

KIC 006307077

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})
006307077-01	OBS	No	534.811858	377.534747	1715.8	5.339	14.9	5.7	2.12	4882	8.76	1.46
006307077-02	OBS	No	370.471598	247.147337	611.6	3.547	12.3	3.4	2.12	4882	5.14	2.38
006307077-03	OBS	No	300.095828	394.312070	501.1	1.311	12.3	2.7	2.12	4882	4.86	3.15
006307077-04	OBS	No	554.812021	434.377220	627.7	3.500	14.0	-1.0	2.12	4882	5.14	1.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006307077-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006307077-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006307077-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006307077-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_NOFITS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

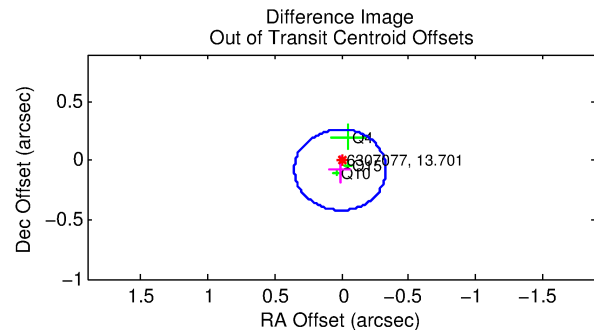
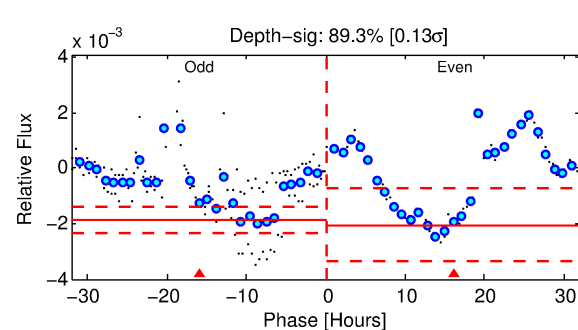
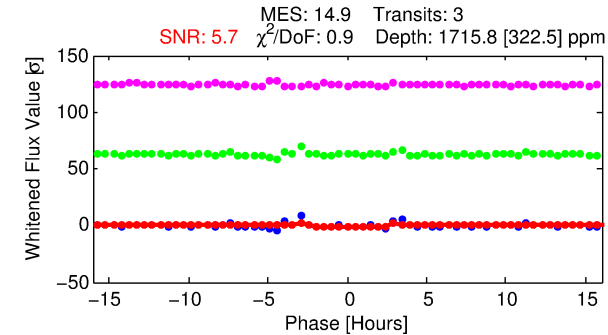
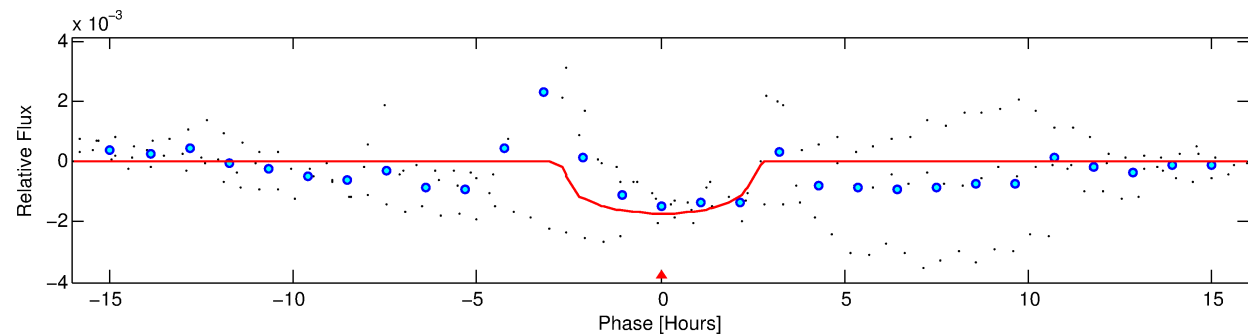
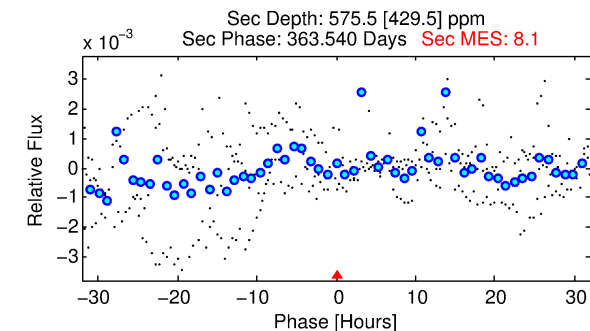
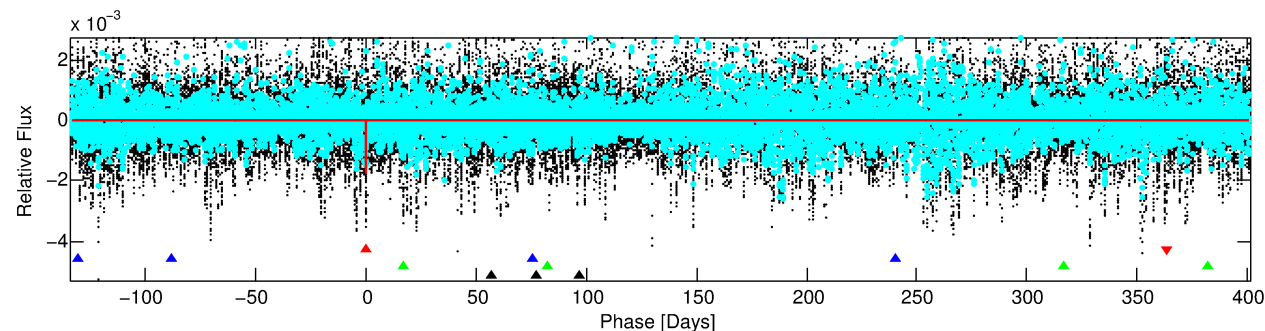
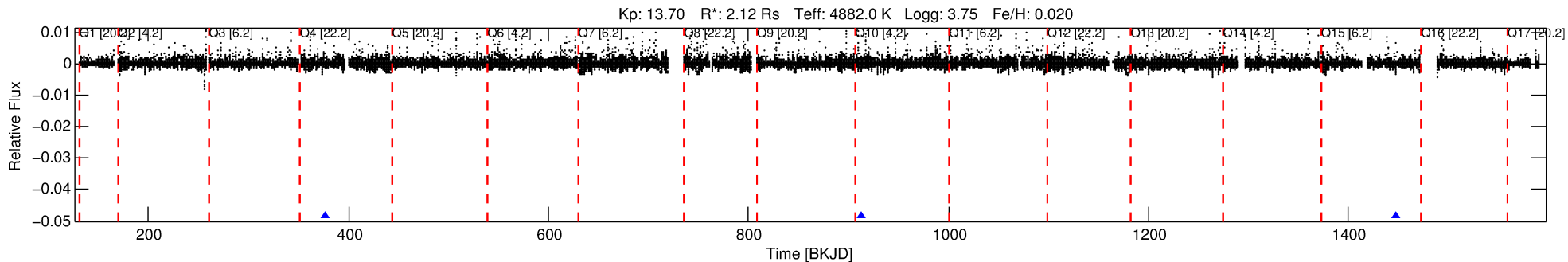
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006307077-01

No Significant Match Found

DV One-Page Summary

KIC: 6307077 Candidate: 1 of 4 Period: 534.812 d



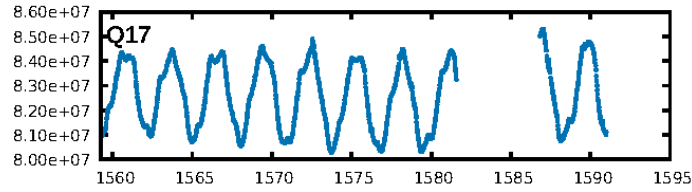
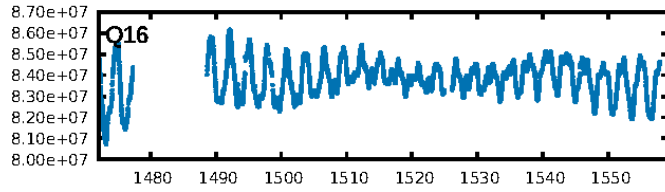
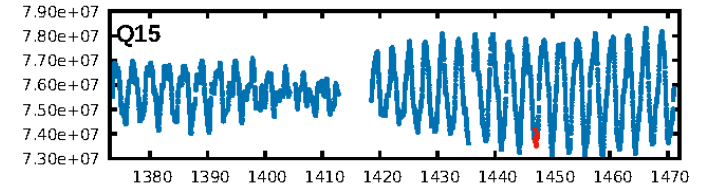
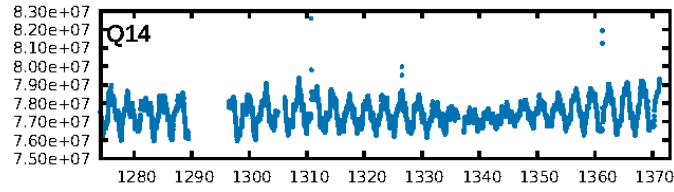
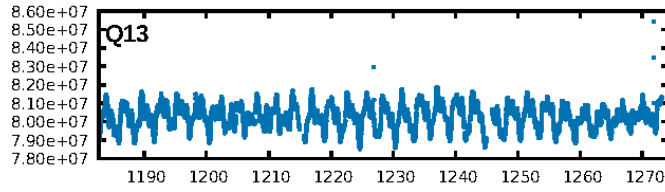
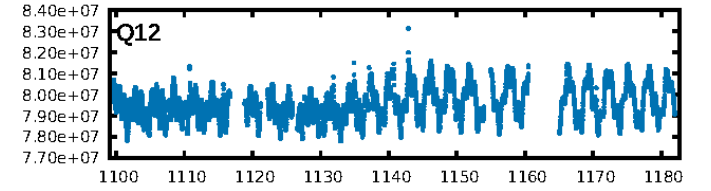
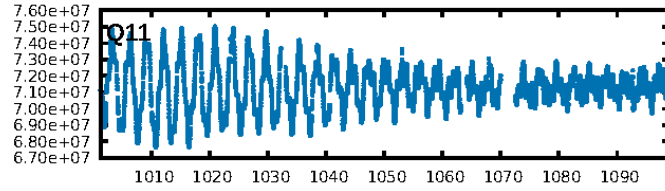
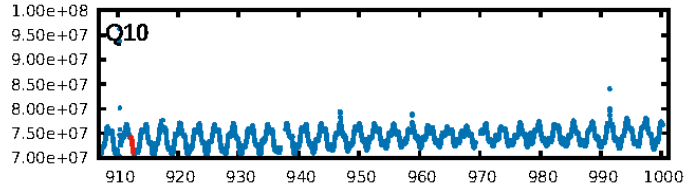
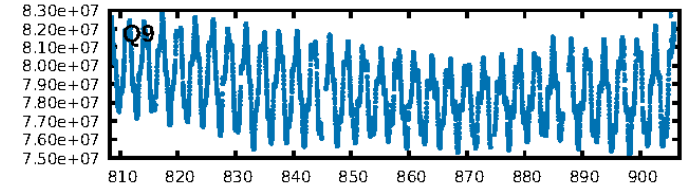
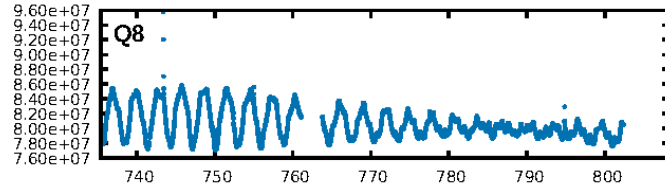
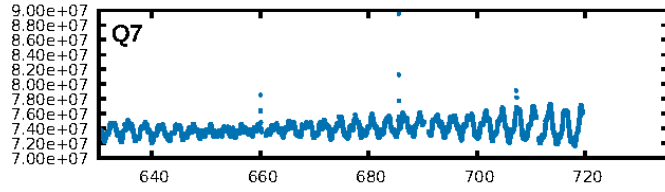
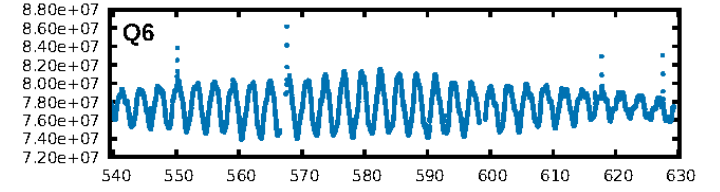
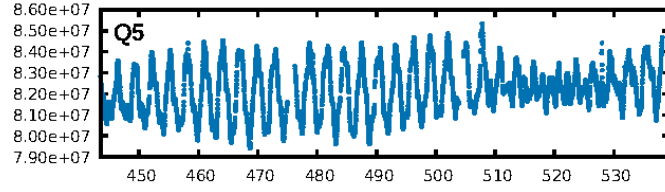
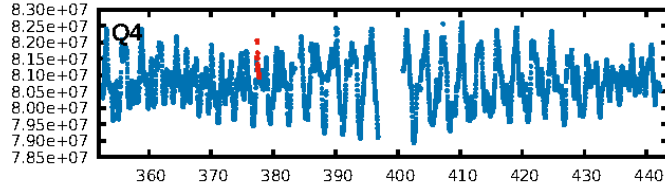
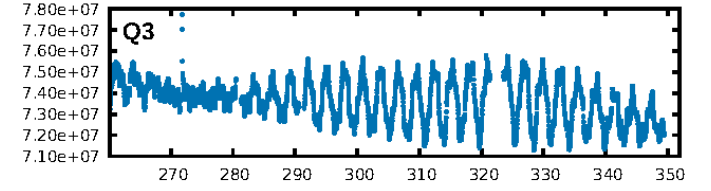
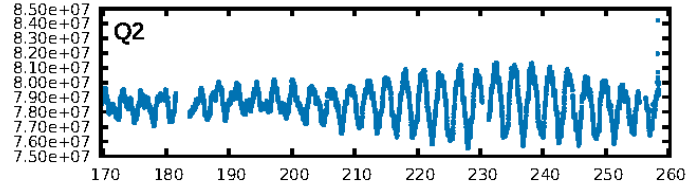
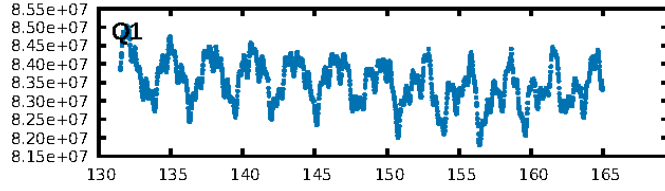
DV Fit Results:

Period = 534.81186 [0.00534] d
Epoch = 377.5347 [0.0075] BKJD
Rp/R* = 0.0378 [0.0372]
a/R* = 720.18 [2293.83]
b = 0.44 [5.98]
Seff = 1.46 [1.95]
Teq = 280 [94] K
Rp = 8.76 [10.21] Re
a = 1.2549 [0.9519] AU
Ag = 6501.05 [16212.71] [0.40σ]
Teffp = 3890 [2052] K [1.76σ]

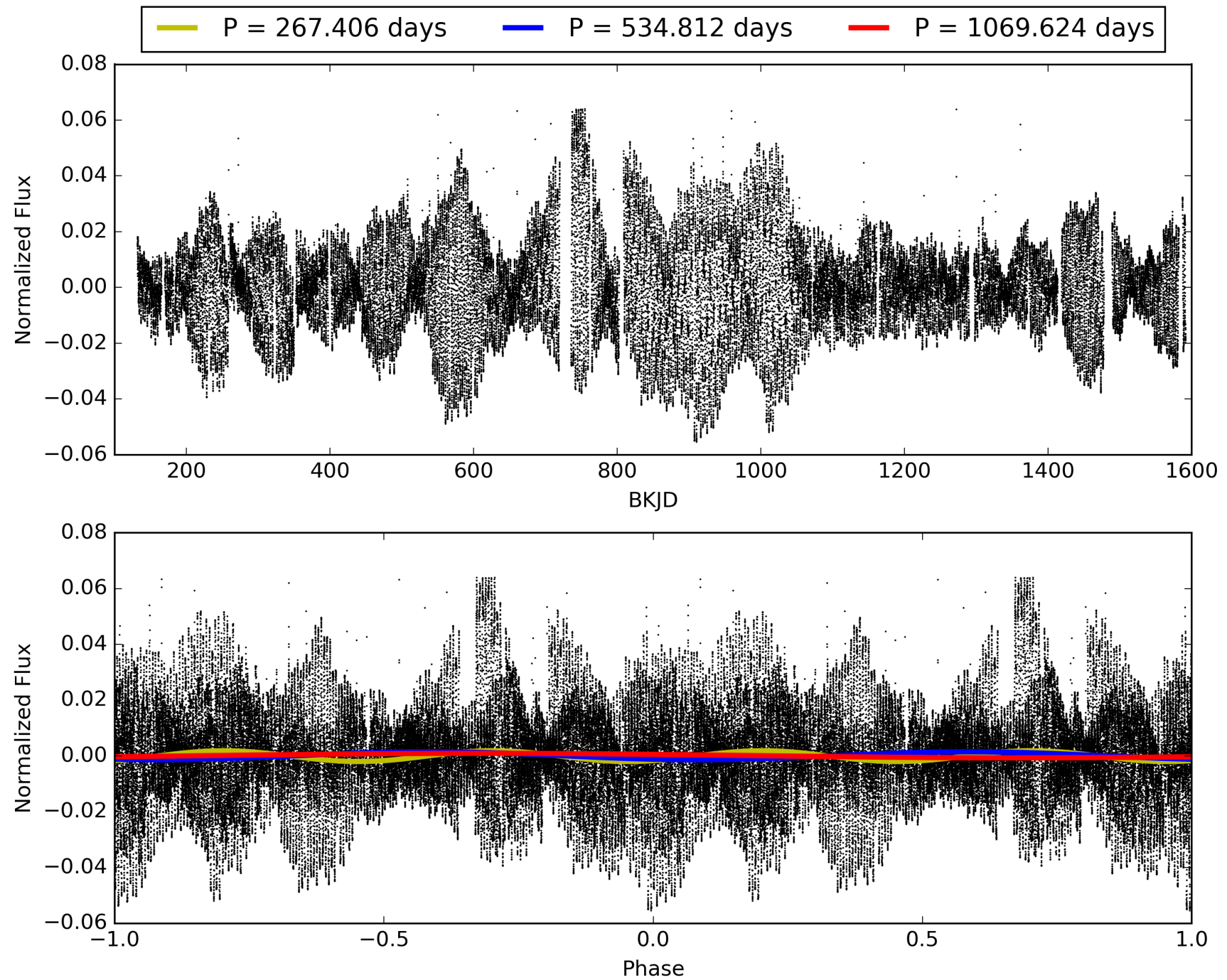
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [615.33σ]
LongPeriod-sig: 100.0% [75.19σ]
ModelChiSquare2-sig: 24.5%
ModelChiSquareGof-sig: 97.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.16
Centroid-sig: 96.4%
Centroid-so: 0.128 arcsec [0.37σ]
OotOffset-rm: 0.078 arcsec [0.68σ]
KicOffset-rm: 0.044 arcsec [0.56σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 006307077-01, PDC Light Curves

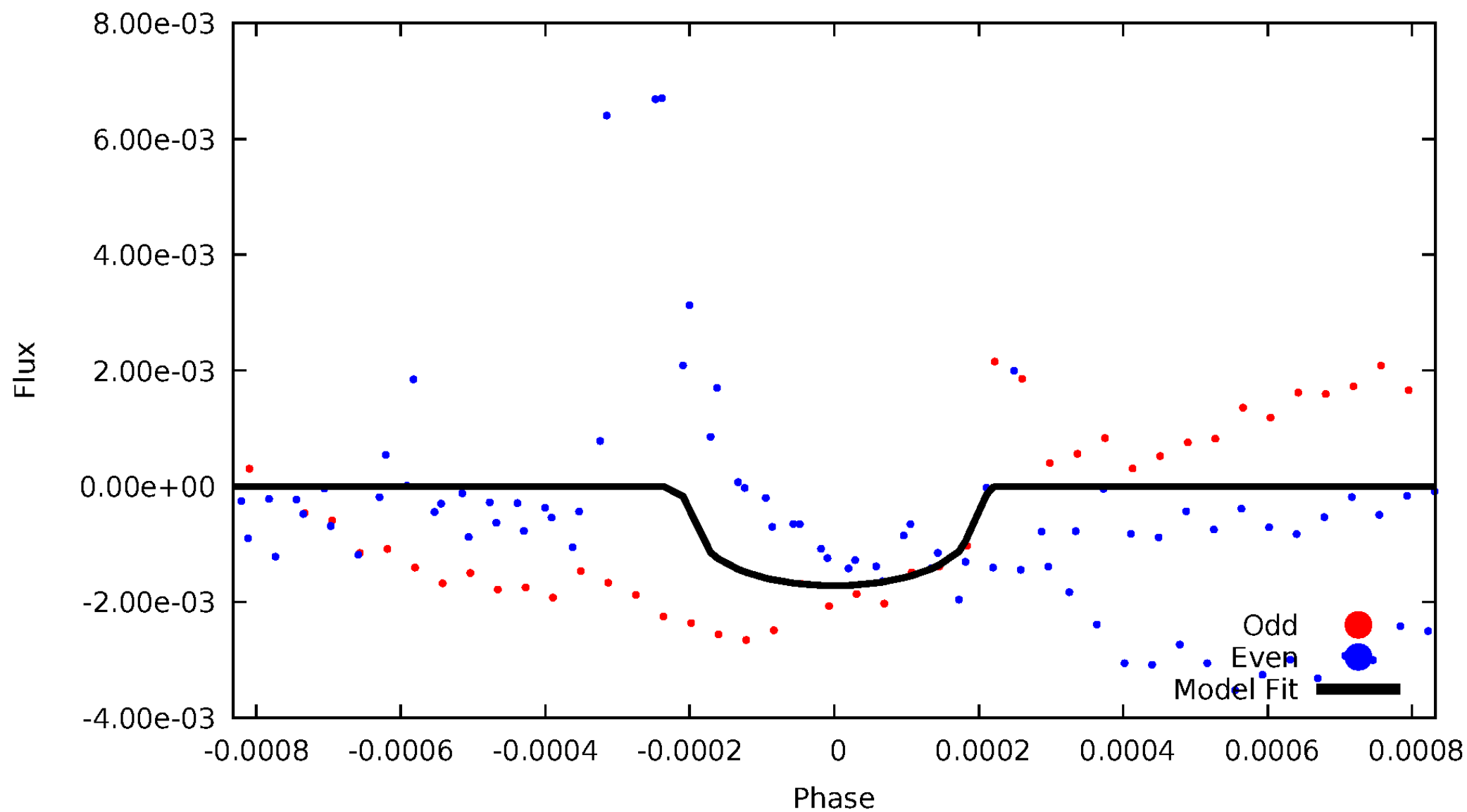


TCE 006307077-01



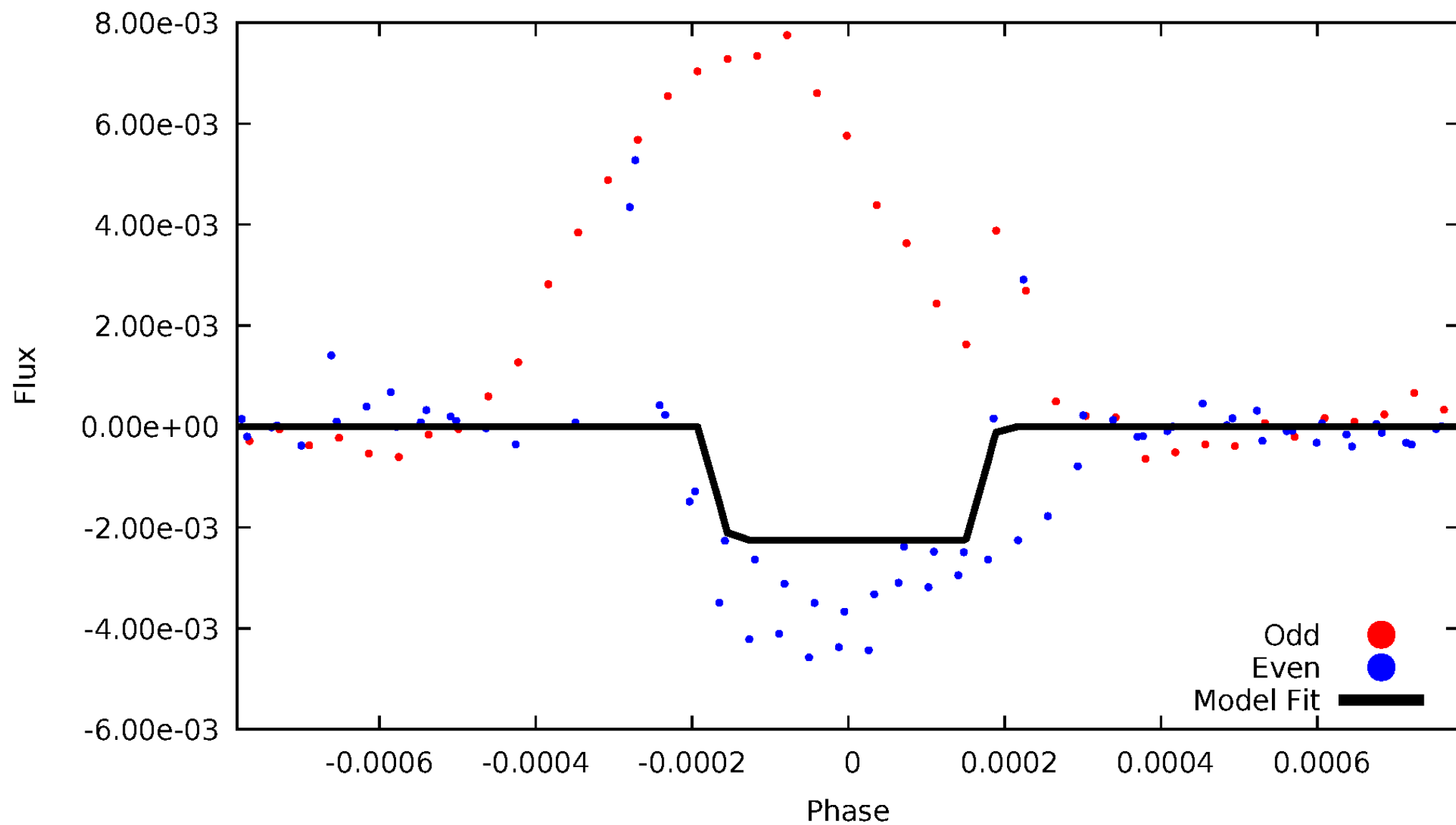
DV Odd/Even

TCE 006307077-01



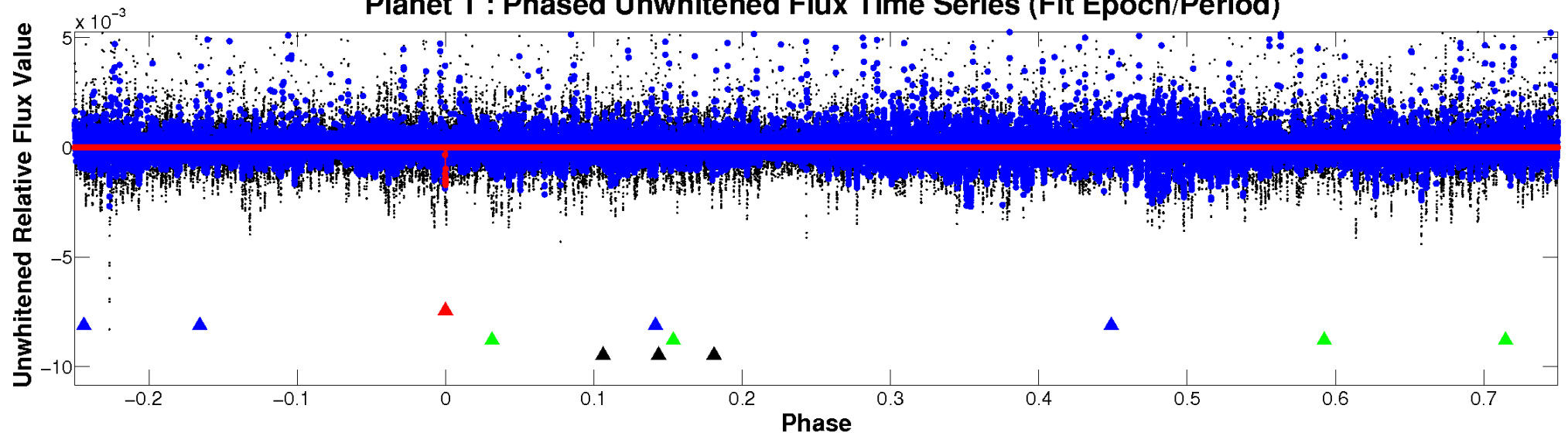
ALT Odd/Even

TCE 006307077-01

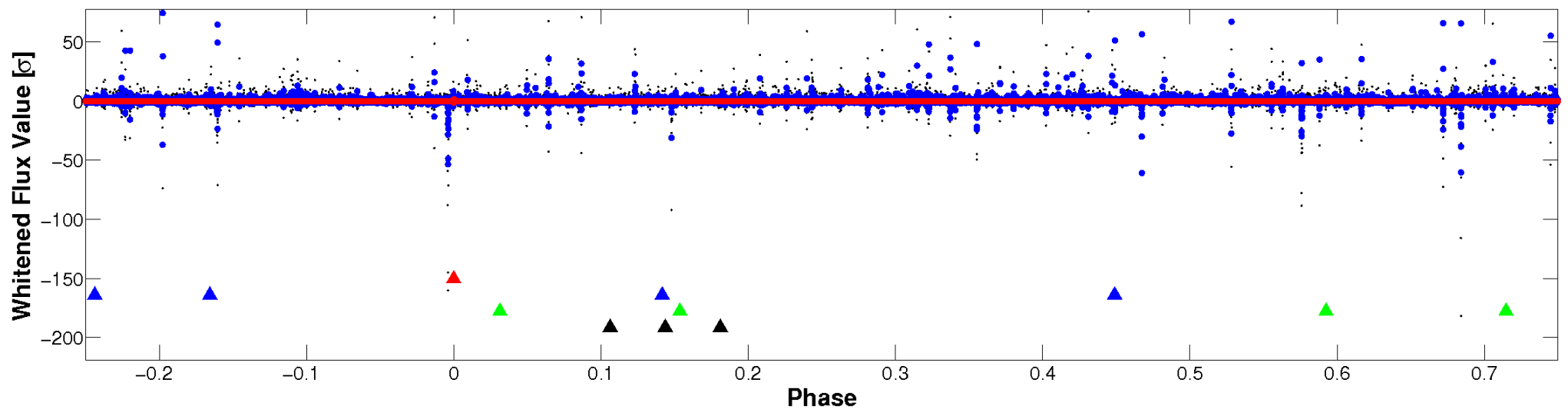


Non-Whitened Vs. Whitened Light Curve

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

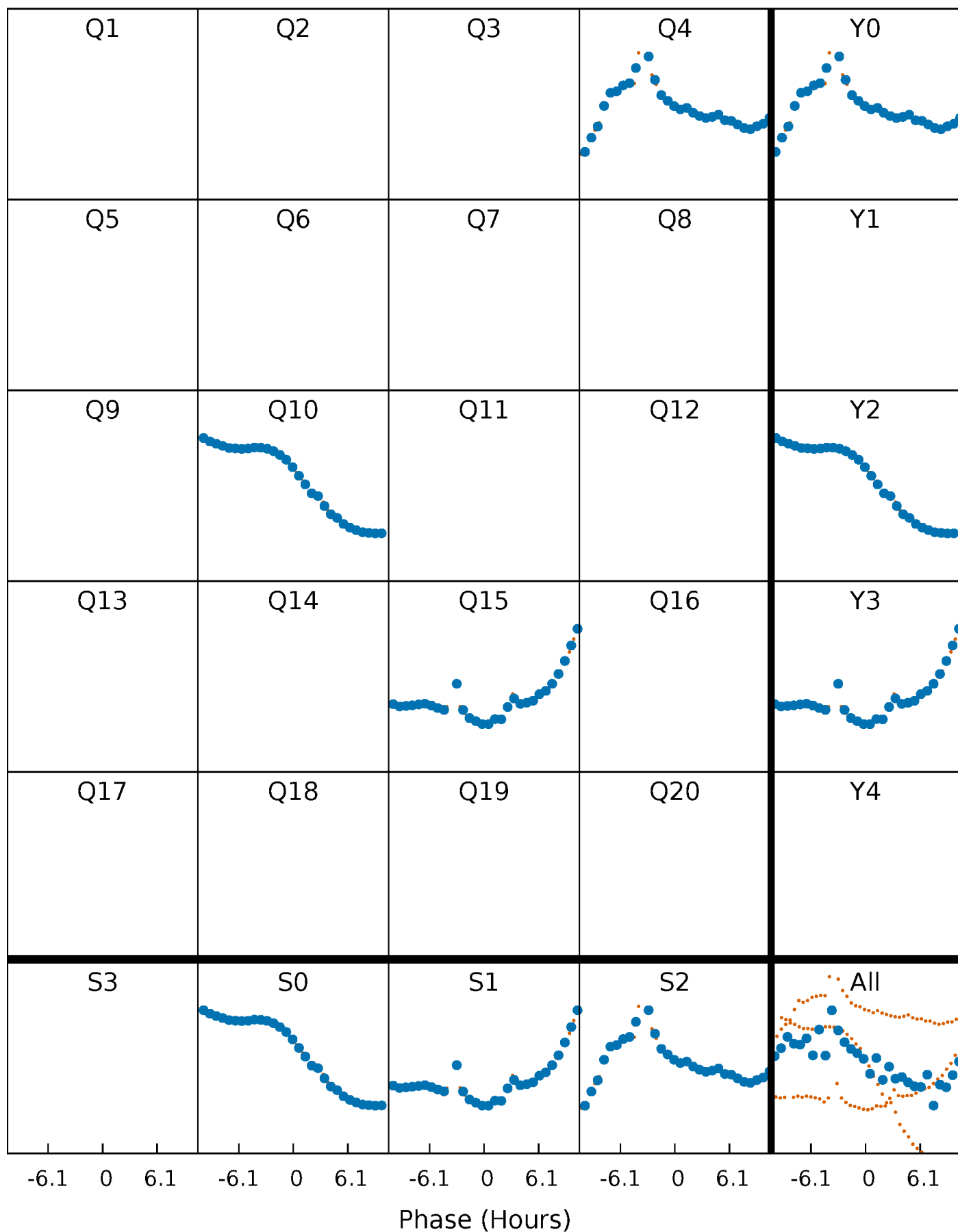


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



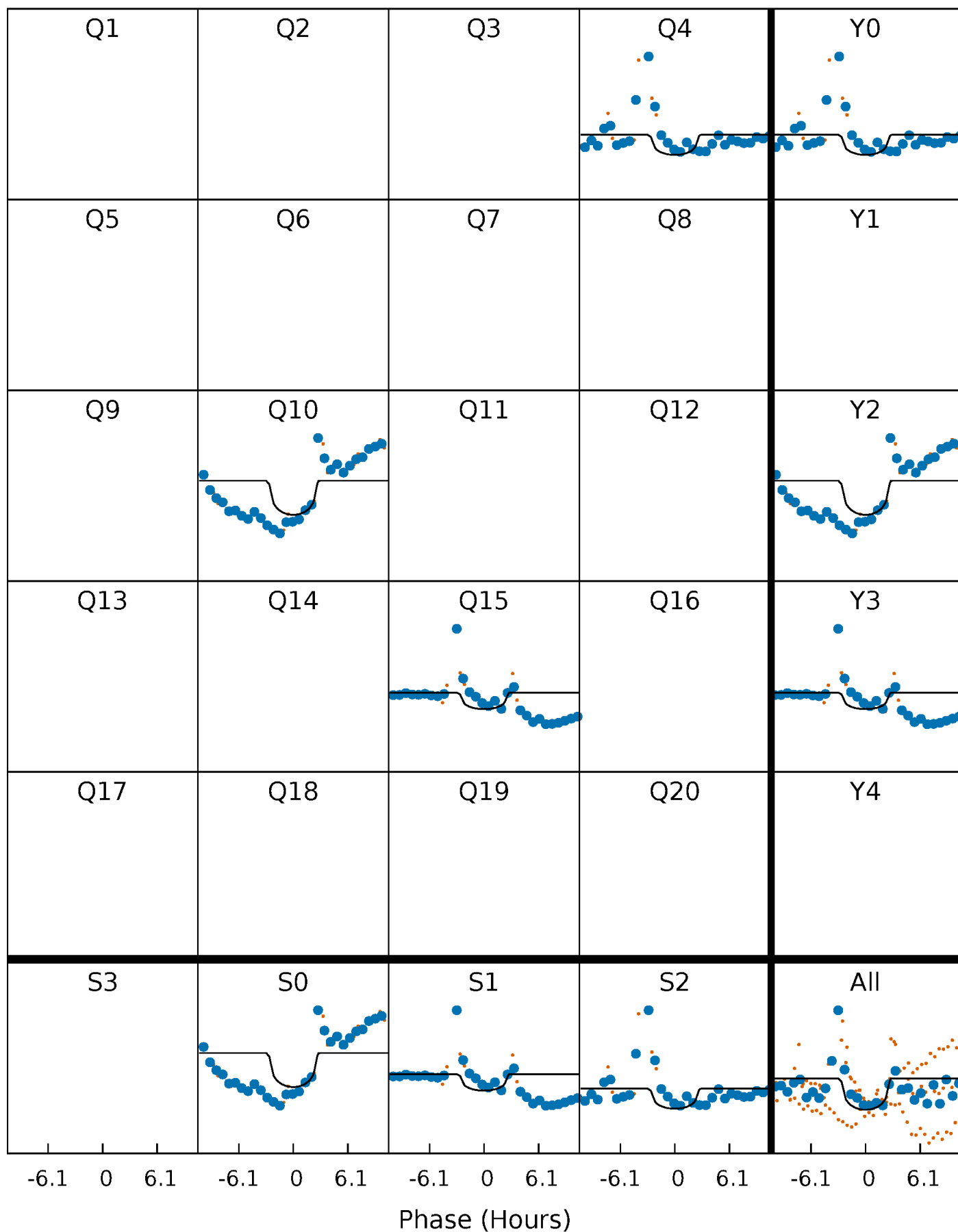
PDC Quarter-Phased Transit Curves

TCE 006307077-01 P=534.811858 Days $T_0=377.534747$ (BKJD)



