

KIC 004247092

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})
004247092-01	OBS	0403.01	21.056495	150.076409	1357.3	1.369	46.8	52.4	1.12	6156	5.69	67.90
004247092-02	OBS	No	21.057105	150.262927	219.4	28.457	17.8	19.2	1.12	6156	2.44	67.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004247092-01	OBS	FP	0.09	0	1	0	0	HAS_SEC_TCE
004247092-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

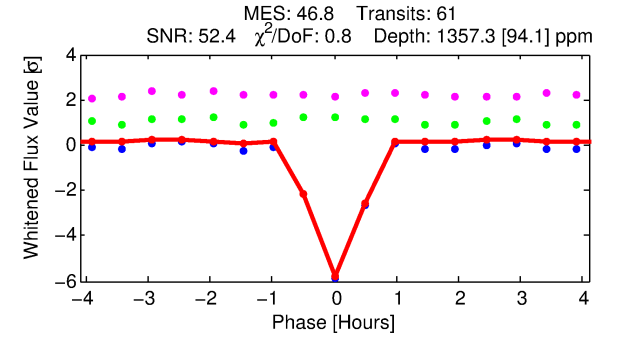
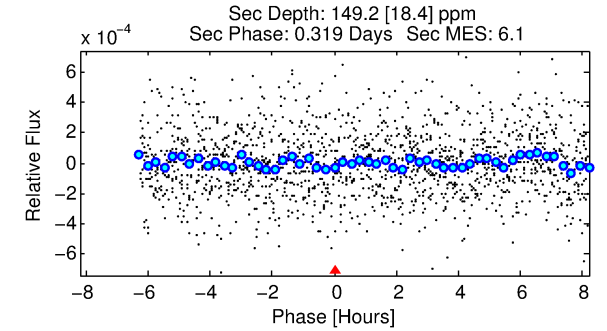
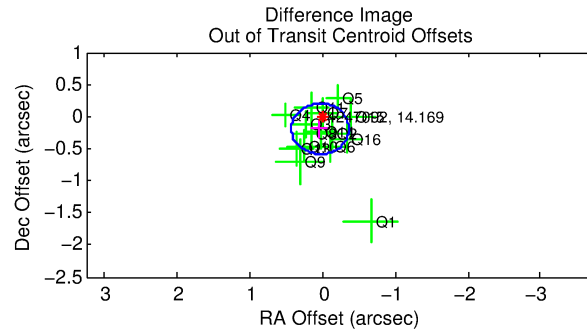
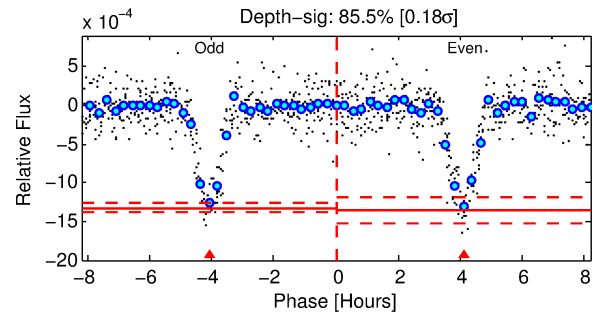
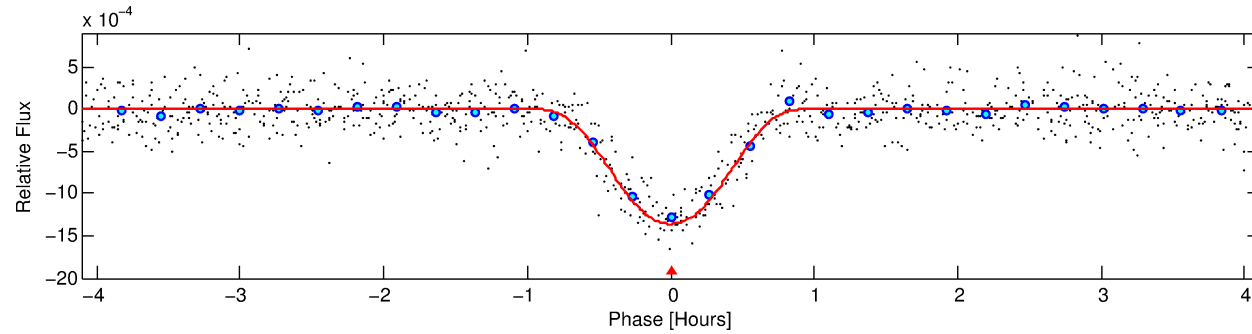
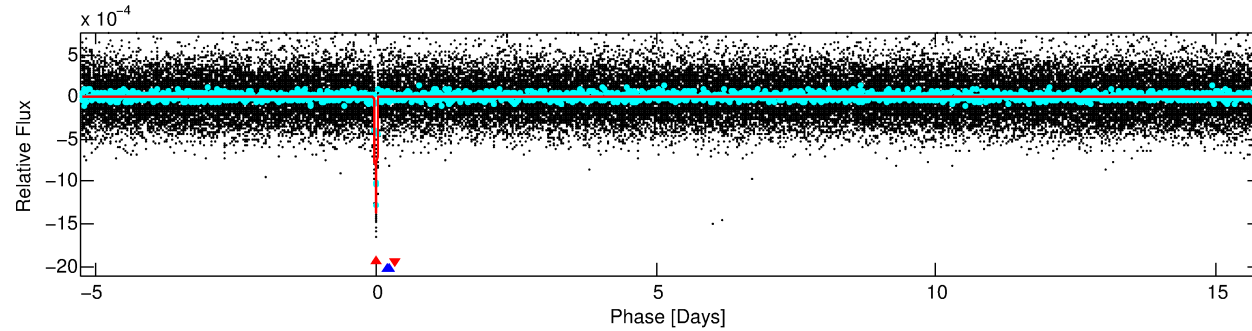
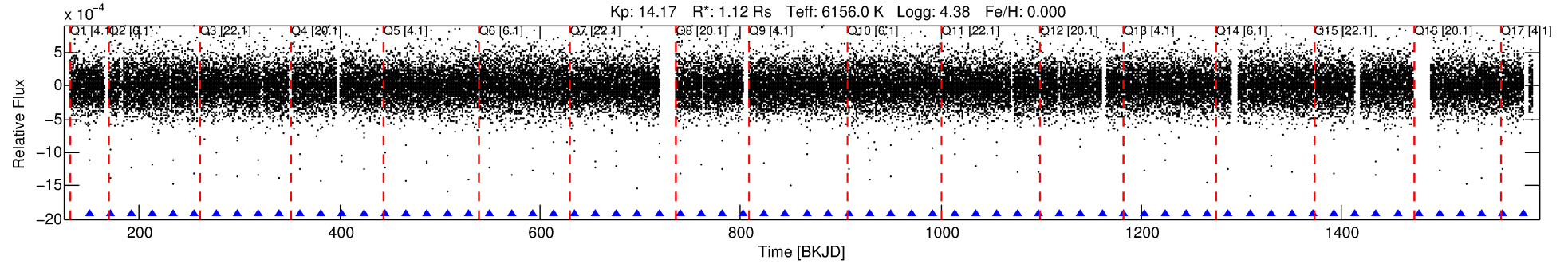
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004247092-01

No Significant Match Found

DV One-Page Summary

KIC: 4247092 Candidate: 1 of 2 Period: 21.056 d
KOI: K00403.01 Corr: 0.850



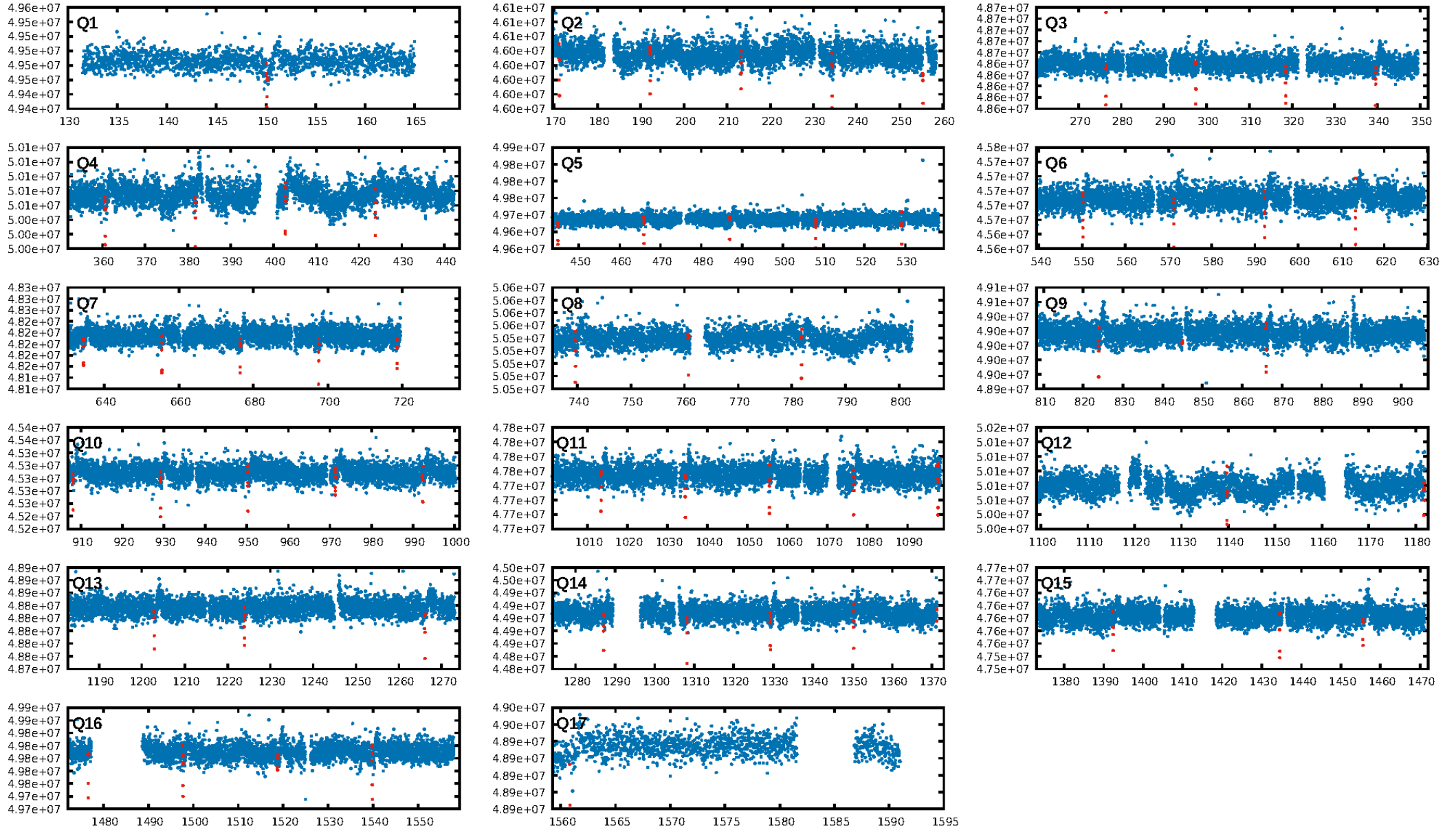
DV Fit Results:

Period = 21.05650 [0.00002] d
Epoch = 150.0764 [0.0007] BKJD
Rp/R* = 0.0467 [0.0152]
a/R* = 47.58 [9.74]
b = 0.97 [0.04]
Seff = 67.90 [16.36]
Teq = 732 [44] K
Rp = 5.69 [2.09] Re
a = 0.1539 [0.0230] AU
Ag = 60.02 [41.99] [1.41σ]
Teffp = 3150 [526] K [4.58σ]

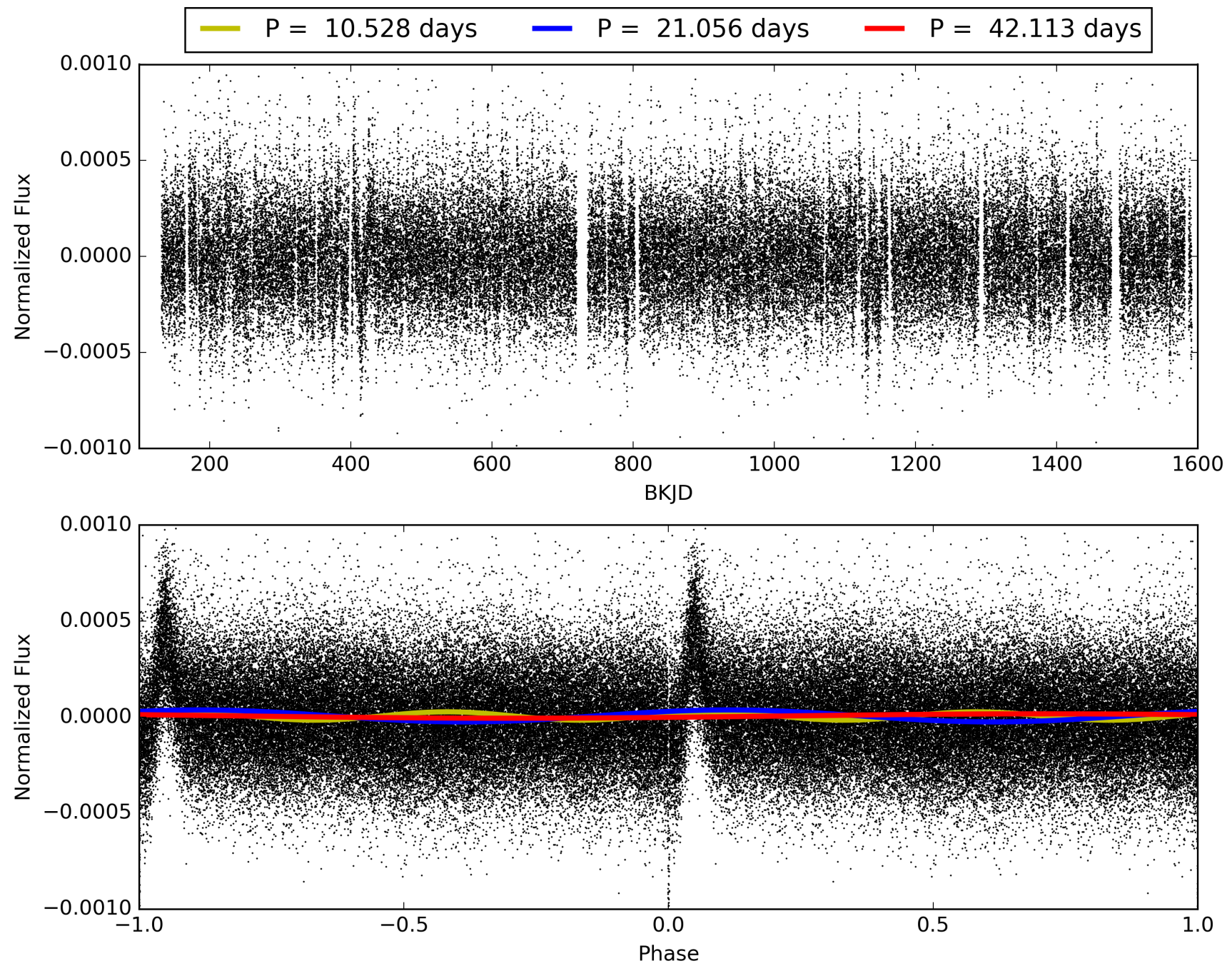
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 92.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [59/59]
GhostDiagnostic-chr: 7.277
Centroid-sig: 11.1%
Centroid-so: 0.274 arcsec [1.06σ]
OotOffset-rm: 0.194 arcsec [1.48σ]
KicOffset-rm: 0.385 arcsec [2.92σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 0.00 [0/16]

