

KIC 006288970

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})
006288970-01	OBS	No	474.413503	414.881341	1103.6	7.798	16.6	3.2	0.82	5786	2.85	0.55
006288970-02	OBS	No	504.393501	460.092715	3963.2	8.962	18.0	8.9	0.82	5786	8.08	0.51
006288970-03	OBS	No	336.065430	278.887793	2653.3	4.962	14.4	9.0	0.82	5786	4.36	0.87
006288970-04	OBS	No	434.400410	245.748504	2185.7	6.831	17.7	5.9	0.82	5786	3.85	0.62
006288970-05	OBS	No	176.740459	220.735213	1230.9	3.341	14.4	5.8	0.82	5786	2.89	2.04
006288970-06	OBS	No	389.923954	357.471670	2236.2	4.545	13.6	7.5	0.82	5786	3.88	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006288970-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006288970-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
006288970-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
006288970-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

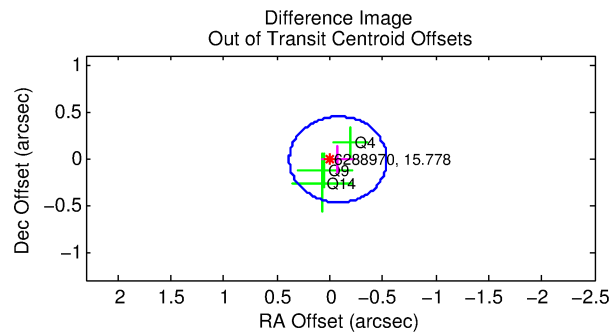
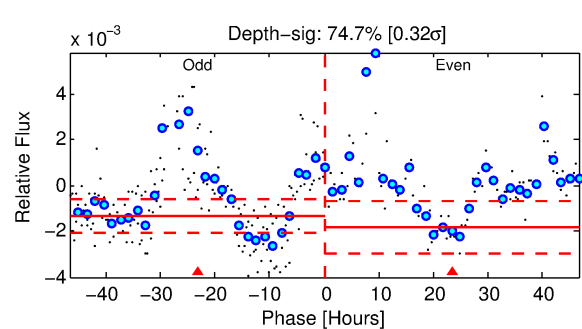
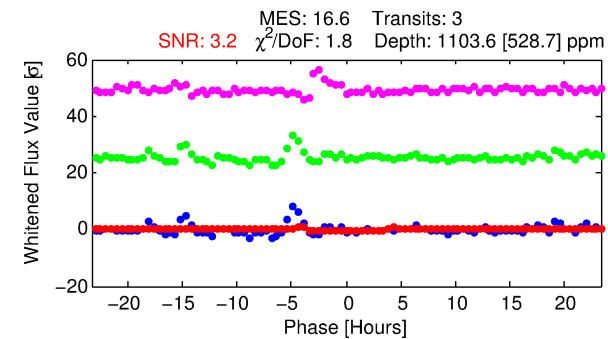
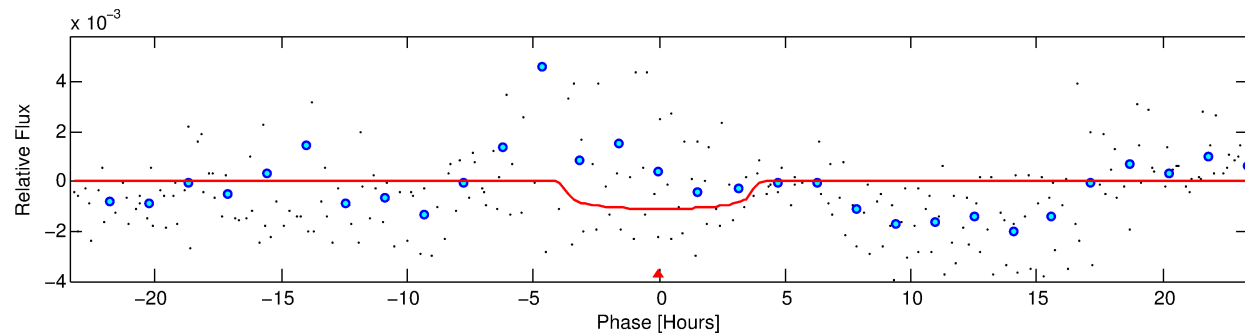
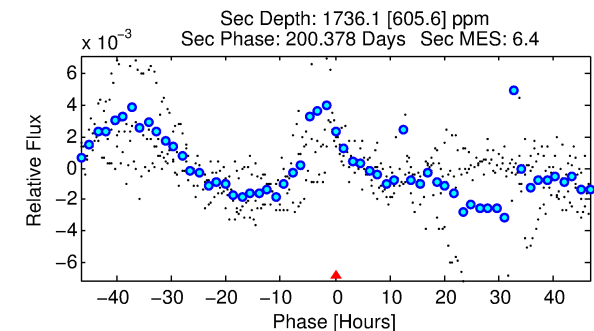
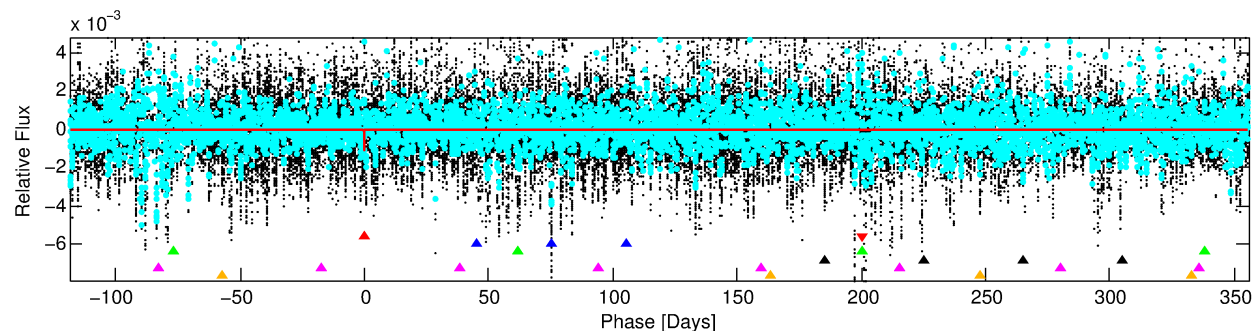
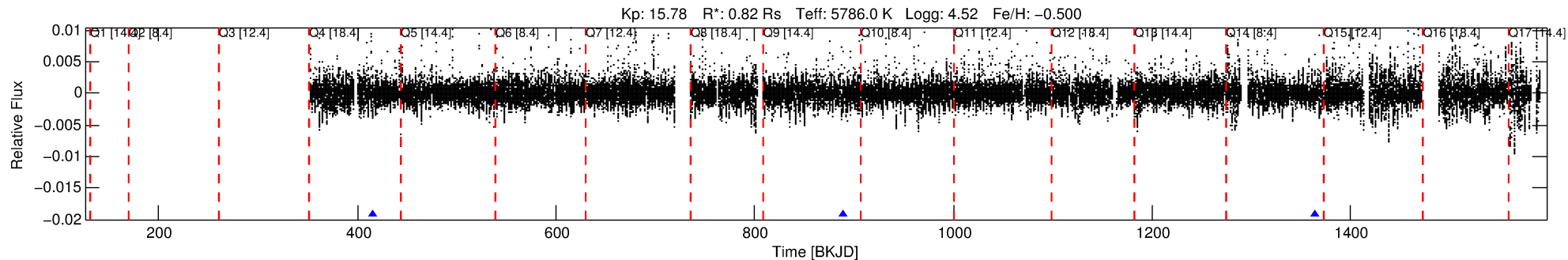
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006288970-01

No Significant Match Found

DV One-Page Summary

KIC: 6288970 Candidate: 1 of 6 Period: 474.414 d



DV Fit Results:

Period = 474.41350 [0.01638] d
Epoch = 414.8813 [0.0256] BKJD
Rp/R* = 0.0317 [0.0295]
a/R* = 396.16 [1582.11]
b = 0.58 [4.58]
Seff = 0.55 [0.18]
Teq = 219 [18] K
Rp = 2.85 [2.74] Re
a = 1.1154 [0.2264] AU
Ag = 146685.11 [281528.57] [0.52σ]
Teff = 6638 [3155] K [2.03σ]

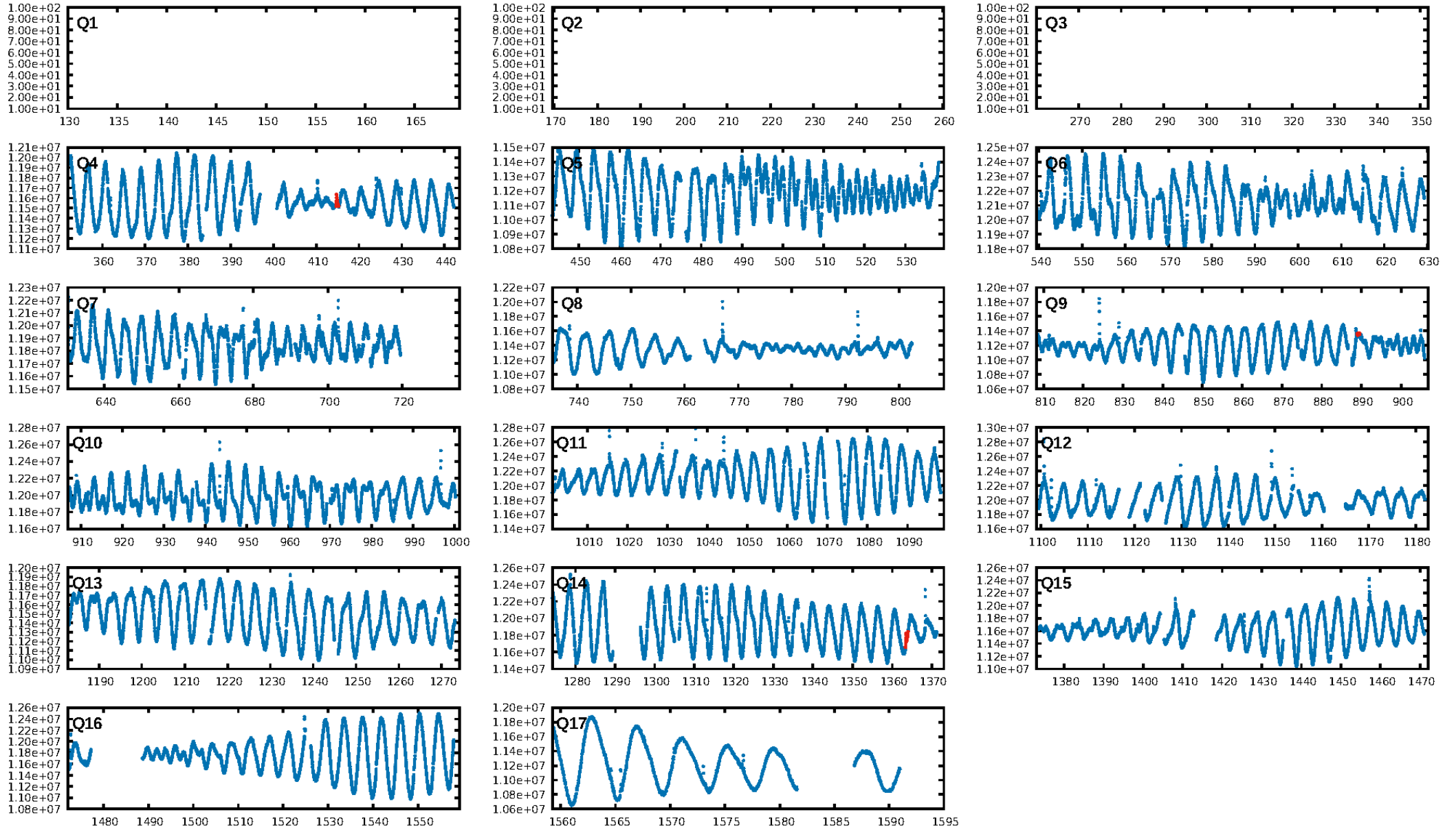
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [92.63σ]
LongPeriod-sig: 100.0% [60.57σ]
ModelChiSquare2-sig: 8.1%
ModelChiSquareGof-sig: 74.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.001
Centroid-sig: 39.1%
Centroid-so: 1.641 arcsec [0.96σ]
OotOffset-rm: 0.082 arcsec [0.53σ]
KicOffset-rm: 0.055 arcsec [0.31σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

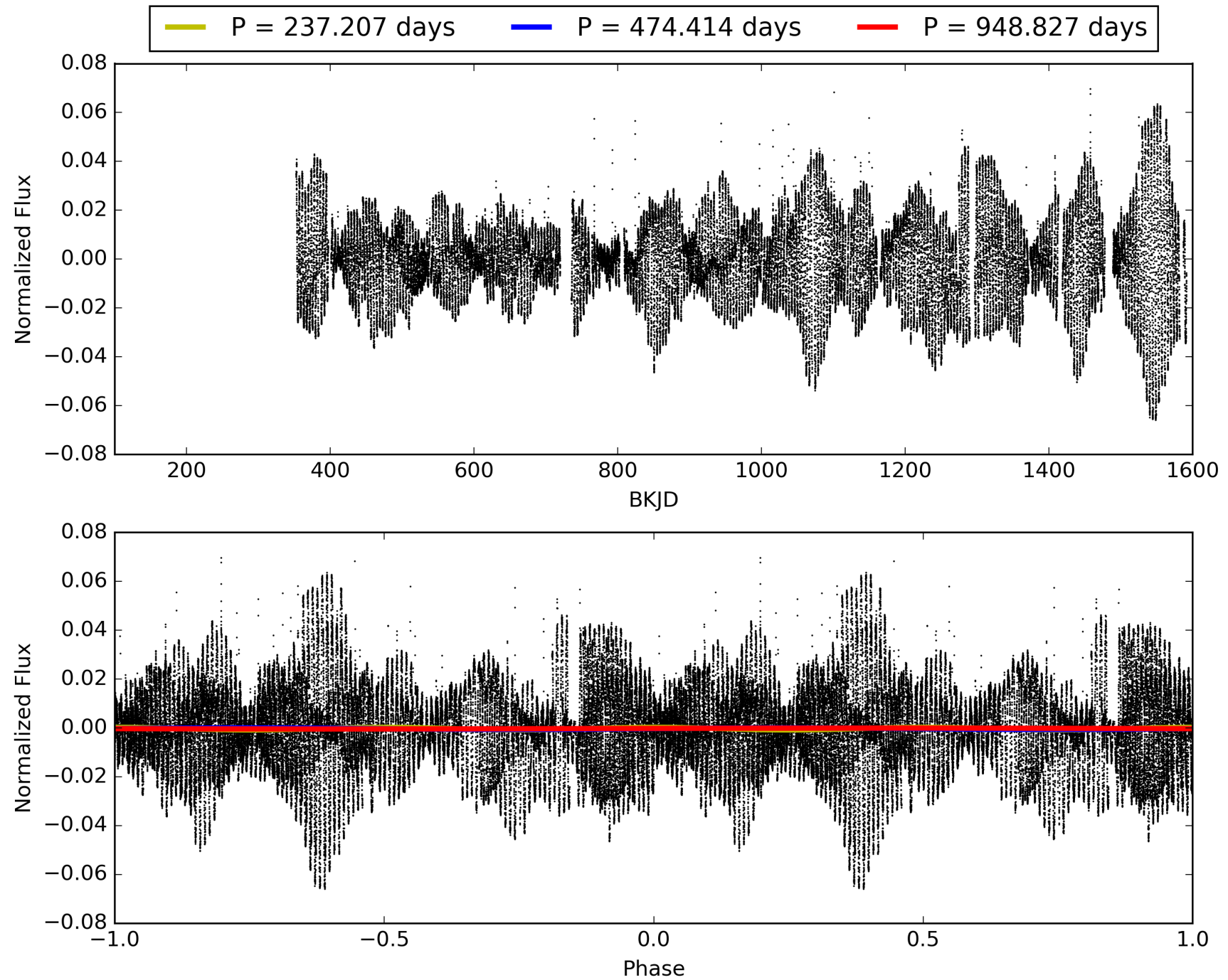
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:03:18 Z

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

TCE 006288970-01, PDC Light Curves

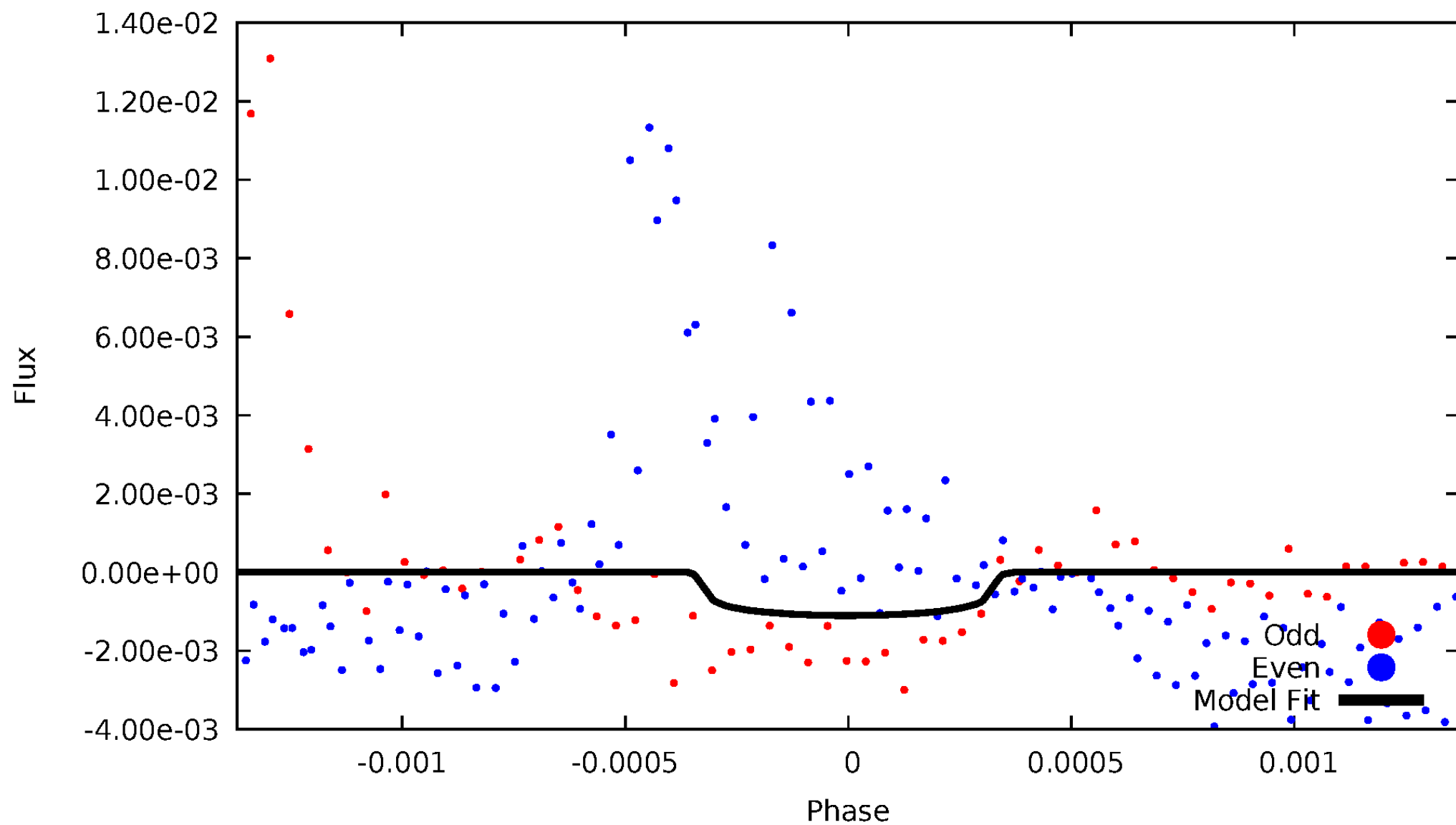


TCE 006288970-01



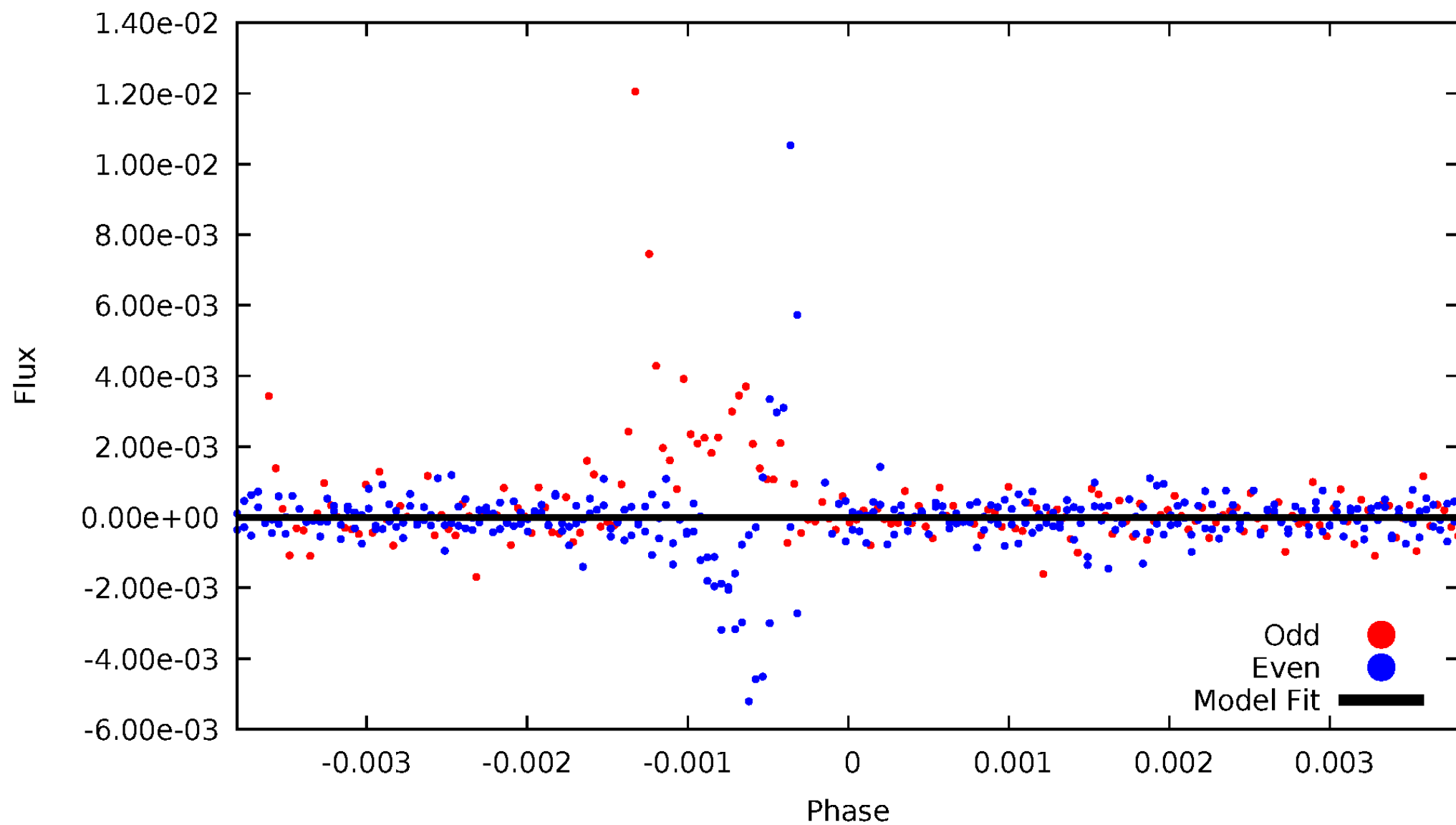
DV Odd/Even

TCE 006288970-01



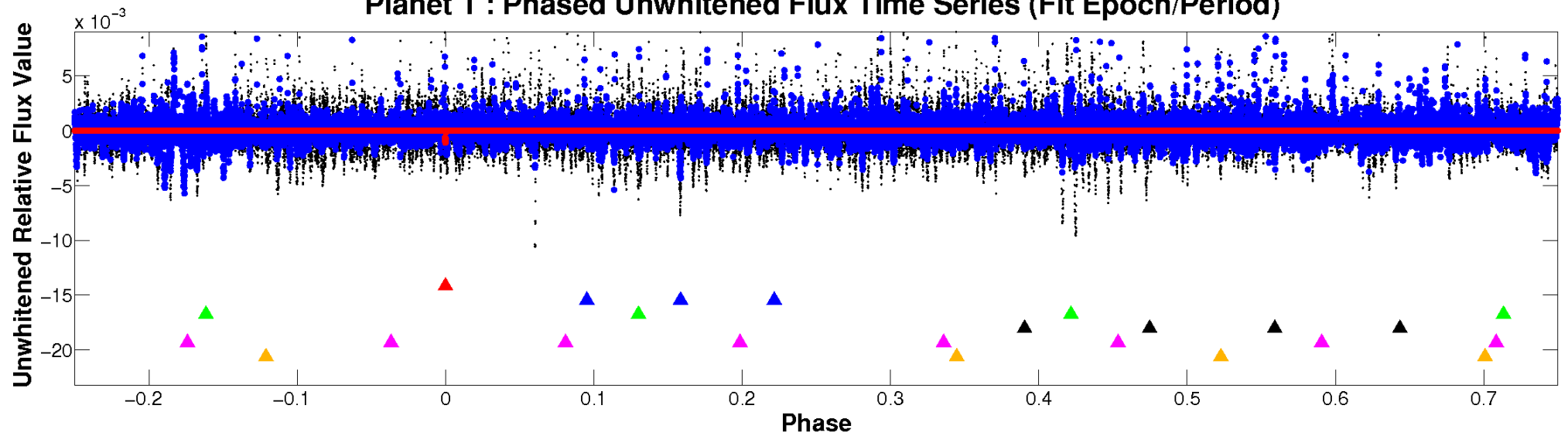
ALT Odd/Even

TCE 006288970-01

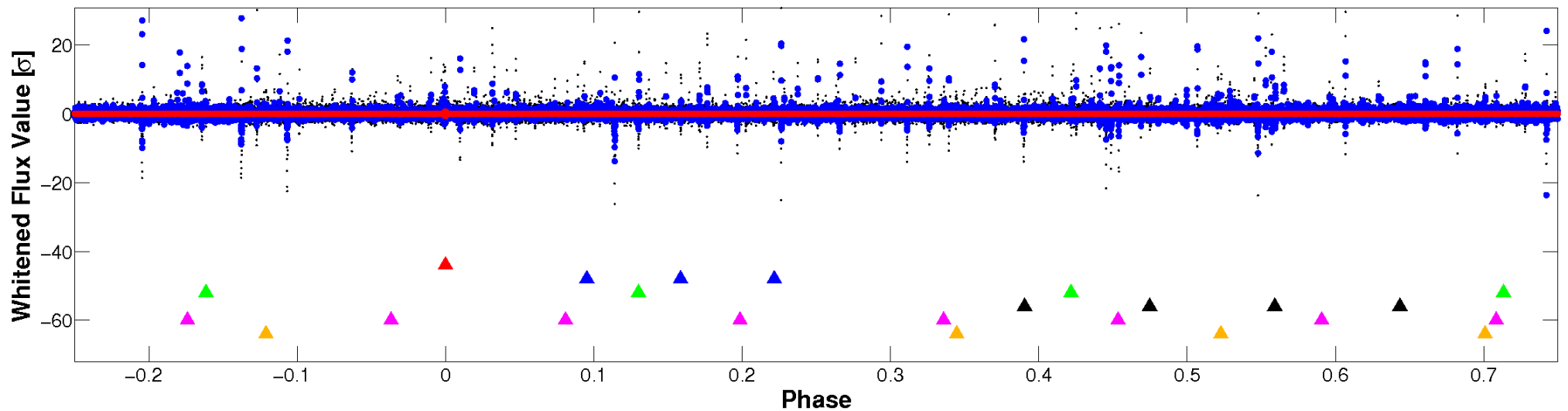


Non-Whitened Vs. Whitened Light Curve

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

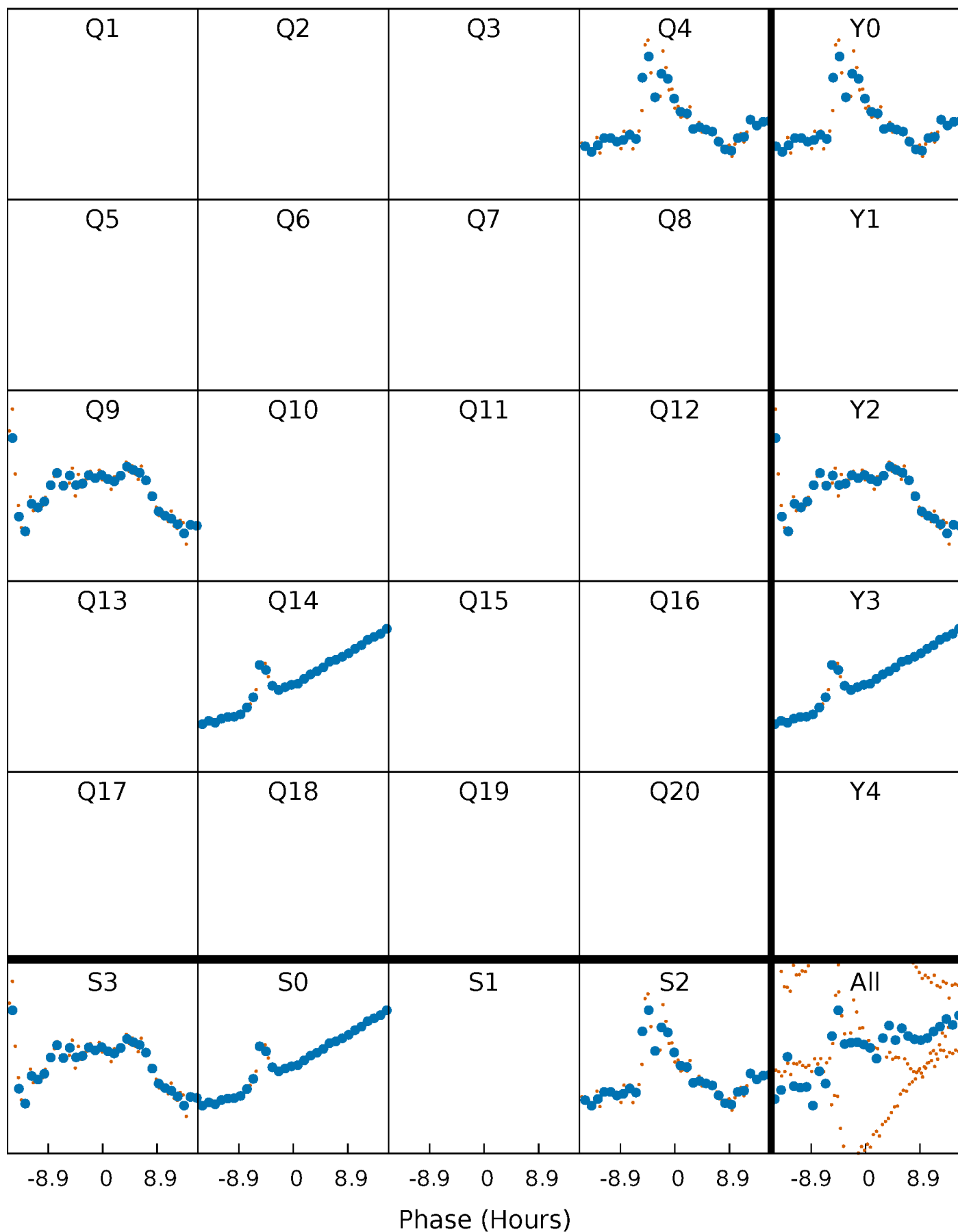


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



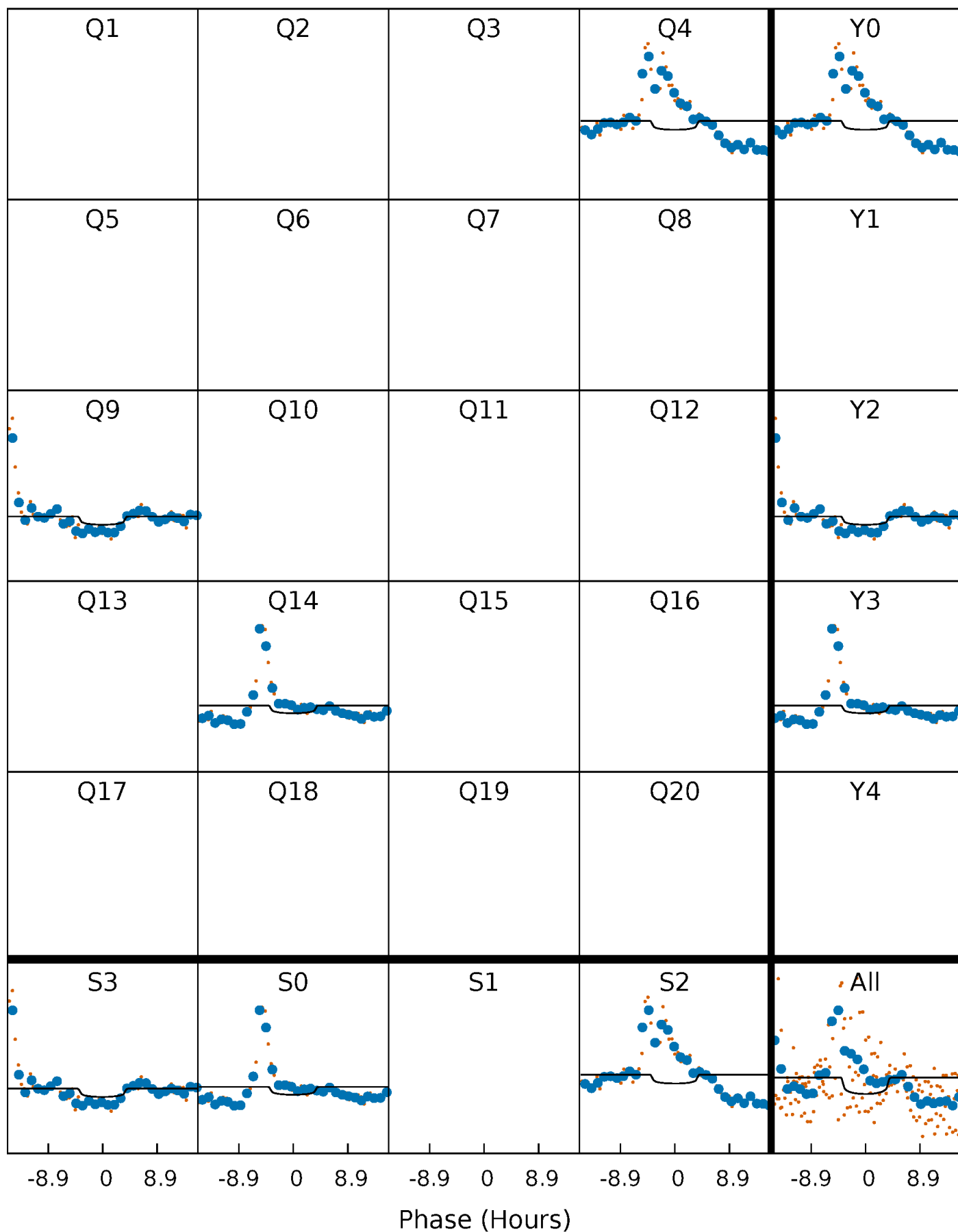
PDC Quarter-Phased Transit Curves

TCE 006288970-01 P=474.413503 Days $T_0=414.881341$ (BKJD)



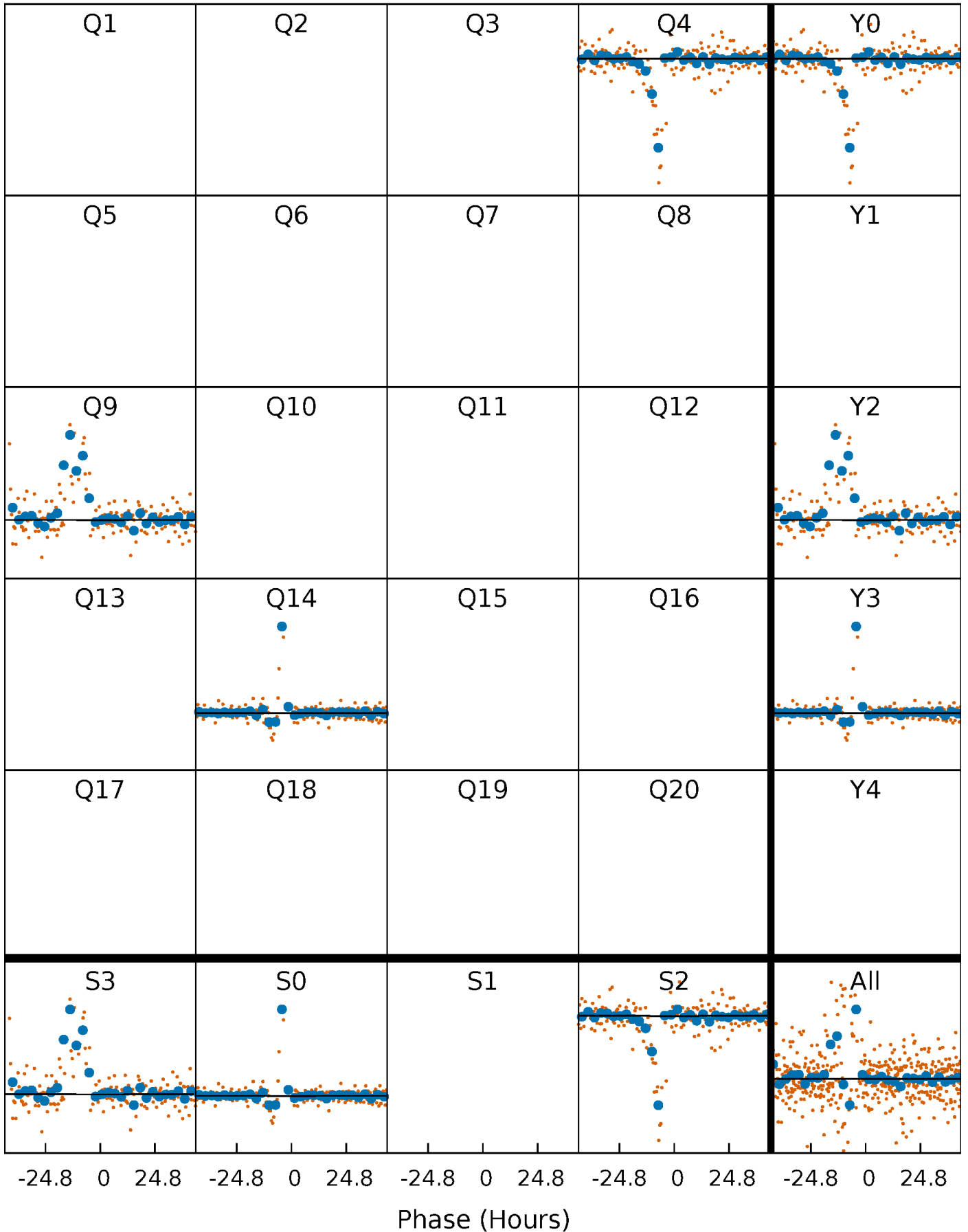
DV Quarter-Phased Transit Curves

TCE 006288970-01 P=474.413503 Days $T_0=414.881341$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

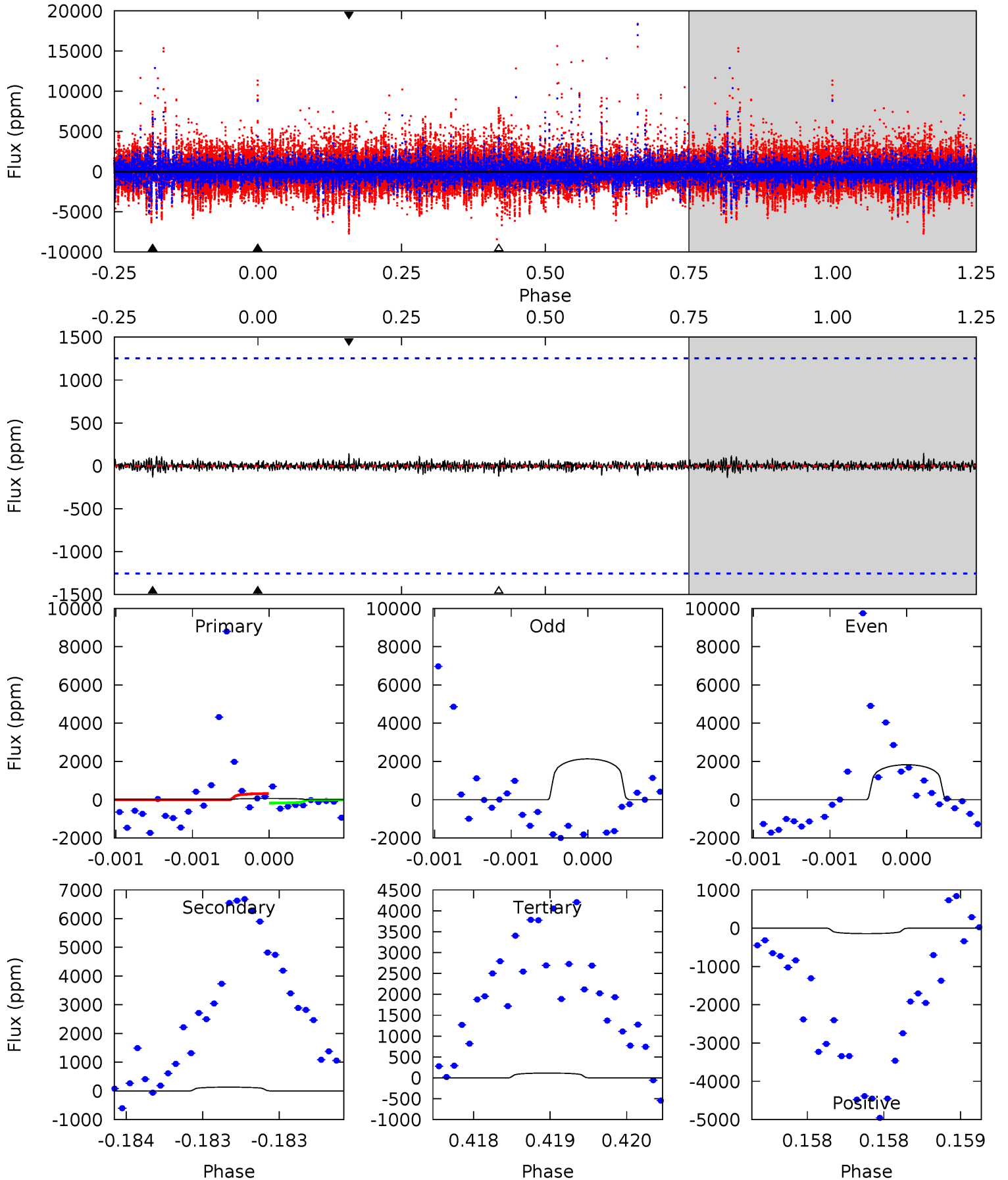
TCE 006288970-01 P=474.399151 Days $T_0=414.890051$ (BKJD)



DV Model-Shift Uniqueness Test

006288970-01, P = 474.413503 Days, E = 414.881341 Days

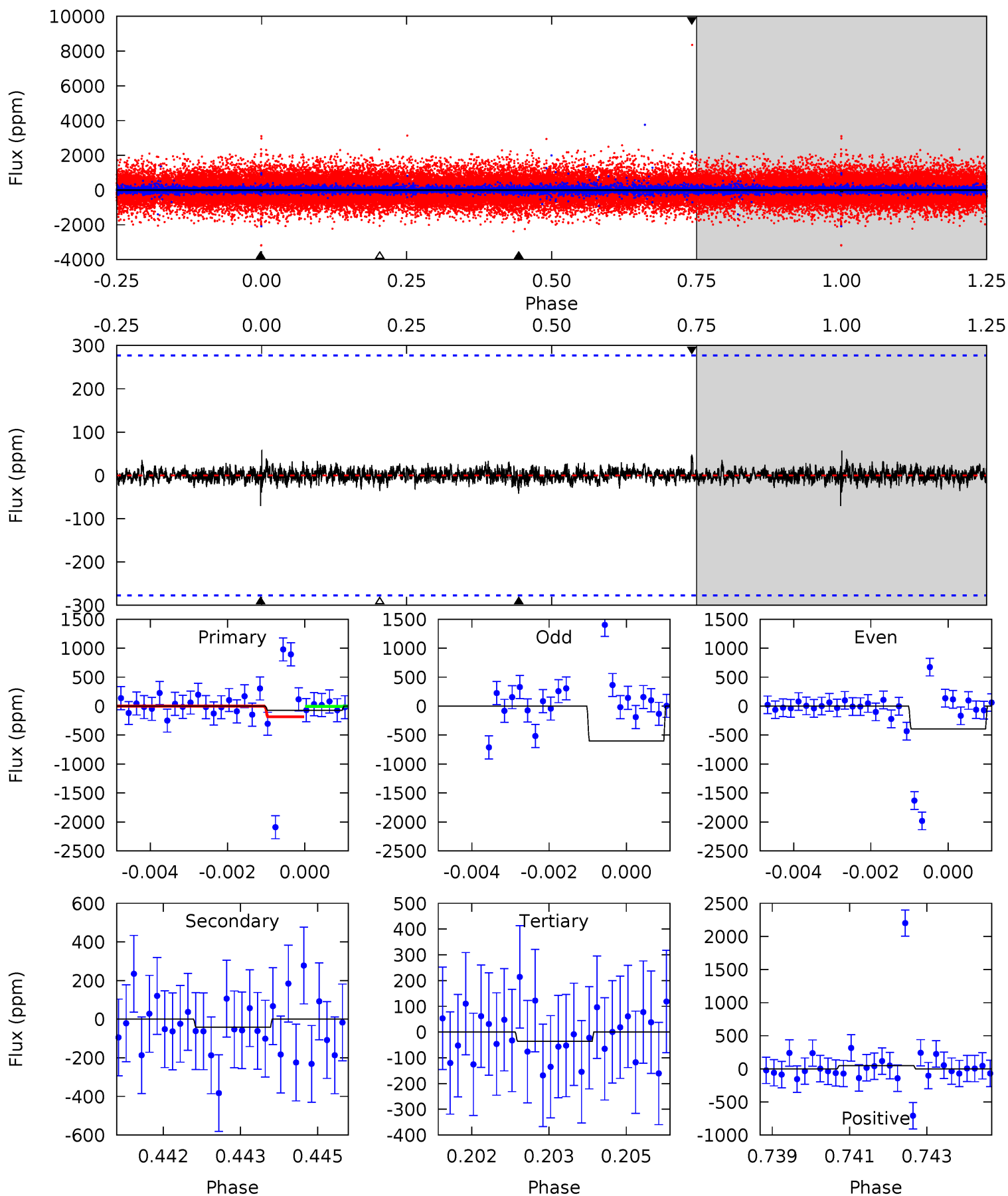
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.27	0.58	0.50	0.62	5.52	3.39	0.12	-0.24	-0.36	0.07	-0.05	0.51	5.97	0.52	0.32



Alt Model-Shift Uniqueness Test

006288970-01, P = 474.399151 Days, E = 414.890051 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.36	0.80	0.69	0.92	5.33	3.10	0.19	0.67	0.44	0.11	-0.12	1.93	0.17	0.45	1.65



Stellar Parameters For KIC 006288970

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5786^{+192}_{-192}	$4.521^{+0.069}_{-0.161}$	$-0.500^{+0.300}_{-0.300}$	$0.824^{+0.199}_{-0.099}$	$0.821^{+0.103}_{-0.069}$	$2.069^{+0.606}_{-0.934}$
	+3%/-3%	+2%/-4%	+60%/-60%	+24%/-12%	+13%/-8%	+29%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006288970-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-131 ± 227	$3.40^{+2.75}_{-1.96}$	311^{+21}_{-15}	3469^{+1599}_{-6968}	5435^{+39811}_{-10953}
Alt.	-42 ± 52	$2.04^{+2.06}_{-1.44}$	311^{+19}_{-16}	3397^{+2592}_{-6108}	4496^{+91602}_{-5436}

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

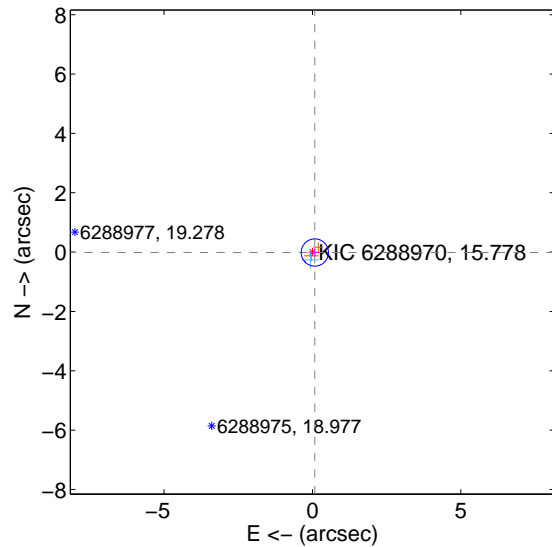
Supplemental centroid analysis for 006288970-01. Kepler magnitude: 15.78. Transit SNR 3.18

There are 1 quarters with good PRF difference image offsets

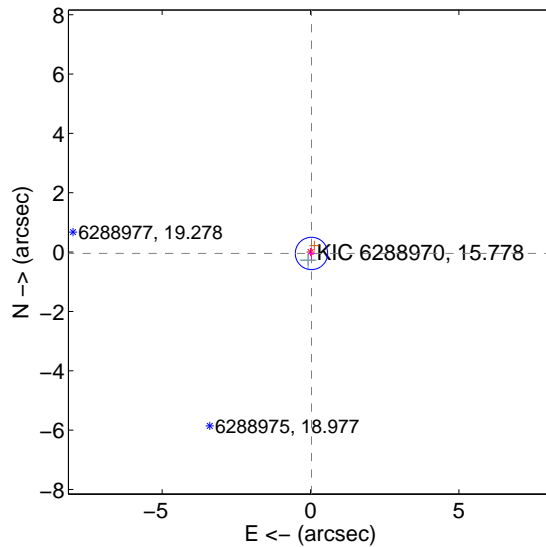
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.082 ± 0.153	0.53	-0.081 ± 0.153	-0.014 ± 0.146
PRF-fit source offset from KIC position	0.055 ± 0.182	0.31	-0.032 ± 0.113	-0.045 ± 0.207
photometric centroid source offset	1.64 ± 1.72	0.96	1.53 ± 1.72	-0.60 ± 1.71

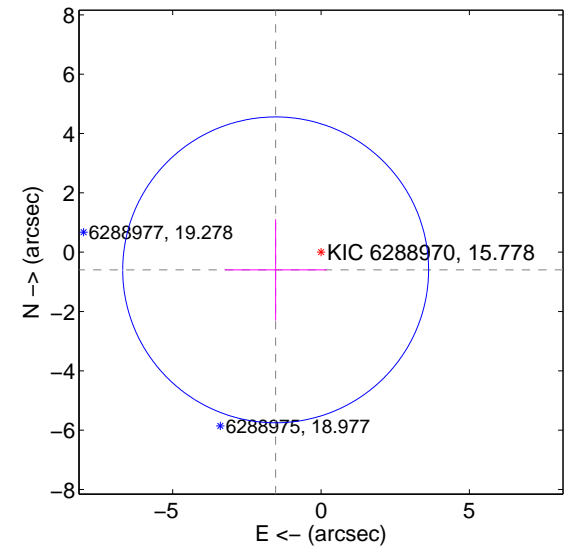
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

