

KIC 010068482

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})
010068482-02	OBS	No	364.163886	392.220925	232.8	6.417	8.5	8.8	1.00	5780	3.12	1.00
010068482-03	OBS	No	465.588708	446.749462	31.7	4.678	8.2	2.2	1.00	5780	0.67	0.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010068482-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_SATURATED
010068482-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

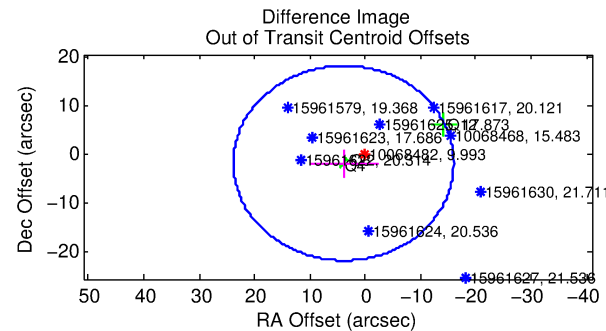
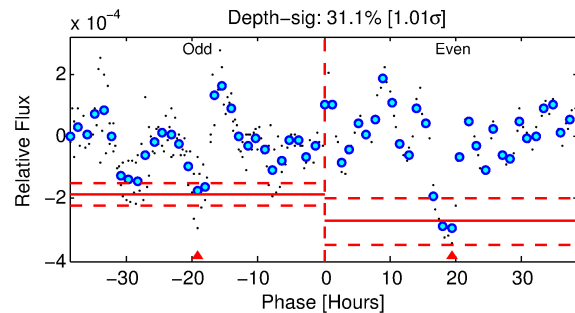
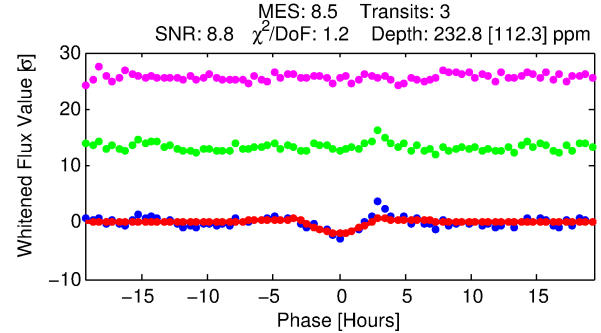
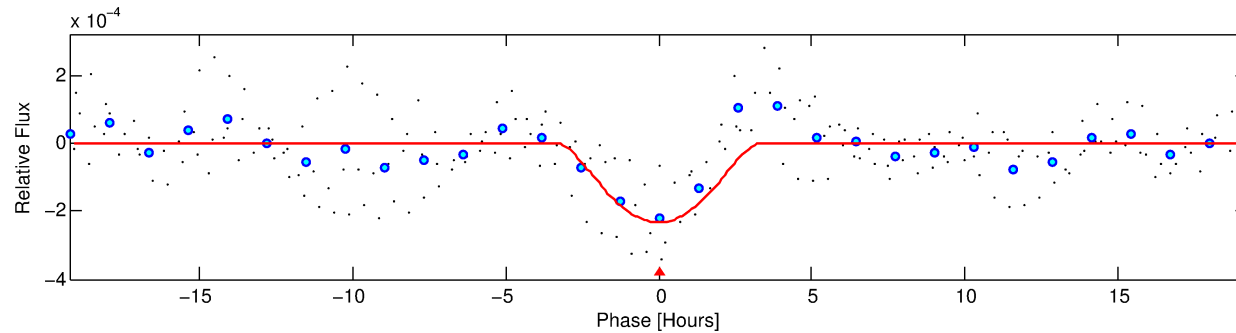
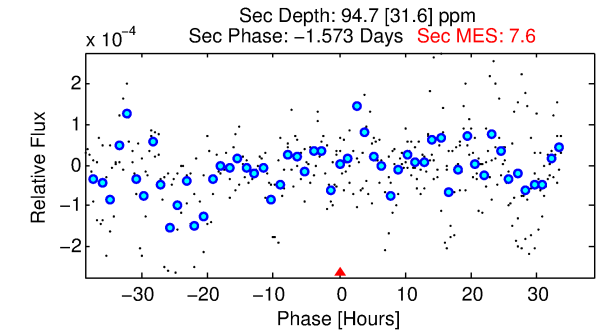
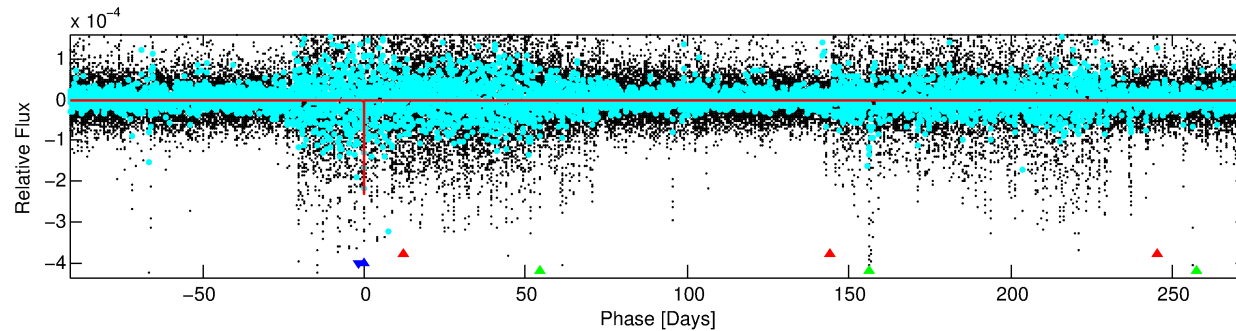
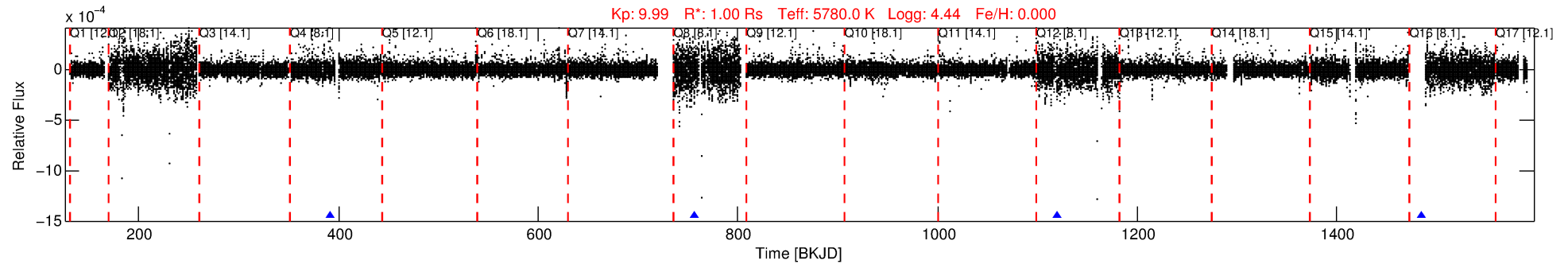
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010068482-02

No Significant Match Found

DV One-Page Summary

KIC: 10068482 Candidate: 2 of 3 Period: 364.164 d



DV Fit Results:

Period = 364.16389 [0.00873] d
Epoch = 392.2209 [0.0099] BKJD
Rp/R* = 0.0286 [0.0742]
a/R* = 104.52 [70.25]
b = 1.00 [0.12]
Seff = 1.00 [0.00]
Teq = 255 [0] K
Rp = 3.12 [8.10] Re
a = 0.9982 [0.0000] AU
Ag = 5334.96 [27760.39] [0.19 sigma]
Teffp = 3372 [4387] K [0.71 sigma]

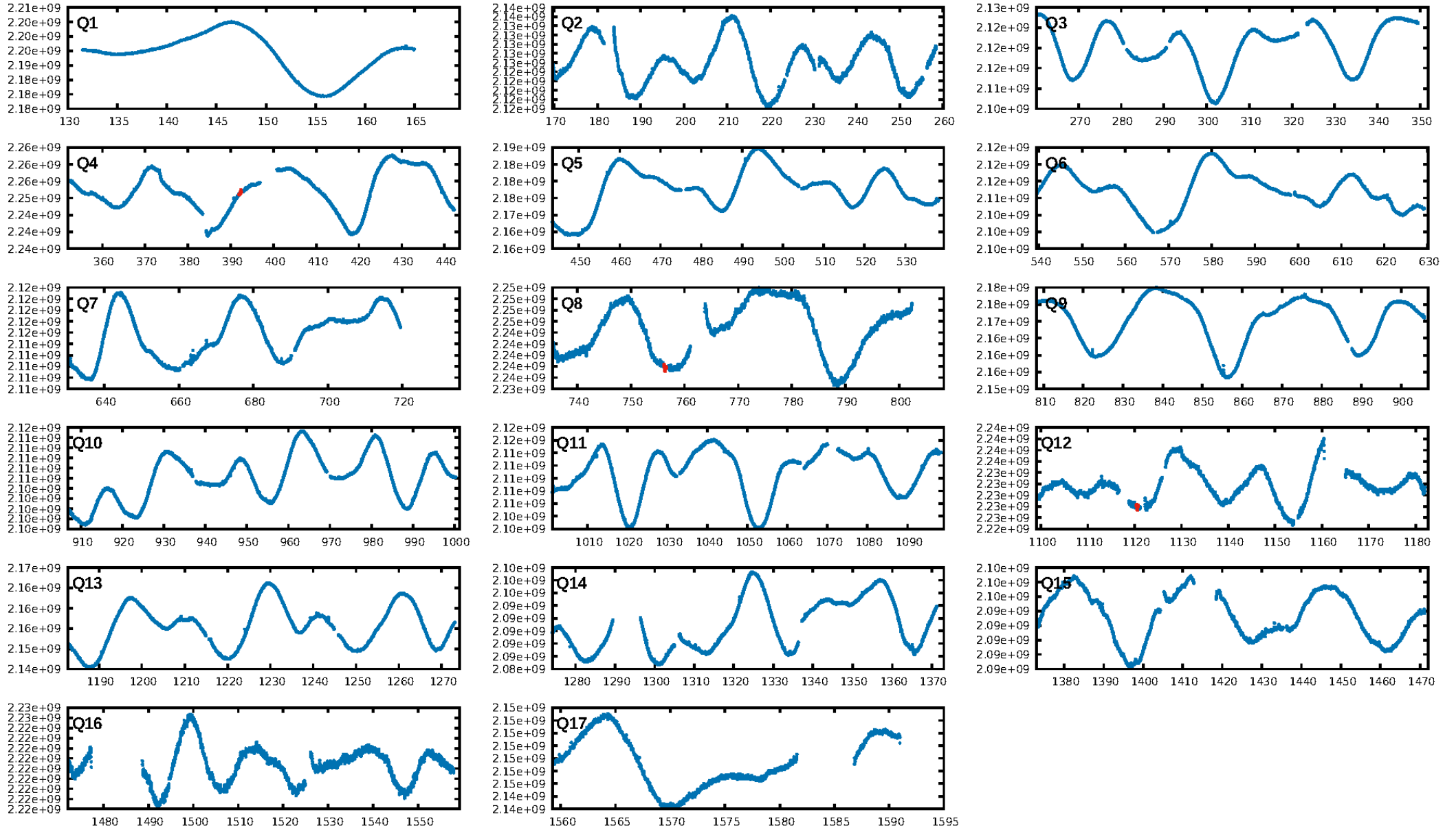
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [306.52 sigma]
ModelChiSquare2-sig: 11.8%
ModelChiSquareGof-sig: 88.5%
Bootstrap-pfa: 8.86e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 56.1%
Centroid-so: 2.346 arcsec [1.42 sigma]
OotOffset-rm: 4.308 arcsec [0.65 sigma]
KicOffset-rm: 3.232 arcsec [0.48 sigma]
OotOffset-st: 0/0/3/0 [3]
KicOffset-st: 0/0/3/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

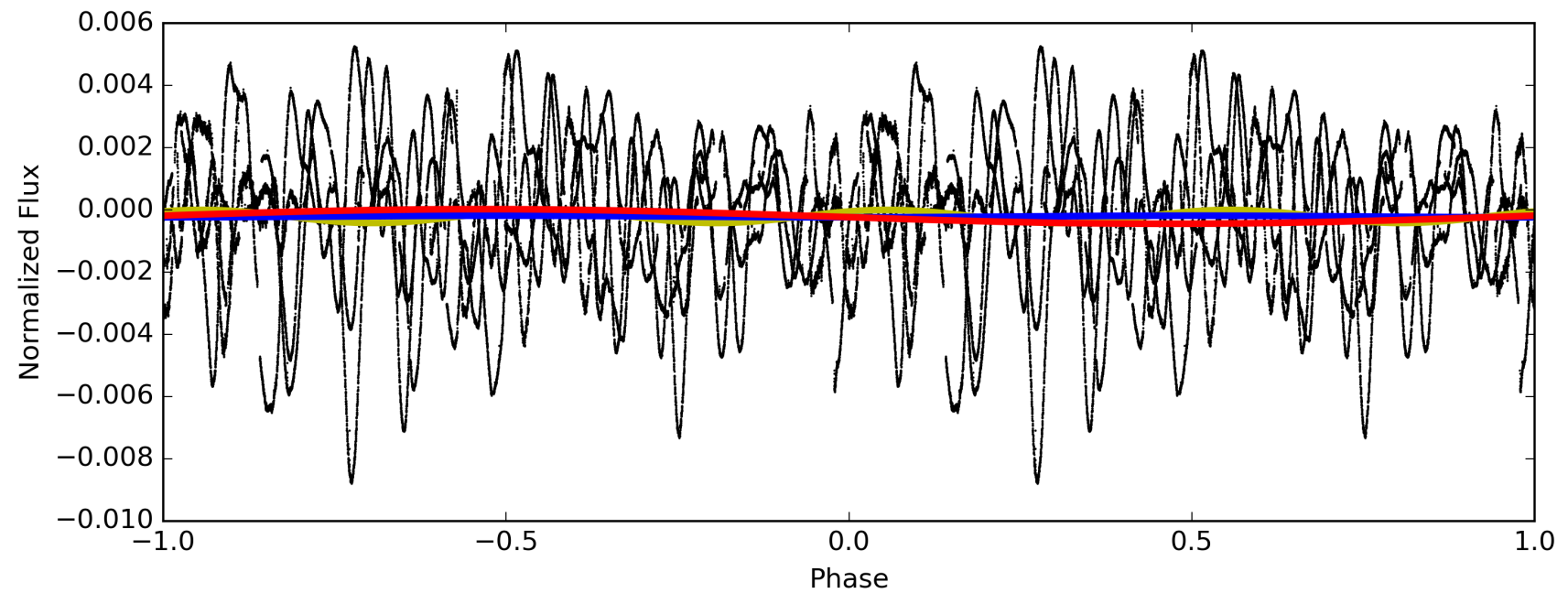
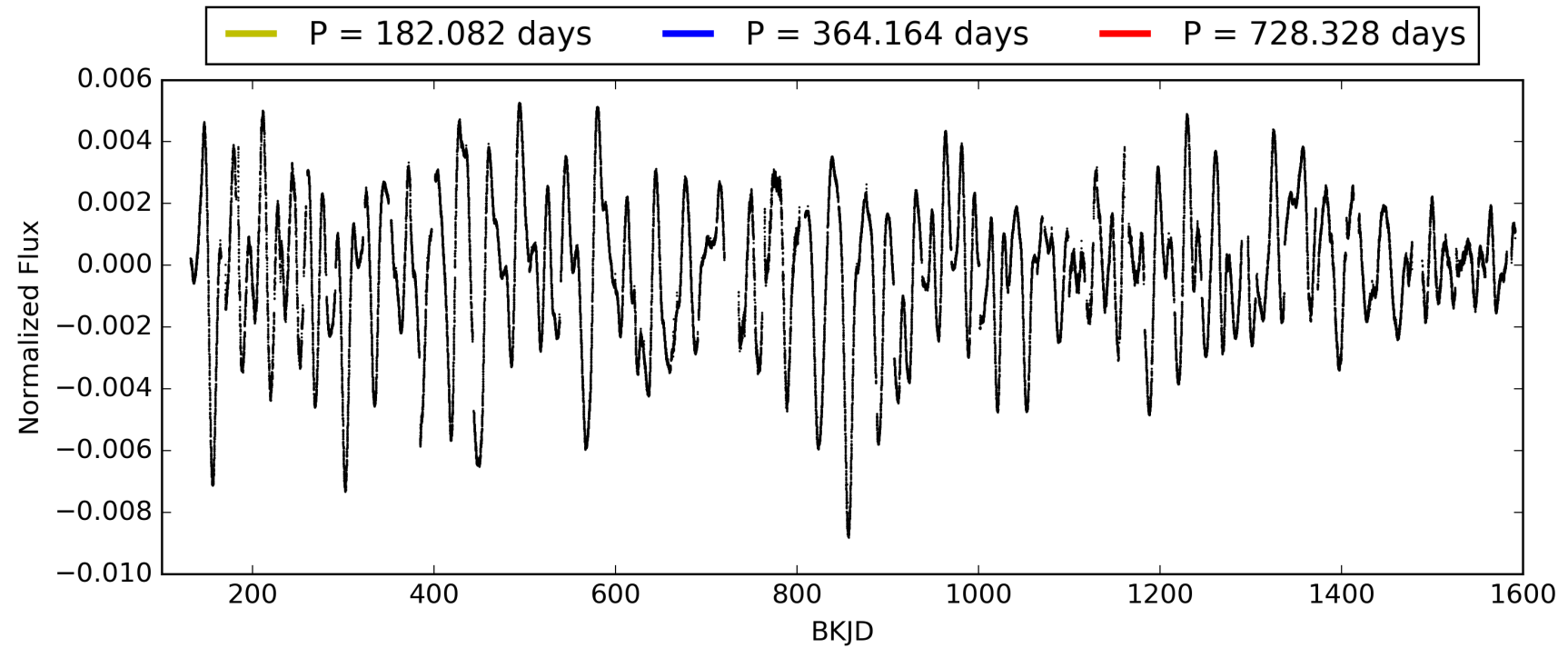
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:32:00 Z

