

KIC 012164634

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})
012164634-01	OBS	3491.01	89.331211	142.316777	59114.4	11.335	2966.3	2835.7	1.47	6860	37.11	22.93
012164634-02	OBS	No	89.331155	204.187202	2169.0	11.912	118.2	116.2	1.47	6860	7.98	22.93
012164634-03	OBS	No	290.754132	209.308482	629.4	15.741	15.6	13.0	1.47	6860	3.93	4.75
012164634-04	OBS	No	292.377639	202.635709	255.3	2.048	23.7	3.8	1.47	6860	2.66	4.72
012164634-05	OBS	No	292.381209	204.109169	301.4	0.718	23.4	2.4	1.47	6860	3.04	4.72
012164634-06	OBS	No	292.285073	203.537112	311.2	7.916	23.6	5.8	1.47	6860	2.68	4.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012164634-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
012164634-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
012164634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
012164634-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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.

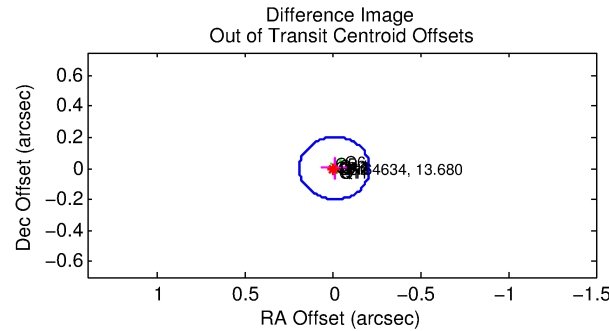
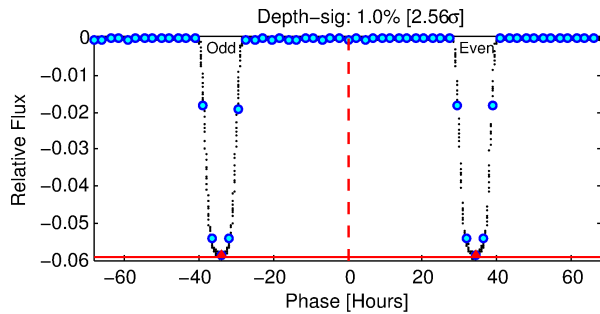
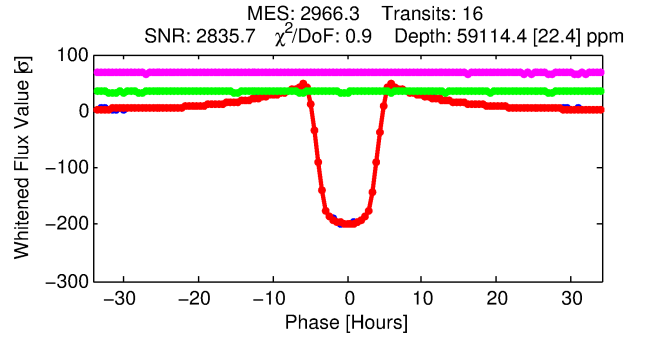
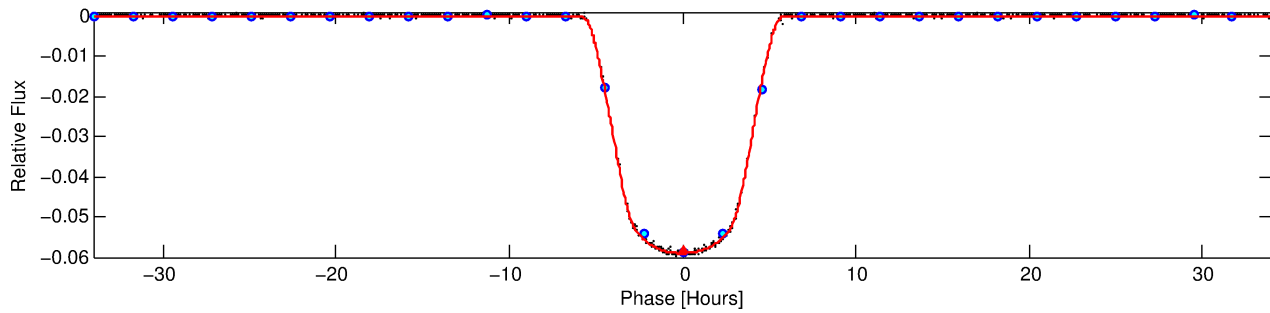
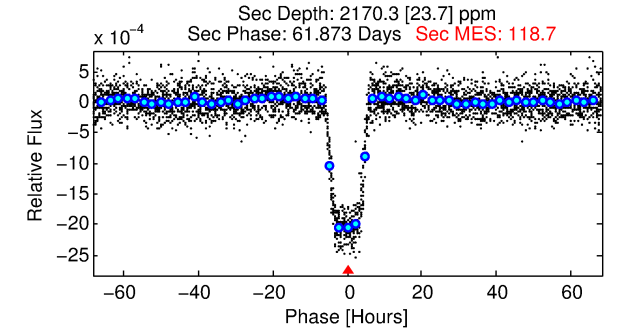
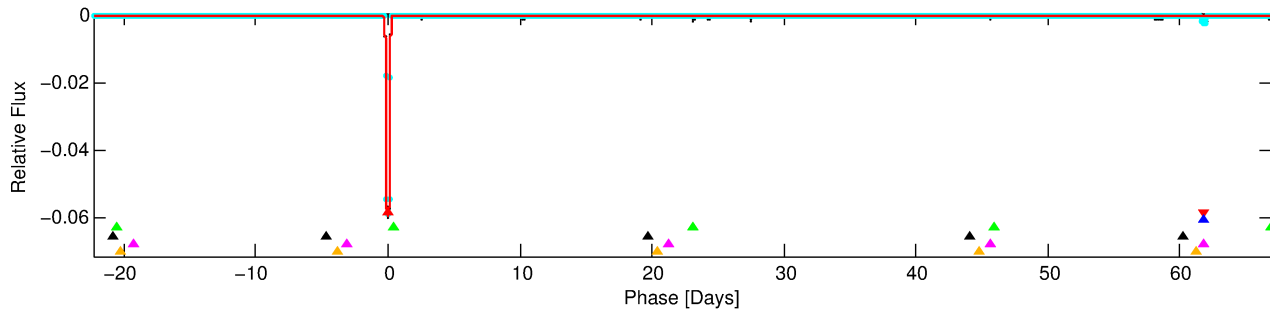
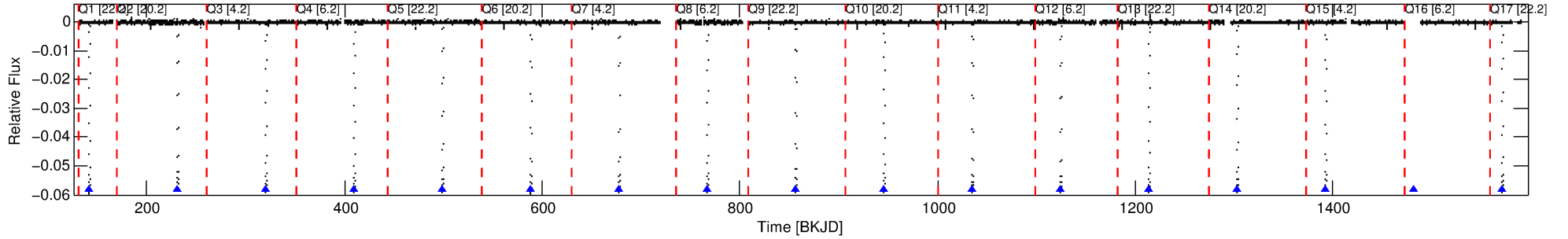
Ephemeris Match Information For 012164634-01

No Significant Match Found

DV One-Page Summary

KIC: 12164634 Candidate: 1 of 6 Period: 89.331 d
KOI: K03491 Corr: No Ephemeris Match

Kp: 13.68 R*: 1.47 Rs Teff: 6860.0 K Logg: 4.23 Fe/H: -0.100



DV Fit Results:

Period = 89.33121 [0.00001] d
Epoch = 142.3168 [0.0001] BKJD
Rp/R* = 0.2318 [0.0001]
a/R* = 67.59 [0.05]
b = 0.51 [0.00]
Seff = 22.93 [9.54]
Teff = 558 [58] K
Rp = 37.11 [12.52] Re
a = 0.4315 [0.1177] AU
Ag = 161.46 [61.68] [2.60σ]
Teffp = 3075 [127] K [18.01σ]

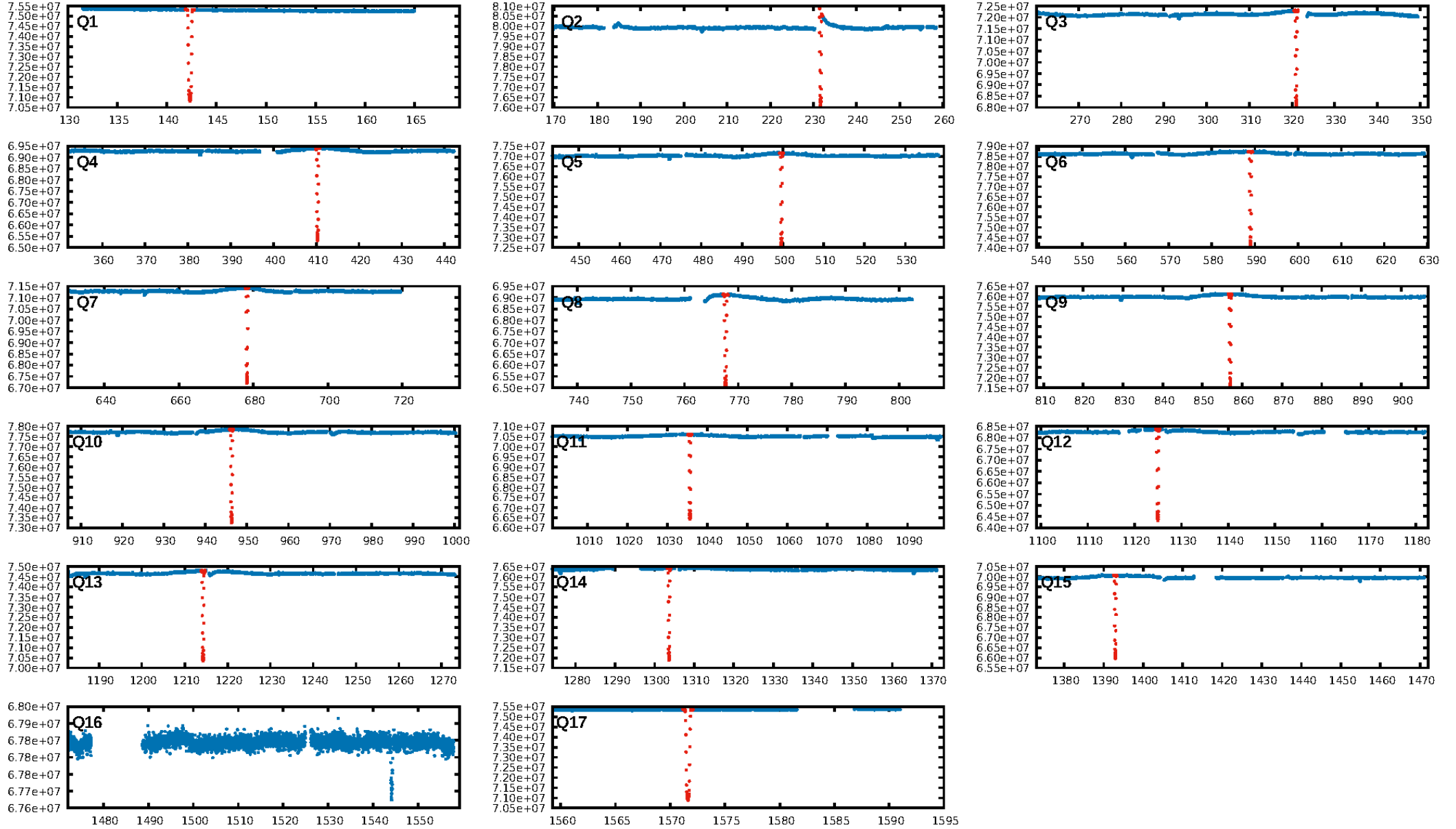
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [249.21σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: 3.957
Centroid-sig: 0.1%
Centroid-so: 0.020 arcsec [5.58σ]
OotOffset-rm: 0.009 arcsec [0.14σ]
KicOffset-rm: 0.108 arcsec [1.42σ]
OotOffset-st: 3/2/3/4 [12]
KicOffset-st: 3/2/3/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 0.92 [11/12]

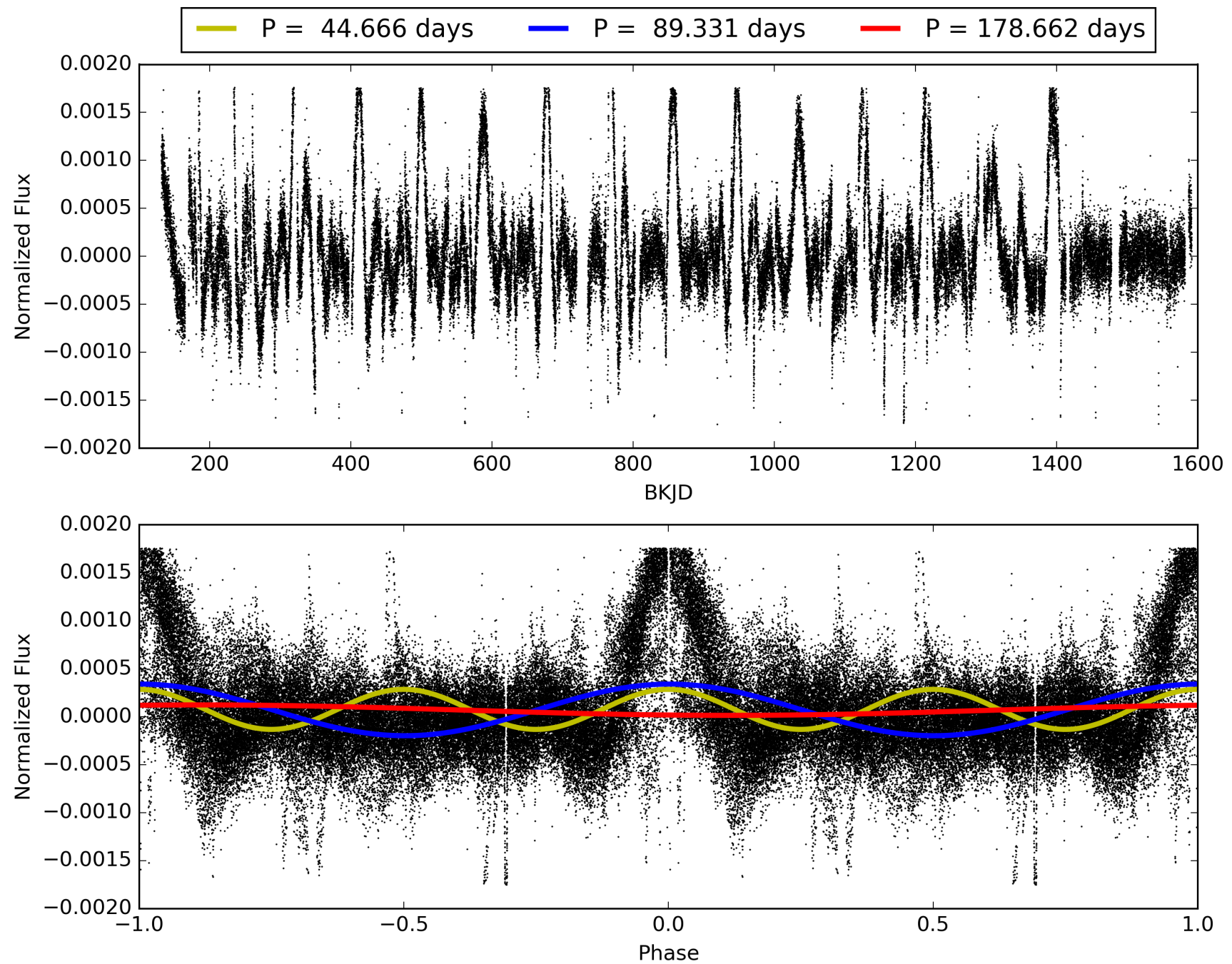
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:06:56 Z

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

TCE 012164634-01, PDC Light Curves

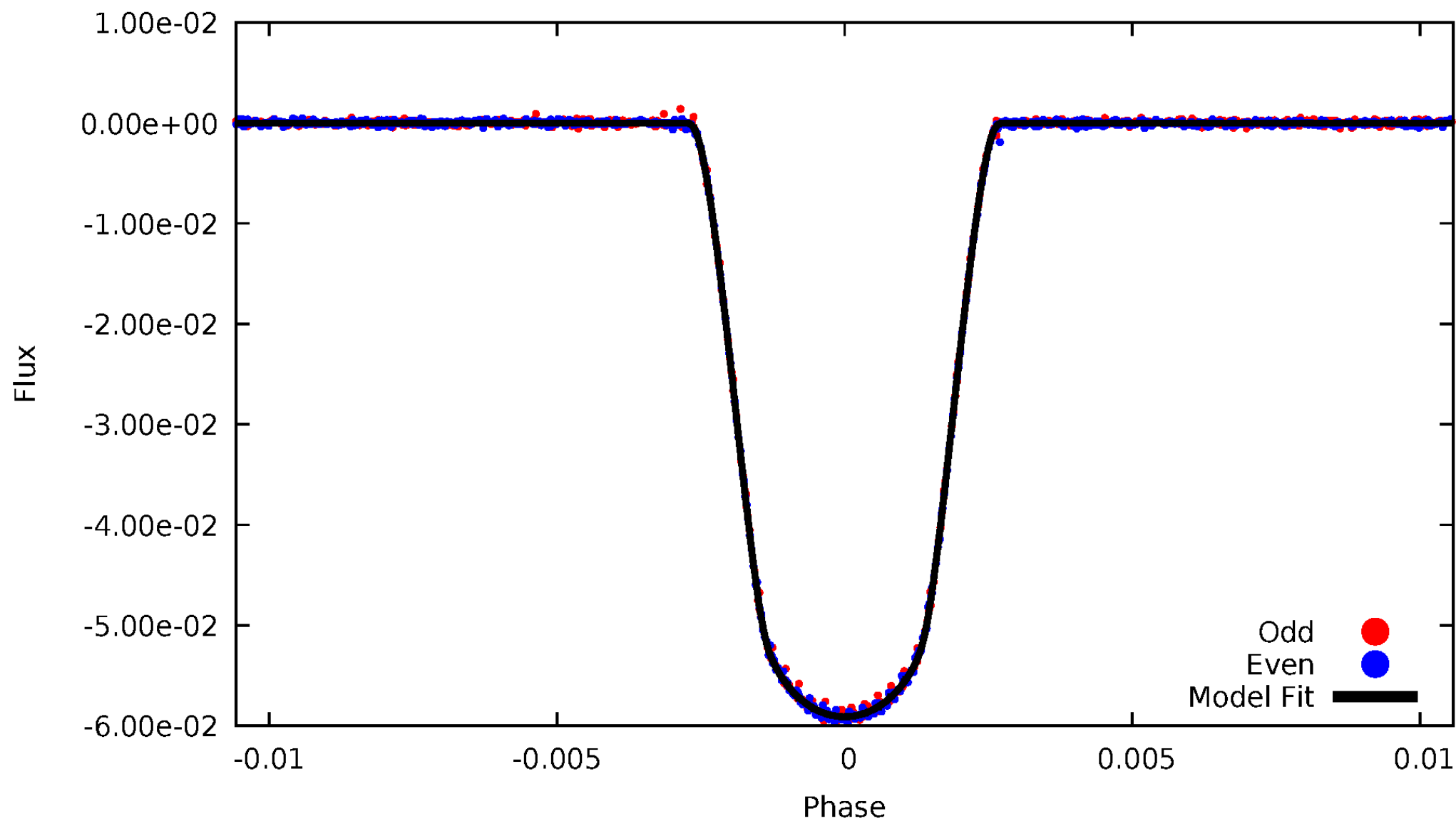


TCE 012164634-01



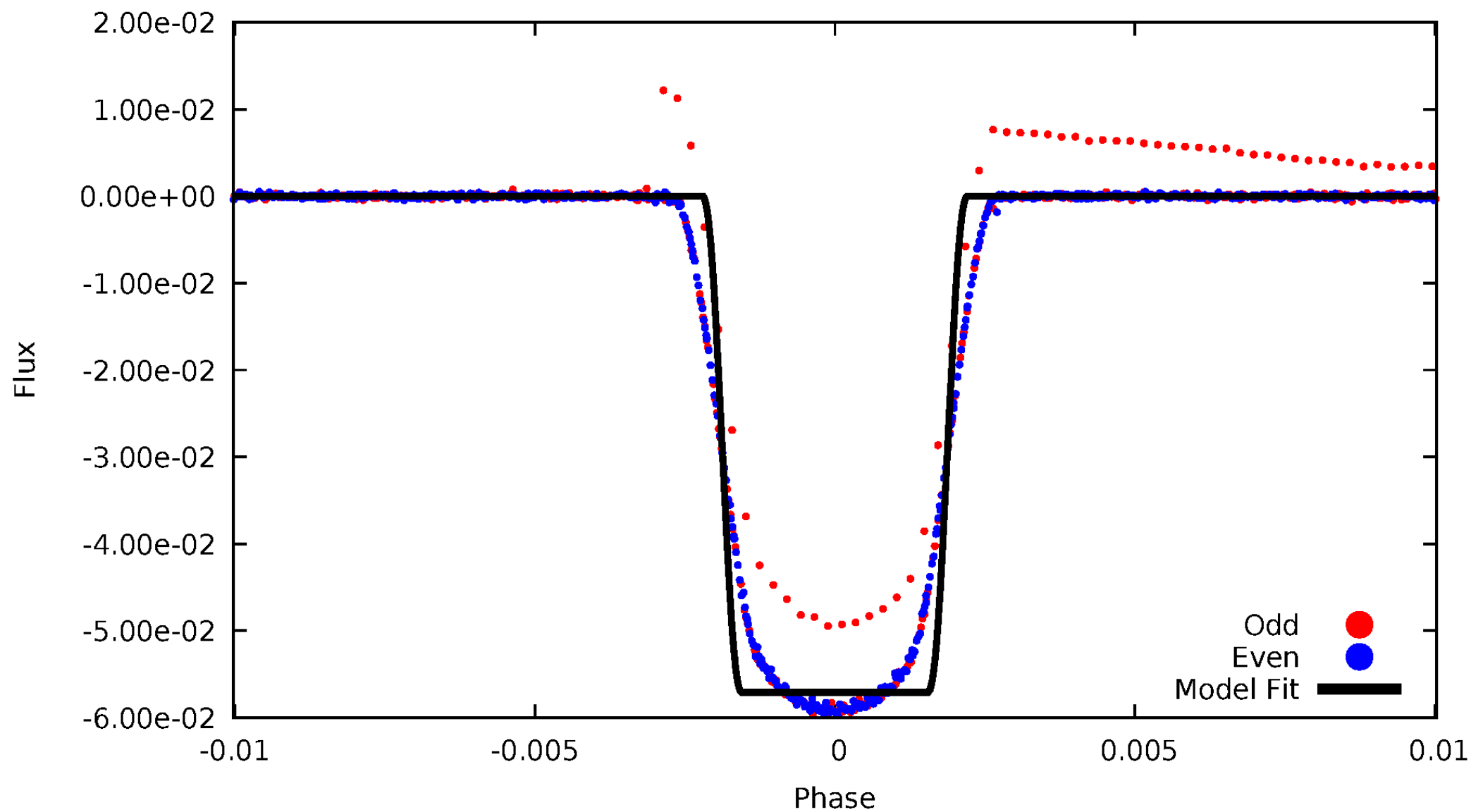
DV Odd/Even

TCE 012164634-01



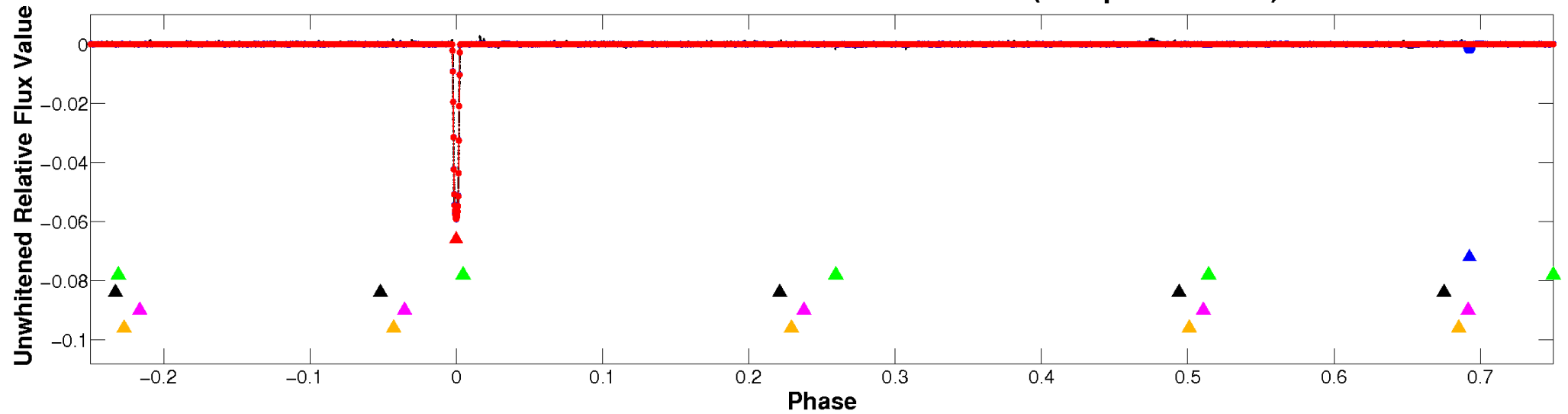
ALT Odd/Even

TCE 012164634-01

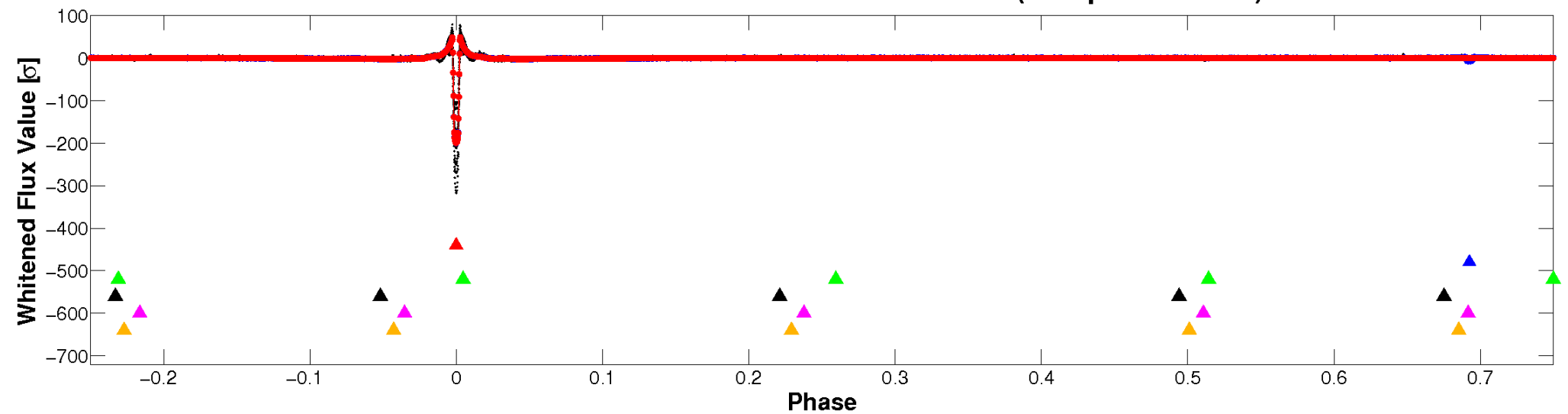


Non-Whitened Vs. Whitened Light Curve

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

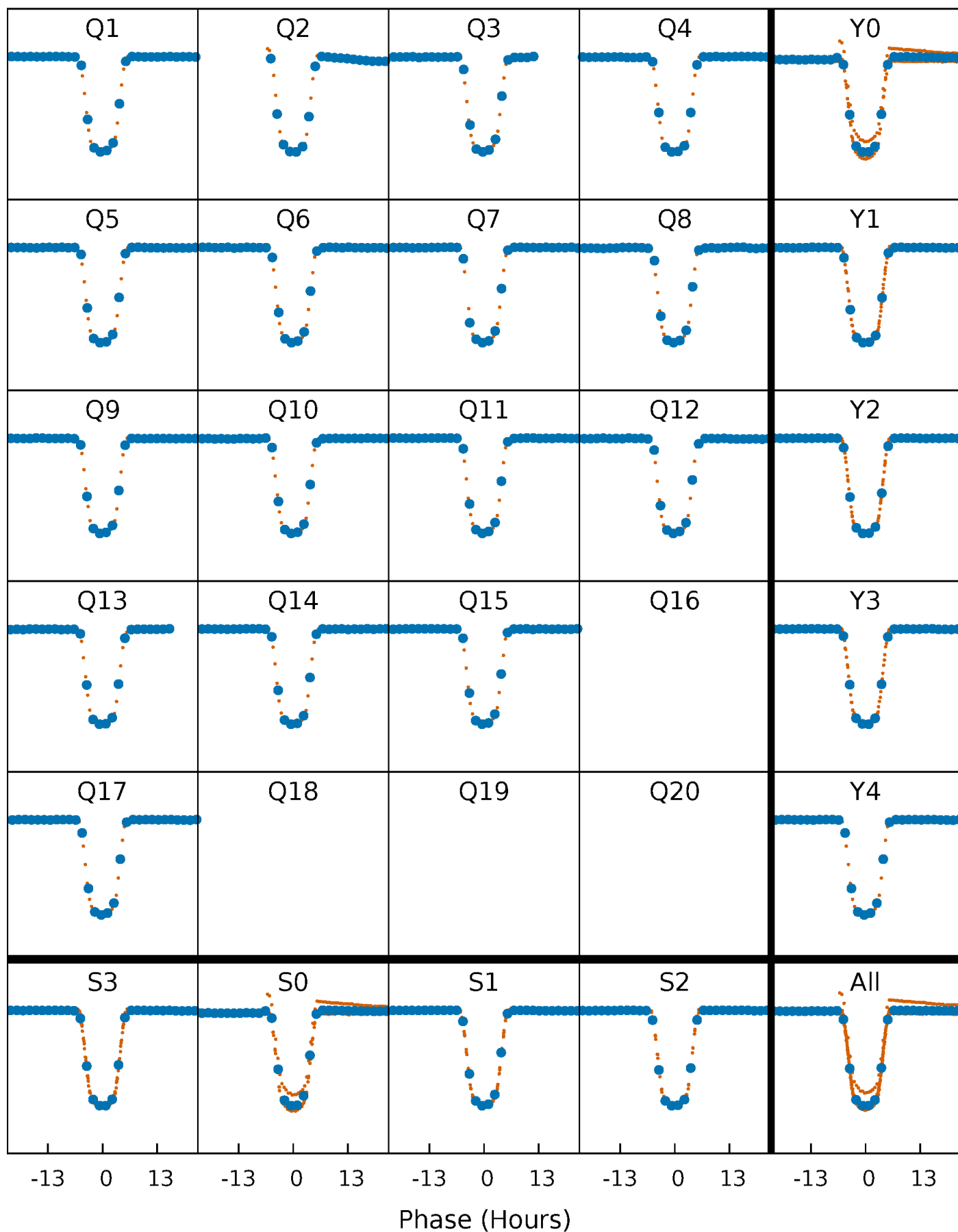


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



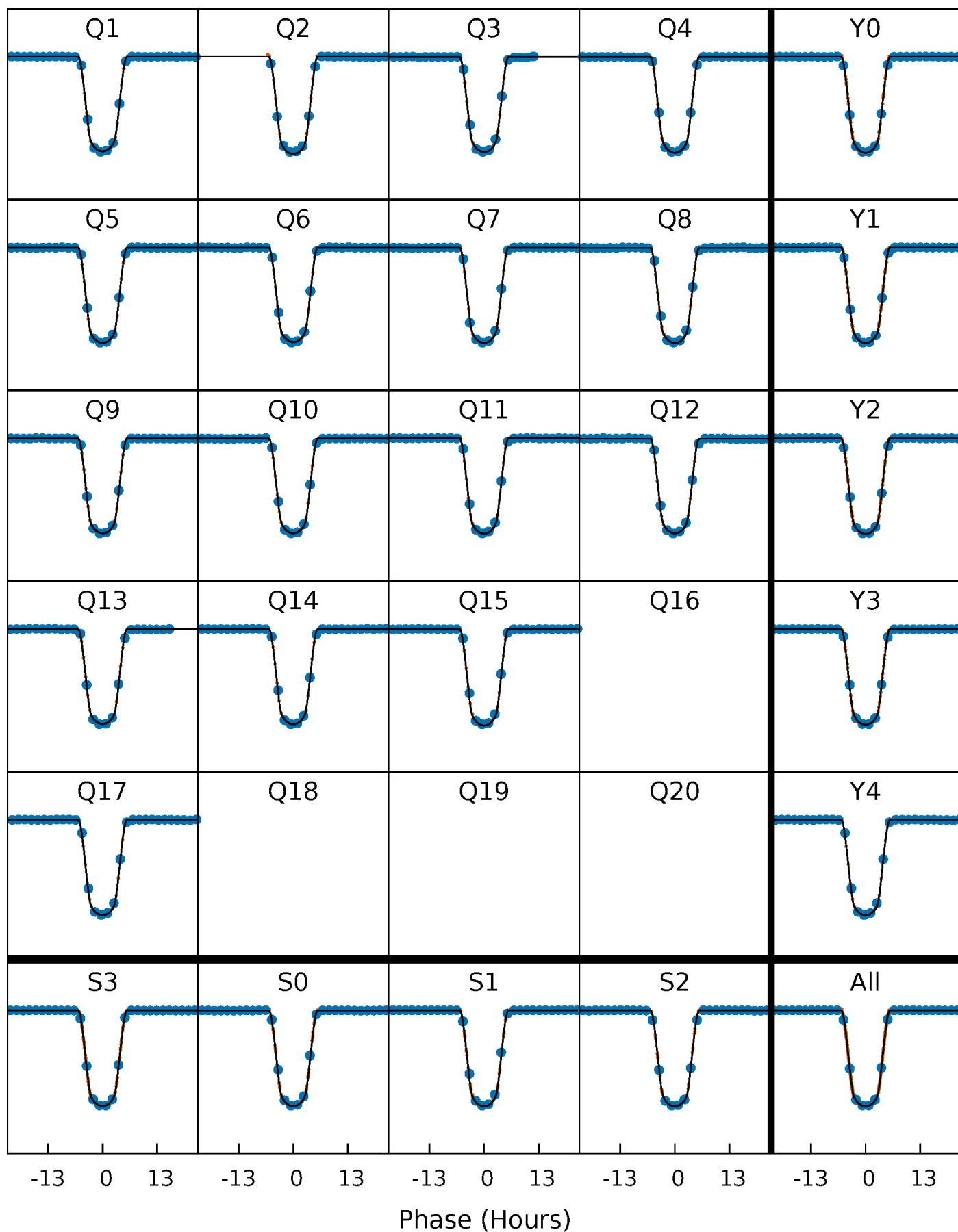
PDC Quarter-Phased Transit Curves

TCE 012164634-01 P= 89.331211 Days $T_0=142.316777$ (BKJD)



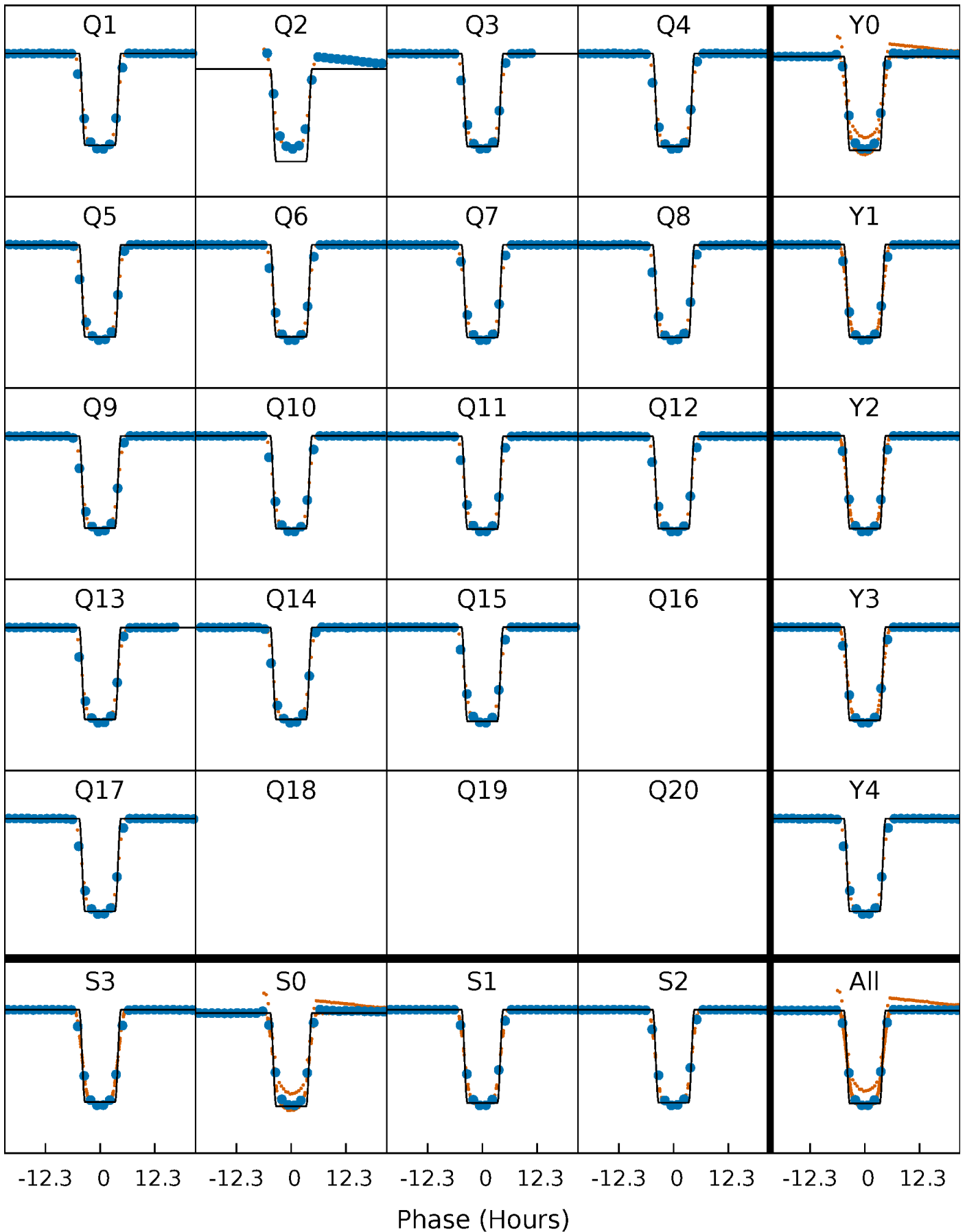
DV Quarter-Phased Transit Curves

TCE 012164634-01 P= 89.331211 Days $T_0=142.316777$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

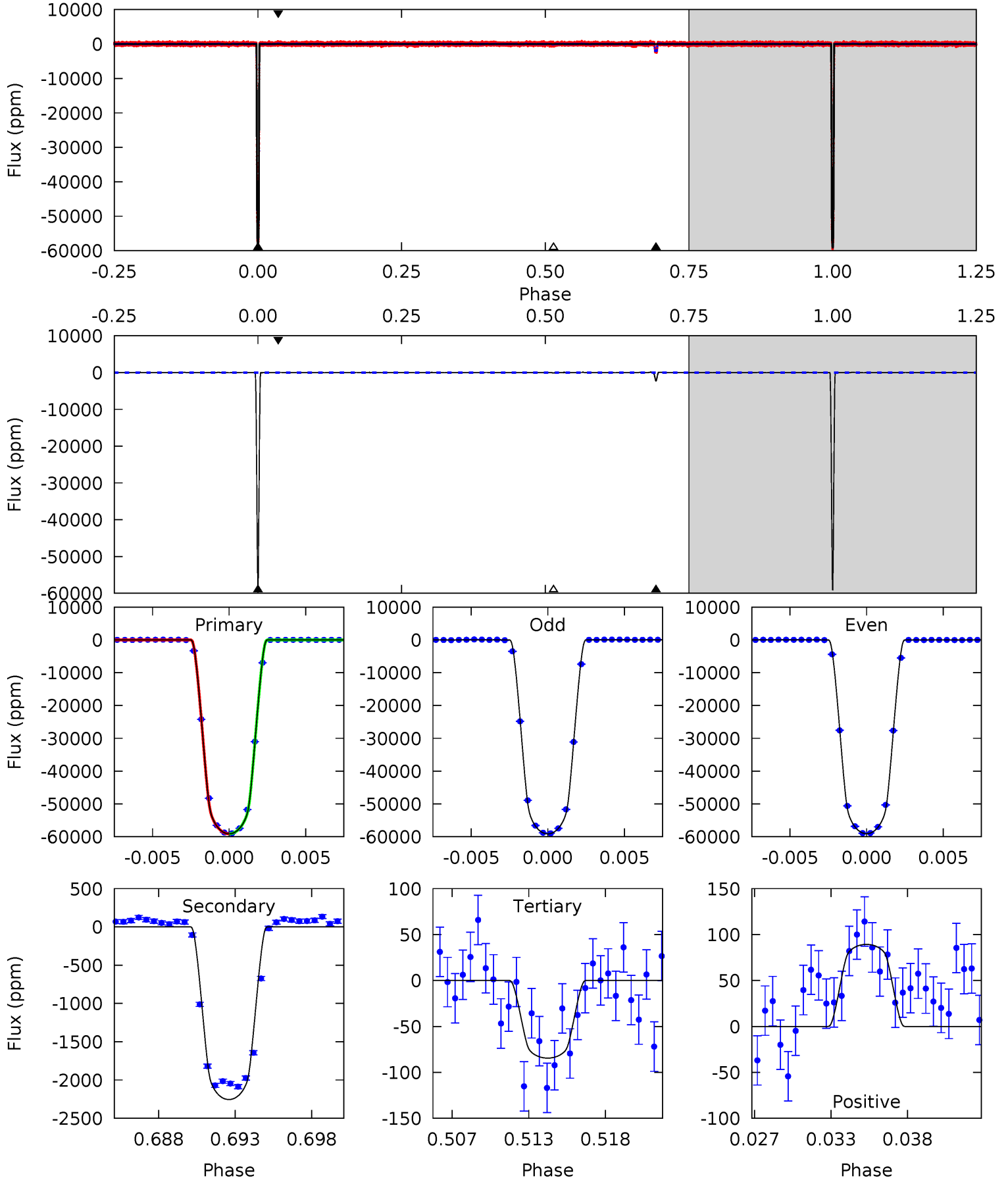
TCE 012164634-01 P= 89.331164 Days $T_0=142.317254$ (BKJD)



DV Model-Shift Uniqueness Test

012164634-01, P = 89.331211 Days, E = 52.985566 Days

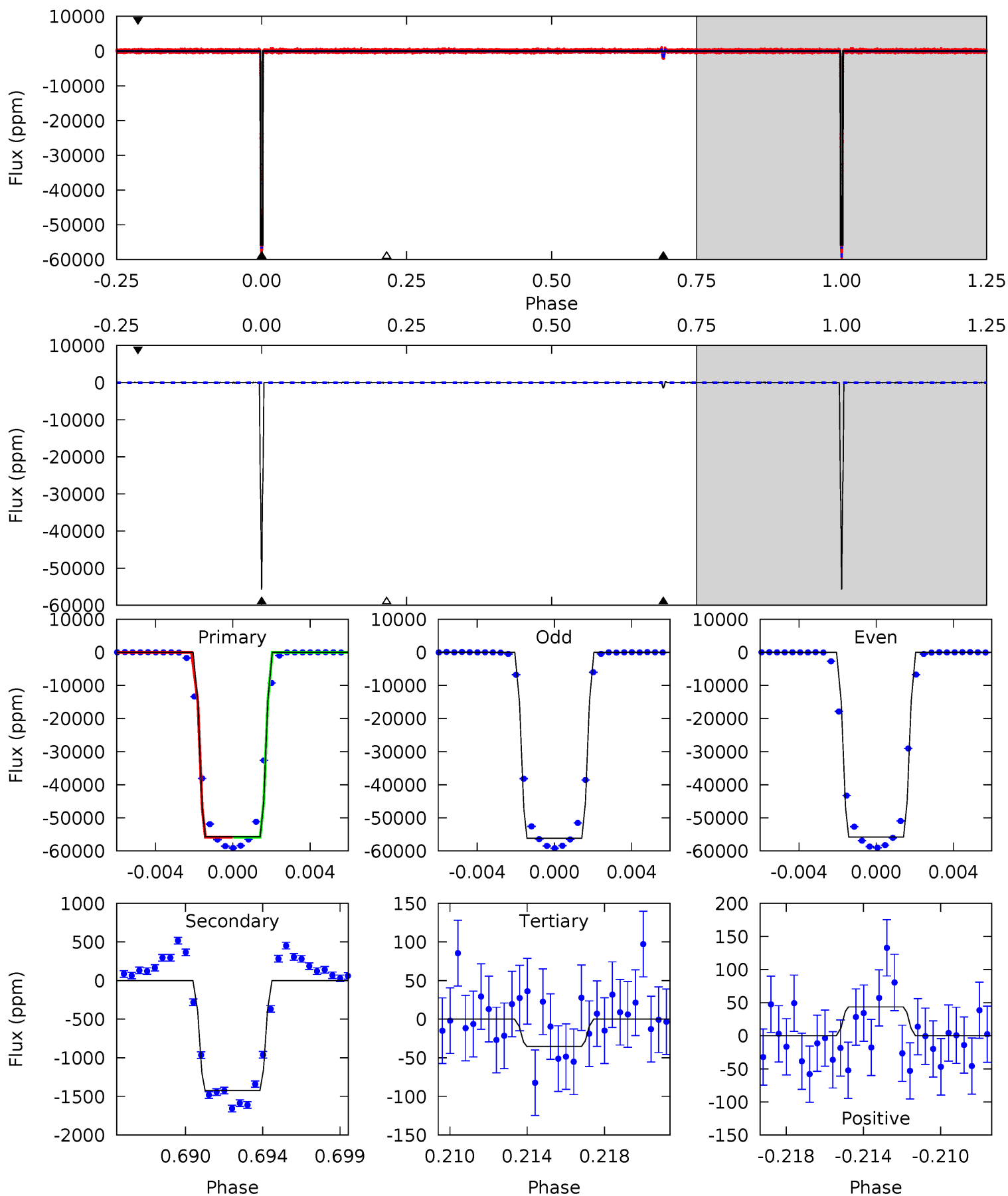
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5743	219.1	8.21	8.68	5.14	2.78	2.41	5735	5734	210.9	210.4	2.40	1.00	0.00	1.11



Alt Model-Shift Uniqueness Test

012164634-01, P = 89.331164 Days, E = 52.986090 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4503	115.0	2.83	3.52	5.18	2.85	1.17	4500	4499	112.2	111.5	14.0	0.99	0.00	0.78



Stellar Parameters For KIC 012164634

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6860^{+189}_{-283}	$4.233^{+0.108}_{-0.201}$	$-0.100^{+0.250}_{-0.350}$	$1.467^{+0.495}_{-0.266}$	$1.350^{+0.204}_{-0.224}$	$0.602^{+0.351}_{-0.313}$
	+3%/-4%	+3%/-5%	+250%/-350%	+34%/-18%	+15%/-17%	+58%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012164634-01 / KOI 3491.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2255 ± 10	$37.80^{+6.75}_{-4.44}$	789^{+64}_{-54}	3551^{+66}_{-87}	158^{+37}_{-40}
Alt.	-1424 ± 12	$38.87^{+6.85}_{-4.06}$	788^{+67}_{-51}	3280^{+49}_{-76}	95^{+20}_{-24}

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 $A_{obs} \gg 1.0$

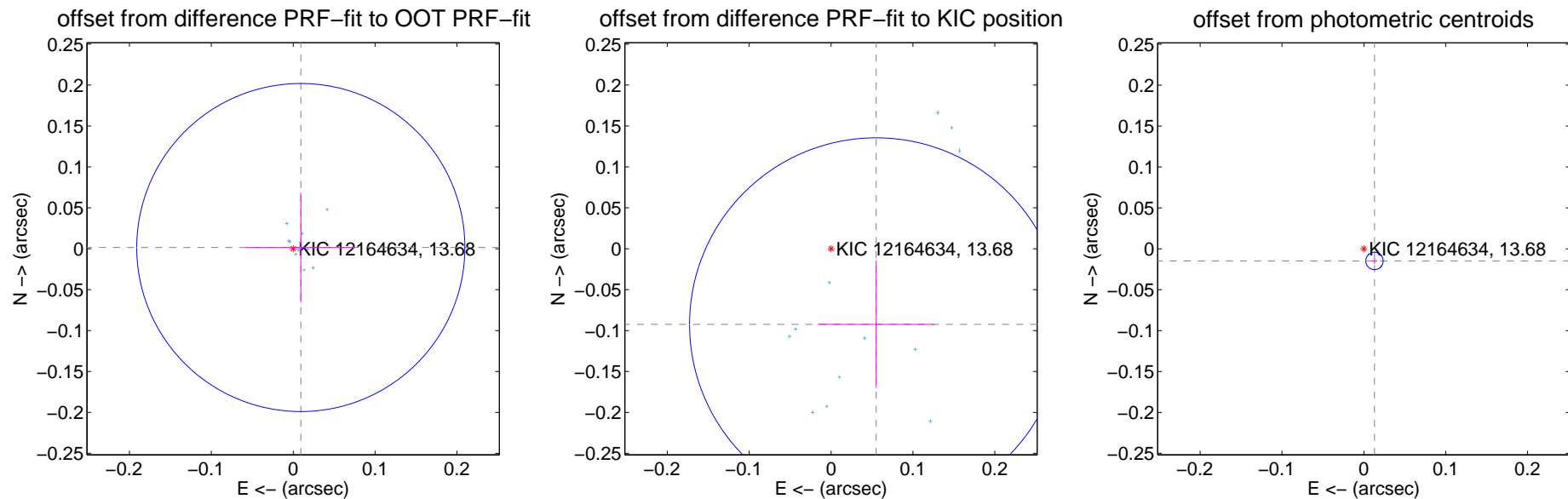
DV Centroid Data

Supplemental centroid analysis for 012164634-01. Kepler magnitude: 13.68. Transit SNR 2835.71

