

KIC 004672010

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})
004672010-01	OBS	No	0.962914	131.669787	106.5	3.252	89.0	10.6	0.69	4687	0.74	736.79
004672010-02	OBS	No	0.963963	132.071611	8032.4	2.000	121.5	-1.0	0.69	4687	5.97	735.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004672010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_KIC_POS
004672010-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS

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

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

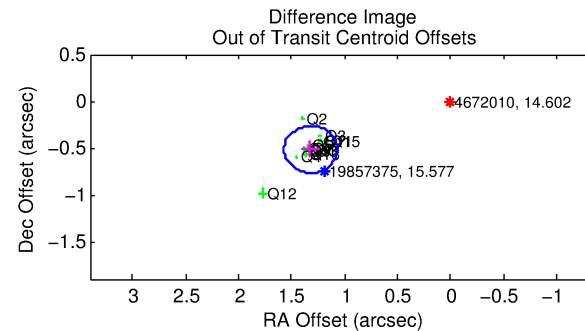
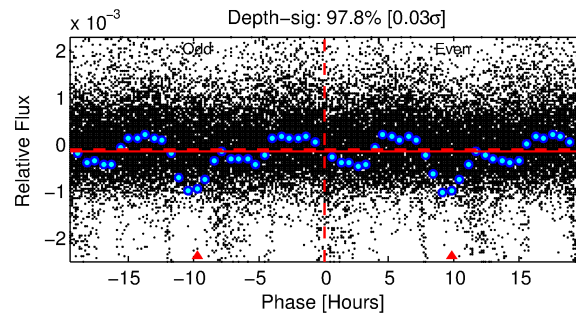
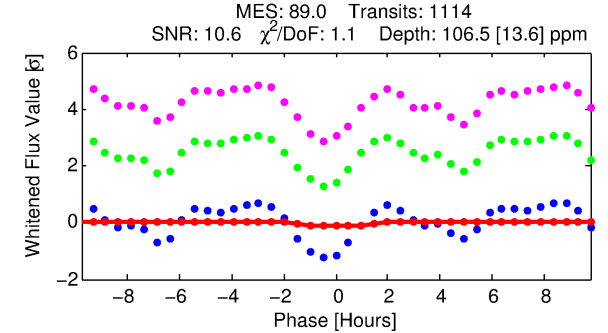
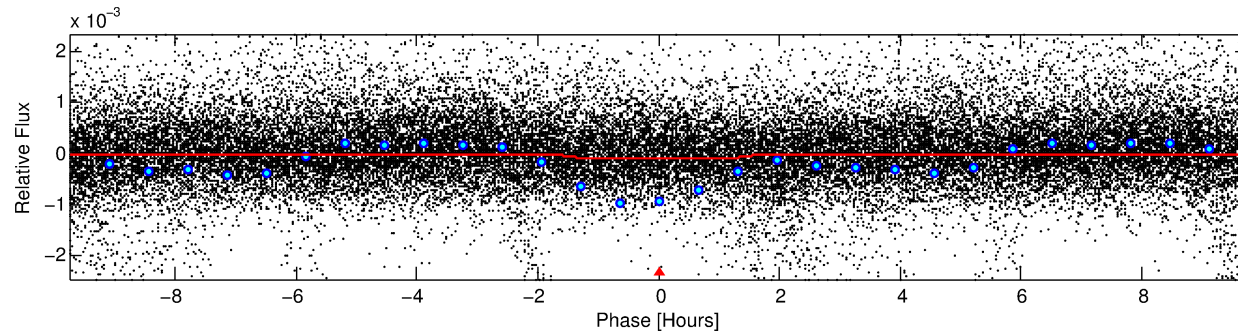
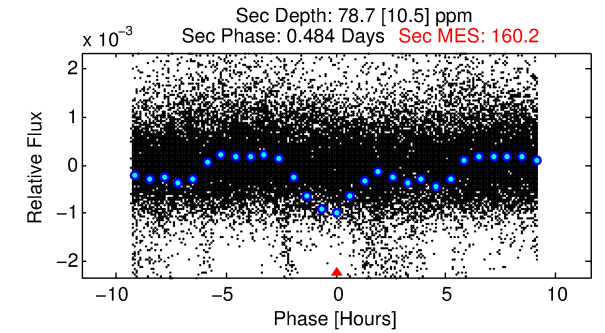
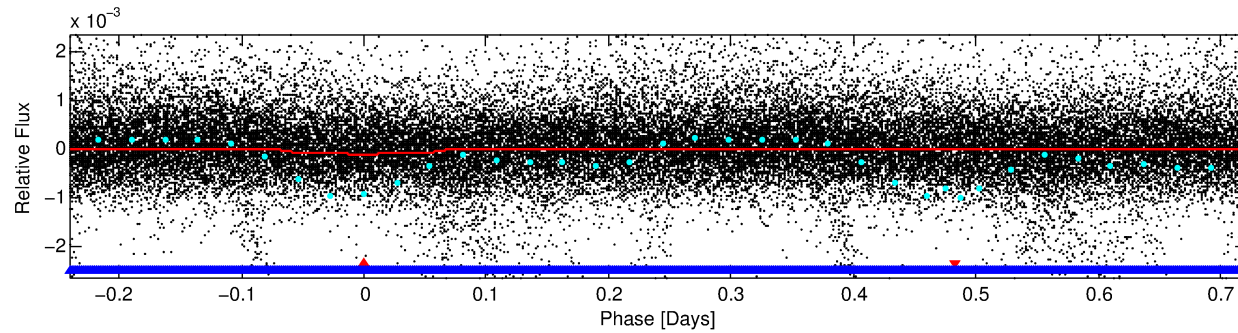
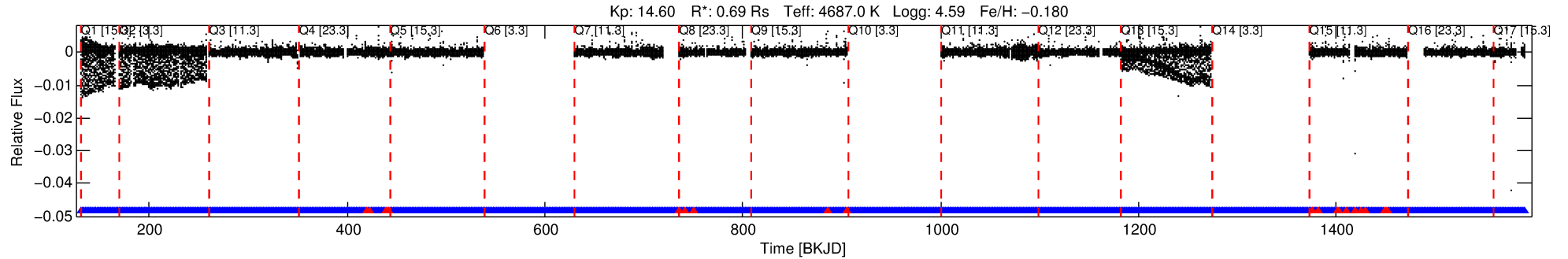
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004672010-01

No Significant Match Found

DV One-Page Summary

KIC: 4672010 Candidate: 1 of 2 Period: 0.963 d



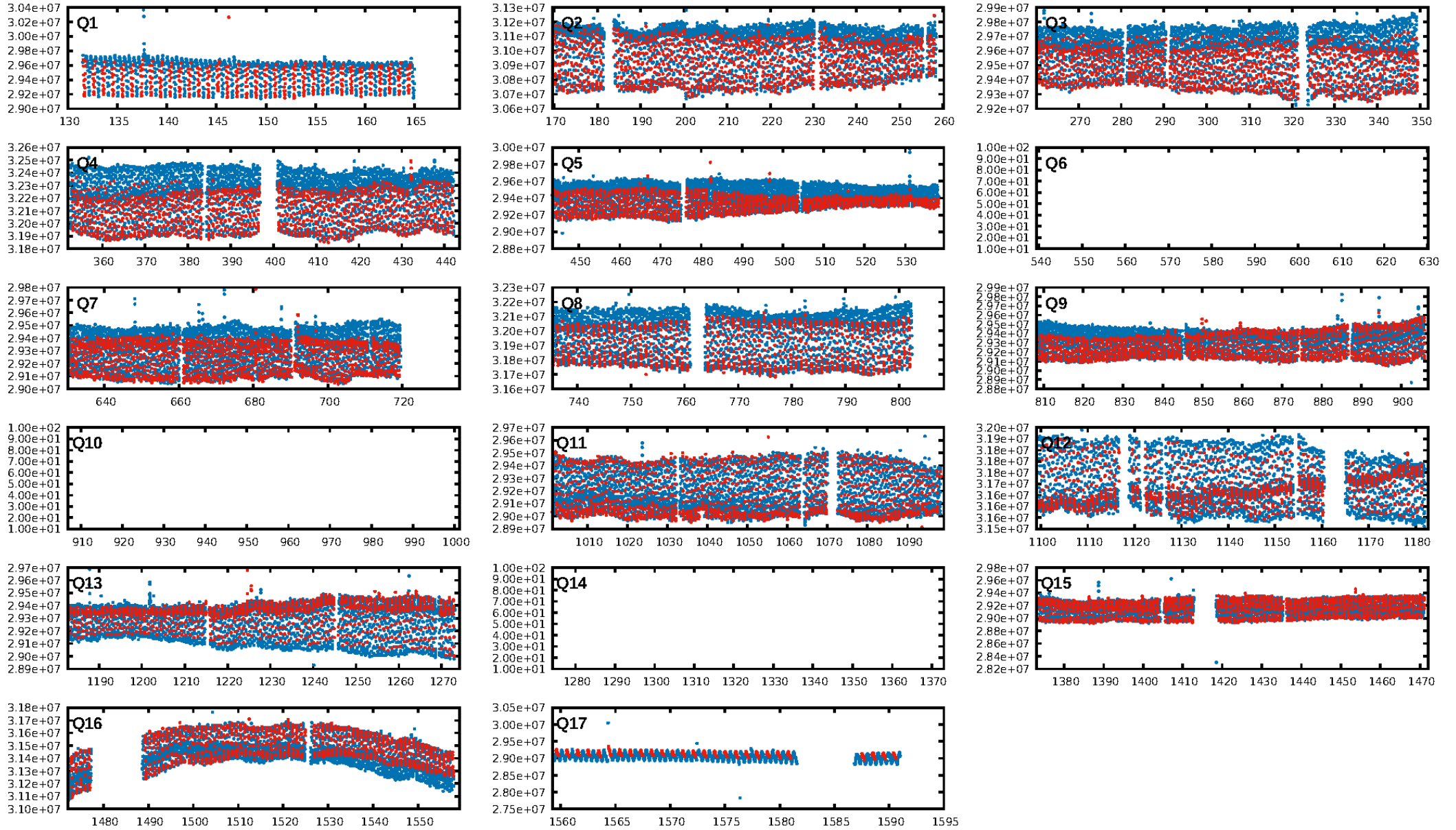
DV Fit Results:

Period = 0.96291 [0.00001] d
Epoch = 131.6698 [0.0029] BKJD
Rp/R* = 0.0099 [0.0060]
a/R* = 1.93 [2.77]
b = 0.64 [1.85]
Seff = 736.79 [116.80]
Teff = 1329 [53] K
Rp = 0.74 [0.46] Re
a = 0.0167 [0.0012] AU
Ag = 21.90 [26.94] [0.78σ]
Teffp = 4443 [1368] K [2.28σ]

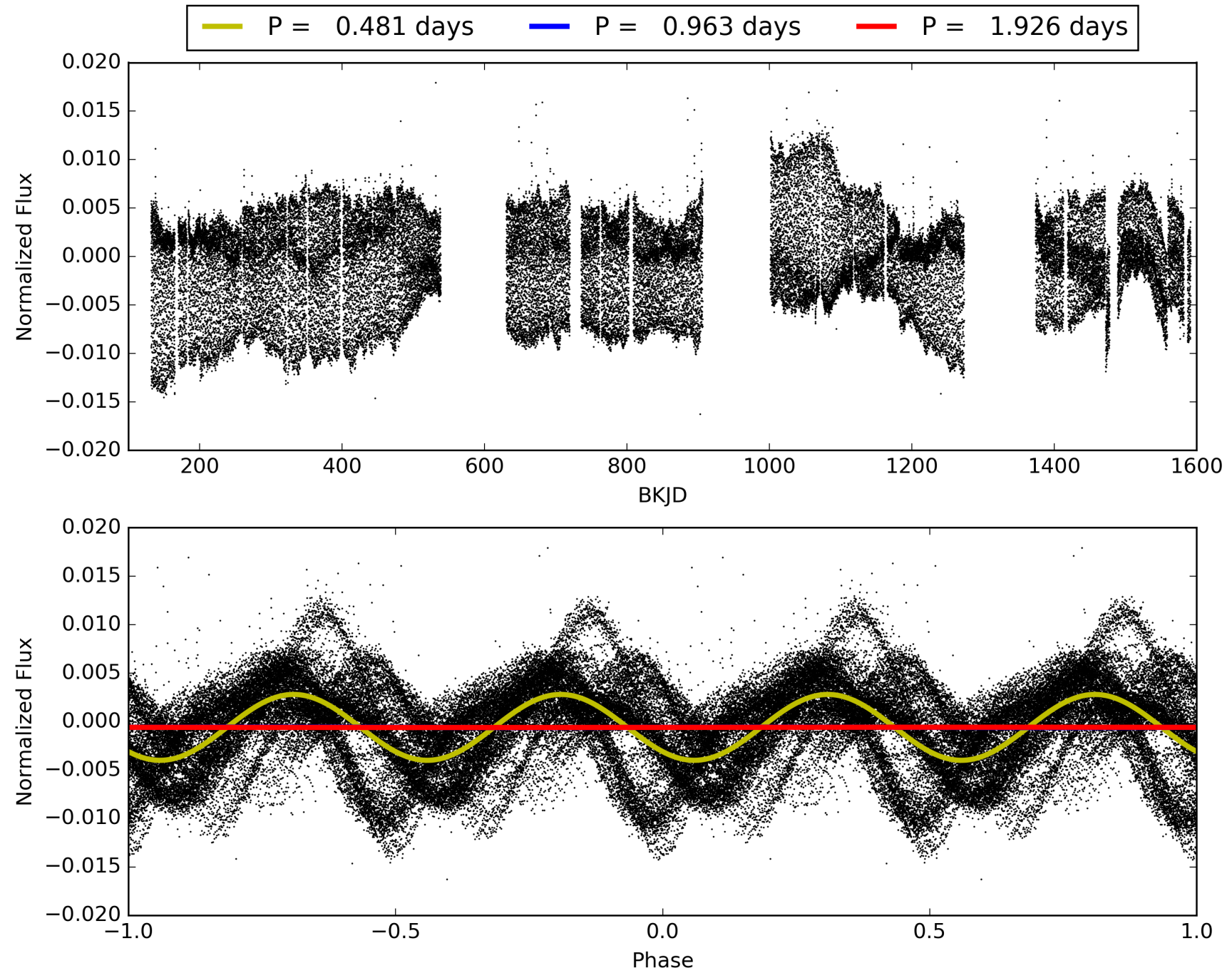
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.5% [0.01σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1030/1052]
GhostDiagnostic-chr: 1.064
Centroid-sig: 0.0%
Centroid-so: 1.666 arcsec [2.14σ]
OotOffset-rm: 1.416 arcsec [16.87σ]
KicOffset-rm: 1.439 arcsec [19.02σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 0.14 [2/14]

