

KIC 007037540

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})
007037540-01	OBS	1347.01	14.405858	144.296842	30258.9	5.491	2348.2	2203.7	1.35	5945	23.32	147.28
007037540-02	OBS	No	14.405890	137.045948	549.7	5.510	42.0	45.4	1.35	5945	3.68	147.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007037540-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
007037540-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

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

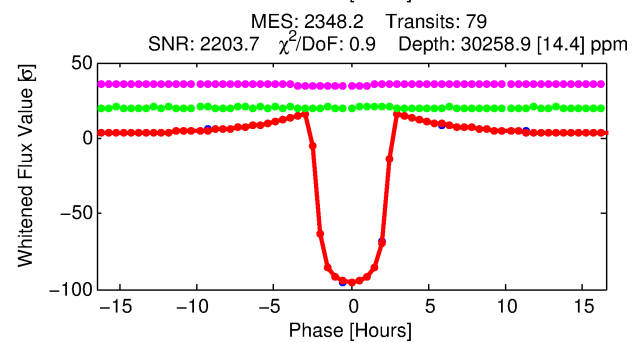
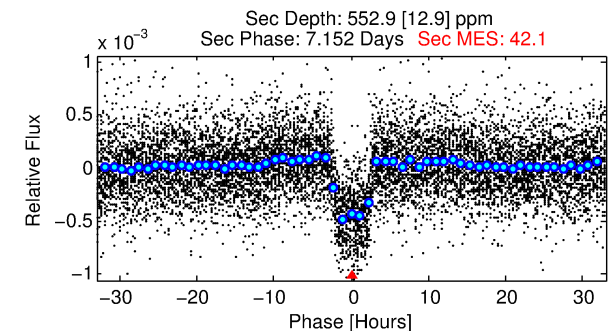
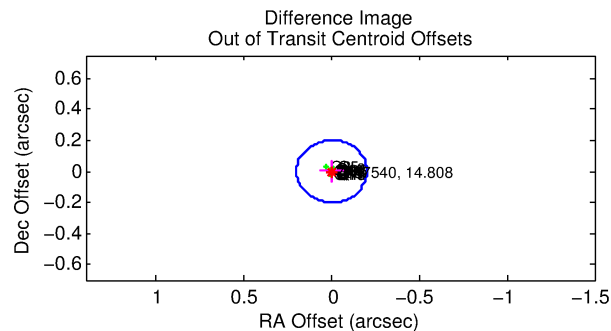
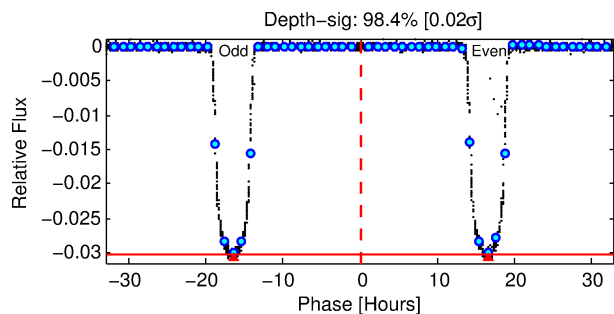
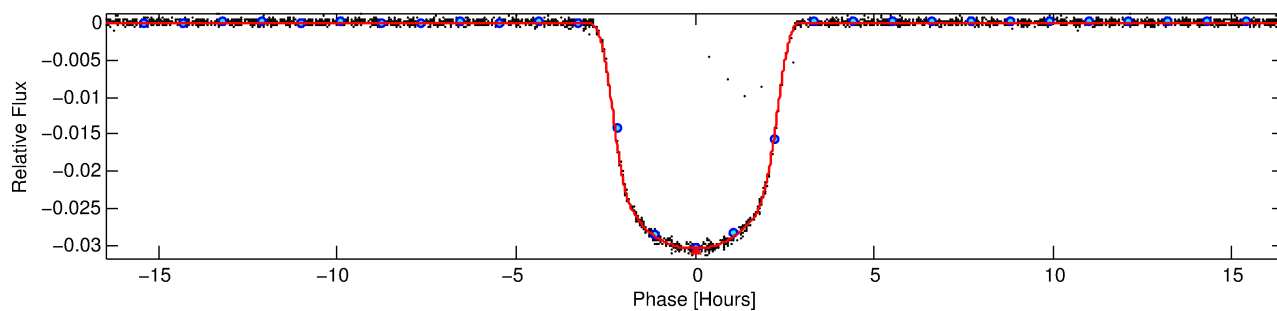
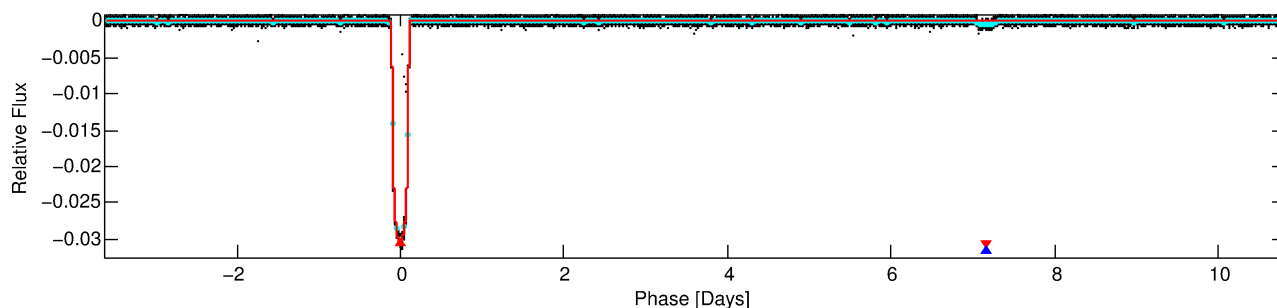
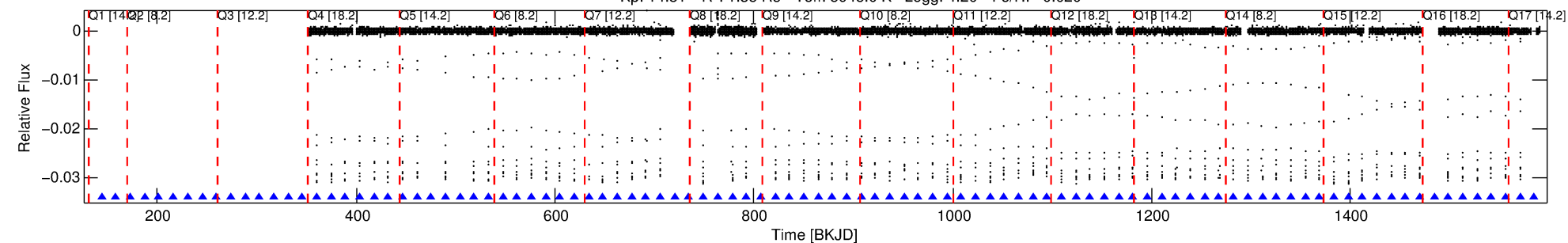
Ephemeris Match Information For 007037540-01

No Significant Match Found

DV One-Page Summary

KIC: 7037540 Candidate: 1 of 2 Period: 14.406 d
KOI: K01347.01 Corr: 0.999

Kp: 14.81 R*: 1.35 Rs Teff: 5945.0 K Logg: 4.20 Fe/H: -0.020



DV Fit Results:

Period = 14.40586 [0.00000] d
Epoch = 144.2968 [0.0001] BKJD
Rp/R* = 0.1588 [0.0001]
a/R* = 23.18 [0.06]
b = 0.08 [0.04]
Seff = 147.28 [65.29]
Teq = 888 [98] K
Rp = 23.32 [6.53] Re
a = 0.1173 [0.0312] AU
Ag = 7.70 [3.25] [2.06σ]
Teff = 2288 [80] K [11.03σ]

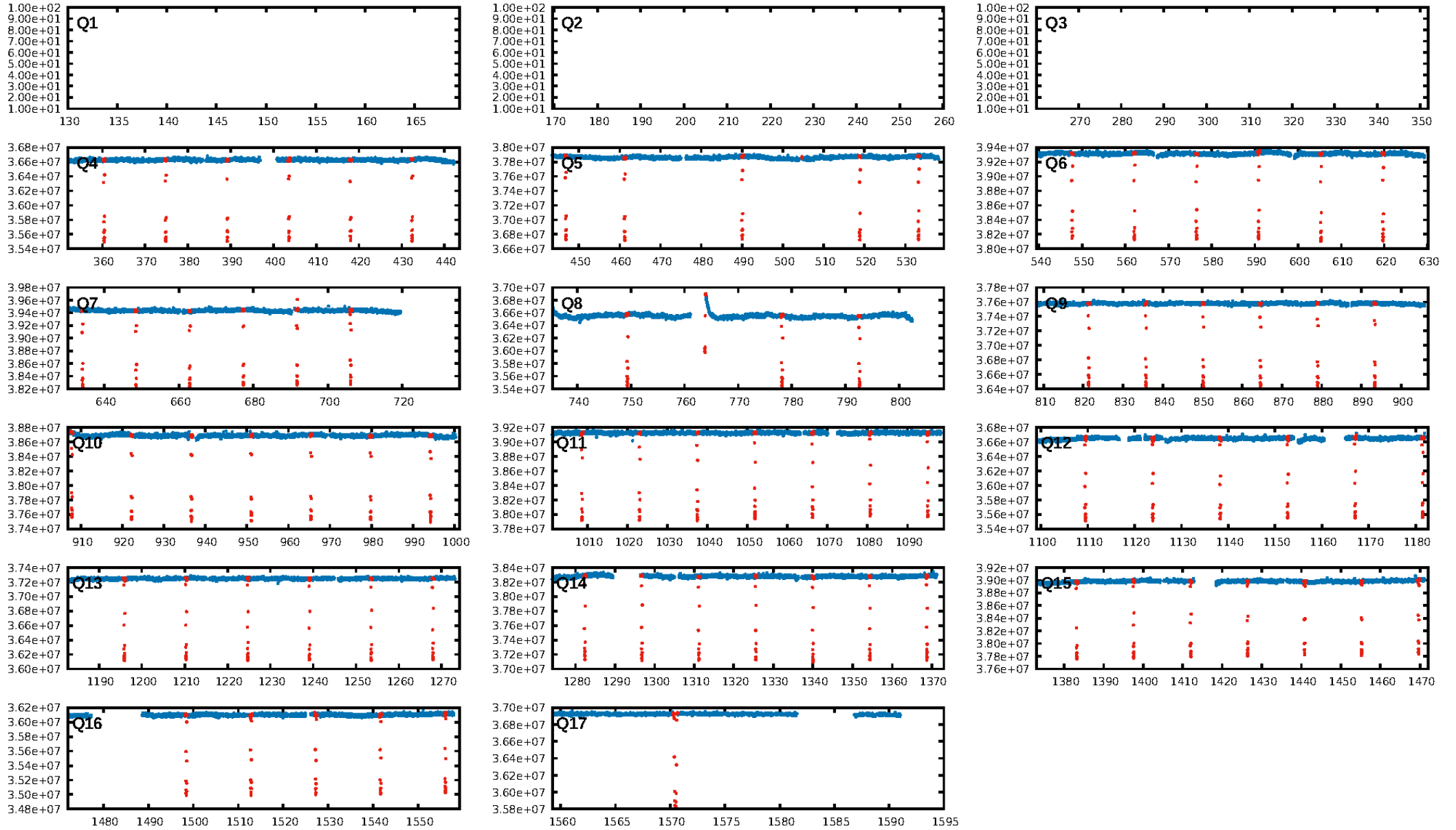
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [78/78]
GhostDiagnostic-chr: 6.681
Centroid-sig: 0.0%
Centroid-so: 0.180 arcsec [32.56σ]
OotOffset-rm: 0.002 arcsec [0.03σ]
KicOffset-rm: 0.142 arcsec [2.09σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

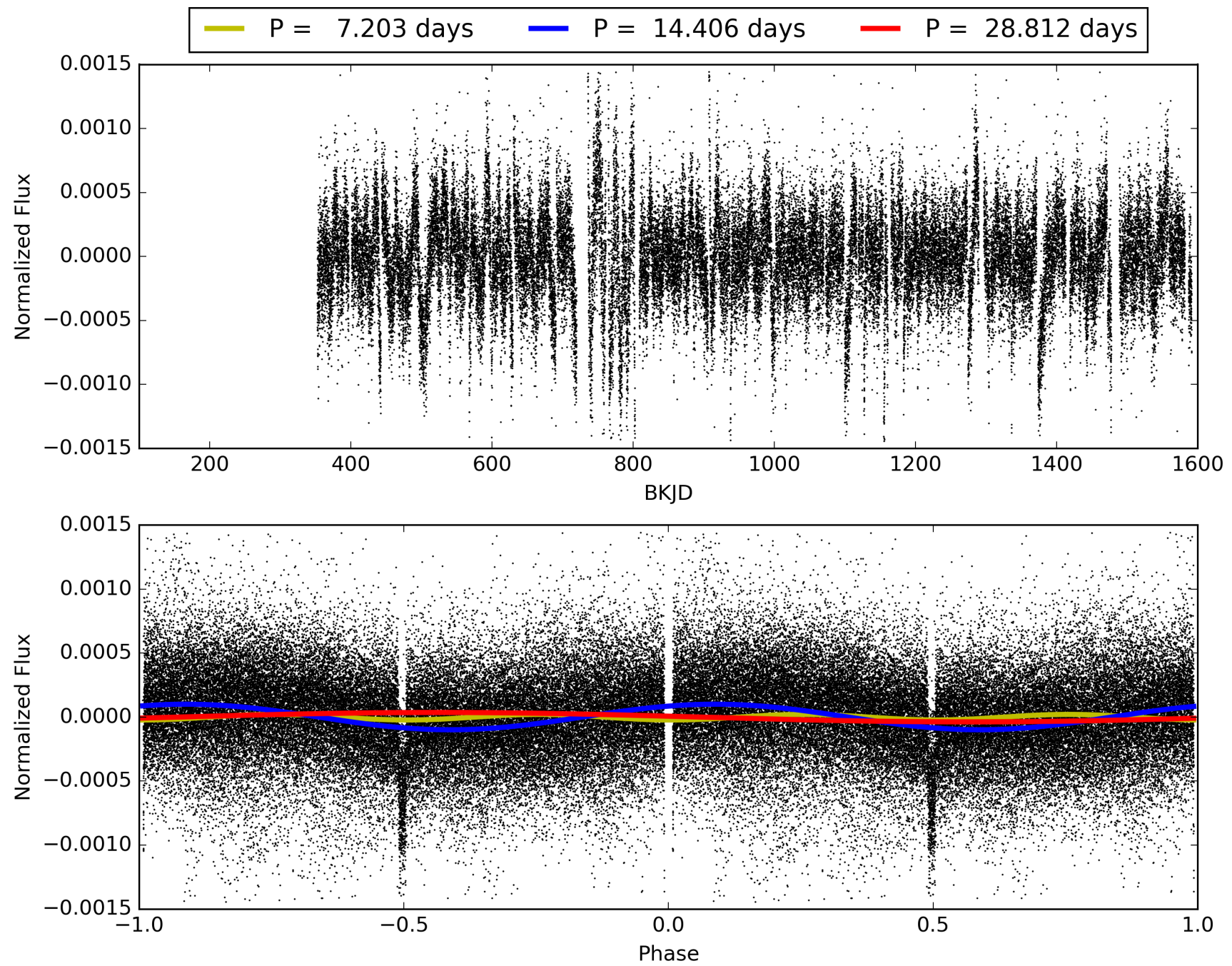
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:04:40 Z