There are 12 quarters with good PRF difference image offsets

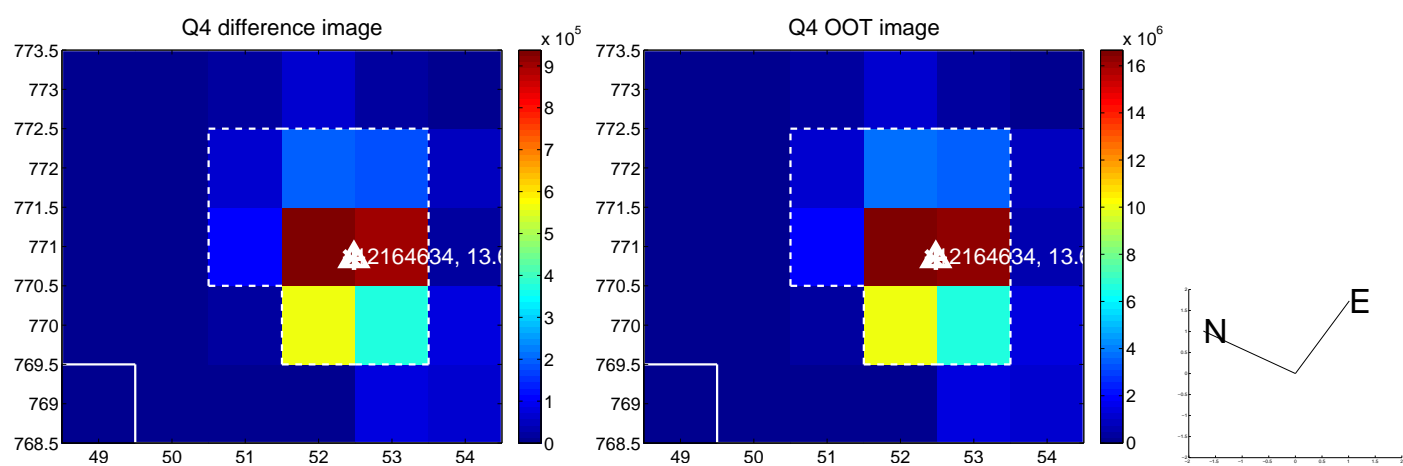
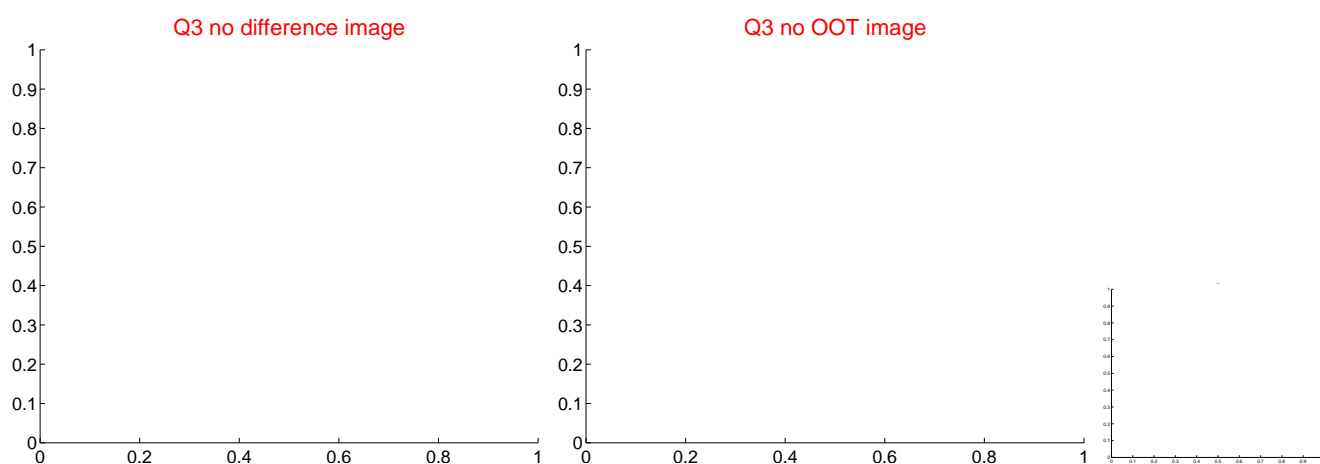
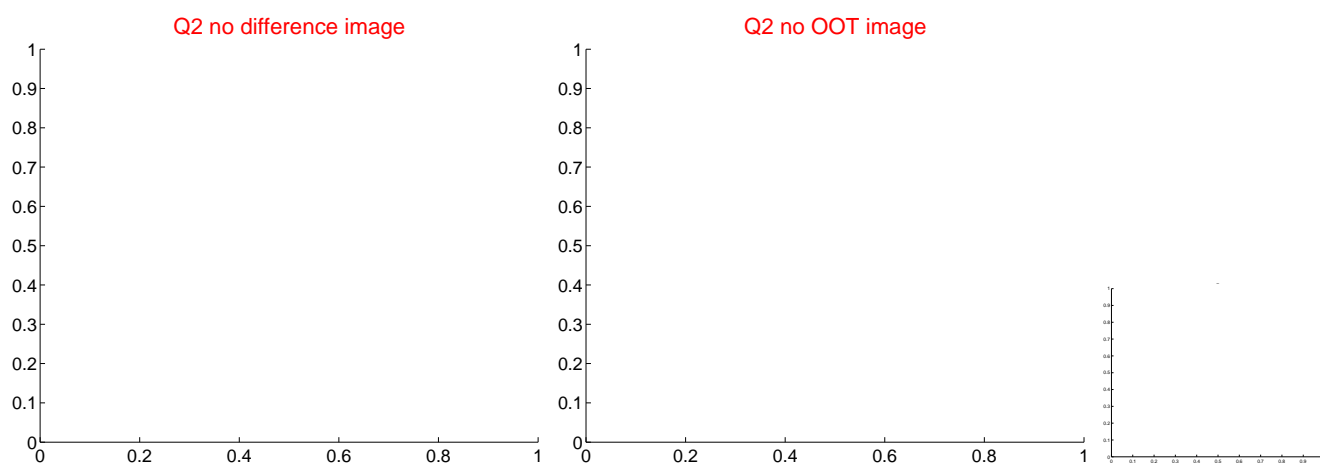
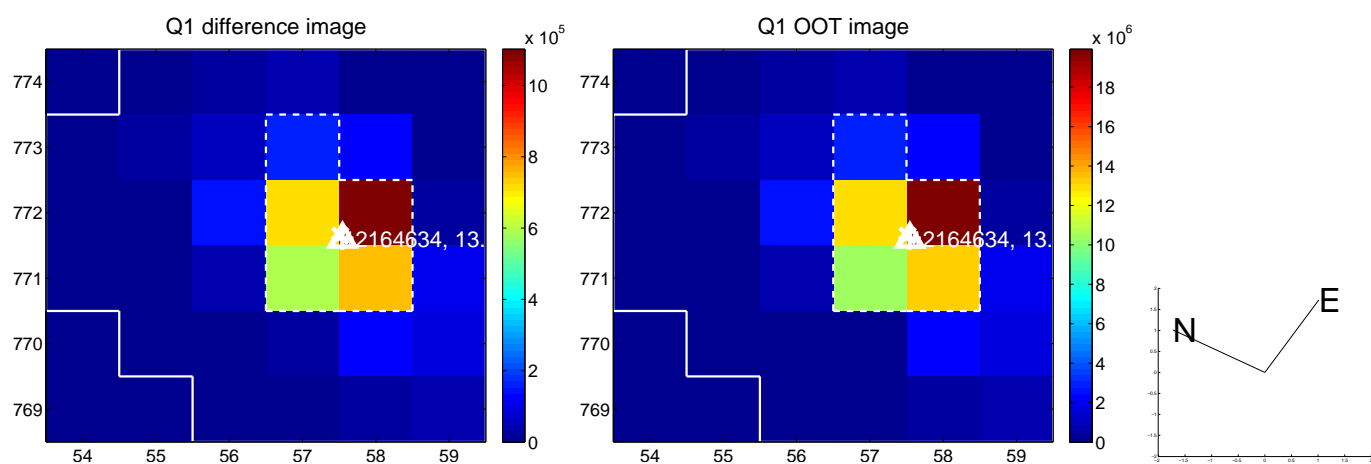
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.009 ± 0.067	0.14	-0.009 ± 0.067	0.001 ± 0.067
PRF-fit source offset from KIC position	0.108 ± 0.076	1.42	-0.055 ± 0.071	-0.092 ± 0.078
photometric centroid source offset	0.02 ± 0.00	5.58	-0.01 ± 0.00	-0.01 ± 0.00

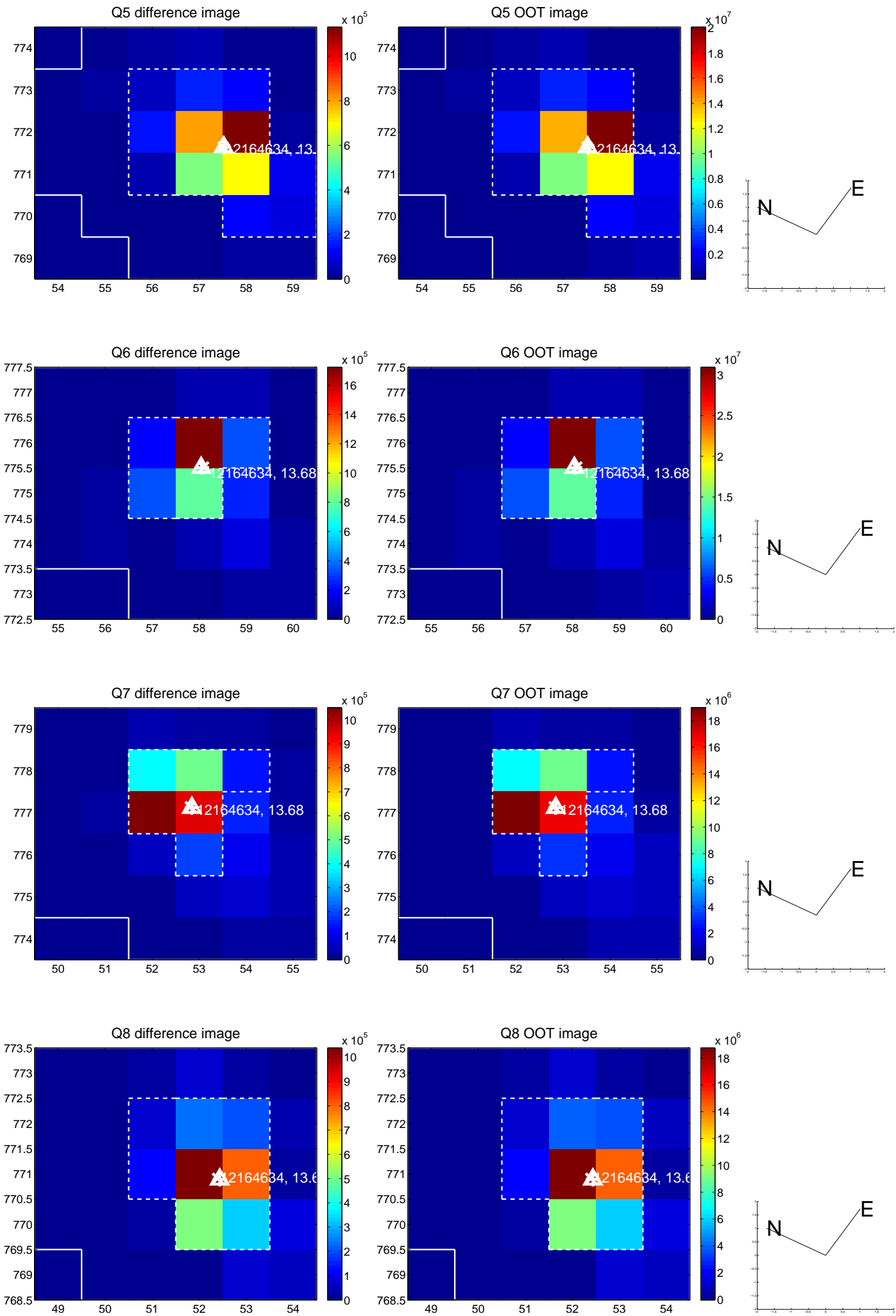


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

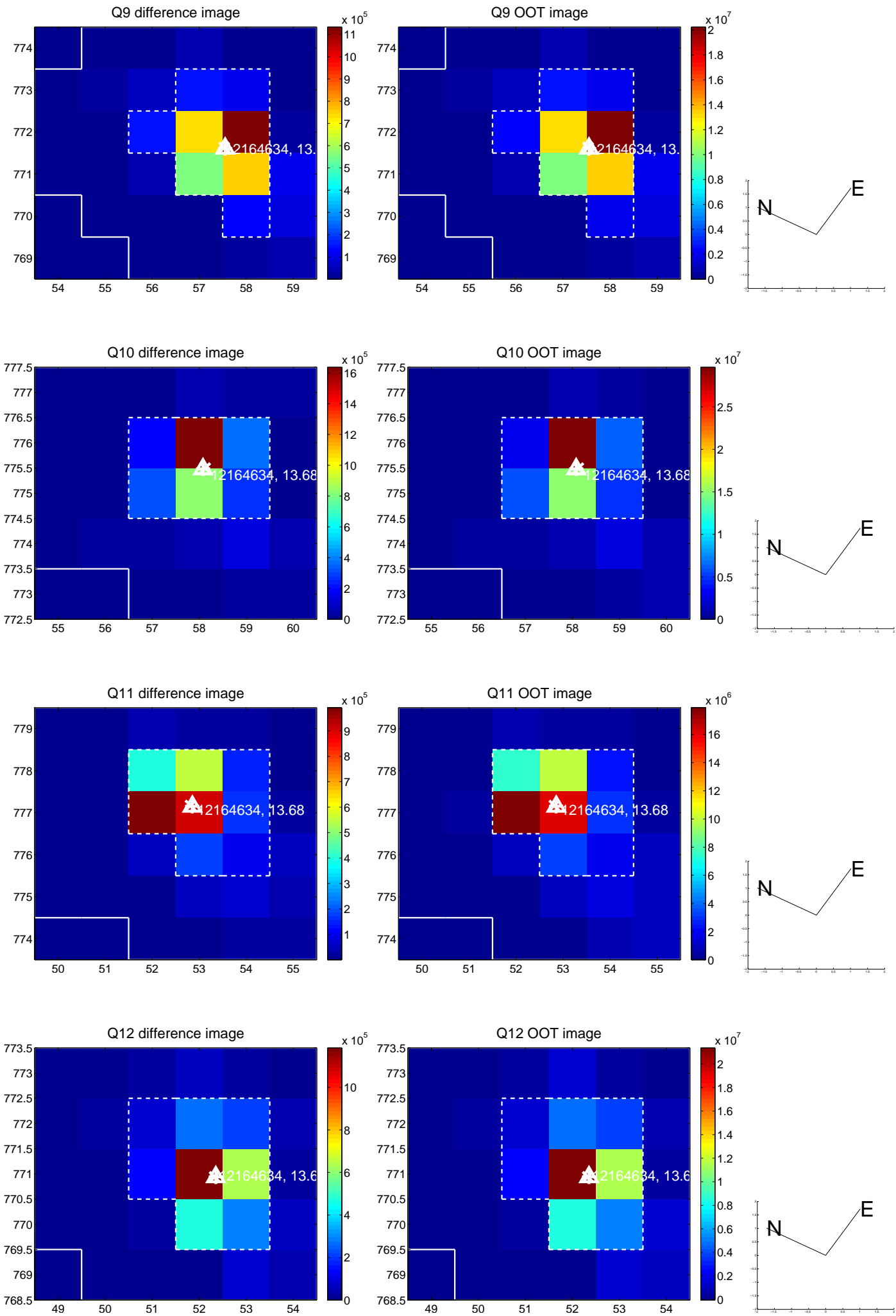
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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.

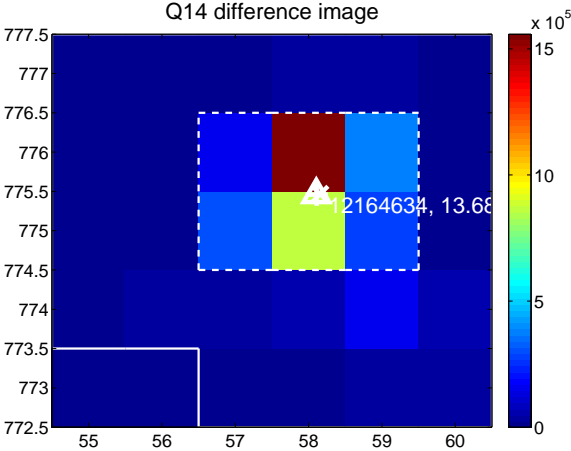
Q13 no difference image



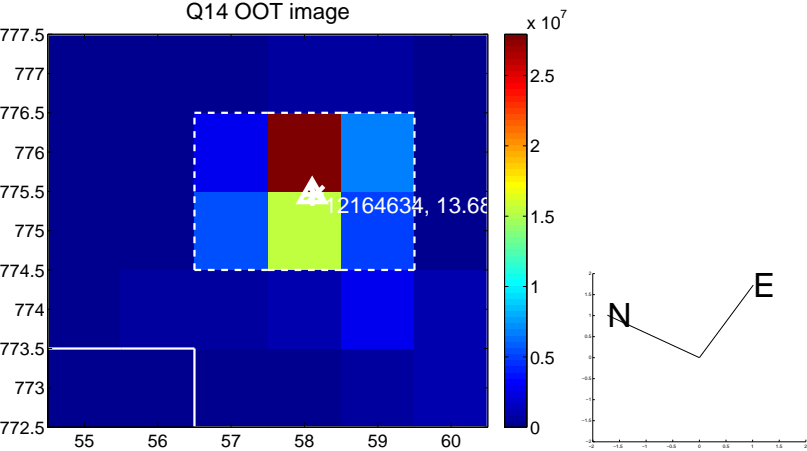
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



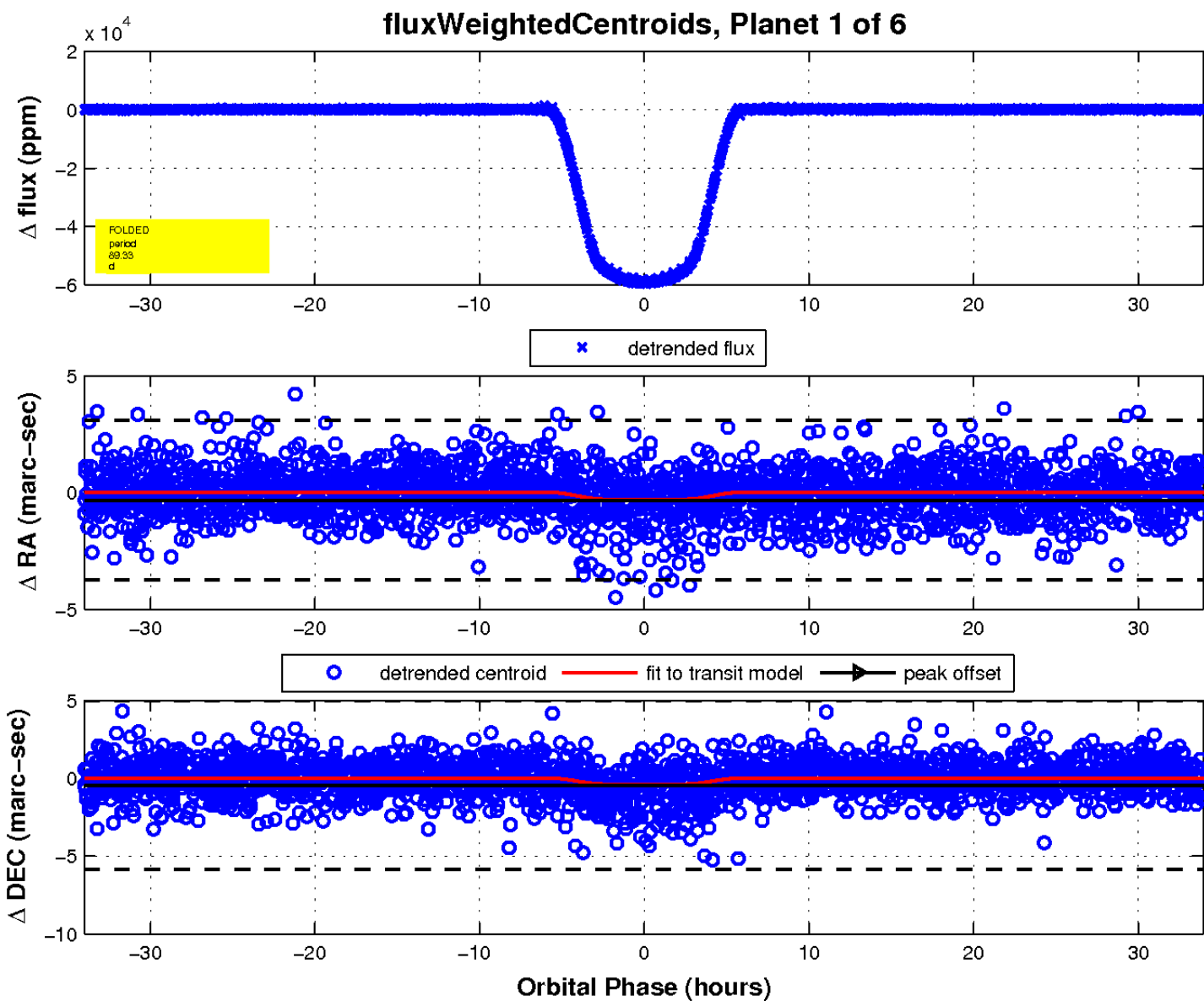
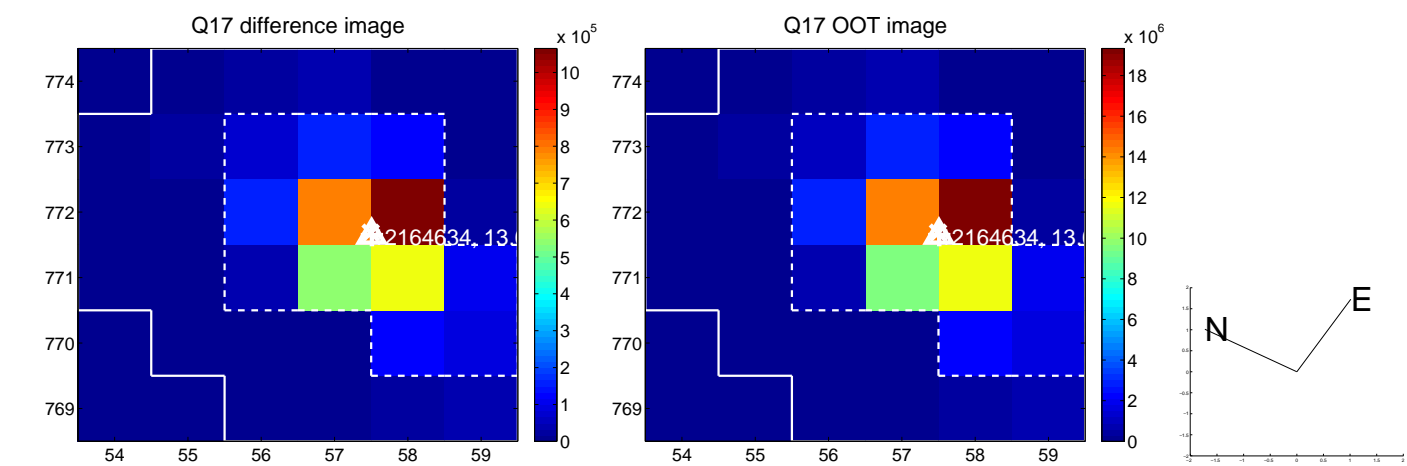
Q16 no difference image



Q16 no OOT image

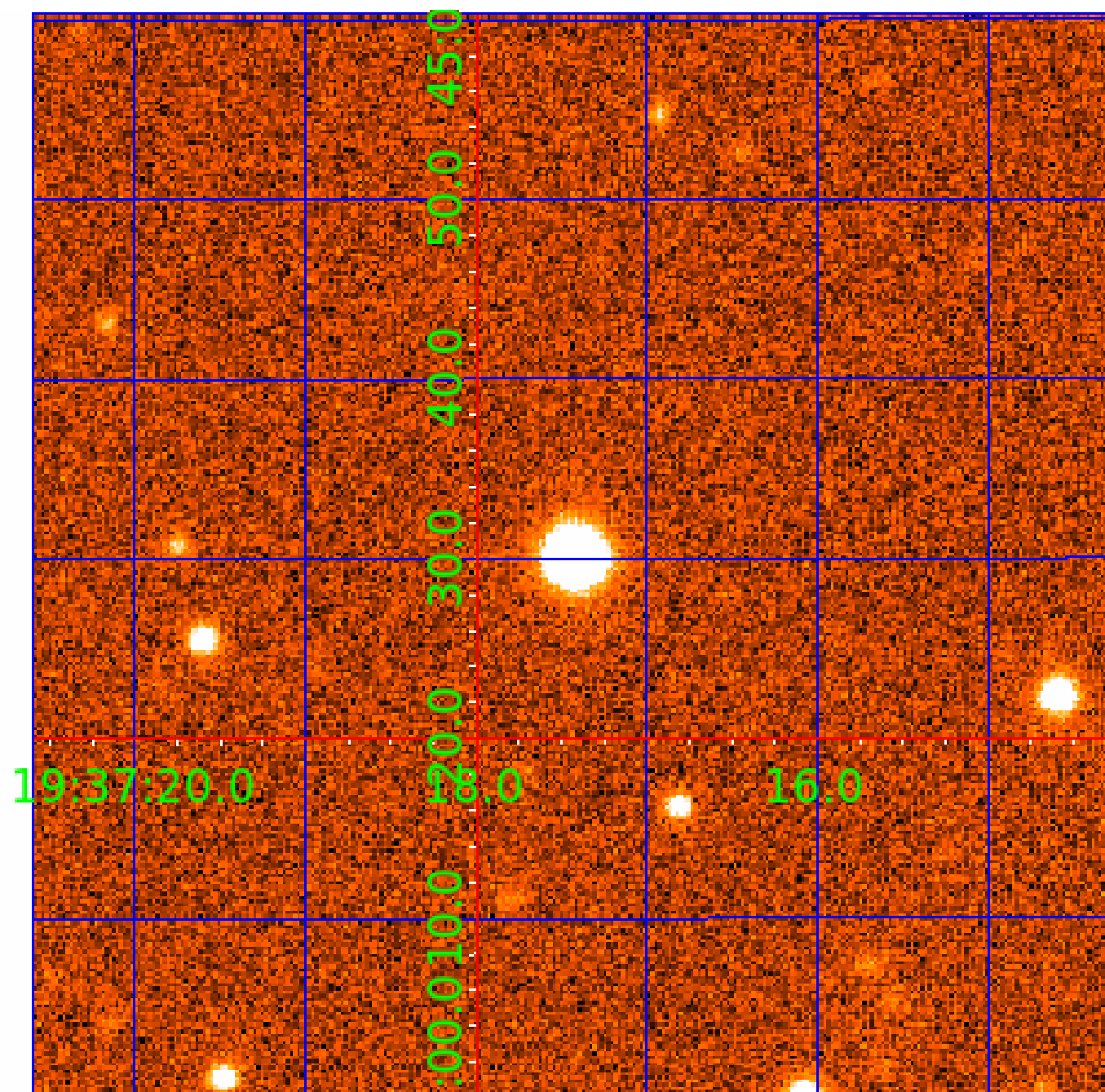


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012164634

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})
012164634-01	OBS	3491.01	89.331211	142.316777	59114.4	11.335	2966.3	2835.7	1.47	6860	37.11	22.93
012164634-02	OBS	No	89.331155	204.187202	2169.0	11.912	118.2	116.2	1.47	6860	7.98	22.93
012164634-03	OBS	No	290.754132	209.308482	629.4	15.741	15.6	13.0	1.47	6860	3.93	4.75
012164634-04	OBS	No	292.377639	202.635709	255.3	2.048	23.7	3.8	1.47	6860	2.66	4.72
012164634-05	OBS	No	292.381209	204.109169	301.4	0.718	23.4	2.4	1.47	6860	3.04	4.72
012164634-06	OBS	No	292.285073	203.537112	311.2	7.916	23.6	5.8	1.47	6860	2.68	4.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012164634-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
012164634-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
012164634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
012164634-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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 012164634-02

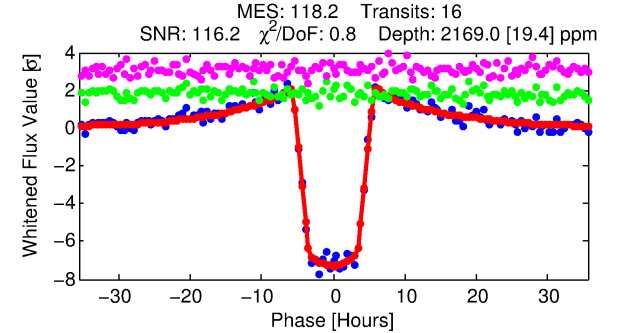
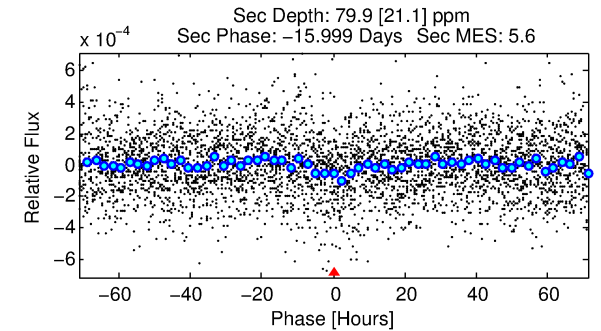
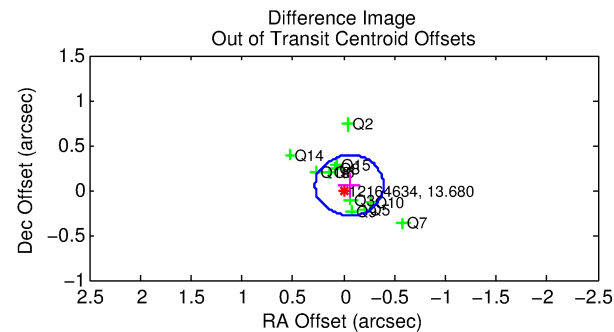
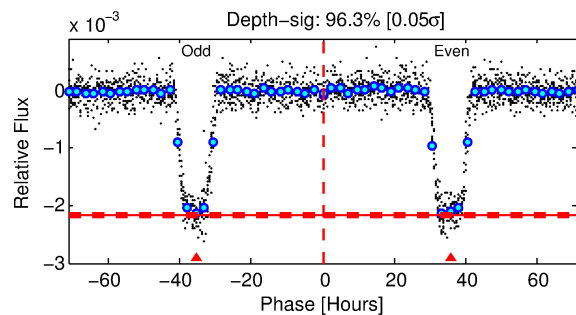
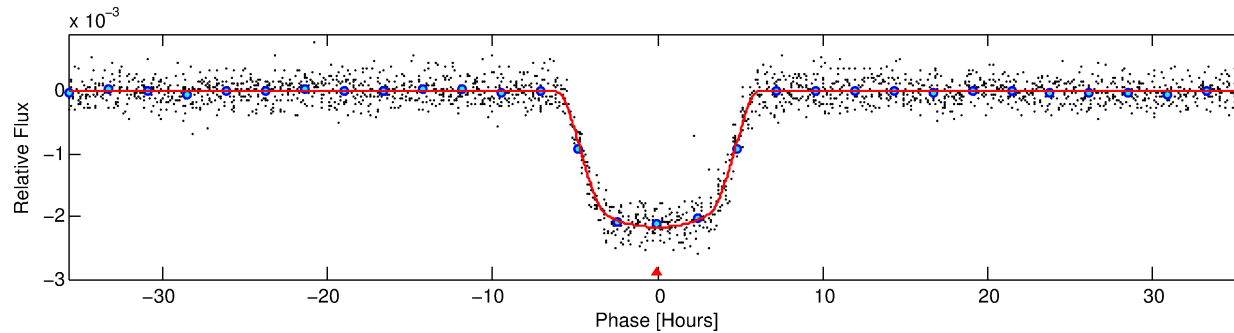
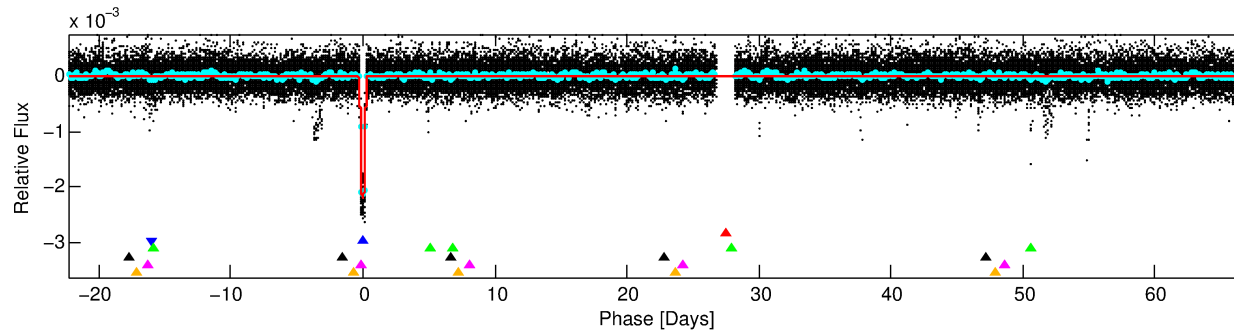
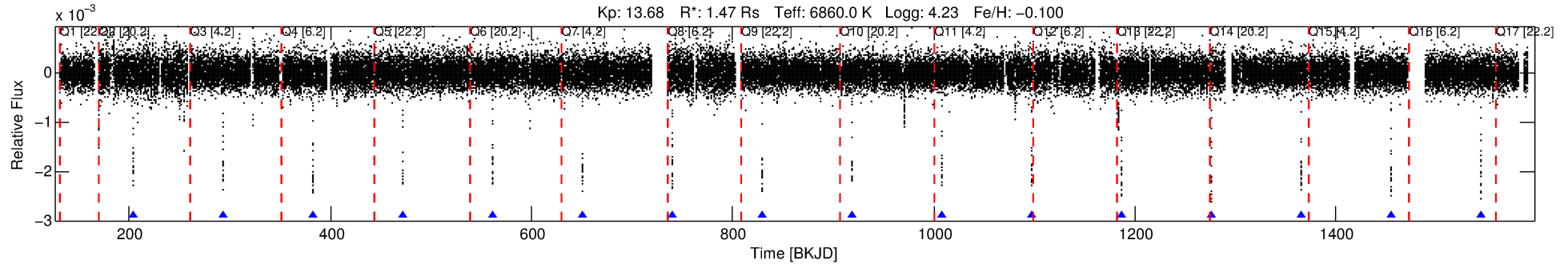
No Significant Match Found

DV One-Page Summary

KIC: 12164634 Candidate: 2 of 6 Period: 89.331 d

KOI: K03491.01 Corr: 0.993

Kp: 13.68 R*: 1.47 Rs Teff: 6860.0 K Logg: 4.23 Fe/H: -0.100



DV Fit Results:

Period = 89.33115 [0.00020] d
Epoch = 204.1872 [0.0018] BKJD
Rp/R* = 0.0499 [0.0003]
a/R* = 30.76 [0.57]
b = 0.90 [0.00]
Seff = 22.93 [9.54]
Teq = 558 [58] K
Rp = 7.98 [2.69] Re
a = 0.4315 [0.1177] AU
Ag = 128.43 [59.69] [2.13σ]
Teffp = 2904 [227] K [10.03σ]

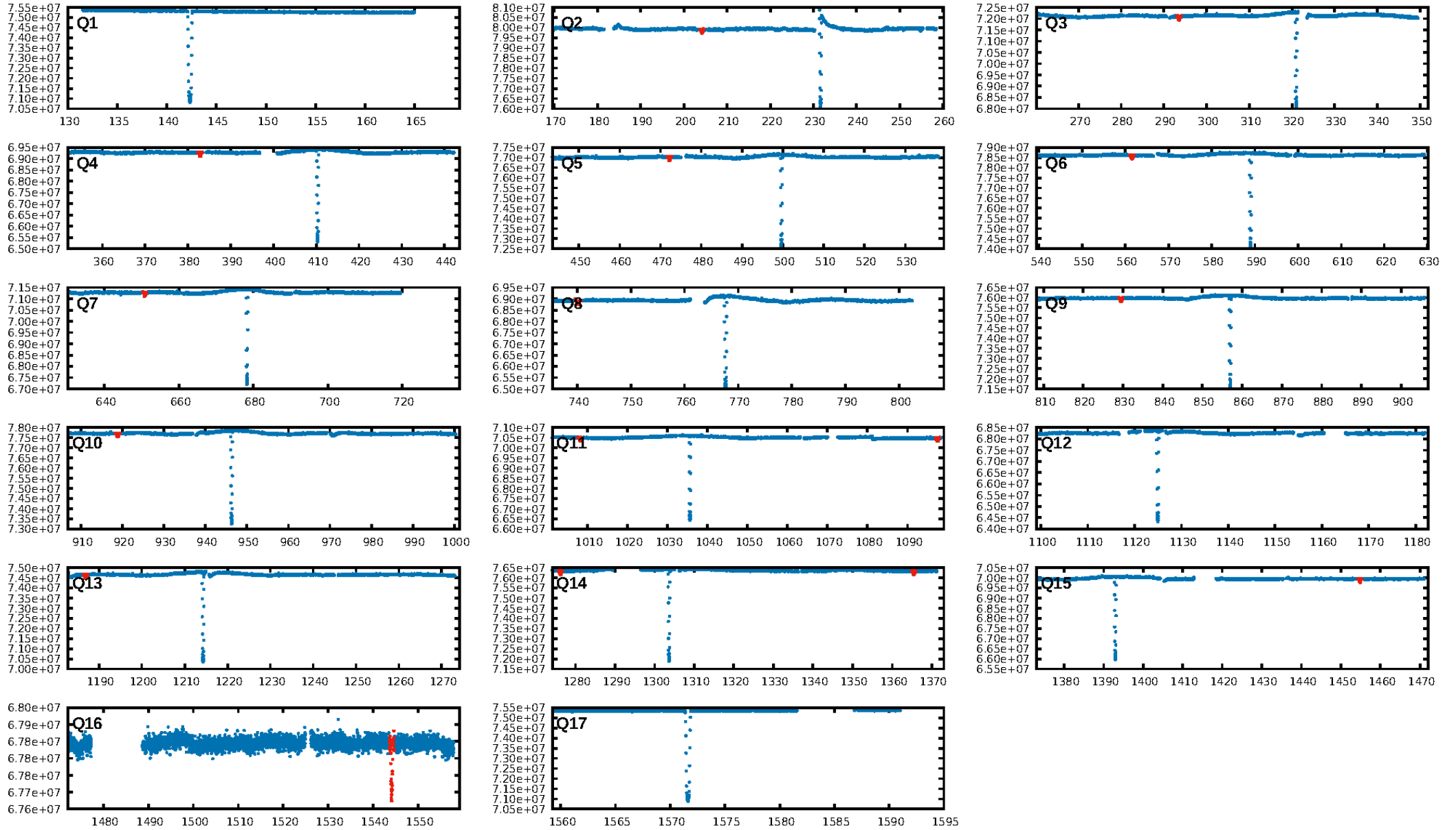
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 67.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [16/16]
GhostDiagnostic-chr: 4.2
Centroid-sig: 0.1%
Centroid-so: 0.171 arcsec [1.73σ]
OotOffset-rm: 0.079 arcsec [0.70σ]
KicOffset-rm: 0.086 arcsec [0.68σ]
OotOffset-st: 4/3/2/2 [11]
KicOffset-st: 4/3/2/2 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 0.91 [10/11]

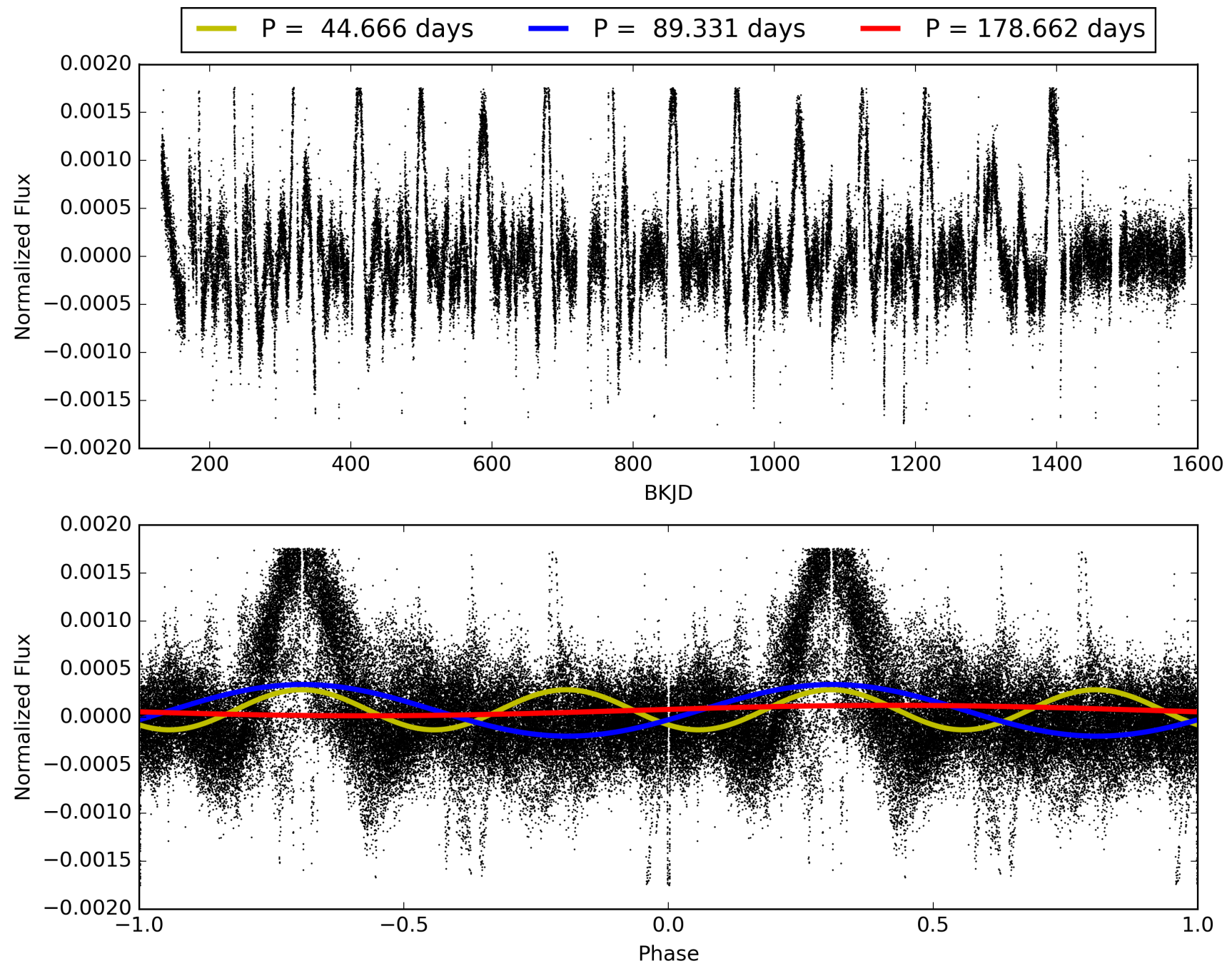
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:07:01 Z

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

TCE 012164634-02, PDC Light Curves

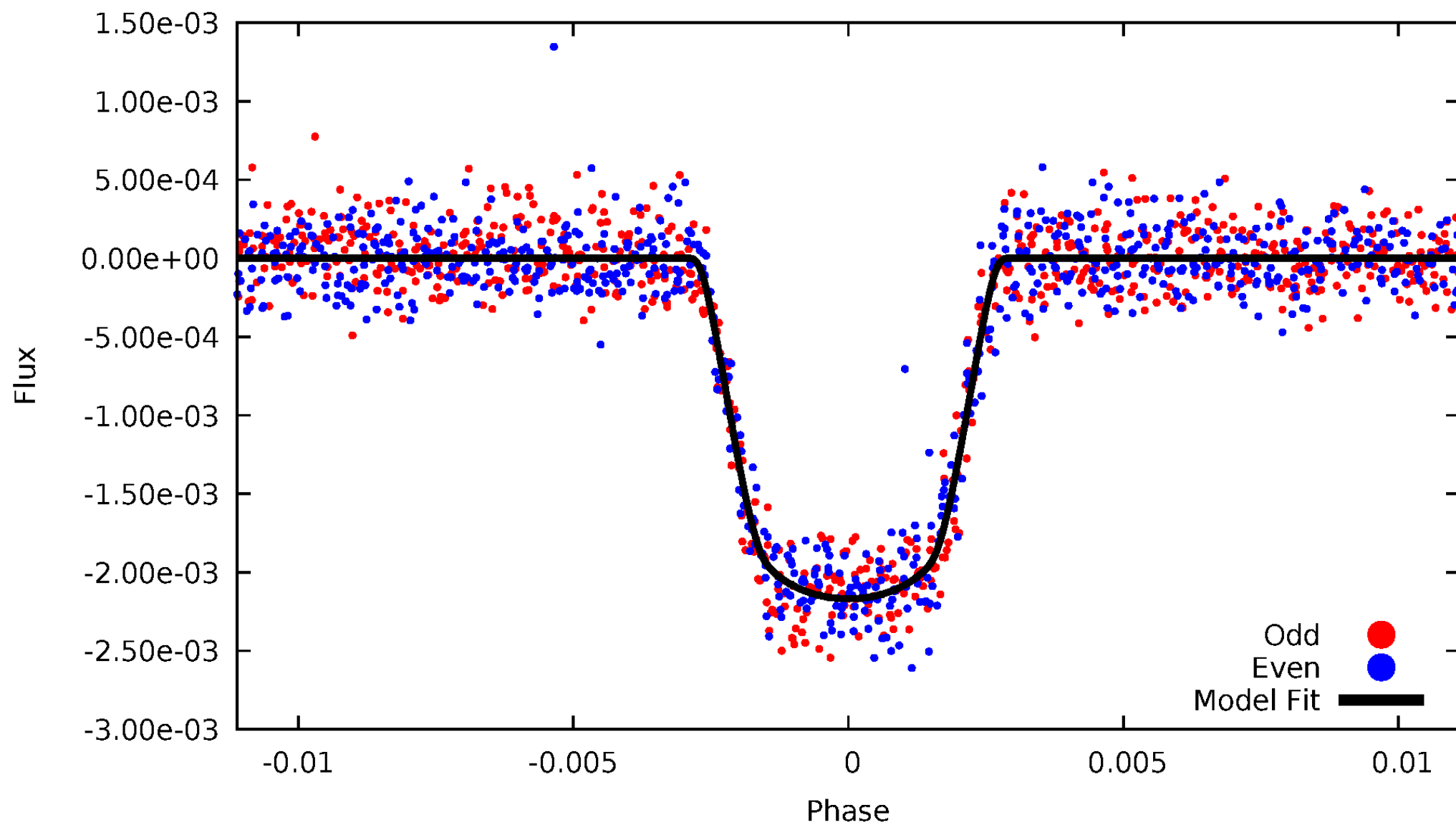


TCE 012164634-02



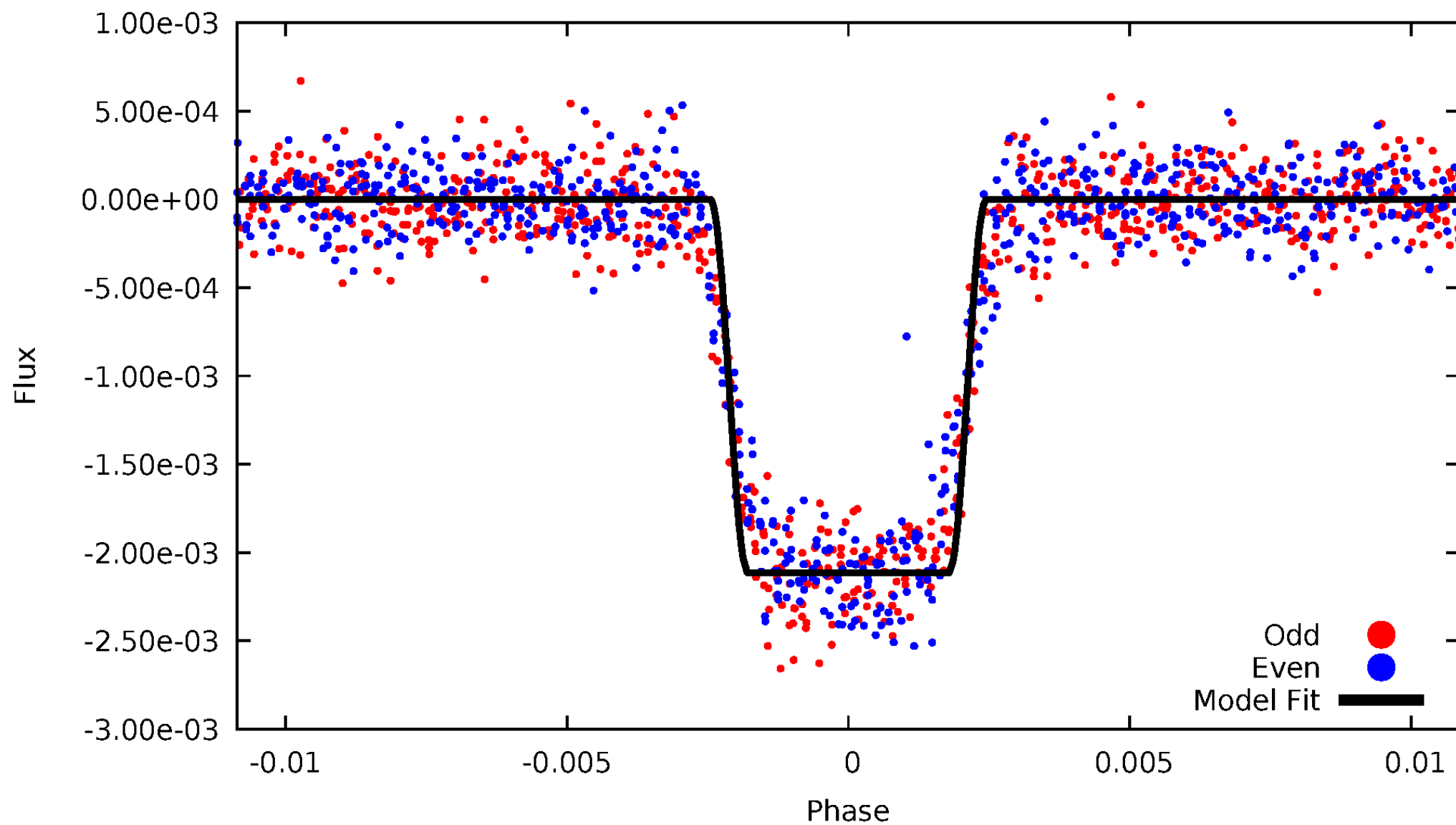
DV Odd/Even

TCE 012164634-02



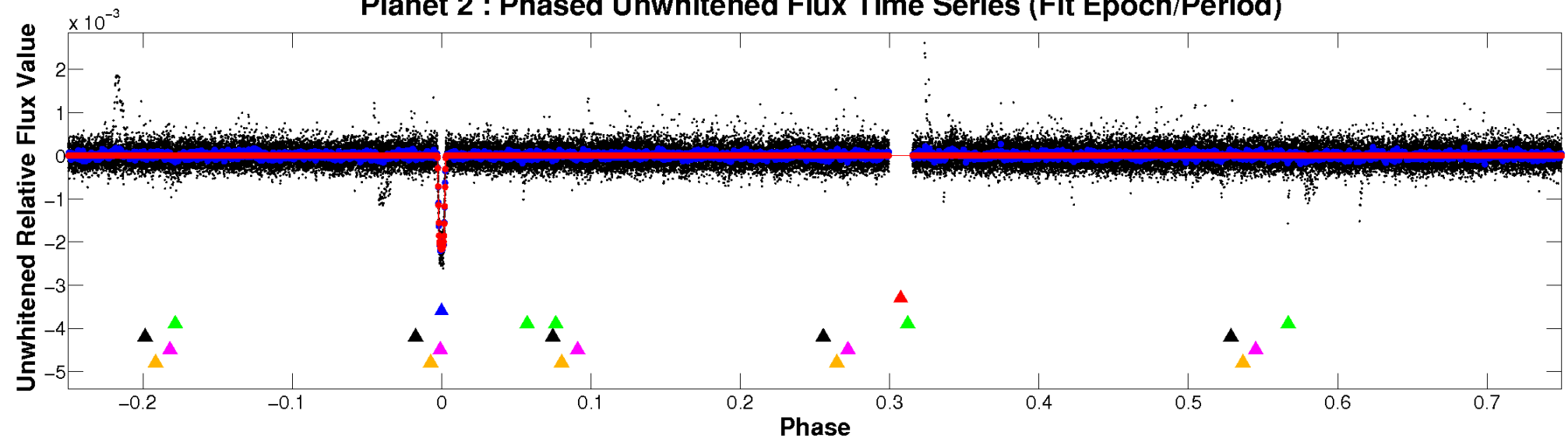
ALT Odd/Even

TCE 012164634-02

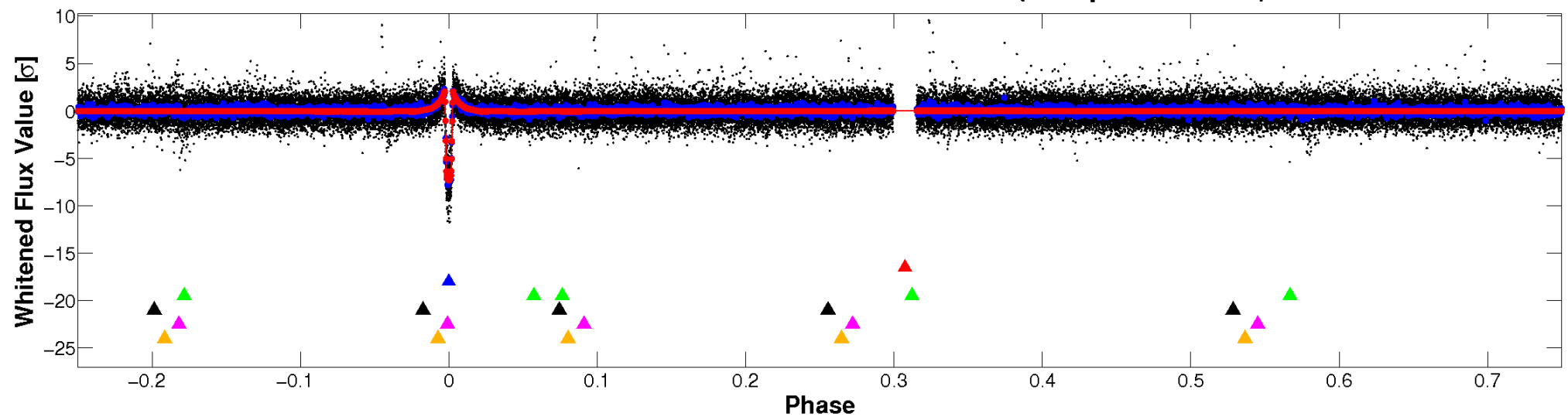


Non-Whitened Vs. Whitened Light Curve

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

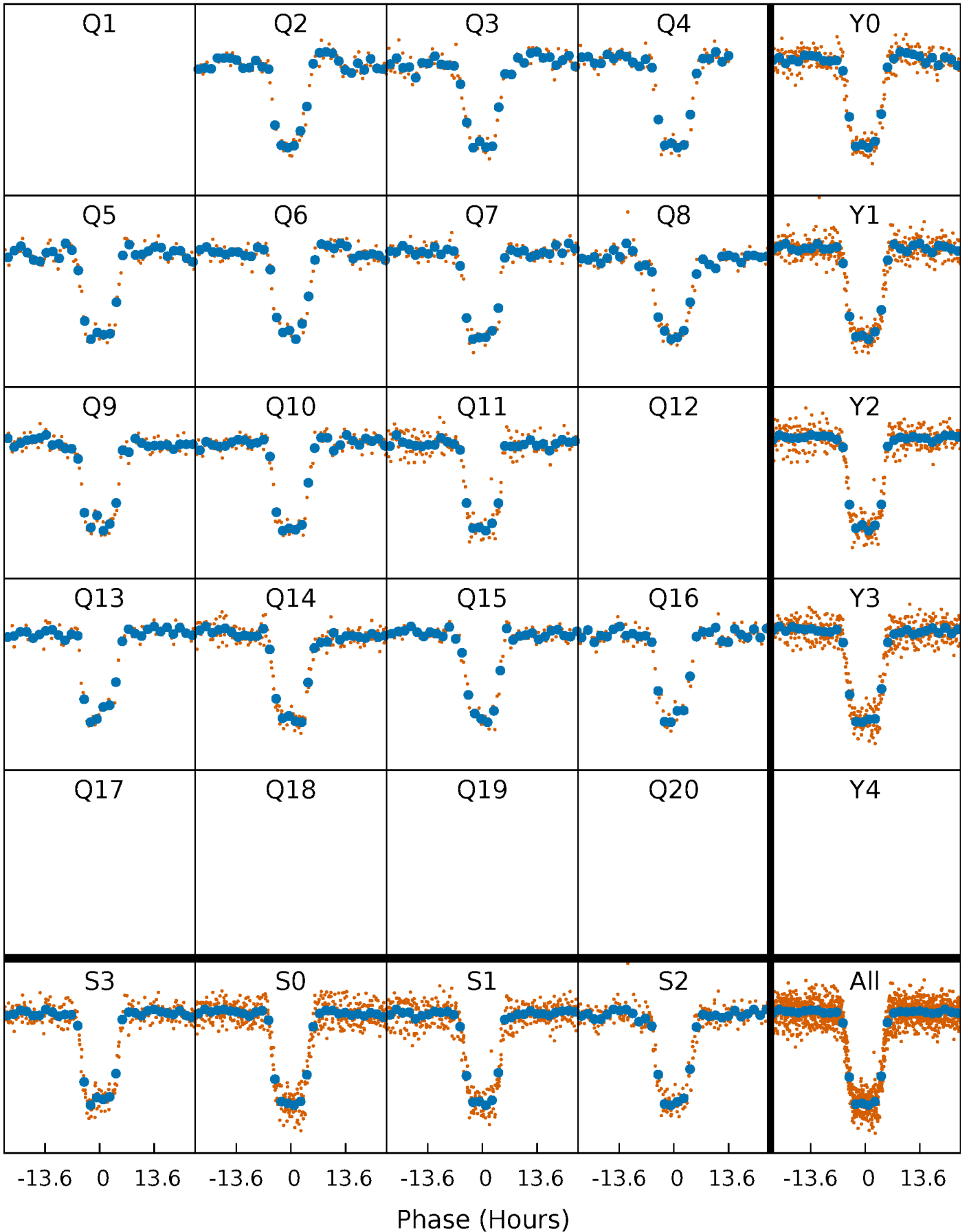


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



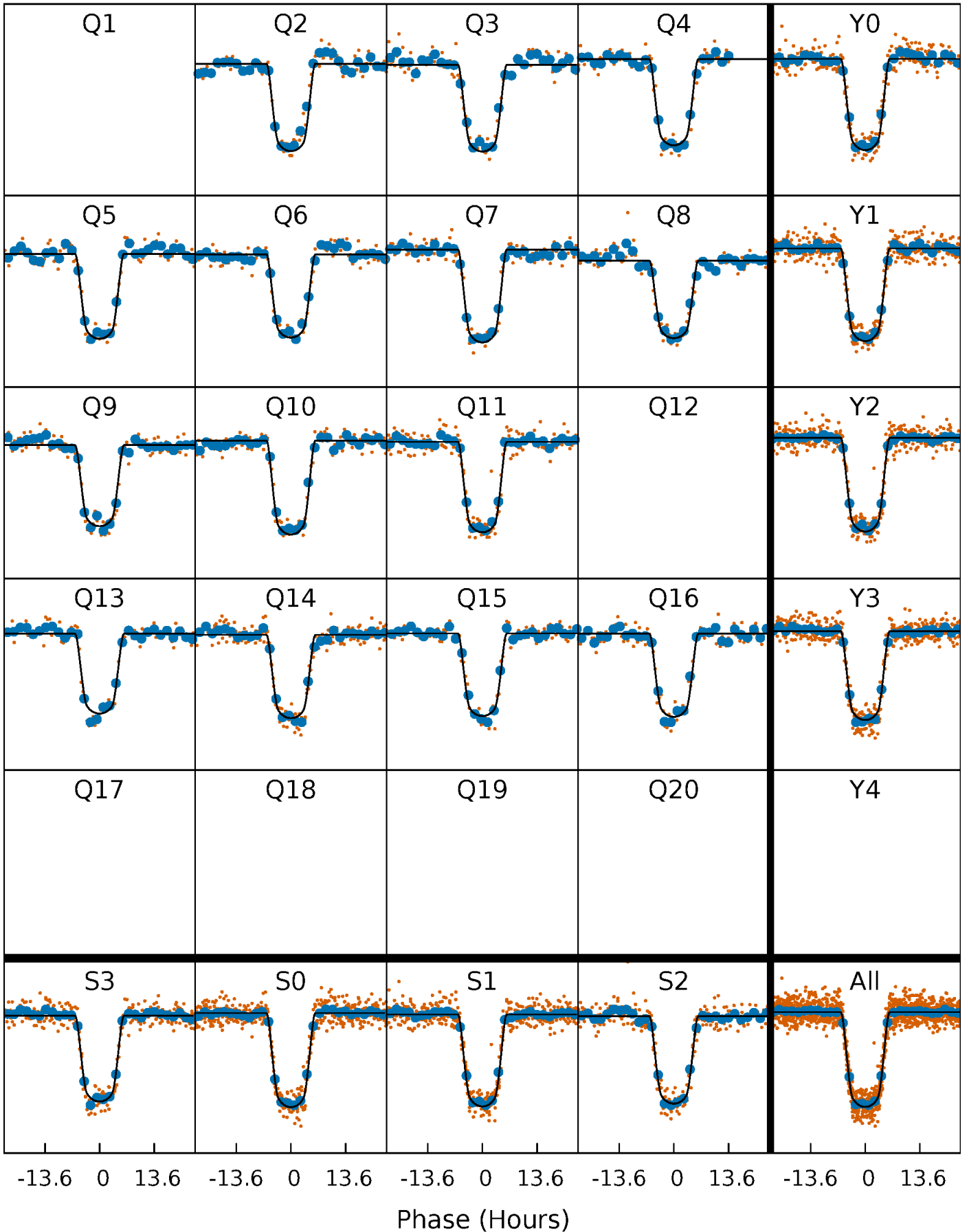
PDC Quarter-Phased Transit Curves

TCE 012164634-02 P= 89.331155 Days $T_0=204.187202$ (BKJD)