TCE 004247092-01, PDC Light Curves

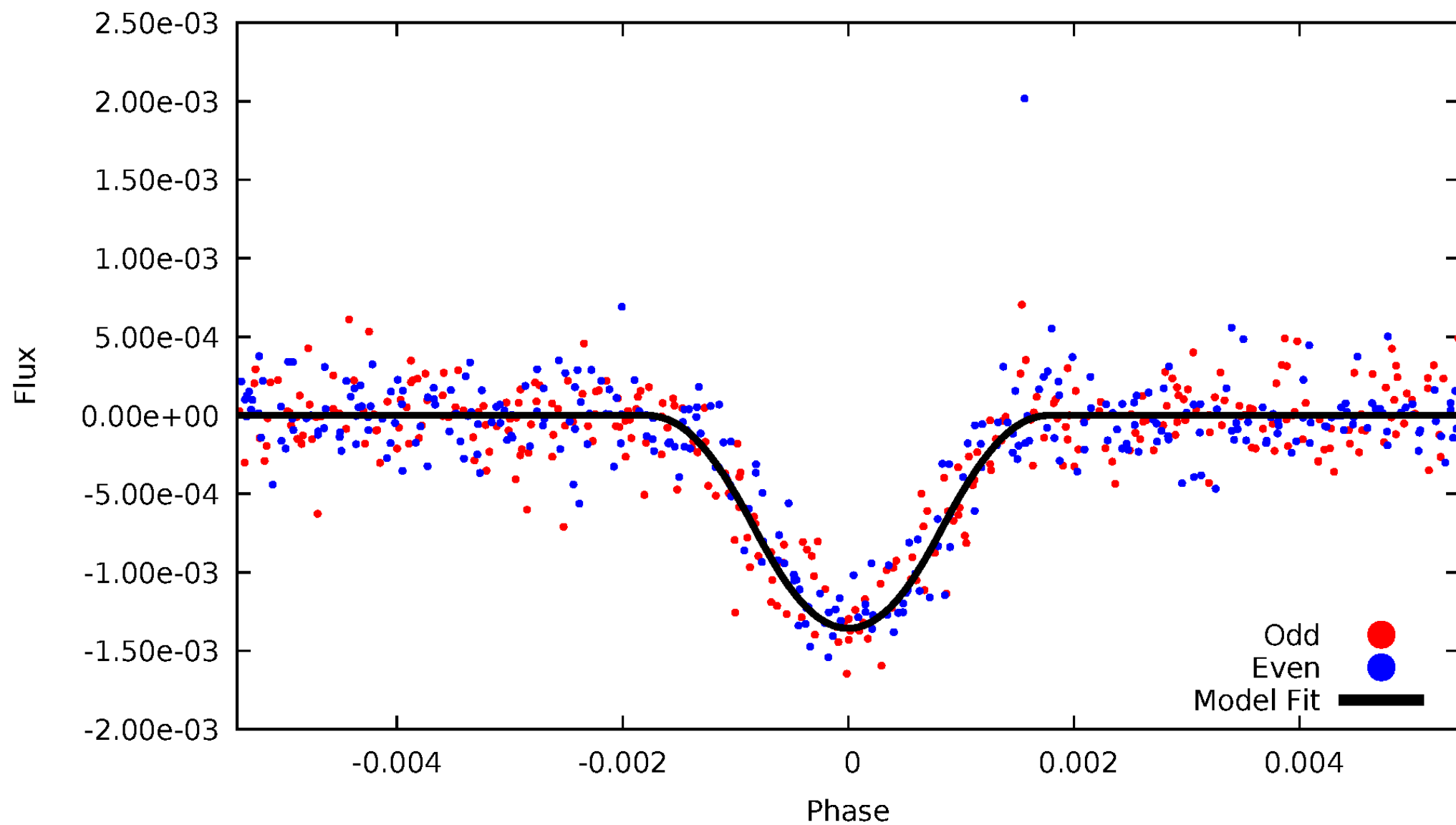


TCE 004247092-01



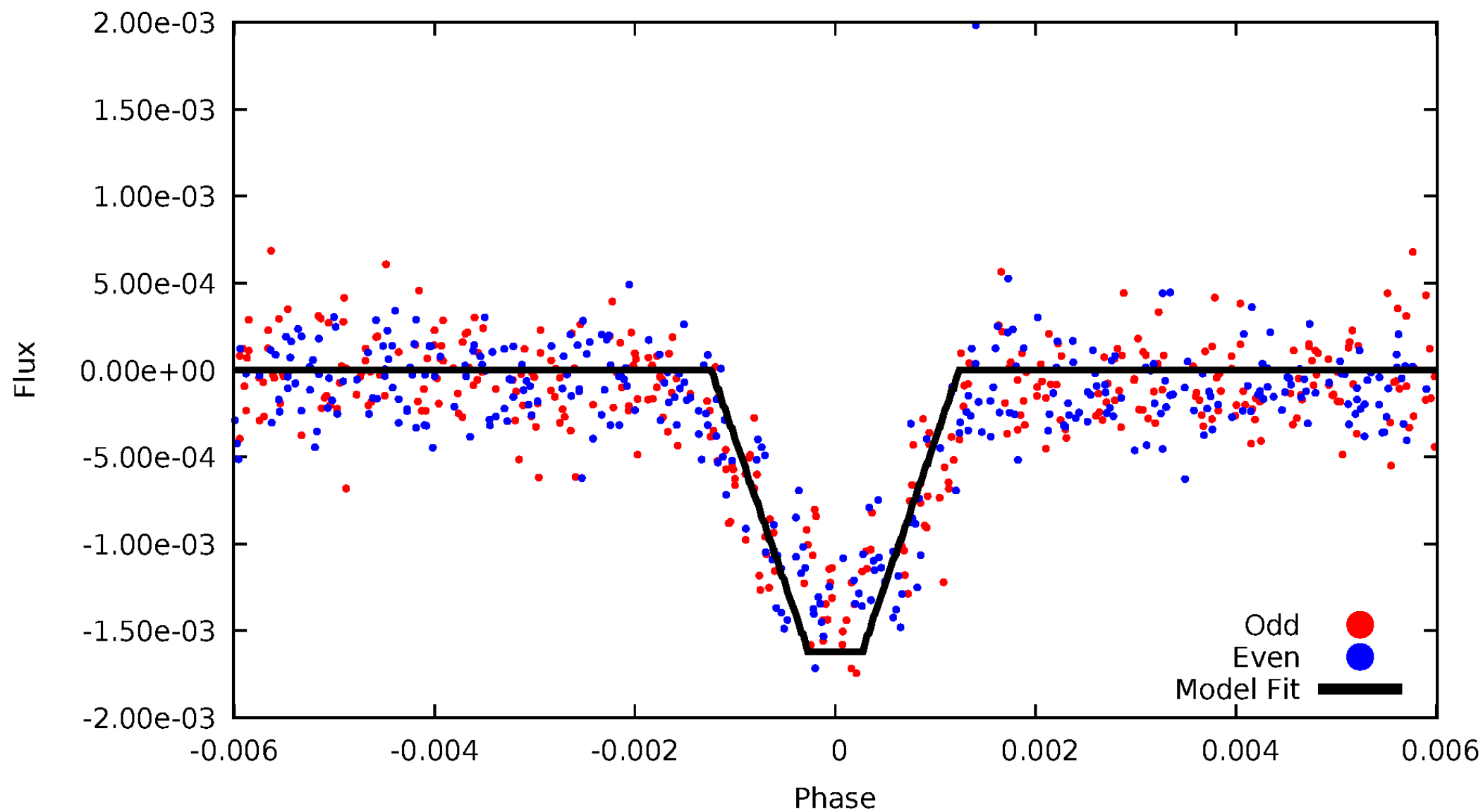
DV Odd/Even

TCE 004247092-01



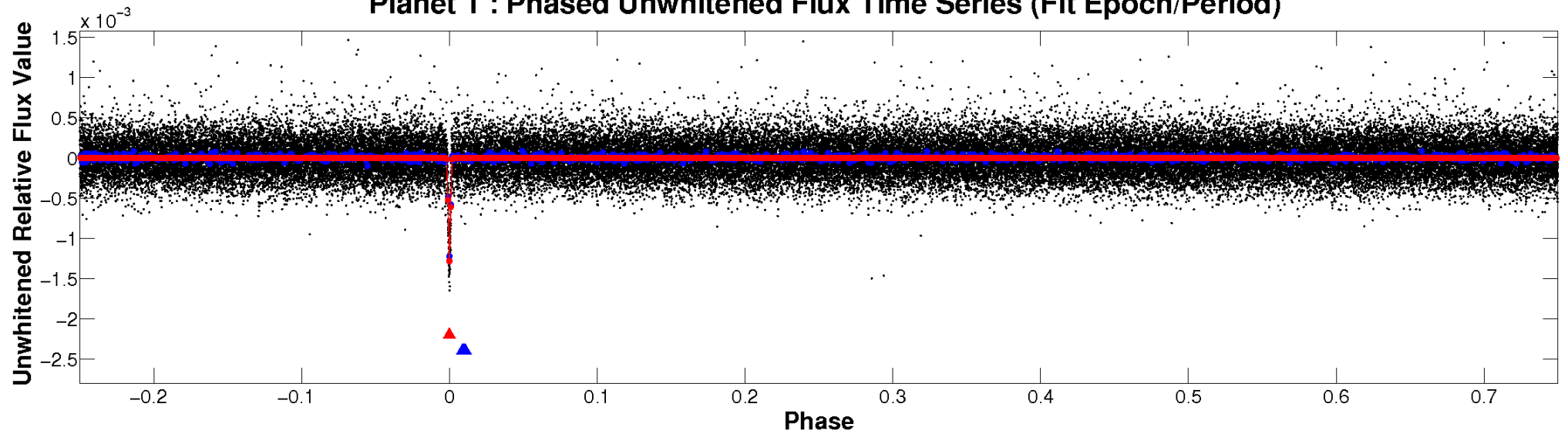
ALT Odd/Even

TCE 004247092-01

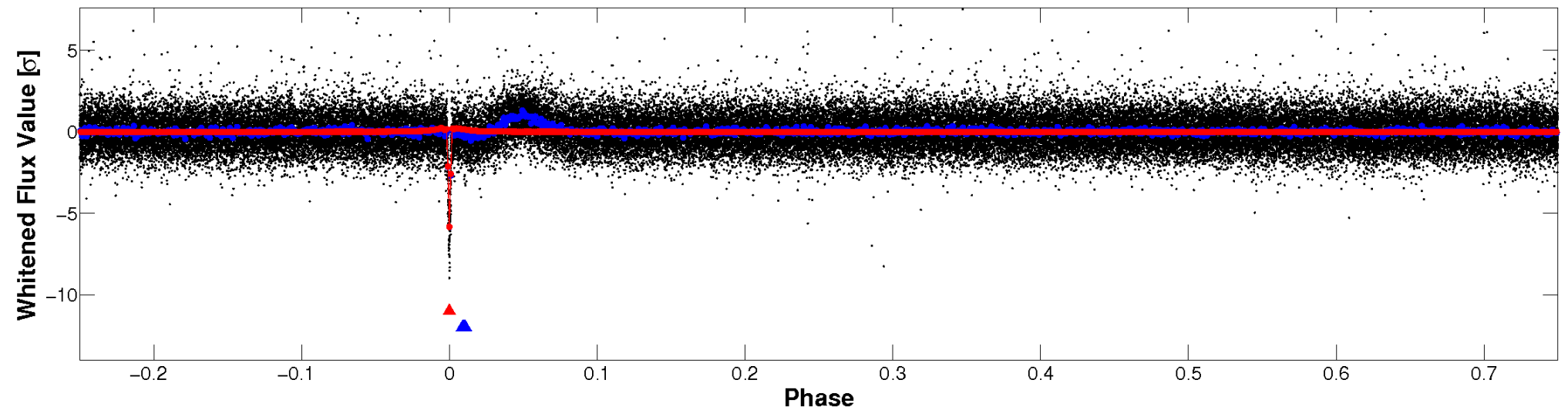


Non-Whitened Vs. Whitened Light Curve

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

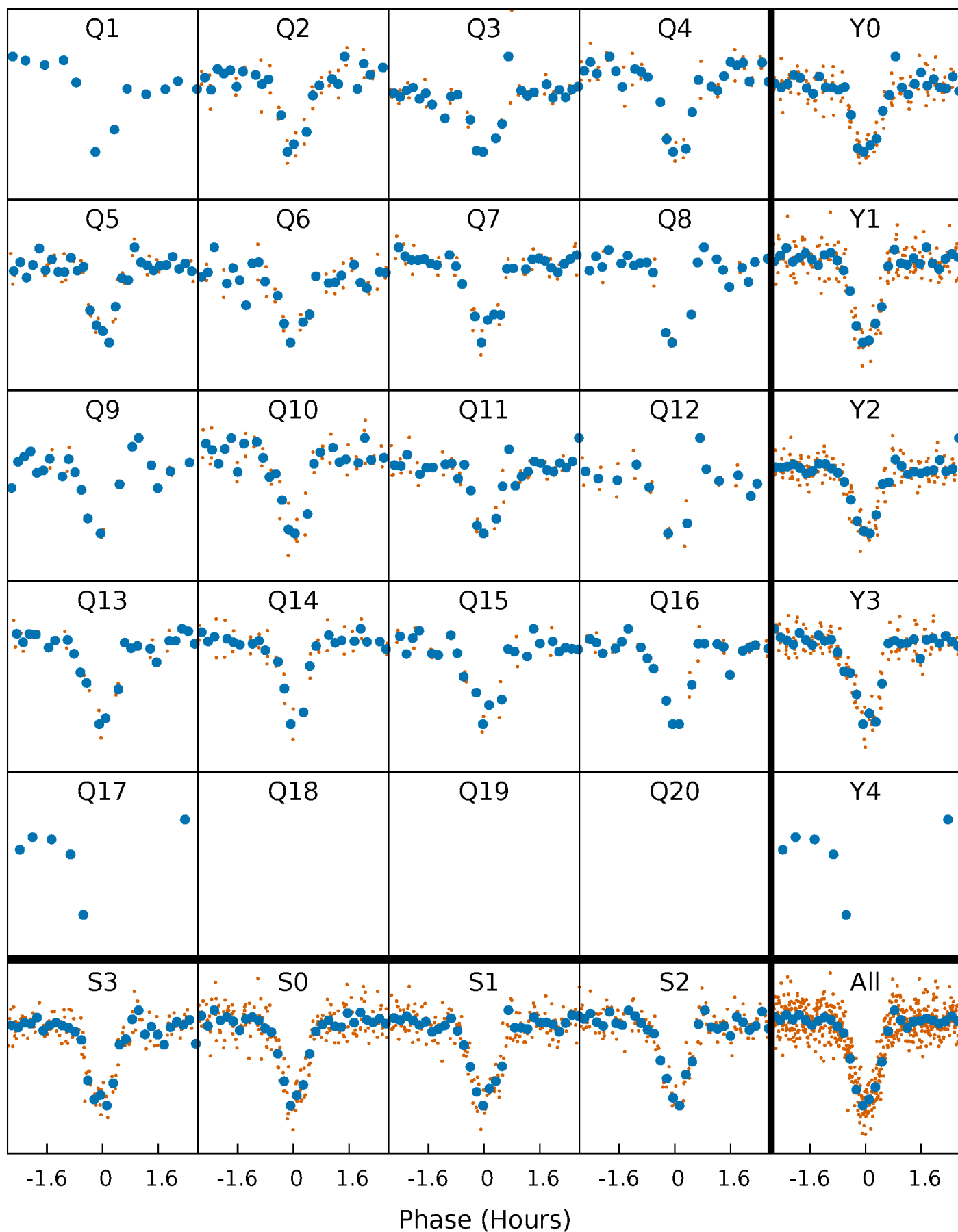


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



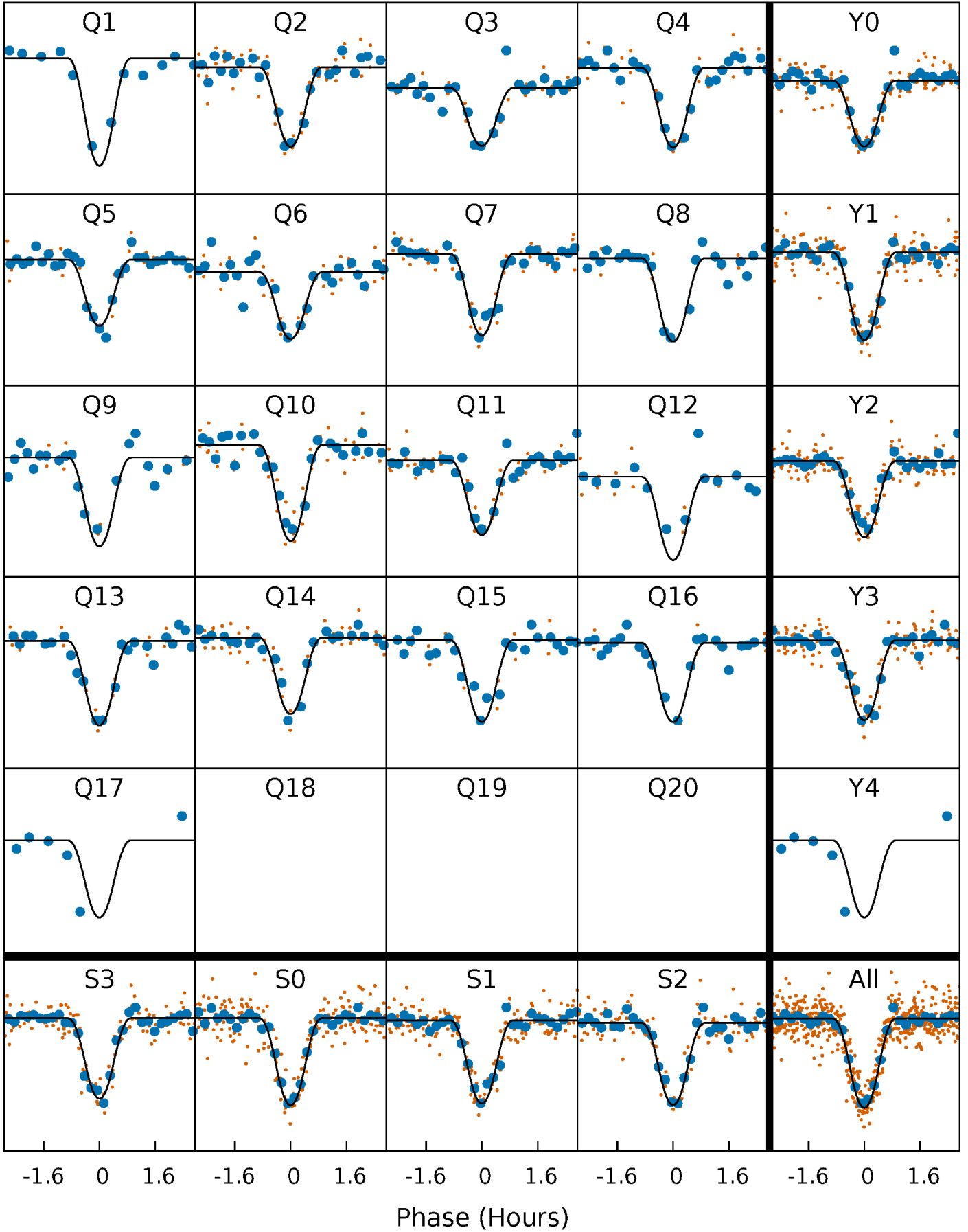
PDC Quarter-Phased Transit Curves

TCE 004247092-01 P= 21.056495 Days $T_0=150.076409$ (BKJD)



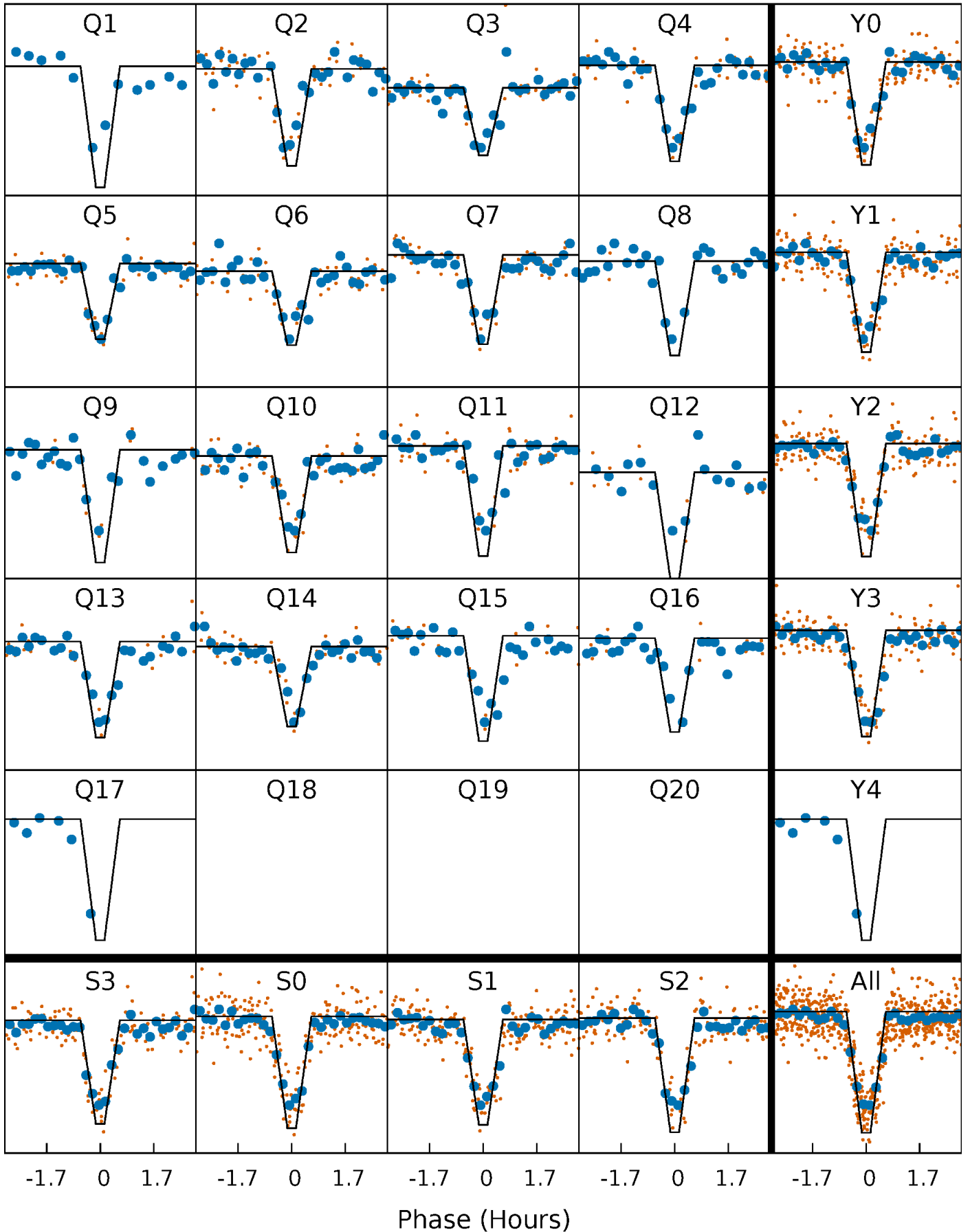
DV Quarter-Phased Transit Curves

TCE 004247092-01 P= 21.056495 Days $T_0=150.076409$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

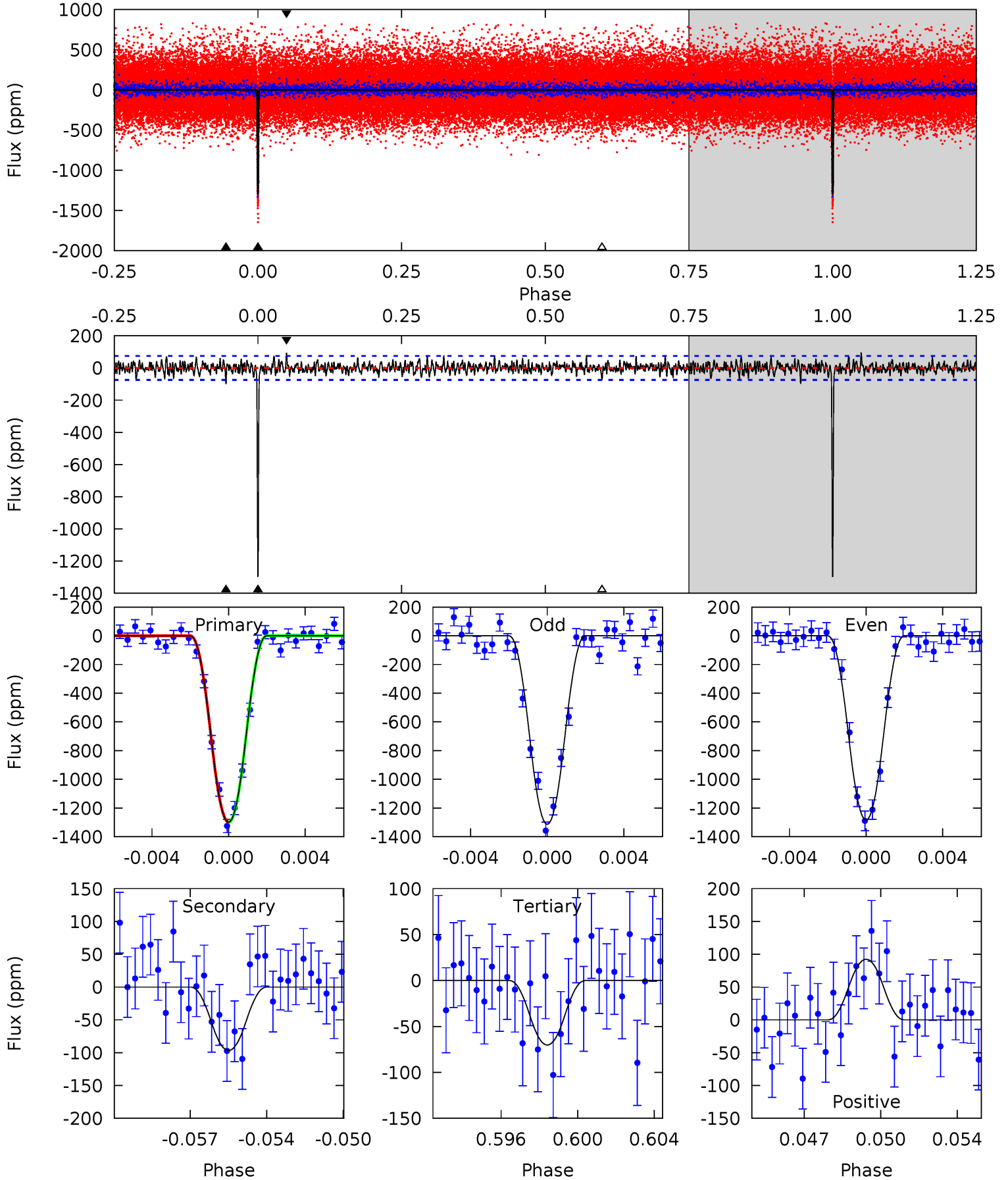
TCE 004247092-01 P= 21.056353 Days $T_0=150.080612$ (BKJD)



DV Model-Shift Uniqueness Test

004247092-01, P = 21.056495 Days, E = 129.019914 Days

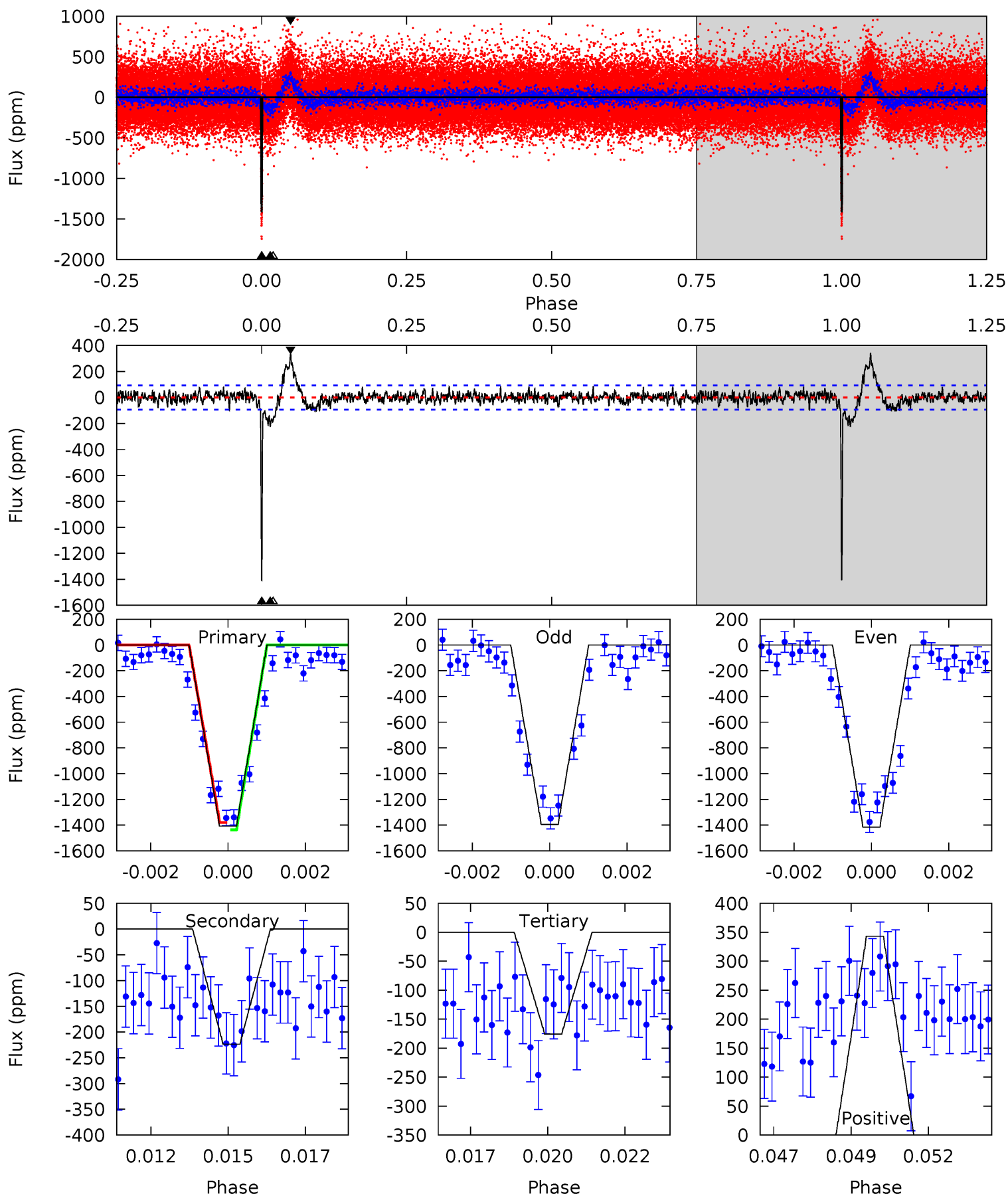
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
91.0	6.76	4.92	6.47	5.22	2.91	1.59	86.1	84.5	1.84	0.30	1.03	0.99	0.07	0.13



