

KIC 009818732

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})
009818732-01	OBS	7233.01	45.035186	132.638245	415828.1	6.000	14502.9	-1.0	1.15	6484	62.91	30.72
009818732-02	OBS	No	45.035876	146.025633	341823.0	7.500	12763.8	-1.0	1.15	6484	59.56	30.72
009818732-03	OBS	No	448.952558	178.160811	18653.0	3.500	189.6	-1.0	1.15	6484	15.85	1.43
009818732-04	OBS	No	45.036426	148.109856	5314.4	15.000	187.1	-1.0	1.15	6484	8.45	30.72
009818732-05	OBS	No	308.580812	241.804540	11597.9	4.500	175.0	-1.0	1.15	6484	12.49	2.36
009818732-07	OBS	No	45.031979	175.613990	2642.4	30.842	151.1	92.8	1.15	6484	10.87	30.72
009818732-08	OBS	No	45.039596	134.541541	2656.9	30.113	176.6	79.7	1.15	6484	10.91	30.72
009818732-09	OBS	No	45.036426	143.900542	3446.2	15.000	128.1	-1.0	1.15	6484	6.80	30.72
009818732-10	OBS	No	407.554165	365.604668	5181.3	15.000	127.3	-1.0	1.15	6484	8.34	1.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009818732-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
009818732-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS
009818732-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
009818732-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009818732-07	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
009818732-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009818732-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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 009818732-01

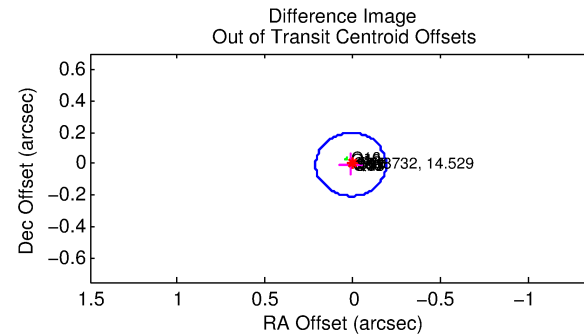
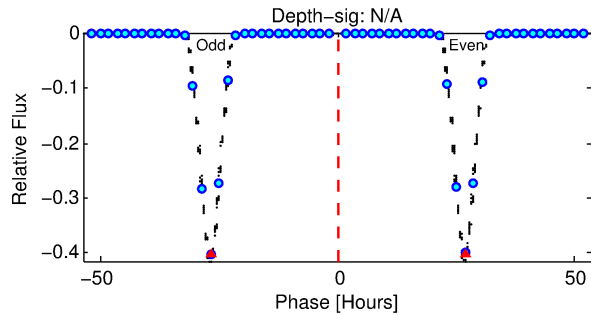
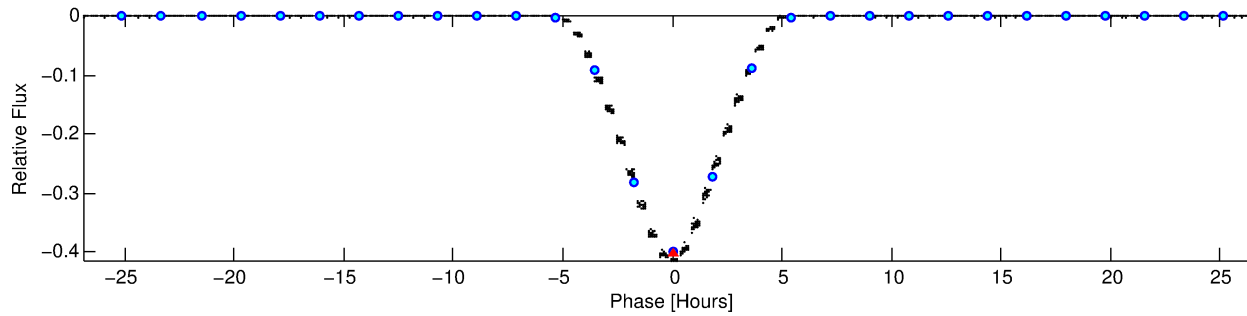
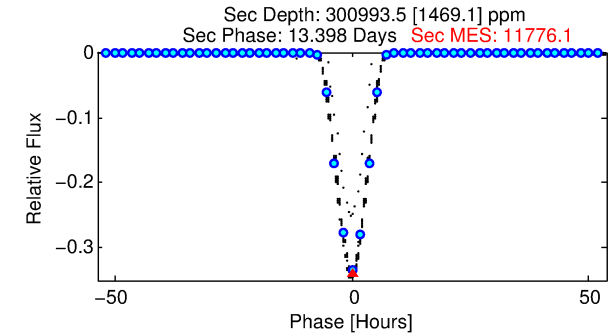
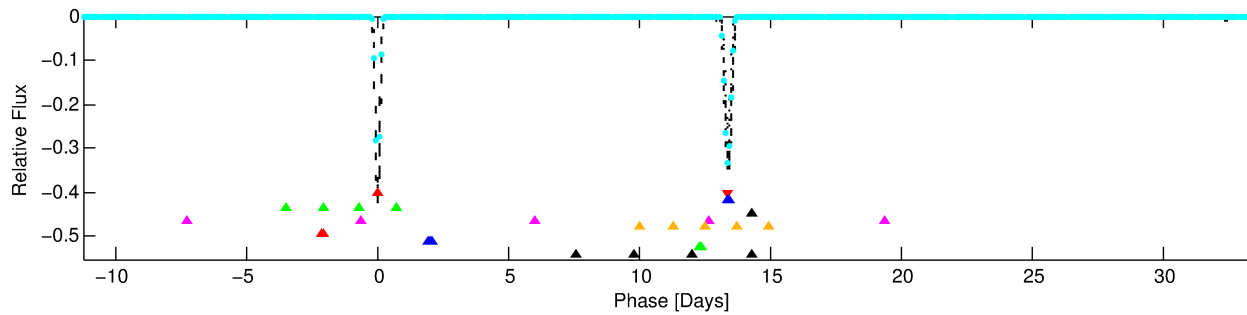
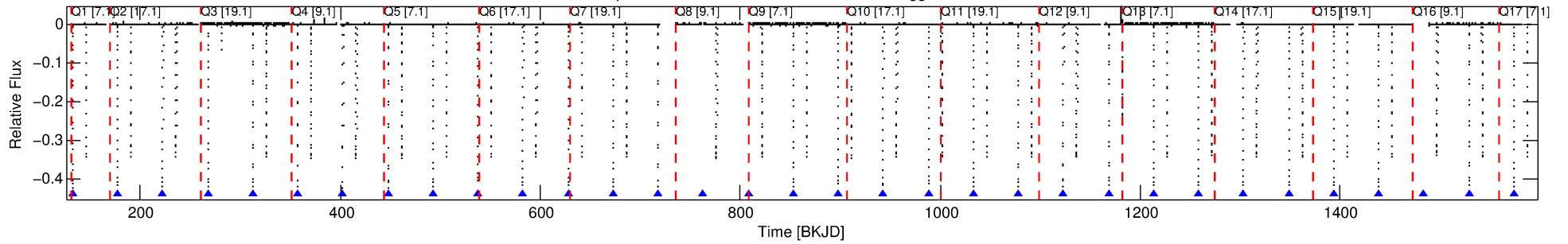
No Significant Match Found

DV One-Page Summary

KIC: 9818732 Candidate: 1 of 10 Period: 45.035 d

KOI: K07233.01 Corr: 0.781

Kp: 14.53 R*: 1.15 Rs Teff: 6484.0 K Logg: 4.39 Fe/H: -0.120



TPS TCE Results:

Period = 45.03519 d
Epoch = 132.6382 BKJD

DV fit results are unavailable

DV Diagnostic Results:

ShortPeriod-sig: 0.2% [0.00 σ]
LongPeriod-sig: 0.1% [0.00 σ]

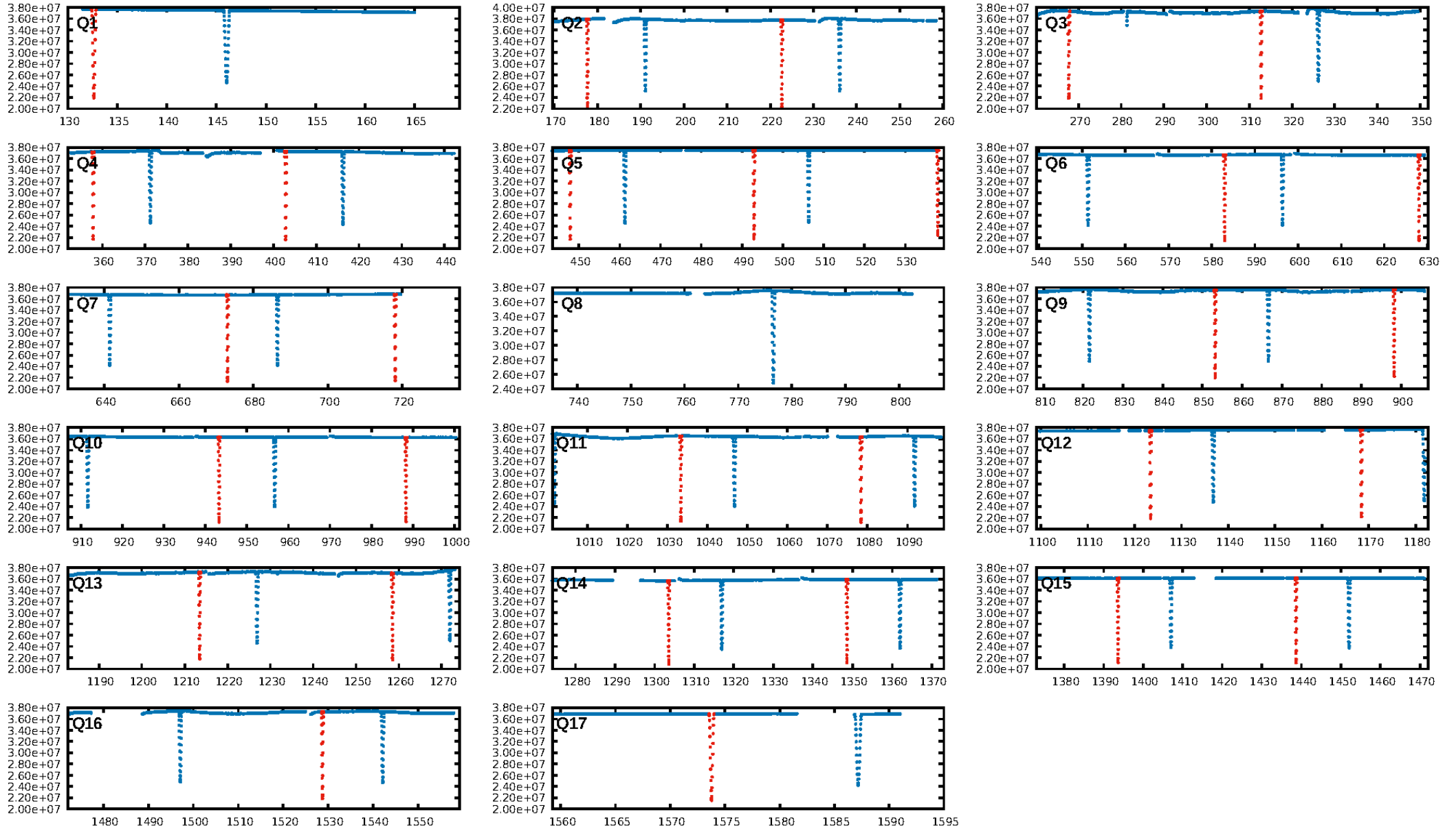
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [28/28]
GhostDiagnostic-chr: 4.375

Centroid-sig: N/A
Centroid-so: 0.102 arcsec [158.89 σ]
OotOffset-rm: 0.013 arcsec [0.20 σ]
KicOffset-rm: 0.127 arcsec [1.82 σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.94 [15/16]

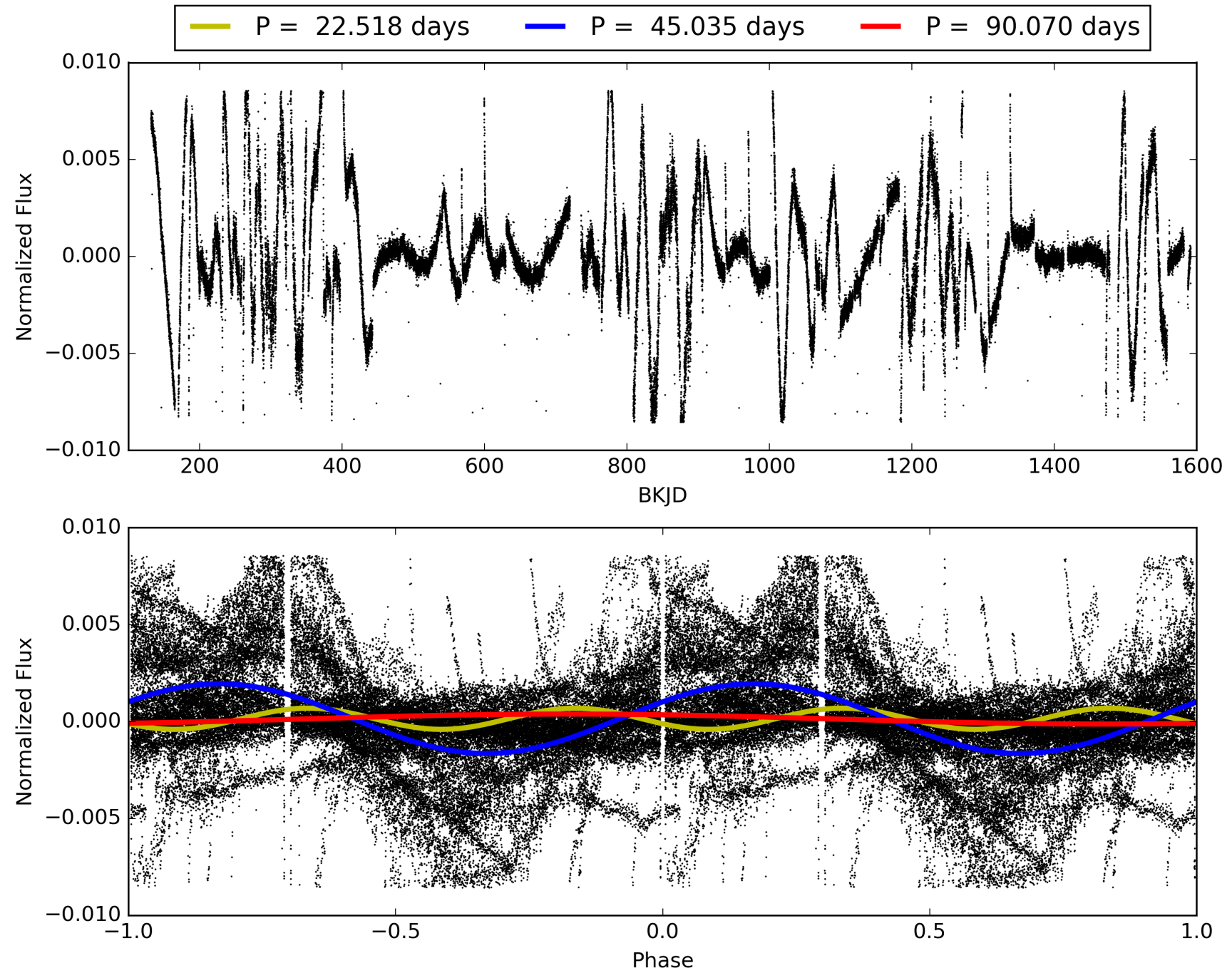
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:27:05 Z

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

TCE 009818732-01, PDC Light Curves

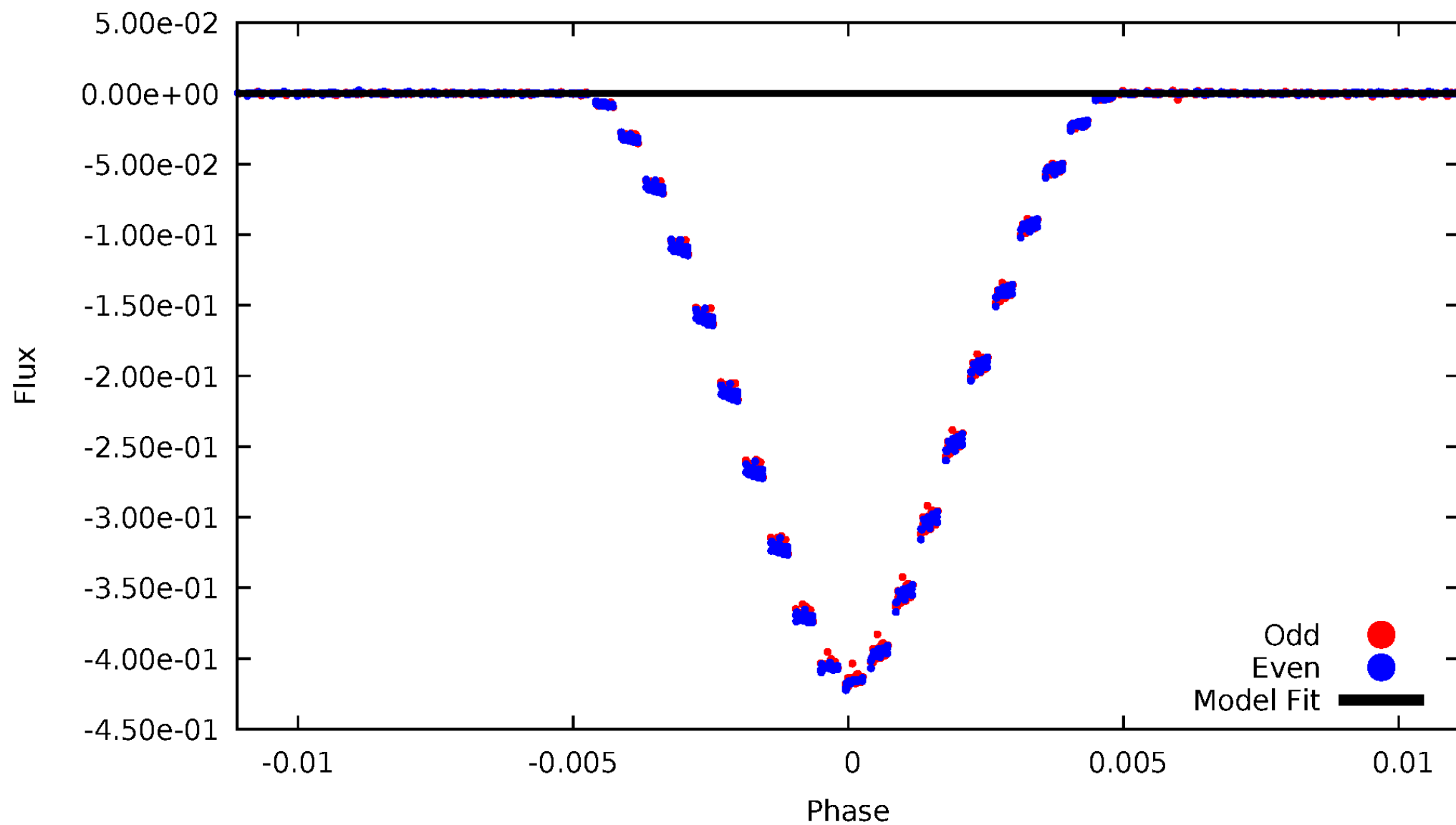


TCE 009818732-01



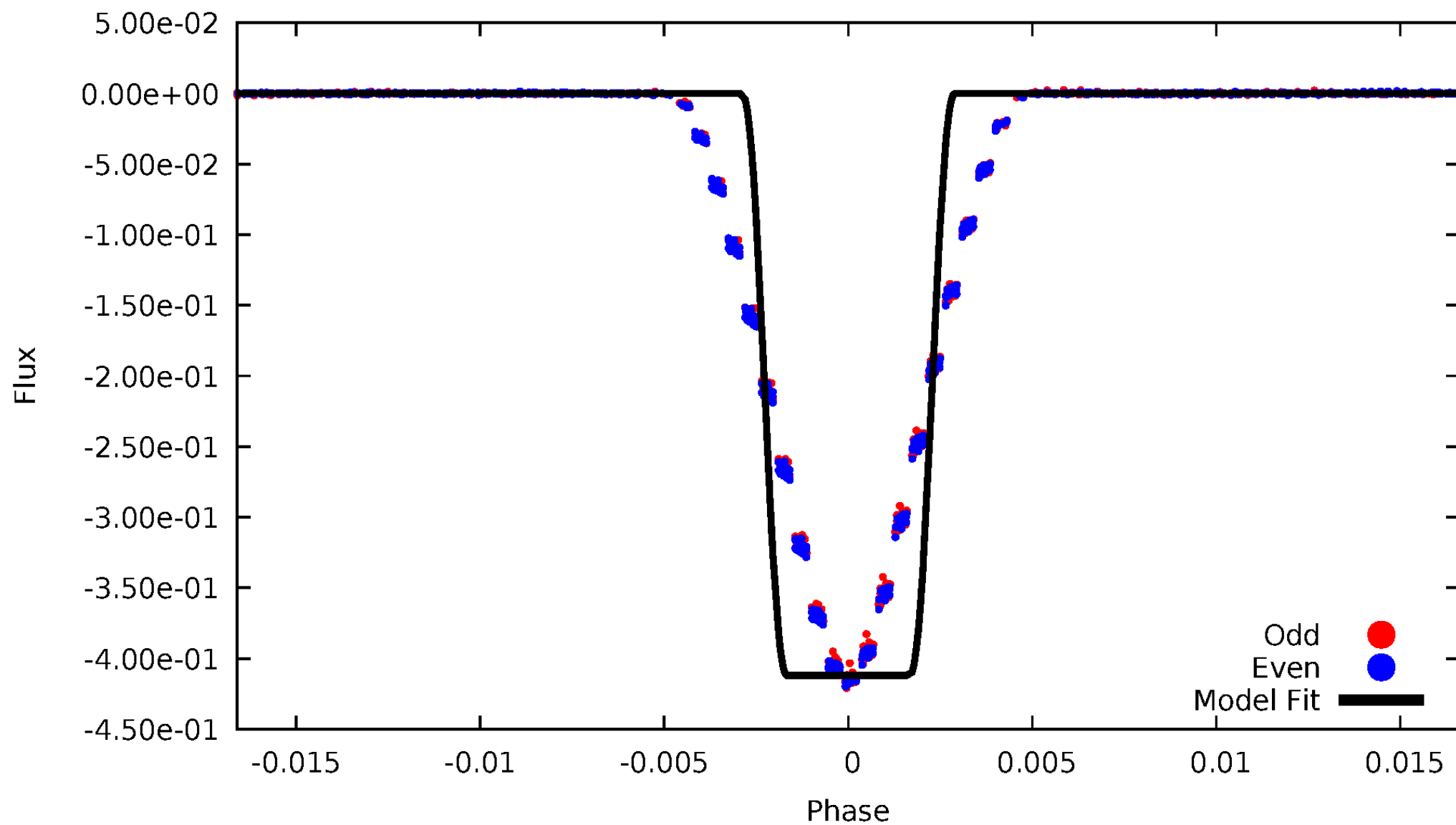
DV Odd/Even

TCE 009818732-01



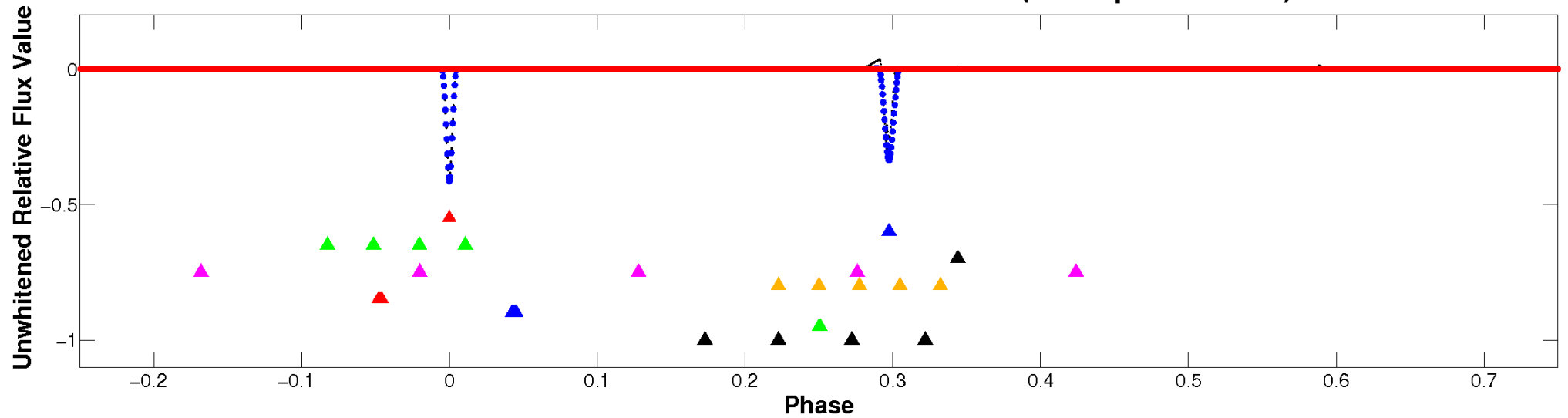
ALT Odd/Even

TCE 009818732-01



Non-Whitened Vs. Whitened Light Curve

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

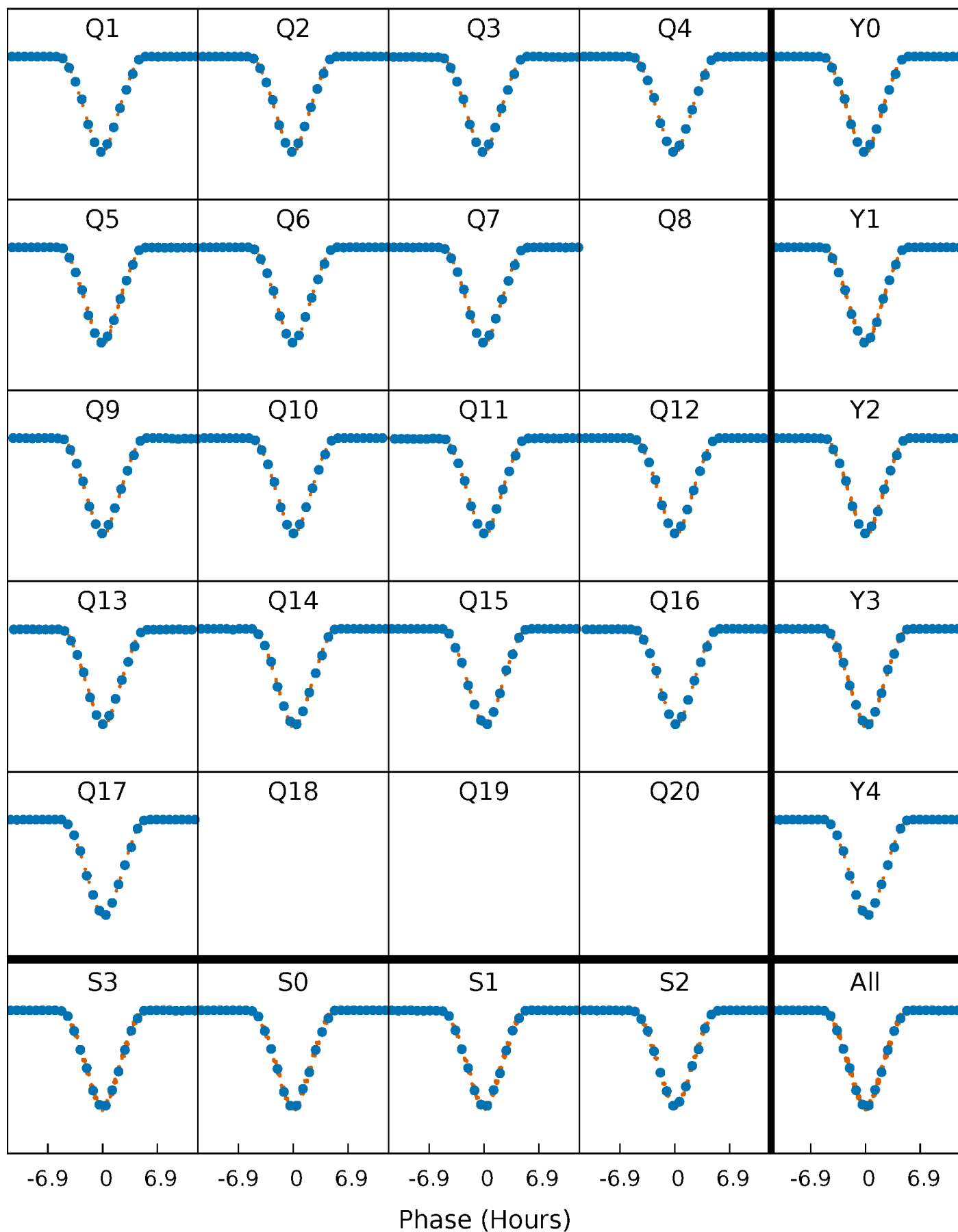


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



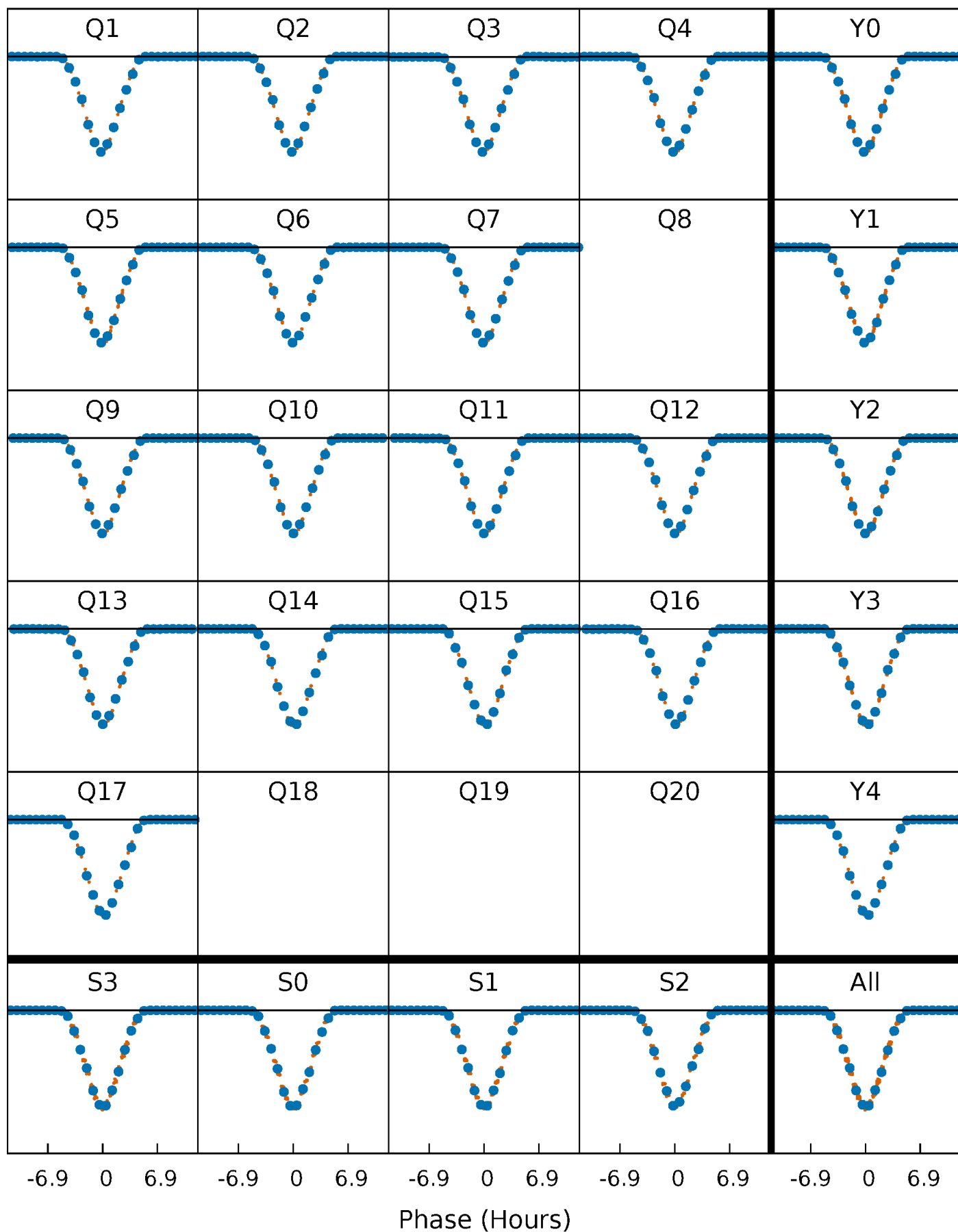
PDC Quarter-Phased Transit Curves

TCE 009818732-01 P= 45.035186 Days $T_0=132.638245$ (BKJD)



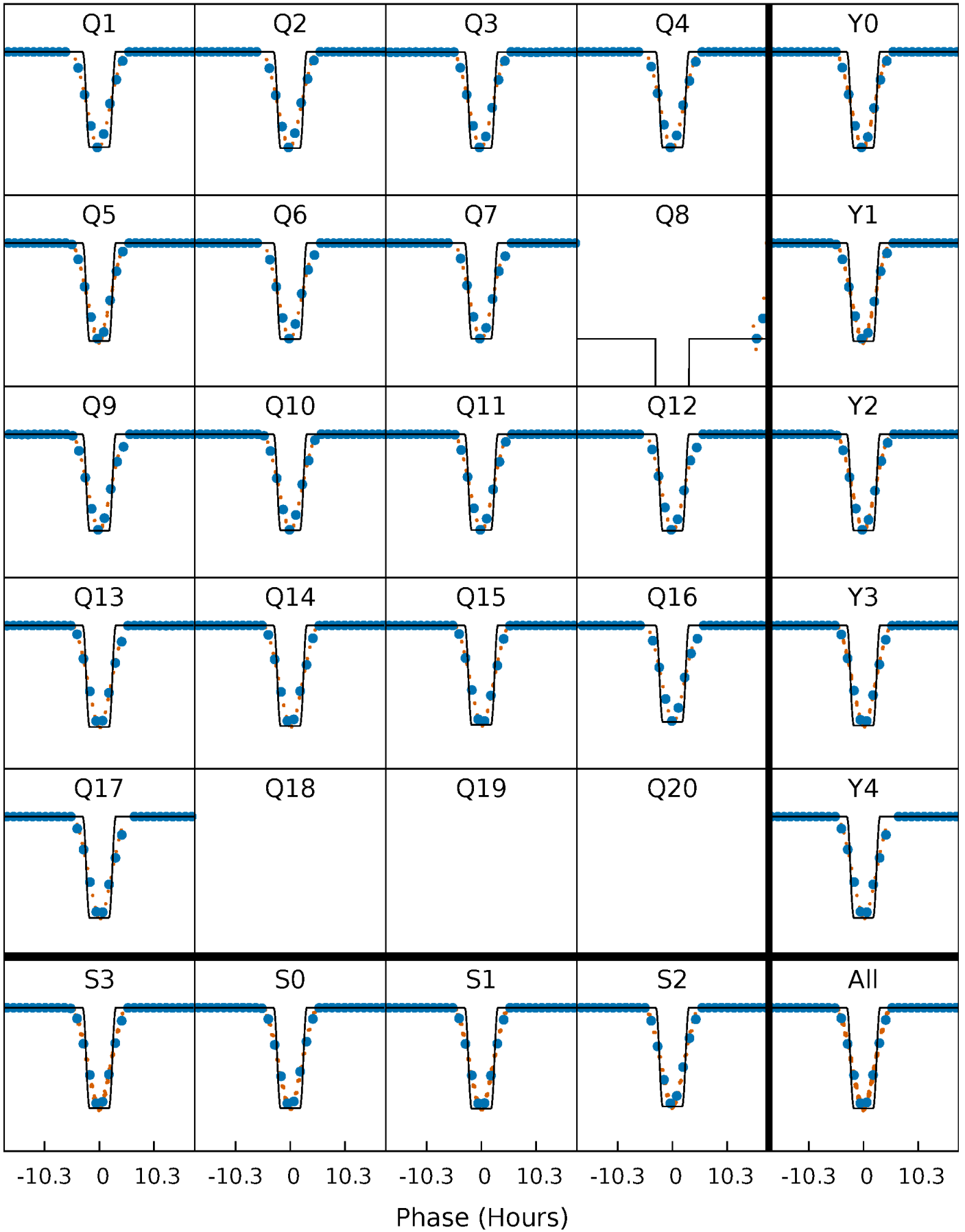
DV Quarter-Phased Transit Curves

TCE 009818732-01 P= 45.035186 Days $T_0=132.638245$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

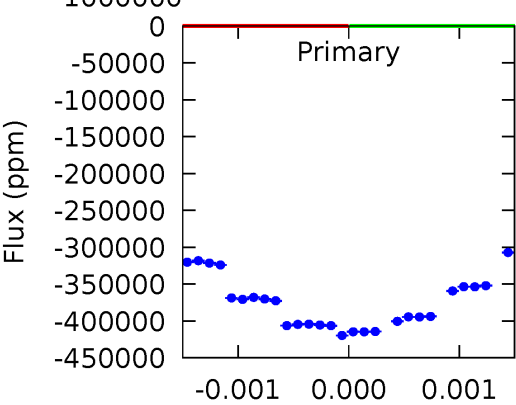
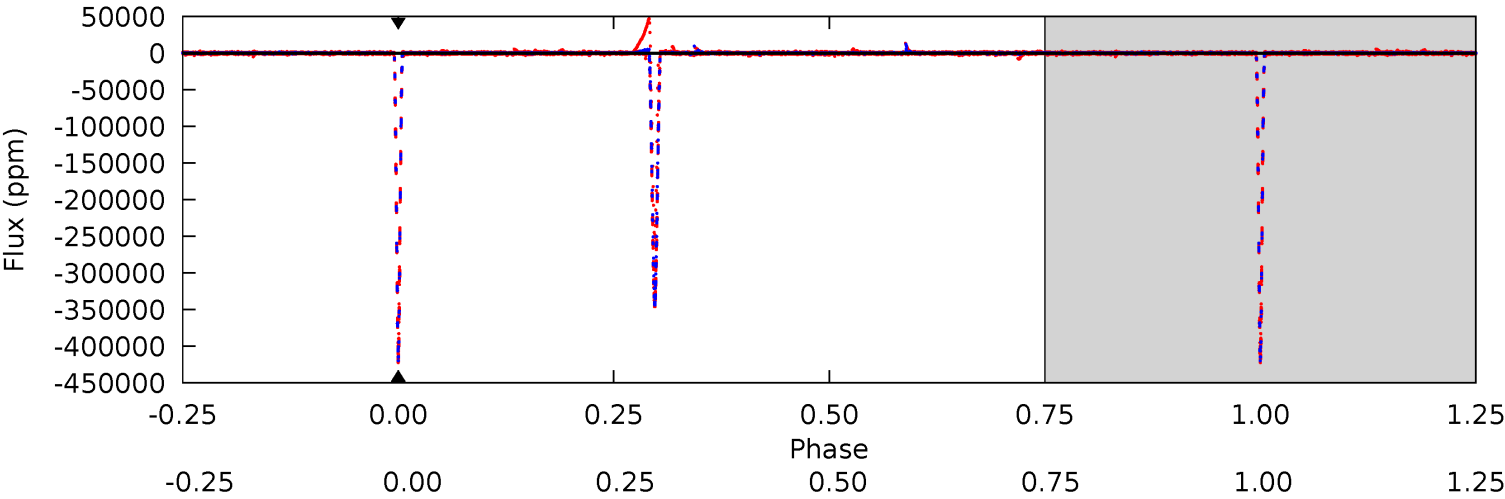
TCE 009818732-01 P= 45.035186 Days $T_0=132.639895$ (BKJD)



DV Model-Shift Uniqueness Test

009818732-01, P = 45.035186 Days, E = 87.603059 Days

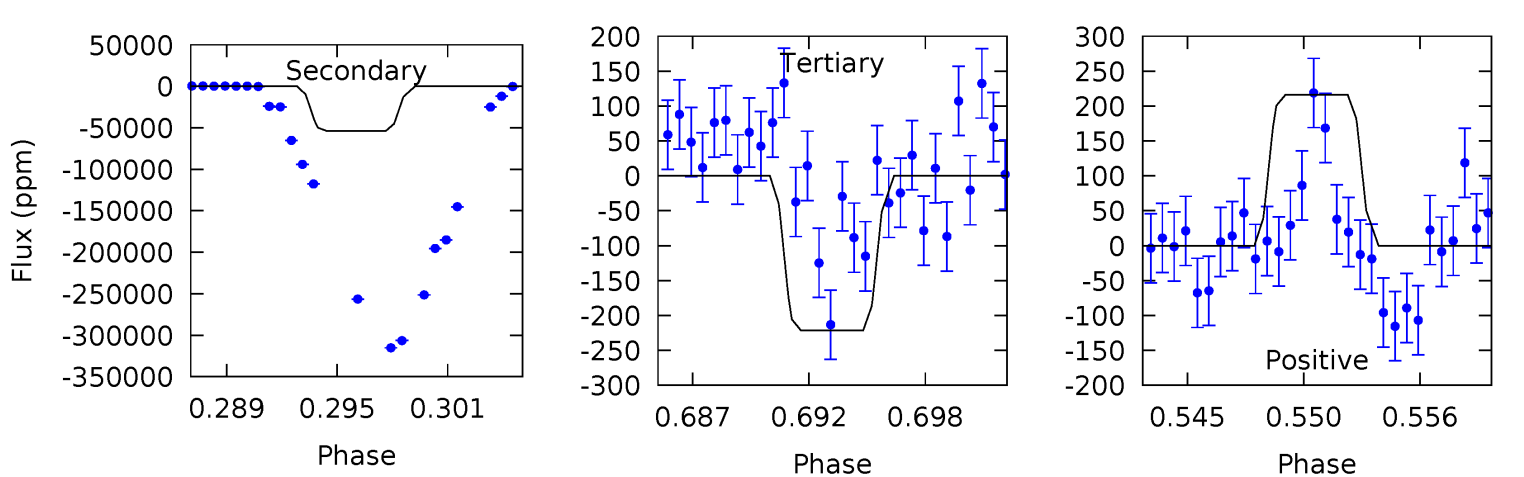
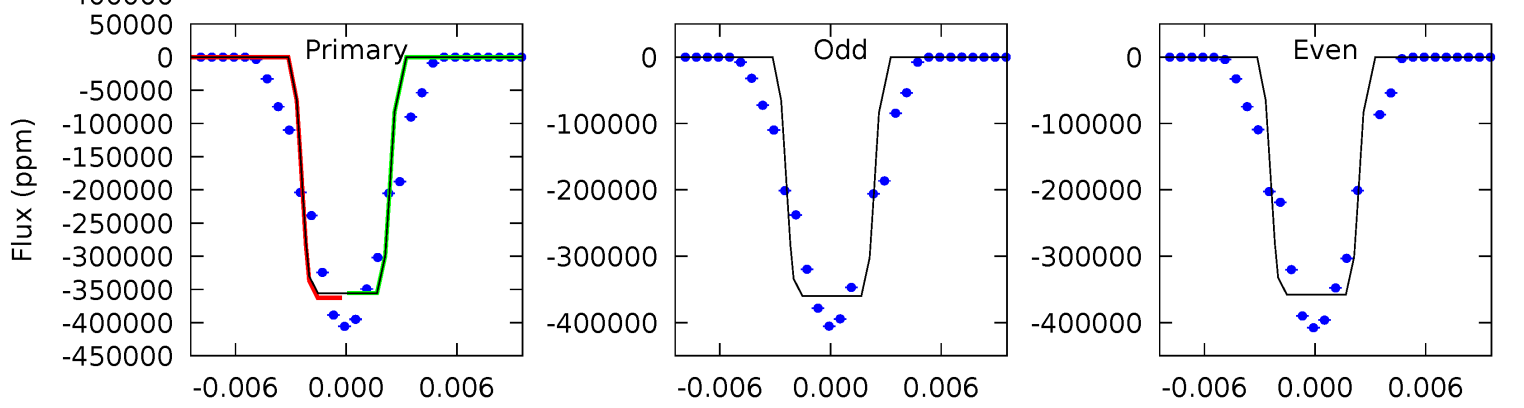
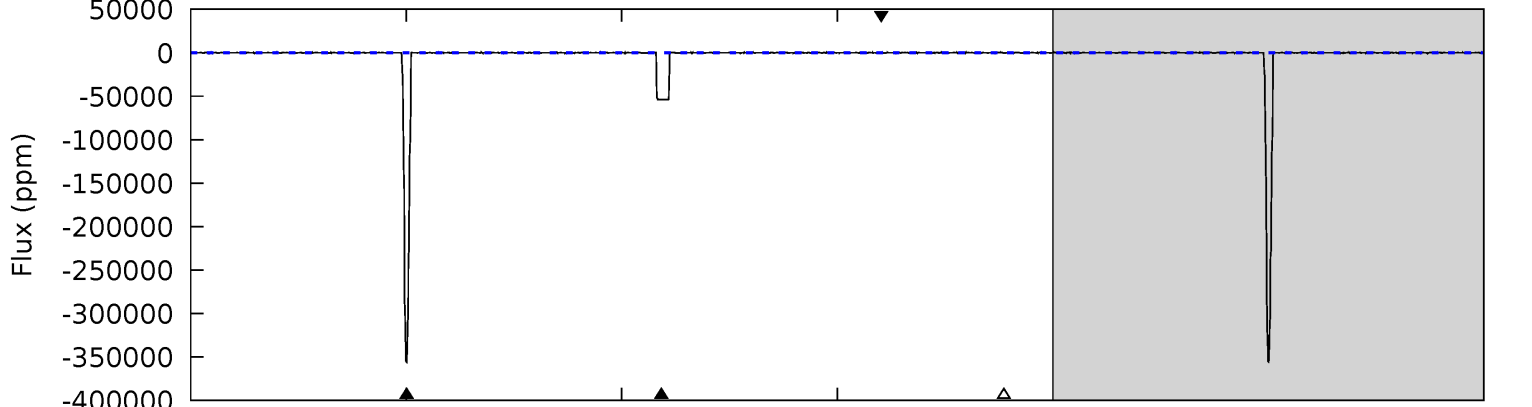
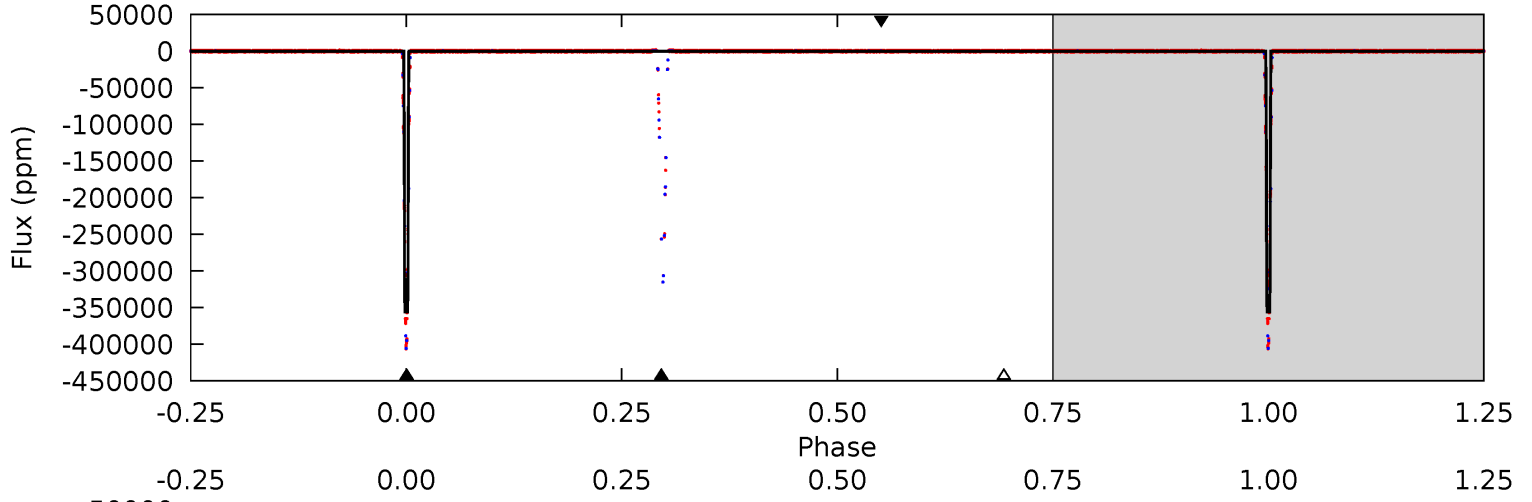
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009818732-01, P = 45.035186 Days, E = 87.604709 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8613	1305	5.37	5.24	5.13	2.77	27.2	8608	8608	1299	1299	2.65	1.00	0.00	0



Stellar Parameters For KIC 009818732

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+145}_{-193}	$4.386^{+0.060}_{-0.180}$	$-0.120^{+0.250}_{-0.300}$	$1.153^{+0.339}_{-0.145}$	$1.178^{+0.164}_{-0.148}$	$1.084^{+0.353}_{-0.522}$
	+2%/-3%	+1%/-4%	+208%/-250%	+29%/-13%	+14%/-13%	+33%/-48%
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 009818732-01 / KOI 7233.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$64.97^{+14.93}_{-13.76}$	851^{+53}_{-37}	2945^{+2487}_{-8052}	30^{+1022}_{-832}
Alt.	-53873 ± 41	$83.75^{+17.31}_{-15.35}$	853^{+55}_{-41}	4212^{+277}_{-241}	301^{+145}_{-93}

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

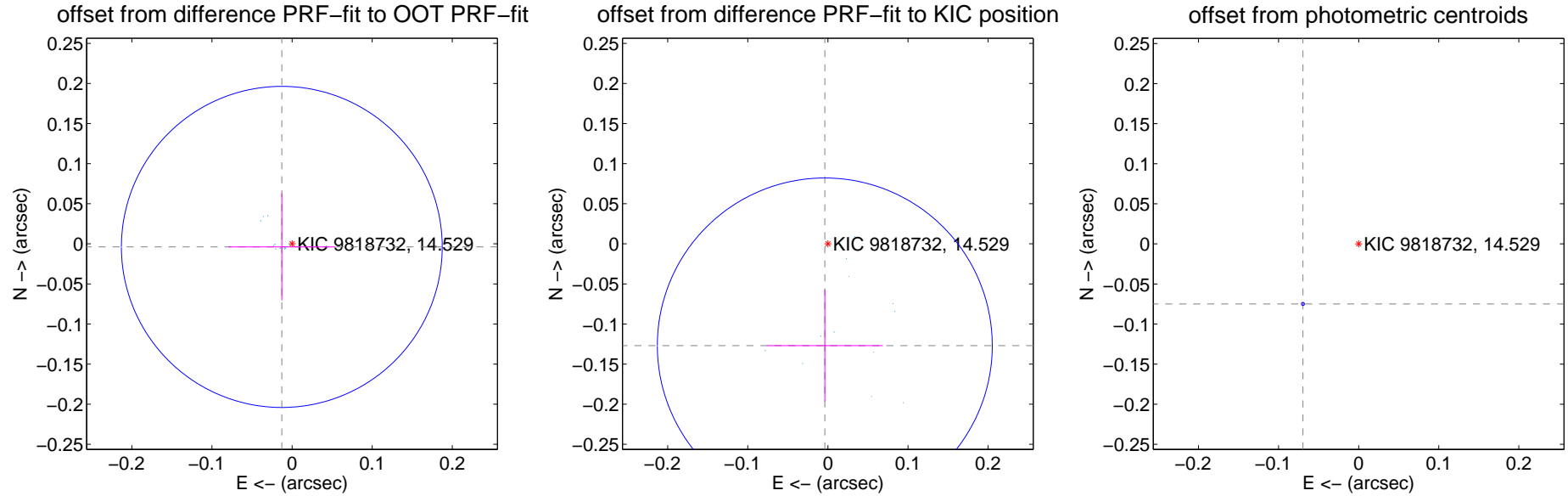
DV Centroid Data

Supplemental centroid analysis for 009818732-01. Kepler magnitude: 14.53. Transit SNR -1.00

There are 16 quarters with good PRF difference image offsets

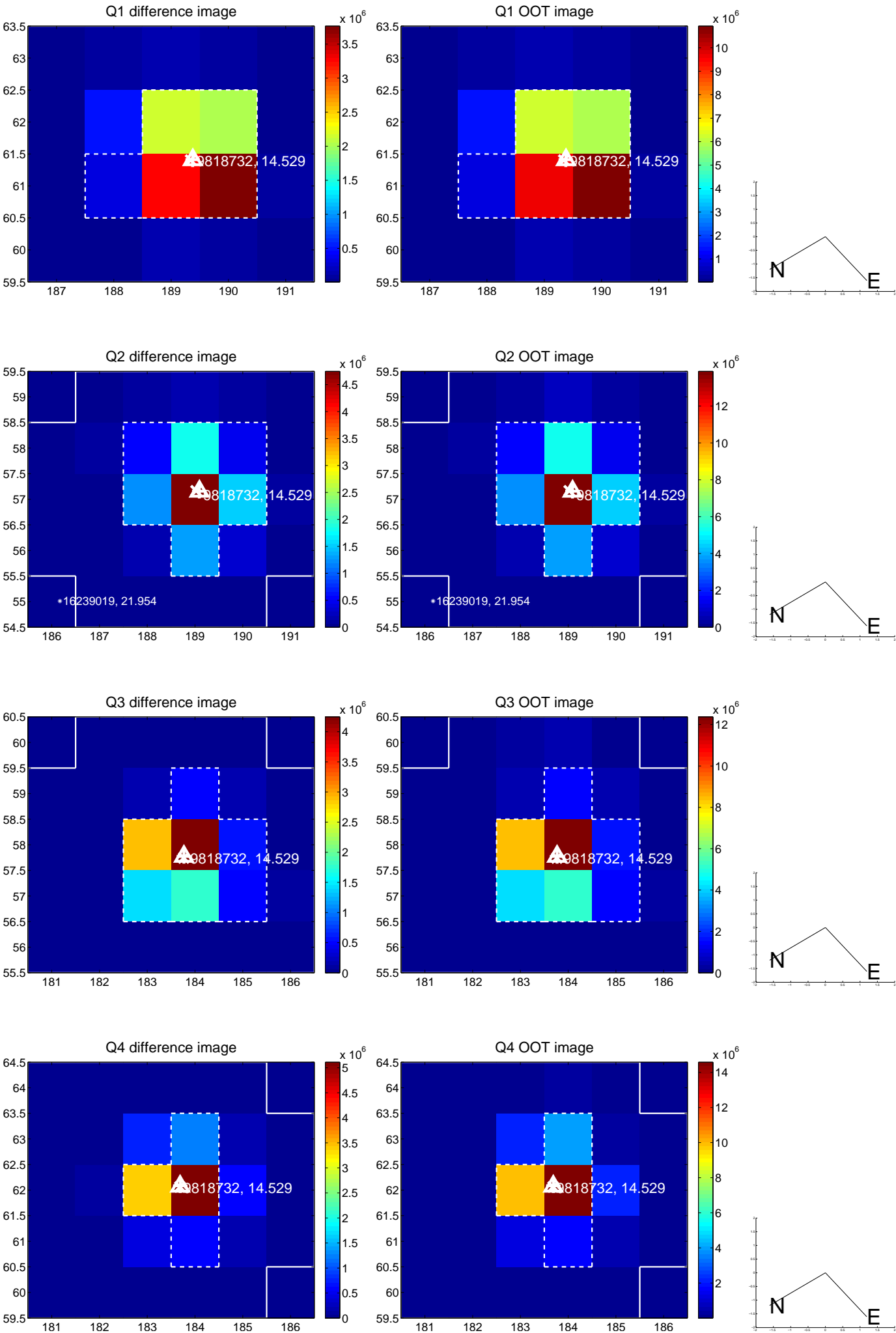
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.013 ± 0.067	0.20	0.013 ± 0.067	-0.004 ± 0.067
PRF-fit source offset from KIC position	0.127 ± 0.070	1.82	0.004 ± 0.073	-0.127 ± 0.070
photometric centroid source offset	0.10 ± 0.00	158.89	0.07 ± 0.00	-0.07 ± 0.00

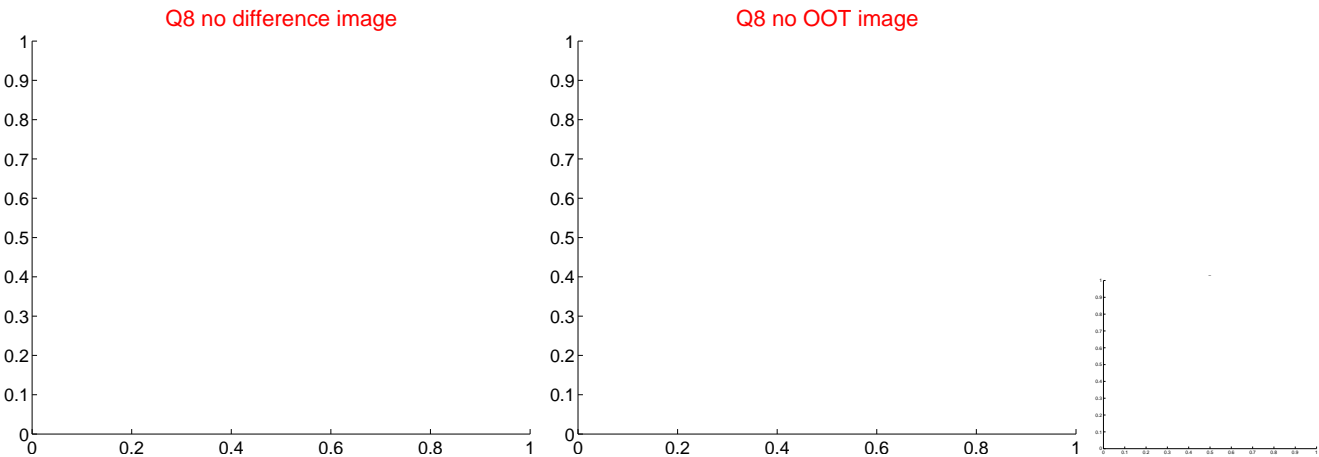
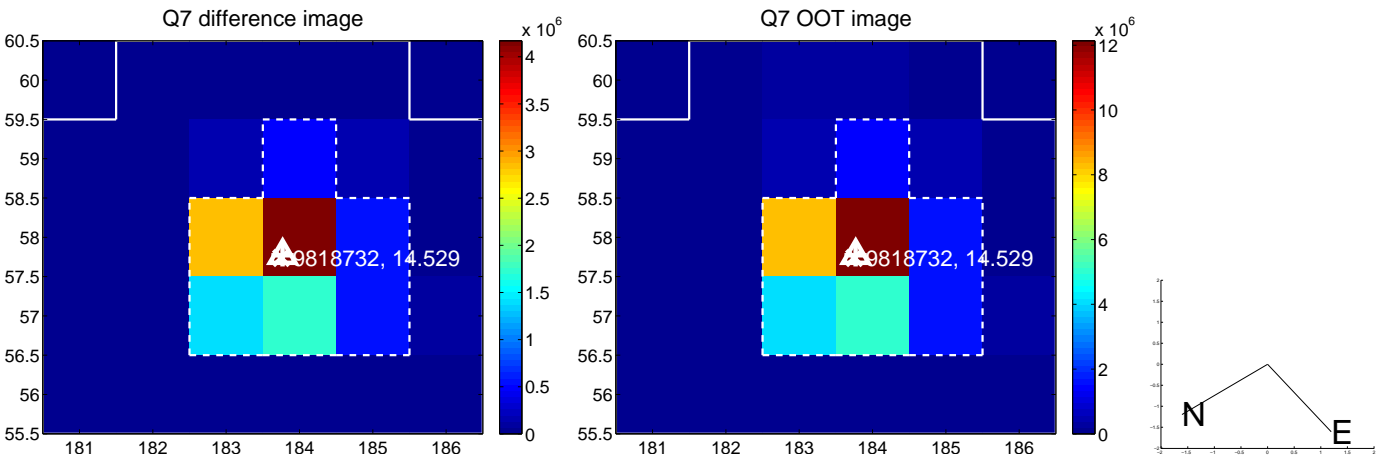
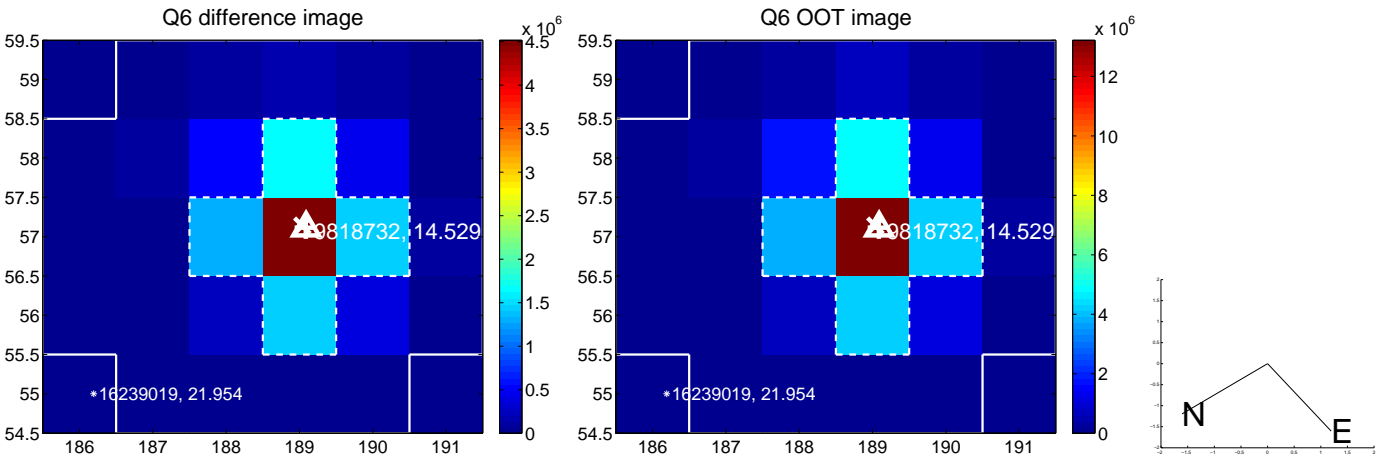
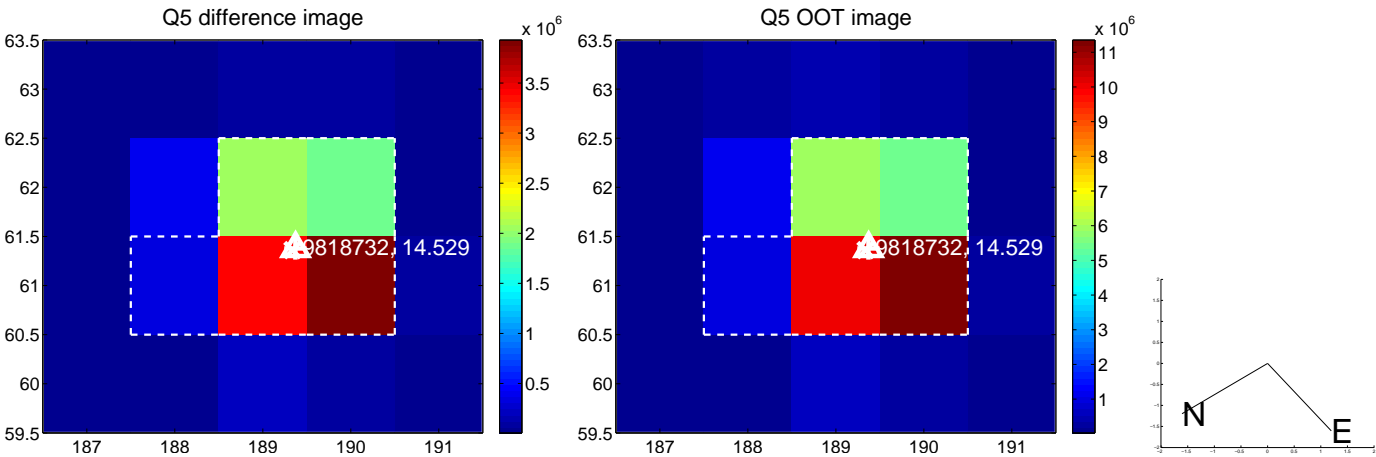


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

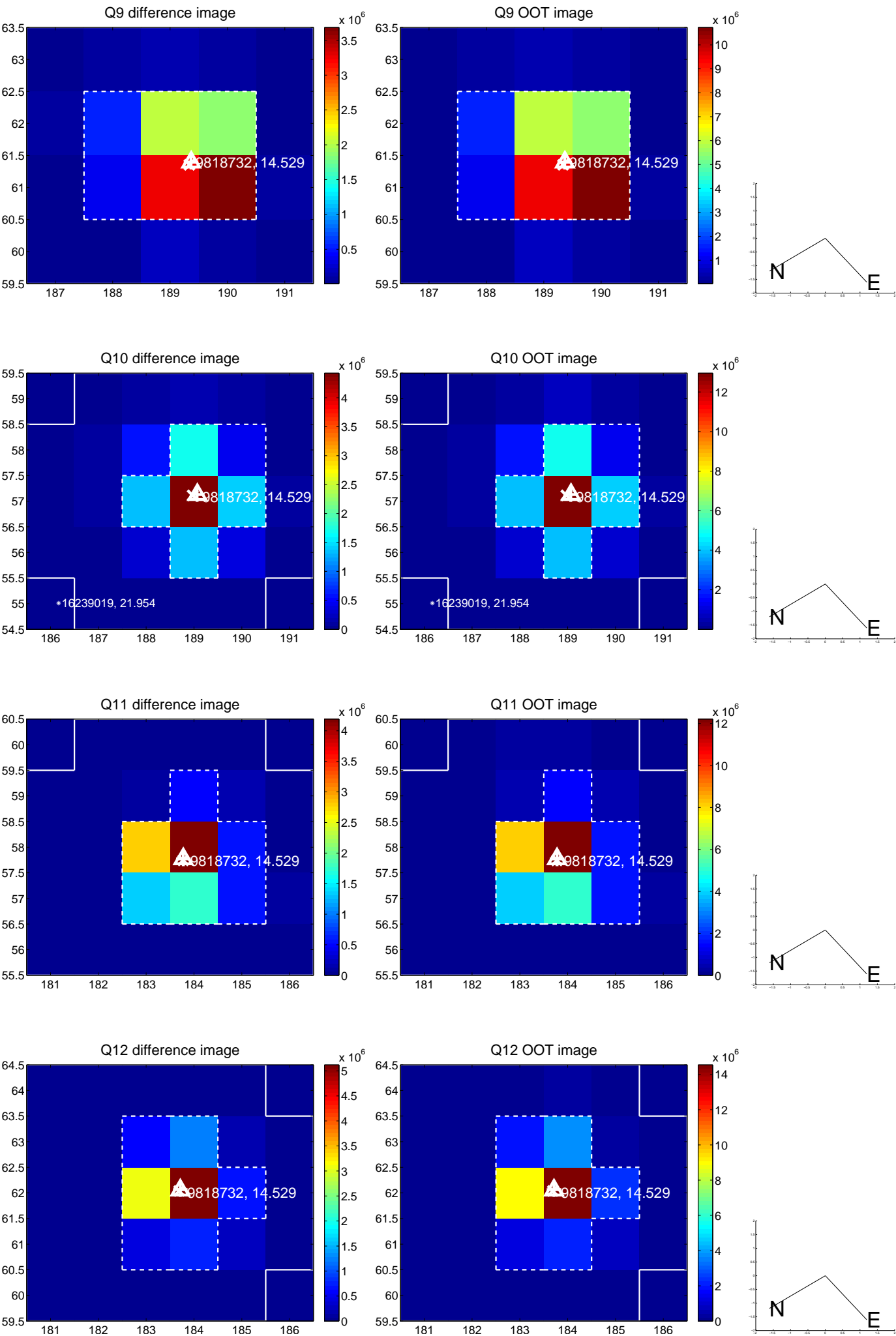
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



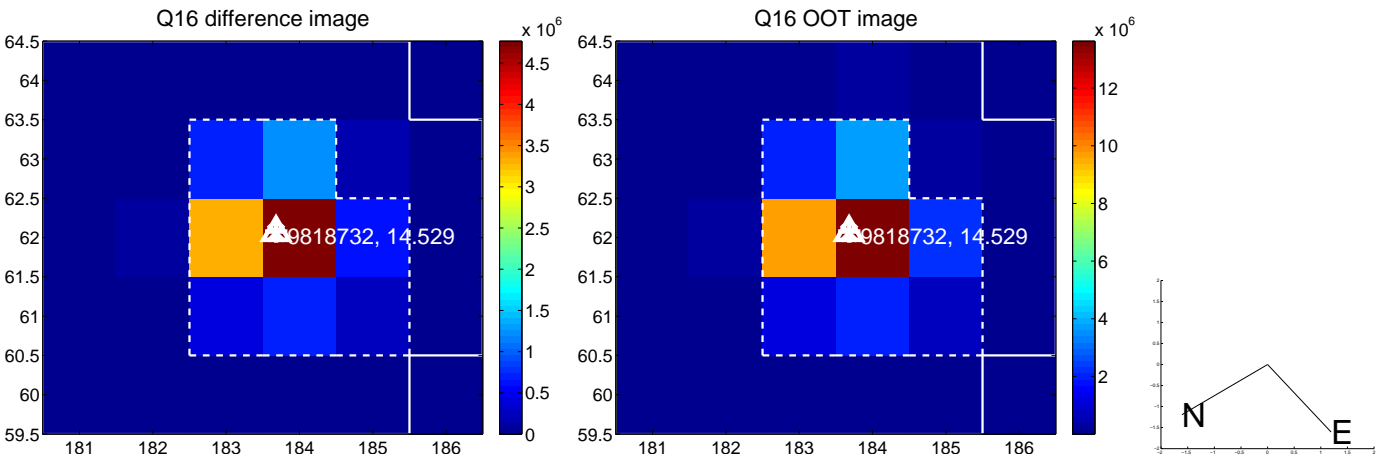
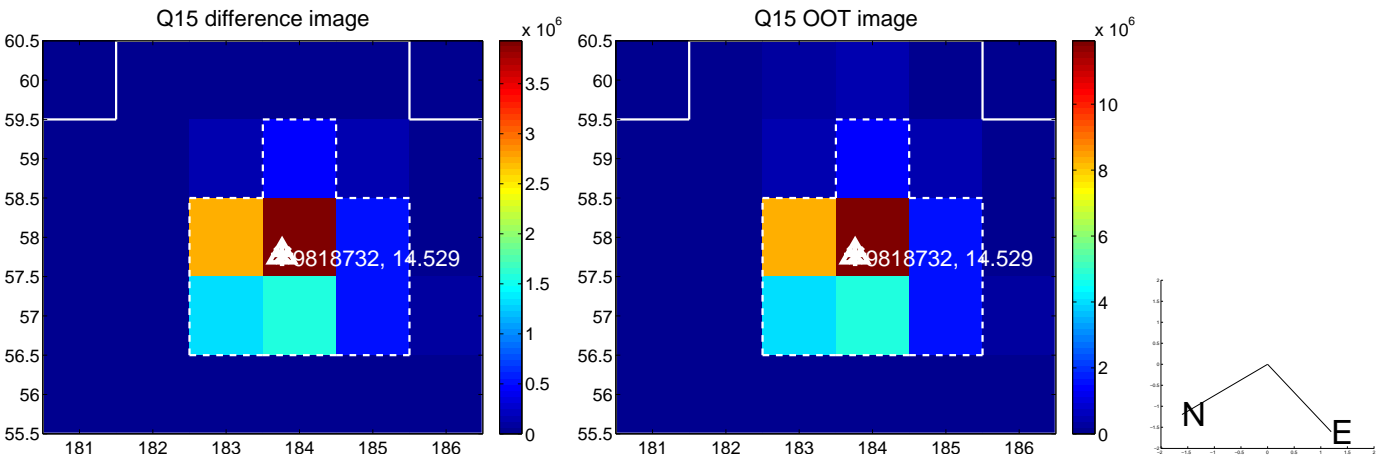
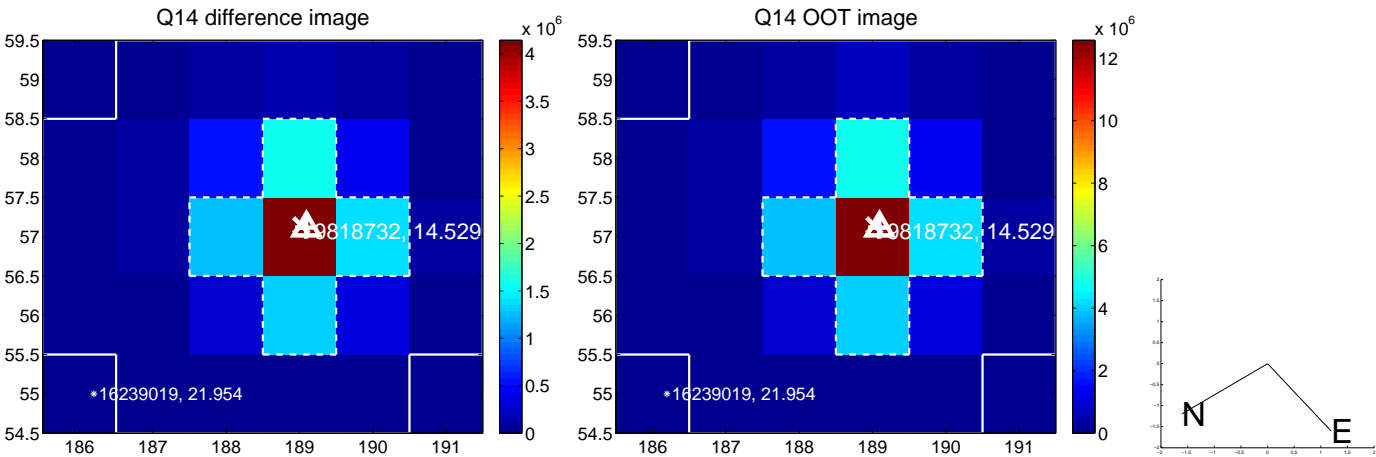
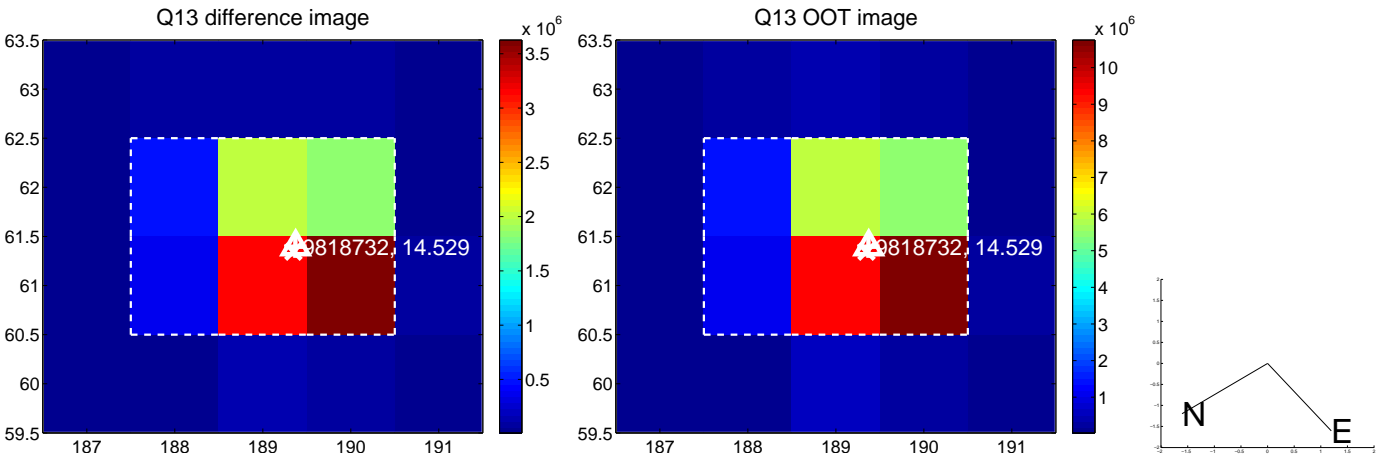
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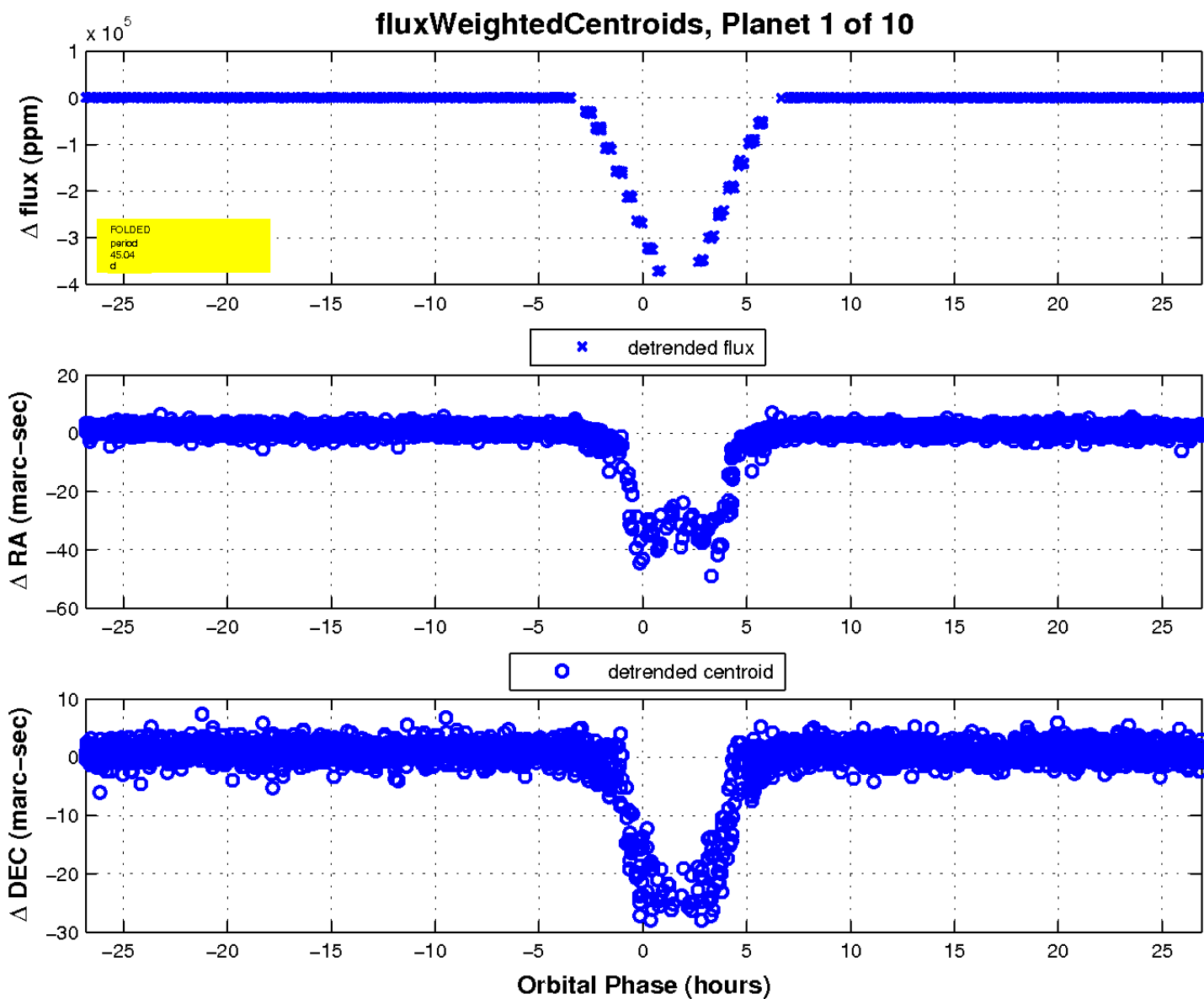
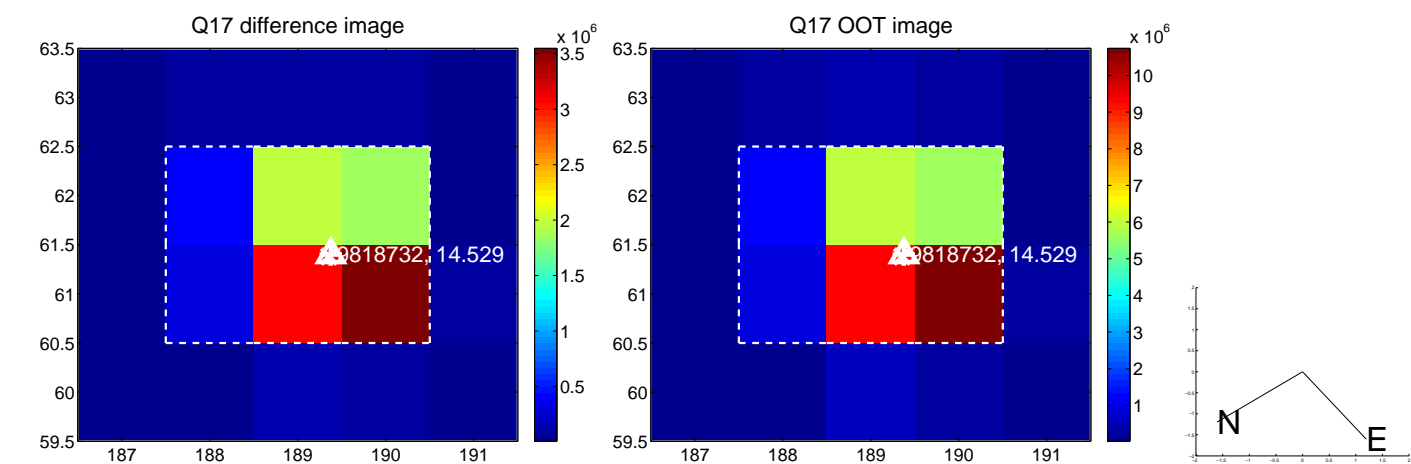
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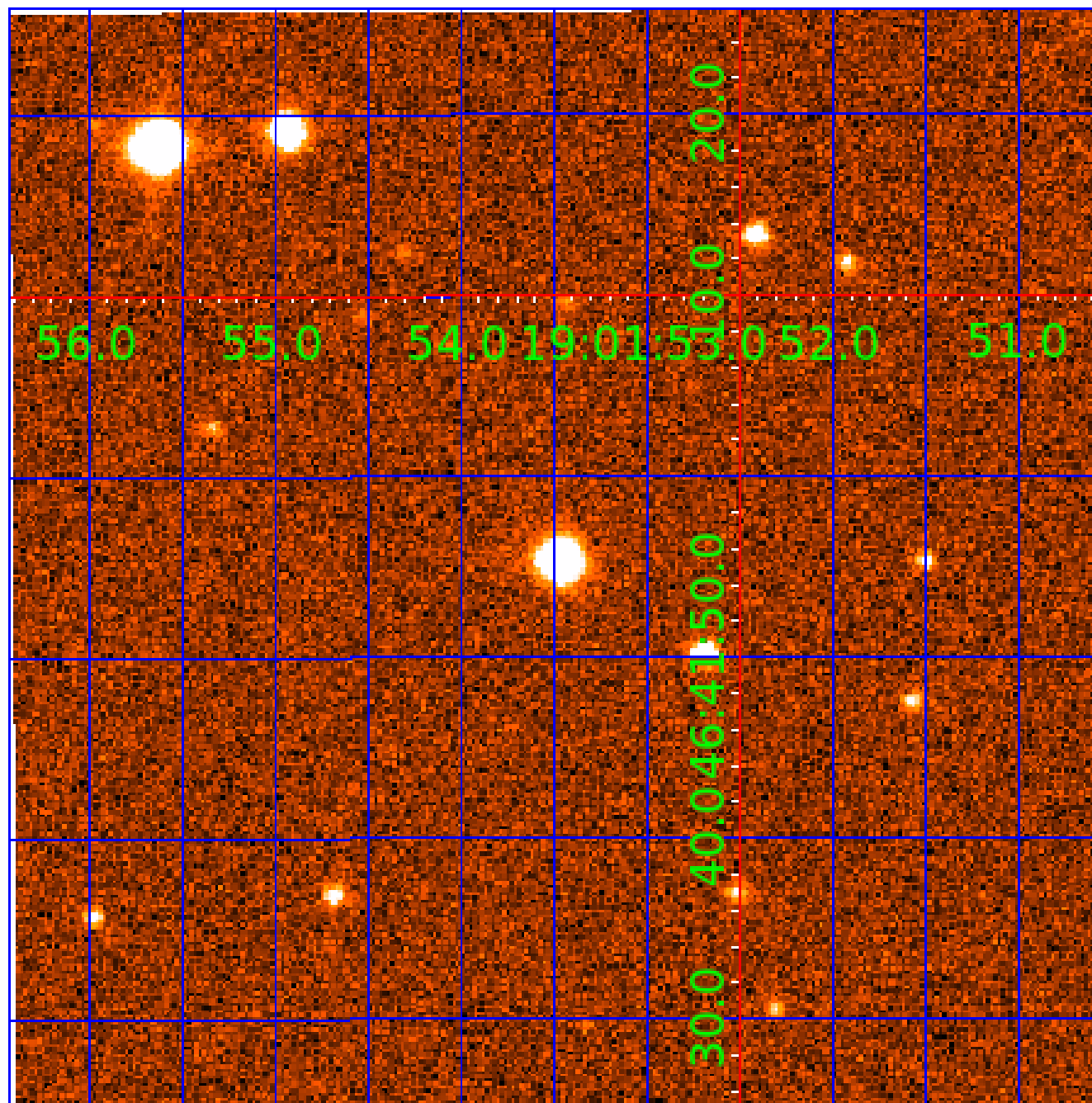


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009818732

Q1-17 DR25 TCE Parameters

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009818732-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS
009818732-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
009818732-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009818732-07	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
009818732-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009818732-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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.