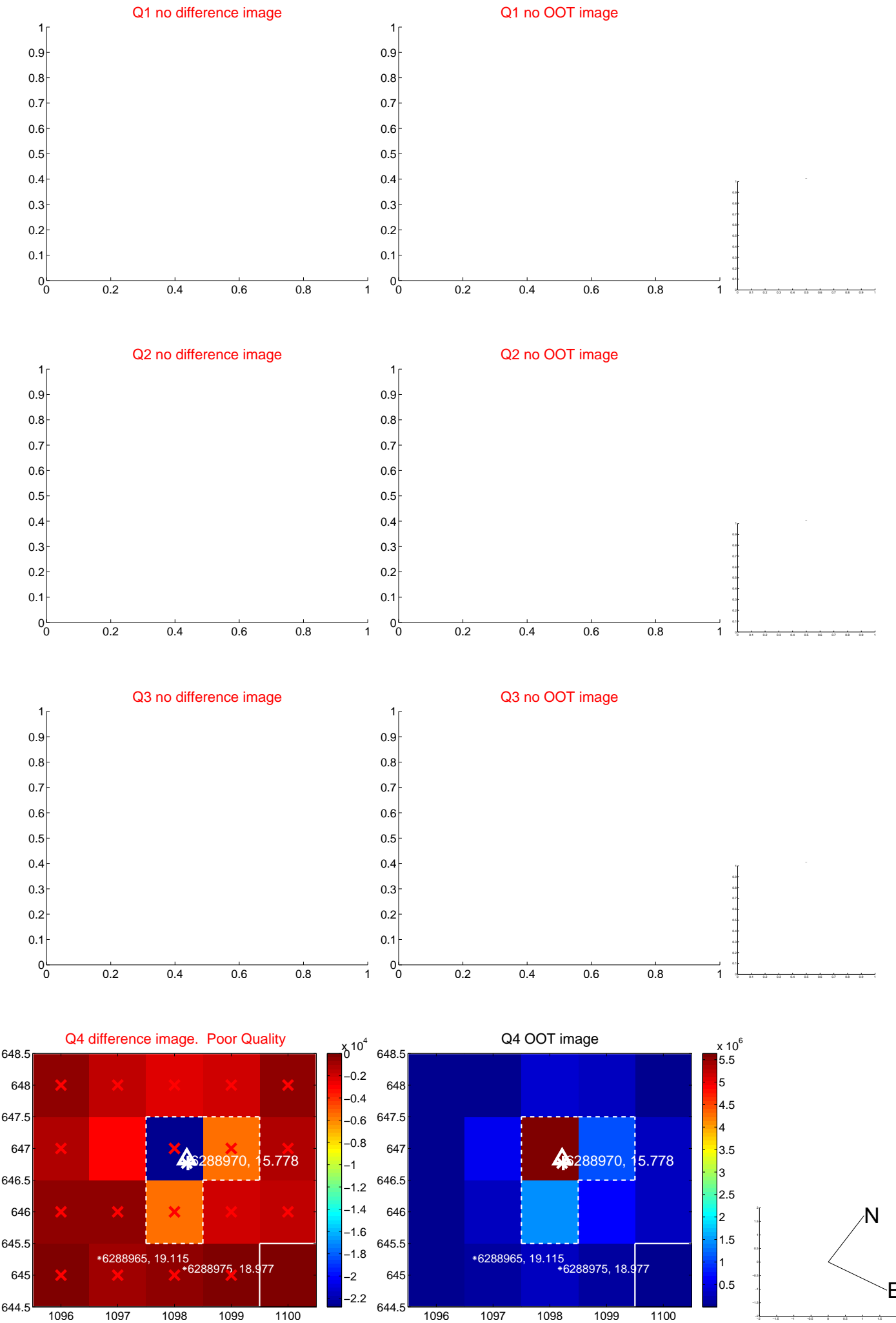


offset from photometric centroids



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

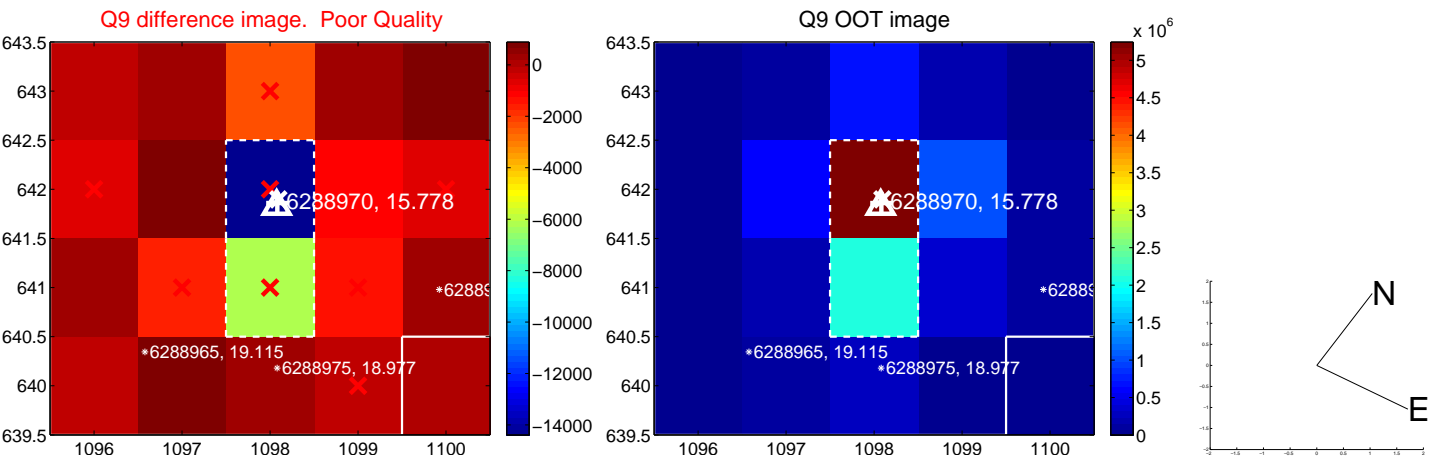
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



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

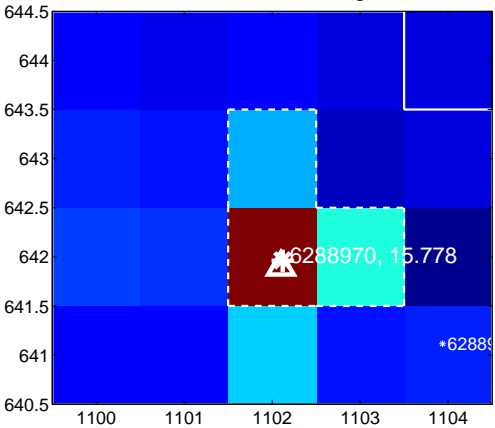
Q13 no difference image



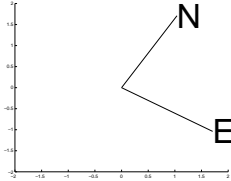
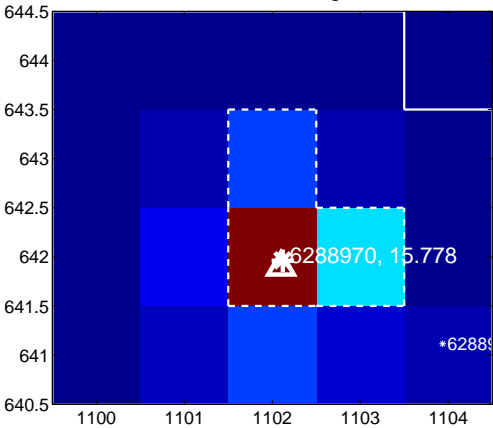
Q13 no OOT image



Q14 difference image



Q14 OOT image



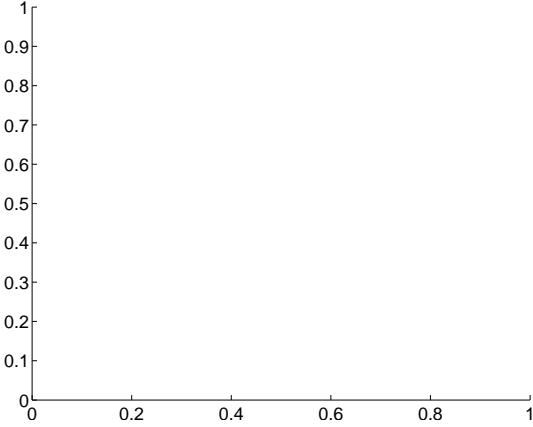
Q15 no difference image



Q15 no OOT image



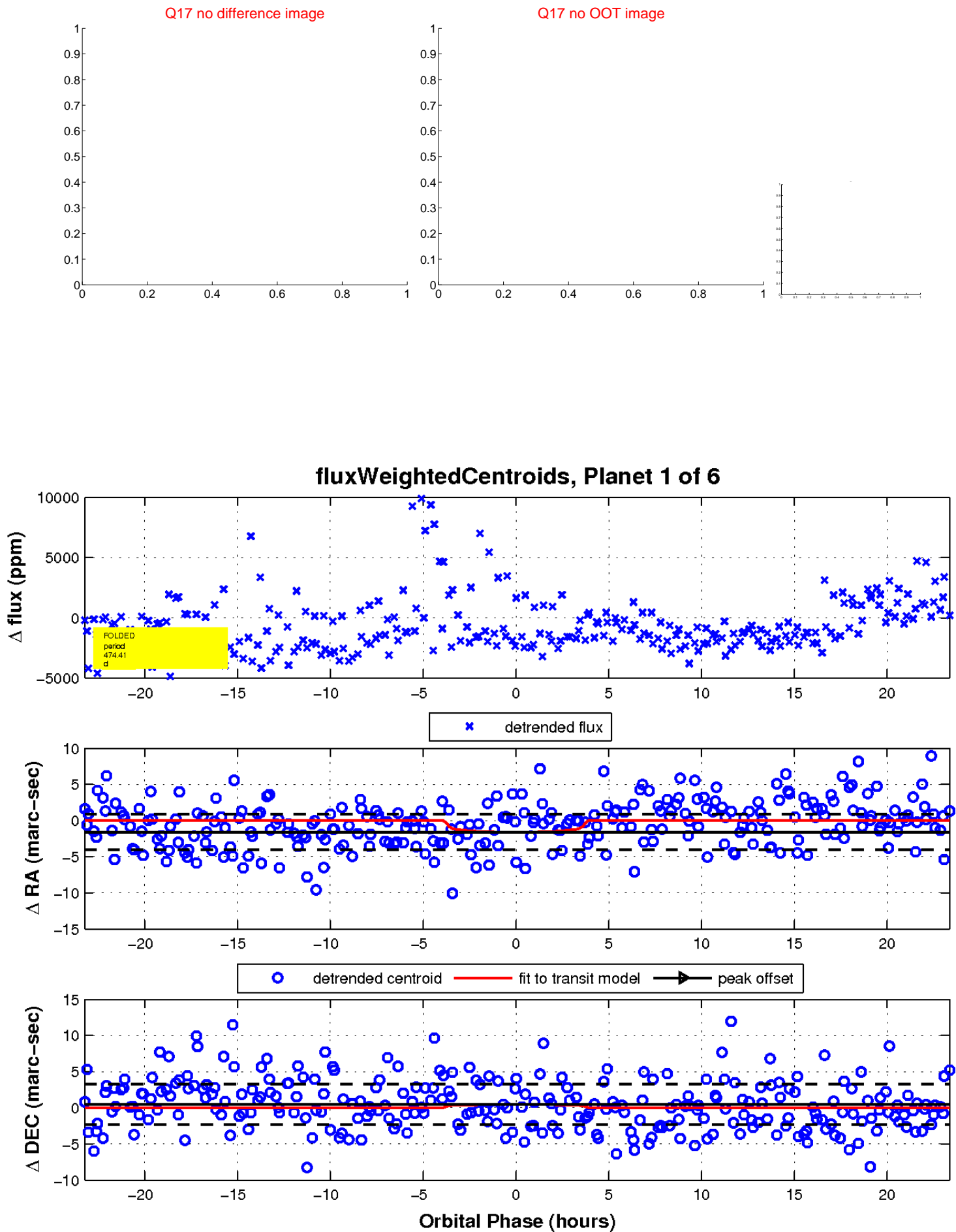
Q16 no difference image



Q16 no OOT image

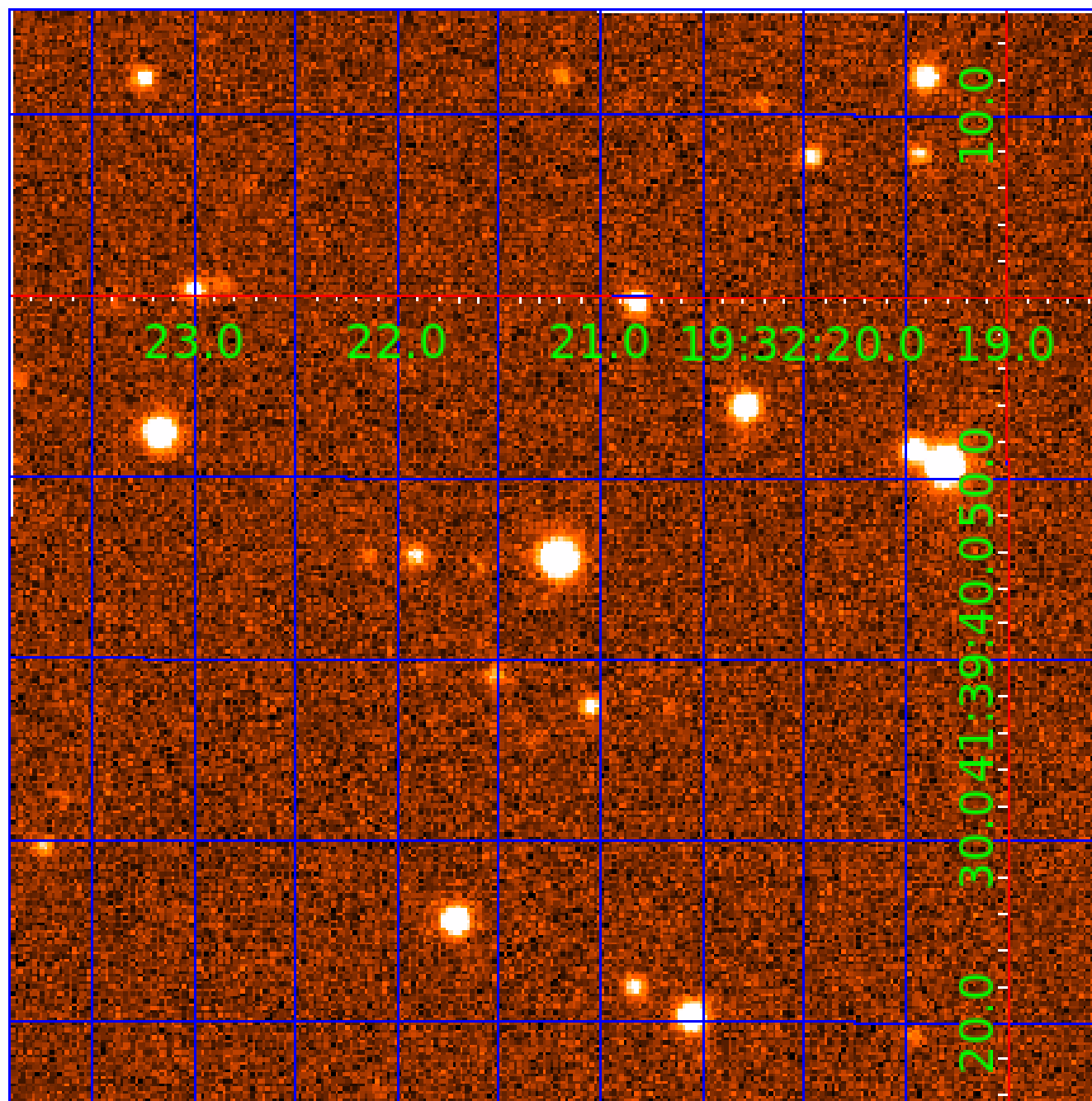


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006288970

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})
006288970-01	OBS	No	474.413503	414.881341	1103.6	7.798	16.6	3.2	0.82	5786	2.85	0.55
006288970-02	OBS	No	504.393501	460.092715	3963.2	8.962	18.0	8.9	0.82	5786	8.08	0.51
006288970-03	OBS	No	336.065430	278.887793	2653.3	4.962	14.4	9.0	0.82	5786	4.36	0.87
006288970-04	OBS	No	434.400410	245.748504	2185.7	6.831	17.7	5.9	0.82	5786	3.85	0.62
006288970-05	OBS	No	176.740459	220.735213	1230.9	3.341	14.4	5.8	0.82	5786	2.89	2.04
006288970-06	OBS	No	389.923954	357.471670	2236.2	4.545	13.6	7.5	0.82	5786	3.88	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006288970-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006288970-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
006288970-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
006288970-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

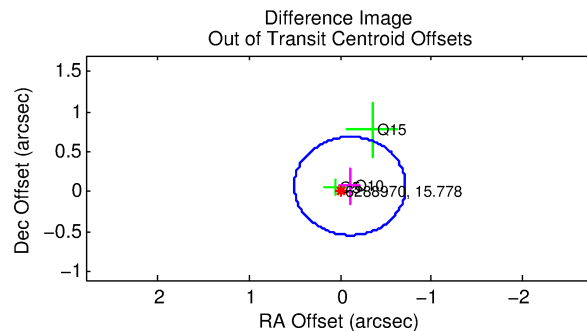
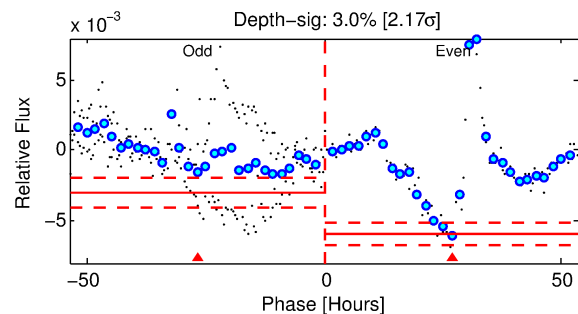
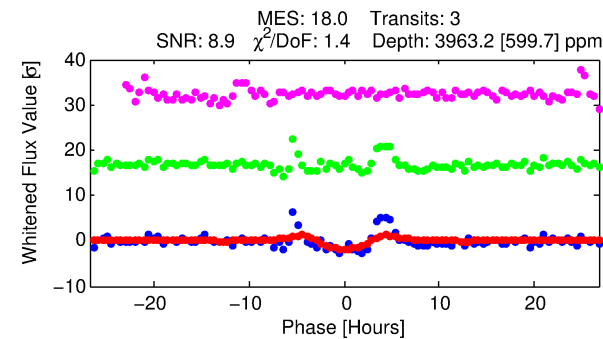
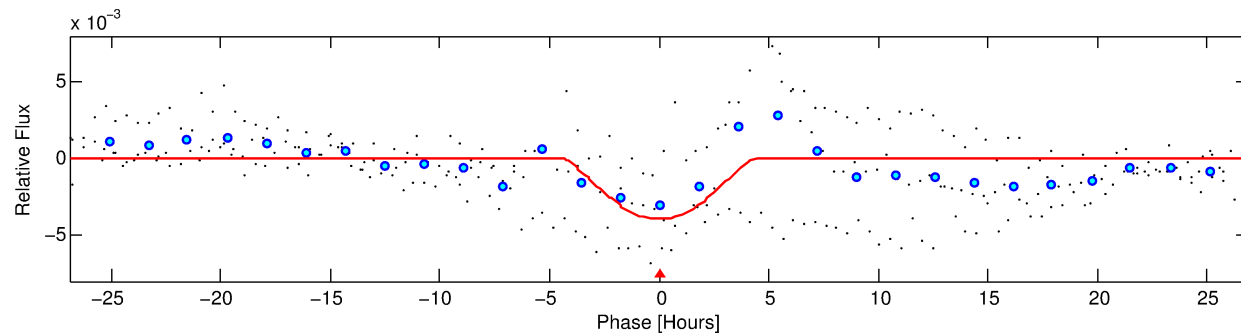
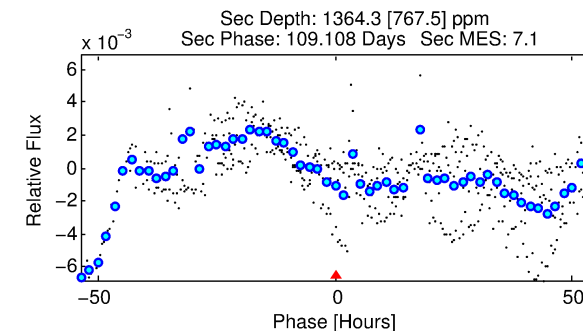
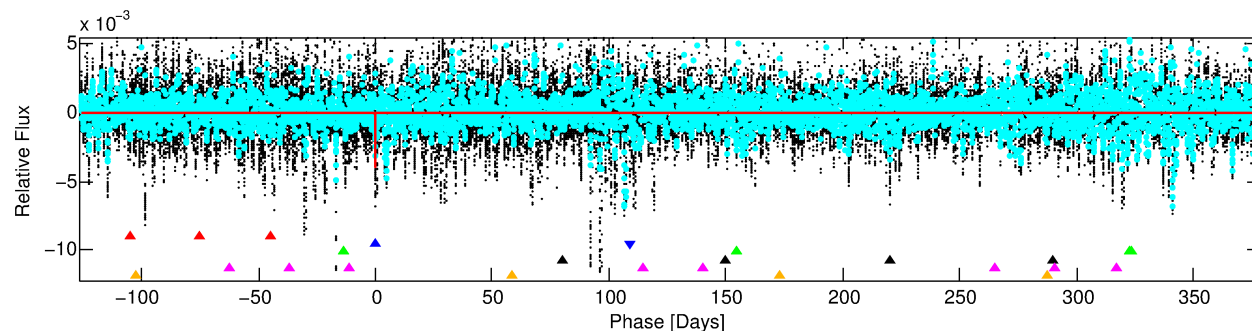
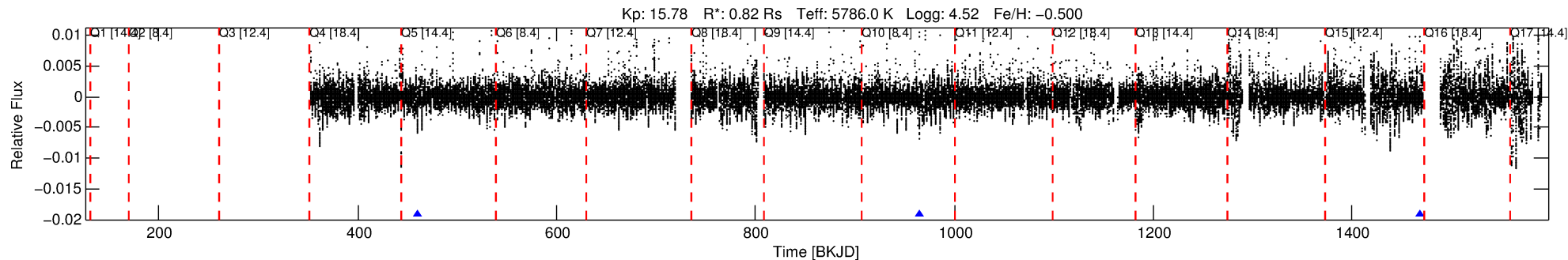
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006288970-02

No Significant Match Found

DV One-Page Summary

KIC: 6288970 Candidate: 2 of 6 Period: 504.394 d



DV Fit Results:

Period = 504.39350 [0.01151] d
Epoch = 460.0927 [0.0156] BKJD
Rp/R* = 0.0899 [0.1076]
a/R* = 210.00 [68.89]
b = 0.97 [0.18]
Seff = 0.51 [0.16]
Teq = 215 [17] K
Rp = 8.08 [9.87] Re
a = 1.1619 [0.2358] AU
Ag = 15508.24 [38393.52] [0.40σ]
Teff = 3709 [2282] K [1.53σ]

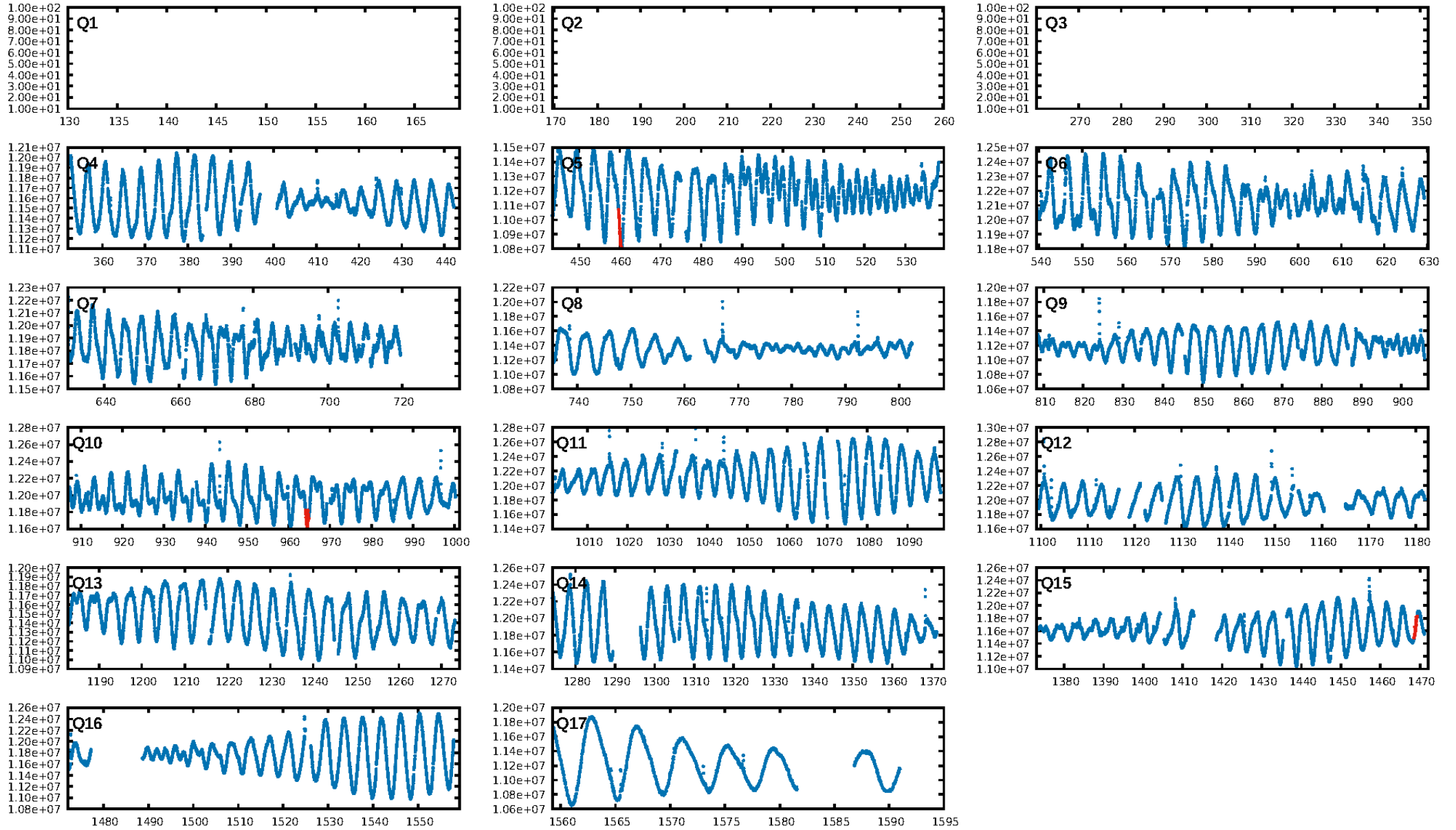
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [60.57σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 28.8%
Bootstrap-pfa: N/A
RollingBand-ftg: 1.00 [3/3]
GhostDiagnostic-chr: 0.3551
Centroid-sig: 11.8%
Centroid-so: 0.815 arcsec [1.36σ]
OotOffset-rm: 0.129 arcsec [0.63σ]
KicOffset-rm: 0.171 arcsec [1.01σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

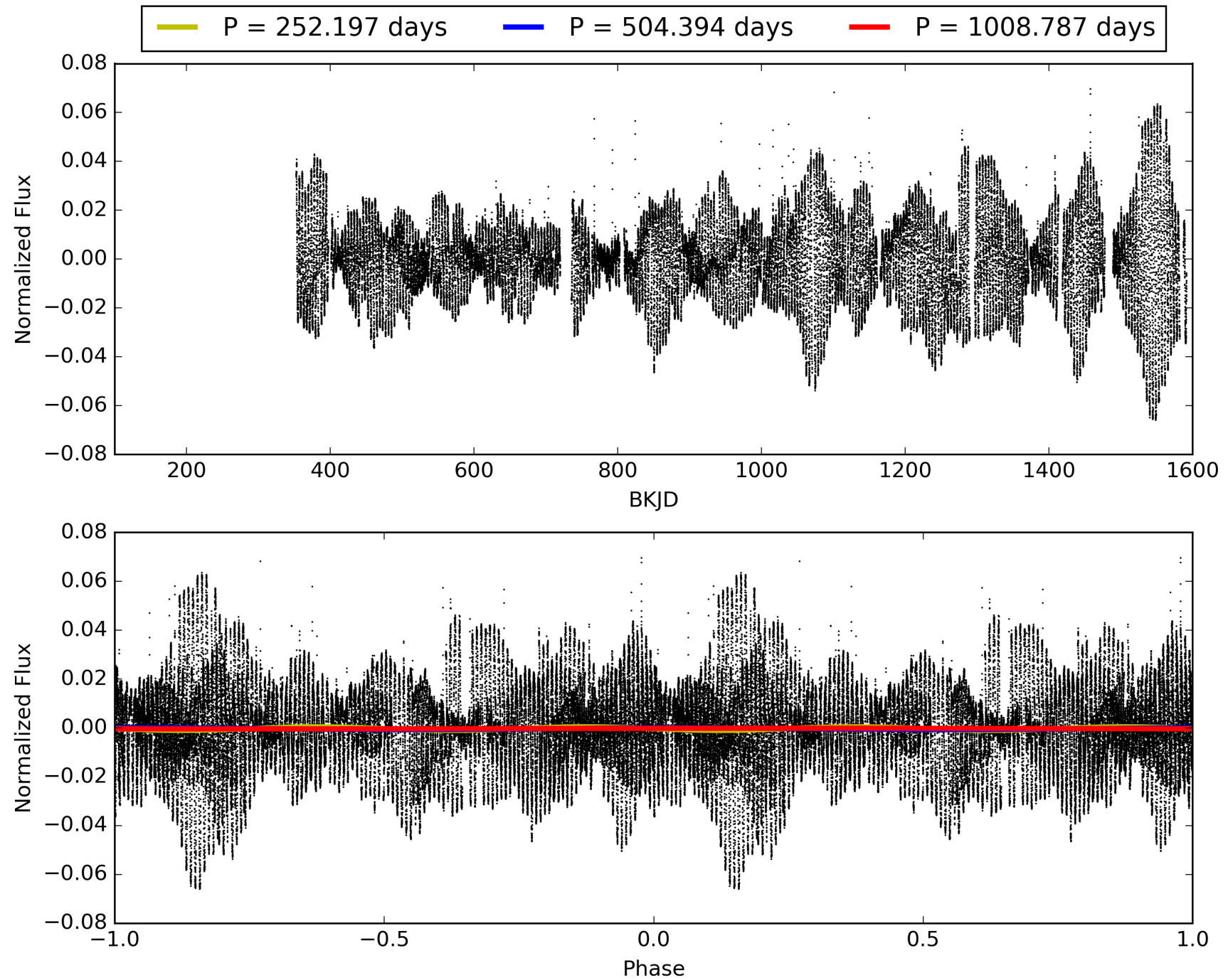
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006288970-02, PDC Light Curves

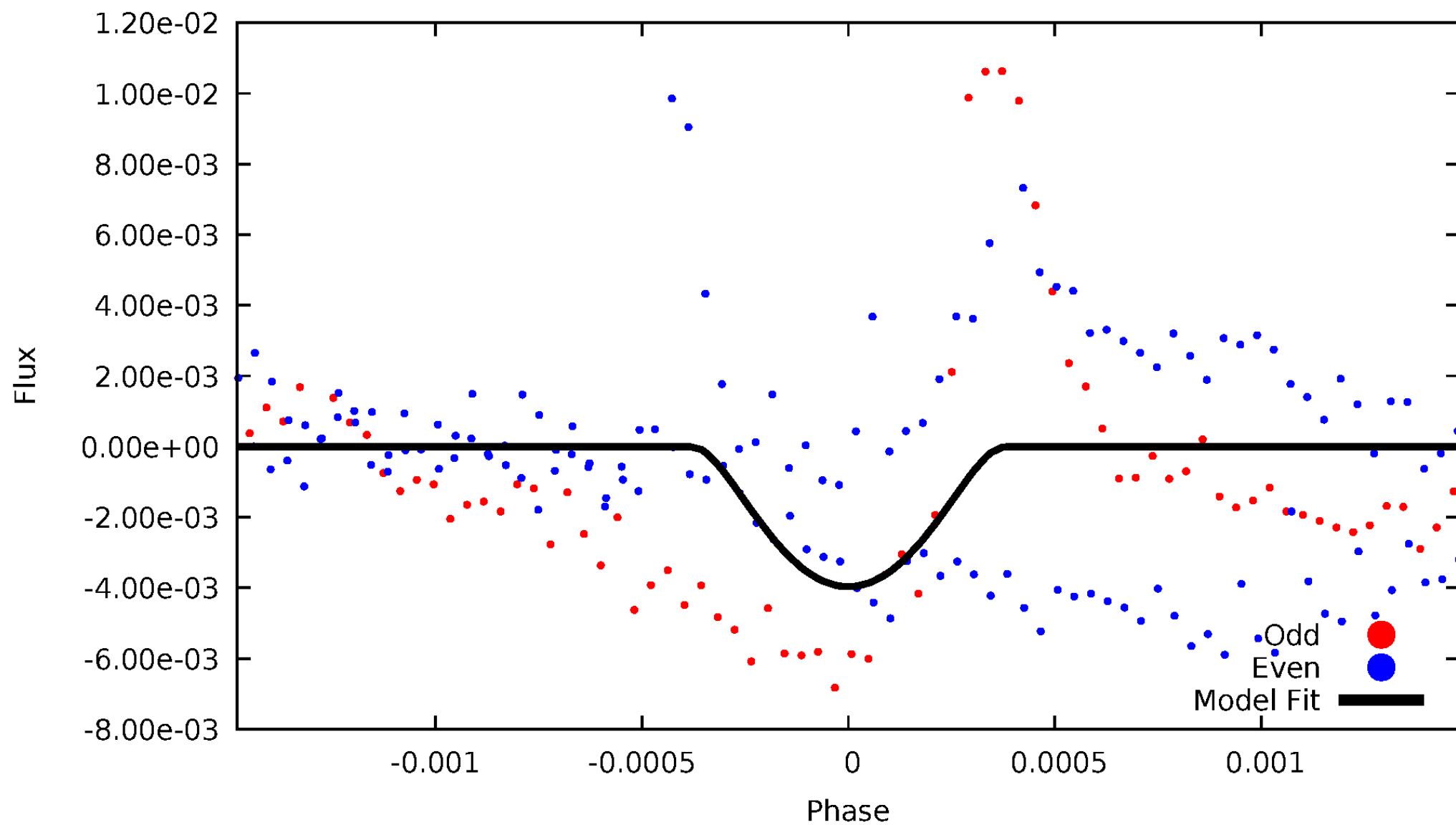


TCE 006288970-02



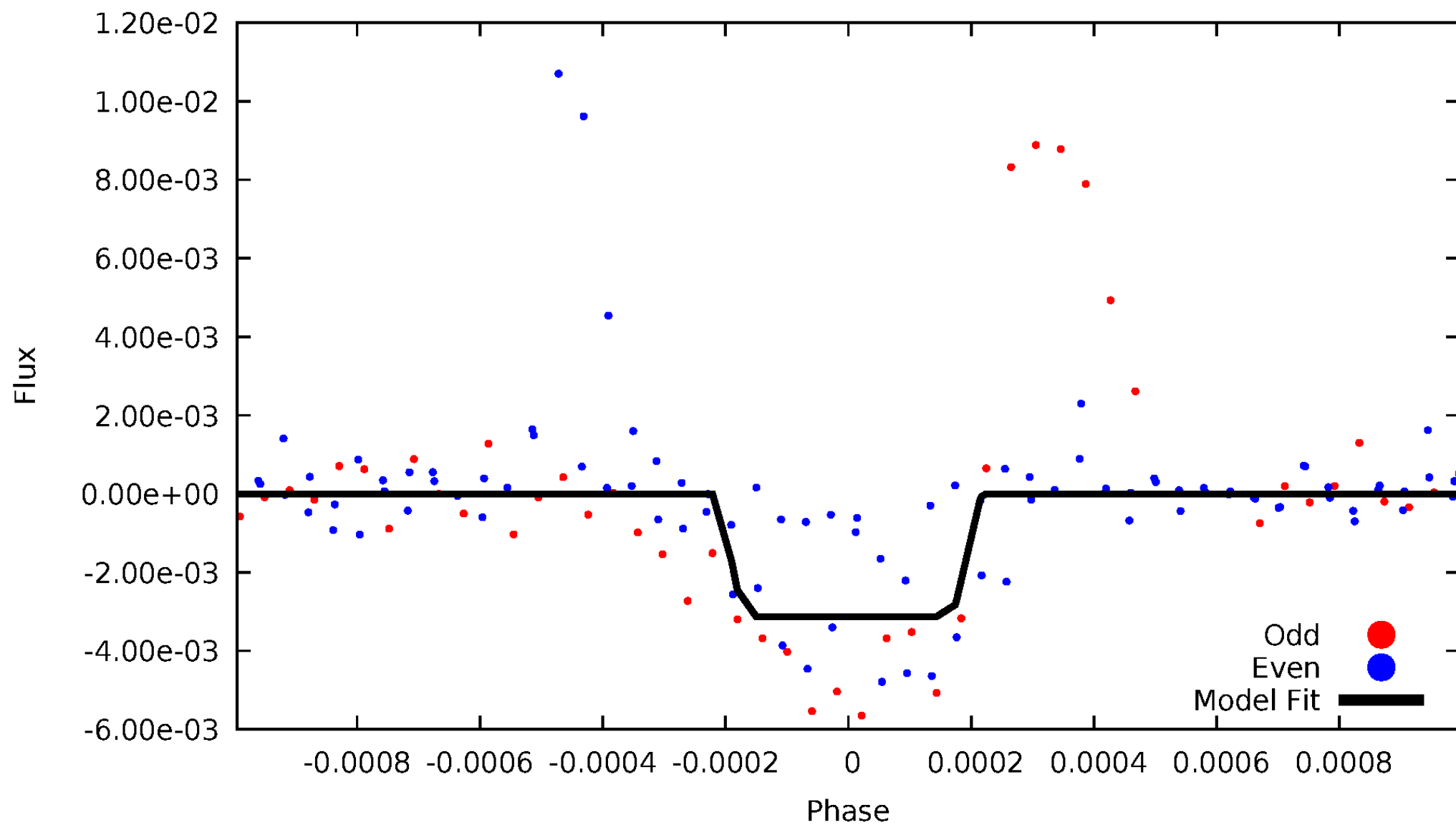
DV Odd/Even

TCE 006288970-02



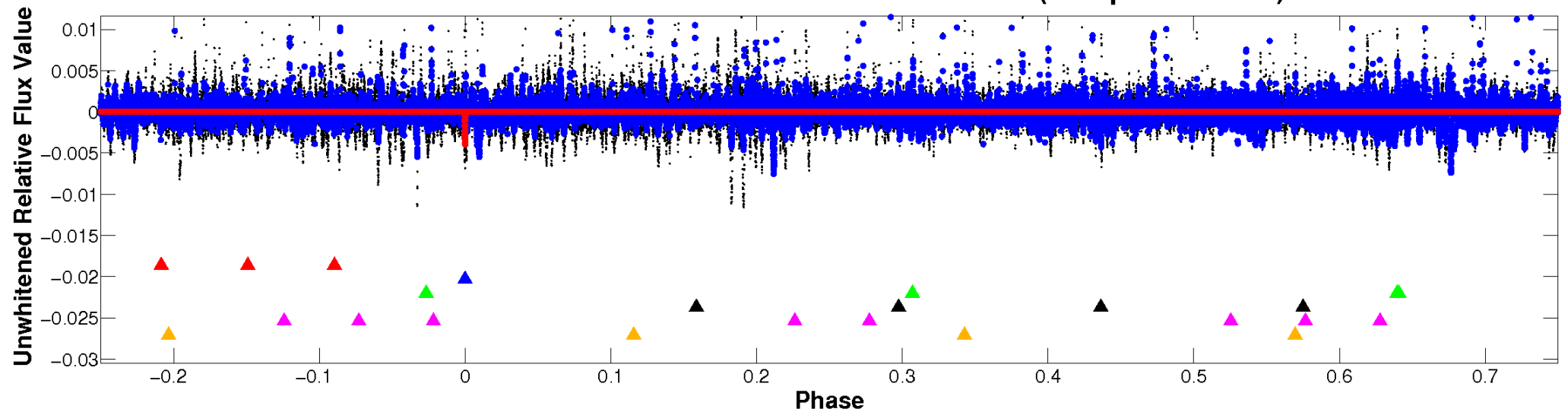
ALT Odd/Even

TCE 006288970-02

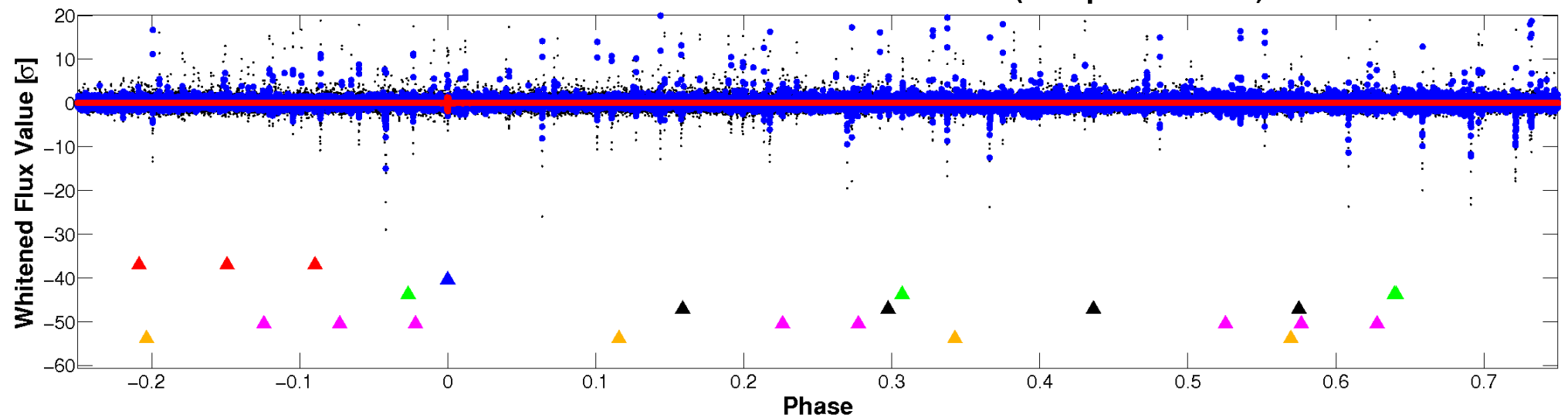


Non-Whitened Vs. Whitened Light Curve

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

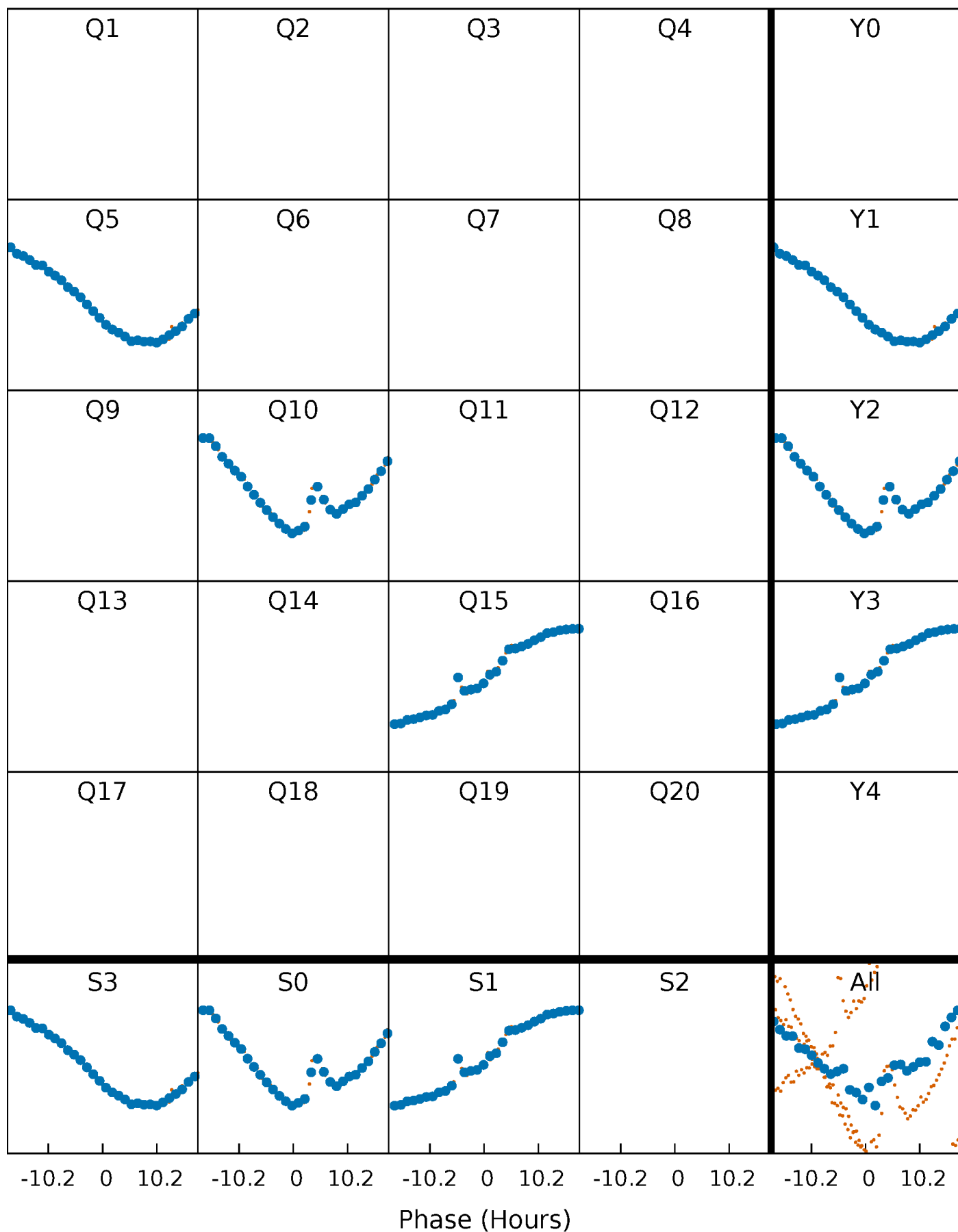


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



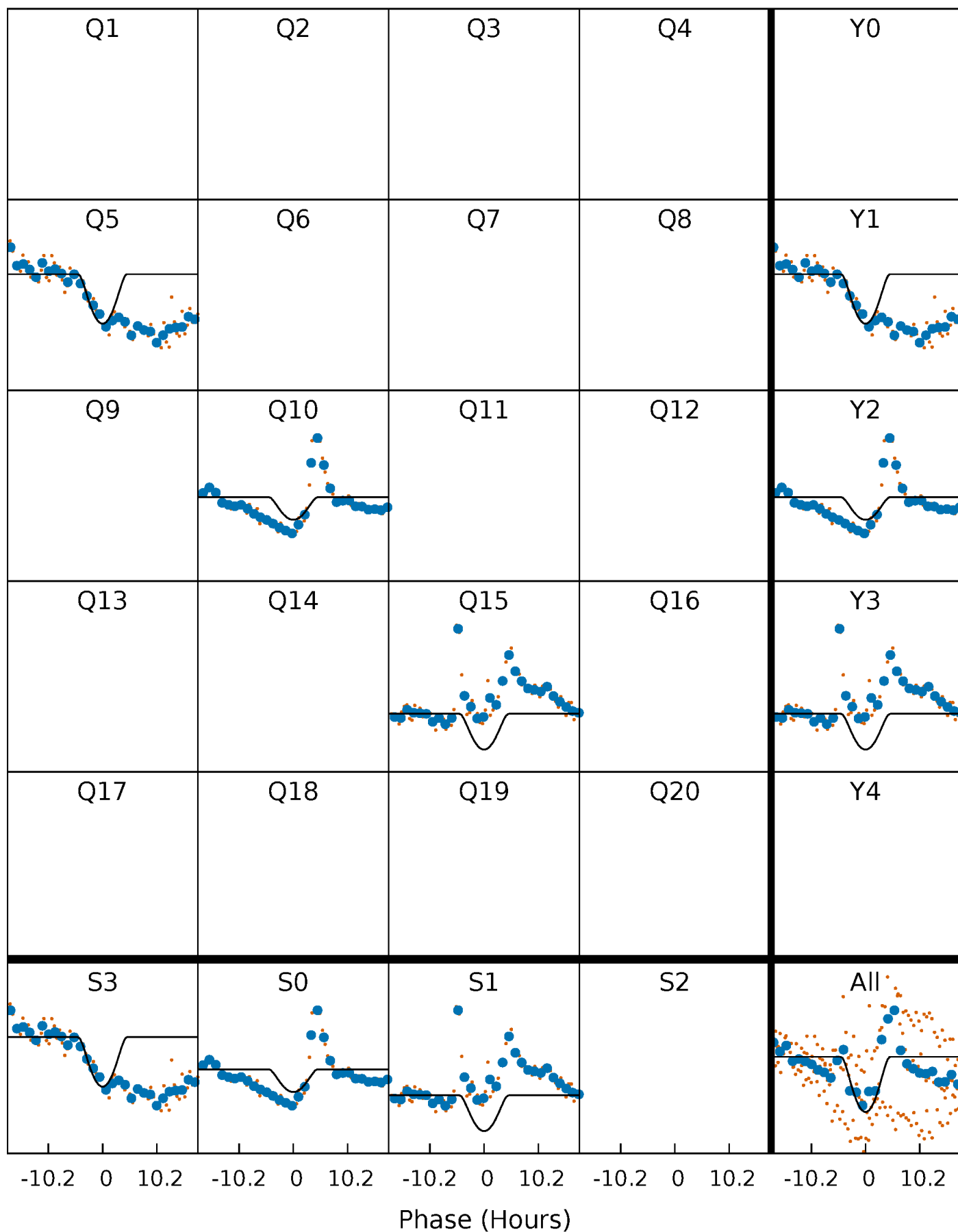
PDC Quarter-Phased Transit Curves

TCE 006288970-02 $P=504.393501$ Days $T_0=460.092715$ (BKJD)



