

KIC 002865774

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})
002865774-01	OBS	No	208.377522	323.202965	193.2	3.232	8.1	7.9	1.62	5814	2.66	5.57
002865774-02	OBS	No	446.807772	312.036327	188.5	6.050	7.5	7.6	1.62	5814	2.46	2.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002865774-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
002865774-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

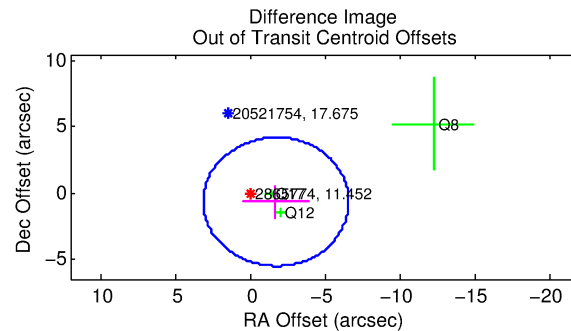
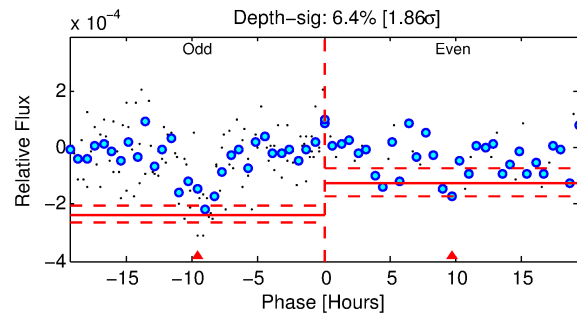
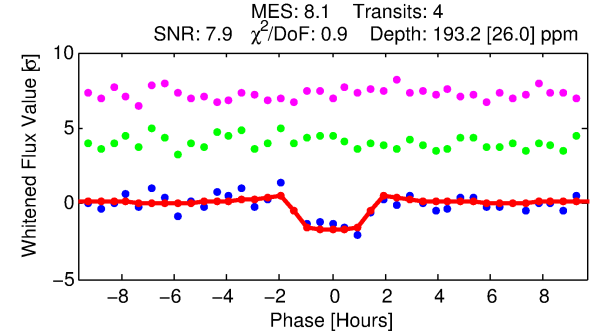
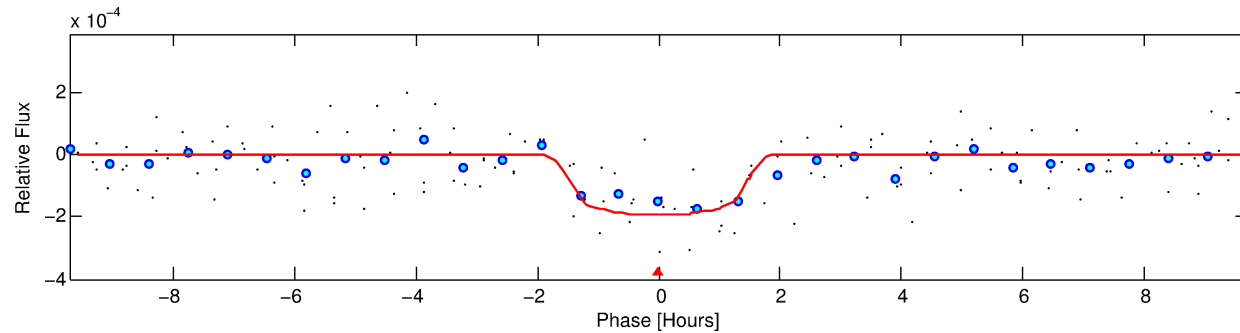
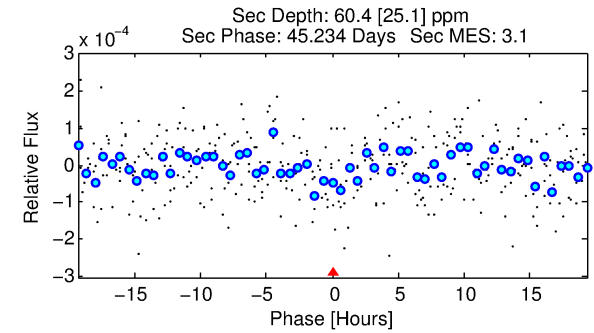
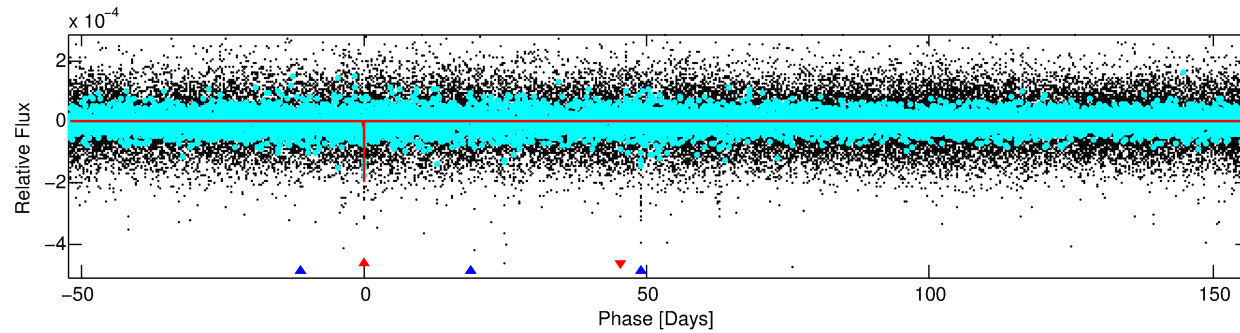
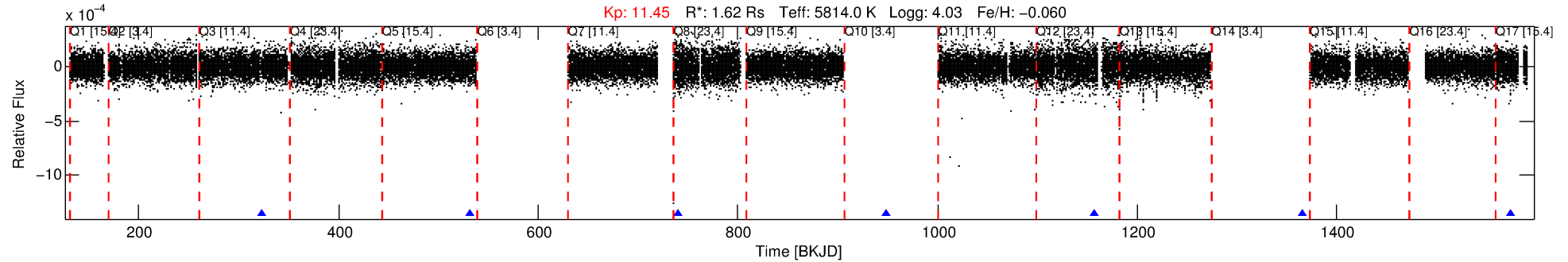
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002865774-01

No Significant Match Found

DV One-Page Summary

KIC: 2865774 Candidate: 1 of 2 Period: 208.378 d



DV Fit Results:

Period = 208.37752 [0.00172] d
Epoch = 323.2030 [0.0067] BKJD
Rp/R* = 0.0150 [0.0100]
a/R* = 239.41 [774.16]
b = 0.89 [0.76]
Seff = 5.57 [0.44]
Teq = 392 [8] K
Rp = 2.66 [1.77] Re
a = 0.6969 [0.0285] AU
Ag = 2287.50 [3188.48] [0.72σ]
Teffp = 4188 [1460] K [2.60σ]

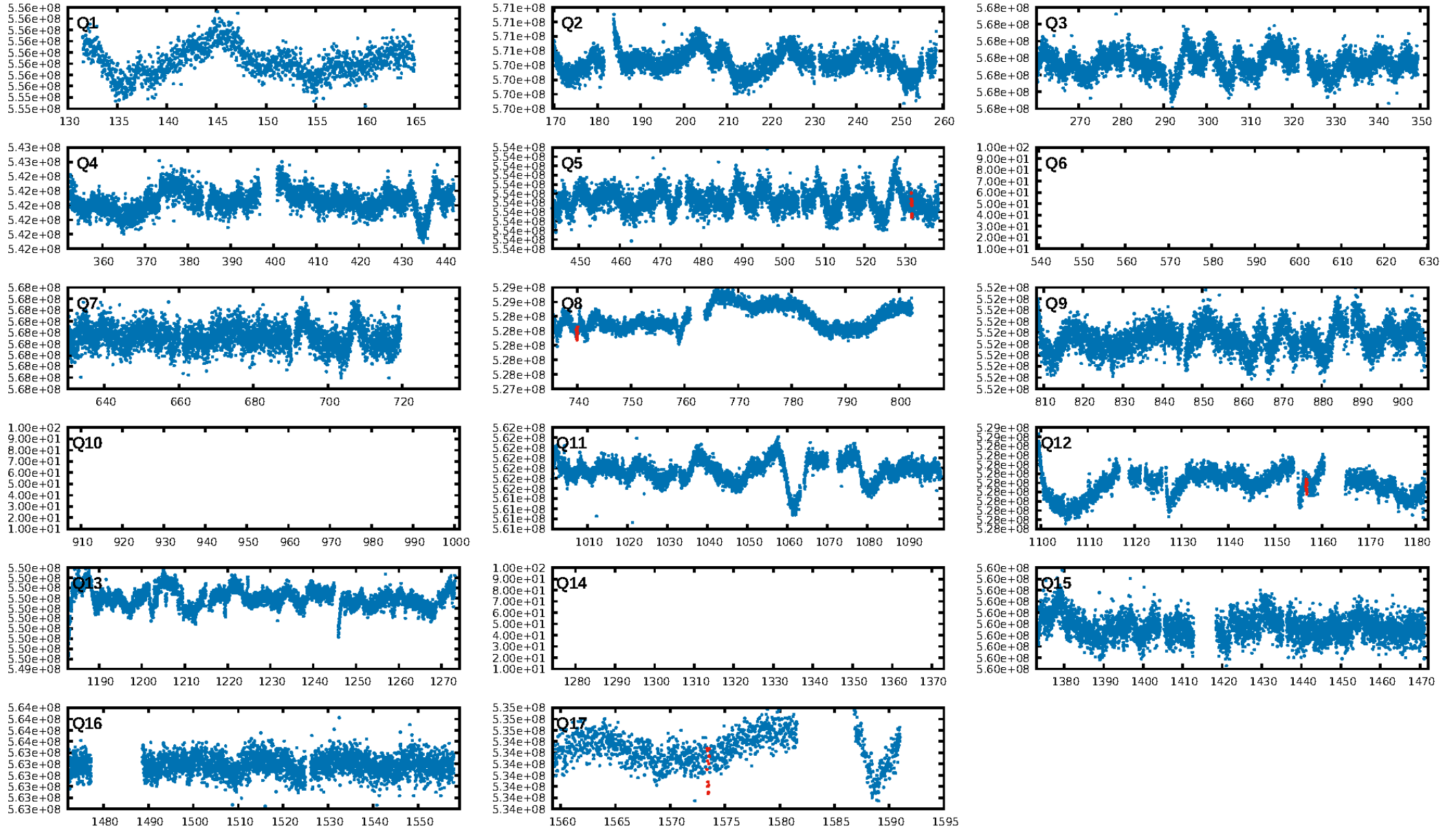
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [834.28σ]
ModelChiSquare2-sig: 7.2%
ModelChiSquareGof-sig: 91.0%
Bootstrap-pfa: 5.06e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 10.58
Centroid-sig: 0.1%
Centroid-so: 2.151 arcsec [2.50σ]
OotOffset-rm: 1.865 arcsec [1.15σ]
KicOffset-rm: 2.132 arcsec [1.03σ]
OotOffset-st: 0/0/2/1 [3]
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [4/4]

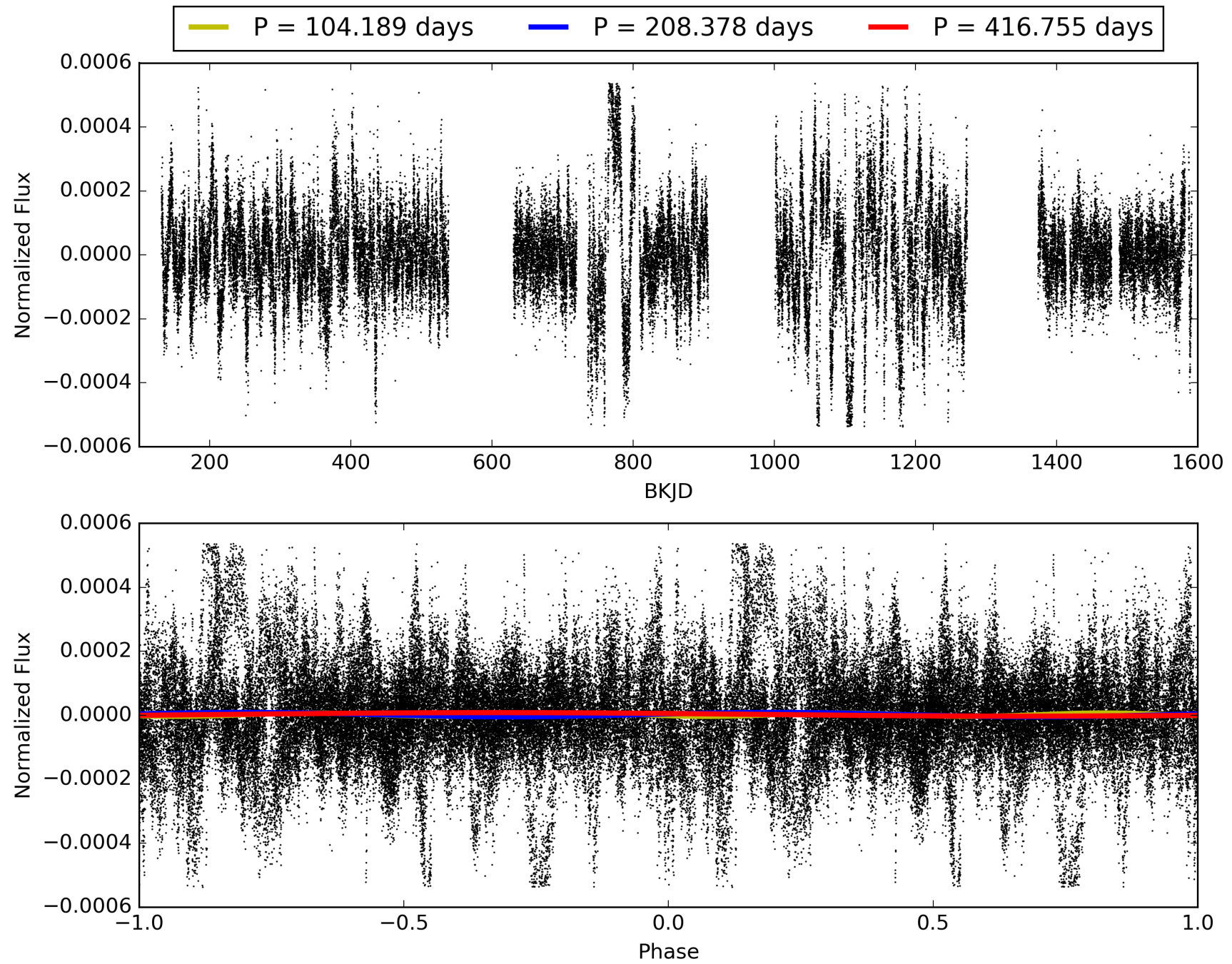
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:33:11 Z