TCE 004672010-01, PDC Light Curves

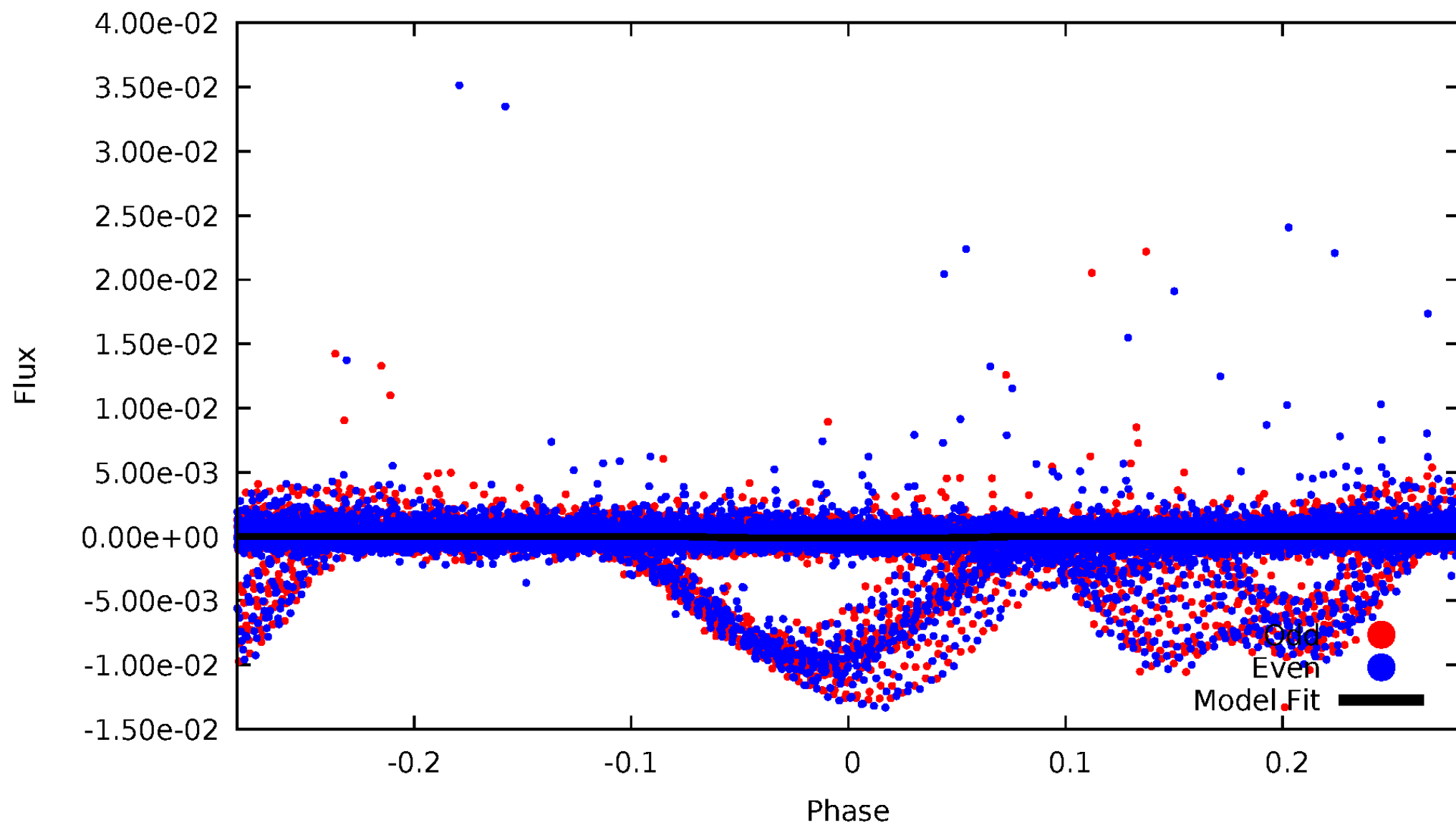


TCE 004672010-01



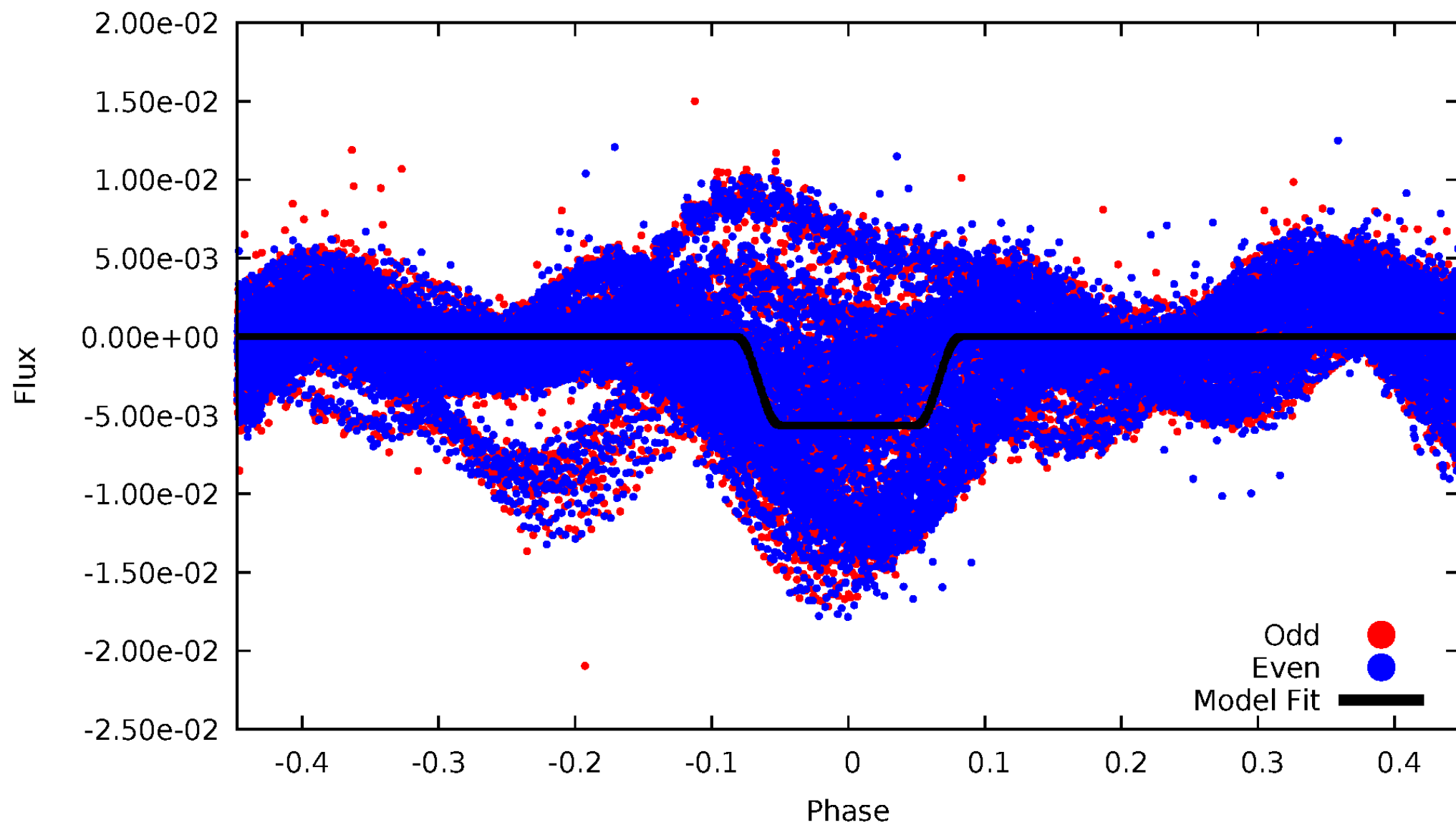
DV Odd/Even

TCE 004672010-01



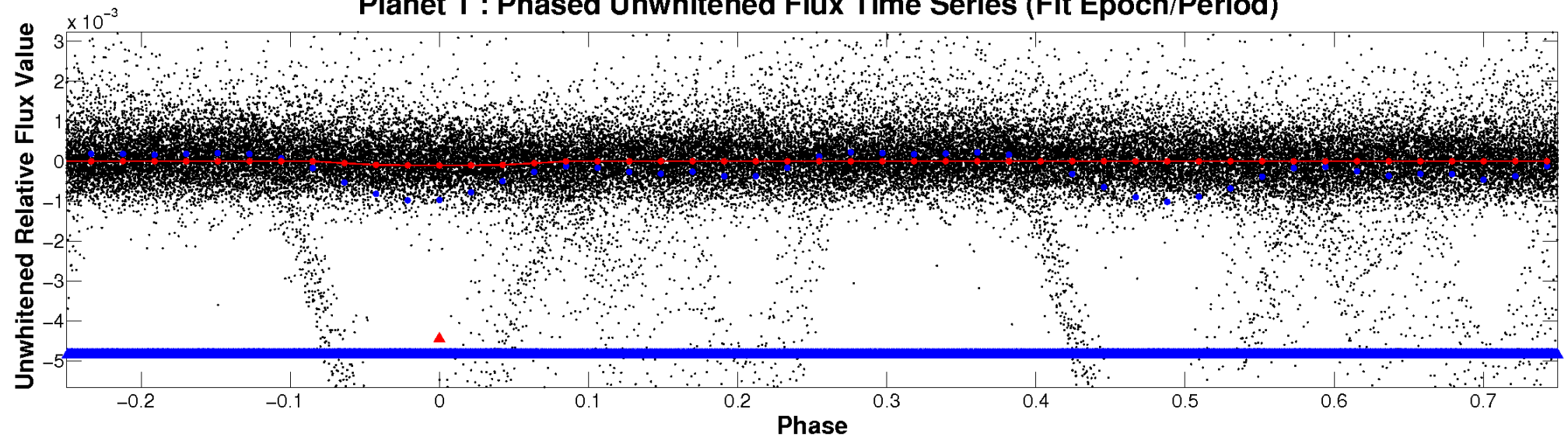
ALT Odd/Even

TCE 004672010-01

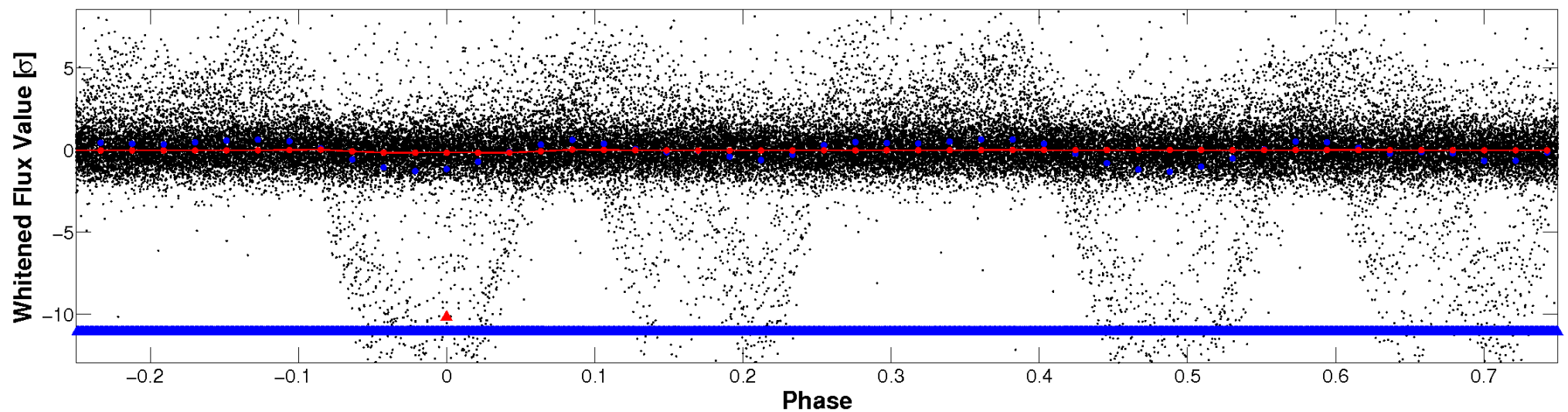


Non-Whitened Vs. Whitened Light Curve

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

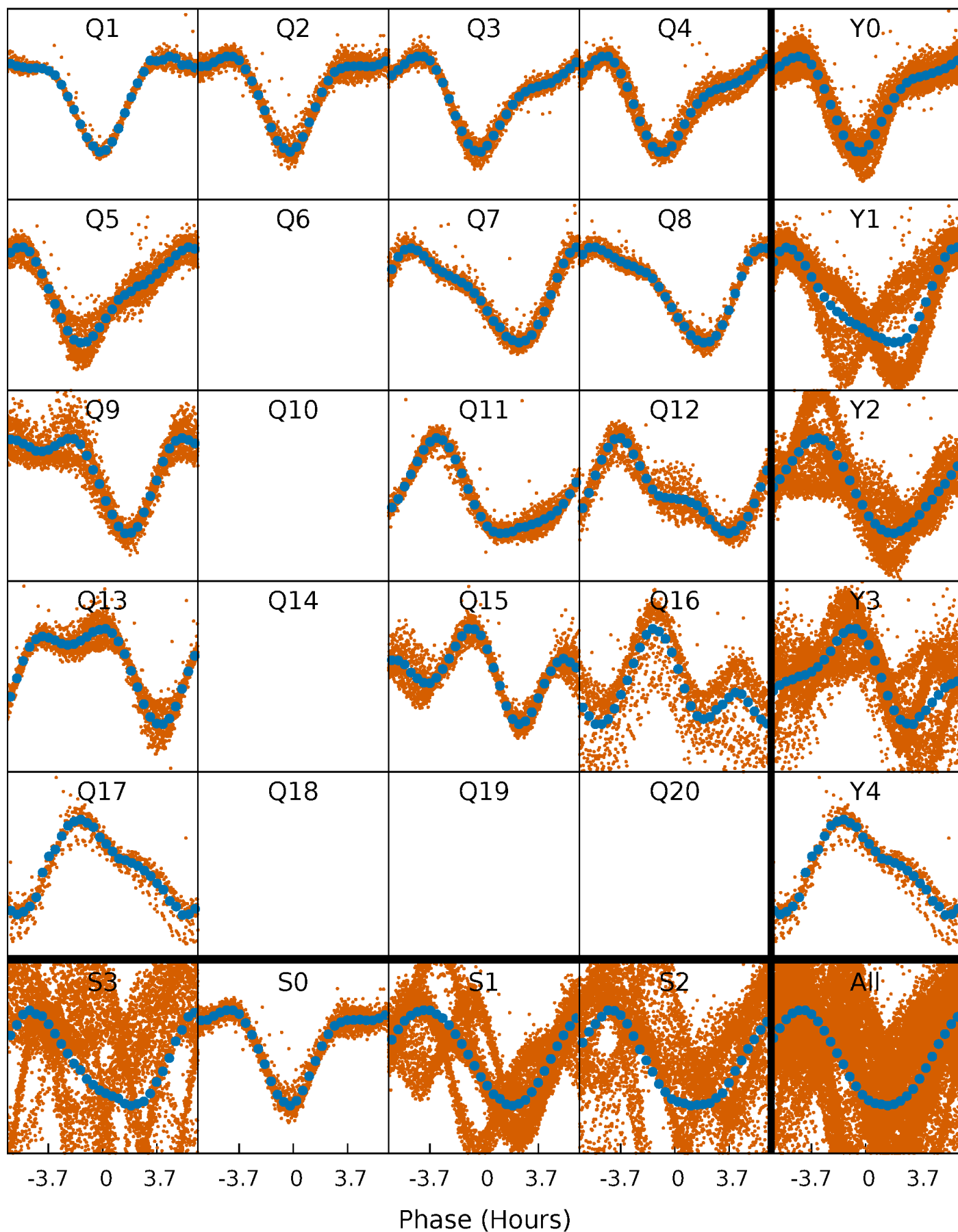


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



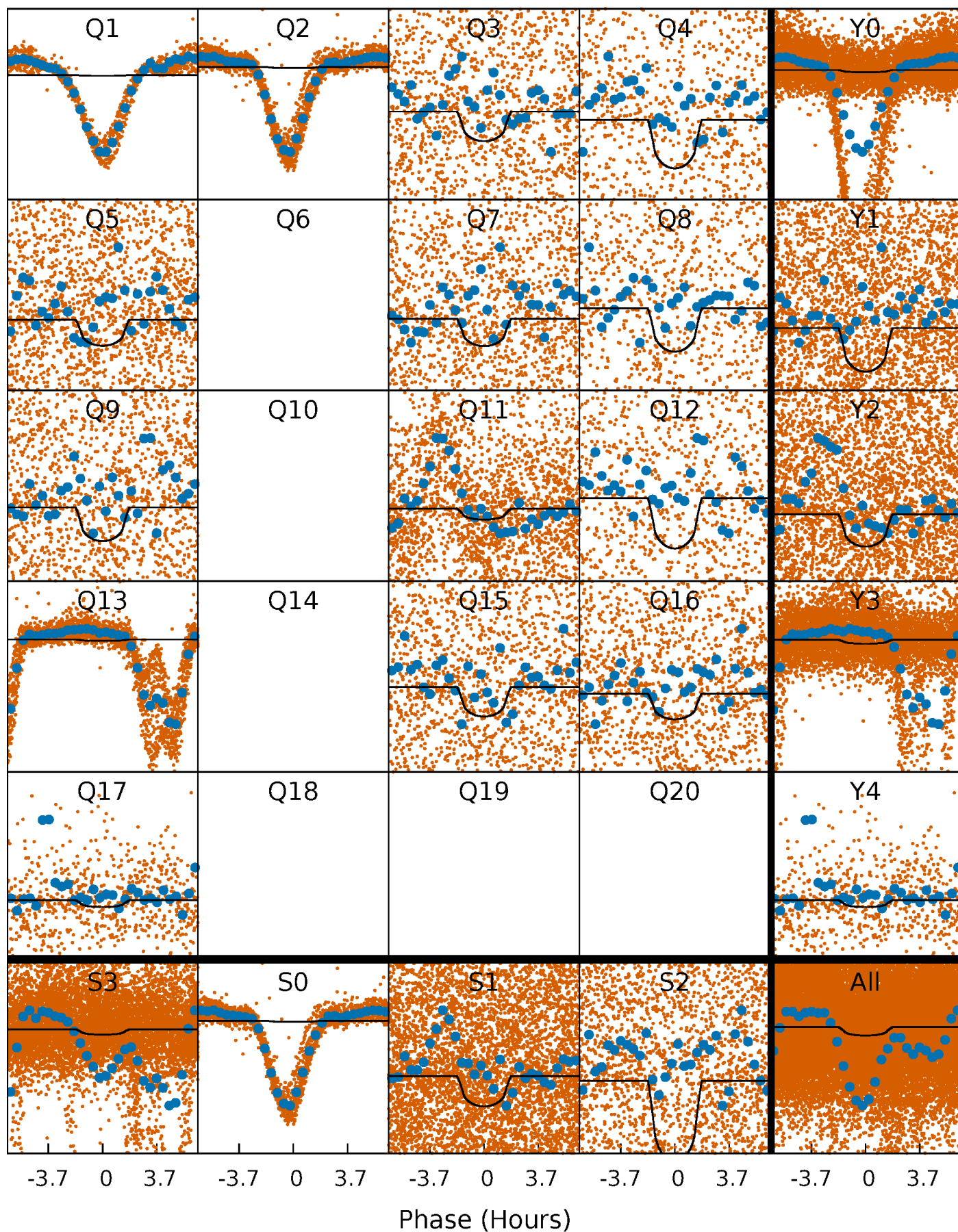
PDC Quarter-Phased Transit Curves

TCE 004672010-01 P= 0.962914 Days $T_0=131.669788$ (BKJD)



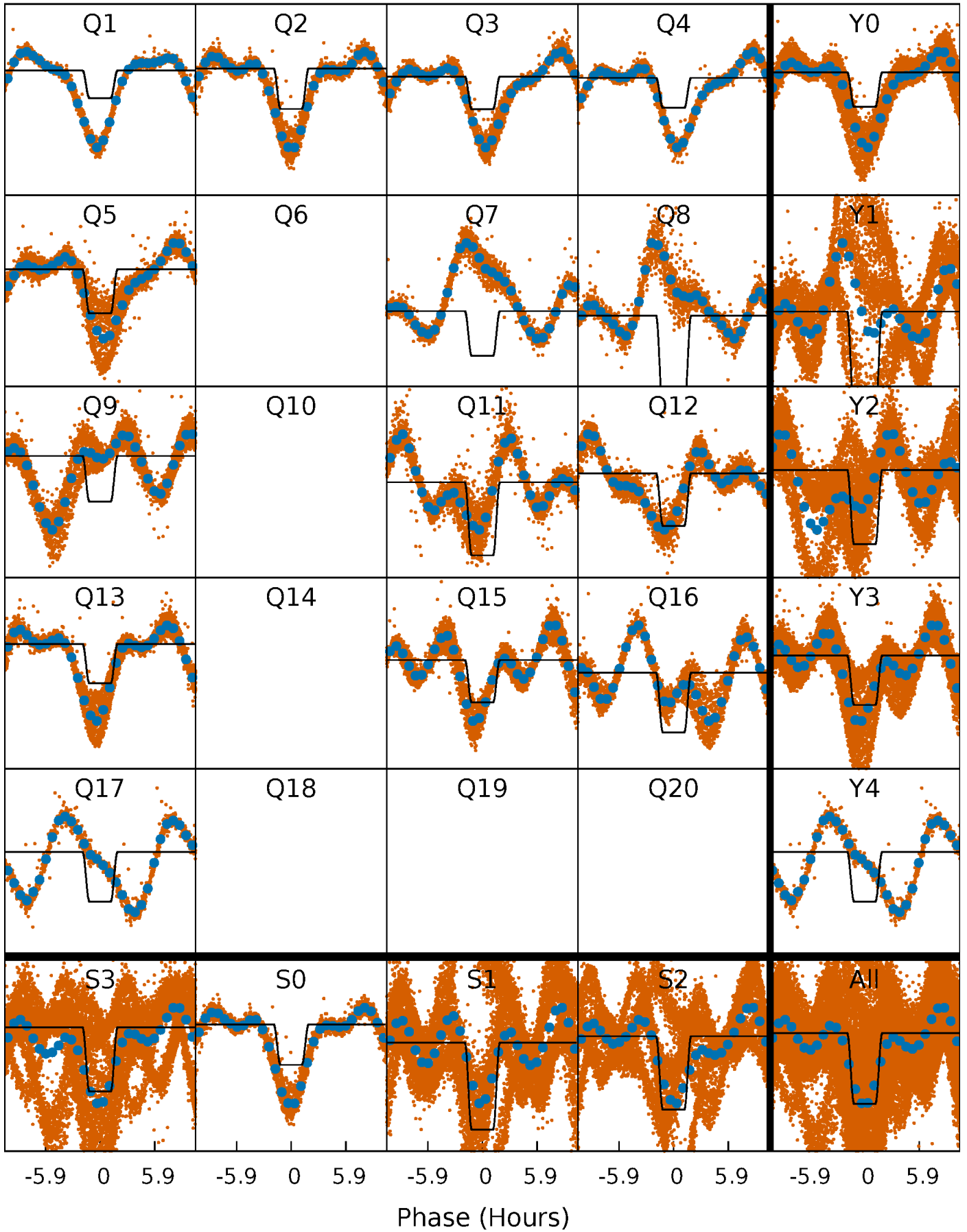
DV Quarter-Phased Transit Curves

TCE 004672010-01 P= 0.962914 Days $T_0=131.669788$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

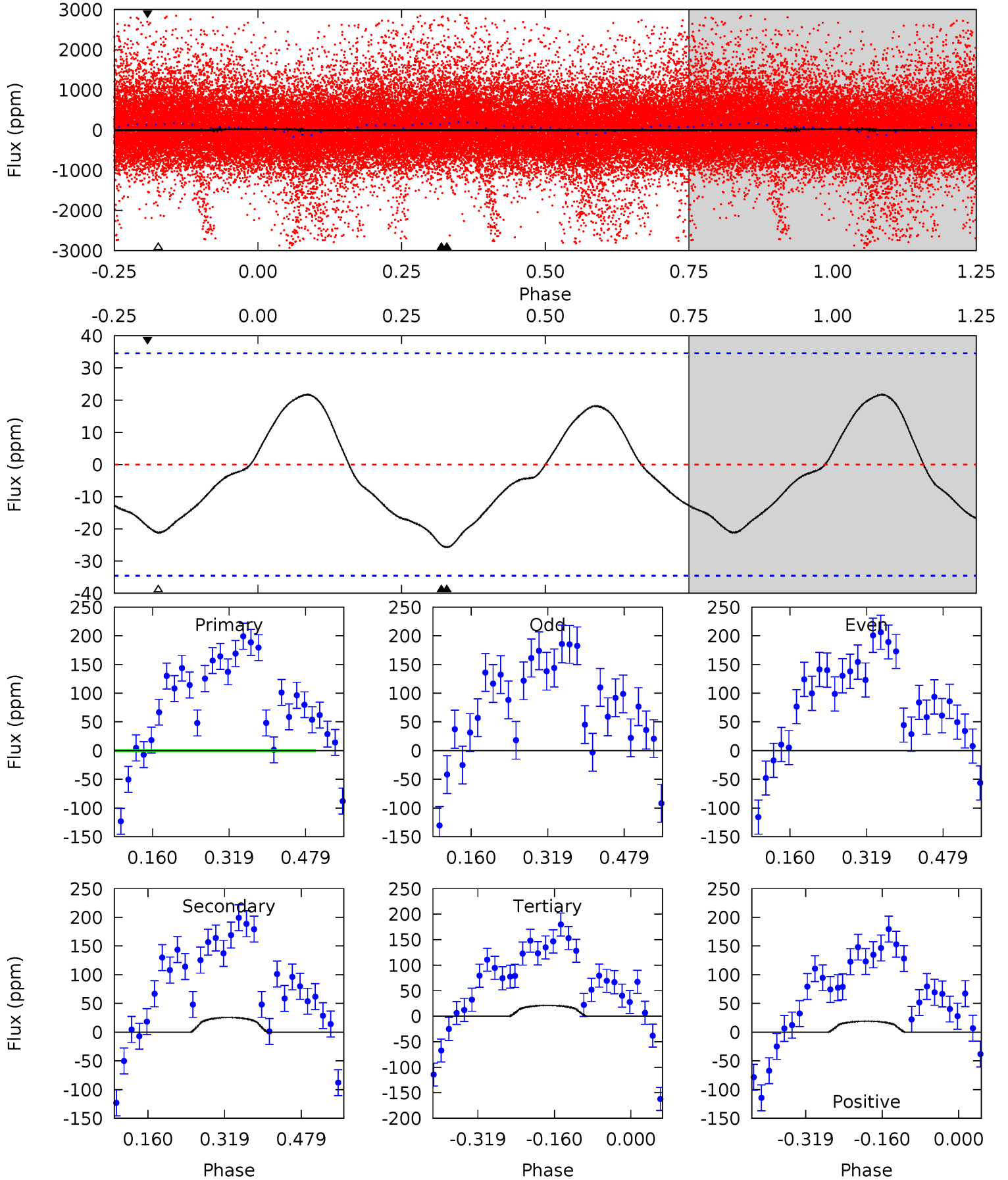
TCE 004672010-01 P= 0.962644 Days $T_0=131.683057$ (BKJD)