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

TCE 007037540-01, PDC Light Curves

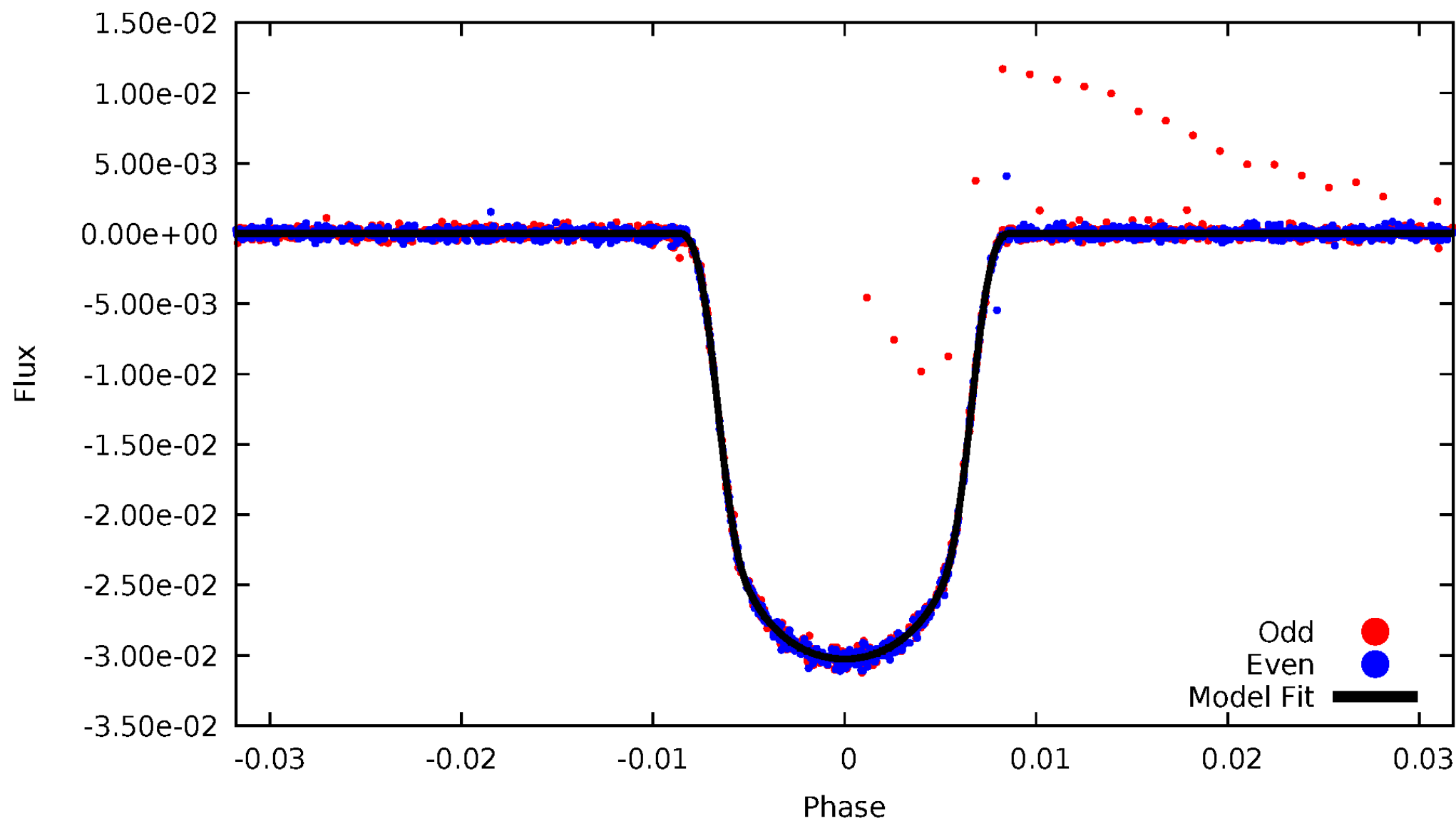


TCE 007037540-01



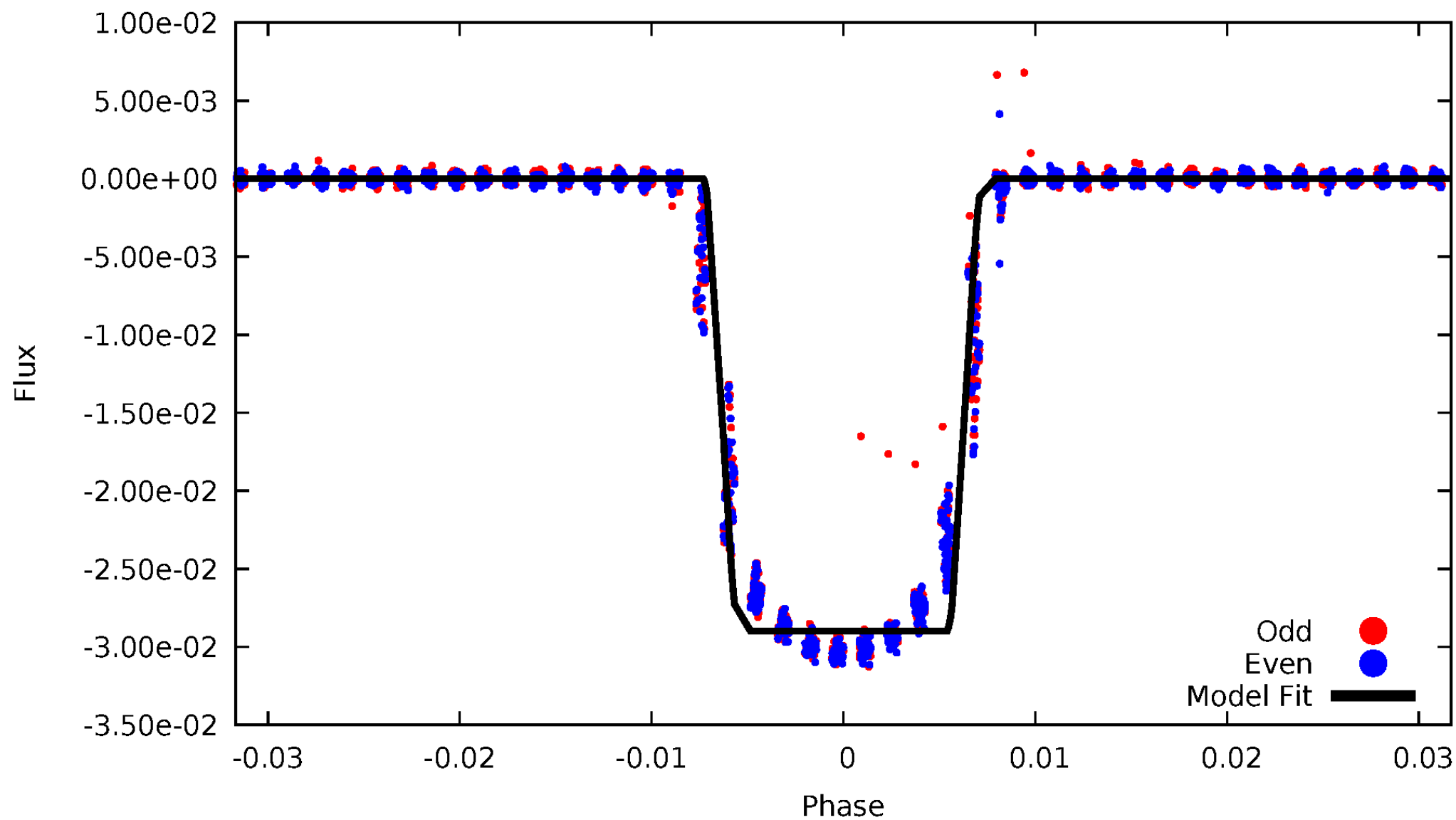
DV Odd/Even

TCE 007037540-01



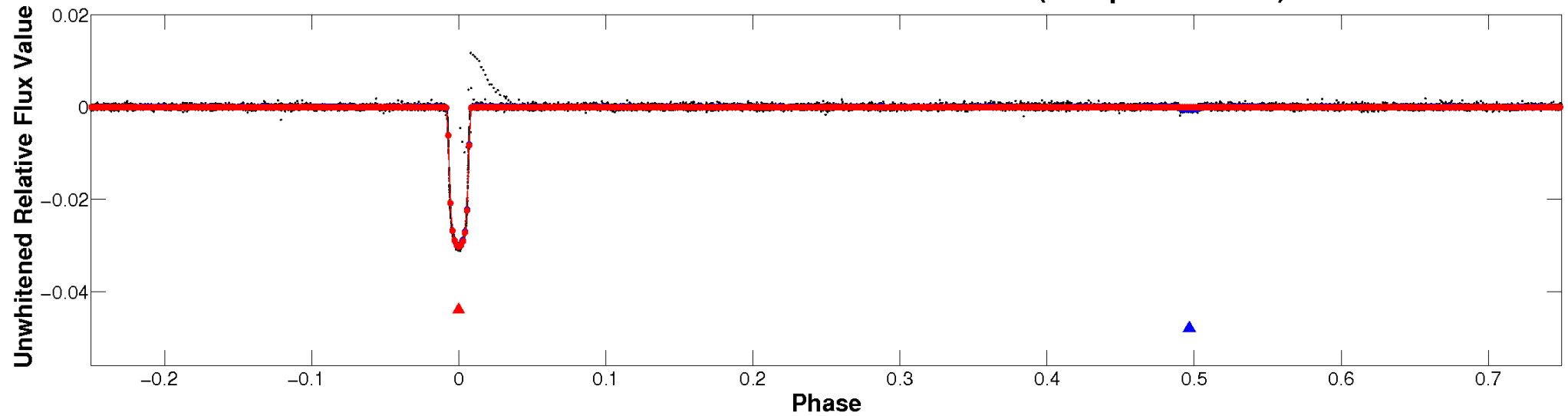
ALT Odd/Even

TCE 007037540-01

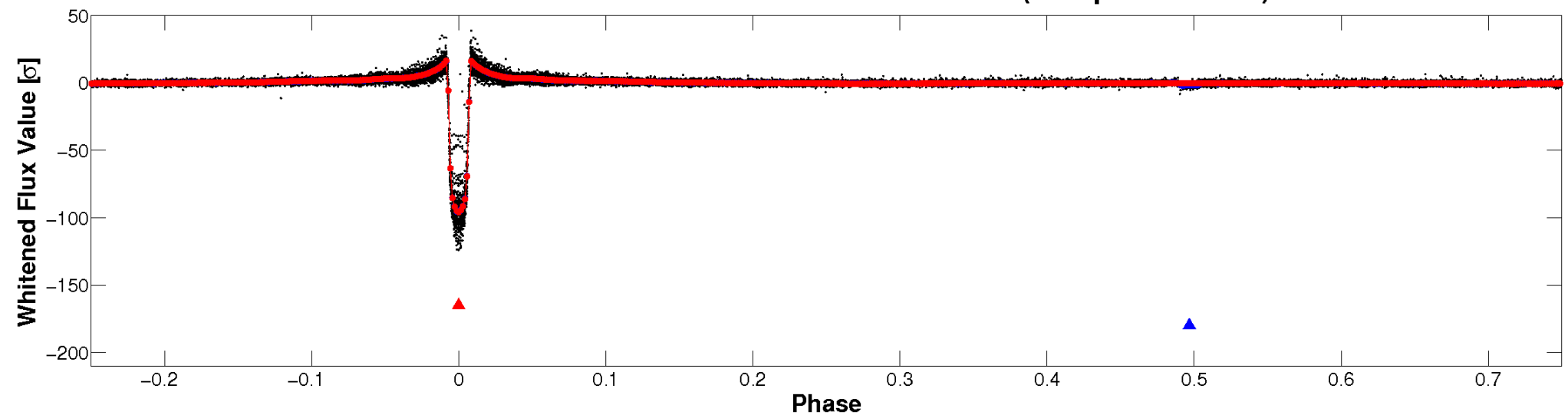


Non-Whitened Vs. Whitened Light Curve

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

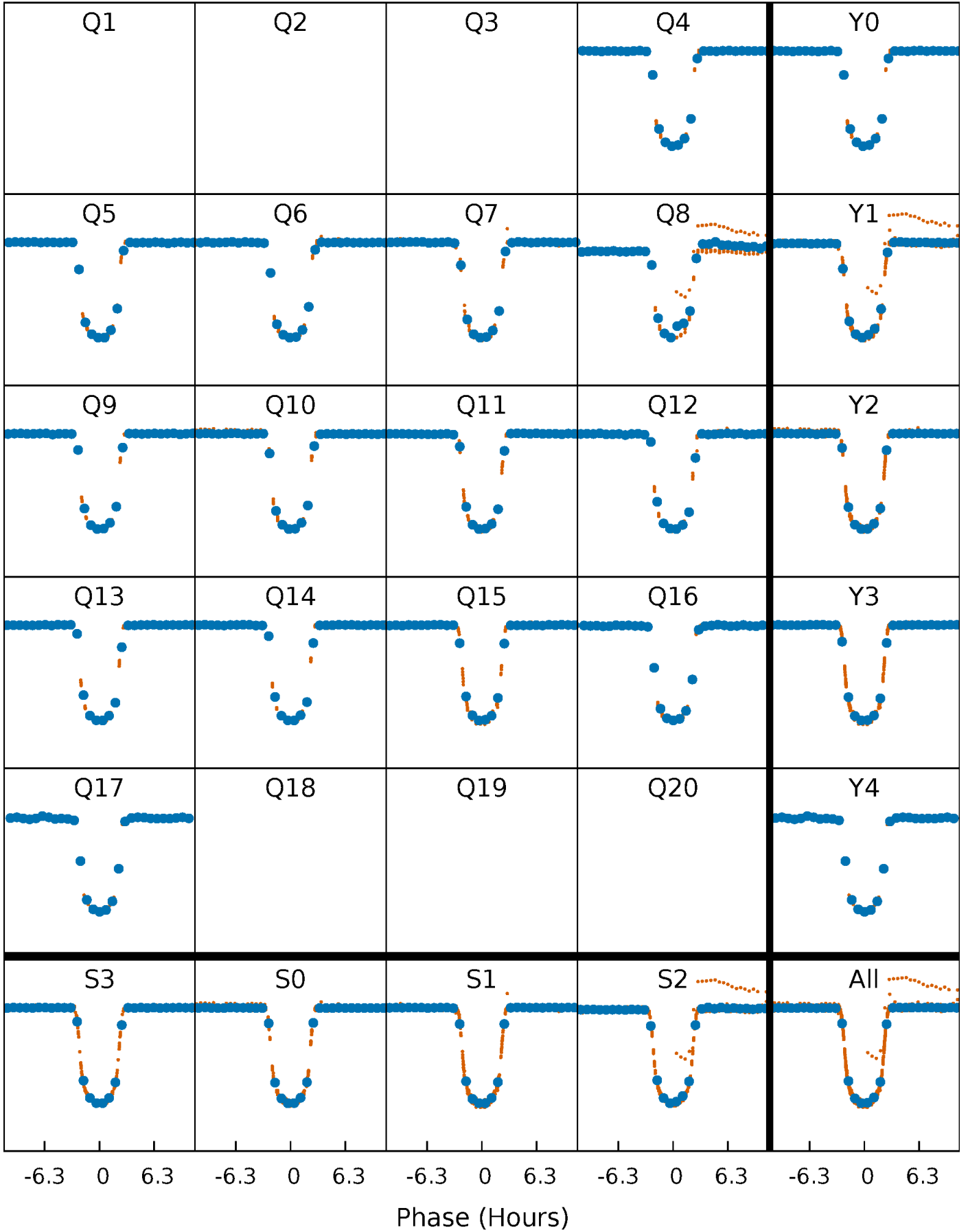


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



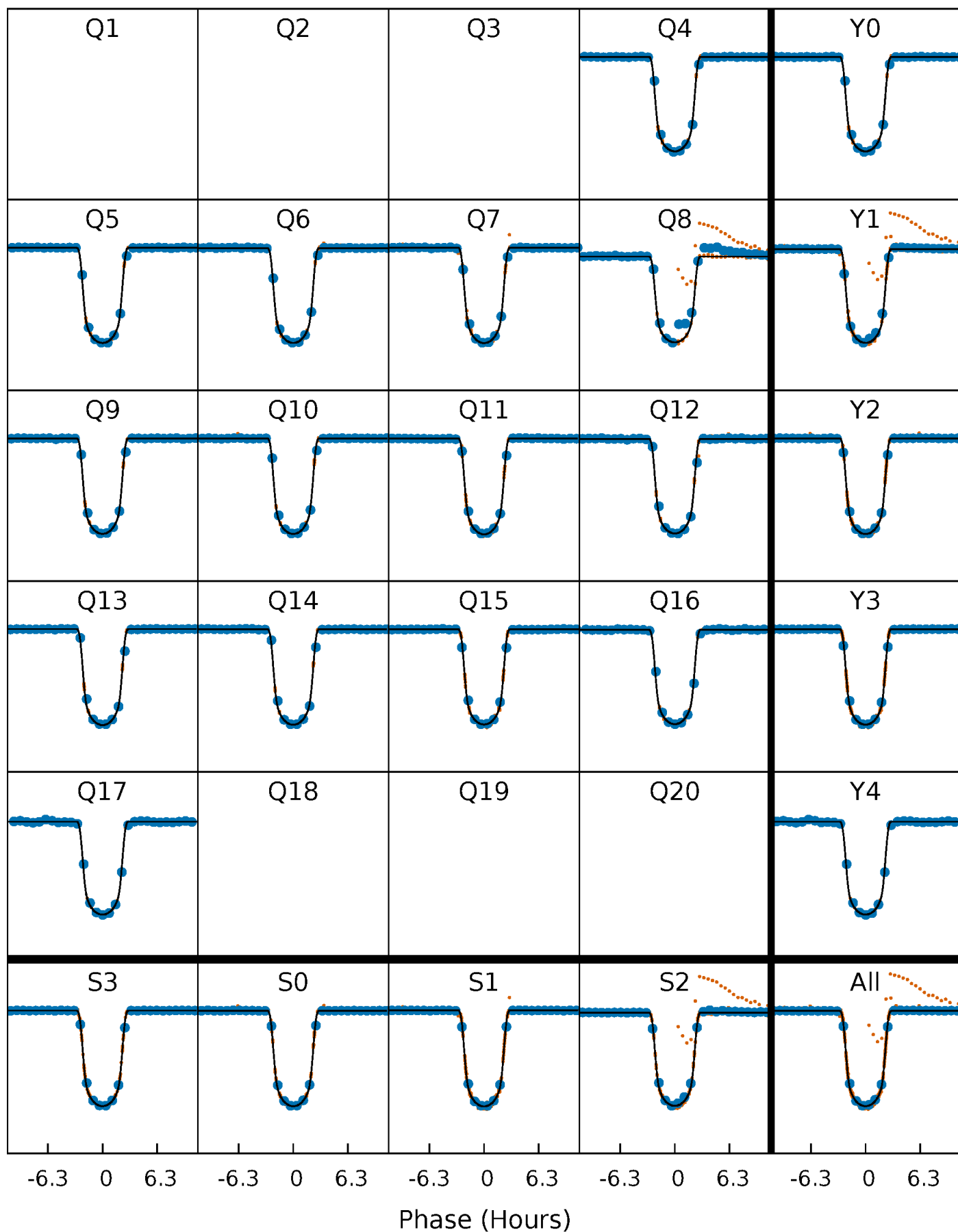
PDC Quarter-Phased Transit Curves

TCE 007037540-01 P= 14.405858 Days $T_0=144.296842$ (BKJD)



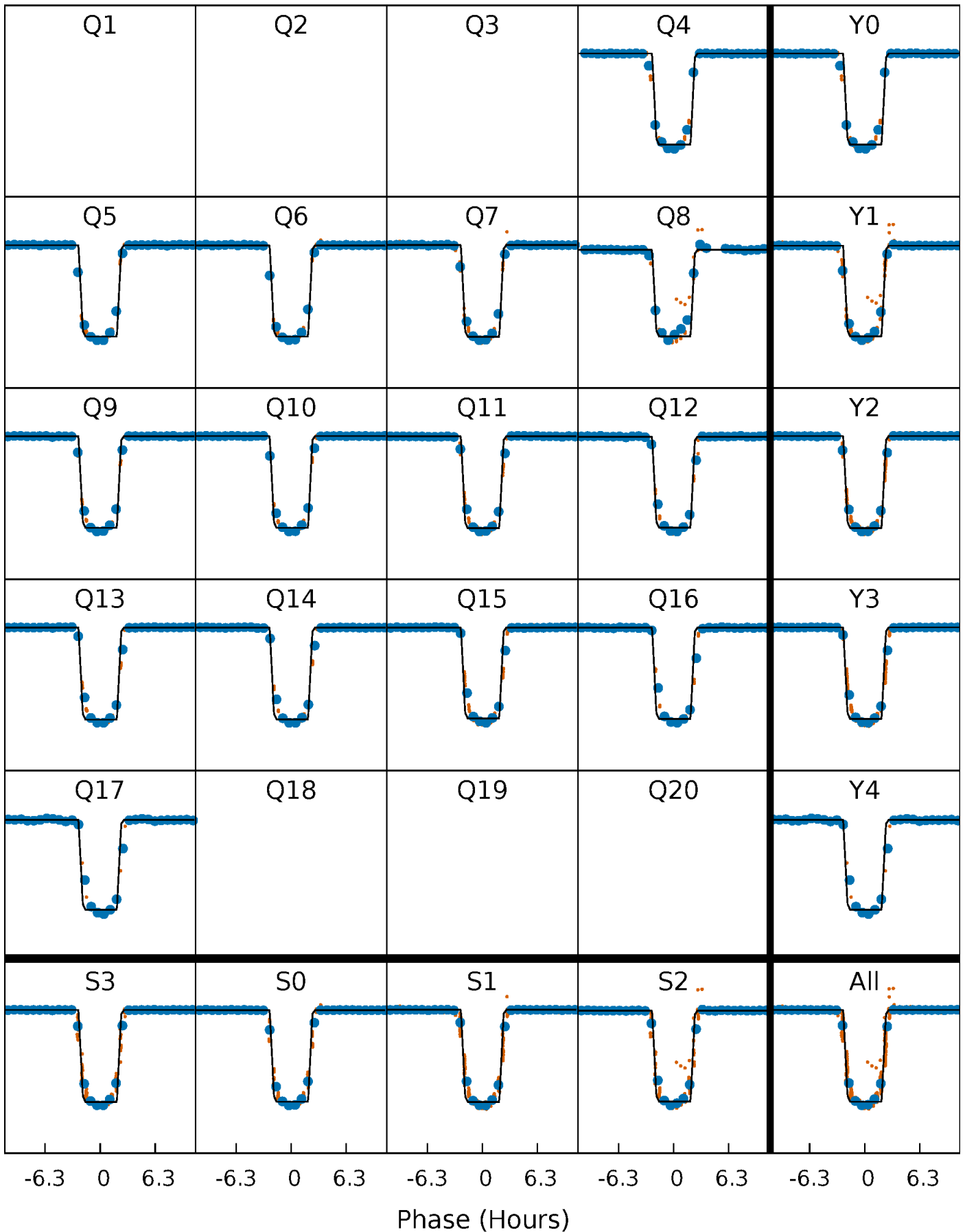
DV Quarter-Phased Transit Curves

TCE 007037540-01 P= 14.405858 Days $T_0=144.296842$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