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

TCE 002865774-01, PDC Light Curves

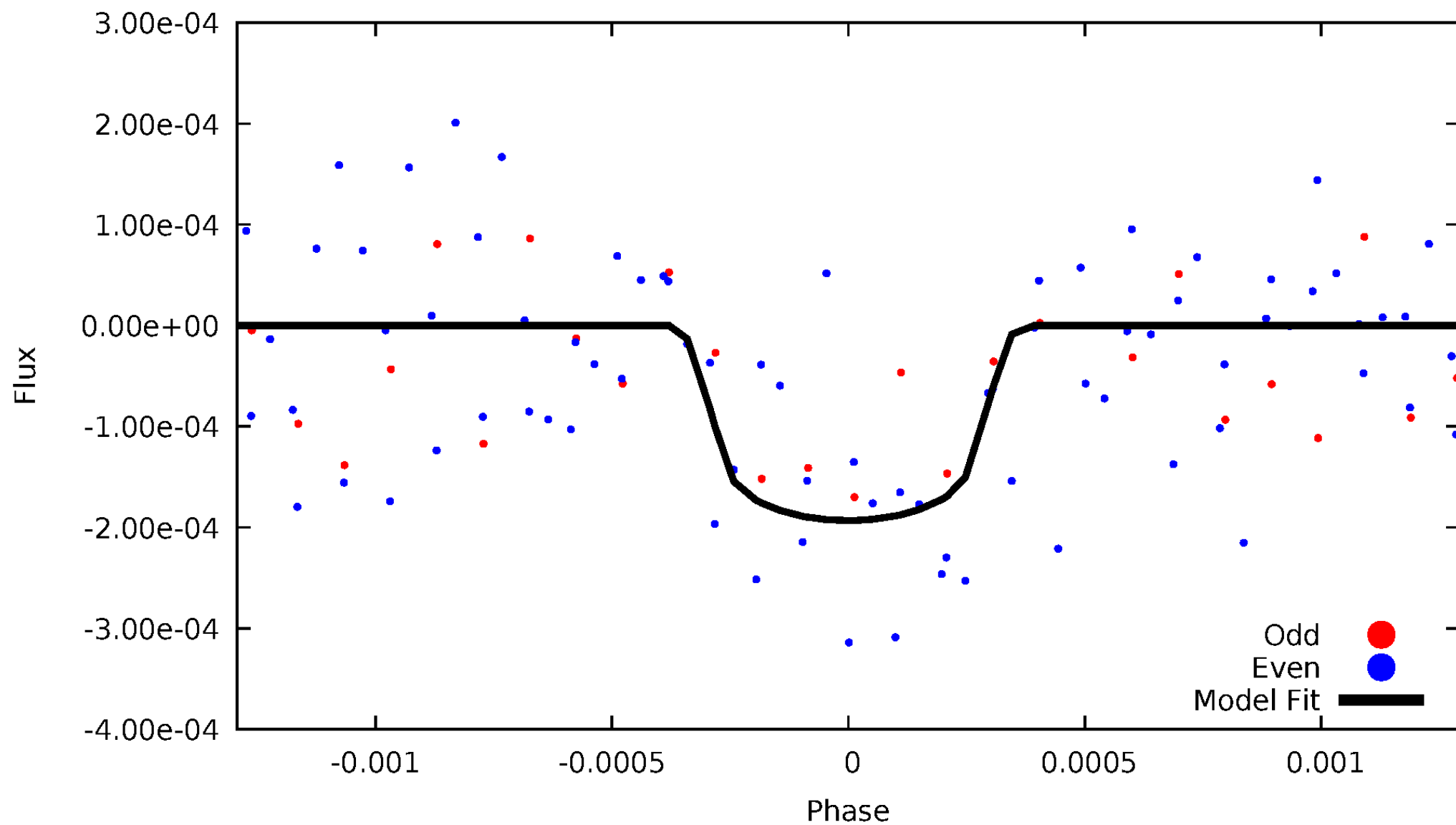


TCE 002865774-01



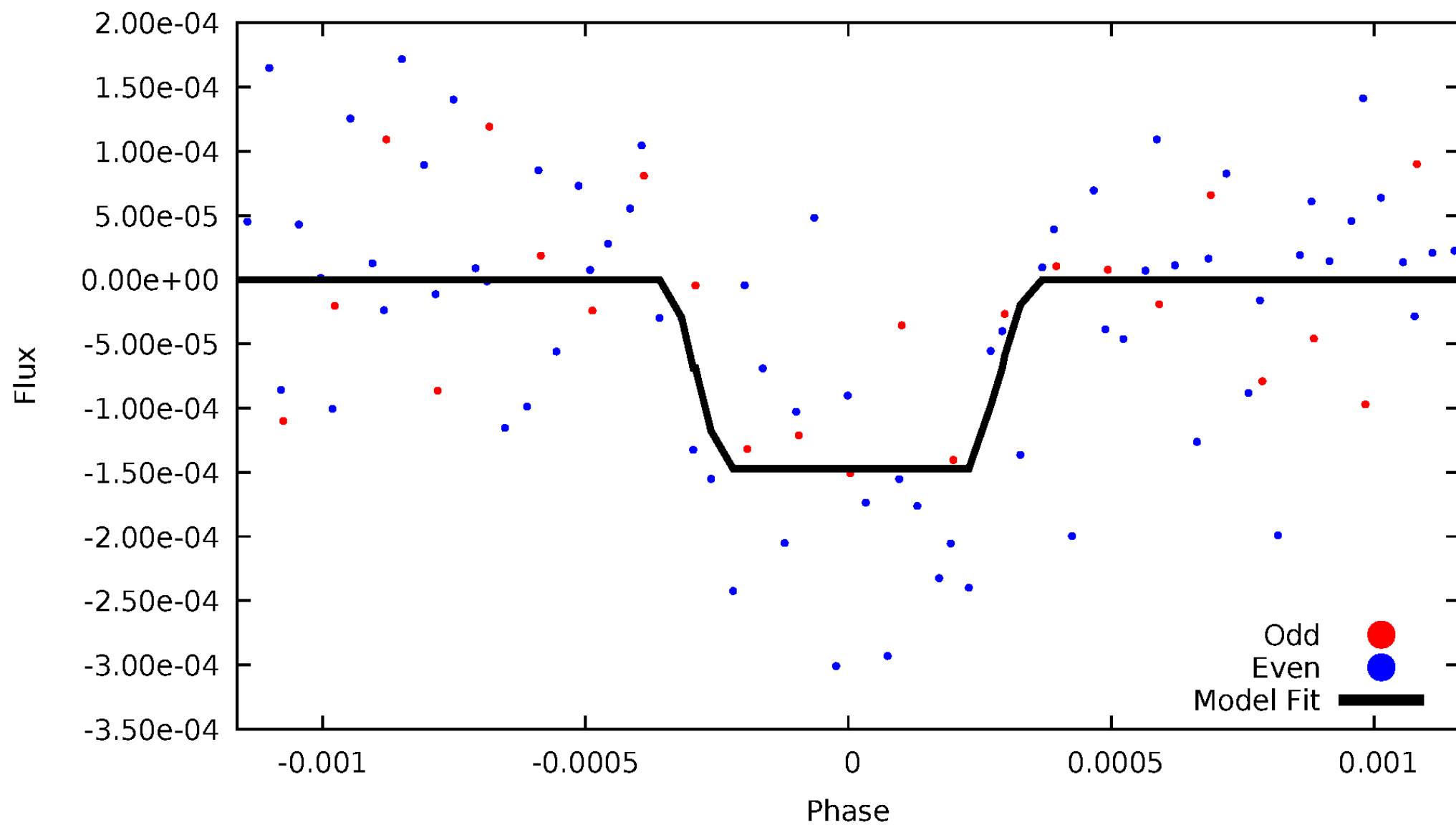
DV Odd/Even

TCE 002865774-01

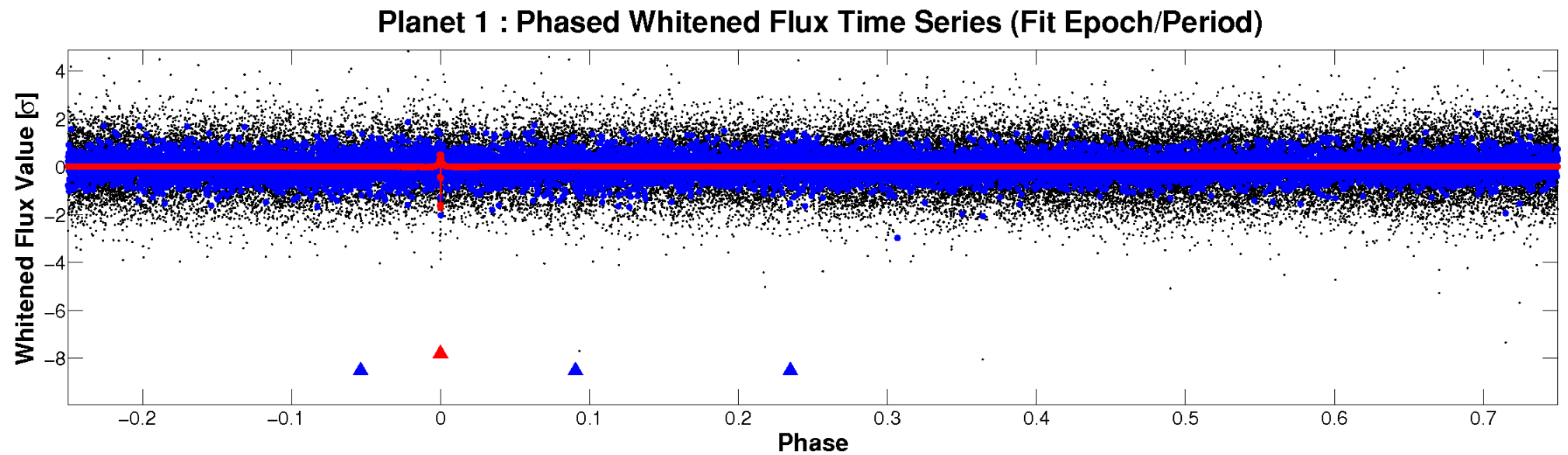
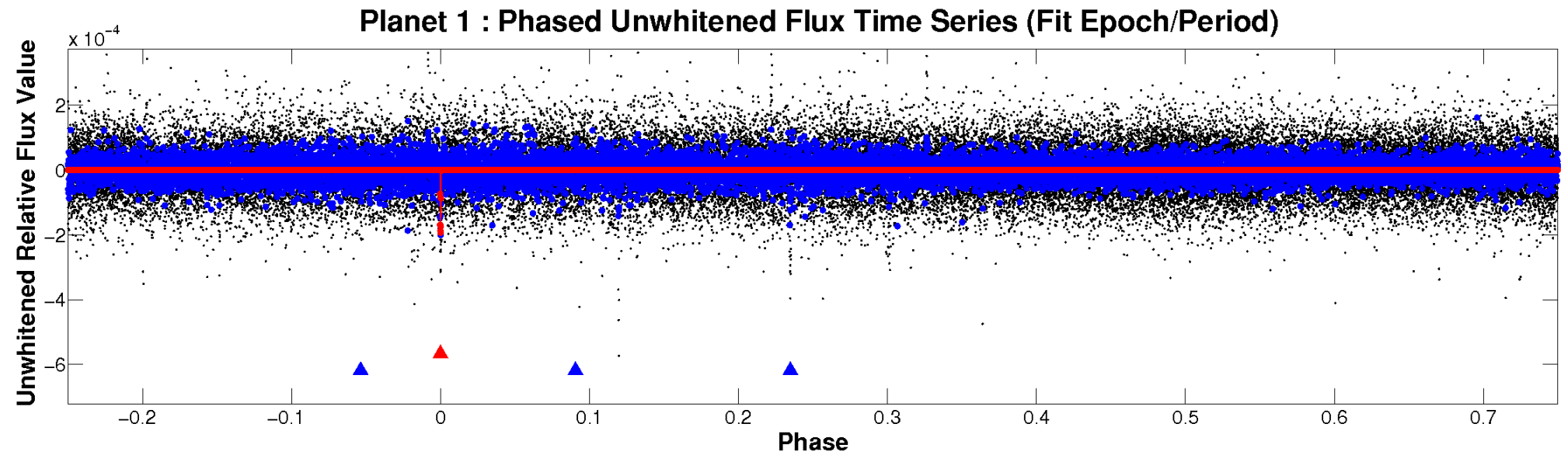


ALT Odd/Even

TCE 002865774-01

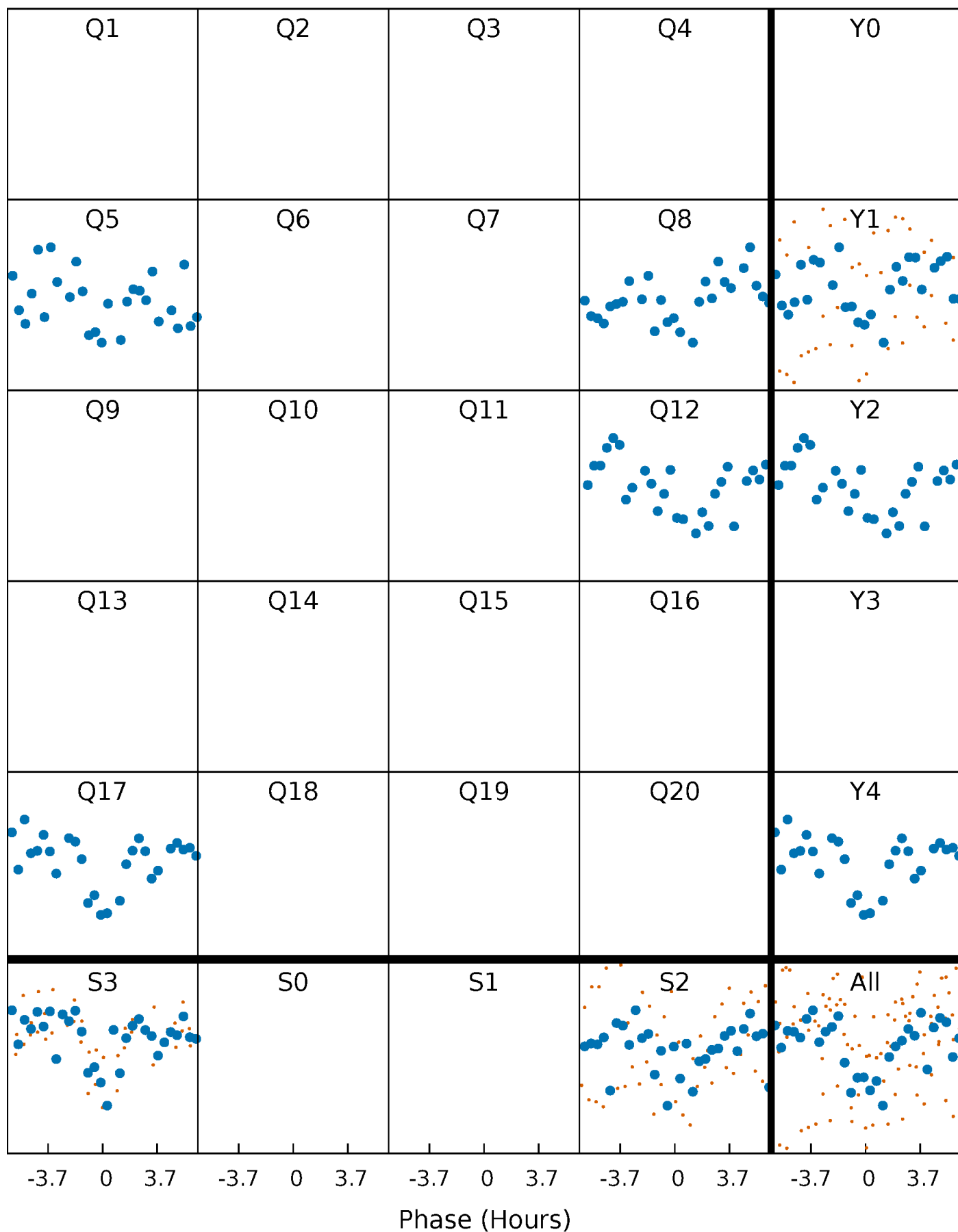


Non-Whitened Vs. Whitened Light Curve



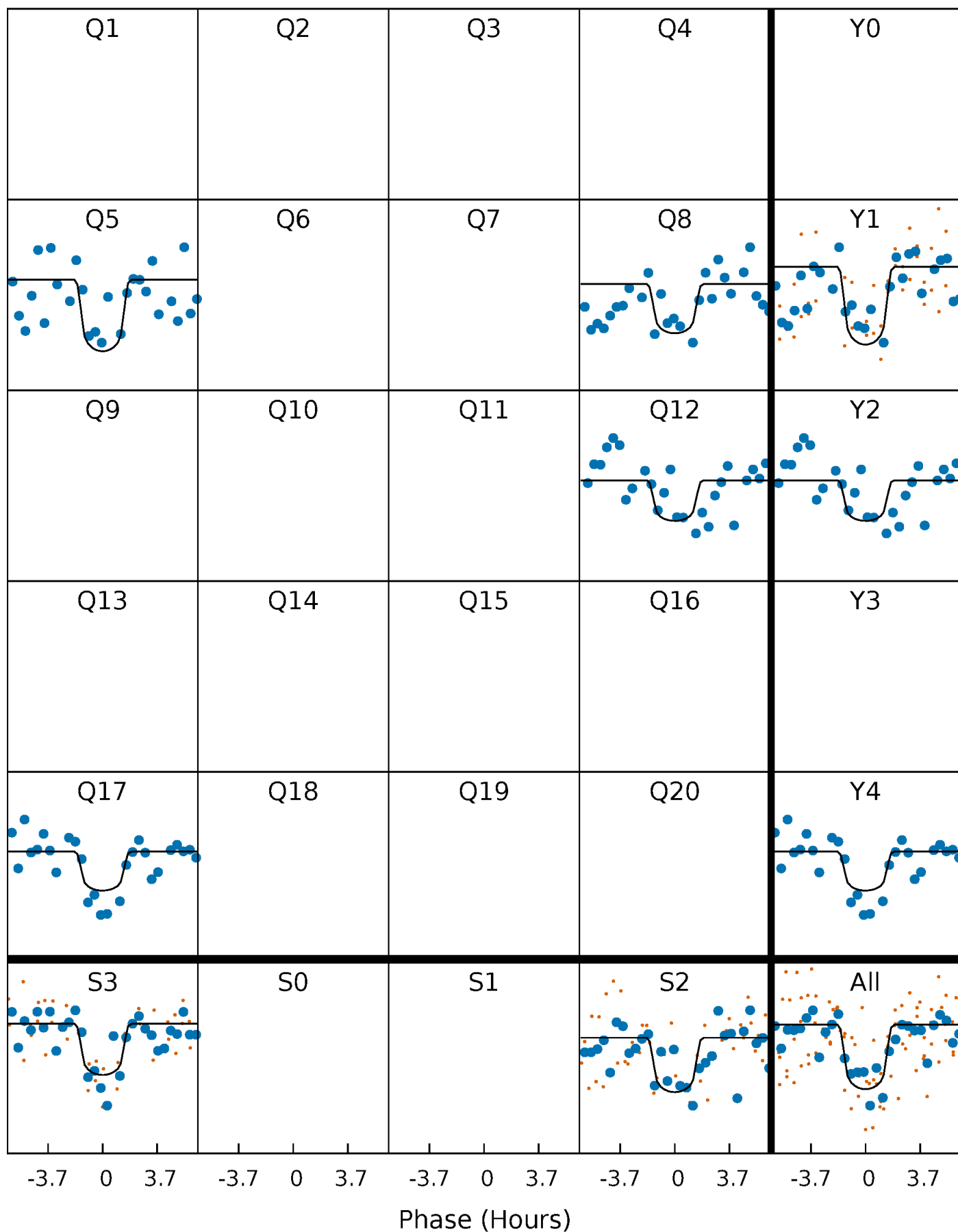
PDC Quarter-Phased Transit Curves

TCE 002865774-01 P=208.377522 Days $T_0=323.202965$ (BKJD)