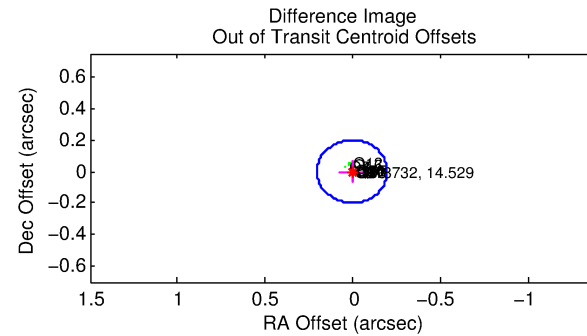
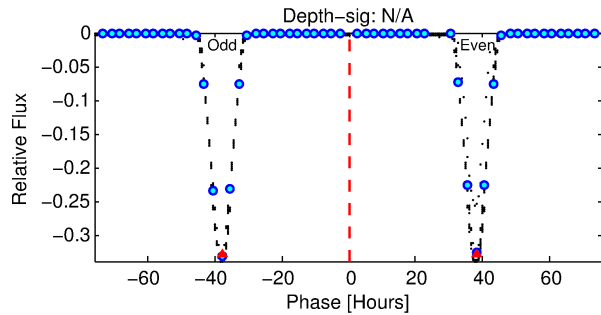
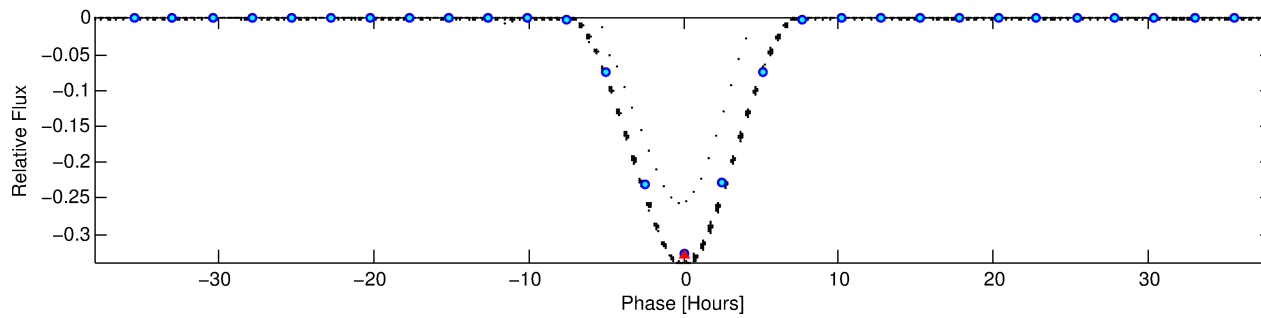
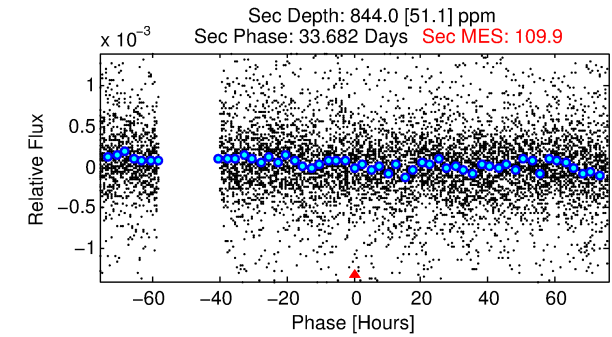
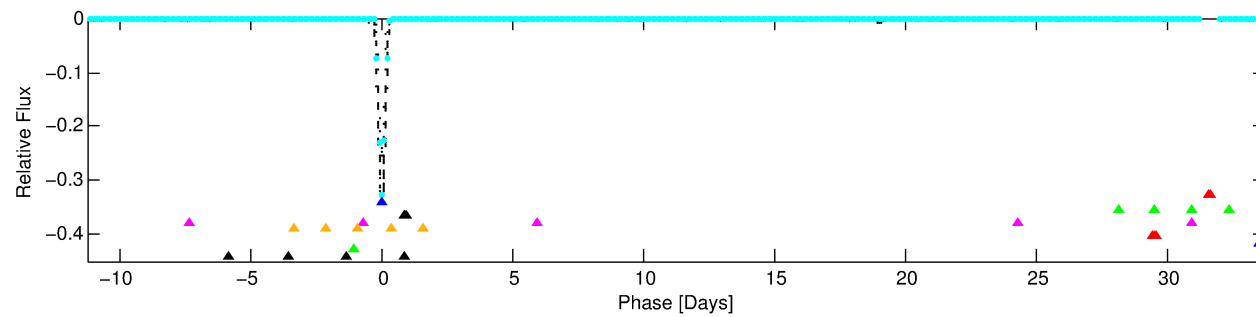
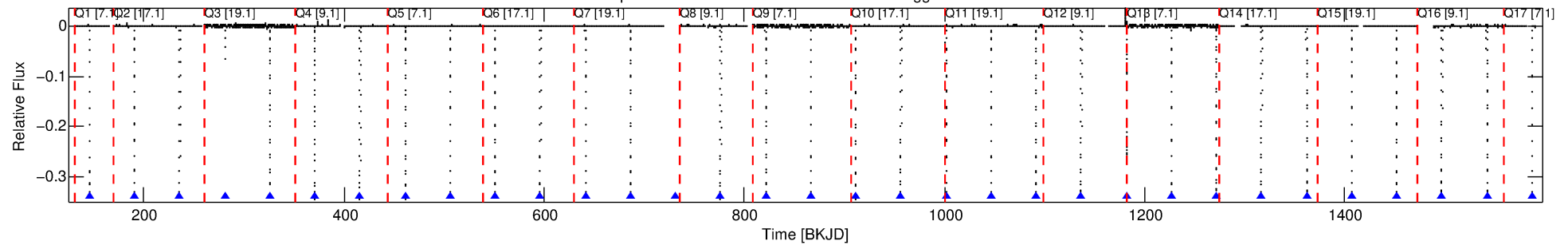
Ephemeris Match Information For 009818732-02

No Significant Match Found

DV One-Page Summary

KIC: 9818732 Candidate: 2 of 10 Period: 45.036 d
KOI: K07233 Corr: No Ephemeris Match

Kp: 14.53 R*: 1.15 Rs Teff: 6484.0 K Logg: 4.39 Fe/H: -0.120



TPS TCE Results:

Period = 45.03588 d
Epoch = 146.0256 BKJD

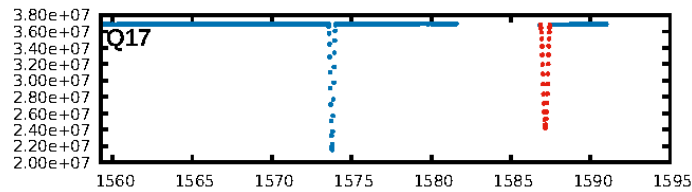
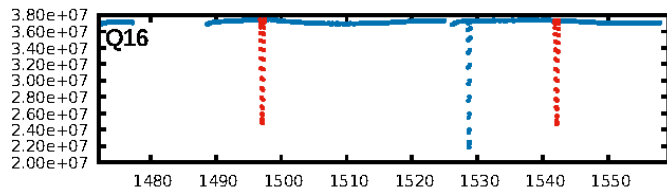
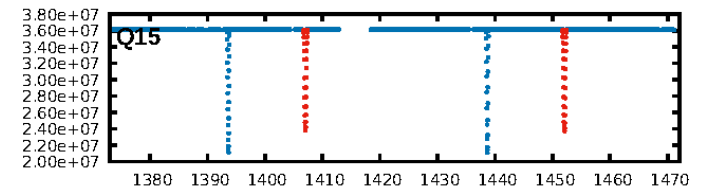
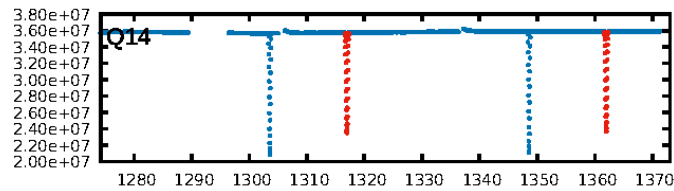
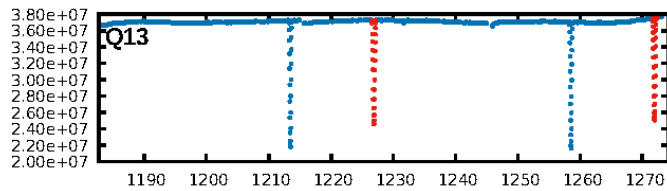
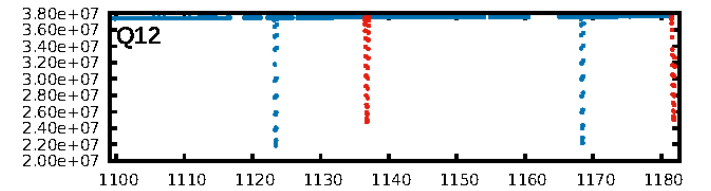
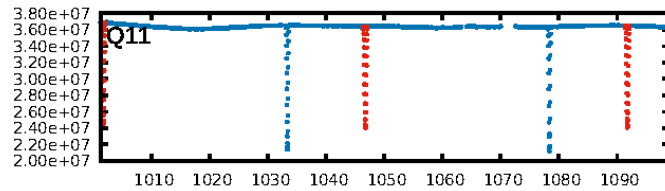
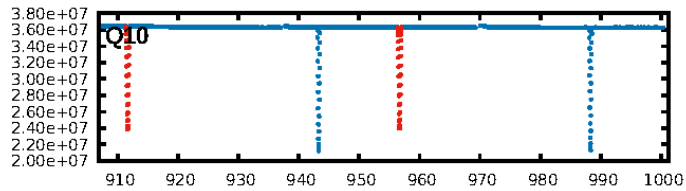
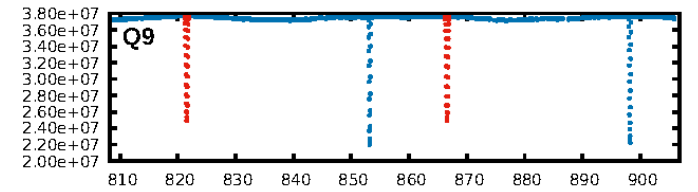
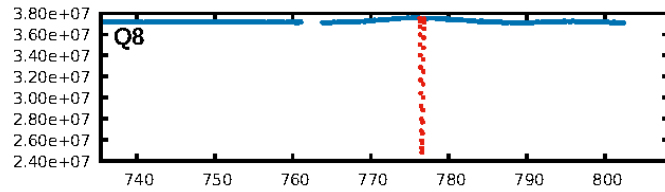
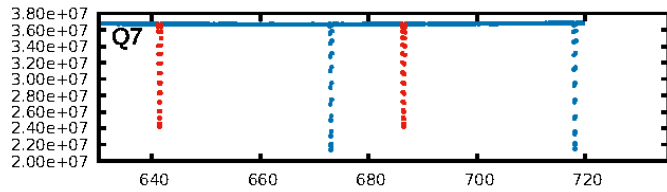
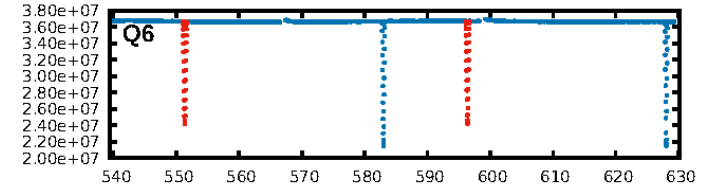
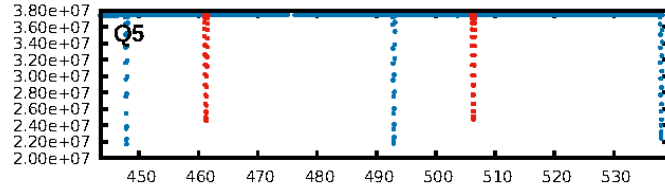
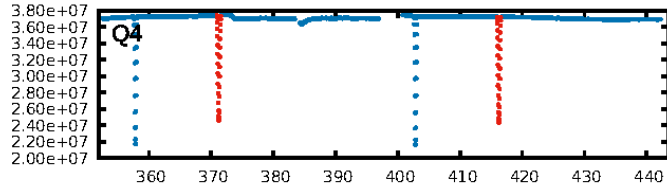
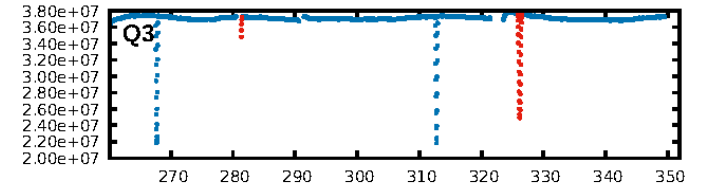
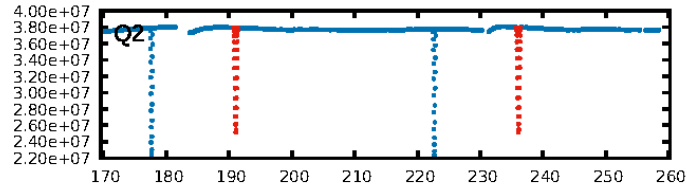
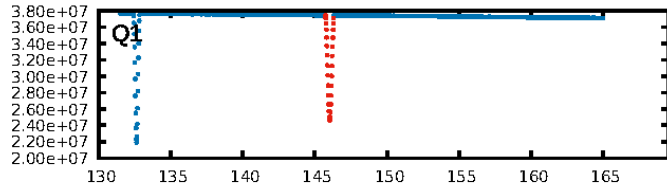
DV fit results are unavailable

DV Diagnostic Results:

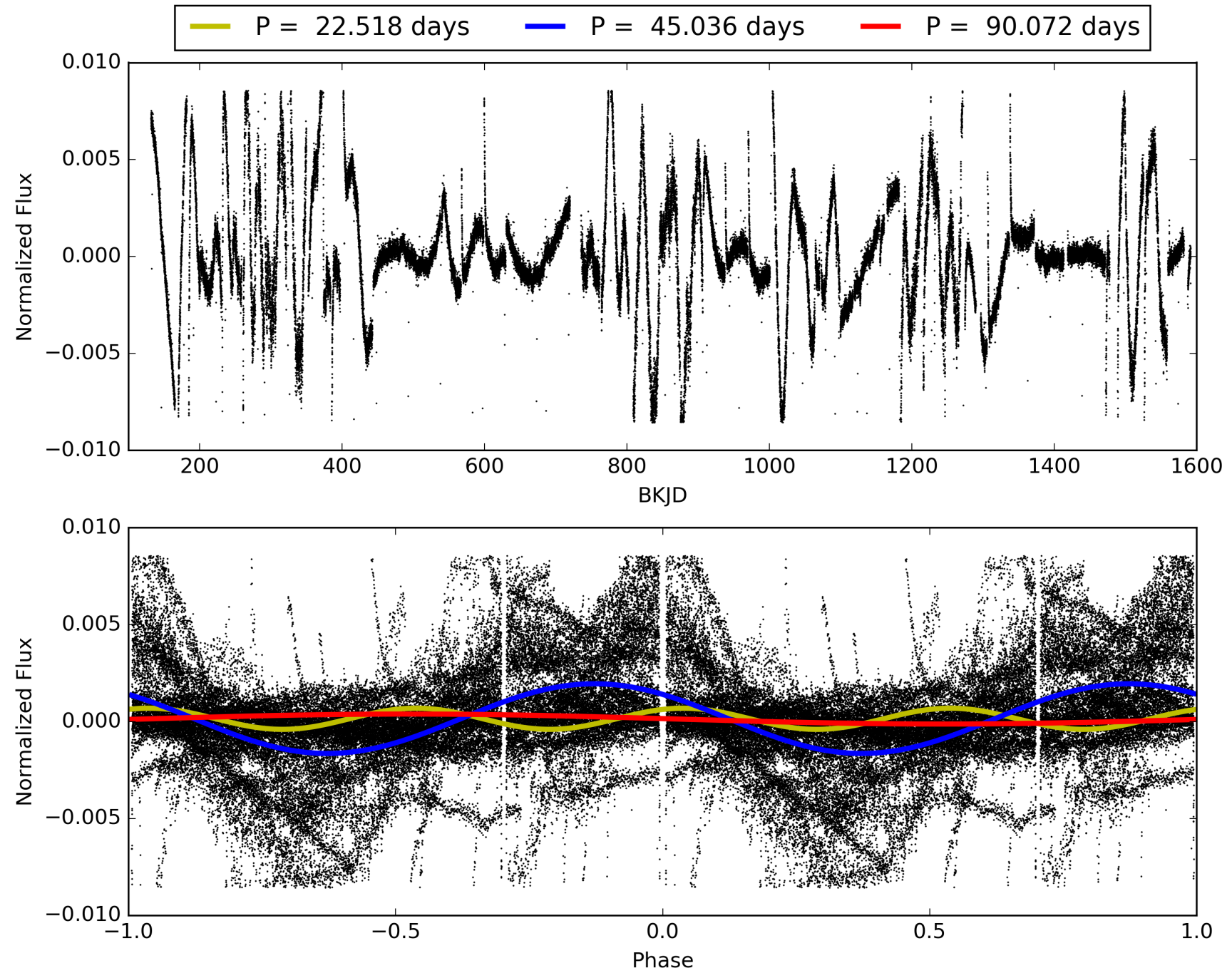
ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [30/30]
GhostDiagnostic-chr: 4.769

Centroid-sig: N/A
Centroid-so: 0.094 arcsec [142.22σ]
OotOffset-rm: 0.007 arcsec [0.11σ]
KicOffset-rm: 0.111 arcsec [1.57σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.00 [0/16]

TCE 009818732-02, PDC Light Curves

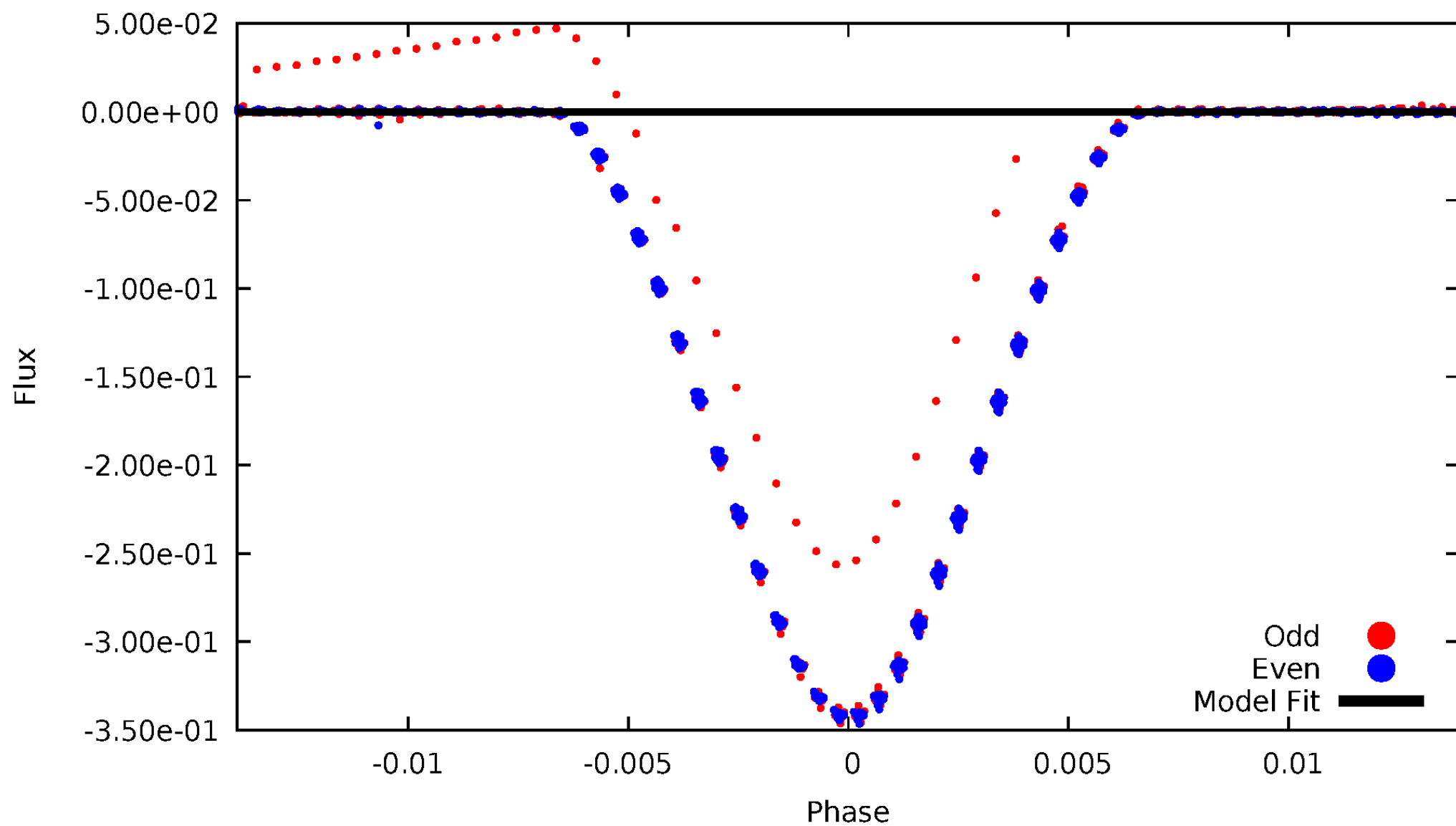


TCE 009818732-02



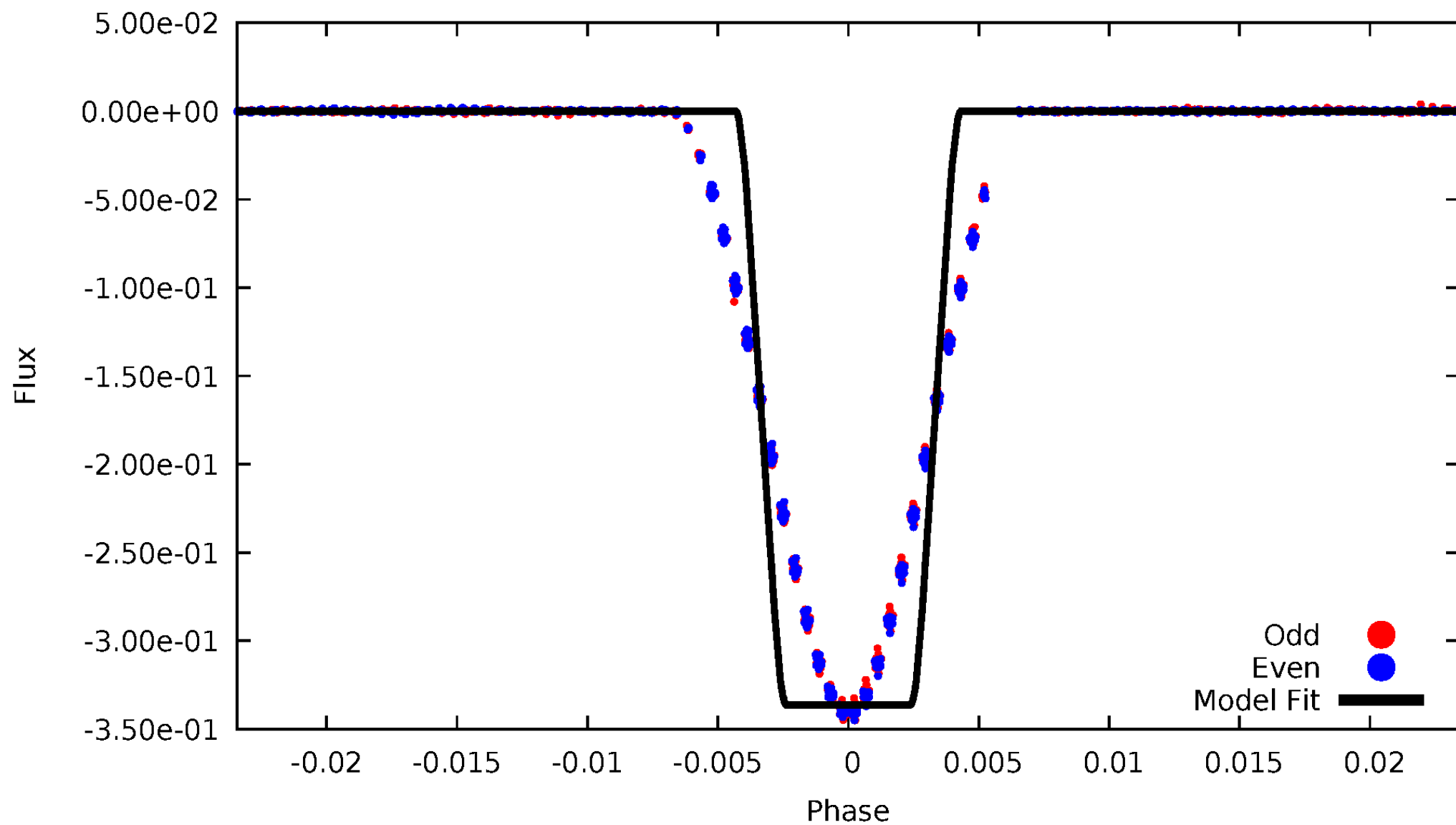
DV Odd/Even

TCE 009818732-02



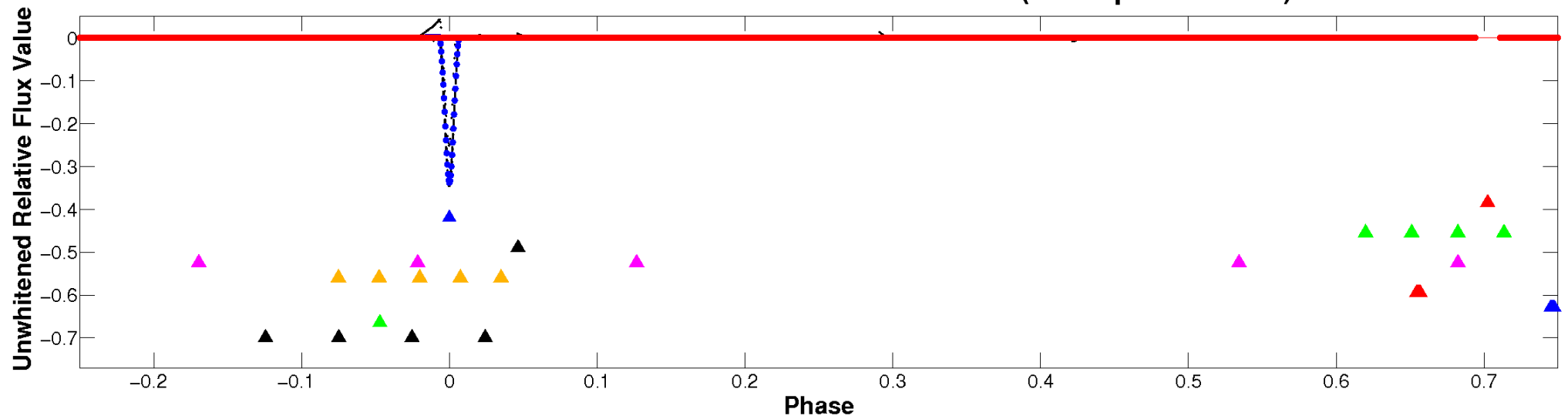
ALT Odd/Even

TCE 009818732-02

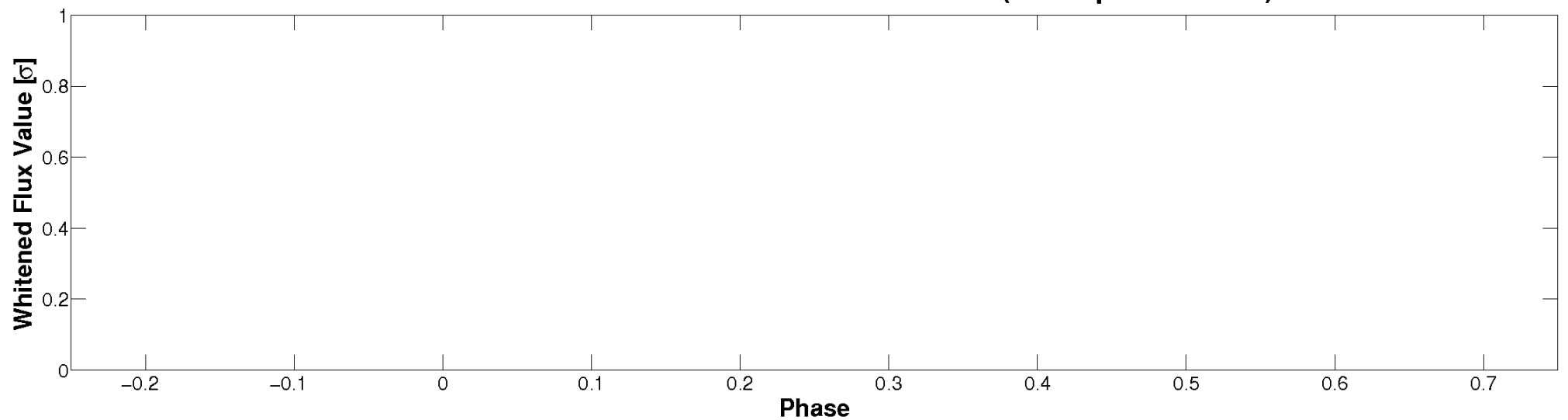


Non-Whitened Vs. Whitened Light Curve

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

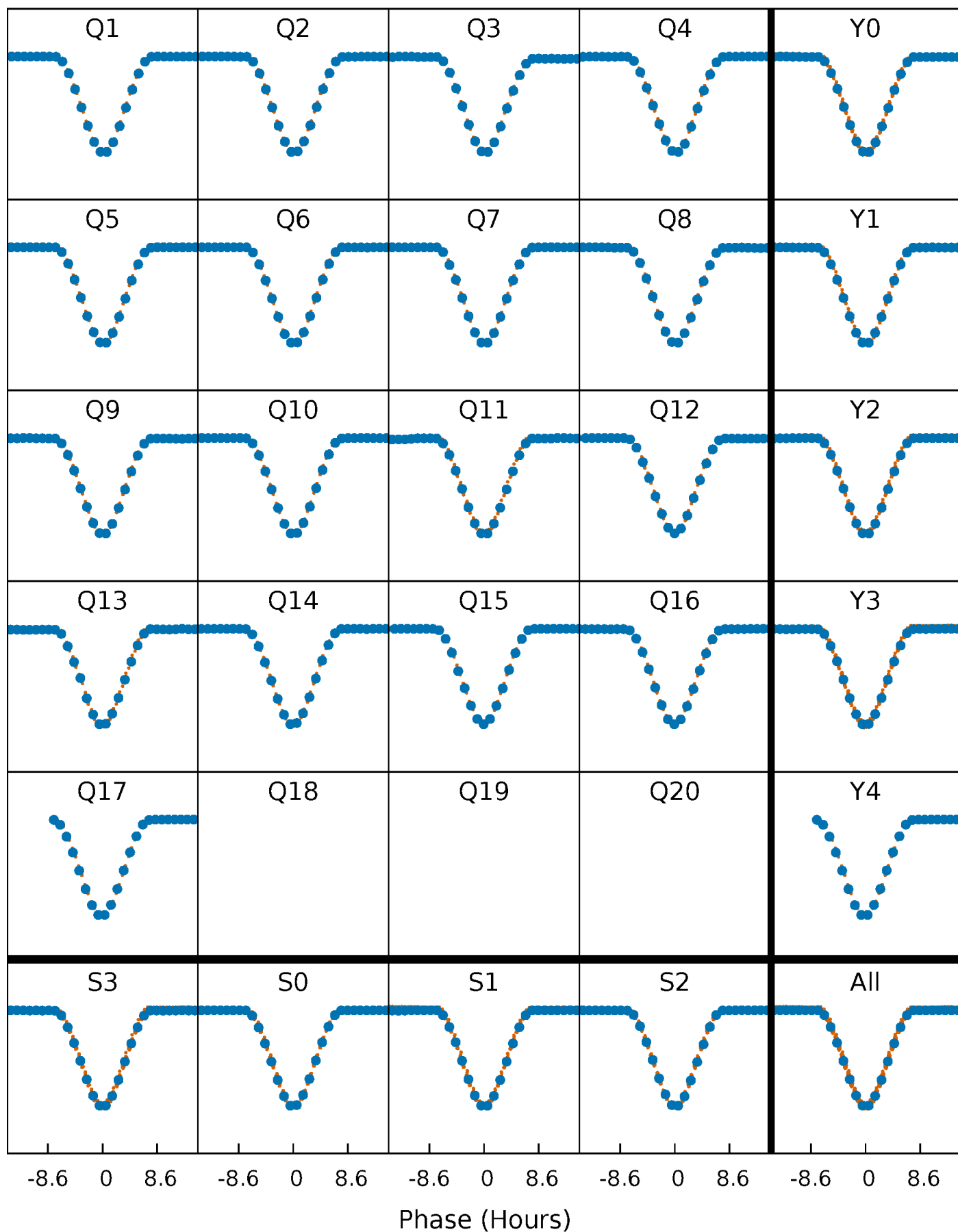


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



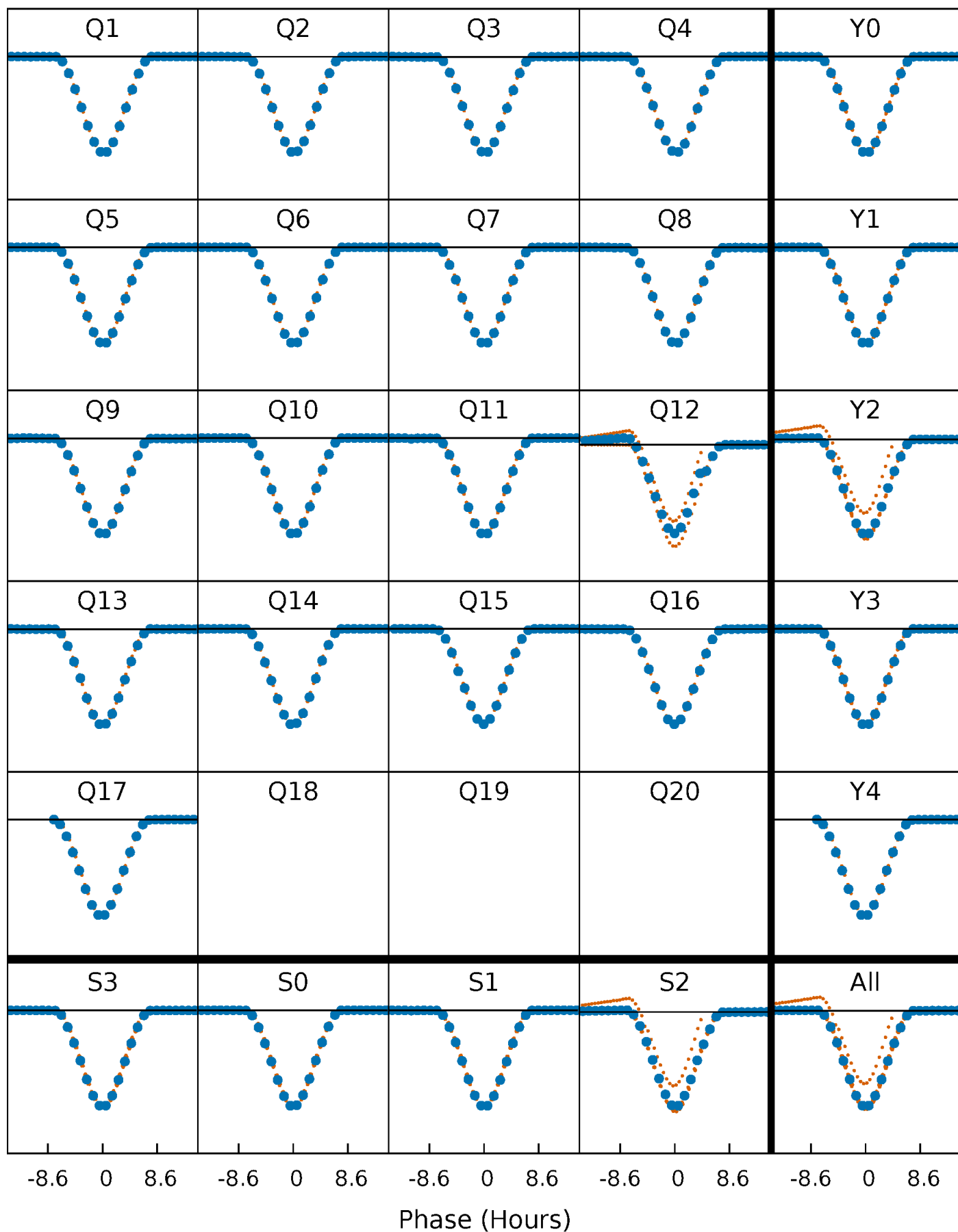
PDC Quarter-Phased Transit Curves

TCE 009818732-02 P= 45.035876 Days $T_0=146.025633$ (BKJD)



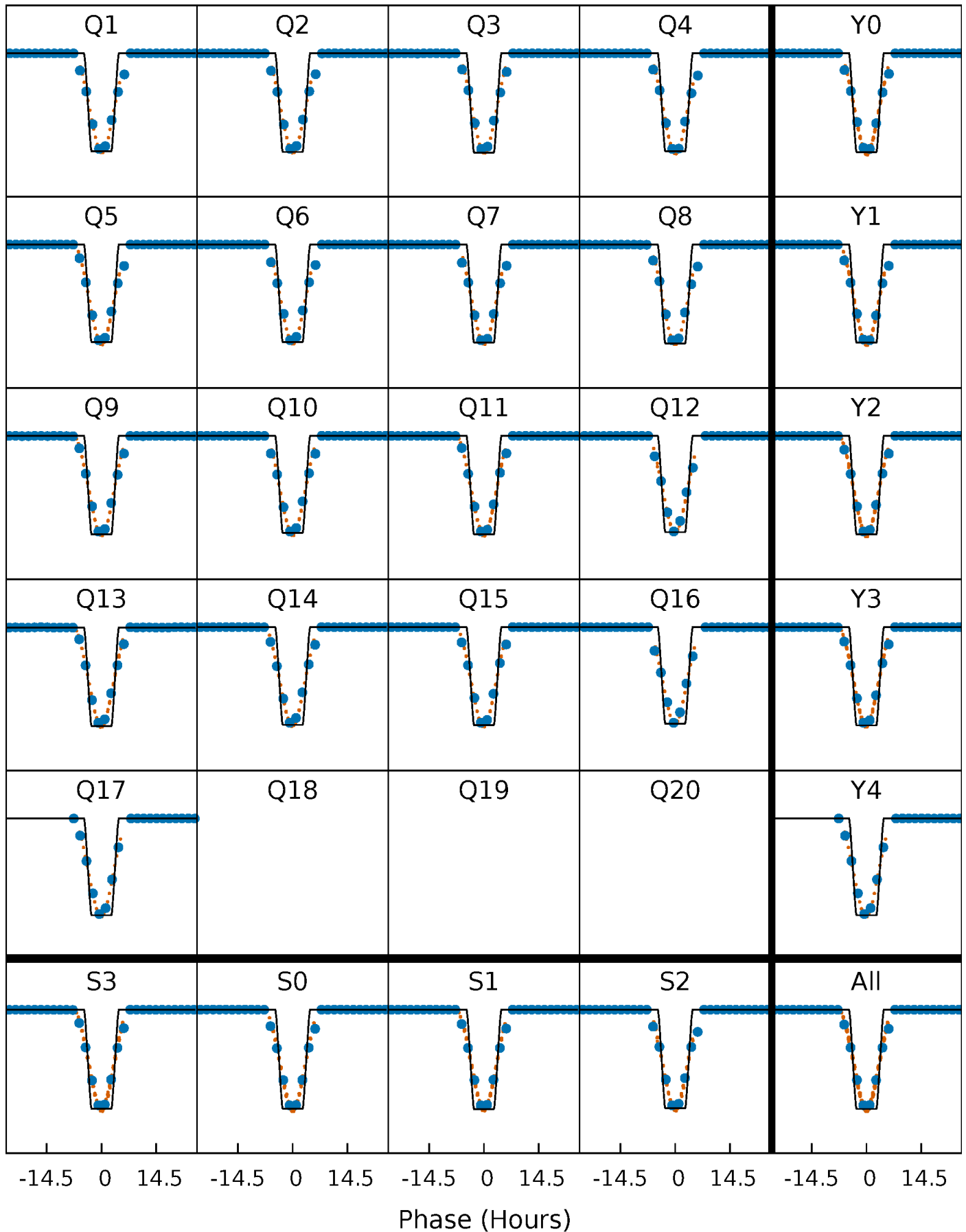
DV Quarter-Phased Transit Curves

TCE 009818732-02 P= 45.035876 Days $T_0=146.025633$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

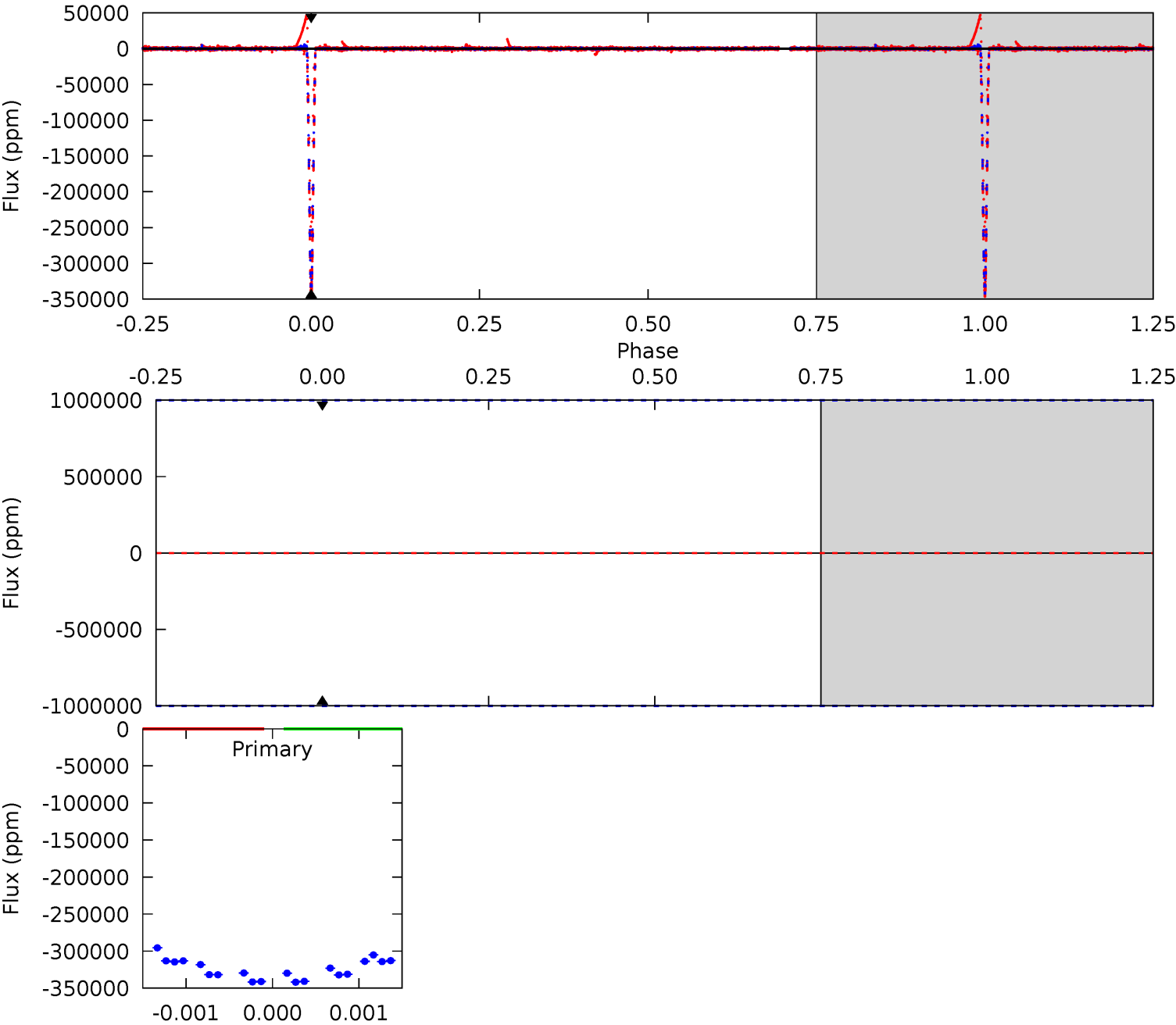
TCE 009818732-02 $P = 45.035876$ Days $T_0 = 146.026323$ (BKJD)



DV Model-Shift Uniqueness Test

009818732-02, P = 45.035876 Days, E = 100.989757 Days

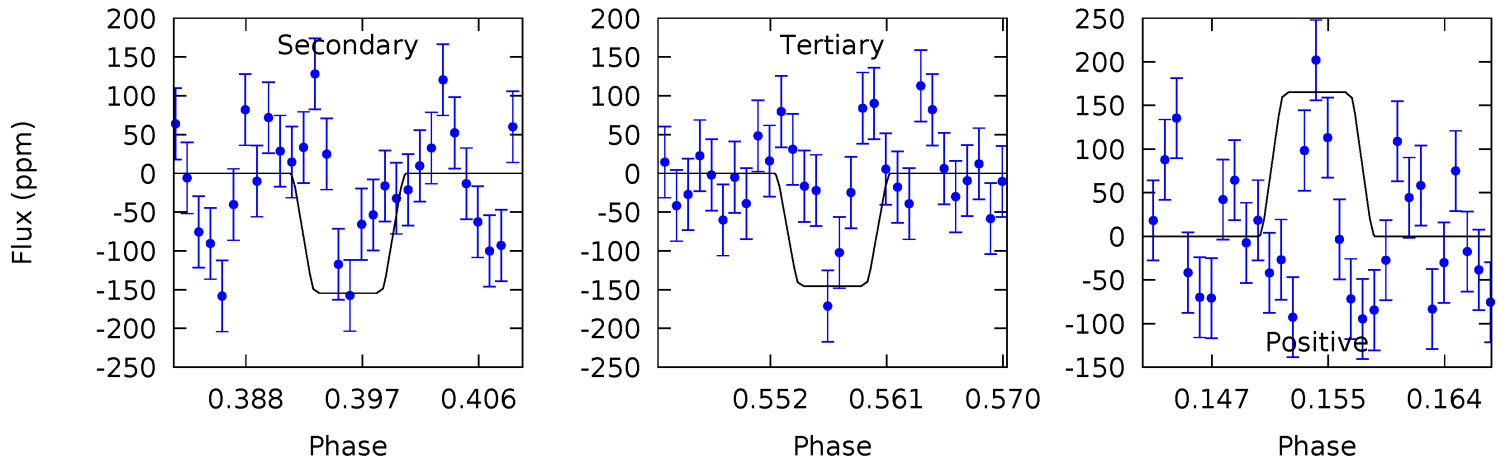
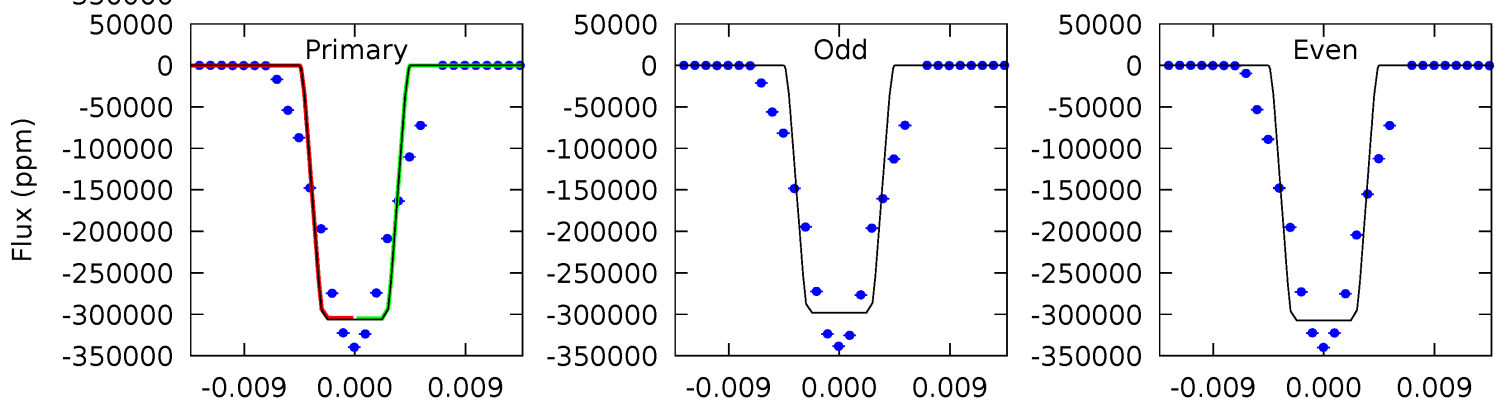
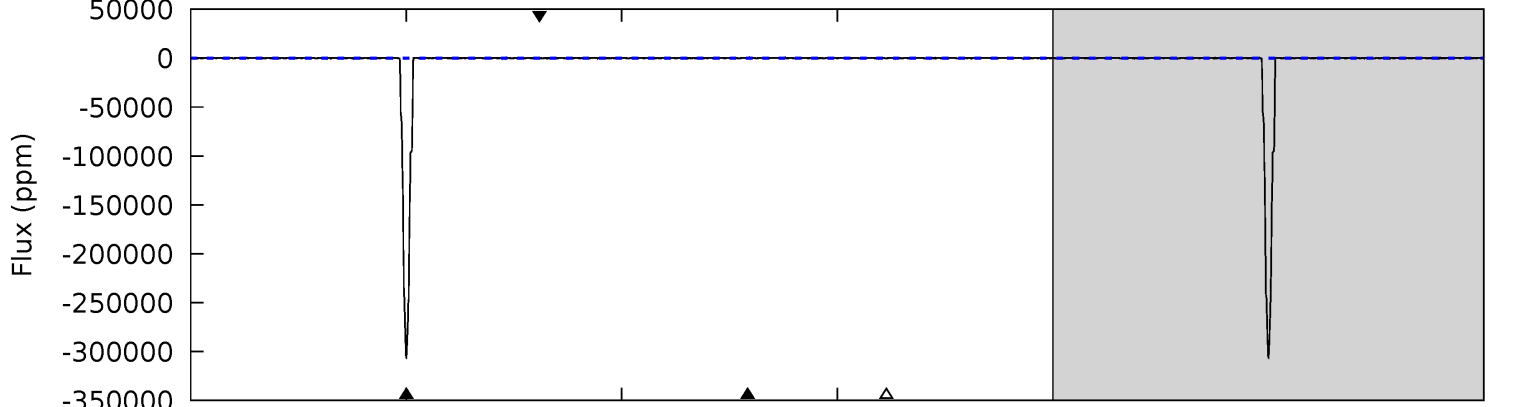
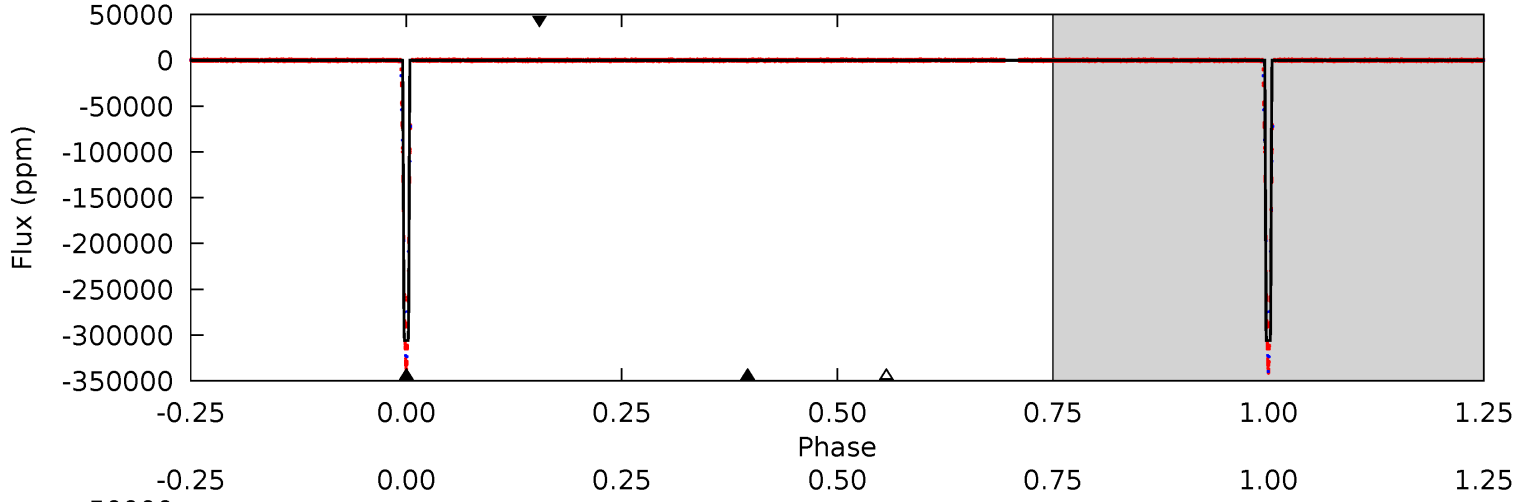
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009818732-02, P = 45.035876 Days, E = 100.990447 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11919	6.02	5.67	6.44	5.05	2.63	1.80	11913	11913	0.35	-0.41	176.4	1.00	0.00	0



Stellar Parameters For KIC 009818732

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+145}_{-193}	$4.386^{+0.060}_{-0.180}$	$-0.120^{+0.250}_{-0.300}$	$1.153^{+0.339}_{-0.145}$	$1.178^{+0.164}_{-0.148}$	$1.084^{+0.353}_{-0.522}$
	+2%/-3%	+1%/-4%	+208%/-250%	+29%/-13%	+14%/-13%	+33%/-48%
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 009818732-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$62.41^{+16.23}_{-14.68}$	850^{+61}_{-38}	3036^{+2448}_{-8366}	42^{+1051}_{-993}
Alt.	-155 ± 26	$74.96^{+17.29}_{-13.57}$	852^{+50}_{-40}	1894^{+99}_{-104}	$1.021^{+0.513}_{-0.347}$

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

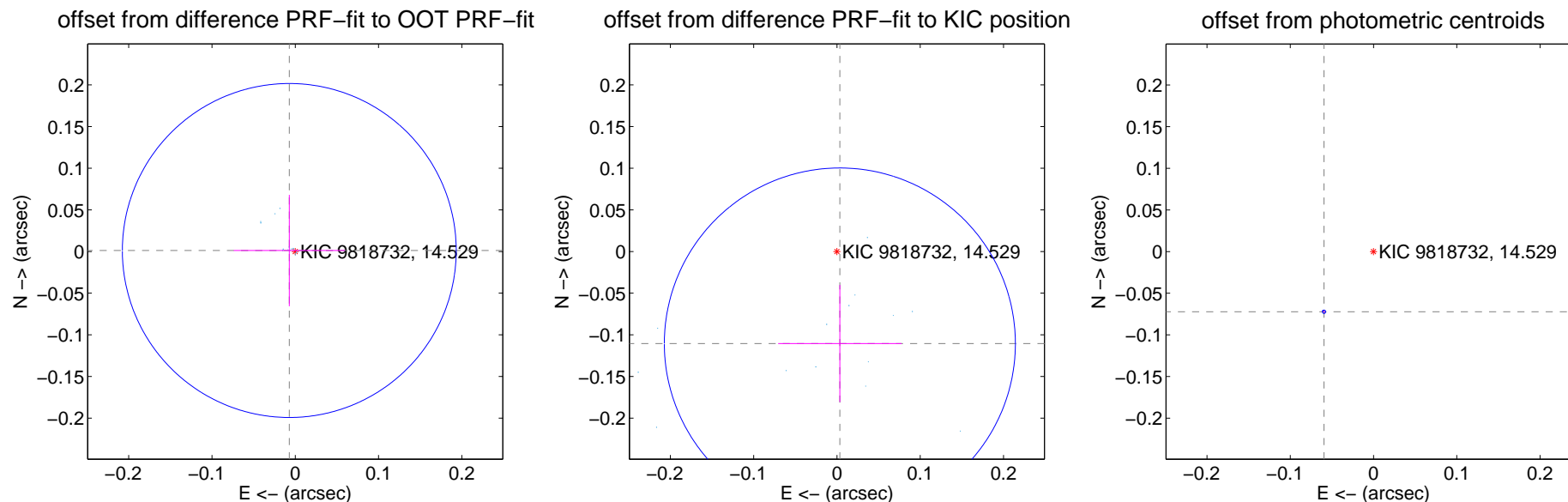
DV Centroid Data

Supplemental centroid analysis for 009818732-02. Kepler magnitude: 14.53. Transit SNR -1.00

There are 16 quarters with good PRF difference image offsets

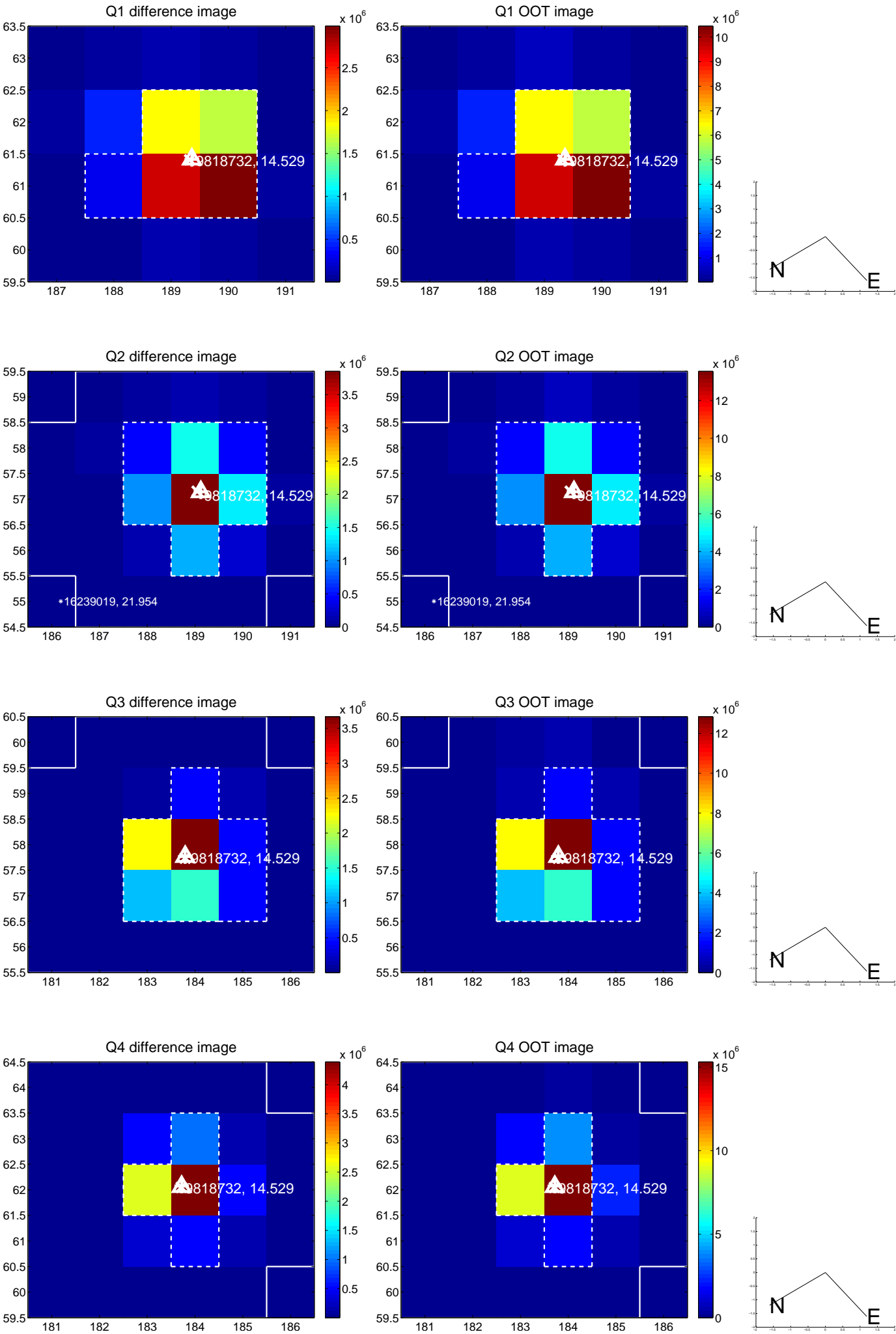
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.007 ± 0.067	0.11	0.007 ± 0.067	0.001 ± 0.067
PRF-fit source offset from KIC position	0.111 ± 0.070	1.57	-0.003 ± 0.074	-0.110 ± 0.070
photometric centroid source offset	0.09 ± 0.00	142.22	0.06 ± 0.00	-0.07 ± 0.00

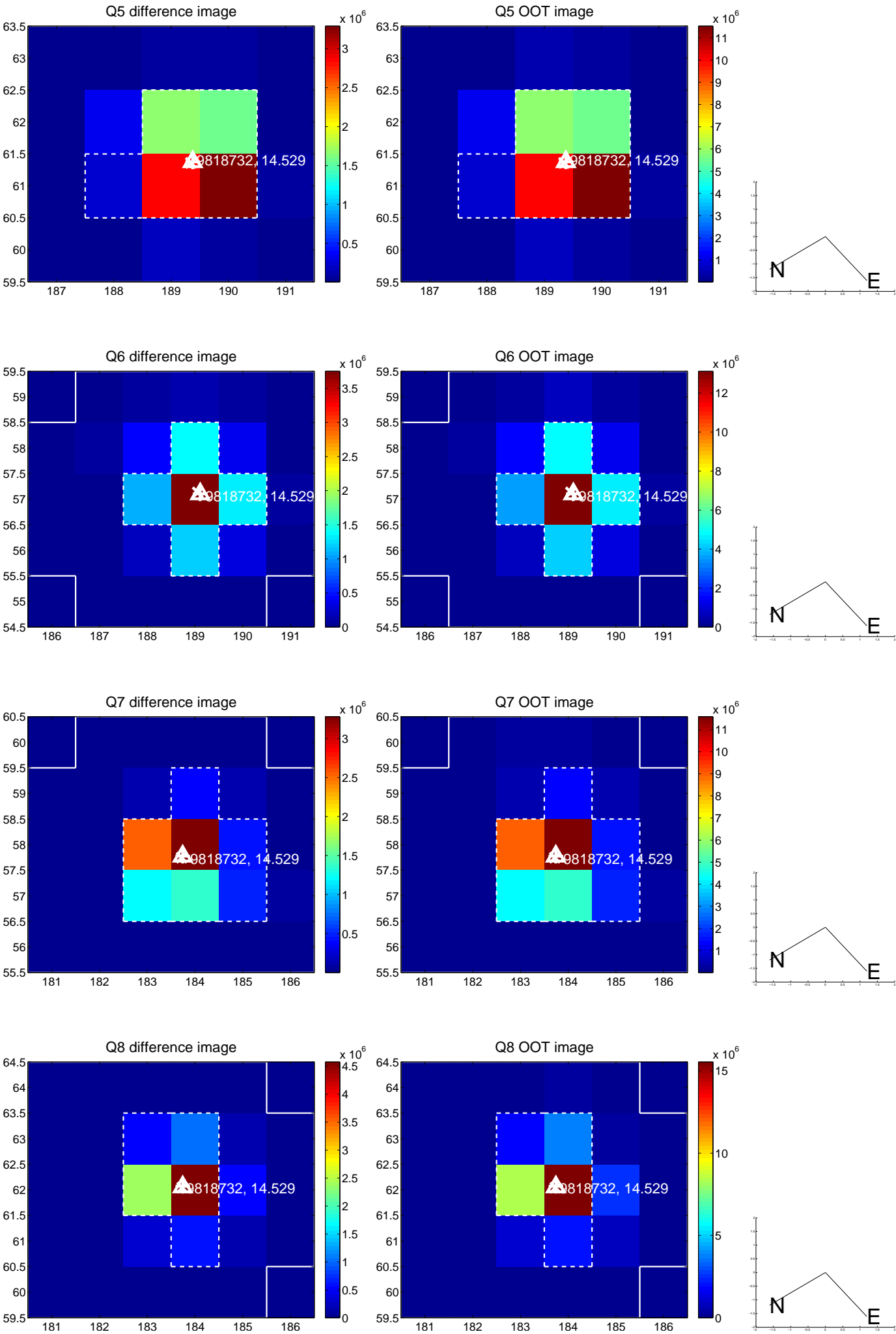


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

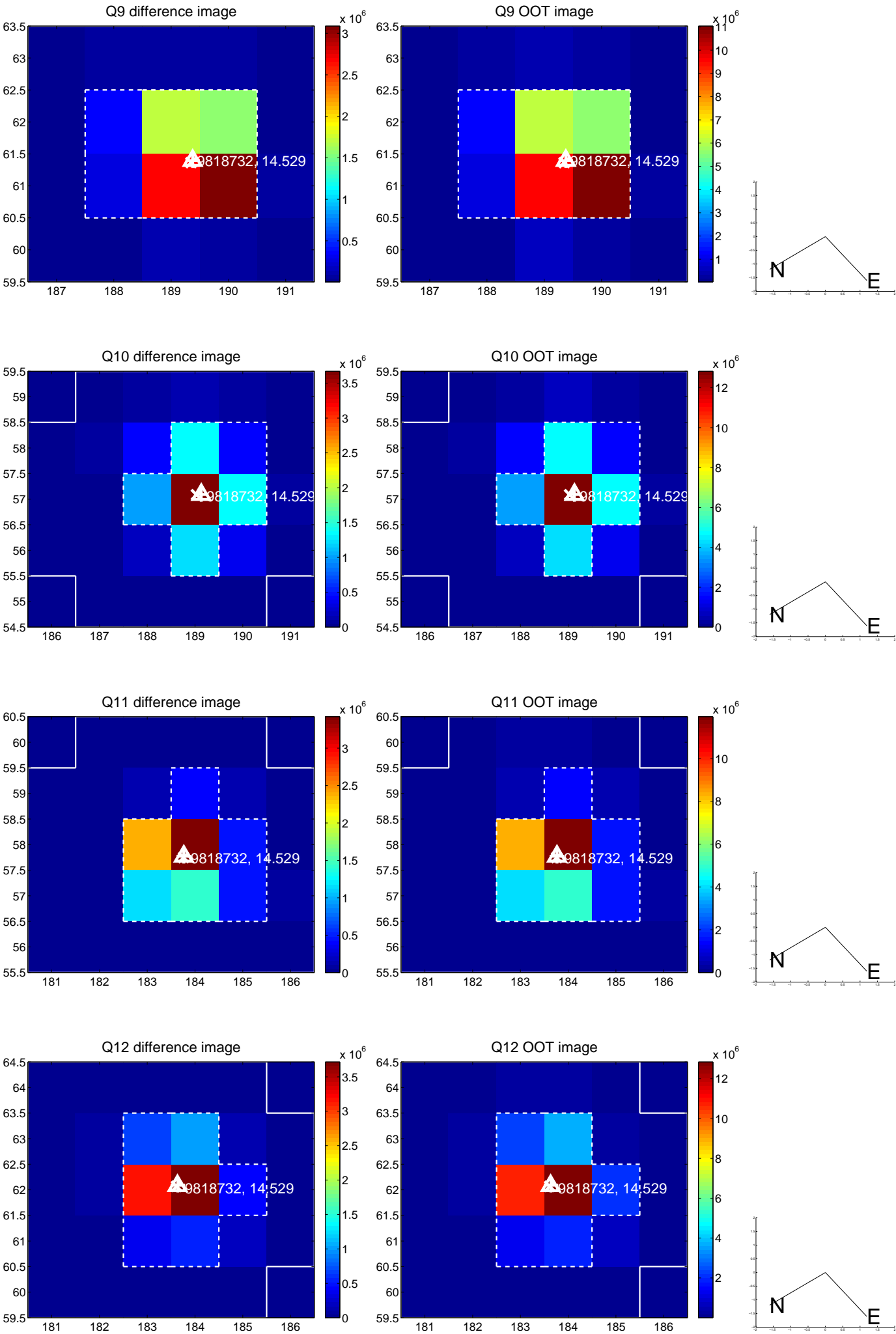
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



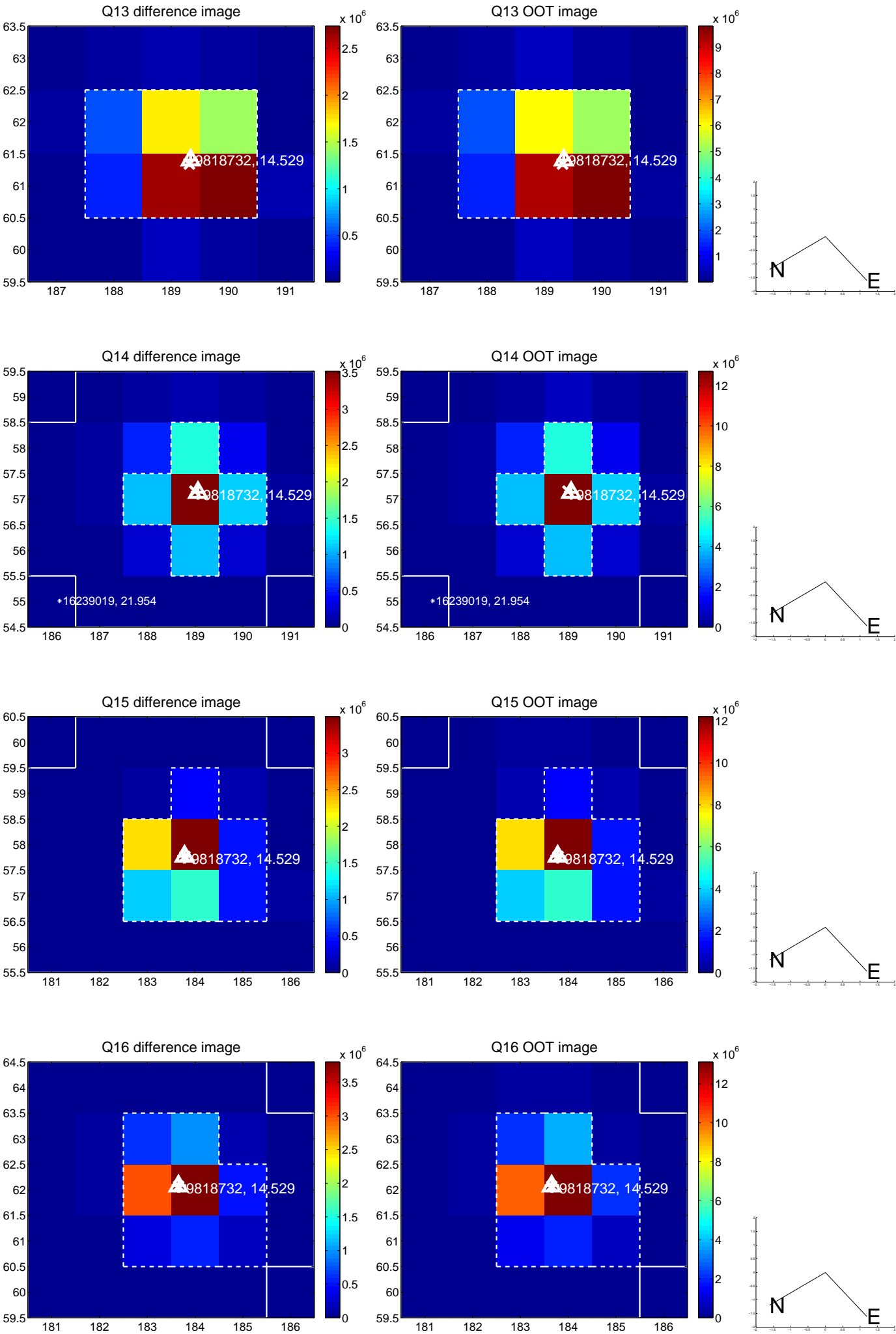
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



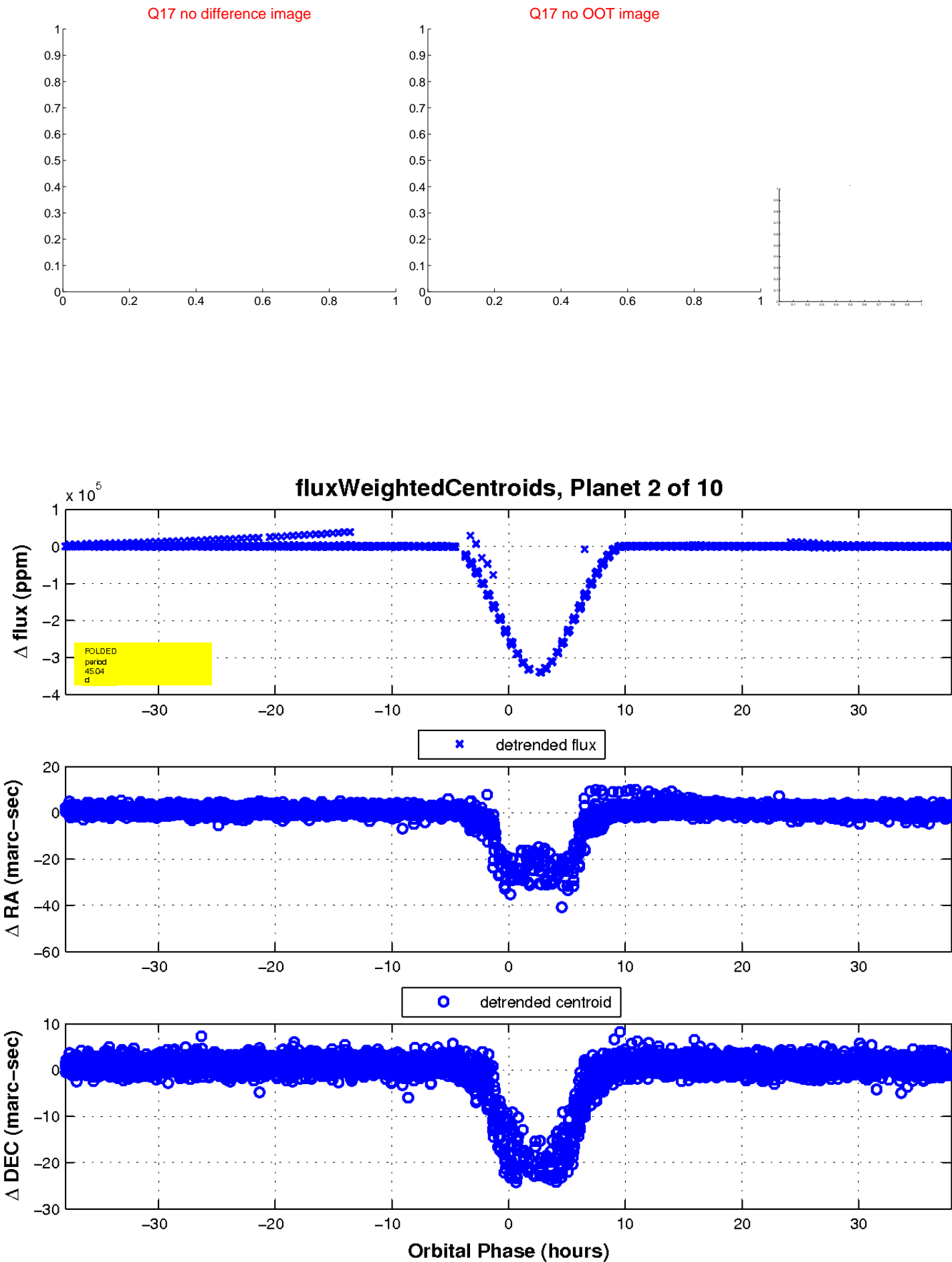
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

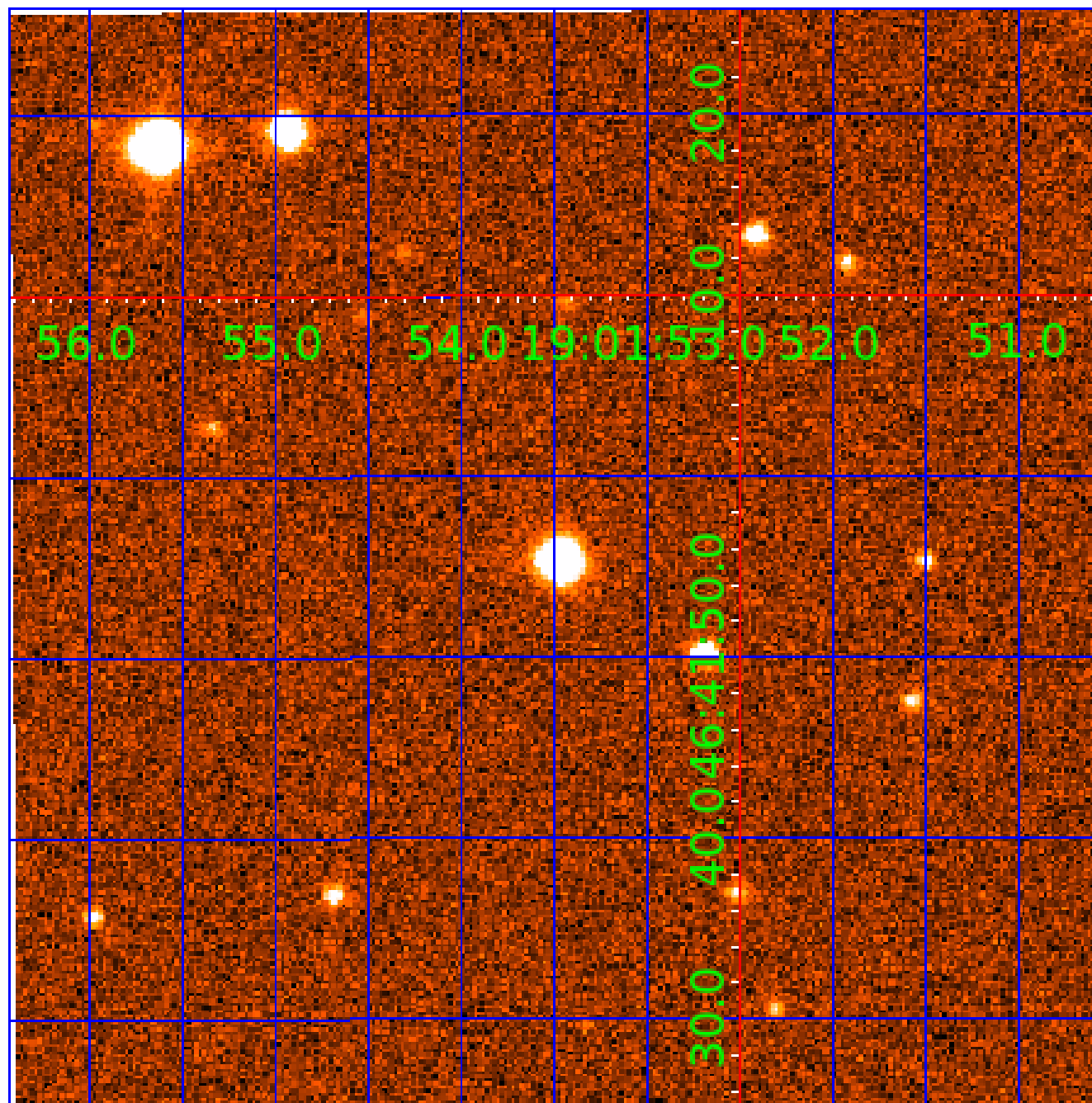


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009818732

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})
009818732-01	OBS	7233.01	45.035186	132.638245	415828.1	6.000	14502.9	-1.0	1.15	6484	62.91	30.72
009818732-02	OBS	No	45.035876	146.025633	341823.0	7.500	12763.8	-1.0	1.15	6484	59.56	30.72
009818732-03	OBS	No	448.952558	178.160811	18653.0	3.500	189.6	-1.0	1.15	6484	15.85	1.43
009818732-04	OBS	No	45.036426	148.109856	5314.4	15.000	187.1	-1.0	1.15	6484	8.45	30.72
009818732-05	OBS	No	308.580812	241.804540	11597.9	4.500	175.0	-1.0	1.15	6484	12.49	2.36
009818732-07	OBS	No	45.031979	175.613990	2642.4	30.842	151.1	92.8	1.15	6484	10.87	30.72
009818732-08	OBS	No	45.039596	134.541541	2656.9	30.113	176.6	79.7	1.15	6484	10.91	30.72
009818732-09	OBS	No	45.036426	143.900542	3446.2	15.000	128.1	-1.0	1.15	6484	6.80	30.72
009818732-10	OBS	No	407.554165	365.604668	5181.3	15.000	127.3	-1.0	1.15	6484	8.34	1.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009818732-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
009818732-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS
009818732-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
009818732-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009818732-07	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
009818732-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009818732-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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

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

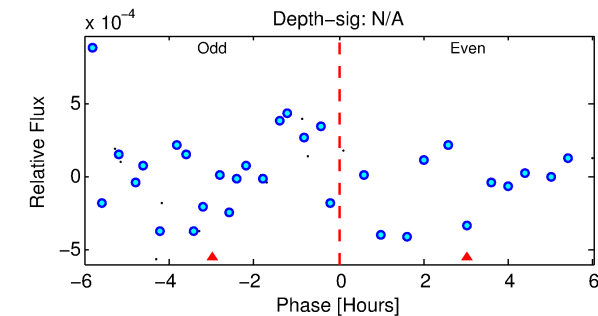
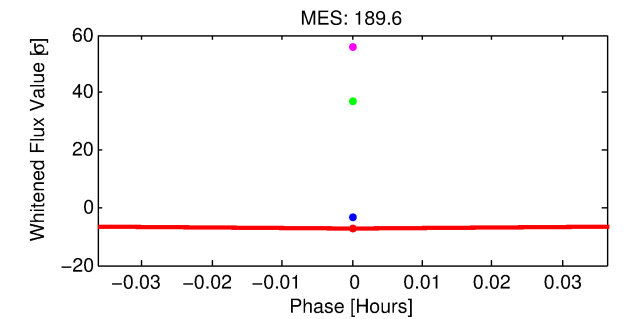
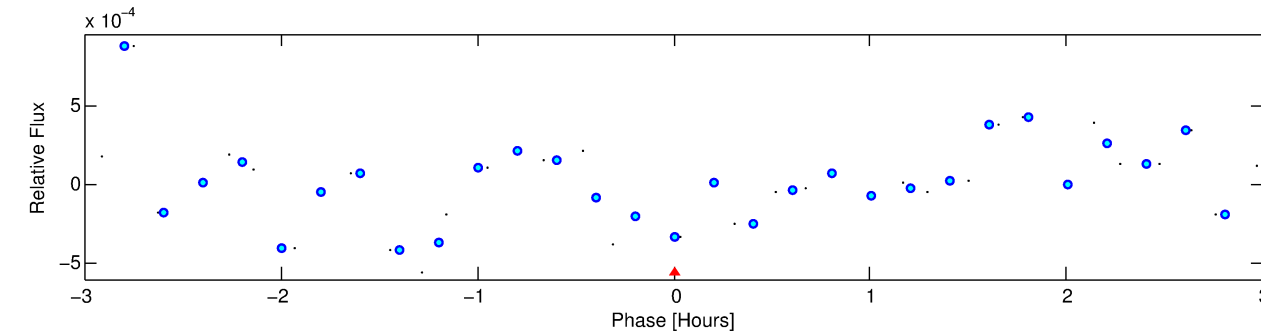
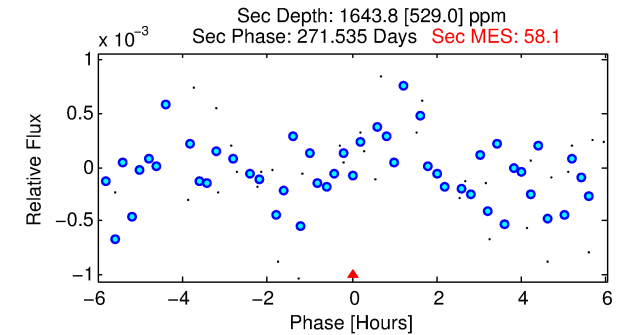
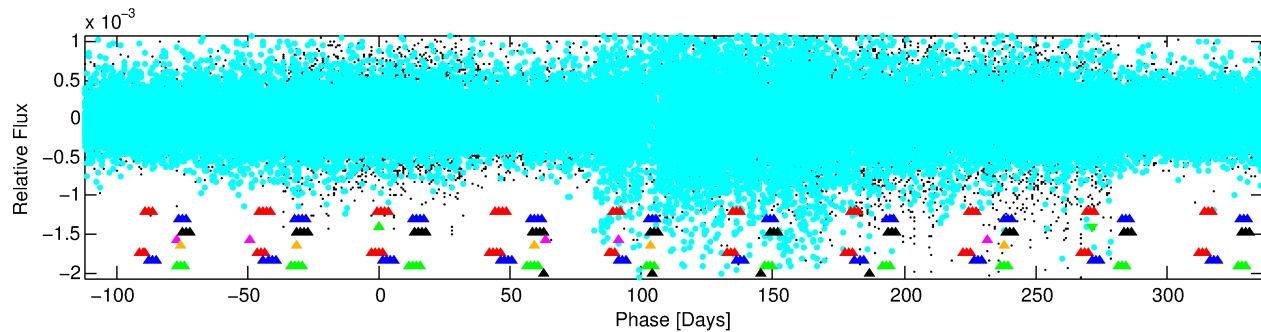
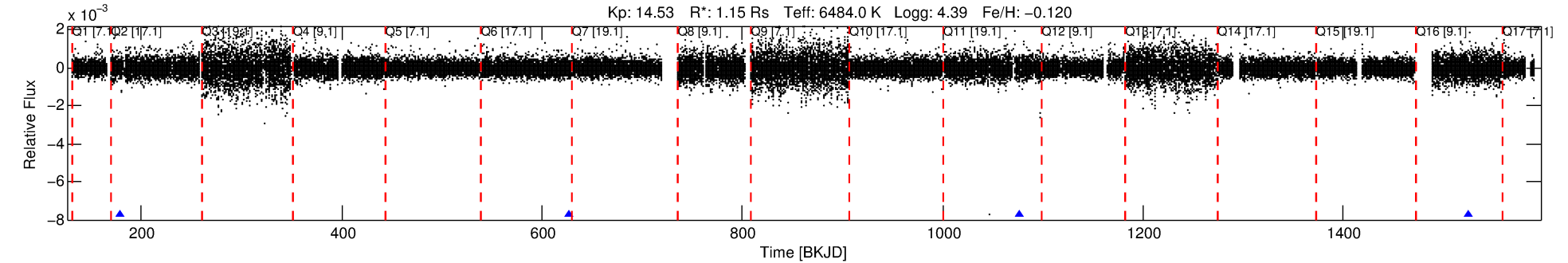
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009818732-03

No Significant Match Found

DV One-Page Summary

KIC: 9818732 Candidate: 3 of 10 Period: 448.953 d
KOI: K07233 Corr: No Ephemeris Match



TPS TCE Results:

Period = 448.95256 d
Epoch = 178.1608 BKJD

DV fit results are unavailable

DV Diagnostic Results:

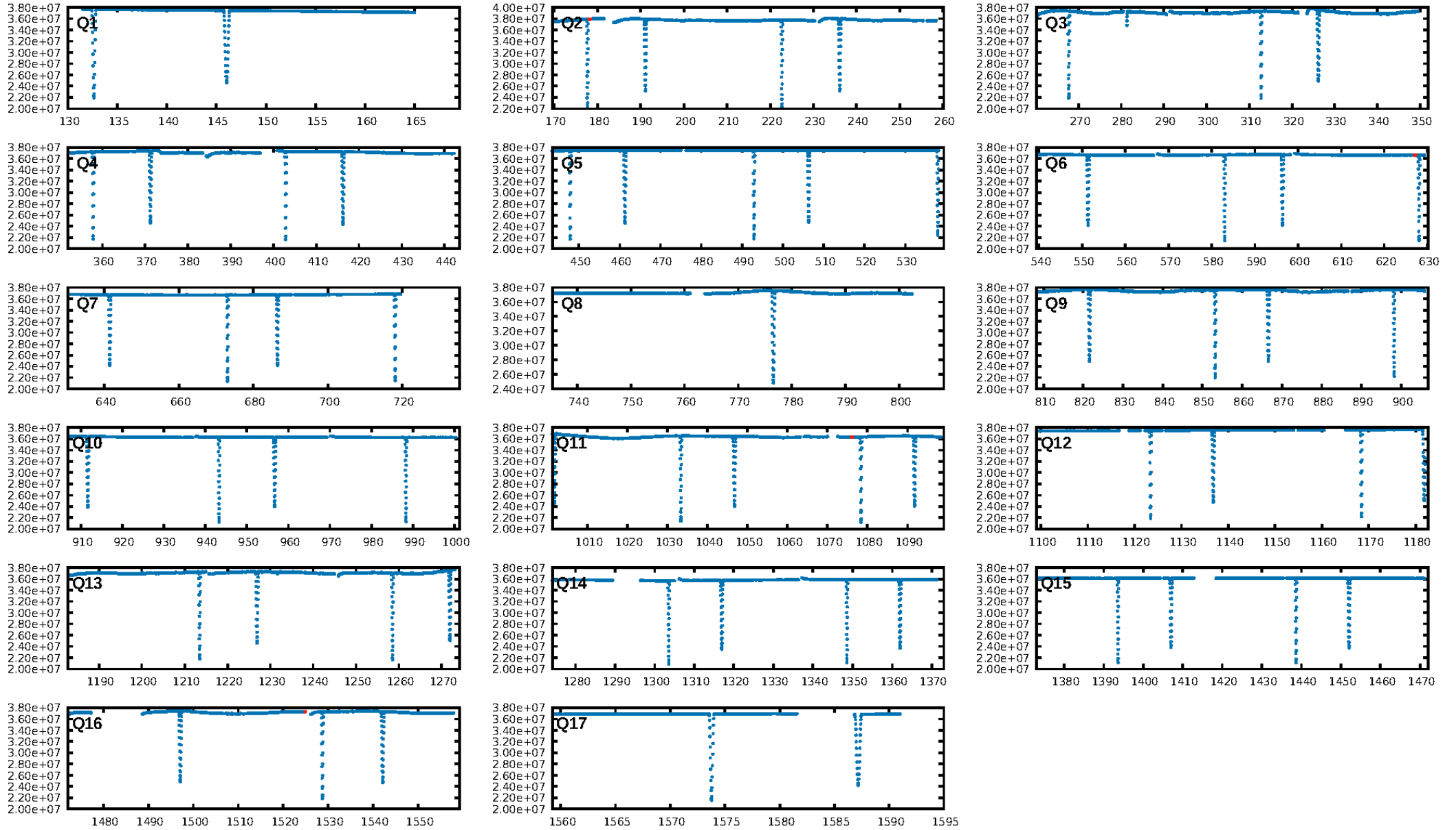
ShortPeriod-sig: 100.0% [64.50σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.5404

Centroid-sig: N/A
Centroid-so: 8.386 arcsec [0.57σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [1/1]

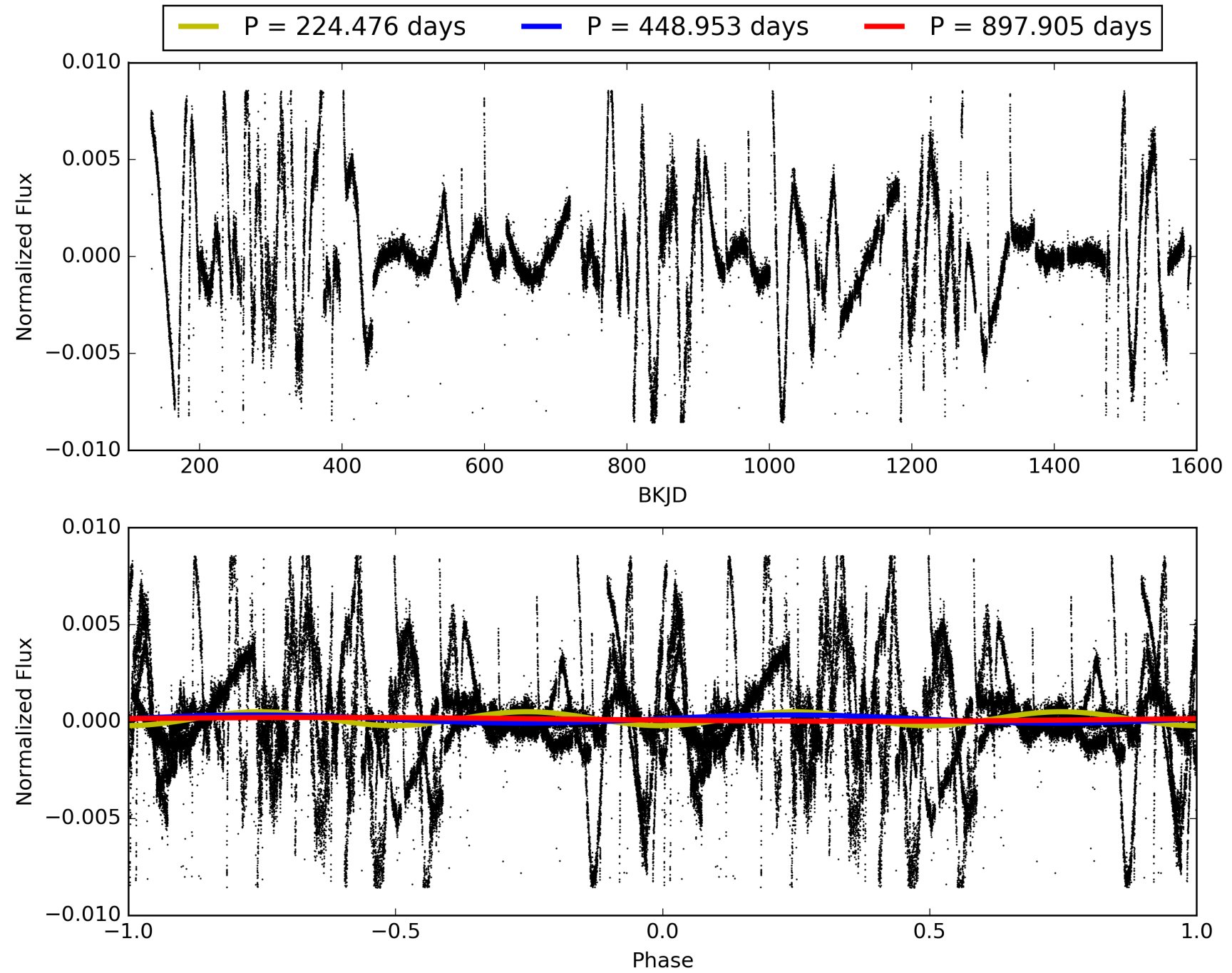
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:27:56 Z