DV Model-Shift Uniqueness Test

004672010-01, P = 0.962914 Days, E = 130.706874 Days

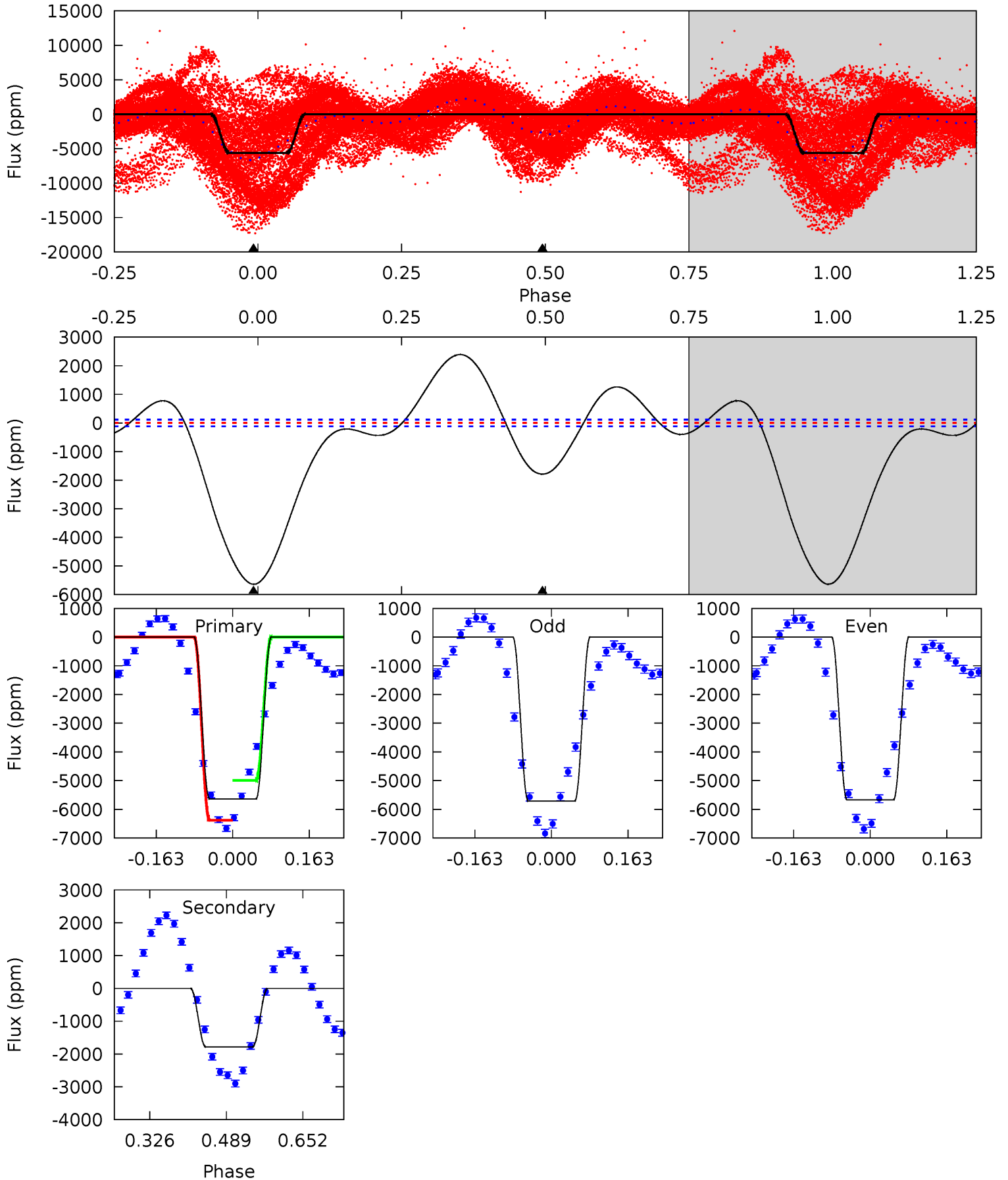
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.24	3.32	2.73	-2.47	4.47	1.41	1.72	0.51	5.71	0.58	5.79	1.48	13.8	0.46	3.65



Alt Model-Shift Uniqueness Test

004672010-01, P = 0.962644 Days, E = 130.720413 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
210.1	66.7	0	0	4.46	1.39	25.6	210.1	210.1	66.7	66.7	0.84	0.99	0.30	26.1



Stellar Parameters For KIC 004672010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4687^{+140}_{-126}	$4.588^{+0.056}_{-0.028}$	$-0.180^{+0.300}_{-0.300}$	$0.691^{+0.049}_{-0.061}$	$0.676^{+0.084}_{-0.049}$	$2.882^{+0.726}_{-0.372}$
	+3%/-3%	+1%/-1%	+167%/-167%	+7%/-9%	+12%/-7%	+25%/-13%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004672010-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-26 ± 8	$0.77^{+0.44}_{-0.42}$	1845^{+62}_{-60}	3584^{+1253}_{-528}	$6.626^{+26.122}_{-4.119}$
Alt.	-1789 ± 27	$5.62^{+0.54}_{-0.48}$	1842^{+63}_{-59}	3767^{+147}_{-125}	$8.917^{+1.693}_{-1.408}$

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 $A_{obs} \gg 1.0$

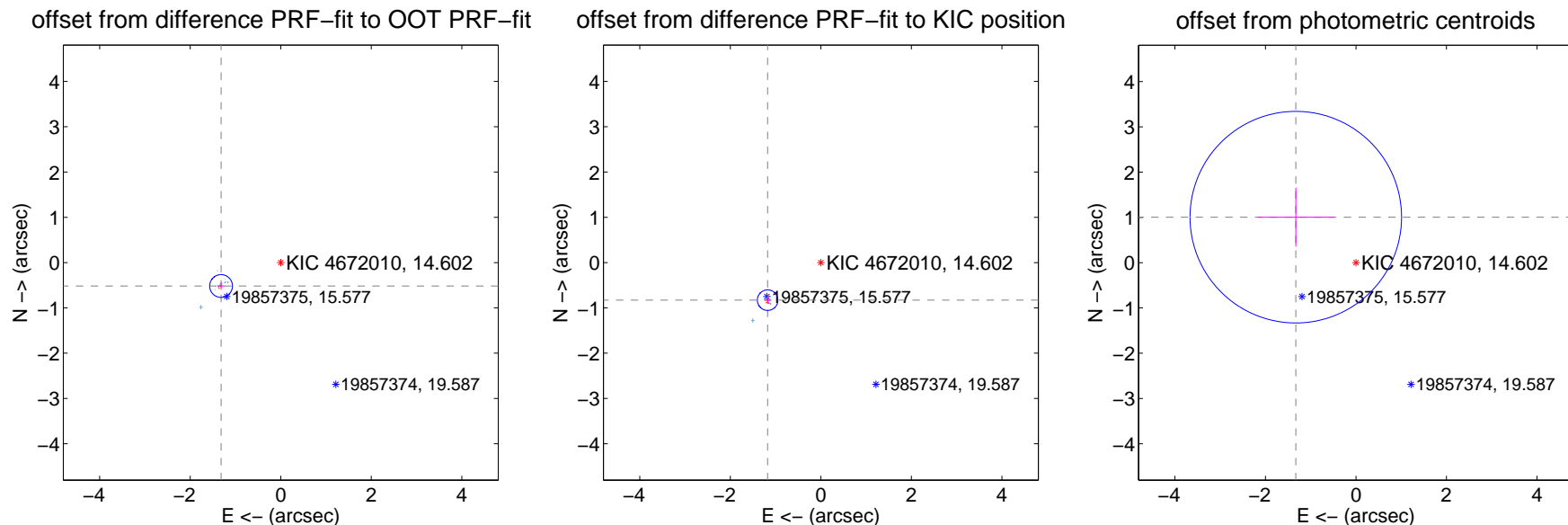
DV Centroid Data

Supplemental centroid analysis for 004672010-01. Kepler magnitude: 14.60. Transit SNR 10.65

There are 10 quarters with good PRF difference image offsets

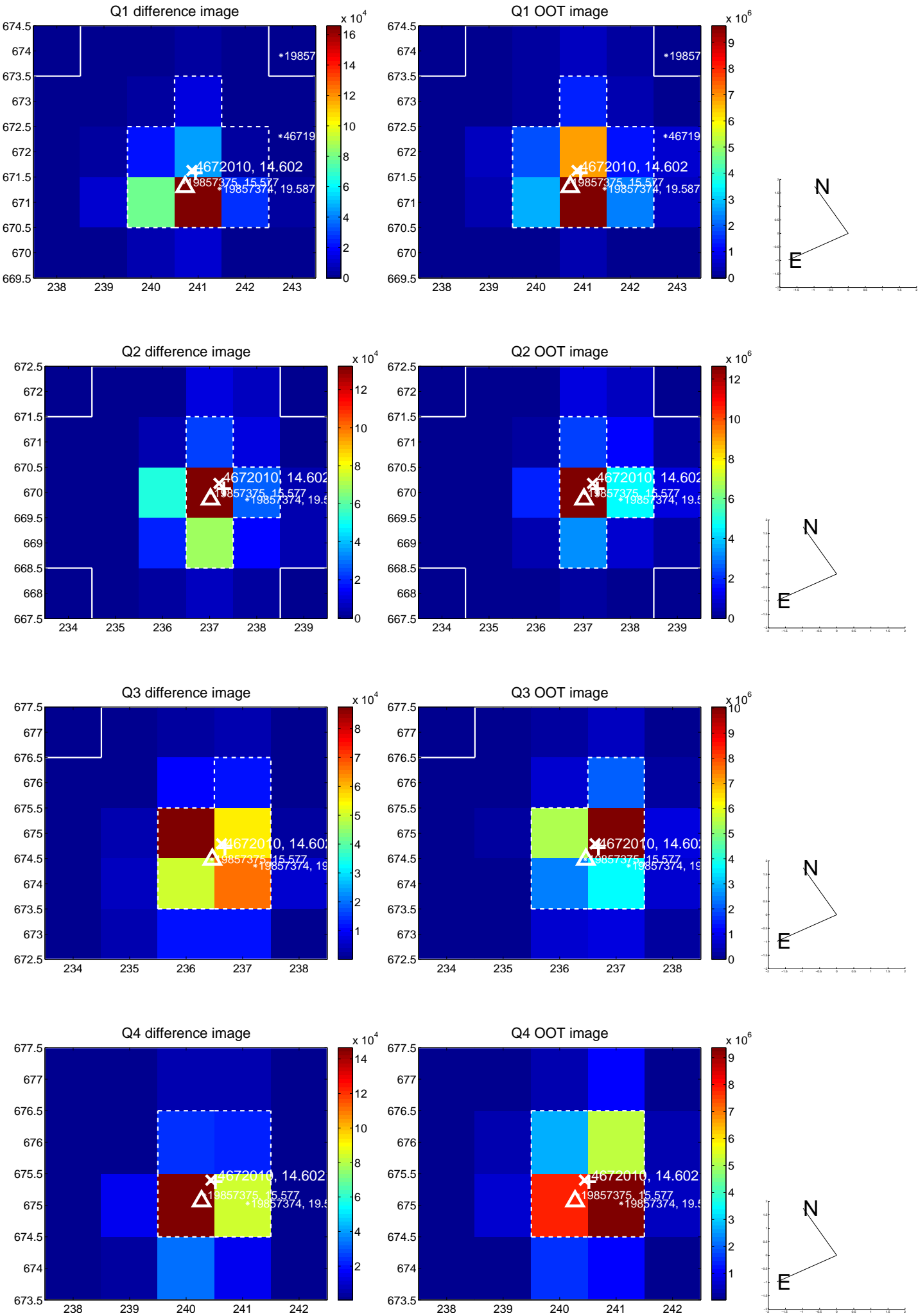
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.416 ± 0.084	16.87	1.318 ± 0.077	-0.517 ± 0.083
PRF-fit source offset from KIC position	1.439 ± 0.076	19.02	1.176 ± 0.071	-0.829 ± 0.075
photometric centroid source offset	1.67 ± 0.78	2.14	1.33 ± 0.84	1.00 ± 0.65

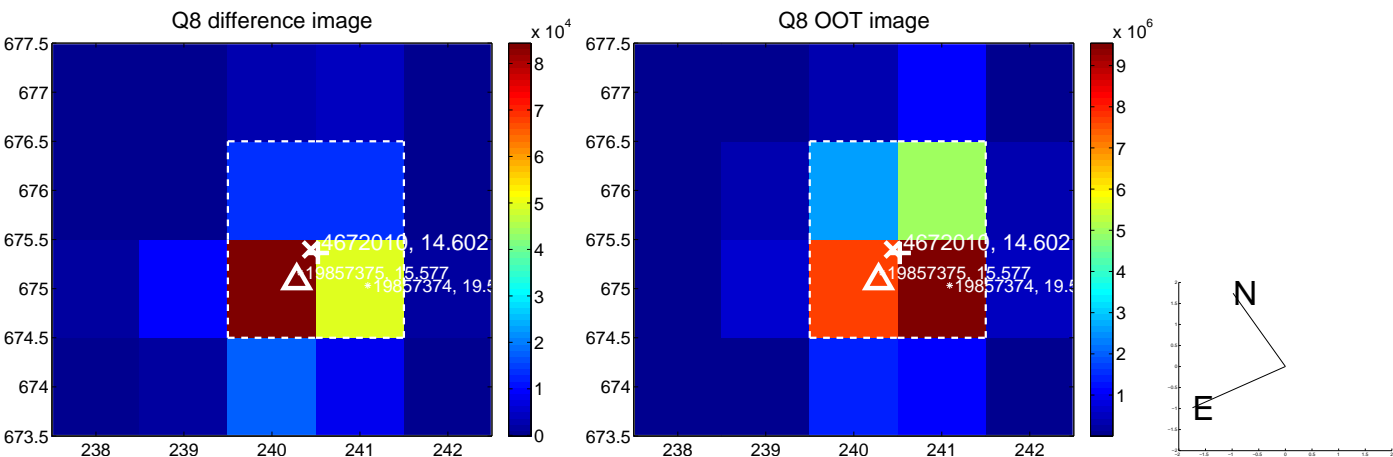
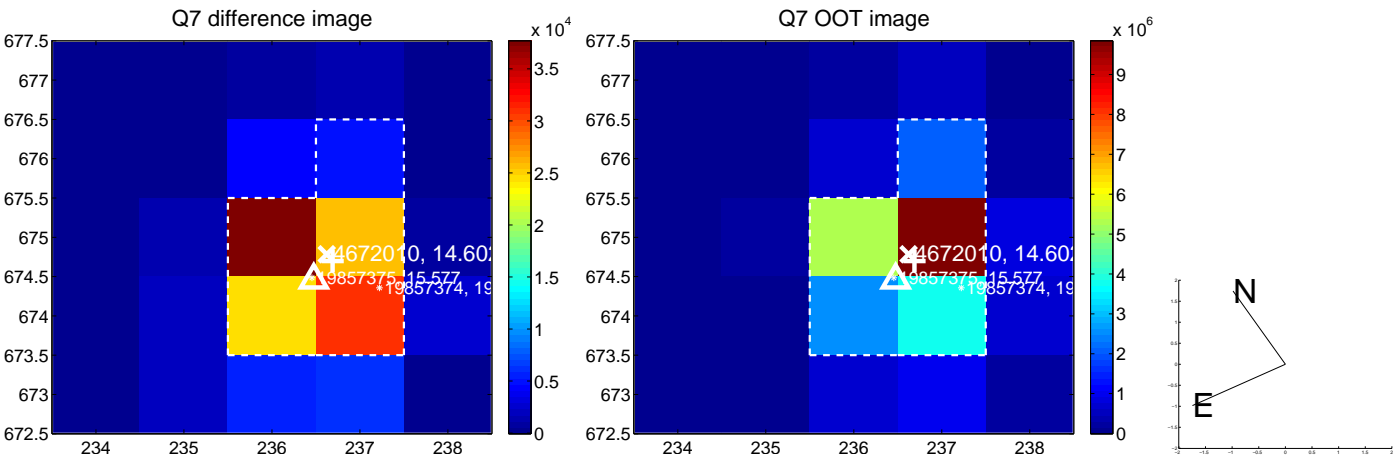
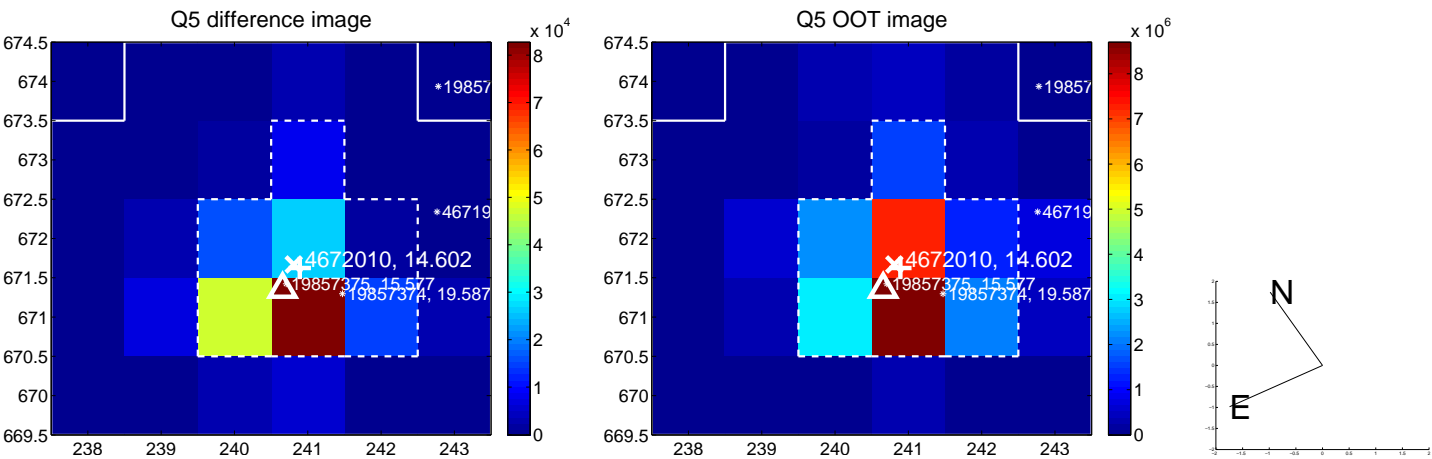


