

KIC 003644542

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})
003644542-01	OBS	3511.01	119.679826	154.546961	253861.6	17.671	44243.6	22777.3	3.25	8275	170.14	121.70
003644542-02	OBS	No	119.679361	176.103833	295683.4	15.000	40010.3	-1.0	3.25	8275	70.82	121.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003644542-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—HAS_SEC_TCE—CENT_SATURATED
003644542-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED

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 003644542-01

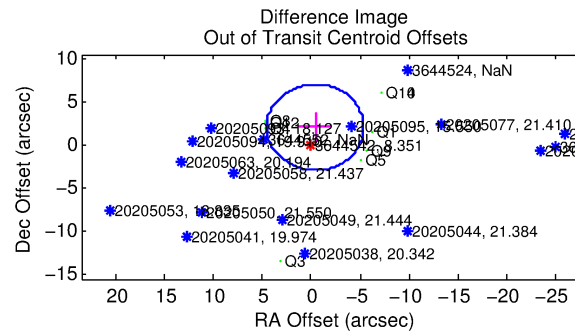
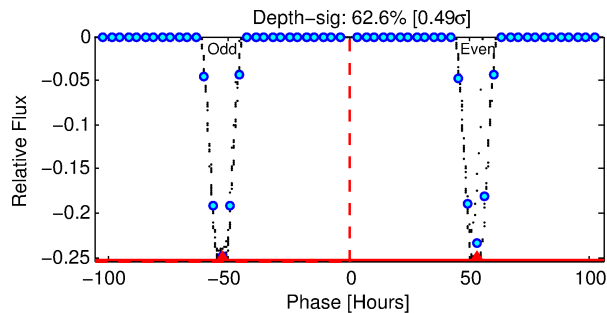
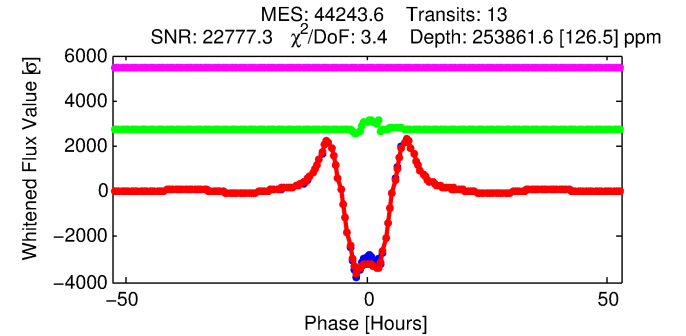
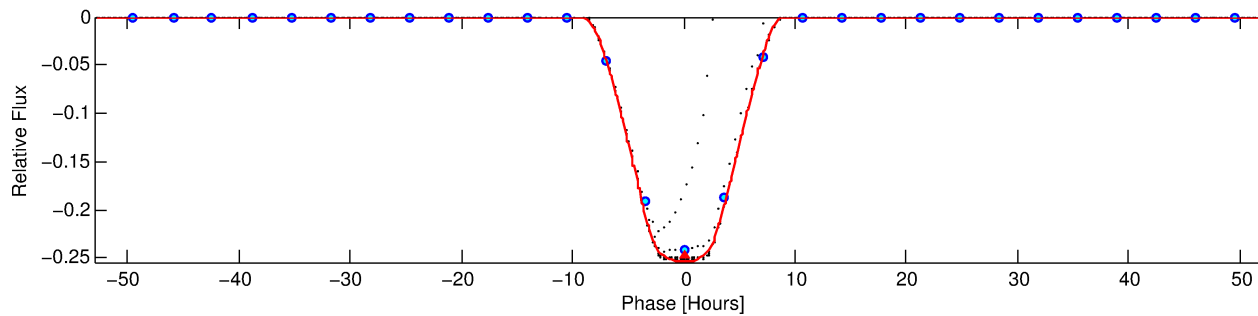
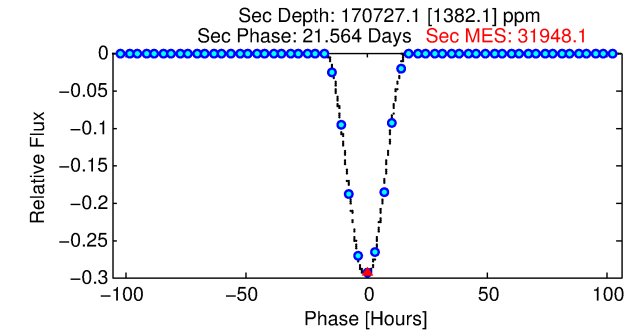
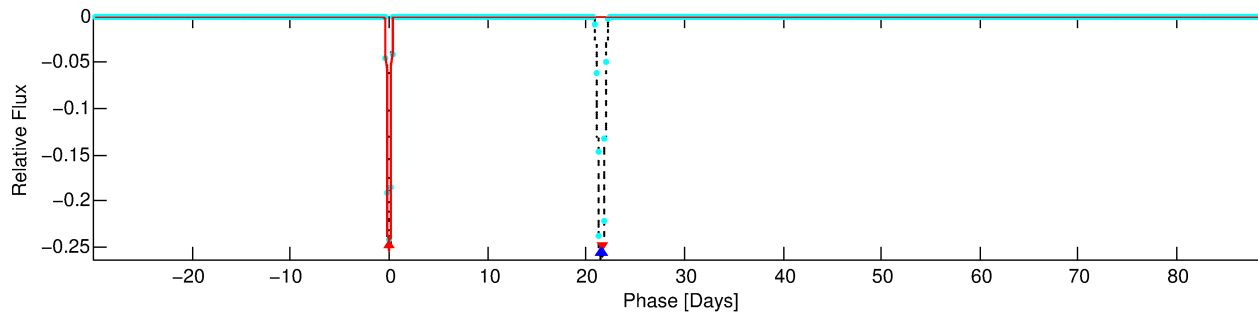
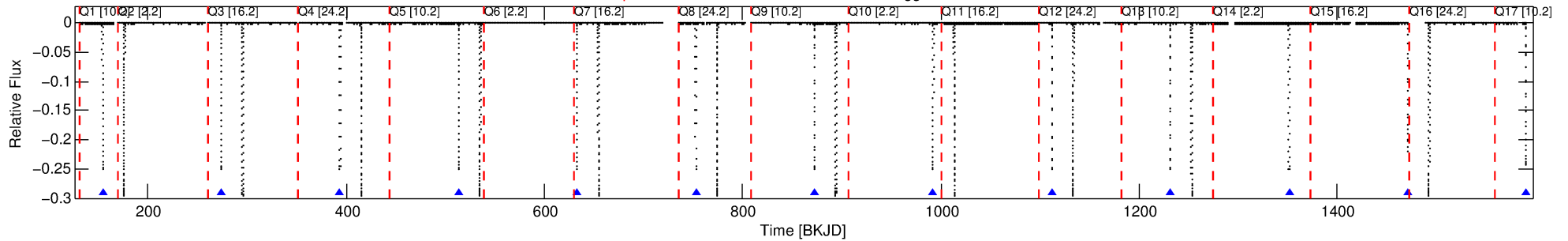
No Significant Match Found

DV One-Page Summary

KIC: 3644542 Candidate: 1 of 2 Period: 119.680 d

KOI: K03511 Corr: No Ephemeris Match

Kp: 8.35 R*: 3.25 Rs Teff: 8275.0 K Logg: 3.73 Fe/H: -0.080



DV Fit Results:

Period = 119.67983 [0.00001] d
Epoch = 154.5470 [0.0001] BKJD
Rp/R* = 0.4796 [0.0001]
a/R* = 74.20 [0.02]
b = 0.36 [0.00]
Seff = 121.70 [84.89]
Teq = 847 [148] K
Rp = 170.14 [77.45] Re
a = 0.6040 [0.2581] AU
Ag = 1183.82 [797.89] [1.48σ]
Teffp = 7681 [346] K [18.18σ]

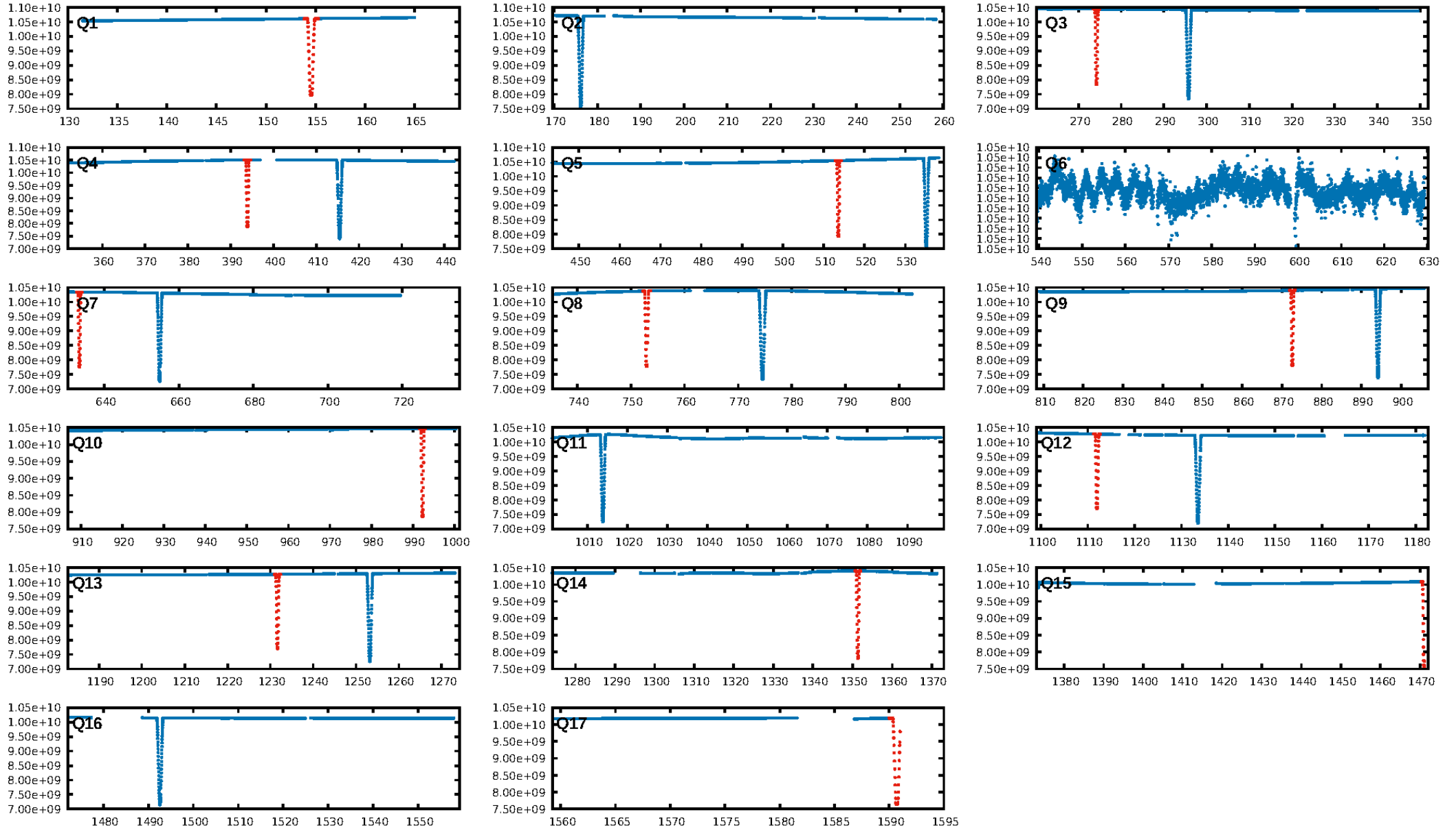
DV Diagnostic Results:

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 [11/11]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 1.240 arcsec [2001.09σ]
OotOffset-rm: 2.102 arcsec [1.27σ]
OotOffset-st: 2/1/3/3 [9]
KicOffset-rm: 5.109 arcsec [2.21σ]
KicOffset-st: 2/1/3/3 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 1.00 [9/9]

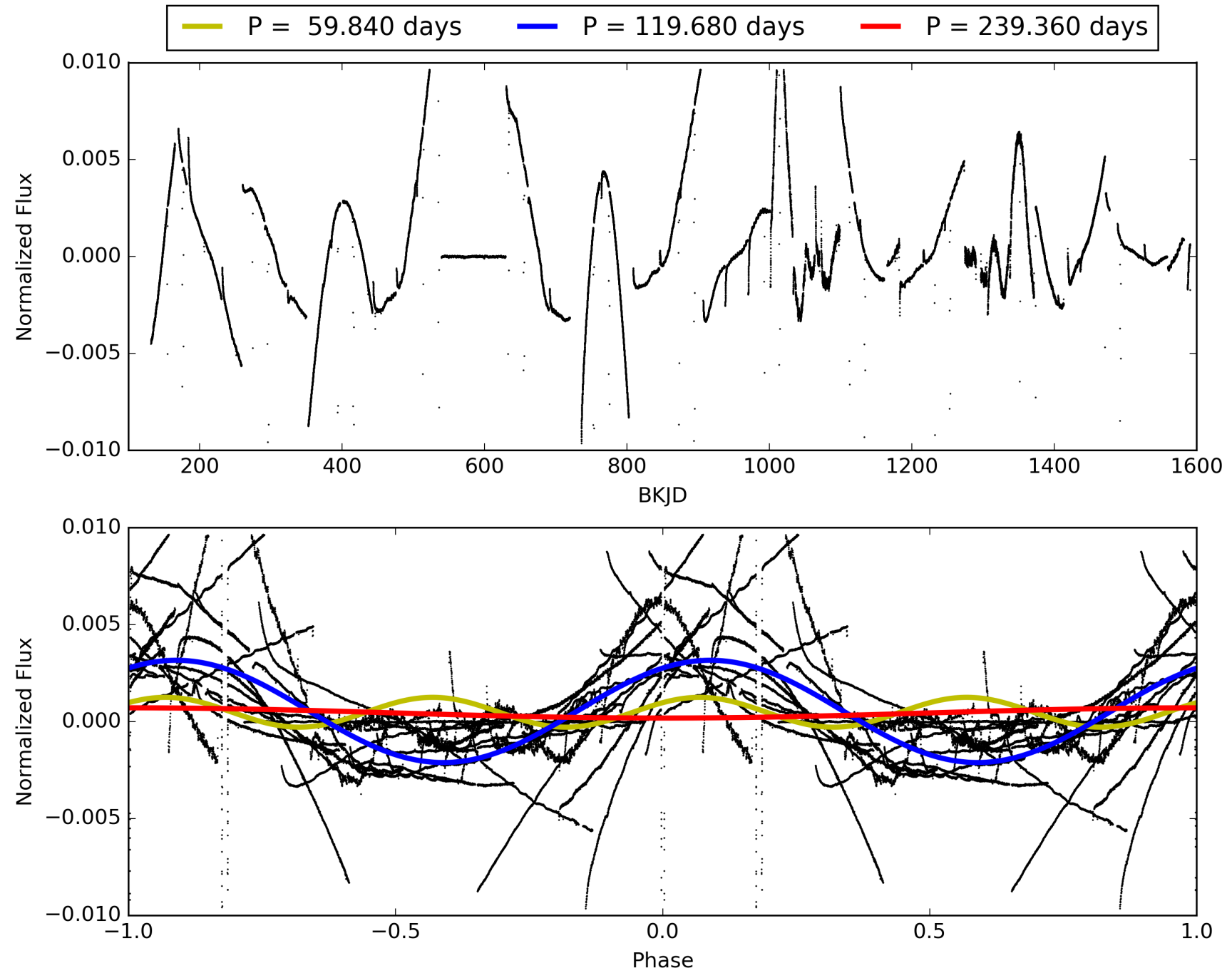
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:12:06 Z