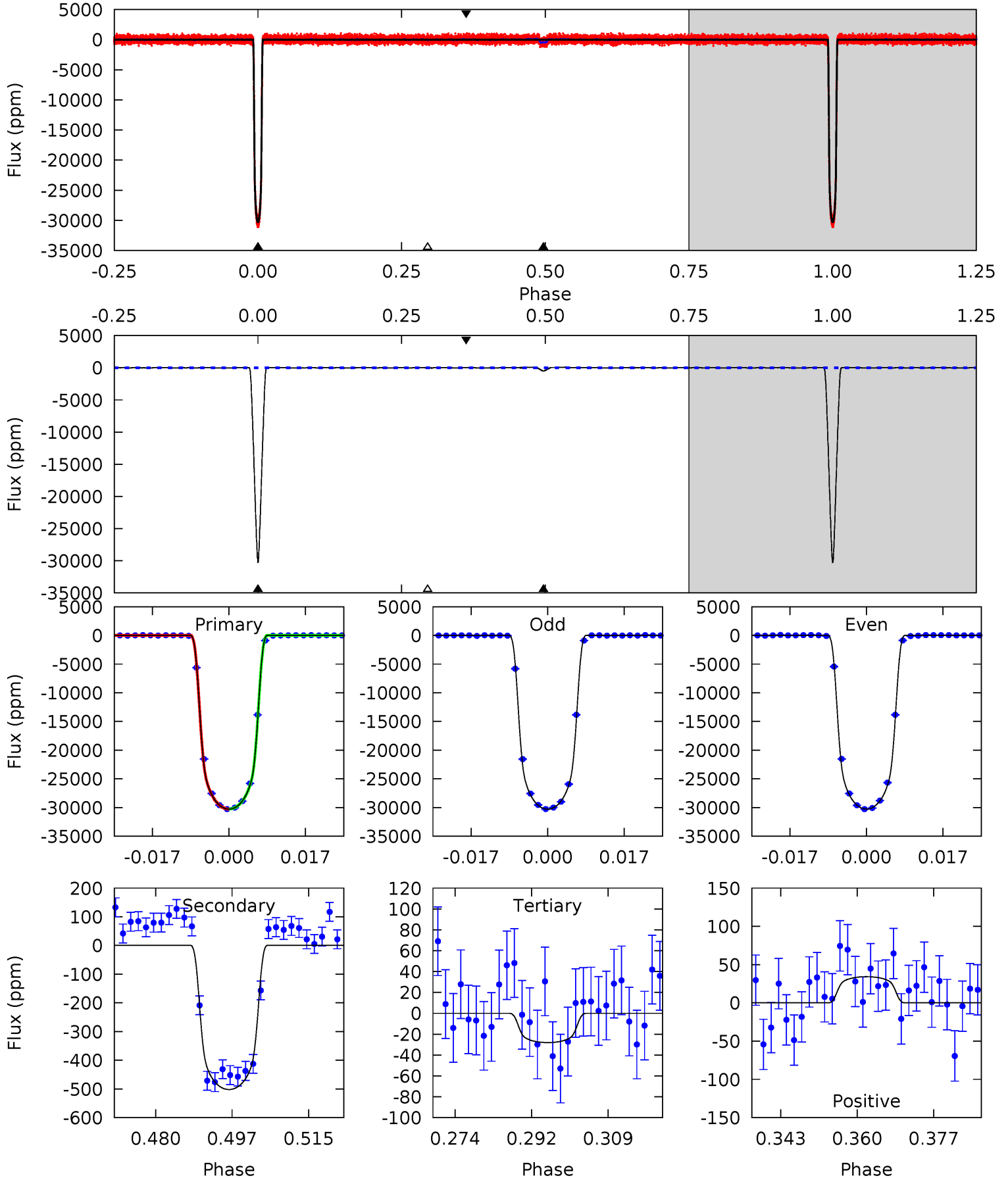
TCE 007037540-01 P= 14.405640 Days $T_0=144.309770$ (BKJD)



DV Model-Shift Uniqueness Test

007037540-01, P = 14.405858 Days, E = 144.296842 Days

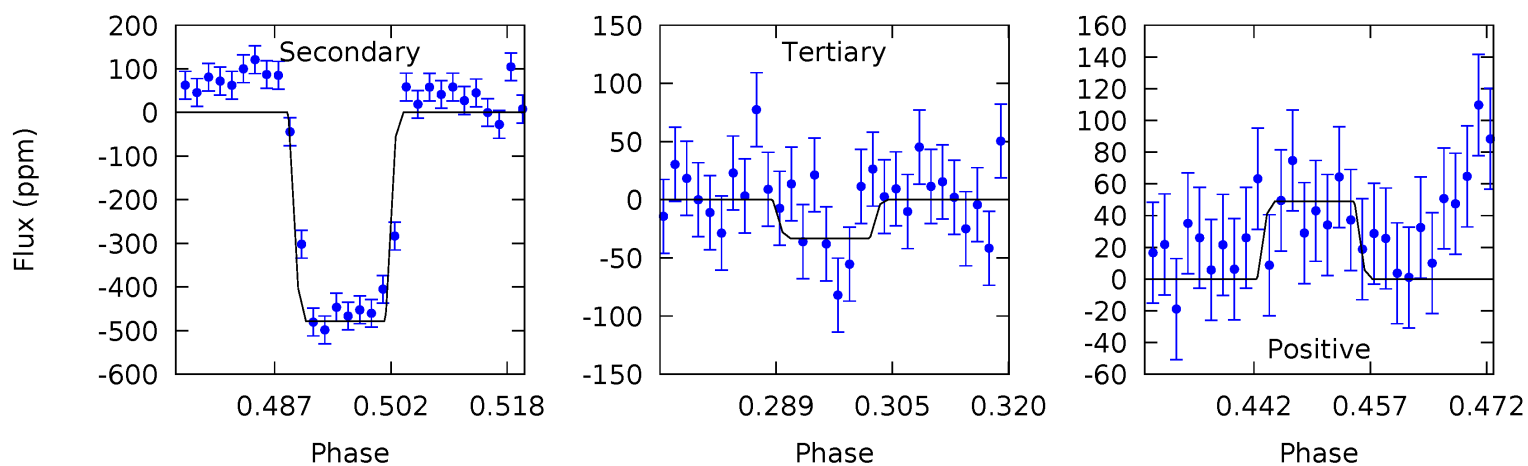
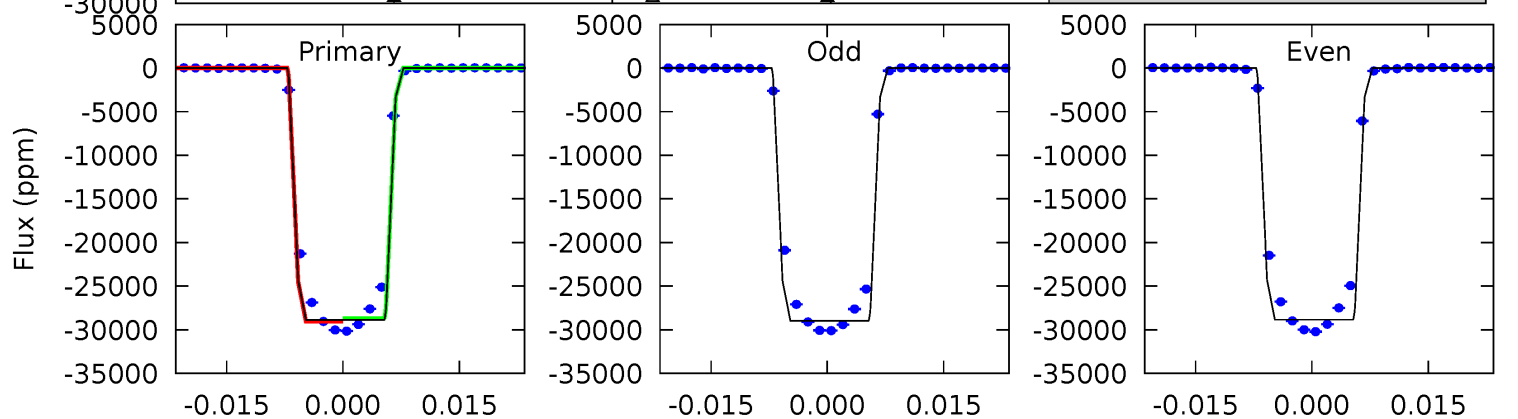
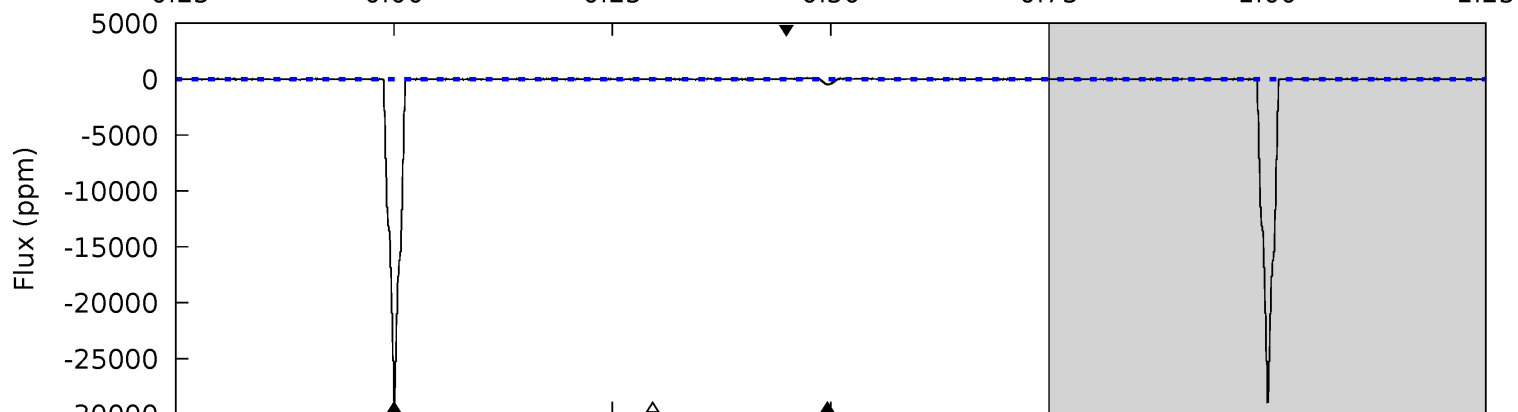
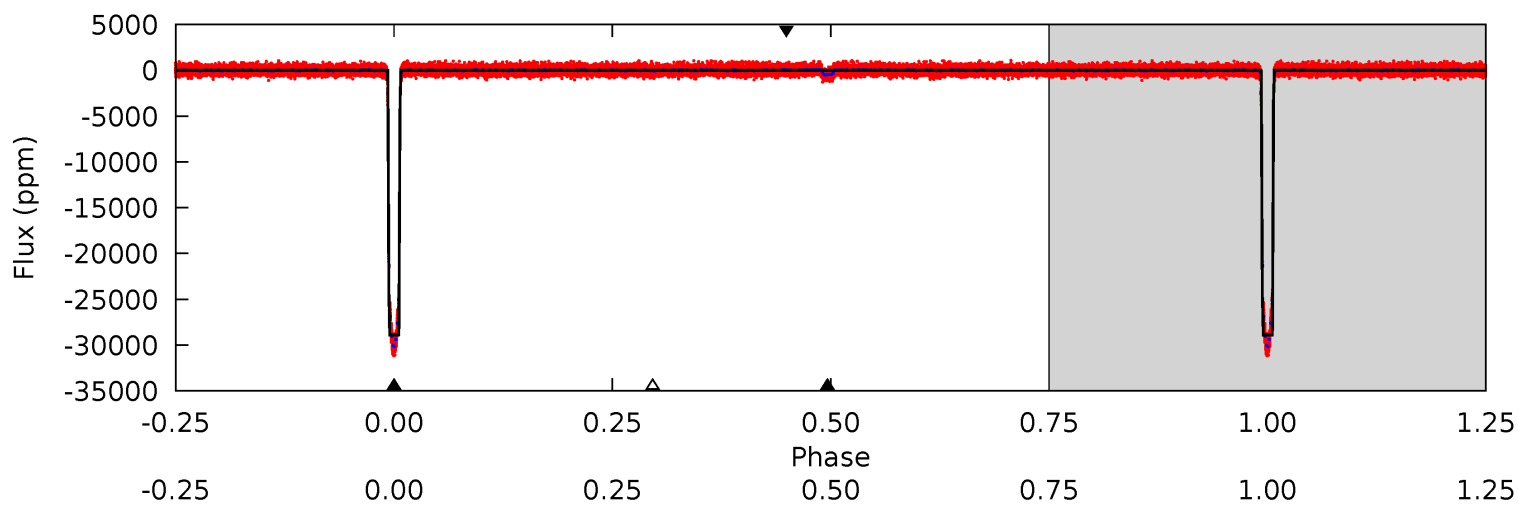
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3610	59.9	3.35	4.08	4.92	2.38	2.10	3606	3606	56.5	55.8	1.18	0.99	0.00	0.03



Alt Model-Shift Uniqueness Test

007037540-01, P = 14.405640 Days, E = 144.309770 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2647	43.8	3.04	4.48	4.95	2.43	1.53	2643	2642	40.8	39.3	4.96	1.00	0.00	17.3



Stellar Parameters For KIC 007037540

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5945^{+184}_{-205}	$4.196^{+0.246}_{-0.164}$	$-0.020^{+0.250}_{-0.300}$	$1.346^{+0.377}_{-0.377}$	$1.039^{+0.152}_{-0.138}$	$0.600^{+0.772}_{-0.296}$
	+3%/-3%	+6%/-4%	+1250%/-1500%	+28%/-28%	+15%/-13%	+129%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007037540-01 / KOI 1347.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-502 ± 8	$23.17^{+4.03}_{-3.59}$	1229^{+111}_{-95}	2914^{+55}_{-56}	$7.085^{+2.648}_{-1.821}$
Alt.	-479 ± 11	$24.79^{+3.75}_{-3.87}$	1233^{+100}_{-106}	2836^{+52}_{-54}	$5.908^{+2.345}_{-1.367}$

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 $A_{obs} \gg 1.0$

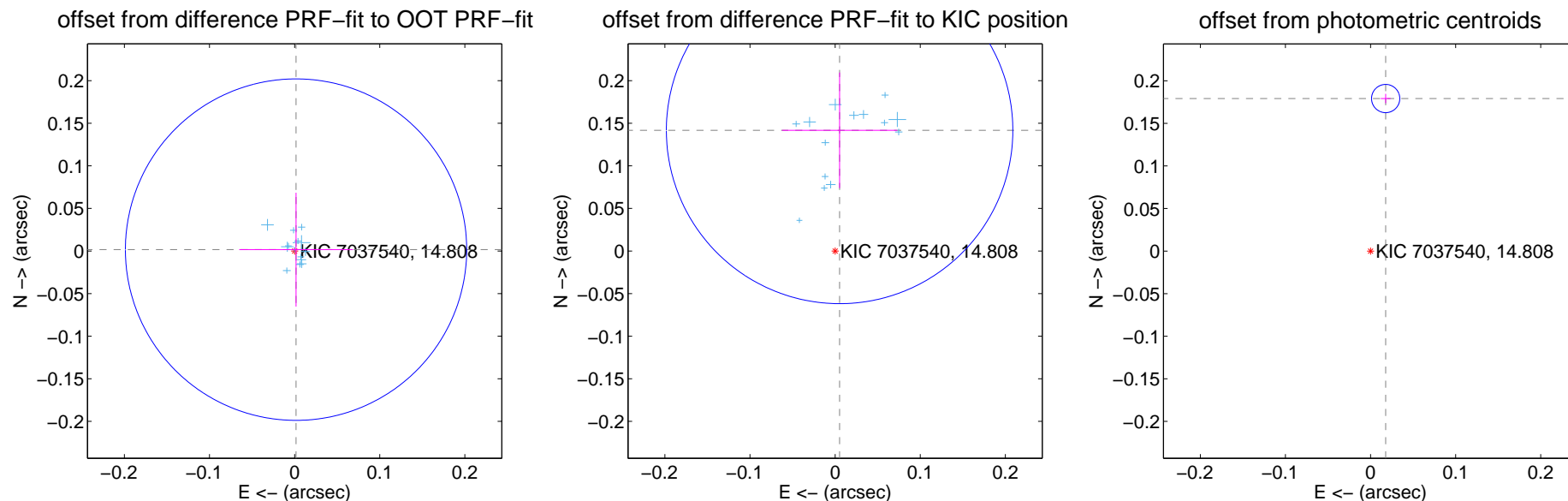
DV Centroid Data

Supplemental centroid analysis for 007037540-01. Kepler magnitude: 14.81. Transit SNR 2203.71

There are 14 quarters with good PRF difference image offsets

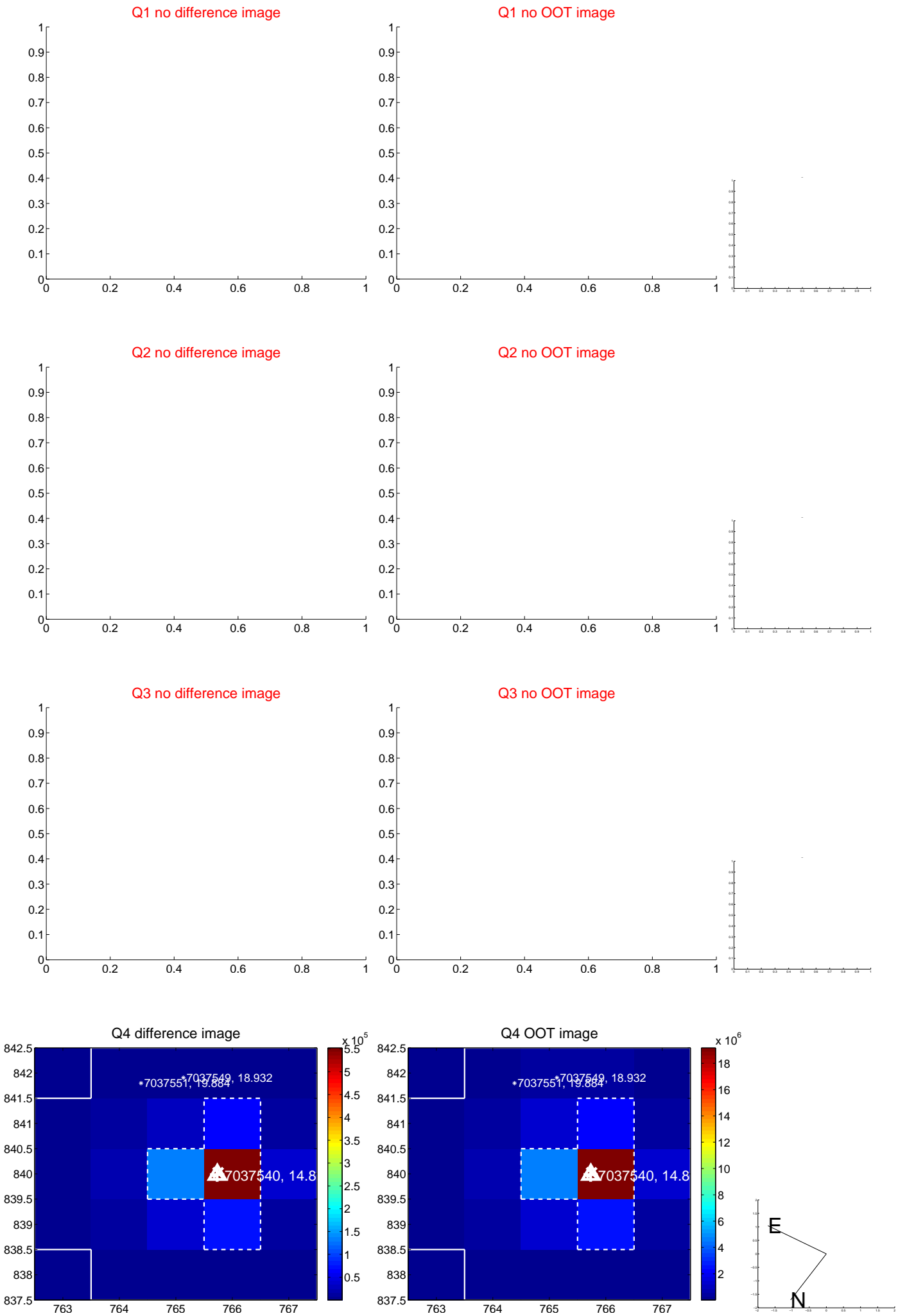
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.002 ± 0.067	0.03	-0.002 ± 0.067	0.002 ± 0.067
PRF-fit source offset from KIC position	0.142 ± 0.068	2.09	-0.005 ± 0.068	0.142 ± 0.068
photometric centroid source offset	0.18 ± 0.01	32.56	-0.02 ± 0.01	0.18 ± 0.01

