

KIC 009588880

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})
009588880-01	OBS	No	335.054280	350.128812	1271.6	3.491	15.4	6.3	0.53	3900	2.02	0.10
009588880-02	OBS	No	405.640147	376.726765	2125.4	15.727	12.3	6.5	0.53	3900	2.44	0.08
009588880-03	OBS	No	250.335064	166.474043	1493.7	12.033	12.6	7.6	0.53	3900	2.24	0.14
009588880-04	OBS	No	441.771666	471.144684	1675.3	4.205	14.1	9.0	0.53	3900	2.20	0.07
009588880-05	OBS	No	212.404286	138.498794	1153.0	3.433	12.8	7.0	0.53	3900	1.83	0.18
009588880-06	OBS	No	497.614162	355.791575	376.2	5.293	12.8	1.8	0.53	3900	1.04	0.06
009588880-07	OBS	7946.01	77.976209	175.354954	1665.6	2.000	9.2	-1.0	0.53	3900	2.15	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009588880-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009588880-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
009588880-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009588880-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES
009588880-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-07	OBS	FP	0.23	1	0	0	0	LPP_DV—CENT_NOFITS

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

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

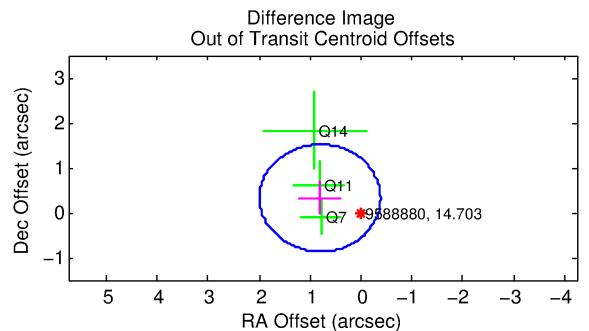
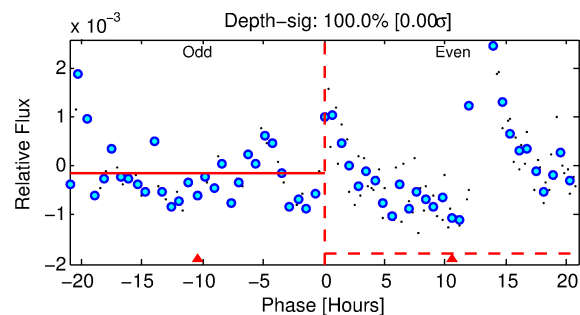
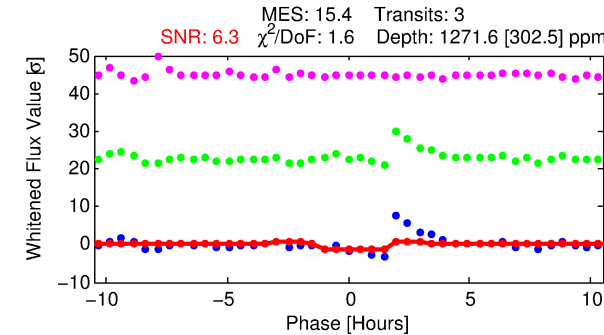
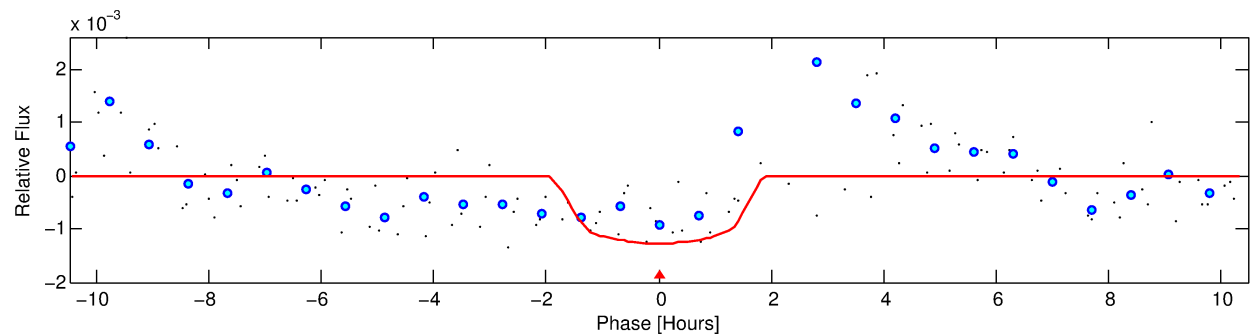
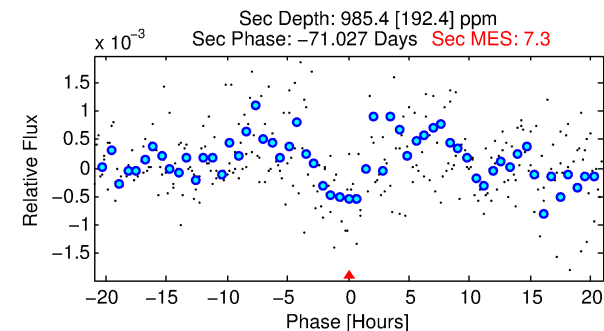
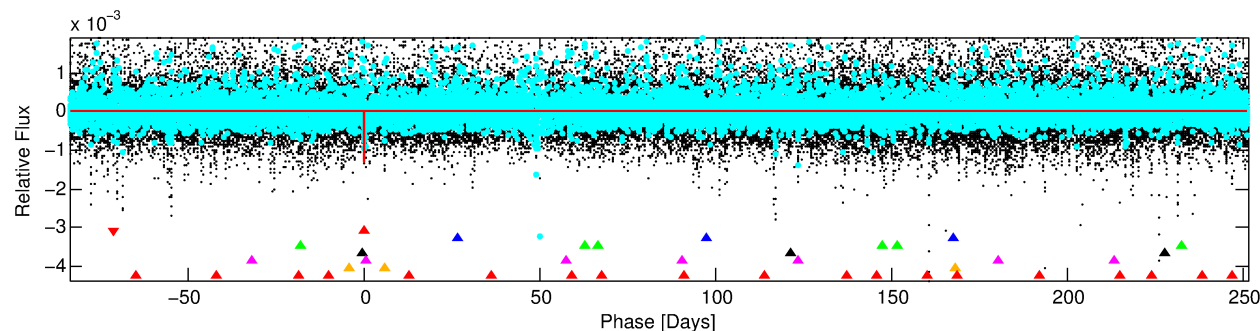
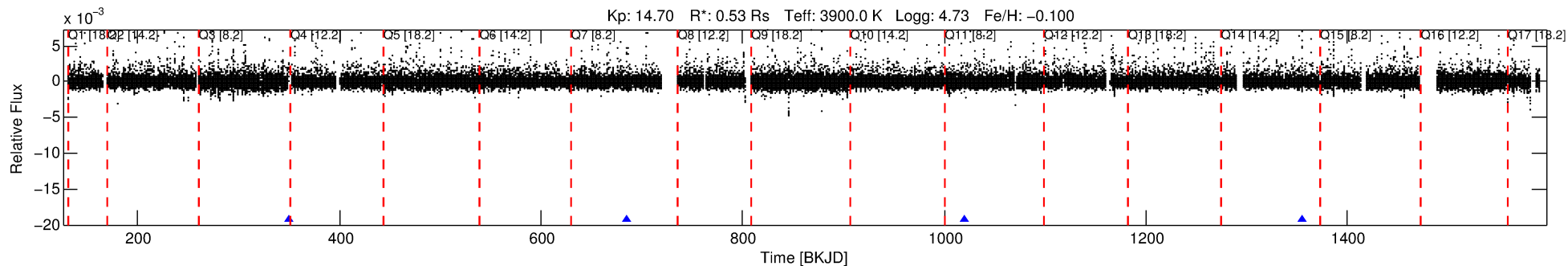
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009588880-01

No Significant Match Found

DV One-Page Summary

KIC: 9588880 Candidate: 1 of 7 Period: 335.054 d



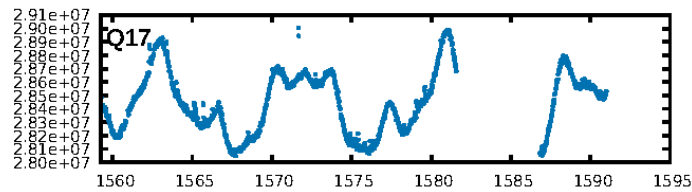
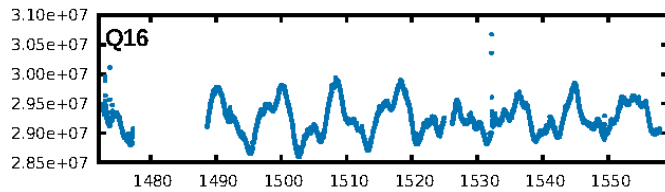
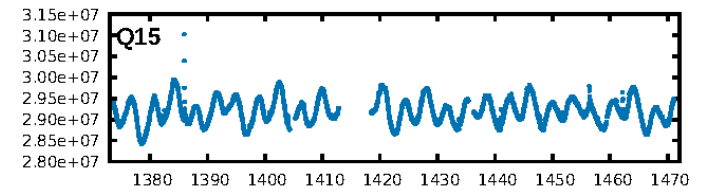
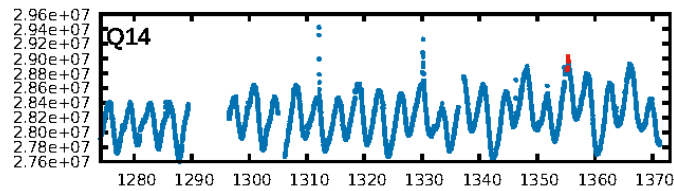
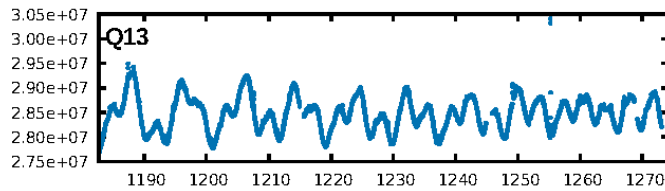
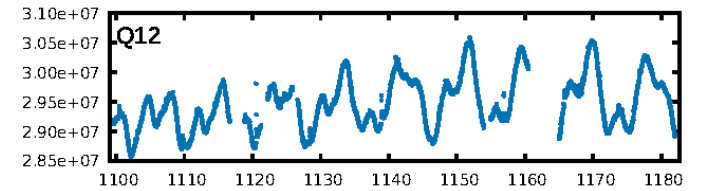
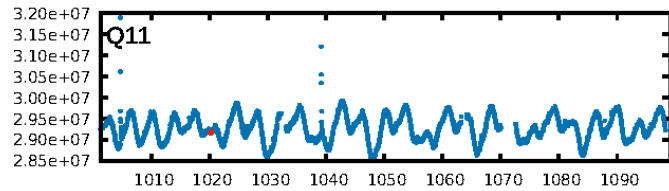
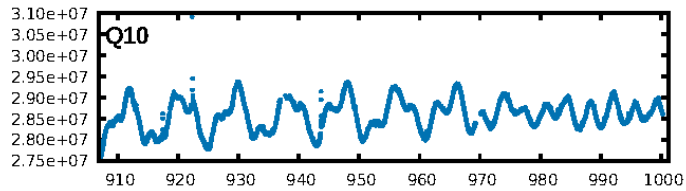
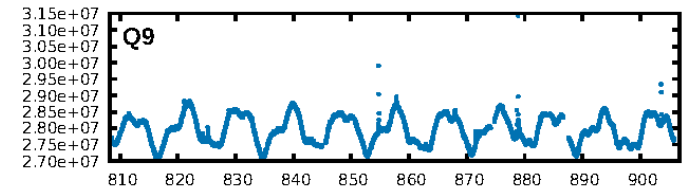
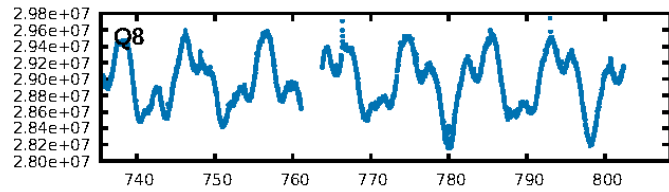
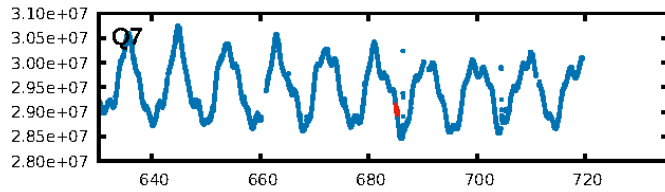
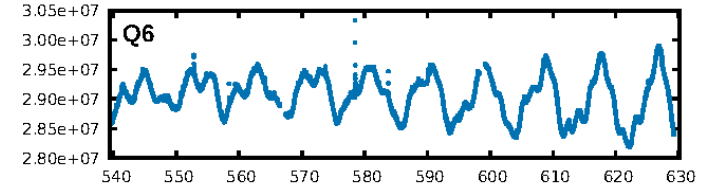
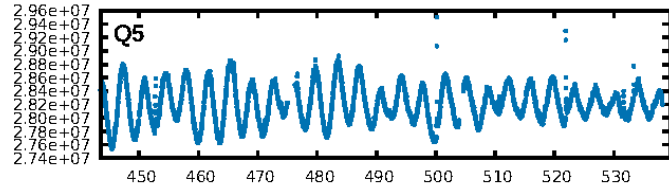
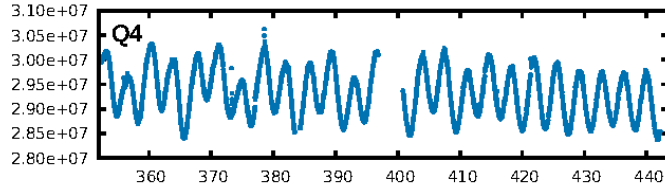
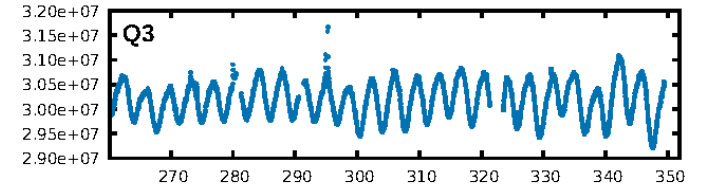
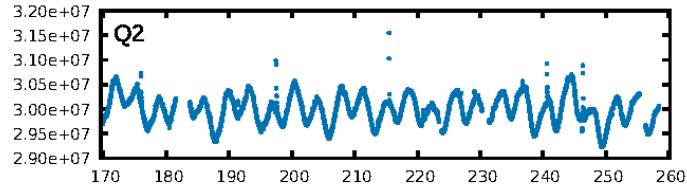
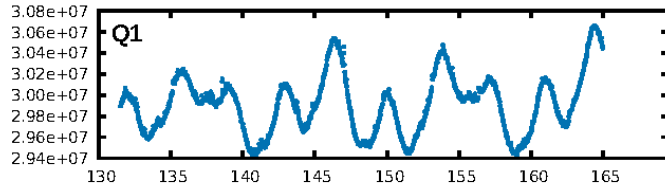
DV Fit Results:

Period = 335.05428 [0.00687] d
Epoch = 350.1288 [0.0164] BKJD
Rp/R* = 0.0347 [0.0401]
a/R* = 568.22 [2752.04]
b = 0.69 [3.78]
Seff = 0.10 [0.03]
Teq = 143 [10] K
Rp = 2.02 [2.37] Re
a = 0.7759 [0.1120] AU
Ag = 79714.53 [185549.37] [0.43 σ]
Teffp = 3708 [2158] K [1.65 σ]

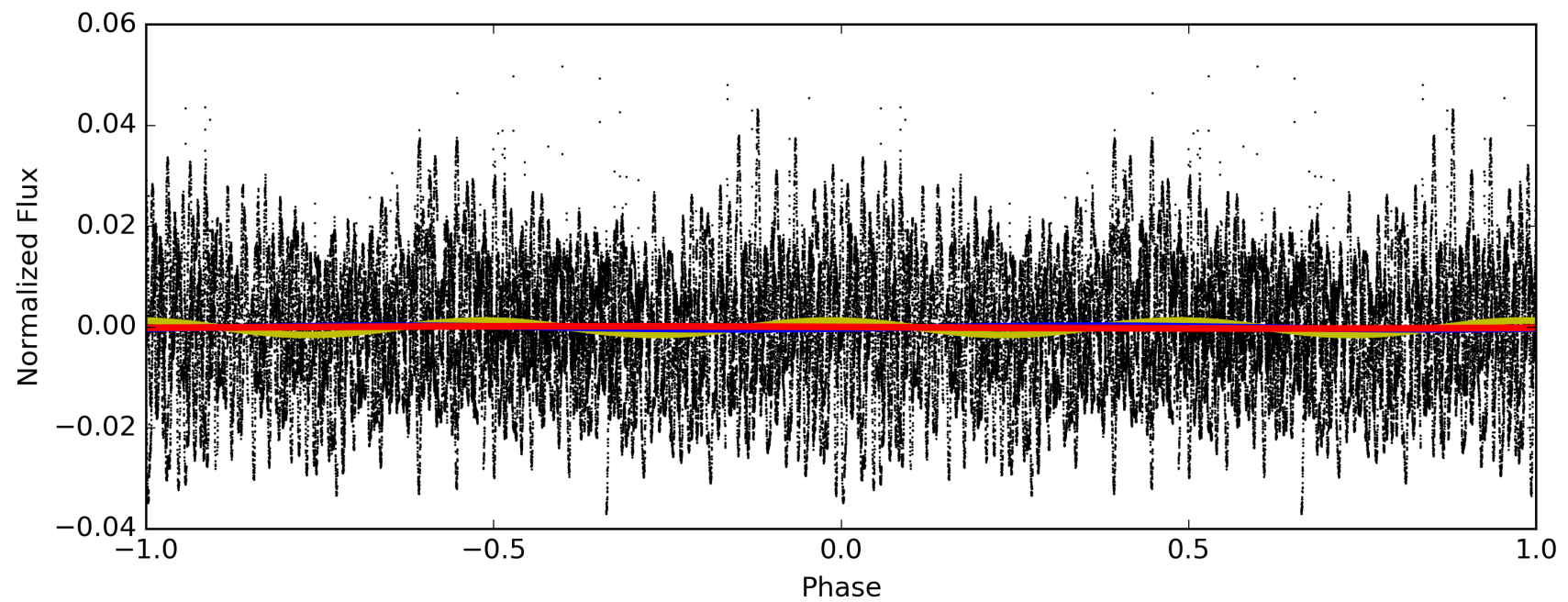
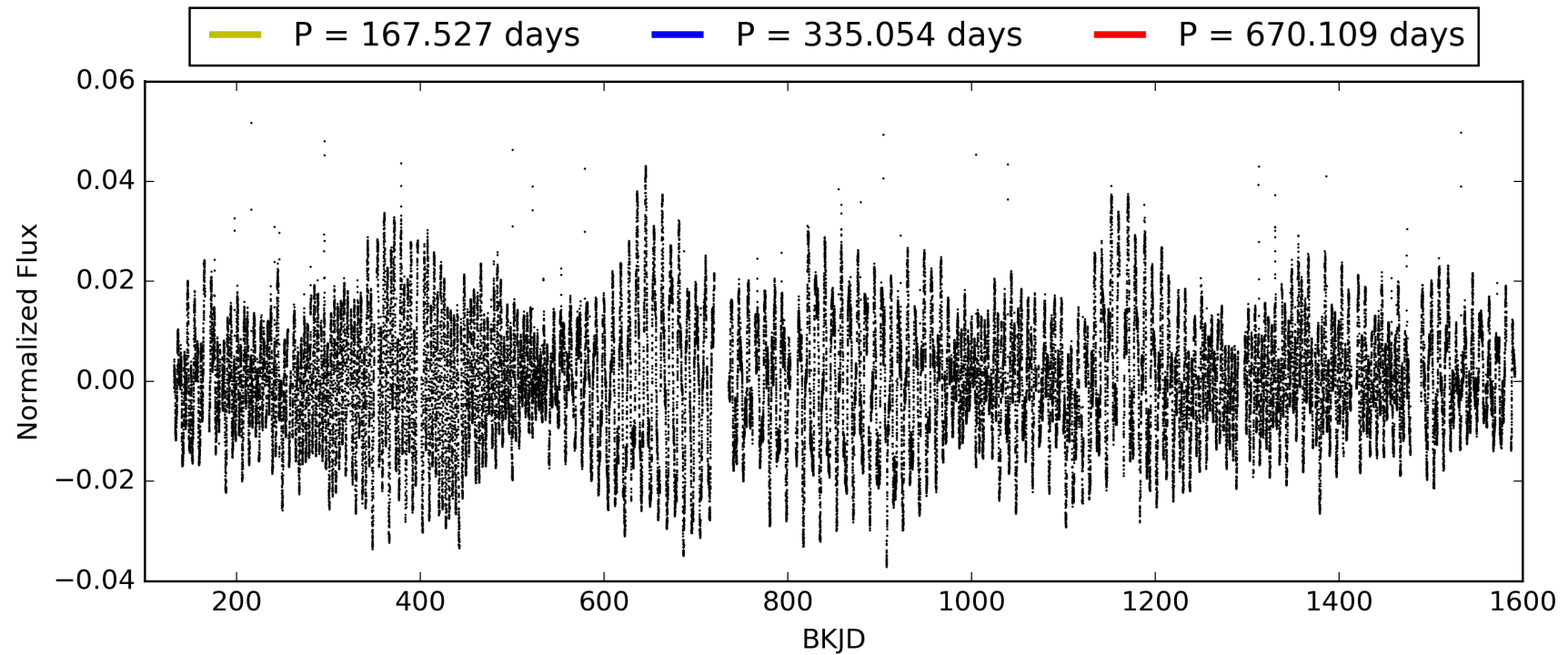
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [162.28 σ]
LongPeriod-sig: 100.0% [105.15 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 29.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.03005
Centroid-sig: 99.1%
Centroid-so: 0.573 arcsec [0.52 σ]
OotOffset-rm: 0.863 arcsec [2.17 σ]
OotOffset-st: 1/2/0/0 [3]
KicOffset-rm: 0.701 arcsec [1.76 σ]
KicOffset-st: 1/2/0/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 009588880-01, PDC Light Curves

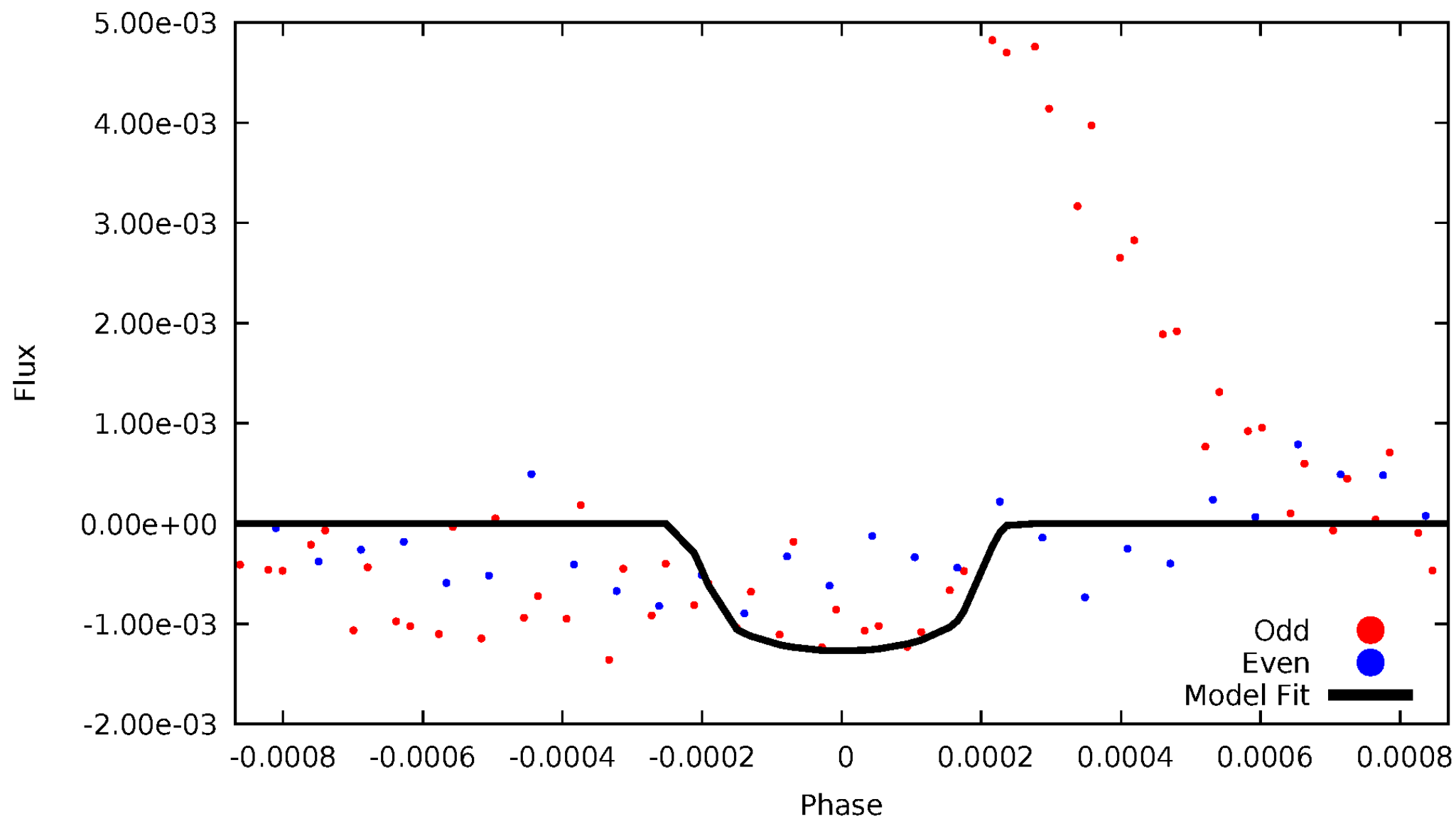


TCE 009588880-01



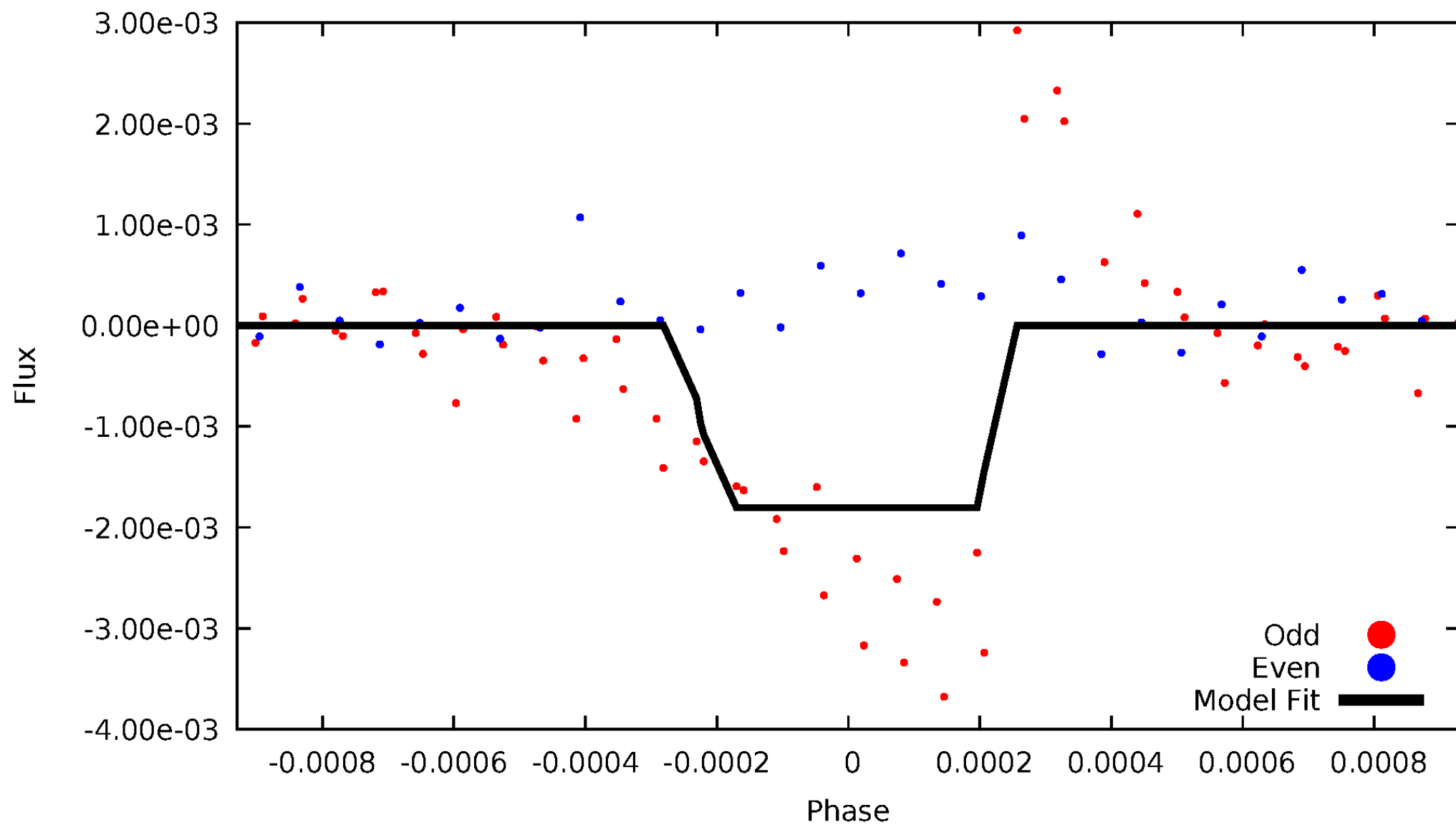
DV Odd/Even

TCE 009588880-01

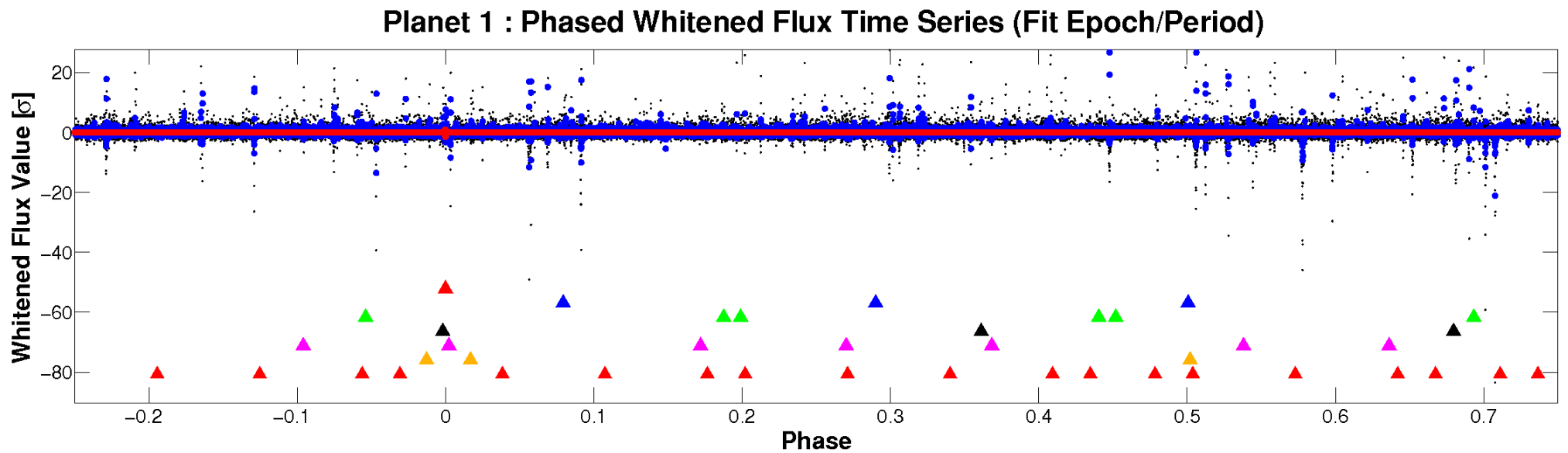
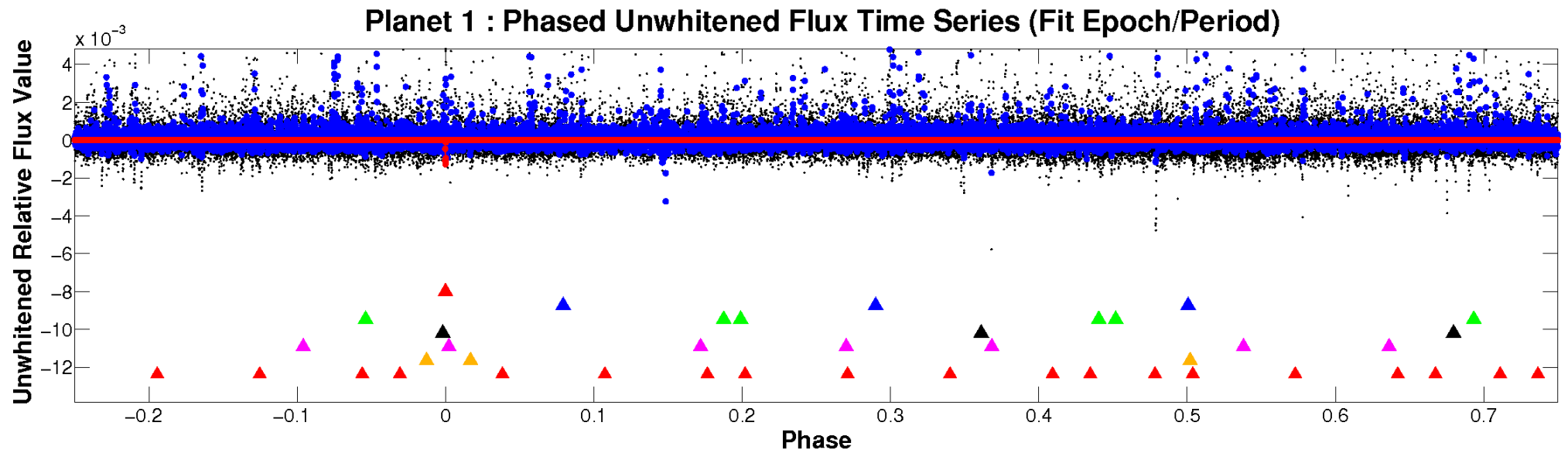


ALT Odd/Even

TCE 009588880-01

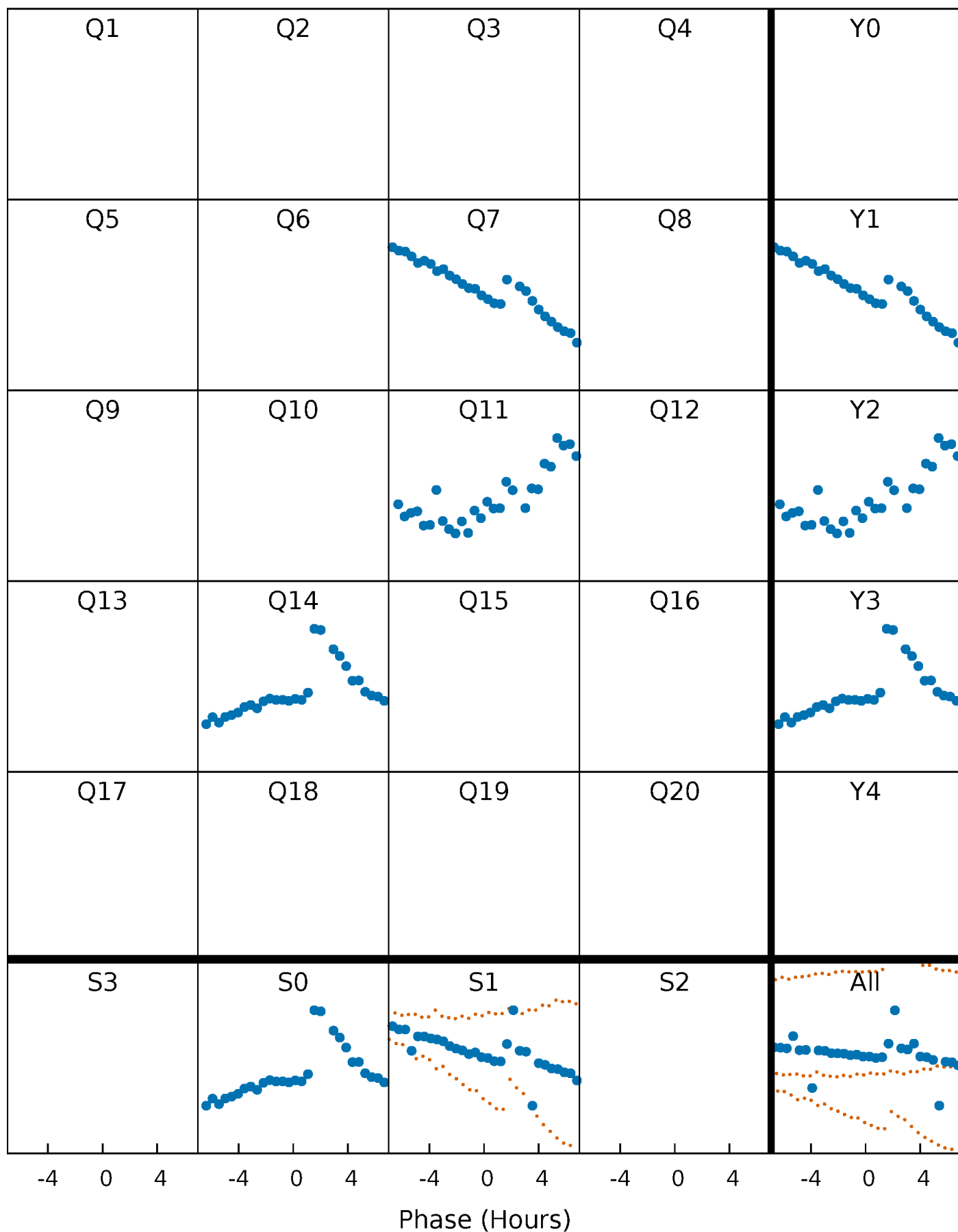


Non-Whitened Vs. Whitened Light Curve



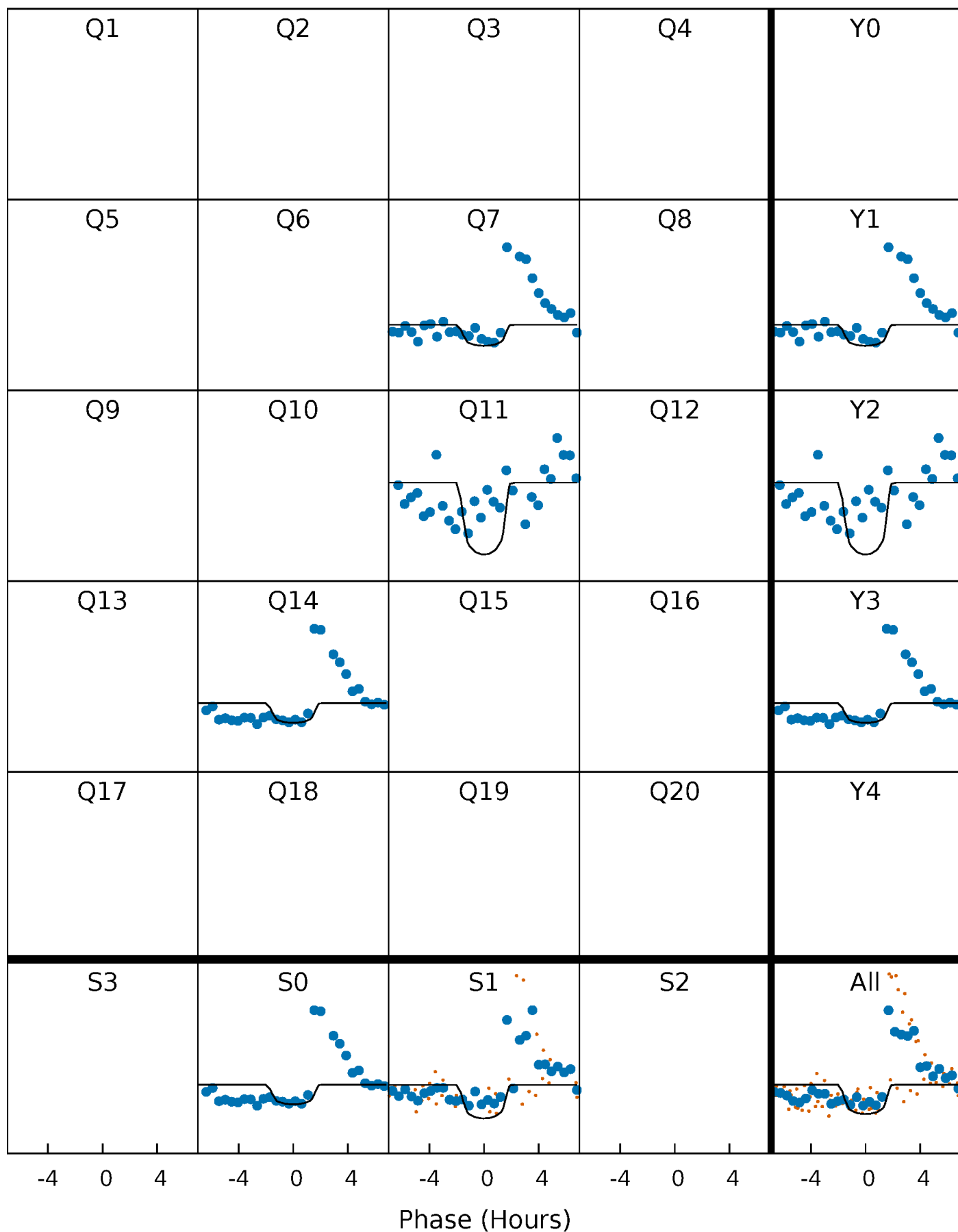
PDC Quarter-Phased Transit Curves

TCE 009588880-01 P=335.054280 Days $T_0=350.128812$ (BKJD)



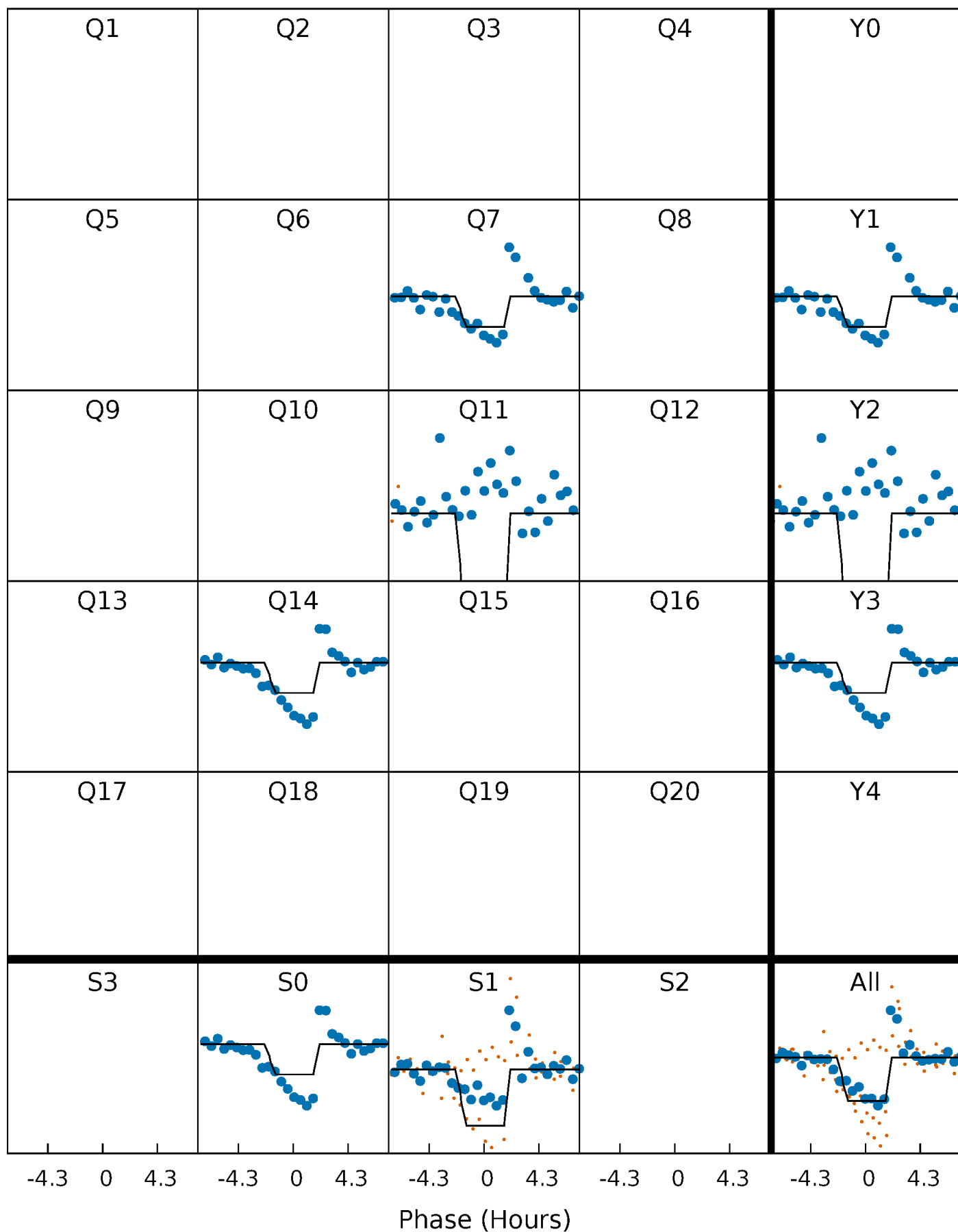
DV Quarter-Phased Transit Curves

TCE 009588880-01 P=335.054280 Days $T_0=350.128812$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

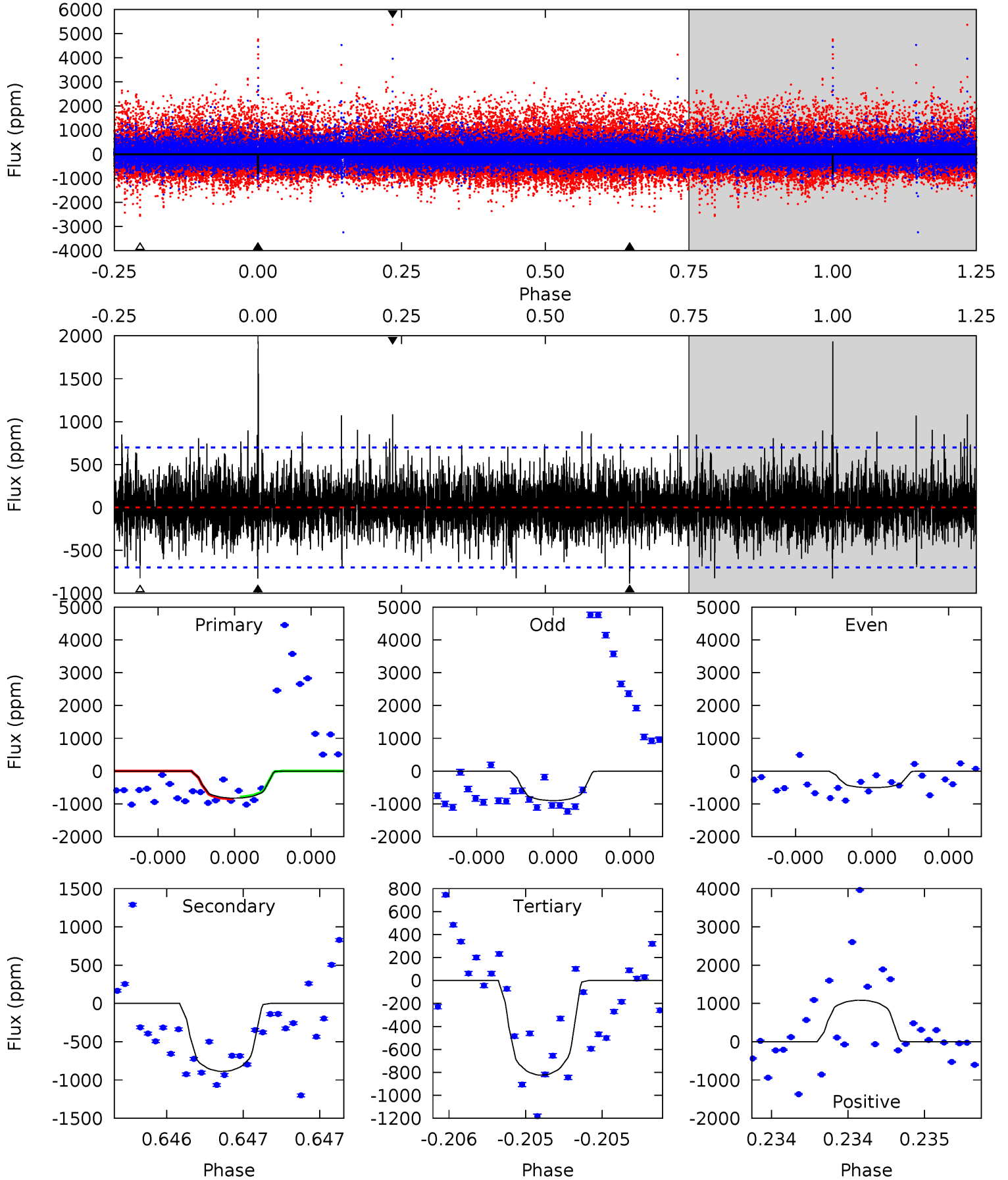
TCE 009588880-01 P=335.049083 Days $T_0=350.127010$ (BKJD)



DV Model-Shift Uniqueness Test

009588880-01, P = 335.054280 Days, E = 15.074532 Days

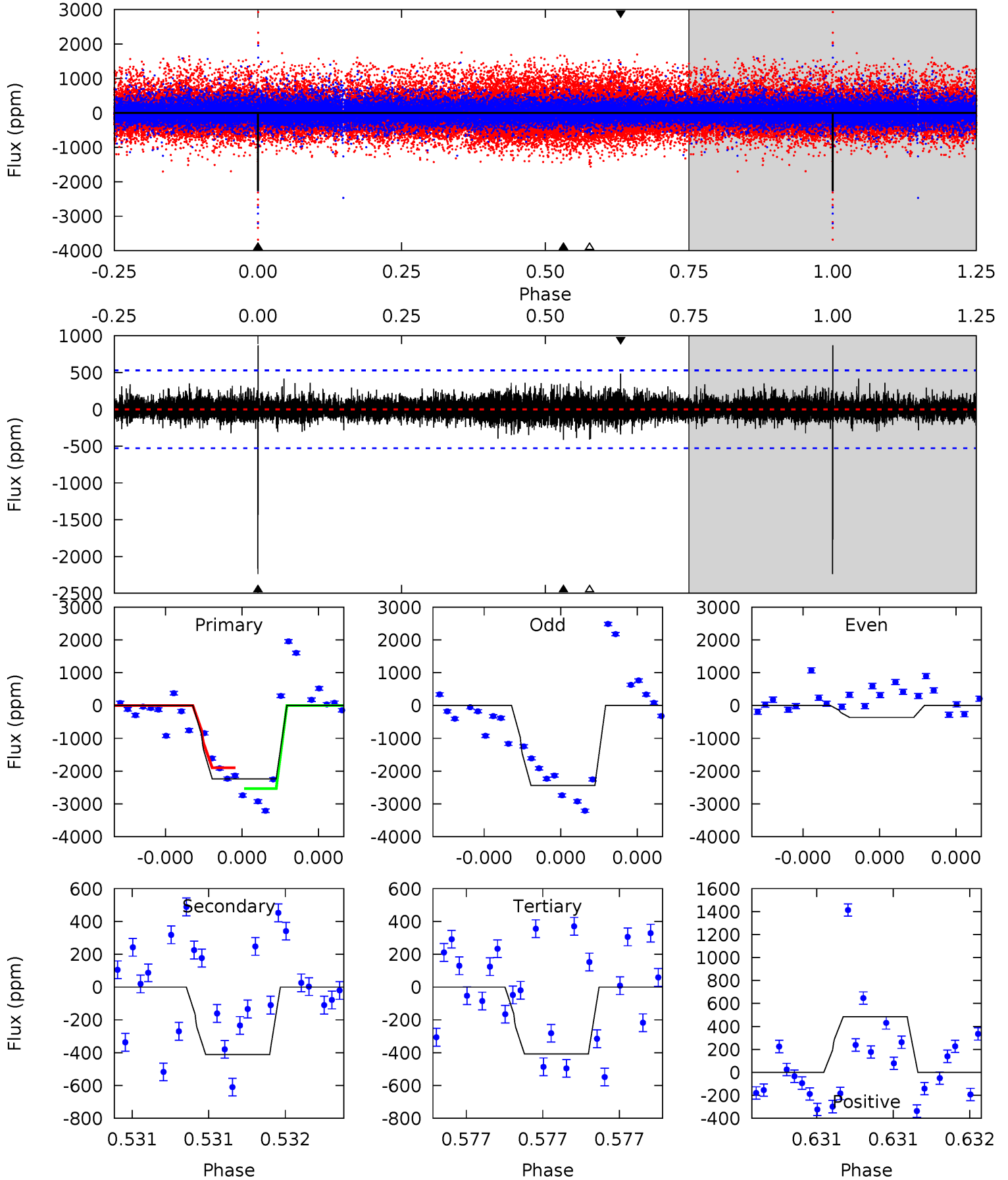
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.61	7.10	6.60	8.68	5.59	3.51	1.66	0.01	-2.07	0.50	-1.58	1.37	0.97	0.69	0.25



Alt Model-Shift Uniqueness Test

009588880-01, P = 335.049083 Days, E = 15.077927 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.7	4.36	4.31	5.12	5.60	3.52	0.92	19.4	18.6	0.04	-0.76	12.2	0.72	0.28	3.37



Stellar Parameters For KIC 009588880

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3900^{+173}_{-193}	$4.727^{+0.097}_{-0.052}$	$-0.100^{+0.350}_{-0.400}$	$0.534^{+0.066}_{-0.099}$	$0.555^{+0.061}_{-0.096}$	$5.136^{+2.793}_{-1.071}$
	+4%/-5%	+2%/-1%	+350%/-400%	+12%/-19%	+11%/-17%	+54%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009588880-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-887 ± 125	$2.52^{+2.04}_{-1.61}$	198^{+11}_{-11}	3417^{+1618}_{-540}	$46004^{+295849}_{-31850}$
Alt.	-412 ± 94	$2.78^{+2.16}_{-1.73}$	197^{+11}_{-11}	2973^{+1017}_{-438}	17159^{+99097}_{-11793}

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

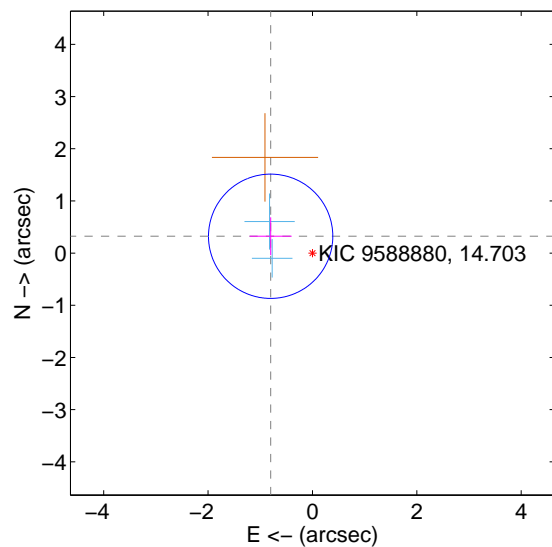
Supplemental centroid analysis for 009588880-01. Kepler magnitude: 14.70. Transit SNR 6.33

There are 2 quarters with good PRF difference image offsets

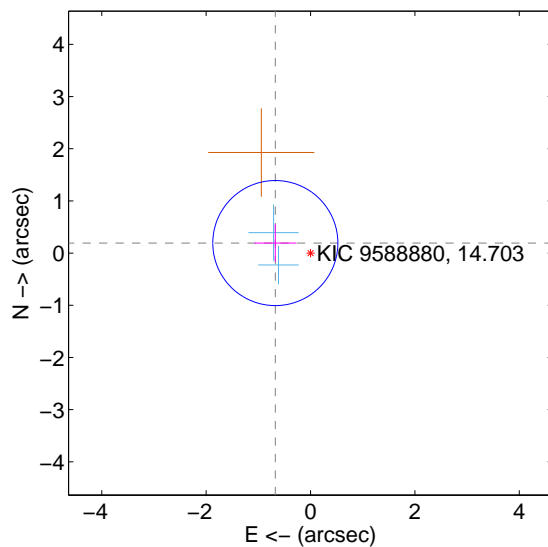
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.863 ± 0.397	2.17	0.801 ± 0.402	0.323 ± 0.363
PRF-fit source offset from KIC position	0.701 ± 0.399	1.76	0.674 ± 0.402	0.192 ± 0.363
photometric centroid source offset	0.57 ± 1.10	0.52	-0.35 ± 1.10	-0.45 ± 1.10

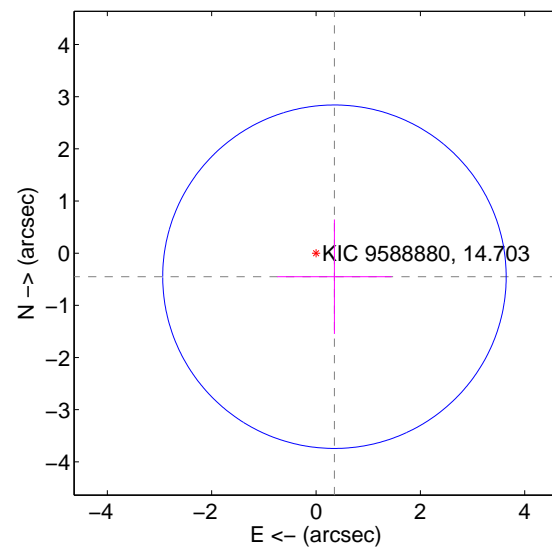
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

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



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Q5 no difference image



Q5 no OOT image



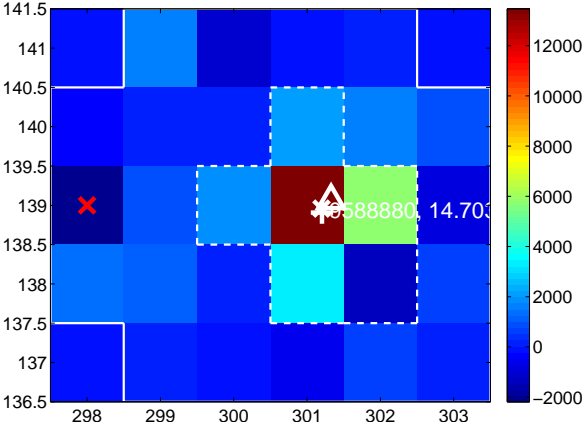
Q6 no difference image



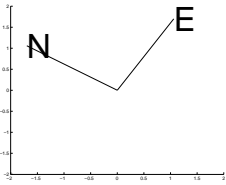
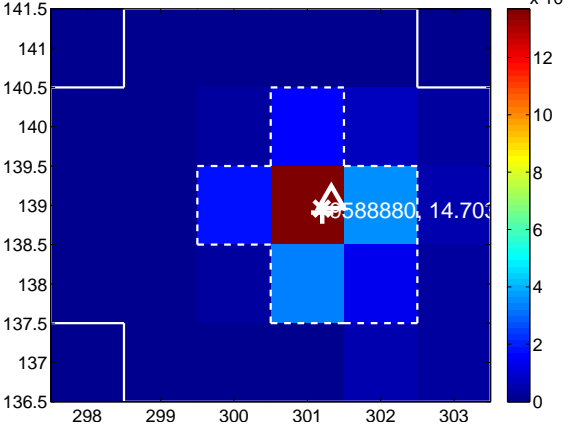
Q6 no OOT image