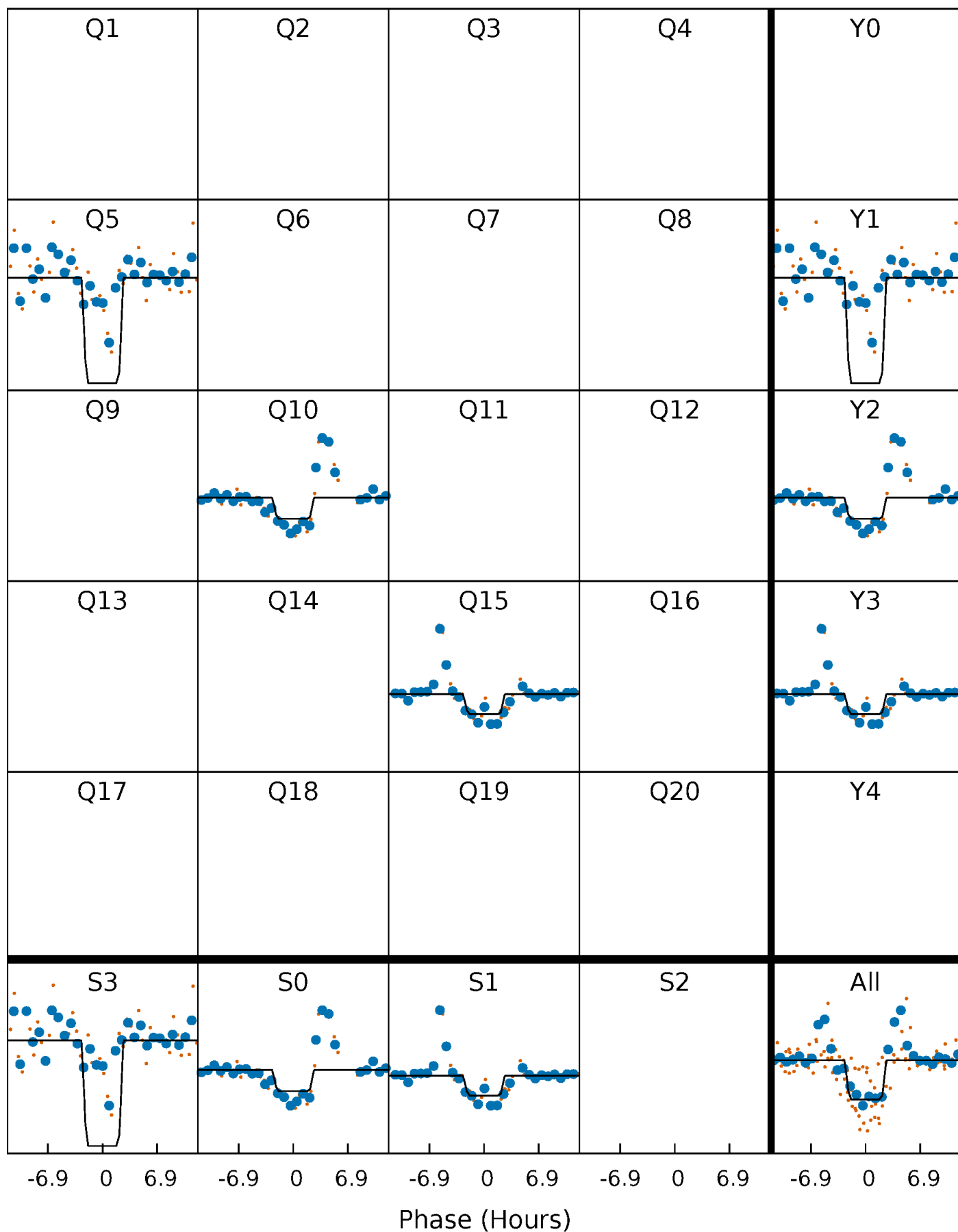
DV Quarter-Phased Transit Curves

TCE 006288970-02 $P=504.393501$ Days $T_0=460.092715$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

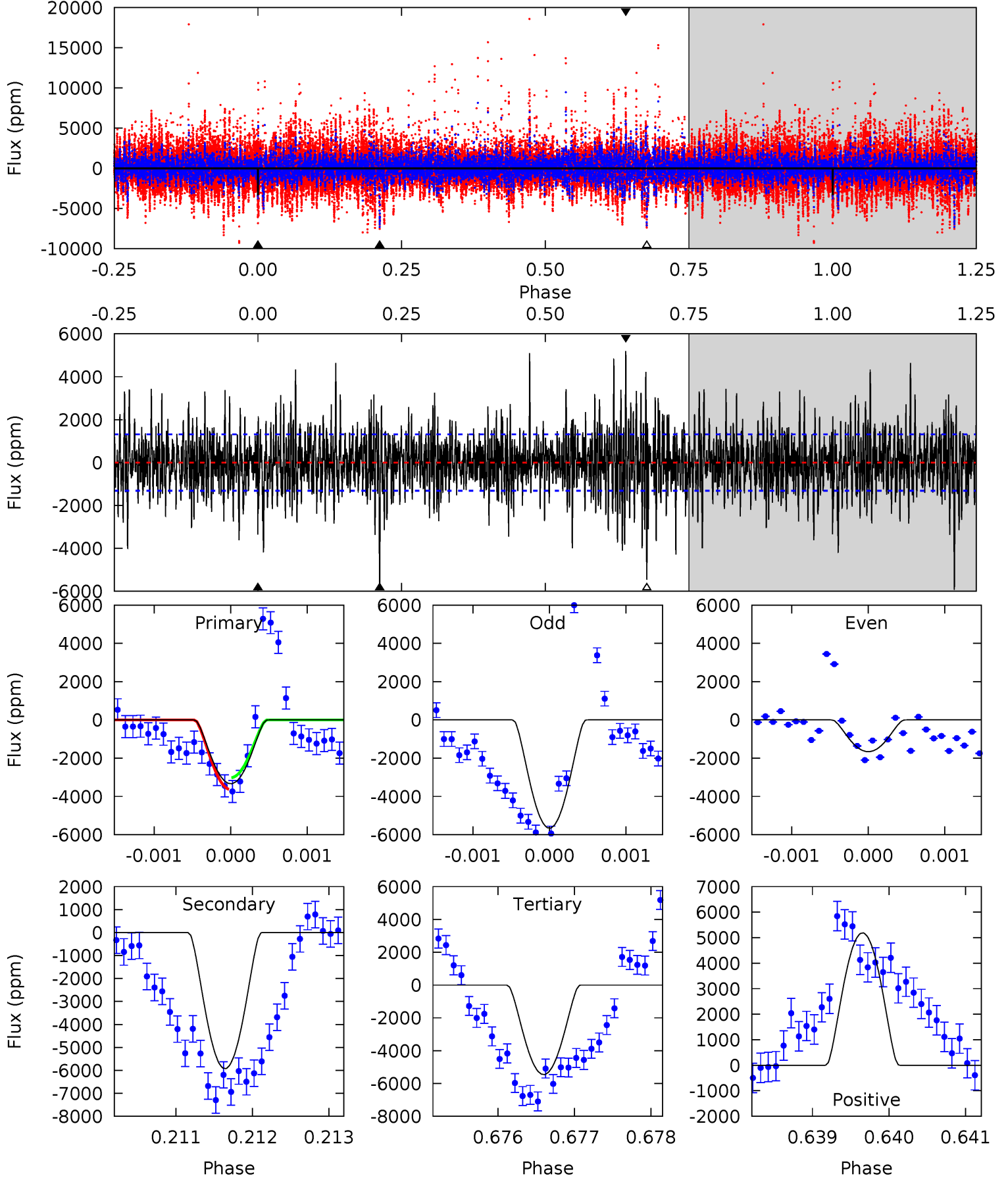
TCE 006288970-02 P=504.402429 Days $T_0=460.097147$ (BKJD)



DV Model-Shift Uniqueness Test

006288970-02, P = 504.393501 Days, E = 460.092715 Days

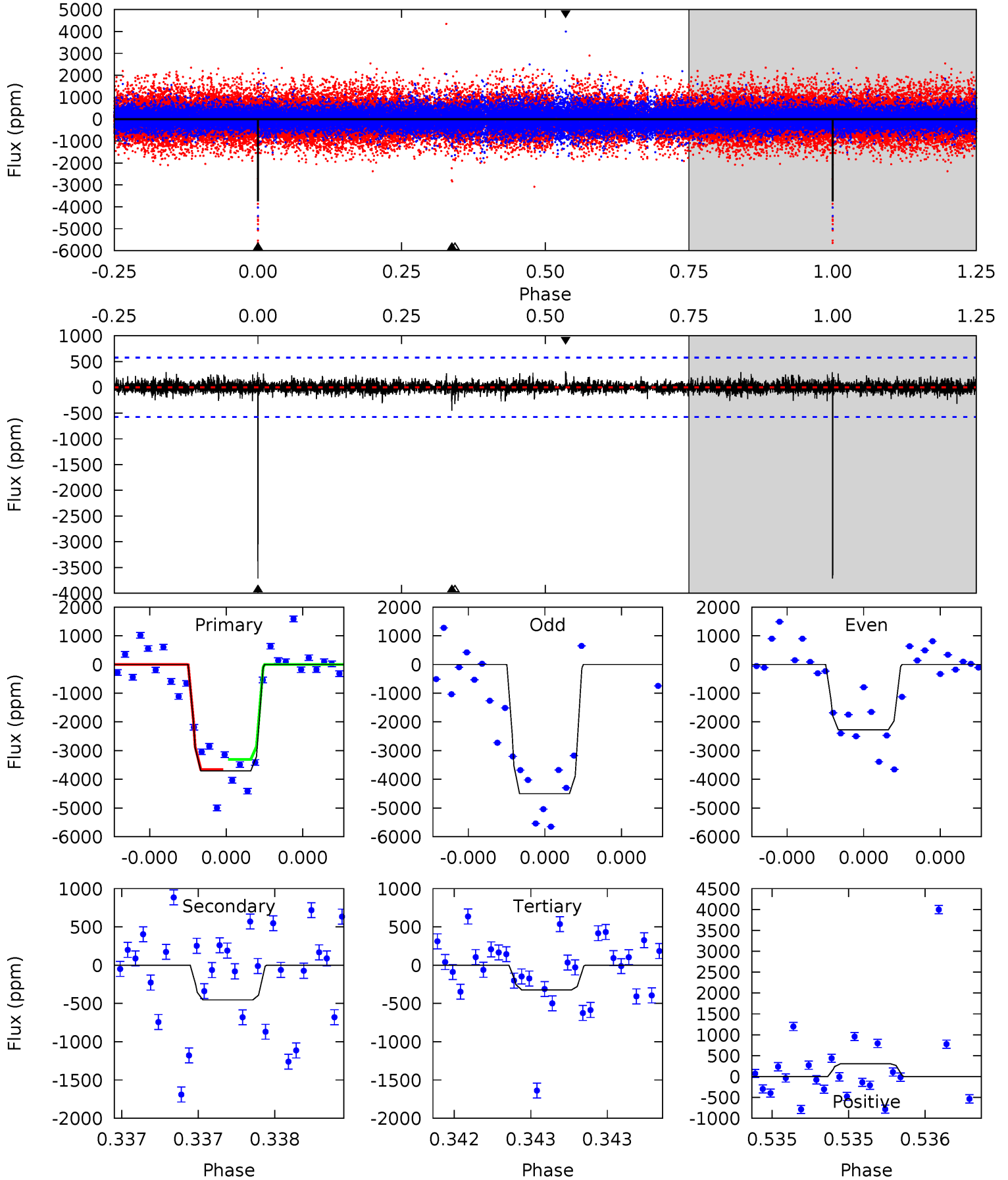
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	24.8	22.8	21.7	5.49	3.35	4.93	-8.86	-7.74	1.96	3.09	6.66	0.72	0.47	1.28



Alt Model-Shift Uniqueness Test

006288970-02, P = 504.402429 Days, E = 460.097147 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.0	4.41	3.14	2.98	5.59	3.51	0.55	32.9	33.1	1.27	1.43	10.2	0.81	0.08	1.72



Stellar Parameters For KIC 006288970

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5786^{+192}_{-192}	$4.521^{+0.069}_{-0.161}$	$-0.500^{+0.300}_{-0.300}$	$0.824^{+0.199}_{-0.099}$	$0.821^{+0.103}_{-0.069}$	$2.069^{+0.606}_{-0.934}$
	+3%/-3%	+2%/-4%	+60%/-60%	+24%/-12%	+13%/-8%	+29%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006288970-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-5924 ± 239	$10.85^{+9.05}_{-6.95}$	305^{+19}_{-16}	4789^{+3304}_{-945}	$39316^{+256791}_{-27895}$
Alt.	-454 ± 103	$8.96^{+8.53}_{-5.58}$	304^{+19}_{-14}	3262^{+1308}_{-568}	4272^{+25488}_{-3199}

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 $A_{obs} \gg 1.0$

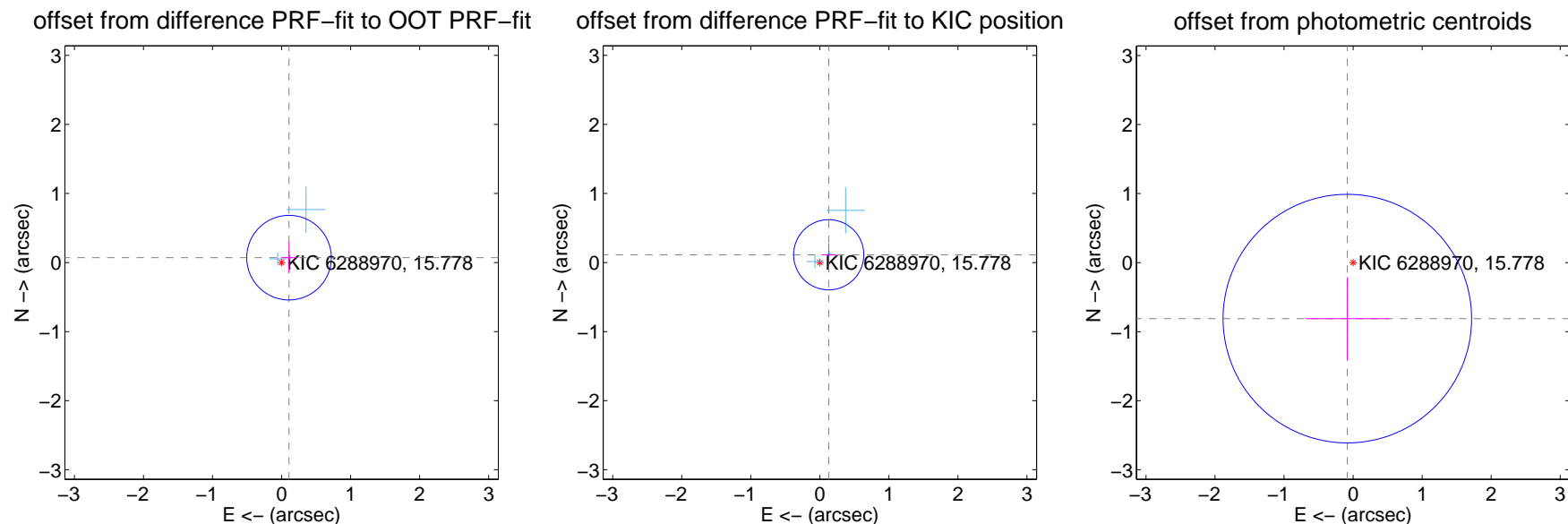
DV Centroid Data

Supplemental centroid analysis for 006288970-02. Kepler magnitude: 15.78. Transit SNR 8.89

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.129 ± 0.204	0.63	-0.108 ± 0.115	0.071 ± 0.226
PRF-fit source offset from KIC position	0.171 ± 0.169	1.01	-0.128 ± 0.106	0.113 ± 0.158
photometric centroid source offset	0.82 ± 0.60	1.36	0.08 ± 0.61	-0.81 ± 0.60

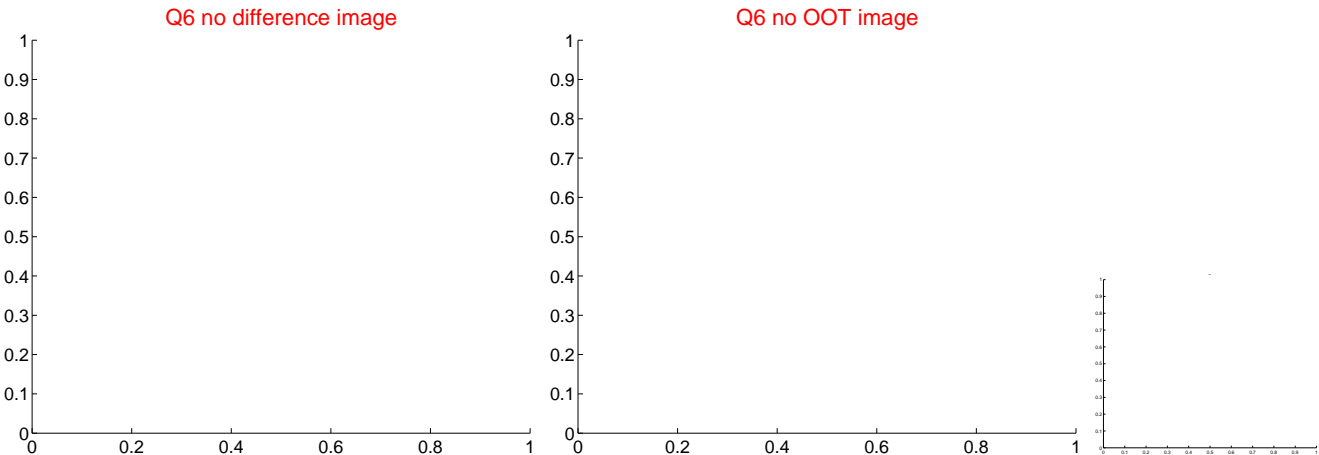
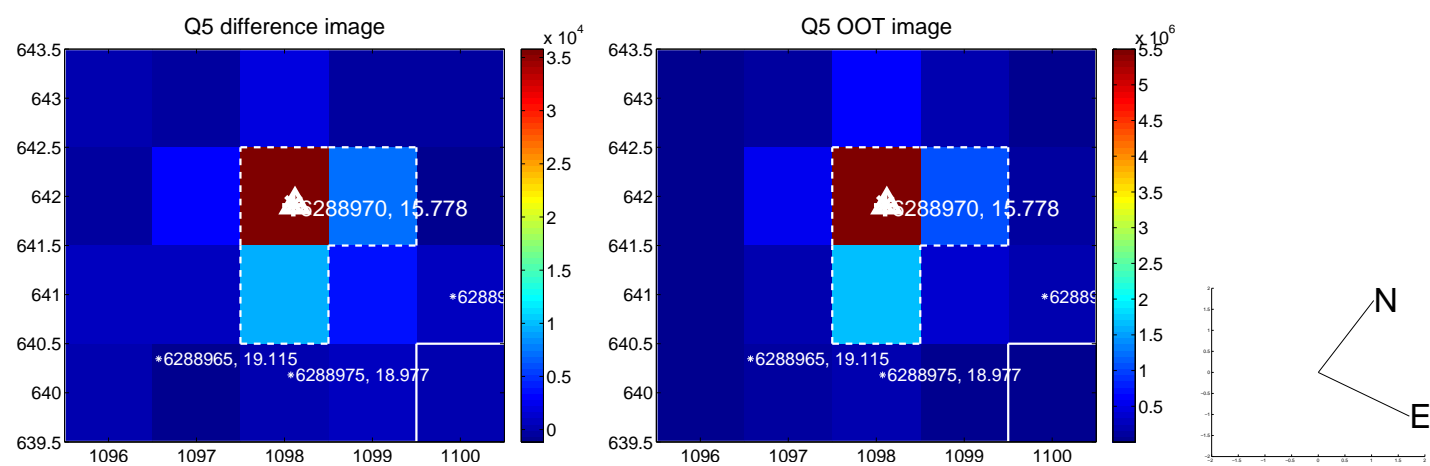


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

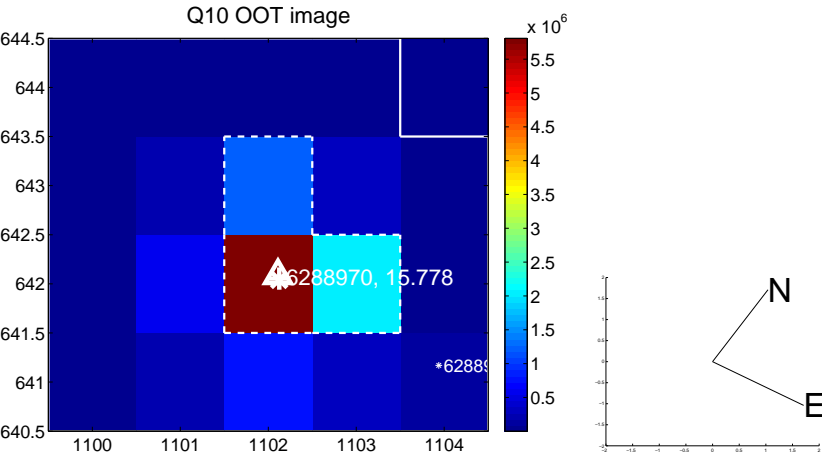
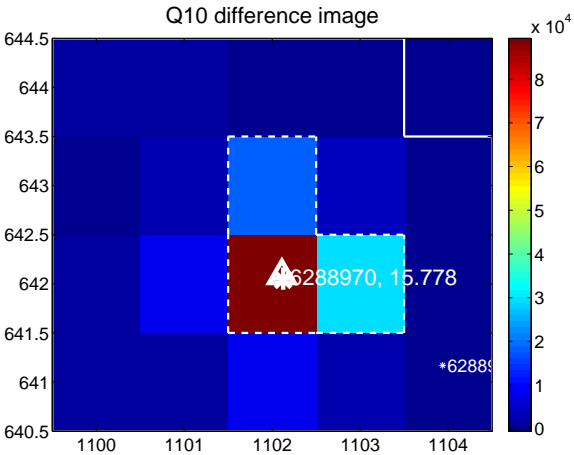


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

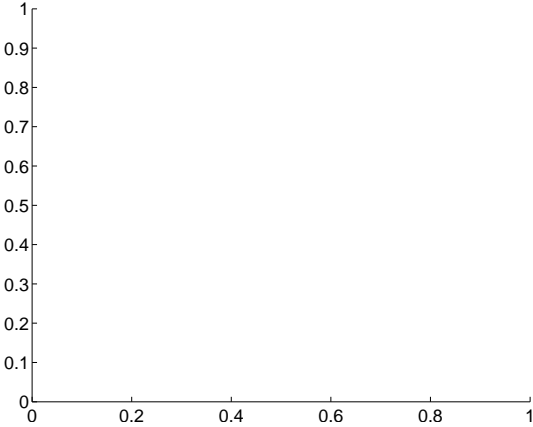
Q9 no difference image



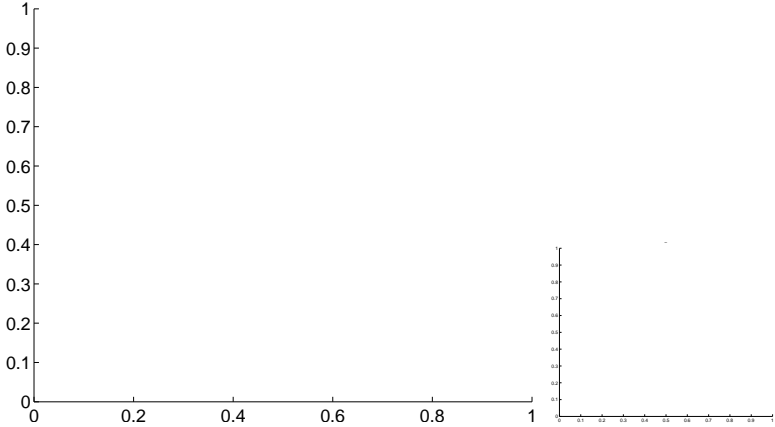
Q9 no OOT image



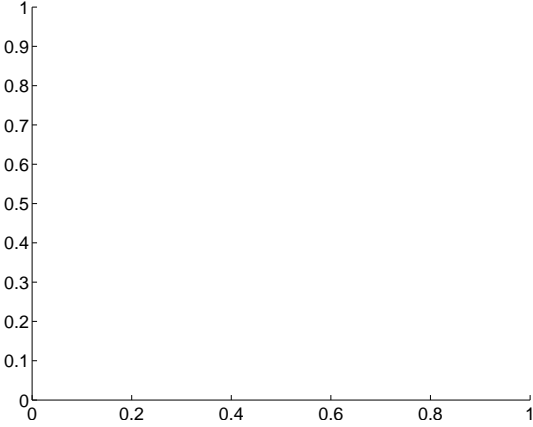
Q11 no difference image



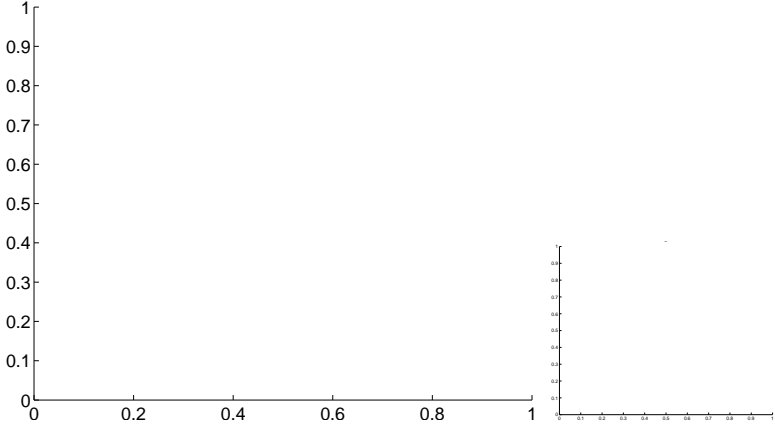
Q11 no OOT image



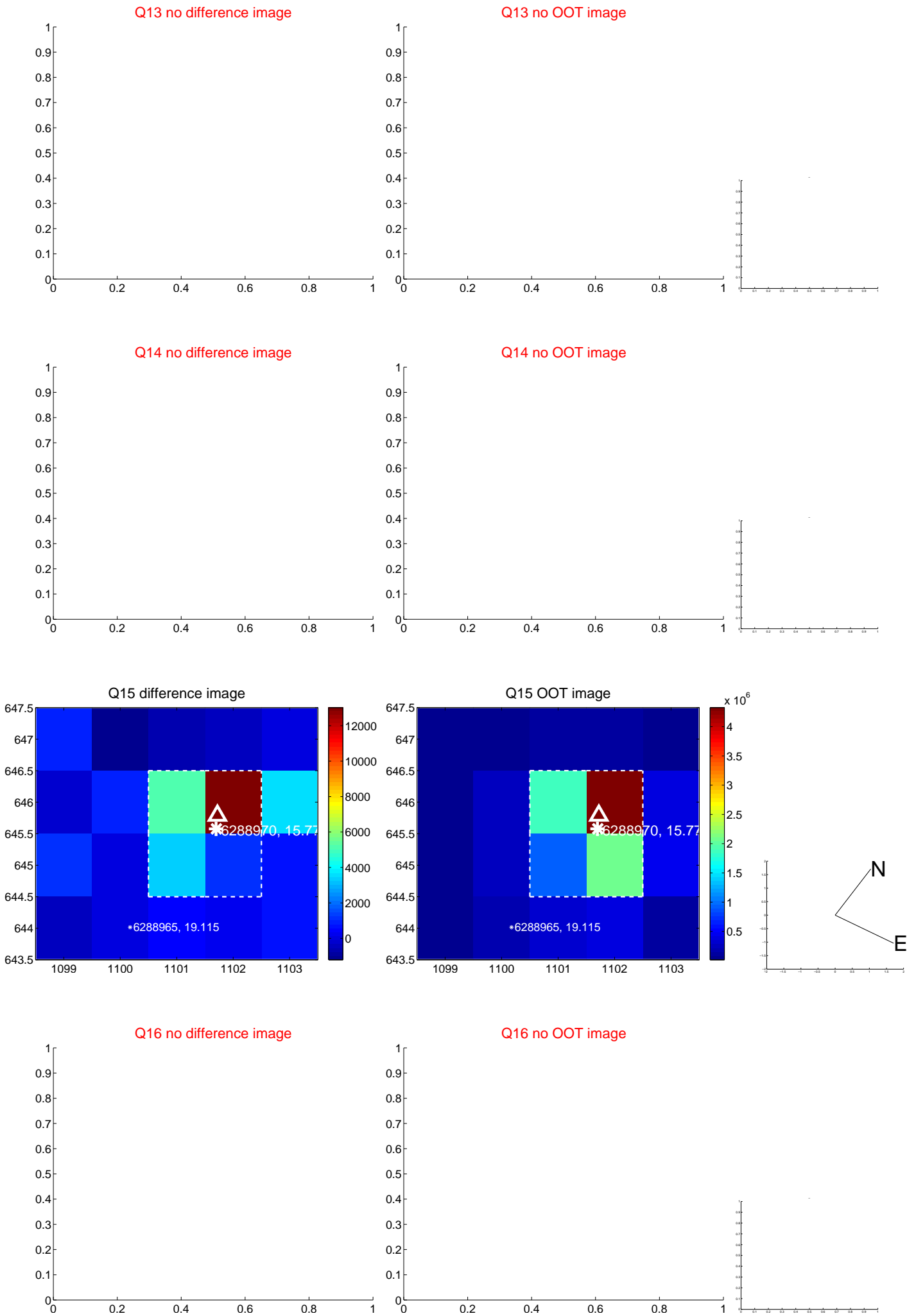
Q12 no difference image



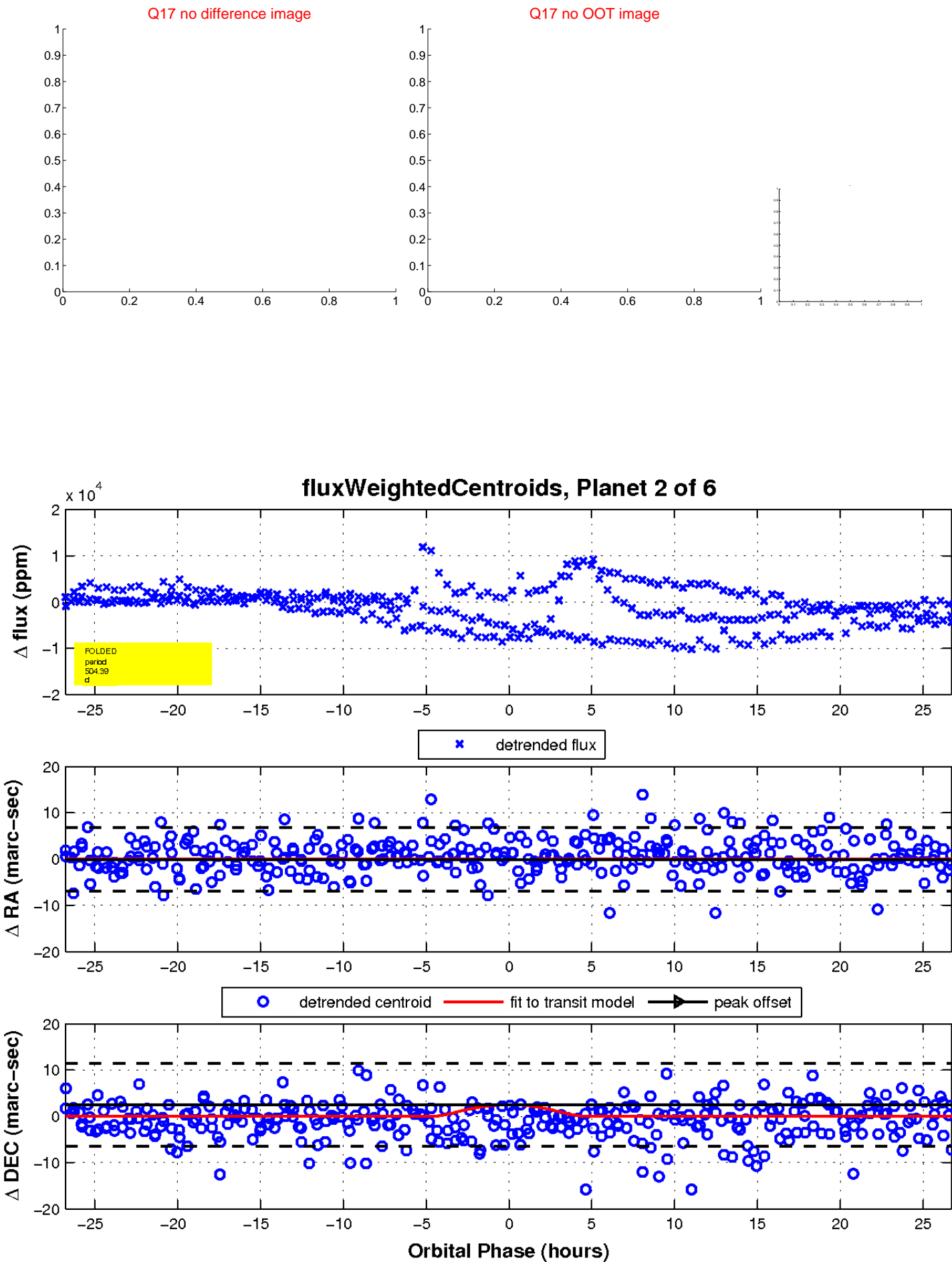
Q12 no OOT image



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

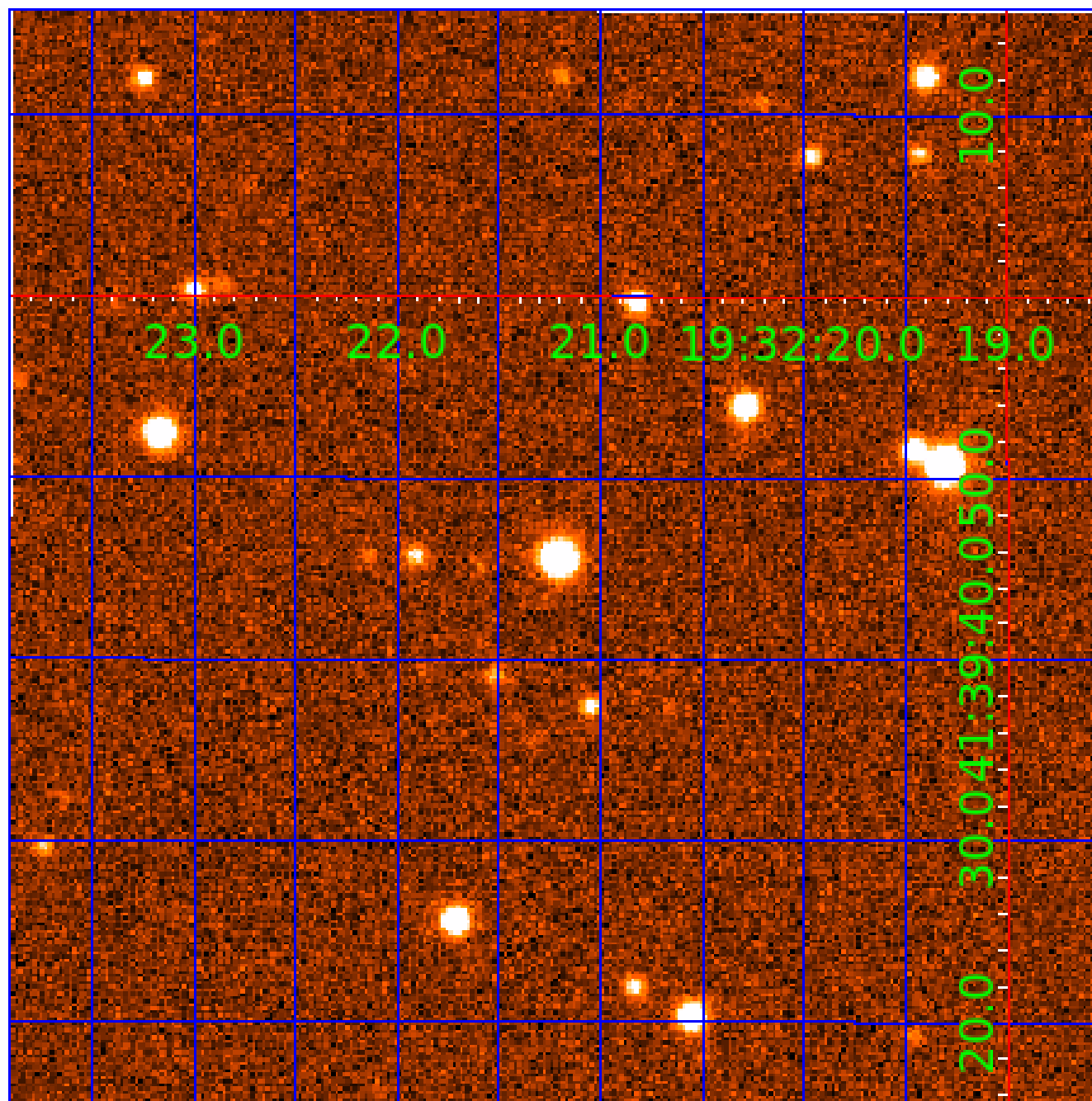


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006288970

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})
006288970-01	OBS	No	474.413503	414.881341	1103.6	7.798	16.6	3.2	0.82	5786	2.85	0.55
006288970-02	OBS	No	504.393501	460.092715	3963.2	8.962	18.0	8.9	0.82	5786	8.08	0.51
006288970-03	OBS	No	336.065430	278.887793	2653.3	4.962	14.4	9.0	0.82	5786	4.36	0.87
006288970-04	OBS	No	434.400410	245.748504	2185.7	6.831	17.7	5.9	0.82	5786	3.85	0.62
006288970-05	OBS	No	176.740459	220.735213	1230.9	3.341	14.4	5.8	0.82	5786	2.89	2.04
006288970-06	OBS	No	389.923954	357.471670	2236.2	4.545	13.6	7.5	0.82	5786	3.88	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006288970-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006288970-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
006288970-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
006288970-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

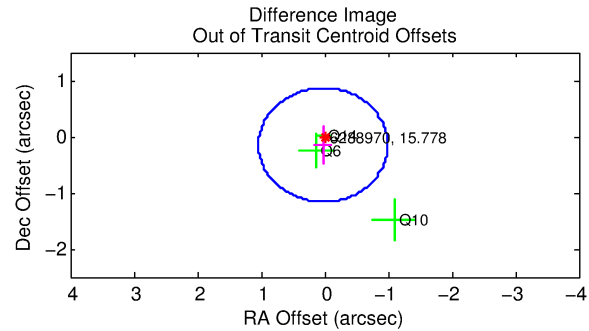
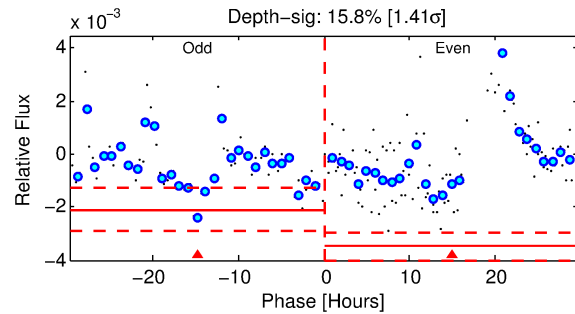
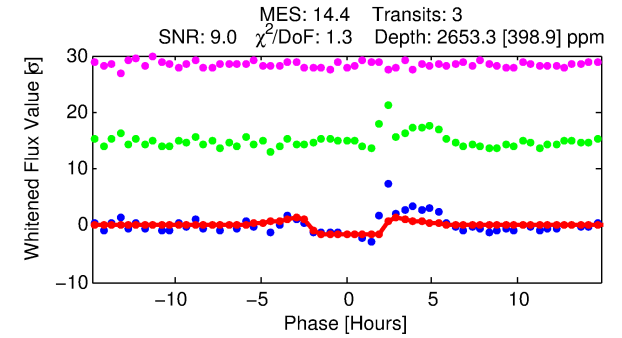
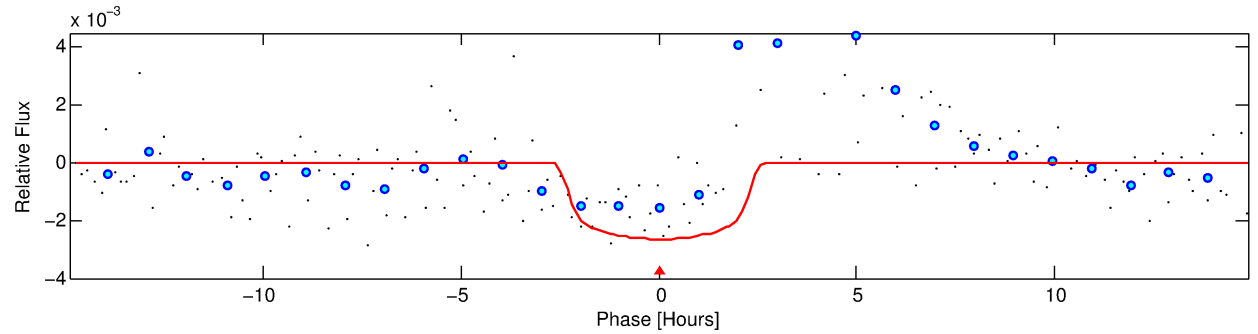
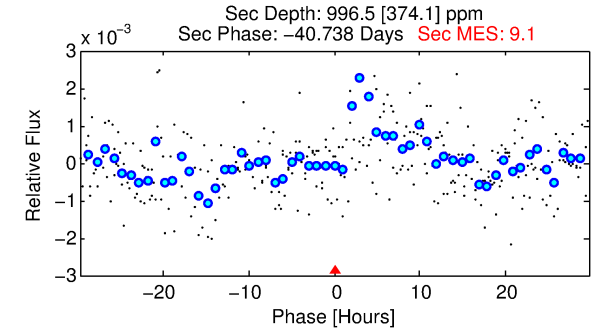
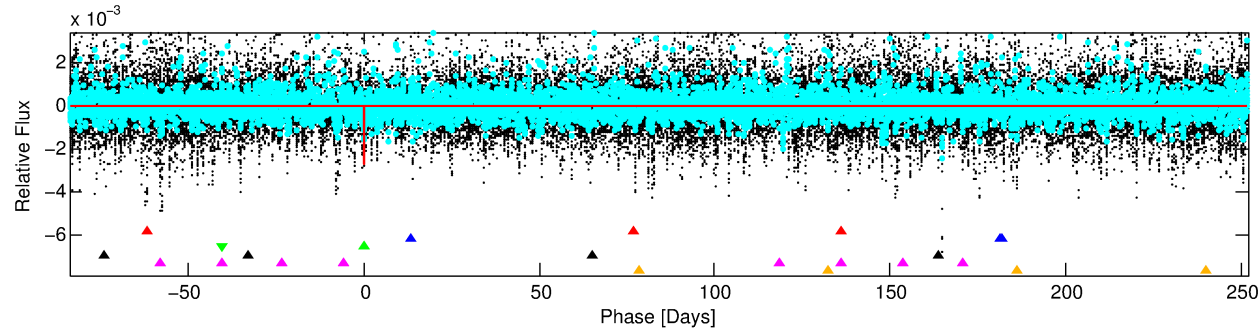
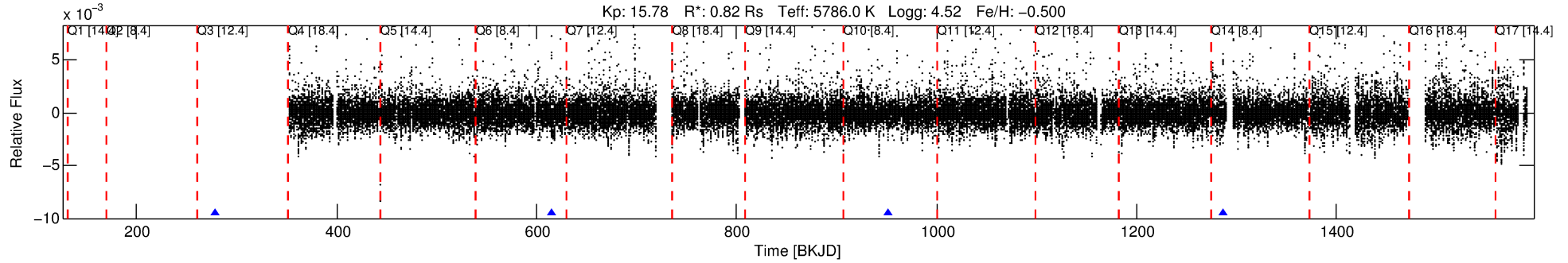
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006288970-03

No Significant Match Found

DV One-Page Summary

KIC: 6288970 Candidate: 3 of 6 Period: 336.065 d



DV Fit Results:

Period = 336.06543 [0.00464] d
Epoch = 278.8878 [0.0107] BKJD
Rp/R* = 0.0485 [0.0323]
a/R* = 477.12 [1453.43]
b = 0.50 [4.64]
Seff = 0.87 [0.28]
Teq = 246 [20] K
Rp = 4.36 [3.09] Re
a = 0.8863 [0.1799] AU
Ag = 22687.76 [32097.20] [0.71 σ]
Teffp = 4670 [1623] K [2.73 σ]

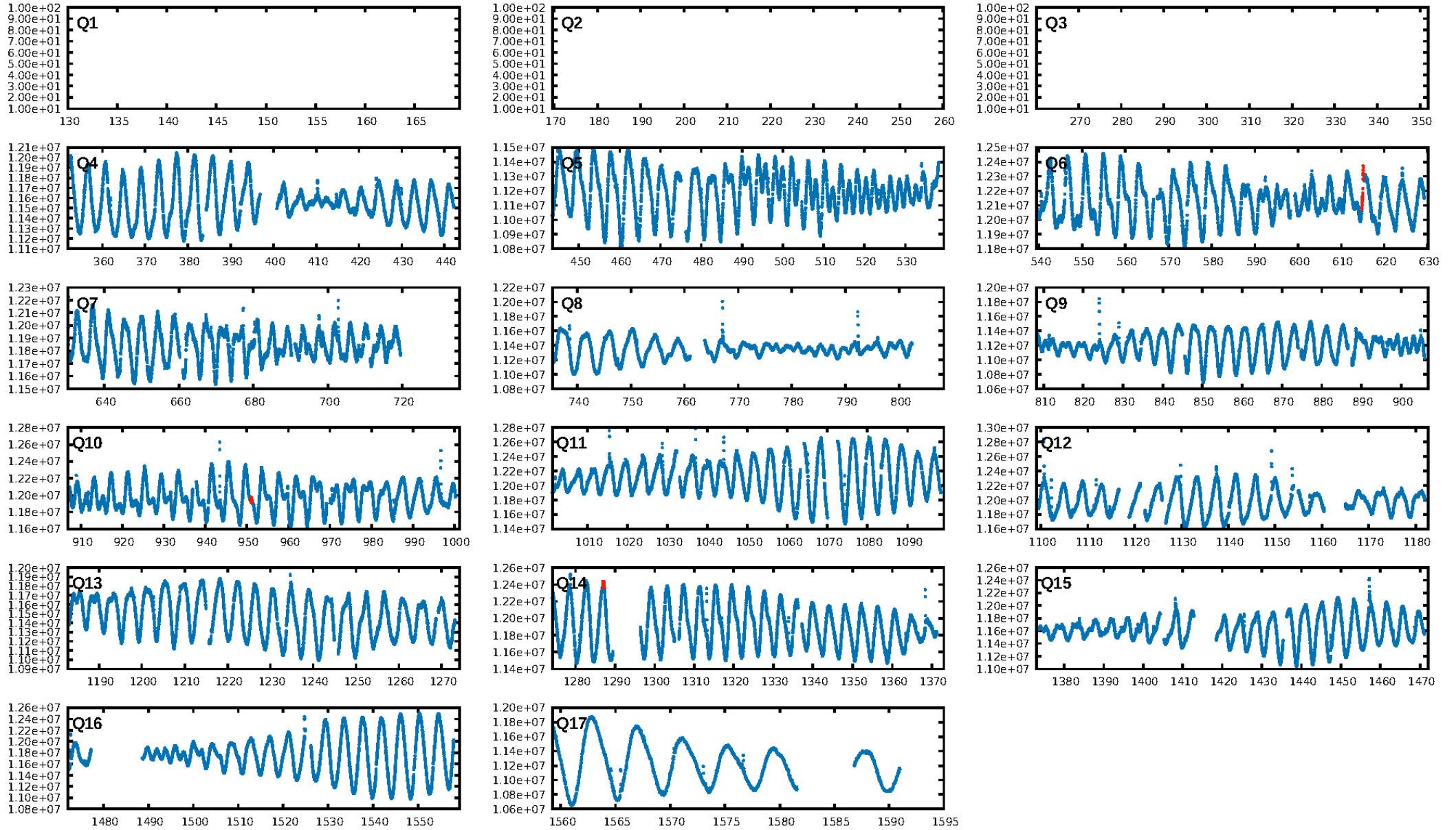
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [639.23 σ]
LongPeriod-sig: 100.0% [192.10 σ]
ModelChiSquare2-sig: 9.2%
ModelChiSquareGof-sig: 82.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -7.503
Centroid-sig: 55.6%
Centroid-so: 0.445 arcsec [0.57 σ]
OotOffset-rm: 0.152 arcsec [0.45 σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-rm: 0.123 arcsec [0.34 σ]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

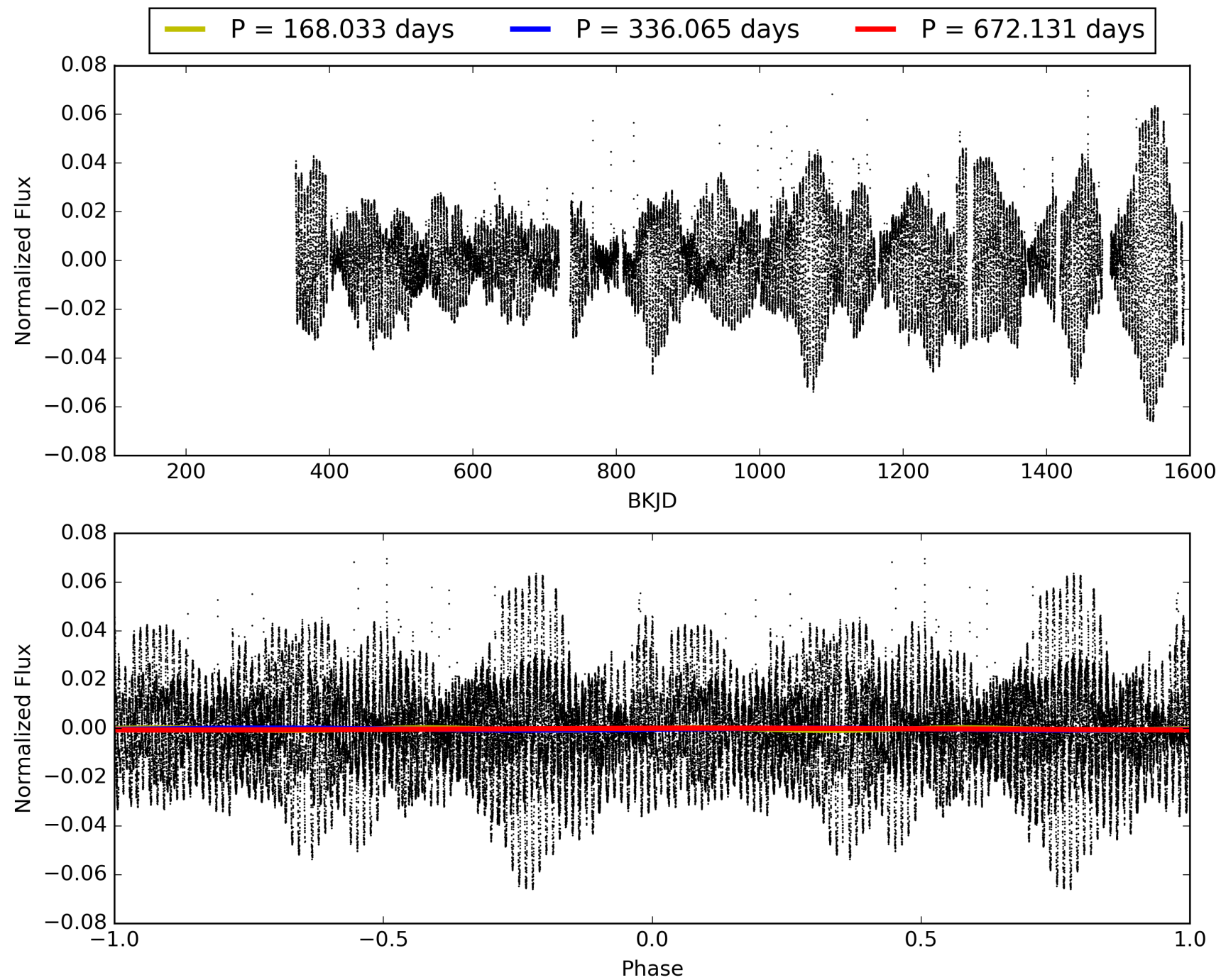
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:03:40 Z