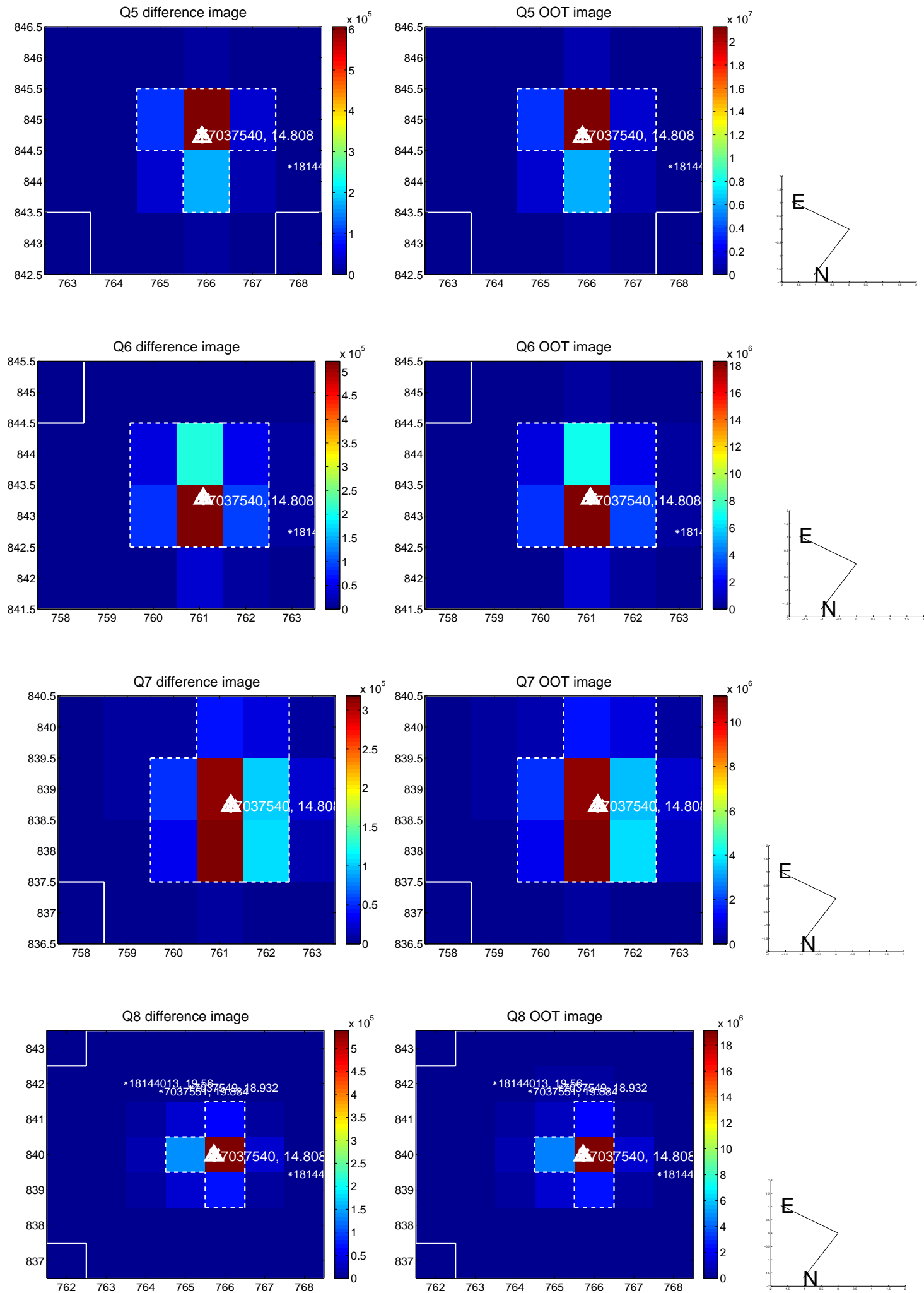


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

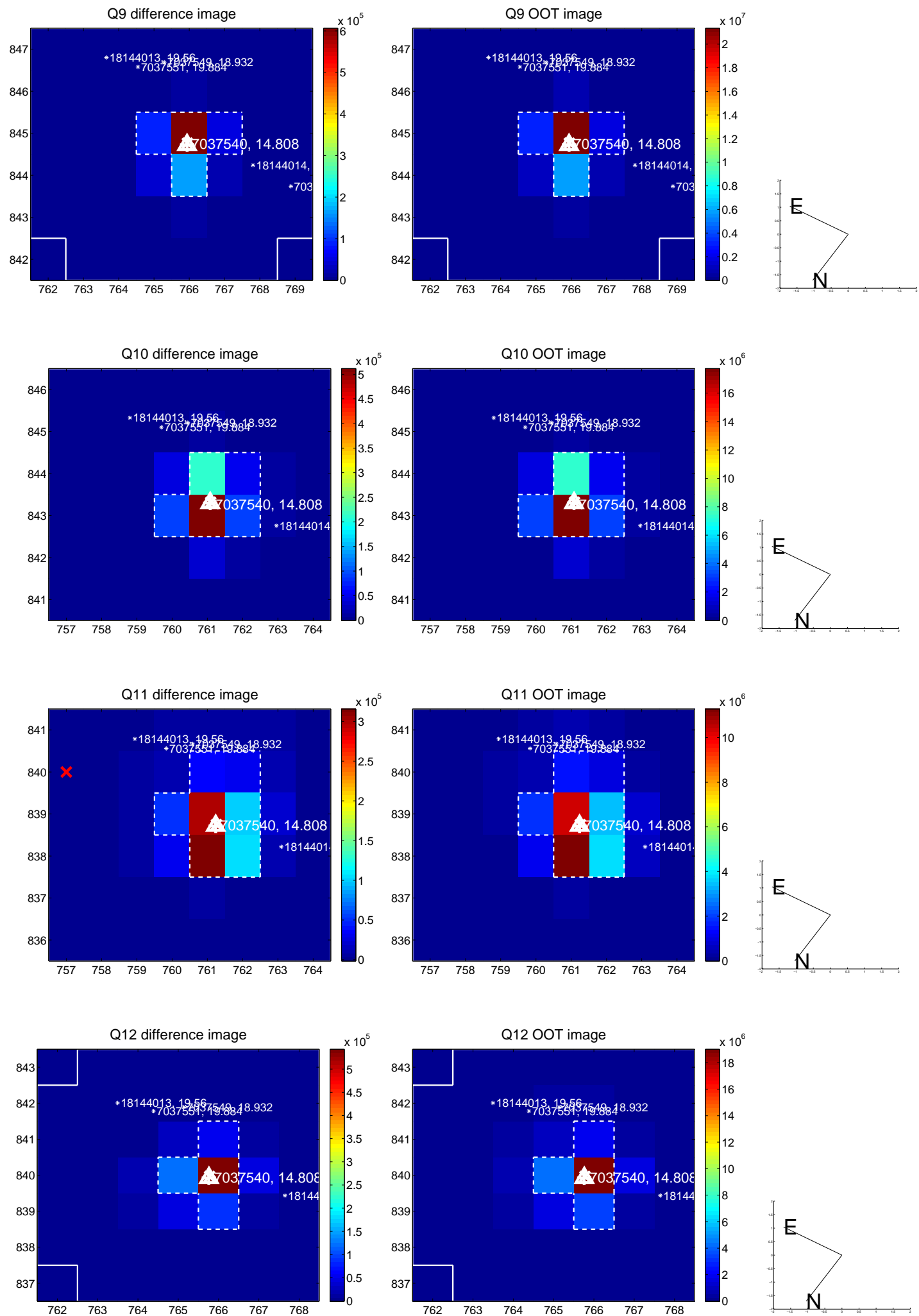
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



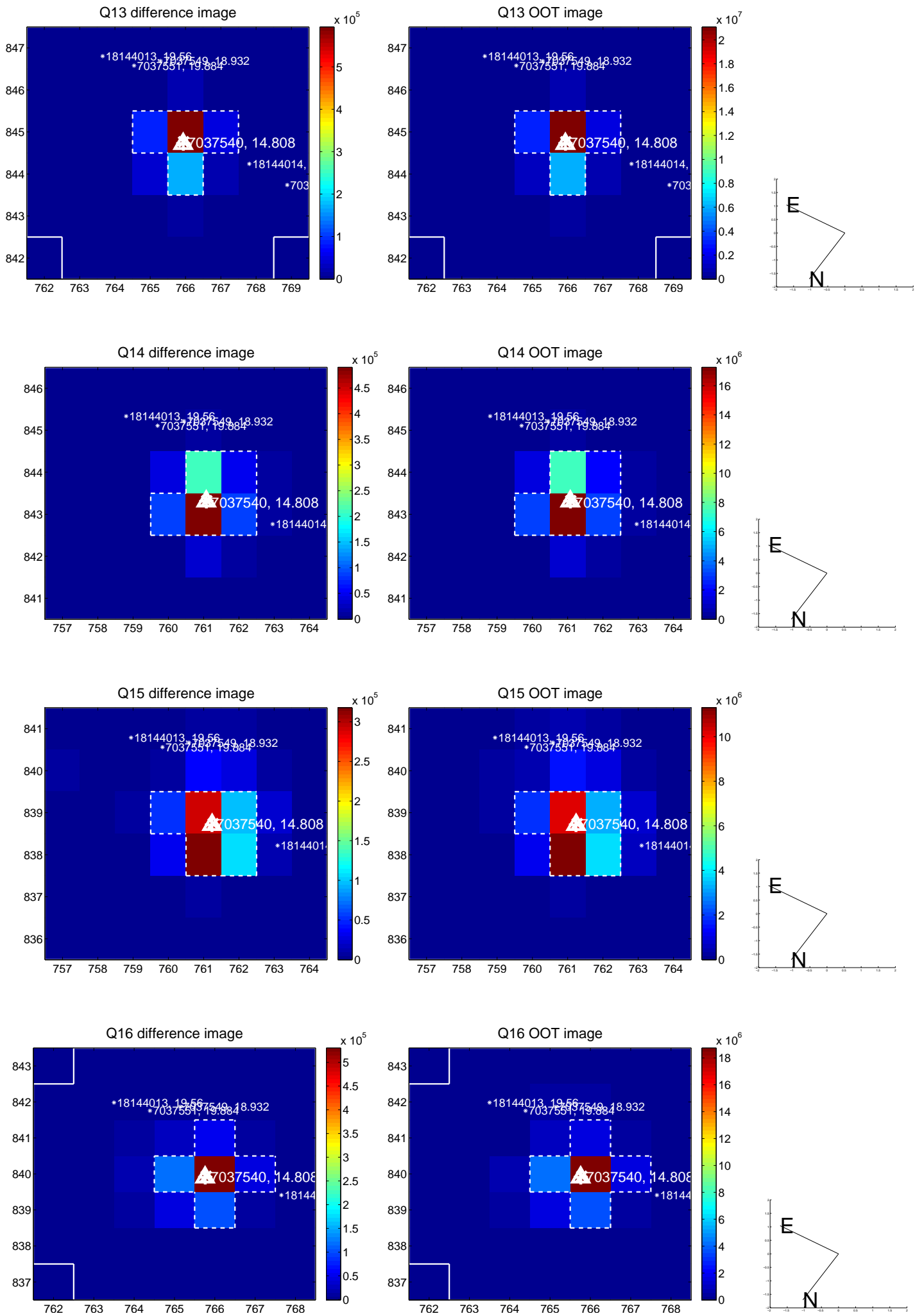
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



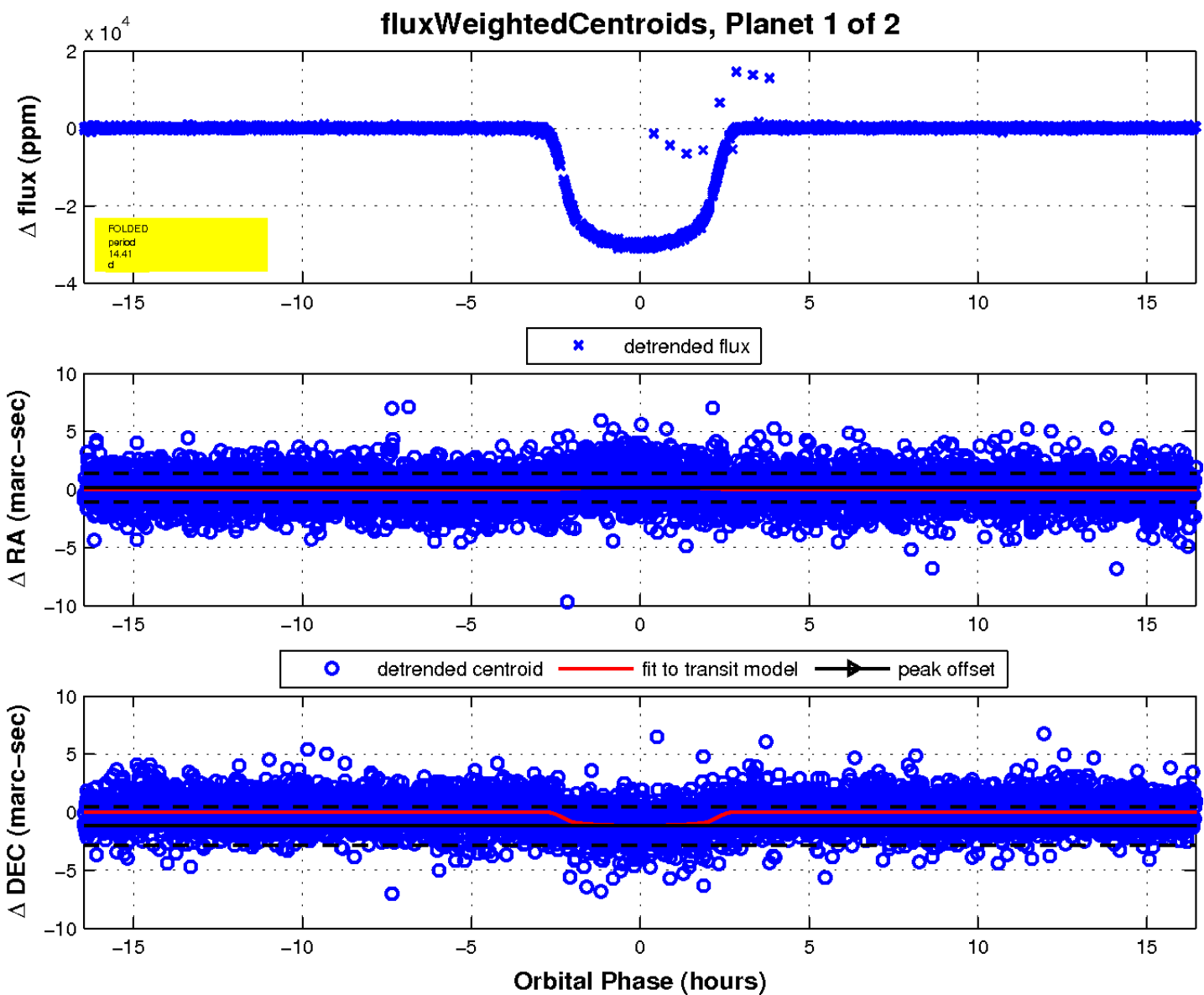
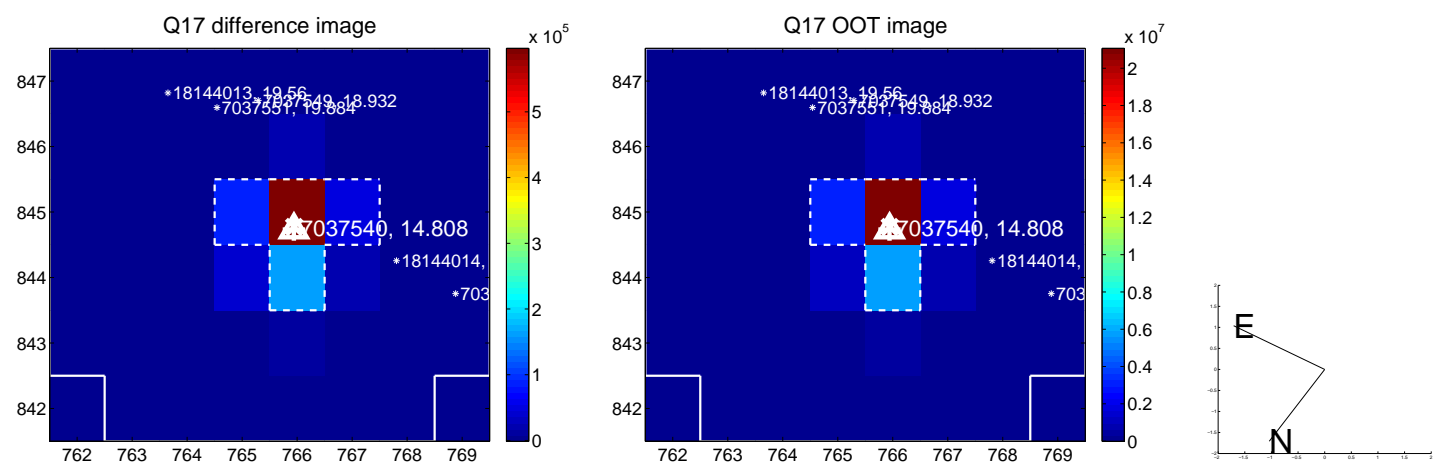
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