Q7 difference image



Q7 OOT image



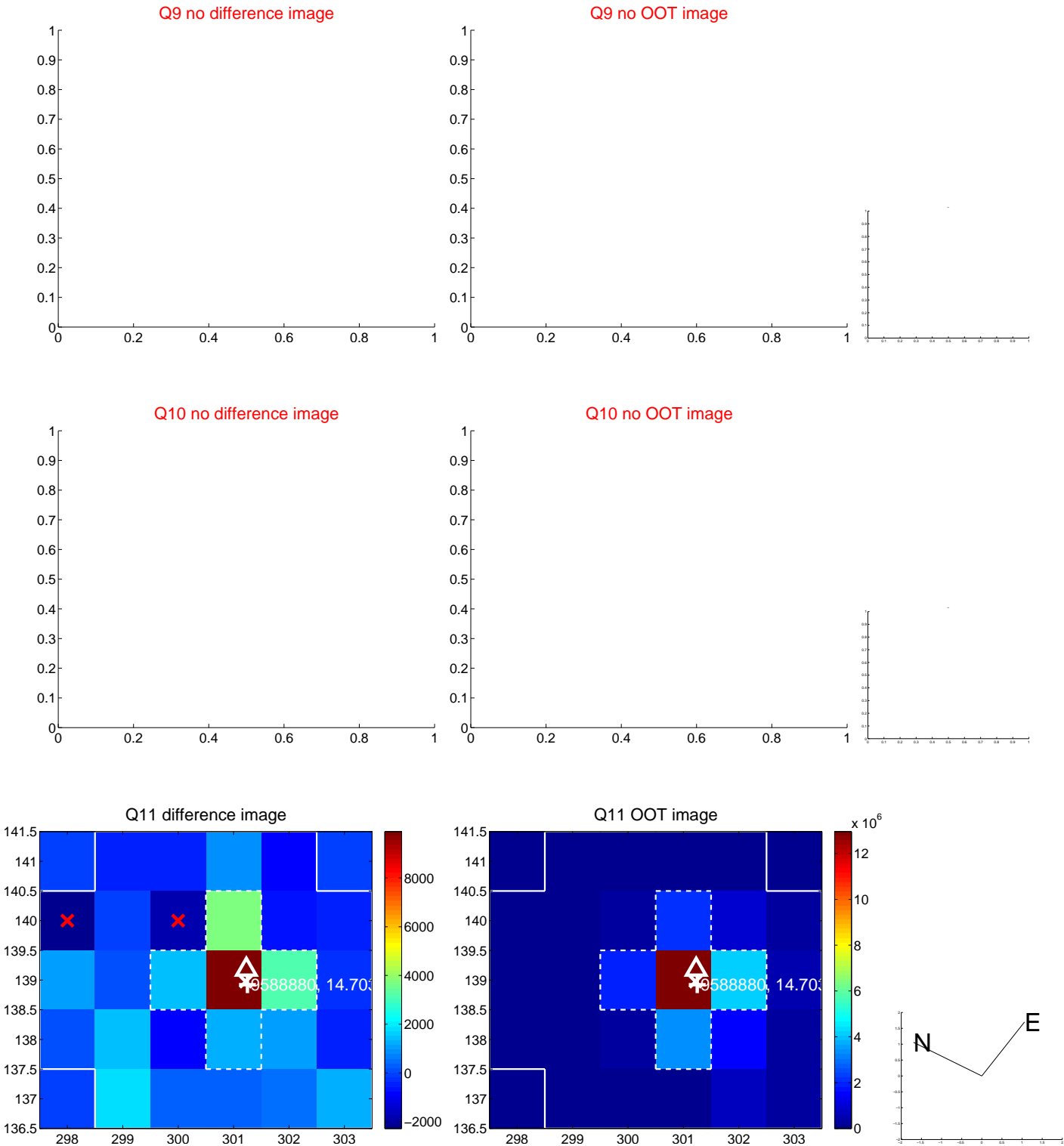
Q8 no difference image



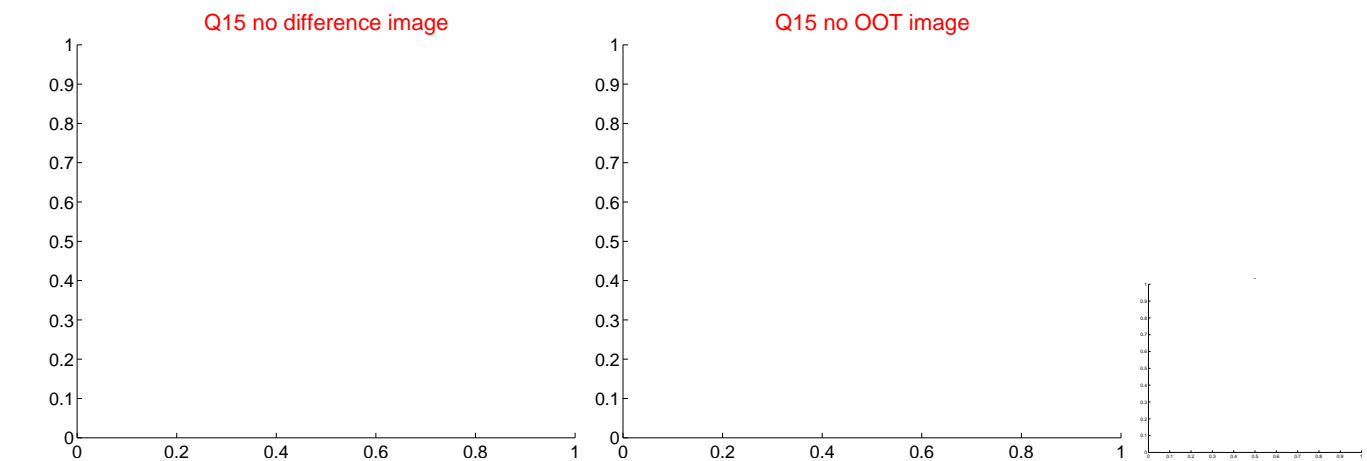
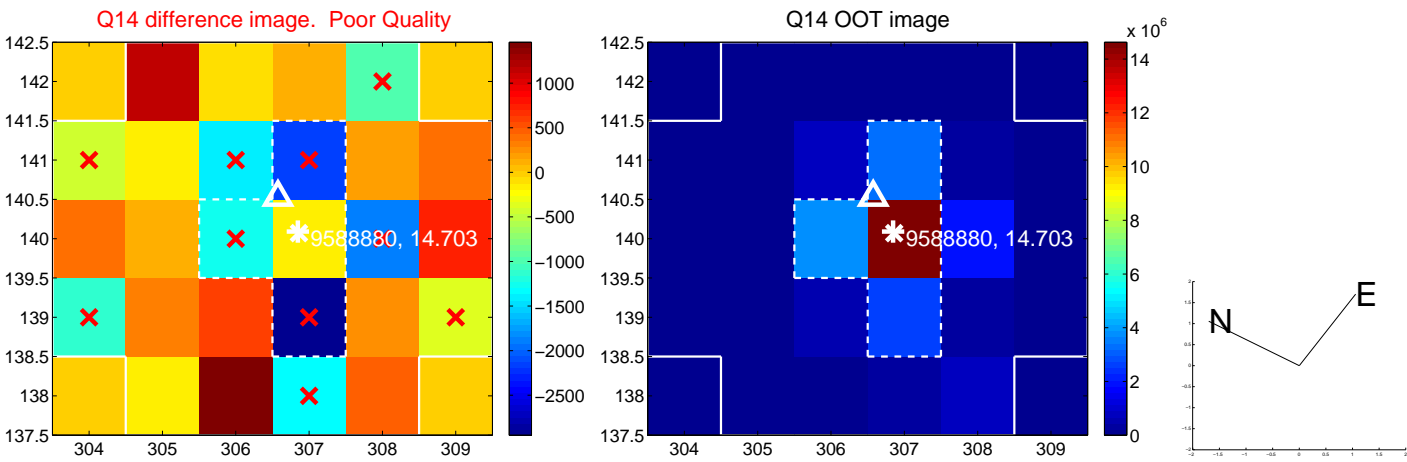
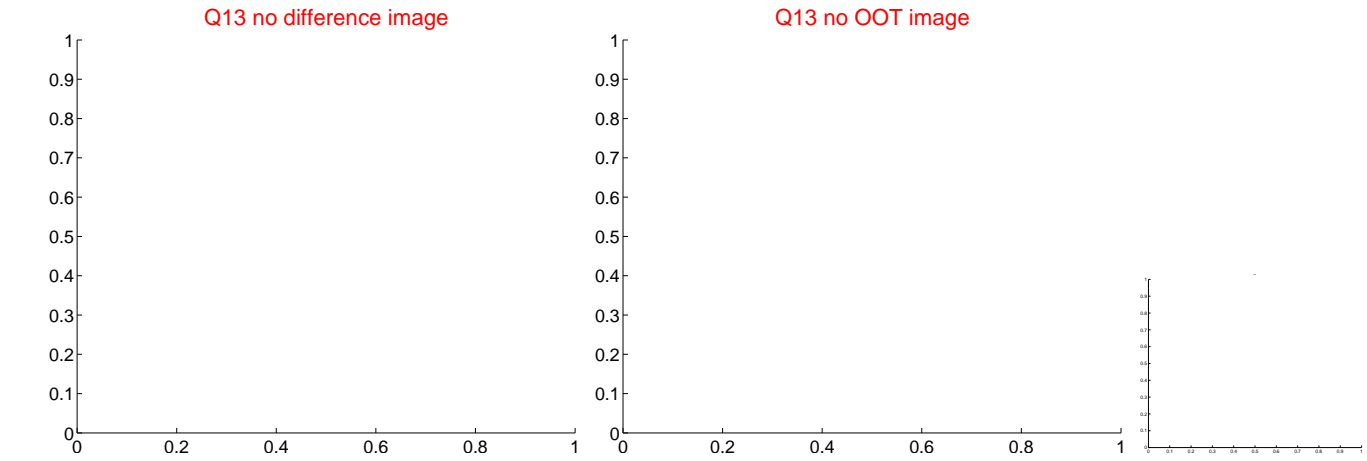
Q8 no OOT image



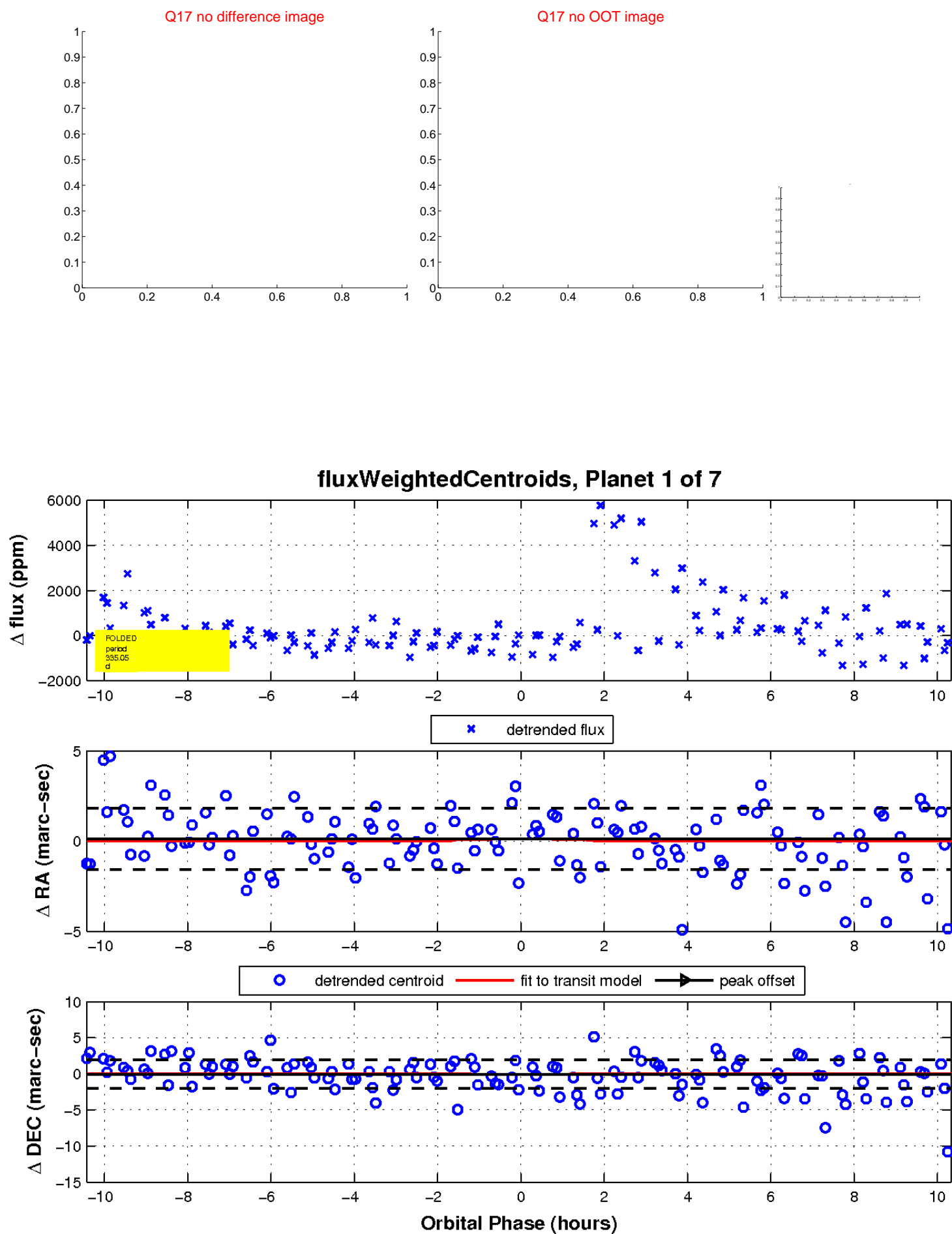
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white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

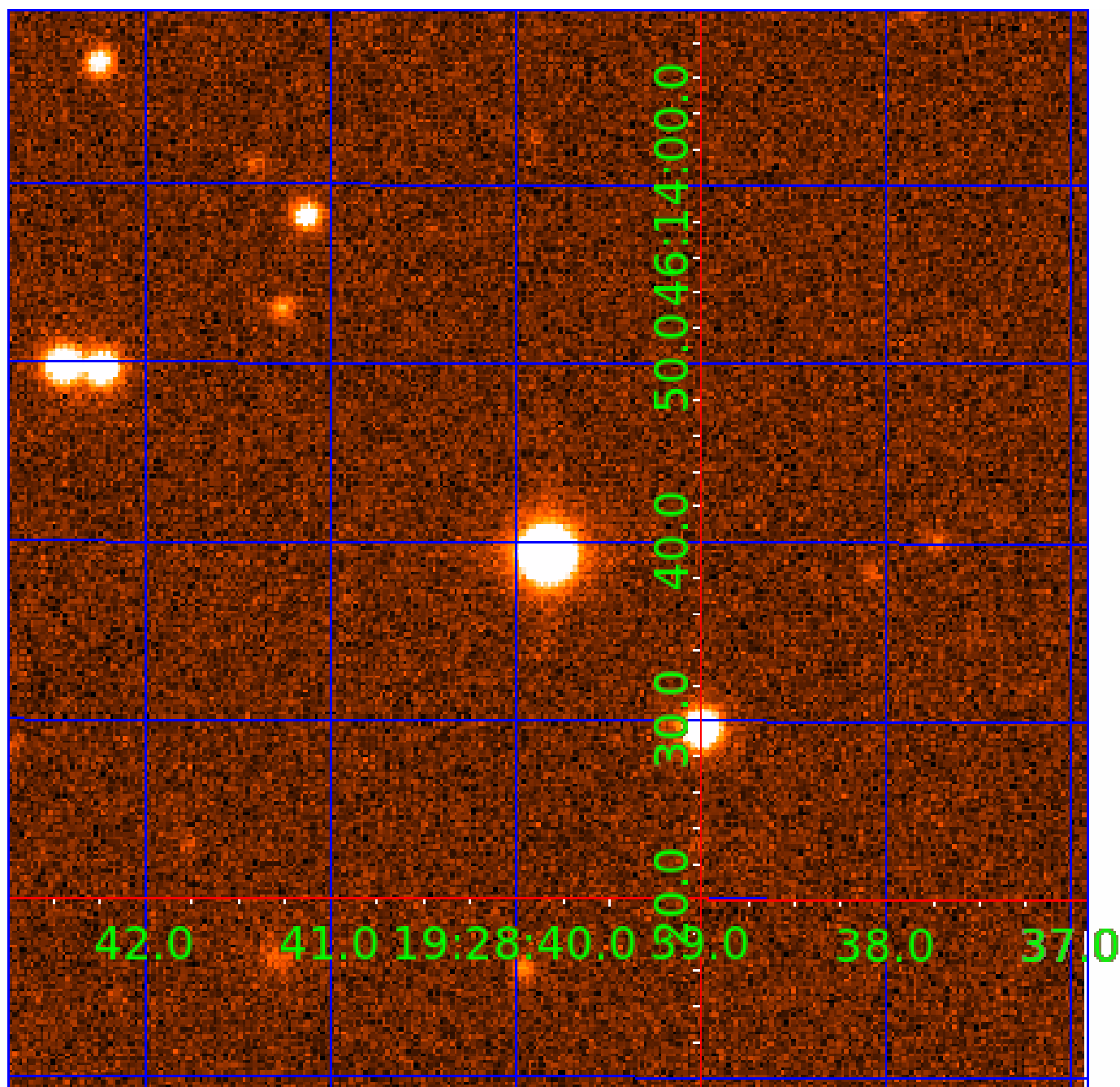


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009588880

Q1-17 DR25 TCE Parameters

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Robovetter Results

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009588880-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
009588880-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009588880-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES
009588880-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-07	OBS	FP	0.23	1	0	0	0	LPP_DV—CENT_NOFITS

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

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

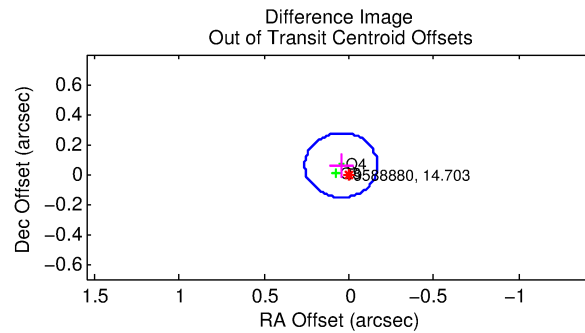
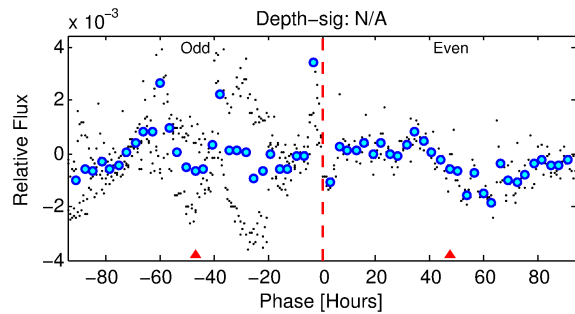
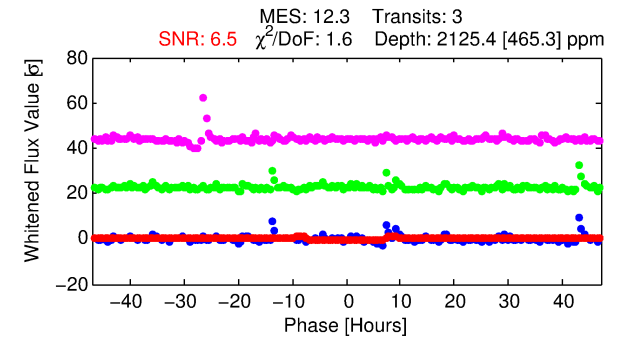
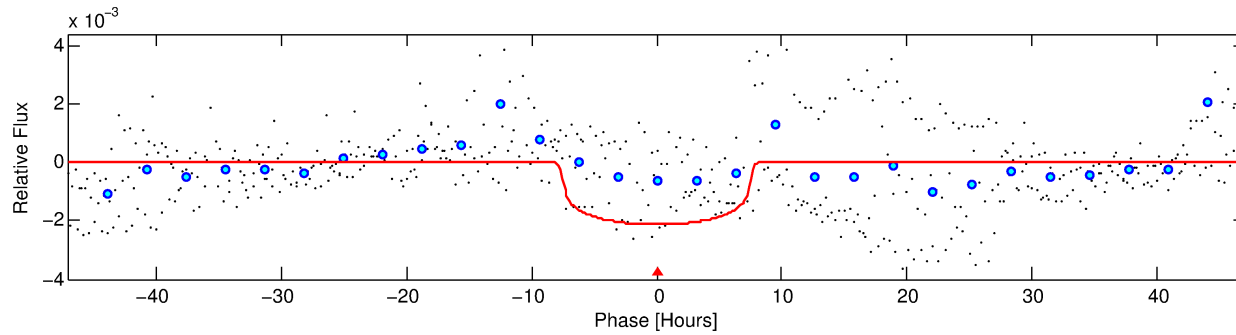
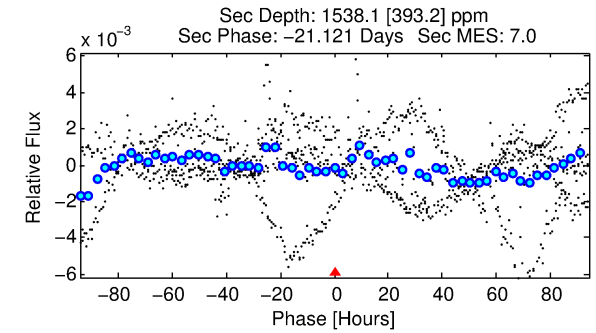
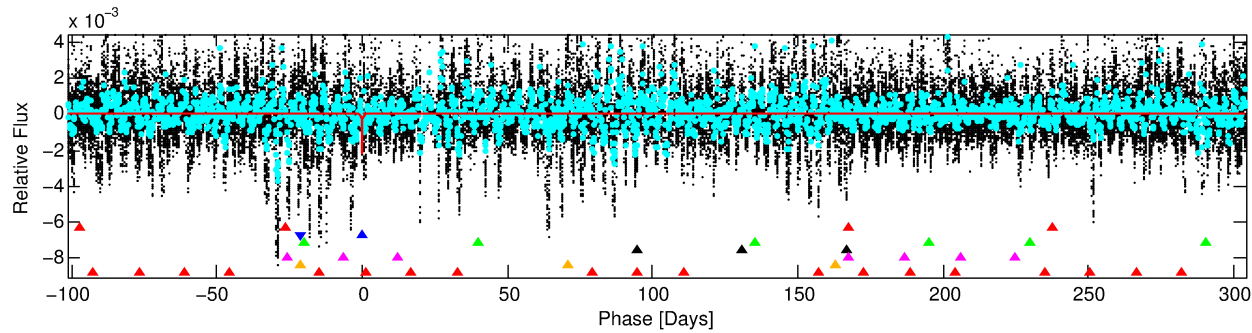
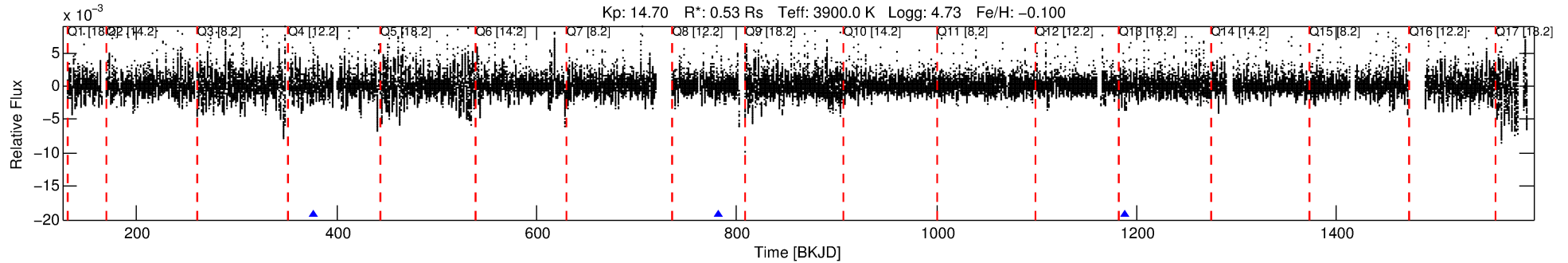
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009588880-02

No Significant Match Found

DV One-Page Summary

KIC: 9588880 Candidate: 2 of 7 Period: 405.640 d



DV Fit Results:

Period = 405.64015 [0.01018] d
Epoch = 376.7268 [0.0102] BKJD
Rp/R* = 0.0419 [0.0102]
a/R* = 200.81 [165.15]
b = 0.22 [3.65]
Seff = 0.08 [0.02]
Teq = 134 [9] K
Rp = 2.44 [0.75] Re
a = 0.8814 [0.1272] AU
Ag = 110487.30 [64324.31] [1.72 σ]
Teffp = 3775 [551] K [6.61 σ]

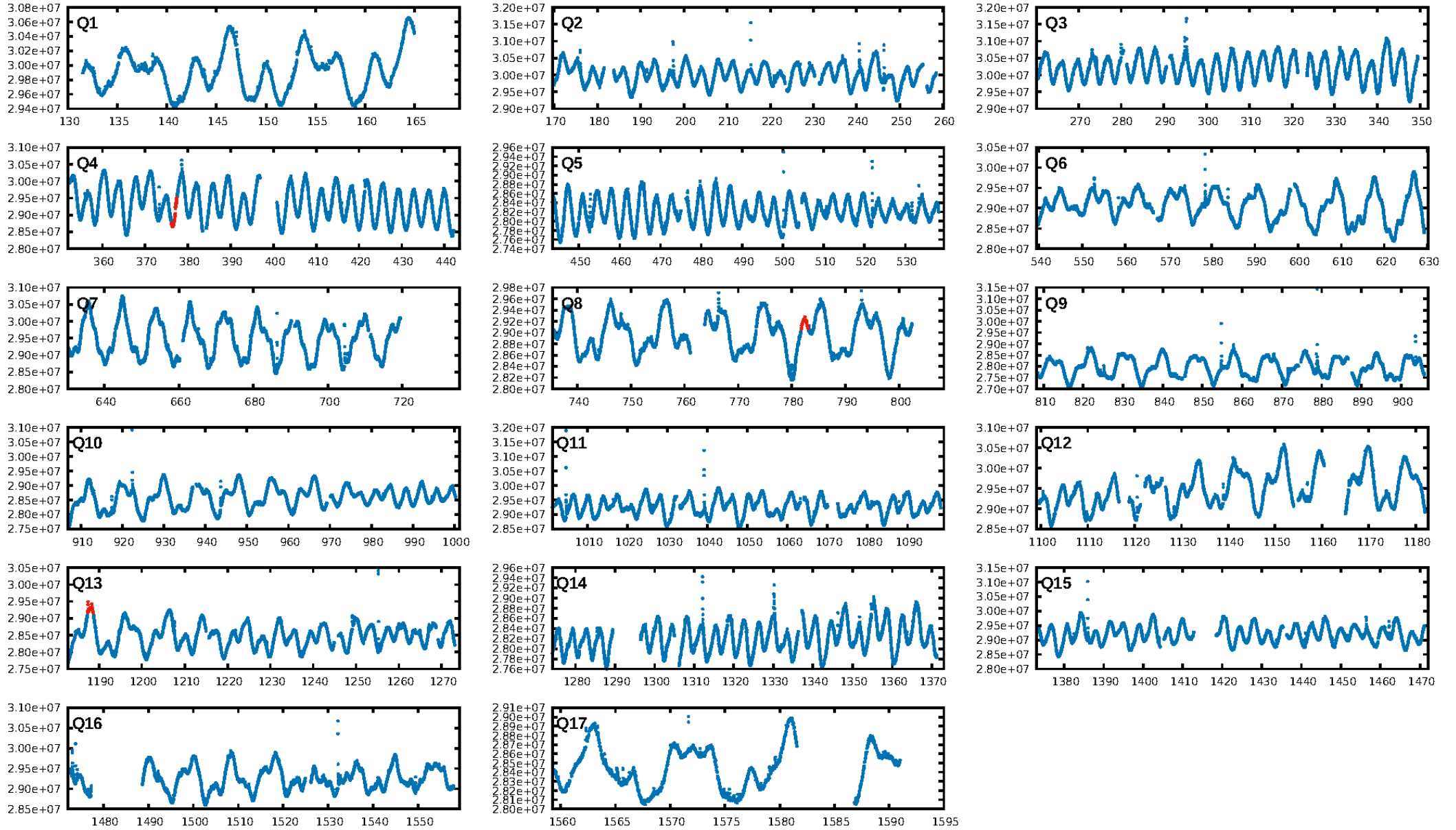
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [105.15 σ]
LongPeriod-sig: 100.0% [53.27 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.735
Centroid-sig: 61.2%
Centroid-so: 0.175 arcsec [0.22 σ]
OotOffset-rm: 0.076 arcsec [1.06 σ]
OotOffset-st: 0/0/2/0 [2]
KicOffset-rm: 0.213 arcsec [3.03 σ]
KicOffset-st: 0/0/2/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

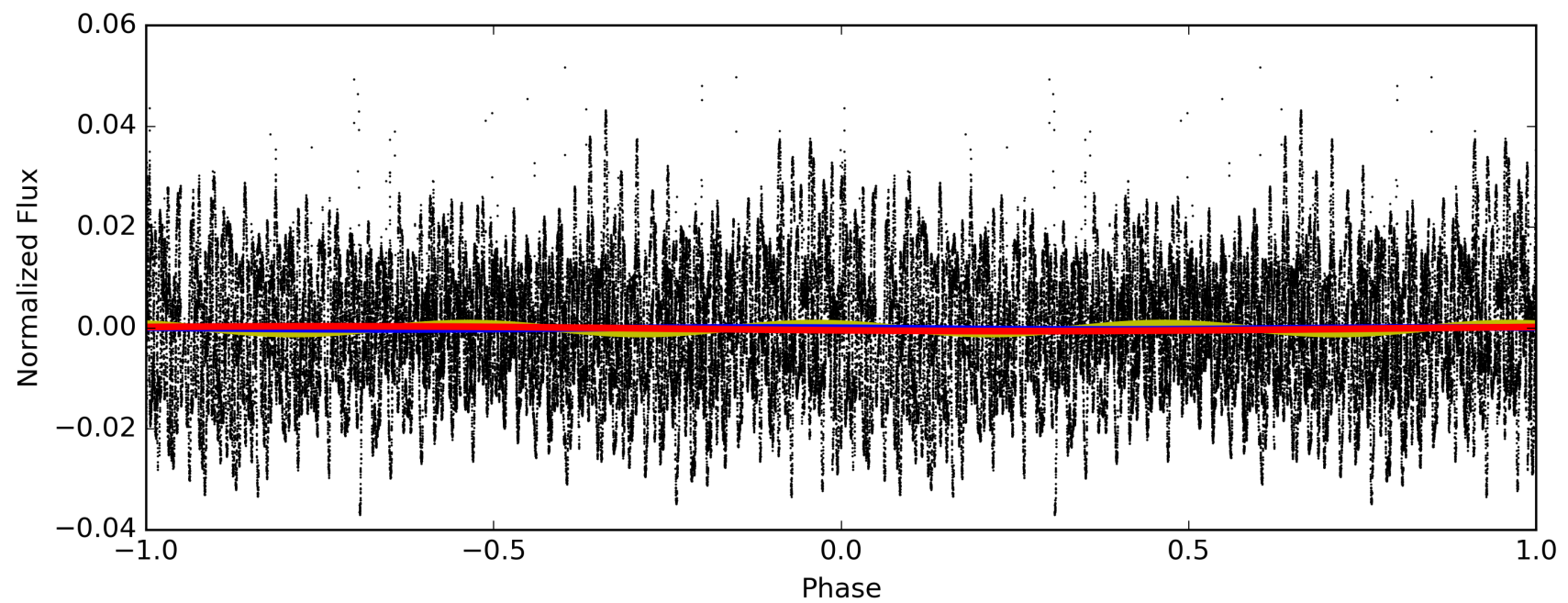
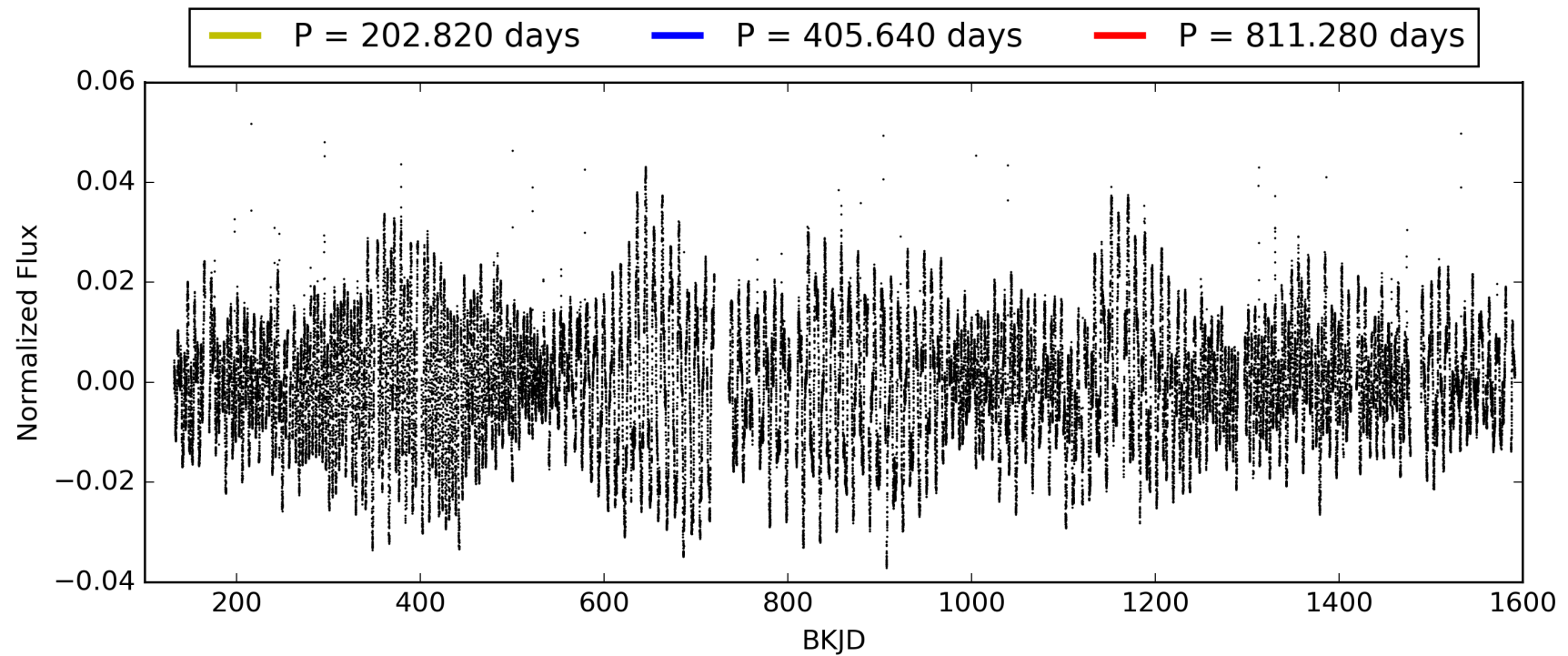
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:00:53 Z

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

TCE 009588880-02, PDC Light Curves

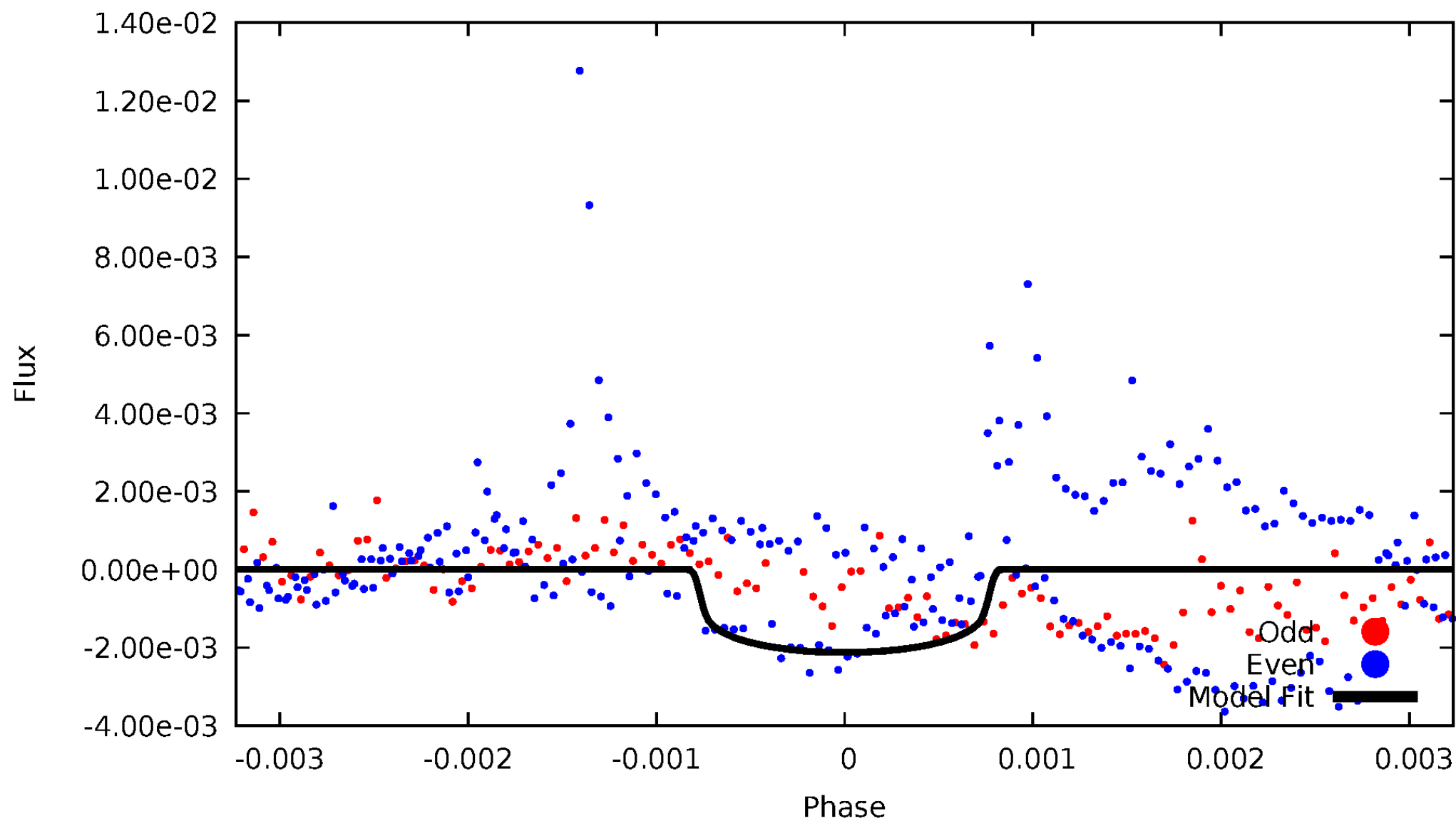


TCE 009588880-02



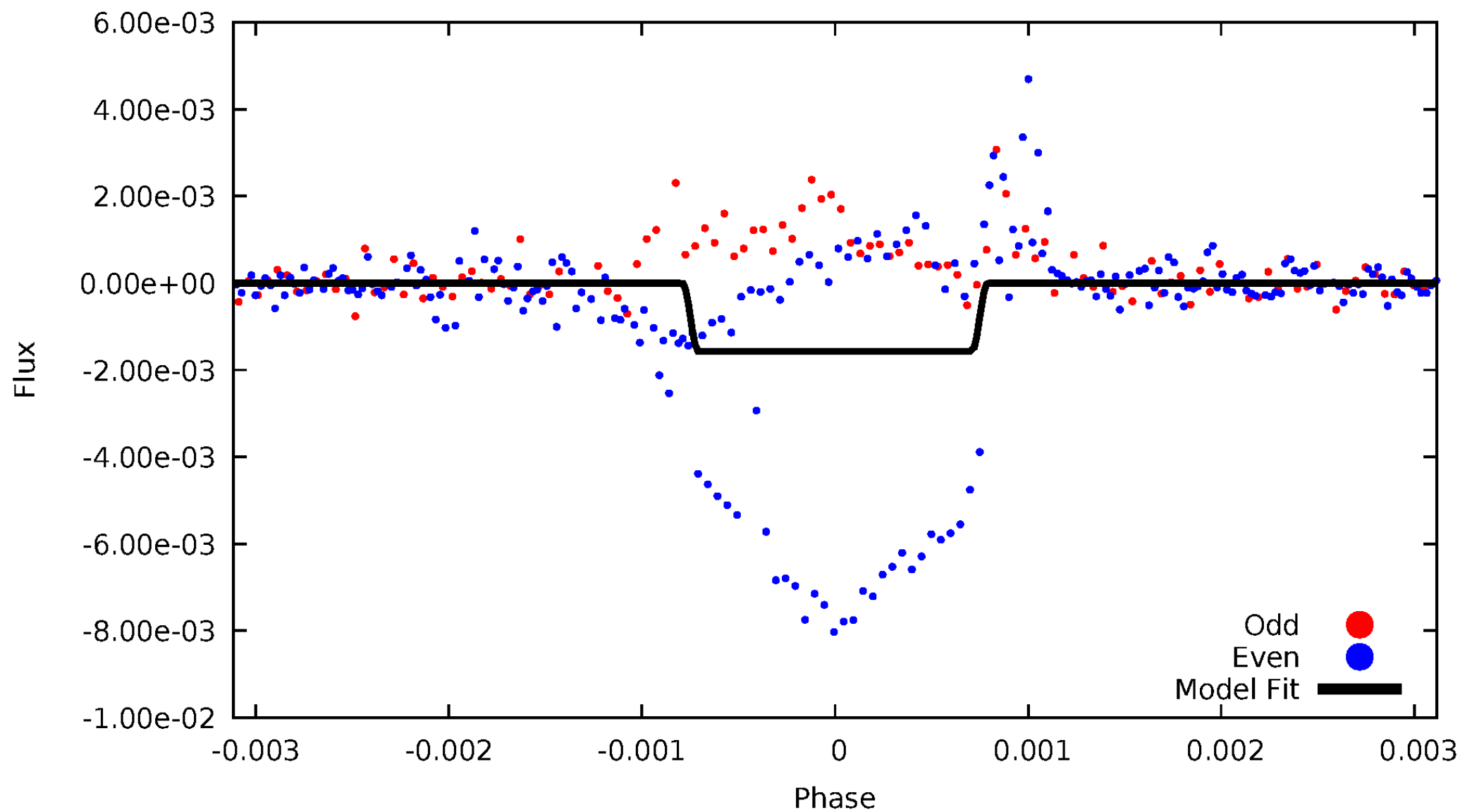
DV Odd/Even

TCE 009588880-02



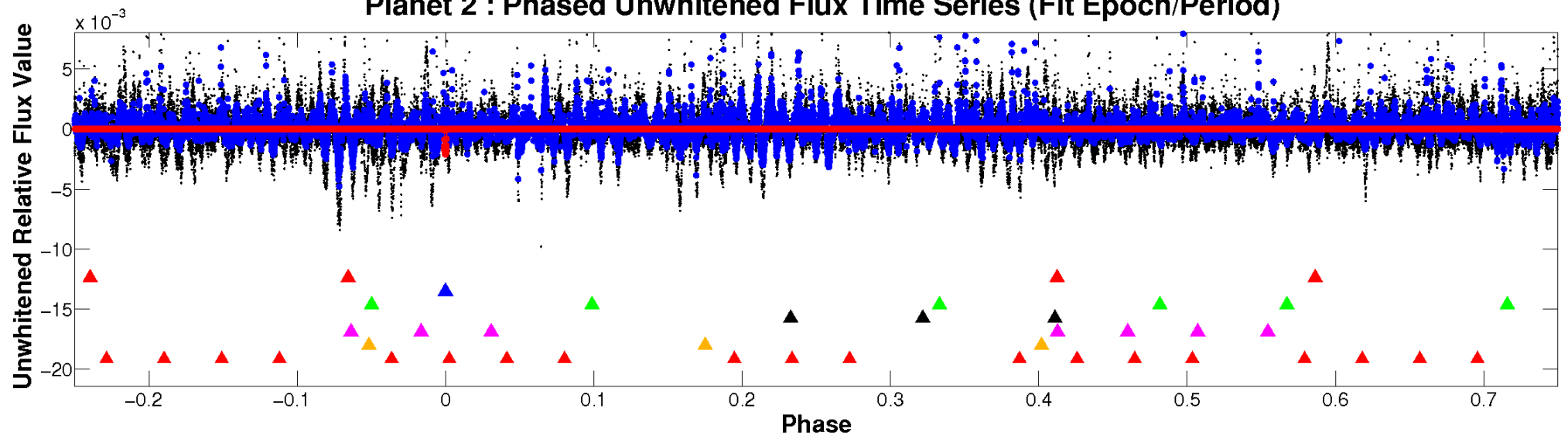
ALT Odd/Even

TCE 009588880-02

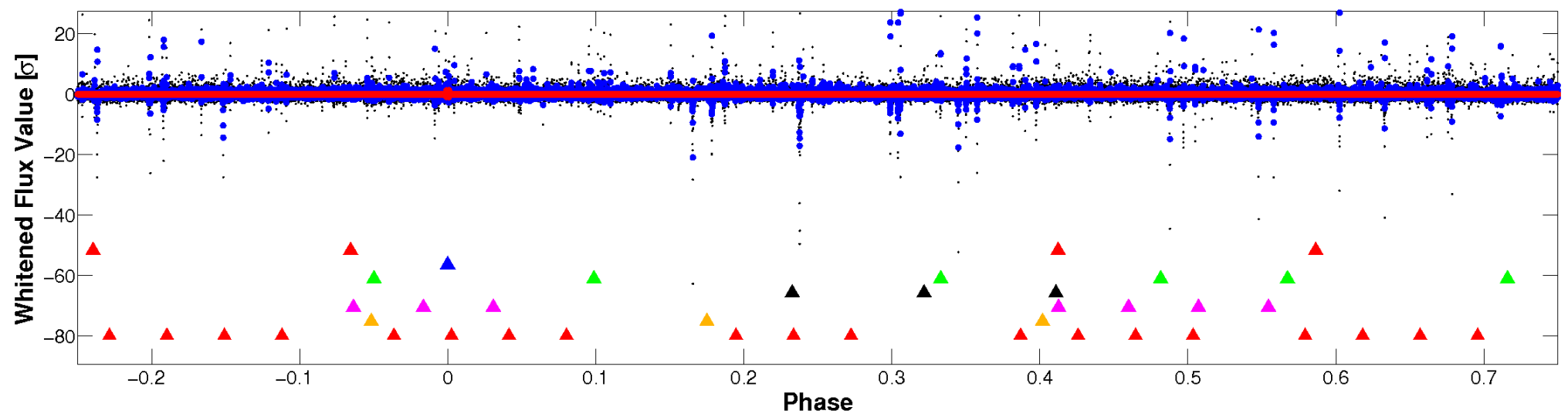


Non-Whitened Vs. Whitened Light Curve

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



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



PDC Quarter-Phased Transit Curves

TCE 009588880-02 P=405.640147 Days $T_0=376.726765$ (BKJD)



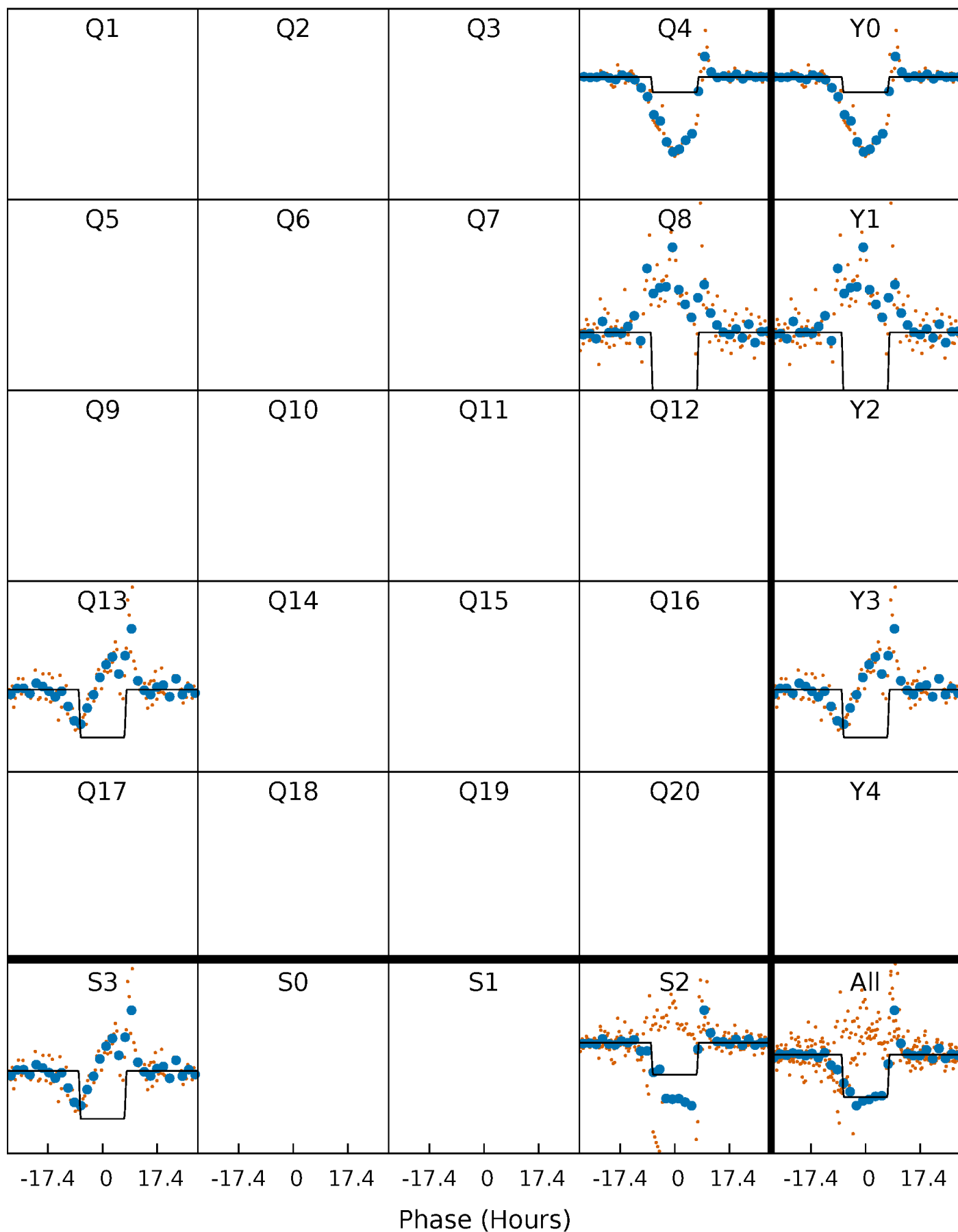
DV Quarter-Phased Transit Curves

TCE 009588880-02 $P=405.640147$ Days $T_0=376.726765$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

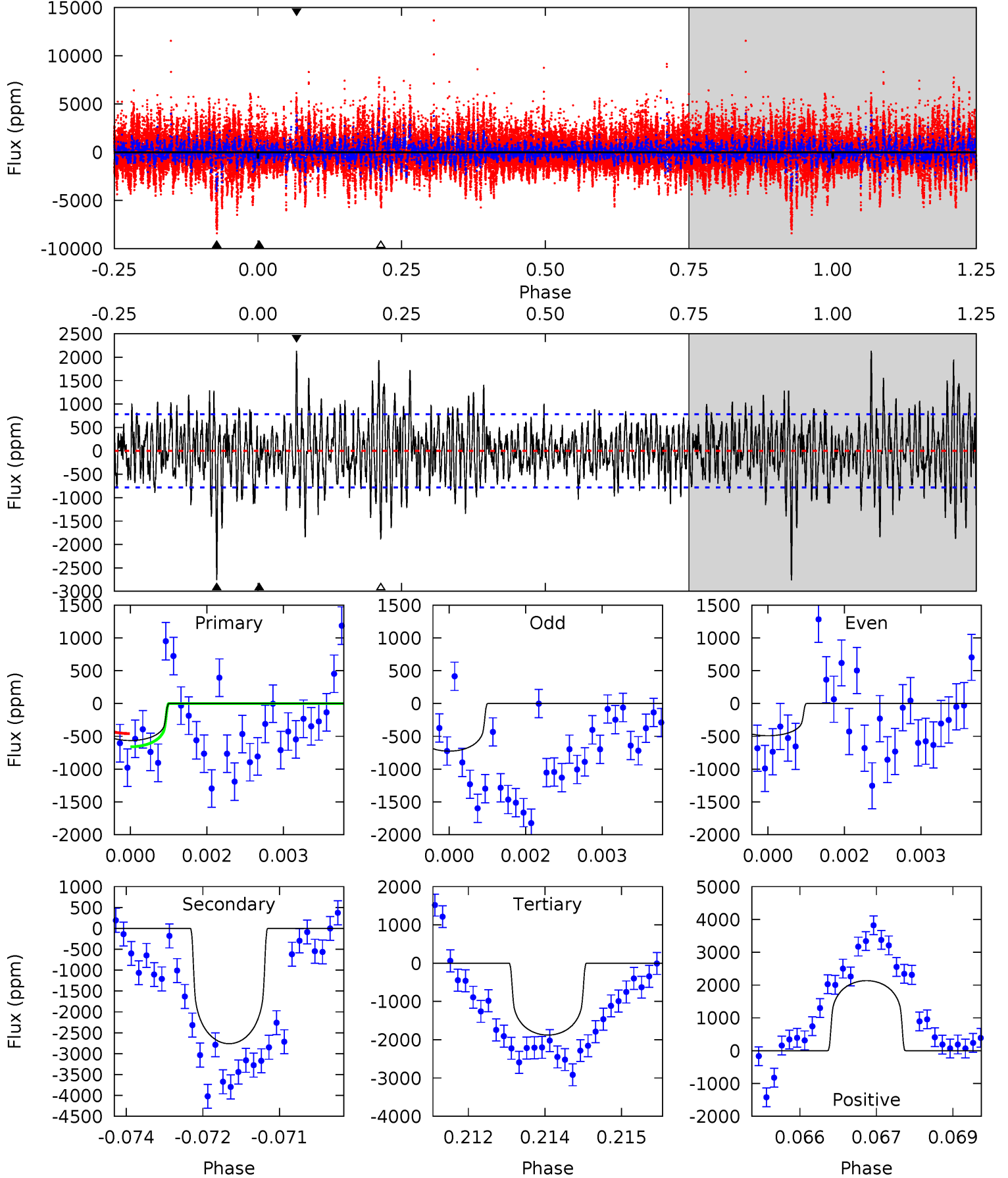
TCE 009588880-02 $P=406.062516$ Days $T_0=376.714838$ (BKJD)



DV Model-Shift Uniqueness Test

009588880-02, P = 405.640147 Days, E = 376.726765 Days

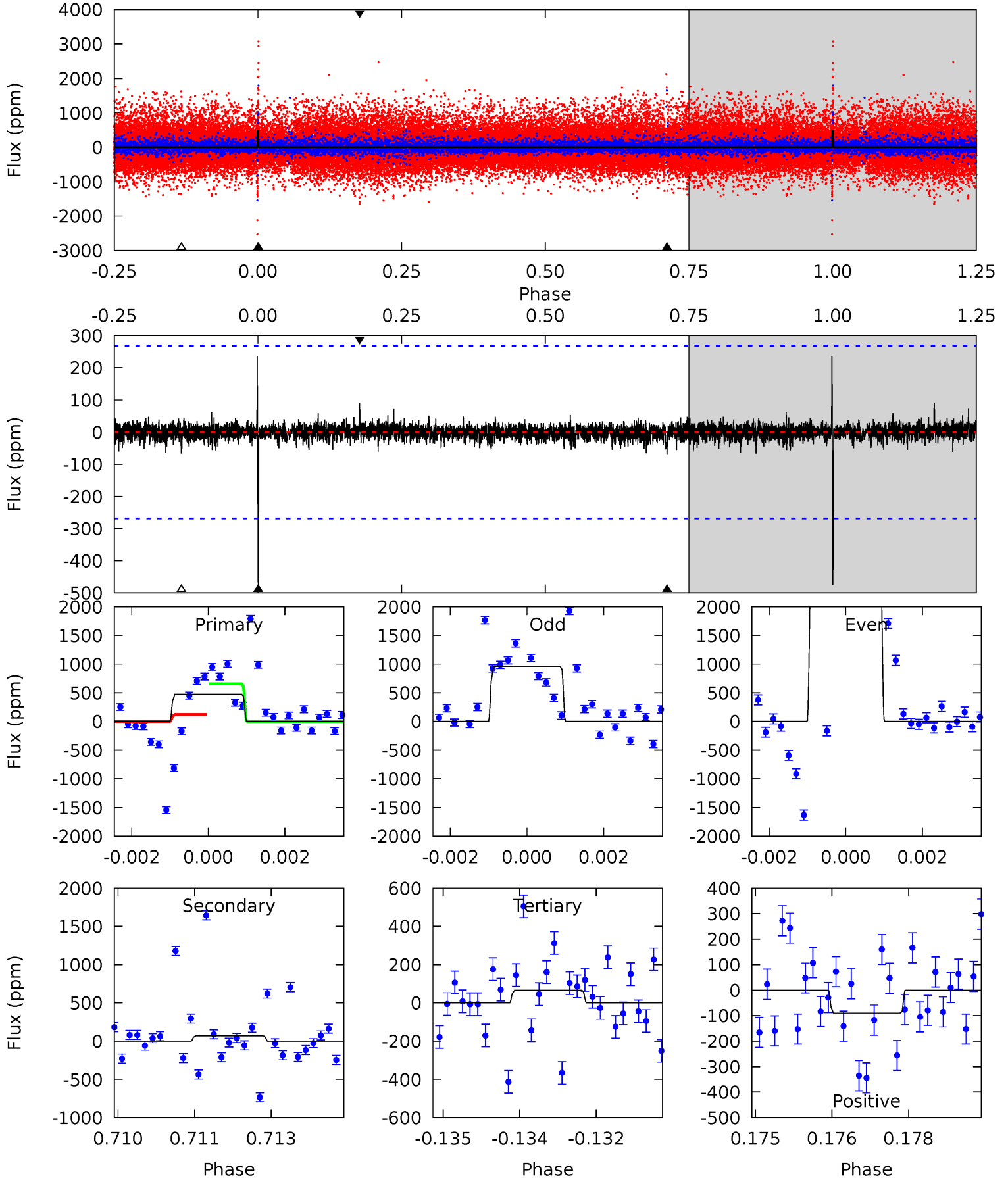
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.86	18.9	12.8	14.6	5.36	3.15	3.35	-8.98	-10.7	6.04	4.29	0.54	0.76	0.44	0.69



Alt Model-Shift Uniqueness Test

009588880-02, P = 406.062516 Days, E = 376.714838 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.49	1.40	1.32	1.80	5.37	3.16	0.29	8.17	7.69	0.08	-0.40	21.7	-7.96	0.33	0



Stellar Parameters For KIC 009588880

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3900^{+173}_{-193}	$4.727^{+0.097}_{-0.052}$	$-0.100^{+0.350}_{-0.400}$	$0.534^{+0.066}_{-0.099}$	$0.555^{+0.061}_{-0.096}$	$5.136^{+2.793}_{-1.071}$
	+4%/-5%	+2%/-1%	+350%/-400%	+12%/-19%	+11%/-17%	+54%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009588880-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2761 ± 146	$2.42^{+0.67}_{-0.61}$	186^{+10}_{-11}	4208^{+516}_{-360}	$200967^{+154103}_{-74145}$
Alt.	-70 ± 50	$2.22^{+0.62}_{-0.51}$	185^{+11}_{-10}	2471^{+264}_{-376}	5782^{+6721}_{-4405}

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

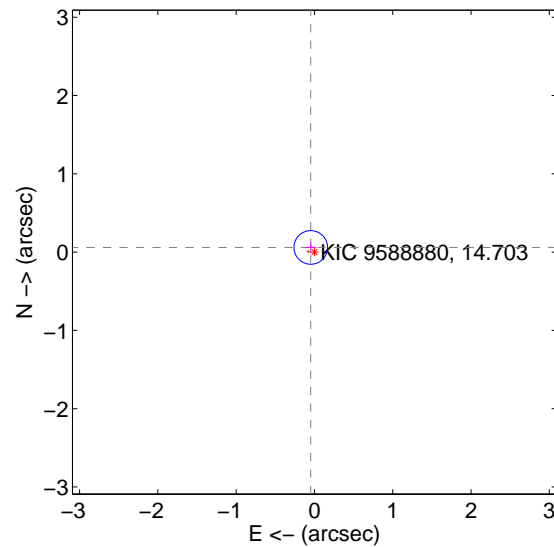
Supplemental centroid analysis for 009588880-02. Kepler magnitude: 14.70. Transit SNR 6.45

There are 1 quarters with good PRF difference image offsets

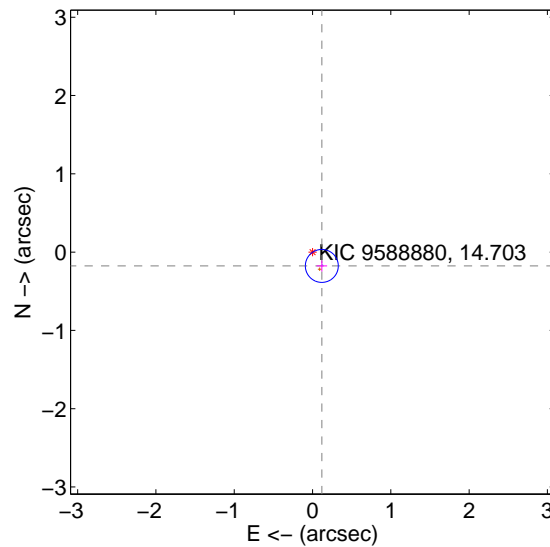
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.076 ± 0.072	1.06	0.047 ± 0.069	0.059 ± 0.073
PRF-fit source offset from KIC position	0.213 ± 0.070	3.03	-0.119 ± 0.068	-0.177 ± 0.071
photometric centroid source offset	0.17 ± 0.80	0.22	0.05 ± 0.66	-0.17 ± 0.81

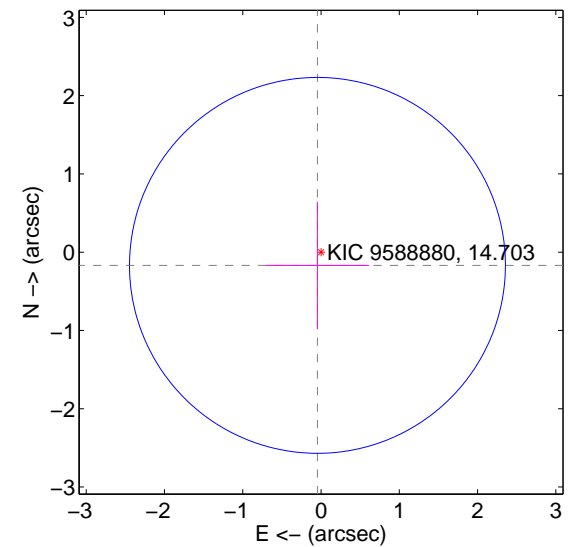
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

