

KIC 008558011

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})
008558011-01	OBS	0577.01	39.676777	138.883766	628.6	6.460	21.4	24.5	0.89	5244	2.96	11.87
008558011-02	OBS	0577.02	0.638165	131.746727	99.1	1.200	13.5	15.7	0.89	5244	1.07	2923.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008558011-01	OBS	PC	0.93	0	0	0	0	NO_COMMENT
008558011-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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 008558011-01

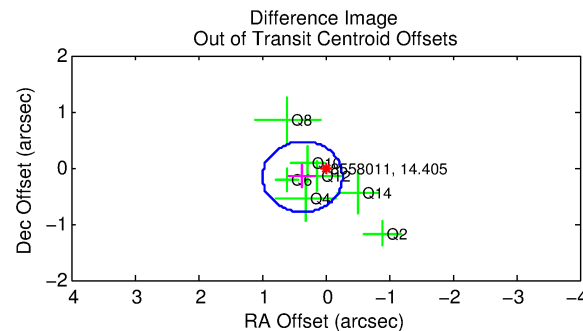
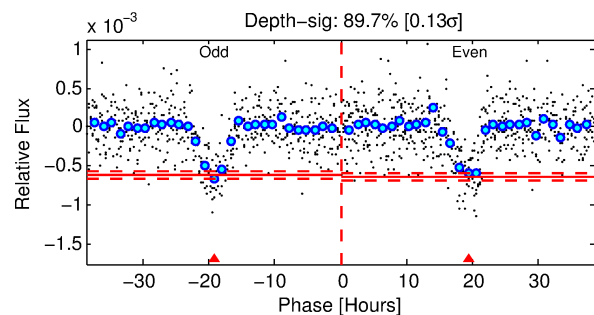
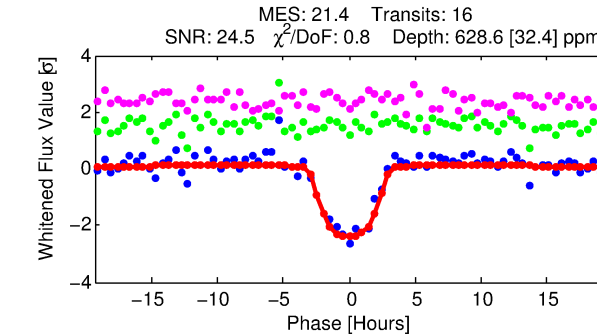
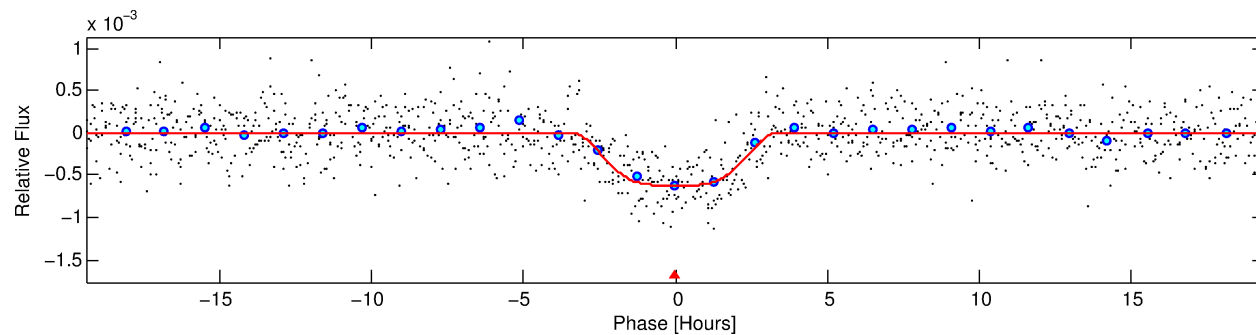
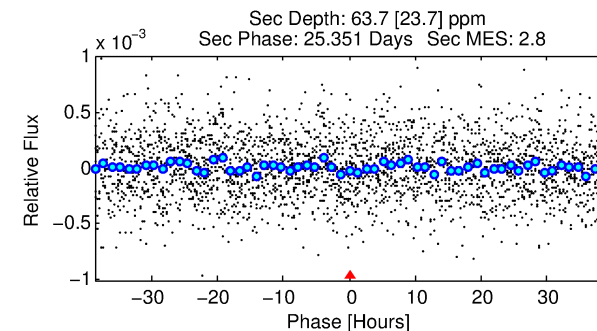
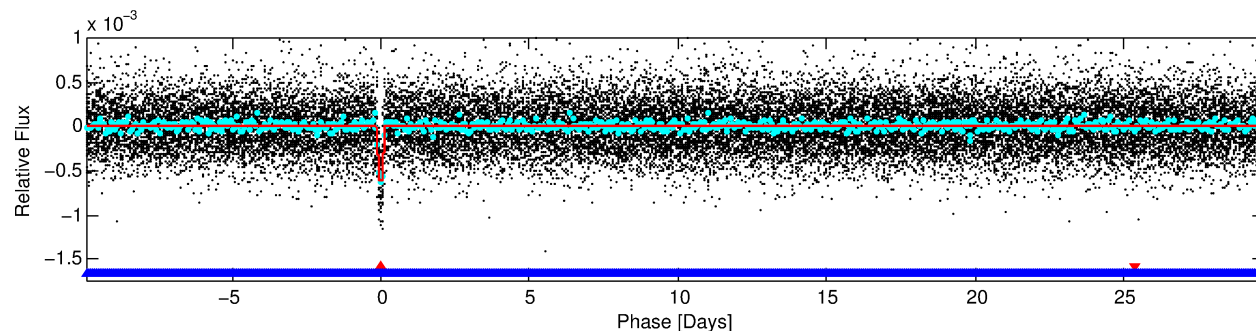
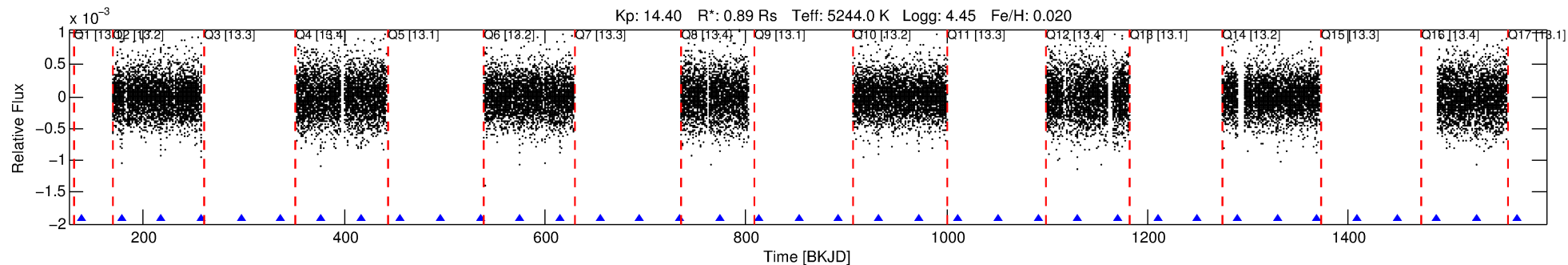
No Significant Match Found

DV One-Page Summary

KIC: 8558011 Candidate: 1 of 2 Period: 39.677 d

KOI: K00577.01 Corr: 0.979

Kp: 14.40 R*: 0.89 Rs Teff: 5244.0 K Logg: 4.45 Fe/H: 0.020



DV Fit Results:

Period = 39.67678 [0.00029] d
Epoch = 138.8838 [0.0060] BKJD
Rp/R* = 0.0305 [0.0014]
a/R* = 17.85 [2.00]
b = 0.96 [0.01]
Seff = 11.87 [4.32]
Teq = 473 [43] K
Rp = 2.96 [0.67] Re
a = 0.2122 [0.0443] AU
Ag = 180.10 [91.08] [1.97σ]
Teffp = 2681 [277] K [7.87σ]

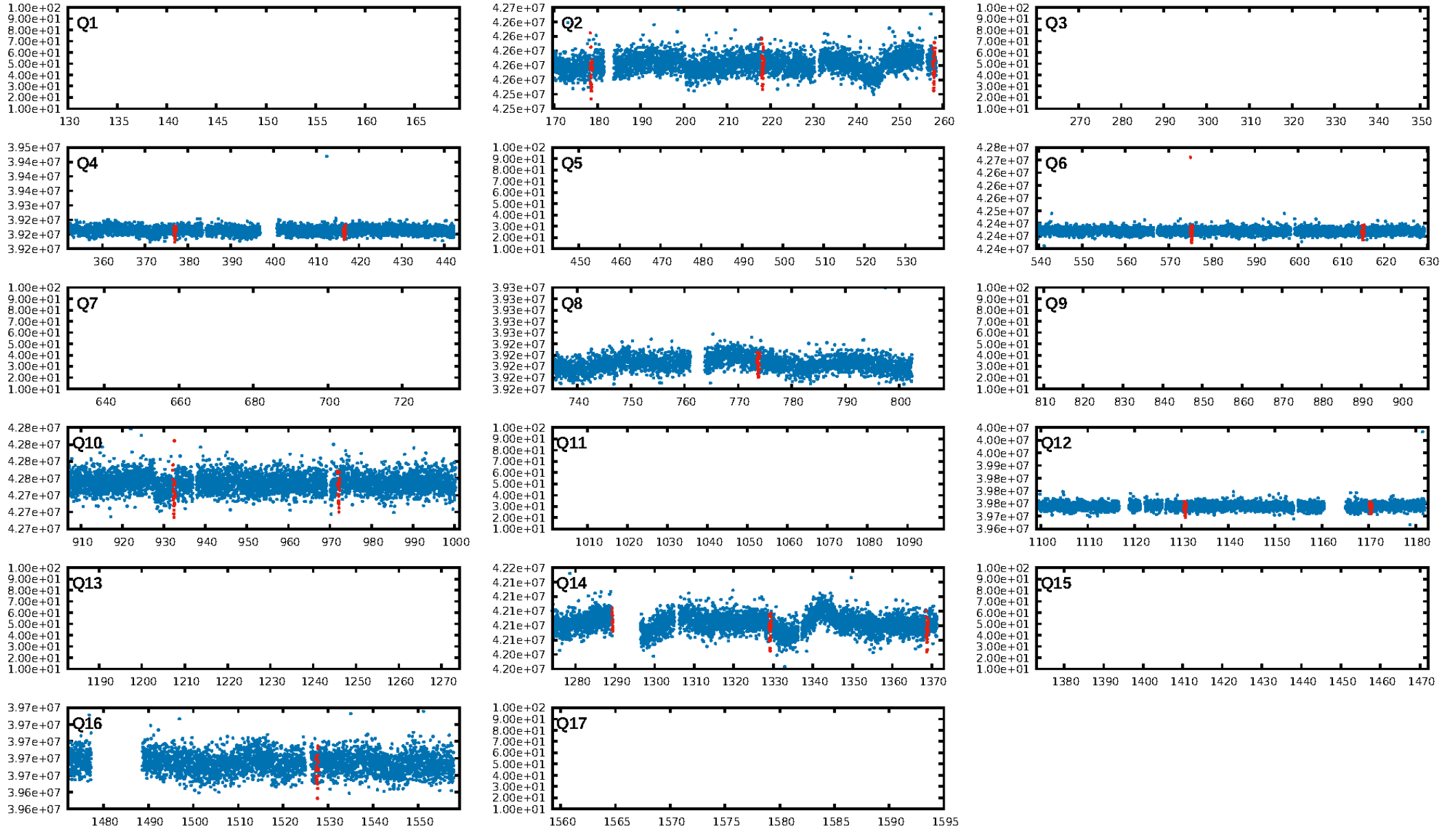
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [142.60σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.67e-98
RollingBand-fgt: 1.00 [16/16]
GhostDiagnostic-chr: -32.87
Centroid-sig: 16.1%
Centroid-so: 0.832 arcsec [1.33σ]
OotOffset-rm: 0.397 arcsec [1.89σ]
KicOffset-rm: 0.364 arcsec [2.08σ]
OotOffset-st: 4/0/3/0 [7]
KicOffset-st: 4/0/3/0 [7]
DiffImageQuality-fgm: 1.00 [7/7]
DiffImageOverlap-fno: 0.00 [0/7]

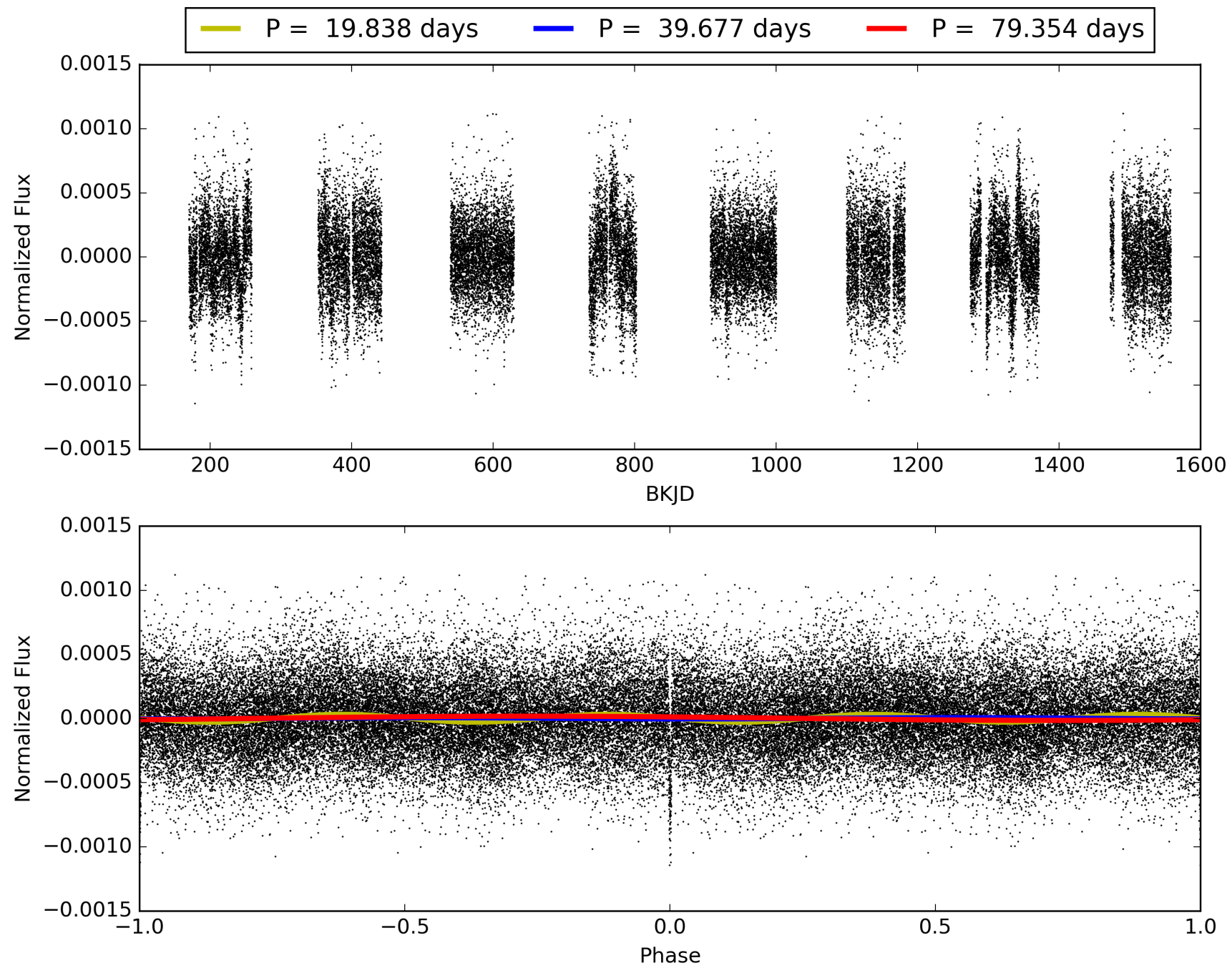
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:05:11 Z