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

TCE 003644542-01, PDC Light Curves

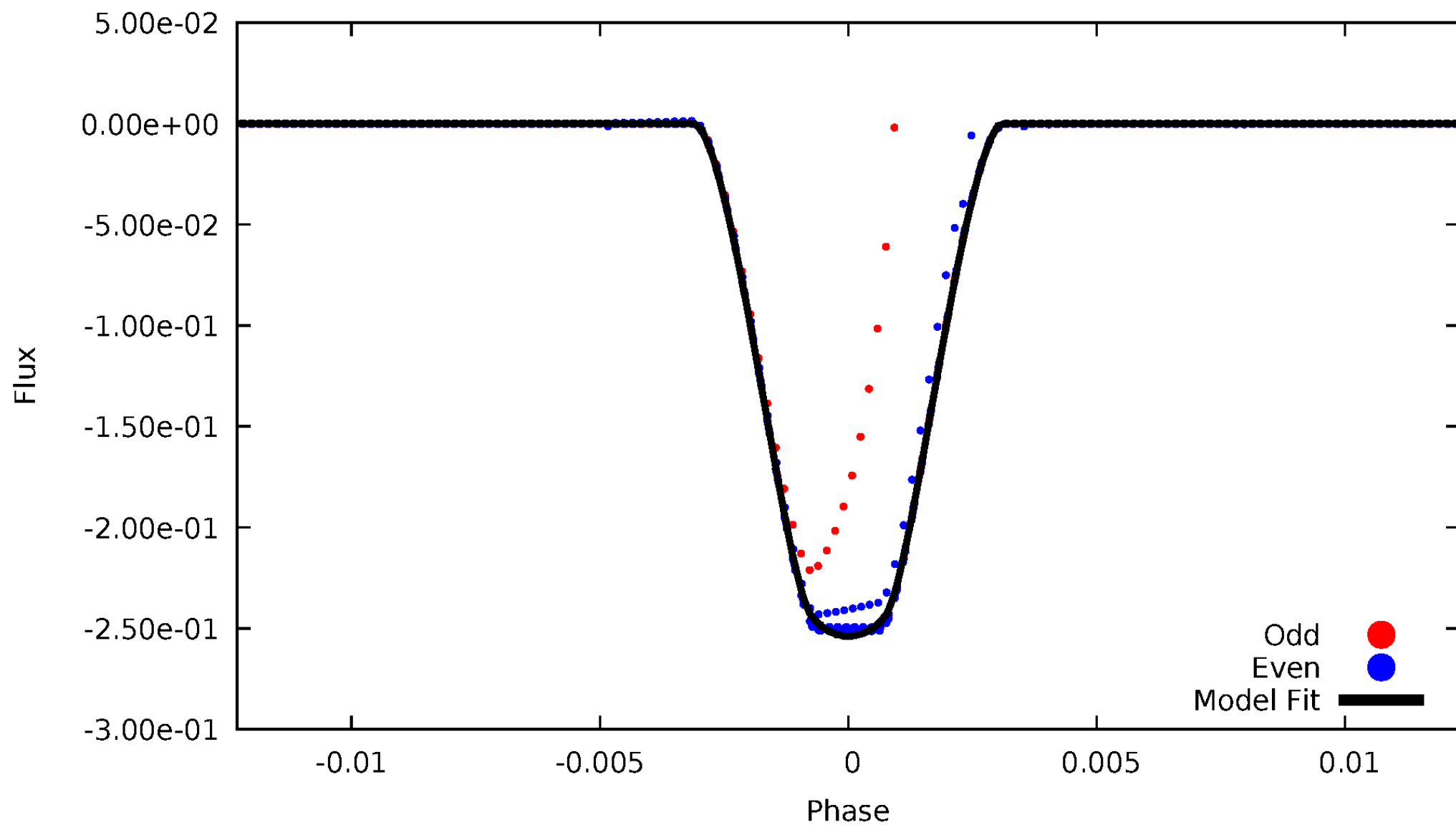


TCE 003644542-01



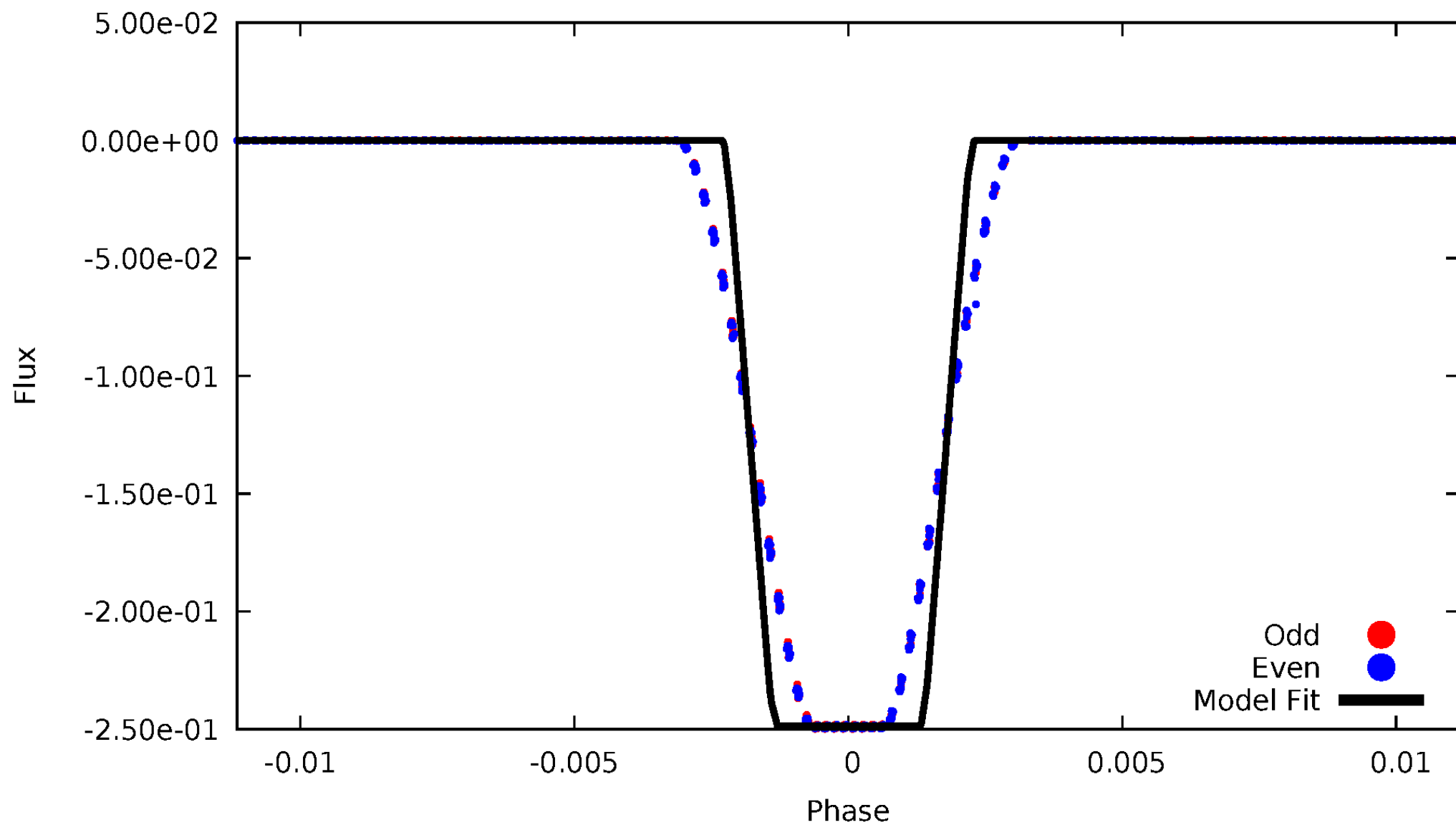
DV Odd/Even

TCE 003644542-01



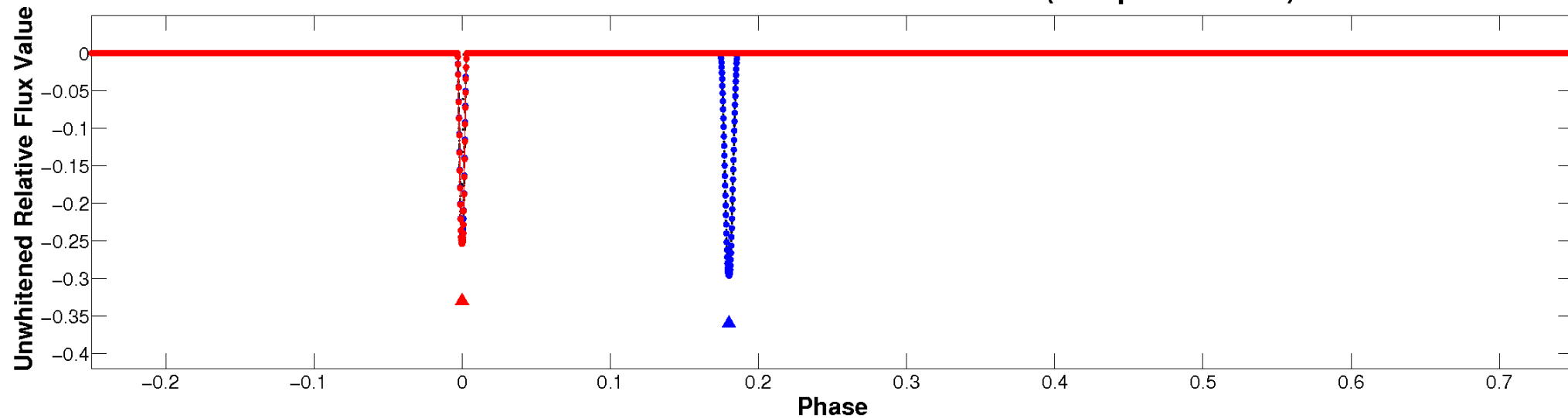
ALT Odd/Even

TCE 003644542-01

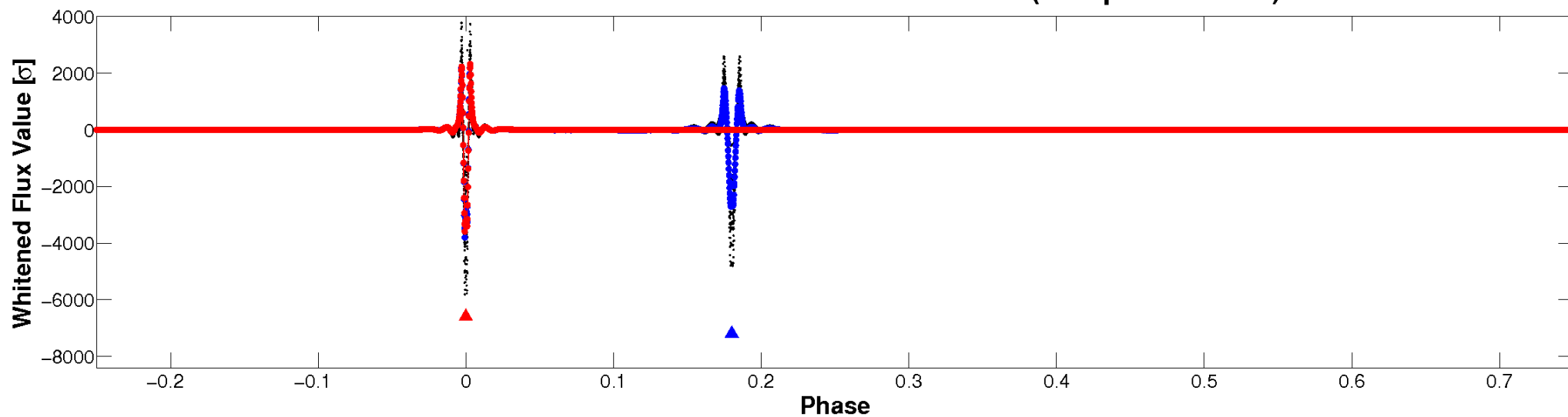


Non-Whitened Vs. Whitened Light Curve

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

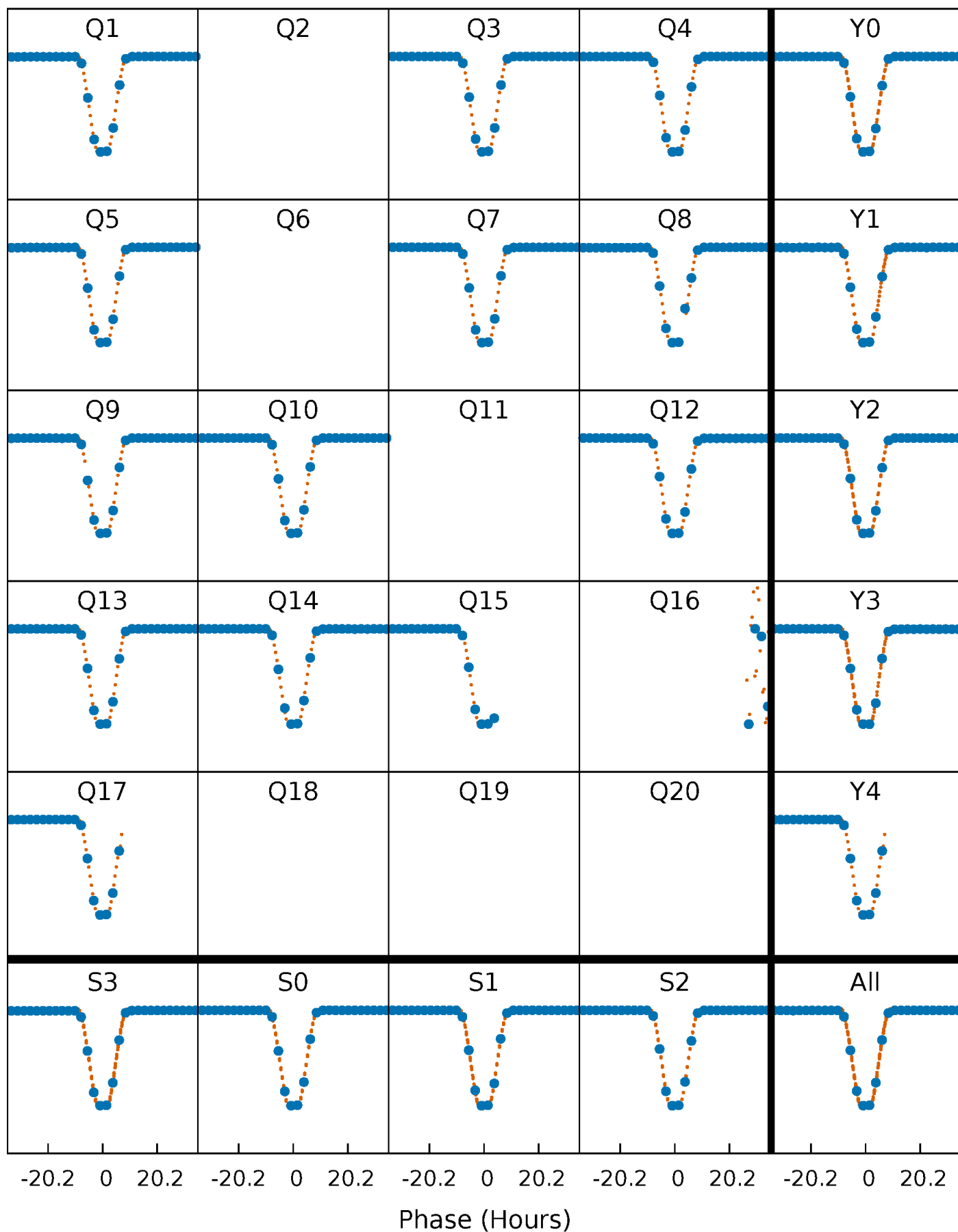


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



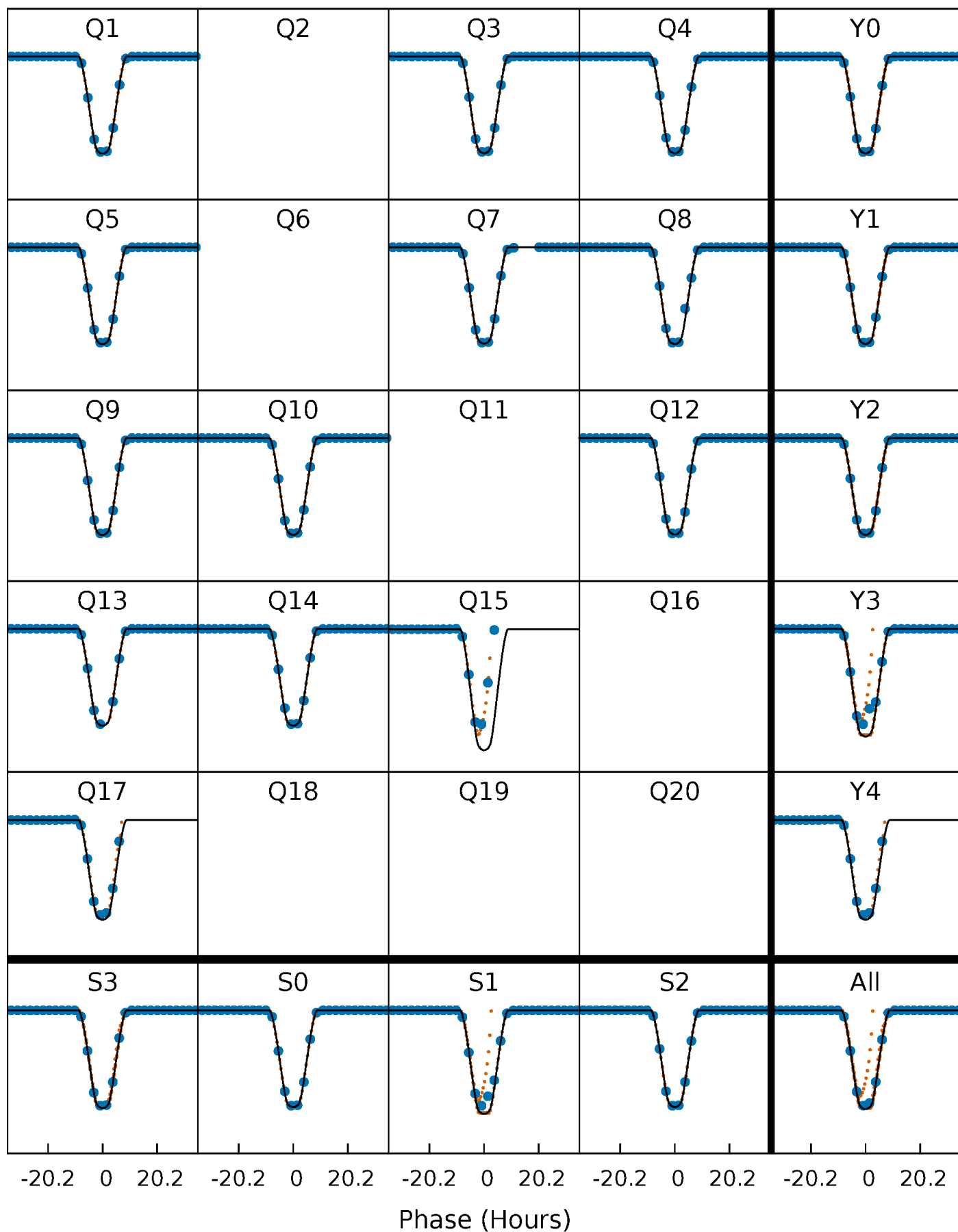
PDC Quarter-Phased Transit Curves

TCE 003644542-01 P=119.679826 Days $T_0=154.546961$ (BKJD)



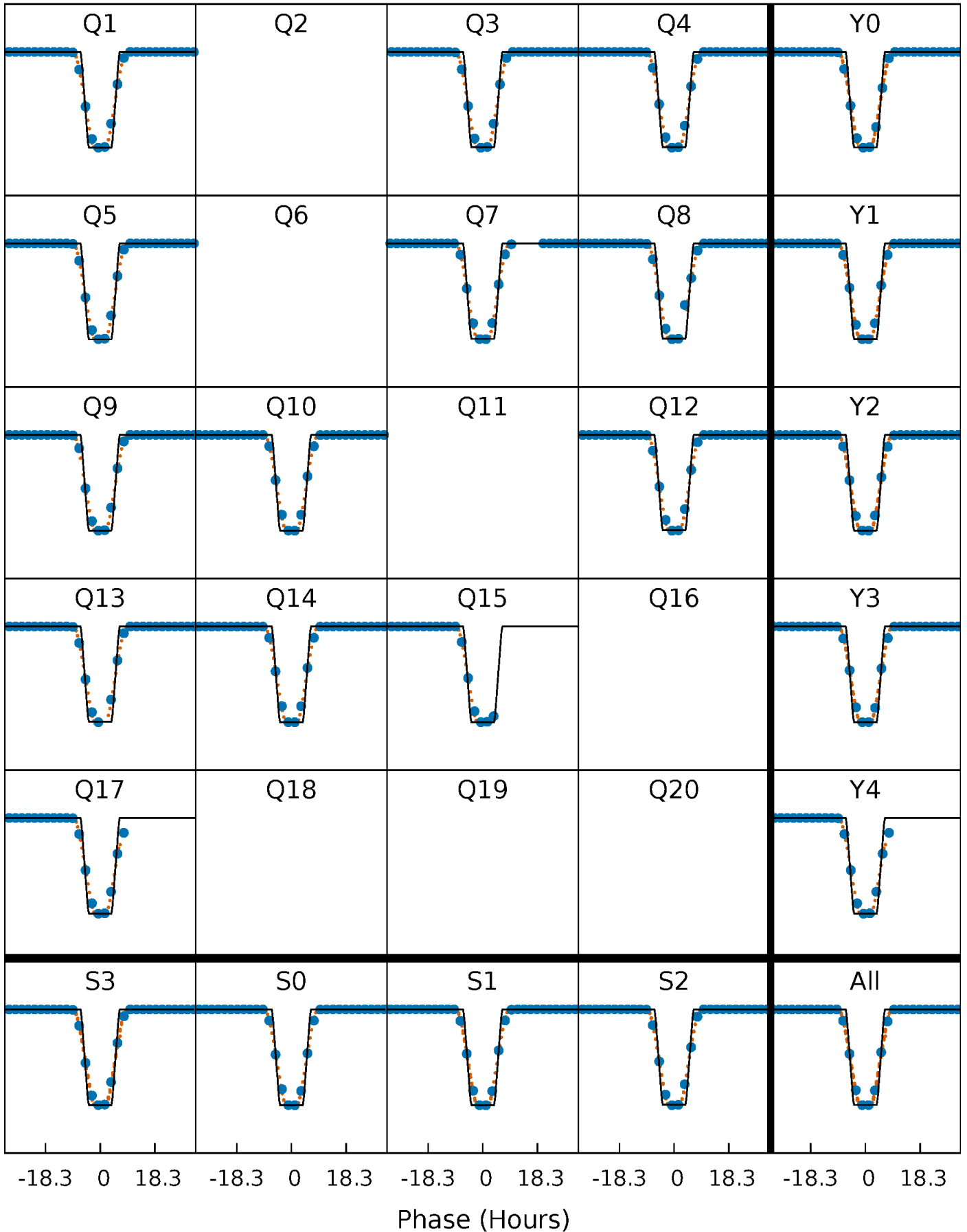
DV Quarter-Phased Transit Curves

TCE 003644542-01 P=119.679826 Days $T_0=154.546961$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