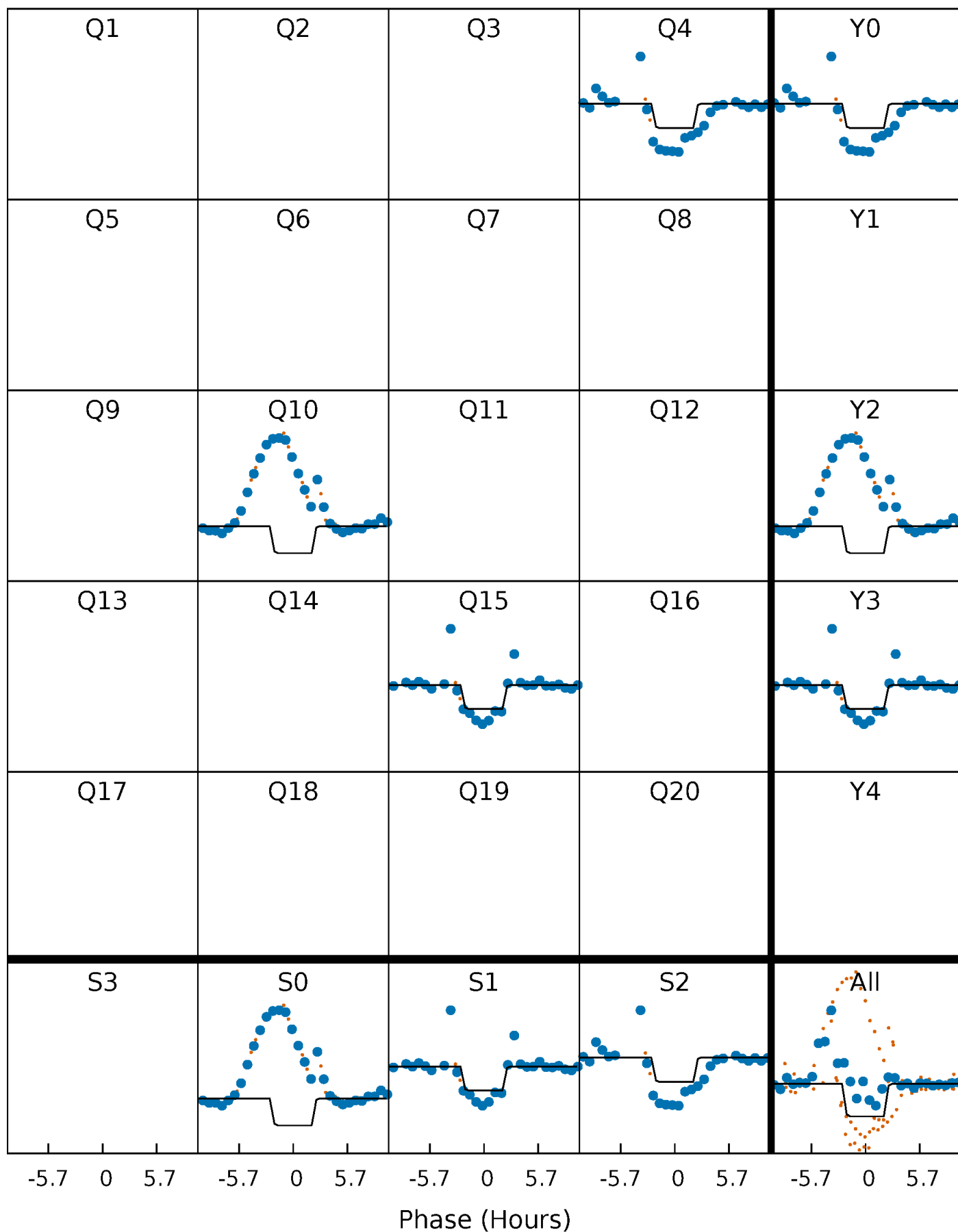
DV Quarter-Phased Transit Curves

TCE 006307077-01 P=534.811858 Days $T_0=377.534747$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

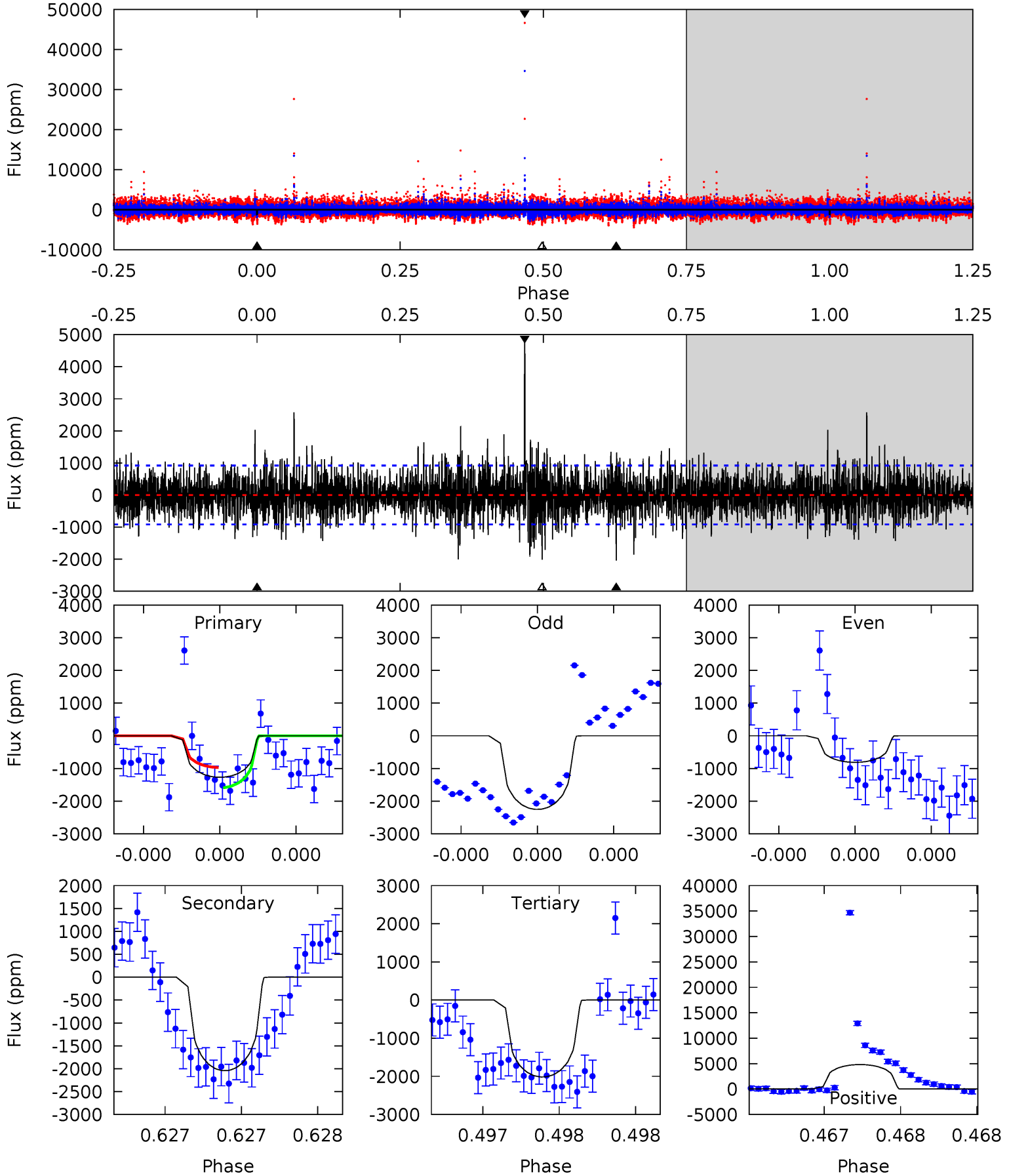
TCE 006307077-01 P=534.807566 Days $T_0=377.556660$ (BKJD)



DV Model-Shift Uniqueness Test

006307077-01, P = 534.811858 Days, E = 377.534747 Days

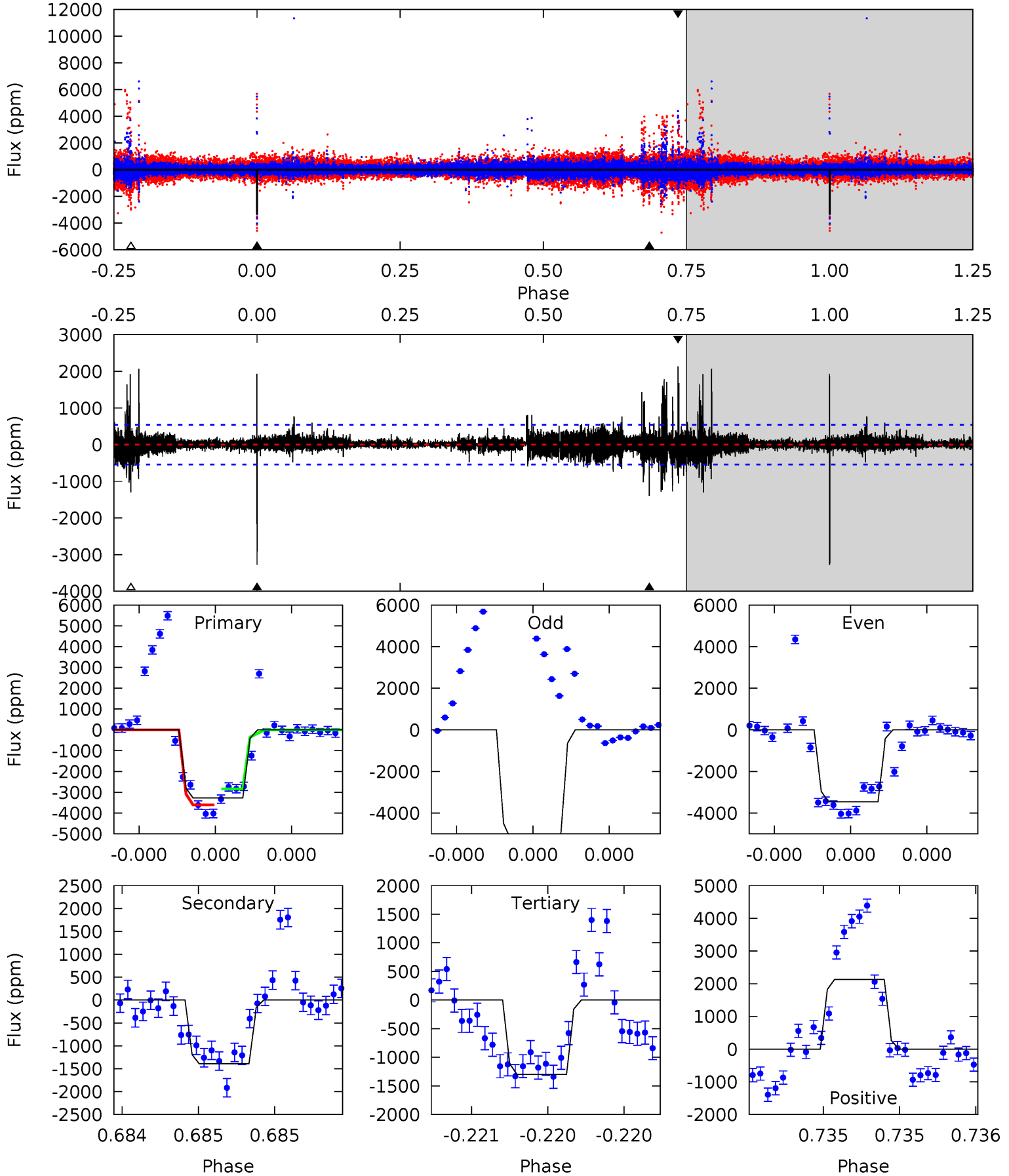
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.75	12.5	12.3	29.4	5.60	3.52	2.95	-4.57	-21.7	0.16	-17.0	1.58	1.44	0.70	1.89



Alt Model-Shift Uniqueness Test

006307077-01, P = 534.807566 Days, E = 377.556660 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.8	14.4	13.4	22.0	5.61	3.53	1.87	20.4	11.8	0.98	-7.61	6.41	0.19	0.39	0



Stellar Parameters For KIC 006307077

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4882^{+148}_{-118}	$3.748^{+0.826}_{-0.354}$	$0.020^{+0.250}_{-0.250}$	$2.124^{+1.327}_{-1.327}$	$0.921^{+0.244}_{-0.163}$	$0.135^{+2.801}_{-0.089}$
	+3%/-2%	+22%/-9%	+1250%/-1250%	+62%/-62%	+26%/-18%	+2069%/-66%
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 006307077-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2043 ± 164	$9.49^{+8.76}_{-6.04}$	387^{+64}_{-74}	4930^{+3087}_{-949}	$20494^{+129607}_{-14994}$
Alt.	-1393 ± 97	$10.58^{+10.24}_{-6.43}$	383^{+68}_{-73}	4328^{+1876}_{-730}	10995^{+60822}_{-8068}

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

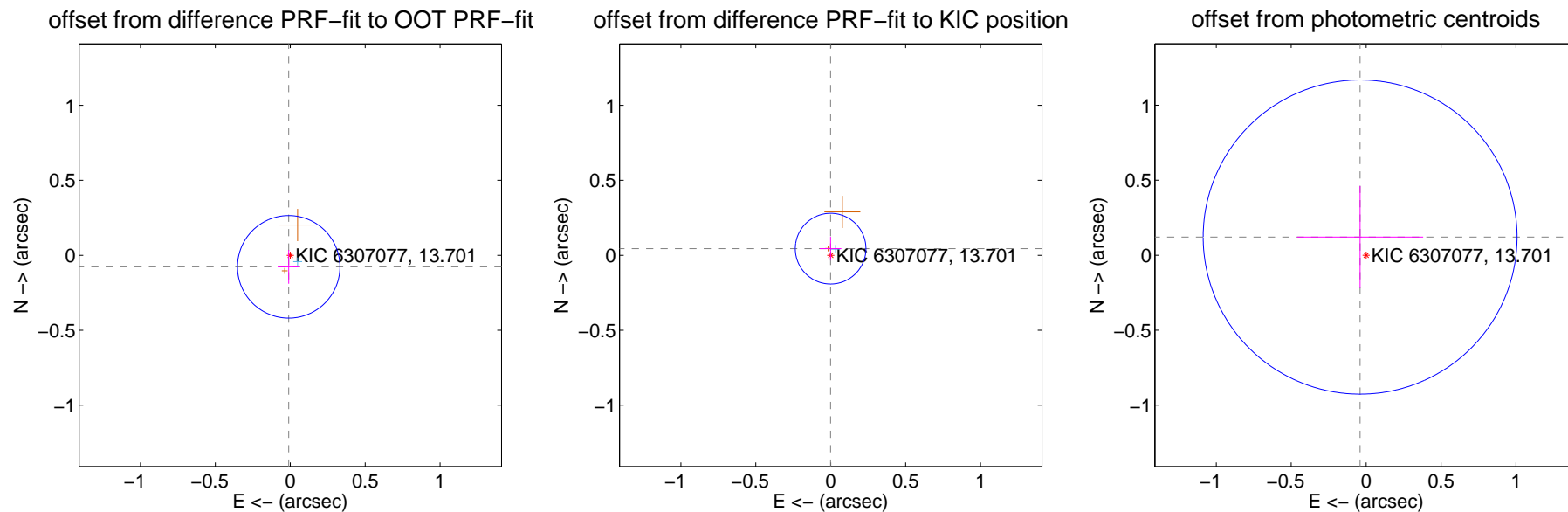
DV Centroid Data

Supplemental centroid analysis for 006307077-01. Kepler magnitude: 13.70. Transit SNR 5.72

There are 1 quarters with good PRF difference image offsets

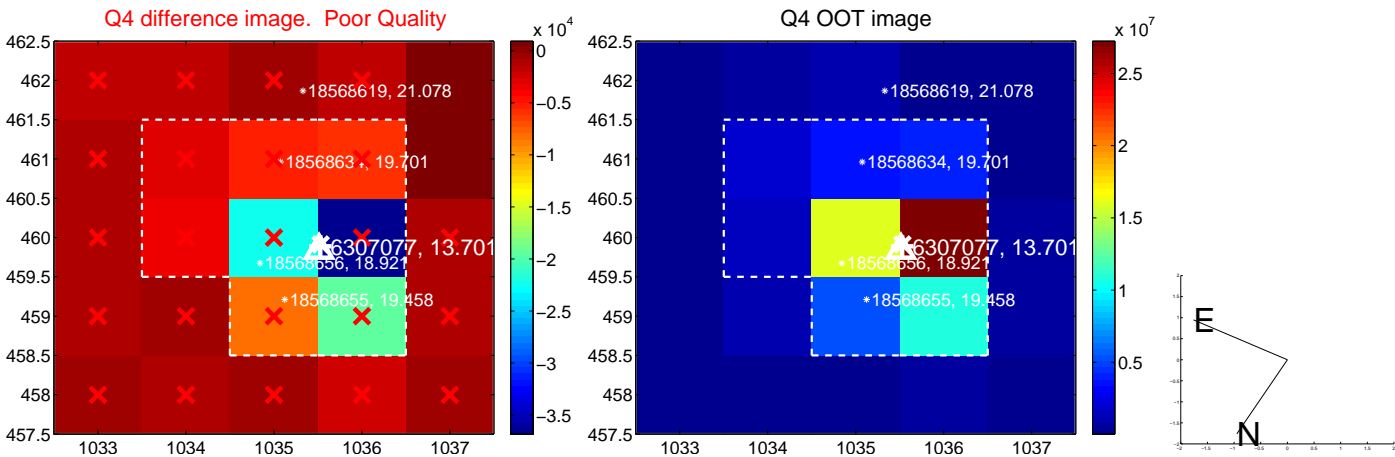
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.078 ± 0.114	0.68	0.010 ± 0.074	-0.077 ± 0.113
PRF-fit source offset from KIC position	0.044 ± 0.079	0.56	0.001 ± 0.072	0.044 ± 0.079
photometric centroid source offset	0.13 ± 0.35	0.37	0.04 ± 0.42	0.12 ± 0.34



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.

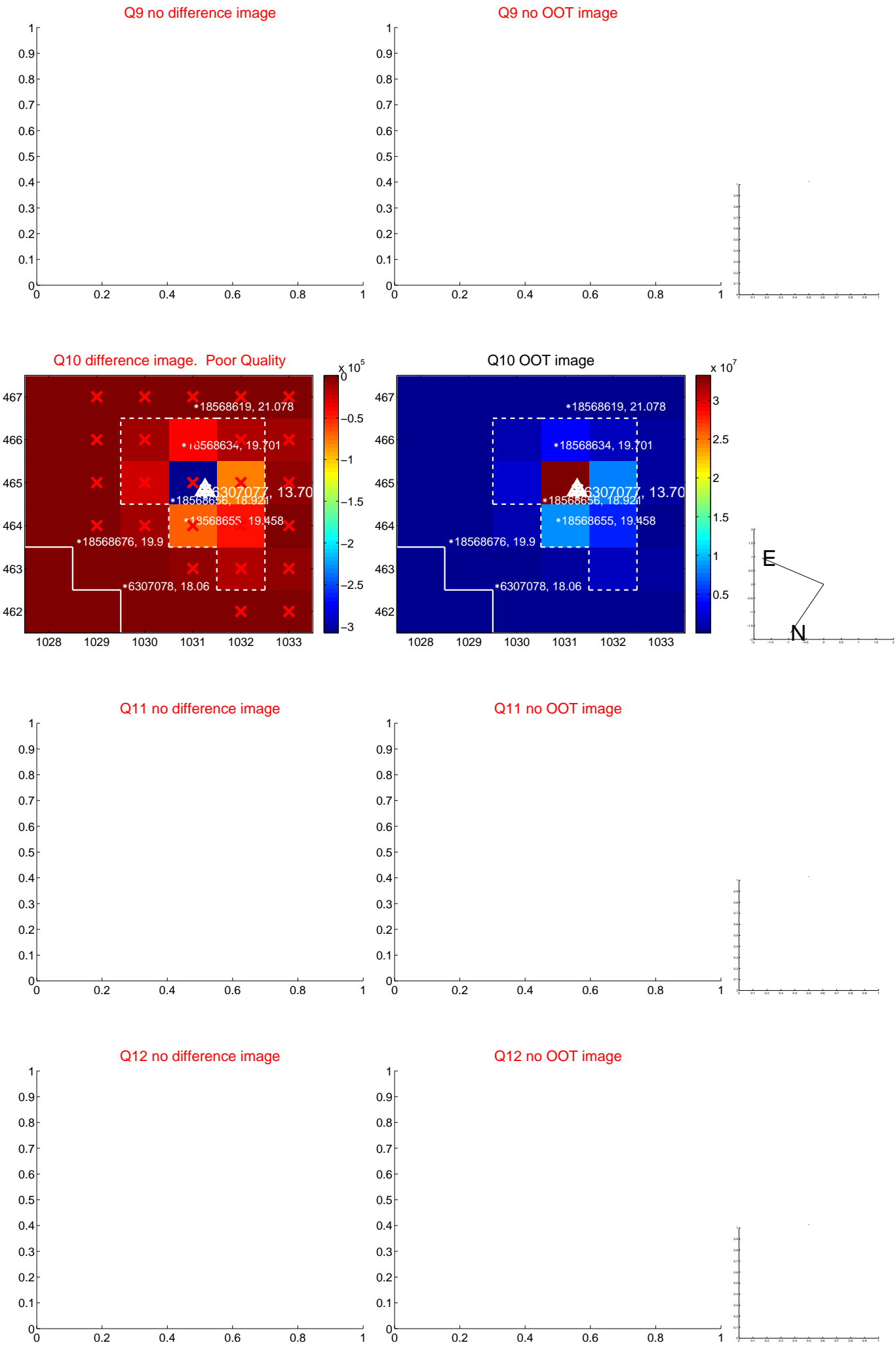
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Q13 no difference image



Q13 no OOT image



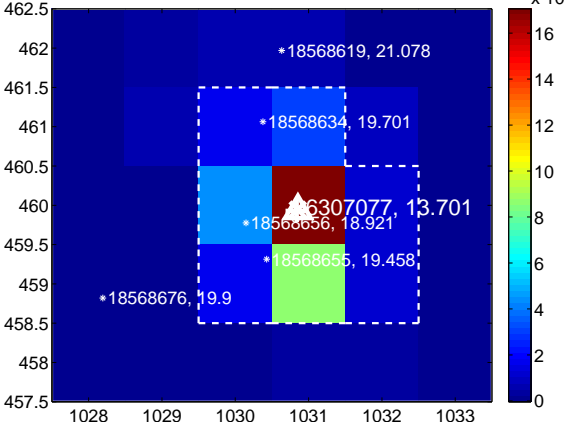
Q14 no difference image



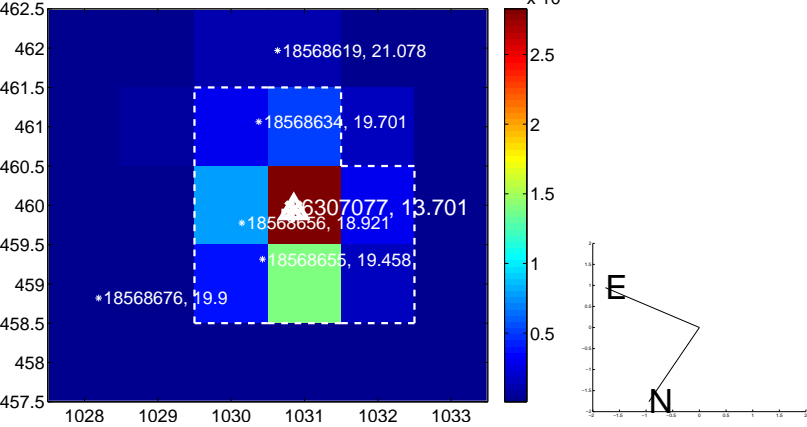
Q14 no OOT image



Q15 difference image



Q15 OOT image



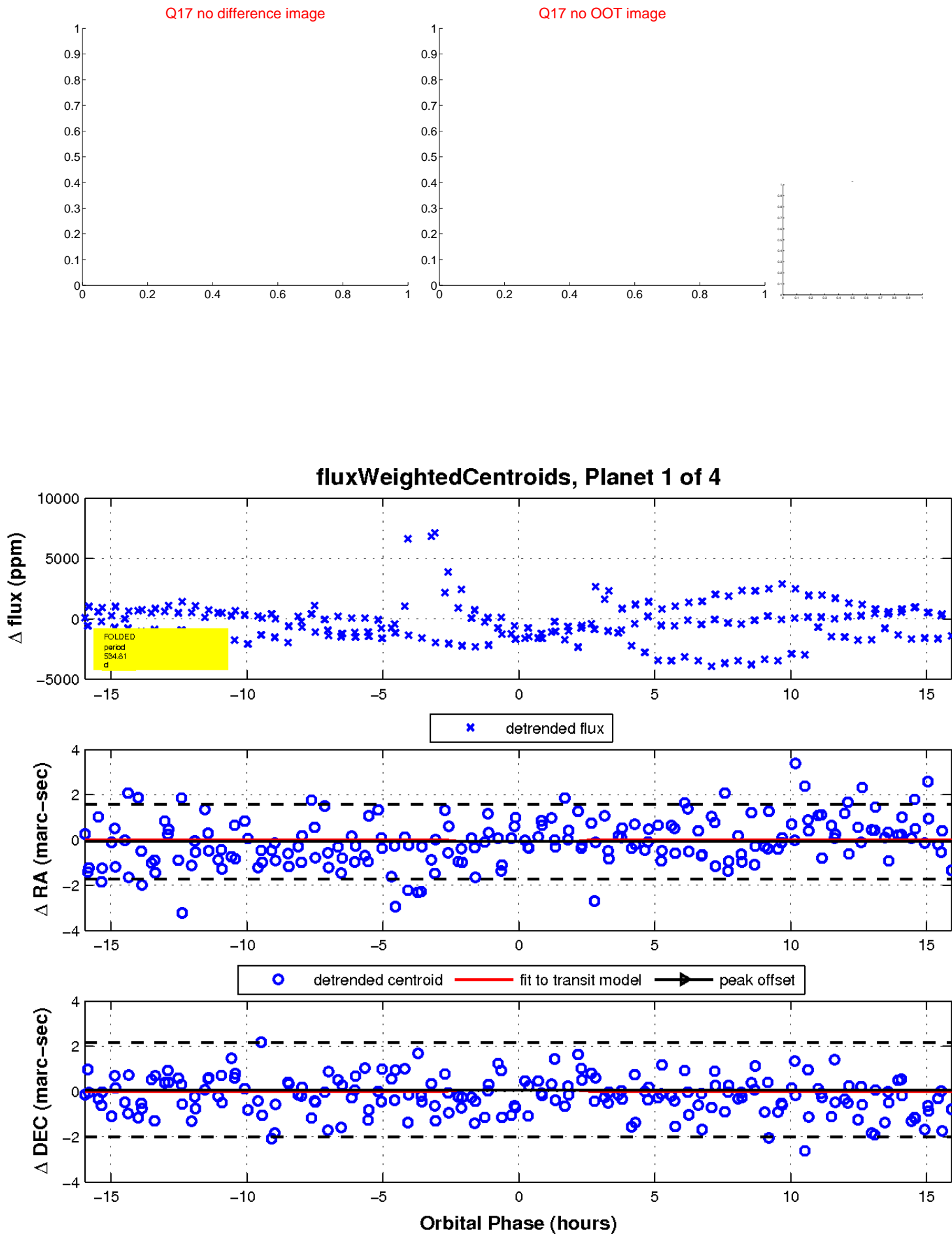
Q16 no difference image



Q16 no OOT image

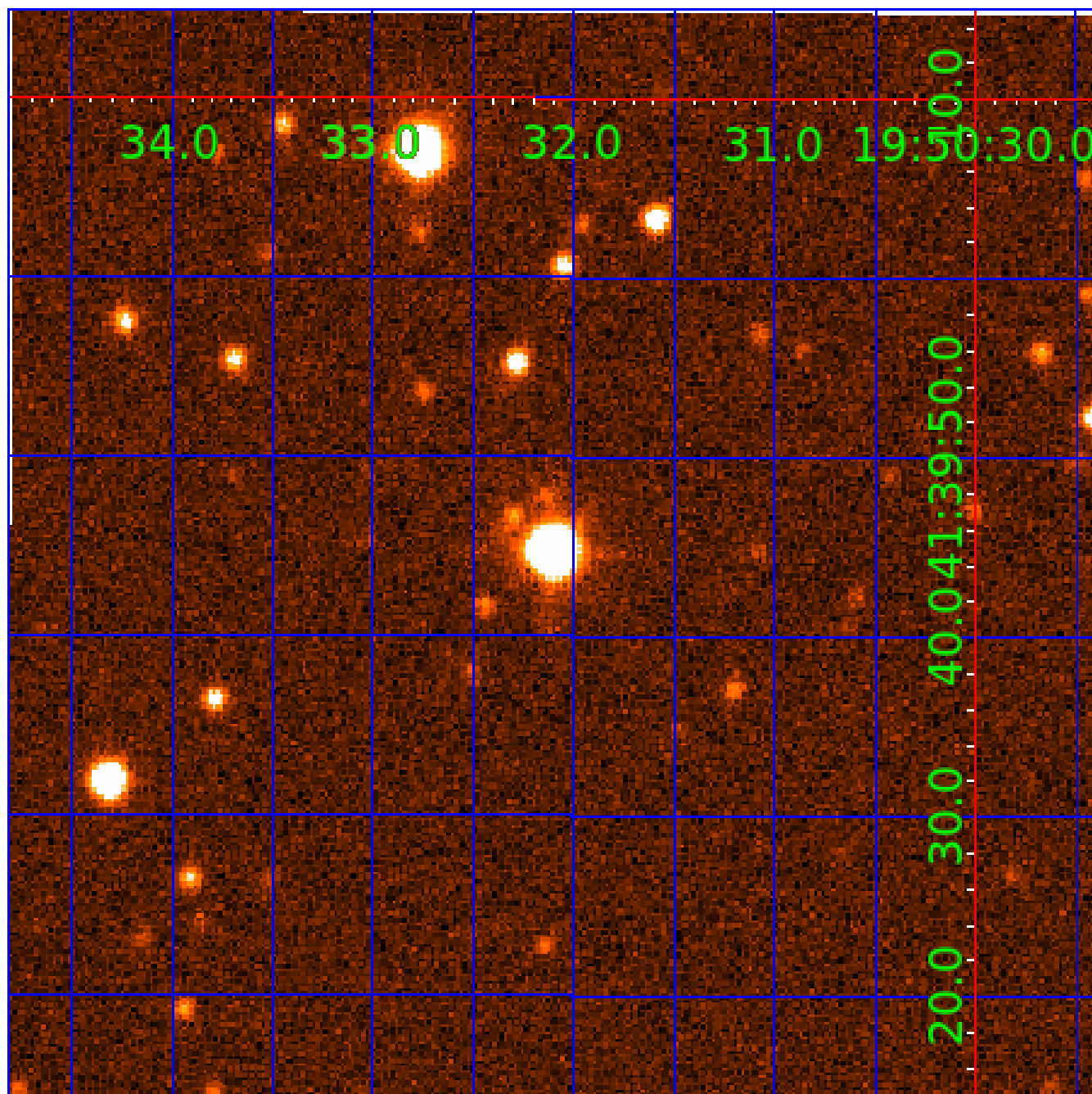


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006307077

Q1-17 DR25 TCE Parameters

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006307077-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006307077-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006307077-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_NOFITS

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N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

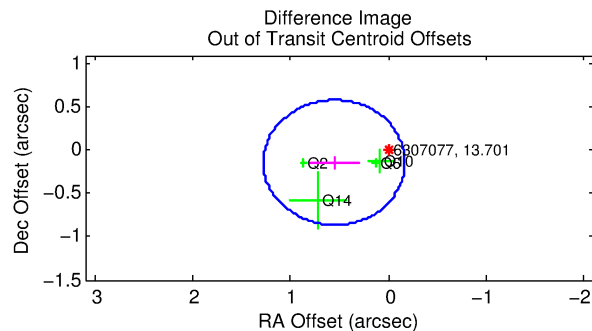
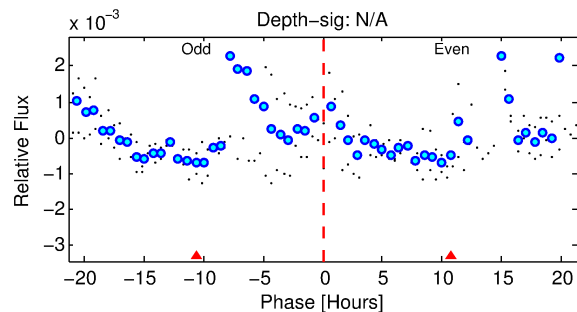
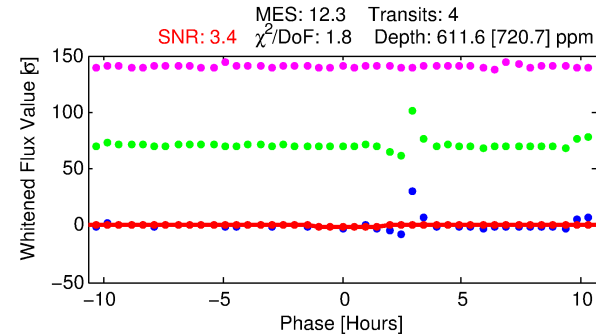
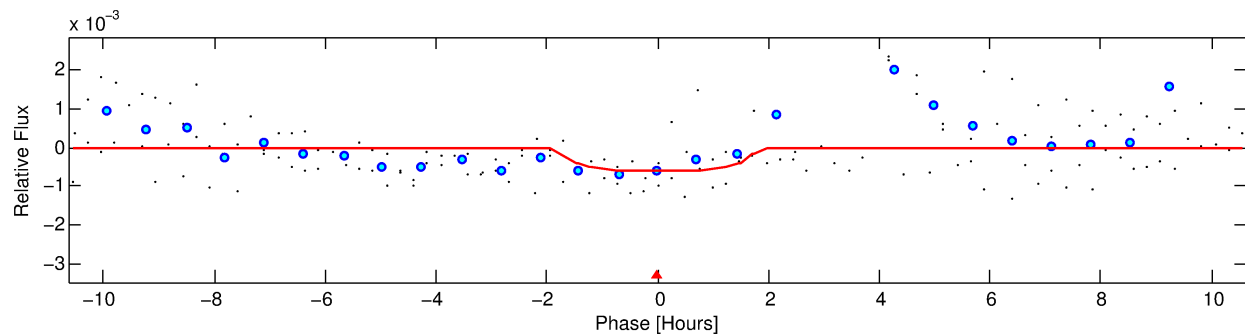
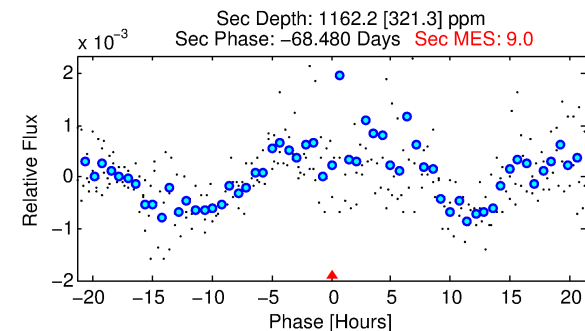
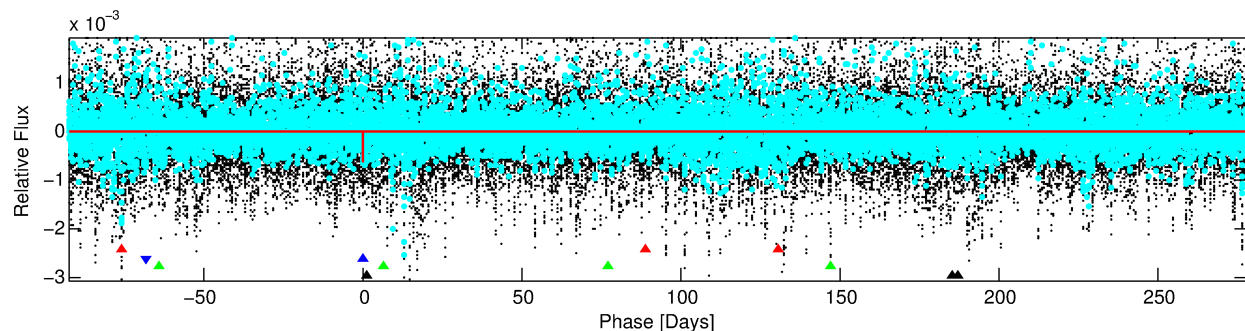
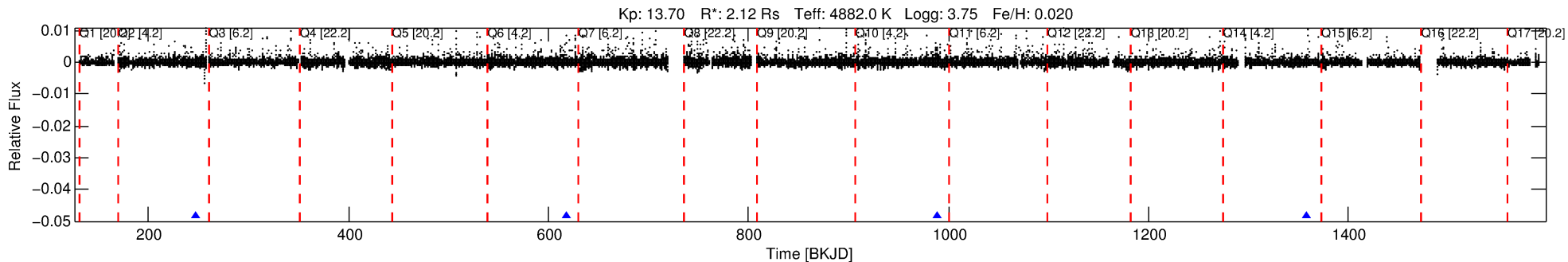
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006307077-02