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

TCE 008558011-01, PDC Light Curves

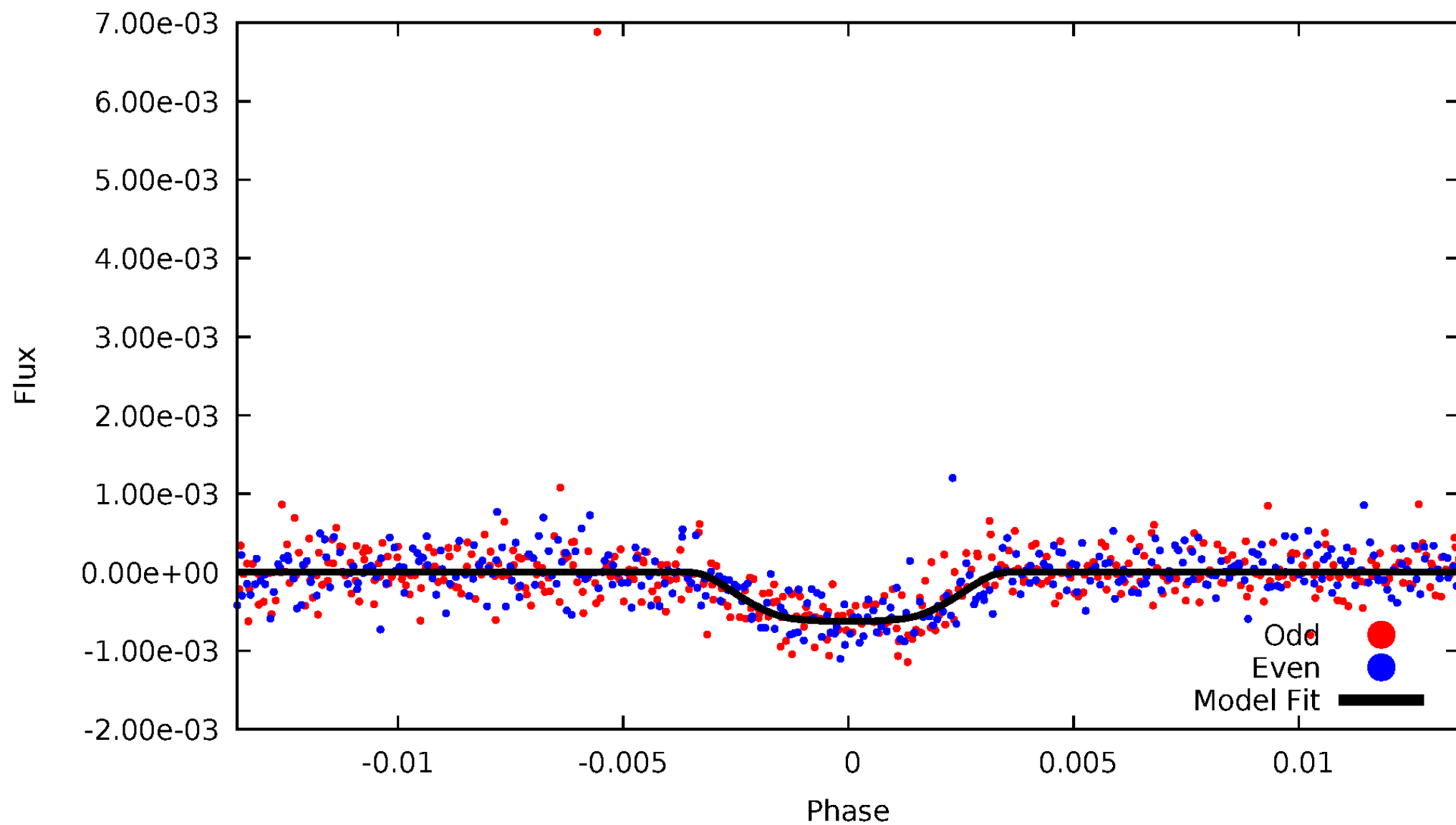


TCE 008558011-01



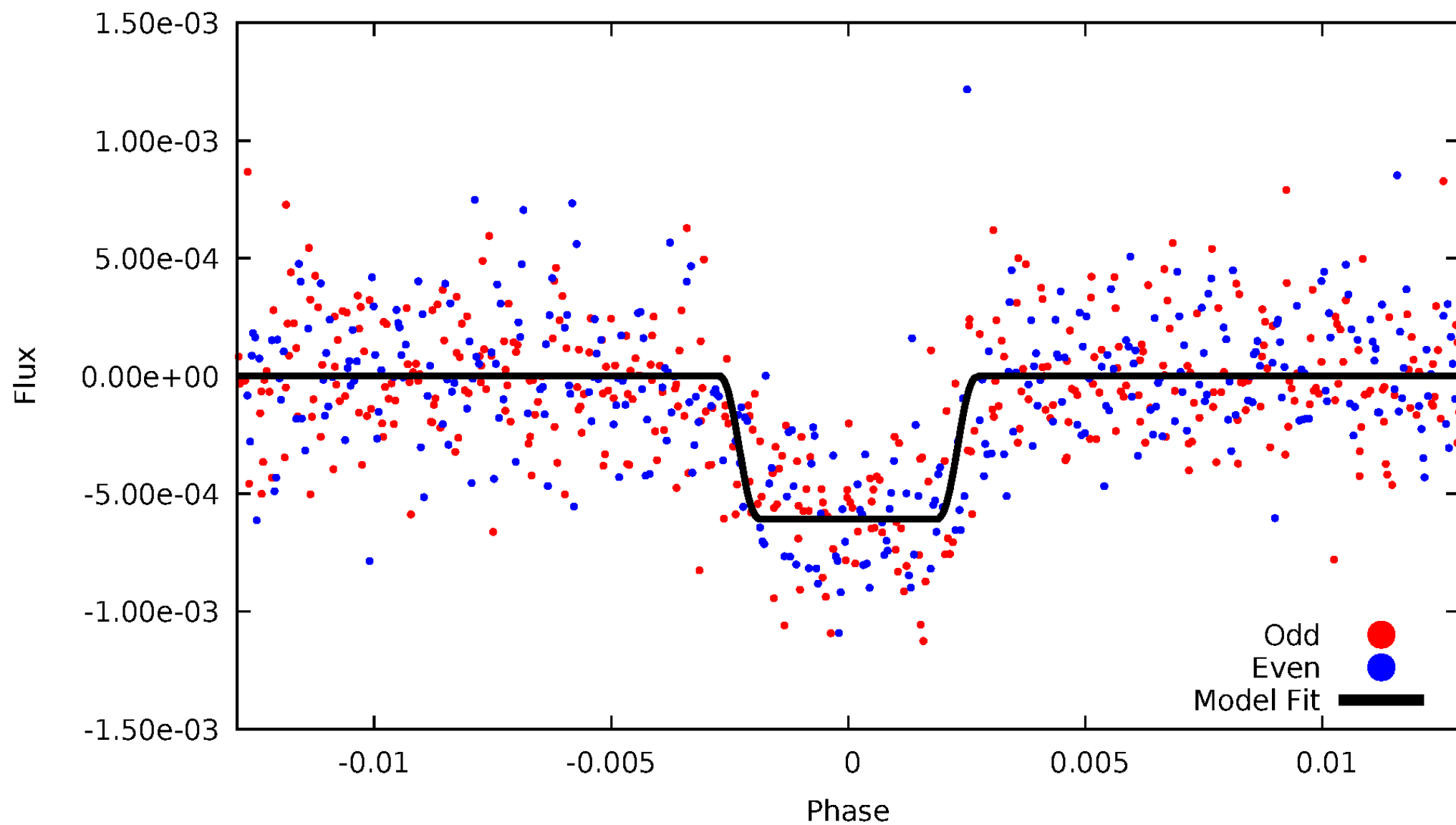
DV Odd/Even

TCE 008558011-01

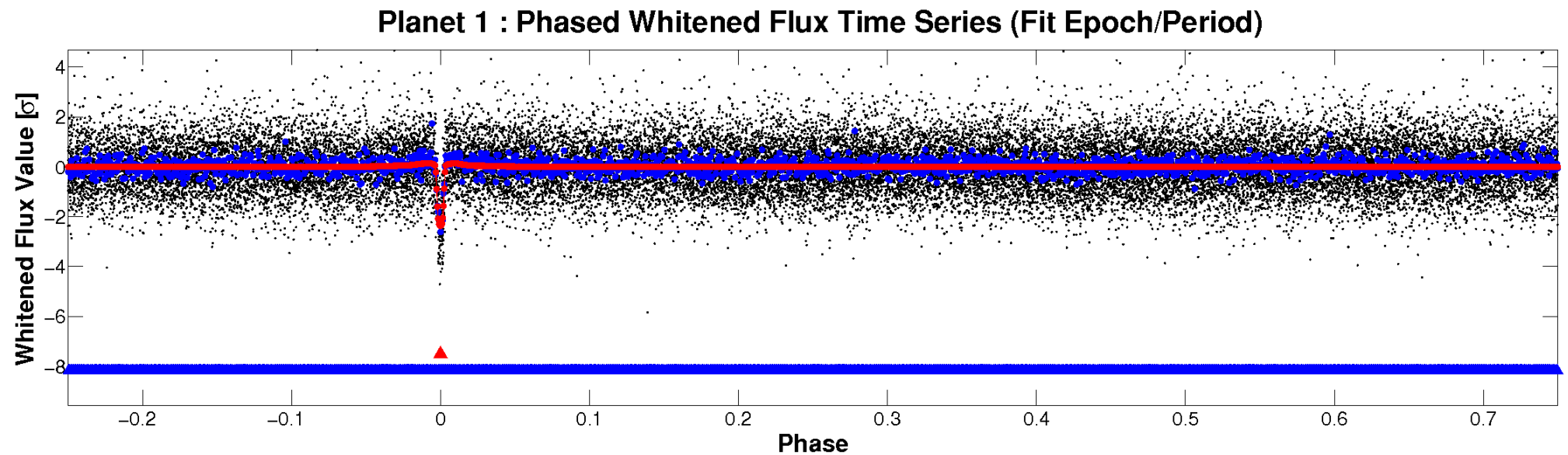
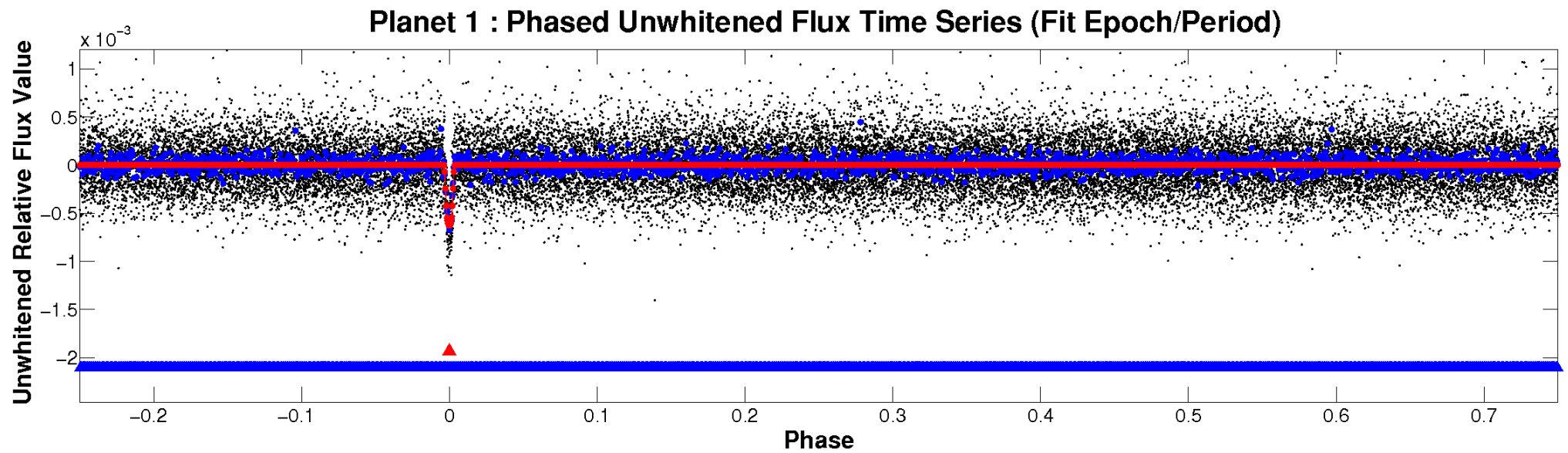


ALT Odd/Even

TCE 008558011-01

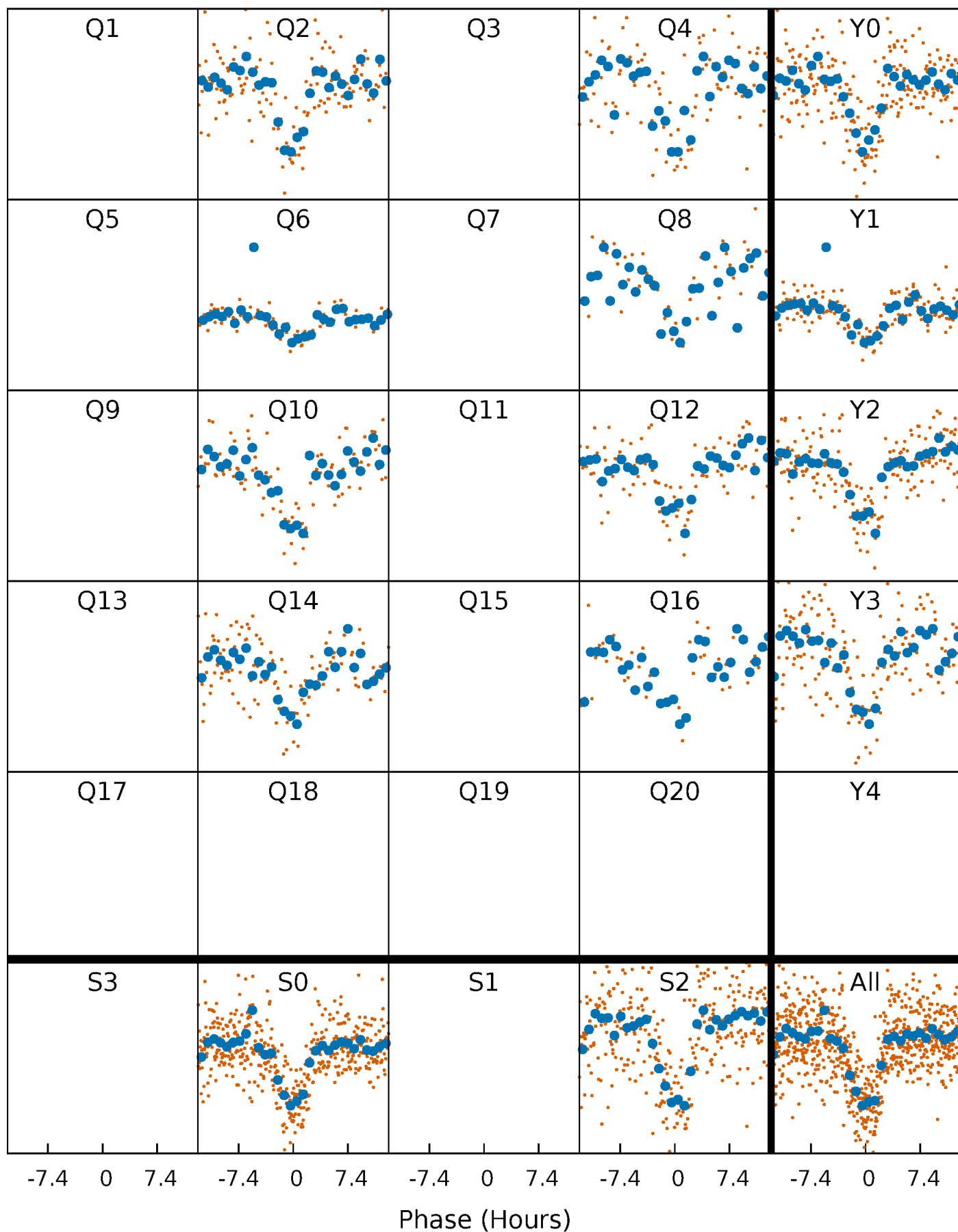


Non-Whitened Vs. Whitened Light Curve



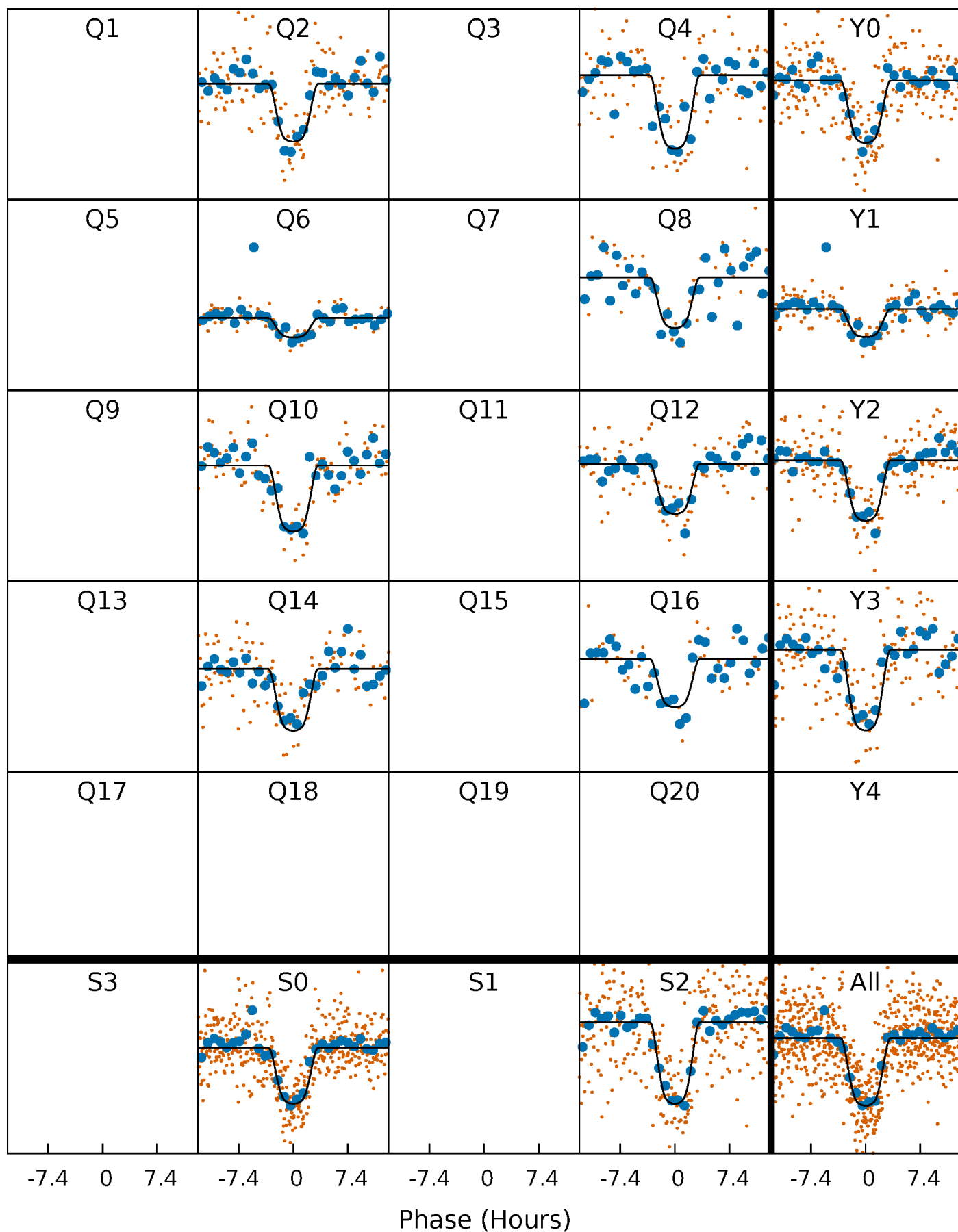
PDC Quarter-Phased Transit Curves

TCE 008558011-01 P= 39.676777 Days $T_0=138.883766$ (BKJD)