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

TCE 010068482-02, PDC Light Curves

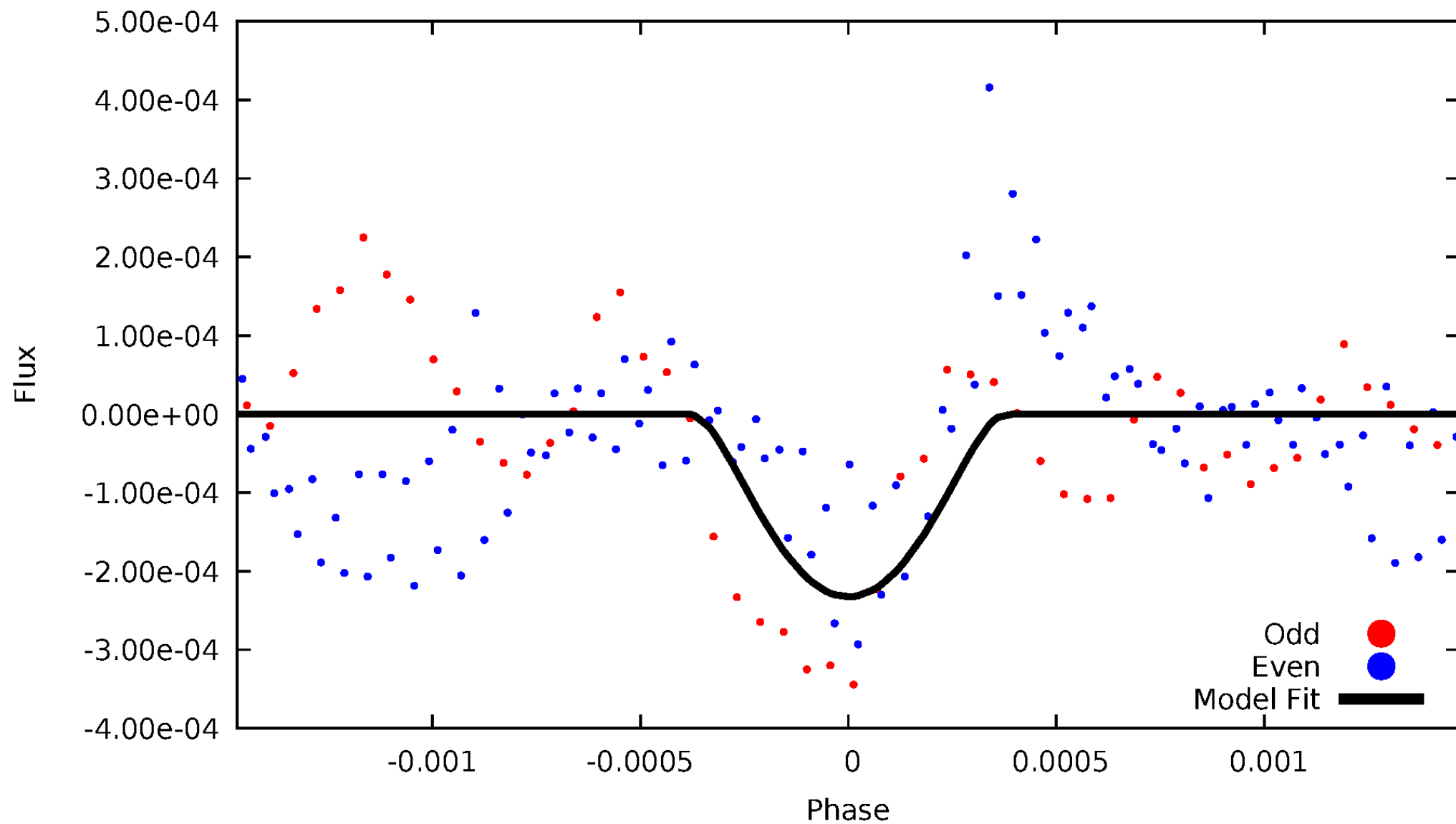


TCE 010068482-02



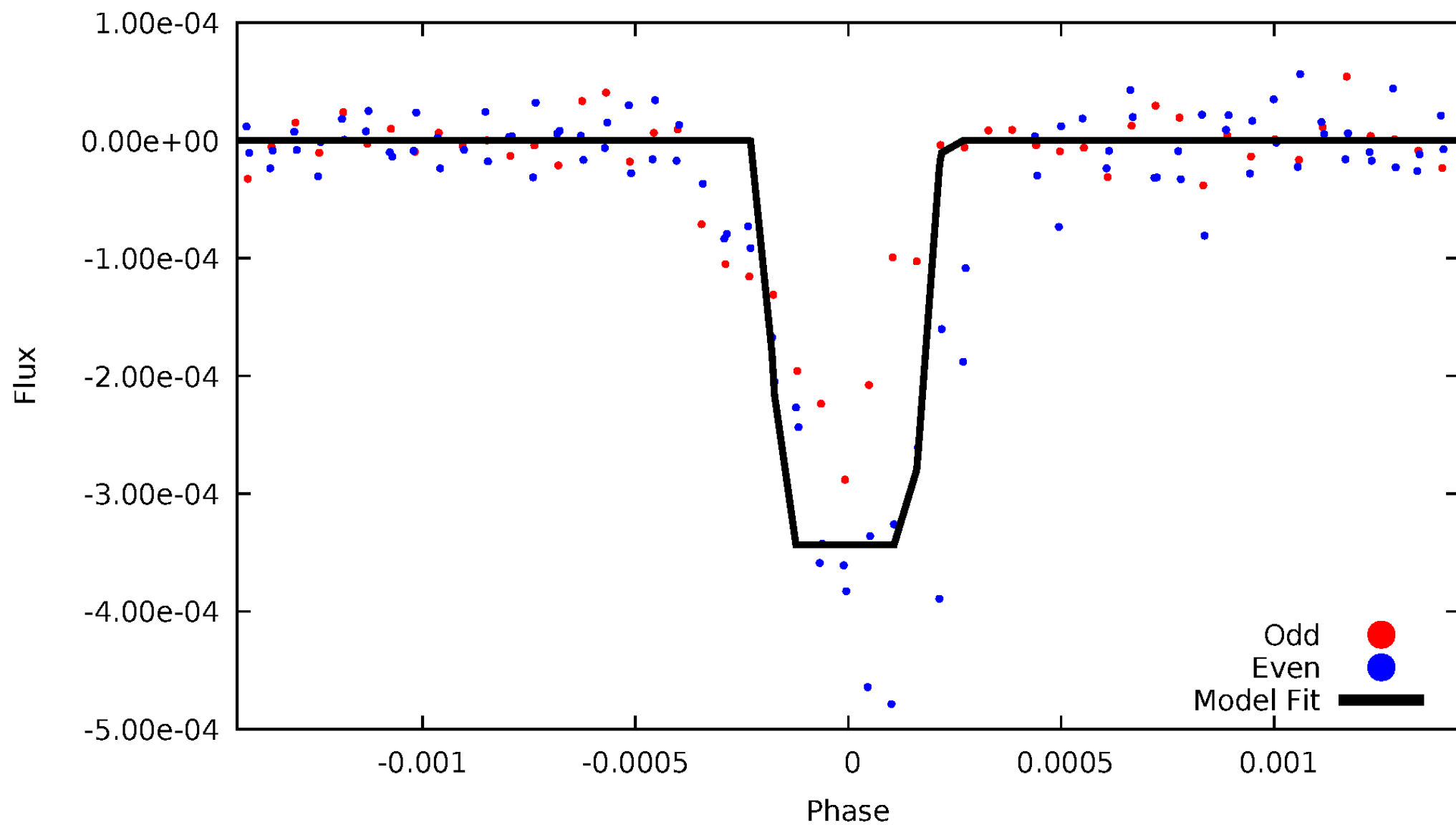
DV Odd/Even

TCE 010068482-02



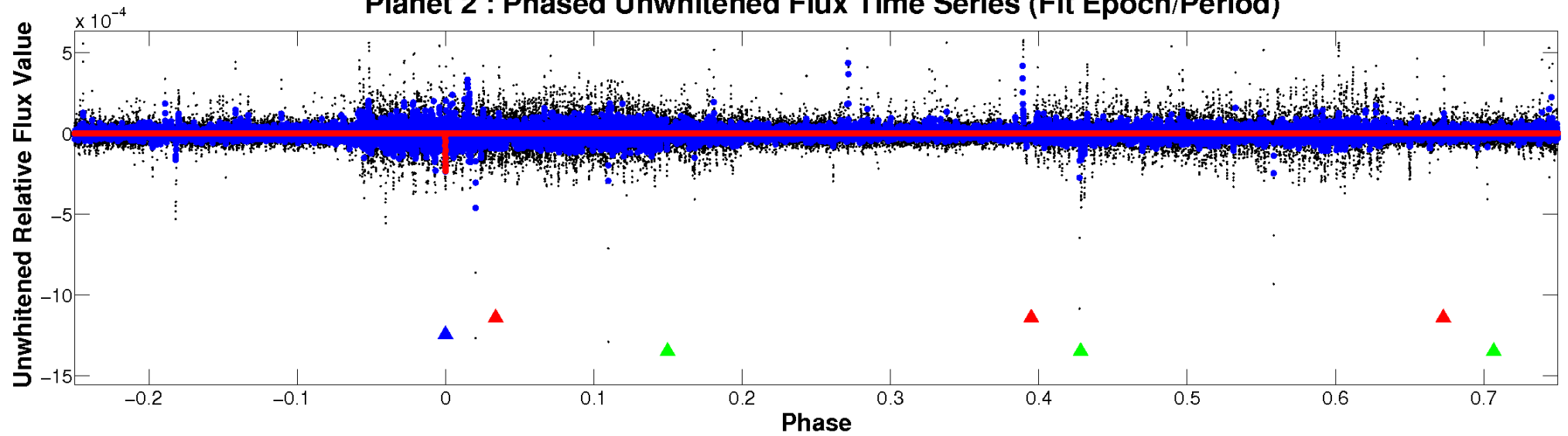
ALT Odd/Even

TCE 010068482-02

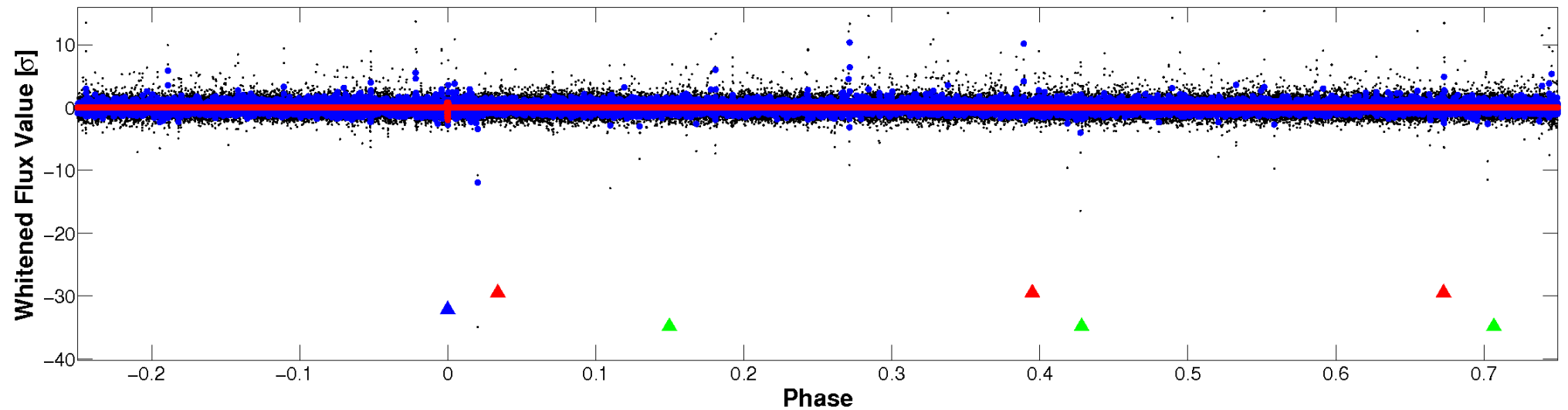


Non-Whitened Vs. Whitened Light Curve

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

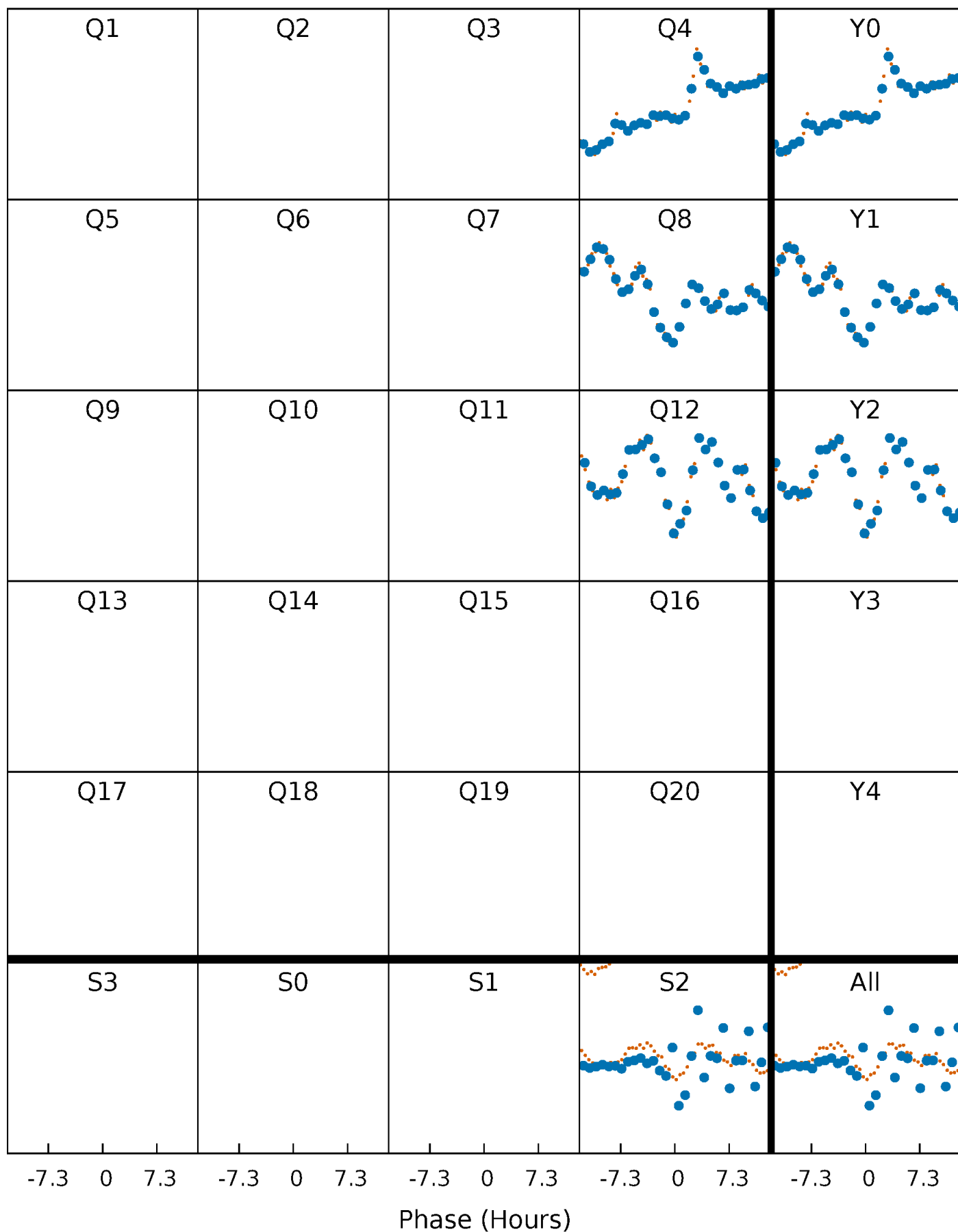


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



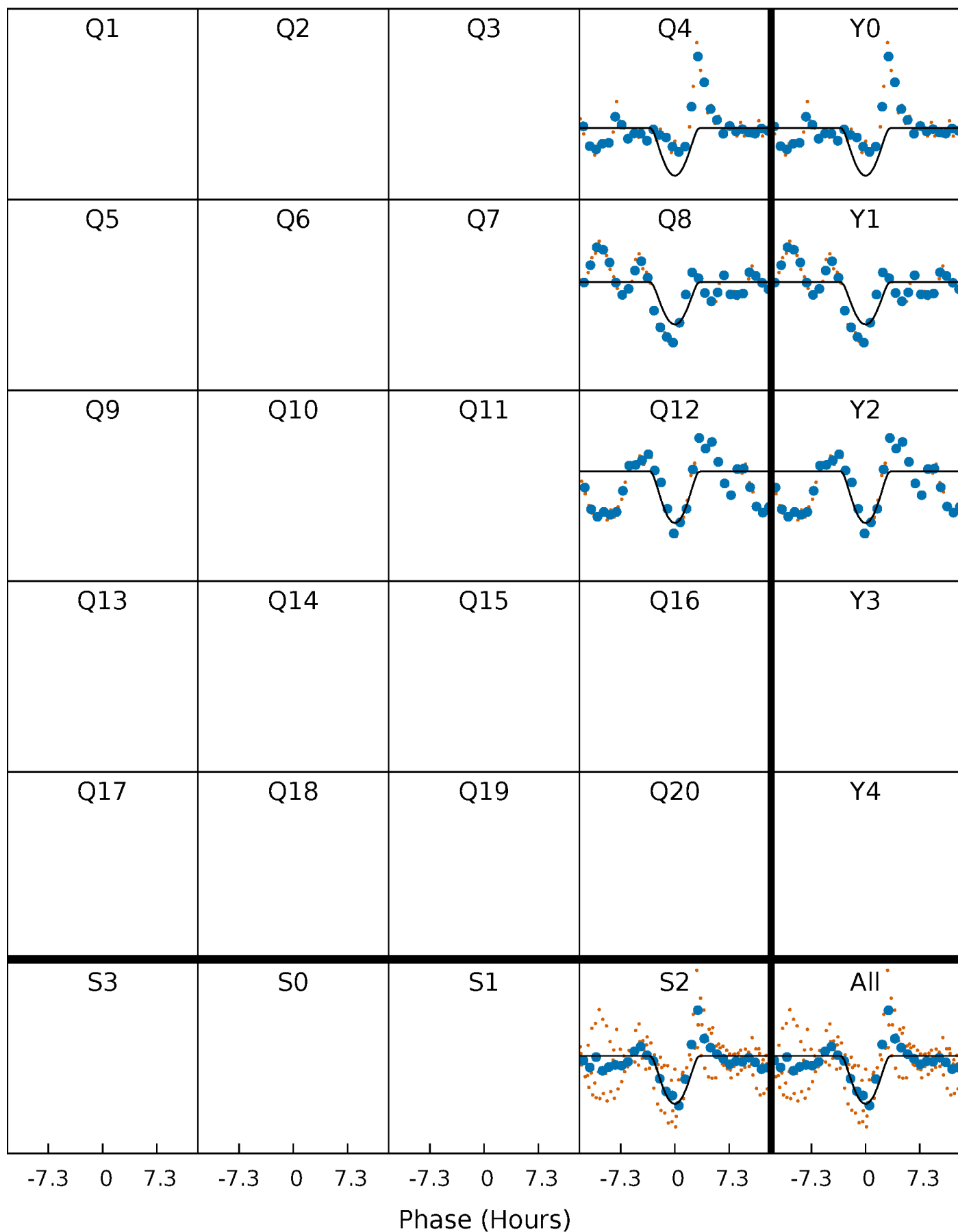
PDC Quarter-Phased Transit Curves

TCE 010068482-02 $P=364.163886$ Days $T_0=392.220925$ (BKJD)