Alt Model-Shift Uniqueness Test

004247092-01, P = 21.056353 Days, E = 129.024259 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
79.4	12.6	9.91	19.3	5.29	3.03	2.73	69.5	60.0	2.69	-6.75	0.62	1.02	0.20	1.60



Stellar Parameters For KIC 004247092

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6156^{+110}_{-135}	$4.381^{+0.054}_{-0.126}$	$0.000^{+0.150}_{-0.150}$	$1.118^{+0.191}_{-0.095}$	$1.092^{+0.089}_{-0.073}$	$1.102^{+0.277}_{-0.375}$
	+2%/-2%	+1%/-3%	+inf%/-inf%	+17%/-8%	+8%/-7%	+25%/-34%
Source	SPE57	SPE57	SPE57	DSEP		

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

Secondary Eclipse Parameters for KIC 004247092-01 / KOI 0403.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-97 ± 14	$5.84^{+1.99}_{-1.89}$	1032^{+46}_{-34}	3351^{+451}_{-286}	36^{+44}_{-16}
Alt.	-223 ± 18	$4.88^{+2.02}_{-1.85}$	1029^{+46}_{-33}	4089^{+810}_{-451}	121^{+191}_{-60}

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 $A_{obs} \gg 1.0$

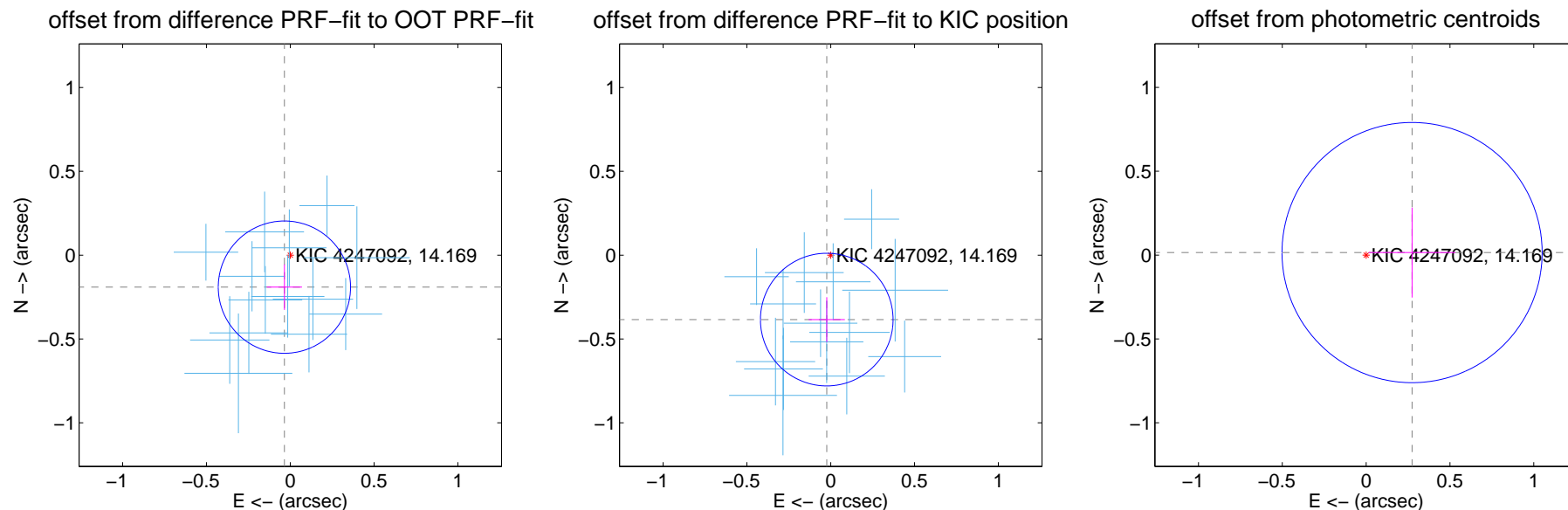
DV Centroid Data

Supplemental centroid analysis for 004247092-01. Kepler magnitude: 14.17. Transit SNR 52.43

There are 15 quarters with good PRF difference image offsets

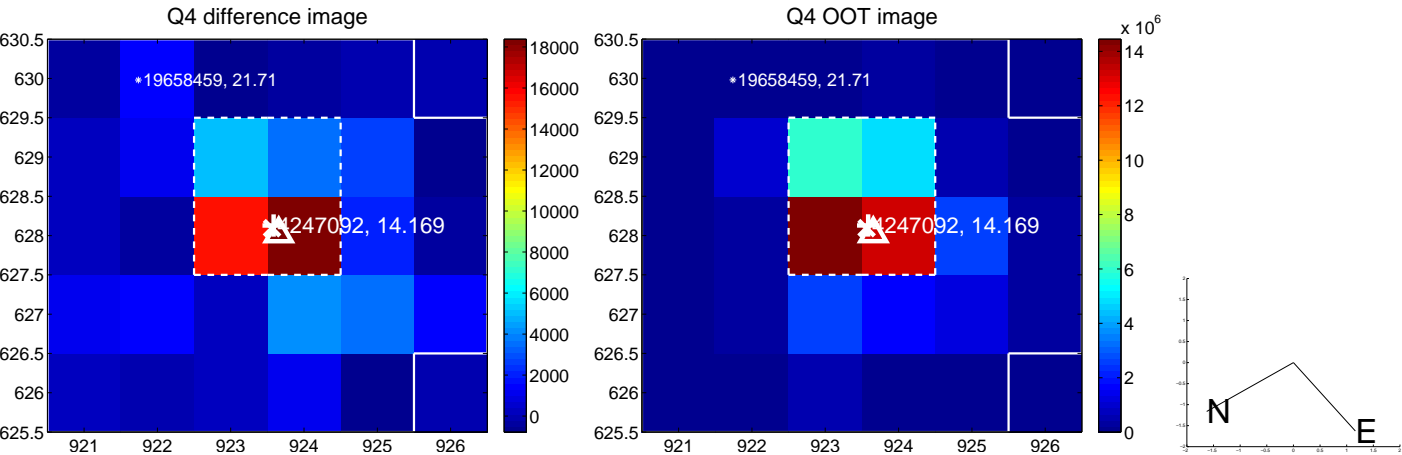
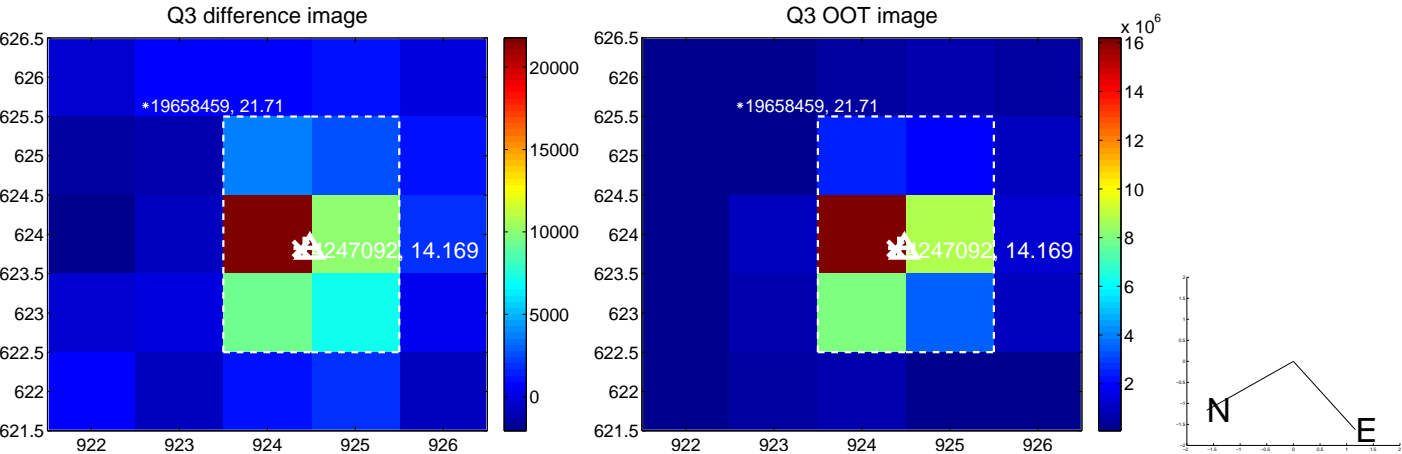
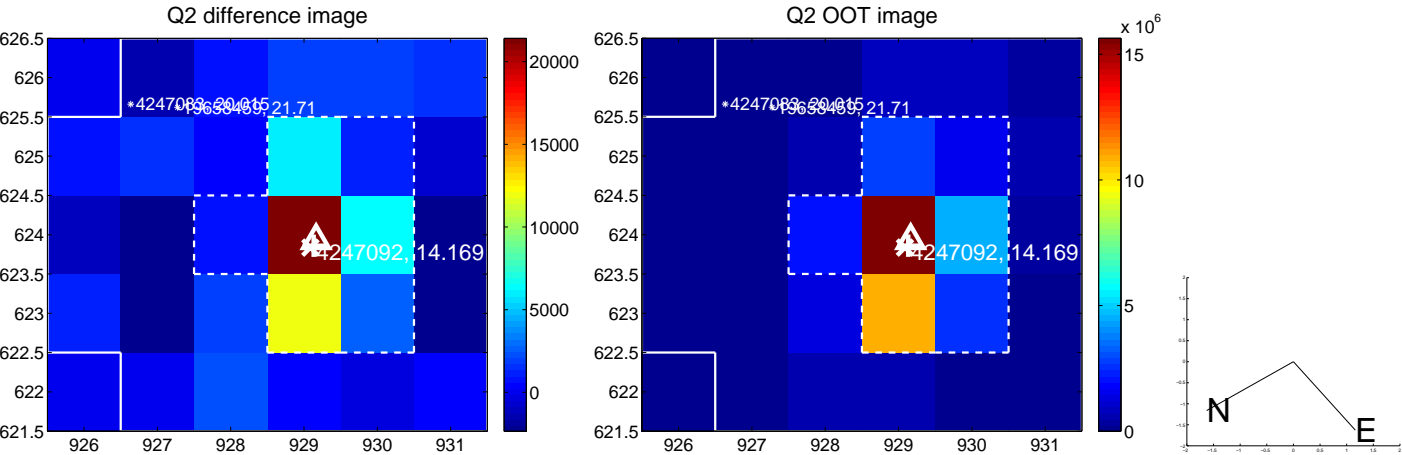
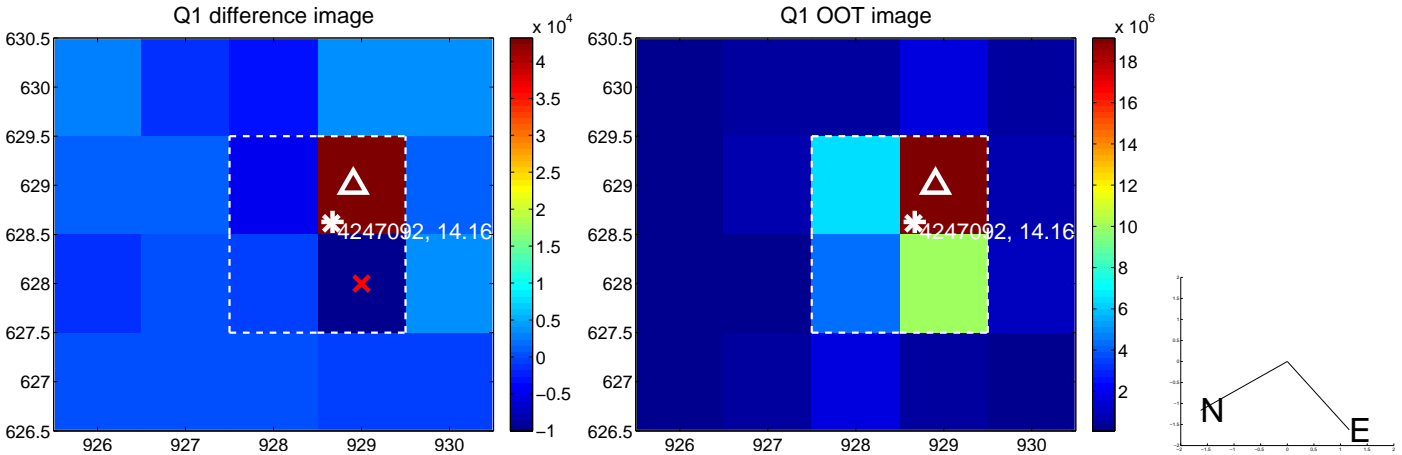
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.194 ± 0.132	1.48	0.035 ± 0.105	-0.191 ± 0.136
PRF-fit source offset from KIC position	0.385 ± 0.132	2.92	0.024 ± 0.108	-0.384 ± 0.134
photometric centroid source offset	0.27 ± 0.26	1.06	-0.27 ± 0.26	0.01 ± 0.27

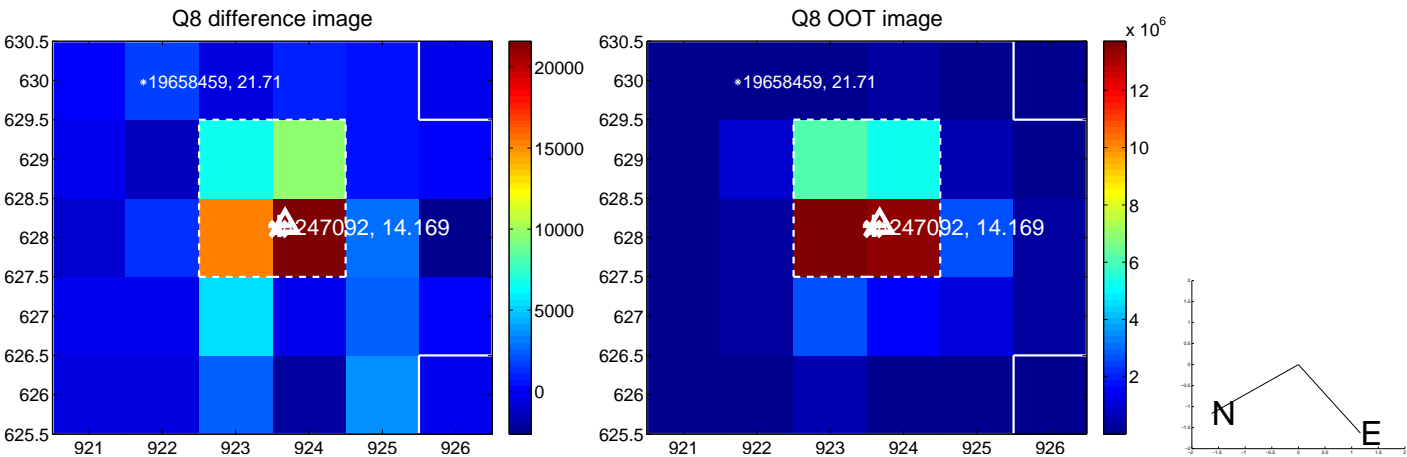
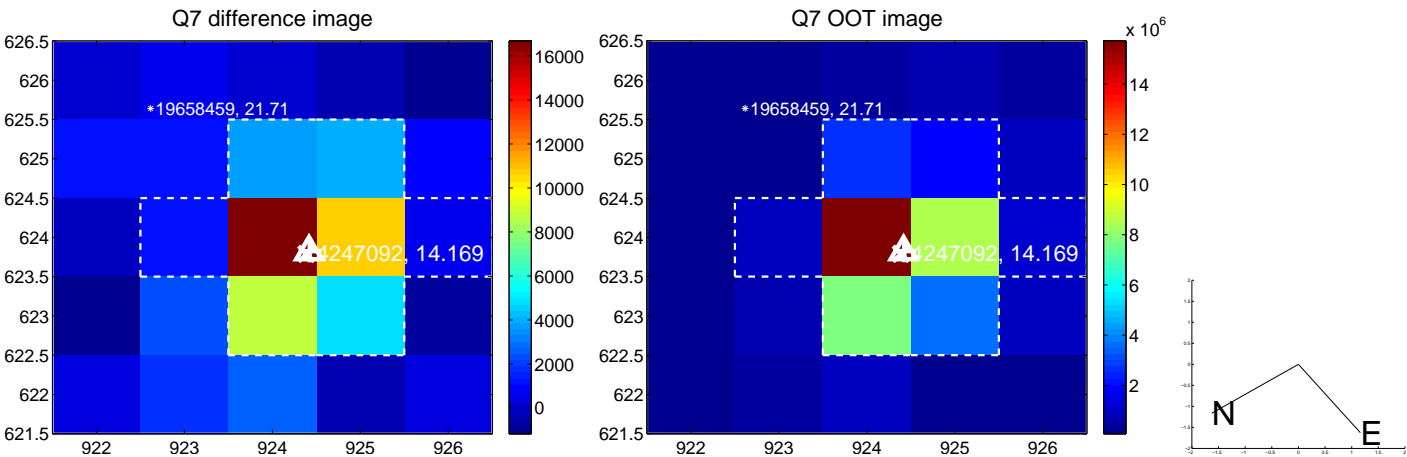
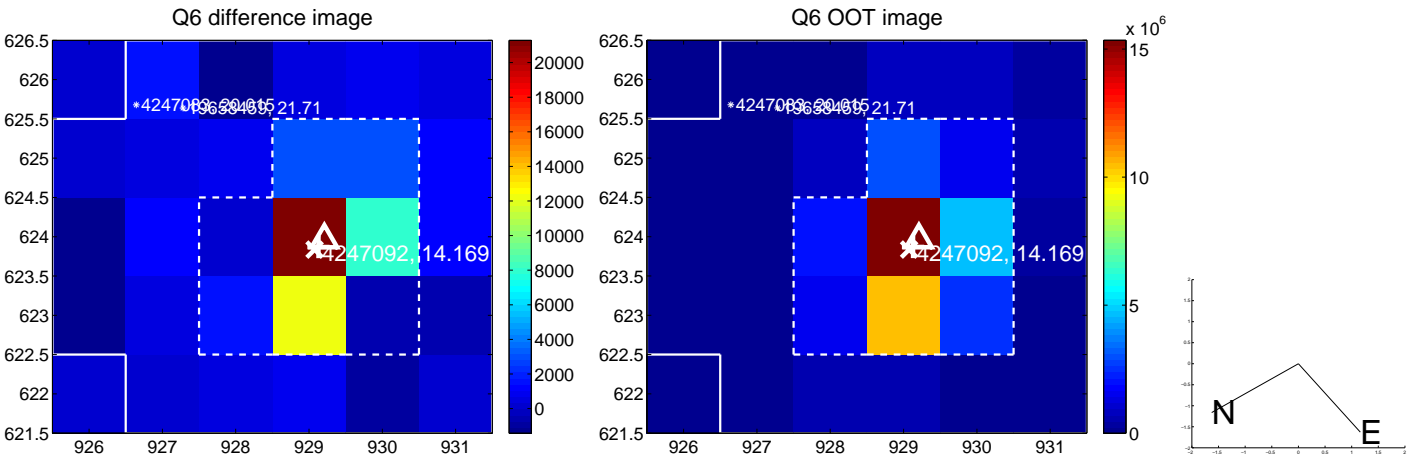
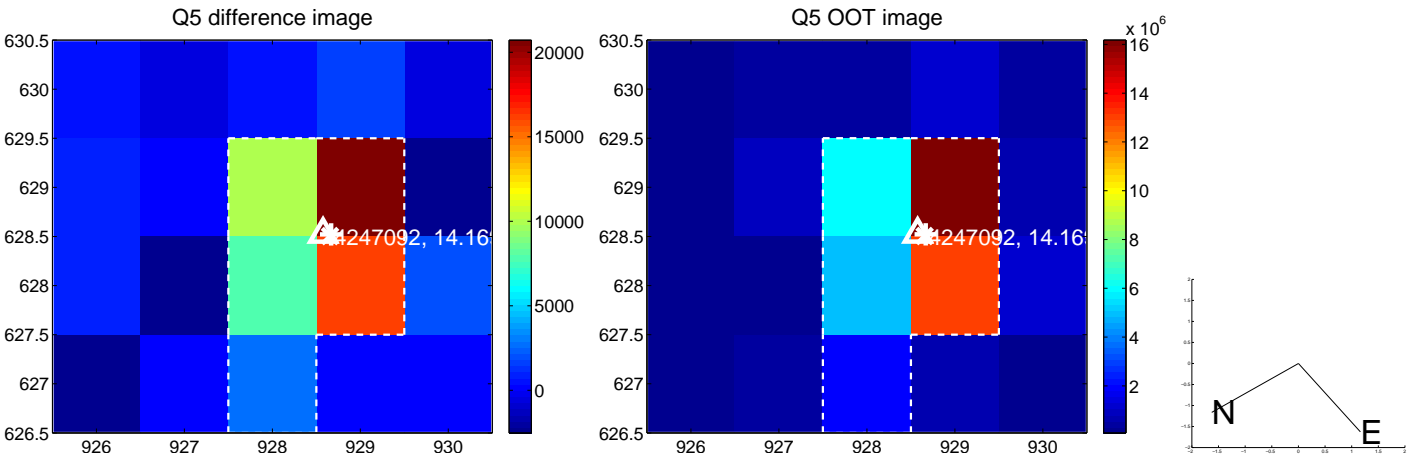