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

TCE 009818732-03, PDC Light Curves

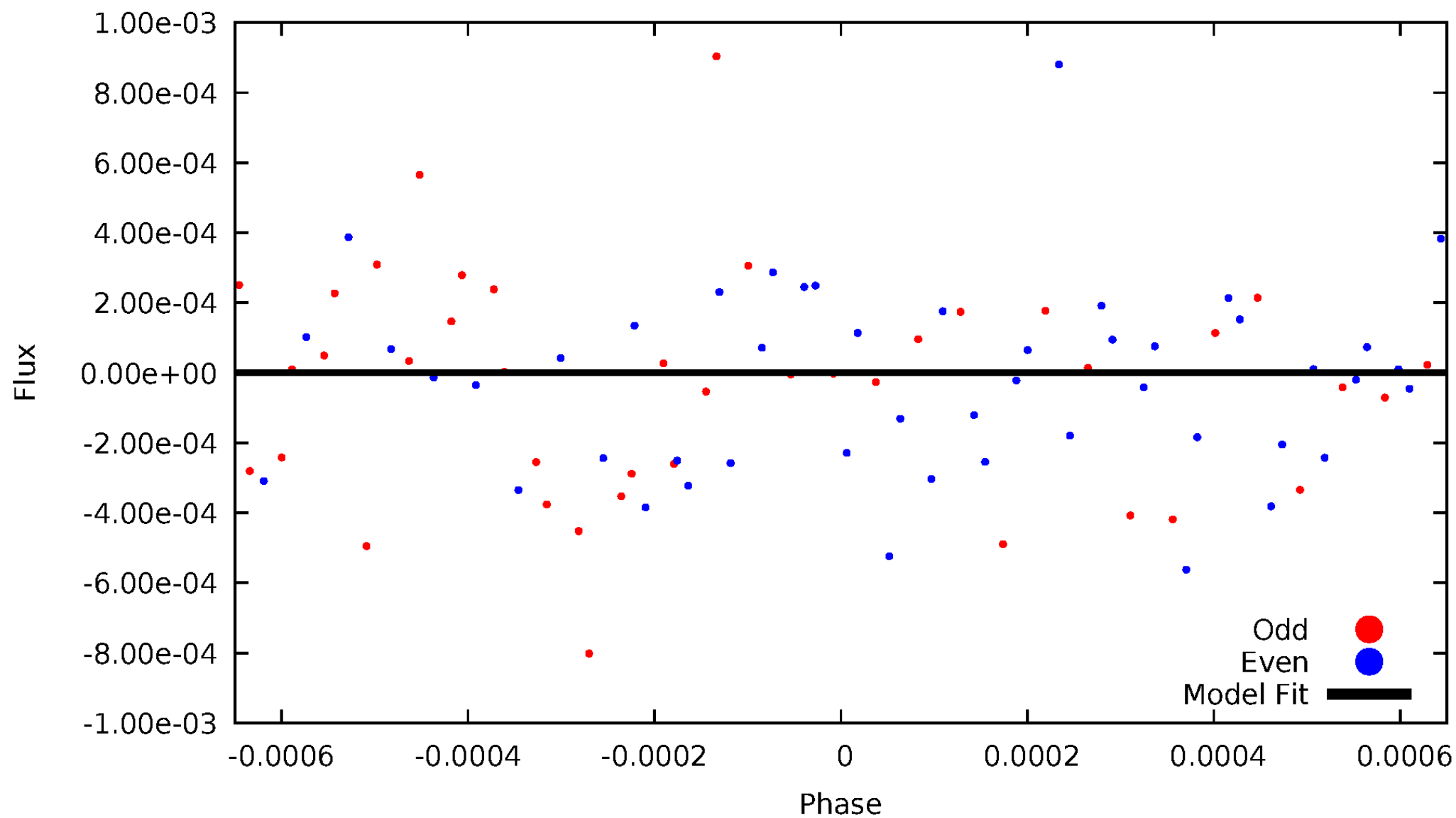


TCE 009818732-03



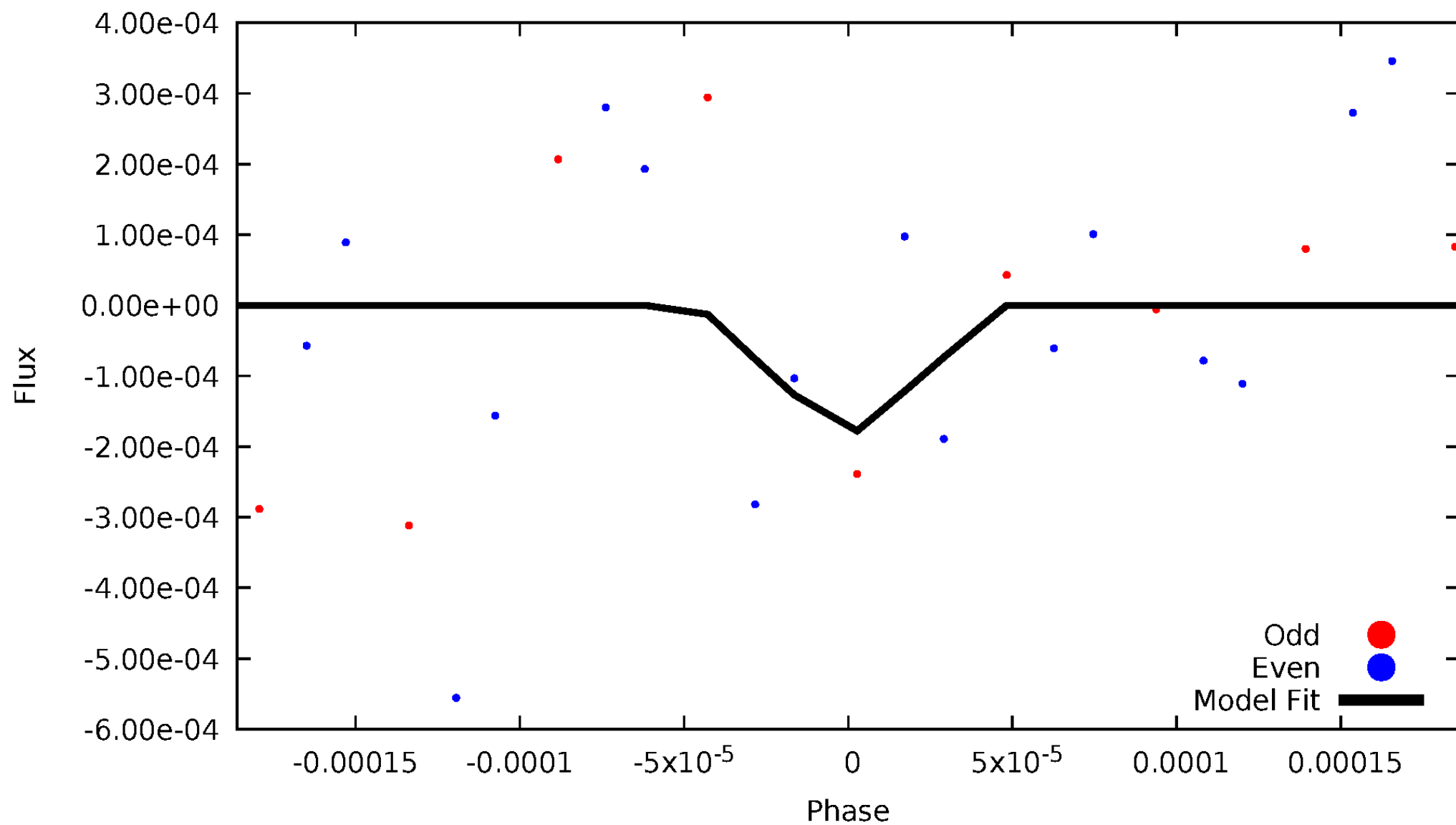
DV Odd/Even

TCE 009818732-03

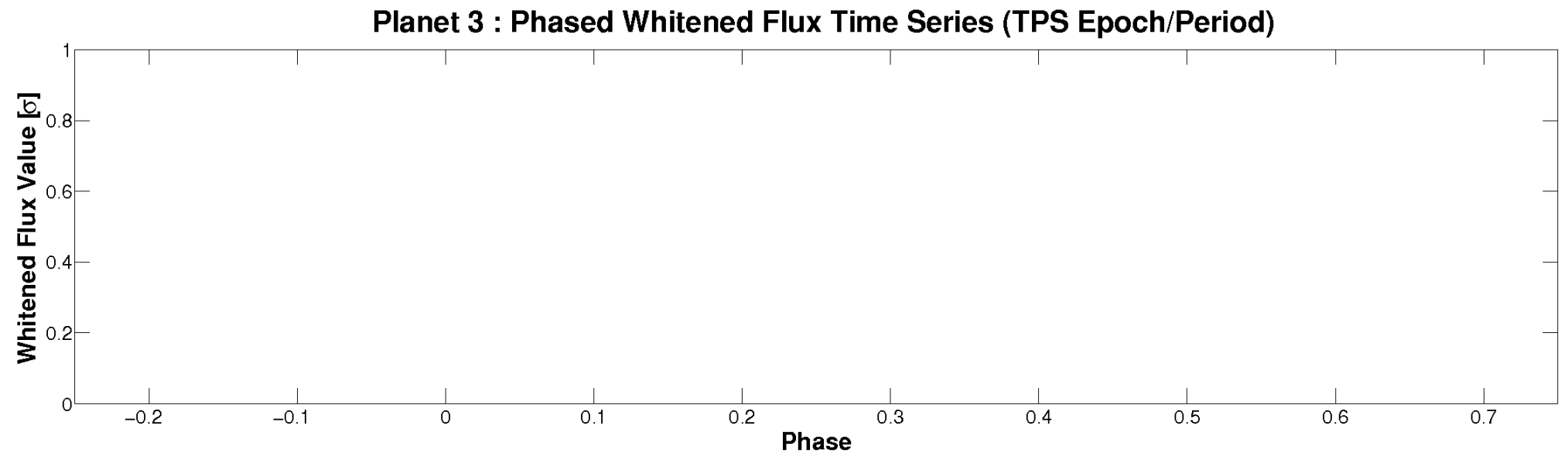
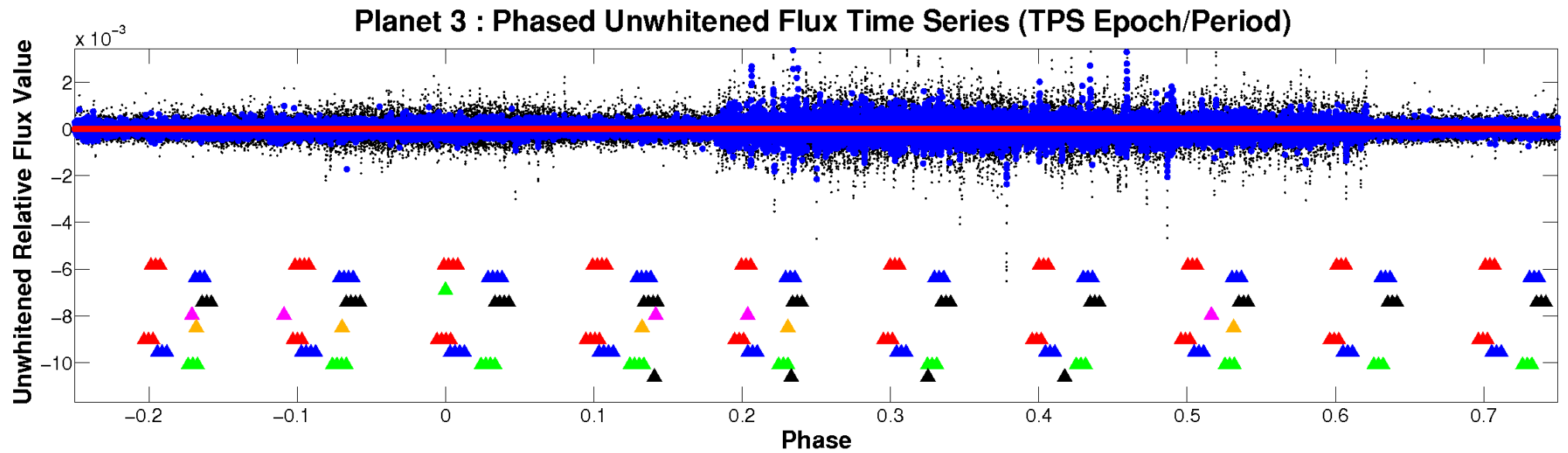


ALT Odd/Even

TCE 009818732-03

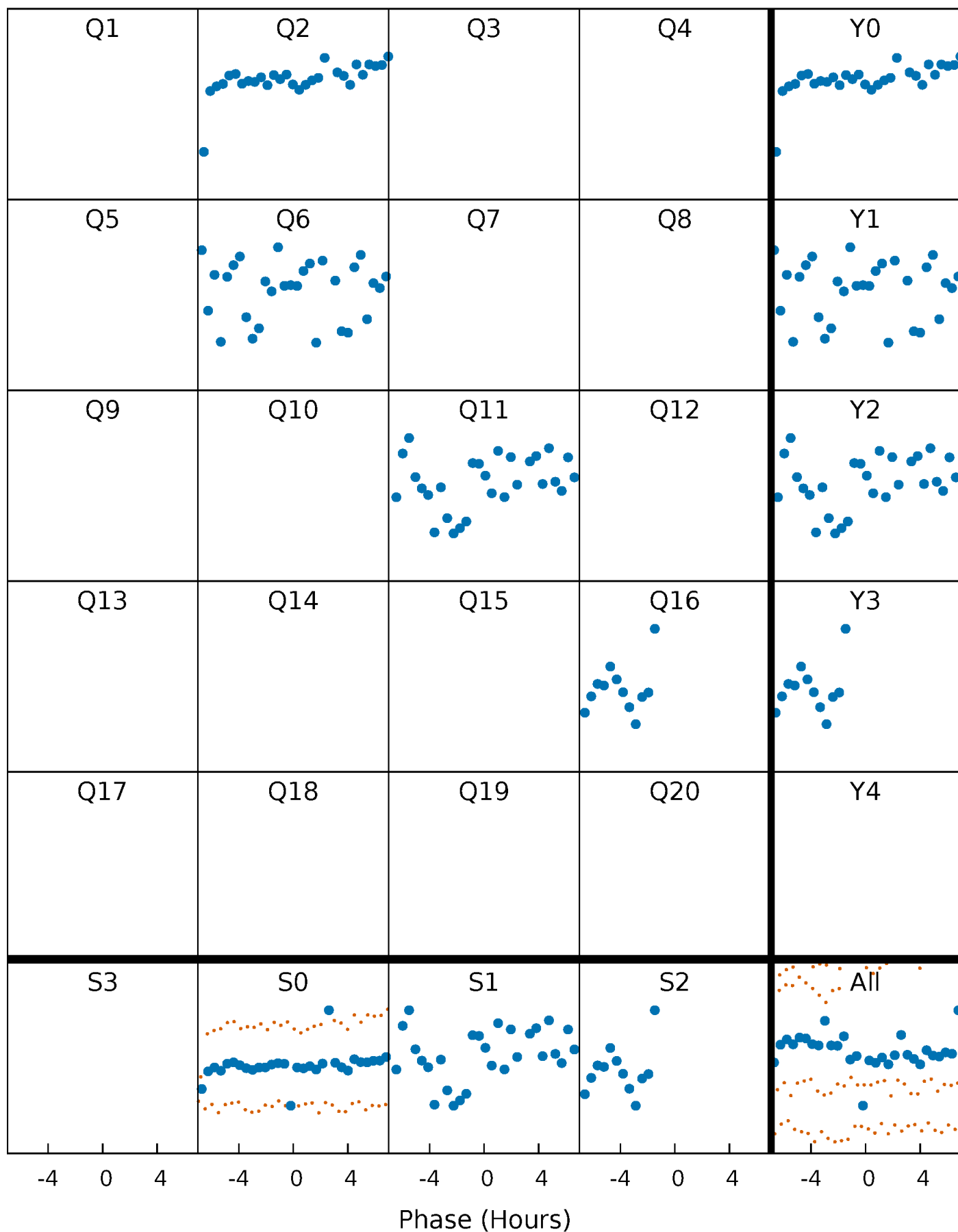


Non-Whitened Vs. Whitened Light Curve



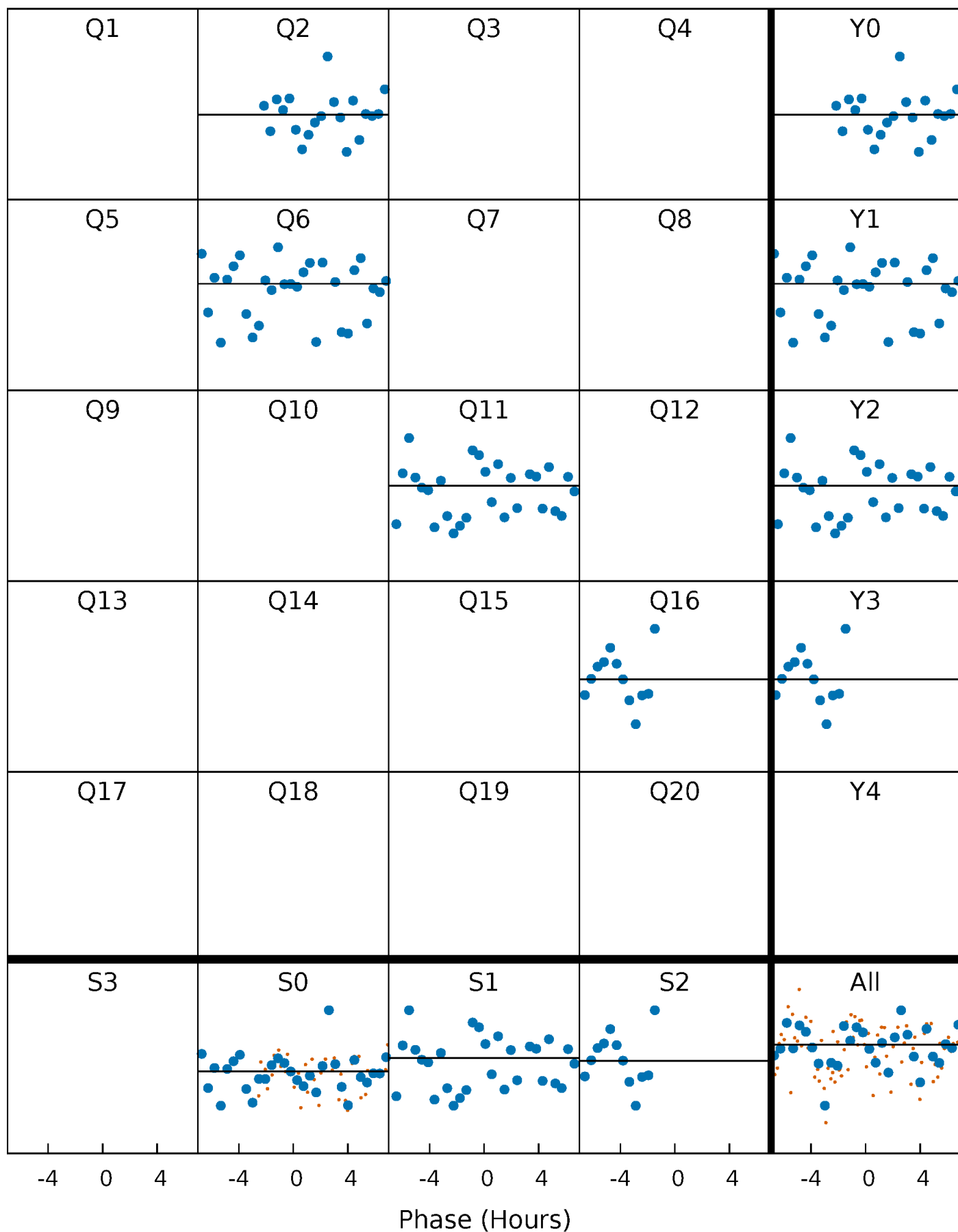
PDC Quarter-Phased Transit Curves

TCE 009818732-03 $P=448.952558$ Days $T_0=178.160811$ (BKJD)



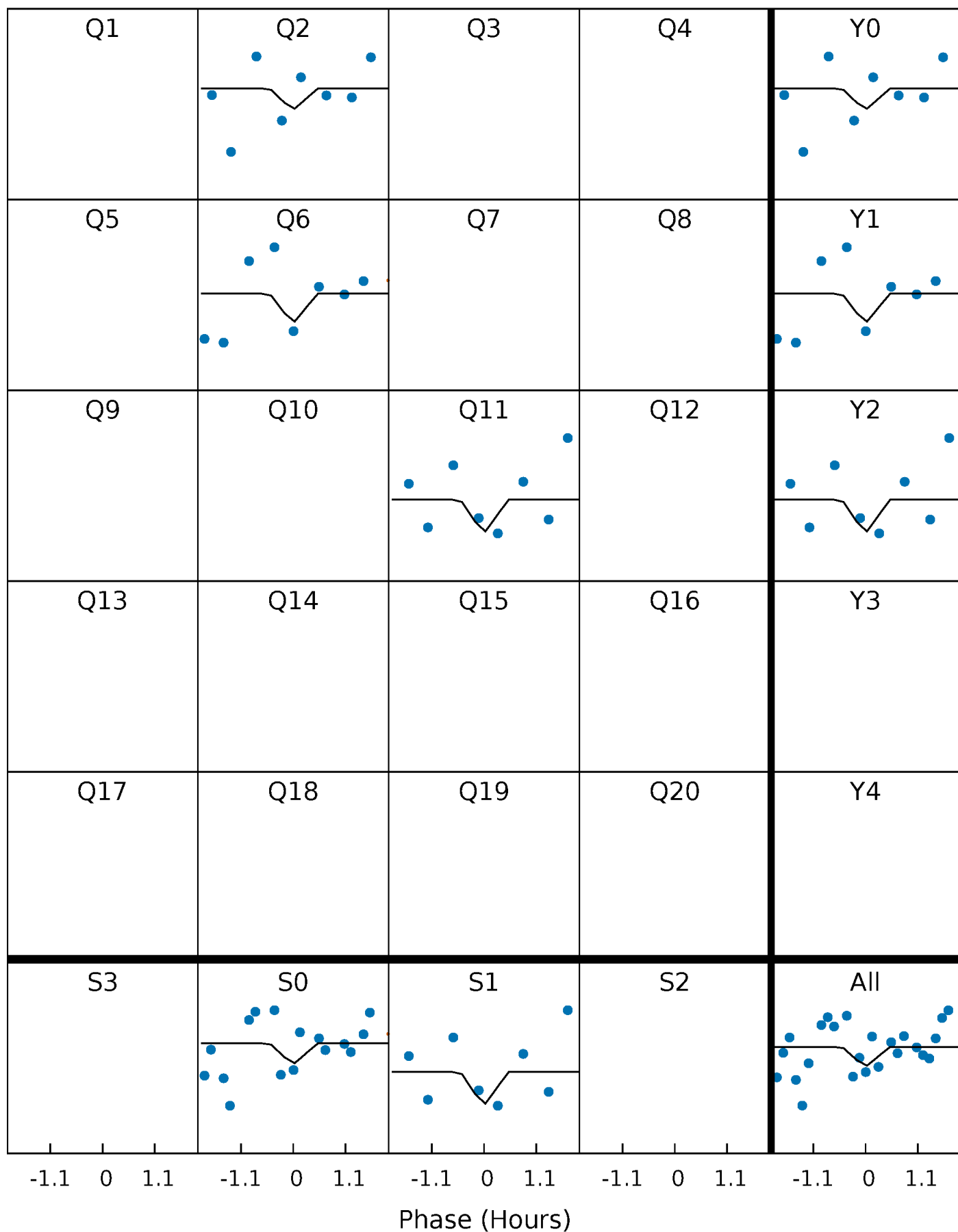
DV Quarter-Phased Transit Curves

TCE 009818732-03 P=448.952558 Days $T_0=178.160811$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

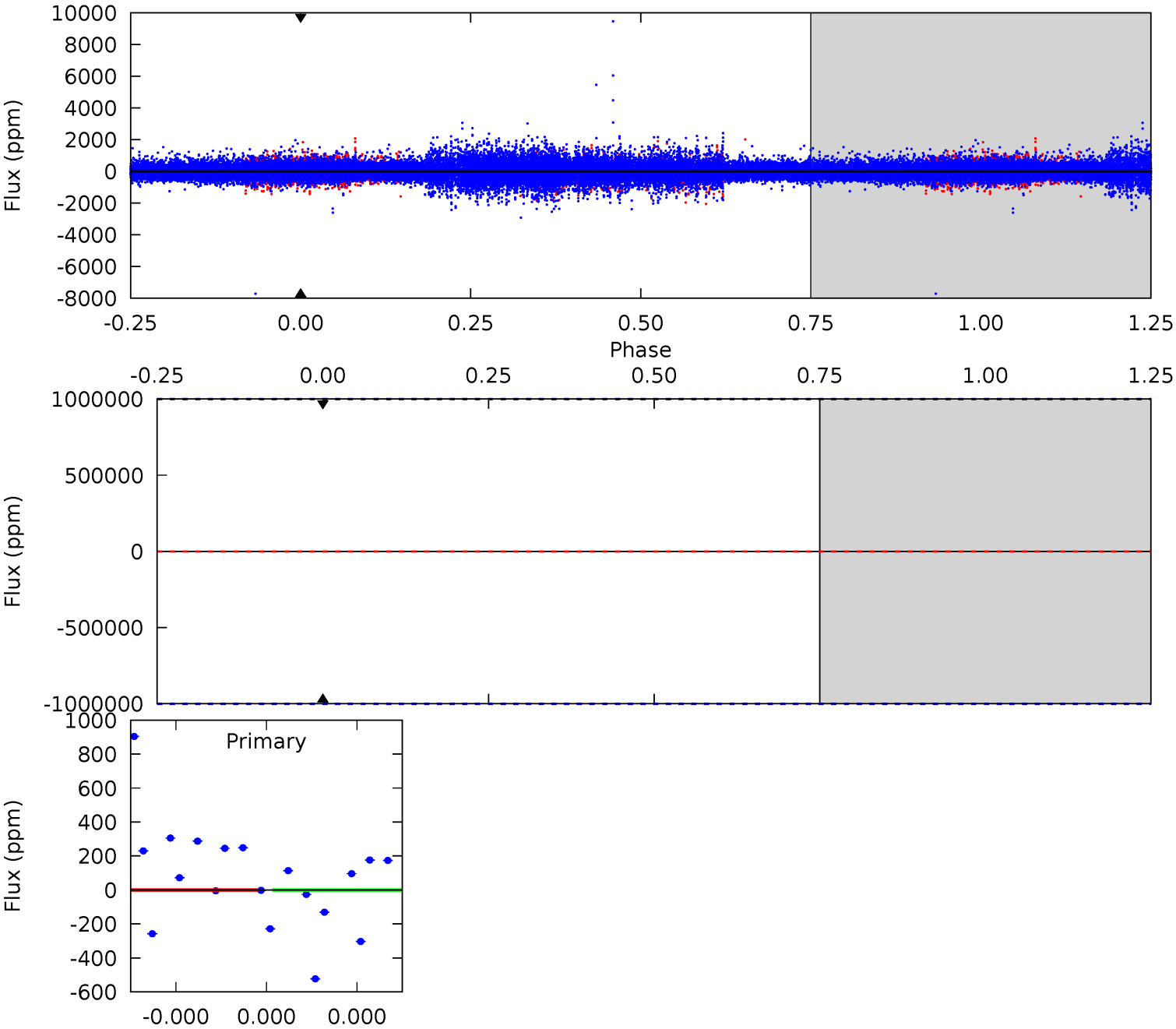
TCE 009818732-03 P=448.952558 Days $T_0=178.380703$ (BKJD)



DV Model-Shift Uniqueness Test

009818732-03, P = 448.952558 Days, E = 178.160811 Days

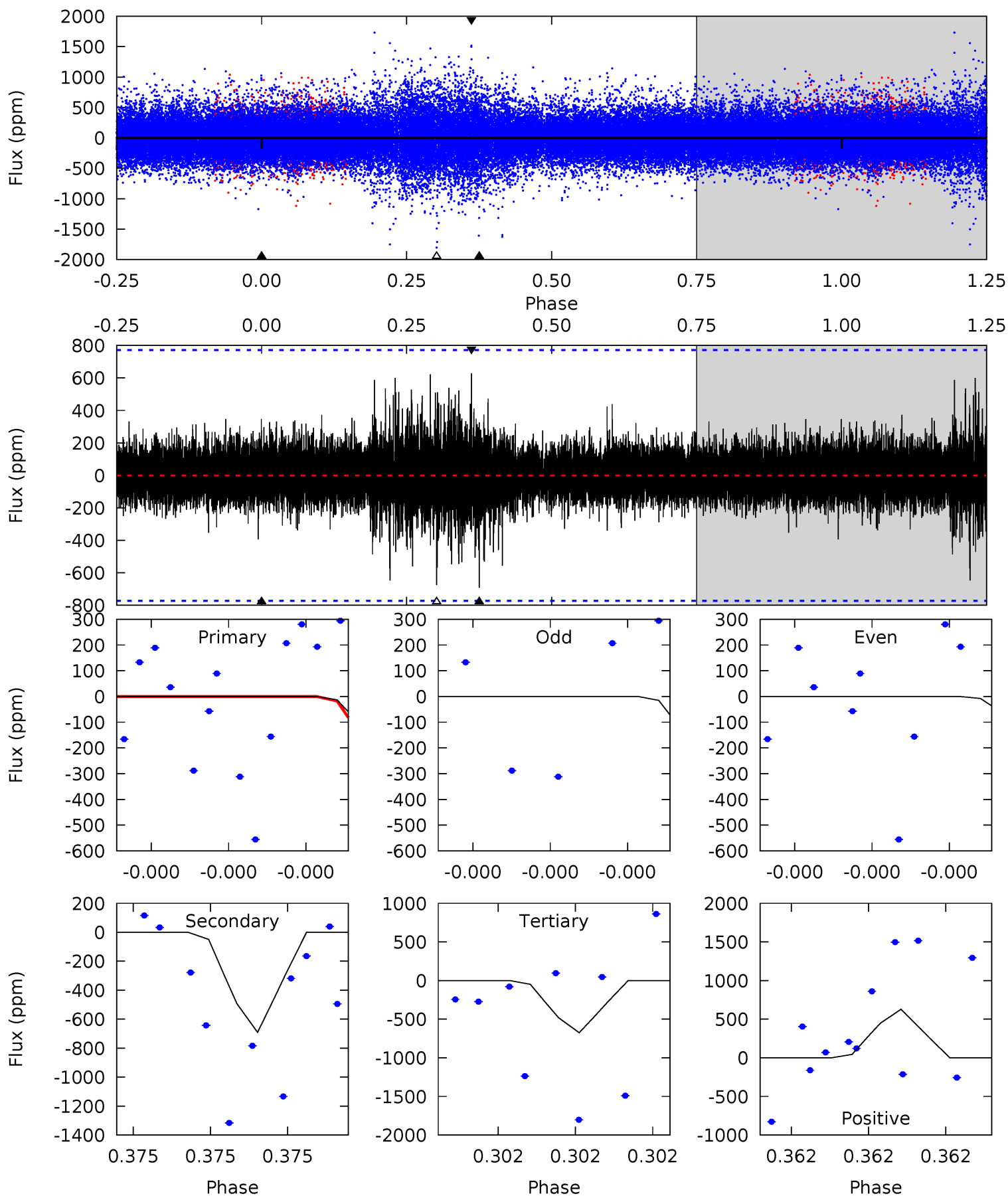
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009818732-03, P = 448.952558 Days, E = 178.380703 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.39	5.28	5.15	4.79	5.90	3.97	0.77	-3.77	-3.41	0.12	0.48	0.35	0.80	0.48	0.09



Stellar Parameters For KIC 009818732

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+145}_{-193}	$4.386^{+0.060}_{-0.180}$	$-0.120^{+0.250}_{-0.300}$	$1.153^{+0.339}_{-0.145}$	$1.178^{+0.164}_{-0.148}$	$1.084^{+0.353}_{-0.522}$
	+2%/-3%	+1%/-4%	+208%/-250%	+29%/-13%	+14%/-13%	+33%/-48%
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 009818732-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$18.67^{+11.93}_{-10.78}$	397^{+27}_{-20}	3816^{+8597}_{-15762}	$3314^{+352132}_{-304433}$
Alt.	-691 ± 131	$9.70^{+9.93}_{-6.73}$	396^{+25}_{-18}	4107^{+2879}_{-823}	5651^{+59493}_{-4166}

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

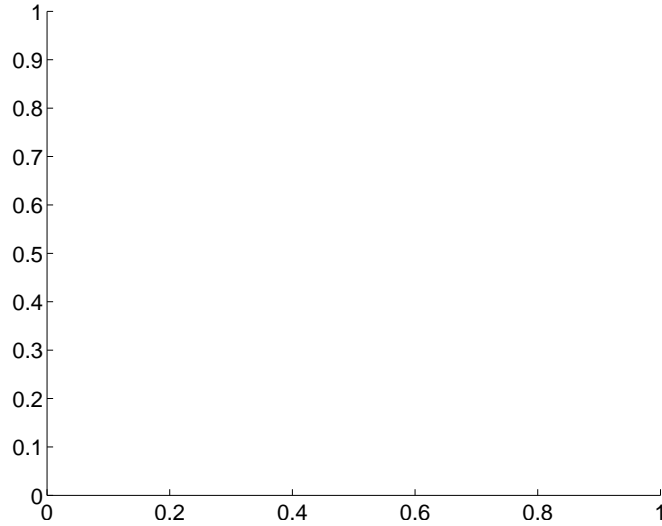
Supplemental centroid analysis for 009818732-03. Kepler magnitude: 14.53. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

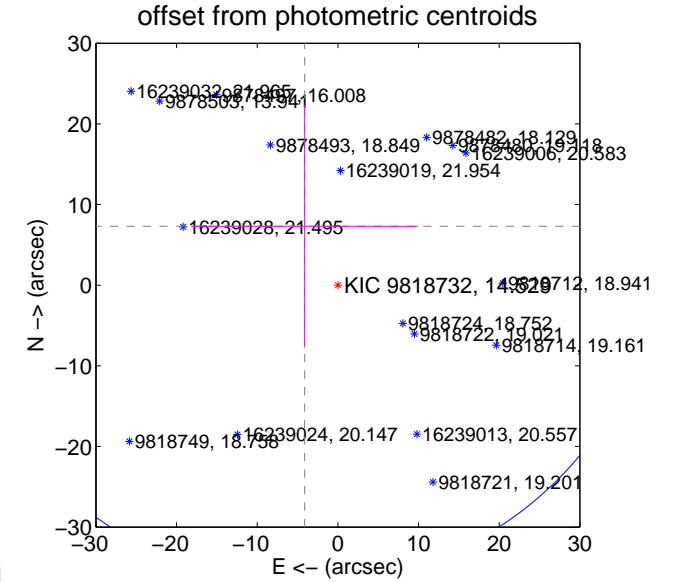
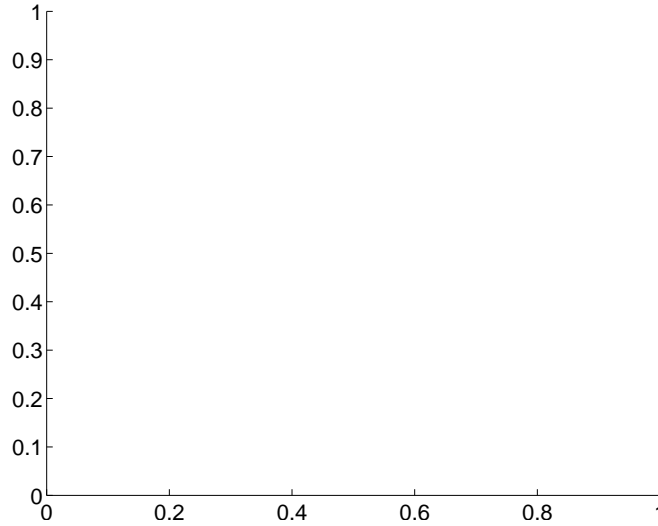
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	8.39 ± 14.80	0.57	4.12 ± 14.05	7.30 ± 15.03

There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC



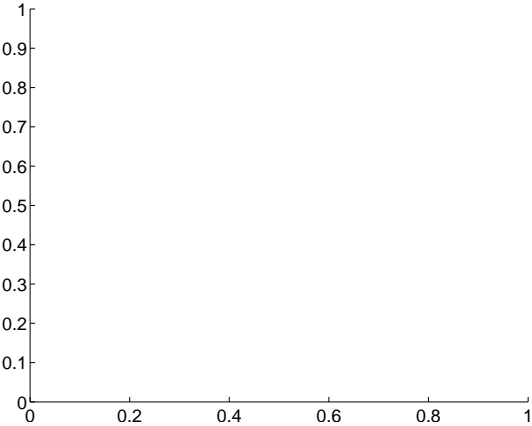
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

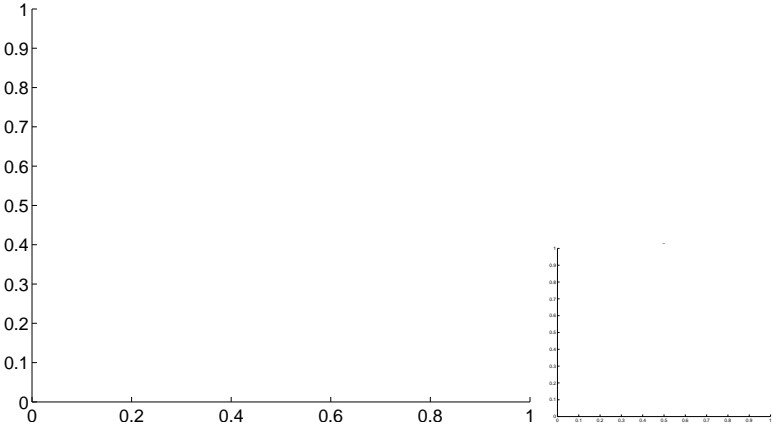


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

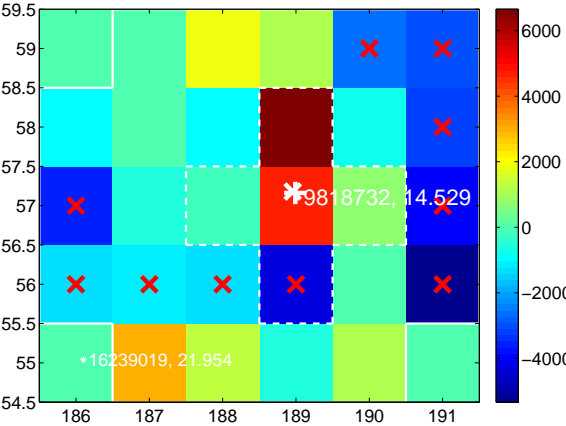
Q5 no difference image



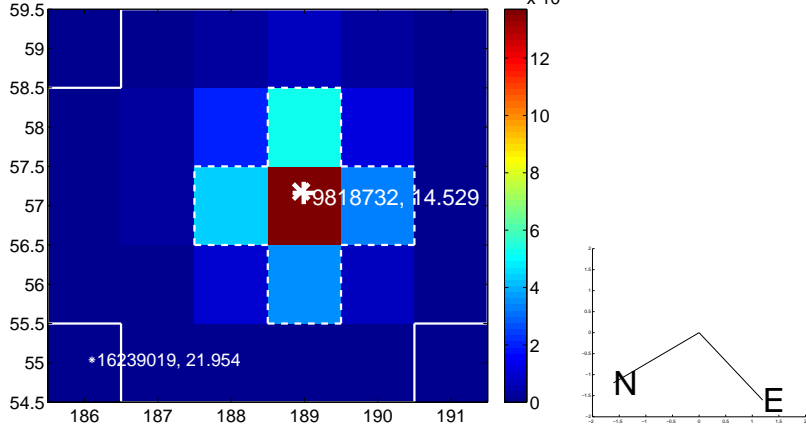
Q5 no OOT image



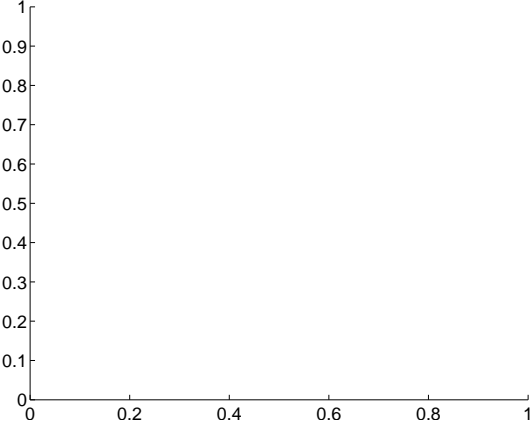
Q6 difference image. Poor Quality



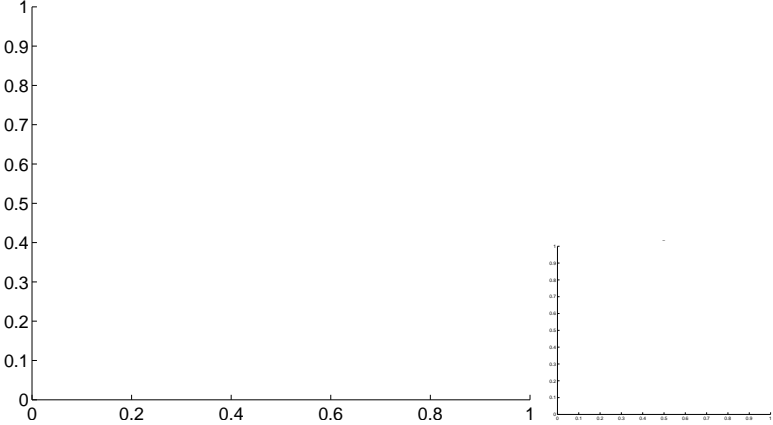
Q6 OOT image



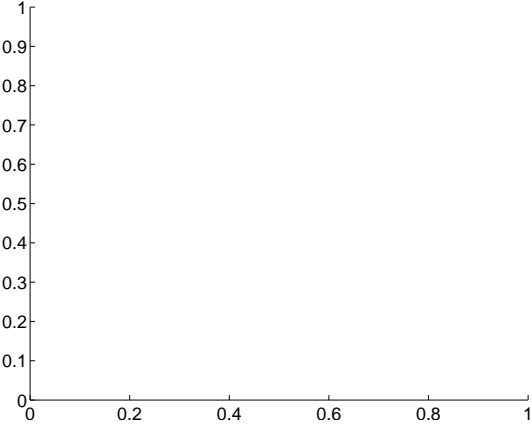
Q7 no difference image



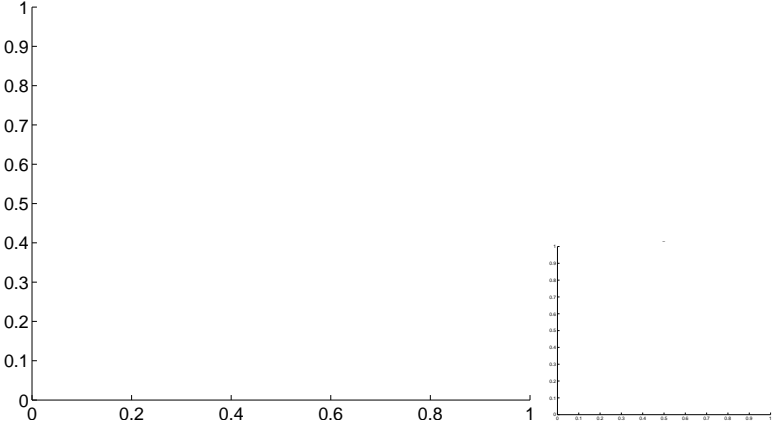
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



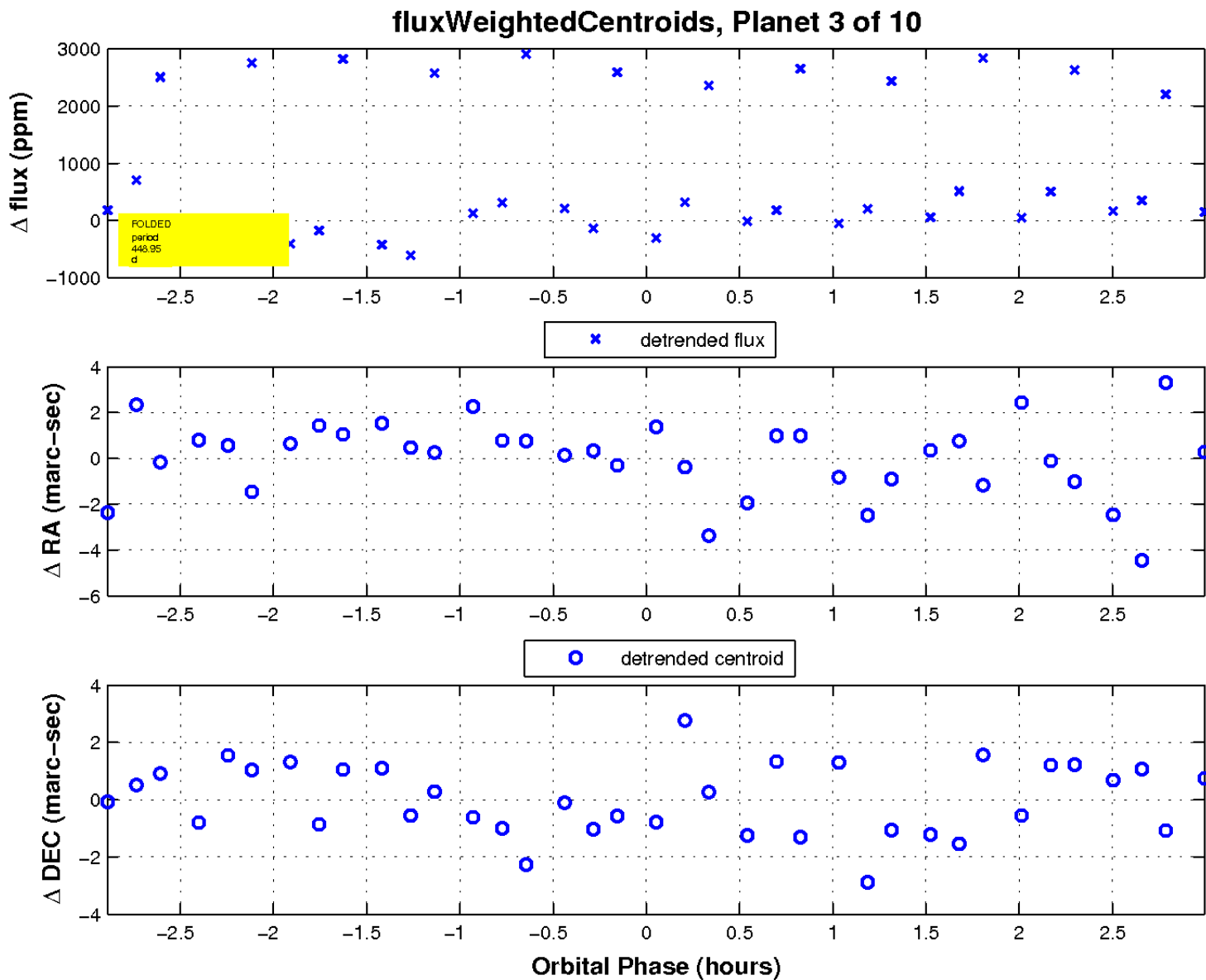
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

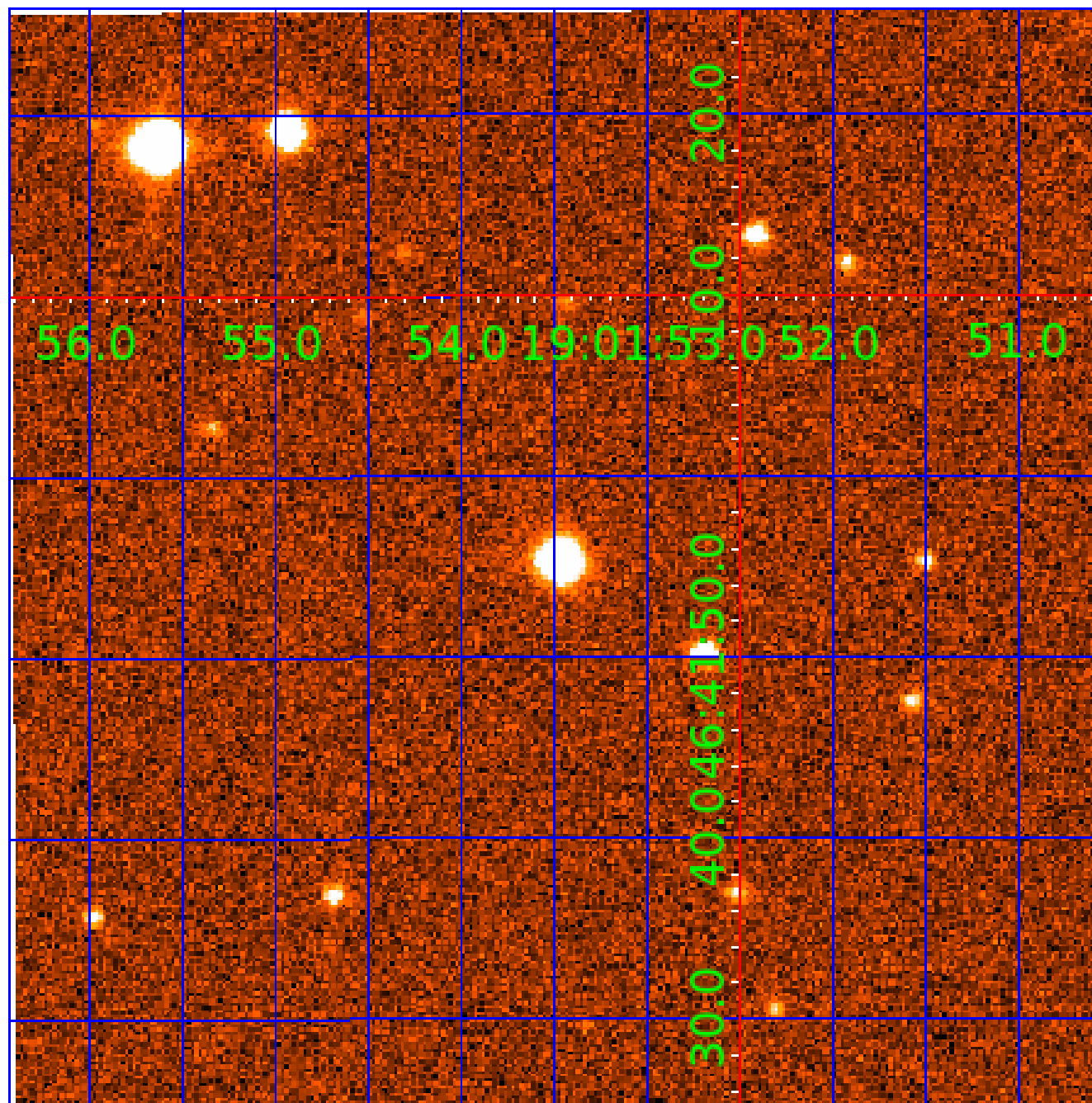


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



UKIRT Image

Declination



KIC 009818732

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})
009818732-01	OBS	7233.01	45.035186	132.638245	415828.1	6.000	14502.9	-1.0	1.15	6484	62.91	30.72
009818732-02	OBS	No	45.035876	146.025633	341823.0	7.500	12763.8	-1.0	1.15	6484	59.56	30.72
009818732-03	OBS	No	448.952558	178.160811	18653.0	3.500	189.6	-1.0	1.15	6484	15.85	1.43
009818732-04	OBS	No	45.036426	148.109856	5314.4	15.000	187.1	-1.0	1.15	6484	8.45	30.72
009818732-05	OBS	No	308.580812	241.804540	11597.9	4.500	175.0	-1.0	1.15	6484	12.49	2.36
009818732-07	OBS	No	45.031979	175.613990	2642.4	30.842	151.1	92.8	1.15	6484	10.87	30.72
009818732-08	OBS	No	45.039596	134.541541	2656.9	30.113	176.6	79.7	1.15	6484	10.91	30.72
009818732-09	OBS	No	45.036426	143.900542	3446.2	15.000	128.1	-1.0	1.15	6484	6.80	30.72
009818732-10	OBS	No	407.554165	365.604668	5181.3	15.000	127.3	-1.0	1.15	6484	8.34	1.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009818732-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
009818732-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS
009818732-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
009818732-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009818732-07	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
009818732-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009818732-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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 009818732-04

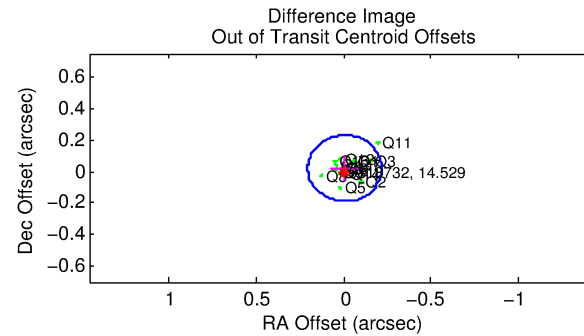
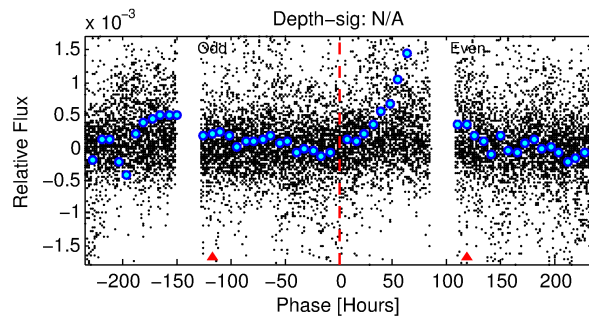
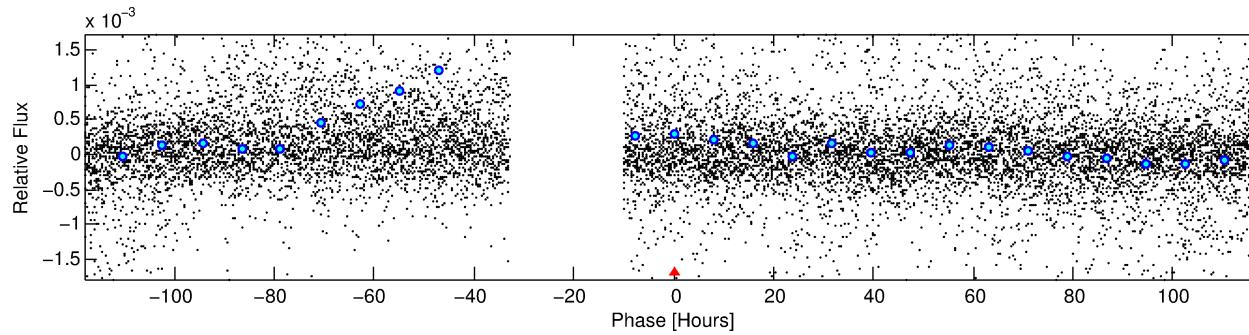
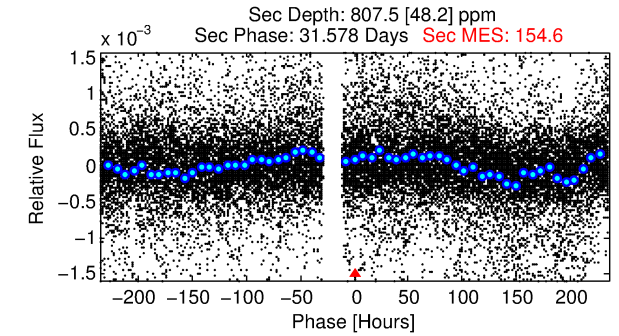
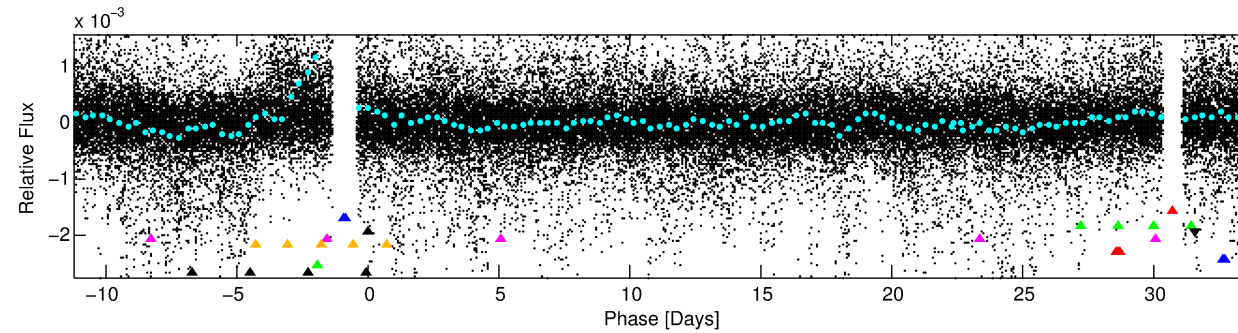
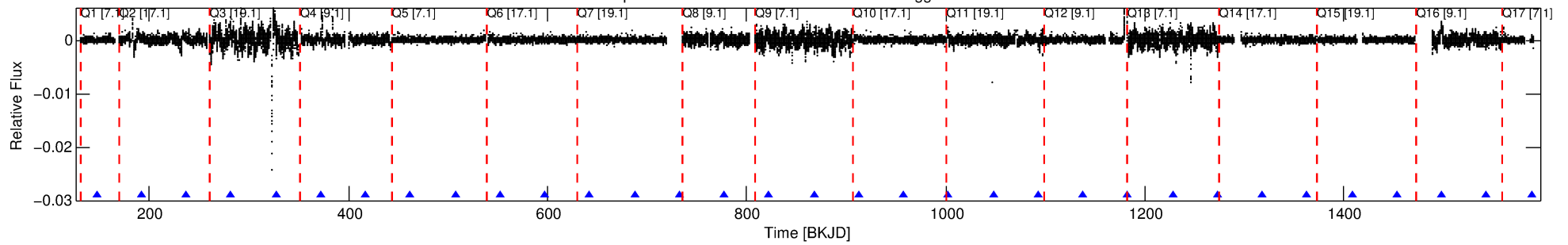
No Significant Match Found

DV One-Page Summary

KIC: 9818732 Candidate: 4 of 10 Period: 45.036 d

KOI: K07233 Corr: No Ephemeris Match

Kp: 14.53 R*: 1.15 Rs Teff: 6484.0 K Logg: 4.39 Fe/H: -0.120



TPS TCE Results:

Period = 45.03643 d
Epoch = 148.1099 BKJD

DV fit results are unavailable

DV Diagnostic Results:

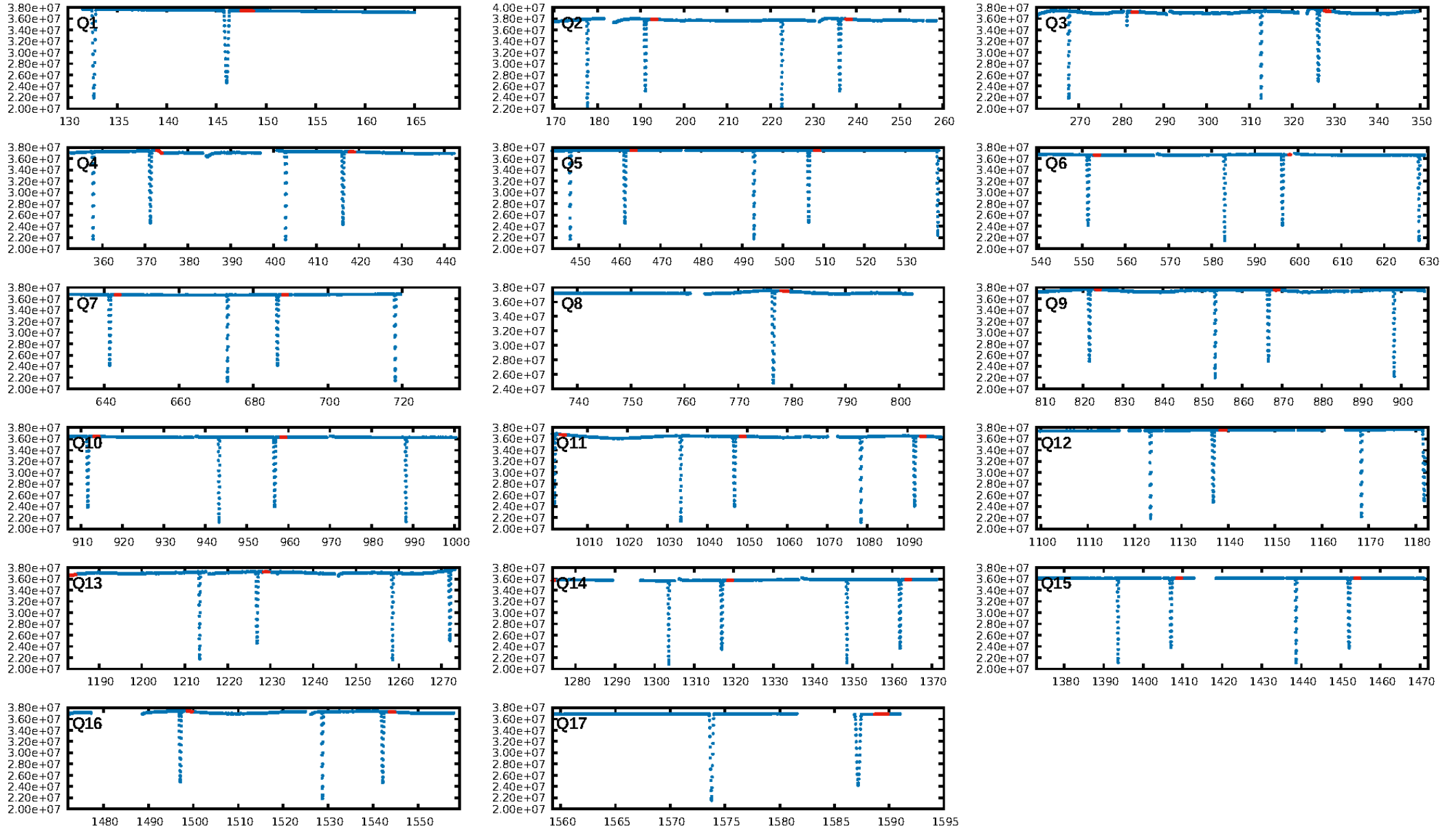
ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [30/30]
GhostDiagnostic-chr: 2.791

Centroid-sig: N/A
Centroid-so: 9.589 arcsec [3.87σ]
OotOffset-rm: 0.022 arcsec [0.32σ]
KicOffset-rm: 0.123 arcsec [1.64σ]
OotOffset-st: 4/3/4/3 [14]
KicOffset-st: 4/3/4/3 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.00 [0/14]

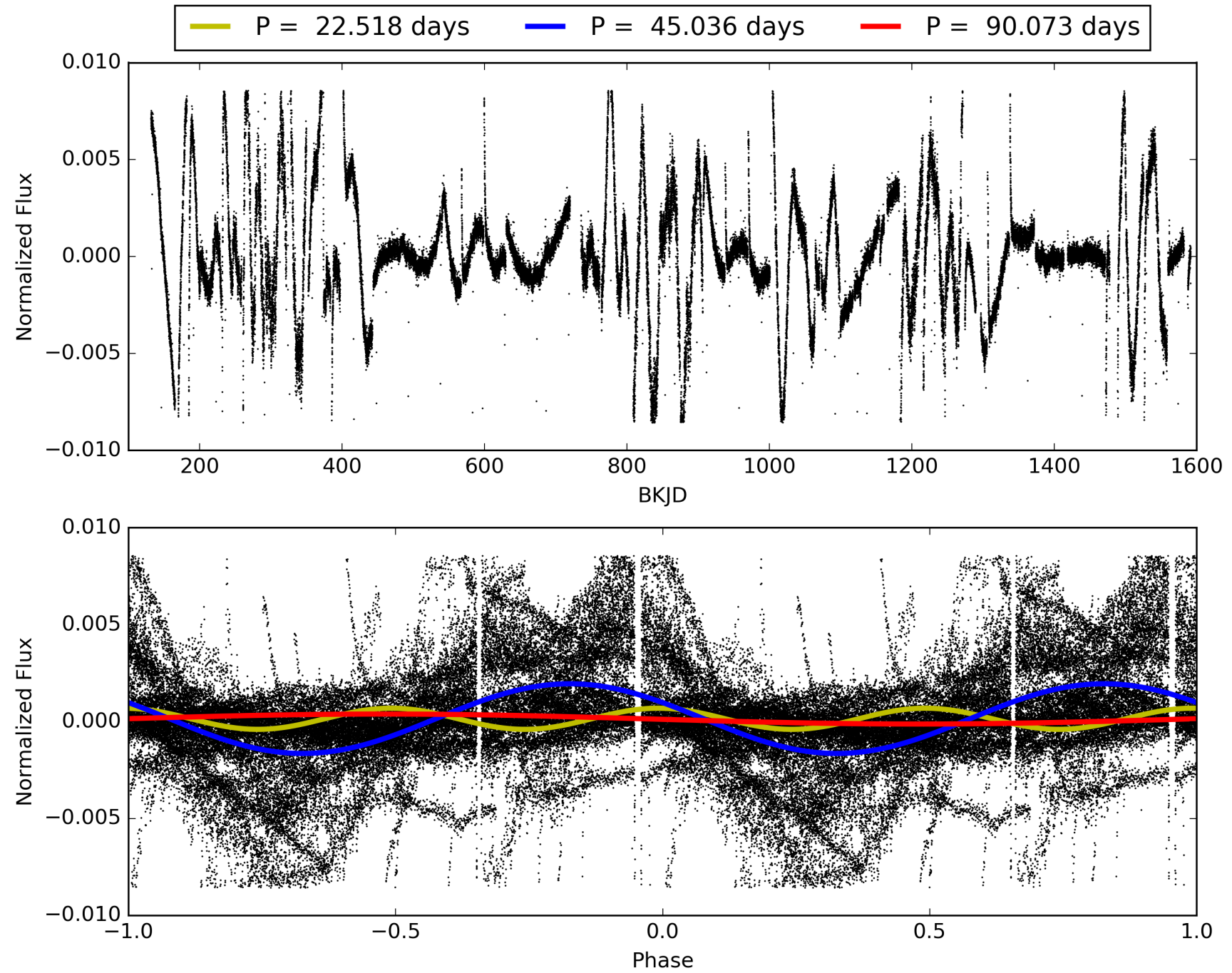
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:28:05 Z

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

TCE 009818732-04, PDC Light Curves

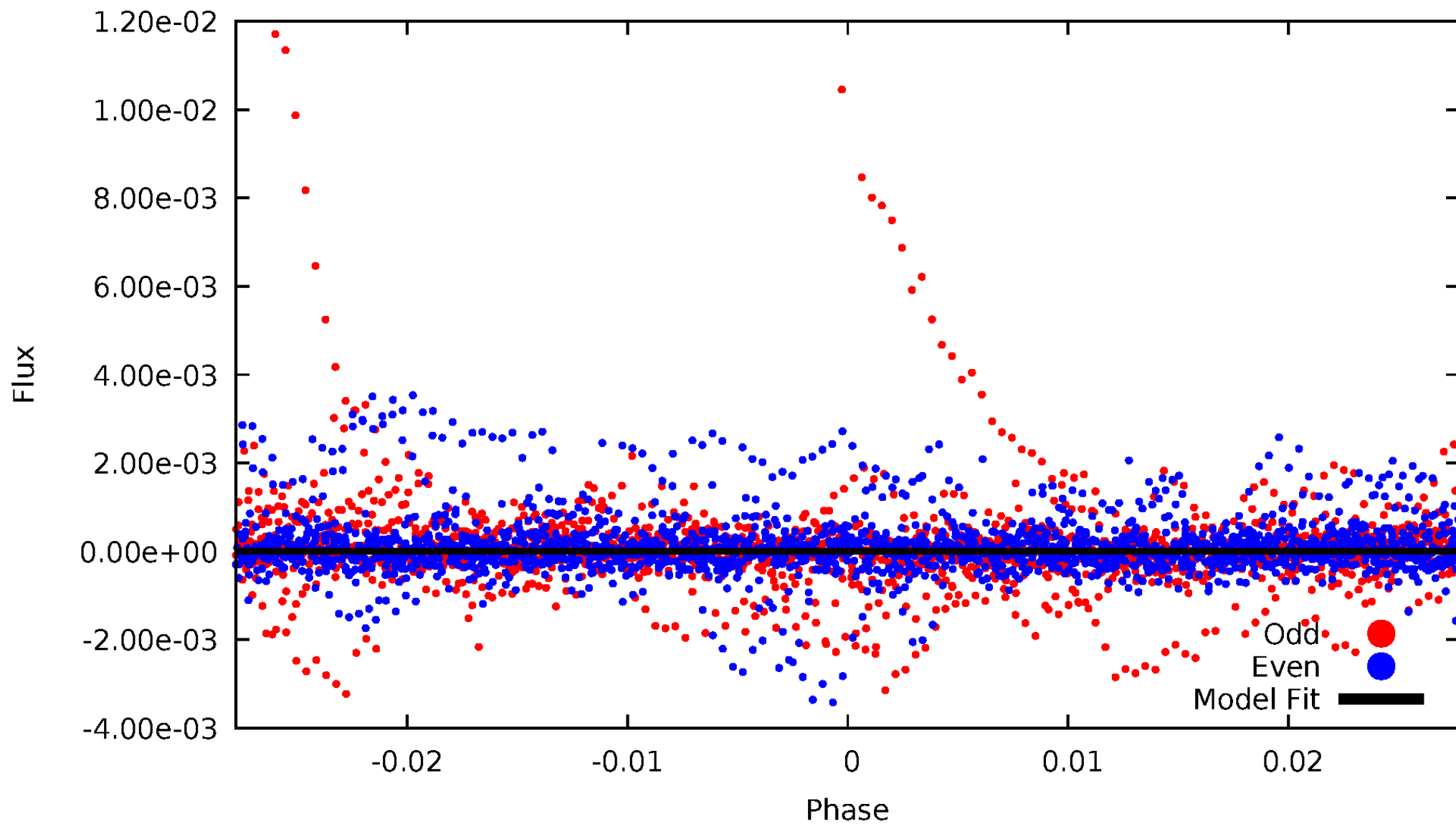


TCE 009818732-04



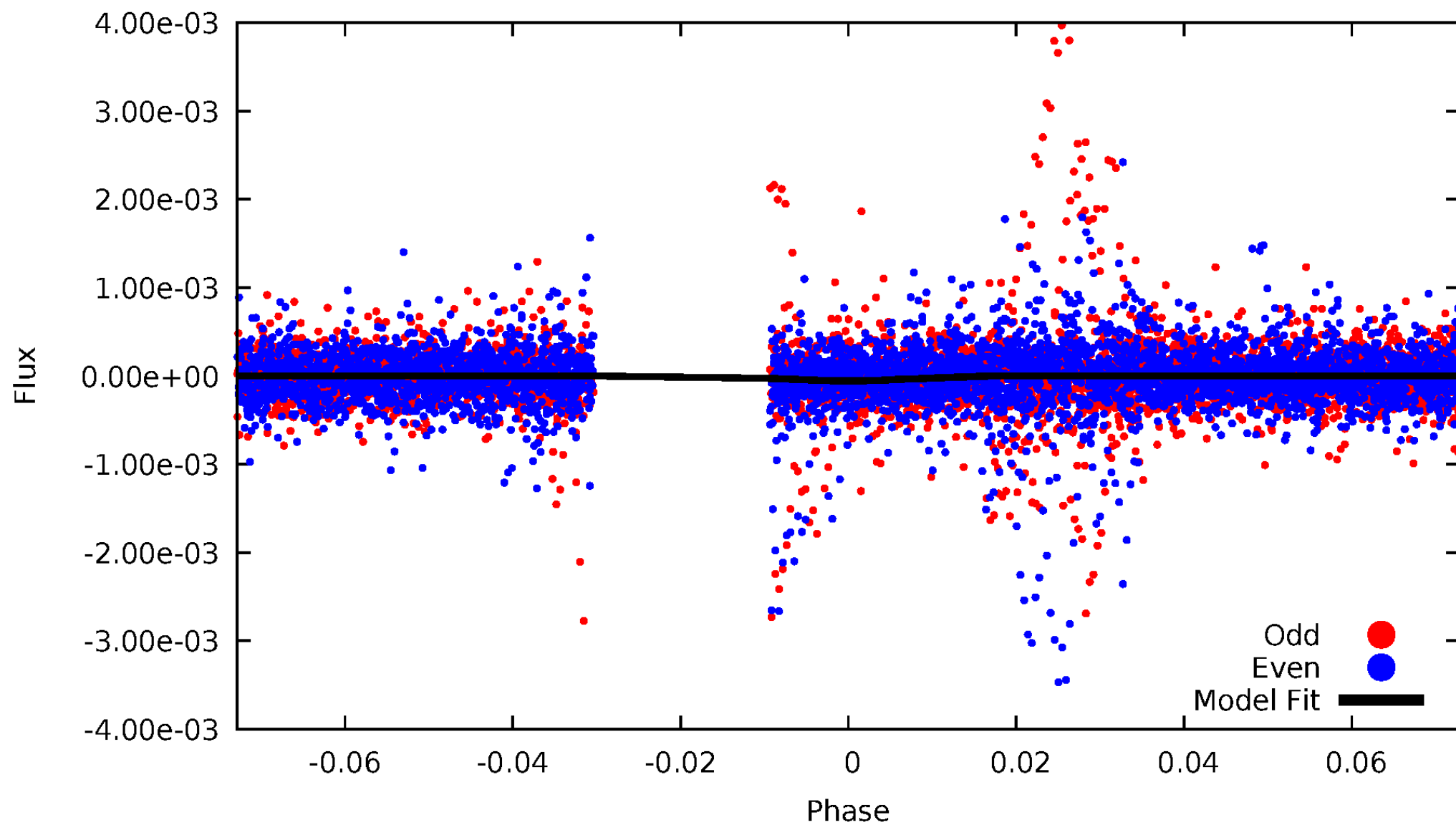
DV Odd/Even

TCE 009818732-04



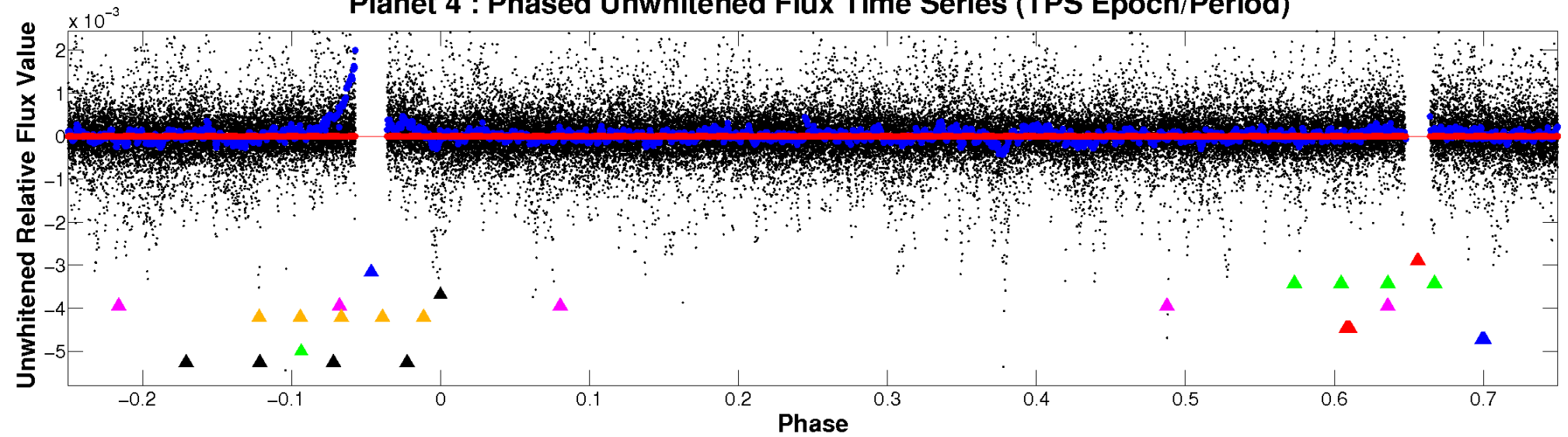
ALT Odd/Even

TCE 009818732-04



Non-Whitened Vs. Whitened Light Curve

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

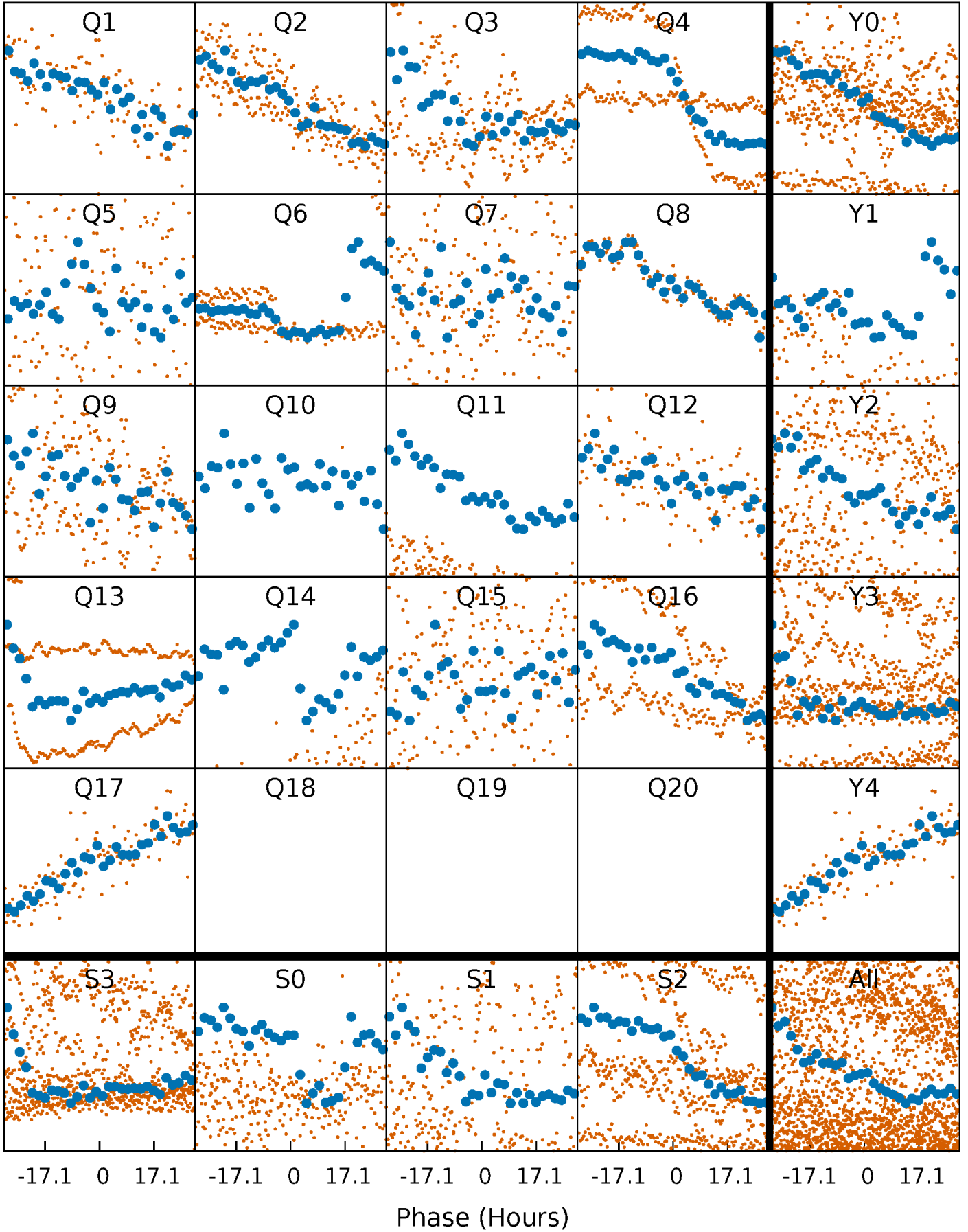


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



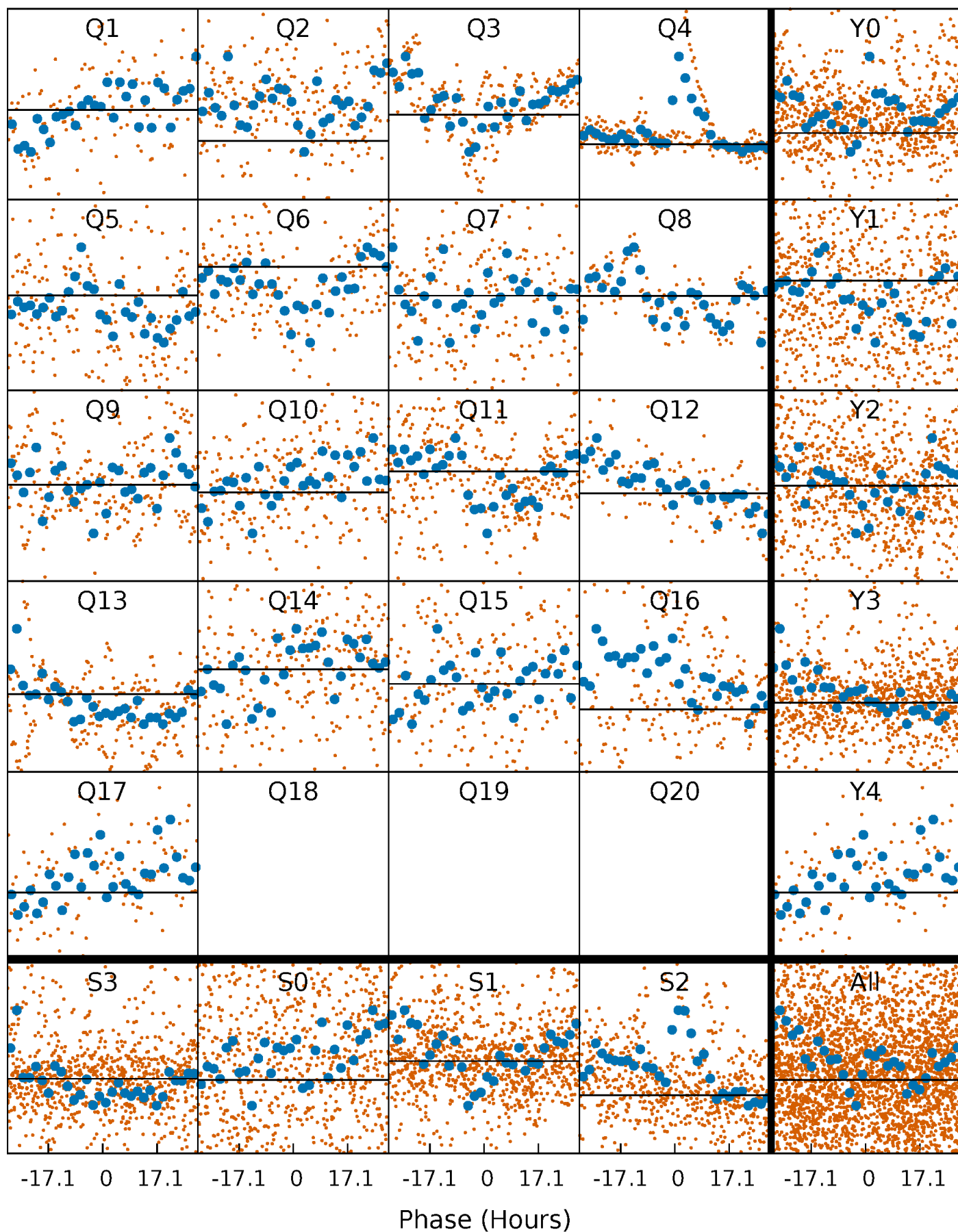
PDC Quarter-Phased Transit Curves

TCE 009818732-04 P= 45.036426 Days $T_0=148.109856$ (BKJD)



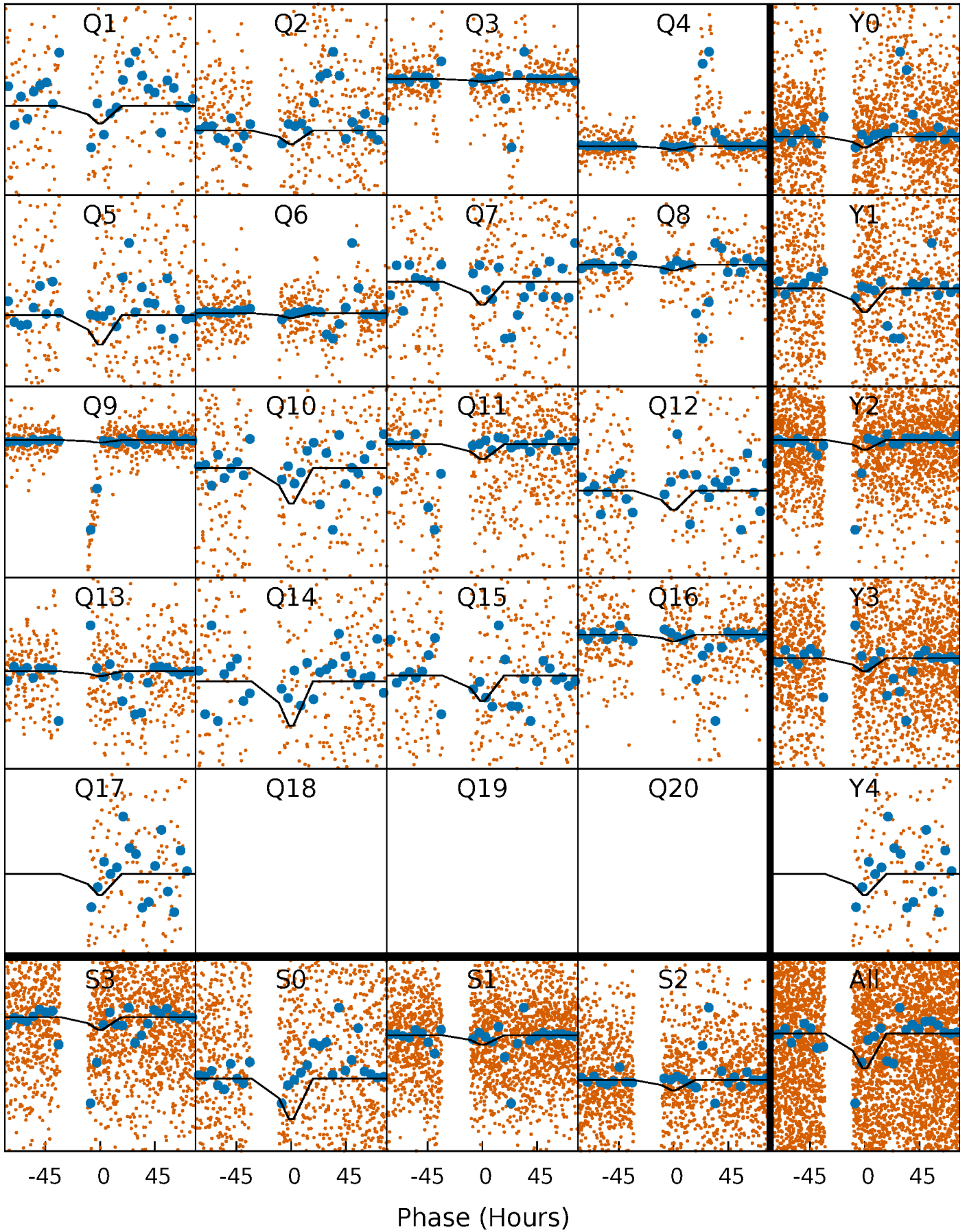
DV Quarter-Phased Transit Curves

TCE 009818732-04 P= 45.036426 Days $T_0=148.109856$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