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

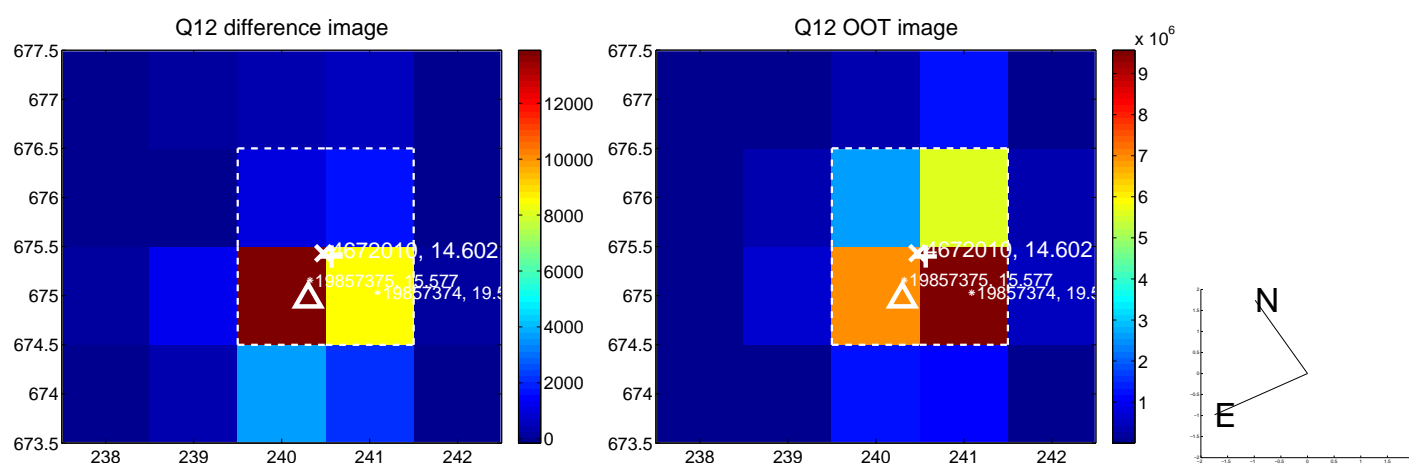
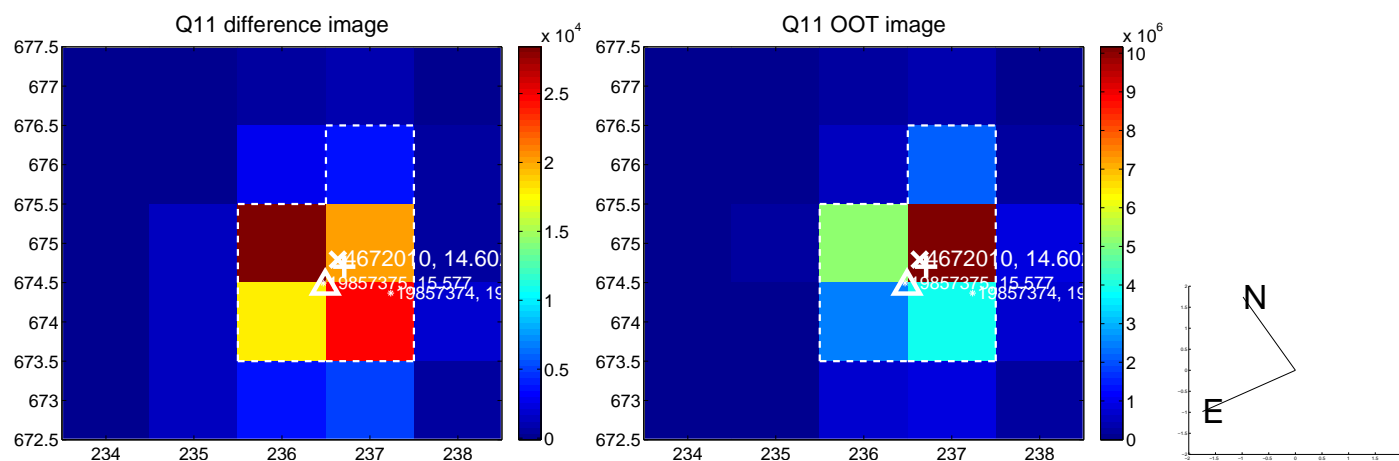
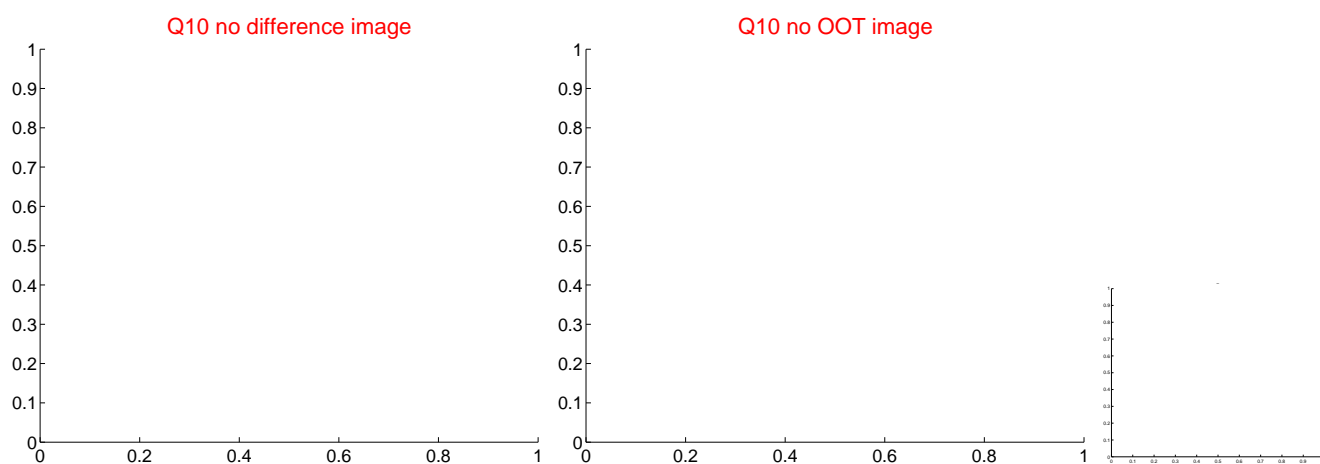
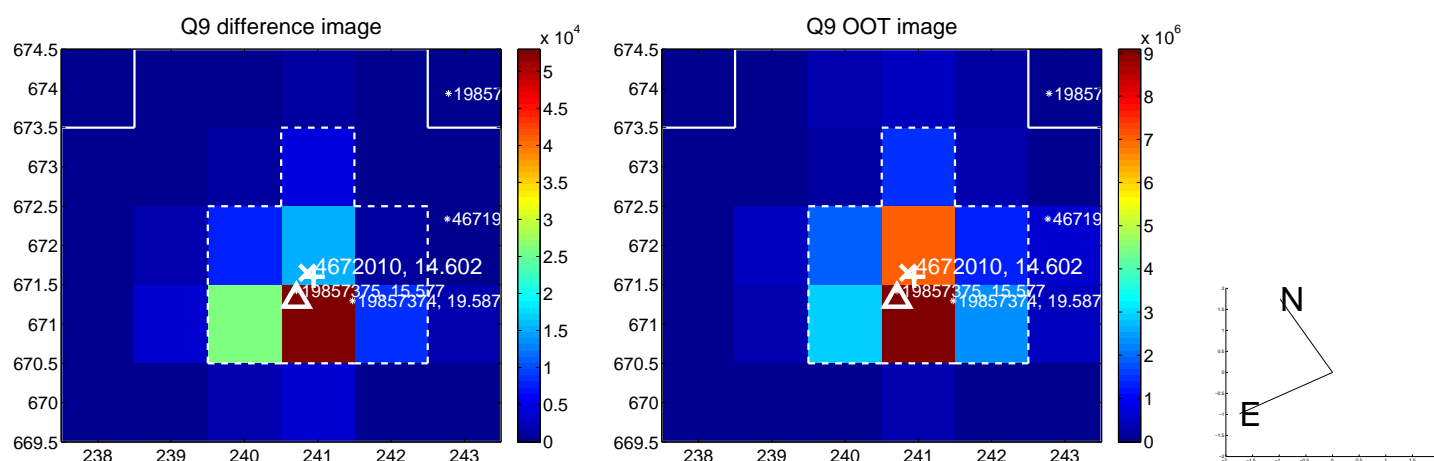
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



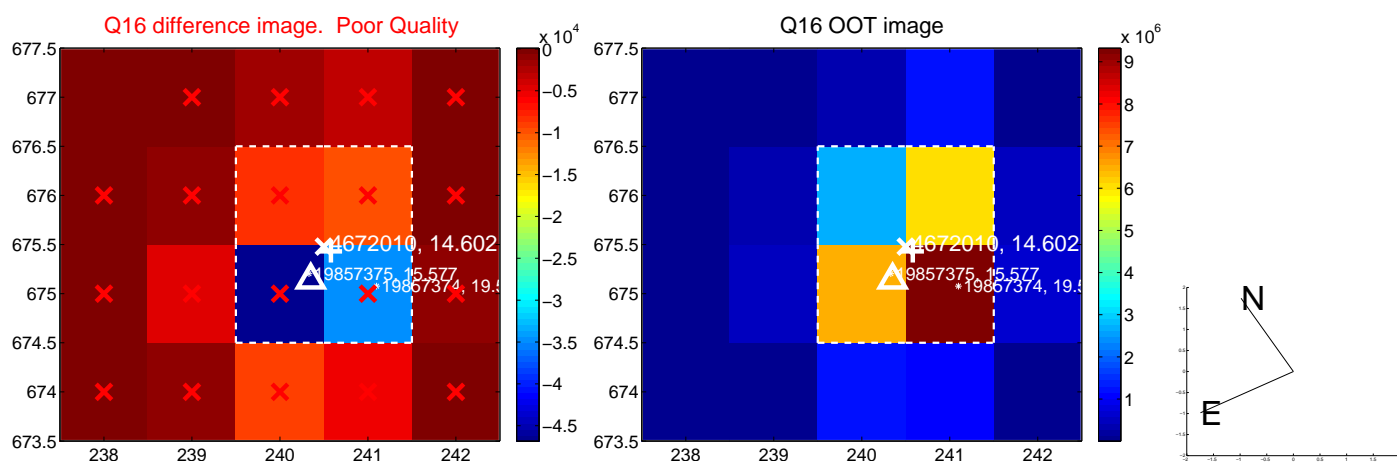
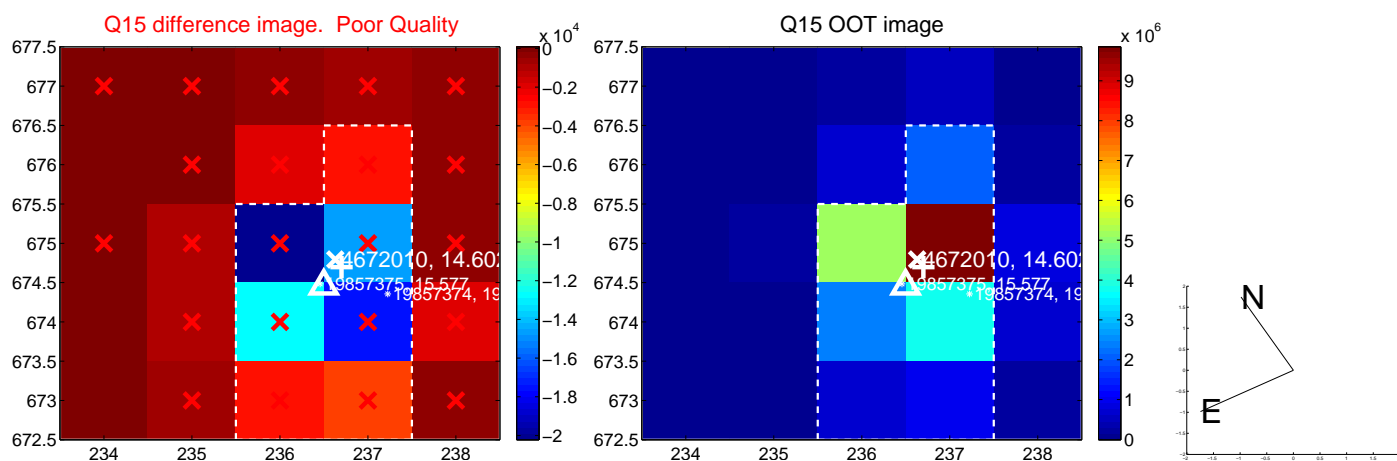
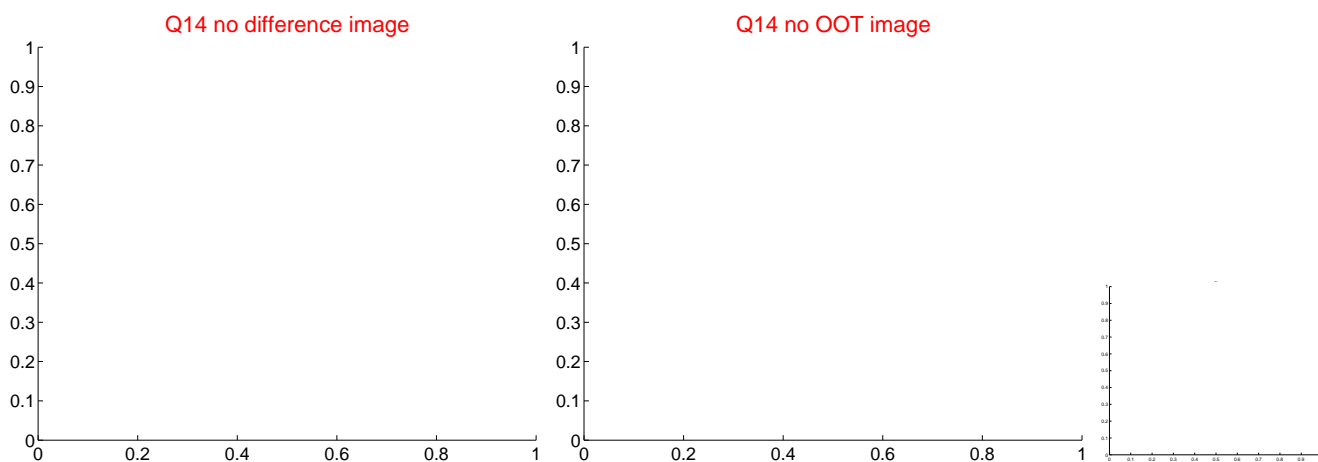
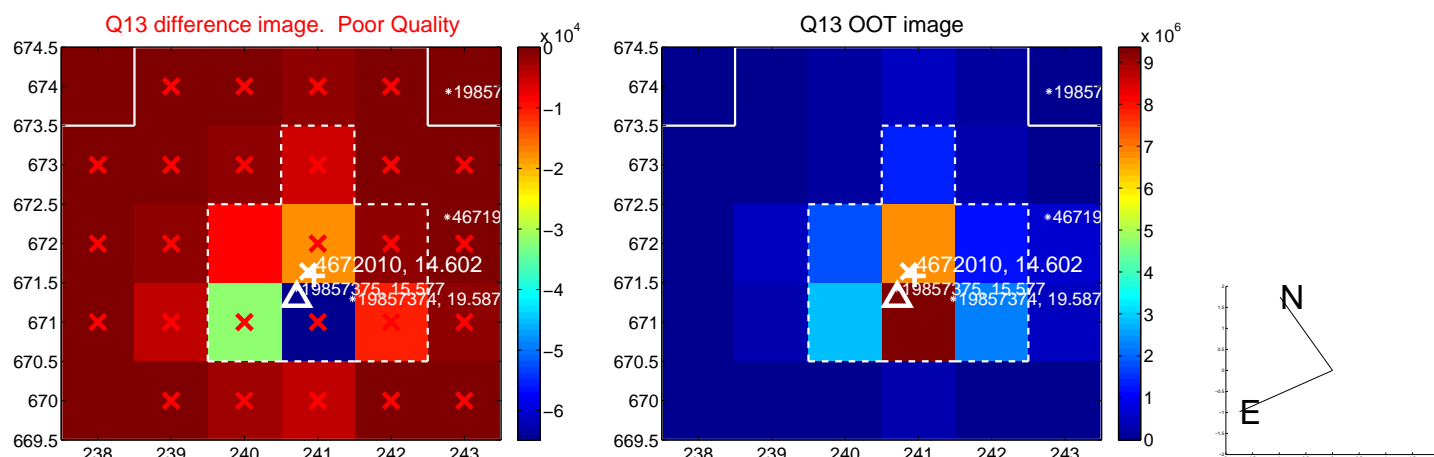
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



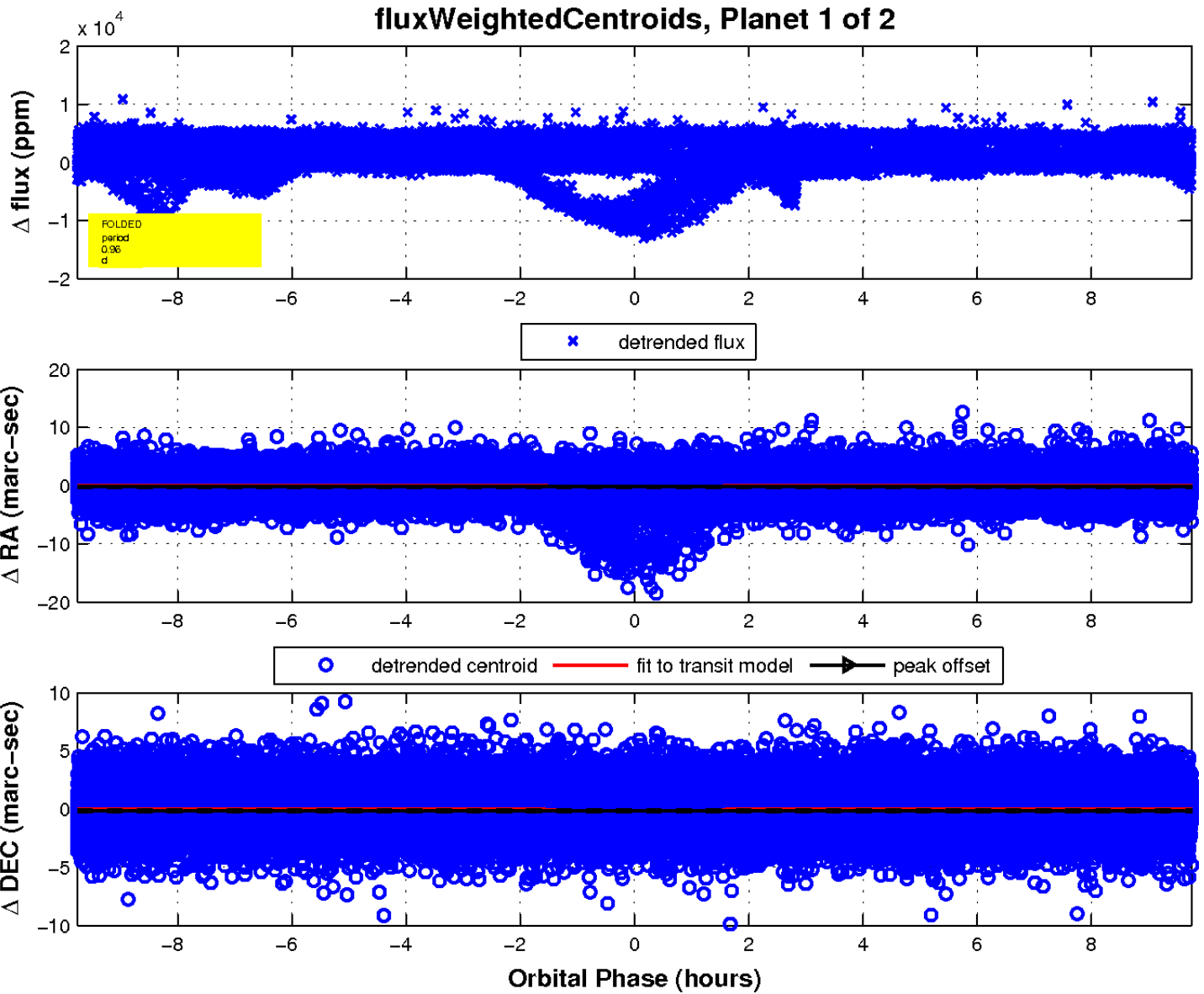
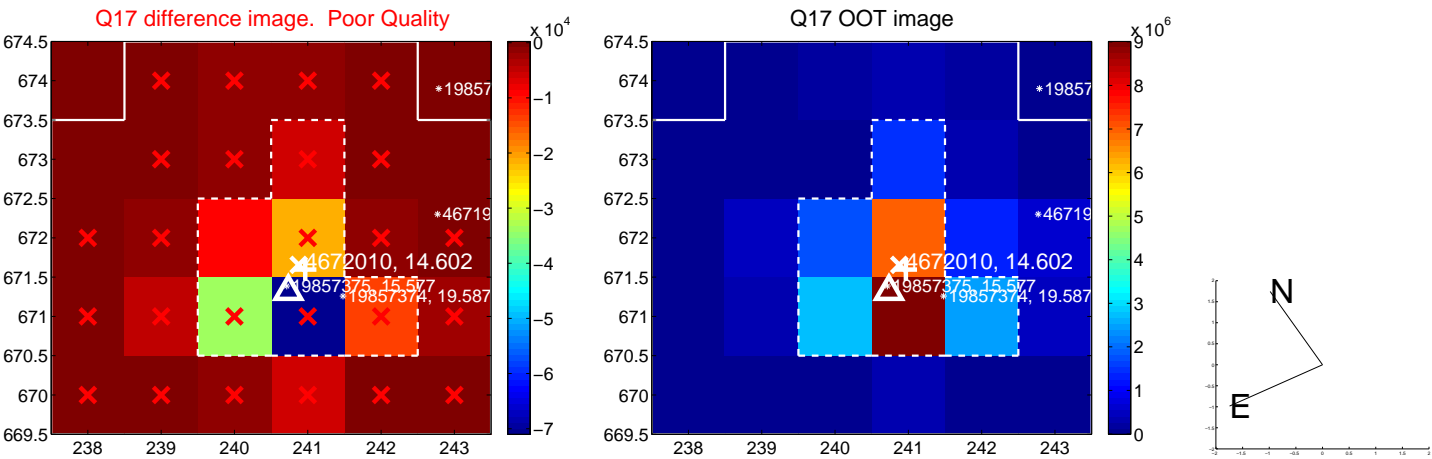
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