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

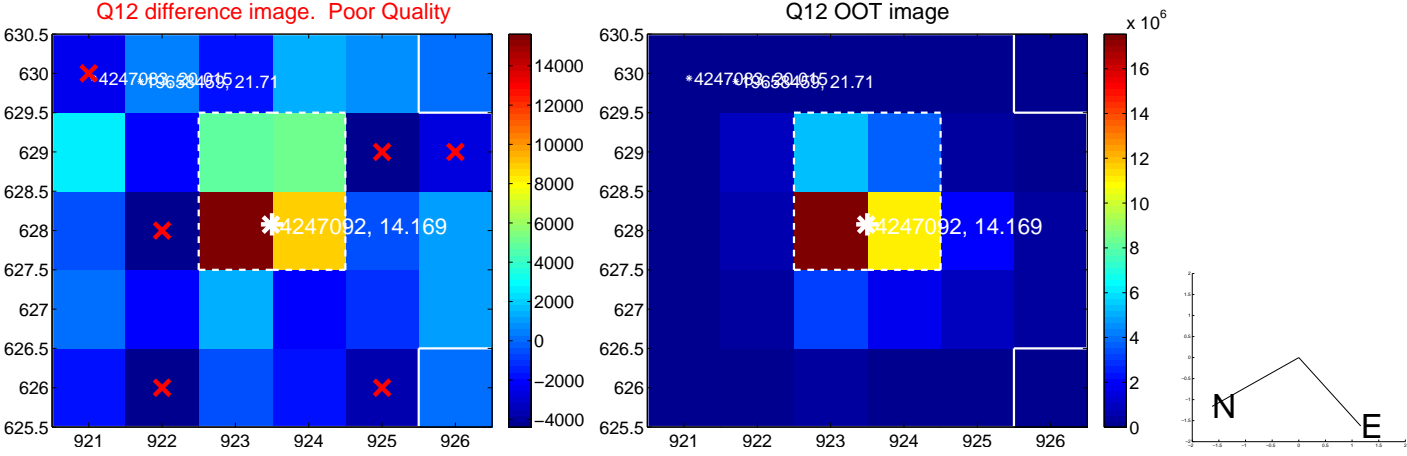
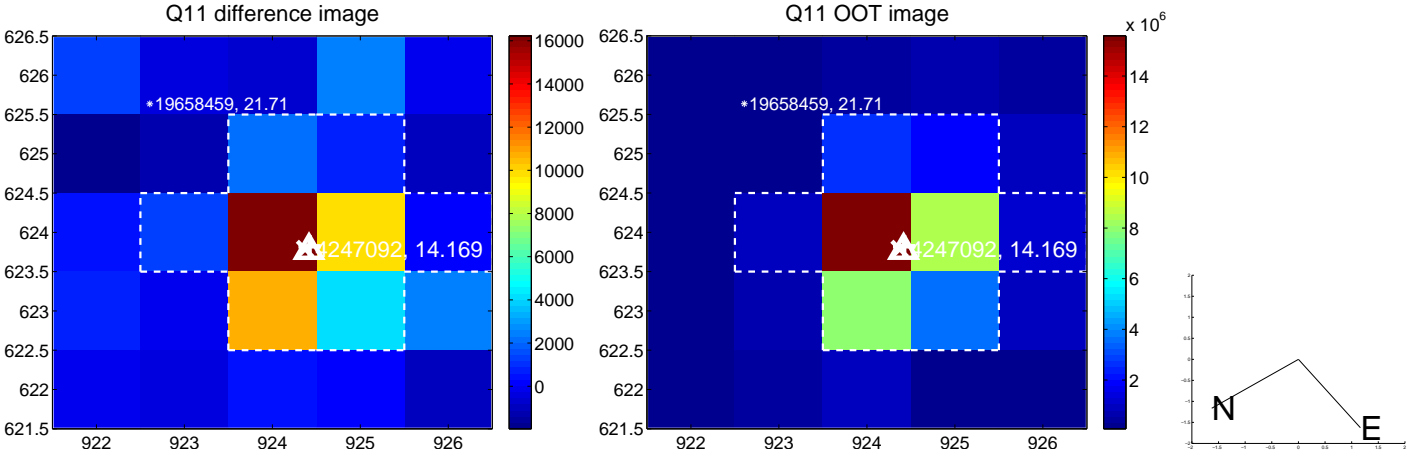
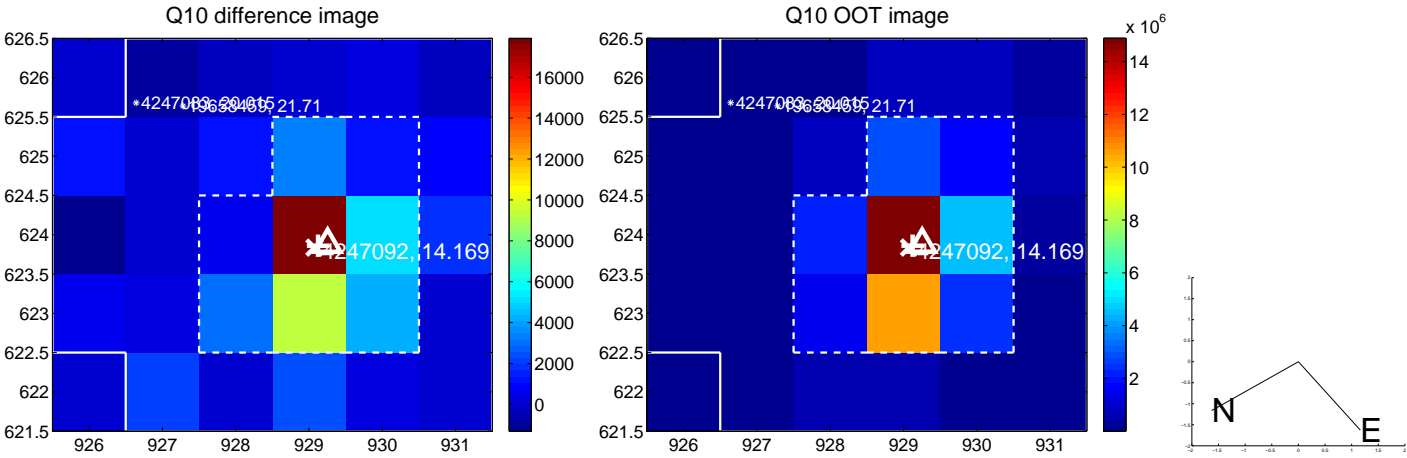
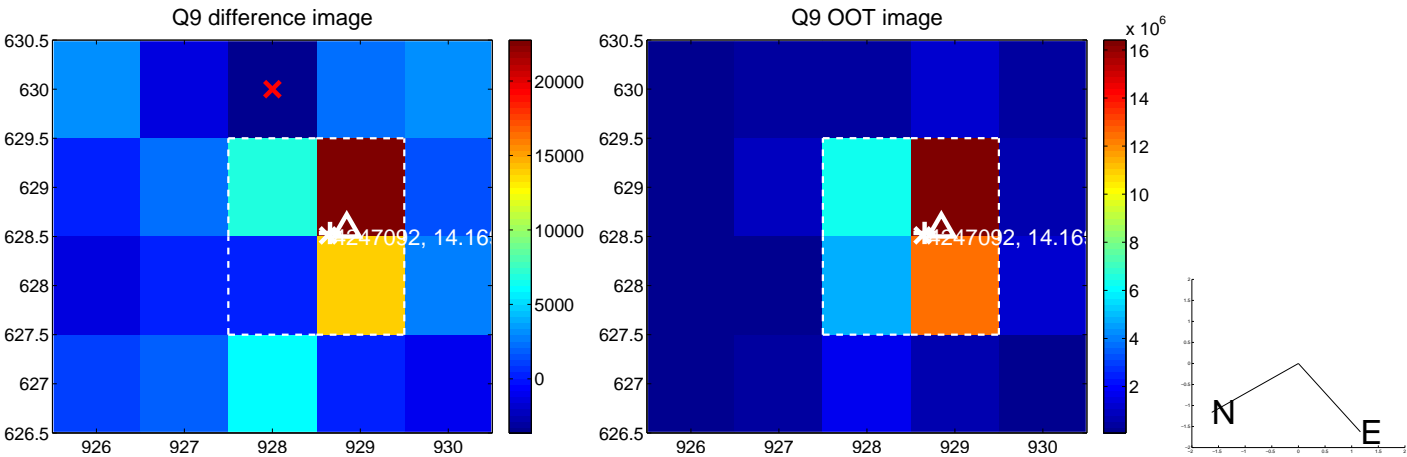
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



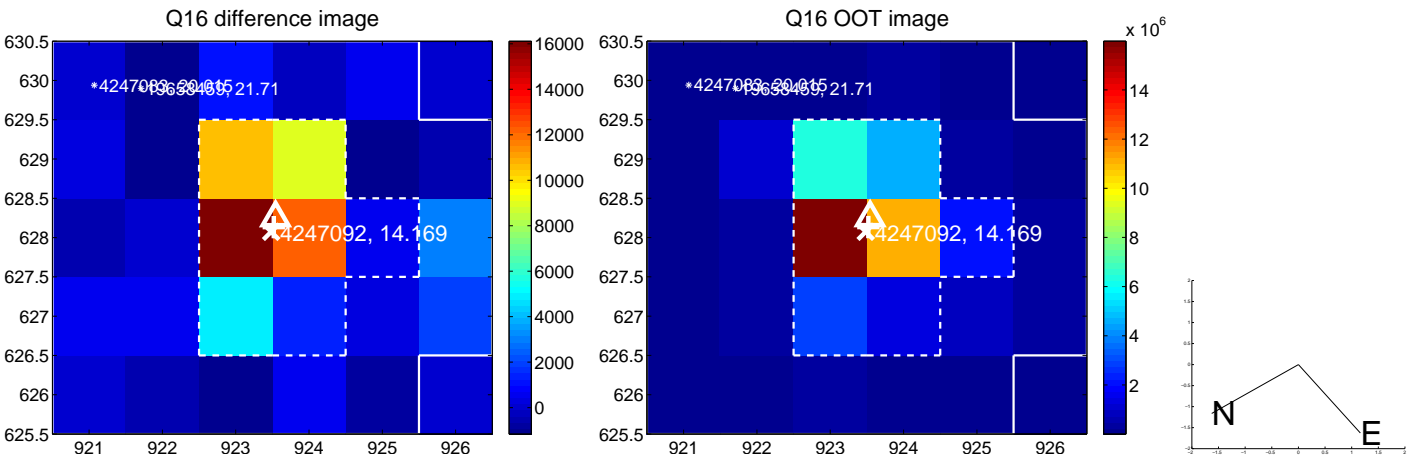
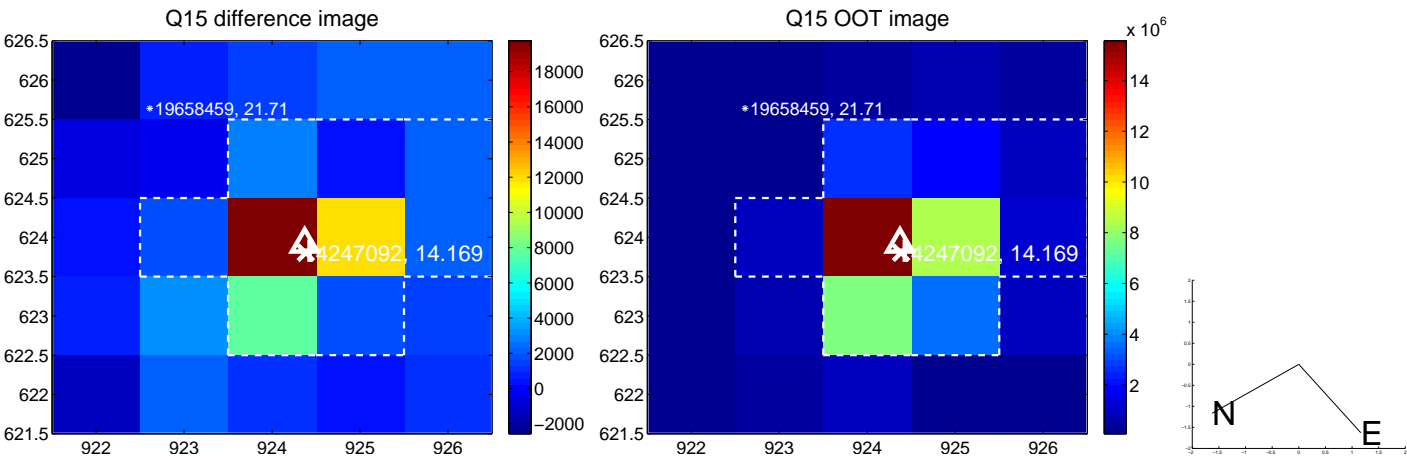
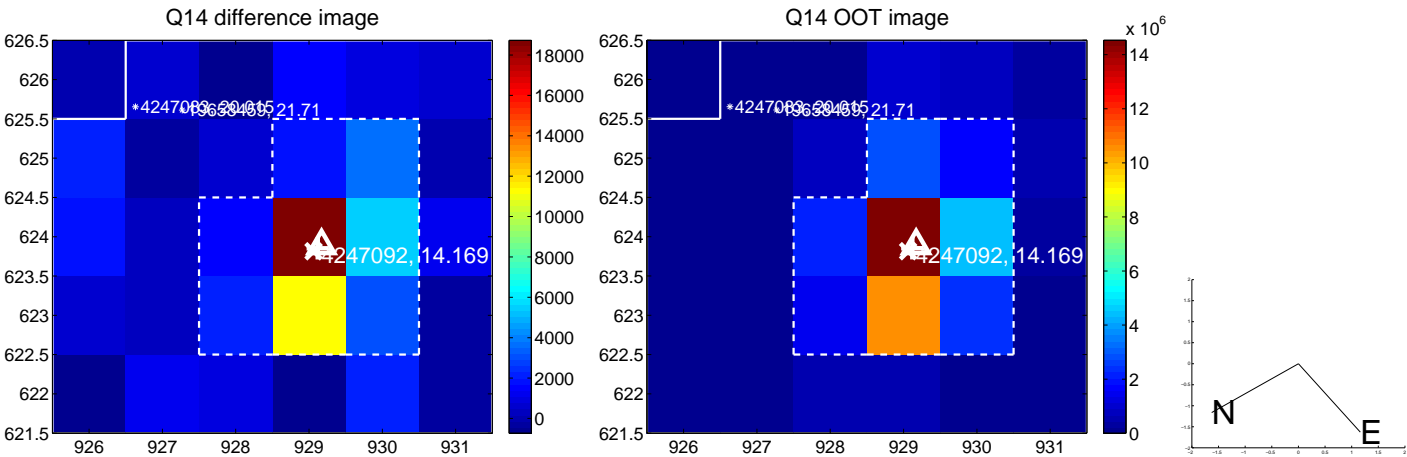
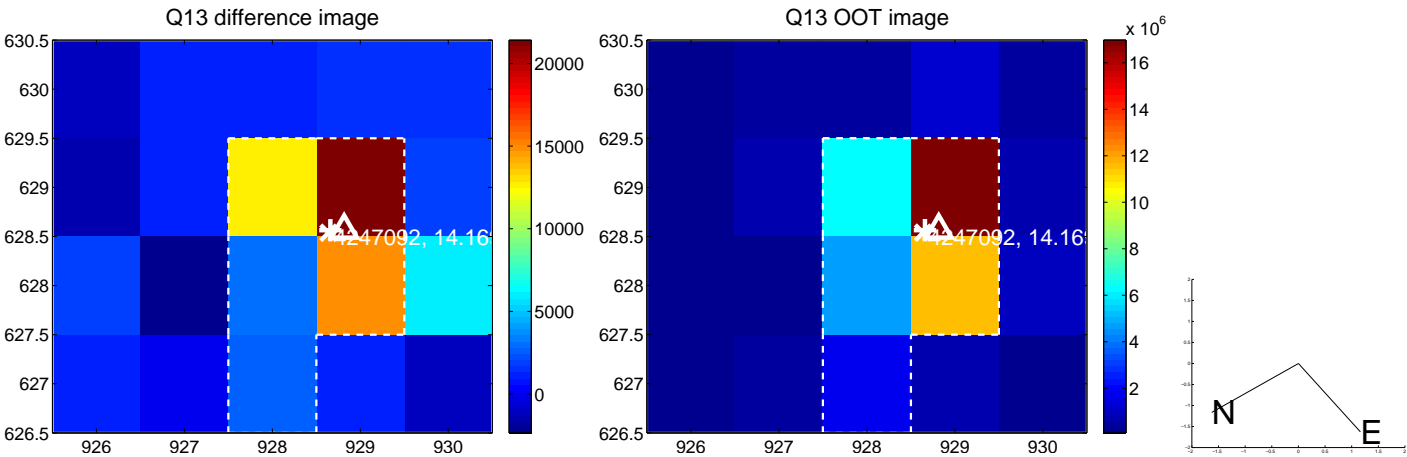
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



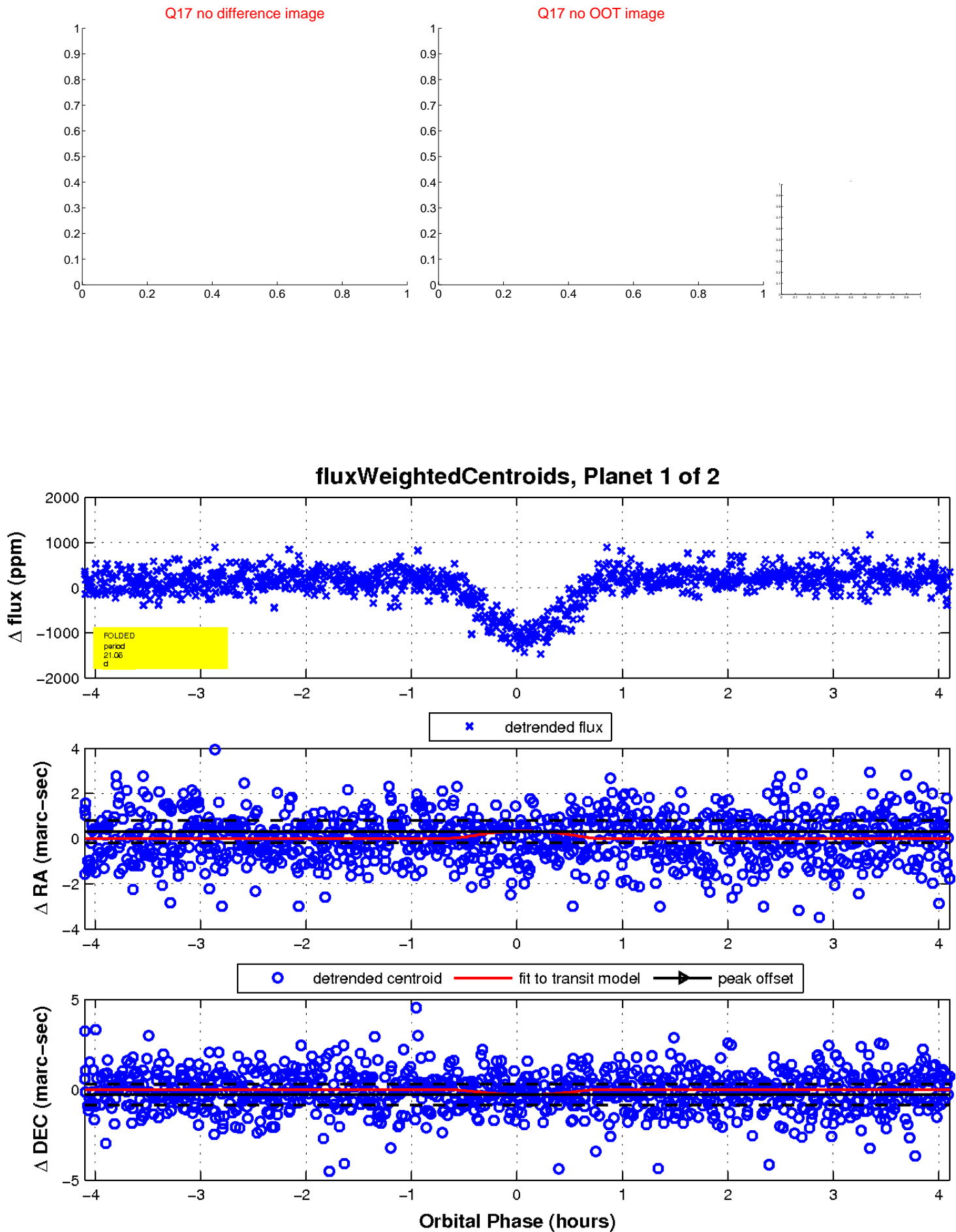
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