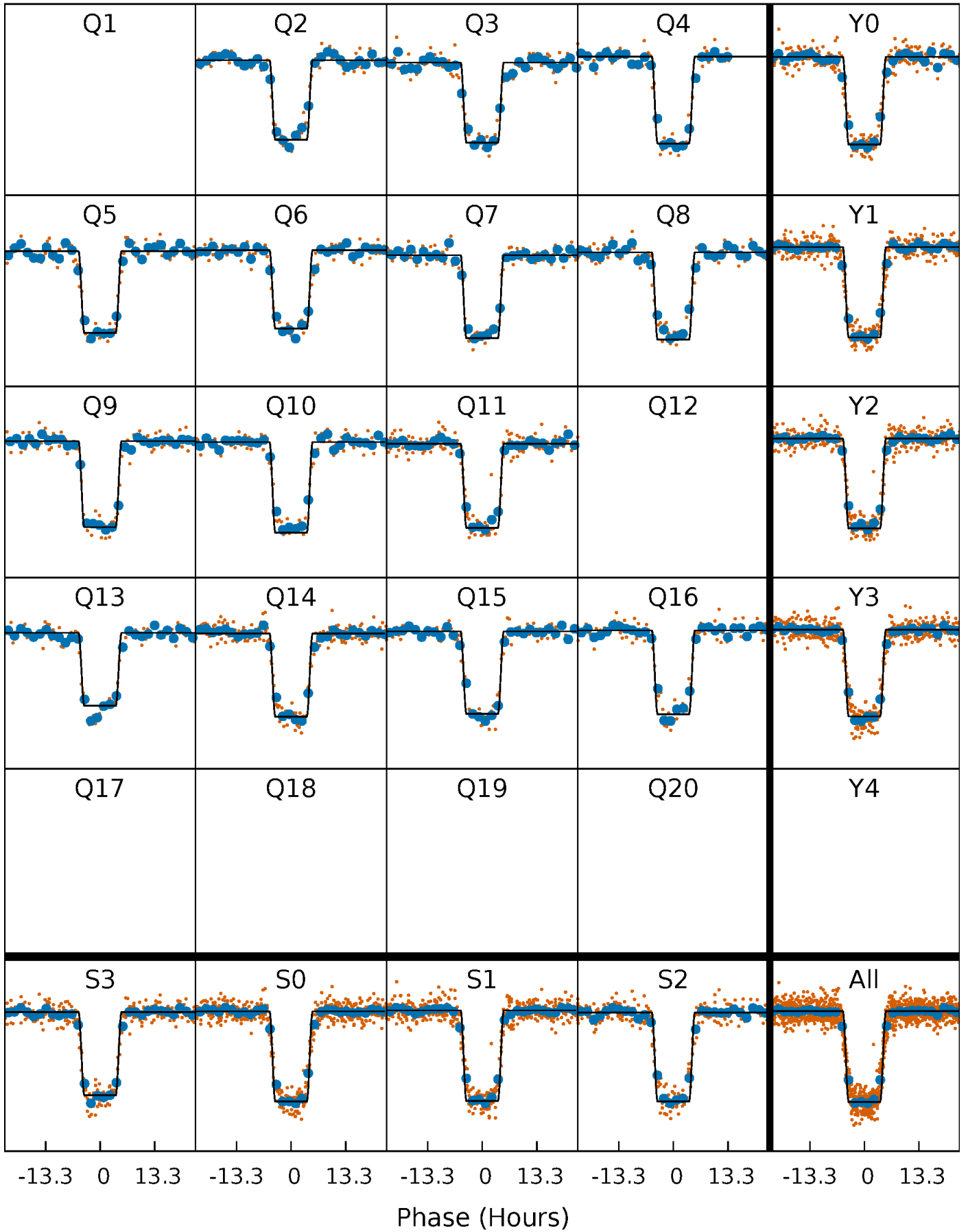
DV Quarter-Phased Transit Curves

TCE 012164634-02 P= 89.331155 Days $T_0=204.187202$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

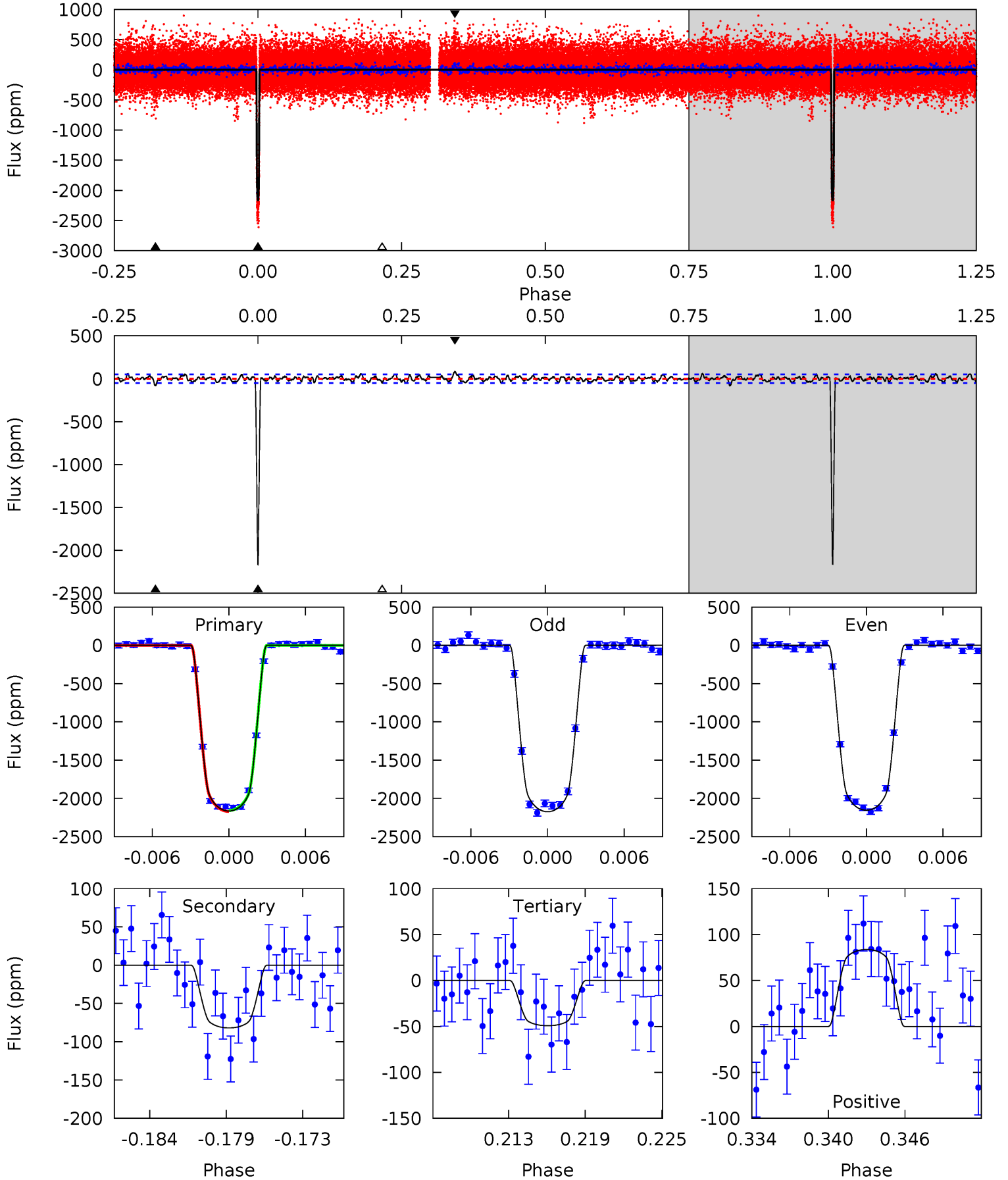
TCE 012164634-02 P= 89.330723 Days $T_0=204.190982$ (BKJD)



DV Model-Shift Uniqueness Test

012164634-02, P = 89.331155 Days, E = 114.856047 Days

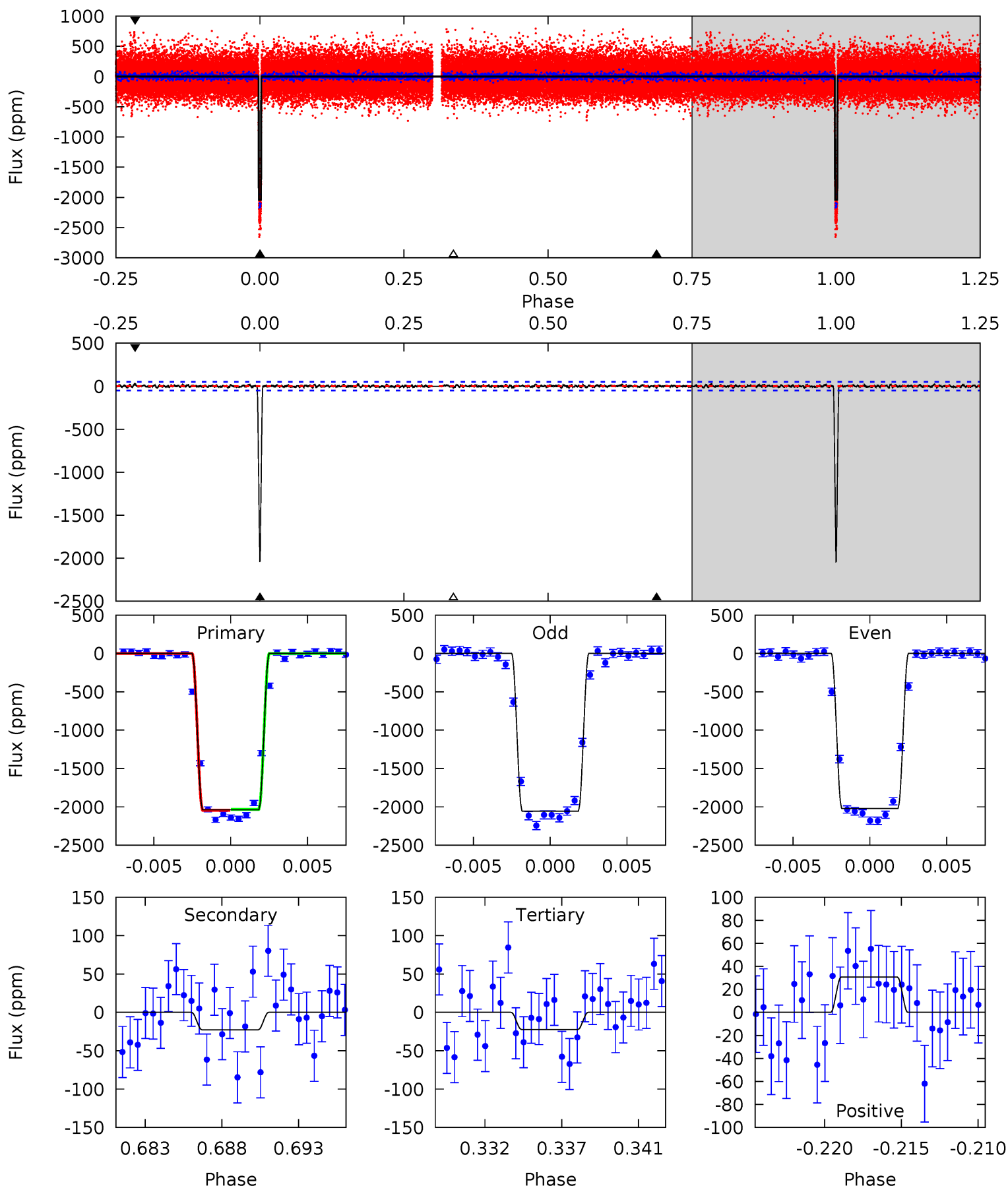
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
222.3	8.42	5.06	8.61	5.13	2.76	2.20	217.3	213.7	3.37	-0.18	1.00	1.00	0.04	0.65



Alt Model-Shift Uniqueness Test

012164634-02, P = 89.330723 Days, E = 114.860259 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
210.1	2.34	2.30	3.16	5.16	2.81	0.76	207.8	206.9	0.04	-0.81	1.82	1.01	0.01	0.57



Stellar Parameters For KIC 012164634

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6860^{+189}_{-283}	$4.233^{+0.108}_{-0.201}$	$-0.100^{+0.250}_{-0.350}$	$1.467^{+0.495}_{-0.266}$	$1.350^{+0.204}_{-0.224}$	$0.602^{+0.351}_{-0.313}$
	+3%/-4%	+3%/-5%	+250%/-350%	+34%/-18%	+15%/-17%	+58%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012164634-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-82 ± 10	$8.07^{+1.33}_{-0.80}$	787^{+56}_{-47}	3417^{+86}_{-96}	124^{+34}_{-29}
Alt.	-23 ± 10	$7.45^{+1.45}_{-0.78}$	787^{+64}_{-55}	2894^{+161}_{-209}	39^{+23}_{-18}

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

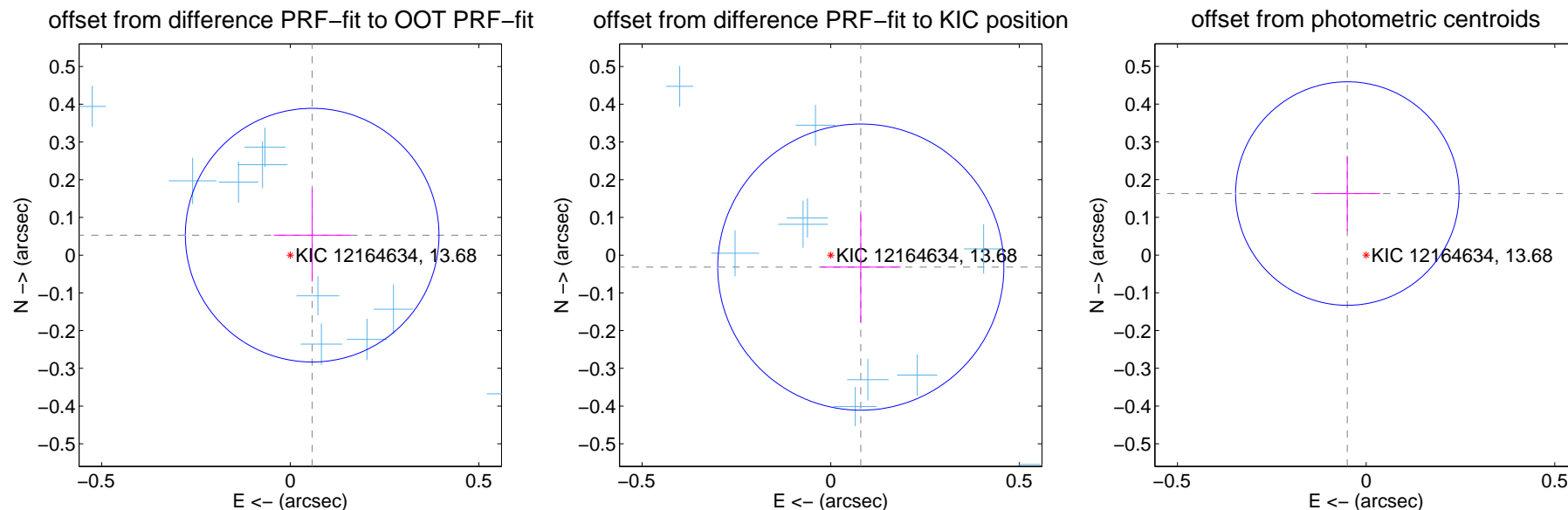
DV Centroid Data

Supplemental centroid analysis for 012164634-02. Kepler magnitude: 13.68. Transit SNR 116.24

There are 11 quarters with good PRF difference image offsets

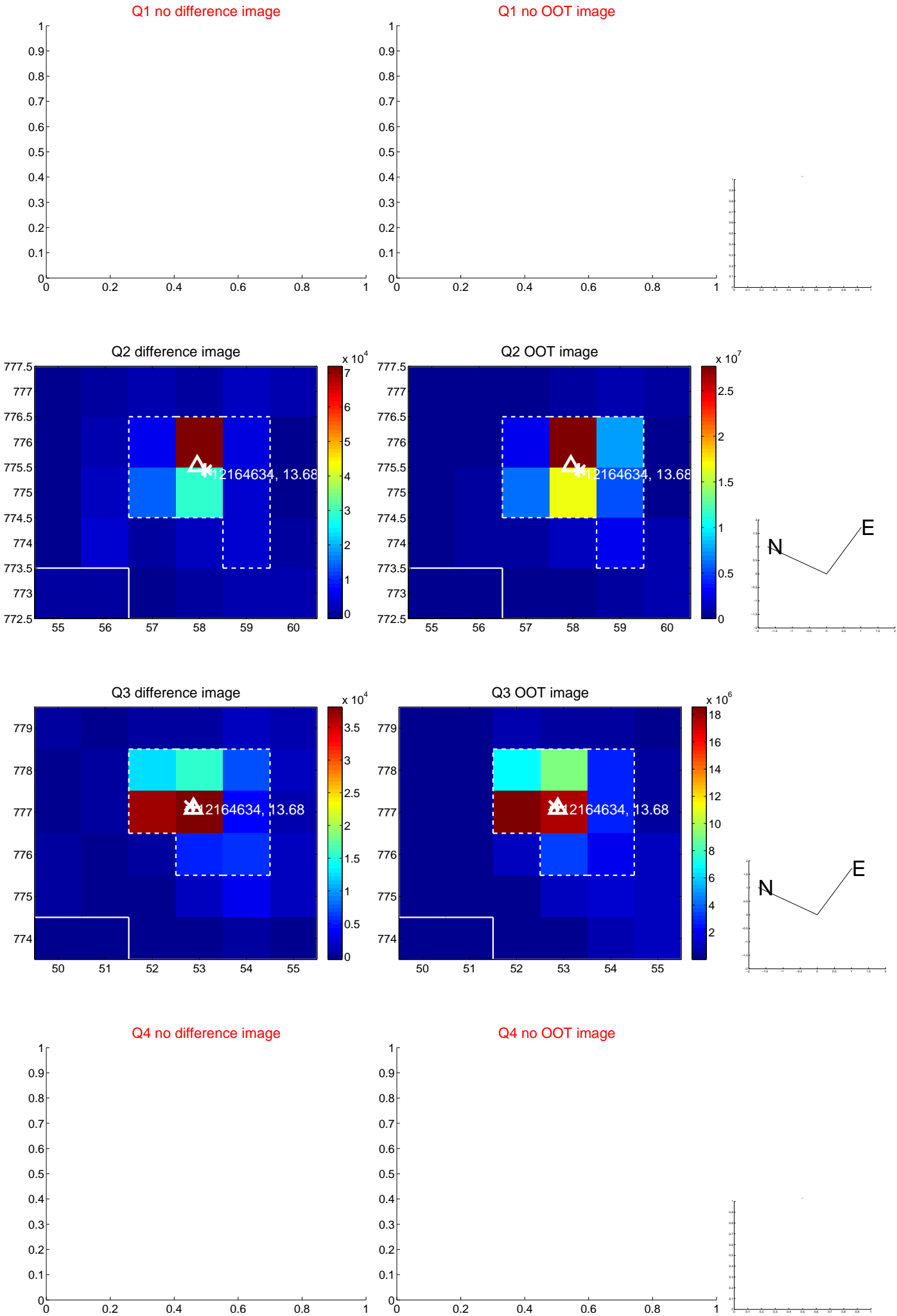
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.079 ± 0.112	0.70	-0.058 ± 0.102	0.053 ± 0.123
PRF-fit source offset from KIC position	0.086 ± 0.126	0.68	-0.080 ± 0.106	-0.032 ± 0.148
photometric centroid source offset	0.17 ± 0.10	1.73	0.05 ± 0.09	0.16 ± 0.10

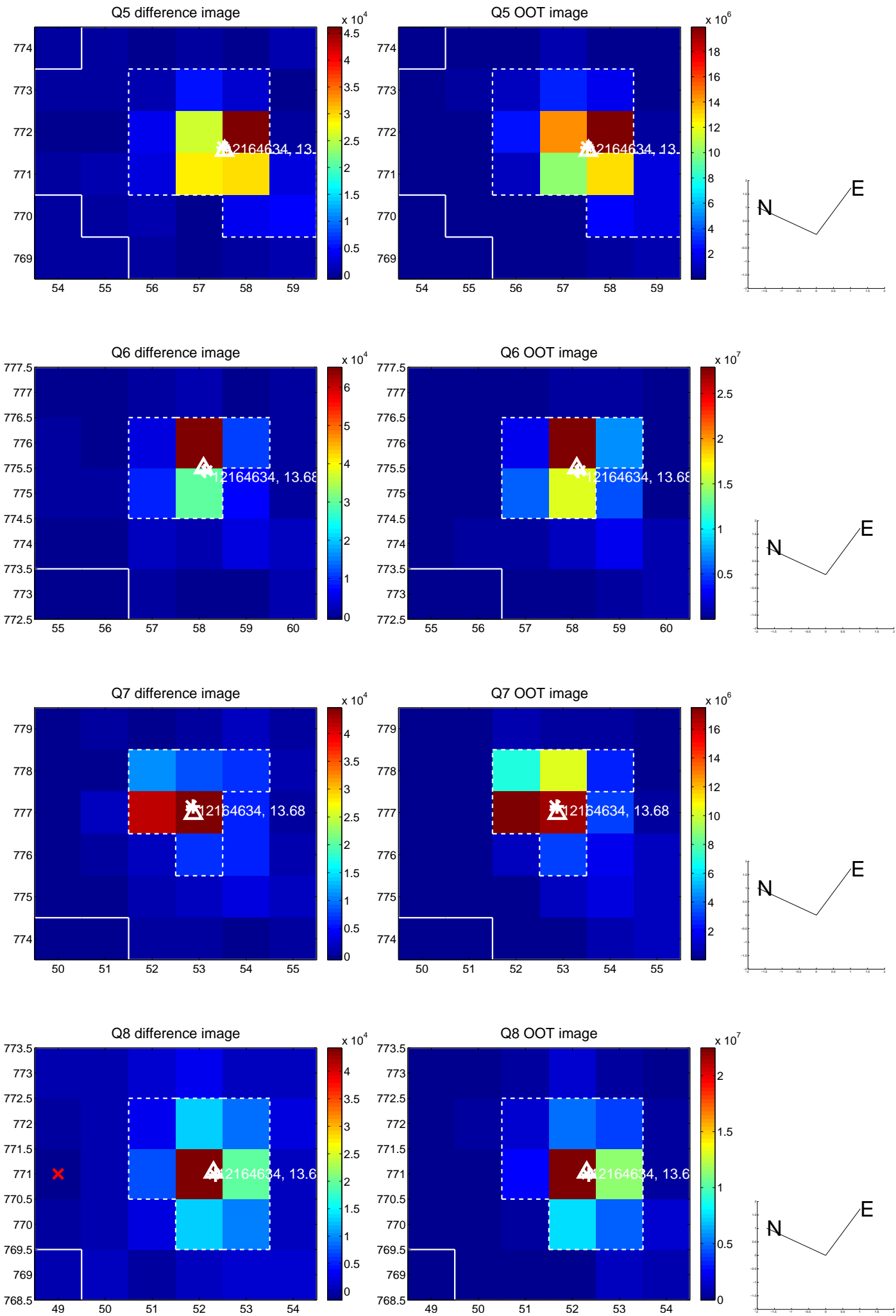


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

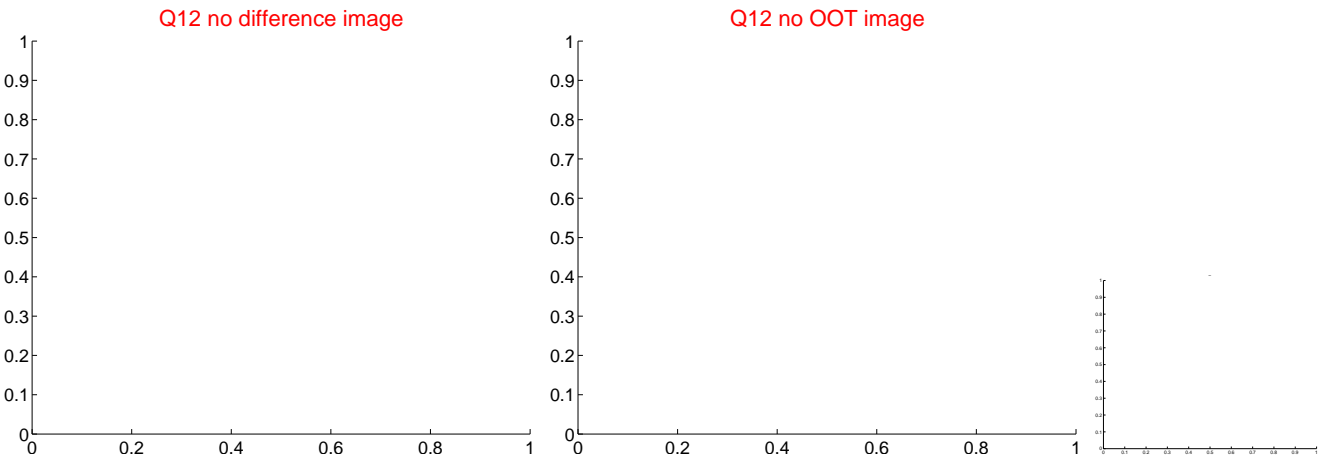
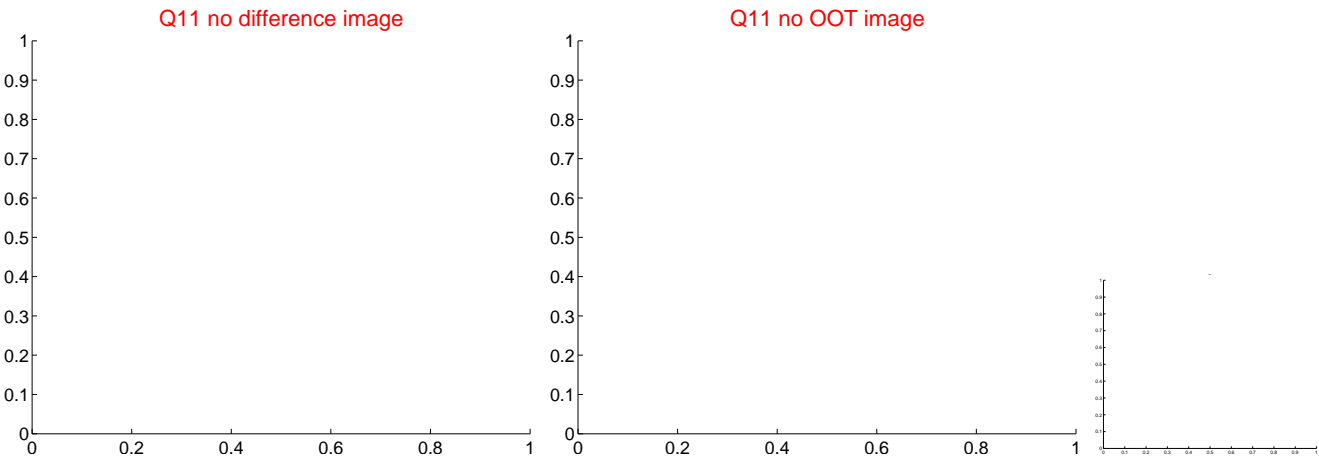
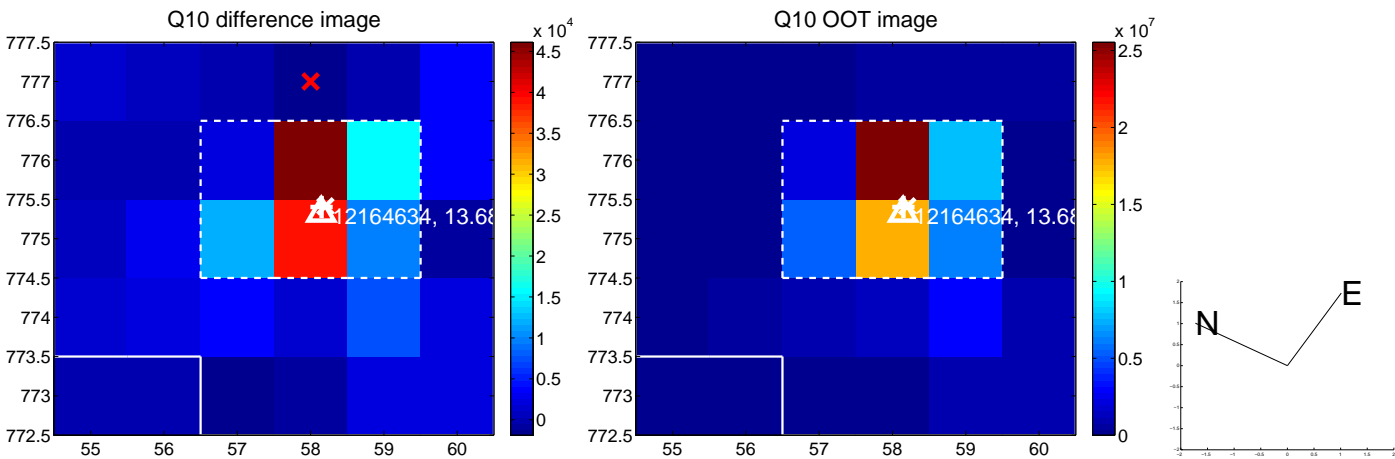
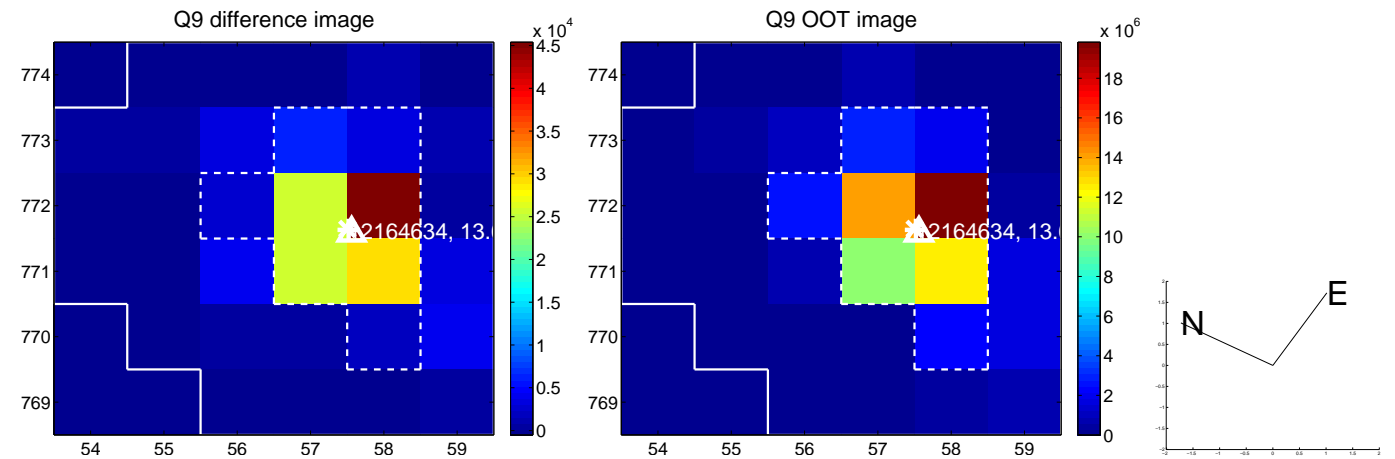
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



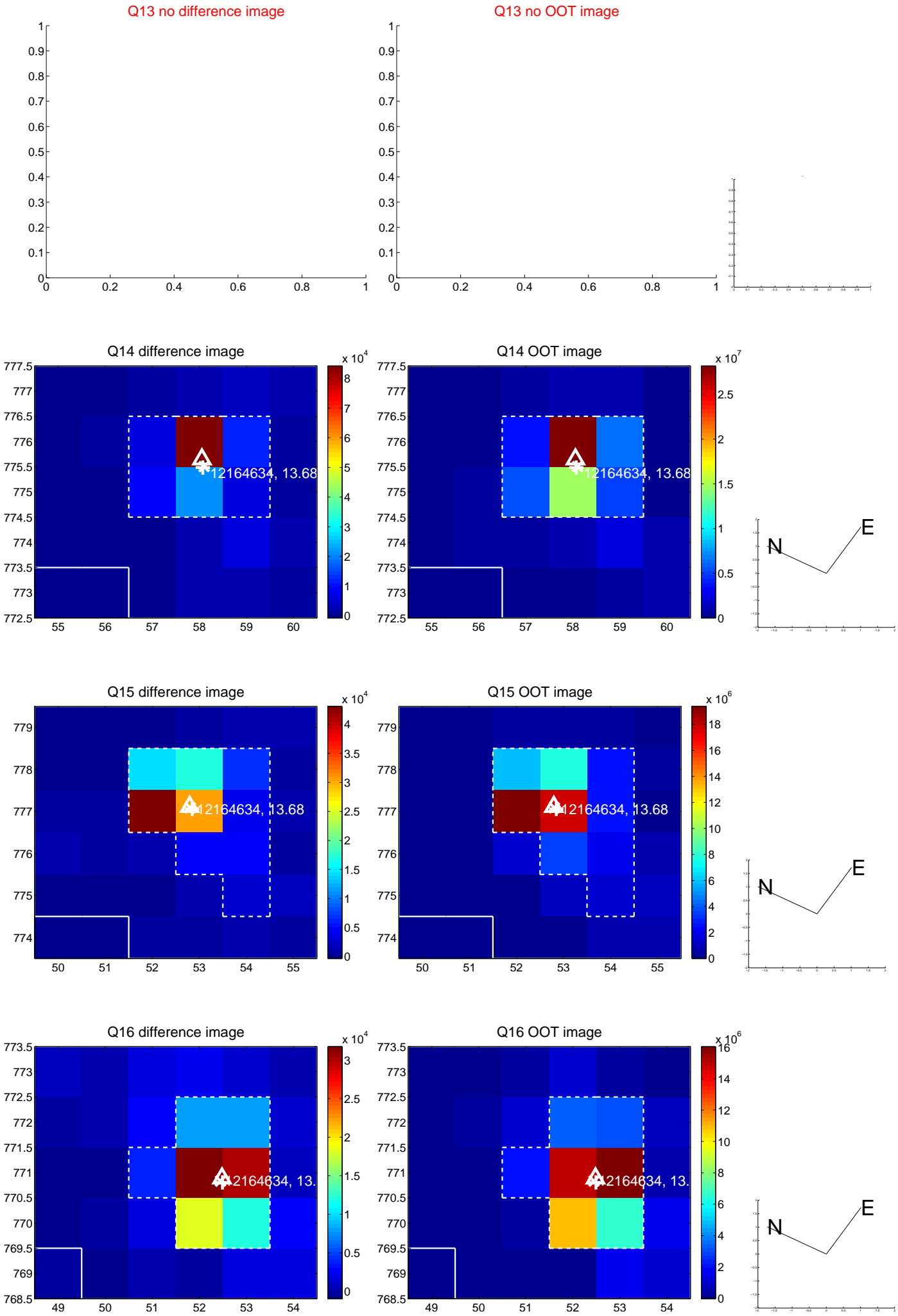
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



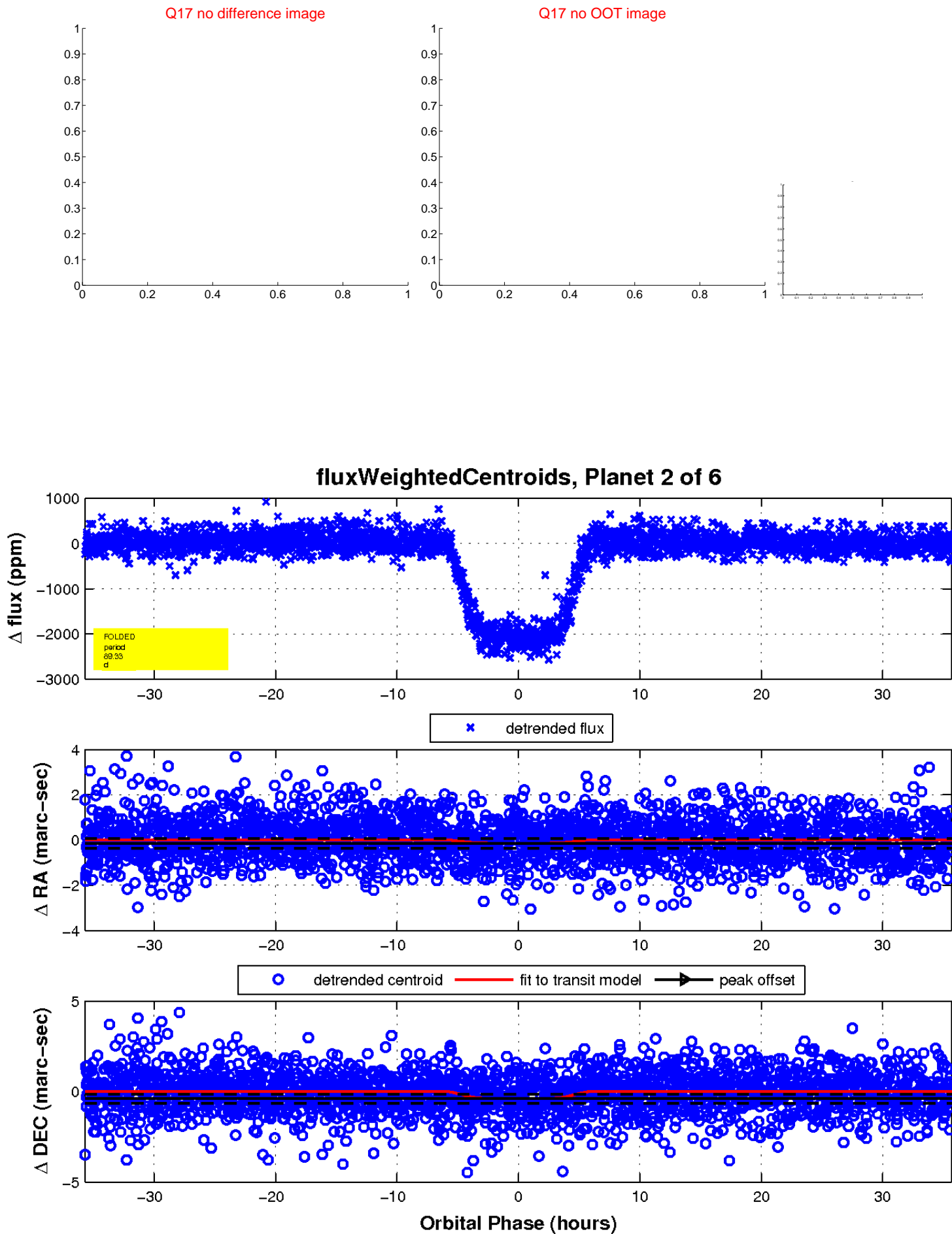
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

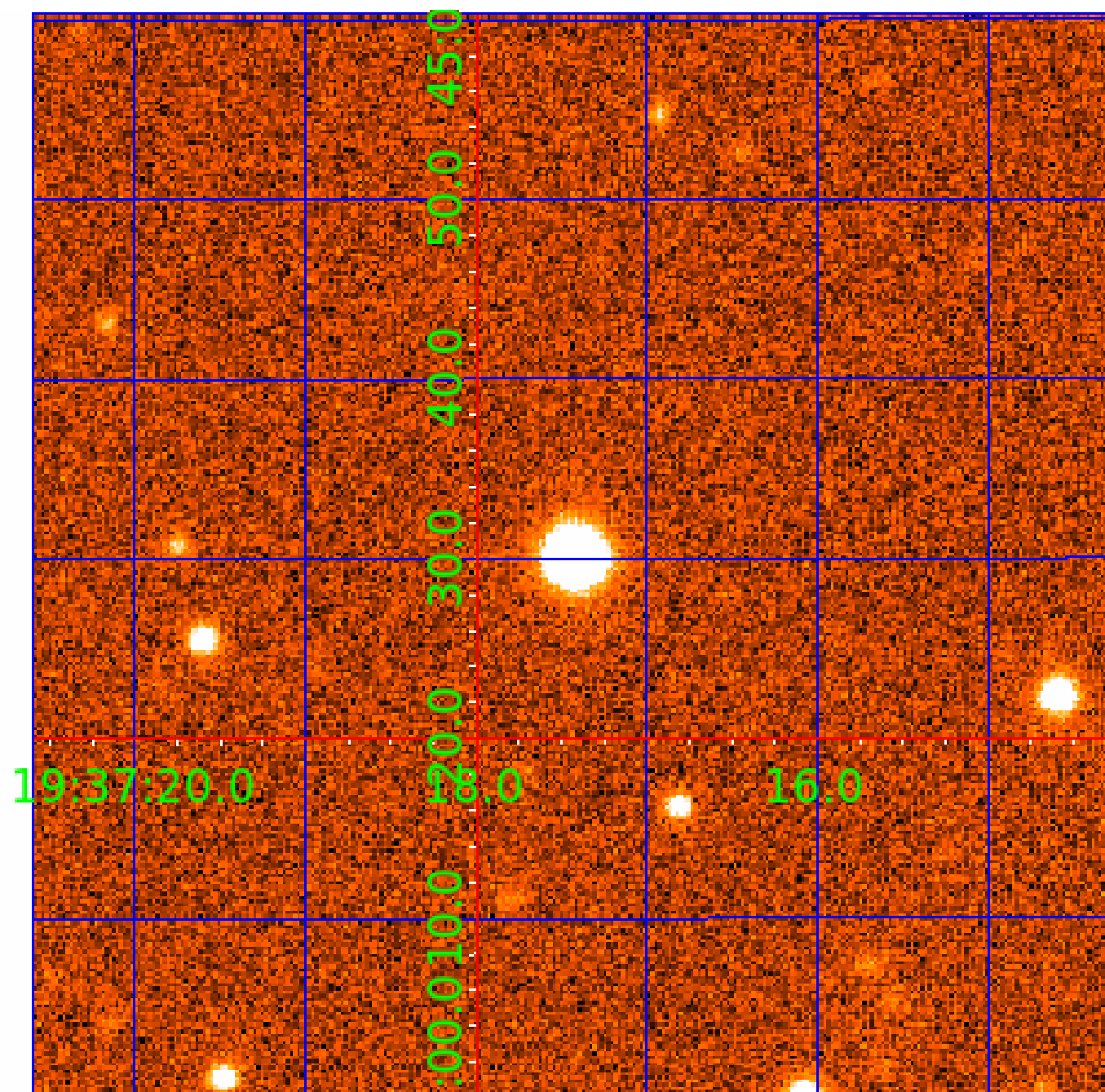


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012164634

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})
012164634-01	OBS	3491.01	89.331211	142.316777	59114.4	11.335	2966.3	2835.7	1.47	6860	37.11	22.93
012164634-02	OBS	No	89.331155	204.187202	2169.0	11.912	118.2	116.2	1.47	6860	7.98	22.93
012164634-03	OBS	No	290.754132	209.308482	629.4	15.741	15.6	13.0	1.47	6860	3.93	4.75
012164634-04	OBS	No	292.377639	202.635709	255.3	2.048	23.7	3.8	1.47	6860	2.66	4.72
012164634-05	OBS	No	292.381209	204.109169	301.4	0.718	23.4	2.4	1.47	6860	3.04	4.72
012164634-06	OBS	No	292.285073	203.537112	311.2	7.916	23.6	5.8	1.47	6860	2.68	4.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012164634-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
012164634-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
012164634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
012164634-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

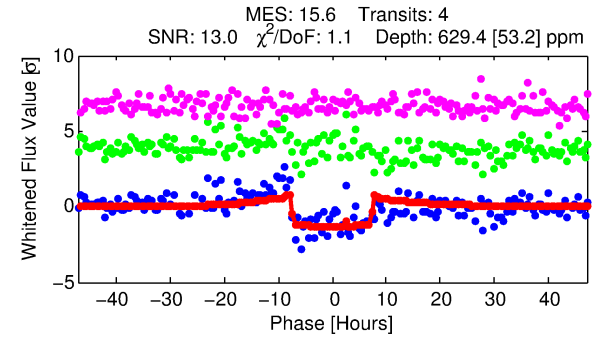
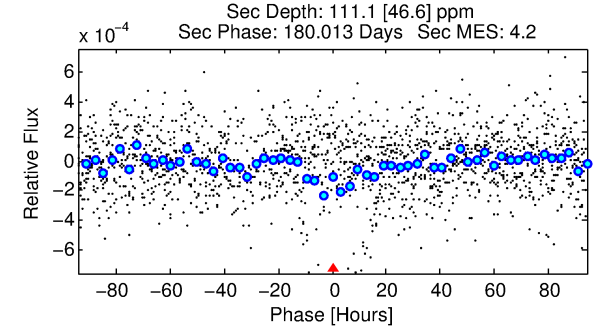
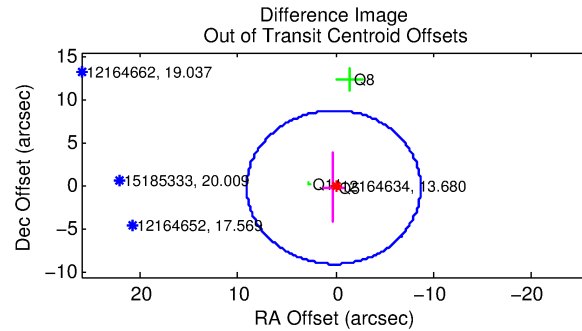
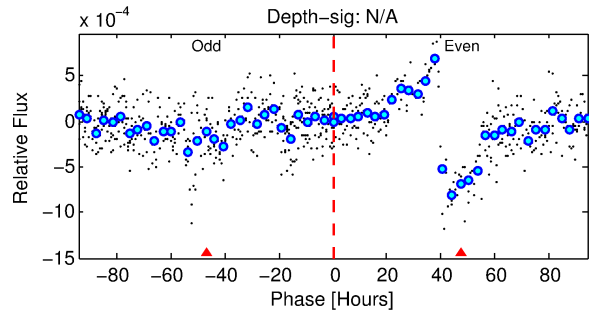
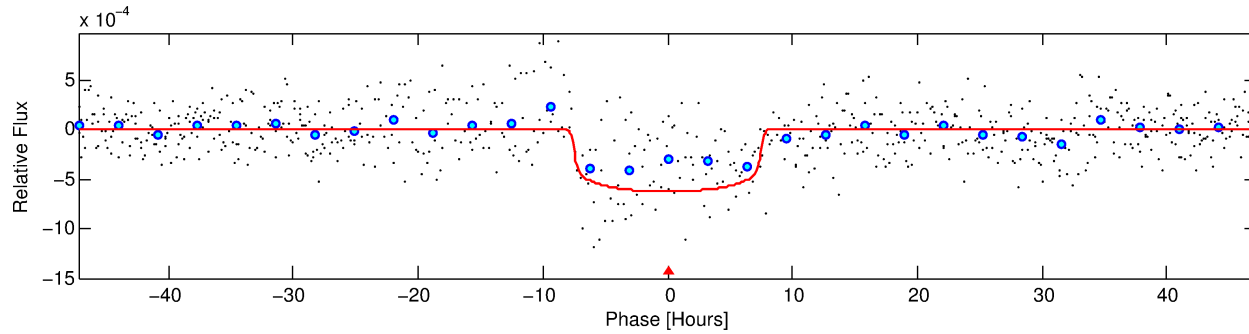
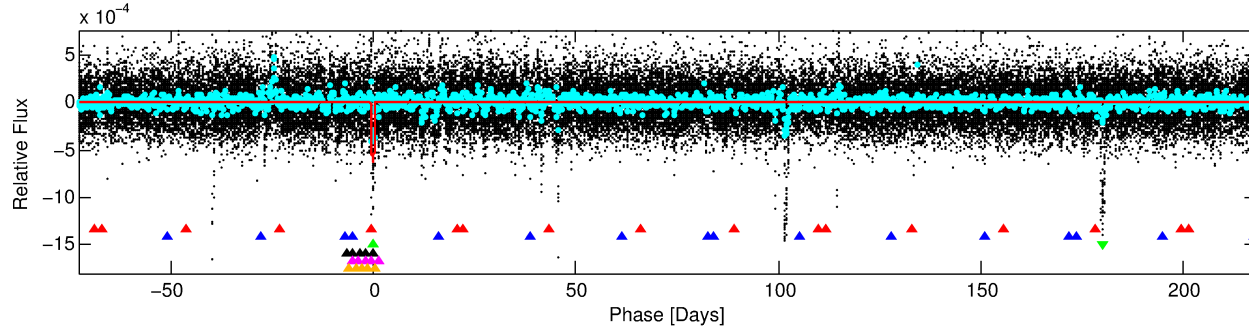
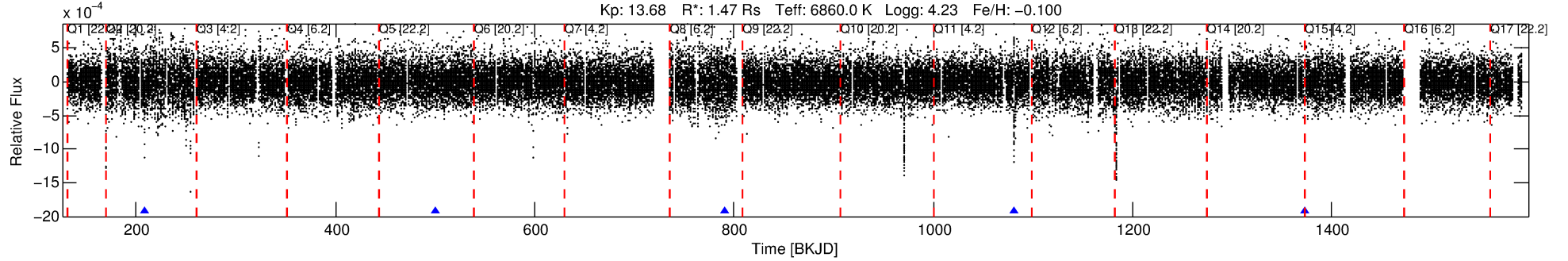
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012164634-03