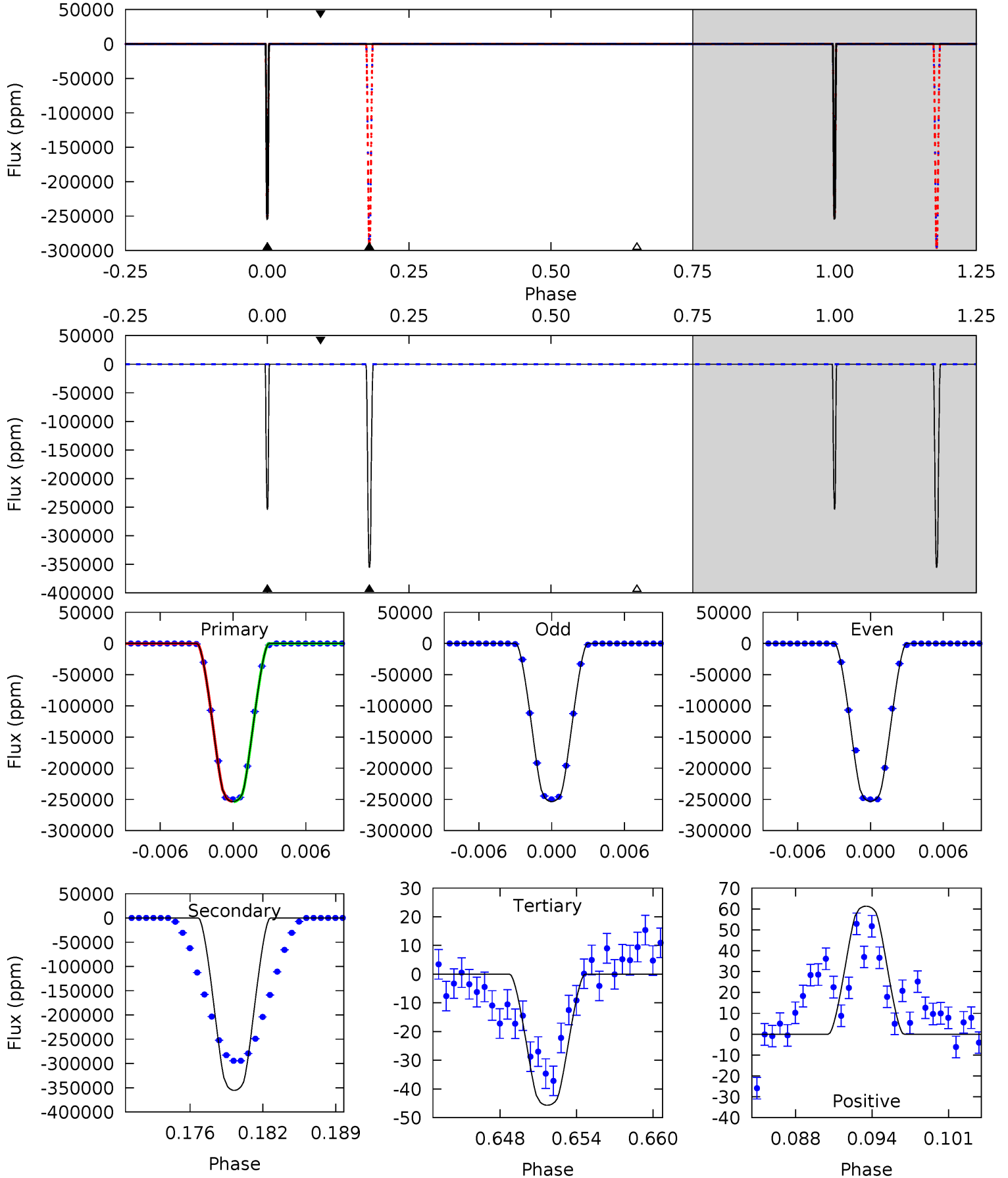
TCE 003644542-01 P=119.679361 Days $T_0=154.549736$ (BKJD)



DV Model-Shift Uniqueness Test

003644542-01, P = 119.679826 Days, E = 34.867135 Days

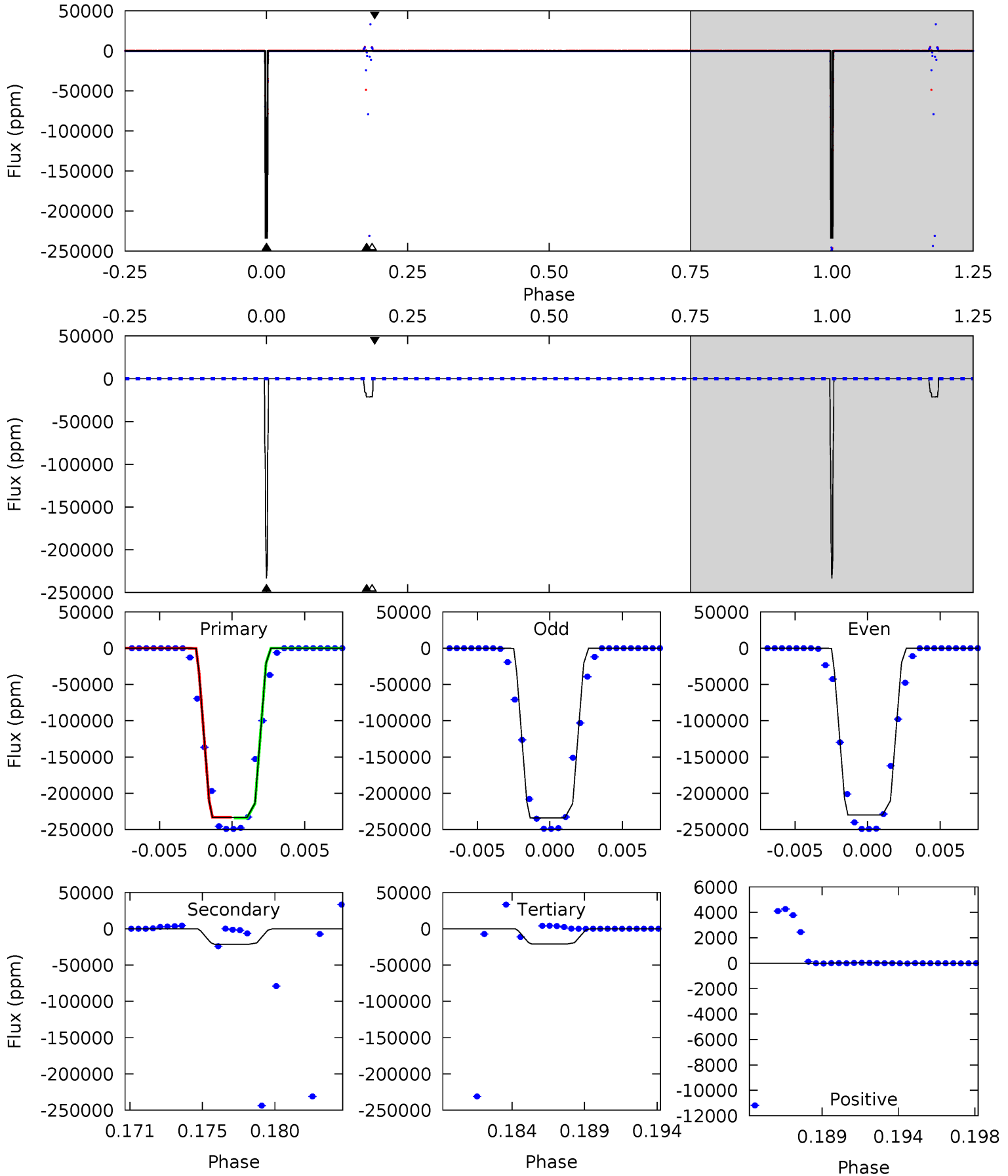
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
76451	1.1E5	13.8	18.5	5.11	2.73	22.8	76437	76433	1.1E5	1.1E5	40.6	0.97	0.00	0



Alt Model-Shift Uniqueness Test

003644542-01, P = 119.679361 Days, E = 34.870375 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1652	150.9	149.2	0.23	5.17	2.83	2.29	1503	1652	1.67	150.7	10.6	1.00	0.01	0



Stellar Parameters For KIC 003644542

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8275^{+229}_{-372}	$3.726^{+0.392}_{-0.140}$	$-0.080^{+0.300}_{-0.400}$	$3.251^{+0.987}_{-1.480}$	$2.053^{+0.404}_{-0.449}$	$0.084^{+0.304}_{-0.036}$
	+3%/-4%	+11%/-4%	+375%/-500%	+30%/-46%	+20%/-22%	+361%/-43%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003644542-01 / KOI 3511.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-355193 ± 3	$165.88^{+29.19}_{-37.88}$	1154^{+105}_{-133}	11281^{+376}_{-667}	4046^{+2336}_{-981}
Alt.	-21309 ± 141	$175.22^{+26.18}_{-44.39}$	1158^{+92}_{-154}	4531^{+85}_{-126}	147^{+98}_{-35}

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

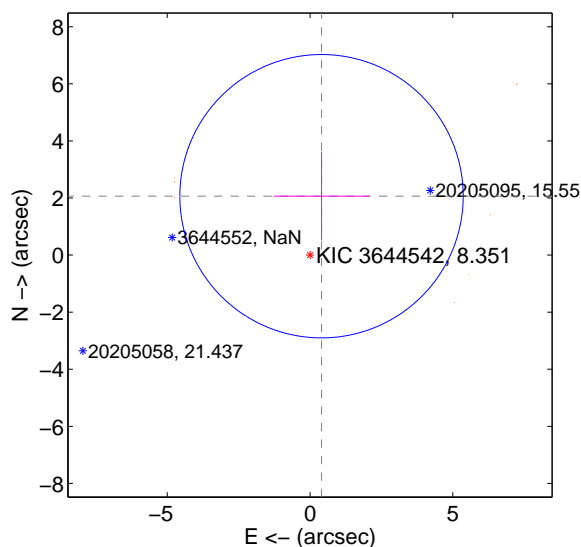
Supplemental centroid analysis for 003644542-01. **Kepler magnitude: 8.35.** Transit SNR 22777.35

There are 0 quarters with good PRF difference image offsets

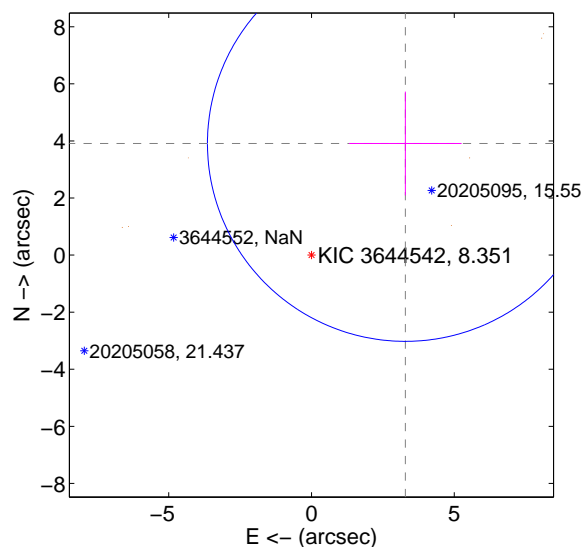
The direct PRF centroid is offset from the target star catalog position by about 1.82 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.102 ± 1.654	1.27	-0.402 ± 1.676	2.063 ± 1.552
PRF-fit source offset from KIC position	5.109 ± 2.311	2.21	-3.287 ± 1.971	3.911 ± 1.818
photometric centroid source offset	1.24 ± 0.00	2001.09	-0.80 ± 0.00	0.95 ± 0.00

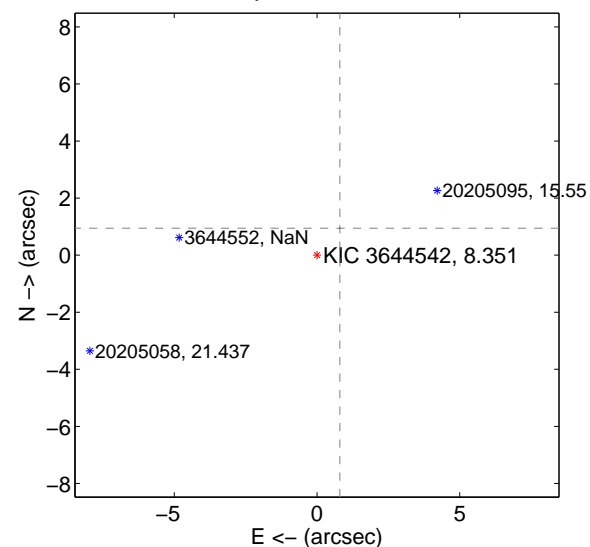
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

