

KIC 004948730

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})
004948730-01	OBS	3272.01	23.029409	139.853935	479.3	9.302	28.1	26.2	0.96	5877	4.16	40.96
004948730-02	OBS	No	23.029431	151.147950	400.4	5.907	26.0	22.5	0.96	5877	2.21	40.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004948730-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
004948730-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET

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 004948730-01

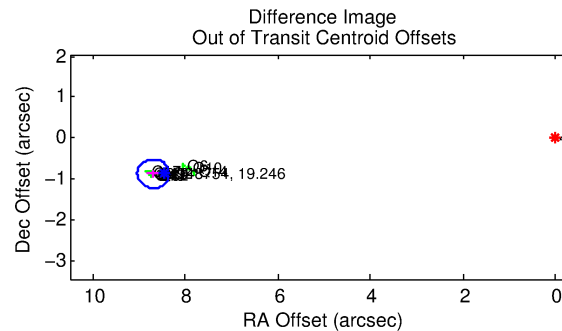
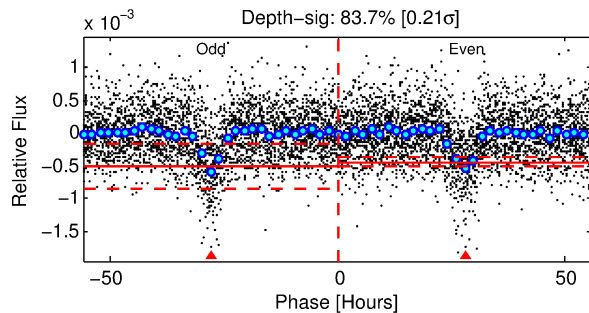
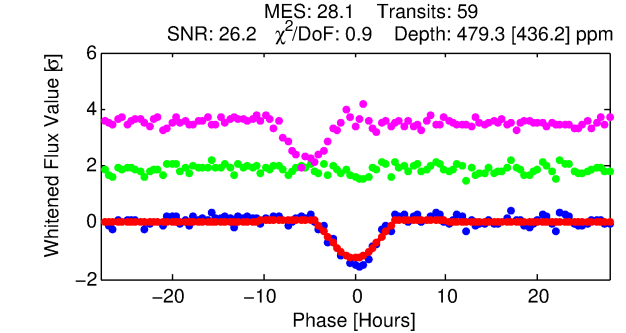
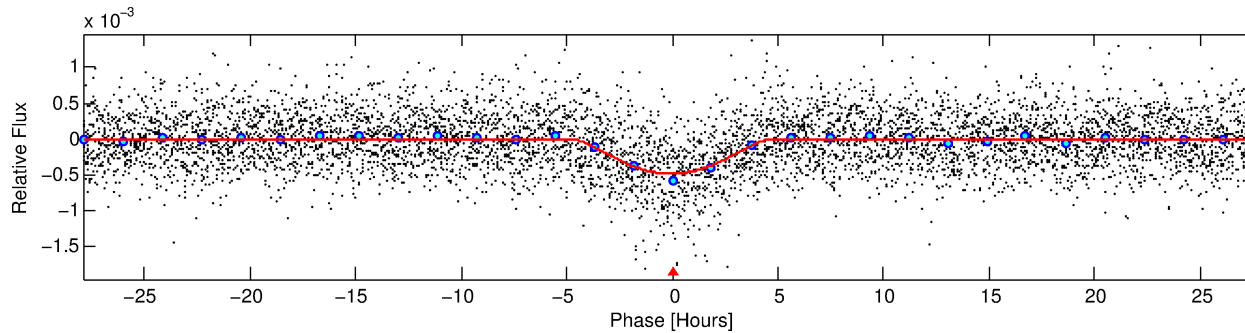
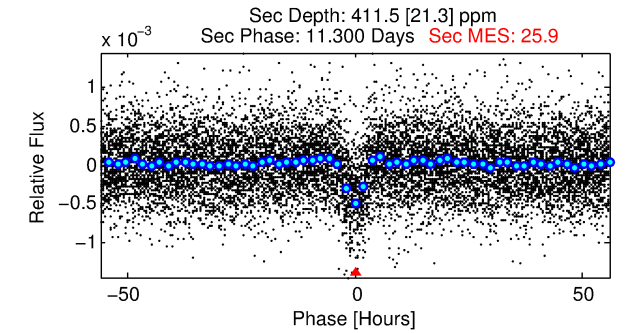
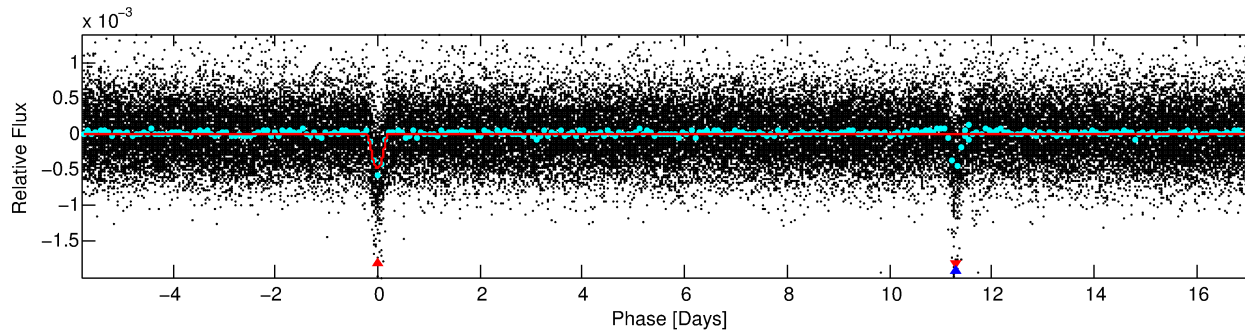
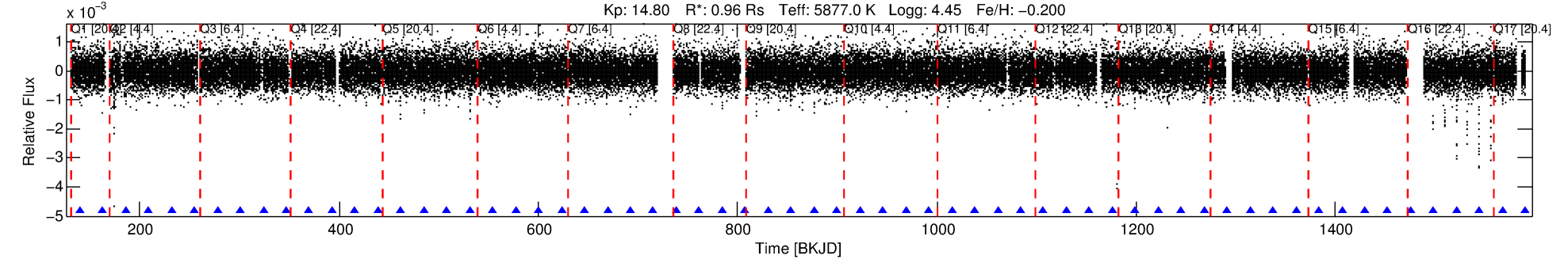
No Significant Match Found

DV One-Page Summary

KIC: 4948730 Candidate: 1 of 2 Period: 23.029 d

KOI: K03272 Corr: No Ephemeris Match

Kp: 14.80 R*: 0.96 Rs Teff: 5877.0 K Logg: 4.45 Fe/H: -0.200



DV Fit Results:

Period = 23.02941 [0.00023] d
Epoch = 139.8539 [0.0079] BKJD
Rp/R* = 0.0397 [0.0579]
a/R* = 5.48 [1.93]
b = 1.00 [0.11]
Seff = 40.96 [15.67]
Teff = 645 [62] K
Rp = 4.16 [6.18] Re
a = 0.1549 [0.0382] AU
Ag = 314.66 [924.06] [0.34σ]
Teffp = 4201 [3064] K [1.16σ]

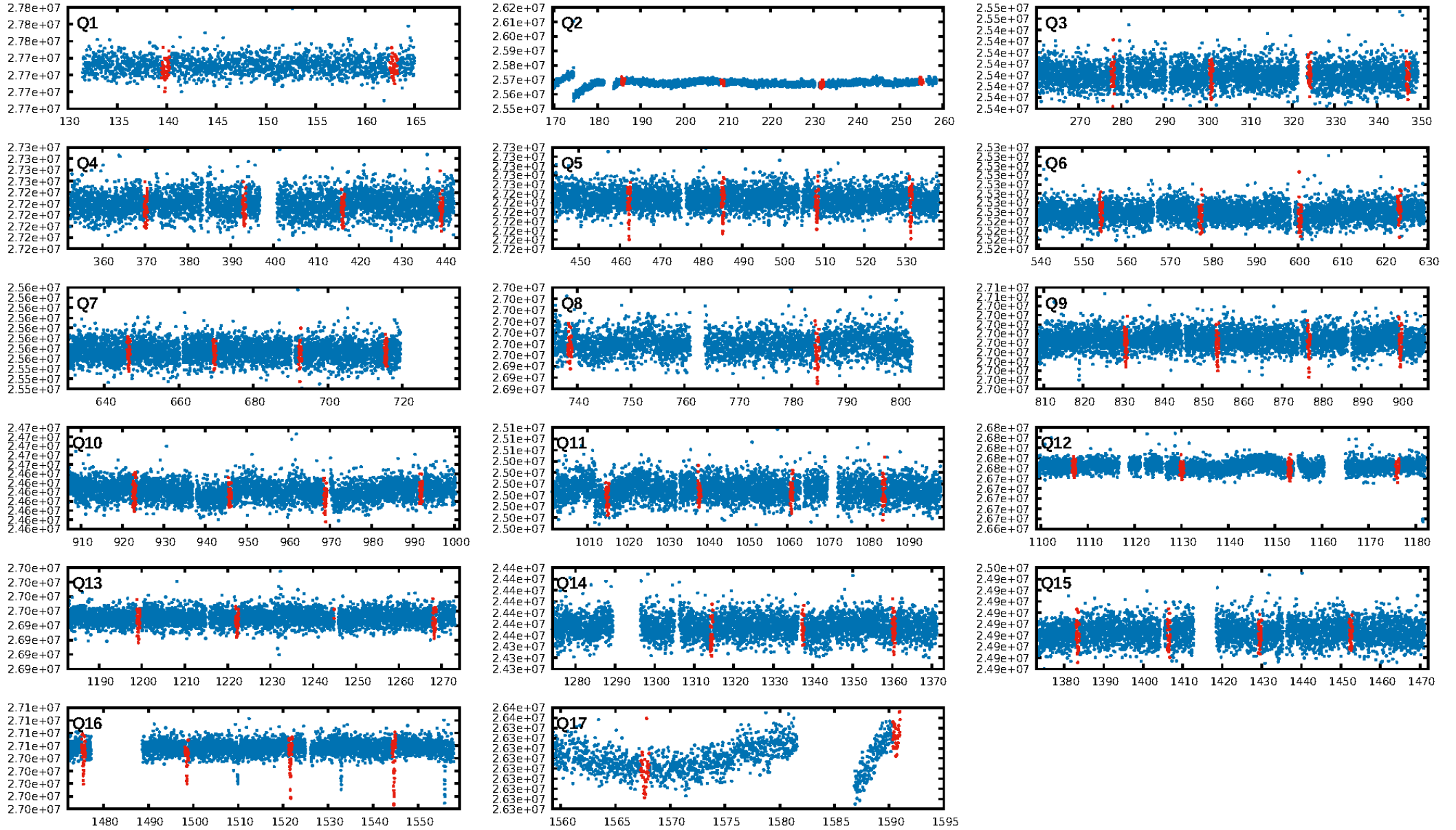
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.95e-170
RollingBand-fgt: 1.00 [55/55]
GhostDiagnostic-chr: -0.4256
Centroid-sig: 0.0%
Centroid-so: 59.380 arcsec [96.36σ]
OotOffset-rm: 8.743 arcsec [75.47σ]
KicOffset-rm: 8.538 arcsec [72.72σ]
OotOffset-st: 4/0/4/4 [12]
KicOffset-st: 4/0/4/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [17/17]

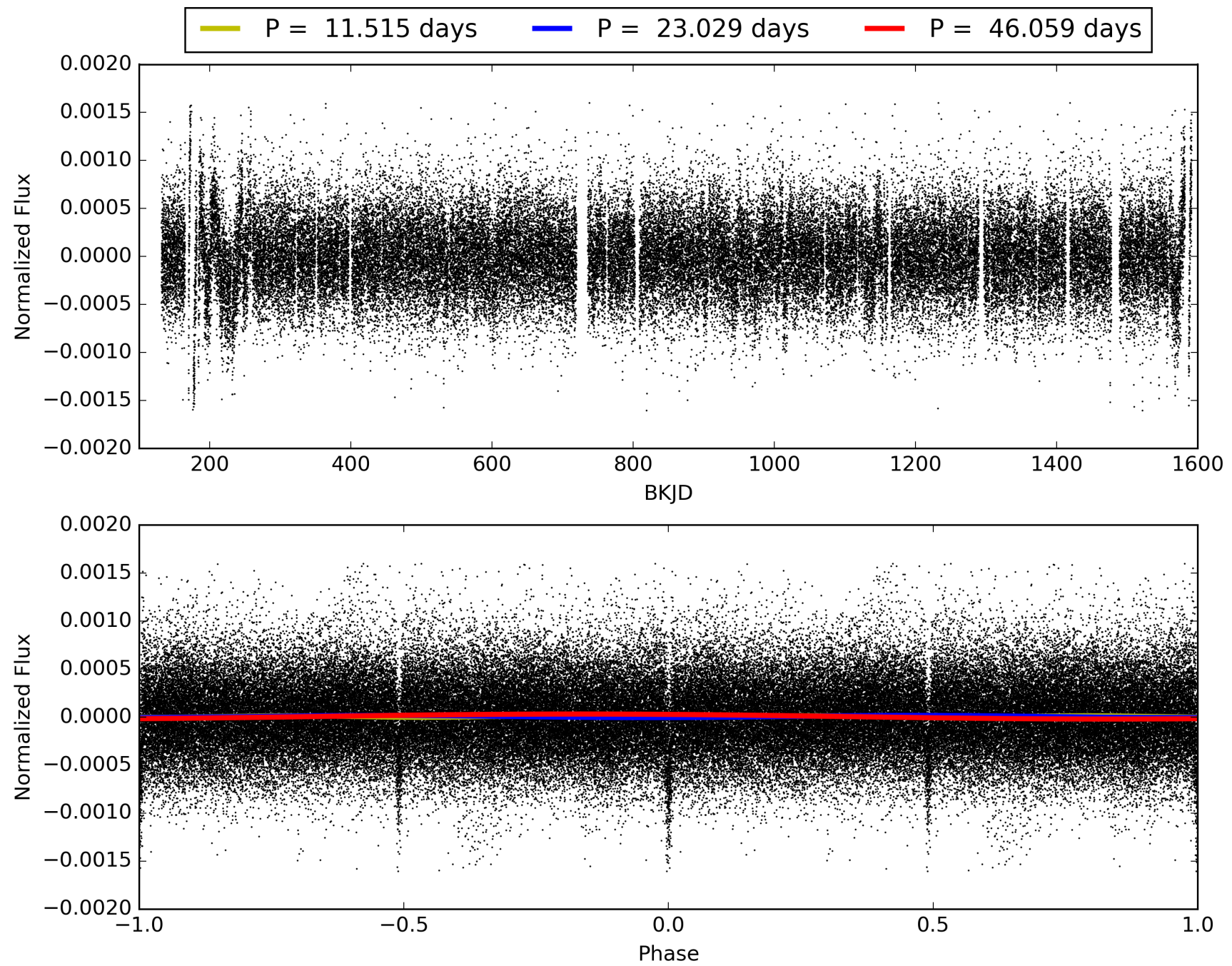
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:27:24 Z