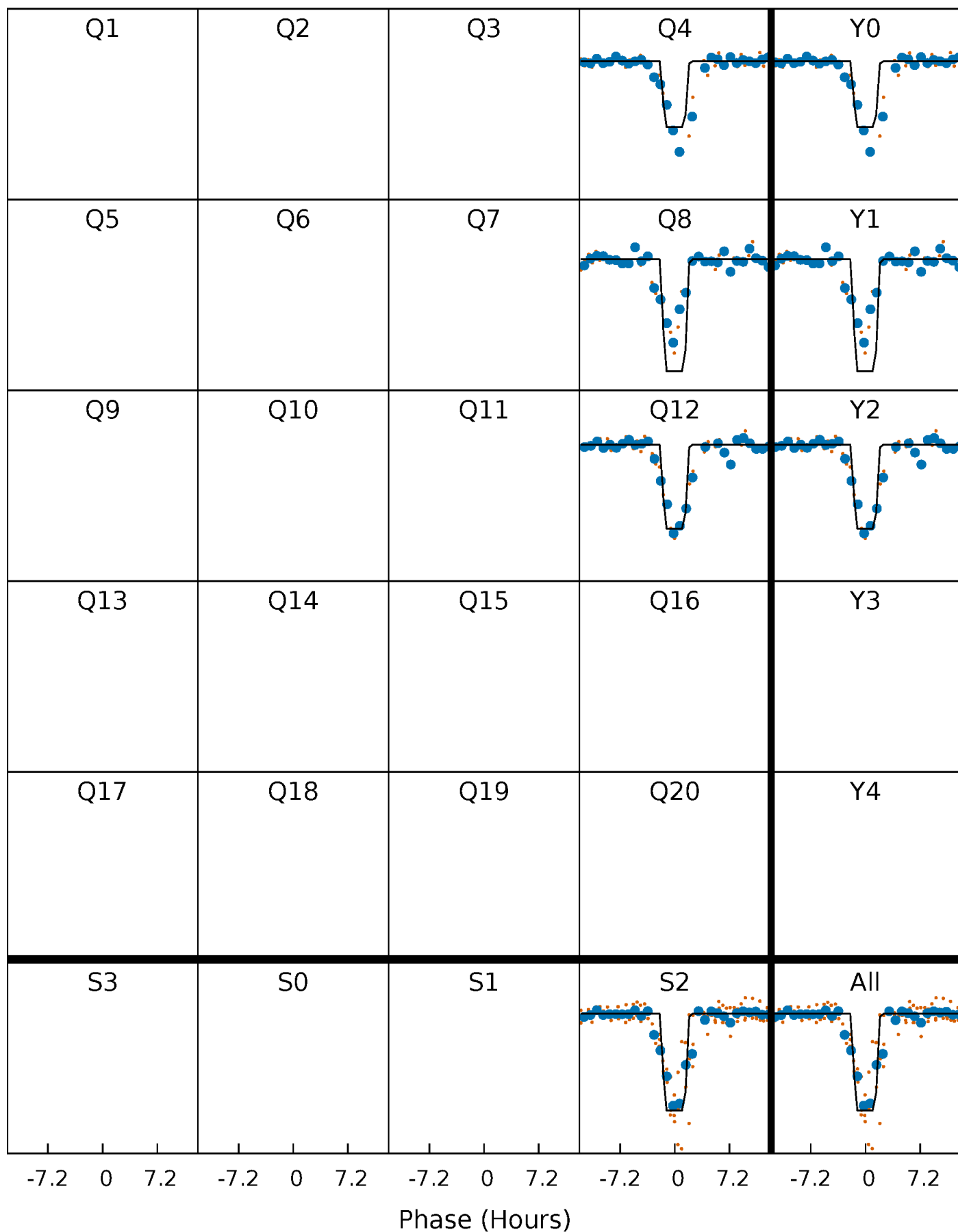
DV Quarter-Phased Transit Curves

TCE 010068482-02 $P=364.163886$ Days $T_0=392.220925$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

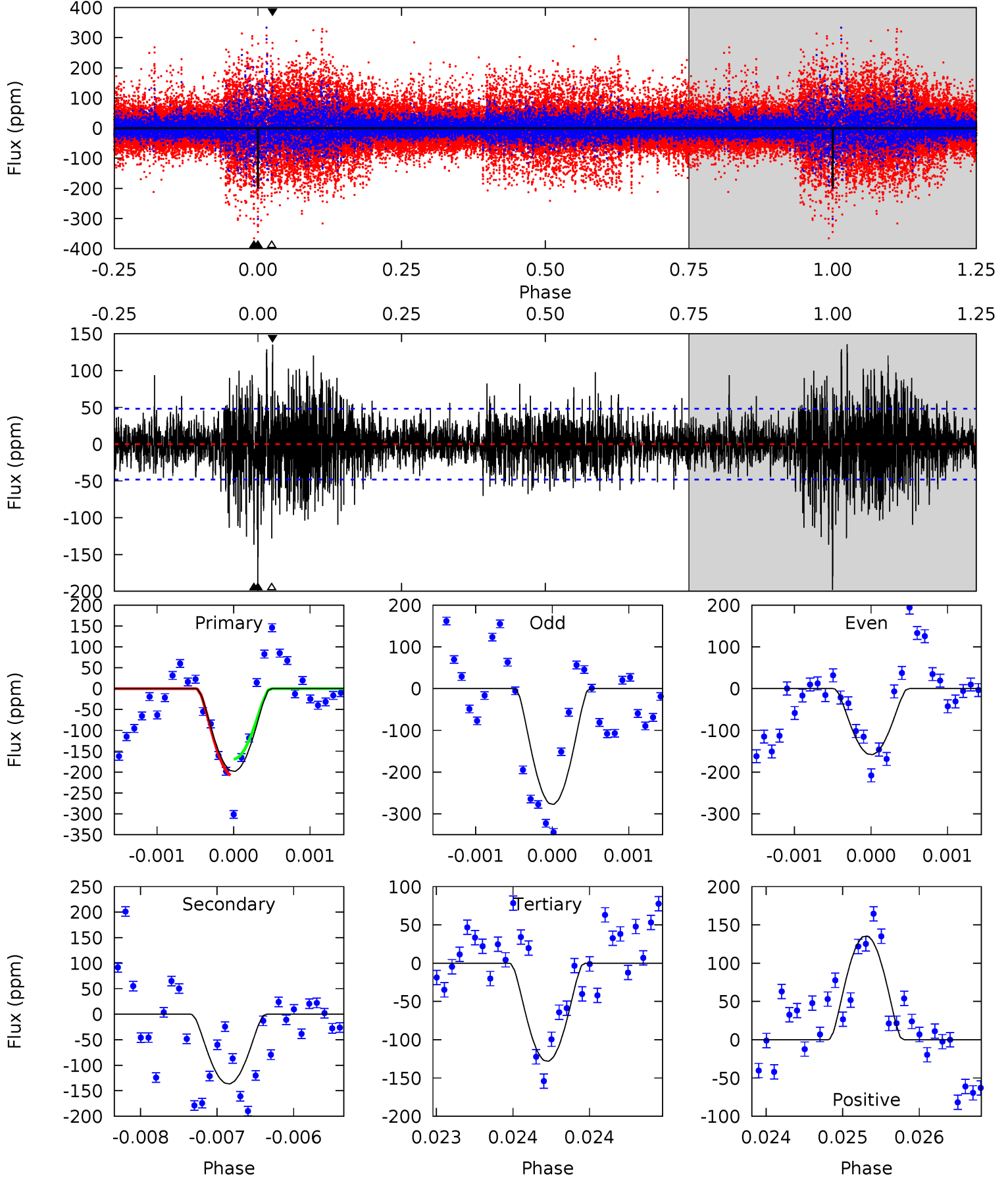
TCE 010068482-02 $P=364.166580$ Days $T_0=392.225804$ (BKJD)



DV Model-Shift Uniqueness Test

010068482-02, P = 364.163886 Days, E = 28.057039 Days

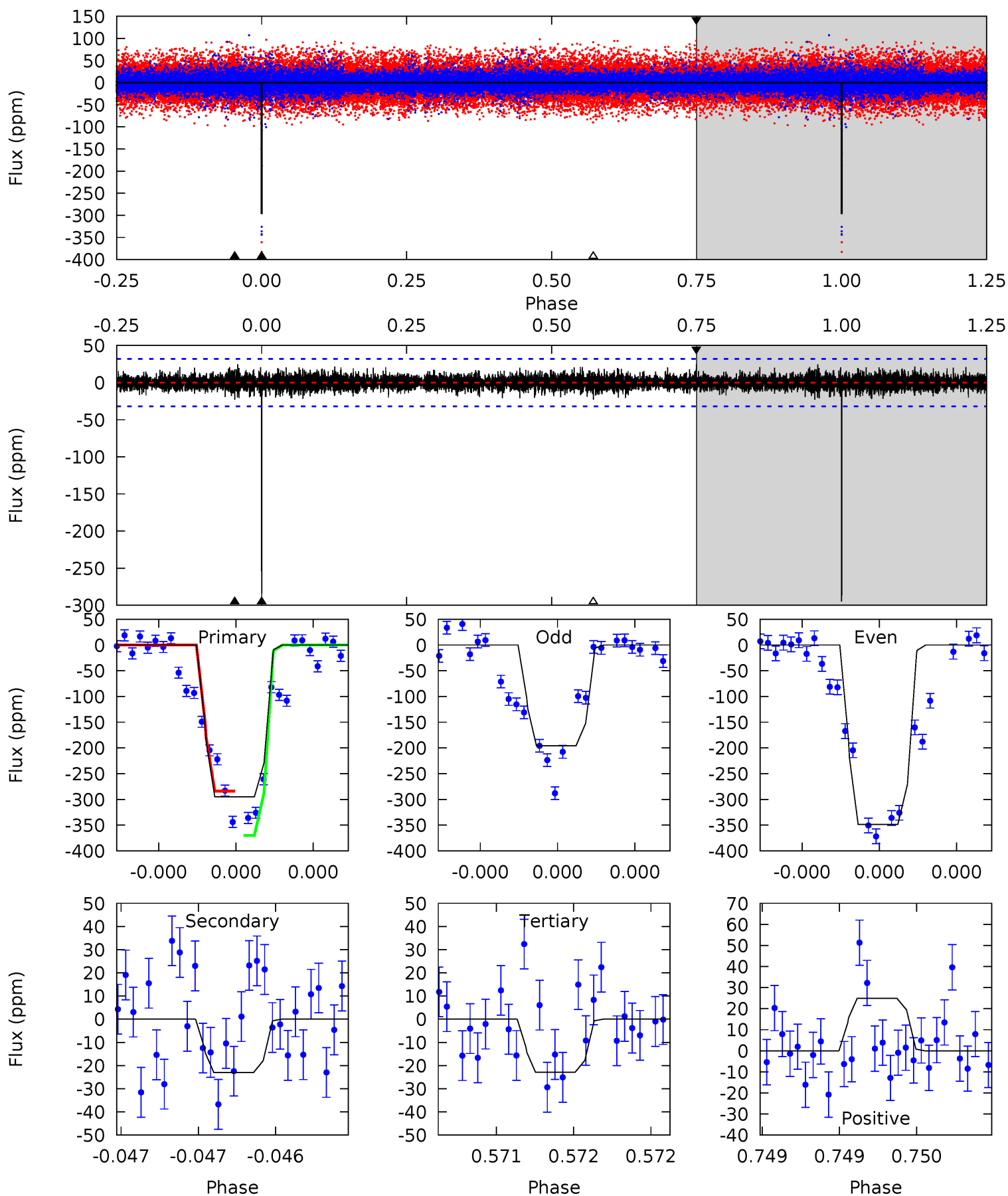
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	15.6	14.6	15.5	5.49	3.36	2.80	8.00	7.16	0.95	0.11	5.77	0.85	0.41	2.22



Alt Model-Shift Uniqueness Test

010068482-02, P = 364.166580 Days, E = 28.059224 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.6	4.04	4.01	4.37	5.59	3.51	0.93	47.6	47.3	0.03	-0.33	14.2	0.92	0.08	7.21



Stellar Parameters For KIC 010068482

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 010068482-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-136 ± 9	$6.58^{+6.76}_{-4.39}$	356^{+18}_{-18}	3136^{+1457}_{-538}	1698^{+14260}_{-1274}
Alt.	-23 ± 6	$6.46^{+5.97}_{-4.30}$	356^{+17}_{-17}	2477^{+850}_{-342}	281^{+2255}_{-202}

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 $A_{obs} \gg 1.0$

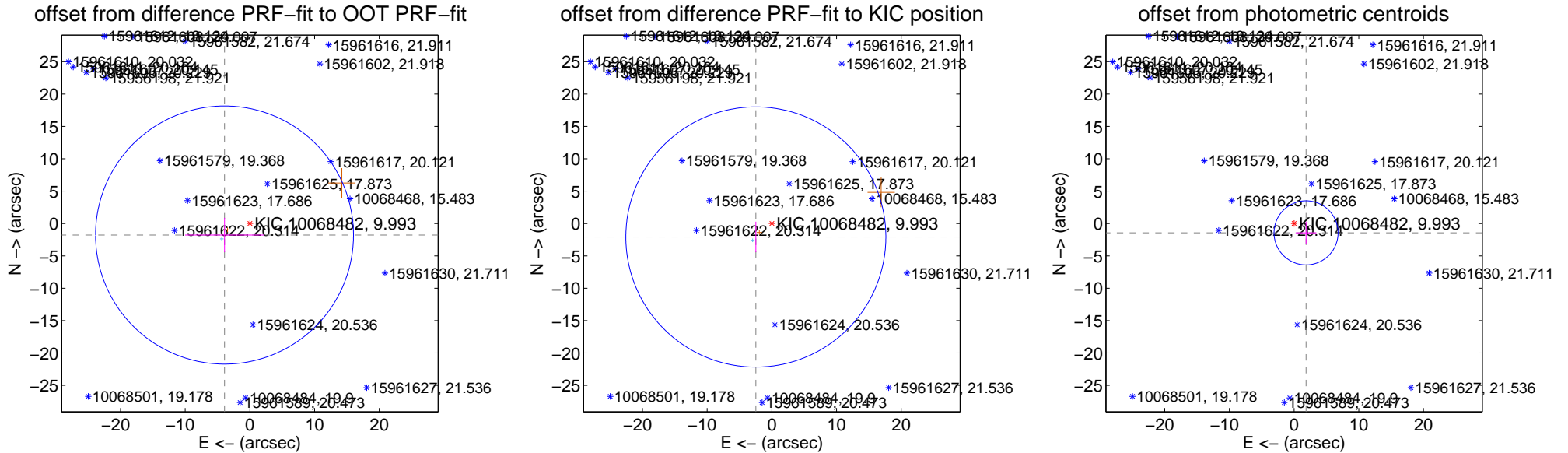
DV Centroid Data

Supplemental centroid analysis for 010068482-02. **Kepler magnitude: 9.99.** Transit SNR 8.79

