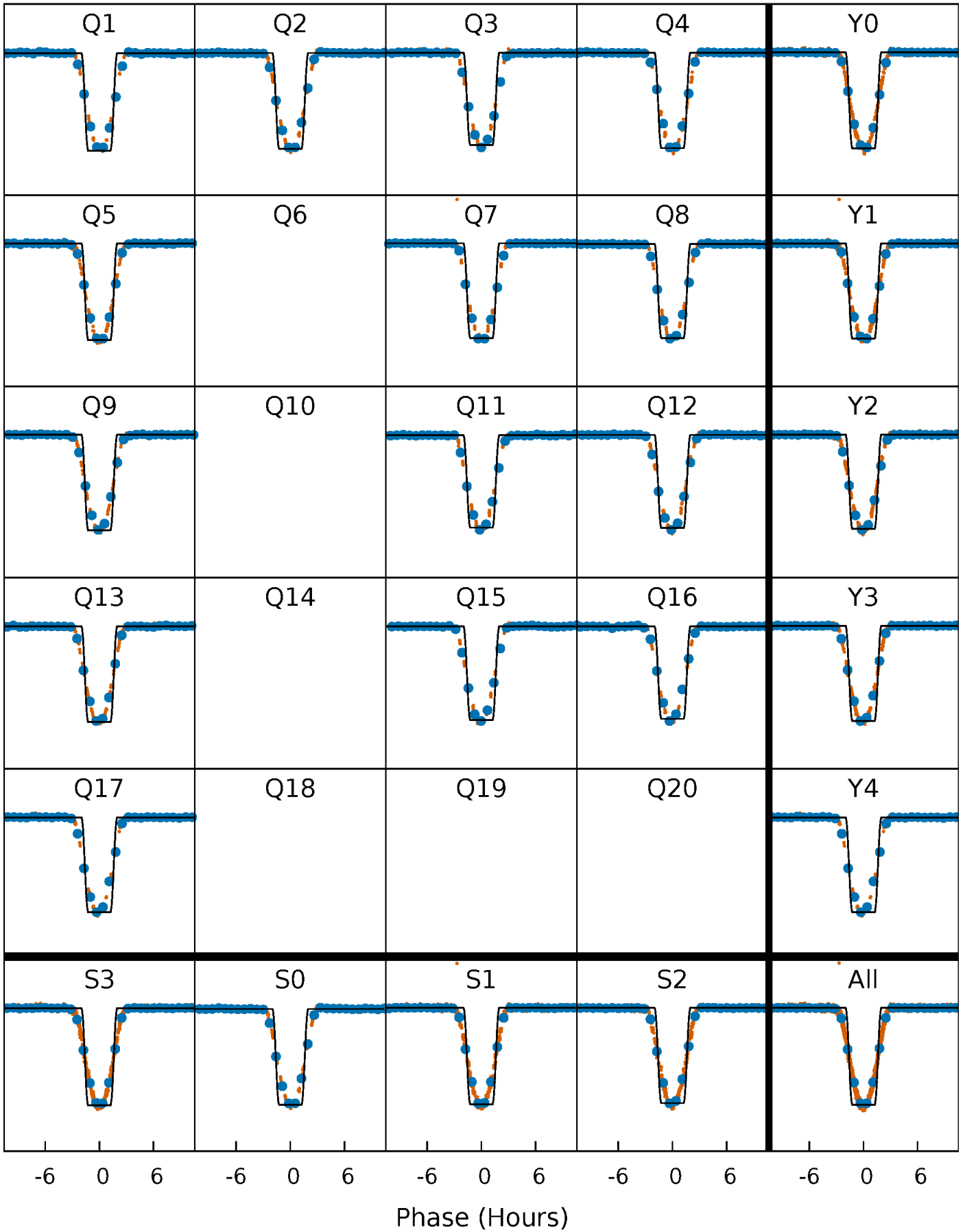
DV Quarter-Phased Transit Curves

TCE 005115178-02 P= 12.851719 Days $T_0=137.553001$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

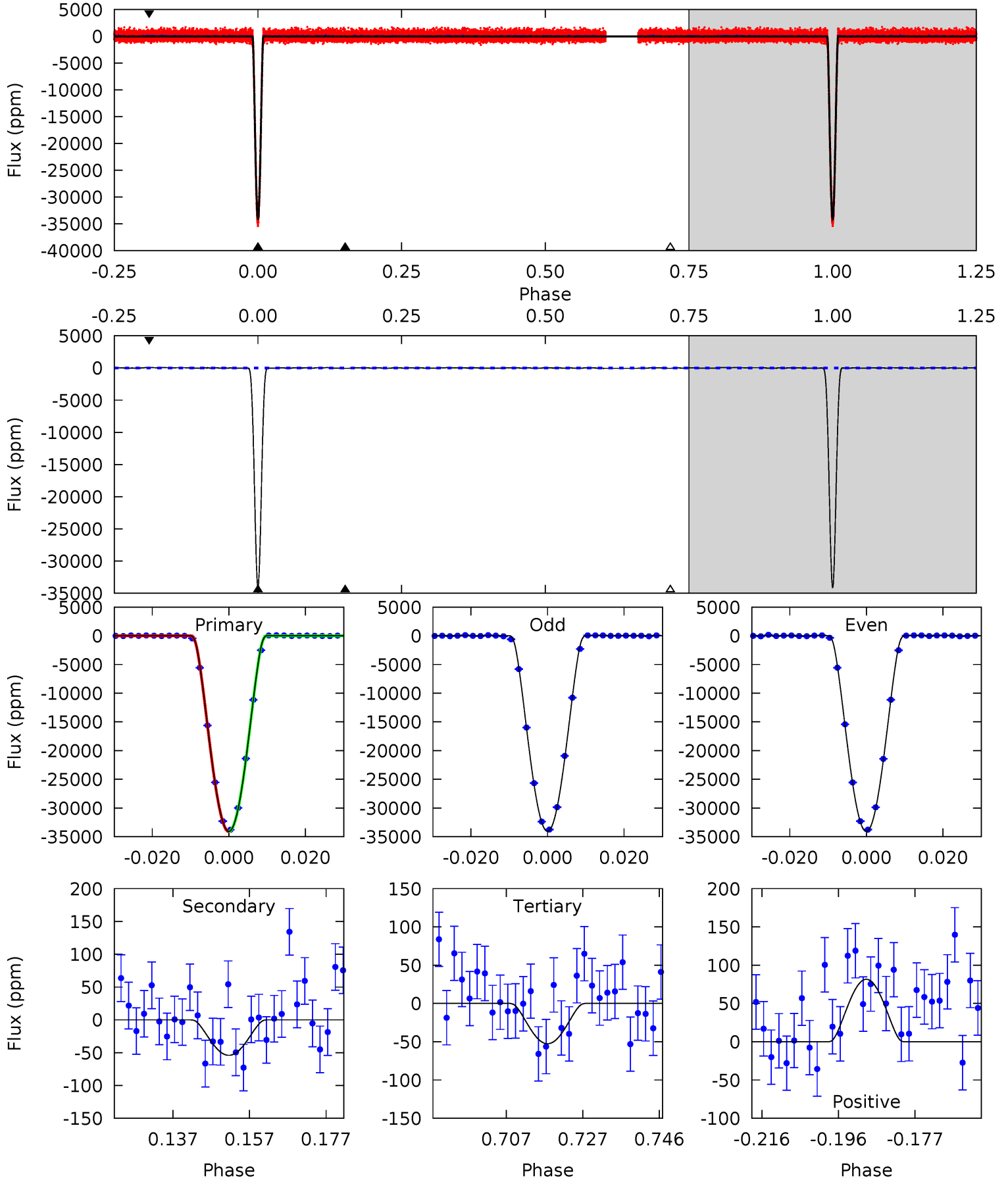
TCE 005115178-02 P= 12.851796 Days $T_0=137.548978$ (BKJD)