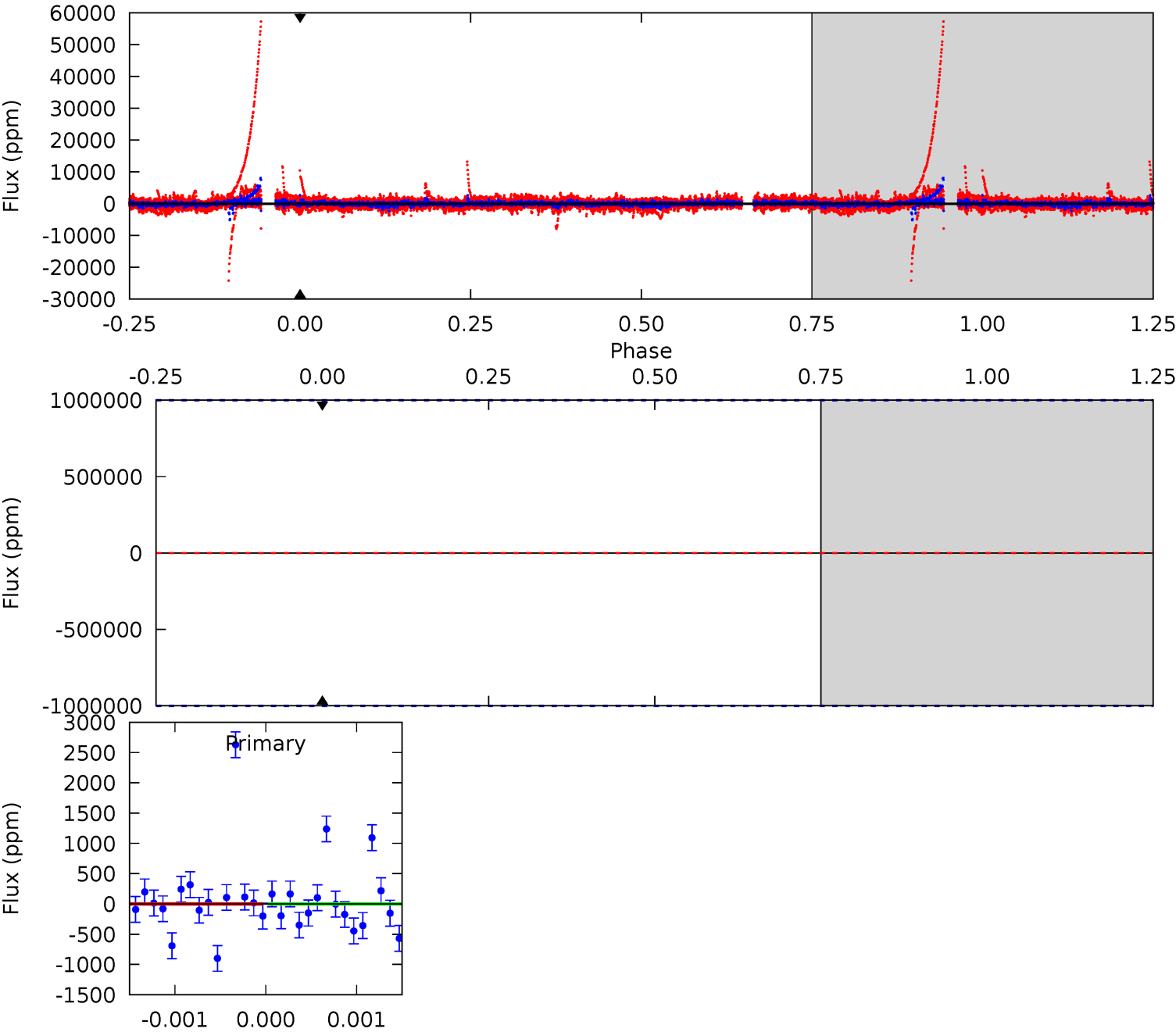
TCE 009818732-04 P= 45.036426 Days $T_0=146.911066$ (BKJD)



DV Model-Shift Uniqueness Test

009818732-04, P = 45.036426 Days, E = 103.073430 Days

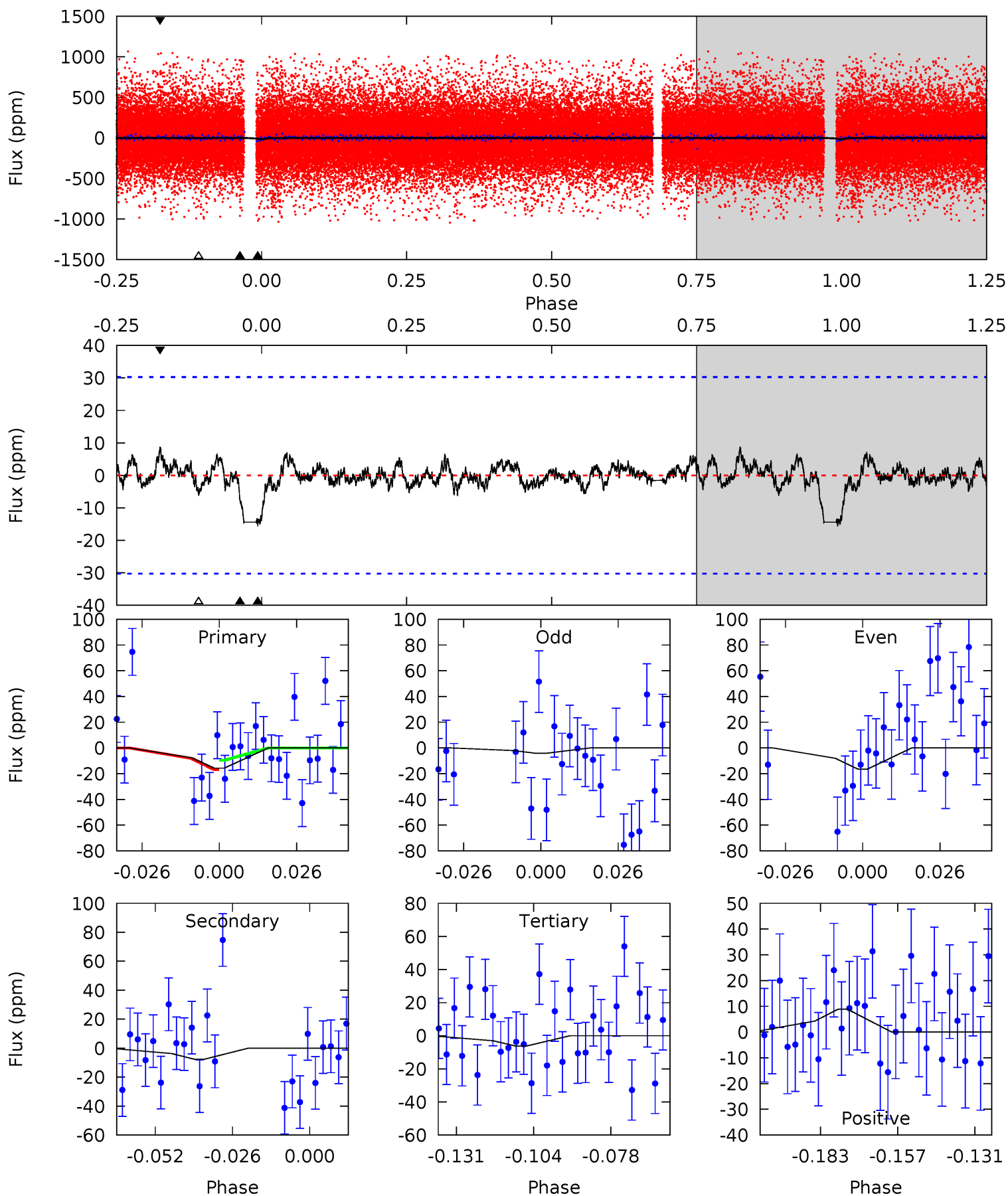
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009818732-04, P = 45.036426 Days, E = 101.874640 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.52	1.23	1.01	1.42	4.84	2.22	0.40	1.51	1.10	0.22	-0.19	0.98	8.54	0.36	0.55



Stellar Parameters For KIC 009818732

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6484^{+145}_{-193}	$4.386^{+0.060}_{-0.180}$	$-0.120^{+0.250}_{-0.300}$	$1.153^{+0.339}_{-0.145}$	$1.178^{+0.164}_{-0.148}$	$1.084^{+0.353}_{-0.522}$
	+2%/-3%	+1%/-4%	+208%/-250%	+29%/-13%	+14%/-13%	+33%/-48%
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 009818732-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$12.74^{+11.61}_{-8.37}$	850^{+61}_{-38}	-1992^{+22194}_{-15579}	$-0.785^{+39346.505}_{-32278.011}$
Alt.	-8 ± 6	$9.09^{+10.19}_{-6.57}$	850^{+60}_{-39}	2135^{+894}_{-3600}	$2.700^{+34.466}_{-2.440}$

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

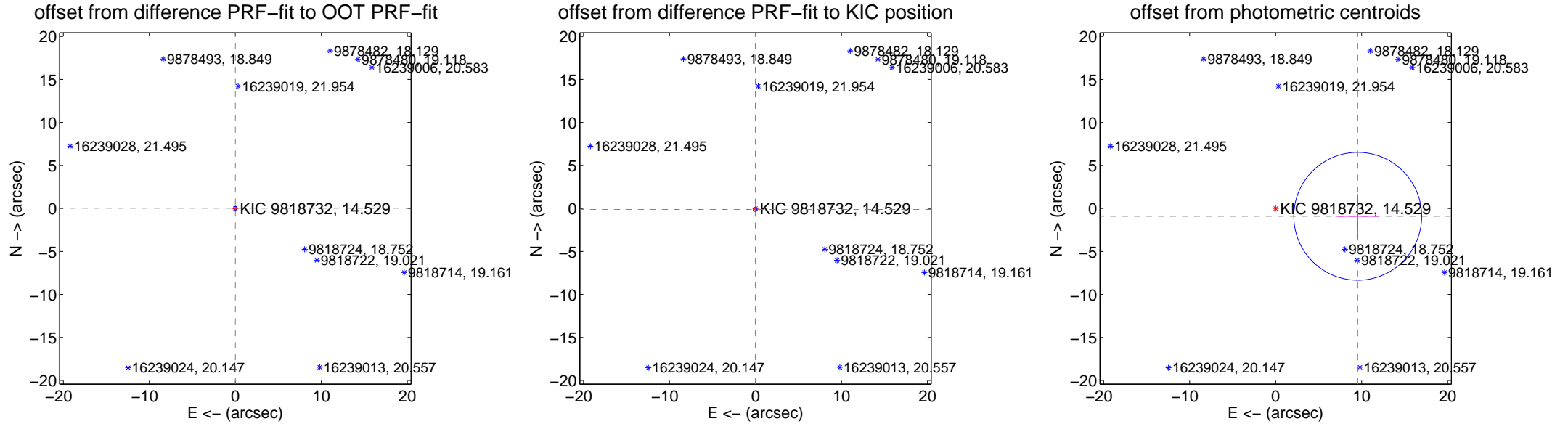
DV Centroid Data

Supplemental centroid analysis for 009818732-04. Kepler magnitude: 14.53. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

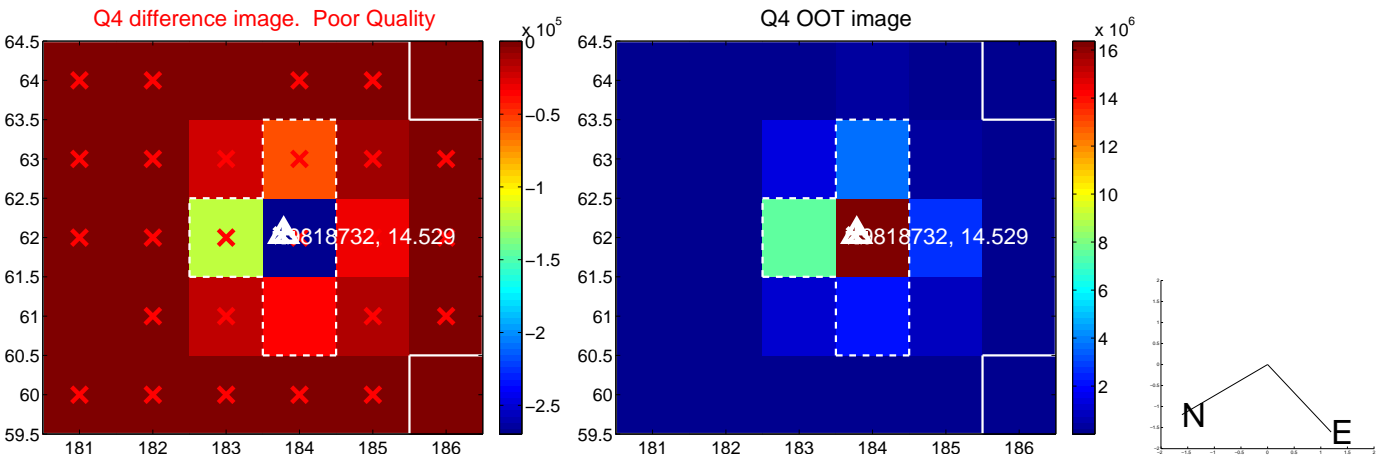
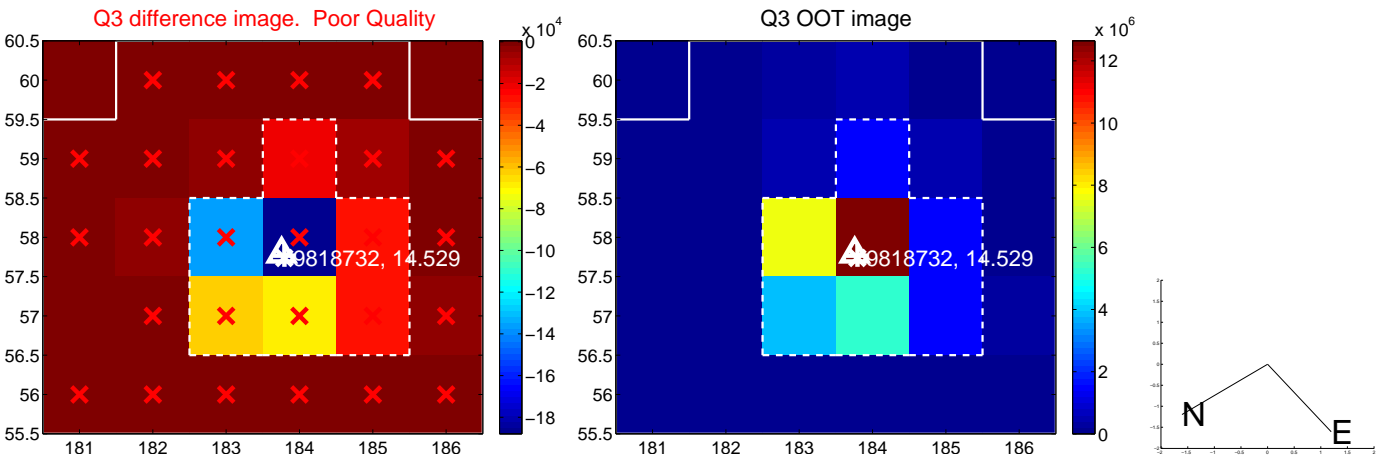
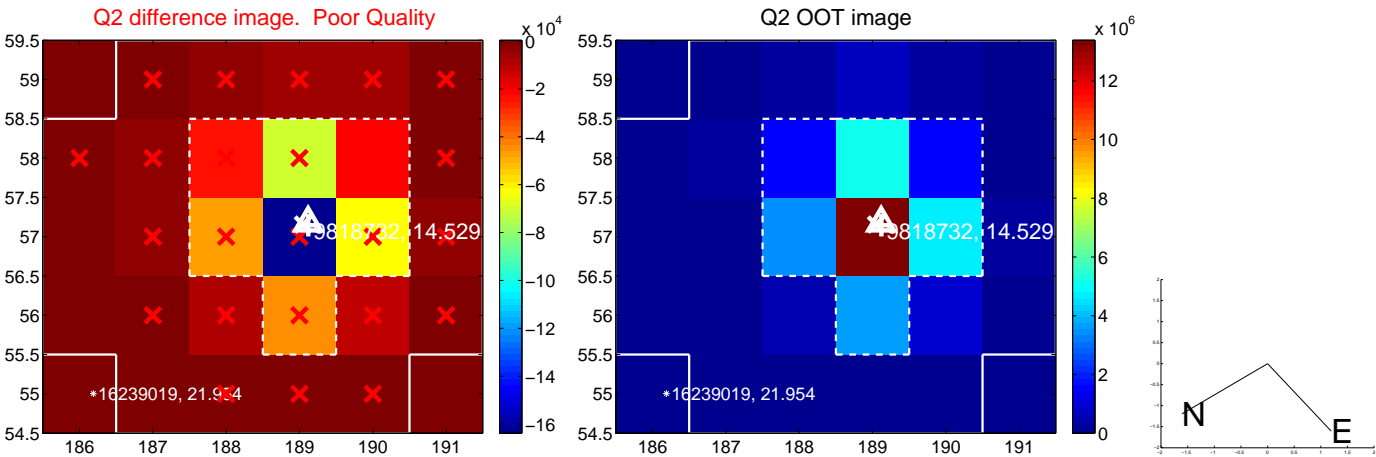
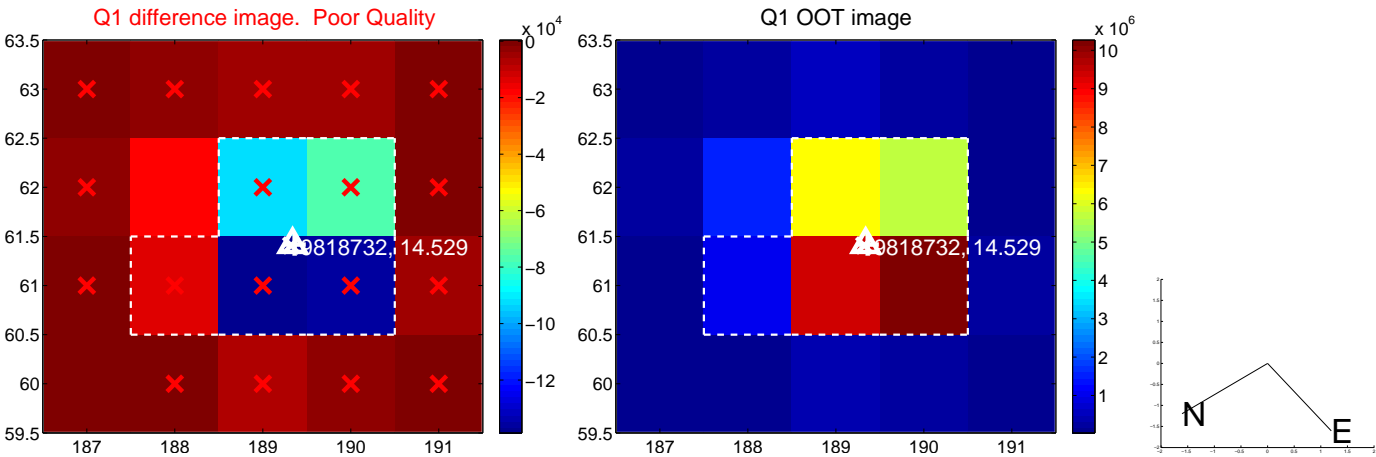
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.022 ± 0.070	0.32	-0.006 ± 0.071	0.021 ± 0.069
PRF-fit source offset from KIC position	0.123 ± 0.075	1.64	0.029 ± 0.078	-0.120 ± 0.072
photometric centroid source offset	9.59 ± 2.48	3.87	-9.55 ± 2.48	-0.91 ± 2.58

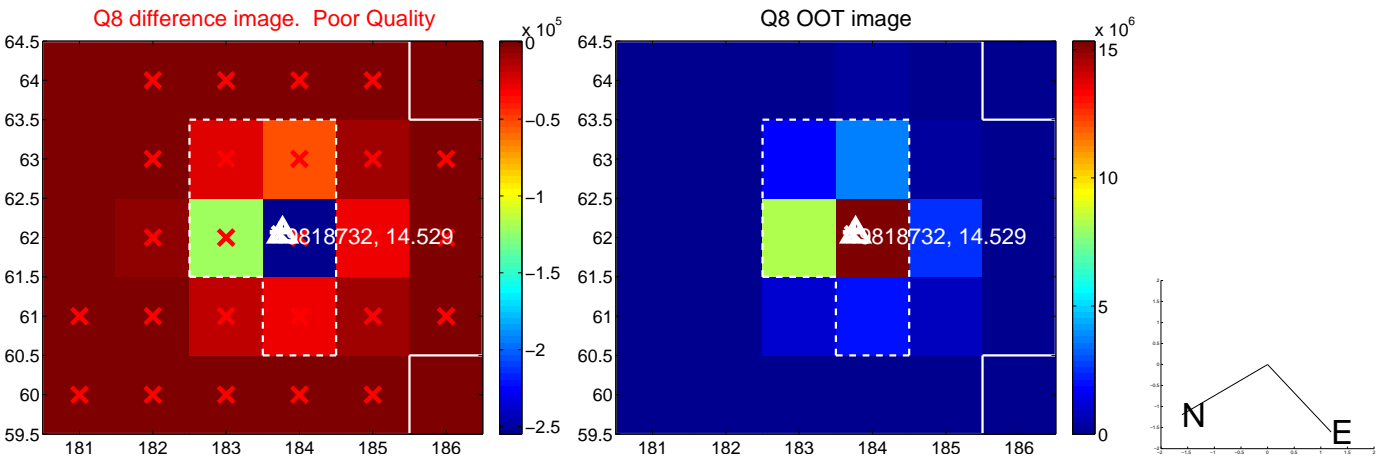
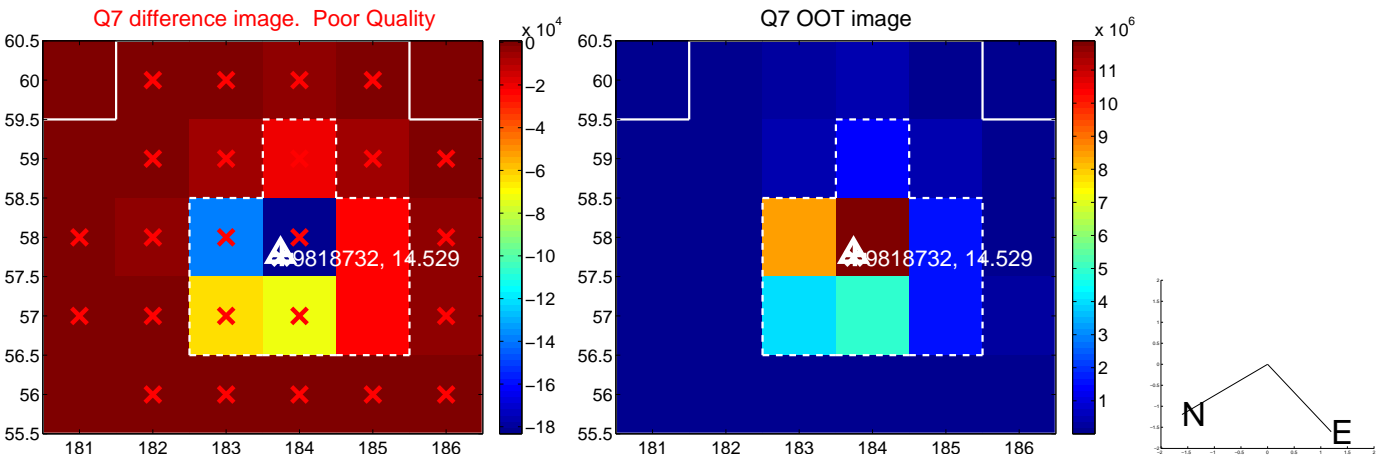
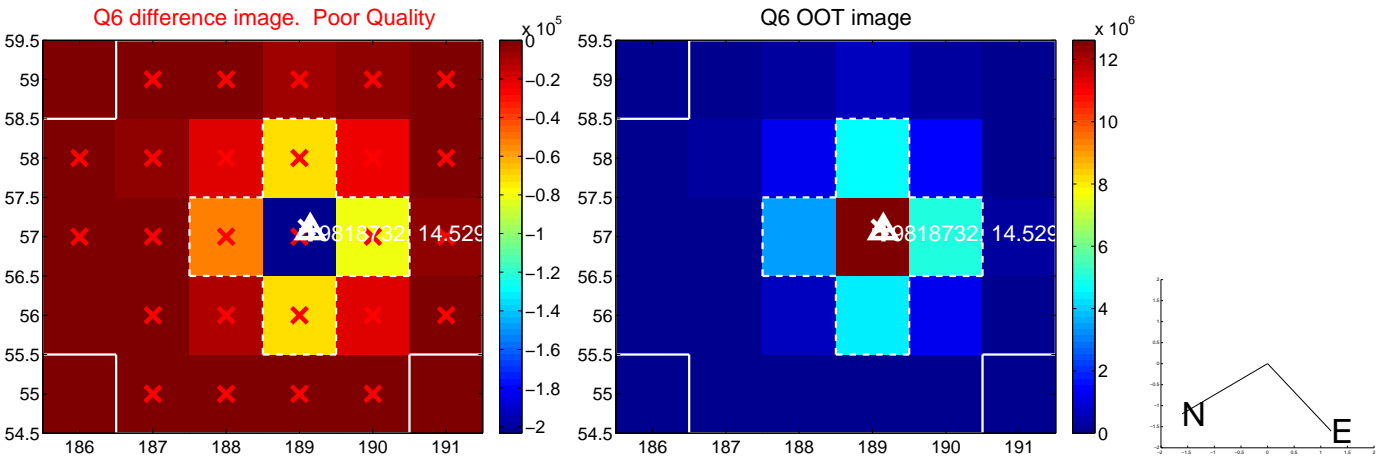
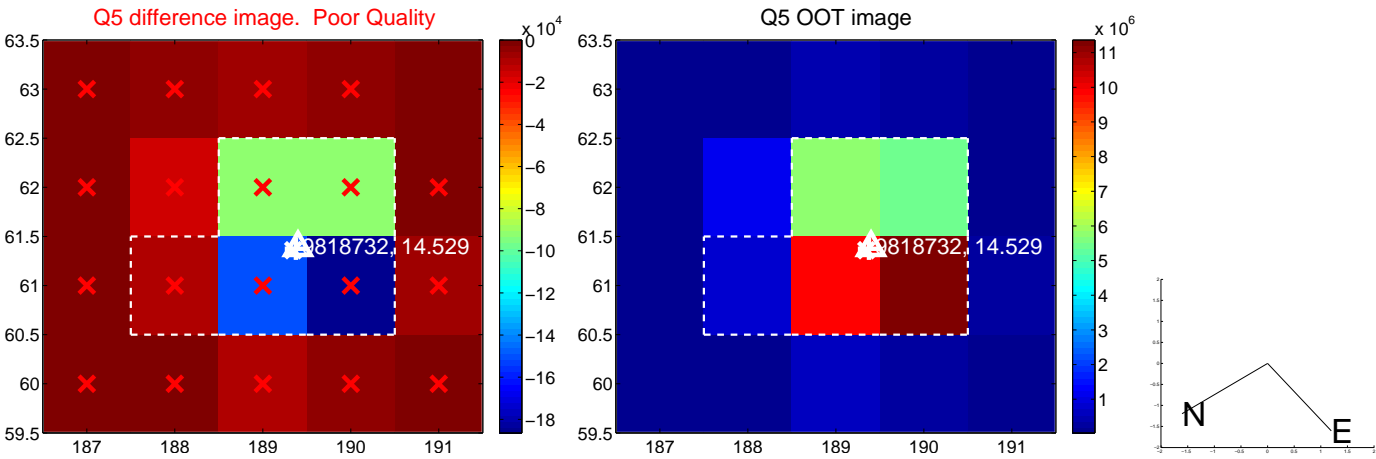


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

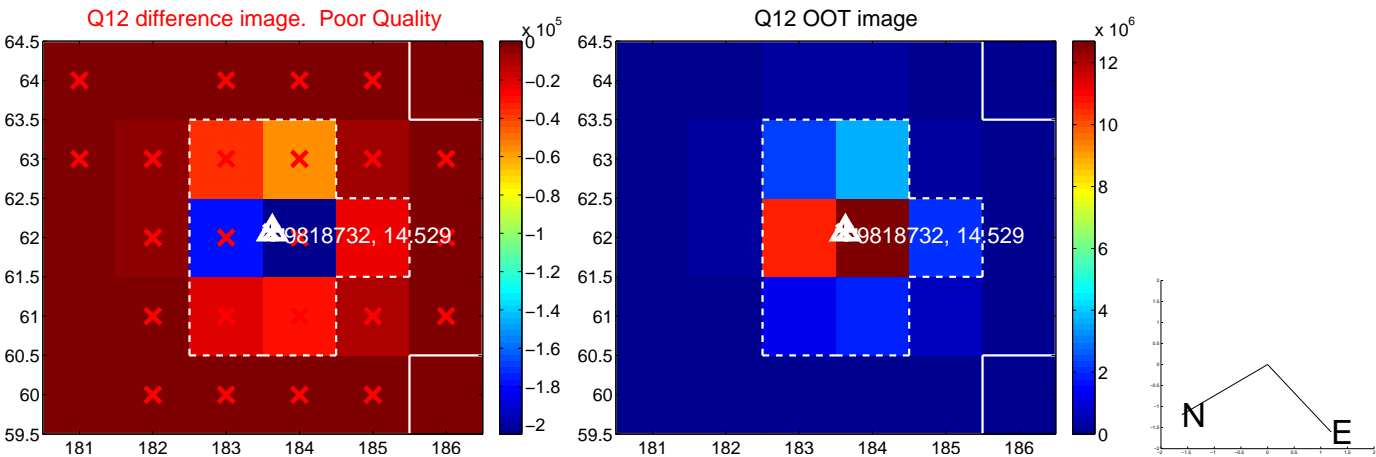
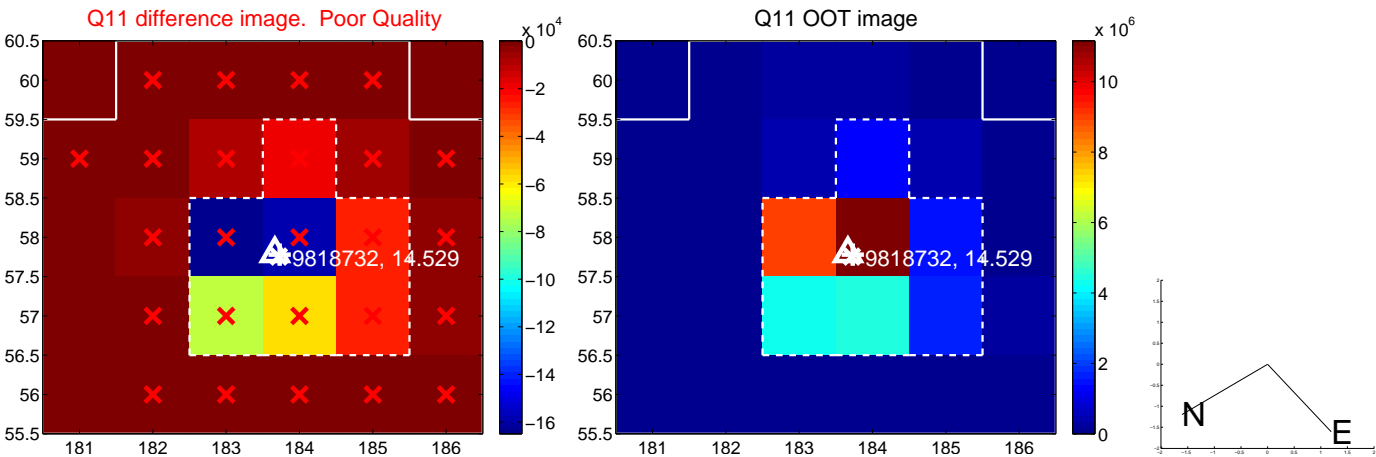
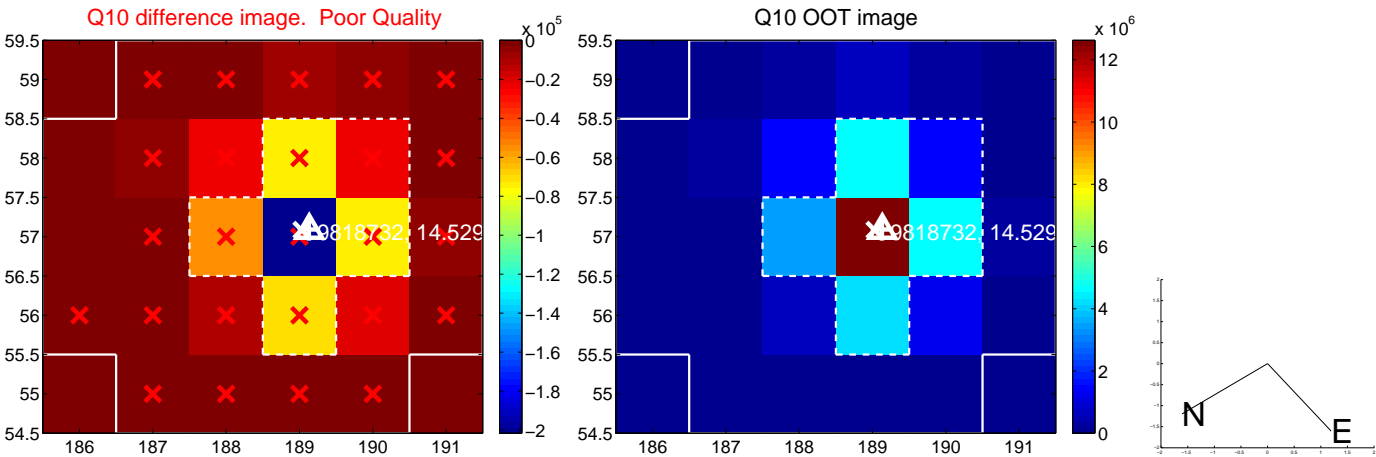
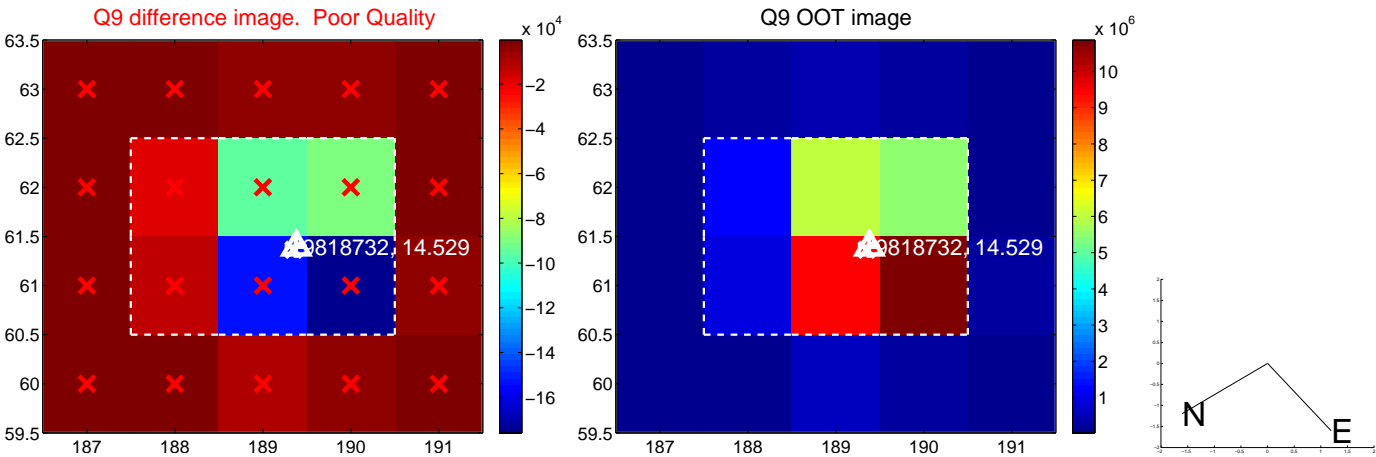
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



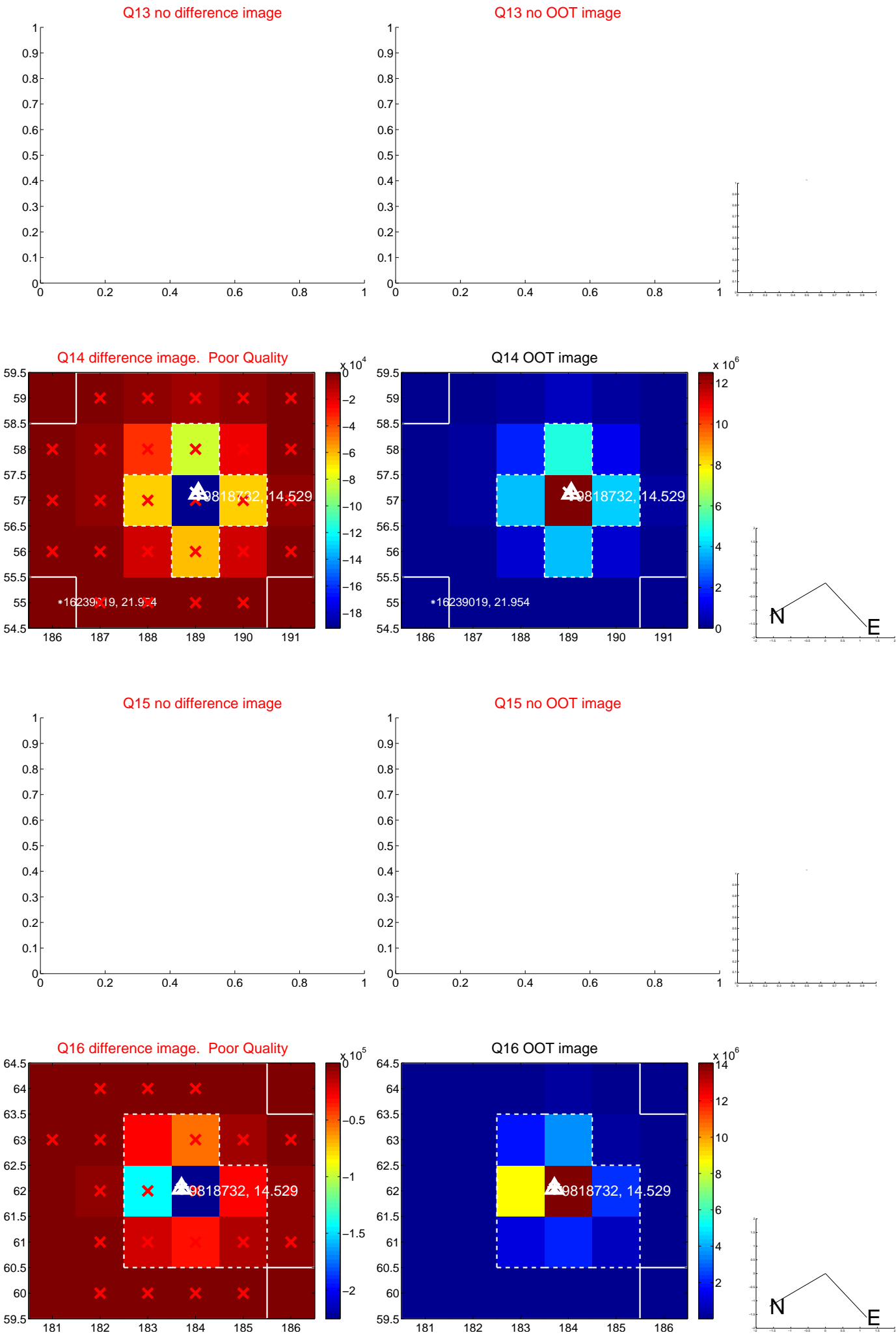
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



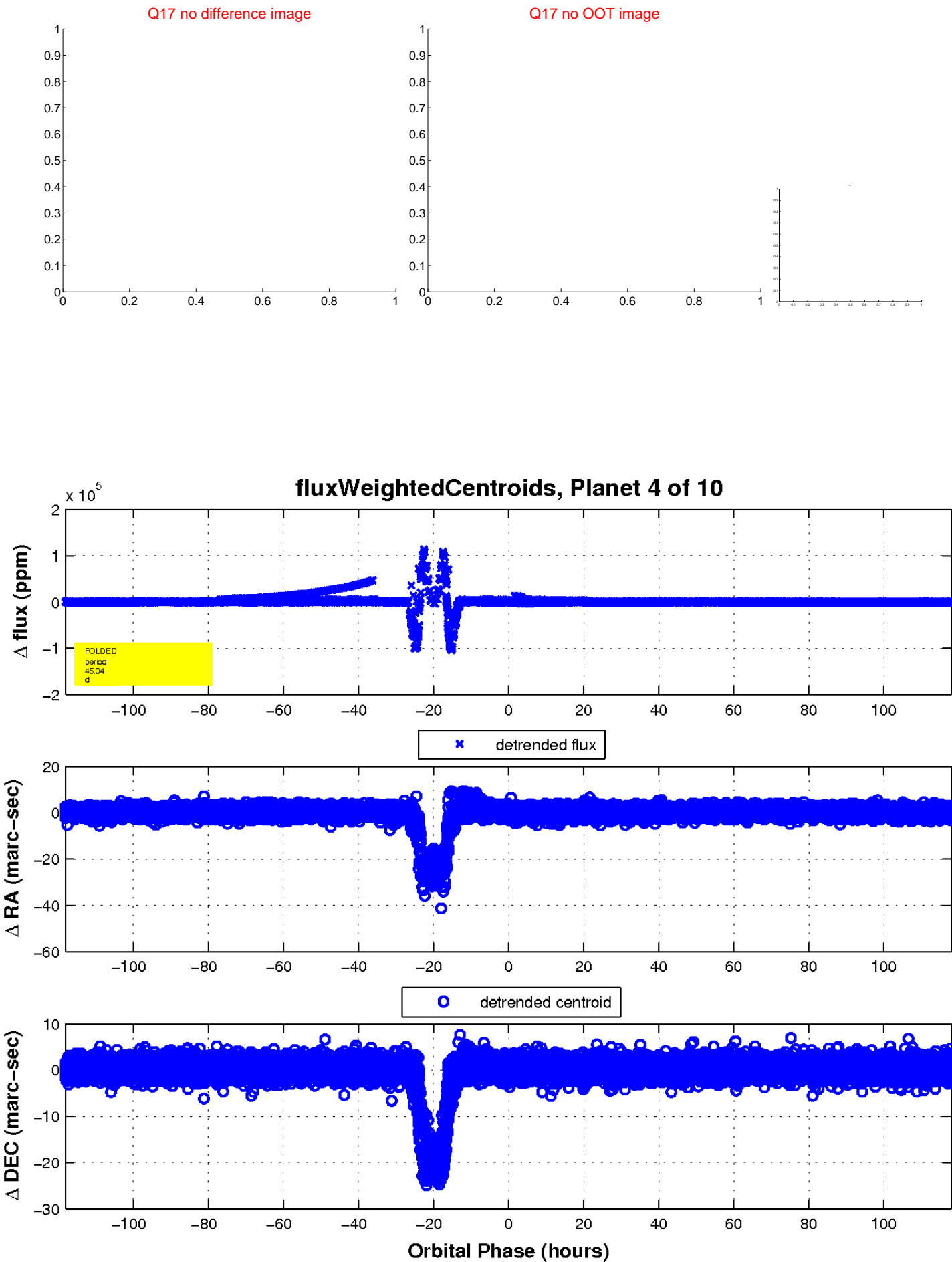
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

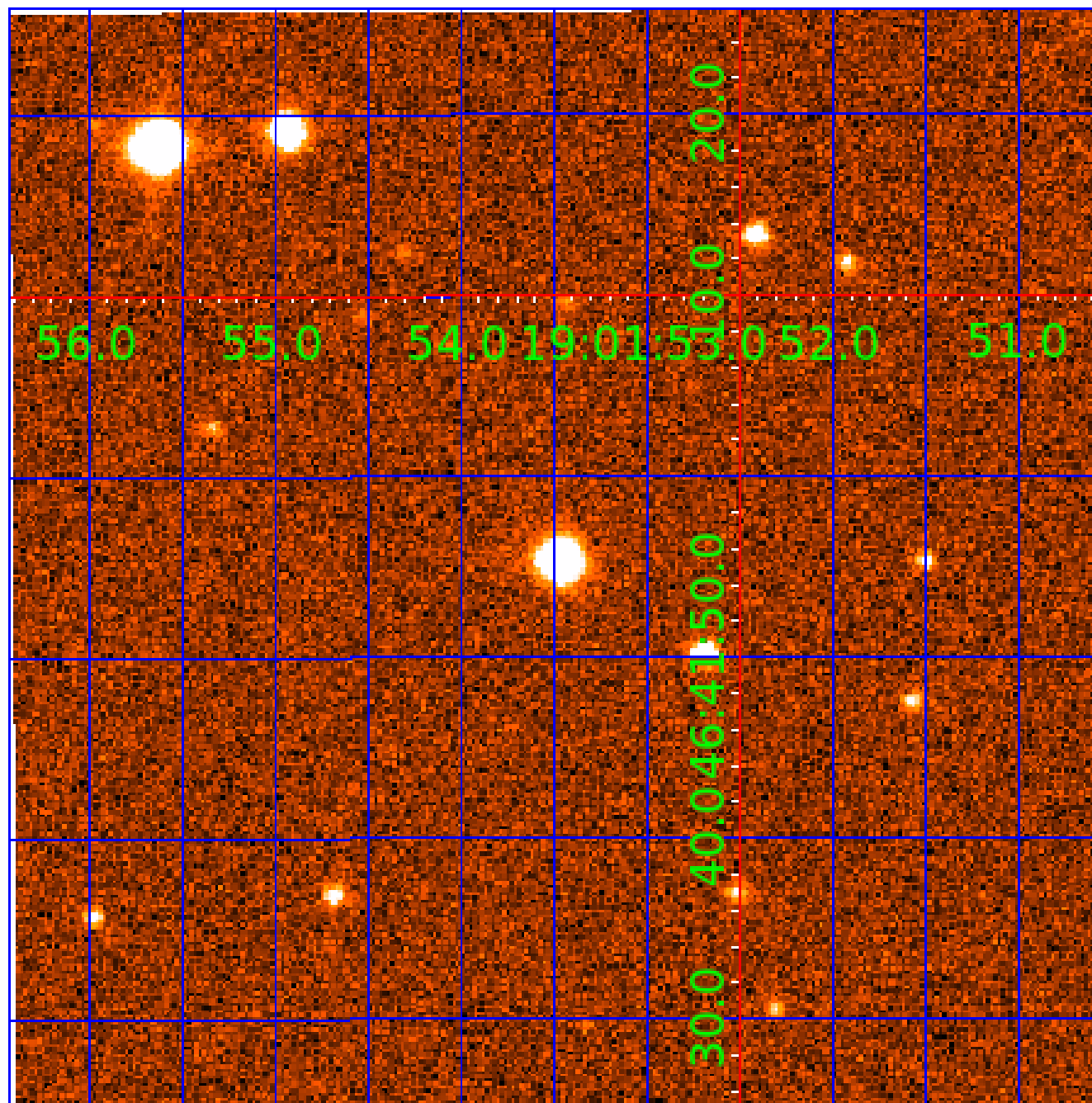


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009818732

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})
009818732-01	OBS	7233.01	45.035186	132.638245	415828.1	6.000	14502.9	-1.0	1.15	6484	62.91	30.72
009818732-02	OBS	No	45.035876	146.025633	341823.0	7.500	12763.8	-1.0	1.15	6484	59.56	30.72
009818732-03	OBS	No	448.952558	178.160811	18653.0	3.500	189.6	-1.0	1.15	6484	15.85	1.43
009818732-04	OBS	No	45.036426	148.109856	5314.4	15.000	187.1	-1.0	1.15	6484	8.45	30.72
009818732-05	OBS	No	308.580812	241.804540	11597.9	4.500	175.0	-1.0	1.15	6484	12.49	2.36
009818732-07	OBS	No	45.031979	175.613990	2642.4	30.842	151.1	92.8	1.15	6484	10.87	30.72
009818732-08	OBS	No	45.039596	134.541541	2656.9	30.113	176.6	79.7	1.15	6484	10.91	30.72
009818732-09	OBS	No	45.036426	143.900542	3446.2	15.000	128.1	-1.0	1.15	6484	6.80	30.72
009818732-10	OBS	No	407.554165	365.604668	5181.3	15.000	127.3	-1.0	1.15	6484	8.34	1.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009818732-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
009818732-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS
009818732-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
009818732-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009818732-07	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
009818732-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009818732-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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.

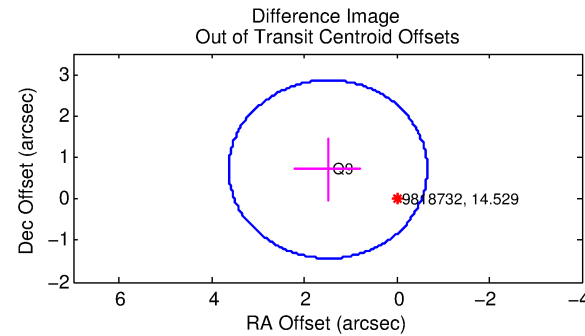
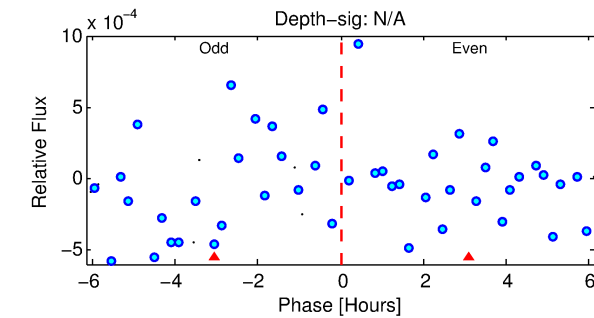
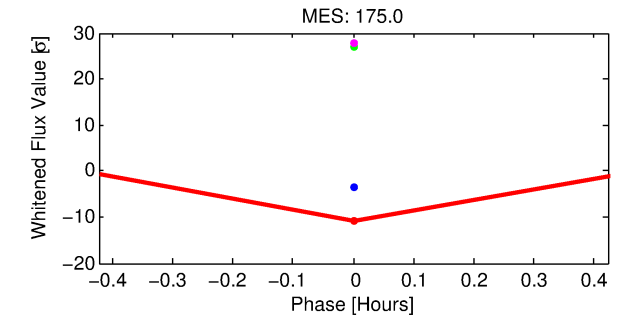
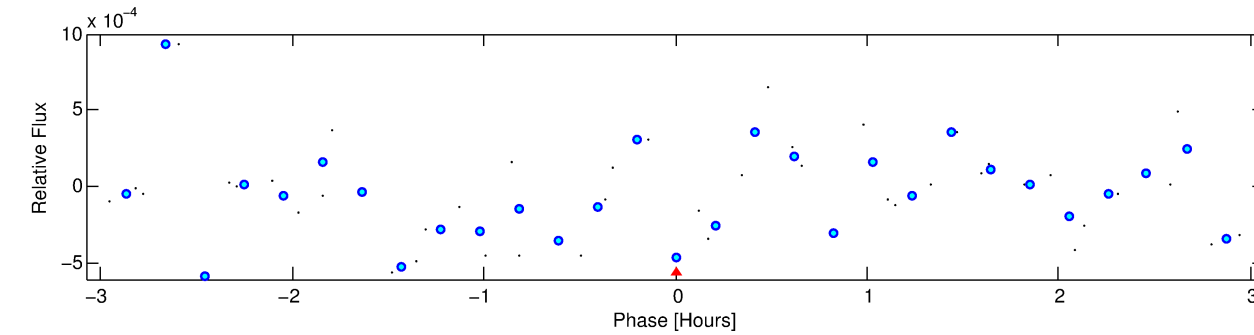
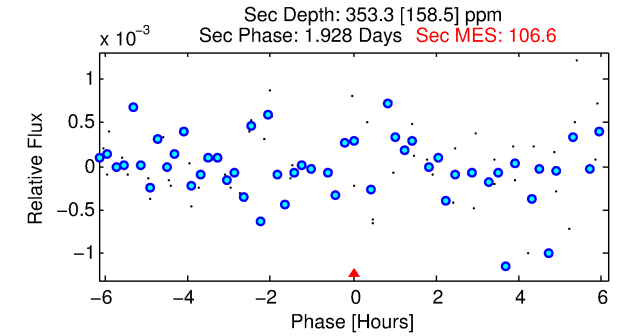
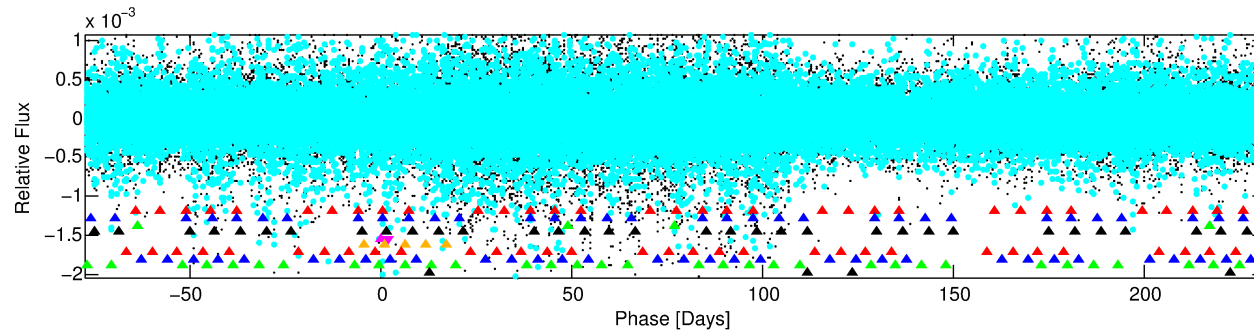
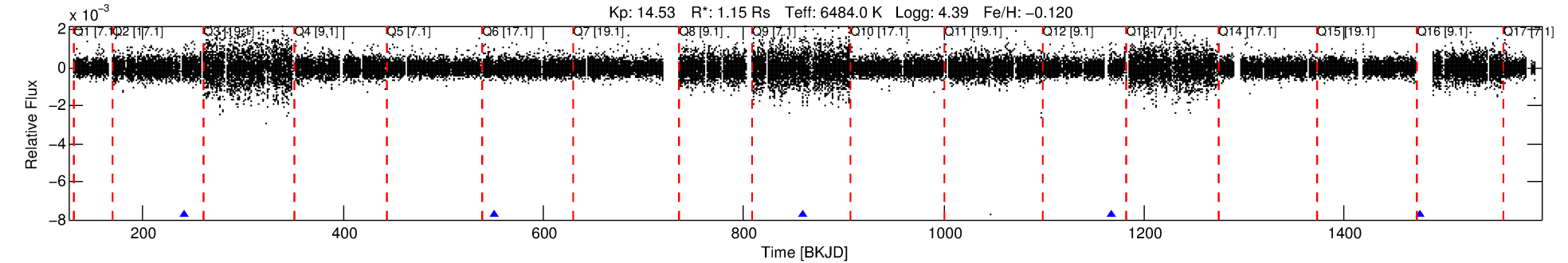
Ephemeris Match Information For 009818732-05

No Significant Match Found

DV One-Page Summary

KIC: 9818732 Candidate: 5 of 10 Period: 308.581 d
KOI: K07233 Corr: No Ephemeris Match

Kp: 14.53 R*: 1.15 Rs Teff: 6484.0 K Logg: 4.39 Fe/H: -0.120



TPS TCE Results:

Period = 308.58081 d
Epoch = 241.8045 BKJD

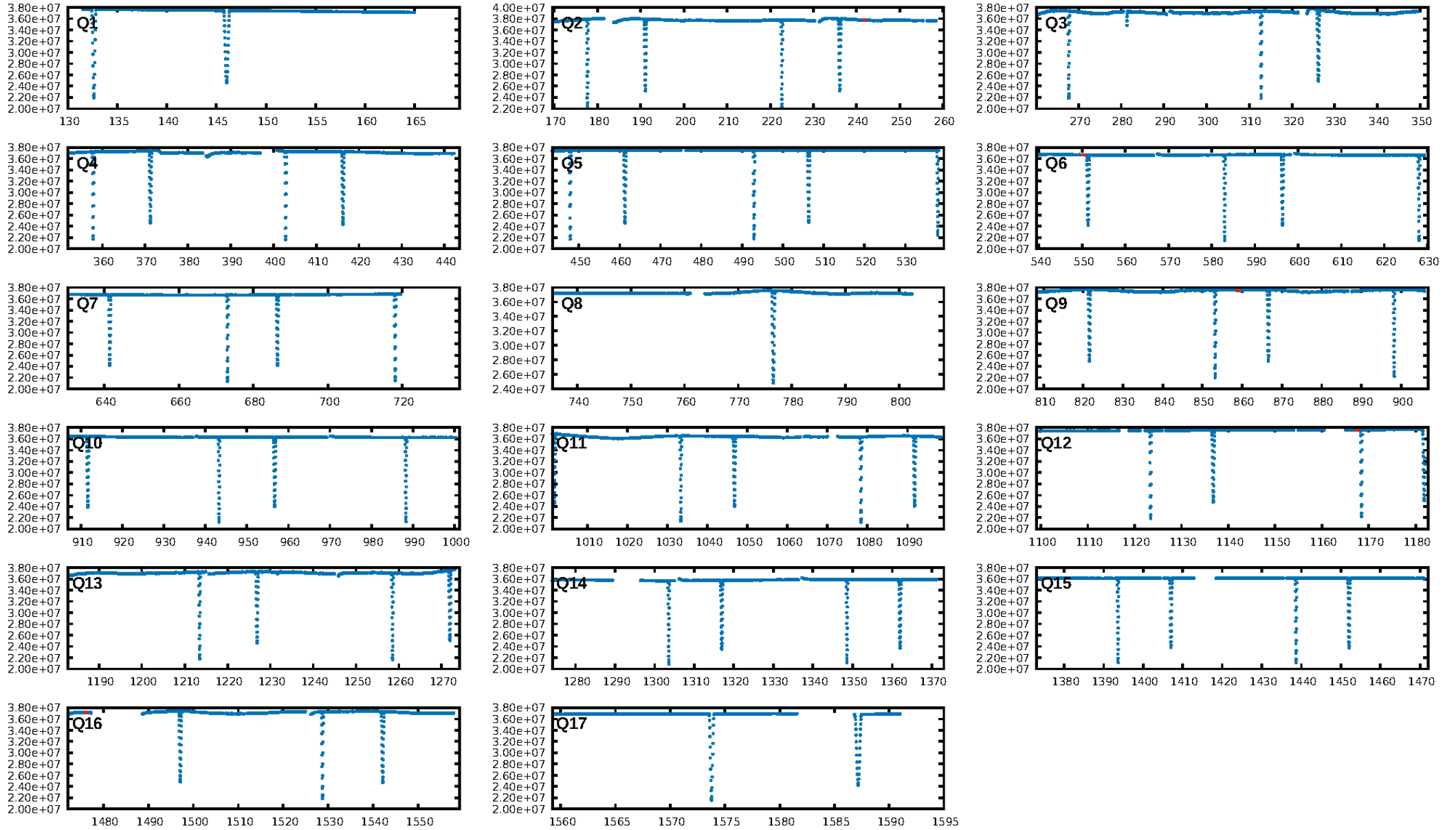
DV fit results are unavailable

DV Diagnostic Results:

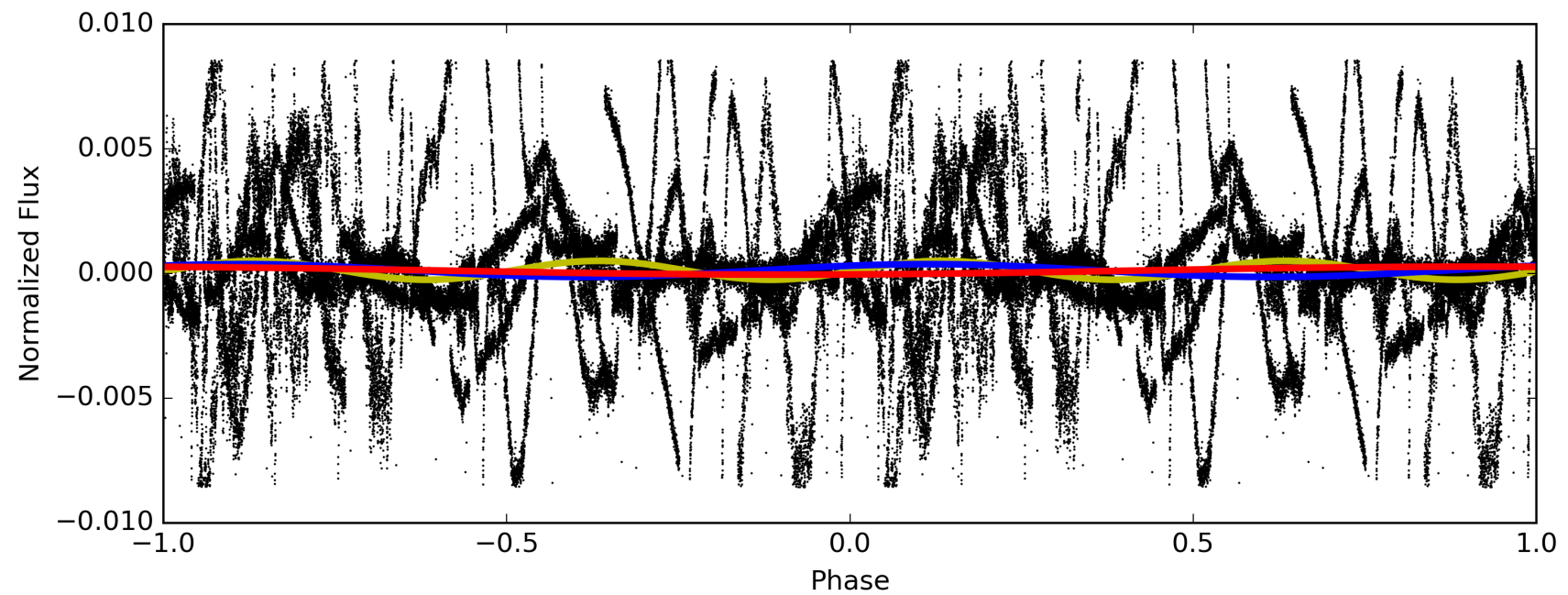
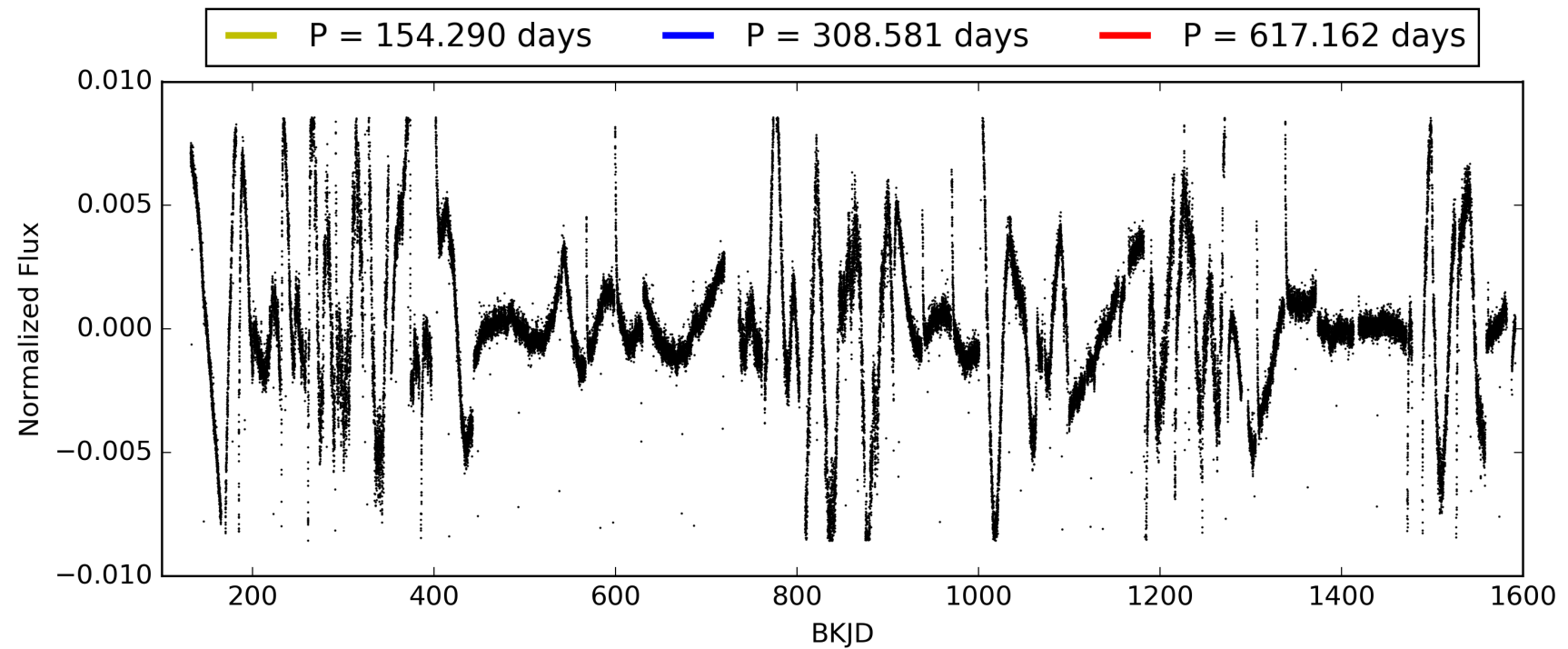
ShortPeriod-sig: 100.0% [207.73σ]
LongPeriod-sig: 100.0% [14.51σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.436

Centroid-sig: N/A
Centroid-so: 10.722 arcsec [0.78σ]
OotOffset-rm: 1.650 arcsec [2.31σ]
KicOffset-rm: 1.555 arcsec [2.18σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 009818732-05, PDC Light Curves

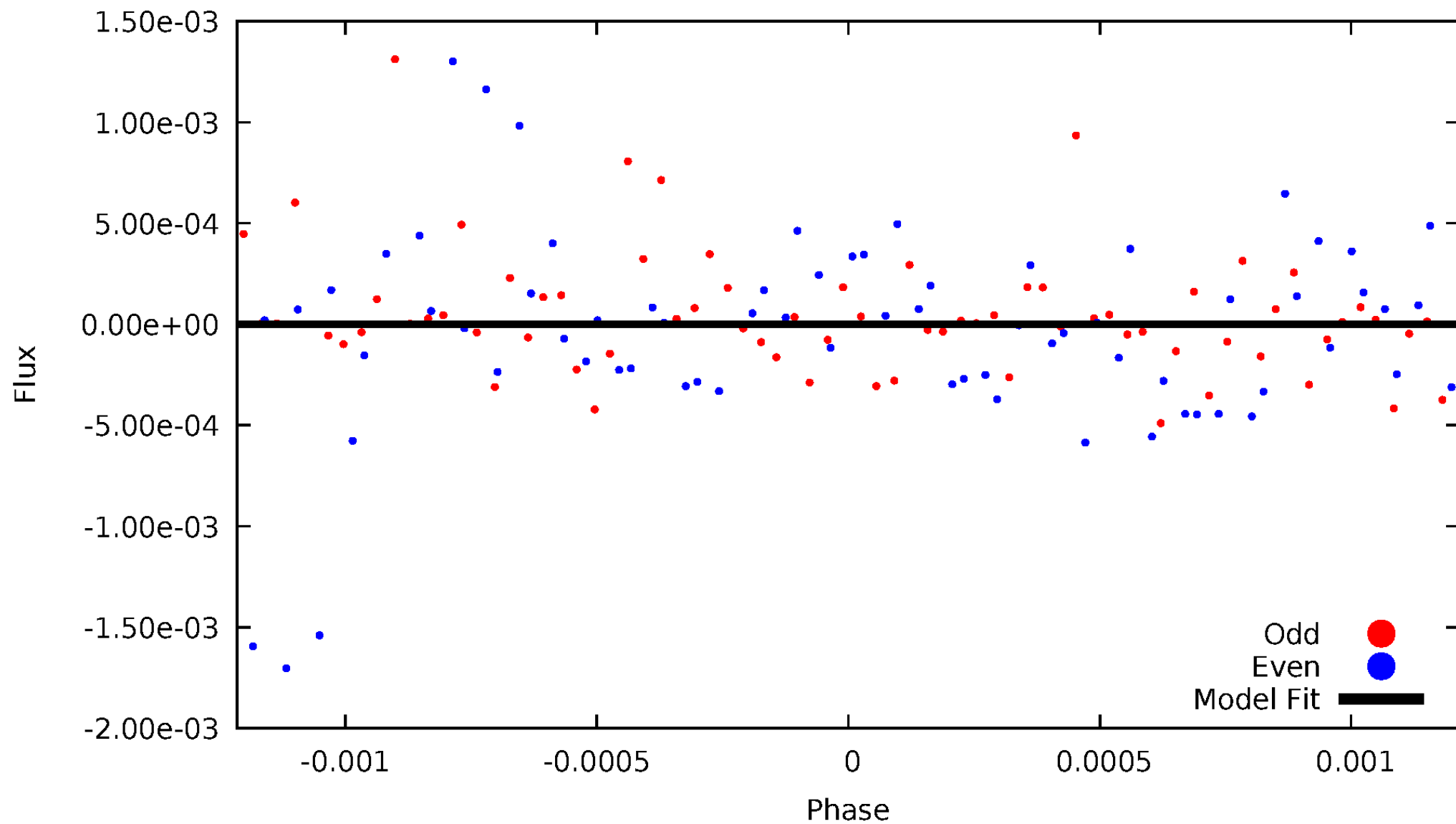


TCE 009818732-05



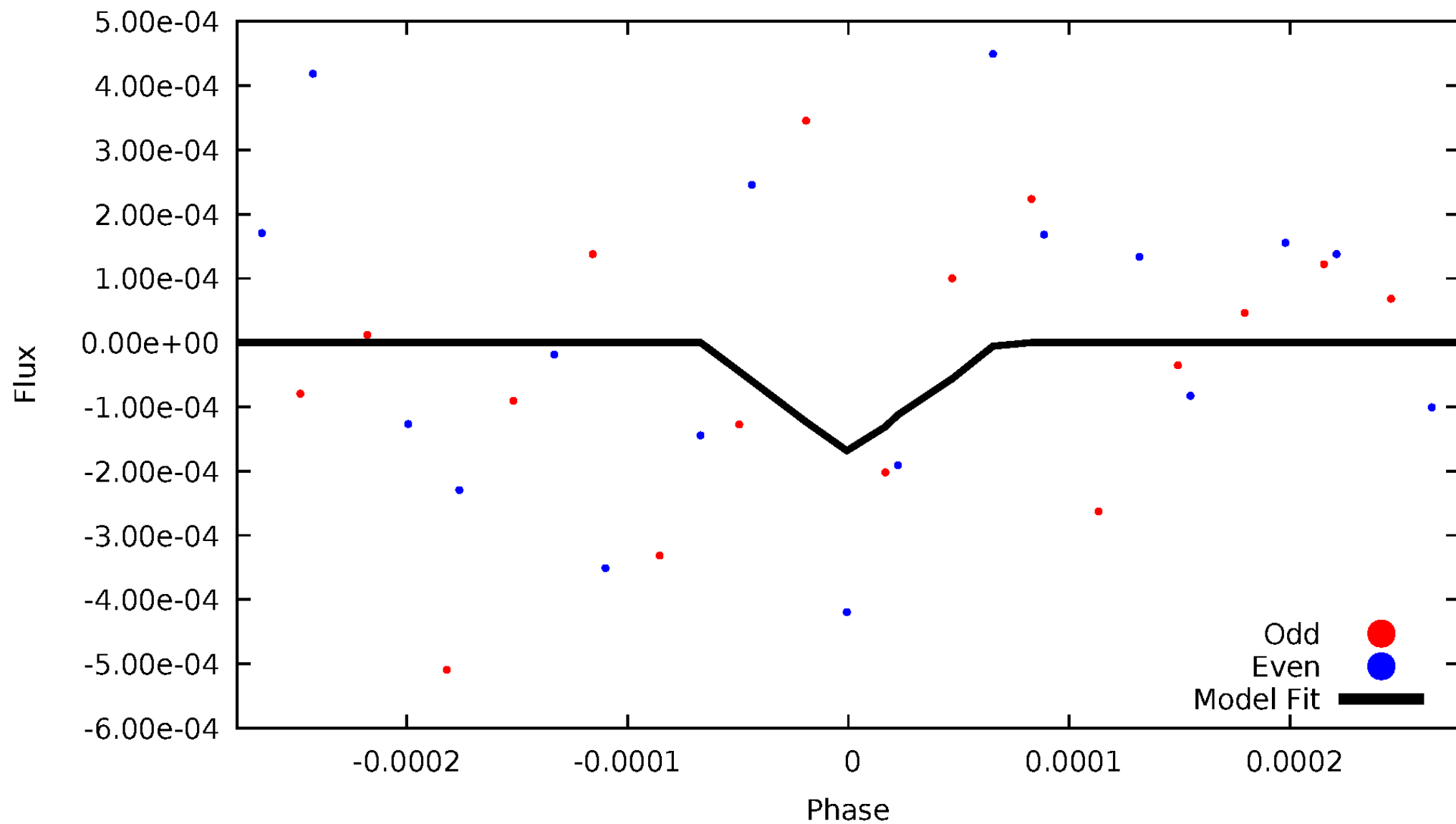
DV Odd/Even

TCE 009818732-05

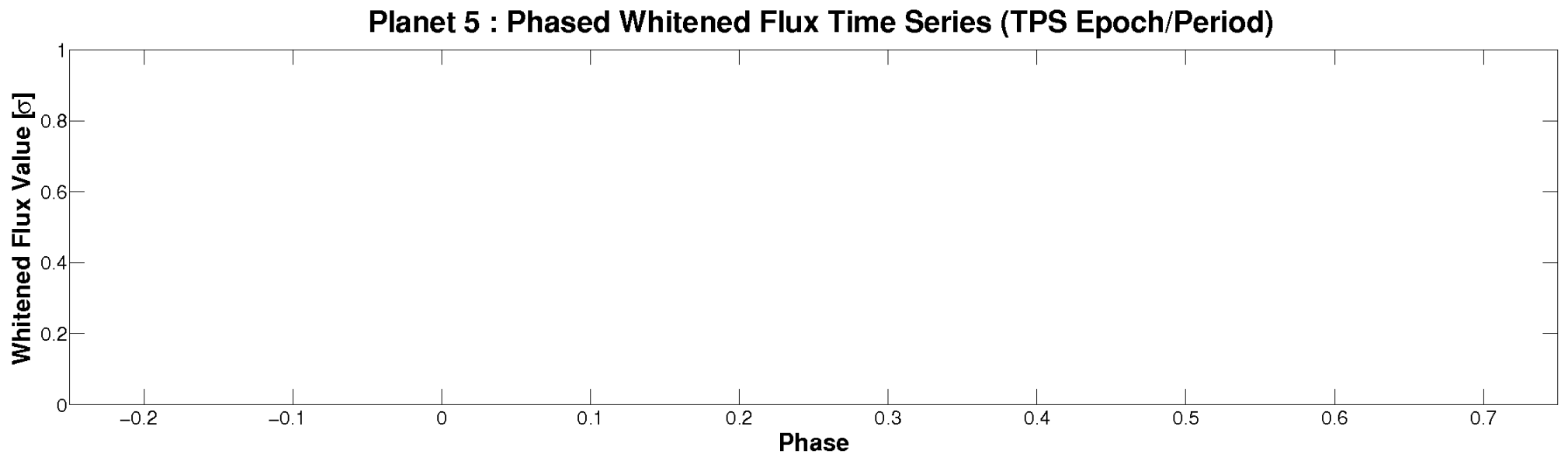
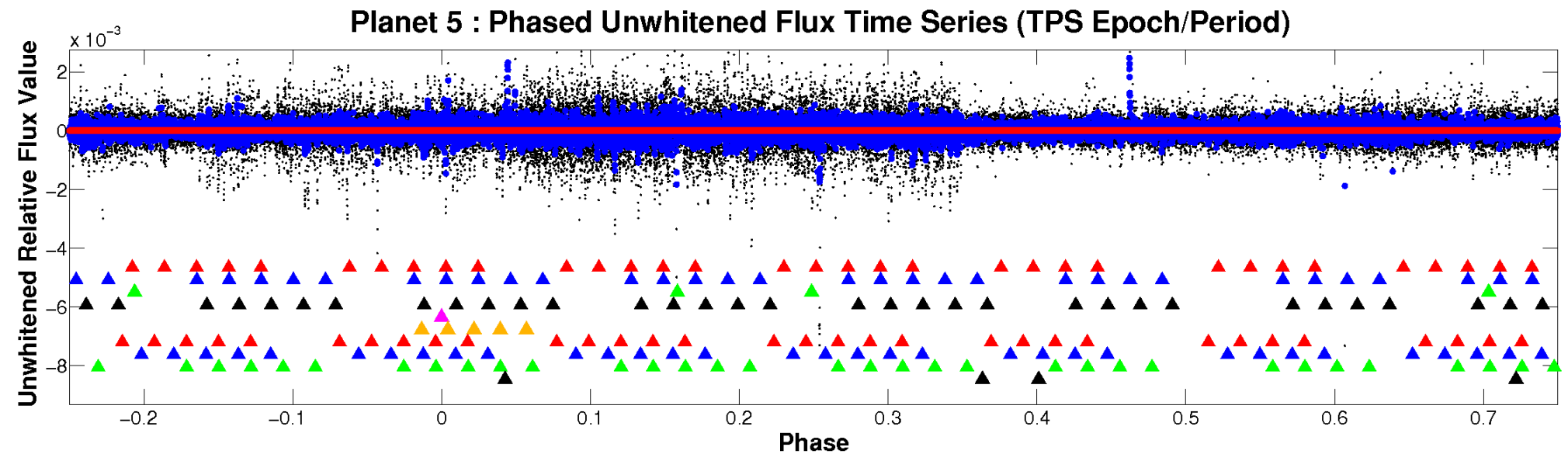


ALT Odd/Even

TCE 009818732-05

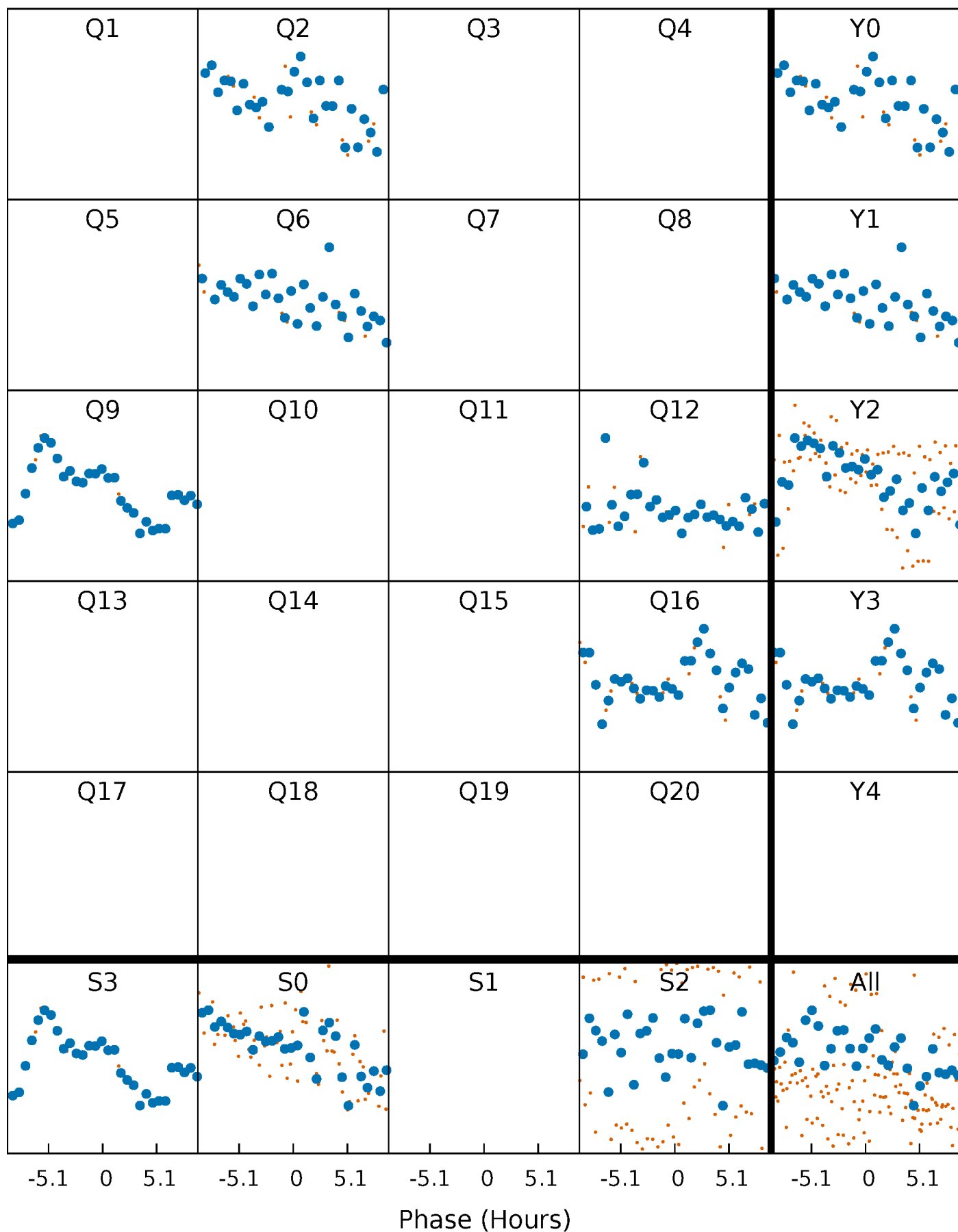


Non-Whitened Vs. Whitened Light Curve



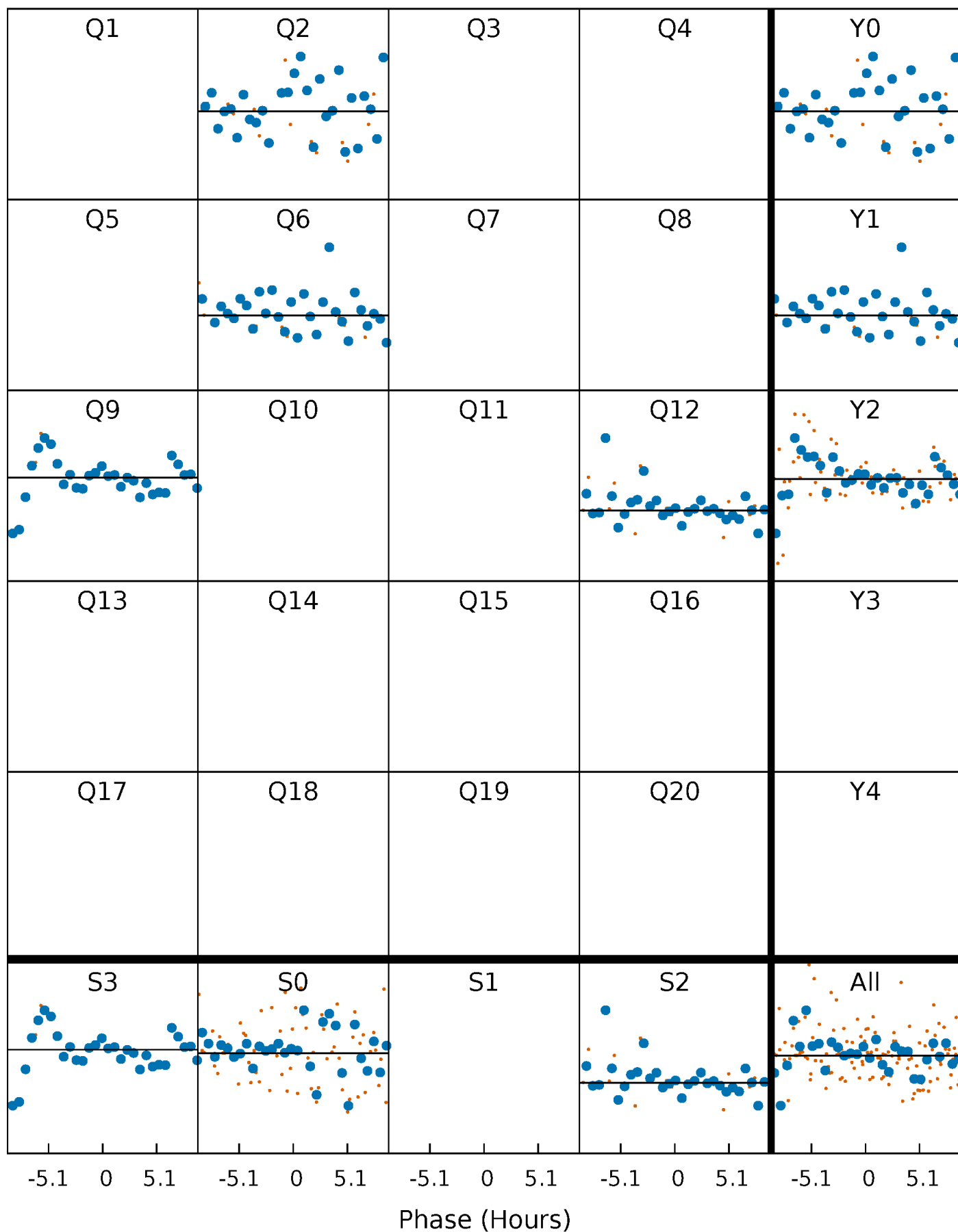
PDC Quarter-Phased Transit Curves

TCE 009818732-05 $P=308.580812$ Days $T_0=241.804540$ (BKJD)



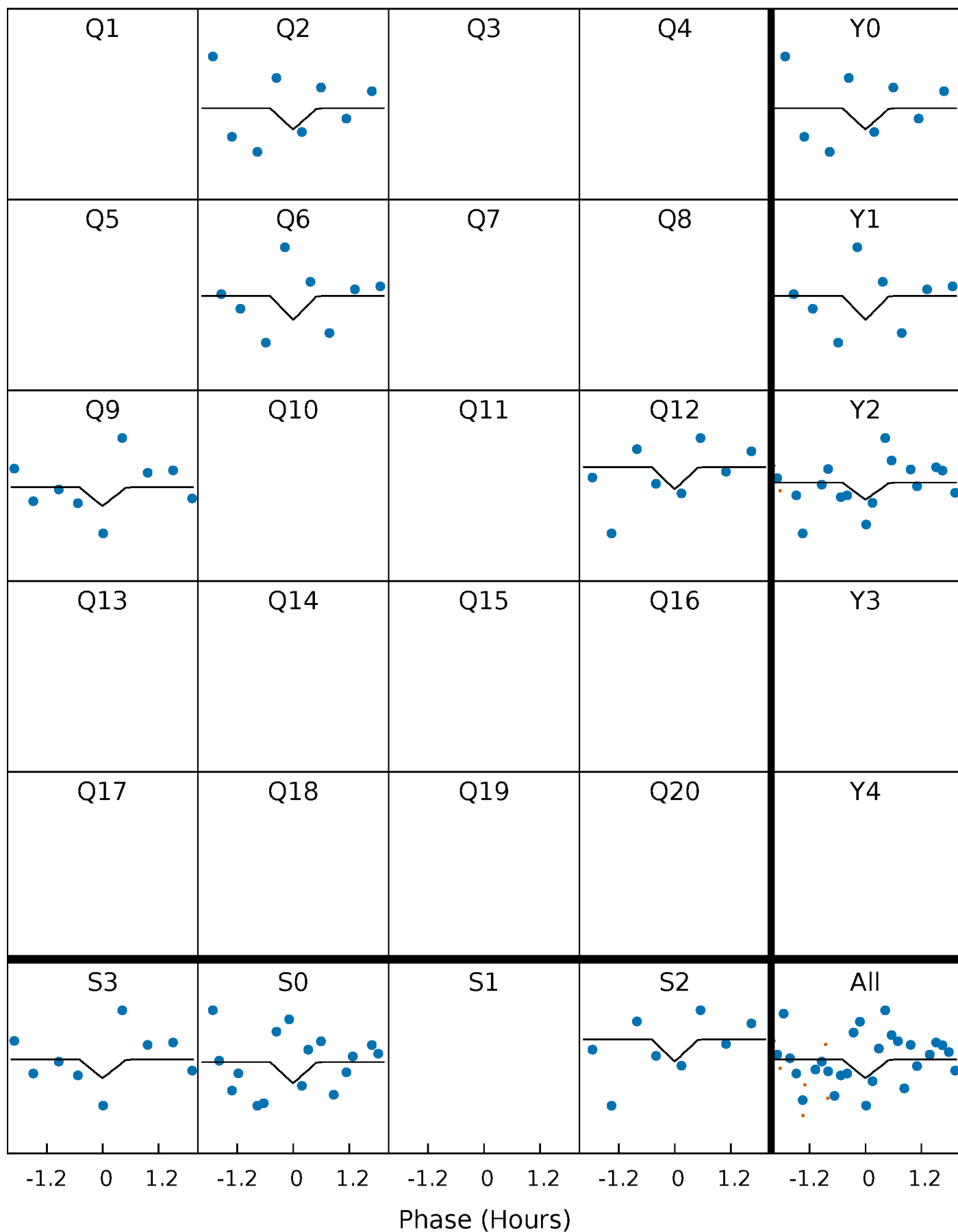
DV Quarter-Phased Transit Curves

TCE 009818732-05 $P=308.580812$ Days $T_0=241.804540$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

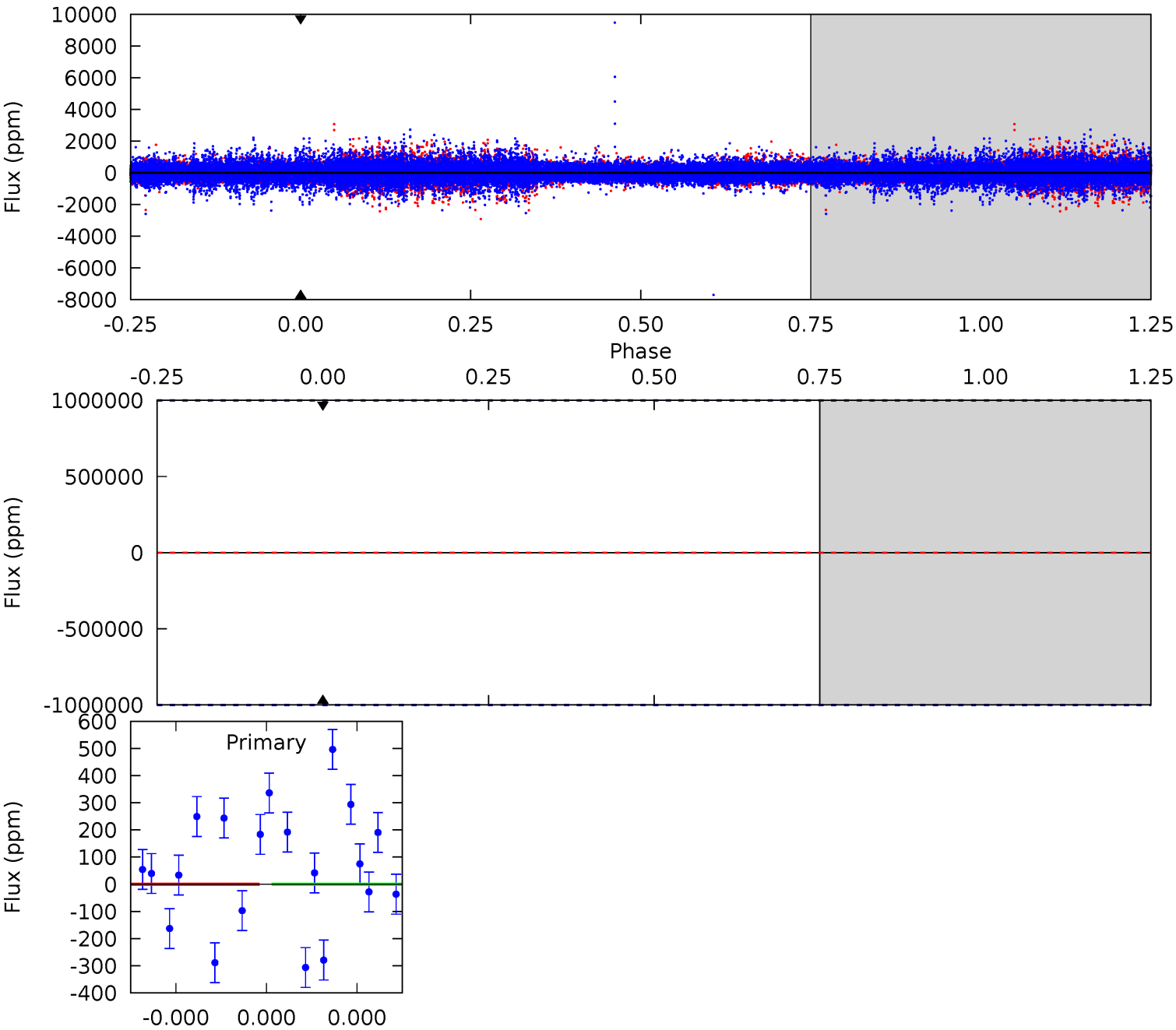
TCE 009818732-05 P=308.580812 Days $T_0=242.052382$ (BKJD)



DV Model-Shift Uniqueness Test

009818732-05, P = 308.580812 Days, E = 241.804540 Days

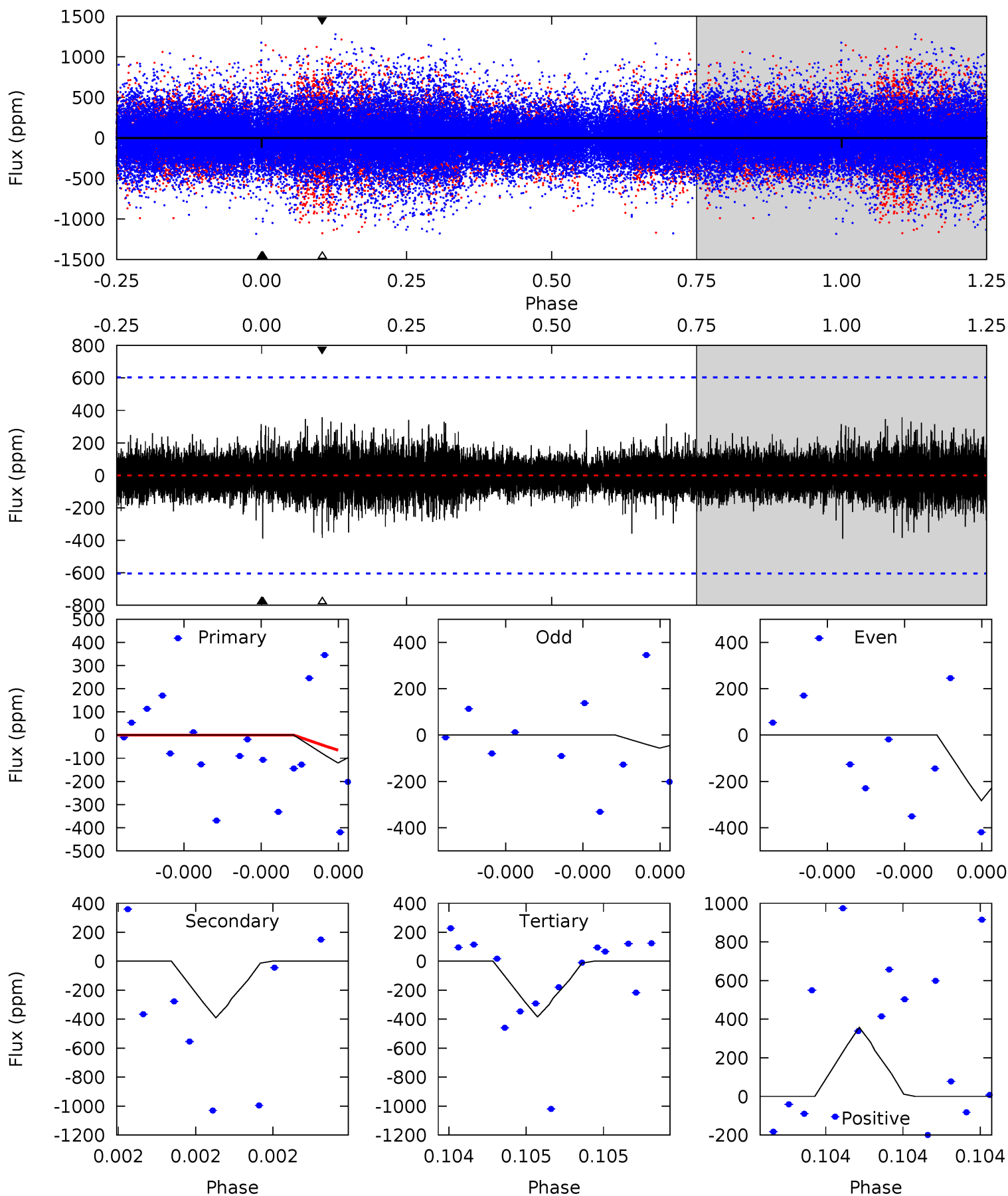
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009818732-05, P = 308.580812 Days, E = 242.052382 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.16	3.77	3.71	3.45	5.82	3.86	0.70	-2.54	-2.29	0.06	0.32	1.07	0.45	0.48	0.45



Stellar Parameters For KIC 009818732

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6484^{+145}_{-193}	$4.386^{+0.060}_{-0.180}$	$-0.120^{+0.250}_{-0.300}$	$1.153^{+0.339}_{-0.145}$	$1.178^{+0.164}_{-0.148}$	$1.084^{+0.353}_{-0.522}$
	+2%/-3%	+1%/-4%	+208%/-250%	+29%/-13%	+14%/-13%	+33%/-48%
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 009818732-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$15.33^{+12.44}_{-9.52}$	449^{+30}_{-21}	-4588^{+20933}_{-8883}	$-5778.907^{+357865.613}_{-233577.761}$
Alt.	-390 ± 104	$9.67^{+9.55}_{-6.64}$	448^{+31}_{-20}	3720^{+2253}_{-696}	1993^{+16453}_{-1492}

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

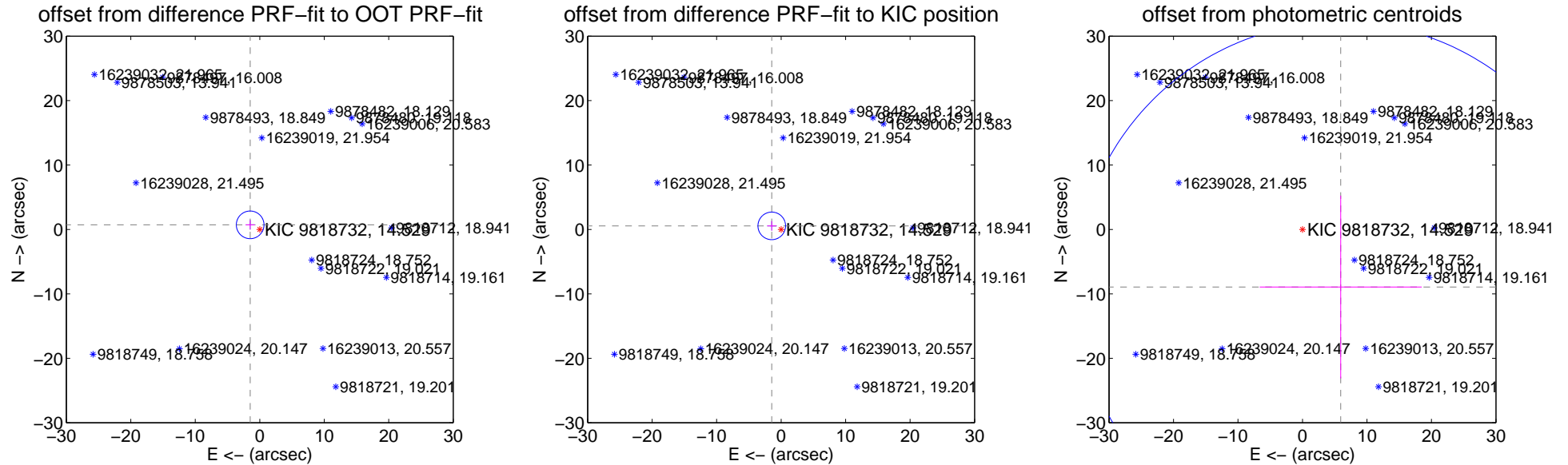
DV Centroid Data

Supplemental centroid analysis for 009818732-05. Kepler magnitude: 14.53. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.650 ± 0.715	2.31	1.488 ± 0.710	0.714 ± 0.739
PRF-fit source offset from KIC position	1.555 ± 0.713	2.18	1.453 ± 0.710	0.554 ± 0.739
photometric centroid source offset	10.72 ± 13.71	0.78	-5.92 ± 12.57	-8.94 ± 14.19



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.