There are 1 quarters with good PRF difference image offsets

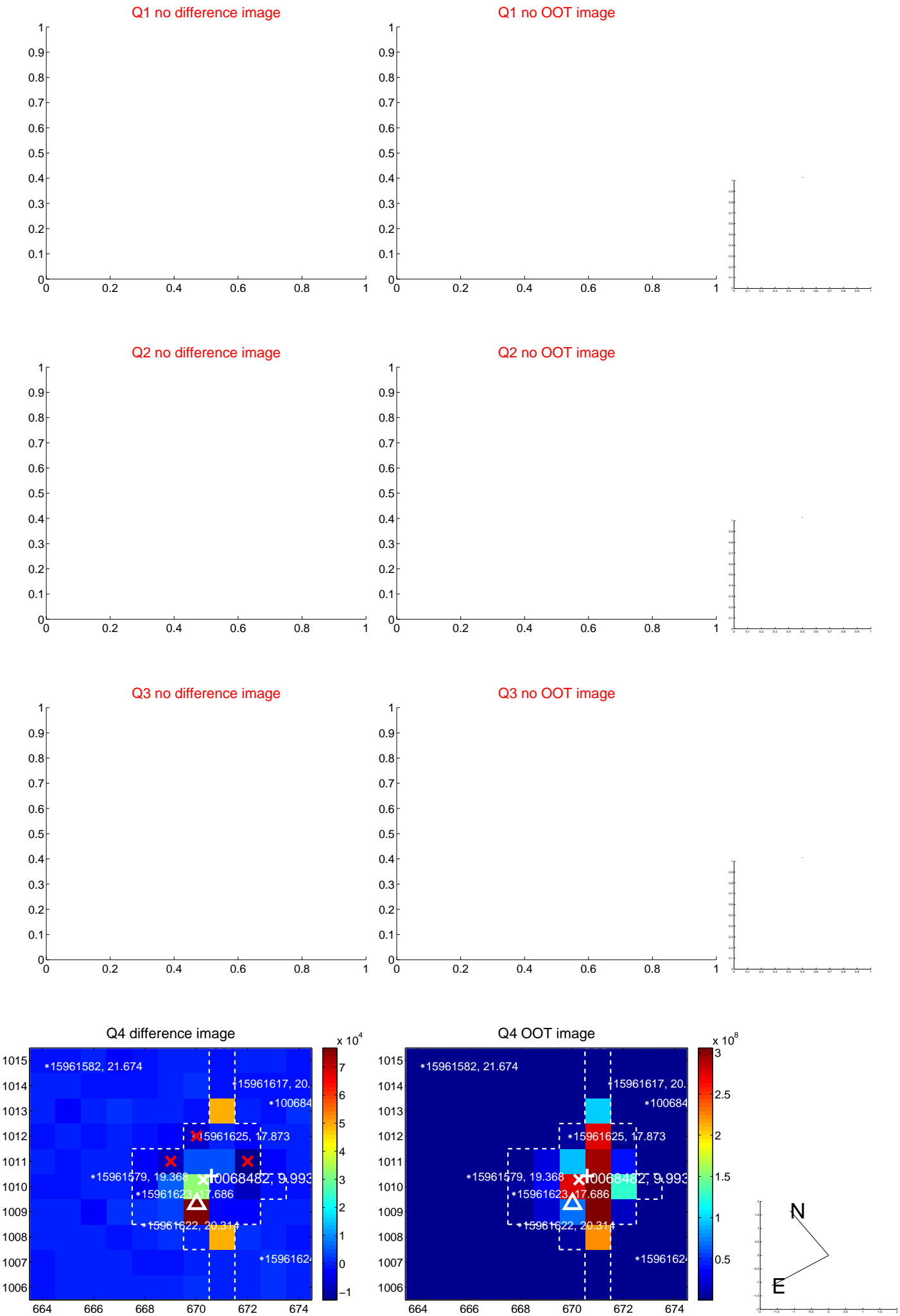
The OOT PRF centroid is offset from the target star catalog position by about 3.05 arcsec so the offset from difference PRF-fit to OOT-PRF-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.308 ± 6.647	0.65	3.923 ± 6.098	-1.780 ± 2.654
PRF-fit source offset from KIC position	3.232 ± 6.701	0.48	2.474 ± 6.769	-2.080 ± 2.367
photometric centroid source offset	2.35 ± 1.65	1.42	-1.85 ± 1.60	-1.44 ± 1.72

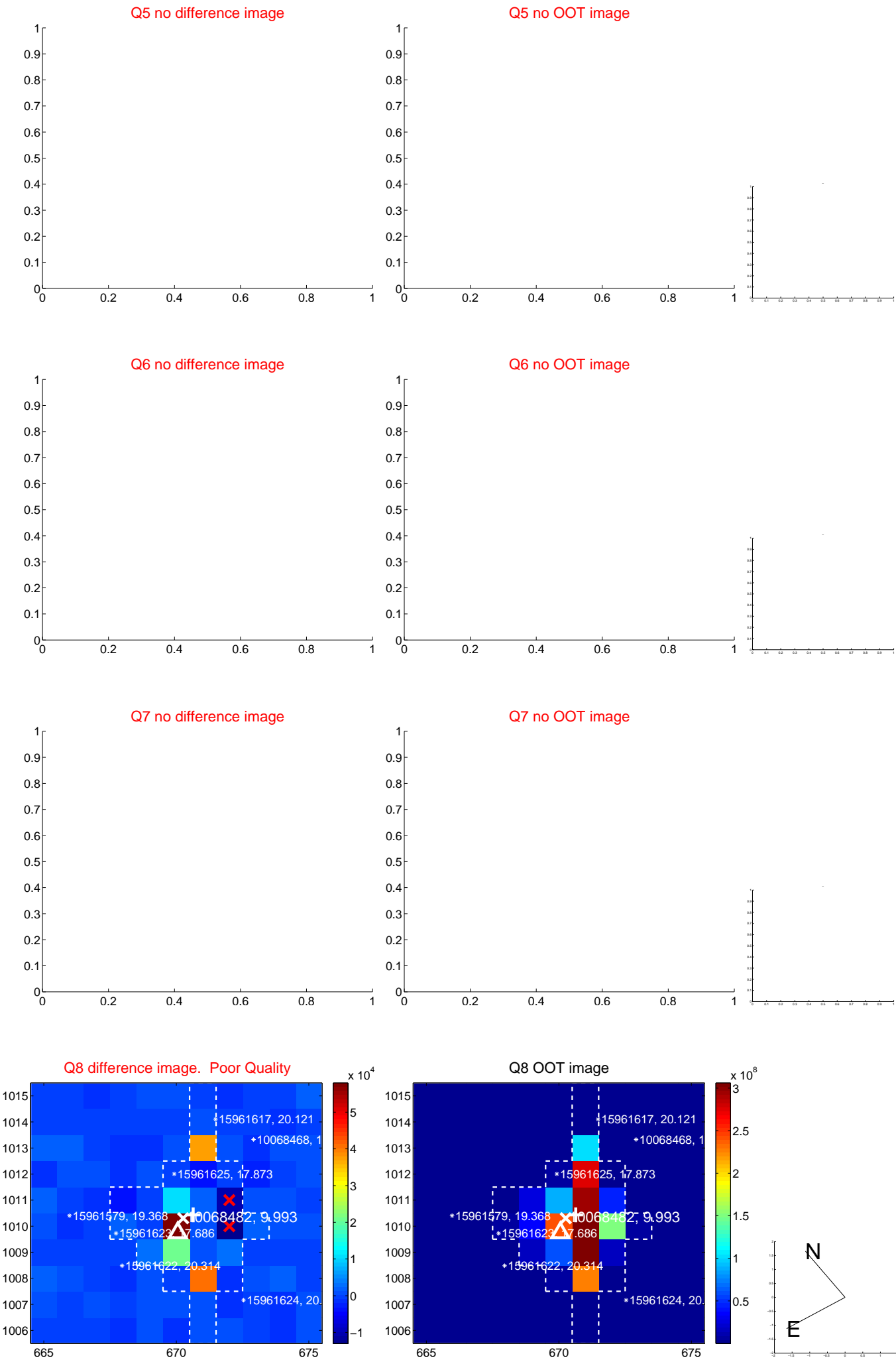


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

Q9 no difference image



Q9 no OOT image



Q10 no difference image



Q10 no OOT image



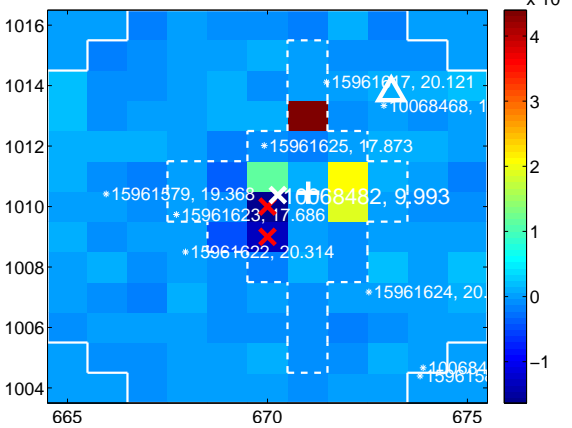
Q11 no difference image



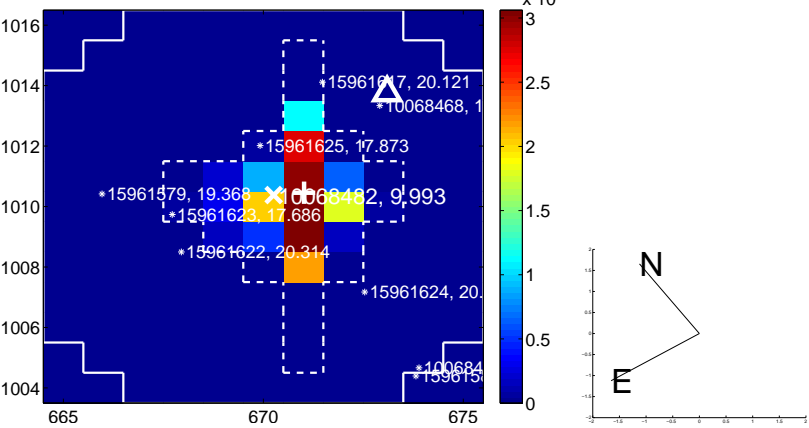
Q11 no OOT image



Q12 difference image. Poor Quality



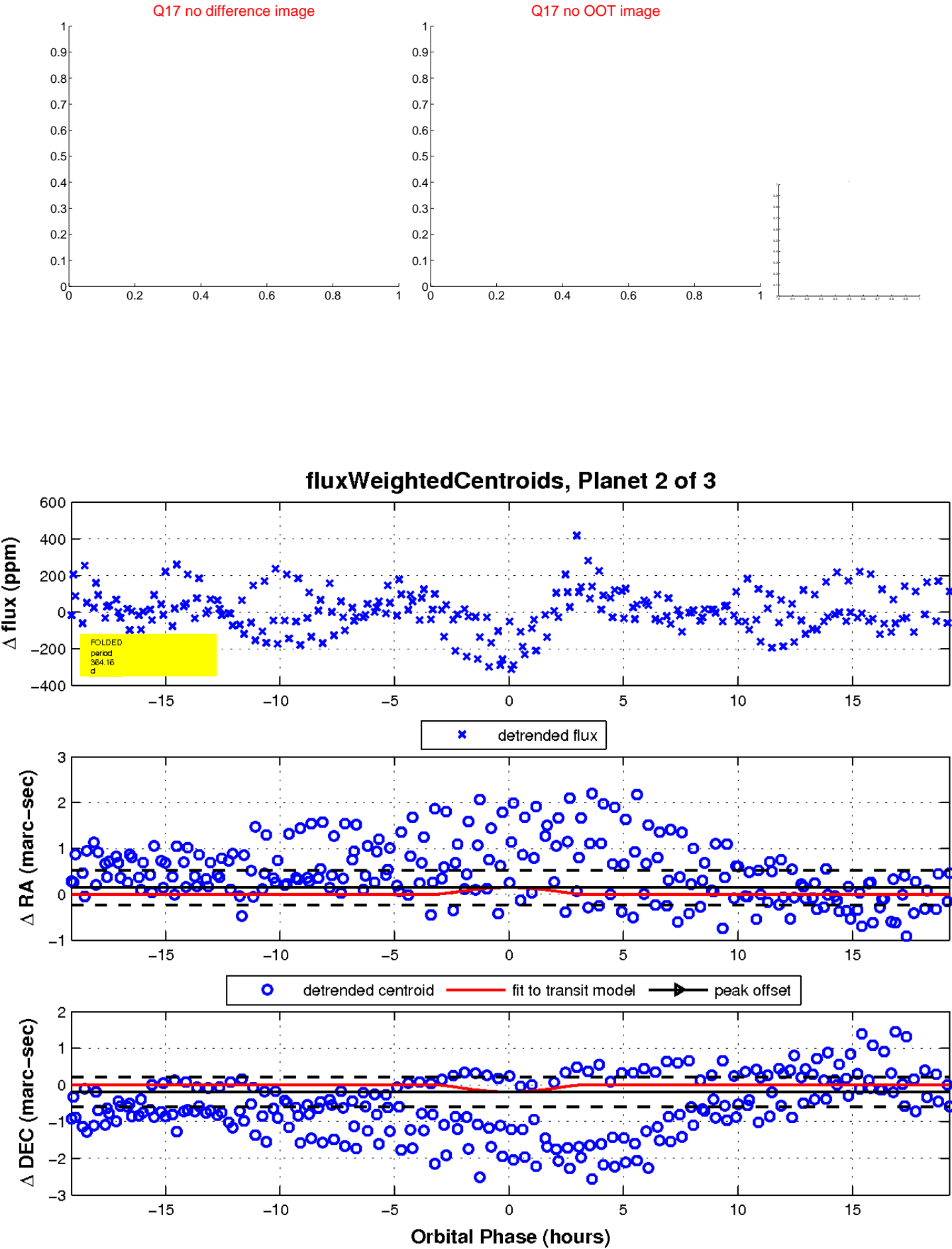
Q12 OOT image



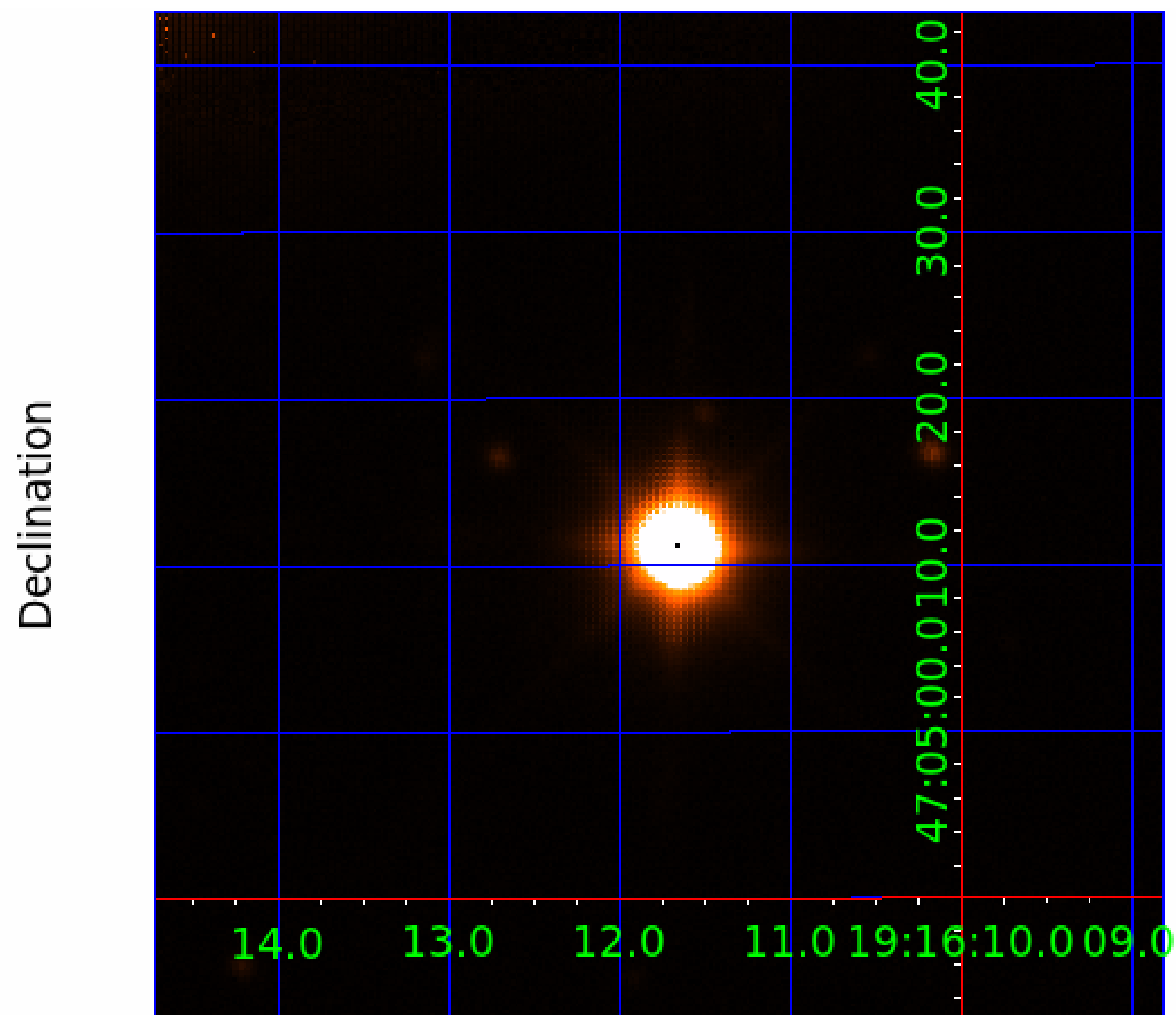
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010068482

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})
010068482-02	OBS	No	364.163886	392.220925	232.8	6.417	8.5	8.8	1.00	5780	3.12	1.00
010068482-03	OBS	No	465.588708	446.749462	31.7	4.678	8.2	2.2	1.00	5780	0.67	0.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010068482-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_SATURATED
010068482-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