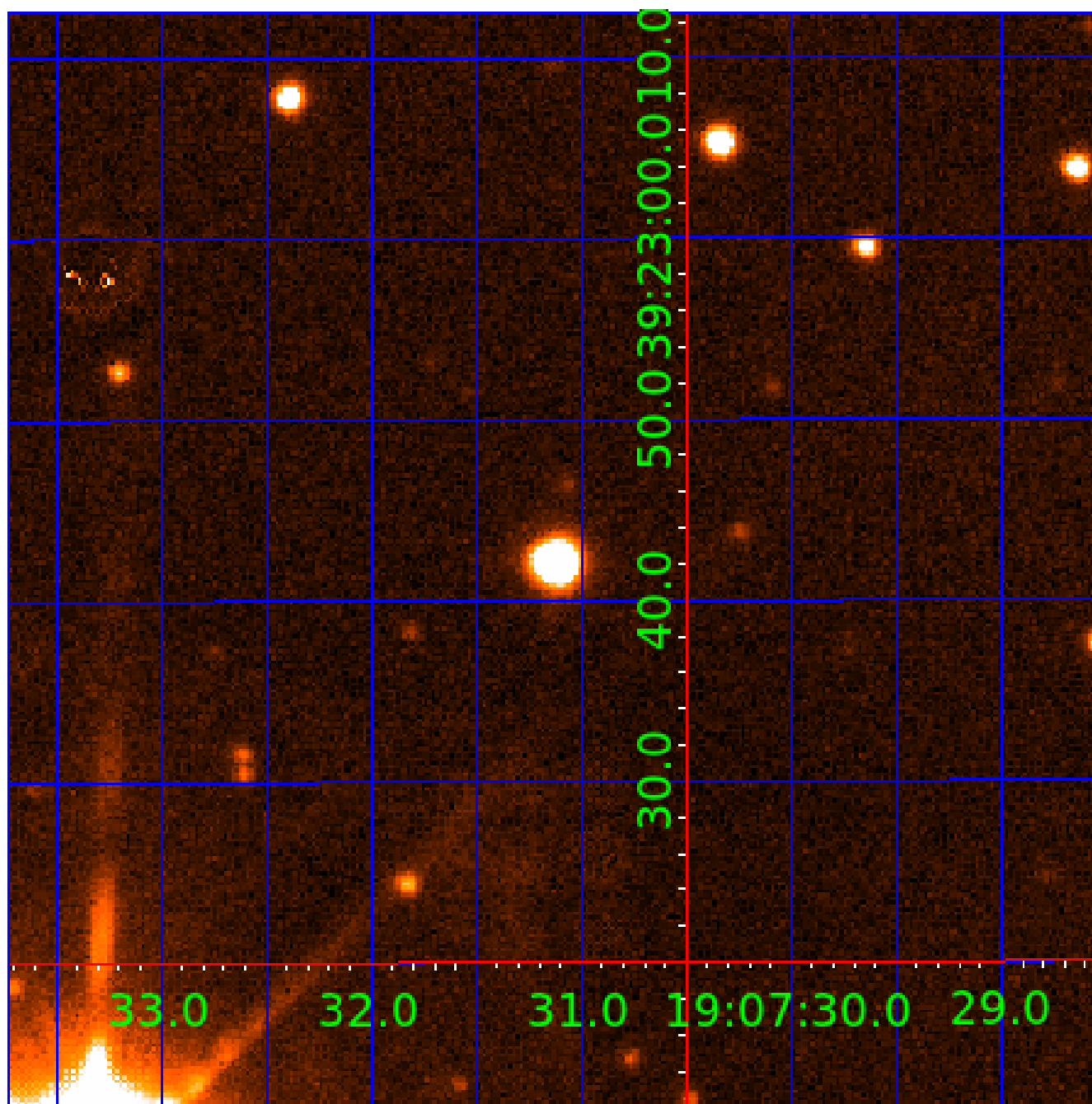


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004247092

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})
004247092-01	OBS	0403.01	21.056495	150.076409	1357.3	1.369	46.8	52.4	1.12	6156	5.69	67.90
004247092-02	OBS	No	21.057105	150.262927	219.4	28.457	17.8	19.2	1.12	6156	2.44	67.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004247092-01	OBS	FP	0.09	0	1	0	0	HAS_SEC_TCE
004247092-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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 004247092-02

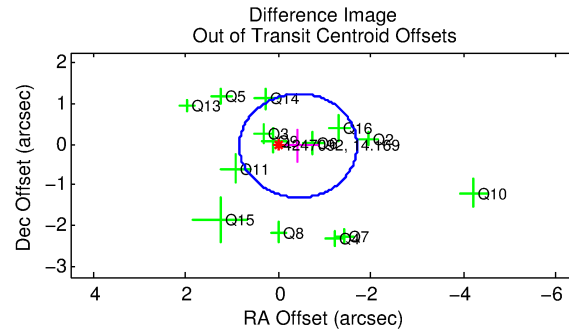
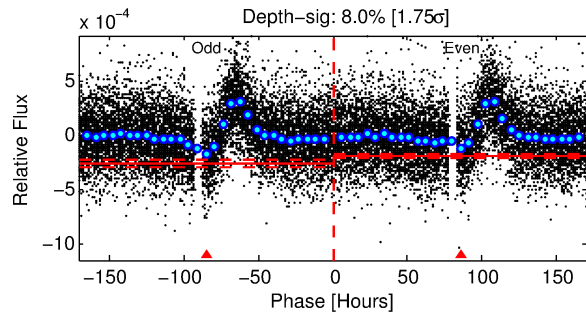
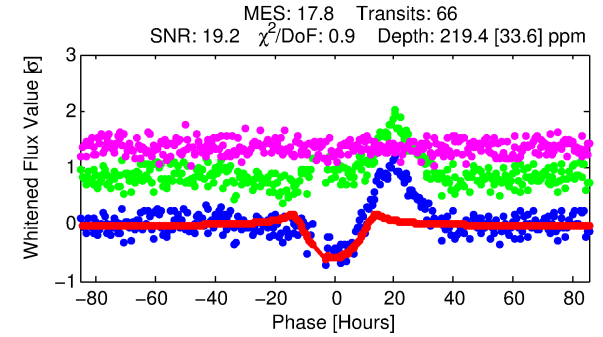
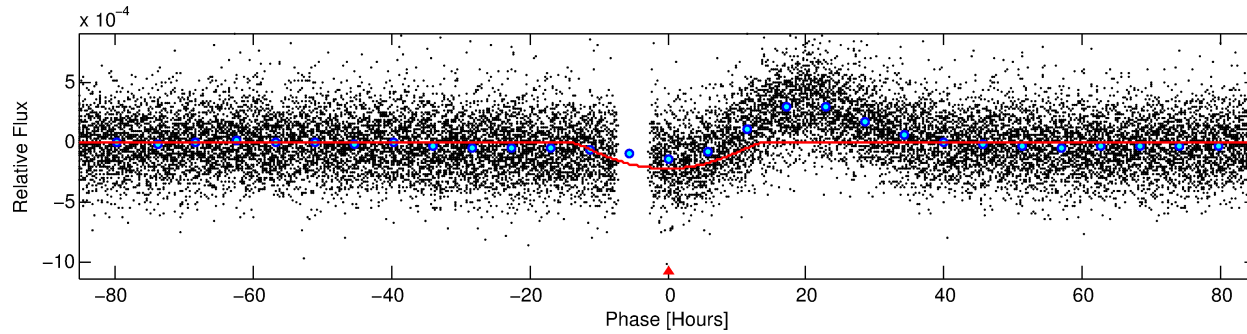
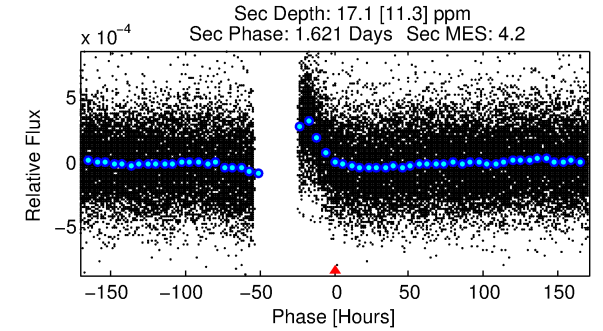
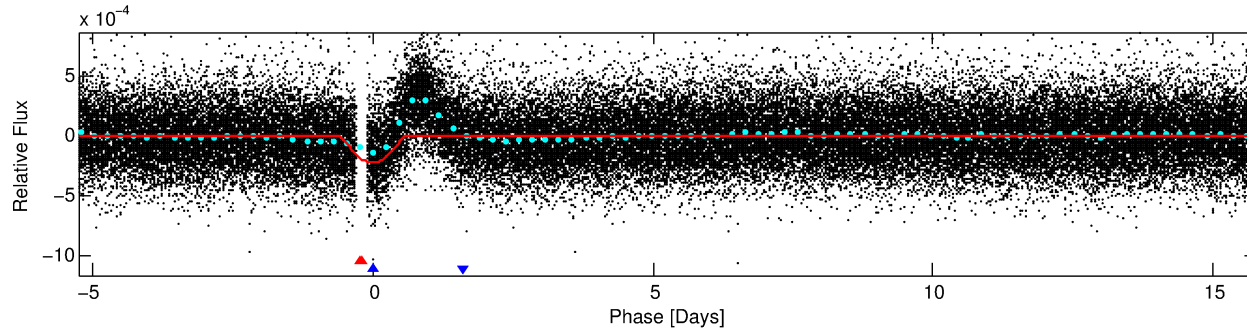
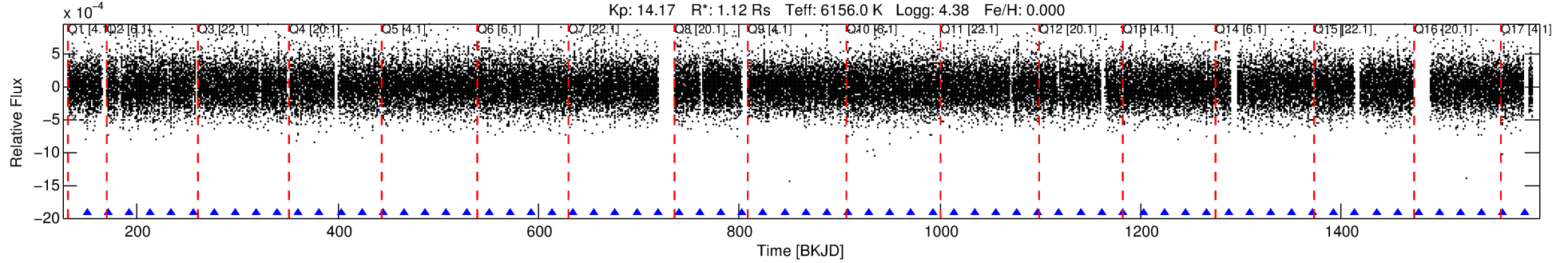
No Significant Match Found

DV One-Page Summary

KIC: 4247092 Candidate: 2 of 2 Period: 21.057 d

KOI: K00403 Corr: No Ephemeris Match

Kp: 14.17 R*: 1.12 Rs Teff: 6156.0 K Logg: 4.38 Fe/H: 0.000



DV Fit Results:

Period = 21.05711 [0.00064] d
Epoch = 150.2629 [0.0250] BKJD
Rp/R* = 0.0200 [0.0044]
a/R* = 1.77 [0.15]
b = 0.99 [0.01]
Seff = 67.90 [16.36]
Teq = 732 [44] K
Rp = 2.44 [0.68] Re
a = 0.1539 [0.0230] AU
Ag = 37.54 [30.90] [1.18σ]
Teffp = 2801 [558] K [3.70σ]

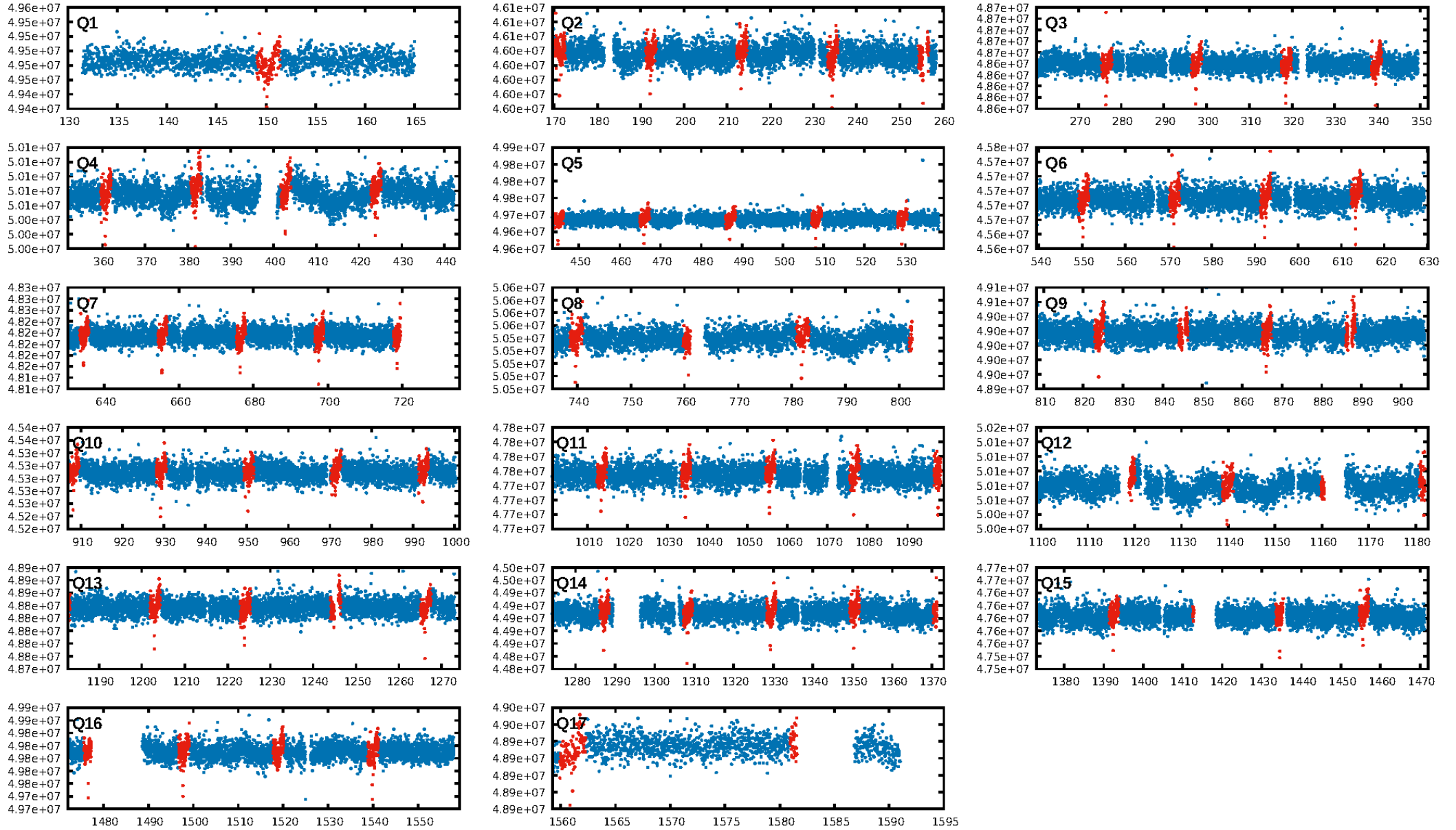
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.23e-70
RollingBand-fgt: 1.00 [63/63]
GhostDiagnostic-chr: 4.019
Centroid-sig: 7.3%
Centroid-so: 0.651 arcsec [1.58σ]
OotOffset-rm: 0.431 arcsec [1.02σ]
OotOffset-st: 4/4/3/3 [14]
KicOffset-rm: 0.487 arcsec [0.97σ]
KicOffset-st: 4/4/3/3 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 0.00 [0/16]

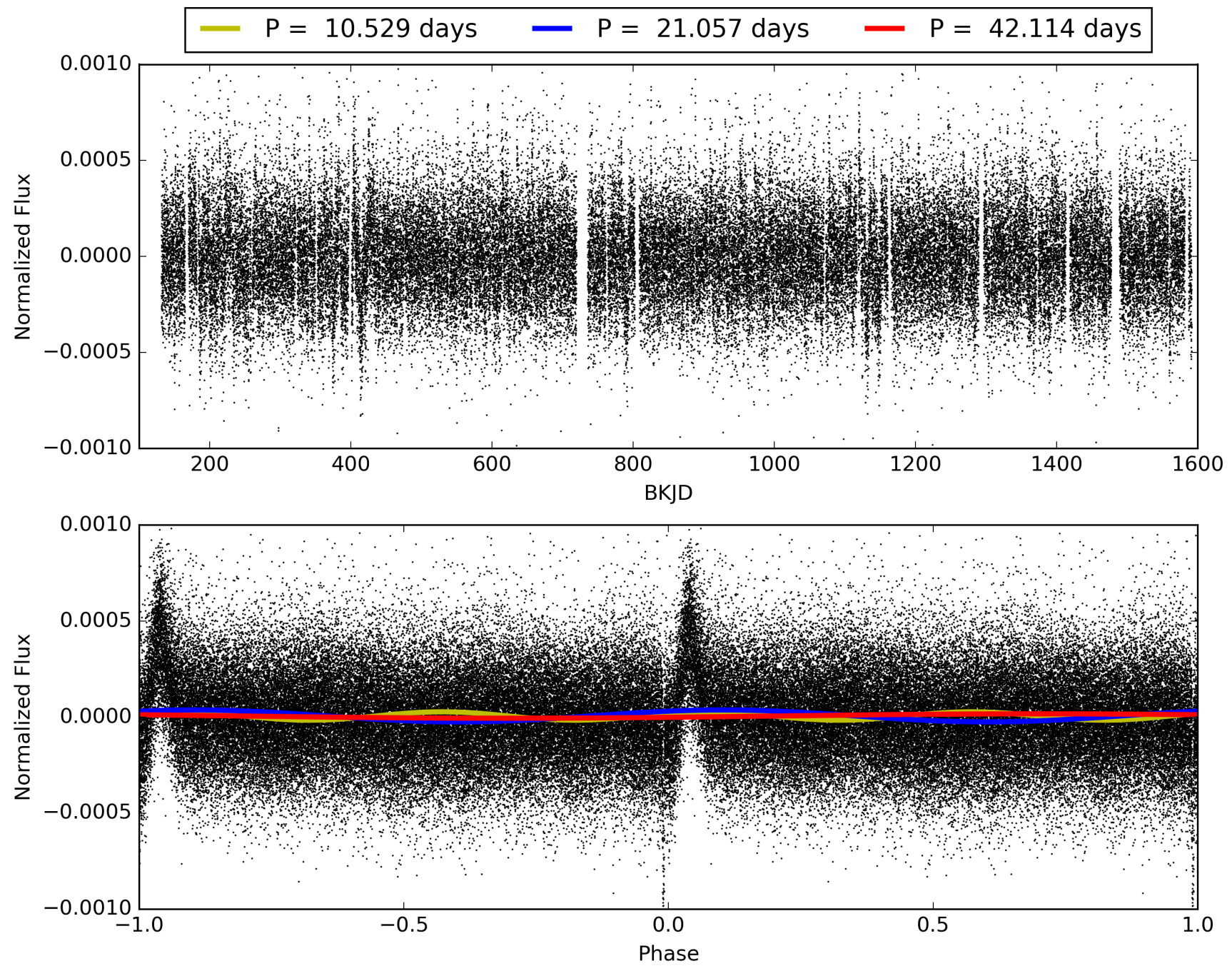
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:40:57 Z