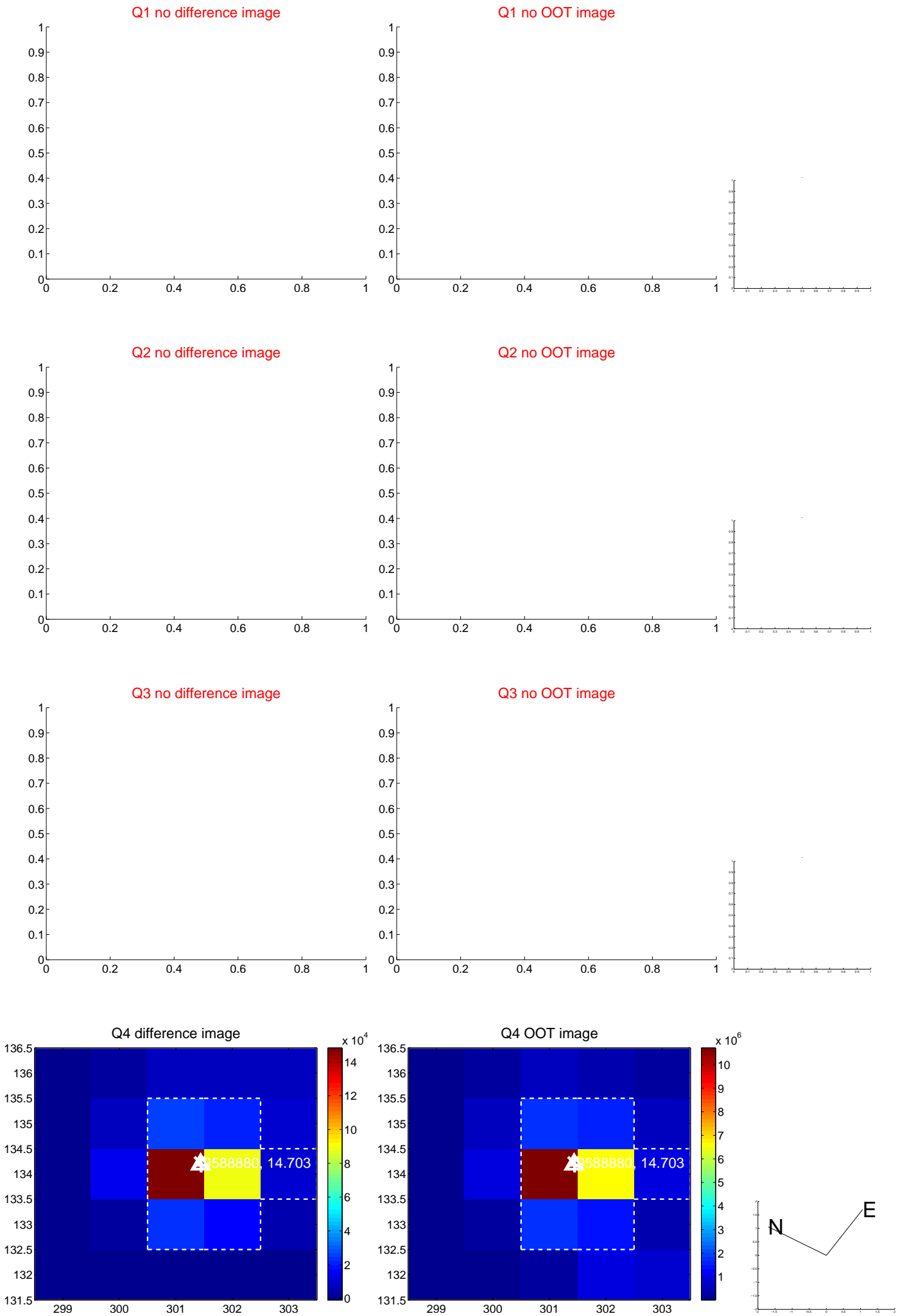


offset from photometric centroids

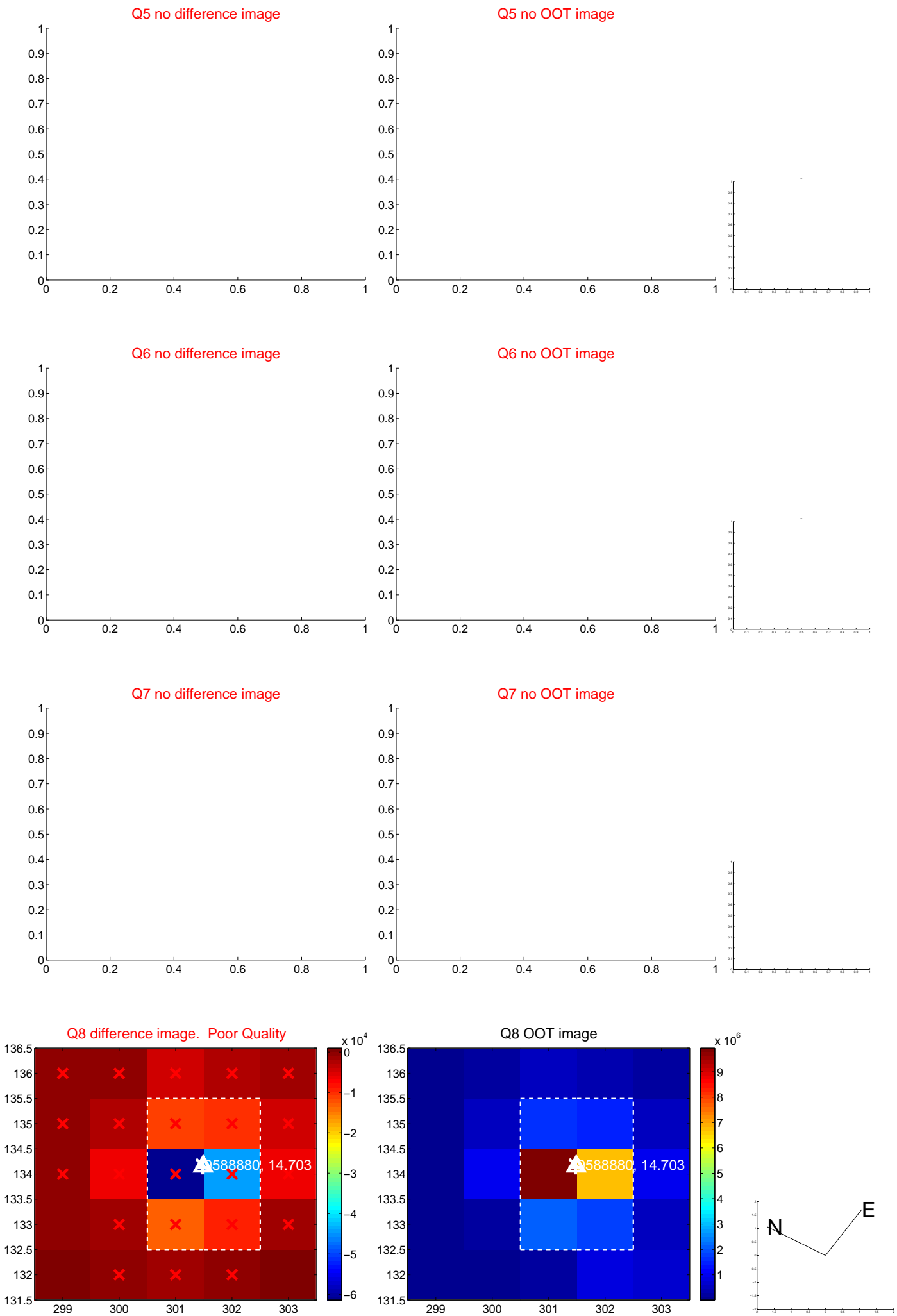


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



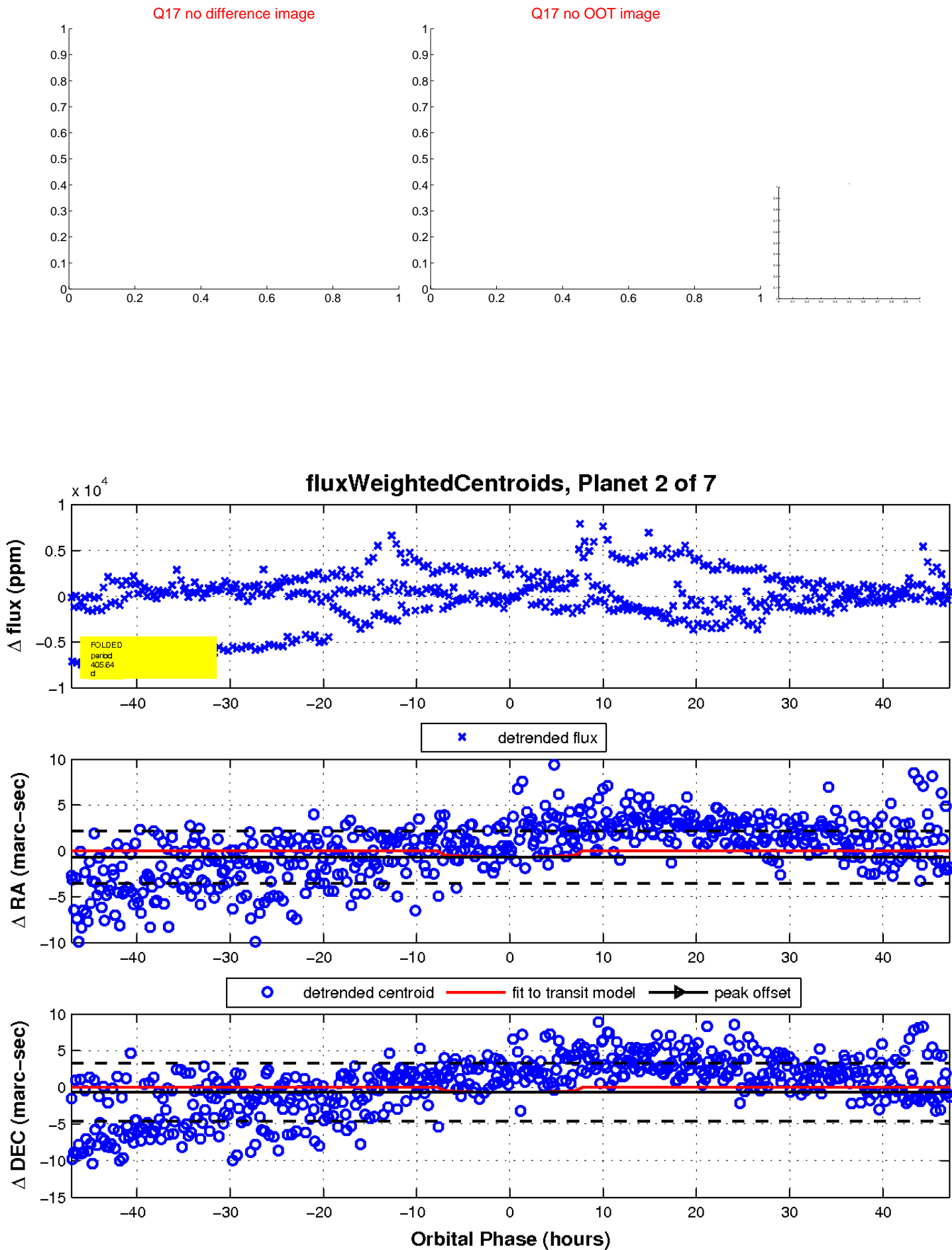
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

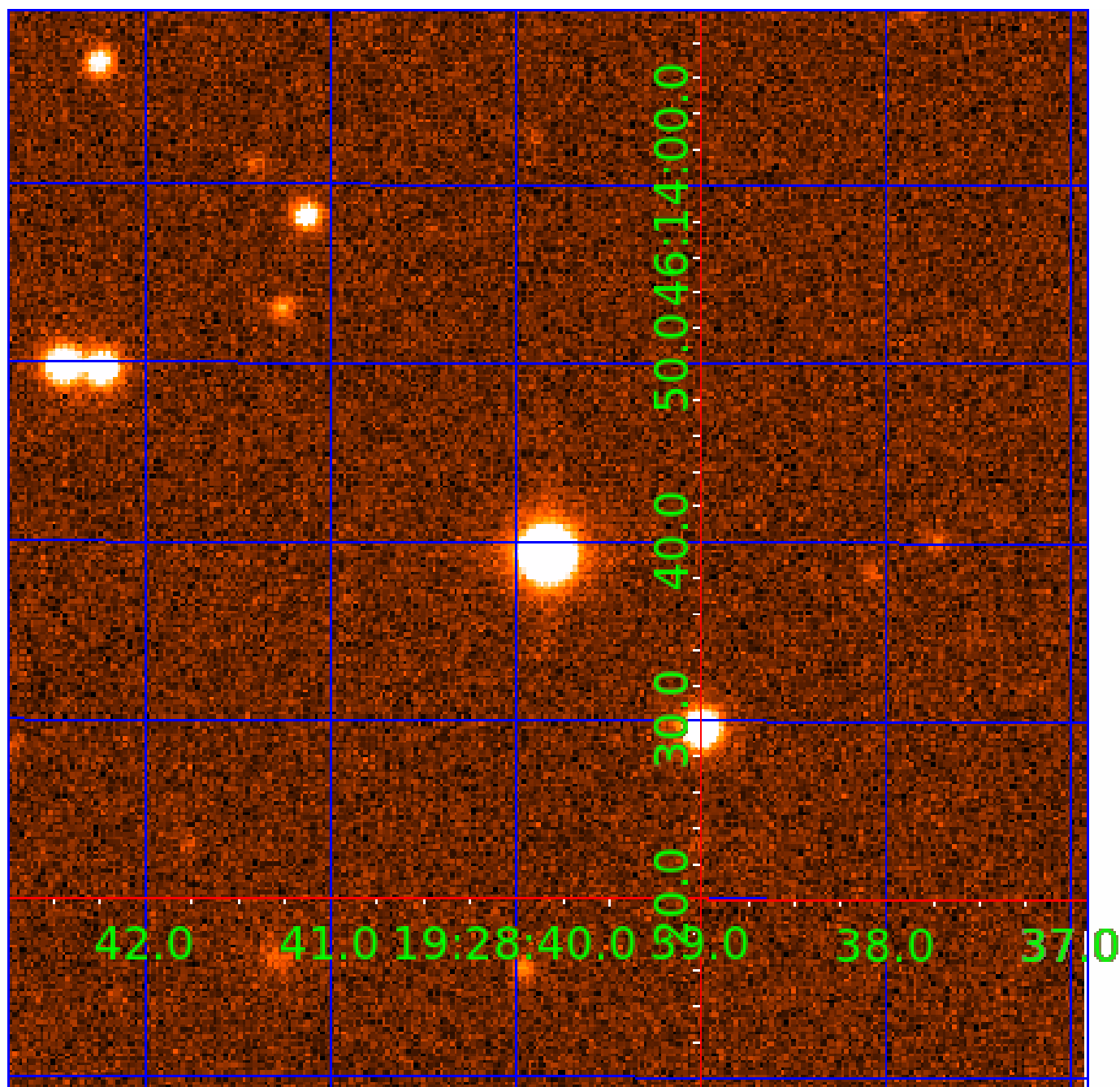


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009588880

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})
009588880-01	OBS	No	335.054280	350.128812	1271.6	3.491	15.4	6.3	0.53	3900	2.02	0.10
009588880-02	OBS	No	405.640147	376.726765	2125.4	15.727	12.3	6.5	0.53	3900	2.44	0.08
009588880-03	OBS	No	250.335064	166.474043	1493.7	12.033	12.6	7.6	0.53	3900	2.24	0.14
009588880-04	OBS	No	441.771666	471.144684	1675.3	4.205	14.1	9.0	0.53	3900	2.20	0.07
009588880-05	OBS	No	212.404286	138.498794	1153.0	3.433	12.8	7.0	0.53	3900	1.83	0.18
009588880-06	OBS	No	497.614162	355.791575	376.2	5.293	12.8	1.8	0.53	3900	1.04	0.06
009588880-07	OBS	7946.01	77.976209	175.354954	1665.6	2.000	9.2	-1.0	0.53	3900	2.15	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009588880-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009588880-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
009588880-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009588880-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES
009588880-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-07	OBS	FP	0.23	1	0	0	0	LPP_DV—CENT_NOFITS

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

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

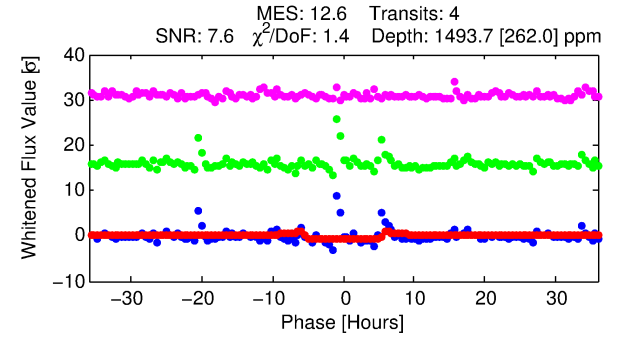
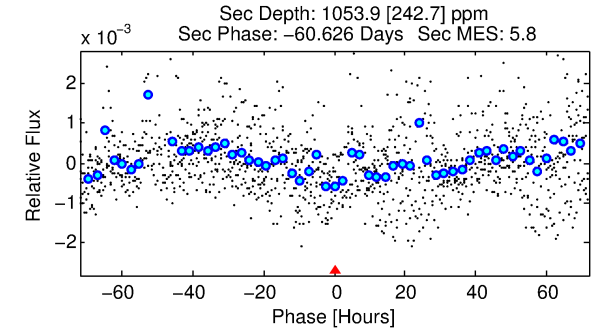
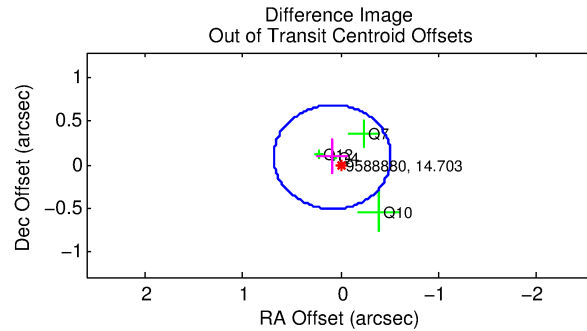
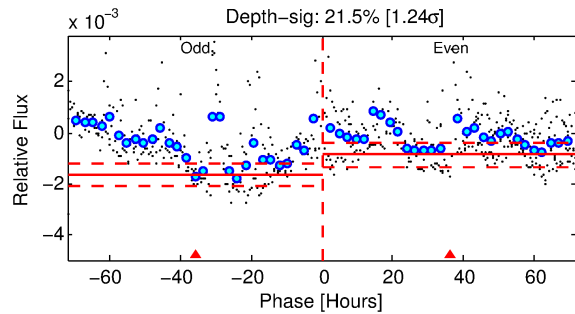
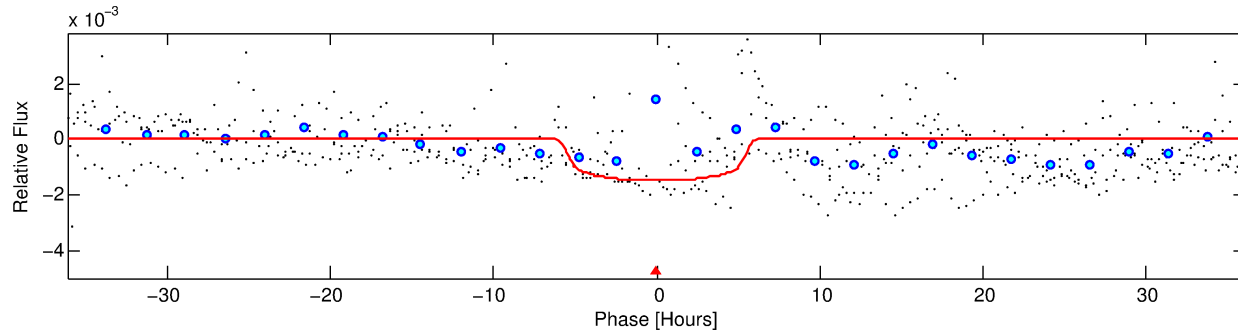
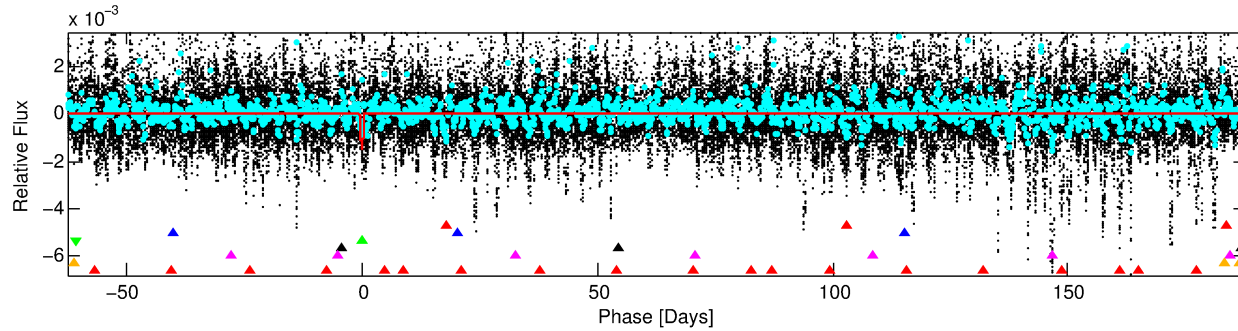
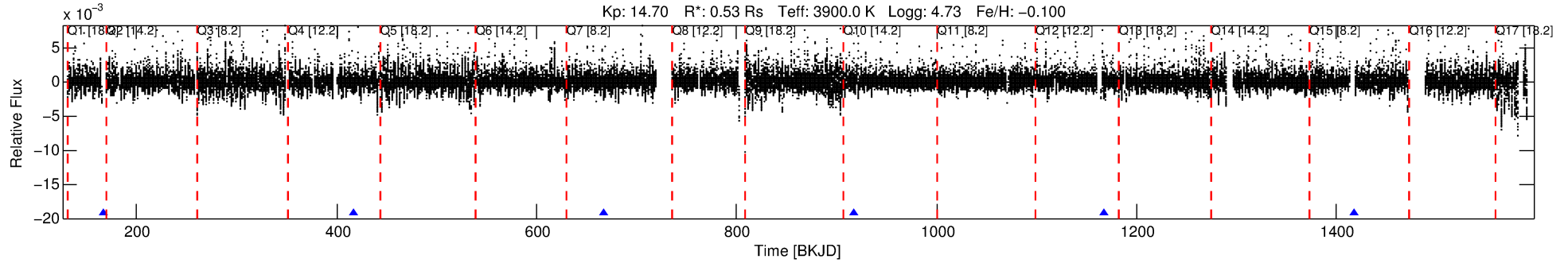
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009588880-03

No Significant Match Found

DV One-Page Summary

KIC: 9588880 Candidate: 3 of 7 Period: 250.335 d



DV Fit Results:

Period = 250.33506 [0.00682] d
Epoch = 166.4740 [0.0185] BKJD
Rp/R* = 0.0384 [0.0053]
a/R* = 114.19 [45.17]
b = 0.75 [0.23]
Seff = 0.14 [0.04]
Teq = 157 [11] K
Rp = 2.24 [0.52] Re
a = 0.6389 [0.0922] AU
Ag = 47162.43 [19168.43] [2.46 σ]
Teffp = 3584 [366] K [9.36 σ]

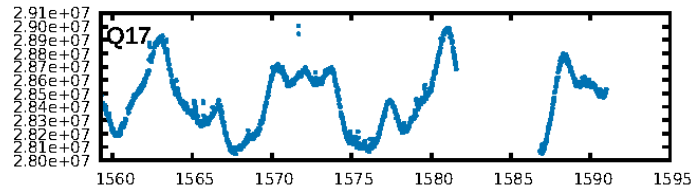
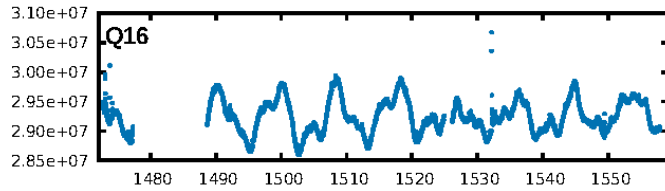
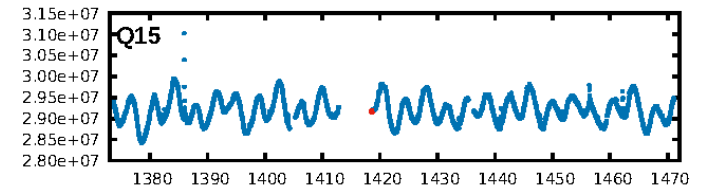
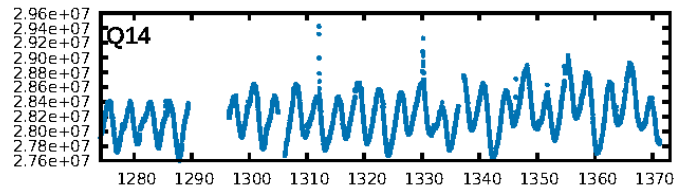
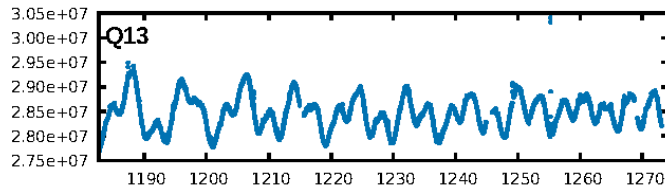
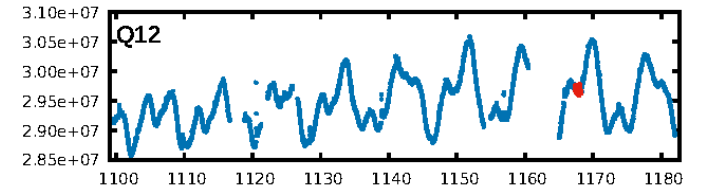
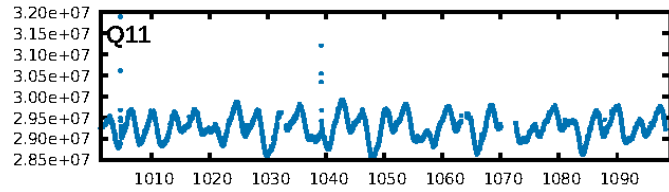
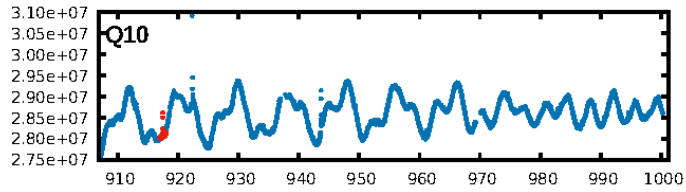
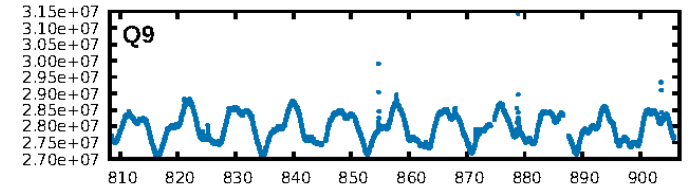
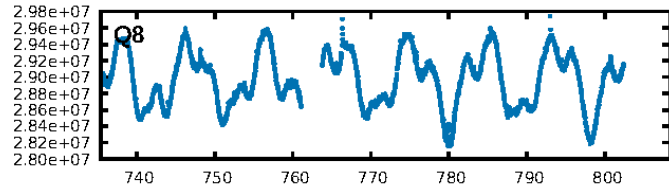
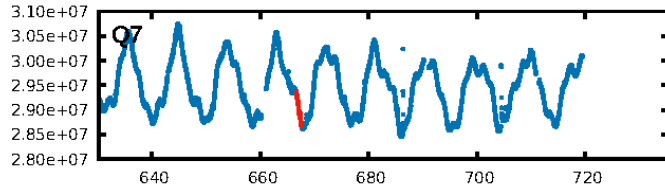
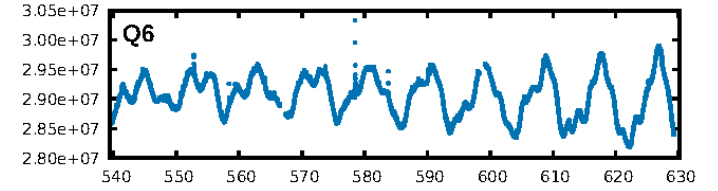
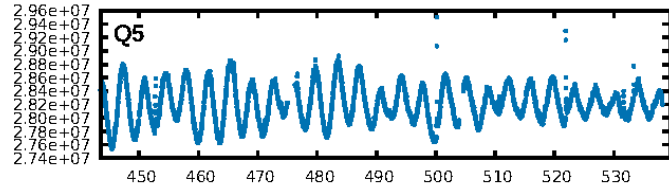
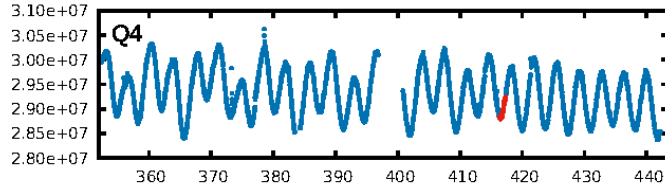
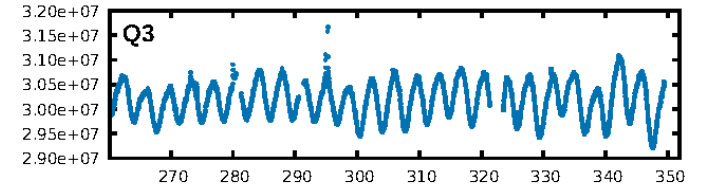
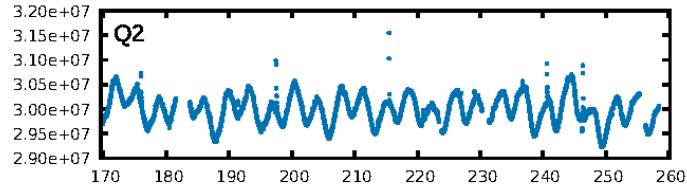
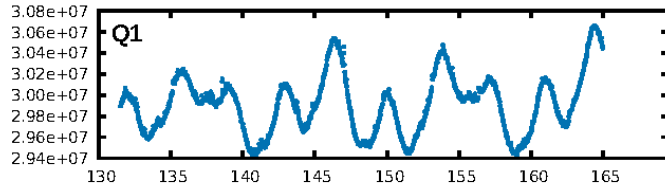
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [72.75 σ]
LongPeriod-sig: 100.0% [162.28 σ]
ModelChiSquare2-sig: 68.3%
ModelChiSquareGof-sig: 97.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.6068
Centroid-sig: 0.0%
Centroid-so: 2.039 arcsec [2.78 σ]
OotOffset-rm: 0.124 arcsec [0.62 σ]
KicOffset-rm: 0.133 arcsec [0.82 σ]
OotOffset-st: 1/1/2/0 [4]
KicOffset-st: 1/1/2/0 [4]
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DiffImageOverlap-fno: 1.00 [4/4]

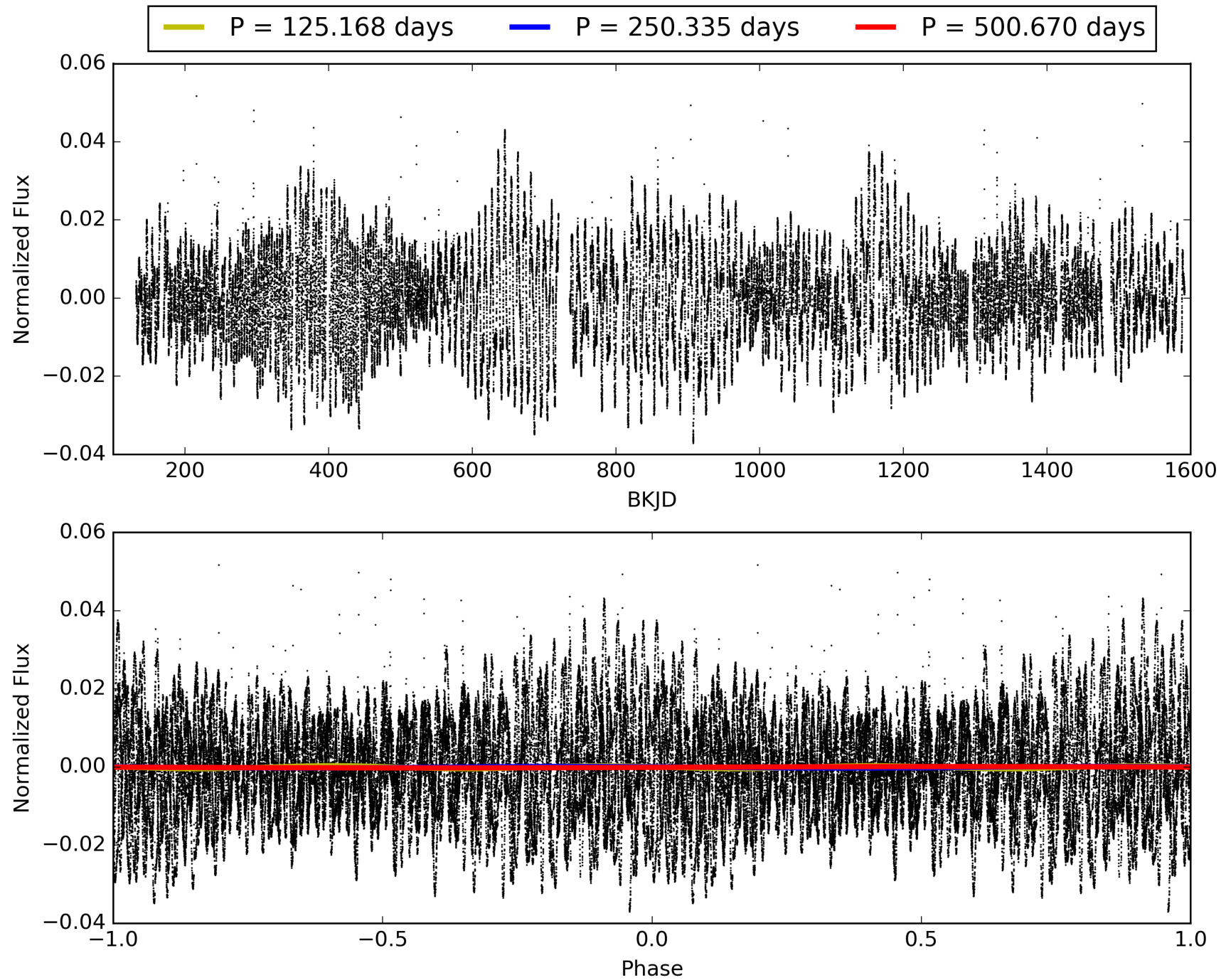
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:01:01 Z

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

TCE 009588880-03, PDC Light Curves

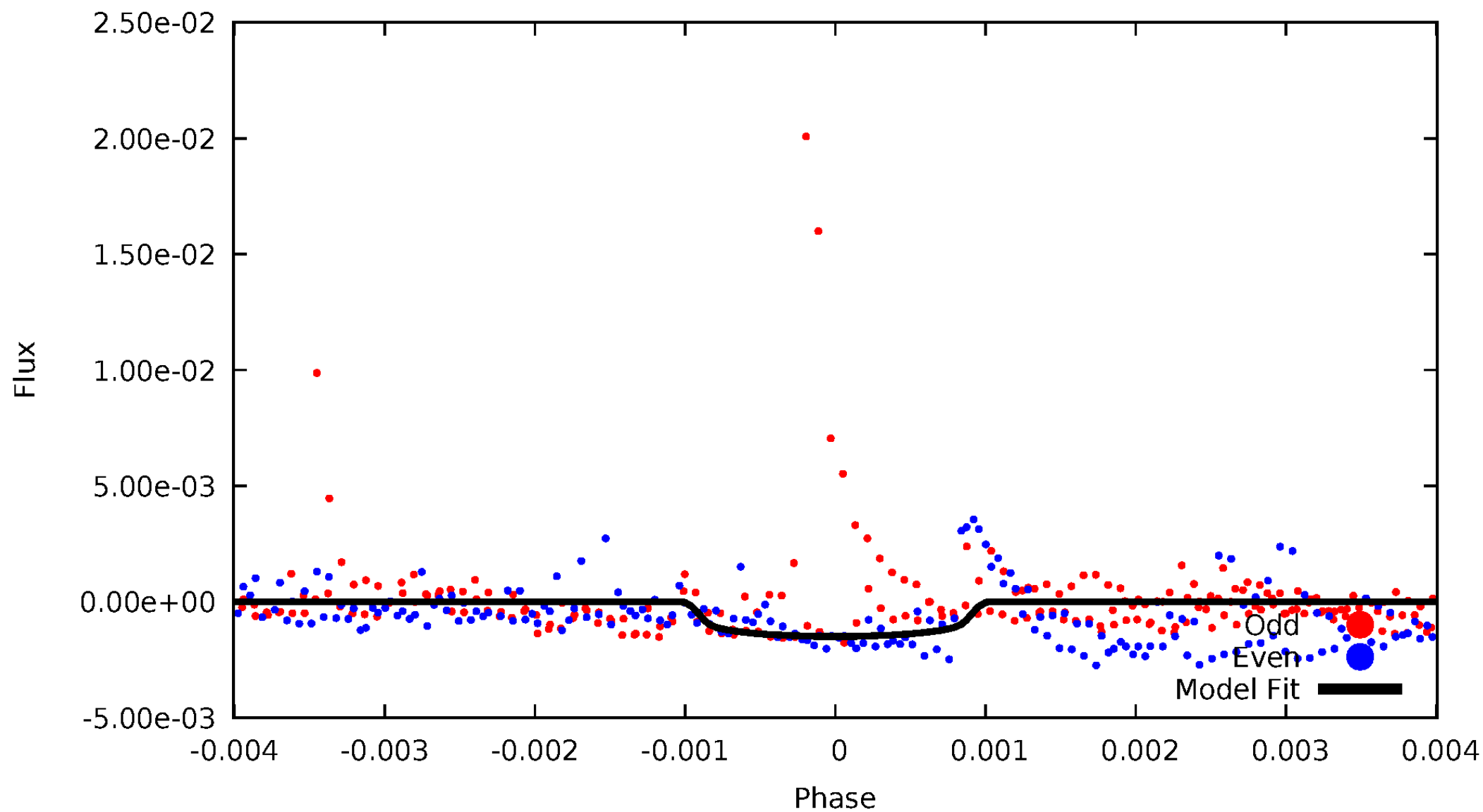


TCE 009588880-03



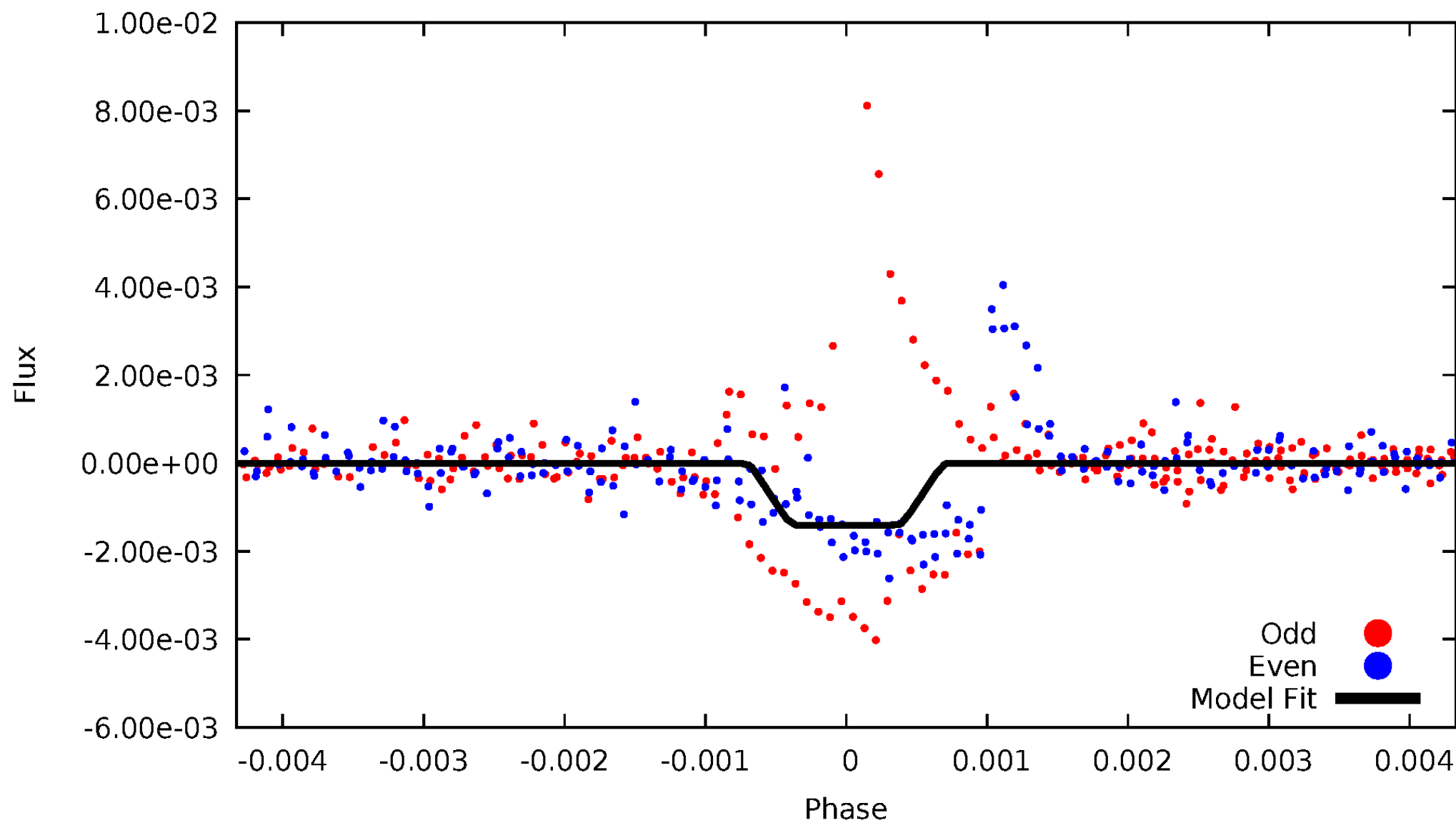
DV Odd/Even

TCE 009588880-03



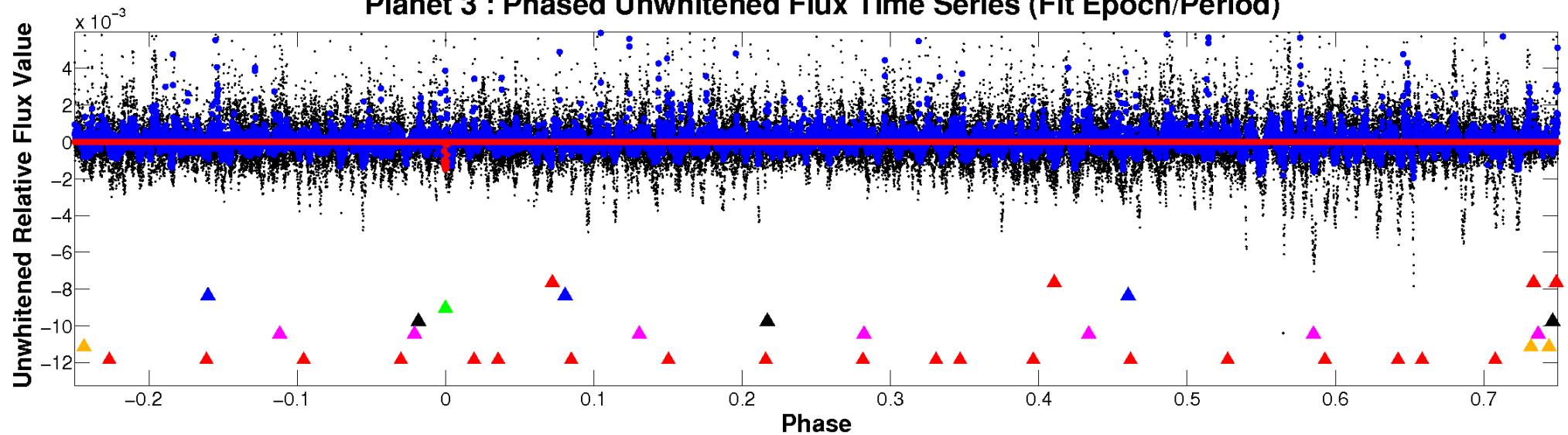
ALT Odd/Even

TCE 009588880-03

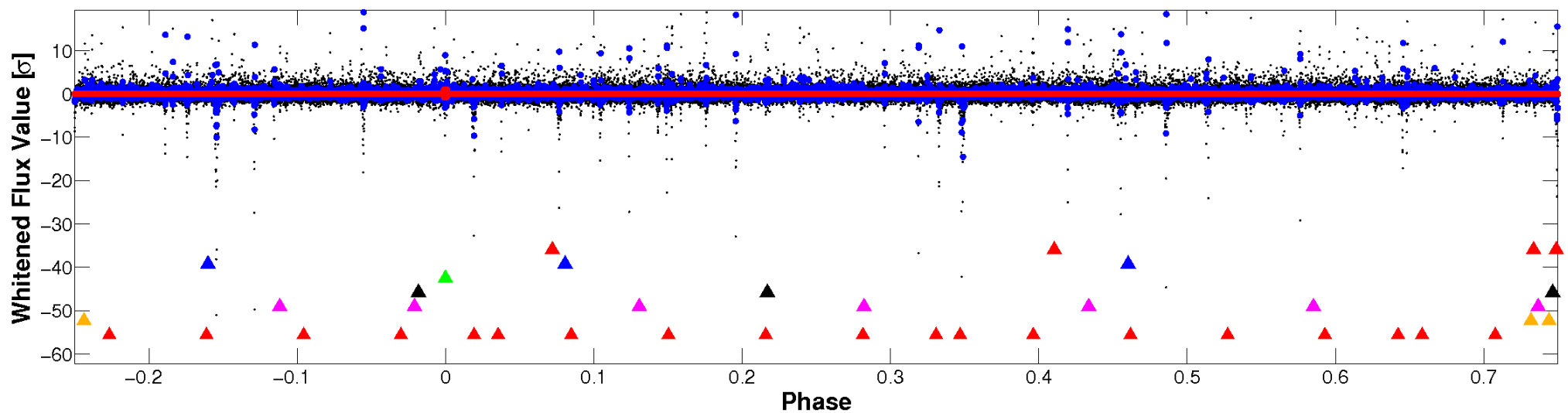


Non-Whitened Vs. Whitened Light Curve

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

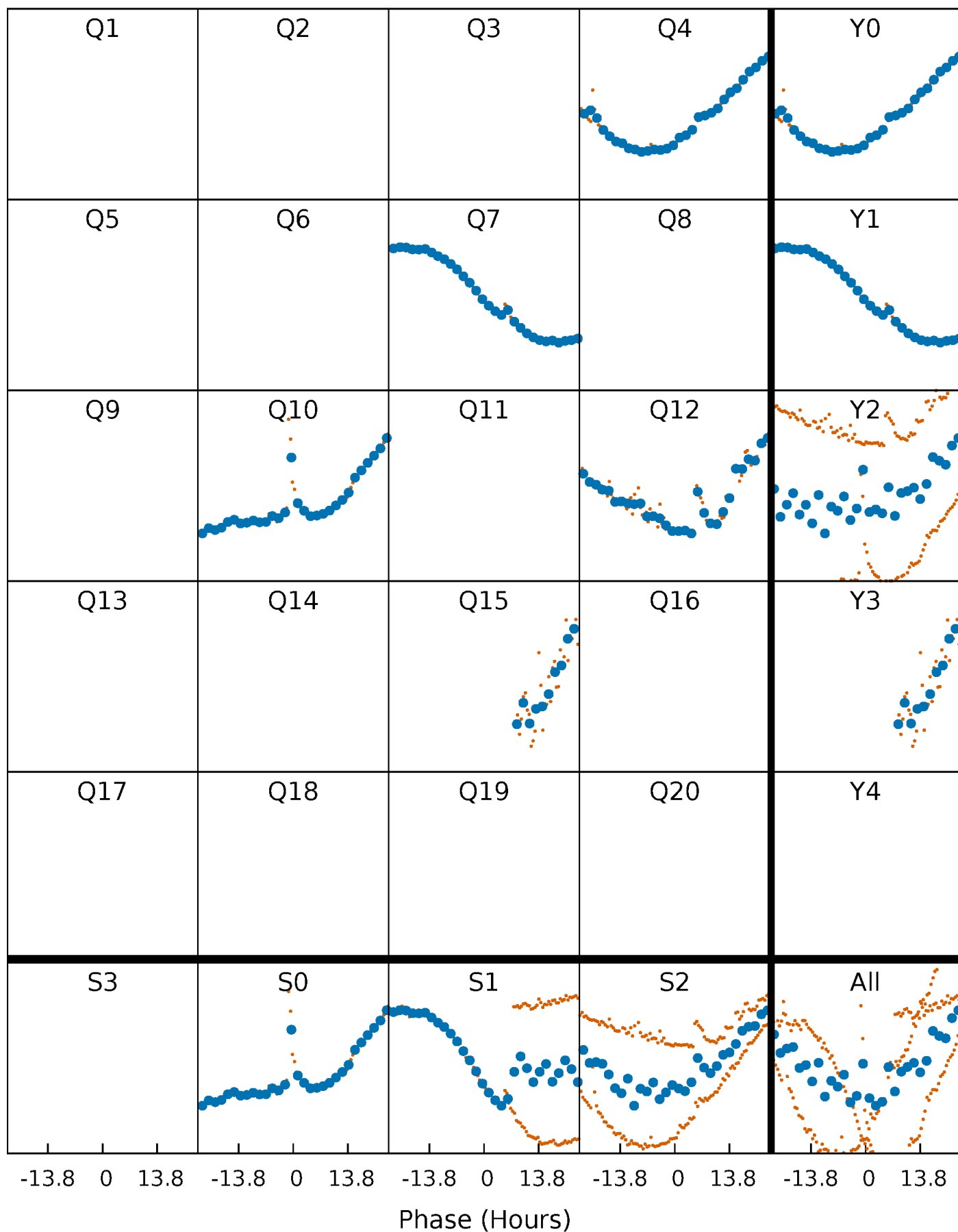


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



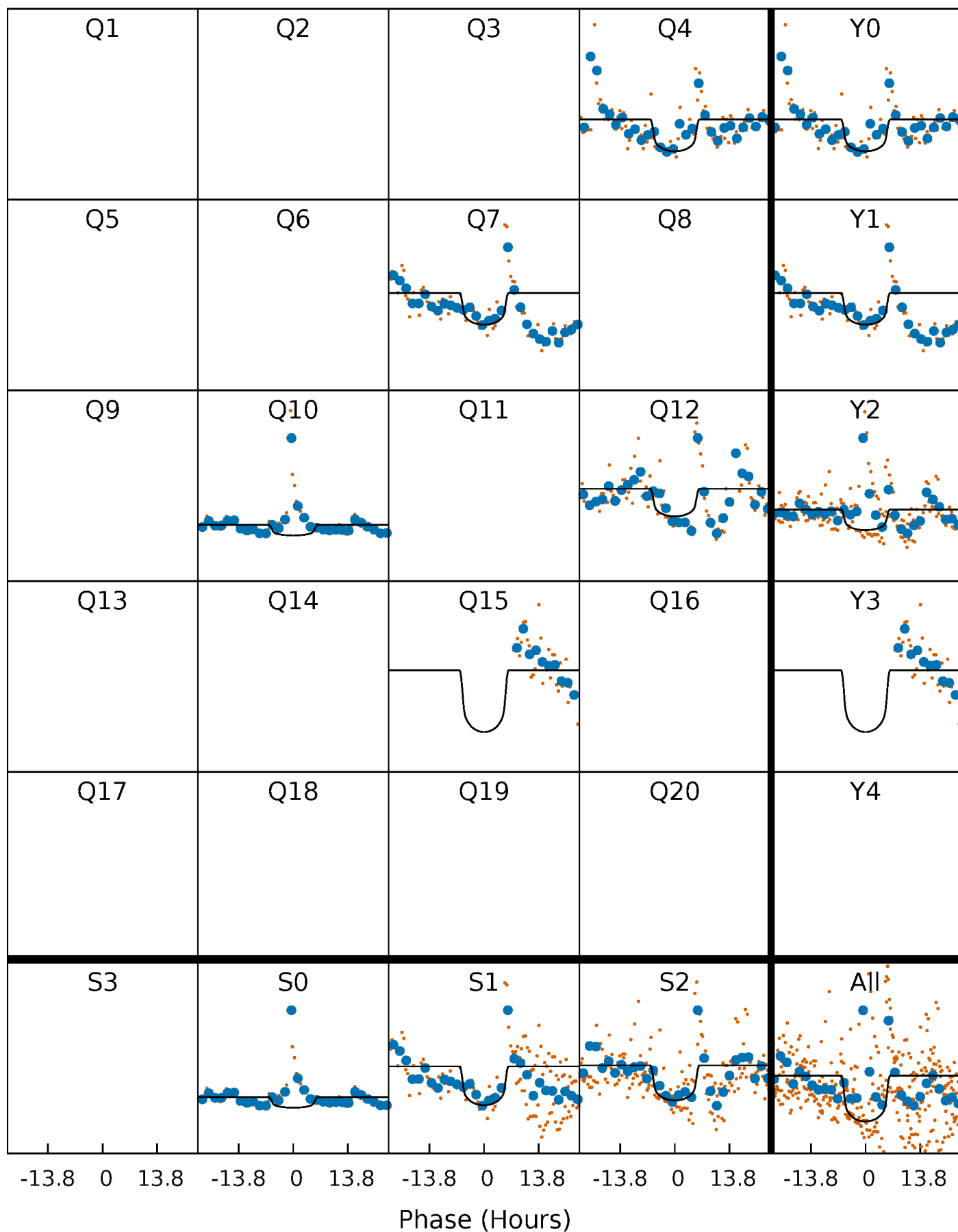
PDC Quarter-Phased Transit Curves

TCE 009588880-03 $P=250.335064$ Days $T_0=166.474043$ (BKJD)



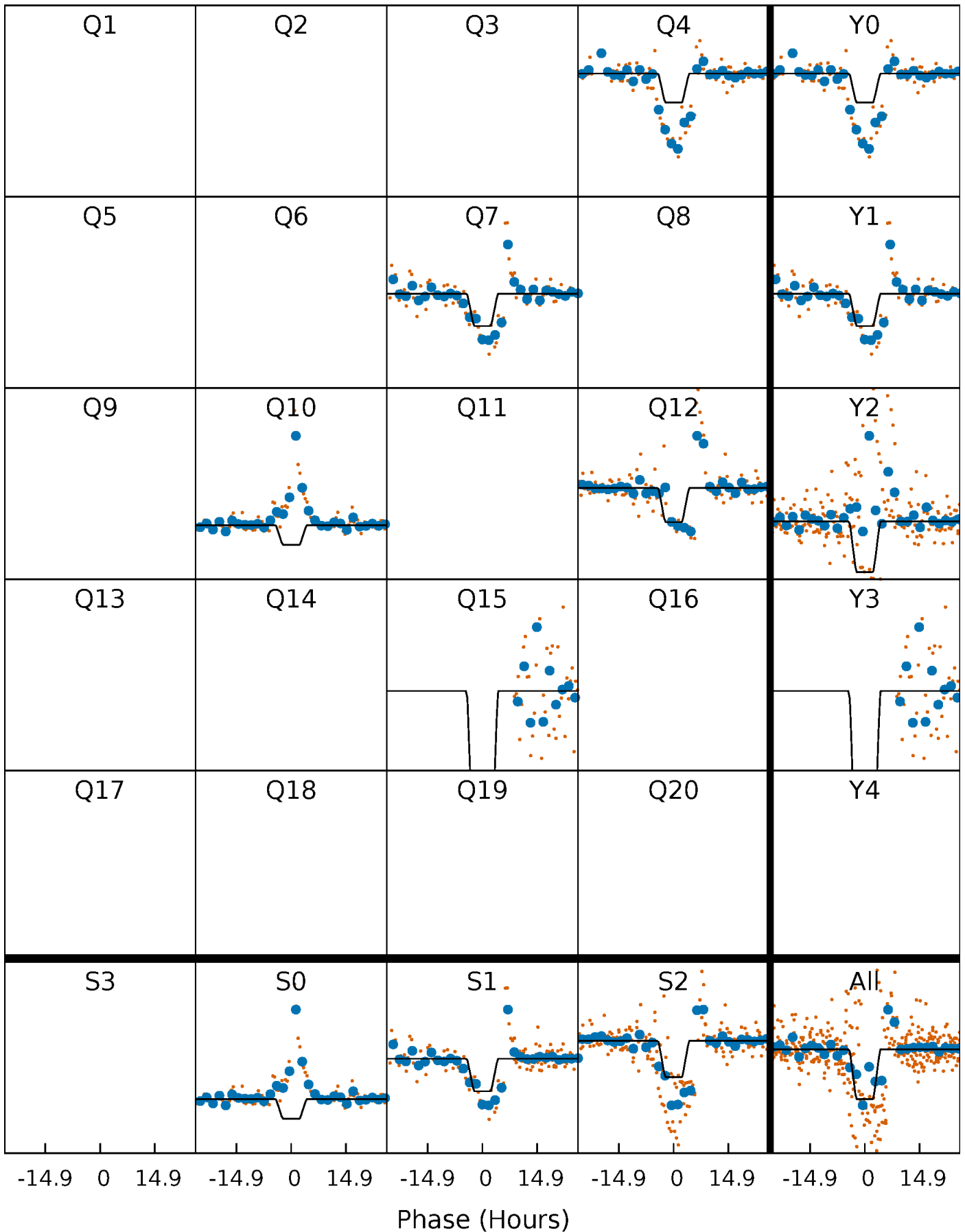
DV Quarter-Phased Transit Curves

TCE 009588880-03 $P=250.335064$ Days $T_0=166.474043$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

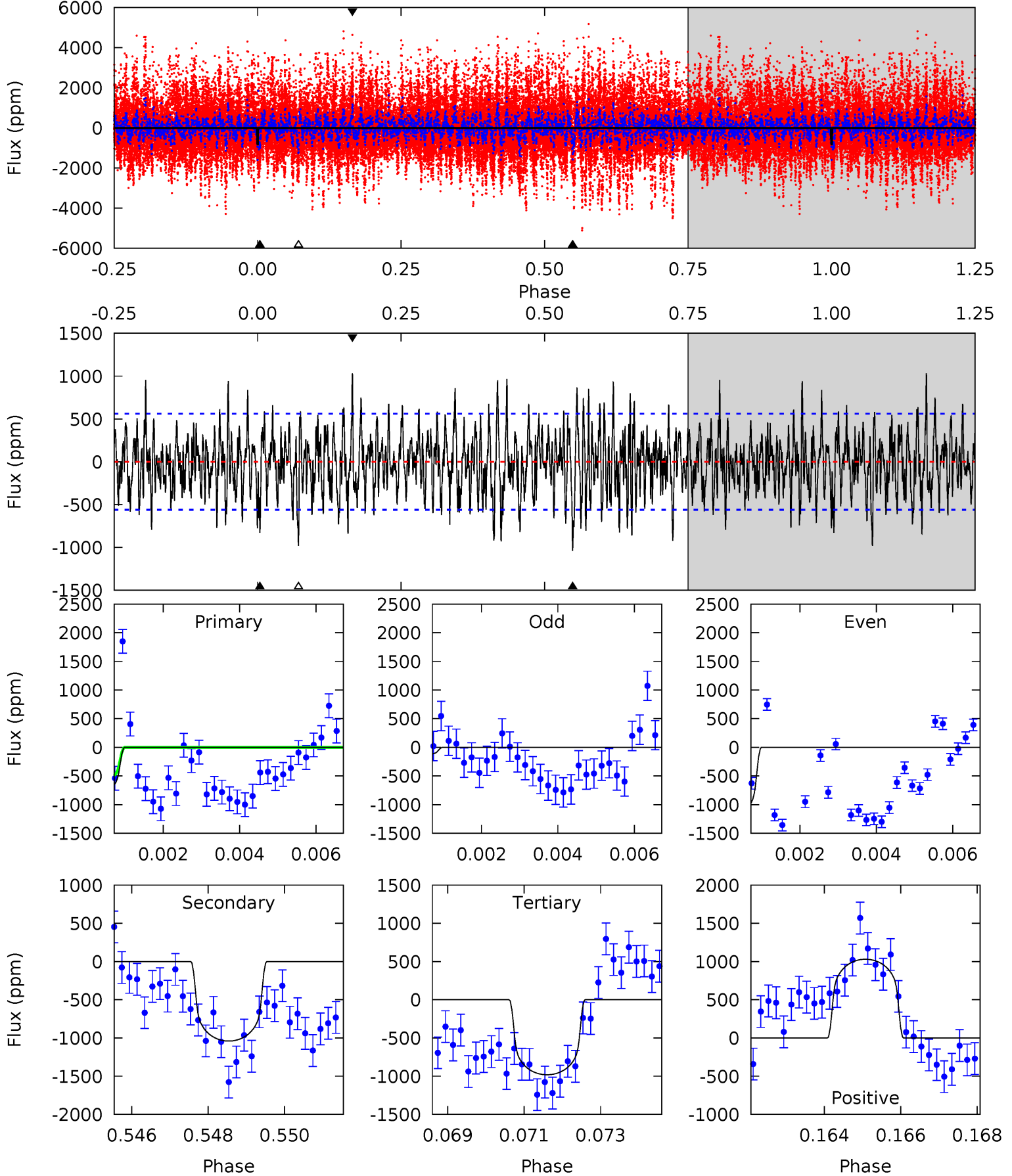
TCE 009588880-03 $P=250.331544$ Days $T_0=166.439630$ (BKJD)



DV Model-Shift Uniqueness Test

009588880-03, P = 250.335064 Days, E = 166.474043 Days

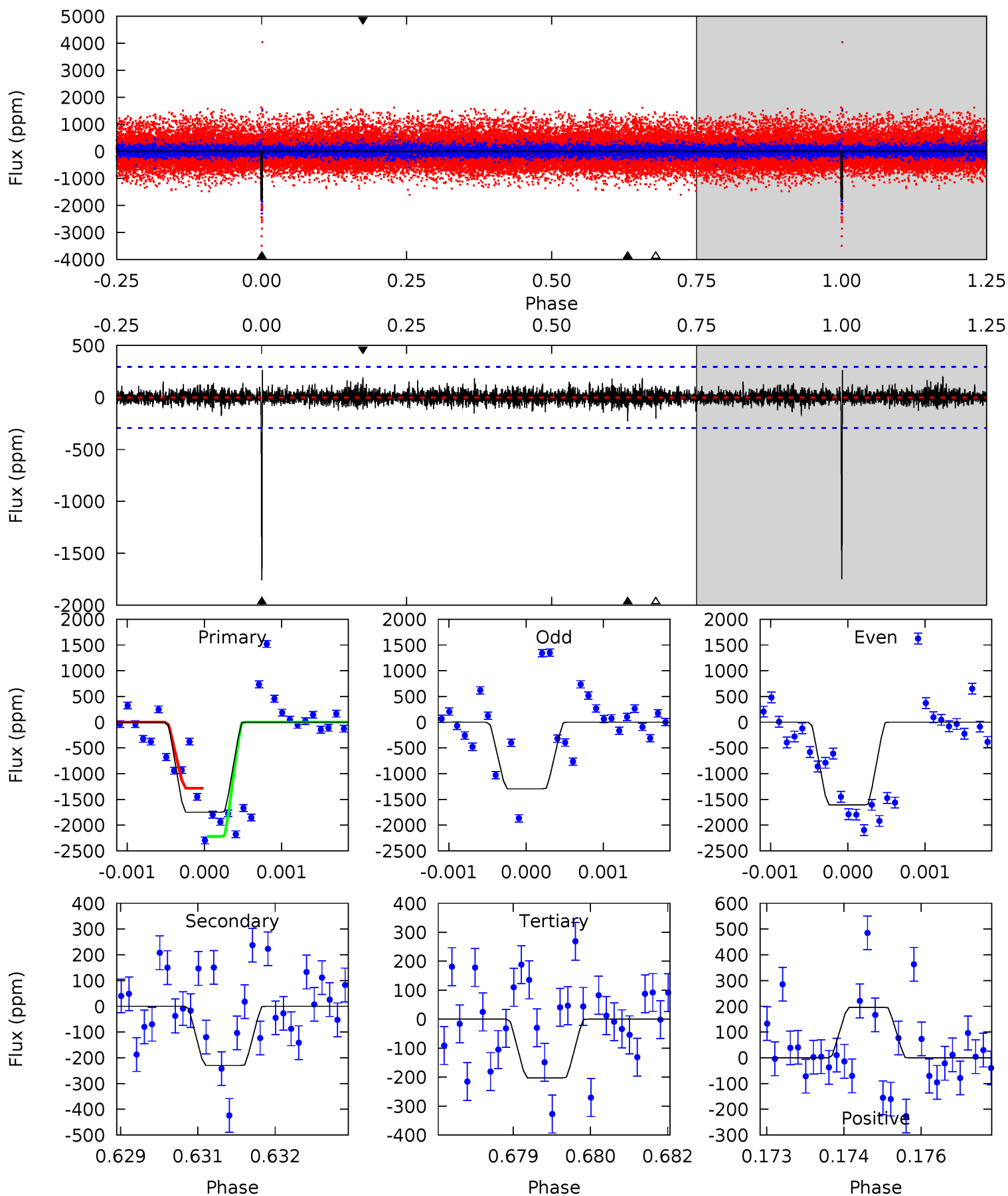
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.85	9.86	9.30	9.76	5.32	3.08	3.01	-1.45	-1.91	0.56	0.10	5.11	0.05	0.50	1.96



Alt Model-Shift Uniqueness Test

009588880-03, P = 250.331544 Days, E = 166.439630 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.1	4.21	3.72	3.59	5.38	3.18	0.74	28.4	28.5	0.50	0.62	3.29	0.50	0.13	8.65