No Significant Match Found

DV One-Page Summary

KIC: 6307077 Candidate: 2 of 4 Period: 370.472 d



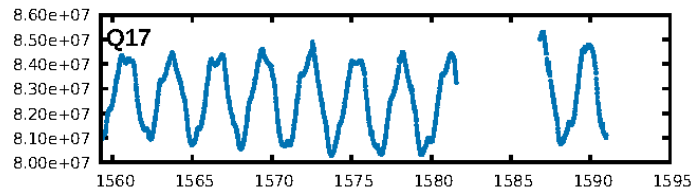
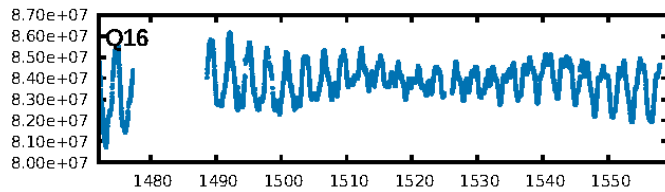
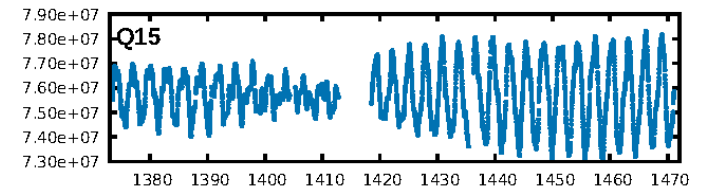
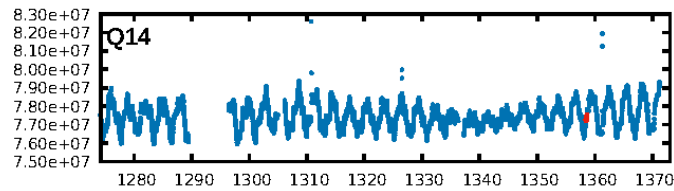
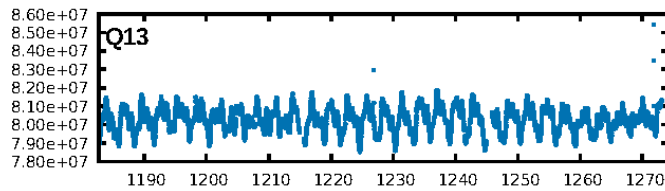
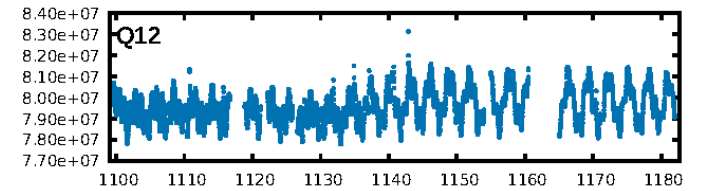
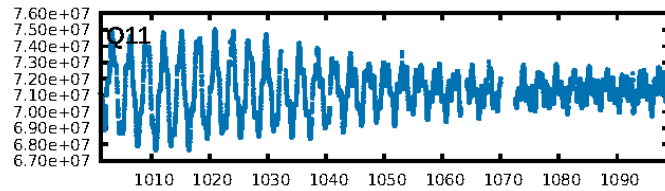
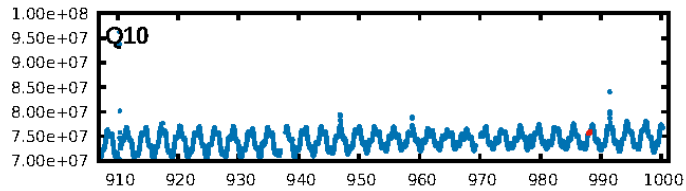
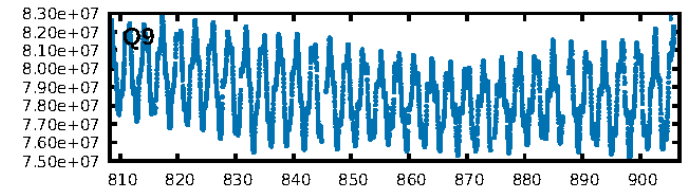
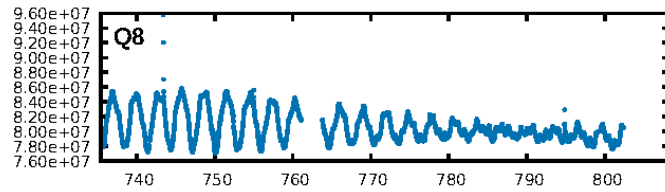
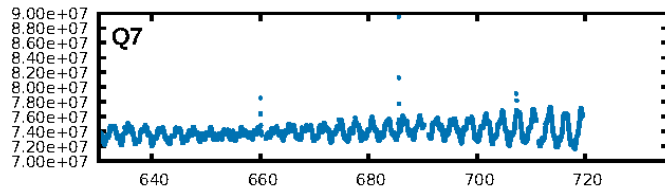
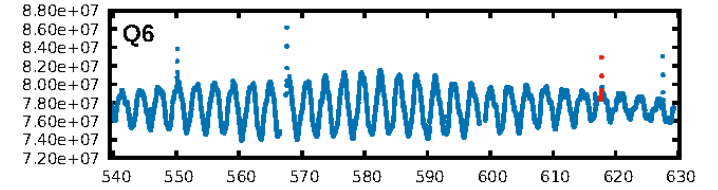
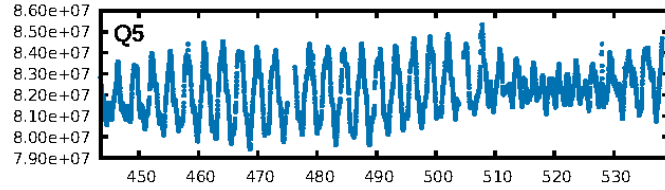
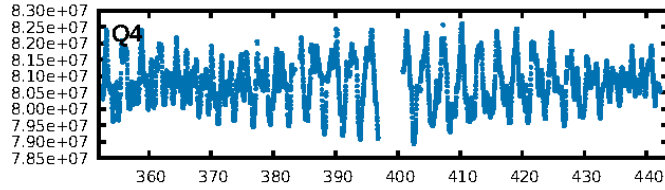
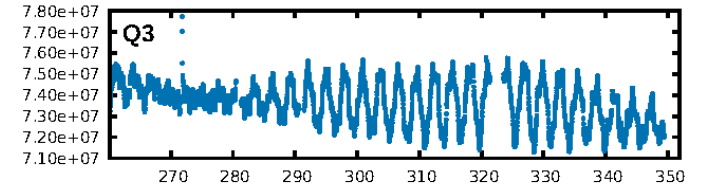
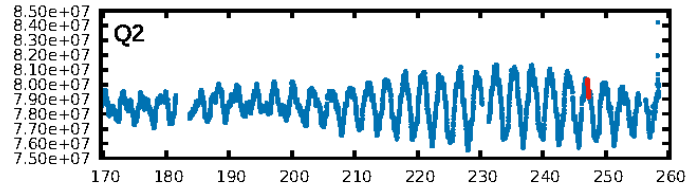
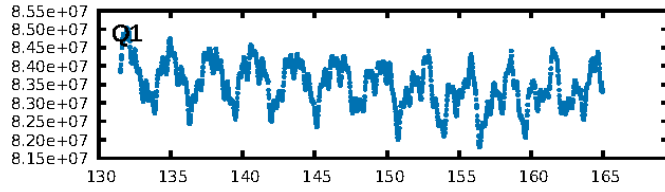
DV Fit Results:

Period = 370.47160 [0.01991] d
Epoch = 247.1473 [0.0447] BKJD
Rp/R* = 0.0222 [0.2853]
a/R* = 778.75 [32368.90]
b = 0.30 [126.73]
Seff = 2.38 [3.19]
Teq = 317 [106] K
Rp = 5.14 [66.21] Re
a = 0.9824 [0.7452] AU
Ag = 23370.49 [602411.40] [0.04σ]
Teffp = 6054 [38960] K [0.15σ]

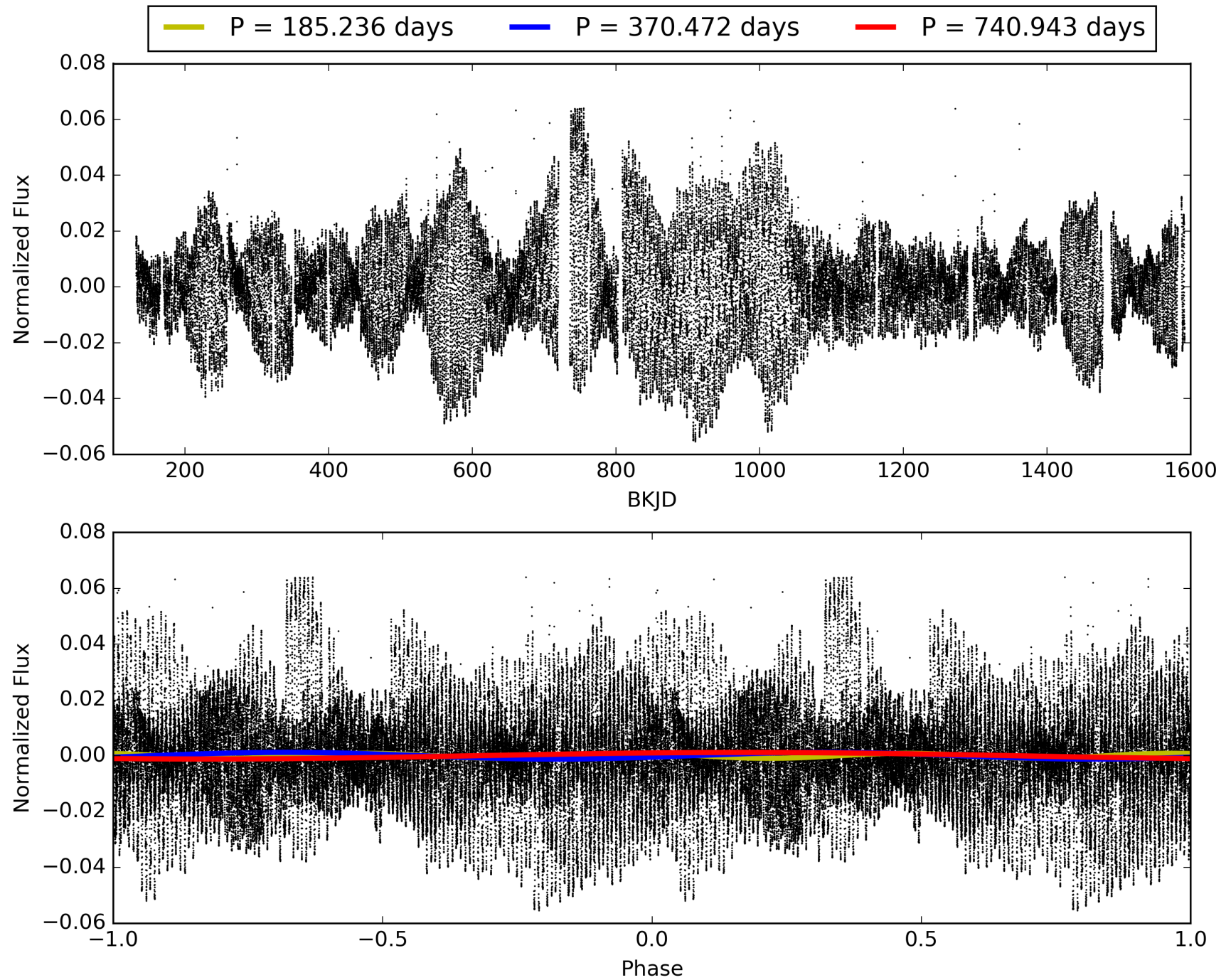
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [446.65σ]
LongPeriod-sig: 100.0% [615.33σ]
ModelChiSquare2-sig: 0.8%
ModelChiSquareGof-sig: 86.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.8136
Centroid-sig: 71.7%
Centroid-so: 0.608 arcsec [0.58σ]
OotOffset-rm: 0.573 arcsec [2.38σ]
KicOffset-rm: 0.574 arcsec [2.37σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 006307077-02, PDC Light Curves

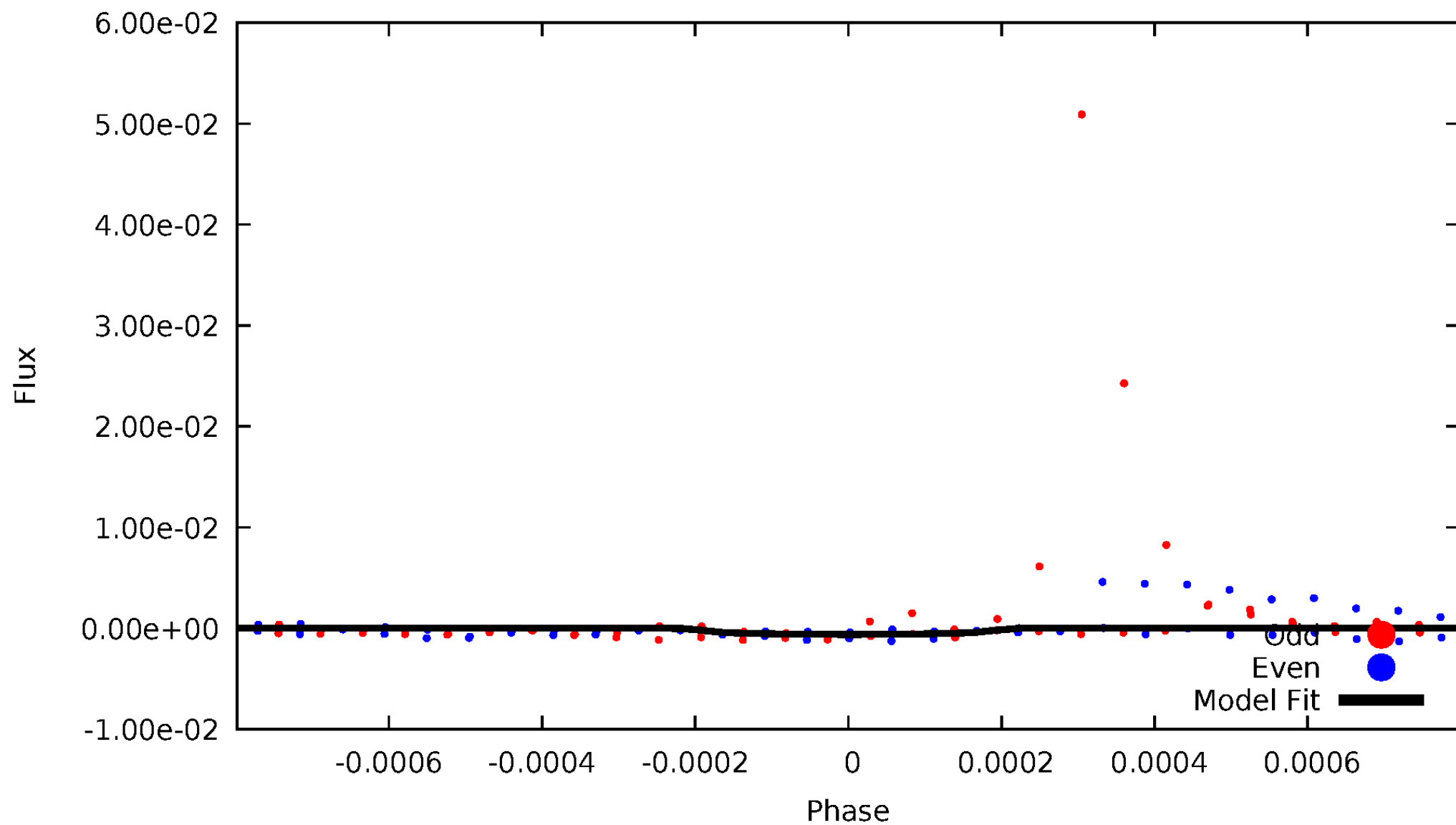


TCE 006307077-02



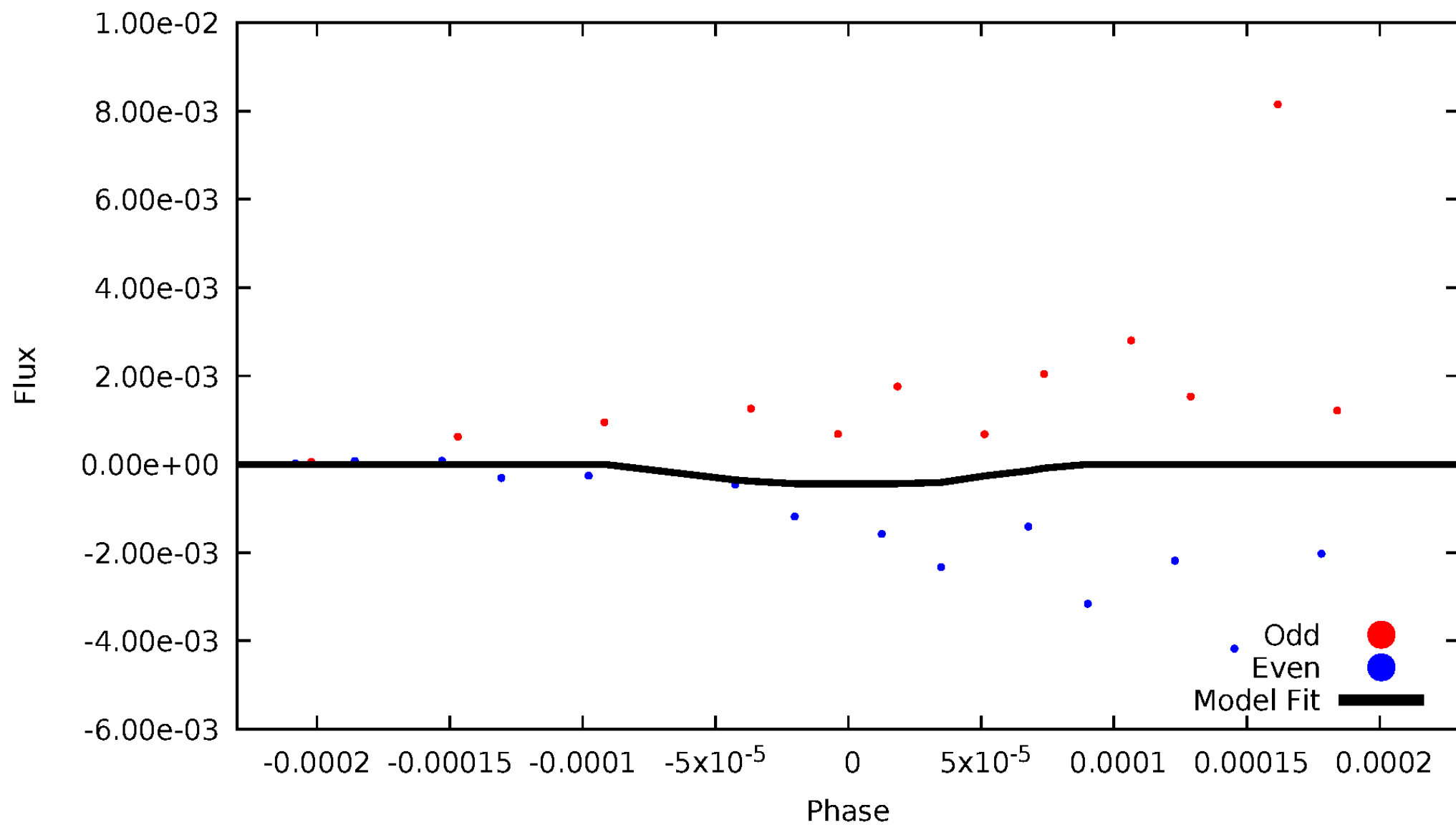
DV Odd/Even

TCE 006307077-02



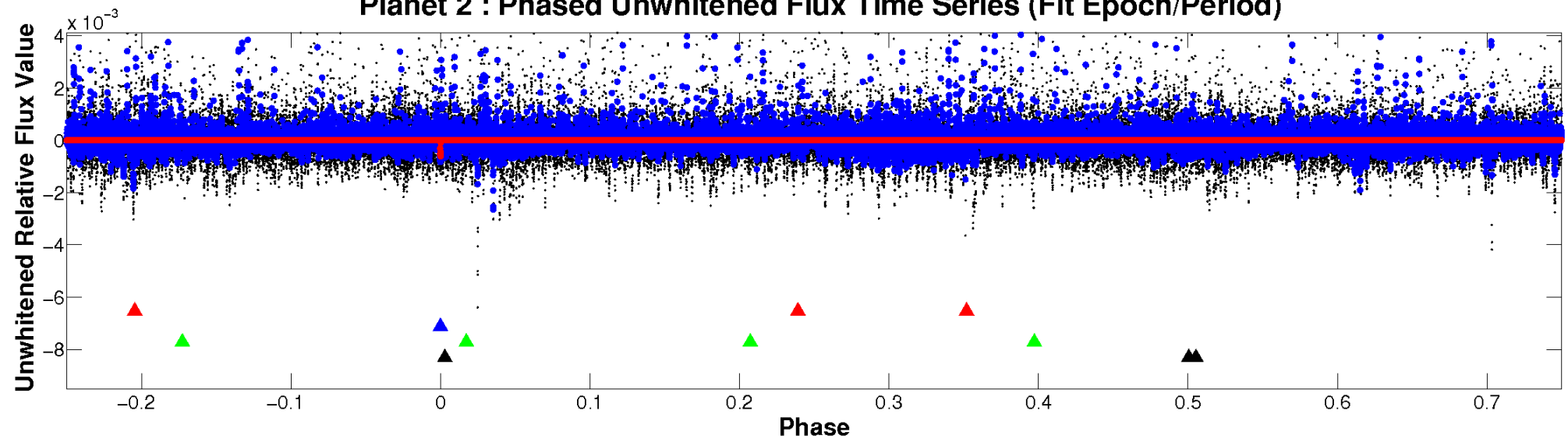
ALT Odd/Even

TCE 006307077-02

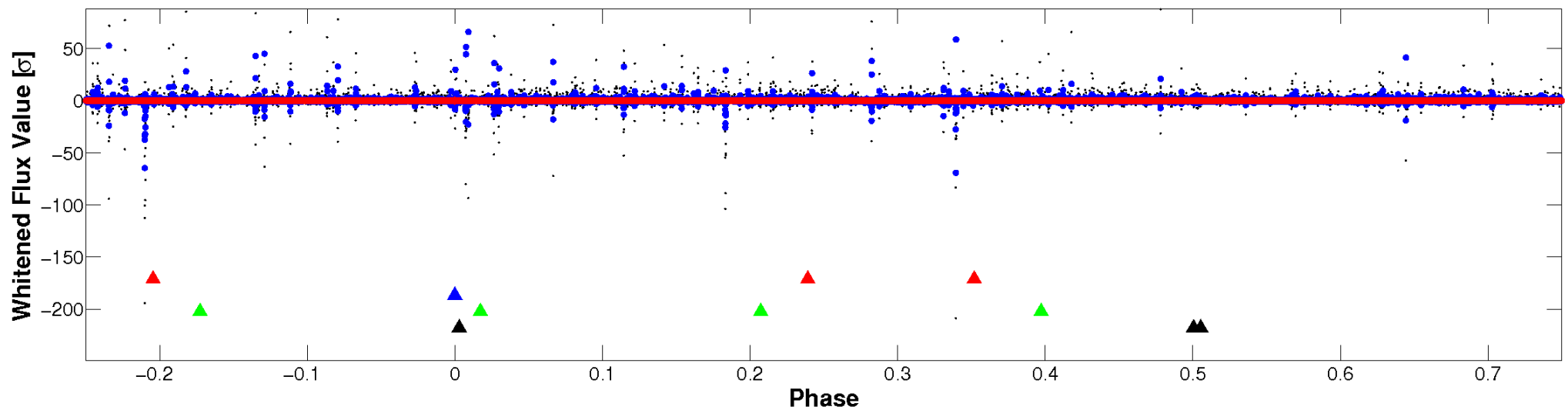


Non-Whitened Vs. Whitened Light Curve

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

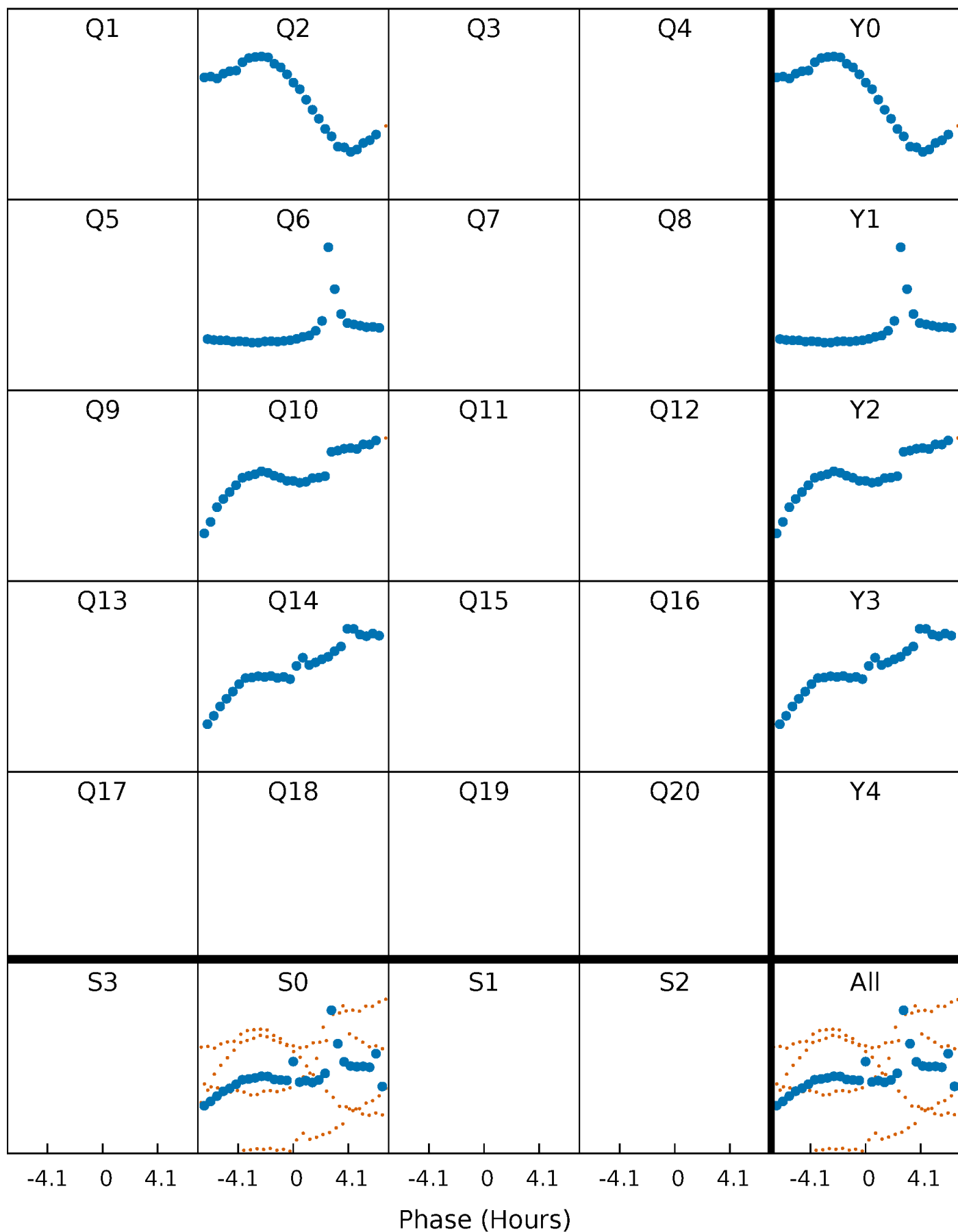


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



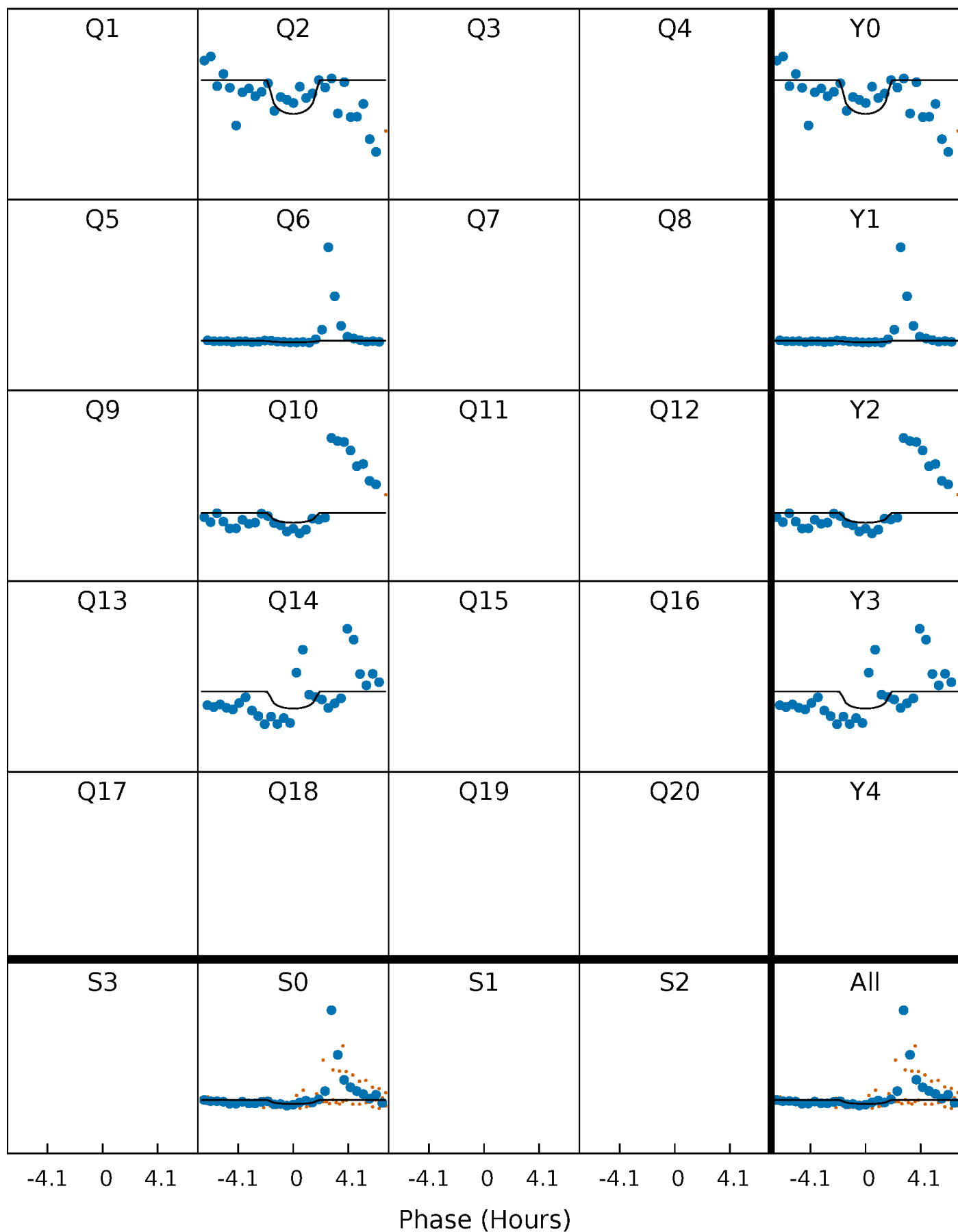
PDC Quarter-Phased Transit Curves

TCE 006307077-02 P=370.471598 Days $T_0=247.147337$ (BKJD)



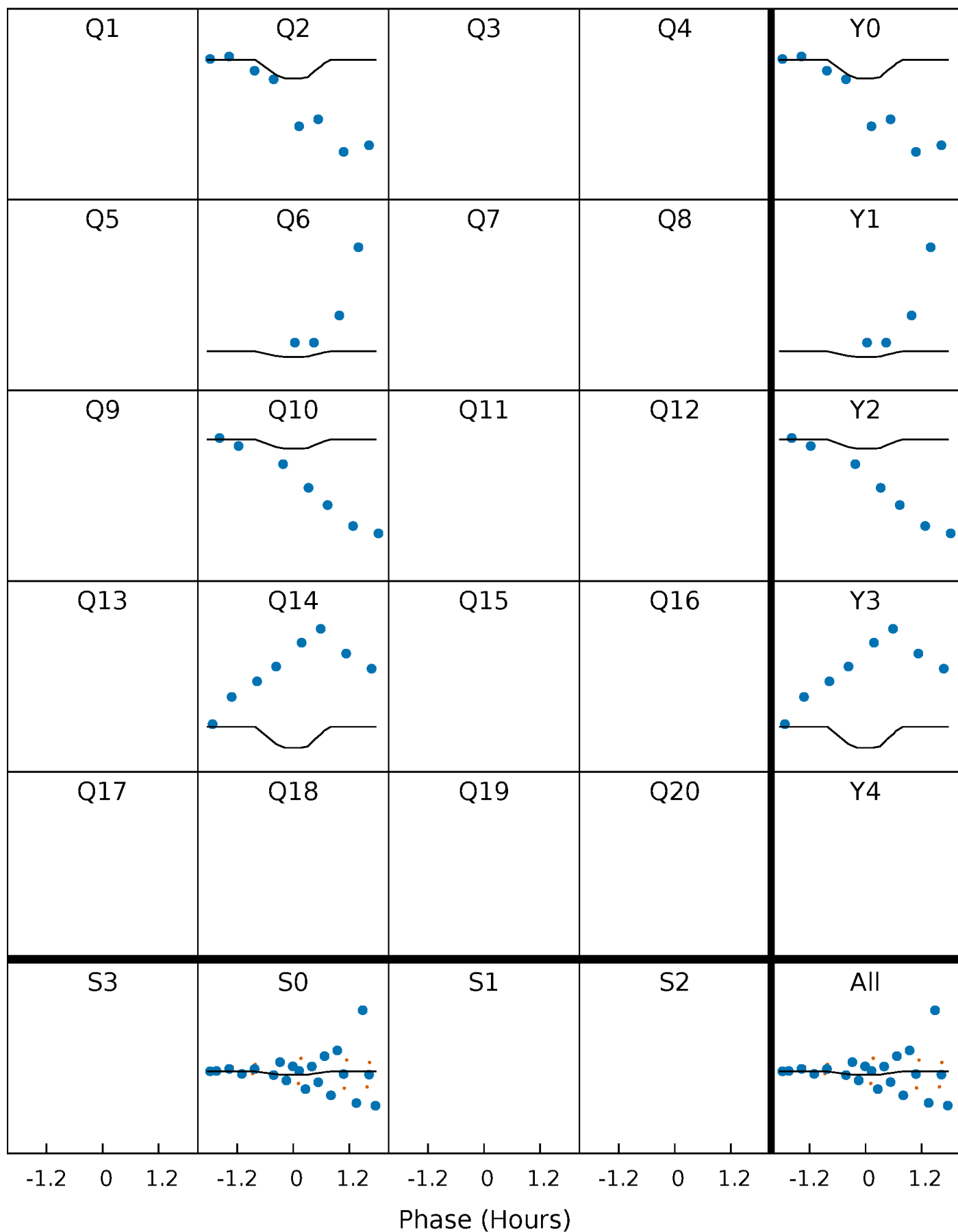
DV Quarter-Phased Transit Curves

TCE 006307077-02 P=370.471598 Days $T_0=247.147337$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

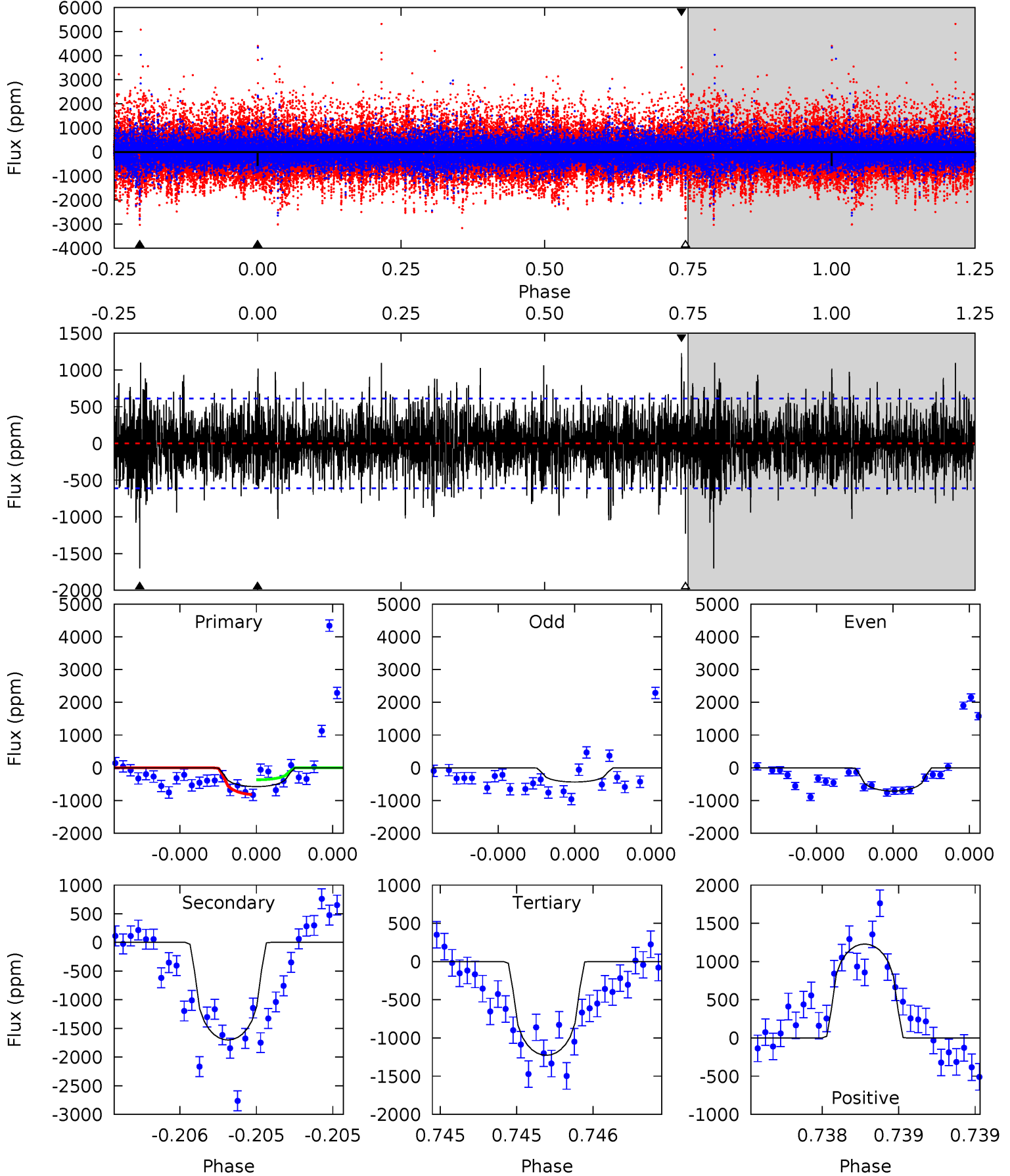
TCE 006307077-02 P=370.365086 Days $T_0=247.286496$ (BKJD)