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

TCE 004247092-02, PDC Light Curves

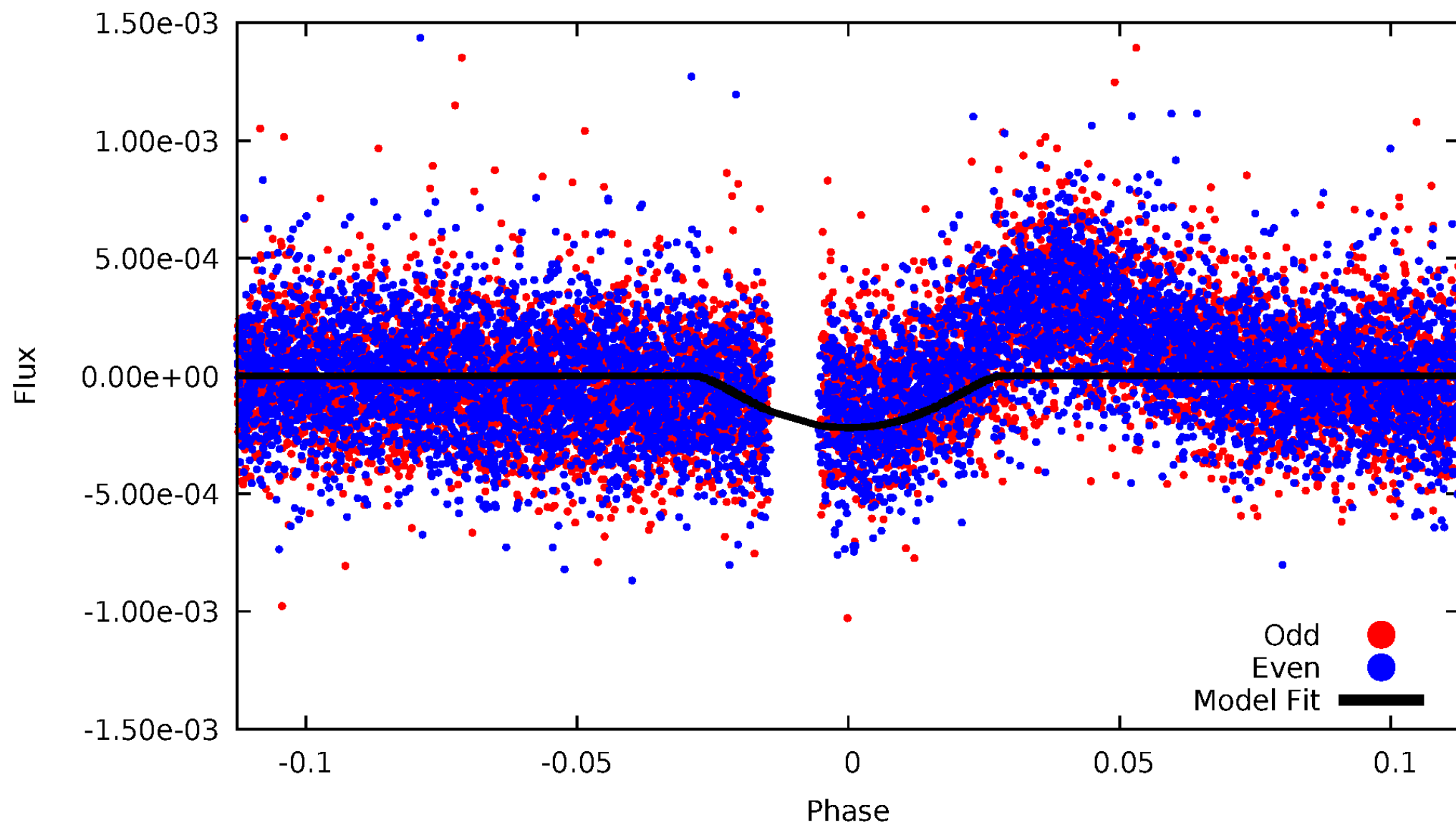


TCE 004247092-02



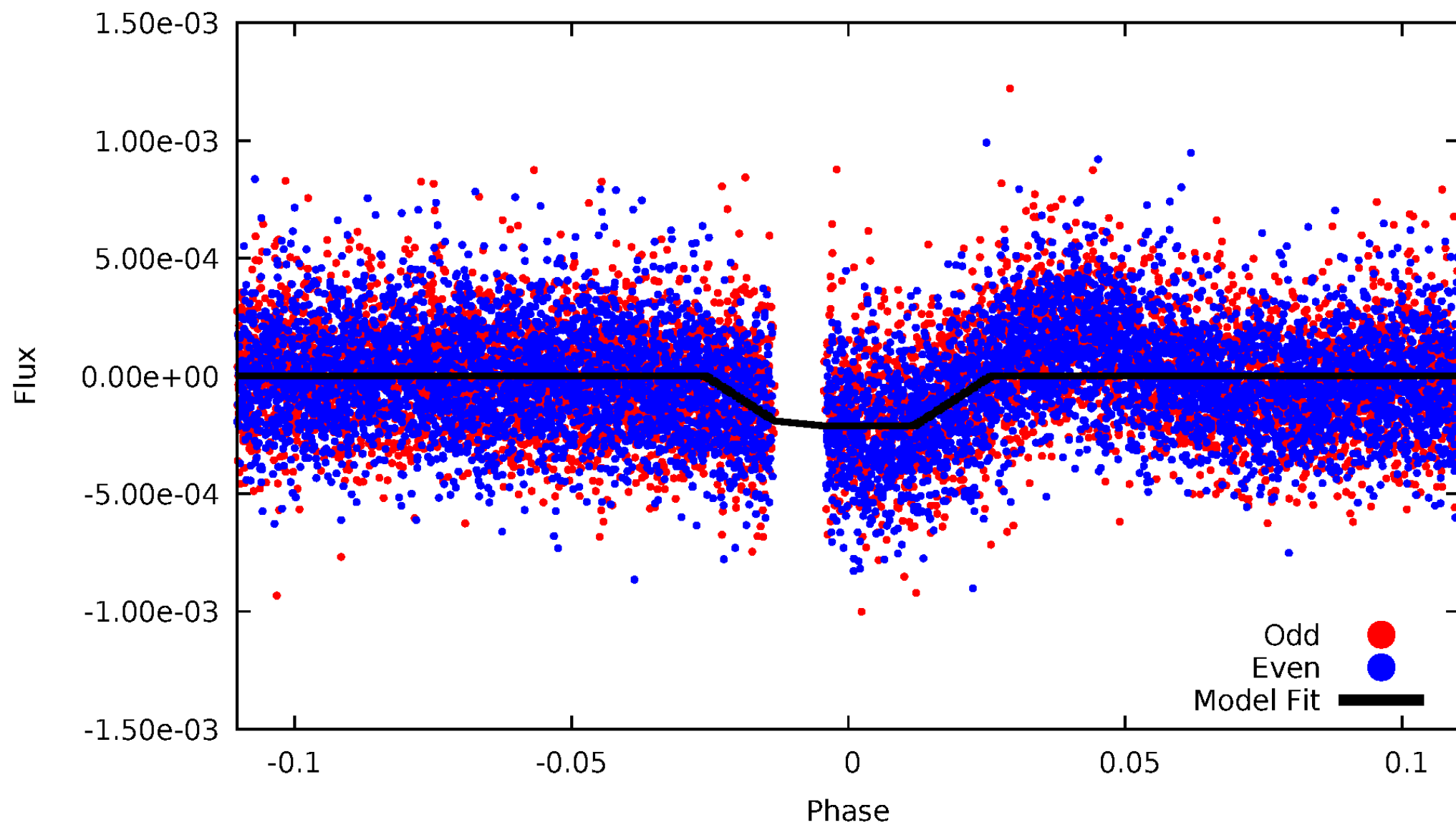
DV Odd/Even

TCE 004247092-02



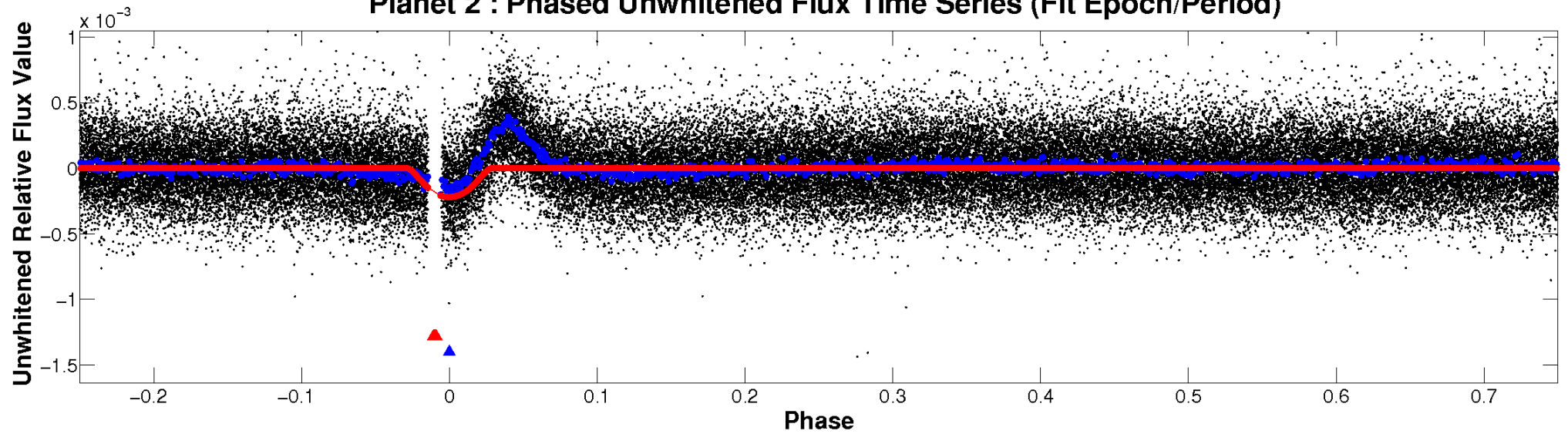
ALT Odd/Even

TCE 004247092-02

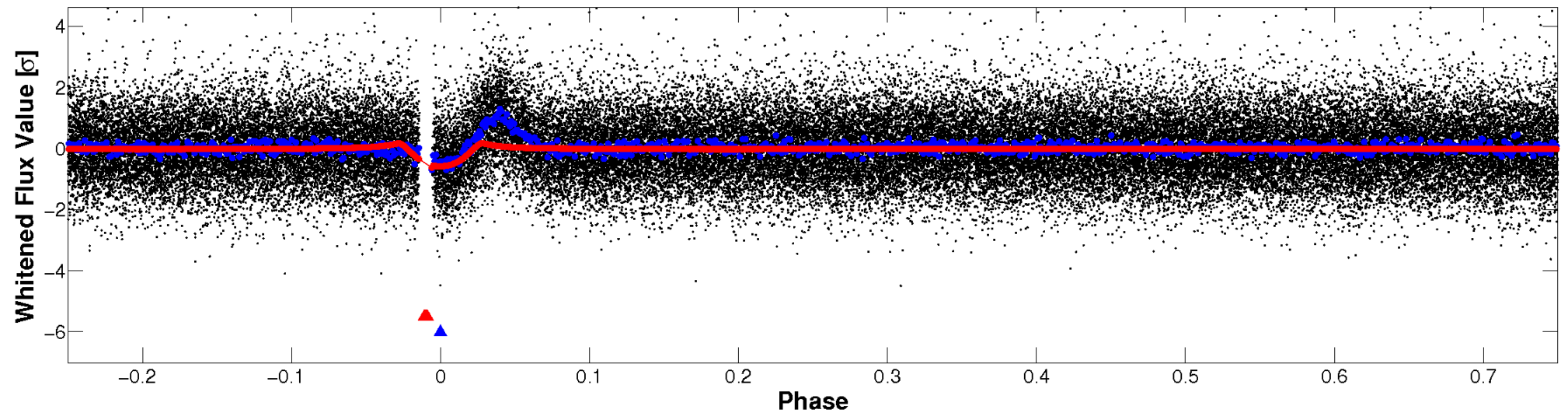


Non-Whitened Vs. Whitened Light Curve

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

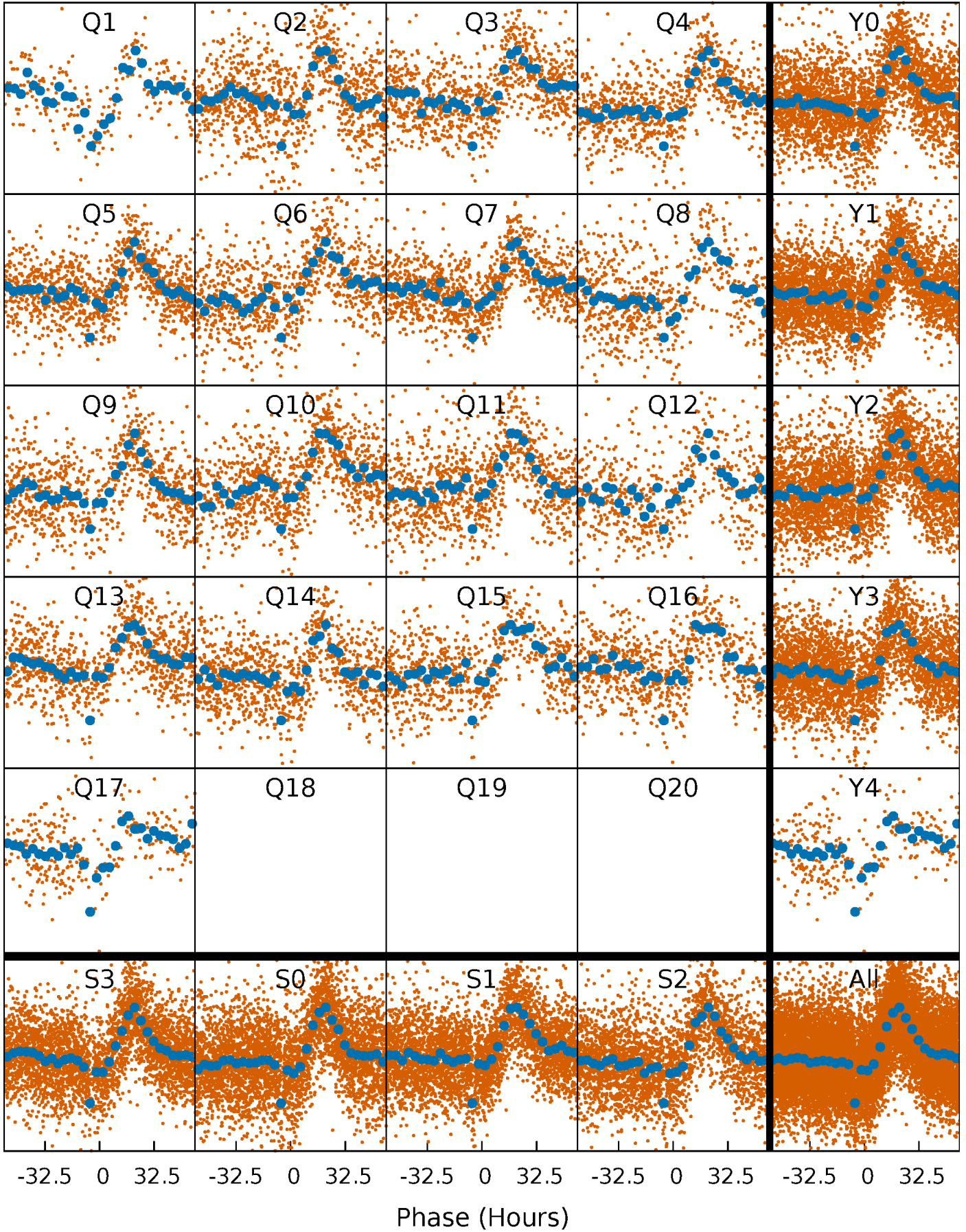


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



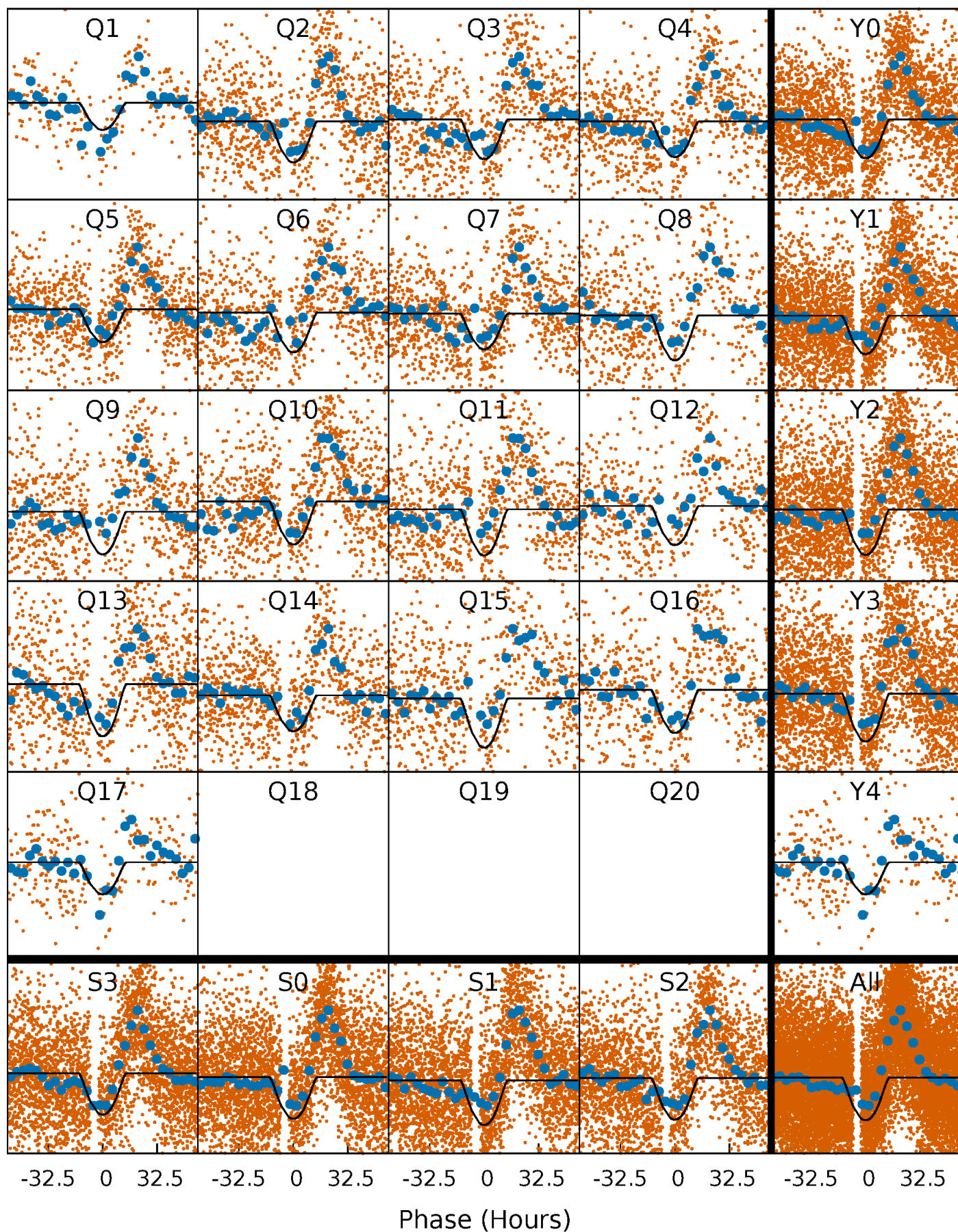
PDC Quarter-Phased Transit Curves

TCE 004247092-02 $P = 21.057105$ Days $T_0 = 150.262927$ (BKJD)



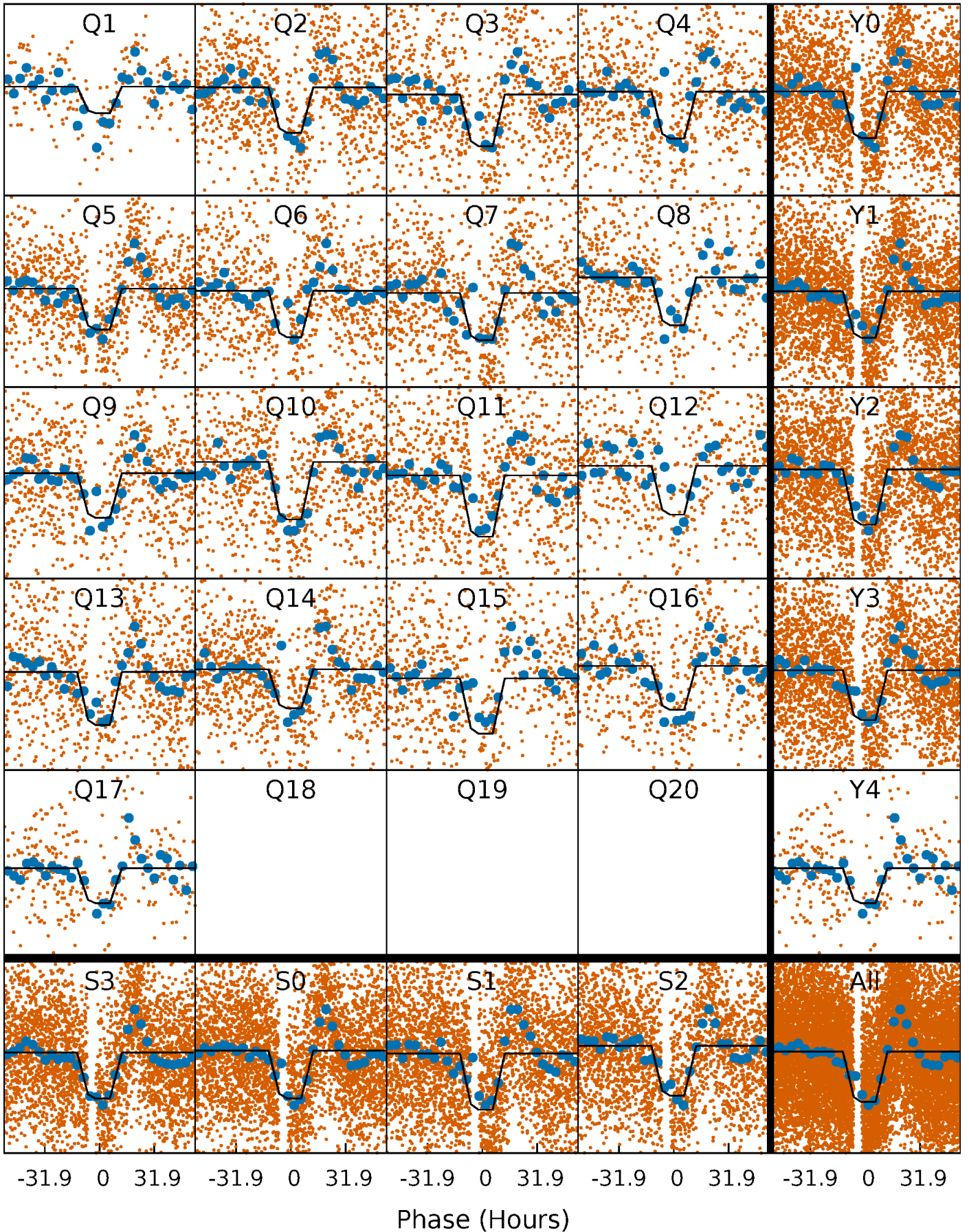
DV Quarter-Phased Transit Curves

TCE 004247092-02 P= 21.057105 Days $T_0=150.262927$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

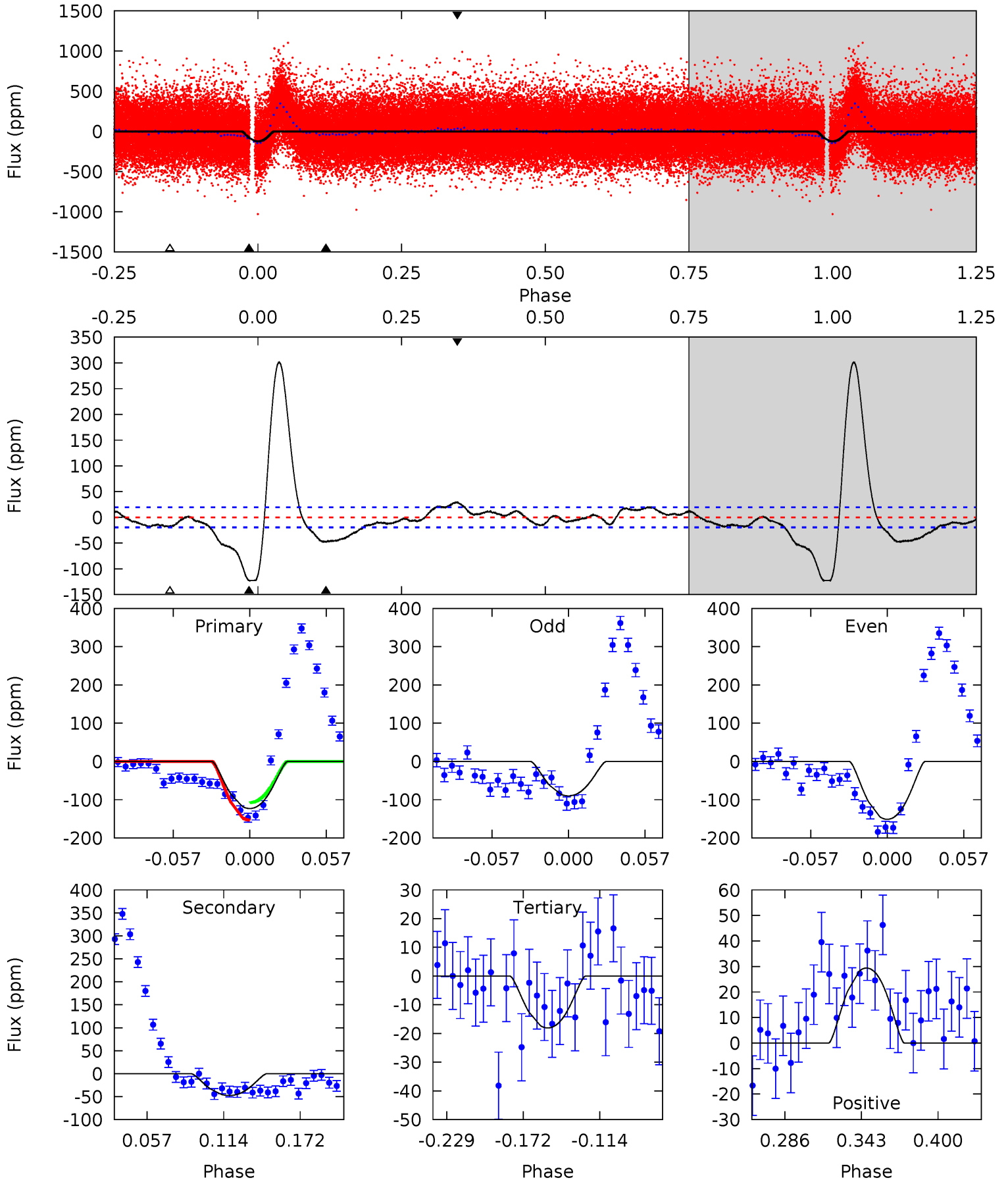
TCE 004247092-02 $P = 21.056124$ Days $T_0 = 150.274907$ (BKJD)