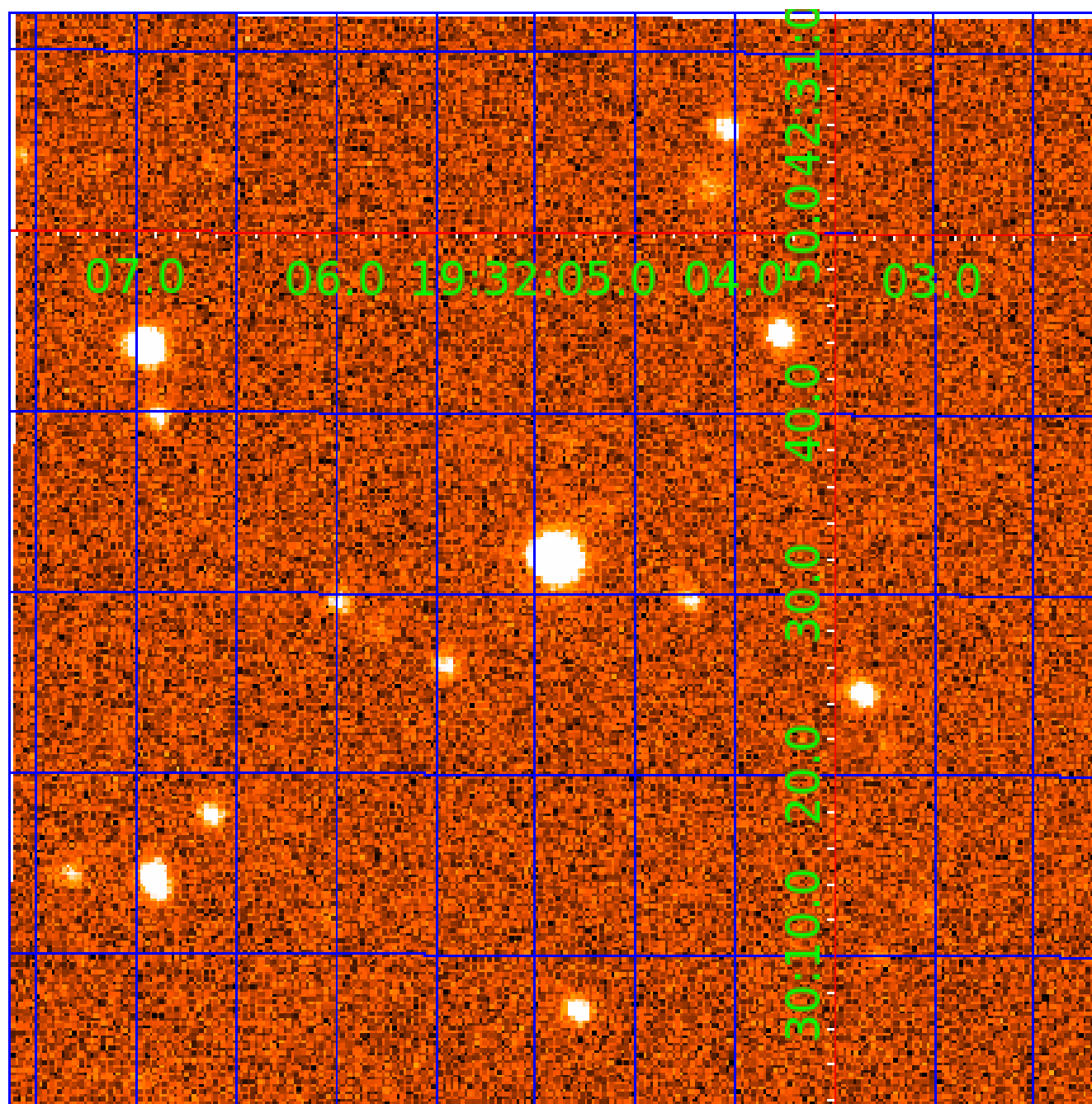


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007037540

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})
007037540-01	OBS	1347.01	14.405858	144.296842	30258.9	5.491	2348.2	2203.7	1.35	5945	23.32	147.28
007037540-02	OBS	No	14.405890	137.045948	549.7	5.510	42.0	45.4	1.35	5945	3.68	147.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007037540-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
007037540-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

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

Ephemeris Match Information For 007037540-02

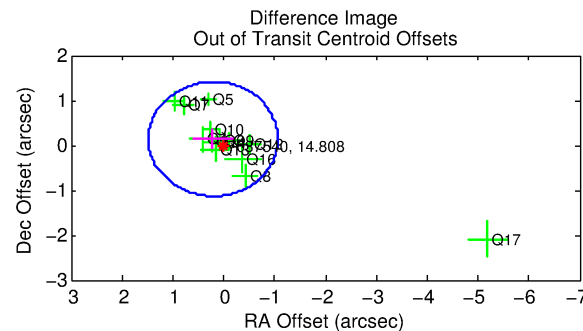
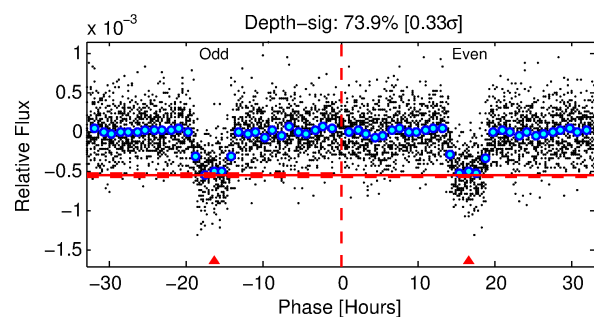
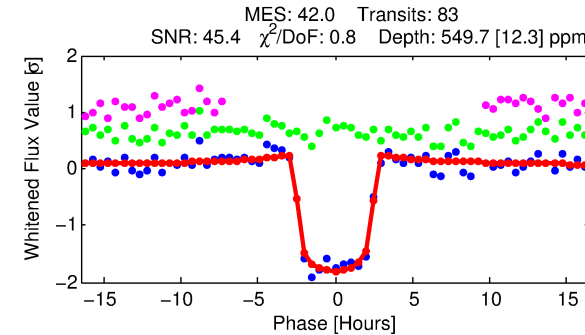
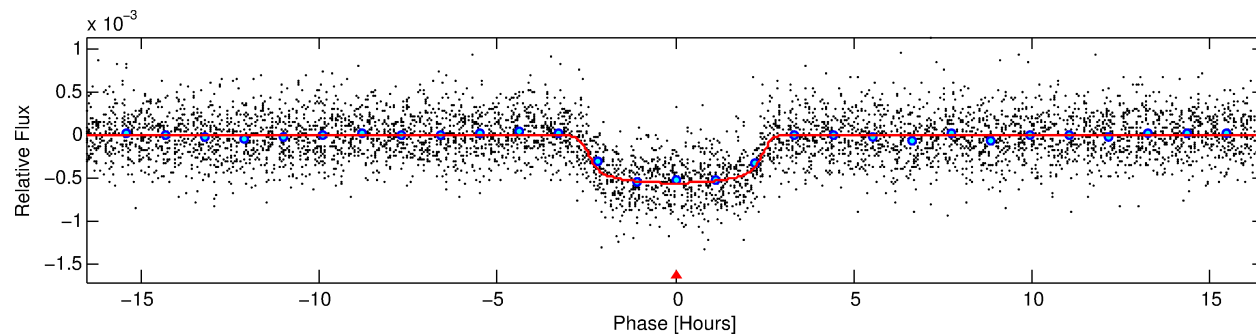
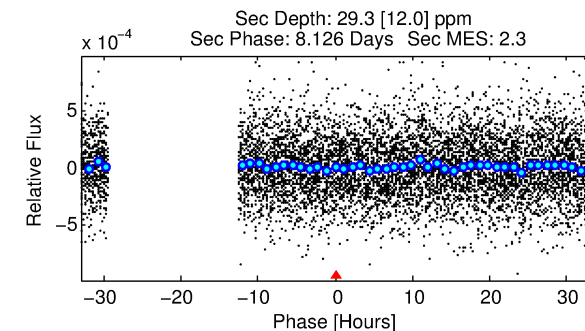
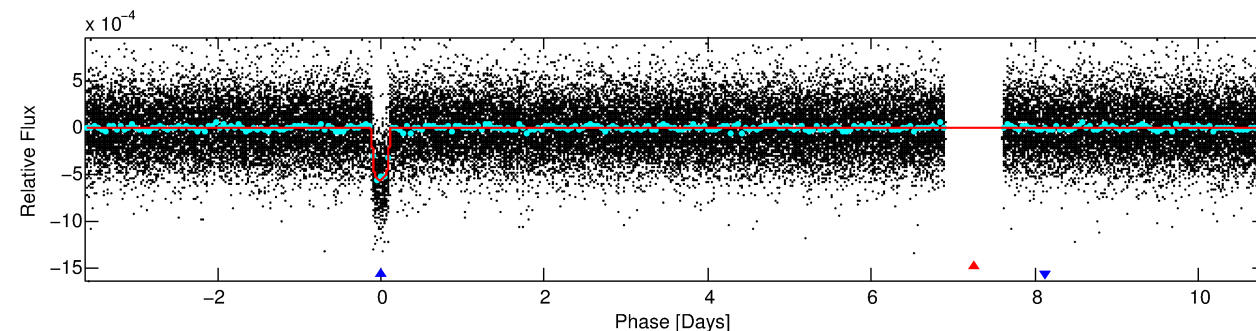
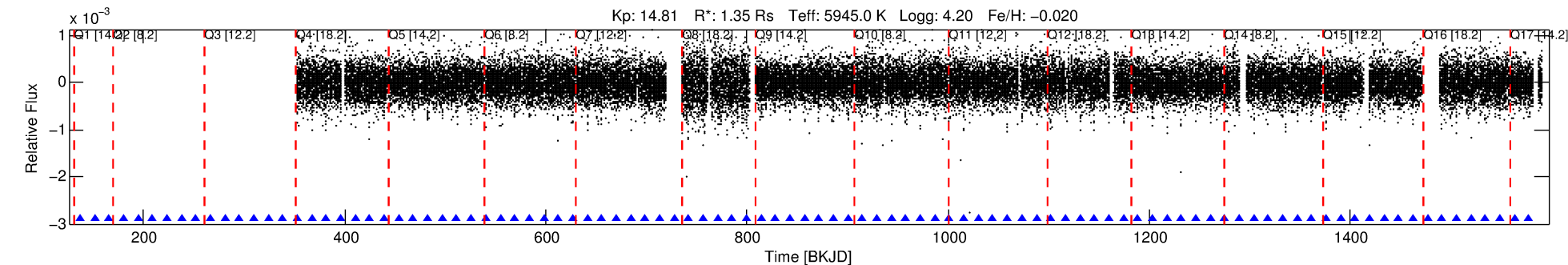
No Significant Match Found

DV One-Page Summary

KIC: 7037540 Candidate: 2 of 2 Period: 14.406 d

KOI: K01347 Corr: No Ephemeris Match

Kp: 14.81 R*: 1.35 Rs Teff: 5945.0 K Logg: 4.20 Fe/H: -0.020



DV Fit Results:

Period = 14.40589 [0.00005] d
Epoch = 137.0459 [0.0030] BKJD
Rp/R* = 0.0251 [0.0010]
a/R* = 10.39 [1.94]
b = 0.88 [0.05]
Seff = 147.28 [65.29]
Teff = 888 [98] K
Rp = 3.68 [1.04] Re
a = 0.1173 [0.0312] AU
Ag = 16.39 [9.72] [1.58σ]
Teffp = 2763 [304] K [5.87σ]

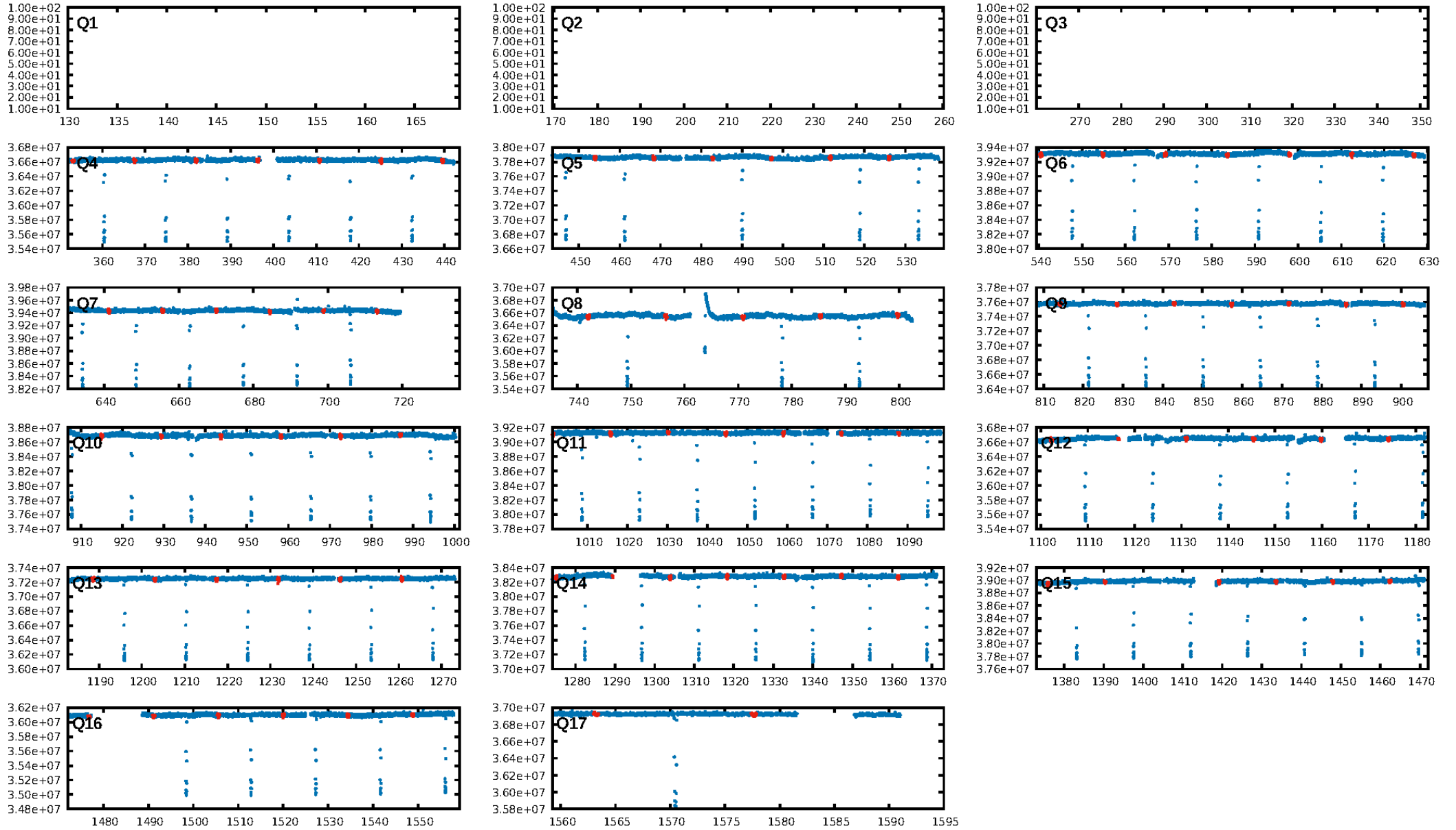
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 96.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [81/81]
GhostDiagnostic-chr: 6.082
Centroid-sig: 16.7%
Centroid-so: 0.369 arcsec [1.25σ]
OotOffset-rm: 0.250 arcsec [0.59σ]
KicOffset-rm: 0.314 arcsec [0.76σ]
OotOffset-st: 3/2/4/4 [13]
KicOffset-st: 3/2/4/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 1.00 [14/14]

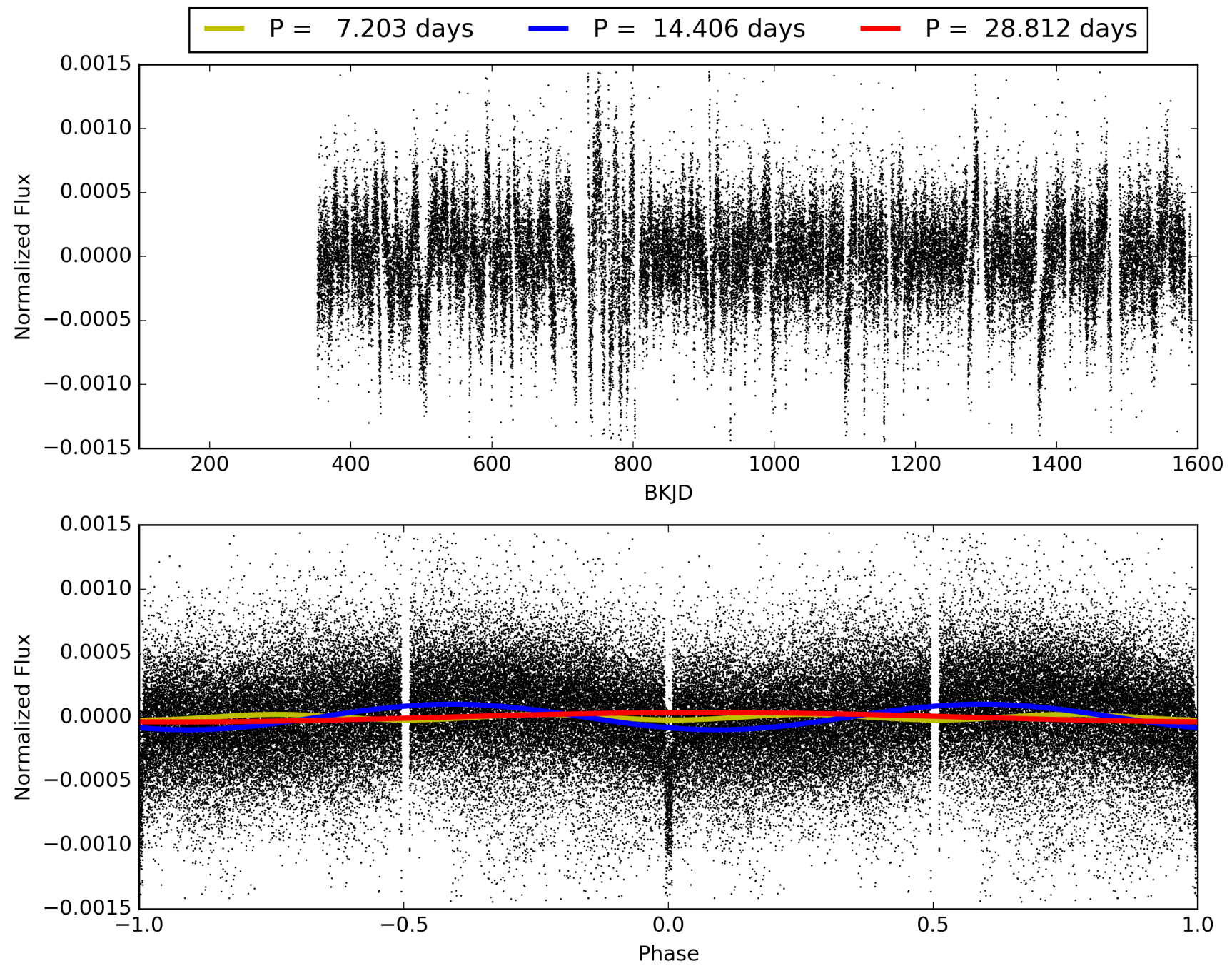
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:04:45 Z