No Significant Match Found

DV One-Page Summary

KIC: 12164634 Candidate: 3 of 6 Period: 290.754 d
KOI: K03491 Corr: No Ephemeris Match



DV Fit Results:

Period = 290.75413 [0.00464] d
Epoch = 209.3085 [0.0098] BKJD
Rp/R* = 0.0245 [0.0026]
a/R* = 107.70 [56.80]
b = 0.68 [0.41]
Seff = 4.75 [1.98]
Teq = 377 [39] K
Rp = 3.93 [1.39] Re
a = 0.9477 [0.2585] AU
Ag = 3562.07 [2152.01] [1.65σ]
Teffp = 4497 [558] K [7.37σ]

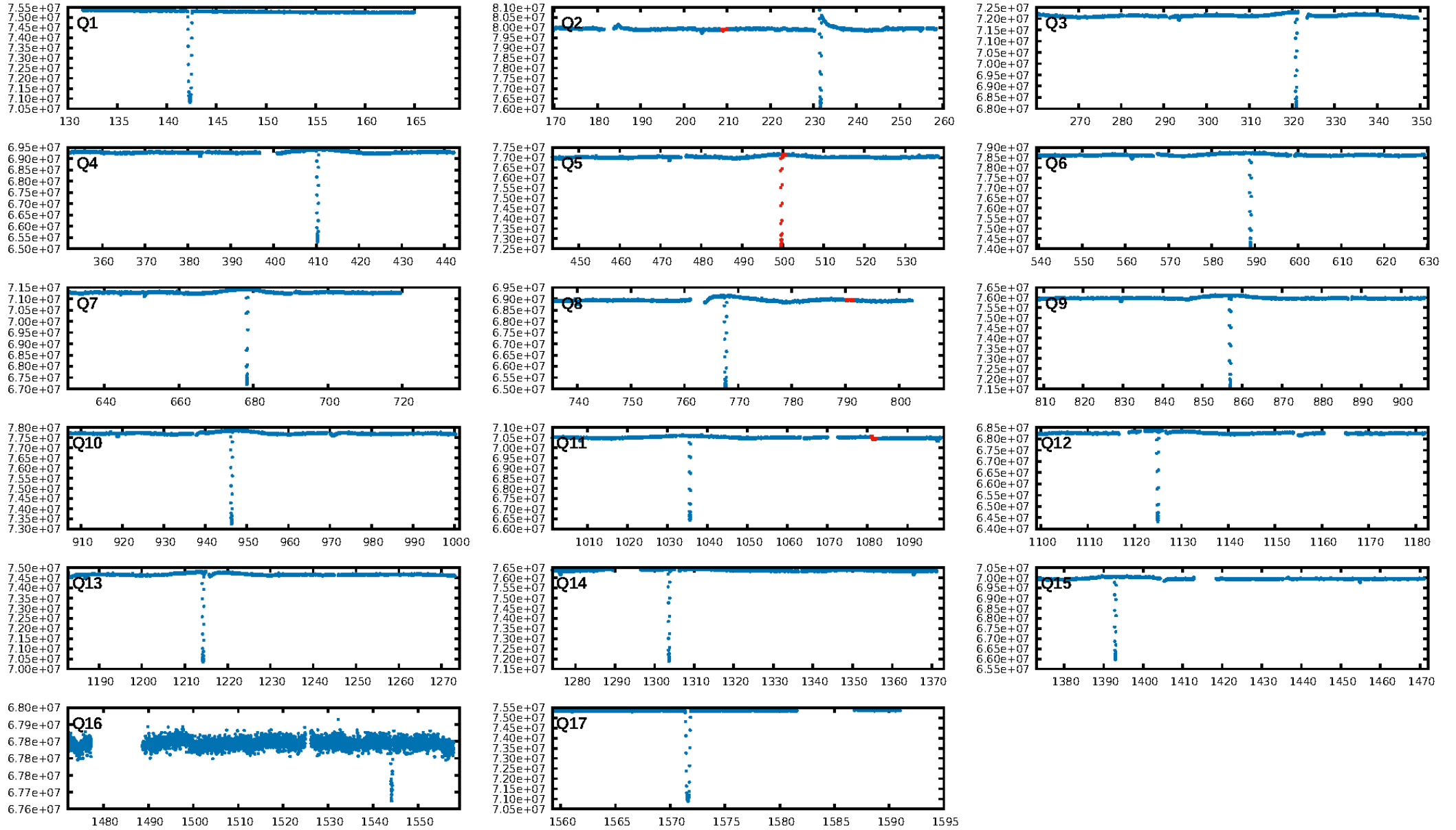
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [249.21σ]
LongPeriod-sig: 96.3% [2.09σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.64e-33
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.957
Centroid-sig: 72.9%
Centroid-so: 0.292 arcsec [0.54σ]
OotOffset-rm: 0.232 arcsec [0.08σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 0.275 arcsec [0.19σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.50 [2/4]

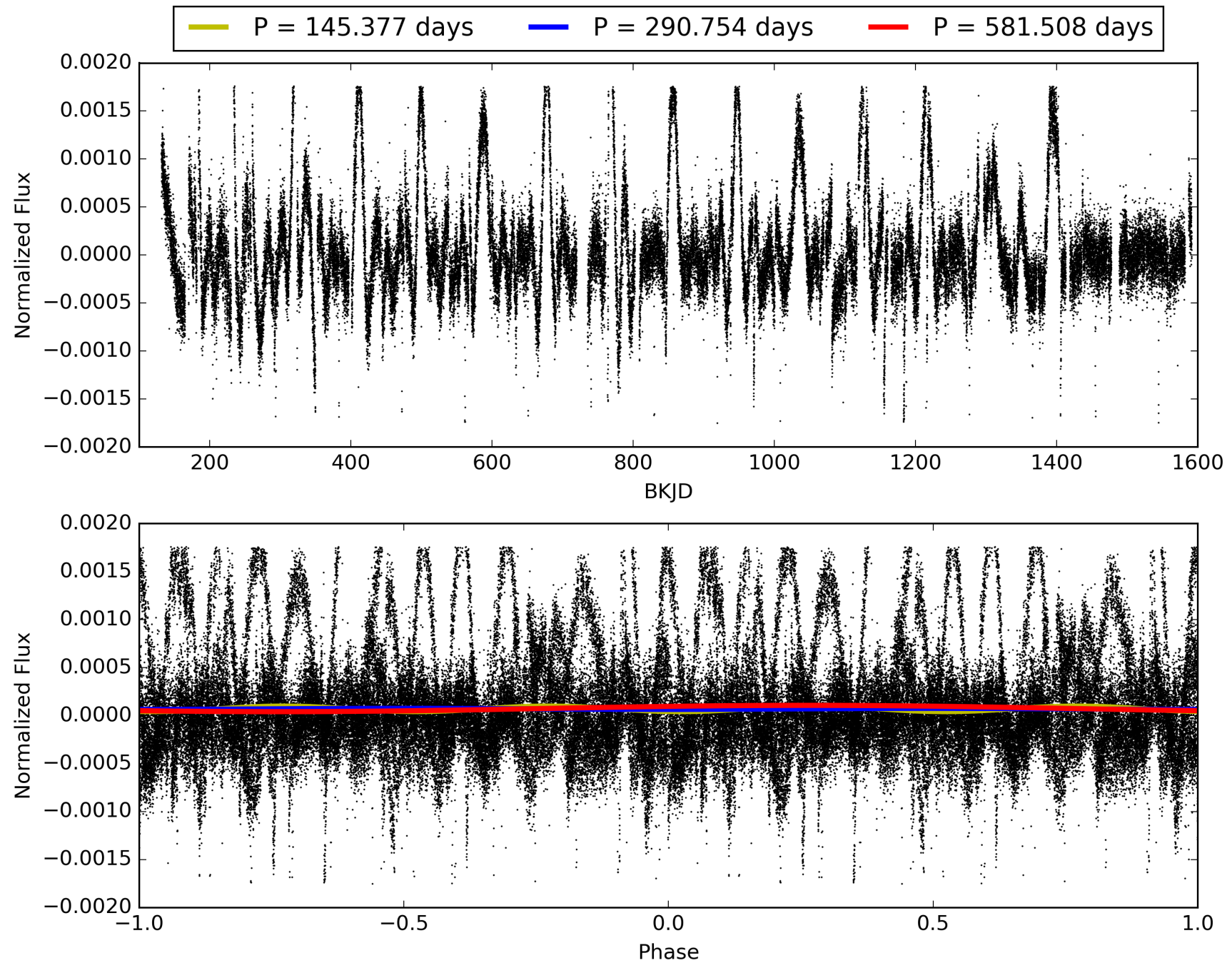
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:07:08 Z

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

TCE 012164634-03, PDC Light Curves

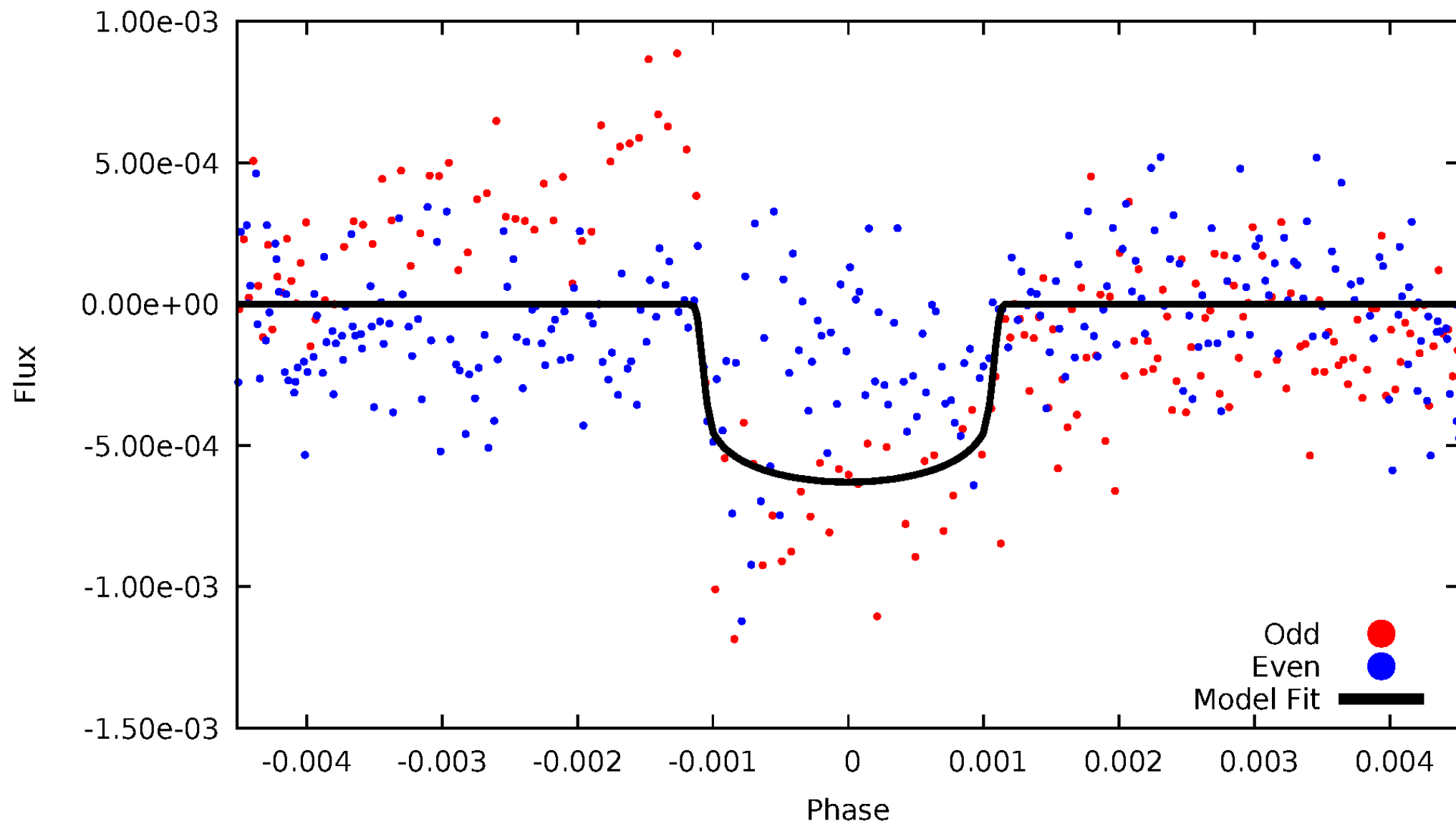


TCE 012164634-03



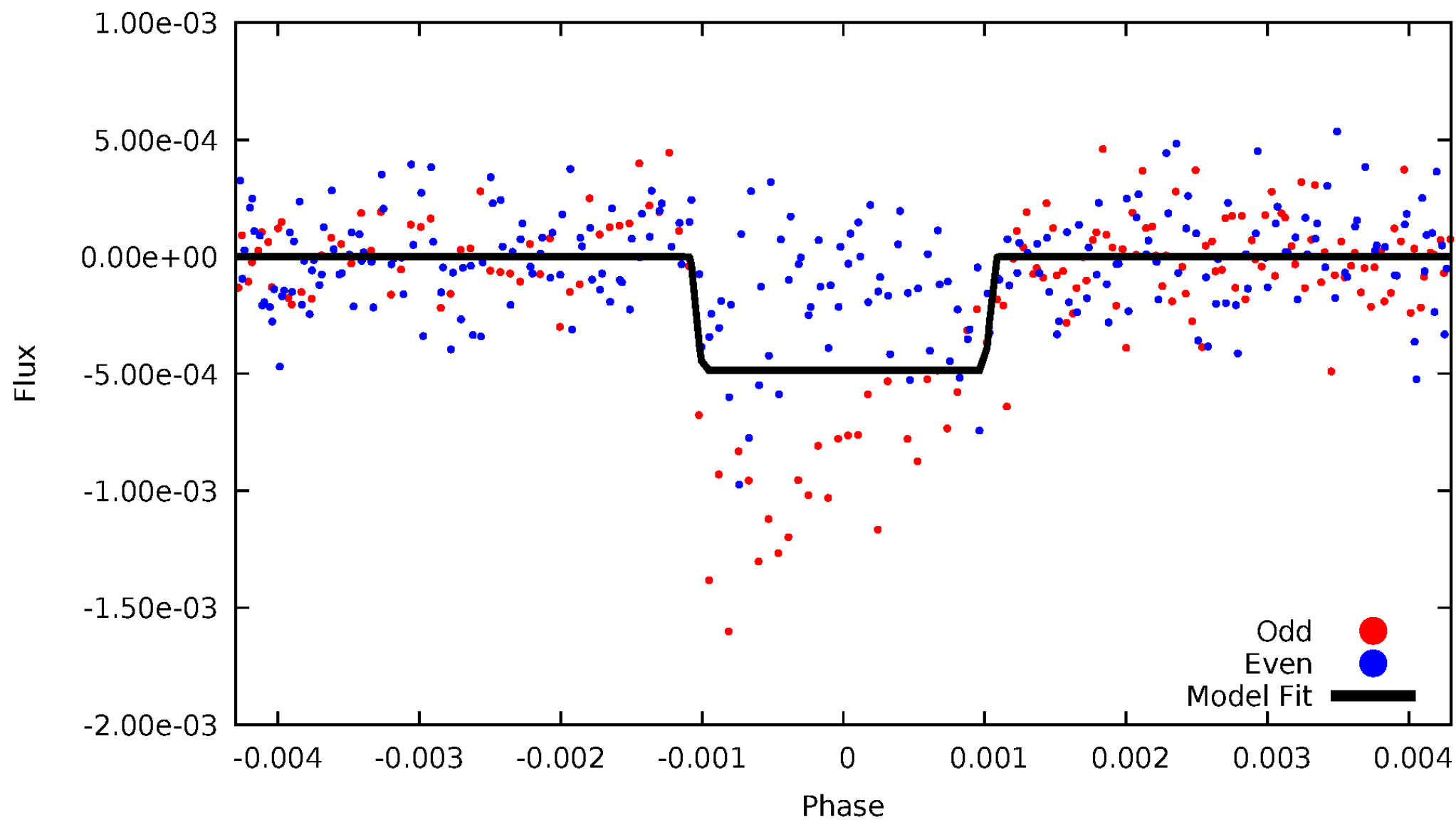
DV Odd/Even

TCE 012164634-03



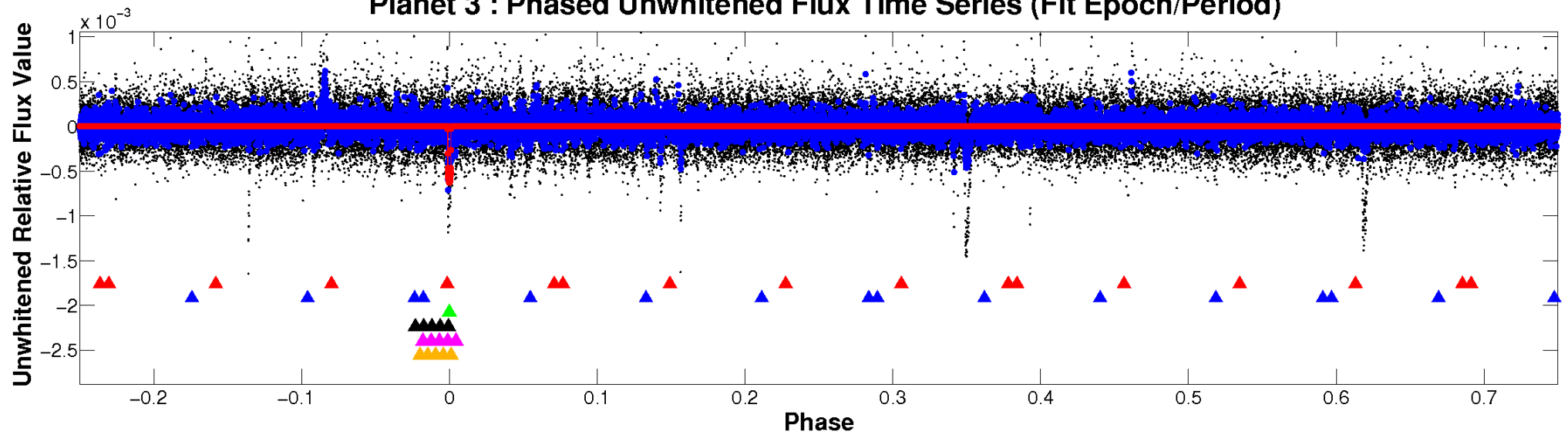
ALT Odd/Even

TCE 012164634-03

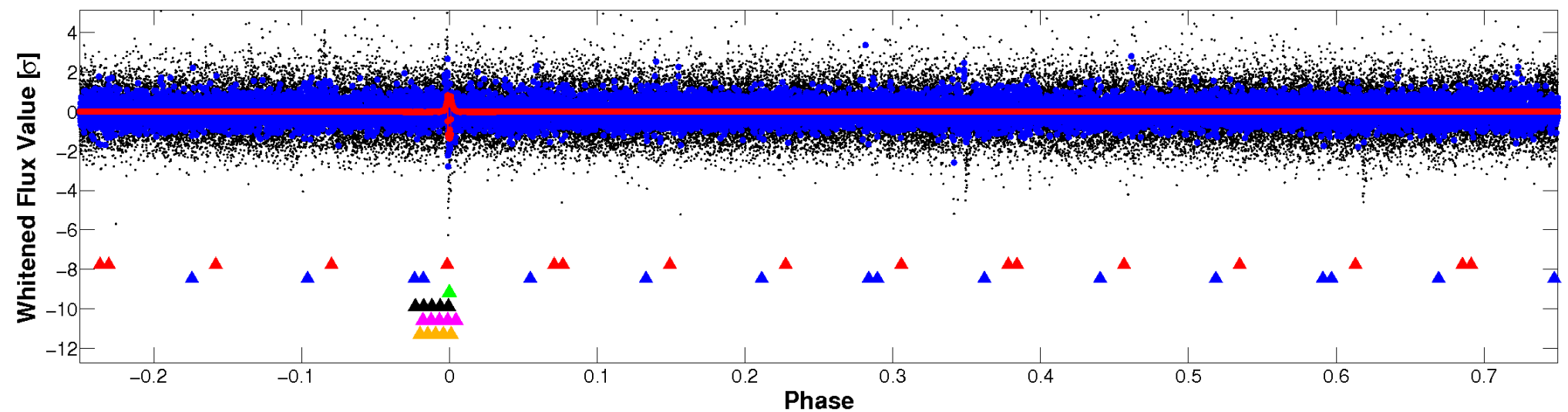


Non-Whitened Vs. Whitened Light Curve

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

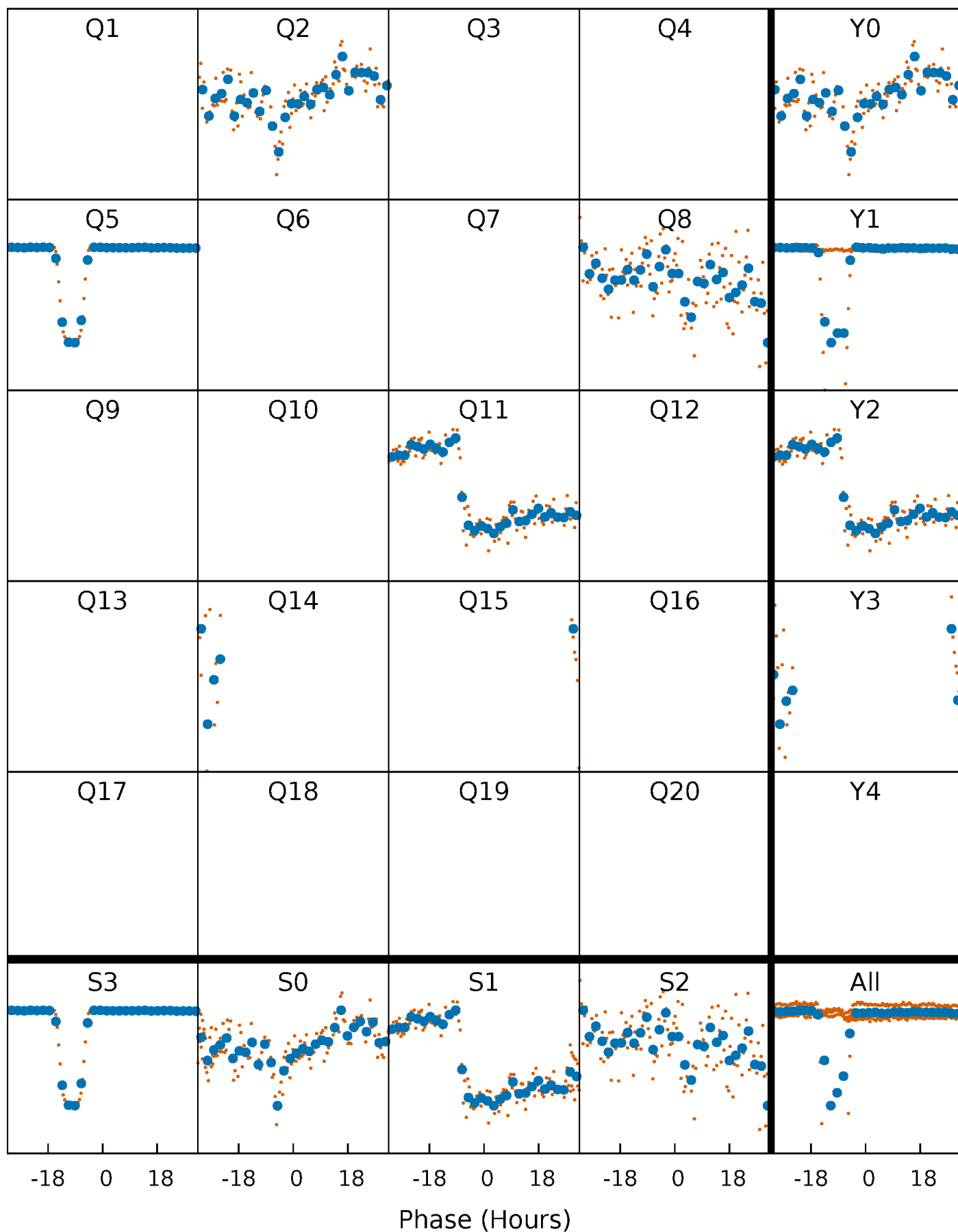


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



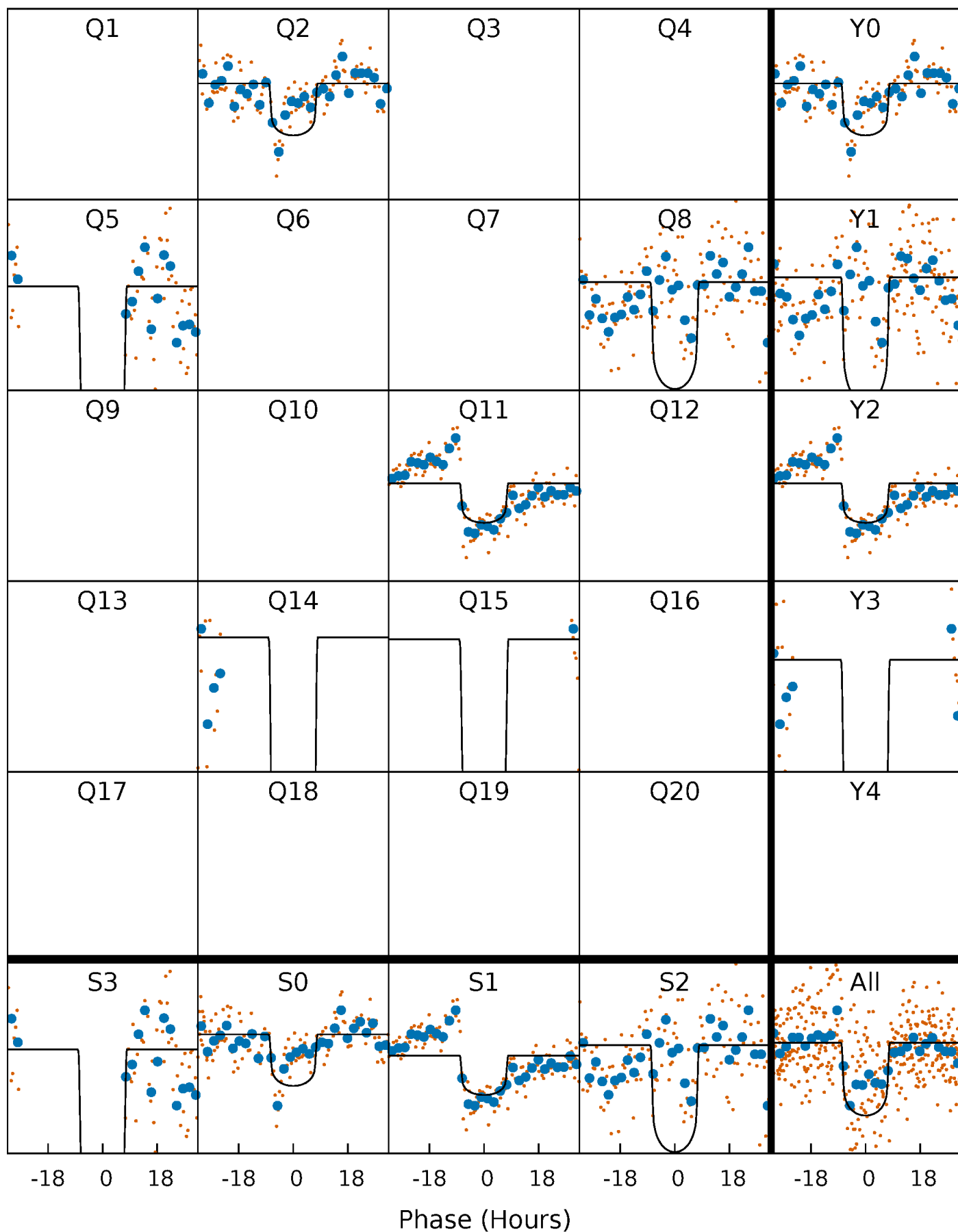
PDC Quarter-Phased Transit Curves

TCE 012164634-03 P=290.754132 Days $T_0=209.308482$ (BKJD)



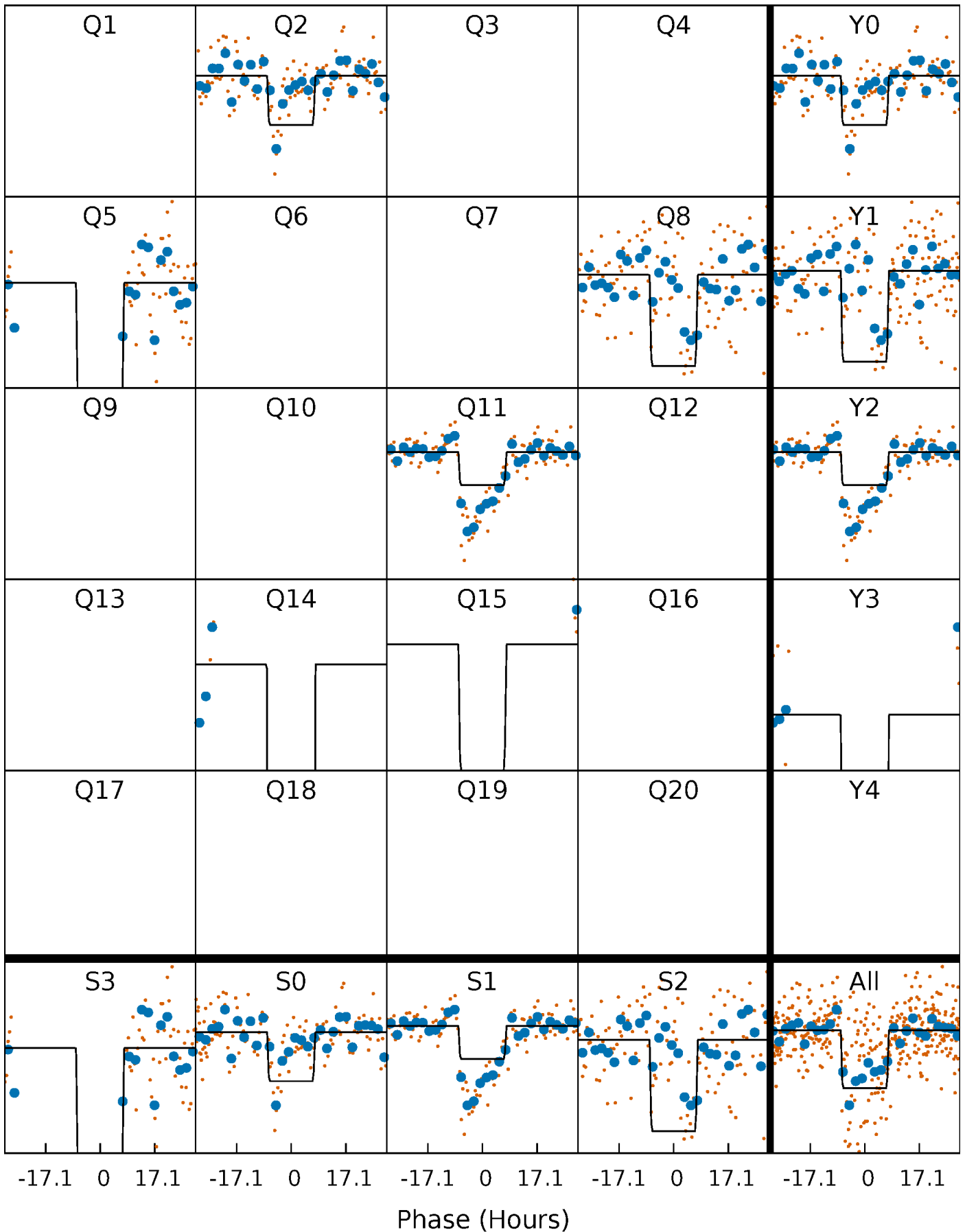
DV Quarter-Phased Transit Curves

TCE 012164634-03 $P=290.754132$ Days $T_0=209.308482$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

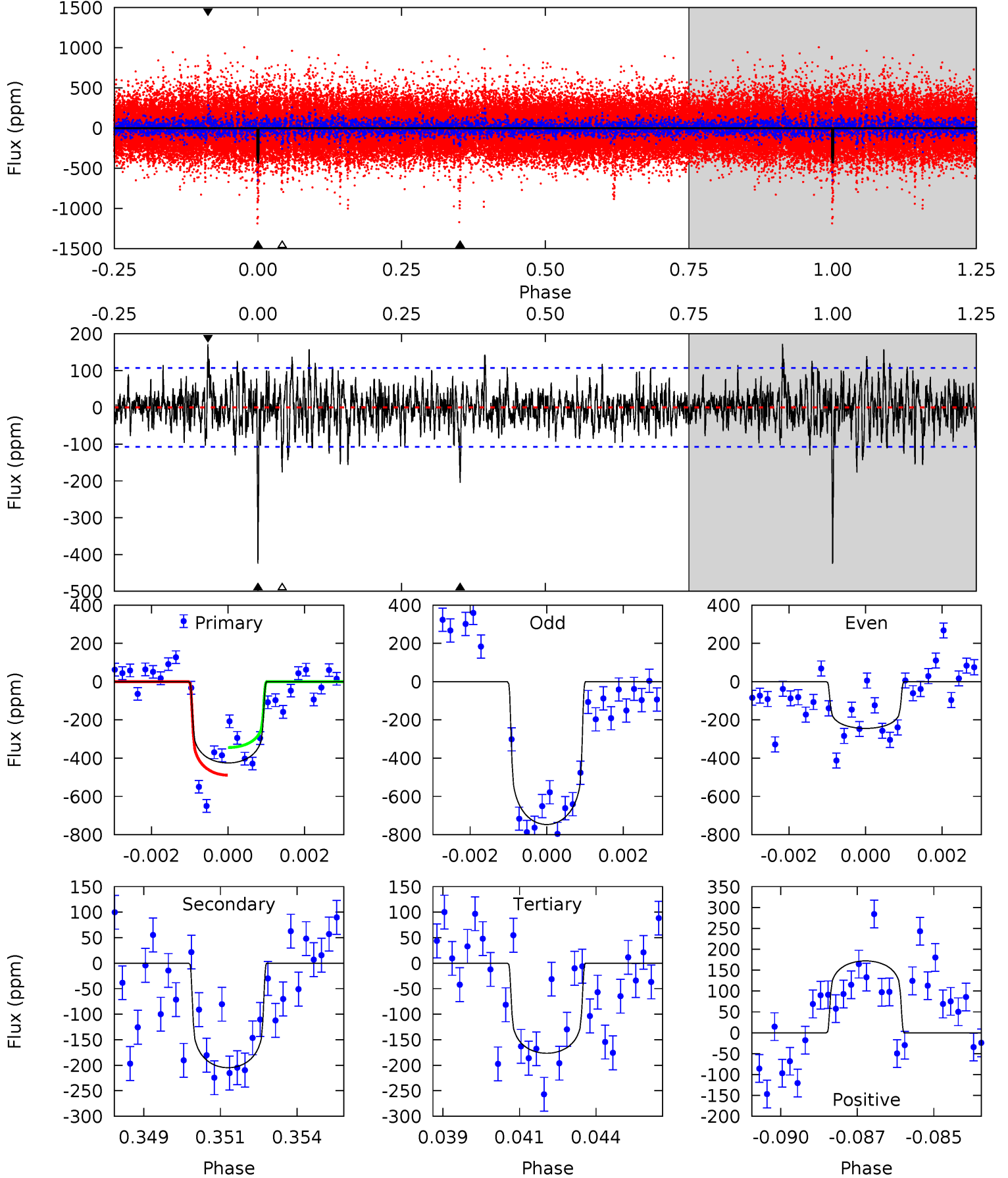
TCE 012164634-03 P=290.755936 Days $T_0=209.293962$ (BKJD)



DV Model-Shift Uniqueness Test

012164634-03, P = 290.754132 Days, E = 209.308482 Days

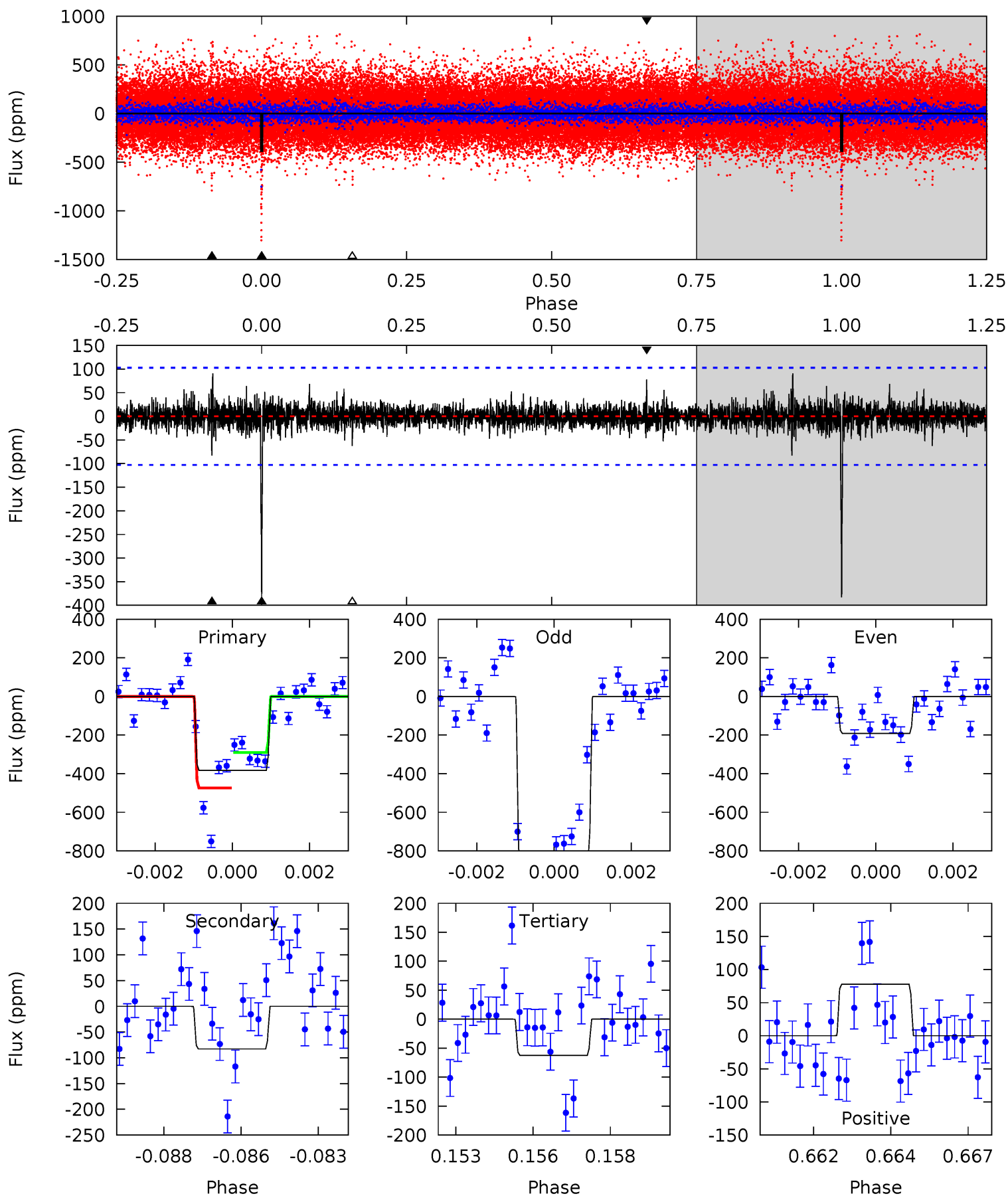
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.0	10.1	8.71	8.50	5.30	3.05	2.00	12.3	12.5	1.40	1.61	11.9	1.03	0.29	3.54



Alt Model-Shift Uniqueness Test

012164634-03, P = 290.755936 Days, E = 209.293962 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.8	4.28	3.22	4.02	5.31	3.06	0.75	16.5	15.8	1.06	0.26	17.0	1.76	0.19	4.70



Stellar Parameters For KIC 012164634

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6860^{+189}_{-283}	$4.233^{+0.108}_{-0.201}$	$-0.100^{+0.250}_{-0.350}$	$1.467^{+0.495}_{-0.266}$	$1.350^{+0.204}_{-0.224}$	$0.602^{+0.351}_{-0.313}$
	+3%/-4%	+3%/-5%	+250%/-350%	+34%/-18%	+15%/-17%	+58%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012164634-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-205 ± 20	$4.02^{+0.82}_{-0.59}$	531^{+45}_{-31}	5255^{+345}_{-309}	6155^{+2254}_{-1811}
Alt.	-83 ± 19	$3.59^{+0.70}_{-0.60}$	530^{+44}_{-32}	4540^{+331}_{-315}	3036^{+1446}_{-1170}

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 $A_{obs} \gg 1.0$

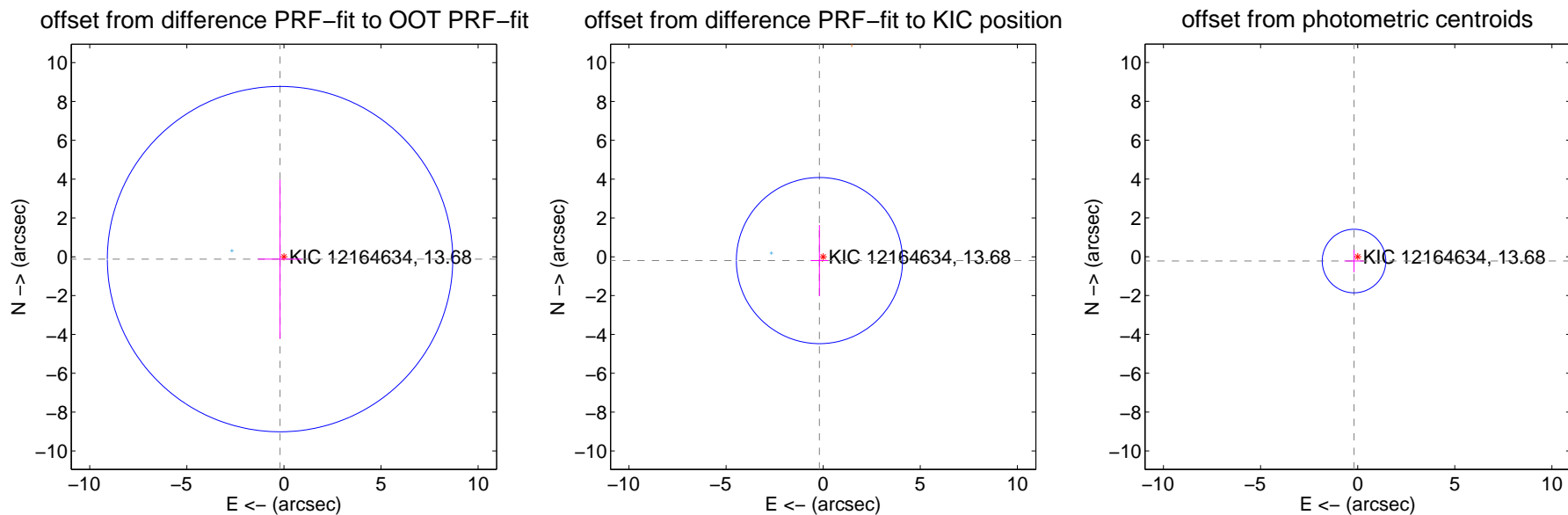
DV Centroid Data

Supplemental centroid analysis for 012164634-03. Kepler magnitude: 13.68. Transit SNR 13.04

There are 1 quarters with good PRF difference image offsets

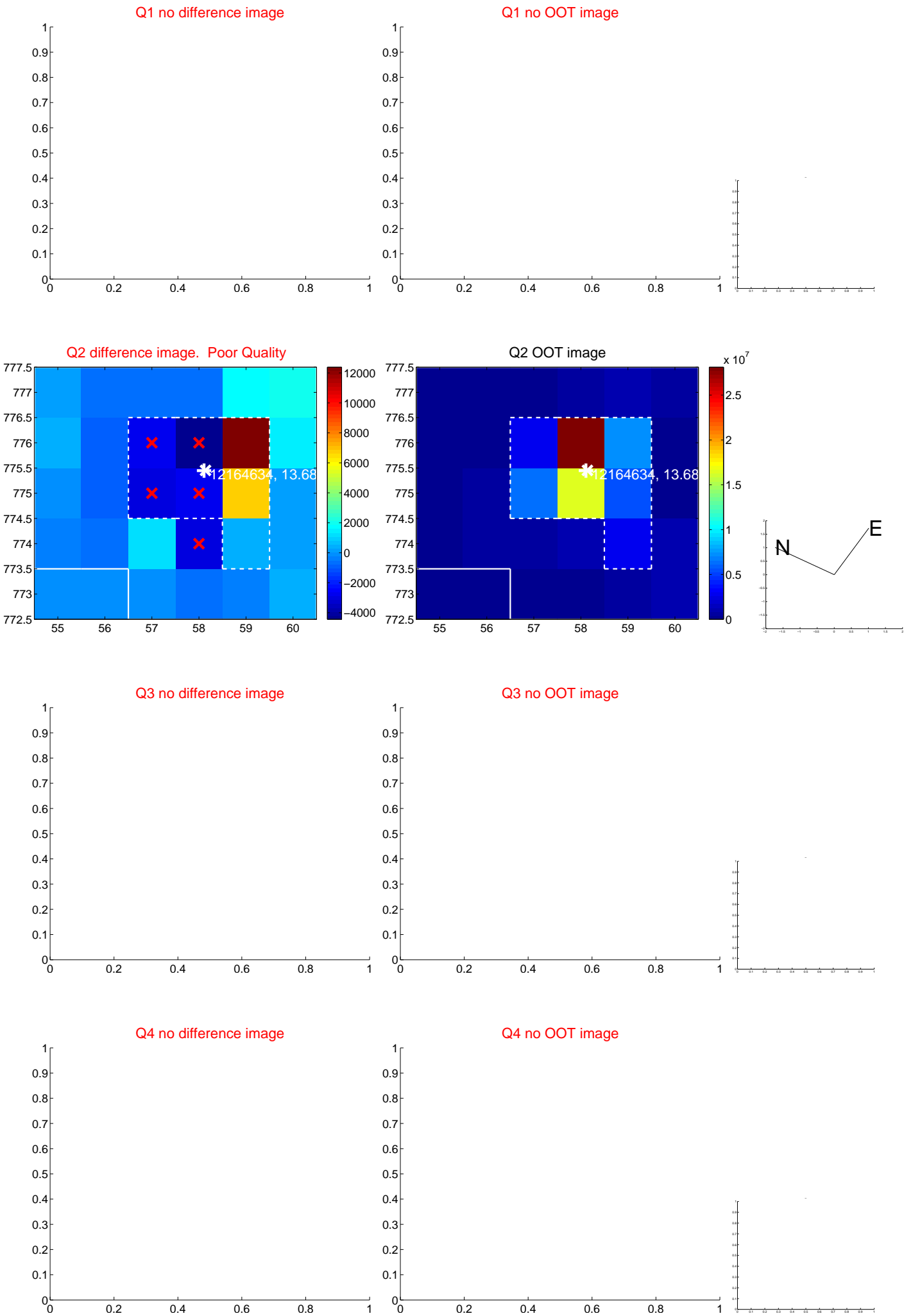
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.232 ± 2.964	0.08	0.199 ± 1.135	-0.120 ± 4.092
PRF-fit source offset from KIC position	0.275 ± 1.426	0.19	0.193 ± 0.457	-0.196 ± 1.831
photometric centroid source offset	0.29 ± 0.55	0.54	0.19 ± 0.49	-0.22 ± 0.58