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

TCE 004948730-01, PDC Light Curves

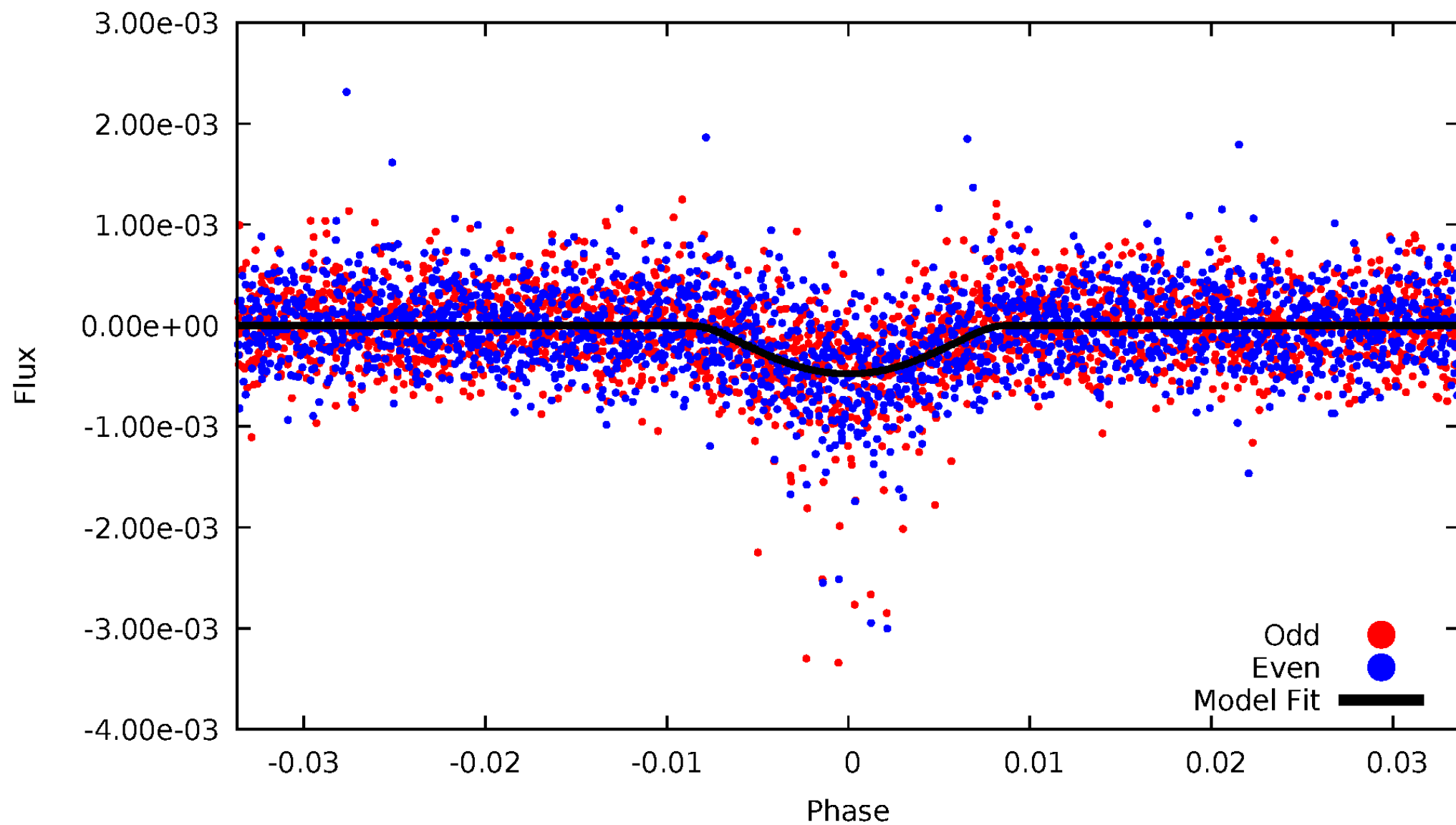


TCE 004948730-01



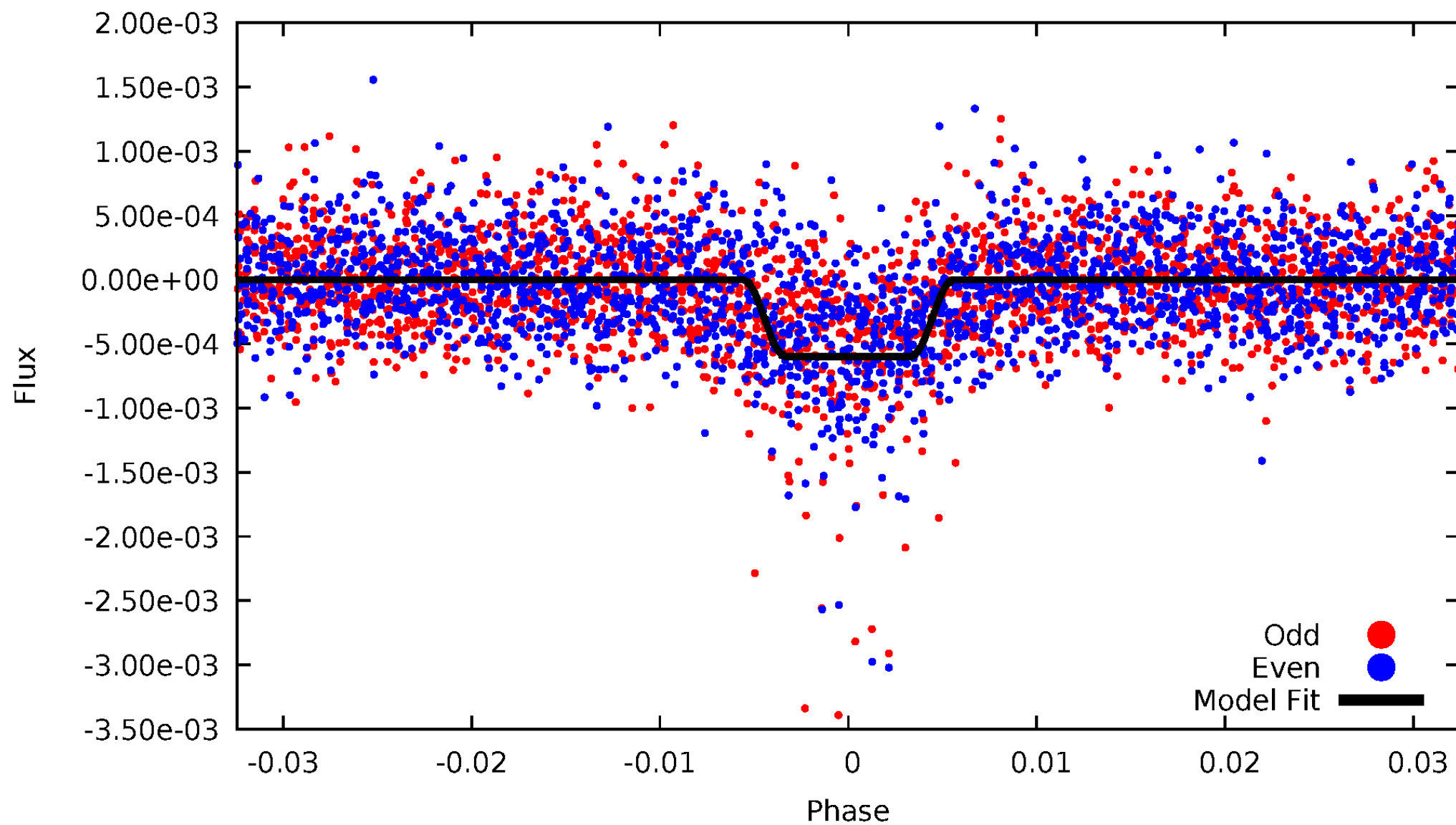
DV Odd/Even

TCE 004948730-01

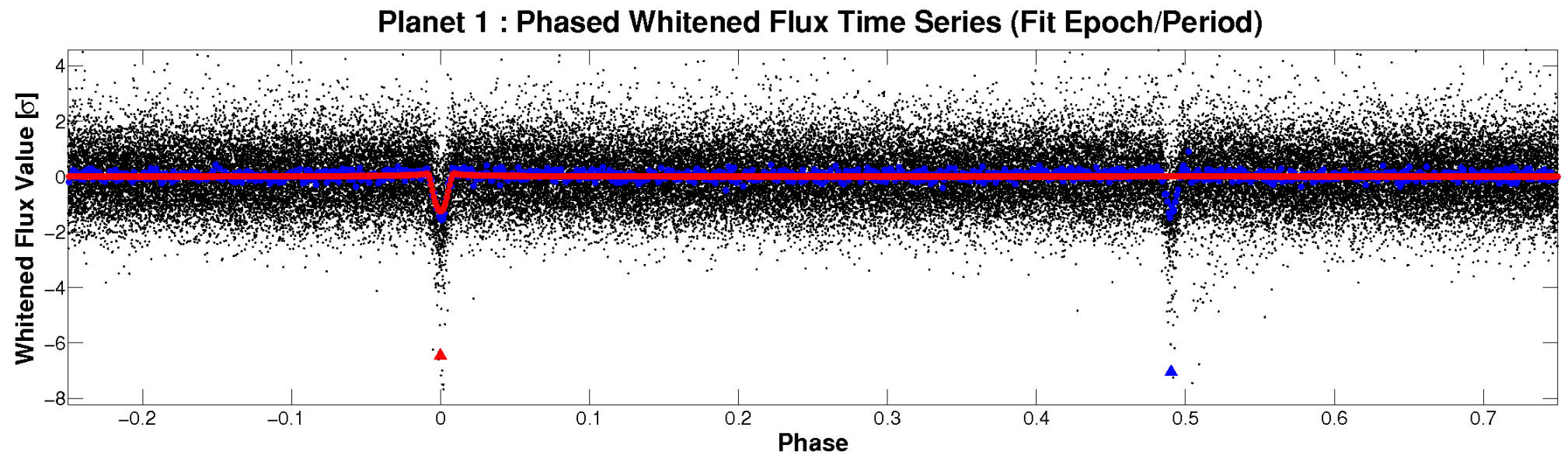
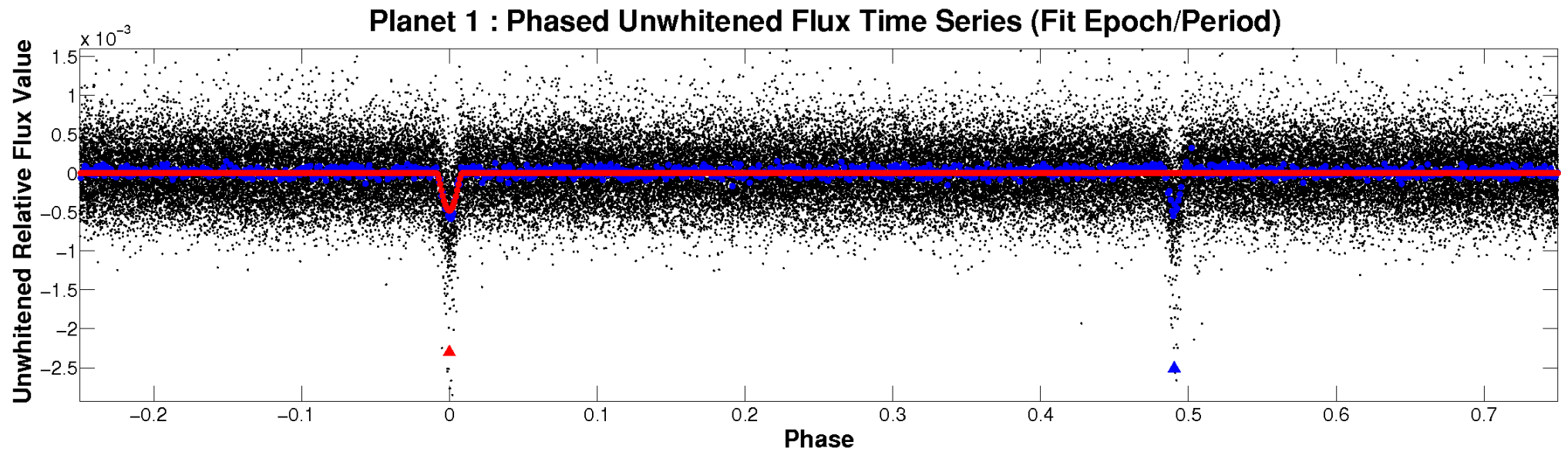