Stellar Parameters For KIC 009588880

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3900^{+173}_{-193}	$4.727^{+0.097}_{-0.052}$	$-0.100^{+0.350}_{-0.400}$	$0.534^{+0.066}_{-0.099}$	$0.555^{+0.061}_{-0.096}$	$5.136^{+2.793}_{-1.071}$
	+4%/-5%	+2%/-1%	+350%/-400%	+12%/-19%	+11%/-17%	+54%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009588880-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1040 ± 106	$2.19^{+0.36}_{-0.36}$	217^{+13}_{-13}	3686^{+237}_{-221}	48262^{+20857}_{-12029}
Alt.	-230 ± 55	$2.15^{+0.36}_{-0.34}$	218^{+13}_{-13}	2937^{+201}_{-181}	11177^{+4884}_{-3715}

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

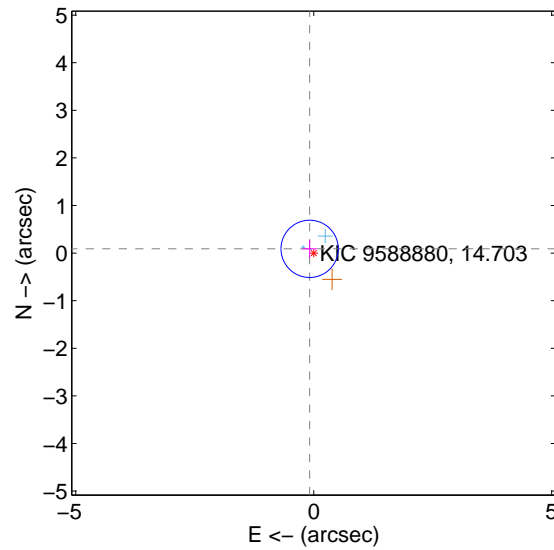
Supplemental centroid analysis for 009588880-03. Kepler magnitude: 14.70. Transit SNR 7.62

There are 3 quarters with good PRF difference image offsets

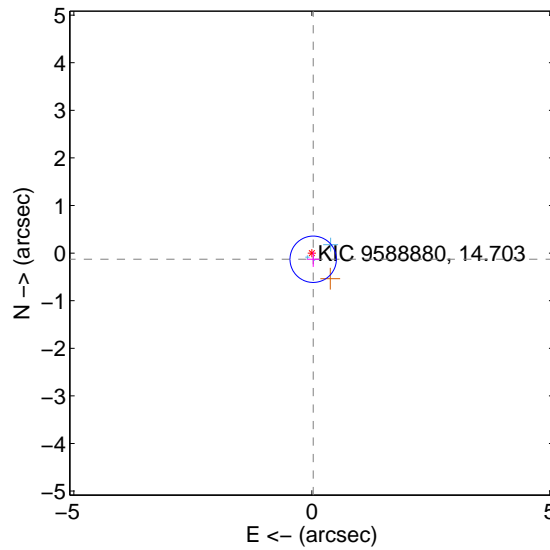
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.124 ± 0.200	0.62	0.086 ± 0.149	0.089 ± 0.195
PRF-fit source offset from KIC position	0.133 ± 0.162	0.82	-0.029 ± 0.130	-0.130 ± 0.160
photometric centroid source offset	2.04 ± 0.73	2.78	-1.62 ± 0.69	1.24 ± 0.80

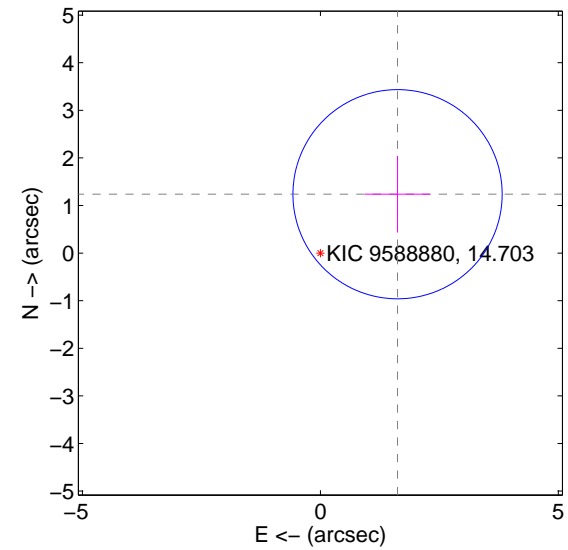
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

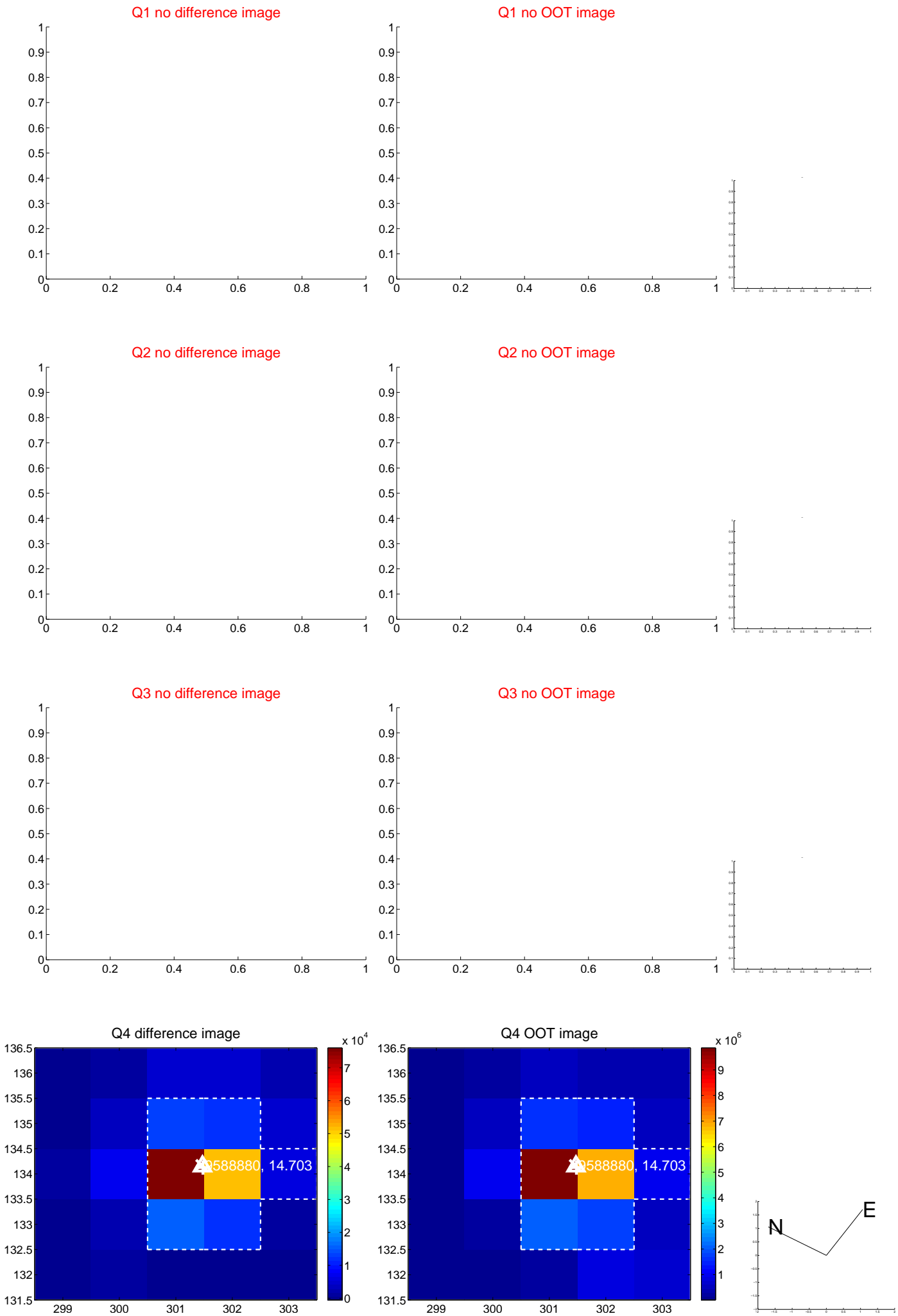


offset from photometric centroids



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

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



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

Q5 no difference image



Q5 no OOT image



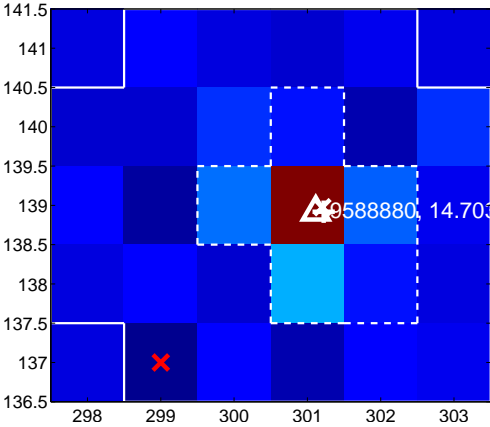
Q6 no difference image



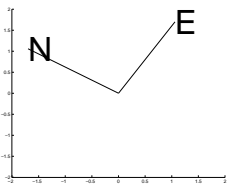
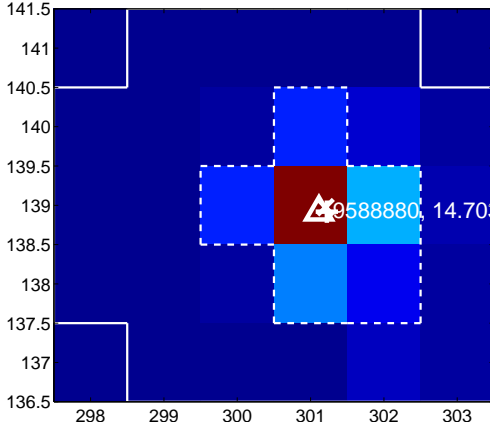
Q6 no OOT image



Q7 difference image



Q7 OOT image



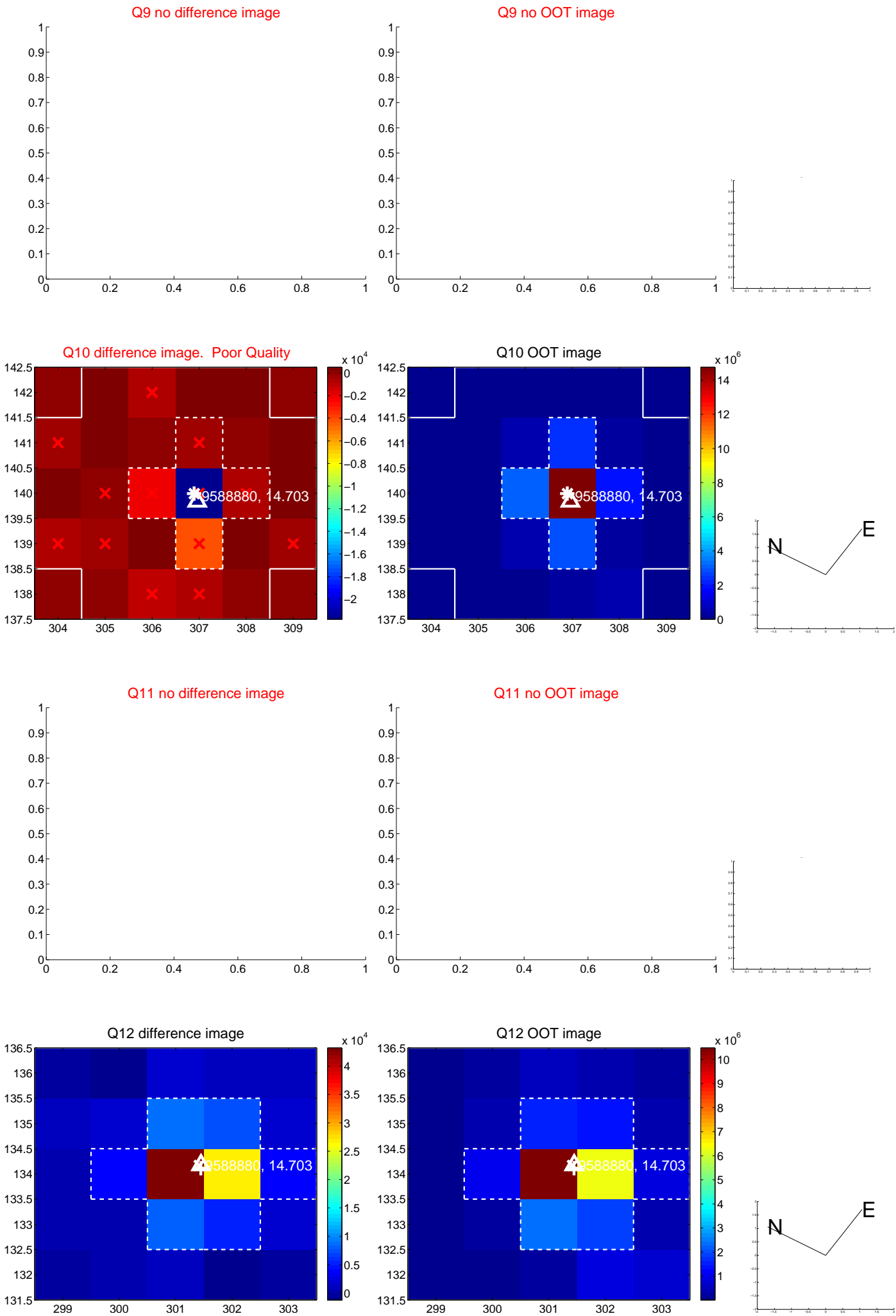
Q8 no difference image



Q8 no OOT image



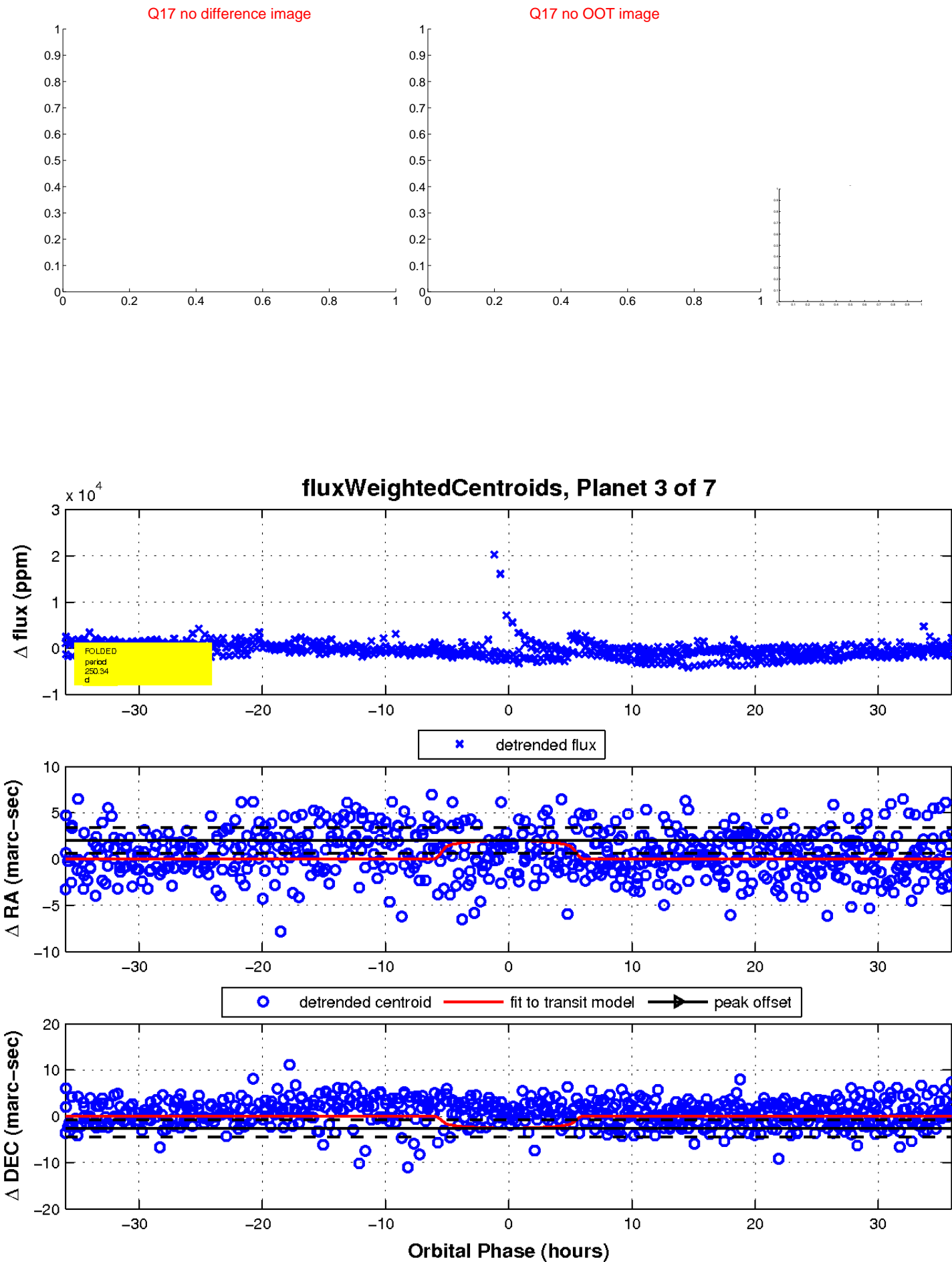
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



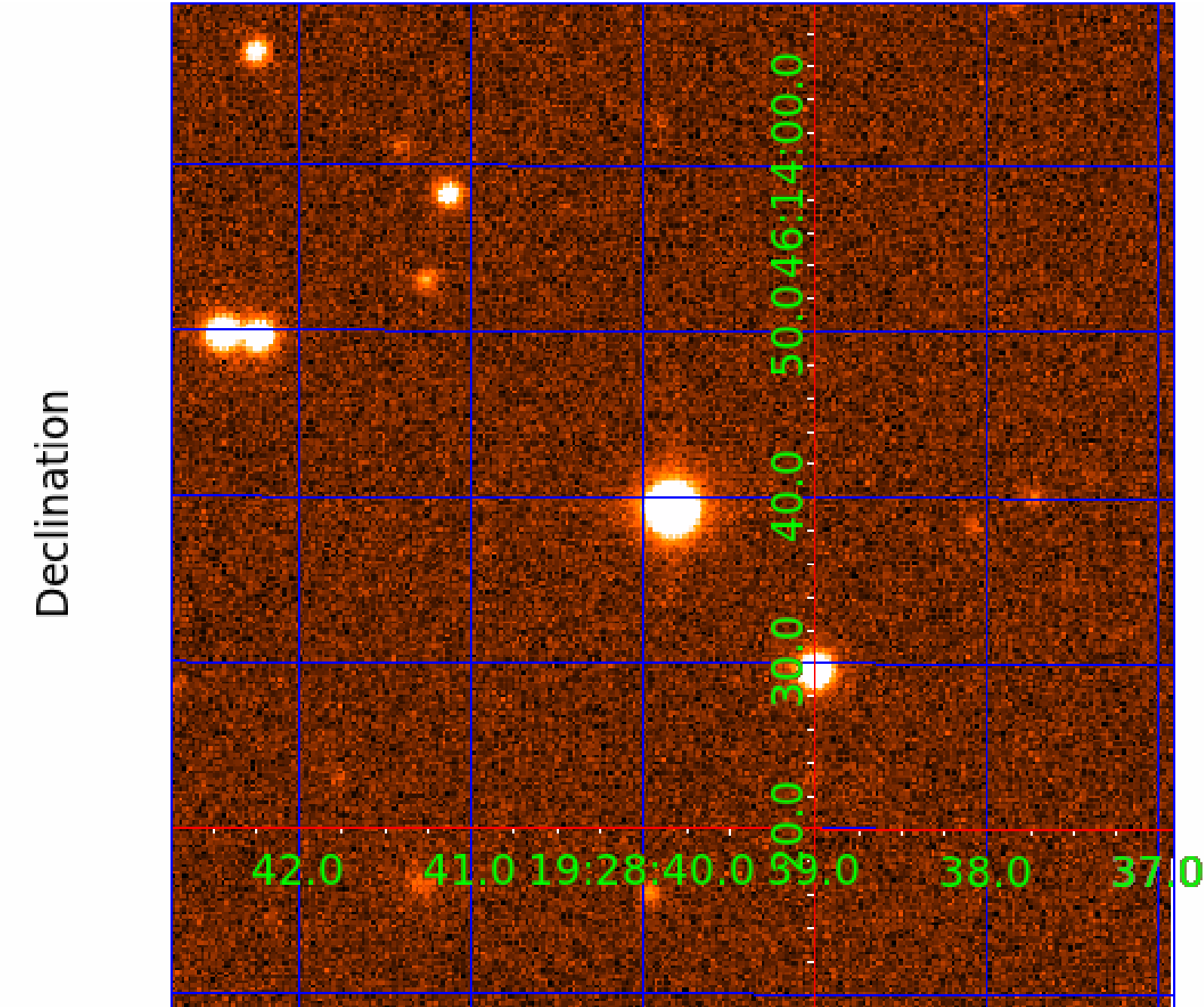
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009588880

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})
009588880-01	OBS	No	335.054280	350.128812	1271.6	3.491	15.4	6.3	0.53	3900	2.02	0.10
009588880-02	OBS	No	405.640147	376.726765	2125.4	15.727	12.3	6.5	0.53	3900	2.44	0.08
009588880-03	OBS	No	250.335064	166.474043	1493.7	12.033	12.6	7.6	0.53	3900	2.24	0.14
009588880-04	OBS	No	441.771666	471.144684	1675.3	4.205	14.1	9.0	0.53	3900	2.20	0.07
009588880-05	OBS	No	212.404286	138.498794	1153.0	3.433	12.8	7.0	0.53	3900	1.83	0.18
009588880-06	OBS	No	497.614162	355.791575	376.2	5.293	12.8	1.8	0.53	3900	1.04	0.06
009588880-07	OBS	7946.01	77.976209	175.354954	1665.6	2.000	9.2	-1.0	0.53	3900	2.15	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009588880-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009588880-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
009588880-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009588880-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES
009588880-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-07	OBS	FP	0.23	1	0	0	0	LPP_DV—CENT_NOFITS

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

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

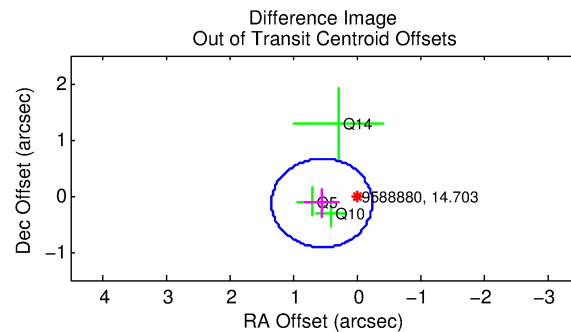
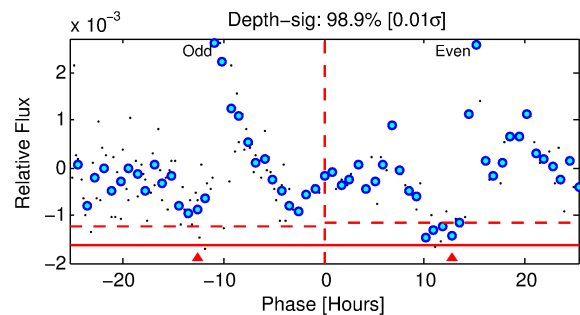
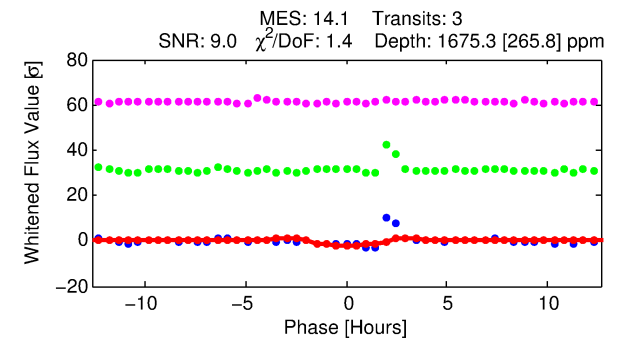
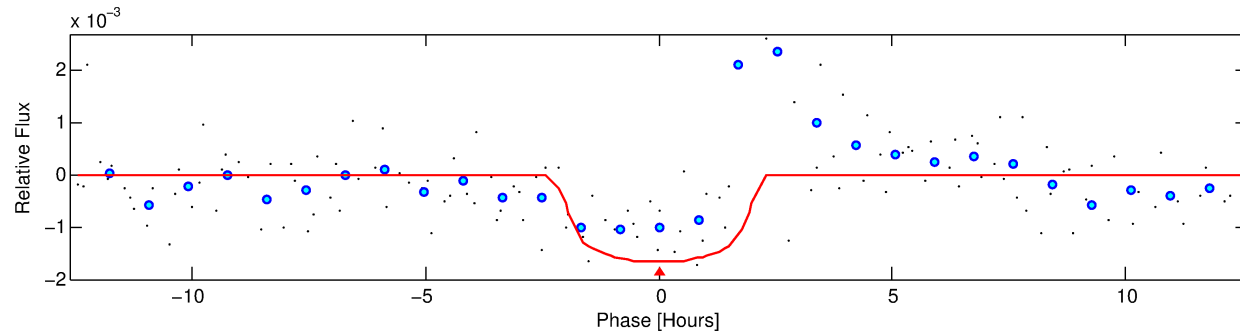
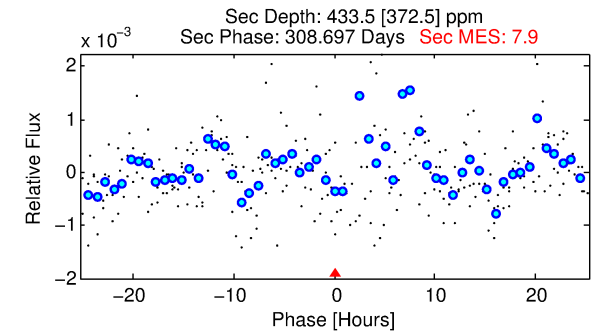
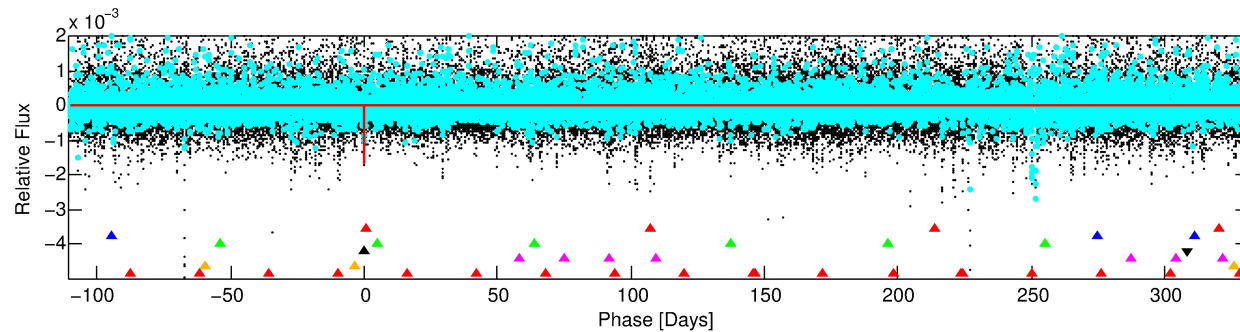
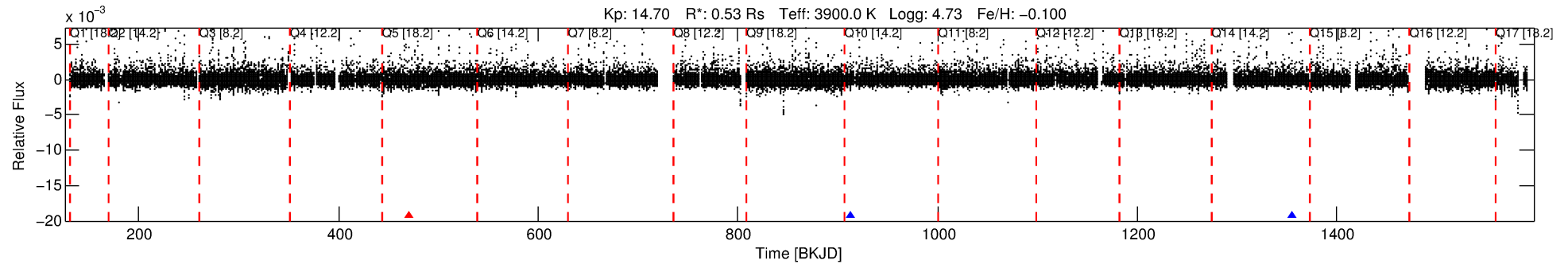
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009588880-04

No Significant Match Found

DV One-Page Summary

KIC: 9588880 Candidate: 4 of 7 Period: 441.772 d



DV Fit Results:

Period = 441.77167 [0.00729] d
Epoch = 471.1447 [0.0099] BKJD
Rp/R* = 0.0378 [0.0663]
a/R* = 766.34 [5639.79]
b = 0.41 [15.21]
Seff = 0.07 [0.02]
Teq = 130 [9] K
Rp = 2.20 [3.88] Re
a = 0.9329 [0.1346] AU
Ag = 42833.58 [154951.90] [0.28 σ]
Teffp = 2895 [2619] K [1.06 σ]

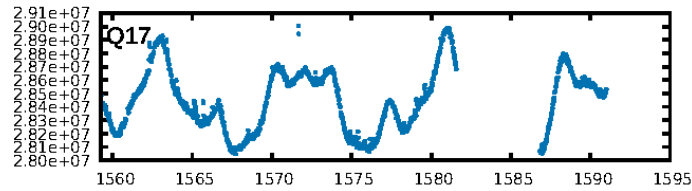
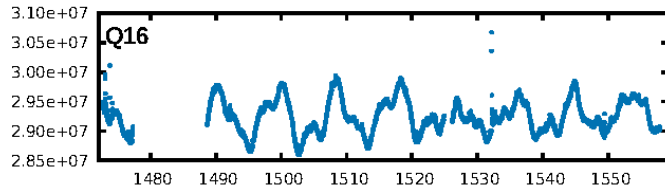
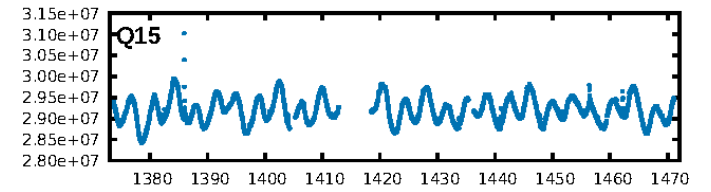
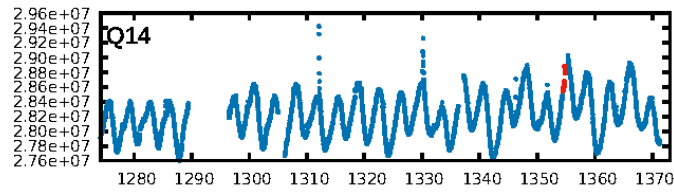
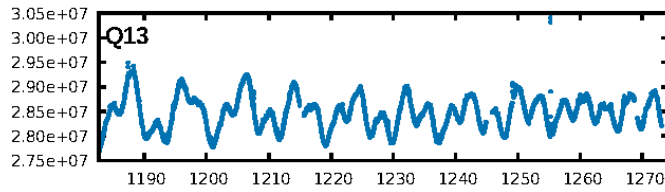
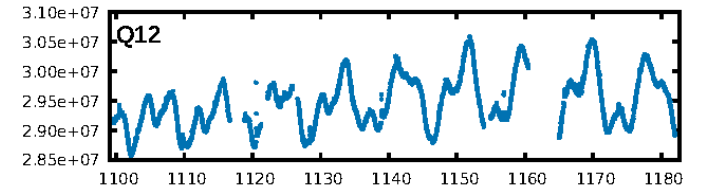
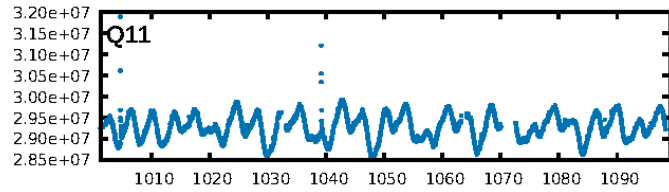
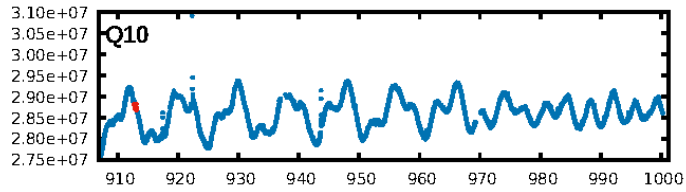
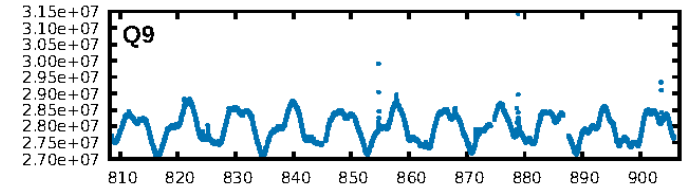
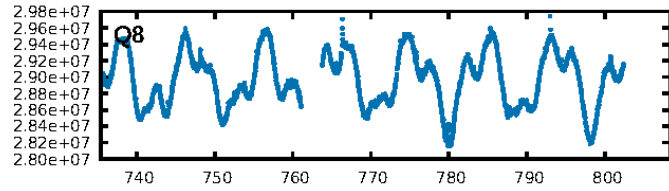
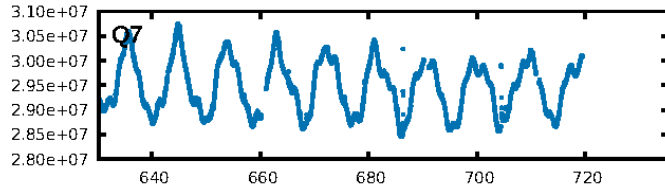
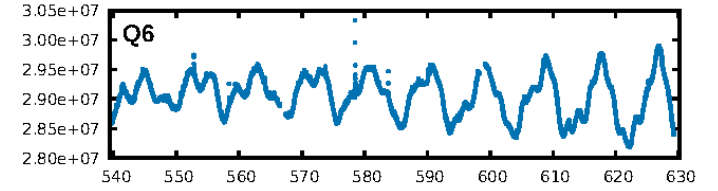
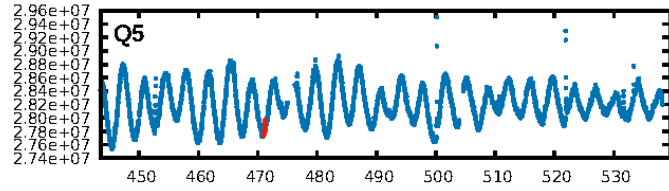
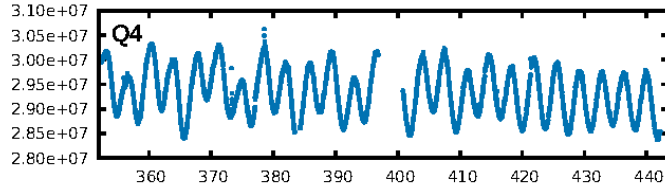
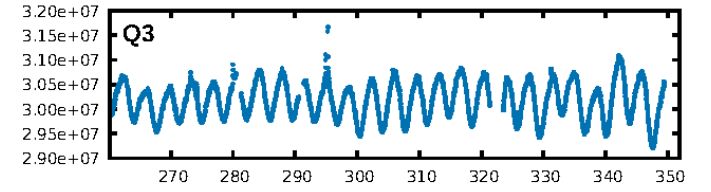
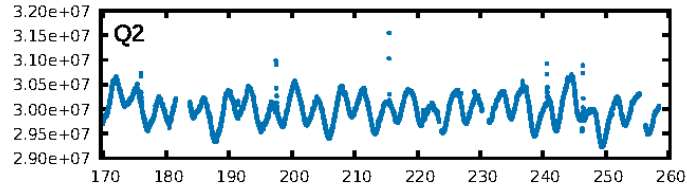
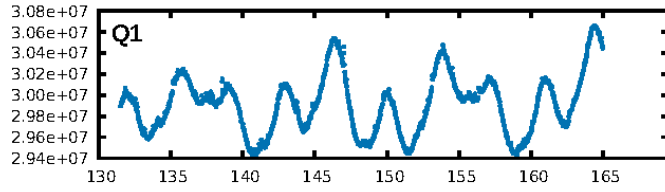
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [53.27 σ]
LongPeriod-sig: 100.0% [198.28 σ]
ModelChiSquare2-sig: 80.3%
ModelChiSquareGof-sig: 81.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: 23.57
Centroid-sig: 82.3%
Centroid-so: 0.677 arcsec [0.94 σ]
OotOffset-rm: 0.559 arcsec [2.12 σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-rm: 0.630 arcsec [2.21 σ]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

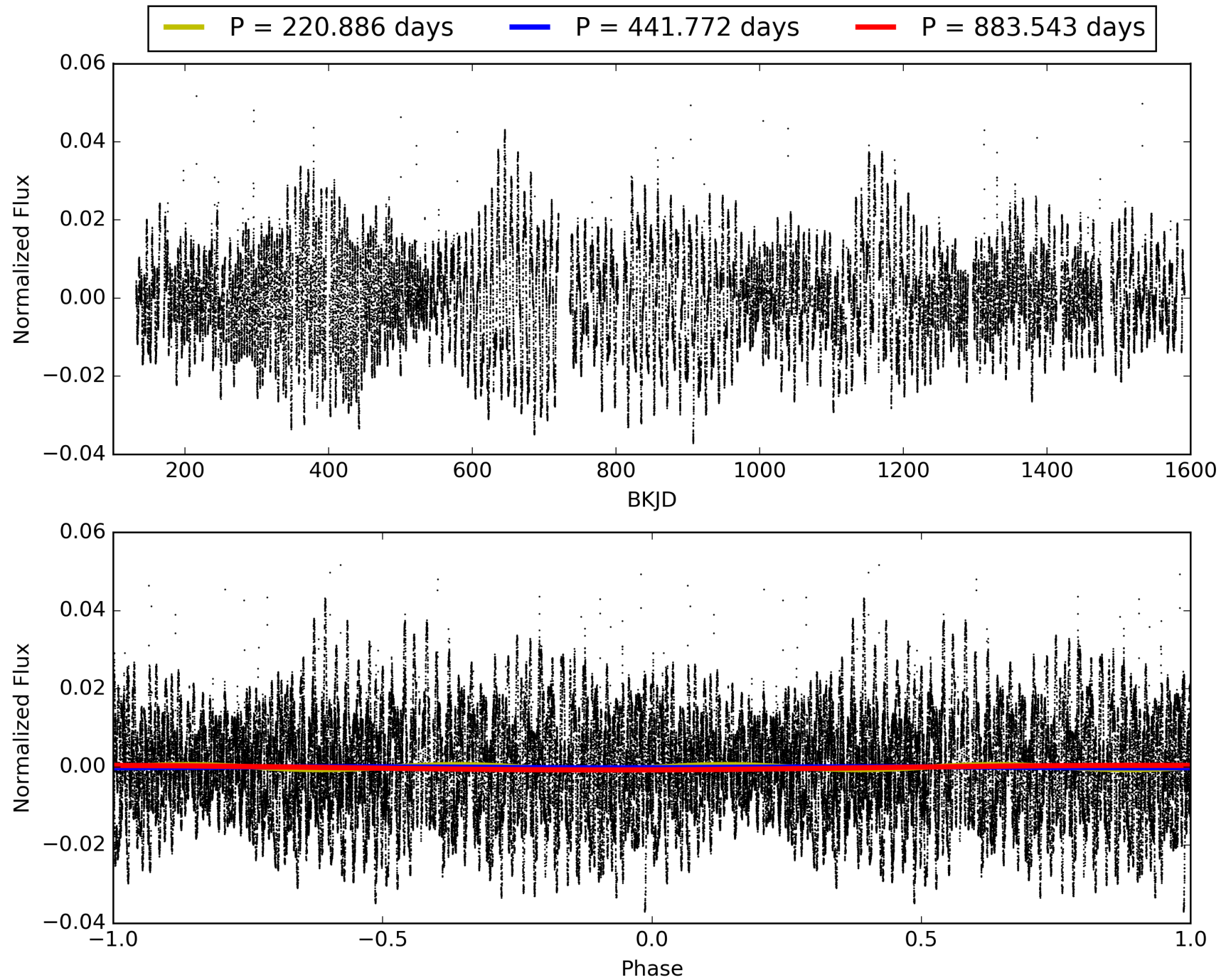
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:01:17 Z

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

TCE 009588880-04, PDC Light Curves

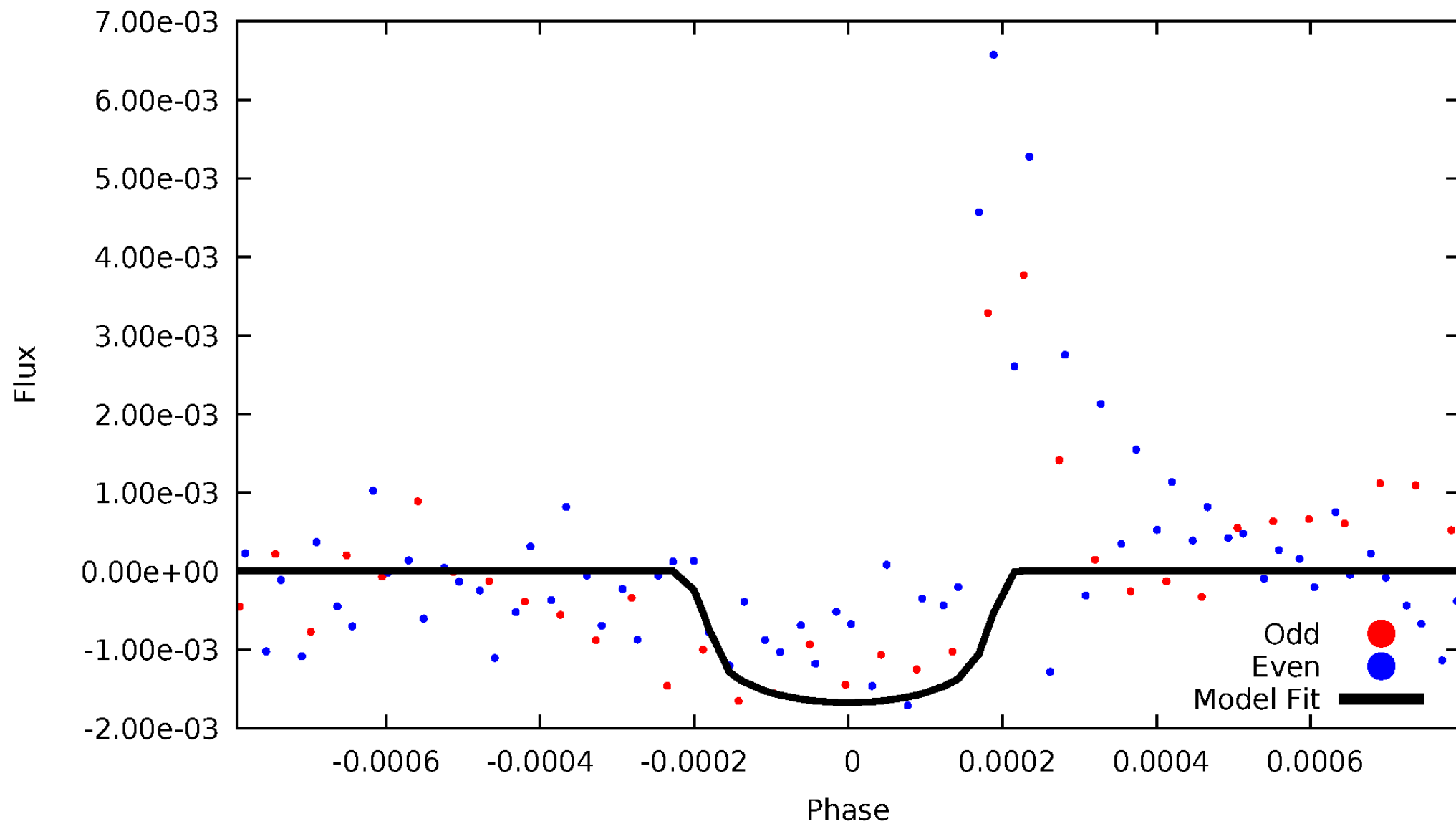


TCE 009588880-04



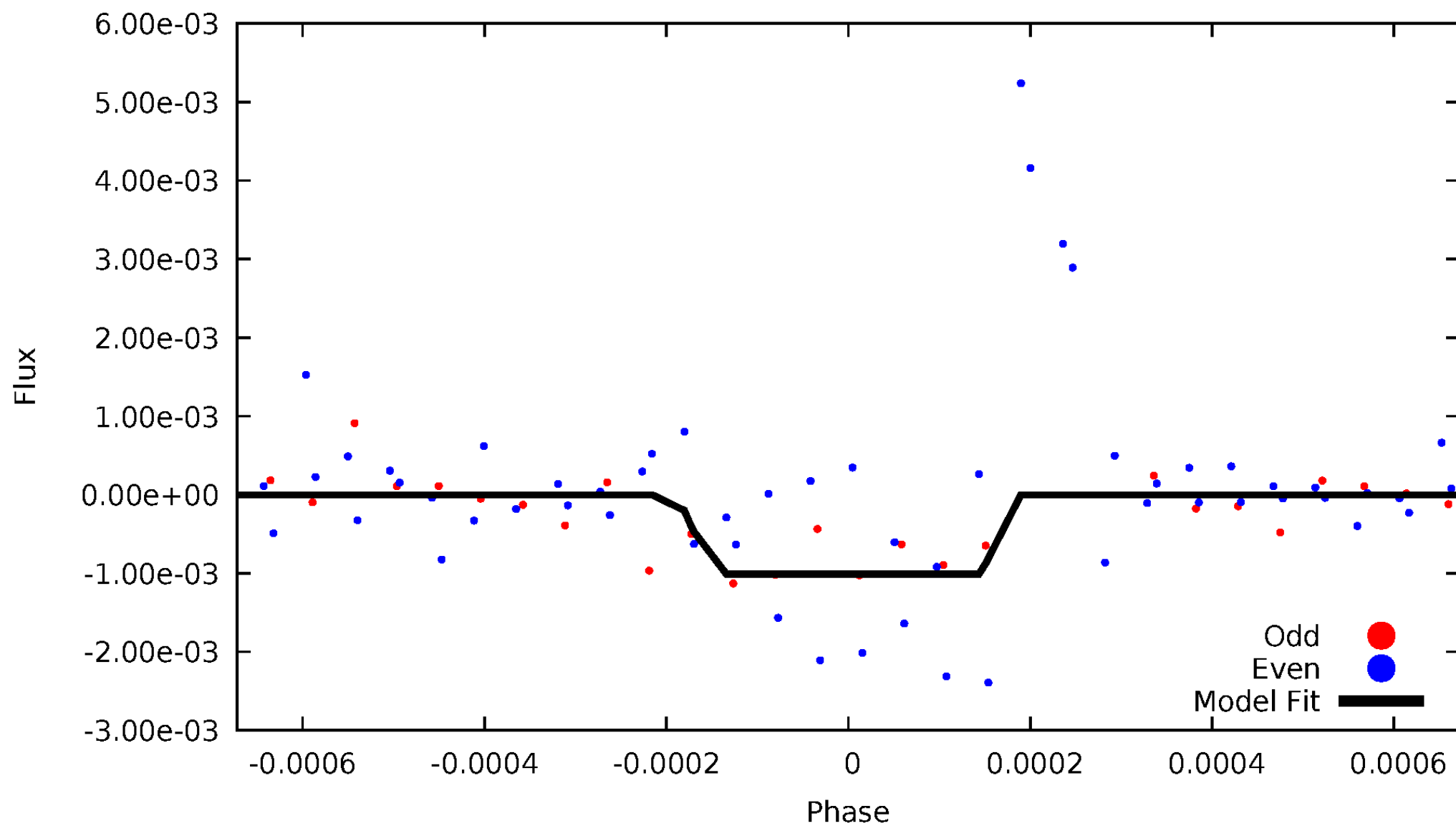
DV Odd/Even

TCE 009588880-04



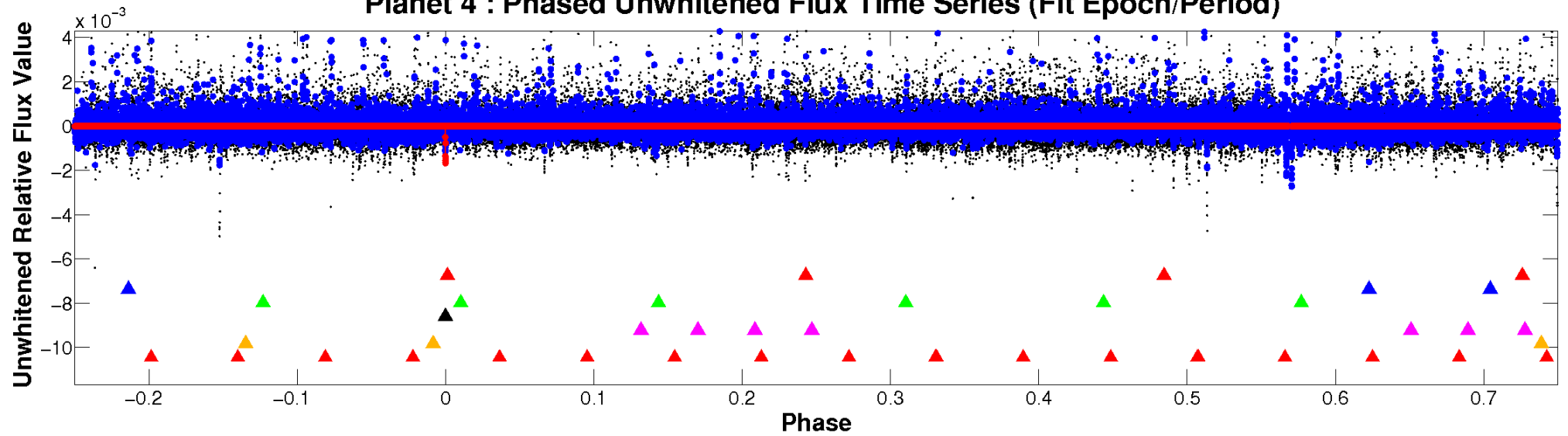
ALT Odd/Even

TCE 009588880-04

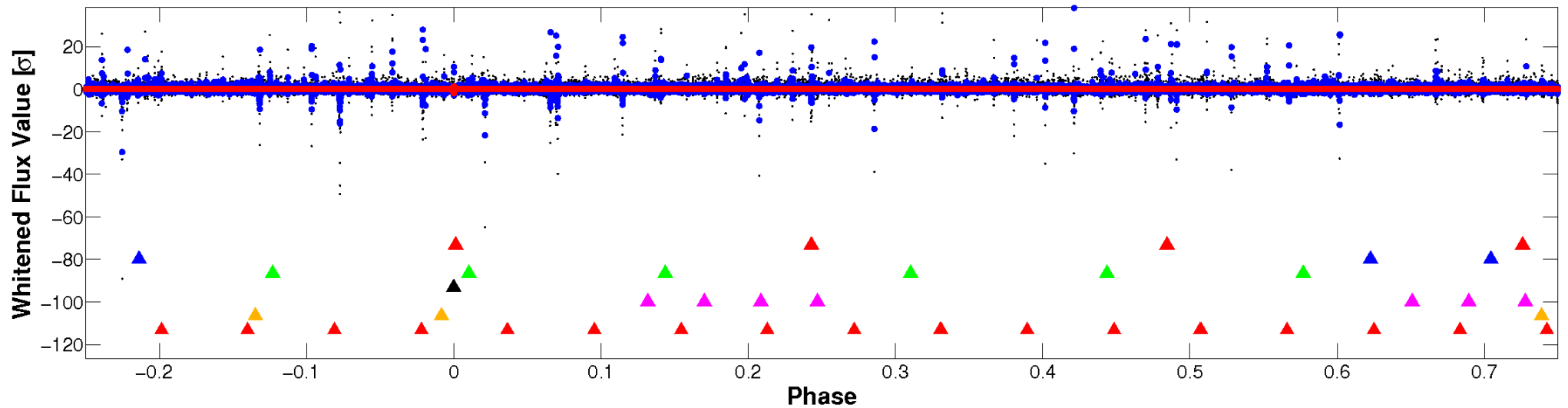


Non-Whitened Vs. Whitened Light Curve

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

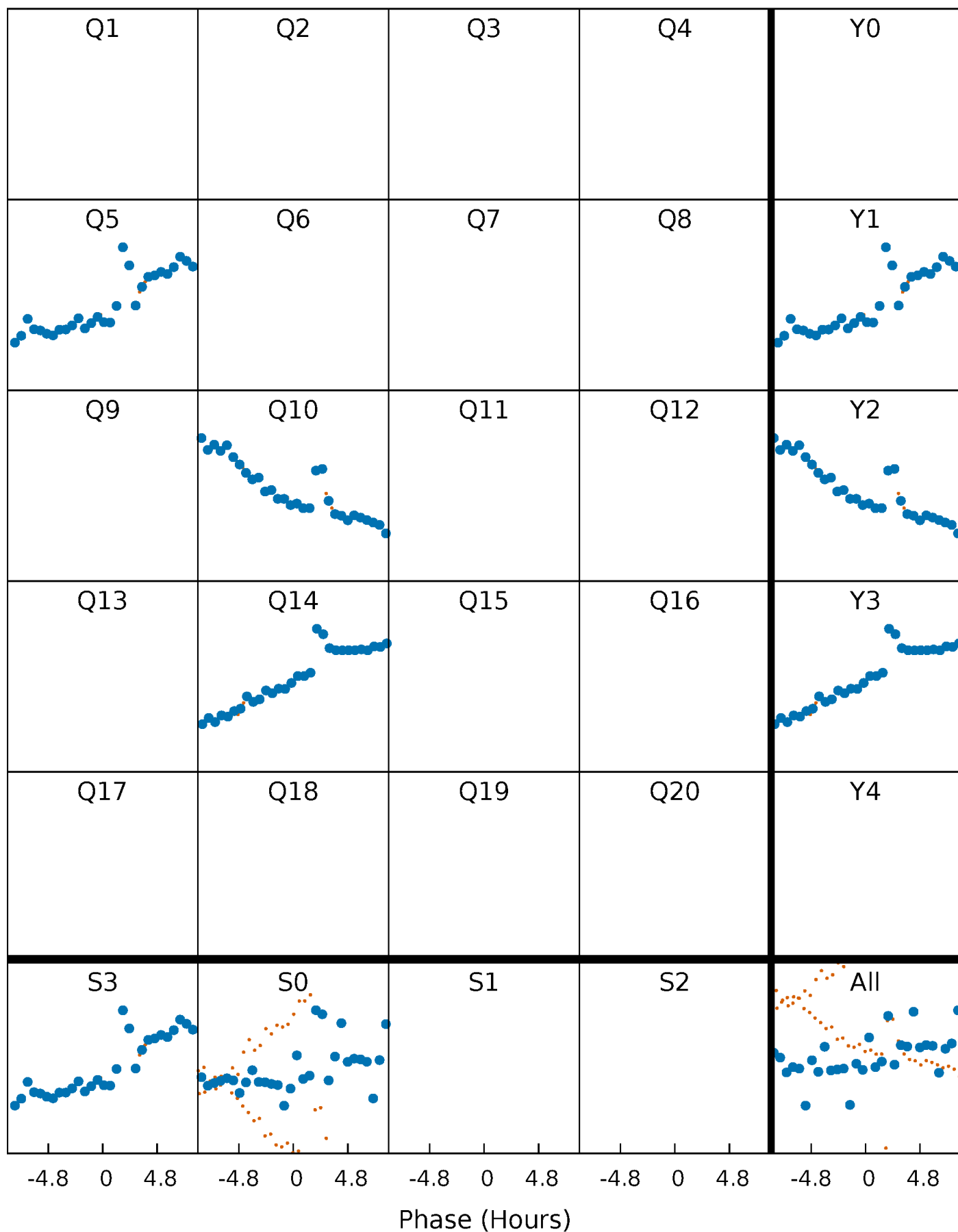


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



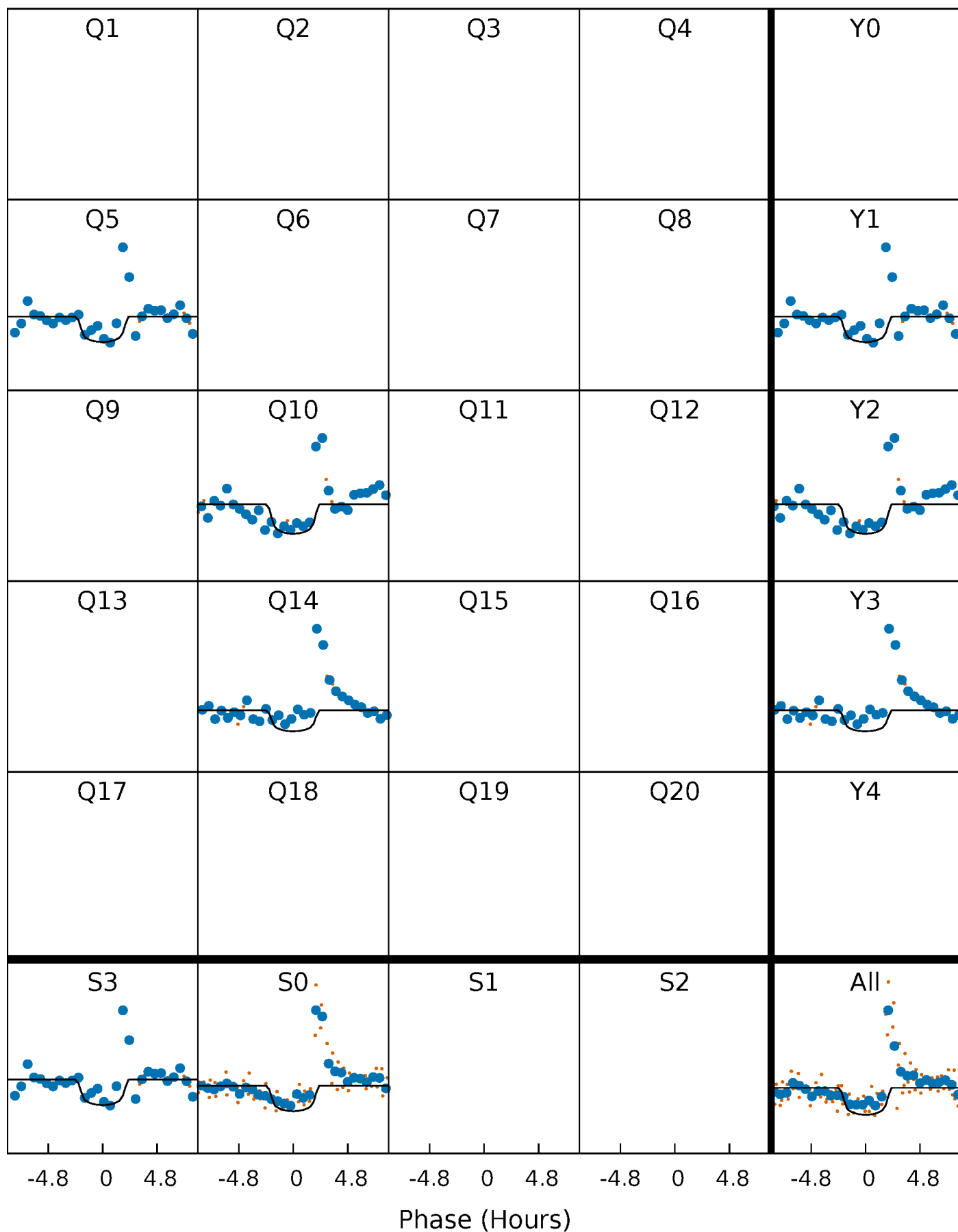
PDC Quarter-Phased Transit Curves

TCE 009588880-04 P=441.771666 Days $T_0=471.144684$ (BKJD)



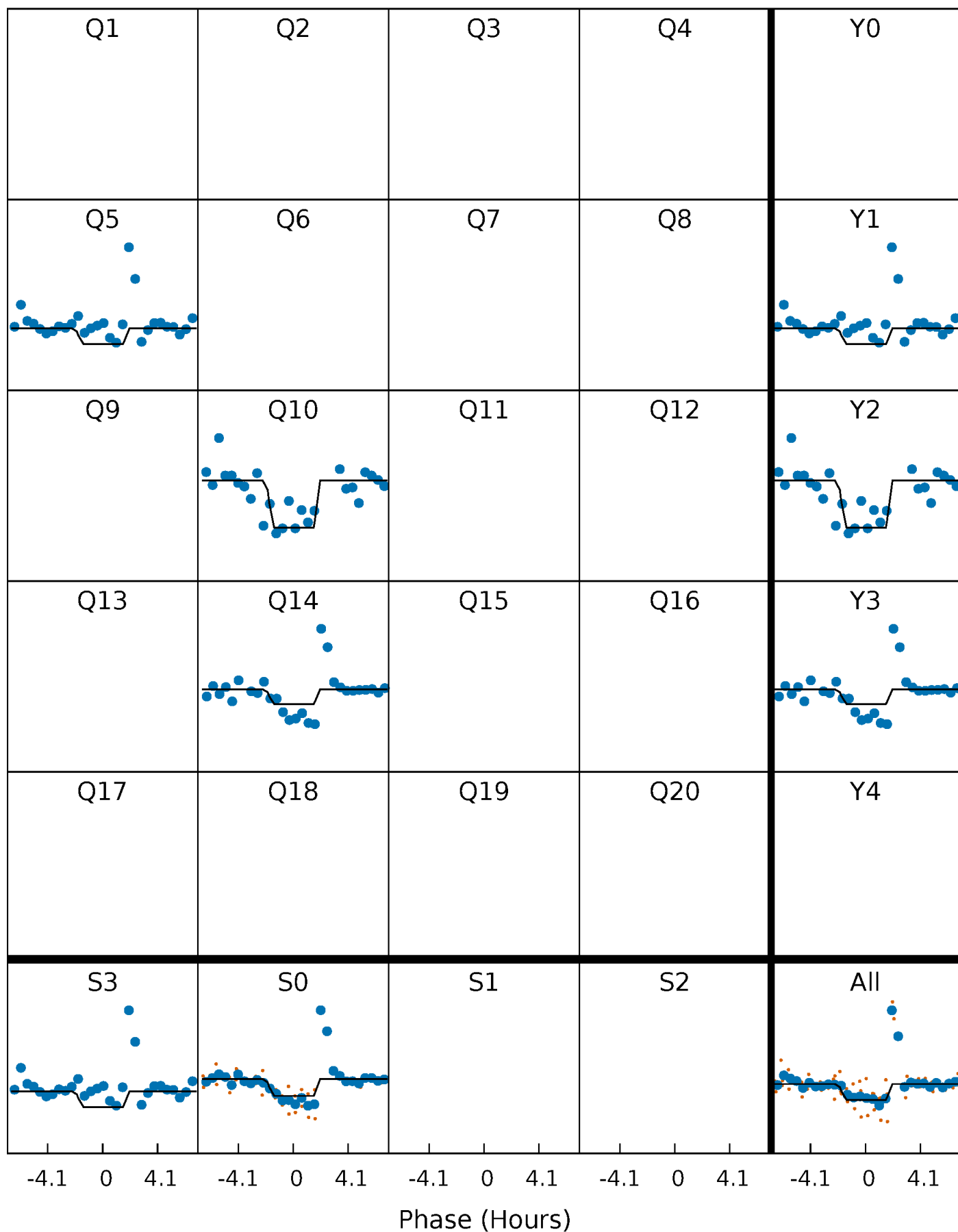
DV Quarter-Phased Transit Curves

TCE 009588880-04 P=441.771666 Days $T_0=471.144684$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