DV Model-Shift Uniqueness Test

006307077-02, P = 370.471598 Days, E = 247.147337 Days

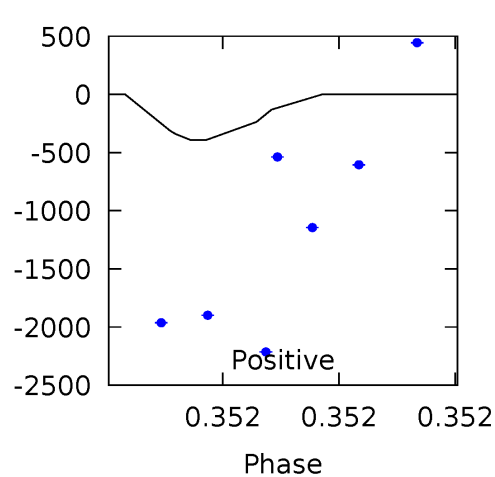
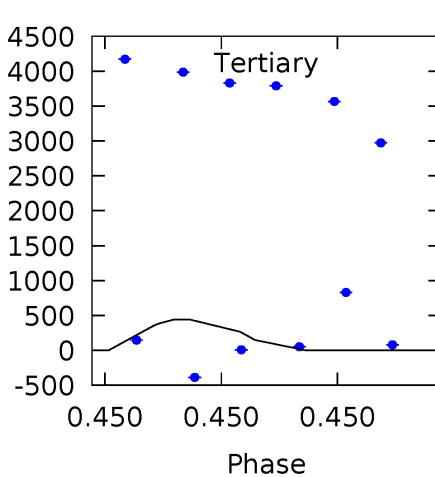
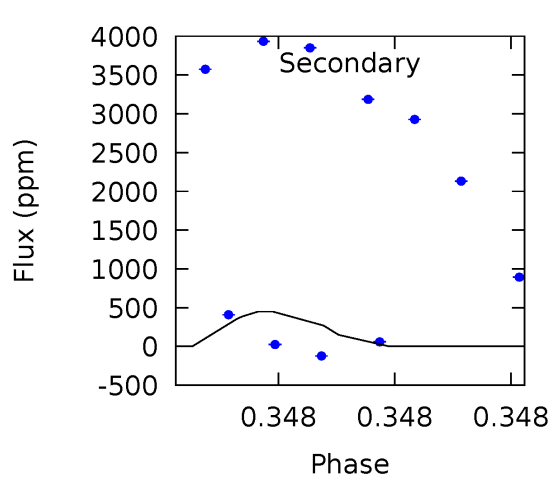
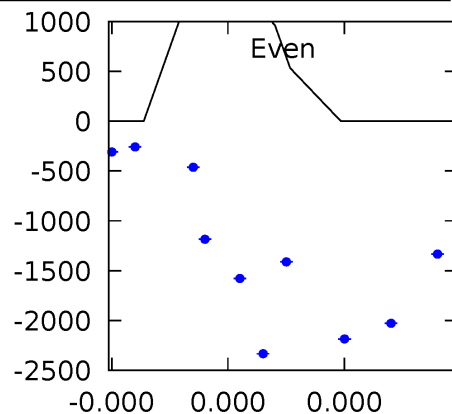
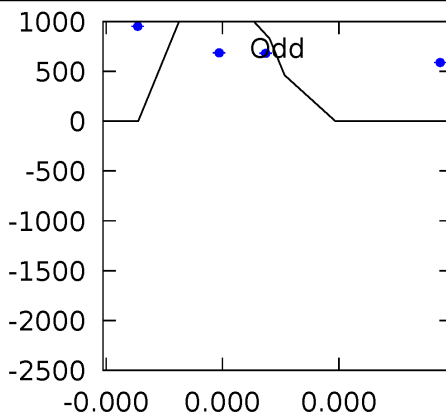
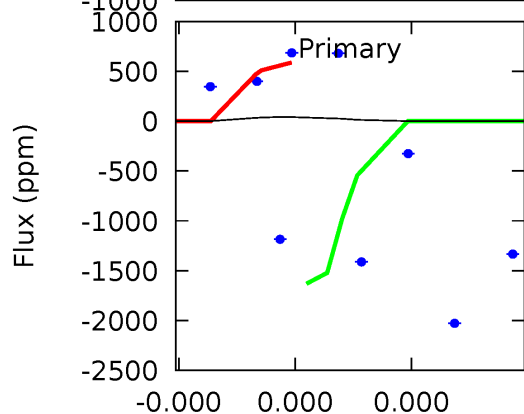
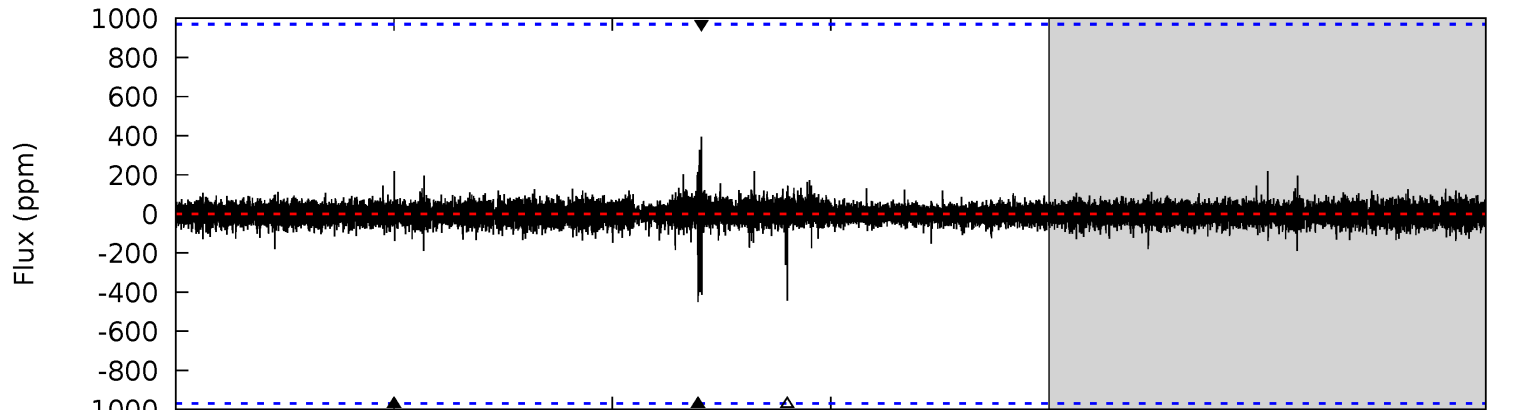
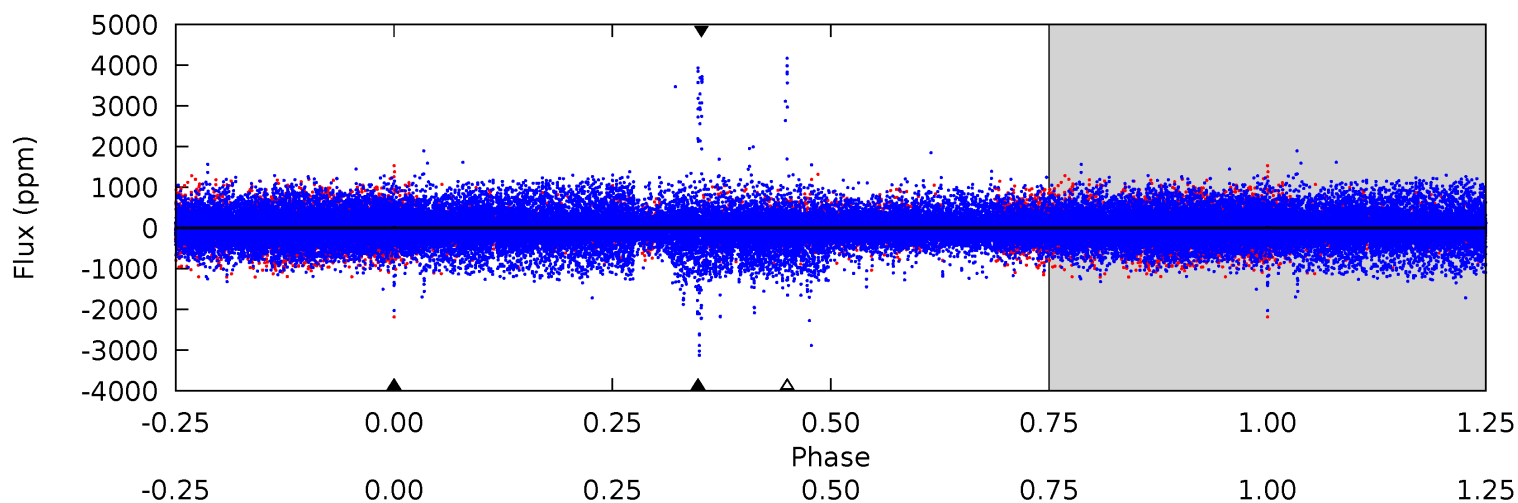
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.27	15.6	11.2	11.3	5.59	3.51	2.57	-5.97	-5.99	4.36	4.33	0.49	1.16	0.42	2.08



Alt Model-Shift Uniqueness Test

006307077-02, P = 370.365086 Days, E = 247.286496 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.25	2.70	2.66	2.36	5.81	3.83	0.20	-2.42	-2.11	0.04	0.34	0.52	0.48	0.47	2.97



Stellar Parameters For KIC 006307077

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4882^{+148}_{-118}	$3.748^{+0.826}_{-0.354}$	$0.020^{+0.250}_{-0.250}$	$2.124^{+1.327}_{-1.327}$	$0.921^{+0.244}_{-0.163}$	$0.135^{+2.801}_{-0.089}$
	+3%/-2%	+22%/-9%	+1250%/-1250%	+62%/-62%	+26%/-18%	+2069%/-66%
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 006307077-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1702 ± 109	$42.01^{+50.97}_{-30.06}$	437^{+64}_{-77}	2909^{+1290}_{-492}	524^{+5775}_{-417}
Alt.	-450 ± 167	$39.92^{+52.50}_{-27.74}$	436^{+76}_{-76}	2450^{+942}_{-387}	149^{+1429}_{-123}

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

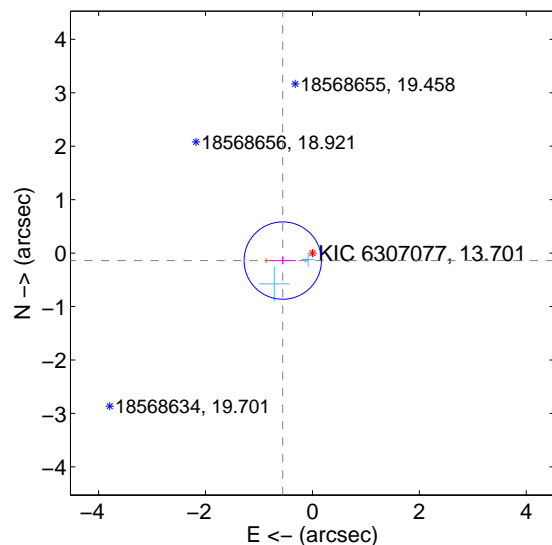
Supplemental centroid analysis for 006307077-02. Kepler magnitude: 13.70. Transit SNR 3.37

There are 3 quarters with good PRF difference image offsets

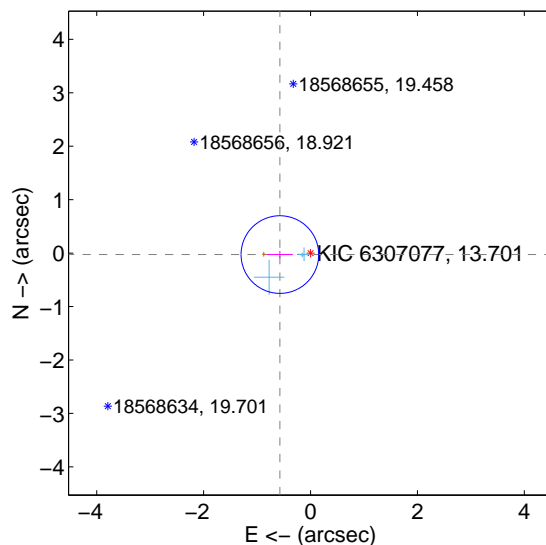
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.573 ± 0.241	2.38	0.556 ± 0.248	-0.140 ± 0.068
PRF-fit source offset from KIC position	0.574 ± 0.242	2.37	0.573 ± 0.242	-0.027 ± 0.068
photometric centroid source offset	0.61 ± 1.06	0.58	-0.56 ± 1.08	0.23 ± 0.92

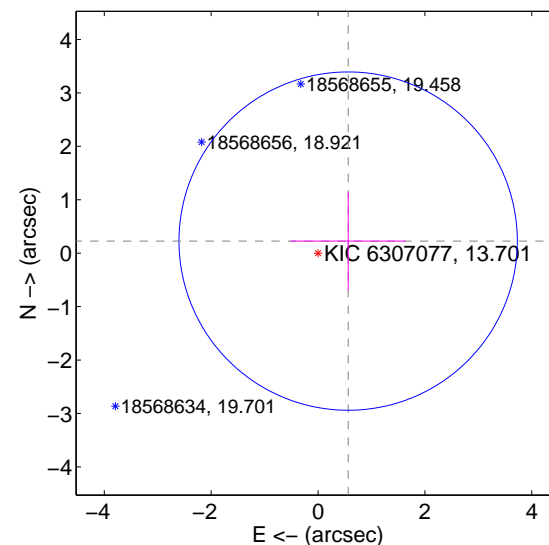
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

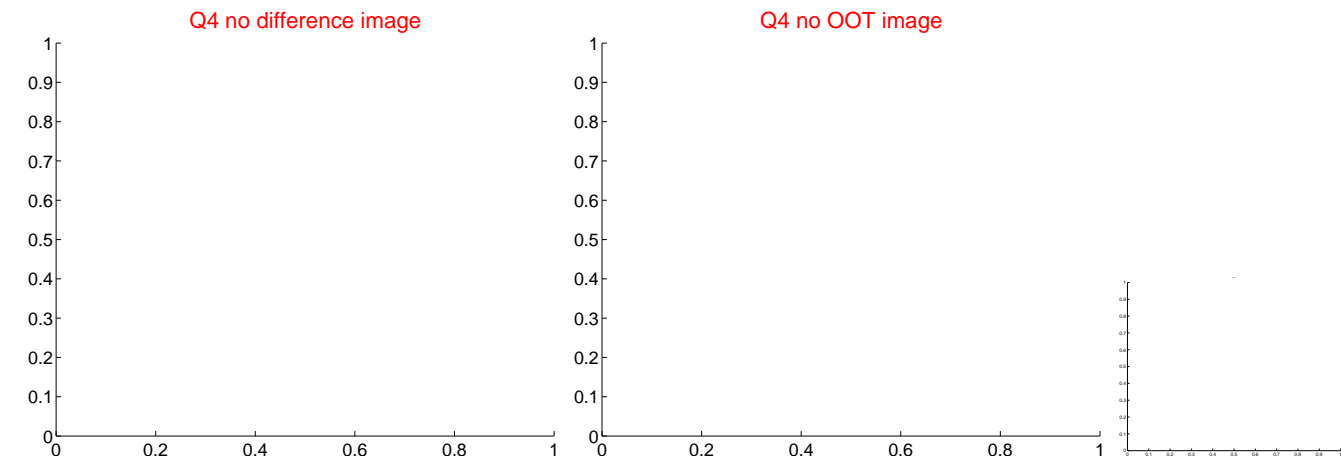
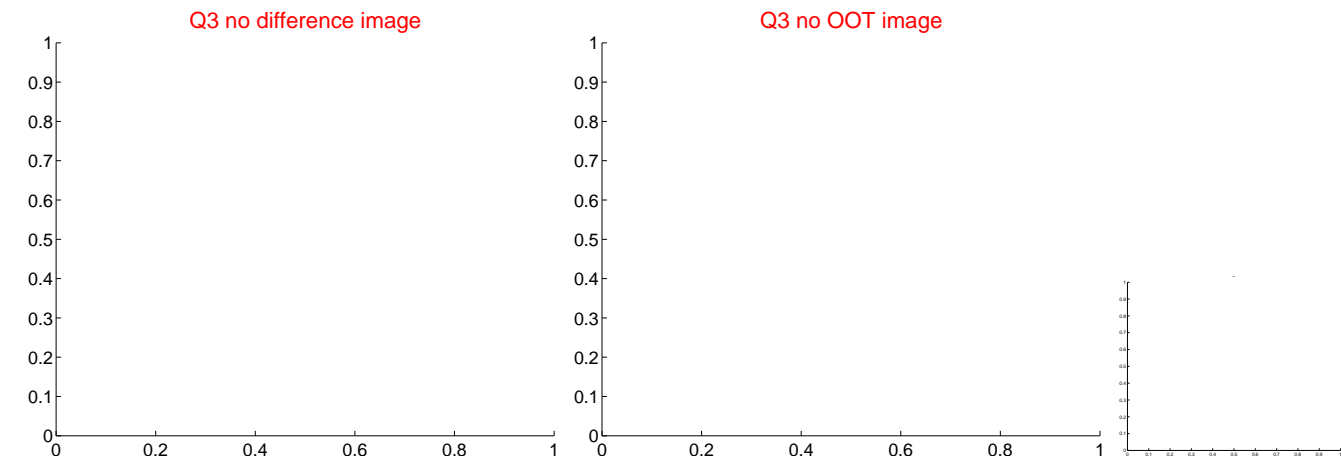
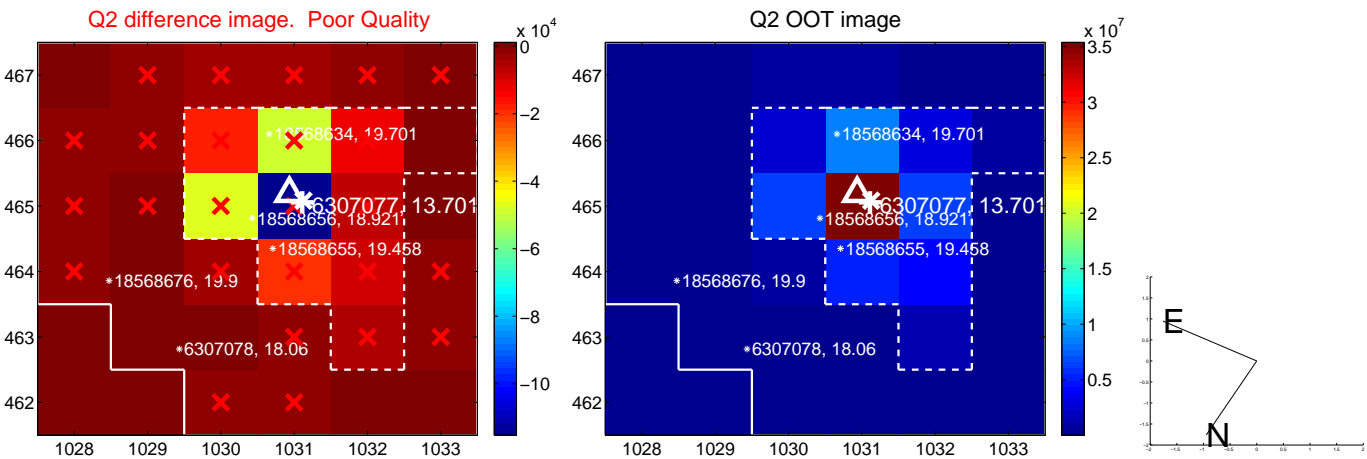


offset from photometric centroids

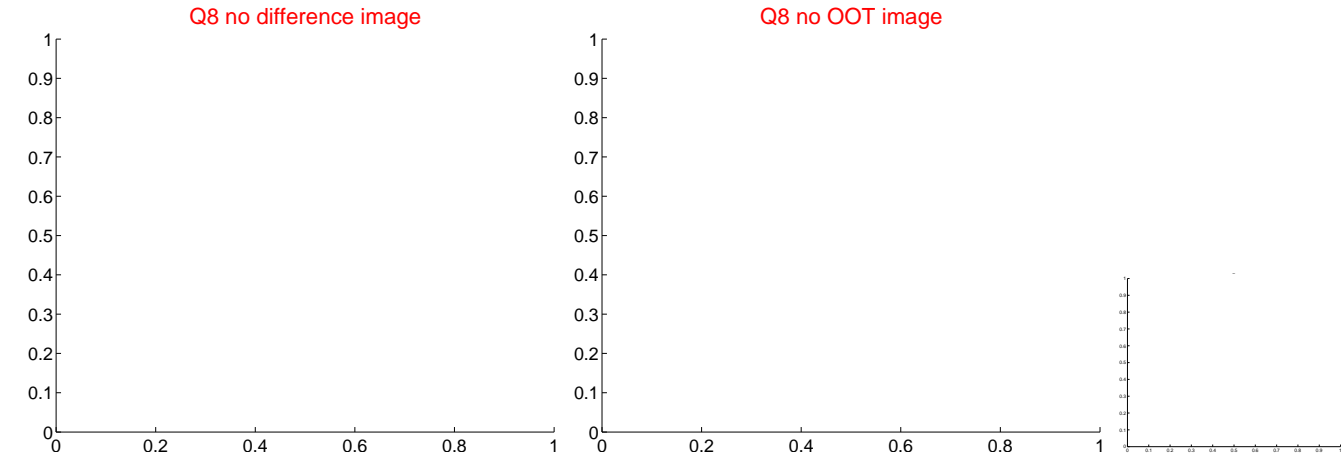
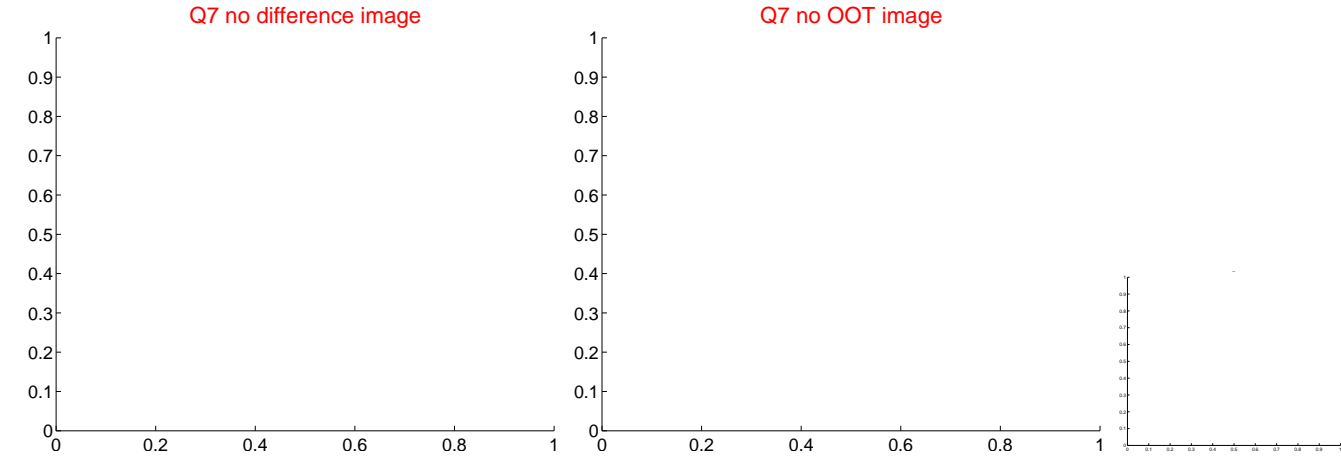
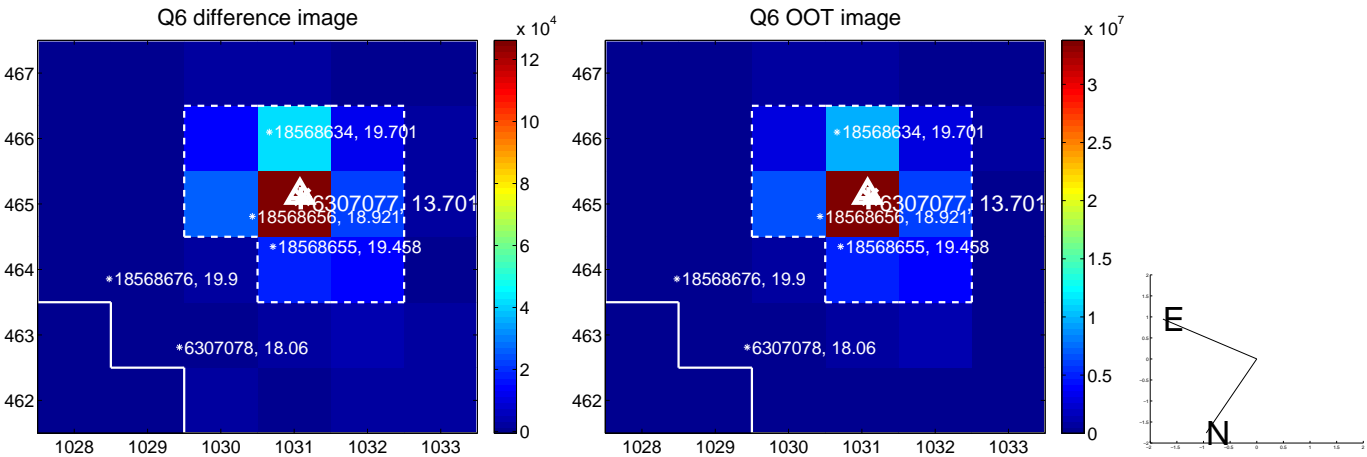
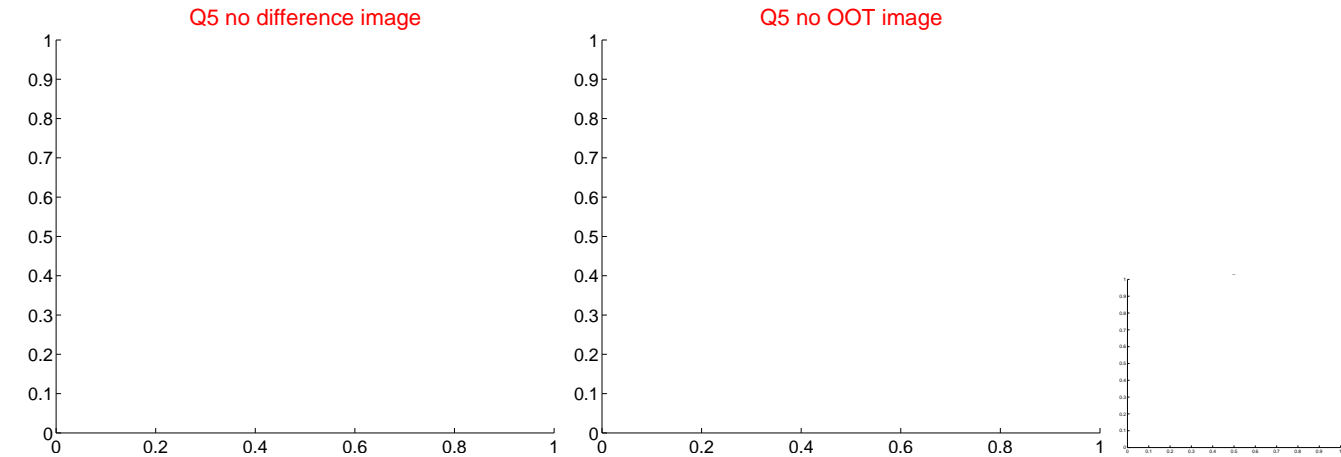


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

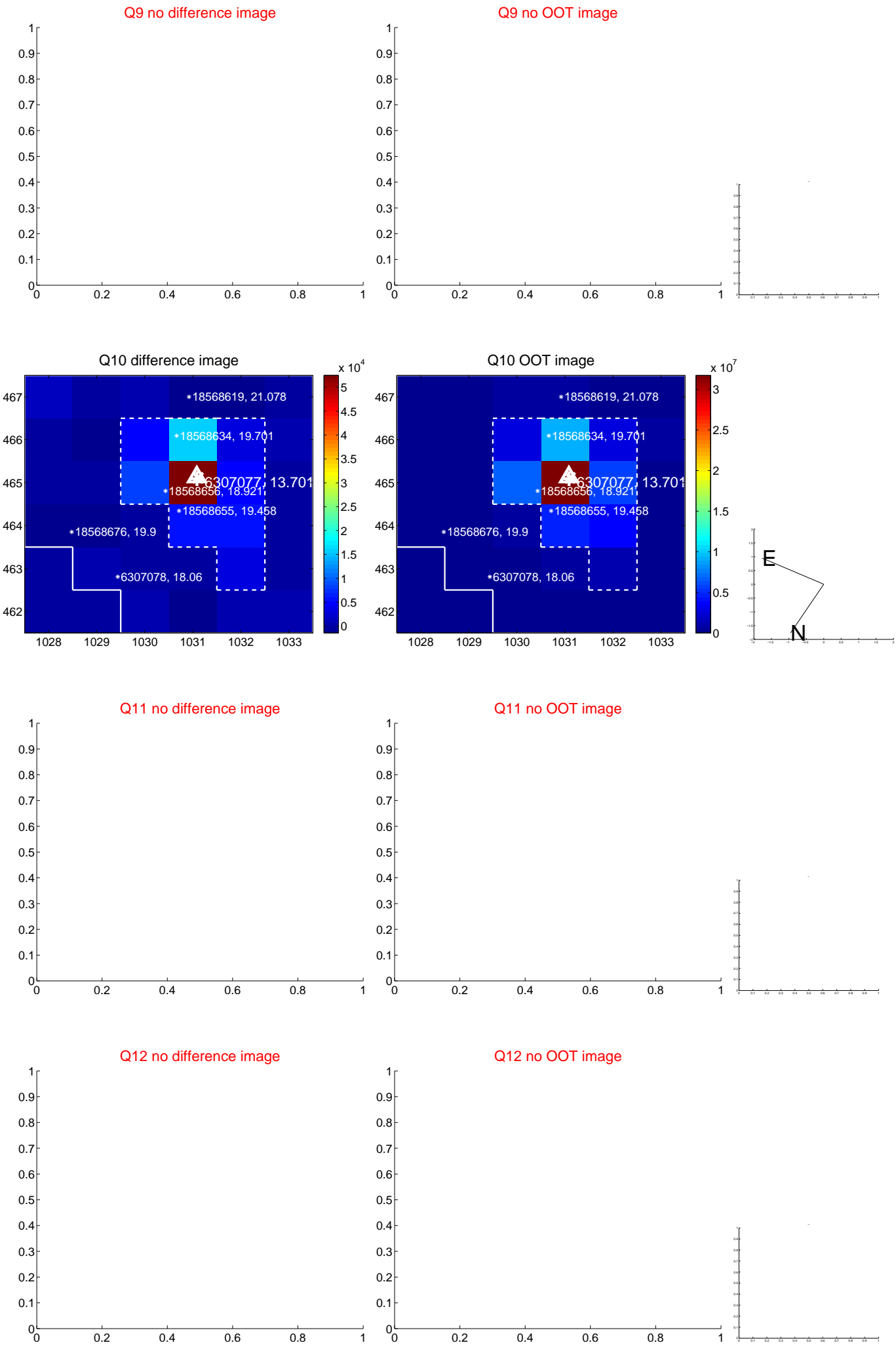
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



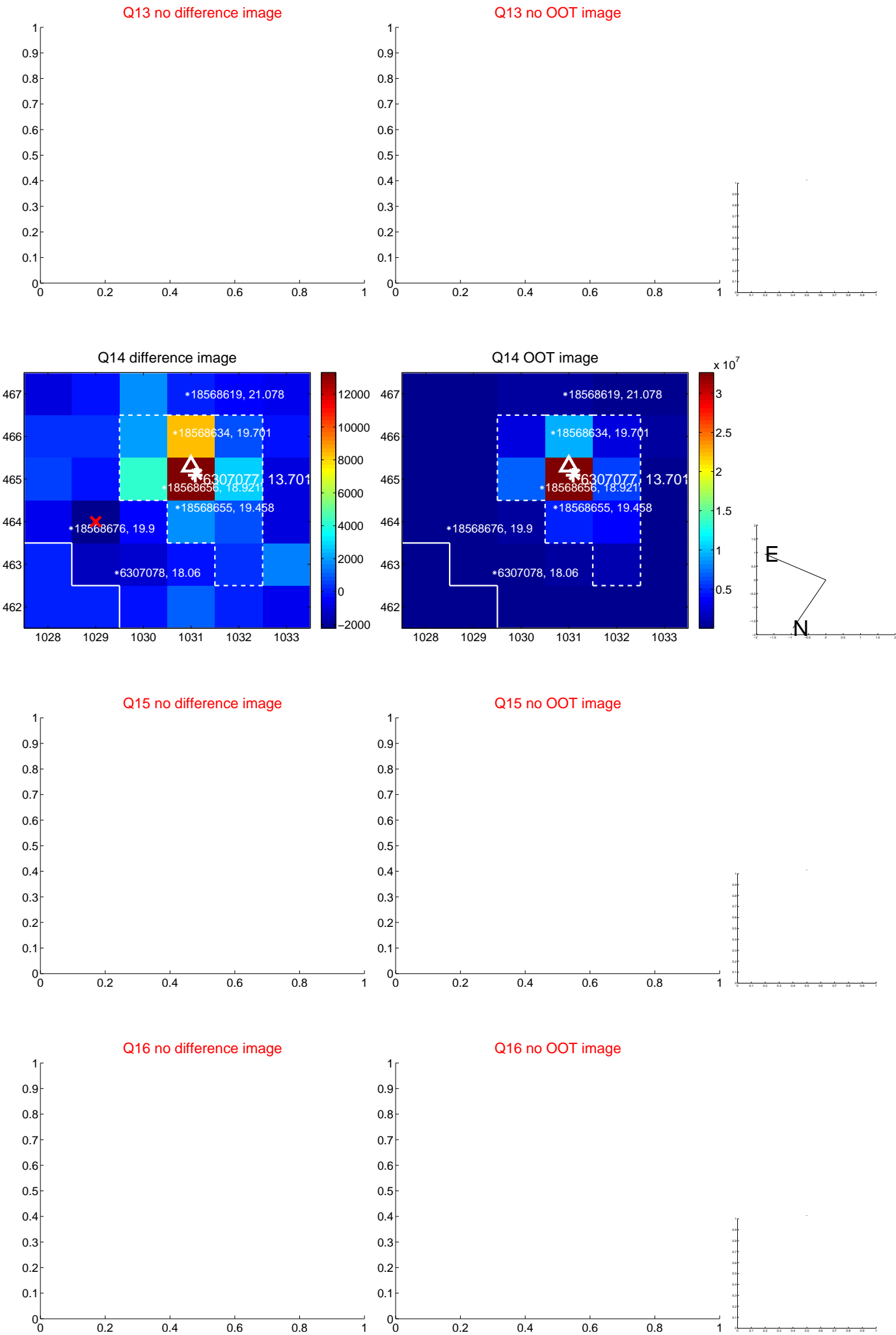
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



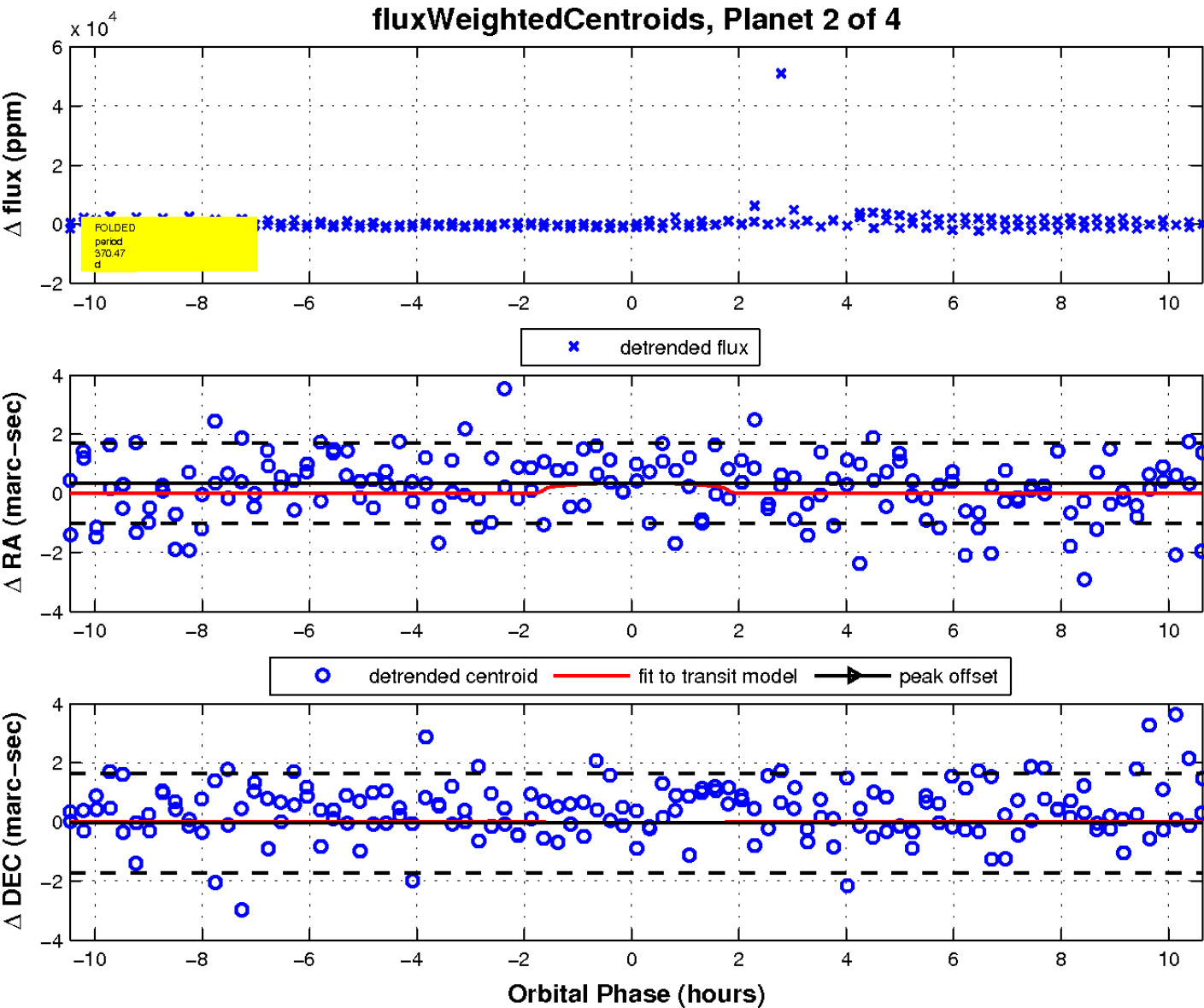
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