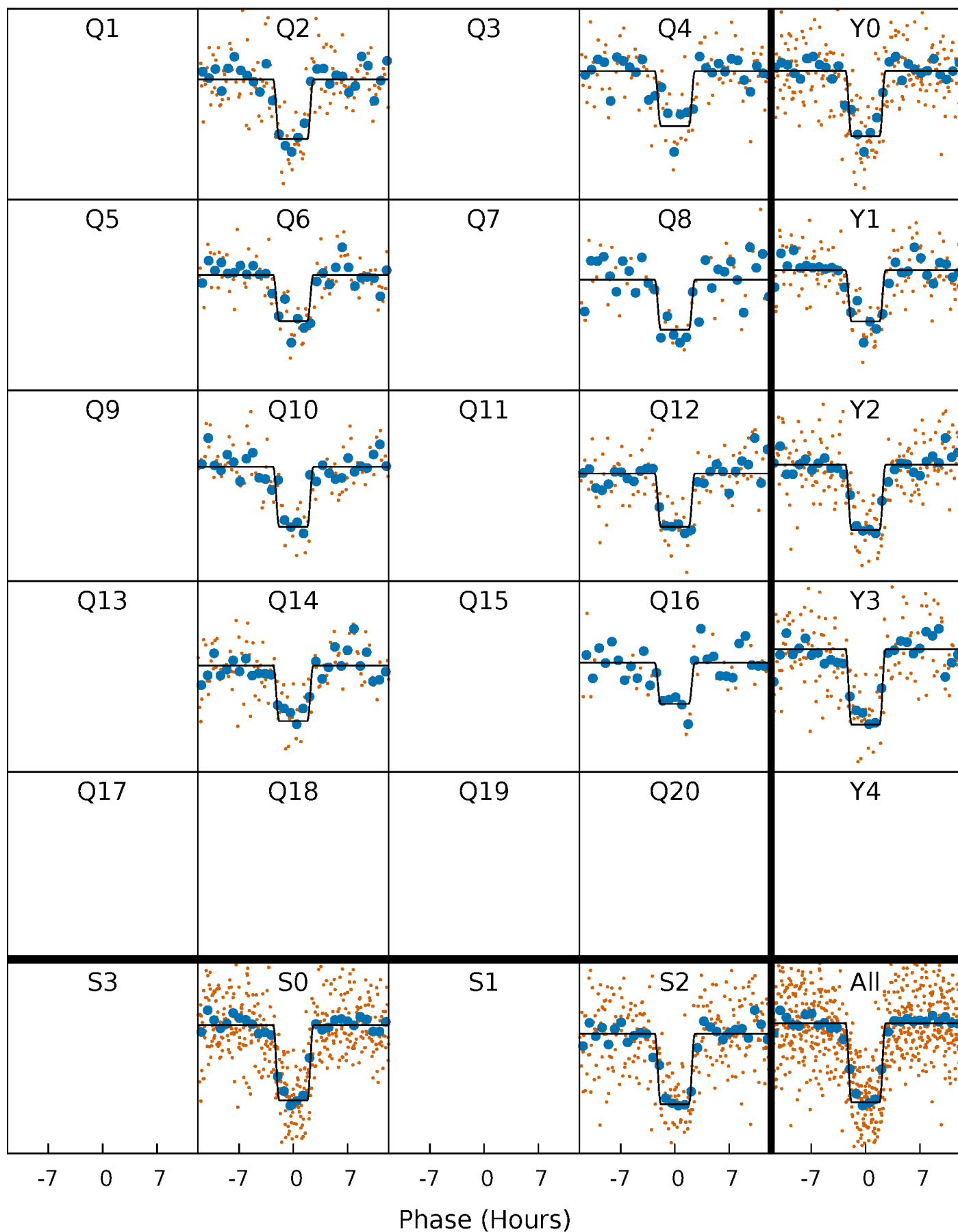
DV Quarter-Phased Transit Curves

TCE 008558011-01 P= 39.676777 Days $T_0=138.883766$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

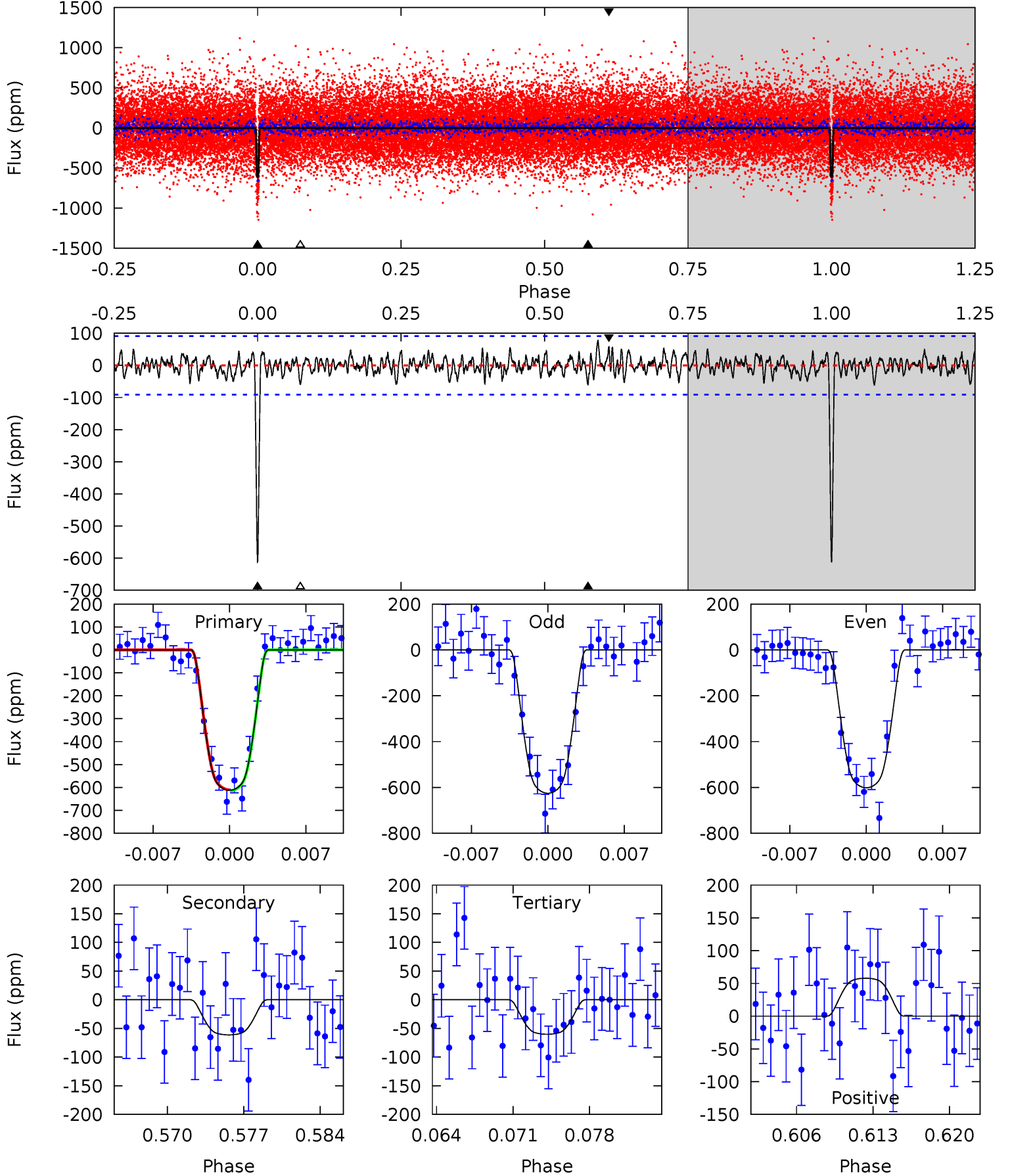
TCE 008558011-01 P= 39.676163 Days $T_0=138.888398$ (BKJD)



DV Model-Shift Uniqueness Test

008558011-01, $P = 39.676777$ Days, $E = 138.883766$ Days

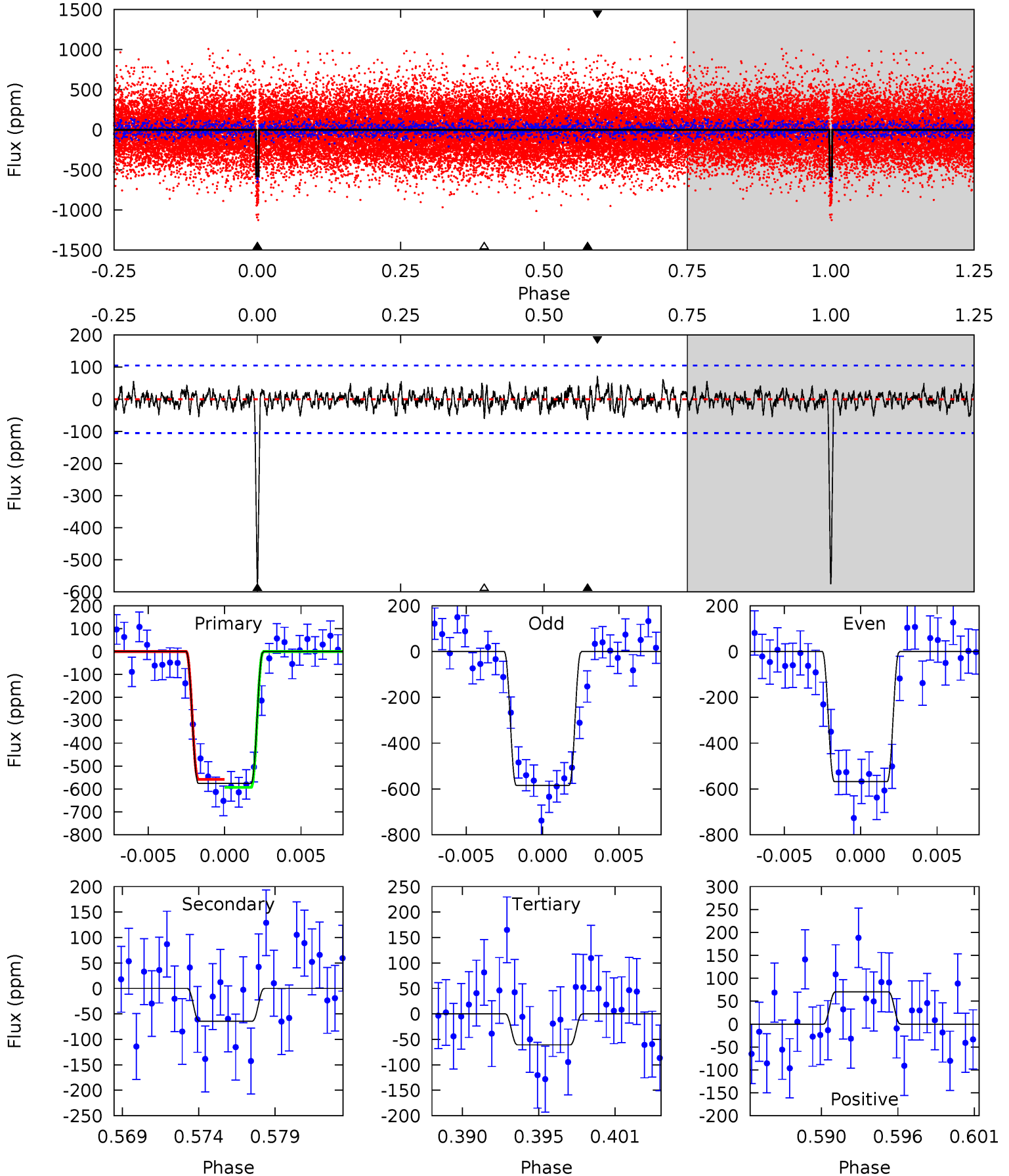
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.2	3.43	3.37	3.24	5.09	2.69	1.20	30.9	31.0	0.06	0.19	0.67	0.95	0.11	0.11



Alt Model-Shift Uniqueness Test

008558011-01, P = 39.676163 Days, E = 138.888398 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.1	3.14	2.97	3.44	5.14	2.78	0.98	25.1	24.7	0.17	-0.30	0.40	0.97	0.11	0.85



Stellar Parameters For KIC 008558011

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5244^{+203}_{-184}	$4.449^{+0.112}_{-0.192}$	$0.020^{+0.300}_{-0.250}$	$0.888^{+0.197}_{-0.131}$	$0.808^{+0.112}_{-0.060}$	$1.625^{+0.885}_{-0.781}$
	+4%/-4%	+3%/-4%	+1500%/-1250%	+22%/-15%	+14%/-7%	+54%/-48%
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 008558011-01 / KOI 0577.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-61 ± 18	$3.02^{+0.43}_{-0.28}$	668^{+44}_{-37}	3221^{+153}_{-181}	166^{+67}_{-57}
Alt.	-64 ± 20	$2.45^{+0.37}_{-0.28}$	672^{+45}_{-41}	3461^{+192}_{-227}	259^{+122}_{-98}

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

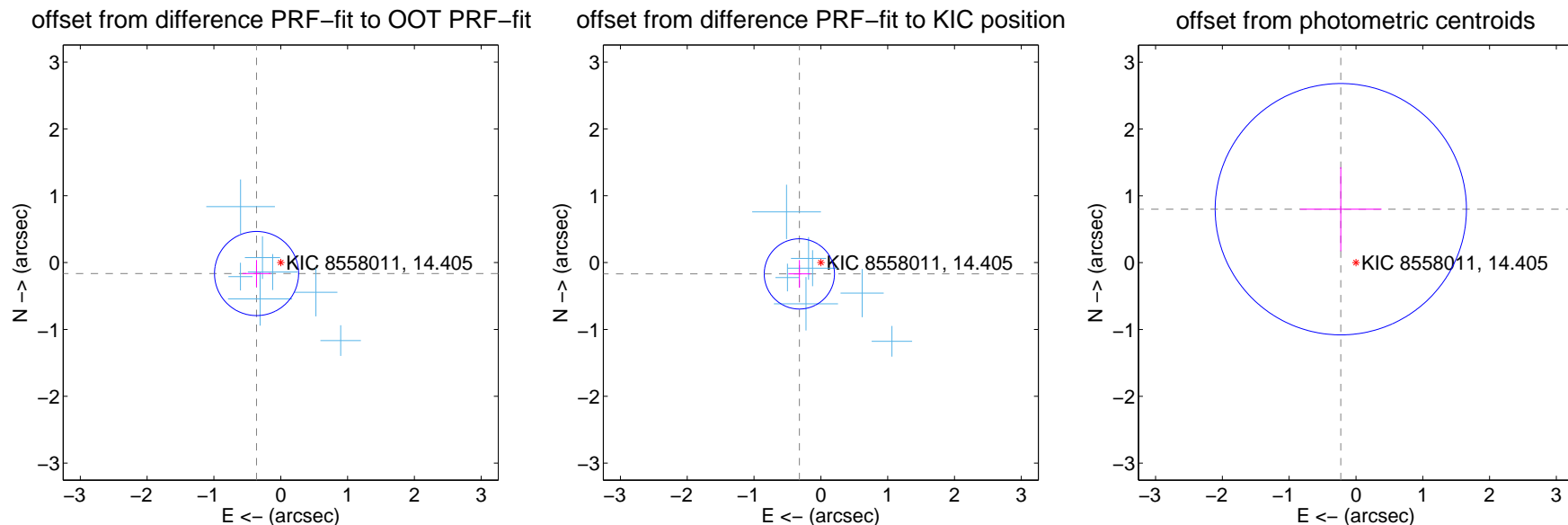
DV Centroid Data

Supplemental centroid analysis for 008558011-01. Kepler magnitude: 14.40. Transit SNR 24.48

There are 7 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	0.397 ± 0.210	1.89	0.362 ± 0.211	-0.164 ± 0.201
PRF-fit source offset from KIC position	0.364 ± 0.175	2.08	0.322 ± 0.165	-0.169 ± 0.207
photometric centroid source offset	0.83 ± 0.63	1.33	0.23 ± 0.61	0.80 ± 0.63



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.

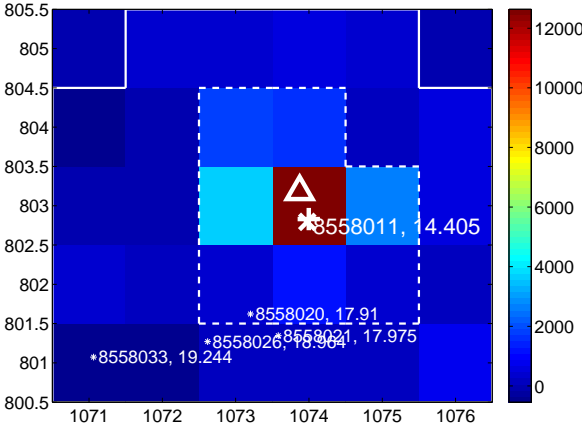
Q1 no difference image



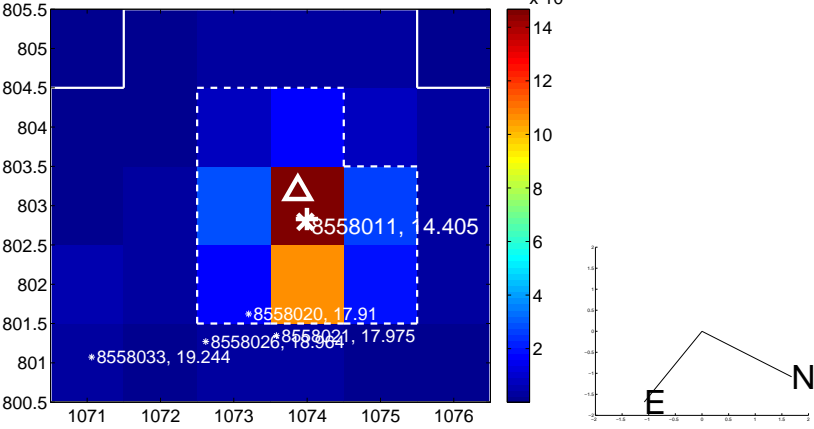
Q1 no OOT image



Q2 difference image



Q2 OOT image



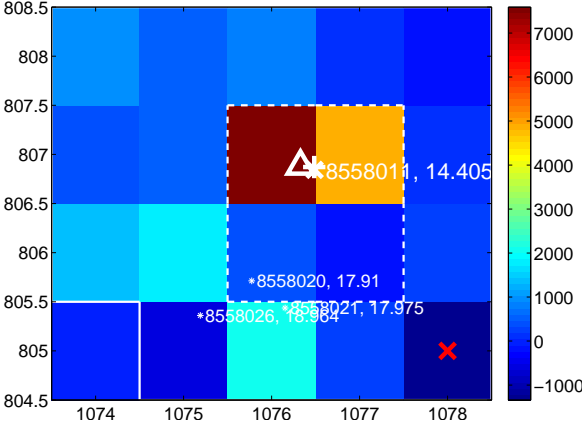
Q3 no difference image



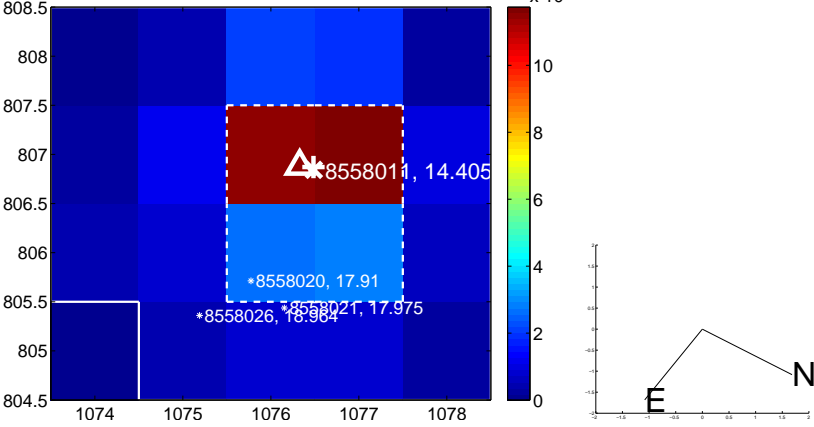
Q3 no OOT image



Q4 difference image



Q4 OOT image



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

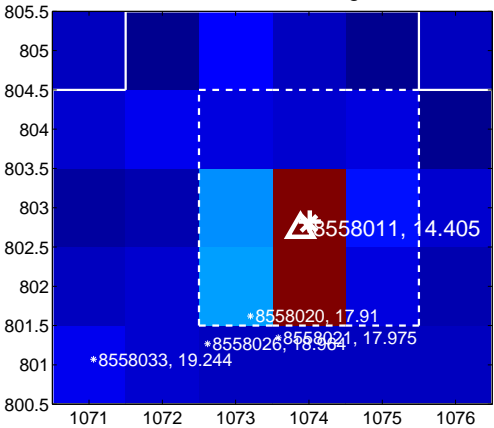
Q5 no difference image



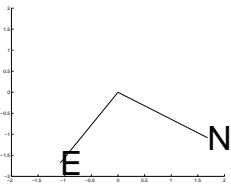
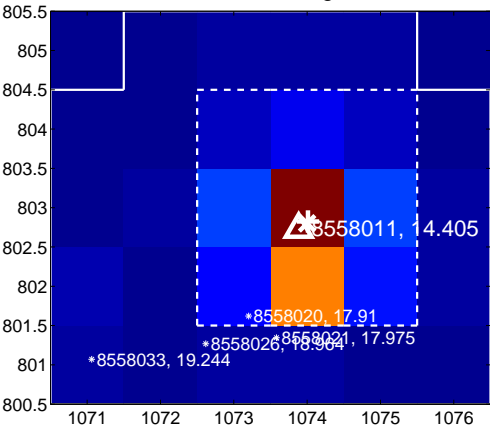
Q5 no OOT image