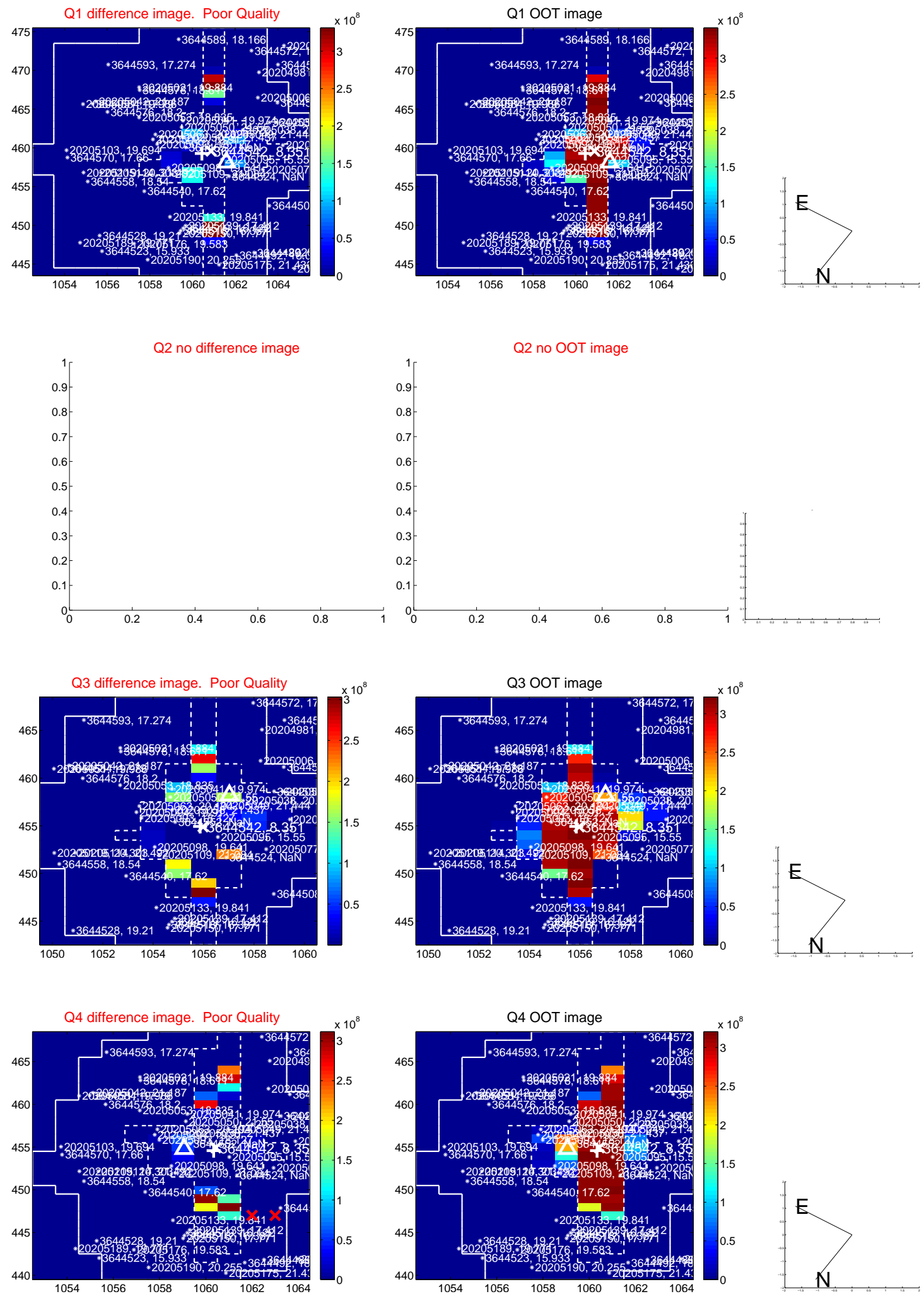


offset from photometric centroids

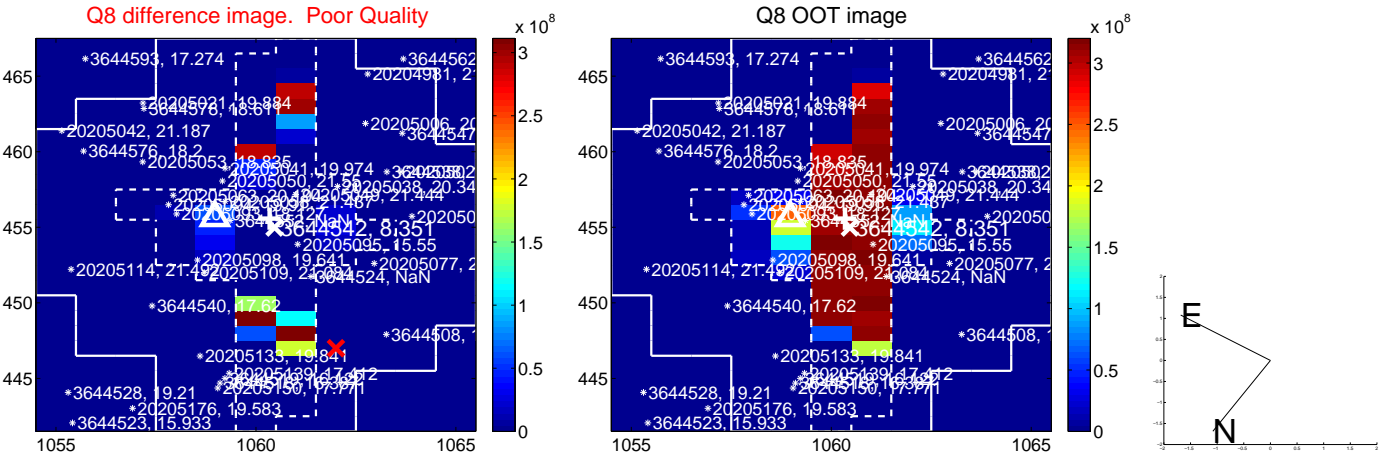
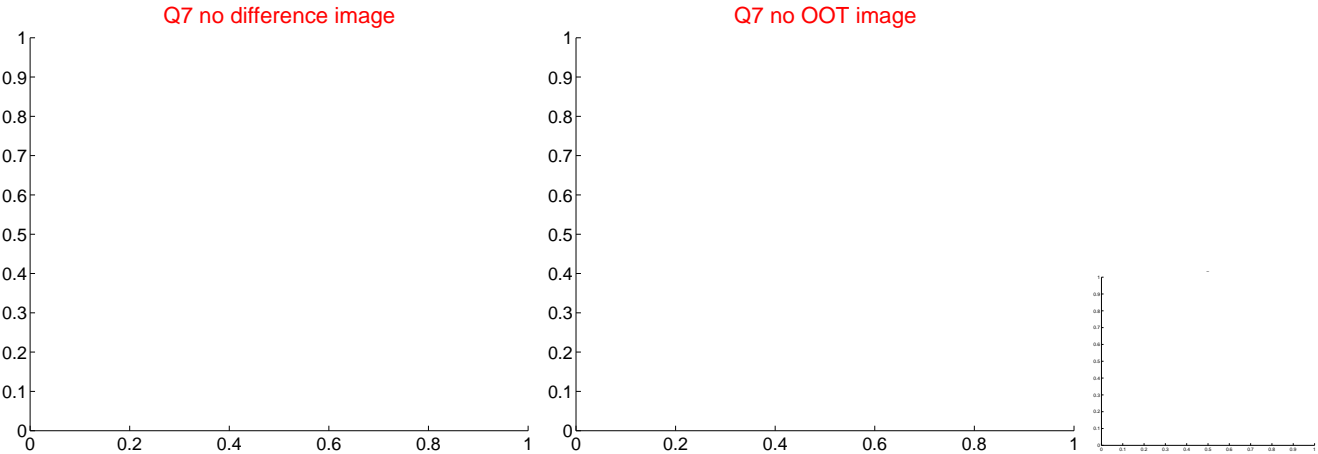
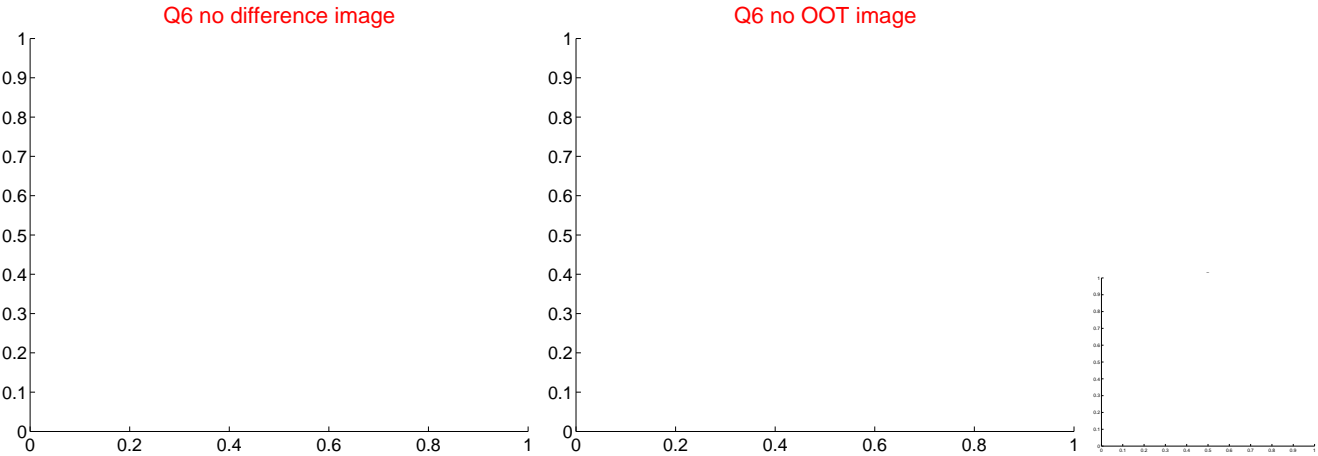
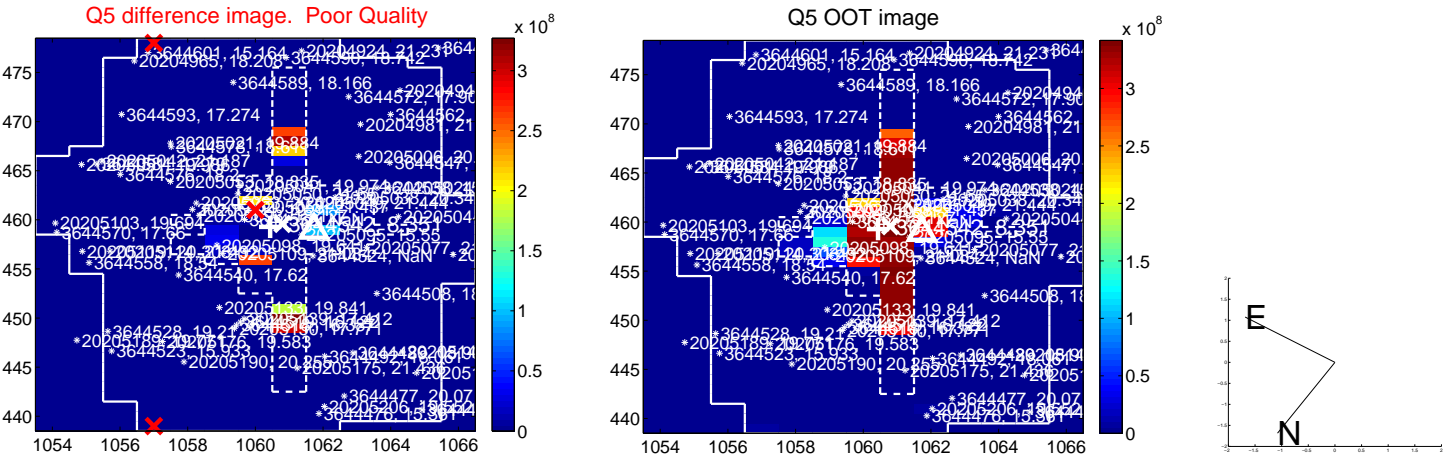


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

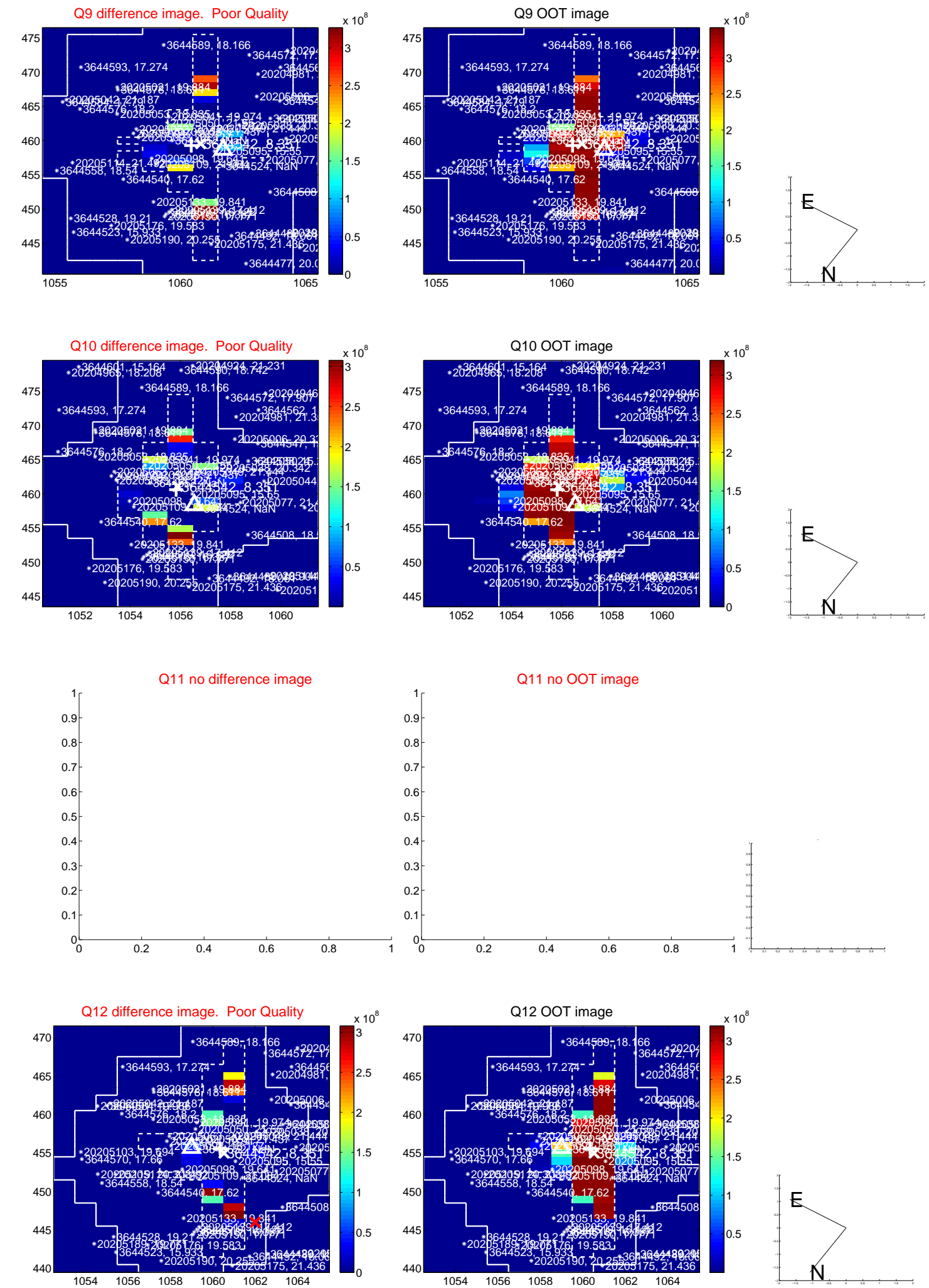
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



white ×: KIC target position; +: OOT centroid; △: diffrence centroid. red ×: large negative pixel value.



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

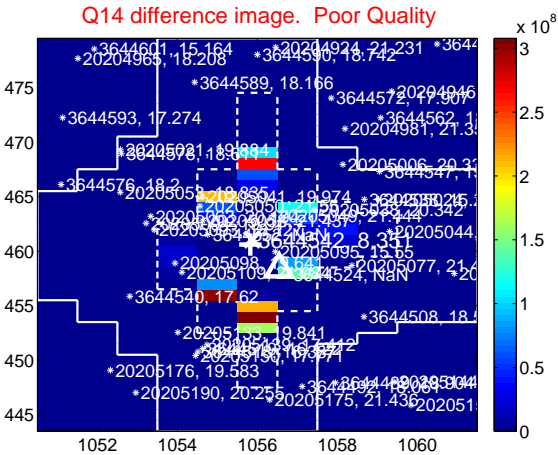
Q13 no difference image



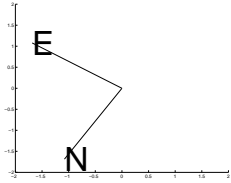
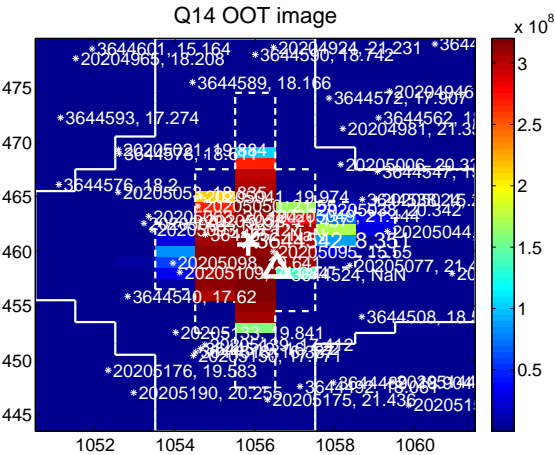
Q13 no OOT image