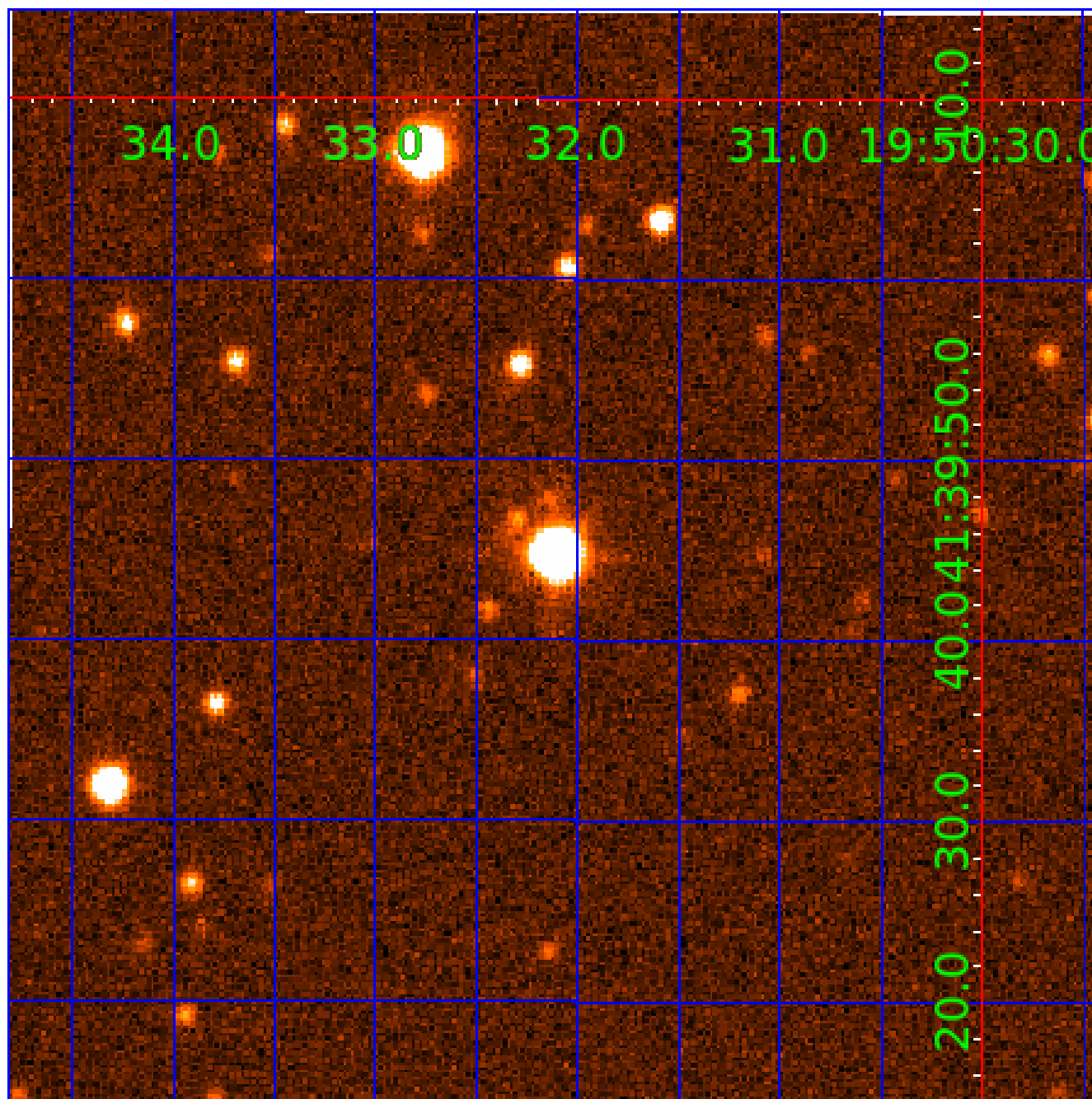


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006307077

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})
006307077-01	OBS	No	534.811858	377.534747	1715.8	5.339	14.9	5.7	2.12	4882	8.76	1.46
006307077-02	OBS	No	370.471598	247.147337	611.6	3.547	12.3	3.4	2.12	4882	5.14	2.38
006307077-03	OBS	No	300.095828	394.312070	501.1	1.311	12.3	2.7	2.12	4882	4.86	3.15
006307077-04	OBS	No	554.812021	434.377220	627.7	3.500	14.0	-1.0	2.12	4882	5.14	1.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006307077-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006307077-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006307077-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006307077-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_NOFITS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

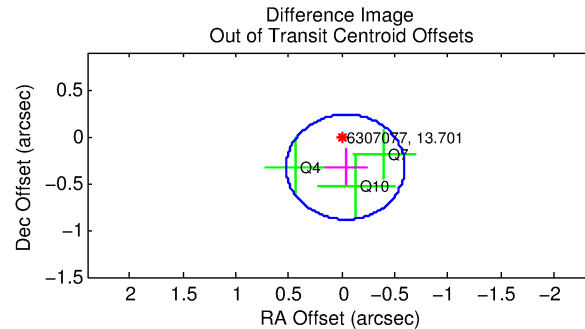
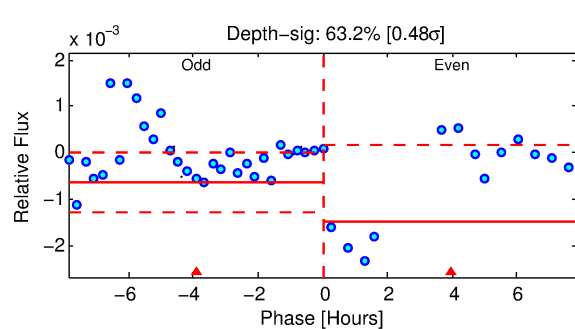
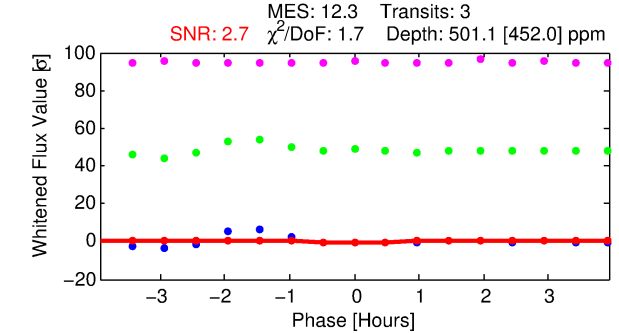
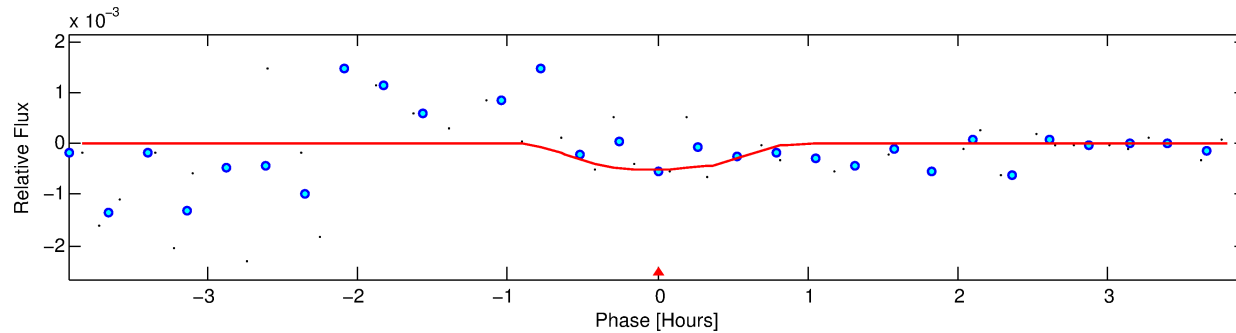
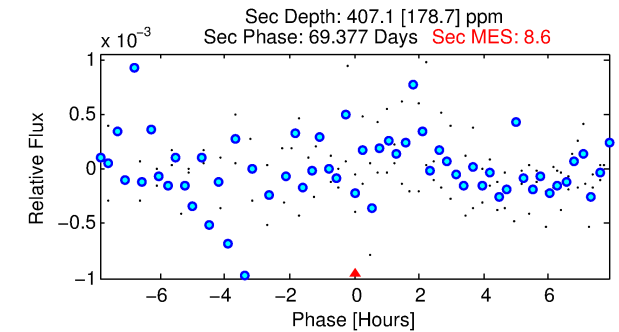
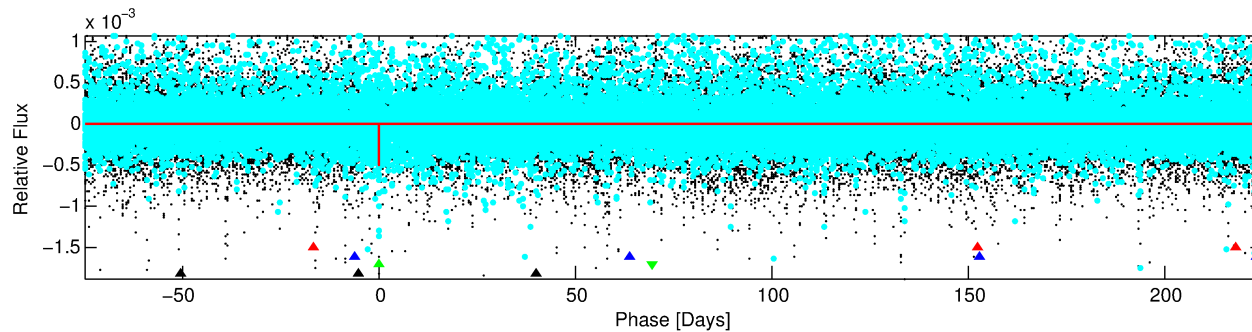
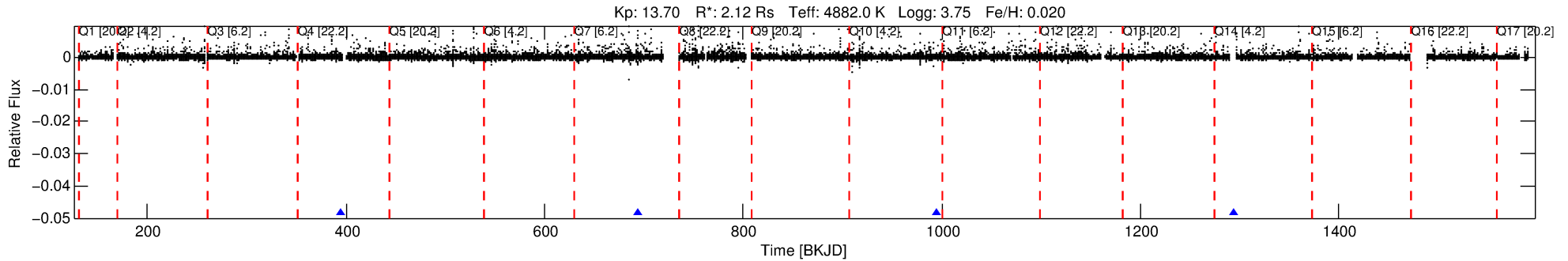
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006307077-03

No Significant Match Found

DV One-Page Summary

KIC: 6307077 Candidate: 3 of 4 Period: 300.096 d



DV Fit Results:

Period = 300.09583 [0.02564] d
Epoch = 394.3121 [0.0281] BKJD
Rp/R* = 0.0210 [0.4997]
a/R* = 1528.20 [114953.55]
b = 0.53 [107.64]
Seff = 3.15 [4.22]
Teq = 340 [114] K
Rp = 4.86 [115.86] Re
a = 0.8537 [0.6476] AU
Ag = 6909.45 [329454.29] [0.02σ]
Teffp = 4789 [57062] K [0.08σ]

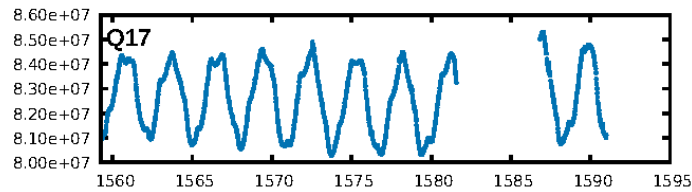
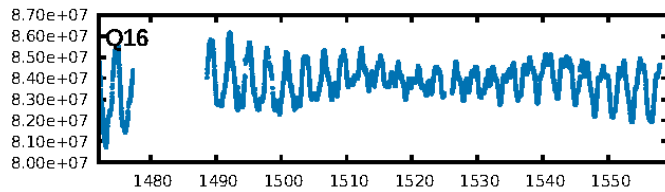
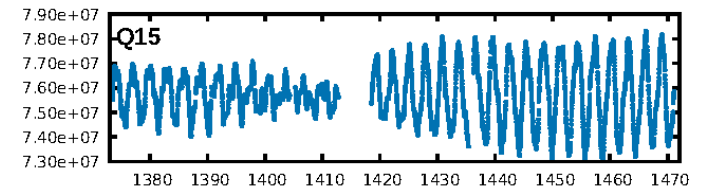
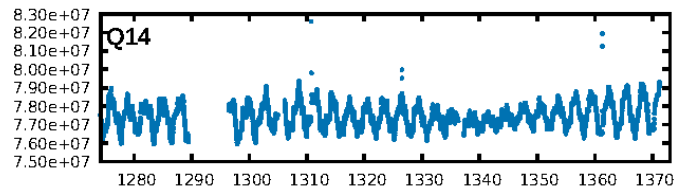
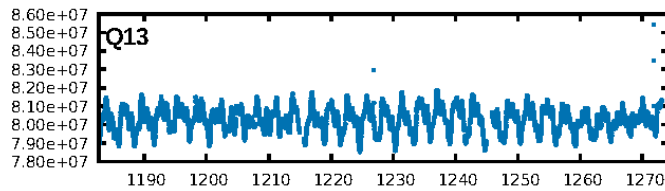
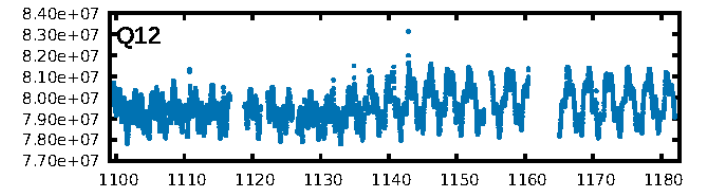
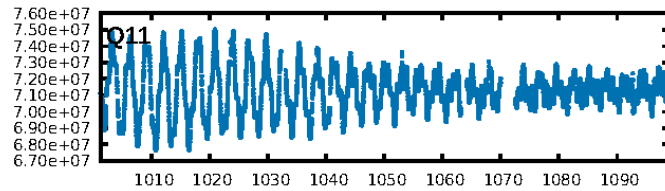
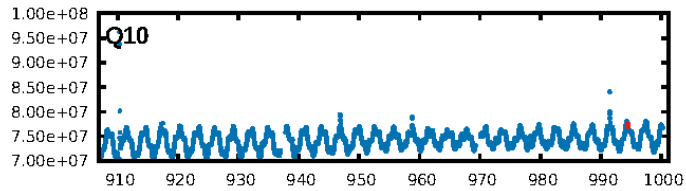
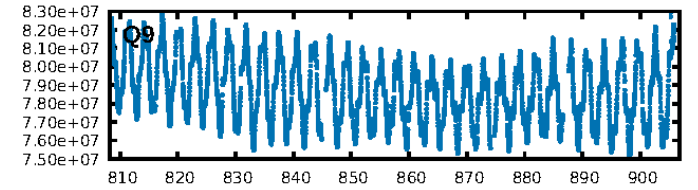
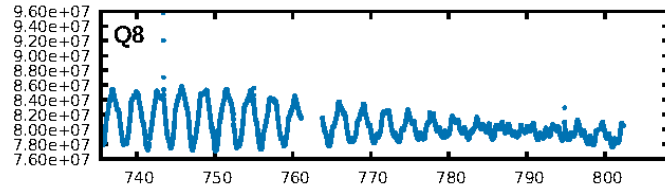
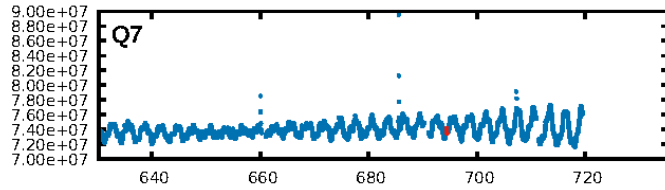
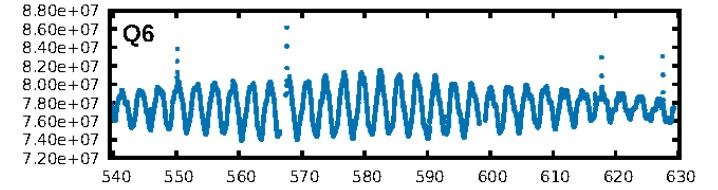
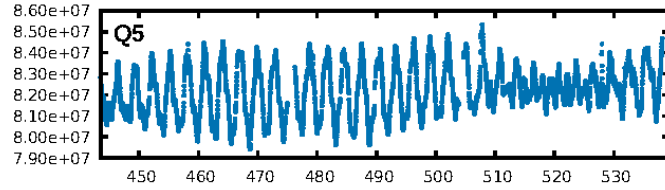
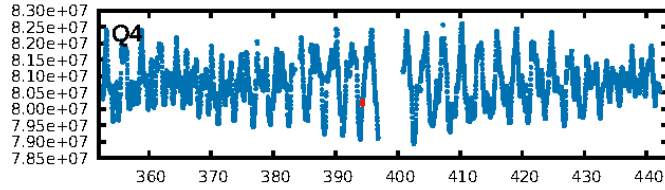
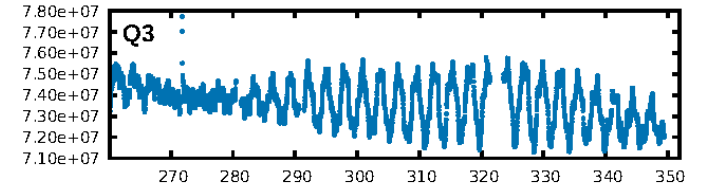
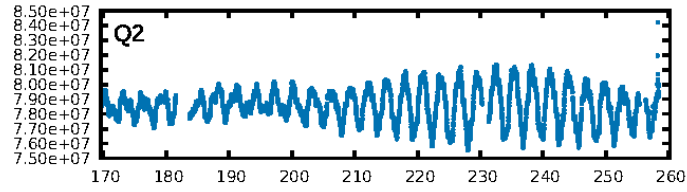
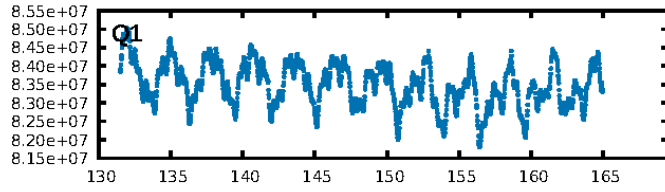
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [446.65σ]
ModelChiSquare2-sig: 89.9%
ModelChiSquareGof-sig: 90.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.2951
Centroid-sig: 91.7%
Centroid-so: 0.595 arcsec [0.29σ]
OotOffset-rm: 0.327 arcsec [1.75σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-rm: 0.230 arcsec [1.23σ]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

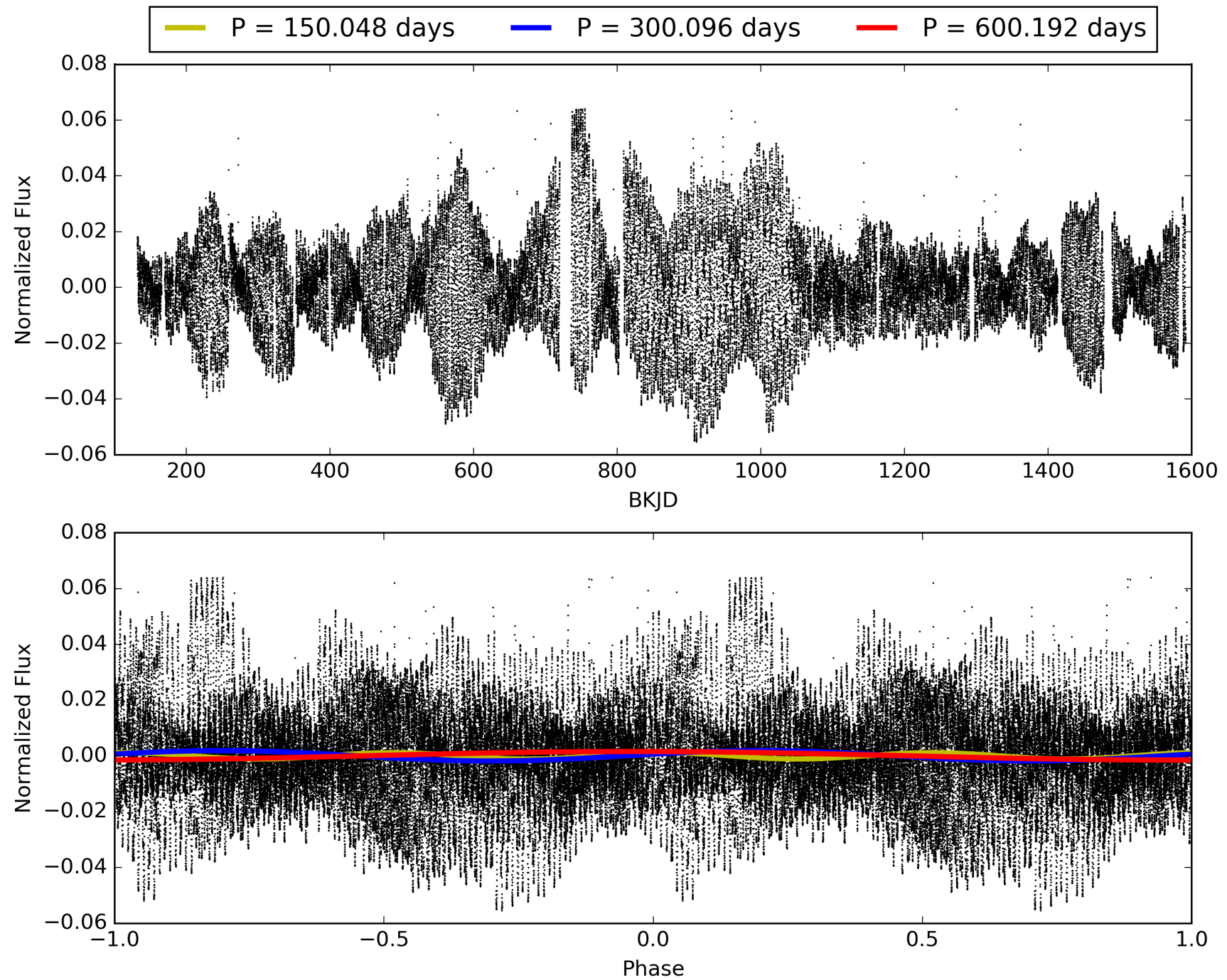
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:19:36 Z

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

TCE 006307077-03, PDC Light Curves

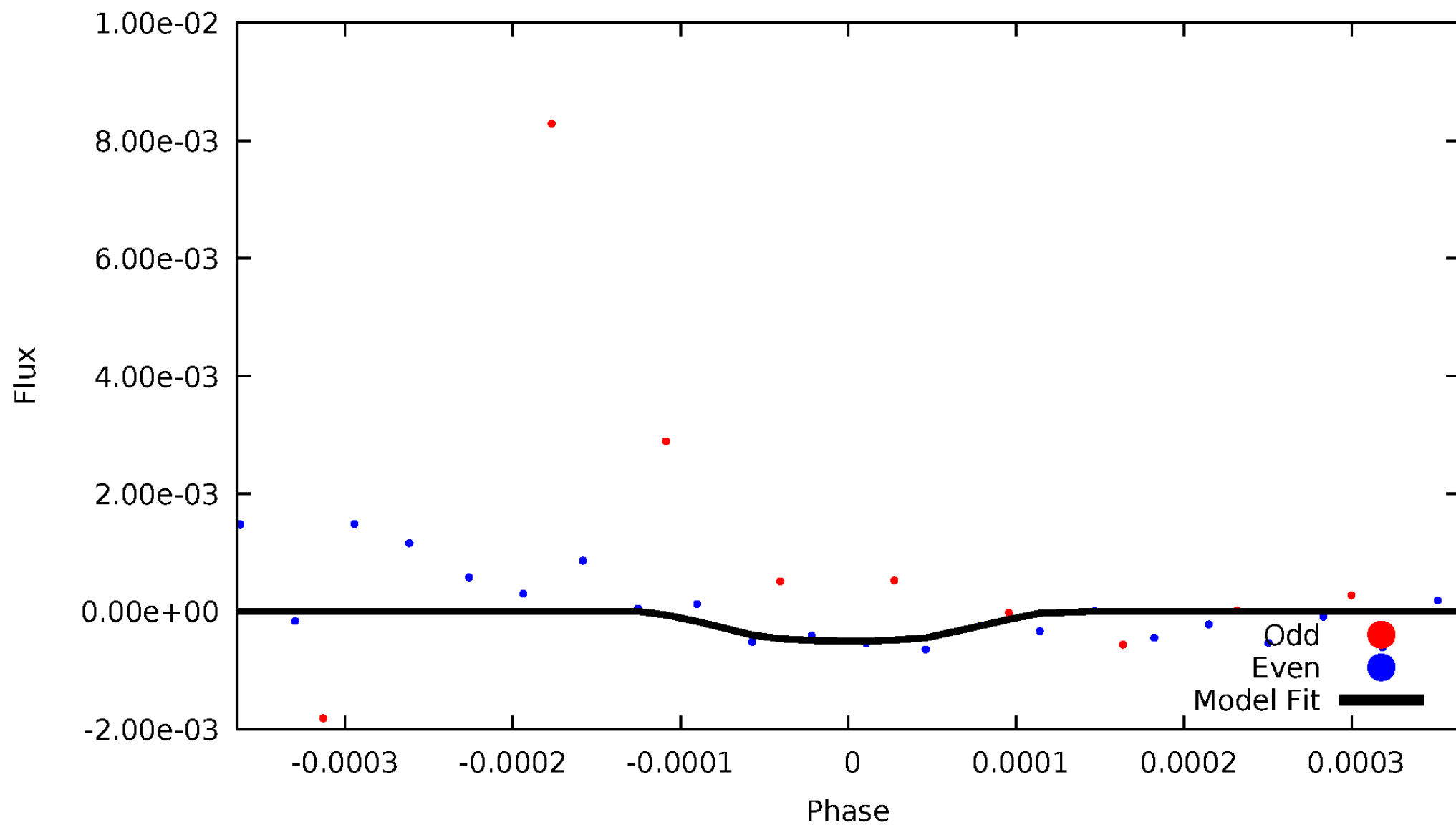


TCE 006307077-03



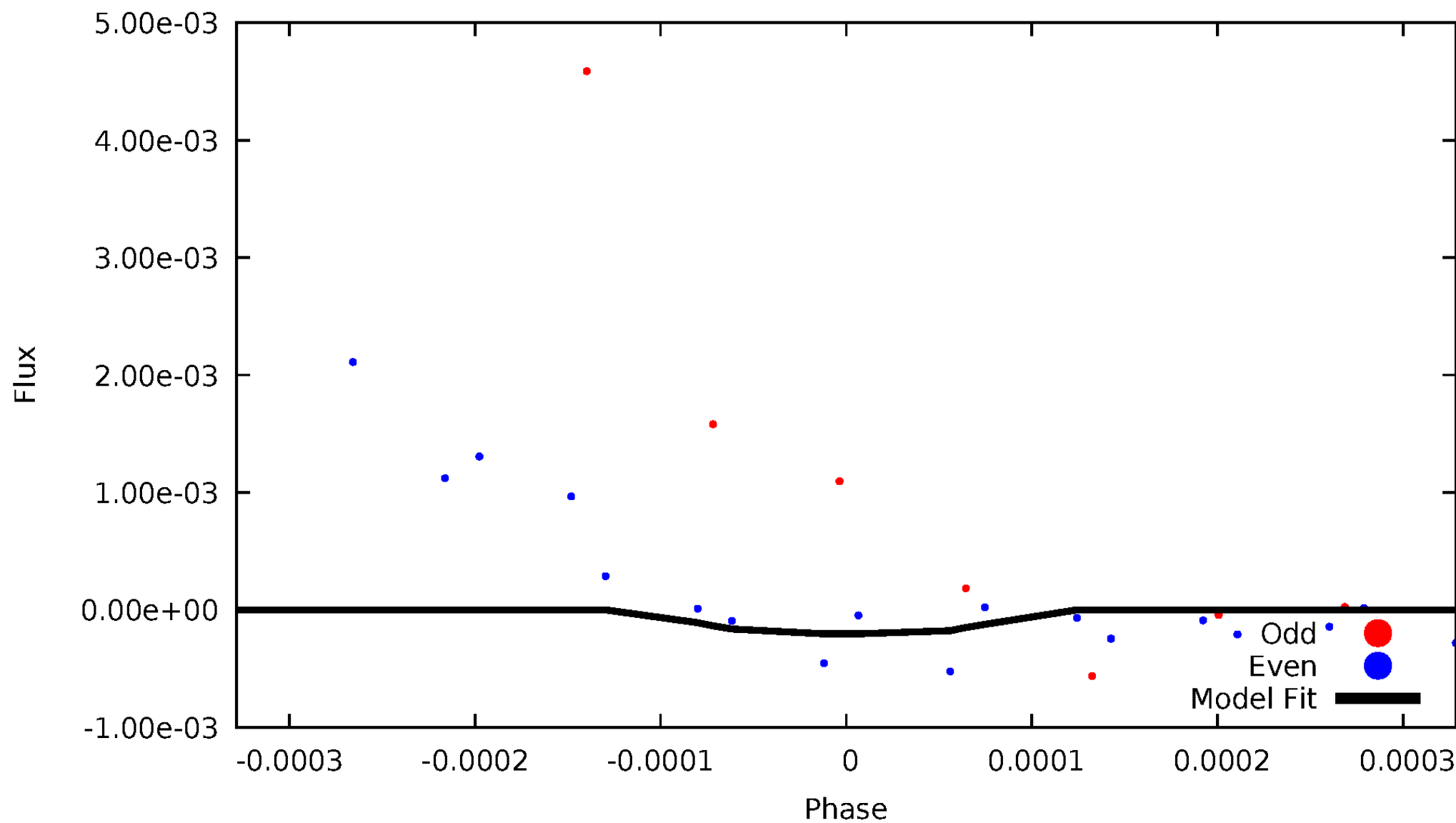
DV Odd/Even

TCE 006307077-03



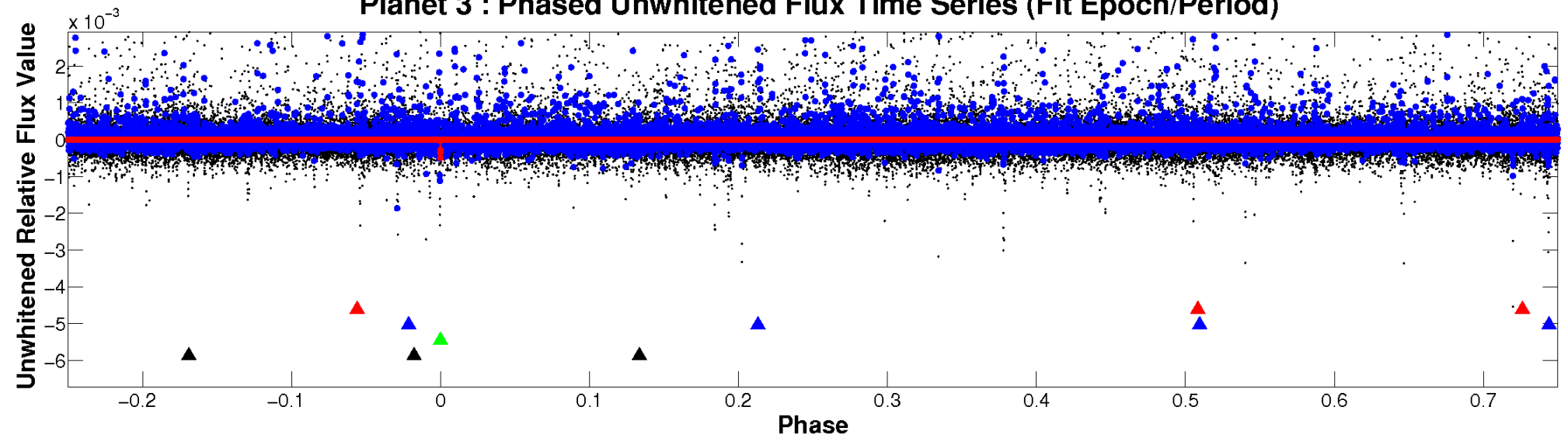
ALT Odd/Even

TCE 006307077-03

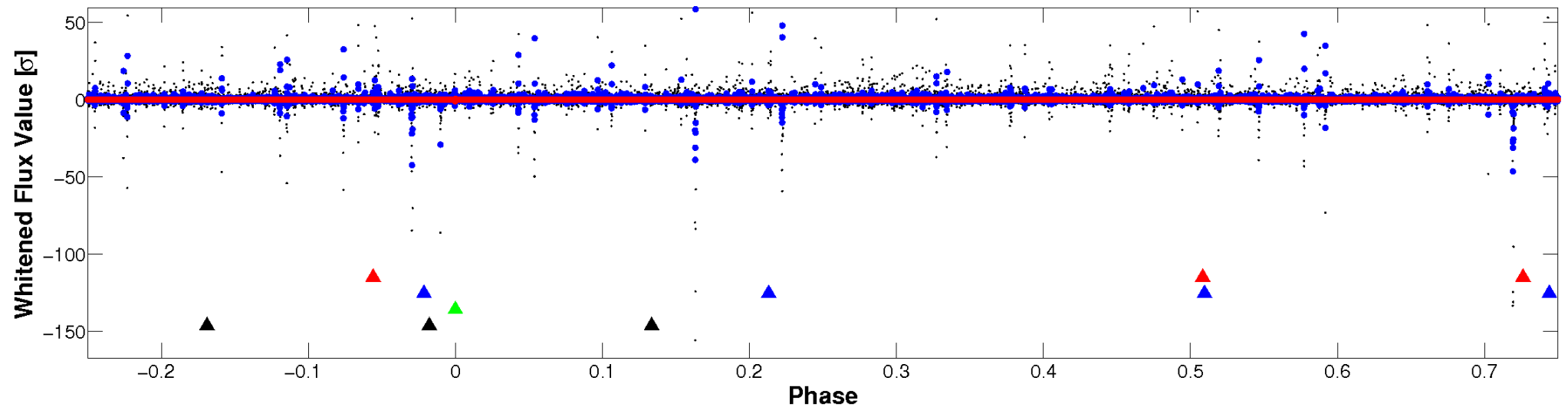


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

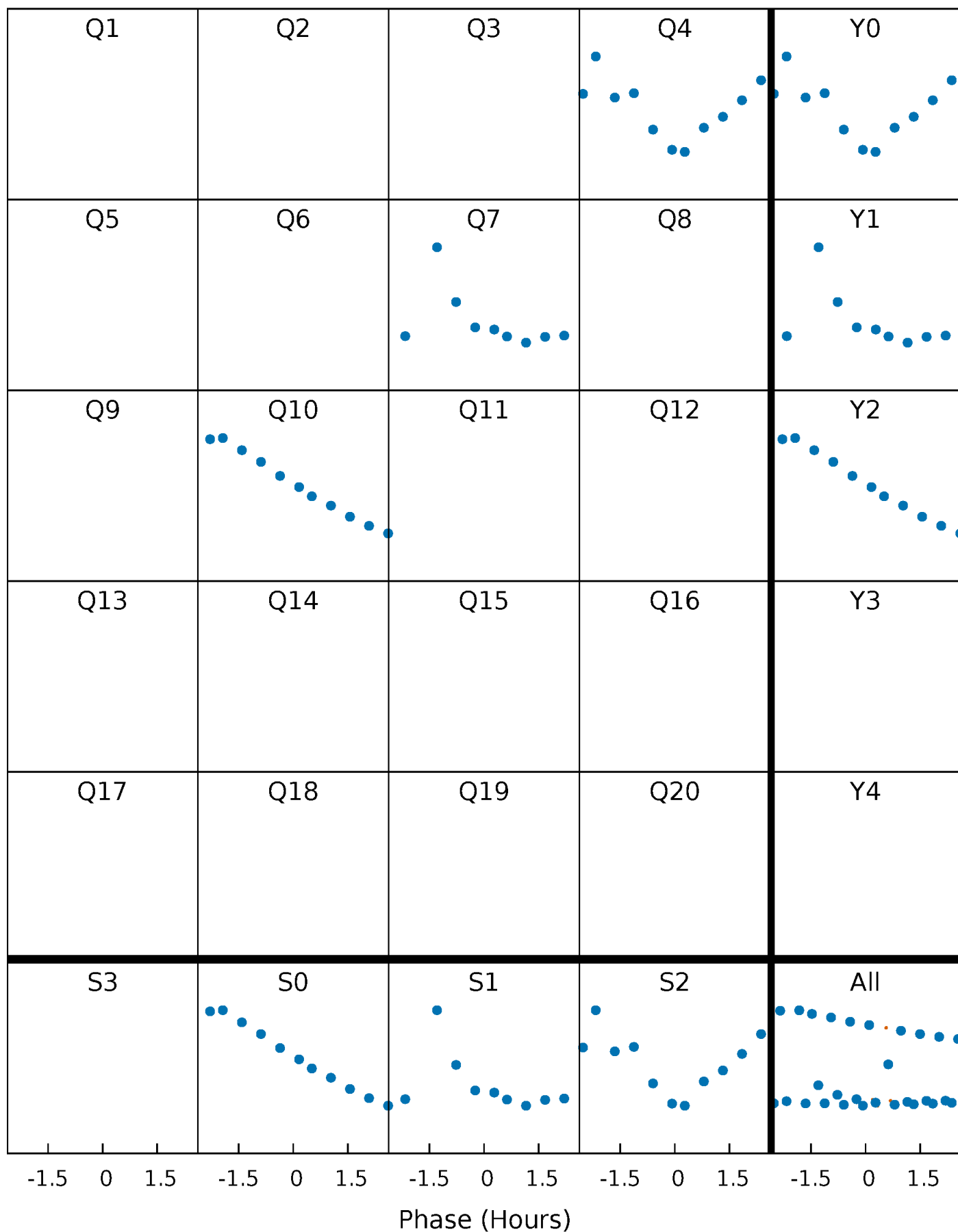


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



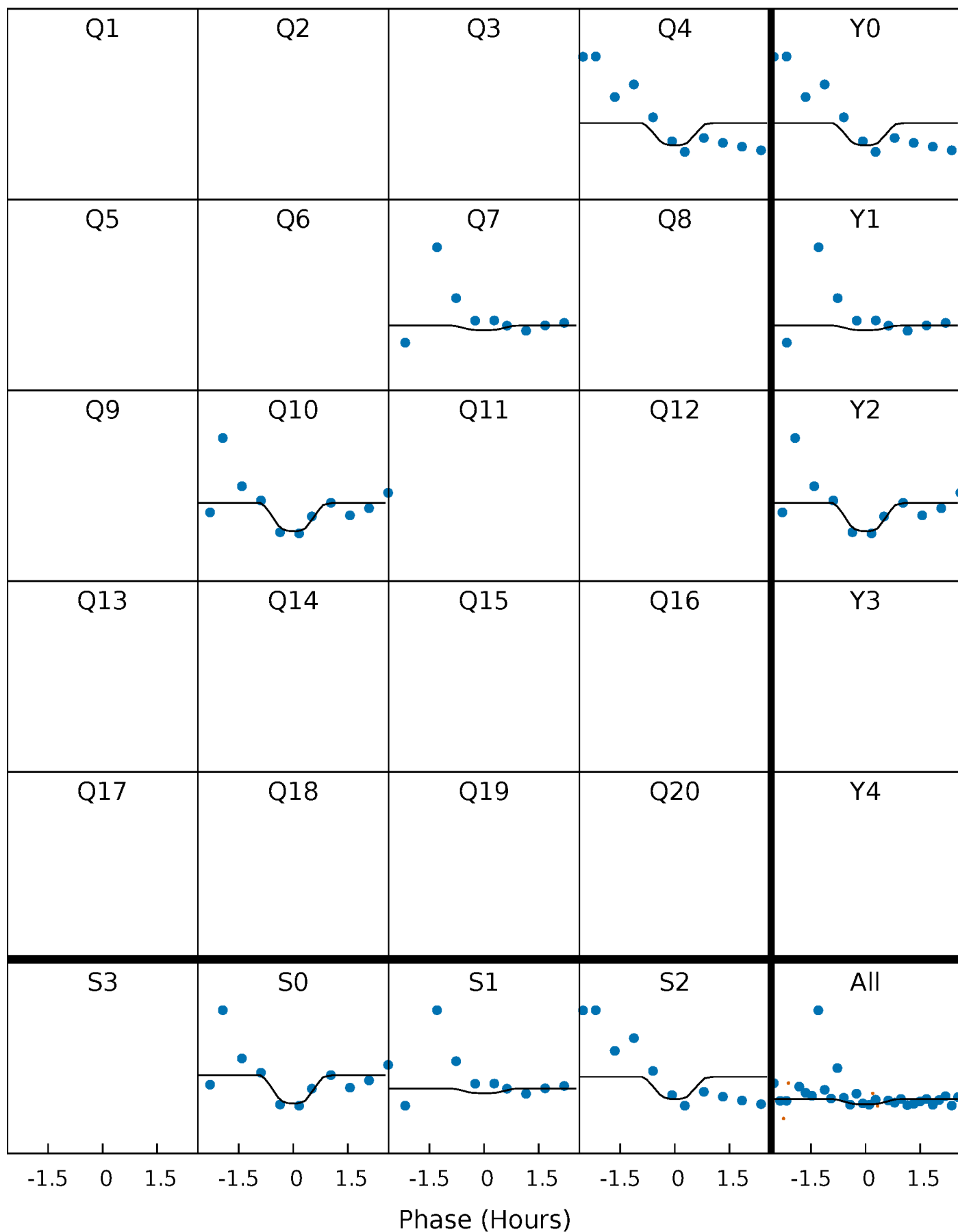
PDC Quarter-Phased Transit Curves

TCE 006307077-03 $P=300.095828$ Days $T_0=394.312070$ (BKJD)