DV Model-Shift Uniqueness Test

005115178-02, P = 12.851719 Days, E = 124.701282 Days

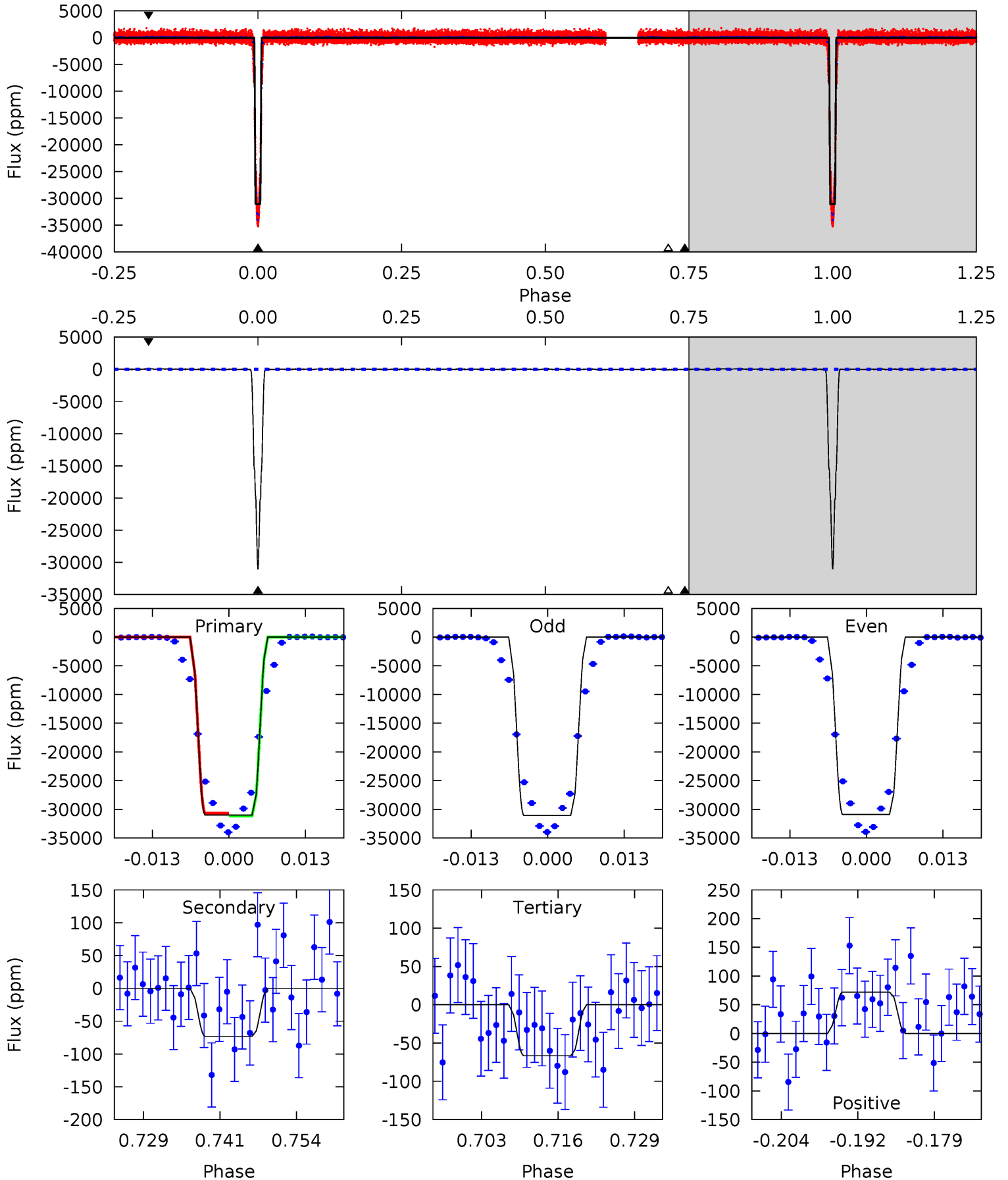
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2632	4.17	4.06	6.30	4.90	2.33	1.90	2628	2626	0.11	-2.13	1.12	1.00	0.00	1.10



Alt Model-Shift Uniqueness Test

005115178-02, P = 12.851796 Days, E = 124.697182 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1621	3.82	3.48	3.76	4.98	2.49	1.27	1618	1618	0.35	0.07	3.68	1.00	0.00	13.5



Stellar Parameters For KIC 005115178

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5838^{+158}_{-194}	$4.438^{+0.098}_{-0.196}$	$-0.160^{+0.300}_{-0.300}$	$0.967^{+0.282}_{-0.121}$	$0.936^{+0.132}_{-0.099}$	$1.458^{+0.628}_{-0.705}$
	+3%/-3%	+2%/-4%	+188%/-188%	+29%/-13%	+14%/-11%	+43%/-48%
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 005115178-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-54 ± 13	$28.59^{+4.74}_{-2.57}$	1100^{+77}_{-60}	1693^{+150}_{-3284}	$0.378^{+0.140}_{-0.110}$
Alt.	-73 ± 19	$19.63^{+3.02}_{-1.96}$	1097^{+78}_{-56}	2126^{+90}_{-105}	$1.117^{+0.434}_{-0.368}$