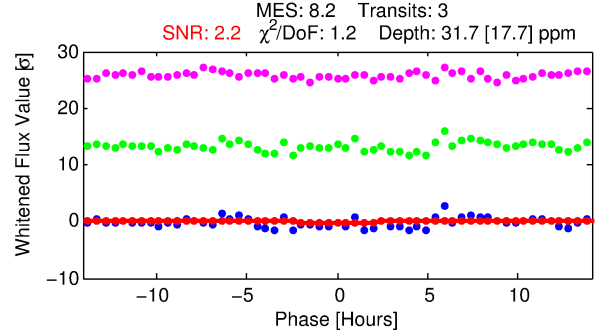
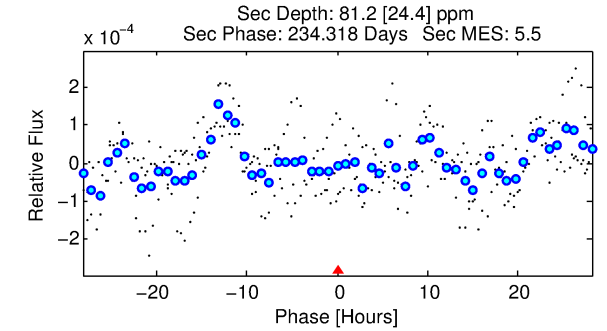
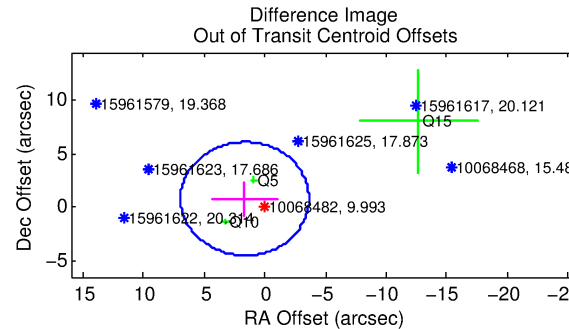
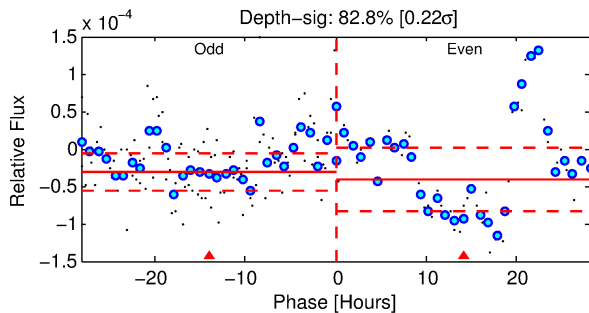
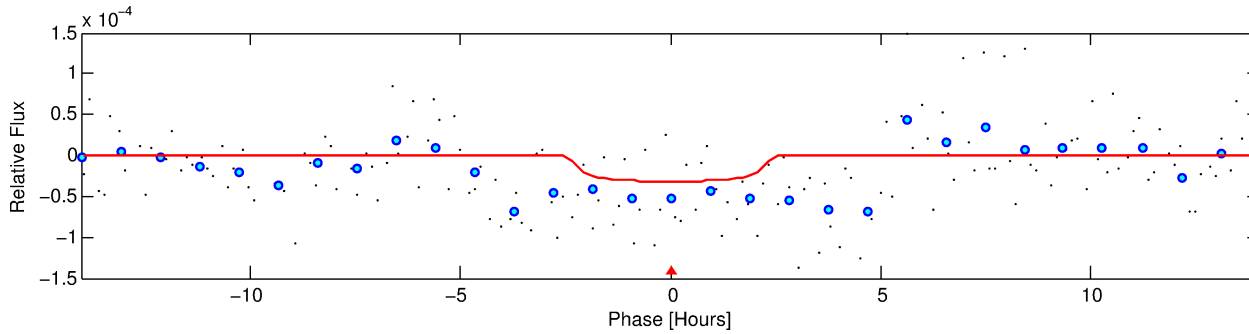
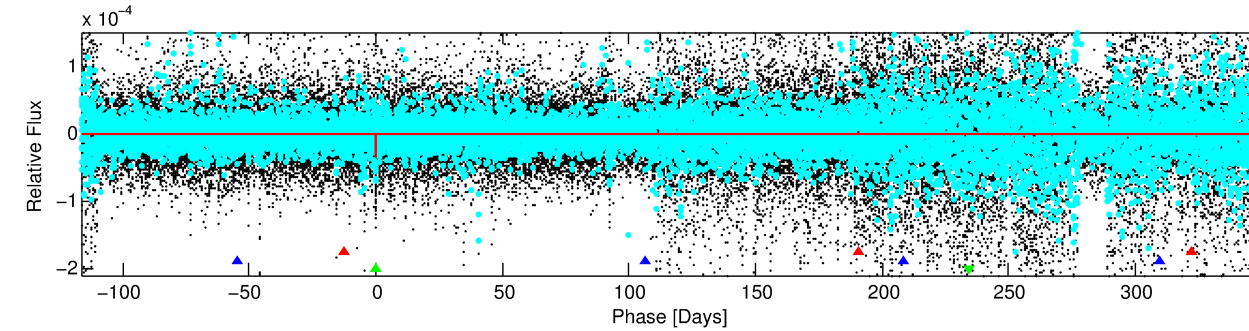
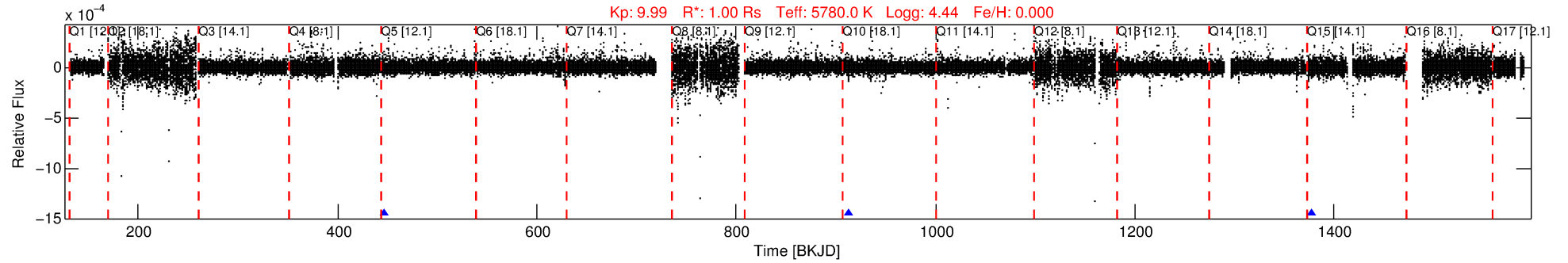
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010068482-03

No Significant Match Found

DV One-Page Summary

KIC: 10068482 Candidate: 3 of 3 Period: 465.589 d



DV Fit Results:

Period = 465.58871 [0.01691] d
Epoch = 446.7495 [0.0235] BKJD
Rp/R* = 0.0061 [0.0079]
a/R* = 346.34 [2134.17]
b = 0.90 [1.34]
Seff = 0.72 [0.00]
Teq = 235 [0] K
Rp = 0.67 [0.86] Re
a = 1.1759 [0.0000] AU
Ag = 138854.71 [360002.29] [0.39 σ]
Teffp = 7018 [4549] K [1.49 σ]

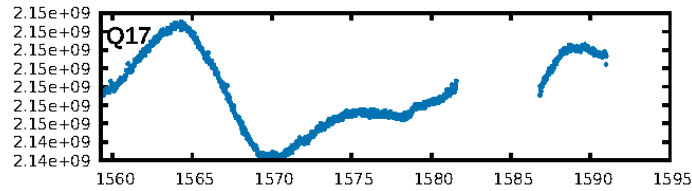
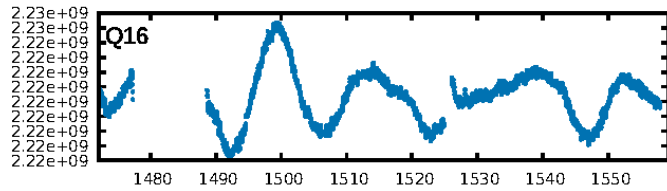
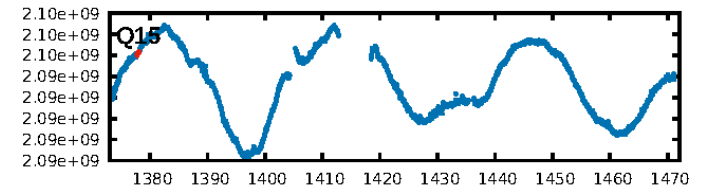
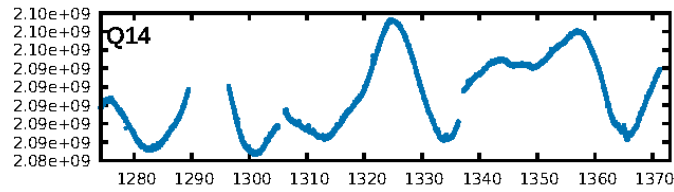
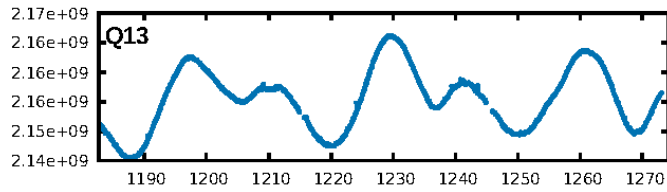
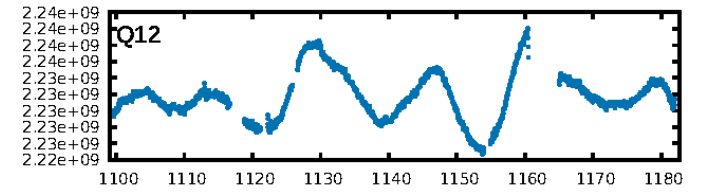
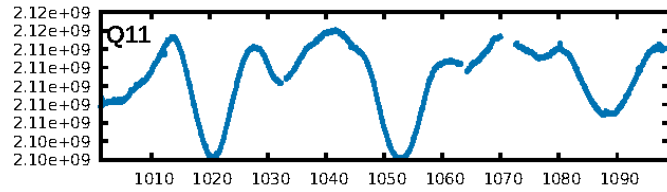
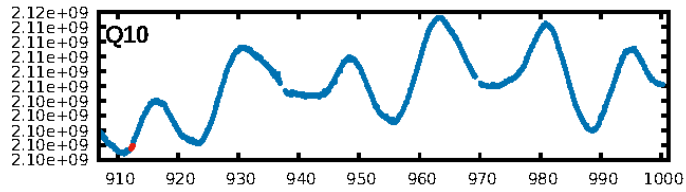
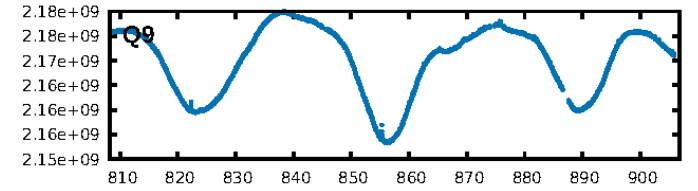
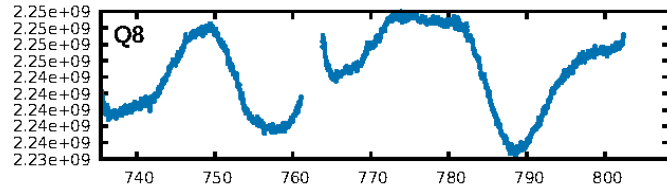
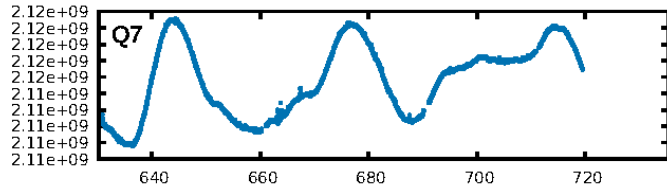
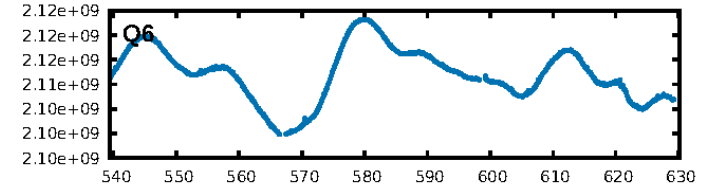
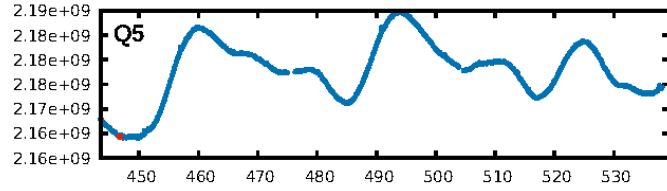
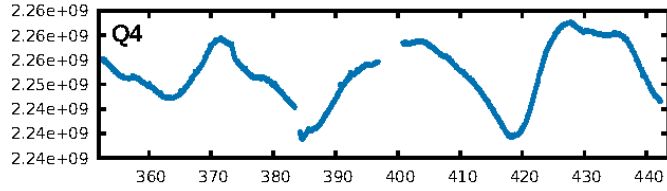
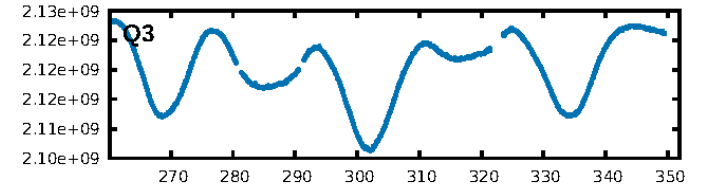
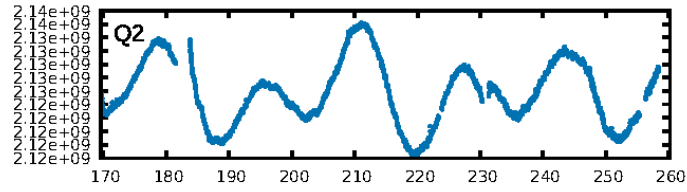
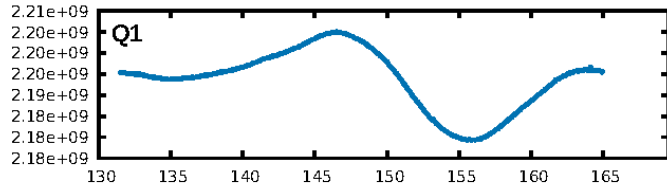
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [306.52 σ]
LongPeriod-sig: 100.0% [282.33 σ]
ModelChiSquare2-sig: 55.1%
ModelChiSquareGof-sig: 98.2%
Bootstrap-pfa: 7.38e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 52.3%
Centroid-so: 5.418 arcsec [0.89 σ]
OotOffset-rm: 1.845 arcsec [1.04 σ]
KicOffset-rm: 0.449 arcsec [0.07 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

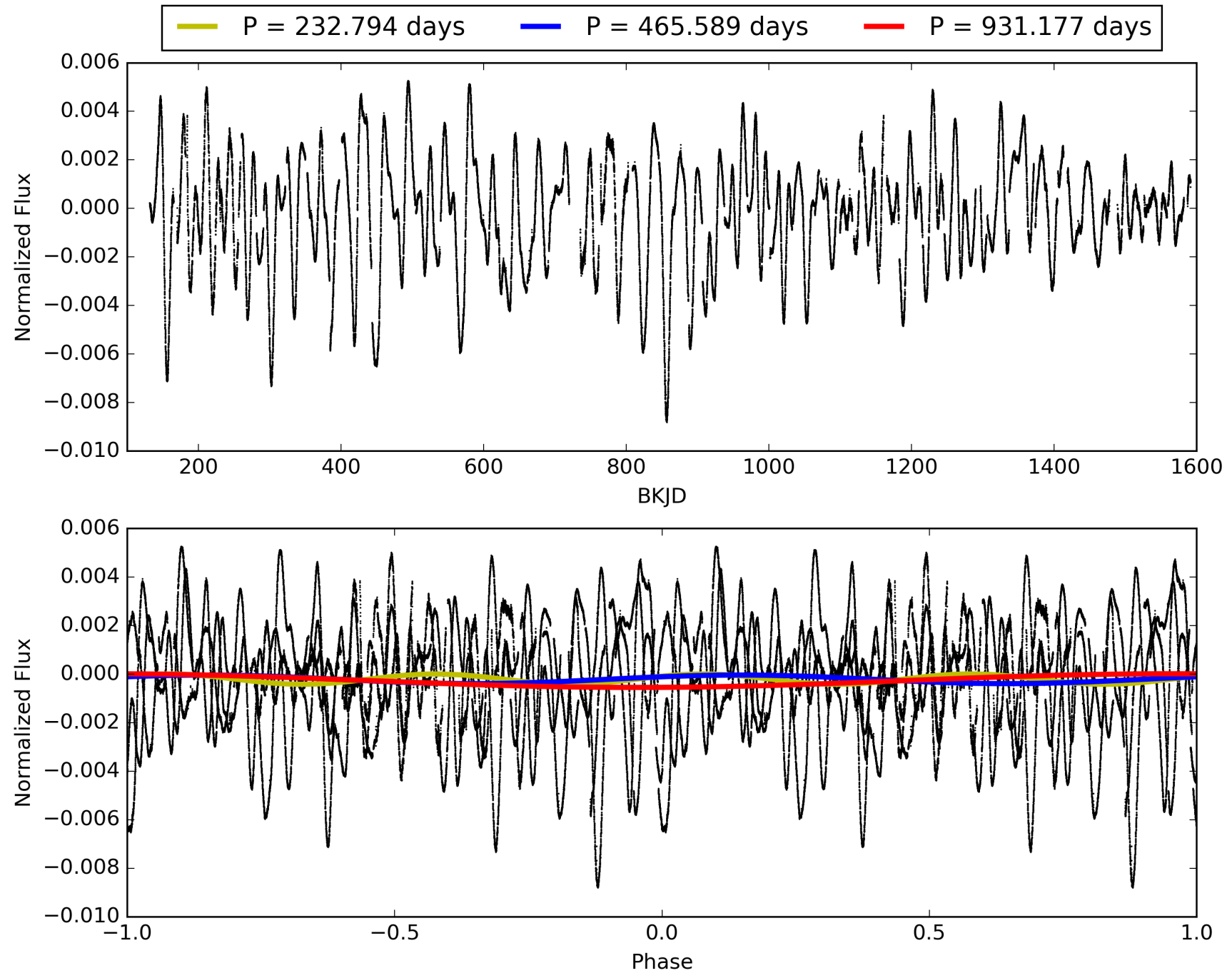
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:32:15 Z