ALT Odd/Even

TCE 004948730-01

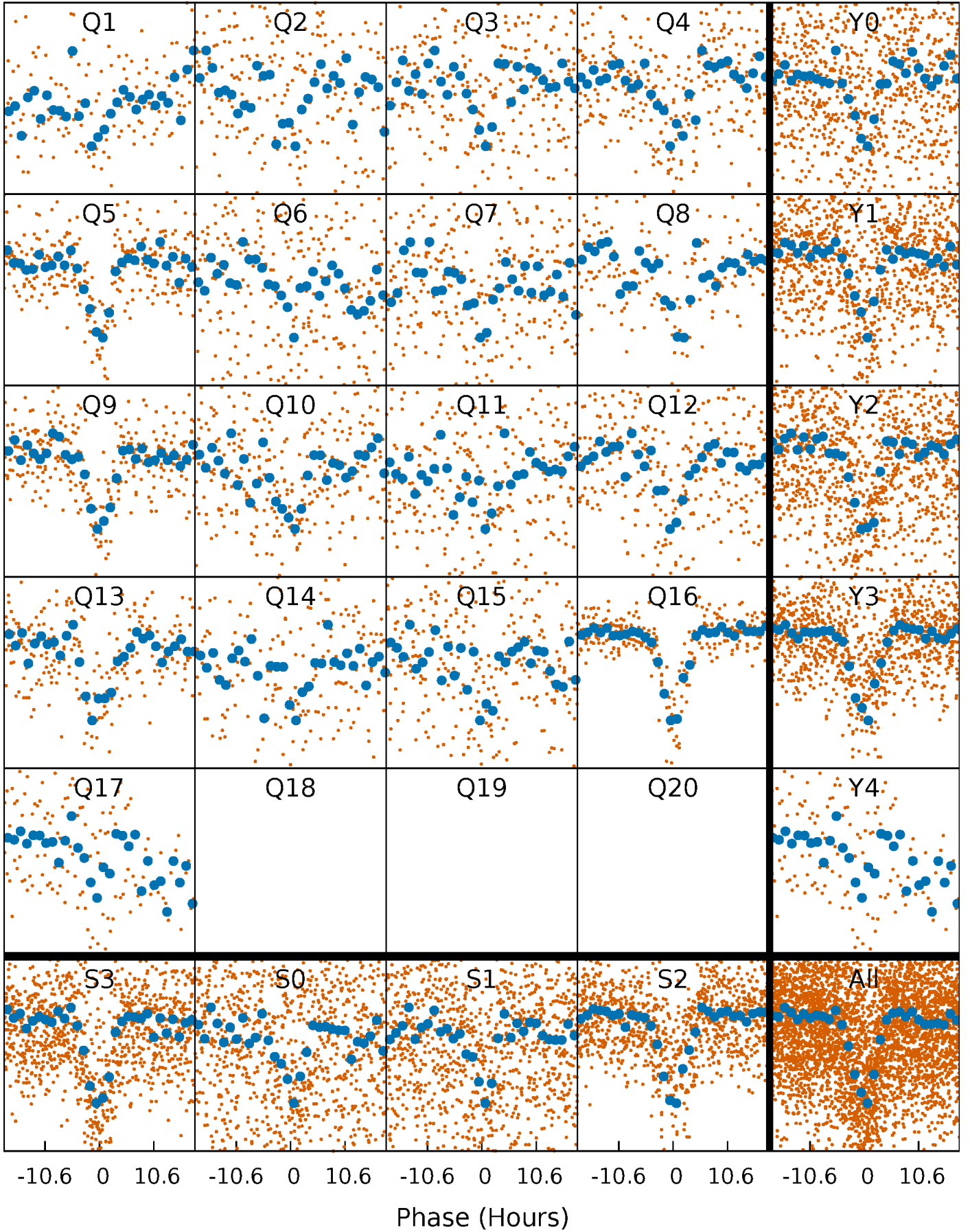


Non-Whitened Vs. Whitened Light Curve



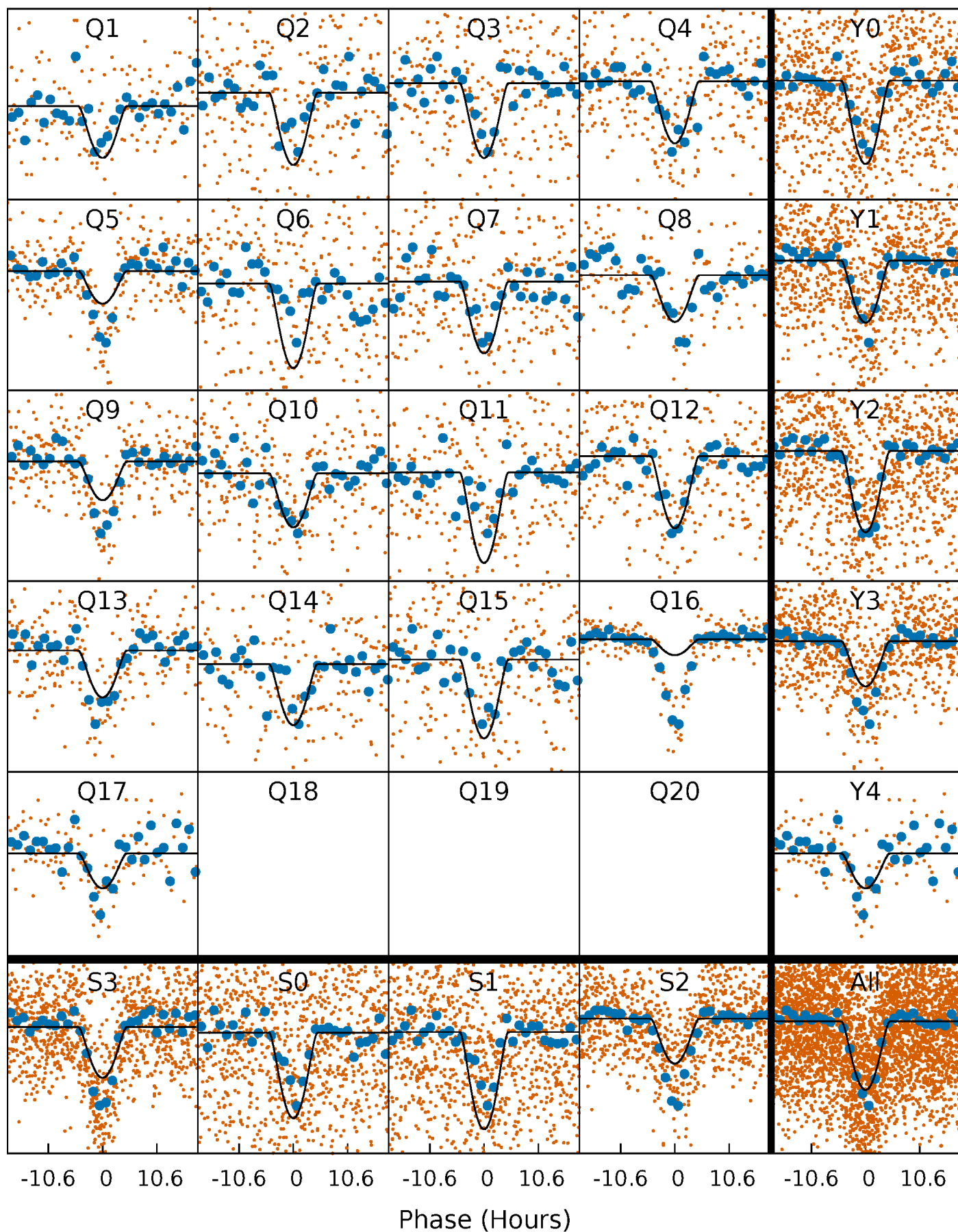
PDC Quarter-Phased Transit Curves

TCE 004948730-01 P= 23.029409 Days $T_0=139.853935$ (BKJD)



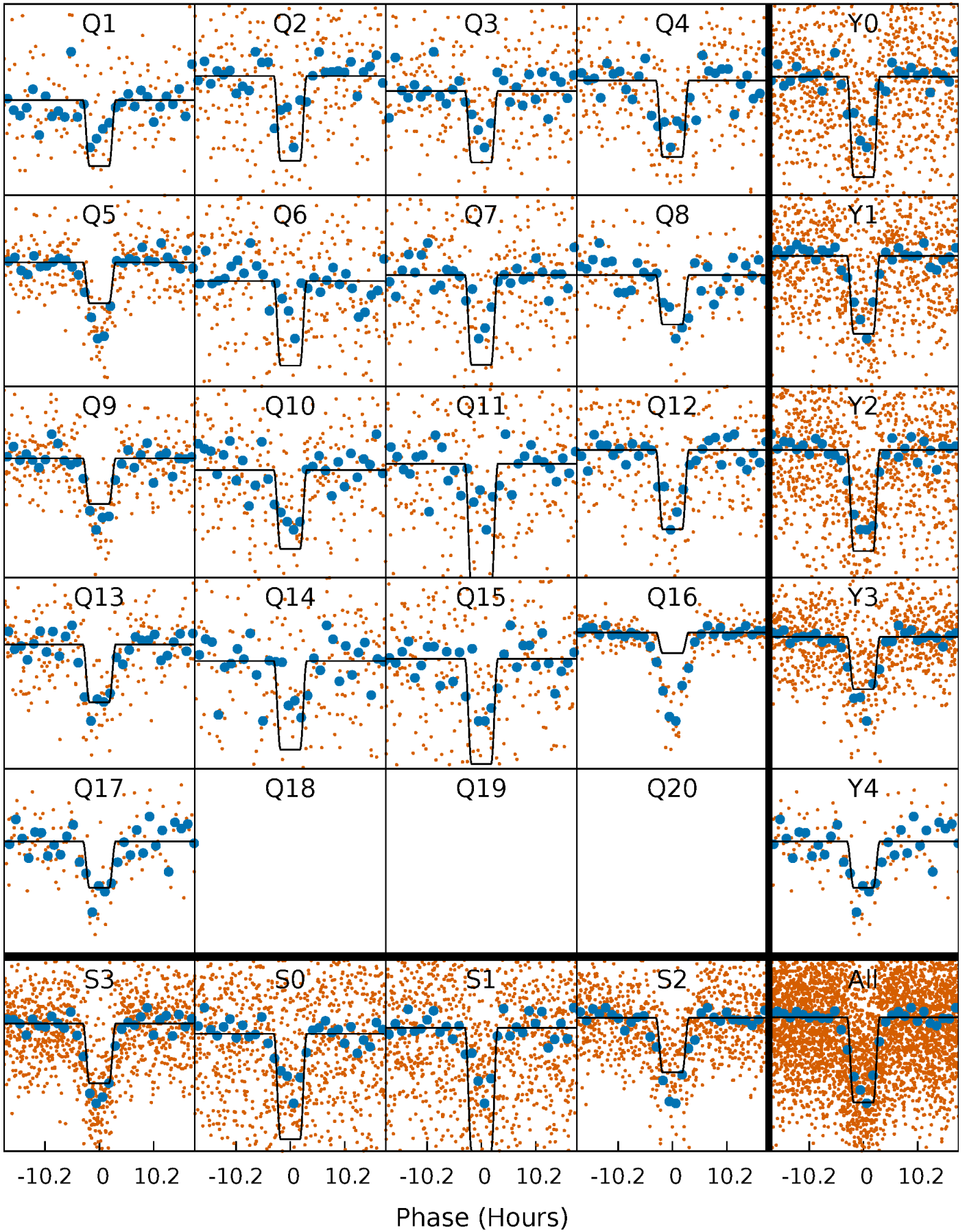
DV Quarter-Phased Transit Curves

TCE 004948730-01 P= 23.029409 Days $T_0=139.853935$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

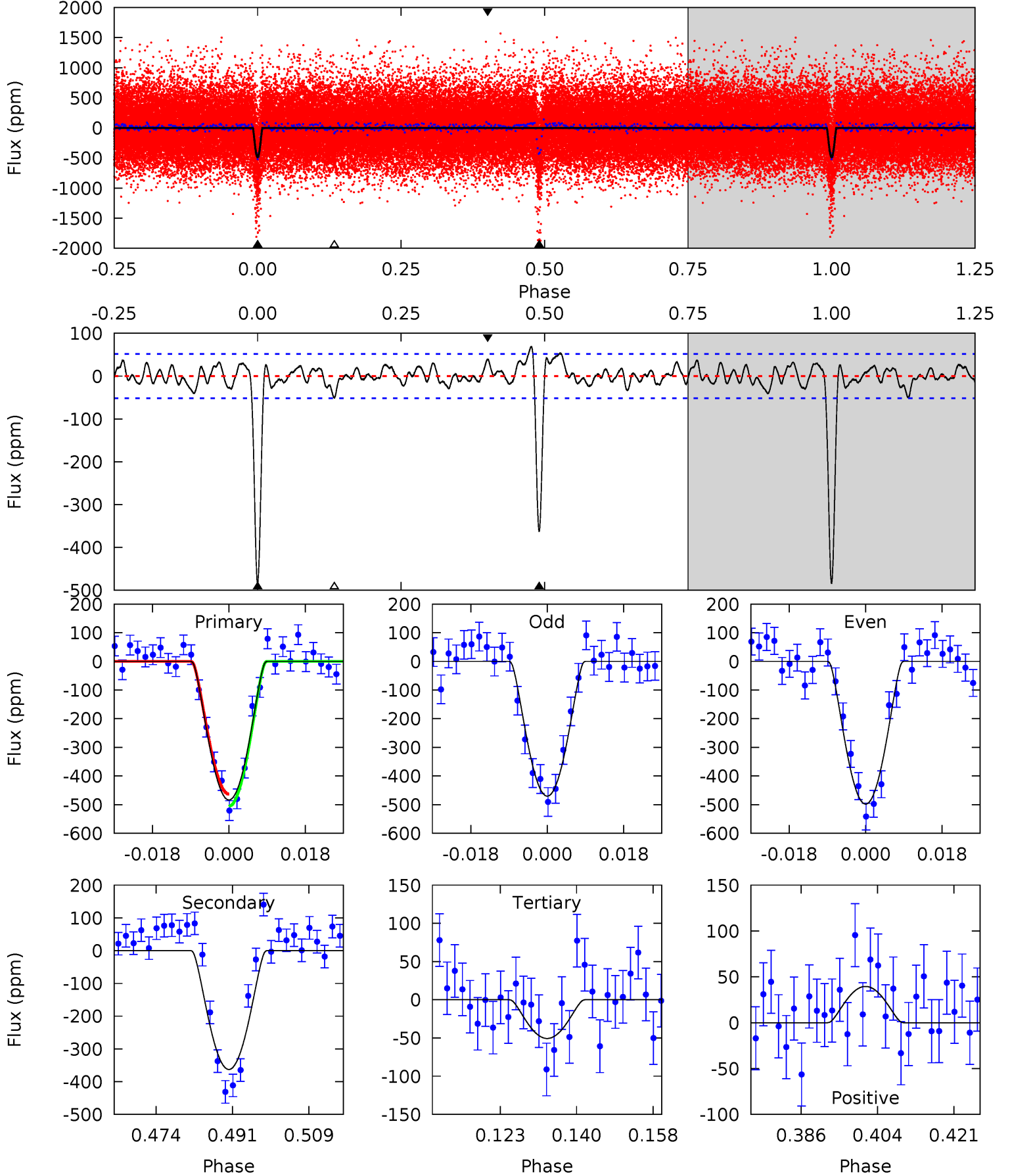
TCE 004948730-01 P= 23.029341 Days $T_0=139.857674$ (BKJD)



DV Model-Shift Uniqueness Test

004948730-01, P = 23.029409 Days, E = 116.824526 Days

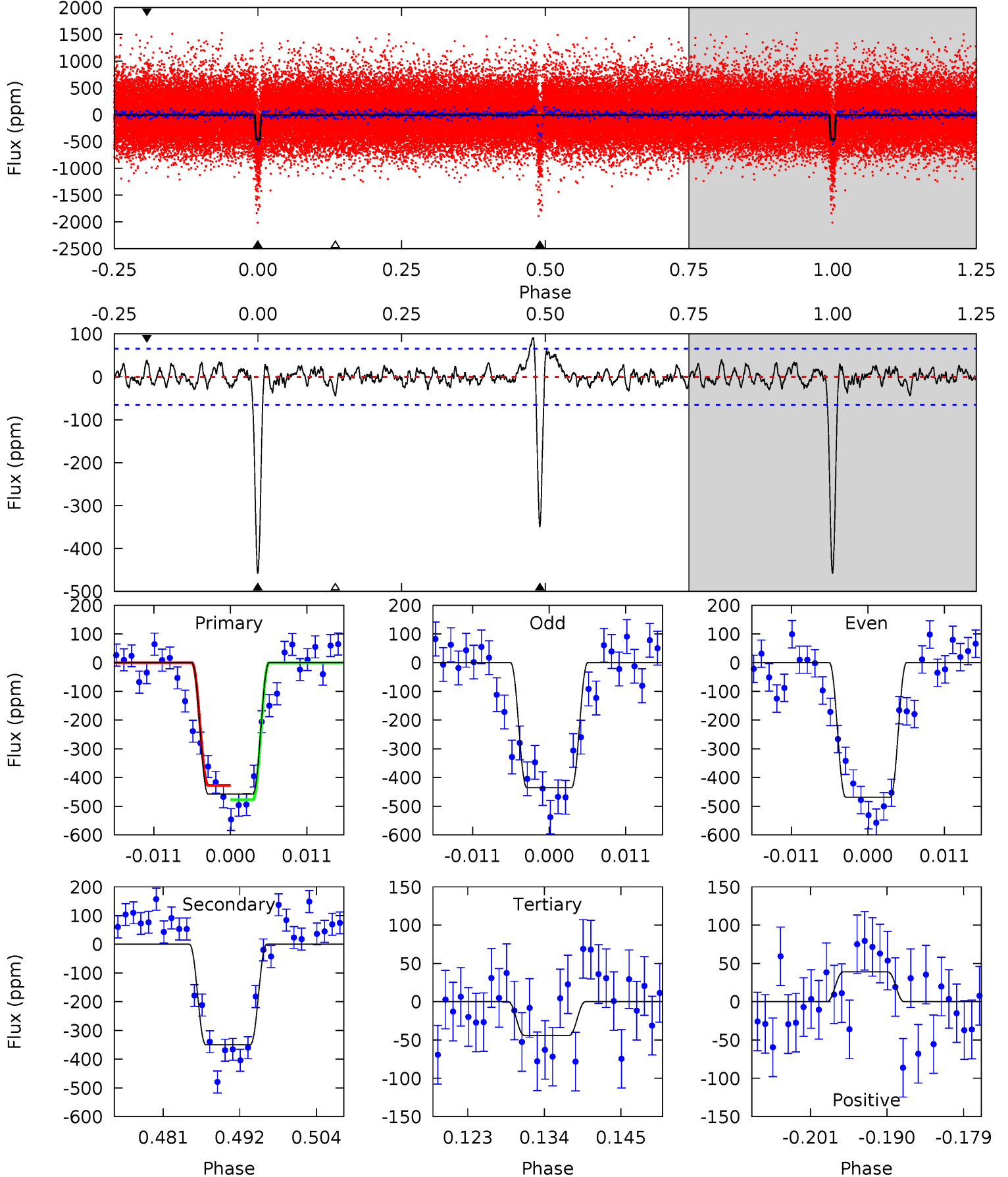
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.0	34.5	4.82	3.76	4.92	2.37	1.71	41.2	42.3	29.7	30.8	1.32	1.20	0.12	2.01



Alt Model-Shift Uniqueness Test

004948730-01, P = 23.029341 Days, E = 116.828333 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.9	26.6	3.36	2.97	5.00	2.54	1.31	31.5	31.9	23.3	23.7	1.26	1.22	0.17	1.91



Stellar Parameters For KIC 004948730

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5877^{+159}_{-195}	$4.445^{+0.098}_{-0.196}$	$-0.200^{+0.300}_{-0.300}$	$0.959^{+0.281}_{-0.120}$	$0.936^{+0.121}_{-0.099}$	$1.495^{+0.552}_{-0.742}$
	+3%/-3%	+2%/-4%	+150%/-150%	+29%/-13%	+13%/-11%	+37%/-50%
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 004948730-01 / KOI 3272.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-363 ± 11	$6.29^{+5.88}_{-3.78}$	906^{+64}_{-47}	3710^{+1788}_{-643}	119^{+626}_{-86}
Alt.	-350 ± 13	$5.26^{+5.49}_{-3.62}$	909^{+68}_{-48}	3966^{+2528}_{-814}	168^{+1555}_{-128}