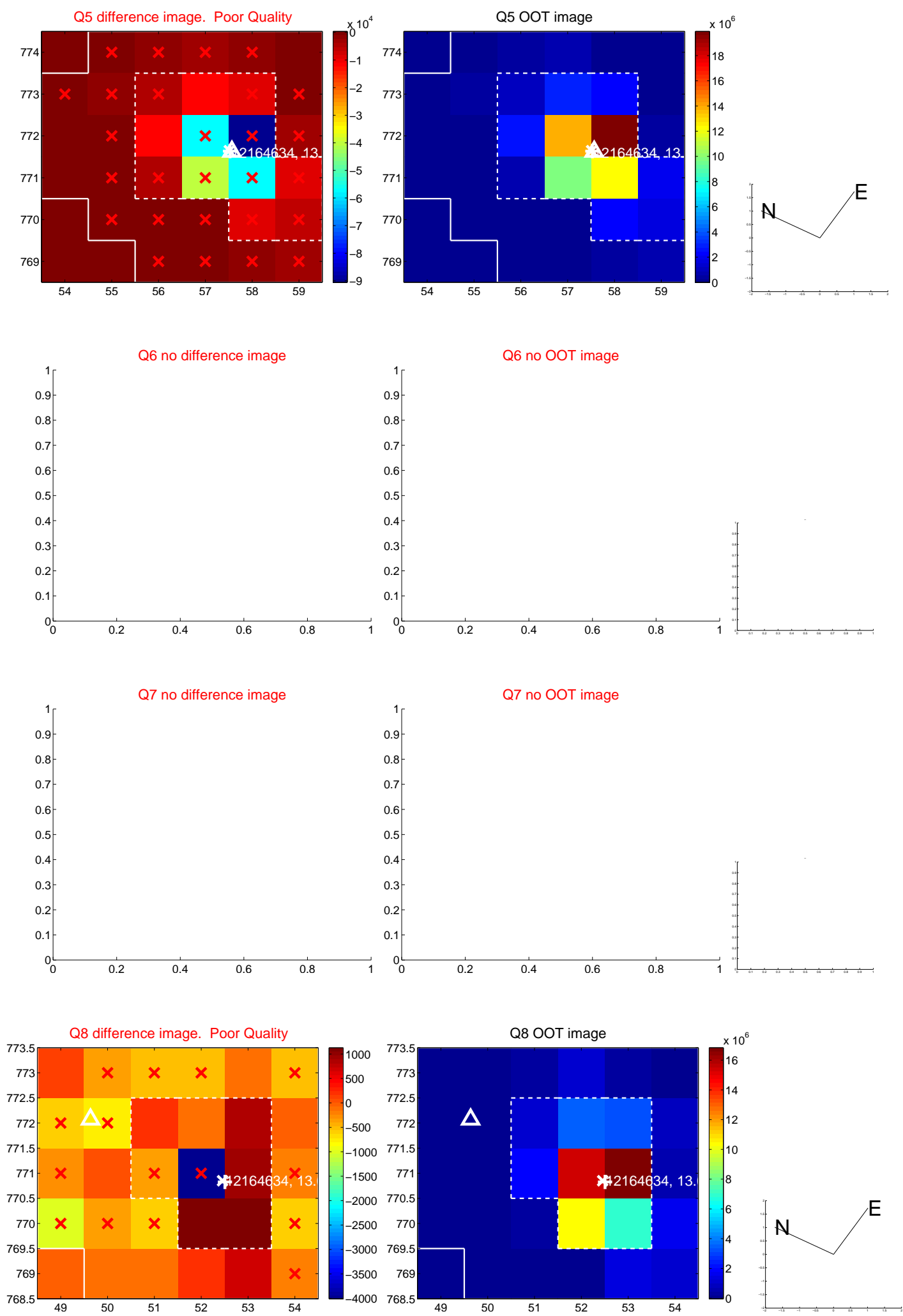


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

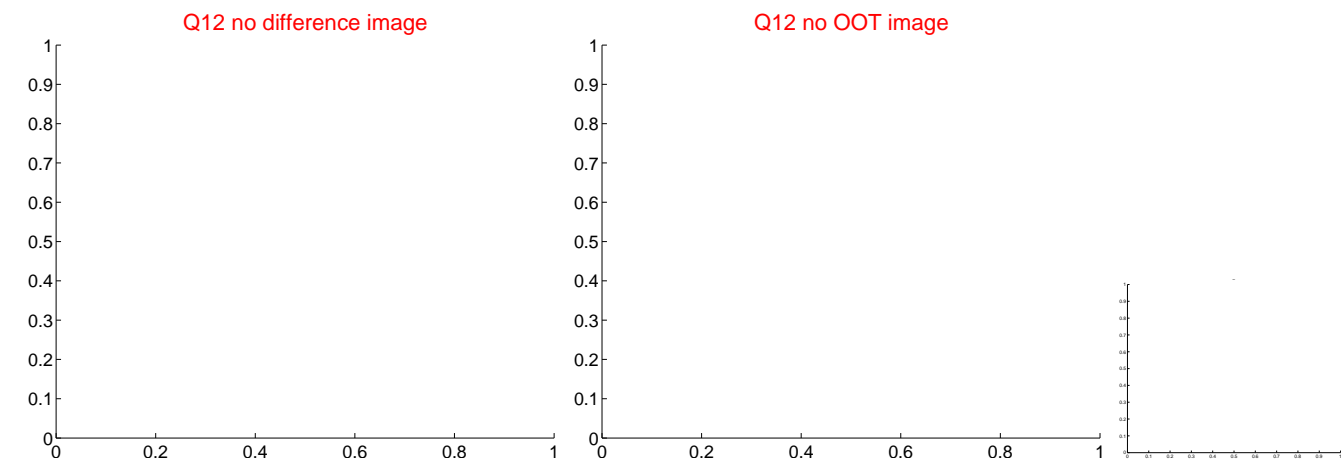
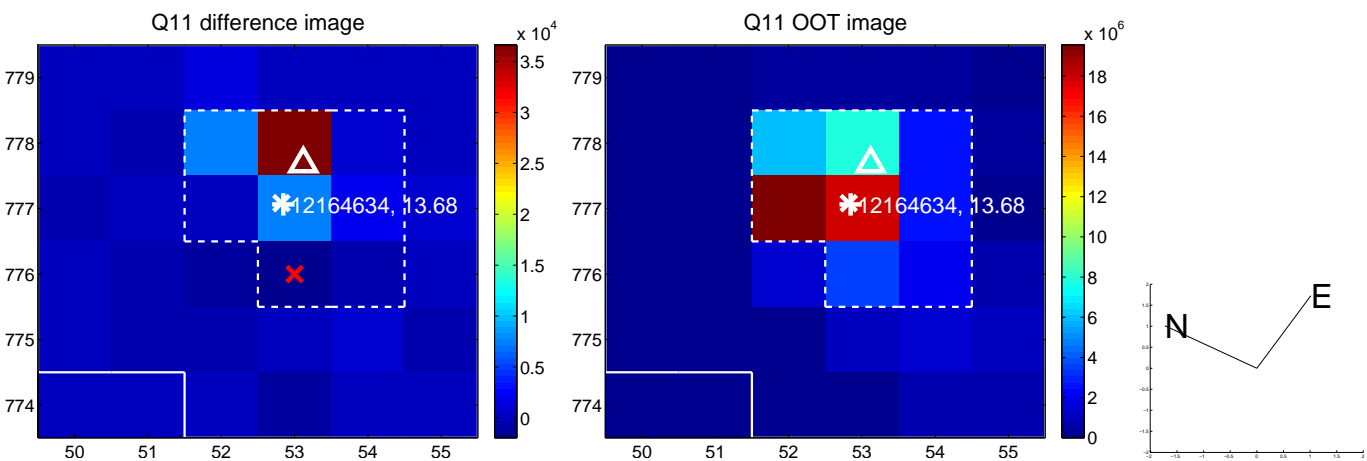
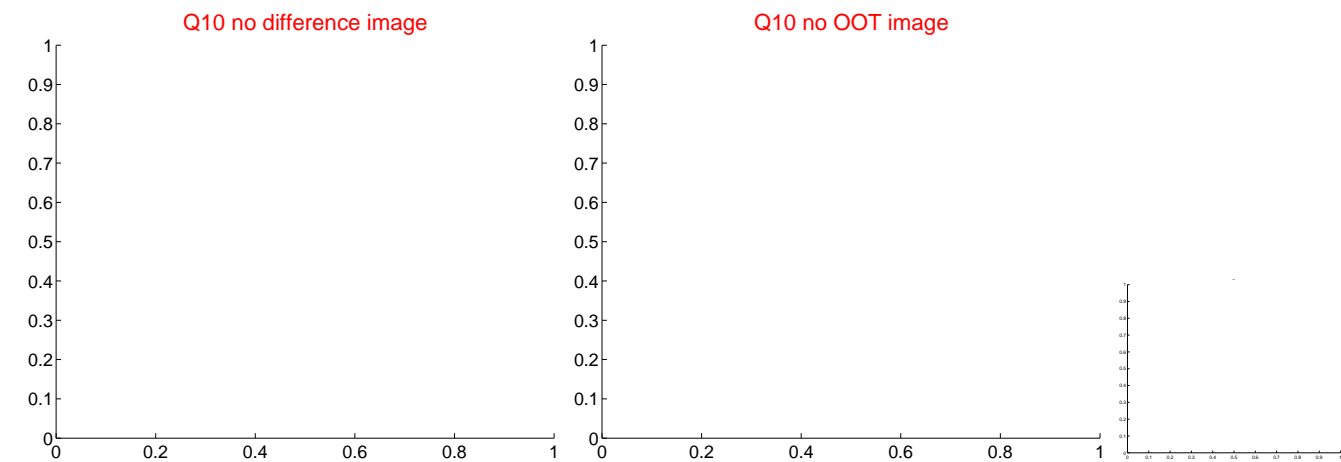
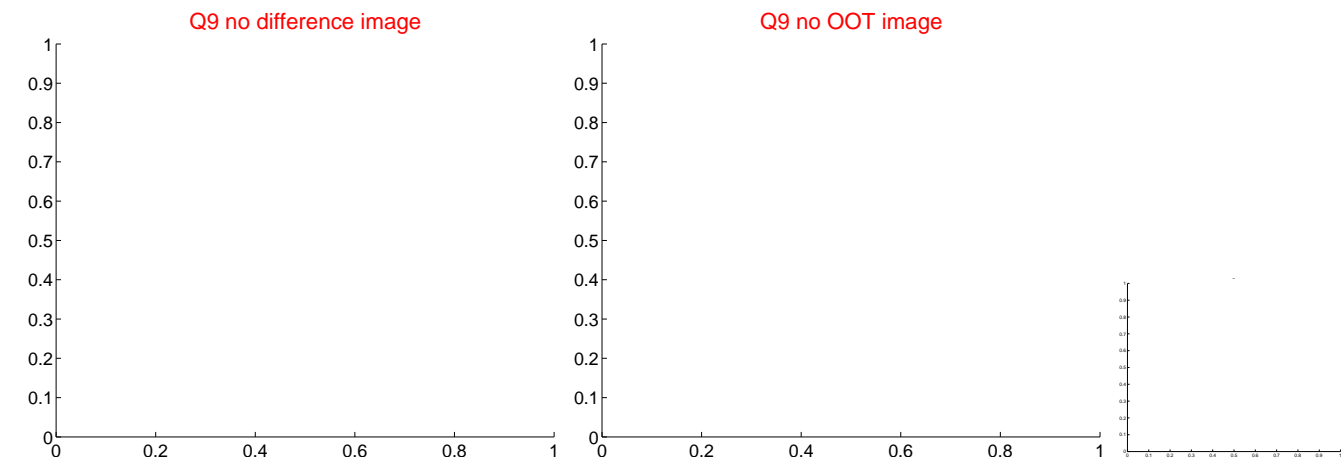
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



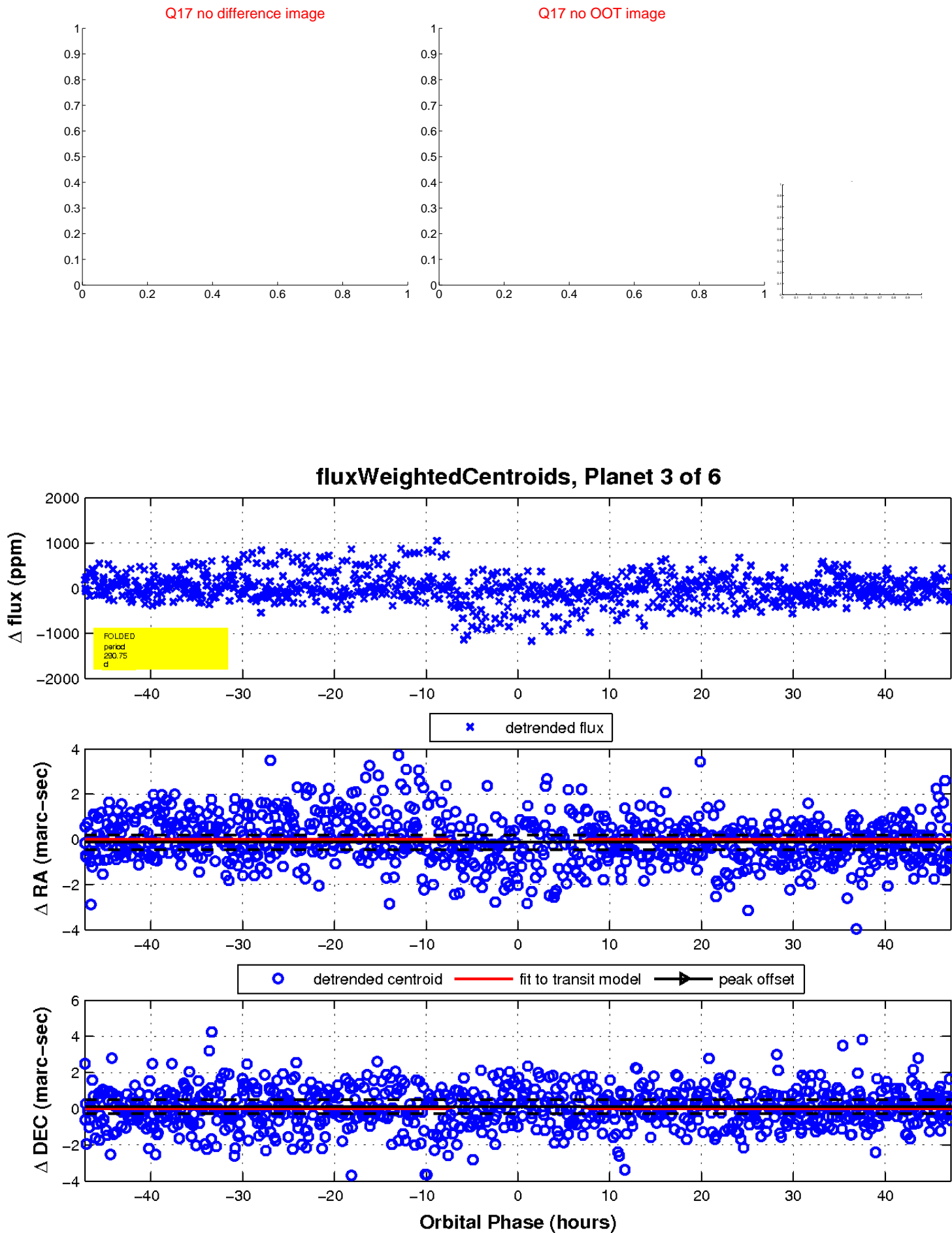
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

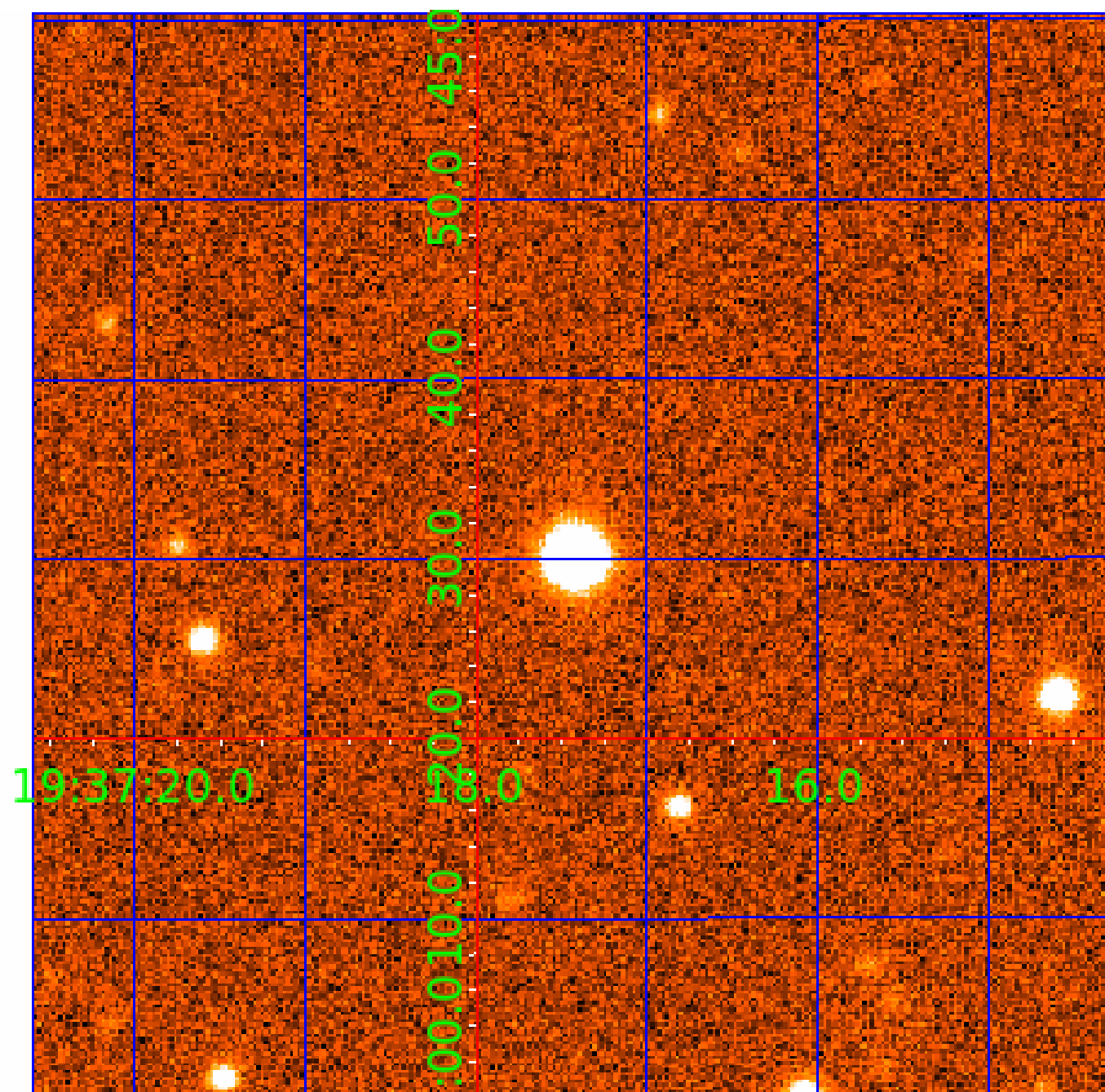


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012164634

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})
012164634-01	OBS	3491.01	89.331211	142.316777	59114.4	11.335	2966.3	2835.7	1.47	6860	37.11	22.93
012164634-02	OBS	No	89.331155	204.187202	2169.0	11.912	118.2	116.2	1.47	6860	7.98	22.93
012164634-03	OBS	No	290.754132	209.308482	629.4	15.741	15.6	13.0	1.47	6860	3.93	4.75
012164634-04	OBS	No	292.377639	202.635709	255.3	2.048	23.7	3.8	1.47	6860	2.66	4.72
012164634-05	OBS	No	292.381209	204.109169	301.4	0.718	23.4	2.4	1.47	6860	3.04	4.72
012164634-06	OBS	No	292.285073	203.537112	311.2	7.916	23.6	5.8	1.47	6860	2.68	4.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012164634-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
012164634-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
012164634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
012164634-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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 012164634-04

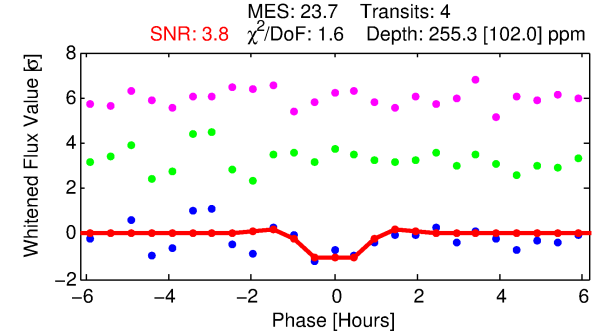
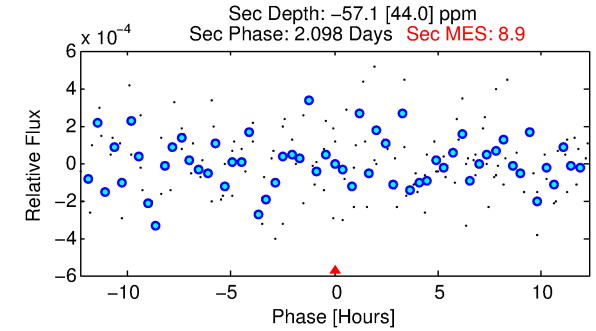
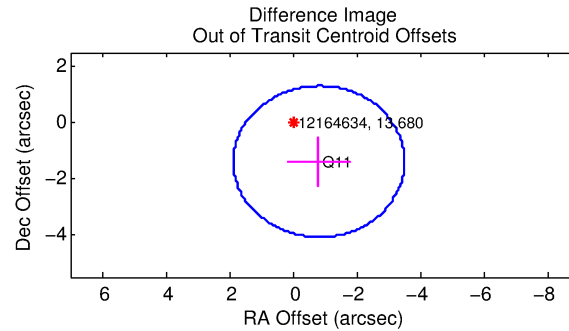
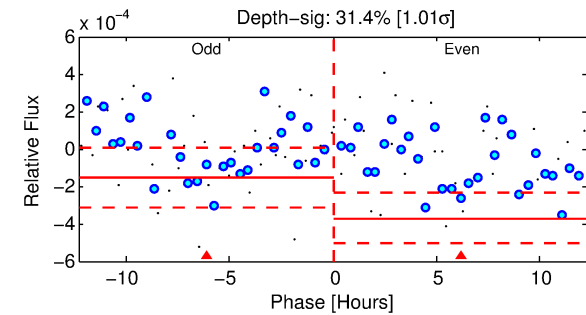
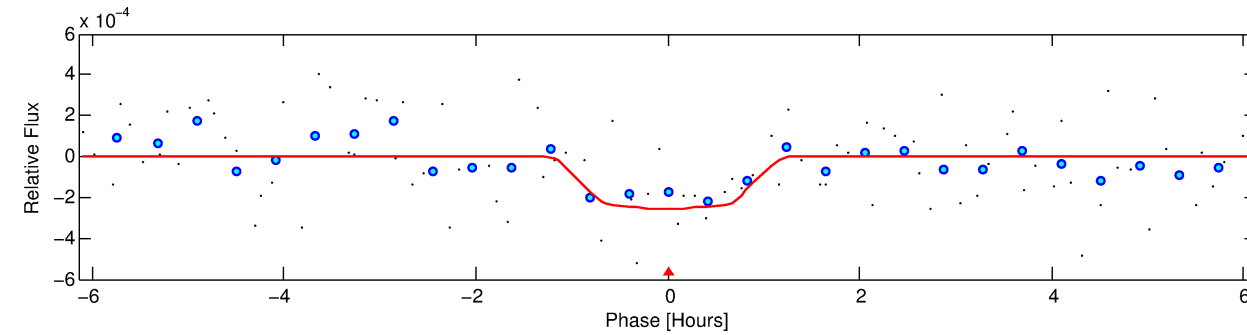
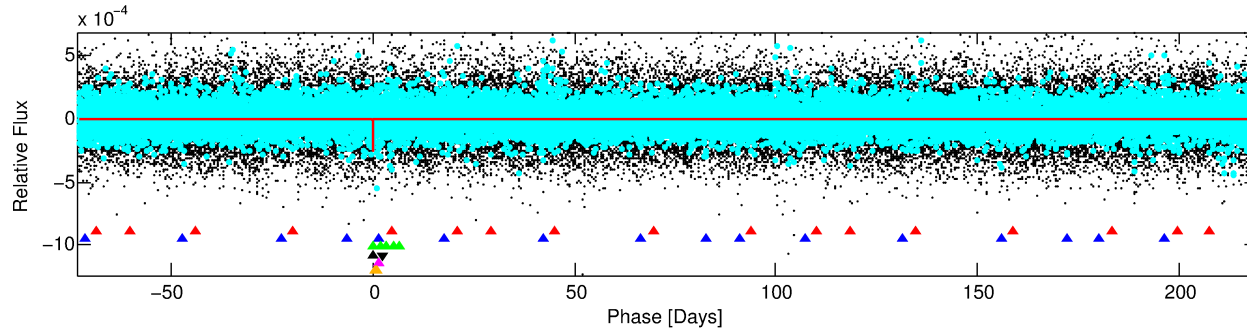
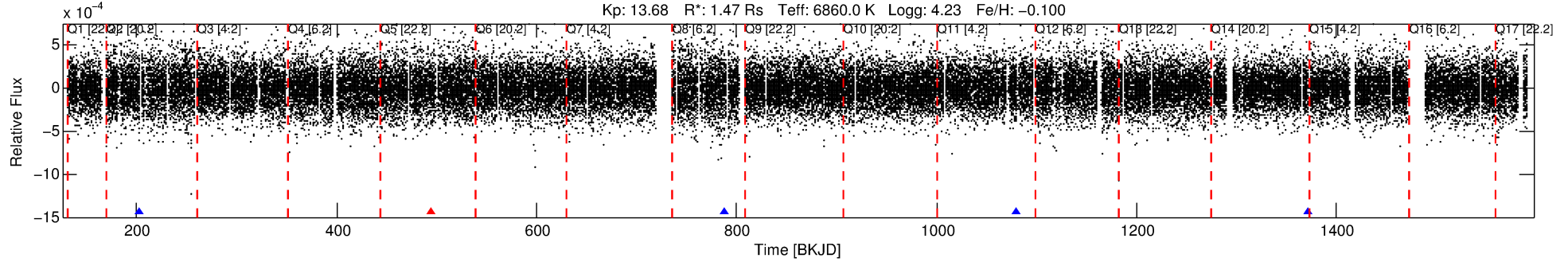
No Significant Match Found

DV One-Page Summary

KIC: 12164634 Candidate: 4 of 6 Period: 292.378 d

KOI: K03491 Corr: No Ephemeris Match

Kp: 13.68 R*: 1.47 Rs Teff: 6860.0 K Logg: 4.23 Fe/H: -0.100



DV Fit Results:

Period = 292.37764 [0.00757] d
Epoch = 202.6357 [0.0154] BKJD
Rp/R* = 0.0166 [0.0378]
a/R* = 592.55 [7870.35]
b = 0.86 [4.10]
Seff = 4.72 [1.96]
Teq = 376 [39] K
Rp = 2.66 [6.12] Re
a = 0.9512 [0.2595] AU
Ag = N/A
Teffp = N/A

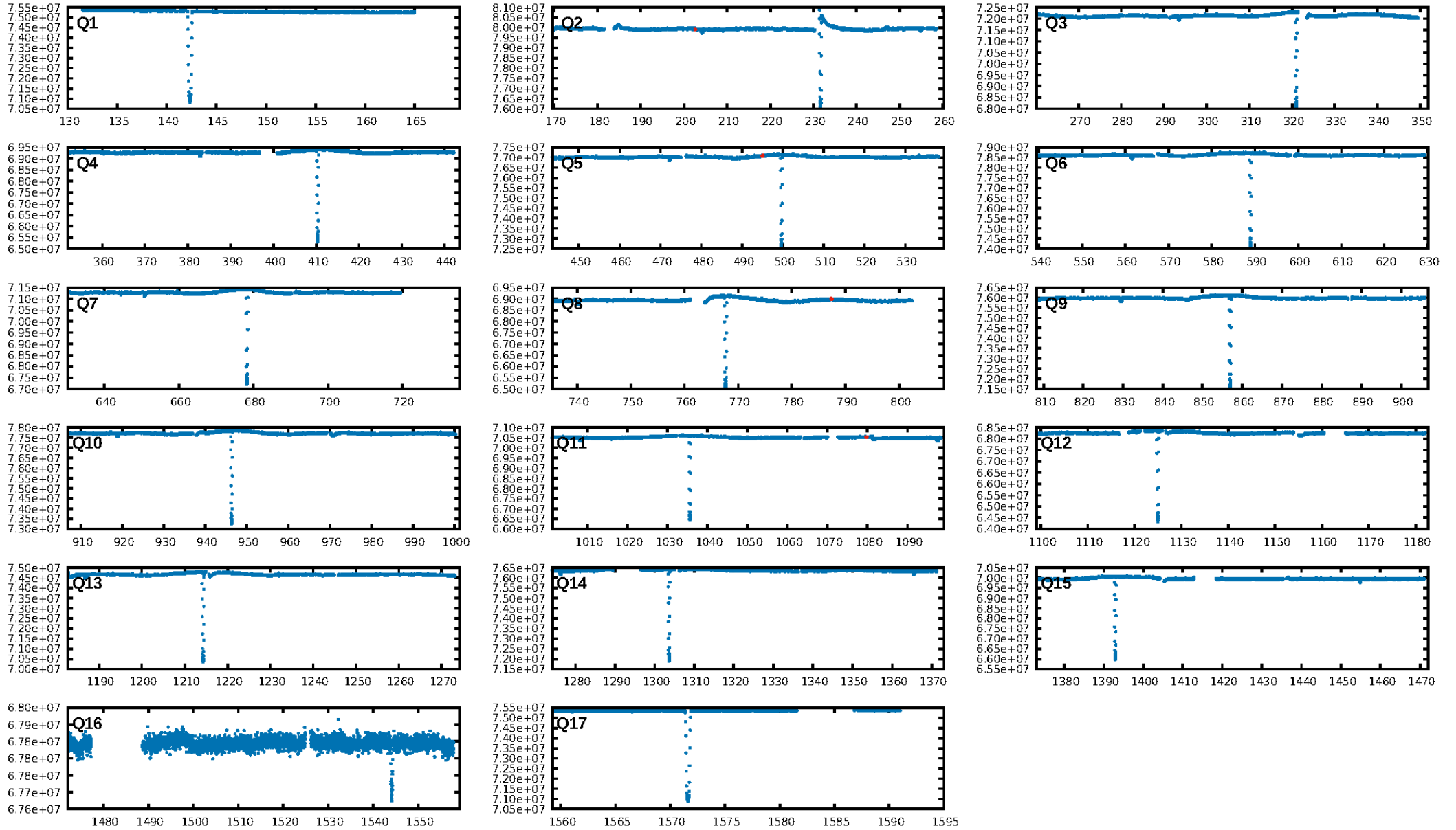
DV Diagnostic Results:

ShortPeriod-sig: 21.4% [0.27σ]
LongPeriod-sig: 3.1% [0.04σ]
ModelChiSquare2-sig: 1.6%
ModelChiSquareGof-sig: 64.9%
Bootstrap-pfa: 1.95e-62
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: -5.186
Centroid-sig: 73.9%
Centroid-so: 1.712 arcsec [0.58σ]
OotOffset-rm: 1.613 arcsec [1.80σ]
KicOffset-rm: 1.730 arcsec [1.93σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [4/4]

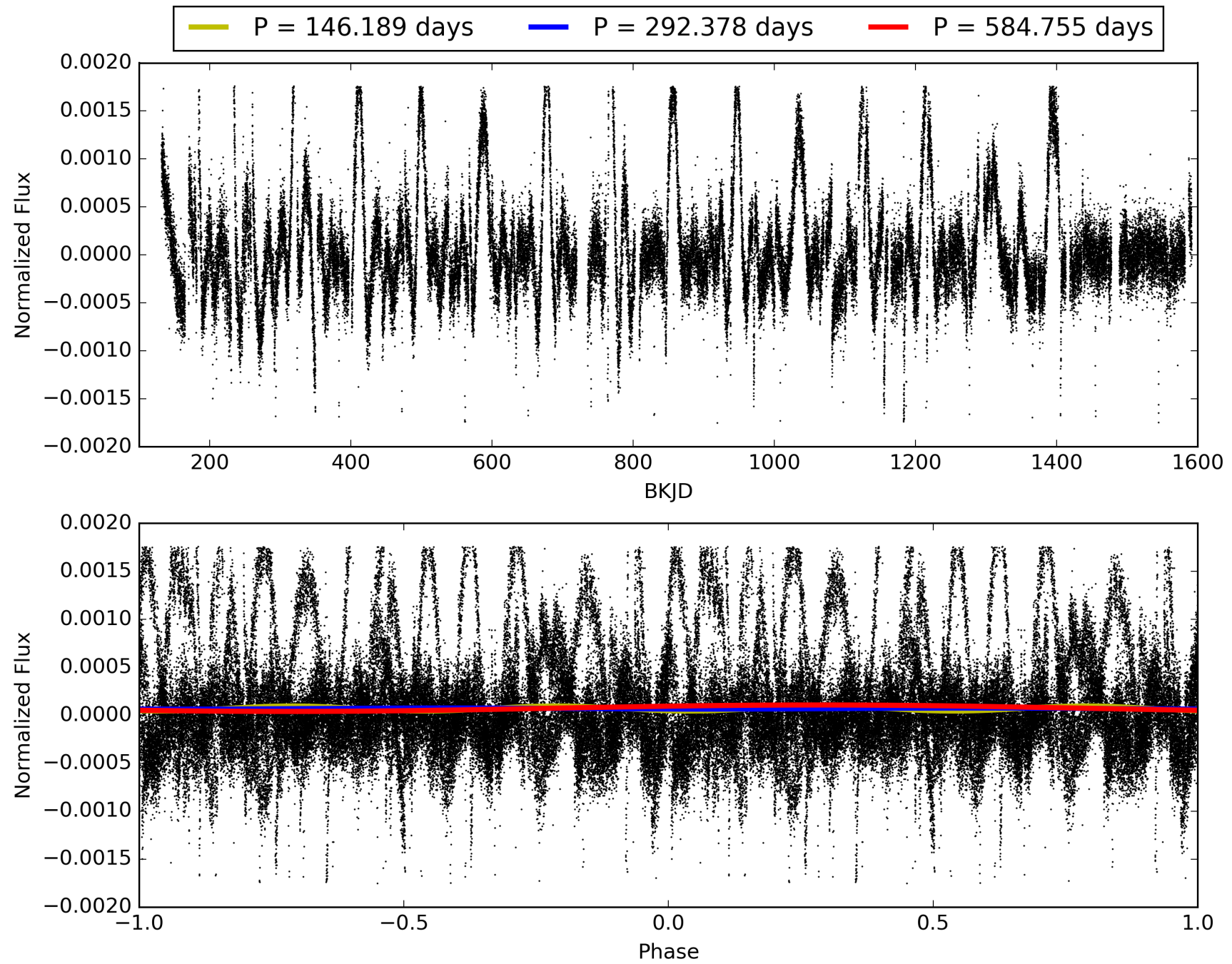
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:07:28 Z

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

TCE 012164634-04, PDC Light Curves

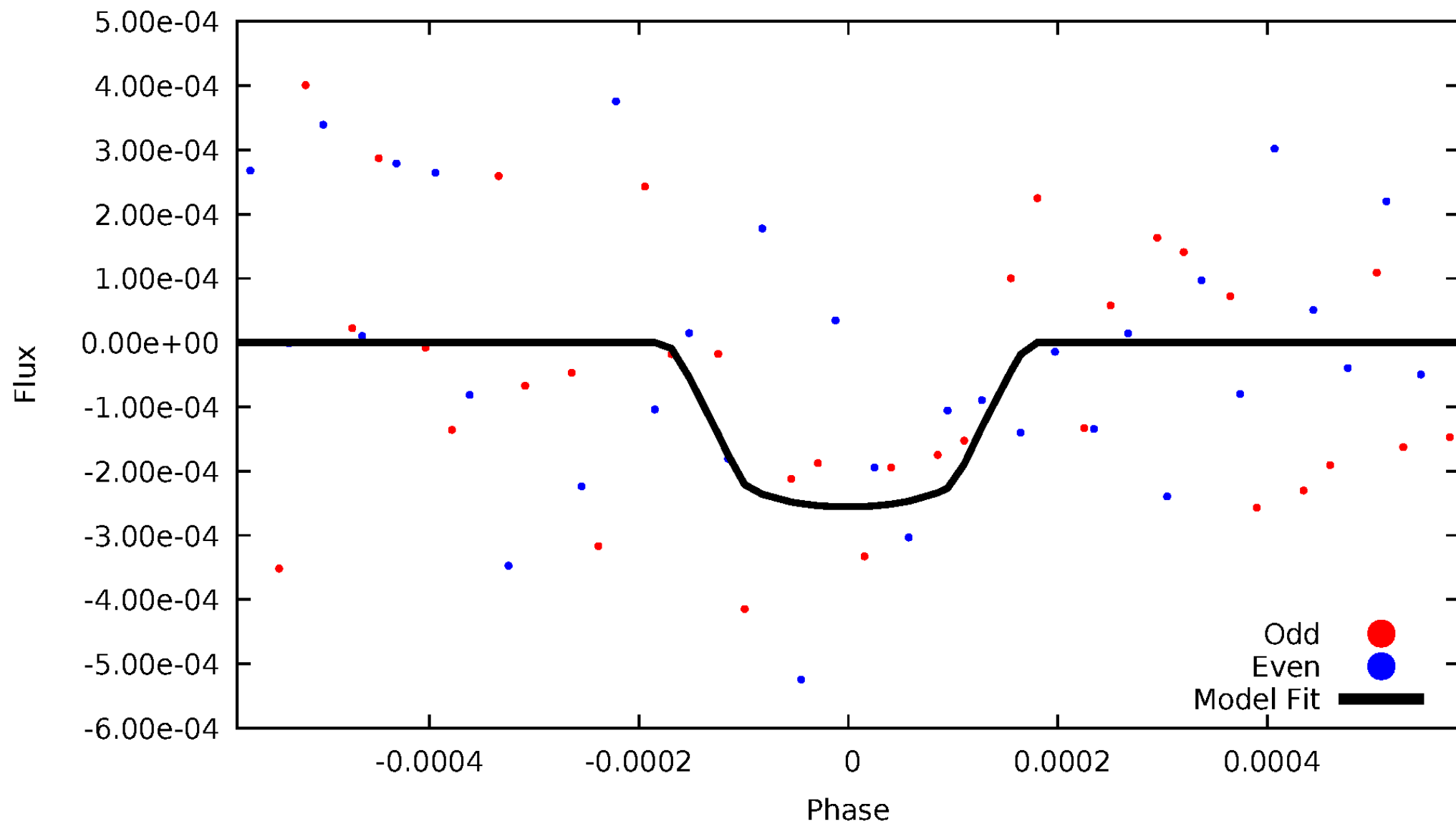


TCE 012164634-04



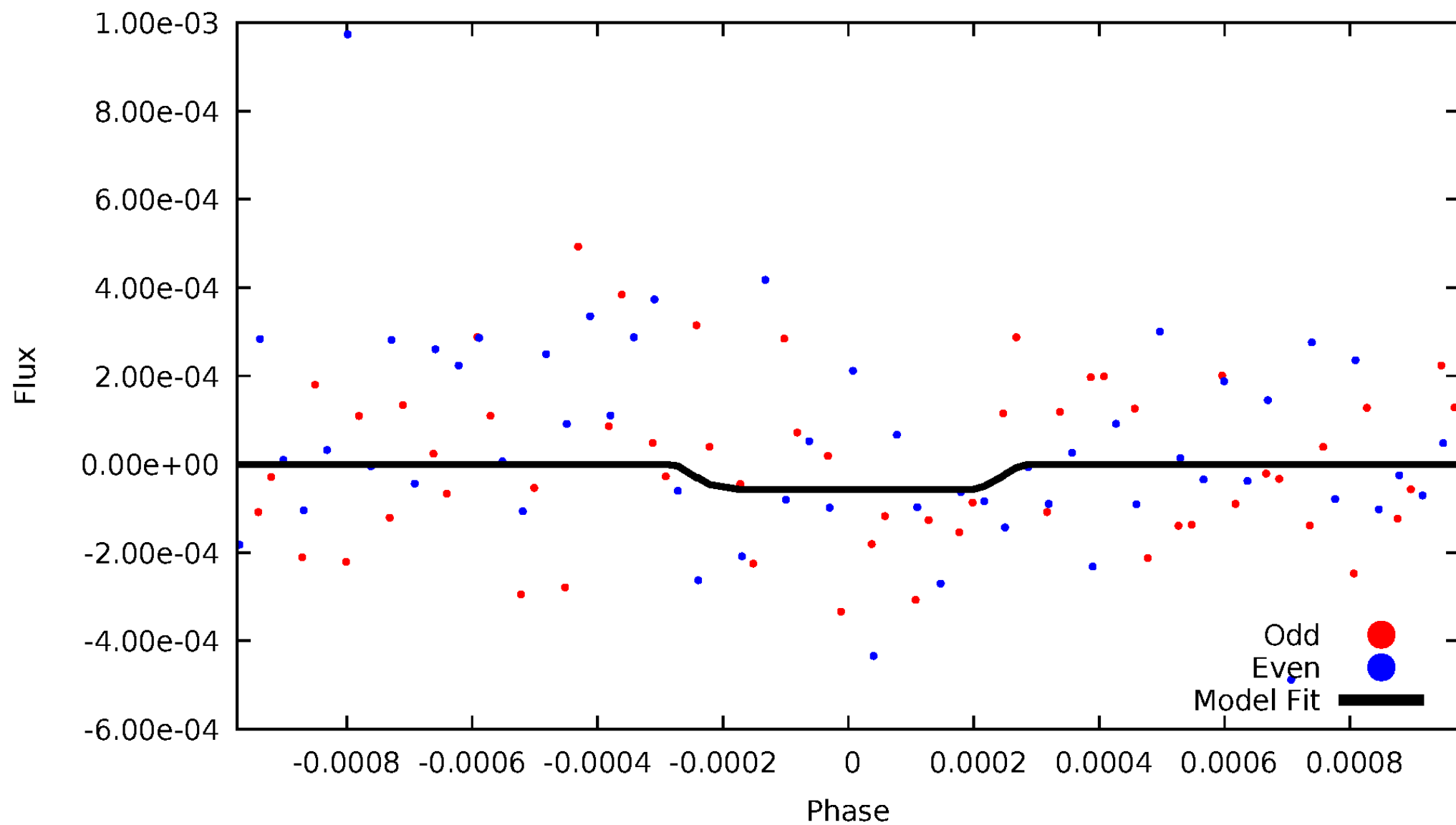
DV Odd/Even

TCE 012164634-04



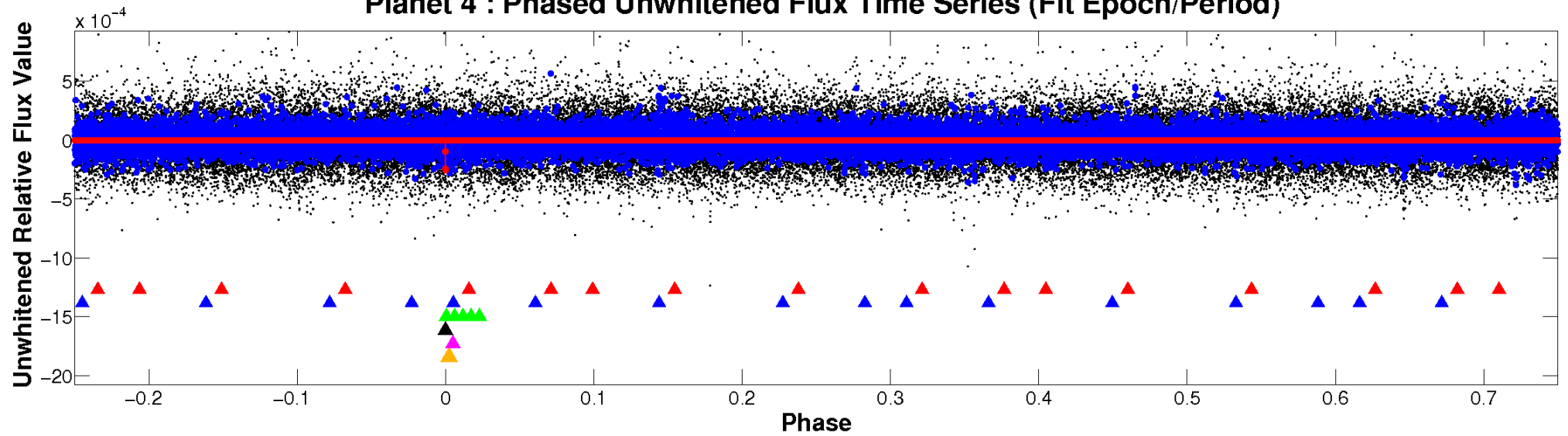
ALT Odd/Even

TCE 012164634-04

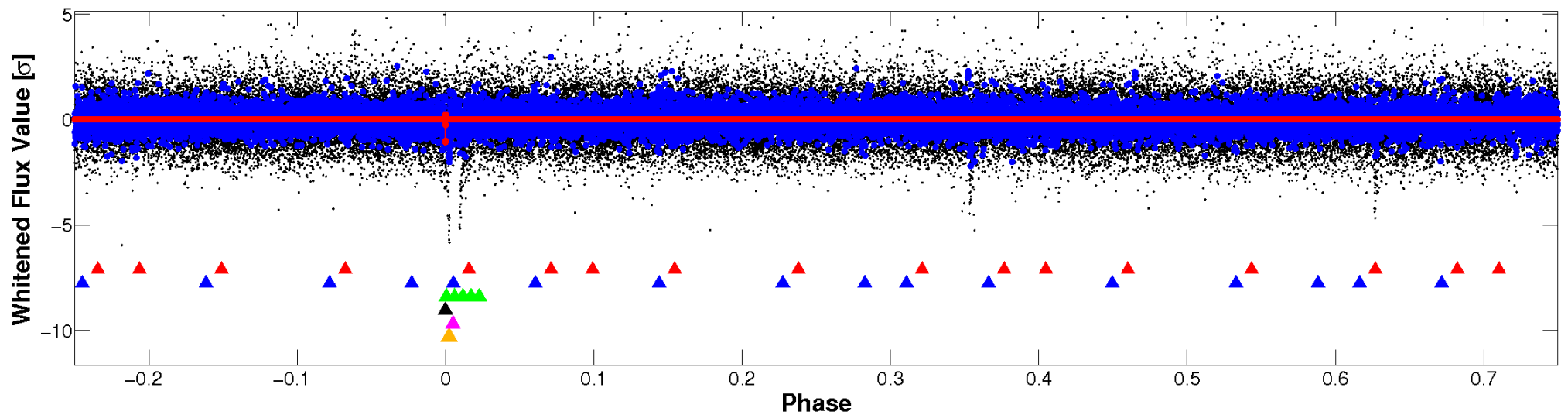


Non-Whitened Vs. Whitened Light Curve

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

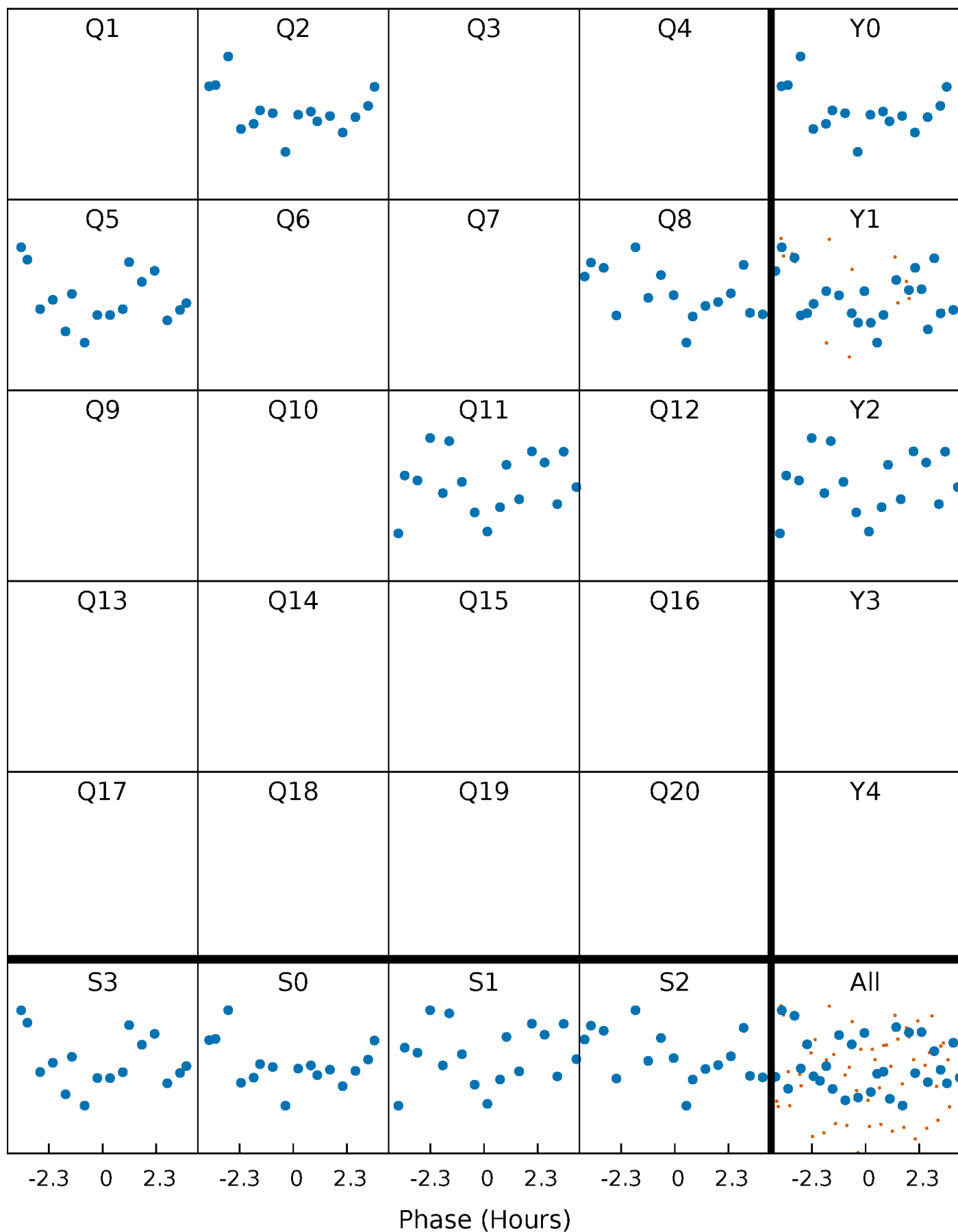


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



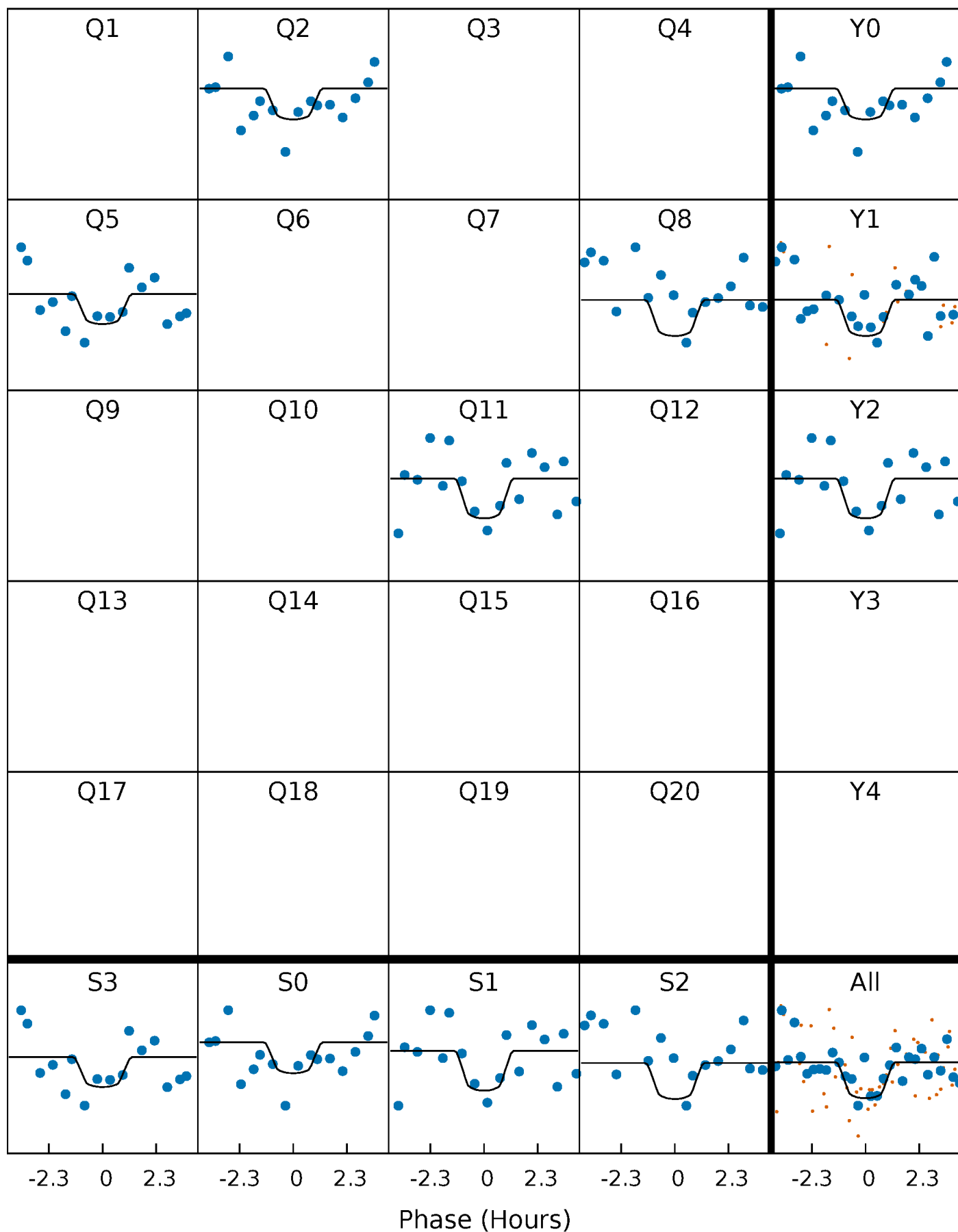
PDC Quarter-Phased Transit Curves

TCE 012164634-04 P=292.377639 Days $T_0=202.635709$ (BKJD)



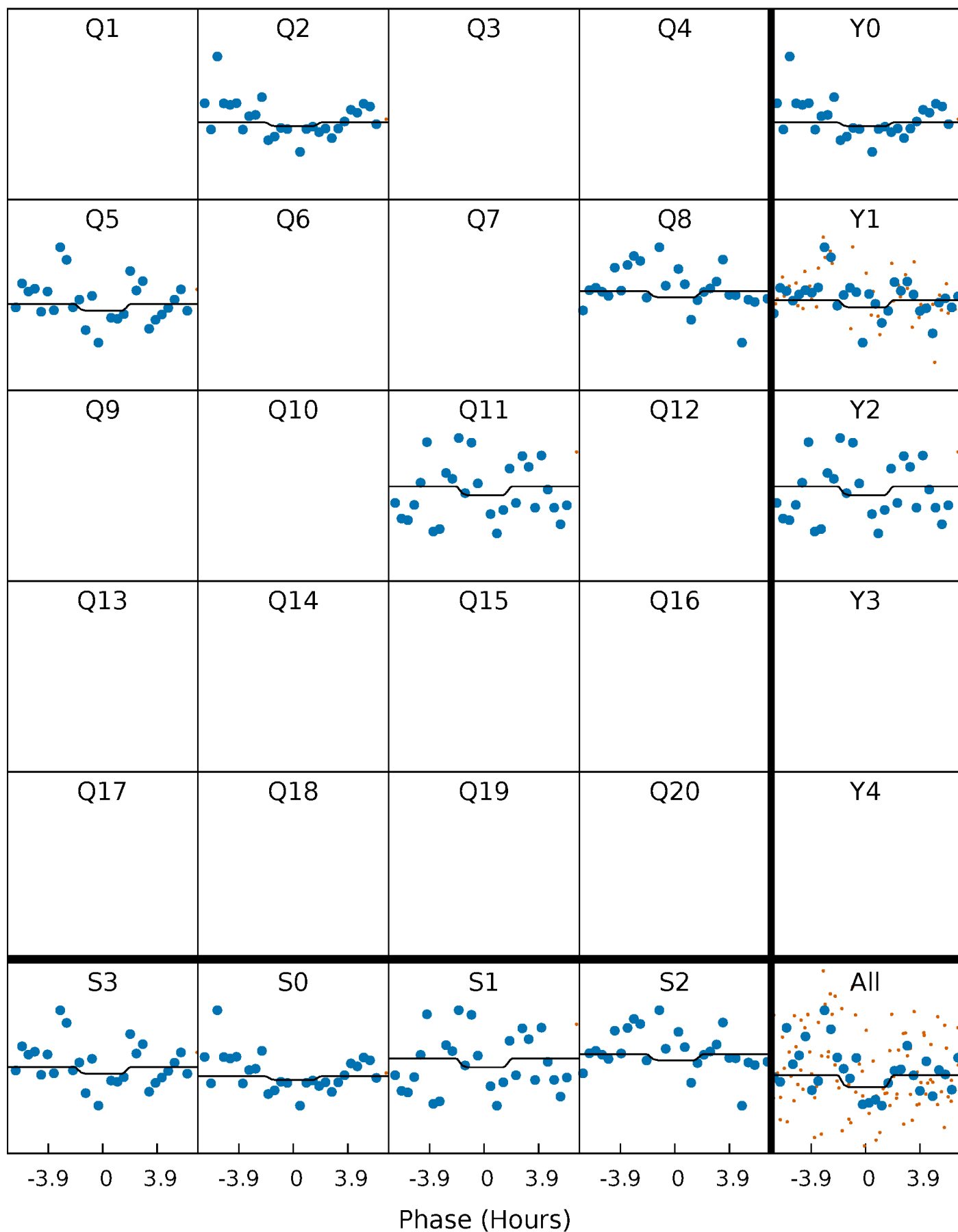
DV Quarter-Phased Transit Curves

TCE 012164634-04 P=292.377639 Days $T_0=202.635709$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