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

TCE 006288970-03, PDC Light Curves

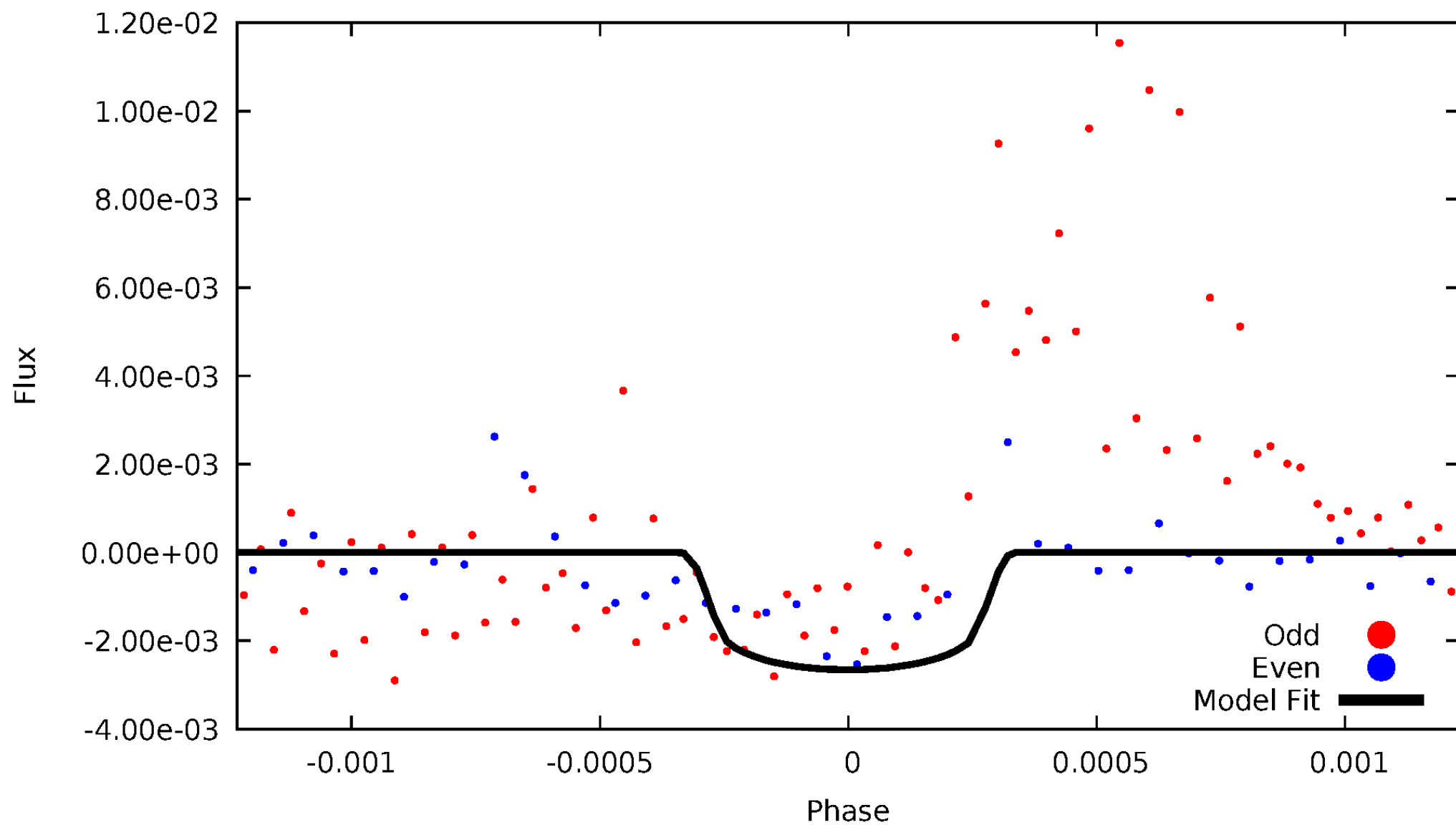


TCE 006288970-03



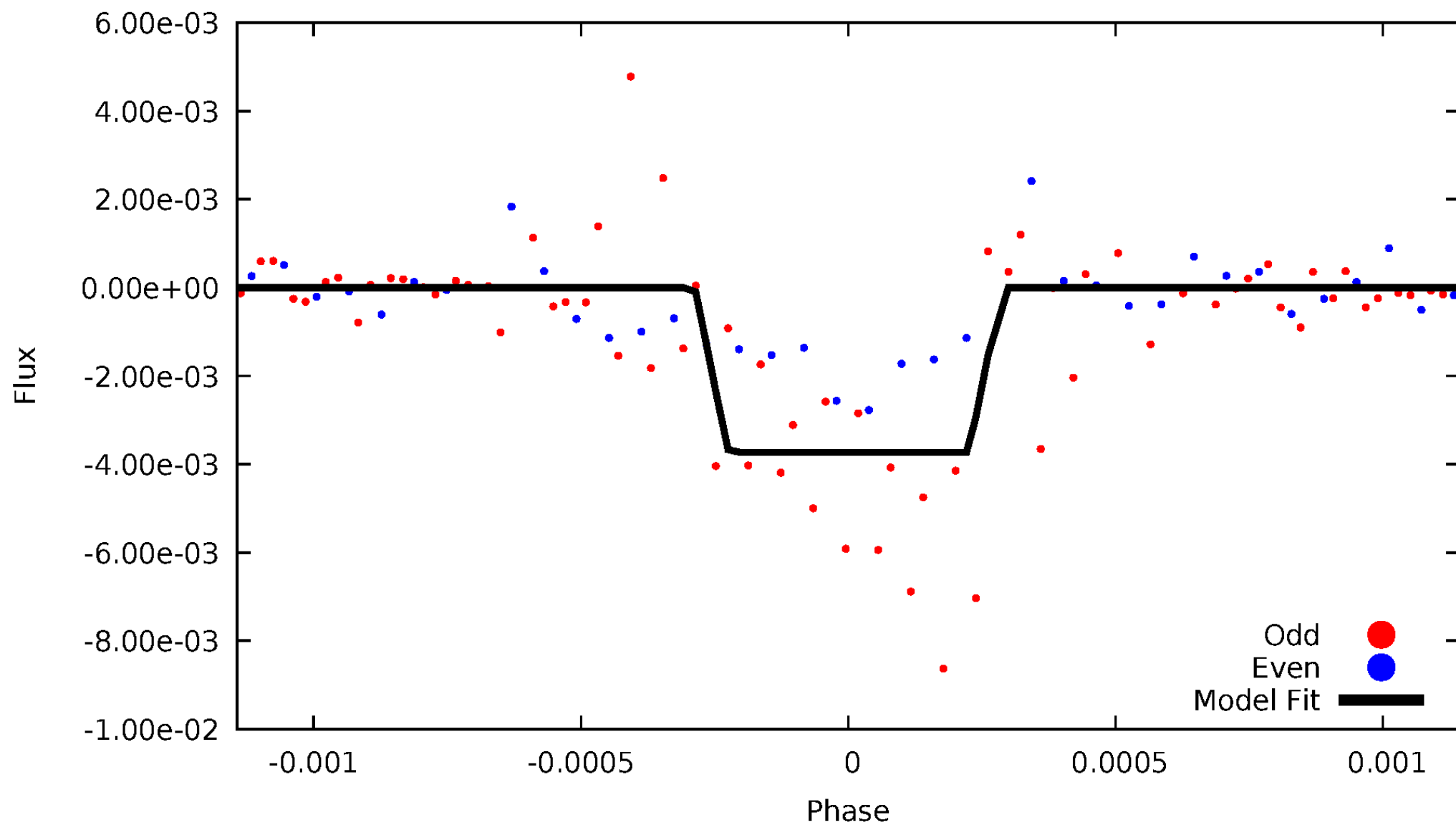
DV Odd/Even

TCE 006288970-03



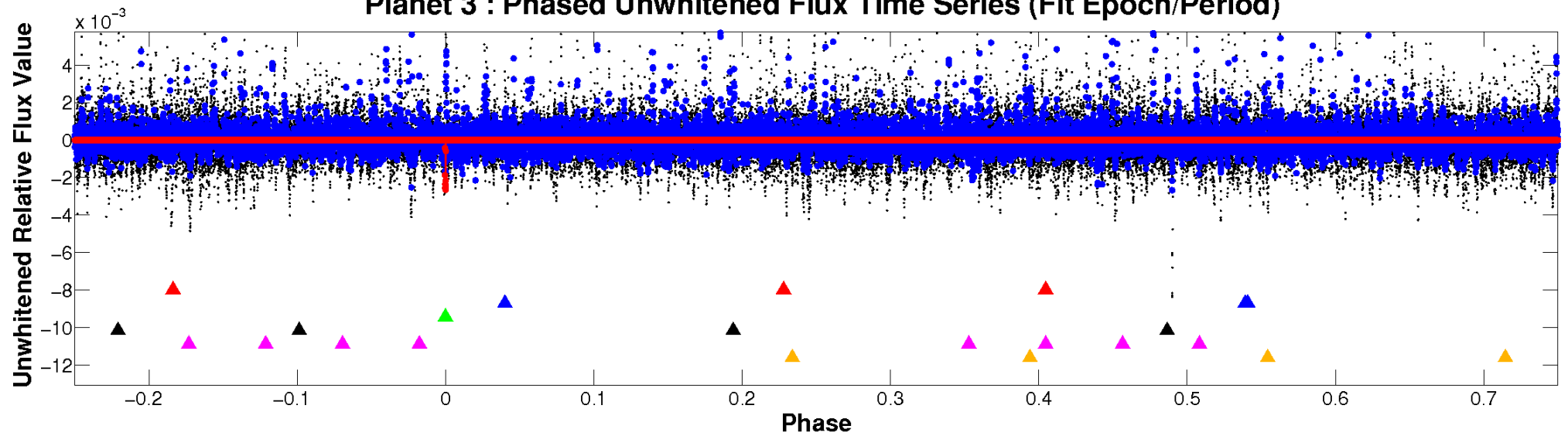
ALT Odd/Even

TCE 006288970-03

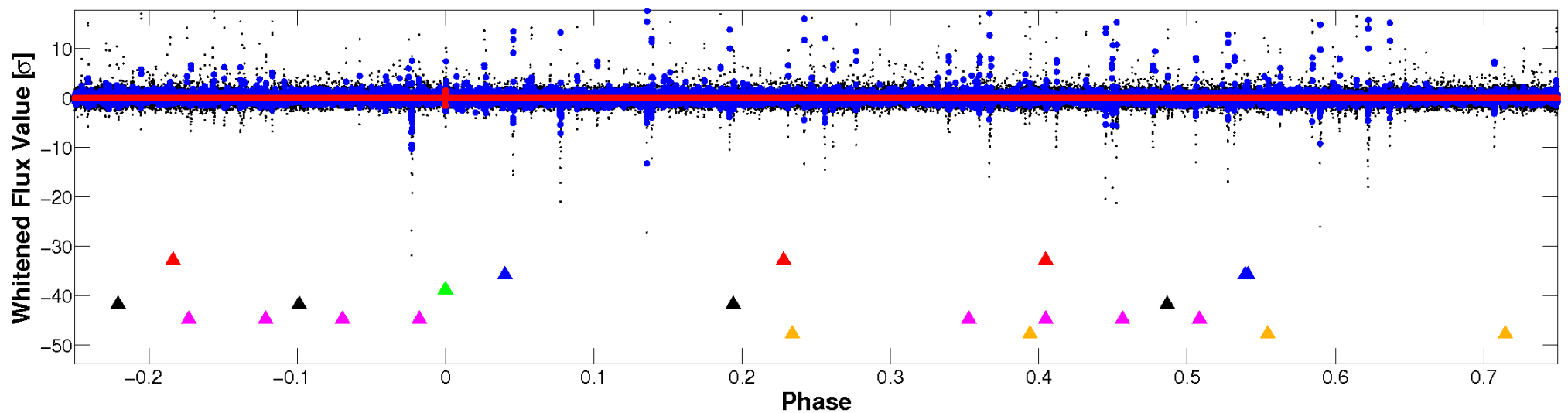


Non-Whitened Vs. Whitened Light Curve

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

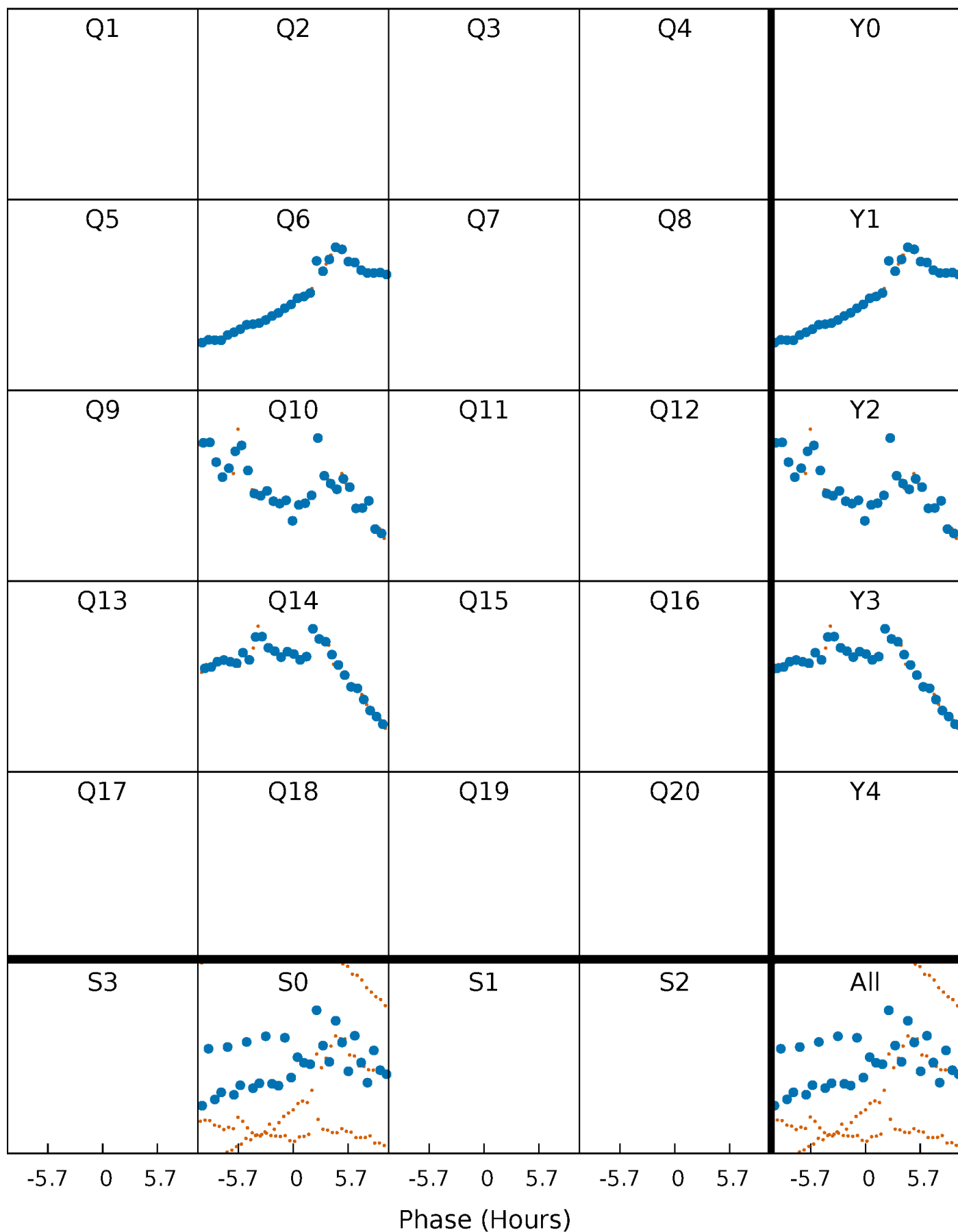


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



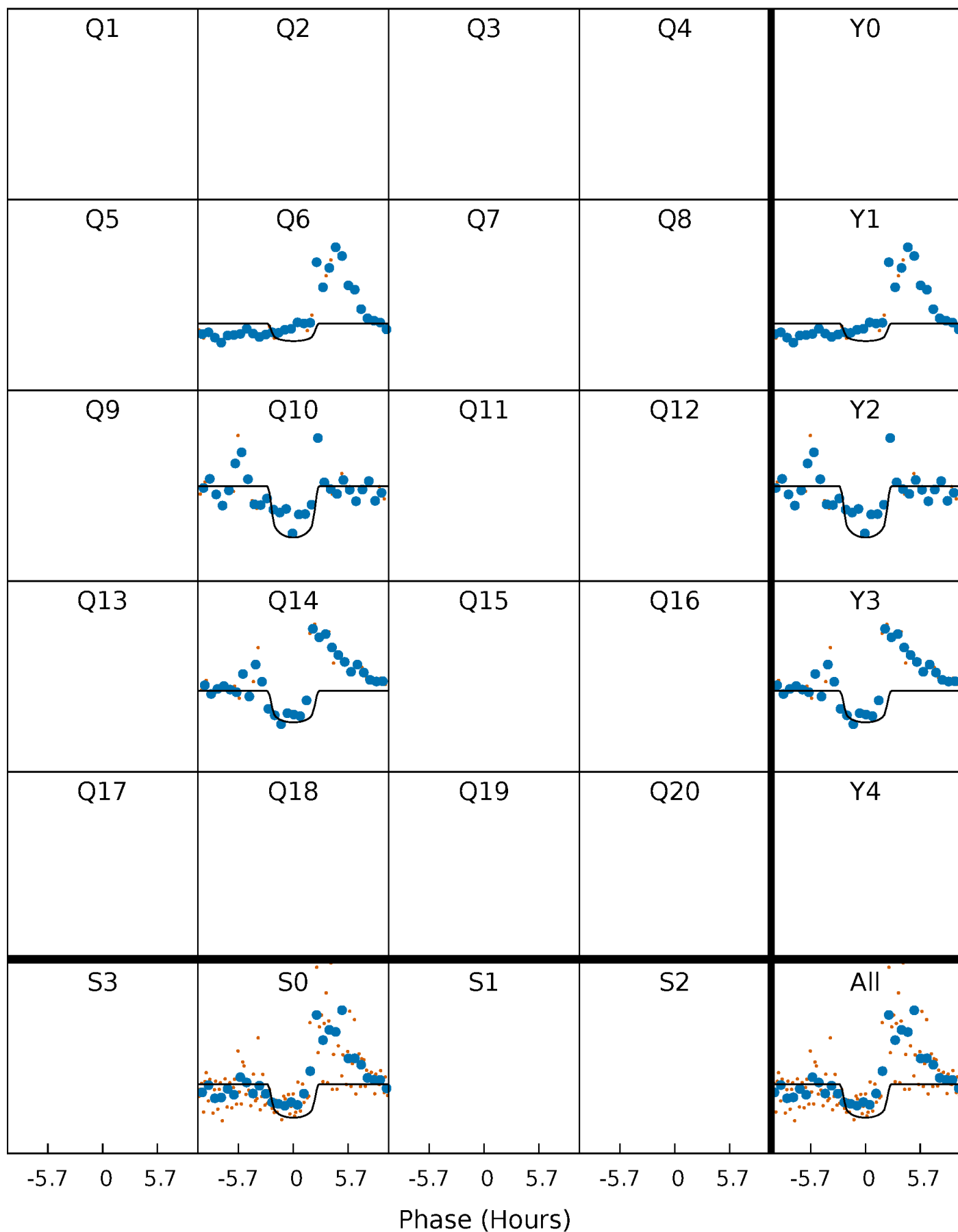
PDC Quarter-Phased Transit Curves

TCE 006288970-03 P=336.065430 Days $T_0=278.887793$ (BKJD)



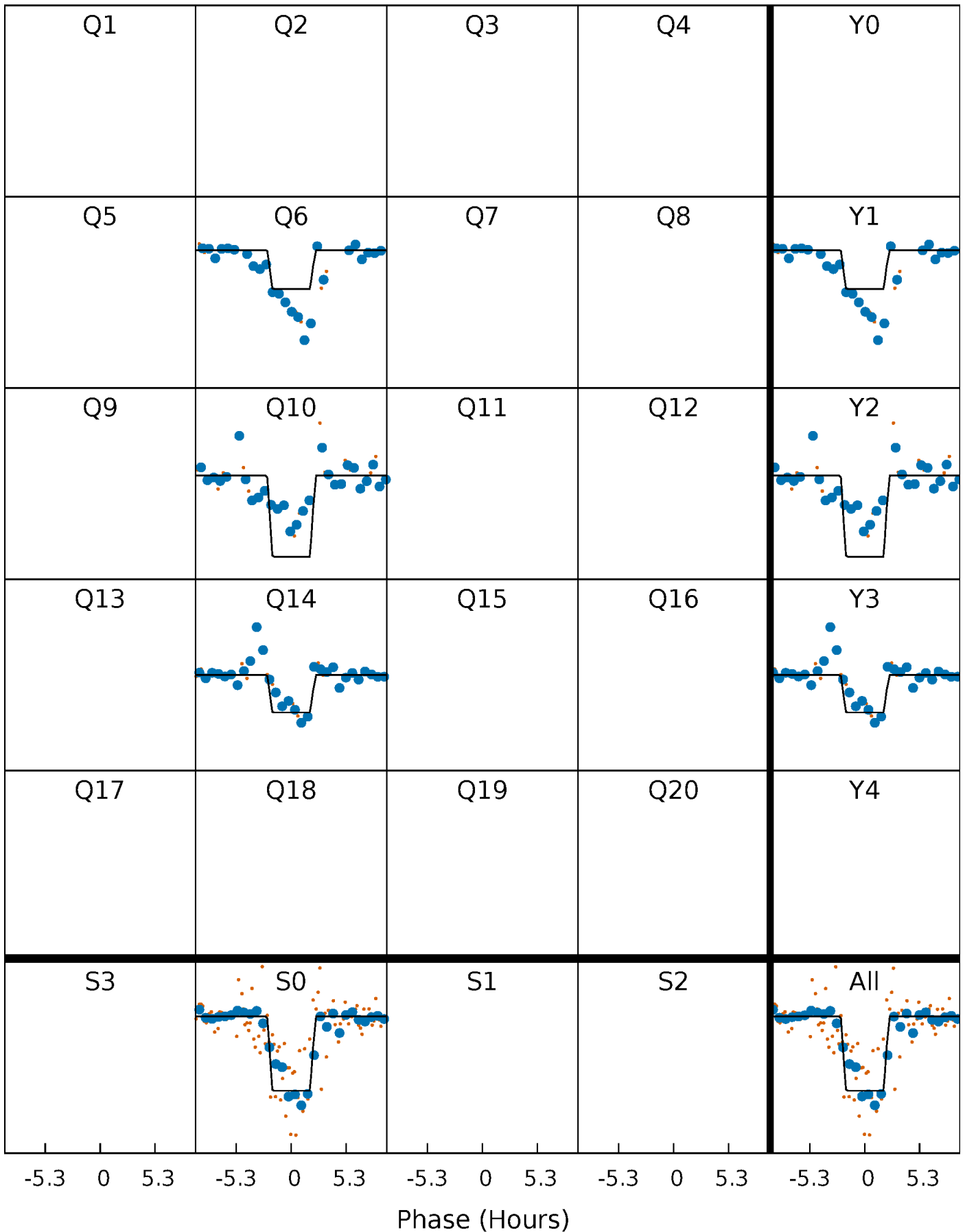
DV Quarter-Phased Transit Curves

TCE 006288970-03 $P=336.065430$ Days $T_0=278.887793$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

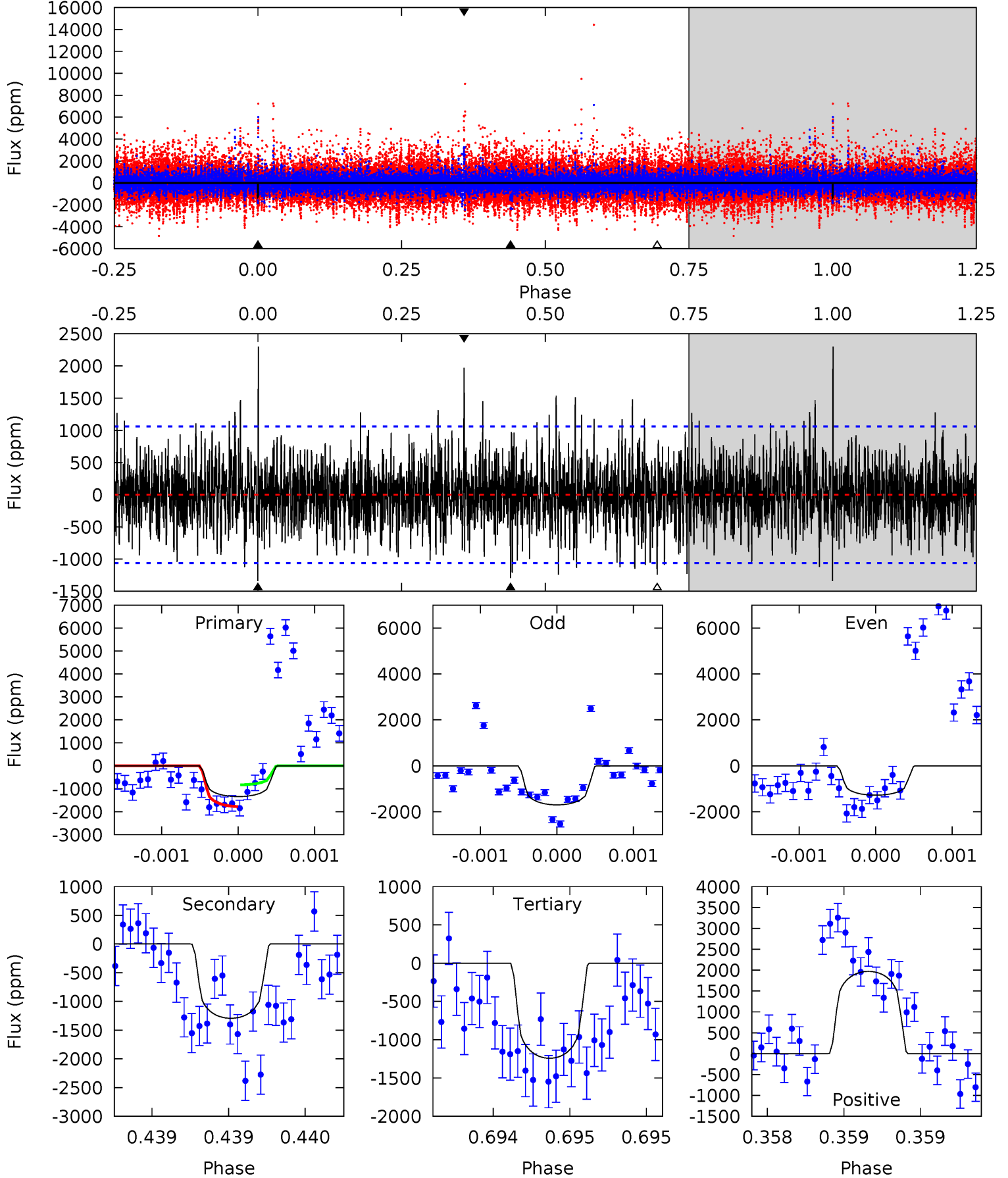
TCE 006288970-03 $P=336.057139$ Days $T_0=278.897185$ (BKJD)



DV Model-Shift Uniqueness Test

006288970-03, P = 336.065430 Days, E = 278.887793 Days

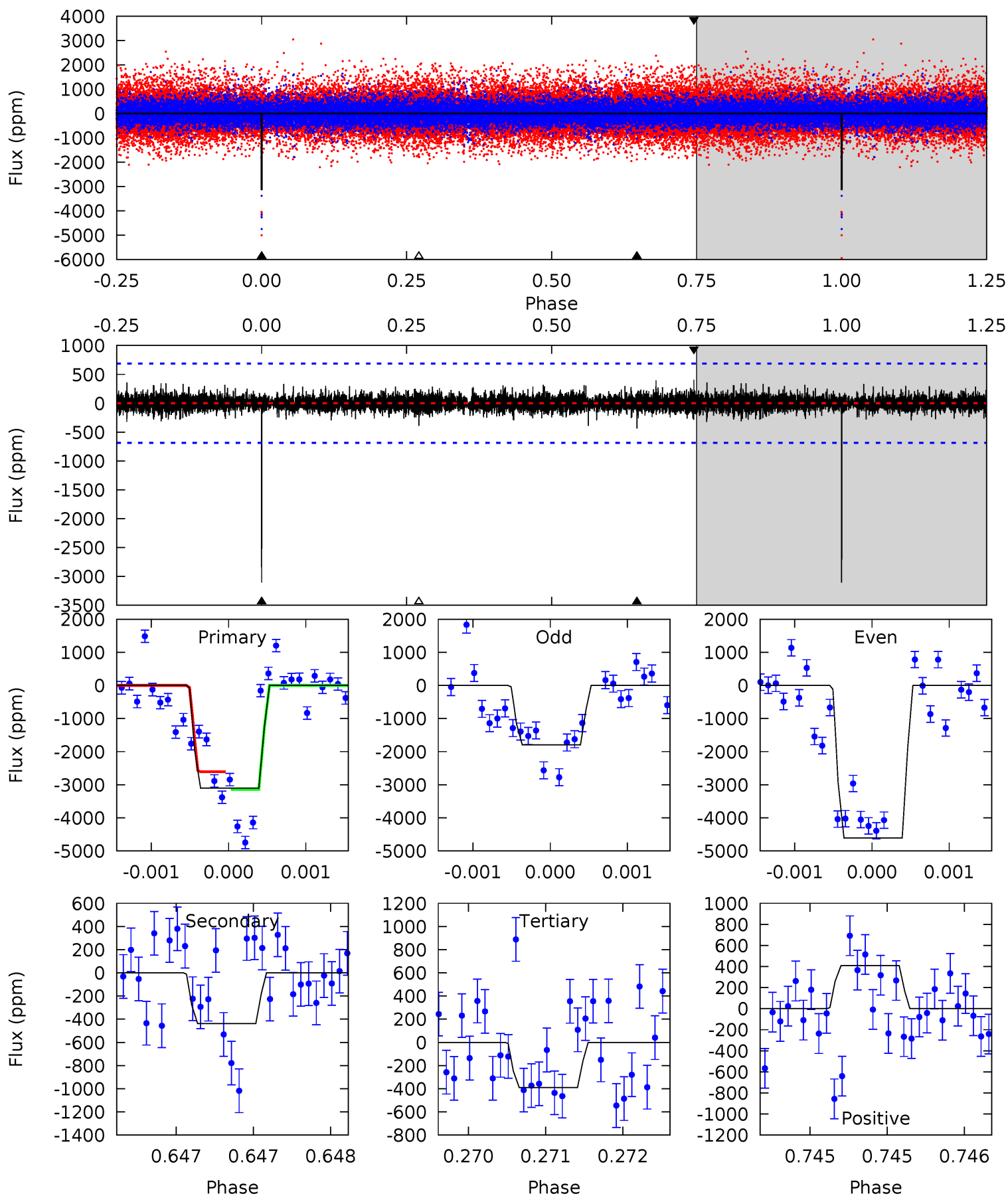
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.98	6.73	6.47	10.3	5.53	3.41	1.97	0.51	-3.28	0.27	-3.52	0.84	1.09	0.63	2.45



Alt Model-Shift Uniqueness Test

006288970-03, P = 336.057139 Days, E = 278.897185 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	3.54	3.16	3.30	5.55	3.45	0.64	22.0	21.8	0.38	0.24	12.2	1.23	0.12	0



Stellar Parameters For KIC 006288970

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5786^{+192}_{-192}	$4.521^{+0.069}_{-0.161}$	$-0.500^{+0.300}_{-0.300}$	$0.824^{+0.199}_{-0.099}$	$0.821^{+0.103}_{-0.069}$	$2.069^{+0.606}_{-0.934}$
	+3%/-3%	+2%/-4%	+60%/-60%	+24%/-12%	+13%/-8%	+29%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006288970-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1294 ± 192	$4.59^{+3.00}_{-2.69}$	349^{+20}_{-18}	5019^{+2760}_{-920}	$26604^{+127212}_{-17352}$
Alt.	-437 ± 124	$5.83^{+3.20}_{-2.70}$	350^{+21}_{-18}	3748^{+945}_{-516}	5388^{+14140}_{-3259}

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 $A_{obs} \gg 1.0$

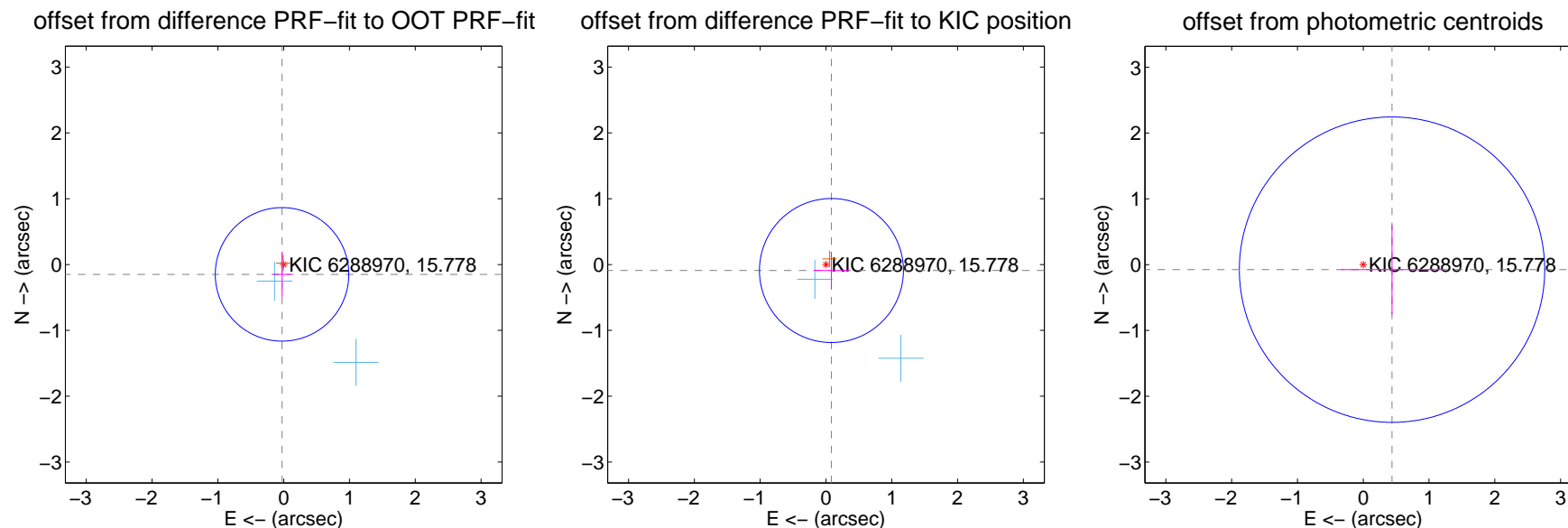
DV Centroid Data

Supplemental centroid analysis for 006288970-03. Kepler magnitude: 15.78. Transit SNR 8.96

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.152 ± 0.338	0.45	0.025 ± 0.138	-0.149 ± 0.342
PRF-fit source offset from KIC position	0.123 ± 0.365	0.34	-0.083 ± 0.270	-0.091 ± 0.283
photometric centroid source offset	0.44 ± 0.77	0.57	-0.44 ± 0.78	-0.08 ± 0.68



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

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



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

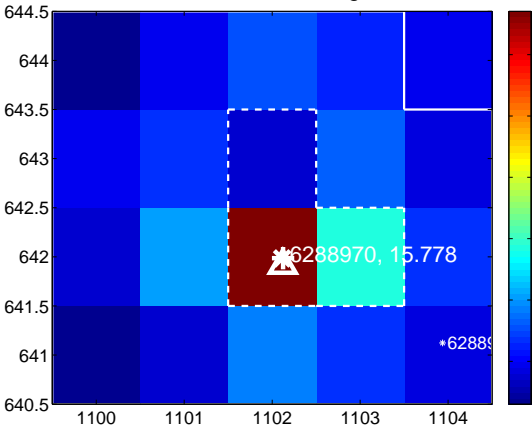
Q5 no difference image



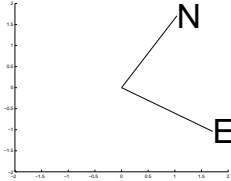
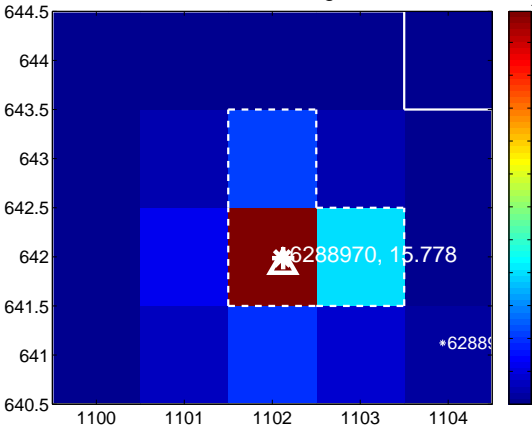
Q5 no OOT image



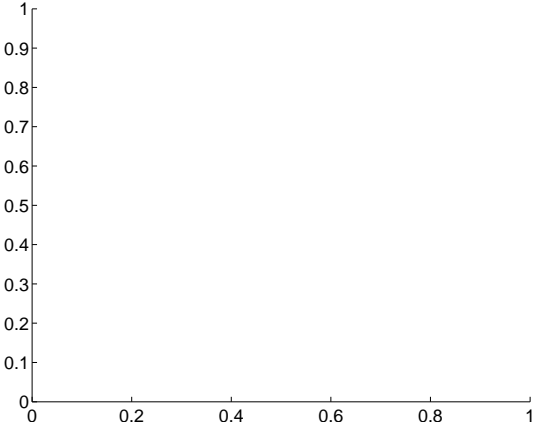
Q6 difference image



Q6 OOT image



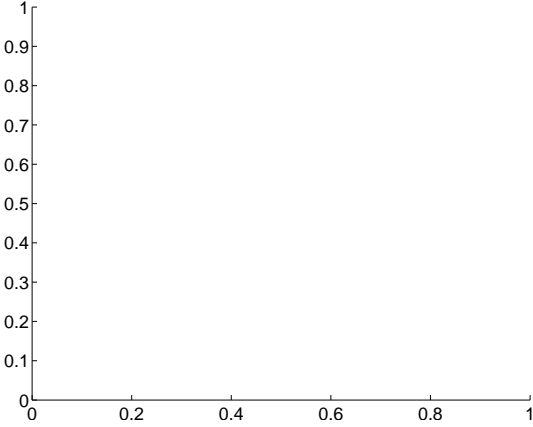
Q7 no difference image



Q7 no OOT image



Q8 no difference image



Q8 no OOT image

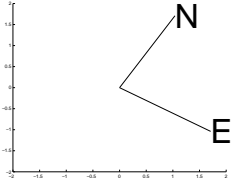
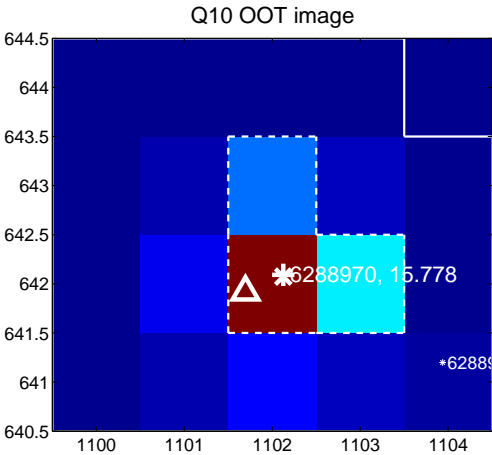
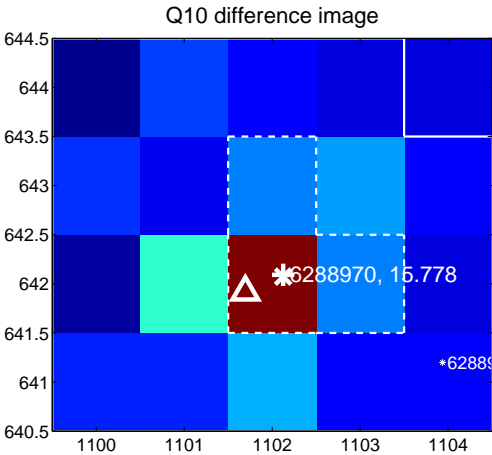


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

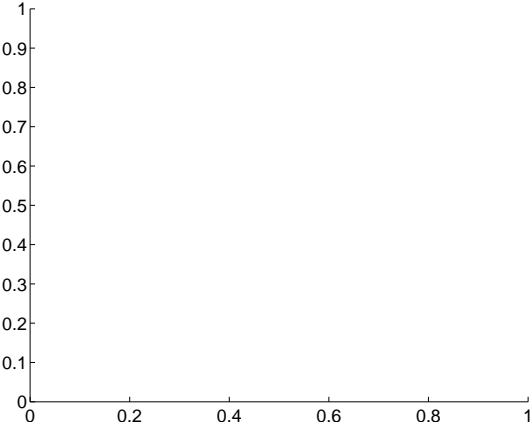
Q9 no difference image



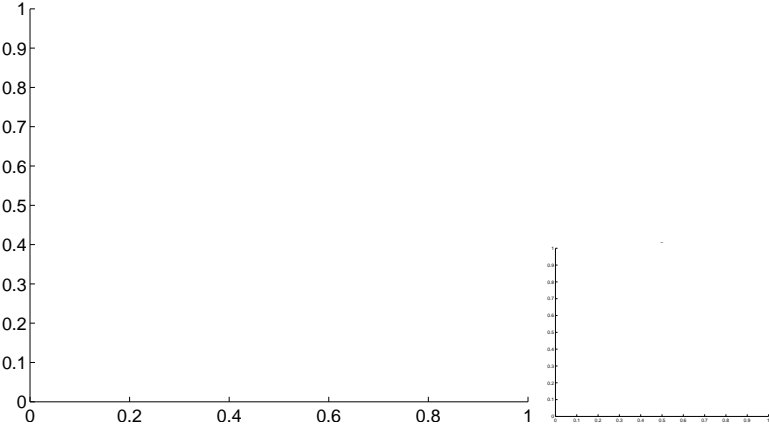
Q9 no OOT image



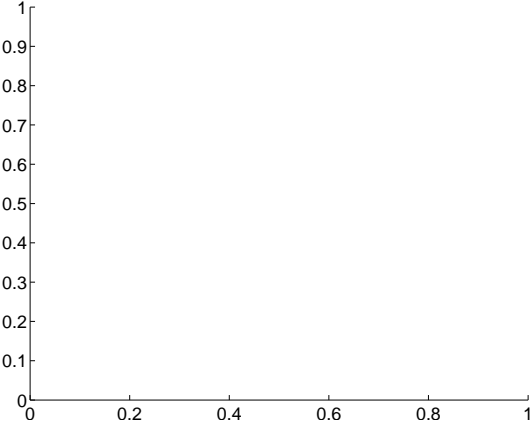
Q11 no difference image



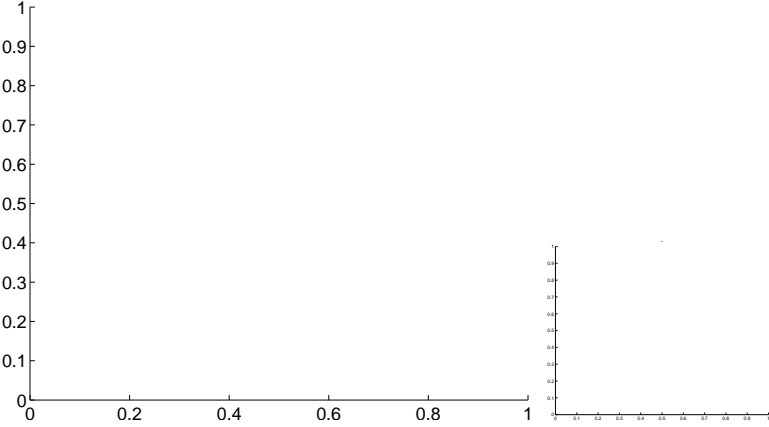
Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

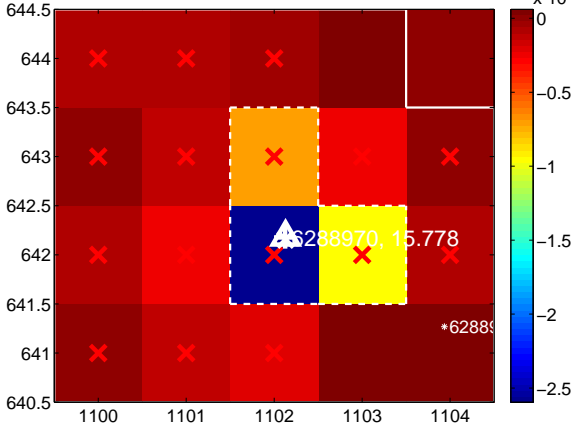
Q13 no difference image



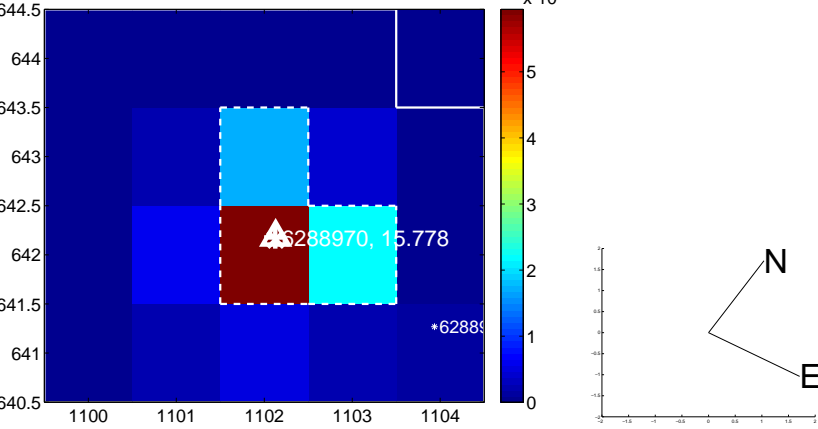
Q13 no OOT image



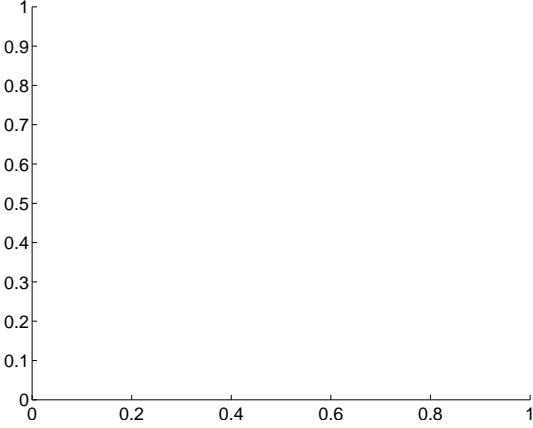
Q14 difference image. Poor Quality



Q14 OOT image



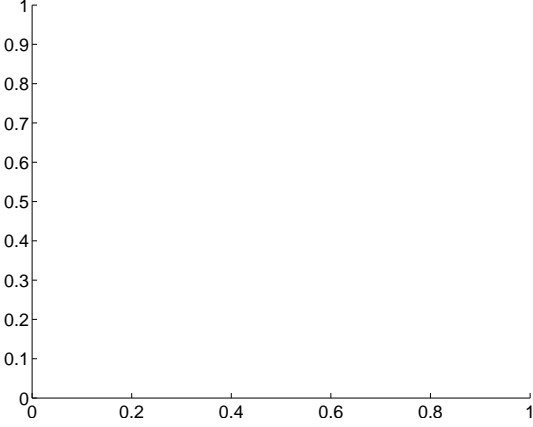
Q15 no difference image



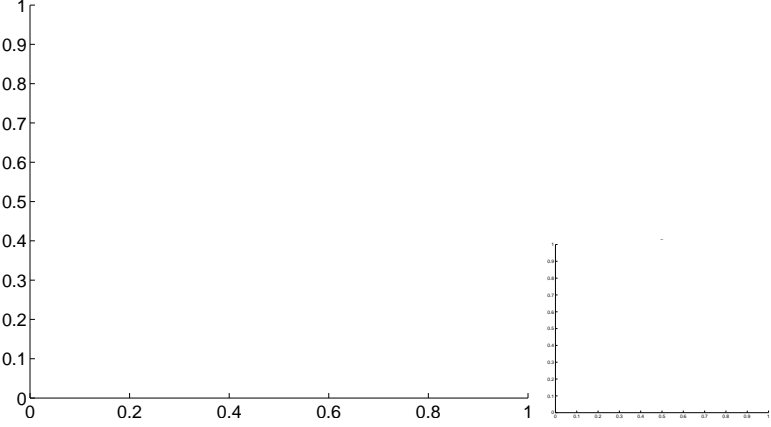
Q15 no OOT image



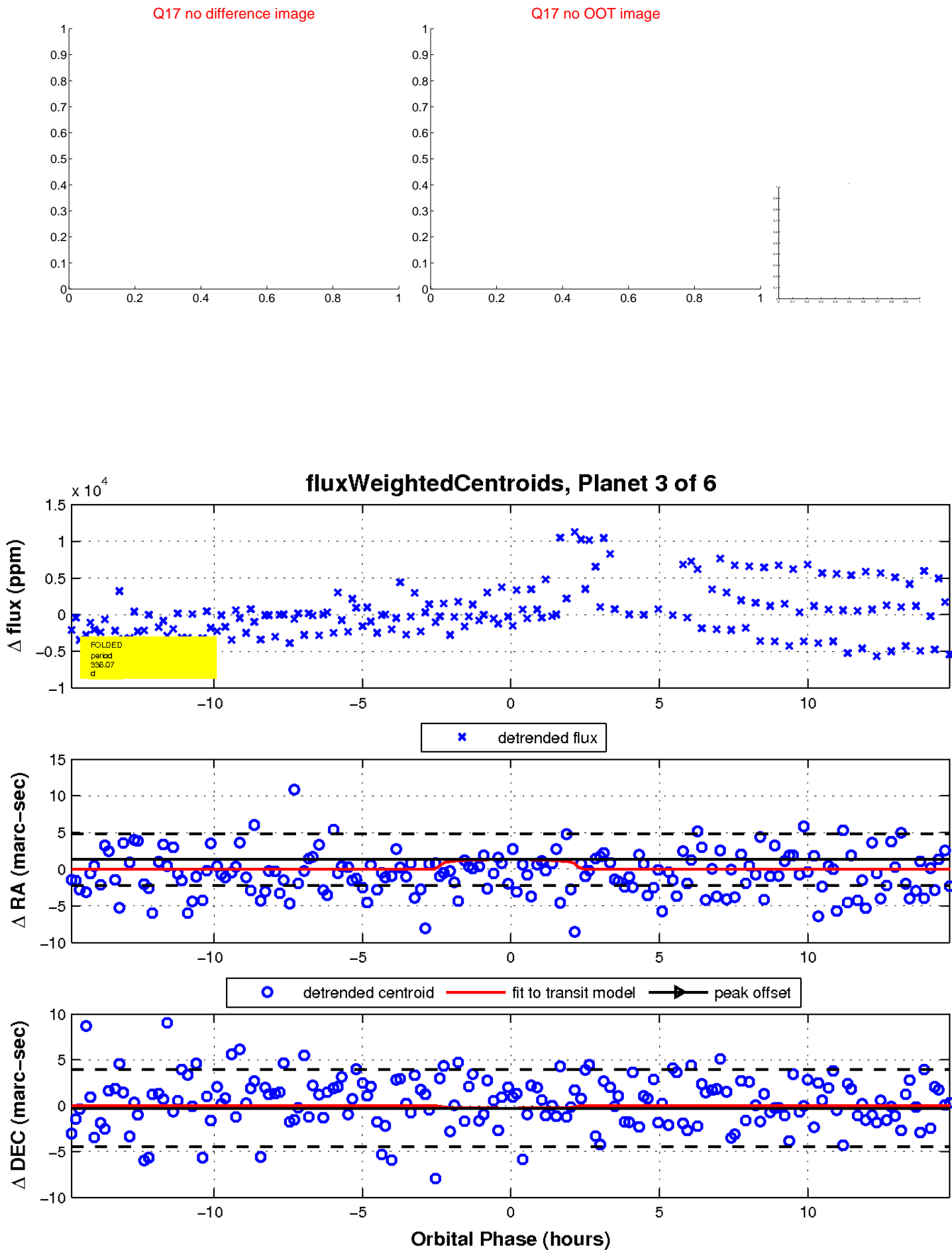
Q16 no difference image



Q16 no OOT image

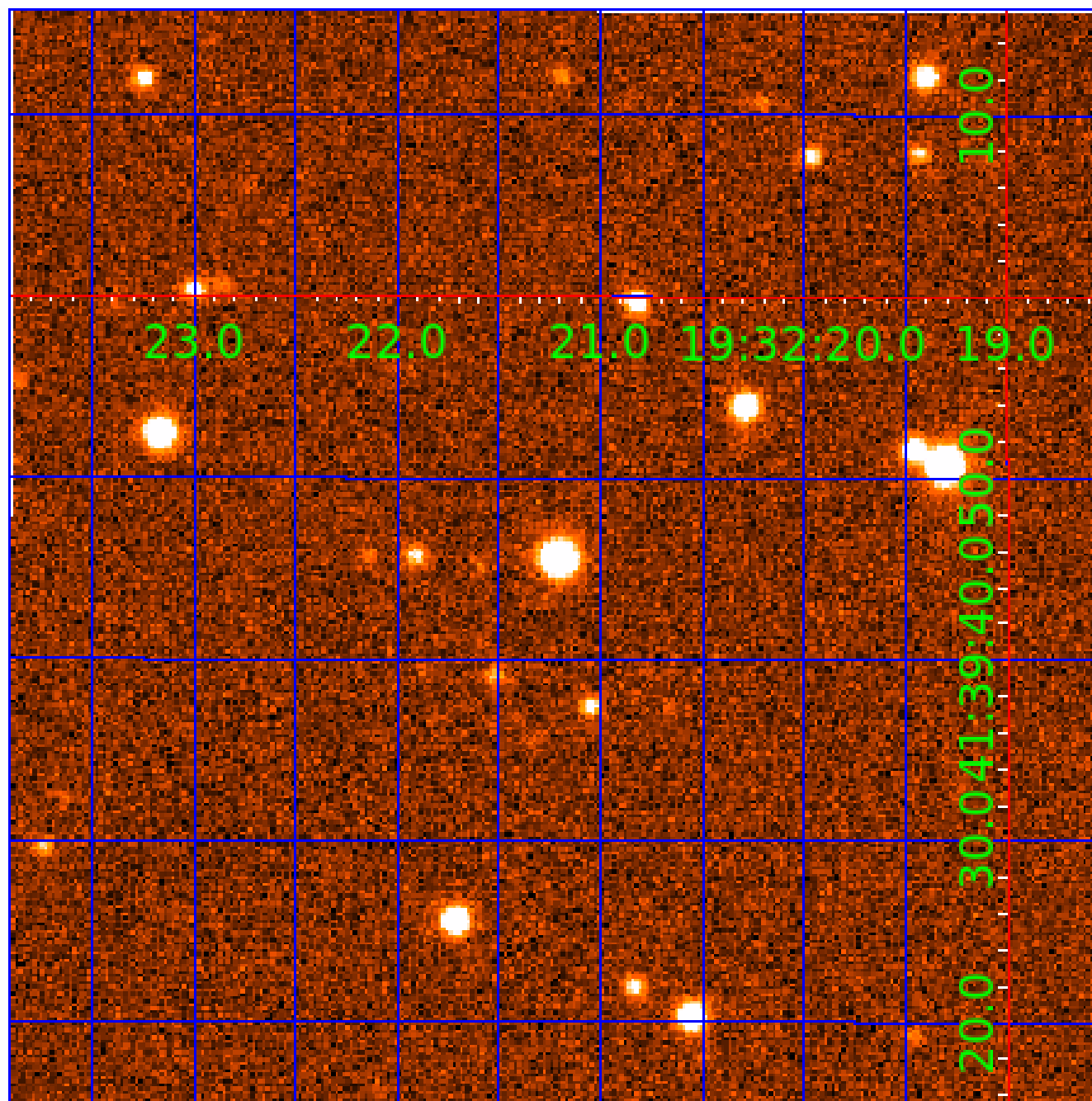


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006288970

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})
006288970-01	OBS	No	474.413503	414.881341	1103.6	7.798	16.6	3.2	0.82	5786	2.85	0.55
006288970-02	OBS	No	504.393501	460.092715	3963.2	8.962	18.0	8.9	0.82	5786	8.08	0.51
006288970-03	OBS	No	336.065430	278.887793	2653.3	4.962	14.4	9.0	0.82	5786	4.36	0.87
006288970-04	OBS	No	434.400410	245.748504	2185.7	6.831	17.7	5.9	0.82	5786	3.85	0.62
006288970-05	OBS	No	176.740459	220.735213	1230.9	3.341	14.4	5.8	0.82	5786	2.89	2.04
006288970-06	OBS	No	389.923954	357.471670	2236.2	4.545	13.6	7.5	0.82	5786	3.88	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006288970-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006288970-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
006288970-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
006288970-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