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

TCE 010068482-03, PDC Light Curves

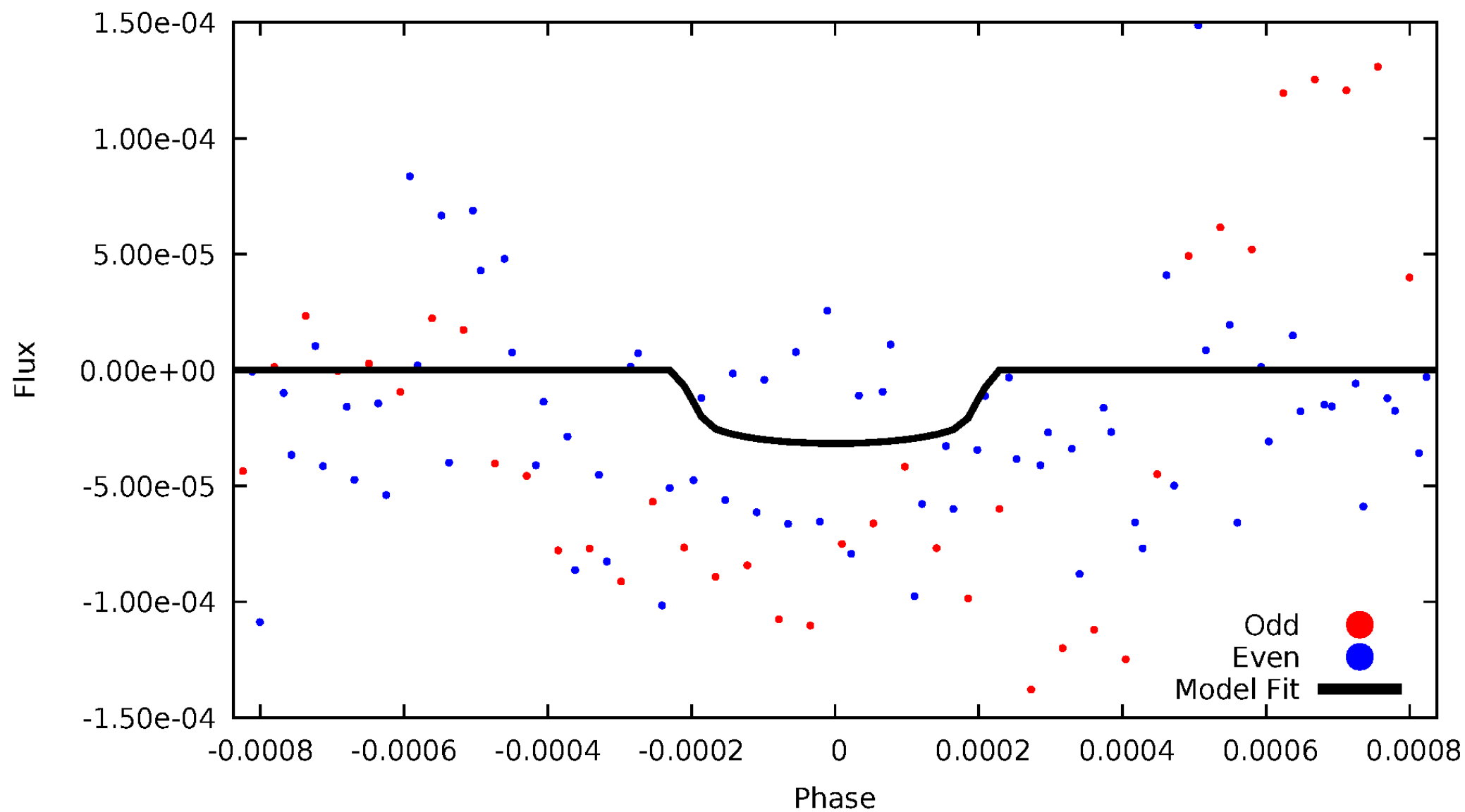


TCE 010068482-03



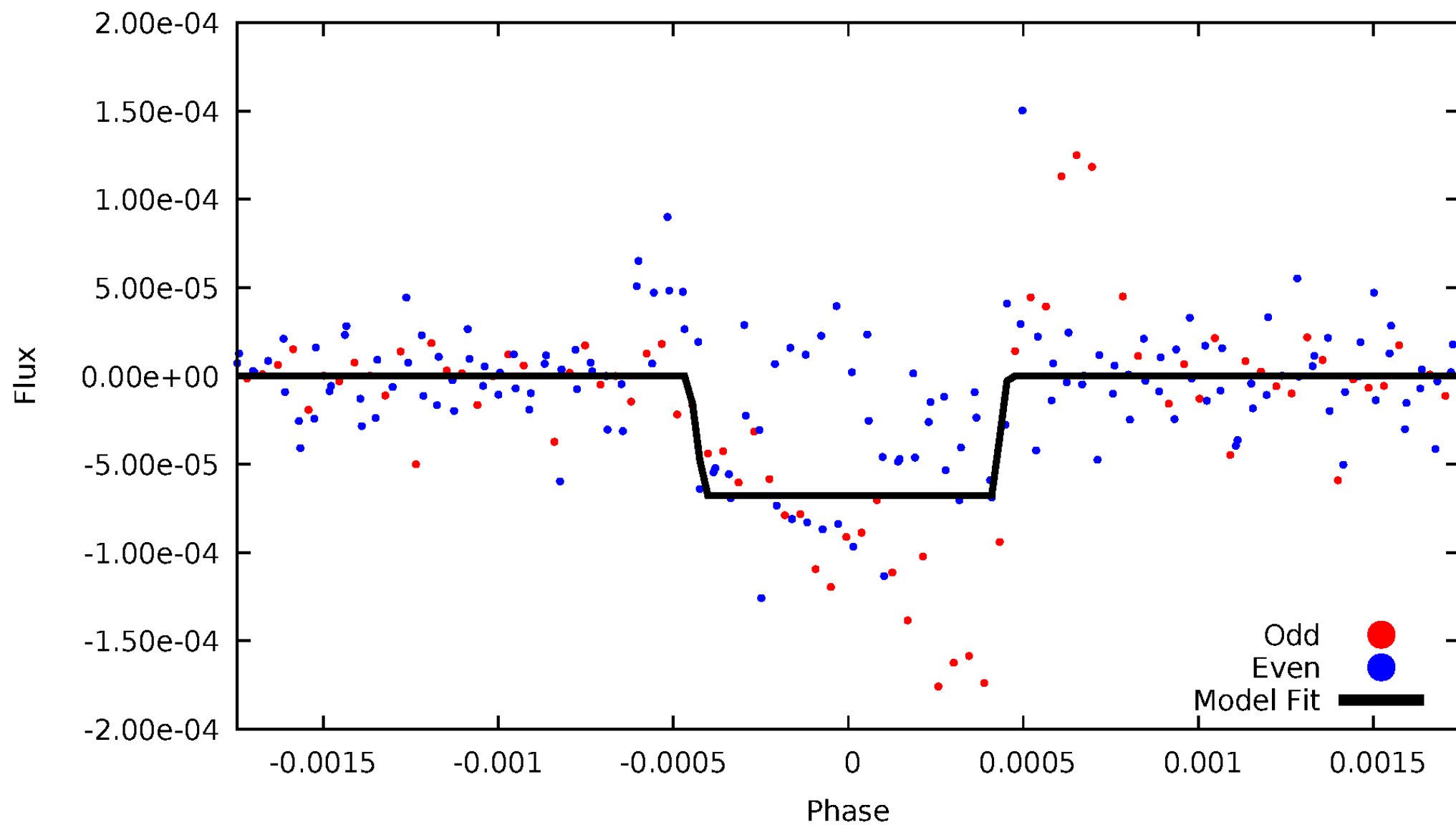
DV Odd/Even

TCE 010068482-03



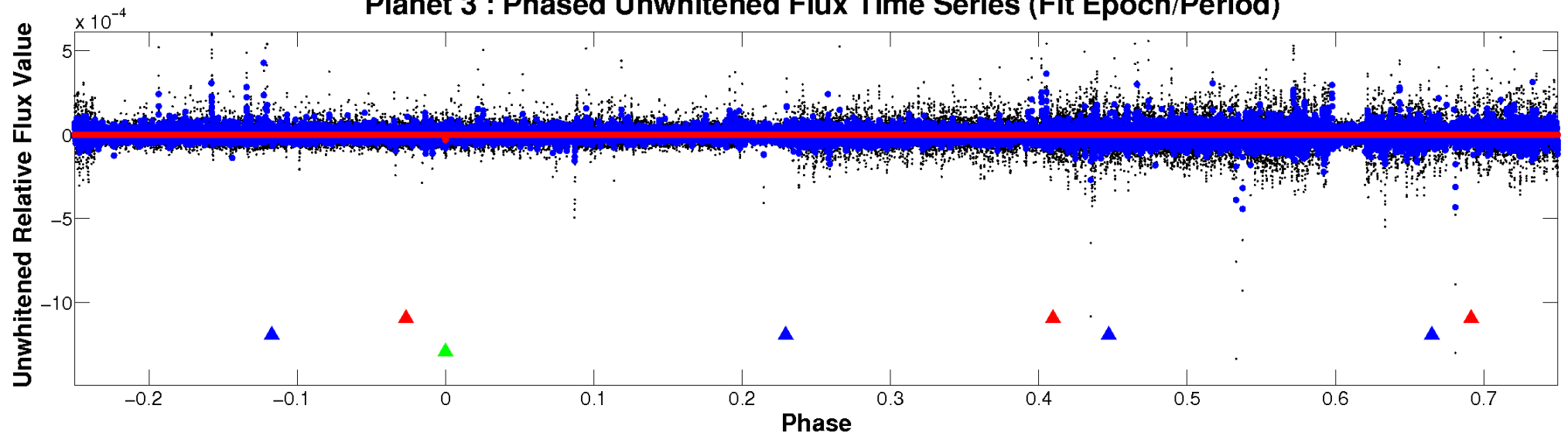
ALT Odd/Even

TCE 010068482-03

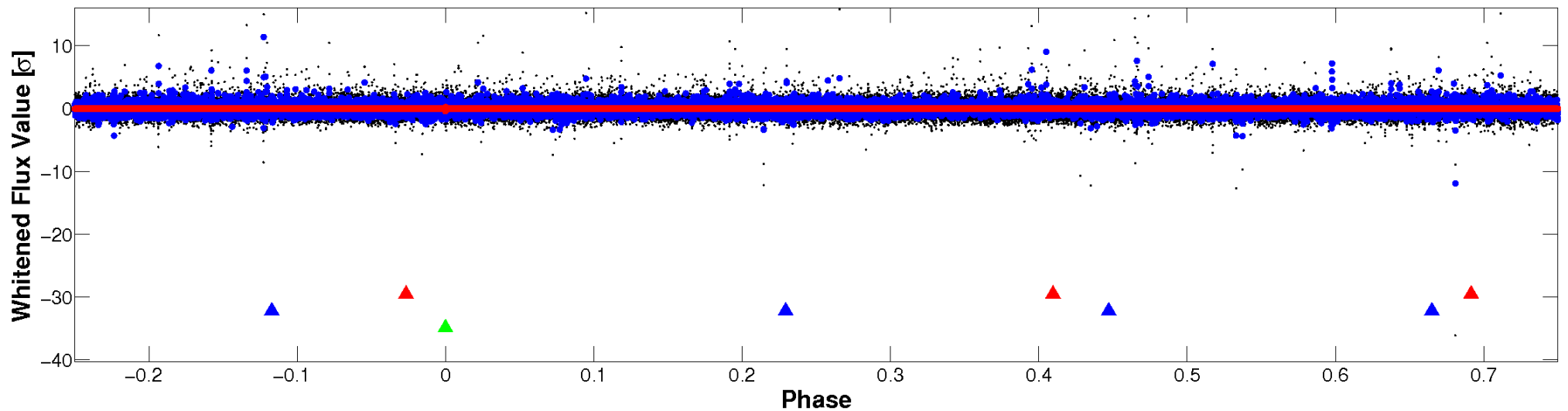


Non-Whitened Vs. Whitened Light Curve

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

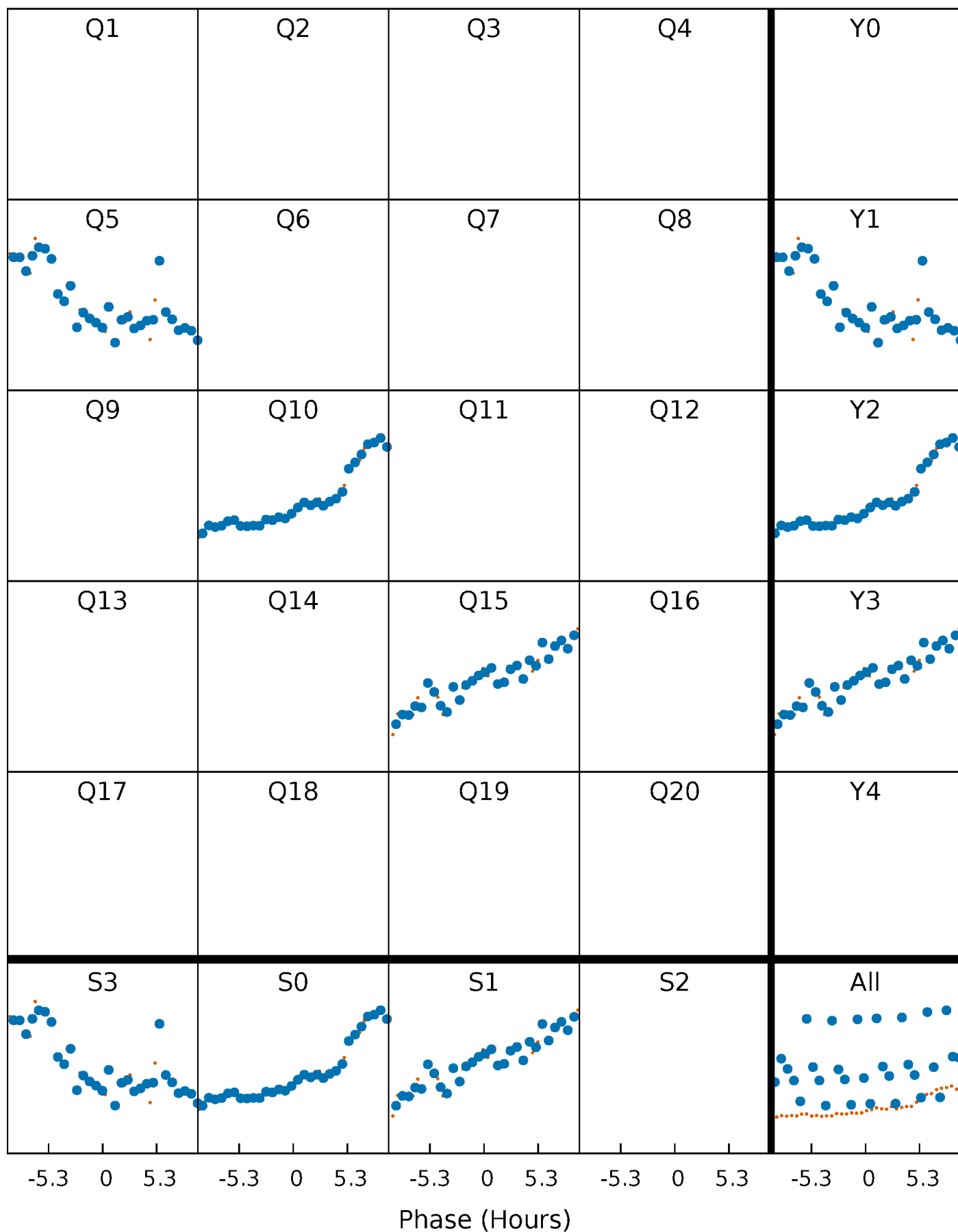


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



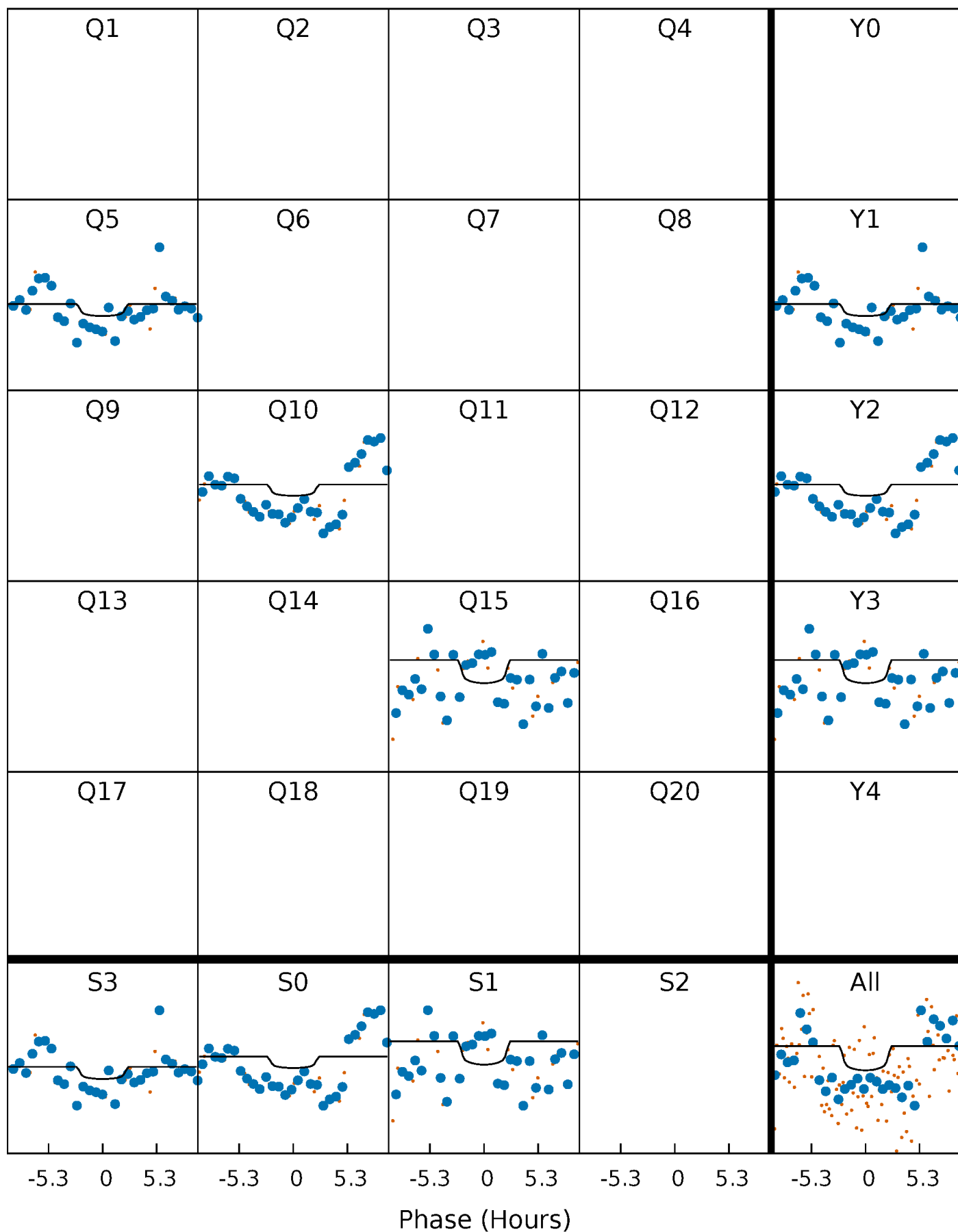
PDC Quarter-Phased Transit Curves

TCE 010068482-03 $P=465.588708$ Days $T_0=446.749462$ (BKJD)