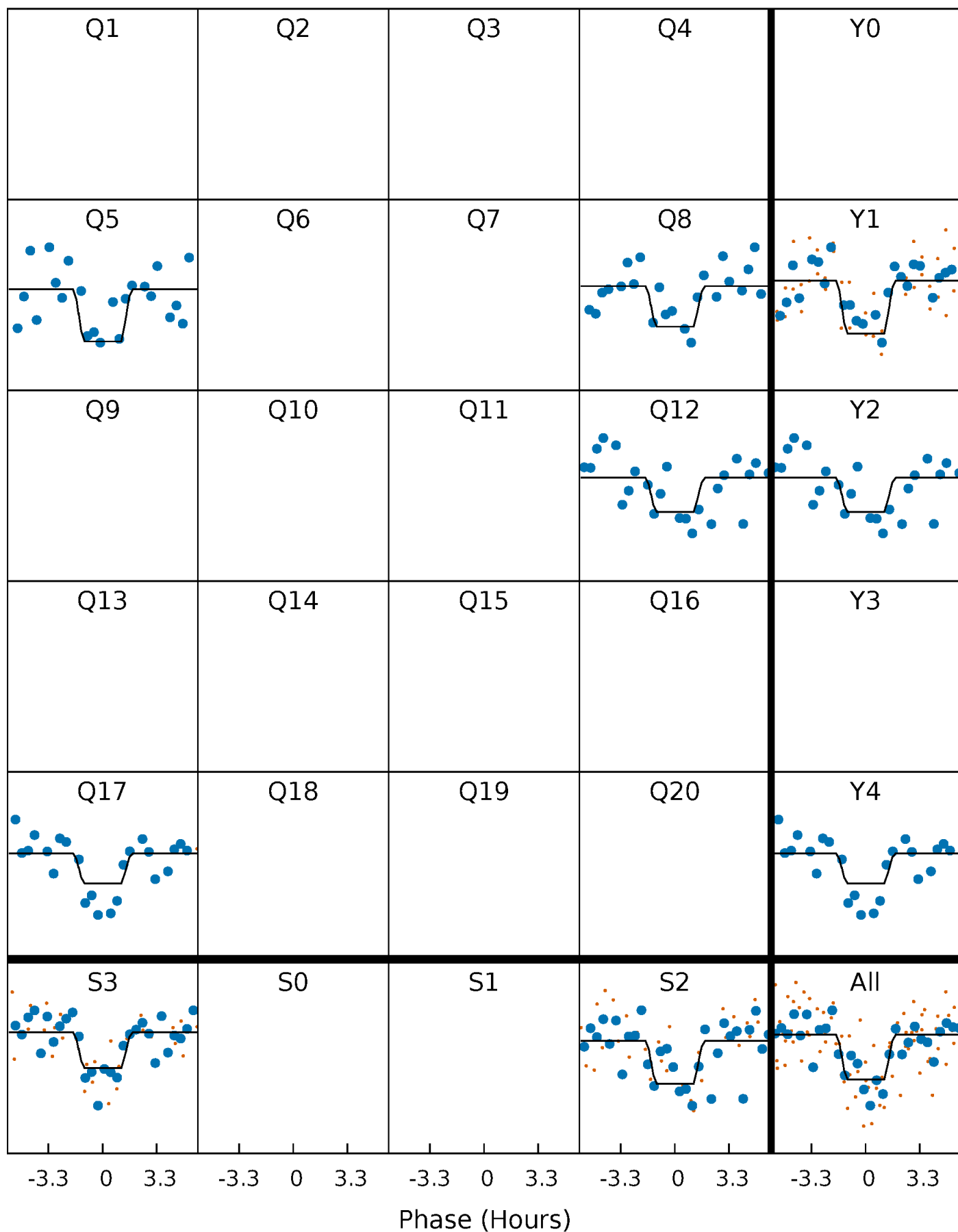
DV Quarter-Phased Transit Curves

TCE 002865774-01 $P=208.377522$ Days $T_0=323.202965$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

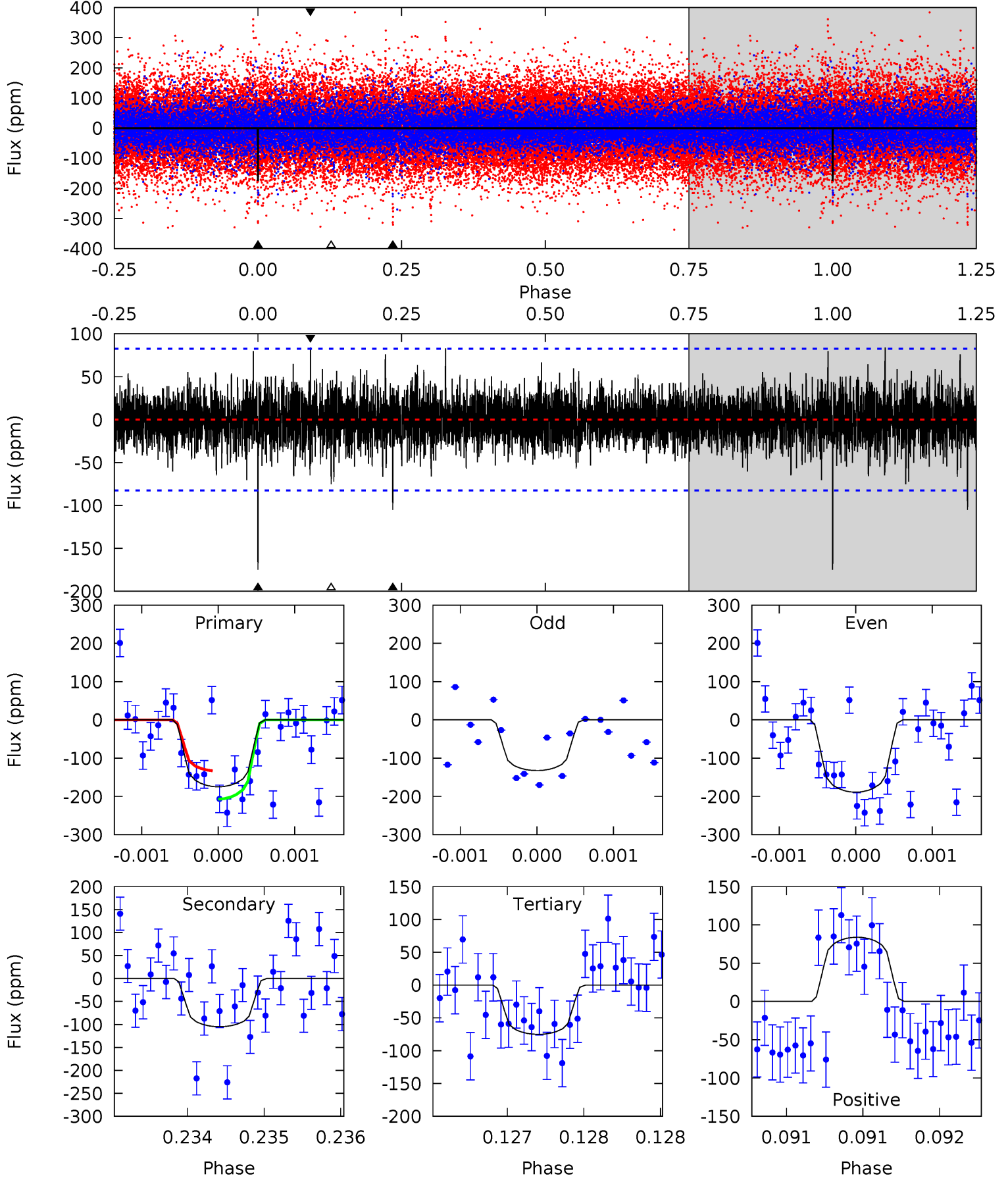
TCE 002865774-01 P=208.378150 Days $T_0=323.204314$ (BKJD)



DV Model-Shift Uniqueness Test

002865774-01, P = 208.377522 Days, E = 114.825443 Days

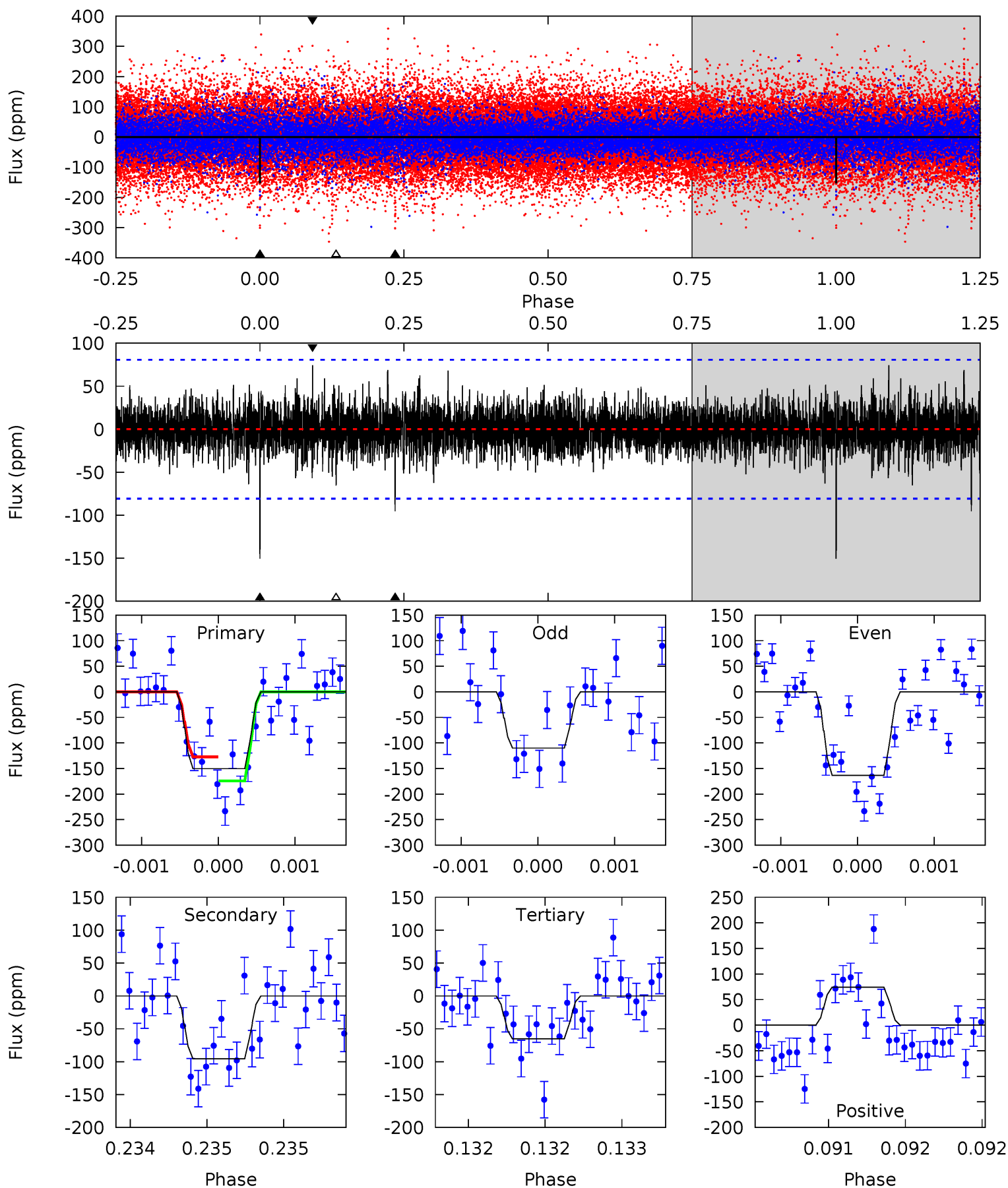
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	7.03	5.03	5.62	5.53	3.41	1.29	6.68	6.09	2.00	1.41	1.74	1.18	0.32	2.46



Alt Model-Shift Uniqueness Test

002865774-01, P = 208.378150 Days, E = 114.826164 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	6.53	4.47	5.08	5.52	3.40	1.17	5.82	5.20	2.06	1.44	1.66	1.20	0.33	1.60



Stellar Parameters For KIC 002865774

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5814^{+78}_{-87}	$4.033^{+0.025}_{-0.025}$	$-0.060^{+0.150}_{-0.150}$	$1.625^{+0.088}_{-0.078}$	$1.038^{+0.075}_{-0.075}$	$0.341^{+0.036}_{-0.033}$
	+1%/-1%	+1%/-1%	+250%/-250%	+5%/-5%	+7%/-7%	+11%/-10%
Source	SPE72	AST10	SPE72	DSEP		

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

Secondary Eclipse Parameters for KIC 002865774-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-105 ± 15	$2.63^{+1.82}_{-1.35}$	547^{+10}_{-10}	4876^{+2065}_{-847}	3849^{+13229}_{-2451}
Alt.	-95 ± 15	$2.34^{+1.75}_{-1.39}$	547^{+10}_{-9}	5068^{+2882}_{-1007}	4577^{+23550}_{-3086}

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

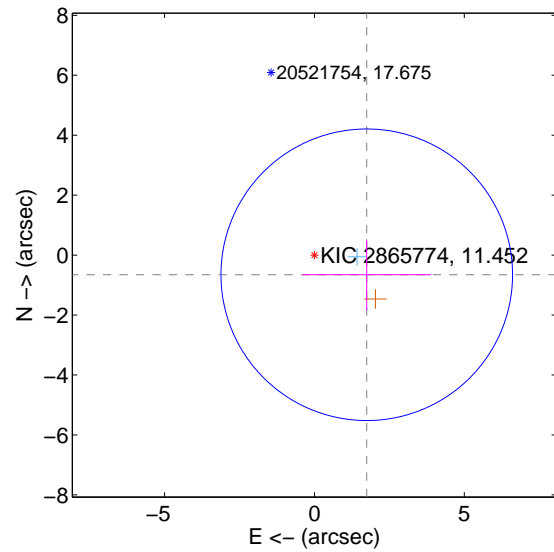
Supplemental centroid analysis for 002865774-01. **Kepler magnitude: 11.45.** Transit SNR 7.89

There are 1 quarters with good PRF difference image offsets

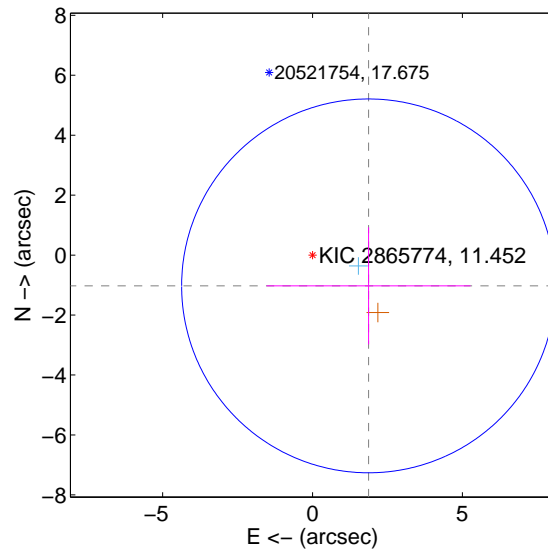
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.865 ± 1.621	1.15	-1.745 ± 2.146	-0.656 ± 1.179
PRF-fit source offset from KIC position	2.132 ± 2.079	1.03	-1.869 ± 3.403	-1.027 ± 1.953
photometric centroid source offset	2.15 ± 0.86	2.50	0.68 ± 0.91	-2.04 ± 0.86

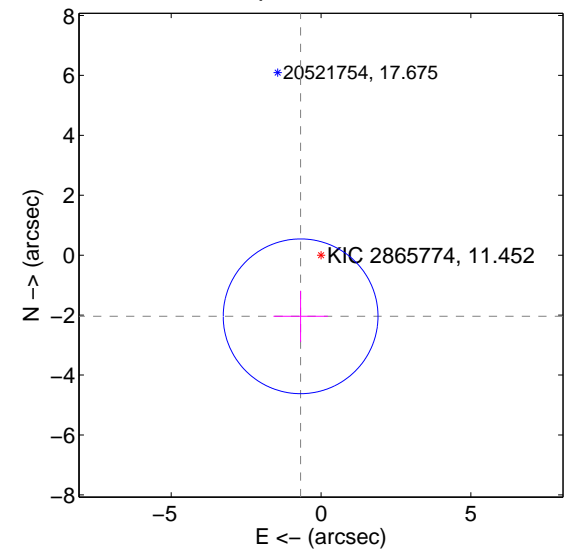
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