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

TCE 007037540-02, PDC Light Curves

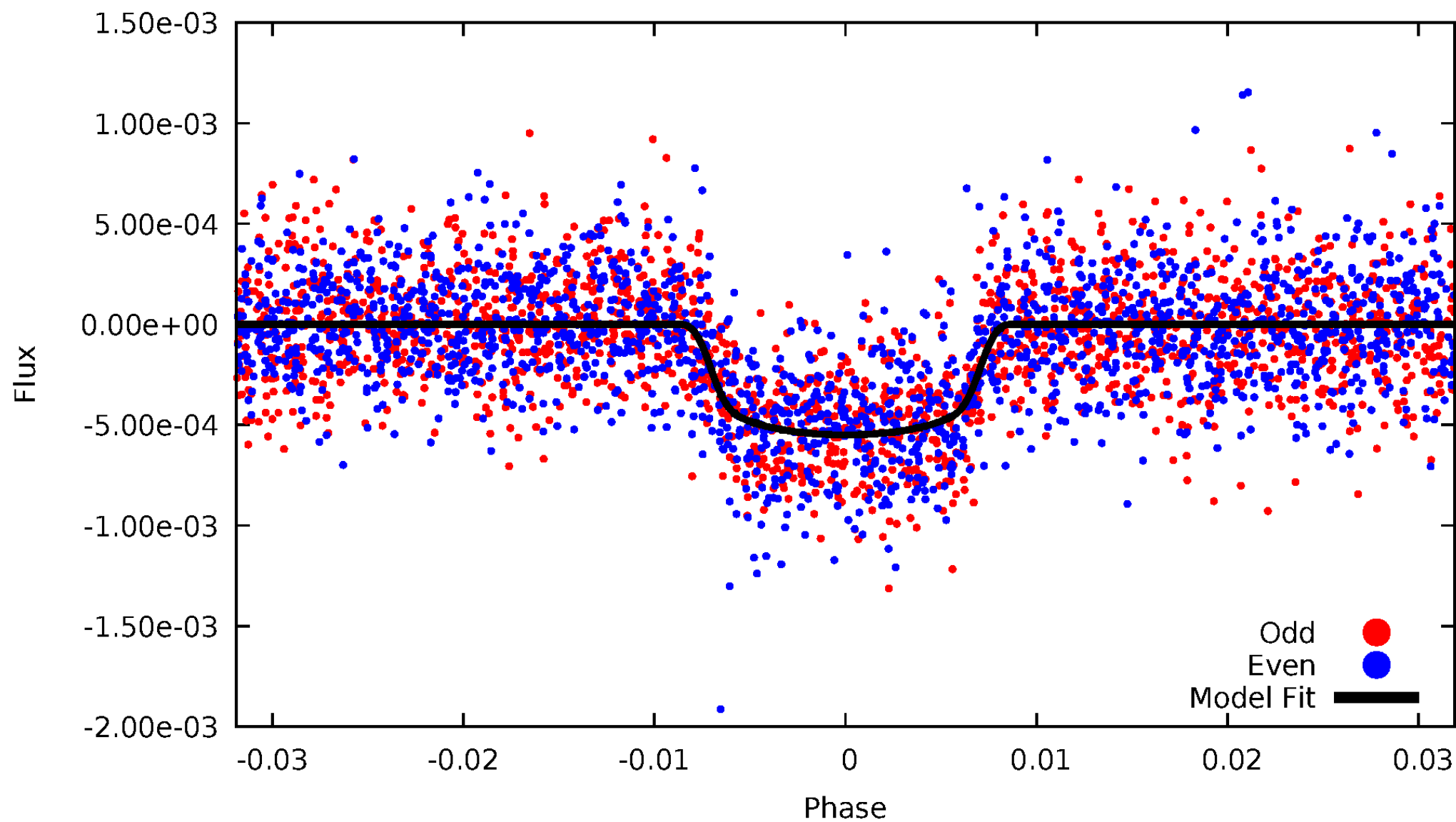


TCE 007037540-02



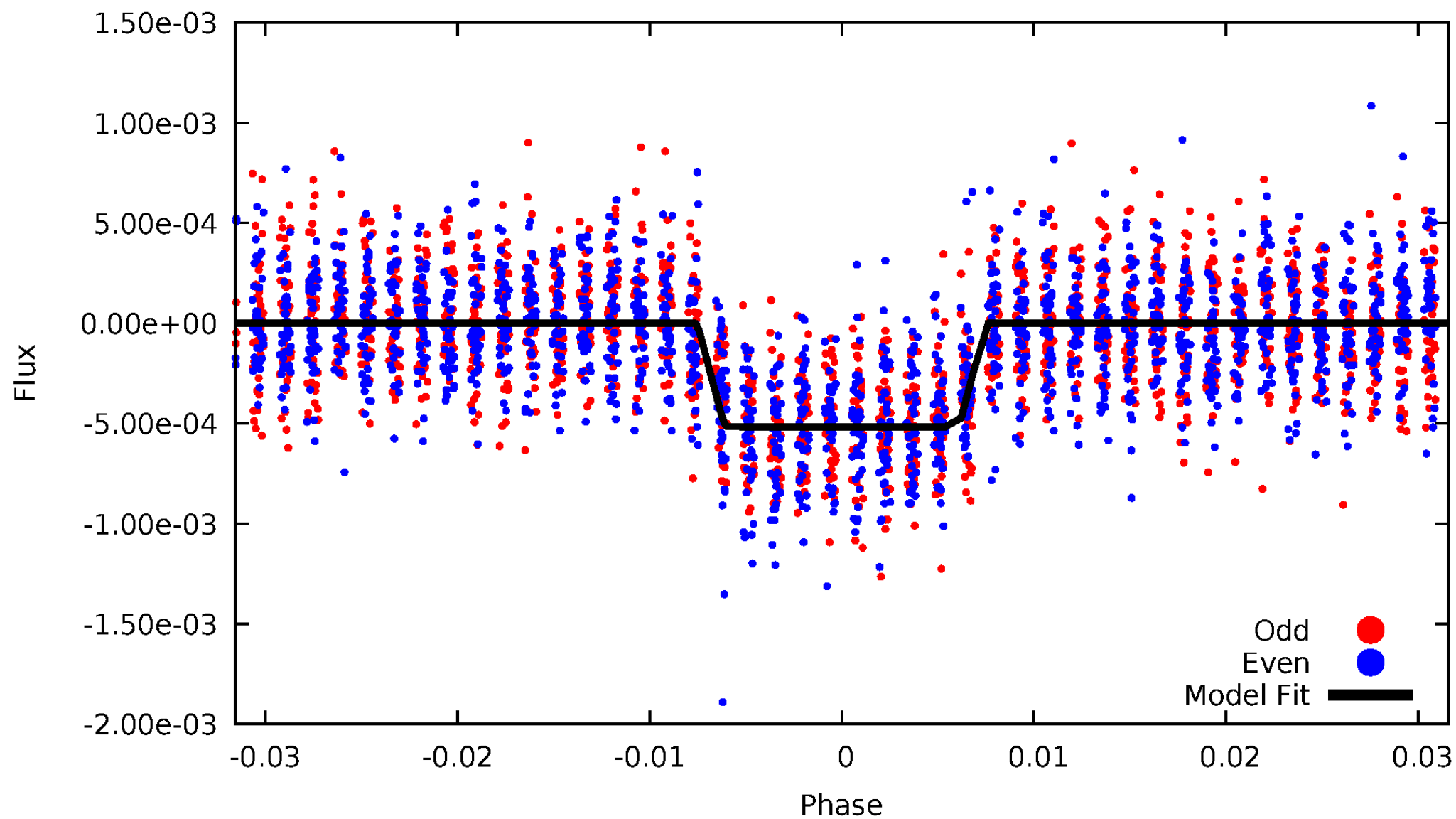
DV Odd/Even

TCE 007037540-02



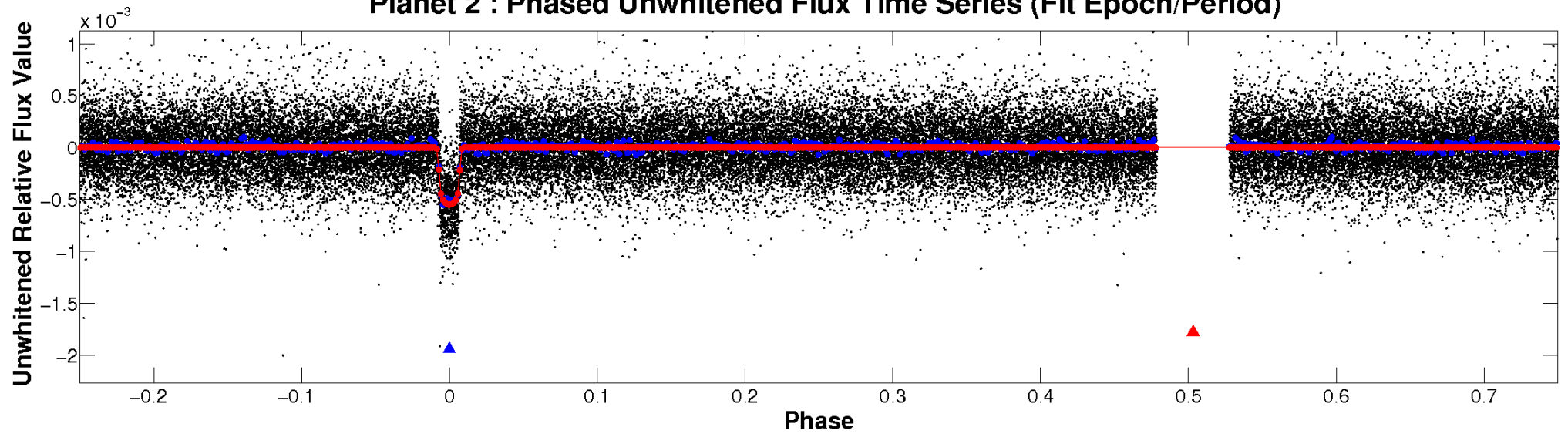
ALT Odd/Even

TCE 007037540-02

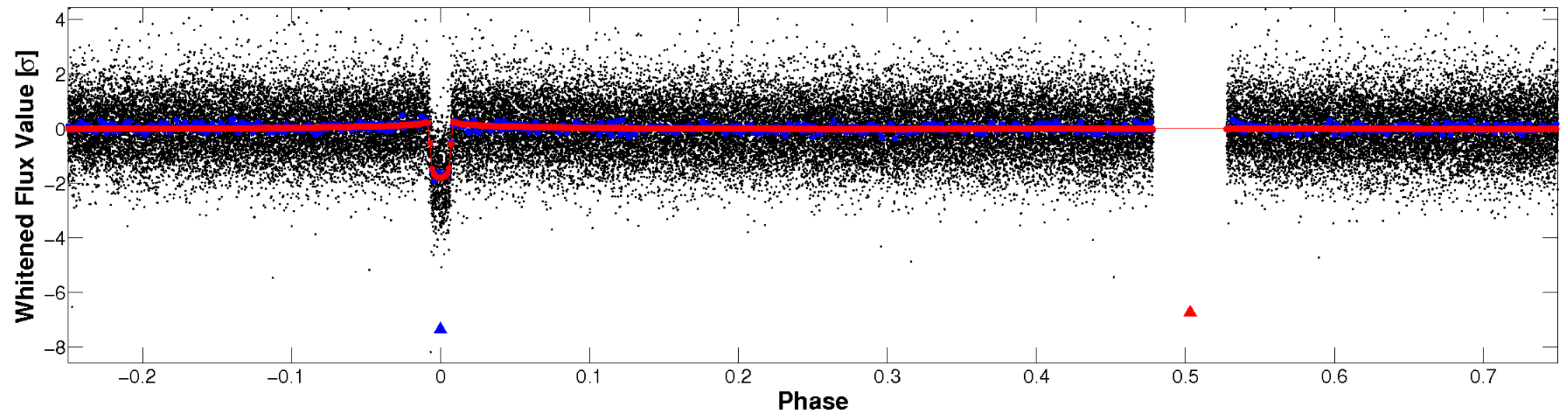


Non-Whitened Vs. Whitened Light Curve

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

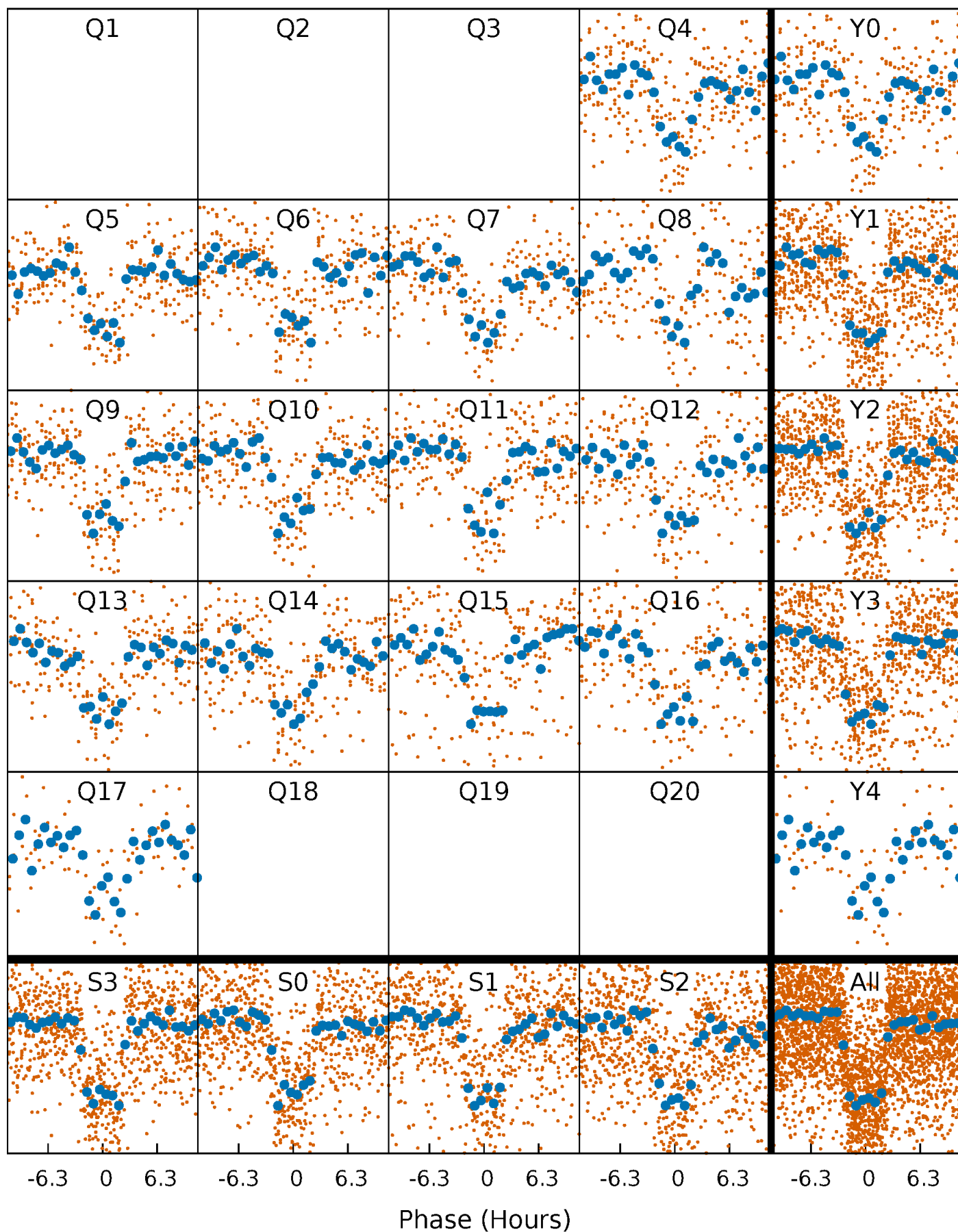


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



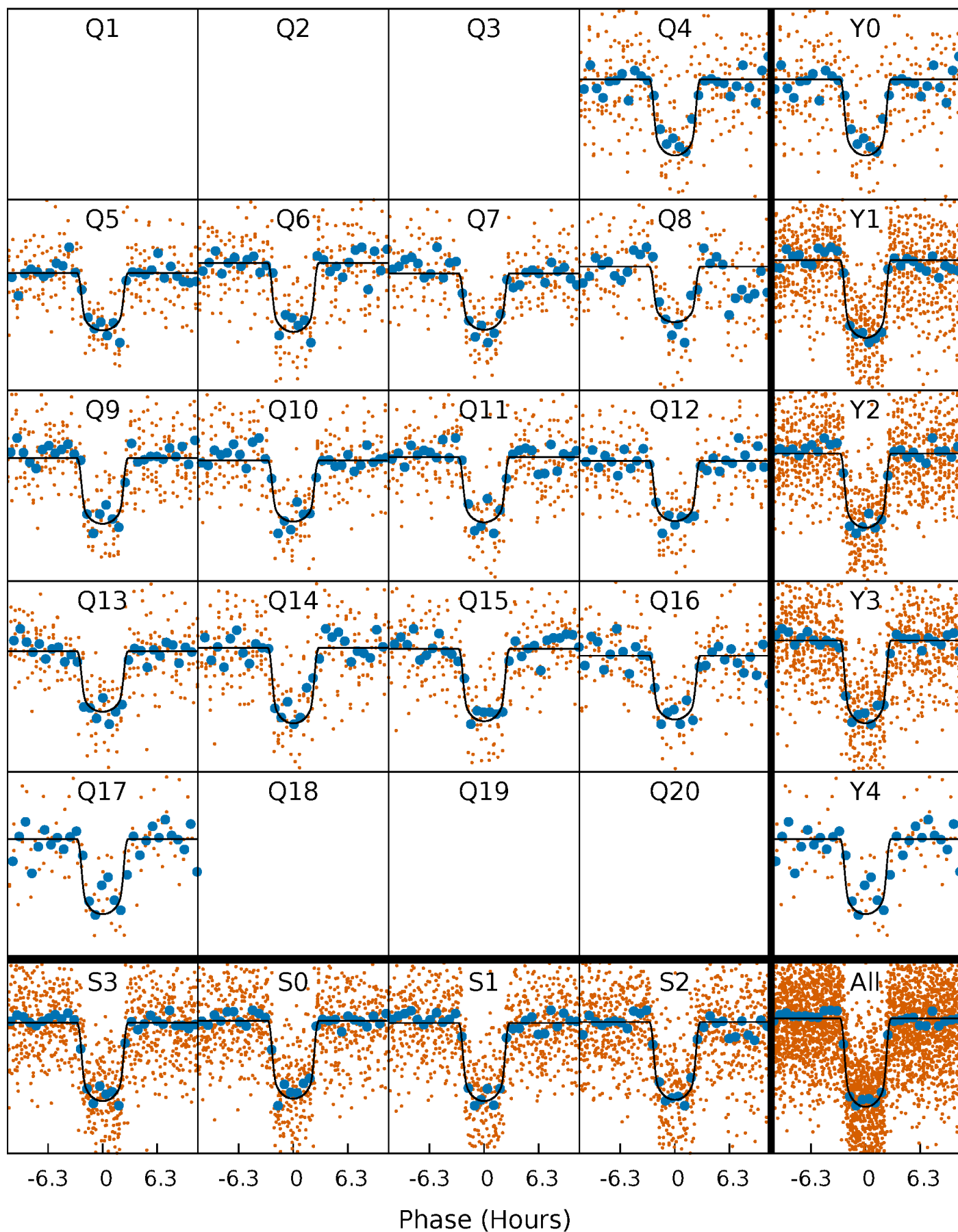
PDC Quarter-Phased Transit Curves

TCE 007037540-02 P= 14.405890 Days $T_0=137.045948$ (BKJD)



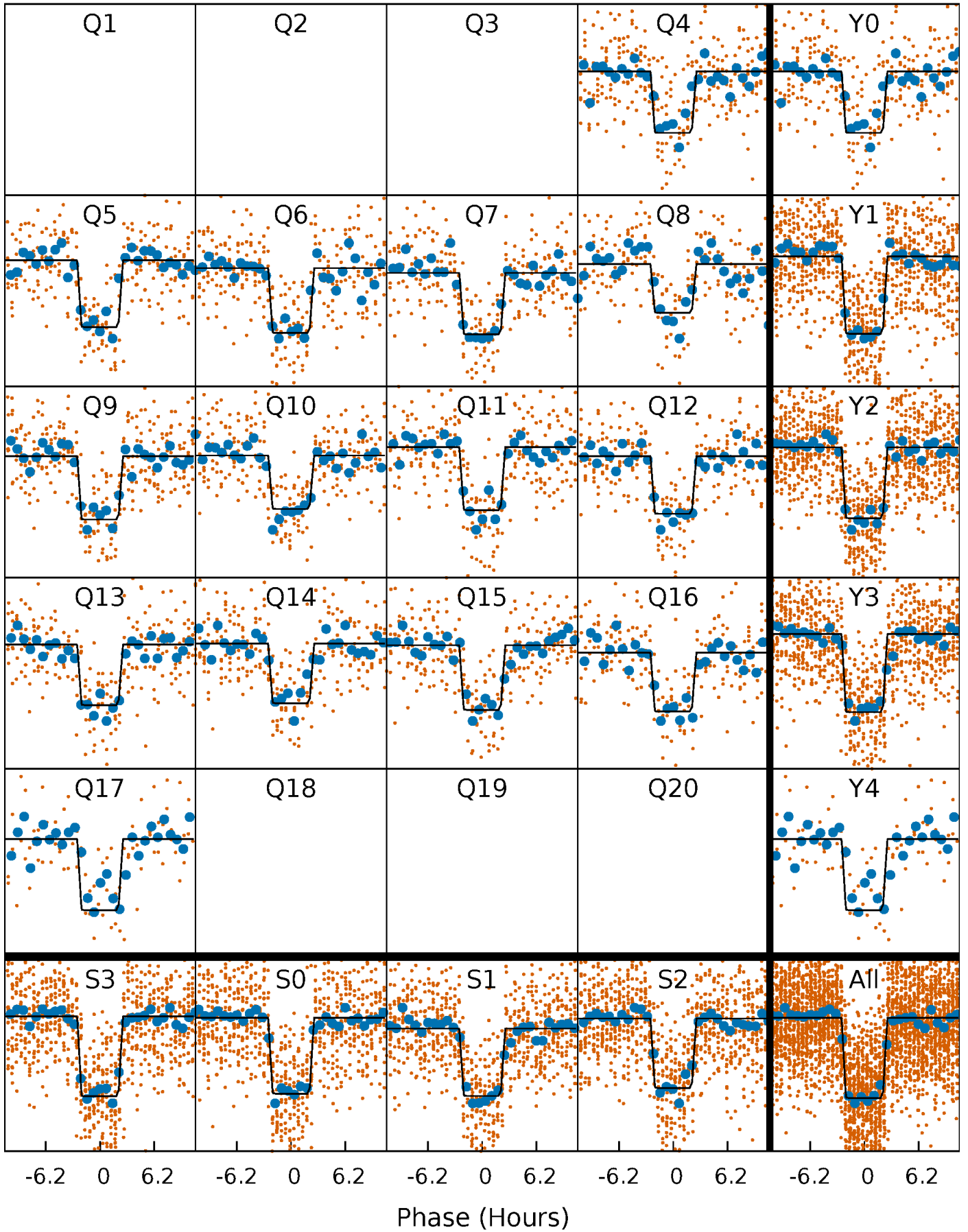
DV Quarter-Phased Transit Curves

TCE 007037540-02 P= 14.405890 Days $T_0=137.045948$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