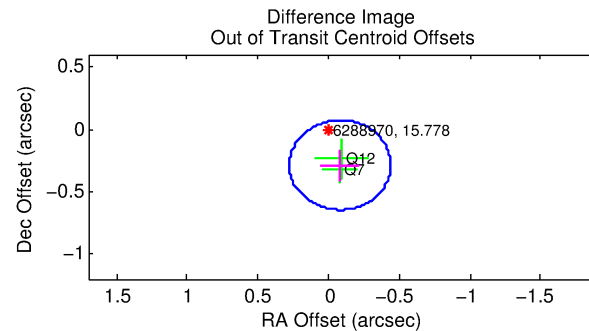
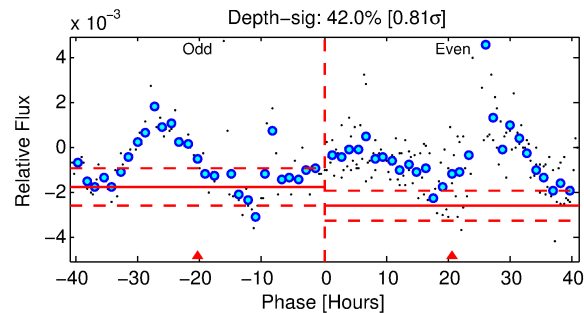
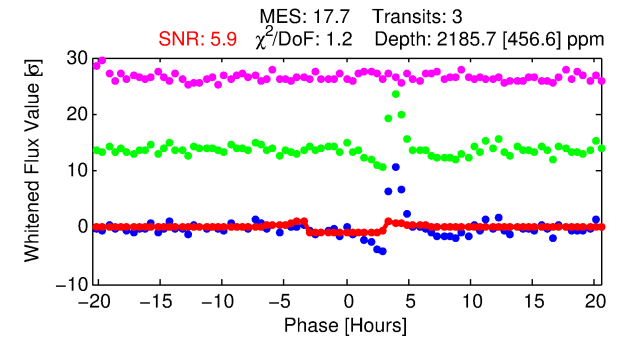
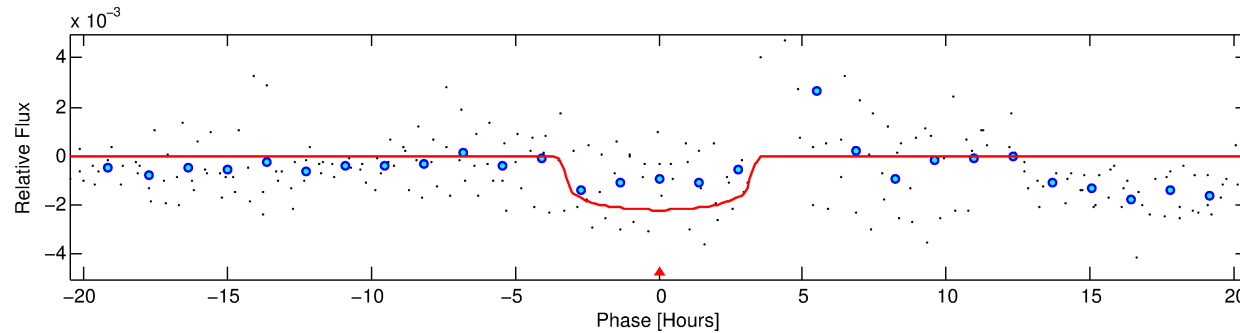
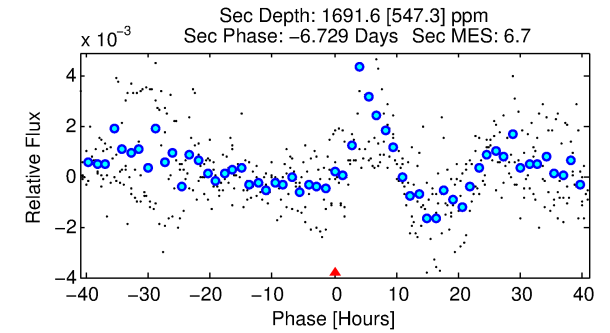
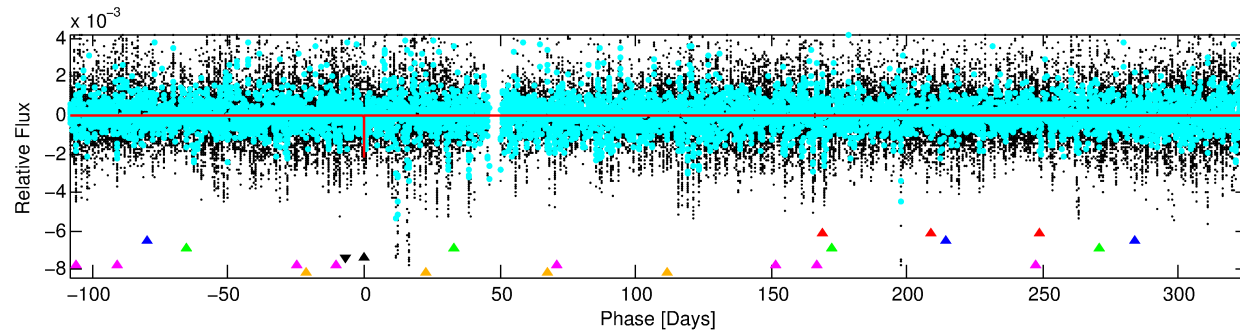
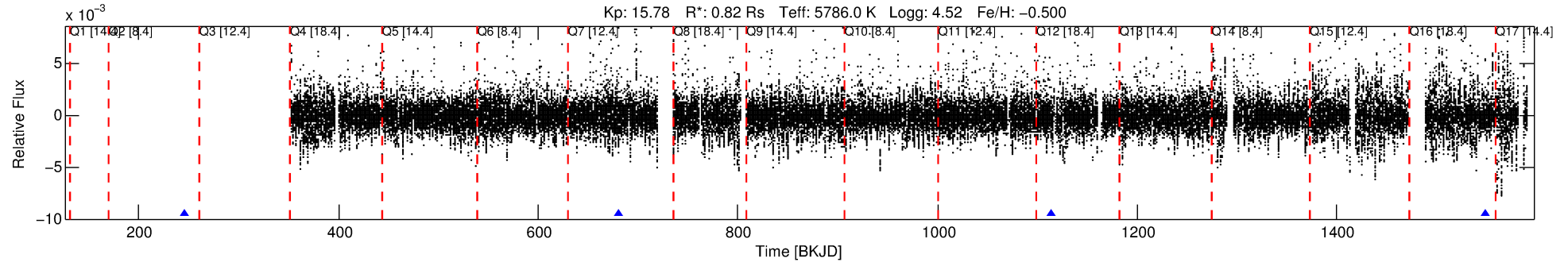
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006288970-04

No Significant Match Found

DV One-Page Summary

KIC: 6288970 Candidate: 4 of 6 Period: 434.400 d



DV Fit Results:

Period = 434.40041 [0.00893] d
Epoch = 245.7485 [0.0188] BKJD
Rp/R* = 0.0428 [0.0325]
a/R* = 498.64 [1710.83]
b = 0.18 [18.17]
Seff = 0.62 [0.20]
Teq = 226 [18] K
Rp = 3.85 [3.07] Re
a = 1.0517 [0.2135] AU
Ag = 69432.55 [109691.77] [0.63 σ]
Teffp = 5670 [2208] K [2.47 σ]

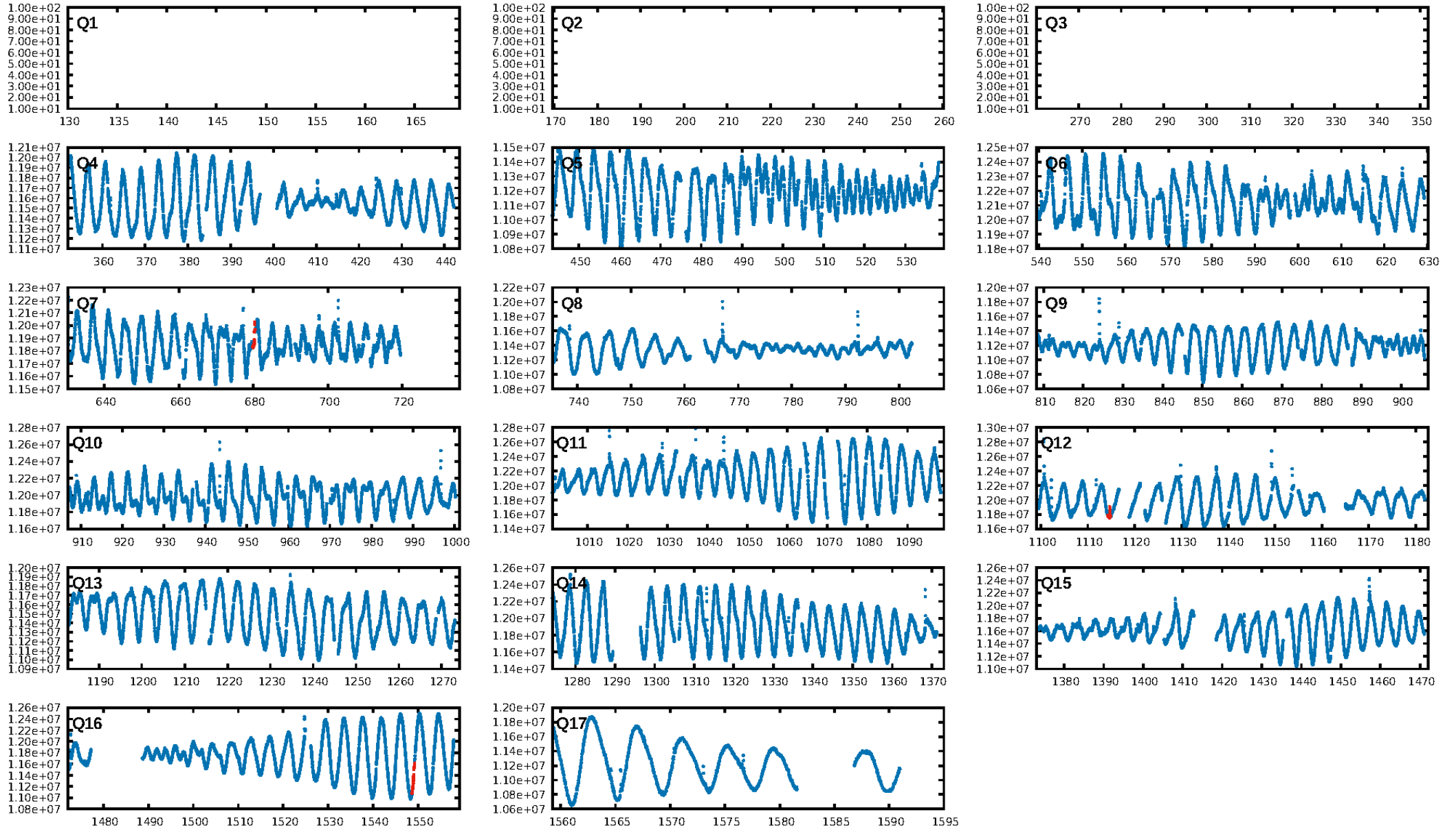
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [130.10 σ]
LongPeriod-sig: 100.0% [92.63 σ]
ModelChiSquare2-sig: 48.3%
ModelChiSquareGof-sig: 98.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.285
Centroid-sig: 12.5%
Centroid-so: 0.737 arcsec [1.09 σ]
OotOffset-rm: 0.298 arcsec [2.50 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 0.293 arcsec [2.44 σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

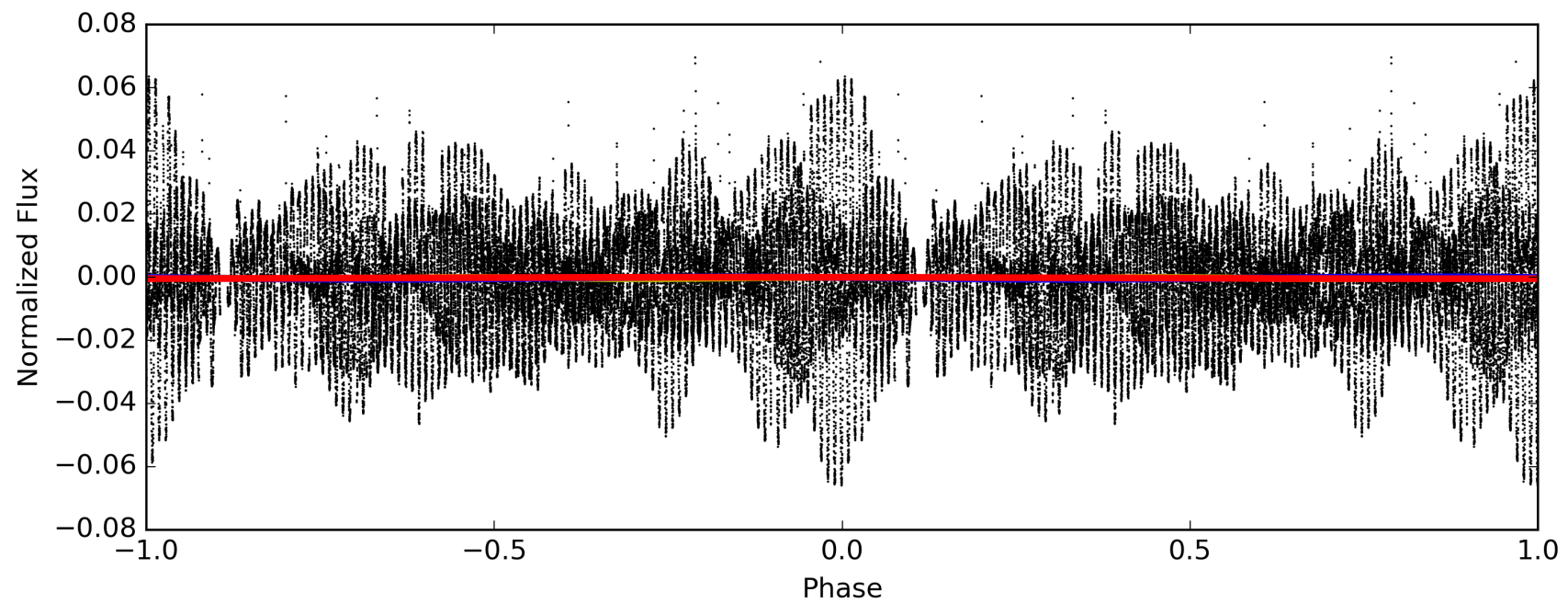
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:03:50 Z

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

TCE 006288970-04, PDC Light Curves

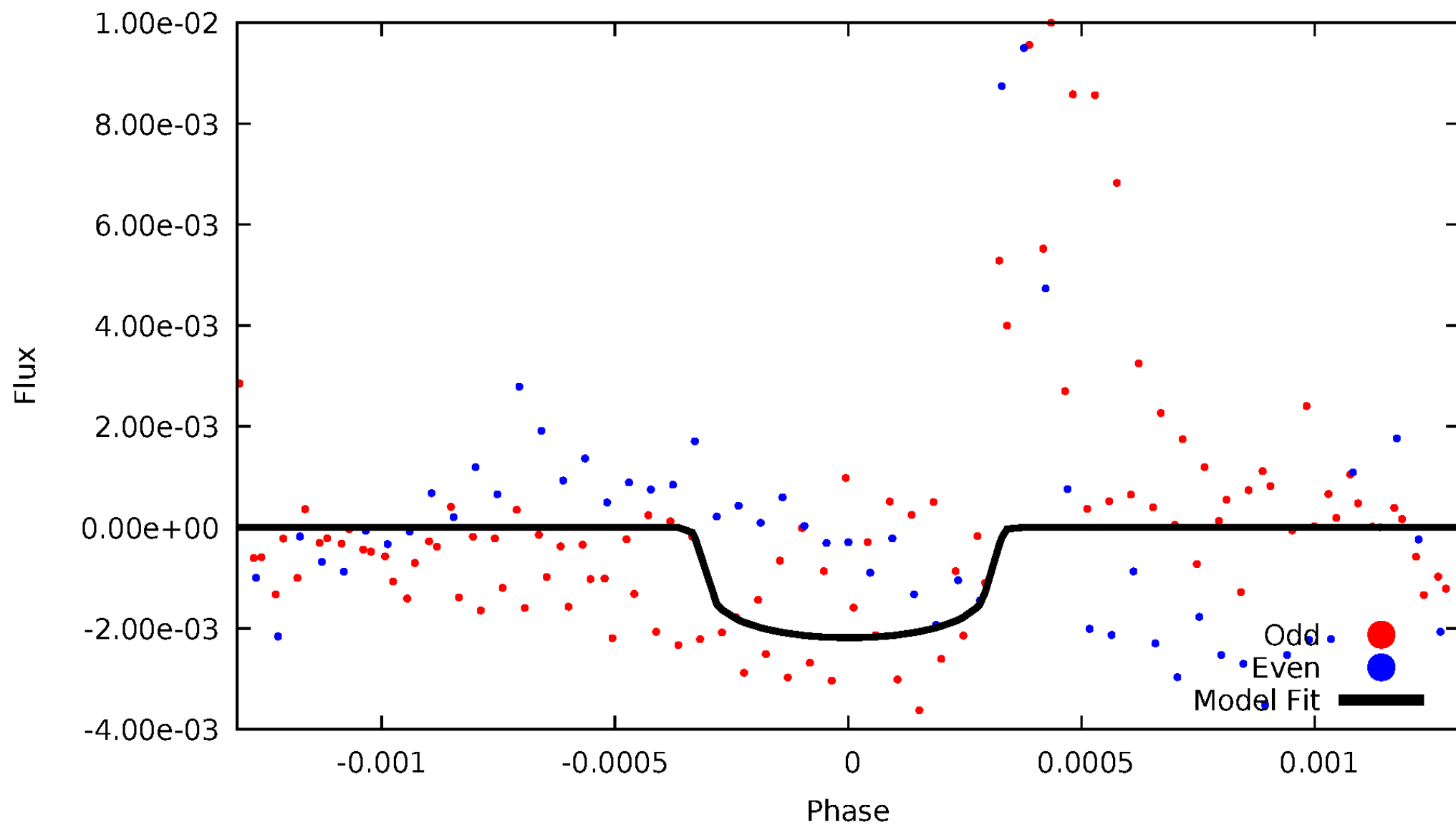


— P = 217.200 days — P = 434.400 days — P = 868.801 days



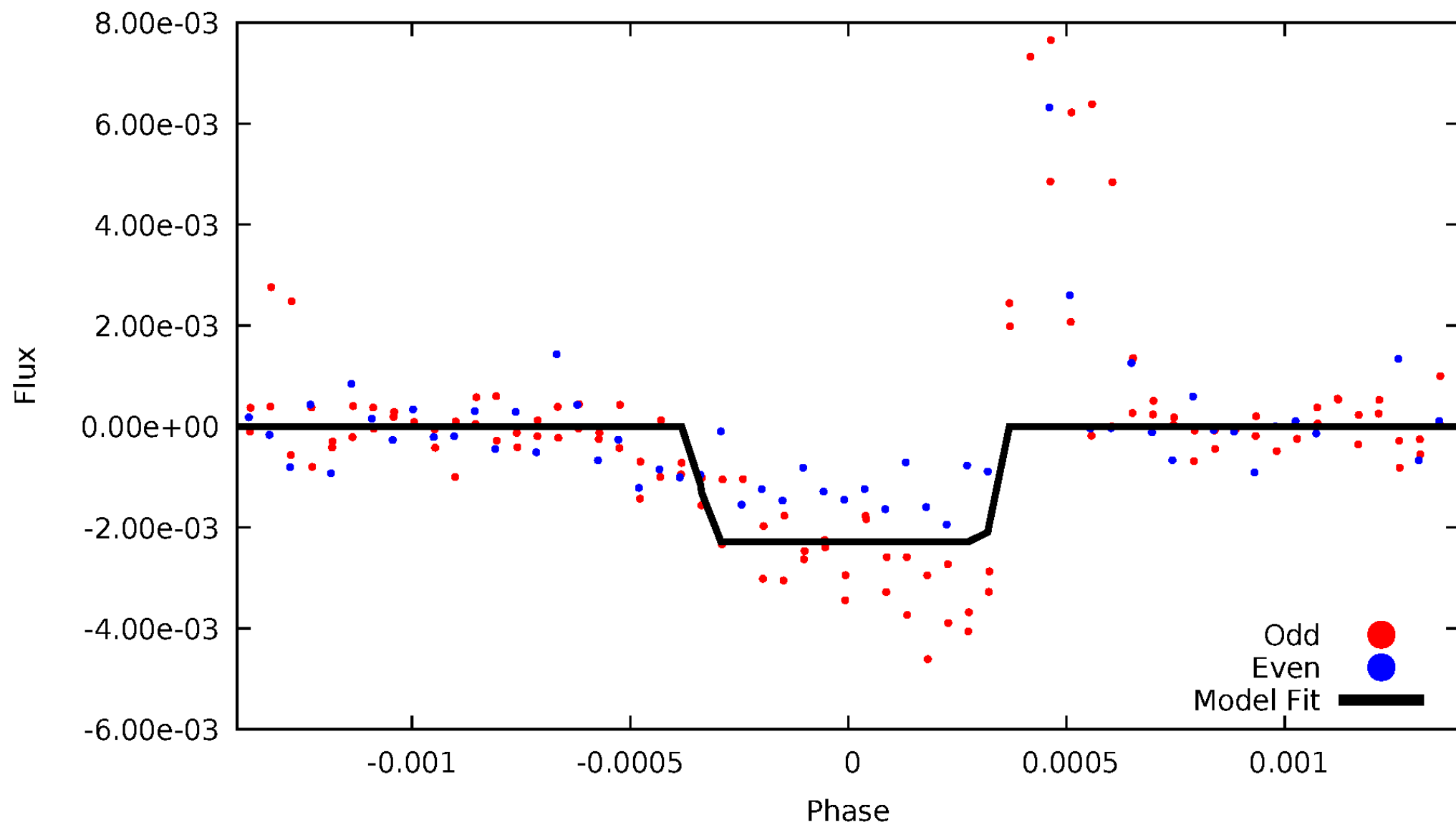
DV Odd/Even

TCE 006288970-04



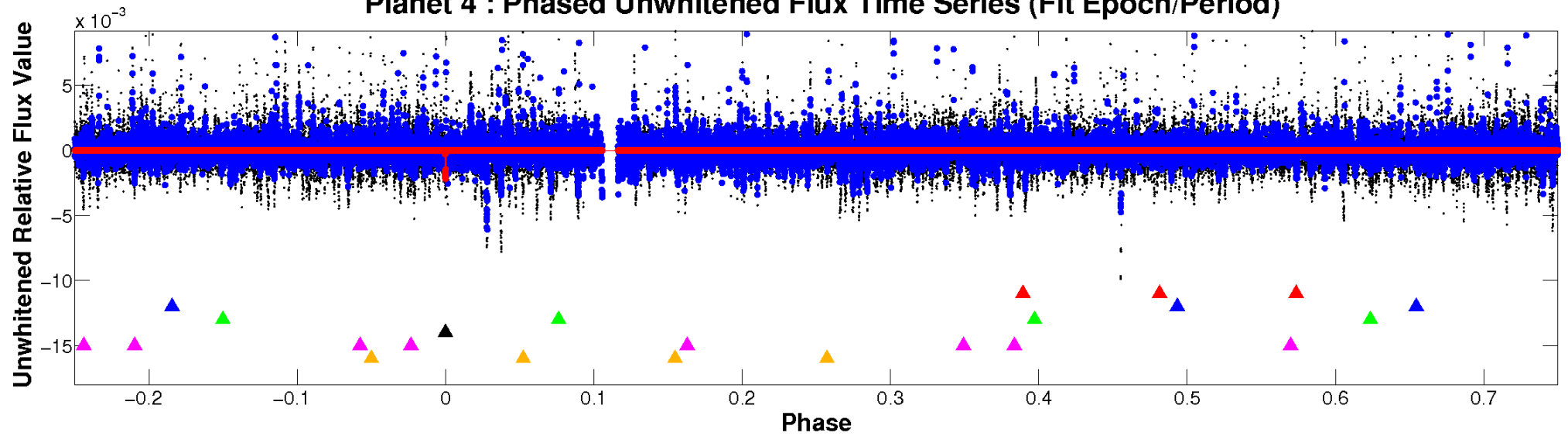
ALT Odd/Even

TCE 006288970-04

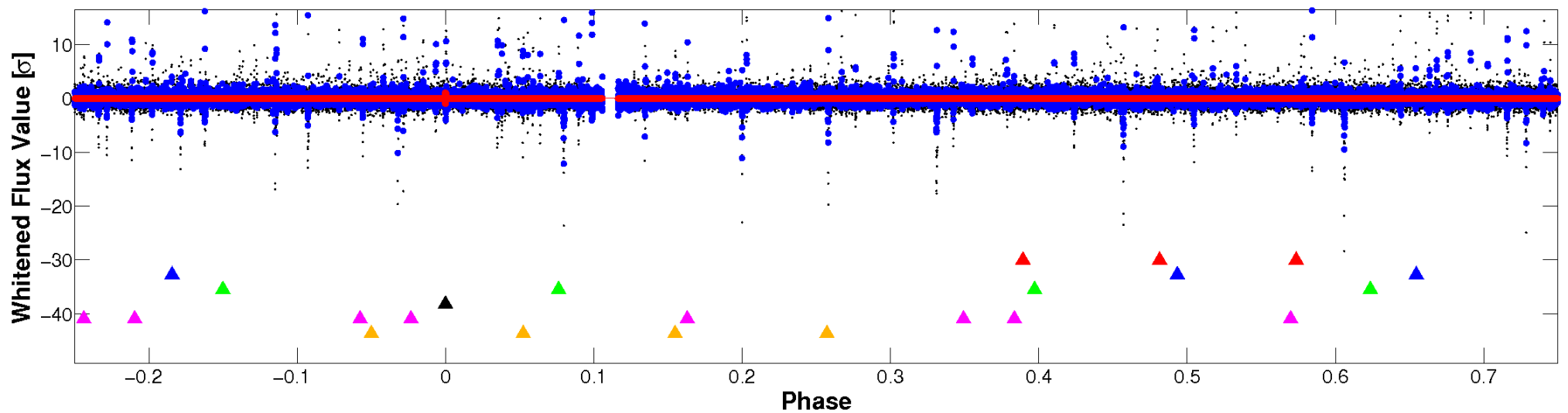


Non-Whitened Vs. Whitened Light Curve

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

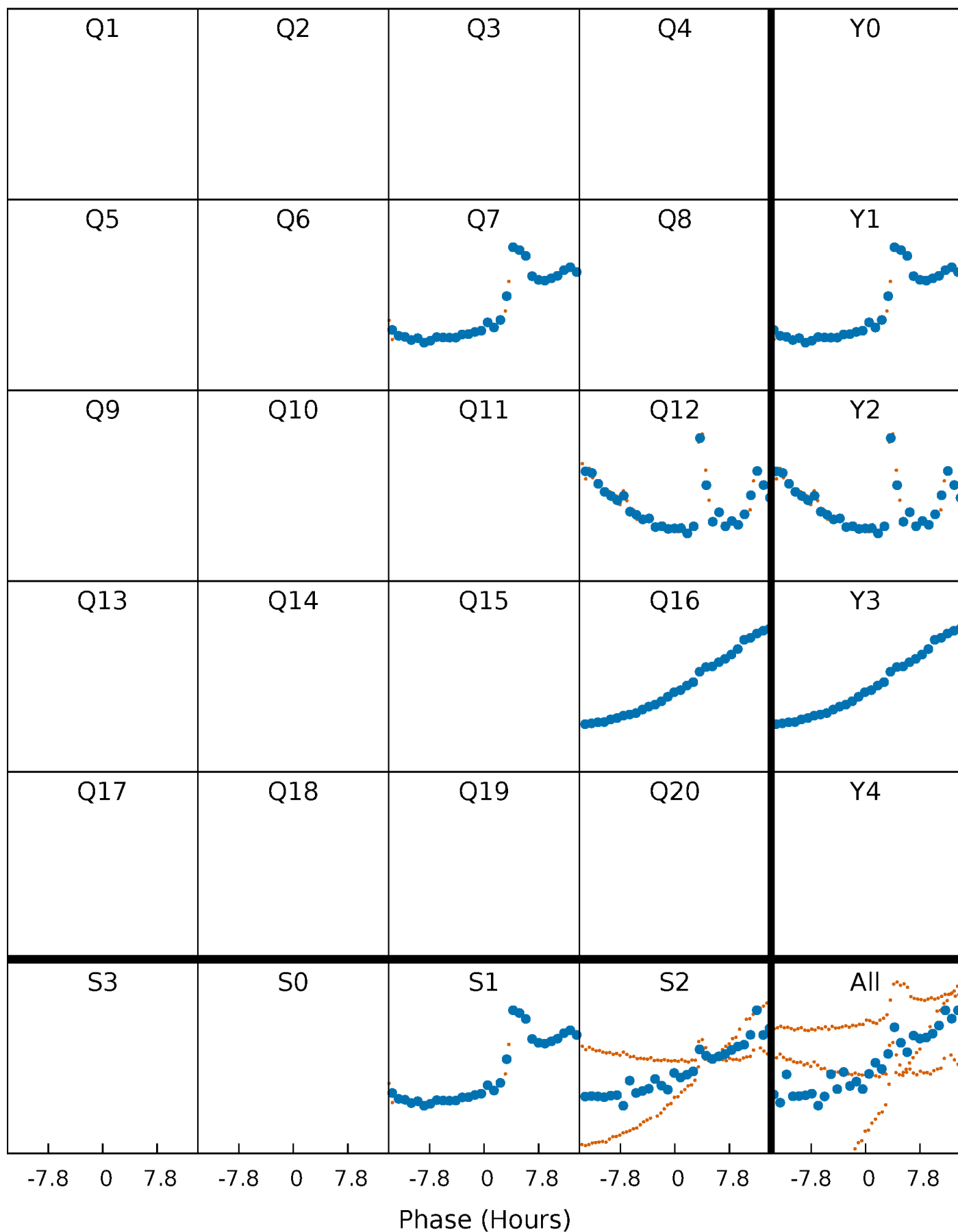


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



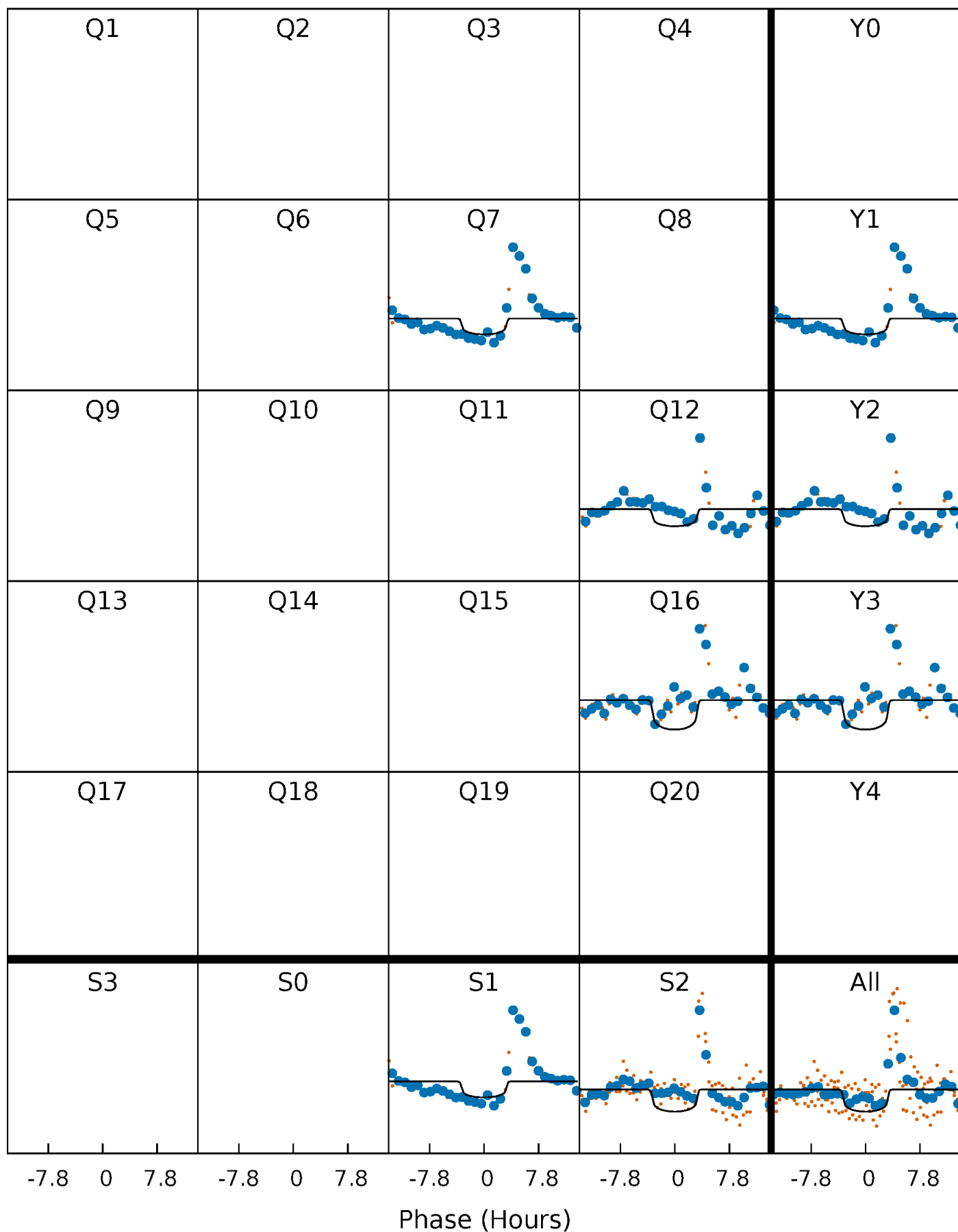
PDC Quarter-Phased Transit Curves

TCE 006288970-04 $P=434.400410$ Days $T_0=245.748504$ (BKJD)



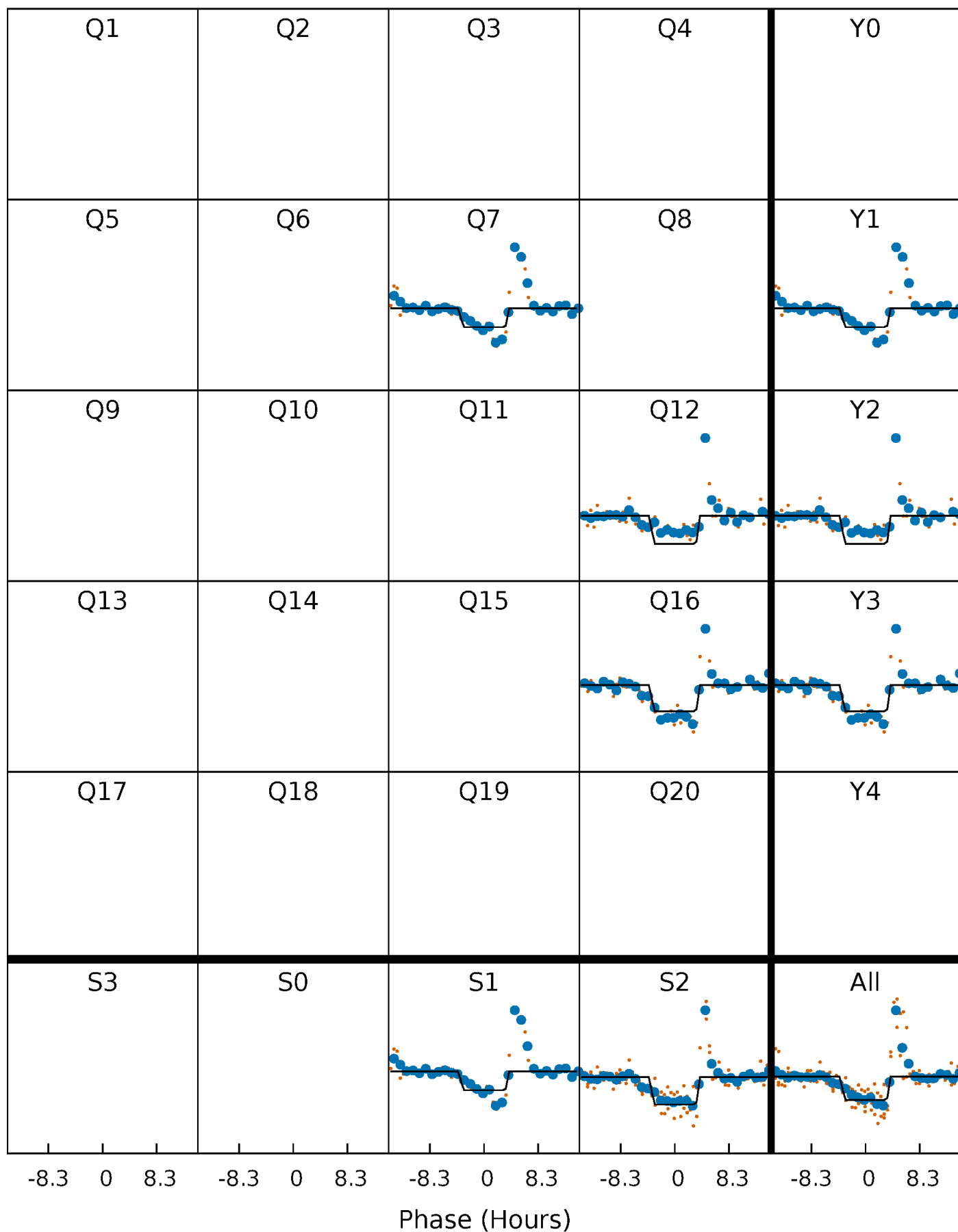
DV Quarter-Phased Transit Curves

TCE 006288970-04 $P=434.400410$ Days $T_0=245.748504$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

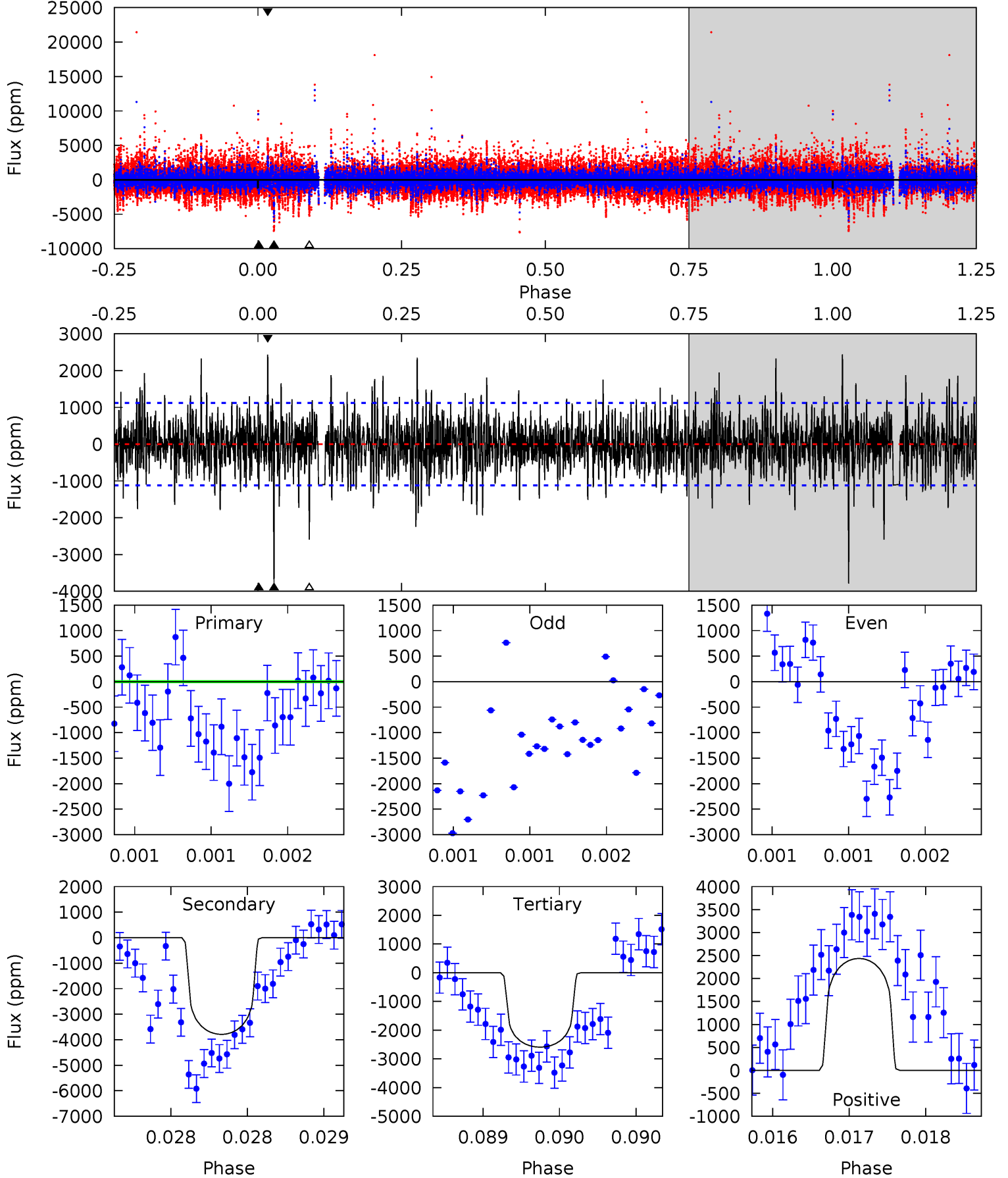
TCE 006288970-04 $P=434.397052$ Days $T_0=245.739019$ (BKJD)



DV Model-Shift Uniqueness Test

006288970-04, P = 434.400410 Days, E = 245.748504 Days

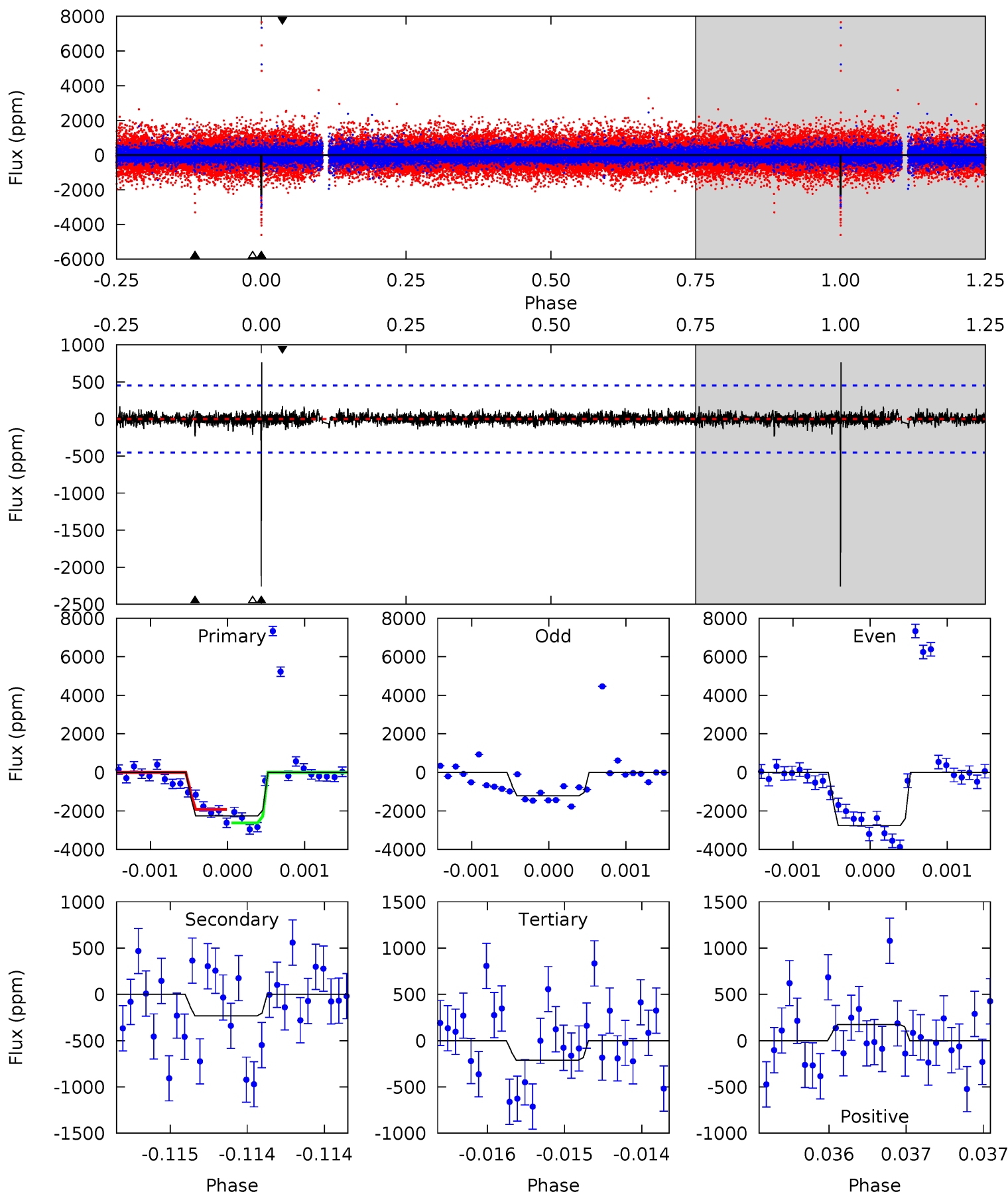
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.73	18.6	12.8	12.0	5.51	3.39	2.68	-7.03	-6.25	5.89	6.66	2.04	2.78	0.39	0.05