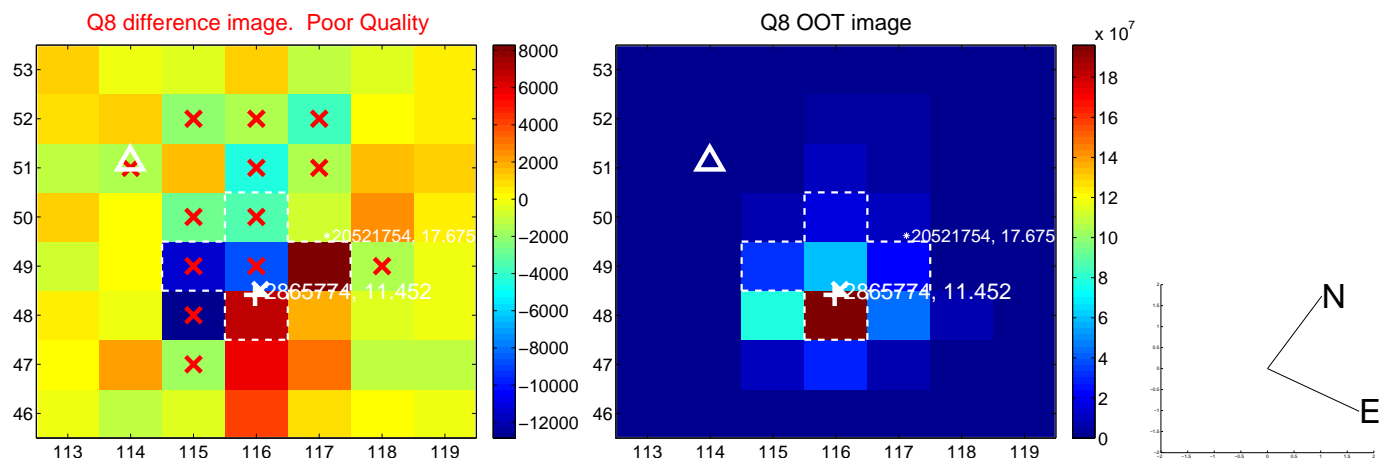
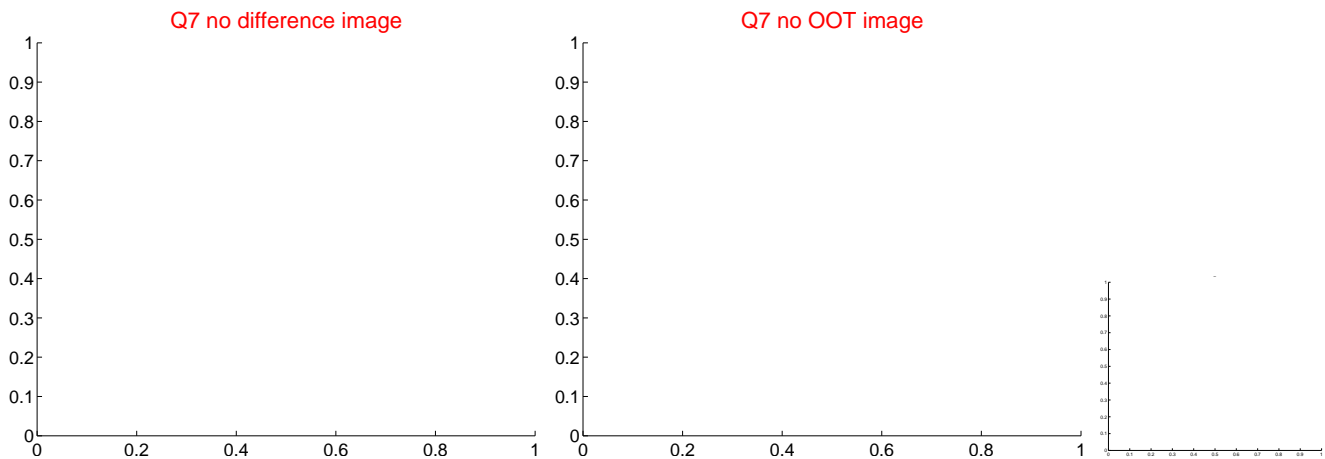
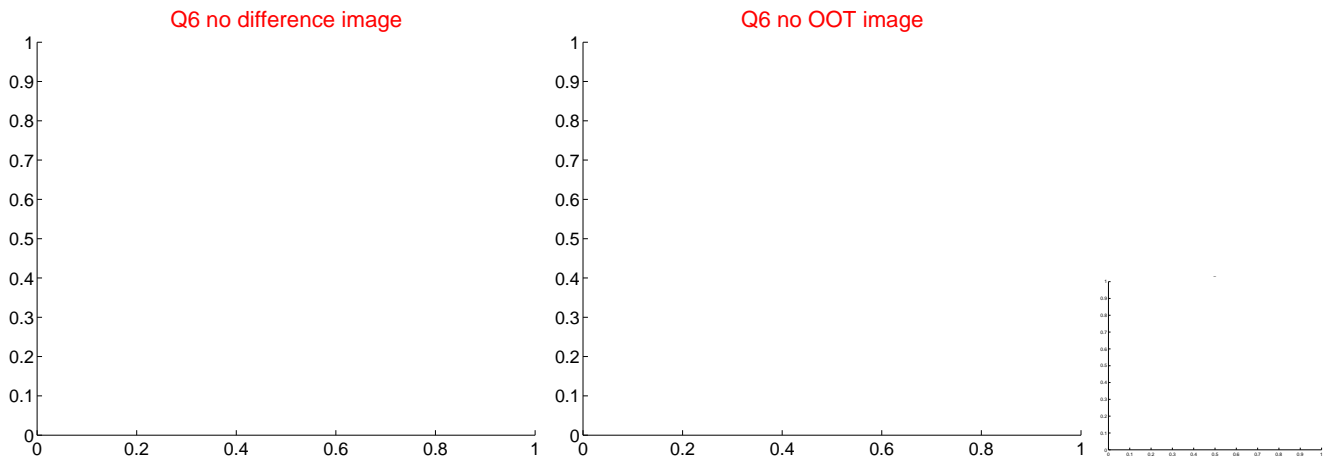
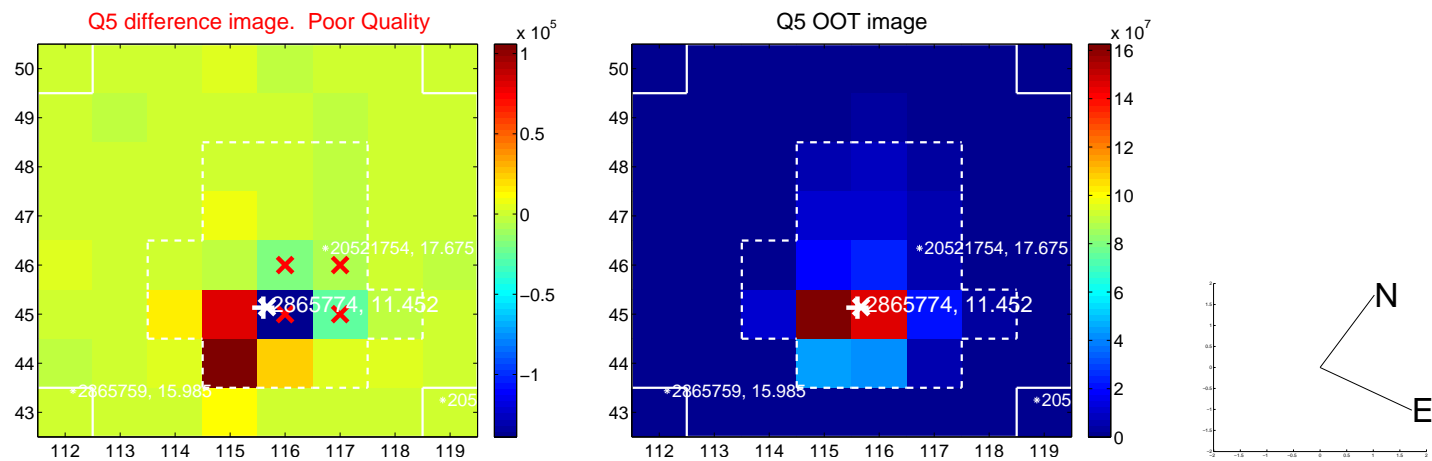


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

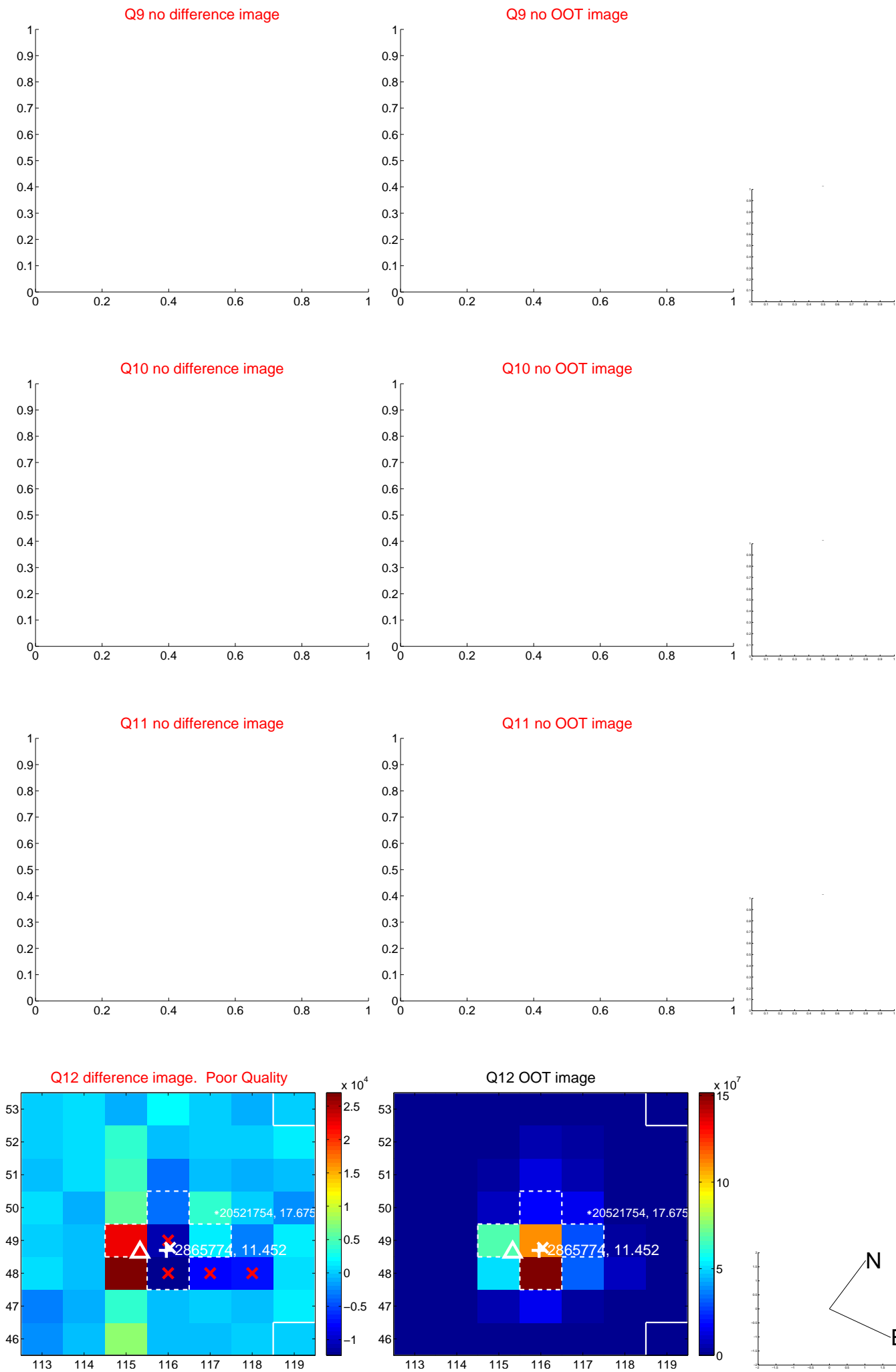
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



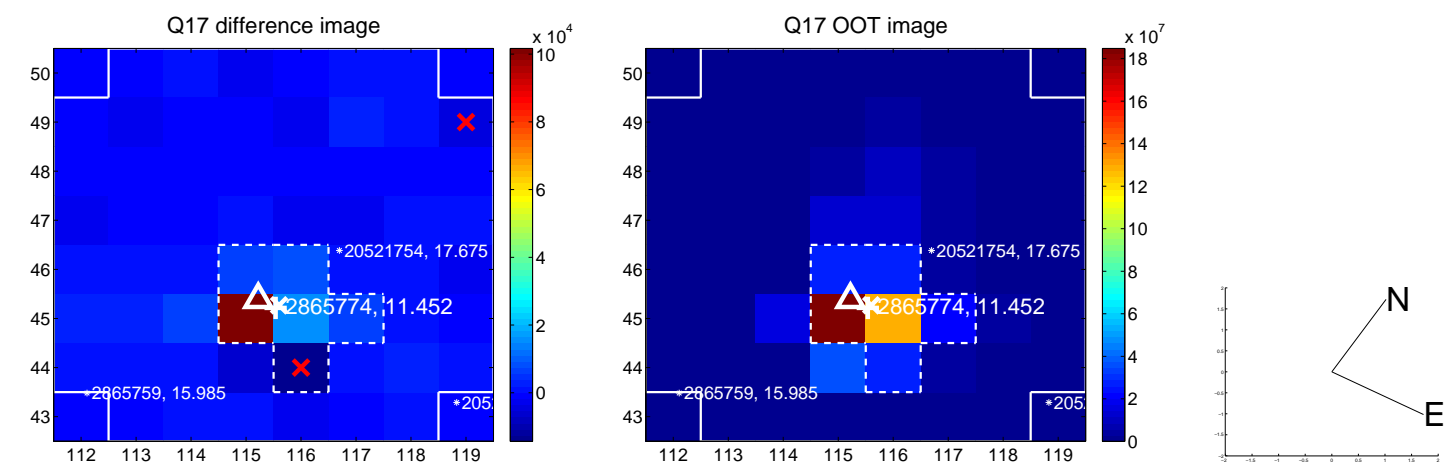
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



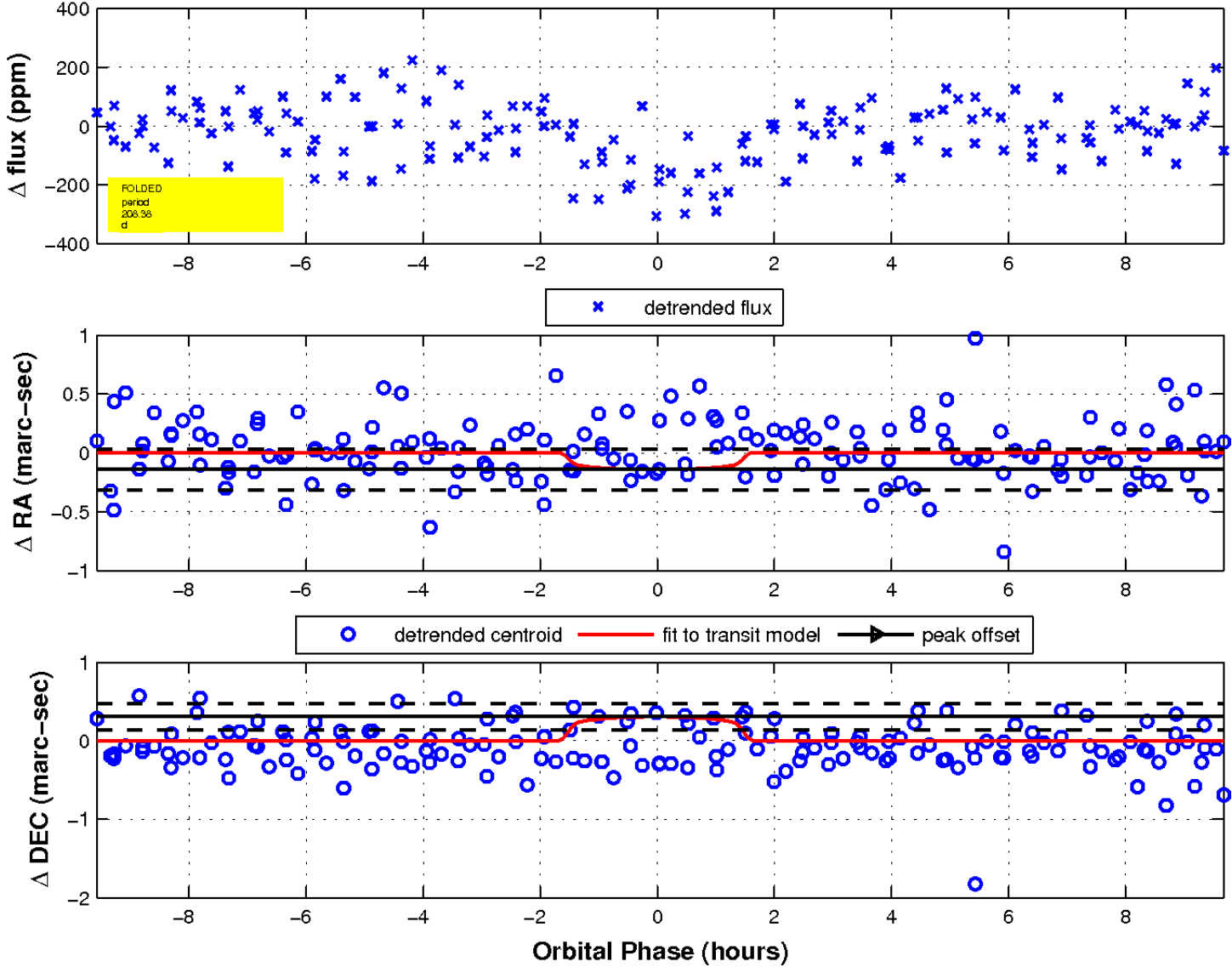
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