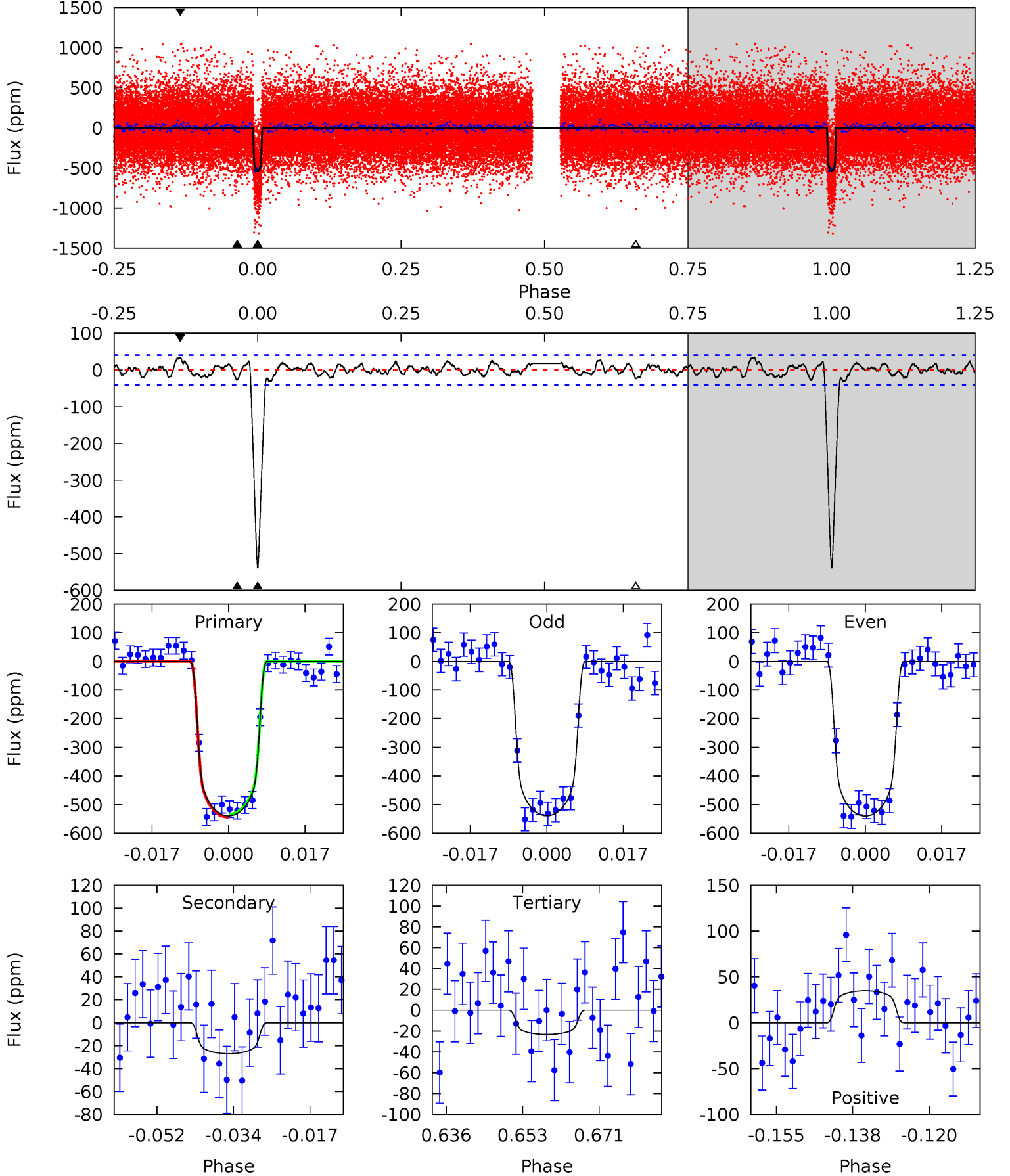
TCE 007037540-02 P= 14.405640 Days $T_0=137.060206$ (BKJD)



DV Model-Shift Uniqueness Test

007037540-02, P = 14.405890 Days, E = 137.045948 Days

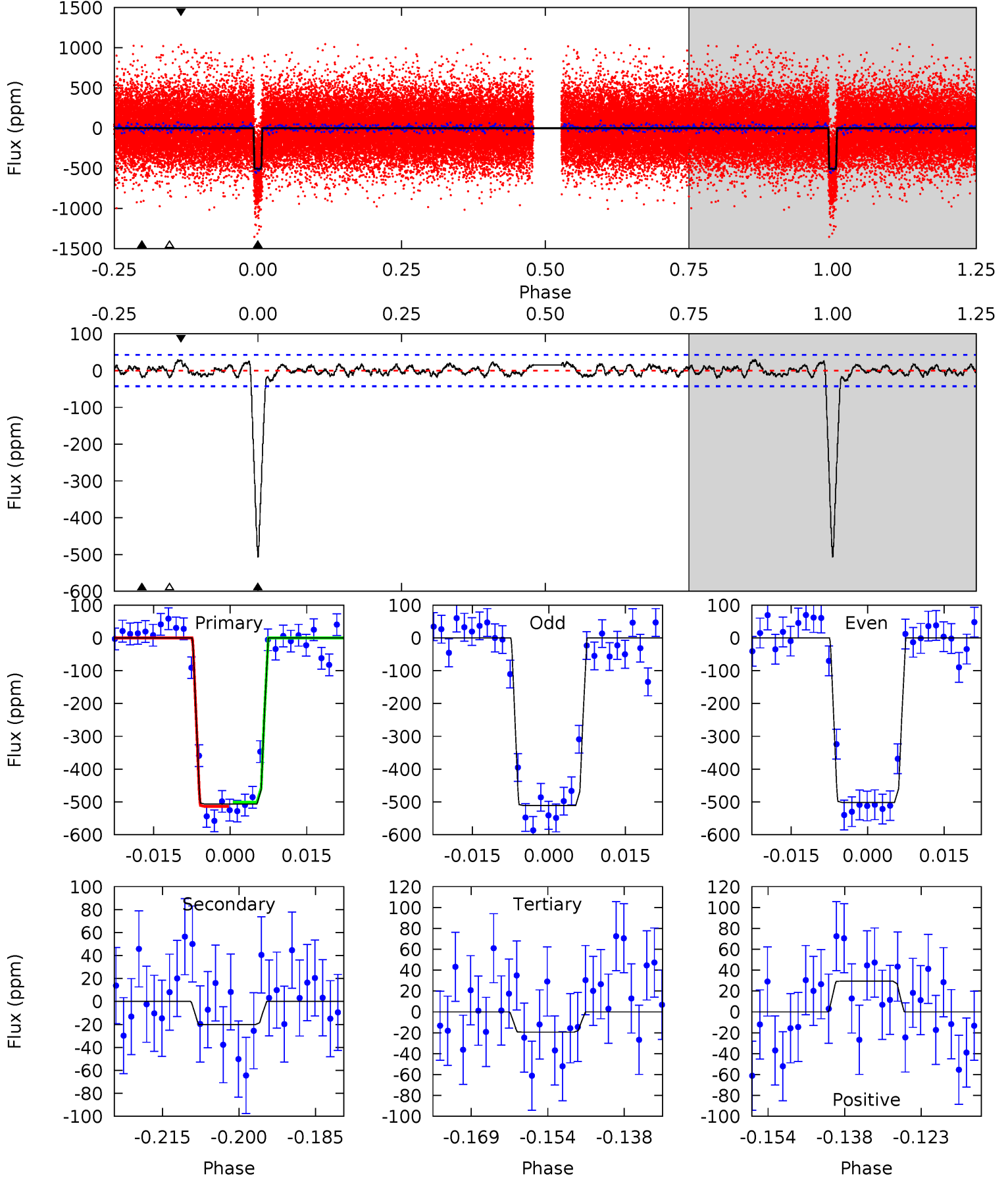
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.1	3.30	2.85	4.26	4.92	2.38	1.41	63.2	61.8	0.45	-0.96	0.06	0.99	0.06	0.58



Alt Model-Shift Uniqueness Test

007037540-02, P = 14.405640 Days, E = 137.060206 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
58.8	2.34	2.25	3.42	4.94	2.42	1.20	56.5	55.4	0.09	-1.07	0.56	0.98	0.05	0.77



Stellar Parameters For KIC 007037540

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5945^{+184}_{-205}	$4.196^{+0.246}_{-0.164}$	$-0.020^{+0.250}_{-0.300}$	$1.346^{+0.377}_{-0.377}$	$1.039^{+0.152}_{-0.138}$	$0.600^{+0.772}_{-0.296}$
	+3%/-3%	+6%/-4%	+1250%/-1500%	+28%/-28%	+15%/-13%	+129%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007037540-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-27 ± 8	$3.64^{+0.56}_{-0.51}$	1230^{+100}_{-96}	3262^{+169}_{-189}	15^{+8}_{-6}
Alt.	-20 ± 9	$3.32^{+0.54}_{-0.53}$	1230^{+93}_{-100}	3211^{+189}_{-284}	14^{+9}_{-7}

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

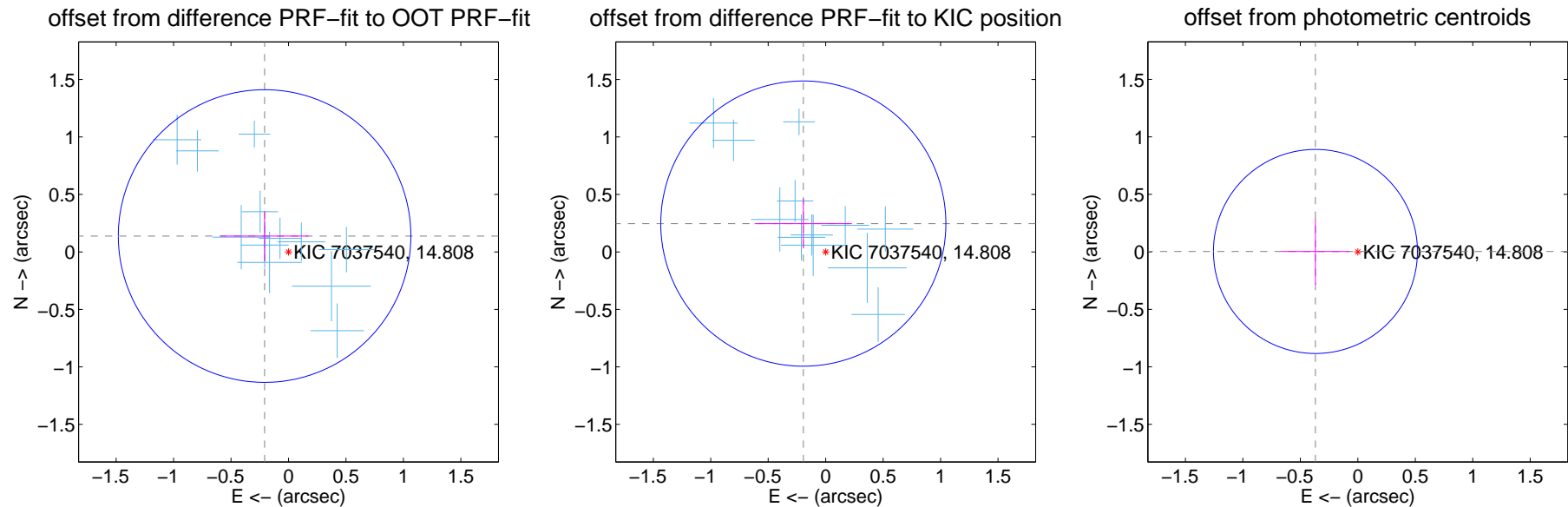
DV Centroid Data

Supplemental centroid analysis for 007037540-02. Kepler magnitude: 14.81. Transit SNR 45.39

There are 12 quarters with good PRF difference image offsets

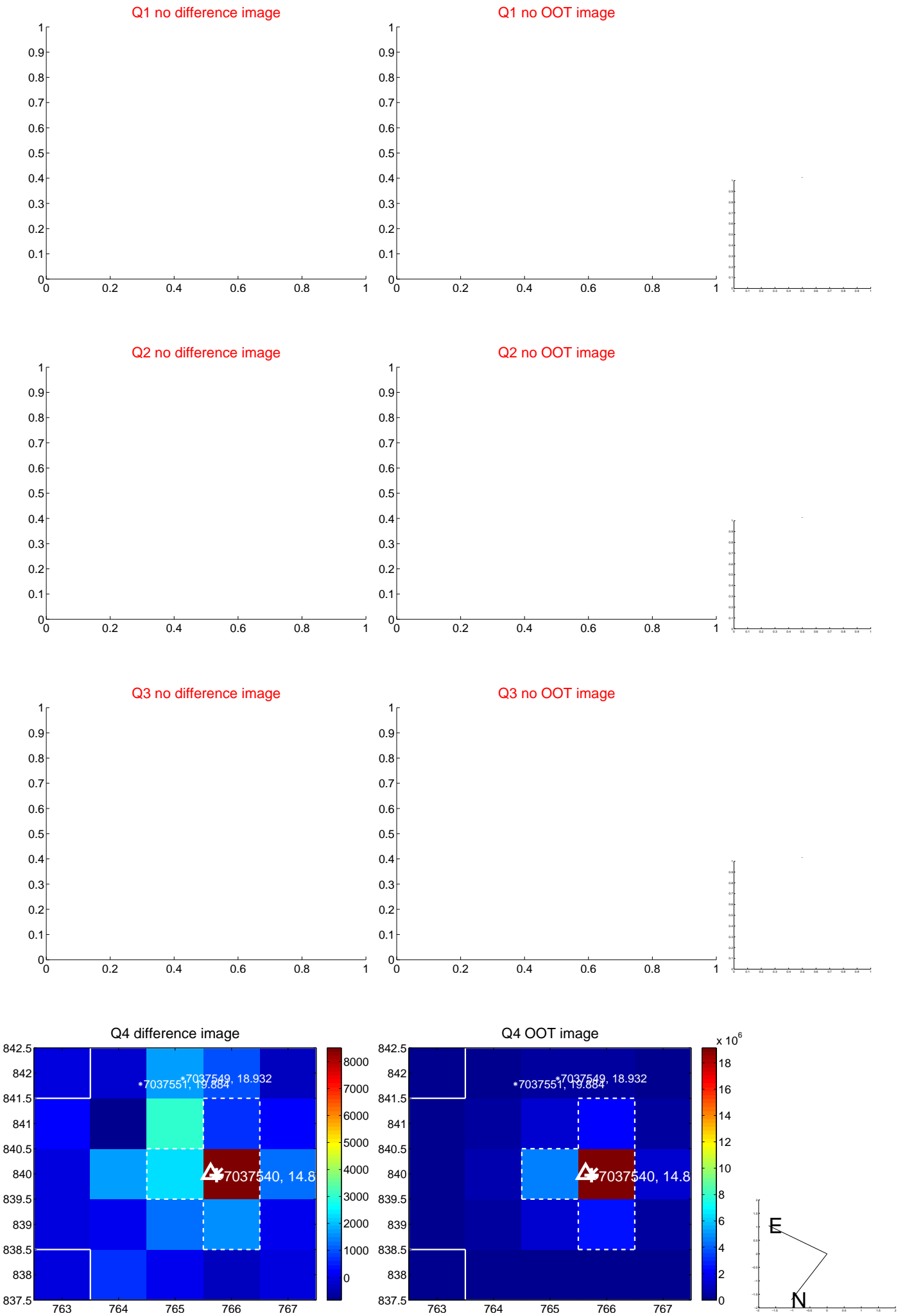
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.250 ± 0.424	0.59	0.208 ± 0.383	0.138 ± 0.217
PRF-fit source offset from KIC position	0.314 ± 0.414	0.76	0.194 ± 0.423	0.246 ± 0.216
photometric centroid source offset	0.37 ± 0.30	1.25	0.37 ± 0.30	0.00 ± 0.29