DV Model-Shift Uniqueness Test

004247092-02, P = 21.057105 Days, E = 129.205822 Days

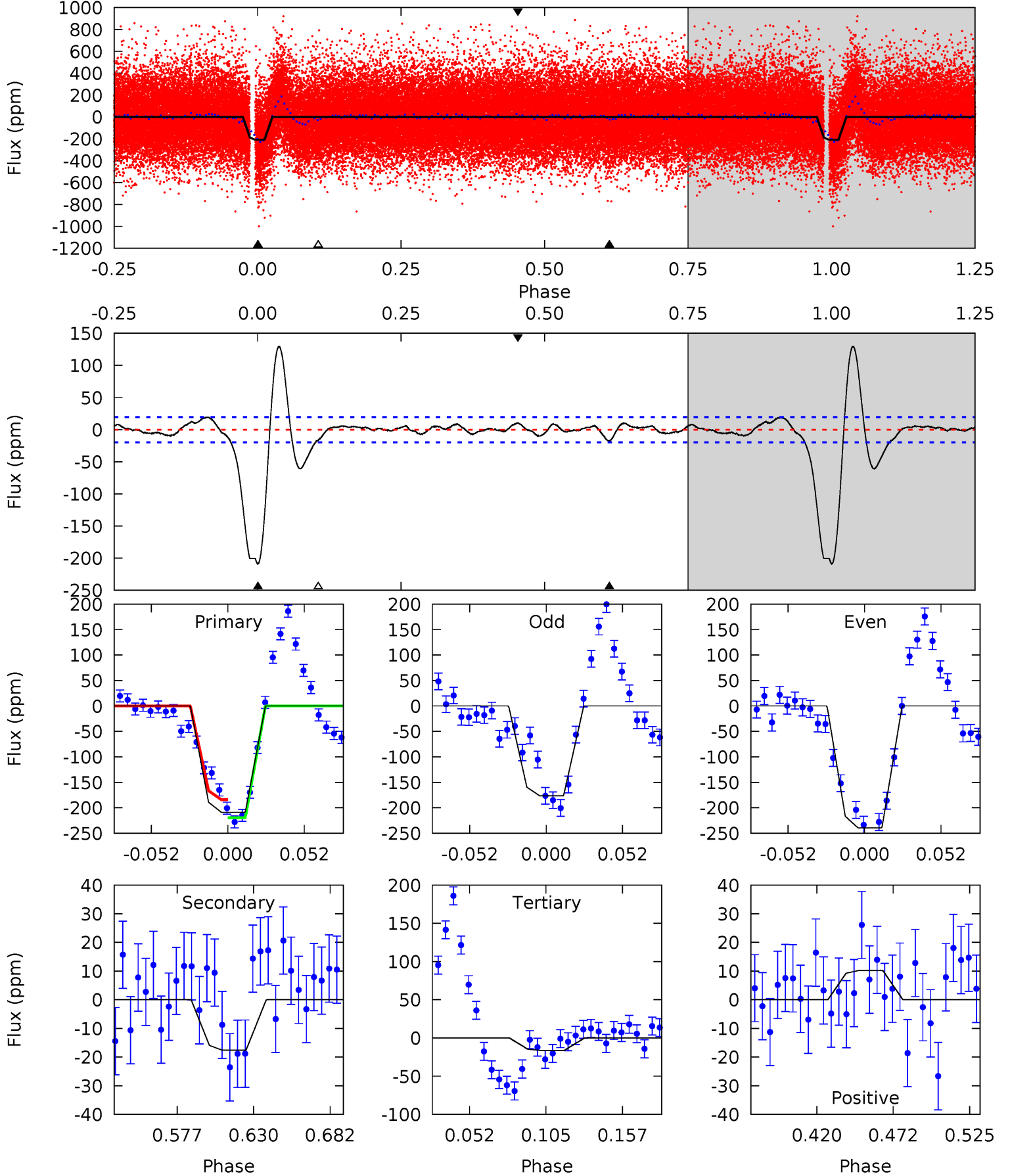
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.5	11.4	4.34	7.06	4.68	1.90	8.00	25.2	22.5	7.08	4.35	7.40	1.63	0.71	5.45



Alt Model-Shift Uniqueness Test

004247092-02, P = 21.056124 Days, E = 129.218783 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.9	4.20	3.88	2.44	4.70	1.94	2.76	46.0	47.4	0.32	1.76	7.51	1.00	0.38	4.14



Stellar Parameters For KIC 004247092

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6156^{+110}_{-135}	$4.381^{+0.054}_{-0.126}$	$0.000^{+0.150}_{-0.150}$	$1.118^{+0.191}_{-0.095}$	$1.092^{+0.089}_{-0.073}$	$1.102^{+0.277}_{-0.375}$
	+2%/-2%	+1%/-3%	+inf%/-inf%	+17%/-8%	+8%/-7%	+25%/-34%
Source	SPE57	SPE57	SPE57	DSEP		

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

Secondary Eclipse Parameters for KIC 004247092-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-48 ± 4	$2.48^{+0.58}_{-0.54}$	1030^{+48}_{-32}	3958^{+347}_{-267}	100^{+61}_{-34}
Alt.	-18 ± 4	$1.83^{+0.60}_{-0.57}$	1030^{+46}_{-32}	3700^{+526}_{-348}	68^{+74}_{-32}

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

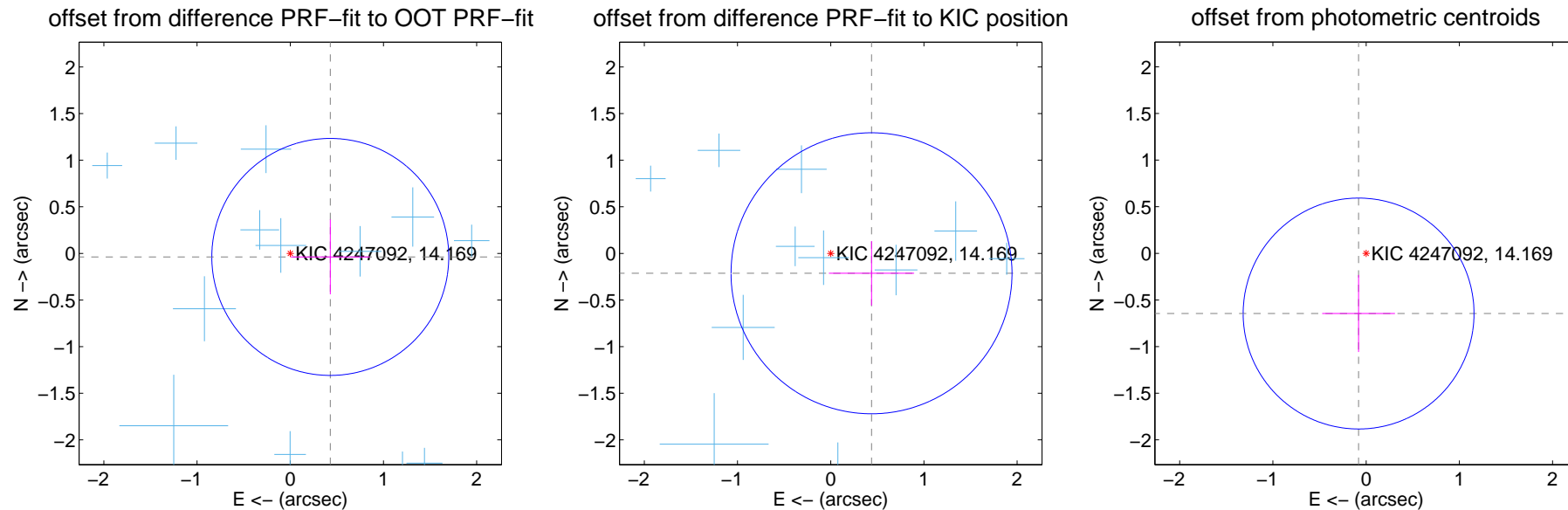
DV Centroid Data

Supplemental centroid analysis for 004247092-02. Kepler magnitude: 14.17. Transit SNR 19.22

There are 13 quarters with good PRF difference image offsets

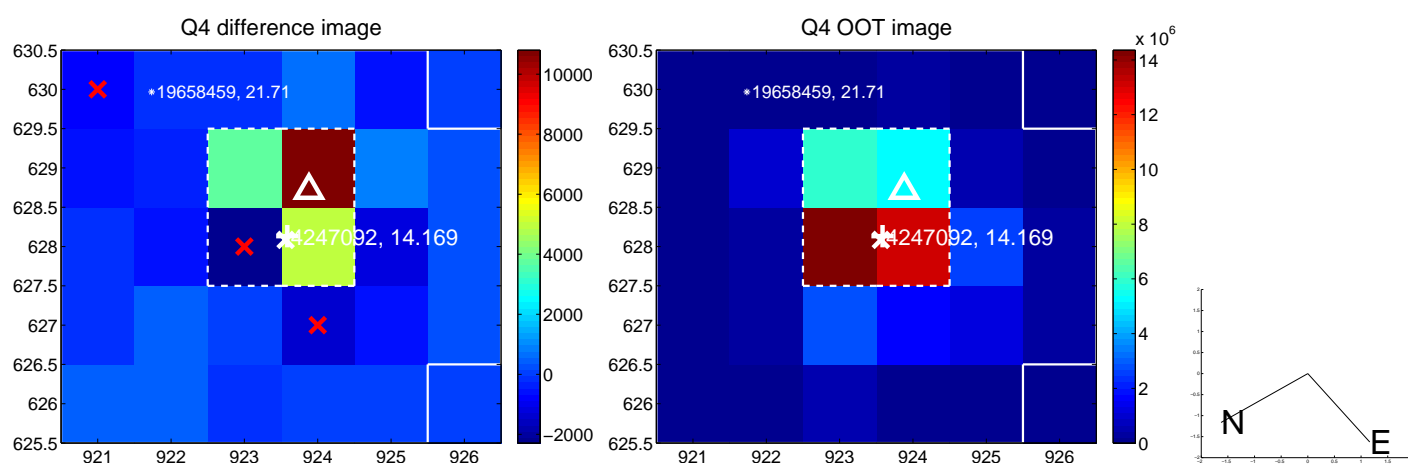
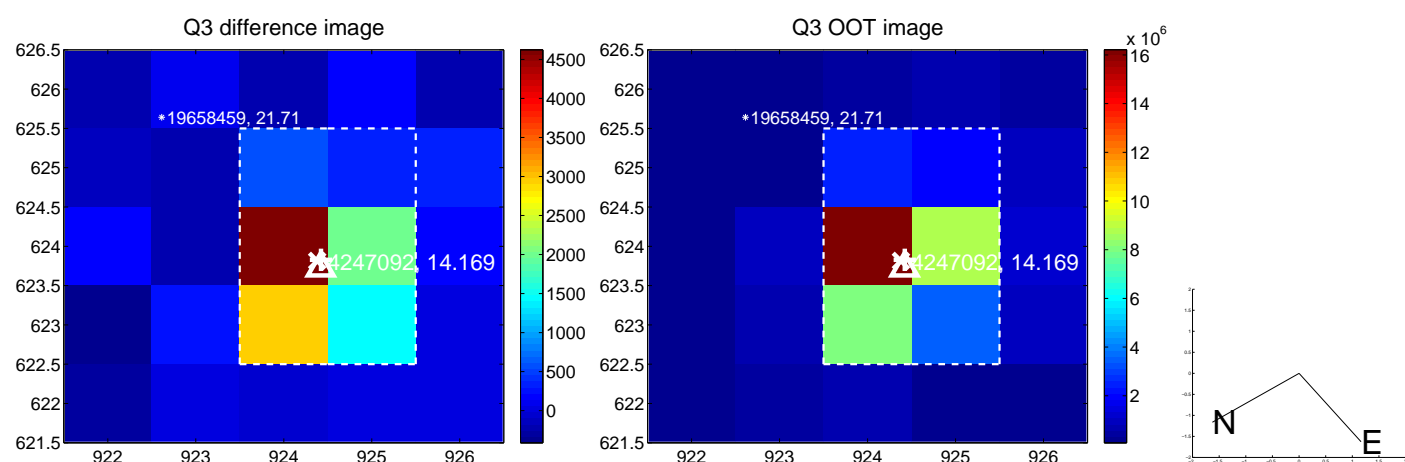
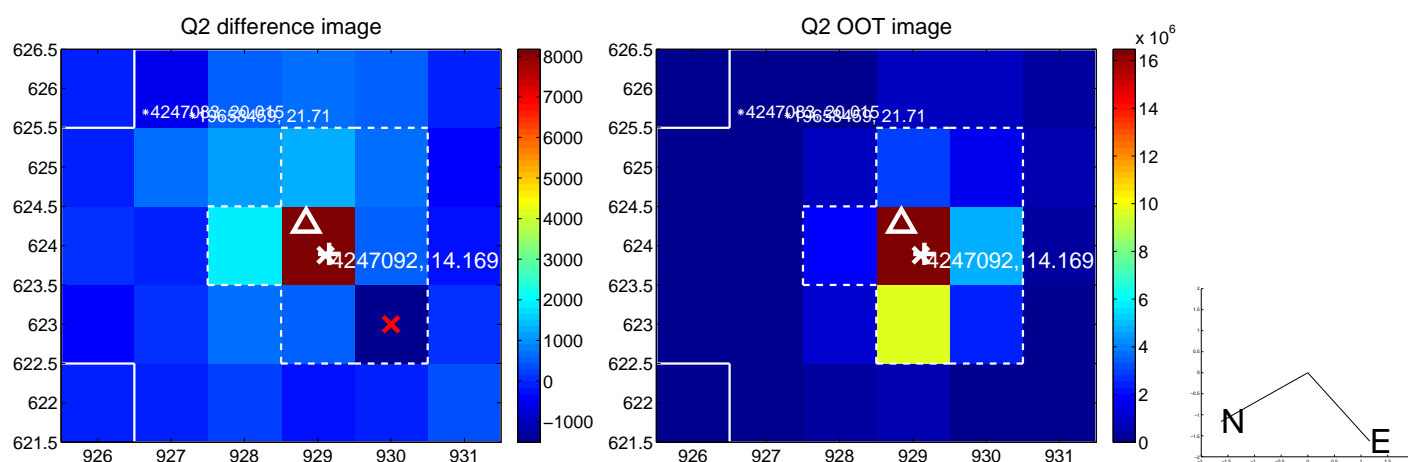
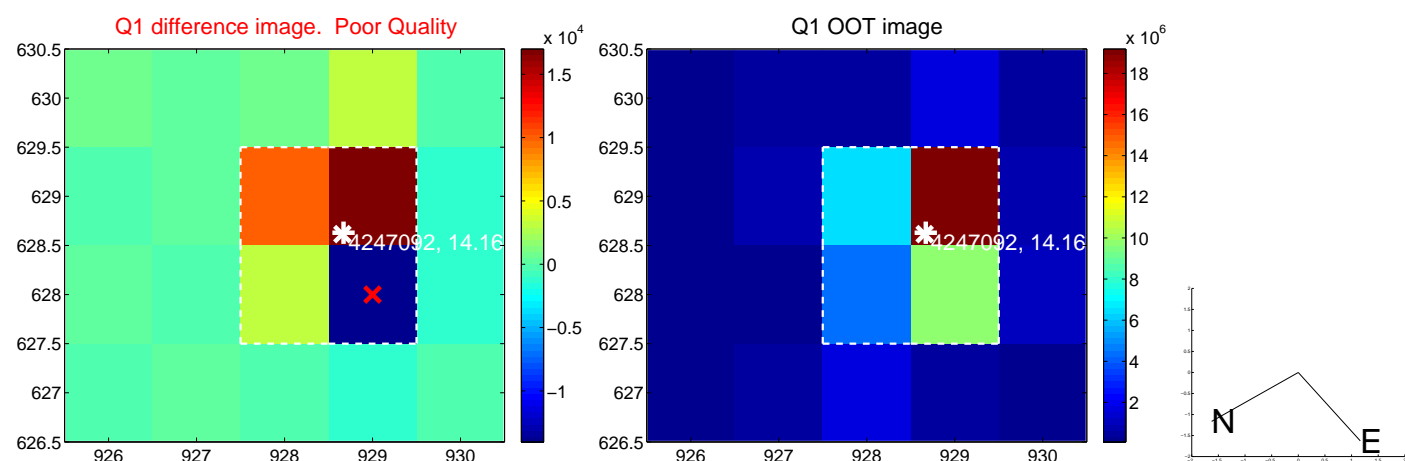
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.431 ± 0.424	1.02	-0.429 ± 0.424	-0.038 ± 0.402
PRF-fit source offset from KIC position	0.487 ± 0.502	0.97	-0.438 ± 0.457	-0.213 ± 0.345
photometric centroid source offset	0.65 ± 0.41	1.58	0.08 ± 0.39	-0.65 ± 0.41

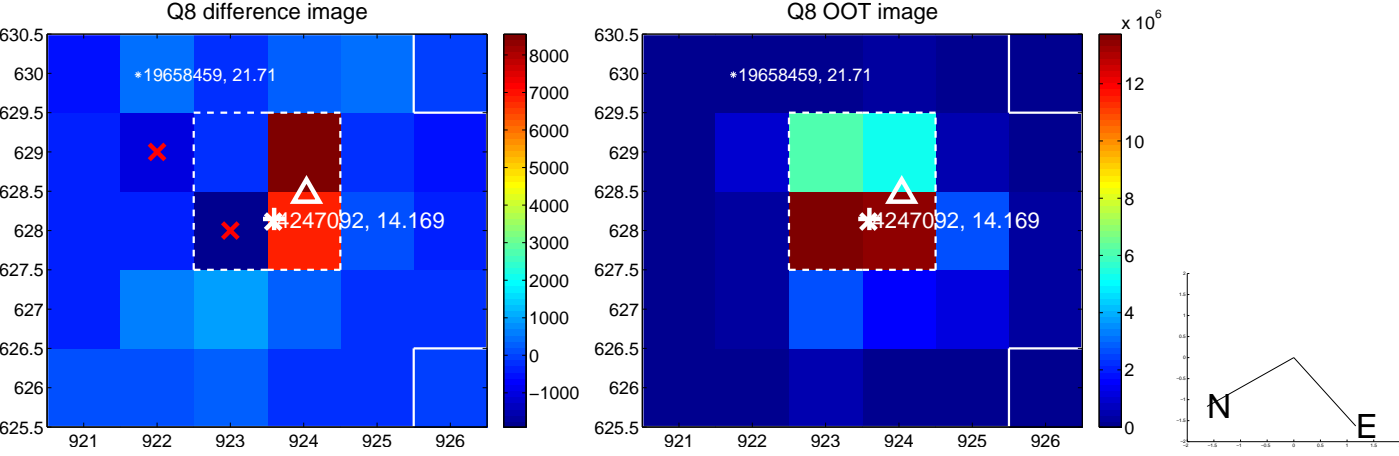
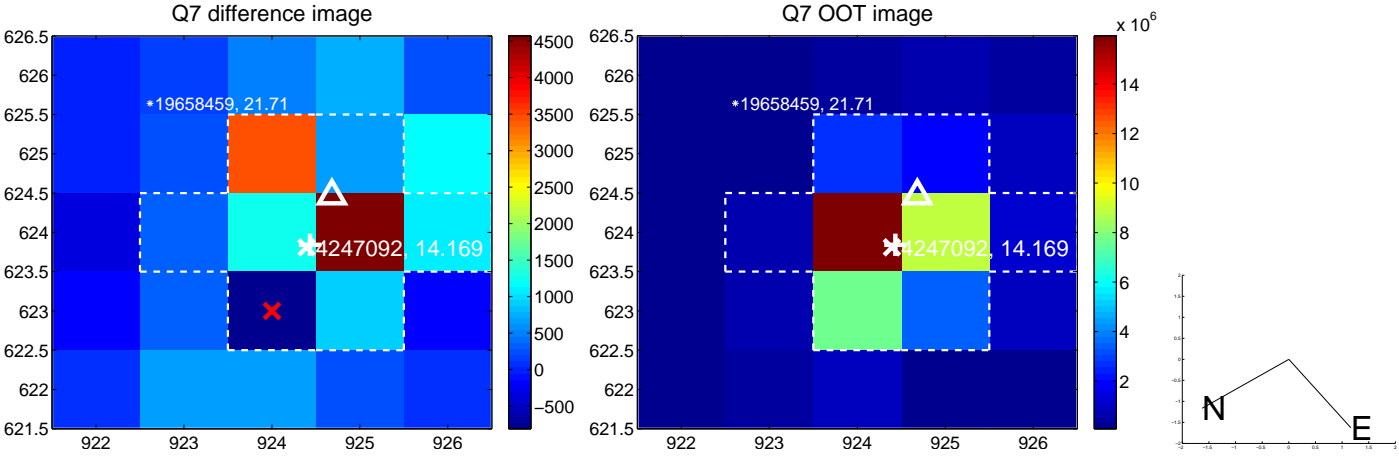
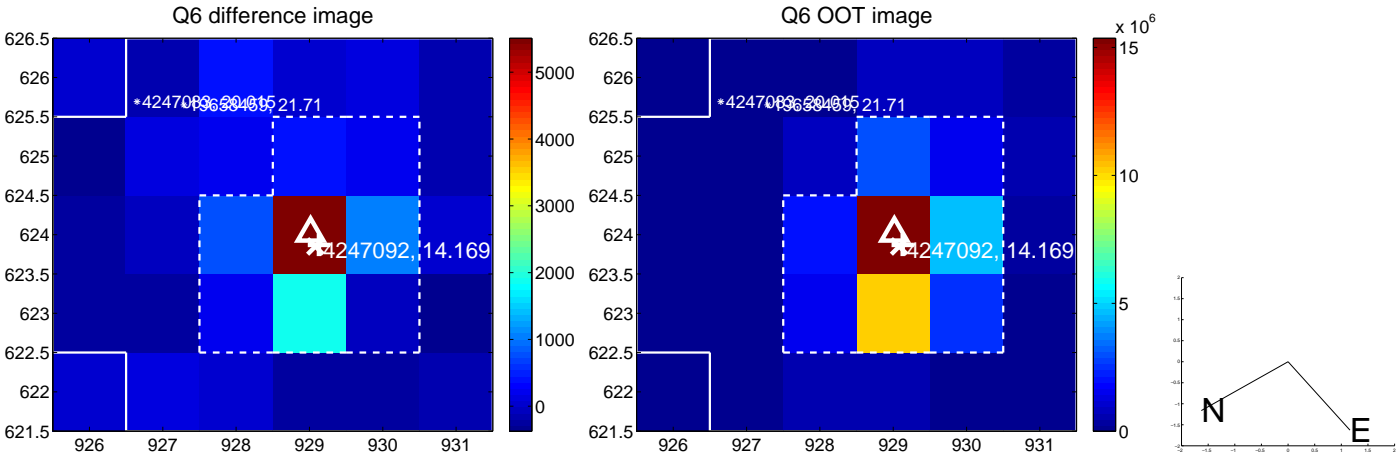
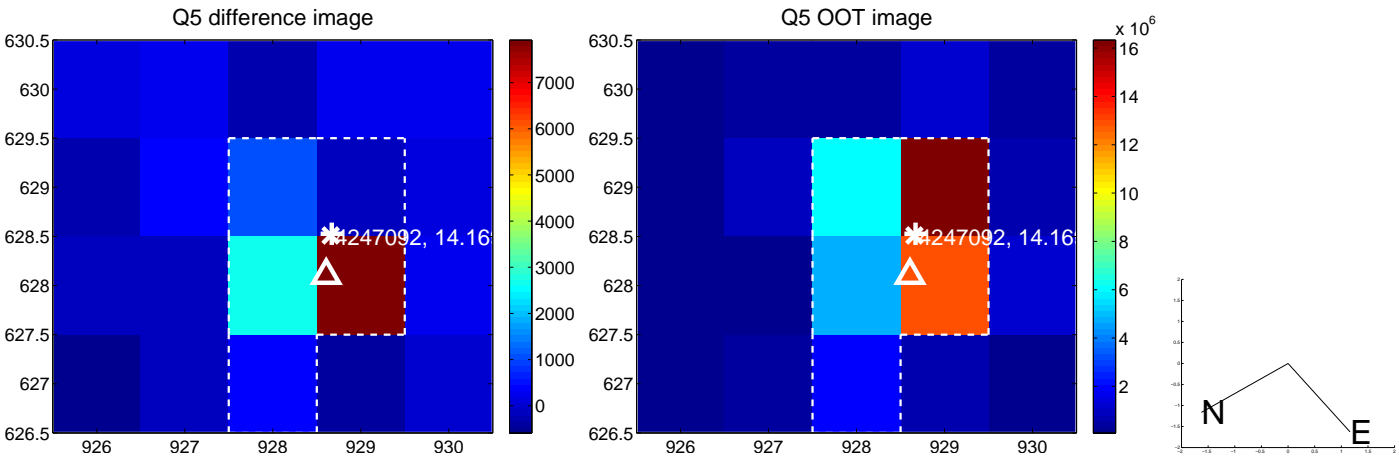