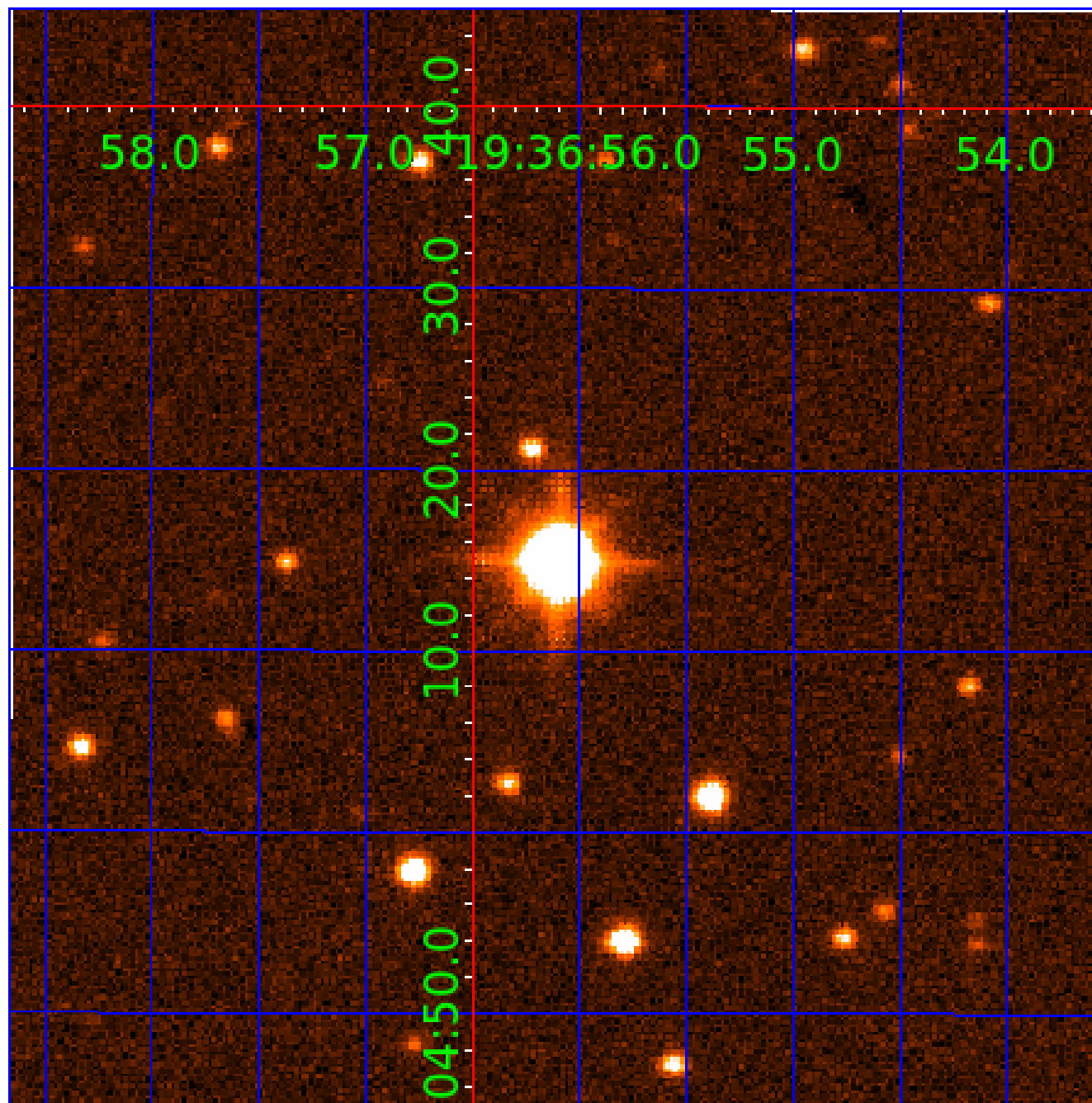


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 002865774

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})
002865774-01	OBS	No	208.377522	323.202965	193.2	3.232	8.1	7.9	1.62	5814	2.66	5.57
002865774-02	OBS	No	446.807772	312.036327	188.5	6.050	7.5	7.6	1.62	5814	2.46	2.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002865774-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
002865774-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

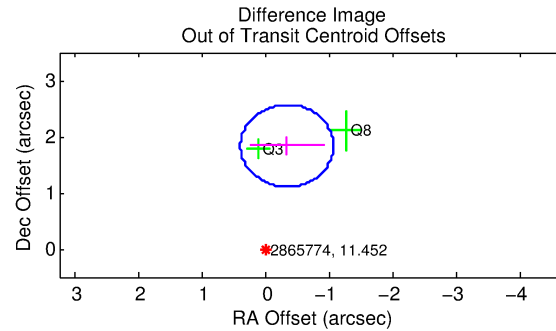
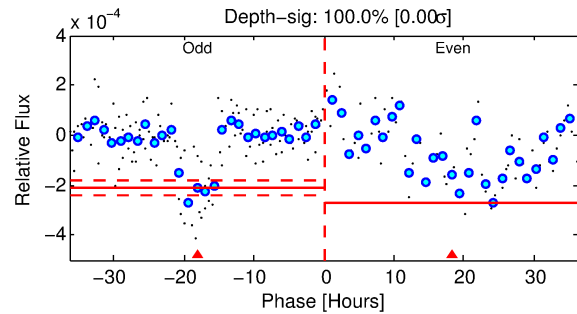
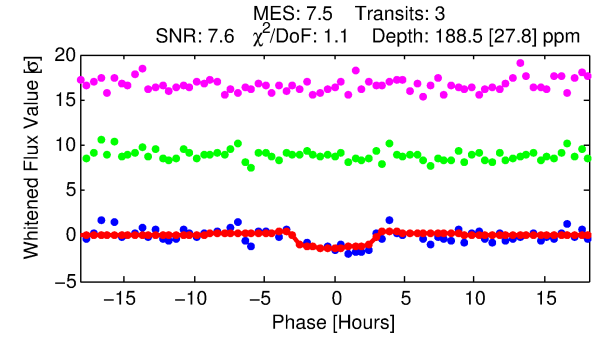
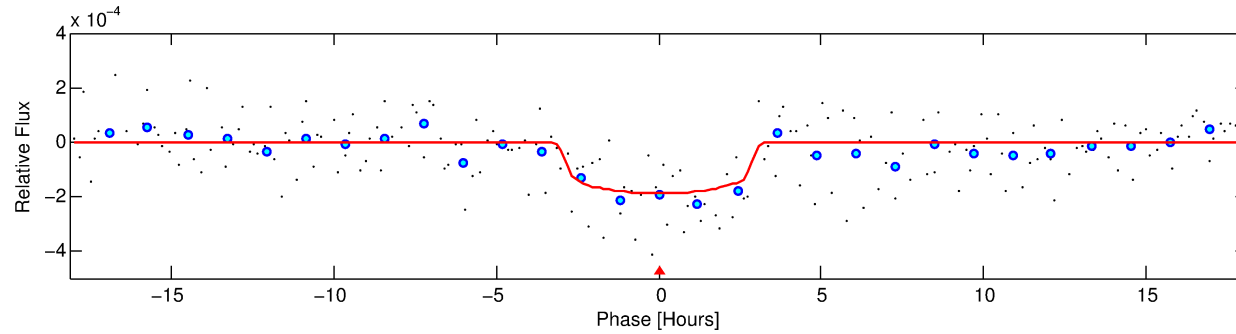
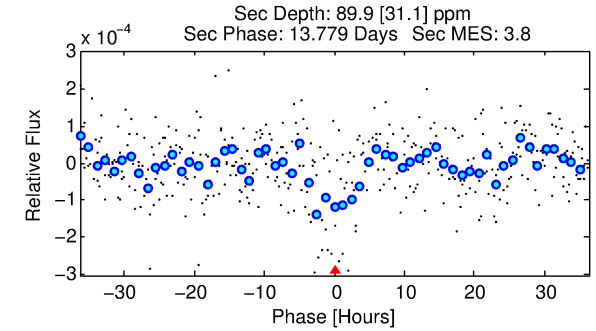
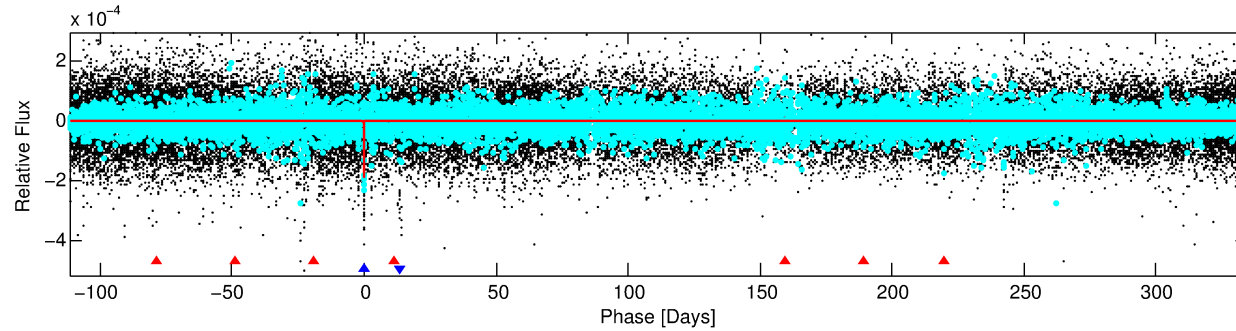
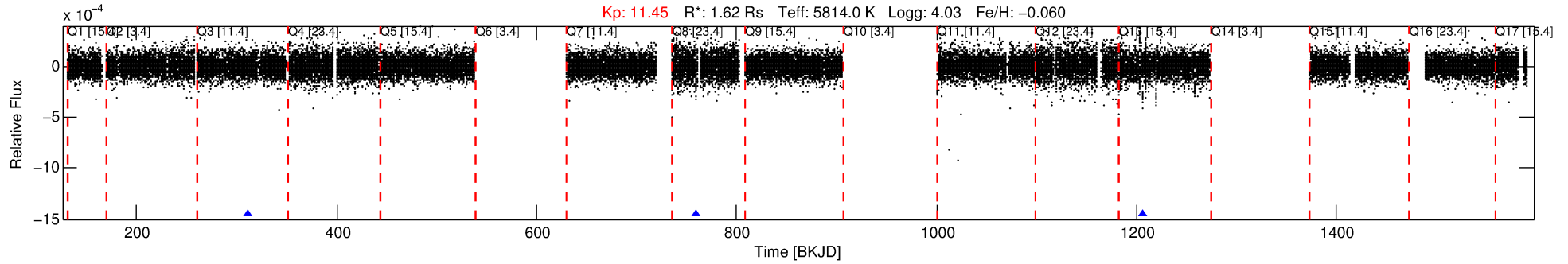
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002865774-02

No Significant Match Found

DV One-Page Summary

KIC: 2865774 Candidate: 2 of 2 Period: 446.808 d



DV Fit Results:

Period = 446.80777 [0.00735] d
Epoch = 312.0363 [0.0084] BKJD
Rp/R* = 0.0139 [0.0095]
a/R* = 361.22 [1126.33]
b = 0.79 [1.54]
Seff = 2.01 [0.16]
Teq = 304 [6] K
Rp = 2.46 [1.69] Re
a = 1.1588 [0.0474] AU
Ag = 10981.82 [15491.83] [0.71σ]
Teffp = 4807 [1696] K [2.66σ]

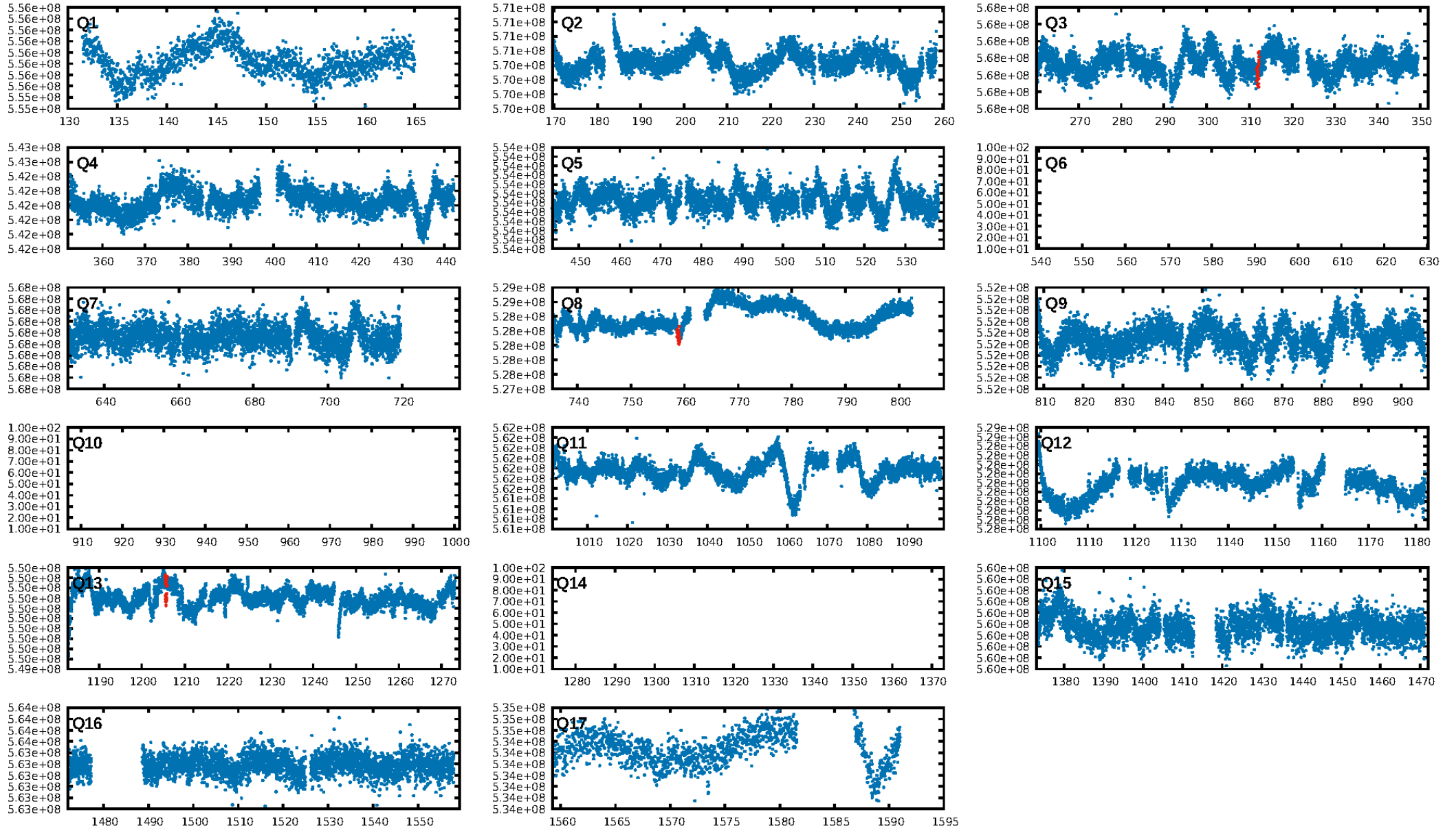
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [834.28σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 9.6%
ModelChiSquareGof-sig: 98.8%
Bootstrap-pfa: 5.78e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 9.58
Centroid-sig: 51.4%
Centroid-so: 1.146 arcsec [1.19σ]
OotOffset-rm: 1.865 arcsec [7.66σ]
KicOffset-rm: 1.491 arcsec [6.44σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

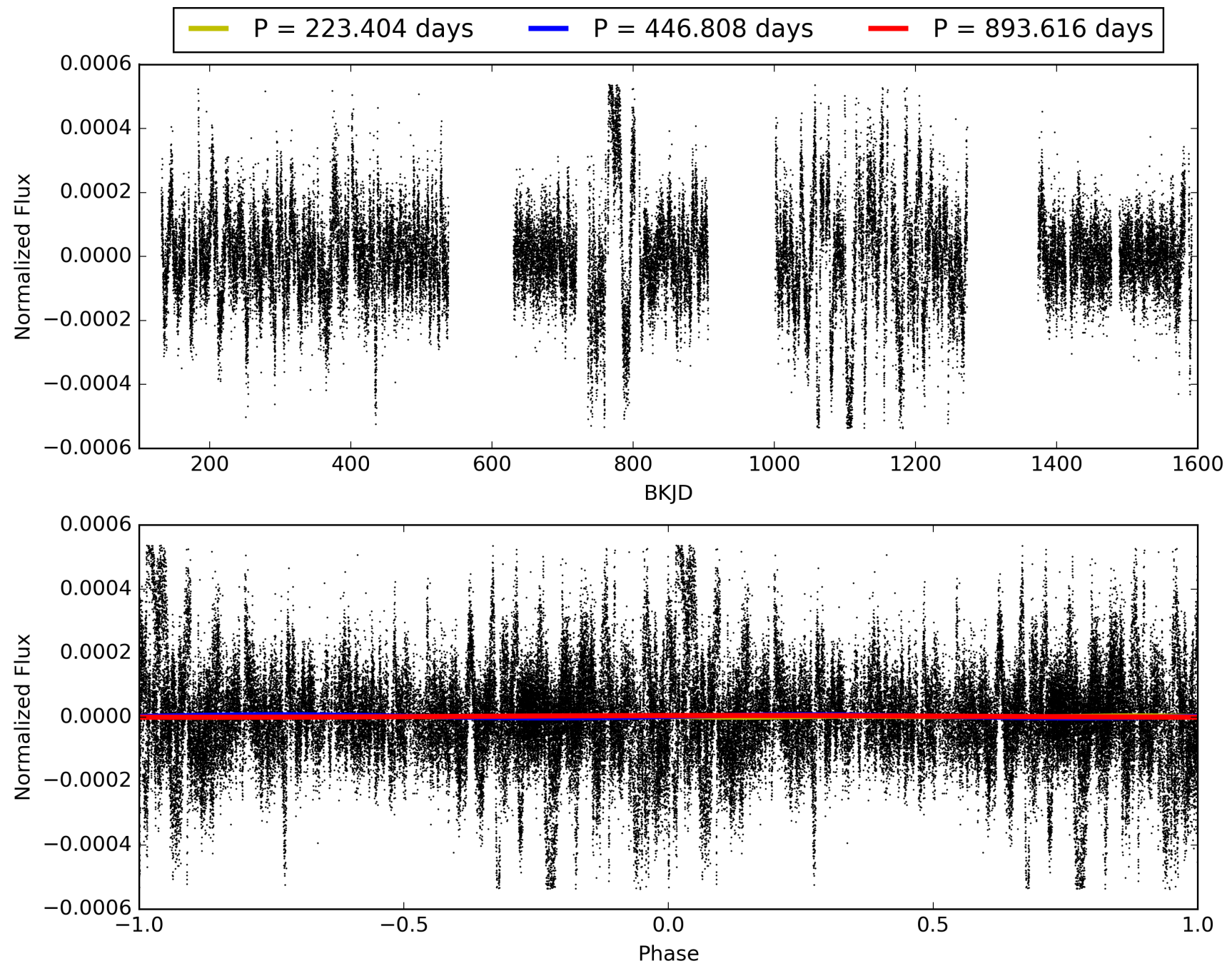
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:33:23 Z