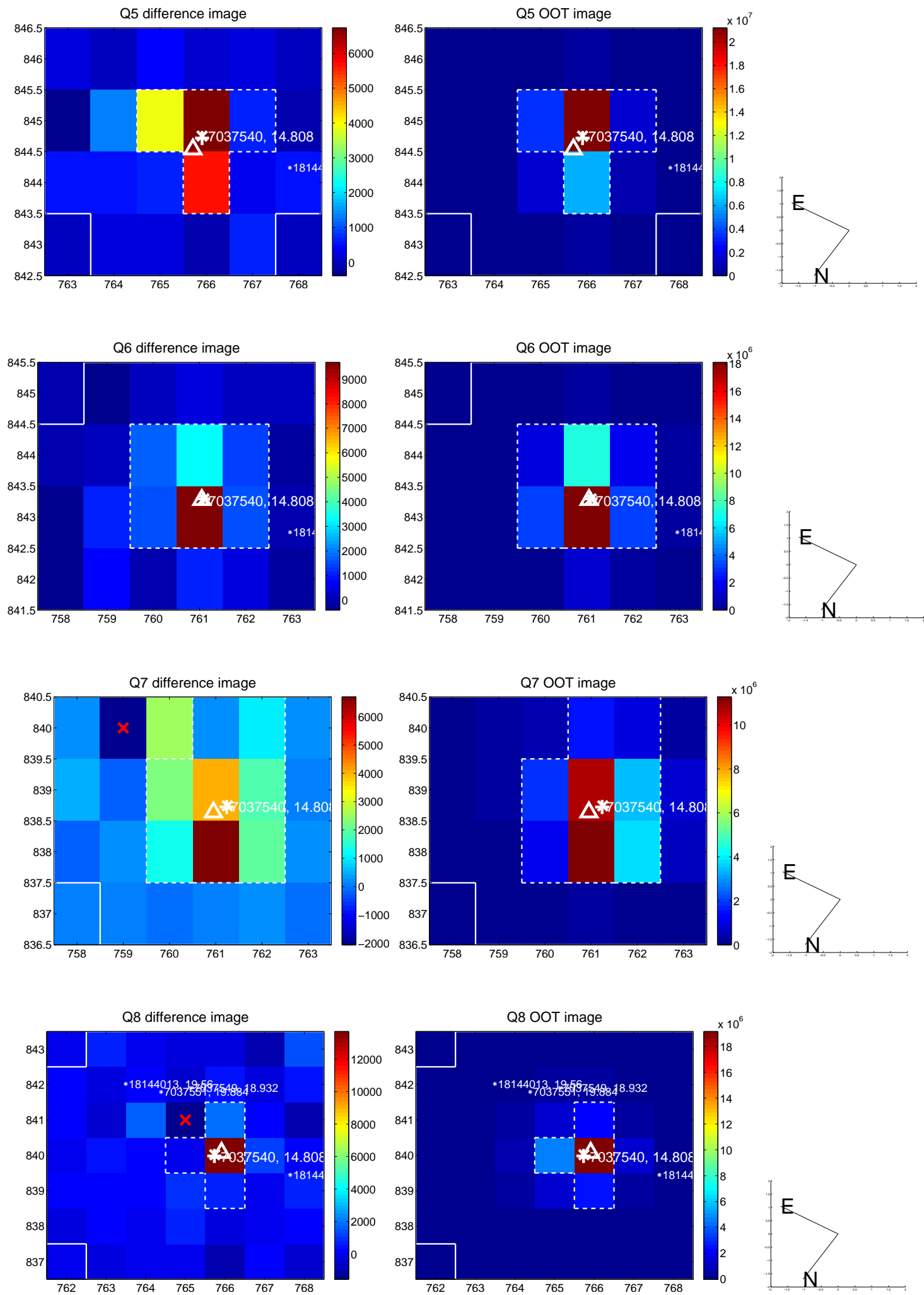


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

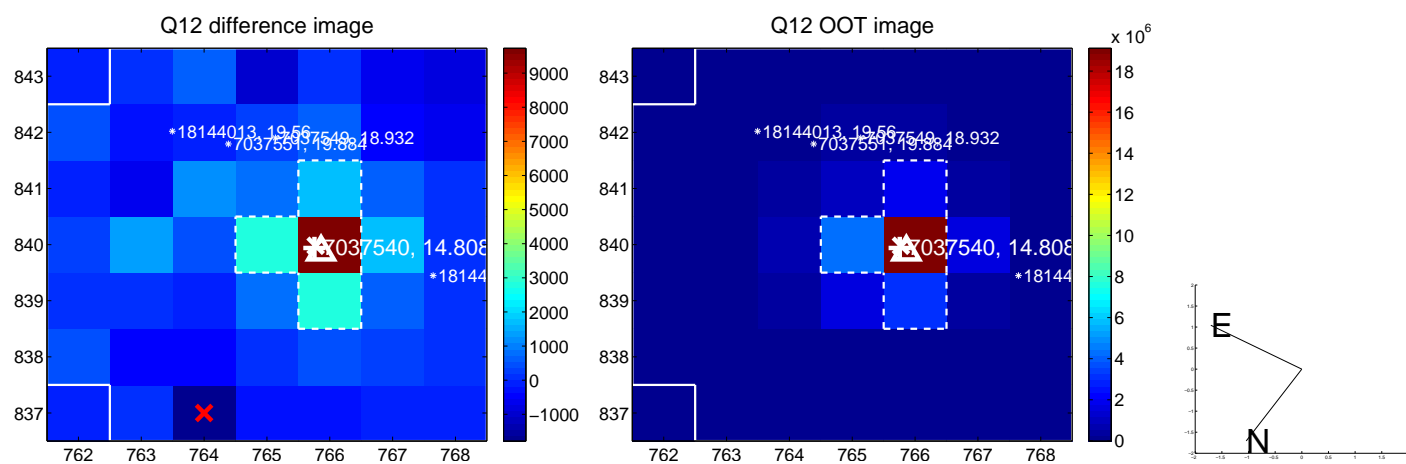
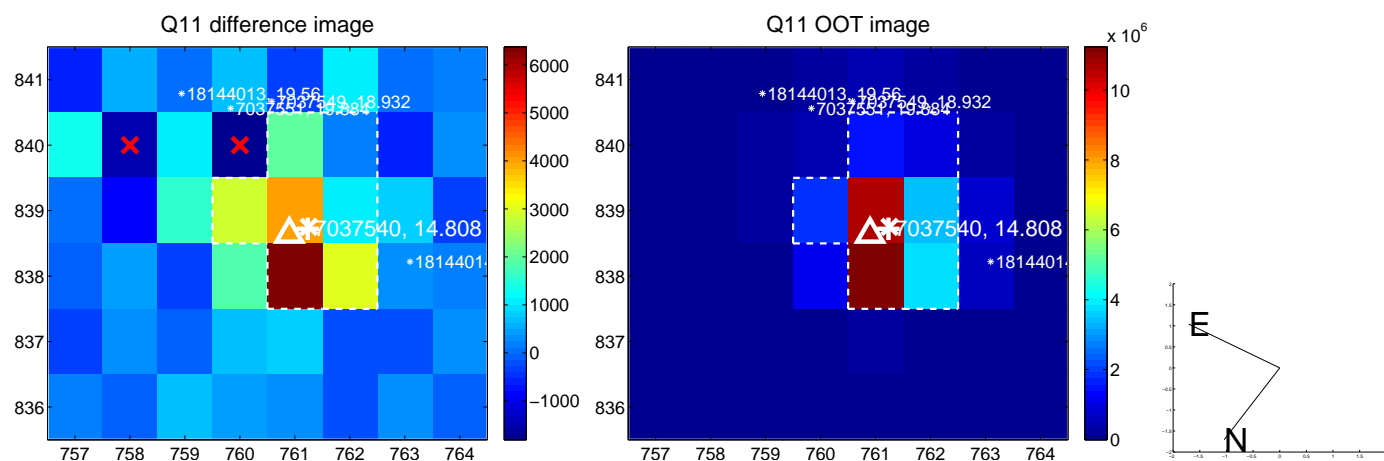
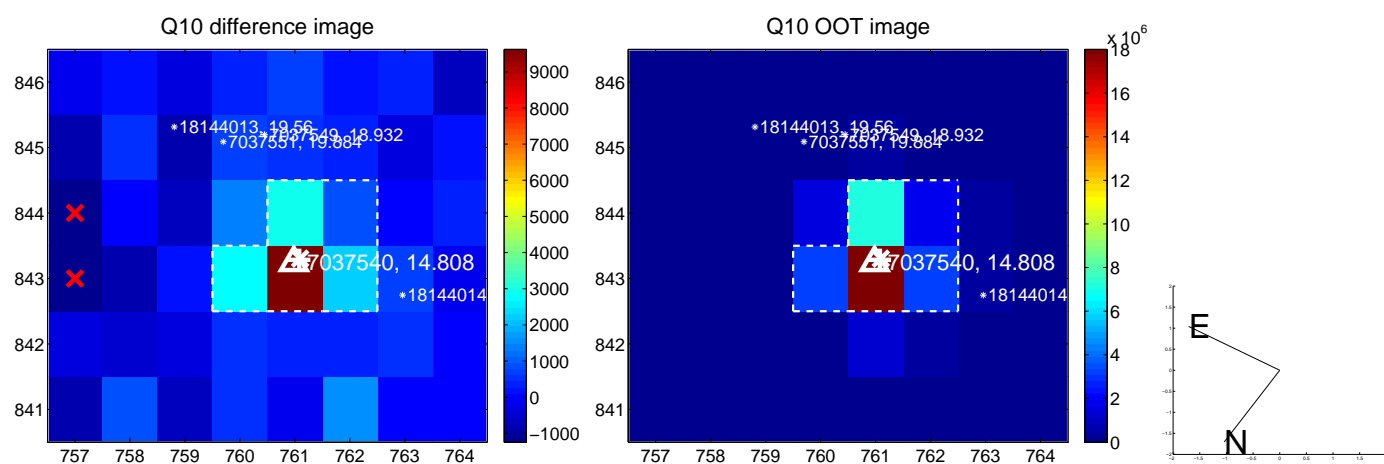
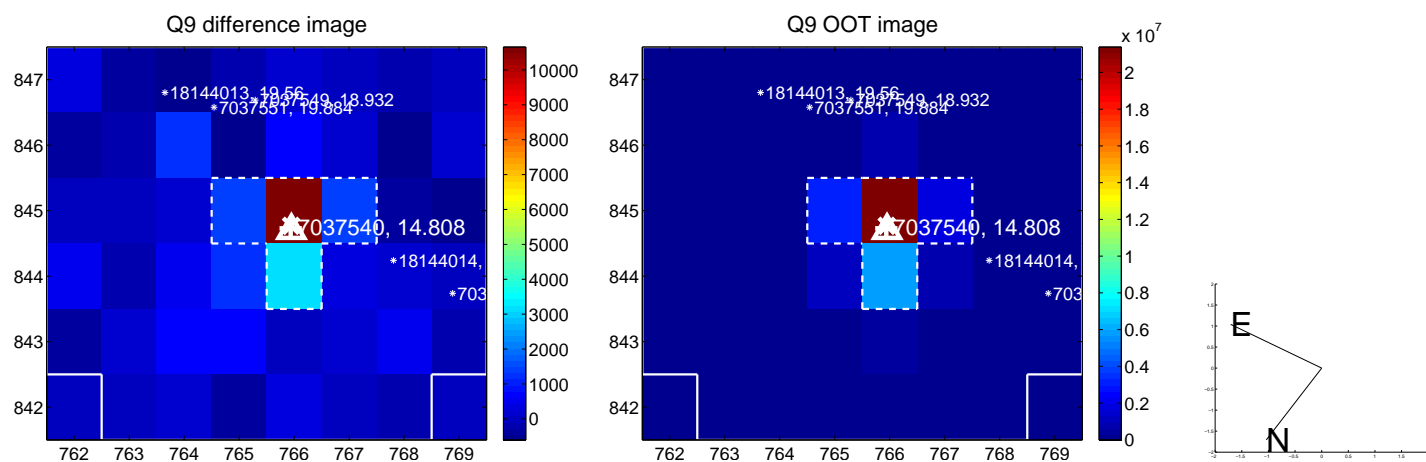
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



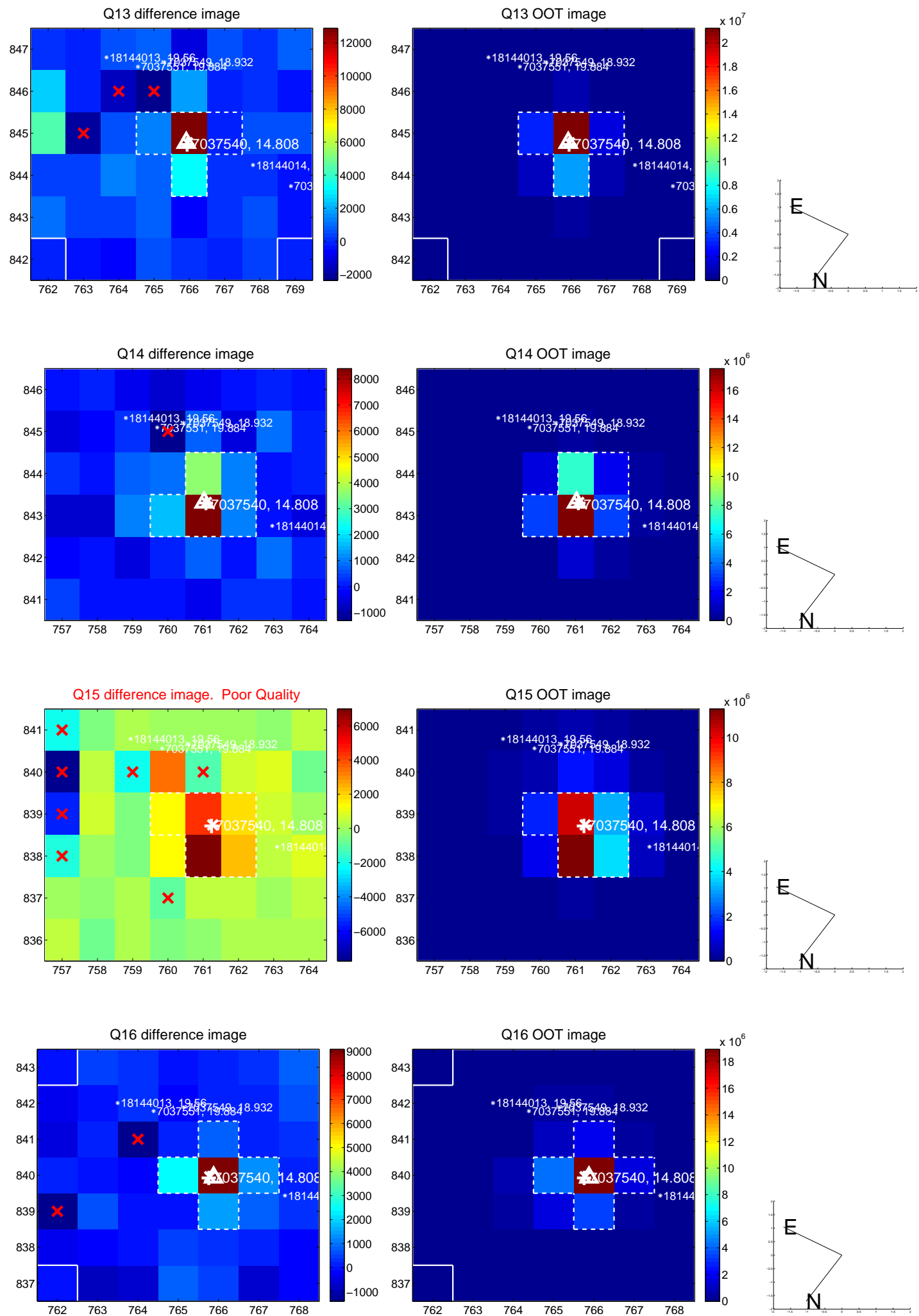
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



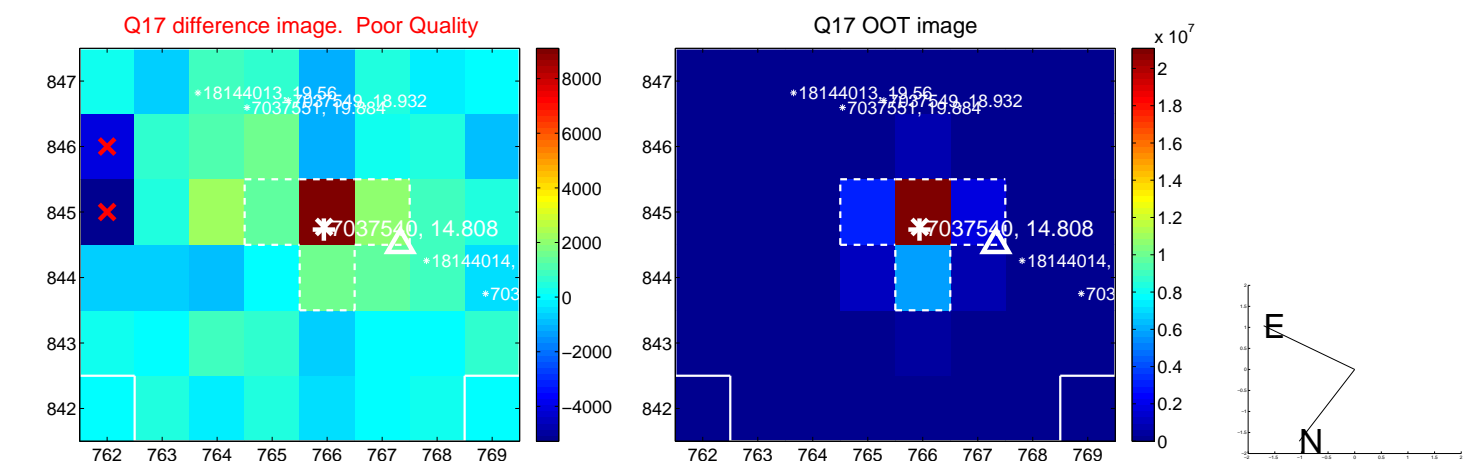
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



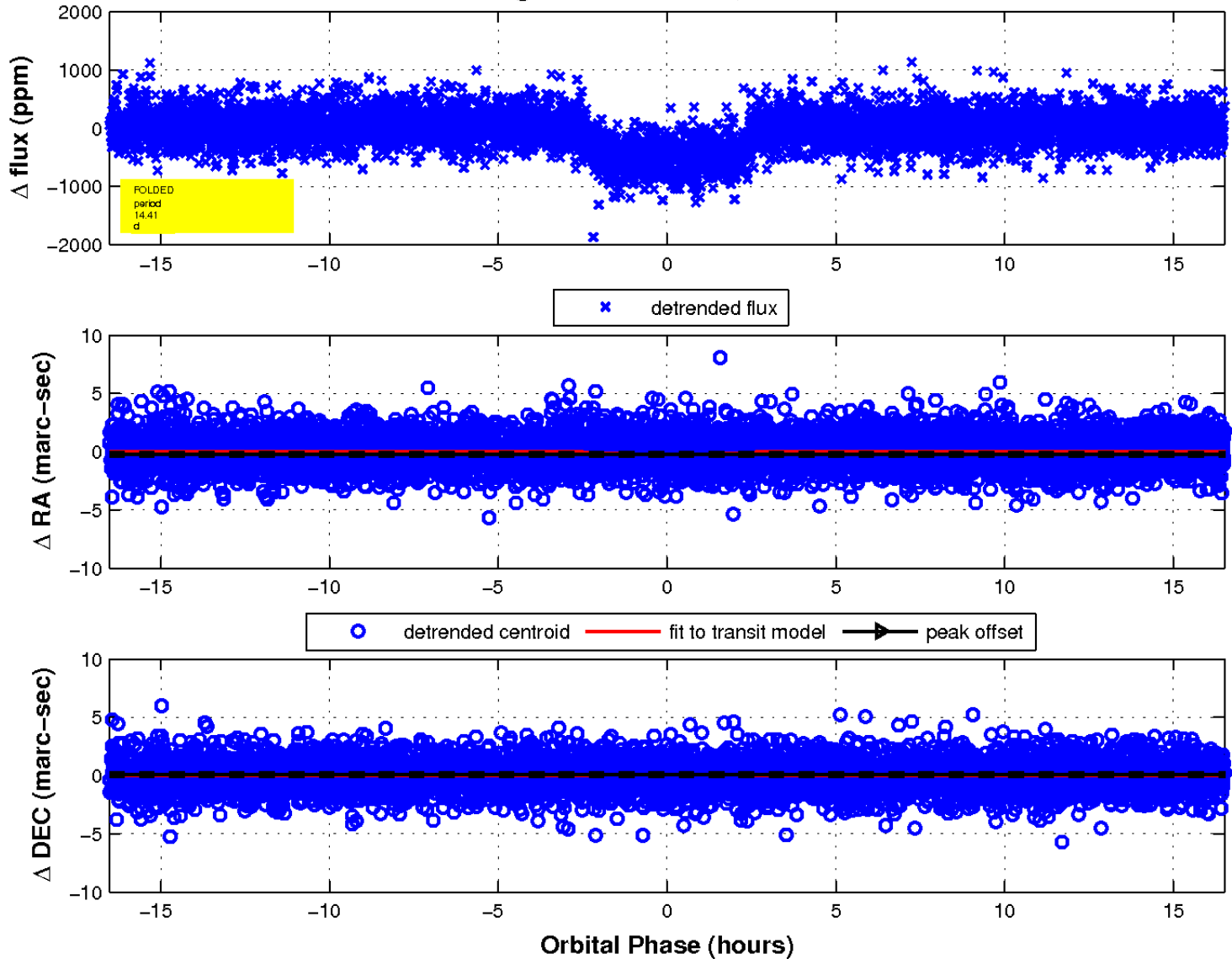
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