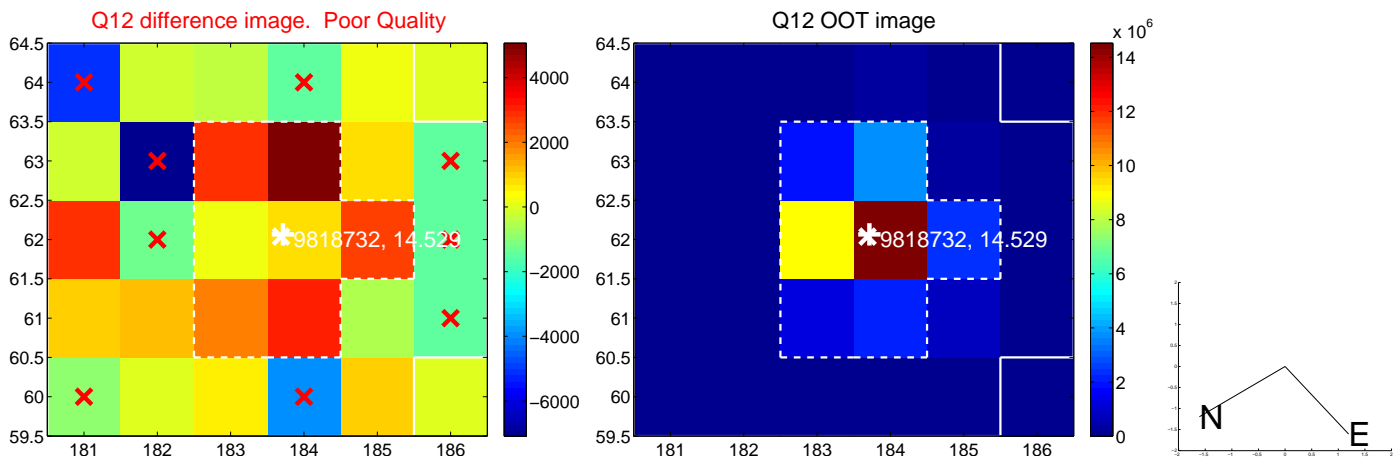
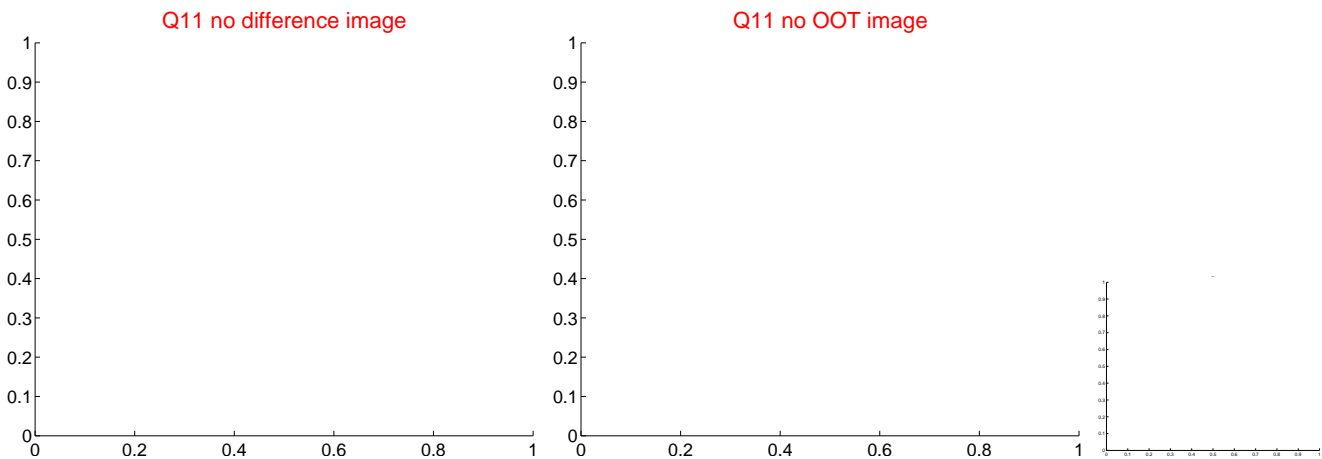
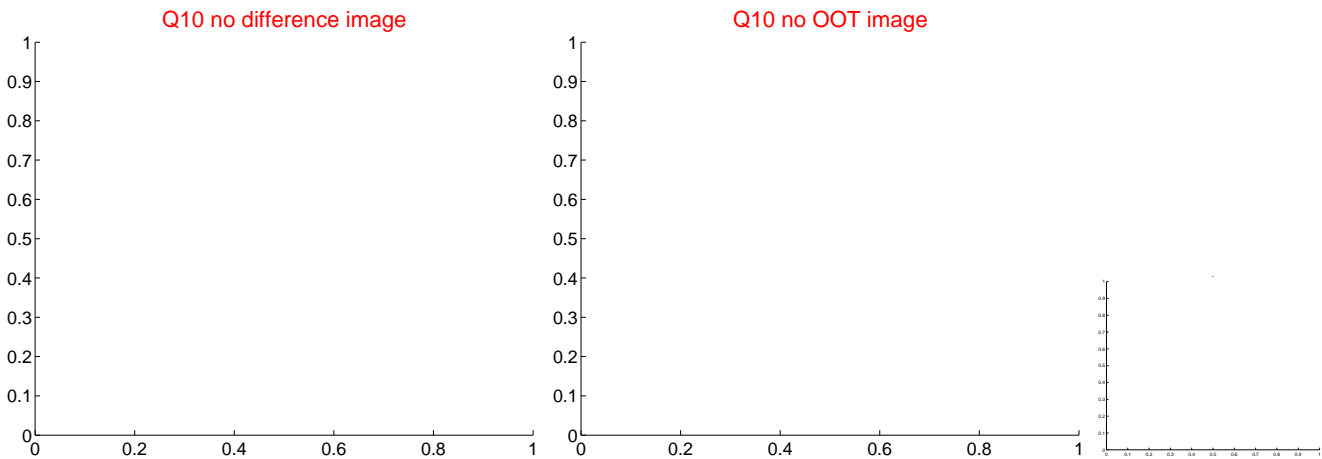
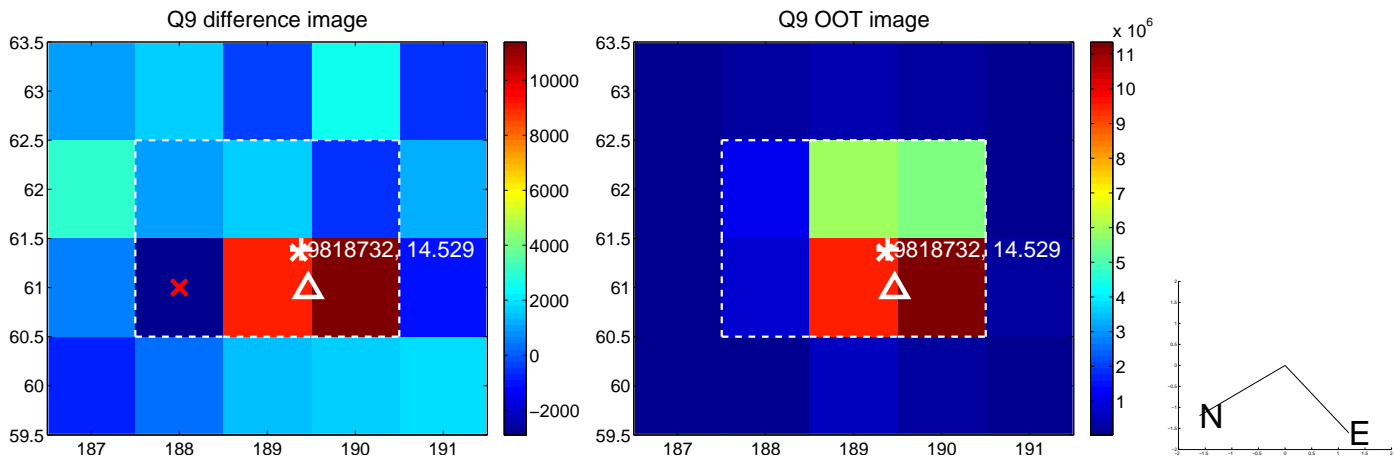
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



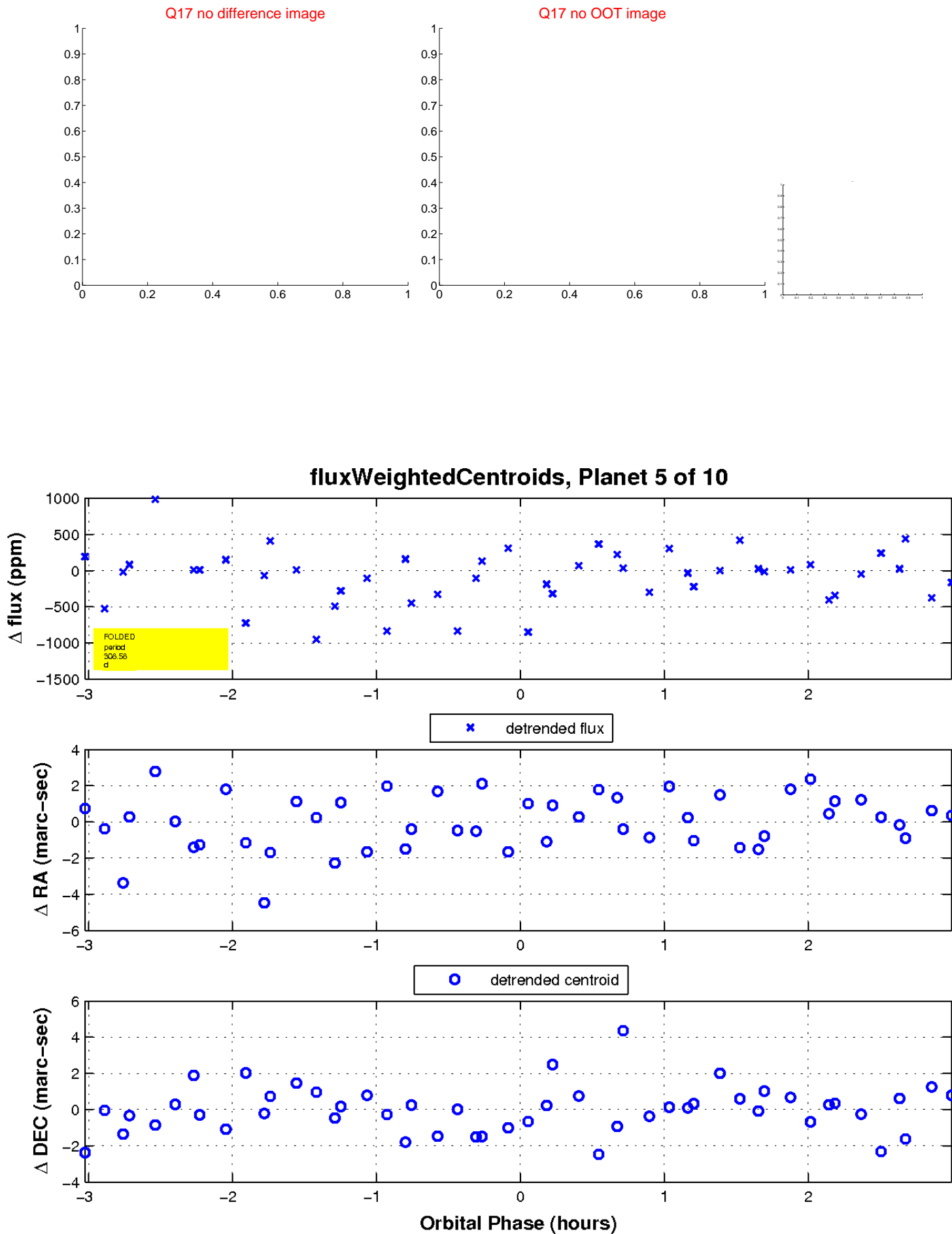
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

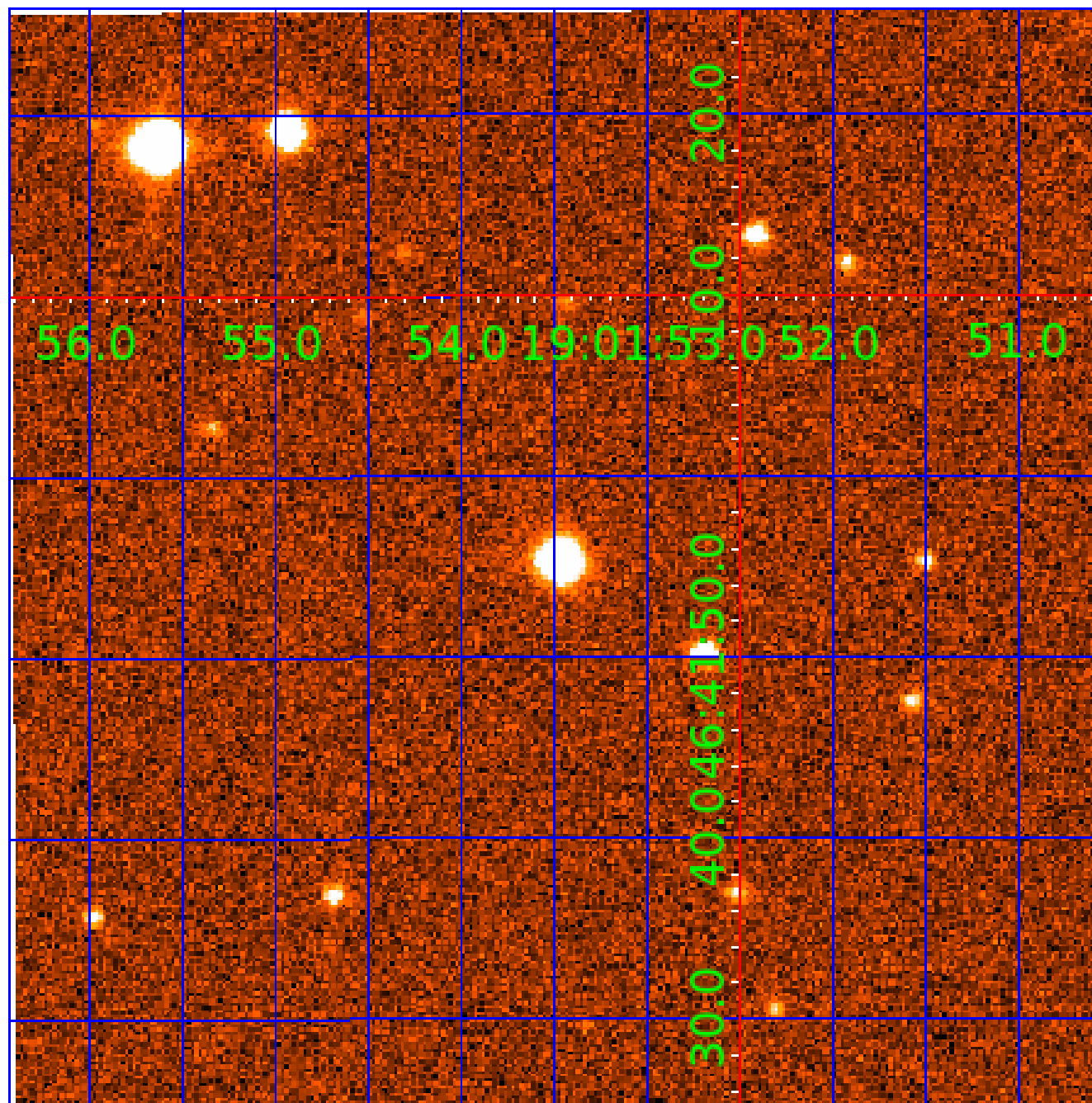


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009818732

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})
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009818732-02	OBS	No	45.035876	146.025633	341823.0	7.500	12763.8	-1.0	1.15	6484	59.56	30.72
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009818732-10	OBS	No	407.554165	365.604668	5181.3	15.000	127.3	-1.0	1.15	6484	8.34	1.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009818732-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
009818732-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS
009818732-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
009818732-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009818732-07	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
009818732-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009818732-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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.

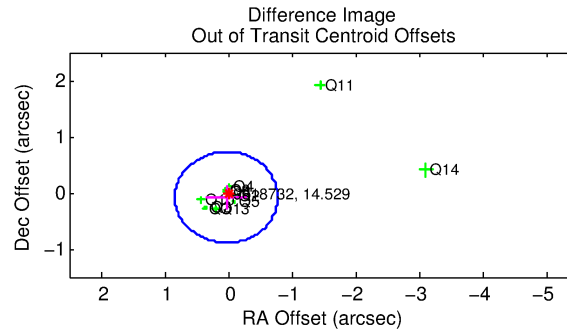
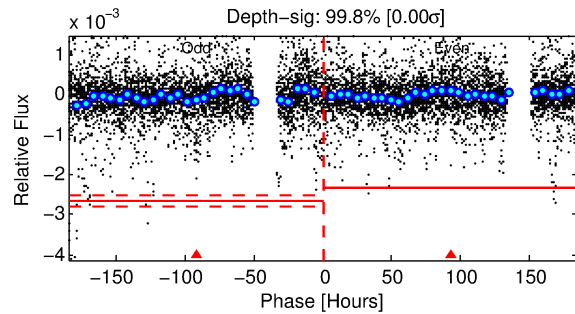
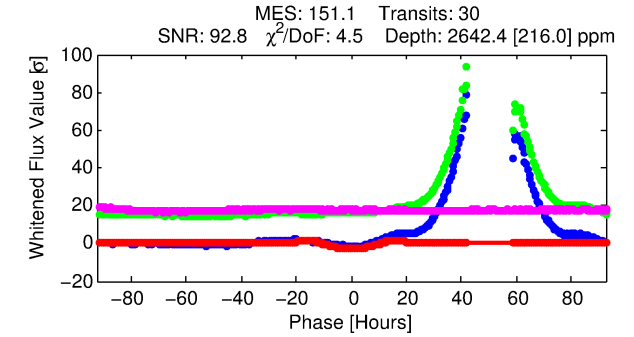
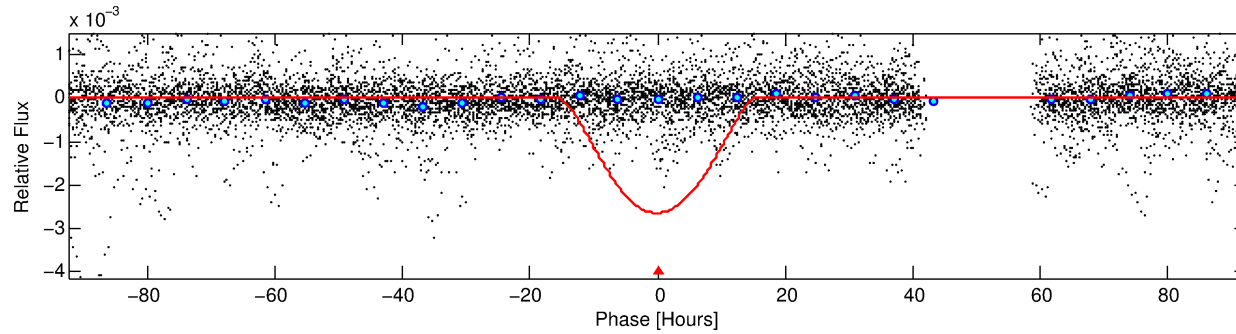
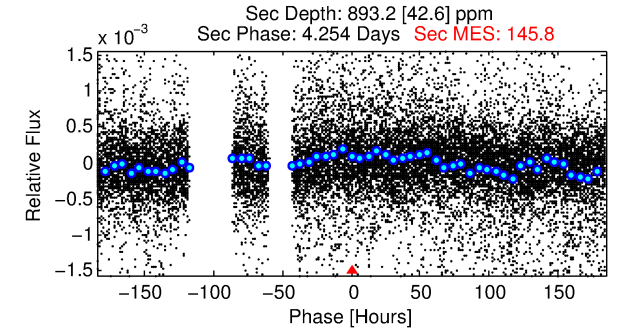
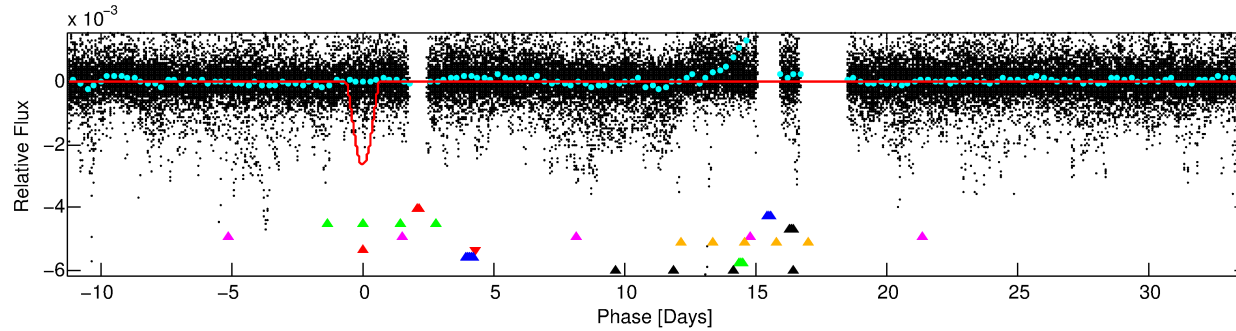
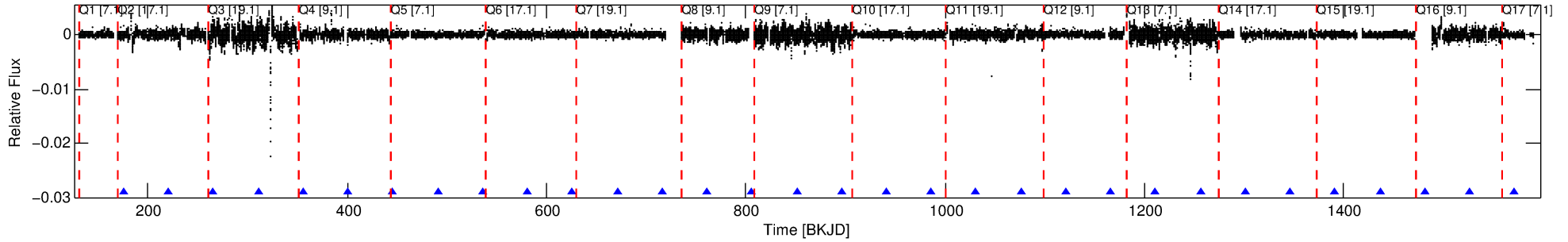
Ephemeris Match Information For 009818732-07

No Significant Match Found

DV One-Page Summary

KIC: 9818732 Candidate: 7 of 10 Period: 45.032 d
KOI: K07233 Corr: No Ephemeris Match

Kp: 14.53 R*: 1.15 Rs Teff: 6484.0 K Logg: 4.39 Fe/H: -0.120



DV Fit Results:

Period = 45.03198 [0.00081] d
Epoch = 175.6140 [0.0147] BKJD
Rp/R* = 0.0864 [0.0485]
a/R* = 4.85 [0.54]
b = 1.00 [0.06]
Seff = 30.72 [11.03]
Teq = 600 [54] K
Rp = 10.87 [6.88] Re
a = 0.2618 [0.0628] AU
Ag = 284.82 [333.94] [0.85σ]
Teffp = 3813 [1076] K [2.98σ]

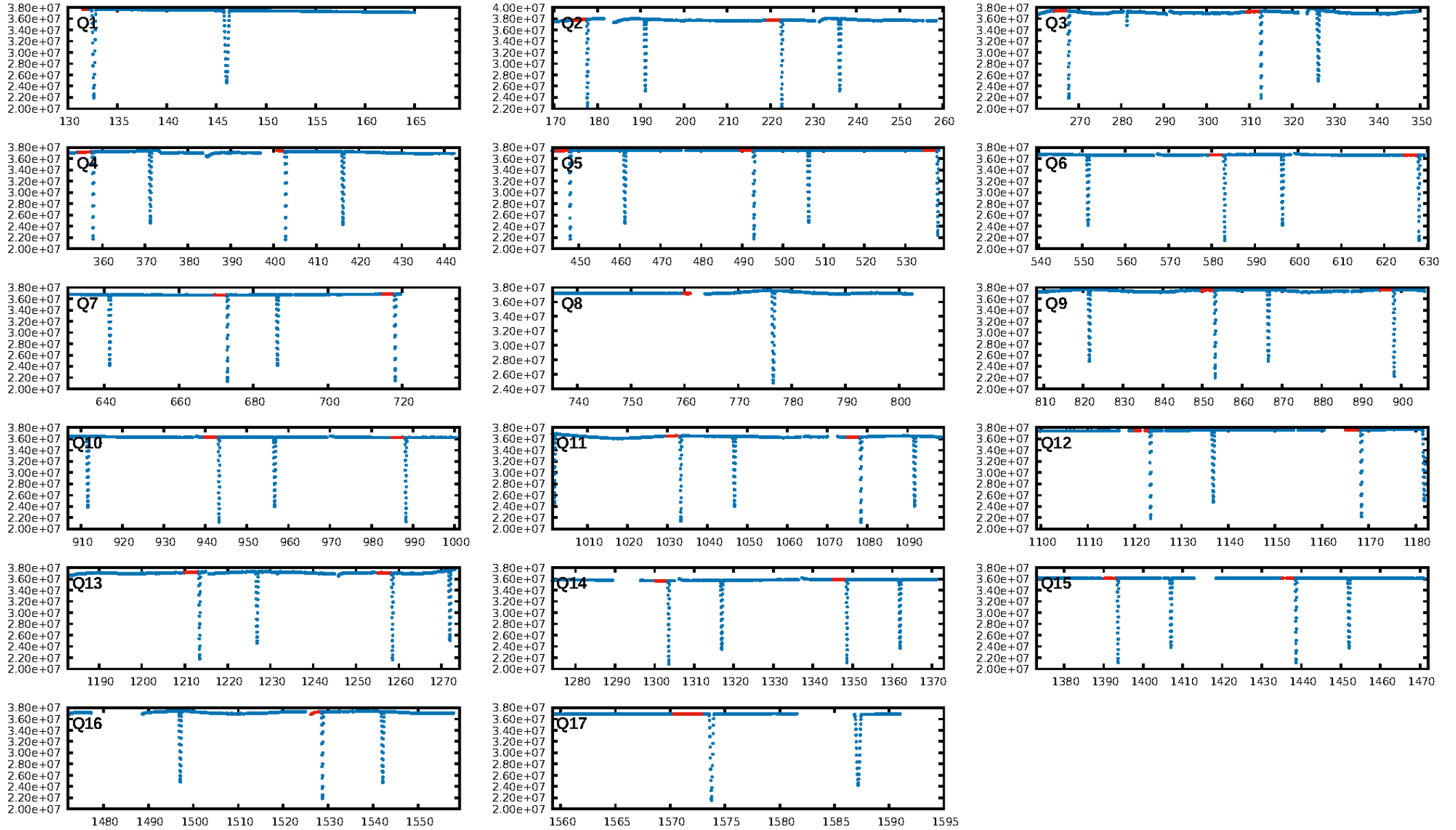
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.2% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [29/29]
GhostDiagnostic-chr: -0.08356
Centroid-sig: N/A
Centroid-so: 0.165 arcsec [2.93σ]
OotOffset-rm: 0.086 arcsec [0.32σ]
KicOffset-rm: 0.266 arcsec [1.05σ]
OotOffset-st: 4/3/1/3 [11]
KicOffset-st: 4/3/1/3 [11]
DiffImageQuality-fgm: 0.00 [0/11]
DiffImageOverlap-fno: 0.00 [0/12]

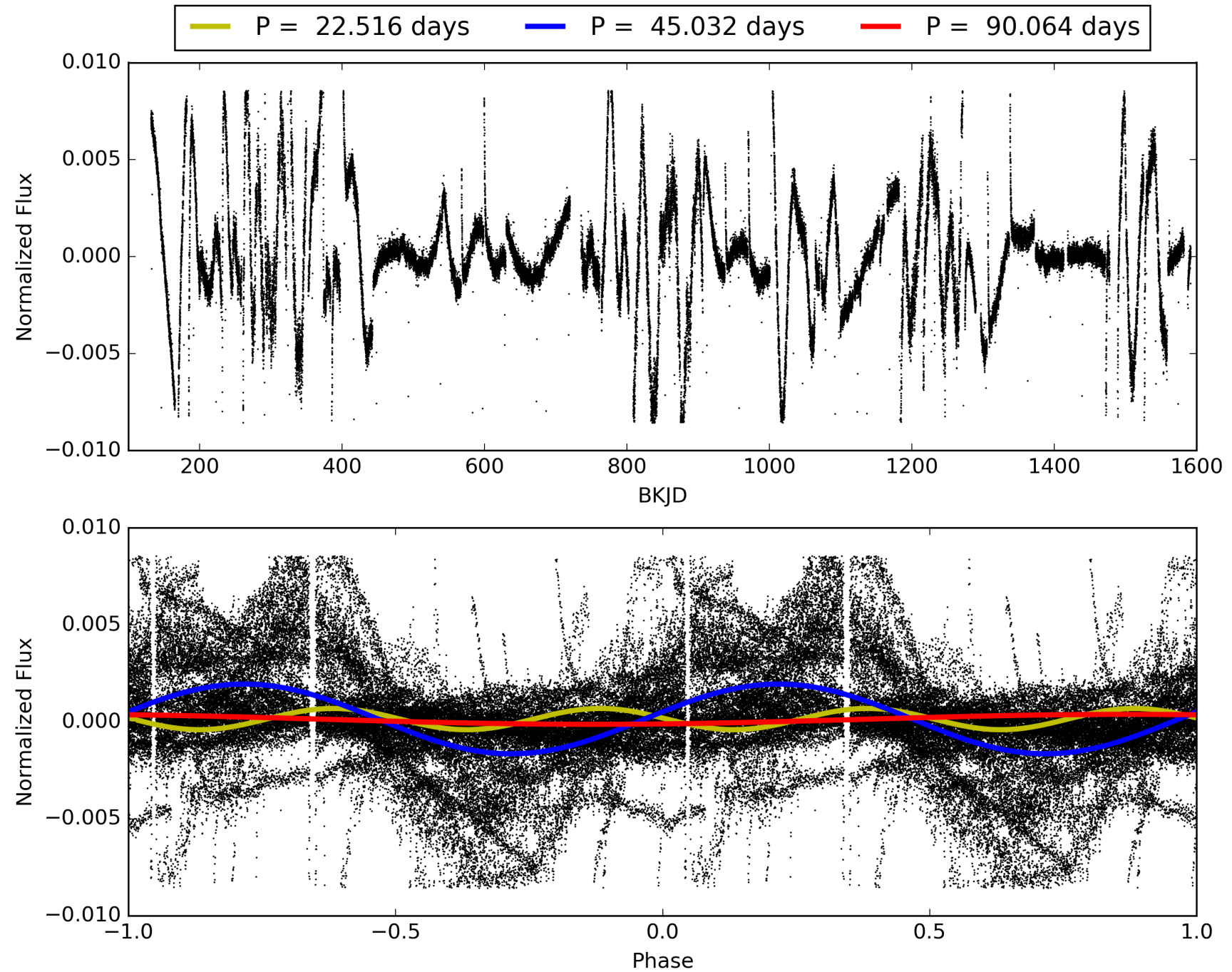
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:28:56 Z

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

TCE 009818732-07, PDC Light Curves

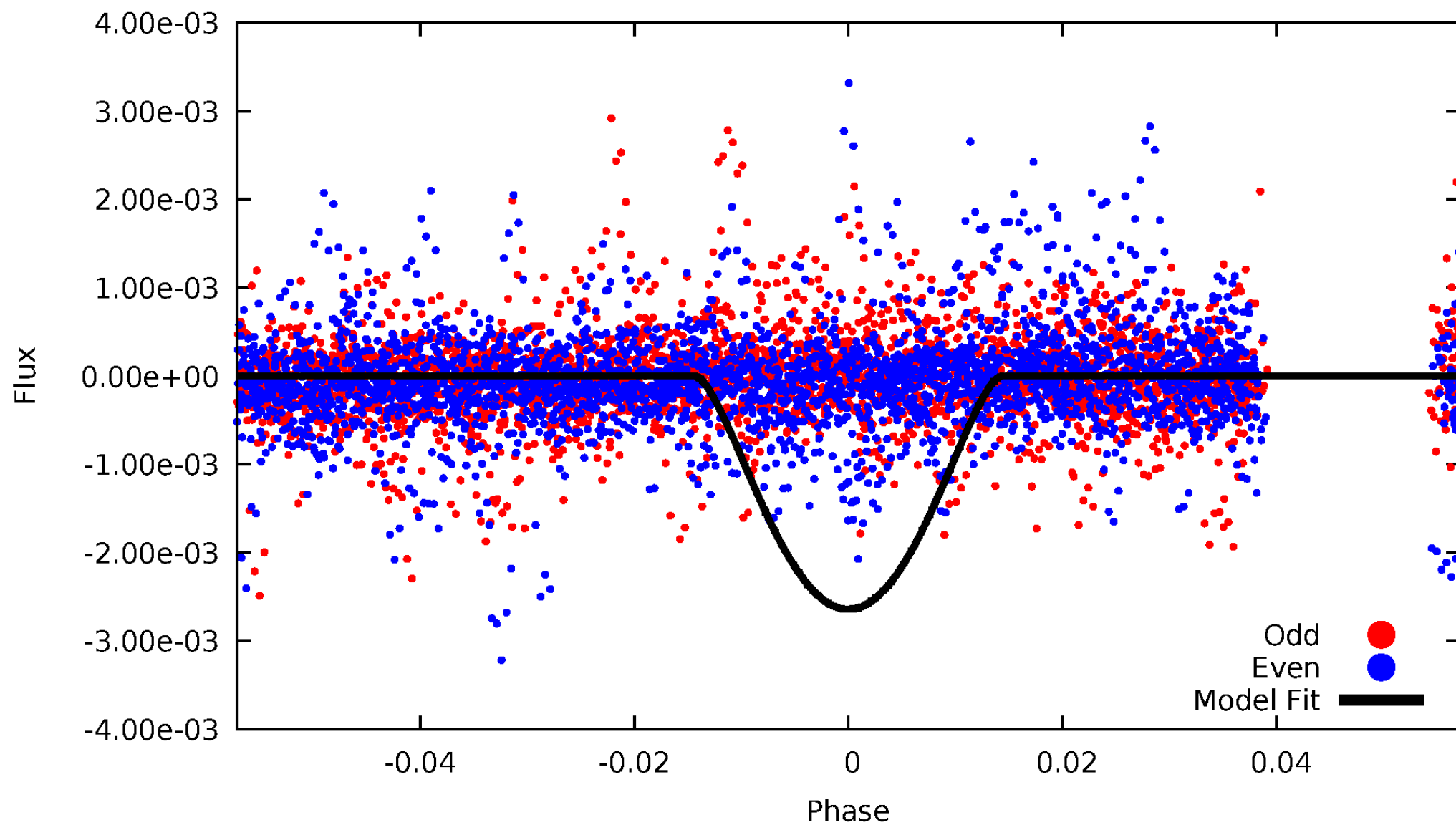


TCE 009818732-07



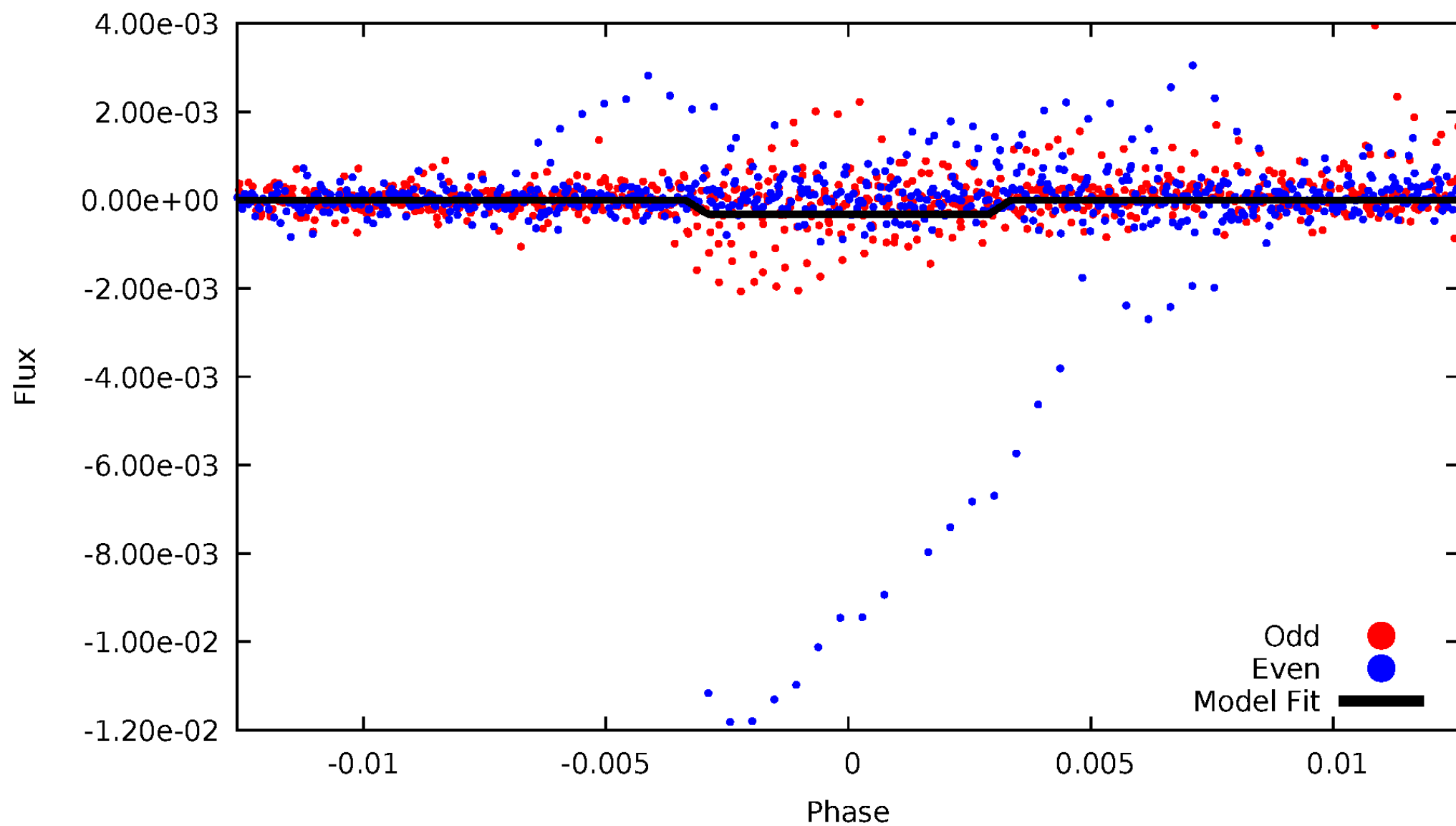
DV Odd/Even

TCE 009818732-07



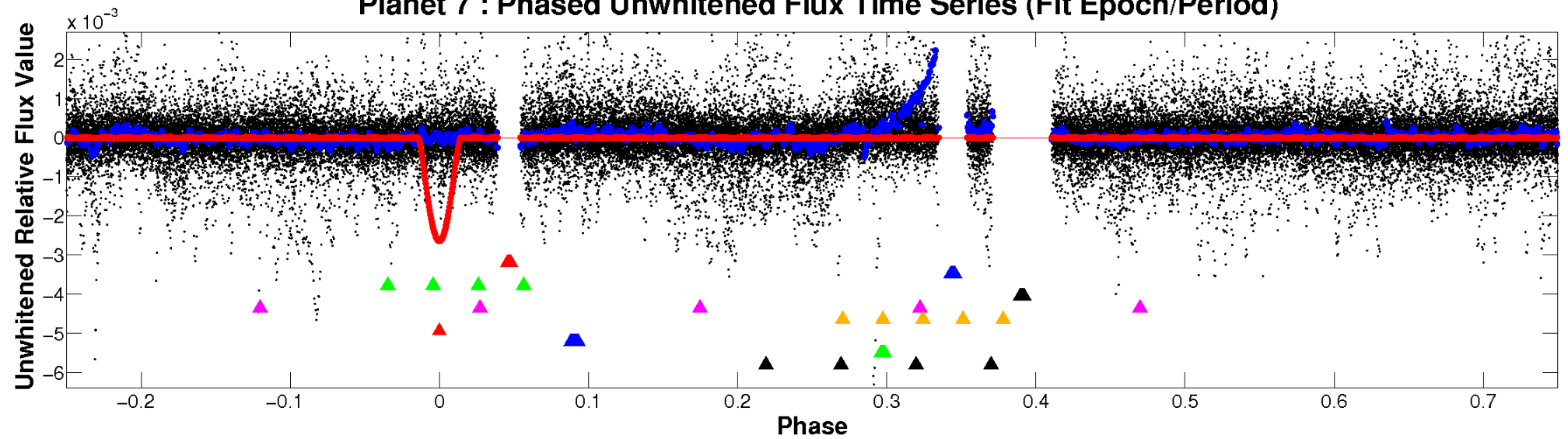
ALT Odd/Even

TCE 009818732-07

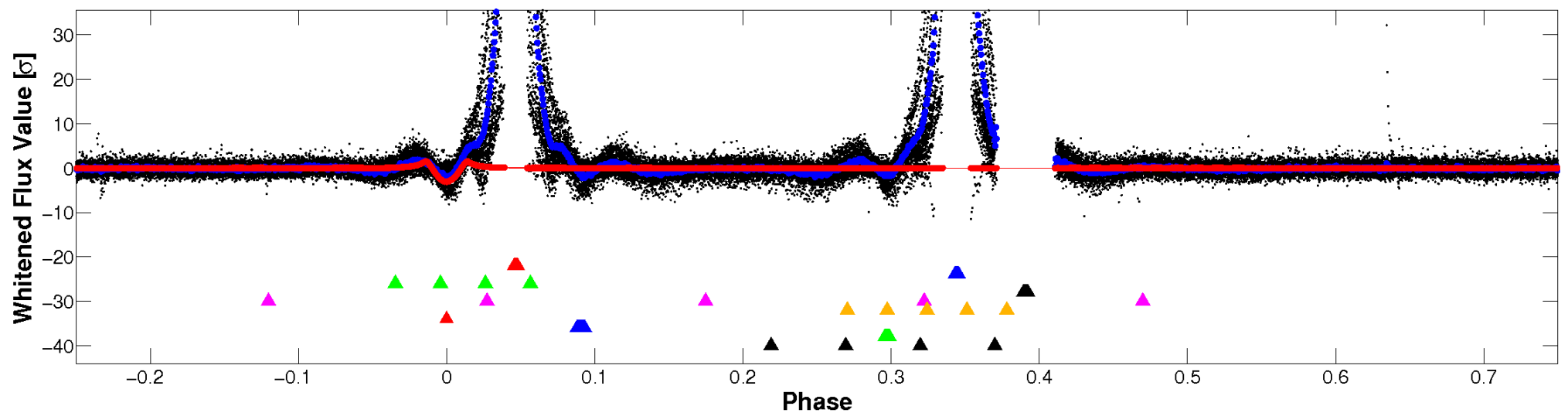


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

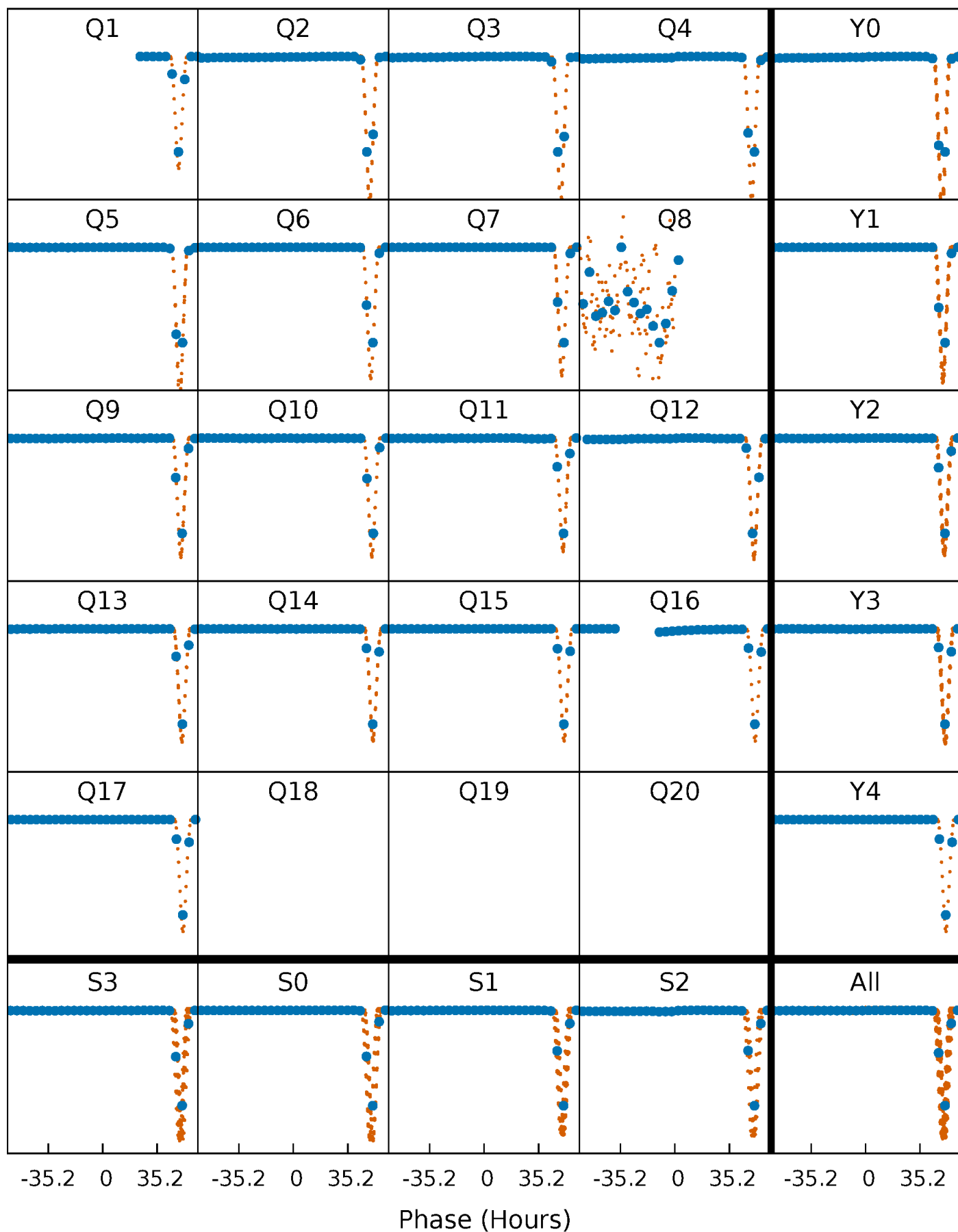


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



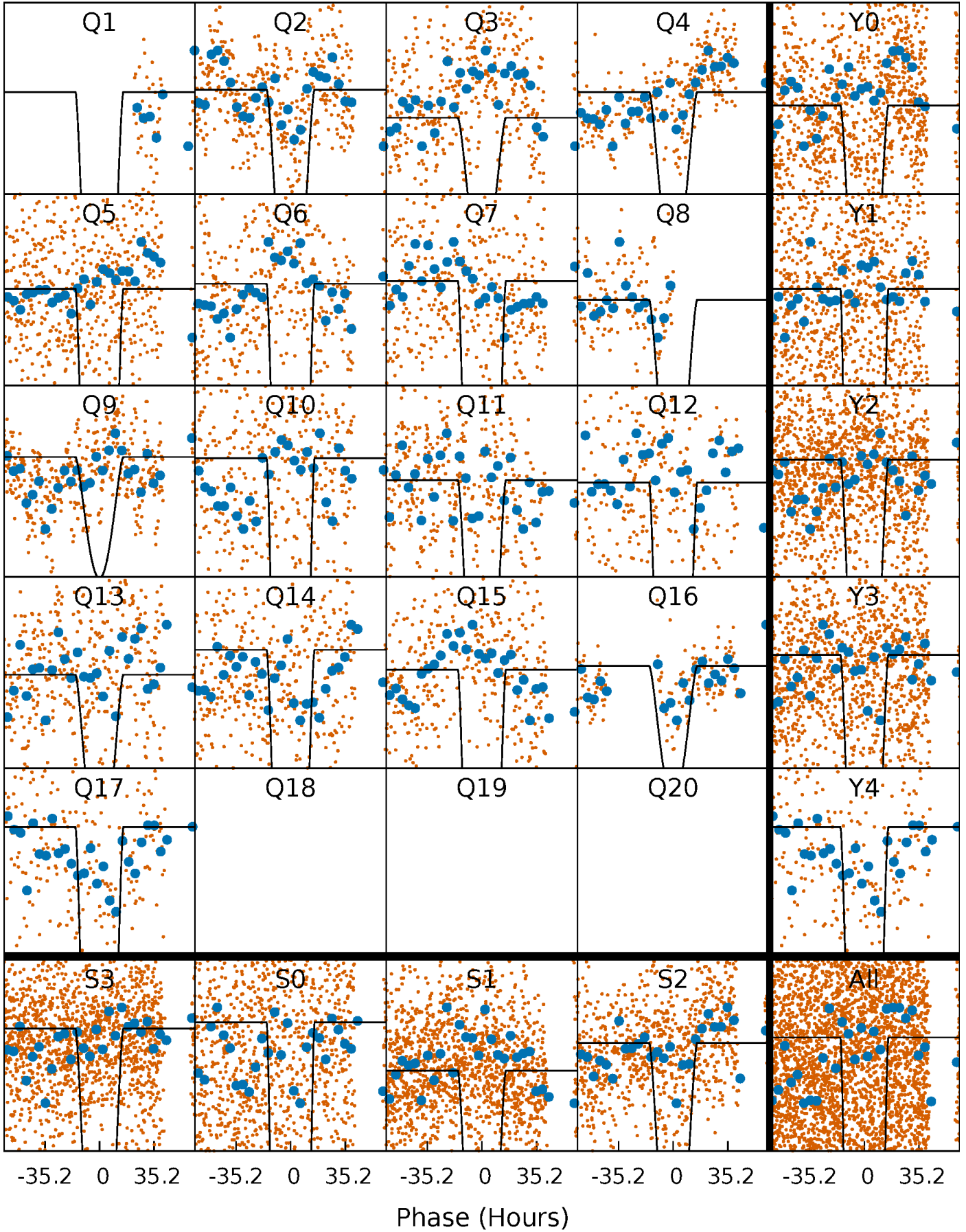
PDC Quarter-Phased Transit Curves

TCE 009818732-07 P= 45.031979 Days $T_0=175.613990$ (BKJD)



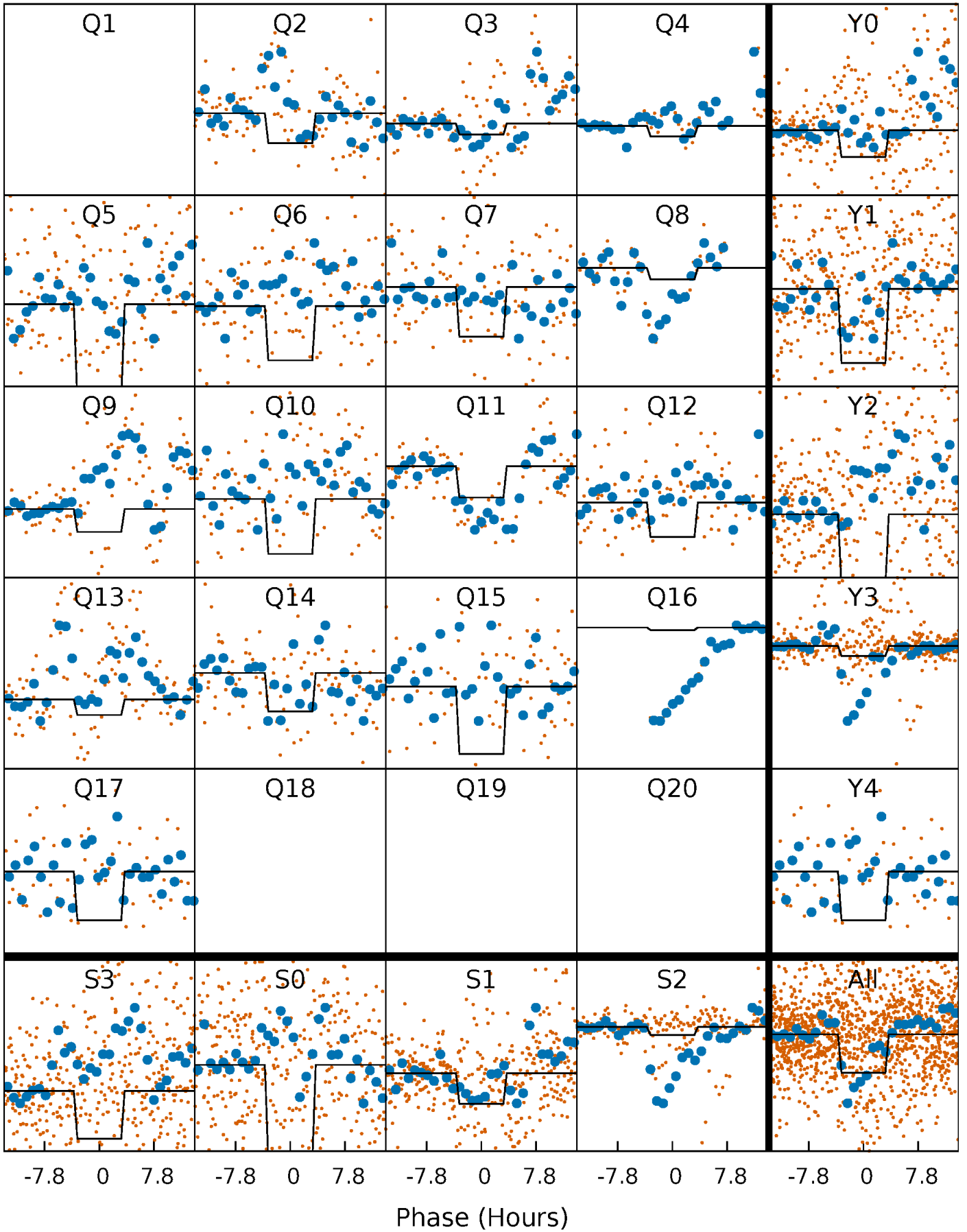
DV Quarter-Phased Transit Curves

TCE 009818732-07 P= 45.031979 Days $T_0=175.613990$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

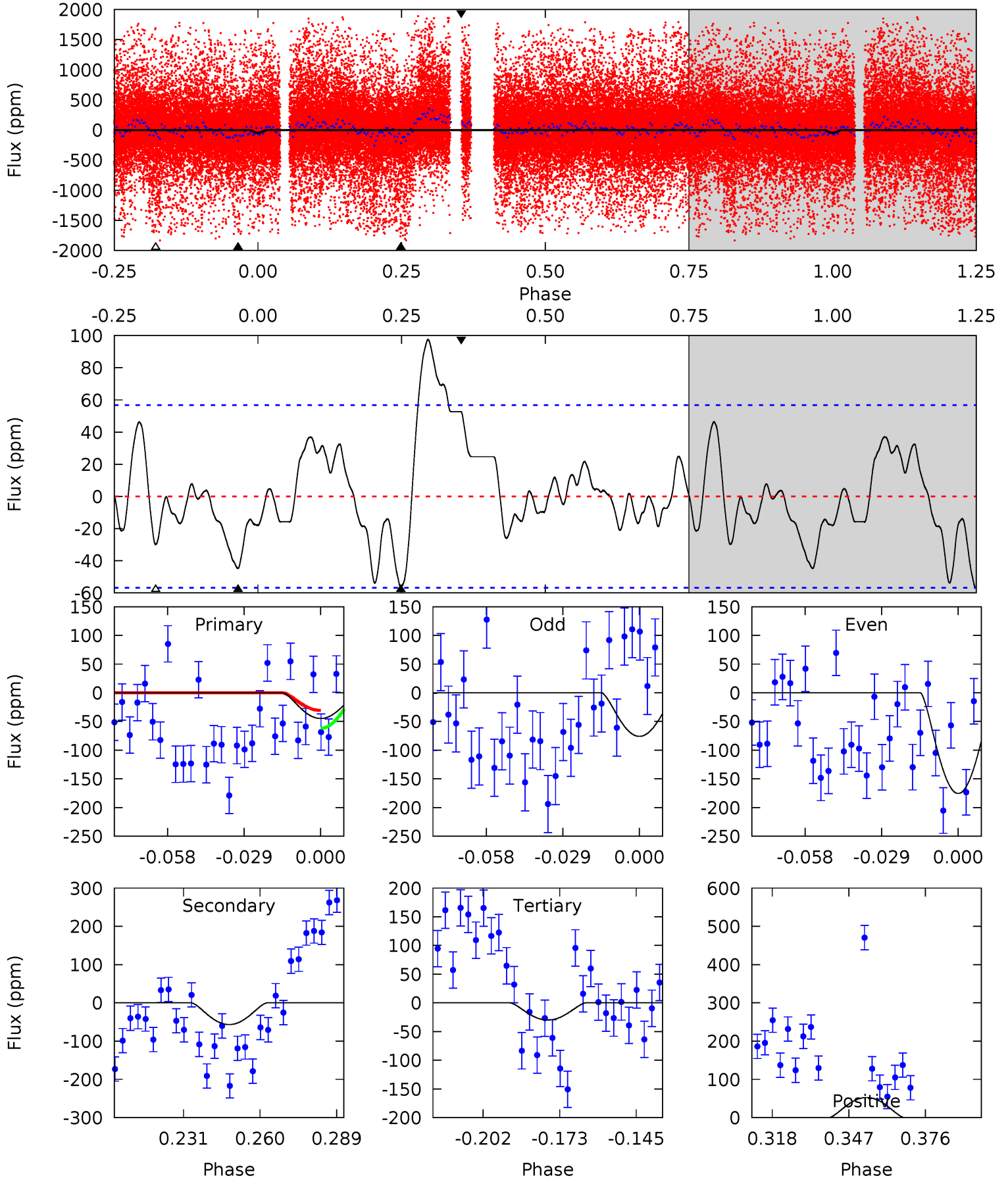
TCE 009818732-07 $P = 45.032638$ Days $T_0 = 175.294703$ (BKJD)



DV Model-Shift Uniqueness Test

009818732-07, $P = 45.031979$ Days, $E = 130.582011$ Days

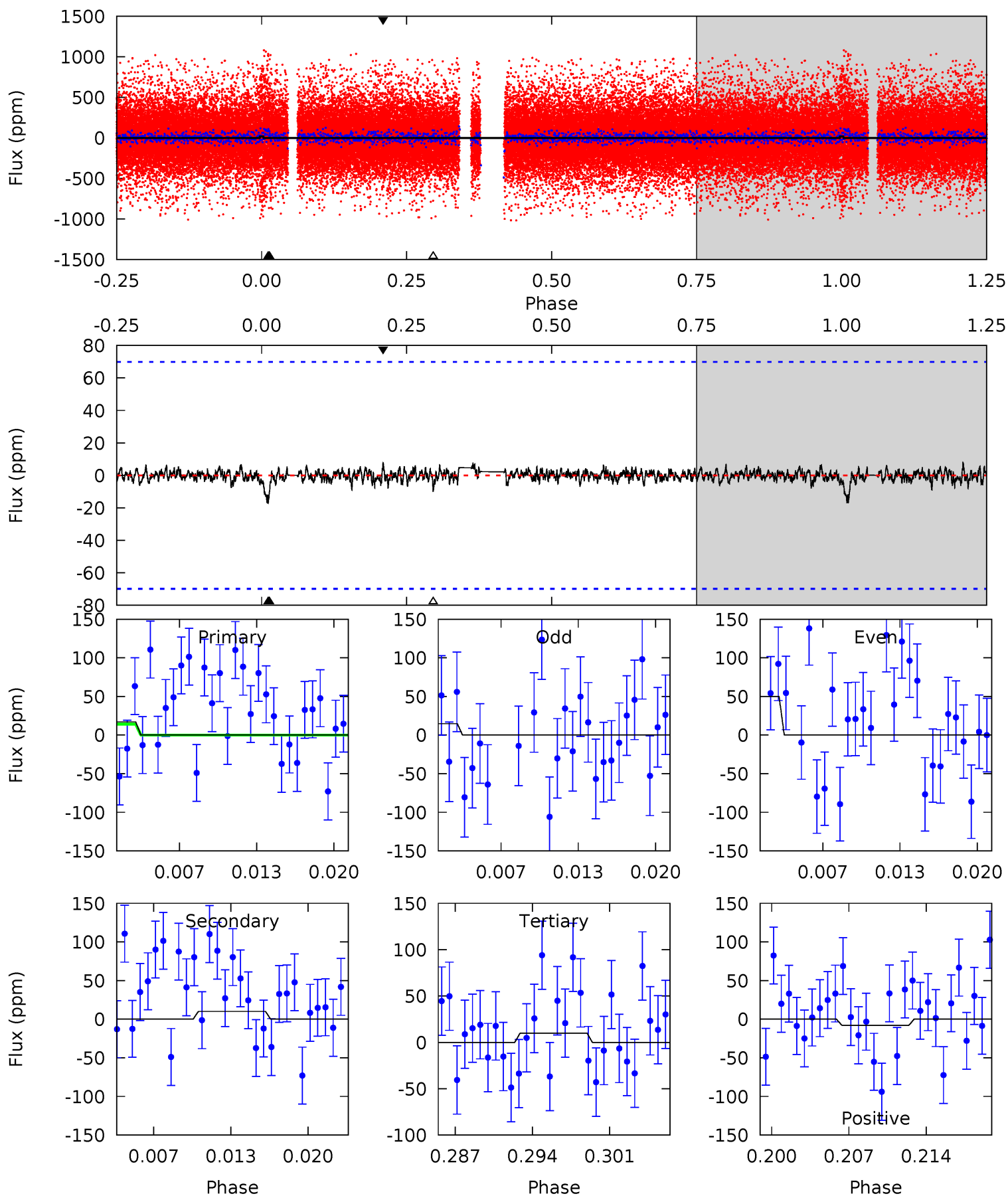
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.80	4.82	2.54	4.48	4.82	2.18	2.25	1.27	-0.67	2.28	0.34	4.31	1.13	0.63	0



Alt Model-Shift Uniqueness Test

009818732-07, P = 45.032638 Days, E = 130.262065 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.25	0.74	0.73	0.58	5.10	2.71	0.19	0.52	0.67	0.01	0.16	1.29	-7.06	0.32	0.46



Stellar Parameters For KIC 009818732

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+145}_{-193}	$4.386^{+0.060}_{-0.180}$	$-0.120^{+0.250}_{-0.300}$	$1.153^{+0.339}_{-0.145}$	$1.178^{+0.164}_{-0.148}$	$1.084^{+0.353}_{-0.522}$
	+2%/-3%	+1%/-4%	+208%/-250%	+29%/-13%	+14%/-13%	+33%/-48%
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 009818732-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-57 ± 12	$11.51^{+7.07}_{-5.79}$	855^{+56}_{-41}	2666^{+608}_{-296}	15^{+49}_{-9}
Alt.	-10 ± 14	$5.28^{+5.55}_{-3.61}$	852^{+59}_{-41}	2482^{+1074}_{-4608}	$9.310^{+109.215}_{-11.173}$

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 $A_{obs} \gg 1.0$

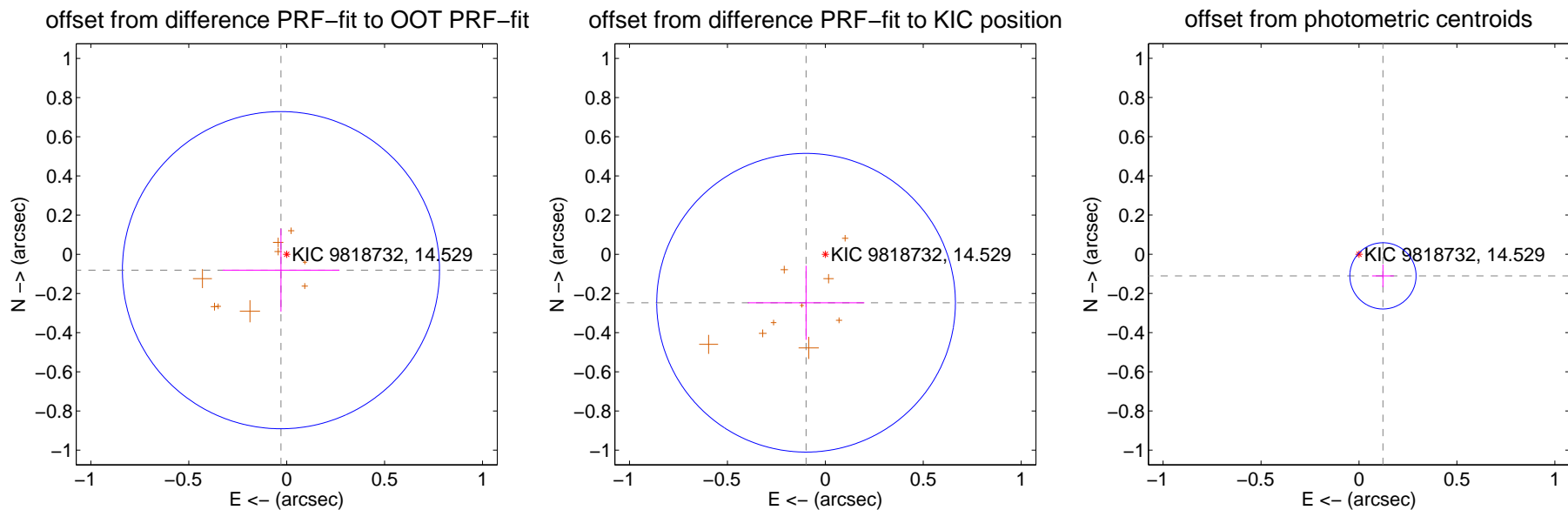
DV Centroid Data

Supplemental centroid analysis for 009818732-07. Kepler magnitude: 14.53. Transit SNR 92.83

There are 0 quarters with good PRF difference image offsets

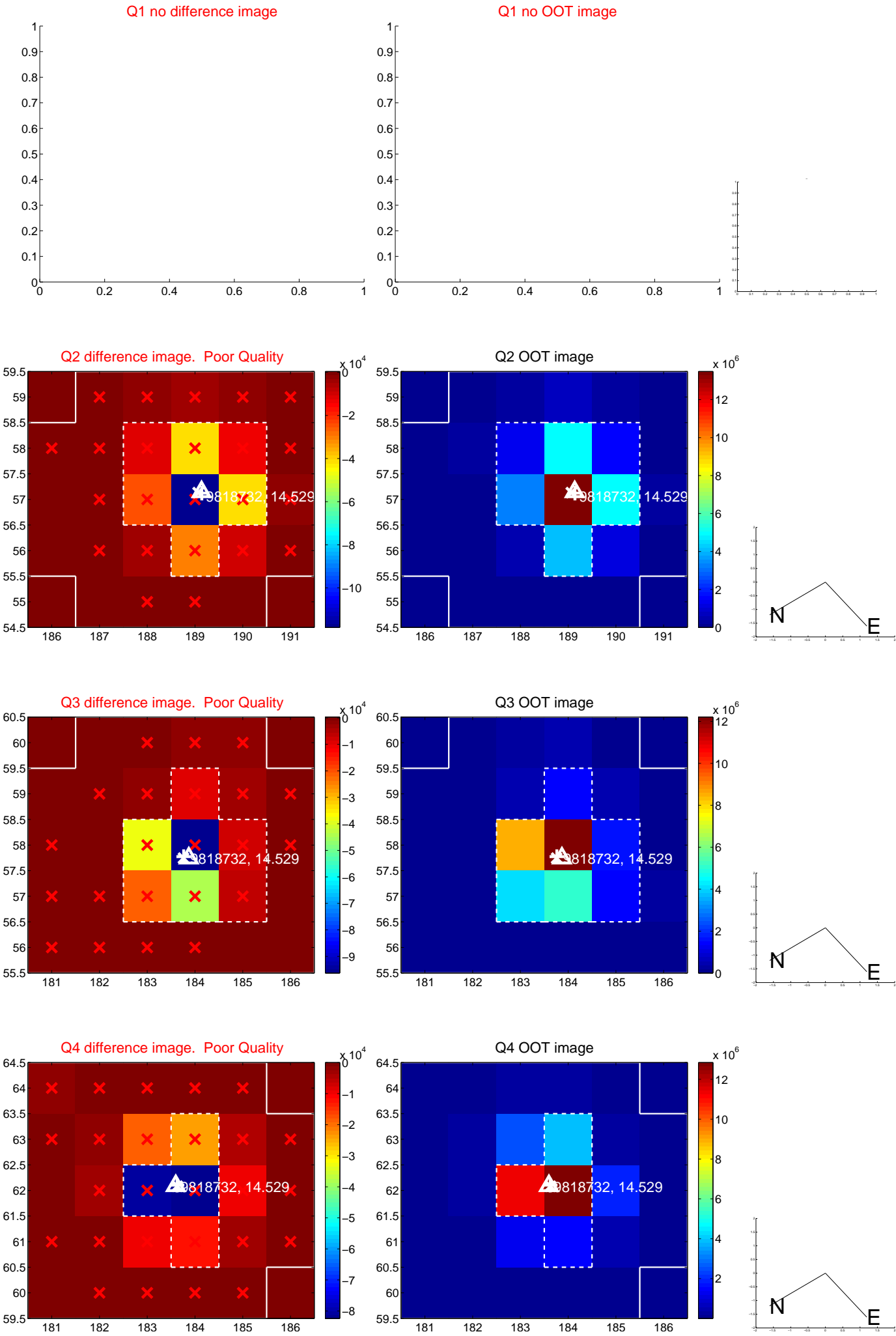
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.086 ± 0.270	0.32	0.029 ± 0.298	-0.081 ± 0.212
PRF-fit source offset from KIC position	0.266 ± 0.254	1.05	0.098 ± 0.297	-0.247 ± 0.189
photometric centroid source offset	0.16 ± 0.06	2.93	-0.12 ± 0.06	-0.11 ± 0.06

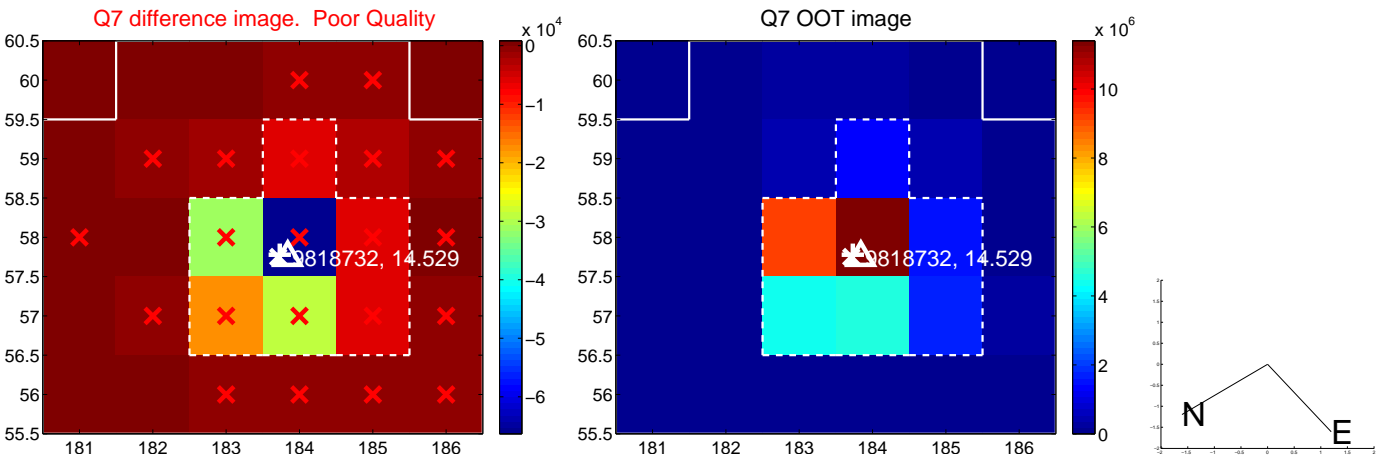
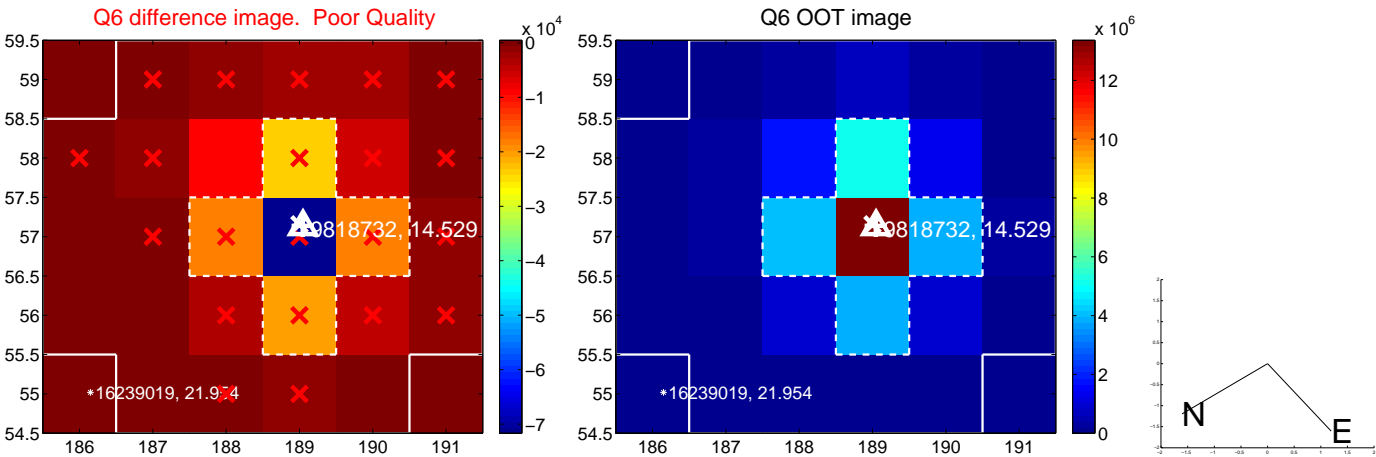
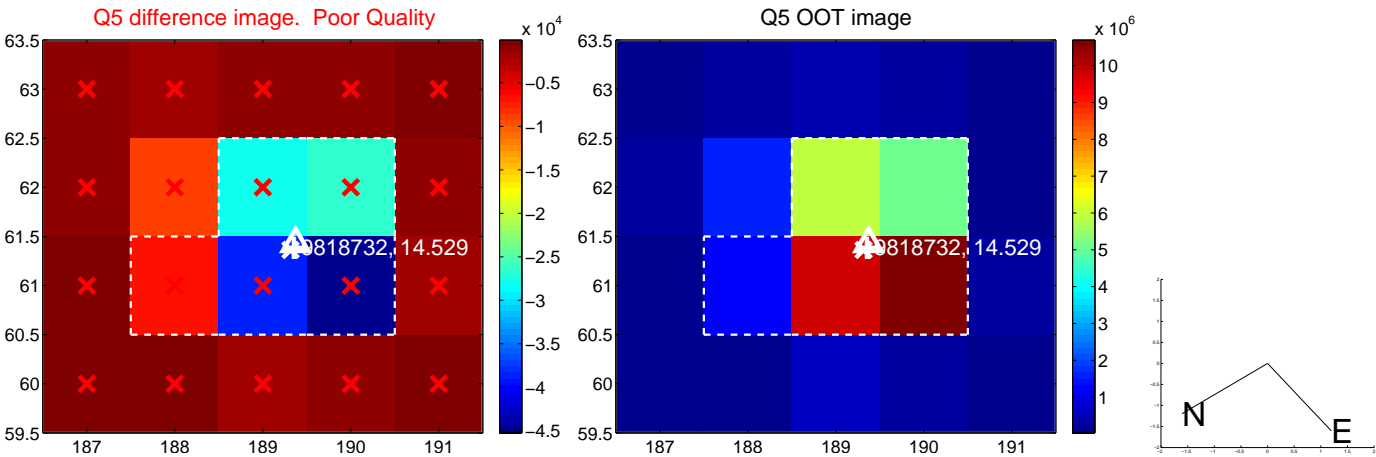