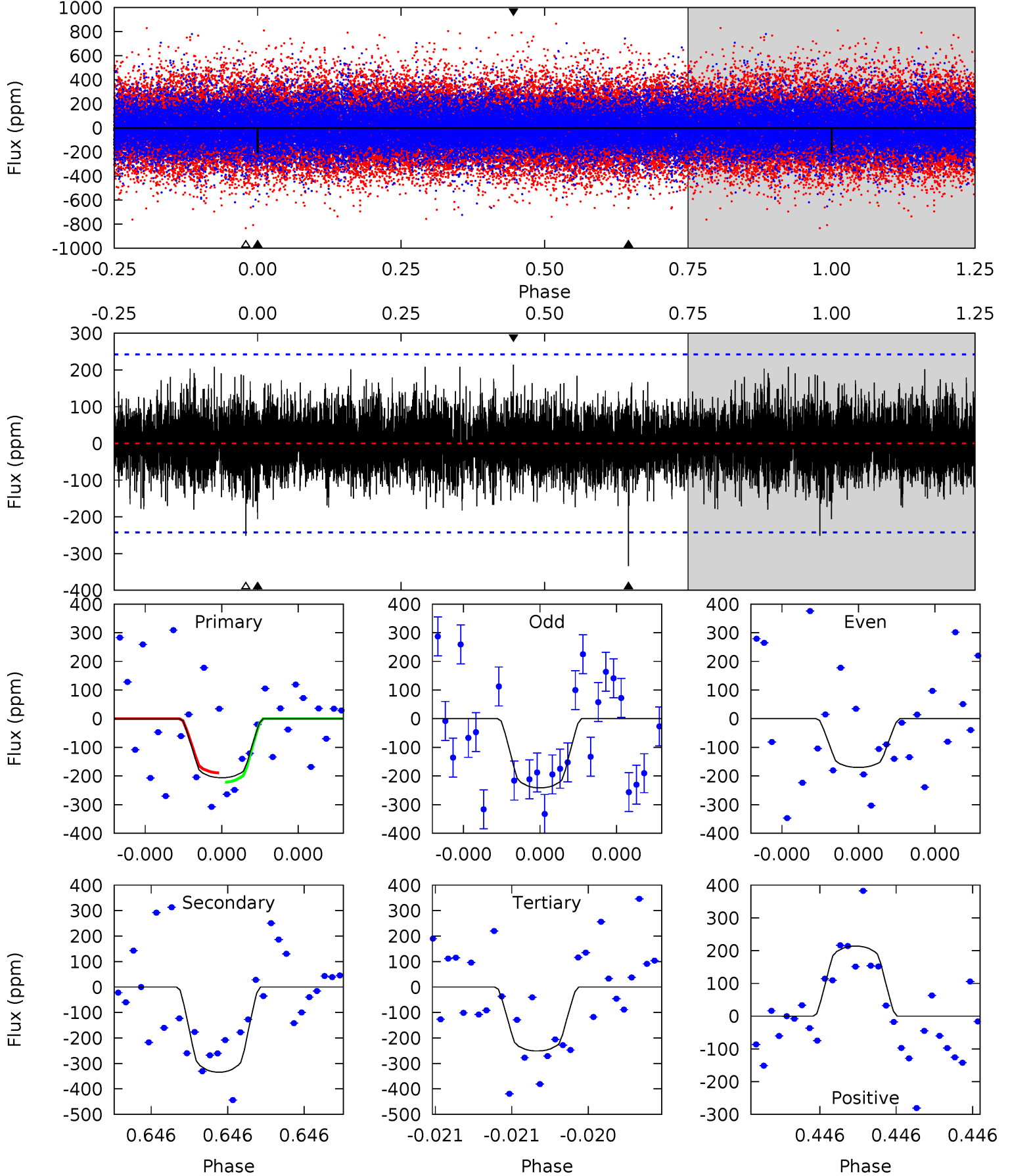
TCE 012164634-04 P=292.376999 Days $T_0=202.610808$ (BKJD)



DV Model-Shift Uniqueness Test

012164634-04, P = 292.377639 Days, E = 202.635709 Days

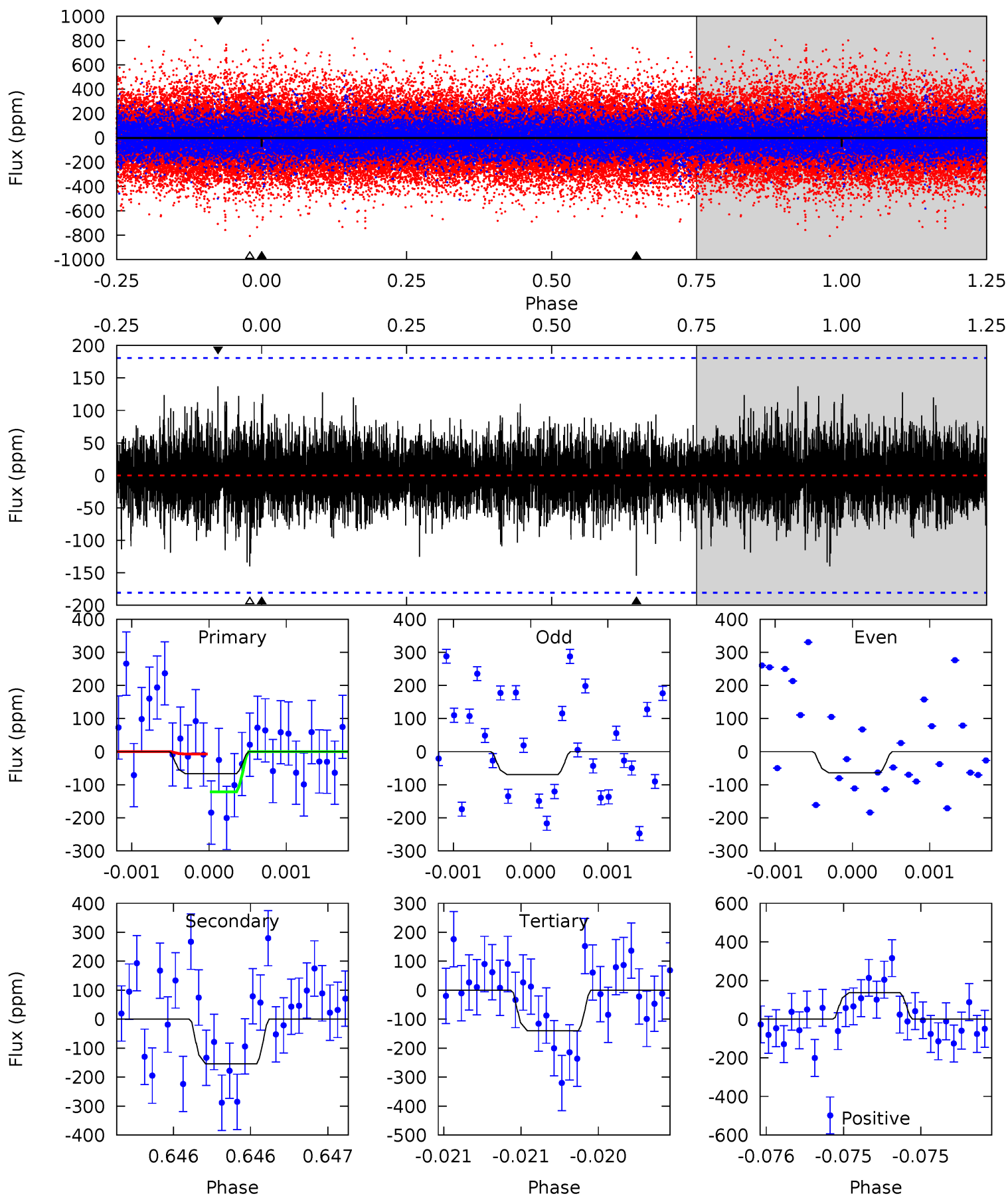
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.79	7.78	5.84	4.97	5.64	3.59	1.27	-1.05	-0.18	1.94	2.80	0.83	0.85	0.39	0.38



Alt Model-Shift Uniqueness Test

012164634-04, P = 292.376999 Days, E = 202.610808 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.04	4.74	4.30	4.21	5.55	3.45	1.00	-2.25	-2.17	0.44	0.53	0.08	0.91	0.47	1.75



Stellar Parameters For KIC 012164634

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6860^{+189}_{-283}	$4.233^{+0.108}_{-0.201}$	$-0.100^{+0.250}_{-0.350}$	$1.467^{+0.495}_{-0.266}$	$1.350^{+0.204}_{-0.224}$	$0.602^{+0.351}_{-0.313}$
	+3%/-4%	+3%/-5%	+250%/-350%	+34%/-18%	+15%/-17%	+58%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012164634-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-334 ± 43	$5.50^{+5.21}_{-3.56}$	529^{+45}_{-31}	5151^{+3595}_{-1221}	5404^{+38100}_{-3993}
Alt.	-154 ± 33	$4.83^{+4.87}_{-3.44}$	529^{+41}_{-33}	4585^{+3822}_{-1037}	3201^{+36931}_{-2419}

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

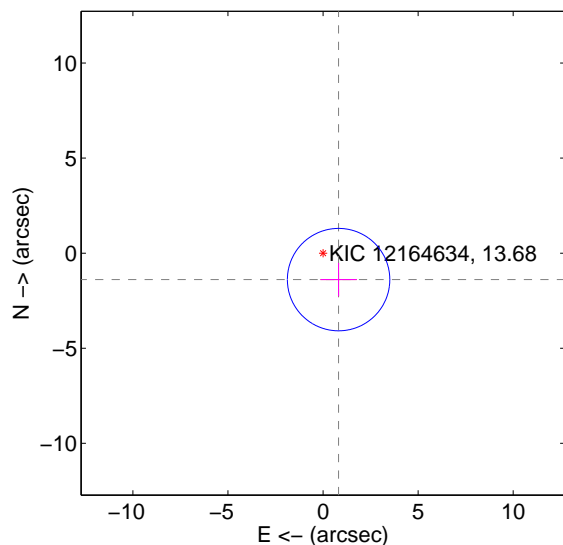
Supplemental centroid analysis for 012164634-04. Kepler magnitude: 13.68. Transit SNR 3.78

There are 0 quarters with good PRF difference image offsets

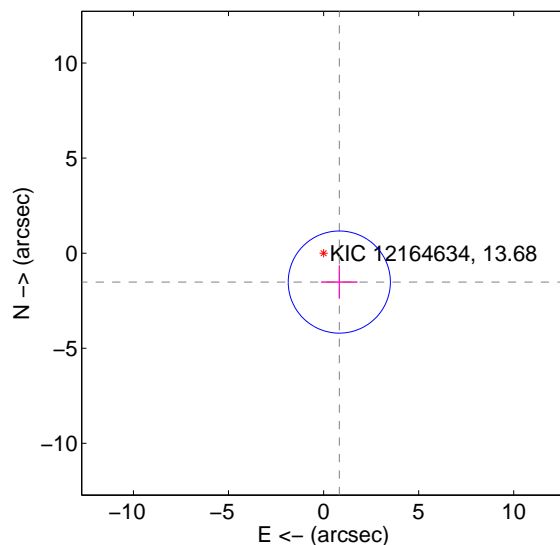
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.613 ± 0.898	1.80	-0.818 ± 0.955	-1.390 ± 0.877
PRF-fit source offset from KIC position	1.730 ± 0.895	1.93	-0.827 ± 0.955	-1.519 ± 0.877
photometric centroid source offset	1.71 ± 2.96	0.58	1.60 ± 2.89	0.60 ± 3.42

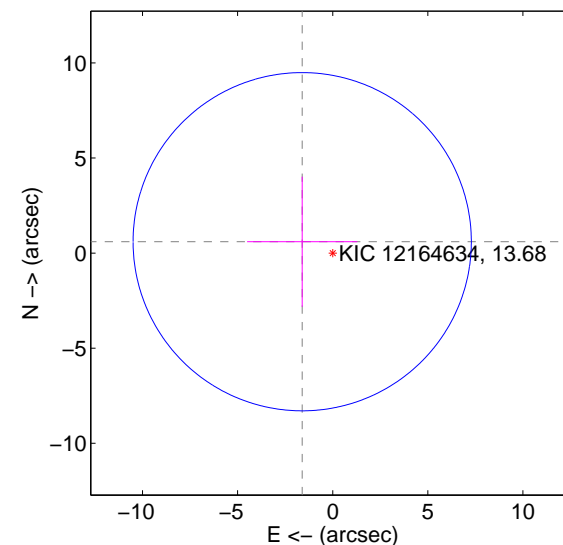
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

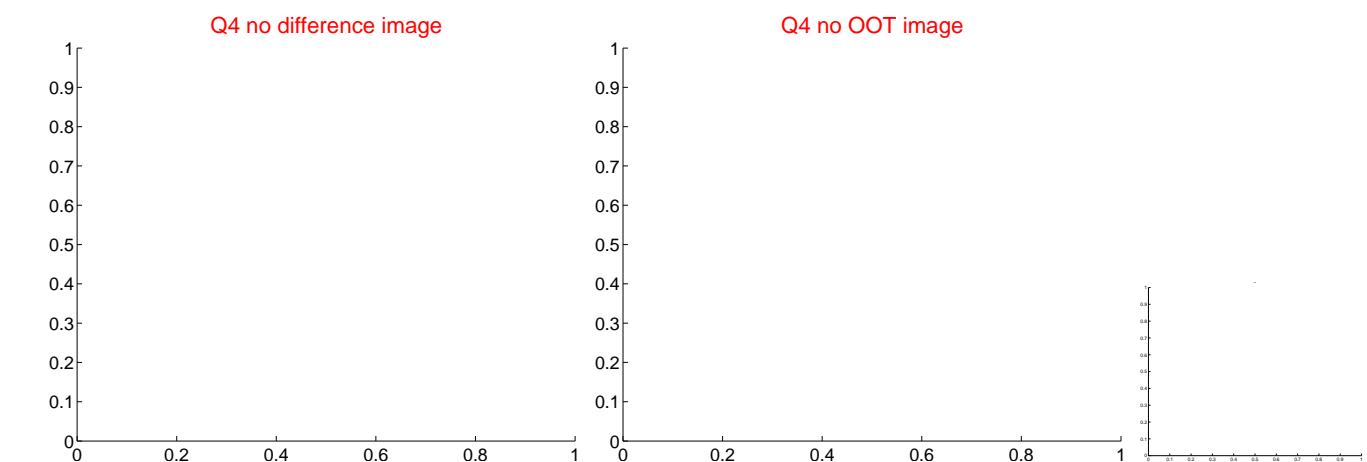
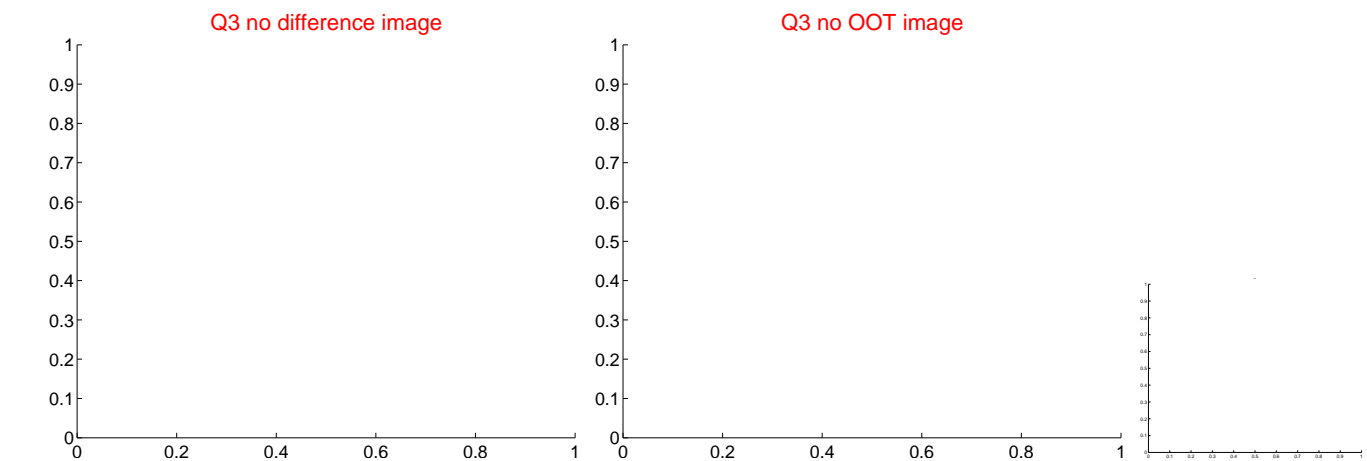
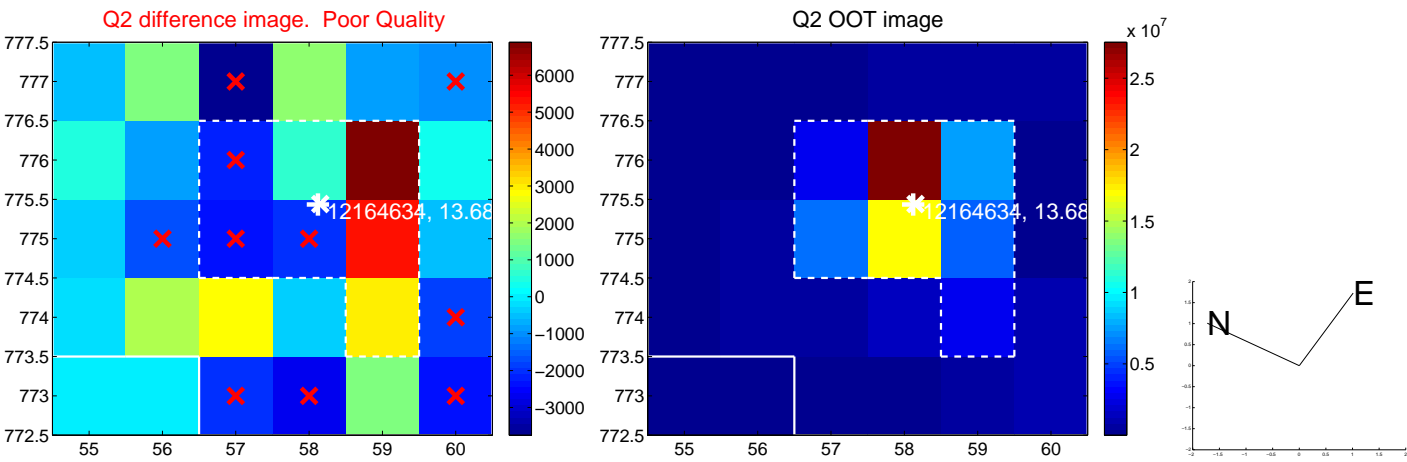
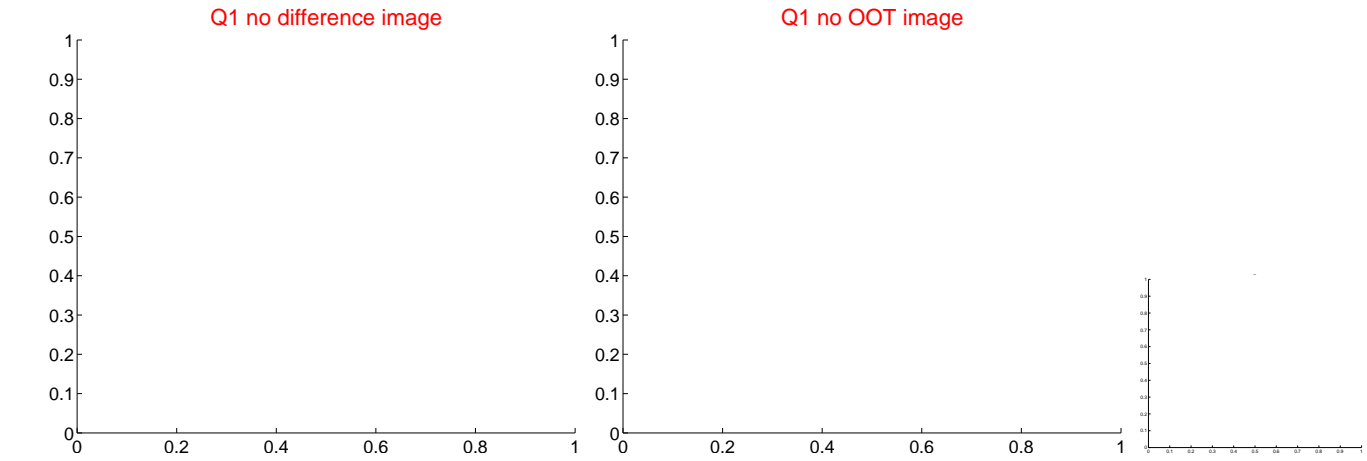


offset from photometric centroids

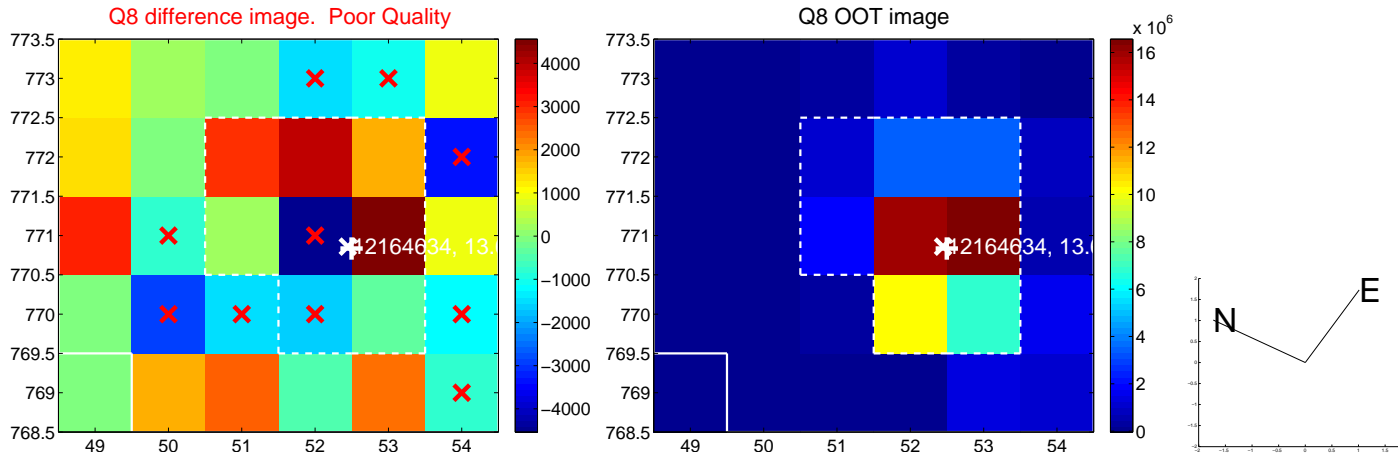
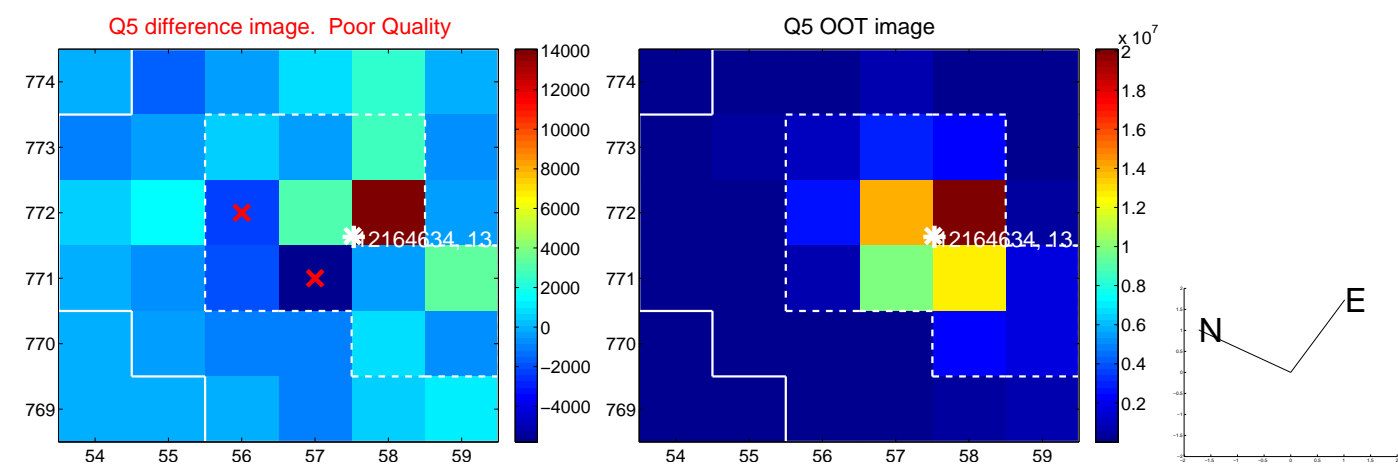


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



white ×: 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



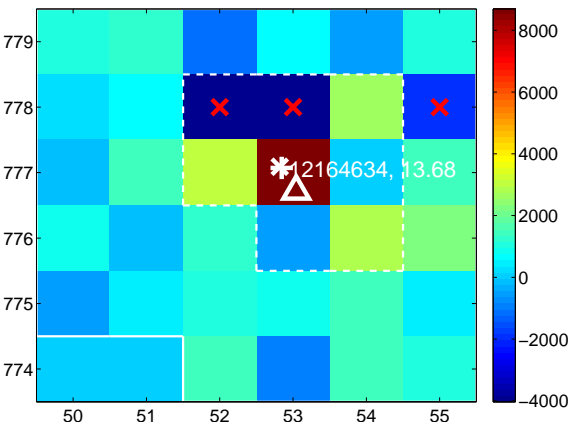
Q10 no difference image



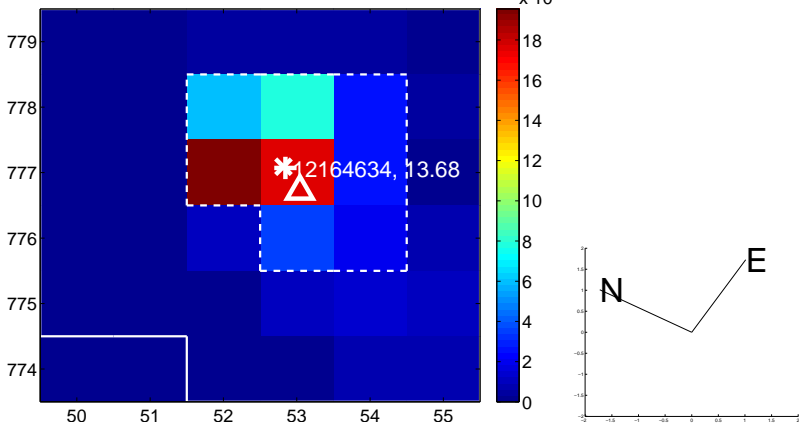
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



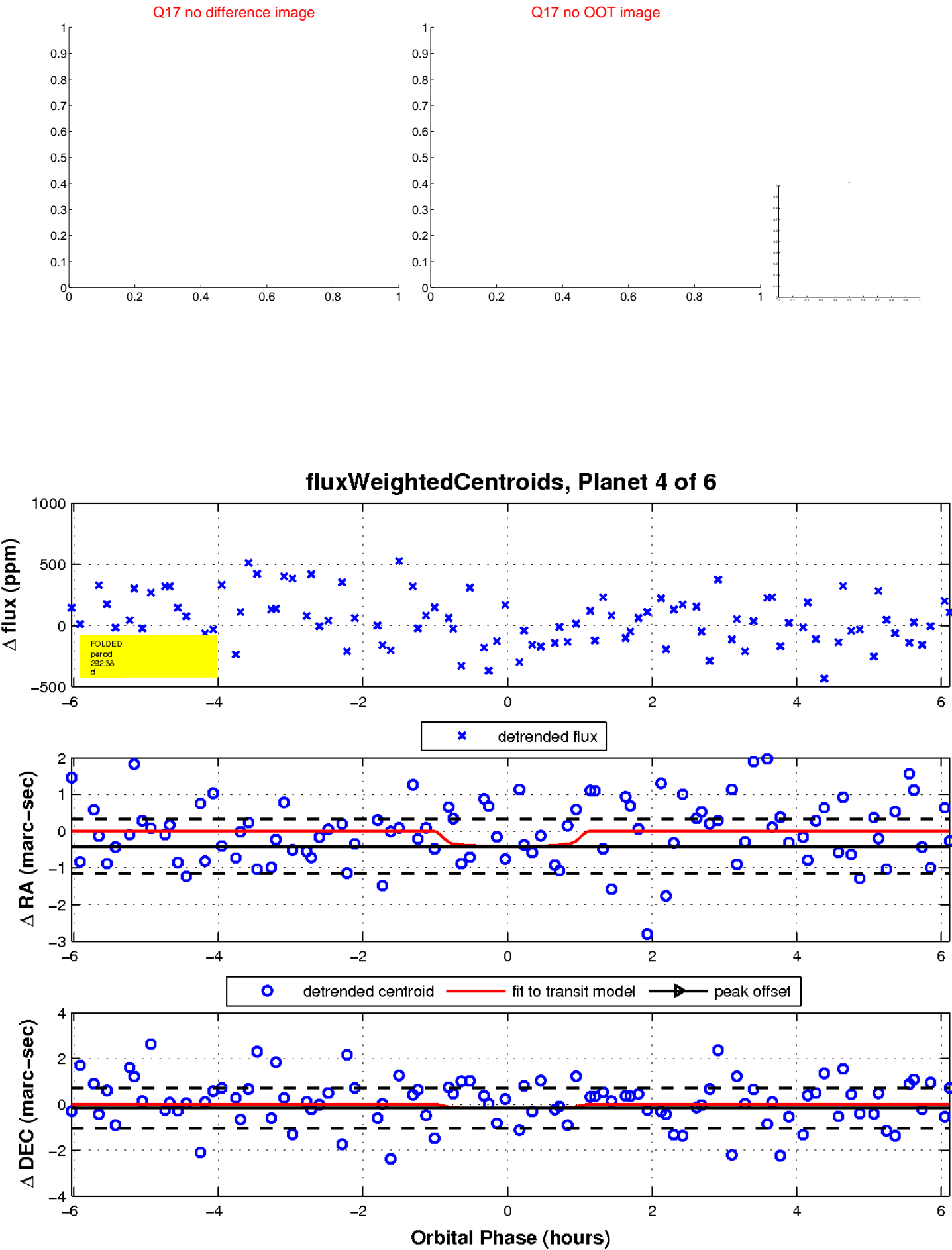
Q12 no OOT image



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

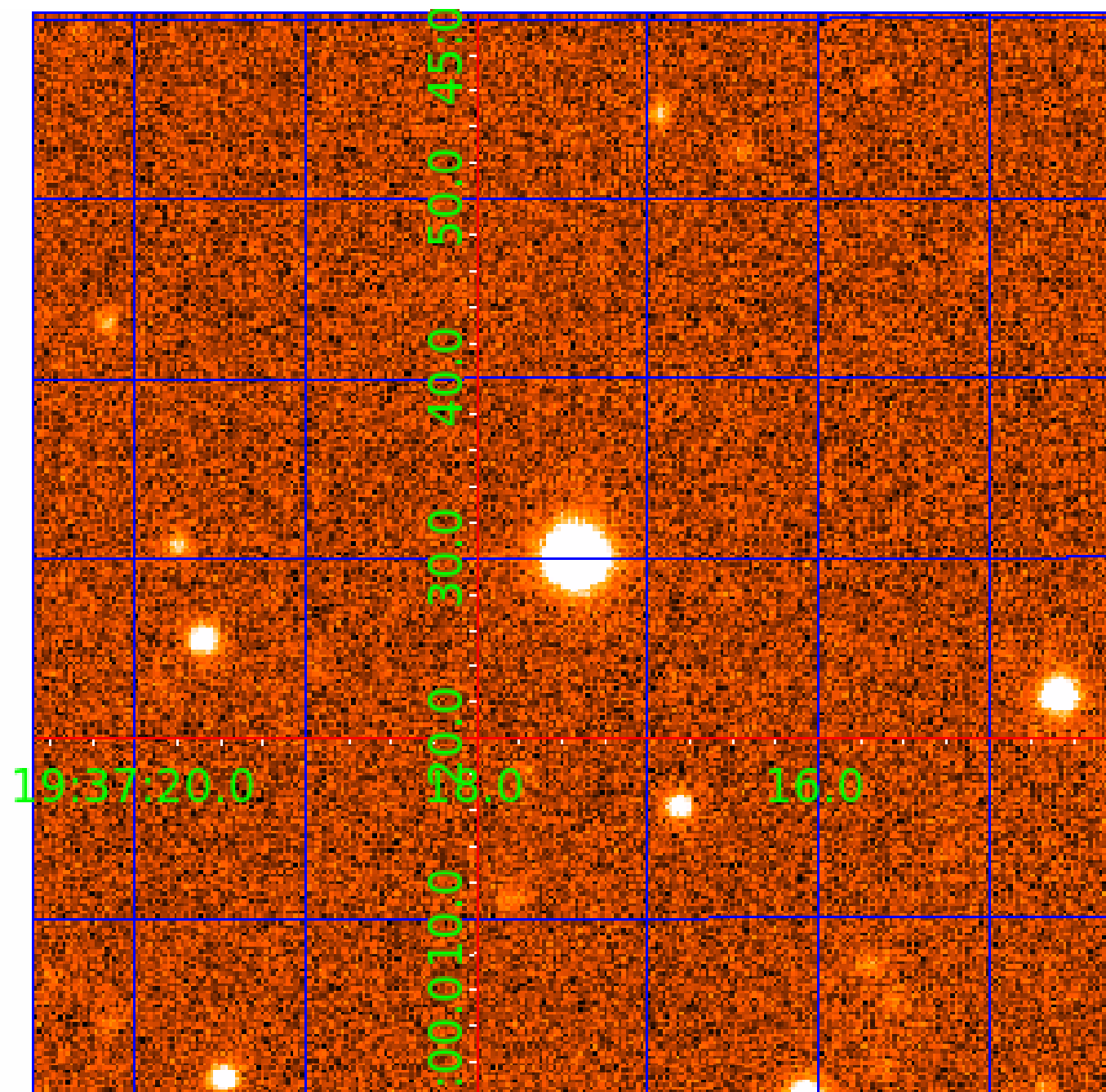


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012164634

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})
012164634-01	OBS	3491.01	89.331211	142.316777	59114.4	11.335	2966.3	2835.7	1.47	6860	37.11	22.93
012164634-02	OBS	No	89.331155	204.187202	2169.0	11.912	118.2	116.2	1.47	6860	7.98	22.93
012164634-03	OBS	No	290.754132	209.308482	629.4	15.741	15.6	13.0	1.47	6860	3.93	4.75
012164634-04	OBS	No	292.377639	202.635709	255.3	2.048	23.7	3.8	1.47	6860	2.66	4.72
012164634-05	OBS	No	292.381209	204.109169	301.4	0.718	23.4	2.4	1.47	6860	3.04	4.72
012164634-06	OBS	No	292.285073	203.537112	311.2	7.916	23.6	5.8	1.47	6860	2.68	4.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012164634-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
012164634-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
012164634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
012164634-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

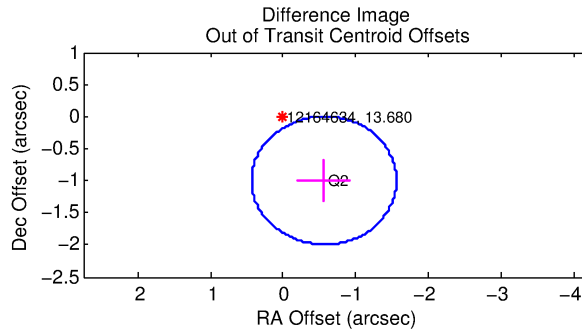
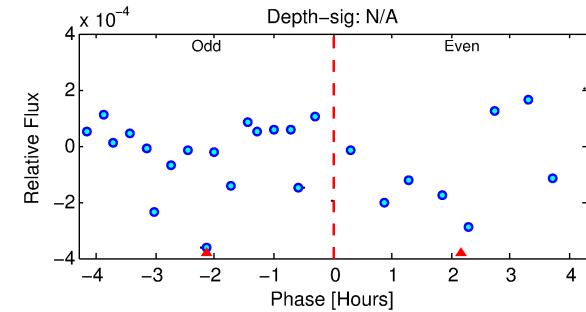
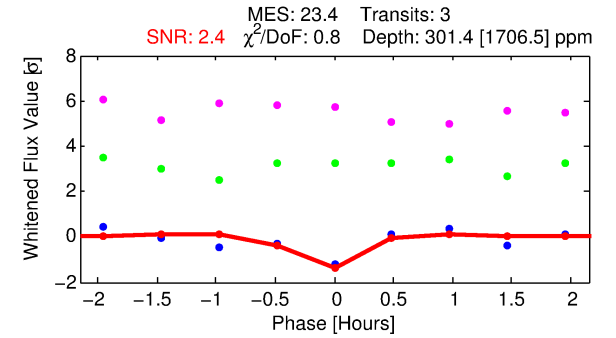
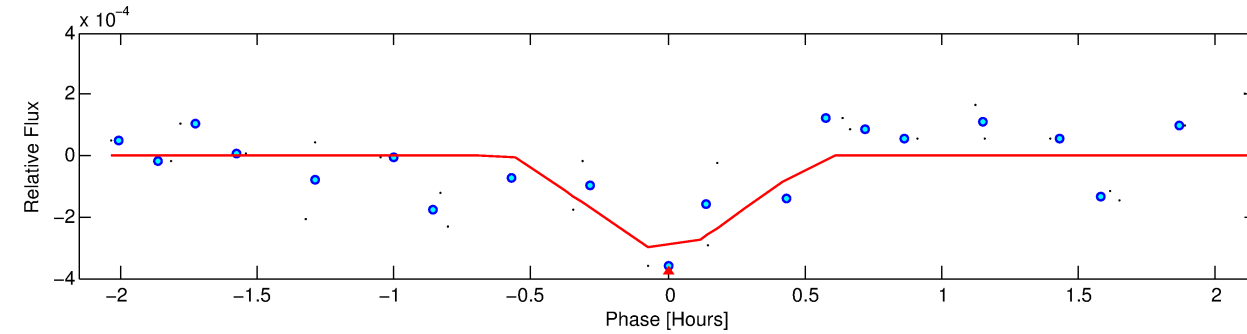
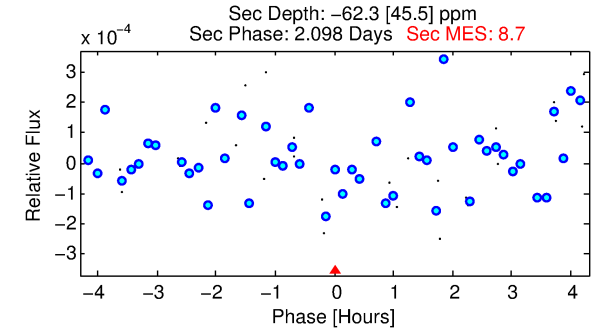
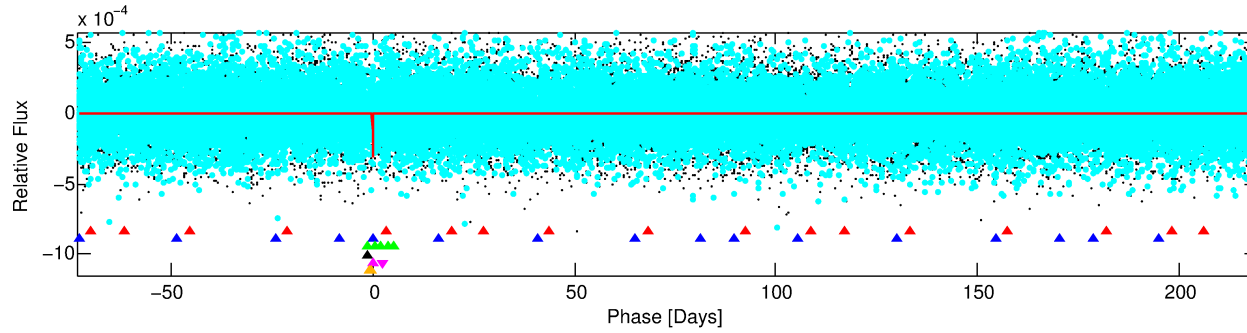
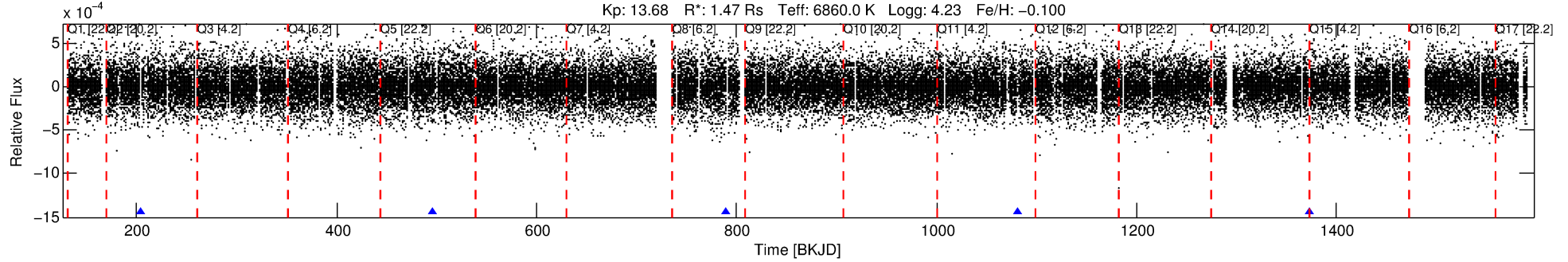
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012164634-05

No Significant Match Found

DV One-Page Summary

KIC: 12164634 Candidate: 5 of 6 Period: 292.381 d
KOI: K03491 Corr: No Ephemeris Match



DV Fit Results:

Period = 292.38121 [0.00795] d
Epoch = 204.1092 [0.0215] BKJD
Rp/R* = 0.0190 [0.1592]
a/R* = 1491.60 [68623.18]
b = 0.90 [10.26]
Seff = 4.72 [1.96]
Teq = 376 [39] K
Rp = 3.04 [25.50] Re
a = 0.9512 [0.2595] AU
Ag = N/A
Teffp = N/A

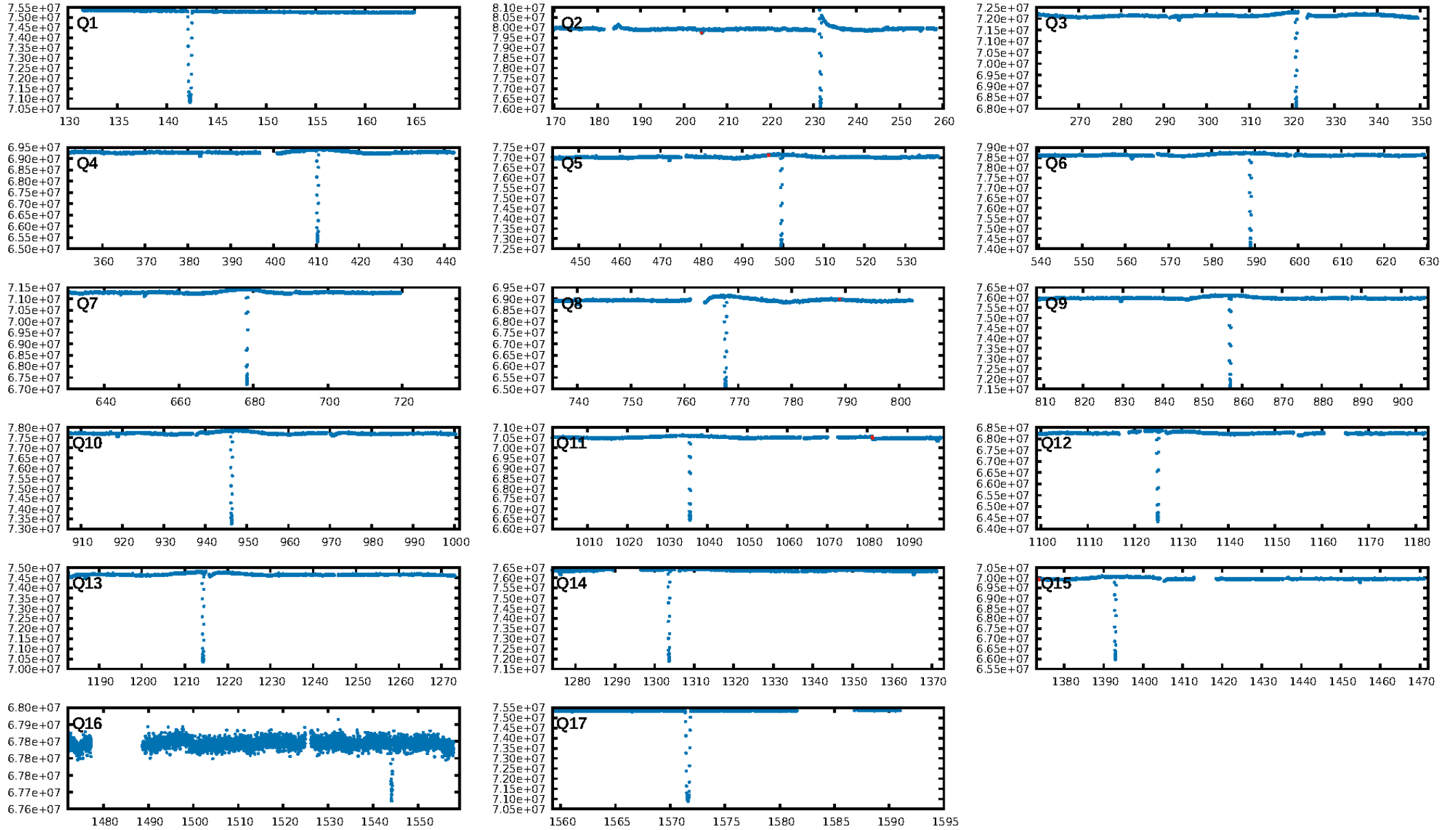
DV Diagnostic Results:

ShortPeriod-sig: 3.1% [0.04σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 19.4%
ModelChiSquareGof-sig: 78.0%
Bootstrap-pfa: 2.59e-61
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.05914
Centroid-sig: 2.4%
Centroid-so: 6.977 arcsec [1.71σ]
OotOffset-rm: 1.145 arcsec [3.45σ]
KicOffset-rm: 1.107 arcsec [3.30σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.67 [2/3]

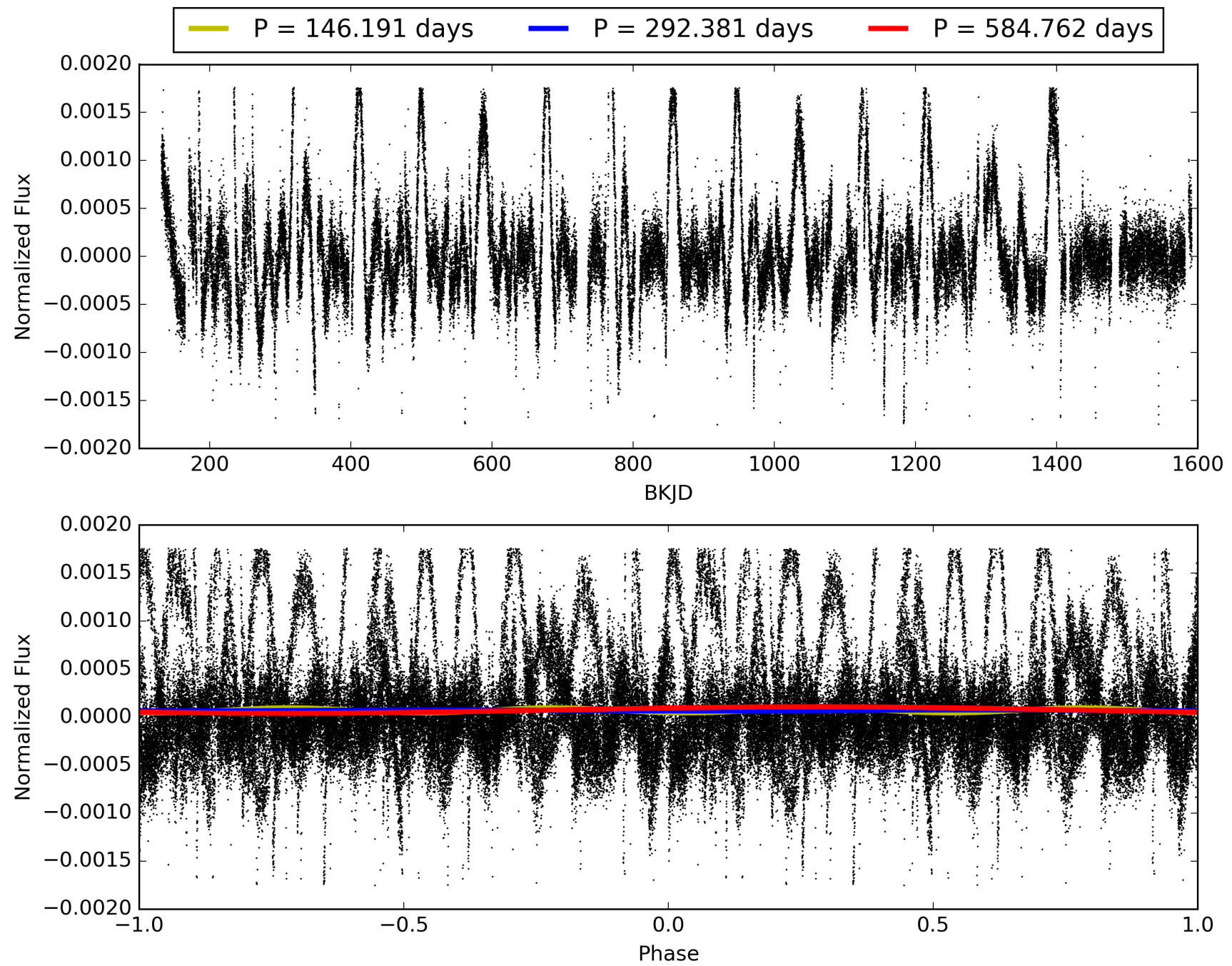
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:08:12 Z