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

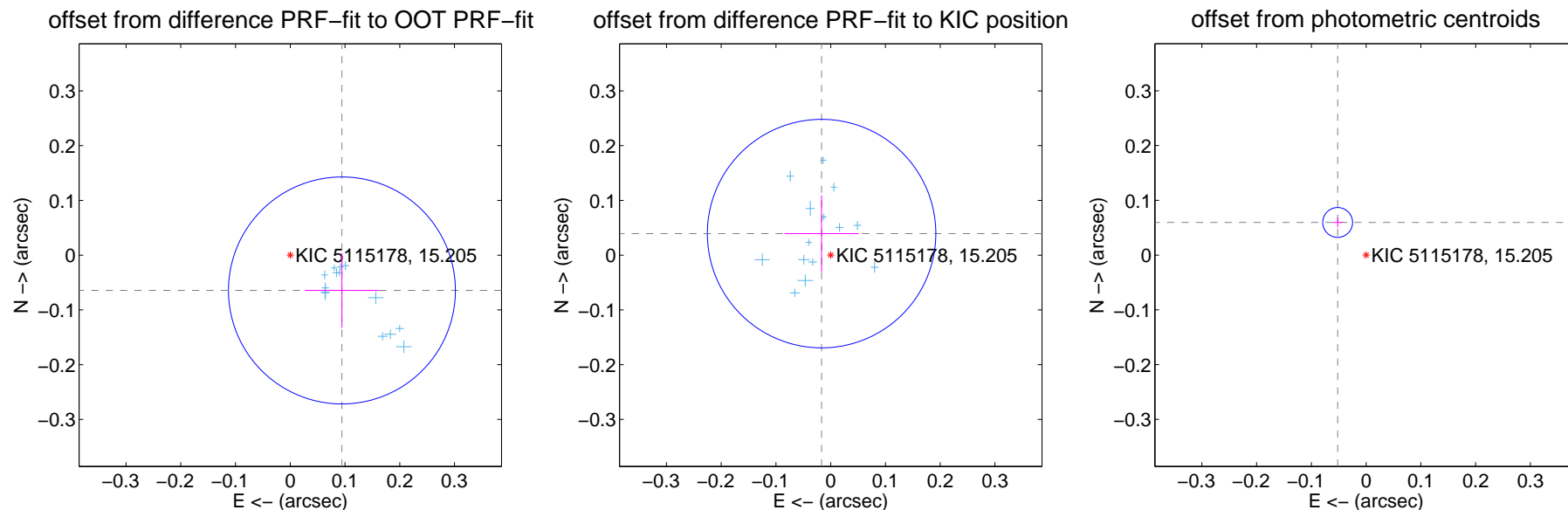
DV Centroid Data

Supplemental centroid analysis for 005115178-02. Kepler magnitude: 15.21. Transit SNR 1399.54