Q6 difference image



Q6 OOT image



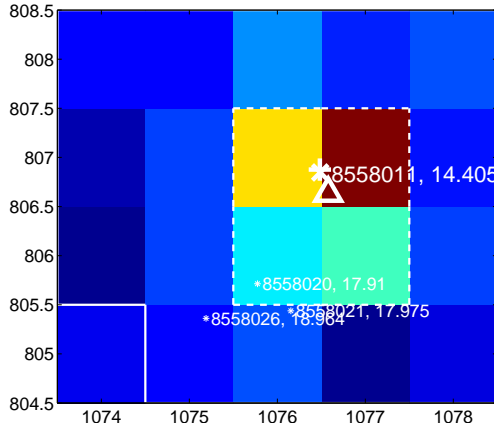
Q7 no difference image



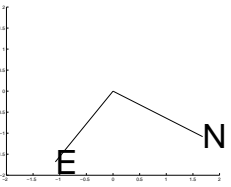
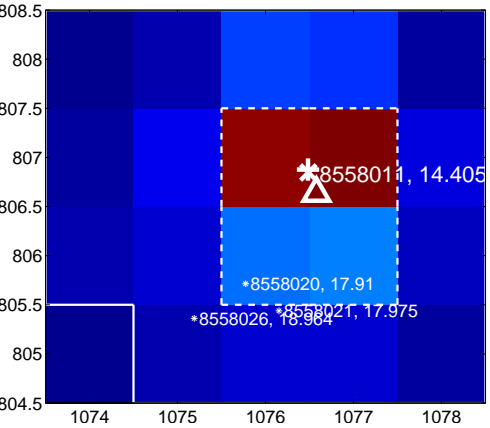
Q7 no OOT image



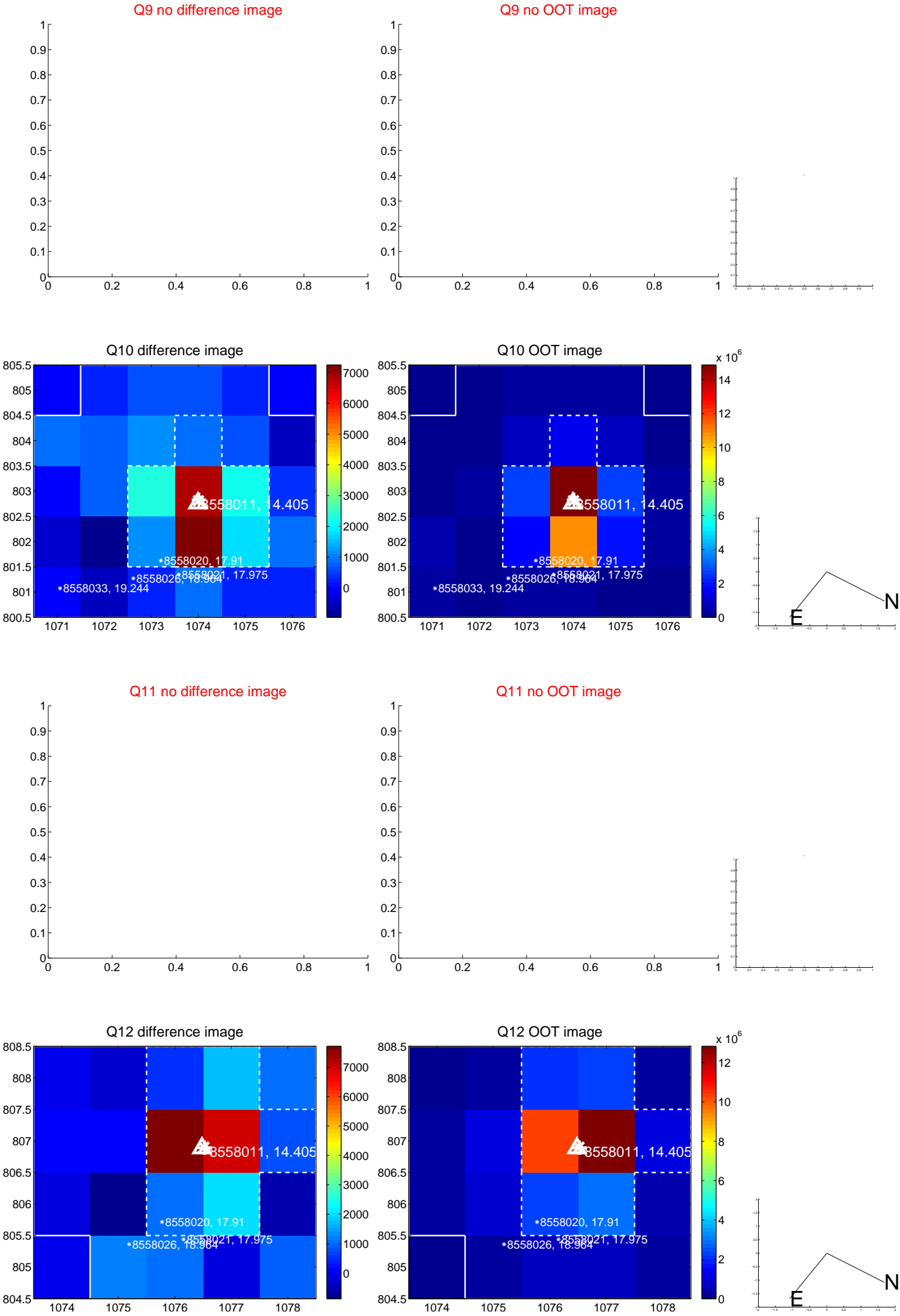
Q8 difference image



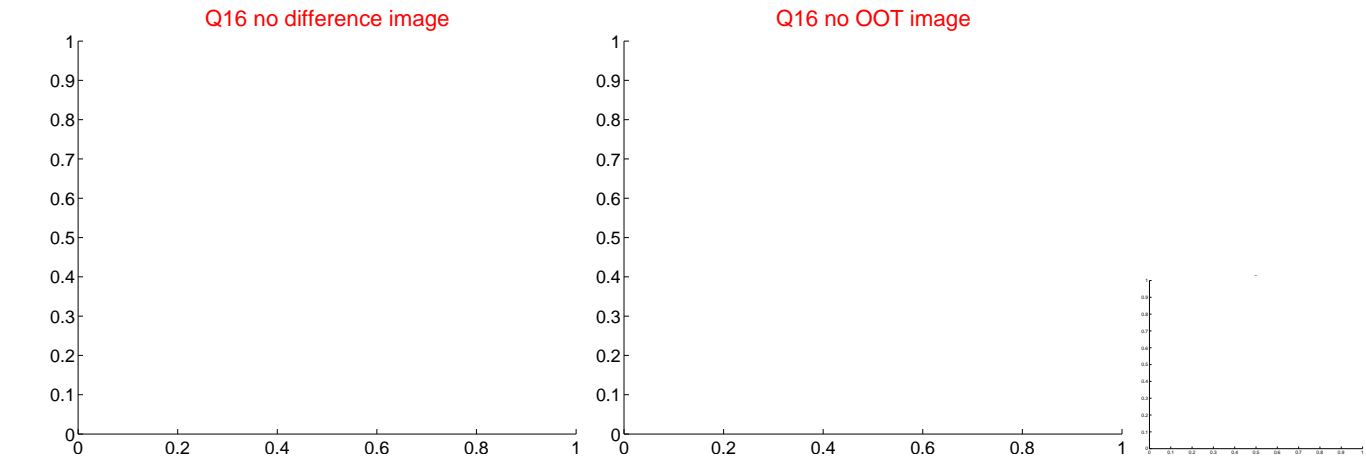
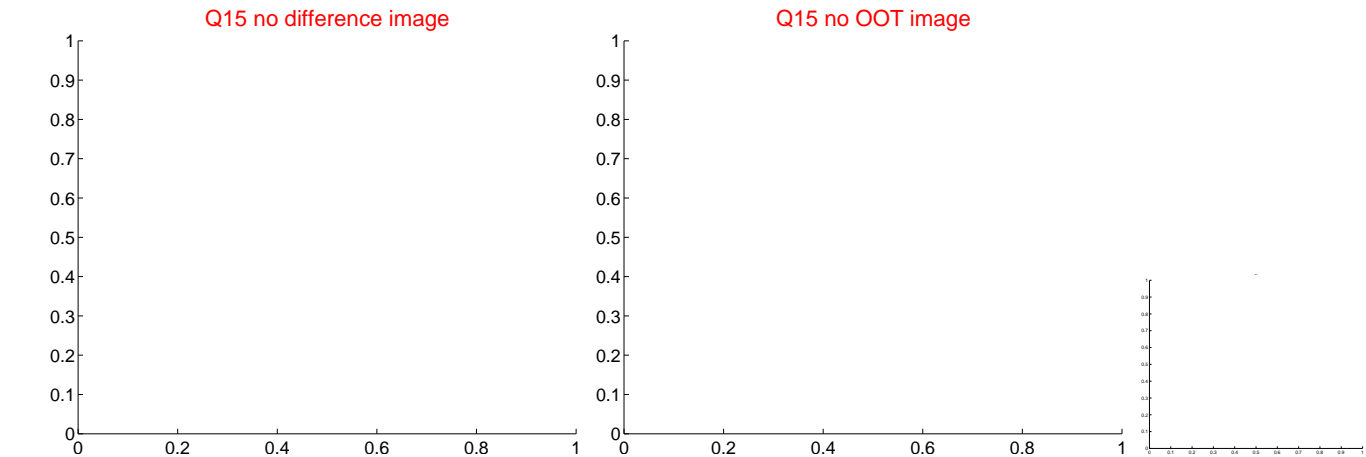
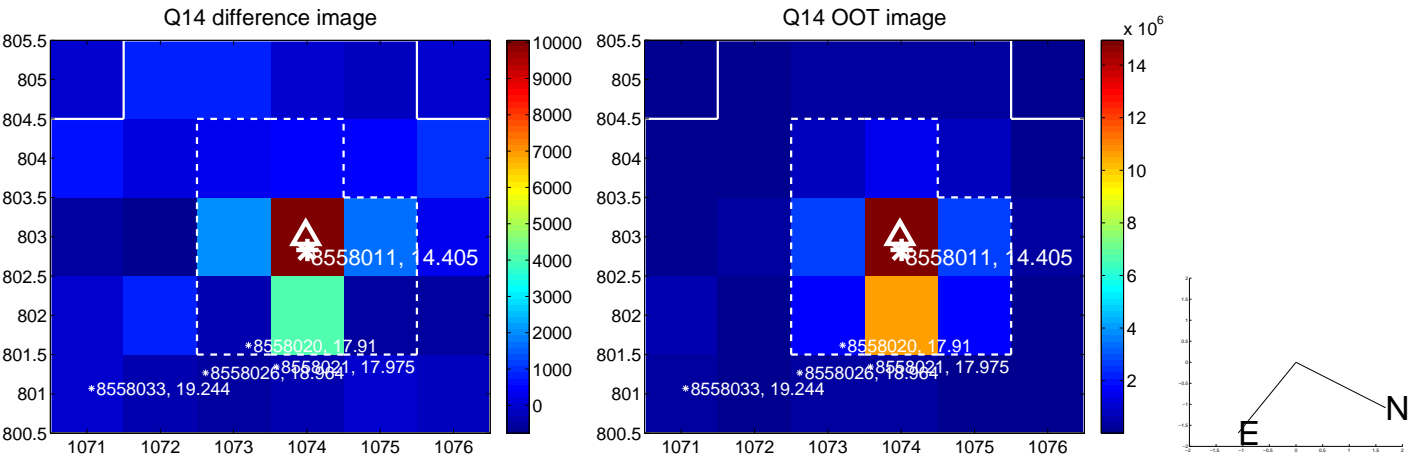
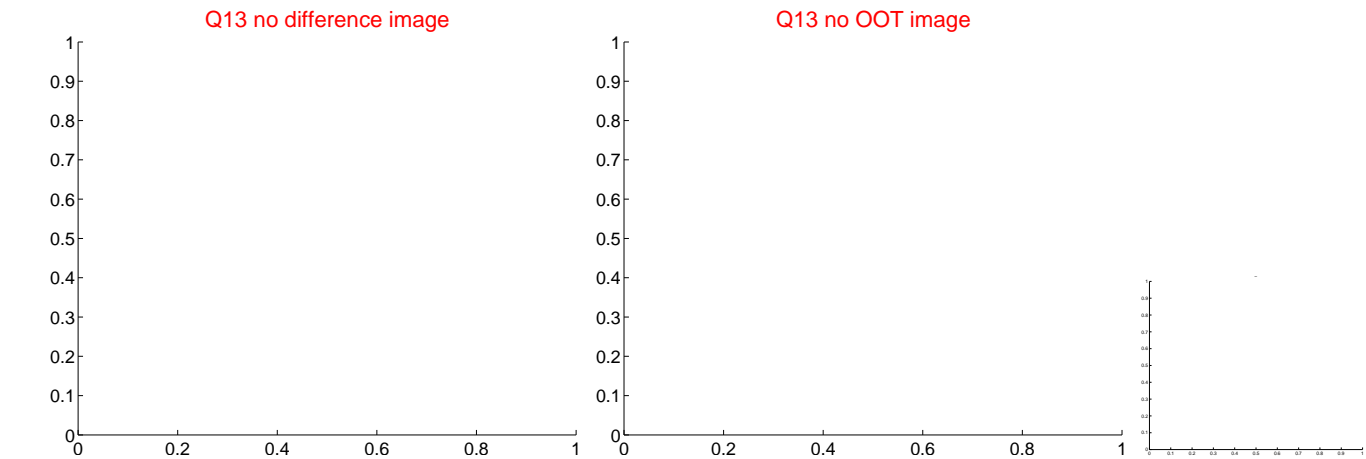
Q8 OOT image



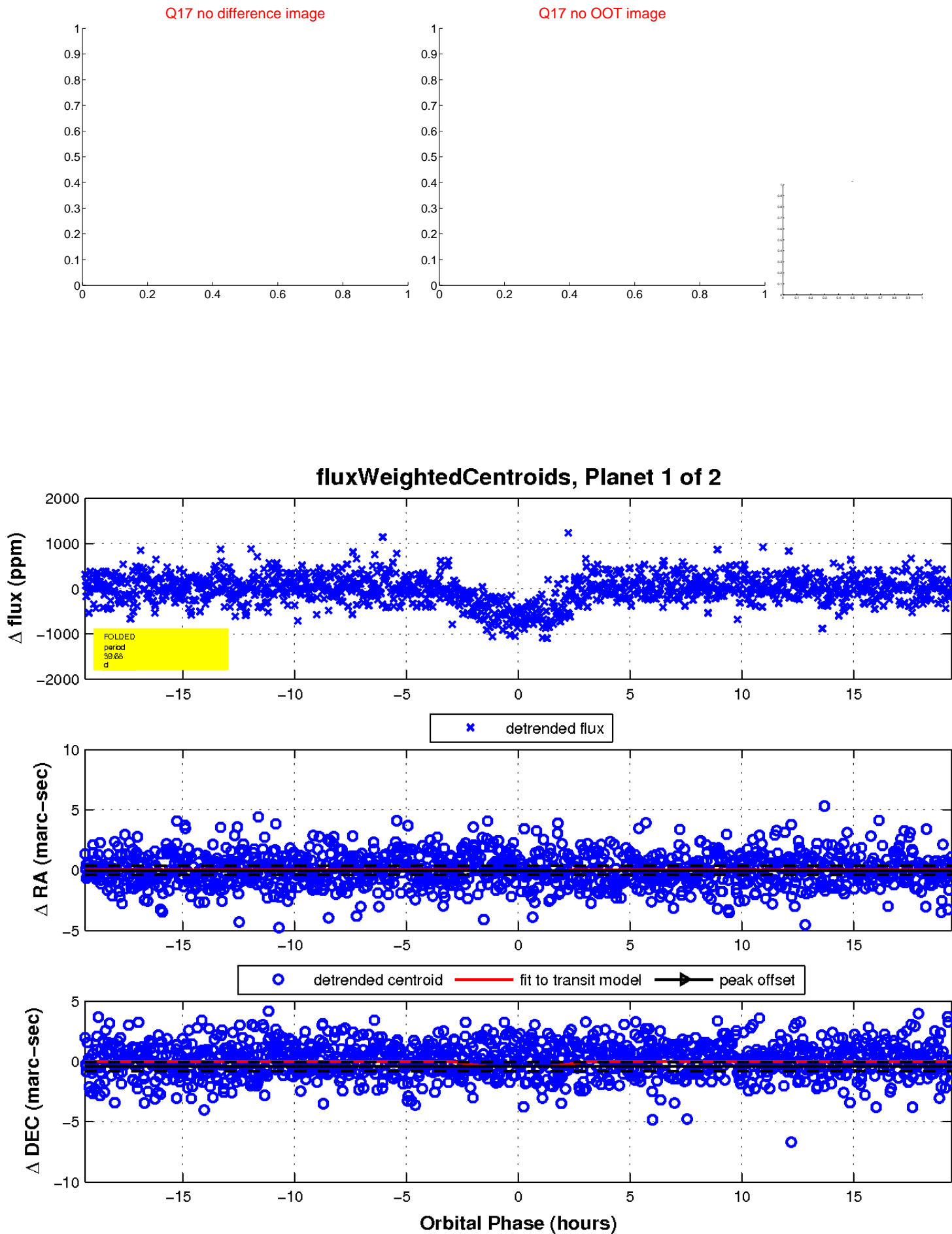
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