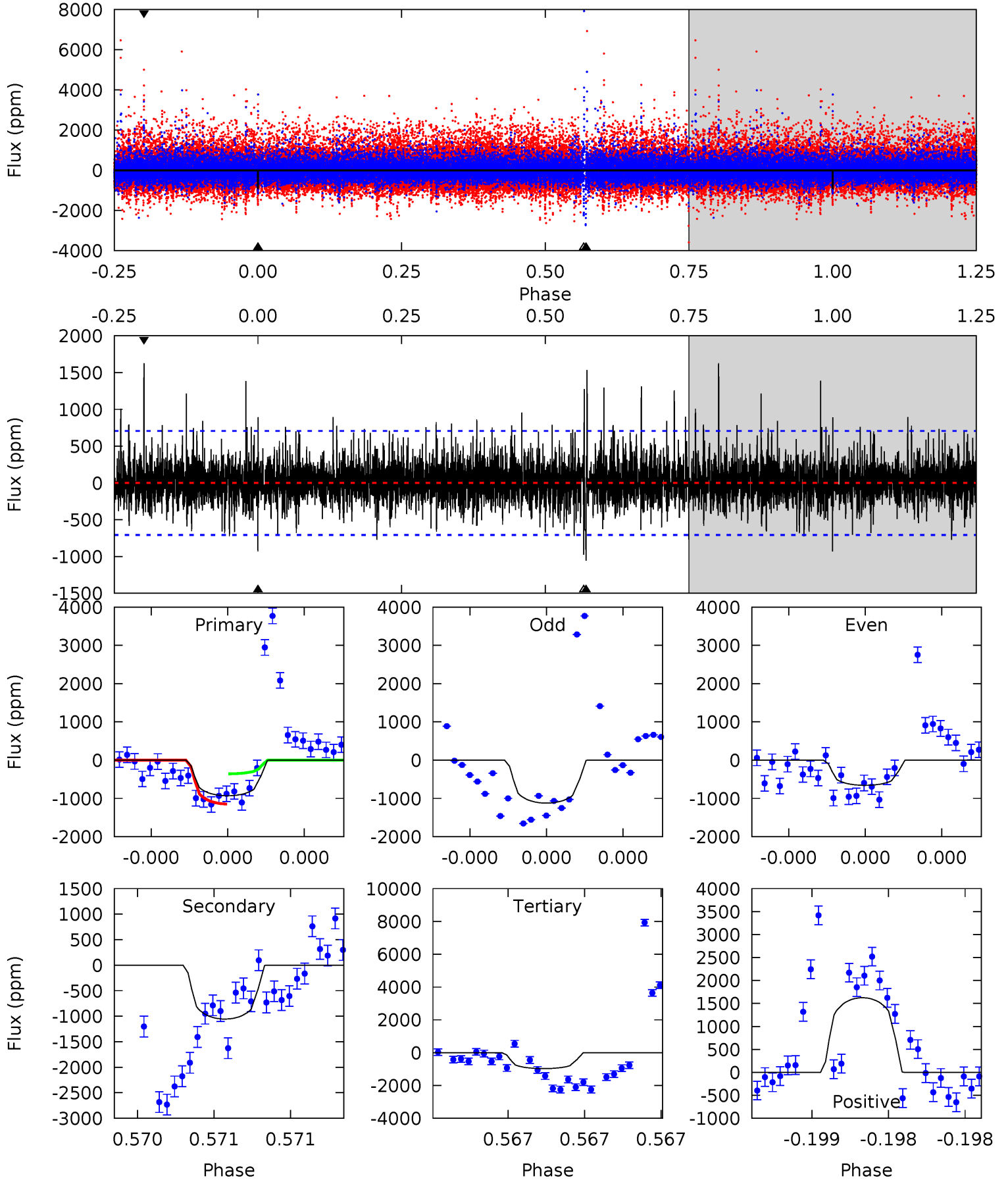
TCE 009588880-04 P=441.773567 Days $T_0=471.135737$ (BKJD)



DV Model-Shift Uniqueness Test

009588880-04, P = 441.771666 Days, E = 29.373018 Days

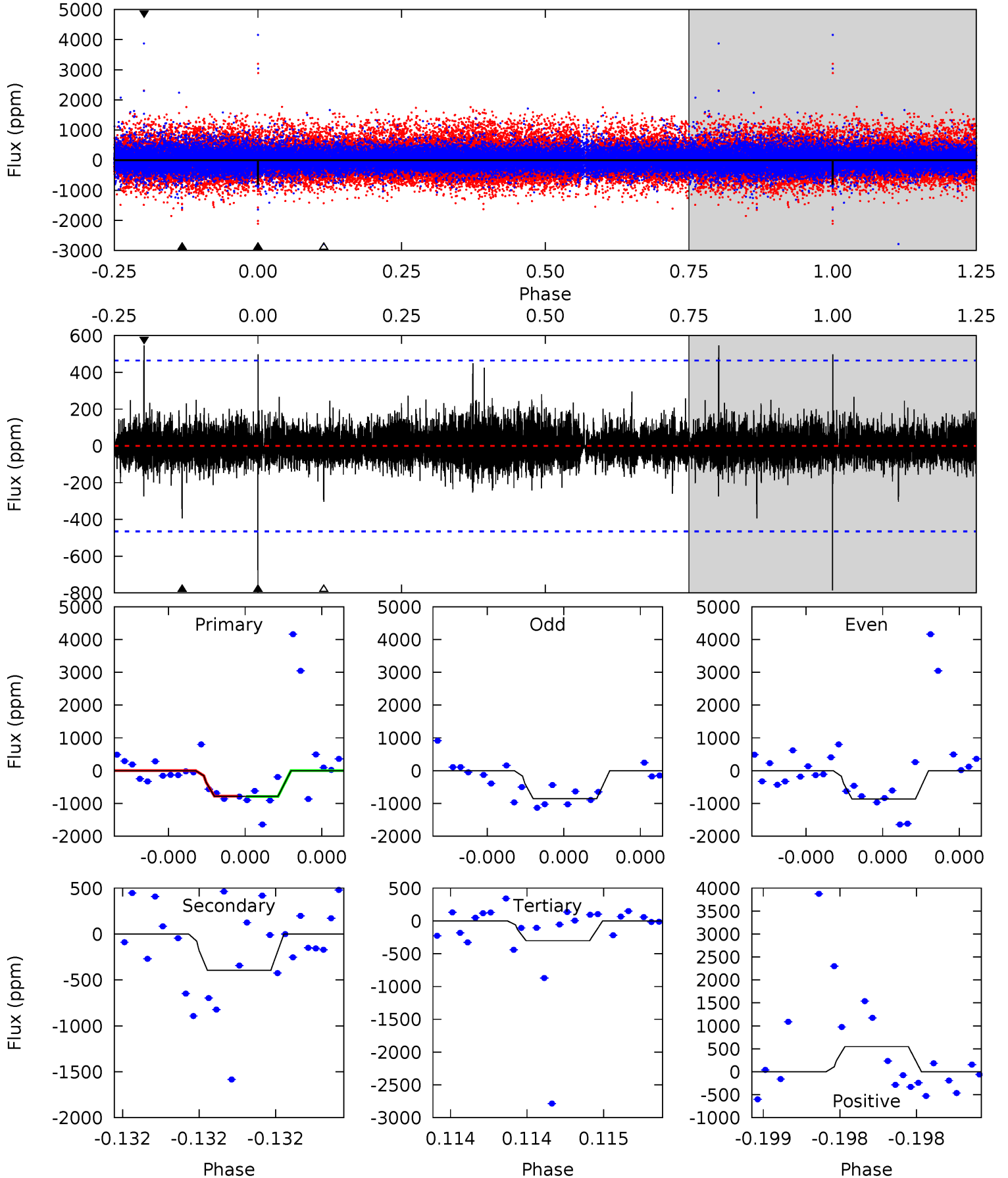
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.39	8.39	7.72	12.9	5.61	3.53	1.76	-0.33	-5.51	0.67	-4.52	0.81	1.21	0.61	3.22



Alt Model-Shift Uniqueness Test

009588880-04, P = 441.773567 Days, E = 29.362170 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.53	4.79	3.67	6.63	5.64	3.59	0.77	5.86	2.90	1.11	-1.84	0.04	1.09	0.41	0.05



Stellar Parameters For KIC 009588880

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3900^{+173}_{-193}	$4.727^{+0.097}_{-0.052}$	$-0.100^{+0.350}_{-0.400}$	$0.534^{+0.066}_{-0.099}$	$0.555^{+0.061}_{-0.096}$	$5.136^{+2.793}_{-1.071}$
	+4%/-5%	+2%/-1%	+350%/-400%	+12%/-19%	+11%/-17%	+54%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009588880-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1056 ± 126	$3.41^{+3.11}_{-2.20}$	179^{+11}_{-10}	3197^{+1436}_{-551}	$43709^{+307201}_{-32401}$
Alt.	-394 ± 82	$3.19^{+3.33}_{-2.07}$	180^{+9}_{-10}	2837^{+1102}_{-477}	$18090^{+134185}_{-13871}$

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

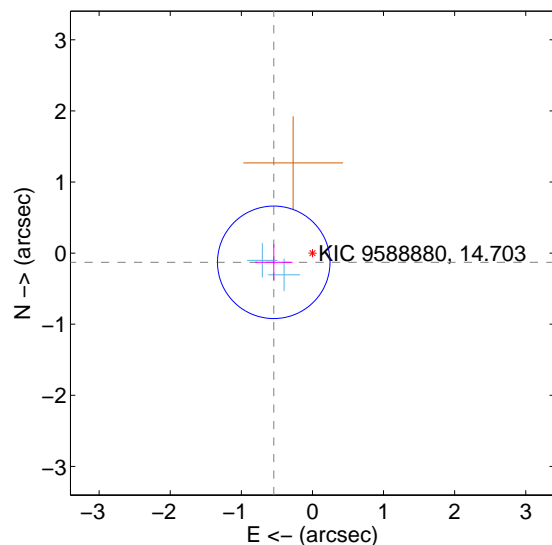
Supplemental centroid analysis for 009588880-04. Kepler magnitude: 14.70. Transit SNR 8.97

There are 2 quarters with good PRF difference image offsets

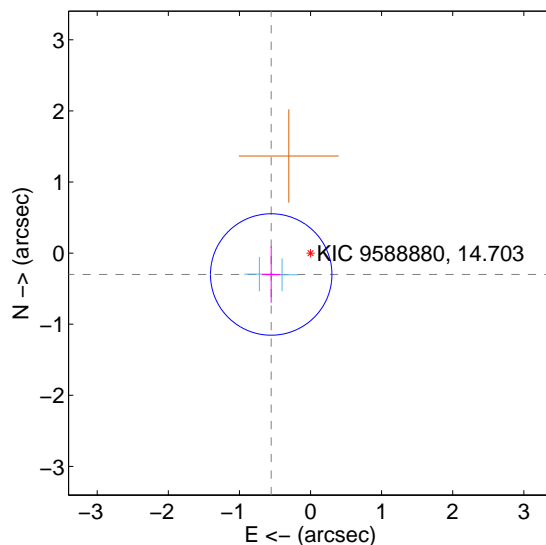
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.559 ± 0.264	2.12	0.544 ± 0.264	-0.130 ± 0.254
PRF-fit source offset from KIC position	0.630 ± 0.285	2.21	0.553 ± 0.131	-0.301 ± 0.397
photometric centroid source offset	0.68 ± 0.72	0.94	-0.09 ± 0.71	-0.67 ± 0.72

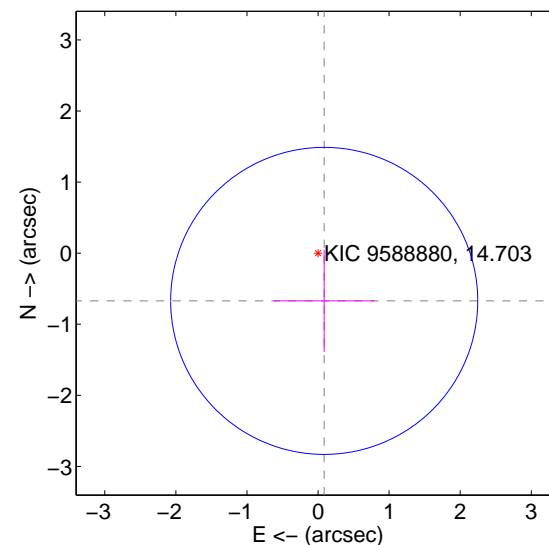
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

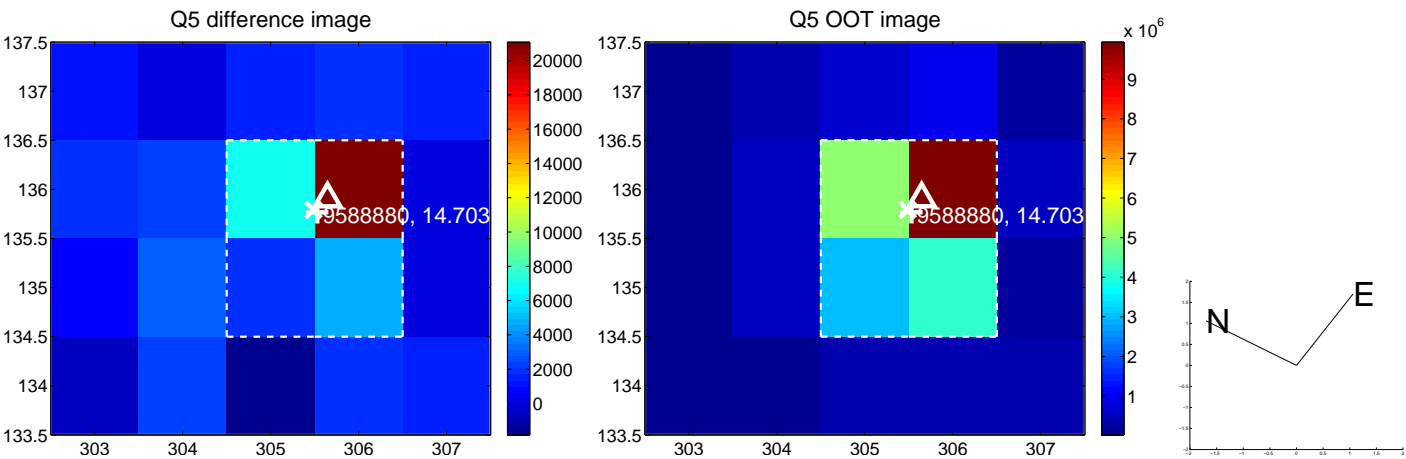


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

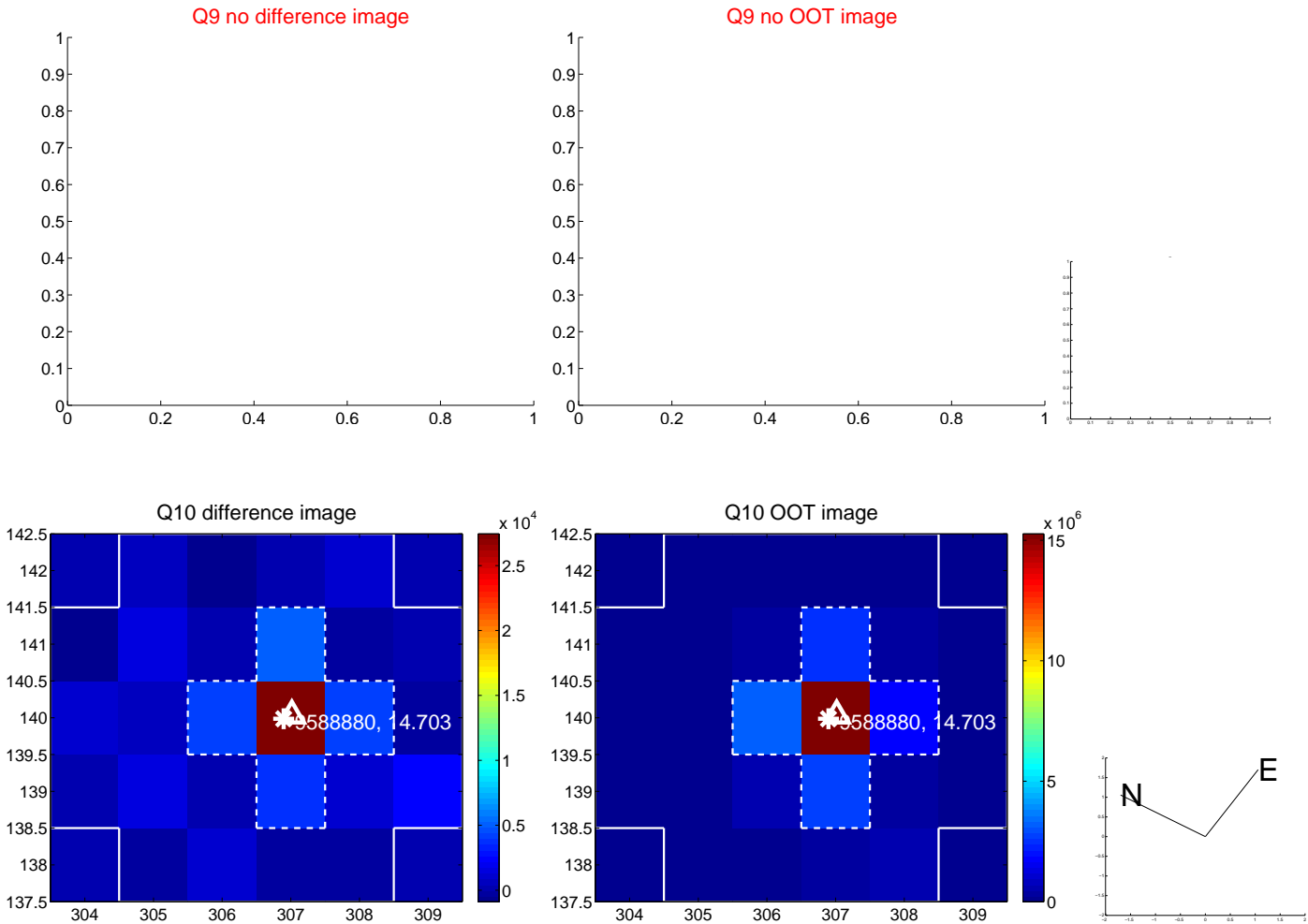
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



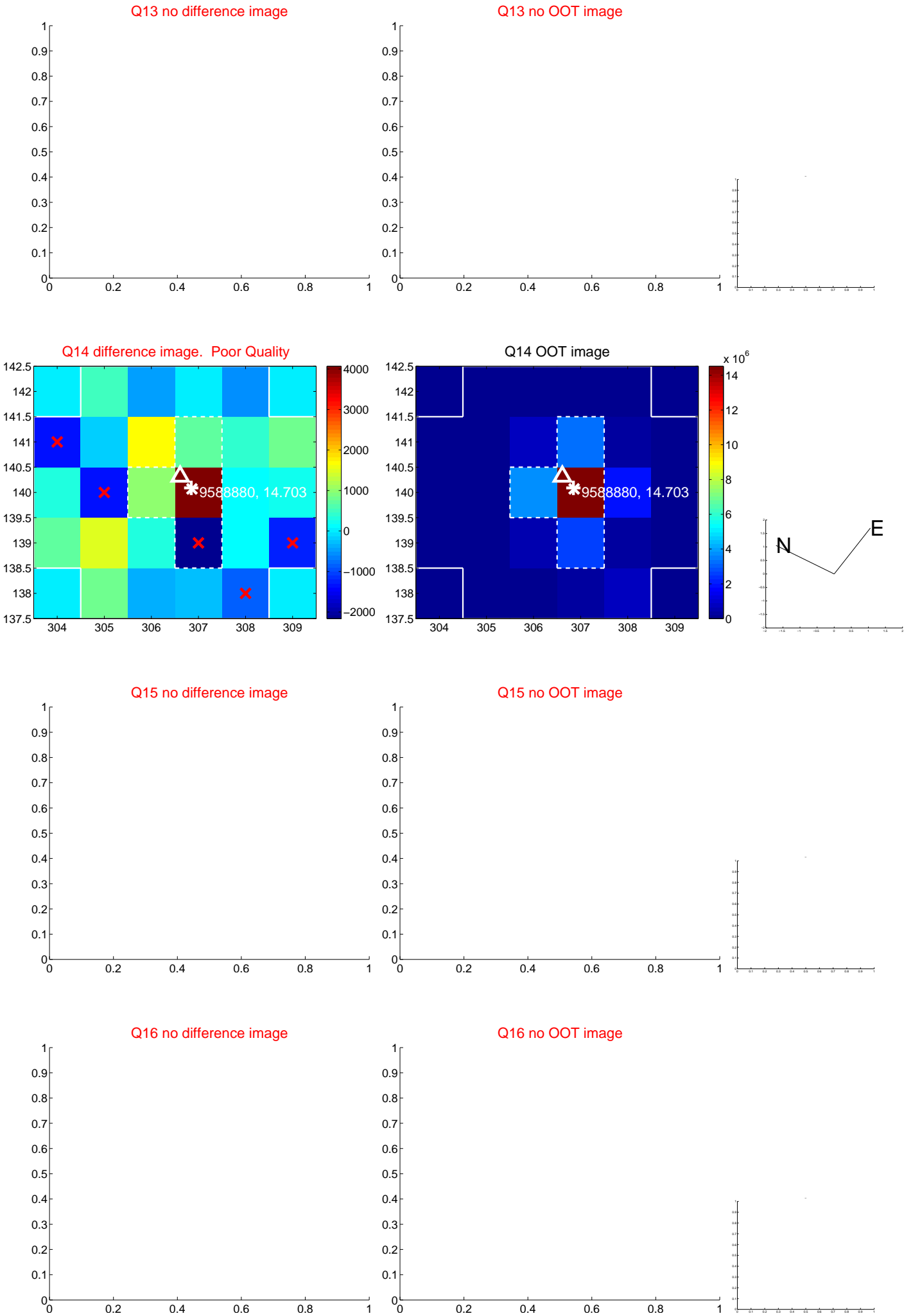
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



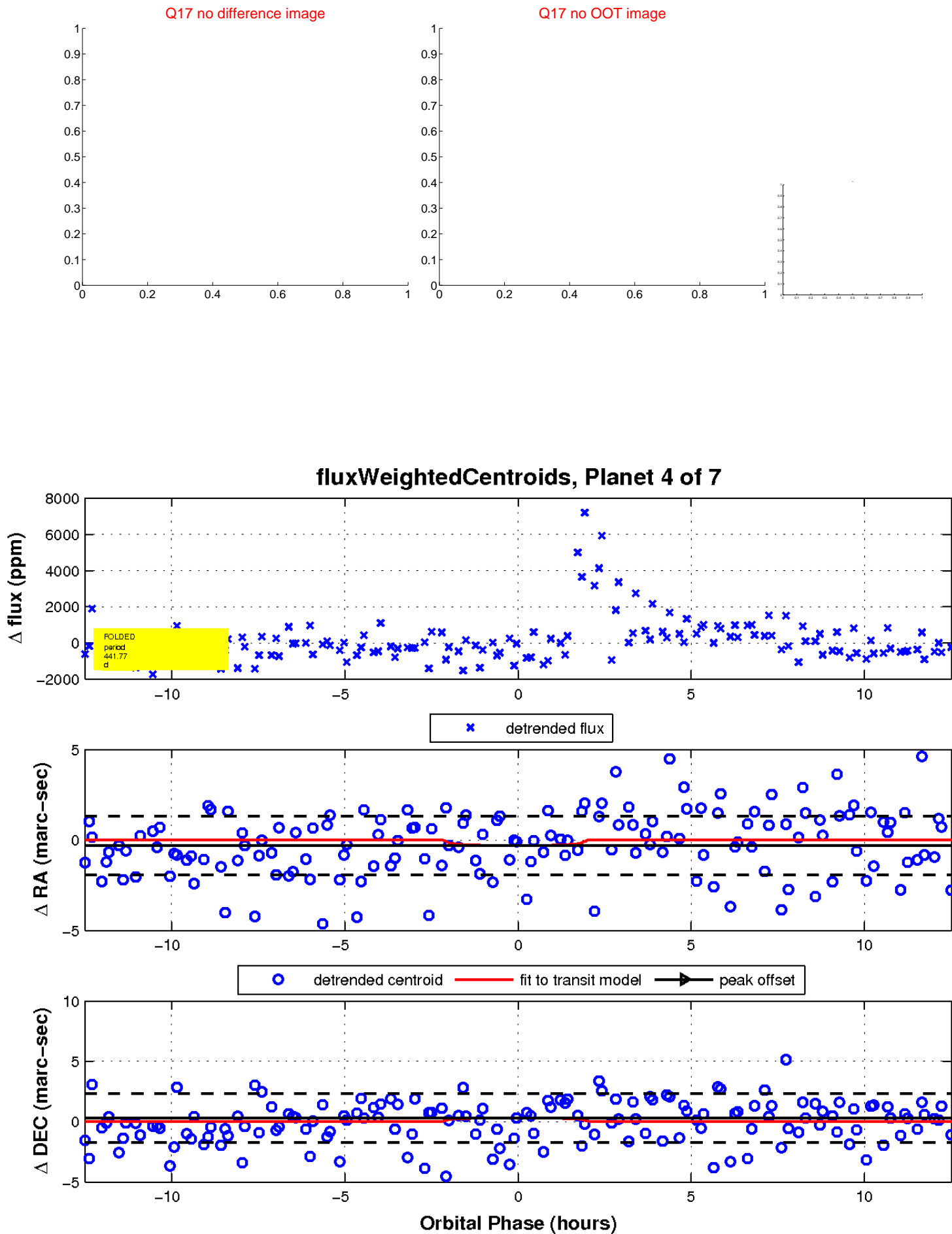
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

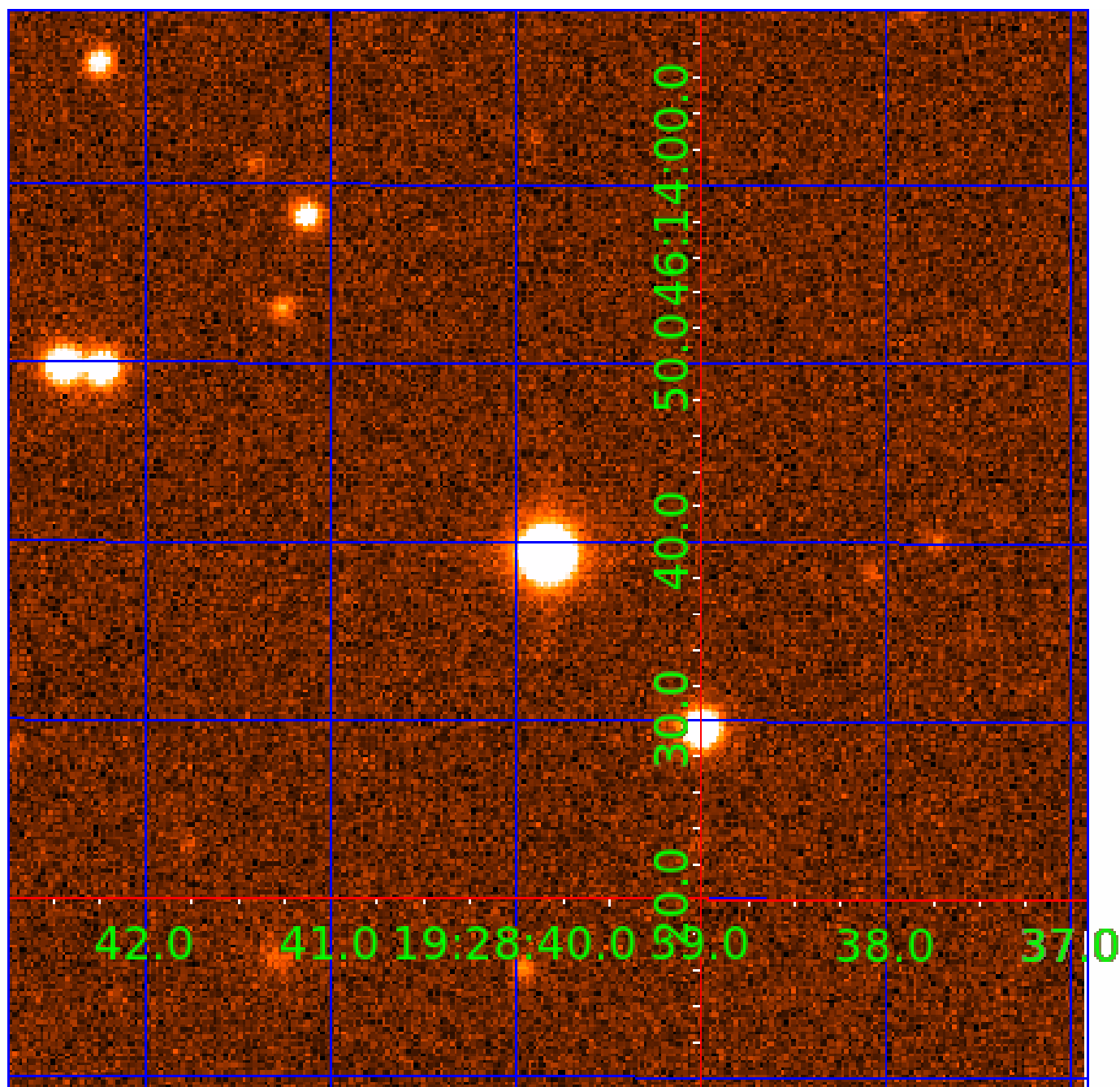


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009588880

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})
009588880-01	OBS	No	335.054280	350.128812	1271.6	3.491	15.4	6.3	0.53	3900	2.02	0.10
009588880-02	OBS	No	405.640147	376.726765	2125.4	15.727	12.3	6.5	0.53	3900	2.44	0.08
009588880-03	OBS	No	250.335064	166.474043	1493.7	12.033	12.6	7.6	0.53	3900	2.24	0.14
009588880-04	OBS	No	441.771666	471.144684	1675.3	4.205	14.1	9.0	0.53	3900	2.20	0.07
009588880-05	OBS	No	212.404286	138.498794	1153.0	3.433	12.8	7.0	0.53	3900	1.83	0.18
009588880-06	OBS	No	497.614162	355.791575	376.2	5.293	12.8	1.8	0.53	3900	1.04	0.06
009588880-07	OBS	7946.01	77.976209	175.354954	1665.6	2.000	9.2	-1.0	0.53	3900	2.15	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009588880-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009588880-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
009588880-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009588880-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES
009588880-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-07	OBS	FP	0.23	1	0	0	0	LPP_DV—CENT_NOFITS

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

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

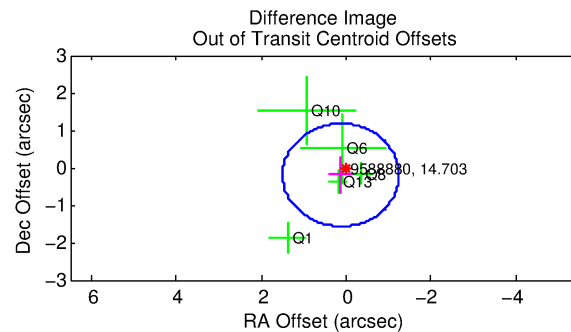
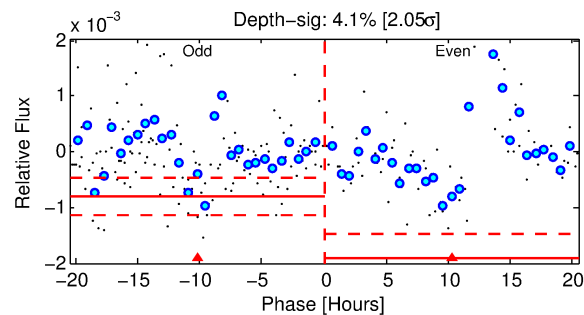
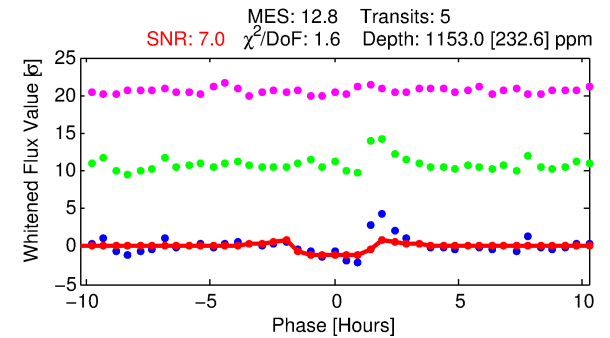
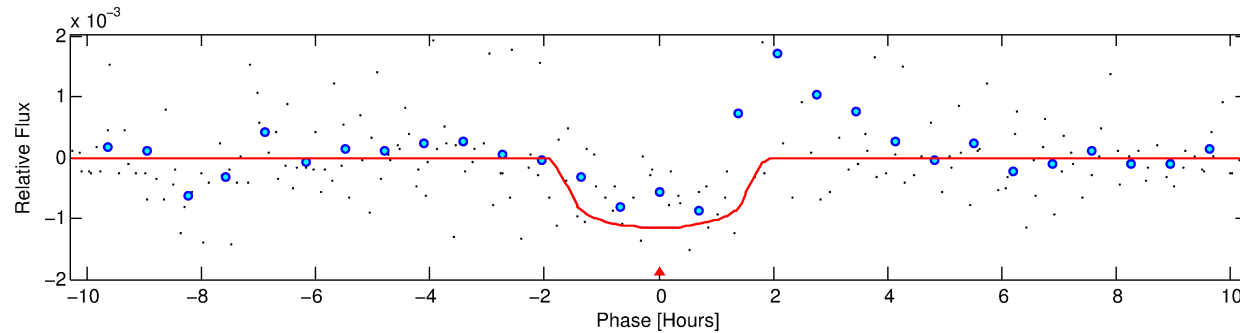
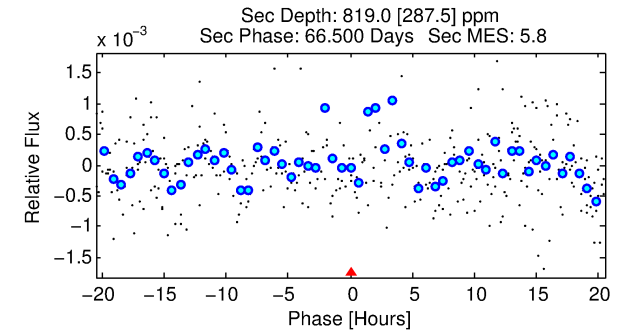
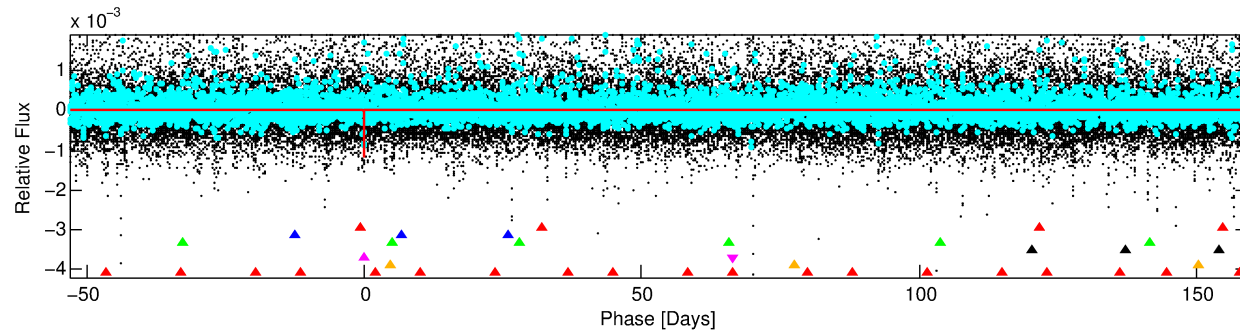
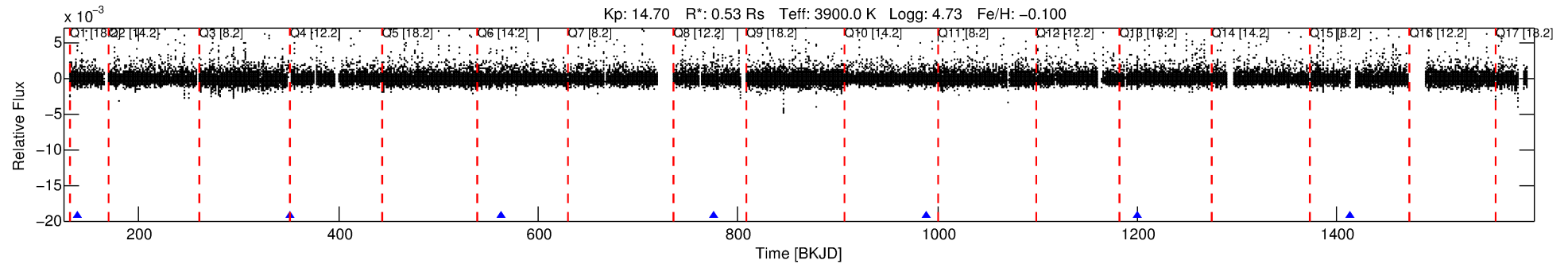
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009588880-05

No Significant Match Found

DV One-Page Summary

KIC: 9588880 Candidate: 5 of 7 Period: 212.404 d



DV Fit Results:

Period = 212.40429 [0.00267] d
Epoch = 138.4988 [0.0088] BKJD
Rp/R* = 0.0314 [0.0738]
a/R* = 445.24 [4418.42]
b = 0.42 [19.55]
Seff = 0.18 [0.05]
Teq = 166 [11] K
Rp = 1.83 [4.31] Re
a = 0.5726 [0.0826] AU
Ag = 44129.45 [208074.62] [0.21σ]
Teffp = 3723 [4389] K [0.81σ]

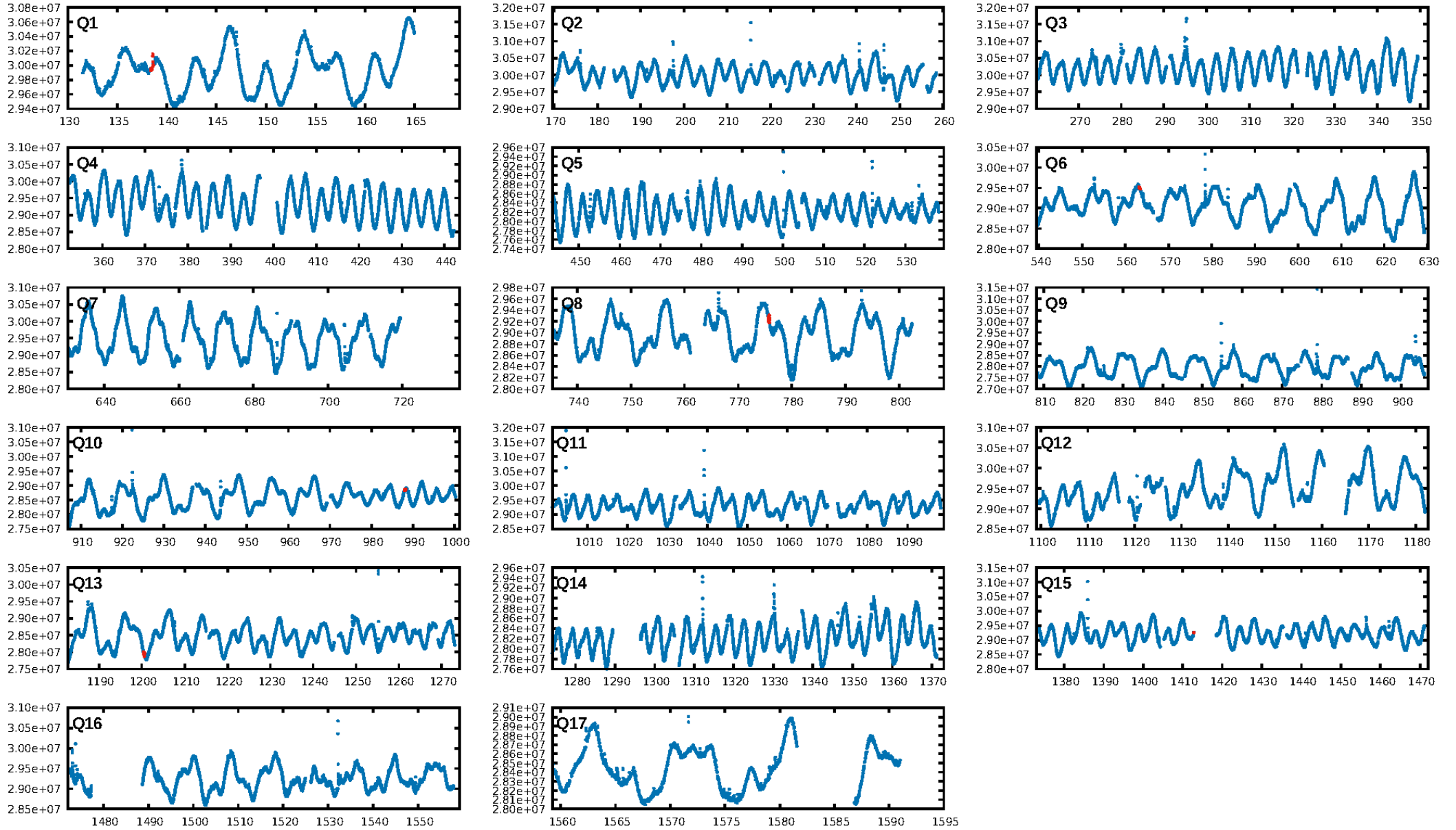
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [812.10σ]
LongPeriod-sig: 100.0% [72.75σ]
ModelChiSquare2-sig: 8.0%
ModelChiSquareGof-sig: 57.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.779
Centroid-sig: 62.9%
Centroid-so: 0.874 arcsec [0.86σ]
OotOffset-rm: 0.232 arcsec [0.51σ]
OotOffset-st: 2/0/1/2 [5]
KicOffset-rm: 0.592 arcsec [1.09σ]
KicOffset-st: 2/0/1/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 1.00 [5/5]

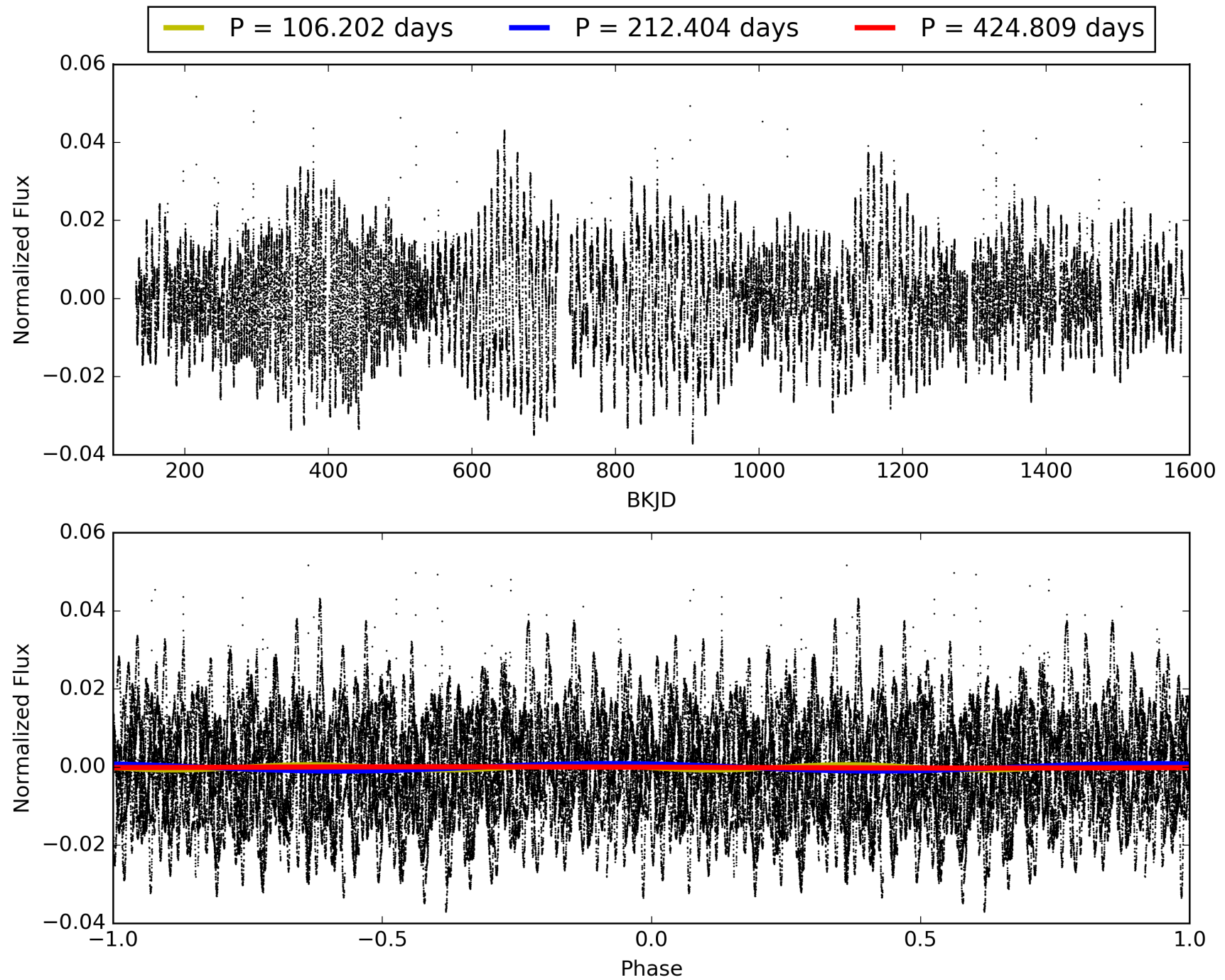
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:01:29 Z

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

TCE 009588880-05, PDC Light Curves

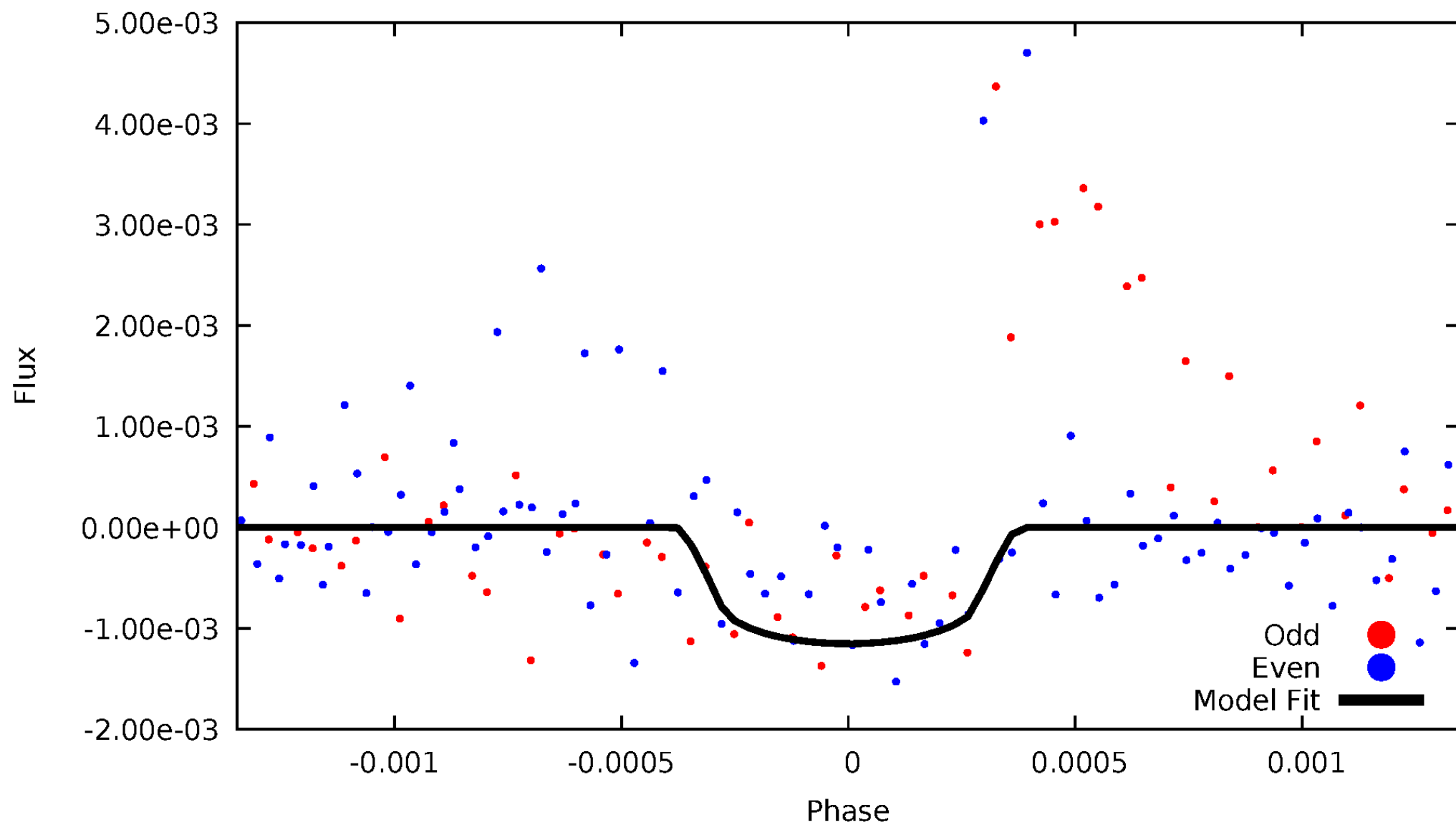


TCE 009588880-05



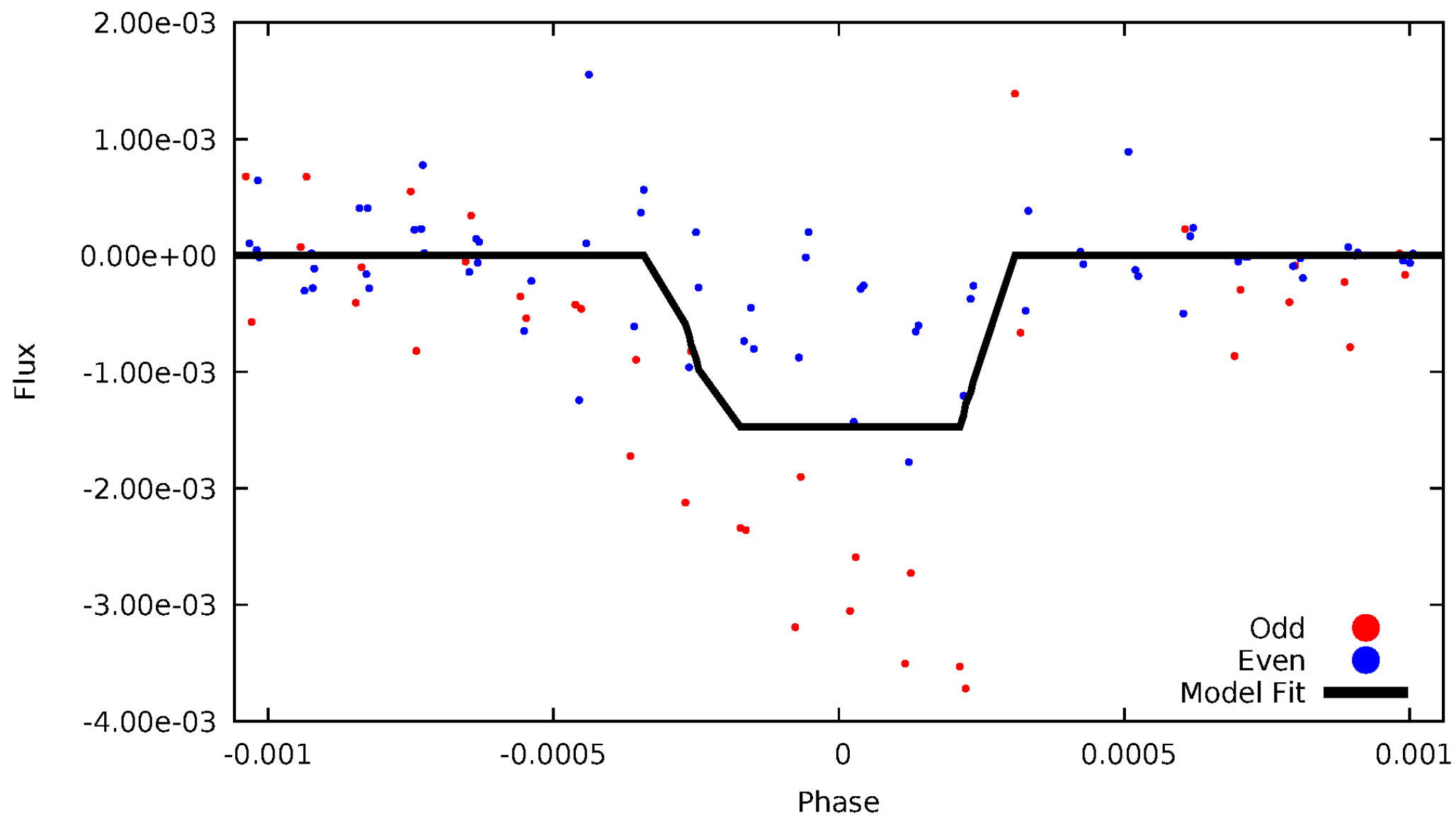
DV Odd/Even

TCE 009588880-05



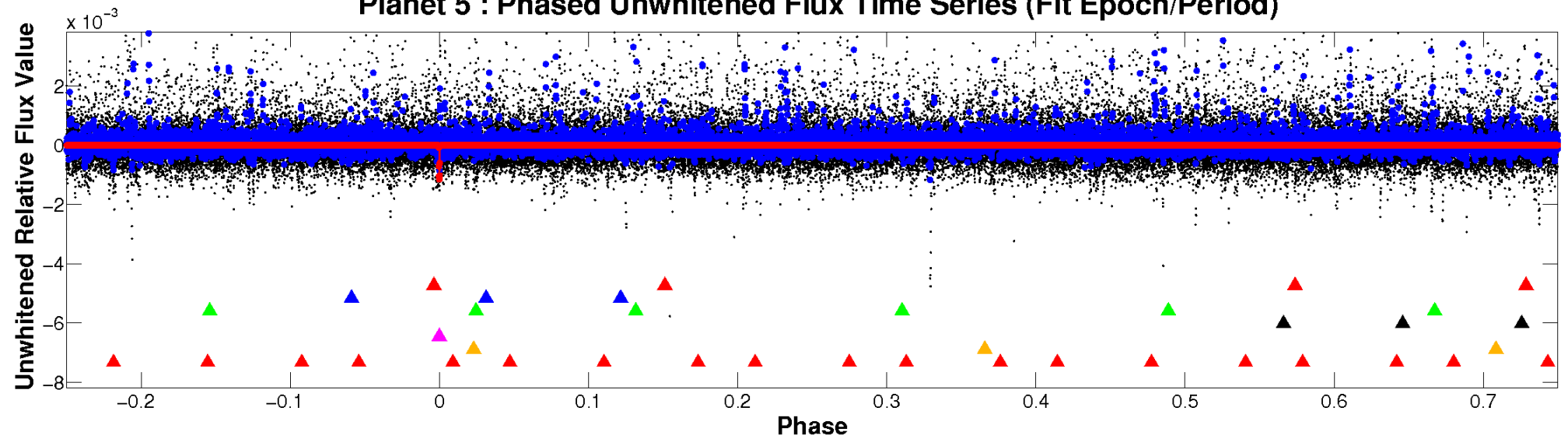
ALT Odd/Even

TCE 009588880-05

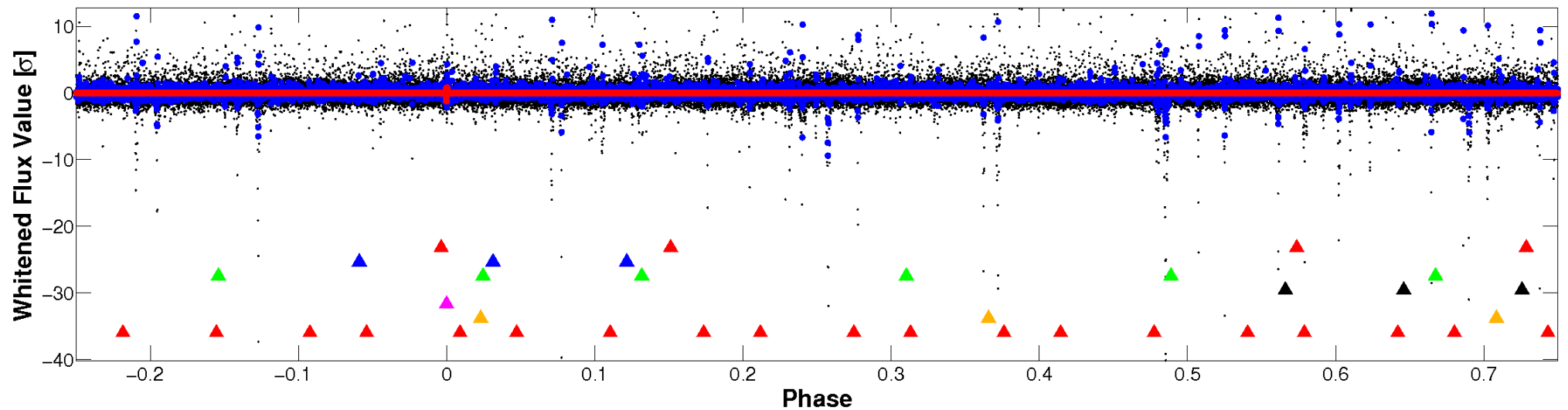


Non-Whitened Vs. Whitened Light Curve

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

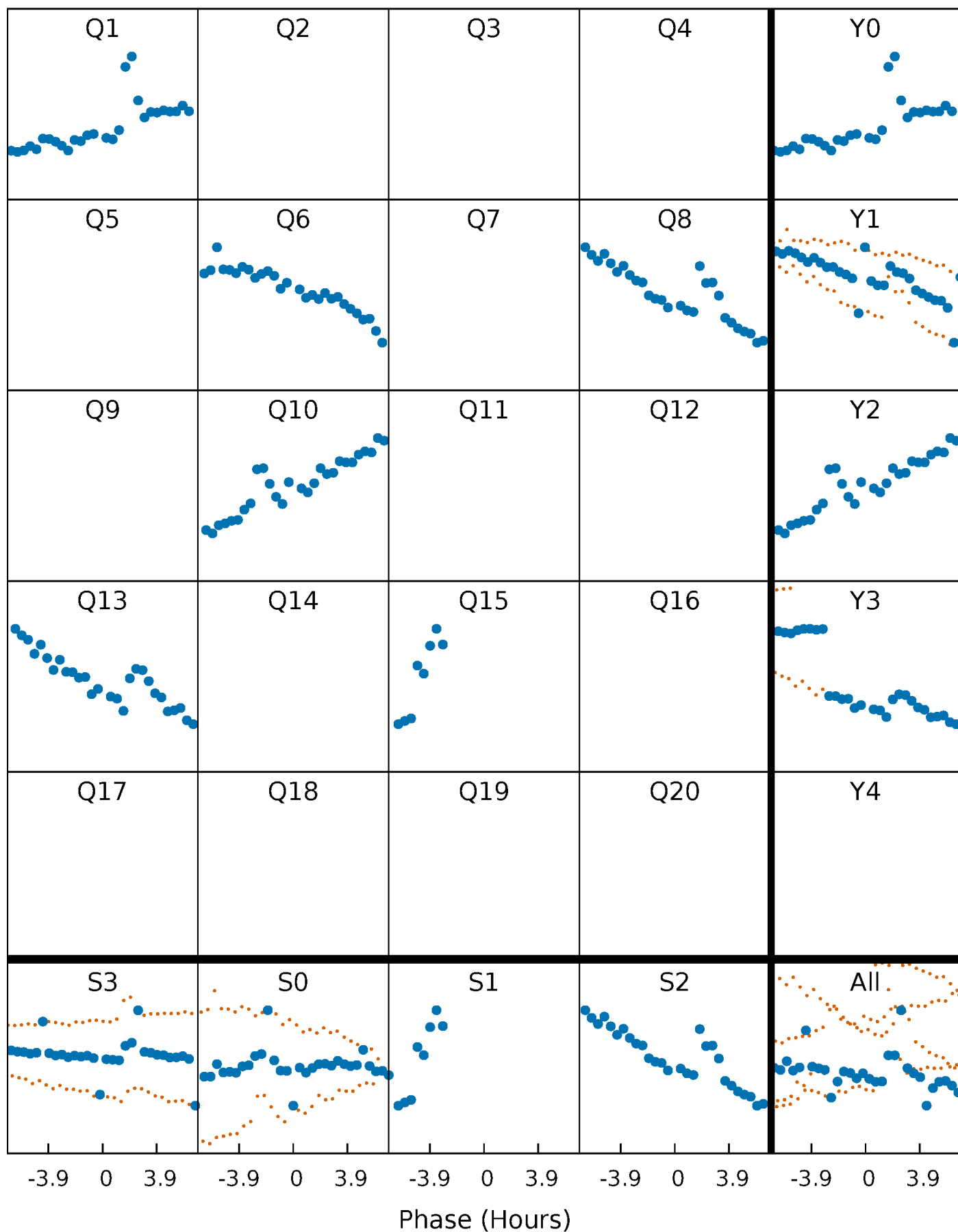


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



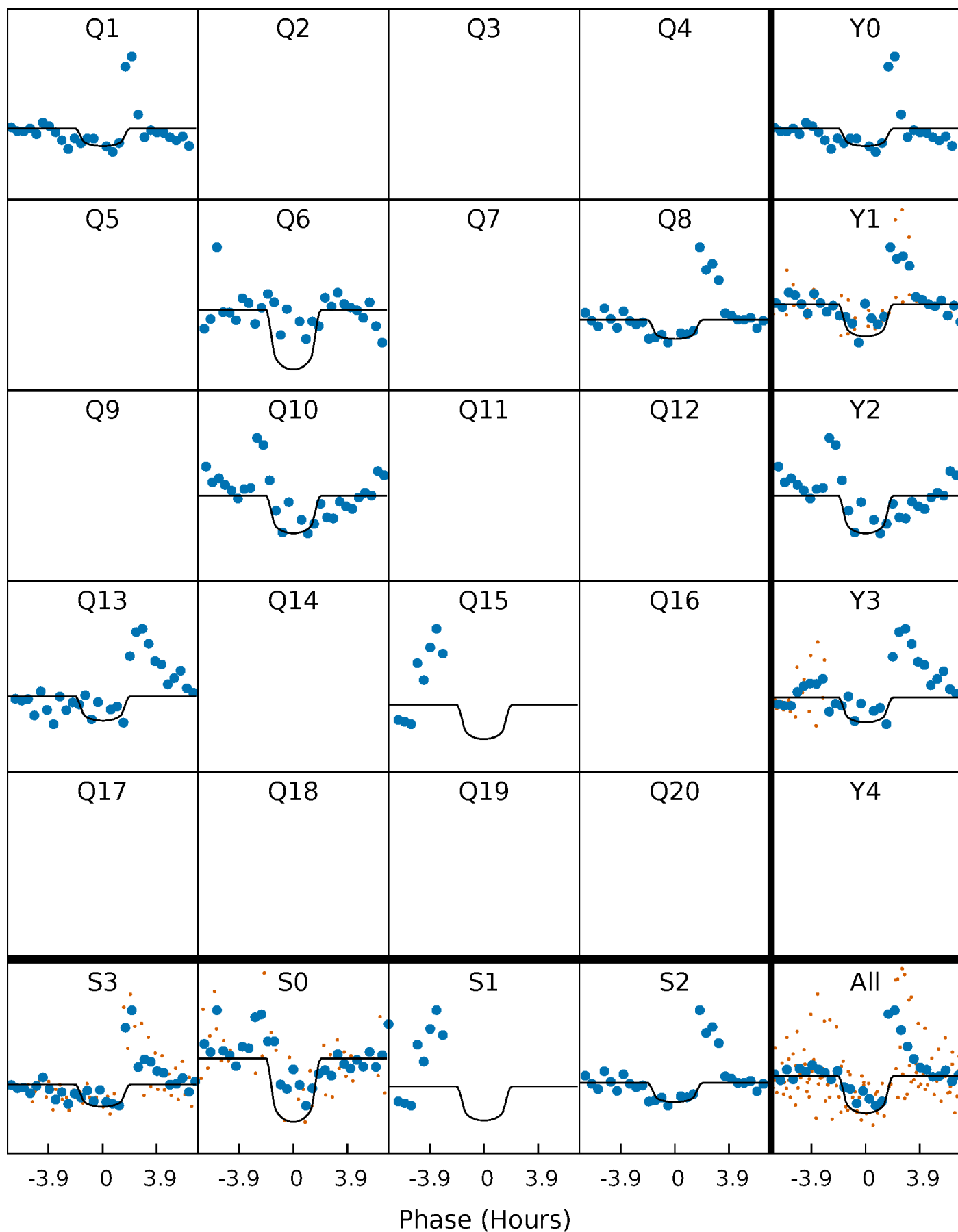
PDC Quarter-Phased Transit Curves

TCE 009588880-05 $P=212.404287$ Days $T_0=138.498795$ (BKJD)