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

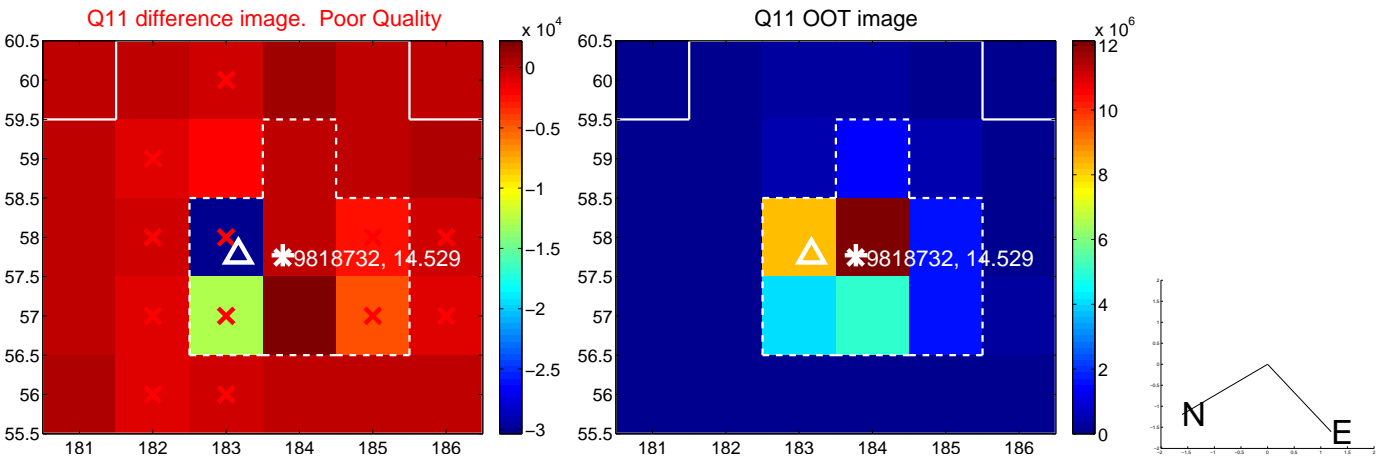
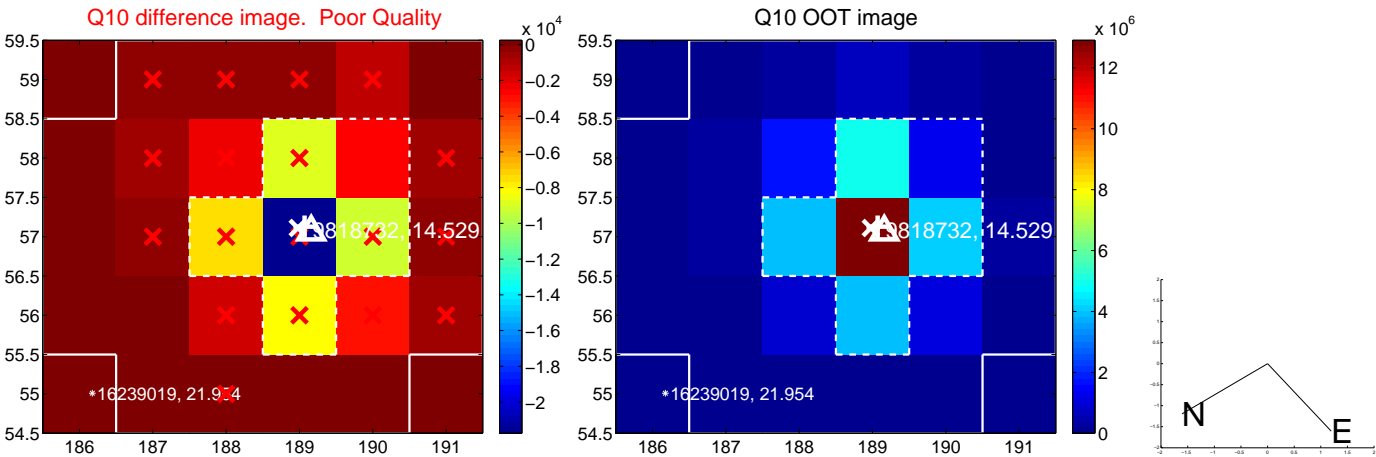
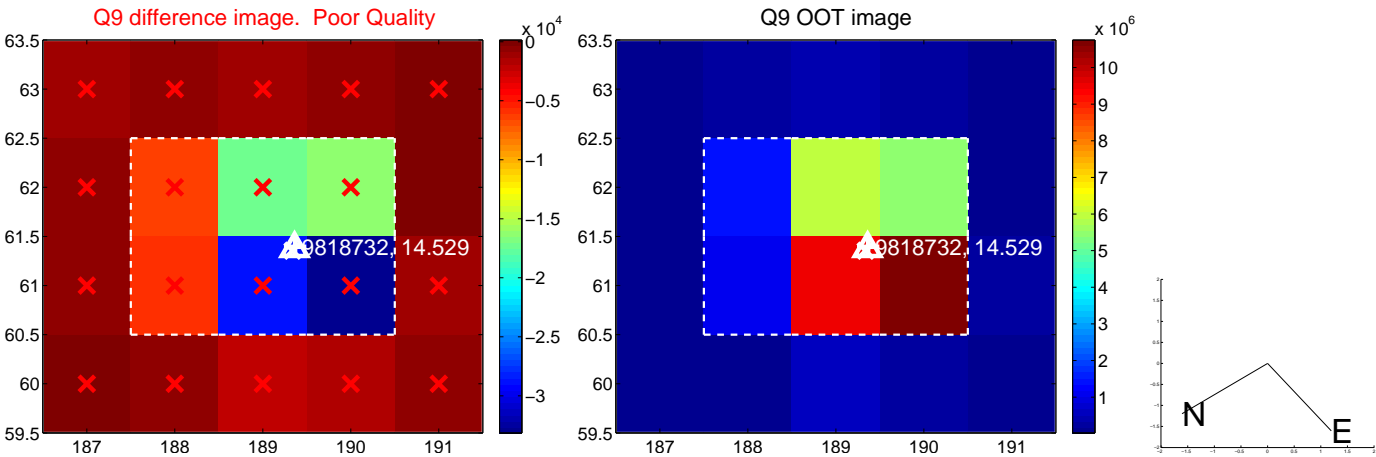
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



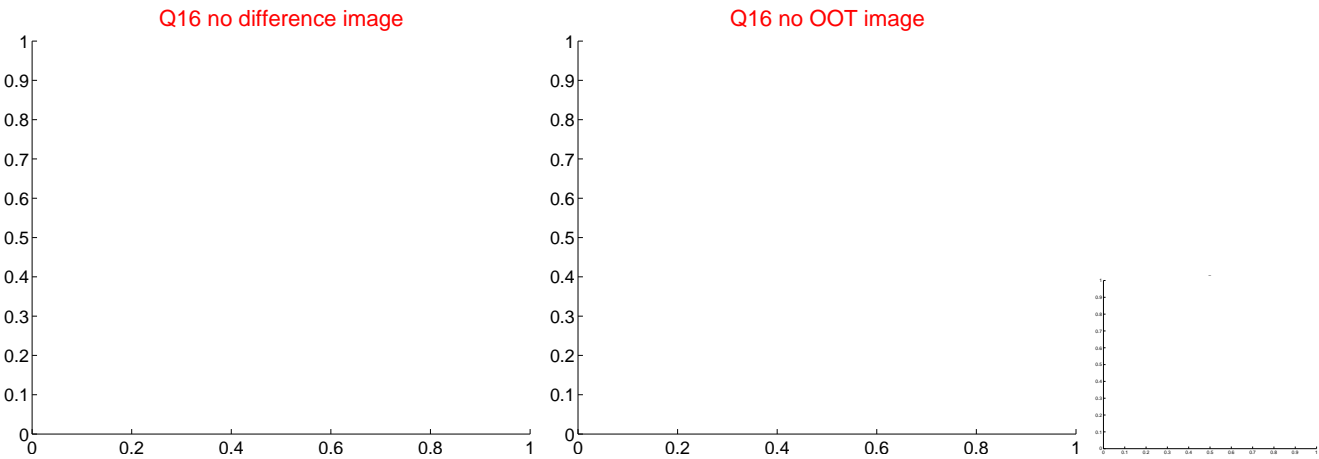
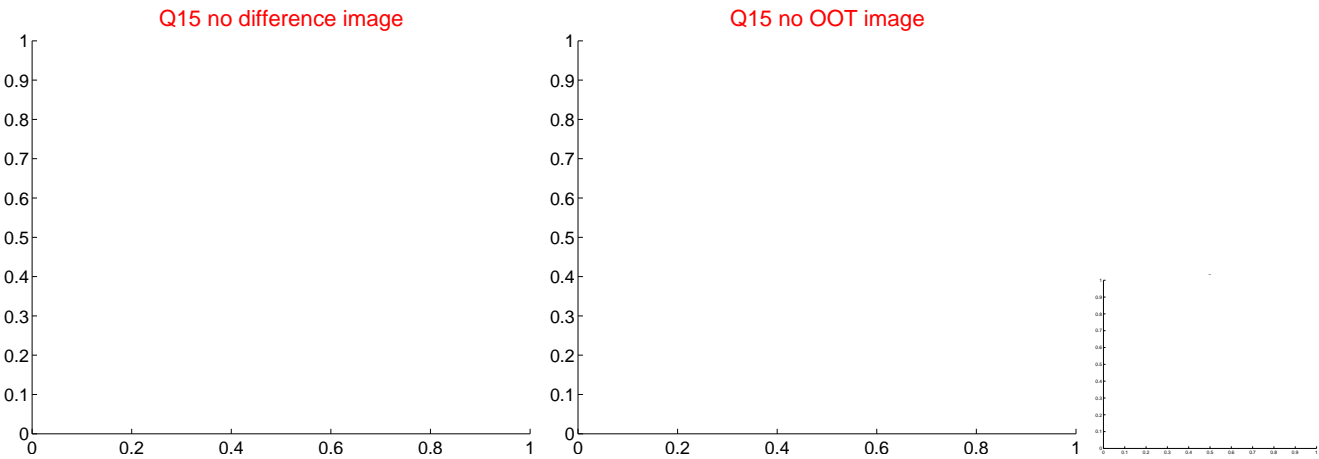
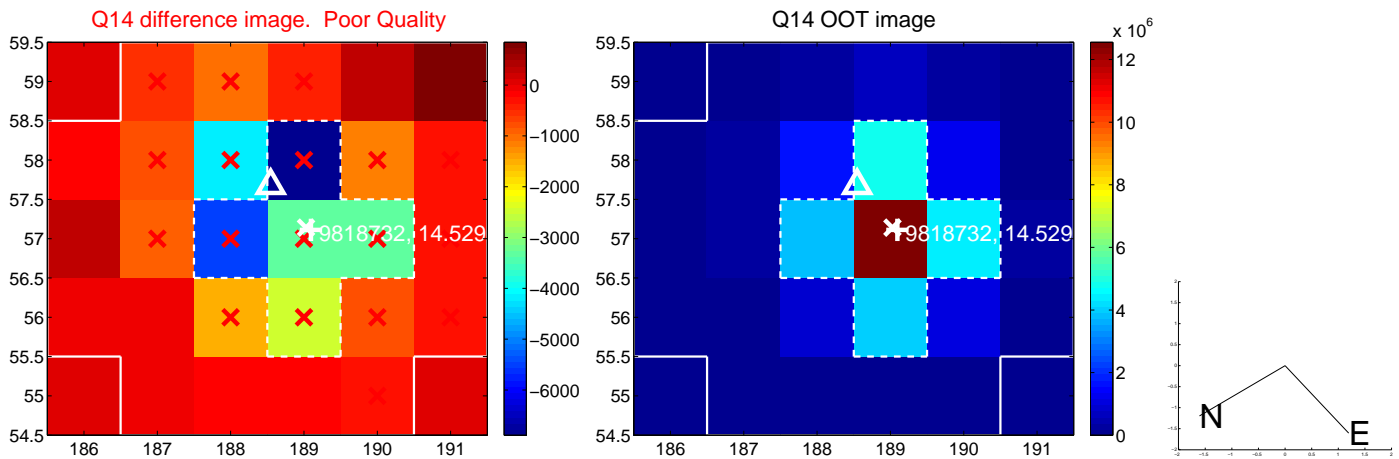
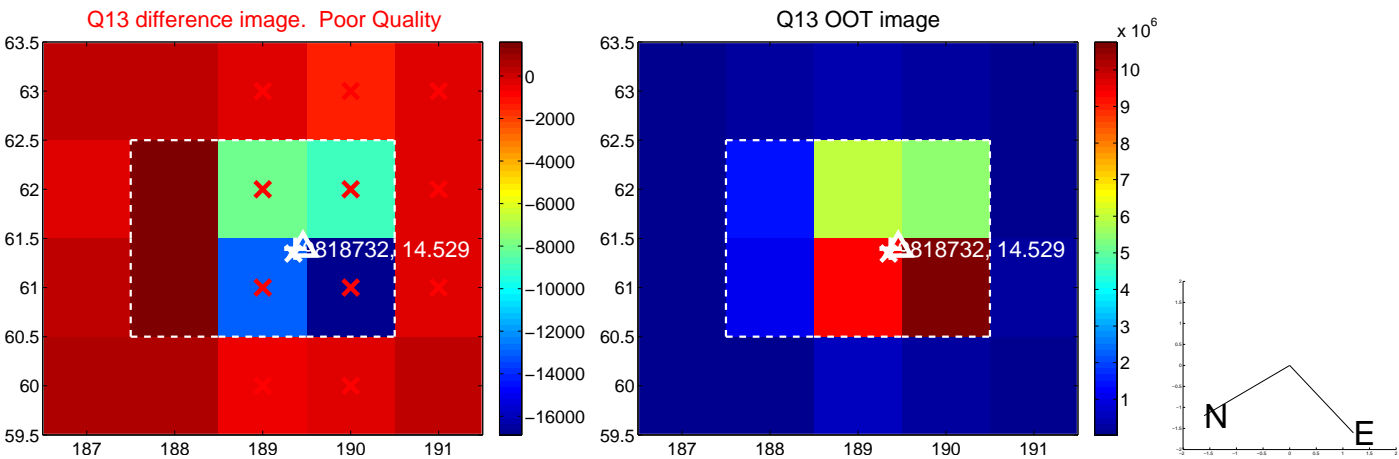
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



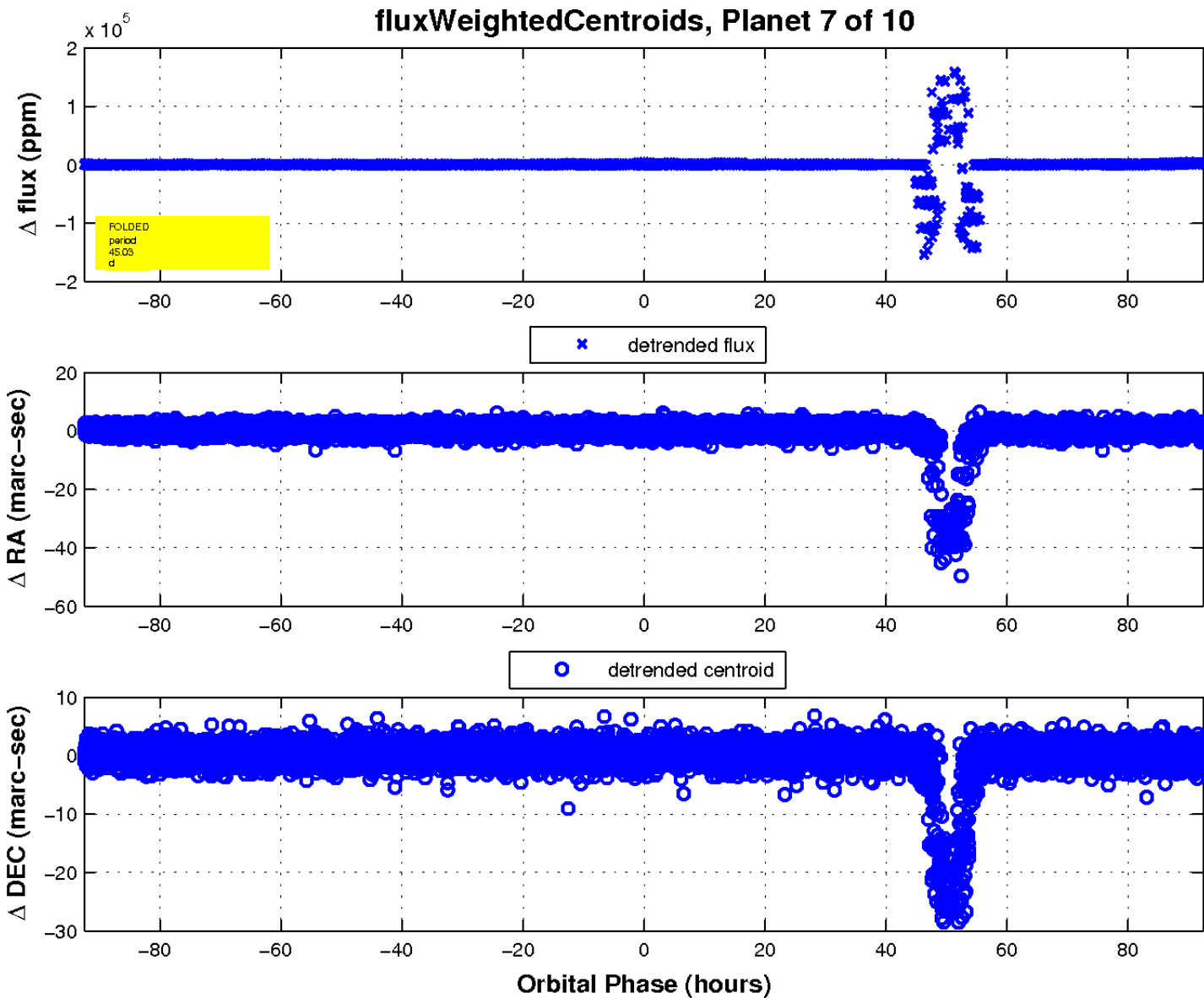
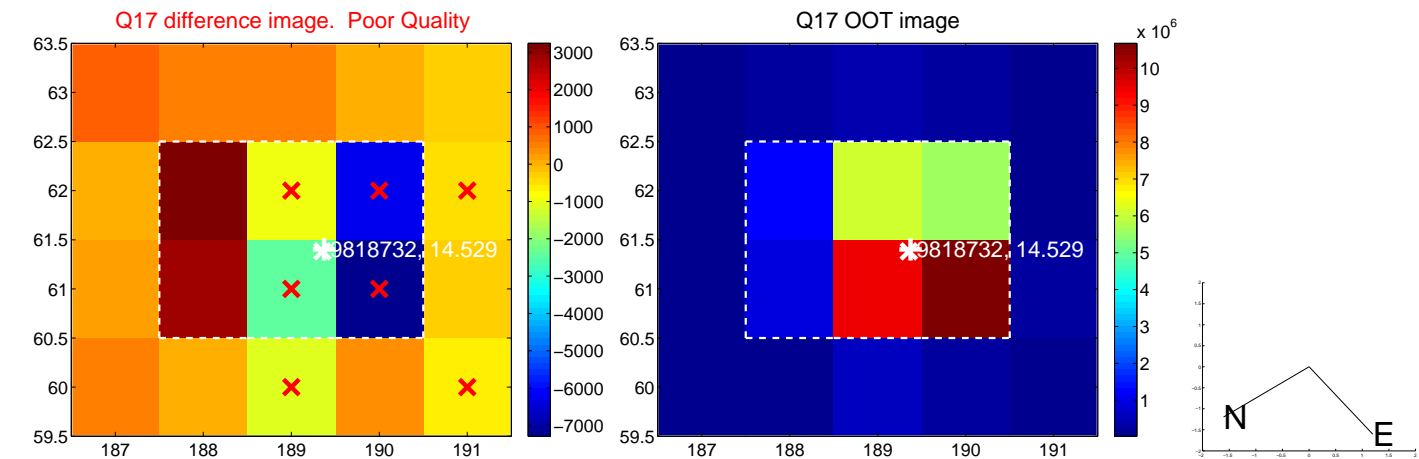
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

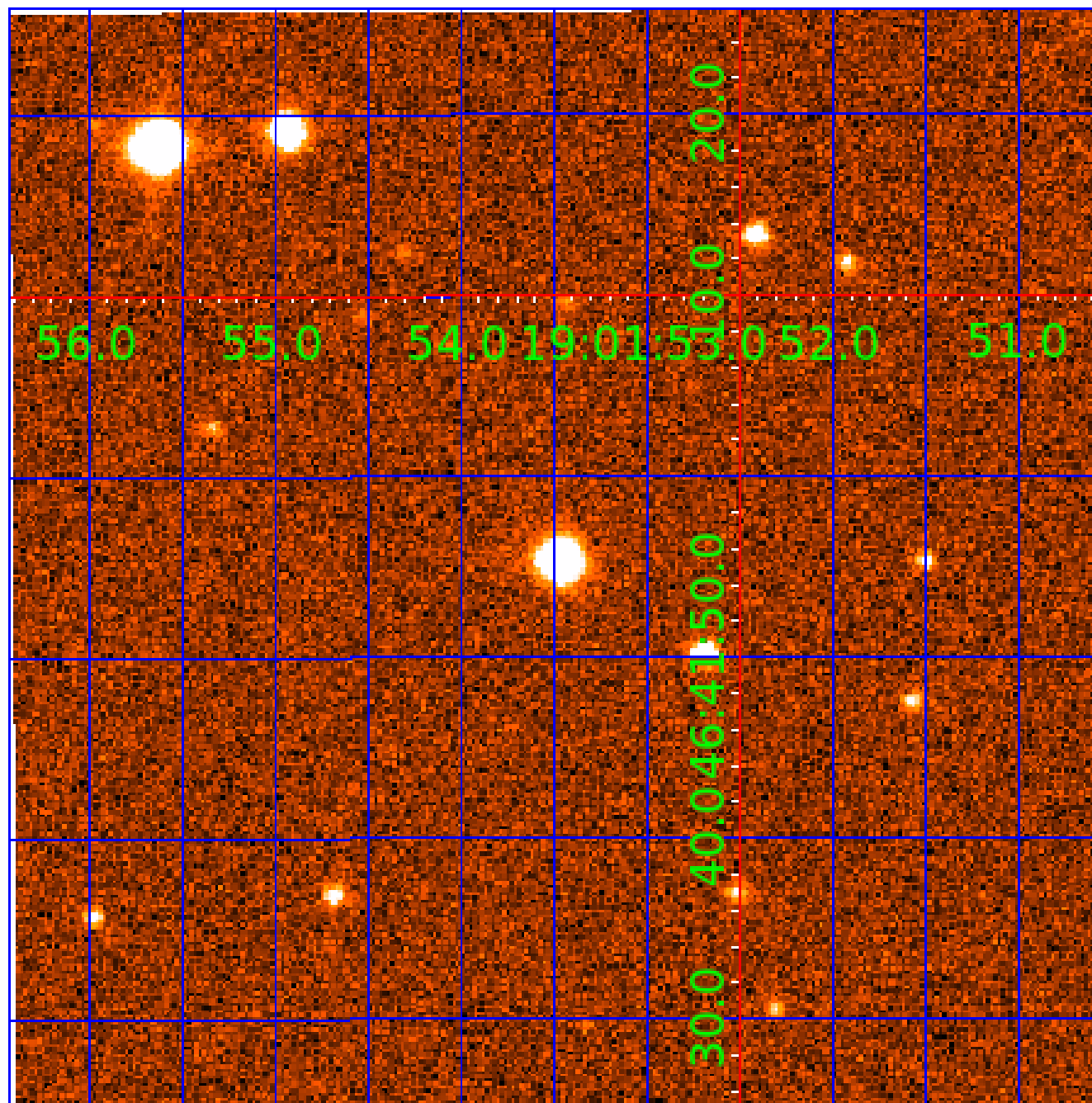


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009818732

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})
009818732-01	OBS	7233.01	45.035186	132.638245	415828.1	6.000	14502.9	-1.0	1.15	6484	62.91	30.72
009818732-02	OBS	No	45.035876	146.025633	341823.0	7.500	12763.8	-1.0	1.15	6484	59.56	30.72
009818732-03	OBS	No	448.952558	178.160811	18653.0	3.500	189.6	-1.0	1.15	6484	15.85	1.43
009818732-04	OBS	No	45.036426	148.109856	5314.4	15.000	187.1	-1.0	1.15	6484	8.45	30.72
009818732-05	OBS	No	308.580812	241.804540	11597.9	4.500	175.0	-1.0	1.15	6484	12.49	2.36
009818732-07	OBS	No	45.031979	175.613990	2642.4	30.842	151.1	92.8	1.15	6484	10.87	30.72
009818732-08	OBS	No	45.039596	134.541541	2656.9	30.113	176.6	79.7	1.15	6484	10.91	30.72
009818732-09	OBS	No	45.036426	143.900542	3446.2	15.000	128.1	-1.0	1.15	6484	6.80	30.72
009818732-10	OBS	No	407.554165	365.604668	5181.3	15.000	127.3	-1.0	1.15	6484	8.34	1.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009818732-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
009818732-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS
009818732-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
009818732-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009818732-07	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
009818732-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009818732-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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 009818732-08

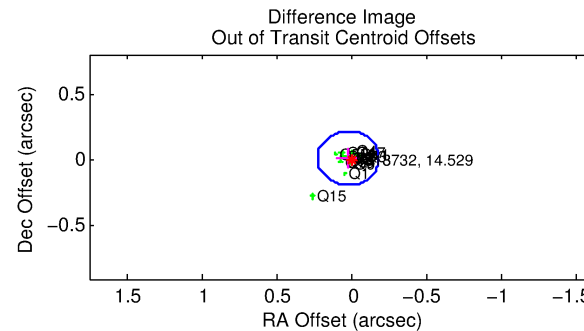
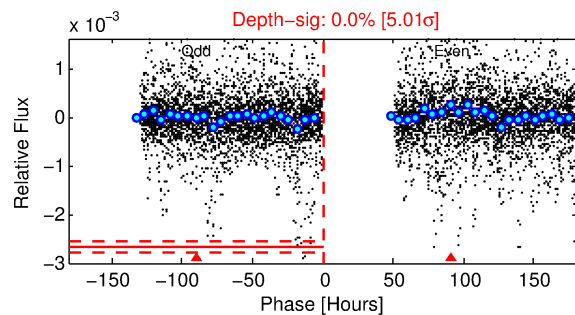
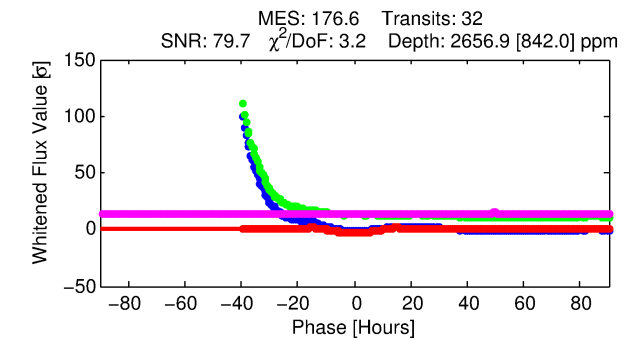
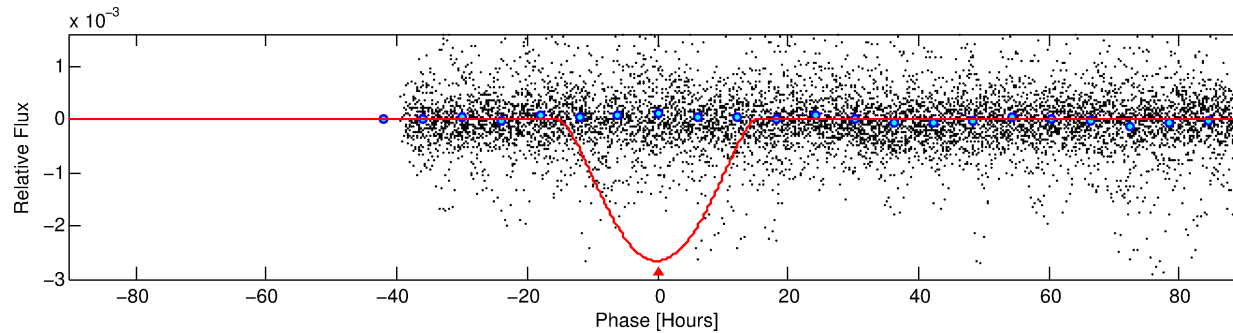
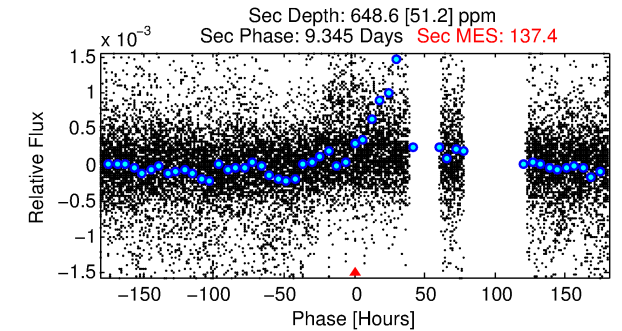
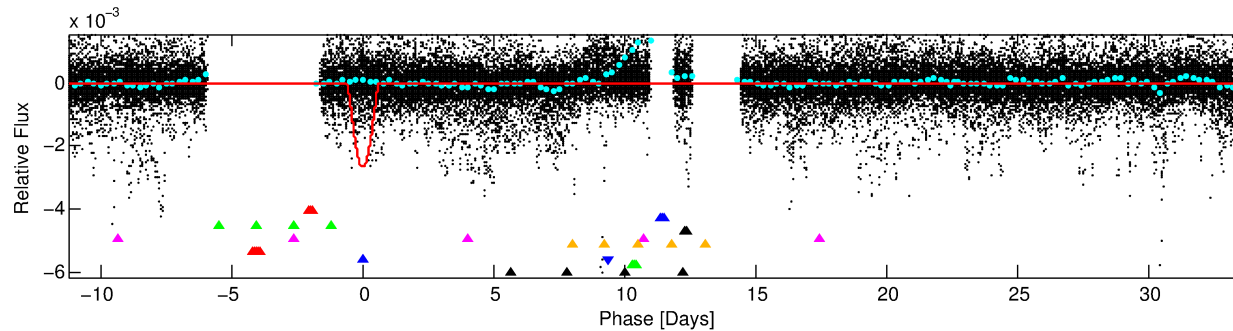
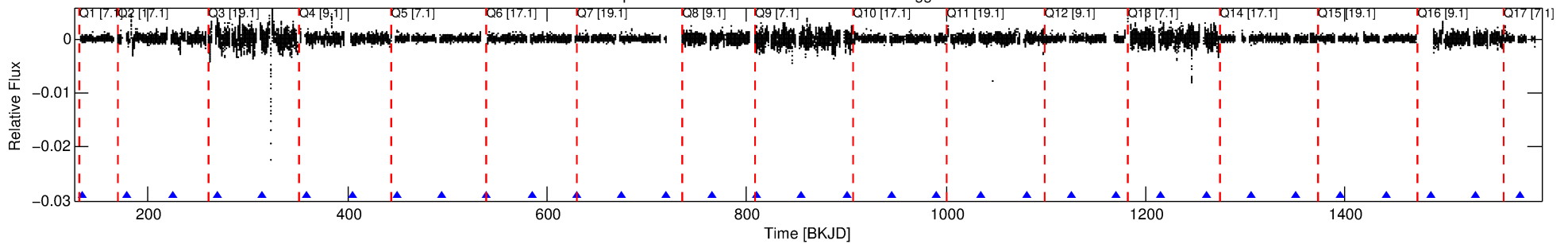
No Significant Match Found

DV One-Page Summary

KIC: 9818732 Candidate: 8 of 10 Period: 45.040 d

KOI: K07233 Corr: No Ephemeris Match

Kp: 14.53 R*: 1.15 Rs Teff: 6484.0 K Logg: 4.39 Fe/H: -0.120



DV Fit Results:

Period = 45.03960 [0.00057] d
Epoch = 134.5415 [0.0110] BKJD
Rp/R* = 0.0867 [0.0401]
a/R* = 4.97 [0.46]
b = 1.00 [0.04]
Seff = 30.72 [11.03]
Teff = 600 [54] K
Rp = 10.91 [5.98] Re
a = 0.2618 [0.0628] AU
Ag = 205.63 [203.48] [1.01σ]
Teffp = 3515 [824] K [3.53σ]

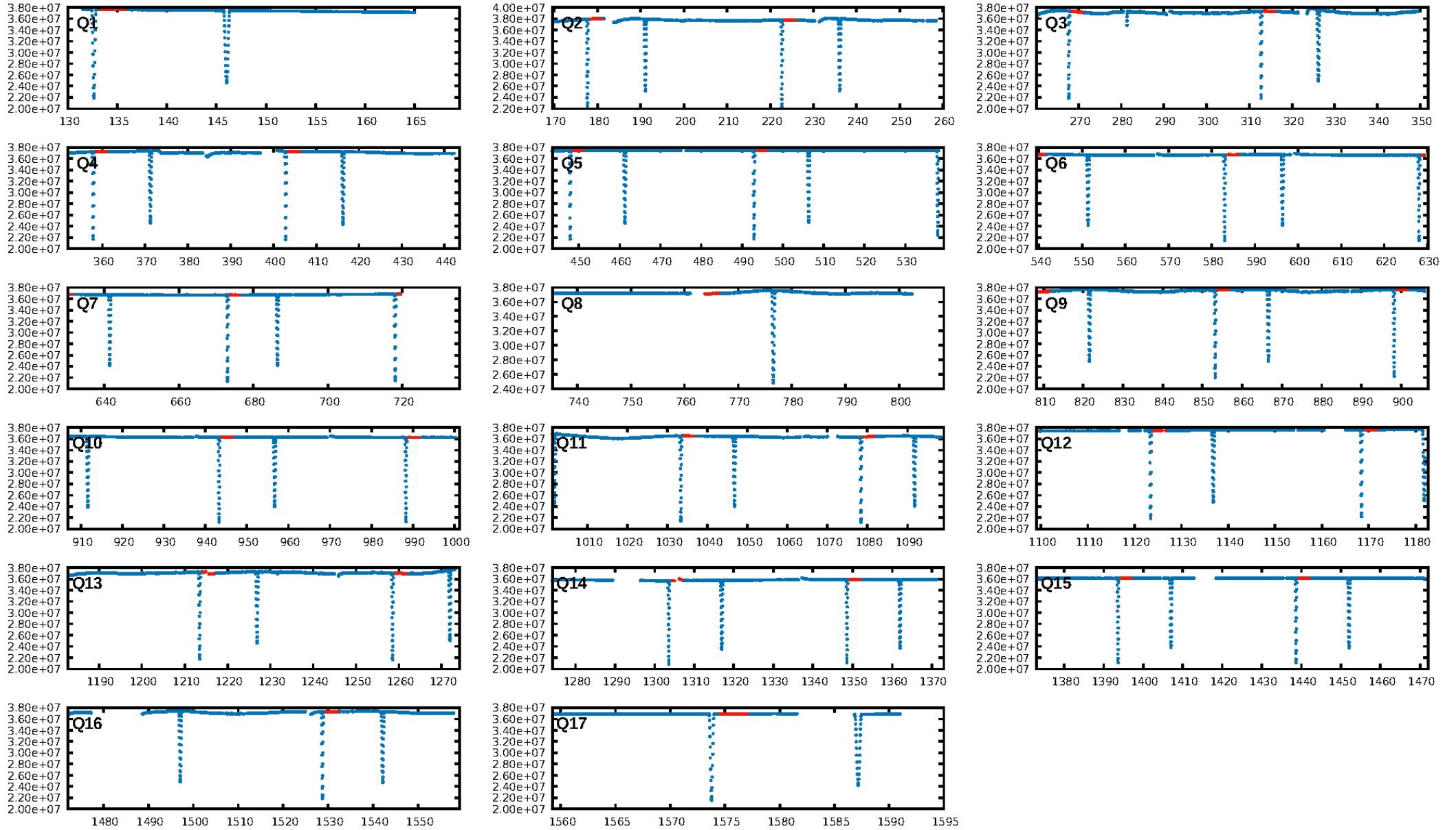
DV Diagnostic Results:

ShortPeriod-sig: 0.2% [0.00σ]
LongPeriod-sig: 100.0% [207.73σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [30/30]
GhostDiagnostic-chr: 26.24
Centroid-sig: N/A
Centroid-so: 0.109 arcsec [1.90σ]
OotOffset-rm: 0.024 arcsec [0.35σ]
KicOffset-rm: 0.144 arcsec [1.98σ]
OotOffset-st: 4/4/2/5 [15]
KicOffset-st: 4/4/2/5 [15]
DiffImageQuality-fgm: 0.00 [0/15]
DiffImageOverlap-fno: 0.00 [0/15]

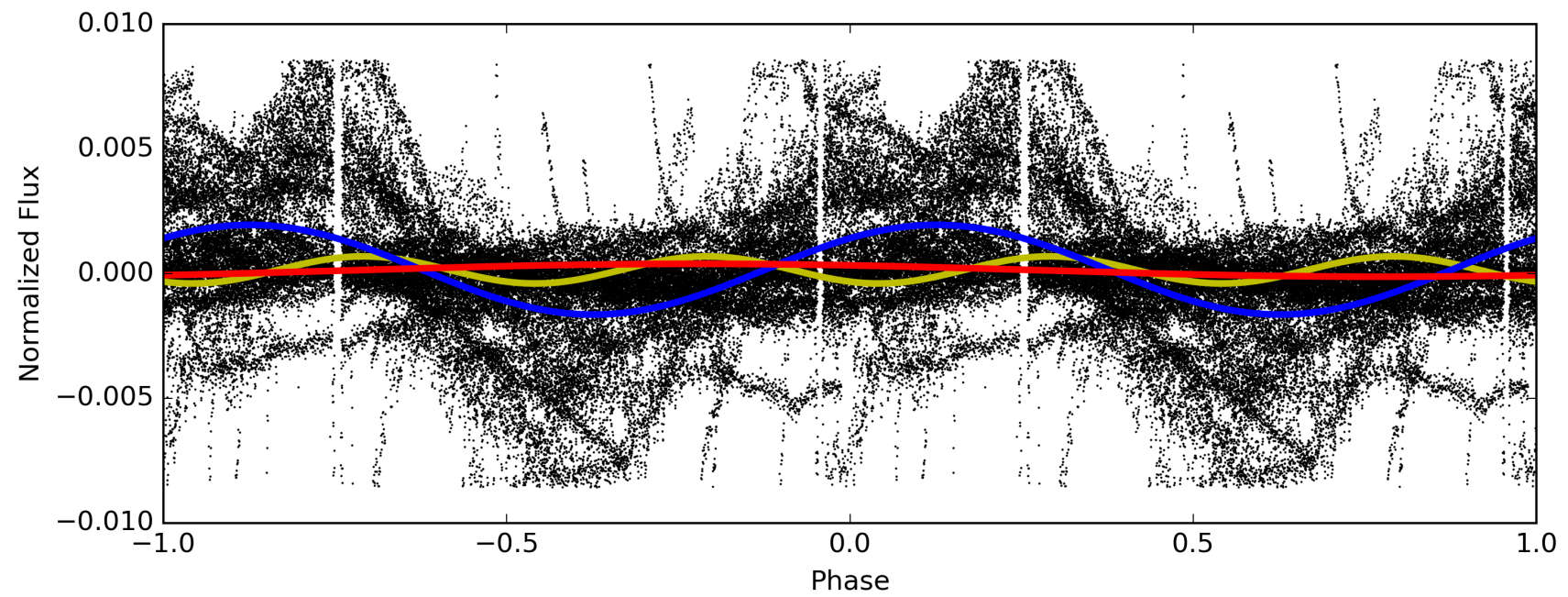
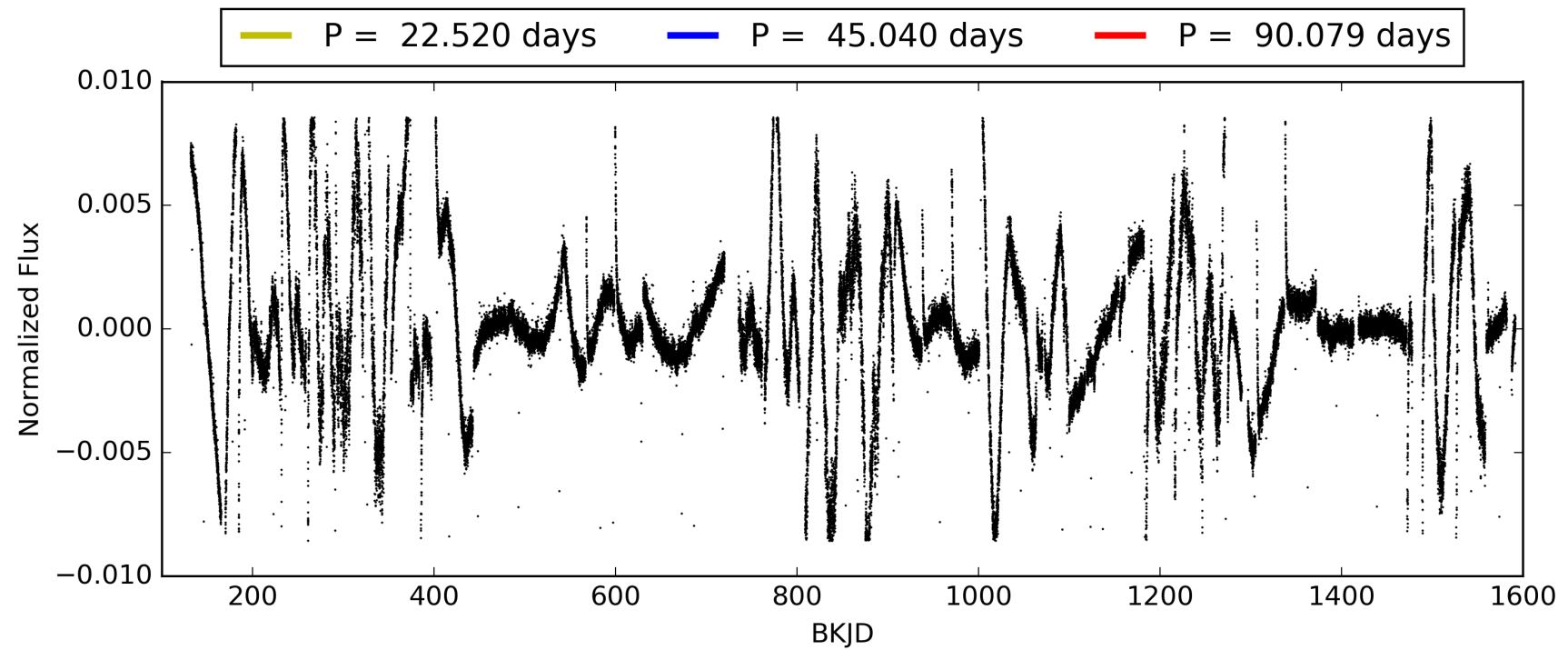
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:29:03 Z

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

TCE 009818732-08, PDC Light Curves

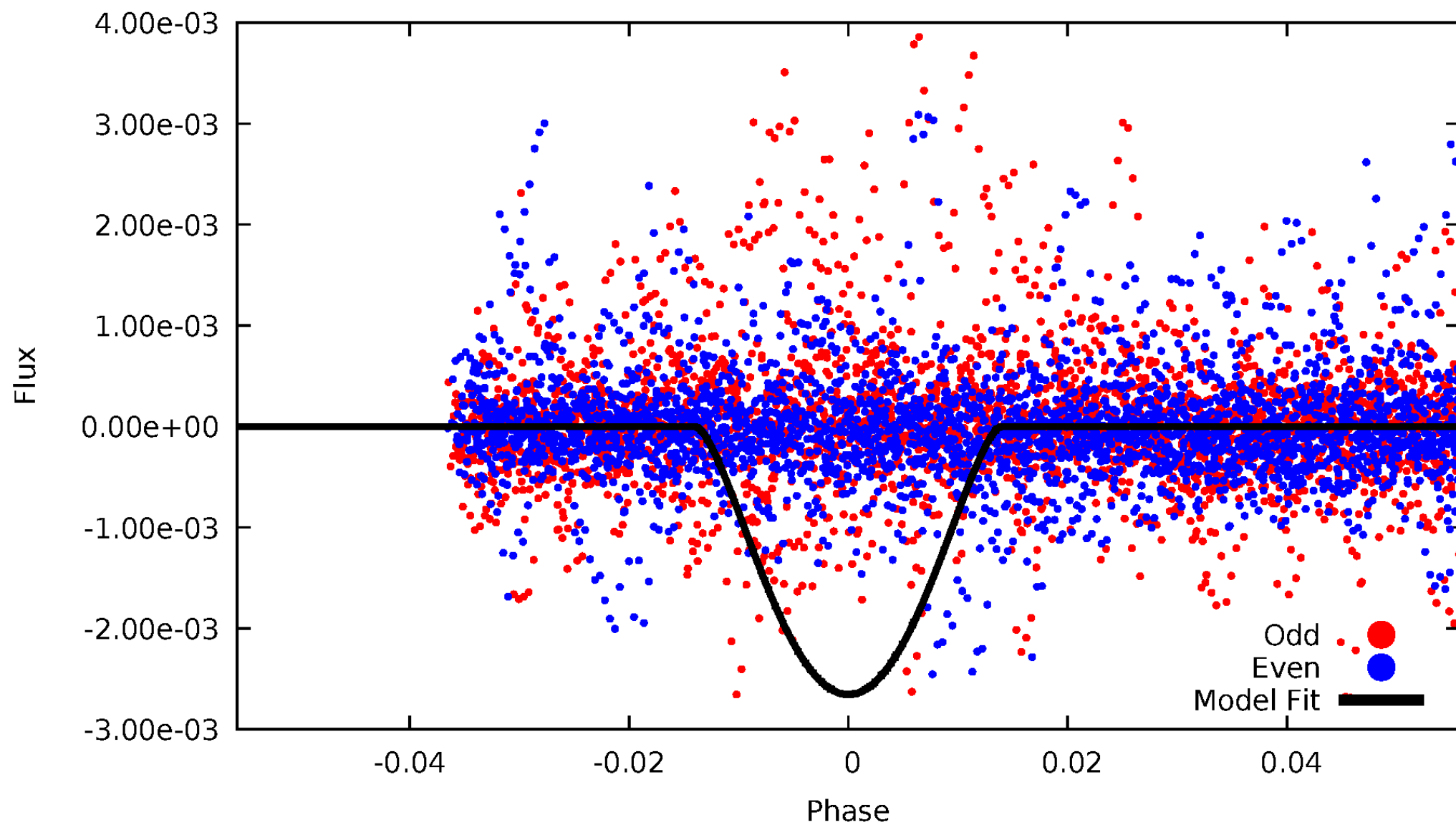


TCE 009818732-08



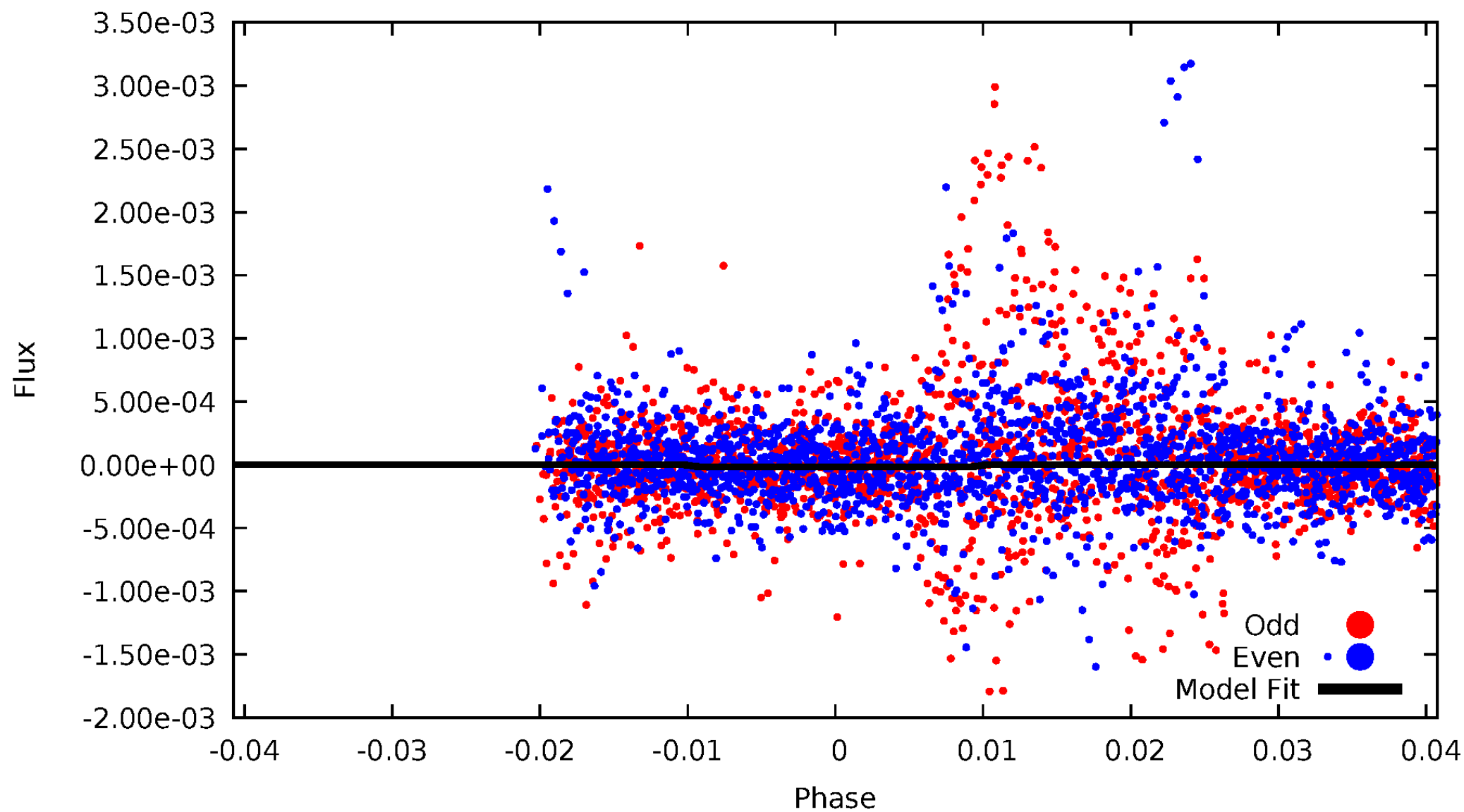
DV Odd/Even

TCE 009818732-08



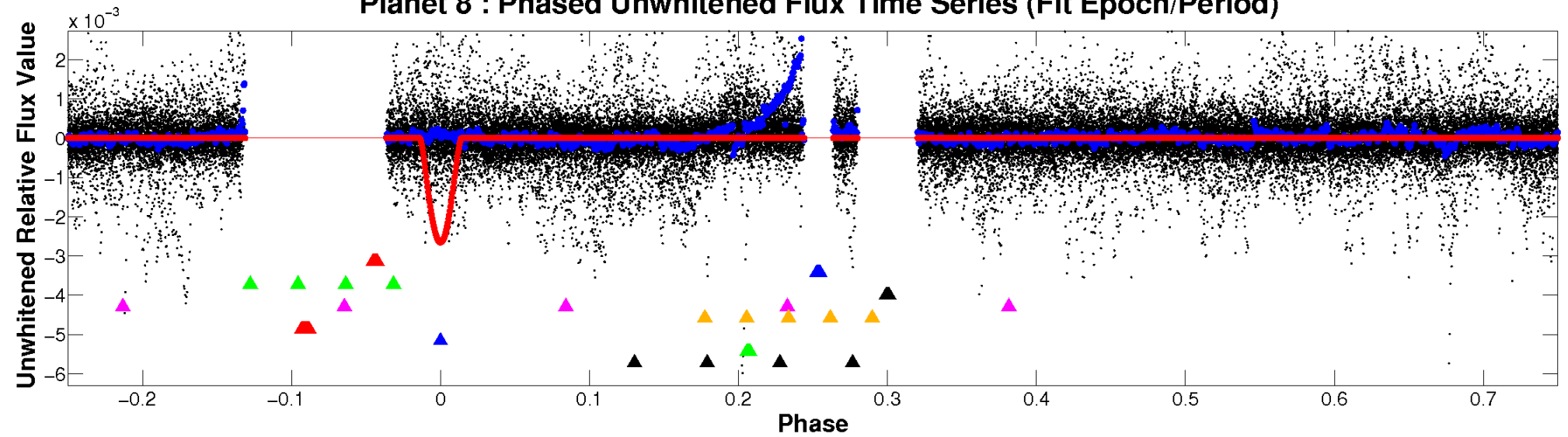
ALT Odd/Even

TCE 009818732-08

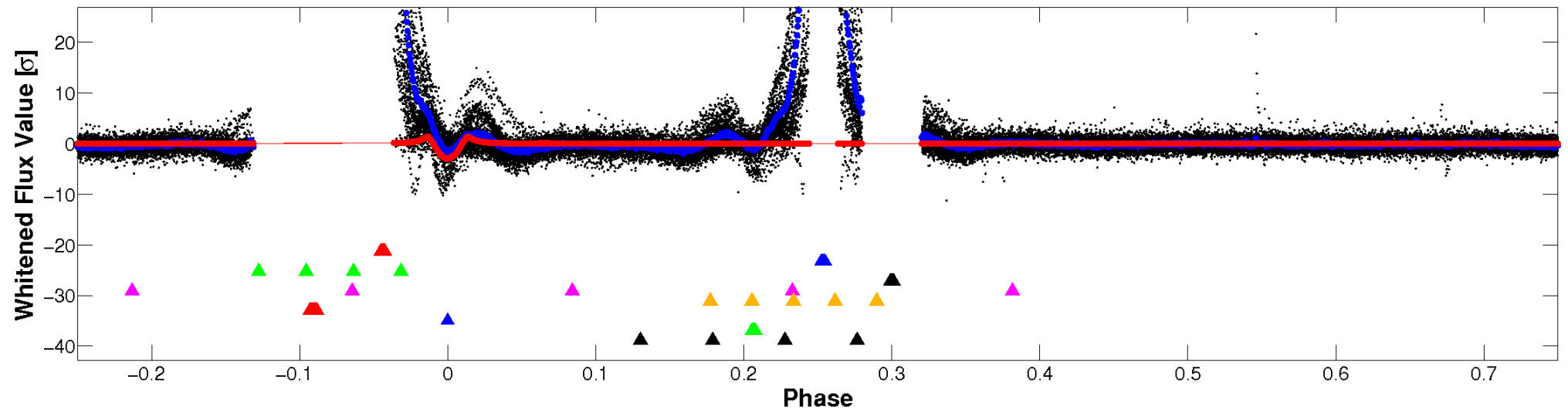


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

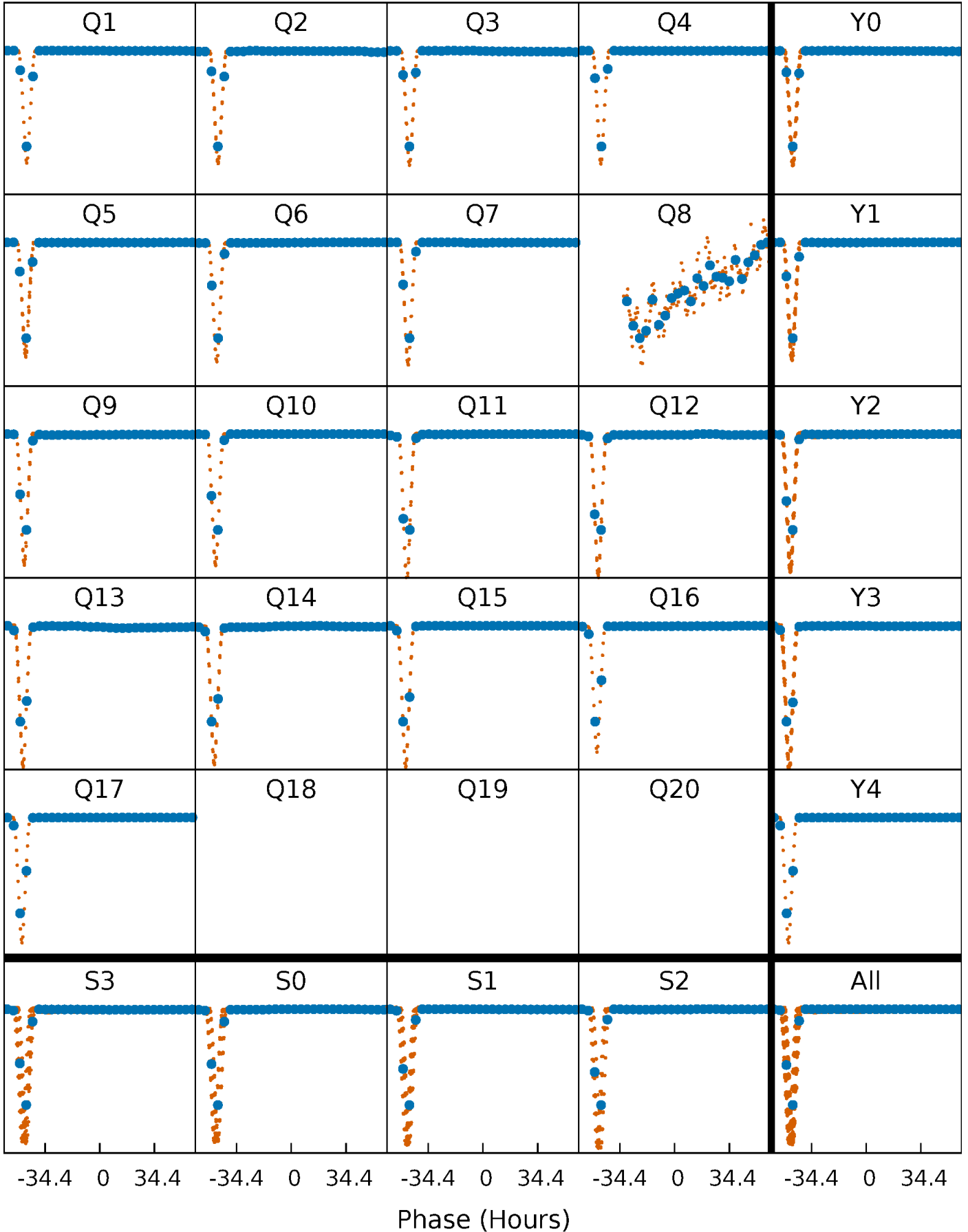


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



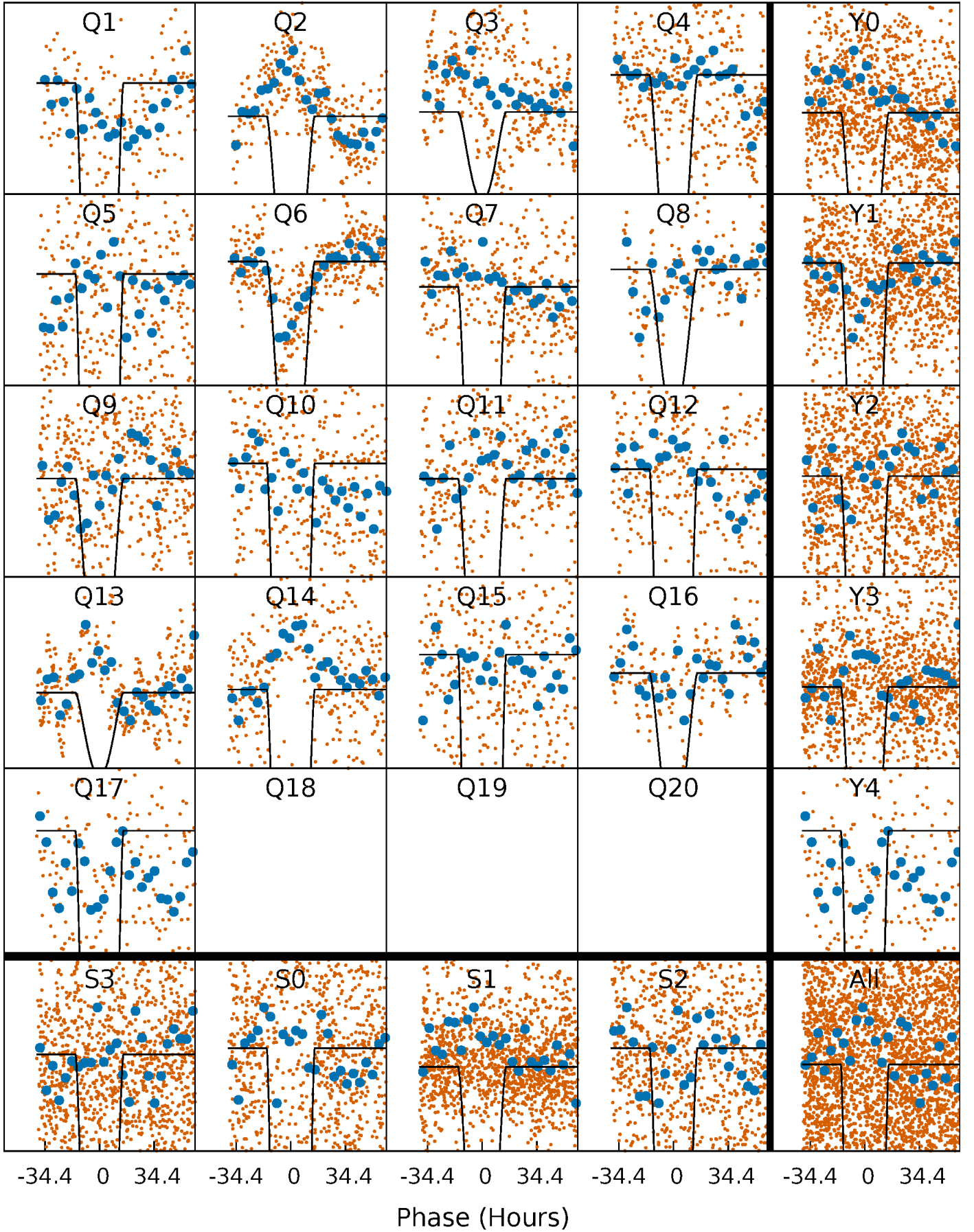
PDC Quarter-Phased Transit Curves

TCE 009818732-08 $P = 45.039596$ Days $T_0 = 134.541541$ (BKJD)



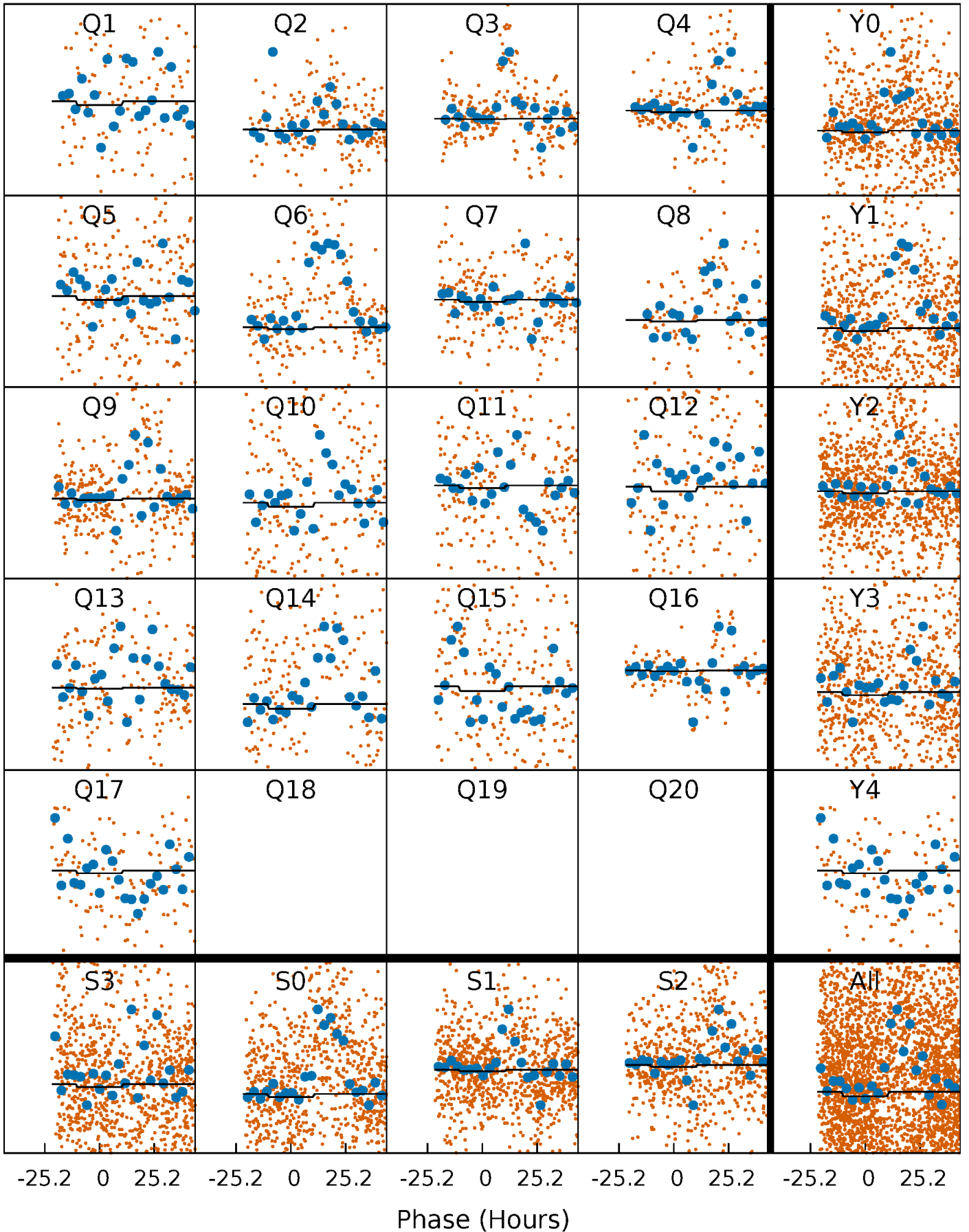
DV Quarter-Phased Transit Curves

TCE 009818732-08 P= 45.039596 Days $T_0=134.541541$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

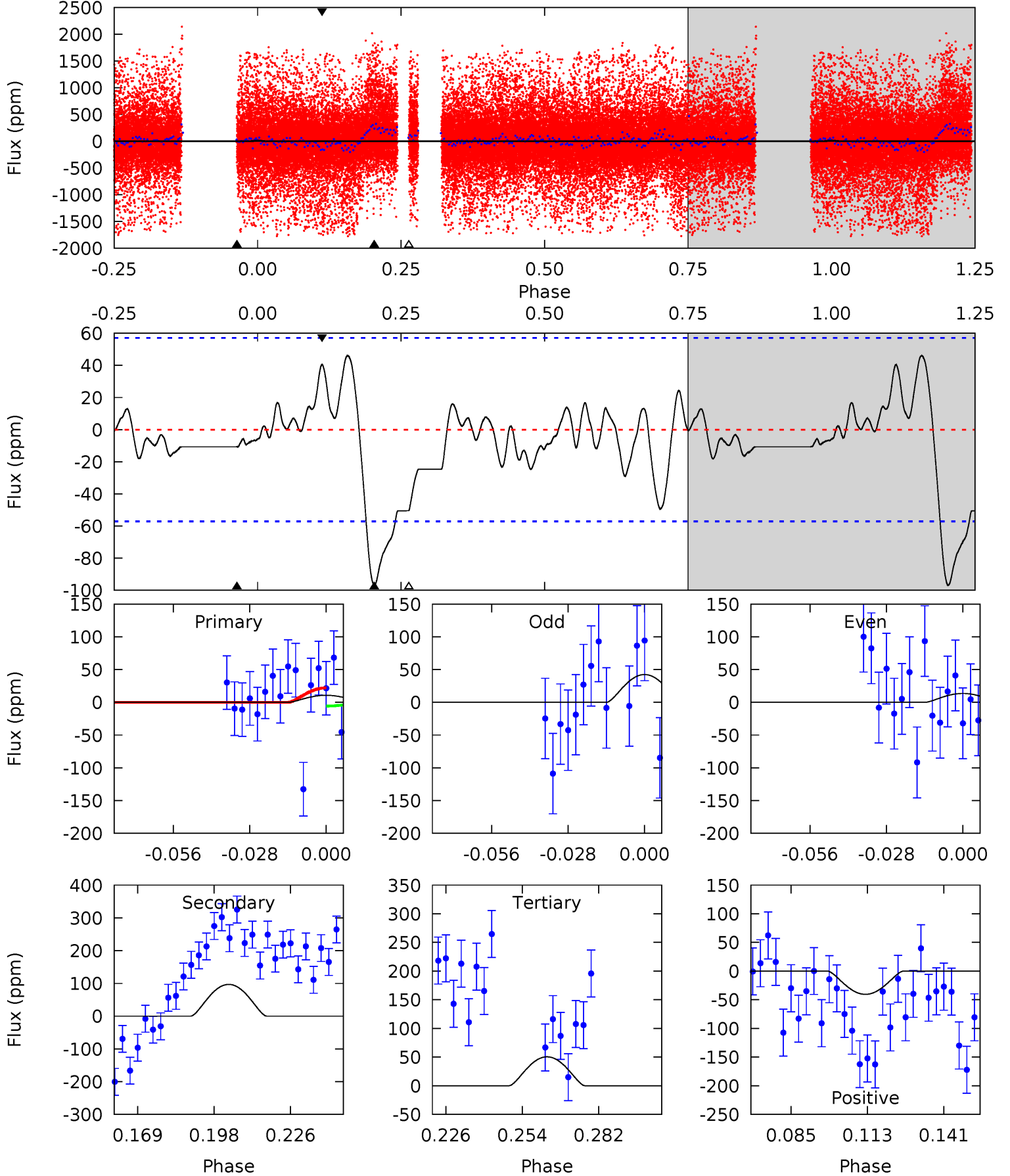
TCE 009818732-08 $P = 45.040214$ Days $T_0 = 133.791441$ (BKJD)



DV Model-Shift Uniqueness Test

009818732-08, P = 45.039596 Days, E = 89.501945 Days

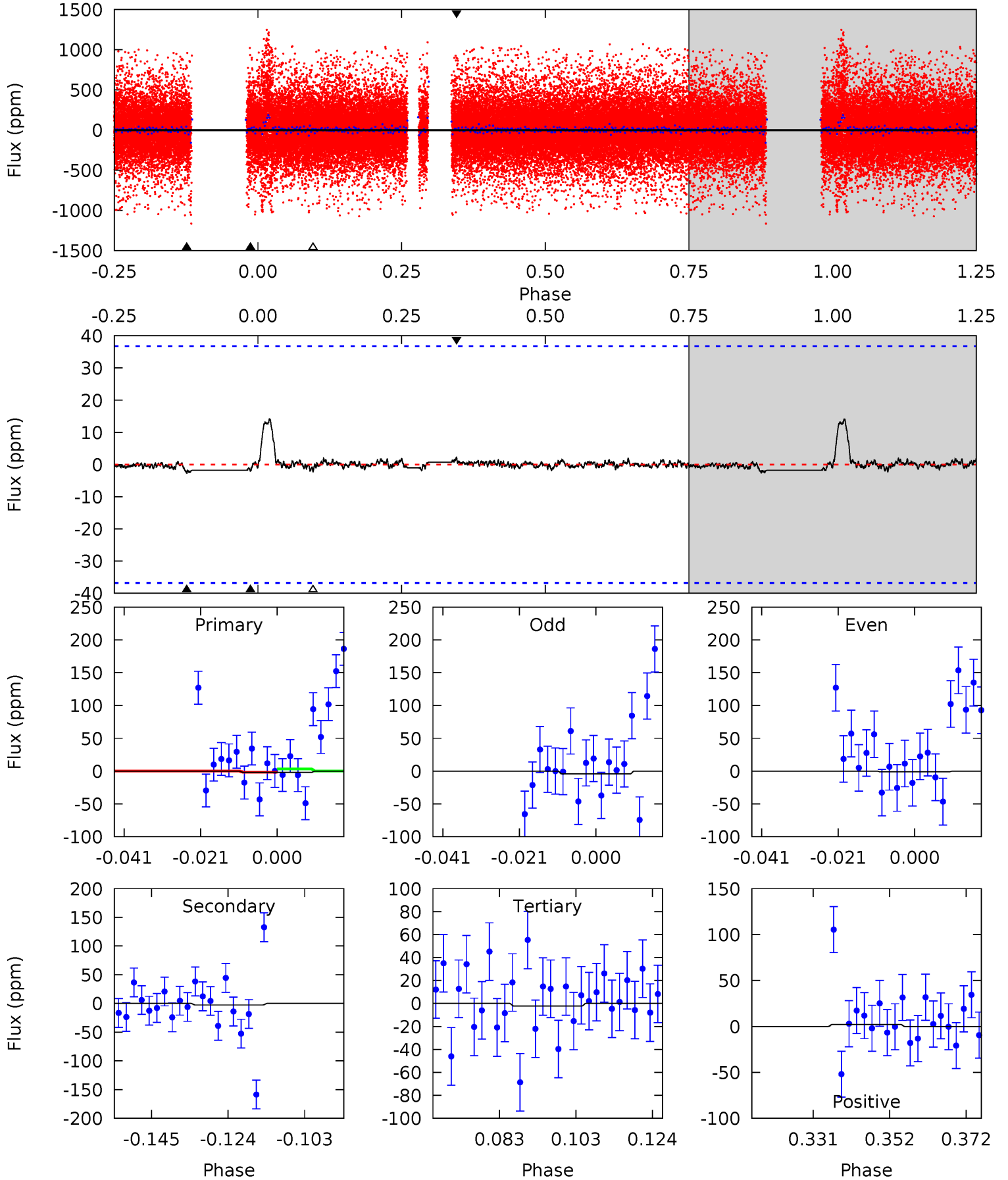
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.90	8.18	4.26	3.42	4.82	2.19	1.54	-3.36	-2.52	3.92	4.76	1.22	1.76	0.32	0.70



Alt Model-Shift Uniqueness Test

009818732-08, P = 45.040214 Days, E = 88.751227 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.25	0.34	0.30	0.30	4.88	2.31	0.26	-0.05	-0.05	0.04	0.04	0.21	-6.37	0.85	0.11



Stellar Parameters For KIC 009818732

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+145}_{-193}	$4.386^{+0.060}_{-0.180}$	$-0.120^{+0.250}_{-0.300}$	$1.153^{+0.339}_{-0.145}$	$1.178^{+0.164}_{-0.148}$	$1.084^{+0.353}_{-0.522}$
	+2%/-3%	+1%/-4%	+208%/-250%	+29%/-13%	+14%/-13%	+33%/-48%
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 009818732-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-97 ± 12	$11.22^{+5.57}_{-4.87}$	854^{+56}_{-37}	2903^{+563}_{-284}	28^{+65}_{-16}
Alt.	-3 ± 8	$3.97^{+3.74}_{-3.00}$	853^{+61}_{-41}	2233^{+1028}_{-4912}	$3.579^{+54.762}_{-19.599}$

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

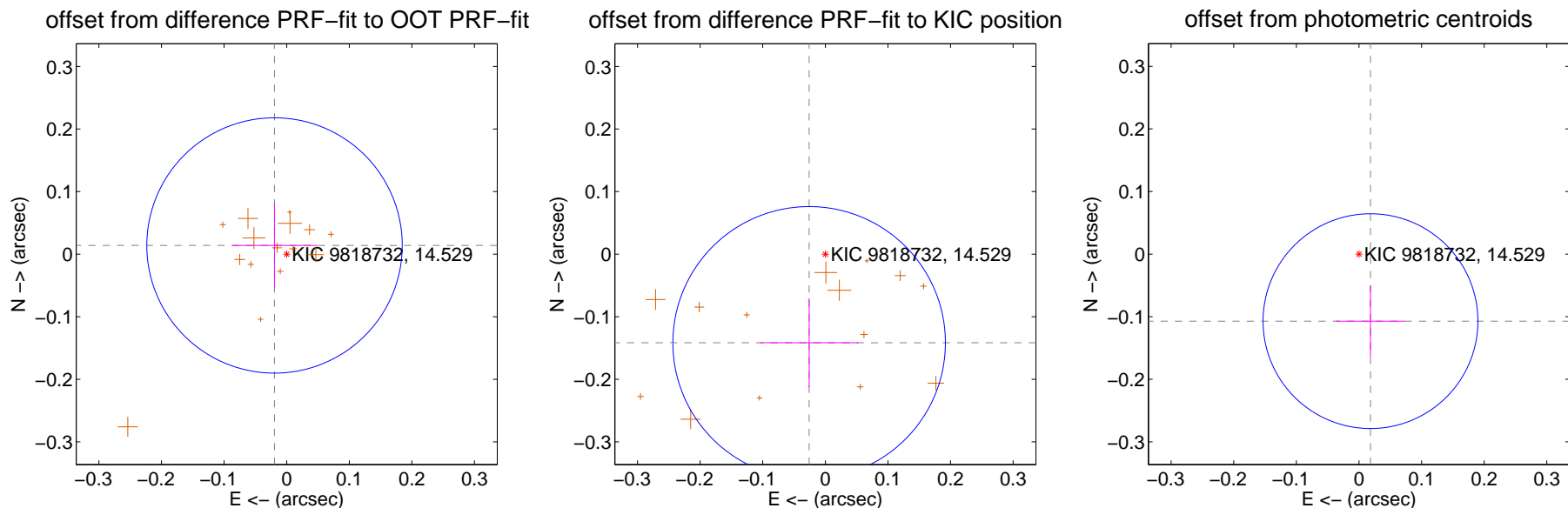
DV Centroid Data

Supplemental centroid analysis for 009818732-08. Kepler magnitude: 14.53. Transit SNR 79.72

There are 0 quarters with good PRF difference image offsets

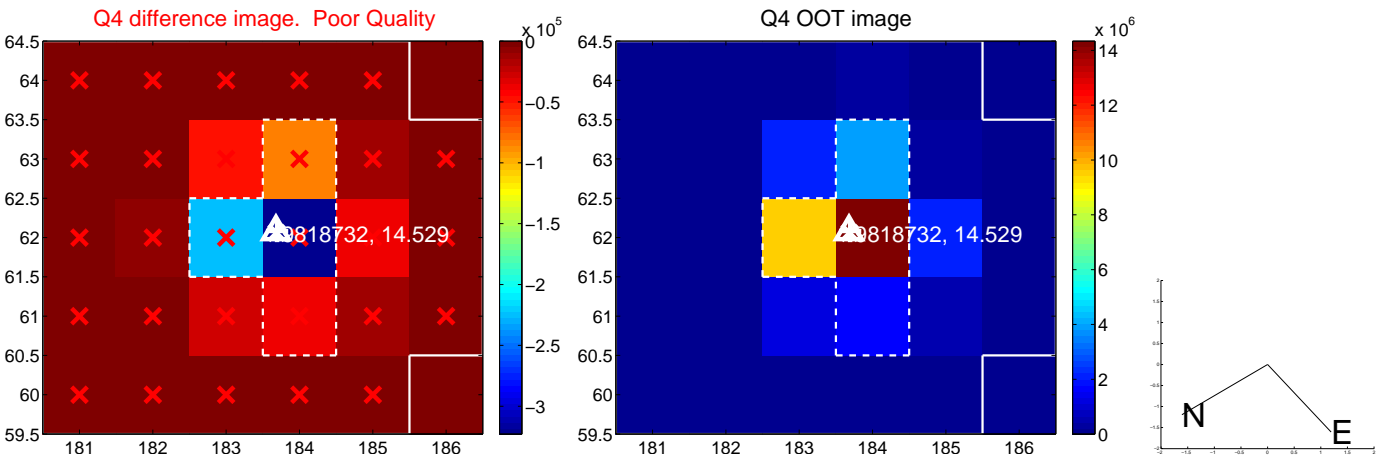
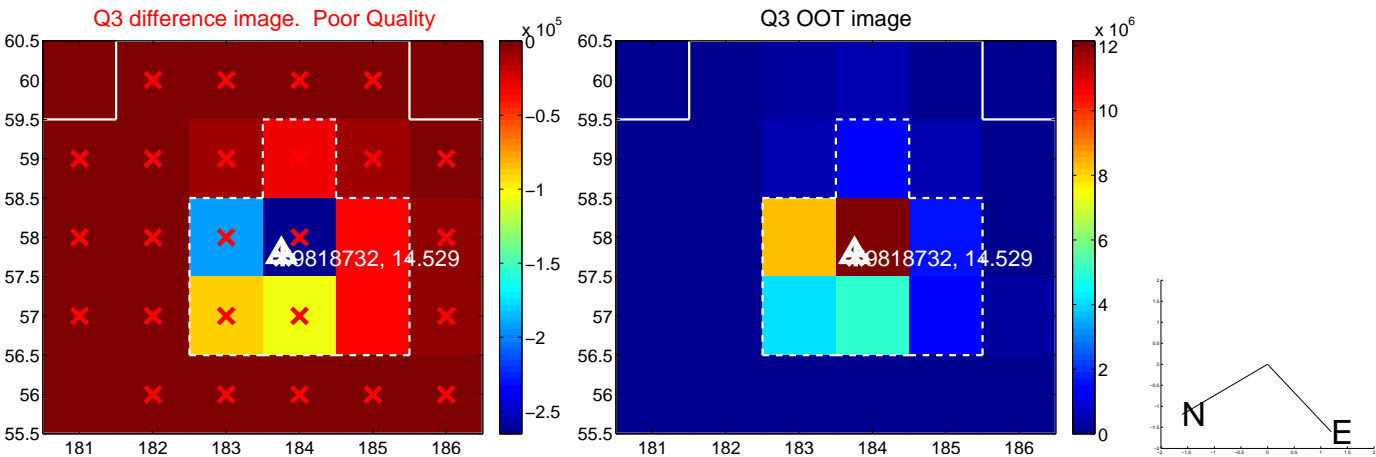
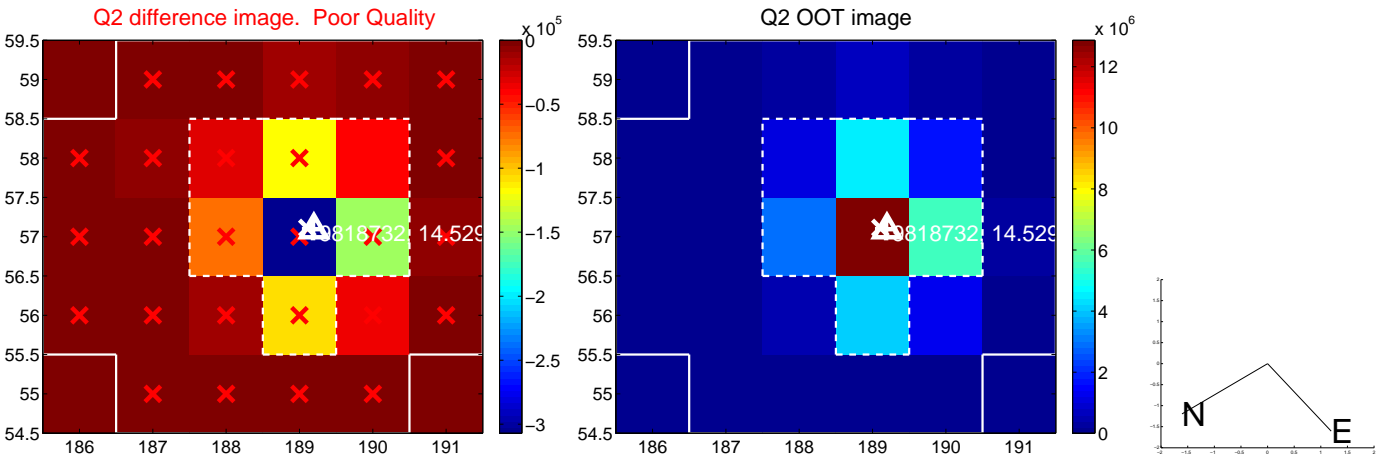
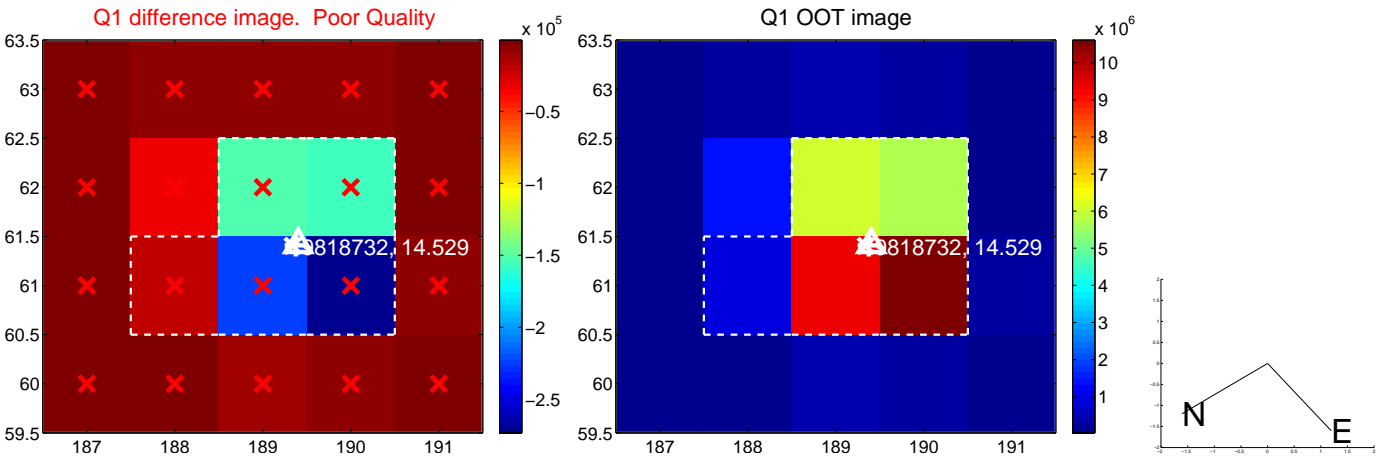
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.024 ± 0.068	0.35	0.019 ± 0.068	0.014 ± 0.067
PRF-fit source offset from KIC position	0.144 ± 0.073	1.98	0.026 ± 0.079	-0.142 ± 0.071
photometric centroid source offset	0.11 ± 0.06	1.90	-0.02 ± 0.06	-0.11 ± 0.06

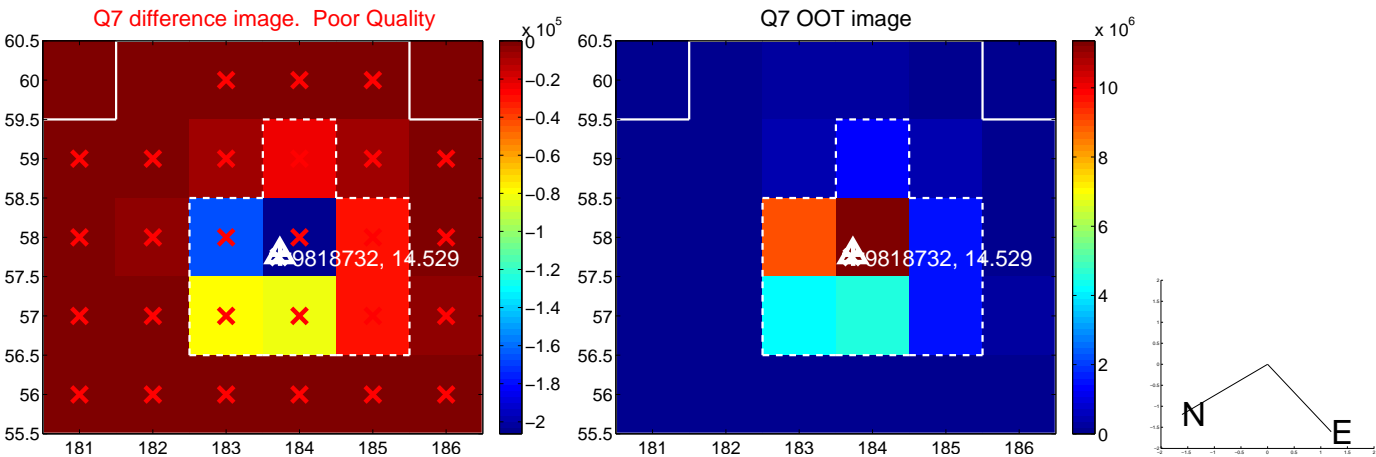
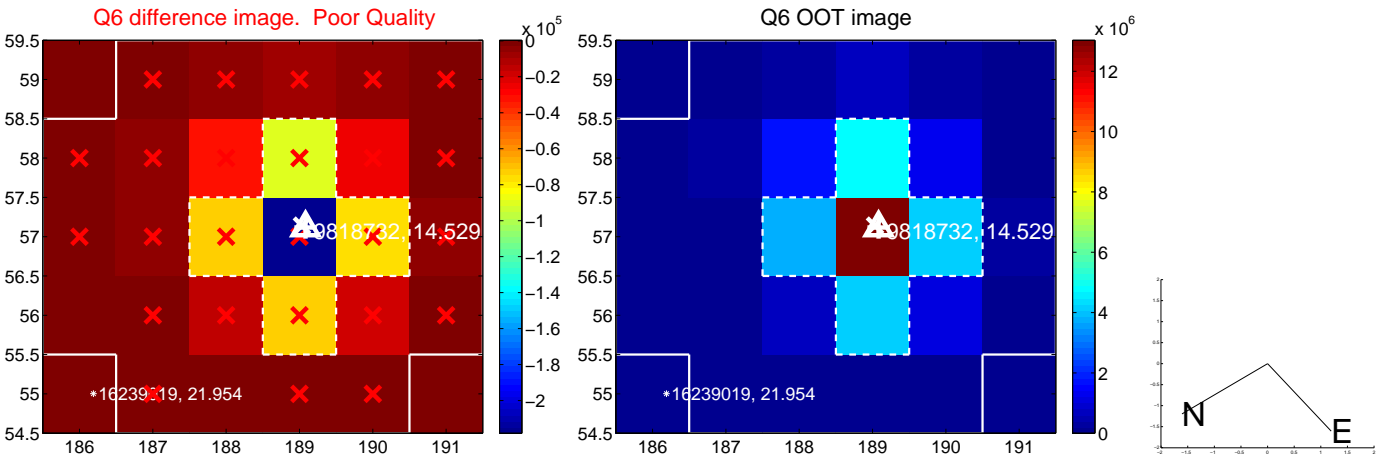
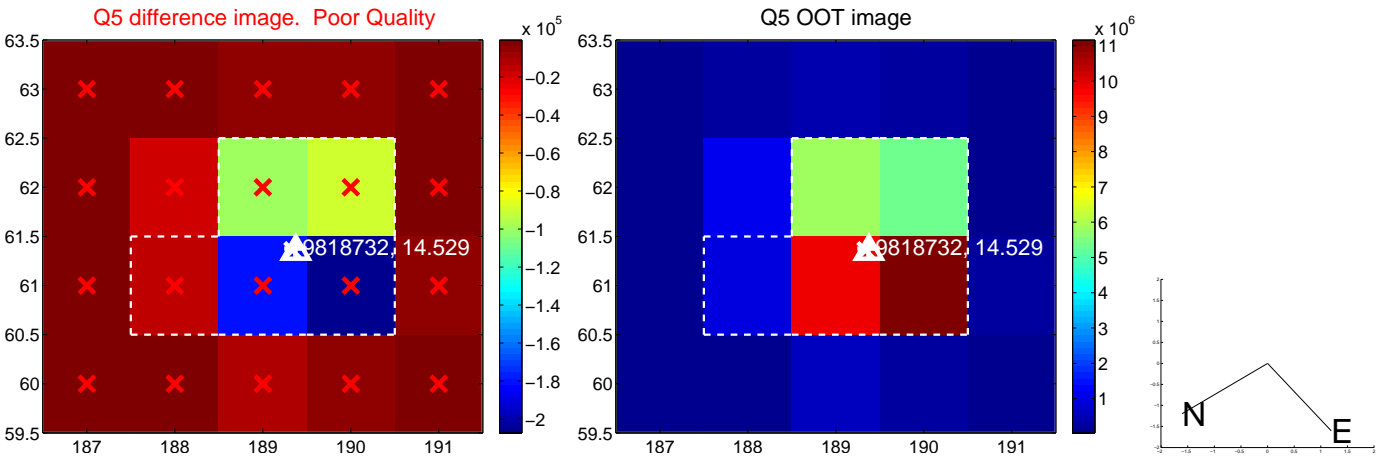