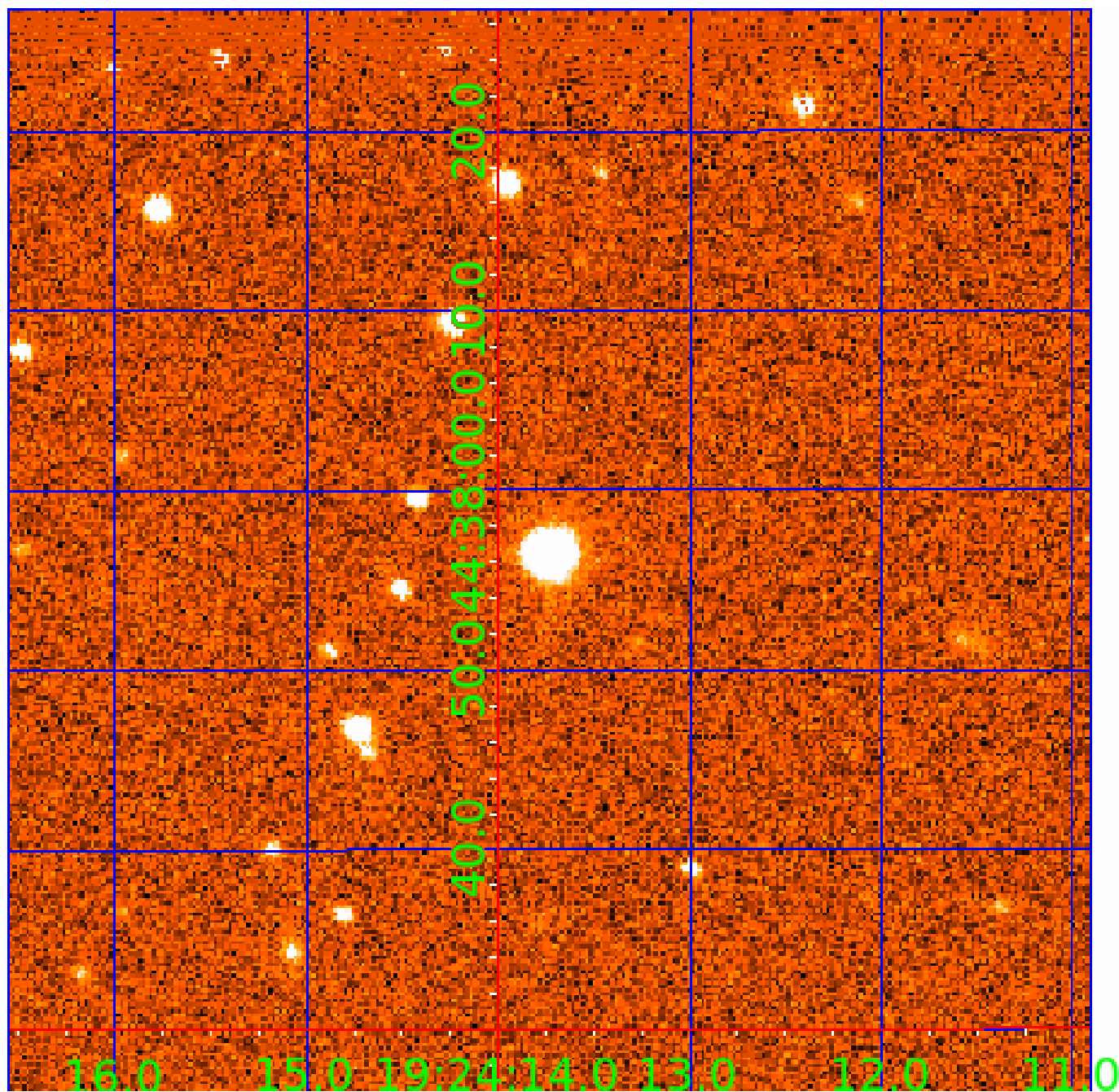


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008558011

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})
008558011-01	OBS	0577.01	39.676777	138.883766	628.6	6.460	21.4	24.5	0.89	5244	2.96	11.87
008558011-02	OBS	0577.02	0.638165	131.746727	99.1	1.200	13.5	15.7	0.89	5244	1.07	2923.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008558011-01	OBS	PC	0.93	0	0	0	0	NO_COMMENT
008558011-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

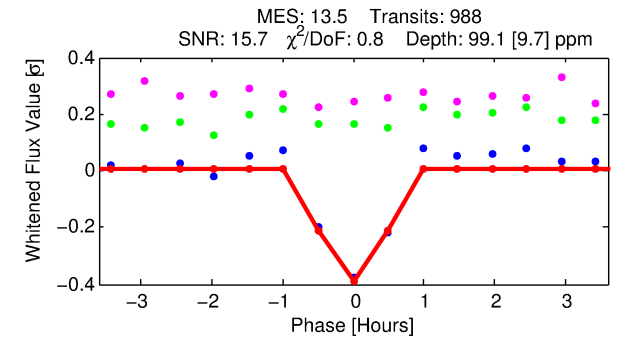
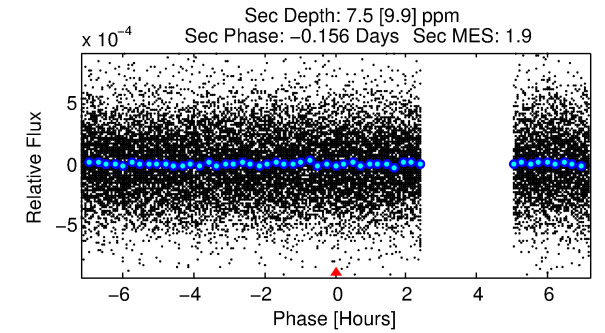
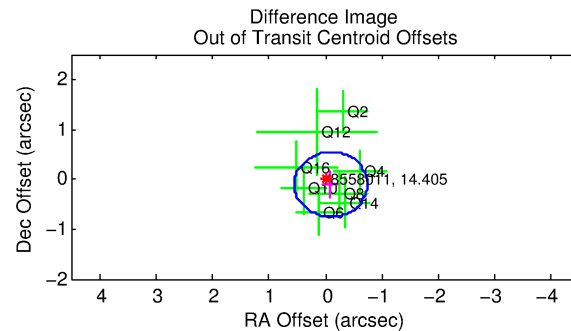
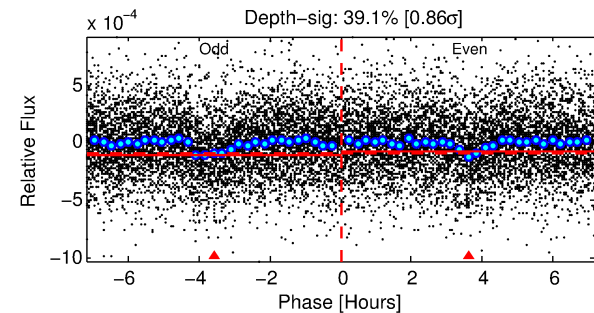
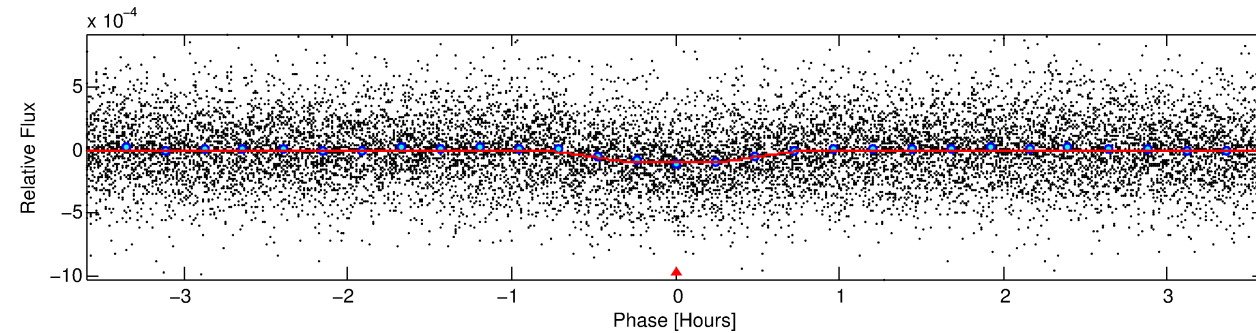
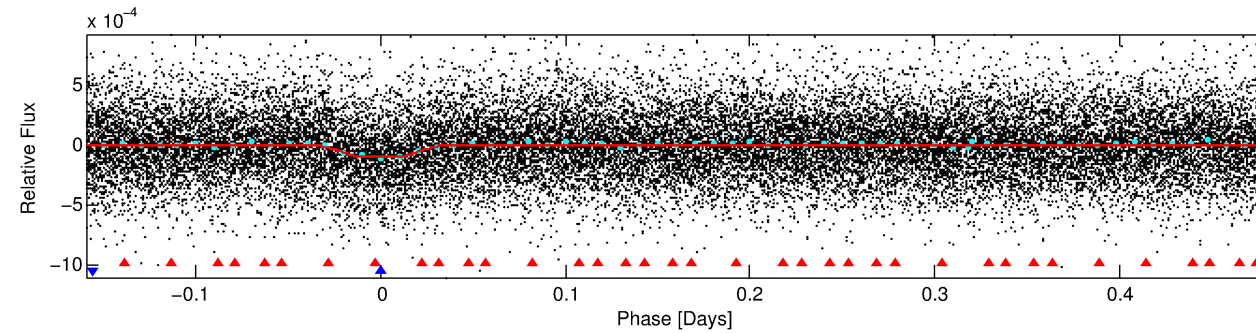
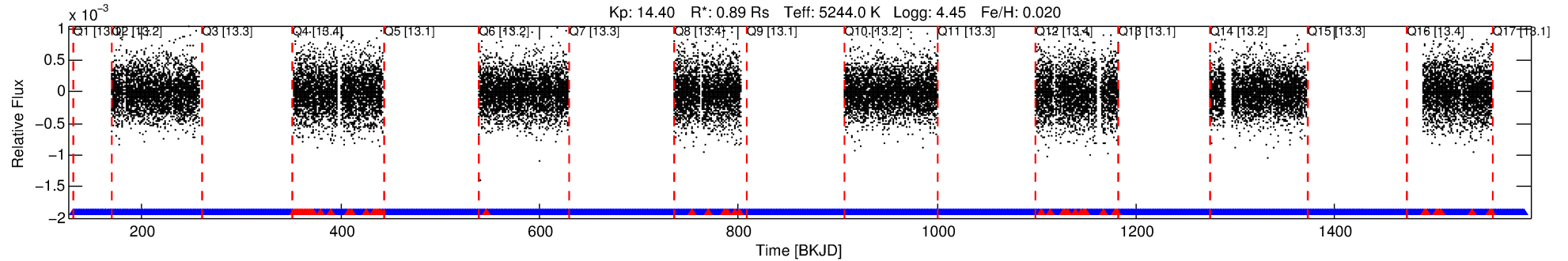
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008558011-02

No Significant Match Found

DV One-Page Summary

KIC: 8558011 Candidate: 2 of 2 Period: 0.638 d
KOI: K00577.02 Corr: 0.980



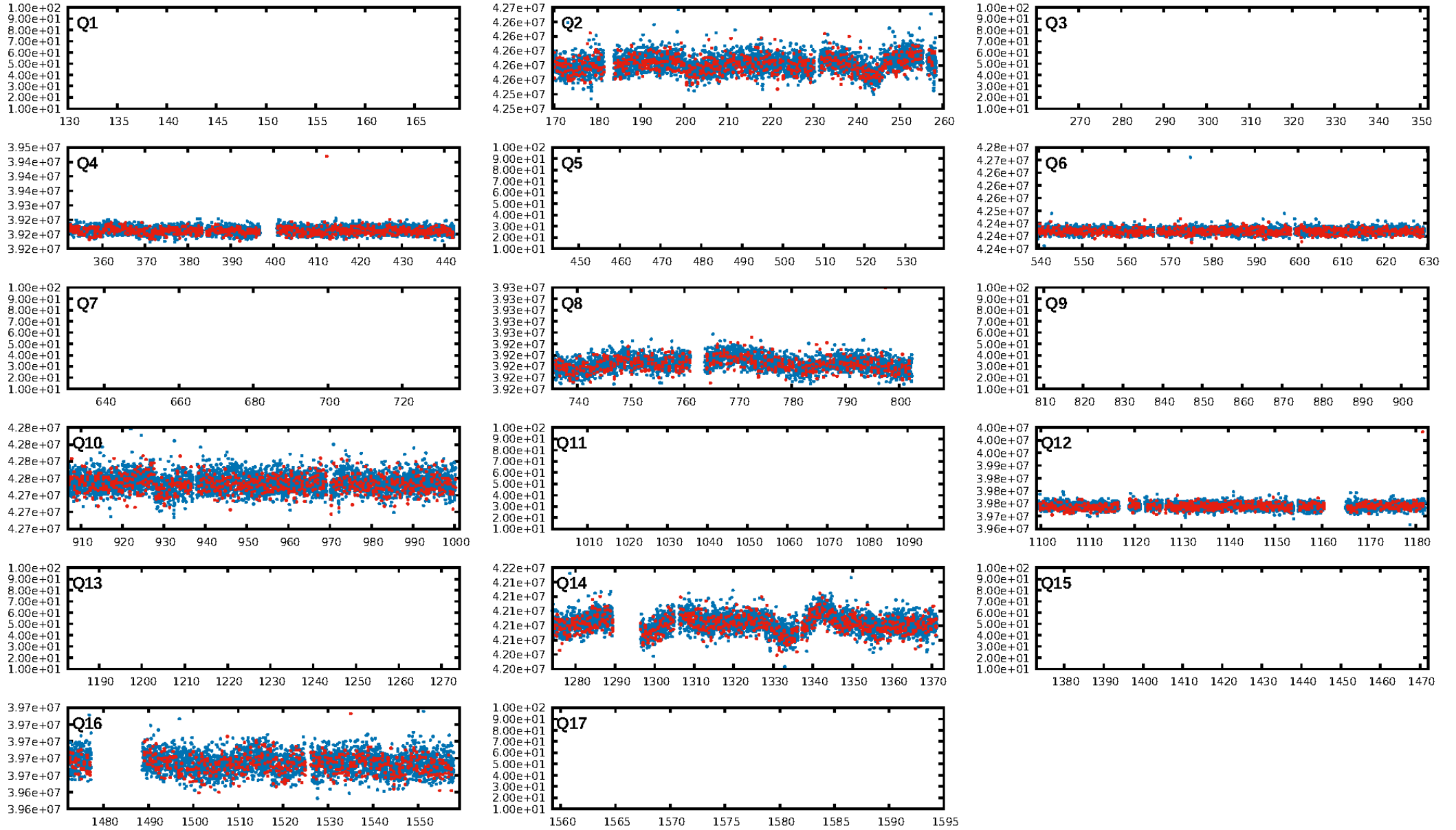
DV Fit Results:

Period = 0.63816 [0.00001] d
Epoch = 131.7467 [0.0013] BKJD
Rp/R* = 0.0111 [0.0076]
a/R* = 2.12 [4.73]
b = 0.90 [0.65]
Seff = 2923.55 [1065.06]
Teq = 1875 [171] K
Rp = 1.07 [0.77] Re
a = 0.0135 [0.0028] AU
Ag = 0.66 [1.27] [-0.27 σ]
Teffp = 2612 [1244] K [0.59 σ]

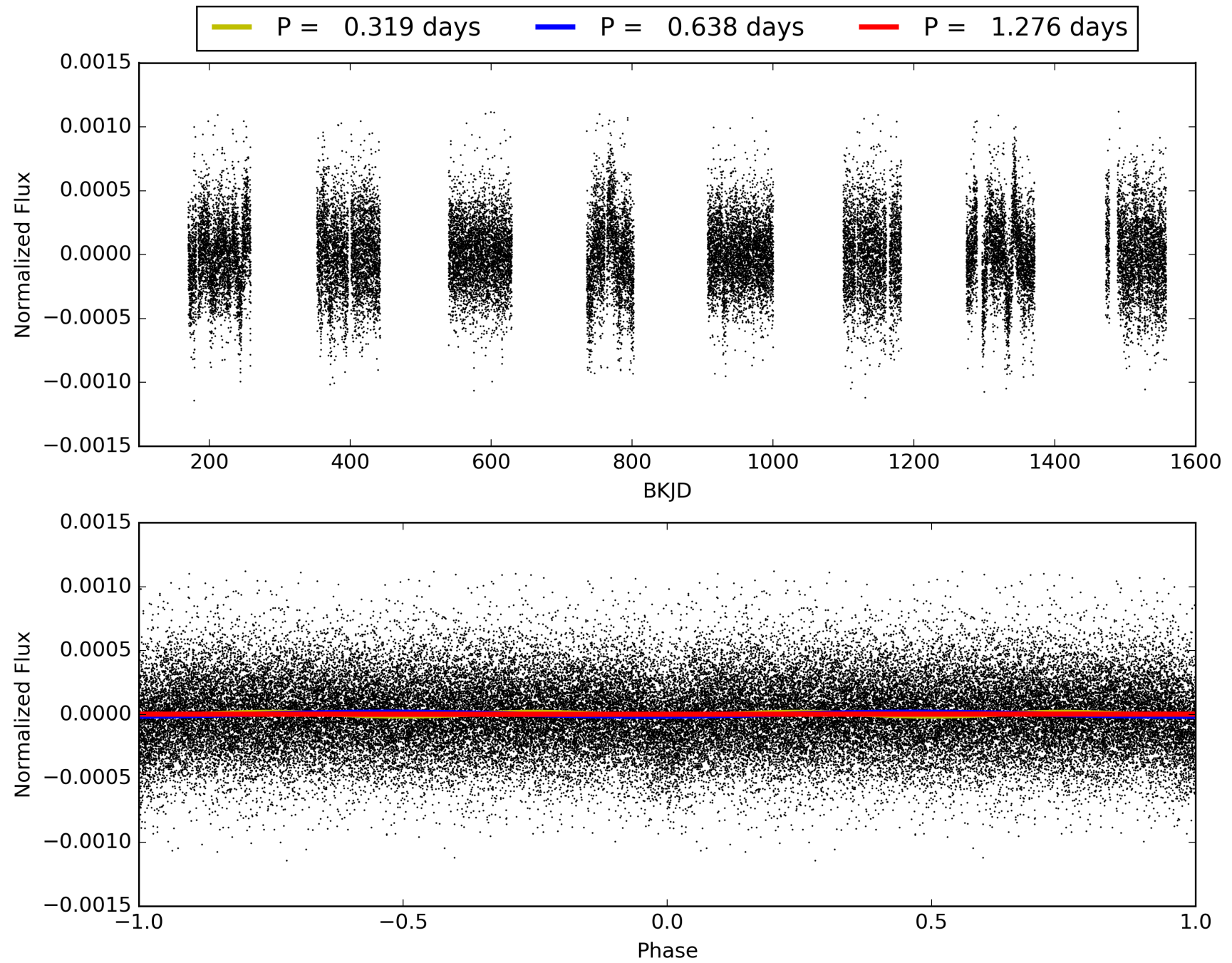
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [142.60 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.18e-40
RollingBand-fgt: 0.93 [921/988]
GhostDiagnostic-chr: 7.416
Centroid-sig: 67.4%
Centroid-so: 0.540 arcsec [0.54 σ]
OotOffset-rm: 0.141 arcsec [0.65 σ]
KicOffset-rm: 0.275 arcsec [1.31 σ]
OotOffset-st: 4/0/4/0 [8]
KicOffset-st: 4/0/4/0 [8]
DiffImageQuality-fgm: 0.88 [7/8]
DiffImageOverlap-fno: 1.00 [8/8]