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 $A_{obs} \gg 1.0$

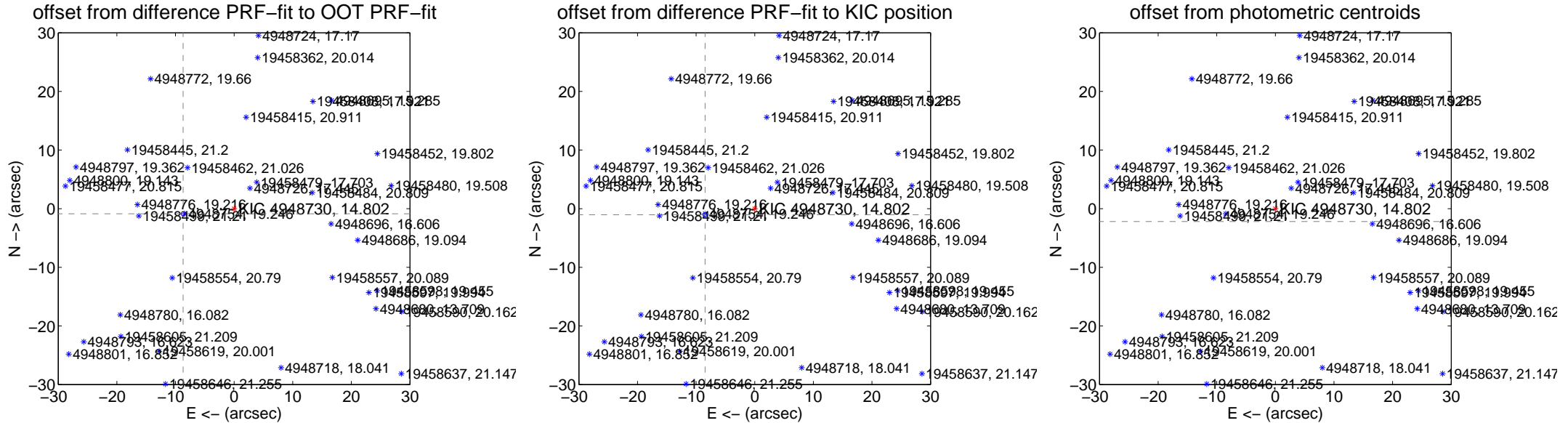
DV Centroid Data

Supplemental centroid analysis for 004948730-01. Kepler magnitude: 14.80. Transit SNR 26.24

There are 12 quarters with good PRF difference image offsets

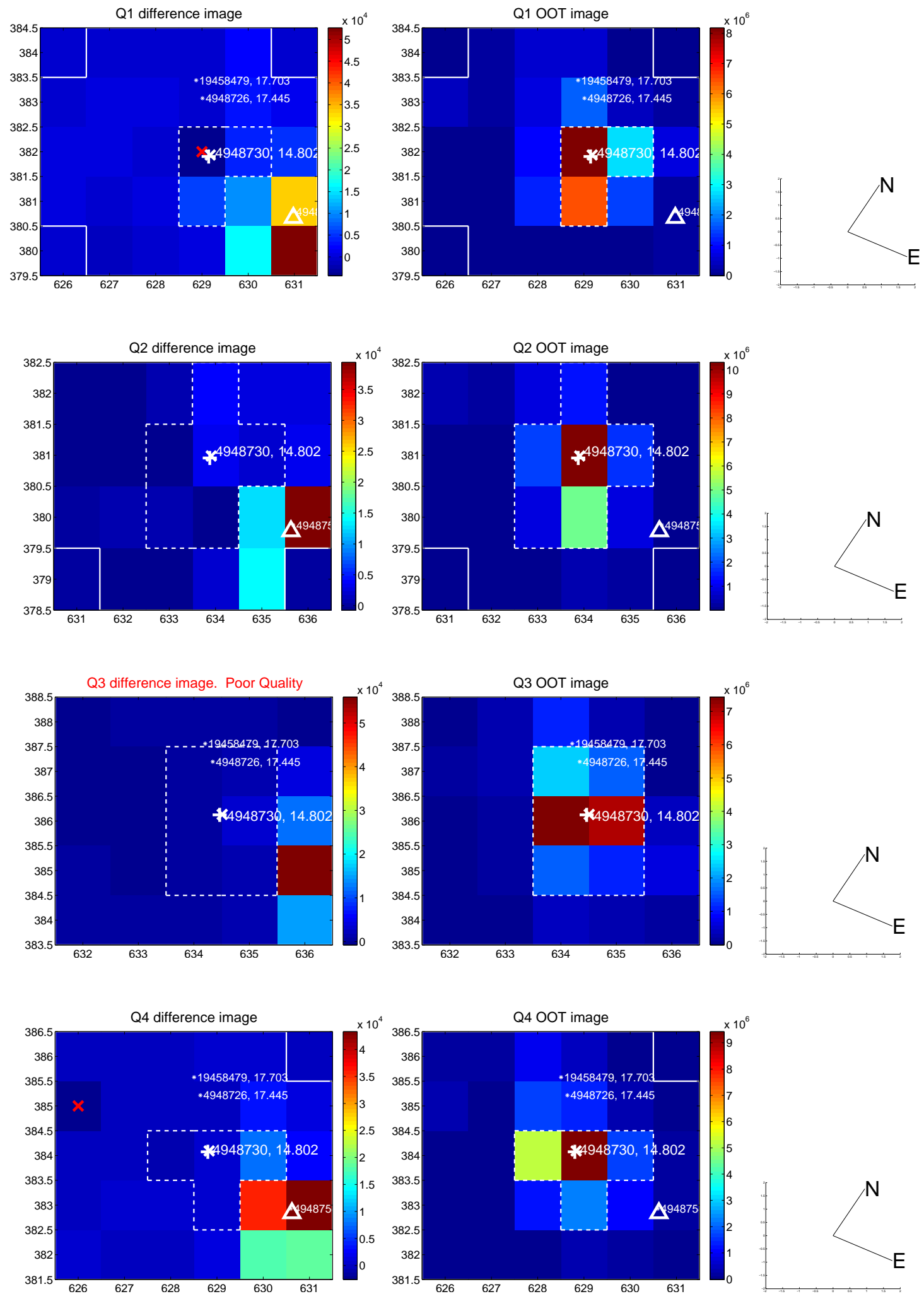
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.743 \pm 0.116	75.47	8.700 \pm 0.115	-0.874 \pm 0.070
PRF-fit source offset from KIC position	8.538 \pm 0.117	72.72	8.475 \pm 0.118	-1.040 \pm 0.069
photometric centroid source offset	59.38 \pm 0.62	96.36	59.34 \pm 0.62	-2.19 \pm 0.58

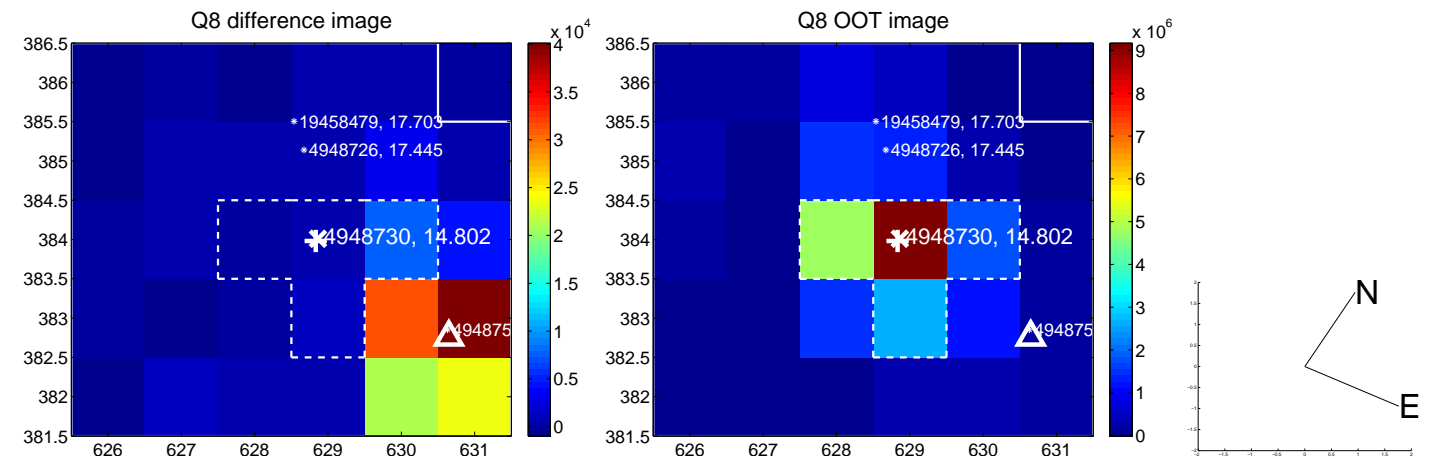
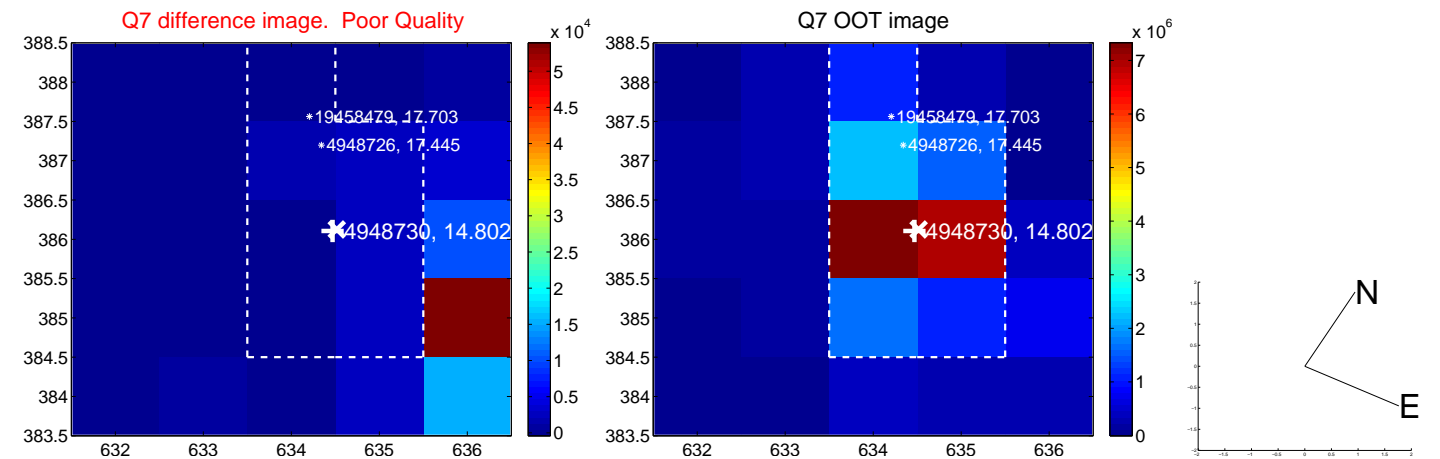
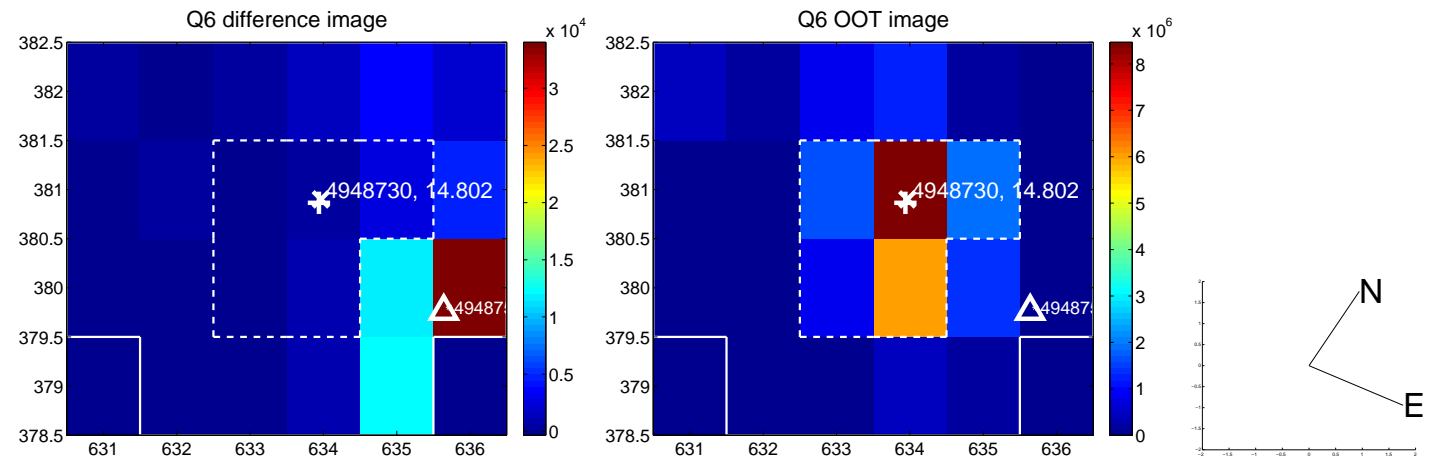
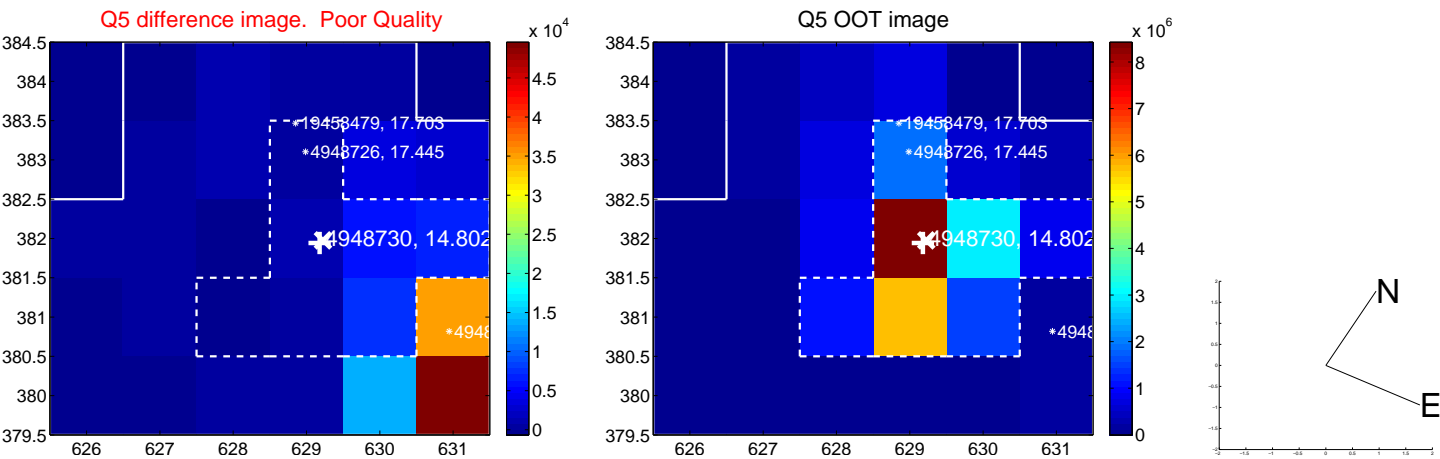