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

TCE 002865774-02, PDC Light Curves

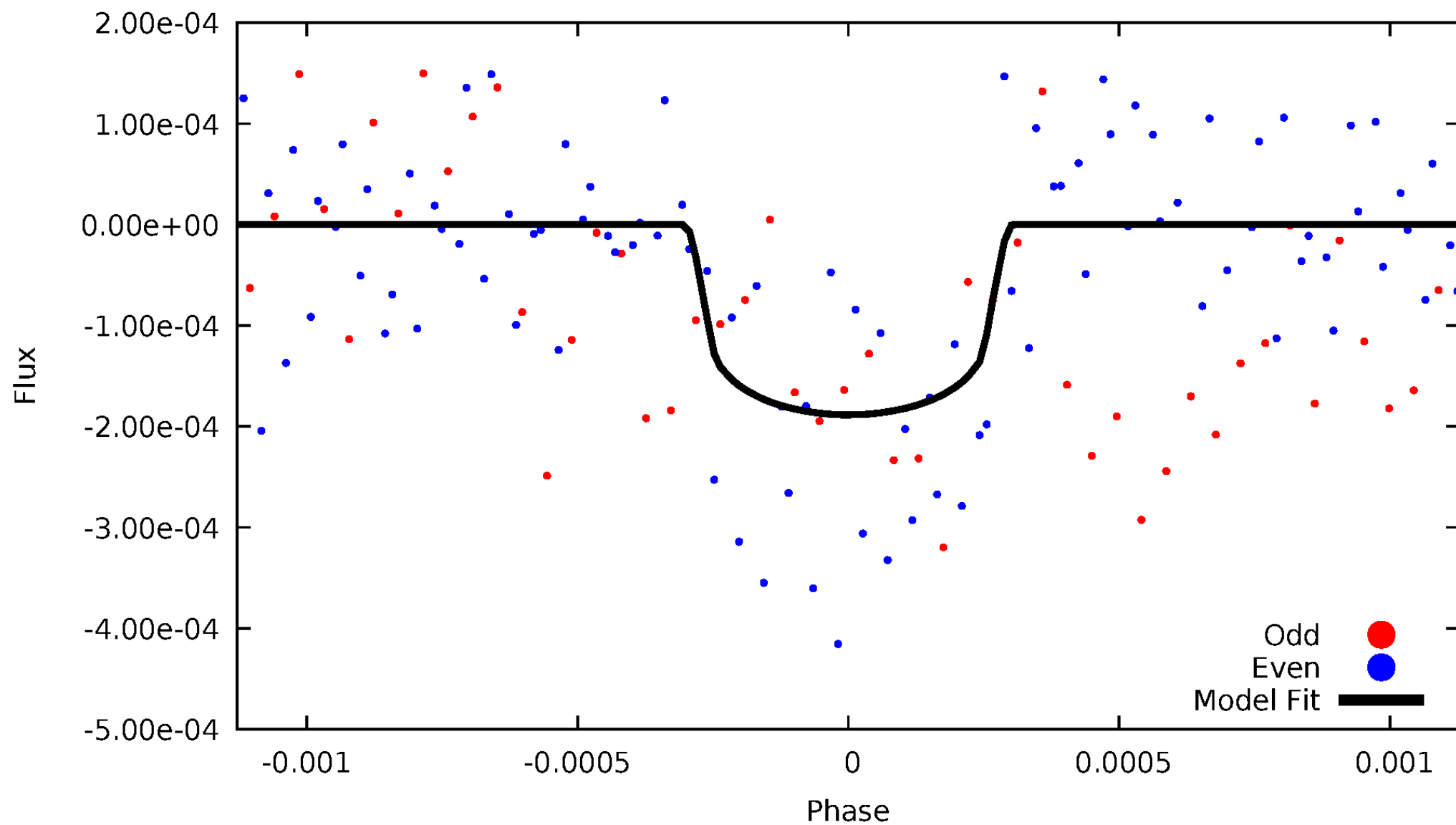


TCE 002865774-02



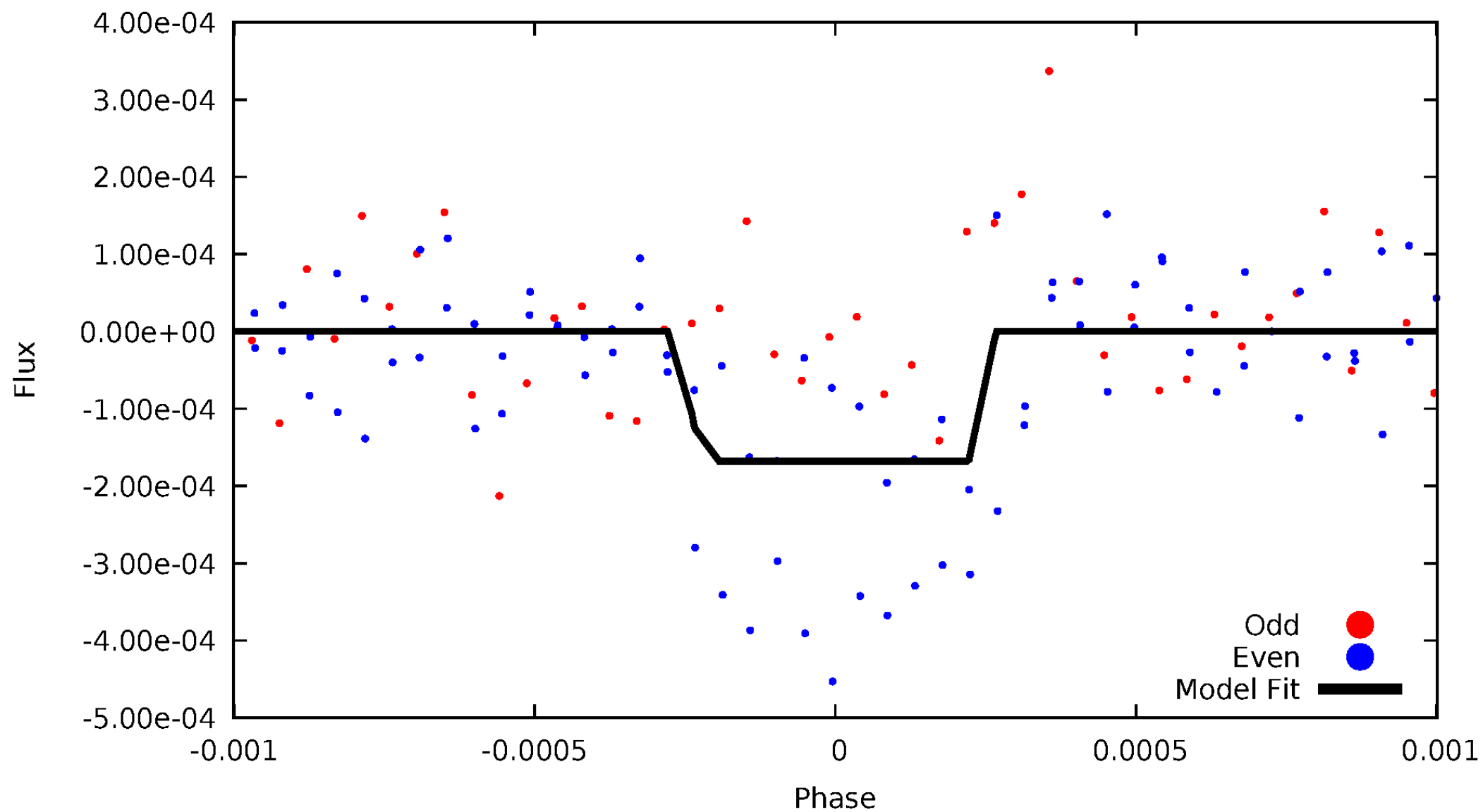
DV Odd/Even

TCE 002865774-02



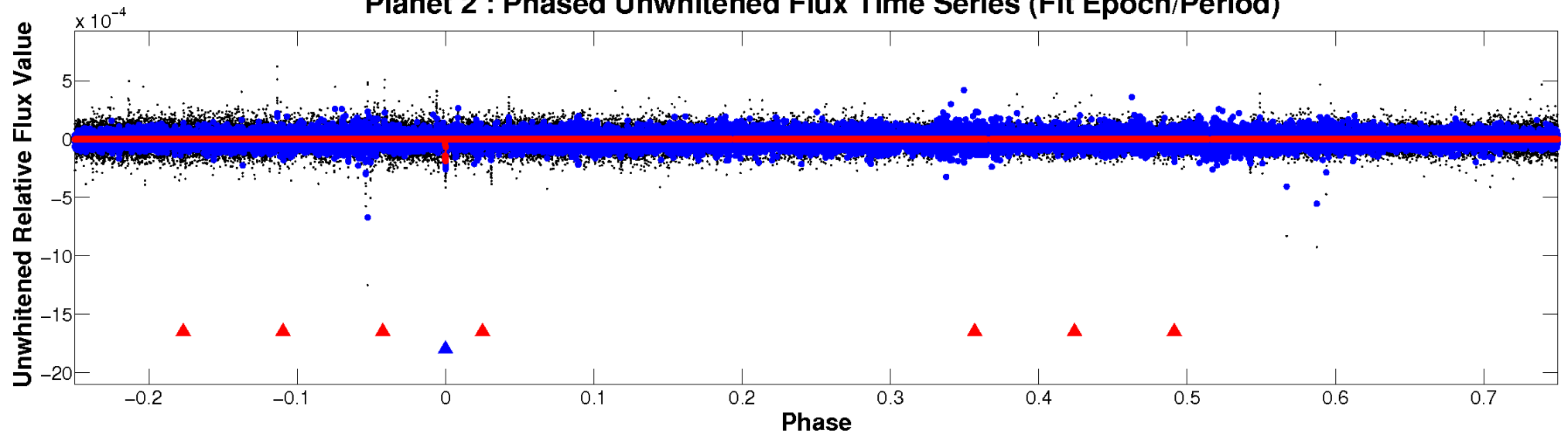
ALT Odd/Even

TCE 002865774-02

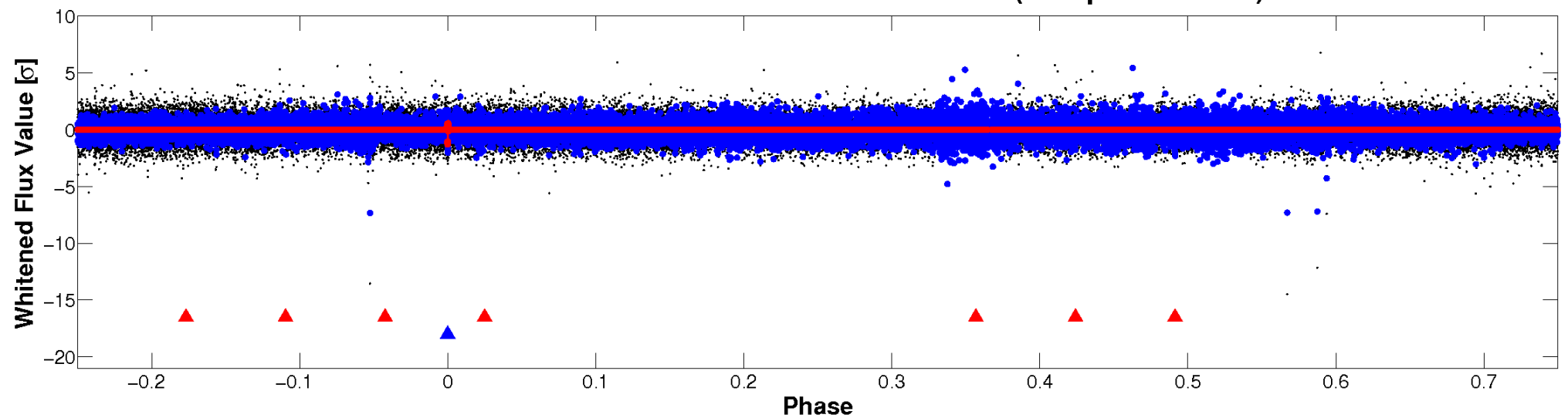


Non-Whitened Vs. Whitened Light Curve

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

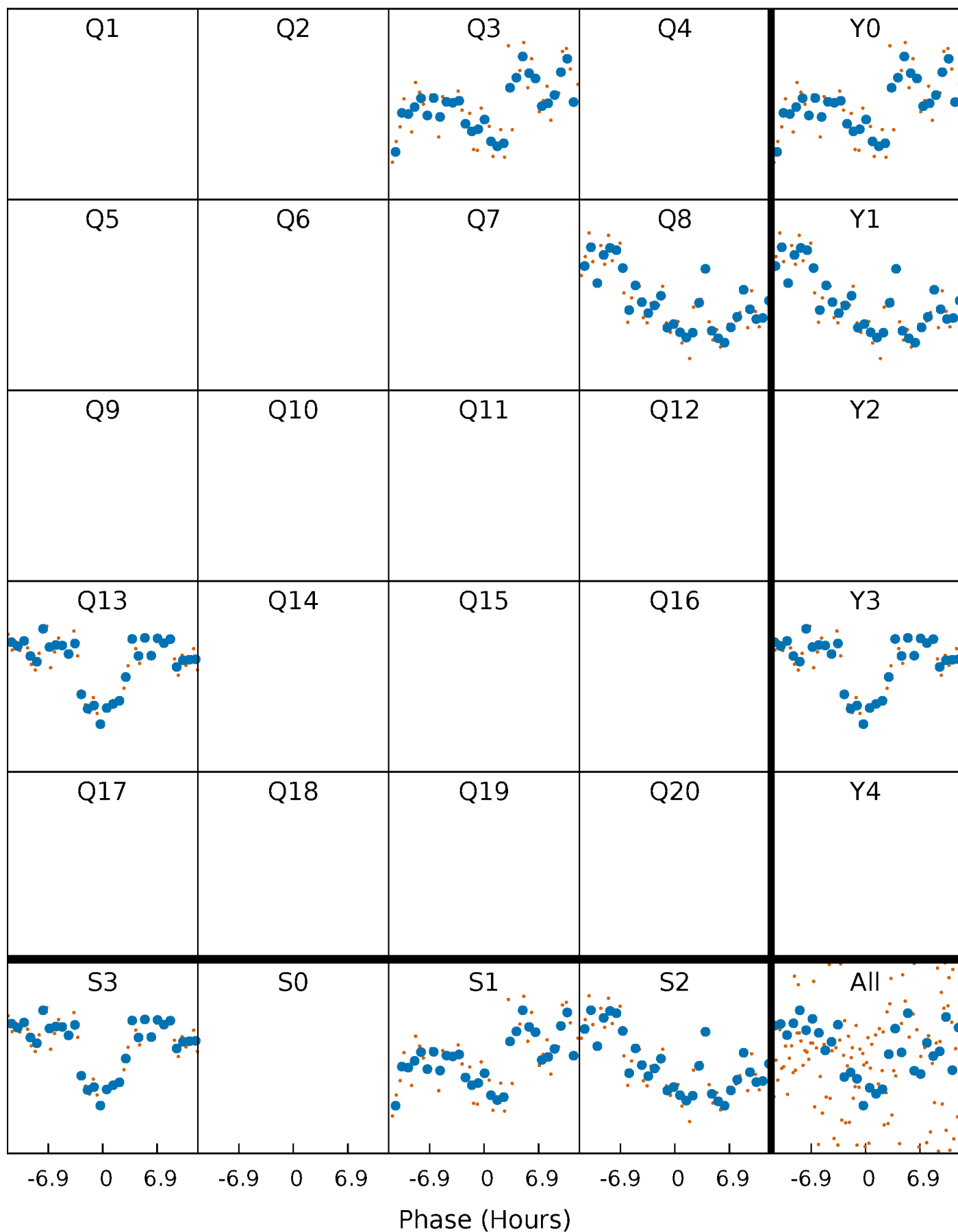


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



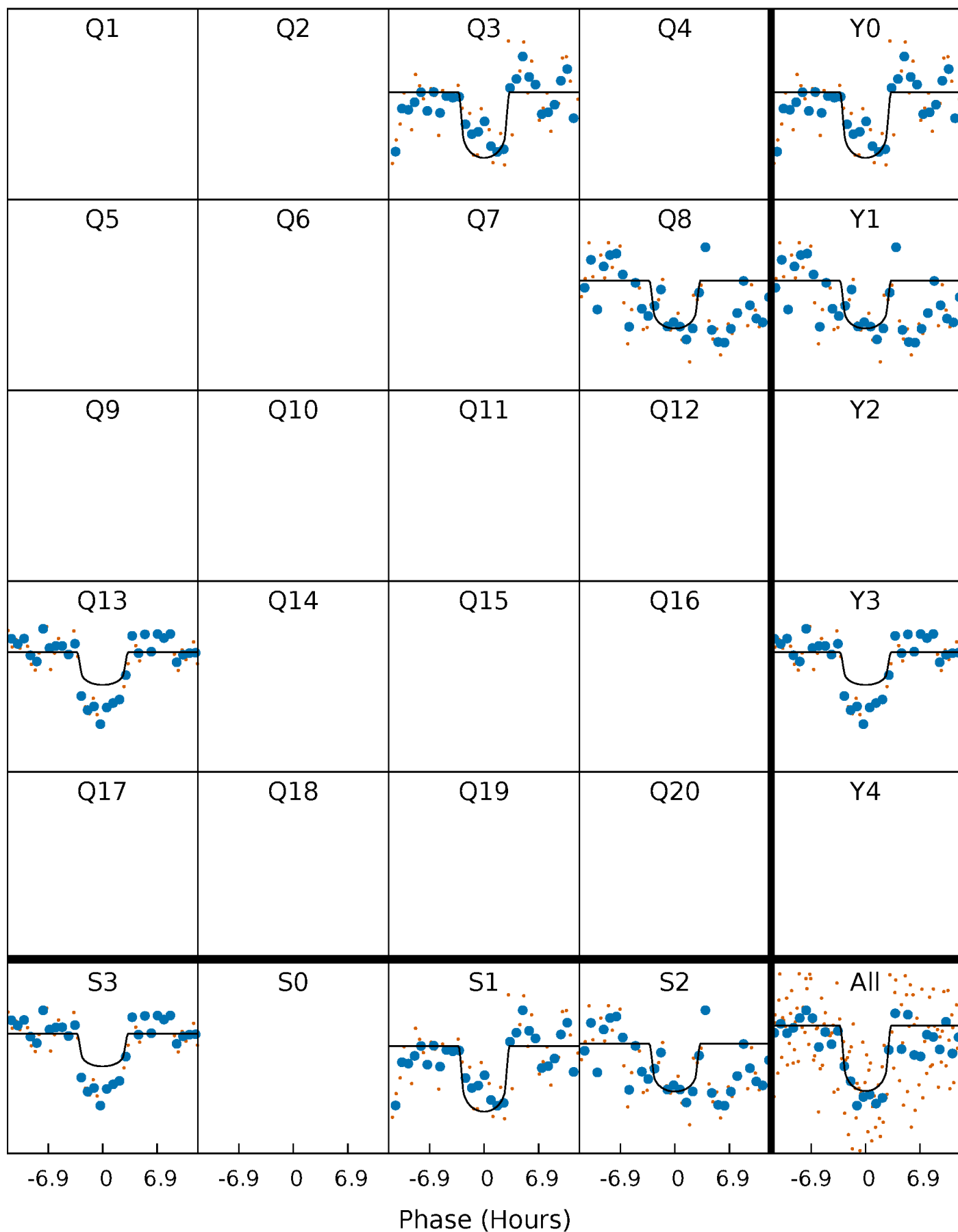
PDC Quarter-Phased Transit Curves

TCE 002865774-02 $P=446.807772$ Days $T_0=312.036327$ (BKJD)