TCE 008558011-02, PDC Light Curves

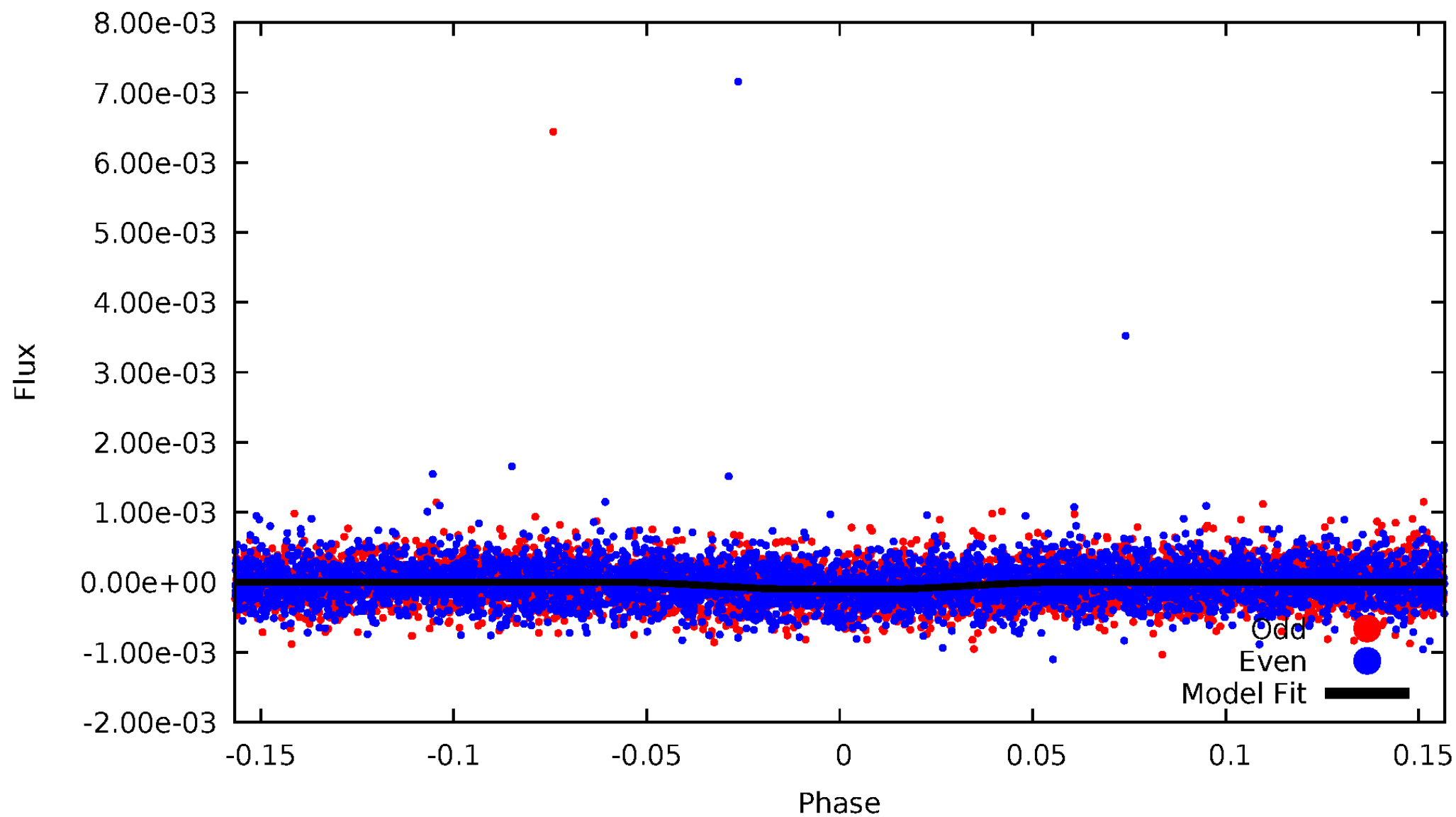


TCE 008558011-02



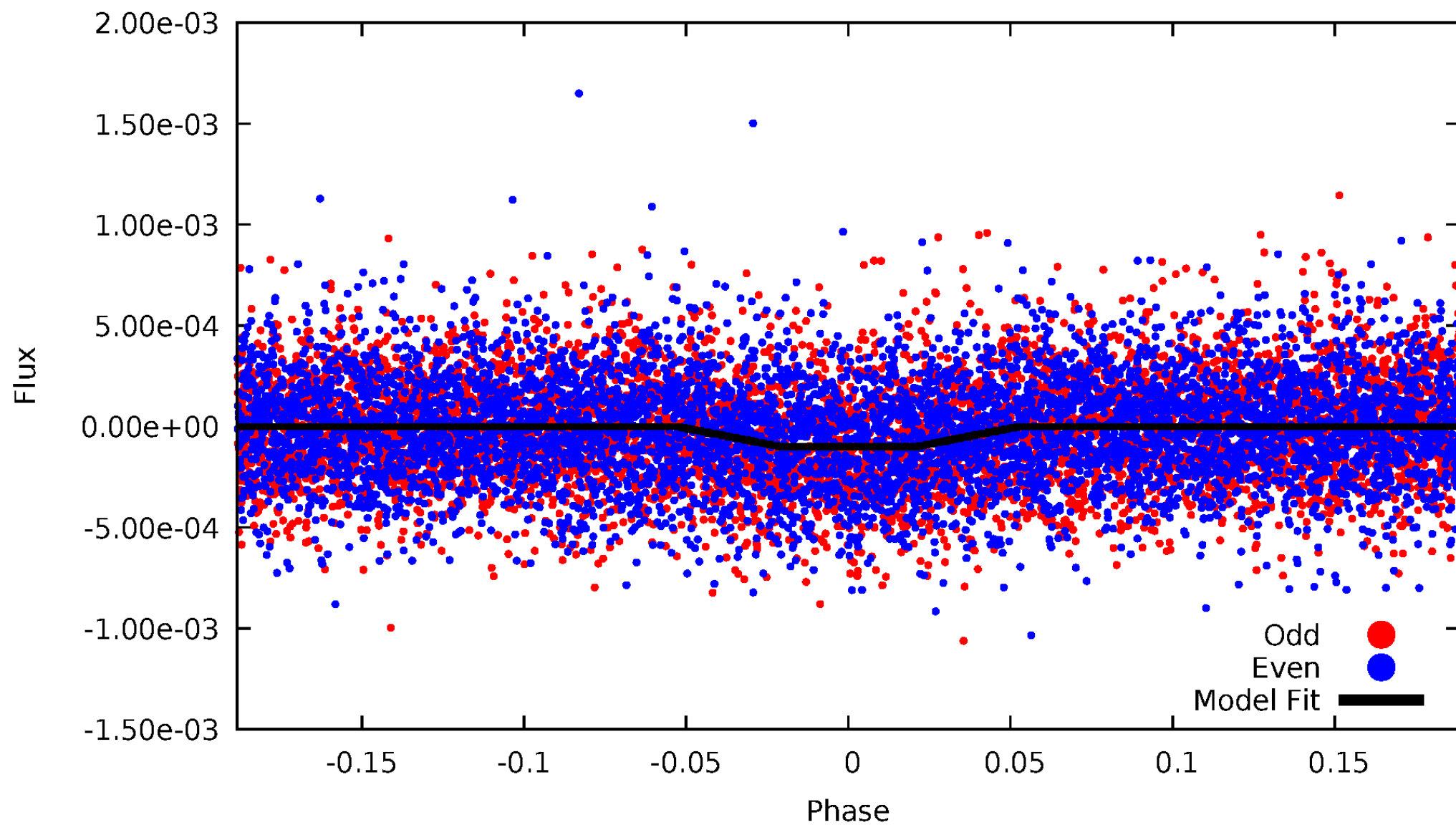
DV Odd/Even

TCE 008558011-02



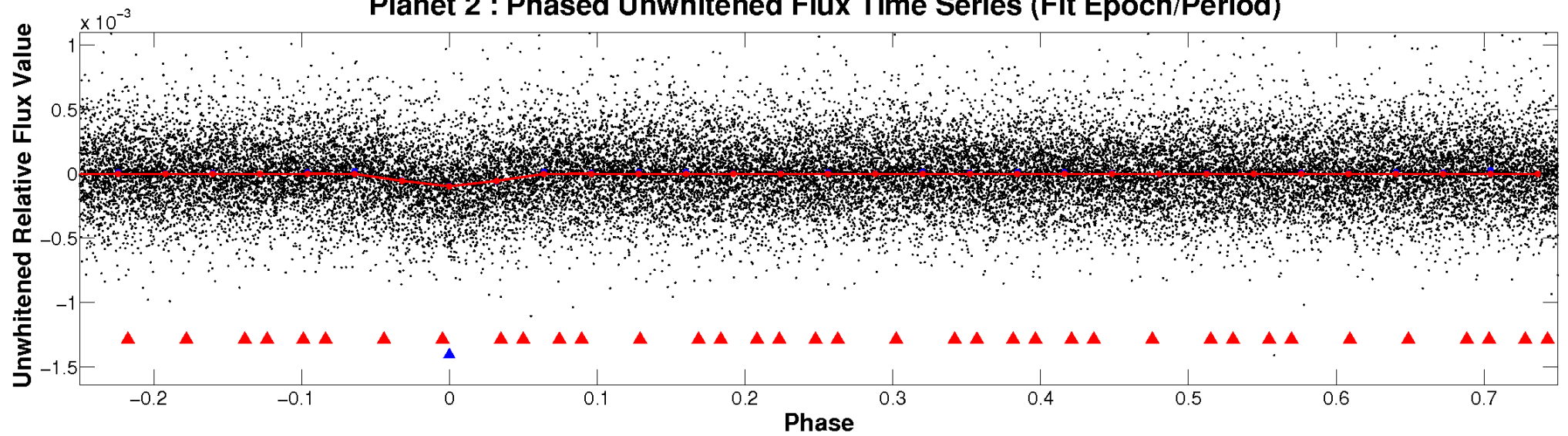
ALT Odd/Even

TCE 008558011-02

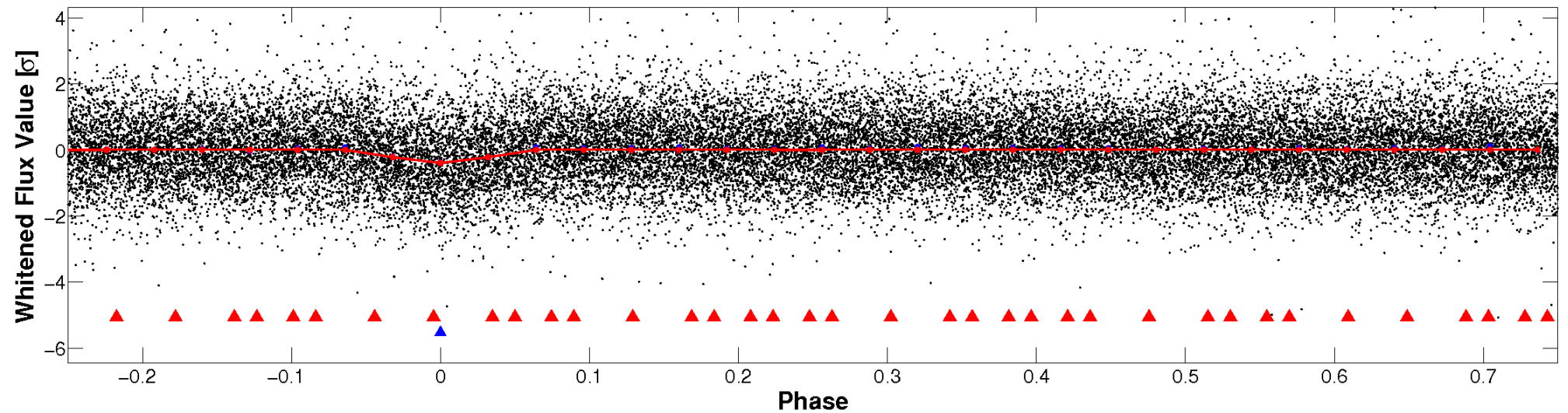


Non-Whitened Vs. Whitened Light Curve

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

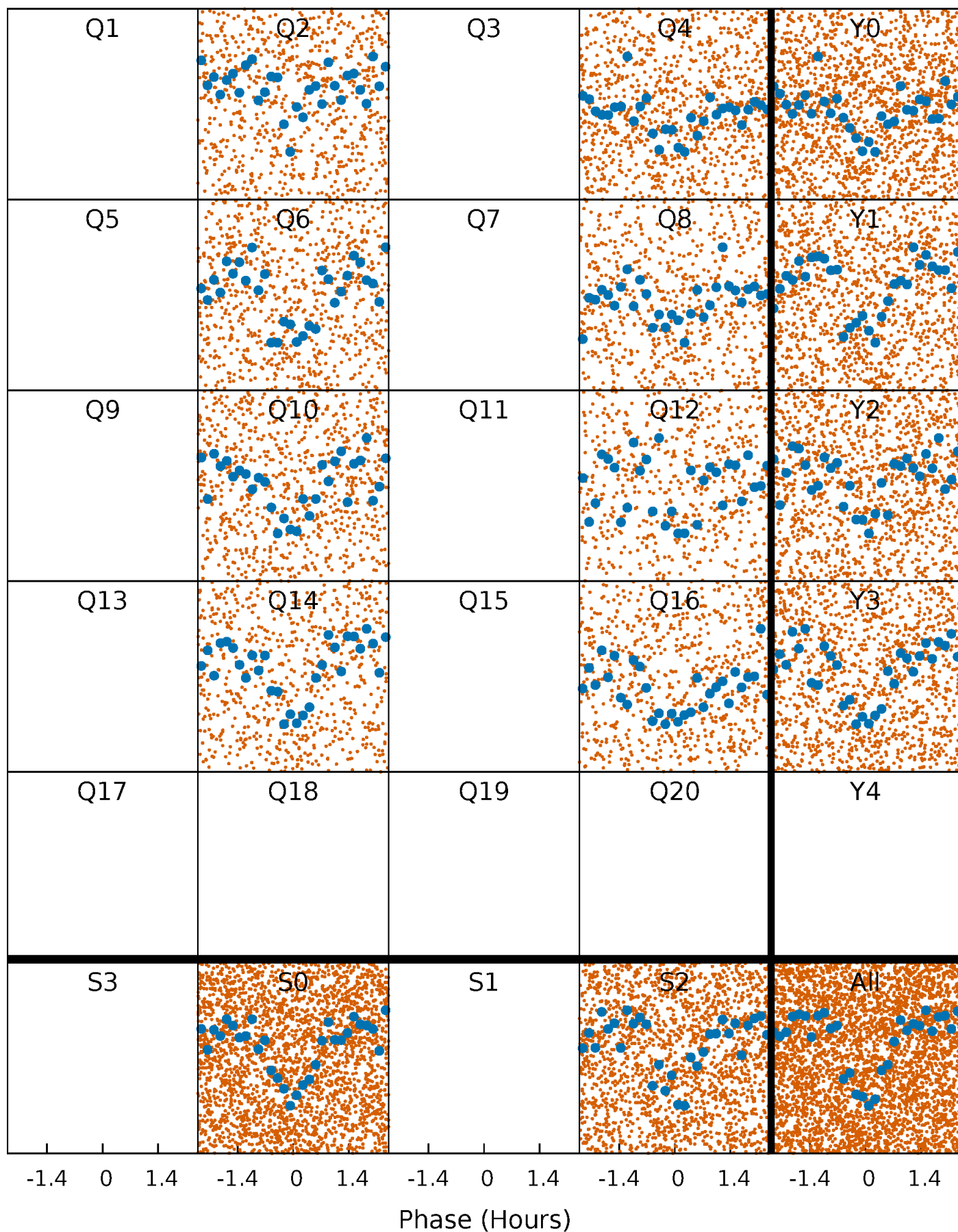


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



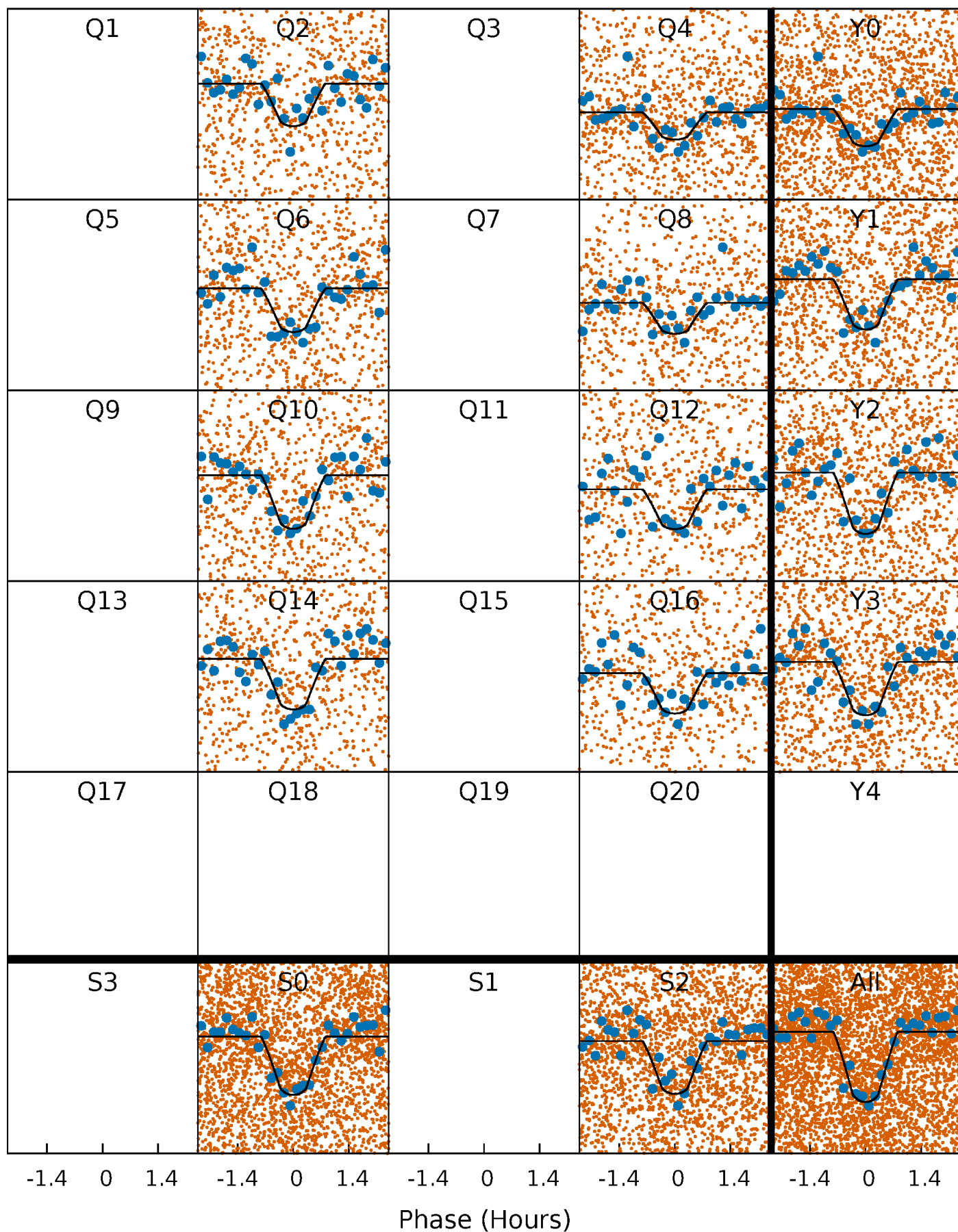
PDC Quarter-Phased Transit Curves

TCE 008558011-02 P= 0.638165 Days $T_0=131.746727$ (BKJD)