Q14 difference image. Poor Quality



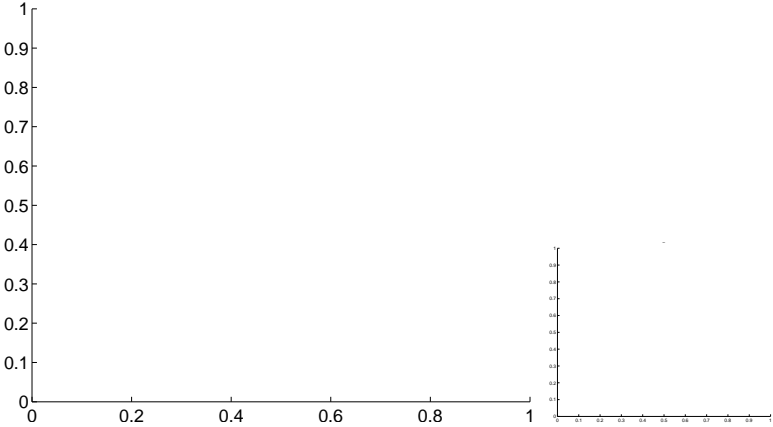
Q14 OOT image



Q15 no difference image



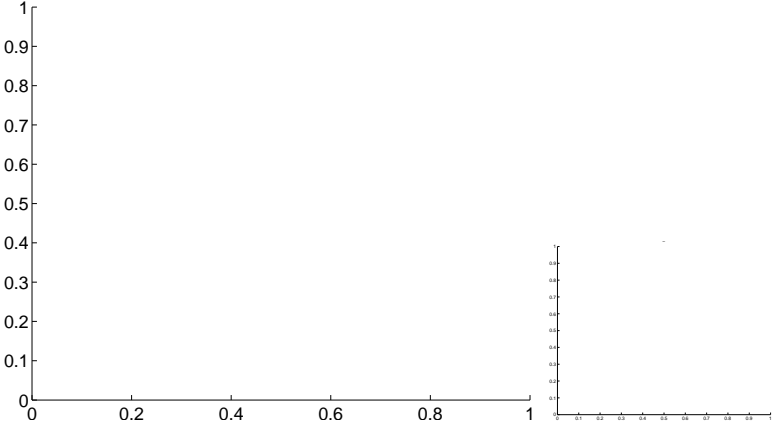
Q15 no OOT image



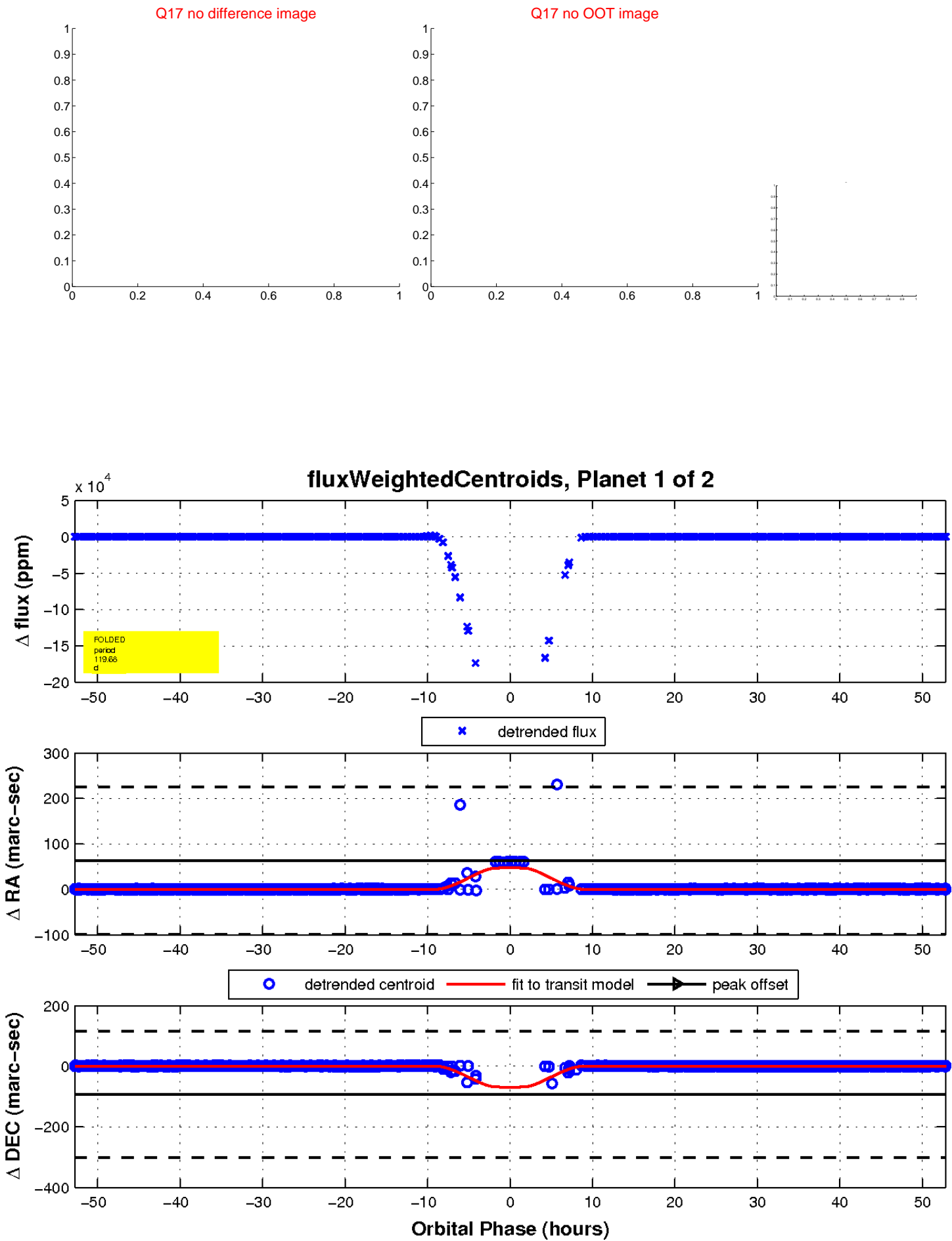
Q16 no difference image



Q16 no OOT image

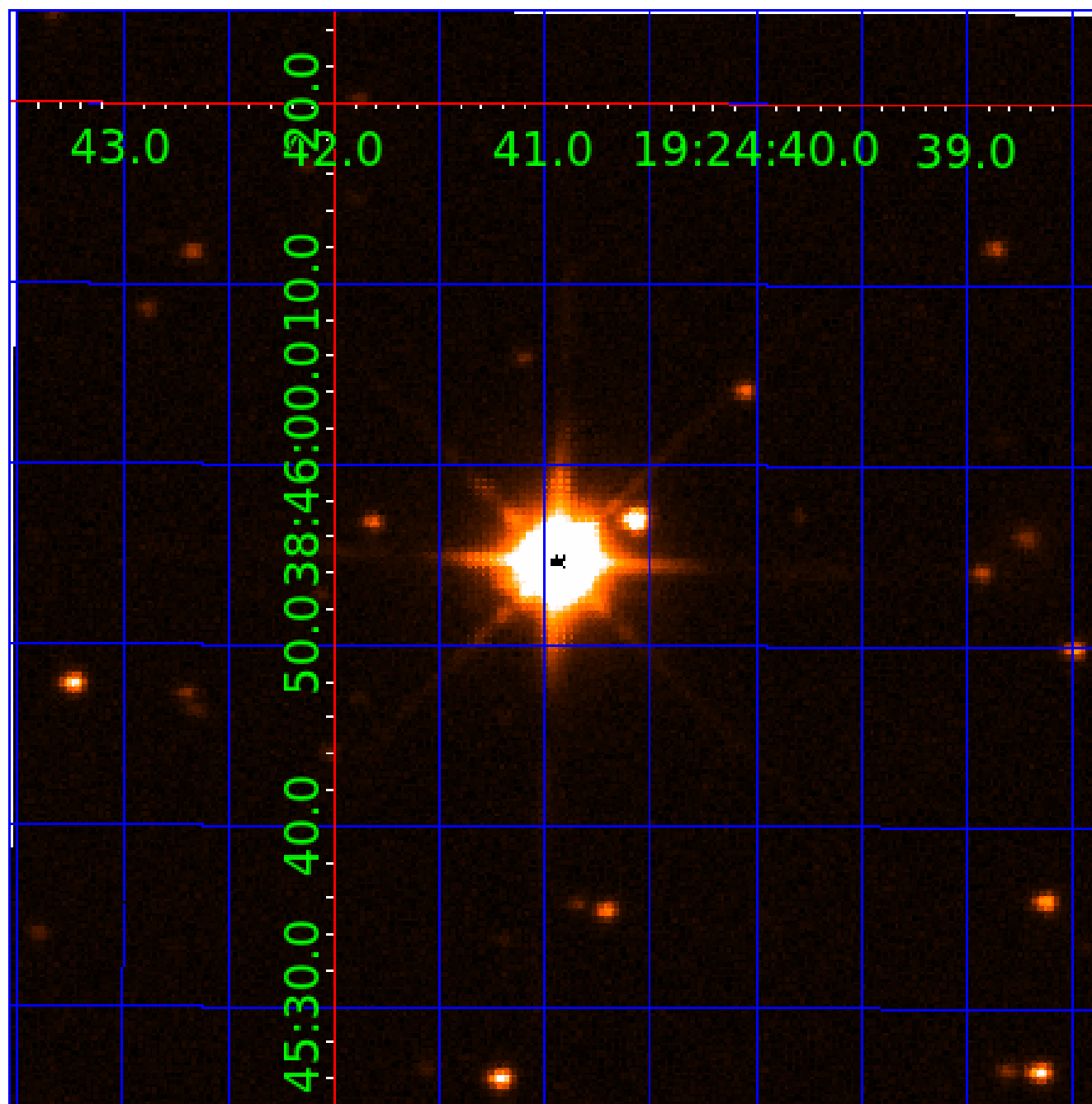


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003644542

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})
003644542-01	OBS	3511.01	119.679826	154.546961	253861.6	17.671	44243.6	22777.3	3.25	8275	170.14	121.70
003644542-02	OBS	No	119.679361	176.103833	295683.4	15.000	40010.3	-1.0	3.25	8275	70.82	121.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003644542-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—HAS_SEC_TCE—CENT_SATURATED
003644542-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED

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 003644542-02

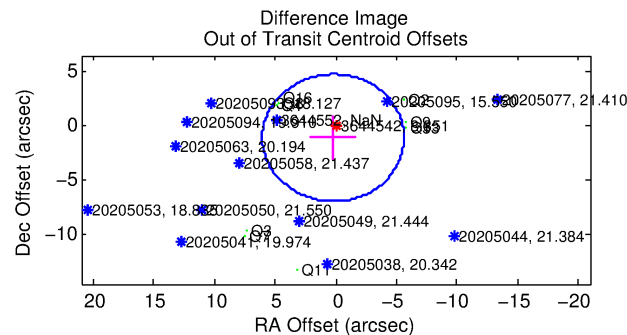
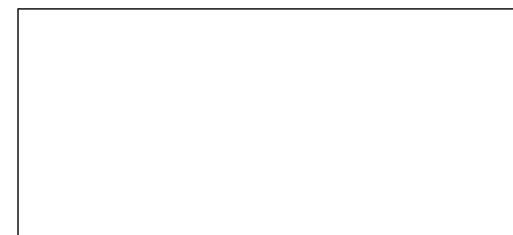
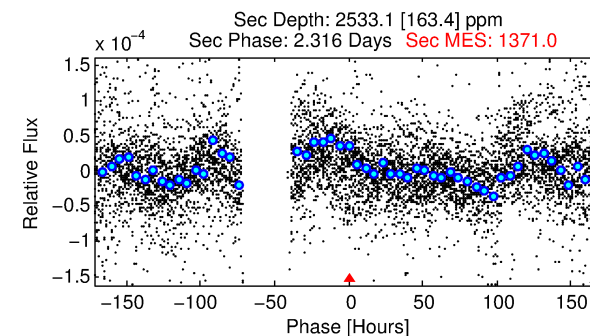
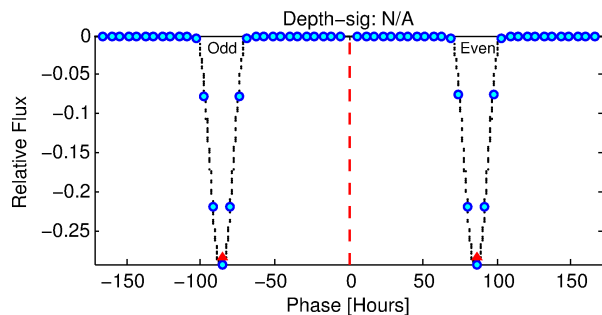
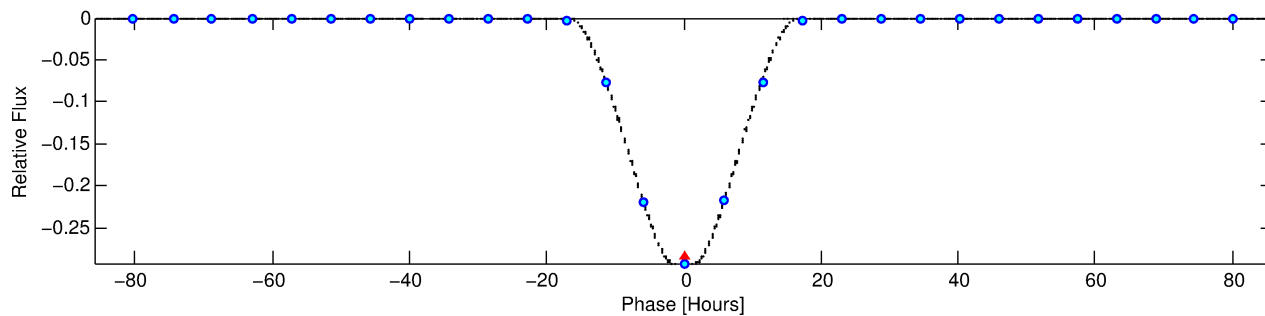
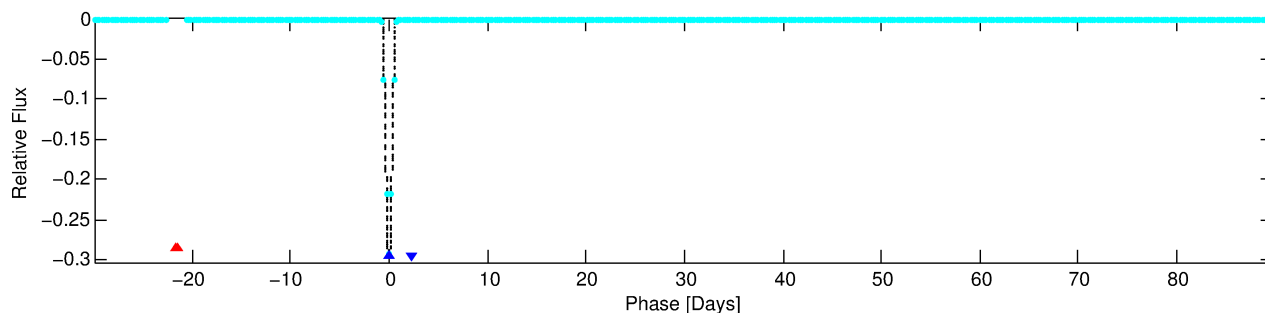
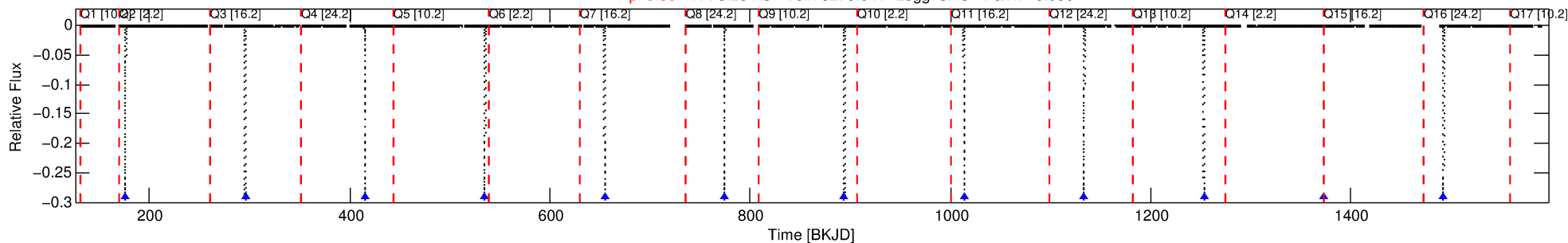
No Significant Match Found

DV One-Page Summary

KIC: 3644542 Candidate: 2 of 2 Period: 119.679 d

KOI: K03511 Corr: No Ephemeris Match

Kp: 8.35 R*: 3.25 Rs Teff: 8275.0 K Logg: 3.73 Fe/H: -0.080



TPS TCE Results:

Period = 119.67936 d
Epoch = 176.1038 BKJD

DV fit results are unavailable

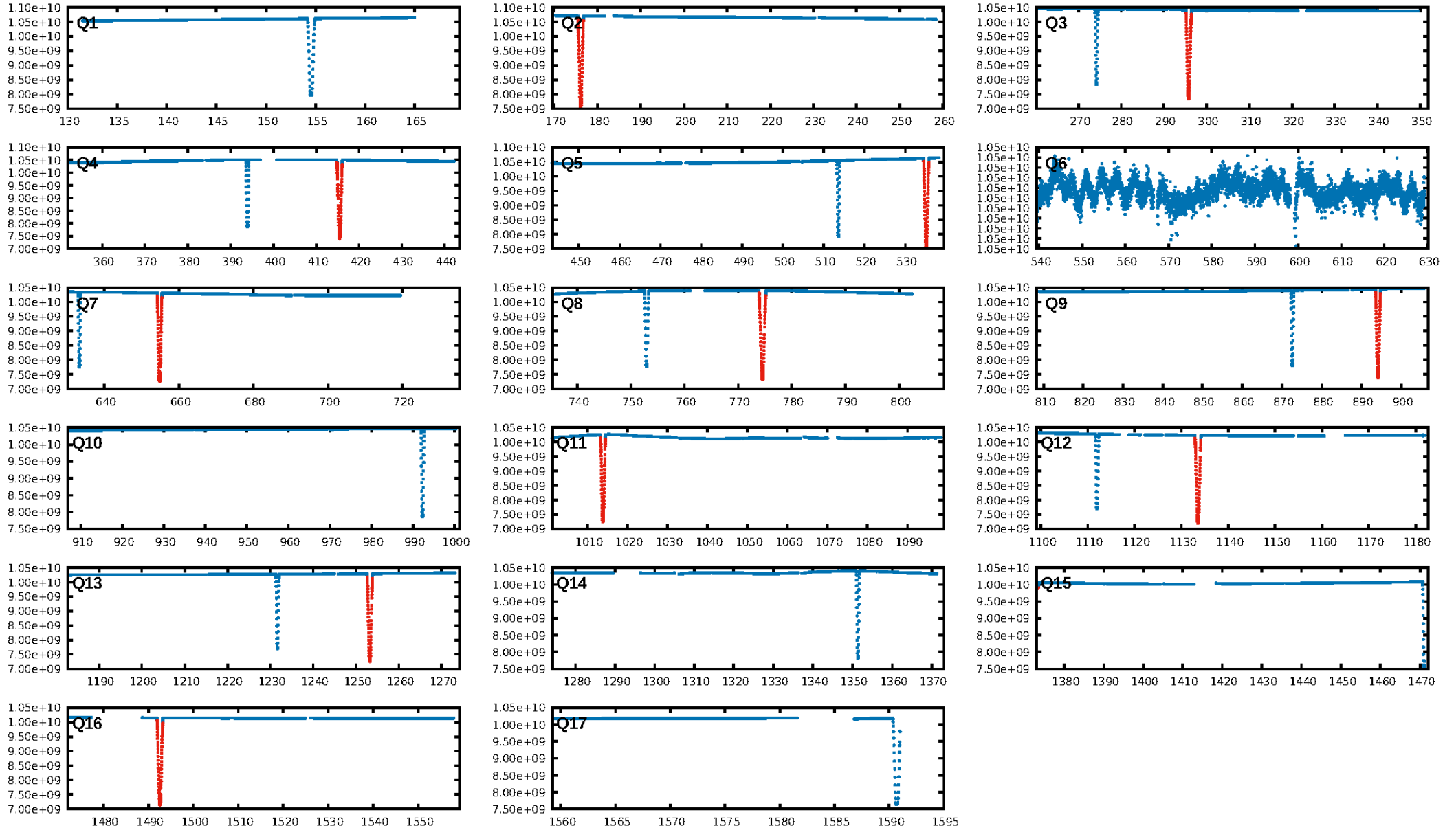
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 1.167 arcsec [1311.18σ]
OotOffset-rm: 1.084 arcsec [0.56σ]
KicOffset-rm: 2.530 arcsec [1.64σ]
OotOffset-st: 1/3/3/3 [10]
KicOffset-st: 1/3/3/3 [10]
DiffImageQuality-fgm: 0.00 [0/10]
DiffImageOverlap-fno: 1.00 [10/10]

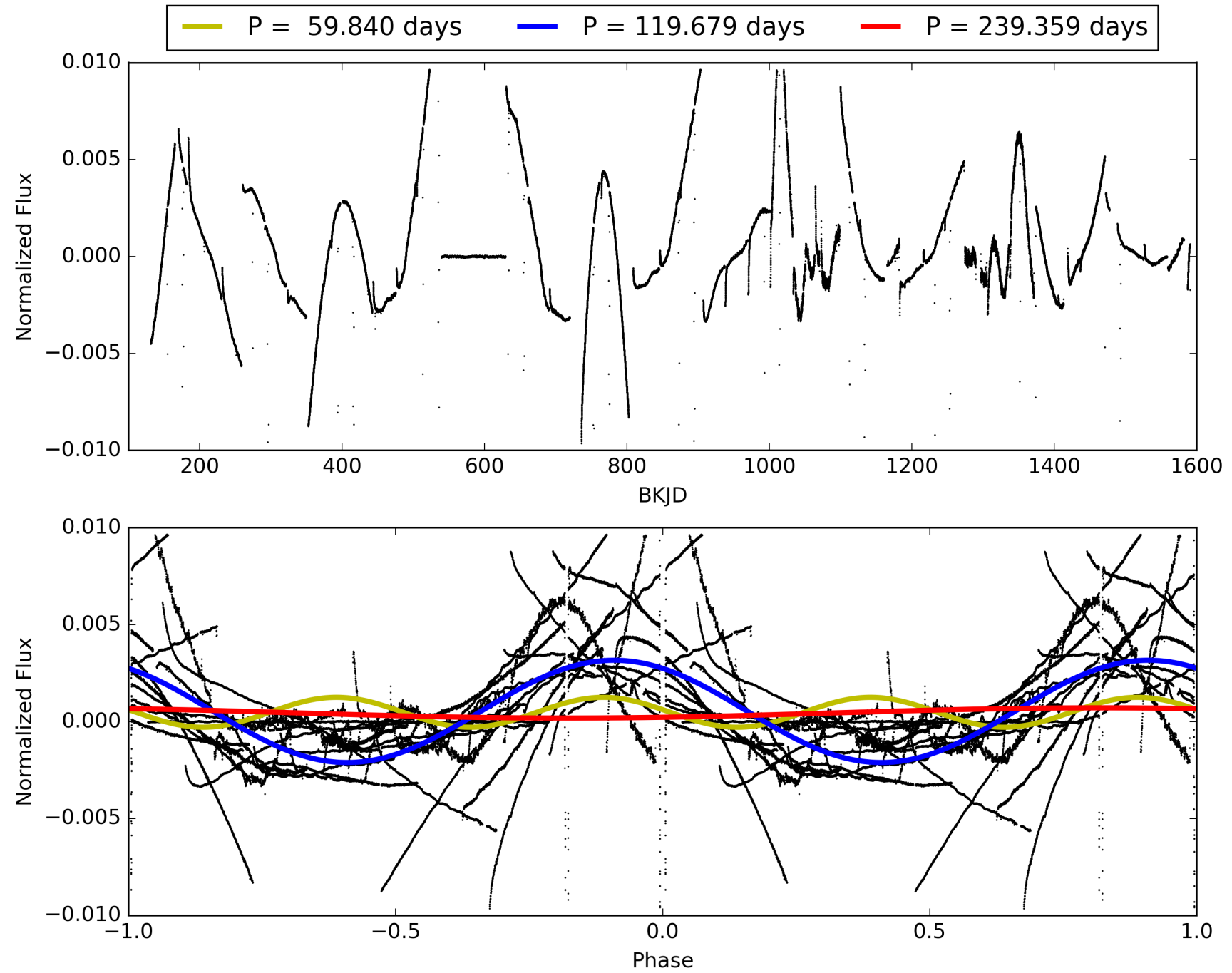
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:12:10 Z