Alt Model-Shift Uniqueness Test

006288970-04, P = 434.397052 Days, E = 245.739019 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.5	2.84	2.58	2.12	5.51	3.39	0.48	24.9	25.4	0.26	0.72	8.71	0.85	0.25	4.21



Stellar Parameters For KIC 006288970

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5786^{+192}_{-192}	$4.521^{+0.069}_{-0.161}$	$-0.500^{+0.300}_{-0.300}$	$0.824^{+0.199}_{-0.099}$	$0.821^{+0.103}_{-0.069}$	$2.069^{+0.606}_{-0.934}$
	+3%/-3%	+2%/-4%	+60%/-60%	+24%/-12%	+13%/-8%	+29%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006288970-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3790 ± 203	$4.39^{+3.01}_{-2.49}$	320^{+21}_{-16}	6618^{+5051}_{-1478}	$119194^{+543372}_{-76695}$
Alt.	-233 ± 82	$4.64^{+2.94}_{-2.44}$	320^{+20}_{-16}	3601^{+1158}_{-544}	6275^{+23413}_{-4170}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

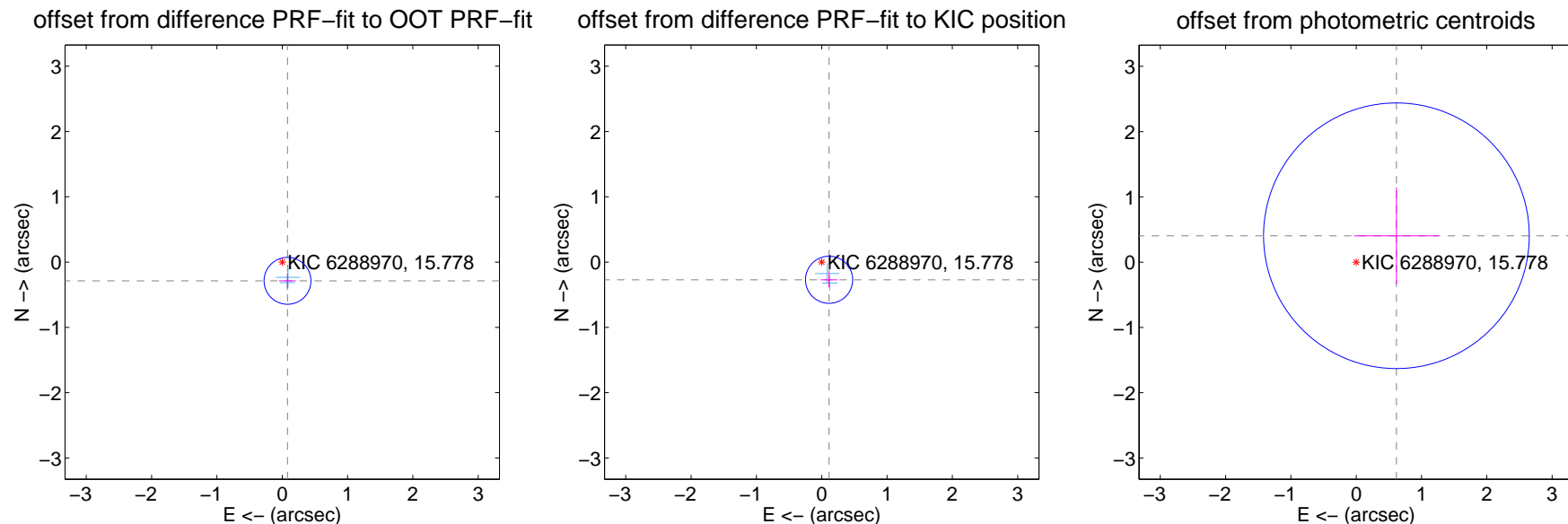
DV Centroid Data

Supplemental centroid analysis for 006288970-04. Kepler magnitude: 15.78. Transit SNR 5.92

There are 2 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.298 ± 0.120	2.50	-0.081 ± 0.129	-0.287 ± 0.119
PRF-fit source offset from KIC position	0.293 ± 0.120	2.44	-0.113 ± 0.129	-0.271 ± 0.119
photometric centroid source offset	0.74 ± 0.68	1.09	-0.62 ± 0.65	0.40 ± 0.74

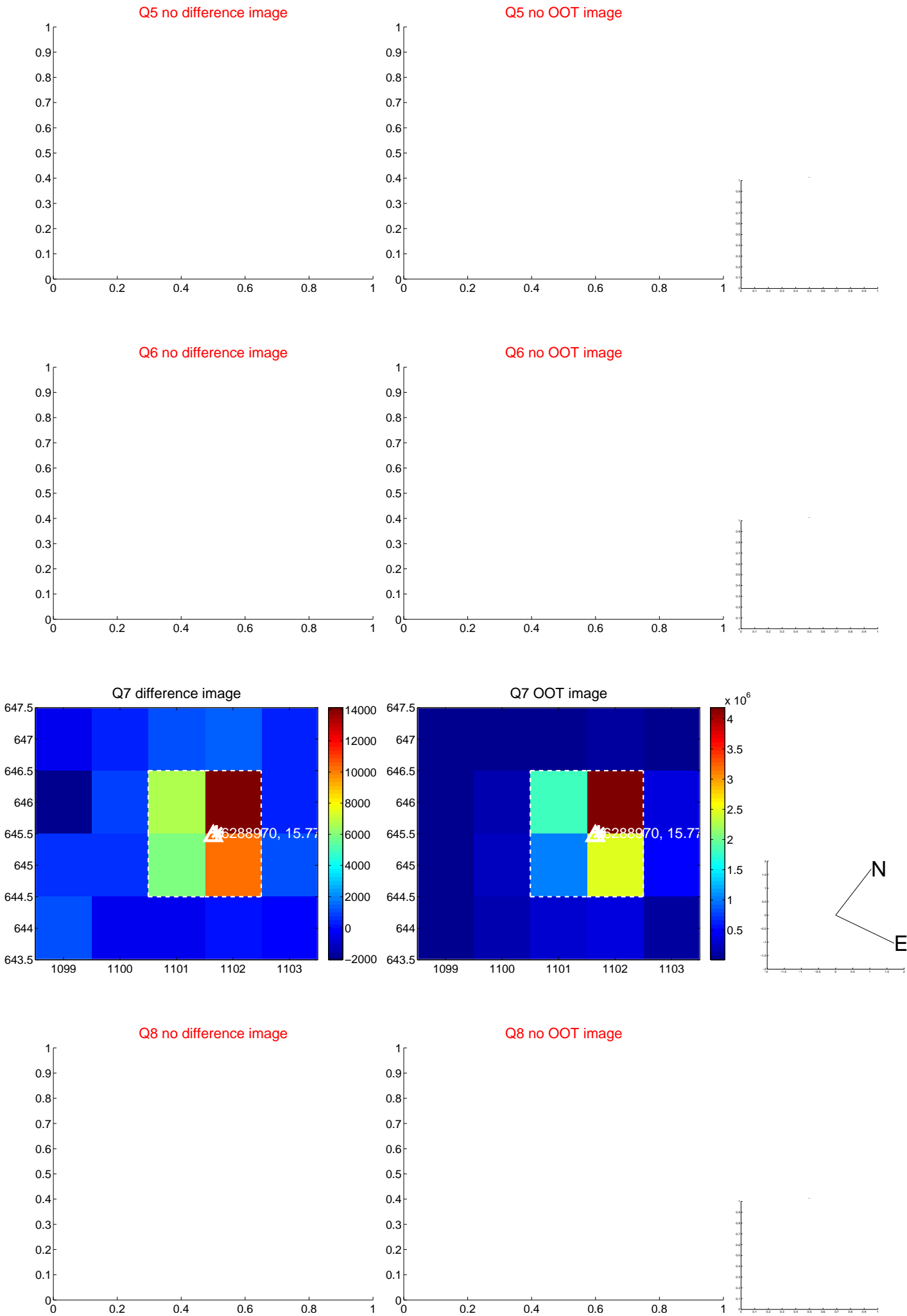


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

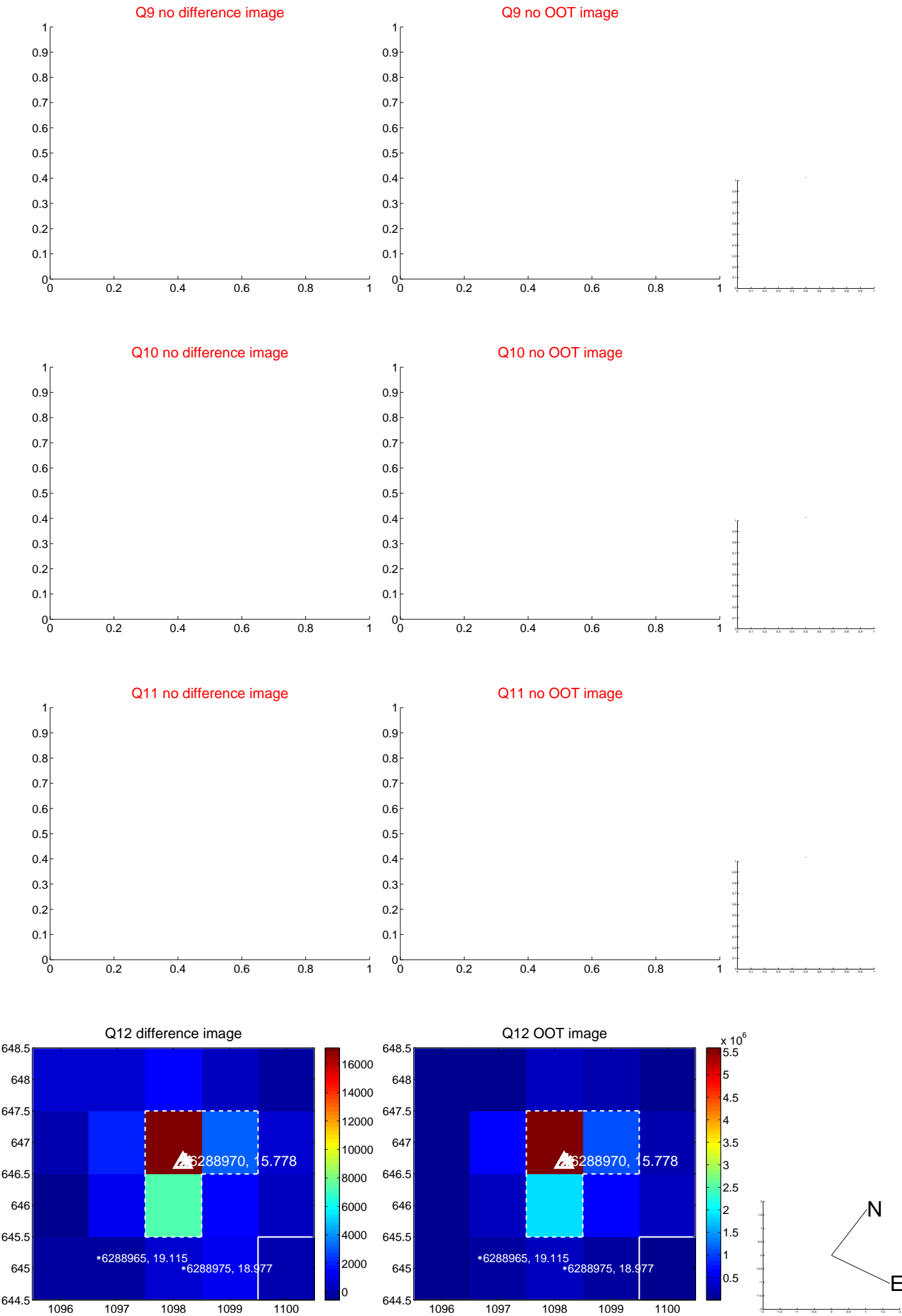
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



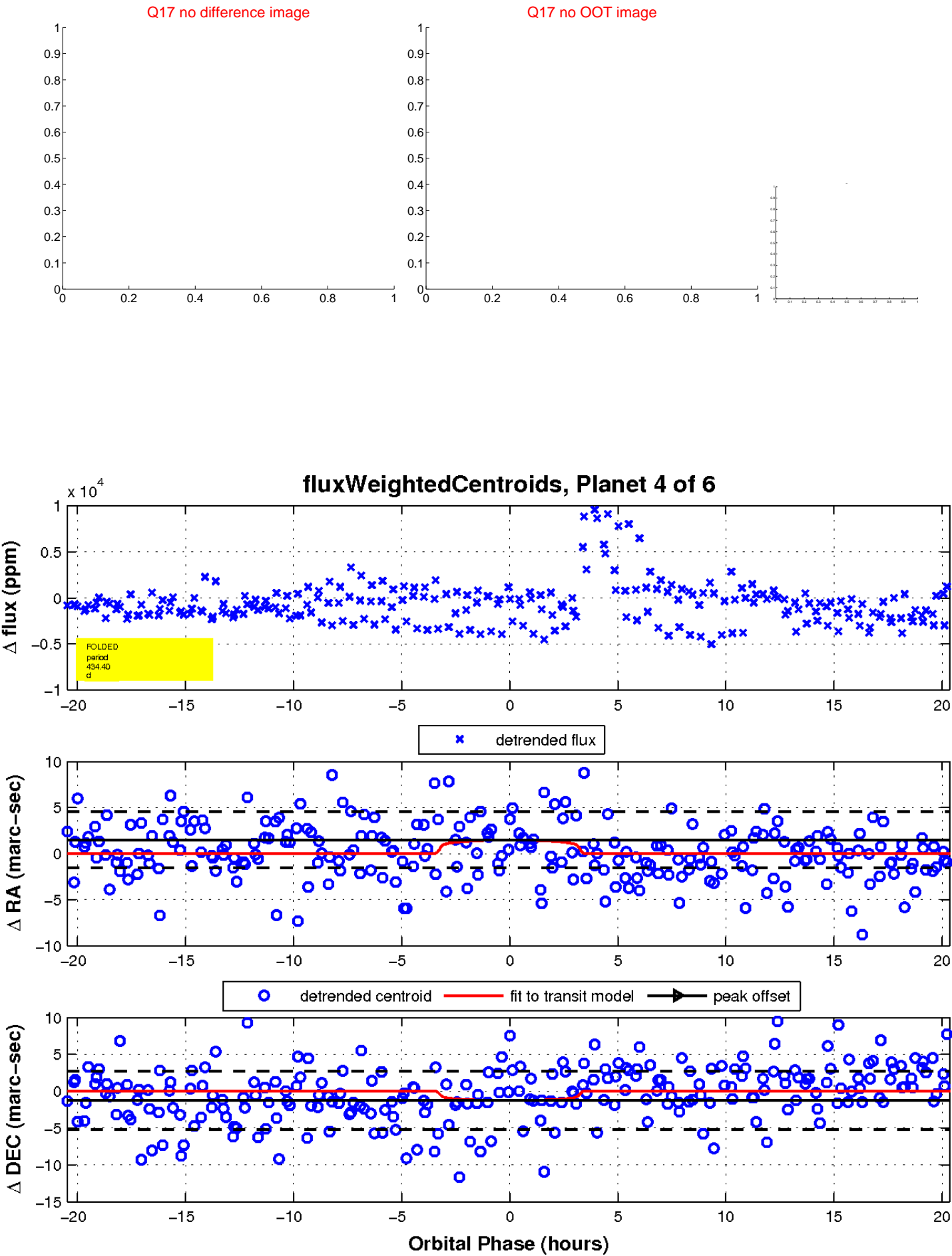
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

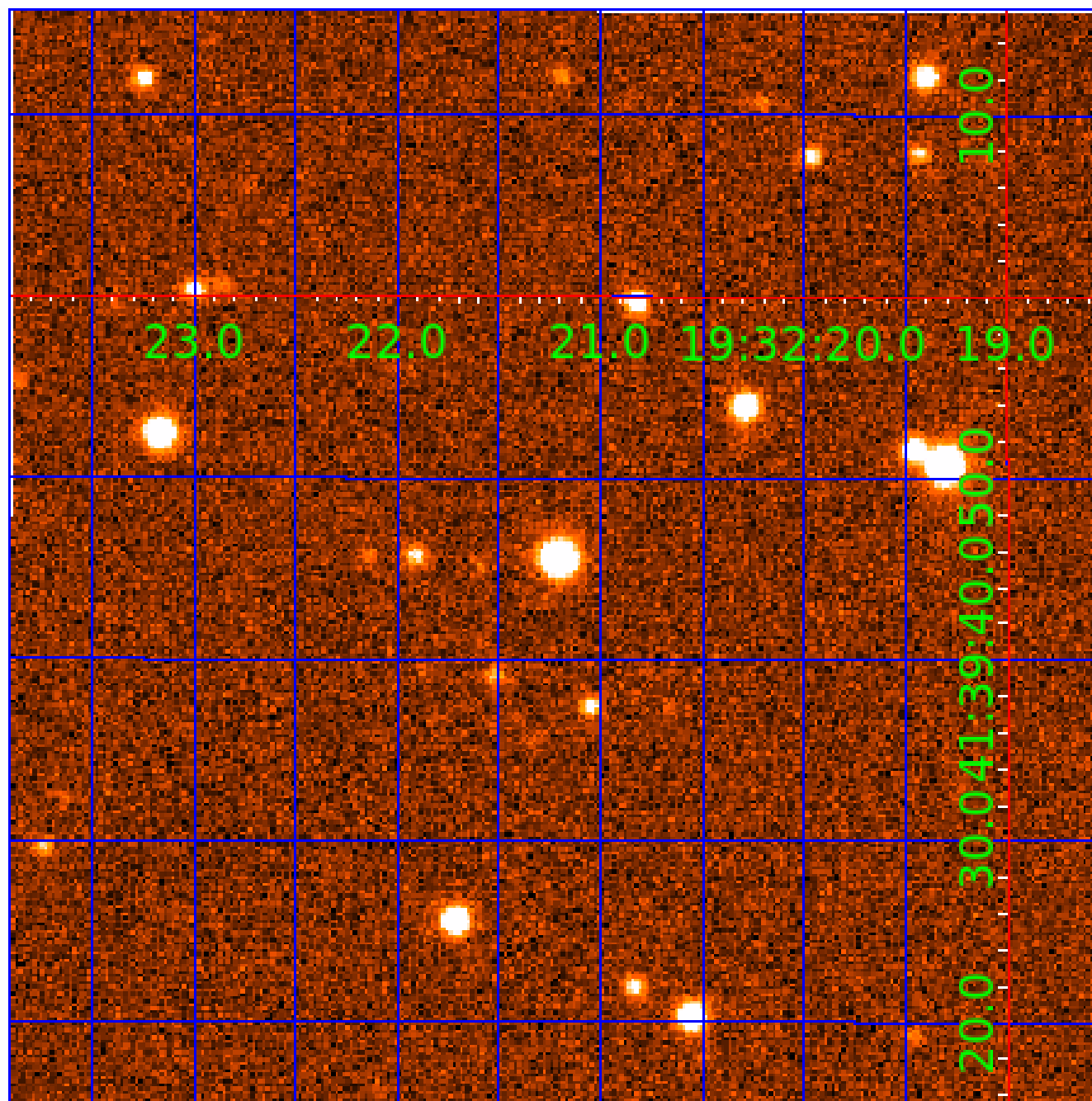


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006288970

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})
006288970-01	OBS	No	474.413503	414.881341	1103.6	7.798	16.6	3.2	0.82	5786	2.85	0.55
006288970-02	OBS	No	504.393501	460.092715	3963.2	8.962	18.0	8.9	0.82	5786	8.08	0.51
006288970-03	OBS	No	336.065430	278.887793	2653.3	4.962	14.4	9.0	0.82	5786	4.36	0.87
006288970-04	OBS	No	434.400410	245.748504	2185.7	6.831	17.7	5.9	0.82	5786	3.85	0.62
006288970-05	OBS	No	176.740459	220.735213	1230.9	3.341	14.4	5.8	0.82	5786	2.89	2.04
006288970-06	OBS	No	389.923954	357.471670	2236.2	4.545	13.6	7.5	0.82	5786	3.88	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006288970-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006288970-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
006288970-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
006288970-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

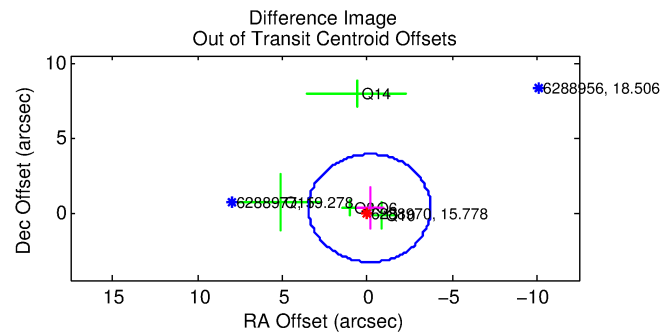
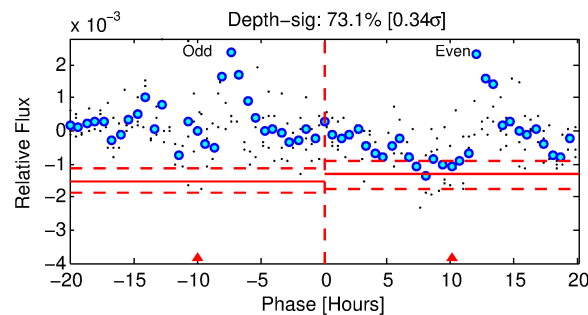
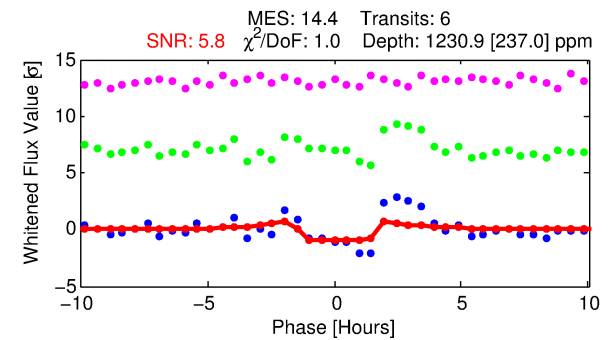
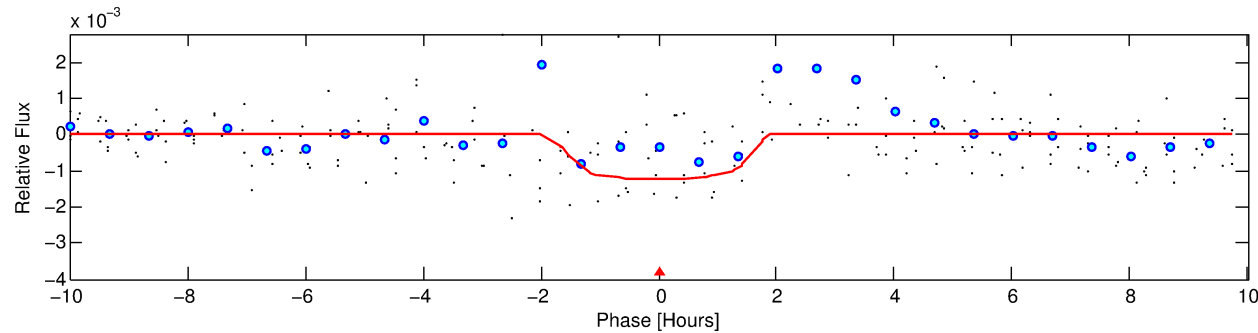
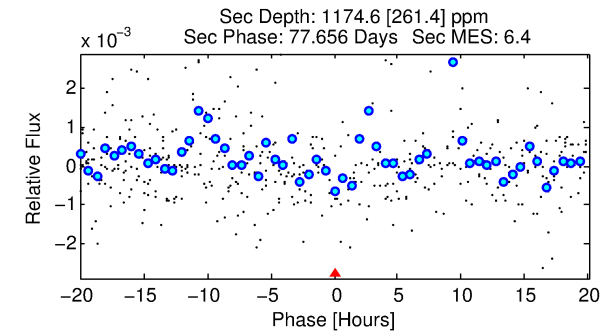
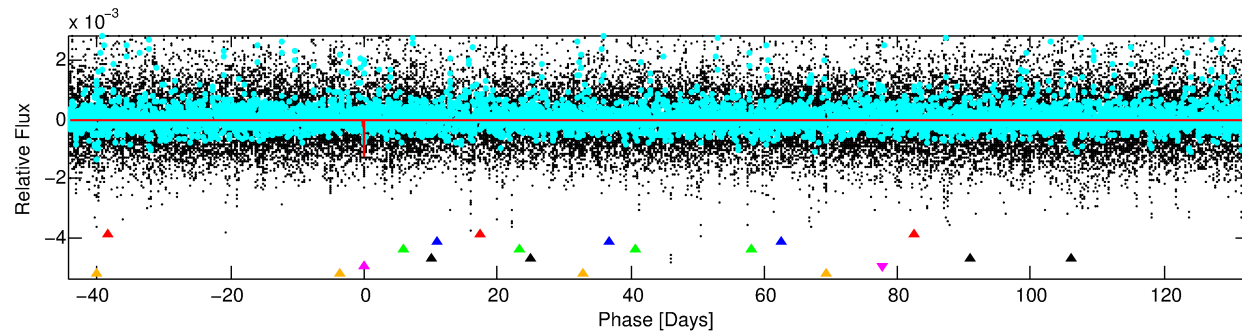
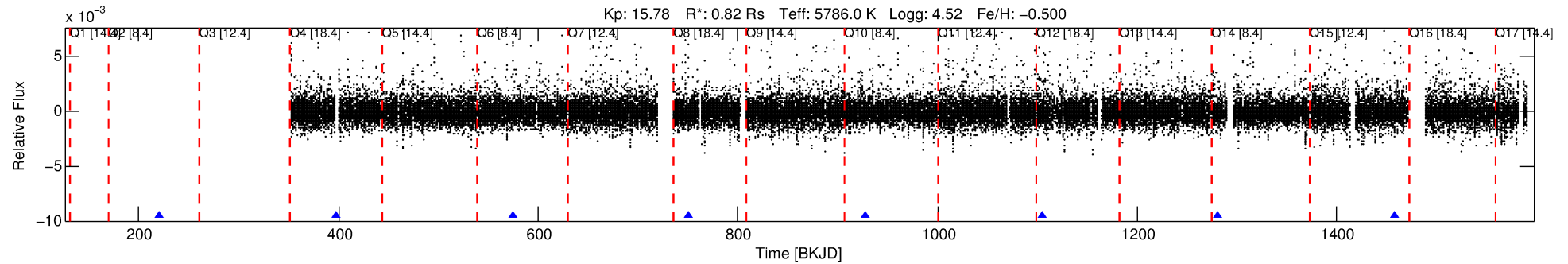
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006288970-05

No Significant Match Found

DV One-Page Summary

KIC: 6288970 Candidate: 5 of 6 Period: 176.740 d



DV Fit Results:

Period = 176.74046 [0.00210] d
Epoch = 220.7352 [0.0109] BKJD
Rp/R* = 0.0322 [0.1263]
a/R* = 409.69 [7628.95]
b = 0.19 [92.68]
Seff = 2.04 [0.66]
Teq = 305 [25] K
Rp = 2.89 [11.38] Re
a = 0.5775 [0.1172] AU
Ag = 25753.86 [202403.65] [0.13 σ]
Teff = 5972 [11727] K [0.48 σ]

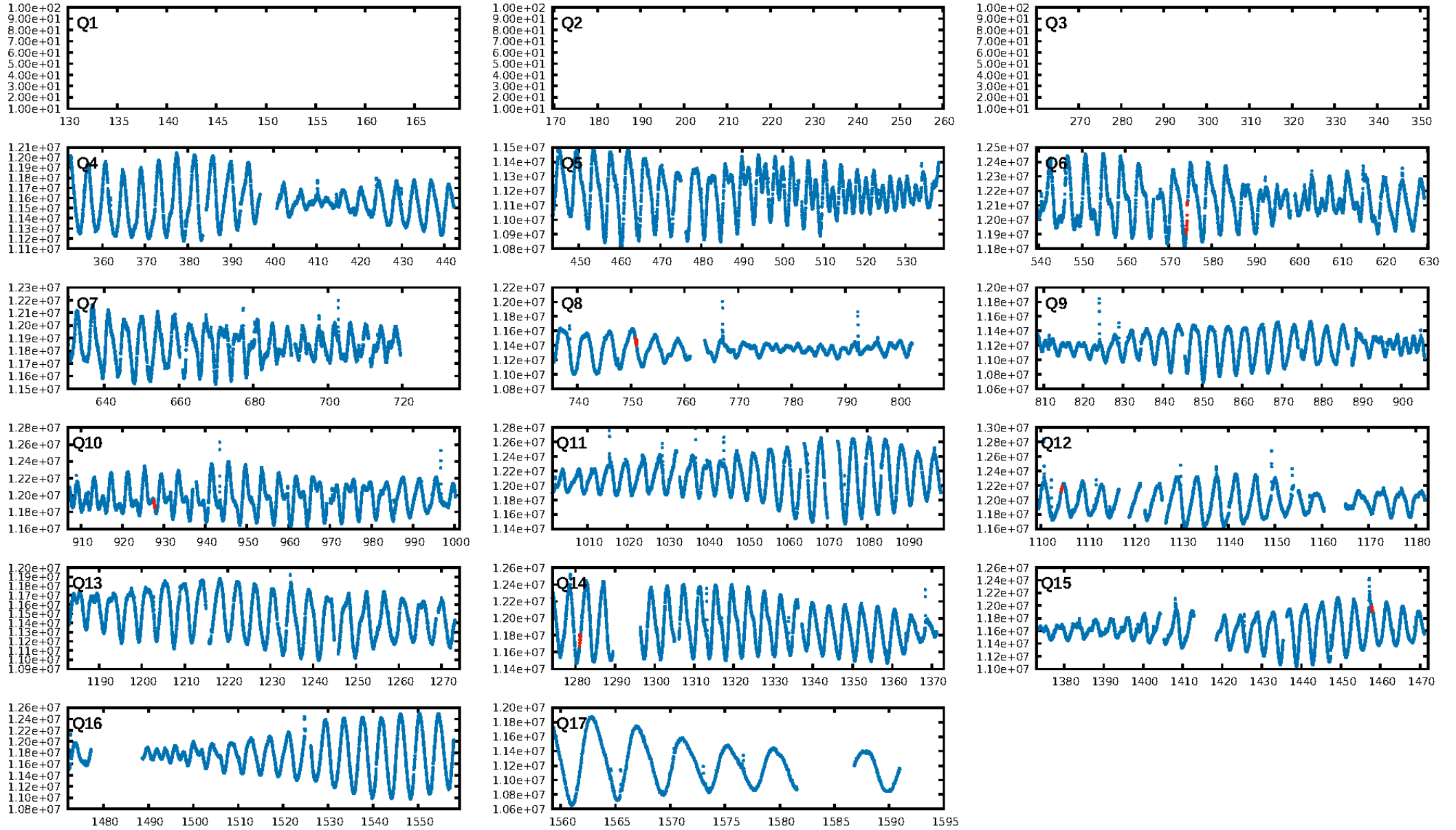
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [639.23 σ]
ModelChiSquare2-sig: 3.1%
ModelChiSquareGof-sig: 92.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -1.253
Centroid-sig: 4.2%
Centroid-so: 1.785 arcsec [1.32 σ]
OotOffset-rm: 0.337 arcsec [0.28 σ]
OotOffset-st: 3/1/1/0 [5]
KicOffset-rm: 0.395 arcsec [0.25 σ]
KicOffset-st: 3/1/1/0 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 1.00 [5/5]

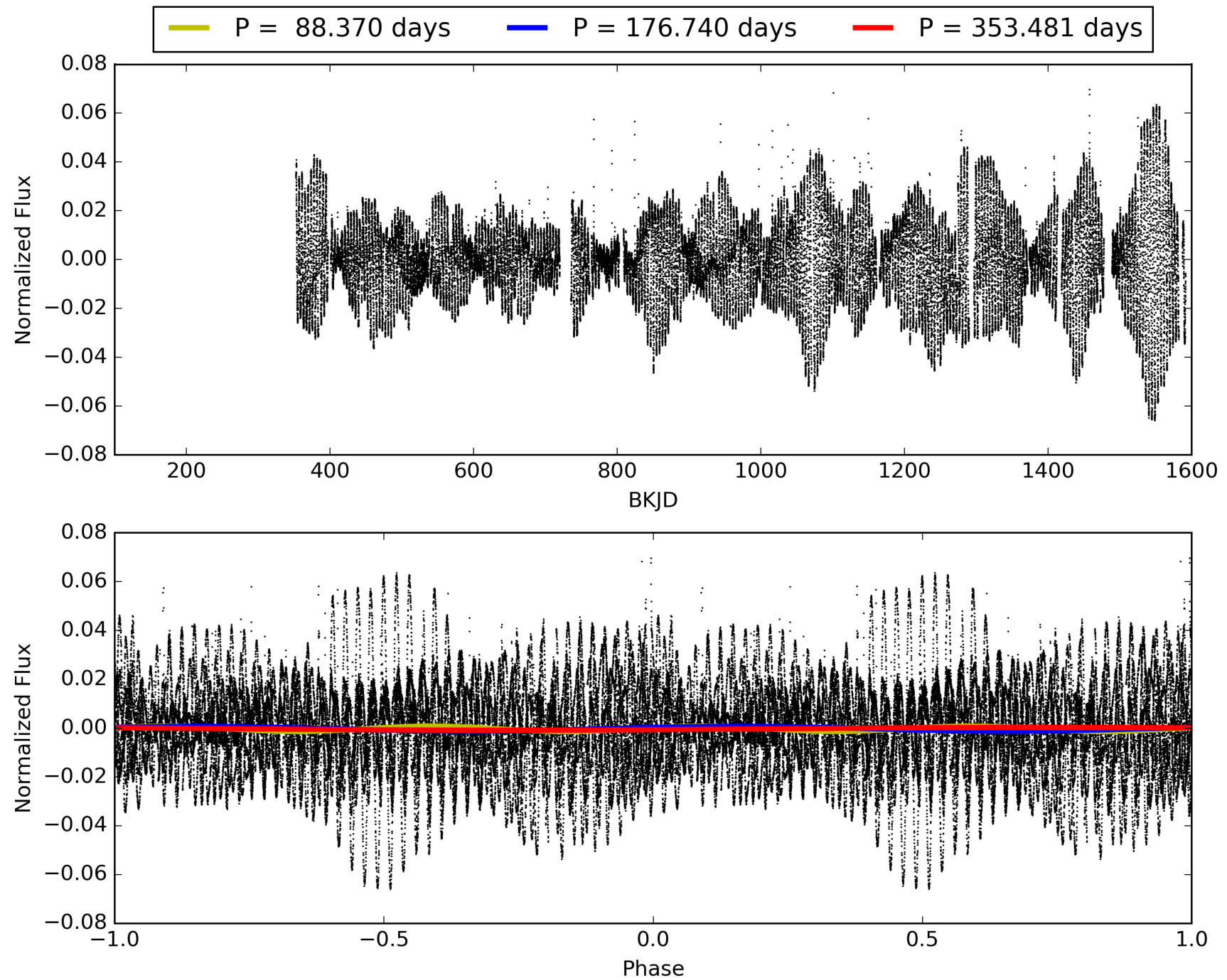
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:04:00 Z

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

TCE 006288970-05, PDC Light Curves

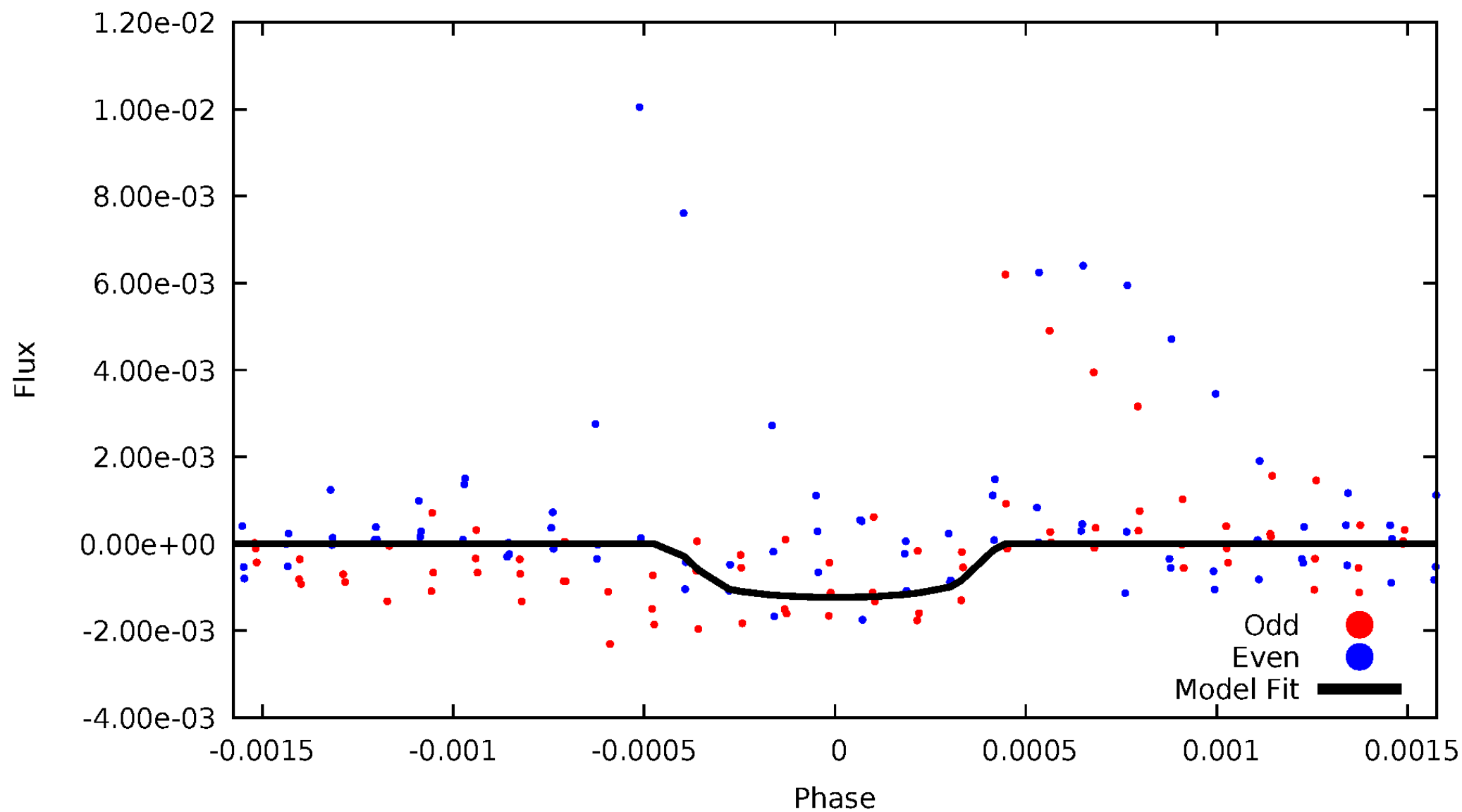


TCE 006288970-05



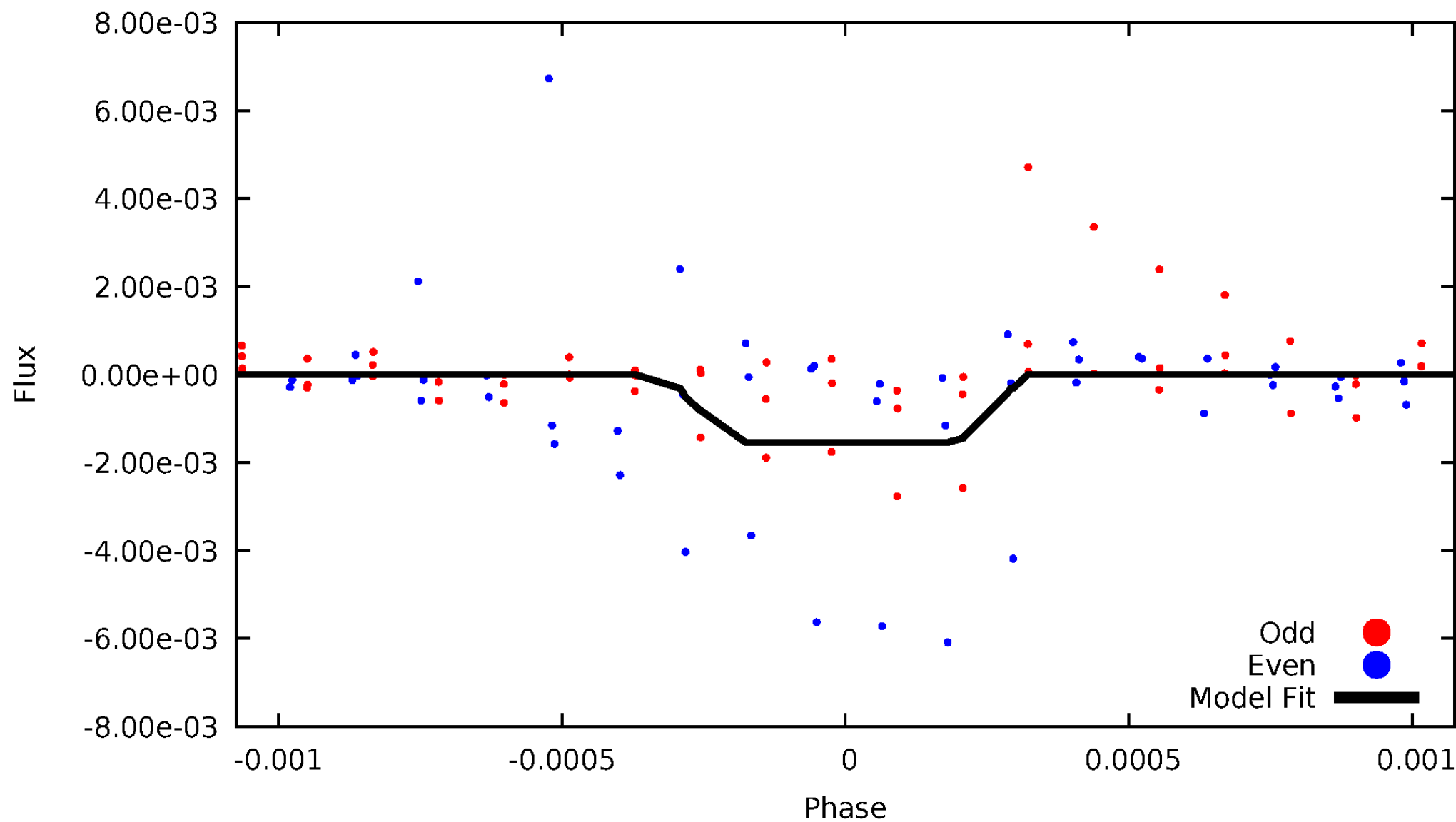
DV Odd/Even

TCE 006288970-05



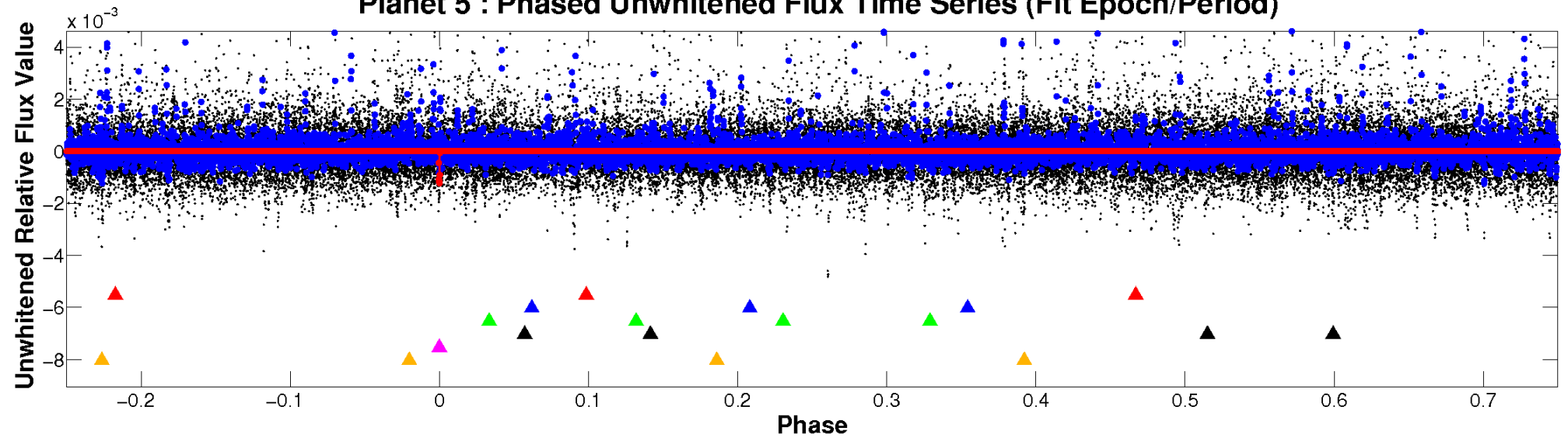
ALT Odd/Even

TCE 006288970-05

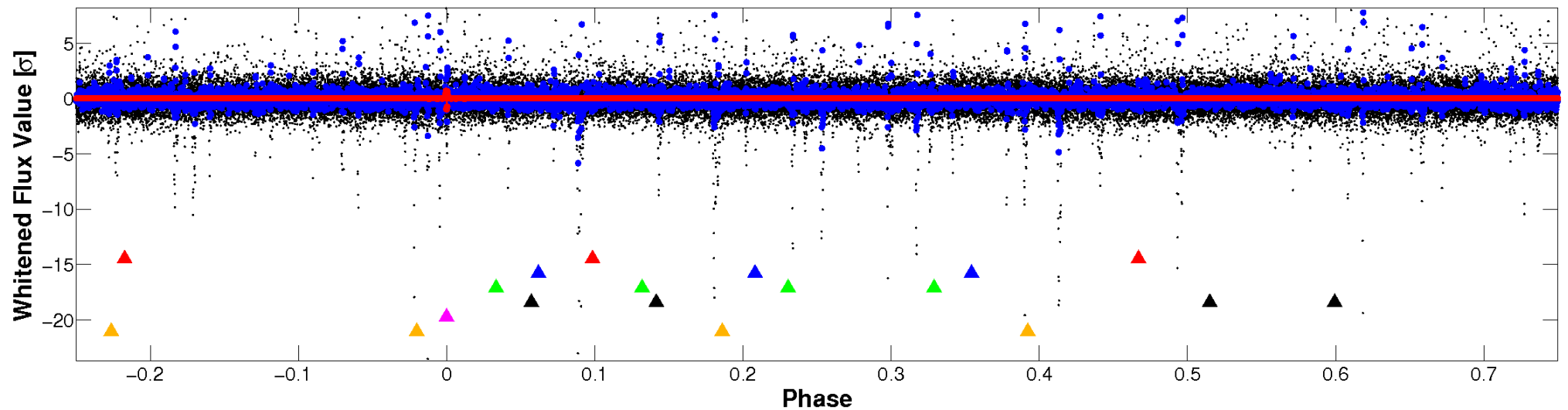


Non-Whitened Vs. Whitened Light Curve

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

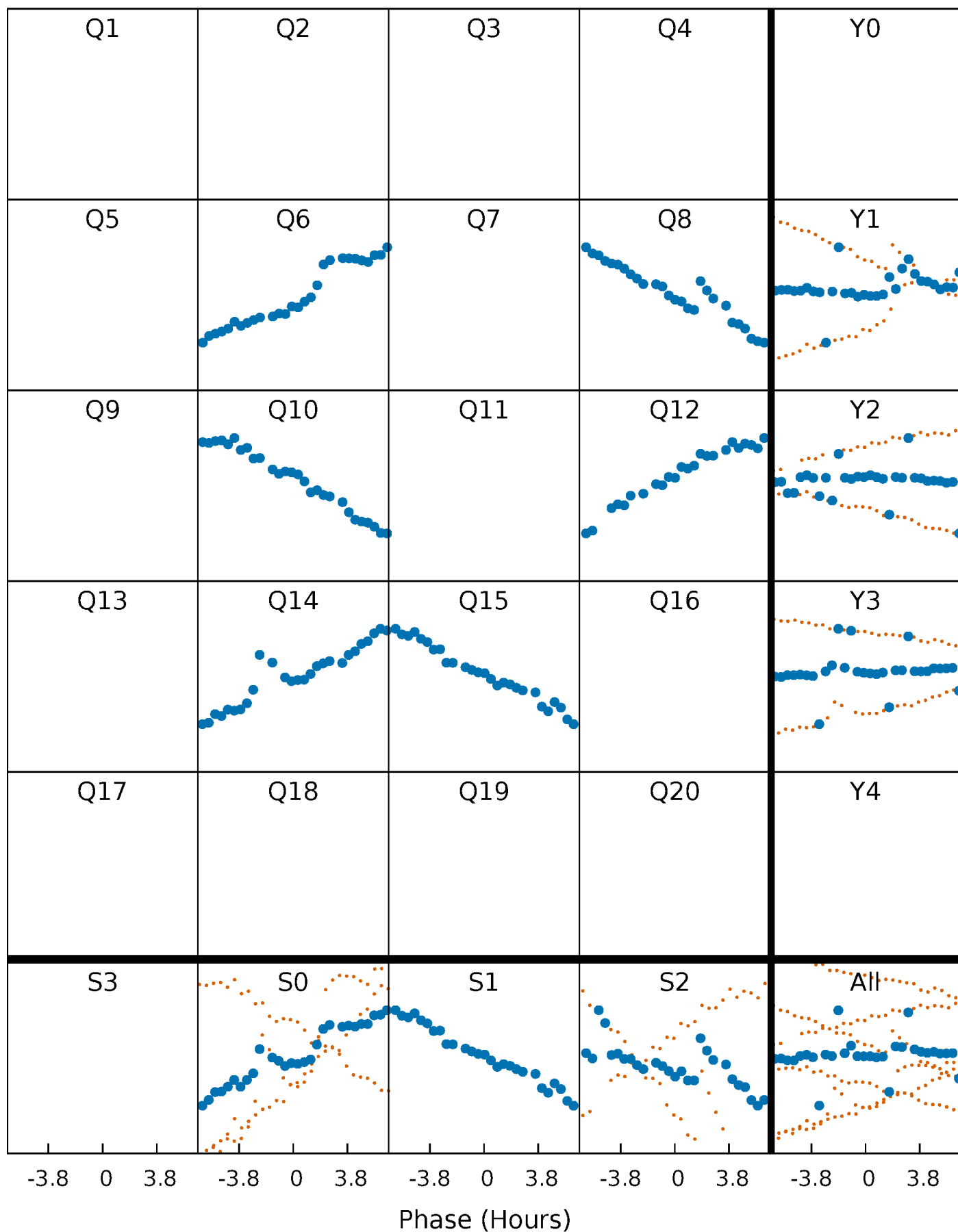


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



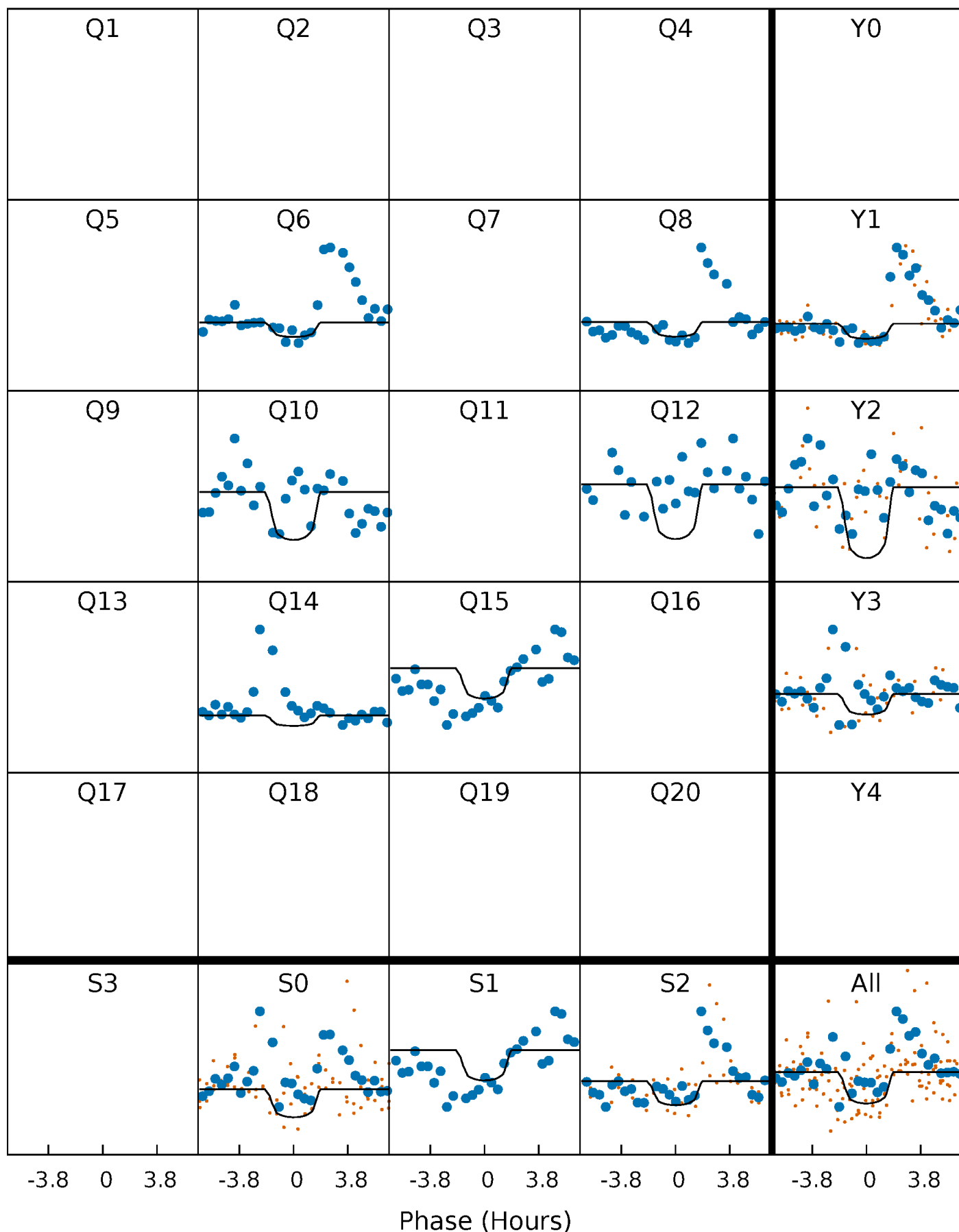
PDC Quarter-Phased Transit Curves

TCE 006288970-05 P=176.740459 Days $T_0=220.735213$ (BKJD)