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

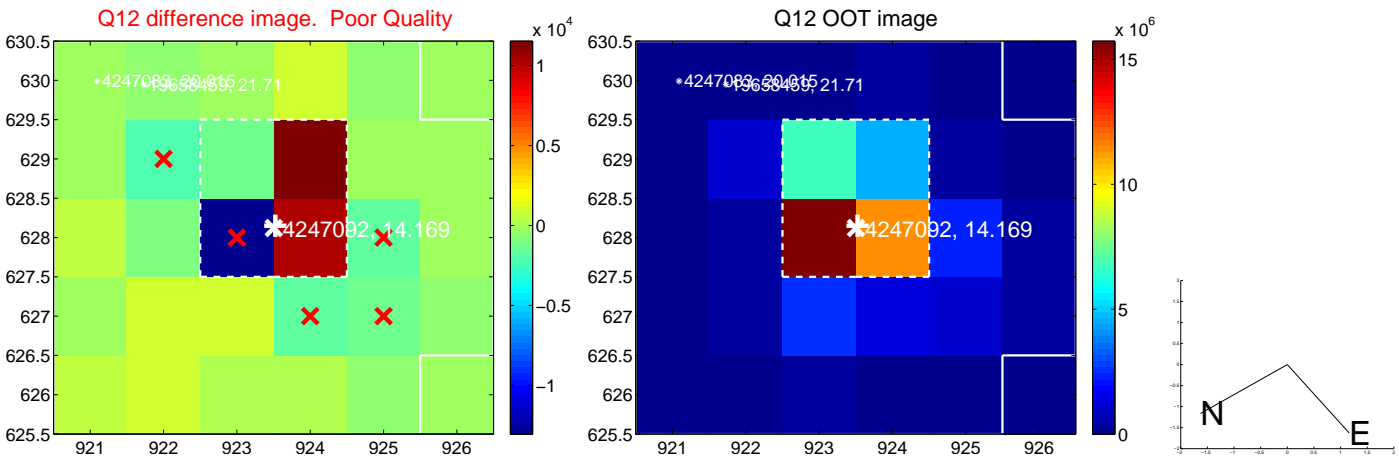
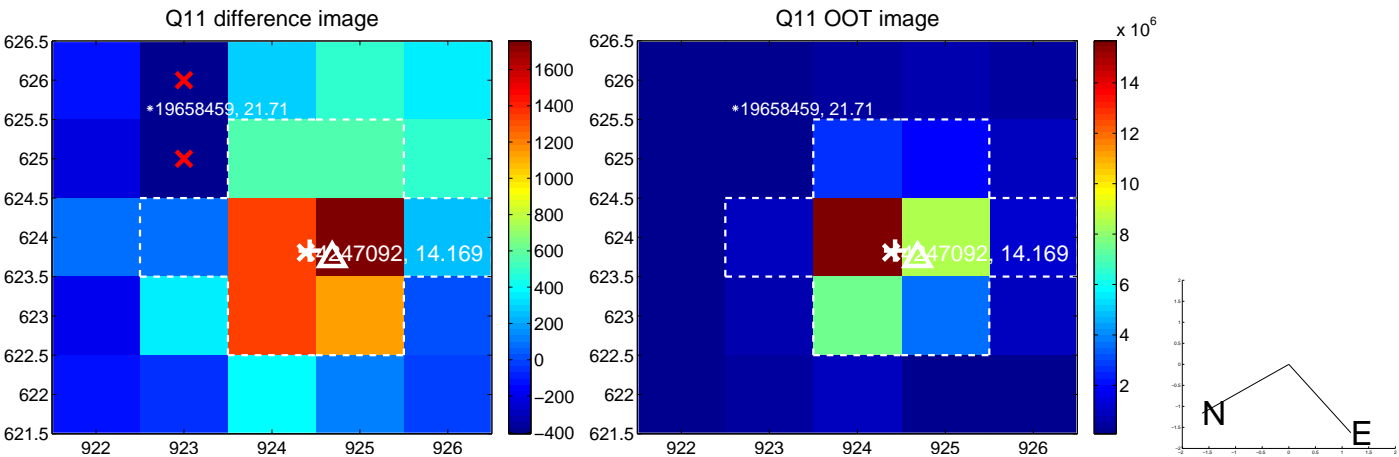
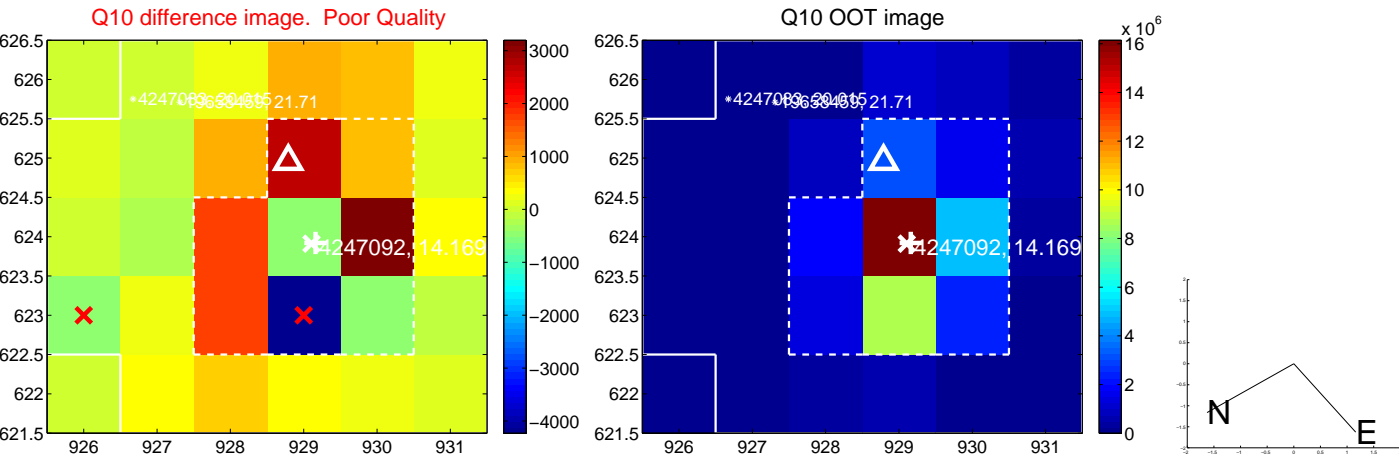
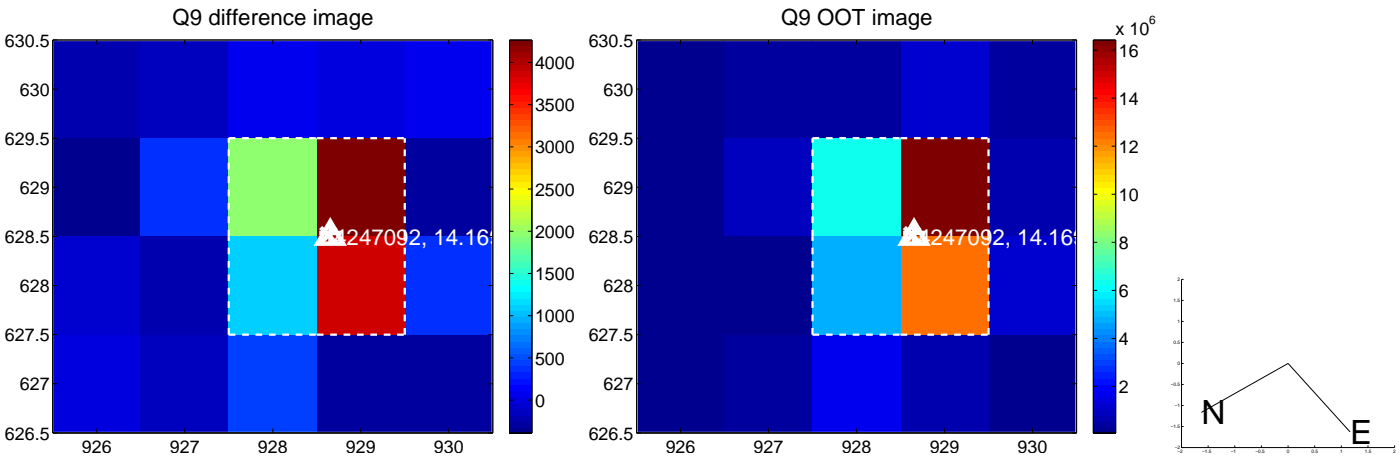
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



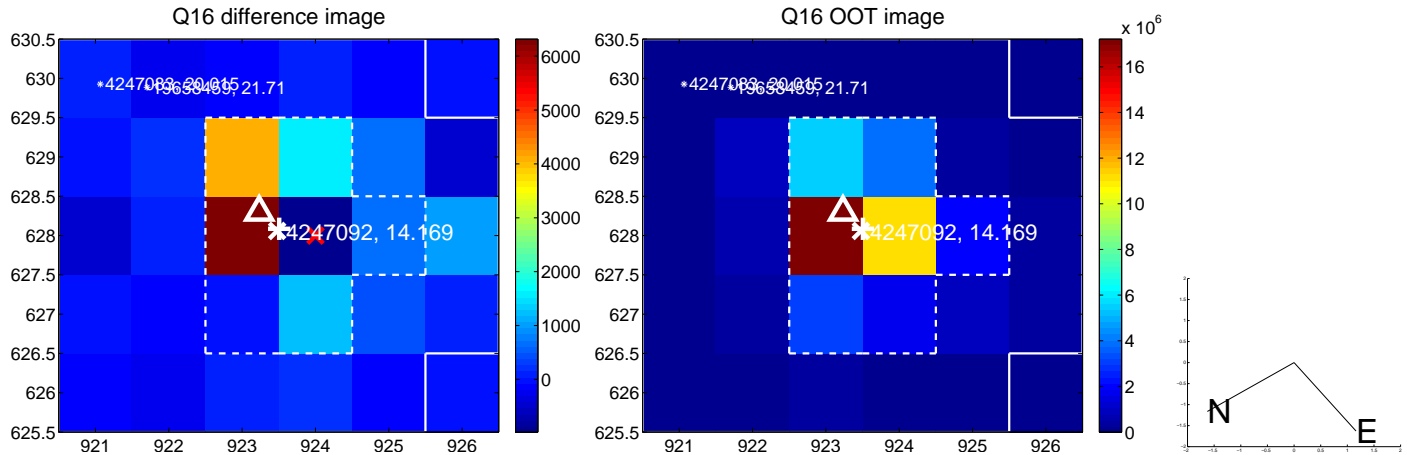
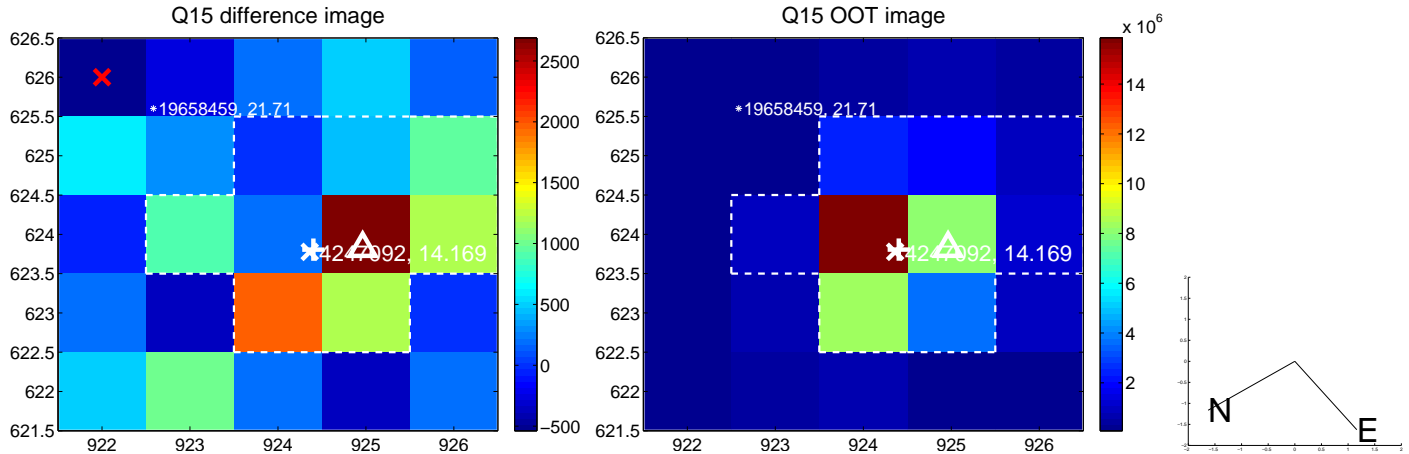
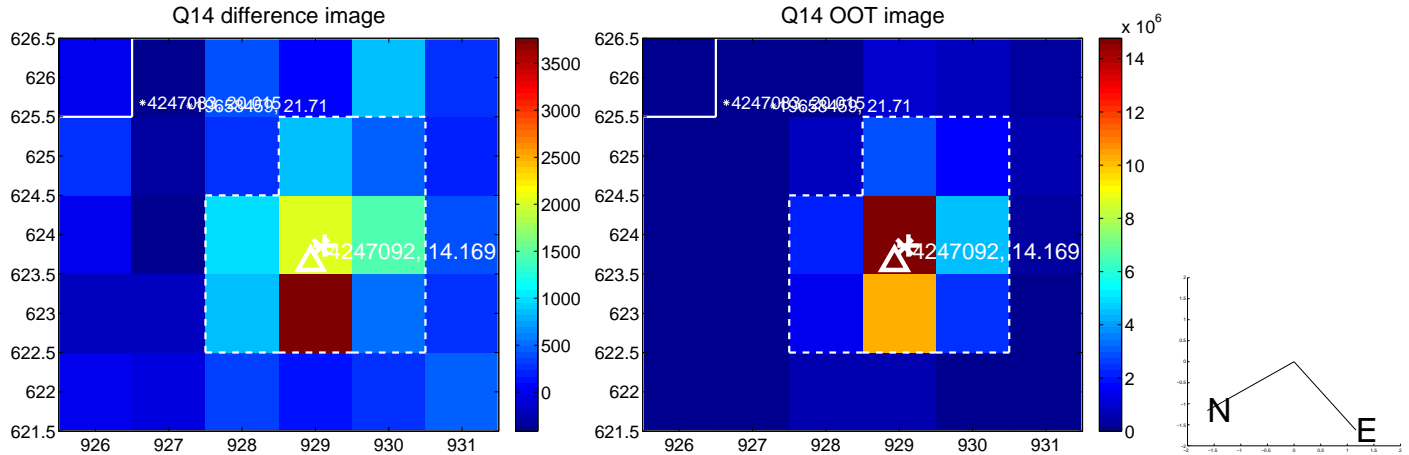
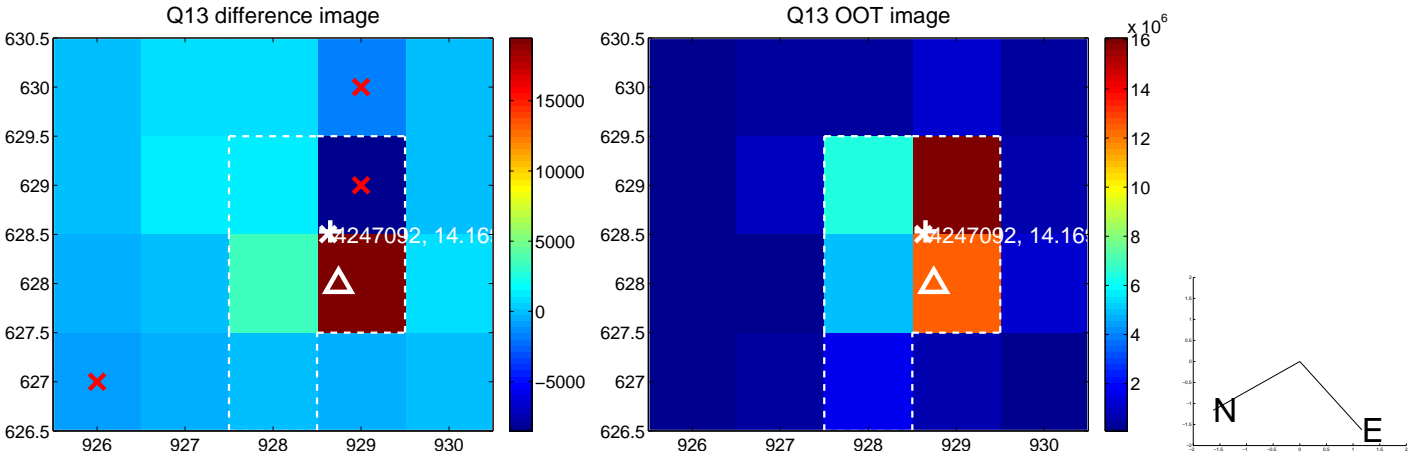
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



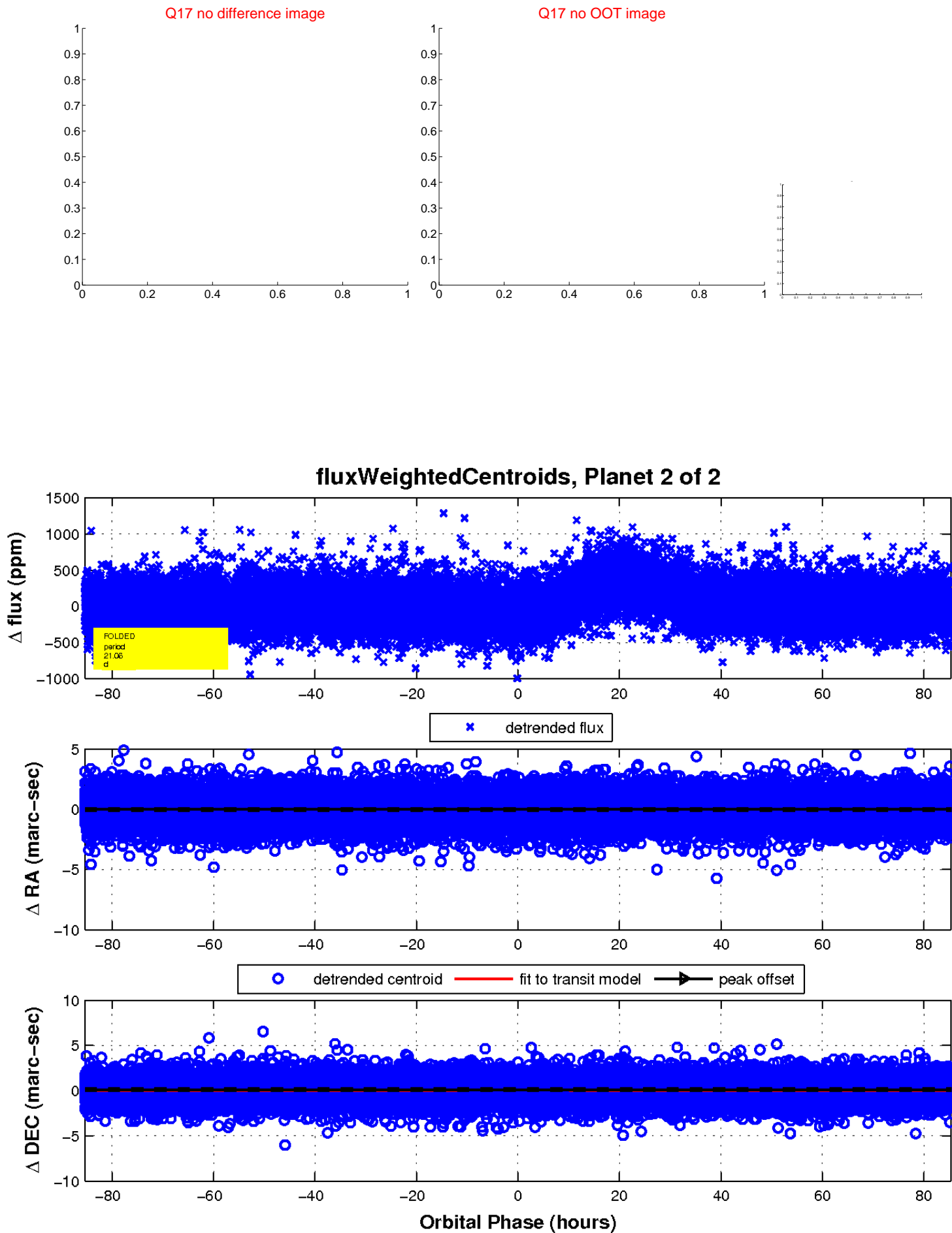
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