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TCE 003644542-02, PDC Light Curves

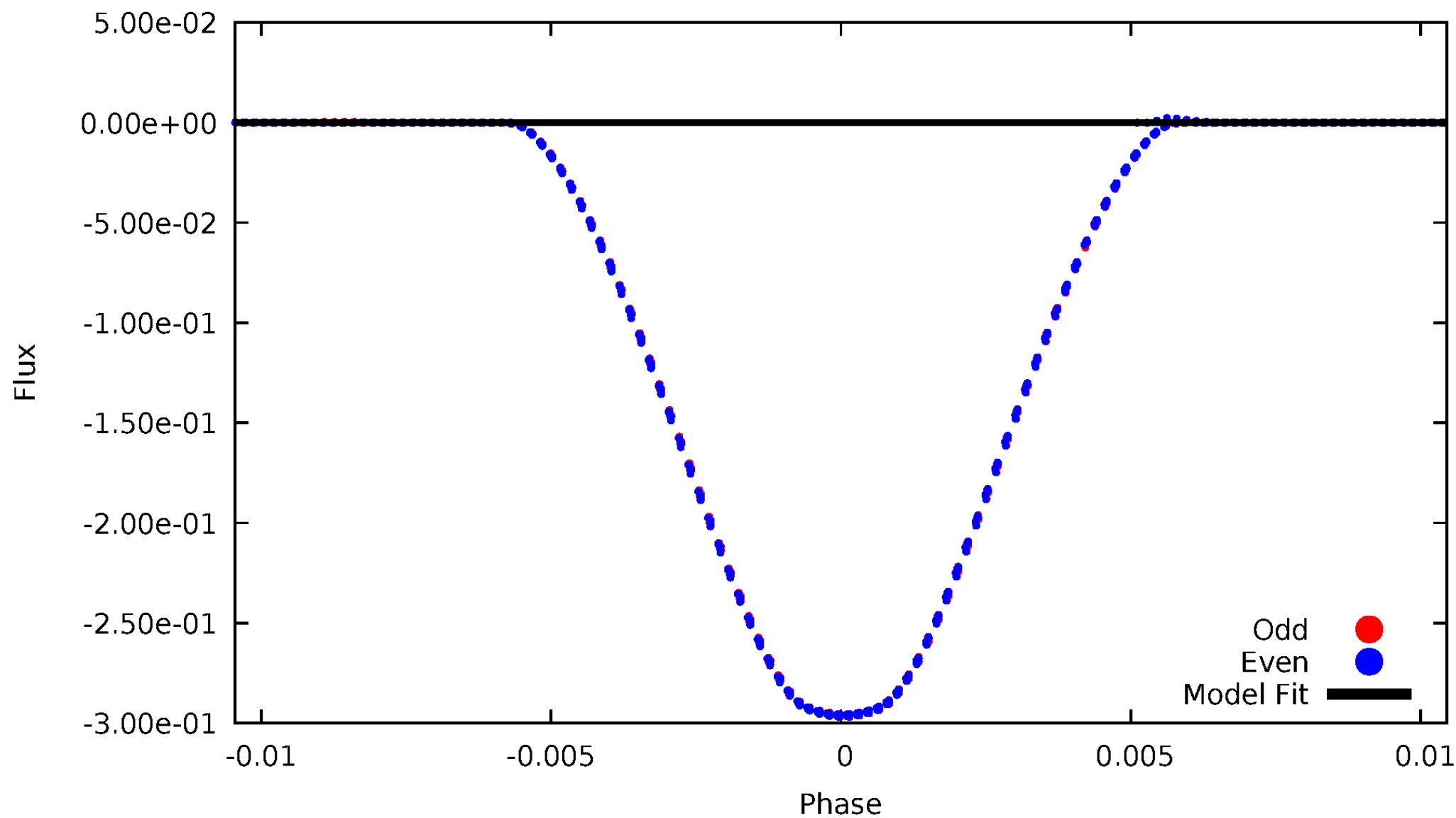


TCE 003644542-02



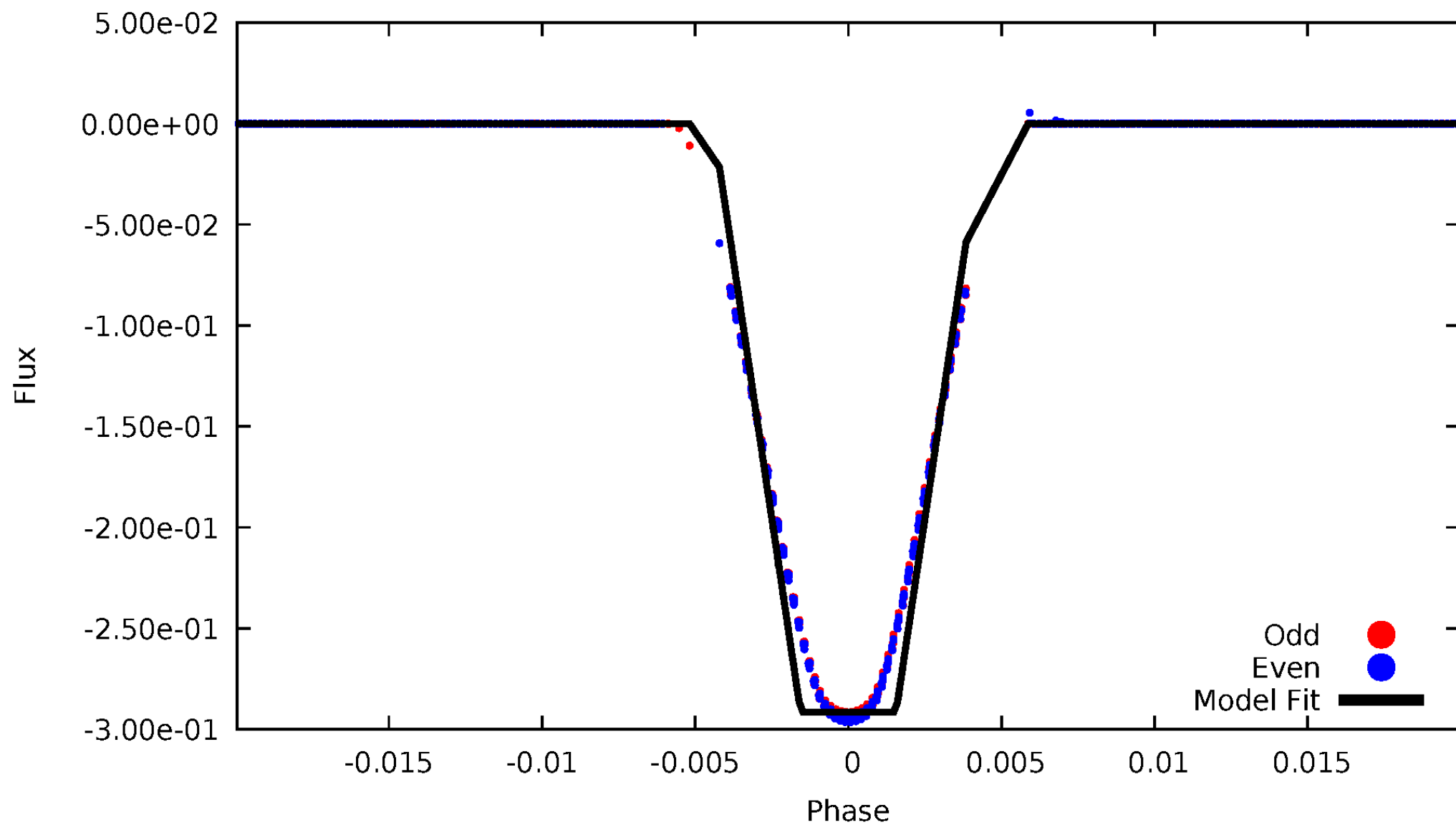
DV Odd/Even

TCE 003644542-02



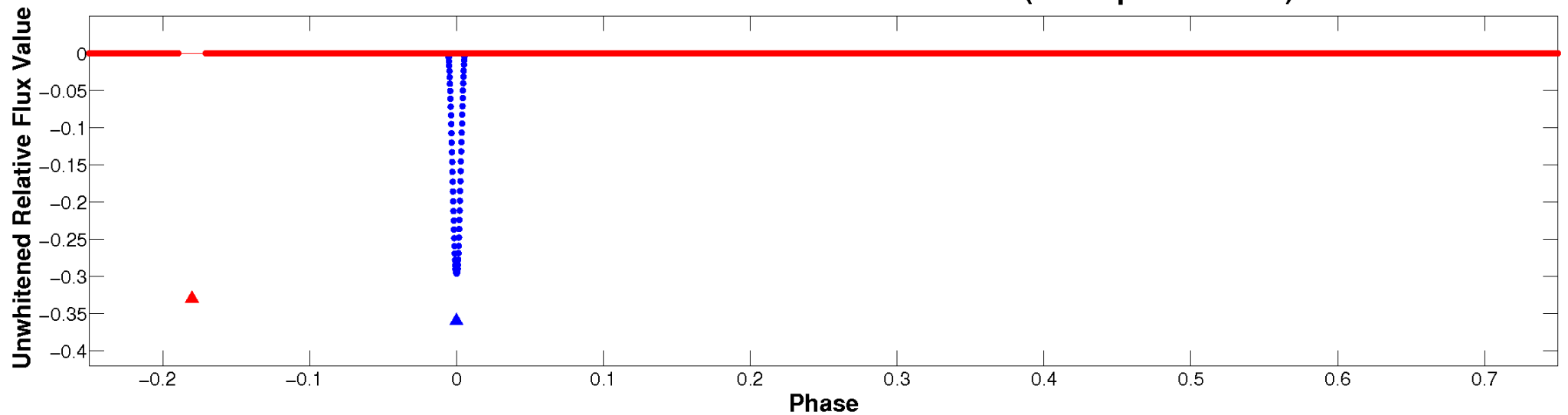
ALT Odd/Even

TCE 003644542-02



Non-Whitened Vs. Whitened Light Curve

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

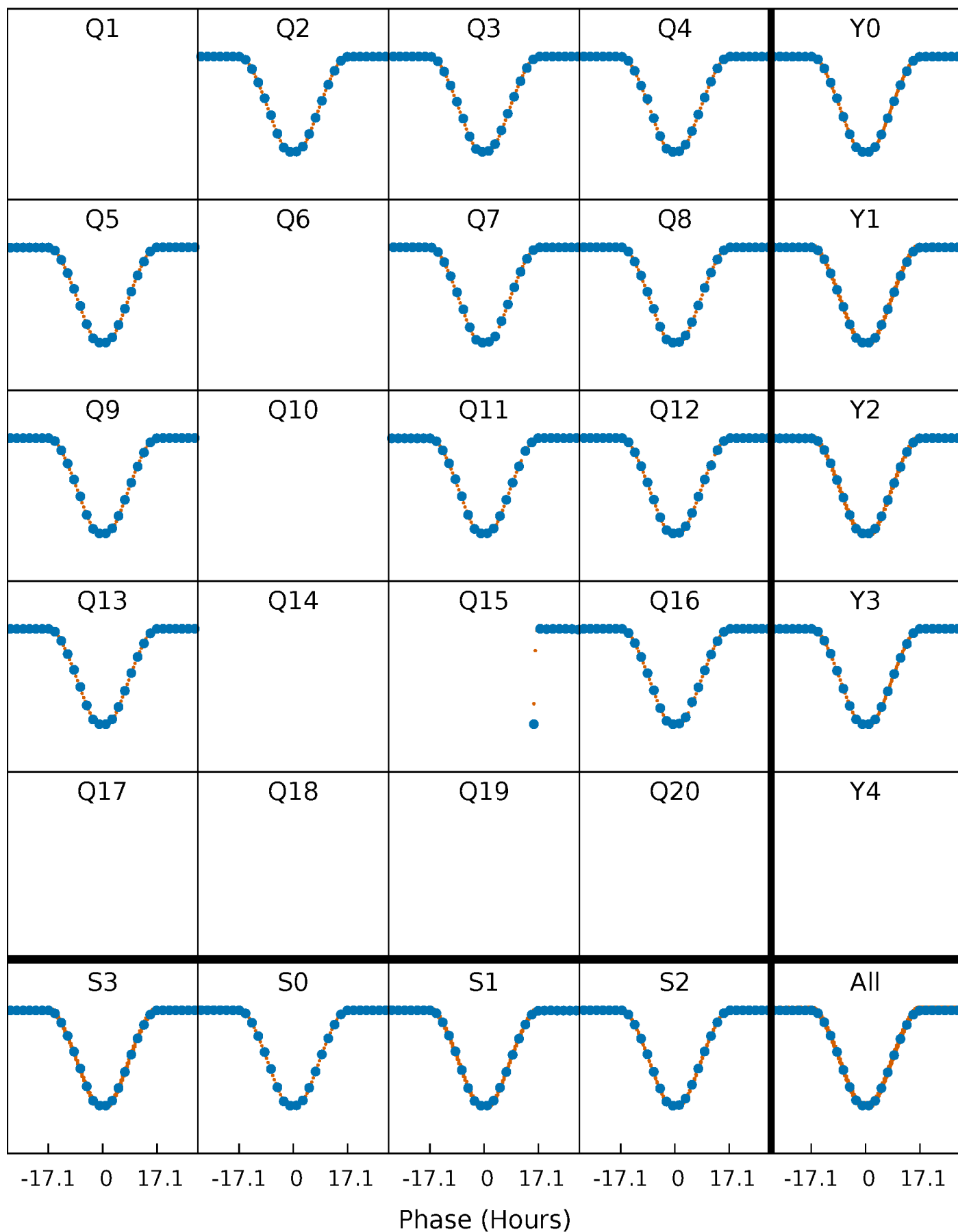


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



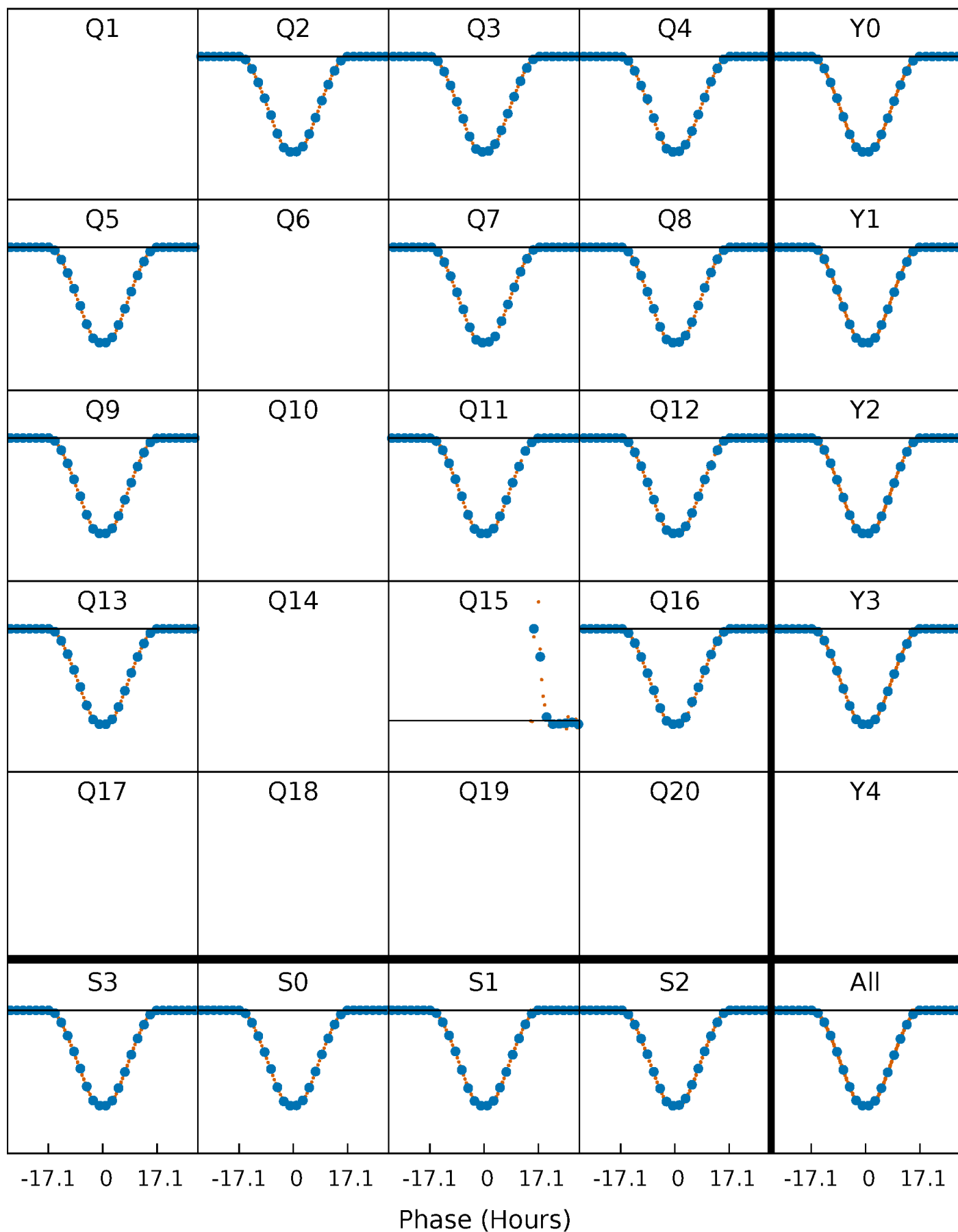
PDC Quarter-Phased Transit Curves

TCE 003644542-02 P=119.679361 Days $T_0=176.103833$ (BKJD)