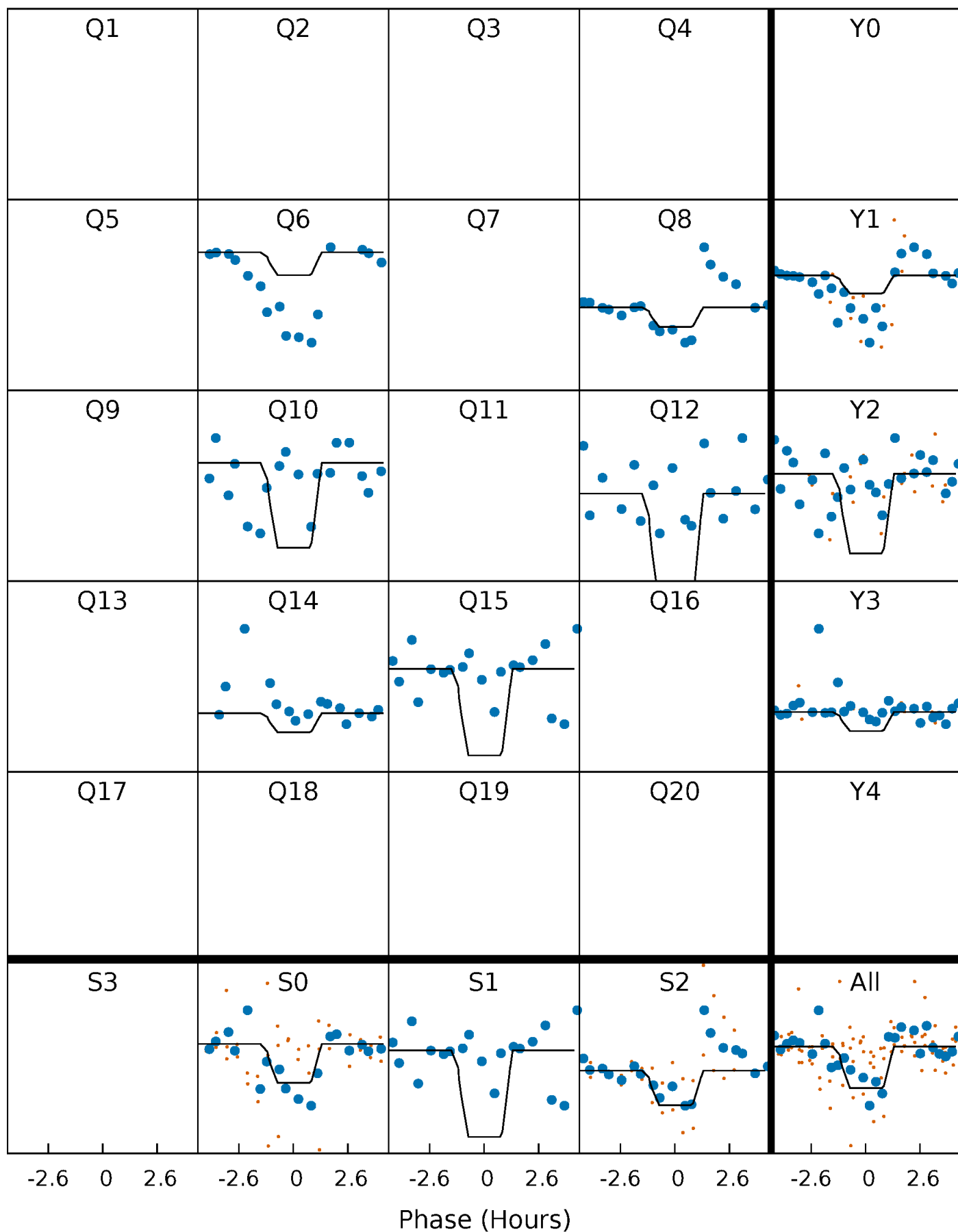
DV Quarter-Phased Transit Curves

TCE 006288970-05 $P=176.740459$ Days $T_0=220.735213$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

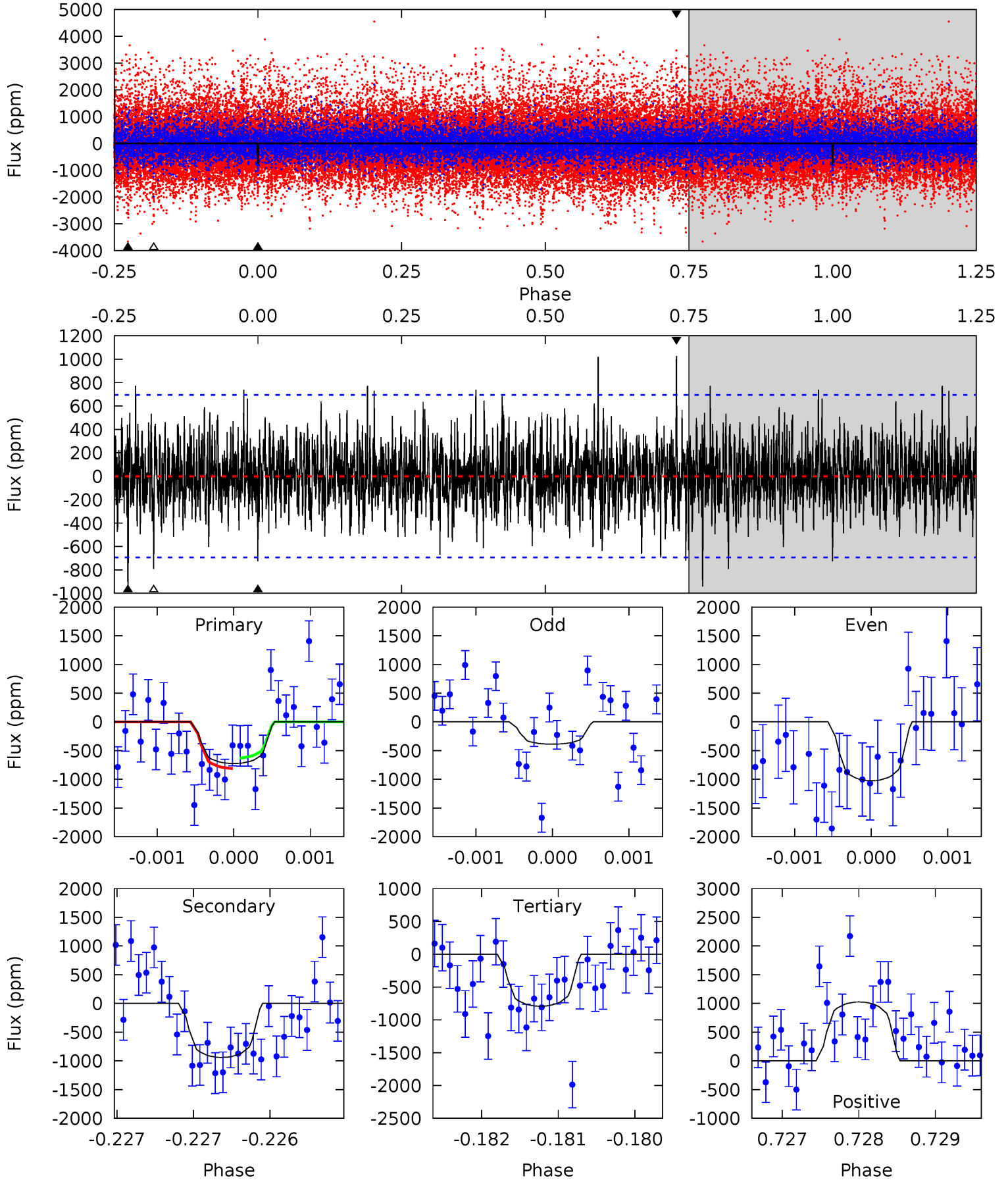
TCE 006288970-05 P=176.740642 Days $T_0=220.756528$ (BKJD)



DV Model-Shift Uniqueness Test

006288970-05, P = 176.740459 Days, E = 220.735213 Days

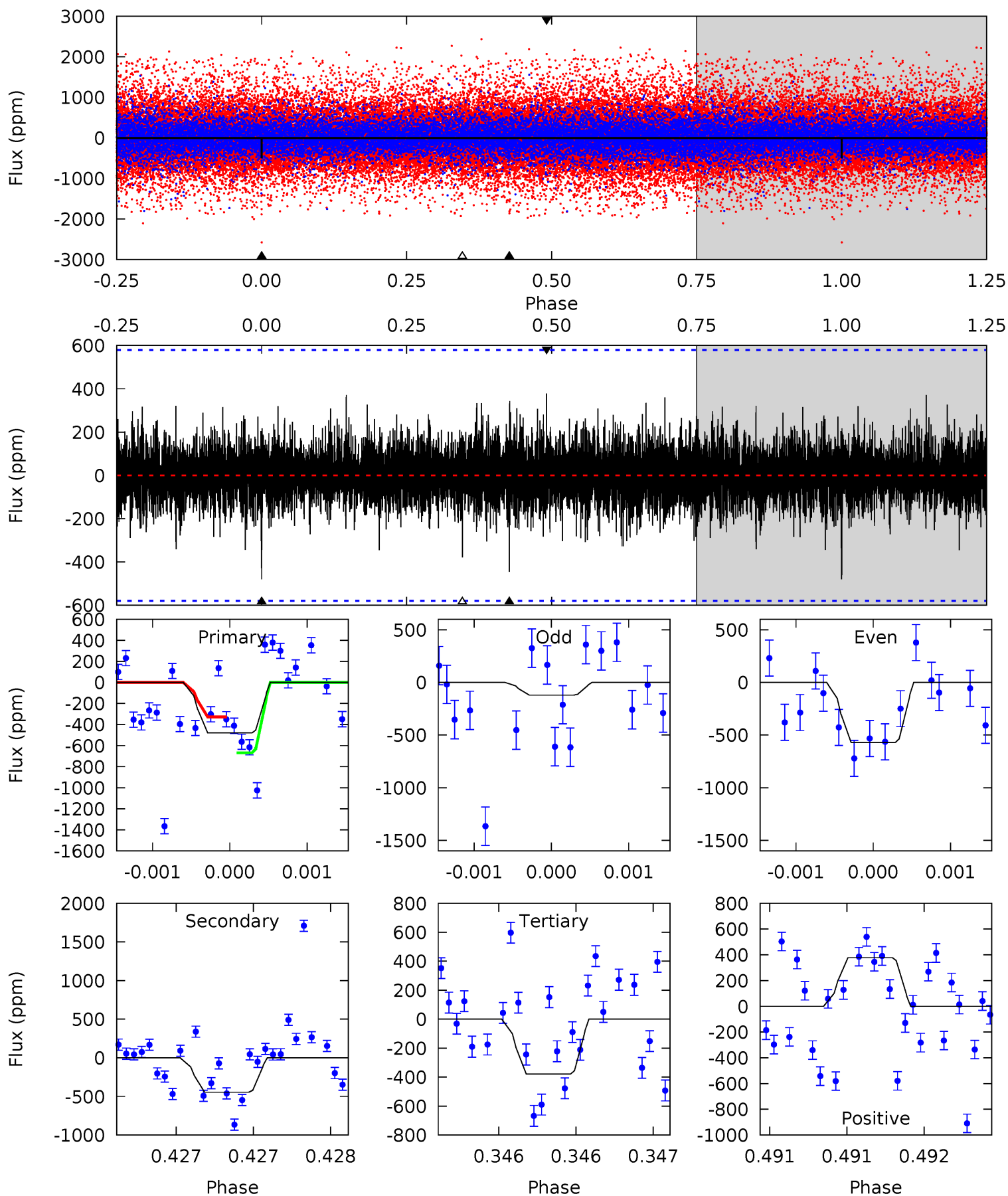
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.73	7.43	6.26	8.11	5.48	3.34	1.69	-0.53	-2.38	1.17	-0.68	2.47	0.75	0.52	0.72



Alt Model-Shift Uniqueness Test

006288970-05, $P = 176.740642$ Days, $E = 220.756528$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.59	4.26	3.62	3.61	5.54	3.43	0.85	0.97	0.97	0.64	0.64	2.10	5.03	0.44	1.64



Stellar Parameters For KIC 006288970

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5786^{+192}_{-192}	$4.521^{+0.069}_{-0.161}$	$-0.500^{+0.300}_{-0.300}$	$0.824^{+0.199}_{-0.099}$	$0.821^{+0.103}_{-0.069}$	$2.069^{+0.606}_{-0.934}$
	+3%/-3%	+2%/-4%	+60%/-60%	+24%/-12%	+13%/-8%	+29%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006288970-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-940 ± 127	$9.51^{+10.12}_{-6.77}$	431^{+26}_{-21}	3612^{+2250}_{-711}	1886^{+21704}_{-1446}
Alt.	-445 ± 105	$9.29^{+9.45}_{-6.22}$	434^{+26}_{-23}	3235^{+1591}_{-599}	967^{+7716}_{-744}

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 $A_{obs} \gg 1.0$

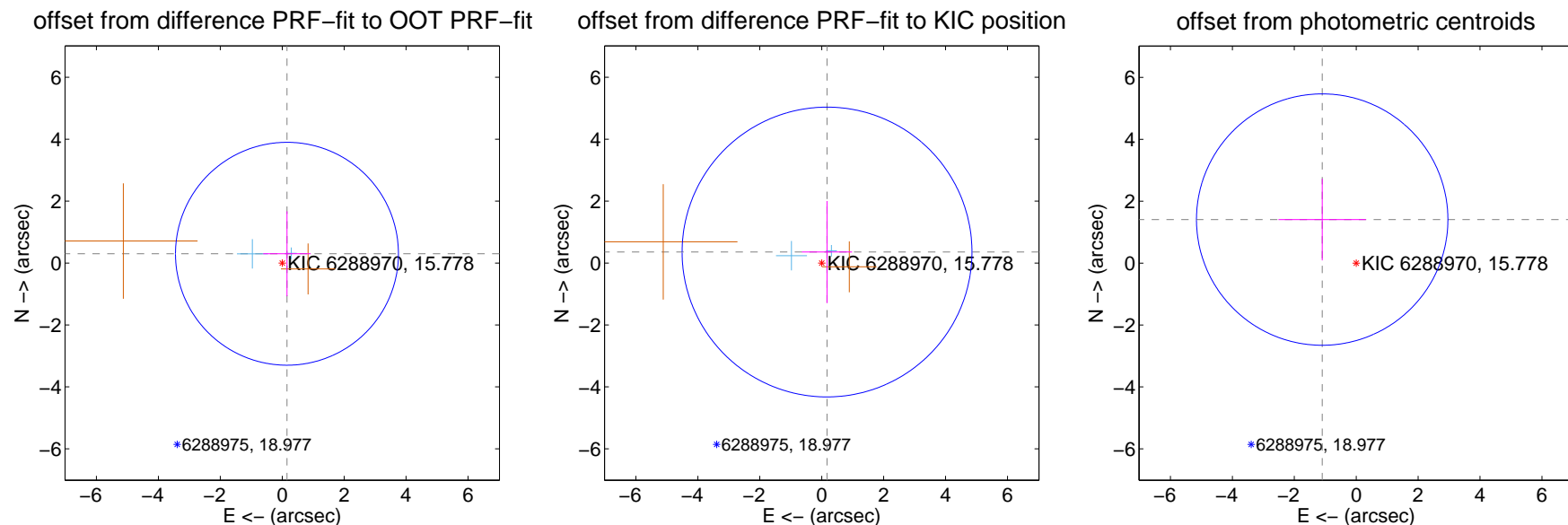
DV Centroid Data

Supplemental centroid analysis for 006288970-05. Kepler magnitude: 15.78. Transit SNR 5.82

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.337 ± 1.200	0.28	-0.153 ± 0.770	0.300 ± 1.371
PRF-fit source offset from KIC position	0.395 ± 1.560	0.25	-0.172 ± 0.810	0.355 ± 1.647
photometric centroid source offset	1.78 ± 1.35	1.32	1.10 ± 1.41	1.41 ± 1.32



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.

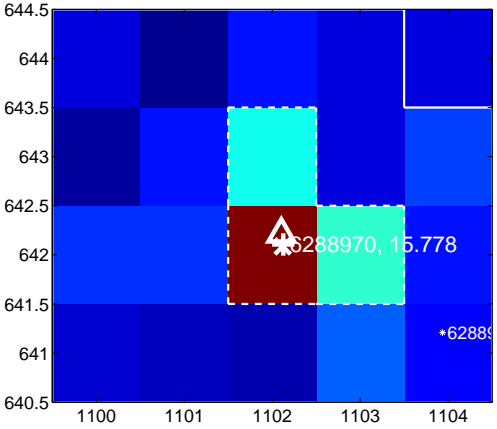
Q5 no difference image



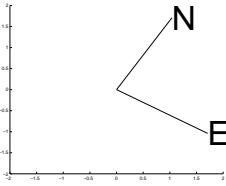
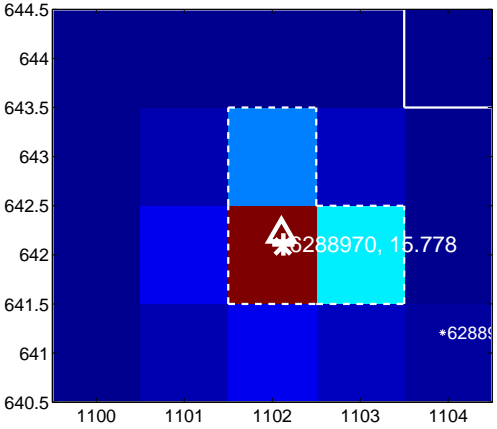
Q5 no OOT image



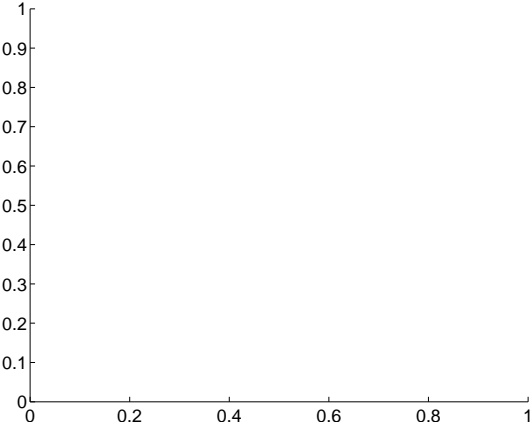
Q6 difference image



Q6 OOT image



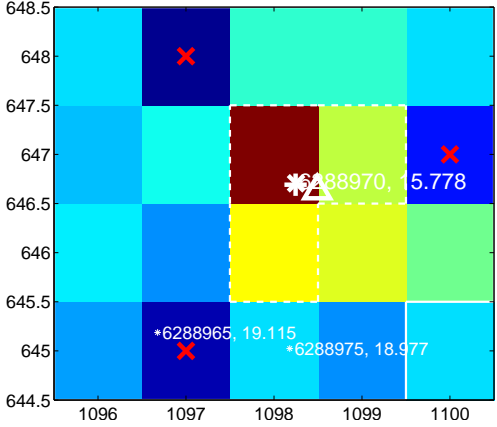
Q7 no difference image



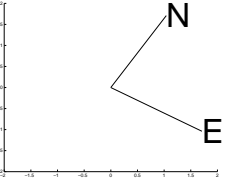
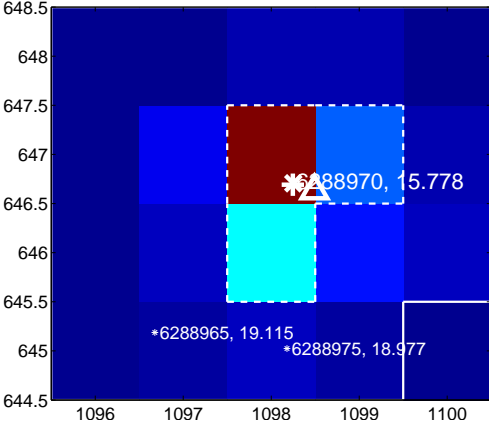
Q7 no OOT image



Q8 difference image



Q8 OOT image



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

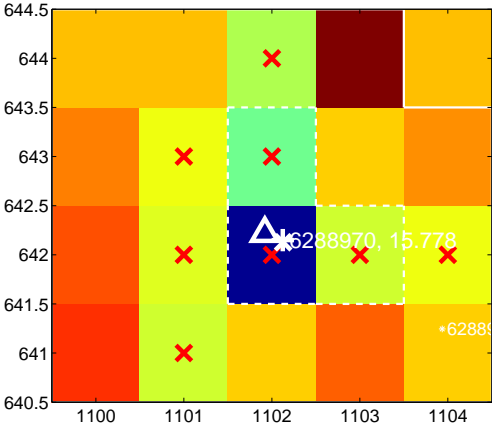
Q9 no difference image



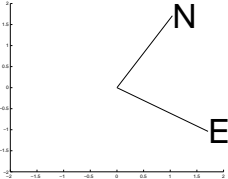
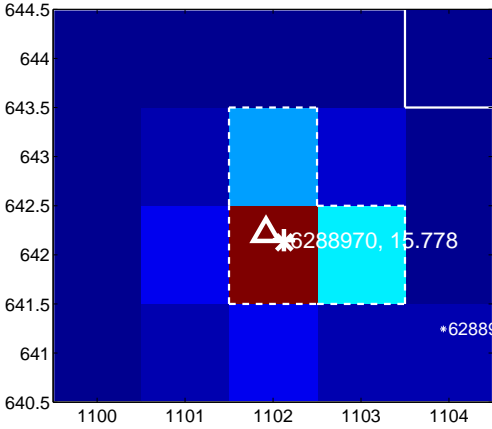
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

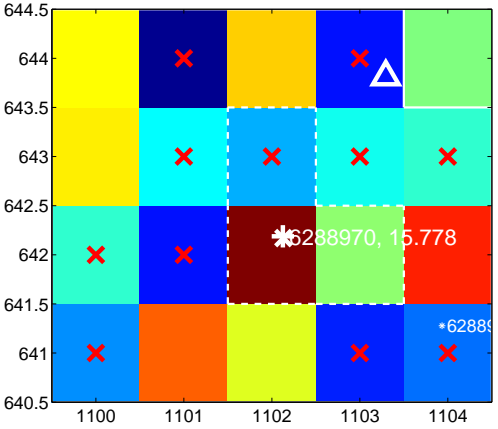
Q13 no difference image



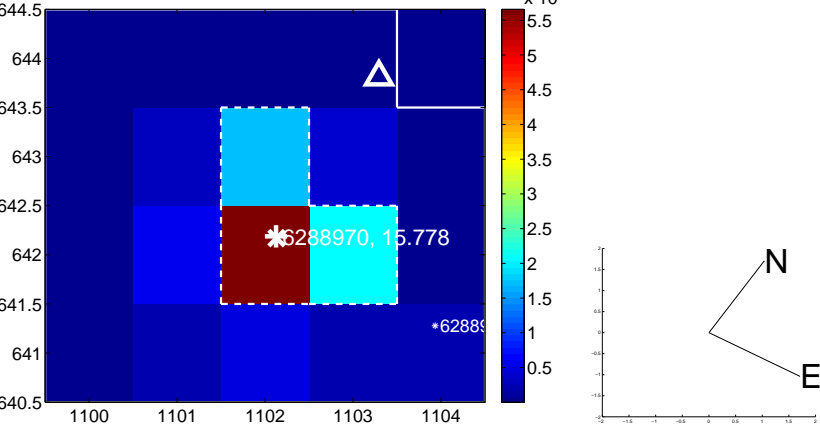
Q13 no OOT image



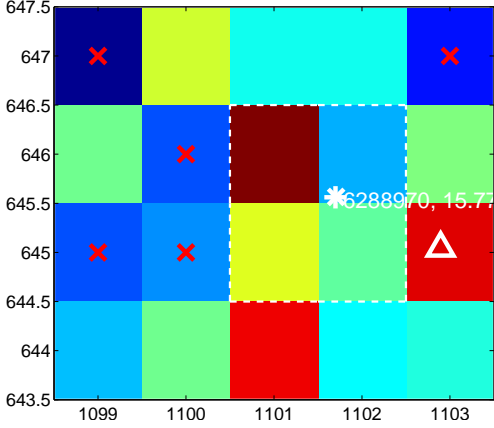
Q14 difference image. Poor Quality



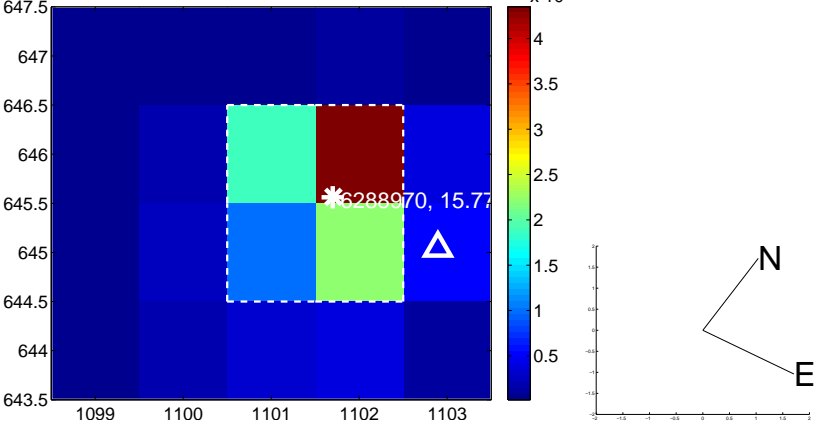
Q14 OOT image



Q15 difference image. Poor Quality



Q15 OOT image



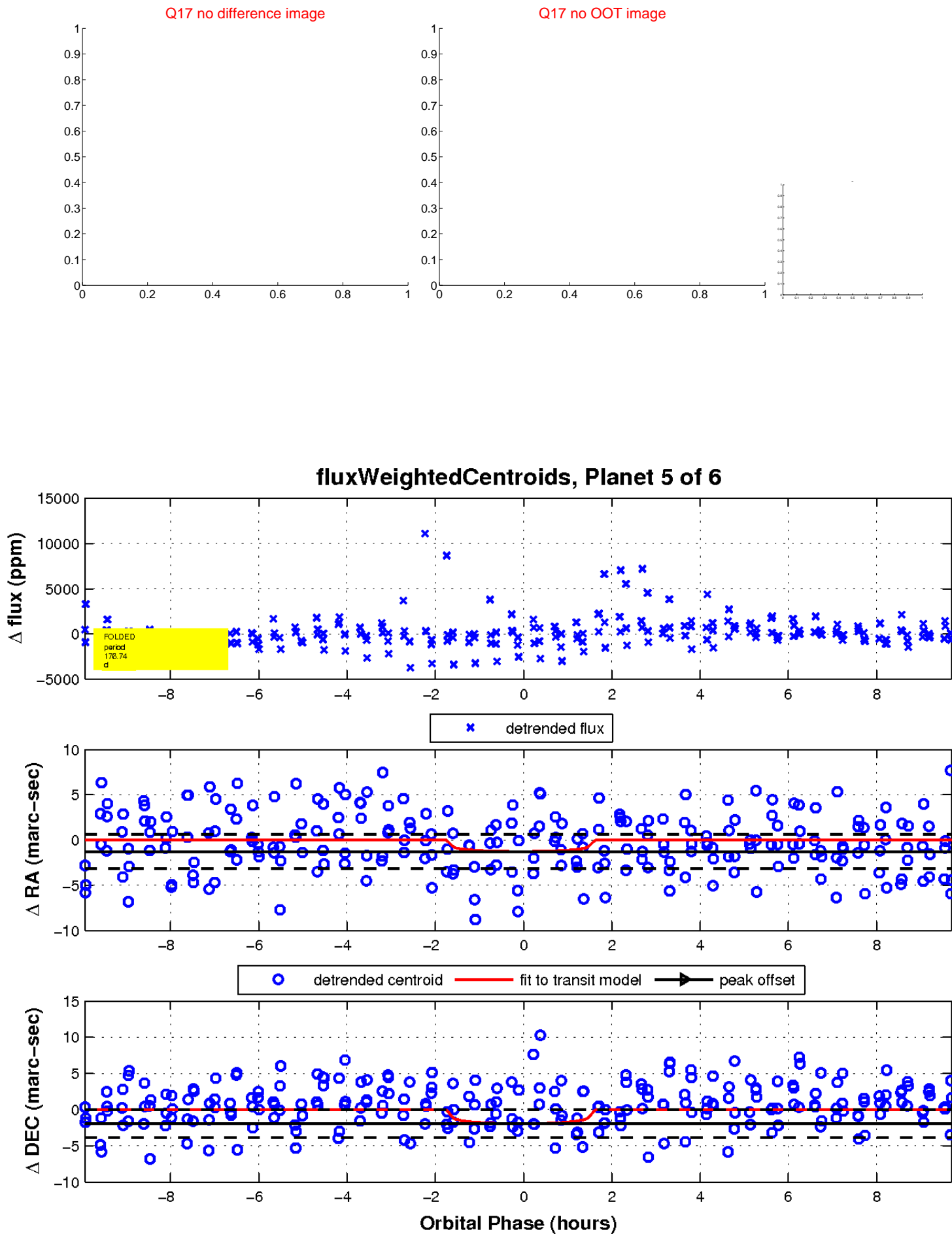
Q16 no difference image



Q16 no OOT image

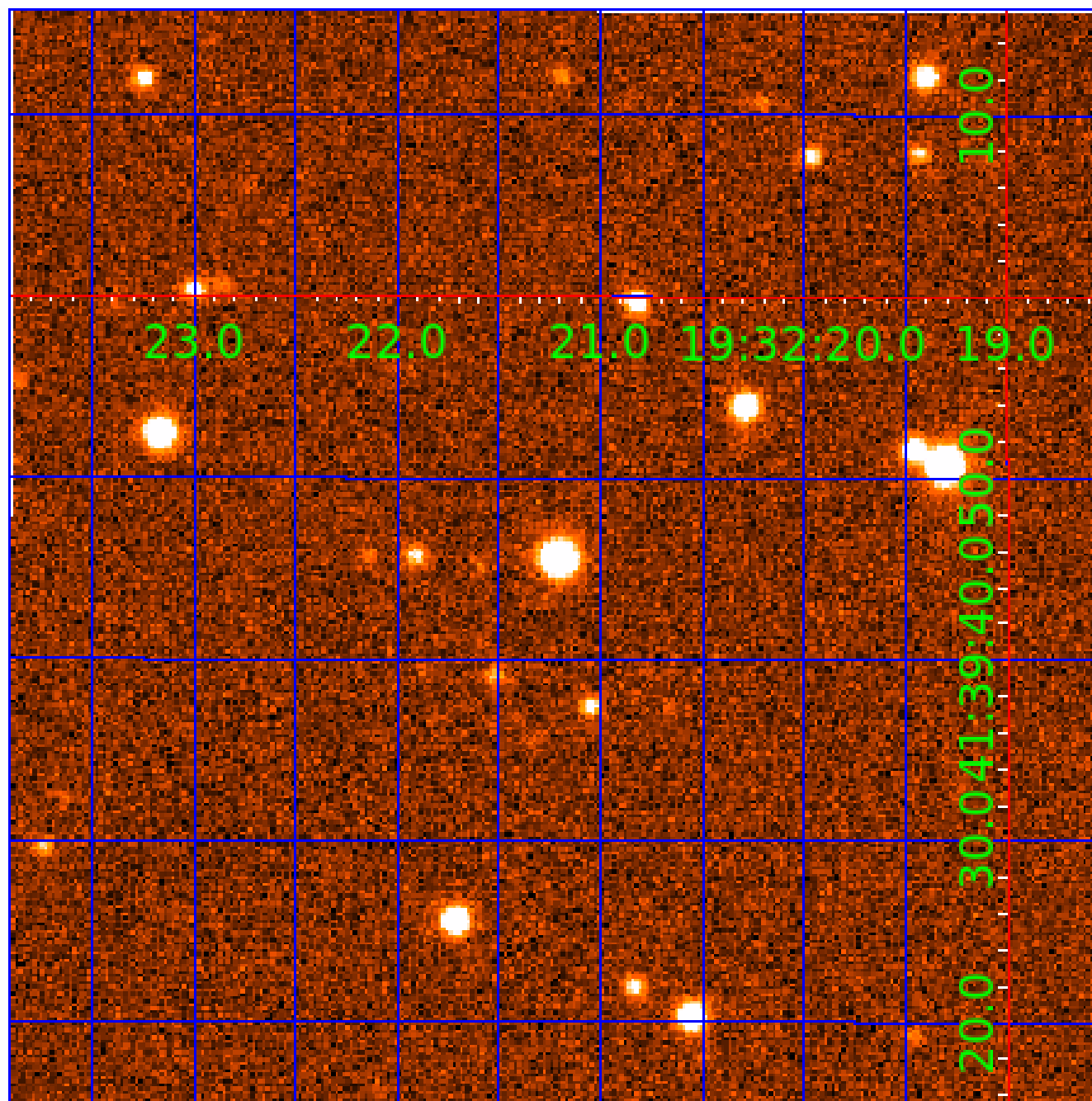


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006288970

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})
006288970-01	OBS	No	474.413503	414.881341	1103.6	7.798	16.6	3.2	0.82	5786	2.85	0.55
006288970-02	OBS	No	504.393501	460.092715	3963.2	8.962	18.0	8.9	0.82	5786	8.08	0.51
006288970-03	OBS	No	336.065430	278.887793	2653.3	4.962	14.4	9.0	0.82	5786	4.36	0.87
006288970-04	OBS	No	434.400410	245.748504	2185.7	6.831	17.7	5.9	0.82	5786	3.85	0.62
006288970-05	OBS	No	176.740459	220.735213	1230.9	3.341	14.4	5.8	0.82	5786	2.89	2.04
006288970-06	OBS	No	389.923954	357.471670	2236.2	4.545	13.6	7.5	0.82	5786	3.88	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006288970-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006288970-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
006288970-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
006288970-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006288970-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

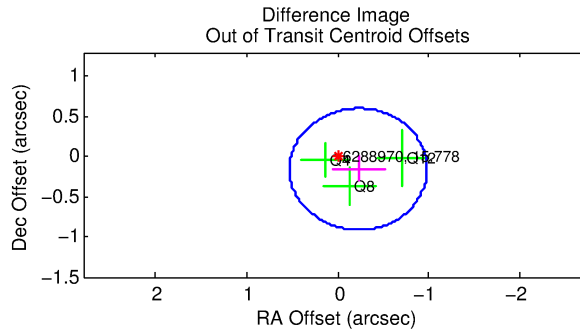
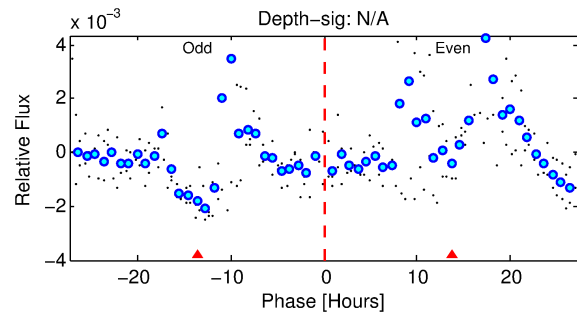
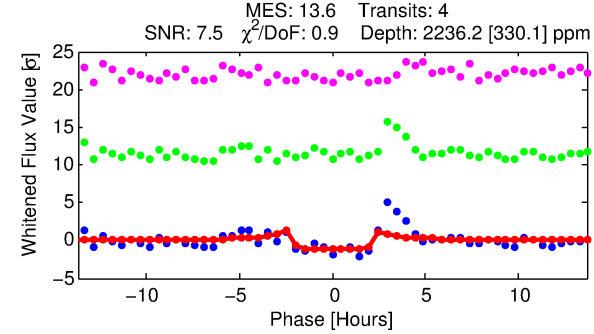
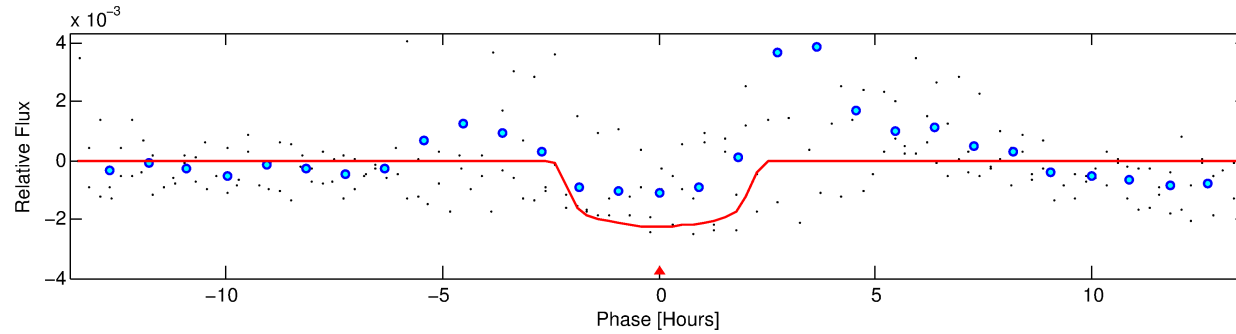
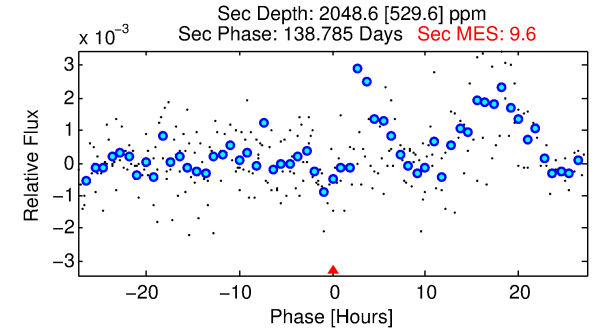
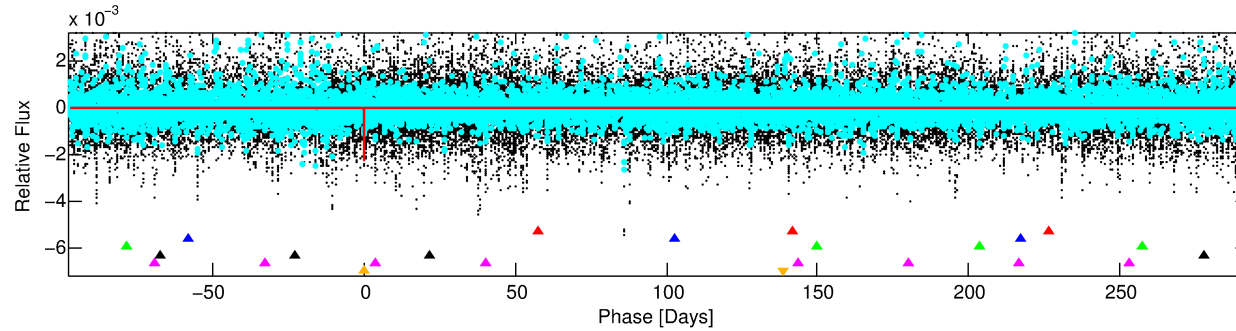
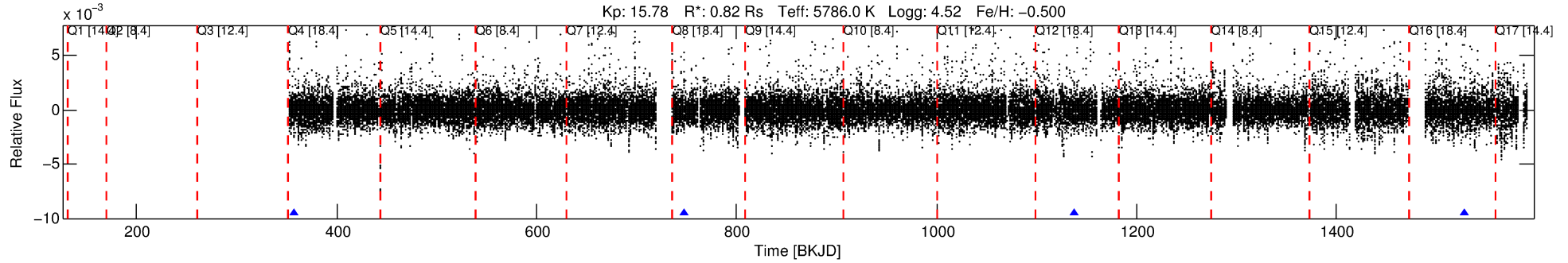
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006288970-06

No Significant Match Found

DV One-Page Summary

KIC: 6288970 Candidate: 6 of 6 Period: 389.924 d



DV Fit Results:

Period = 389.92395 [0.00294] d
Epoch = 357.4717 [0.0056] BKJD
Rp/R* = 0.0432 [0.0291]
a/R* = 681.07 [2114.05]
b = 0.09 [33.46]
Seff = 0.71 [0.23]
Teq = 234 [19] K
Rp = 3.89 [2.78] Re
a = 0.9787 [0.1986] AU
Ag = 71502.47 [100341.38] [0.71σ]
Teffp = 5922 [2041] K [2.79σ]

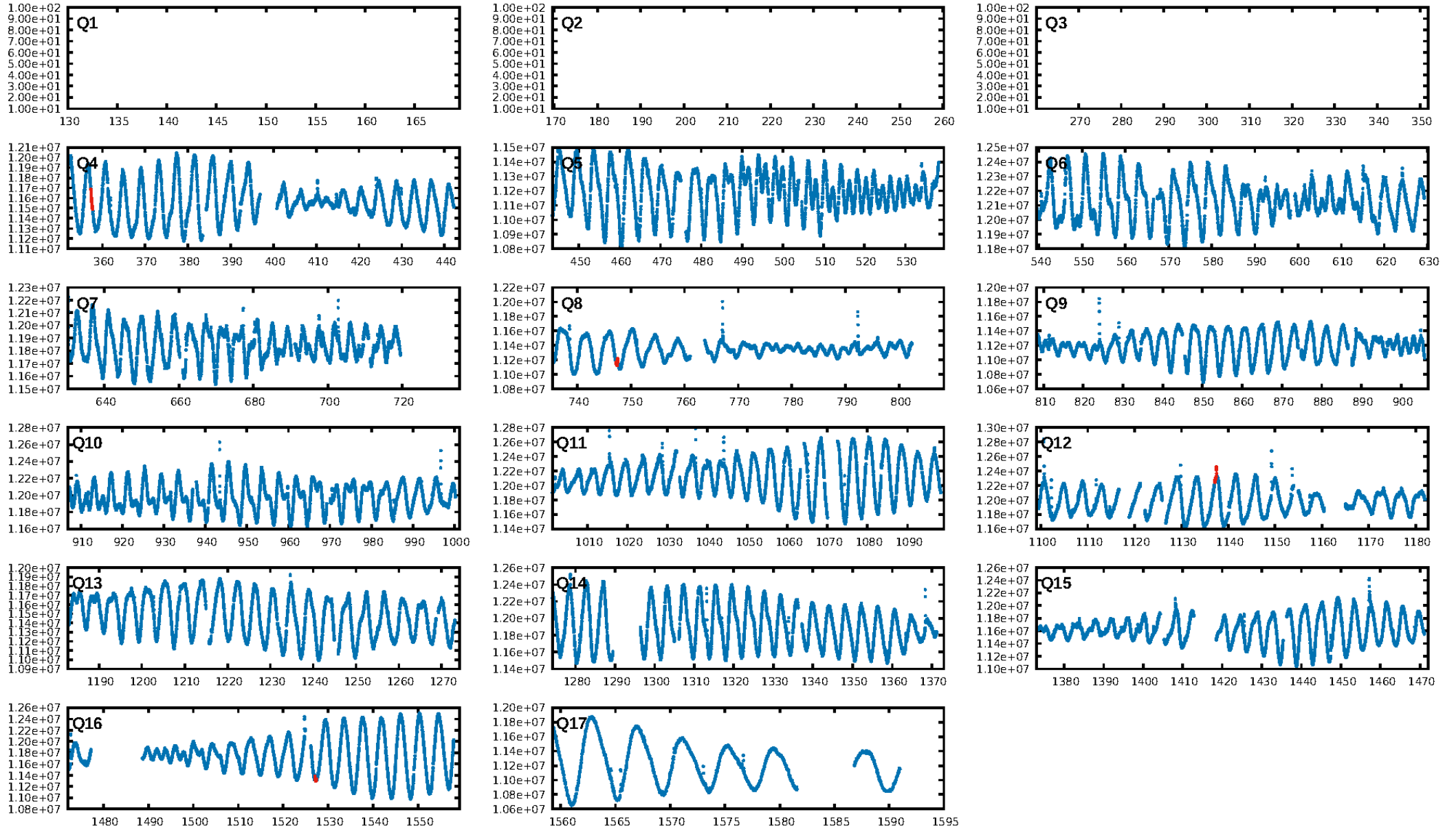
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [192.10σ]
LongPeriod-sig: 100.0% [130.10σ]
ModelChiSquare2-sig: 7.4%
ModelChiSquareGof-sig: 96.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.329
Centroid-sig: 26.4%
Centroid-so: 0.604 arcsec [0.83σ]
OotOffset-rm: 0.275 arcsec [1.09σ]
OotOffset-st: 0/0/3/0 [3]
KicOffset-rm: 0.255 arcsec [0.98σ]
KicOffset-st: 0/0/3/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

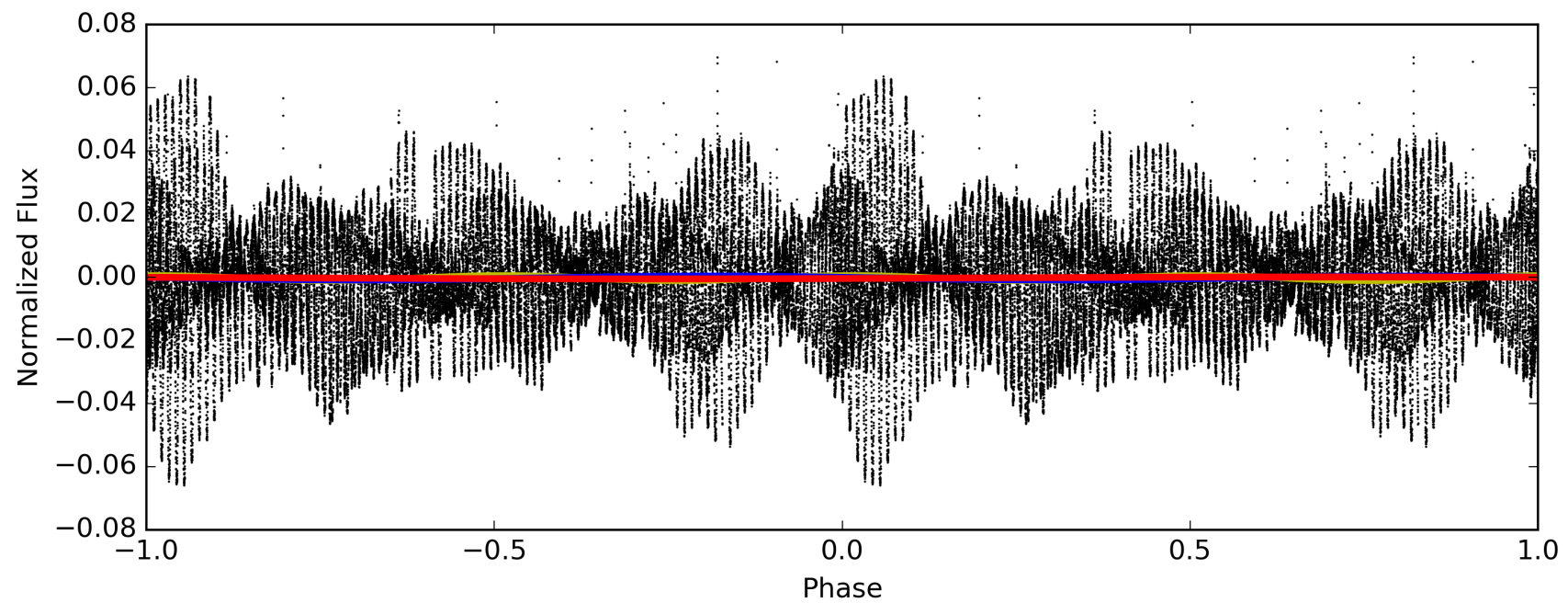
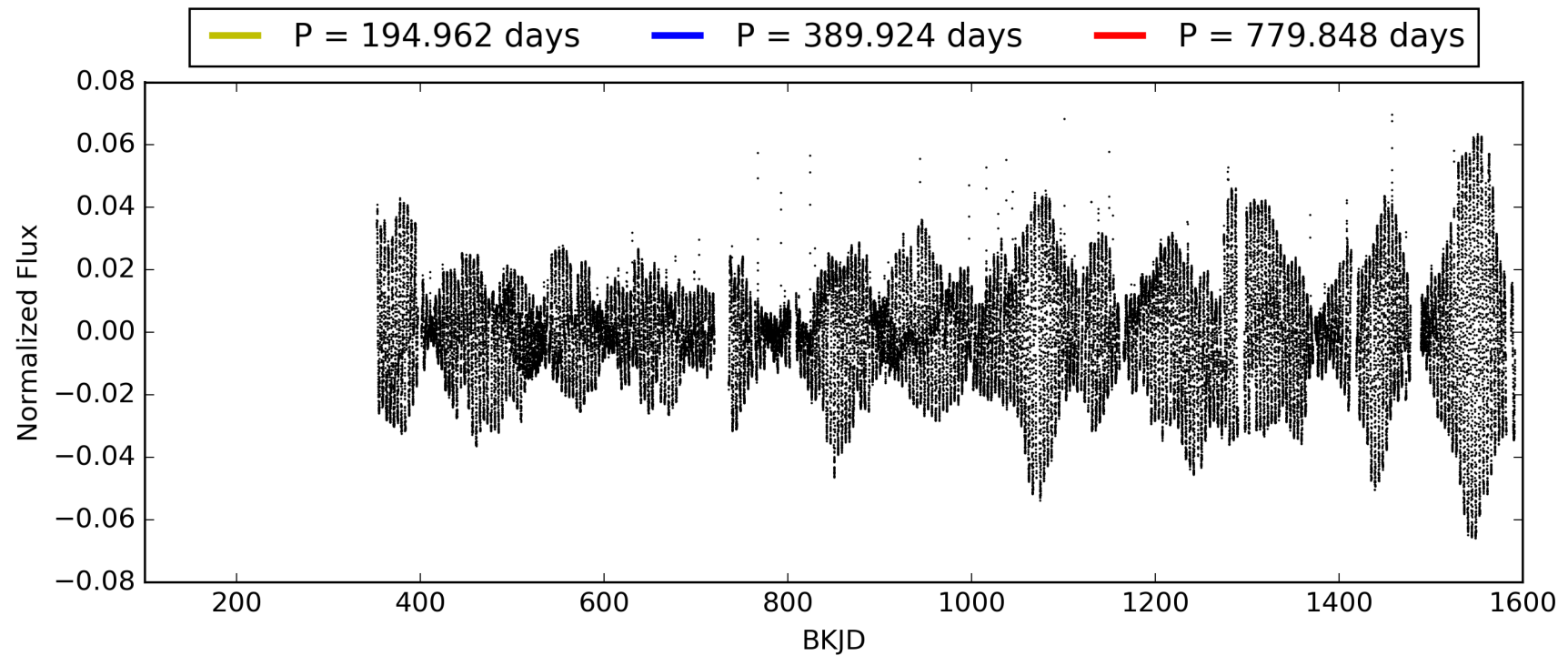
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:04:13 Z