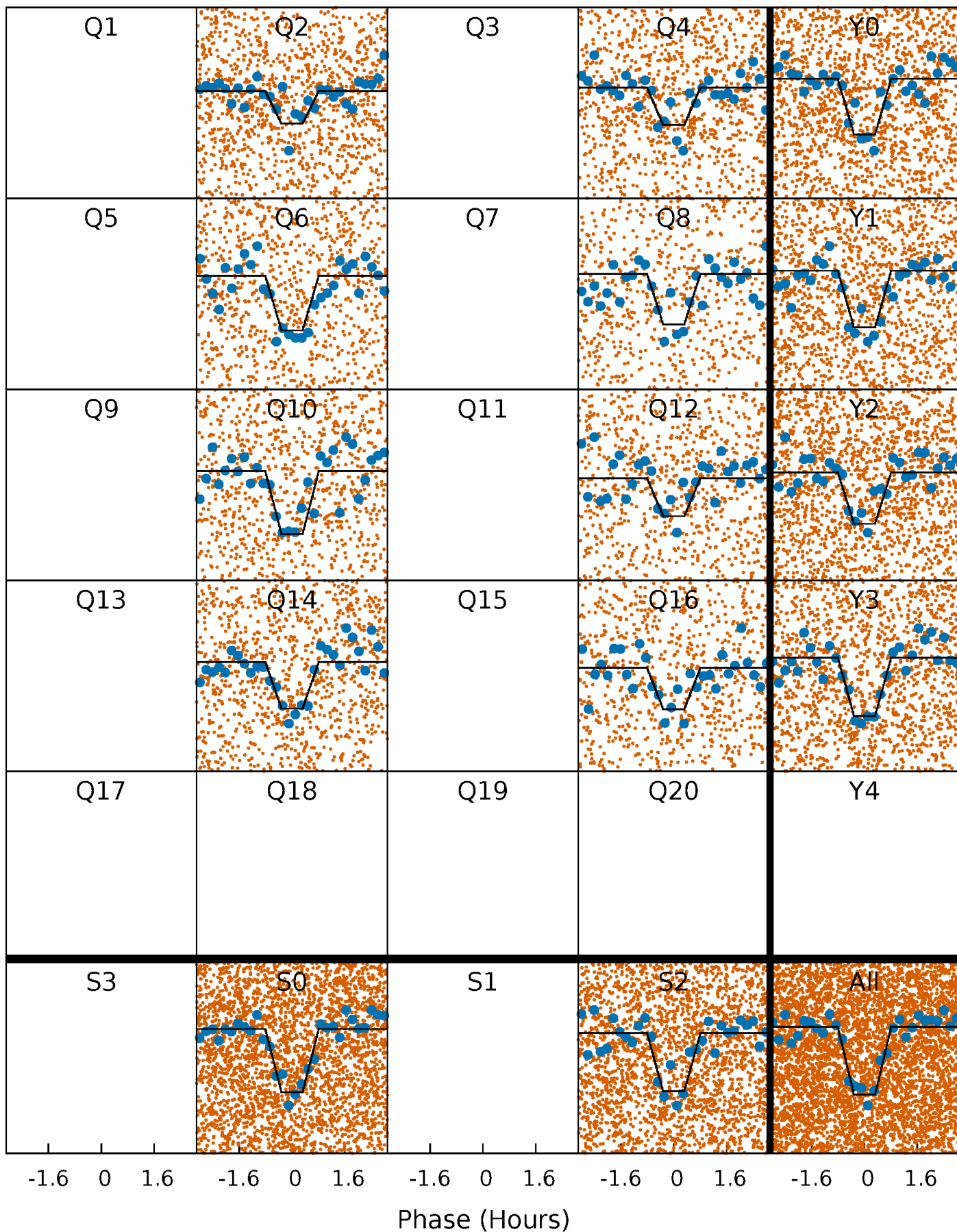
DV Quarter-Phased Transit Curves

TCE 008558011-02 P= 0.638165 Days $T_0=131.746727$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

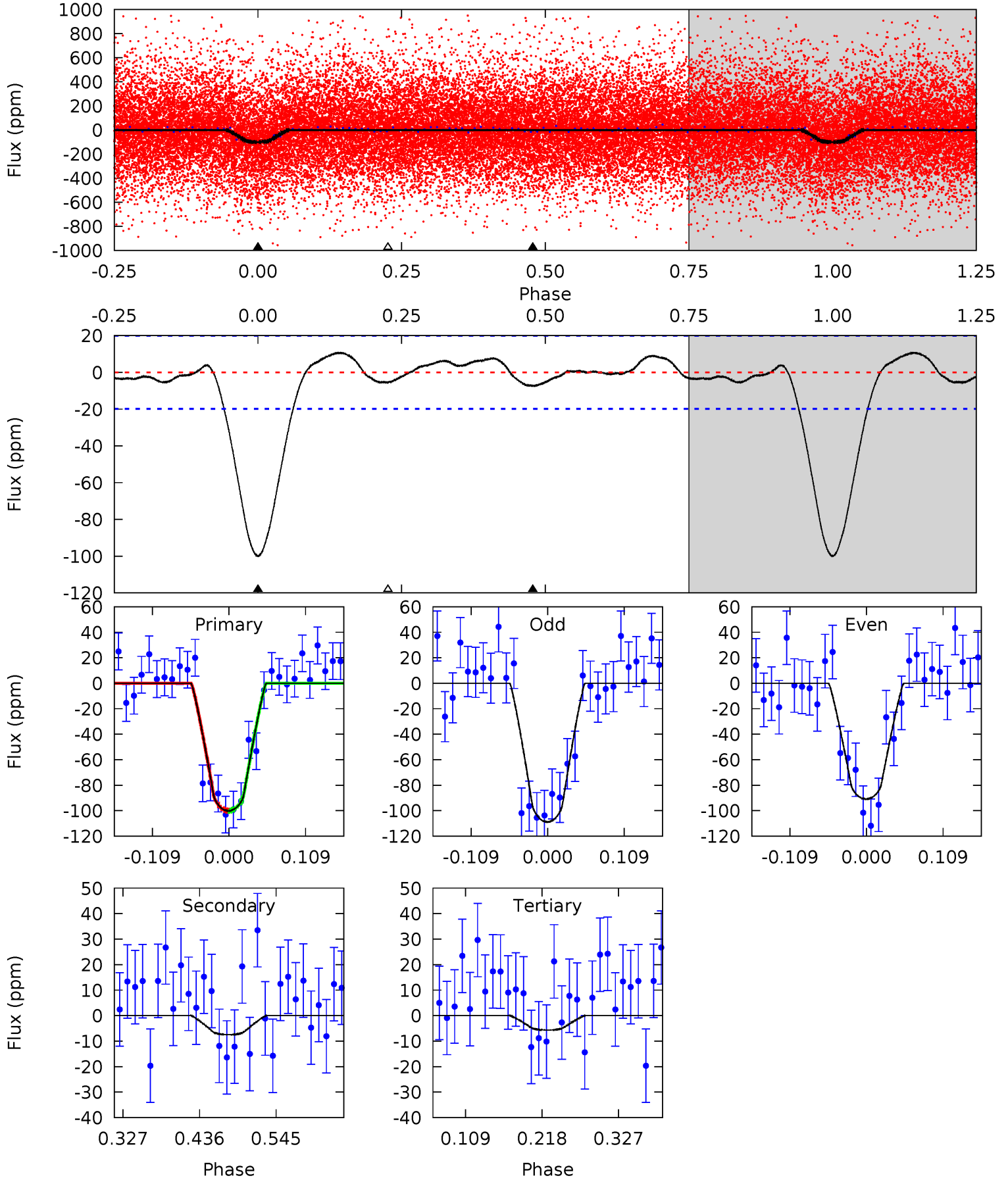
TCE 008558011-02 P= 0.638165 Days $T_0=131.745483$ (BKJD)



DV Model-Shift Uniqueness Test

008558011-02, P = 0.638165 Days, E = 131.746727 Days

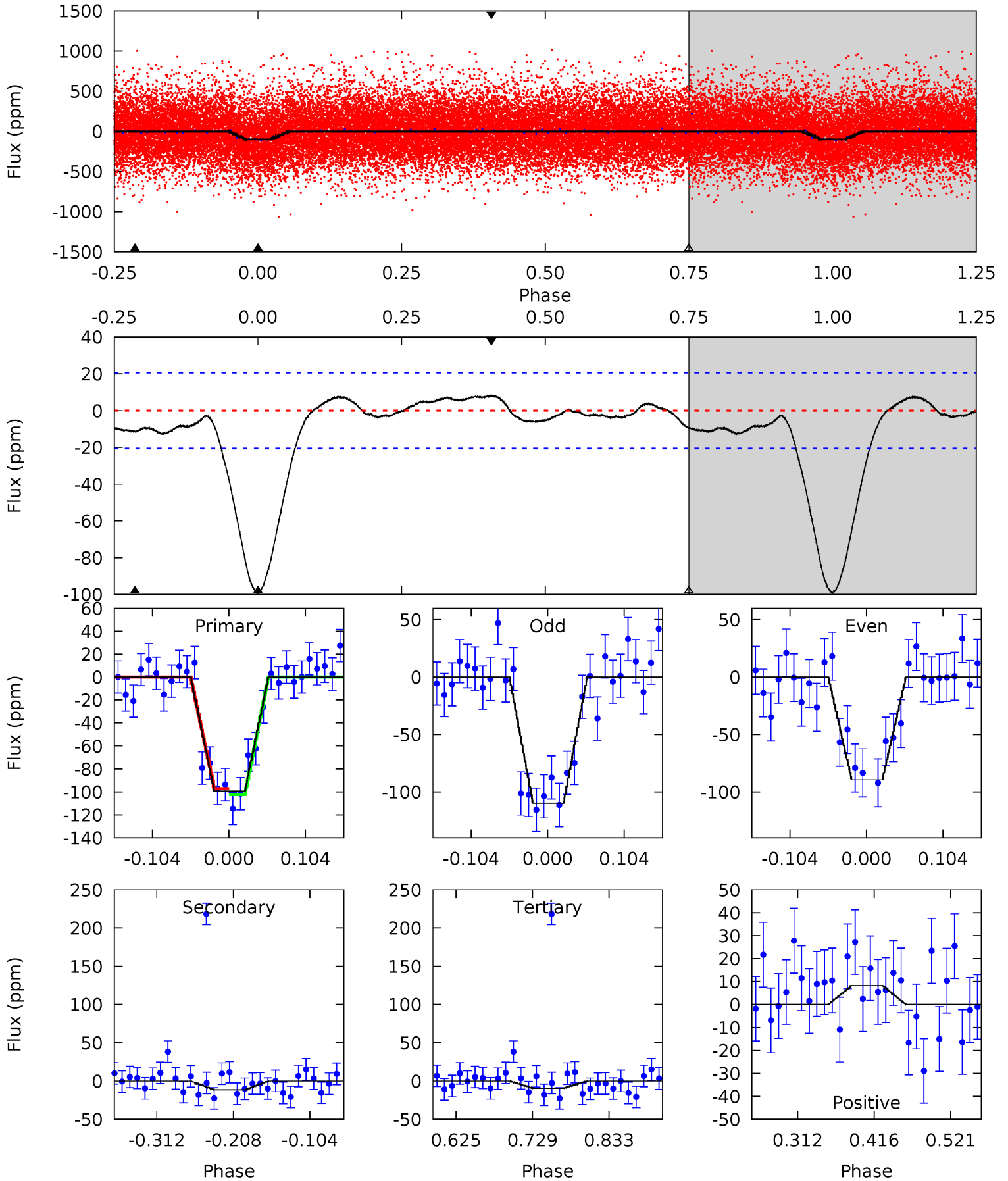
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	1.71	1.30	0	4.55	1.60	1.09	21.6	22.9	0.41	1.71	2.06	0.95	0.10	0.01



Alt Model-Shift Uniqueness Test

008558011-02, P = 0.638165 Days, E = 131.745483 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.9	2.55	2.09	1.83	4.56	1.63	0.99	19.8	20.1	0.47	0.73	2.26	0.94	0.08	0.61



Stellar Parameters For KIC 008558011

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5244^{+203}_{-184}	$4.449^{+0.112}_{-0.192}$	$0.020^{+0.300}_{-0.250}$	$0.888^{+0.197}_{-0.131}$	$0.808^{+0.112}_{-0.060}$	$1.625^{+0.885}_{-0.781}$
	+4%/-4%	+3%/-4%	+1500%/-1250%	+22%/-15%	+14%/-7%	+54%/-48%
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 008558011-02 / KOI 0577.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 4	$1.22^{+0.77}_{-0.73}$	2656^{+193}_{-153}	2722^{+1246}_{-5394}	$0.517^{+1.975}_{-0.381}$
Alt.	-12 ± 5	$1.11^{+0.71}_{-0.62}$	2656^{+183}_{-160}	3160^{+1246}_{-1031}	$0.879^{+3.905}_{-0.557}$

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 $A_{obs} \gg 1.0$

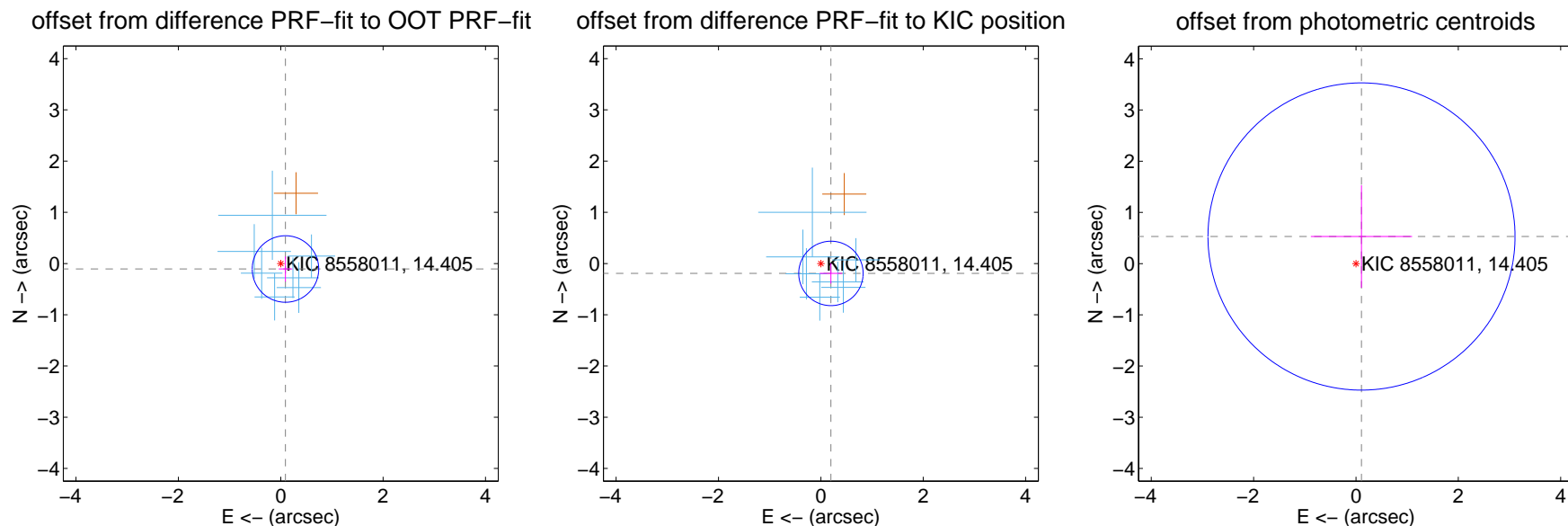
DV Centroid Data

Supplemental centroid analysis for 008558011-02. Kepler magnitude: 14.40. Transit SNR 15.65