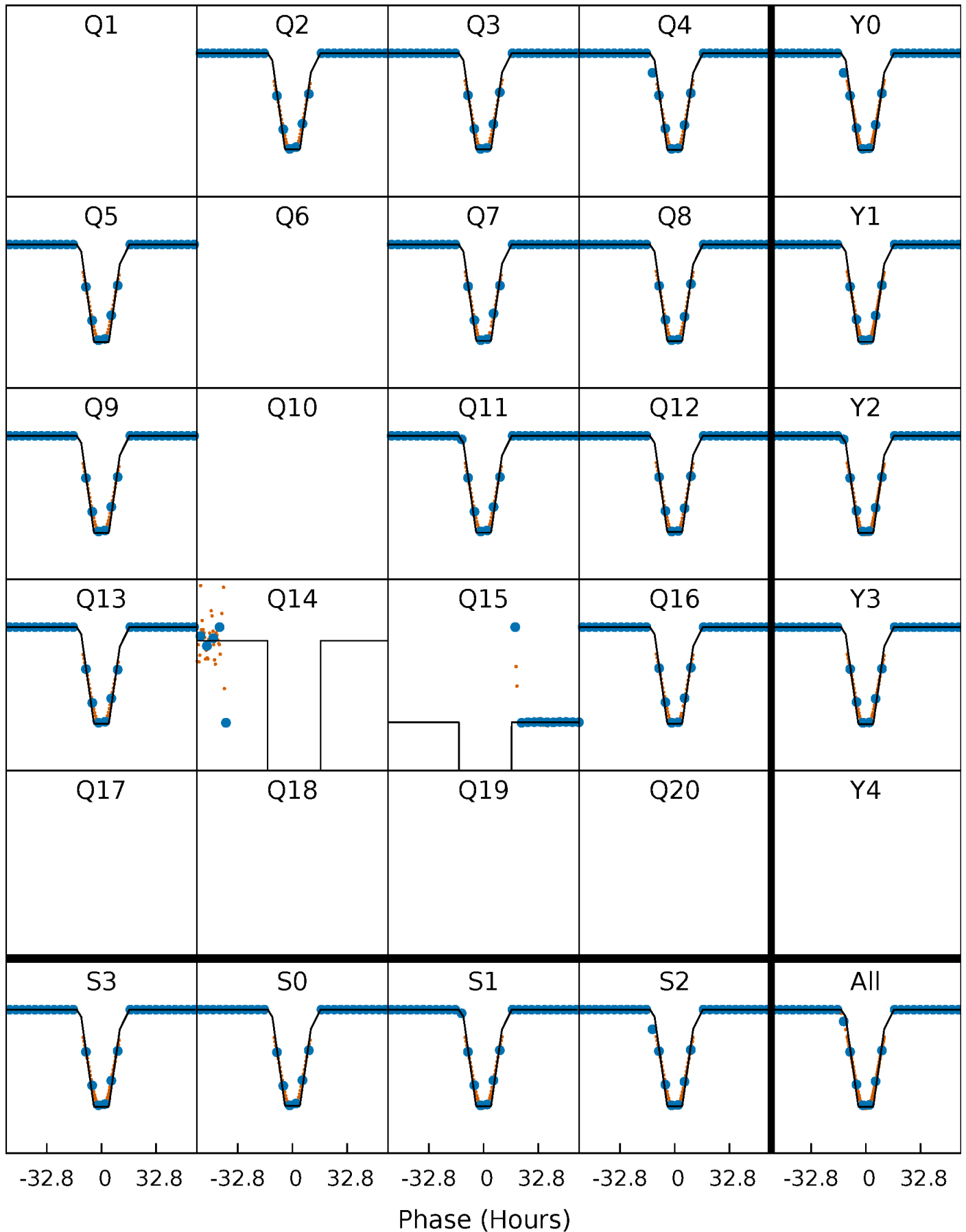
DV Quarter-Phased Transit Curves

TCE 003644542-02 P=119.679361 Days $T_0=176.103833$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

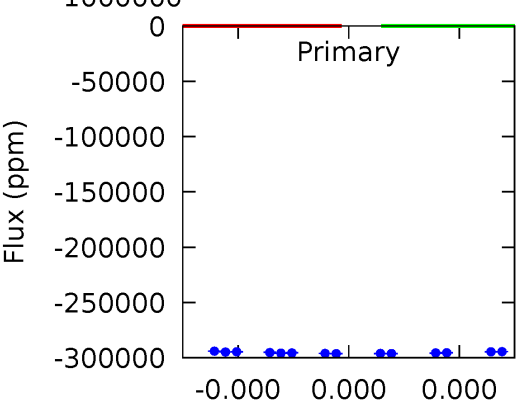
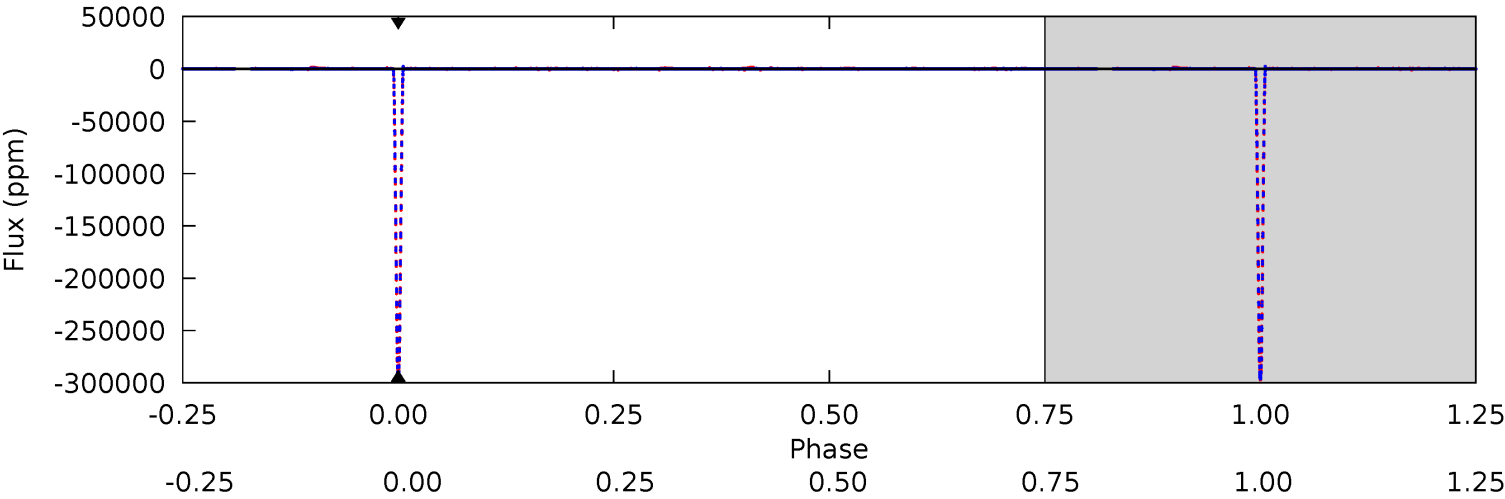
TCE 003644542-02 P=119.679361 Days $T_0=176.108692$ (BKJD)



DV Model-Shift Uniqueness Test

003644542-02, P = 119.679361 Days, E = 56.424472 Days

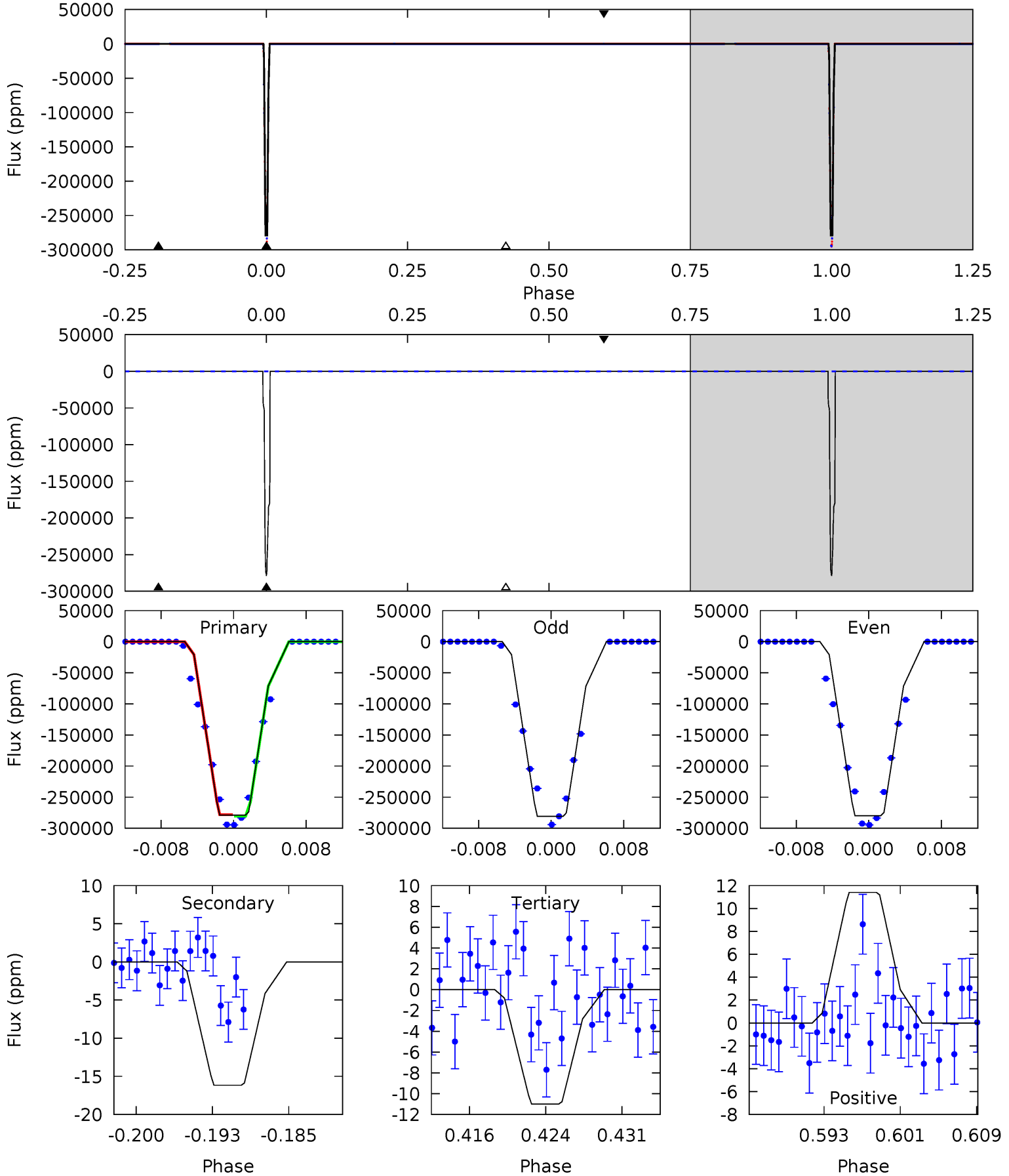
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003644542-02, P = 119.679361 Days, E = 56.429331 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.1E5	6.39	4.34	4.51	5.08	2.66	1.21	1.1E5	1.1E5	2.05	1.88	171.7	1.00	0.00	0



Stellar Parameters For KIC 003644542

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8275^{+229}_{-372}	$3.726^{+0.392}_{-0.140}$	$-0.080^{+0.300}_{-0.400}$	$3.251^{+0.987}_{-1.480}$	$2.053^{+0.404}_{-0.449}$	$0.084^{+0.304}_{-0.036}$
	+3%/-4%	+11%/-4%	+375%/-500%	+30%/-46%	+20%/-22%	+361%/-43%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003644542-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$68.08^{+38.72}_{-34.42}$	1161^{+93}_{-133}	4617^{+7912}_{-16474}	170^{+5883}_{-5376}
Alt.	-16 ± 3	$176.73^{+49.93}_{-48.43}$	1143^{+98}_{-128}	-1844^{+163}_{-86}	$0.103^{+0.089}_{-0.041}$

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

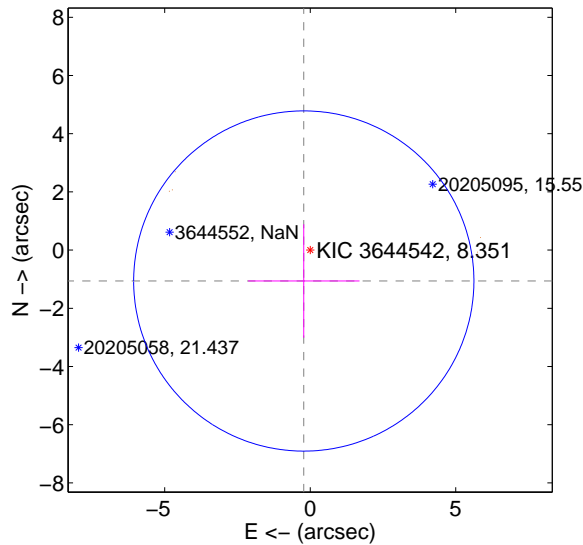
Supplemental centroid analysis for 003644542-02. **Kepler magnitude: 8.35.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

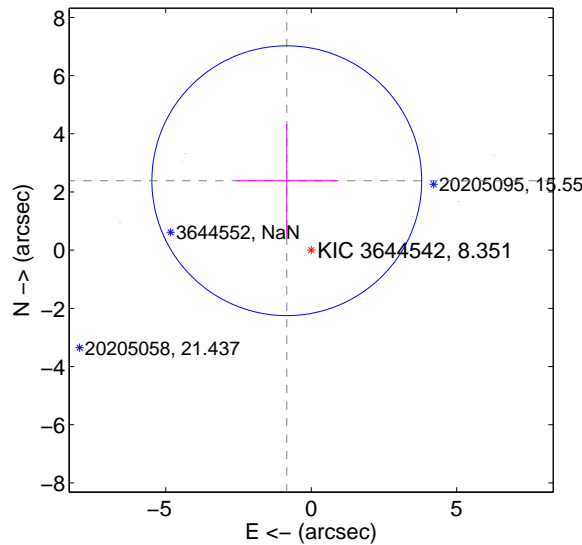
The OOT PRF centroid is offset from the target star catalog position by about 2.59 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.084 ± 1.948	0.56	0.221 ± 1.913	-1.062 ± 1.950
PRF-fit source offset from KIC position	2.530 ± 1.545	1.64	0.839 ± 1.724	2.387 ± 1.948
photometric centroid source offset	1.17 ± 0.00	1311.18	-0.71 ± 0.00	0.92 ± 0.00

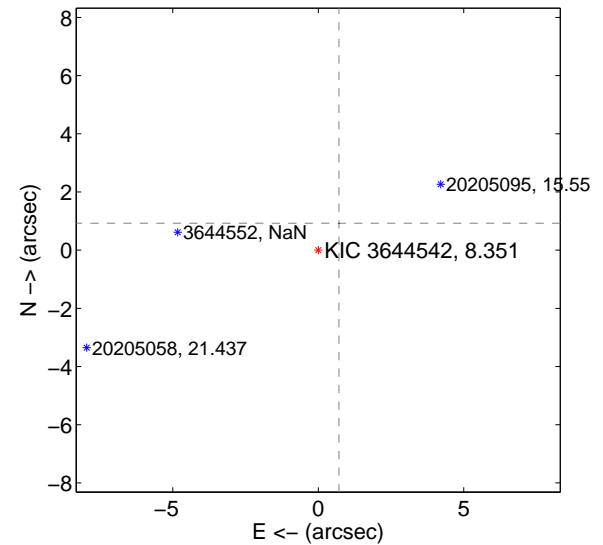
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