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

TCE 006288970-06, PDC Light Curves

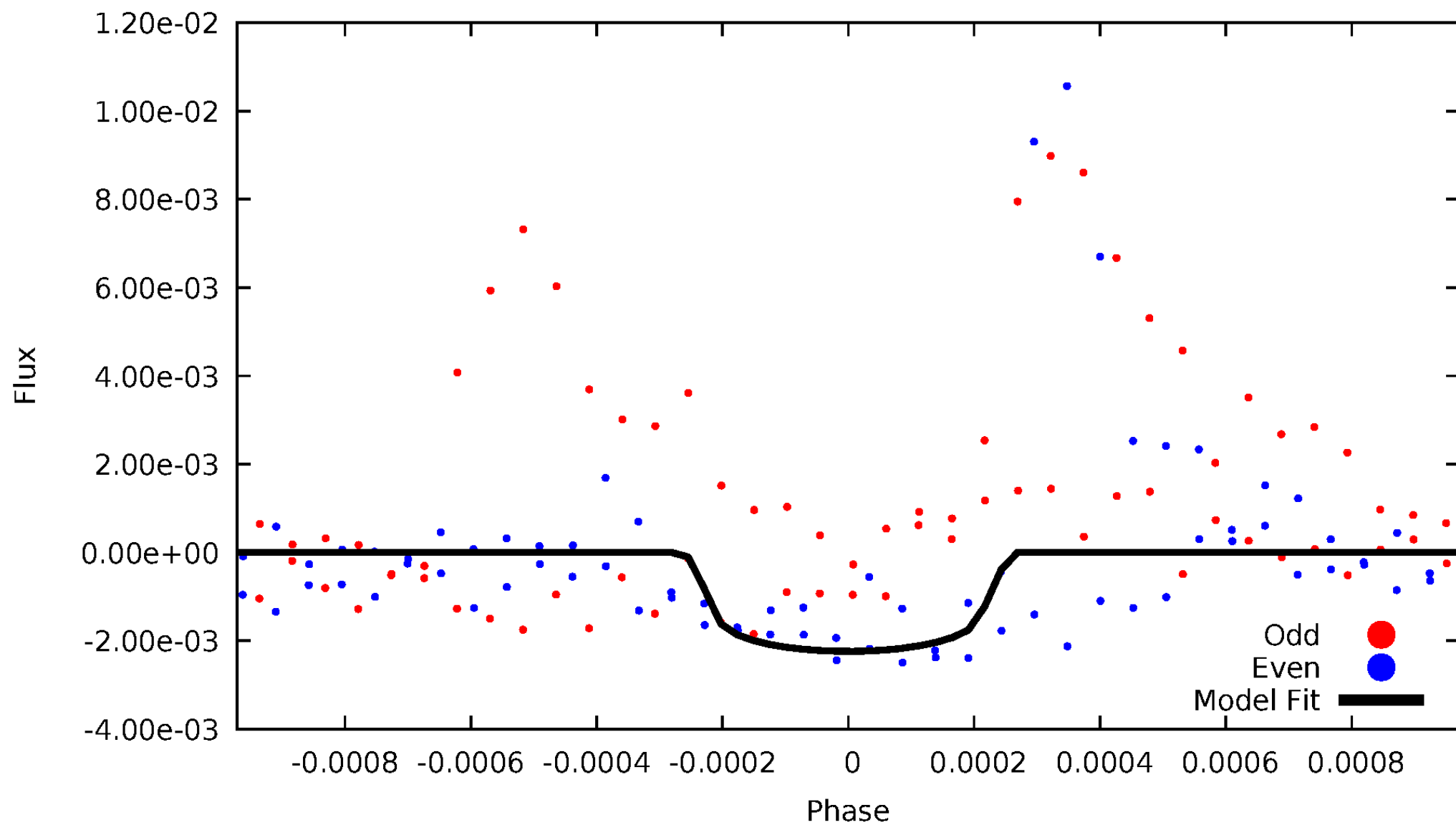


TCE 006288970-06



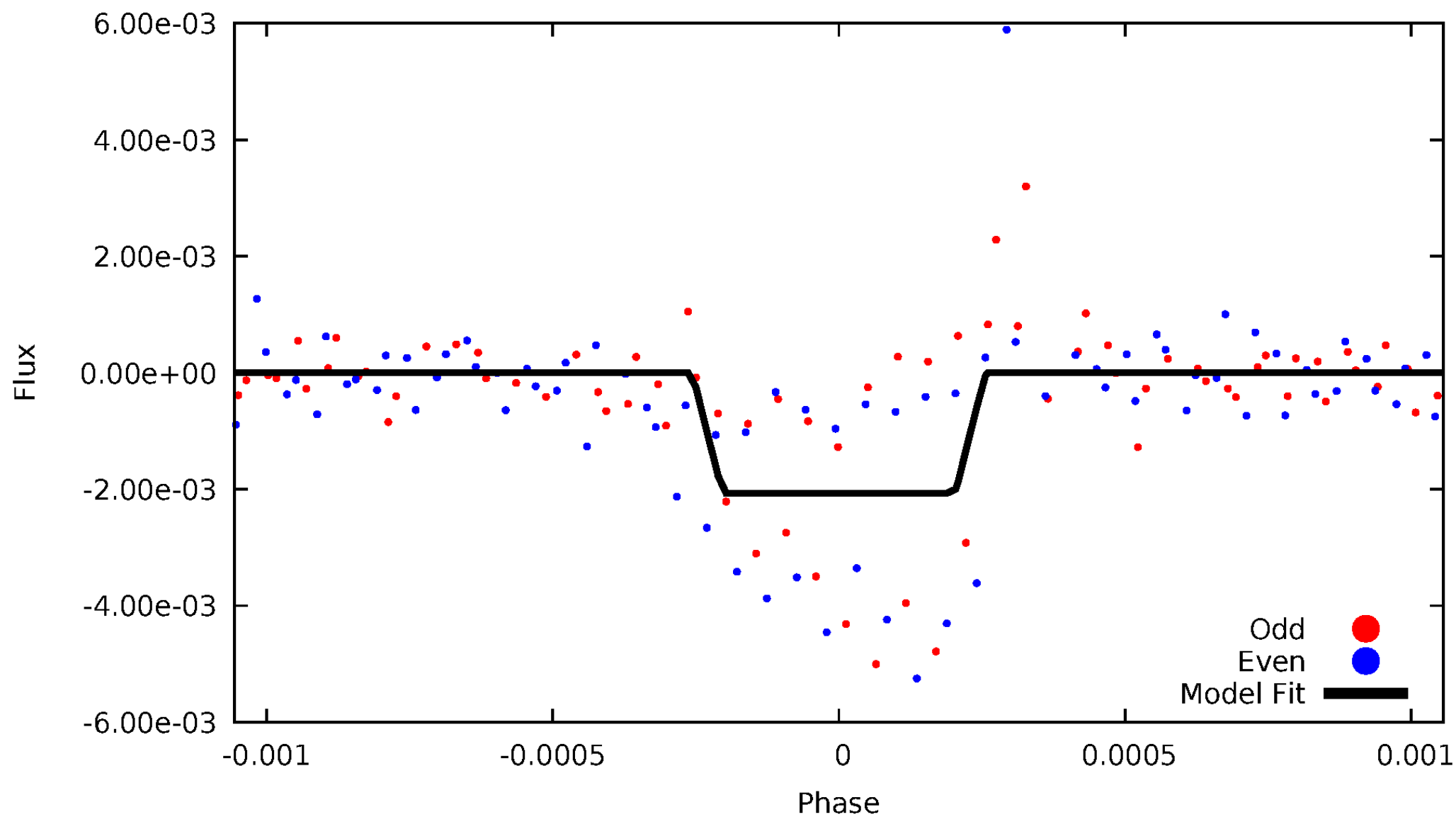
DV Odd/Even

TCE 006288970-06



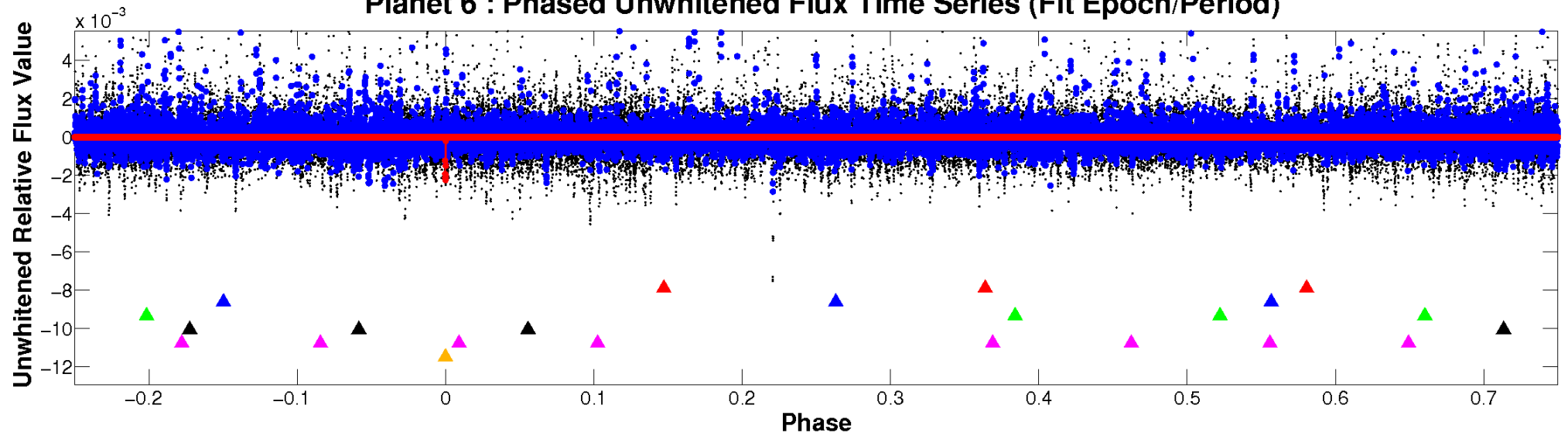
ALT Odd/Even

TCE 006288970-06

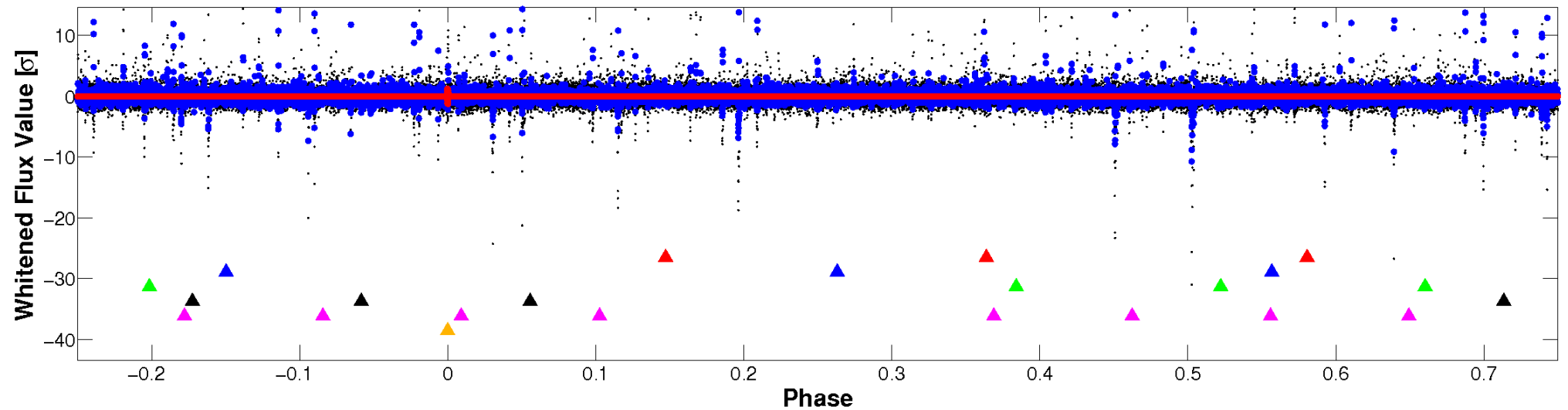


Non-Whitened Vs. Whitened Light Curve

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

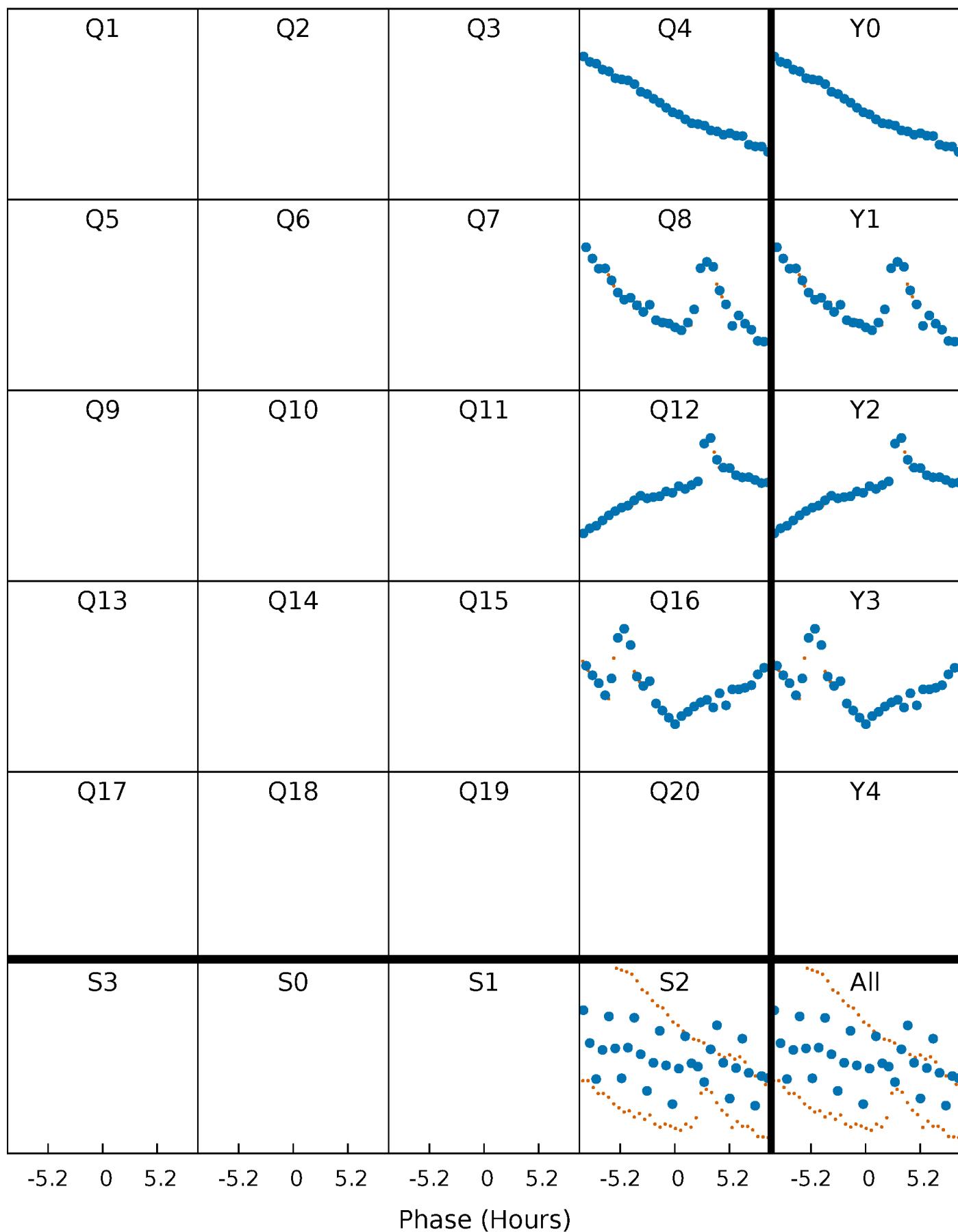


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



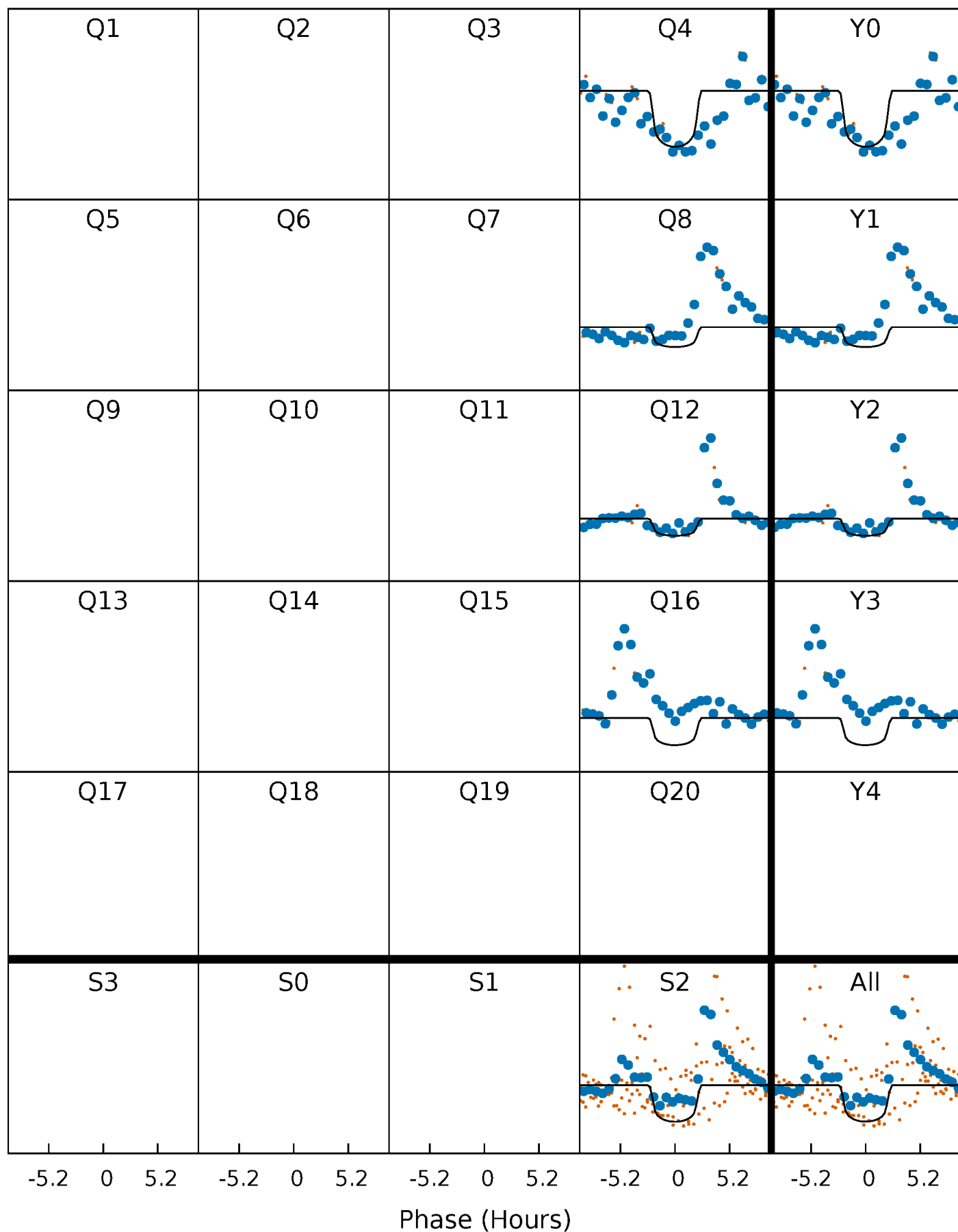
PDC Quarter-Phased Transit Curves

TCE 006288970-06 P=389.923954 Days $T_0=357.471670$ (BKJD)



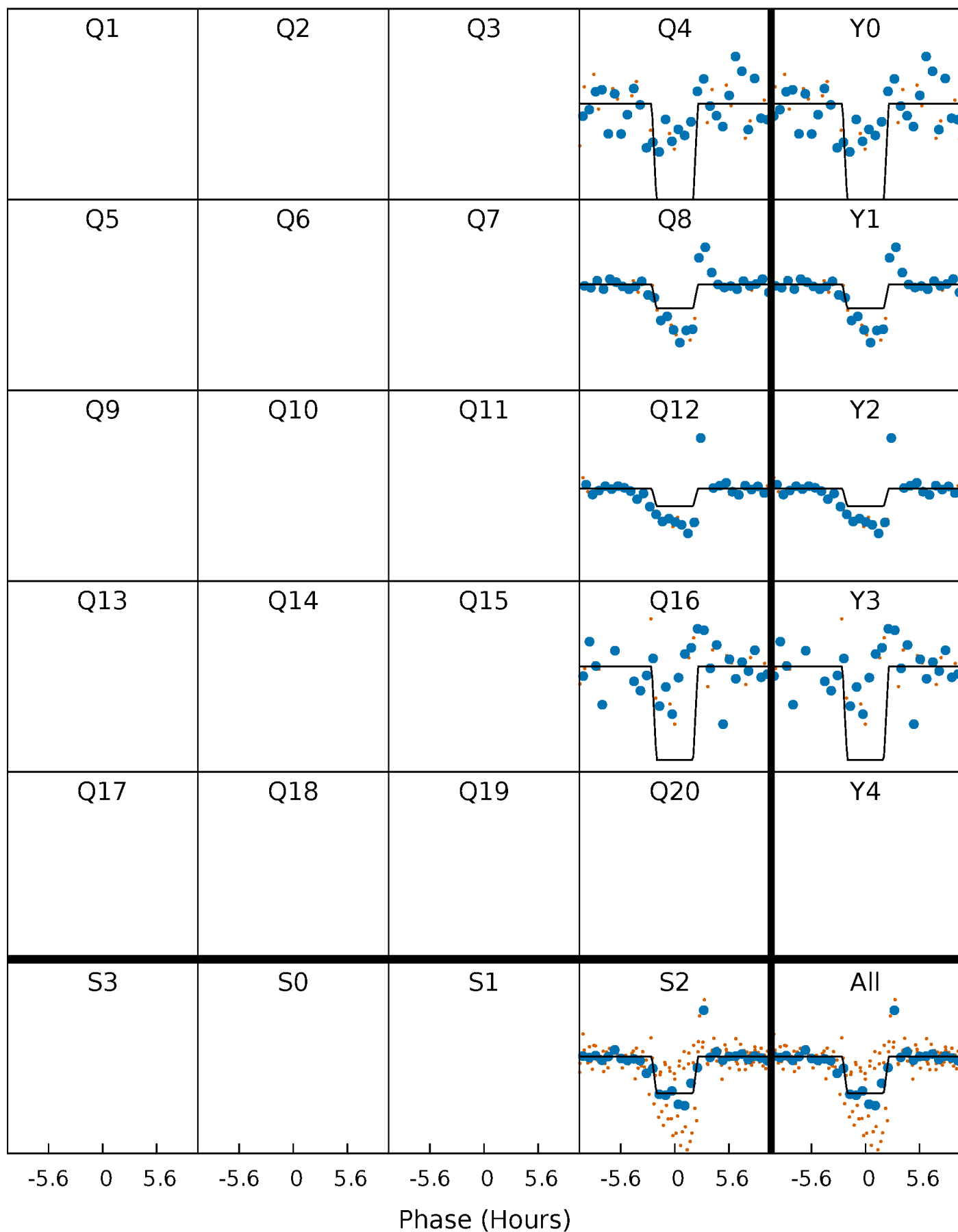
DV Quarter-Phased Transit Curves

TCE 006288970-06 $P=389.923954$ Days $T_0=357.471670$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

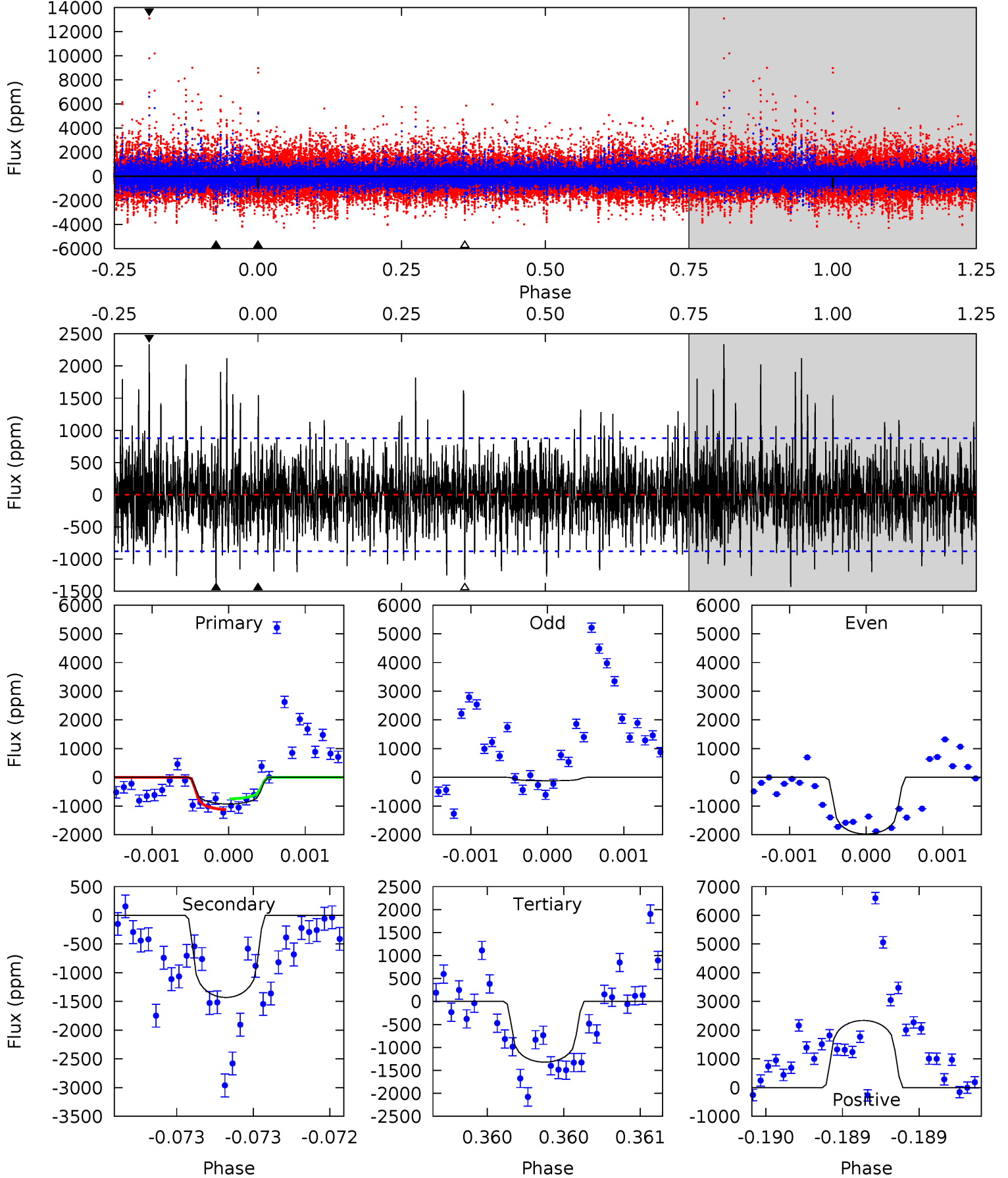
TCE 006288970-06 P=389.926814 Days $T_0=357.466635$ (BKJD)



DV Model-Shift Uniqueness Test

006288970-06, P = 389.923954 Days, E = 357.471670 Days

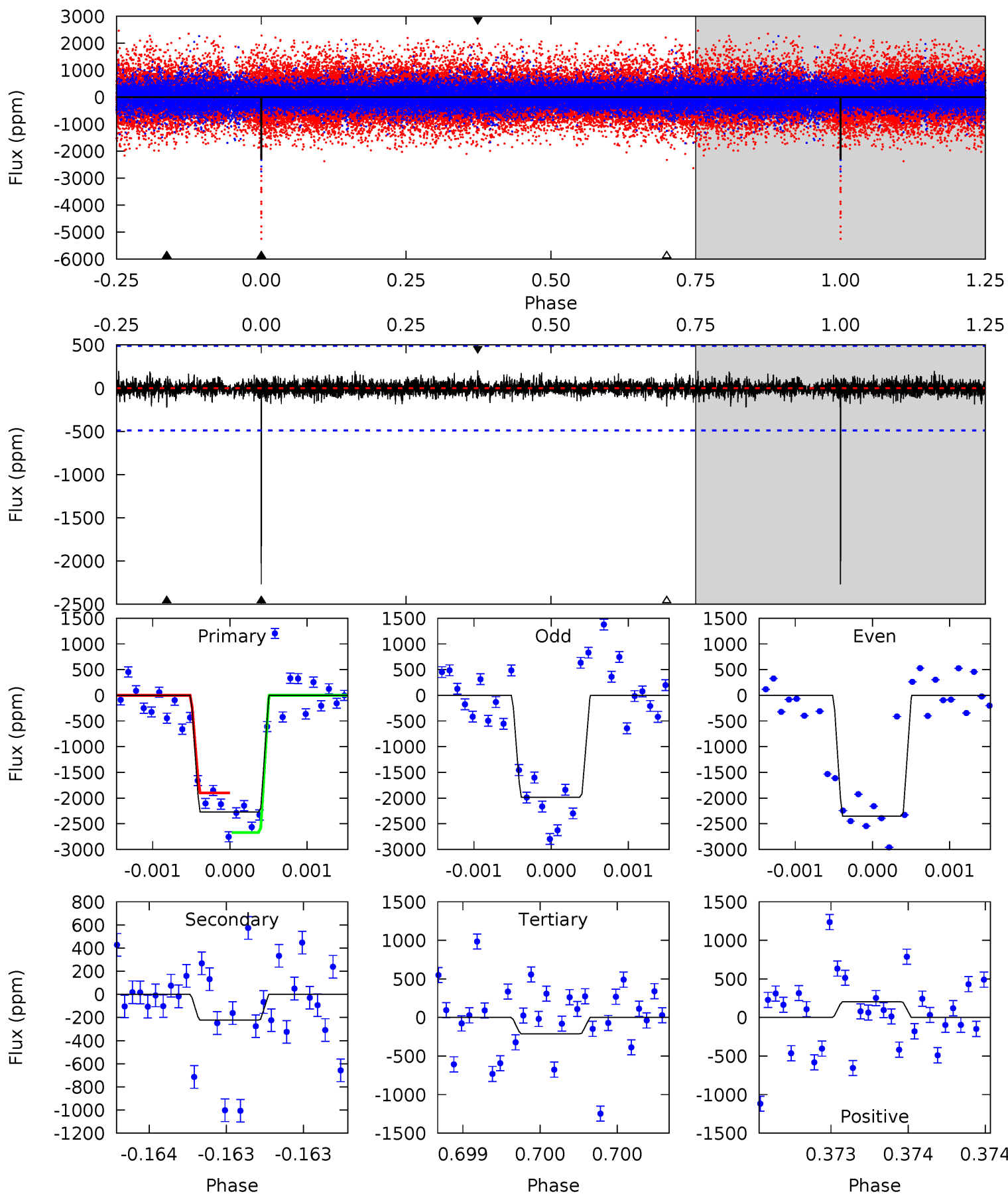
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.90	9.06	8.37	14.8	5.57	3.47	2.44	-2.47	-8.91	0.69	-5.75	4.50	0.84	0.62	1.19



Alt Model-Shift Uniqueness Test

006288970-06, P = 389.926814 Days, E = 357.466635 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.9	2.54	2.41	2.32	5.57	3.48	0.52	23.5	23.6	0.13	0.22	2.05	1.02	0.08	4.28



Stellar Parameters For KIC 006288970

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5786^{+192}_{-192}	$4.521^{+0.069}_{-0.161}$	$-0.500^{+0.300}_{-0.300}$	$0.824^{+0.199}_{-0.099}$	$0.821^{+0.103}_{-0.069}$	$2.069^{+0.606}_{-0.934}$
	+3%/-3%	+2%/-4%	+60%/-60%	+24%/-12%	+13%/-8%	+29%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006288970-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1430 ± 158	$4.23^{+2.76}_{-2.42}$	332^{+22}_{-18}	5357^{+2960}_{-1006}	$43886^{+176113}_{-28145}$
Alt.	-223 ± 88	$4.50^{+2.64}_{-2.36}$	332^{+21}_{-17}	3613^{+1142}_{-511}	5384^{+19594}_{-3378}

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

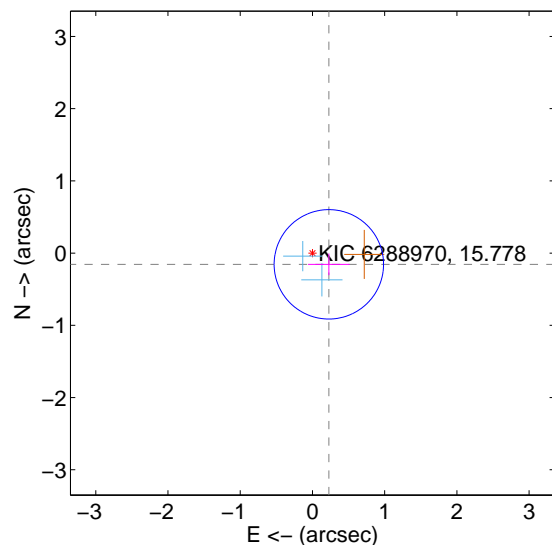
Supplemental centroid analysis for 006288970-06. Kepler magnitude: 15.78. Transit SNR 7.48

There are 2 quarters with good PRF difference image offsets

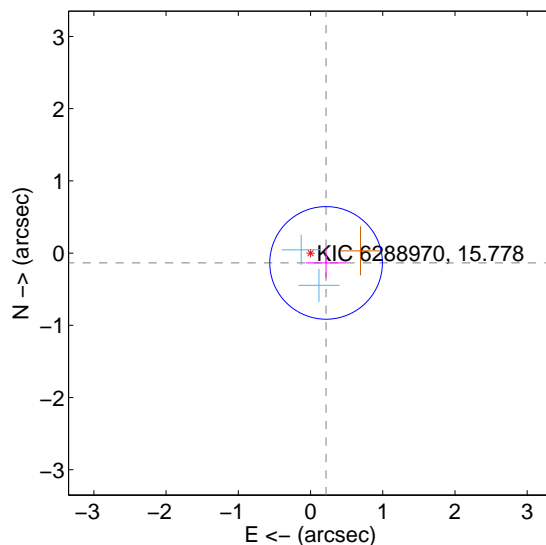
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.275 ± 0.252	1.09	-0.227 ± 0.288	-0.155 ± 0.150
PRF-fit source offset from KIC position	0.255 ± 0.260	0.98	-0.216 ± 0.280	-0.136 ± 0.201
photometric centroid source offset	0.60 ± 0.73	0.83	0.27 ± 0.71	0.54 ± 0.73

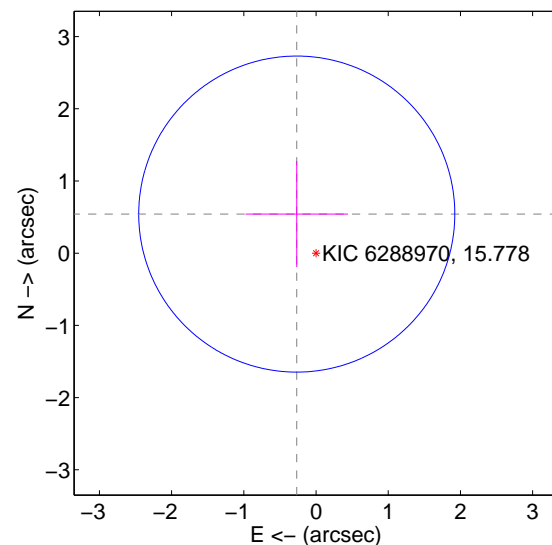
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

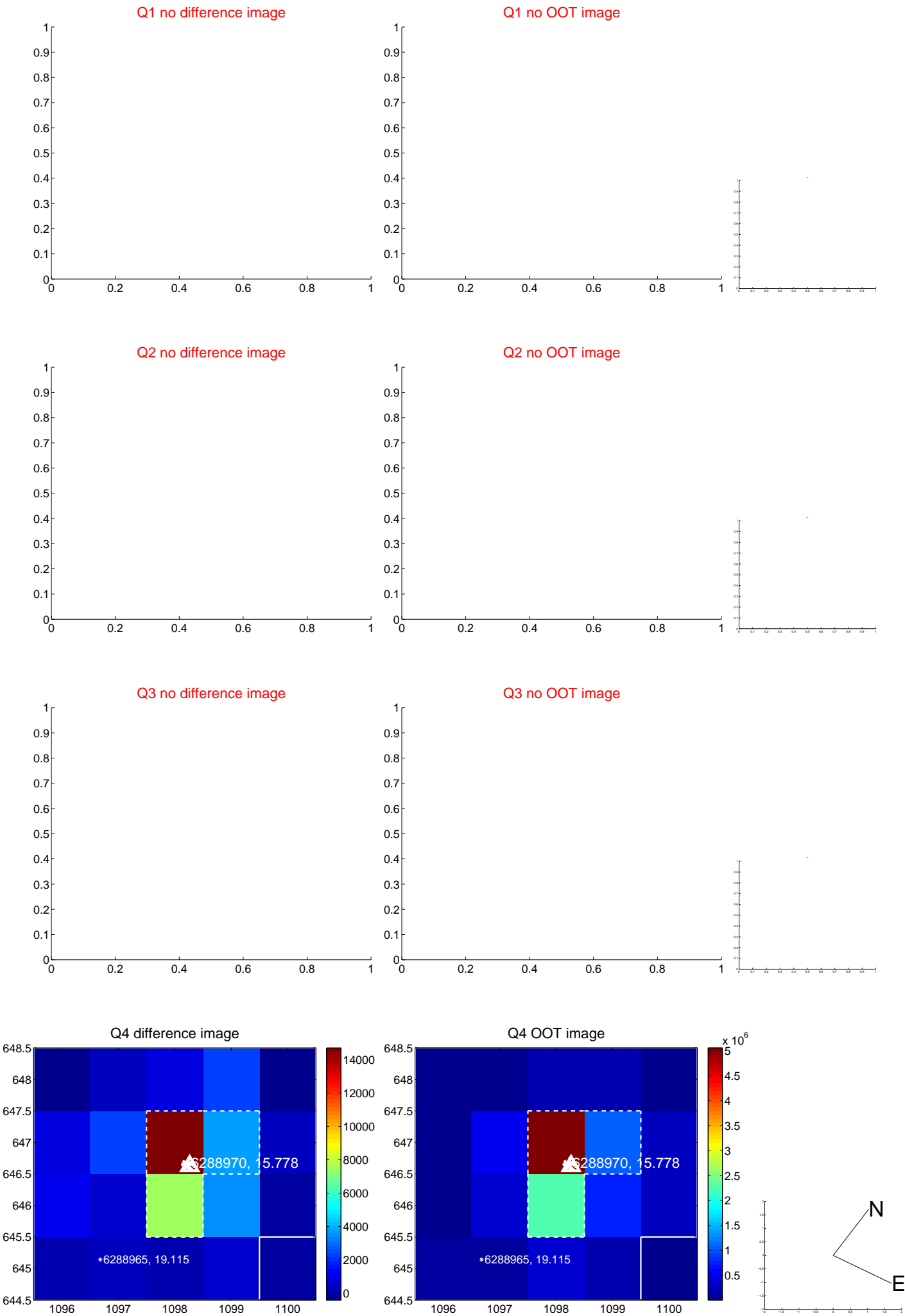


offset from photometric centroids

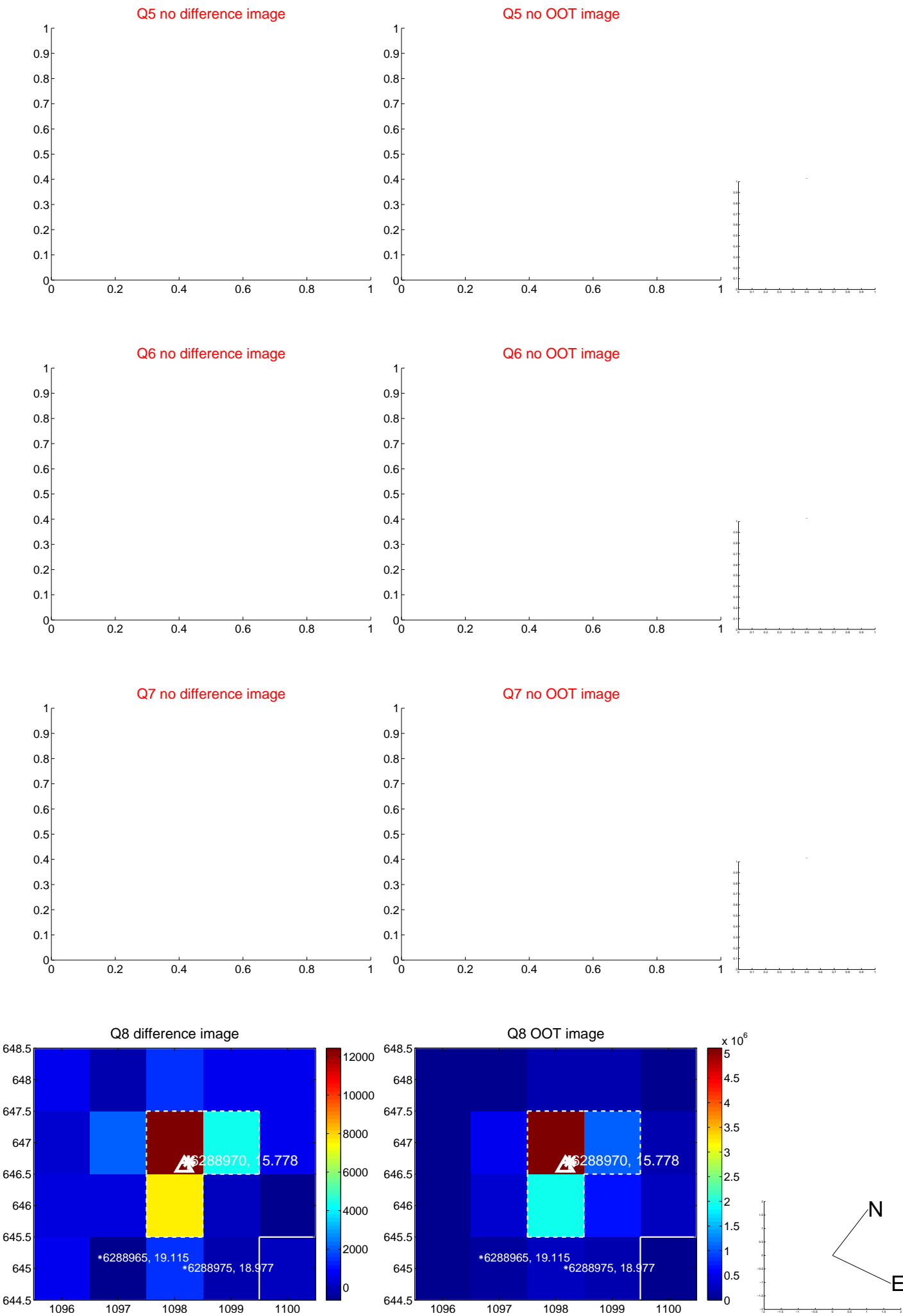


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

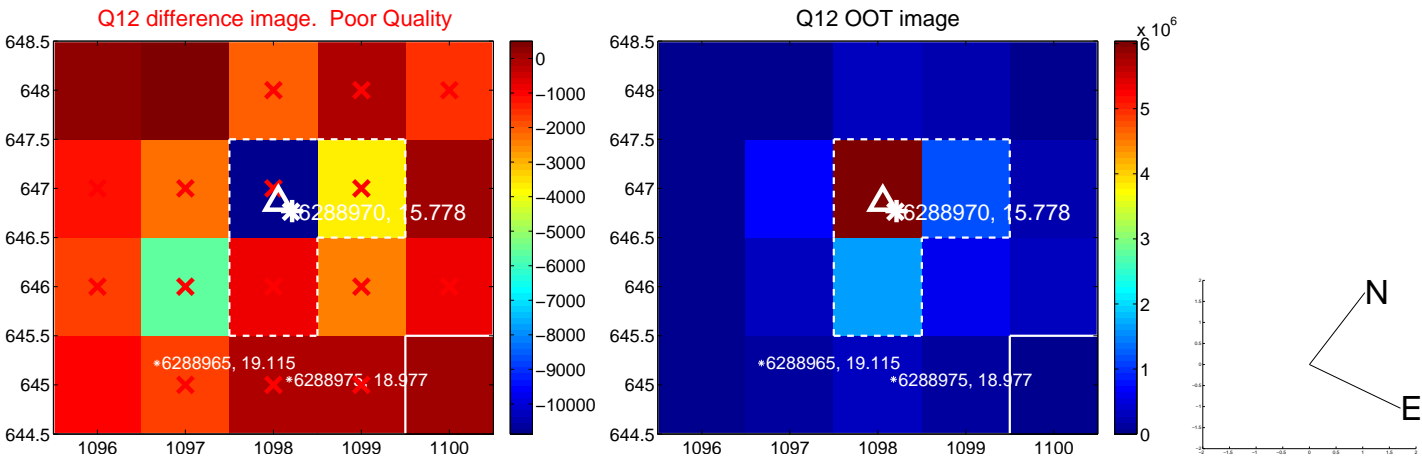
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



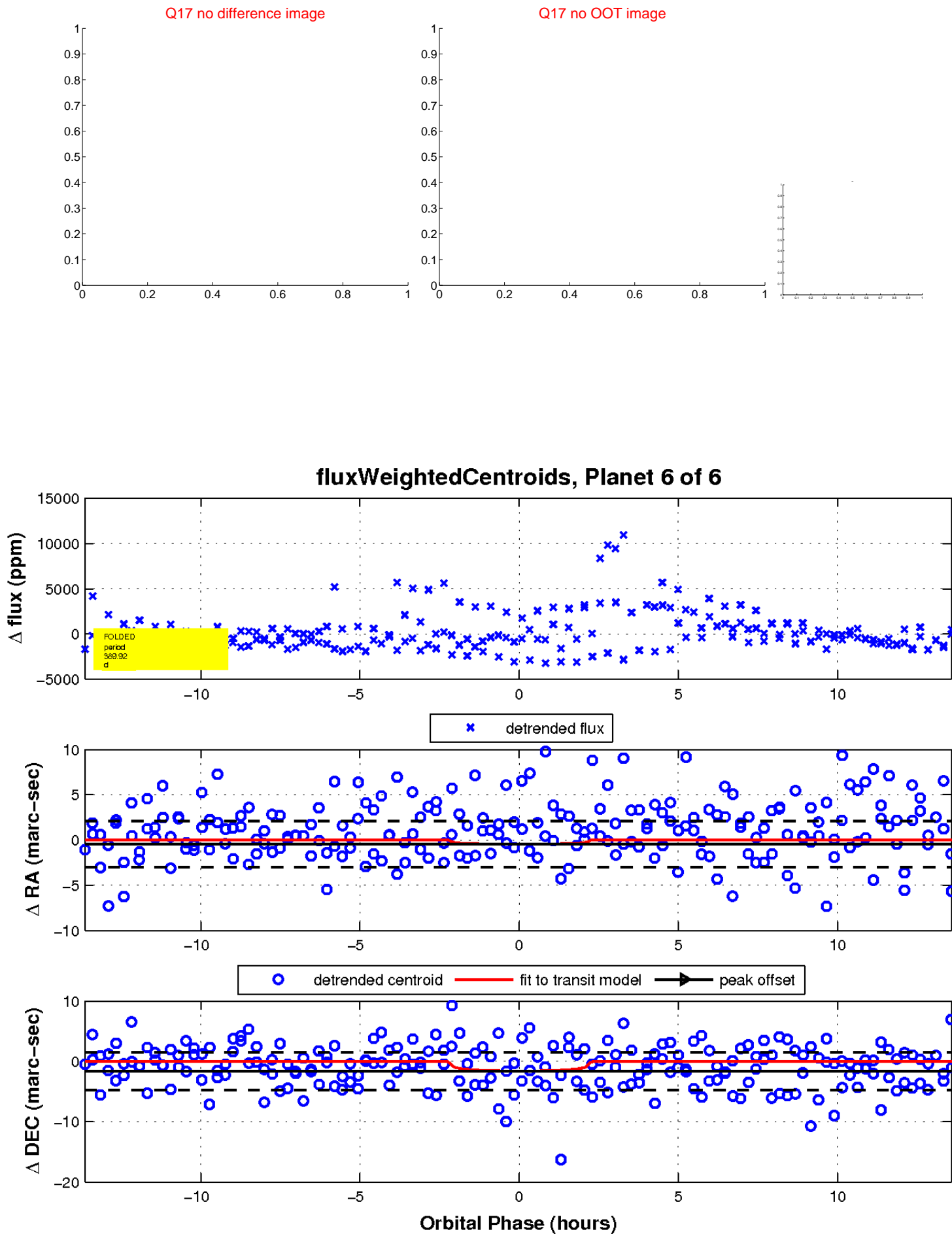
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



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