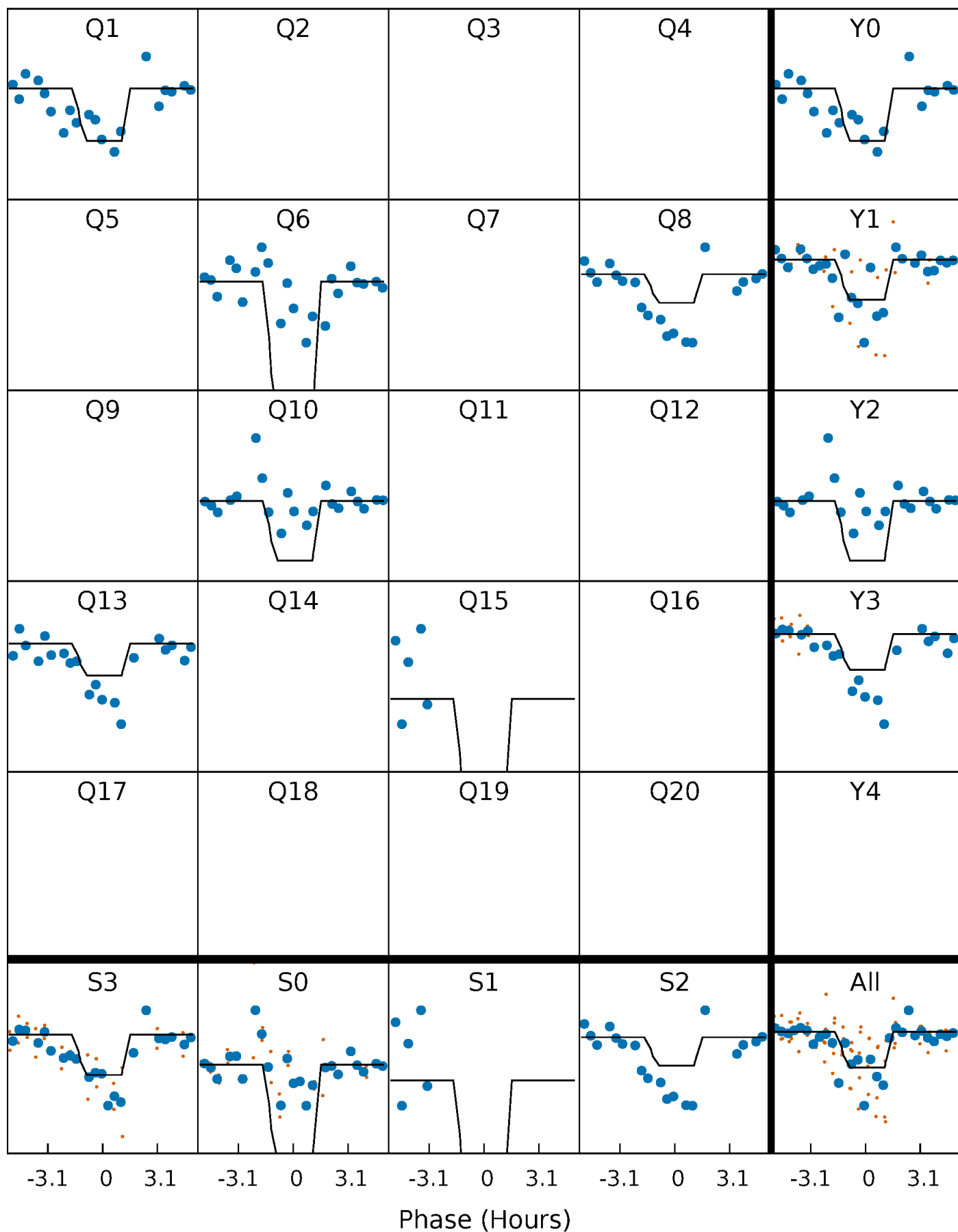
DV Quarter-Phased Transit Curves

TCE 009588880-05 $P=212.404287$ Days $T_0=138.498795$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

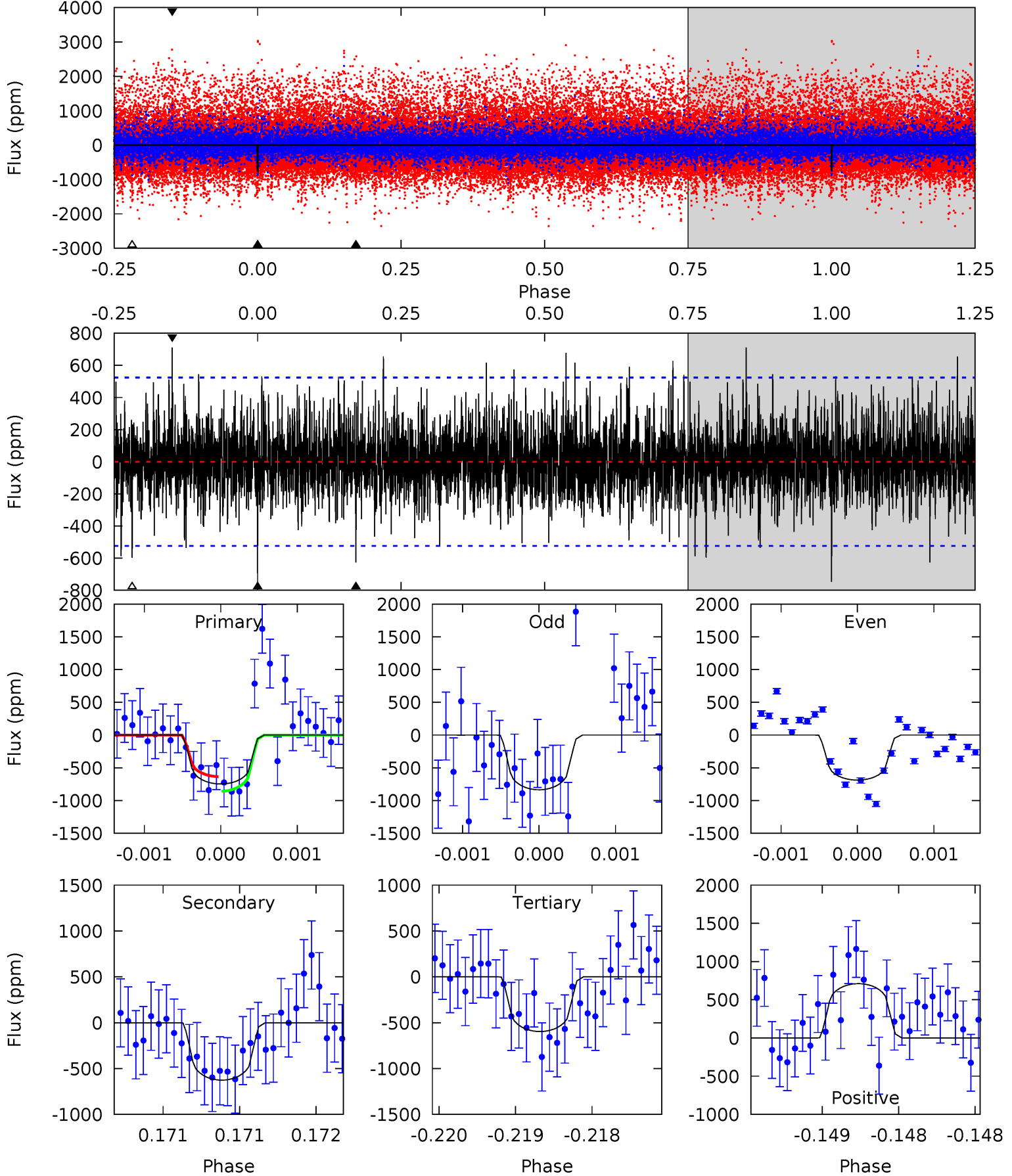
TCE 009588880-05 $P=212.406722$ Days $T_0=138.495140$ (BKJD)



DV Model-Shift Uniqueness Test

009588880-05, P = 212.404287 Days, E = 138.498795 Days

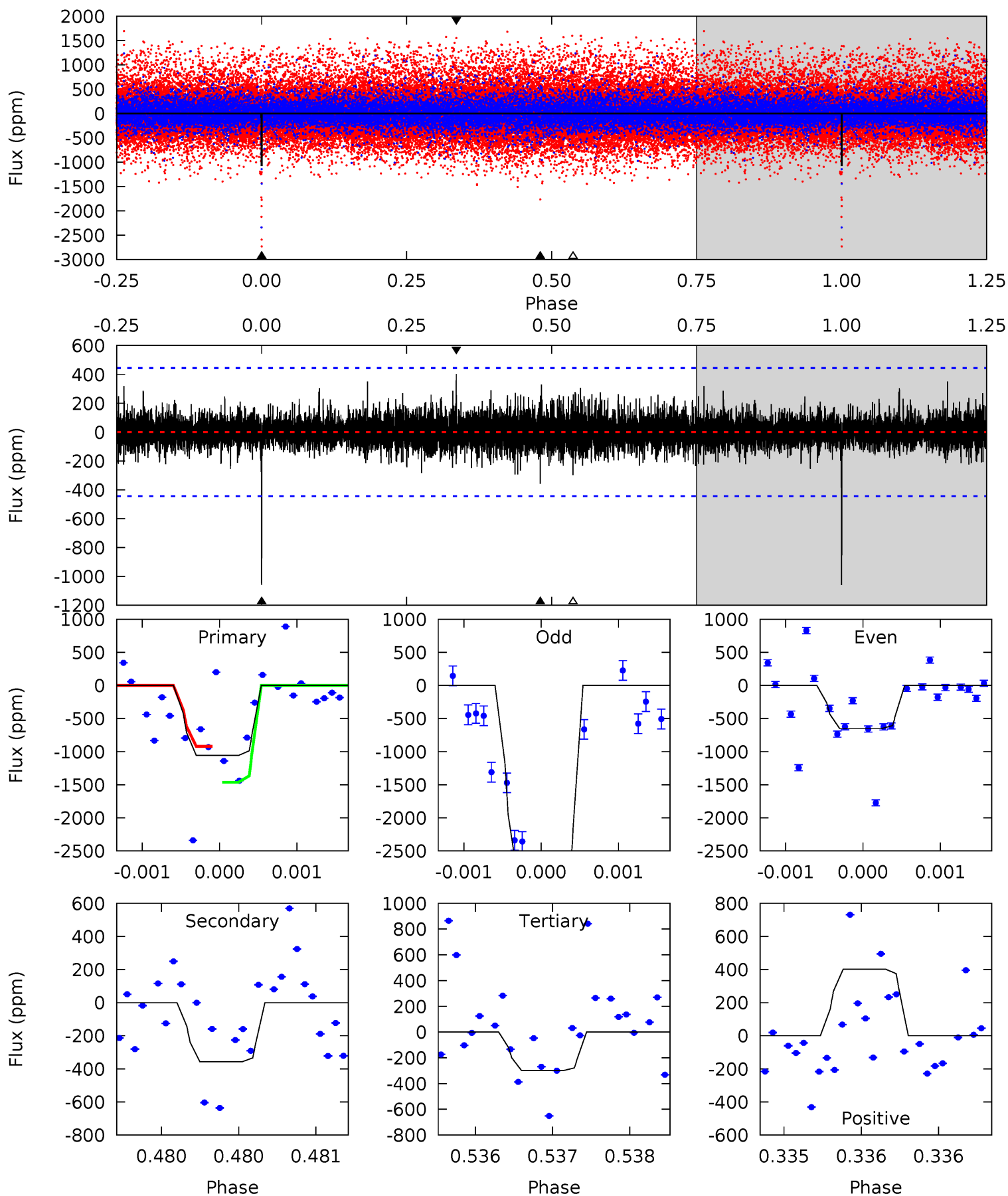
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.84	6.58	6.26	7.46	5.50	3.37	1.69	1.58	0.38	0.31	-0.89	0.73	0.96	0.49	1.18



Alt Model-Shift Uniqueness Test

009588880-05, P = 212.406722 Days, E = 138.495140 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	4.47	3.73	5.03	5.55	3.45	0.95	9.51	8.21	0.74	-0.56	15.6	1.24	0.28	3.41



Stellar Parameters For KIC 009588880

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3900^{+173}_{-193}	$4.727^{+0.097}_{-0.052}$	$-0.100^{+0.350}_{-0.400}$	$0.534^{+0.066}_{-0.099}$	$0.555^{+0.061}_{-0.096}$	$5.136^{+2.793}_{-1.071}$
	+4%/-5%	+2%/-1%	+350%/-400%	+12%/-19%	+11%/-17%	+54%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009588880-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-626 ± 95	$3.62^{+3.59}_{-2.51}$	230^{+13}_{-13}	2921^{+1326}_{-476}	8583^{+85347}_{-6355}
Alt.	-358 ± 80	$3.90^{+3.59}_{-2.56}$	230^{+13}_{-13}	2662^{+992}_{-404}	4003^{+33855}_{-2903}

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 $A_{obs} \gg 1.0$

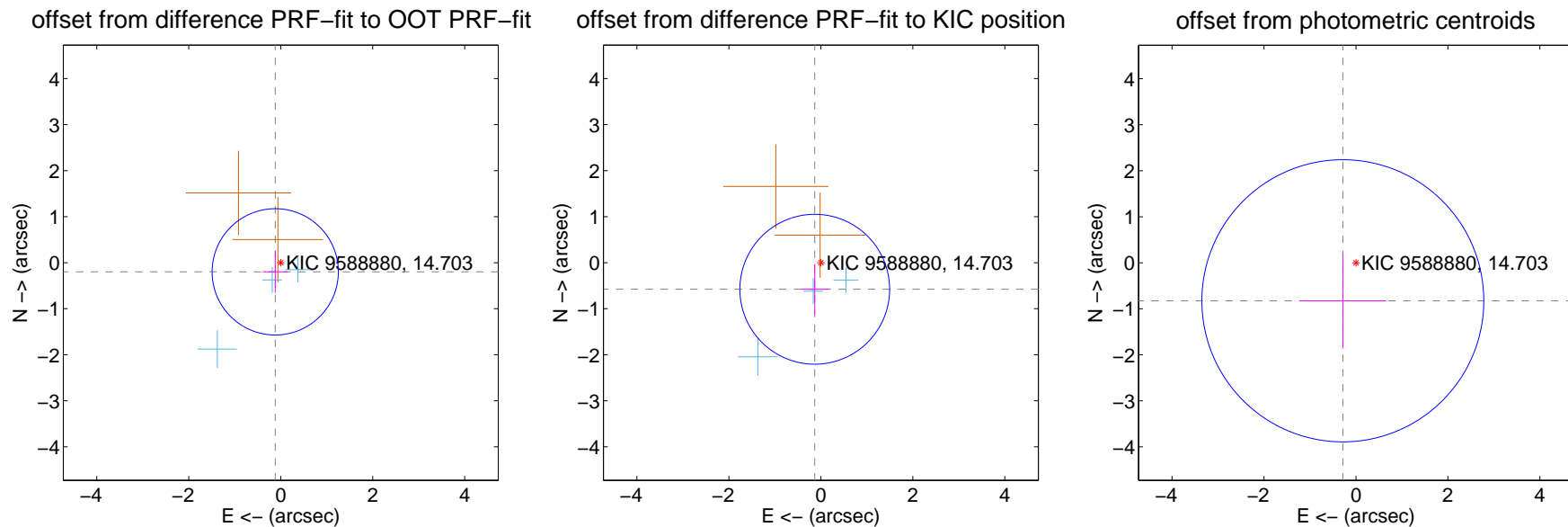
DV Centroid Data

Supplemental centroid analysis for 009588880-05. Kepler magnitude: 14.70. Transit SNR 7.04

There are 3 quarters with good PRF difference image offsets

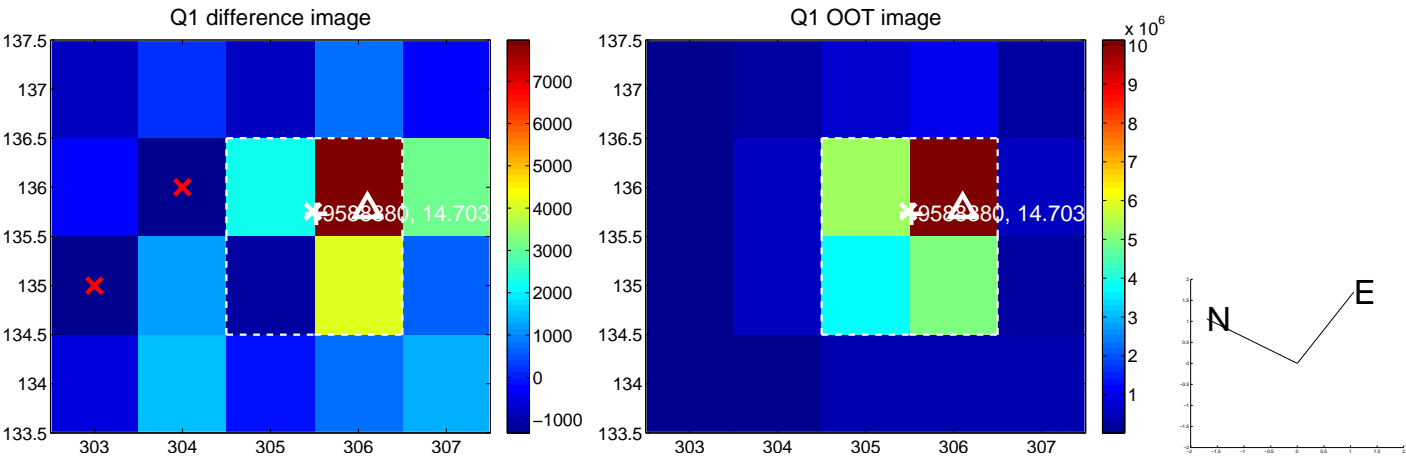
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.232 ± 0.457	0.51	0.120 ± 0.270	-0.199 ± 0.454
PRF-fit source offset from KIC position	0.592 ± 0.543	1.09	0.133 ± 0.298	-0.577 ± 0.546
photometric centroid source offset	0.87 ± 1.02	0.86	0.29 ± 0.94	-0.83 ± 1.03

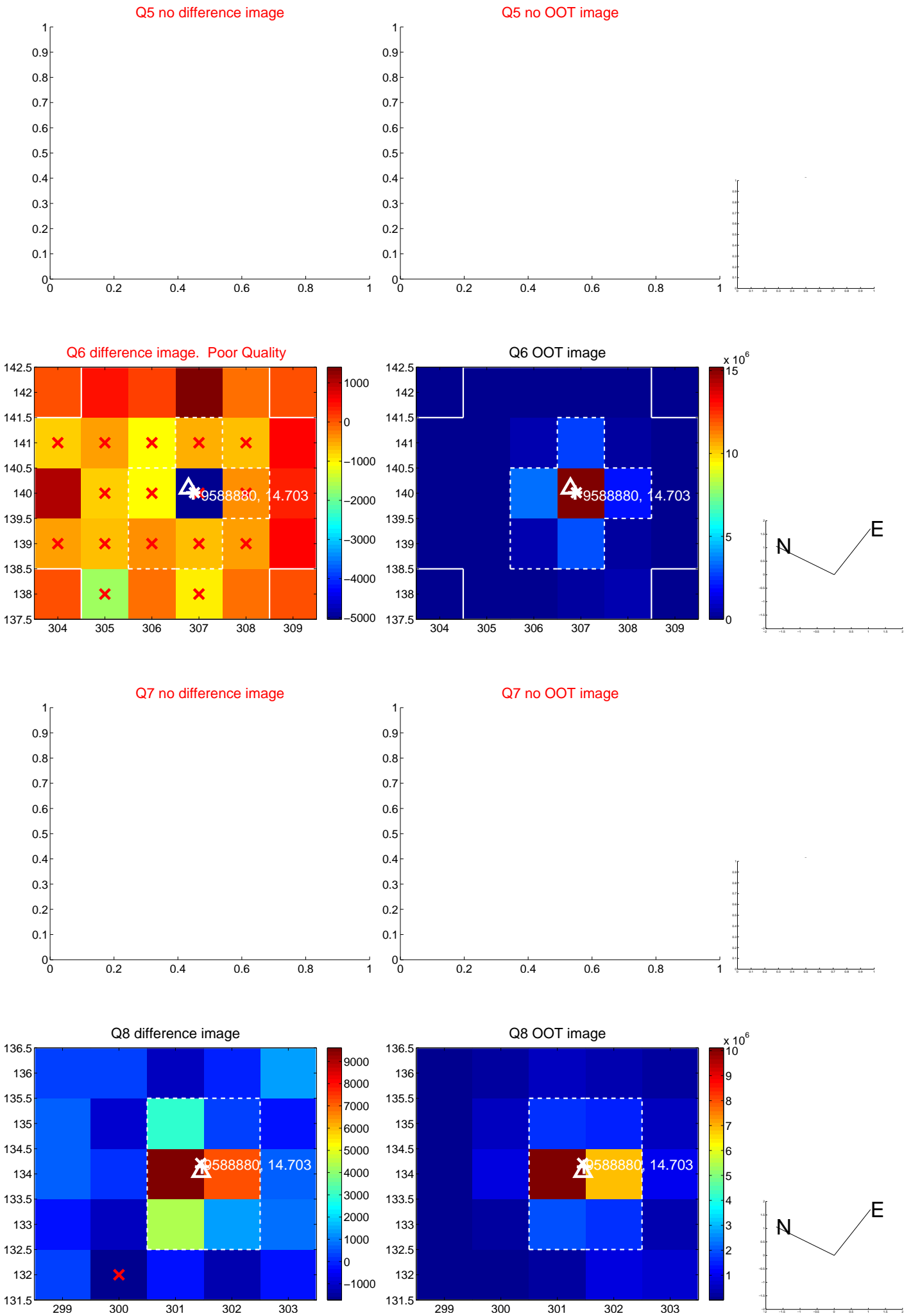


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

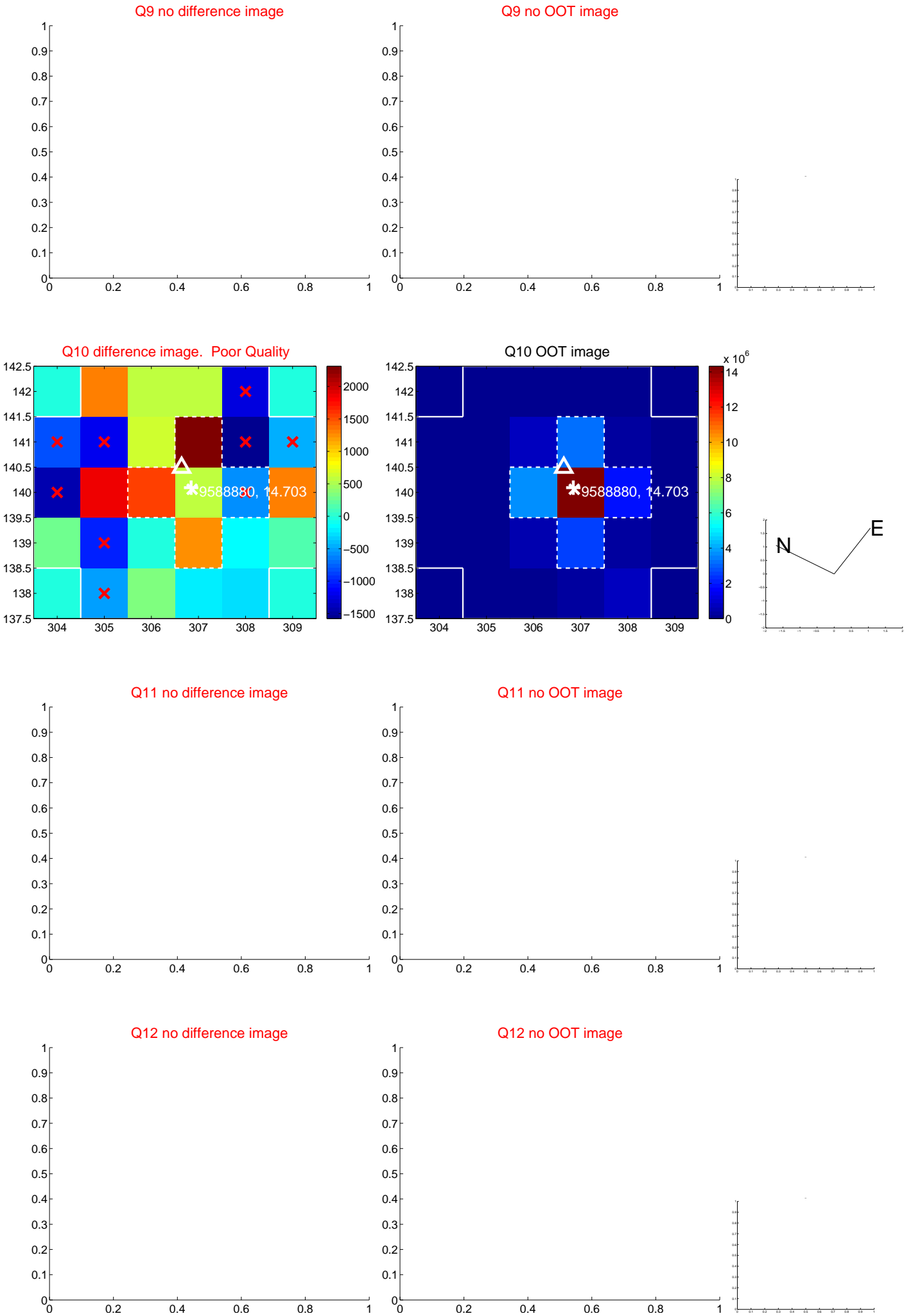
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



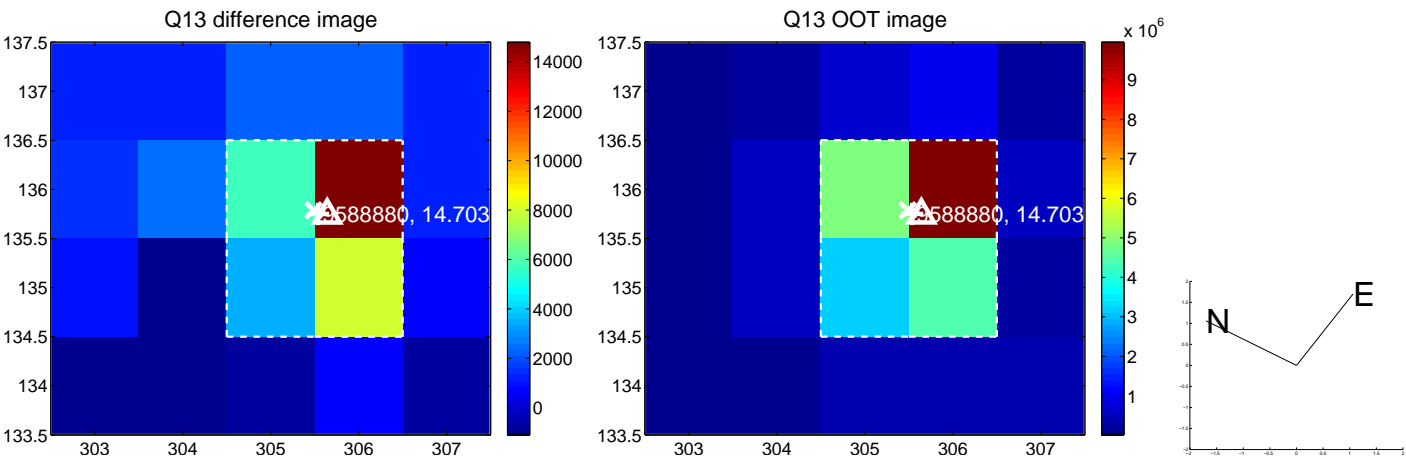
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



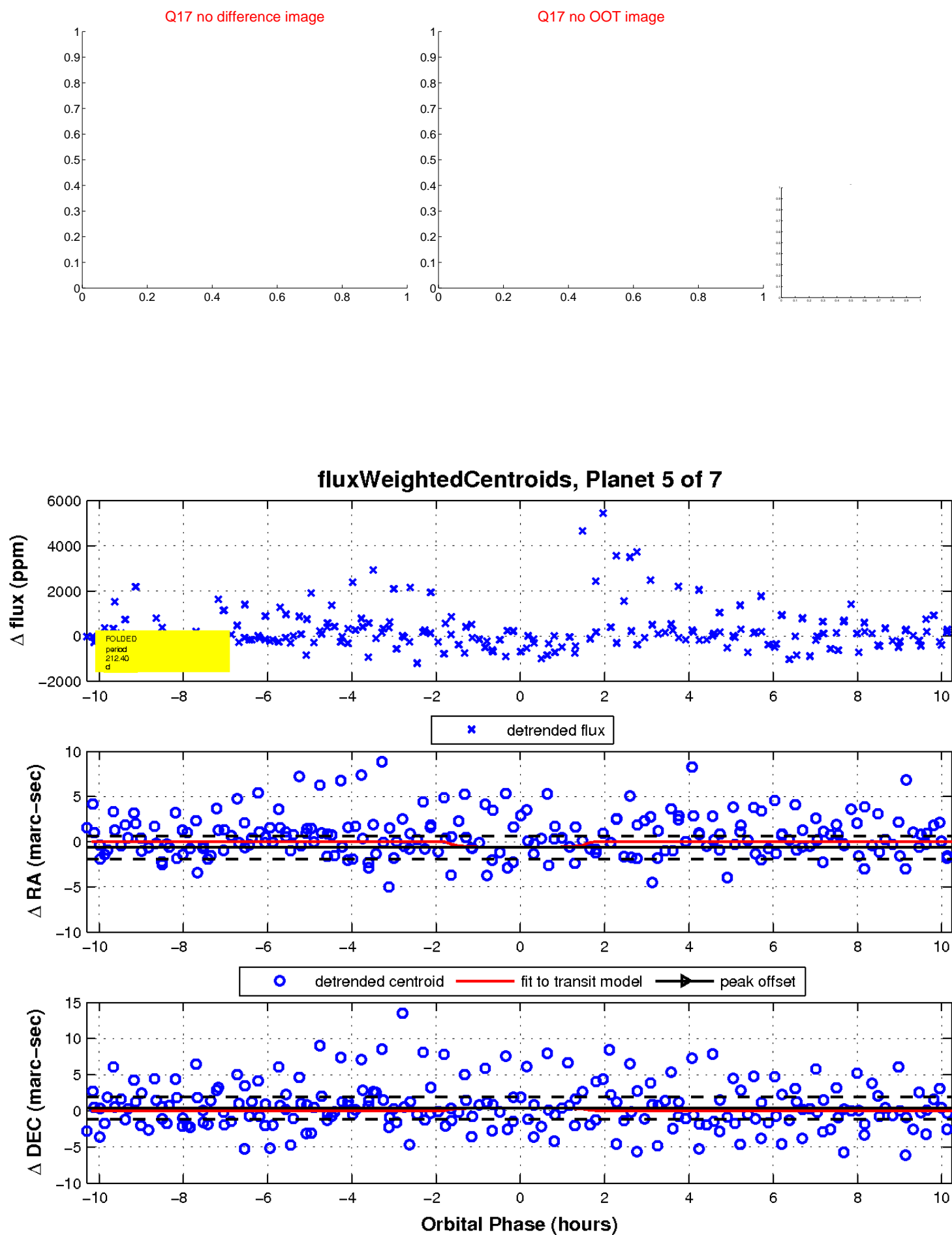
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



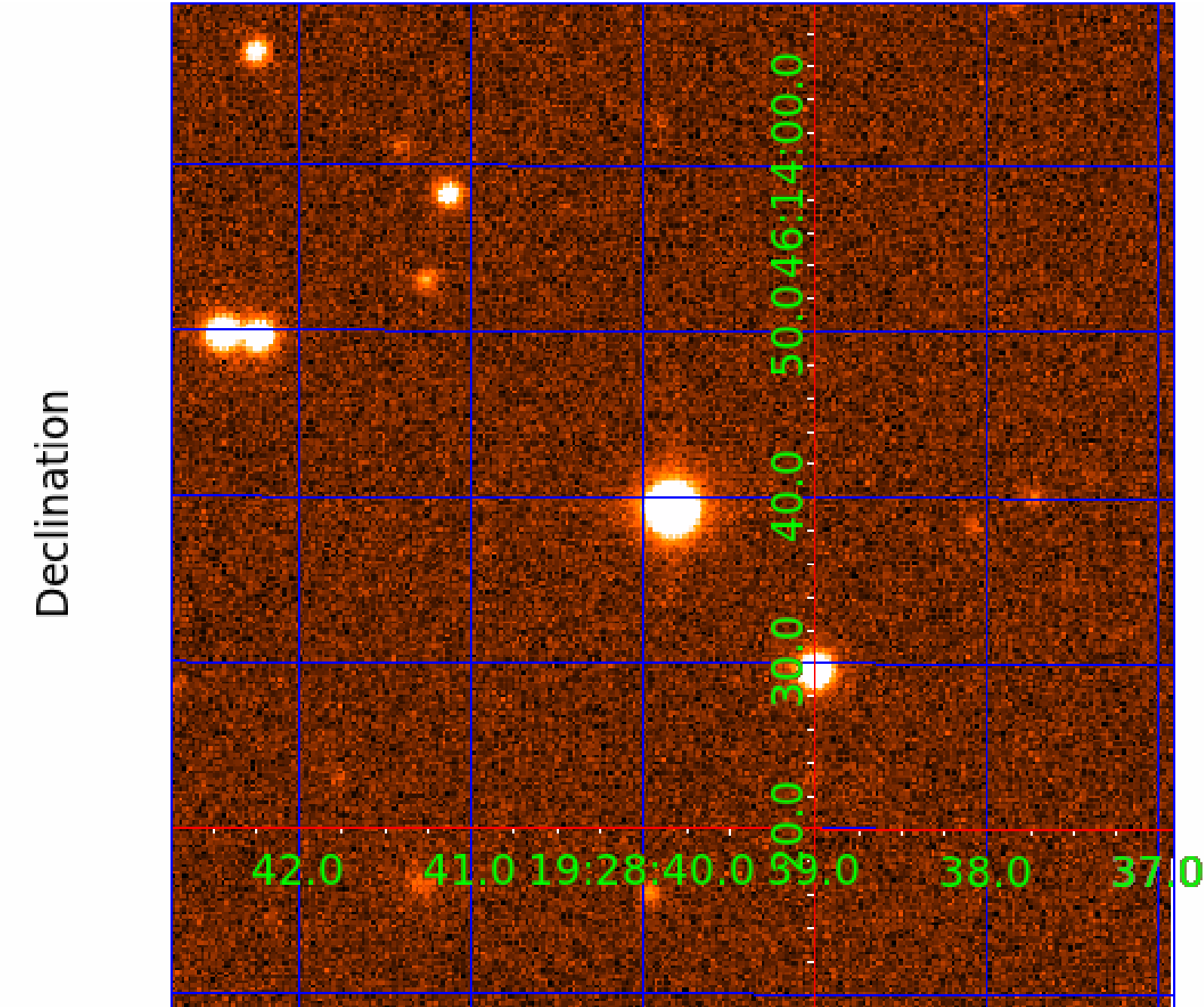
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image



KIC 009588880

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})
009588880-01	OBS	No	335.054280	350.128812	1271.6	3.491	15.4	6.3	0.53	3900	2.02	0.10
009588880-02	OBS	No	405.640147	376.726765	2125.4	15.727	12.3	6.5	0.53	3900	2.44	0.08
009588880-03	OBS	No	250.335064	166.474043	1493.7	12.033	12.6	7.6	0.53	3900	2.24	0.14
009588880-04	OBS	No	441.771666	471.144684	1675.3	4.205	14.1	9.0	0.53	3900	2.20	0.07
009588880-05	OBS	No	212.404286	138.498794	1153.0	3.433	12.8	7.0	0.53	3900	1.83	0.18
009588880-06	OBS	No	497.614162	355.791575	376.2	5.293	12.8	1.8	0.53	3900	1.04	0.06
009588880-07	OBS	7946.01	77.976209	175.354954	1665.6	2.000	9.2	-1.0	0.53	3900	2.15	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009588880-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009588880-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
009588880-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009588880-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES
009588880-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-07	OBS	FP	0.23	1	0	0	0	LPP_DV—CENT_NOFITS

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

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

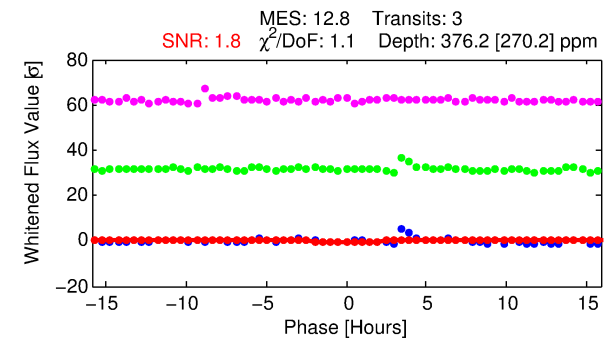
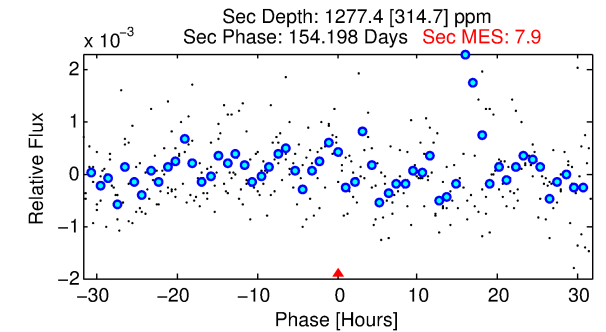
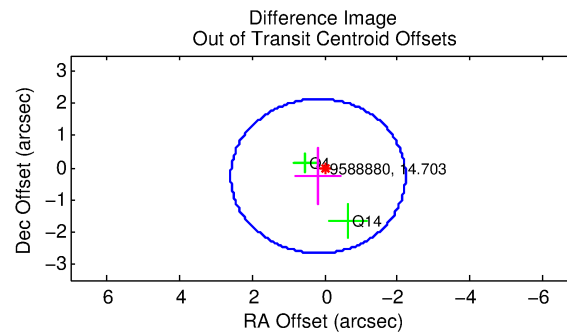
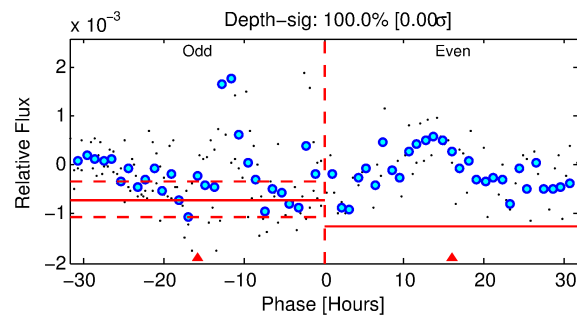
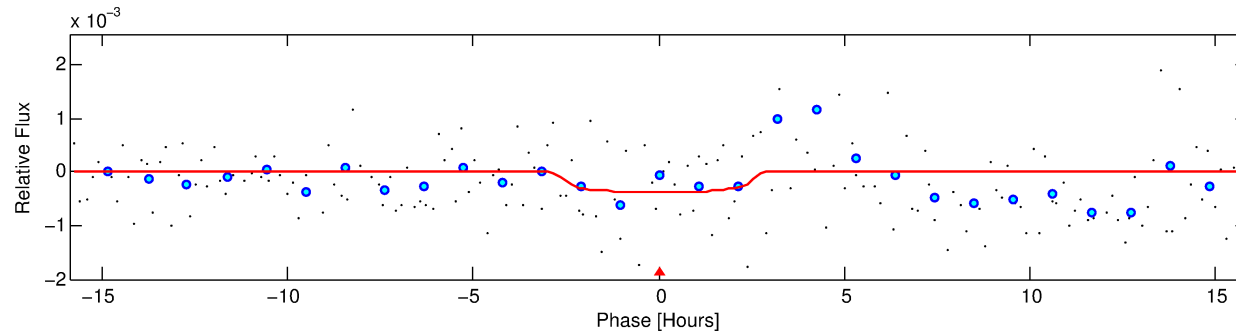
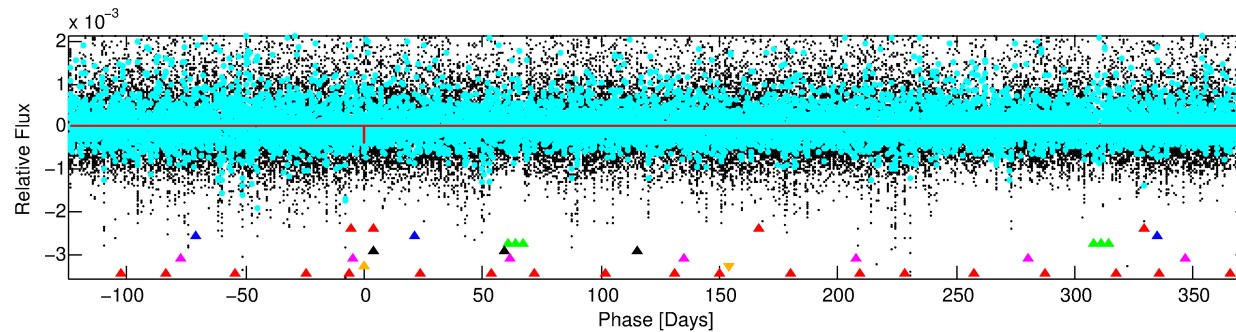
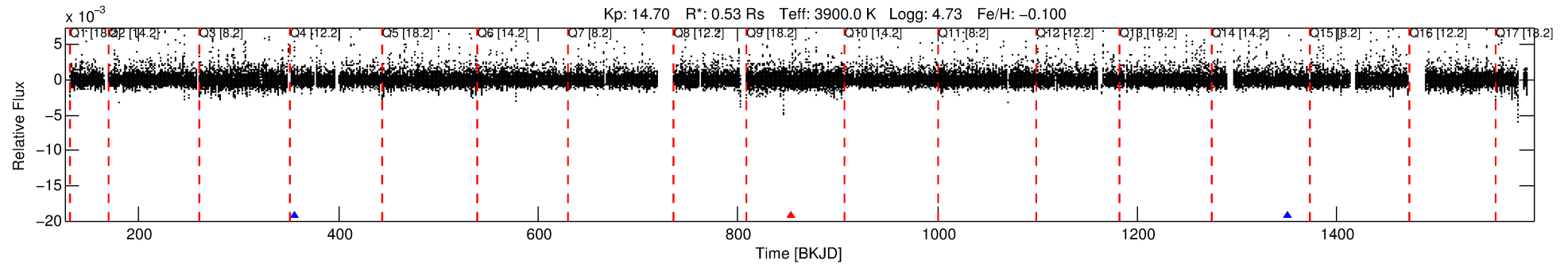
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009588880-06

No Significant Match Found

DV One-Page Summary

KIC: 9588880 Candidate: 6 of 7 Period: 497.614 d



DV Fit Results:

Period = 497.61416 [0.02397] d
Epoch = 355.7916 [0.0318] BKJD
Rp/R* = 0.0178 [0.1250]
a/R* = 687.44 [20568.22]
b = 0.35 [76.47]
Seff = 0.06 [0.02]
Teq = 125 [9] K
Rp = 1.04 [7.29] Re
a = 1.0100 [0.1457] AU
Ag = 667493.95 [9387144.50] [0.07σ]
Teffp = 5529 [19438] K [0.28σ]

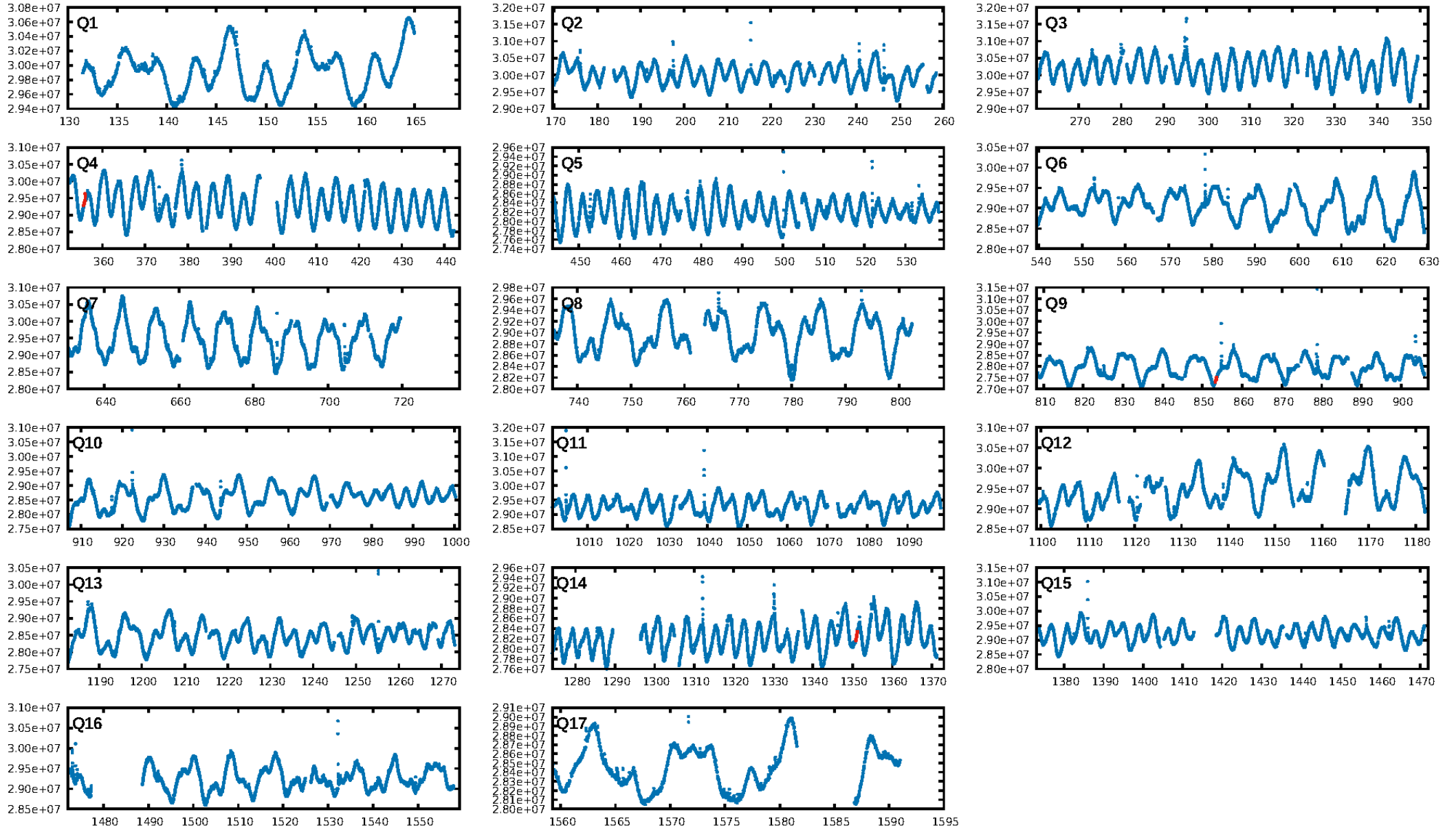
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [198.28σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 40.9%
ModelChiSquareGof-sig: 98.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: 3.359
Centroid-sig: 49.6%
Centroid-so: 2.492 arcsec [0.76σ]
OotOffset-rm: 0.318 arcsec [0.40σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 0.435 arcsec [0.62σ]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

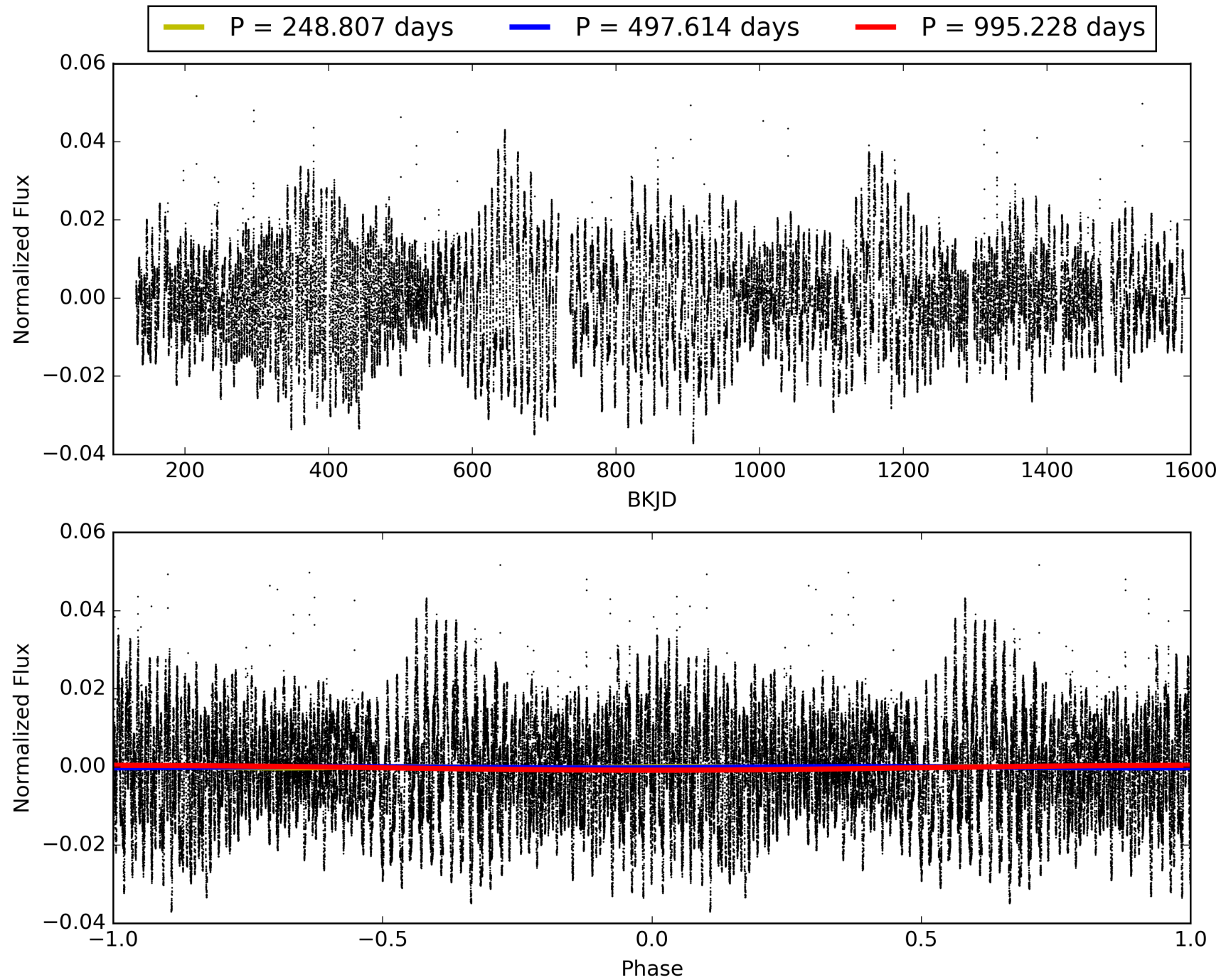
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:01:43 Z