There are 14 quarters with good PRF difference image offsets

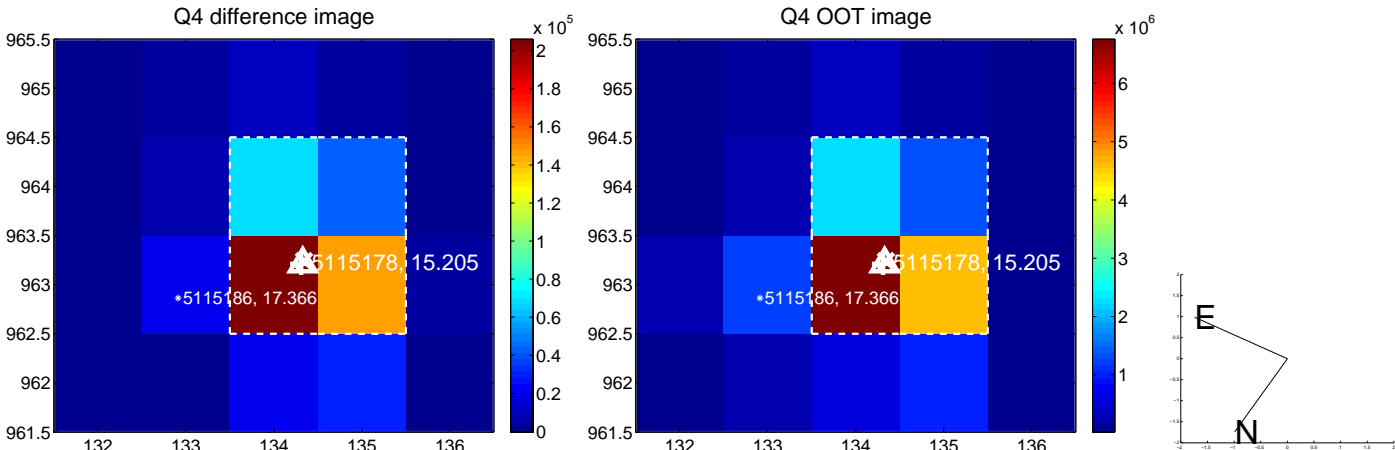
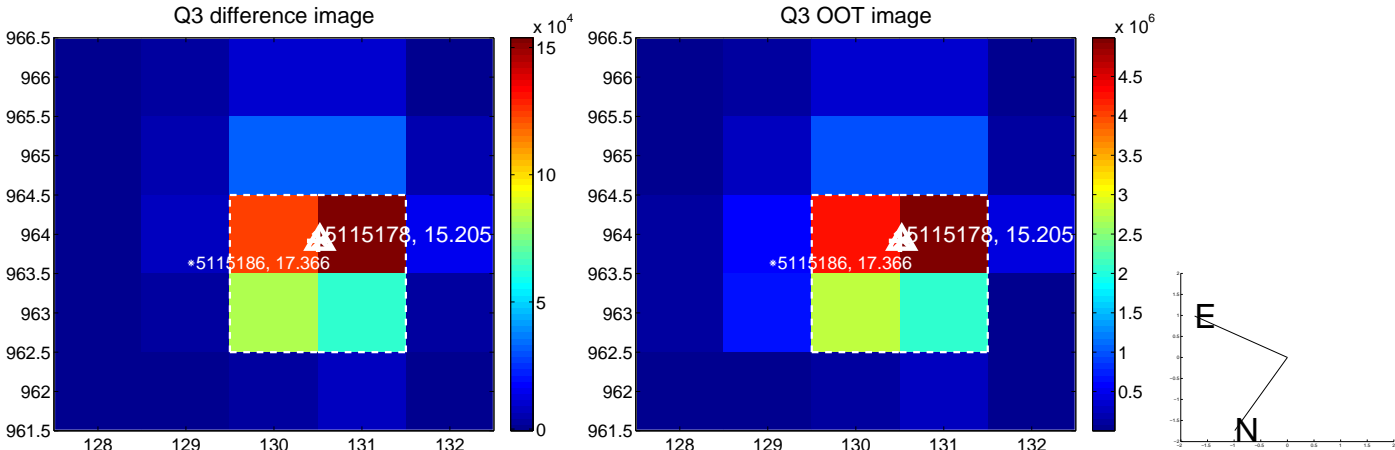
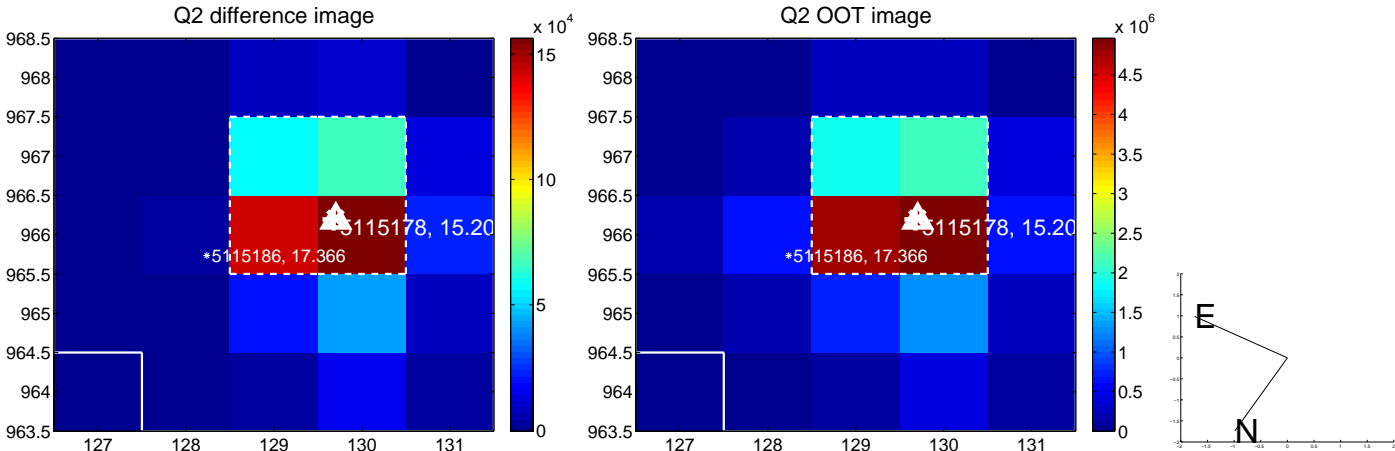
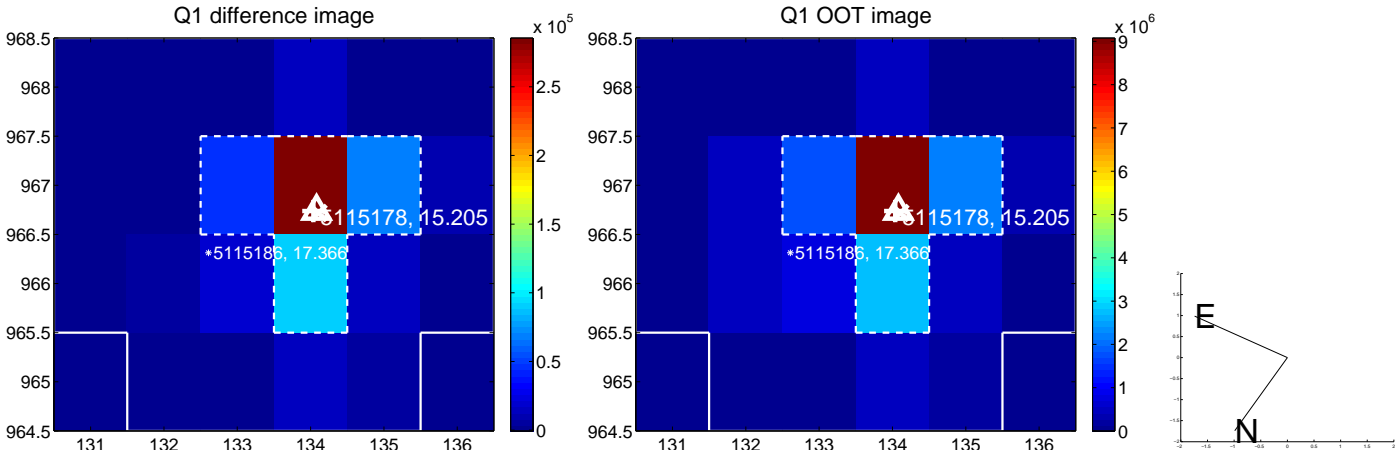
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.114 ± 0.069	1.65	-0.094 ± 0.068	-0.064 ± 0.068
PRF-fit source offset from KIC position	0.043 ± 0.070	0.61	0.017 ± 0.068	0.039 ± 0.070
photometric centroid source offset	0.08 ± 0.01	8.72	0.05 ± 0.01	0.06 ± 0.01