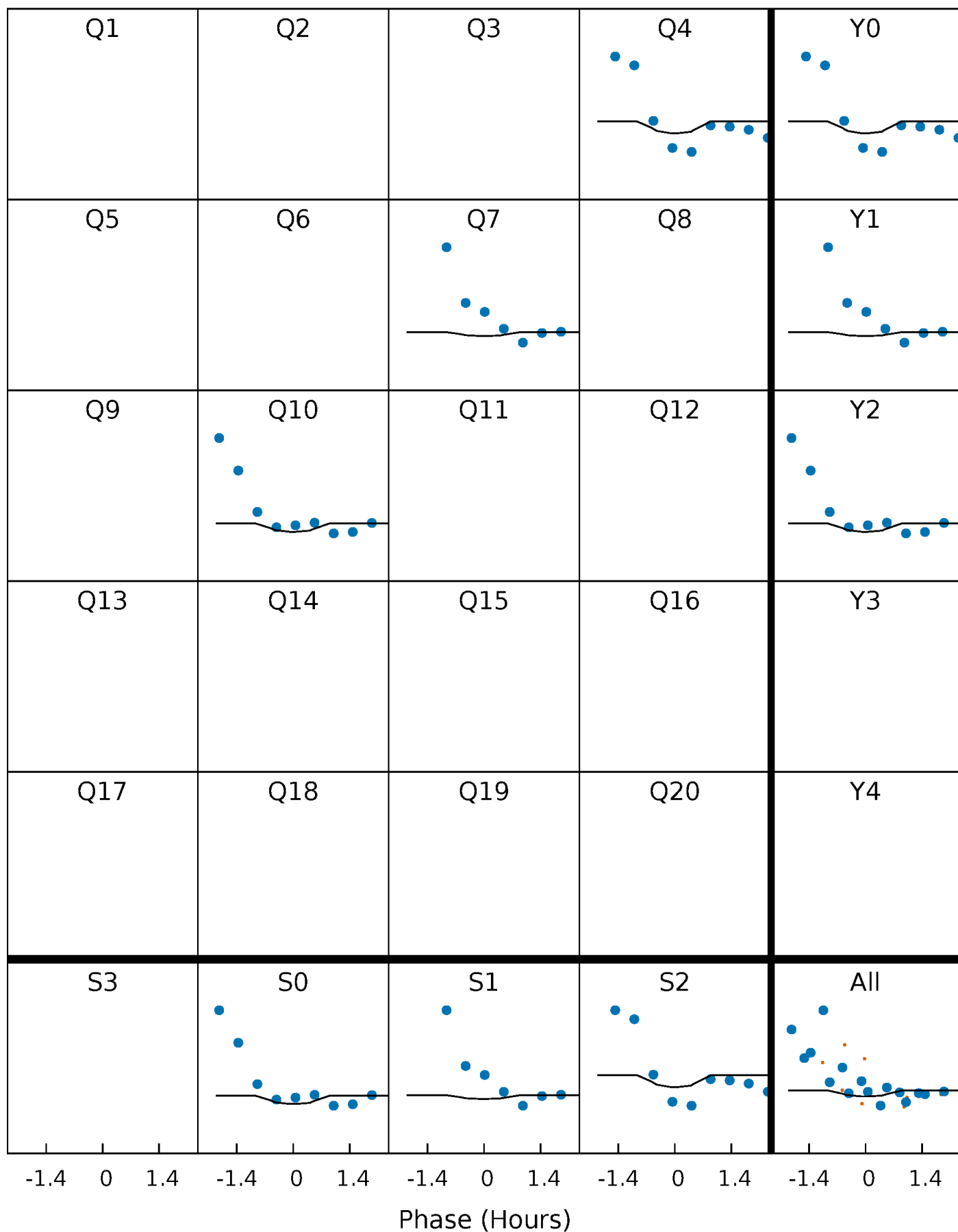
DV Quarter-Phased Transit Curves

TCE 006307077-03 $P=300.095828$ Days $T_0=394.312070$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

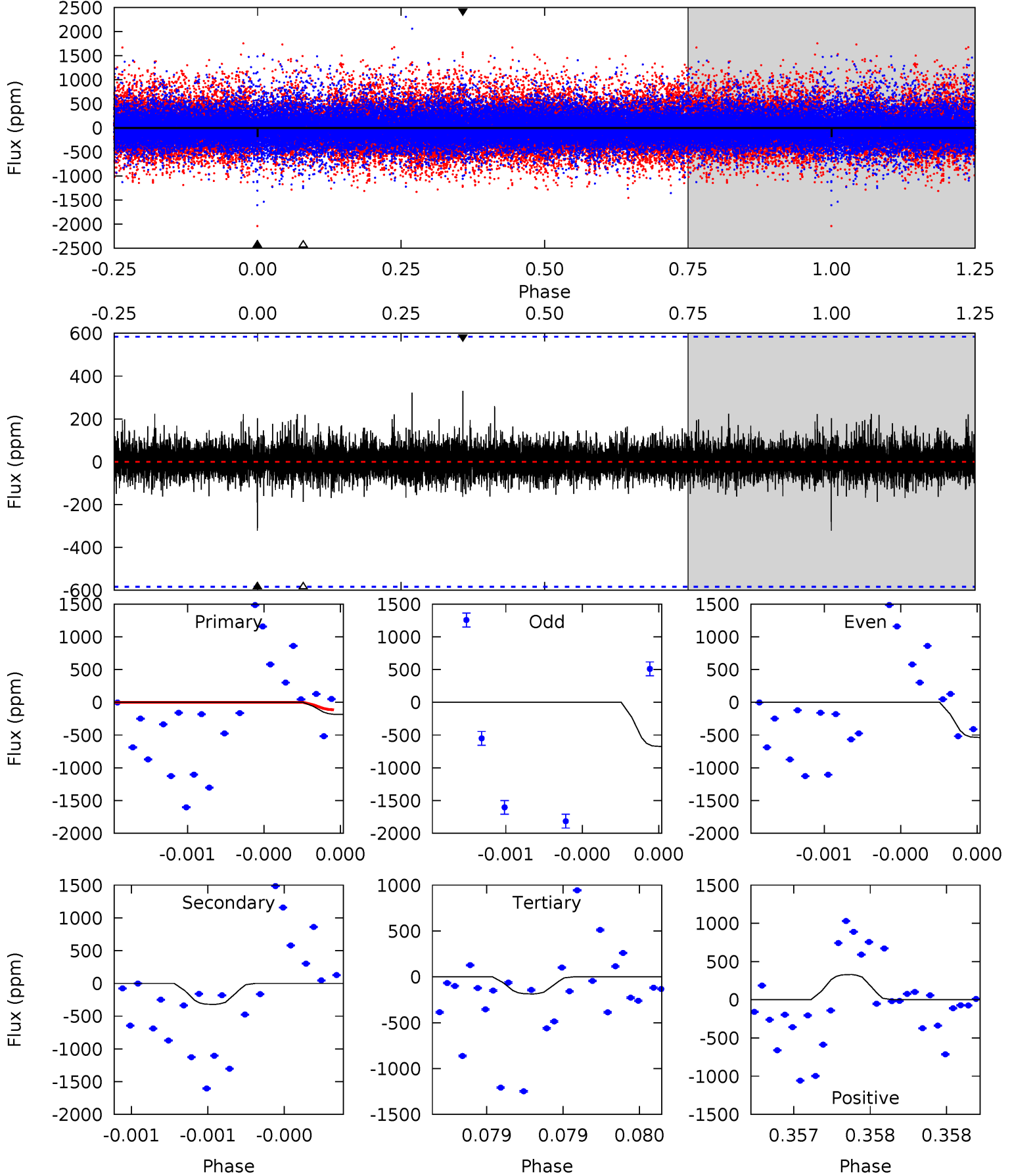
TCE 006307077-03 P=300.108171 Days $T_0=394.309070$ (BKJD)



DV Model-Shift Uniqueness Test

006307077-03, P = 300.095828 Days, E = 94.216242 Days

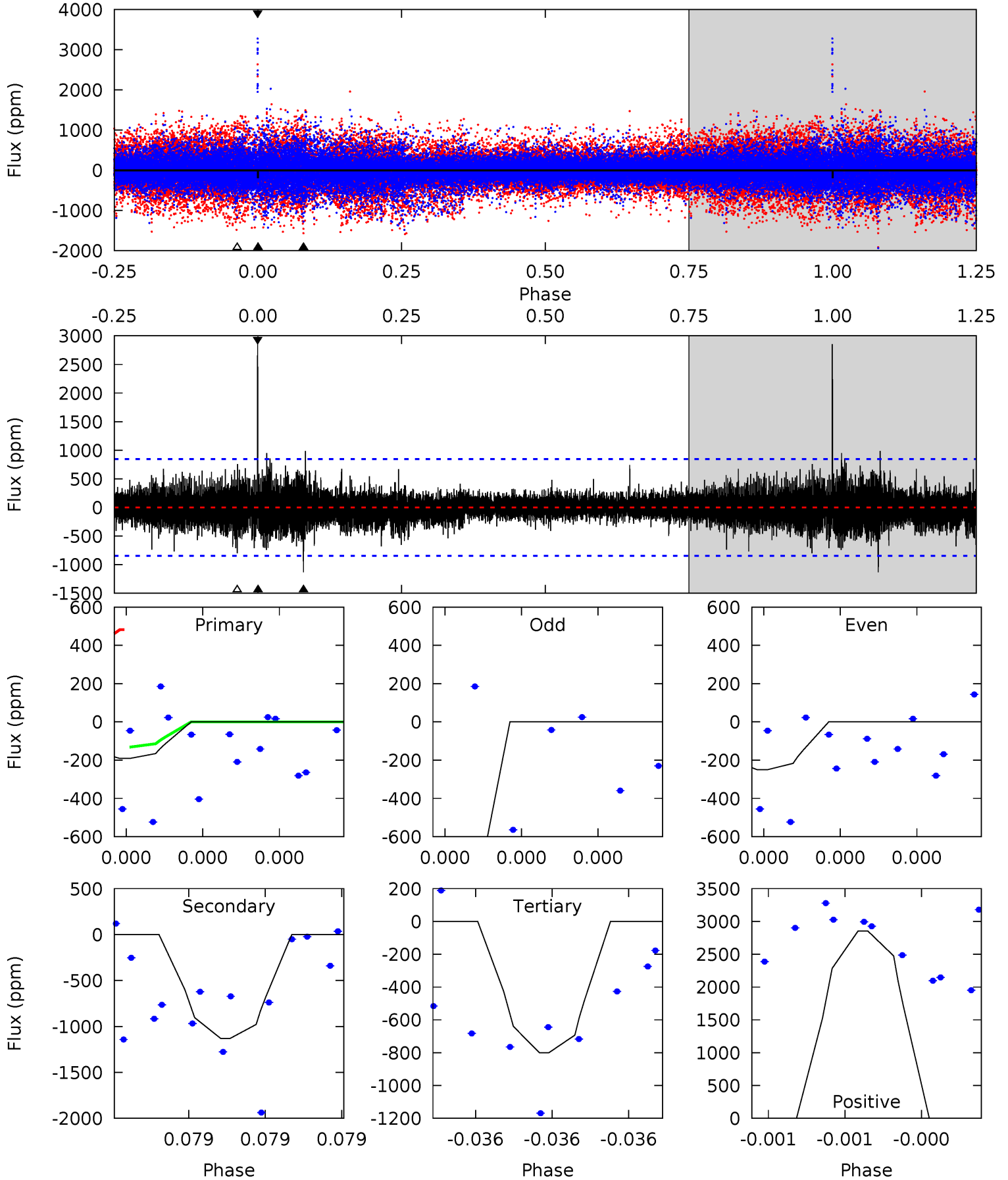
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.82	3.13	1.82	3.22	5.69	3.66	0.46	-0.00	-1.41	1.31	-0.09	0.57	0.25	0.51	0.63



Alt Model-Shift Uniqueness Test

006307077-03, P = 300.108171 Days, E = 94.200899 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.31	7.73	5.47	19.5	5.78	3.80	1.16	-4.16	-18.2	2.26	-11.8	2.32	-4.07	0.72	1.33



Stellar Parameters For KIC 006307077

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4882^{+148}_{-118}	$3.748^{+0.826}_{-0.354}$	$0.020^{+0.250}_{-0.250}$	$2.124^{+1.327}_{-1.327}$	$0.921^{+0.244}_{-0.163}$	$0.135^{+2.801}_{-0.089}$
	+3%/-2%	+22%/-9%	+1250%/-1250%	+62%/-62%	+26%/-18%	+2069%/-66%
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 006307077-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-322±103	$70.04^{+96.47}_{-48.11}$	466^{+76}_{-77}	2084^{+700}_{-306}	26^{+270}_{-22}
Alt.	-1130±146	$72.58^{+102.11}_{-54.34}$	466^{+82}_{-90}	2391^{+1004}_{-383}	86^{+1328}_{-72}

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

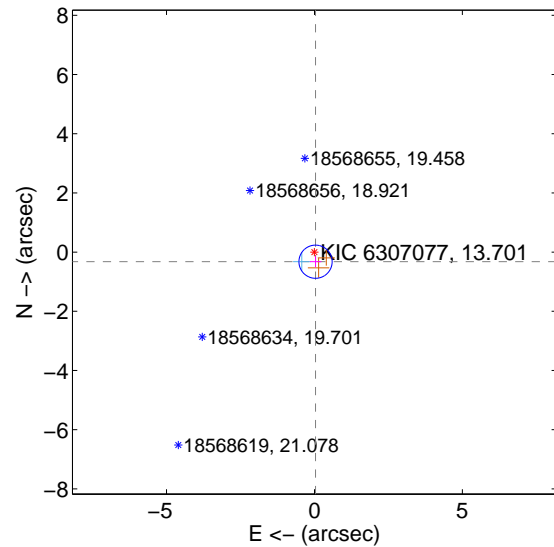
Supplemental centroid analysis for 006307077-03. Kepler magnitude: 13.70. Transit SNR 2.70

There are 1 quarters with good PRF difference image offsets

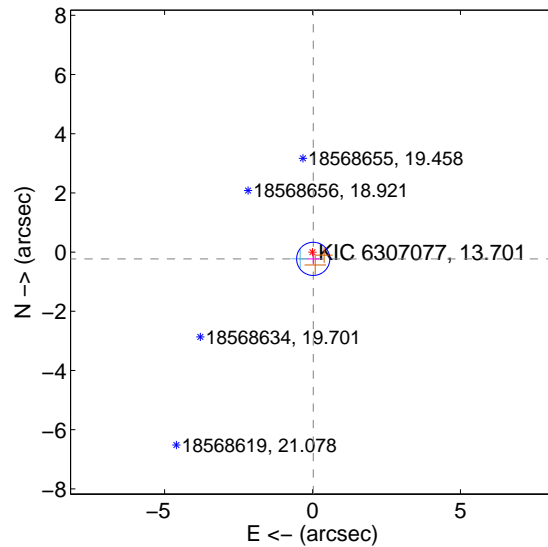
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.327 ± 0.187	1.75	-0.037 ± 0.195	-0.325 ± 0.187
PRF-fit source offset from KIC position	0.230 ± 0.187	1.23	-0.024 ± 0.195	-0.229 ± 0.187
photometric centroid source offset	0.59 ± 2.07	0.29	-0.12 ± 2.36	0.58 ± 2.06

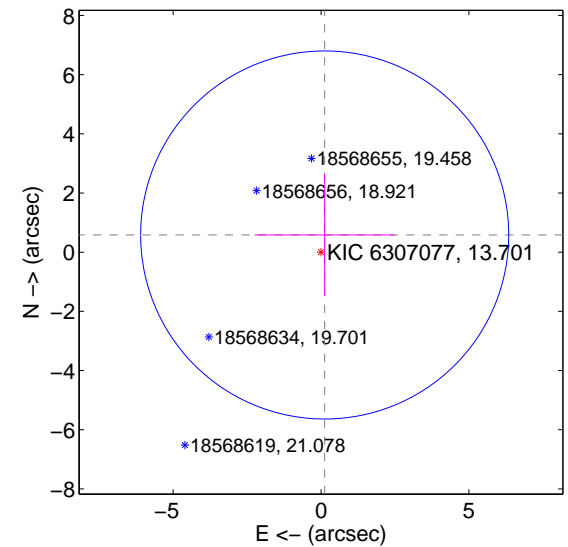
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

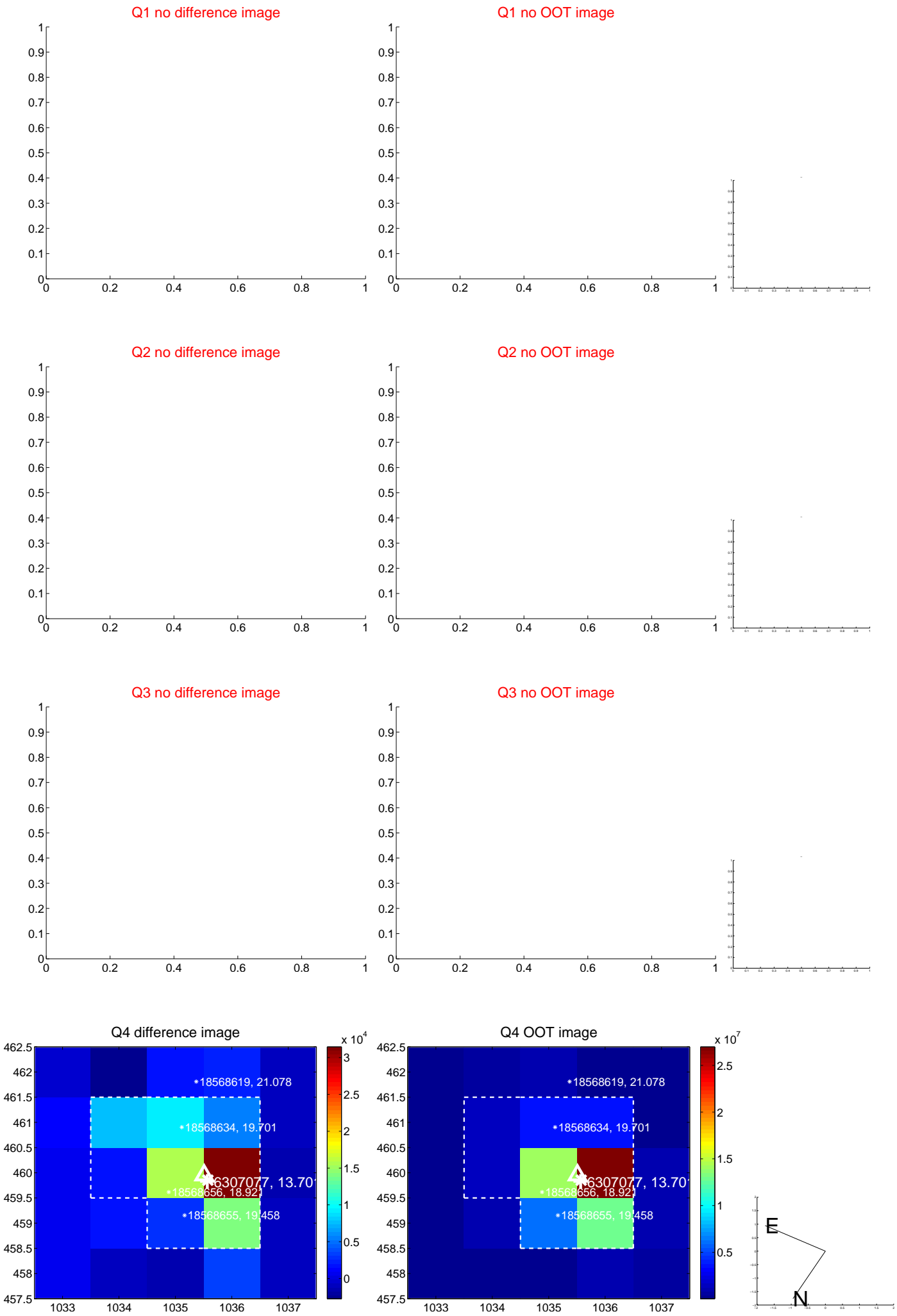


offset from photometric centroids

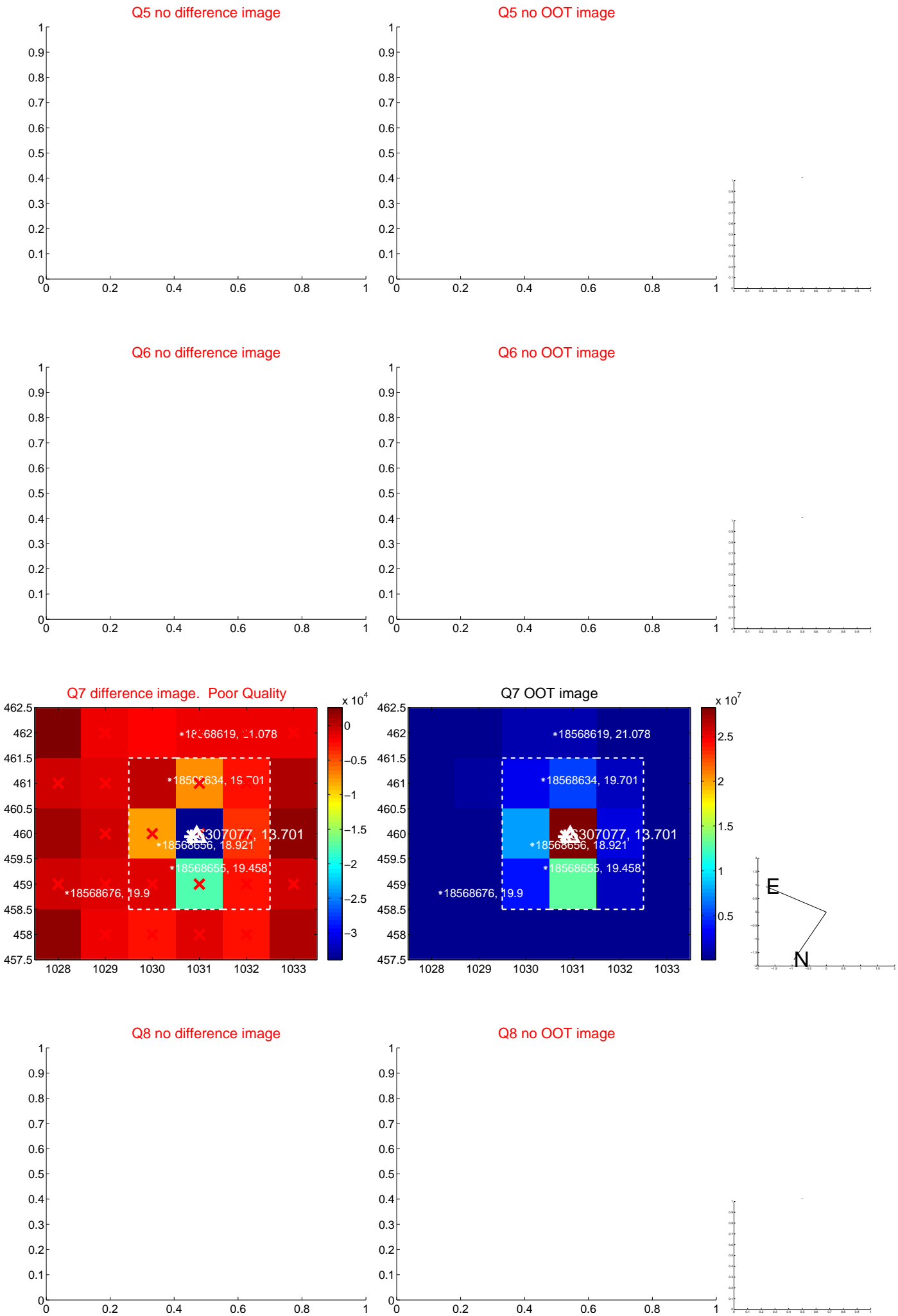


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

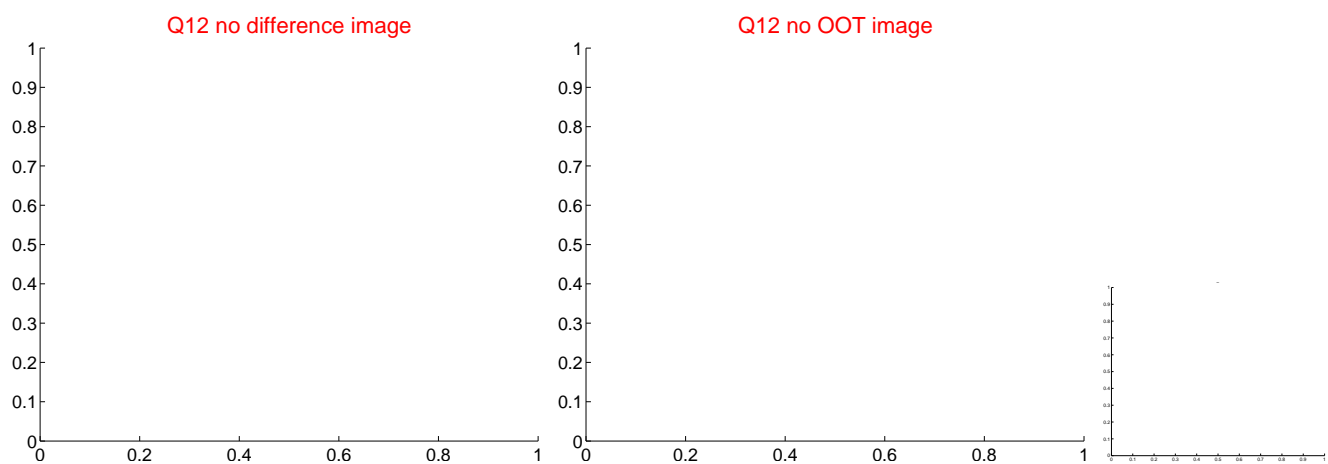
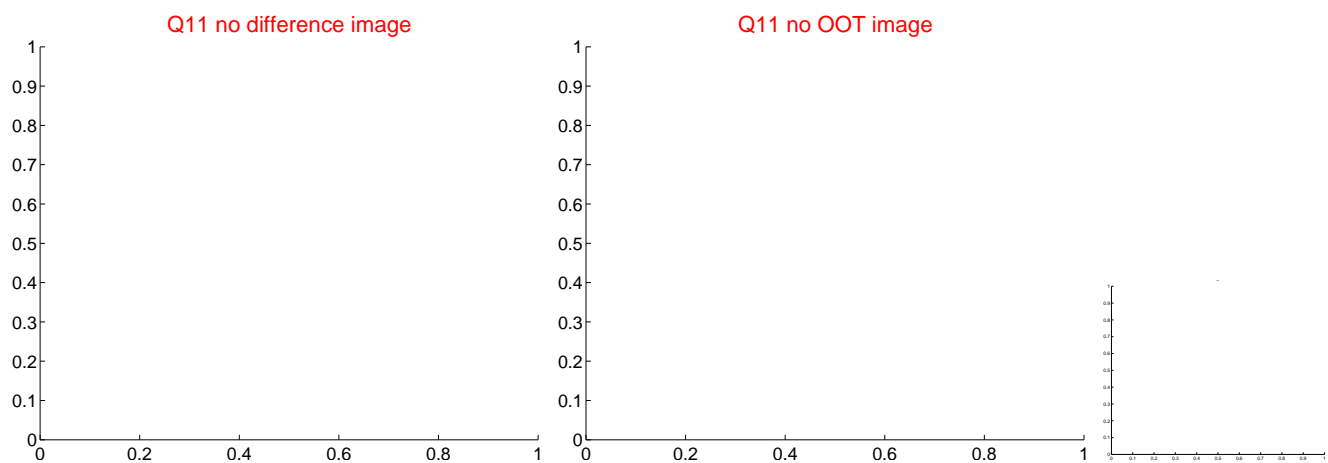
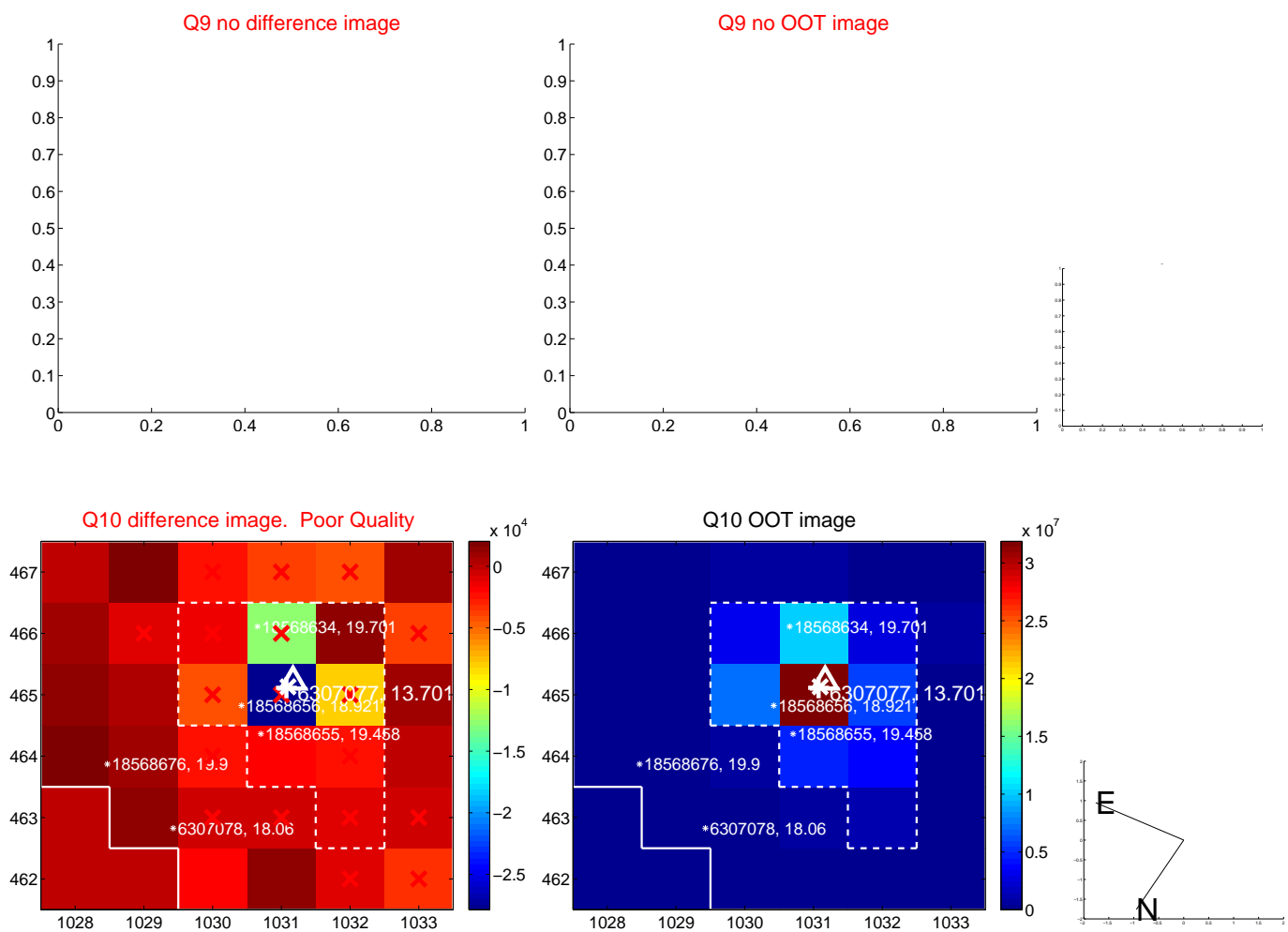
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