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

TCE 009588880-06, PDC Light Curves

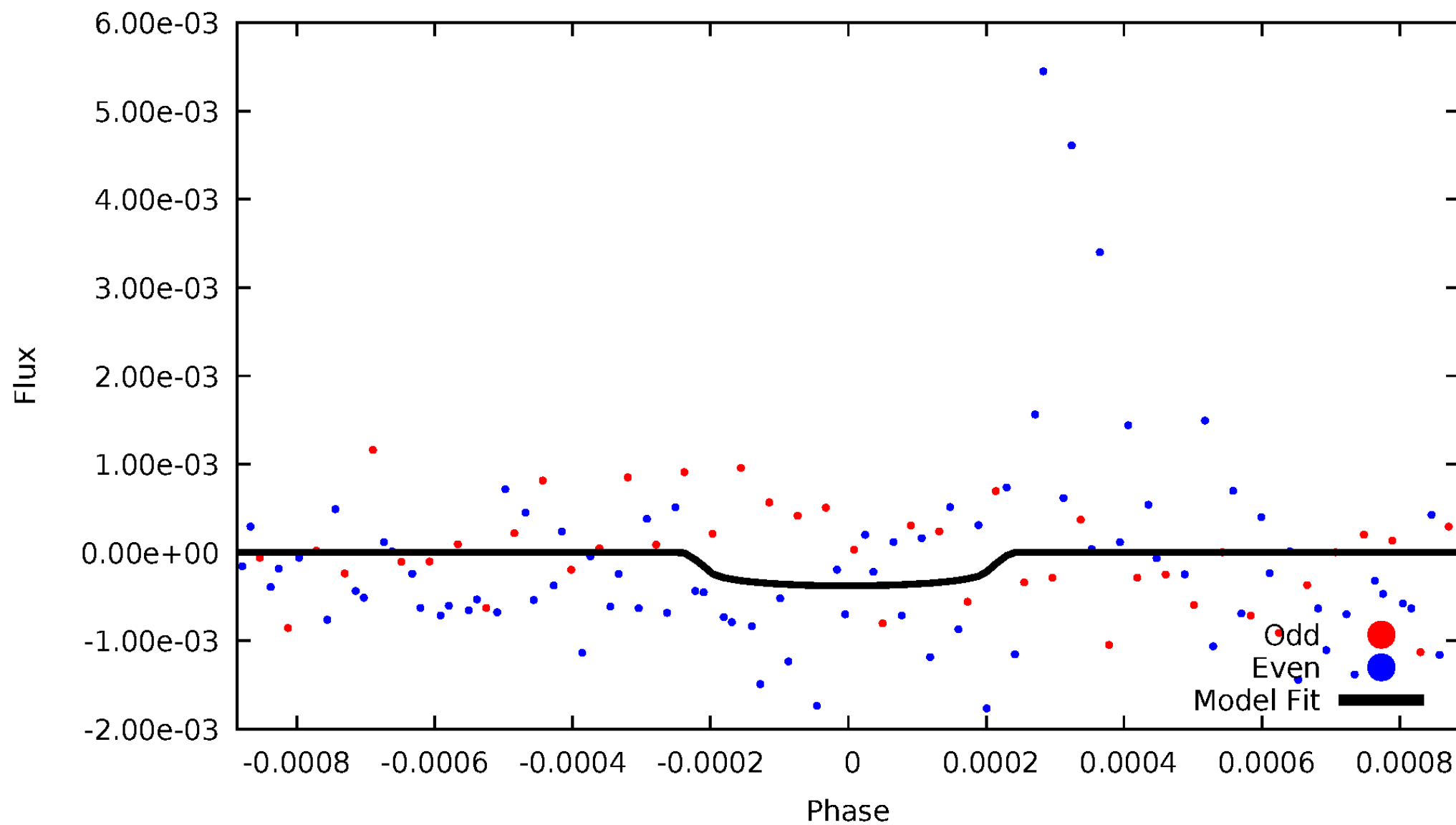


TCE 009588880-06



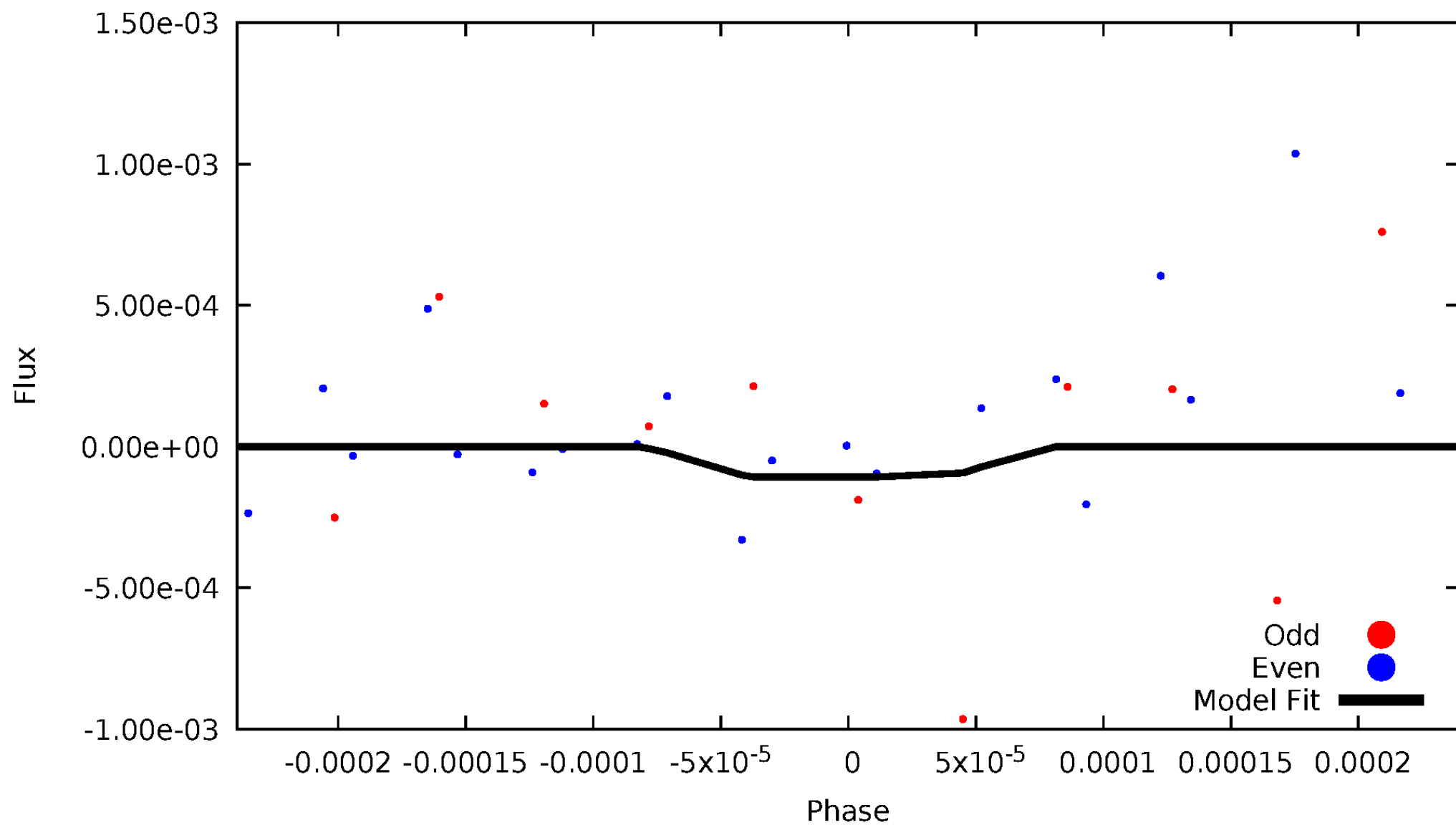
DV Odd/Even

TCE 009588880-06



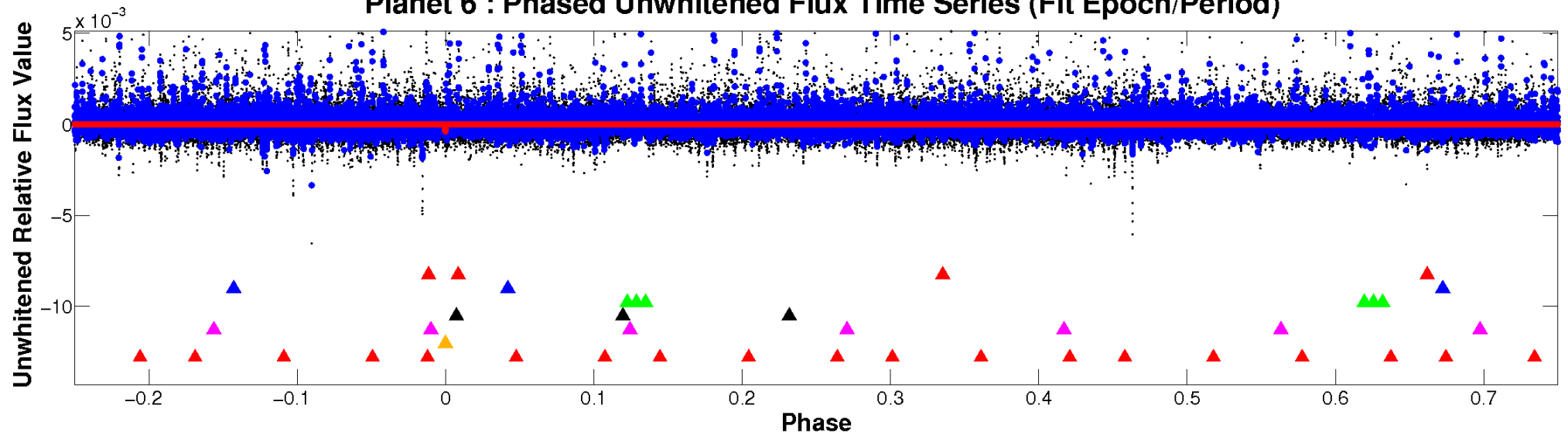
ALT Odd/Even

TCE 009588880-06

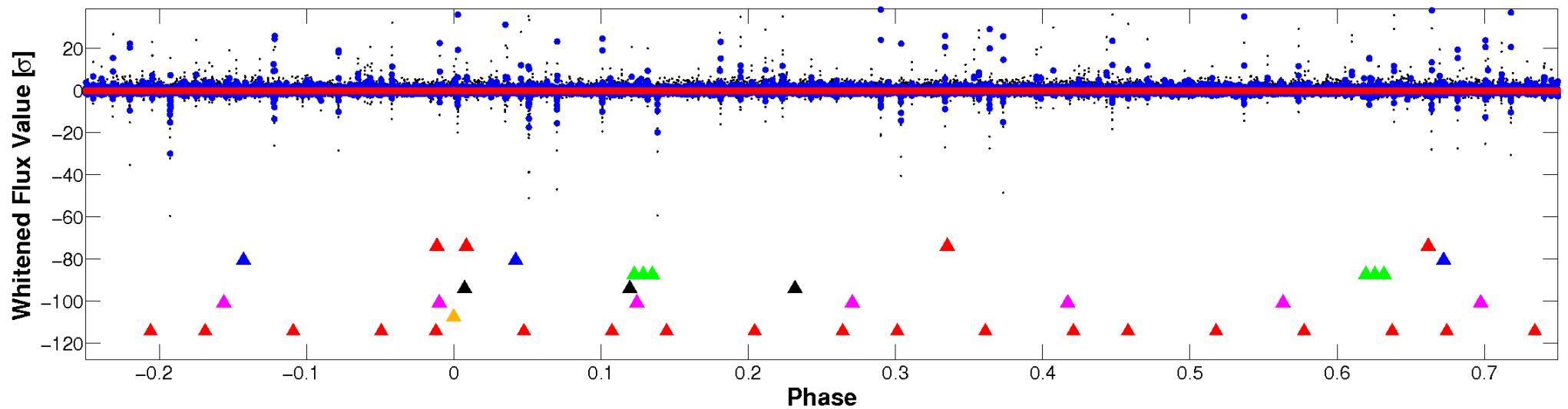


Non-Whitened Vs. Whitened Light Curve

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

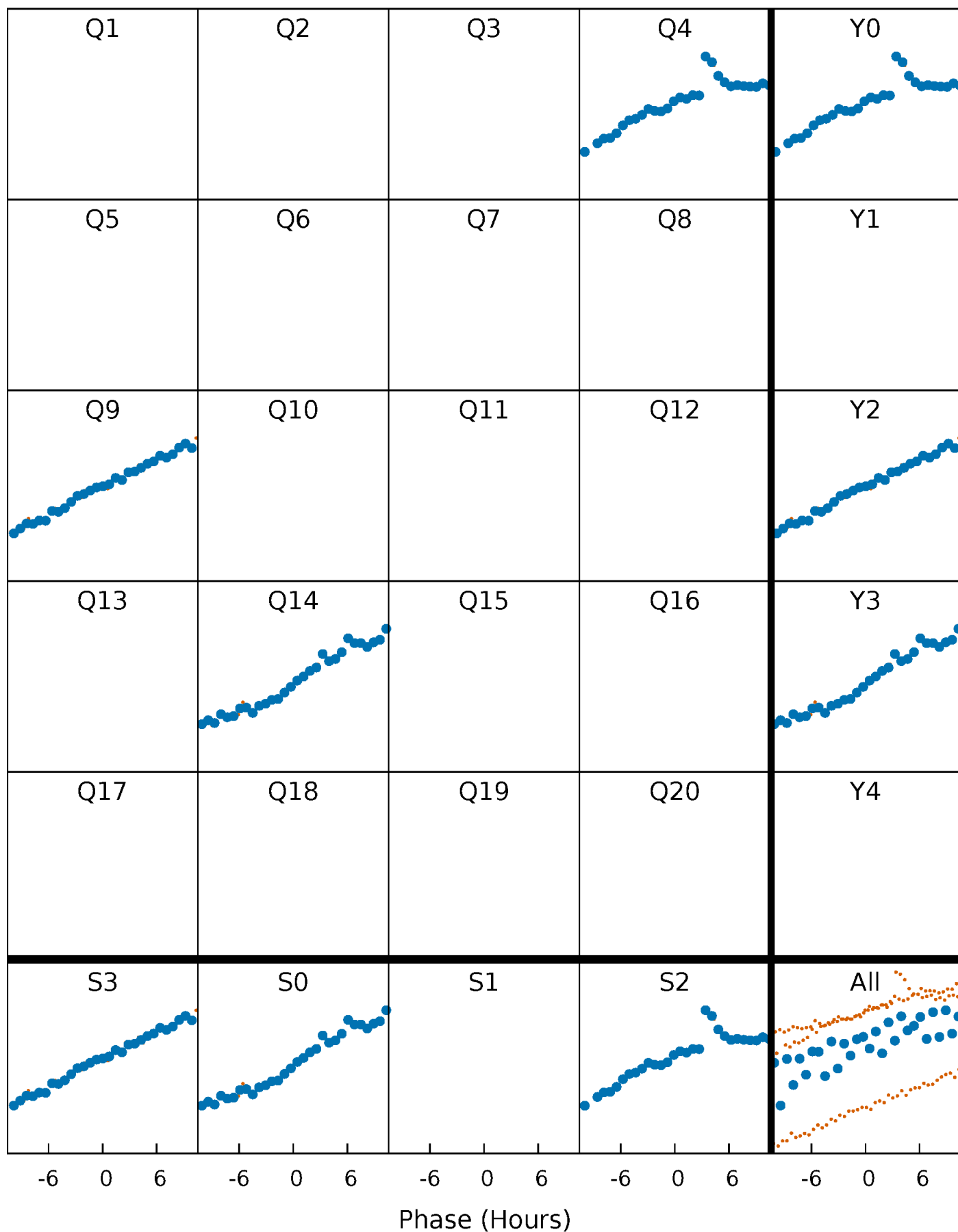


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



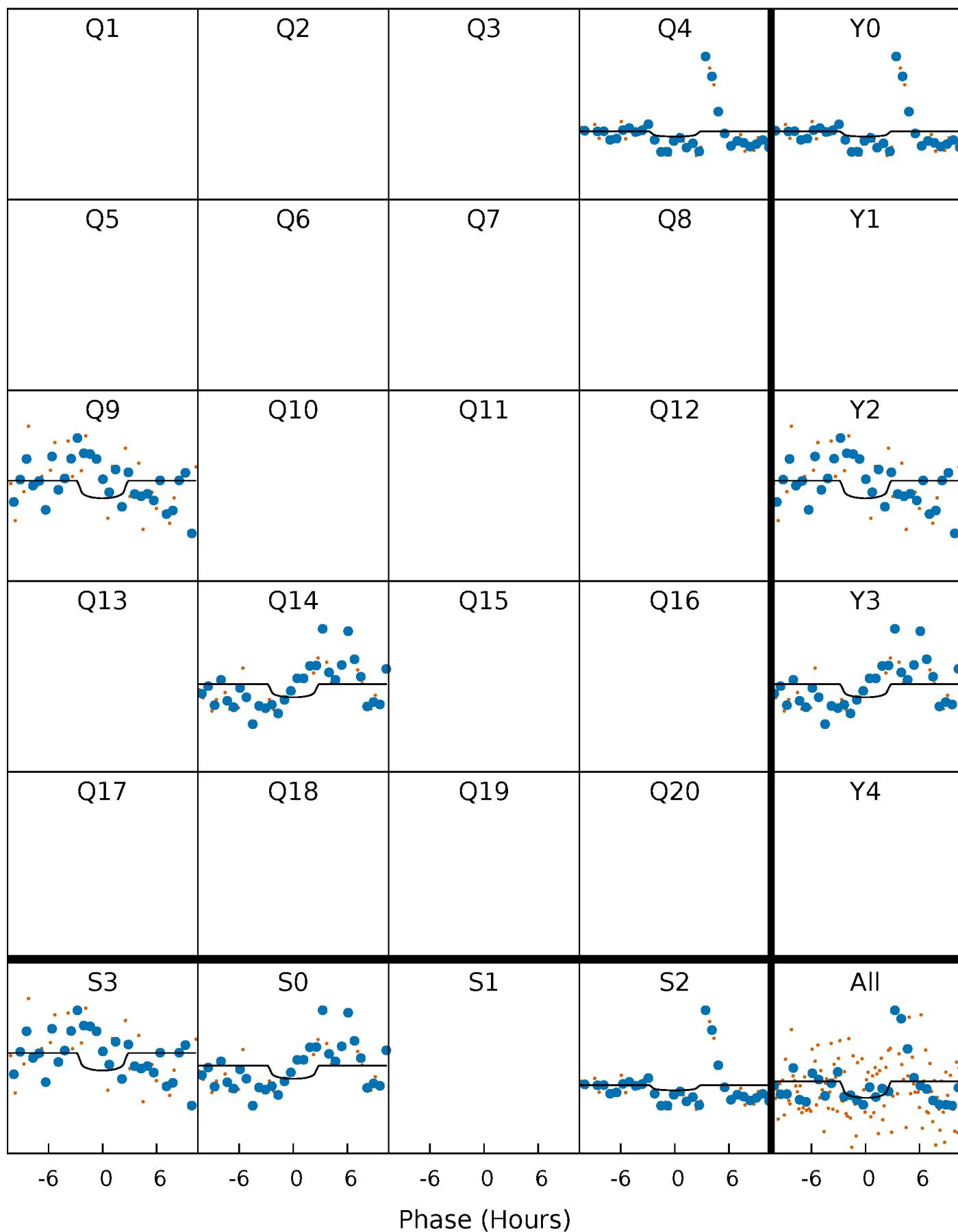
PDC Quarter-Phased Transit Curves

TCE 009588880-06 $P=497.614162$ Days $T_0=355.791575$ (BKJD)



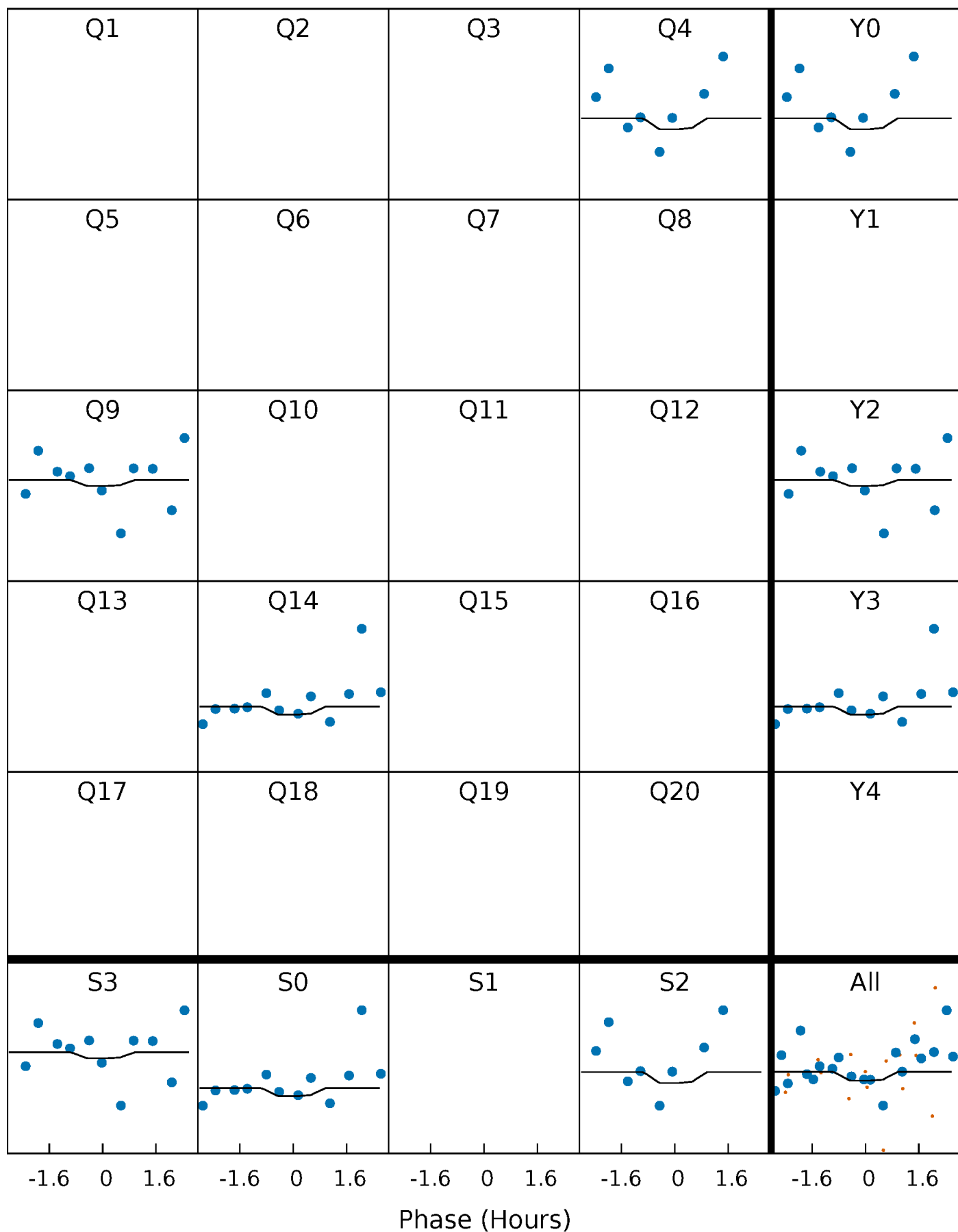
DV Quarter-Phased Transit Curves

TCE 009588880-06 $P=497.614162$ Days $T_0=355.791575$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

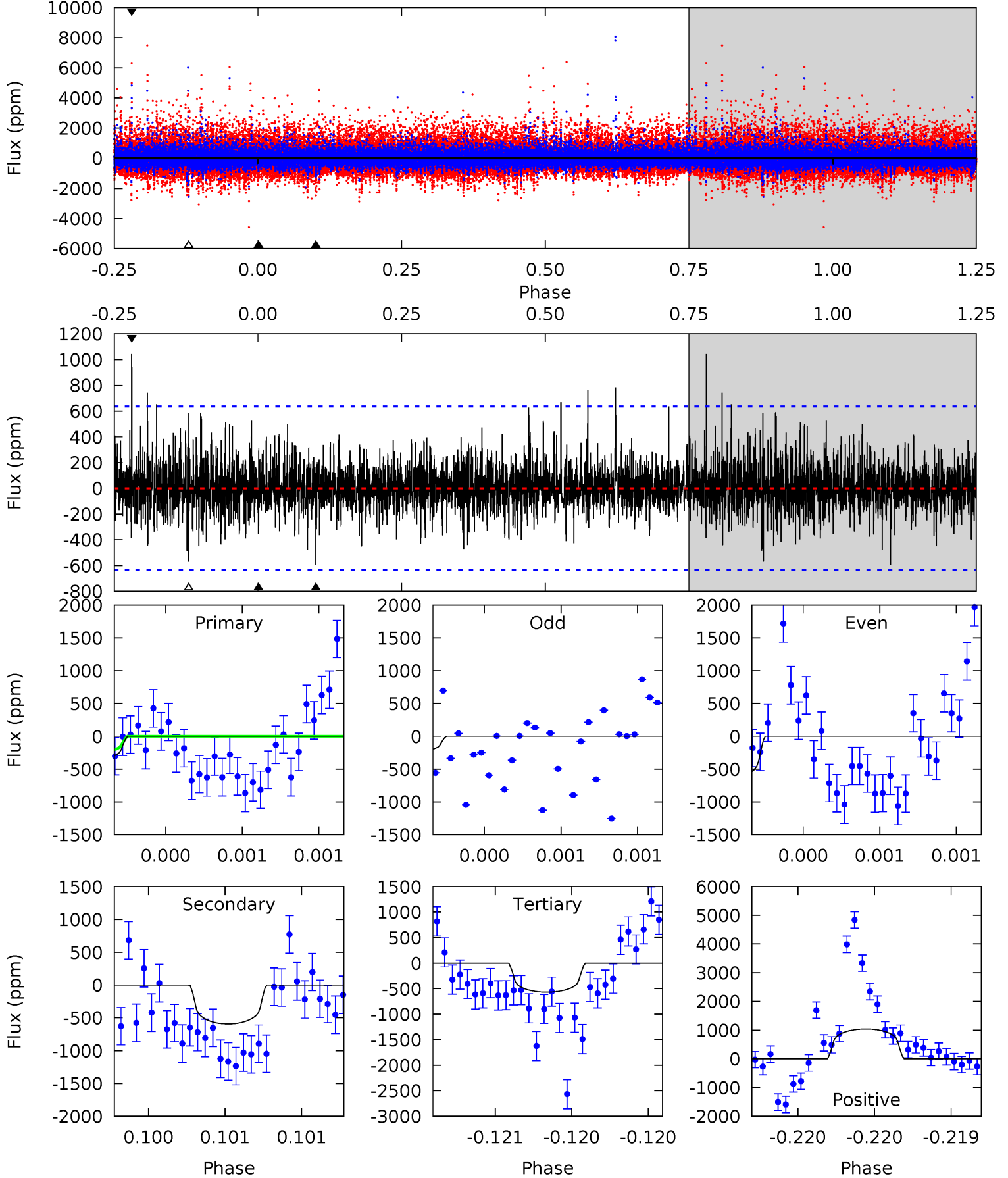
TCE 009588880-06 P=497.659354 Days $T_0=355.748702$ (BKJD)



DV Model-Shift Uniqueness Test

009588880-06, P = 497.614162 Days, E = 355.791575 Days

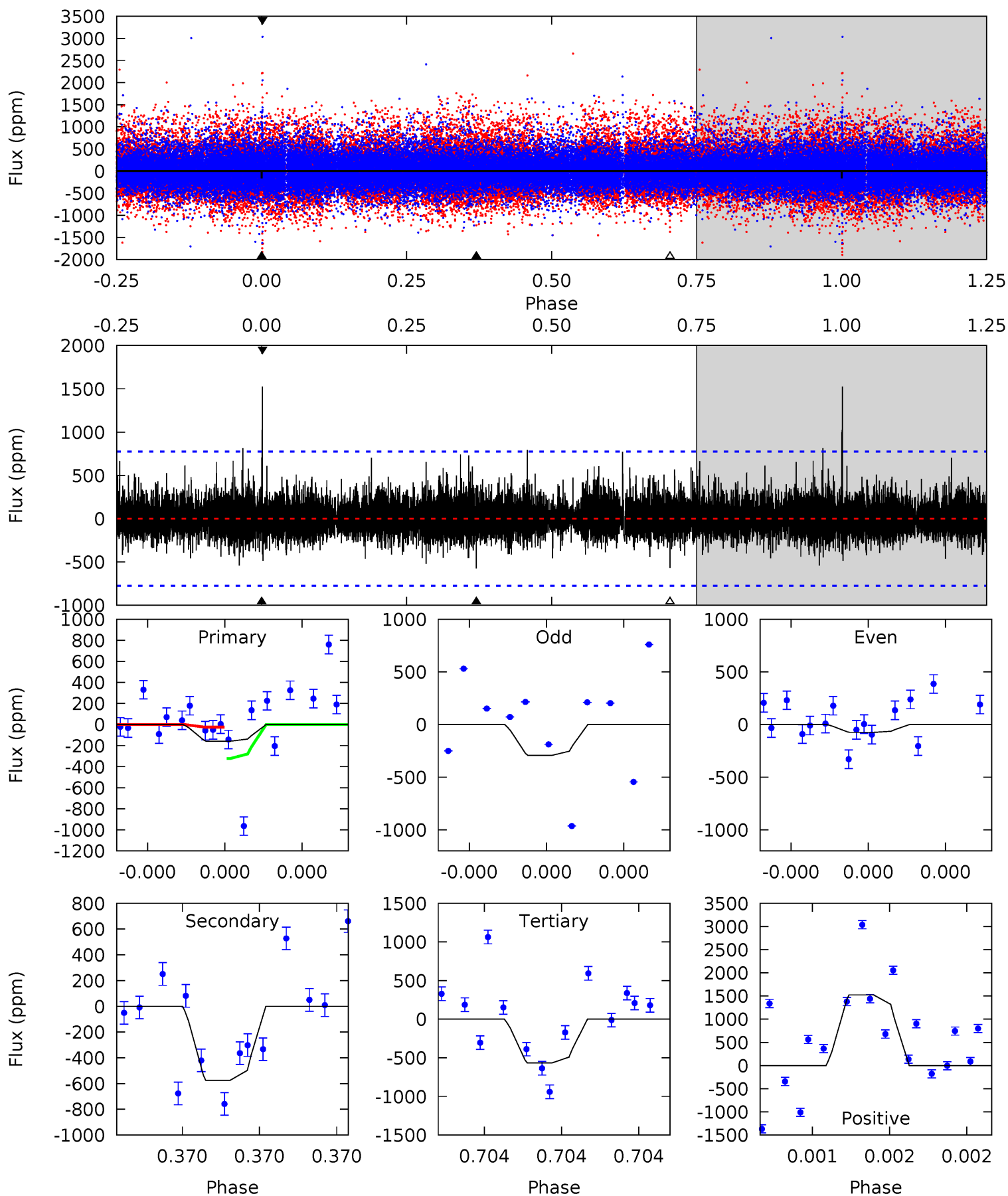
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.09	5.21	4.99	9.15	5.58	3.49	1.23	-1.90	-6.07	0.22	-3.94	0.93	2.40	0.64	0.95



Alt Model-Shift Uniqueness Test

009588880-06, P = 497.659354 Days, E = 355.748702 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.18	4.28	4.22	11.4	5.78	3.79	0.97	-3.04	-10.2	0.06	-7.08	0.76	0.95	0.73	1.11



Stellar Parameters For KIC 009588880

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3900^{+173}_{-193}	$4.727^{+0.097}_{-0.052}$	$-0.100^{+0.350}_{-0.400}$	$0.534^{+0.066}_{-0.099}$	$0.555^{+0.061}_{-0.096}$	$5.136^{+2.793}_{-1.071}$
	+4%/-5%	+2%/-1%	+350%/-400%	+12%/-19%	+11%/-17%	+54%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009588880-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-593 ± 114	$5.41^{+5.26}_{-3.76}$	173^{+9}_{-11}	2606^{+1028}_{-399}	$11090^{+105552}_{-8375}$
Alt.	-575 ± 134	$5.01^{+5.13}_{-3.75}$	173^{+10}_{-10}	2674^{+1281}_{-447}	$13104^{+177104}_{-10118}$

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 $A_{obs} \gg 1.0$

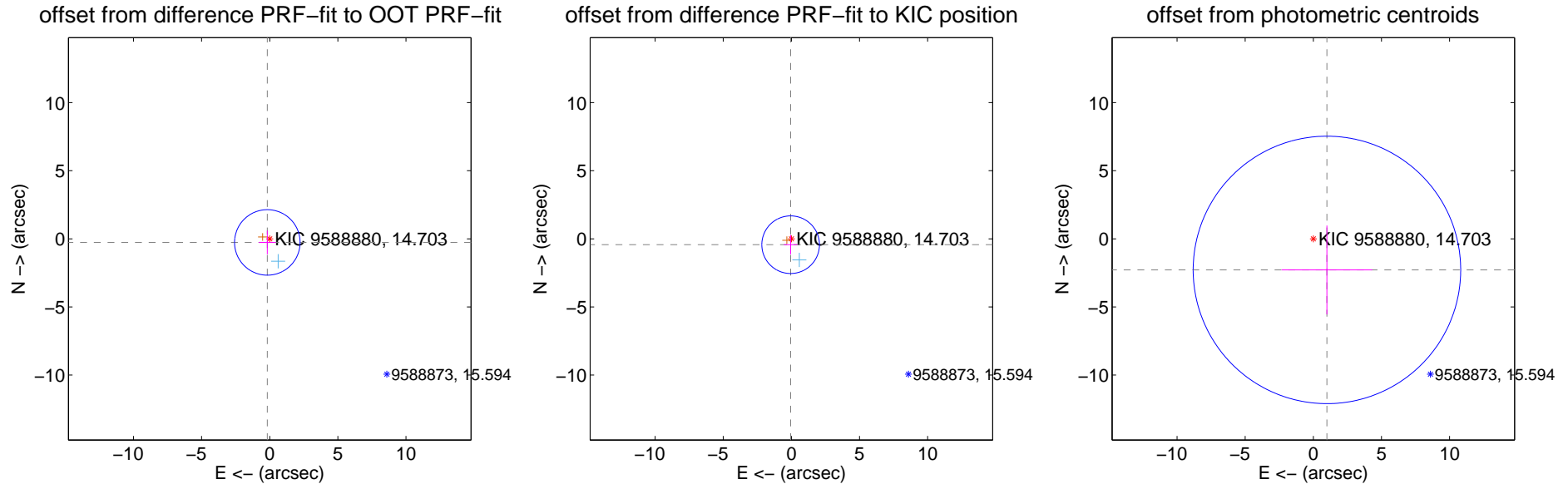
DV Centroid Data

Supplemental centroid analysis for 009588880-06. Kepler magnitude: 14.70. Transit SNR 1.82

There are 1 quarters with good PRF difference image offsets

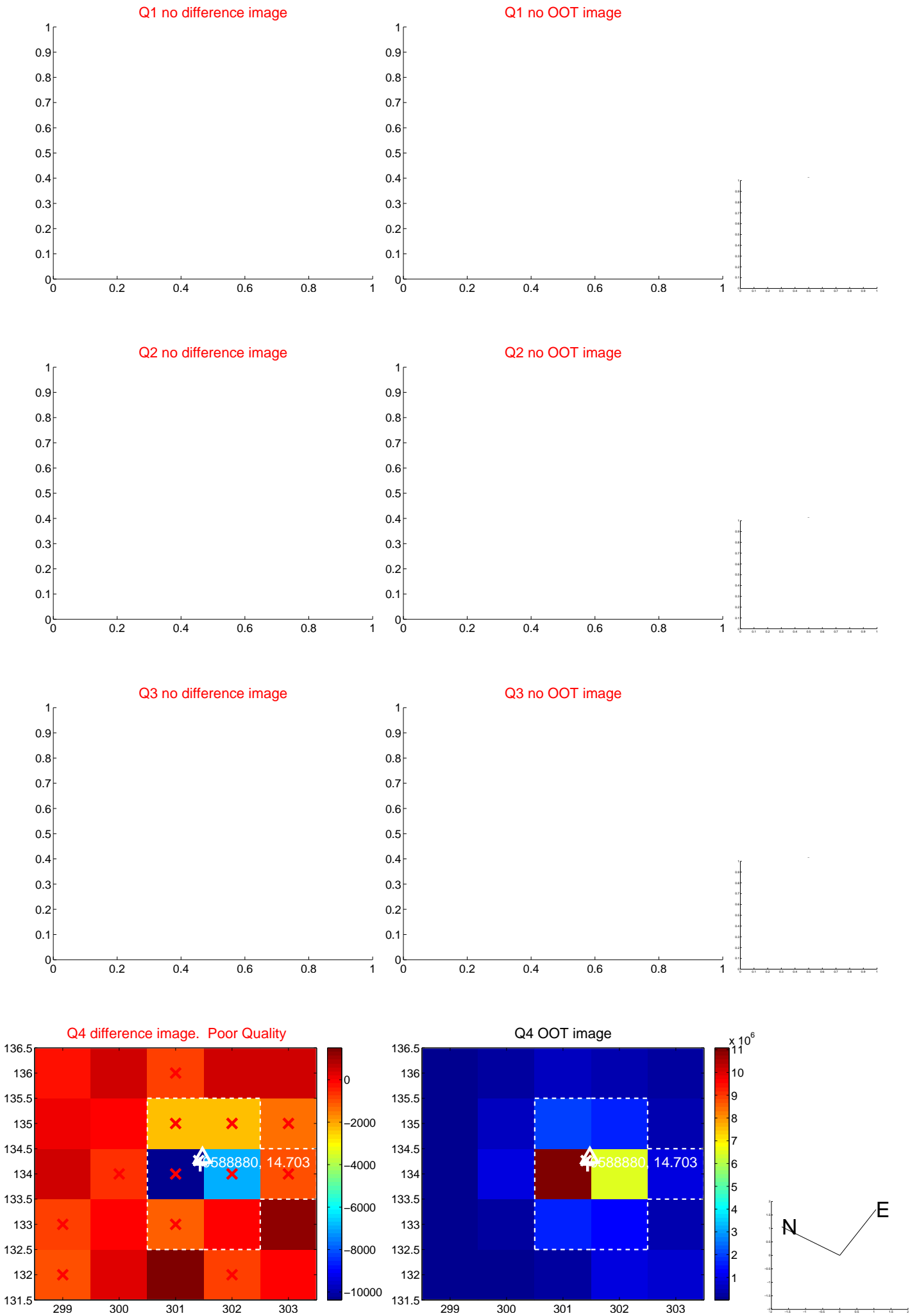
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.318 ± 0.801	0.40	0.177 ± 0.615	-0.265 ± 0.872
PRF-fit source offset from KIC position	0.435 ± 0.705	0.62	0.054 ± 0.495	-0.432 ± 0.708
photometric centroid source offset	2.49 ± 3.27	0.76	-1.00 ± 3.33	-2.28 ± 3.26



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.

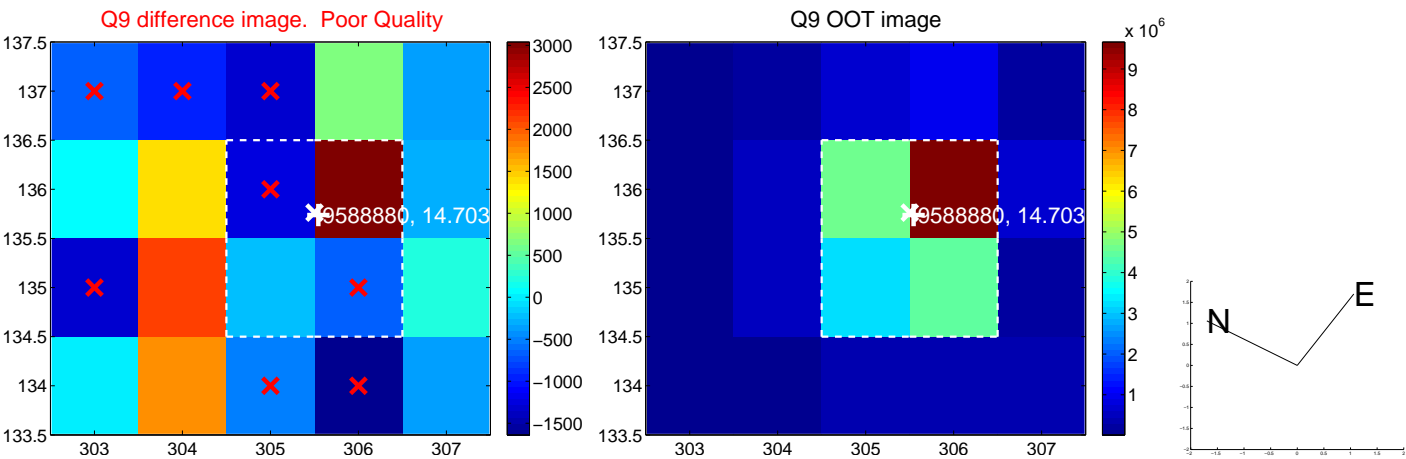
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



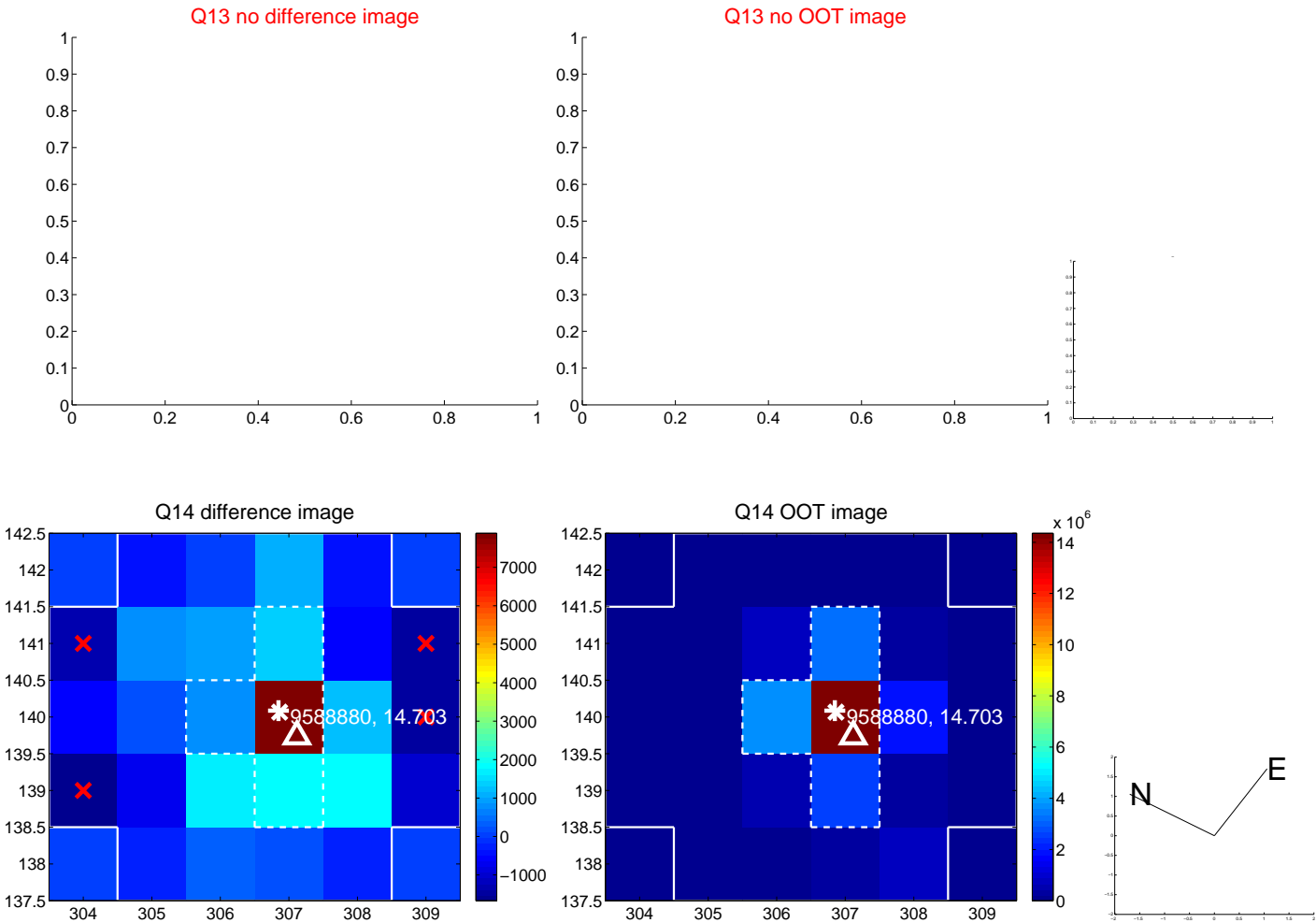
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



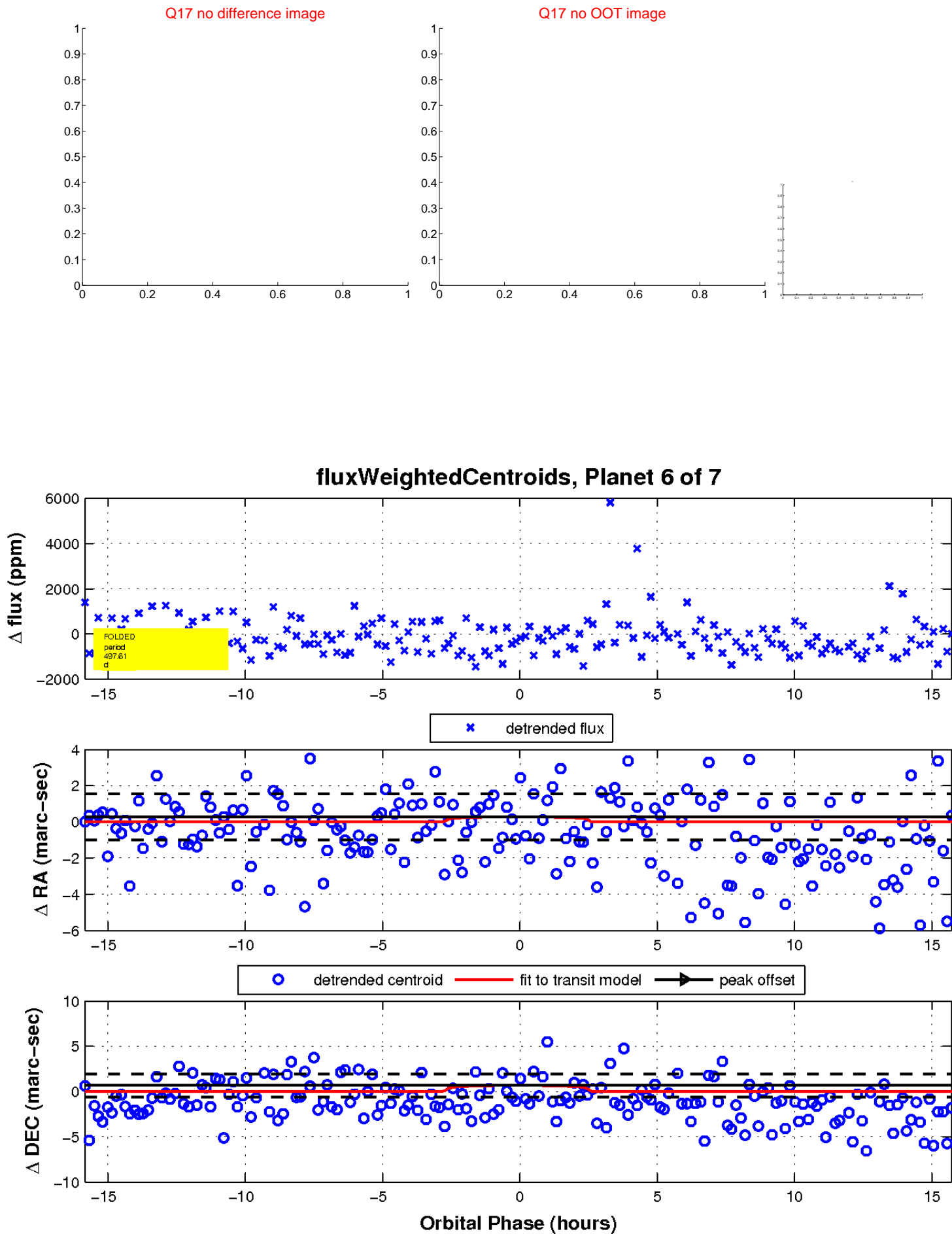
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

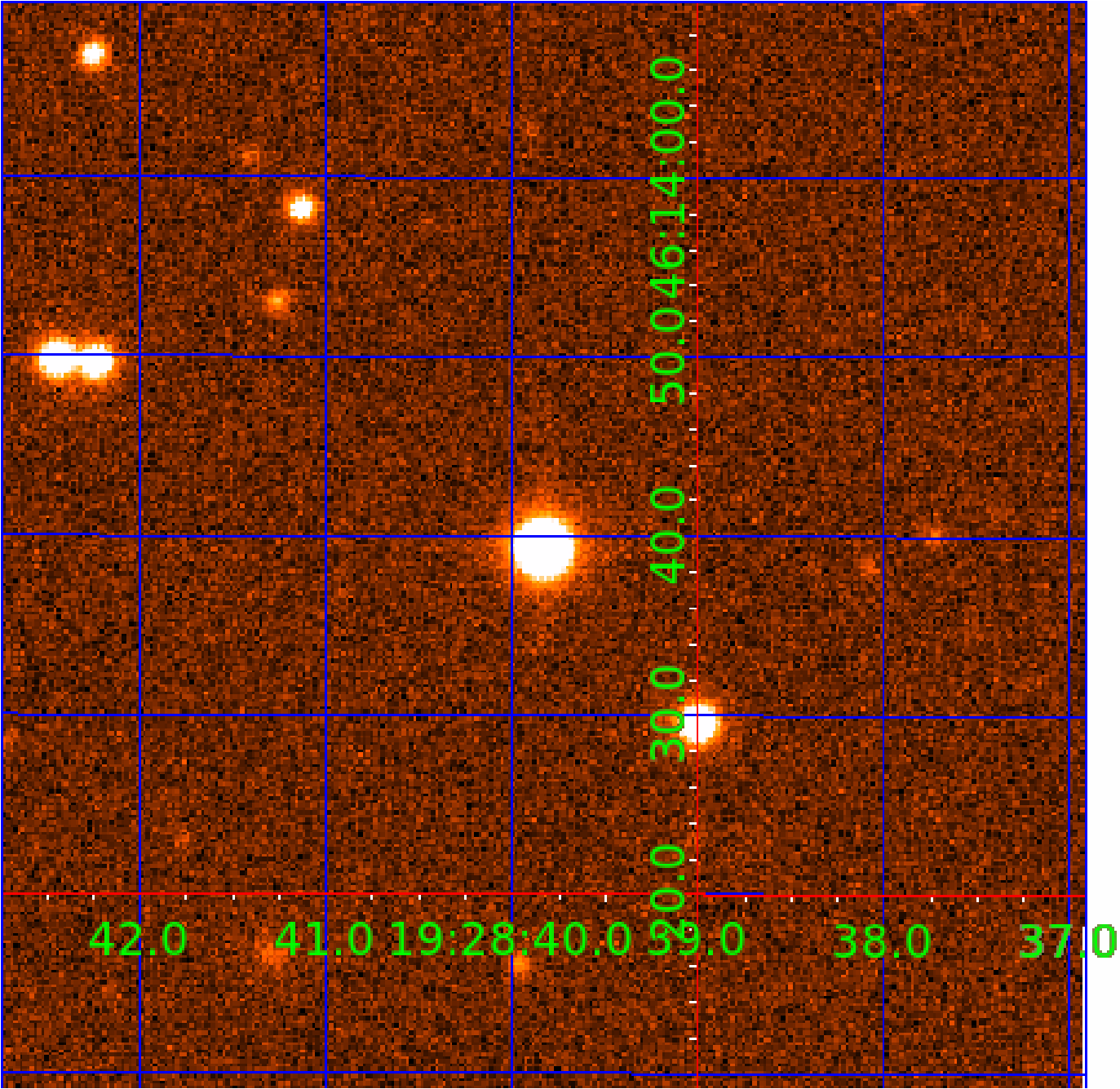


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009588880

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})
009588880-01	OBS	No	335.054280	350.128812	1271.6	3.491	15.4	6.3	0.53	3900	2.02	0.10
009588880-02	OBS	No	405.640147	376.726765	2125.4	15.727	12.3	6.5	0.53	3900	2.44	0.08
009588880-03	OBS	No	250.335064	166.474043	1493.7	12.033	12.6	7.6	0.53	3900	2.24	0.14
009588880-04	OBS	No	441.771666	471.144684	1675.3	4.205	14.1	9.0	0.53	3900	2.20	0.07
009588880-05	OBS	No	212.404286	138.498794	1153.0	3.433	12.8	7.0	0.53	3900	1.83	0.18
009588880-06	OBS	No	497.614162	355.791575	376.2	5.293	12.8	1.8	0.53	3900	1.04	0.06
009588880-07	OBS	7946.01	77.976209	175.354954	1665.6	2.000	9.2	-1.0	0.53	3900	2.15	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009588880-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009588880-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
009588880-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009588880-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES
009588880-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009588880-07	OBS	FP	0.23	1	0	0	0	LPP_DV—CENT_NOFITS

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

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

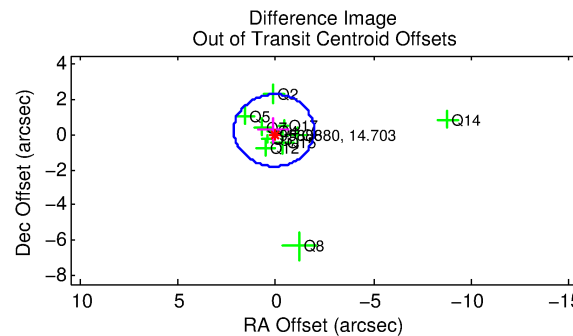
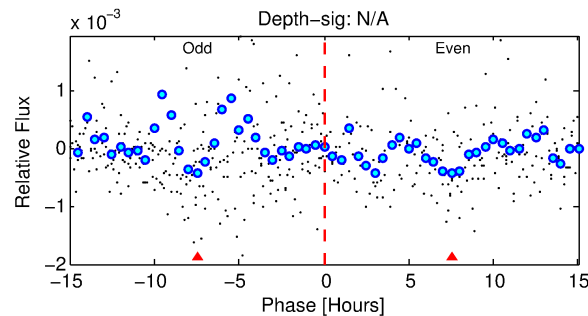
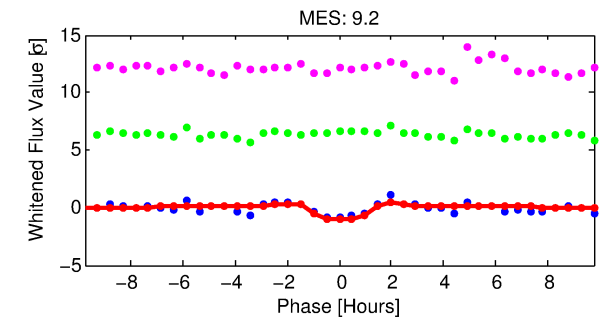
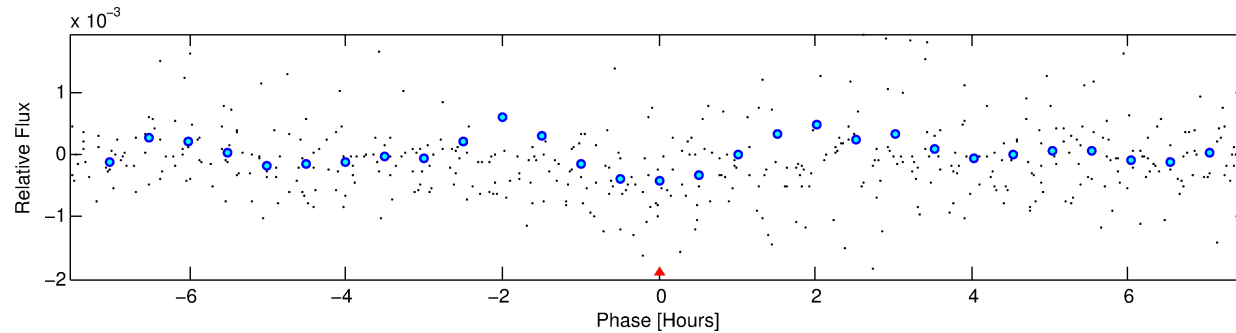
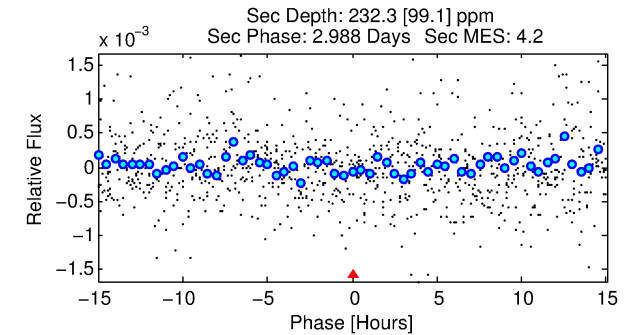
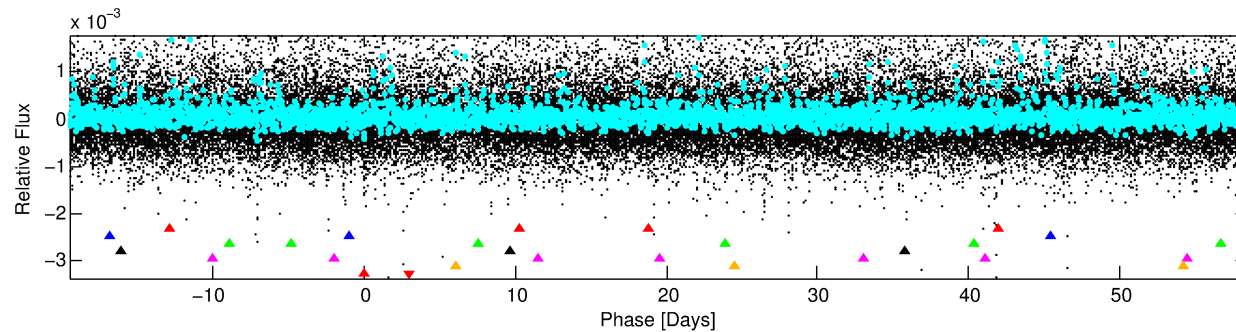
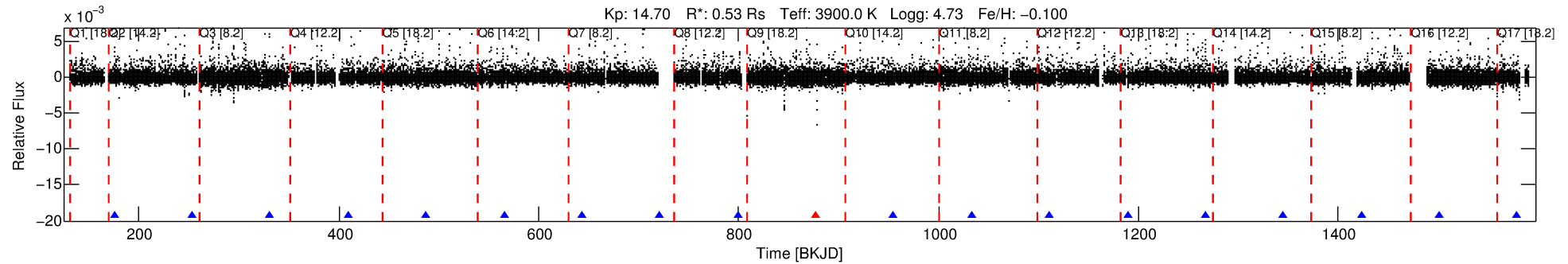
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009588880-07

No Significant Match Found

DV One-Page Summary

KIC: 9588880 Candidate: 7 of 7 Period: 77.976 d



TPS TCE Results:

Period = 77.97621 d
Epoch = 175.3550 BKJD

DV fit results are unavailable

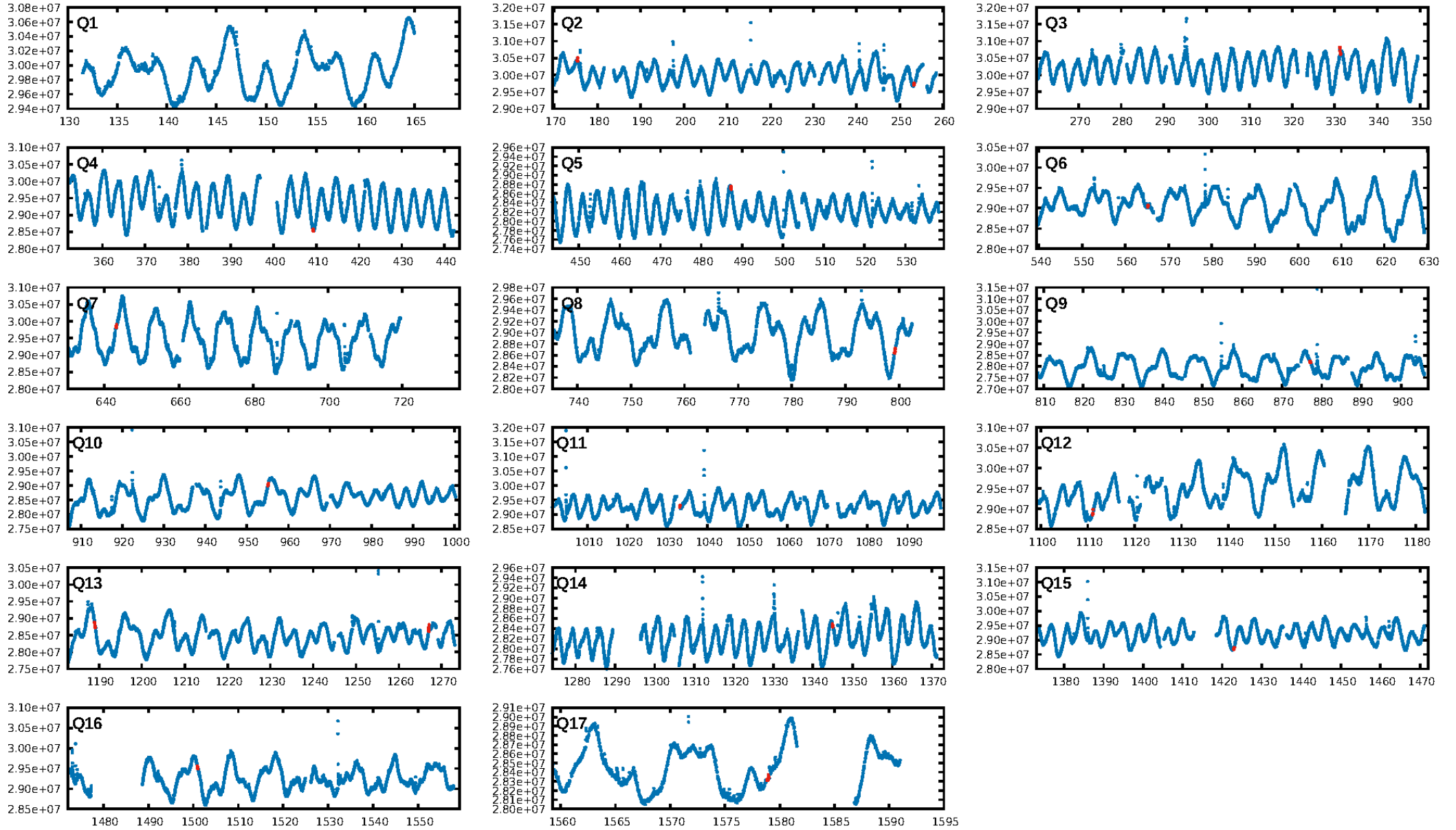
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [812.10 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.94 [16/17]
GhostDiagnostic-chr: -10.52
Centroid-sig: 41.2%
Centroid-so: 0.862 arcsec [0.70 σ]
OotOffset-rm: 0.260 arcsec [0.38 σ]
KicOffset-rm: 0.064 arcsec [0.10 σ]
OotOffset-st: 3/3/3/2 [11]
KicOffset-st: 3/3/3/2 [11]
DiffImageQuality-fgm: 0.45 [5/11]
DiffImageOverlap-fno: 1.00 [15/15]

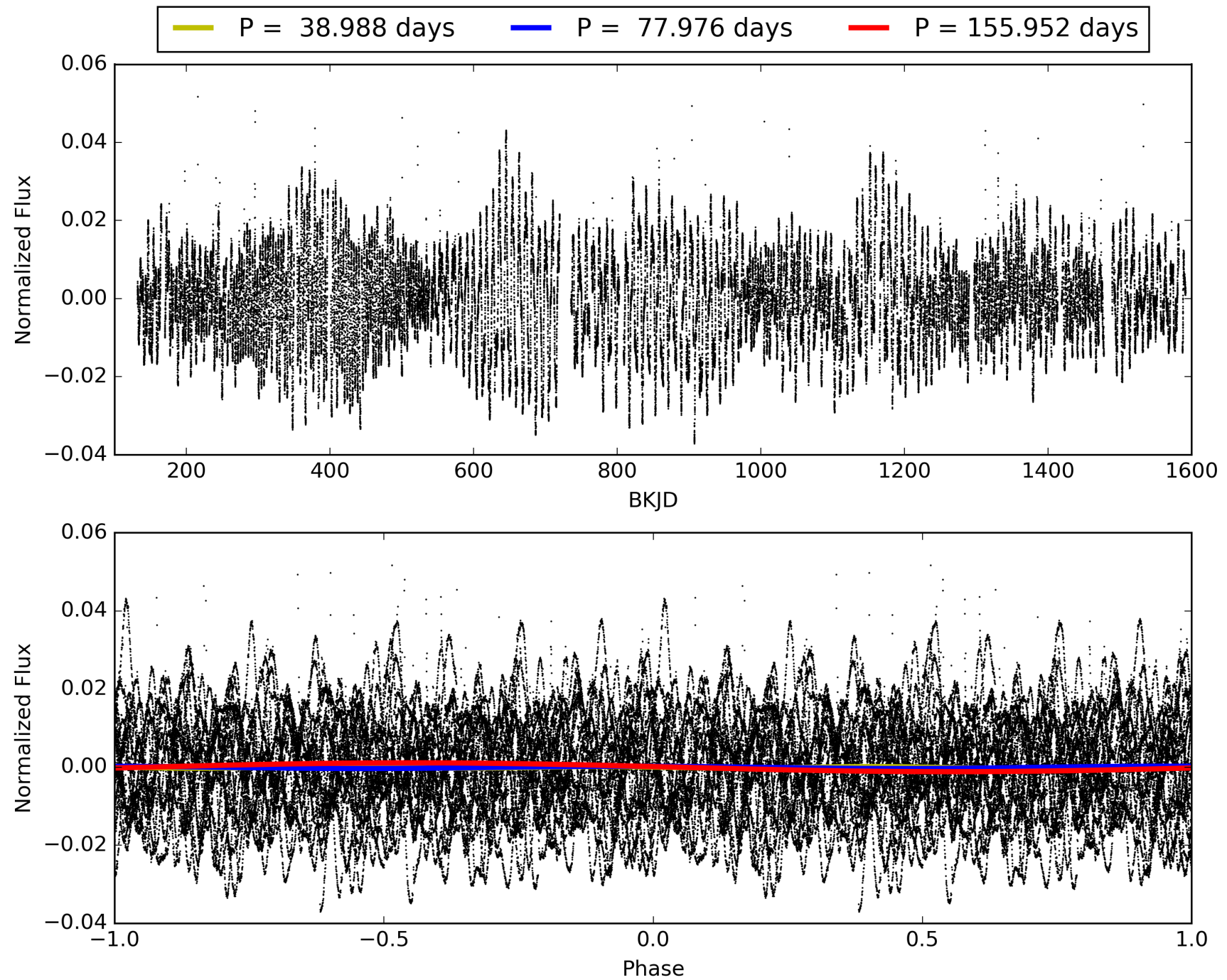
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:01:52 Z