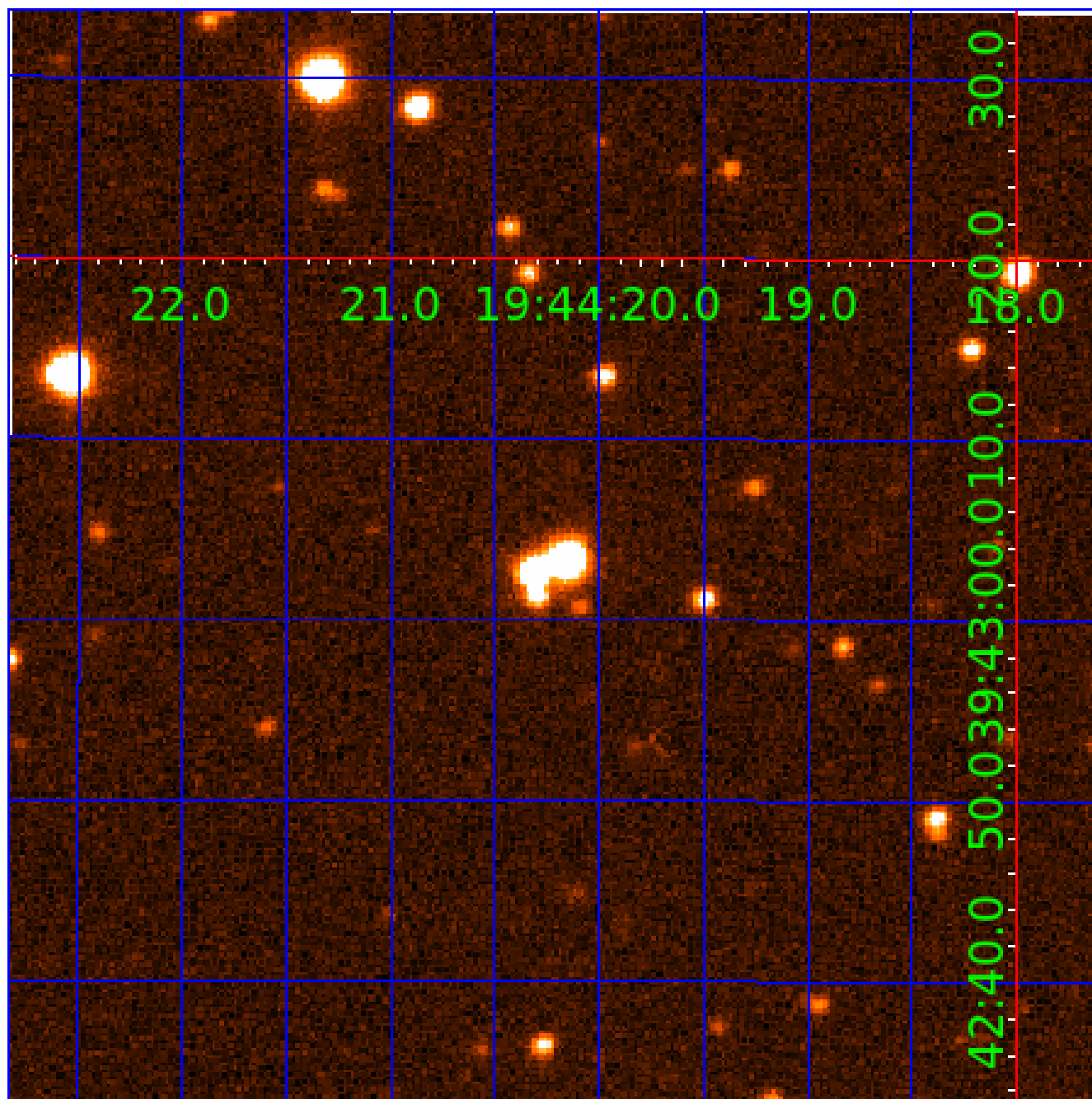


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004672010

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})
004672010-01	OBS	No	0.962914	131.669787	106.5	3.252	89.0	10.6	0.69	4687	0.74	736.79
004672010-02	OBS	No	0.963963	132.071611	8032.4	2.000	121.5	-1.0	0.69	4687	5.97	735.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004672010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_KIC_POS
004672010-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS

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

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

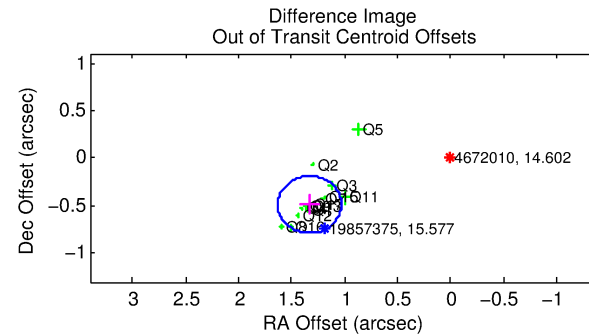
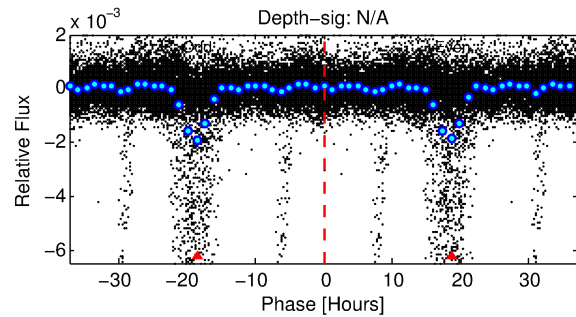
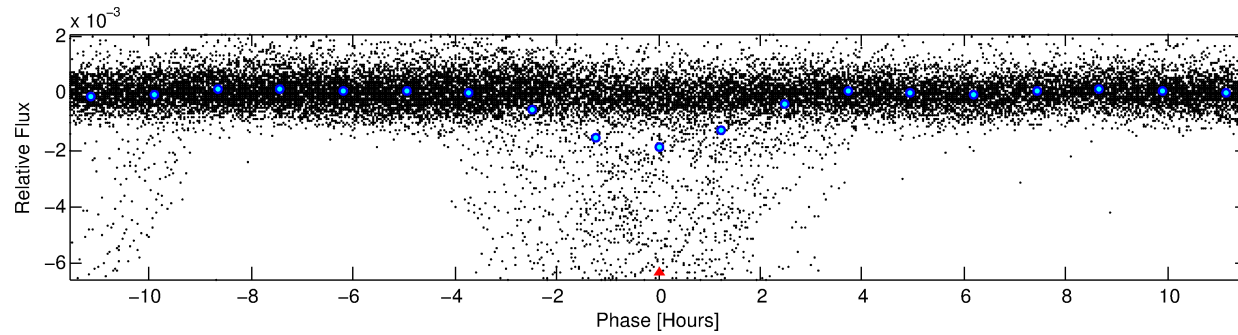
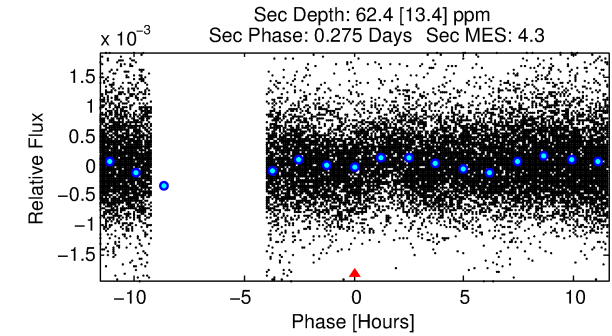
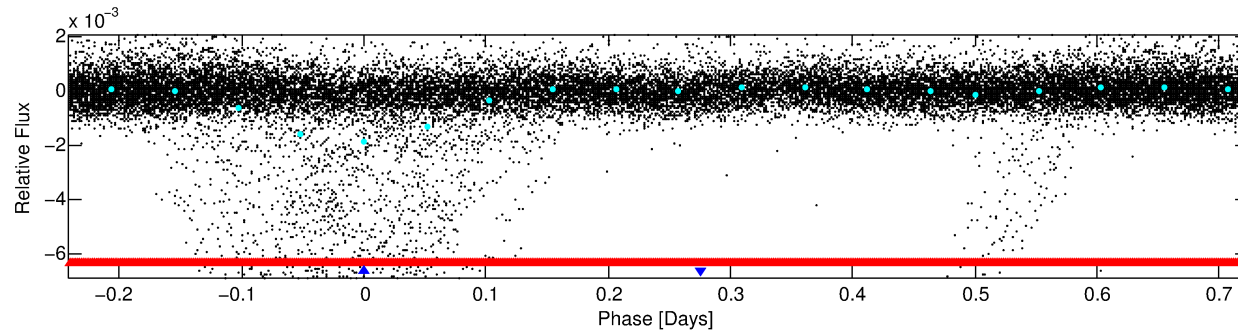
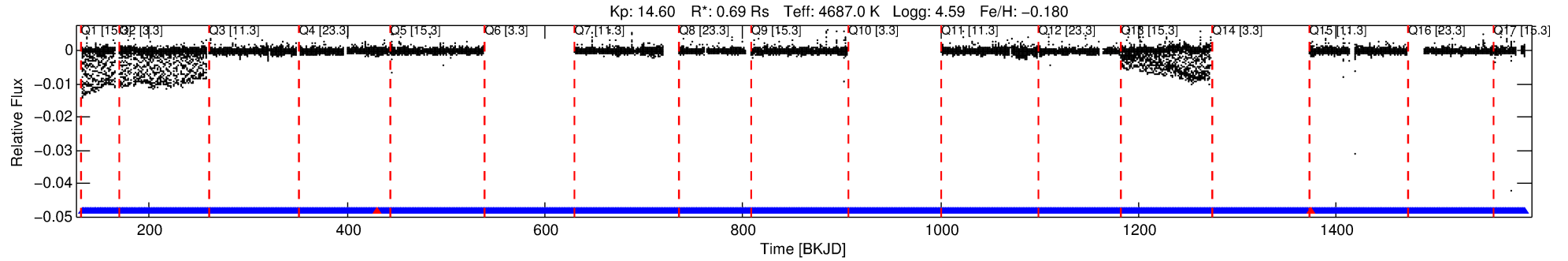
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004672010-02

No Significant Match Found

DV One-Page Summary

KIC: 4672010 Candidate: 2 of 2 Period: 0.964 d



TPS TCE Results:

Period = 0.96396 d
Epoch = 132.0716 BKJD

DV fit results are unavailable

DV Diagnostic Results:

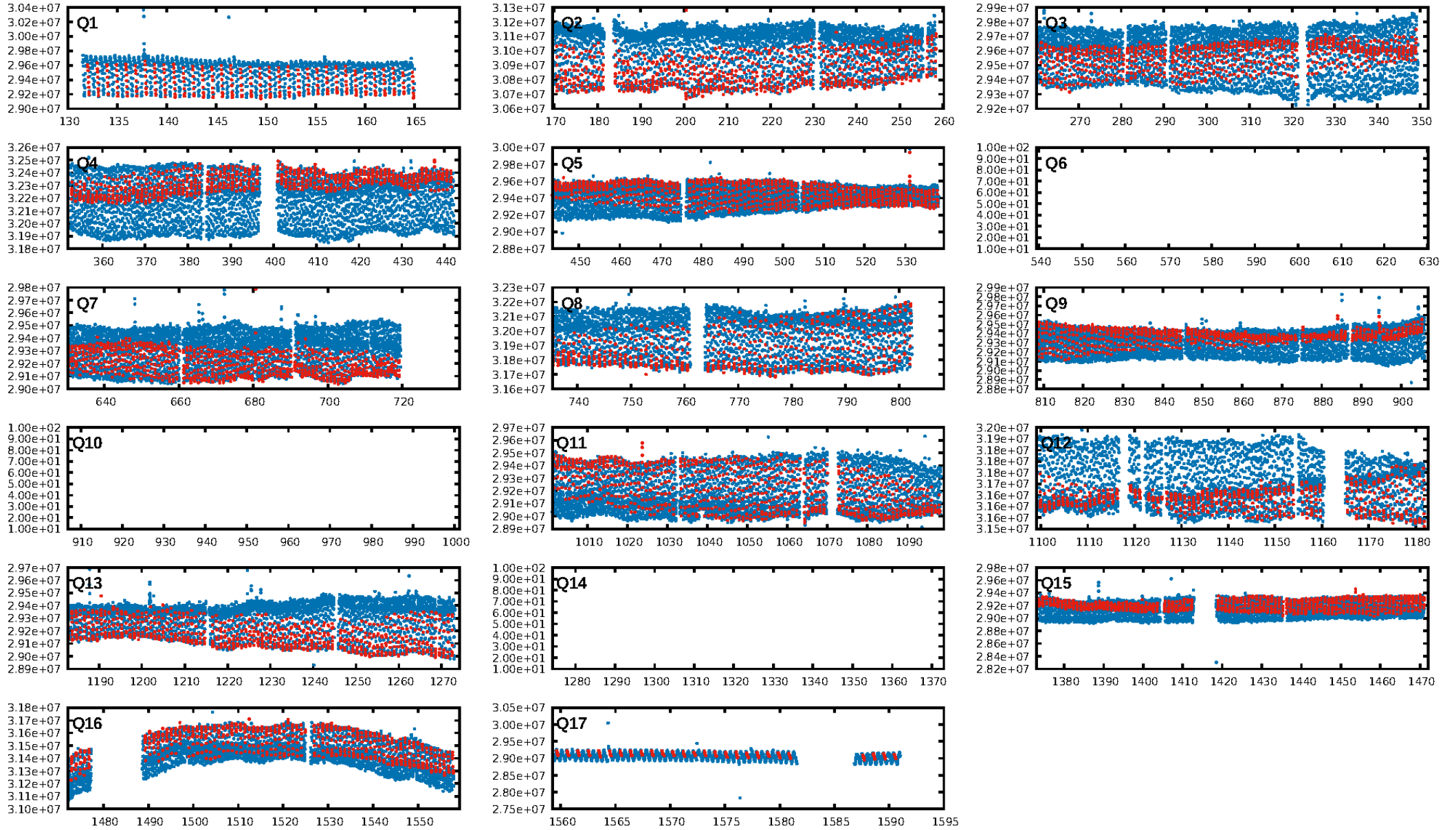
ShortPeriod-sig: 0.5% [0.01σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [866/868]
GhostDiagnostic-chr: 66.82

Centroid-sig: 0.0%
Centroid-so: 0.507 arcsec [35.35σ]
OotOffset-rm: 1.416 arcsec [14.14σ]
KicOffset-rm: 1.440 arcsec [14.40σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 0.00 [0/14]

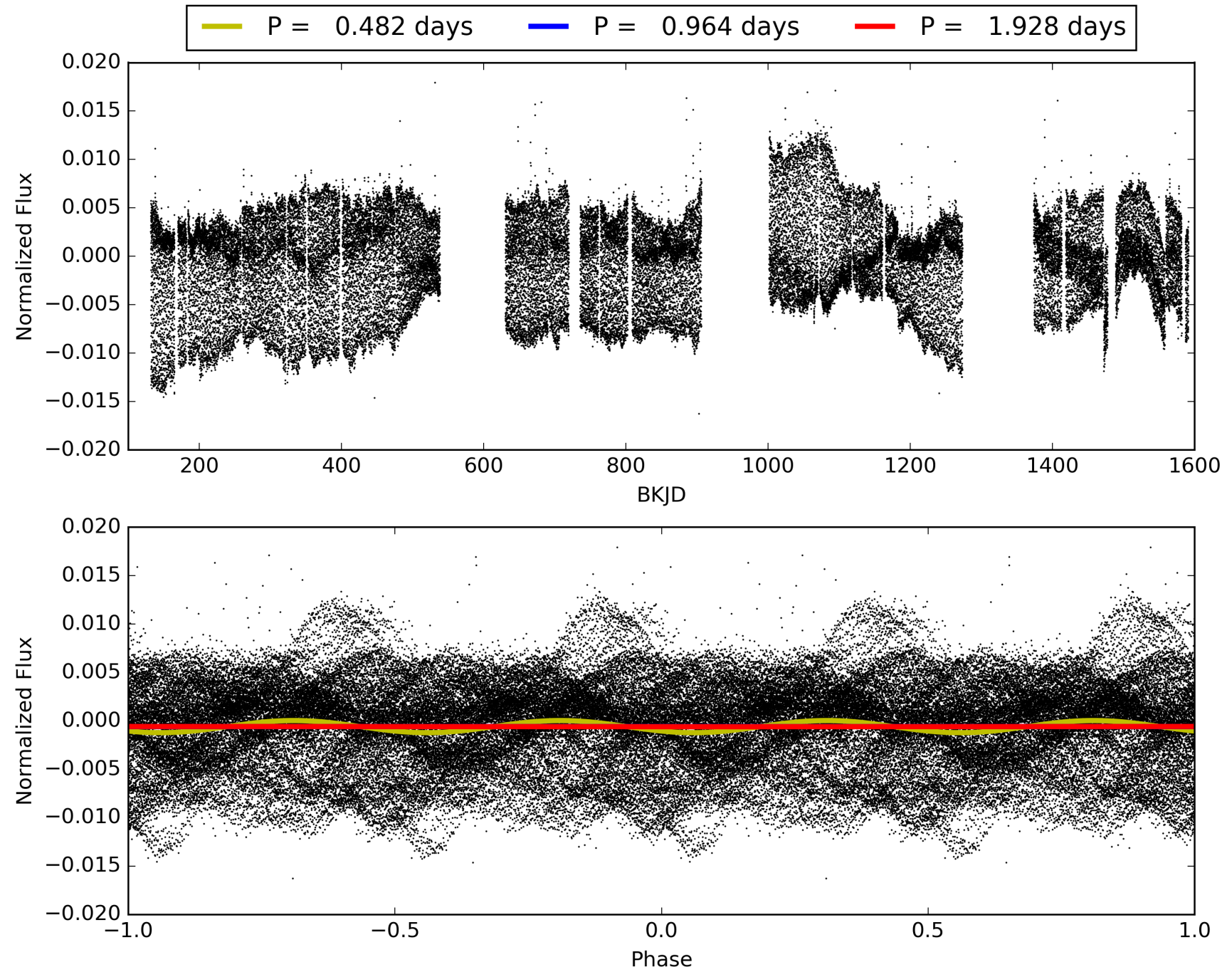
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:47:21 Z