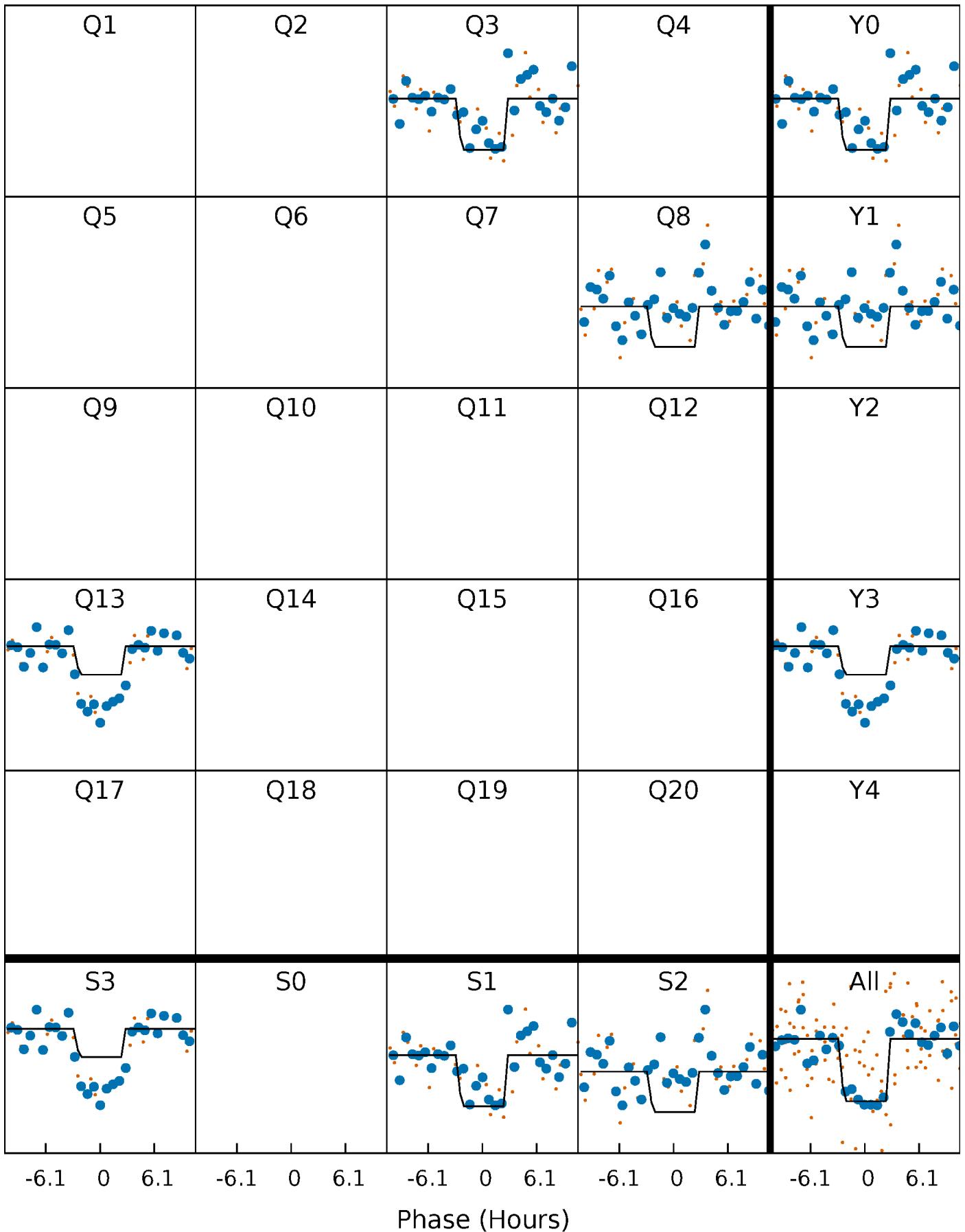
DV Quarter-Phased Transit Curves

TCE 002865774-02 $P=446.807772$ Days $T_0=312.036327$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

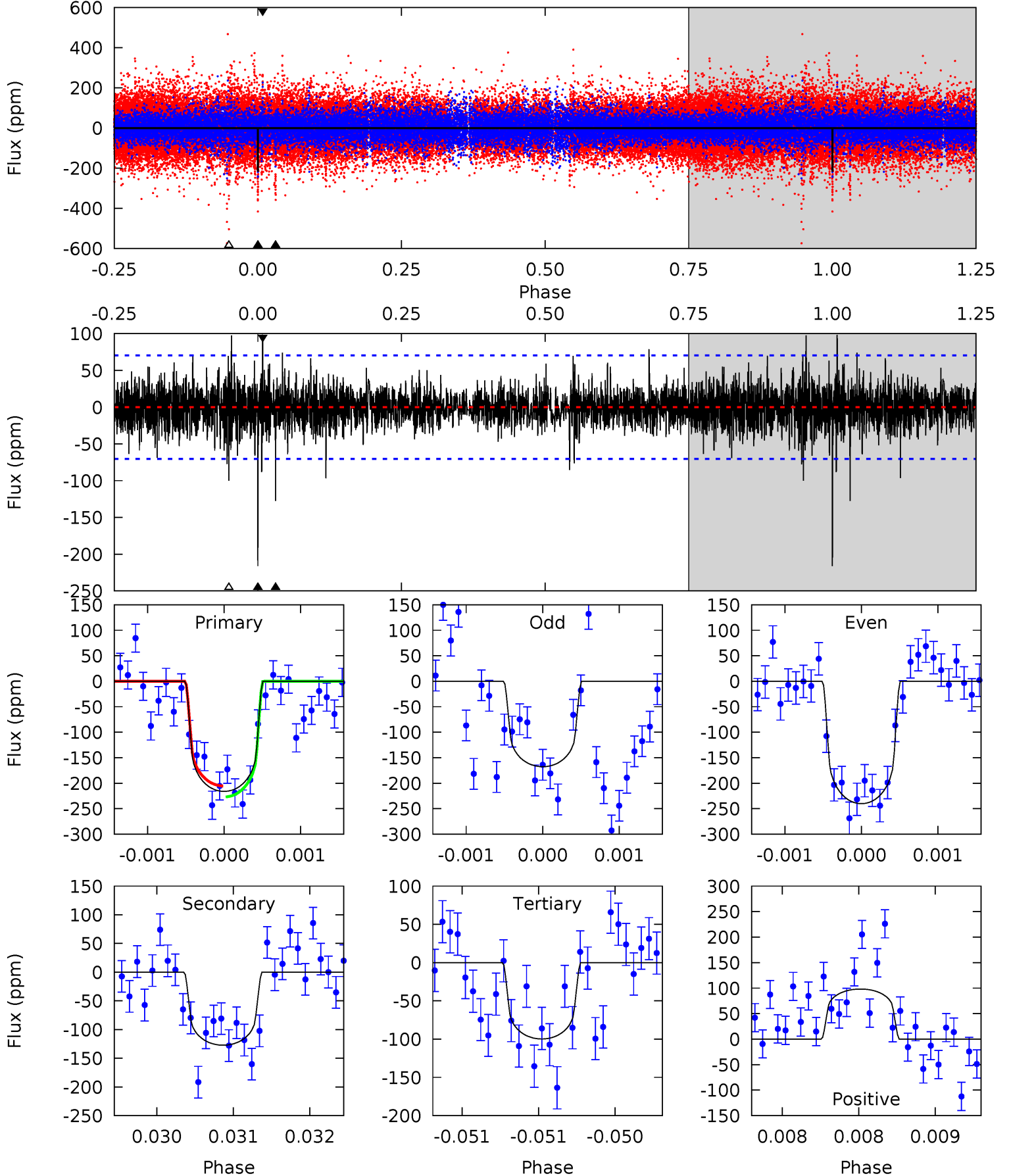
TCE 002865774-02 P=446.800223 Days $T_0=312.044964$ (BKJD)



DV Model-Shift Uniqueness Test

002865774-02, P = 446.807772 Days, E = 312.036327 Days

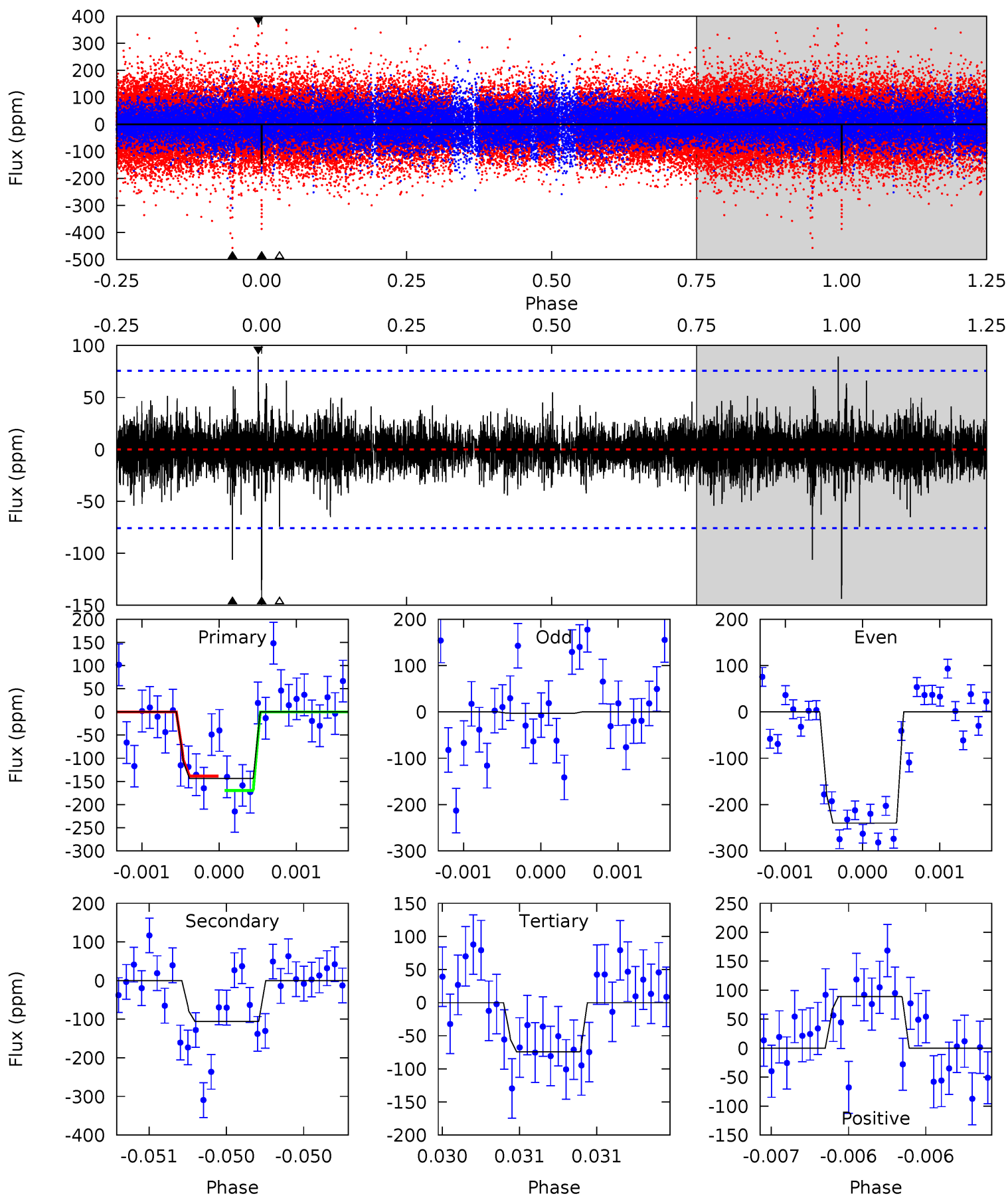
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	10.0	7.85	7.73	5.54	3.43	1.51	9.15	9.27	2.16	2.28	2.68	1.29	0.31	0.84



Alt Model-Shift Uniqueness Test

002865774-02, P = 446.800223 Days, E = 312.044964 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	7.81	5.47	6.57	5.57	3.48	1.02	5.09	4.00	2.34	1.25	8.61	1.29	0.38	1.16



Stellar Parameters For KIC 002865774

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5814^{+78}_{-87}	$4.033^{+0.025}_{-0.025}$	$-0.060^{+0.150}_{-0.150}$	$1.625^{+0.088}_{-0.078}$	$1.038^{+0.075}_{-0.075}$	$0.341^{+0.036}_{-0.033}$
	+1%/-1%	+1%/-1%	+250%/-250%	+5%/-5%	+7%/-7%	+11%/-10%
Source	SPE72	AST10	SPE72	DSEP		

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

Secondary Eclipse Parameters for KIC 002865774-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-127 ± 13	$2.63^{+1.61}_{-1.40}$	424^{+8}_{-8}	5148^{+2377}_{-887}	13856^{+48191}_{-8659}
Alt.	-106 ± 14	$2.52^{+1.49}_{-1.44}$	424^{+8}_{-8}	5026^{+2589}_{-845}	12264^{+53723}_{-7481}

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 $A_{obs} \gg 1.0$

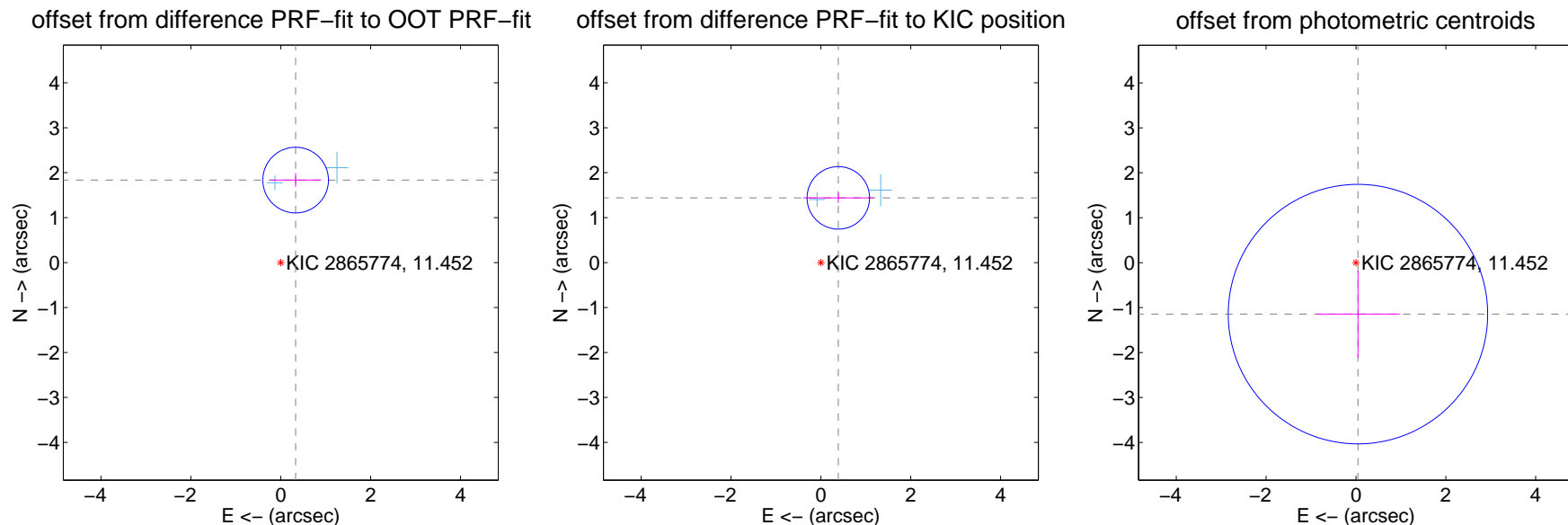
DV Centroid Data

Supplemental centroid analysis for 002865774-02. **Kepler magnitude: 11.45.** Transit SNR 7.64