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

TCE 012164634-05, PDC Light Curves

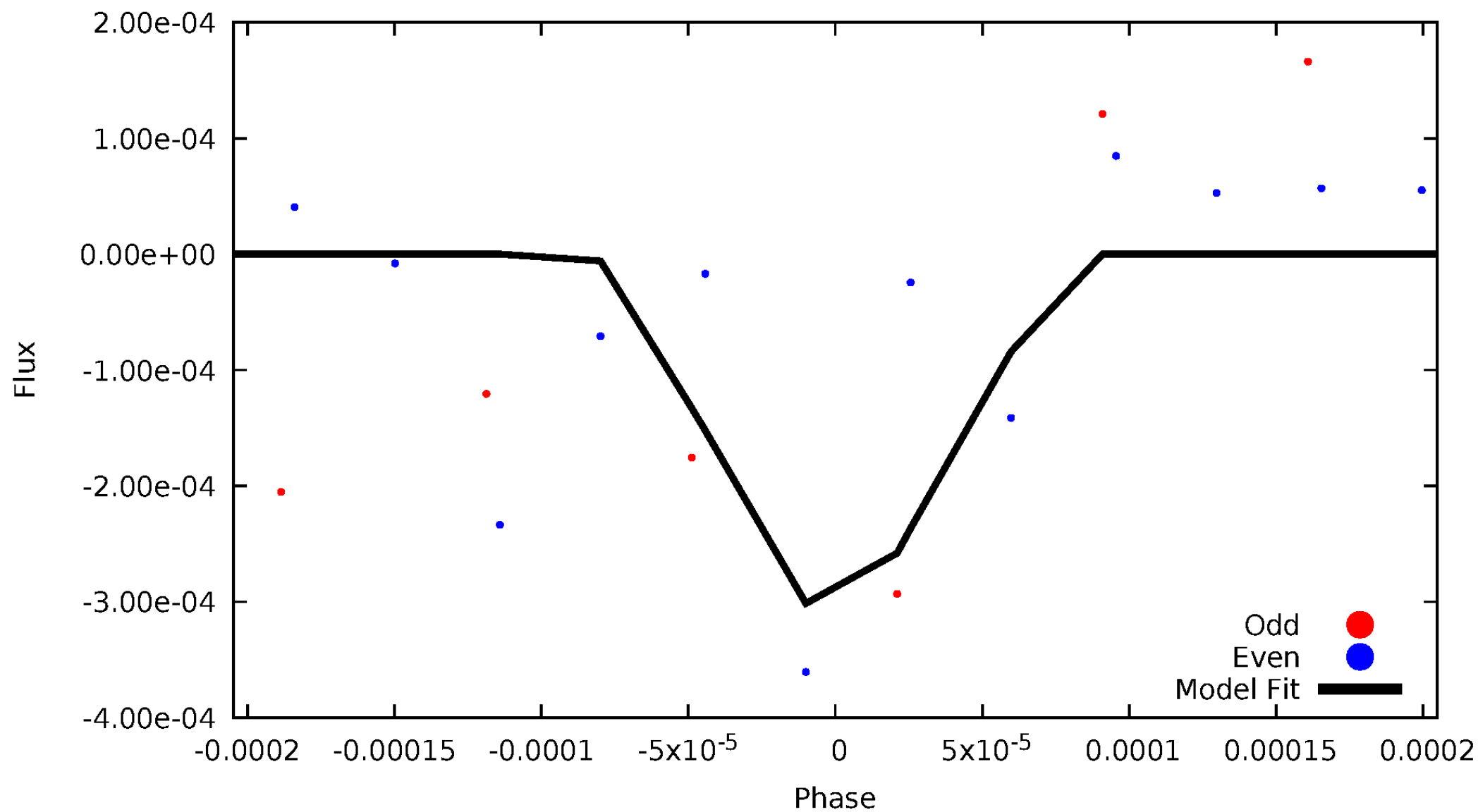


TCE 012164634-05



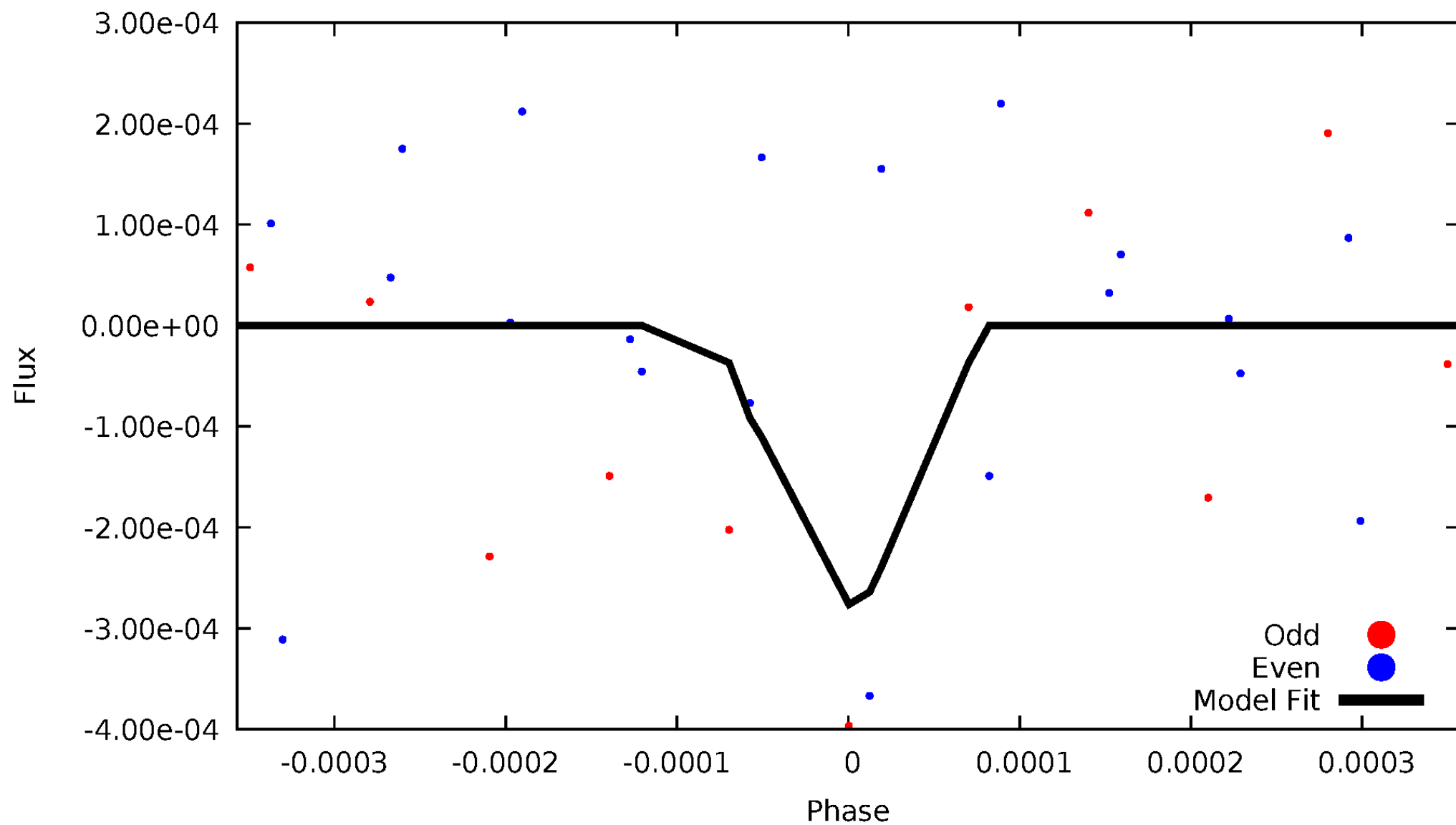
DV Odd/Even

TCE 012164634-05



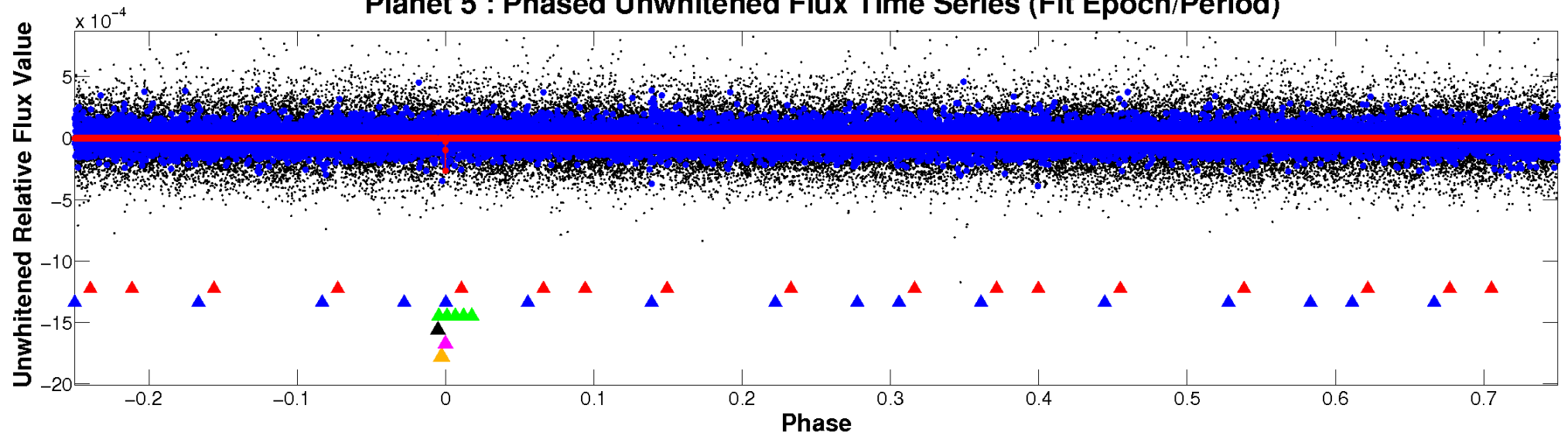
ALT Odd/Even

TCE 012164634-05

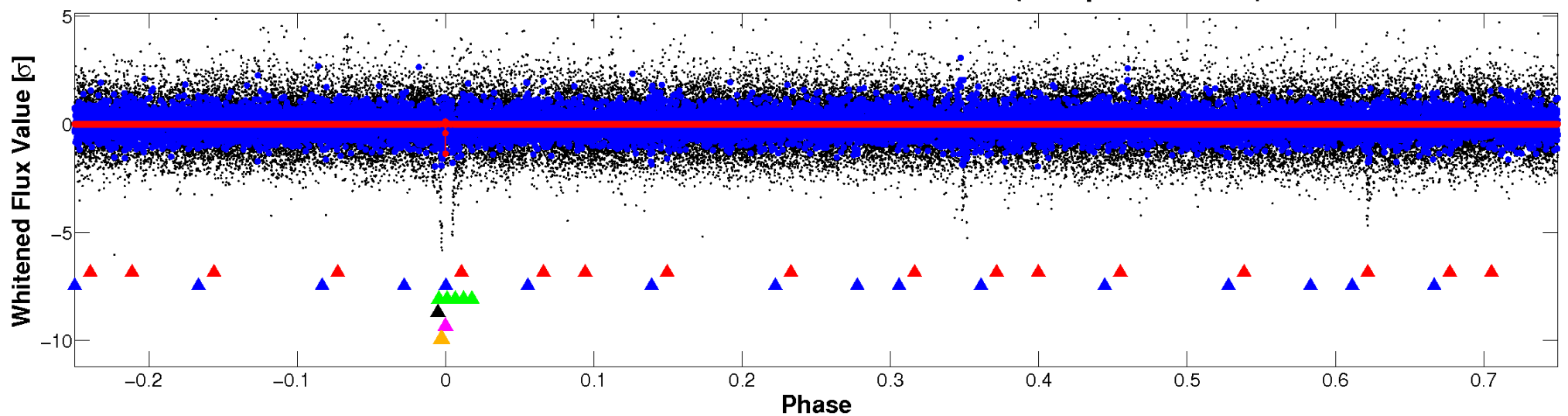


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

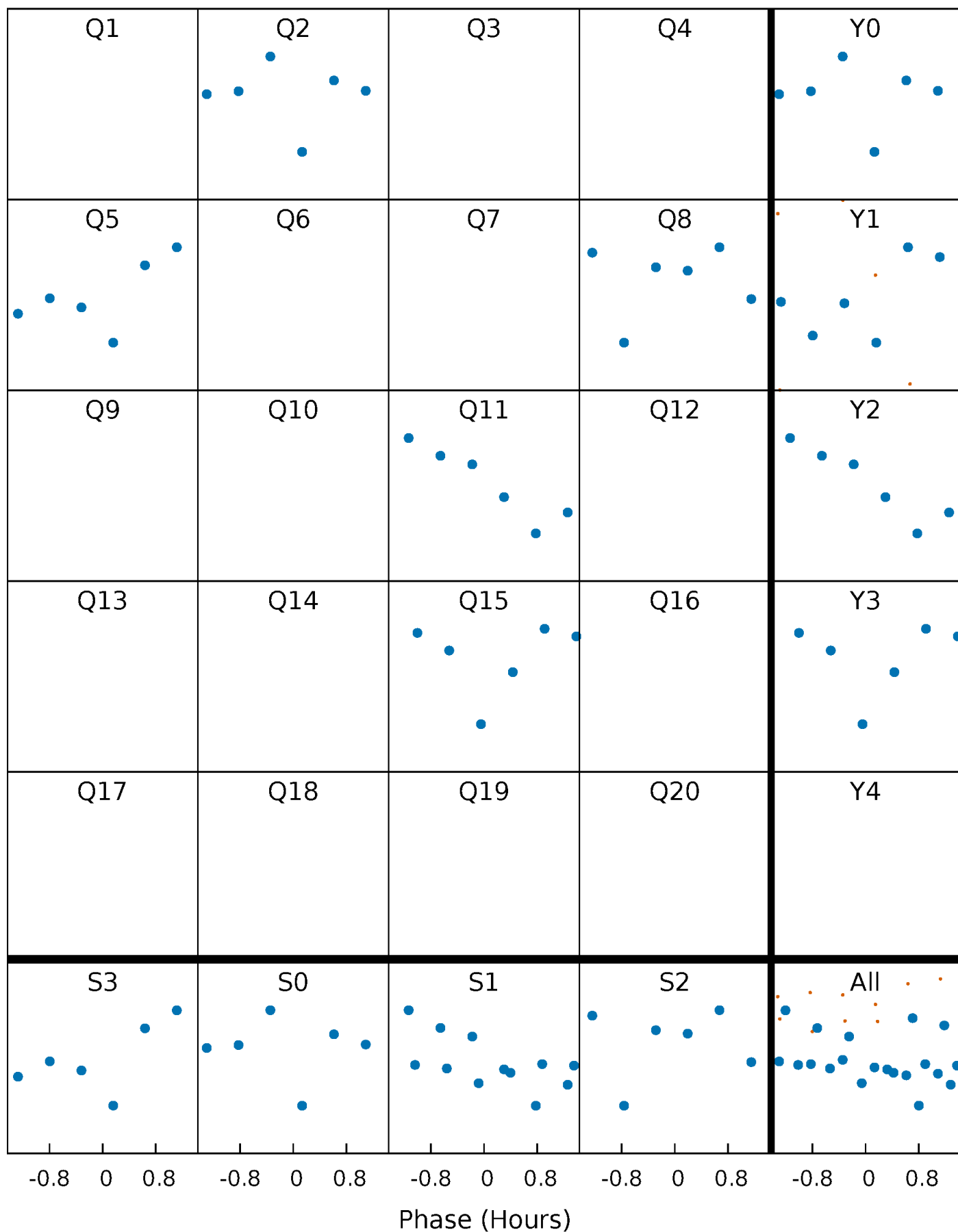


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



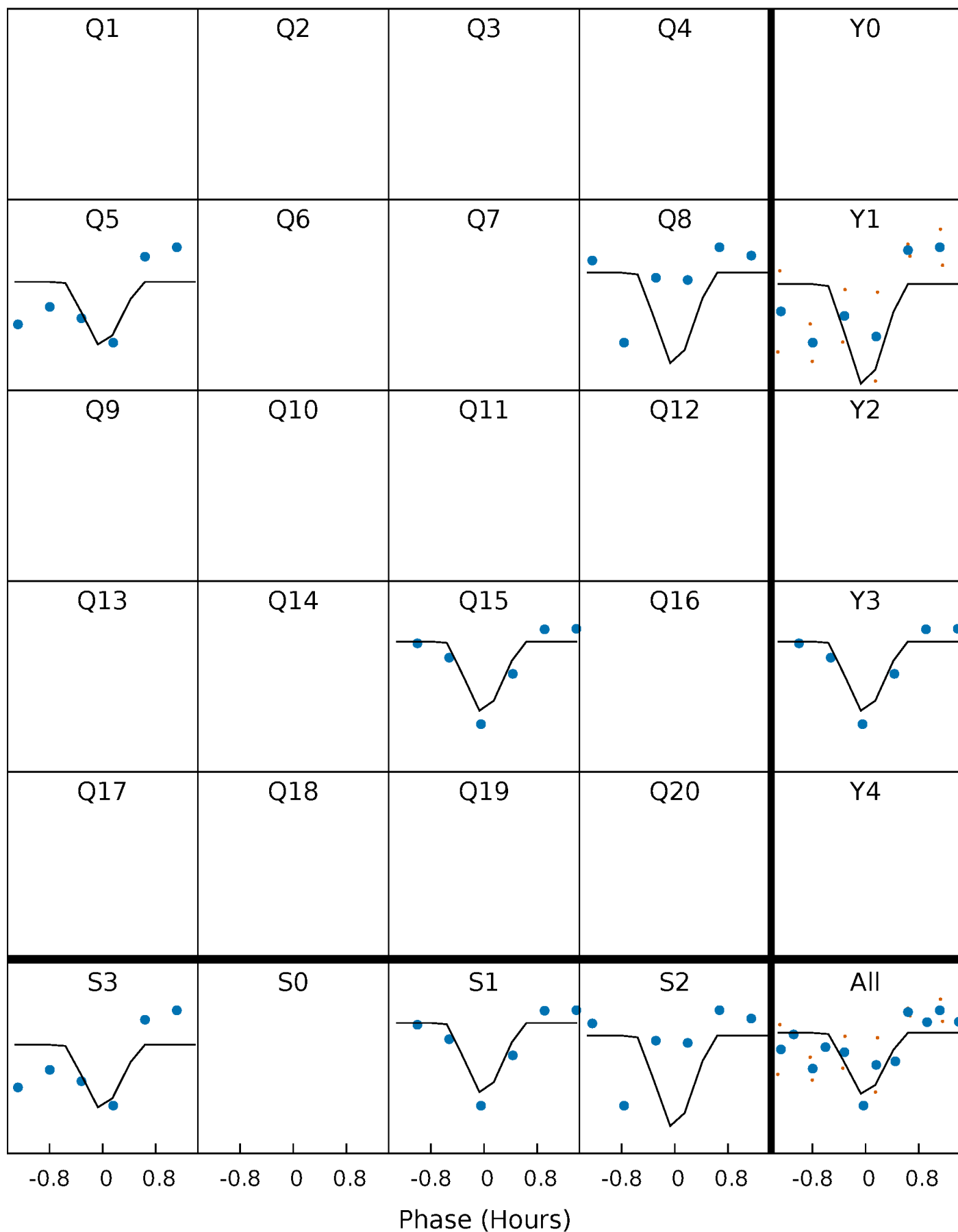
PDC Quarter-Phased Transit Curves

TCE 012164634-05 $P=292.381209$ Days $T_0=204.109169$ (BKJD)



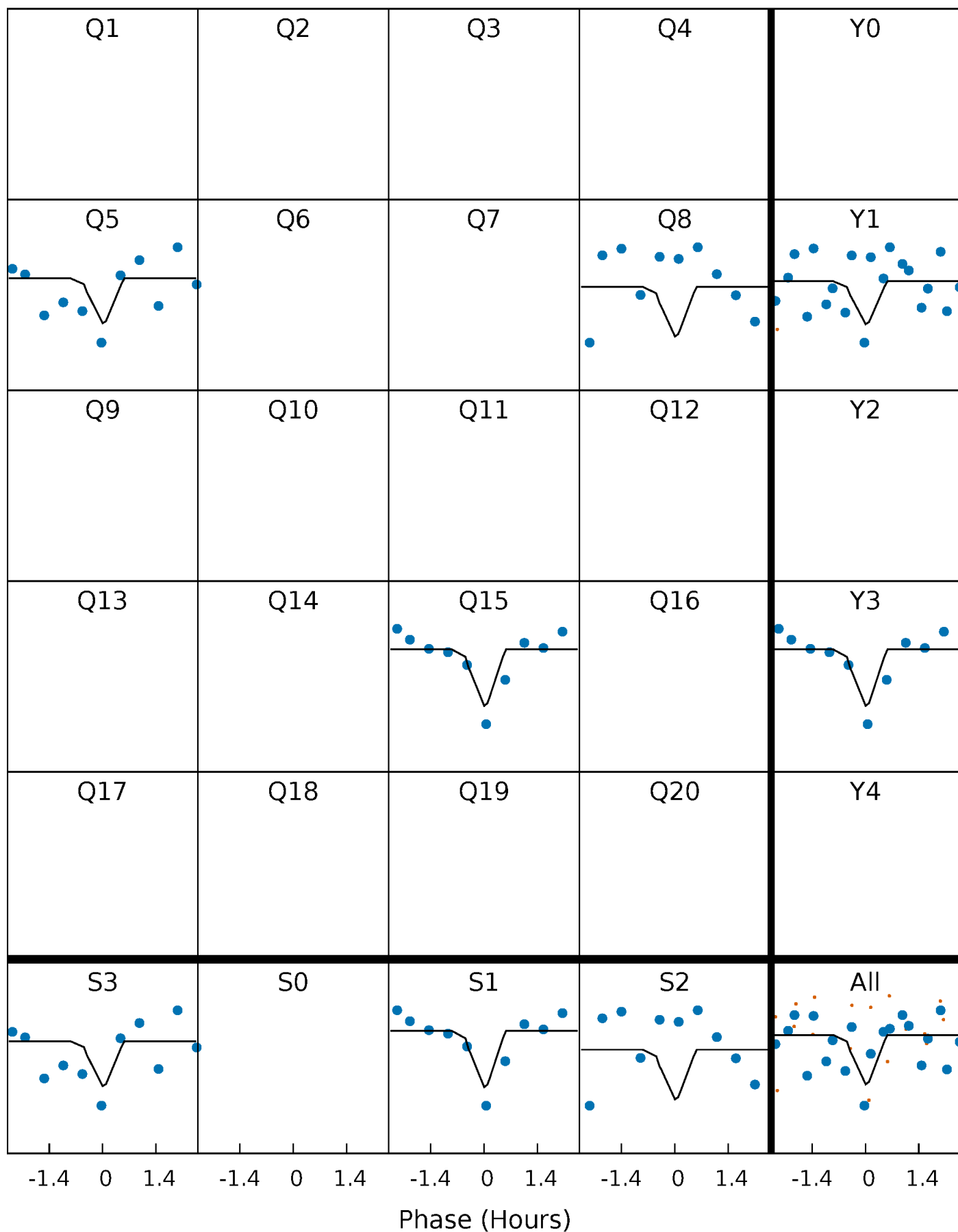
DV Quarter-Phased Transit Curves

TCE 012164634-05 $P=292.381209$ Days $T_0=204.109169$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

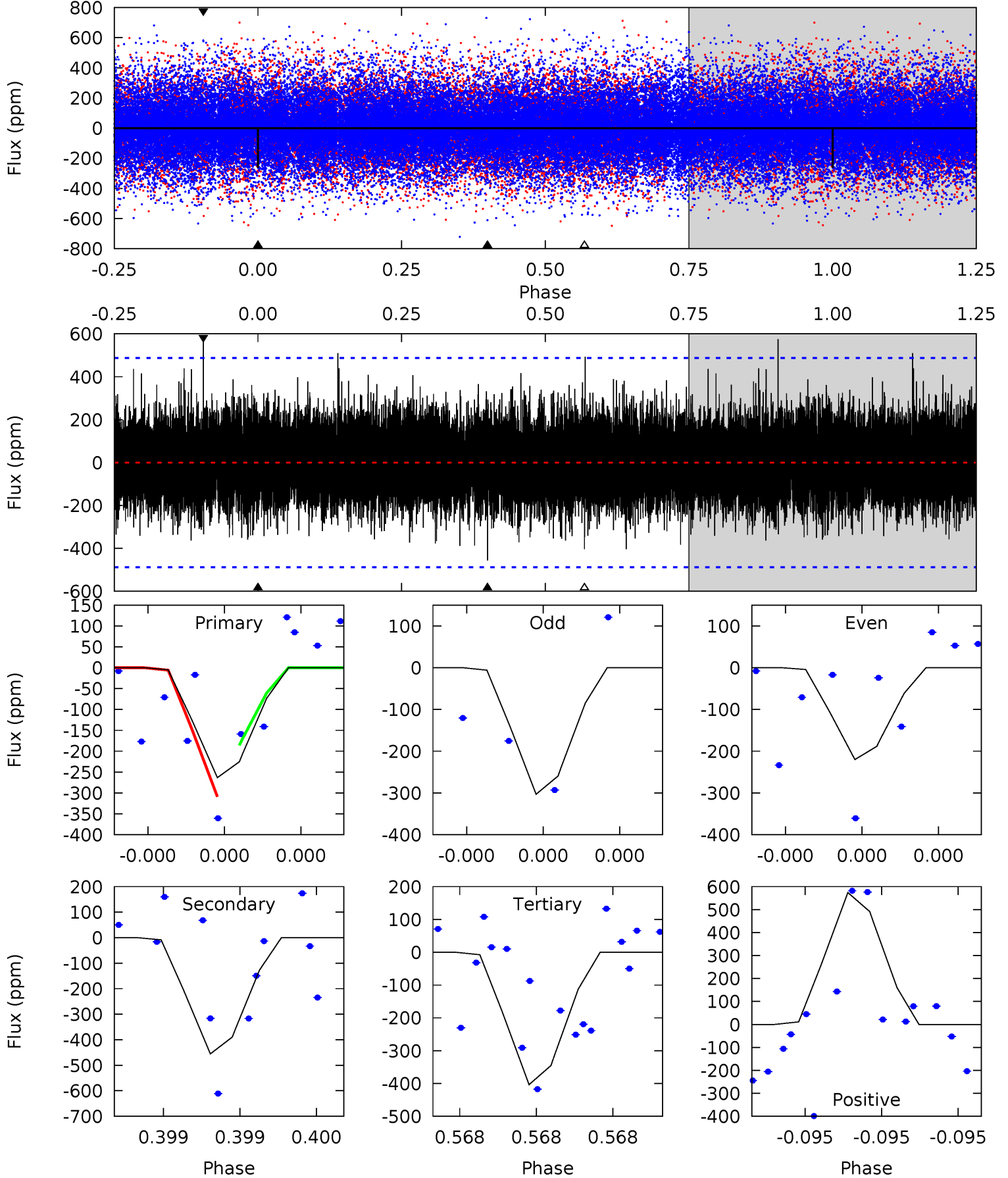
TCE 012164634-05 $P=292.376999$ Days $T_0=204.119451$ (BKJD)



DV Model-Shift Uniqueness Test

012164634-05, P = 292.381209 Days, E = 204.109169 Days

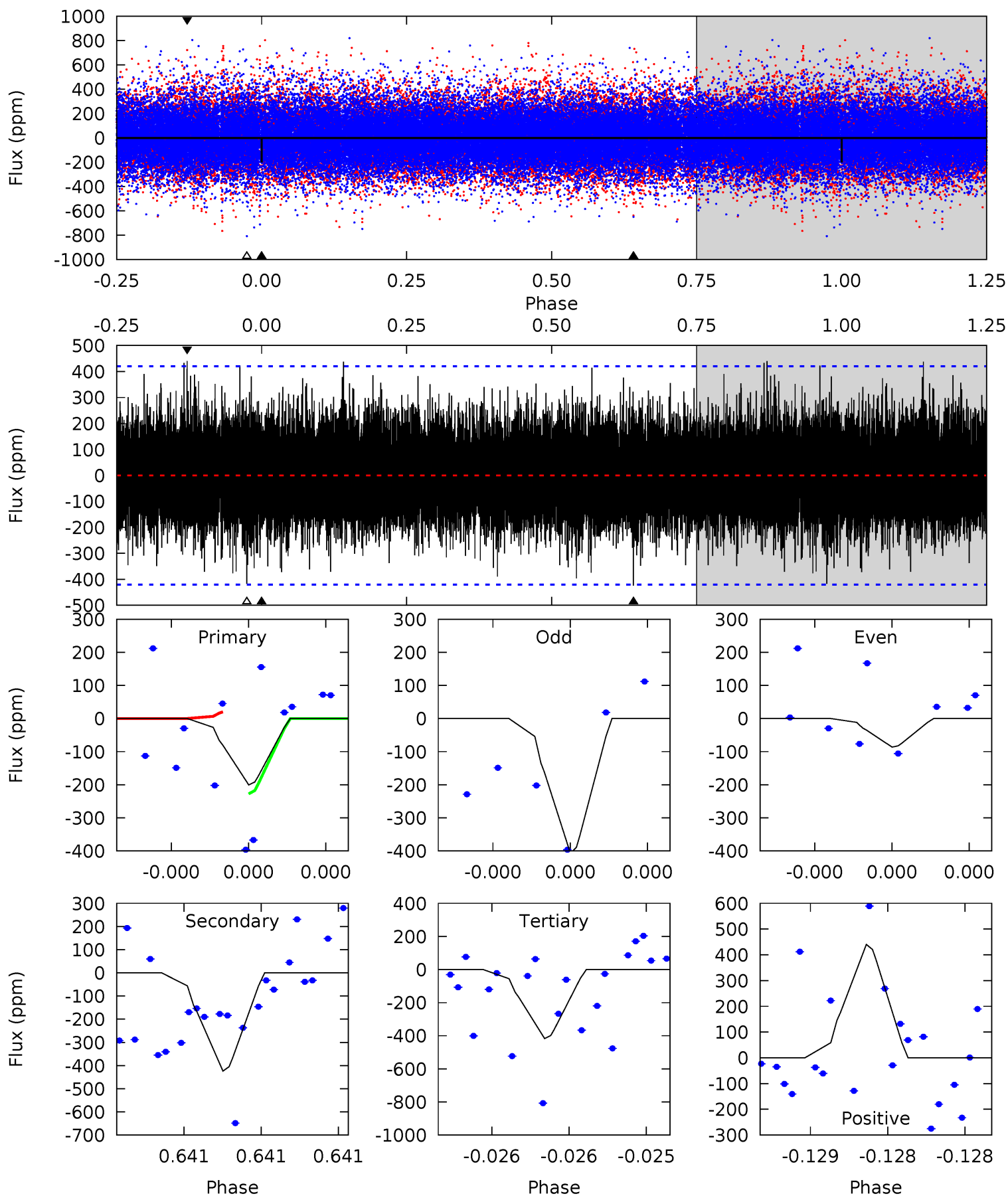
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.15	5.45	4.83	6.87	5.83	3.87	1.23	-1.68	-3.72	0.62	-1.42	0.43	0.71	0.56	0.74



Alt Model-Shift Uniqueness Test

012164634-05, P = 292.376999 Days, E = 204.119451 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.76	5.82	5.73	6.05	5.78	3.79	1.38	-2.97	-3.29	0.09	-0.22	2.07	0.50	0.51	1.34



Stellar Parameters For KIC 012164634

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6860^{+189}_{-283}	$4.233^{+0.108}_{-0.201}$	$-0.100^{+0.250}_{-0.350}$	$1.467^{+0.495}_{-0.266}$	$1.350^{+0.204}_{-0.224}$	$0.602^{+0.351}_{-0.313}$
	+3%/-4%	+3%/-5%	+250%/-350%	+34%/-18%	+15%/-17%	+58%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012164634-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-455 ± 84	$19.46^{+20.20}_{-14.33}$	529^{+40}_{-33}	3424^{+2282}_{-649}	587^{+8339}_{-449}
Alt.	-424 ± 73	$19.02^{+20.39}_{-13.54}$	529^{+45}_{-32}	3385^{+1976}_{-637}	572^{+6455}_{-441}

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 $A_{obs} \gg 1.0$

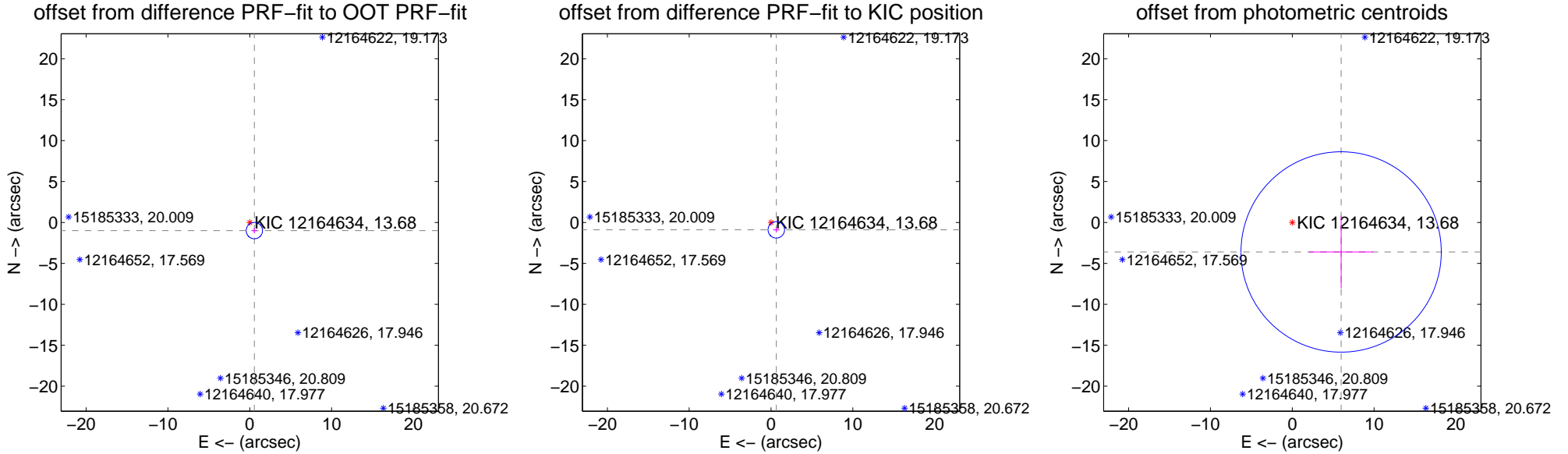
DV Centroid Data

Supplemental centroid analysis for 012164634-05. Kepler magnitude: 13.68. Transit SNR 2.41

There are 1 quarters with good PRF difference image offsets

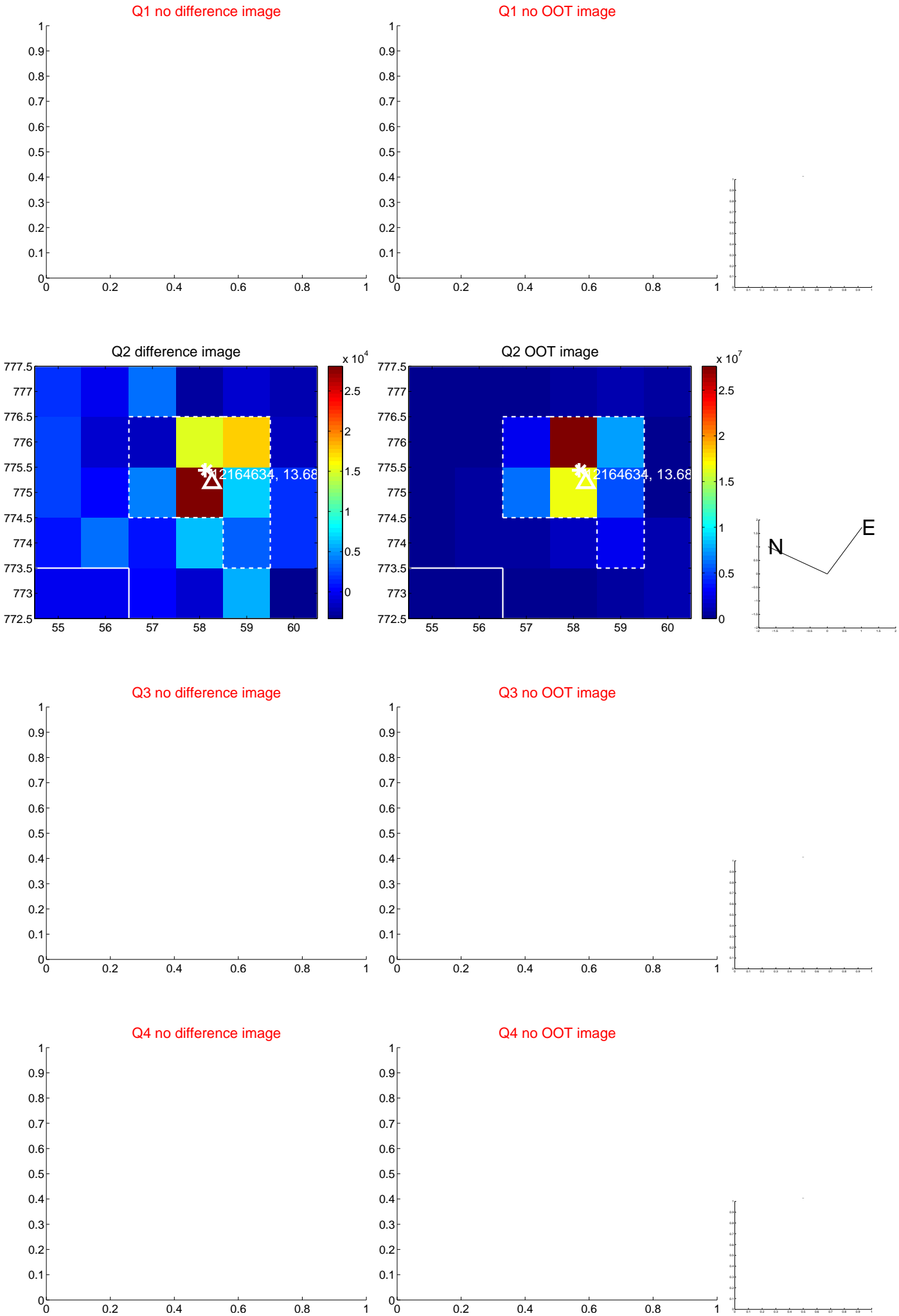
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.145 ± 0.332	3.45	-0.564 ± 0.356	-0.997 ± 0.325
PRF-fit source offset from KIC position	1.107 ± 0.335	3.30	-0.645 ± 0.356	-0.899 ± 0.325
photometric centroid source offset	6.98 ± 4.08	1.71	-5.97 ± 3.94	-3.61 ± 4.45

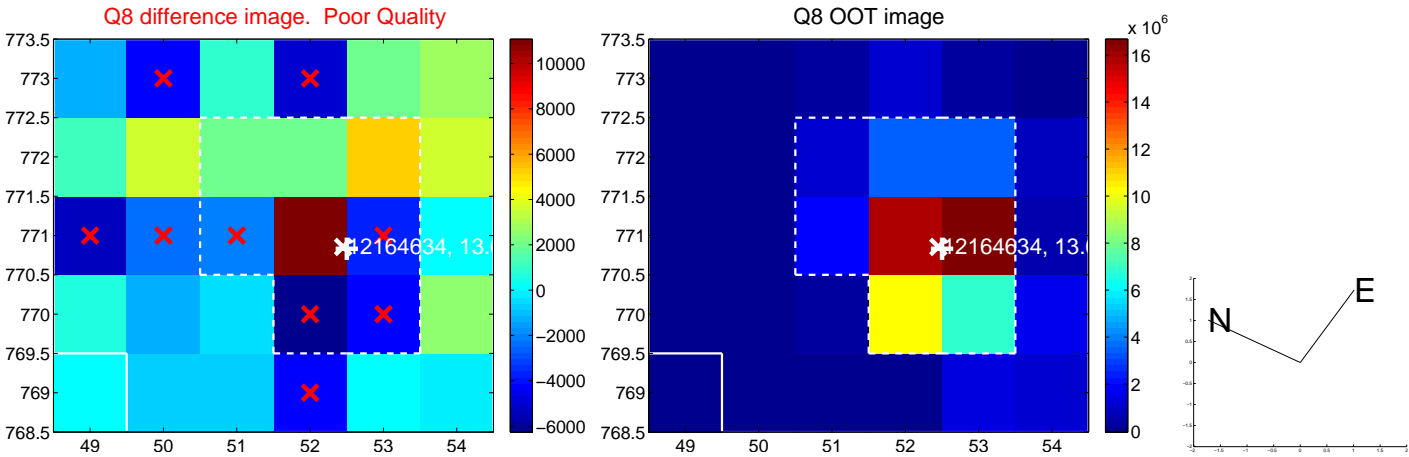
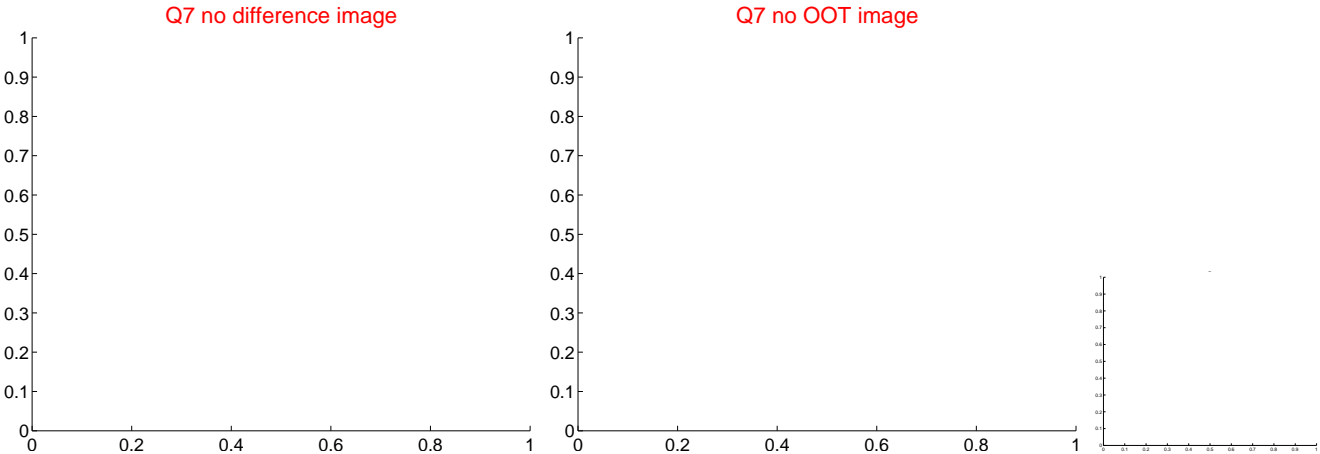
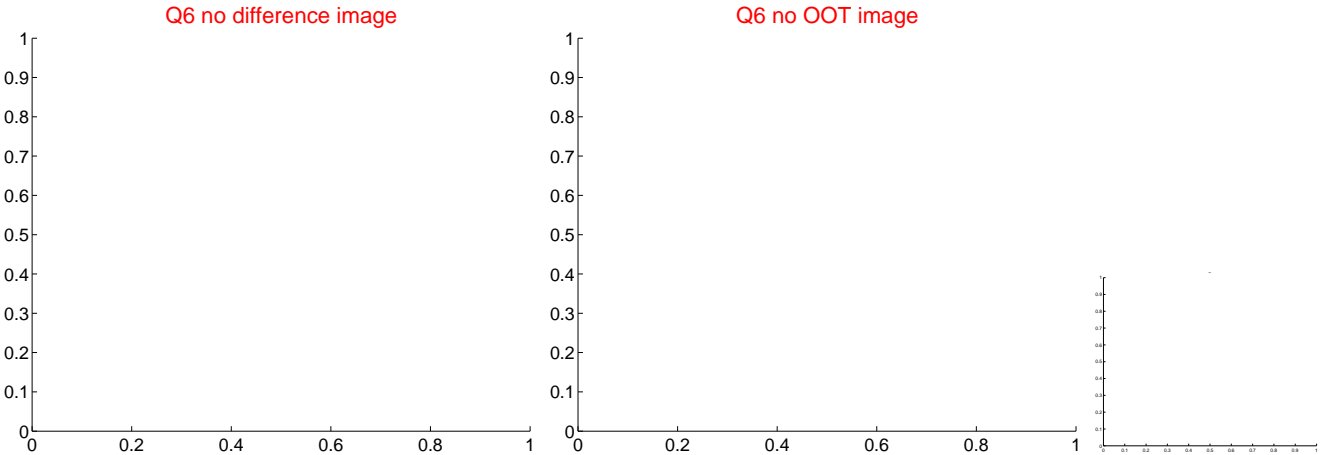
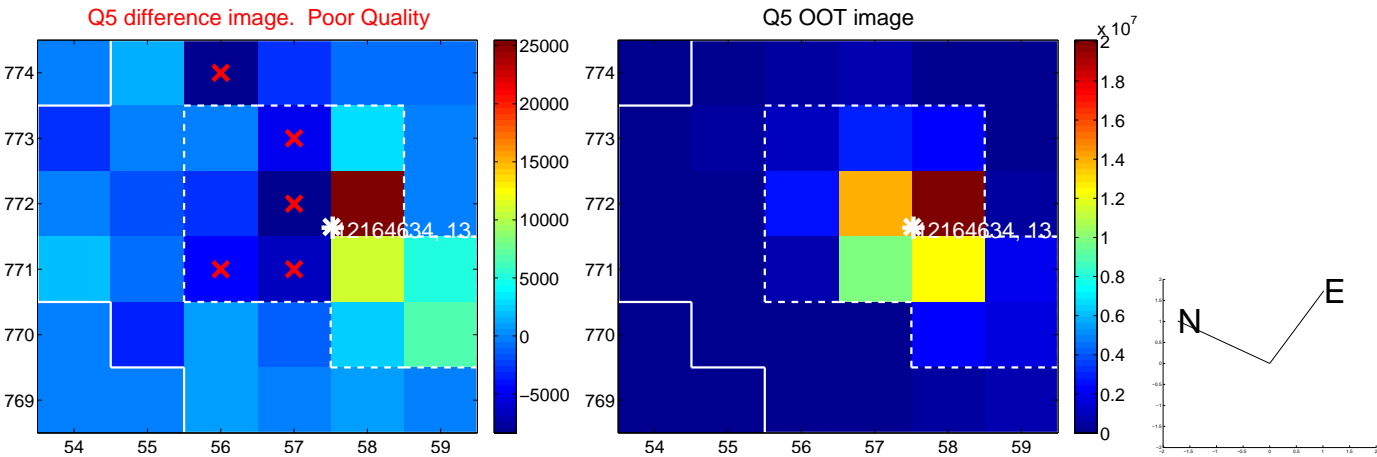


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



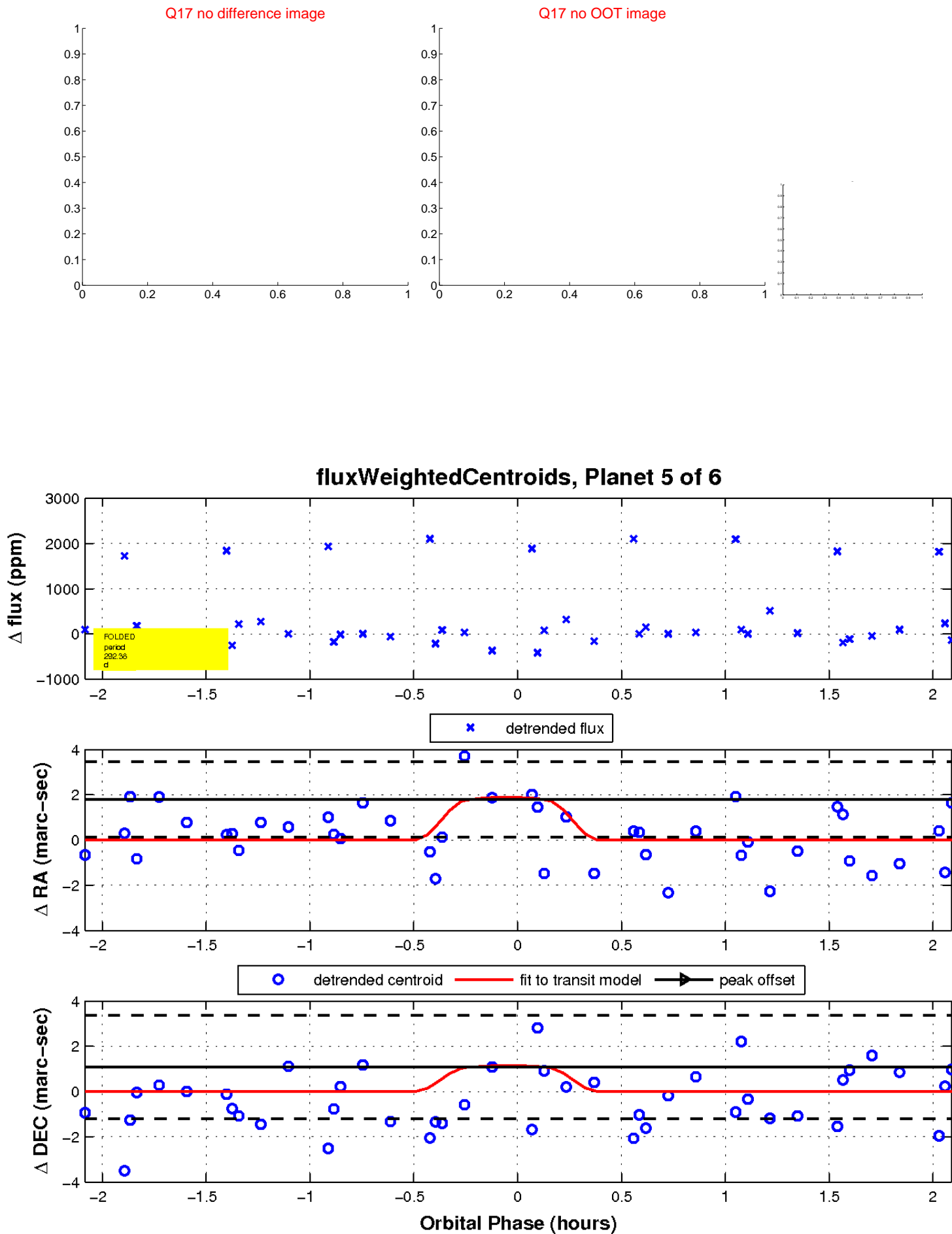
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

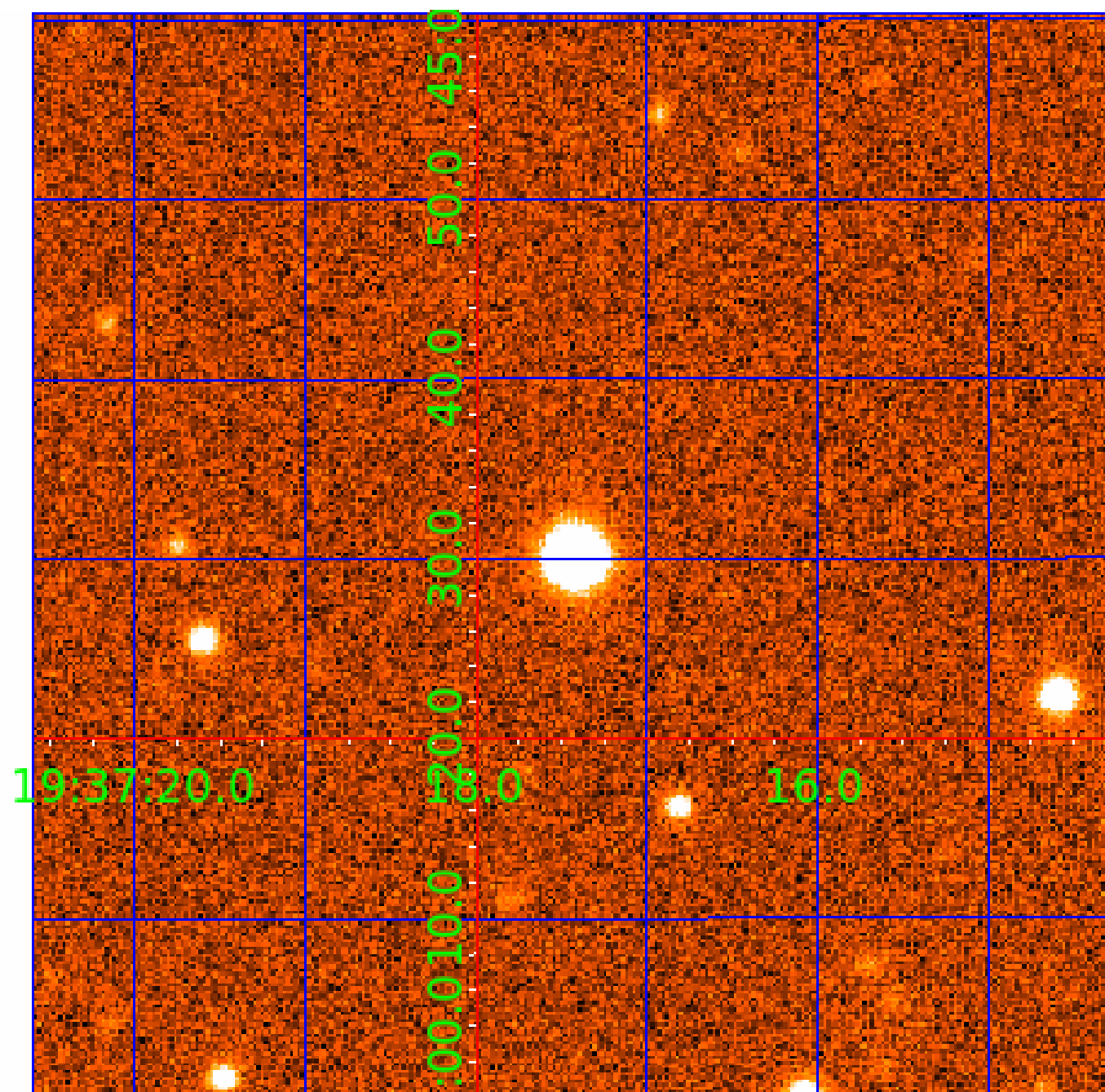


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012164634

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})
012164634-01	OBS	3491.01	89.331211	142.316777	59114.4	11.335	2966.3	2835.7	1.47	6860	37.11	22.93
012164634-02	OBS	No	89.331155	204.187202	2169.0	11.912	118.2	116.2	1.47	6860	7.98	22.93
012164634-03	OBS	No	290.754132	209.308482	629.4	15.741	15.6	13.0	1.47	6860	3.93	4.75
012164634-04	OBS	No	292.377639	202.635709	255.3	2.048	23.7	3.8	1.47	6860	2.66	4.72
012164634-05	OBS	No	292.381209	204.109169	301.4	0.718	23.4	2.4	1.47	6860	3.04	4.72
012164634-06	OBS	No	292.285073	203.537112	311.2	7.916	23.6	5.8	1.47	6860	2.68	4.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012164634-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
012164634-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
012164634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012164634-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
012164634-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