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

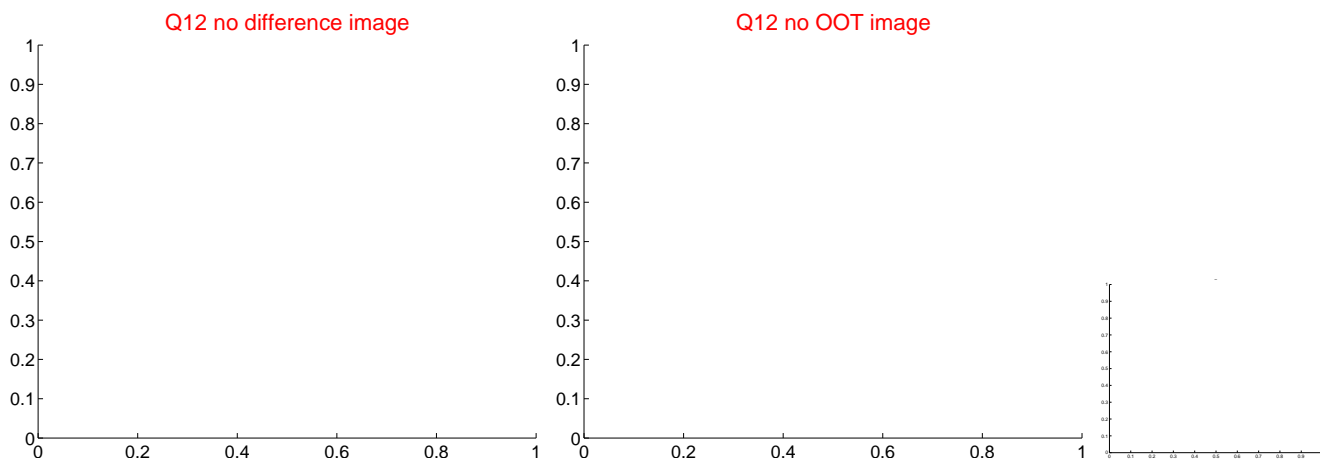
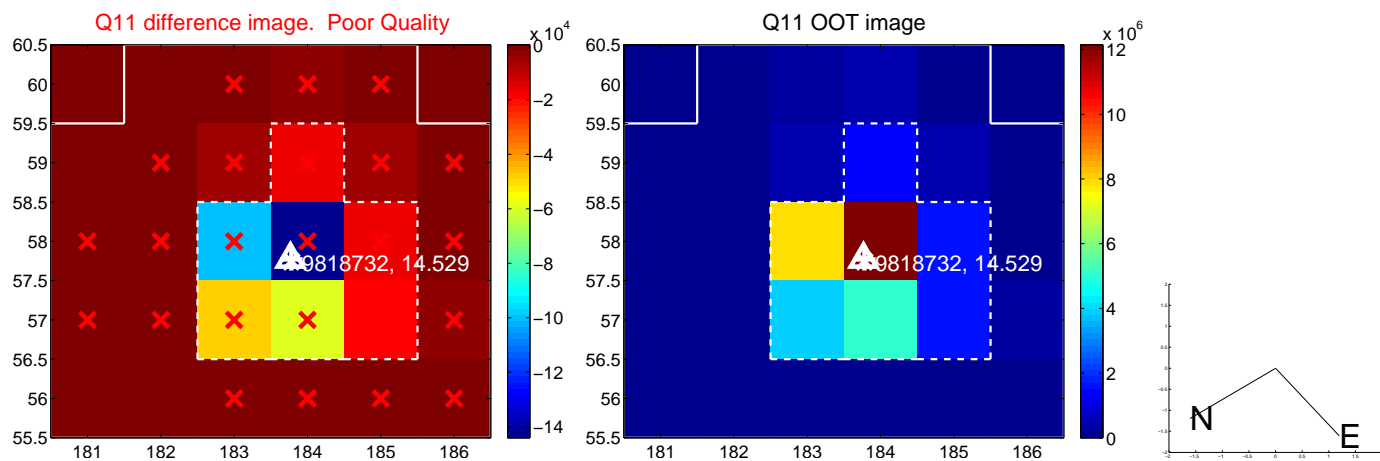
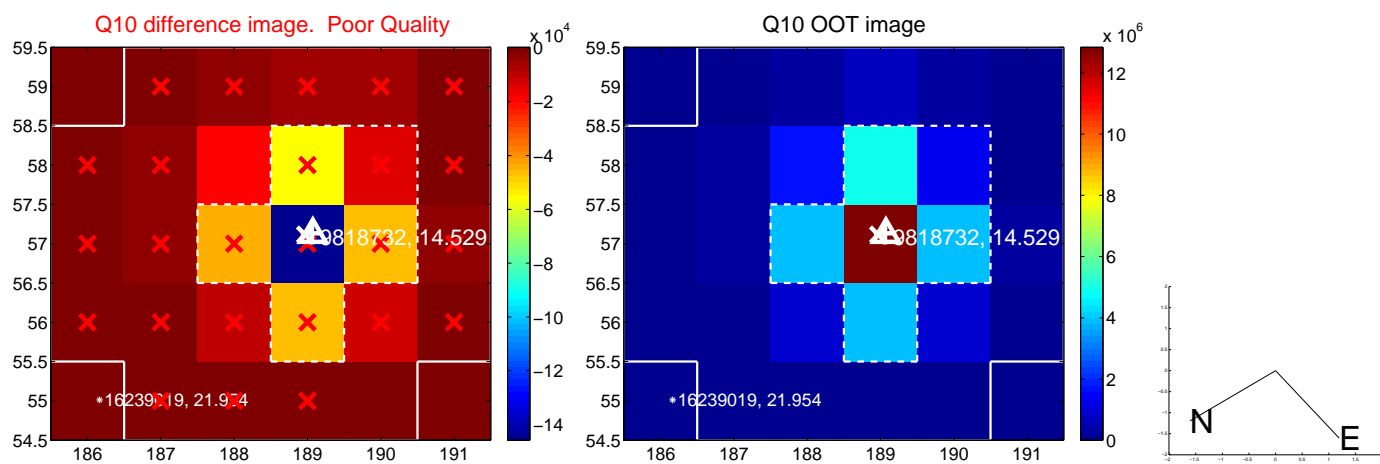
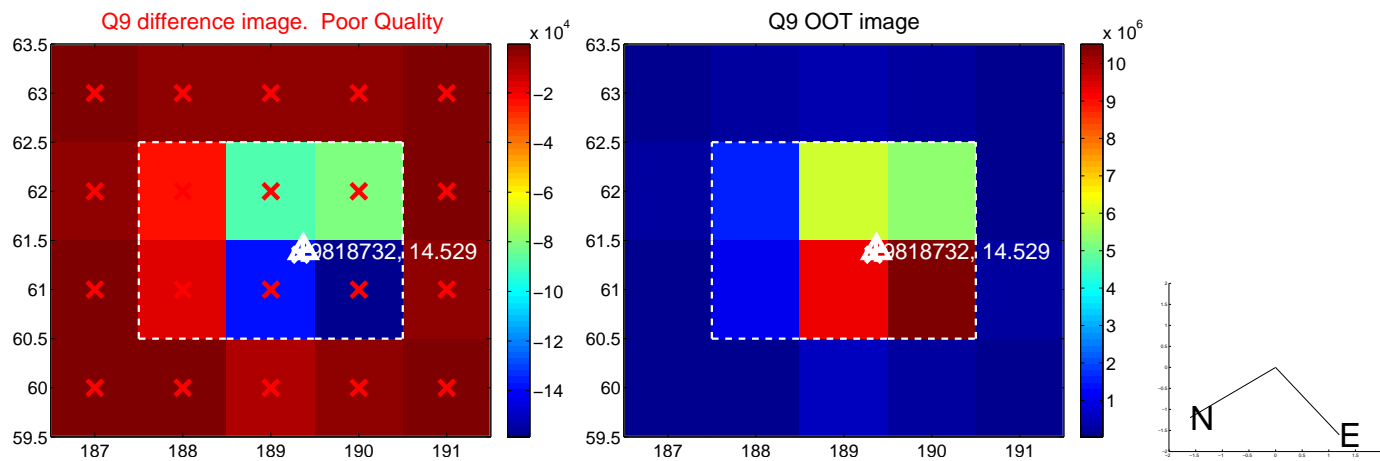
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



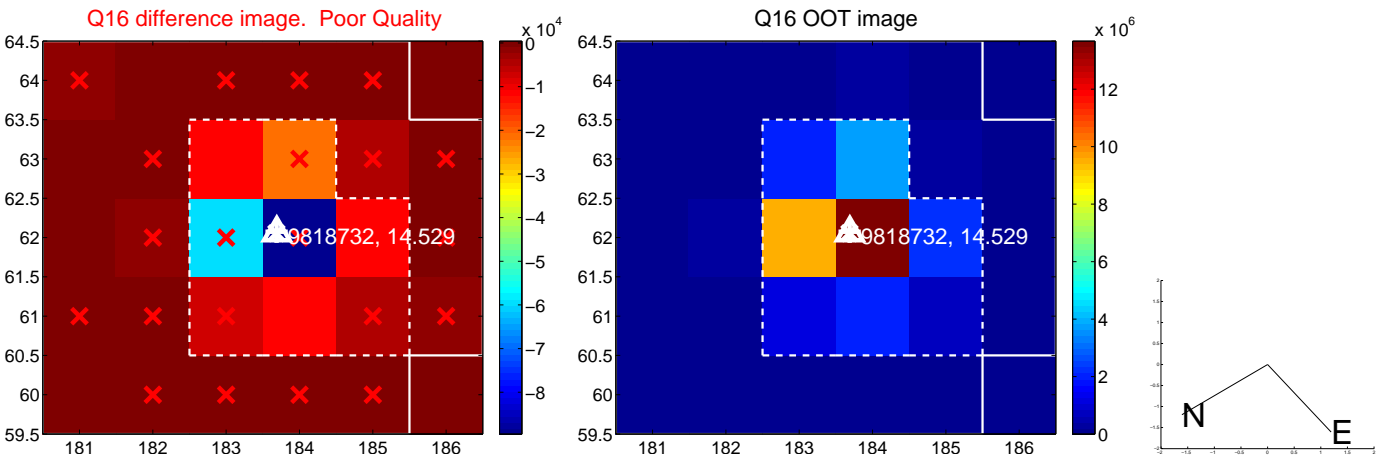
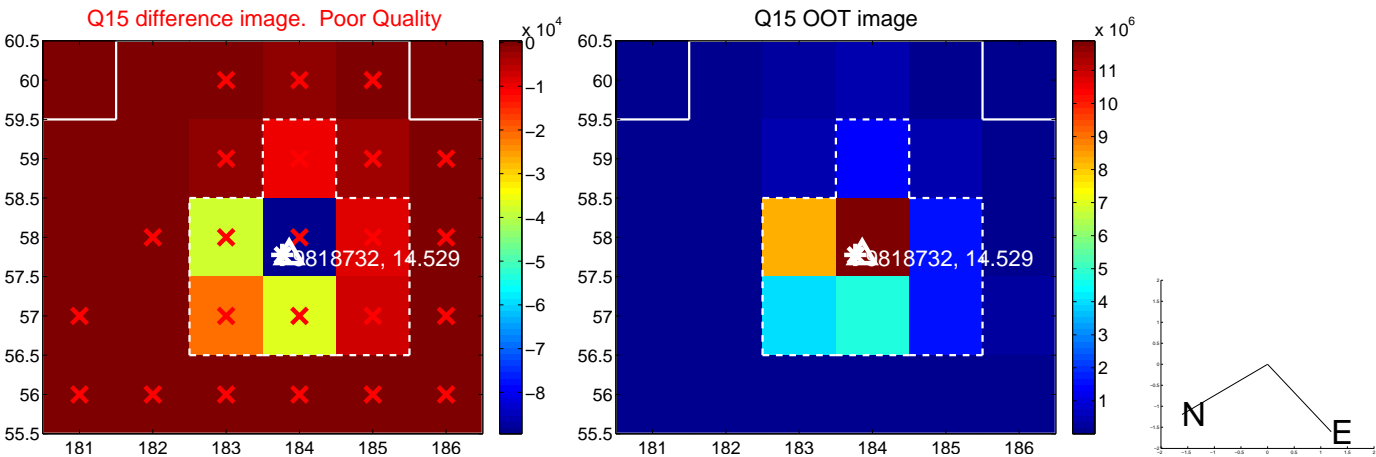
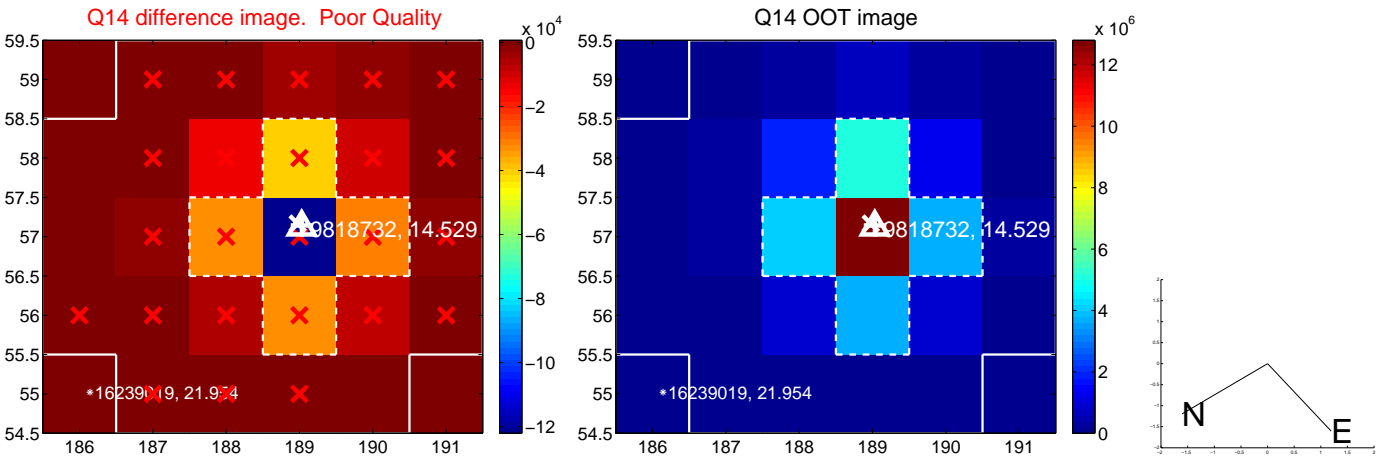
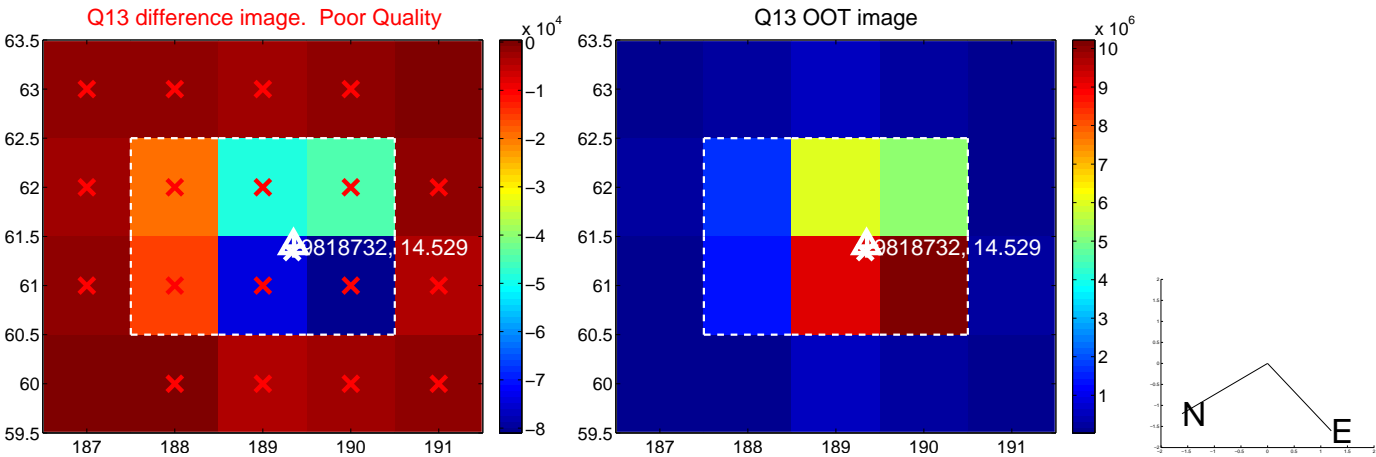
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



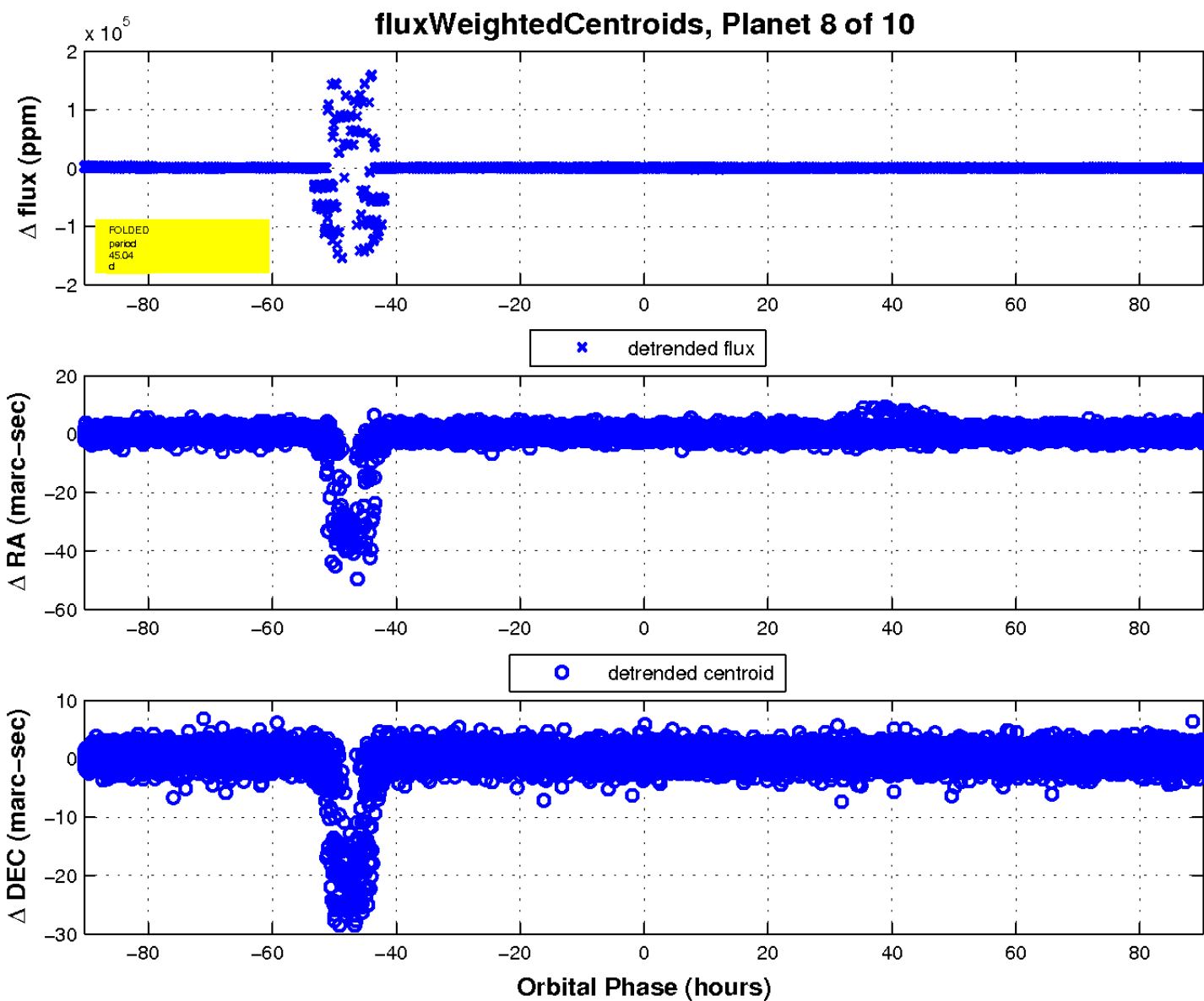
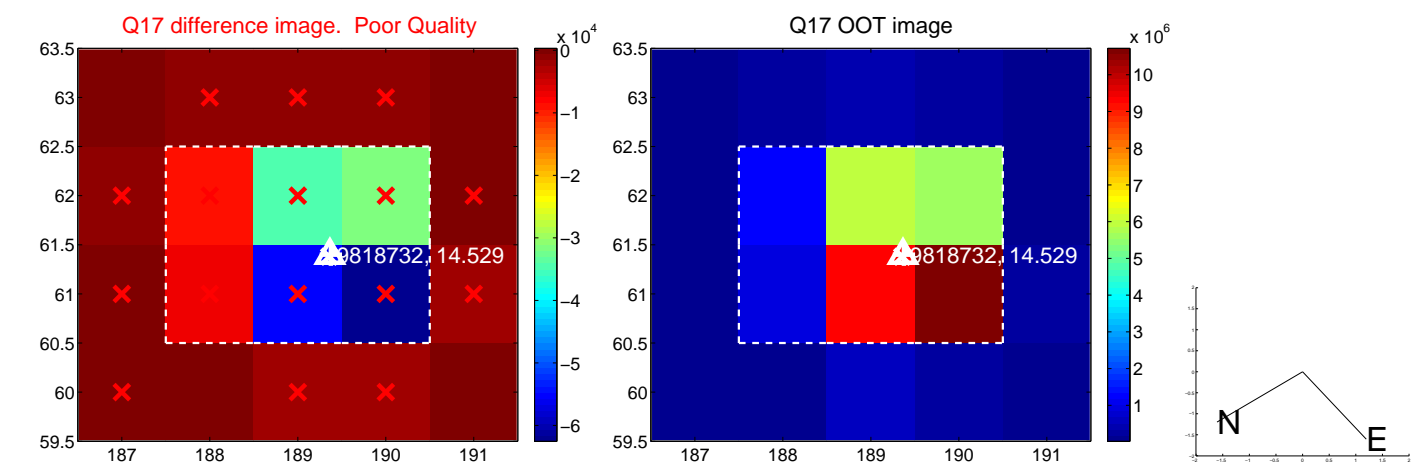
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

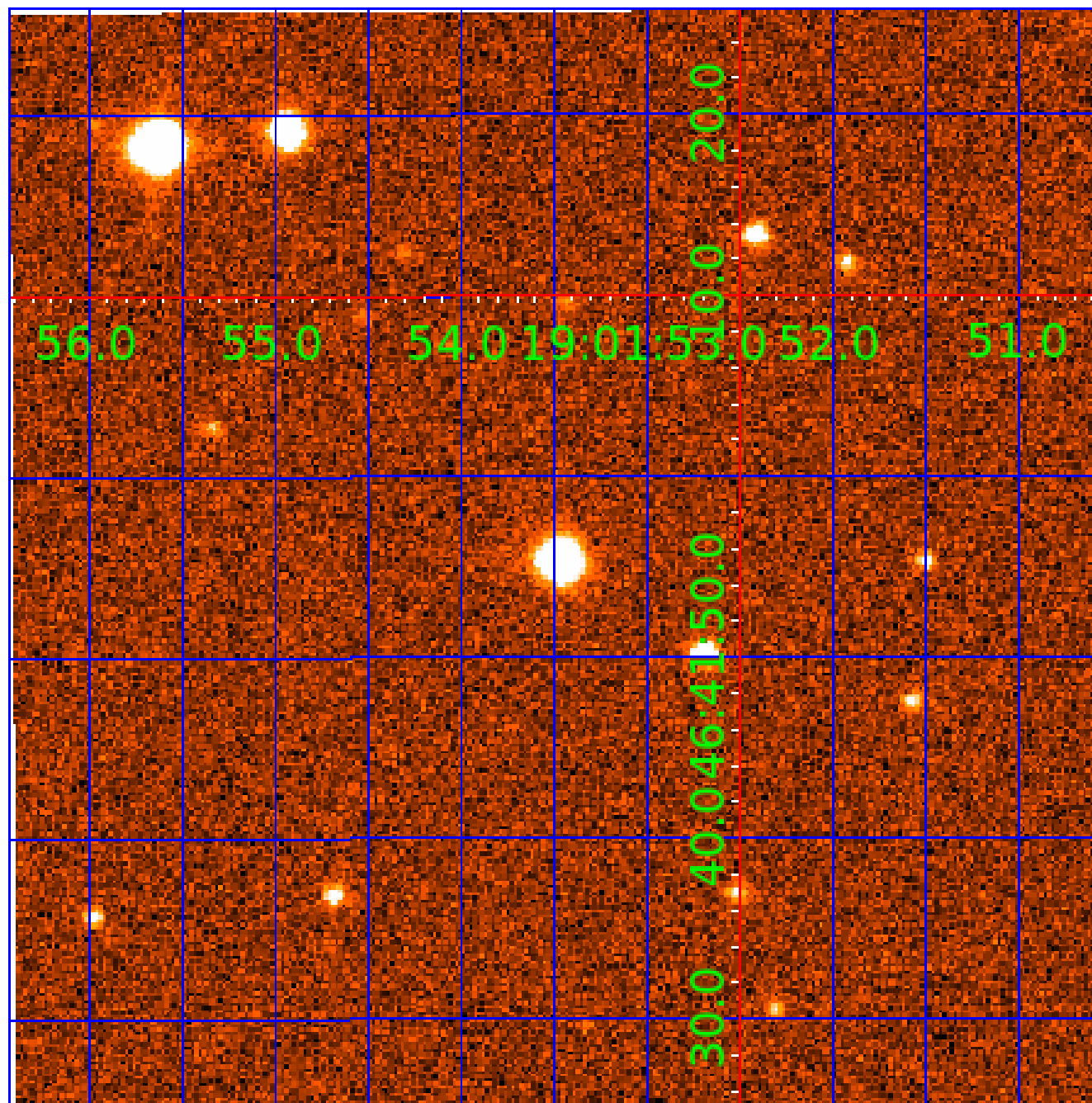


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009818732

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})
009818732-01	OBS	7233.01	45.035186	132.638245	415828.1	6.000	14502.9	-1.0	1.15	6484	62.91	30.72
009818732-02	OBS	No	45.035876	146.025633	341823.0	7.500	12763.8	-1.0	1.15	6484	59.56	30.72
009818732-03	OBS	No	448.952558	178.160811	18653.0	3.500	189.6	-1.0	1.15	6484	15.85	1.43
009818732-04	OBS	No	45.036426	148.109856	5314.4	15.000	187.1	-1.0	1.15	6484	8.45	30.72
009818732-05	OBS	No	308.580812	241.804540	11597.9	4.500	175.0	-1.0	1.15	6484	12.49	2.36
009818732-07	OBS	No	45.031979	175.613990	2642.4	30.842	151.1	92.8	1.15	6484	10.87	30.72
009818732-08	OBS	No	45.039596	134.541541	2656.9	30.113	176.6	79.7	1.15	6484	10.91	30.72
009818732-09	OBS	No	45.036426	143.900542	3446.2	15.000	128.1	-1.0	1.15	6484	6.80	30.72
009818732-10	OBS	No	407.554165	365.604668	5181.3	15.000	127.3	-1.0	1.15	6484	8.34	1.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009818732-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
009818732-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS
009818732-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
009818732-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009818732-07	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
009818732-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009818732-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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.

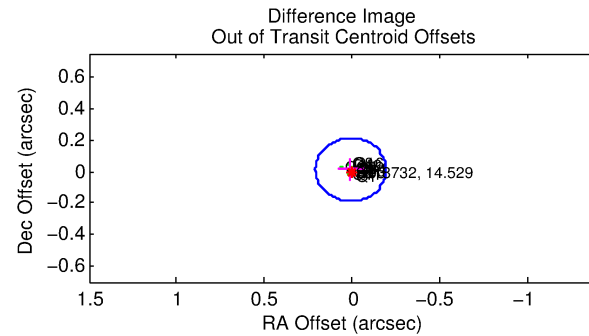
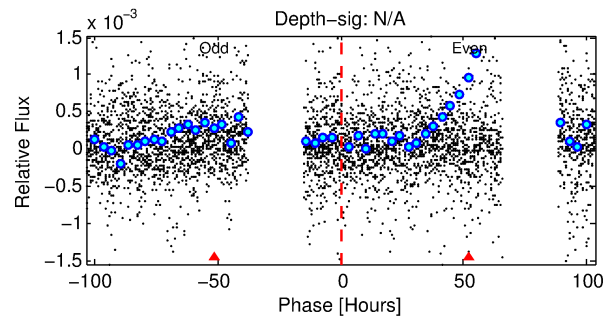
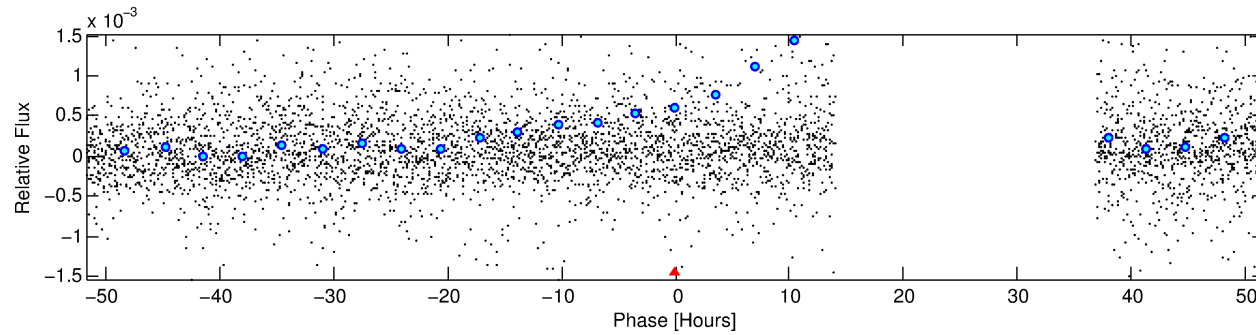
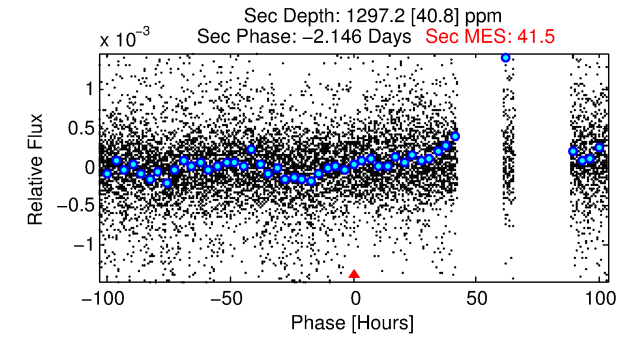
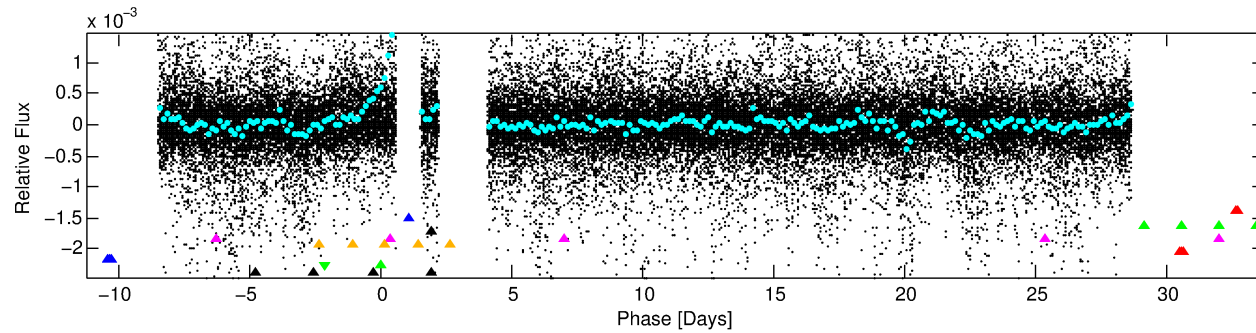
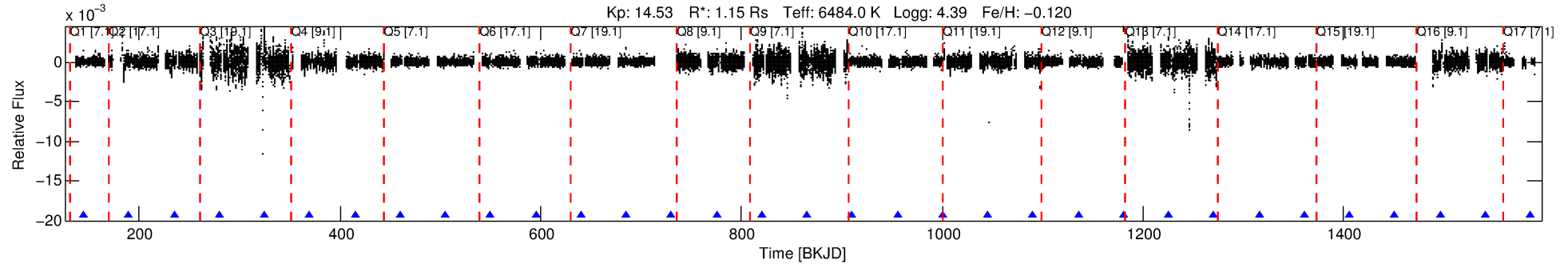
Ephemeris Match Information For 009818732-09

No Significant Match Found

DV One-Page Summary

KIC: 9818732 Candidate: 9 of 10 Period: 45.036 d
KOI: K07233 Corr: No Ephemeris Match

Kp: 14.53 R*: 1.15 Rs Teff: 6484.0 K Logg: 4.39 Fe/H: -0.120



TPS TCE Results:

Period = 45.03643 d
Epoch = 143.9005 BKJD

DV fit results are unavailable

DV Diagnostic Results:

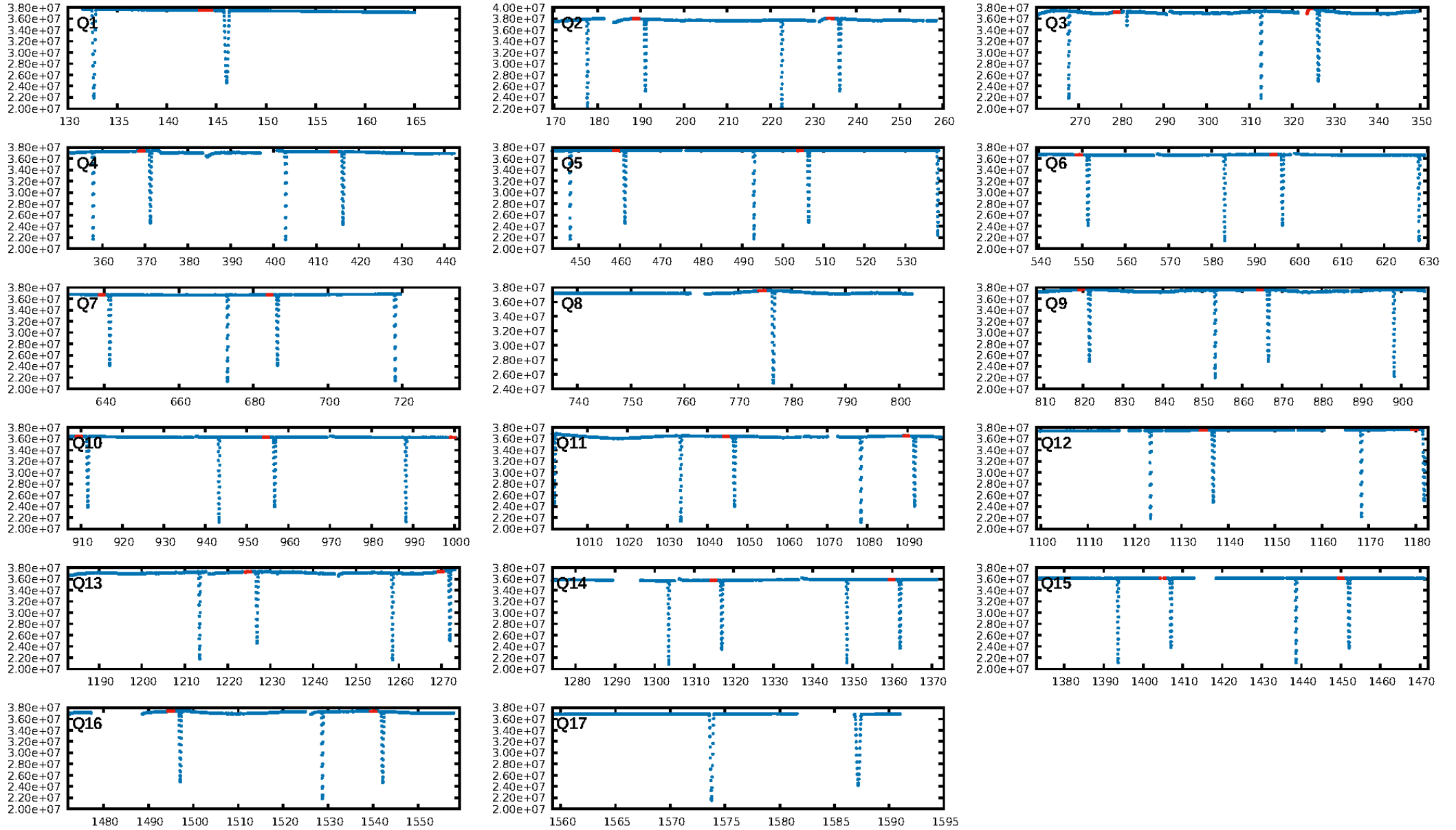
ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.2% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [29/29]
GhostDiagnostic-chr: 19.81

Centroid-sig: N/A
Centroid-so: 28.816 arcsec [2.29σ]
OotOffset-rm: 0.016 arcsec [0.24σ]
KicOffset-rm: 0.127 arcsec [1.78σ]
OotOffset-st: 4/2/4/4 [14]
KicOffset-st: 4/2/4/4 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.00 [0/14]

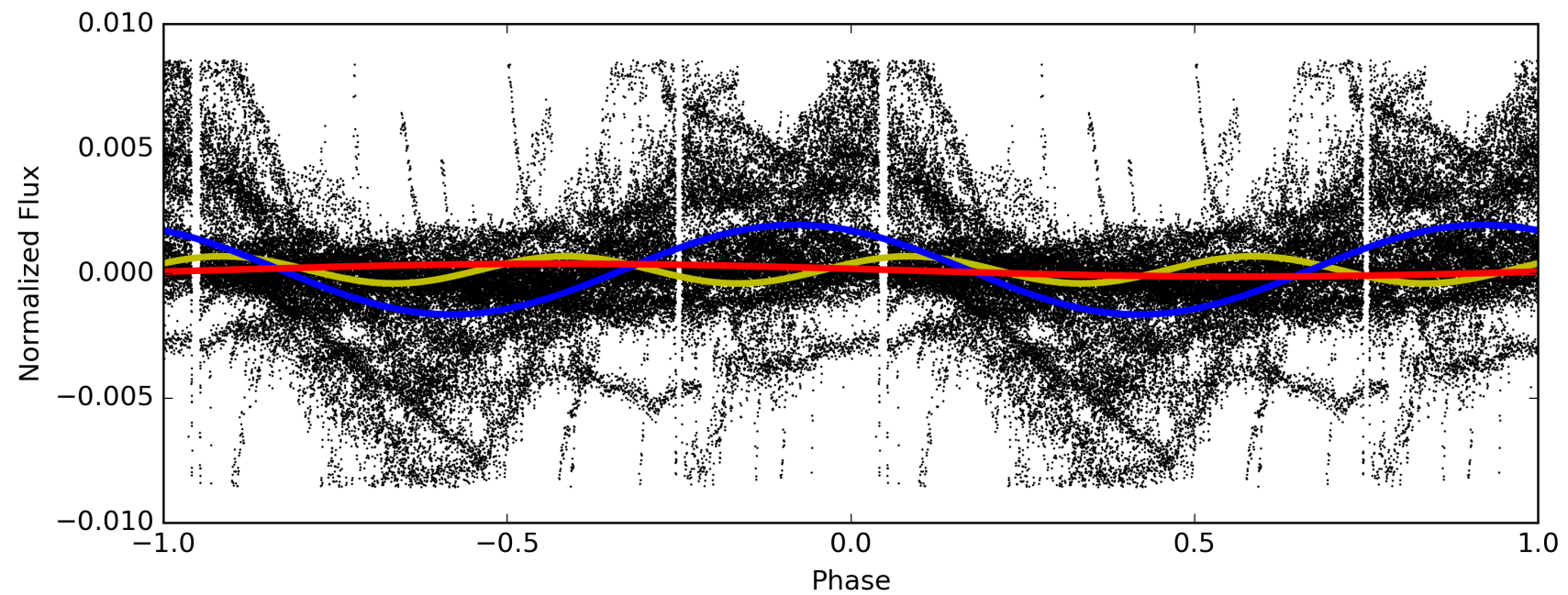
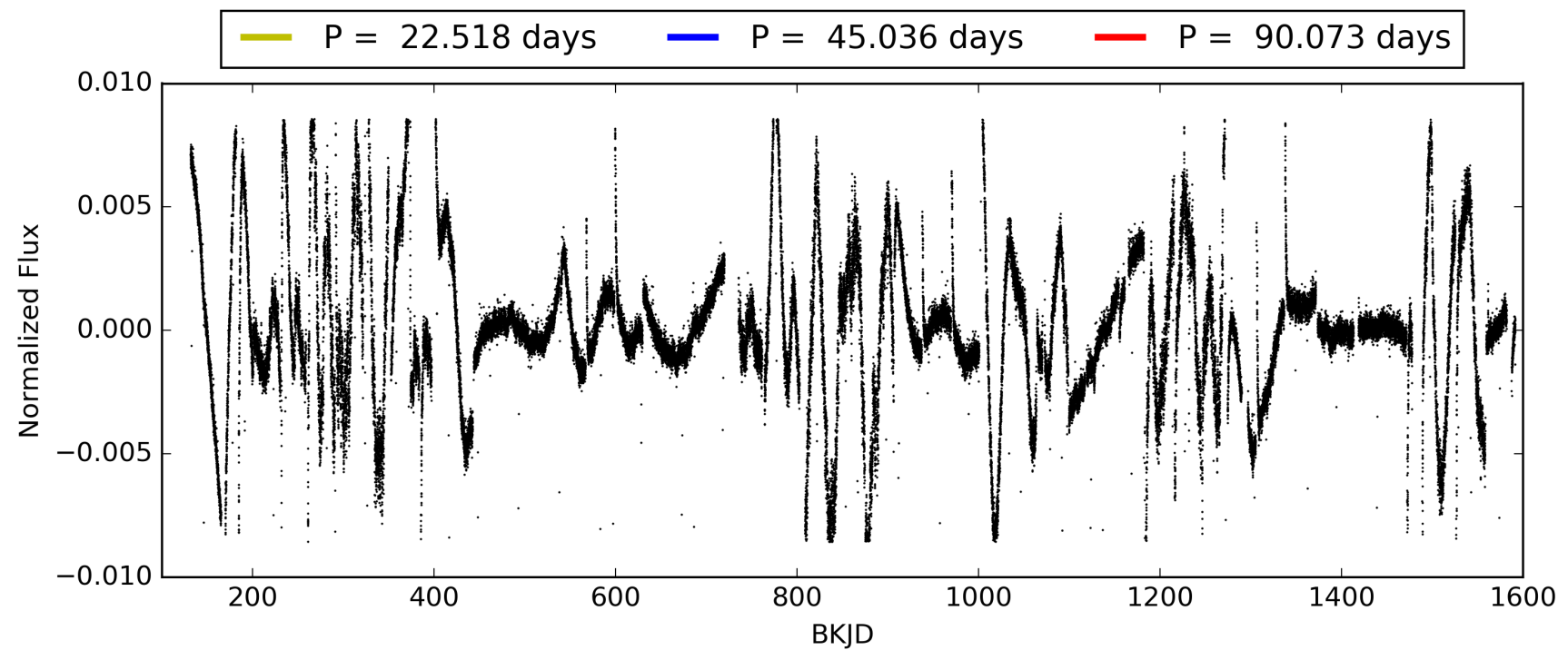
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:29:09 Z

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

TCE 009818732-09, PDC Light Curves

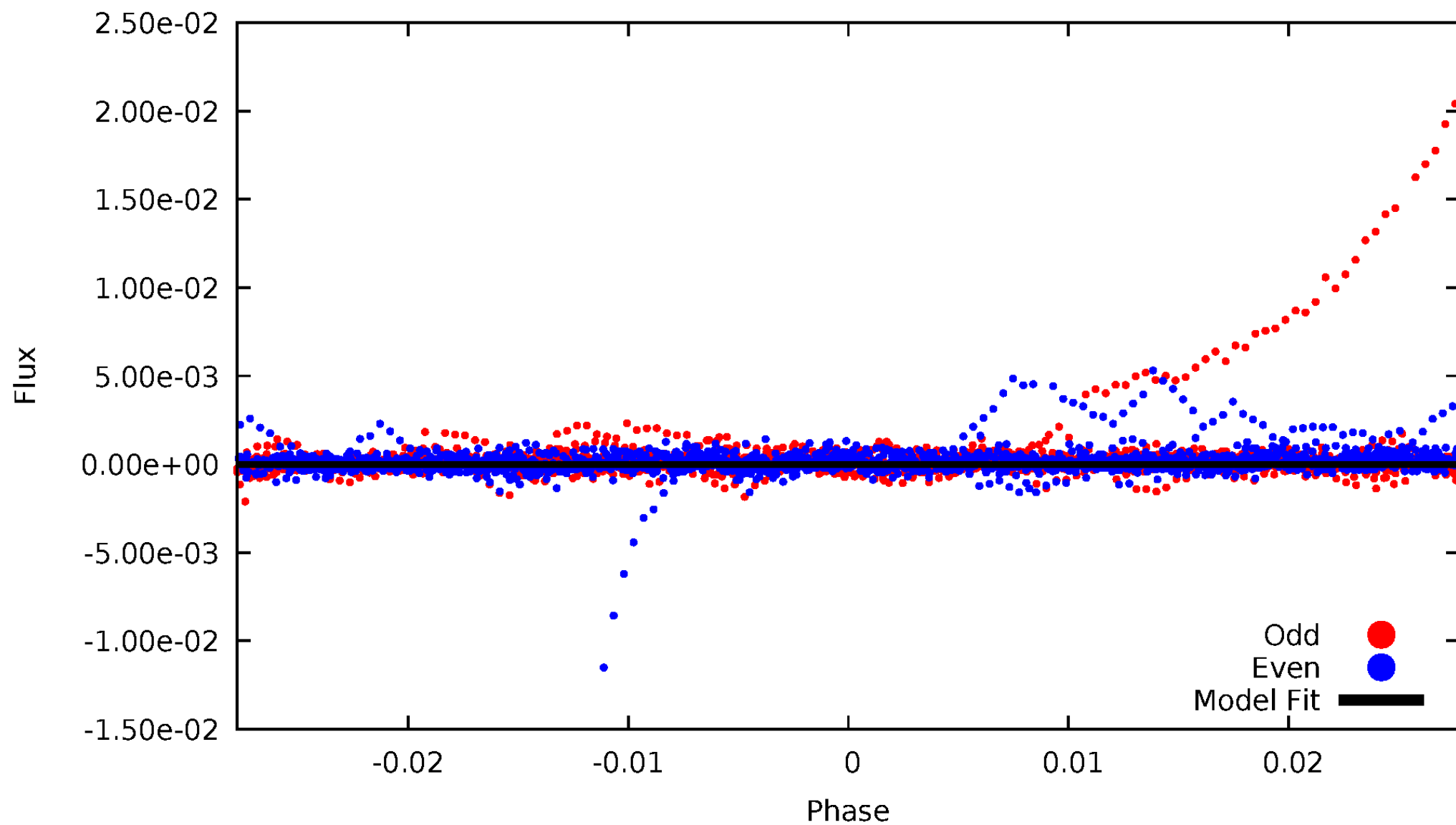


TCE 009818732-09



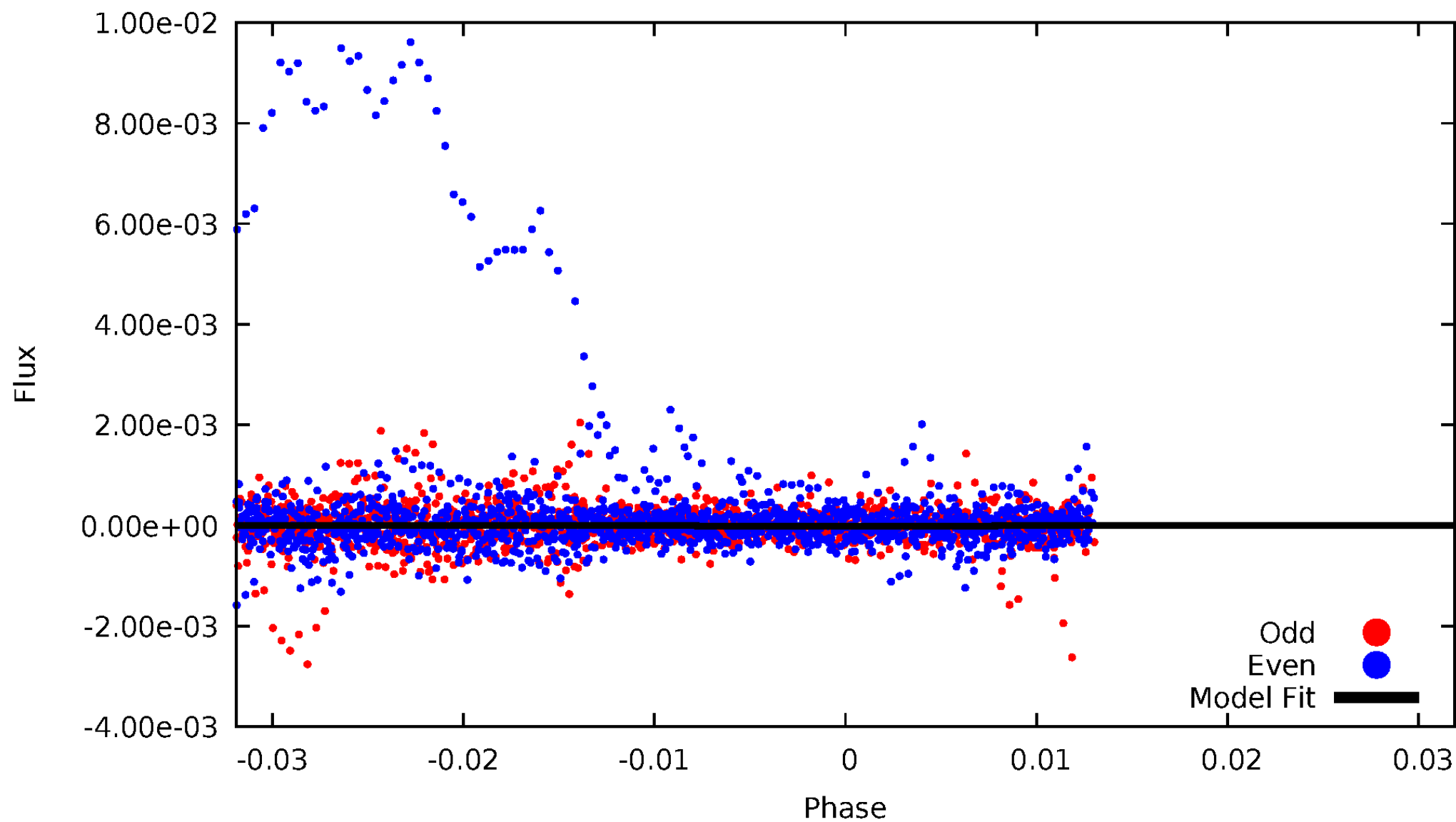
DV Odd/Even

TCE 009818732-09



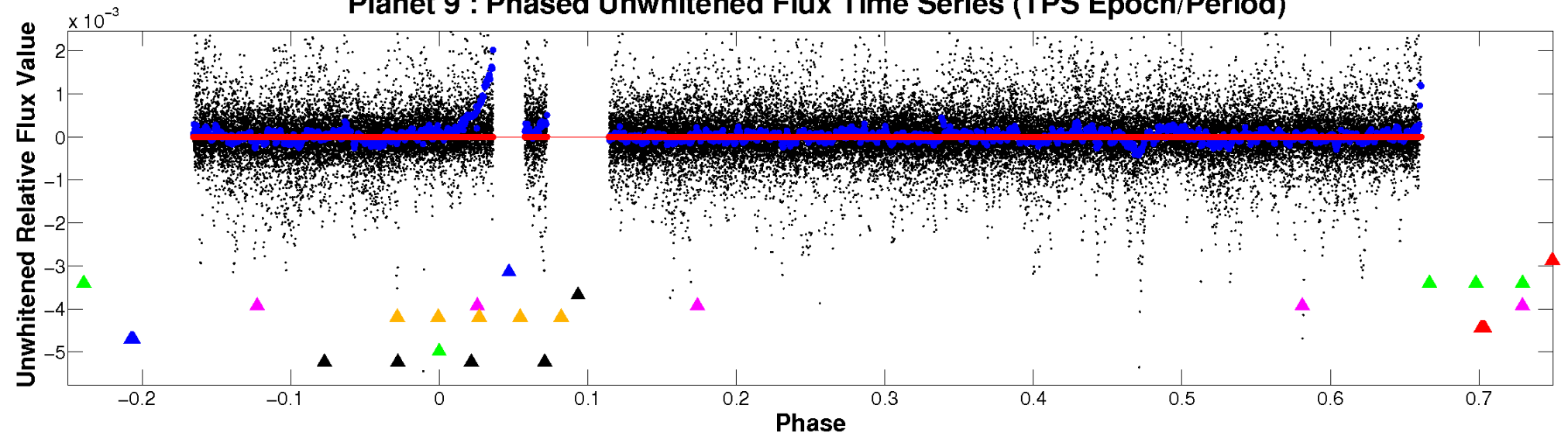
ALT Odd/Even

TCE 009818732-09



Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

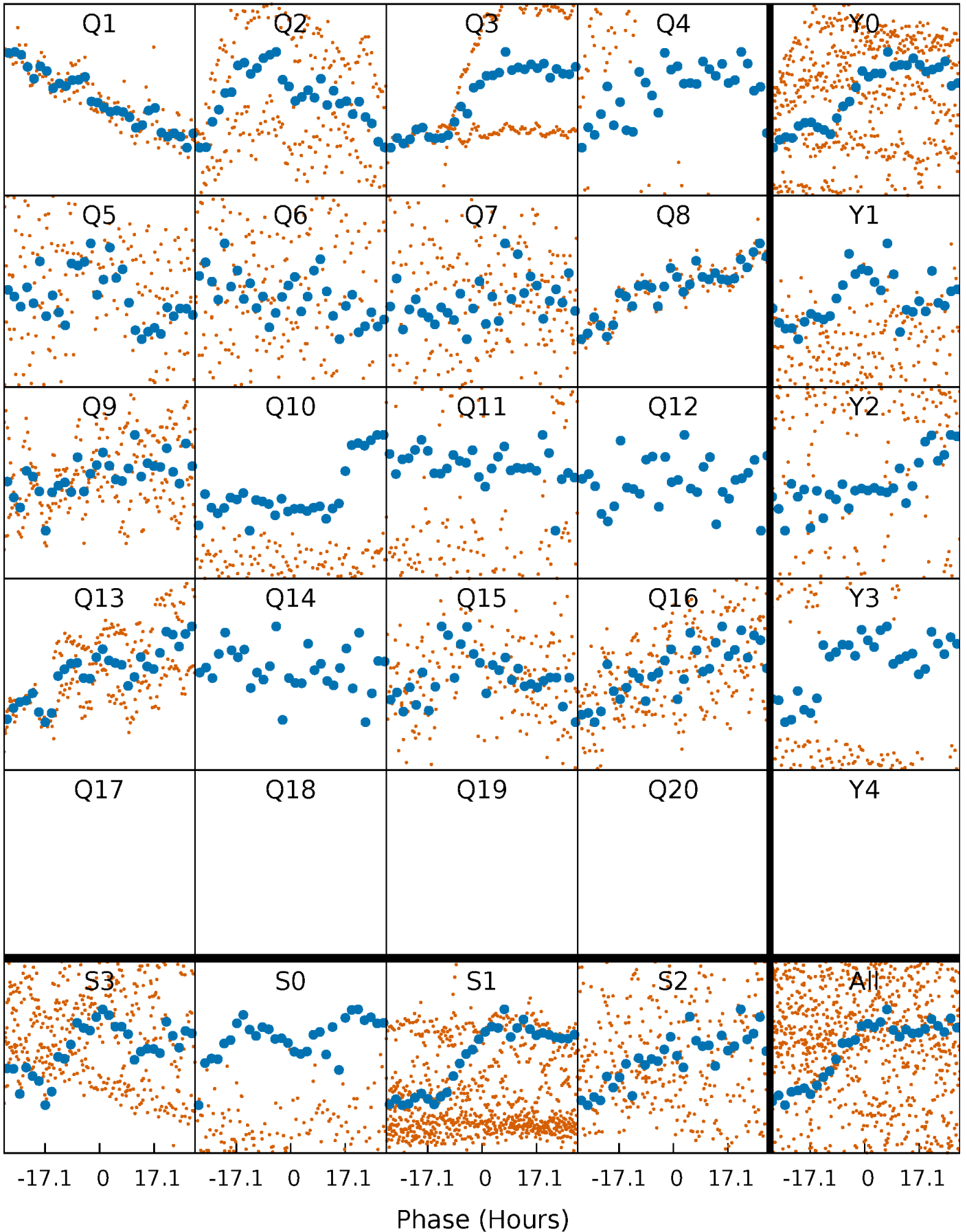


Planet 9 : Phased Whitened Flux Time Series (TPS Epoch/Period)



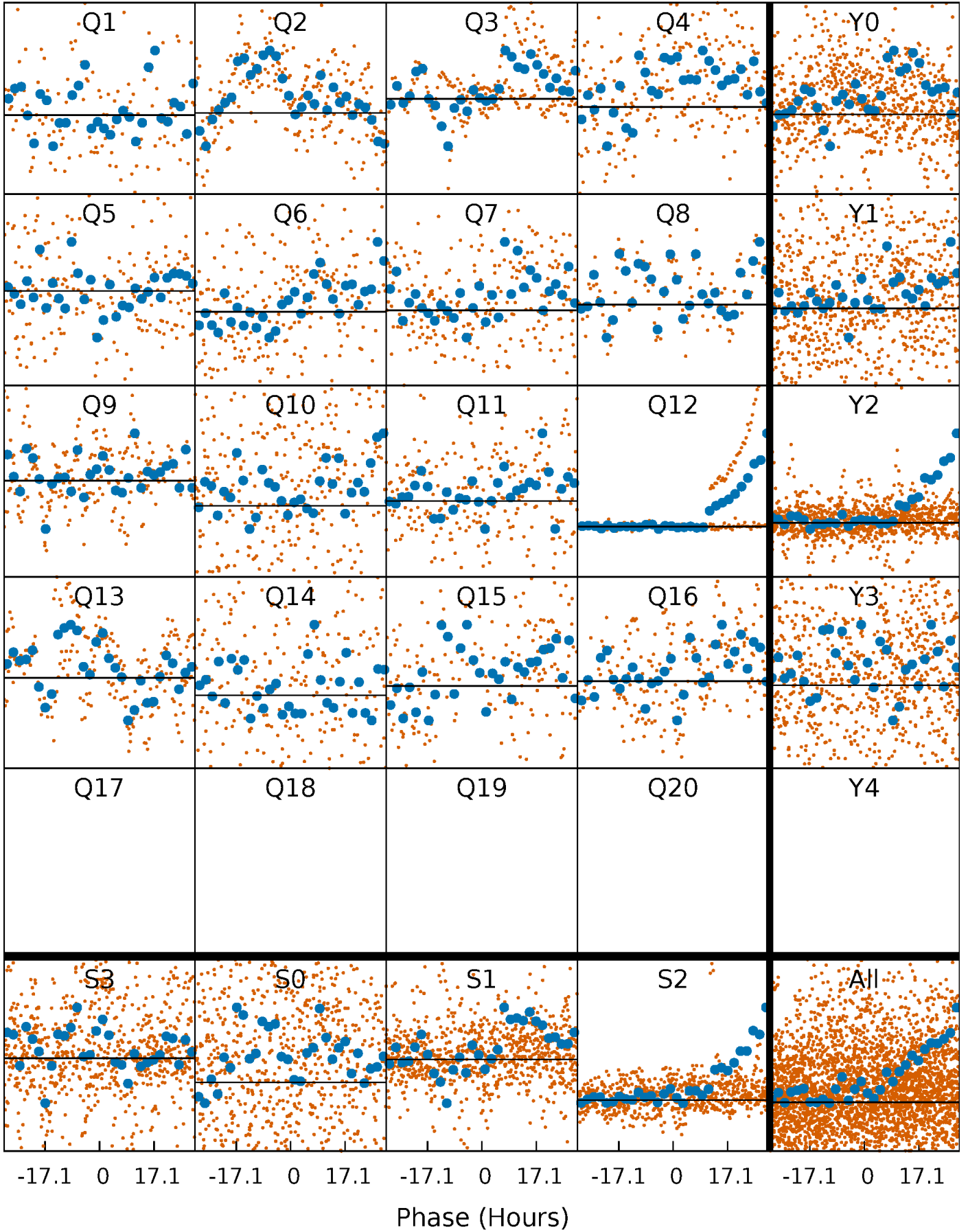
PDC Quarter-Phased Transit Curves

TCE 009818732-09 $P = 45.036426$ Days $T_0 = 143.900542$ (BKJD)



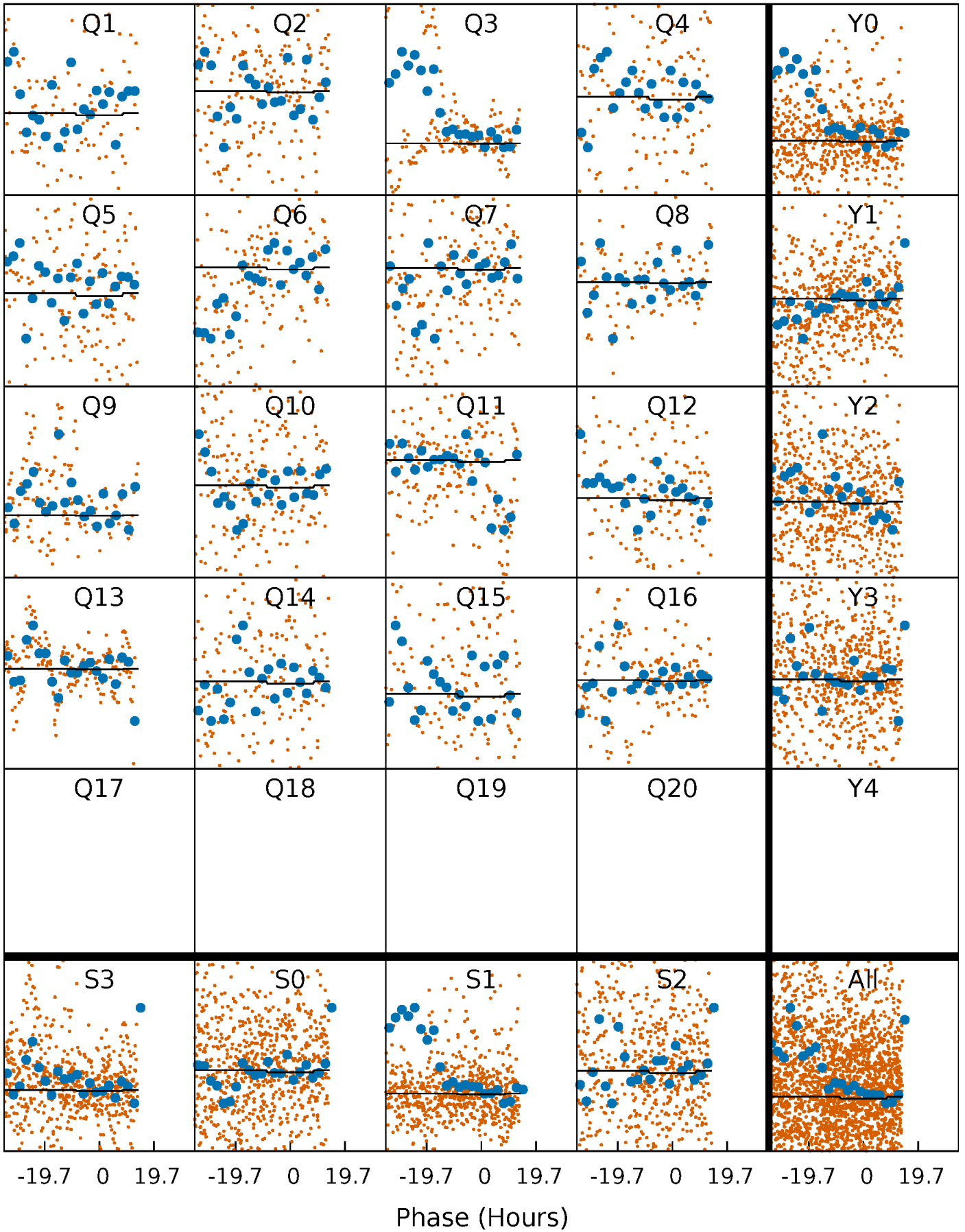
DV Quarter-Phased Transit Curves

TCE 009818732-09 $P = 45.036426$ Days $T_0 = 143.900542$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

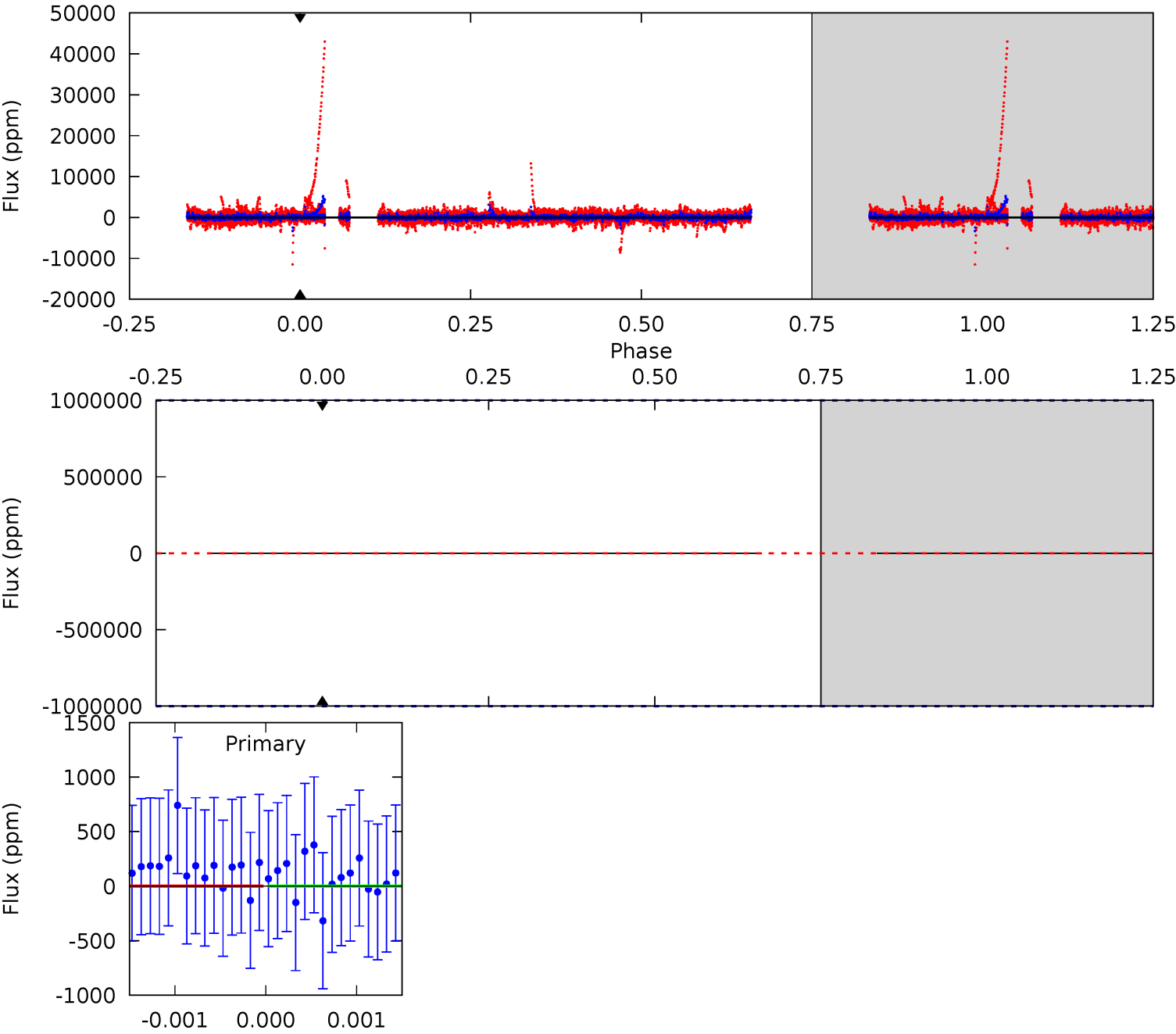
TCE 009818732-09 P= 45.036426 Days $T_0=144.956731$ (BKJD)



DV Model-Shift Uniqueness Test

009818732-09, P = 45.036426 Days, E = 98.864116 Days

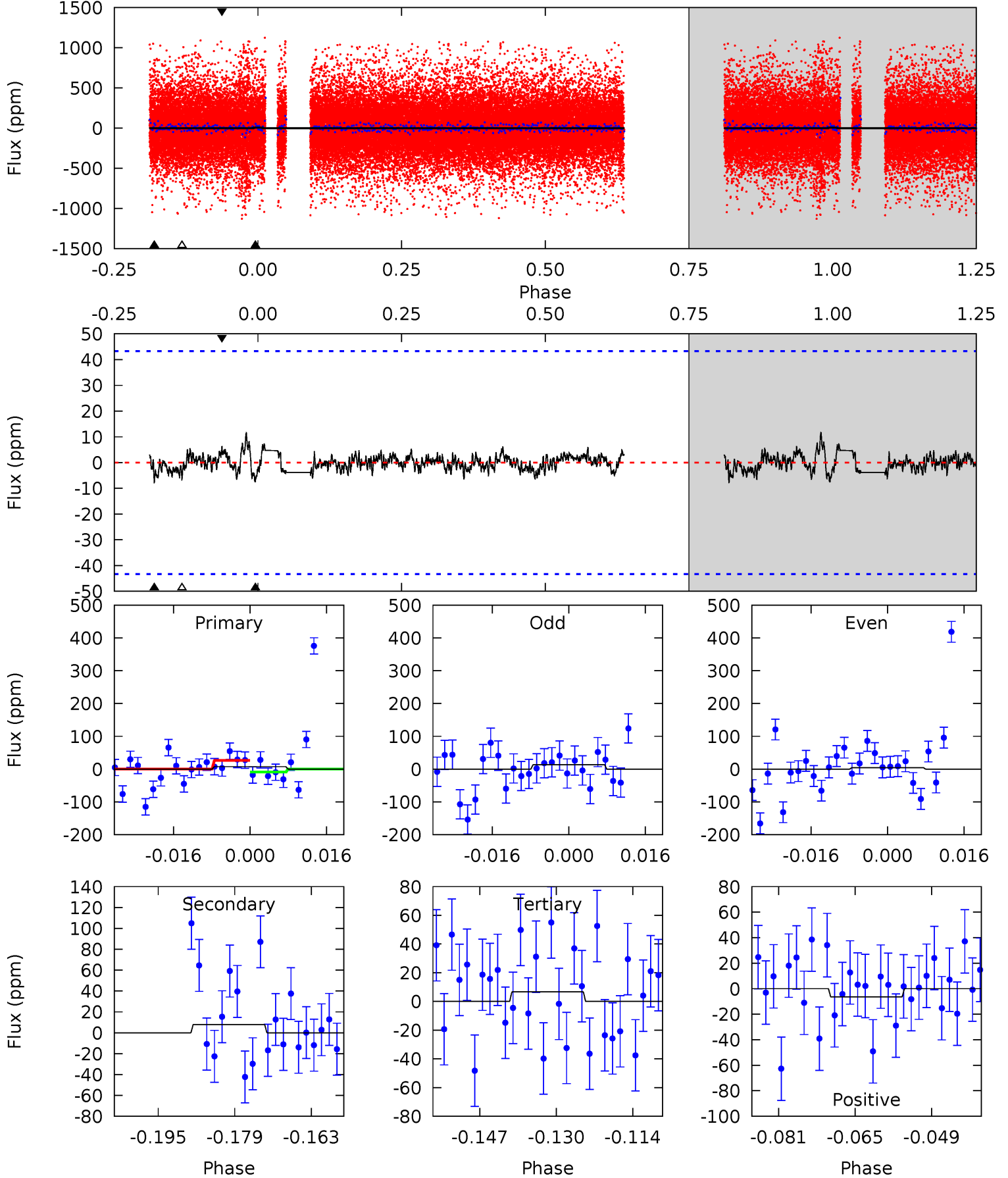
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009818732-09, P = 45.036426 Days, E = 99.920305 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.86	0.91	0.76	0.73	4.93	2.40	0.27	0.10	0.13	0.15	0.18	0.51	8.46	0.59	0.99



Stellar Parameters For KIC 009818732

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+145}_{-193}	$4.386^{+0.060}_{-0.180}$	$-0.120^{+0.250}_{-0.300}$	$1.153^{+0.339}_{-0.145}$	$1.178^{+0.164}_{-0.148}$	$1.084^{+0.353}_{-0.522}$
	+2%/-3%	+1%/-4%	+208%/-250%	+29%/-13%	+14%/-13%	+33%/-48%
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 009818732-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$12.59^{+11.29}_{-8.43}$	855^{+50}_{-40}	4767^{+16006}_{-22583}	501^{+44394}_{-35640}
Alt.	-8 ± 9	$8.60^{+10.61}_{-6.12}$	854^{+56}_{-41}	2115^{+869}_{-3975}	$2.276^{+31.807}_{-2.487}$

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

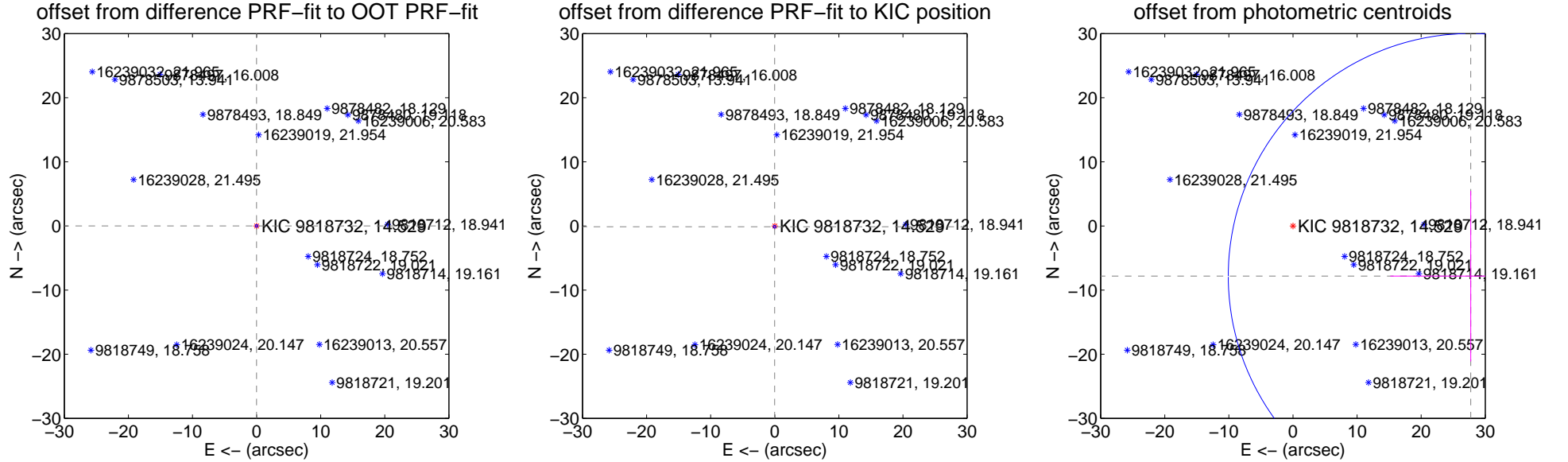
DV Centroid Data

Supplemental centroid analysis for 009818732-09. Kepler magnitude: 14.53. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

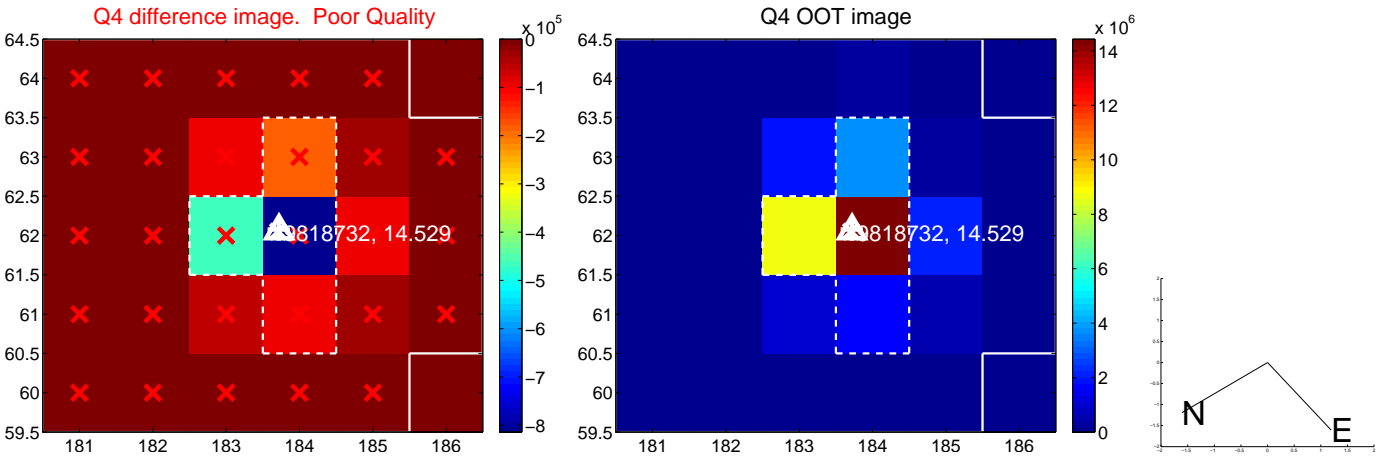
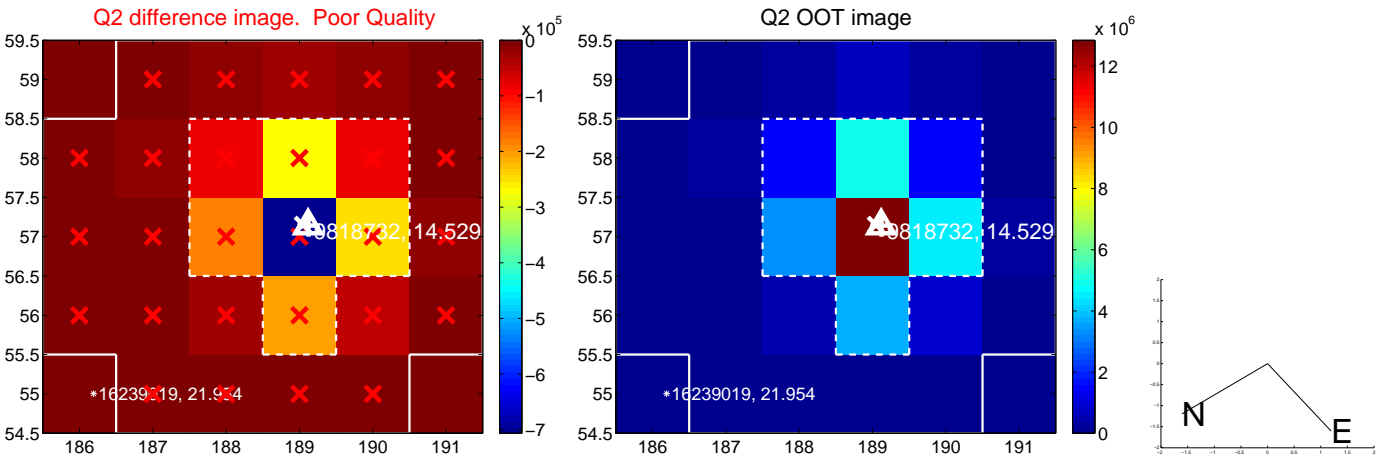
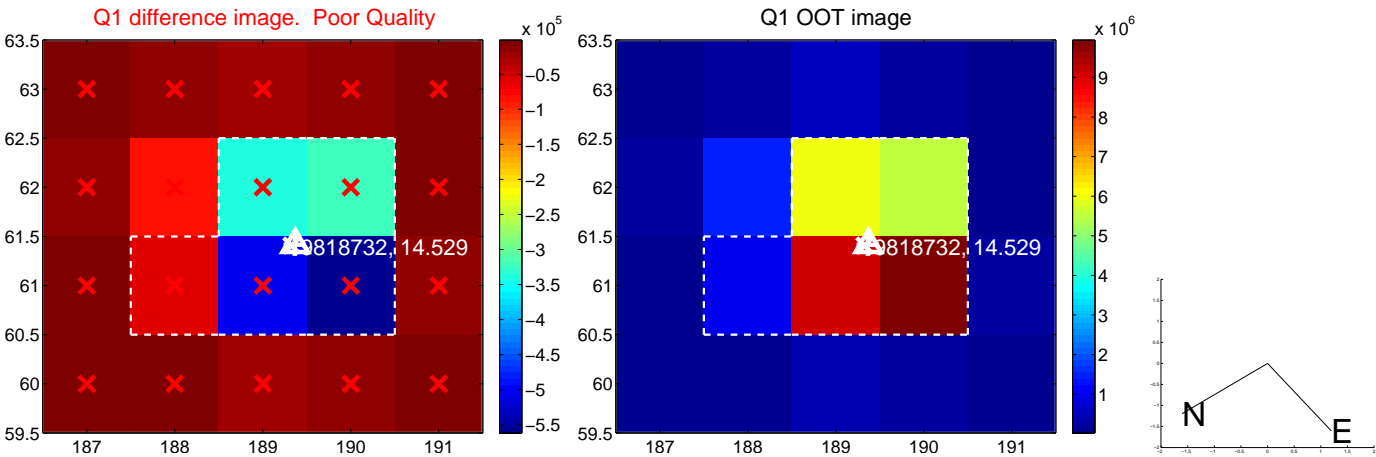
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.016 ± 0.067	0.24	0.009 ± 0.067	0.013 ± 0.067
PRF-fit source offset from KIC position	0.127 ± 0.071	1.78	0.028 ± 0.073	-0.124 ± 0.070
photometric centroid source offset	28.82 ± 12.61	2.29	-27.74 ± 12.55	-7.82 ± 13.29

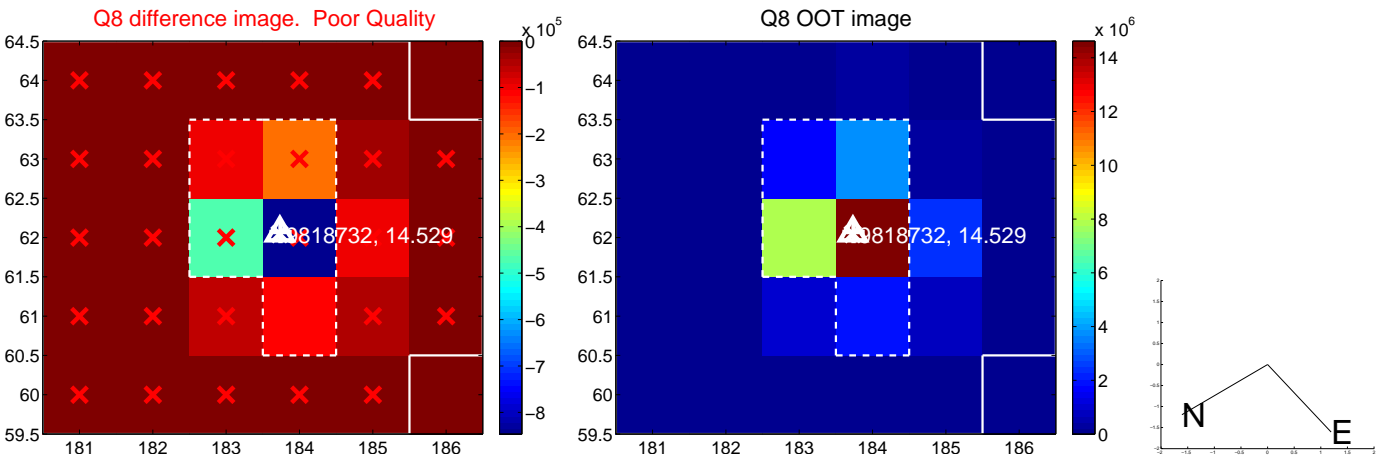
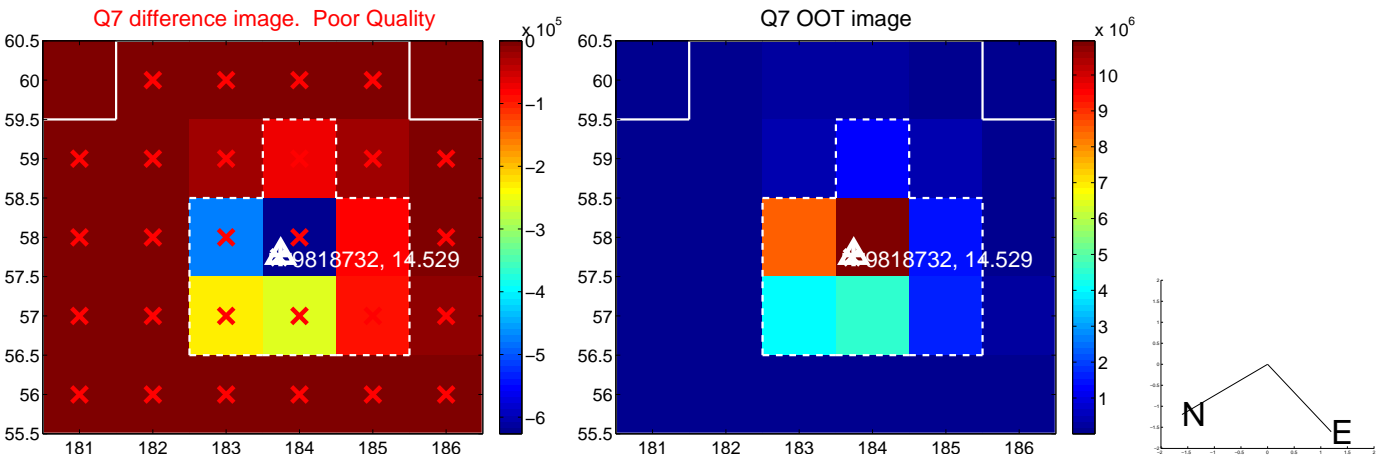
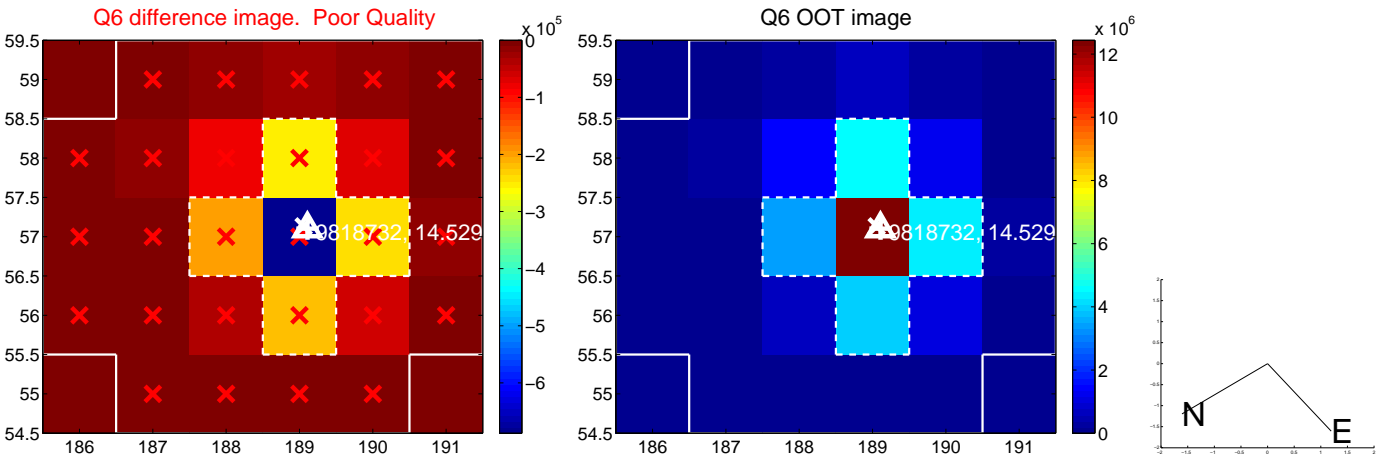
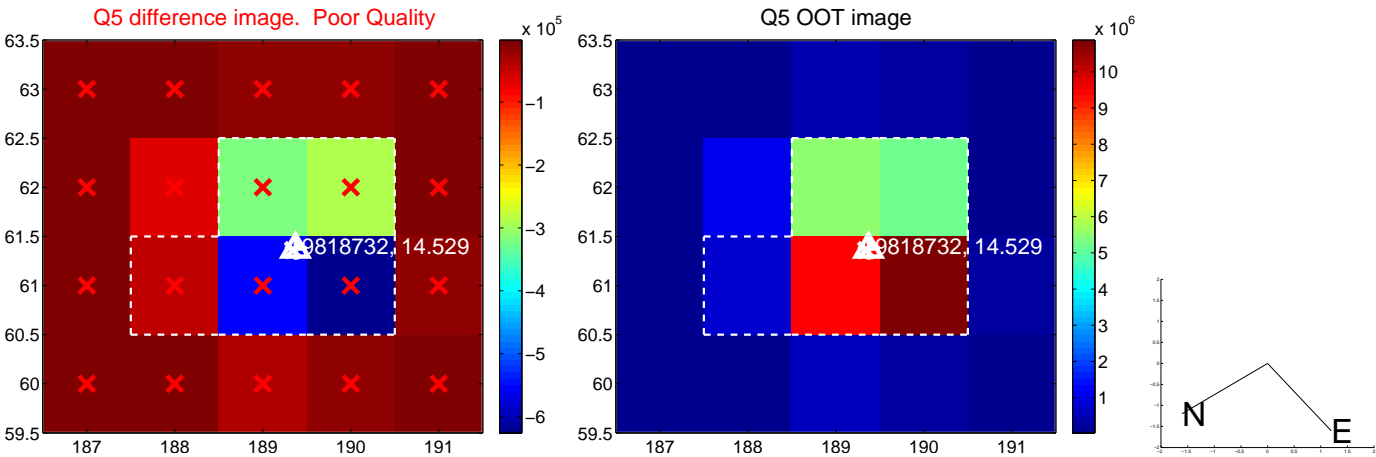