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

TCE 004672010-02, PDC Light Curves

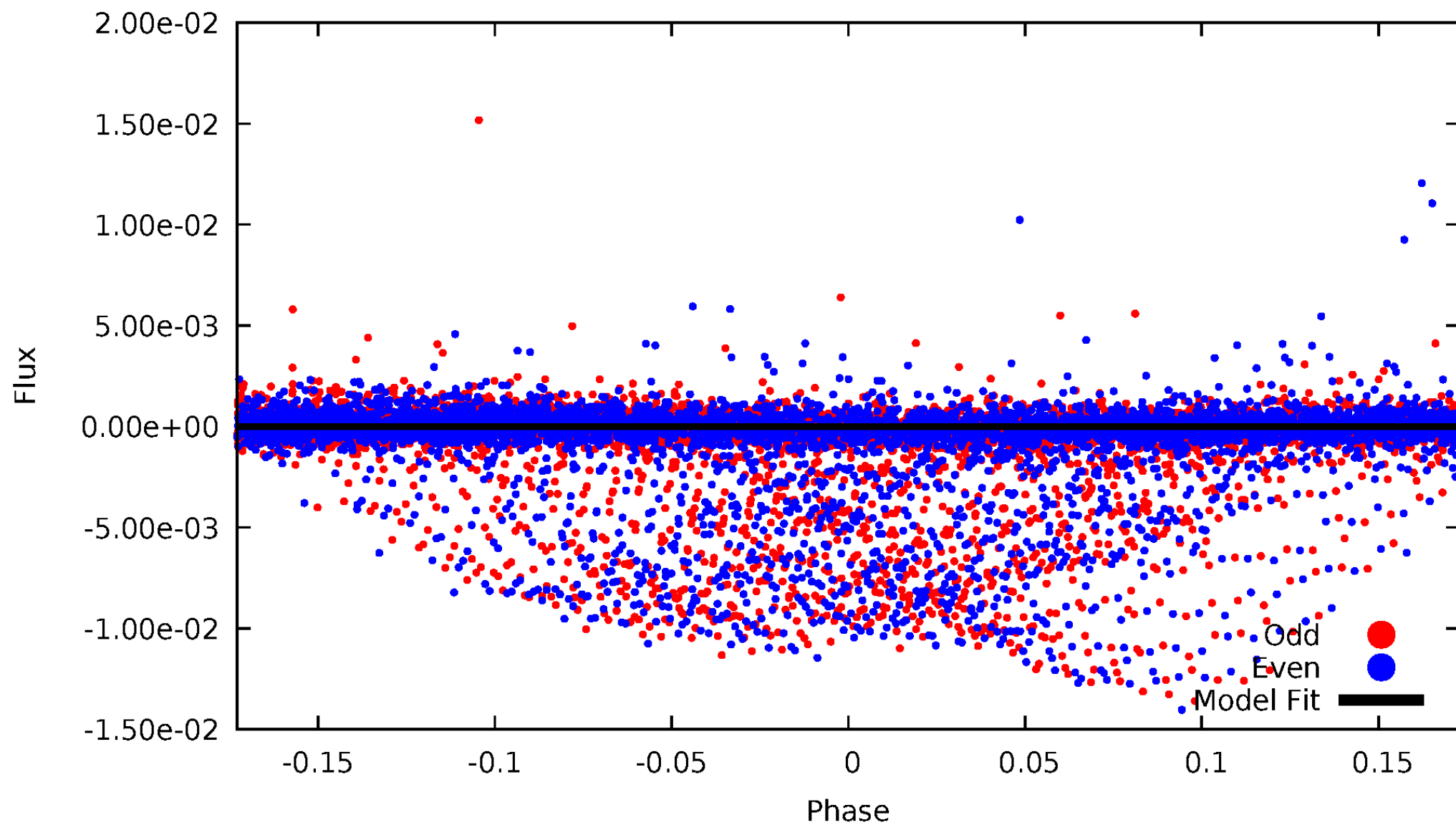


TCE 004672010-02



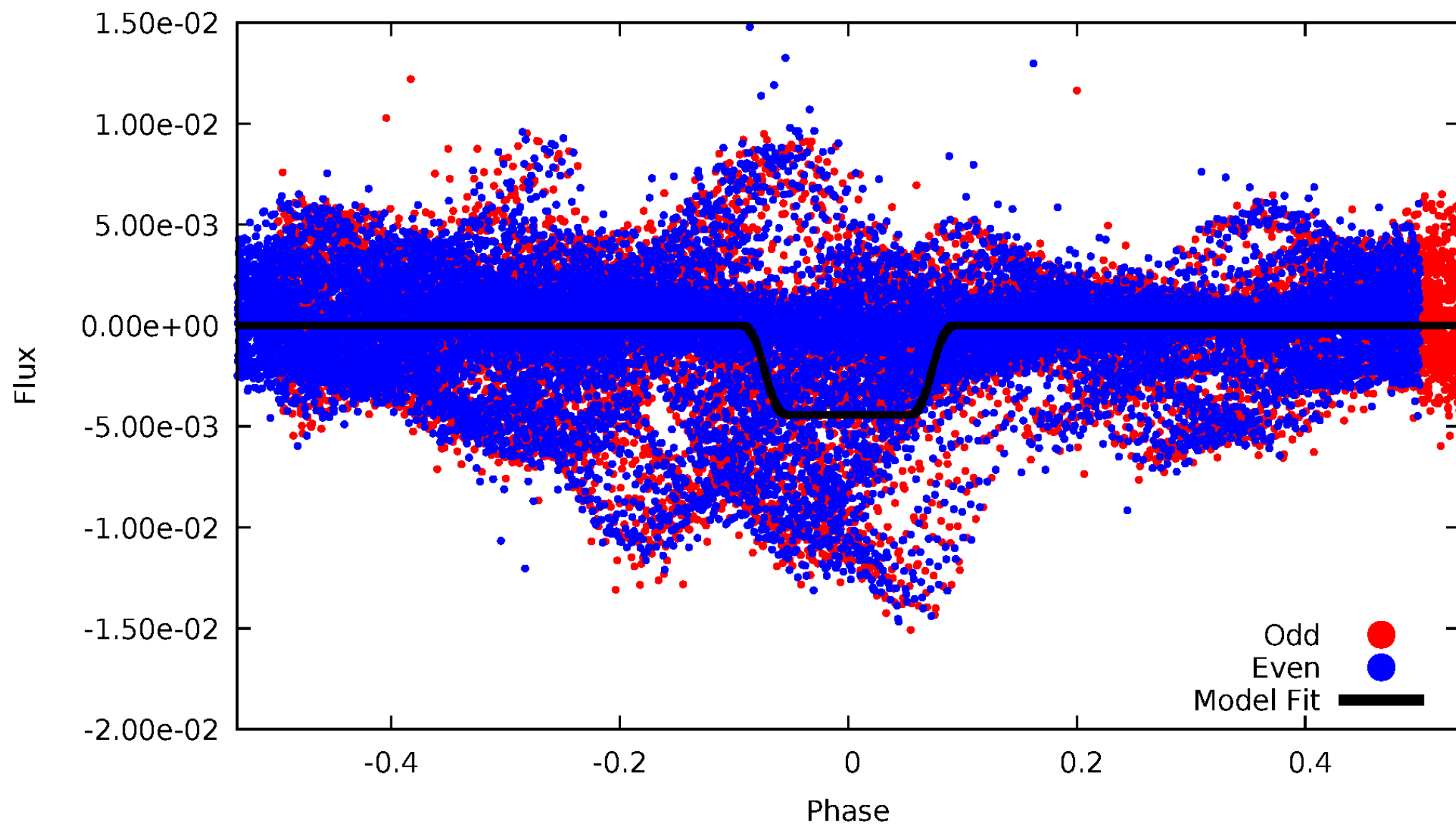
DV Odd/Even

TCE 004672010-02



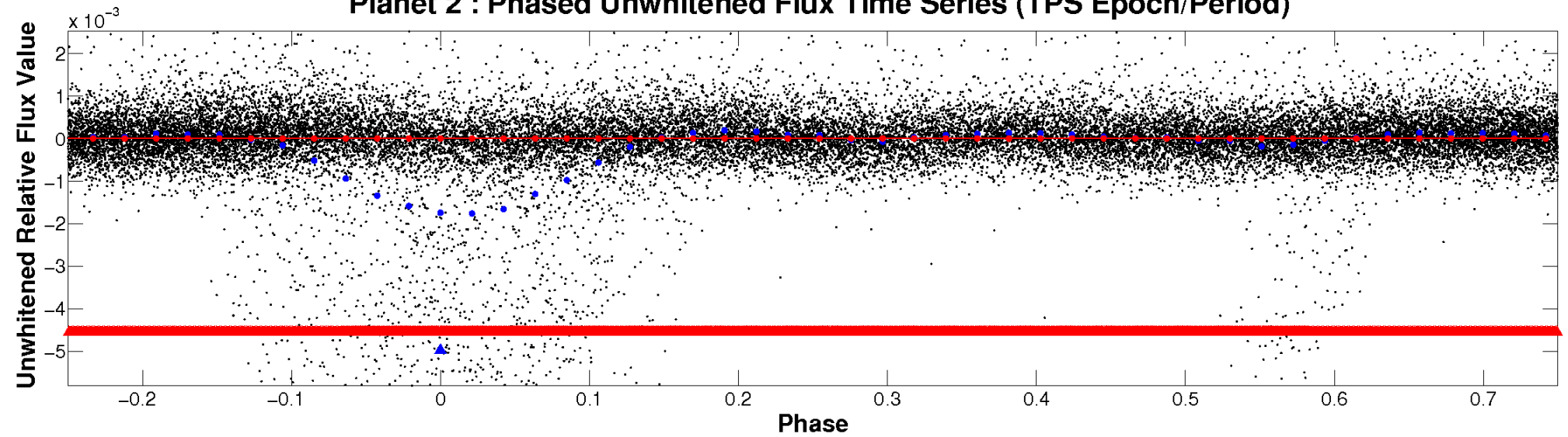
ALT Odd/Even

TCE 004672010-02

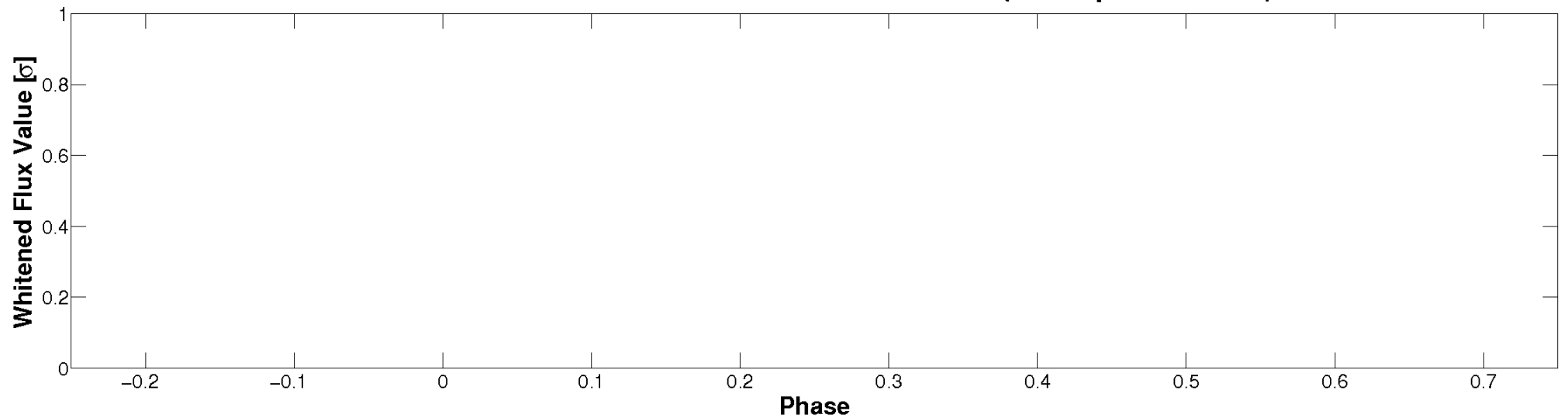


Non-Whitened Vs. Whitened Light Curve

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

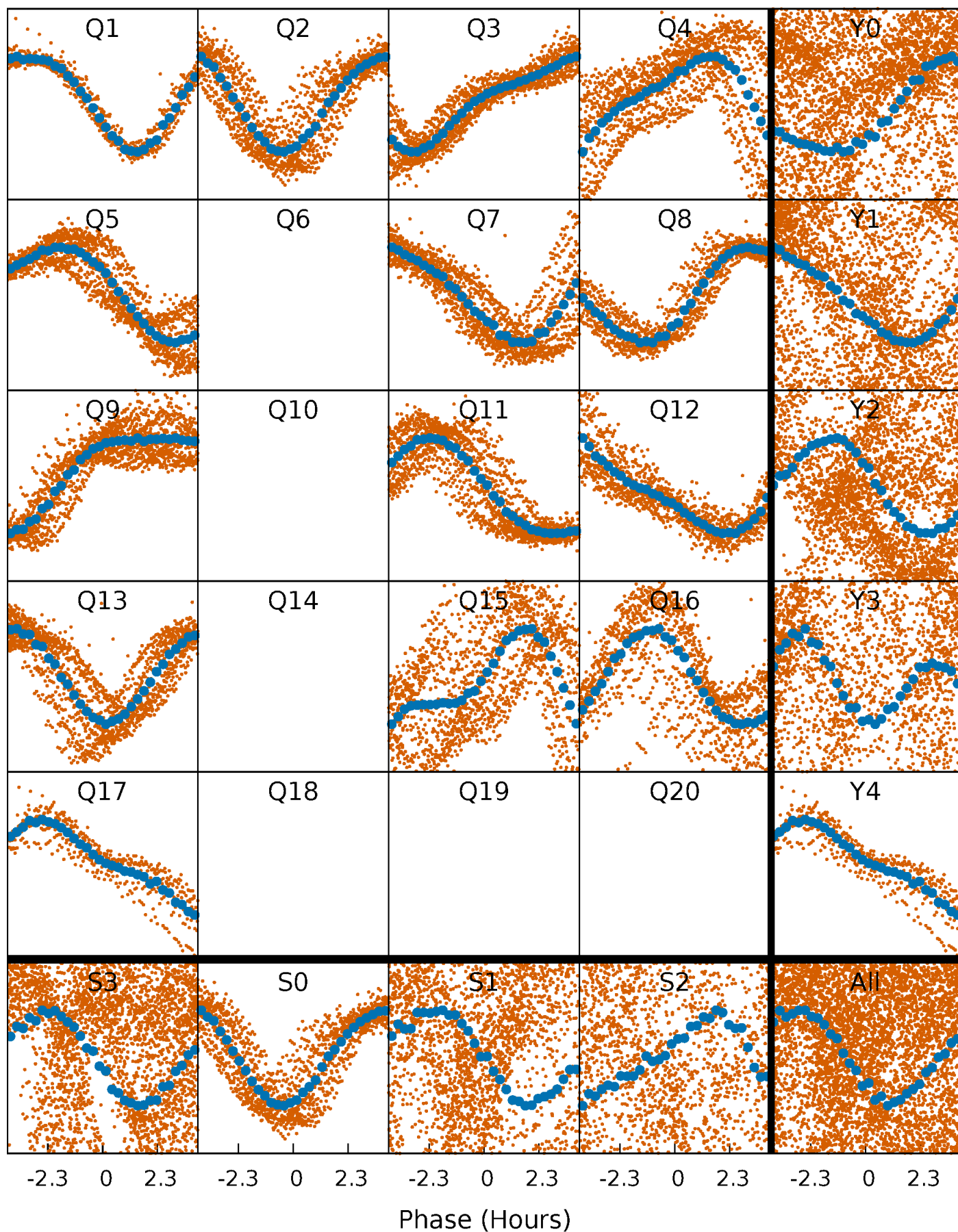


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



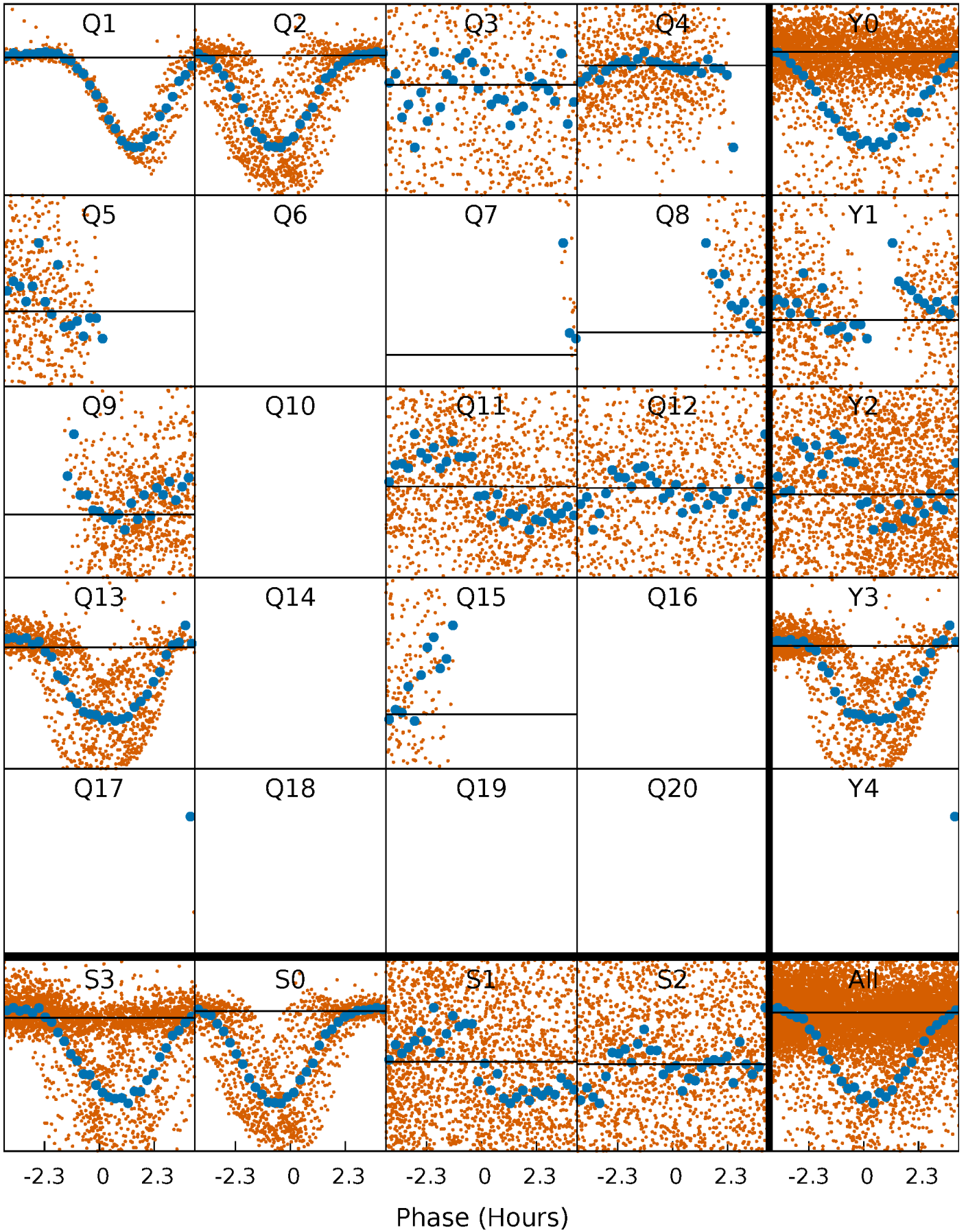
PDC Quarter-Phased Transit Curves

TCE 004672010-02 P= 0.963963 Days $T_0=132.071610$ (BKJD)



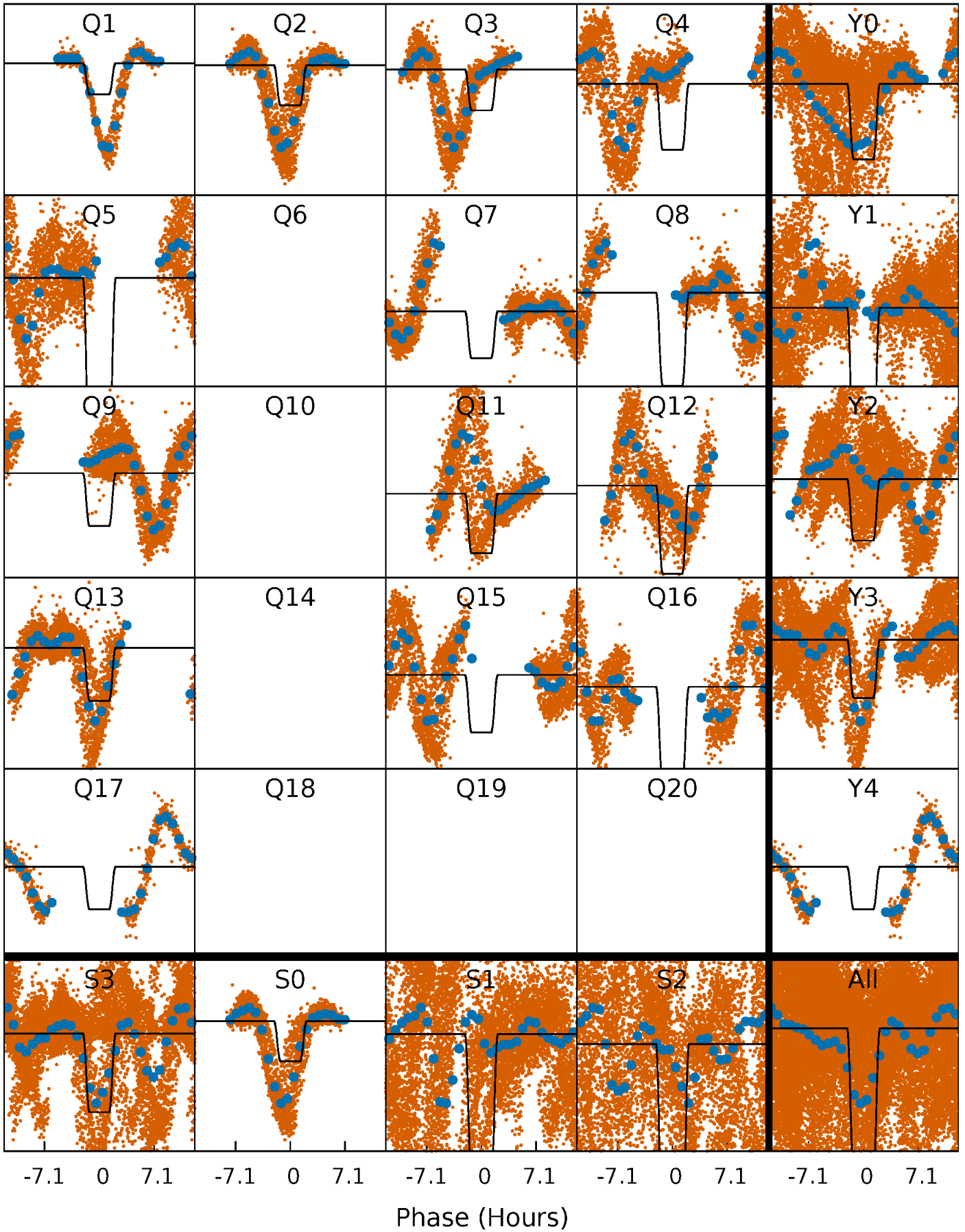
DV Quarter-Phased Transit Curves

TCE 004672010-02 P= 0.963963 Days $T_0=132.071610$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