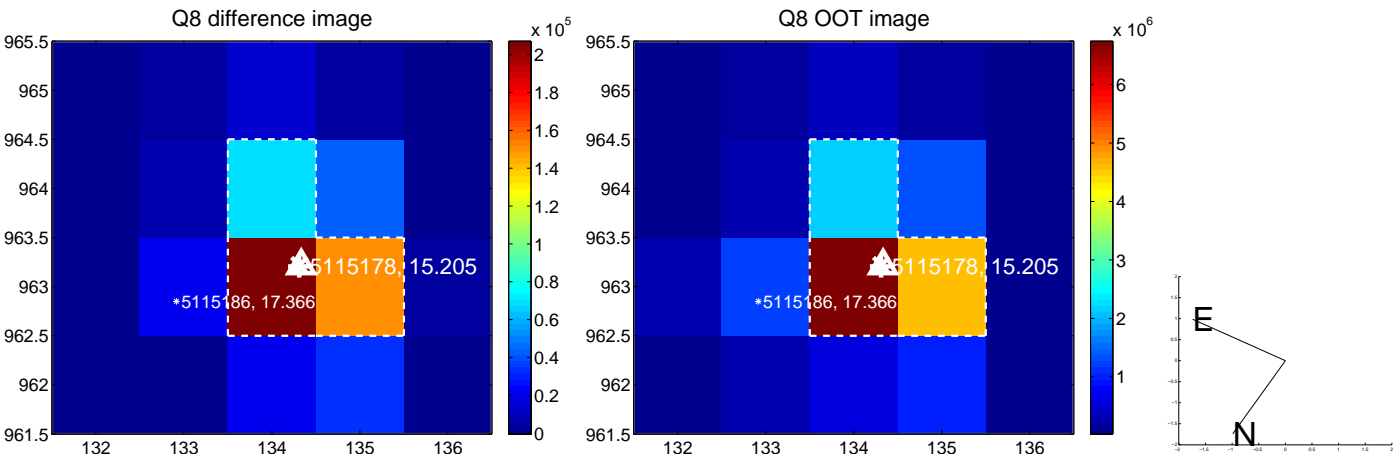
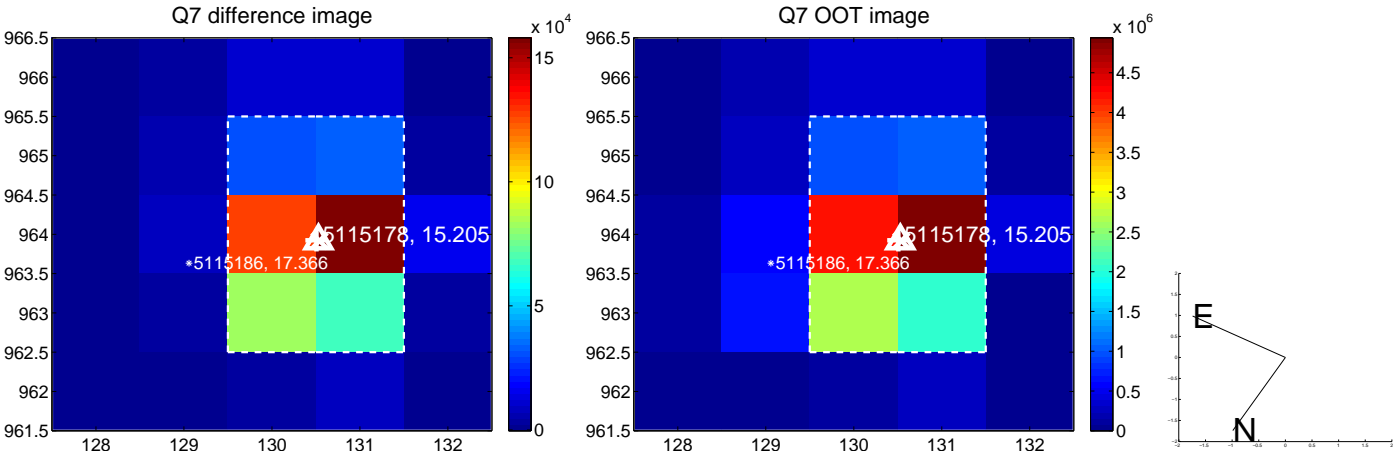
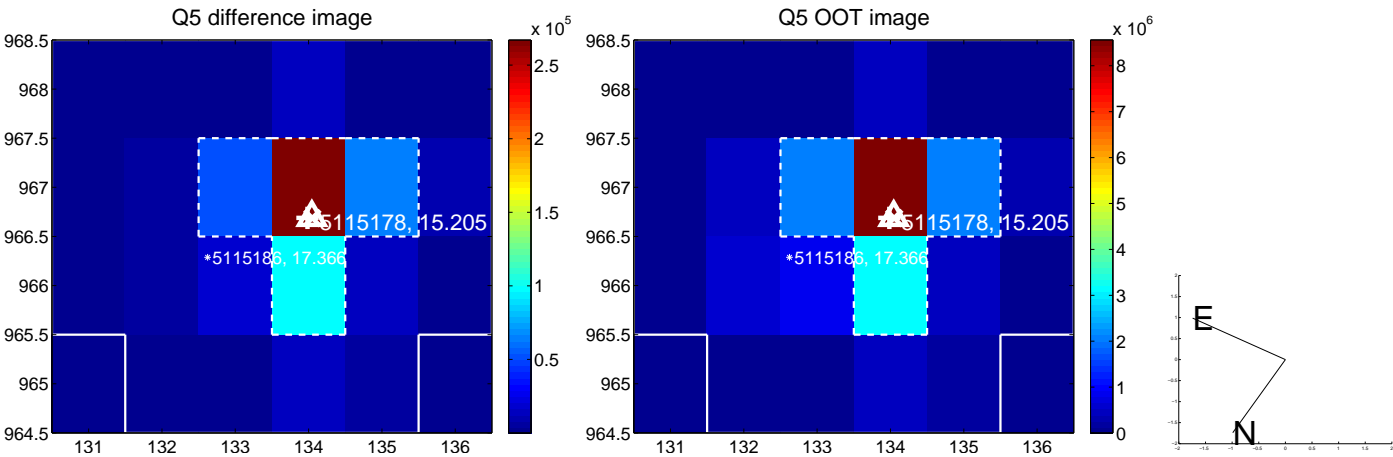