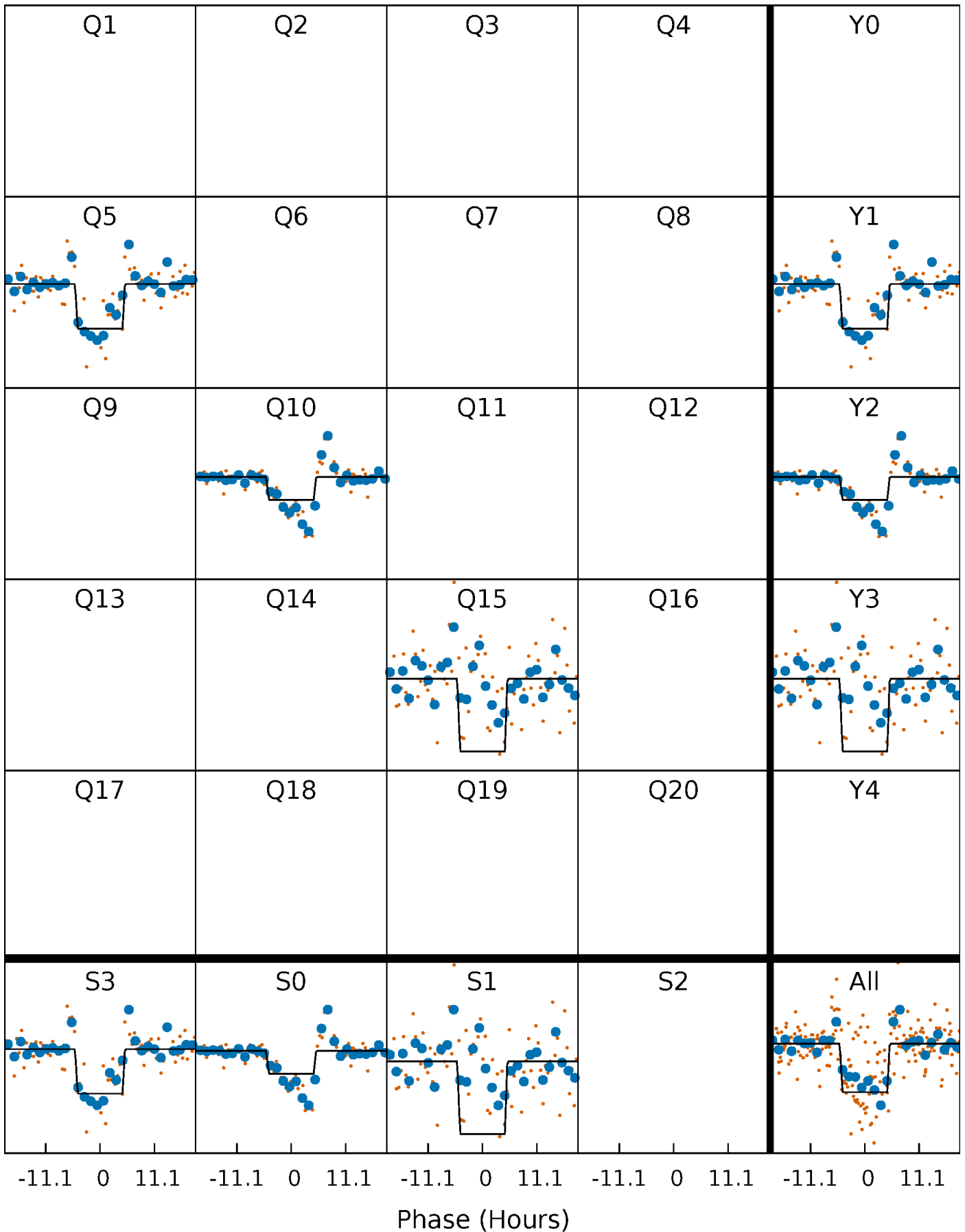
DV Quarter-Phased Transit Curves

TCE 010068482-03 $P=465.588708$ Days $T_0=446.749462$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

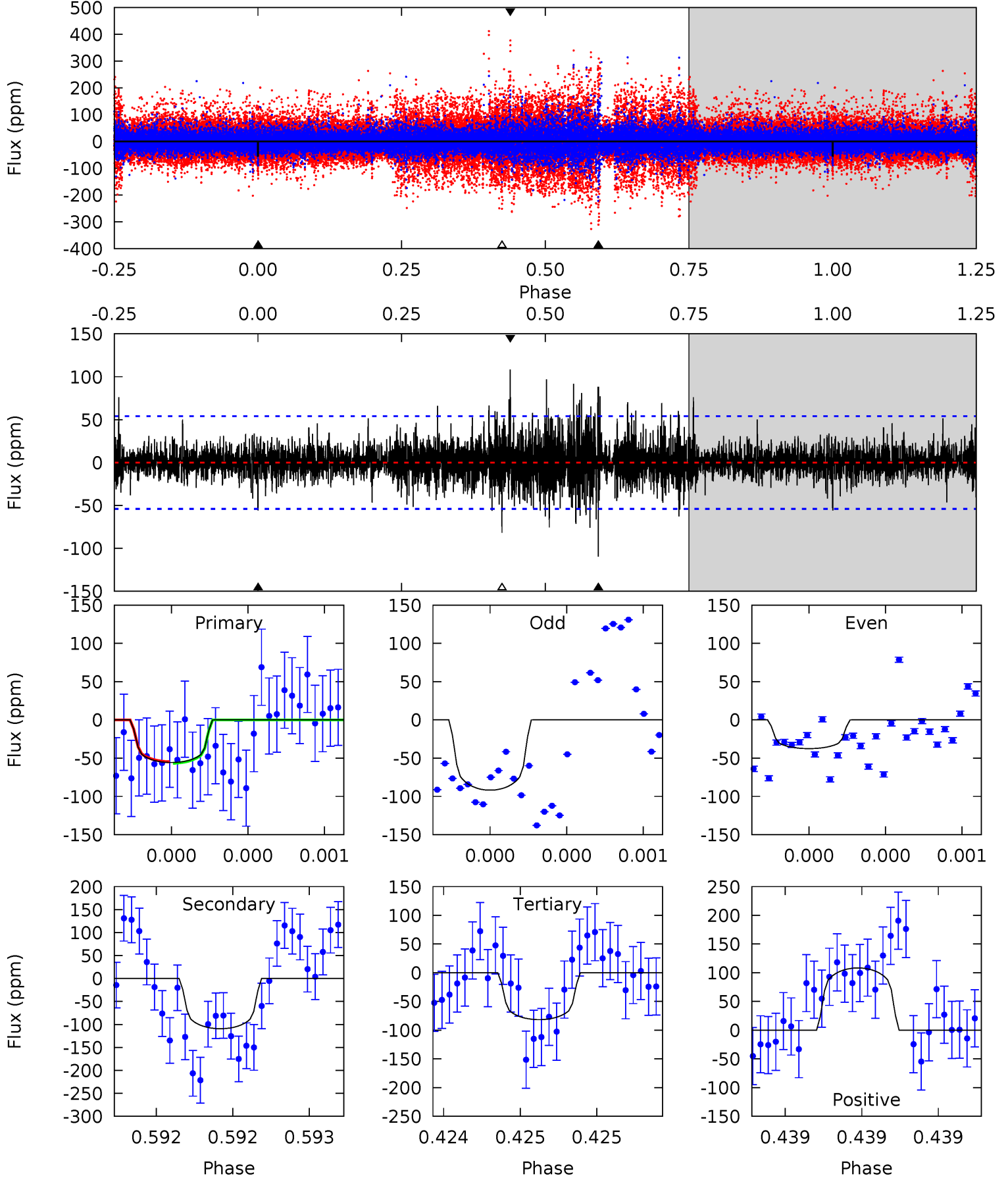
TCE 010068482-03 $P=465.592287$ Days $T_0=446.753122$ (BKJD)



DV Model-Shift Uniqueness Test

010068482-03, P = 465.588708 Days, E = 446.749462 Days

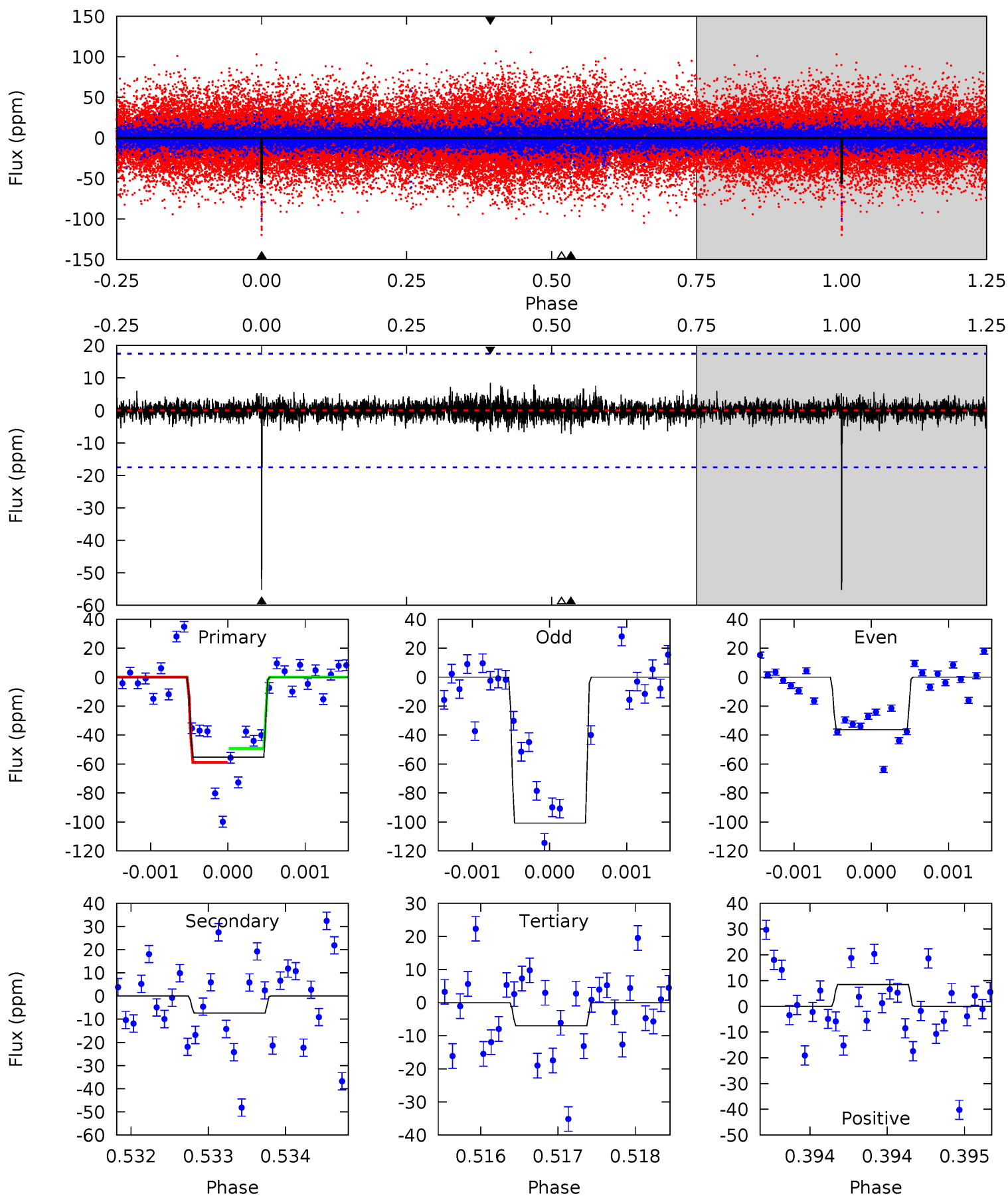
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.77	11.3	8.46	11.2	5.60	3.52	1.73	-2.69	-5.45	2.86	0.10	2.19	0.87	0.50	0.10



Alt Model-Shift Uniqueness Test

010068482-03, P = 465.592287 Days, E = 446.753122 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	2.30	2.19	2.65	5.47	3.33	0.50	15.1	14.6	0.10	-0.35	10.6	0.92	0.13	1.53



Stellar Parameters For KIC 010068482

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 010068482-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-109 ± 10	$0.90^{+0.81}_{-0.58}$	328^{+15}_{-15}	6455^{+7020}_{-1623}	$101260^{+710981}_{-72263}$
Alt.	-7 ± 3	$1.05^{+0.81}_{-0.70}$	329^{+14}_{-16}	3481^{+1806}_{-586}	4584^{+37329}_{-3241}

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

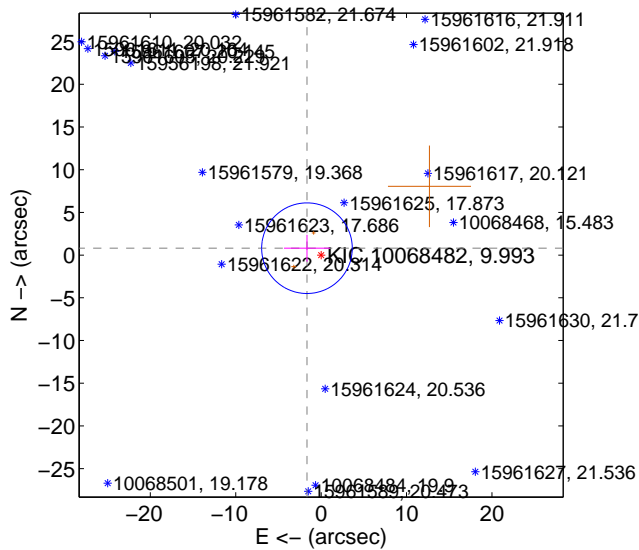
Supplemental centroid analysis for 010068482-03. **Kepler magnitude: 9.99.** Transit SNR 2.16

There are 0 quarters with good PRF difference image offsets

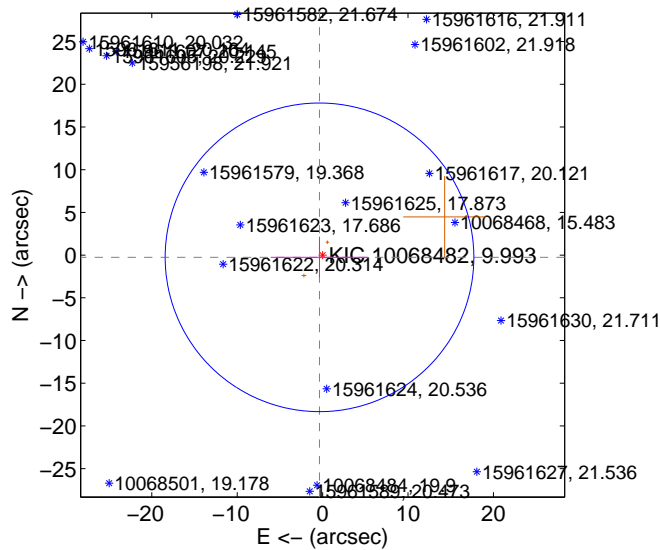
The OOT PRF centroid is offset from the target star catalog position by about 3.92 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.845 ± 1.768	1.04	1.659 ± 2.695	0.808 ± 1.575
PRF-fit source offset from KIC position	0.449 ± 6.023	0.07	0.365 ± 5.719	-0.261 ± 2.407
photometric centroid source offset	5.42 ± 6.07	0.89	-5.41 ± 6.06	0.20 ± 7.53

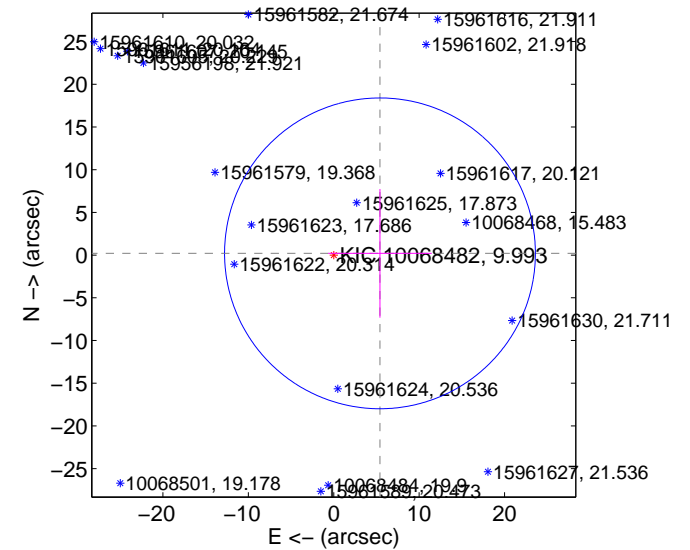
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