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

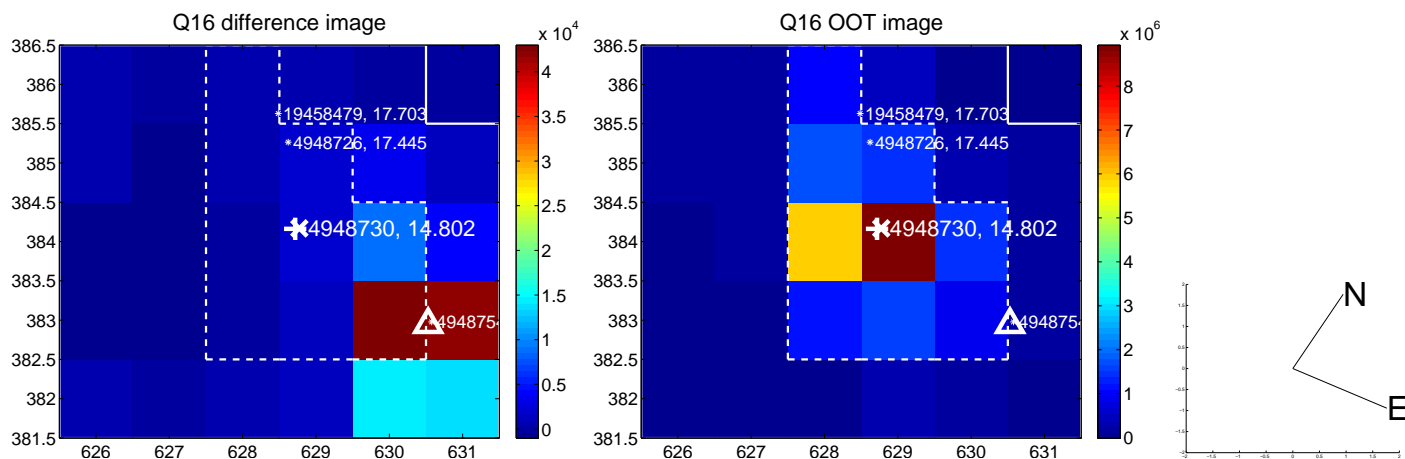
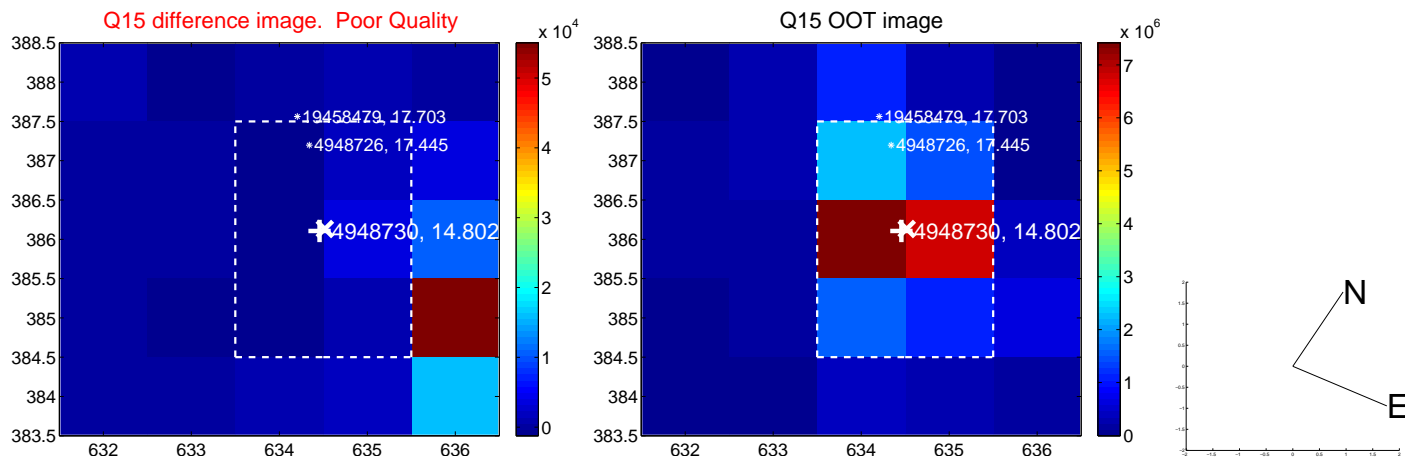
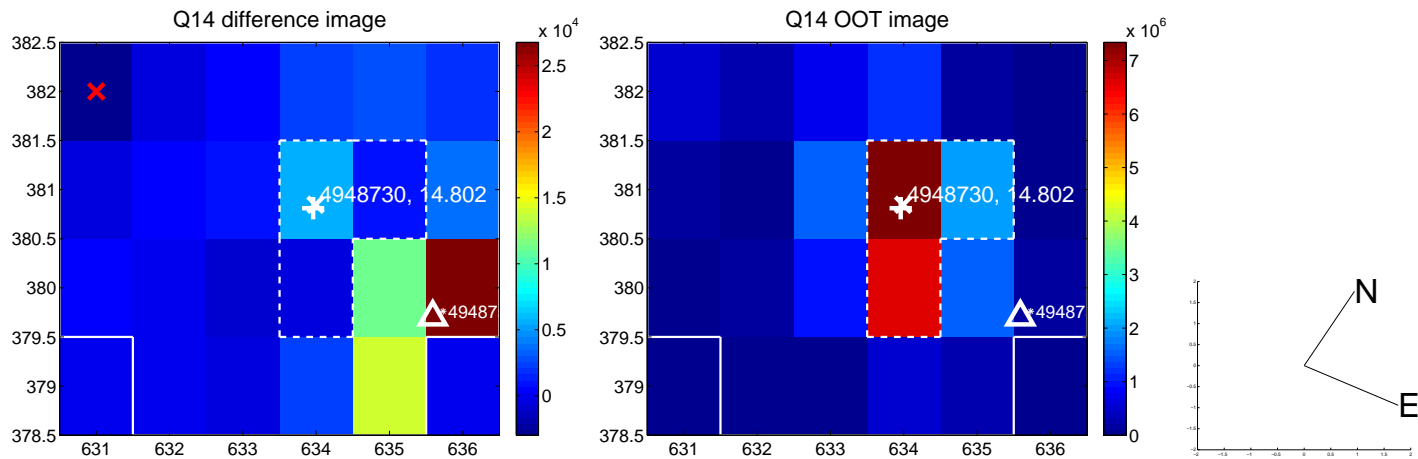
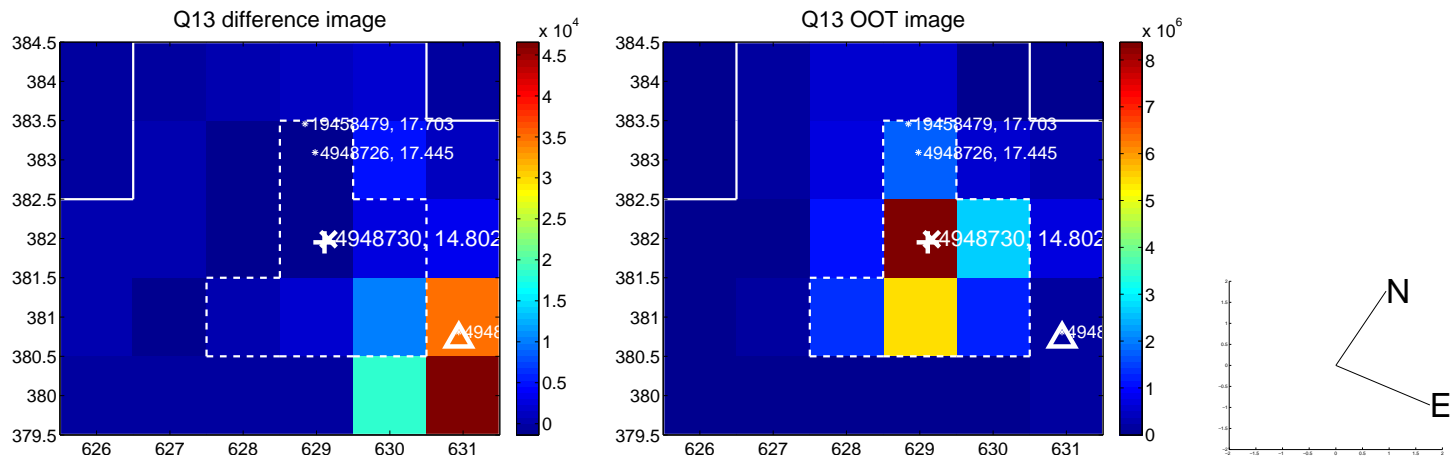
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



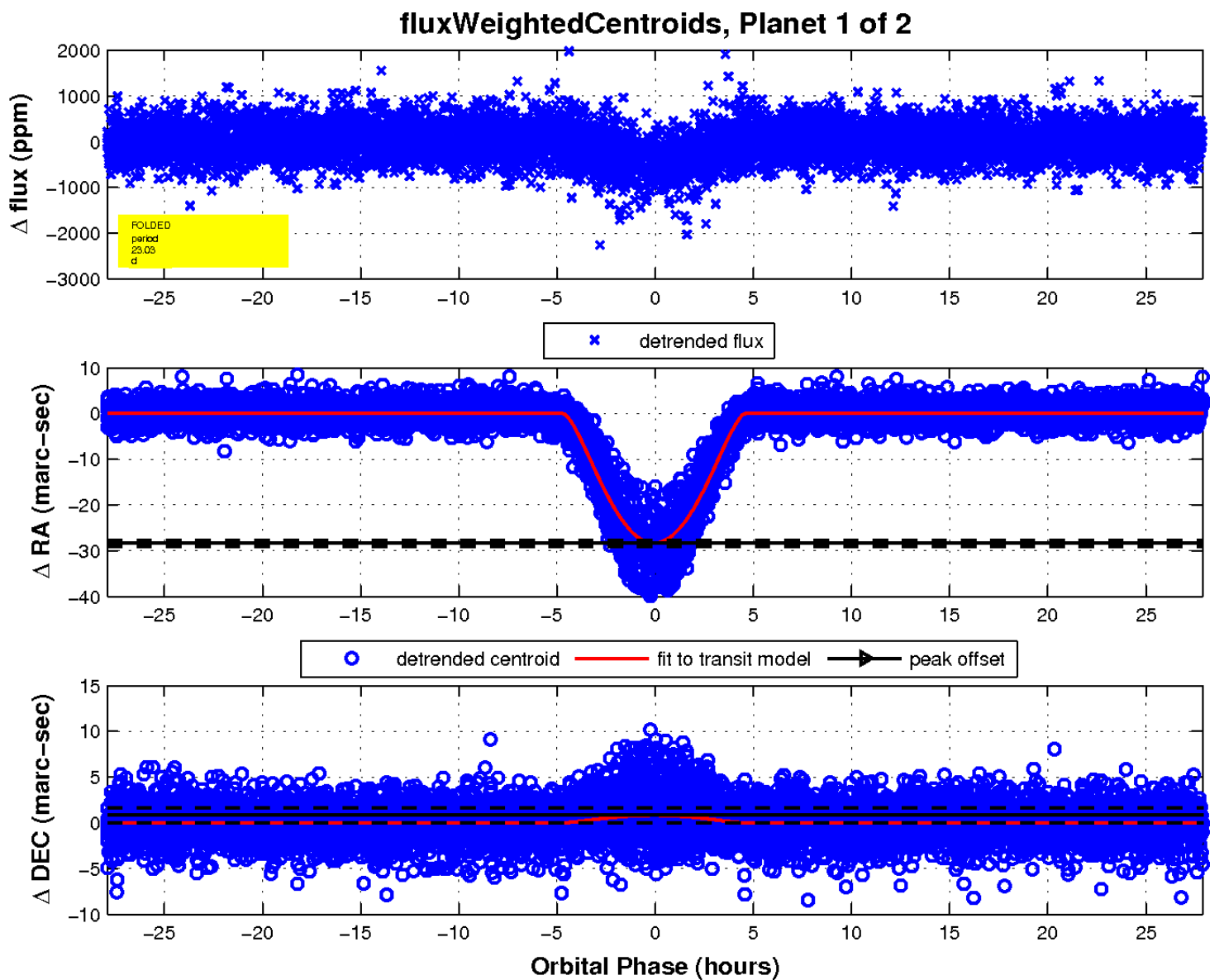
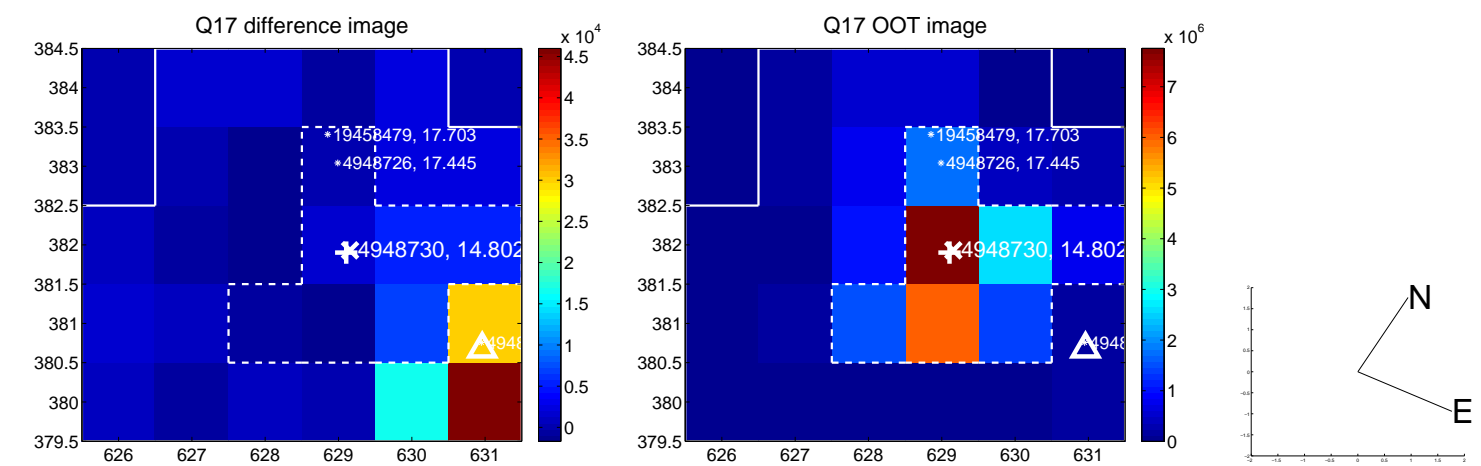
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



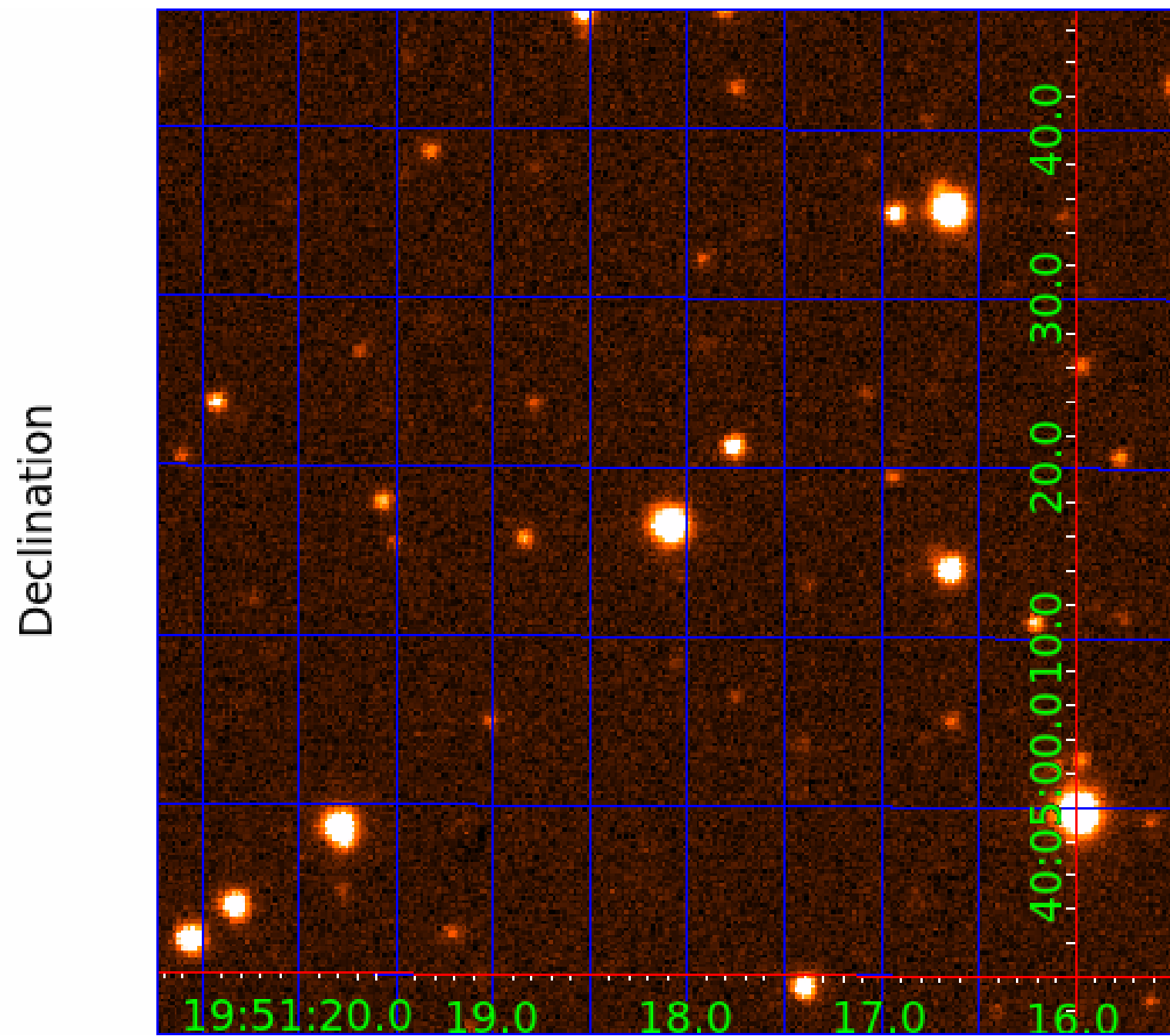
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004948730

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})
004948730-01	OBS	3272.01	23.029409	139.853935	479.3	9.302	28.1	26.2	0.96	5877	4.16	40.96
004948730-02	OBS	No	23.029431	151.147950	400.4	5.907	26.0	22.5	0.96	5877	2.21	40.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004948730-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
004948730-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET

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.