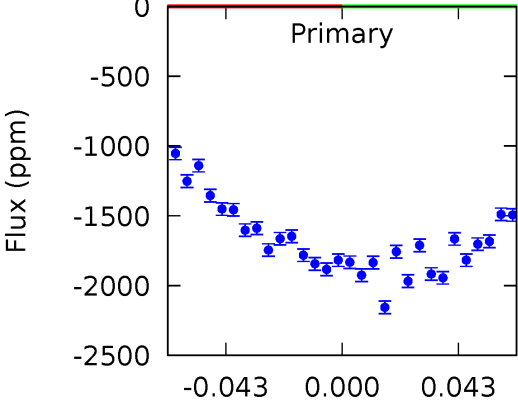
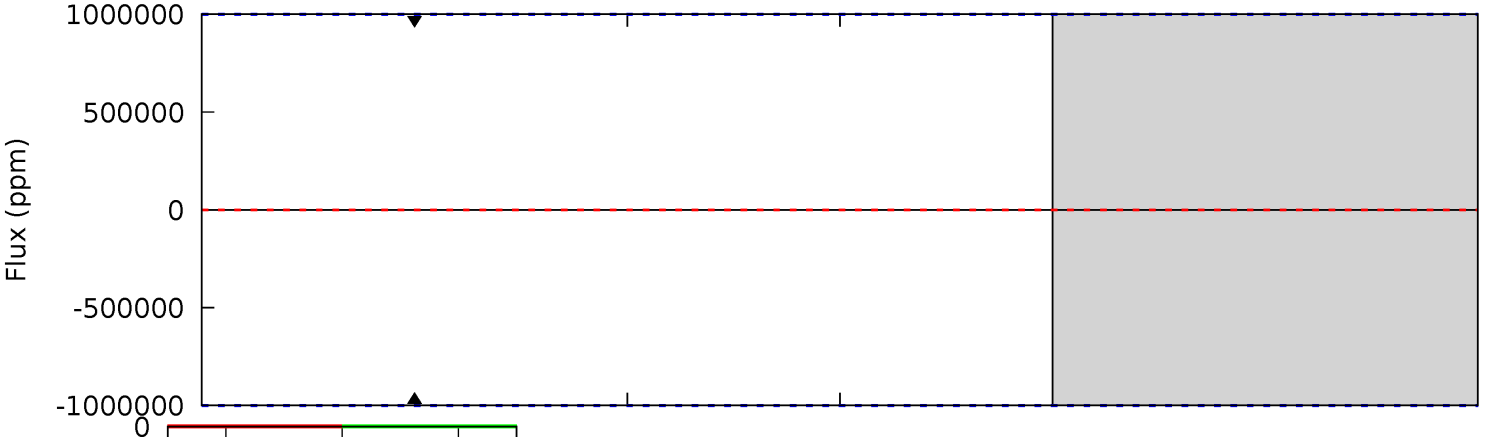
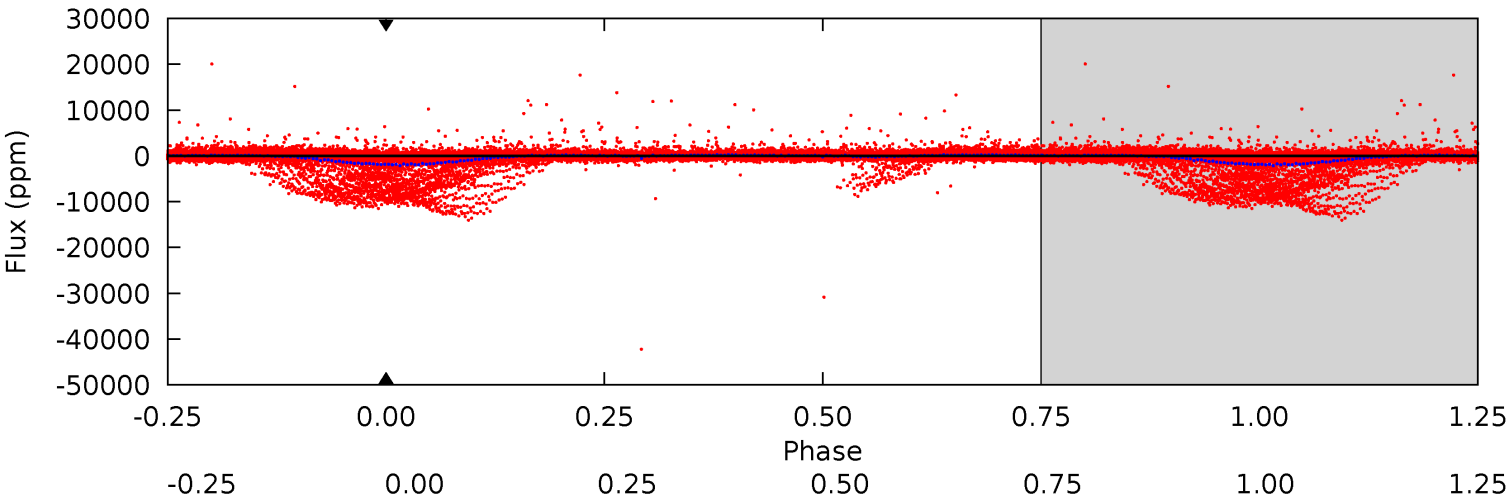
TCE 004672010-02 $P = 0.963963$ Days $T_0 = 132.092488$ (BKJD)



DV Model-Shift Uniqueness Test

004672010-02, P = 0.963963 Days, E = 131.107647 Days

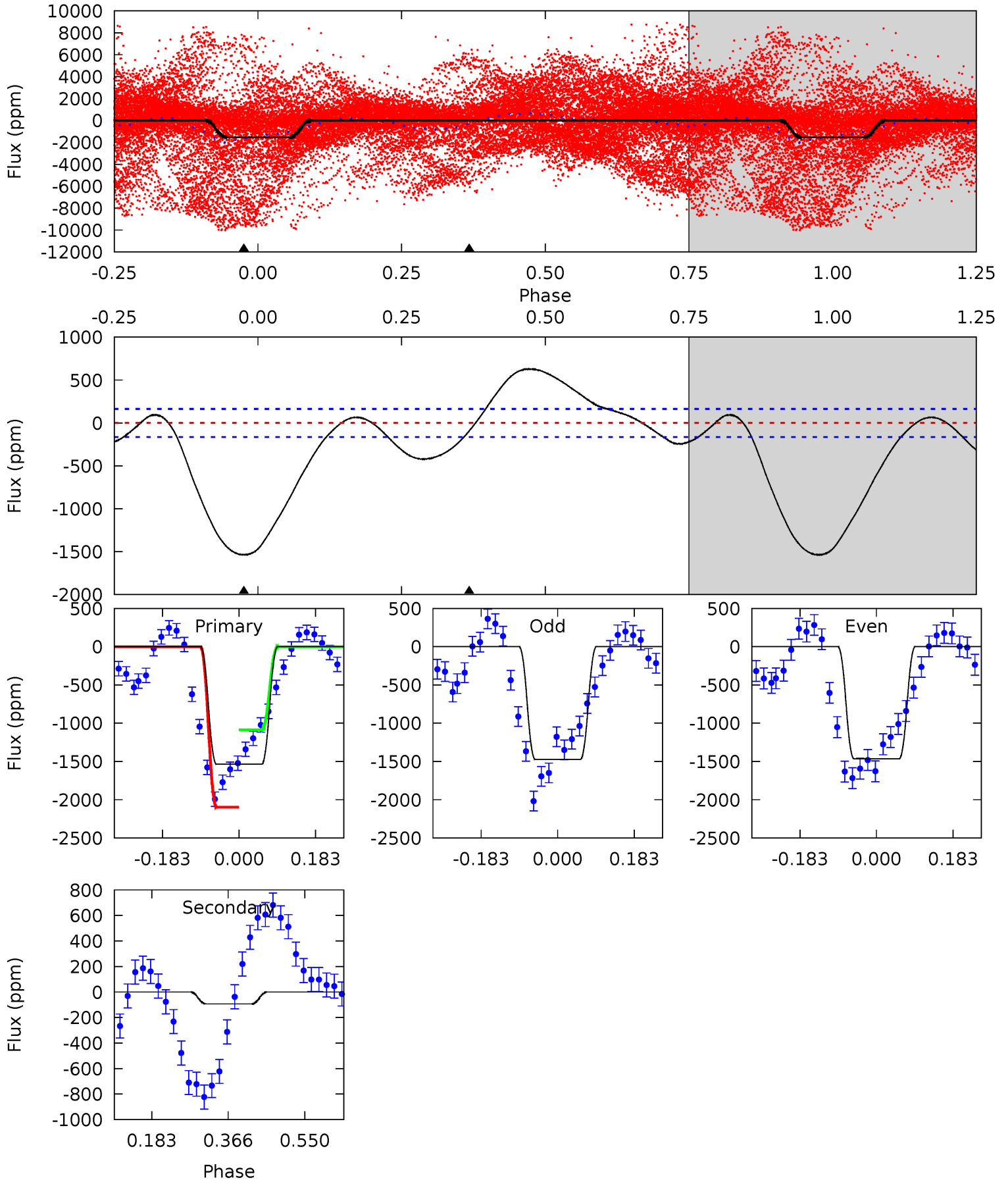
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004672010-02, P = 0.963963 Days, E = 131.128525 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.6	2.53	0	0	4.44	1.33	4.70	41.6	41.6	2.53	2.53	0.10	2.31	0.29	14.5



Stellar Parameters For KIC 004672010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4687^{+140}_{-126}	$4.588^{+0.056}_{-0.028}$	$-0.180^{+0.300}_{-0.300}$	$0.691^{+0.049}_{-0.061}$	$0.676^{+0.084}_{-0.049}$	$2.882^{+0.726}_{-0.372}$
	+3%/-3%	+1%/-1%	+167%/-167%	+7%/-9%	+12%/-7%	+25%/-13%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004672010-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$8.05^{+6.63}_{-4.86}$	1846^{+61}_{-60}	2898^{+6087}_{-12072}	$1.603^{+355.005}_{-394.039}$
Alt.	-93 ± 37	$7.28^{+6.43}_{-4.77}$	1849^{+63}_{-63}	-1857^{+4871}_{-440}	$0.268^{+2.025}_{-0.201}$

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

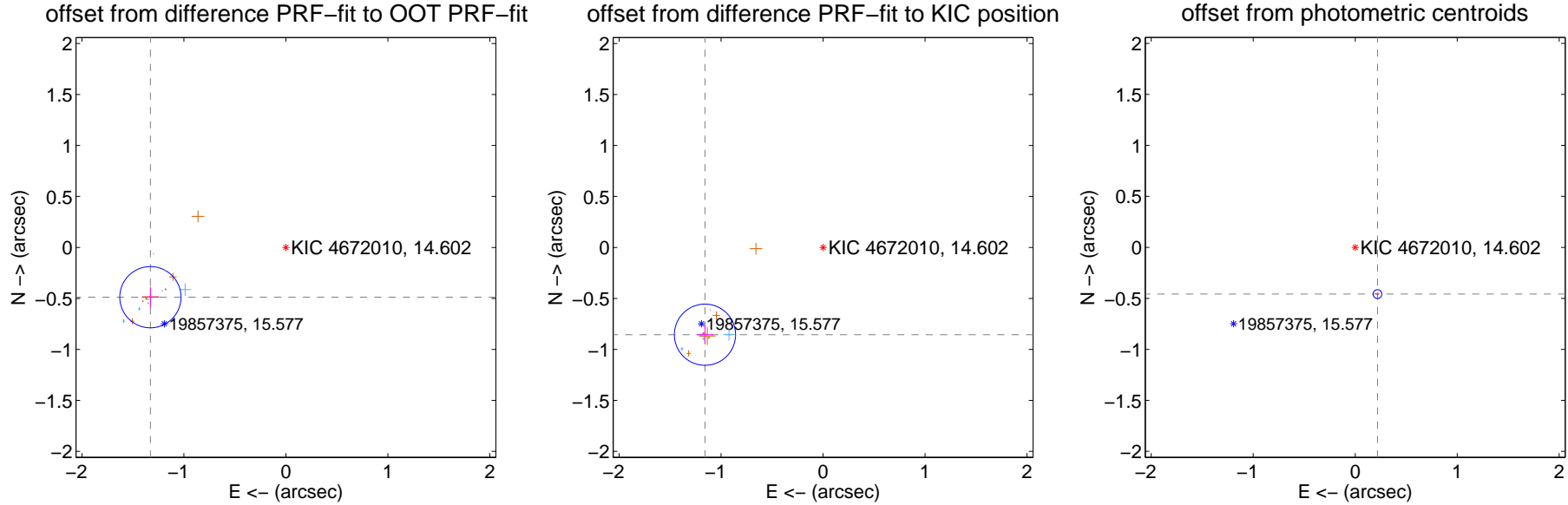
DV Centroid Data

Supplemental centroid analysis for 004672010-02. Kepler magnitude: 14.60. Transit SNR -1.00

There are 7 quarters with good PRF difference image offsets

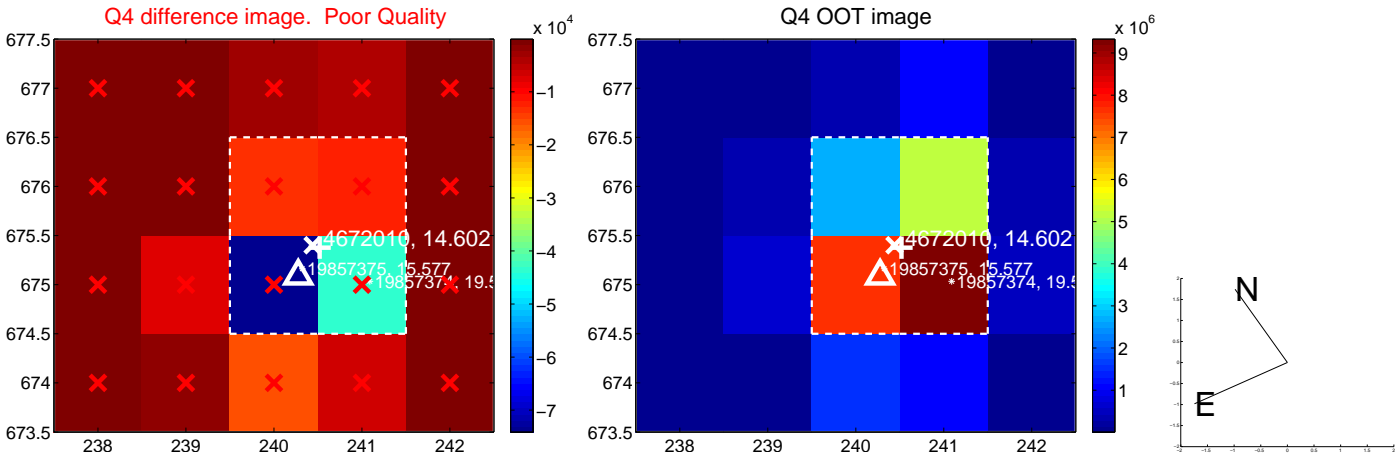
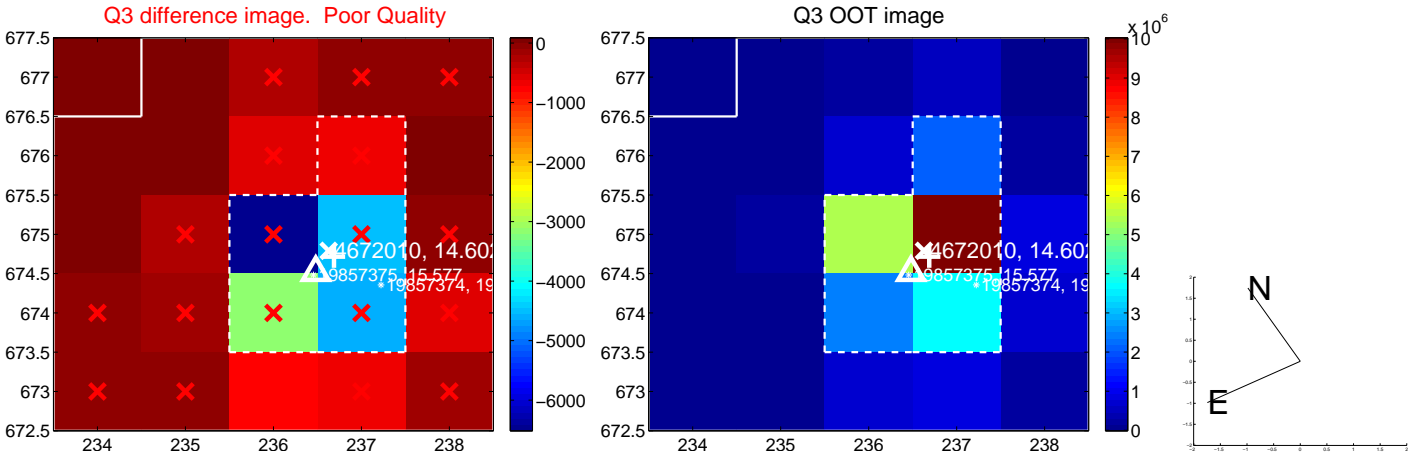
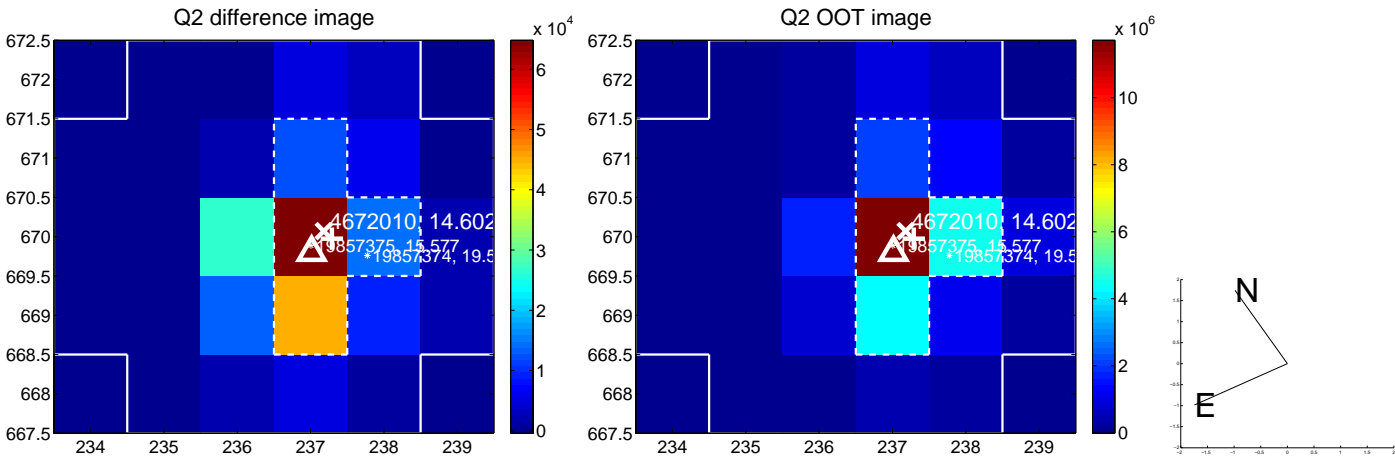
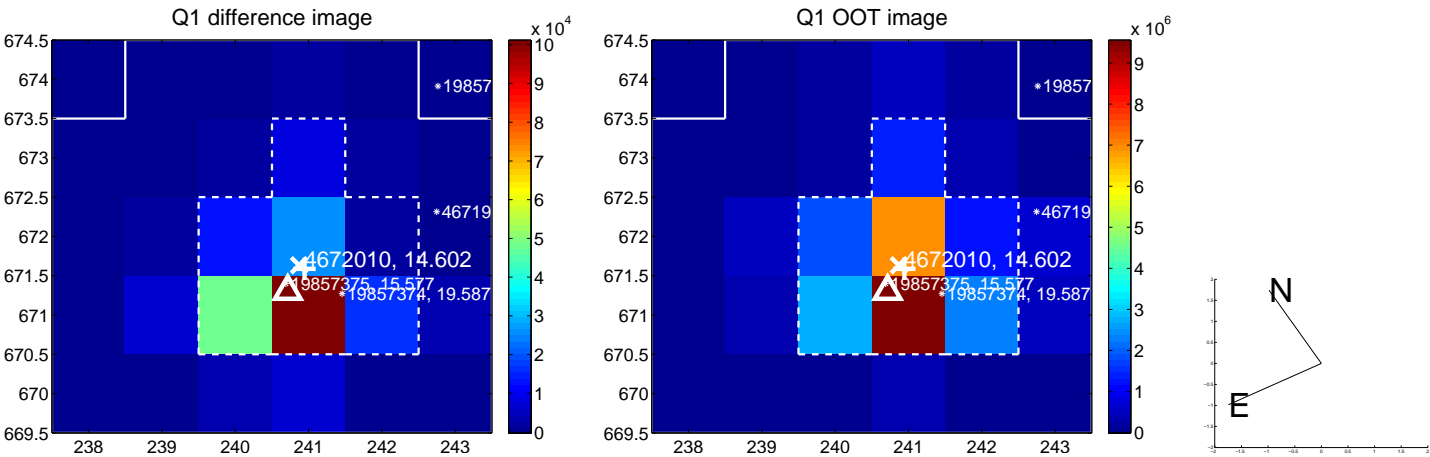
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.416 ± 0.100	14.14	1.329 ± 0.086	-0.488 ± 0.103
PRF-fit source offset from KIC position	1.440 ± 0.100	14.40	1.158 ± 0.082	-0.856 ± 0.094
photometric centroid source offset	0.51 ± 0.01	35.35	-0.22 ± 0.02	-0.46 ± 0.01