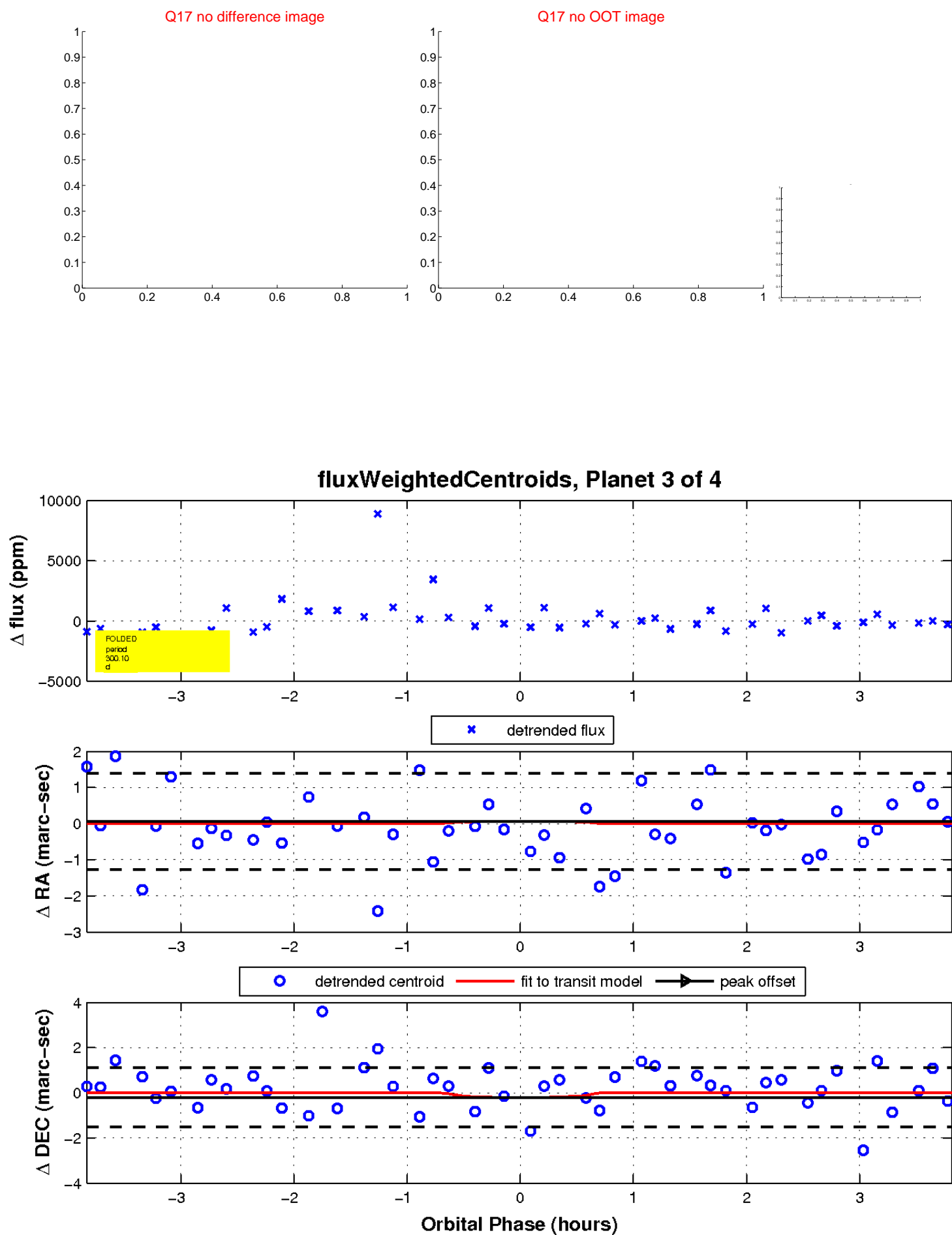
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

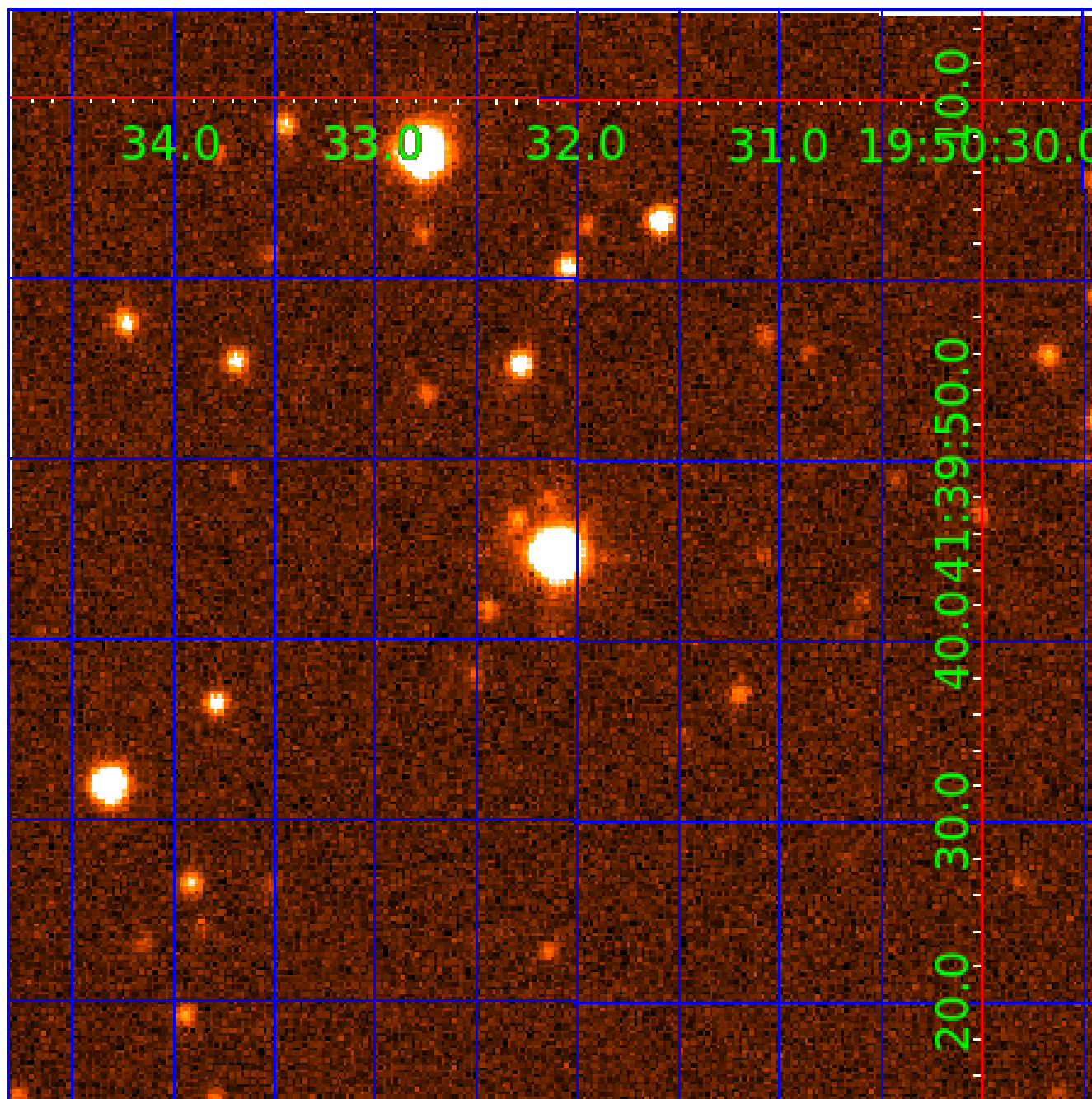


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006307077

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})
006307077-01	OBS	No	534.811858	377.534747	1715.8	5.339	14.9	5.7	2.12	4882	8.76	1.46
006307077-02	OBS	No	370.471598	247.147337	611.6	3.547	12.3	3.4	2.12	4882	5.14	2.38
006307077-03	OBS	No	300.095828	394.312070	501.1	1.311	12.3	2.7	2.12	4882	4.86	3.15
006307077-04	OBS	No	554.812021	434.377220	627.7	3.500	14.0	-1.0	2.12	4882	5.14	1.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006307077-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006307077-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006307077-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006307077-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_NOFITS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

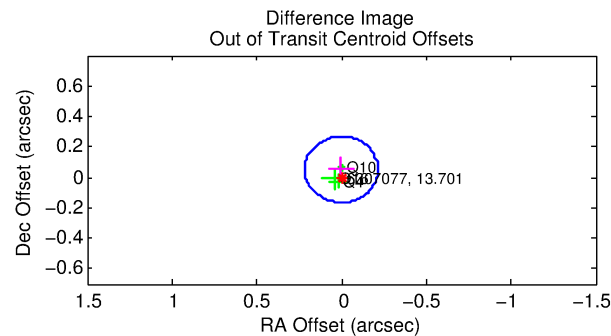
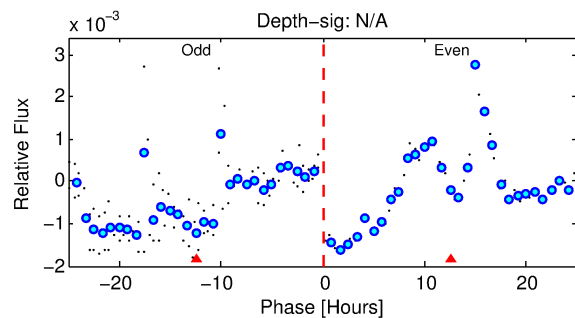
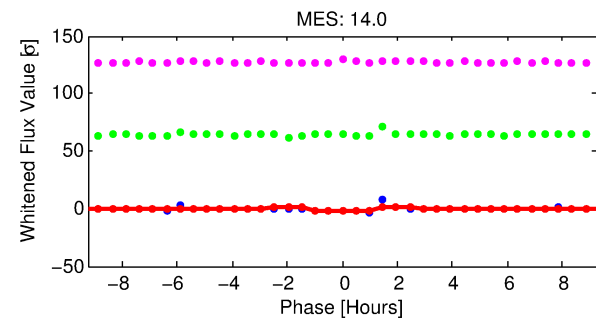
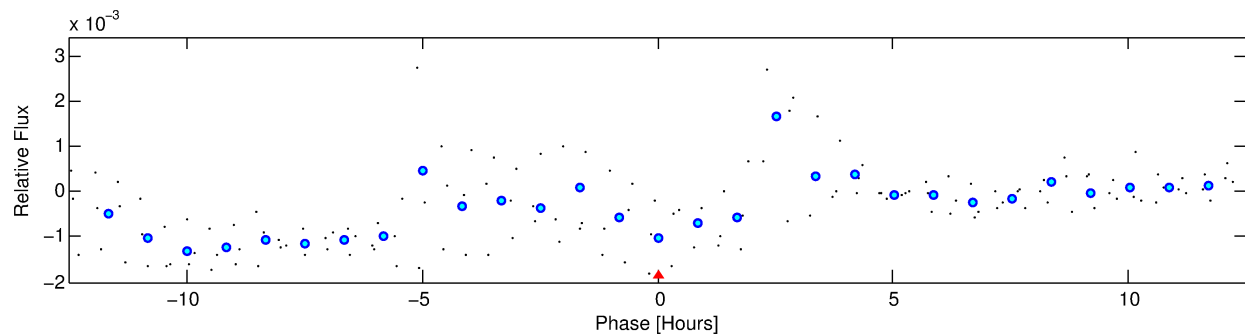
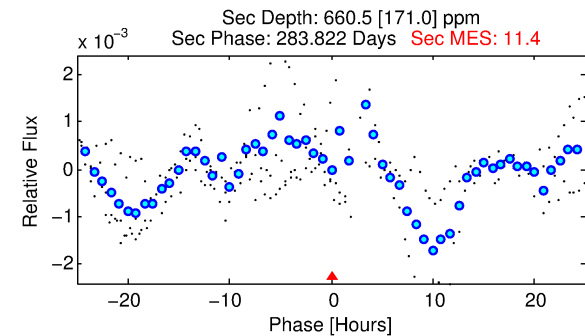
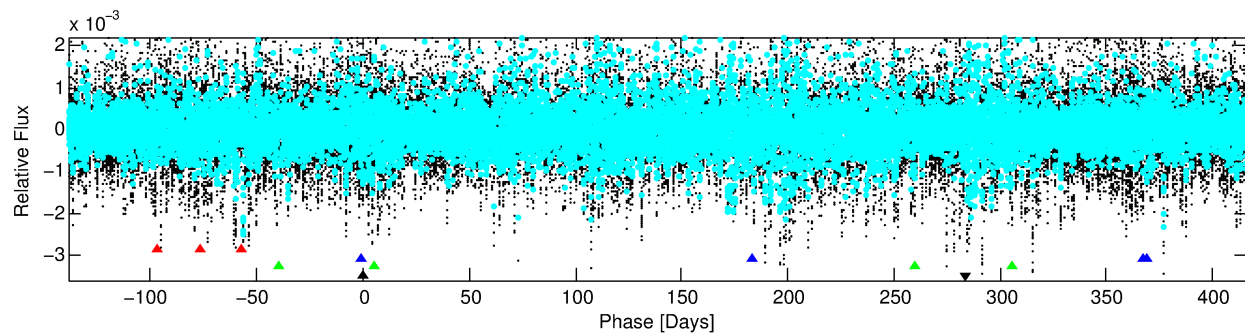
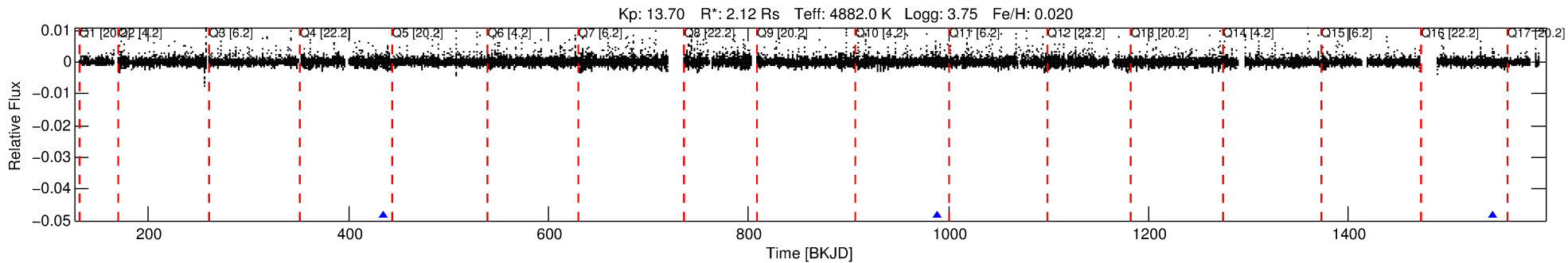
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006307077-04

No Significant Match Found

DV One-Page Summary

KIC: 6307077 Candidate: 4 of 4 Period: 554.812 d



TPS TCE Results:

Period = 554.81202 d
Epoch = 434.3772 BKJD

DV fit results are unavailable

DV Diagnostic Results:

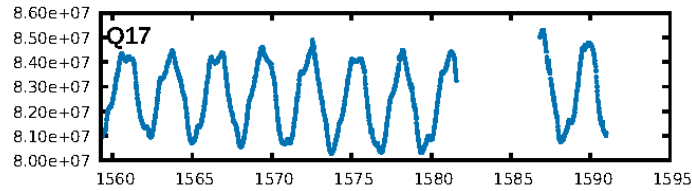
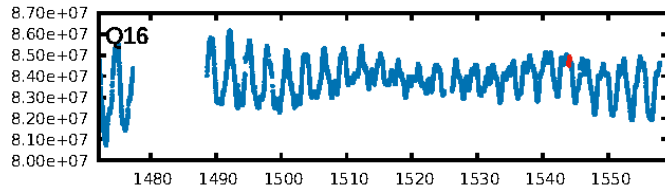
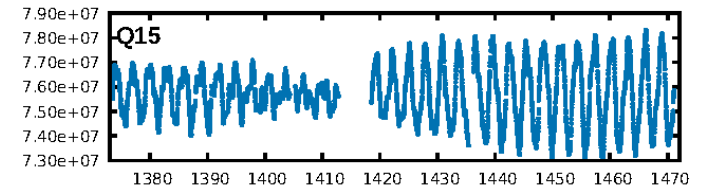
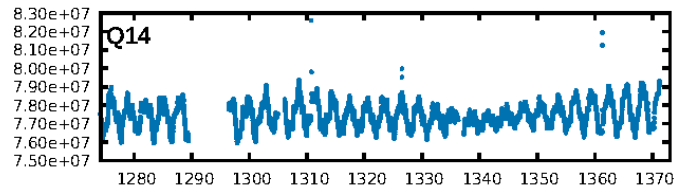
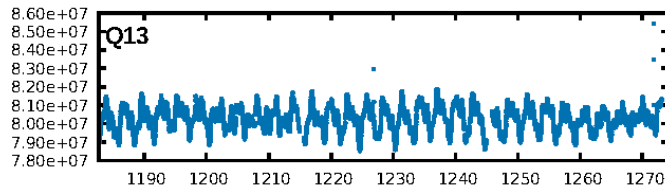
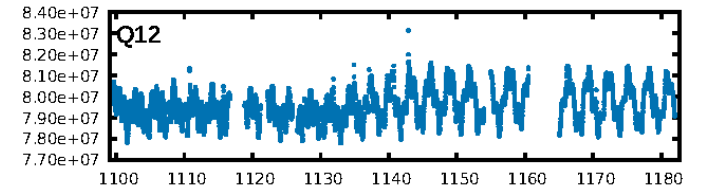
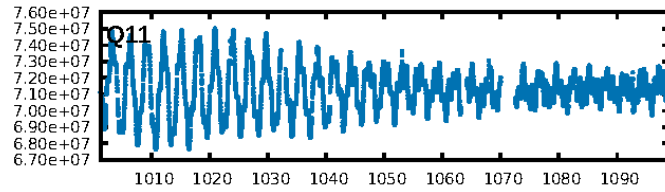
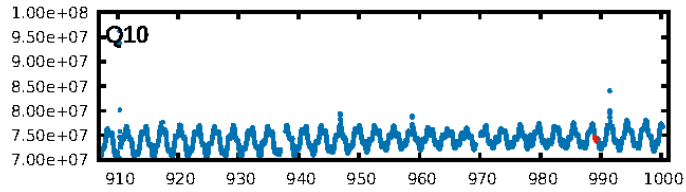
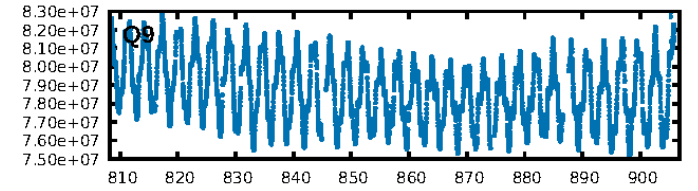
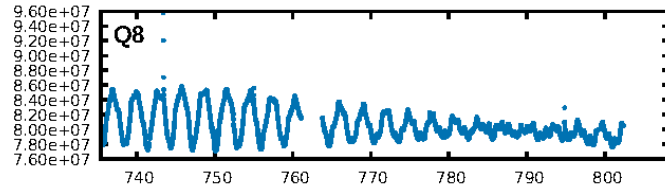
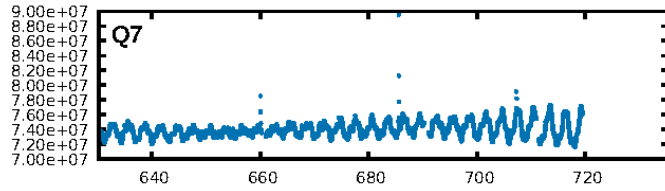
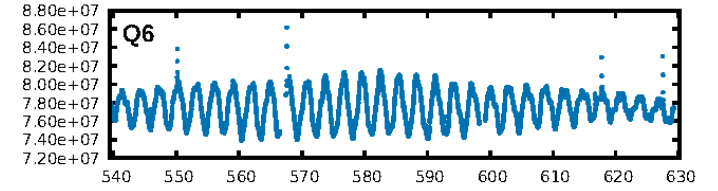
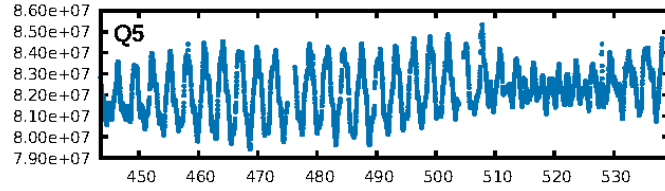
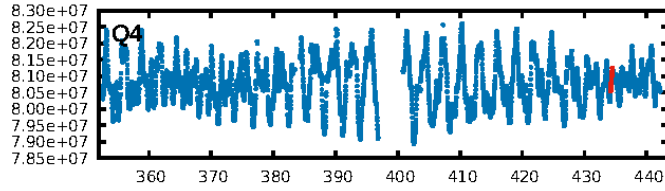
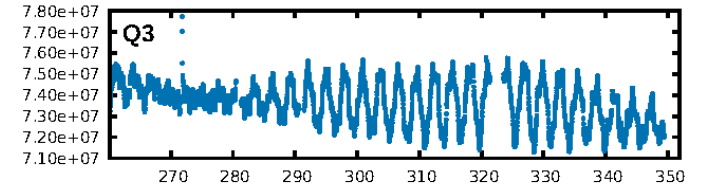
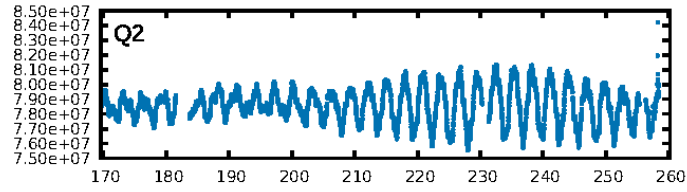
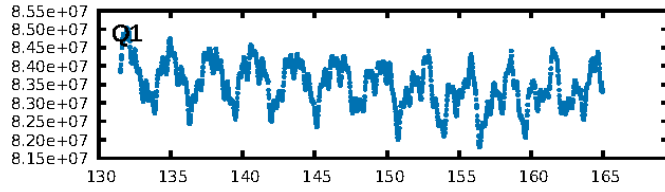
ShortPeriod-sig: 100.0% [75.19σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 6.793

Centroid-sig: 26.9%
Centroid-so: 0.759 arcsec [1.19σ]
OotOffset-rm: 0.052 arcsec [0.72σ]
KicOffset-rm: 0.164 arcsec [2.27σ]
OotOffset-st: 1/0/2/0 [3]
KicOffset-st: 1/0/2/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

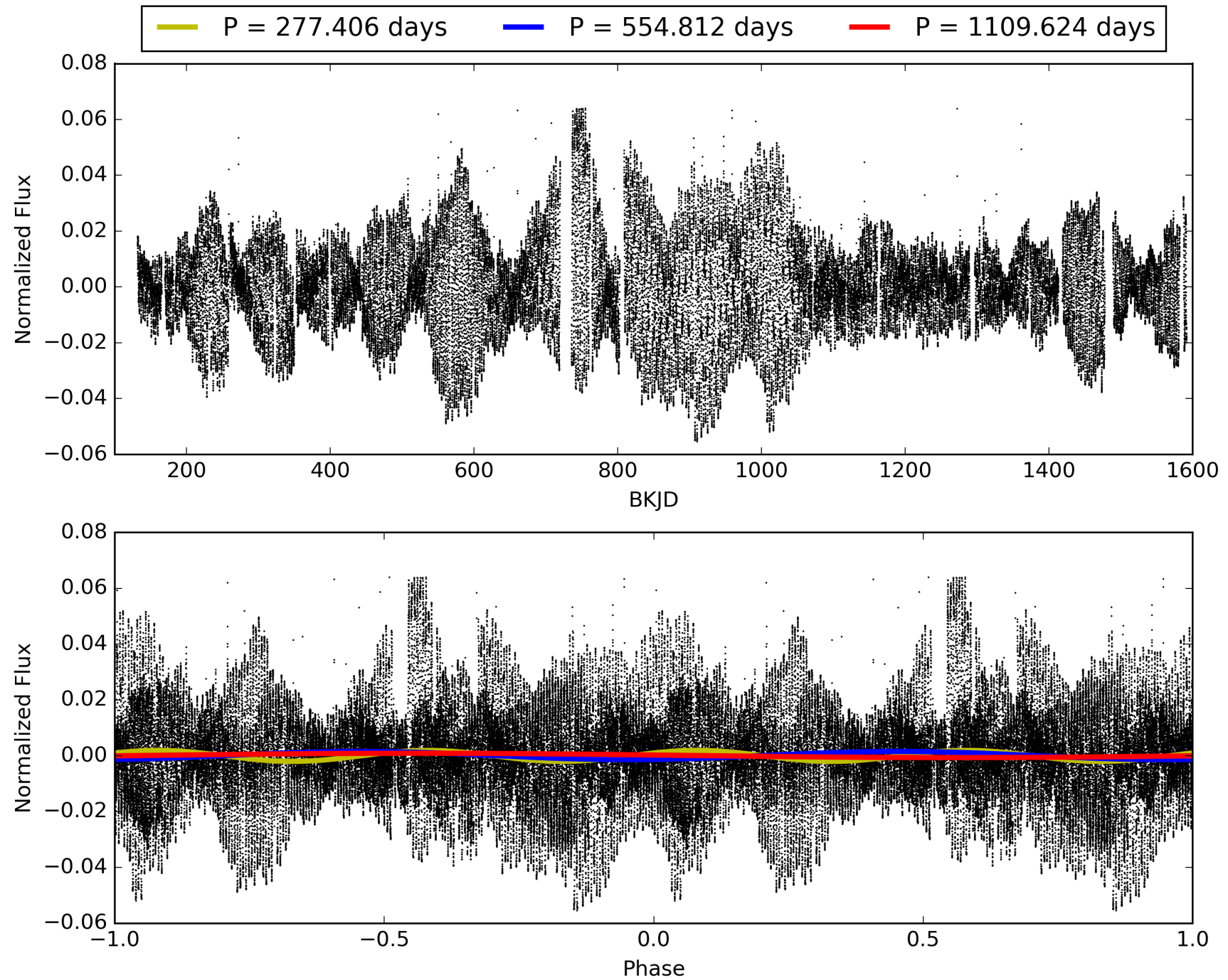
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:19:55 Z

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

TCE 006307077-04, PDC Light Curves

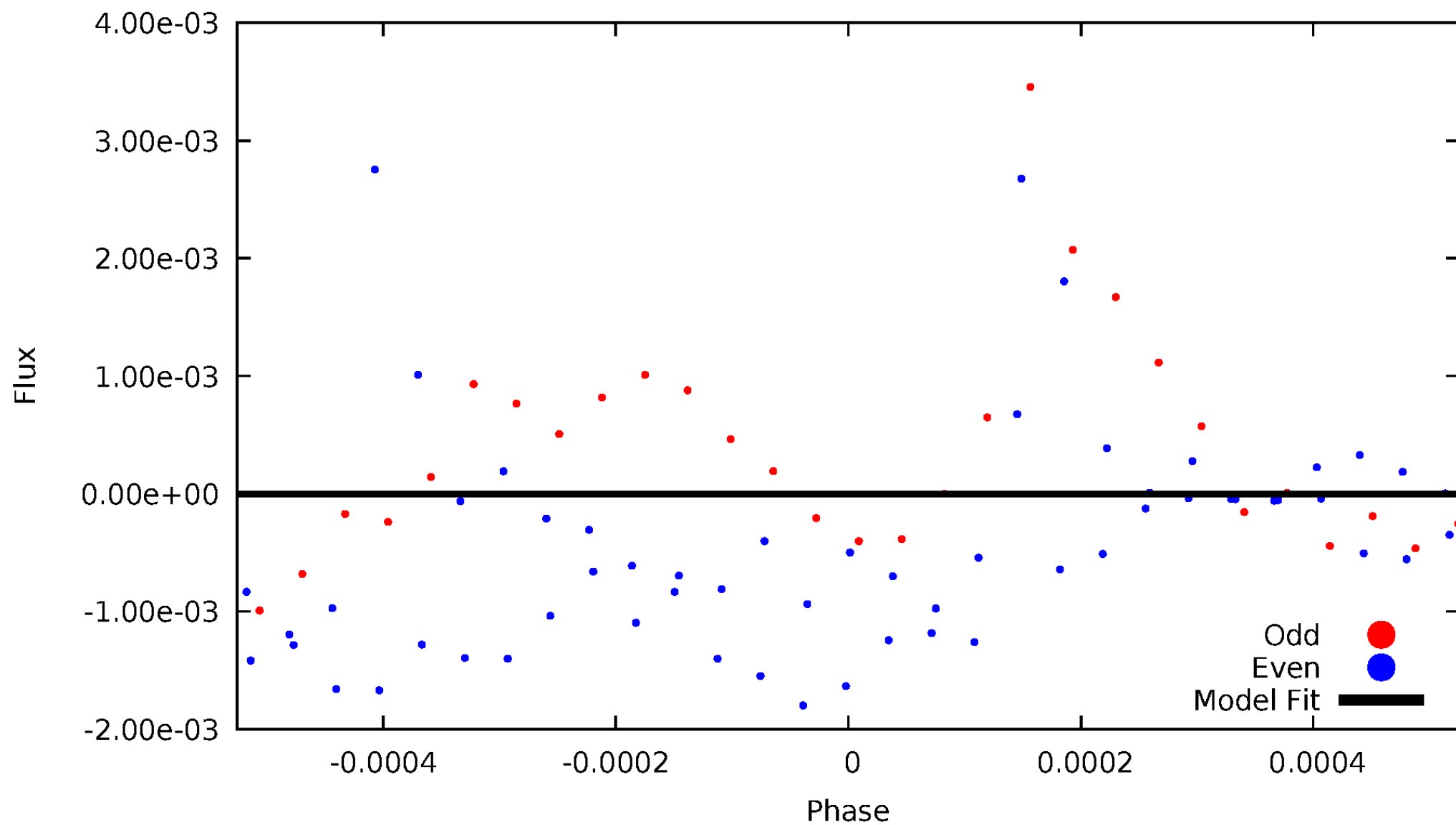


TCE 006307077-04



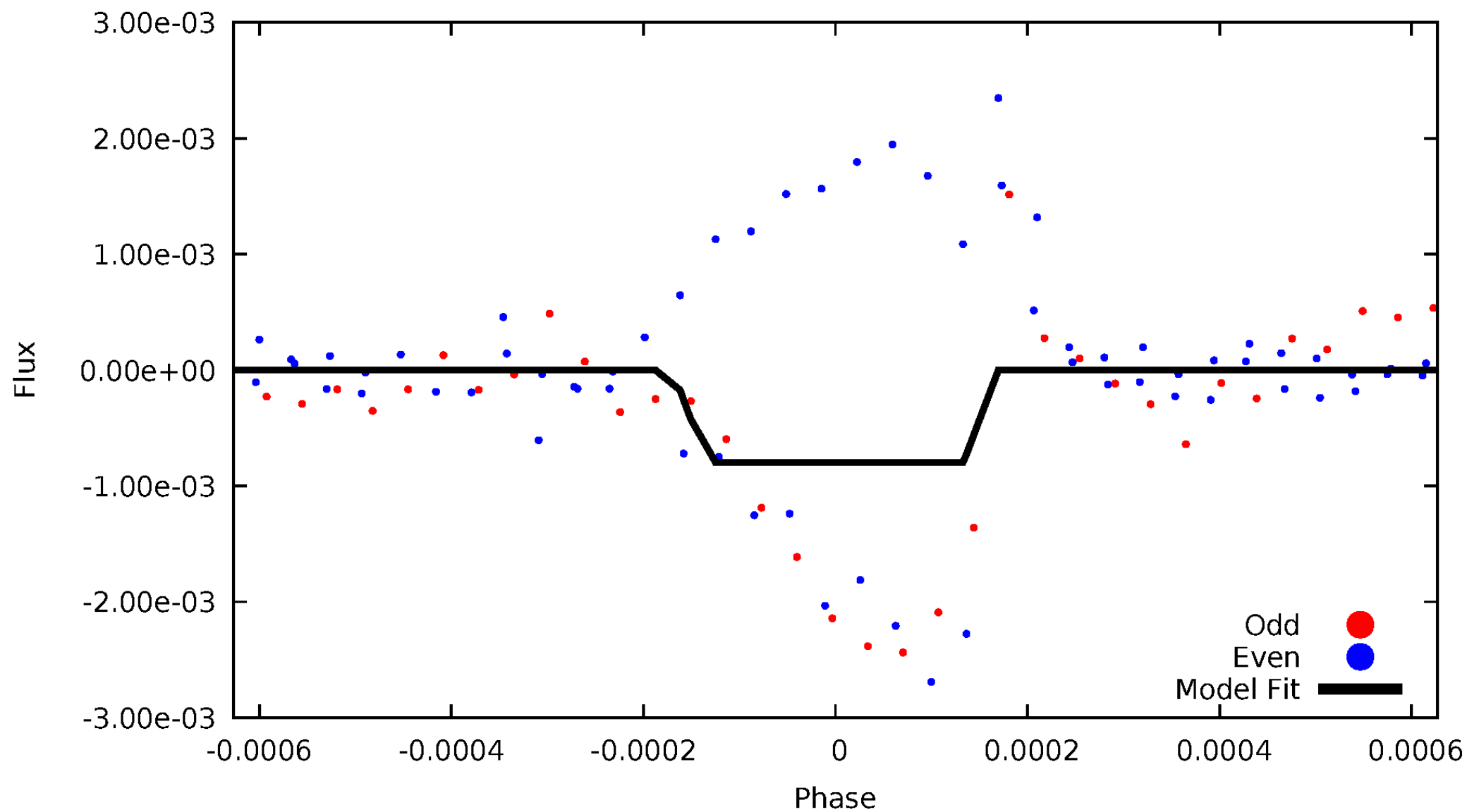
DV Odd/Even

TCE 006307077-04



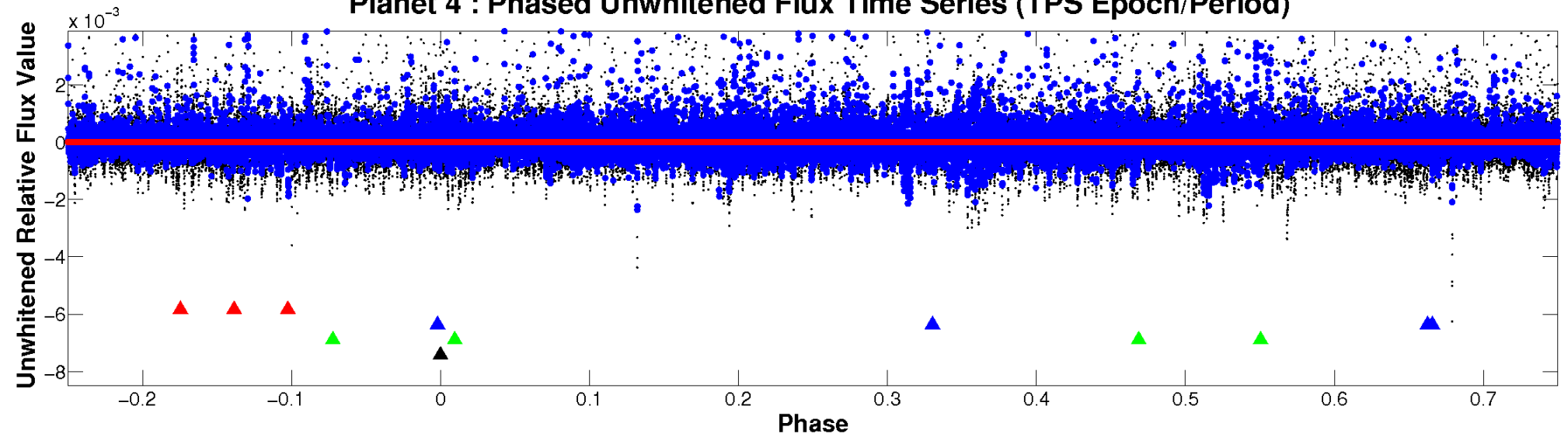
ALT Odd/Even

TCE 006307077-04



Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

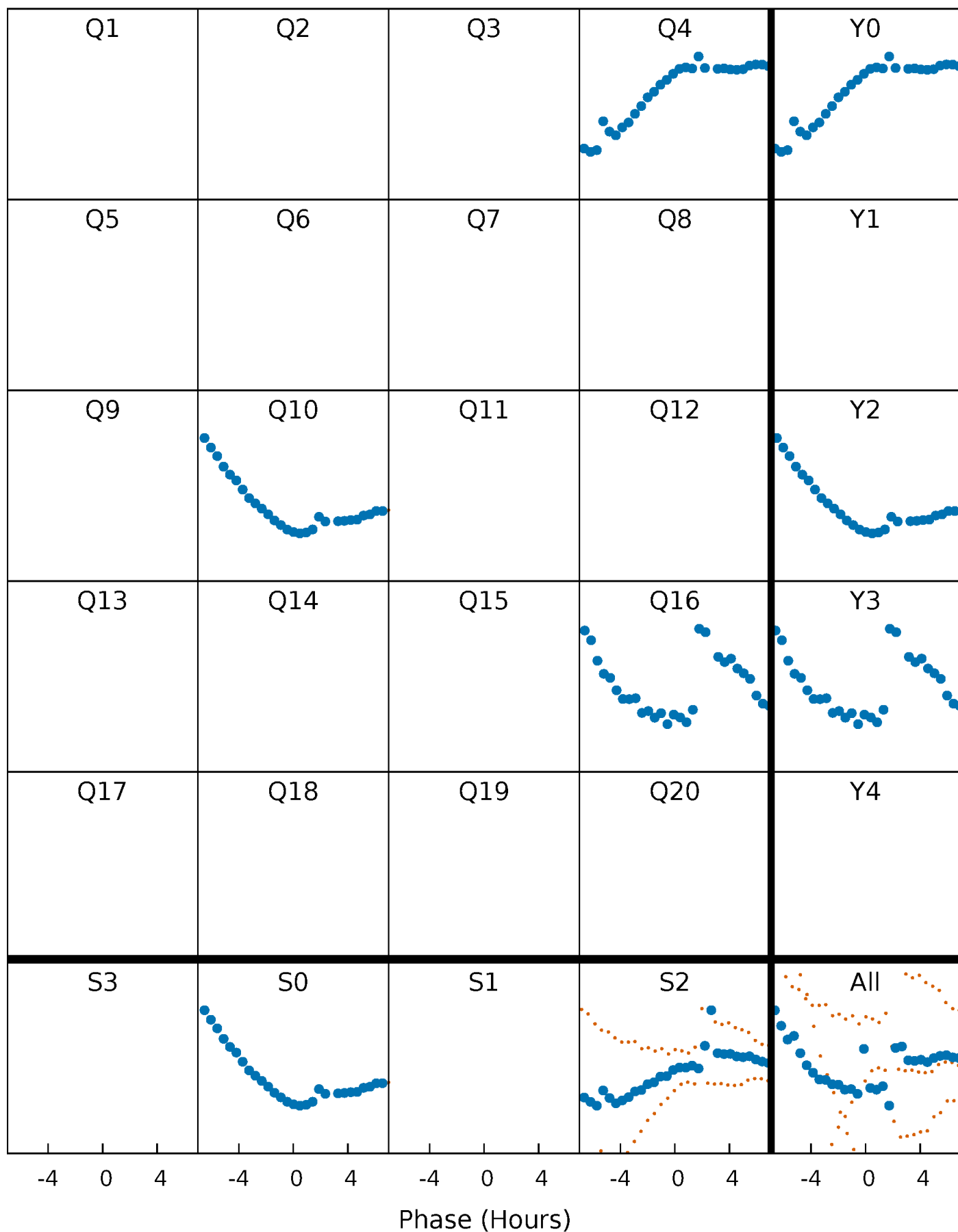


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



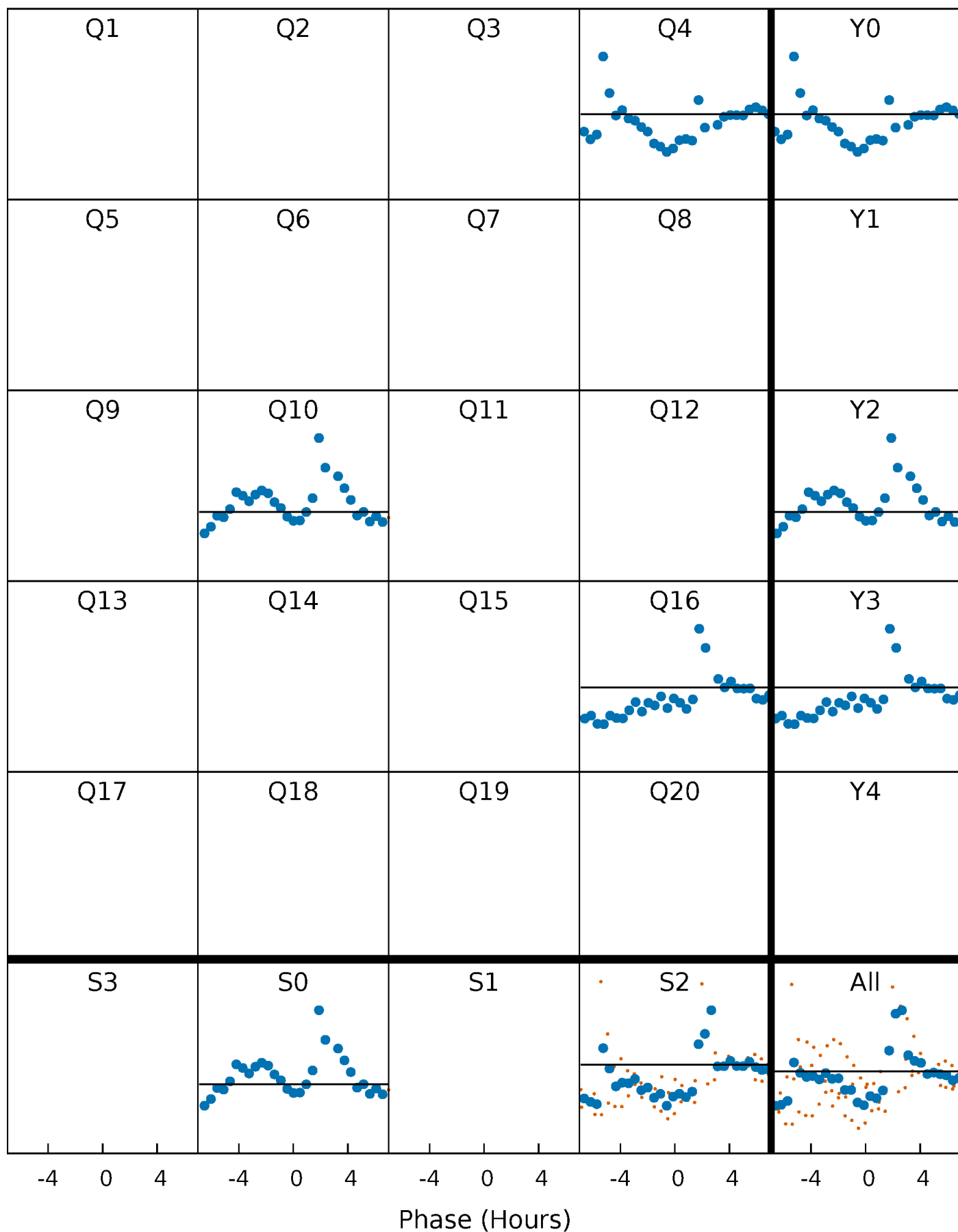
PDC Quarter-Phased Transit Curves

TCE 006307077-04 P=554.812021 Days $T_0=434.377220$ (BKJD)