There are 7 quarters with good PRF difference image offsets

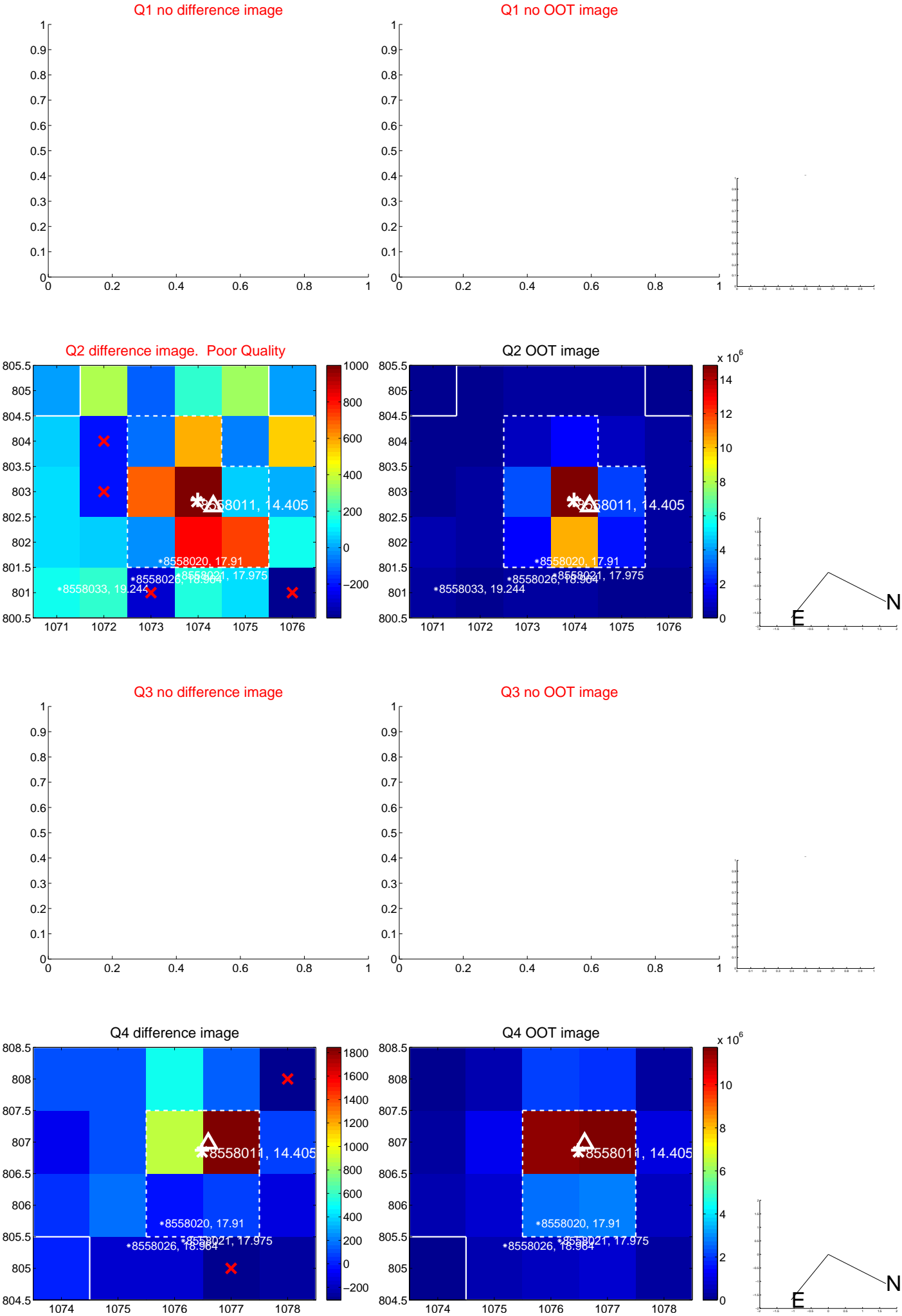
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.141 ± 0.216	0.65	-0.092 ± 0.132	-0.106 ± 0.246
PRF-fit source offset from KIC position	0.275 ± 0.210	1.31	-0.197 ± 0.219	-0.193 ± 0.199
photometric centroid source offset	0.54 ± 1.00	0.54	-0.11 ± 0.99	0.53 ± 1.00

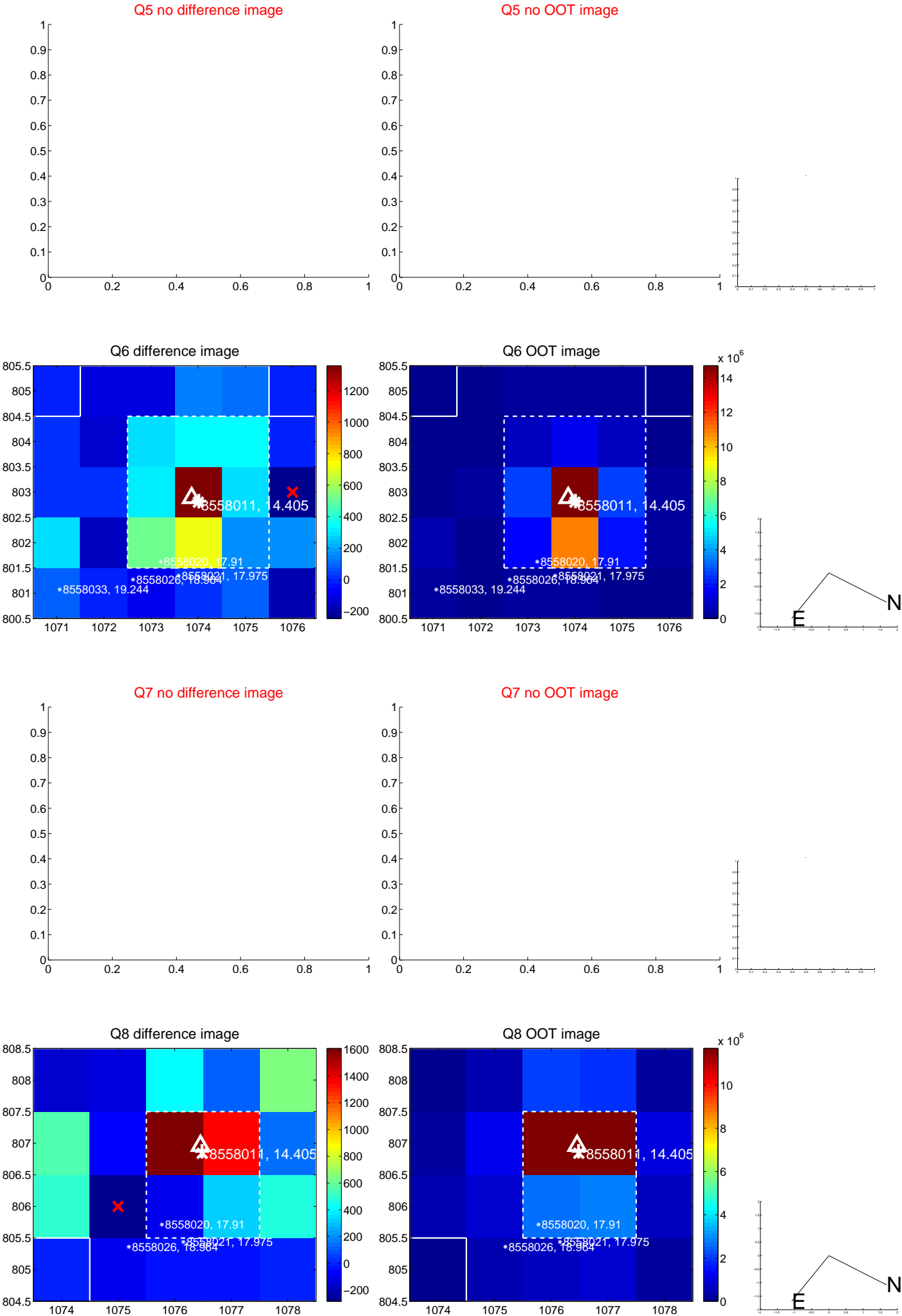


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

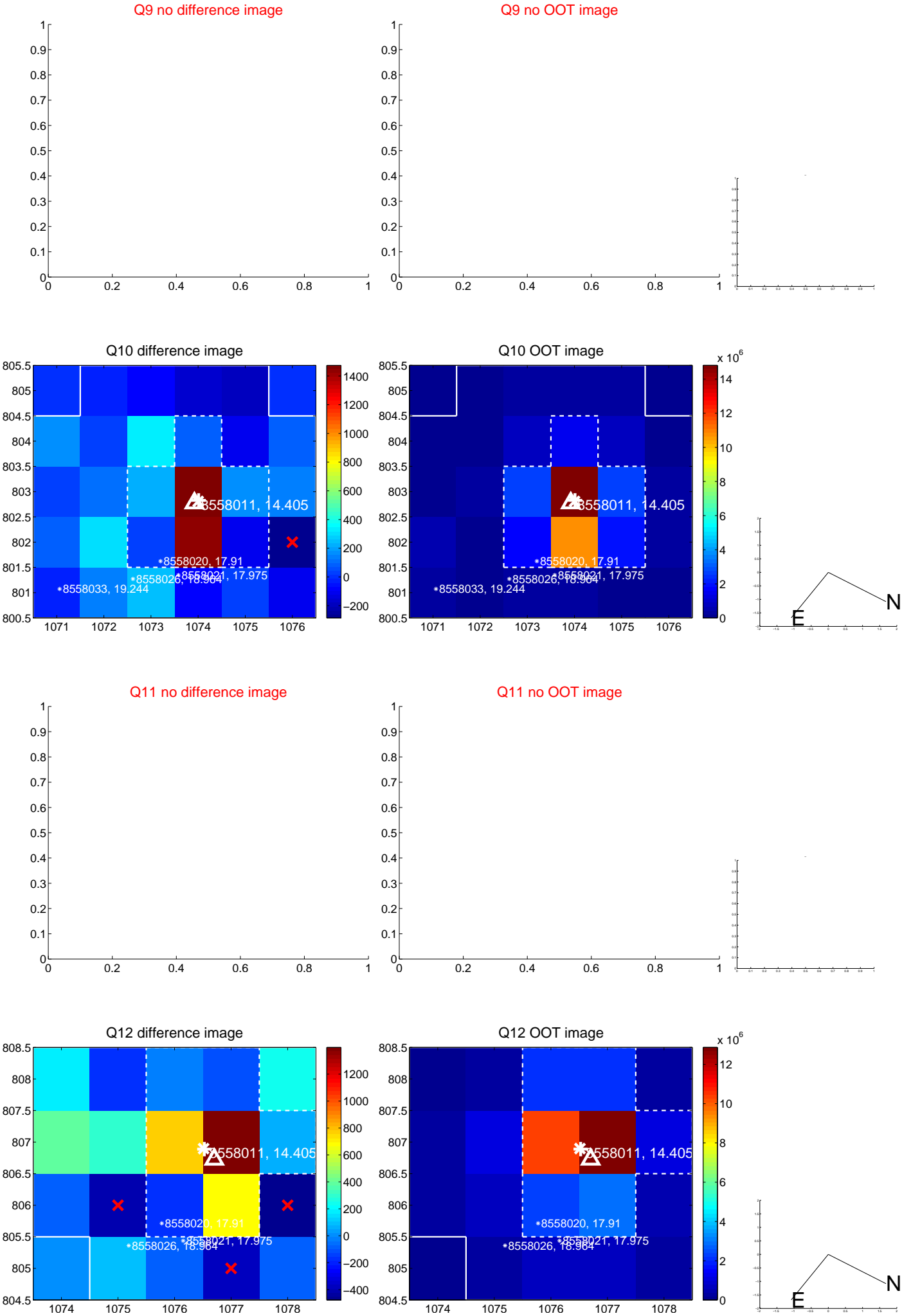
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



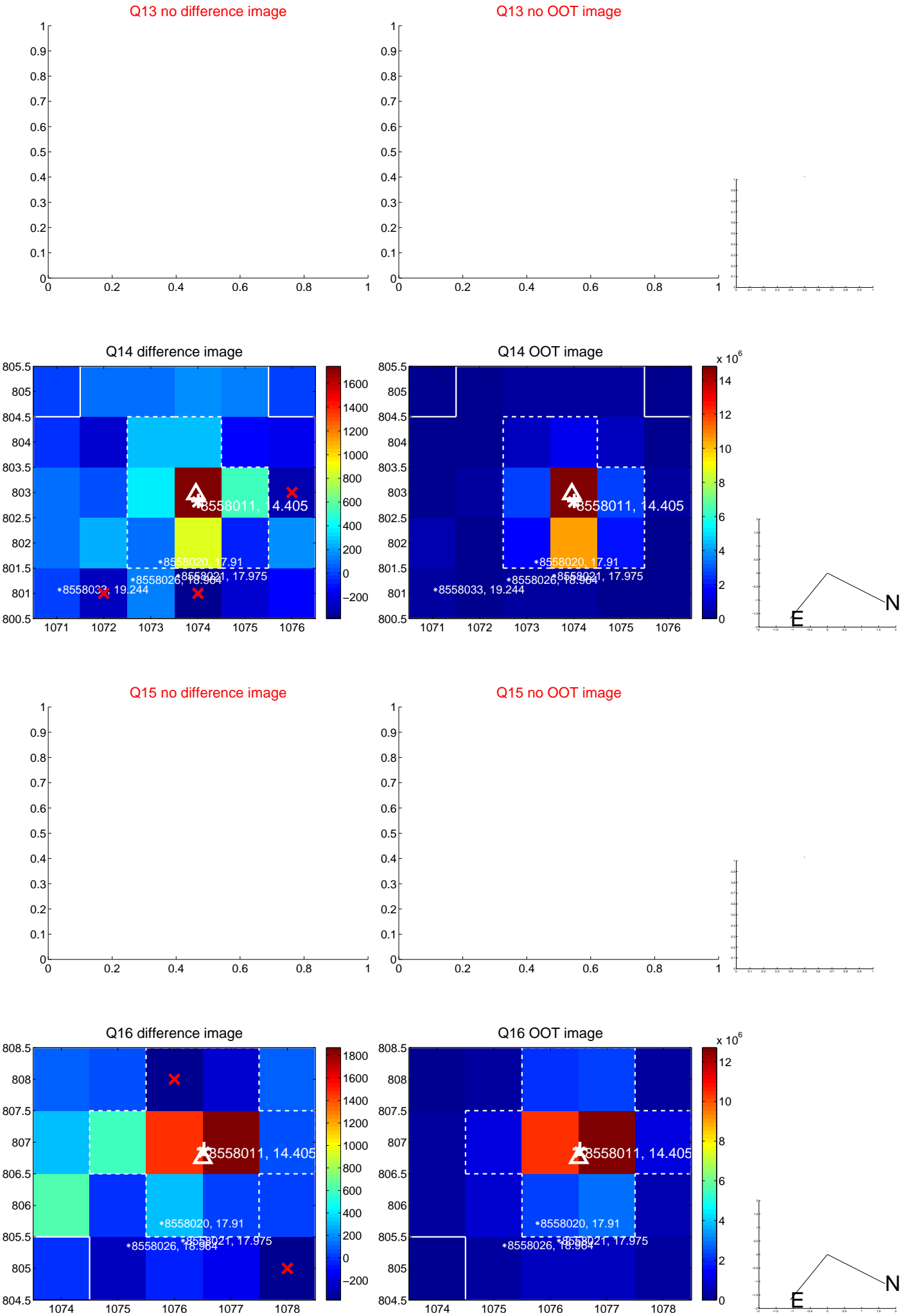
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



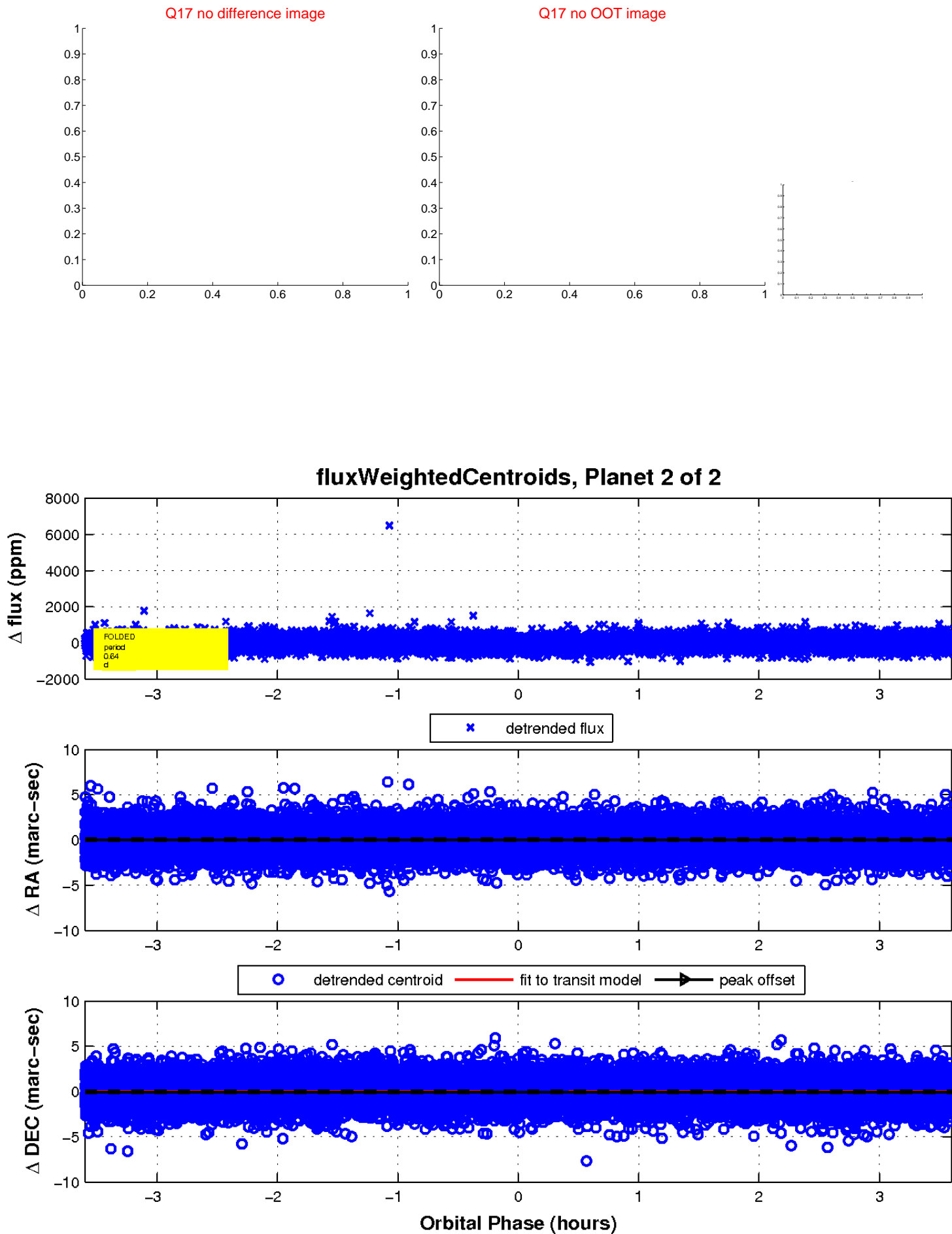
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