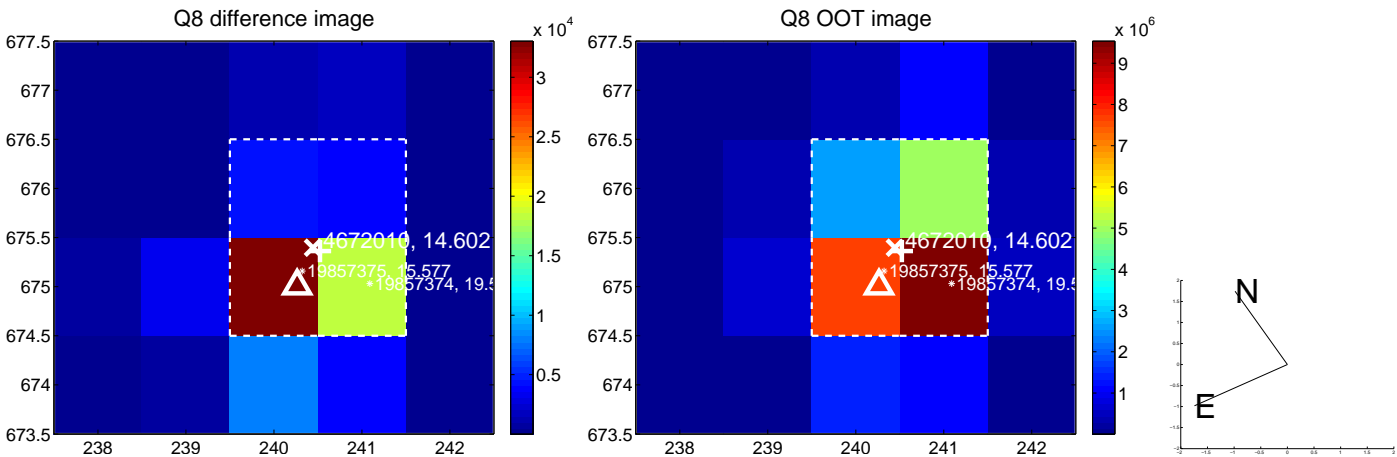
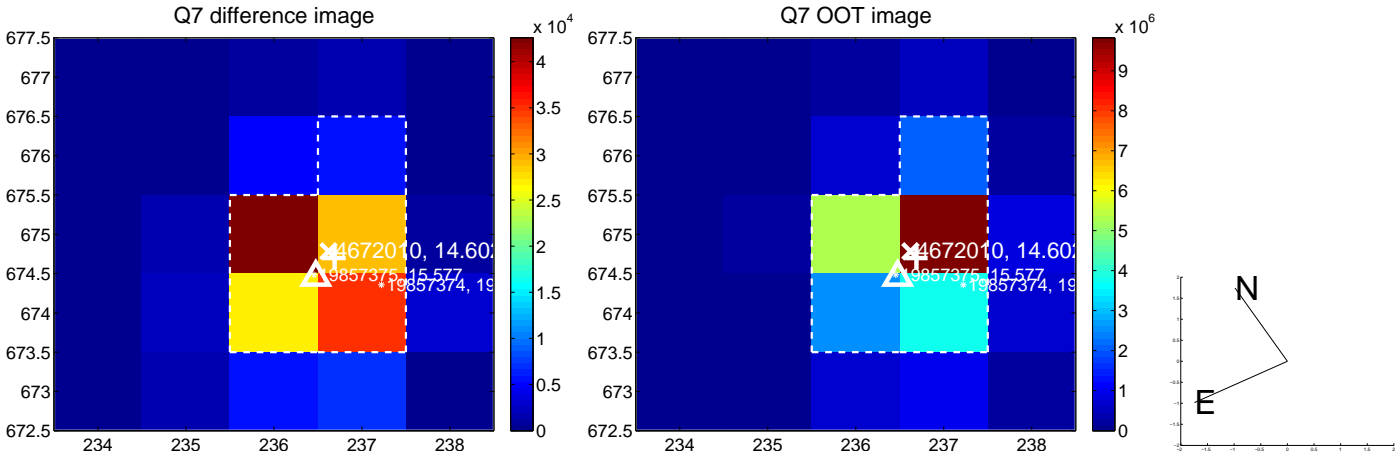
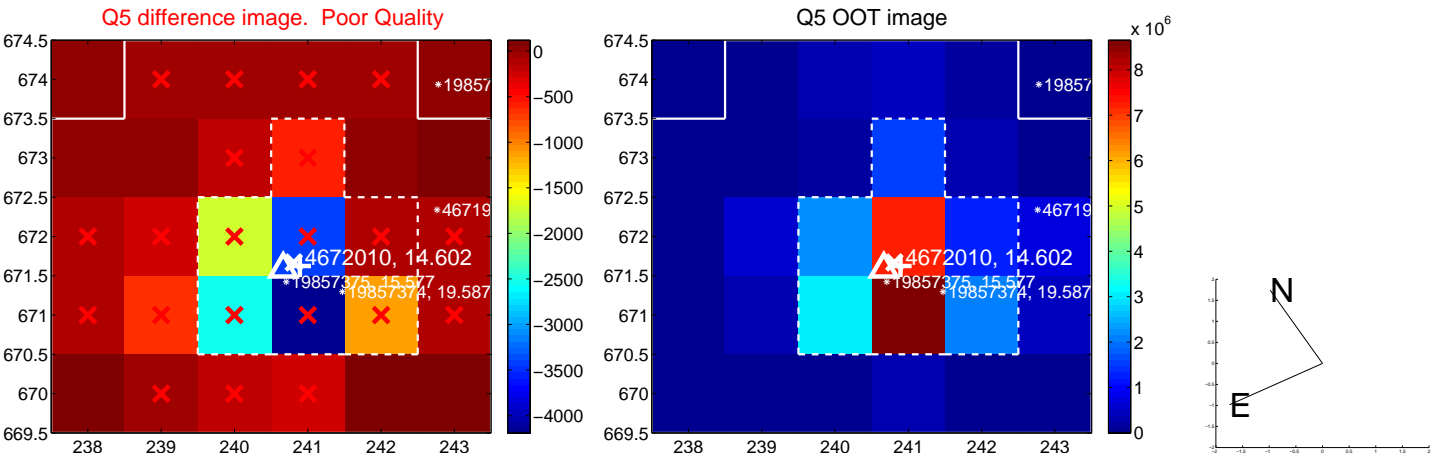


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

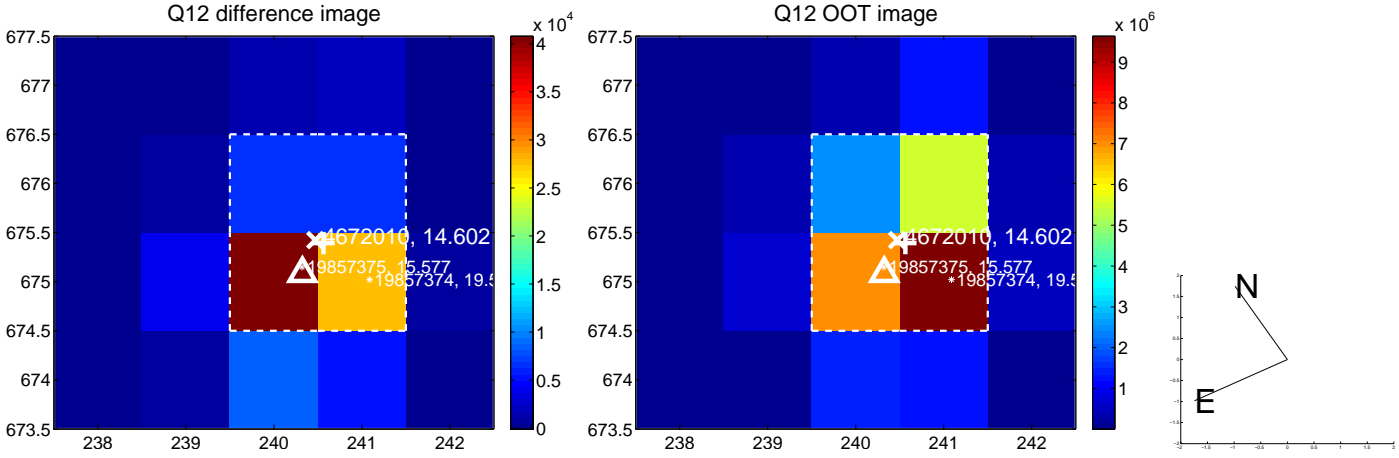
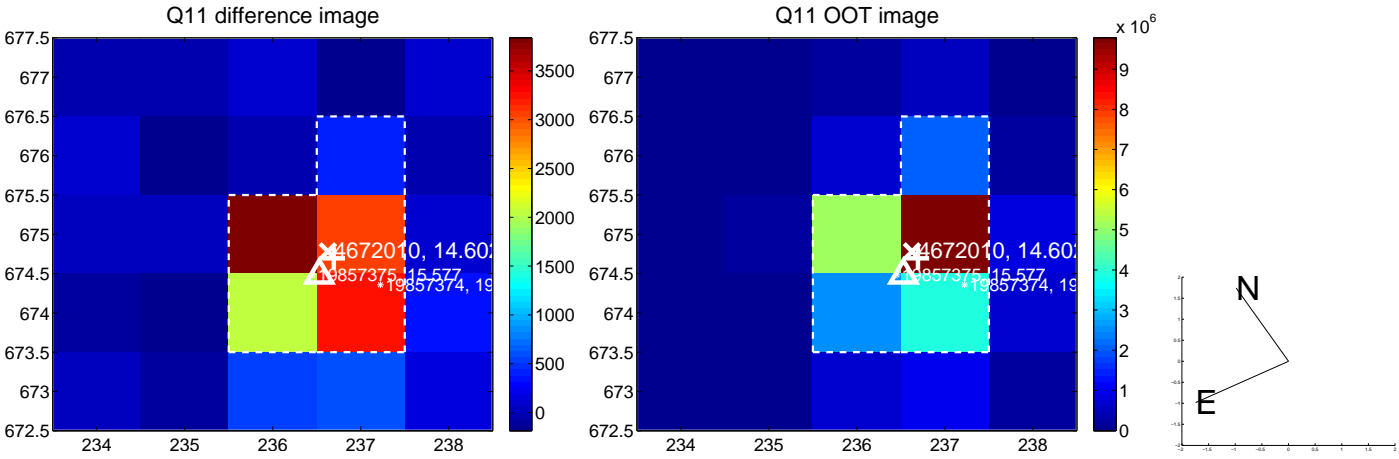
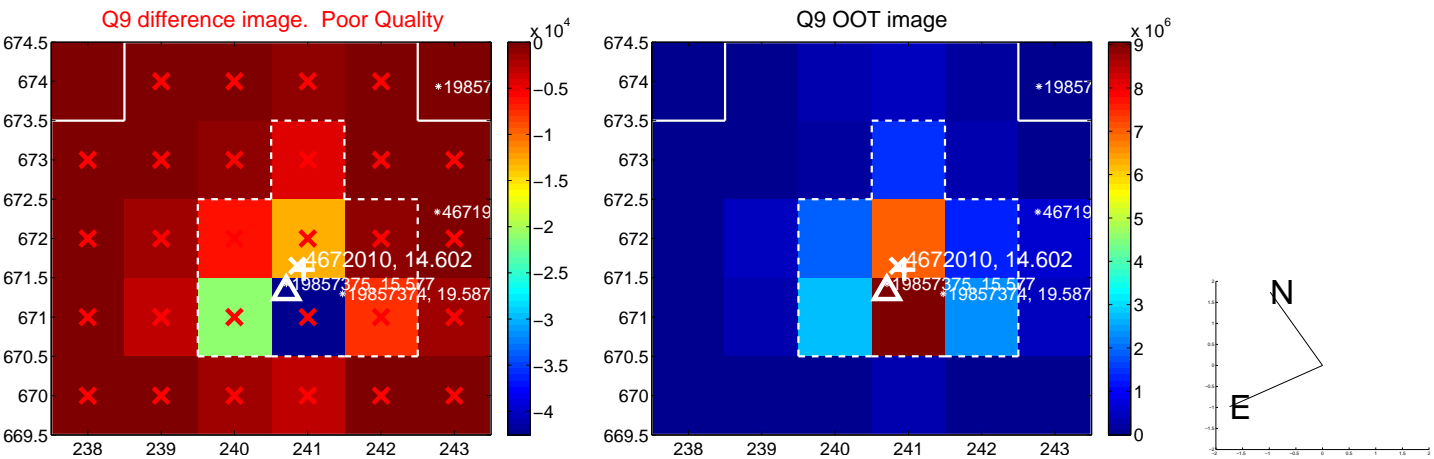
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



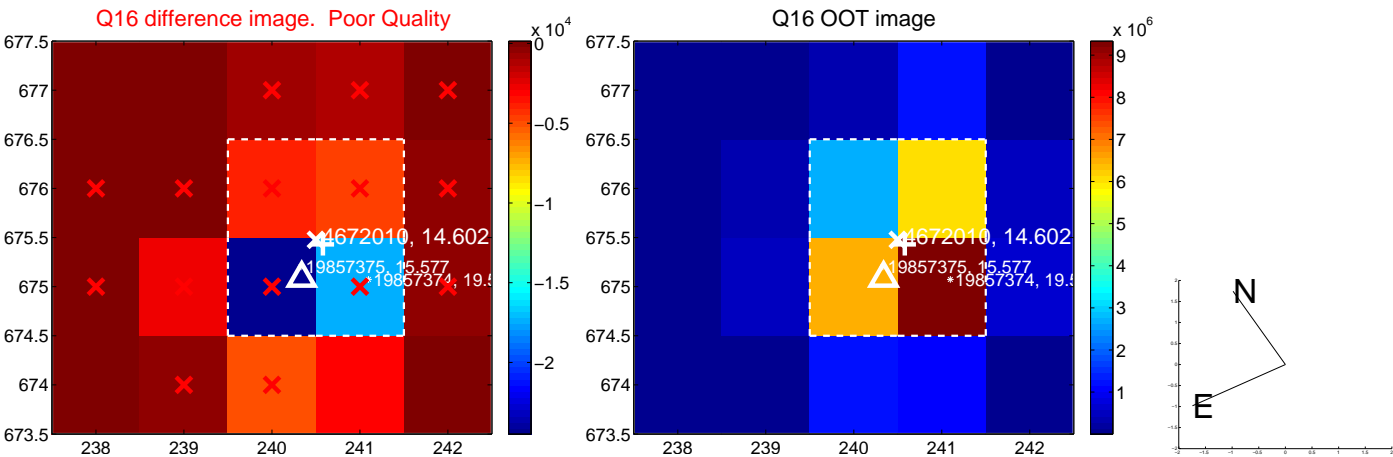
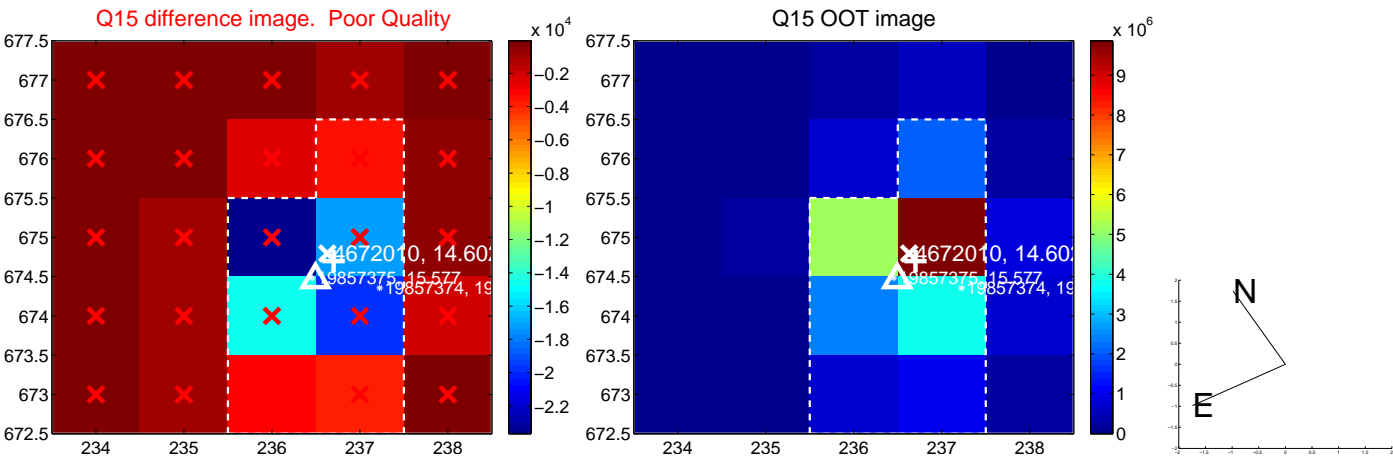
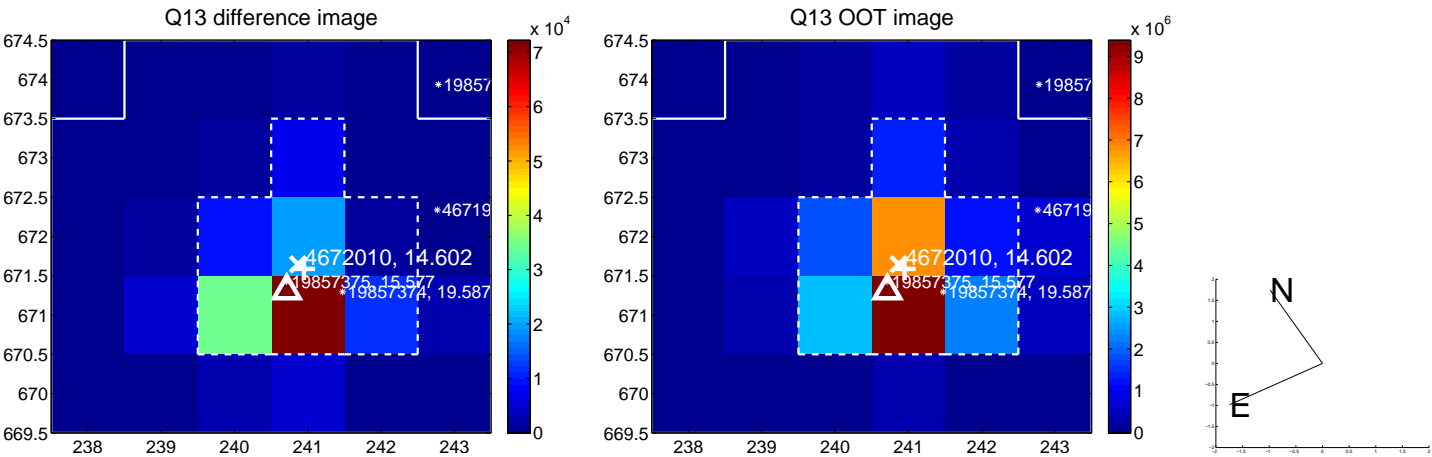
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UKIRT Image

Declination