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

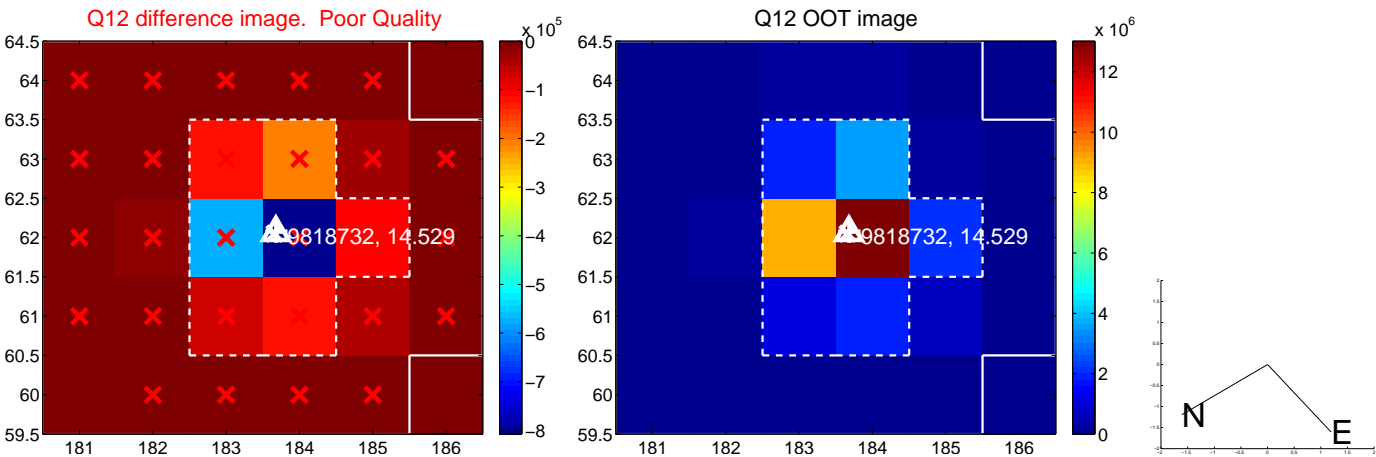
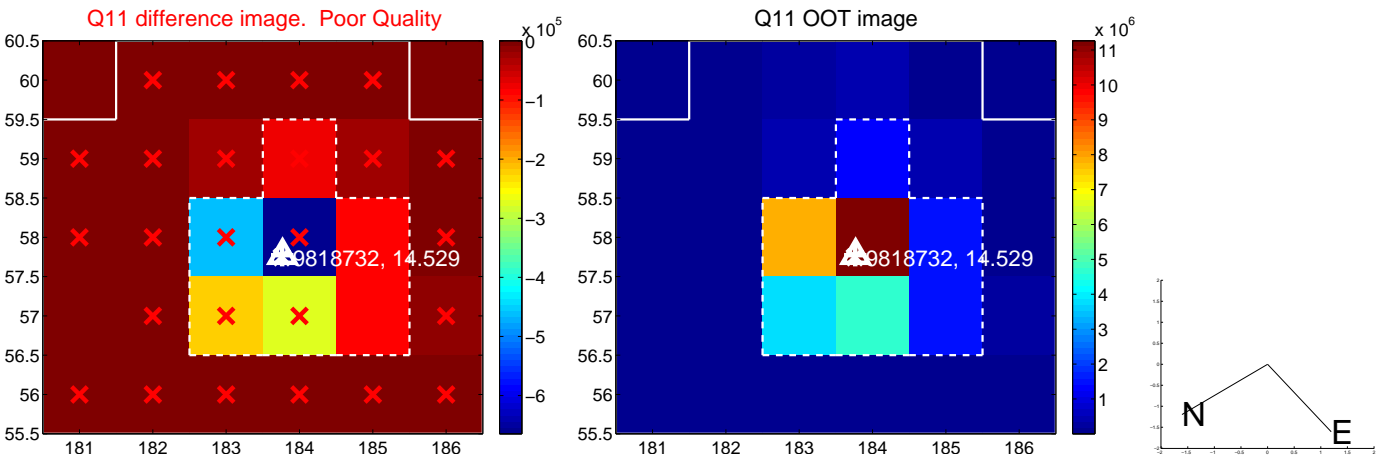
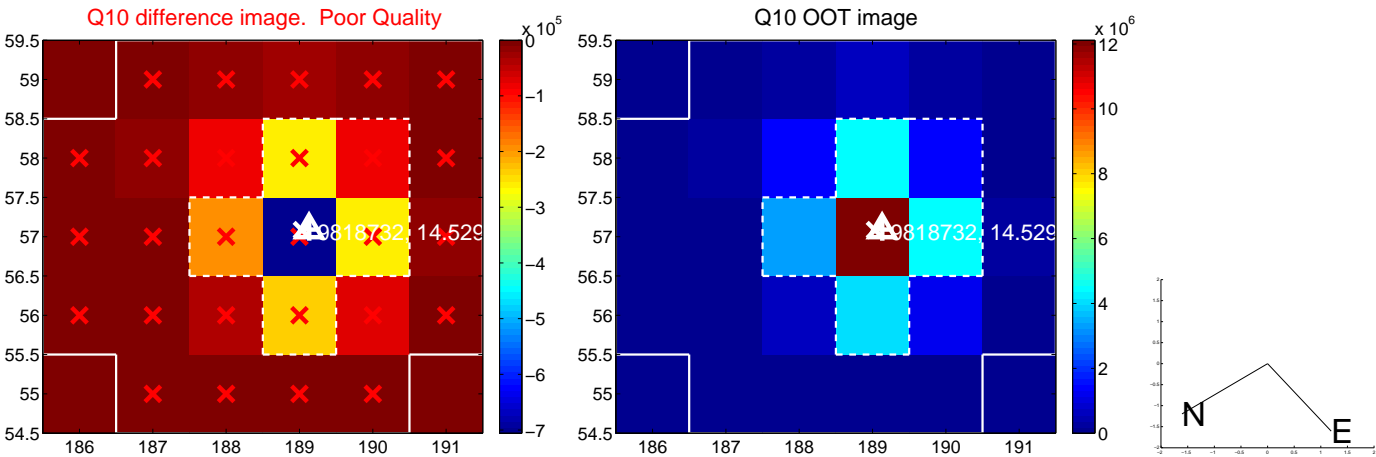
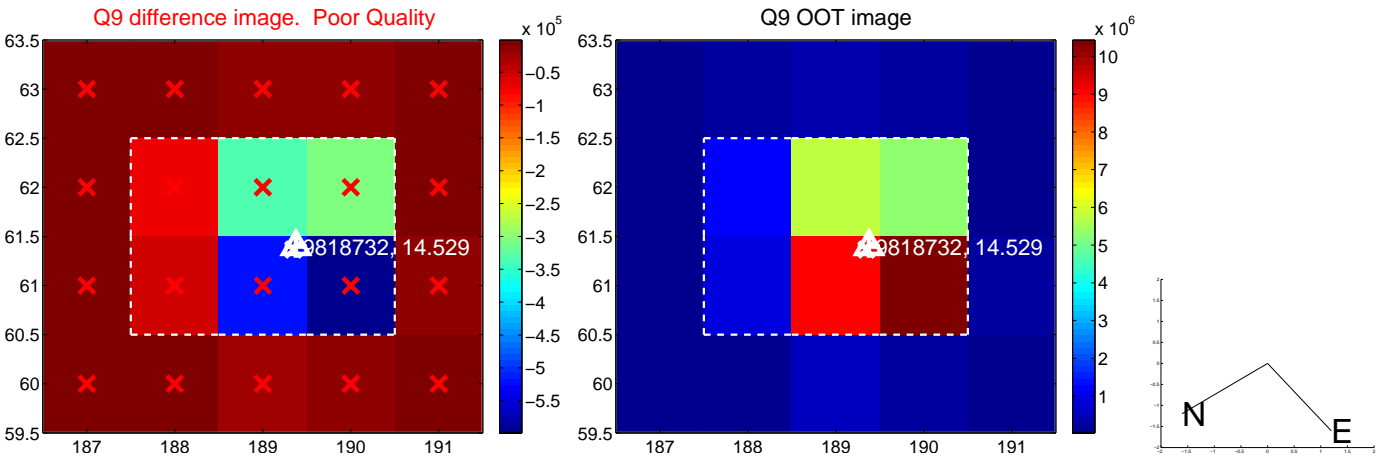
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



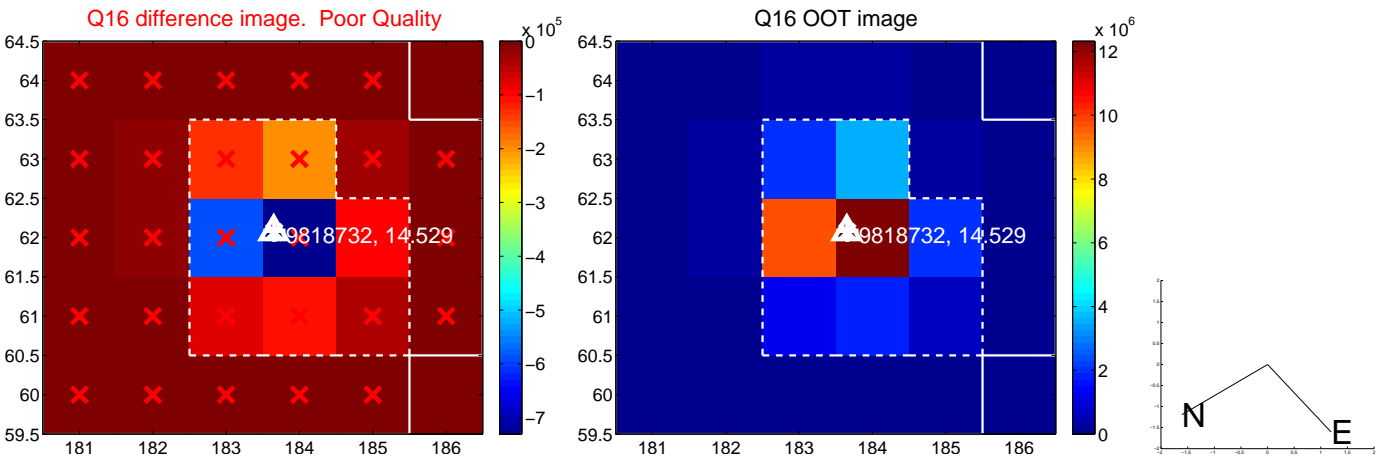
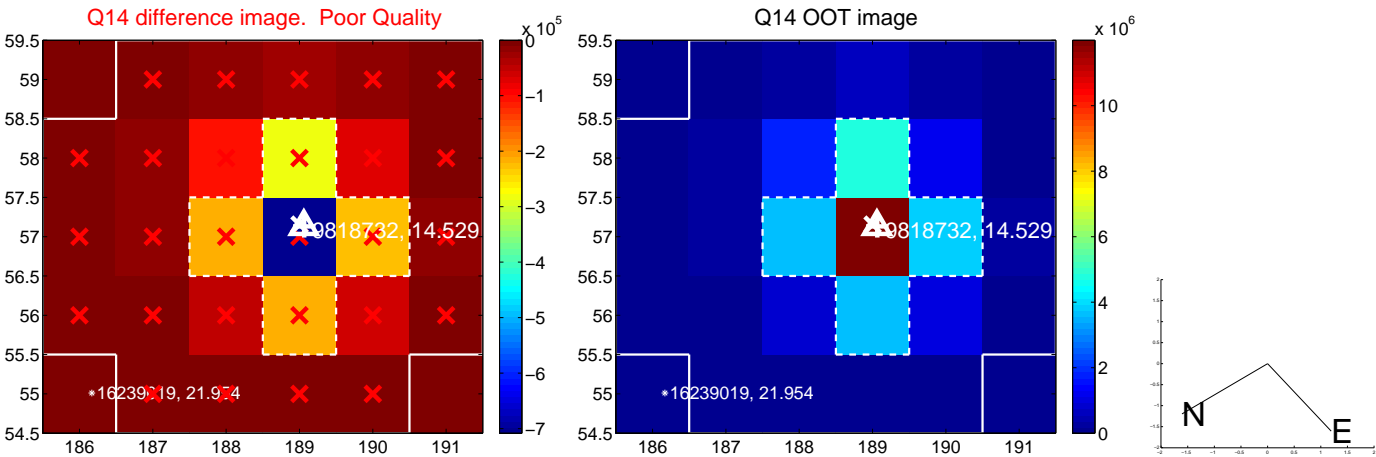
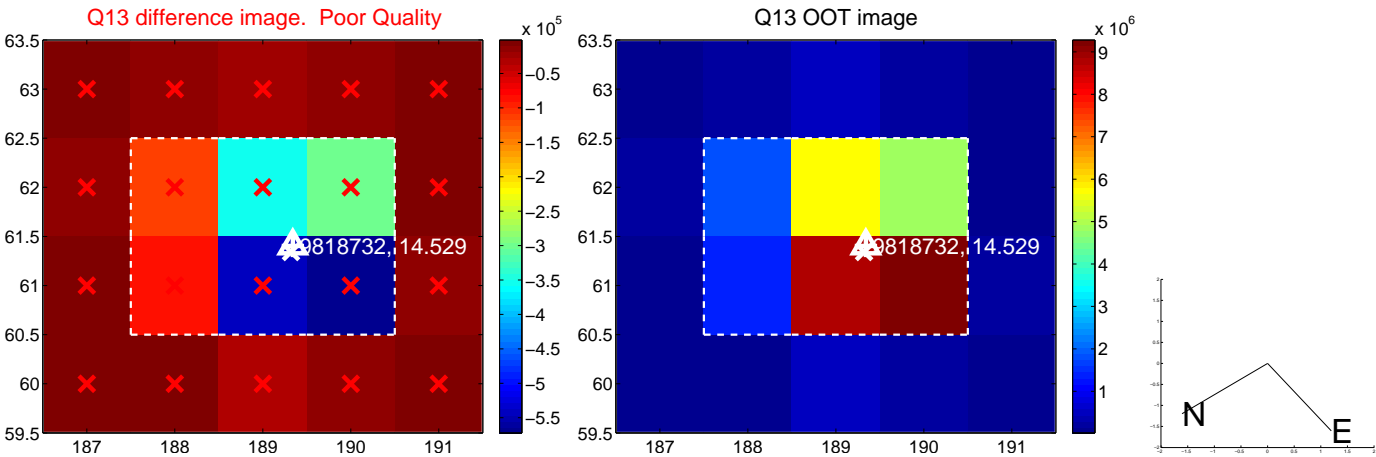
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



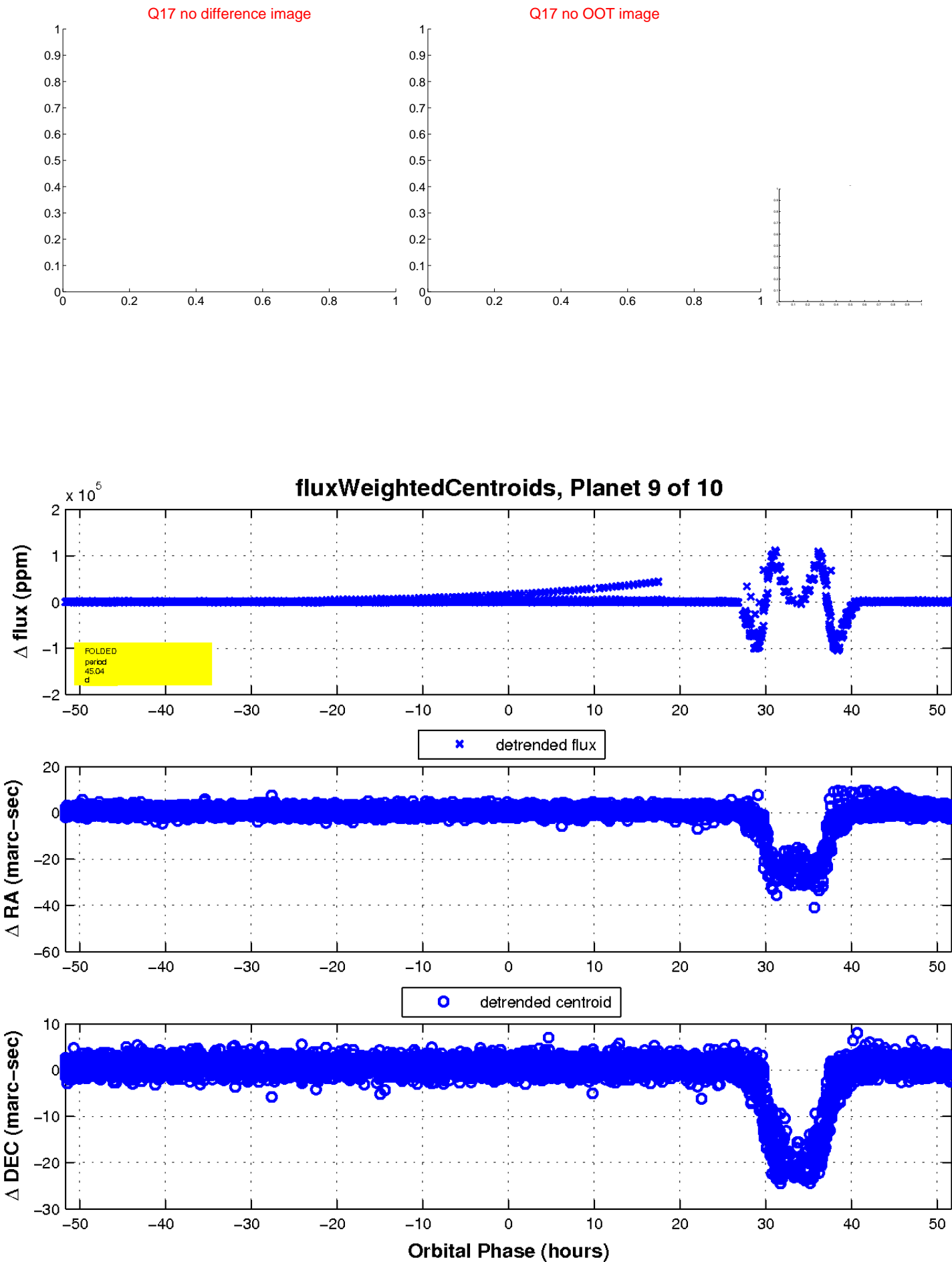
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

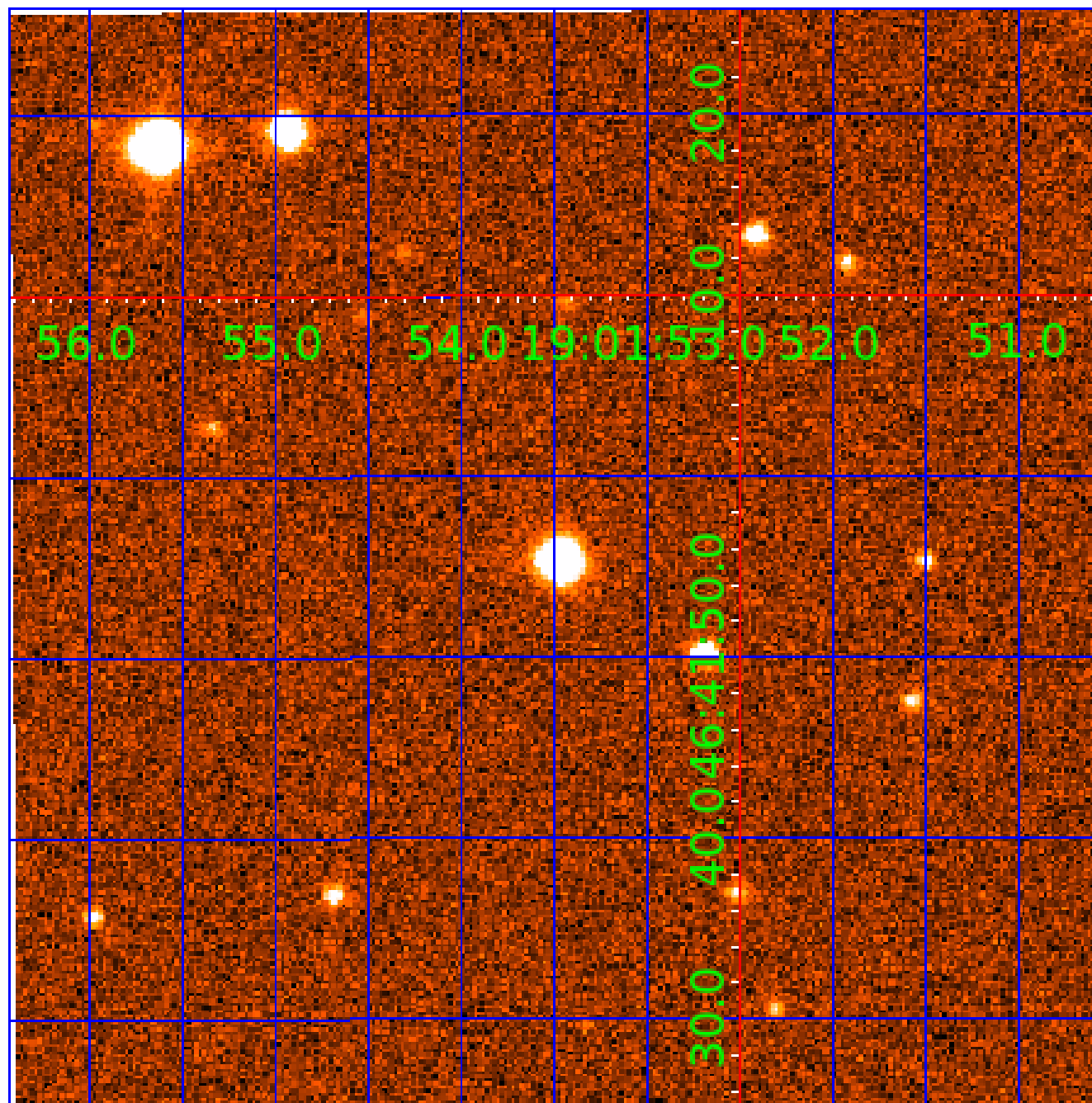


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009818732

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})
009818732-01	OBS	7233.01	45.035186	132.638245	415828.1	6.000	14502.9	-1.0	1.15	6484	62.91	30.72
009818732-02	OBS	No	45.035876	146.025633	341823.0	7.500	12763.8	-1.0	1.15	6484	59.56	30.72
009818732-03	OBS	No	448.952558	178.160811	18653.0	3.500	189.6	-1.0	1.15	6484	15.85	1.43
009818732-04	OBS	No	45.036426	148.109856	5314.4	15.000	187.1	-1.0	1.15	6484	8.45	30.72
009818732-05	OBS	No	308.580812	241.804540	11597.9	4.500	175.0	-1.0	1.15	6484	12.49	2.36
009818732-07	OBS	No	45.031979	175.613990	2642.4	30.842	151.1	92.8	1.15	6484	10.87	30.72
009818732-08	OBS	No	45.039596	134.541541	2656.9	30.113	176.6	79.7	1.15	6484	10.91	30.72
009818732-09	OBS	No	45.036426	143.900542	3446.2	15.000	128.1	-1.0	1.15	6484	6.80	30.72
009818732-10	OBS	No	407.554165	365.604668	5181.3	15.000	127.3	-1.0	1.15	6484	8.34	1.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009818732-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
009818732-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS
009818732-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
009818732-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009818732-07	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
009818732-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009818732-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
009818732-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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.

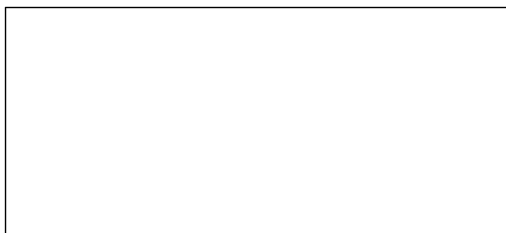
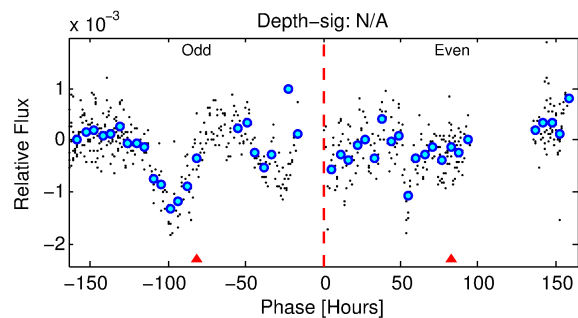
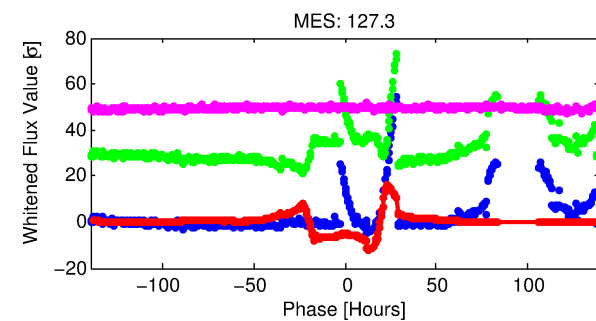
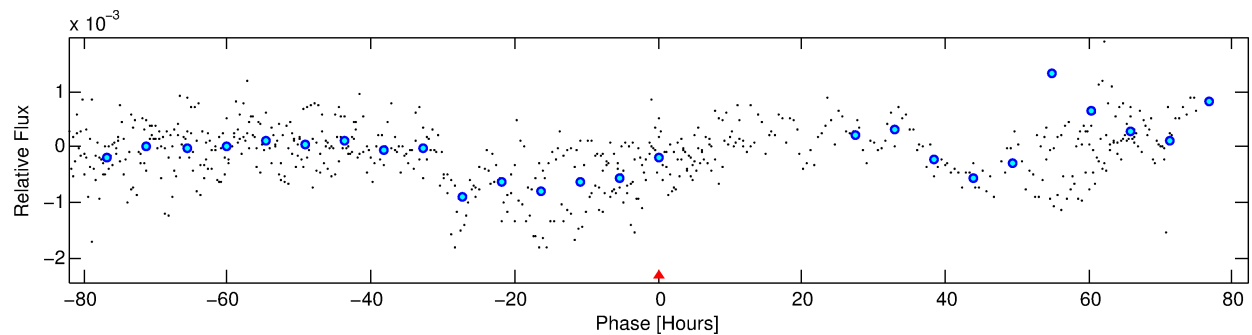
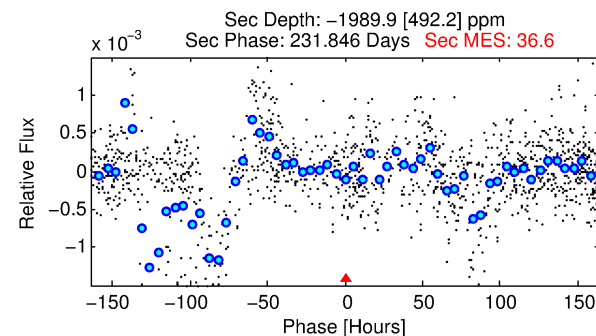
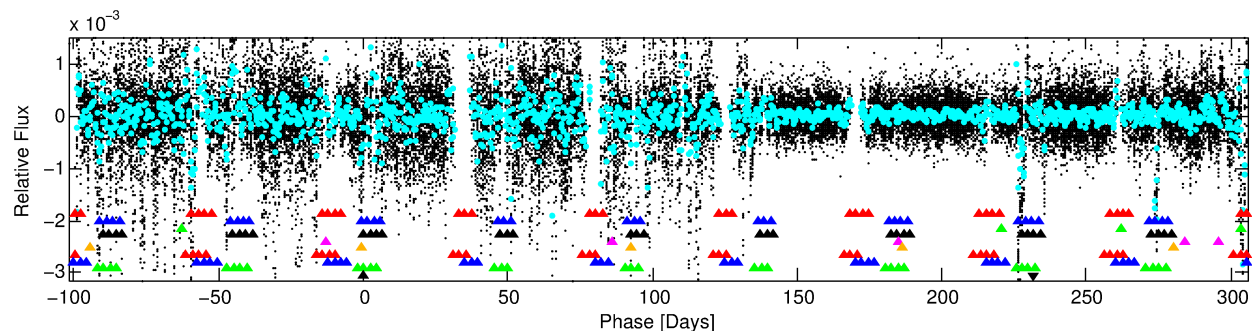
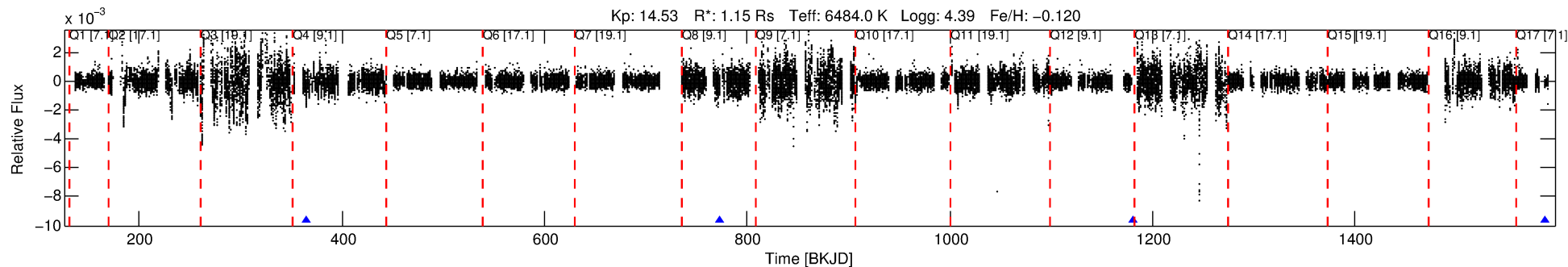
Ephemeris Match Information For 009818732-10

No Significant Match Found

DV One-Page Summary

KIC: 9818732 Candidate: 10 of 10 Period: 407.554 d
KOI: K07233 Corr: No Ephemeris Match

Kp: 14.53 R*: 1.15 Rs Teff: 6484.0 K Logg: 4.39 Fe/H: -0.120



TPS TCE Results:

Period = 407.55417 d
Epoch = 365.6047 BKJD

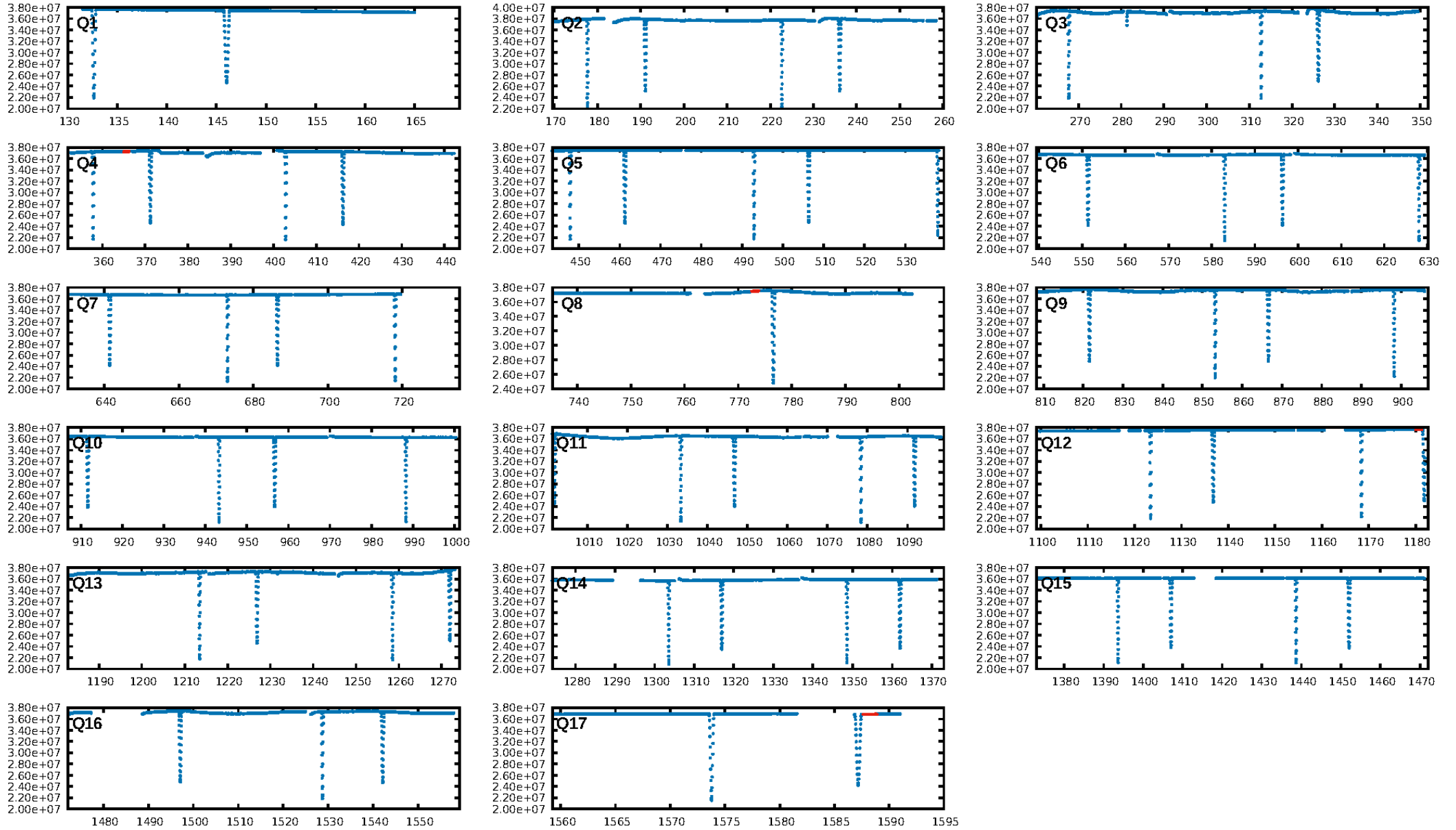
DV fit results are unavailable

DV Diagnostic Results:

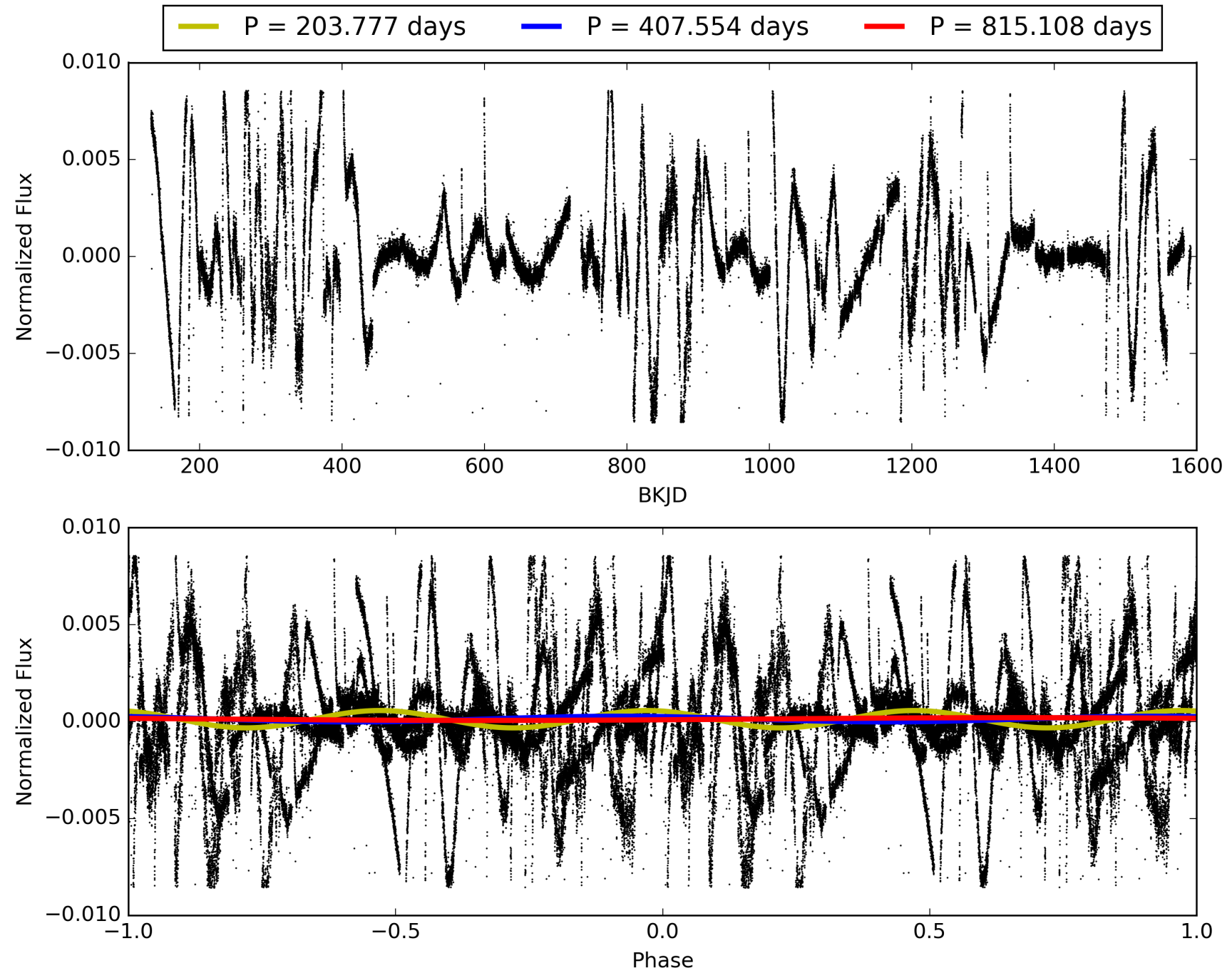
ShortPeriod-sig: 100.0% [132.89σ]
LongPeriod-sig: 100.0% [64.50σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.07208

Centroid-sig: N/A
Centroid-so: 1.023 arcsec [1.30σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [2/2]

TCE 009818732-10, PDC Light Curves

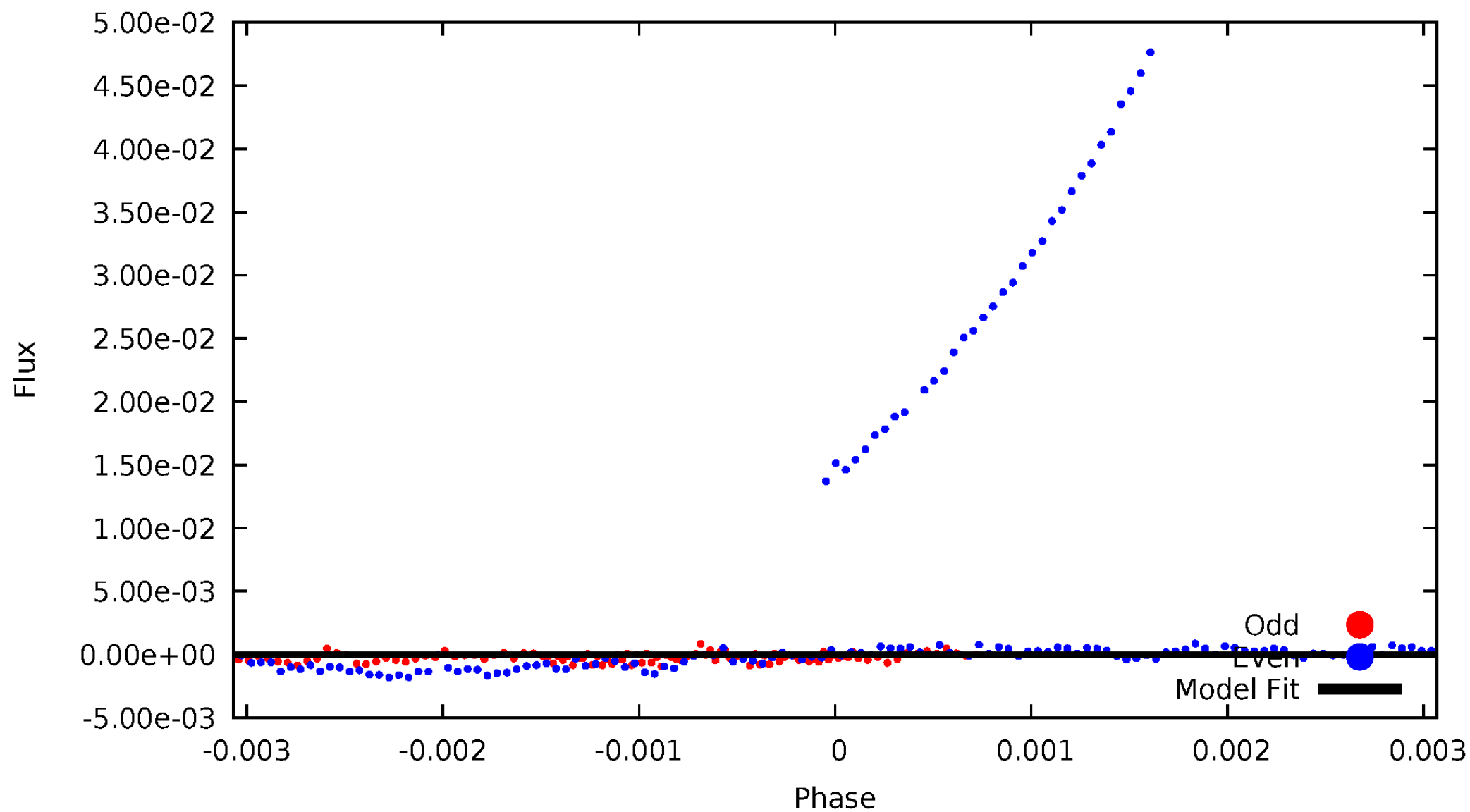


TCE 009818732-10



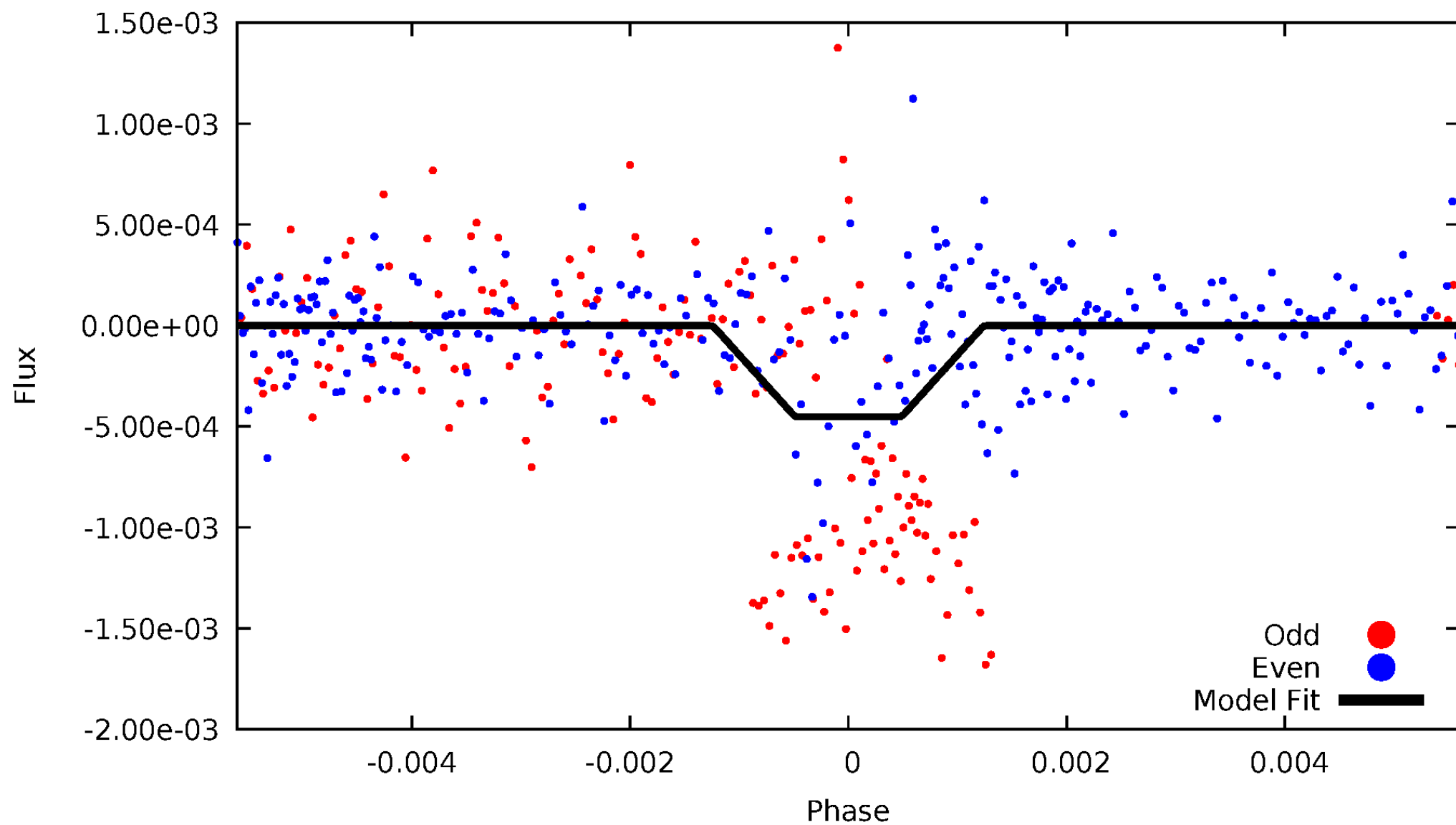
DV Odd/Even

TCE 009818732-10



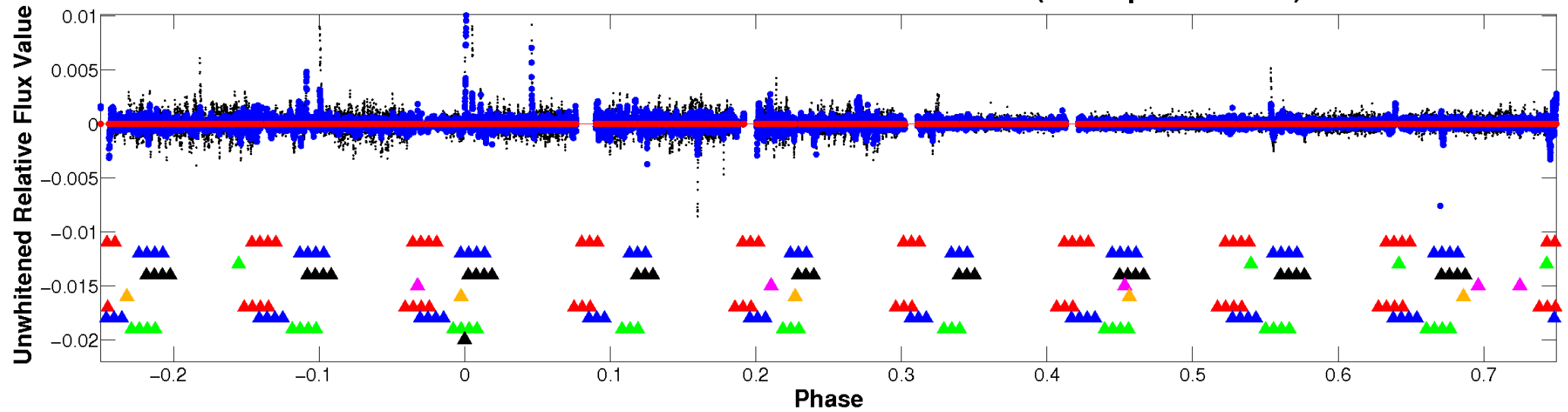
ALT Odd/Even

TCE 009818732-10

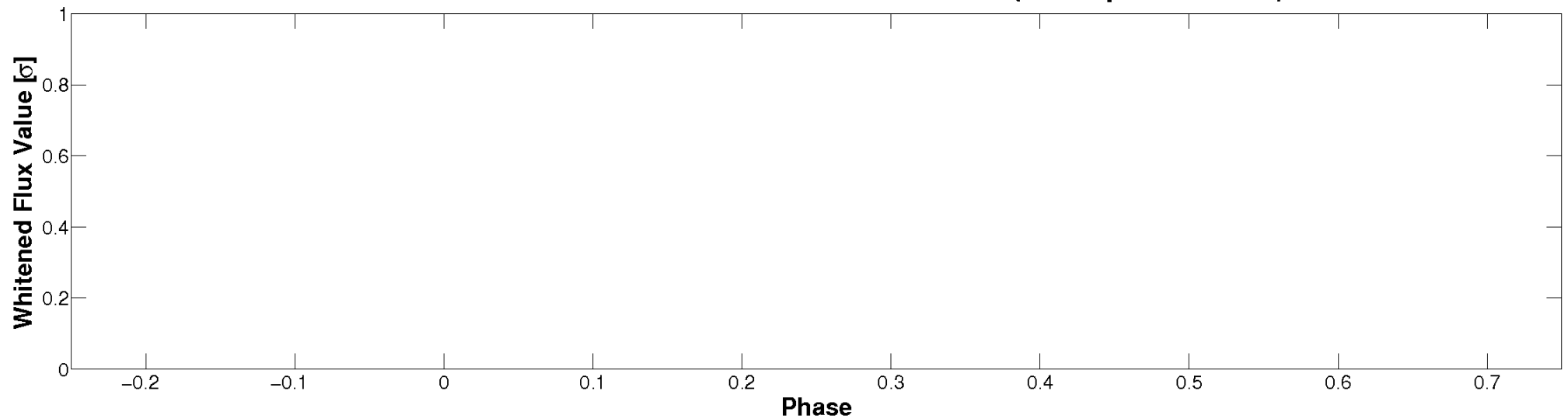


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

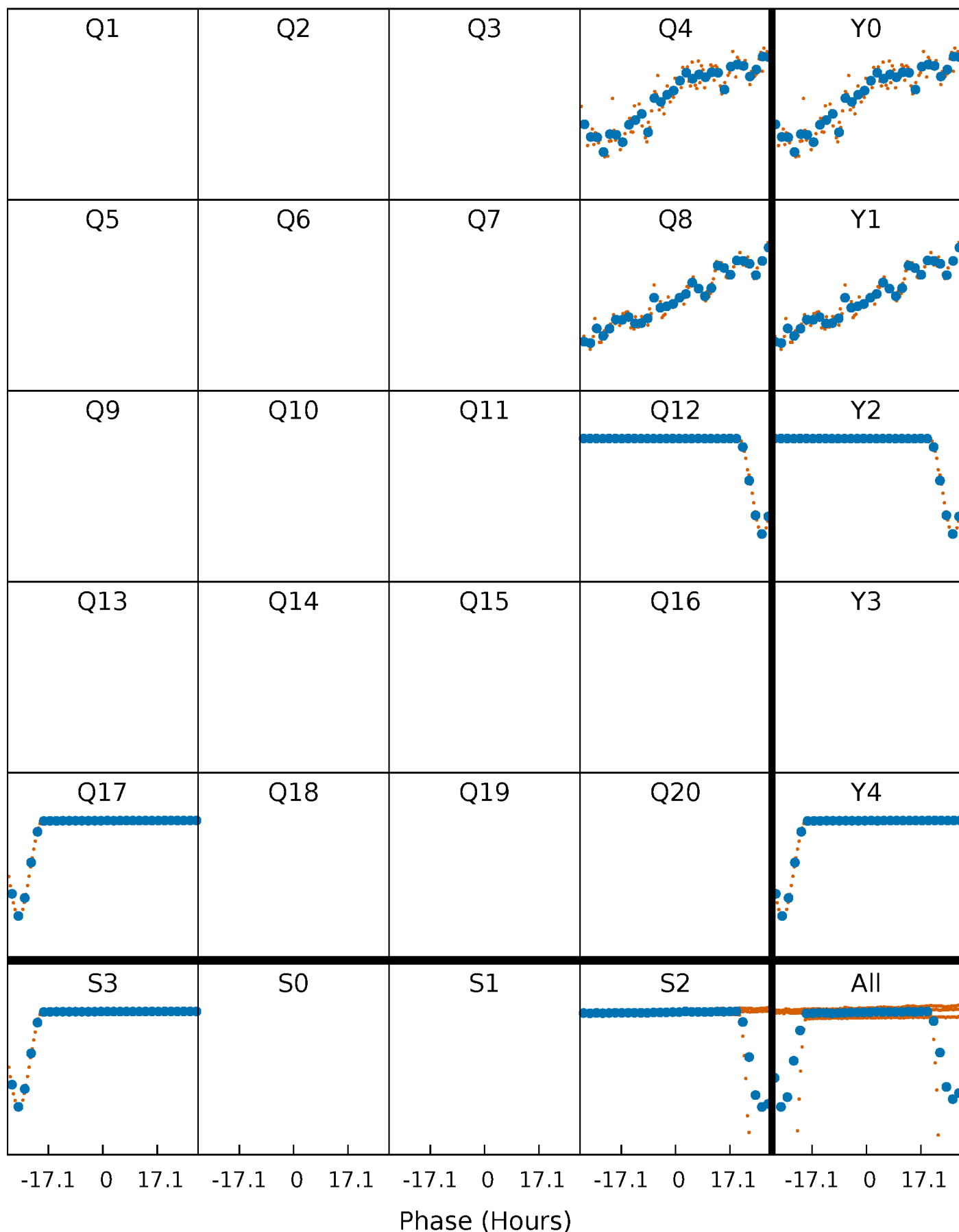


Planet 10 : Phased Whitened Flux Time Series (TPS Epoch/Period)



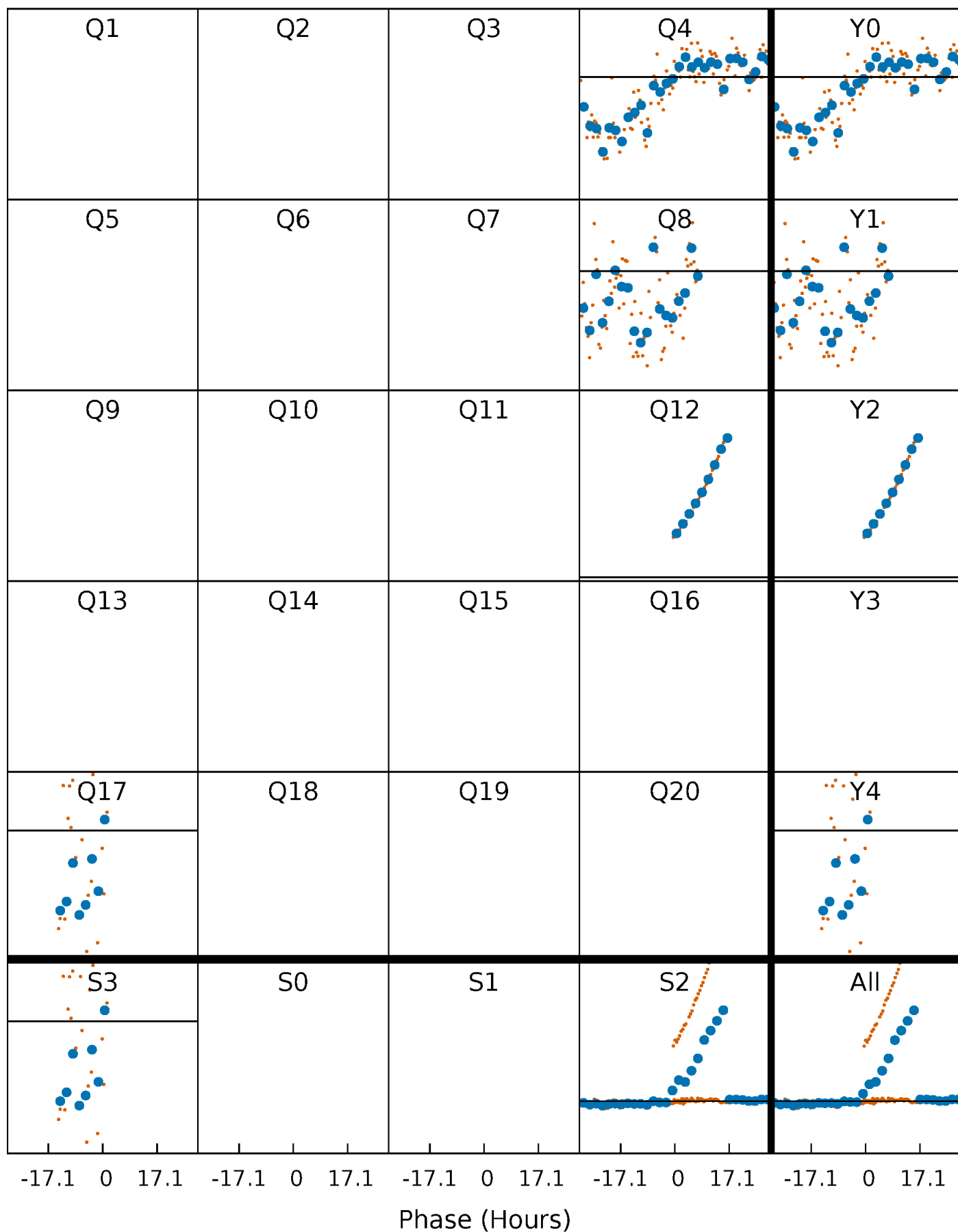
PDC Quarter-Phased Transit Curves

TCE 009818732-10 $P=407.554165$ Days $T_0=365.604668$ (BKJD)



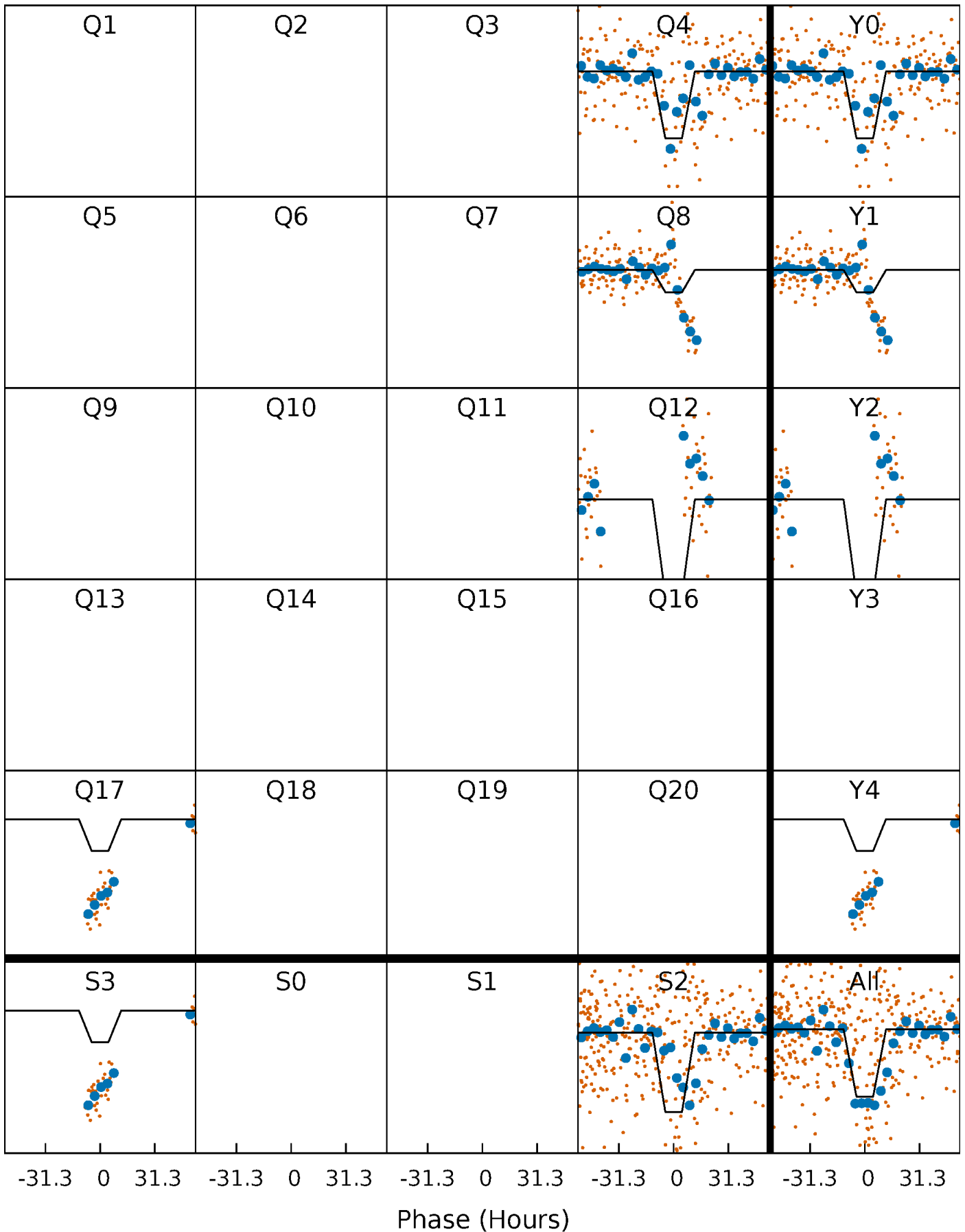
DV Quarter-Phased Transit Curves

TCE 009818732-10 P=407.554165 Days $T_0=365.604668$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

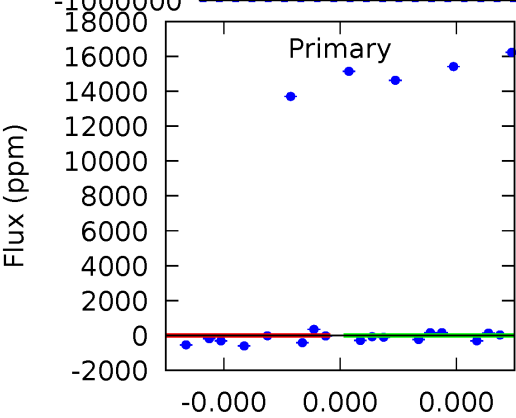
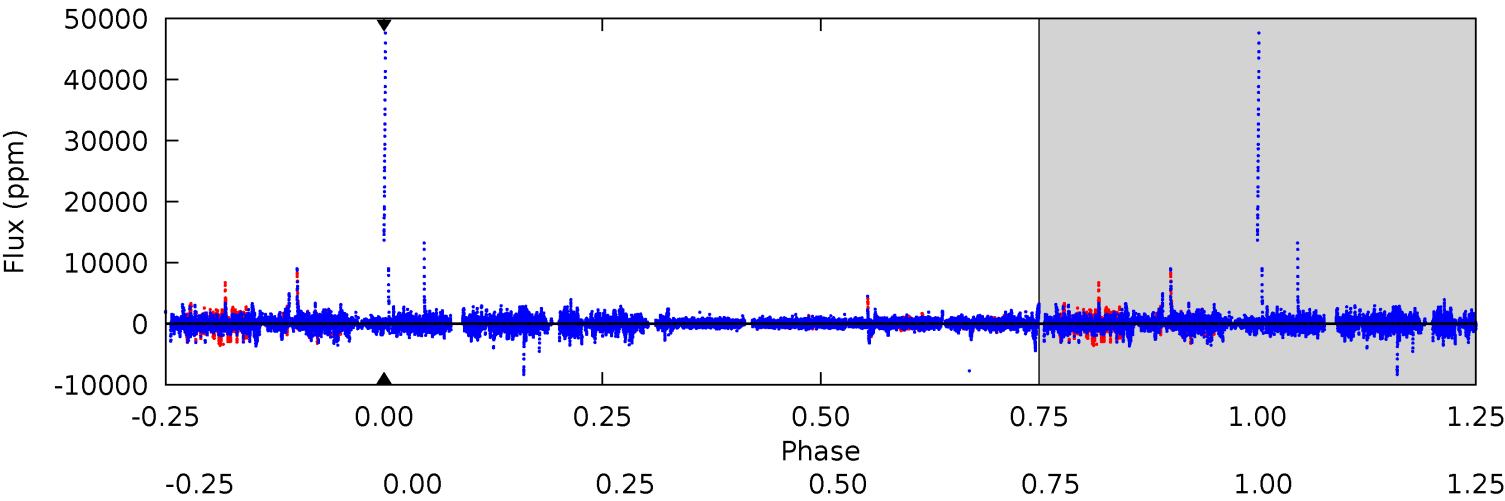
TCE 009818732-10 $P=407.554165$ Days $T_0=365.364547$ (BKJD)



DV Model-Shift Uniqueness Test

009818732-10, P = 407.554165 Days, E = 365.604668 Days

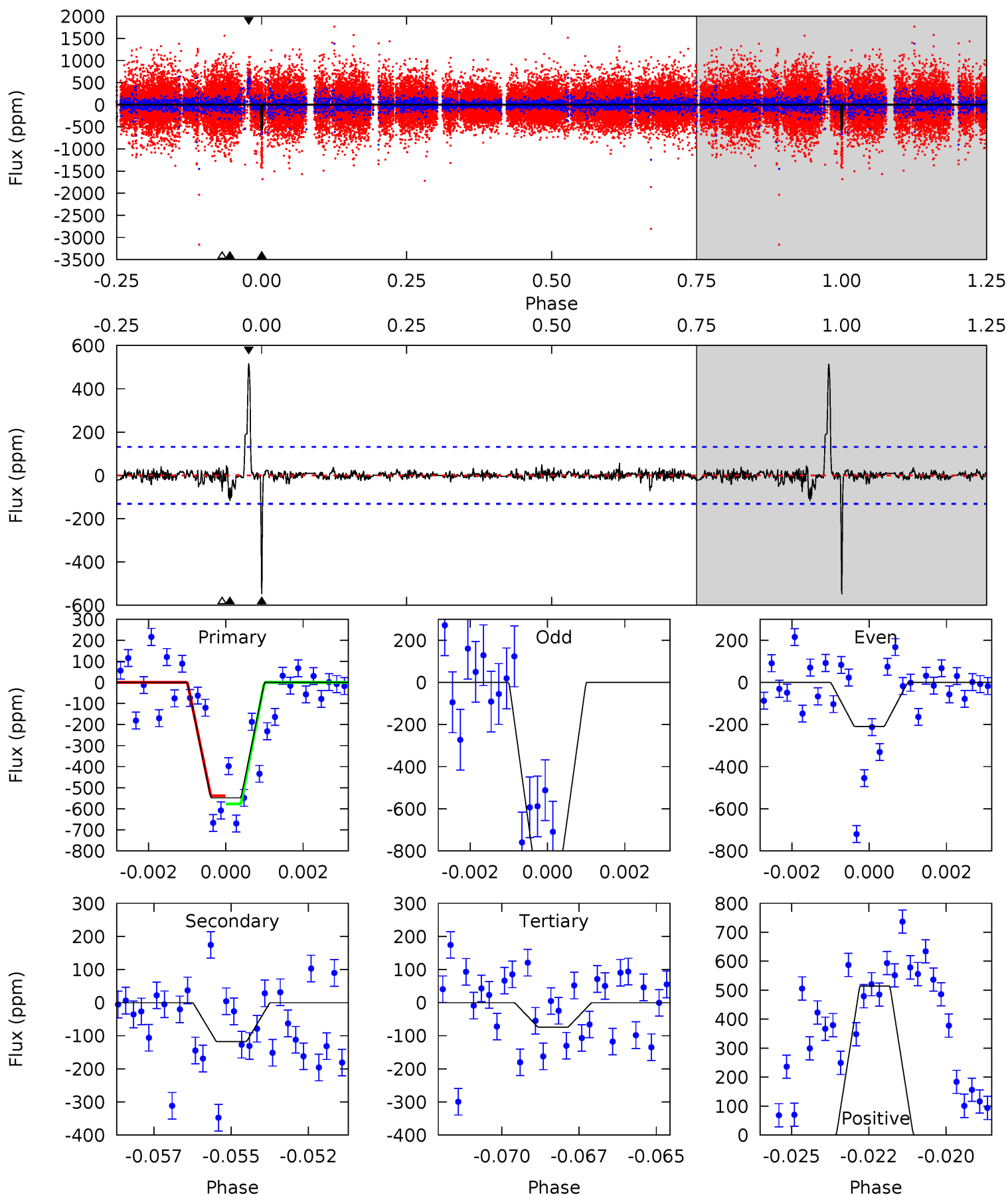
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009818732-10, P = 407.554165 Days, E = 365.364547 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	4.74	2.98	20.7	5.29	3.02	1.06	19.1	1.34	1.76	-16.0	12.2	1.15	0.48	0.76



Stellar Parameters For KIC 009818732

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+145}_{-193}	$4.386^{+0.060}_{-0.180}$	$-0.120^{+0.250}_{-0.300}$	$1.153^{+0.339}_{-0.145}$	$1.178^{+0.164}_{-0.148}$	$1.084^{+0.353}_{-0.522}$
	+2%/-3%	+1%/-4%	+208%/-250%	+29%/-13%	+14%/-13%	+33%/-48%
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 009818732-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$12.77^{+11.65}_{-8.31}$	409^{+26}_{-19}	4088^{+14914}_{-20331}	$4910^{+722298}_{-535087}$
Alt.	-118 ± 25	$9.80^{+10.68}_{-7.12}$	408^{+26}_{-19}	3080^{+1616}_{-550}	848^{+10115}_{-661}

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 $A_{obs} \gg 1.0$

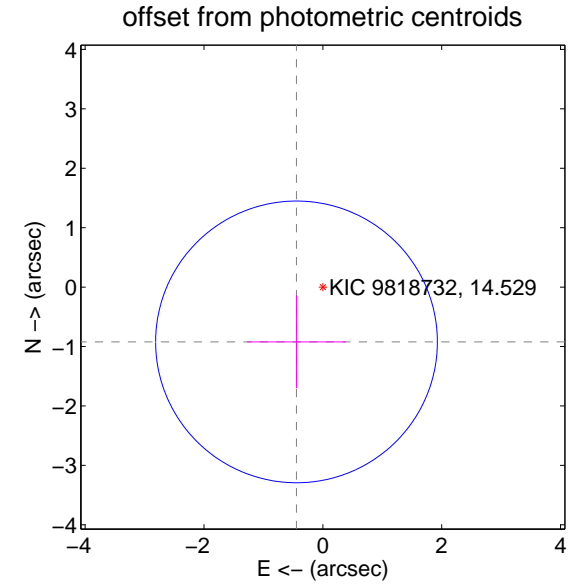
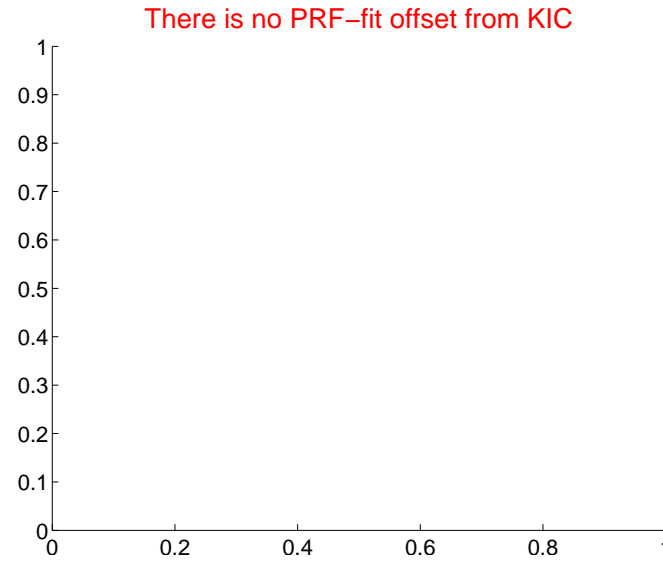
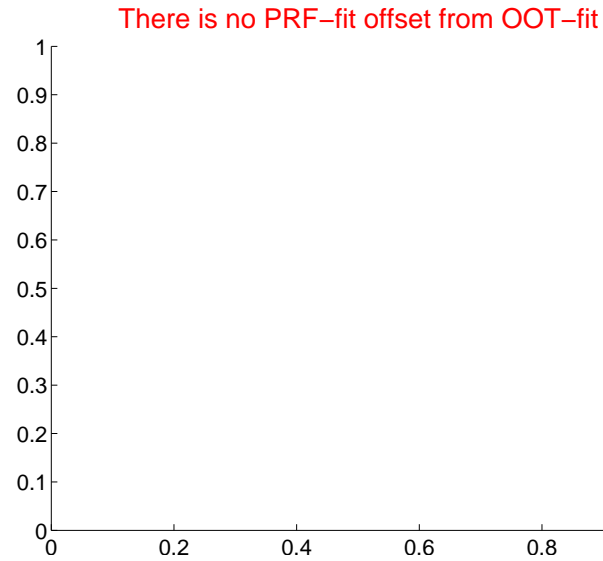
DV Centroid Data

Supplemental centroid analysis for 009818732-10. Kepler magnitude: 14.53. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

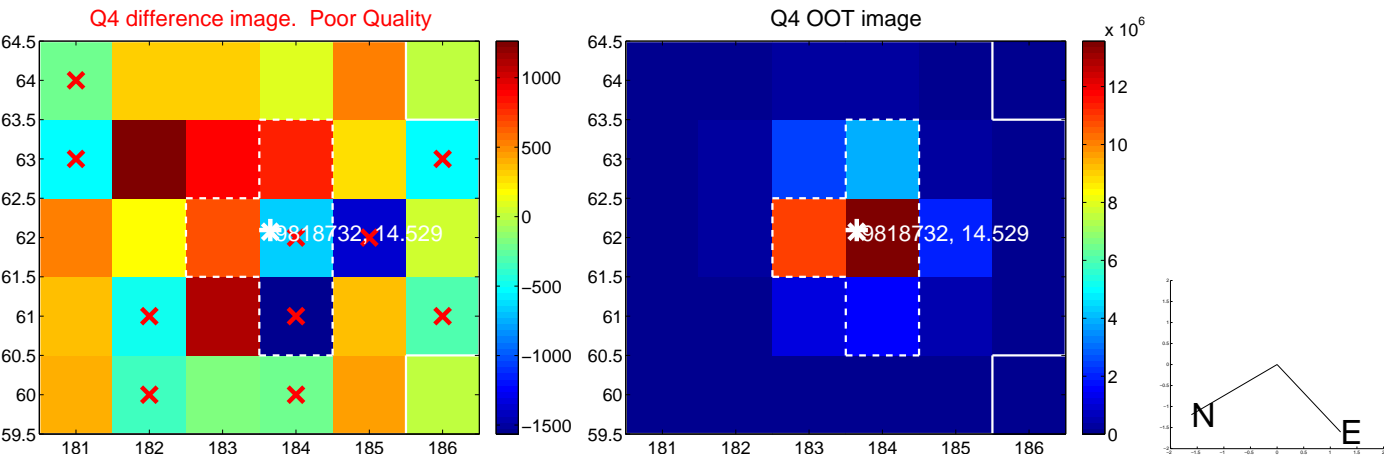
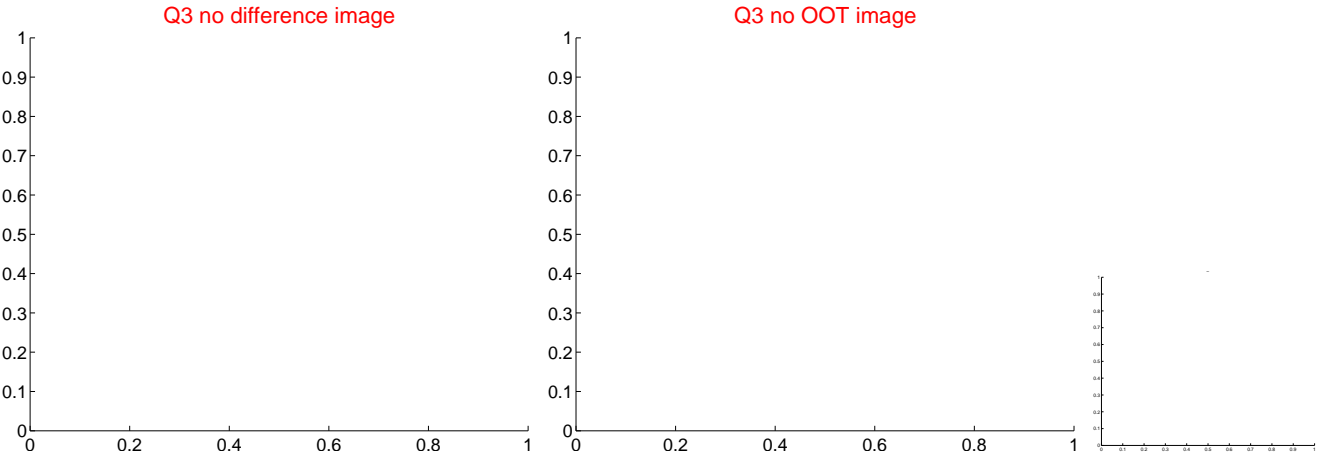
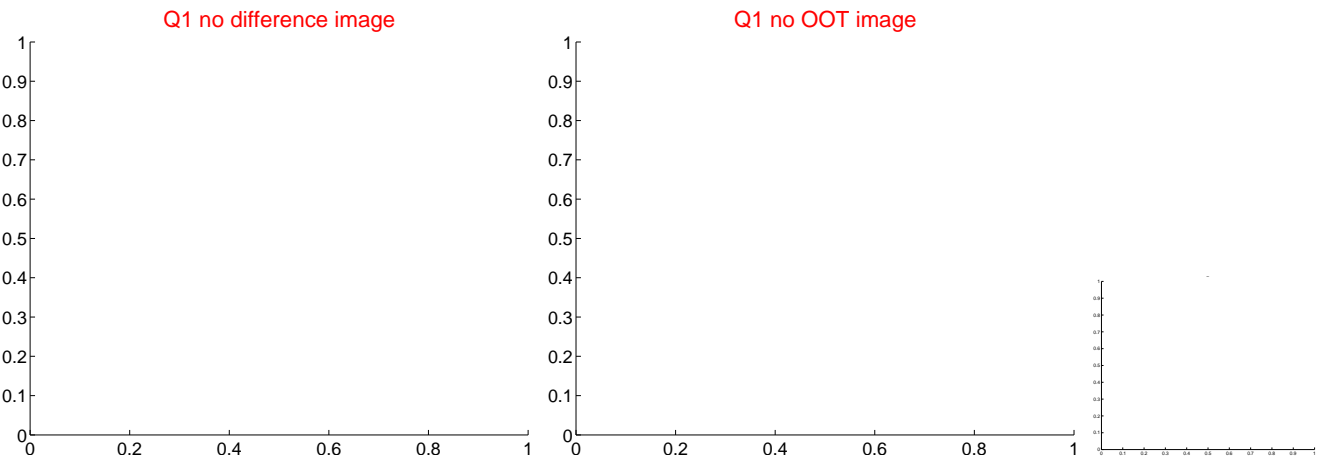
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	1.02 ± 0.79	1.30	0.44 ± 0.83	-0.92 ± 0.78

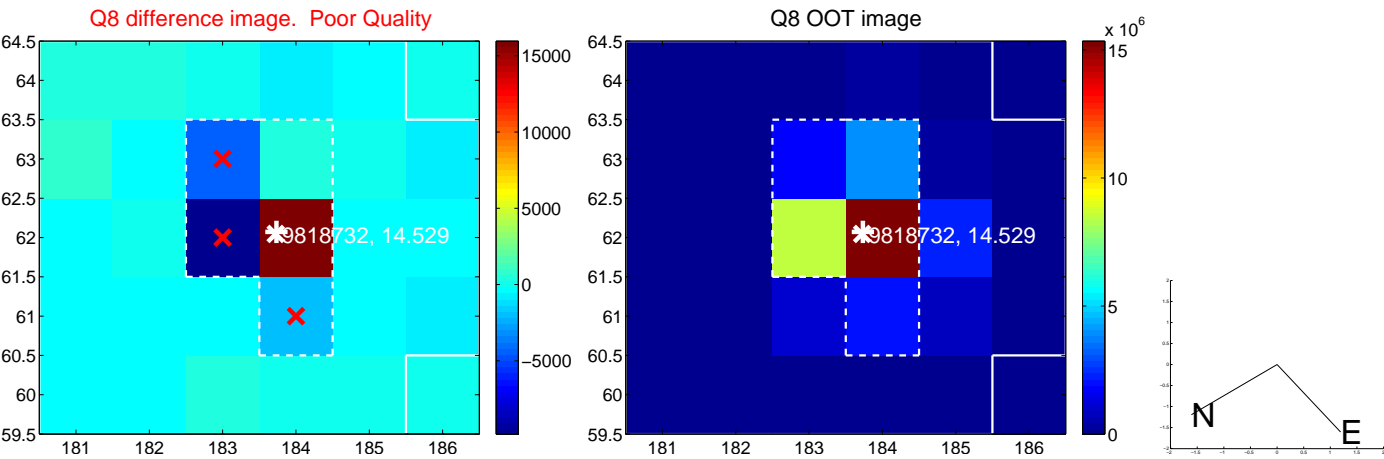
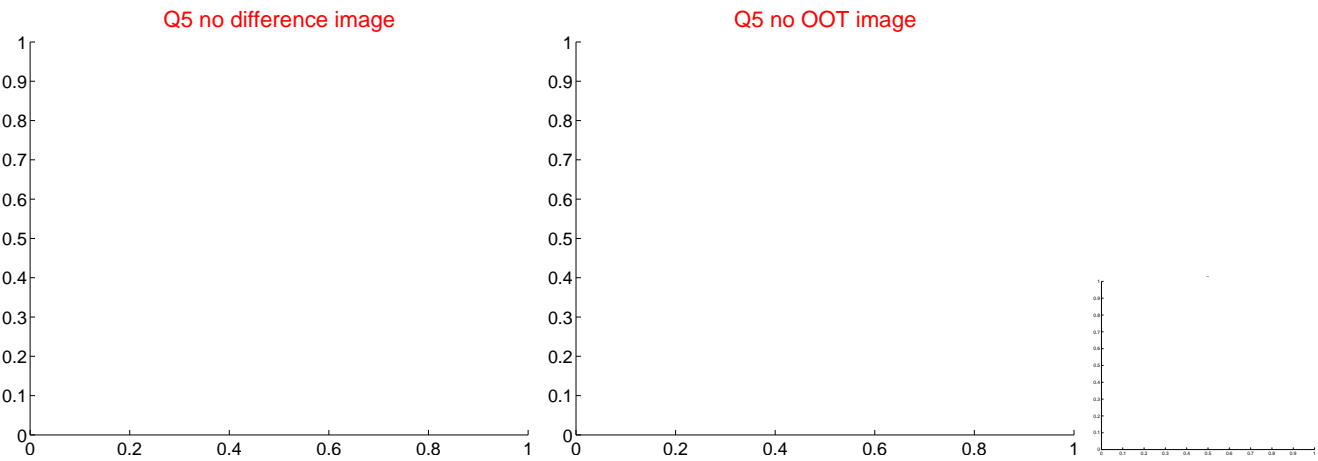


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

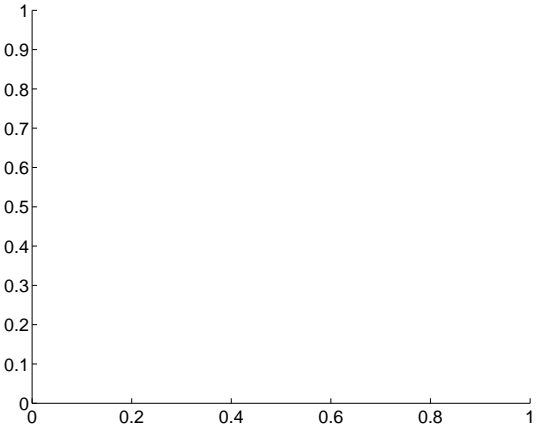


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

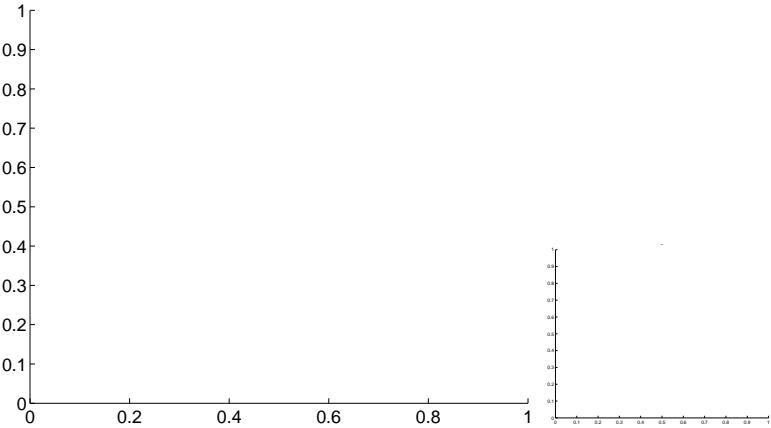


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

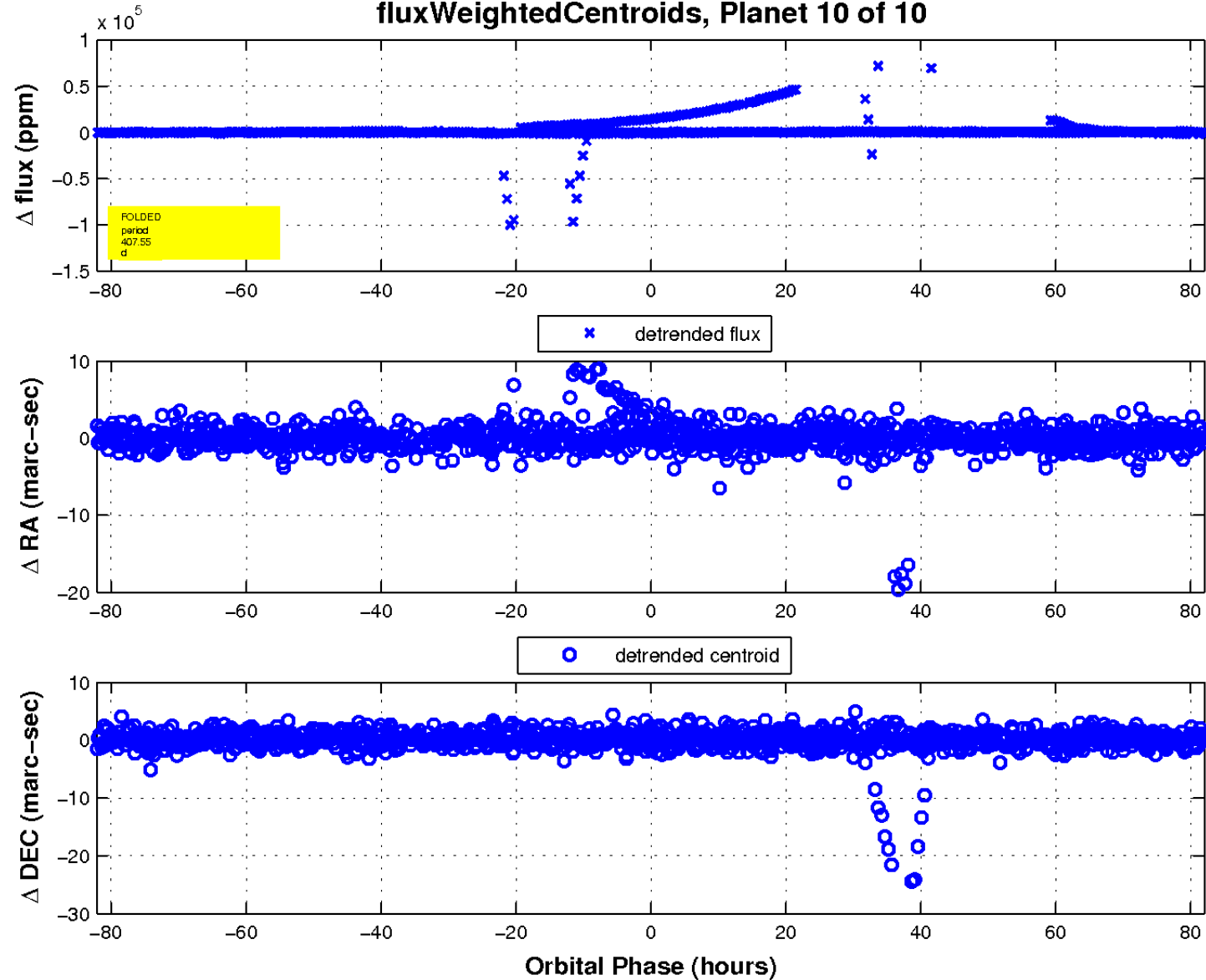
Q17 no difference image



Q17 no OOT image



fluxWeightedCentroids, Planet 10 of 10



UKIRT Image

Declination