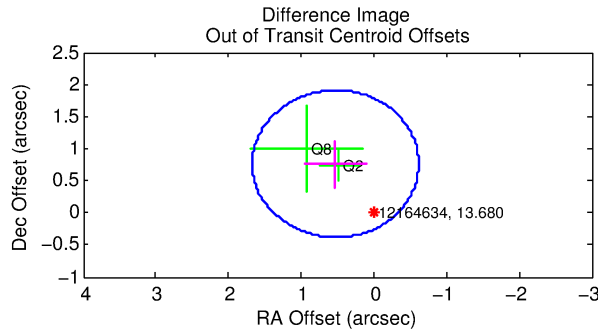
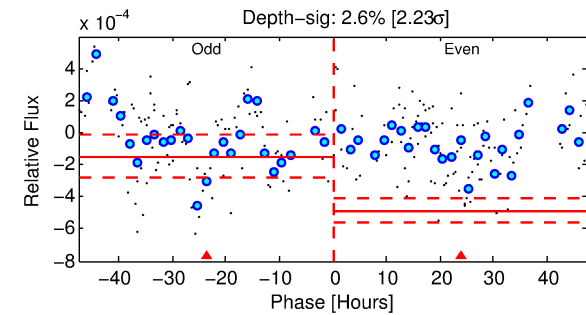
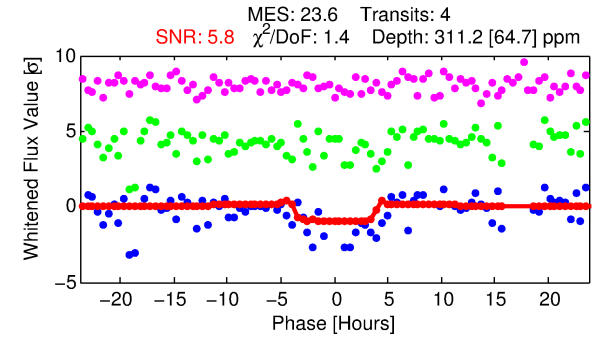
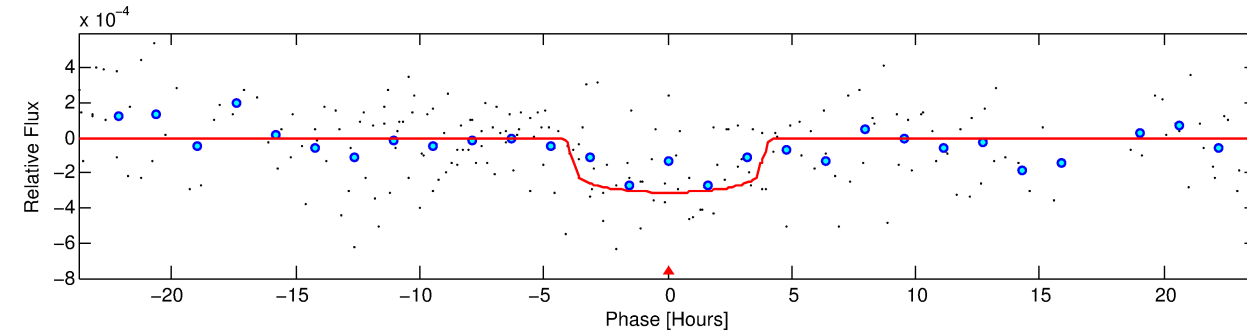
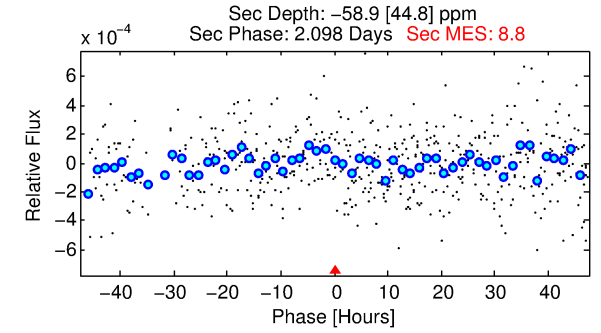
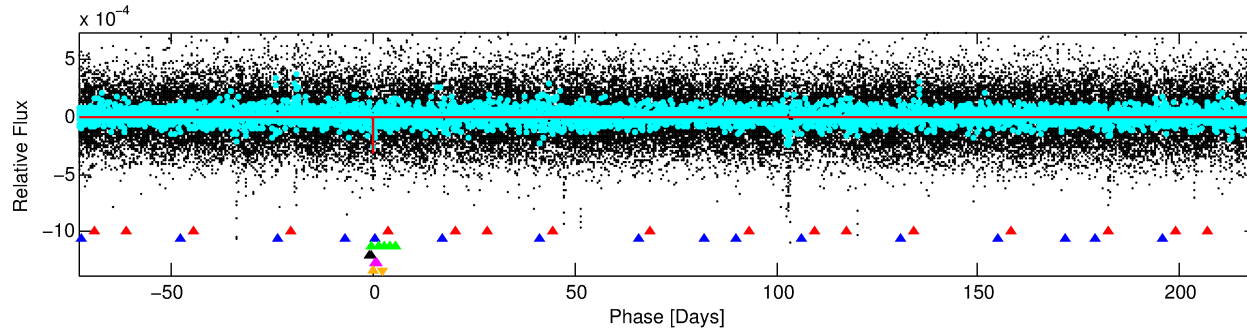
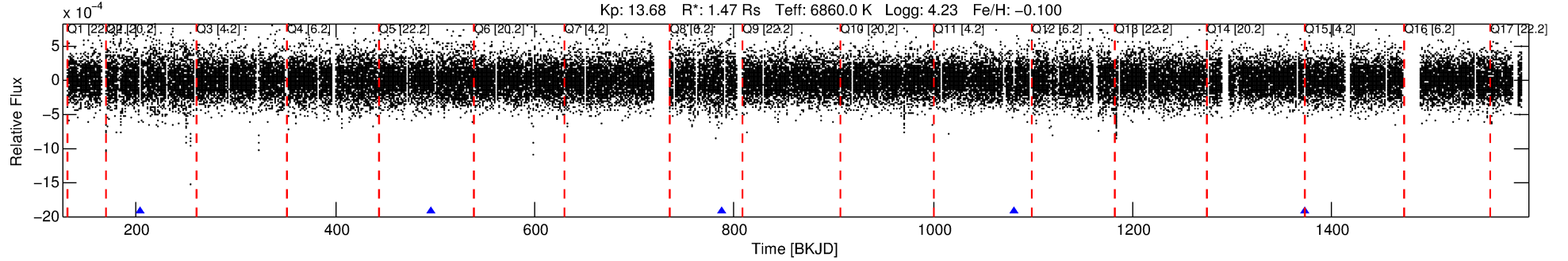
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012164634-06

No Significant Match Found

DV One-Page Summary

KIC: 12164634 Candidate: 6 of 6 Period: 292.285 d
KOI: K03491 Corr: No Ephemeris Match



DV Fit Results:

Period = 292.28507 [0.00804] d
Epoch = 203.5371 [0.0166] BKJD
Rp/R* = 0.0167 [0.0255]
a/R* = 250.40 [2168.77]
b = 0.50 [13.25]
Seff = 4.72 [1.96]
Teq = 376 [39] K
Rp = 2.68 [4.19] Re
a = 0.9510 [0.2594] AU
Ag = N/A
Teffp = N/A

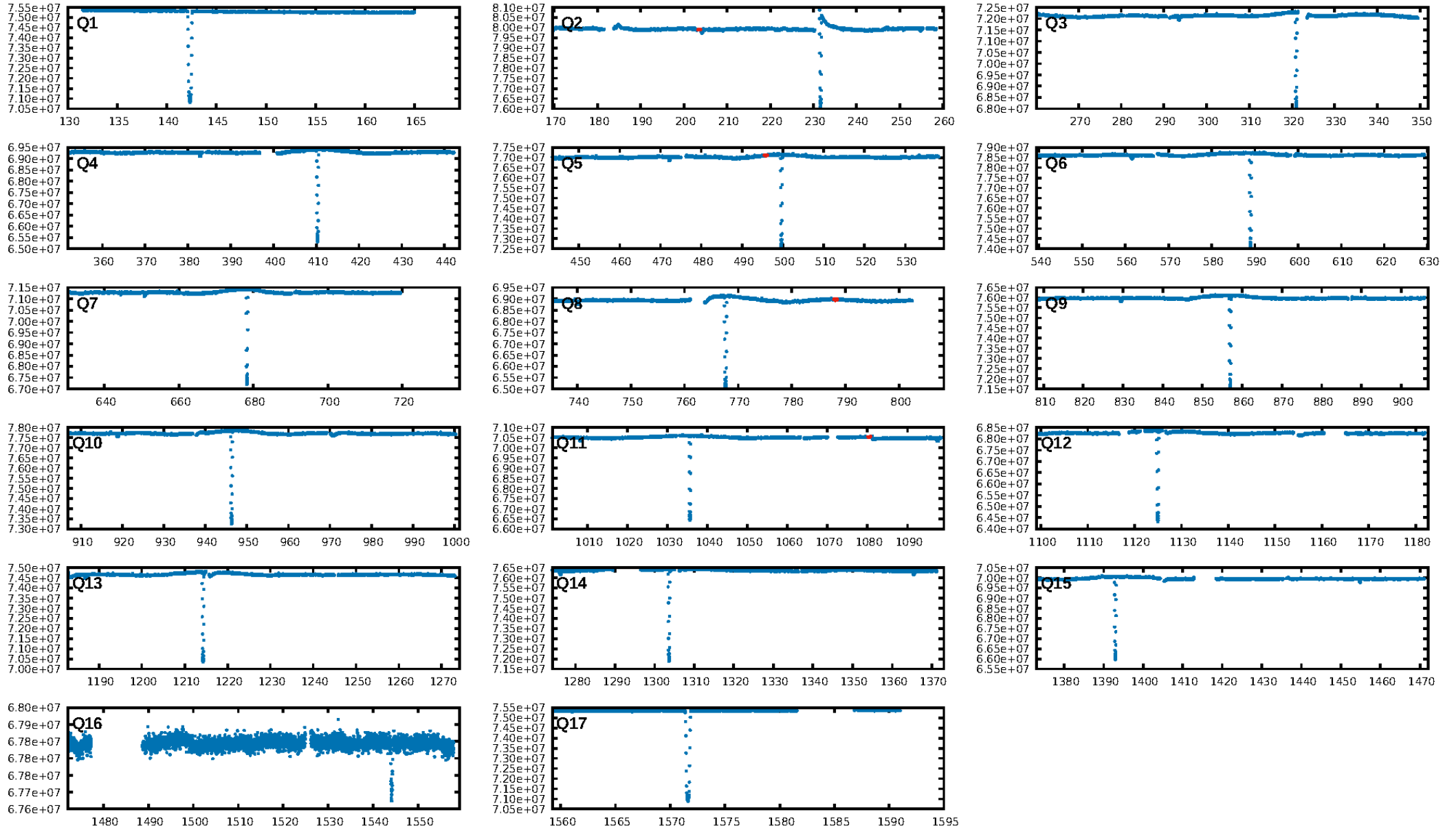
DV Diagnostic Results:

ShortPeriod-sig: 96.3% [2.09σ]
LongPeriod-sig: 21.4% [0.27σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 54.3%
Bootstrap-pfa: 5.27e-62
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.892
Centroid-sig: 37.1%
Centroid-so: 1.511 arcsec [1.10σ]
OotOffset-rm: 0.928 arcsec [2.43σ]
KicOffset-rm: 0.945 arcsec [2.51σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.50 [2/4]

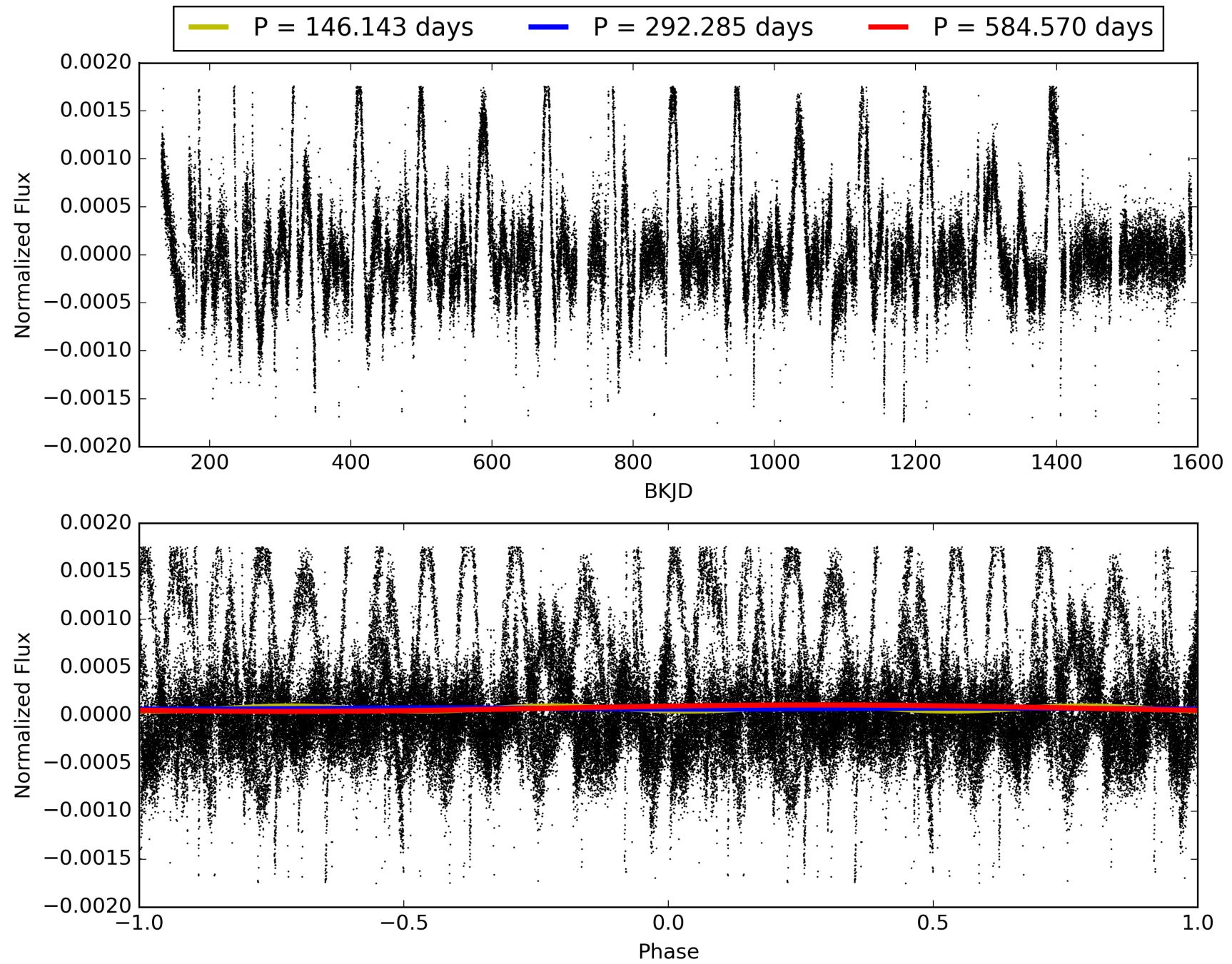
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:08:23 Z

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

TCE 012164634-06, PDC Light Curves

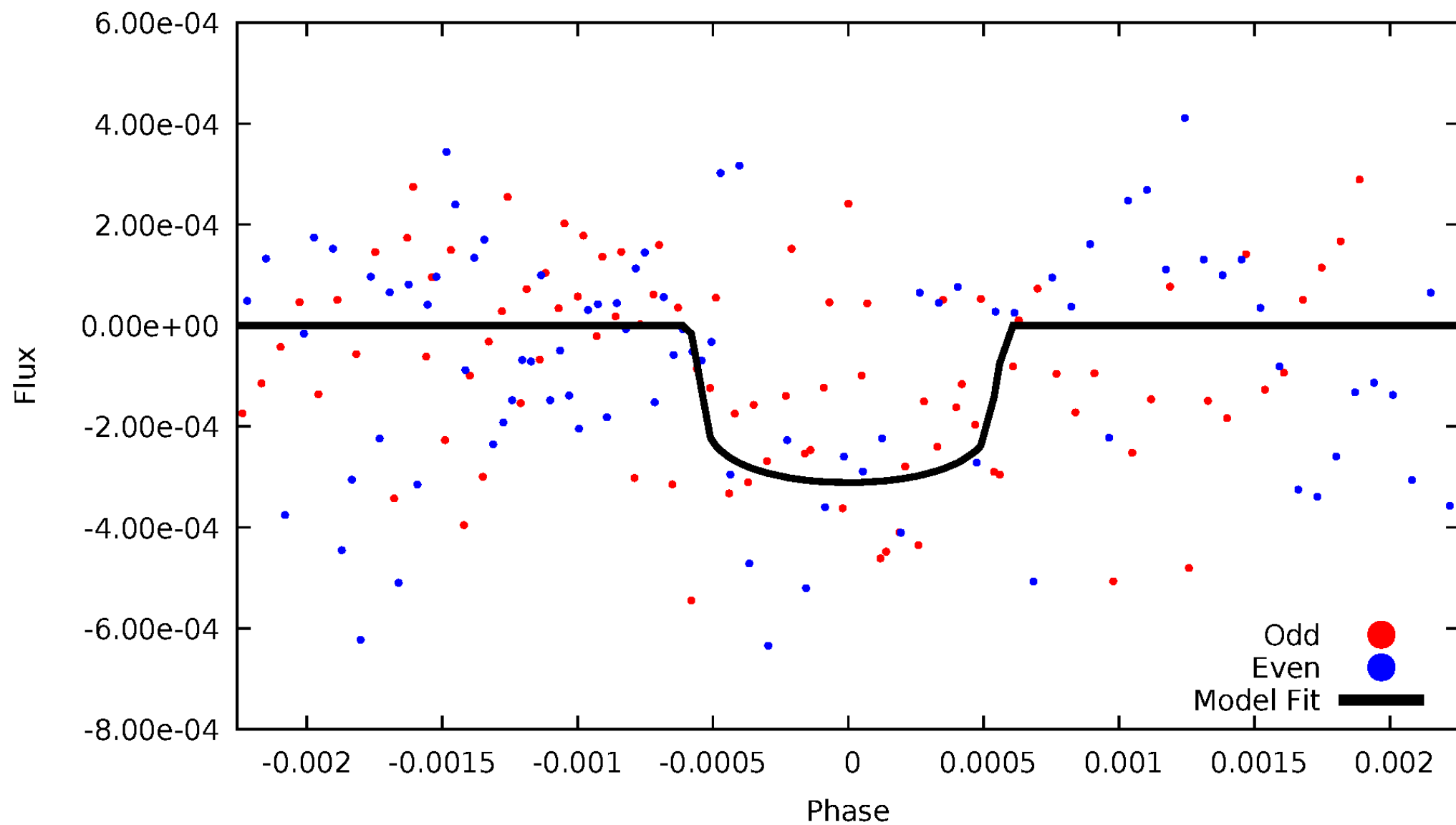


TCE 012164634-06



DV Odd/Even

TCE 012164634-06

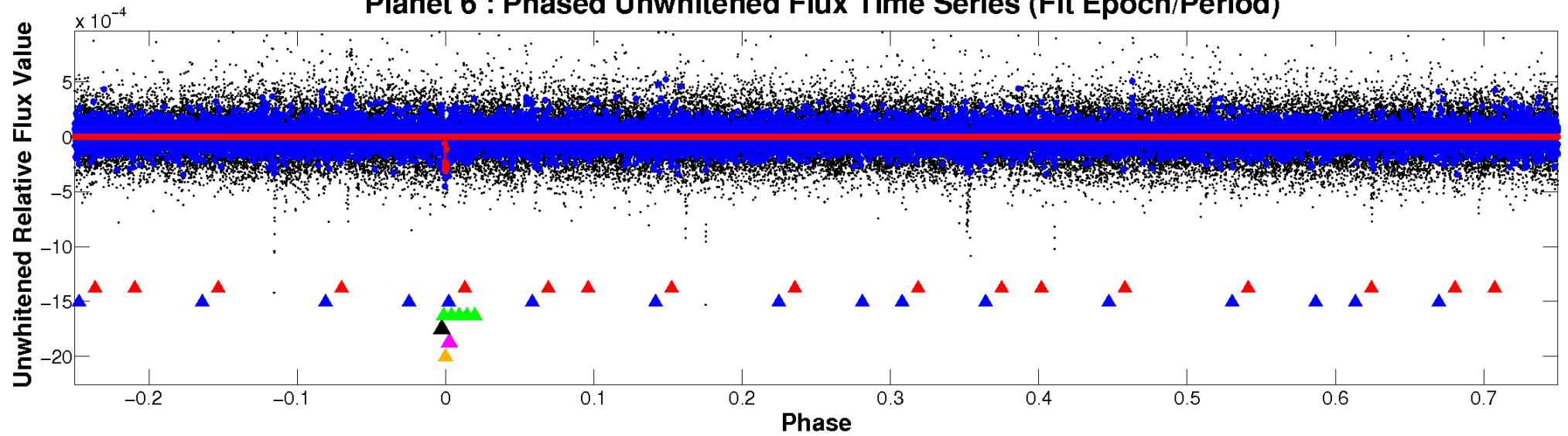


ALT Odd/Even

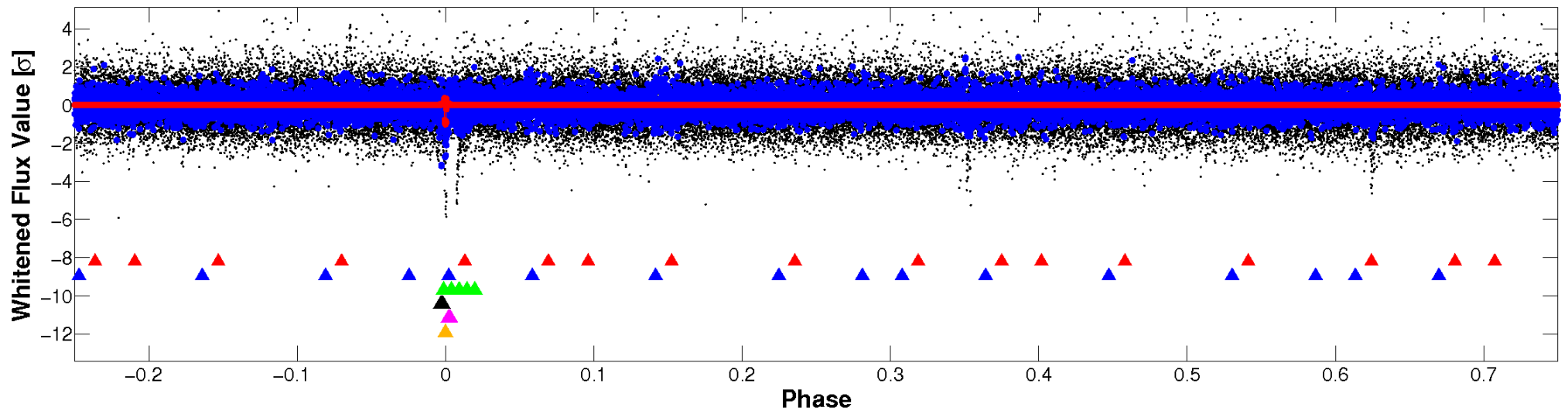
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

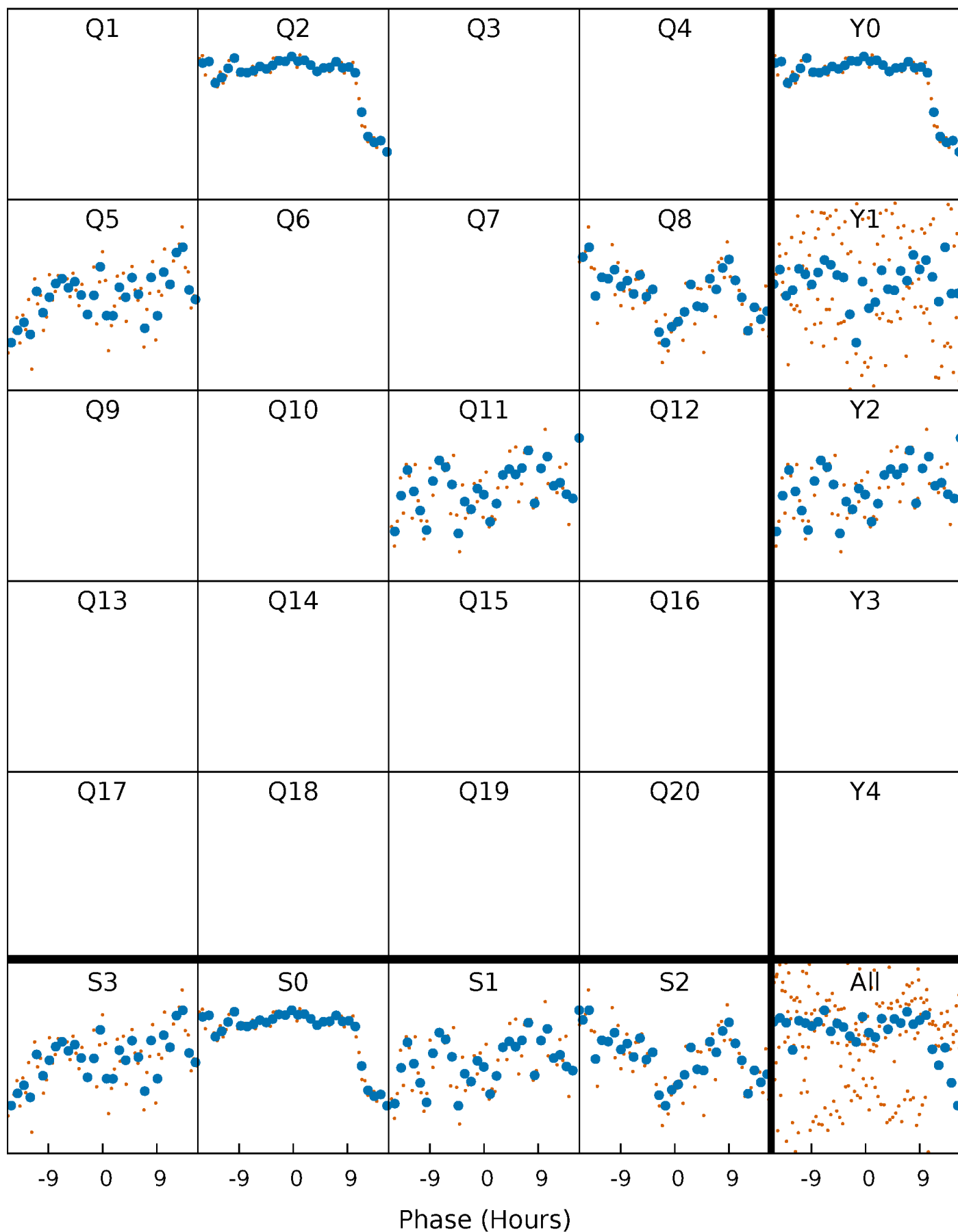


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



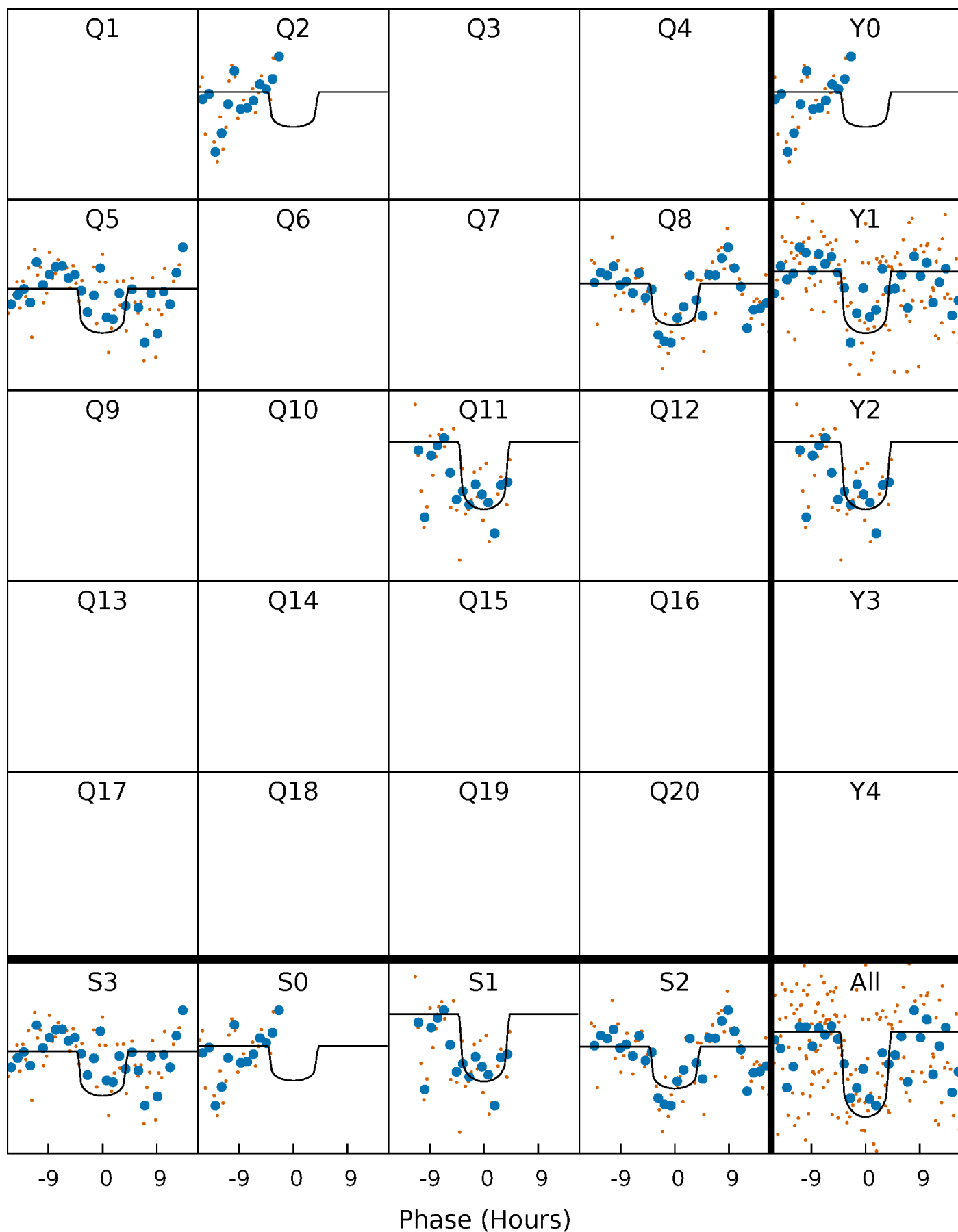
PDC Quarter-Phased Transit Curves

TCE 012164634-06 P=292.285074 Days $T_0=203.537112$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 012164634-06 $P=292.285074$ Days $T_0=203.537112$ (BKJD)

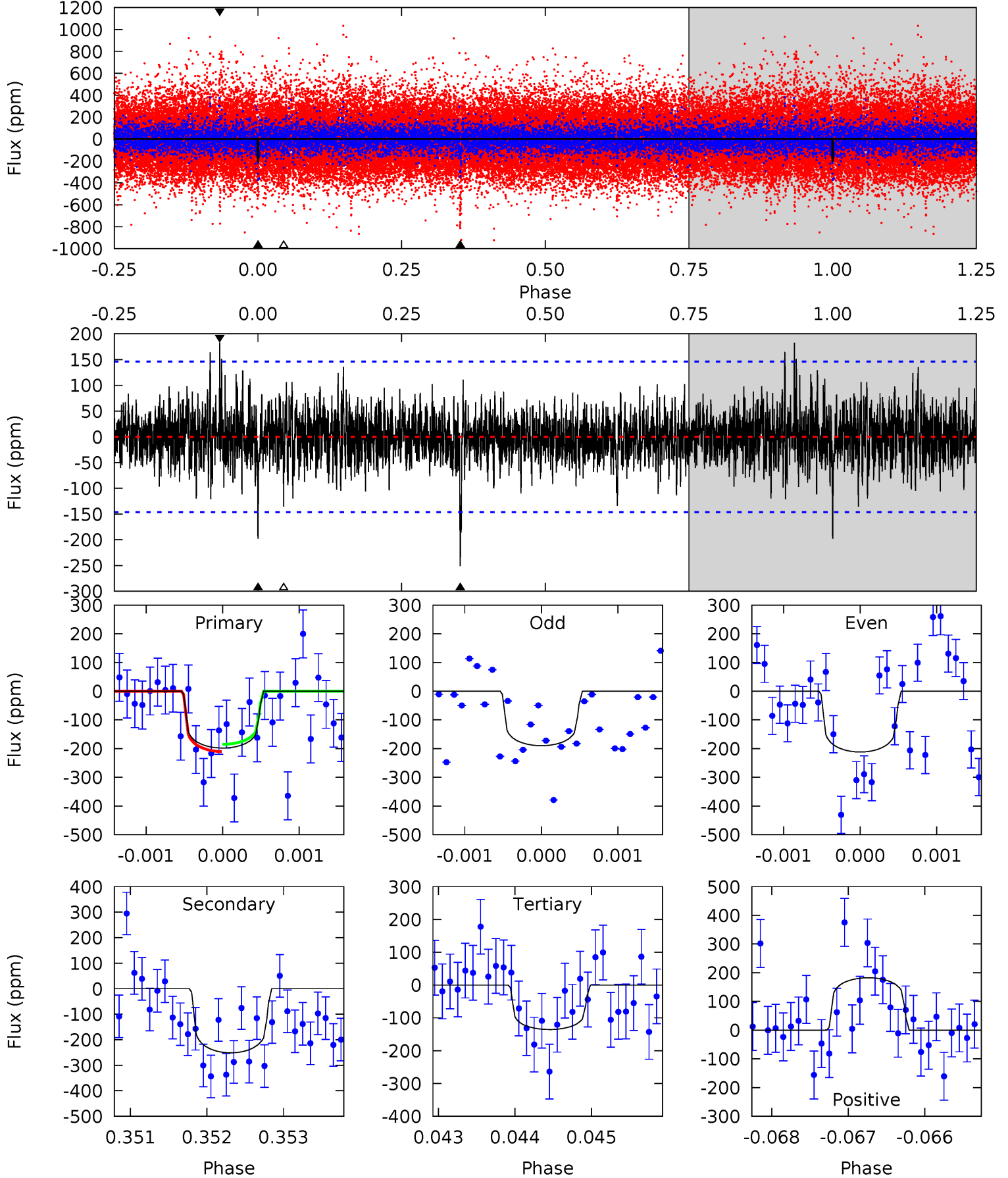


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

012164634-06, P = 292.285074 Days, E = 203.537112 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.35	9.32	5.03	6.77	5.43	3.25	1.36	2.32	0.58	4.29	2.55	0.39	0.47	0.42	0.47



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 012164634

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6860^{+189}_{-283}	$4.233^{+0.108}_{-0.201}$	$-0.100^{+0.250}_{-0.350}$	$1.467^{+0.495}_{-0.266}$	$1.350^{+0.204}_{-0.224}$	$0.602^{+0.351}_{-0.313}$
	+3%/-4%	+3%/-5%	+250%/-350%	+34%/-18%	+15%/-17%	+58%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012164634-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-251 ± 27	$4.21^{+3.84}_{-2.75}$	528^{+40}_{-33}	5341^{+4265}_{-1198}	6791^{+50433}_{-4897}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

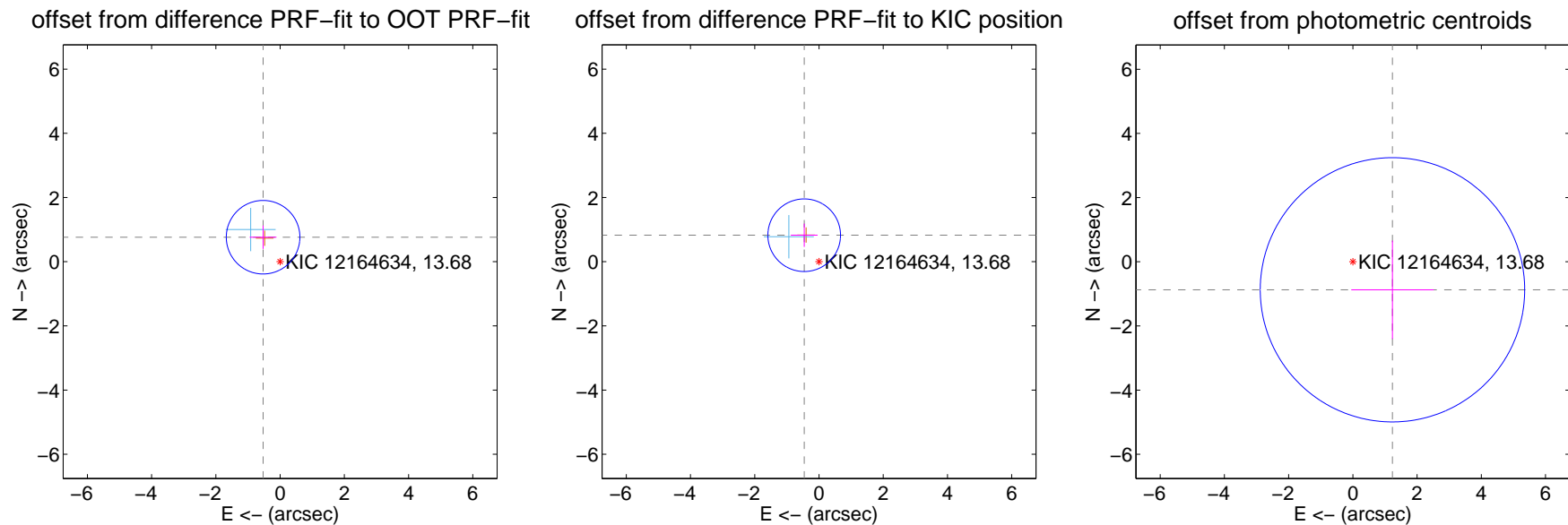
DV Centroid Data

Supplemental centroid analysis for 012164634-06. Kepler magnitude: 13.68. Transit SNR 5.76

There are 1 quarters with good PRF difference image offsets

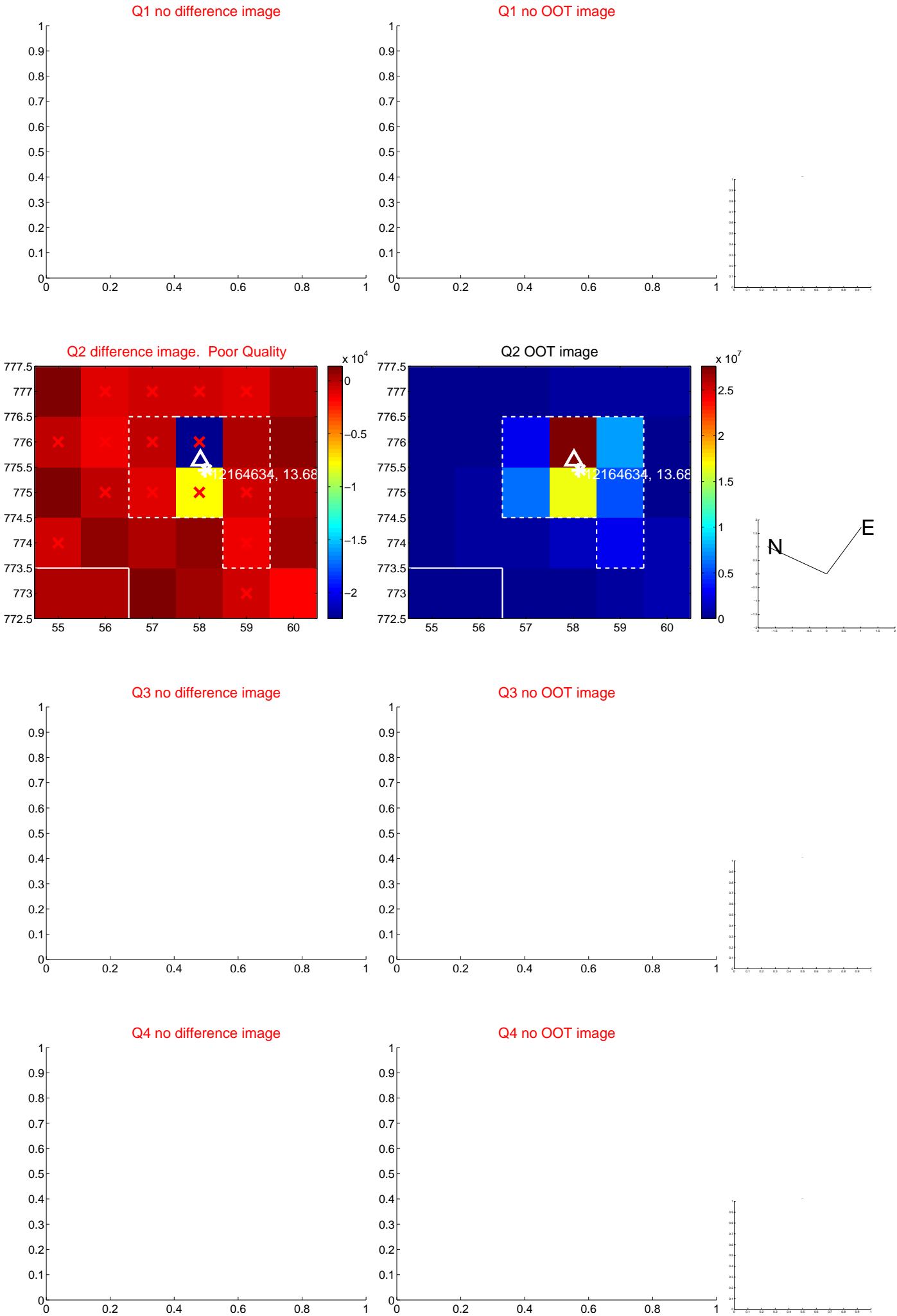
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.928 ± 0.382	2.43	0.530 ± 0.418	0.763 ± 0.363
PRF-fit source offset from KIC position	0.945 ± 0.377	2.51	0.460 ± 0.418	0.825 ± 0.363
photometric centroid source offset	1.51 ± 1.37	1.10	-1.23 ± 1.28	-0.87 ± 1.53

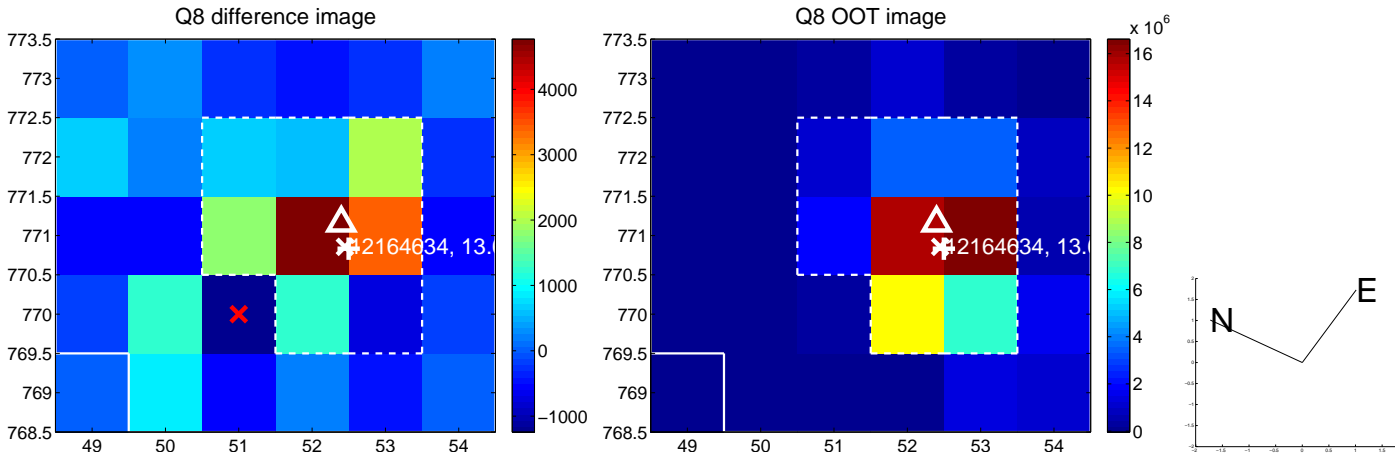
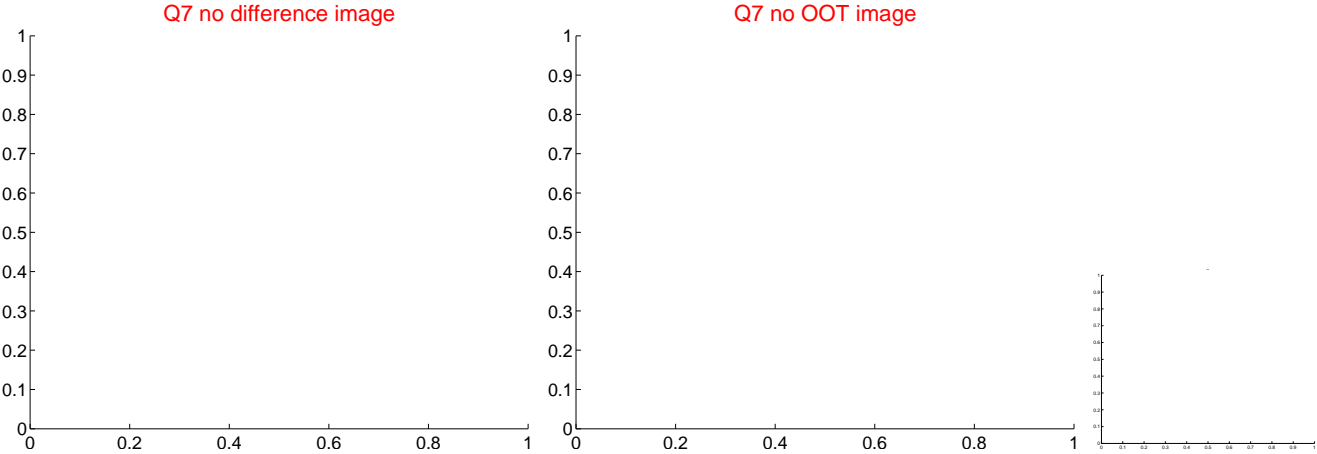
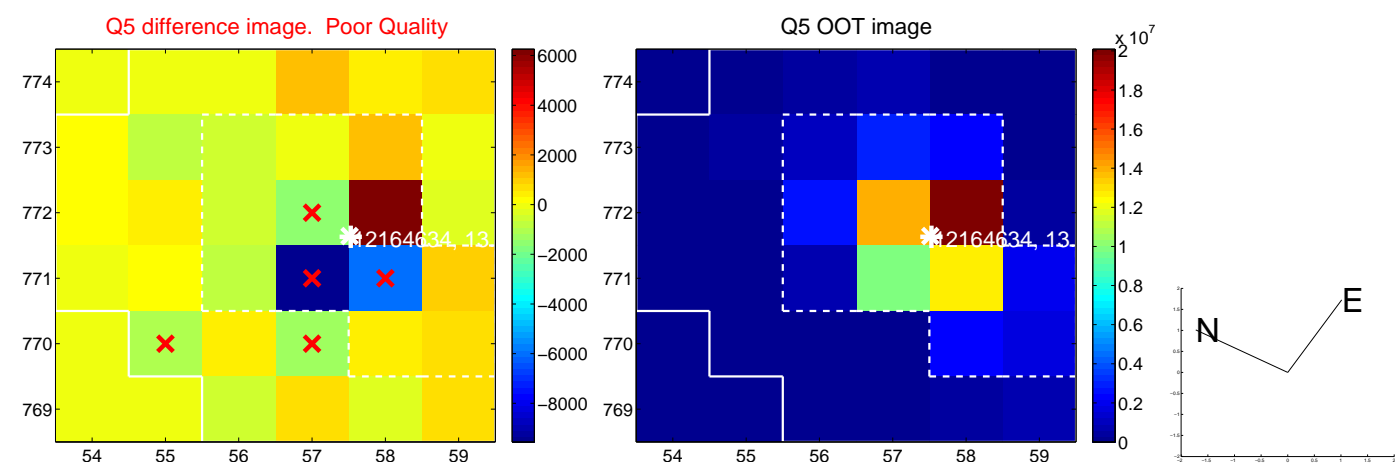


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



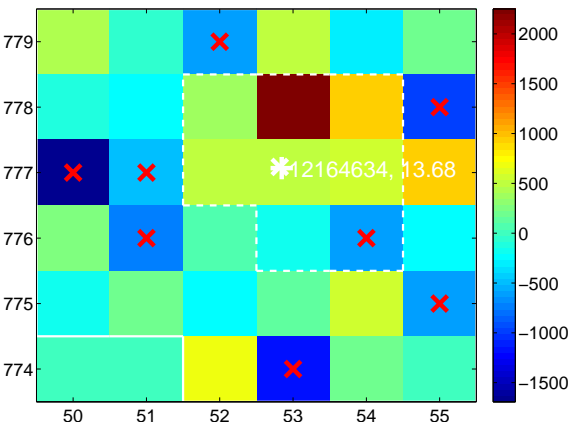
Q10 no difference image



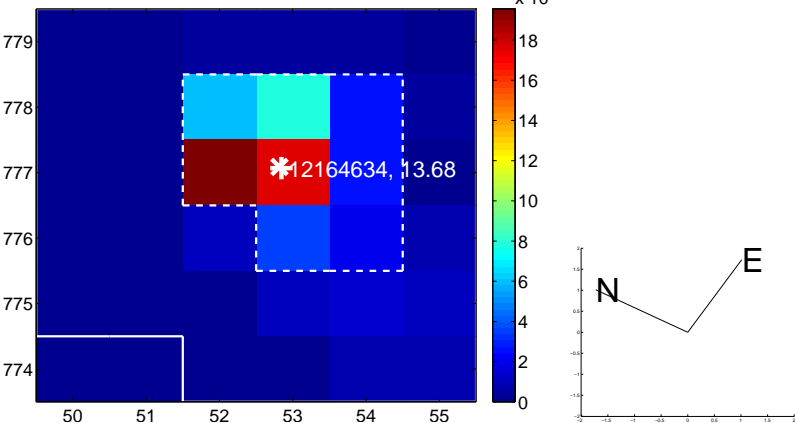
Q10 no OOT image



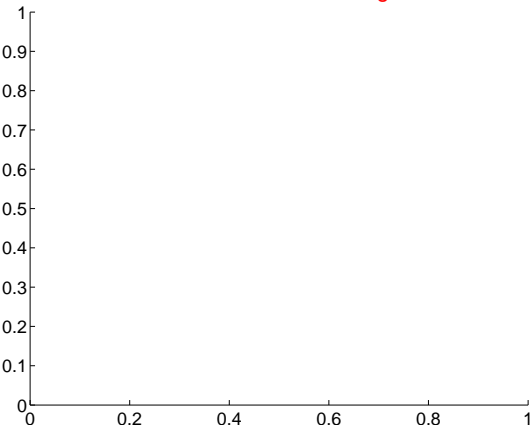
Q11 difference image. Poor Quality



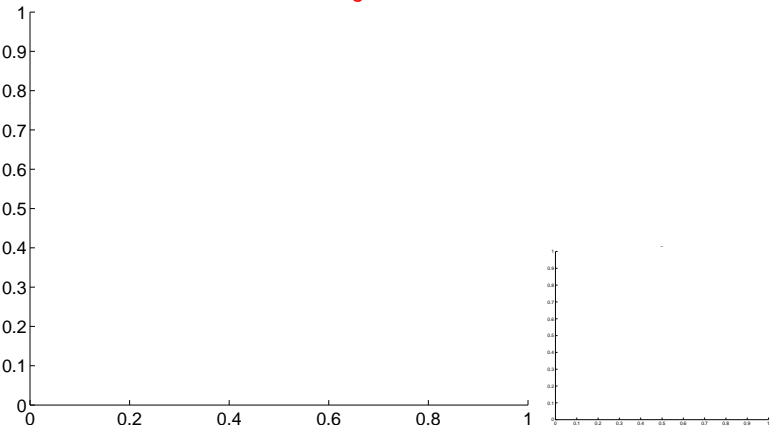
Q11 OOT image



Q12 no difference image



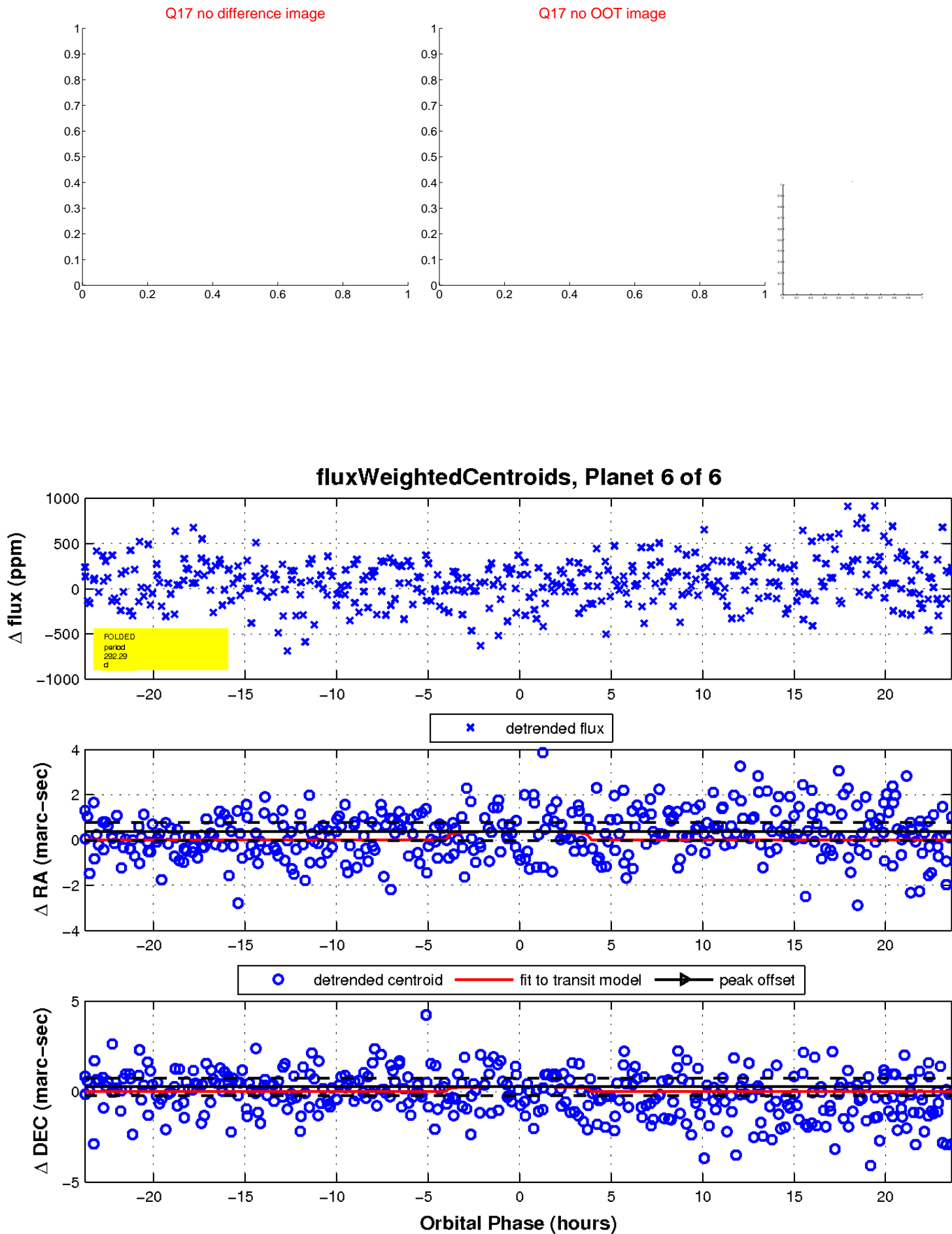
Q12 no OOT image



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

Declination