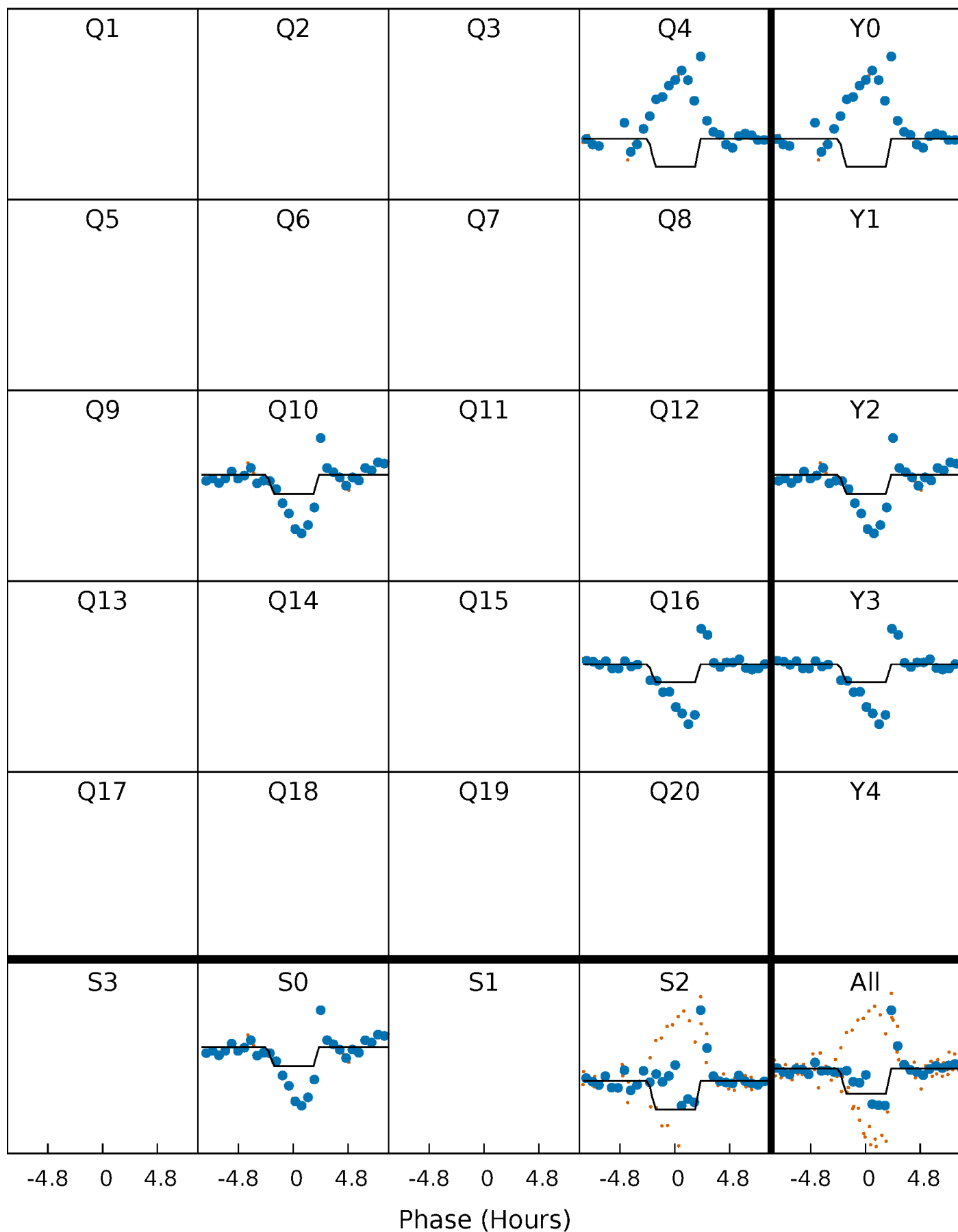
DV Quarter-Phased Transit Curves

TCE 006307077-04 $P=554.812021$ Days $T_0=434.377220$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

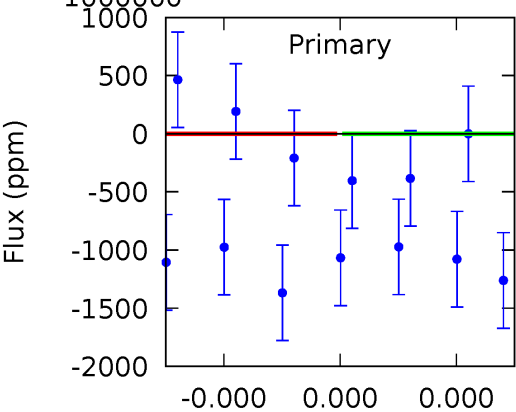
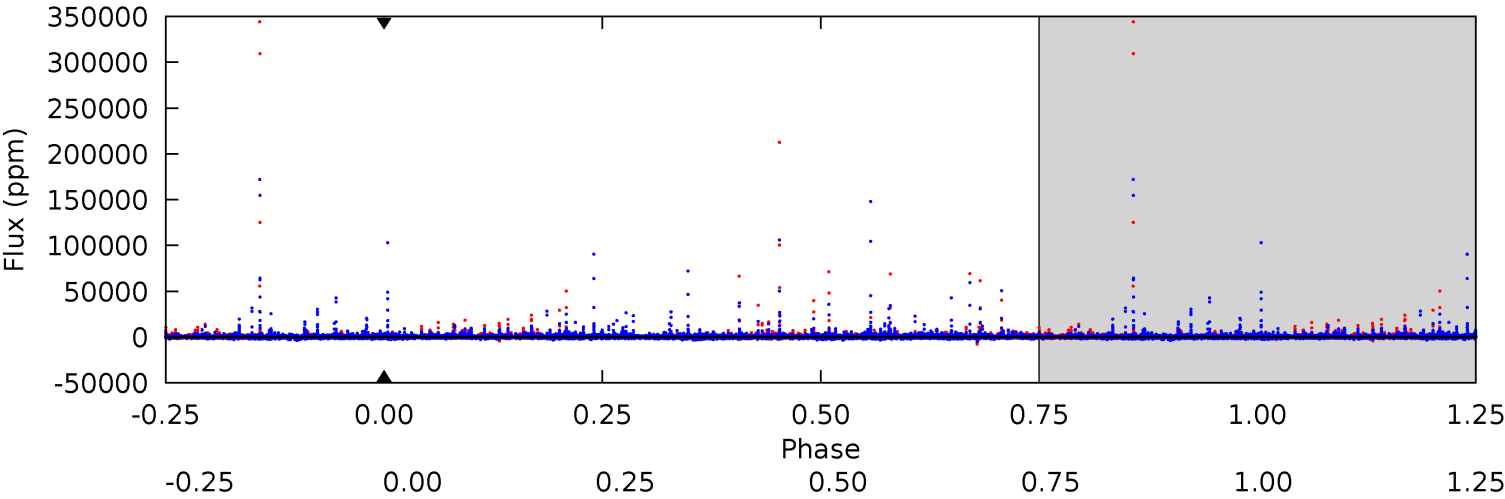
TCE 006307077-04 P=554.812021 Days $T_0=434.363651$ (BKJD)



DV Model-Shift Uniqueness Test

006307077-04, P = 554.812021 Days, E = 434.377220 Days

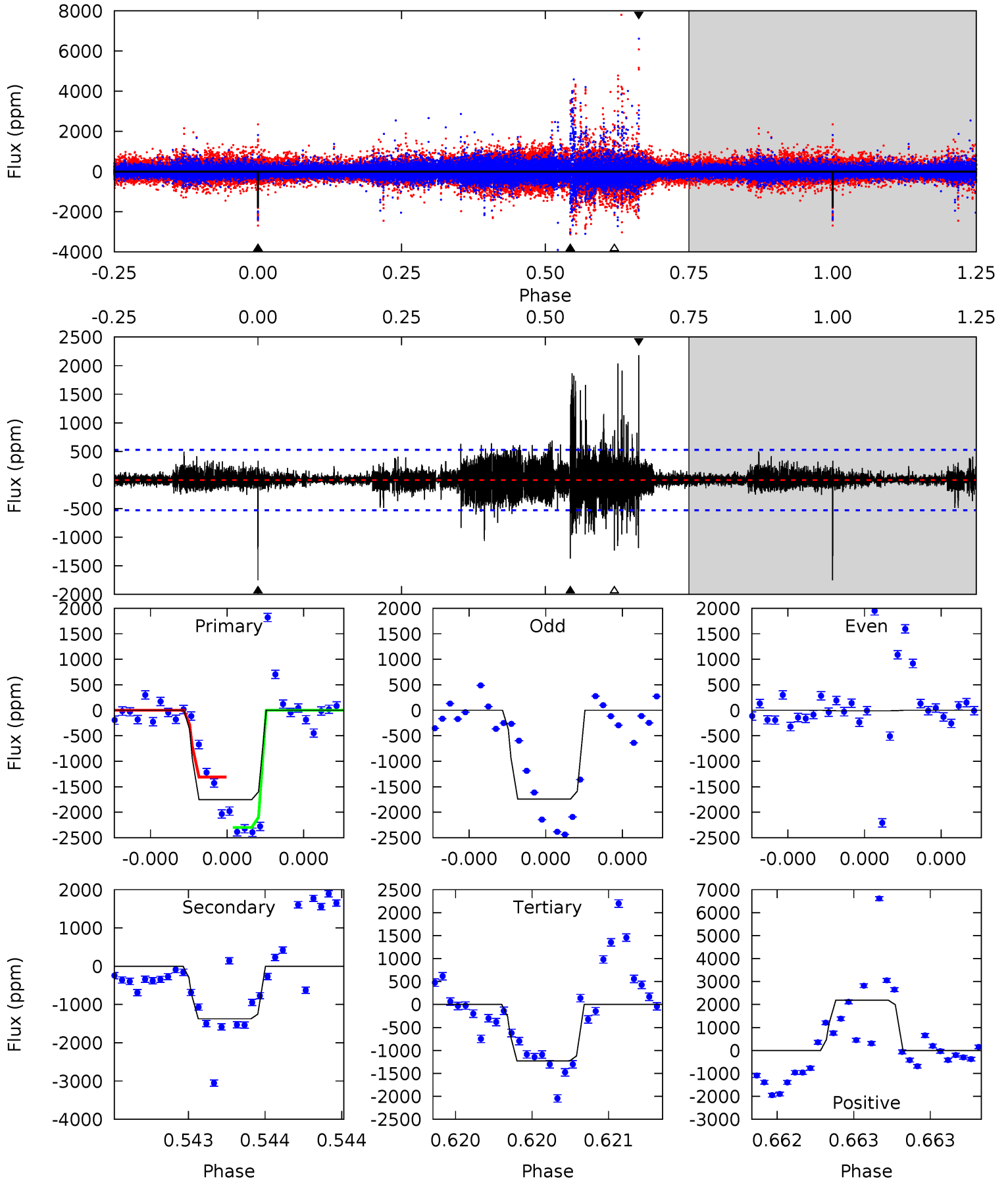
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006307077-04, P = 554.812021 Days, E = 434.363651 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	14.7	13.2	23.4	5.64	3.59	1.97	5.60	-4.61	1.55	-8.66	5.84	0.39	0.55	5.44



Stellar Parameters For KIC 006307077

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4882^{+148}_{-118}	$3.748^{+0.826}_{-0.354}$	$0.020^{+0.250}_{-0.250}$	$2.124^{+1.327}_{-1.327}$	$0.921^{+0.244}_{-0.163}$	$0.135^{+2.801}_{-0.089}$
	+3%/-2%	+22%/-9%	+1250%/-1250%	+62%/-62%	+26%/-18%	+2069%/-66%
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 006307077-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$17.29^{+20.15}_{-12.70}$	378^{+60}_{-71}	-3223^{+16610}_{-8988}	$-1357.324^{+737137.063}_{-516144.382}$
Alt.	-1373 ± 93	$16.44^{+18.42}_{-11.60}$	380^{+65}_{-70}	3715^{+2066}_{-735}	4717^{+51081}_{-3663}

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

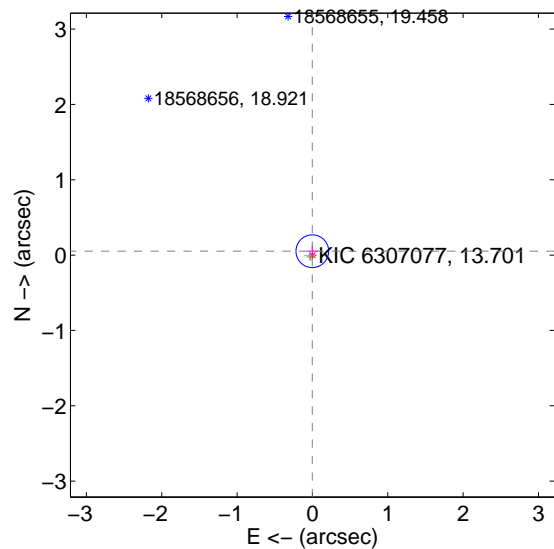
Supplemental centroid analysis for 006307077-04. Kepler magnitude: 13.70. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

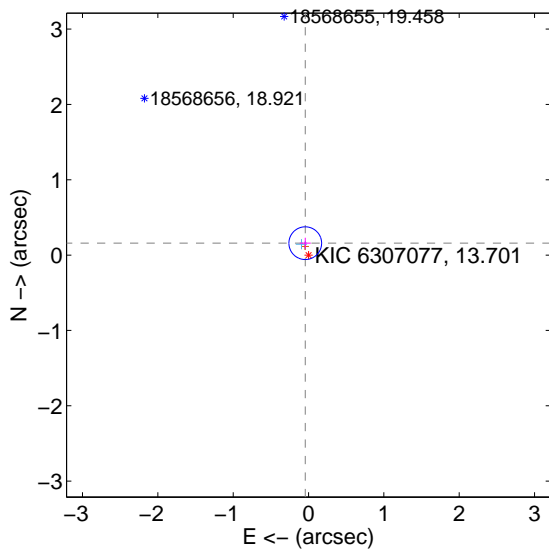
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.052 ± 0.072	0.72	0.002 ± 0.074	0.052 ± 0.072
PRF-fit source offset from KIC position	0.164 ± 0.072	2.27	0.043 ± 0.074	0.158 ± 0.072
photometric centroid source offset	0.76 ± 0.64	1.19	-0.25 ± 0.78	0.72 ± 0.62

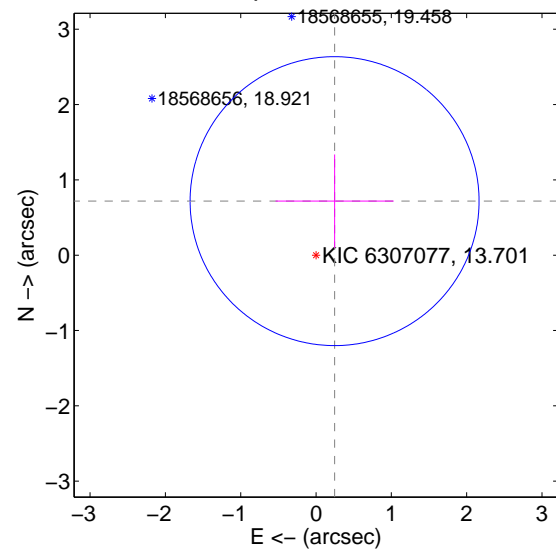
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

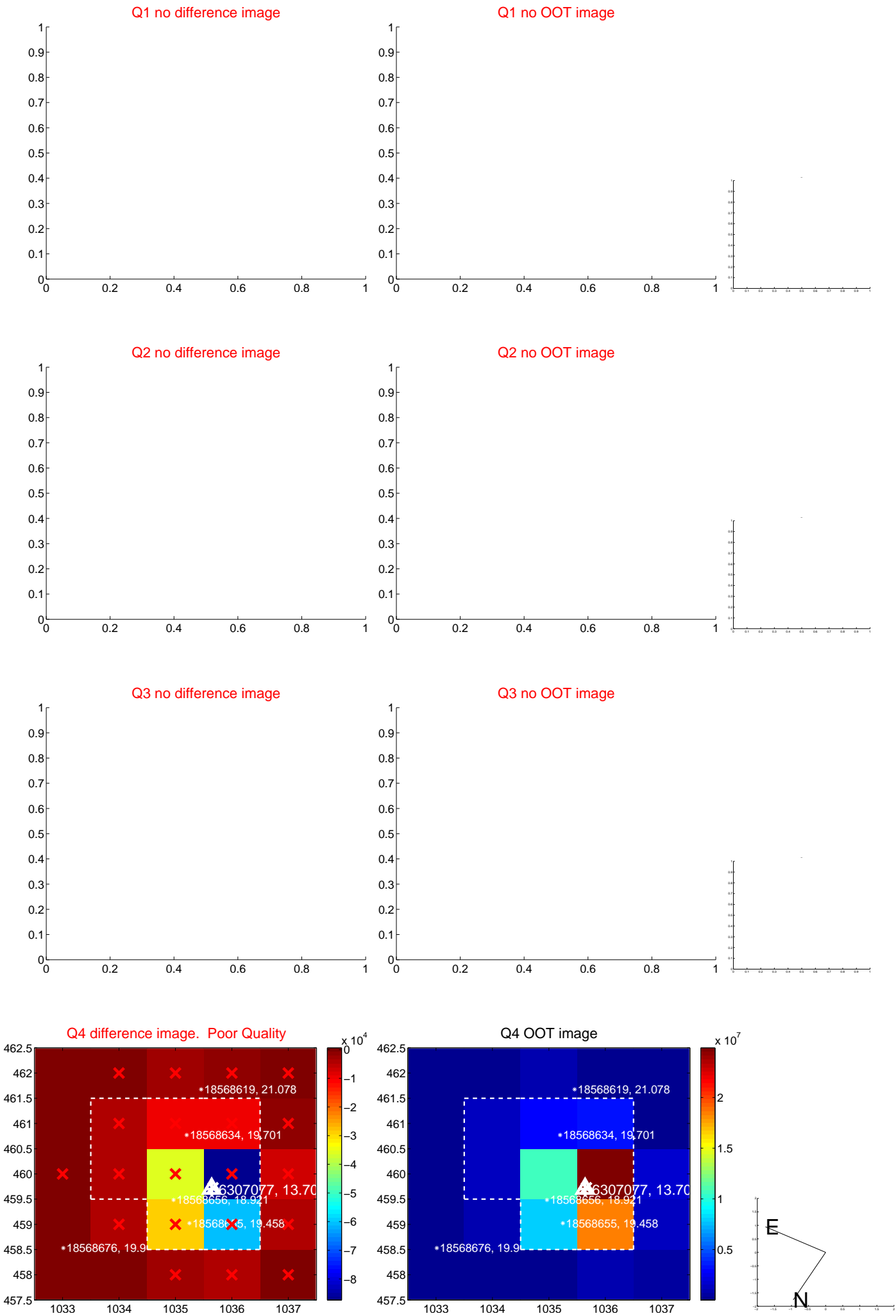


offset from photometric centroids



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.

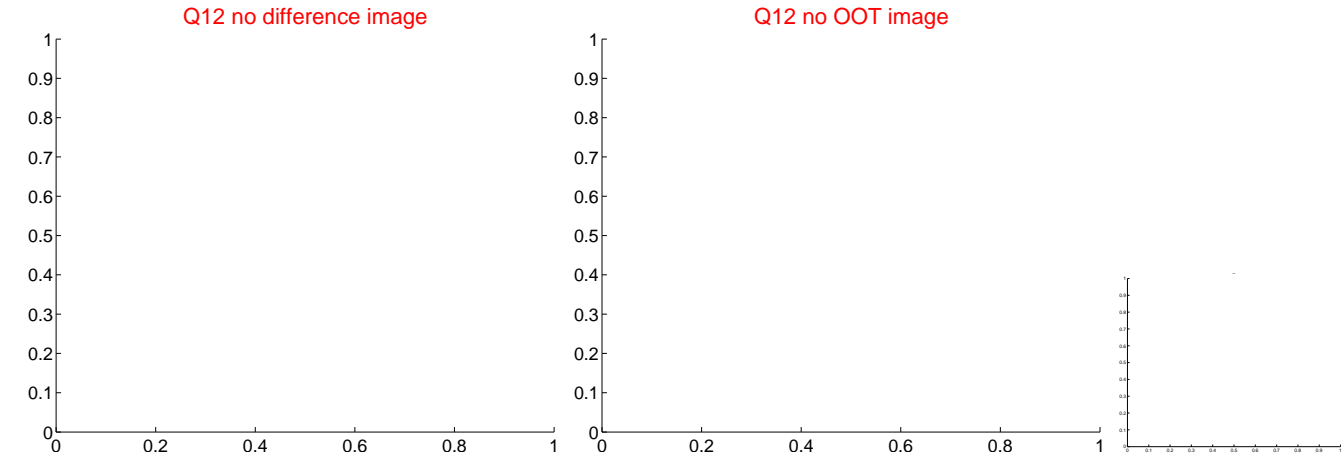
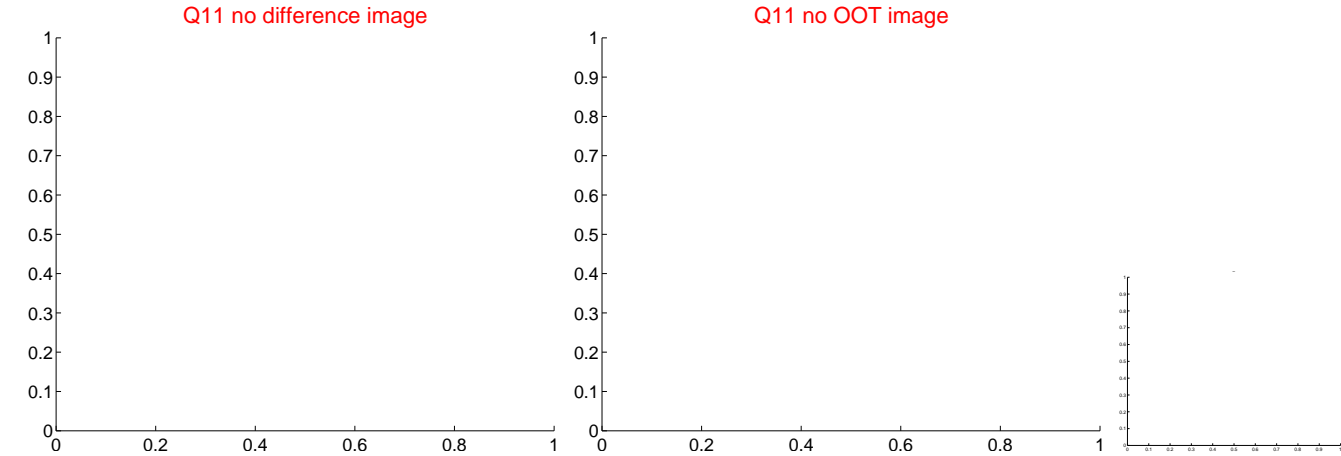
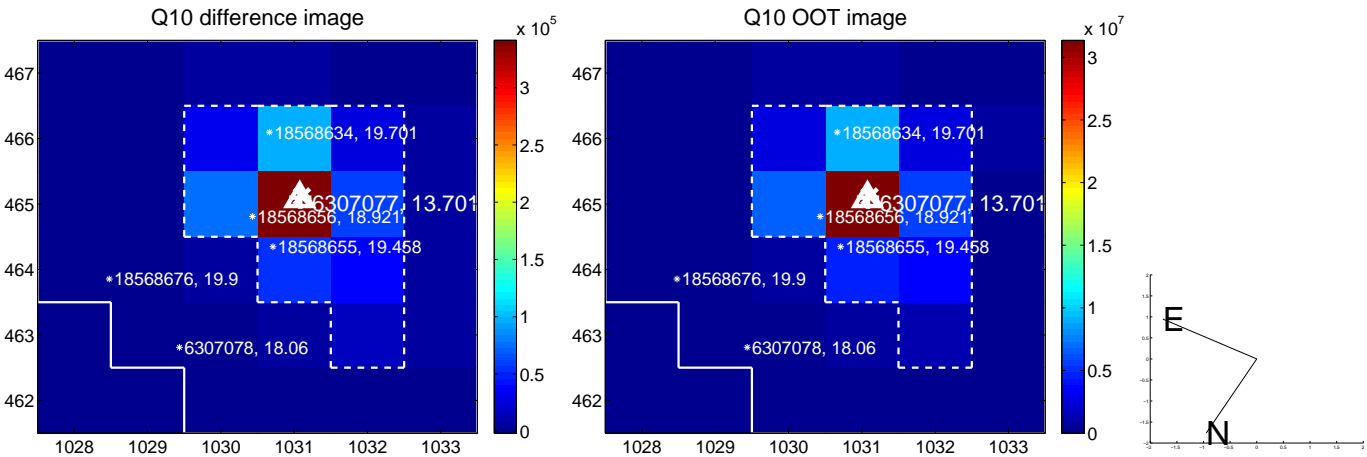
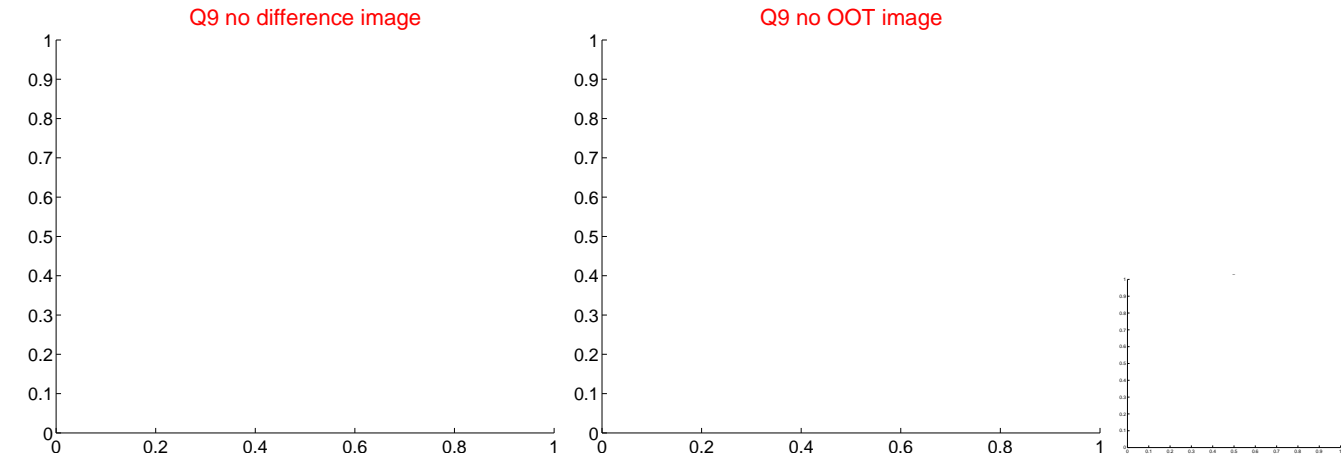
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



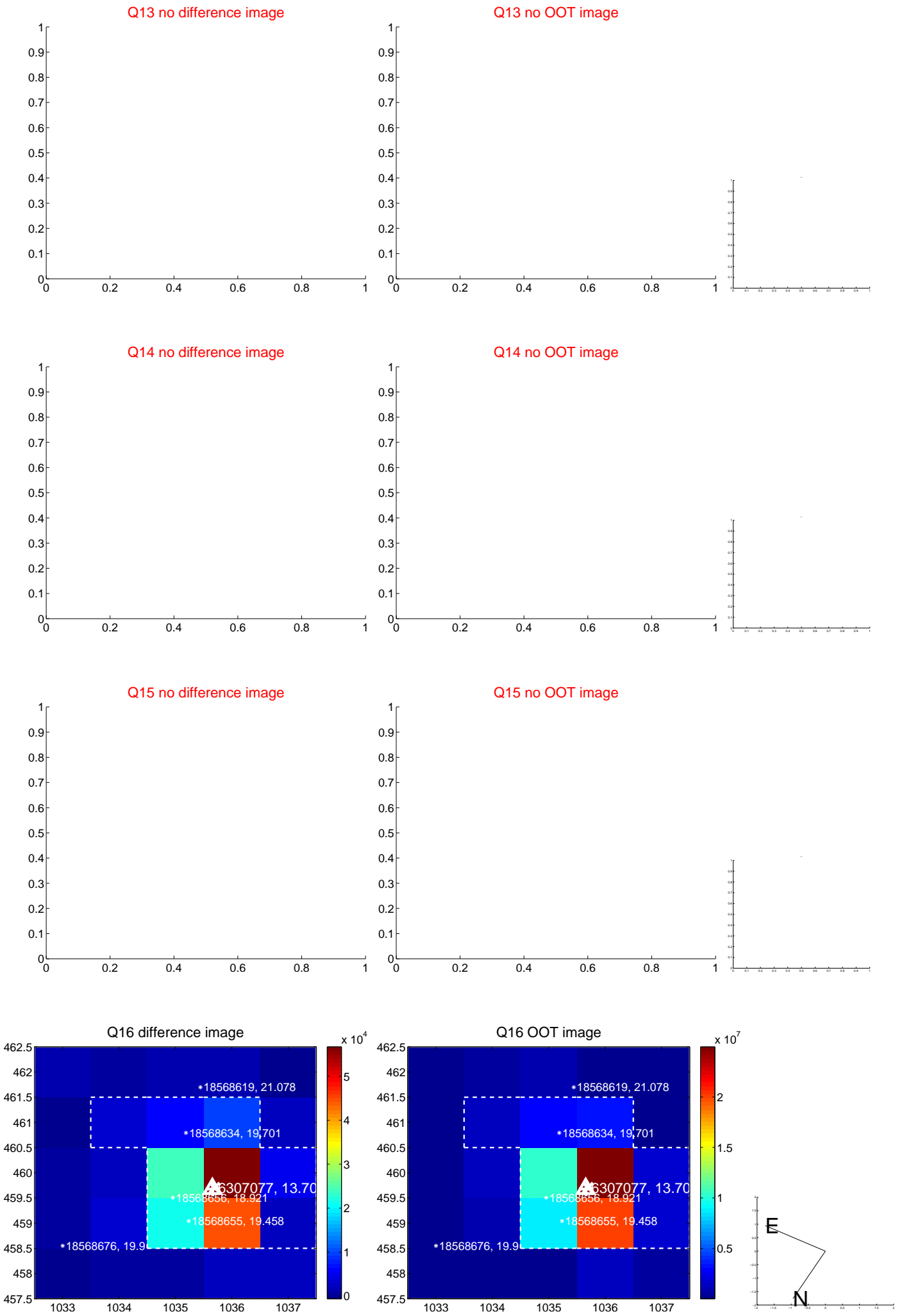
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



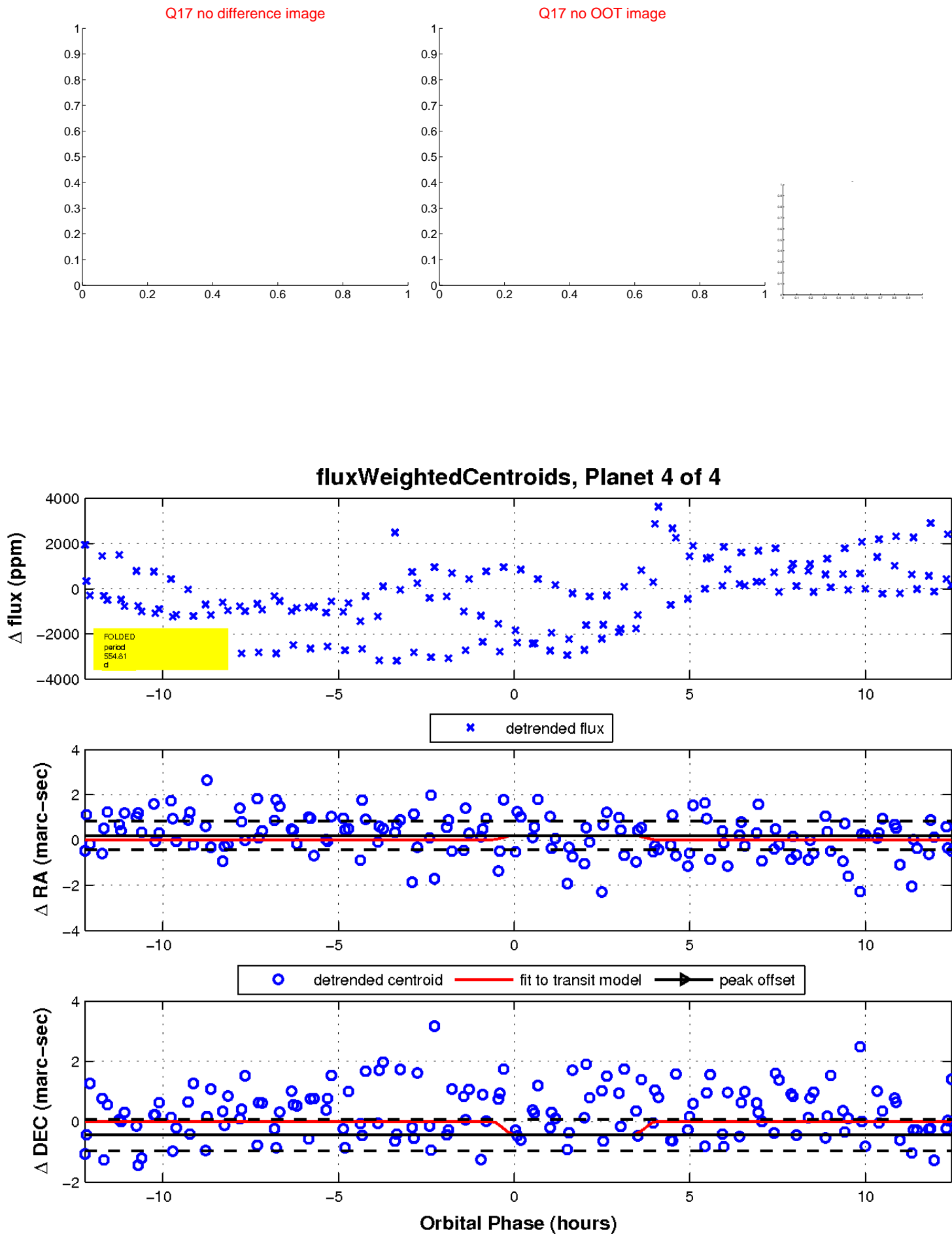
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