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

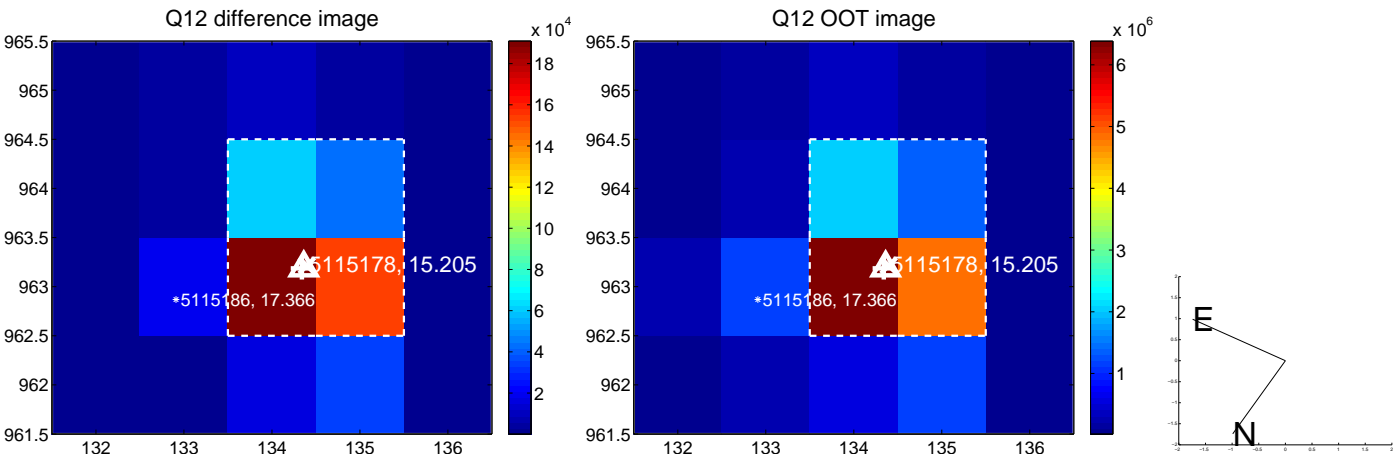
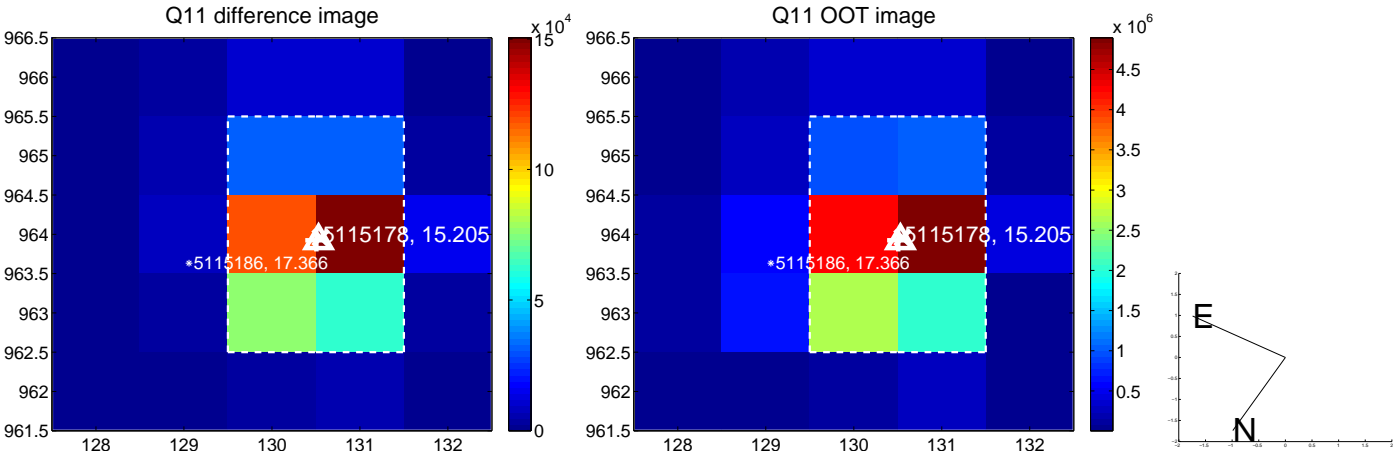
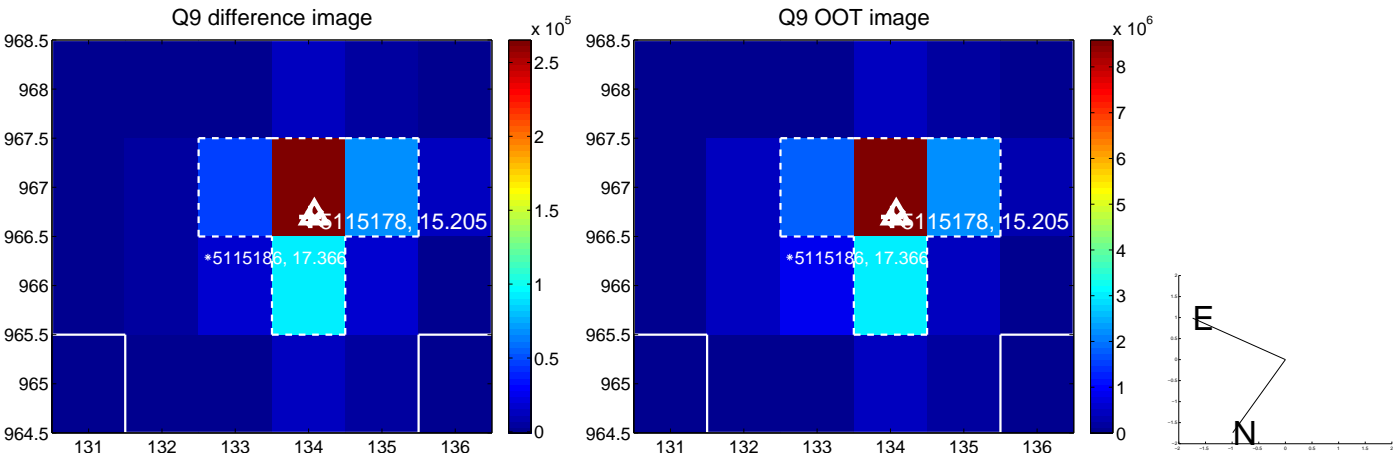
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