There are 2 quarters with good PRF difference image offsets

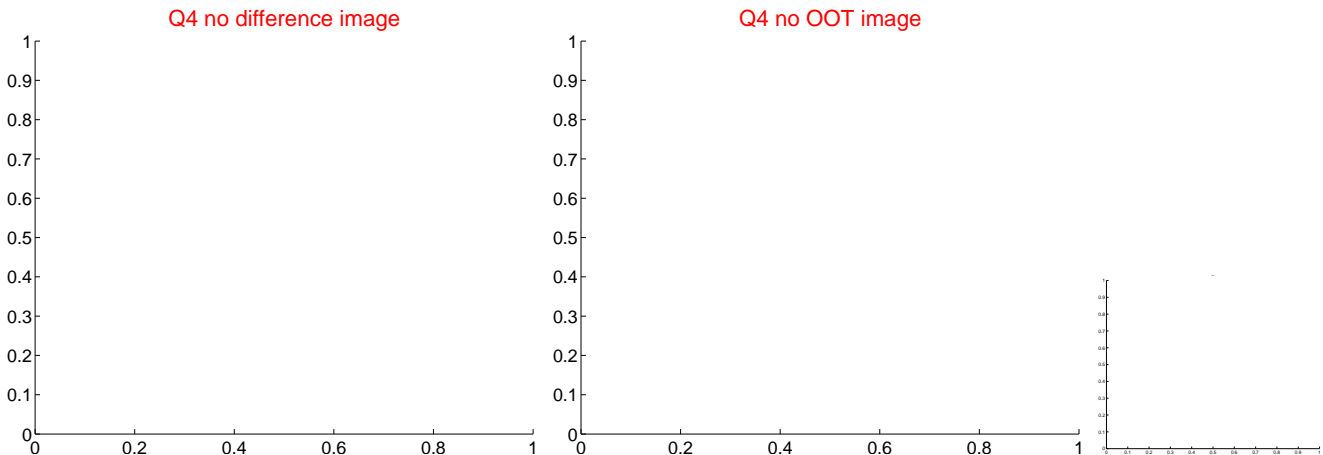
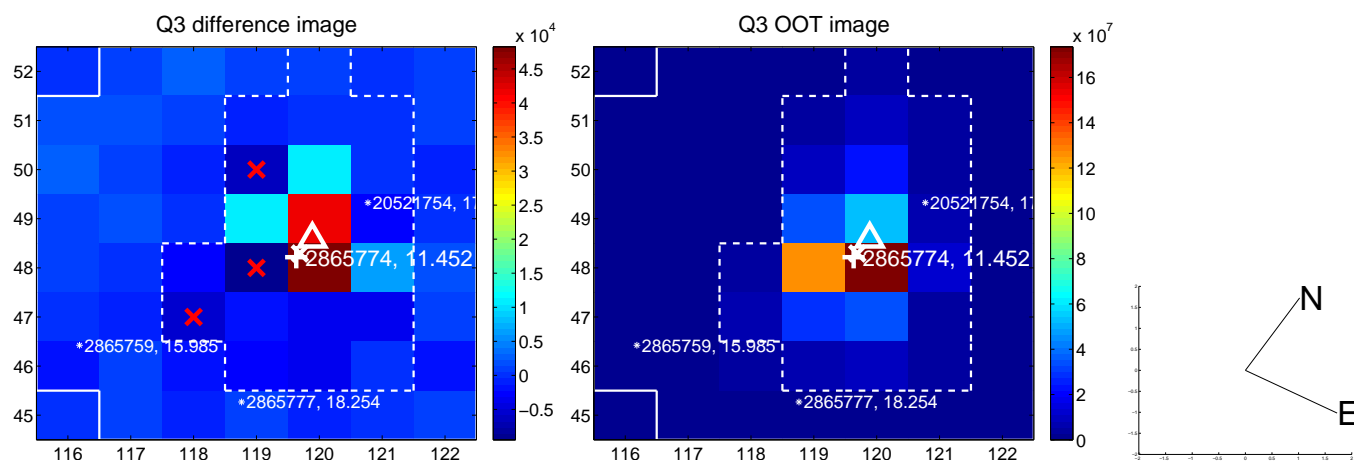
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.865 ± 0.243	7.66	-0.331 ± 0.567	1.835 ± 0.152
PRF-fit source offset from KIC position	1.491 ± 0.232	6.44	-0.388 ± 0.783	1.440 ± 0.114
photometric centroid source offset	1.15 ± 0.96	1.19	-0.04 ± 0.93	-1.14 ± 0.96

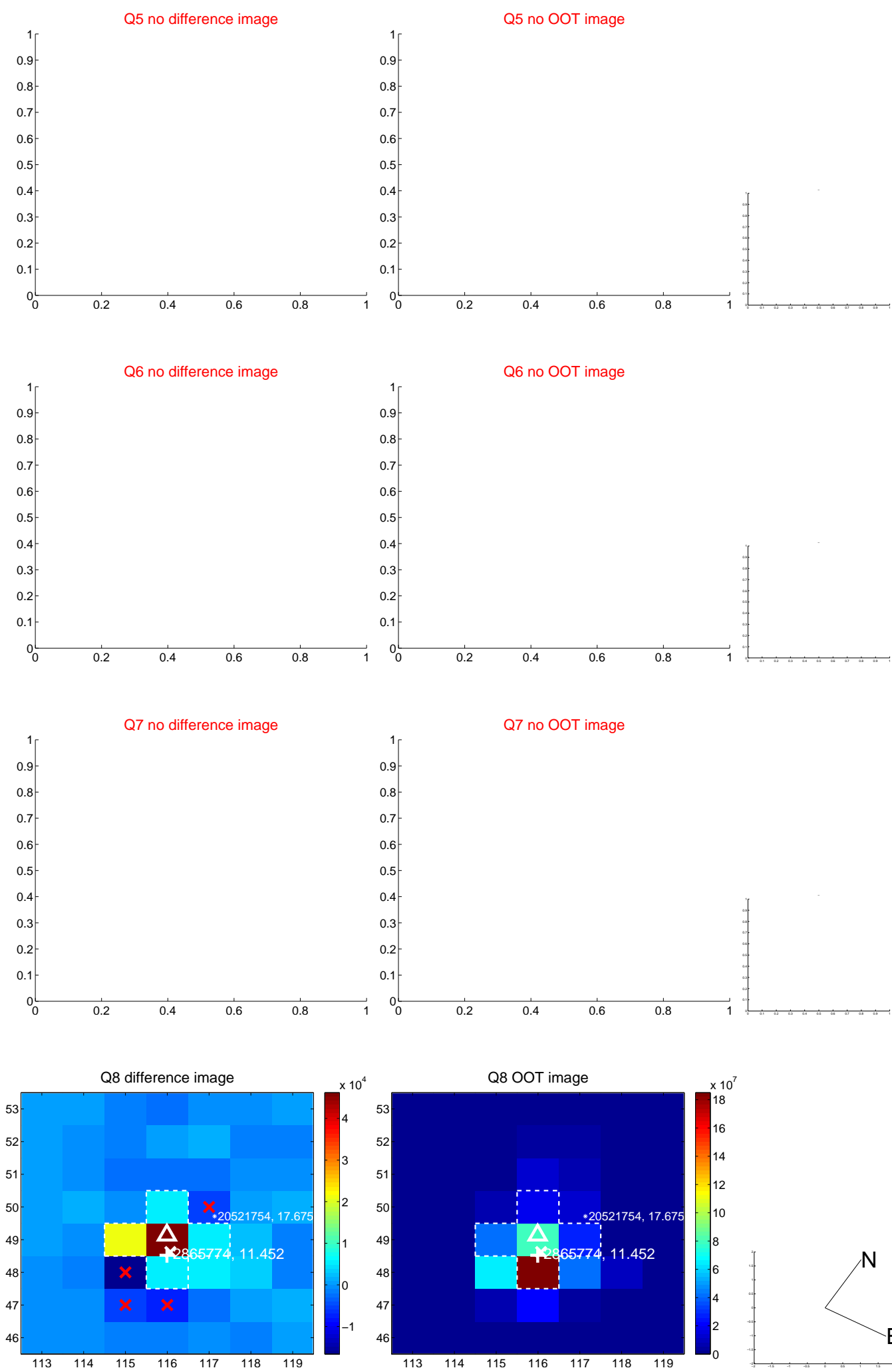


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

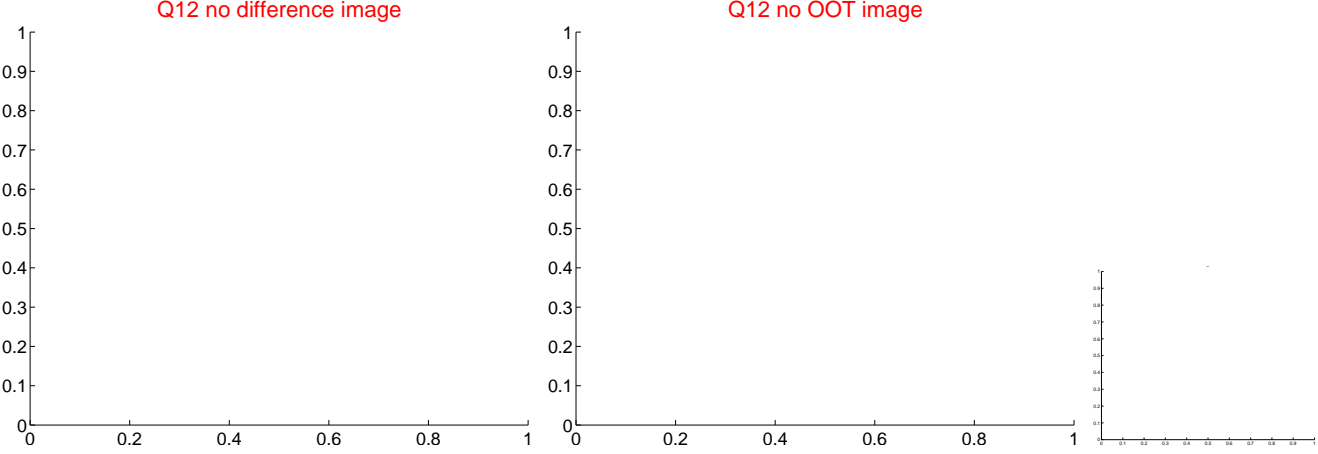
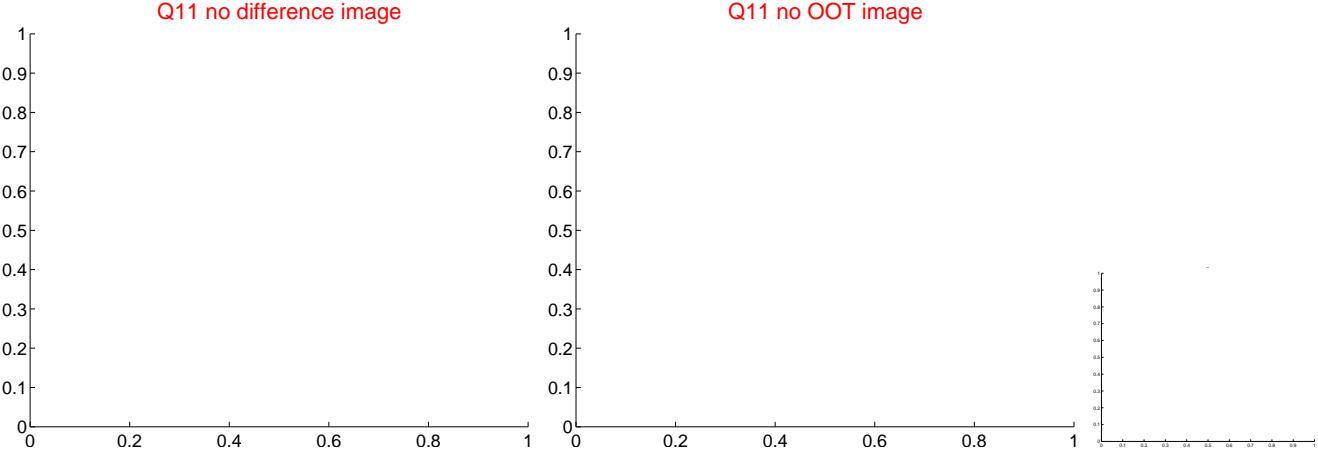
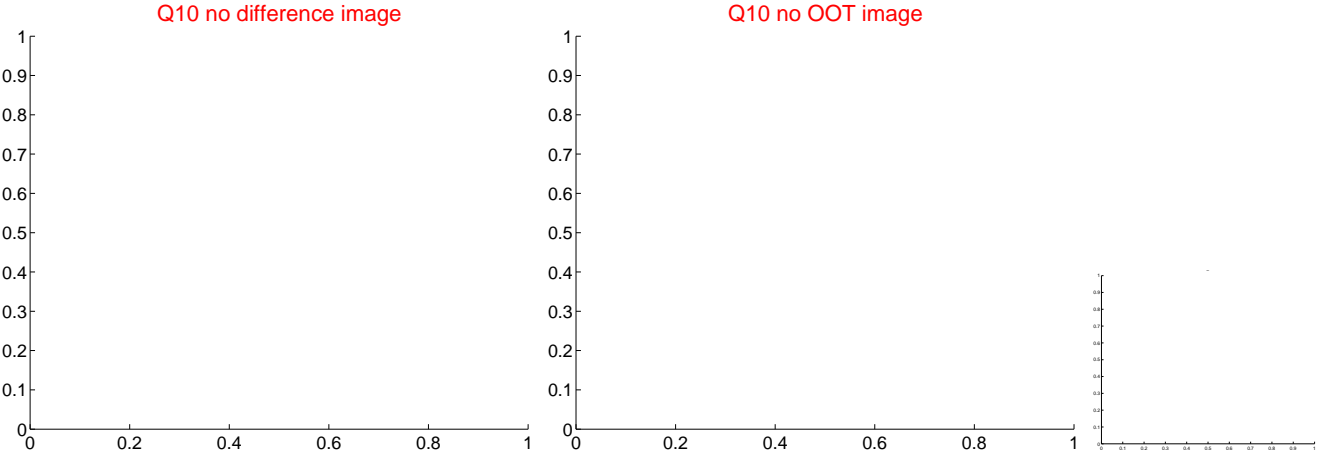
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



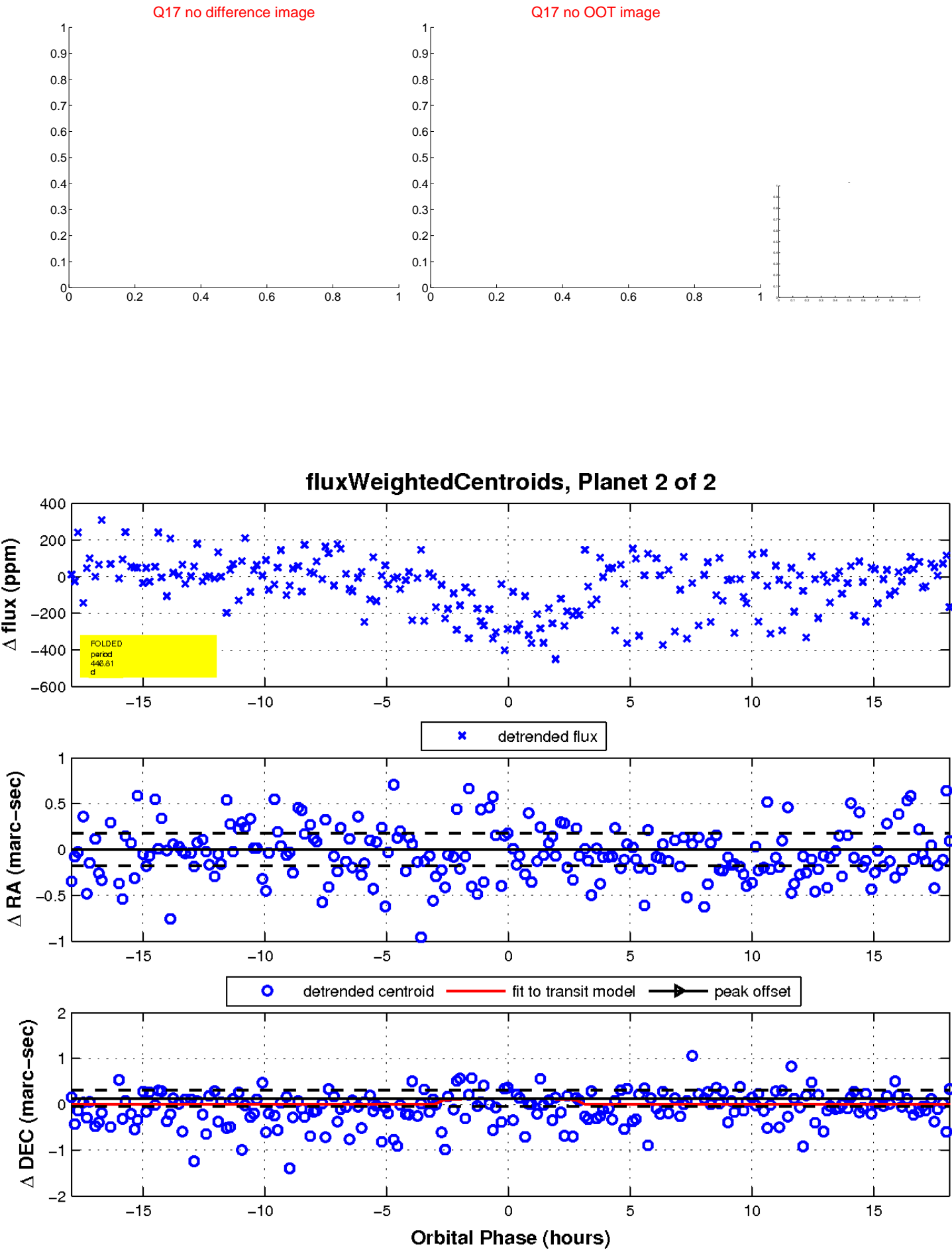
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