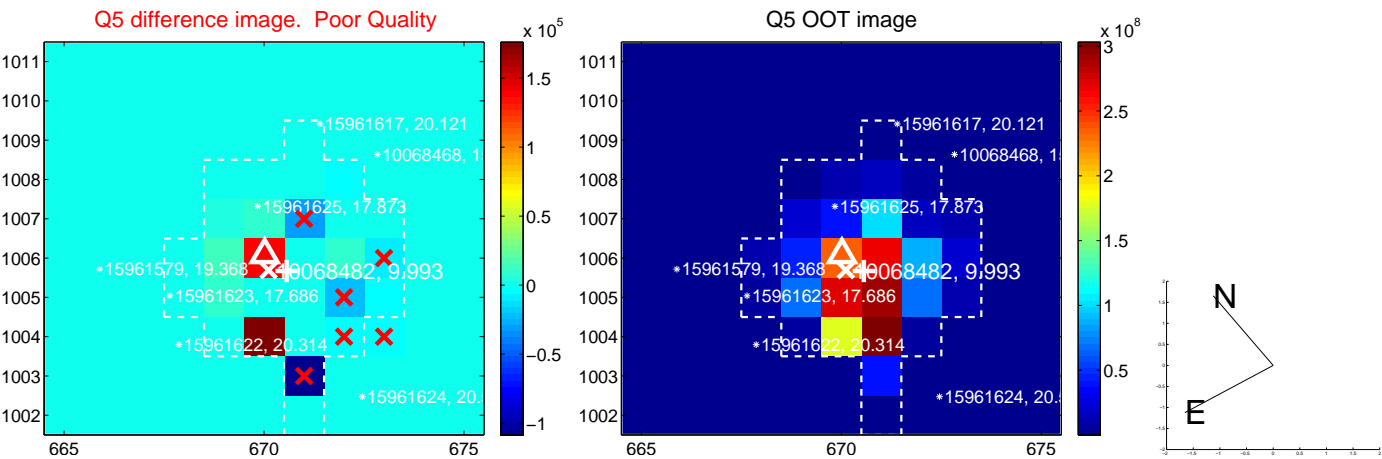


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

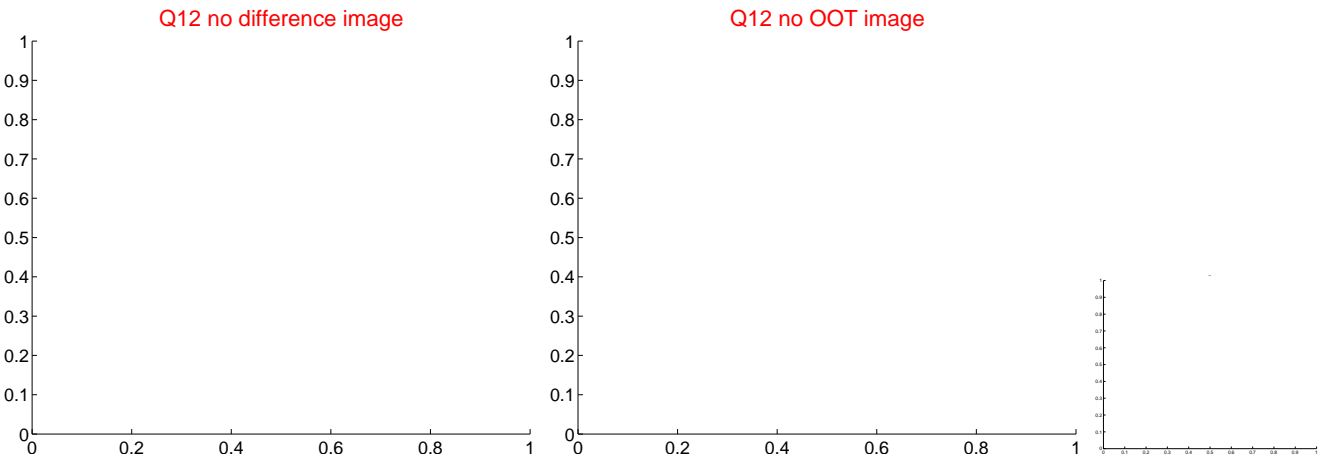
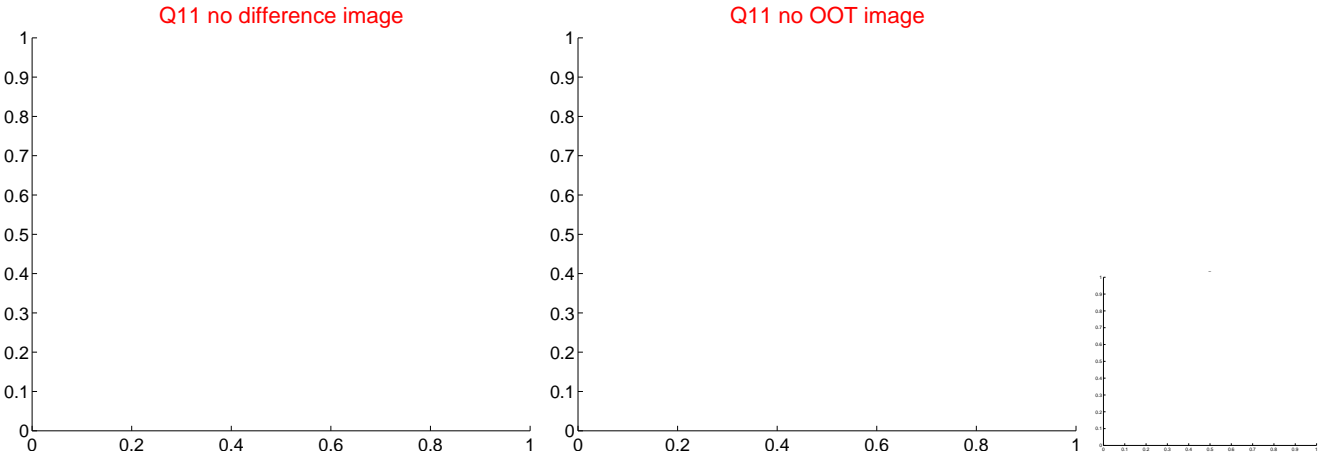
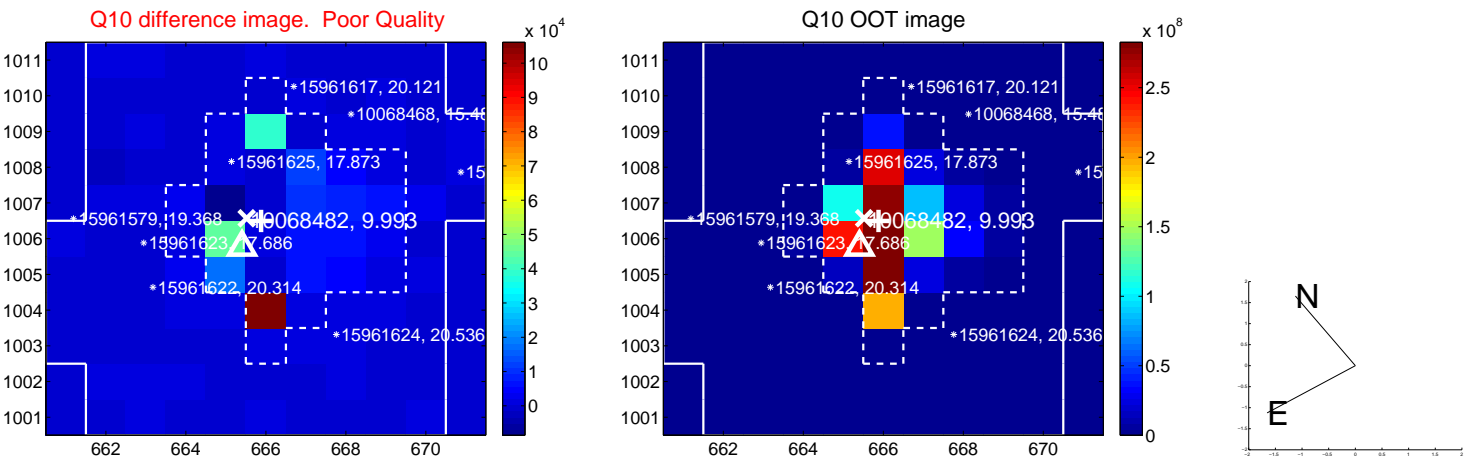
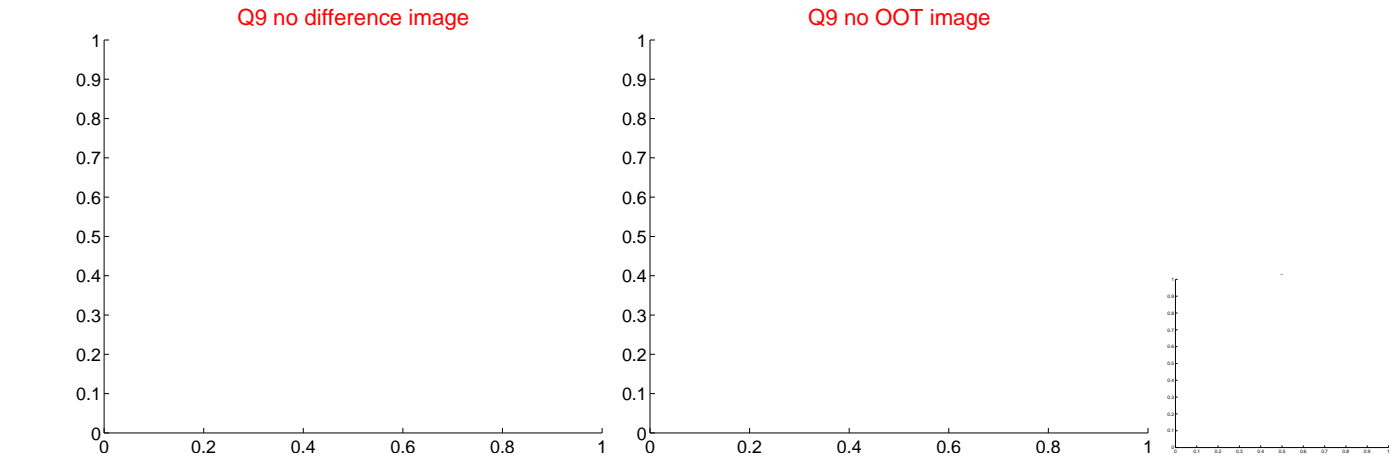
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



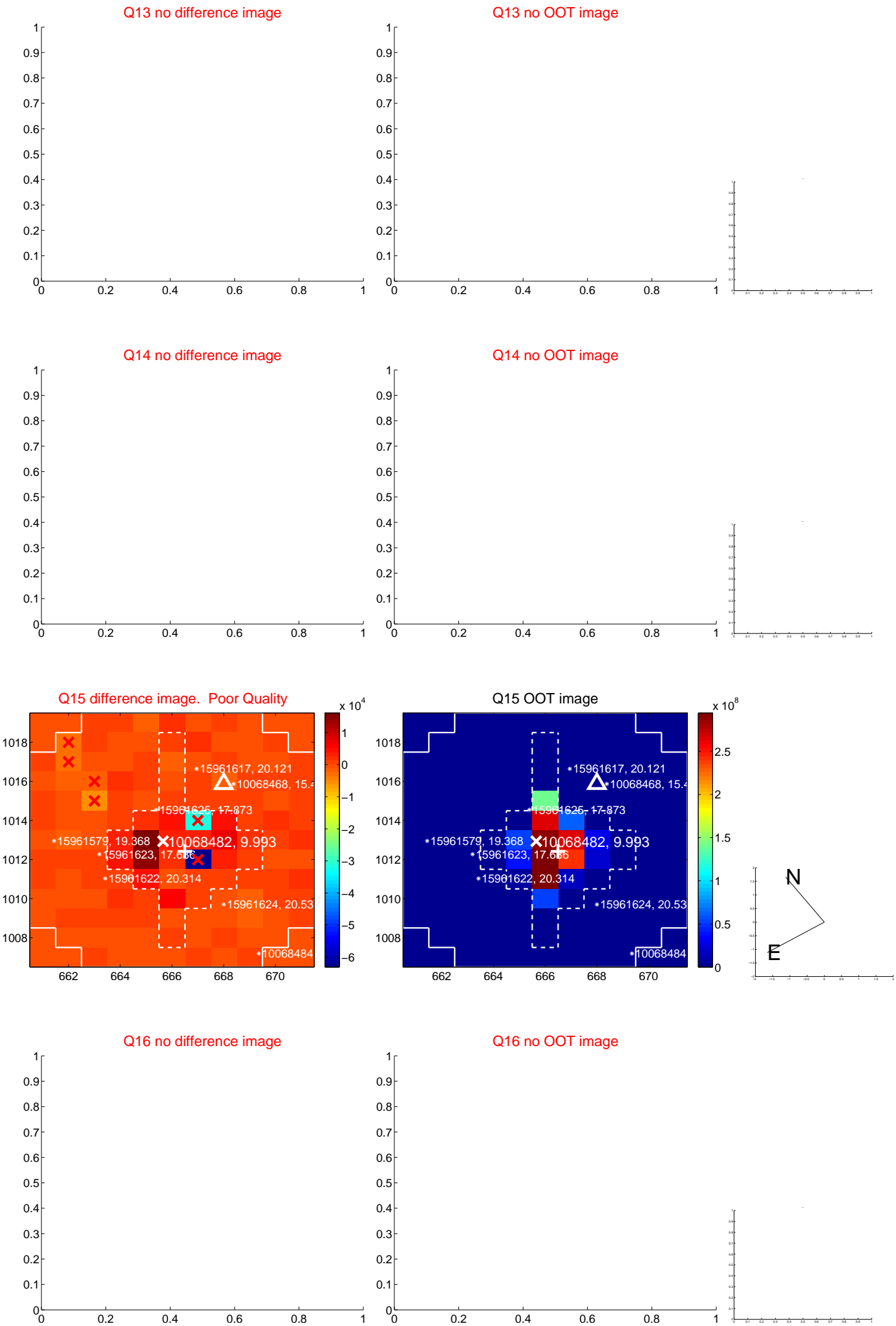
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



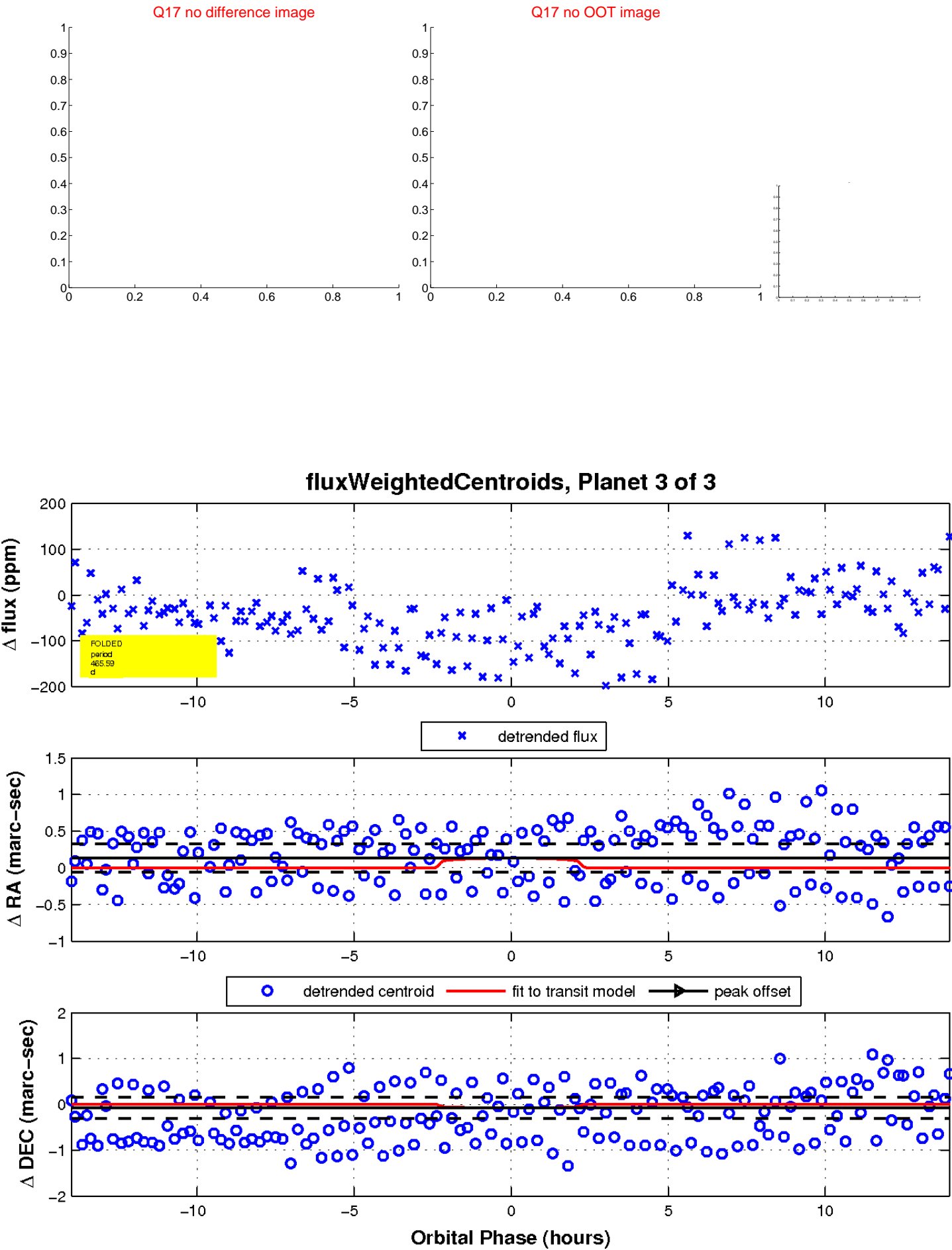
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