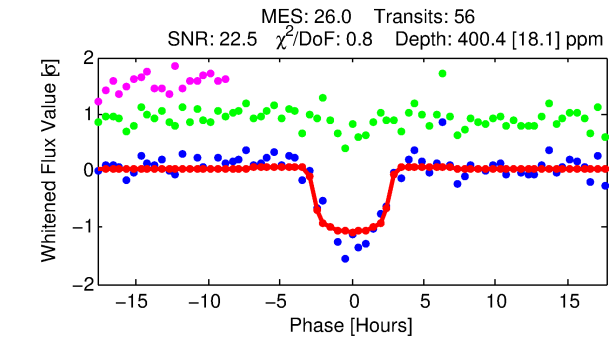
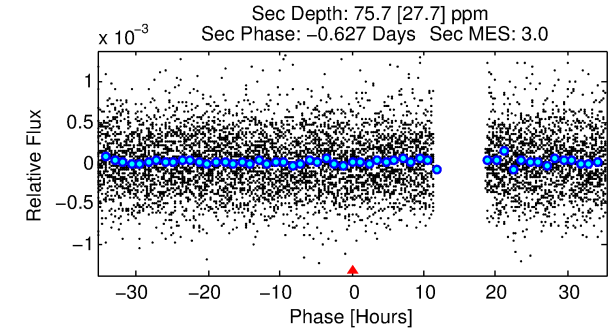
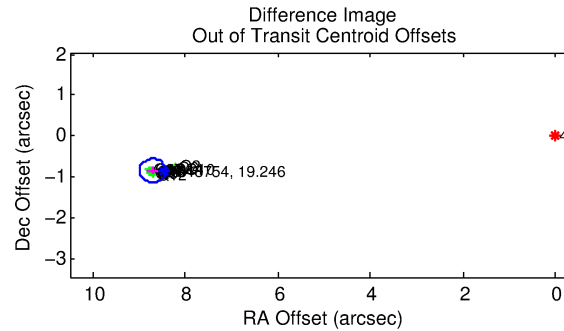
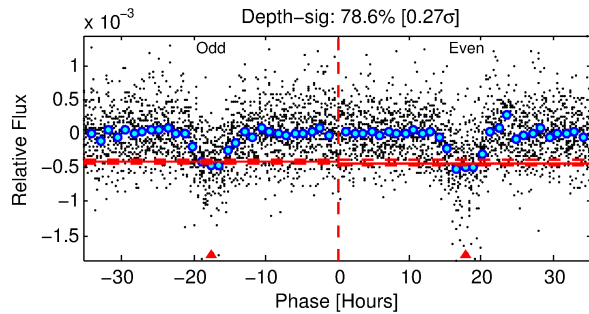
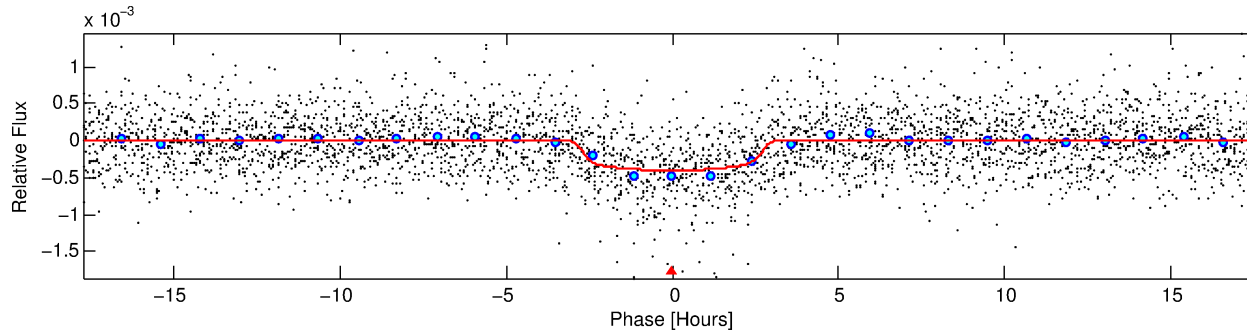
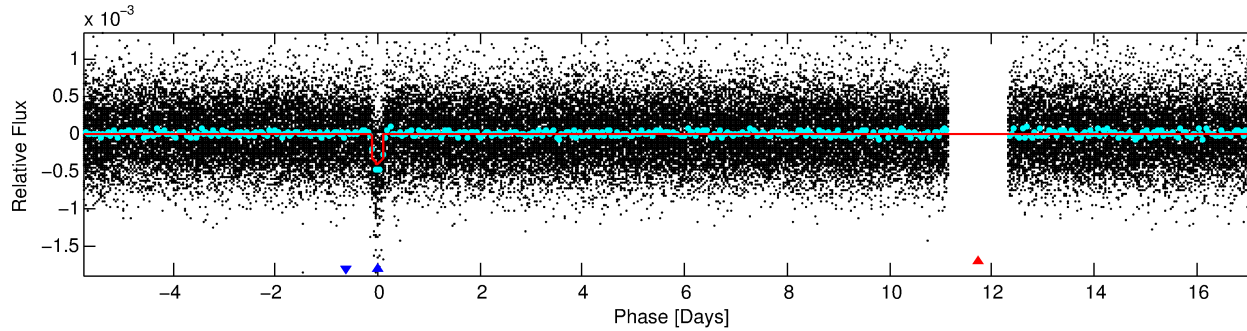
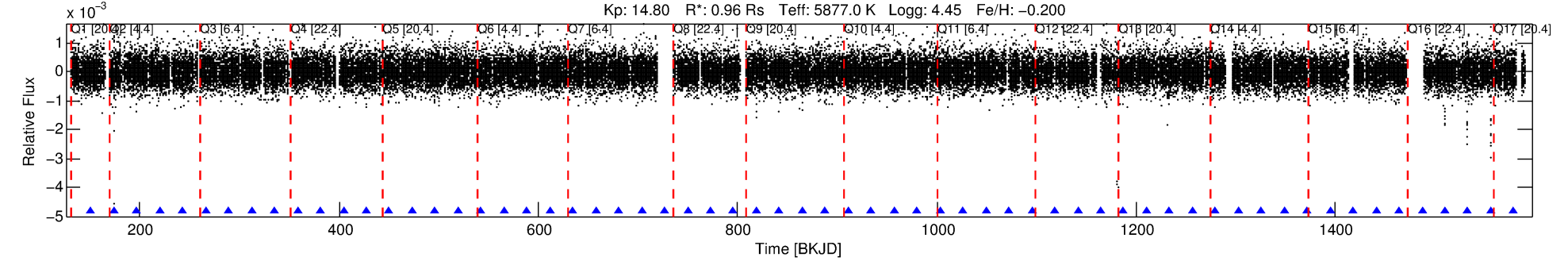
Ephemeris Match Information For 004948730-02

No Significant Match Found

DV One-Page Summary

KIC: 4948730 Candidate: 2 of 2 Period: 23.029 d
KOI: K03272.01 Corr: 0.867

Kp: 14.80 R*: 0.96 Rs Teff: 5877.0 K Logg: 4.45 Fe/H: -0.200



DV Fit Results:

Period = 23.02943 [0.00015] d
Epoch = 151.1480 [0.0051] BKJD
Rp/R* = 0.0211 [0.0027]
a/R* = 16.13 [9.93]
b = 0.87 [0.18]
Seff = 40.96 [15.67]
Teq = 645 [62] K
Rp = 2.21 [0.71] Re
a = 0.1549 [0.0382] AU
Ag = 205.06 [117.80] [1.73σ]
Teffp = 3774 [441] K [7.02σ]

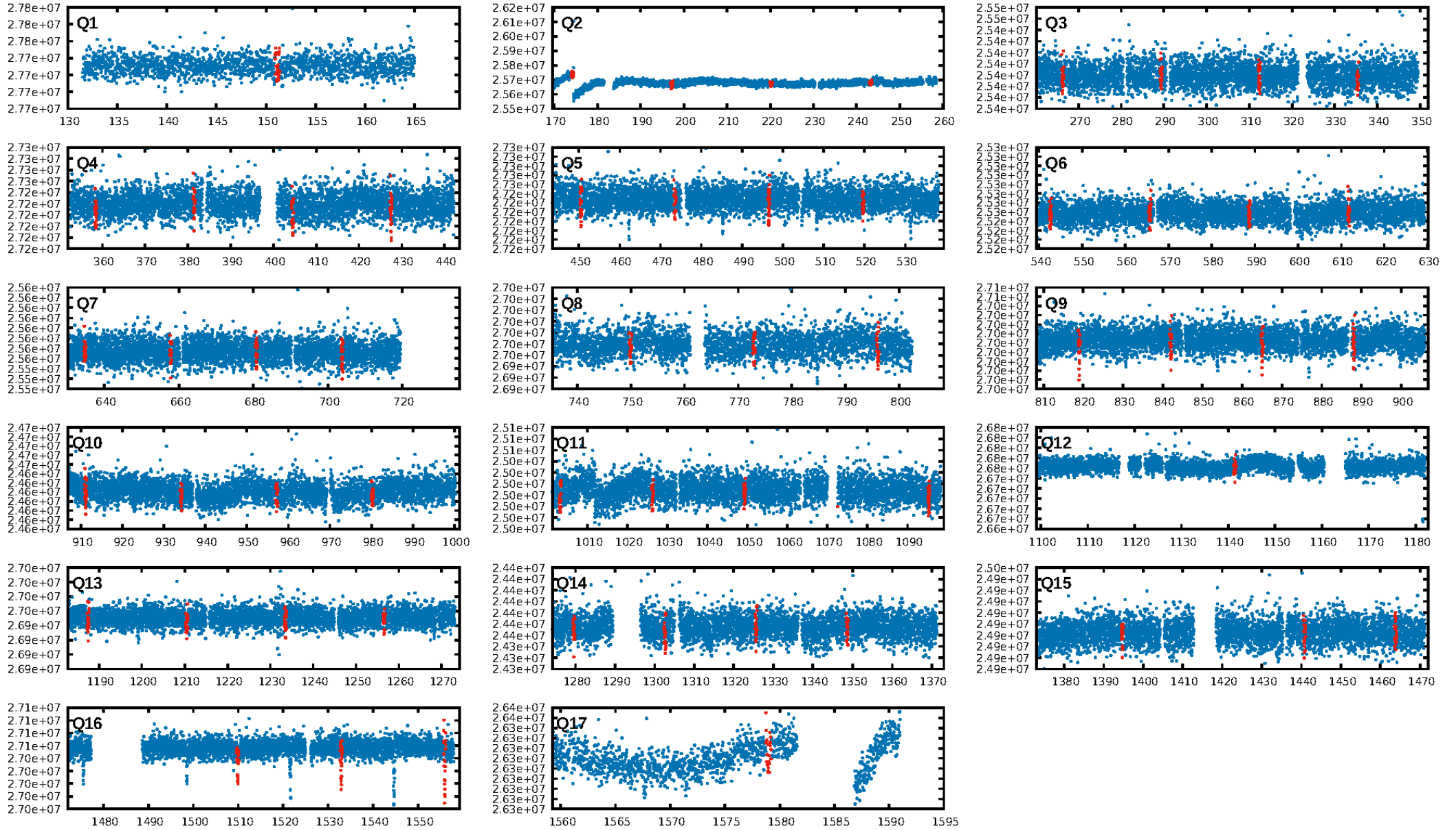
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.20e-146
RollingBand-fgt: 1.00 [54/54]
GhostDiagnostic-chr: -0.4957
Centroid-sig: 0.0%
Centroid-so: 52.279 arcsec [71.92σ]
OotOffset-rm: 8.751 arcsec [90.88σ]
KicOffset-rm: 8.648 arcsec [97.40σ]
OotOffset-st: 4/0/4/5 [13]
KicOffset-st: 4/0/4/5 [13]
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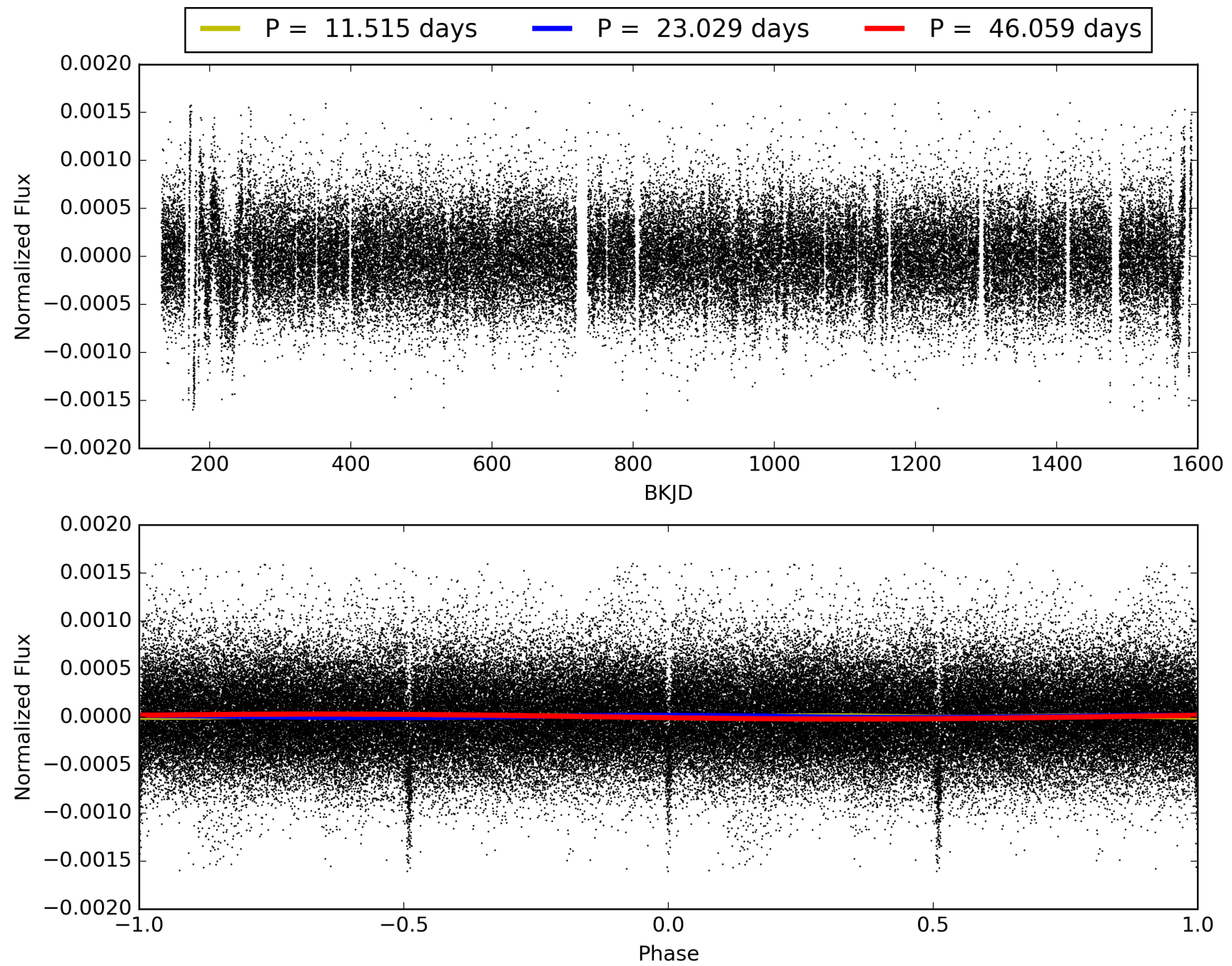
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:27:31 Z