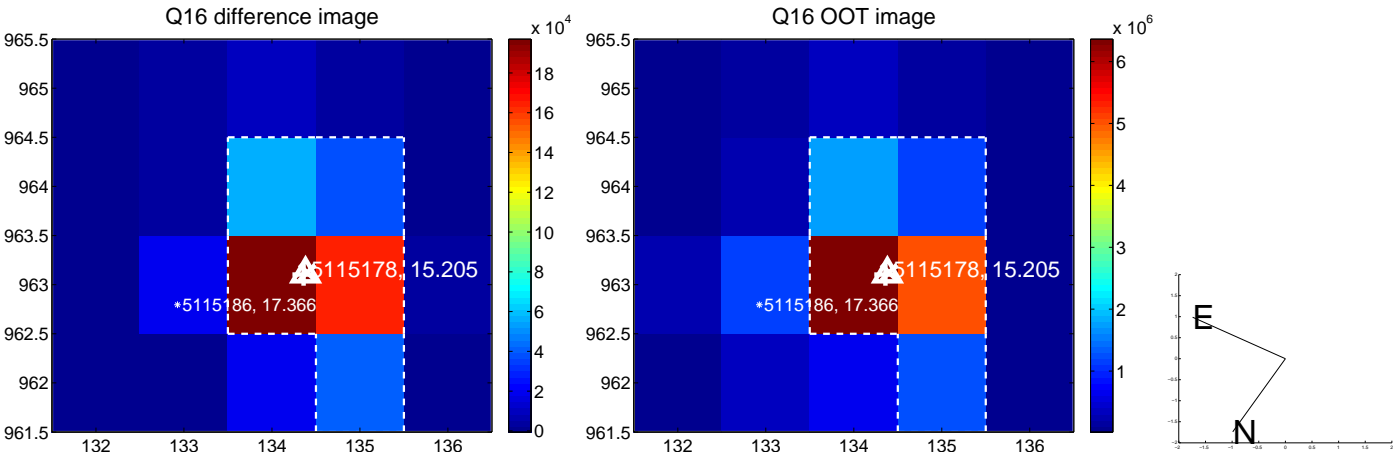
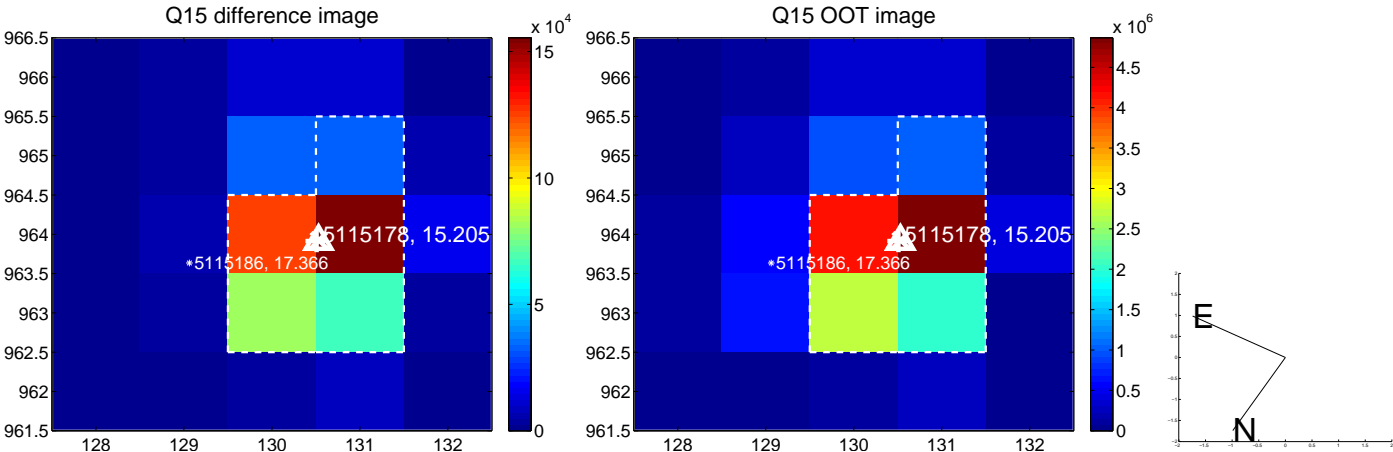
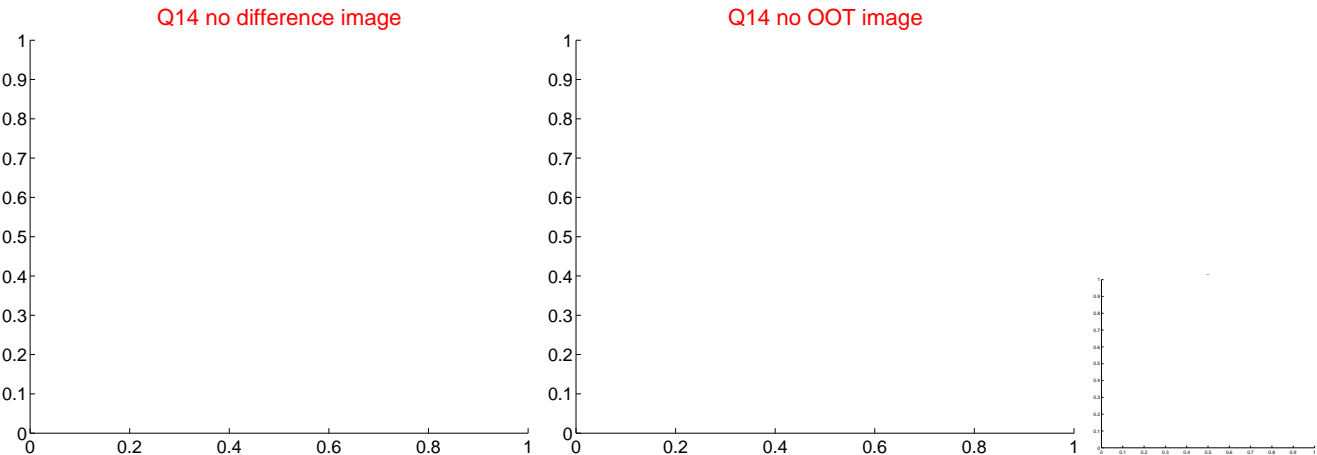
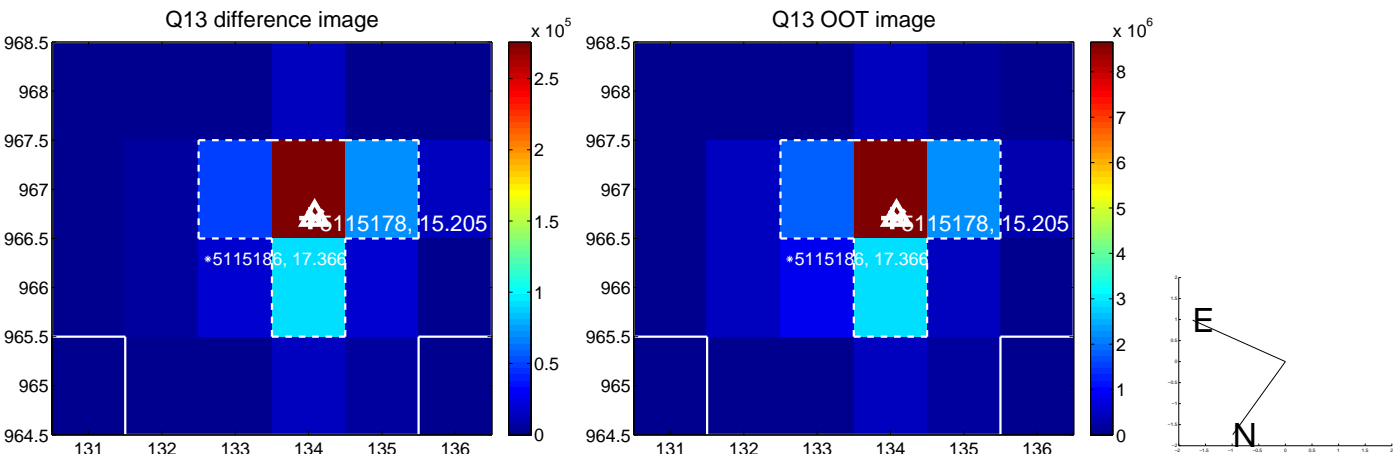
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