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

TCE 009588880-07, PDC Light Curves

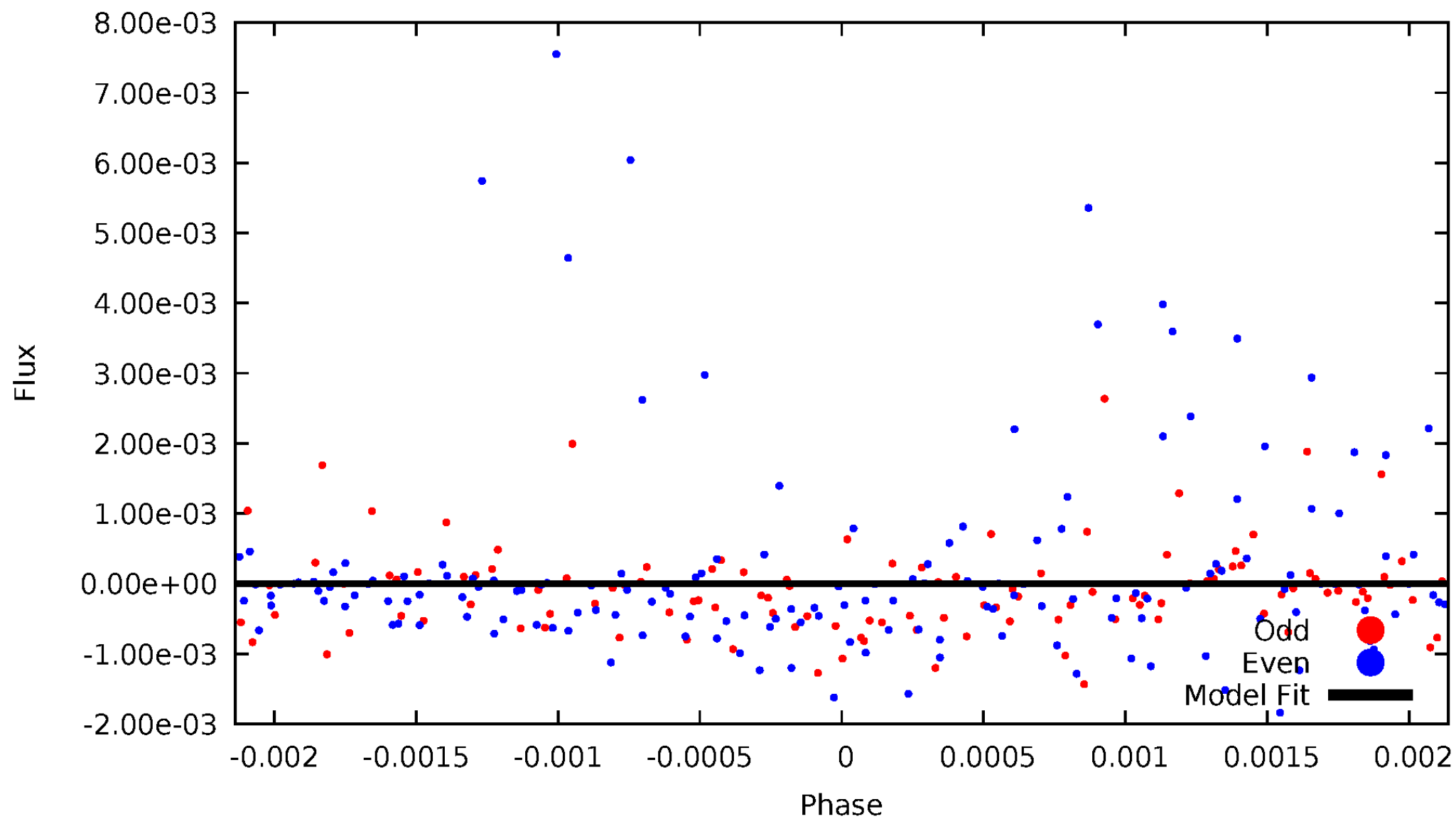


TCE 009588880-07



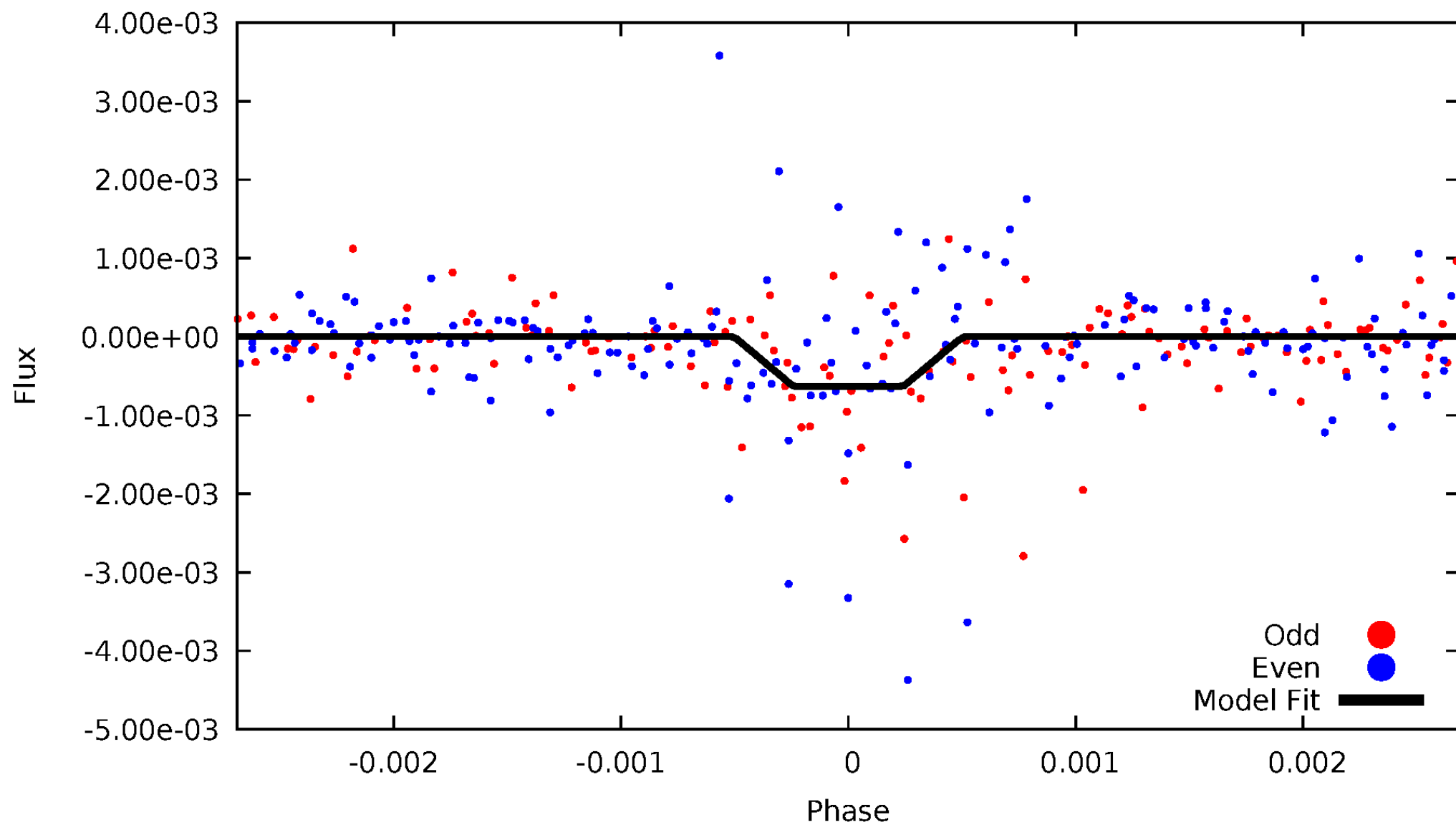
DV Odd/Even

TCE 009588880-07



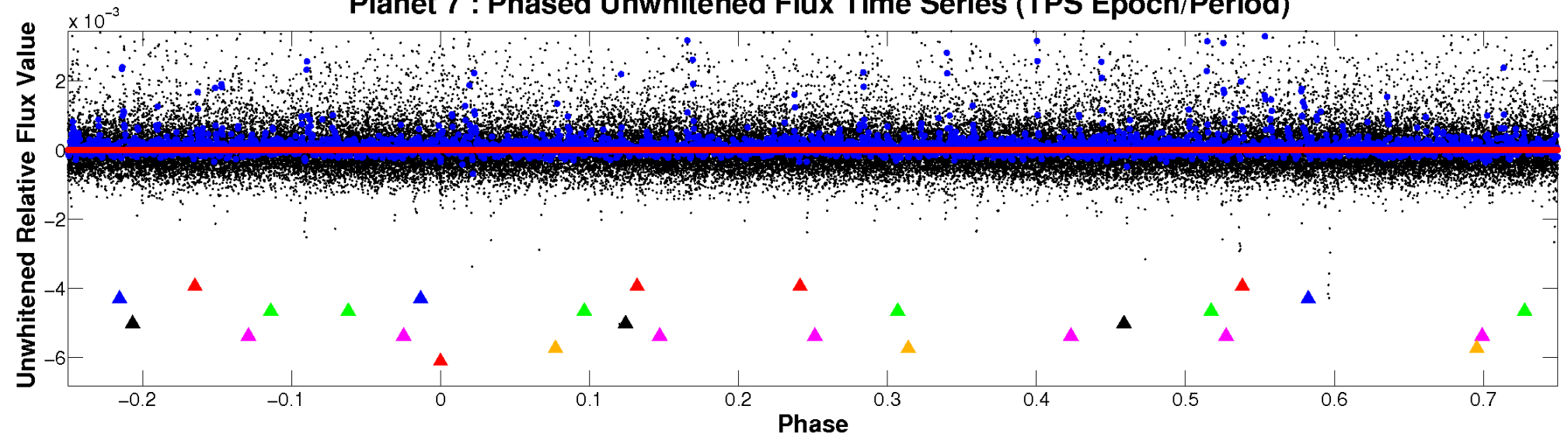
ALT Odd/Even

TCE 009588880-07



Non-Whitened Vs. Whitened Light Curve

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

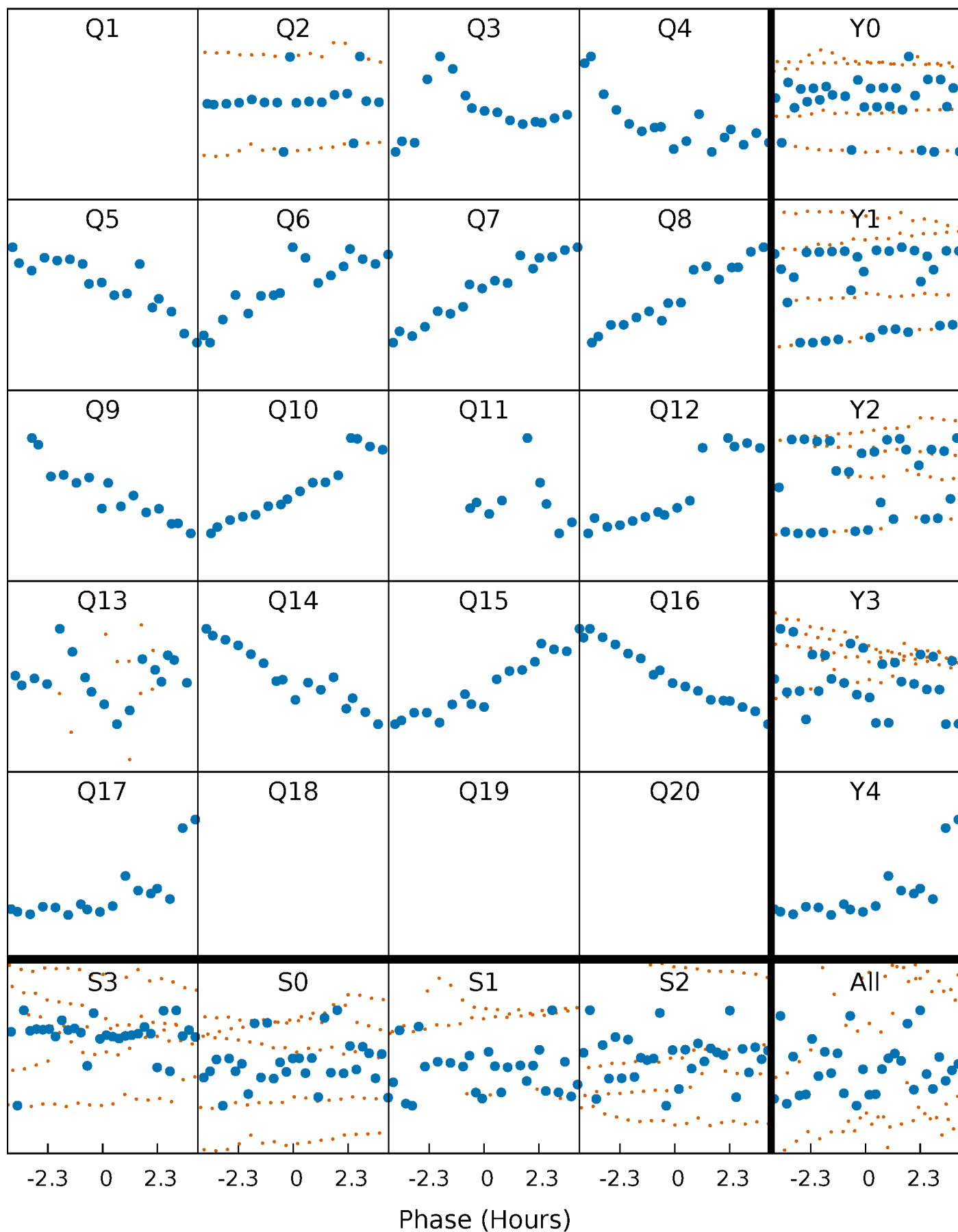


Planet 7 : Phased Whitened Flux Time Series (TPS Epoch/Period)



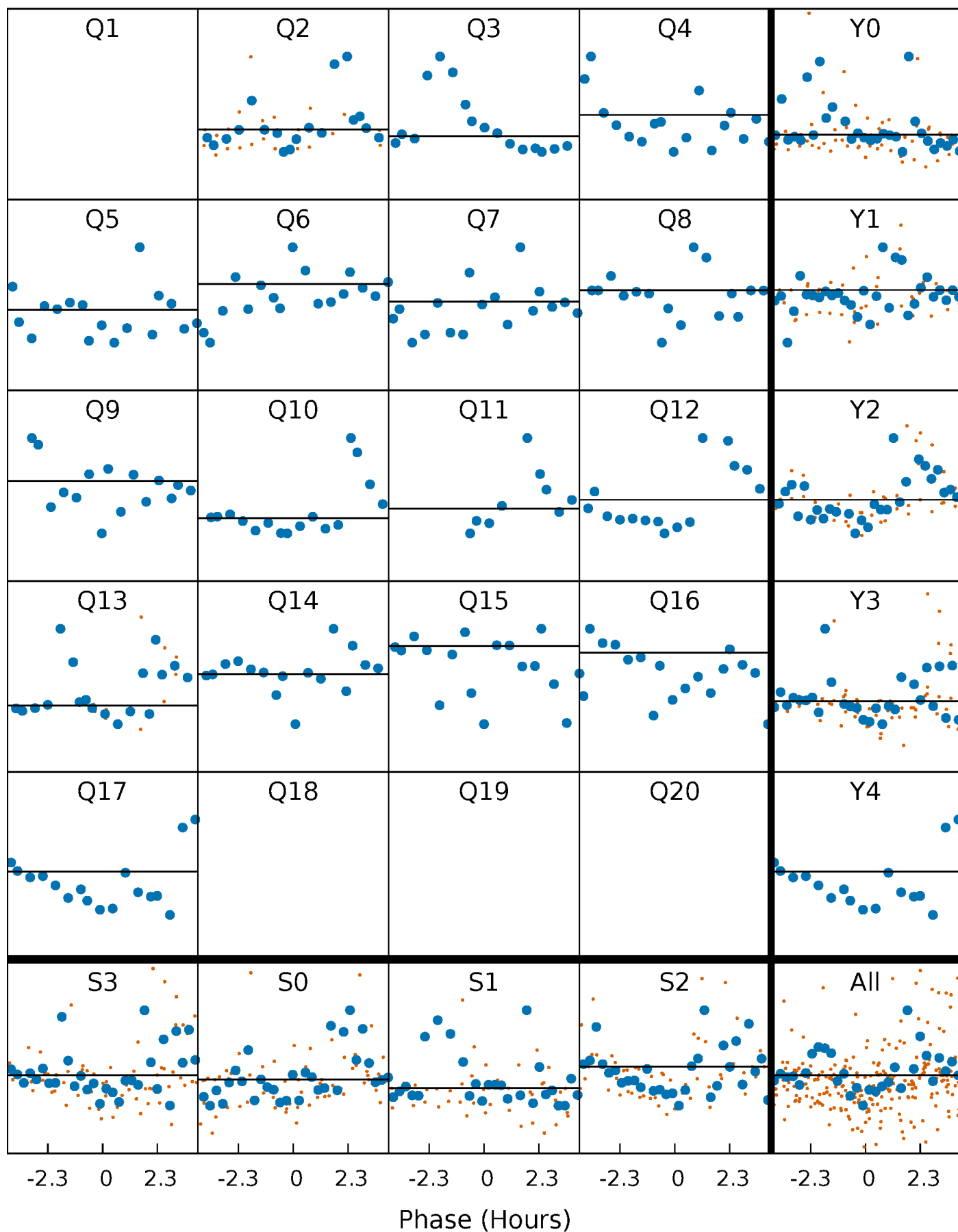
PDC Quarter-Phased Transit Curves

TCE 009588880-07 $P = 77.976209$ Days $T_0 = 175.354954$ (BKJD)



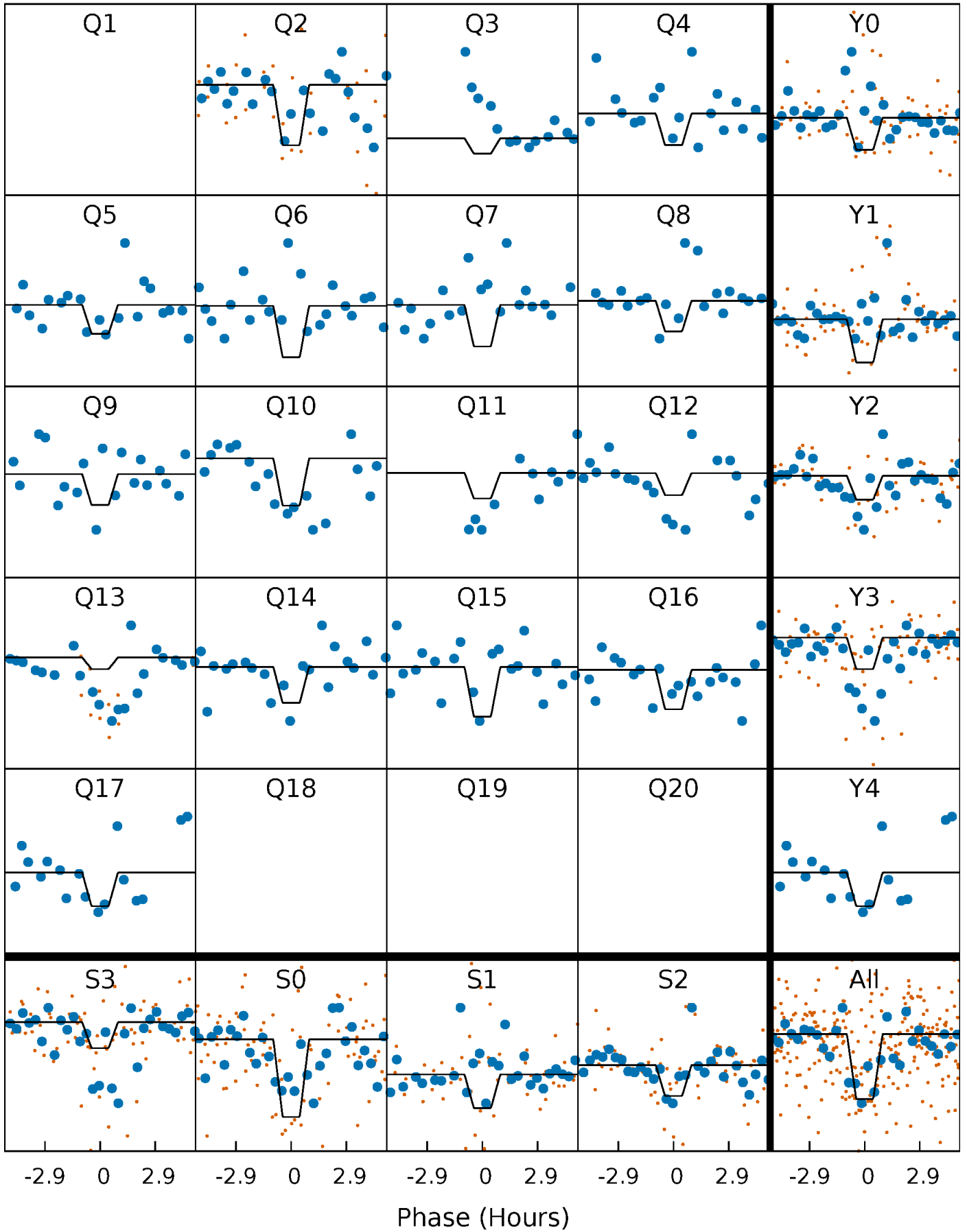
DV Quarter-Phased Transit Curves

TCE 009588880-07 $P = 77.976209$ Days $T_0 = 175.354954$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

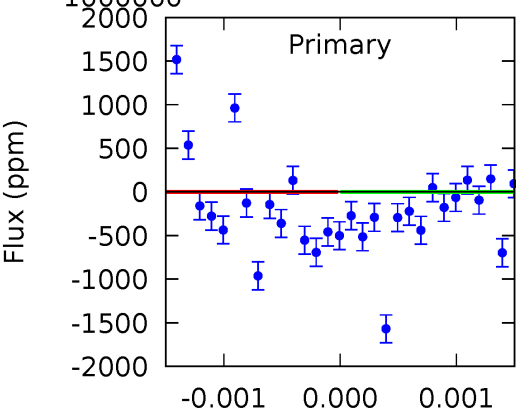
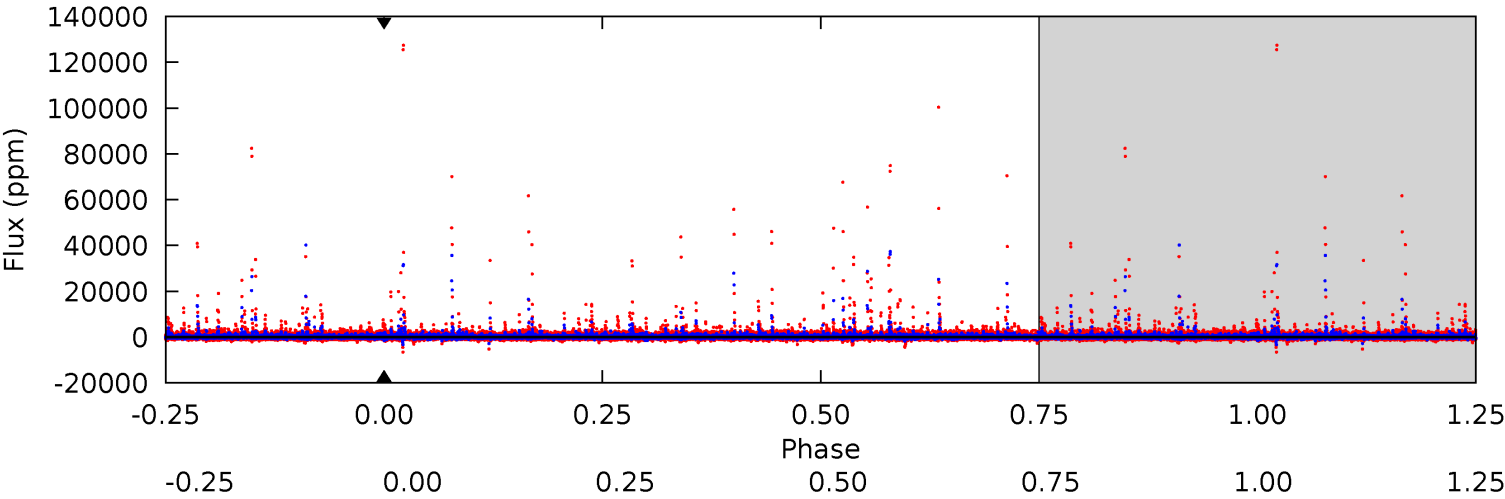
TCE 009588880-07 $P = 77.976209$ Days $T_0 = 175.361572$ (BKJD)



DV Model-Shift Uniqueness Test

009588880-07, P = 77.976209 Days, E = 97.378745 Days

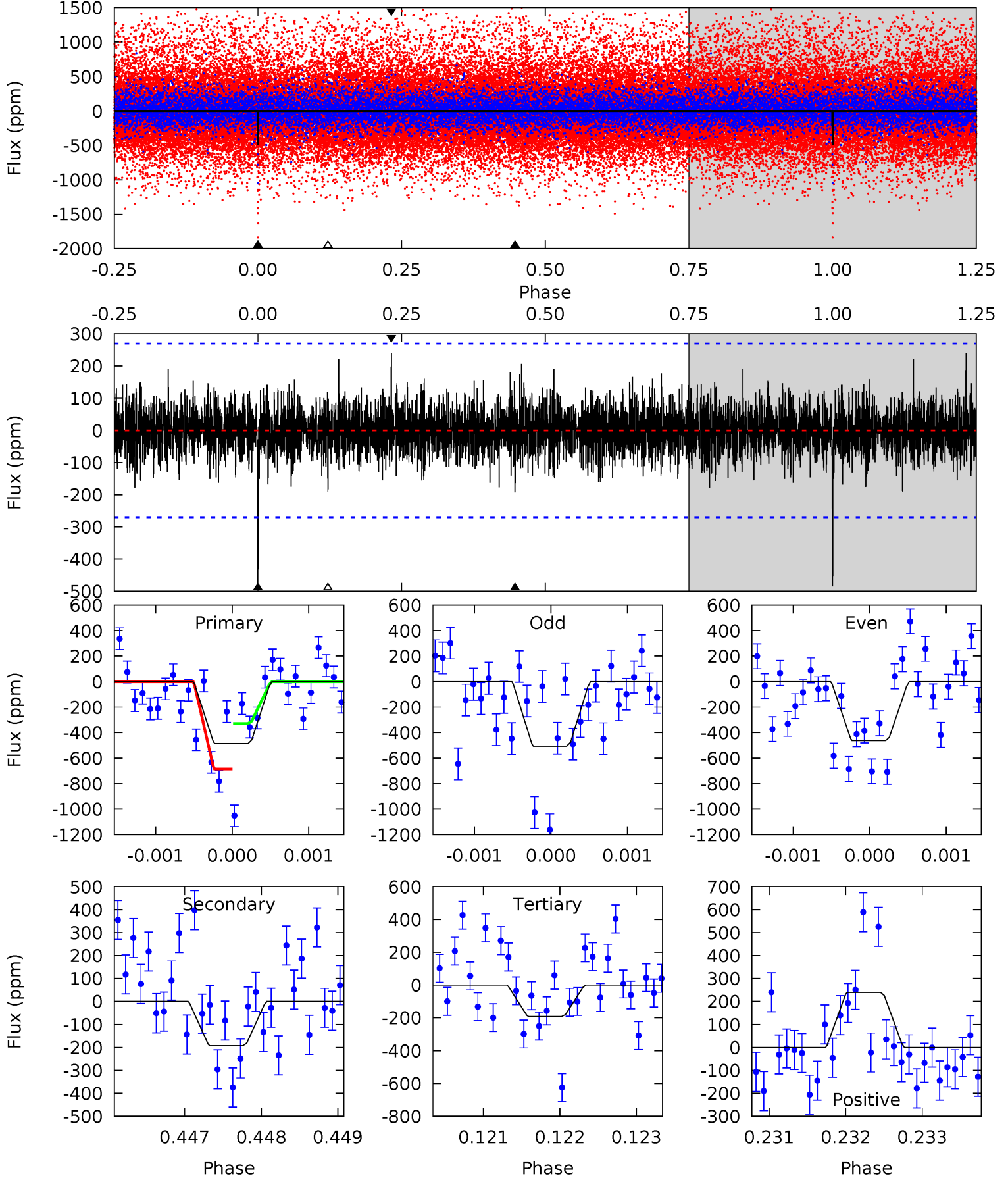
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009588880-07, P = 77.976209 Days, E = 97.385363 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.80	3.88	3.87	4.84	5.45	3.29	1.13	5.93	4.96	0.02	-0.96	0.43	1.38	0.33	3.60



Stellar Parameters For KIC 009588880

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3900^{+173}_{-193}	$4.727^{+0.097}_{-0.052}$	$-0.100^{+0.350}_{-0.400}$	$0.534^{+0.066}_{-0.099}$	$0.555^{+0.061}_{-0.096}$	$5.136^{+2.793}_{-1.071}$
	+4%/-5%	+2%/-1%	+350%/-400%	+12%/-19%	+11%/-17%	+54%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009588880-07 / KOI 7946.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$4.77^{+4.61}_{-3.16}$	322^{+17}_{-19}	3297^{+5121}_{-10644}	$5498^{+440010}_{-253974}$
Alt.	-192 ± 49	$4.78^{+4.11}_{-3.37}$	320^{+18}_{-19}	2356^{+881}_{-327}	405^{+4255}_{-297}

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

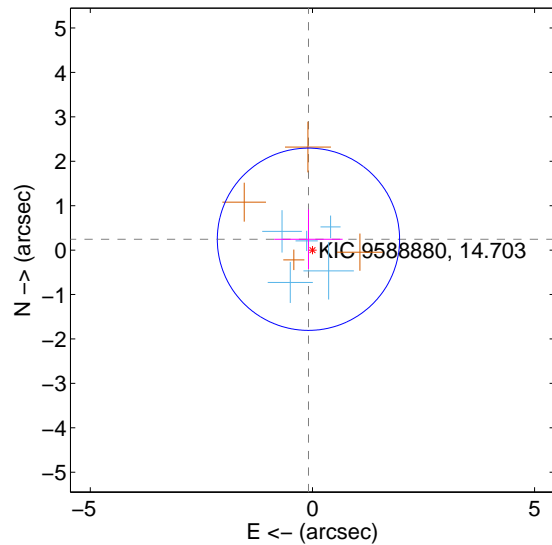
Supplemental centroid analysis for 009588880-07. Kepler magnitude: 14.70. Transit SNR -1.00

There are 5 quarters with good PRF difference image offsets

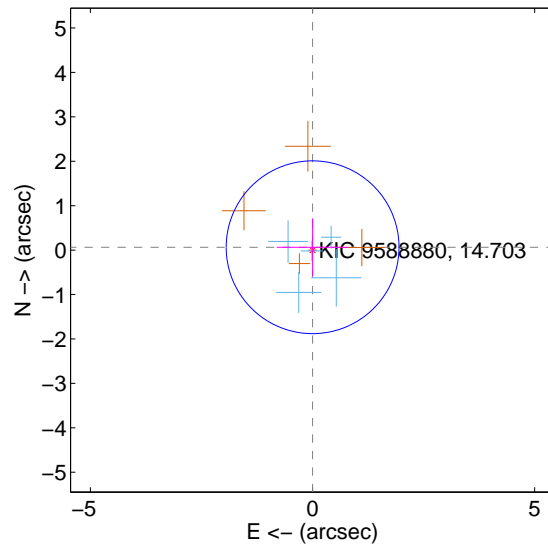
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.260 ± 0.684	0.38	0.090 ± 0.769	0.244 ± 0.670
PRF-fit source offset from KIC position	0.064 ± 0.648	0.10	-0.002 ± 0.807	0.064 ± 0.650
photometric centroid source offset	0.86 ± 1.23	0.70	-0.81 ± 1.22	0.31 ± 1.29

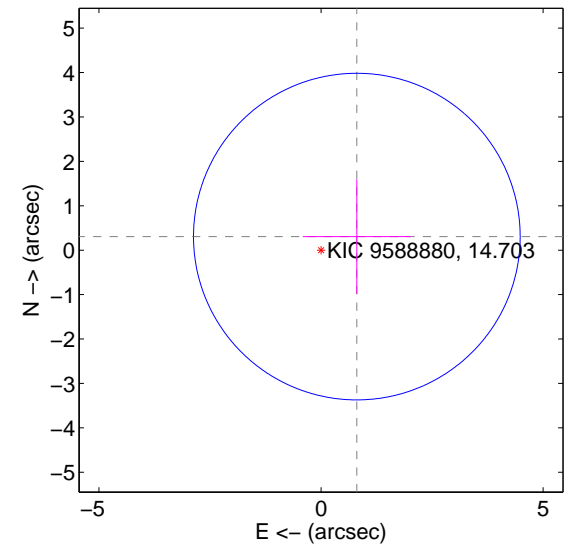
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

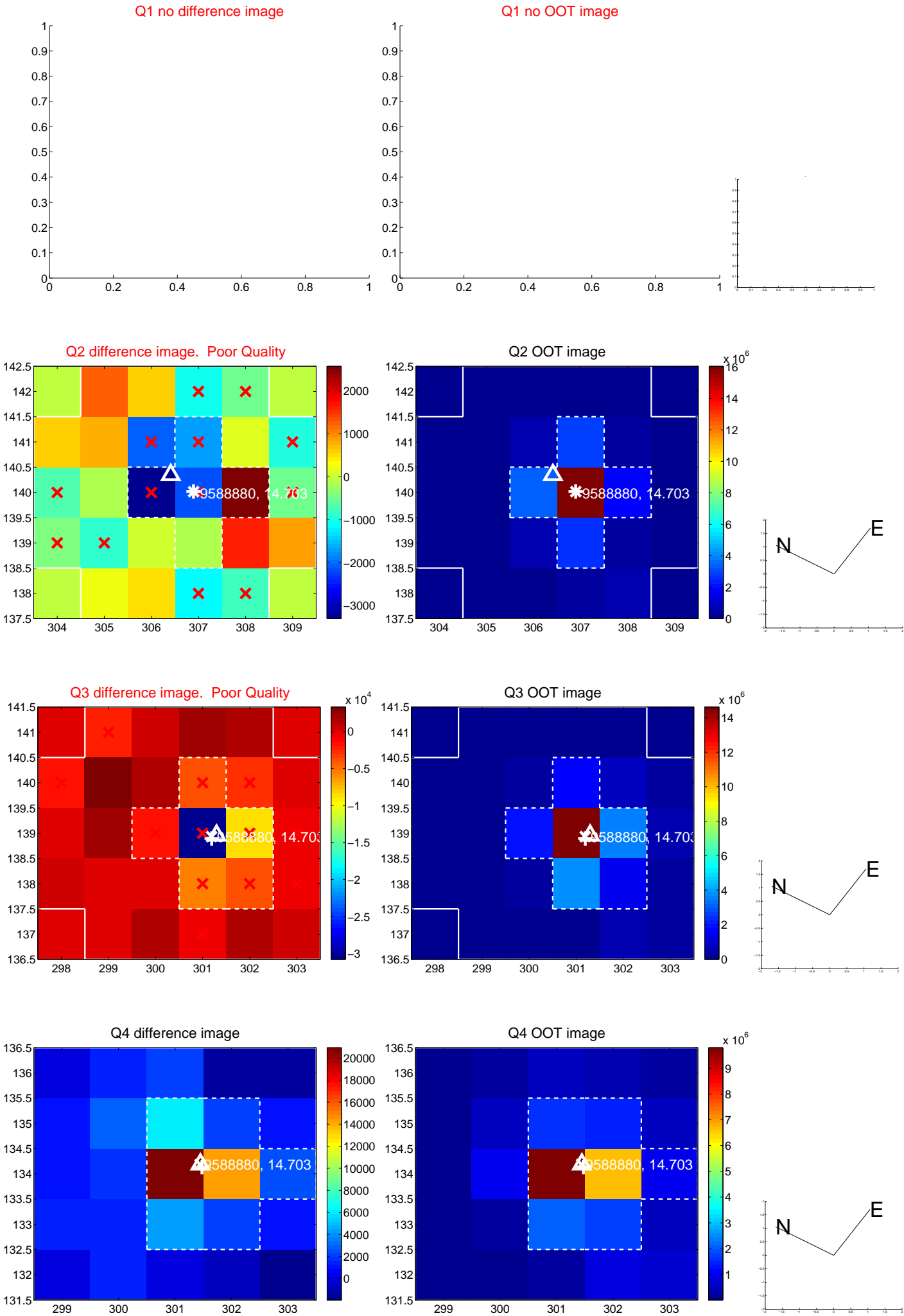


offset from photometric centroids

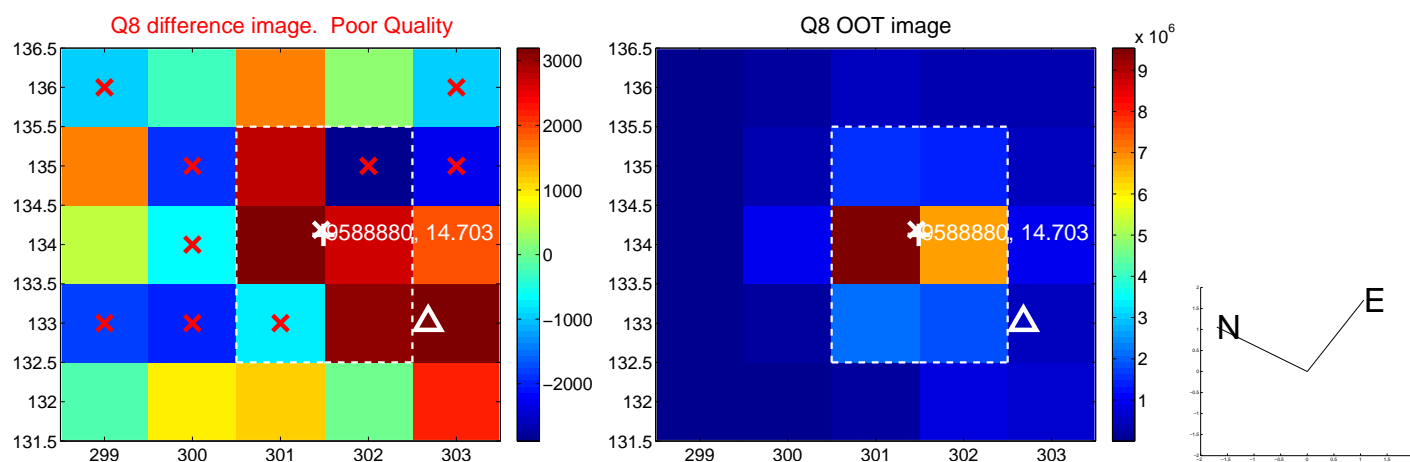
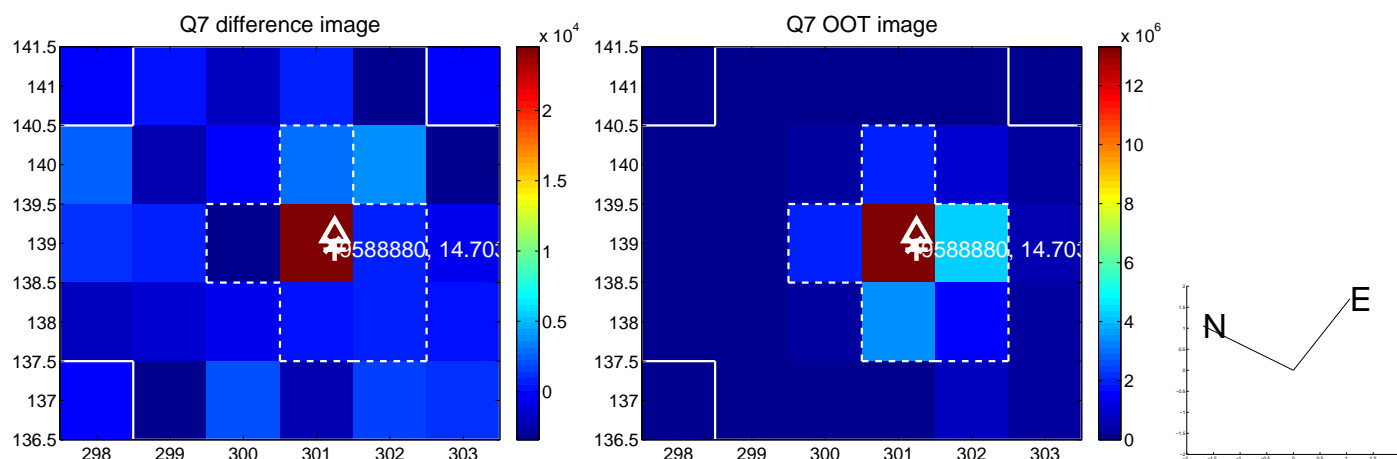
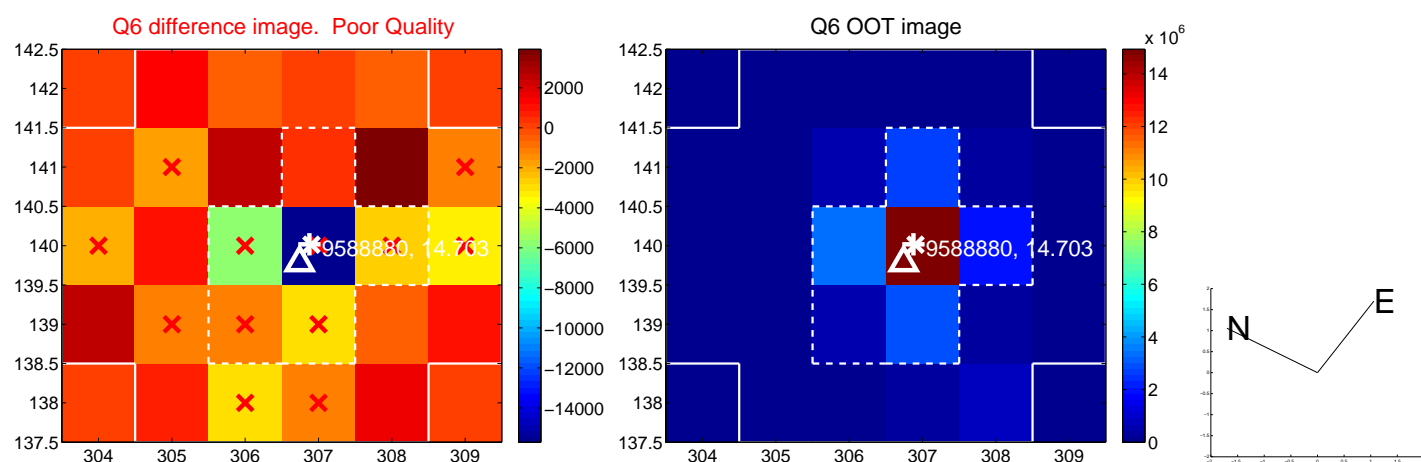
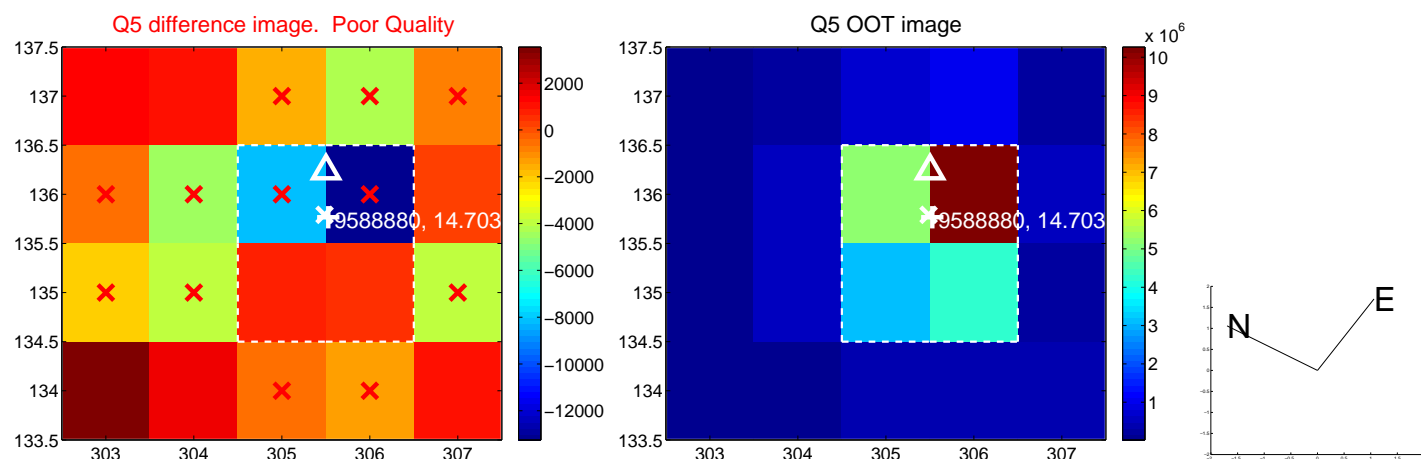


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

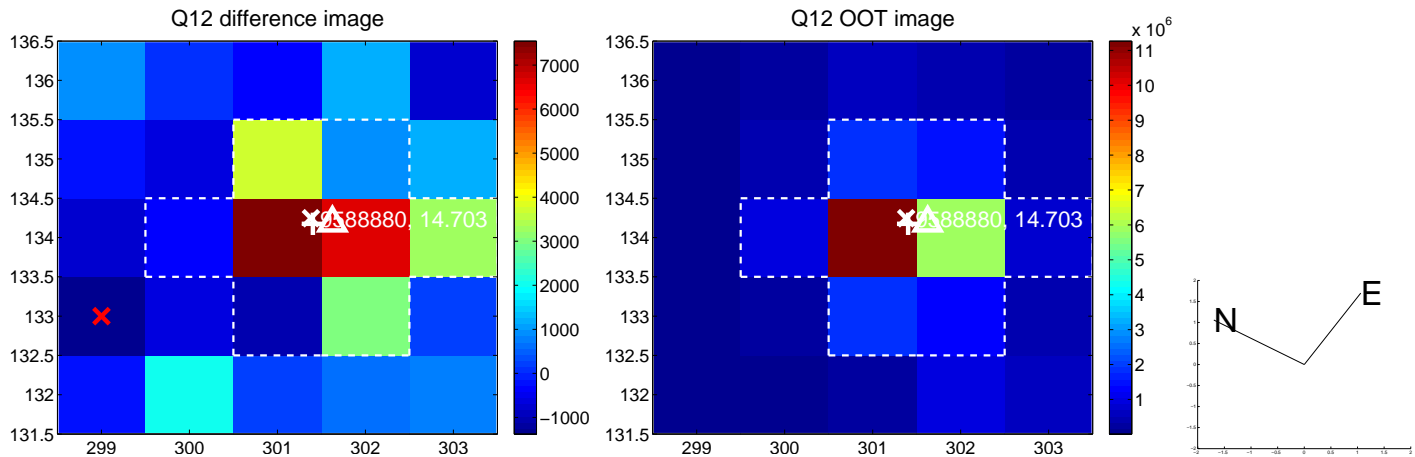
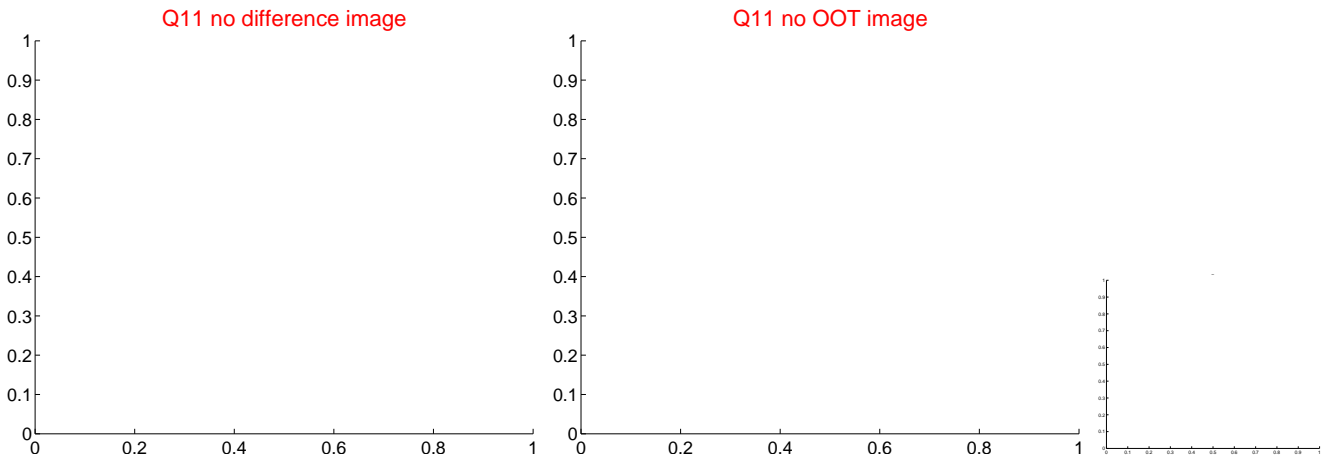
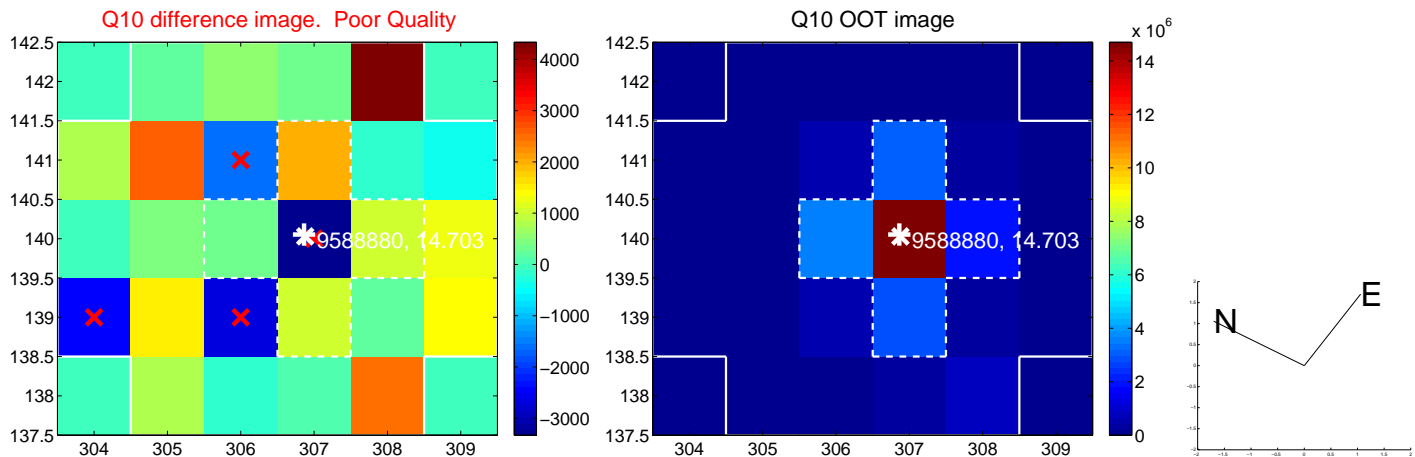
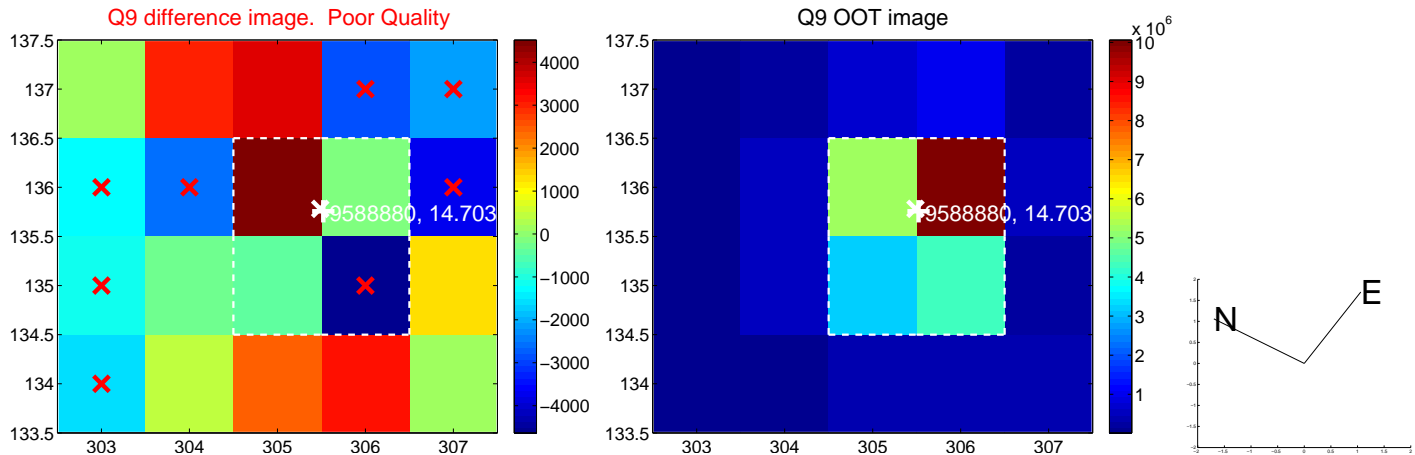
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



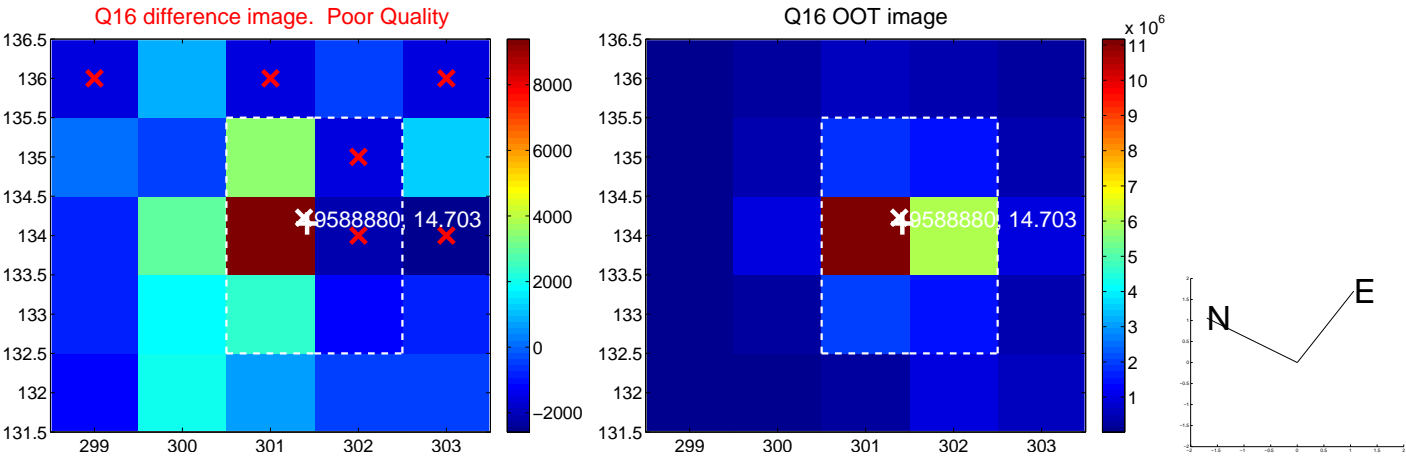
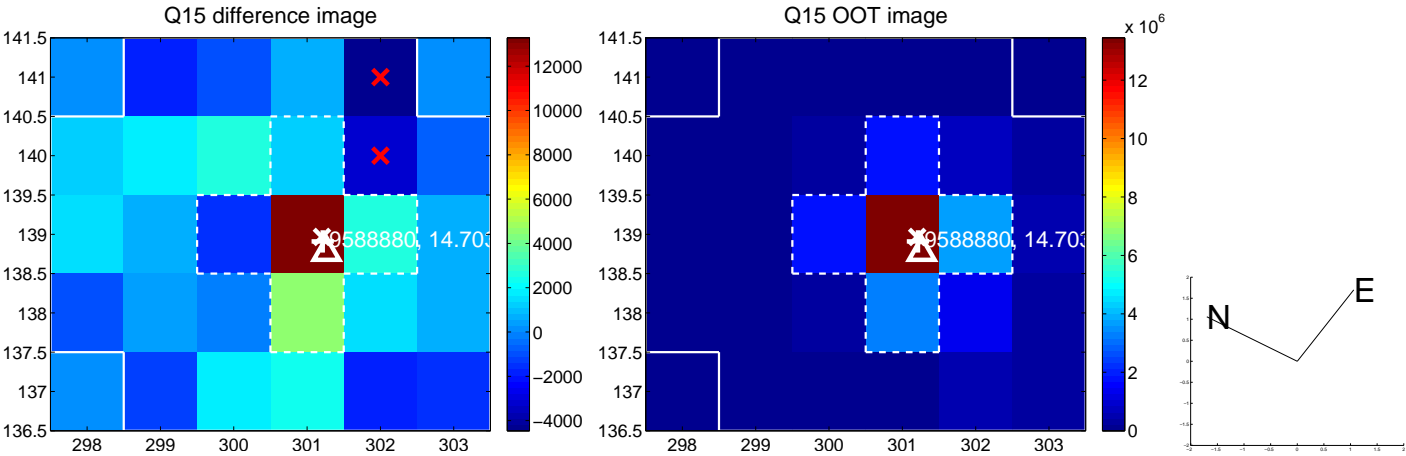
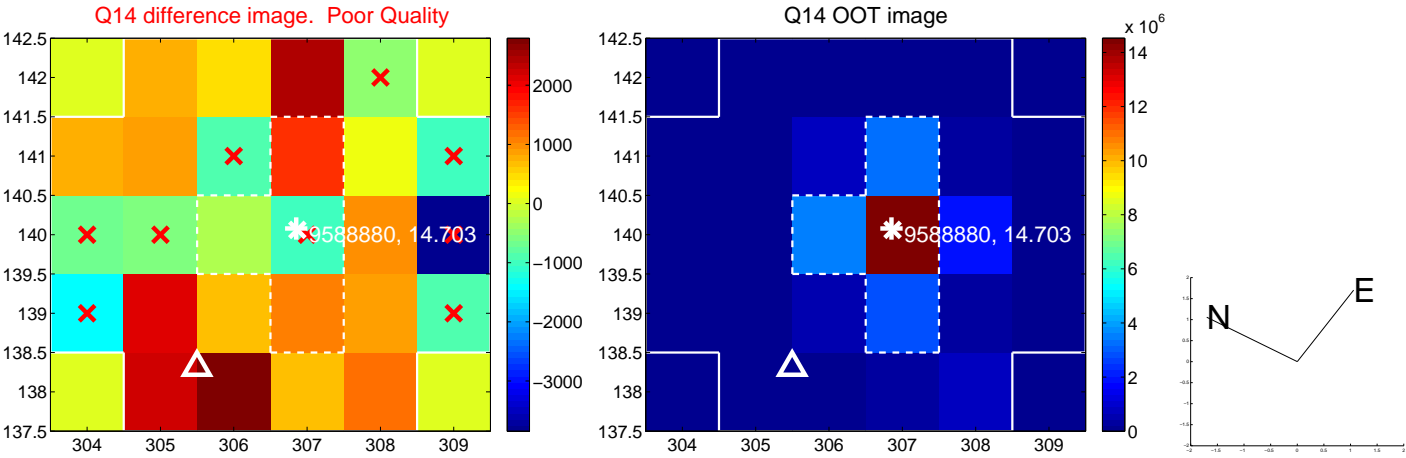
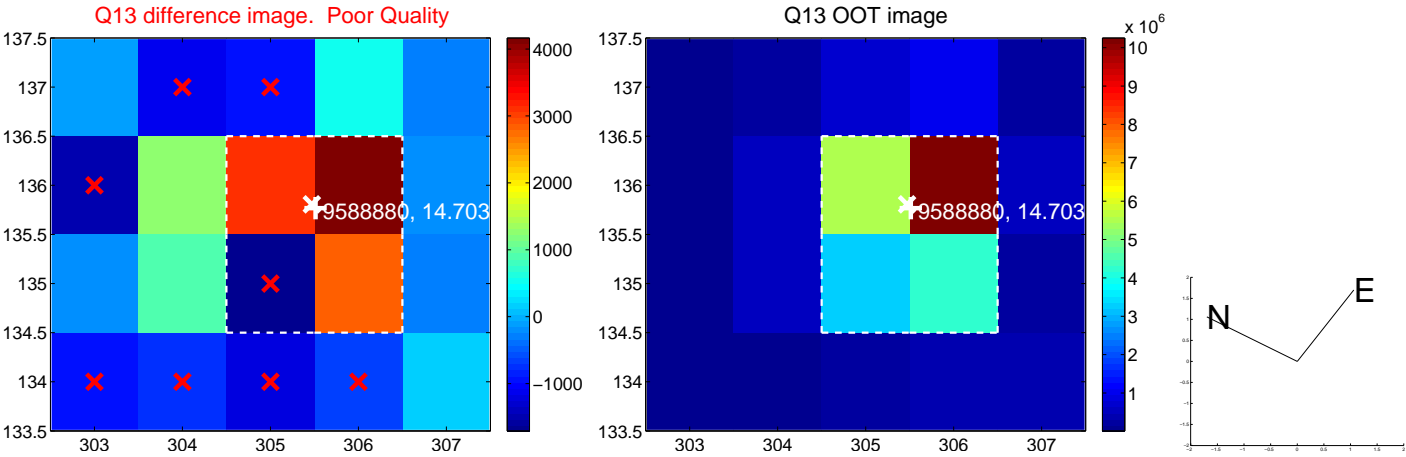
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



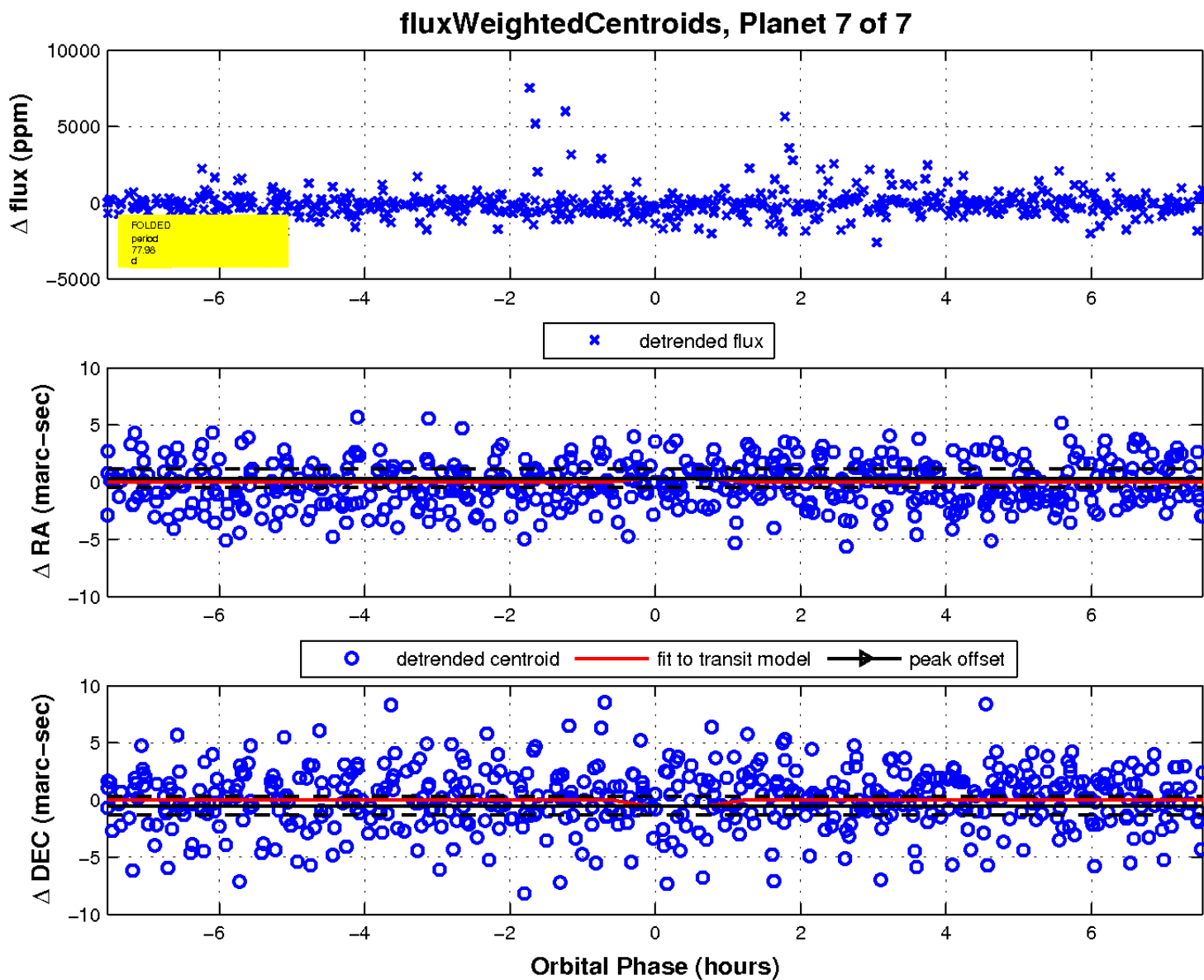
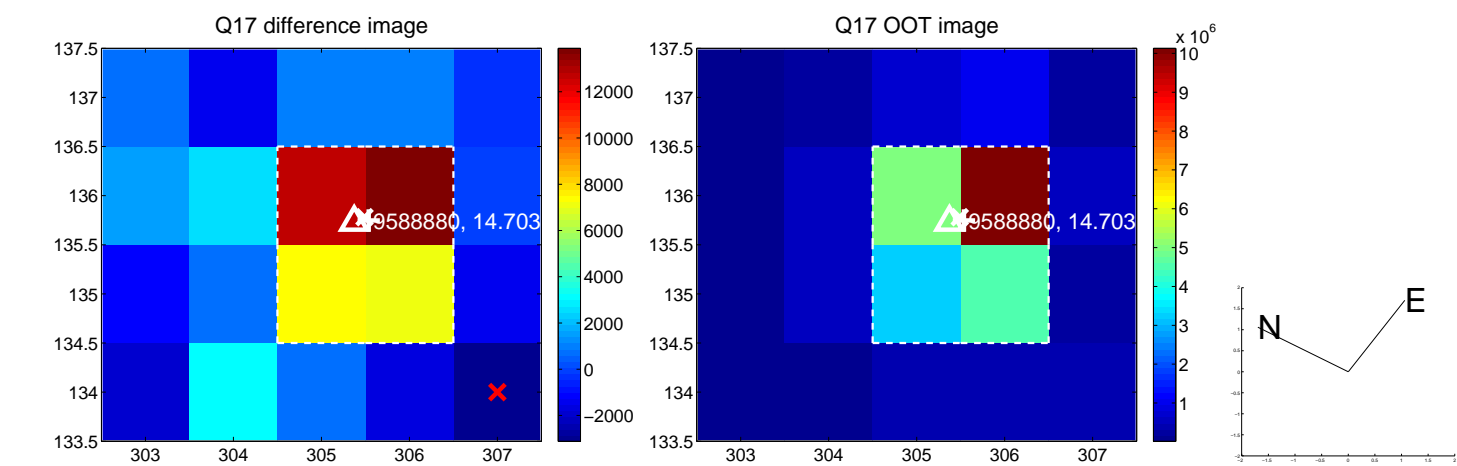
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