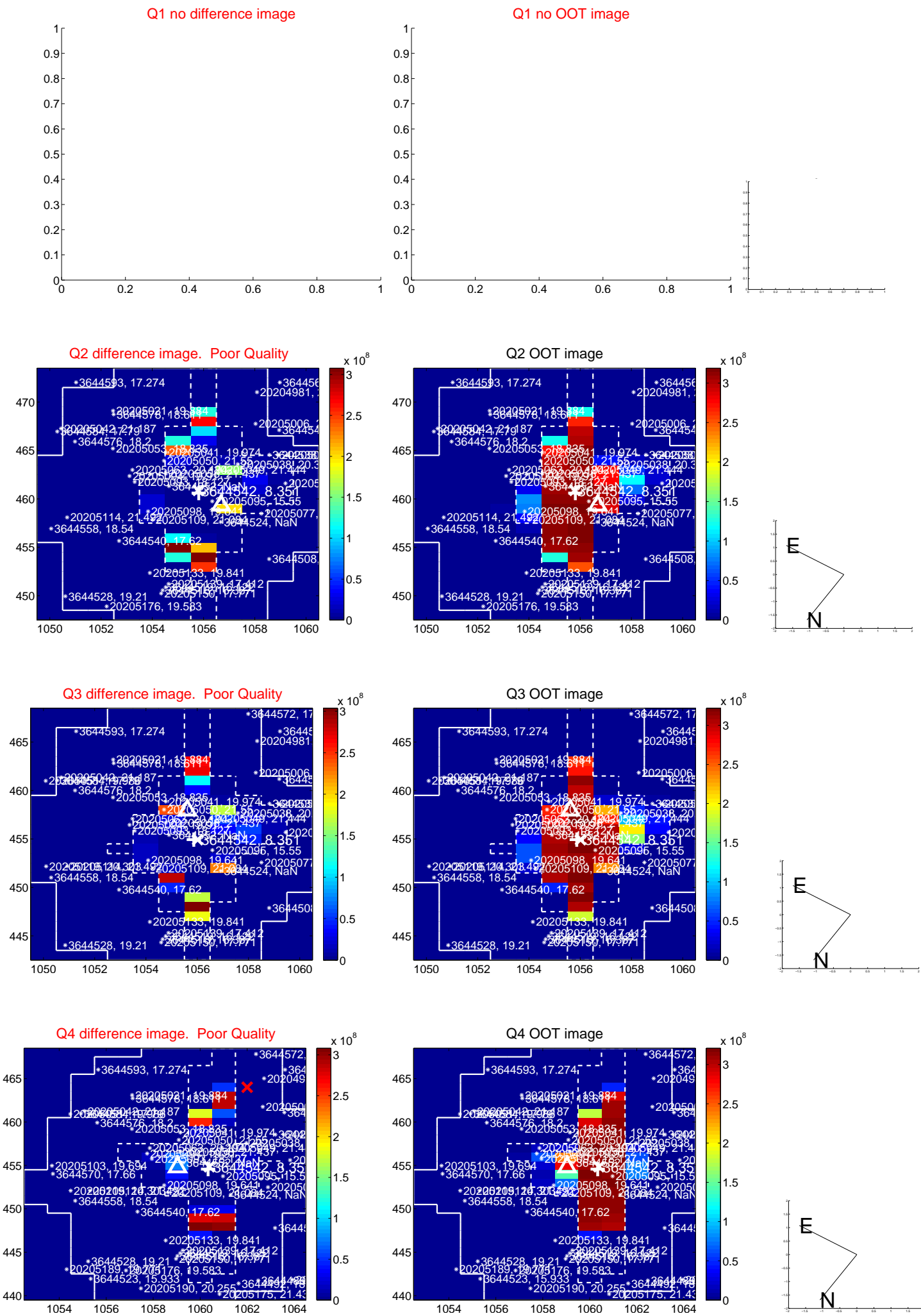


offset from photometric centroids

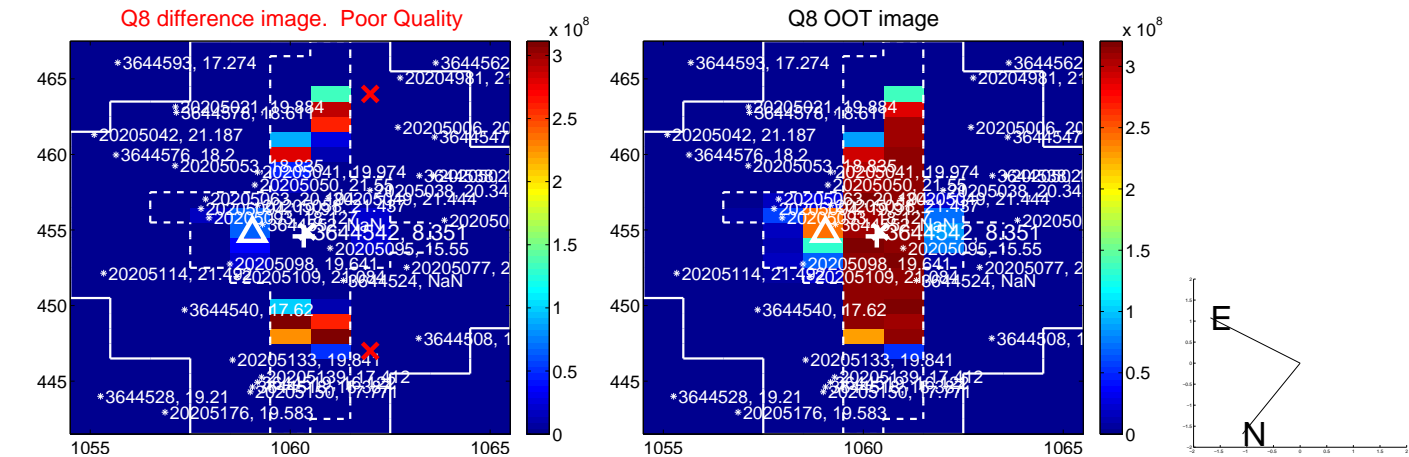
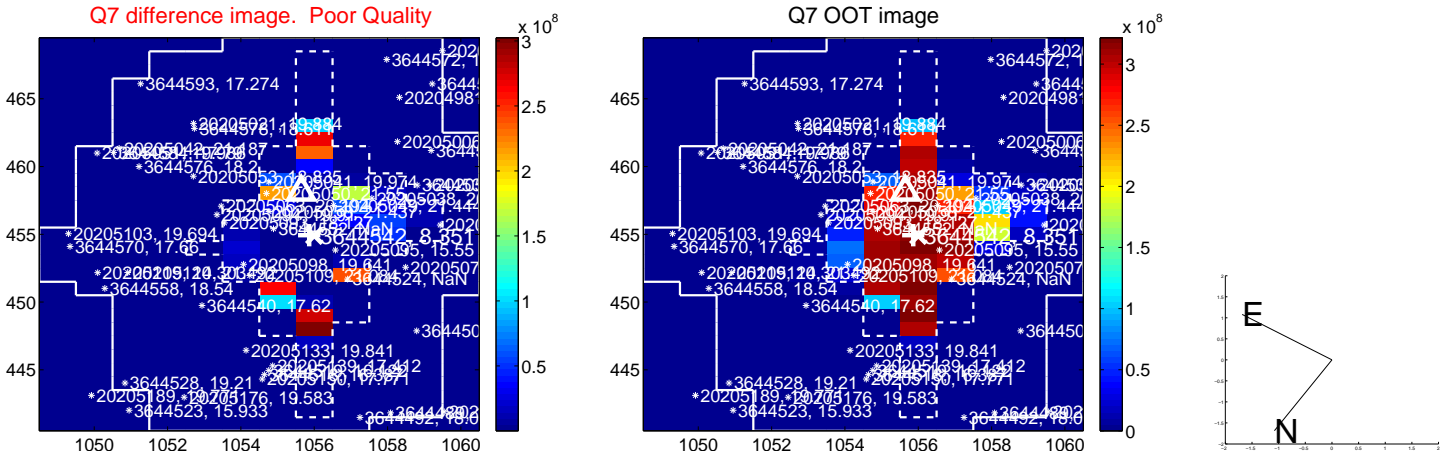
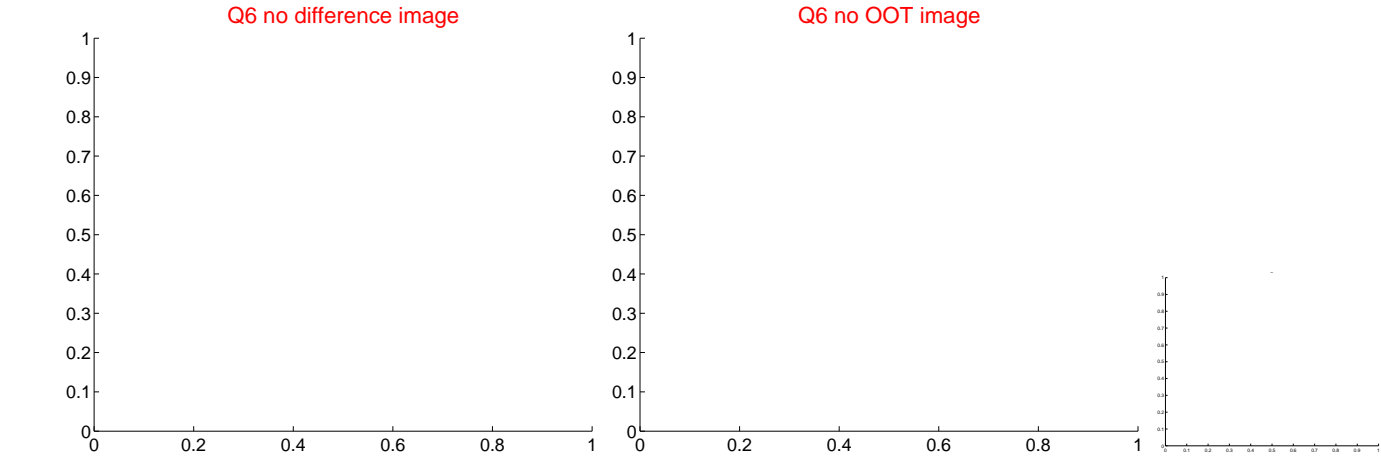
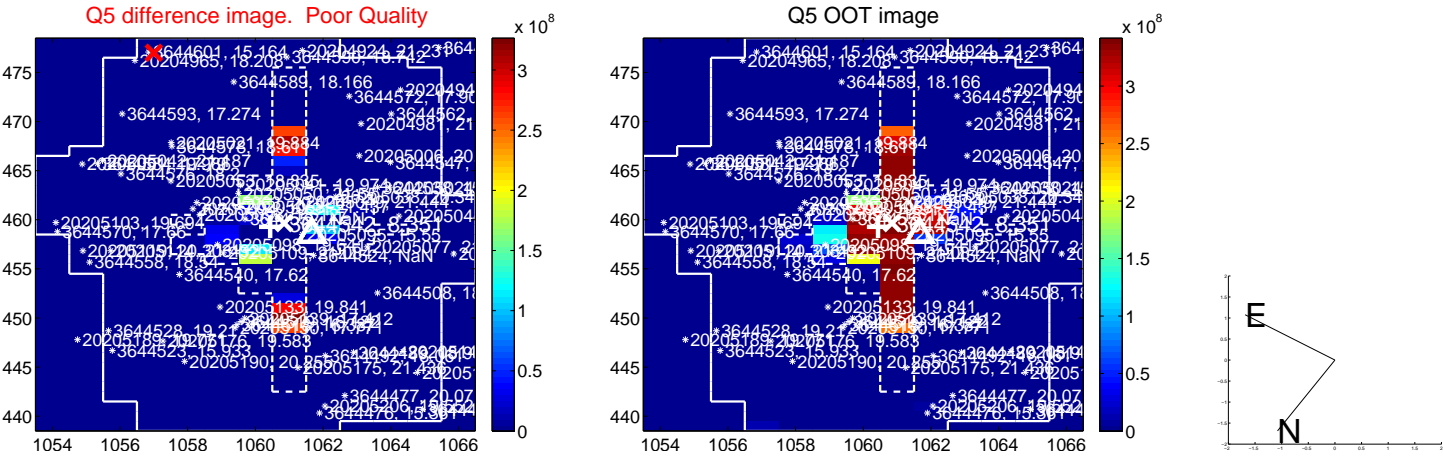


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

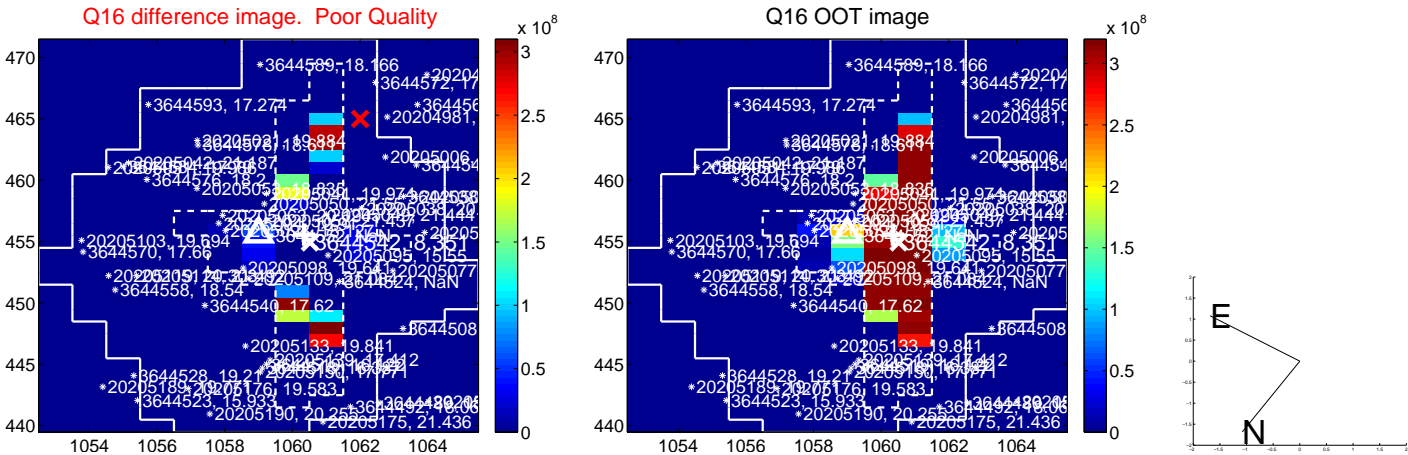
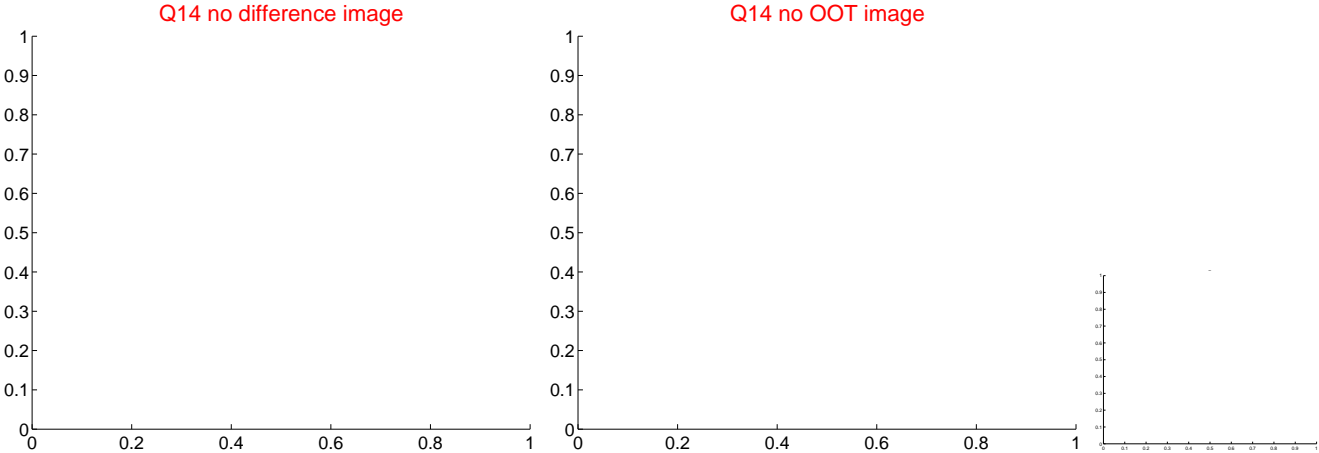
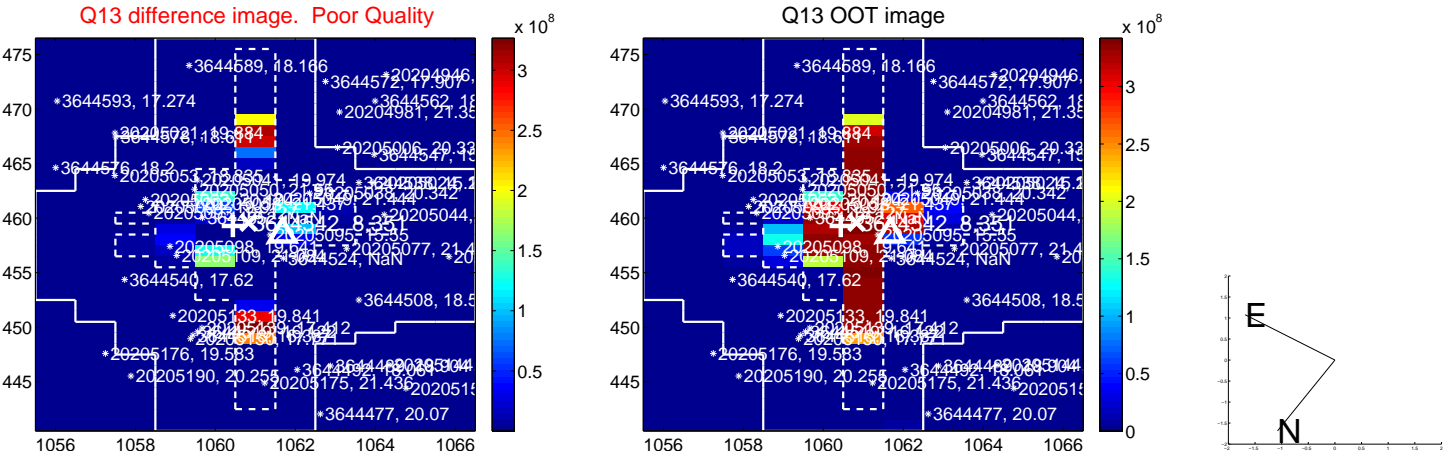
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



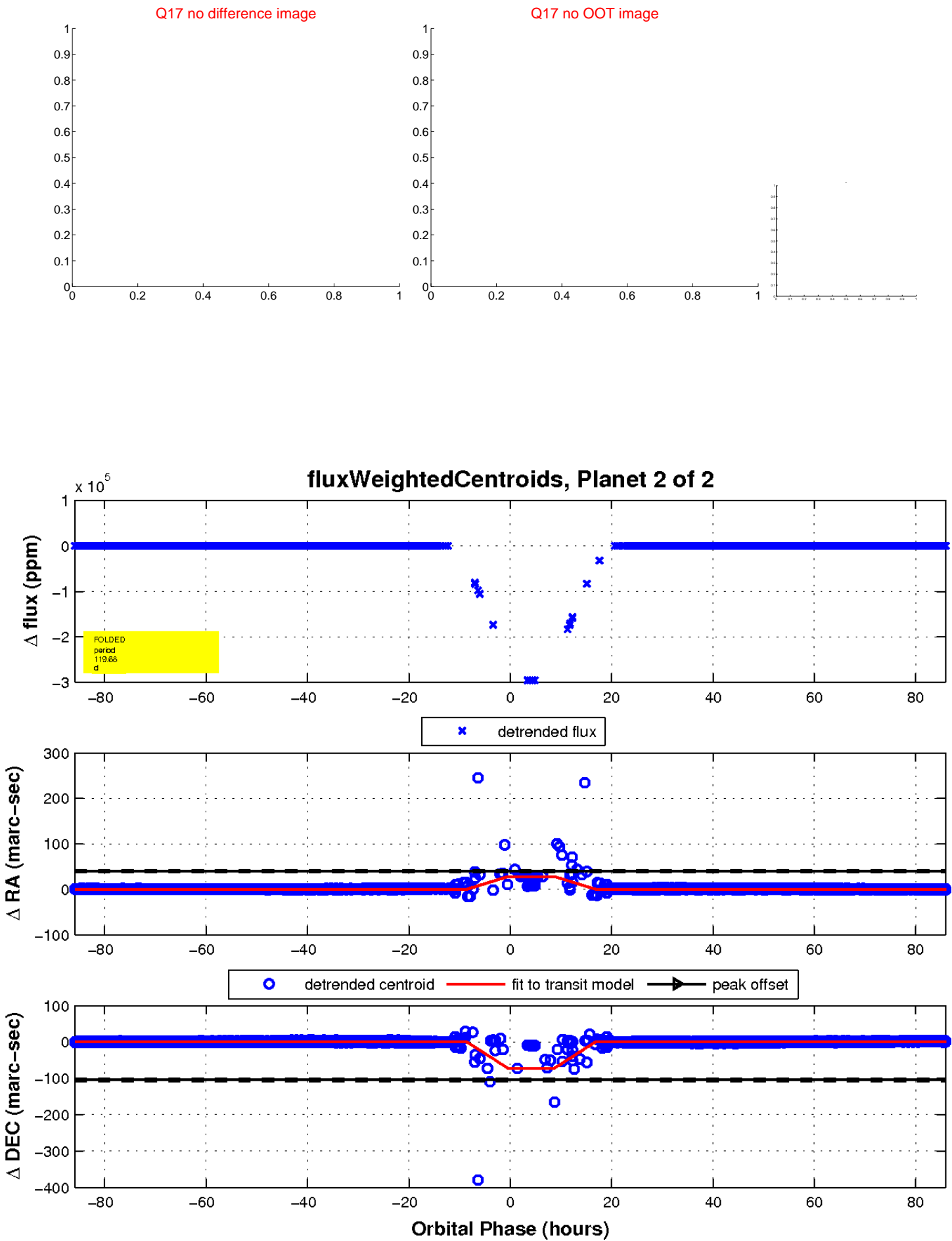
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image

Declination