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

TCE 004948730-02, PDC Light Curves

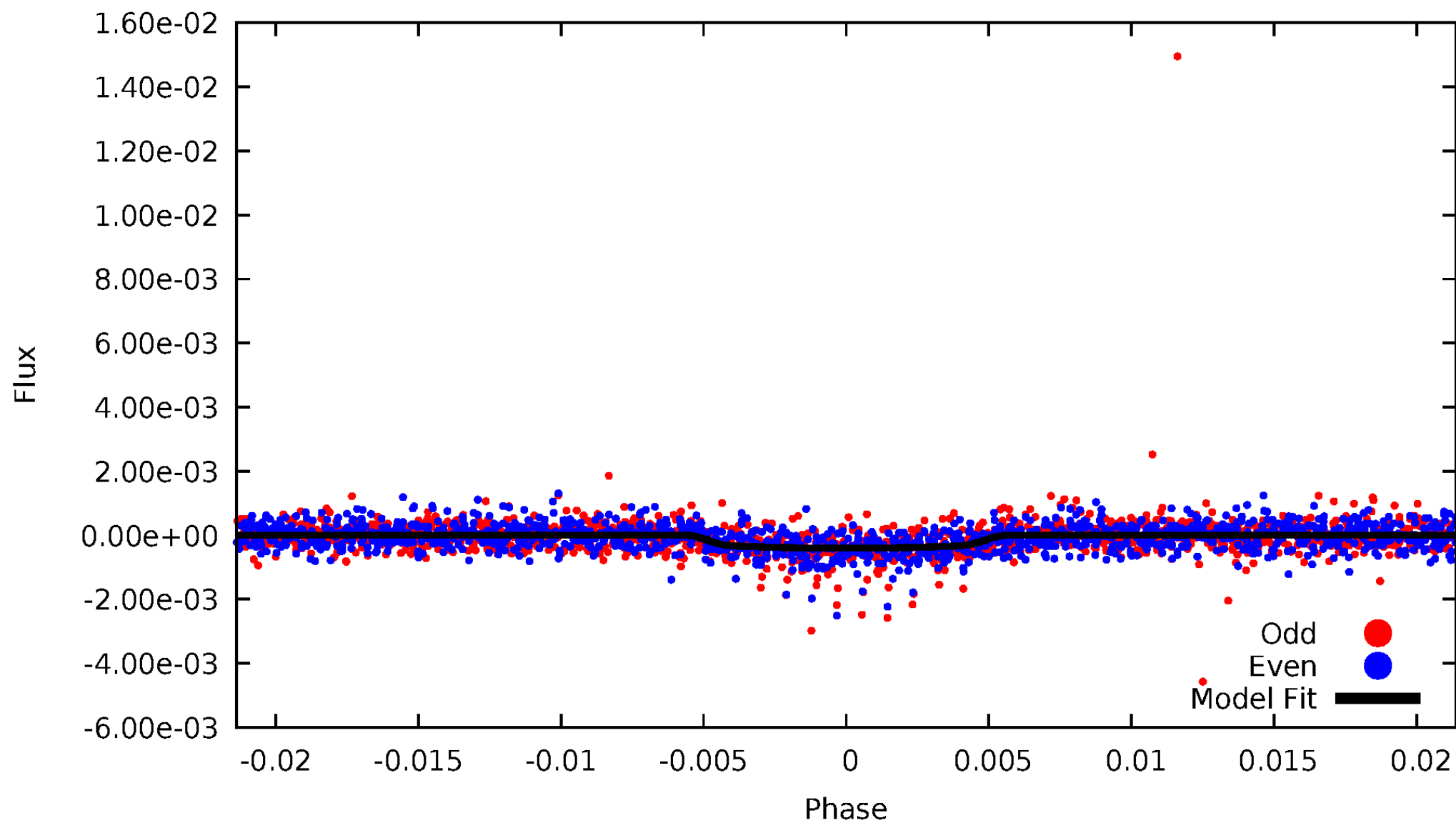


TCE 004948730-02



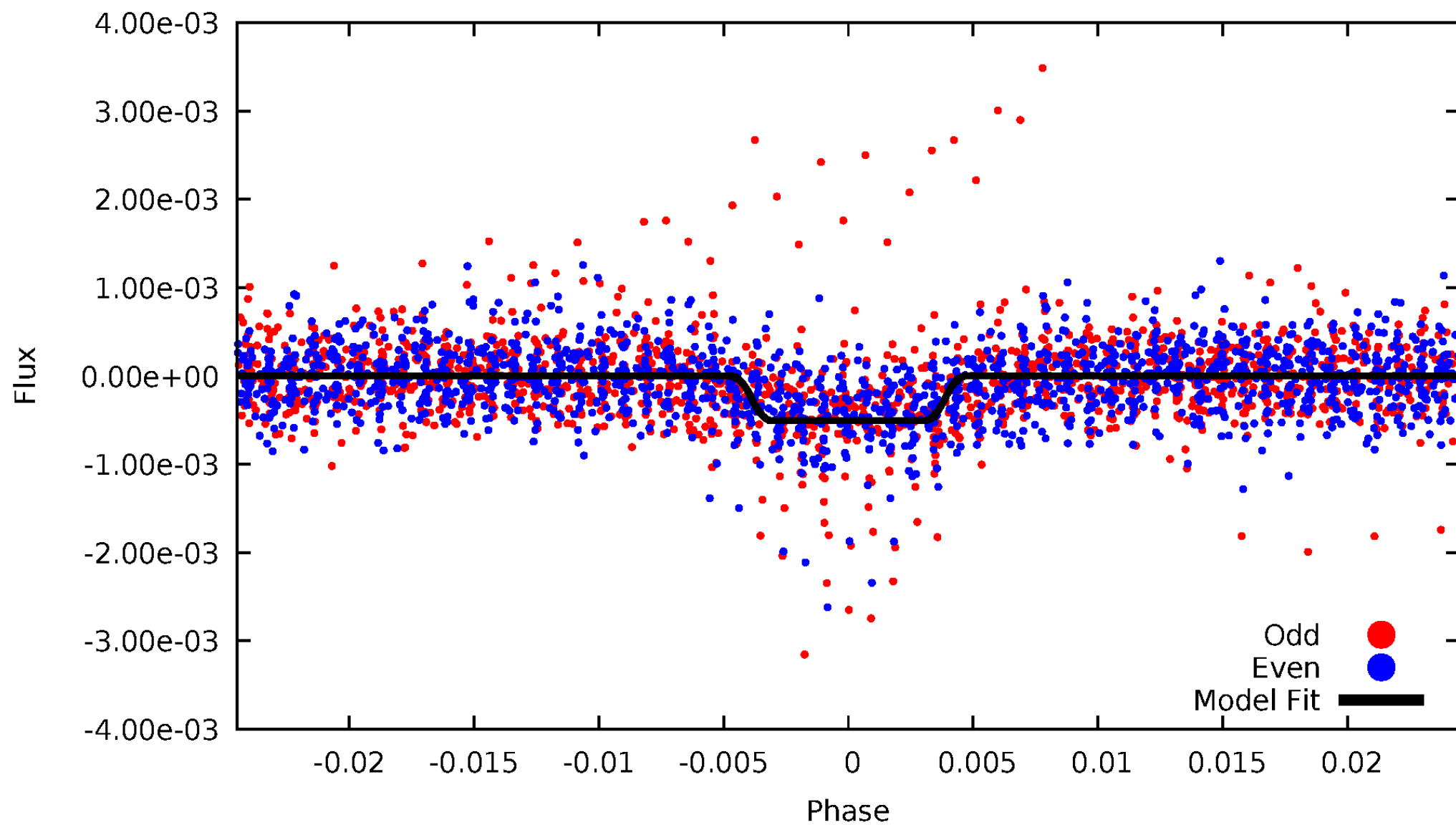
DV Odd/Even

TCE 004948730-02



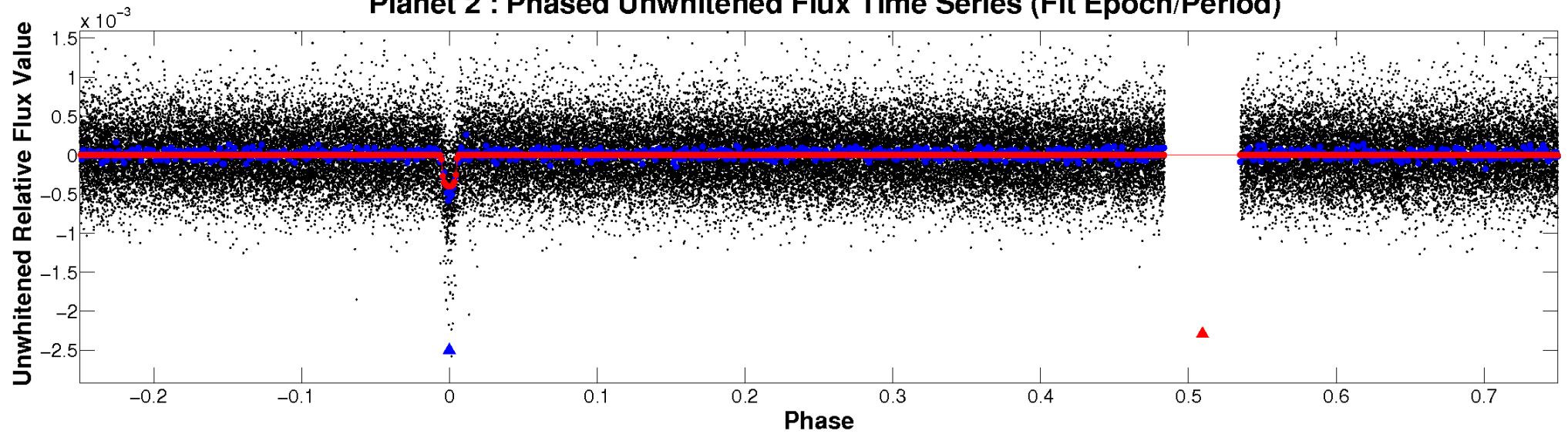
ALT Odd/Even

TCE 004948730-02

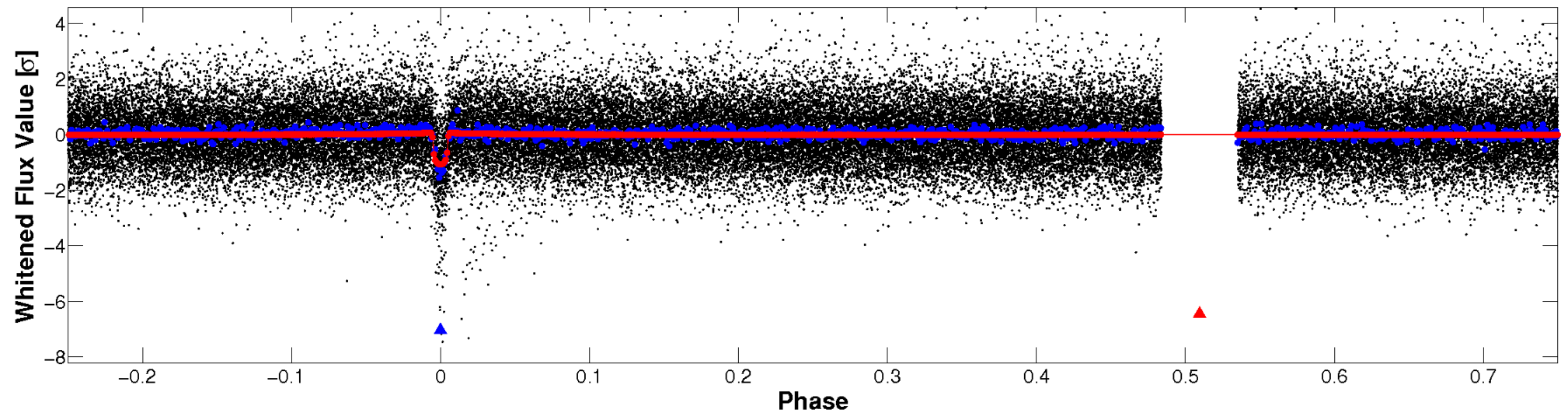


Non-Whitened Vs. Whitened Light Curve

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

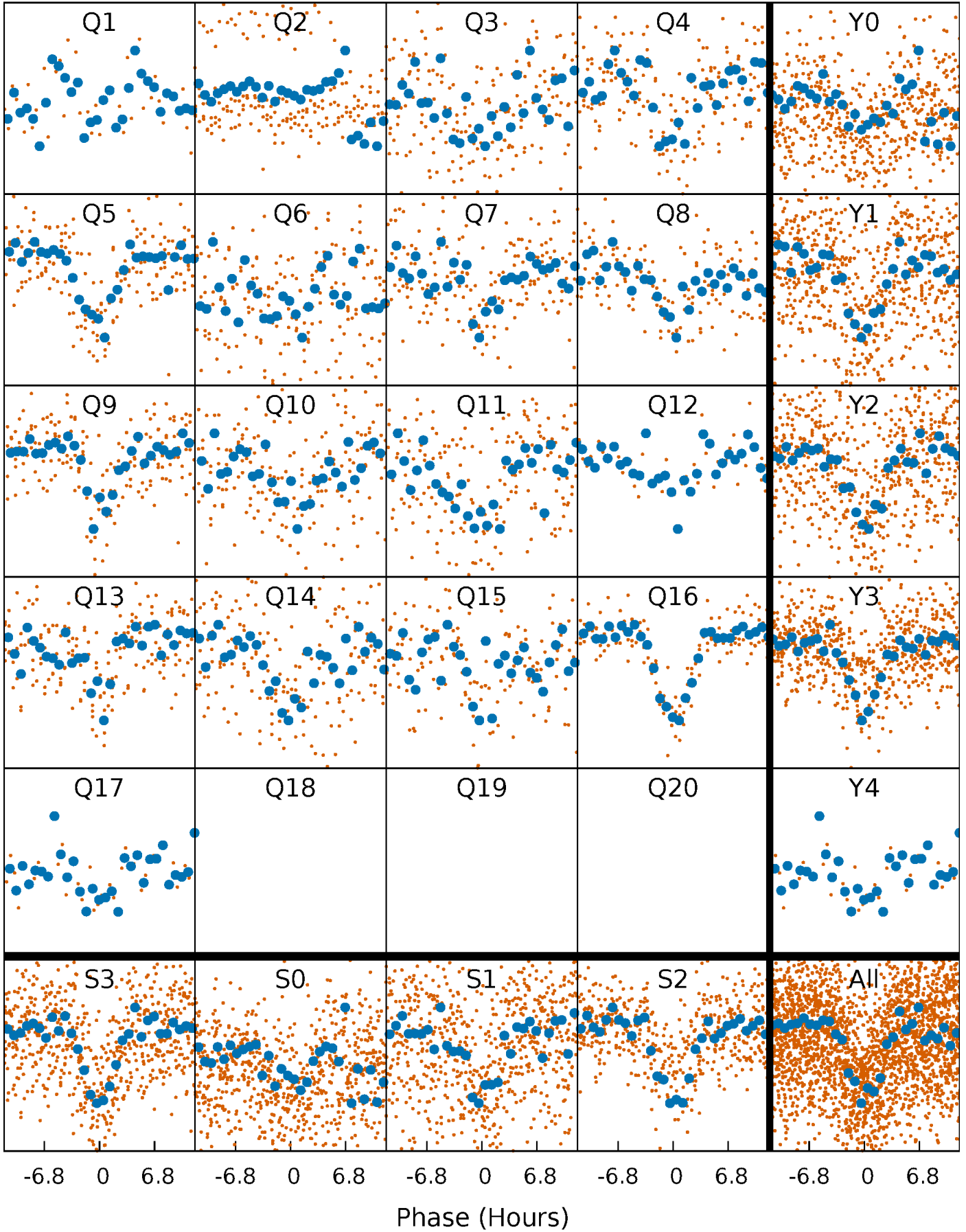


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



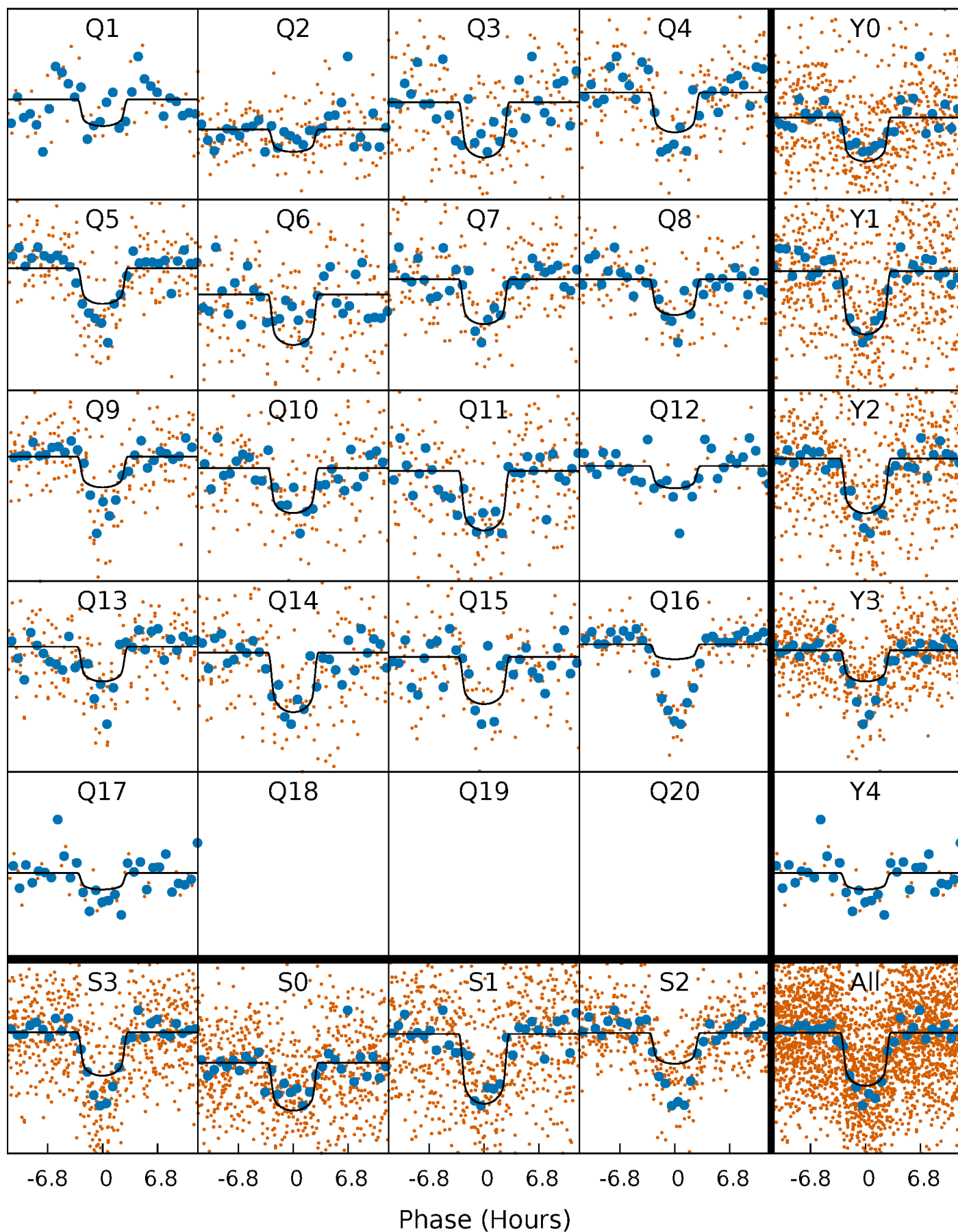
PDC Quarter-Phased Transit Curves

TCE 004948730-02 P= 23.029431 Days $T_0=151.147950$ (BKJD)