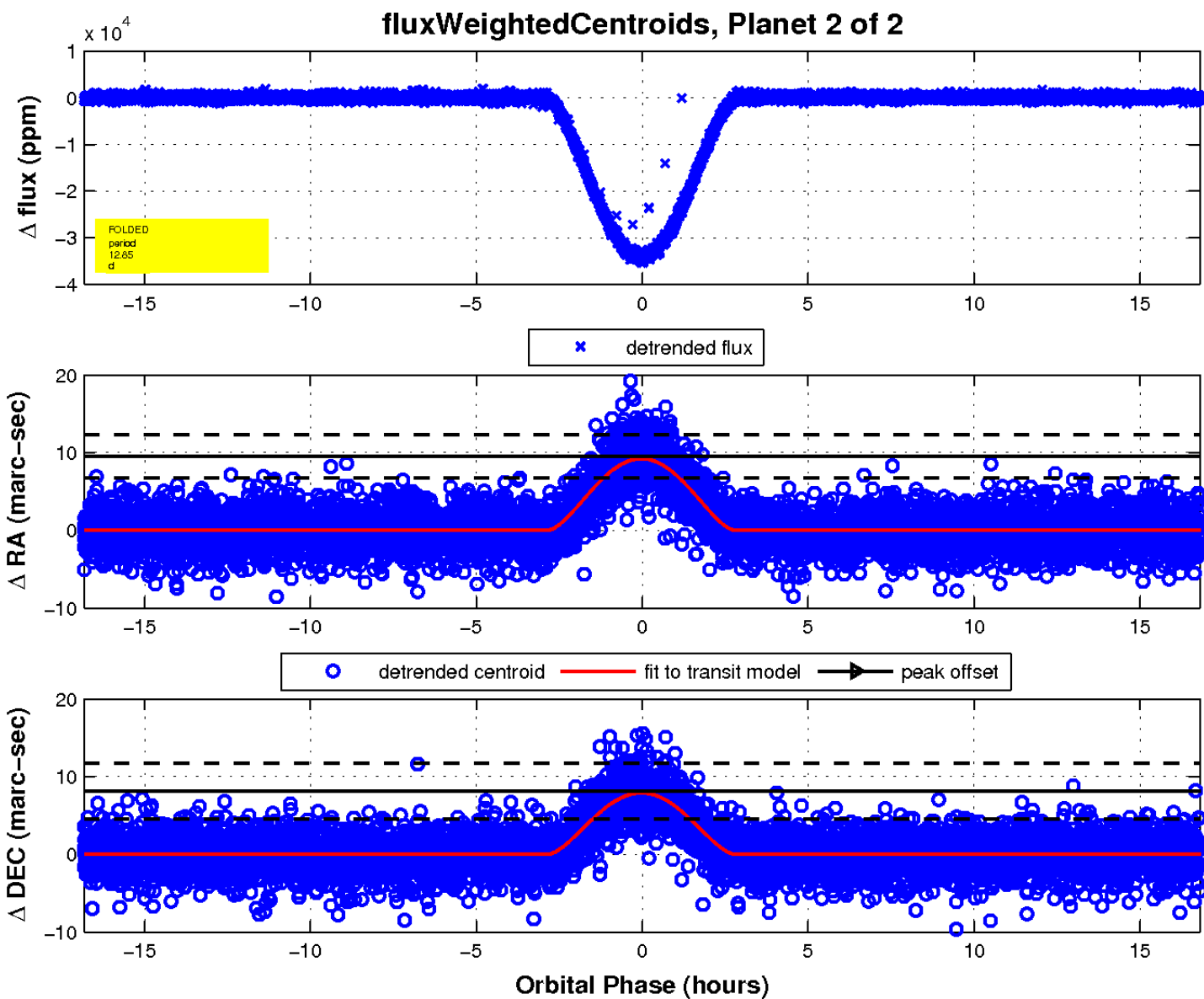
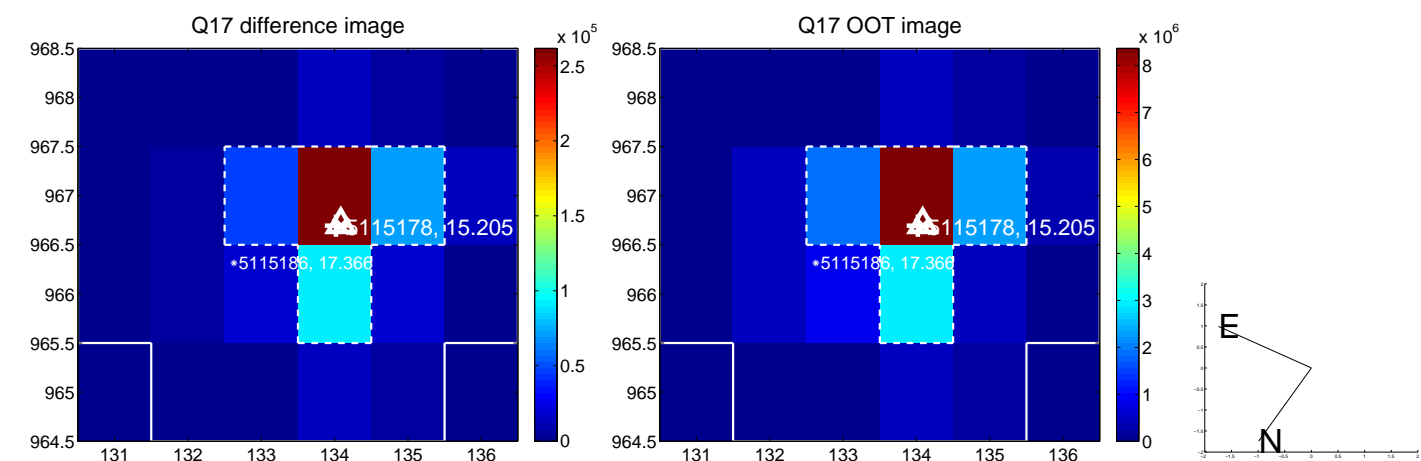
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