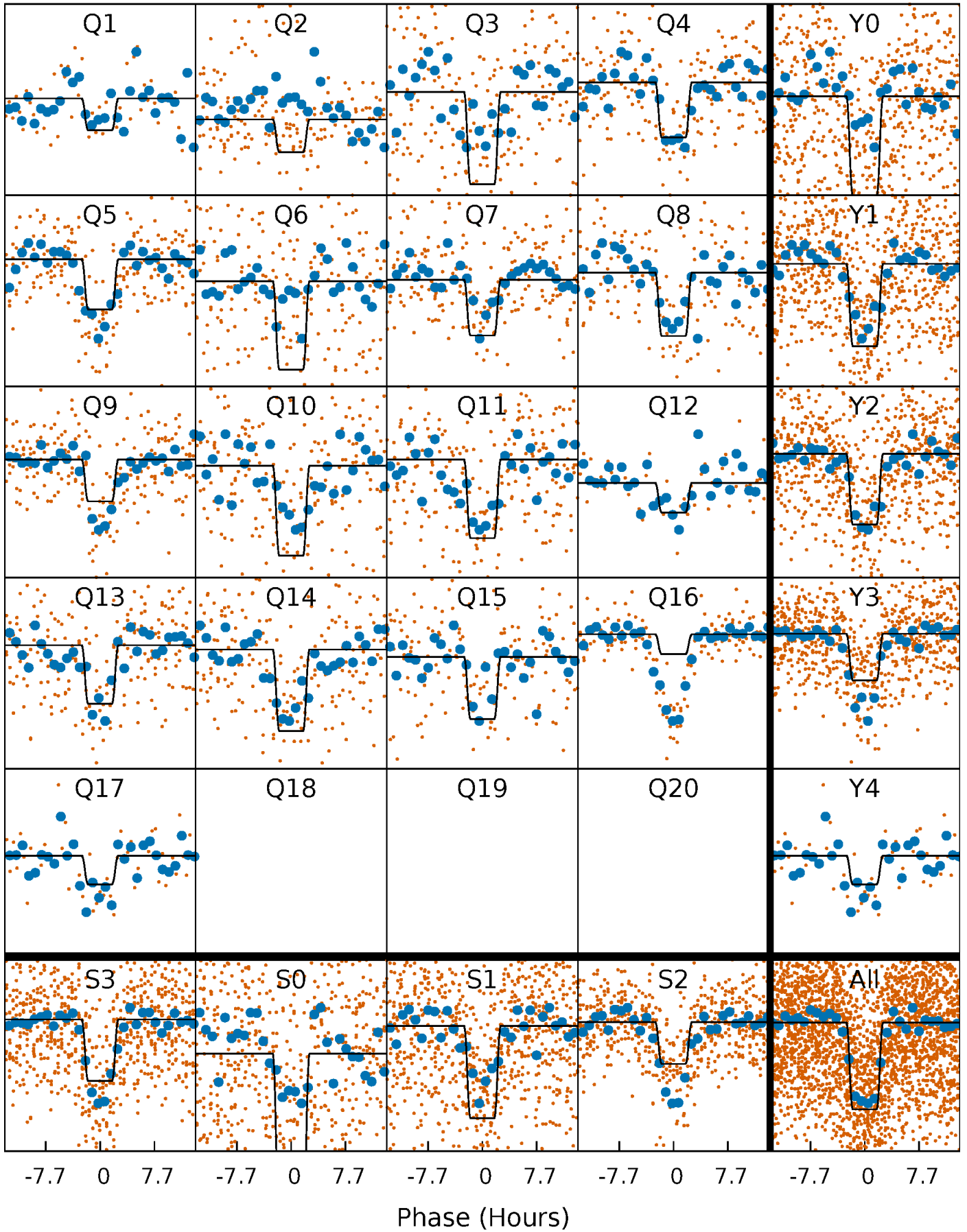
DV Quarter-Phased Transit Curves

TCE 004948730-02 P= 23.029431 Days $T_0=151.147950$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

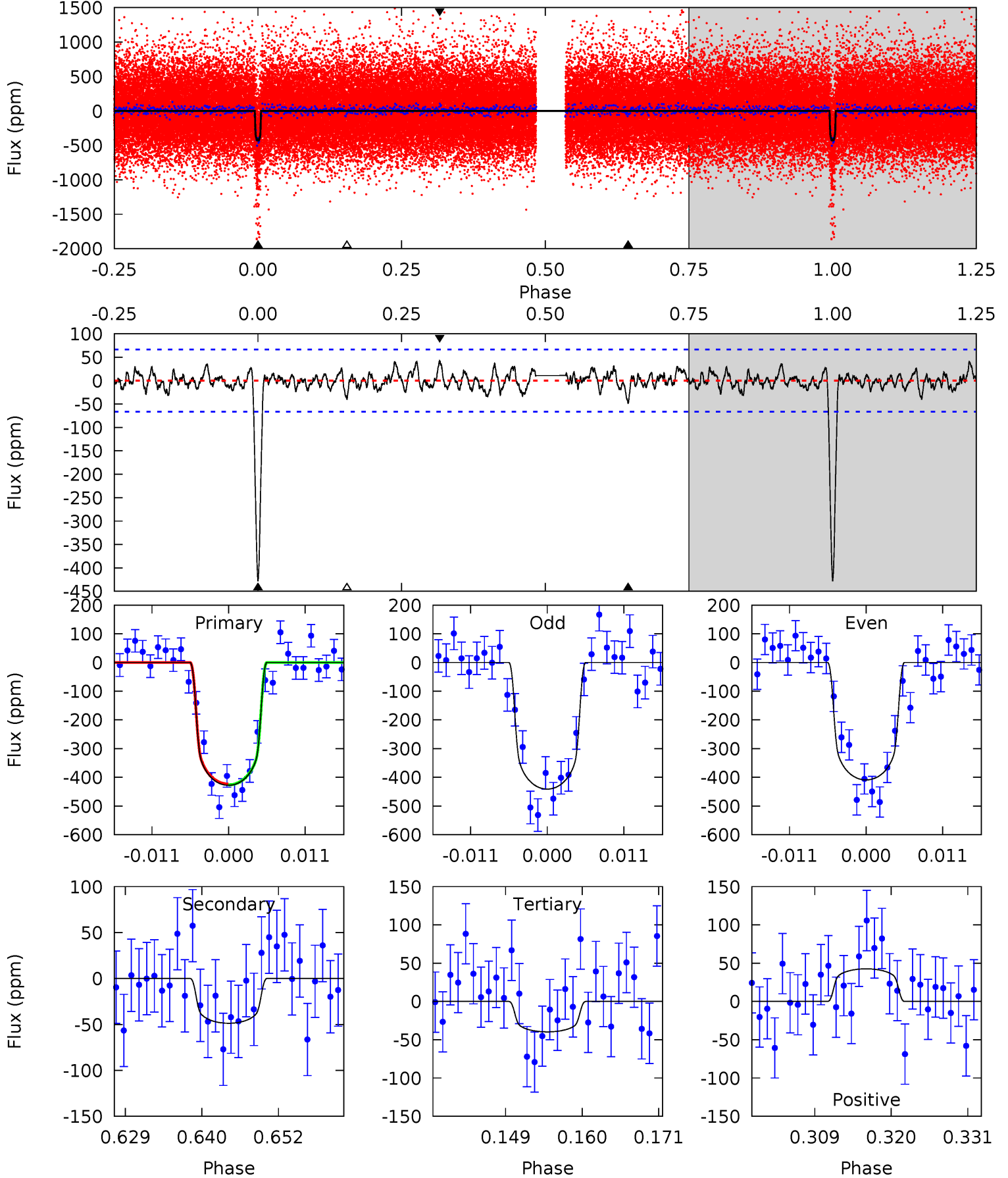
TCE 004948730-02 P= 23.029864 Days $T_0=151.133710$ (BKJD)



DV Model-Shift Uniqueness Test

004948730-02, P = 23.029431 Days, E = 128.118519 Days

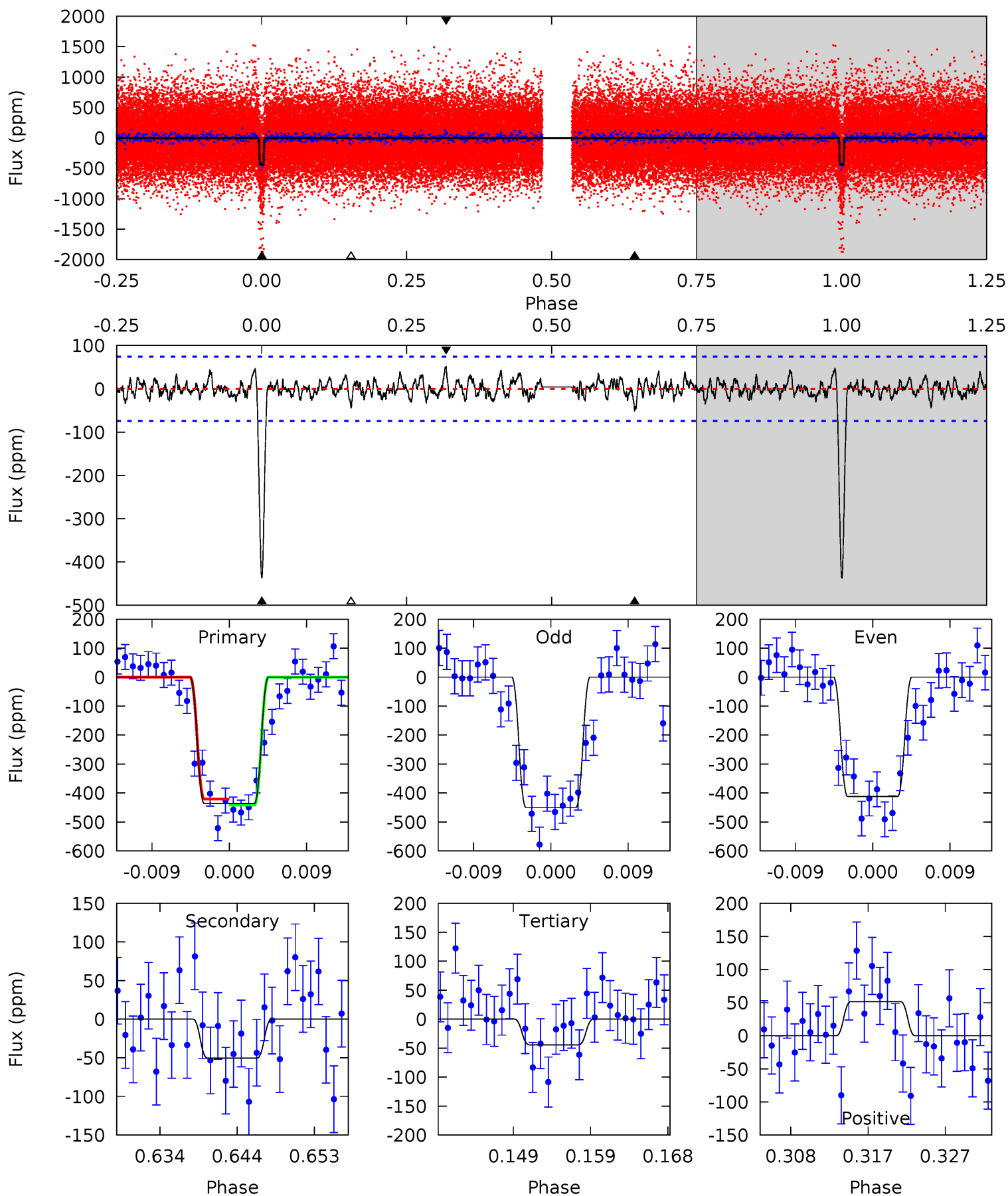
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.2	3.67	2.99	3.21	5.00	2.53	1.08	29.2	29.0	0.68	0.46	1.20	1.16	0.09	0.10



Alt Model-Shift Uniqueness Test

004948730-02, P = 23.029864 Days, E = 128.103846 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.6	3.41	2.99	3.50	5.04	2.60	1.04	26.6	26.1	0.42	-0.09	1.28	1.11	0.11	0.69



Stellar Parameters For KIC 004948730

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5877^{+159}_{-195}	$4.445^{+0.098}_{-0.196}$	$-0.200^{+0.300}_{-0.300}$	$0.959^{+0.281}_{-0.120}$	$0.936^{+0.121}_{-0.099}$	$1.495^{+0.552}_{-0.742}$
	+3%/-3%	+2%/-4%	+150%/-150%	+29%/-13%	+13%/-11%	+37%/-50%
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 004948730-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-49 ± 13	$2.28^{+0.43}_{-0.36}$	907^{+65}_{-46}	3736^{+261}_{-232}	122^{+62}_{-46}
Alt.	-50 ± 15	$2.44^{+0.47}_{-0.39}$	912^{+60}_{-47}	3691^{+258}_{-267}	110^{+58}_{-42}

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

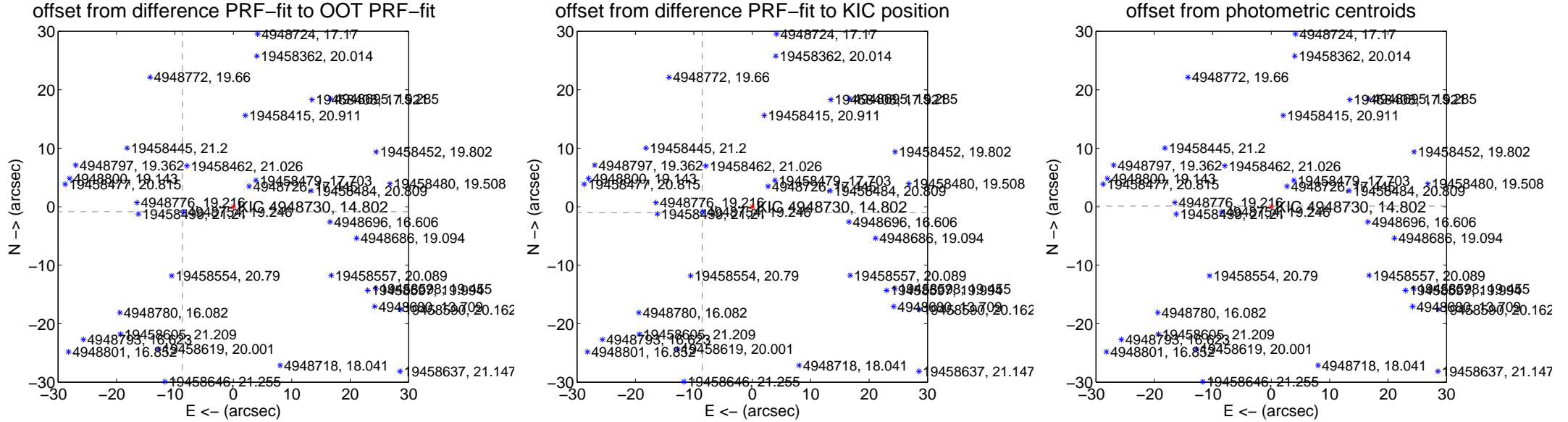
DV Centroid Data

Supplemental centroid analysis for 004948730-02. Kepler magnitude: 14.80. Transit SNR 22.50

There are 13 quarters with good PRF difference image offsets

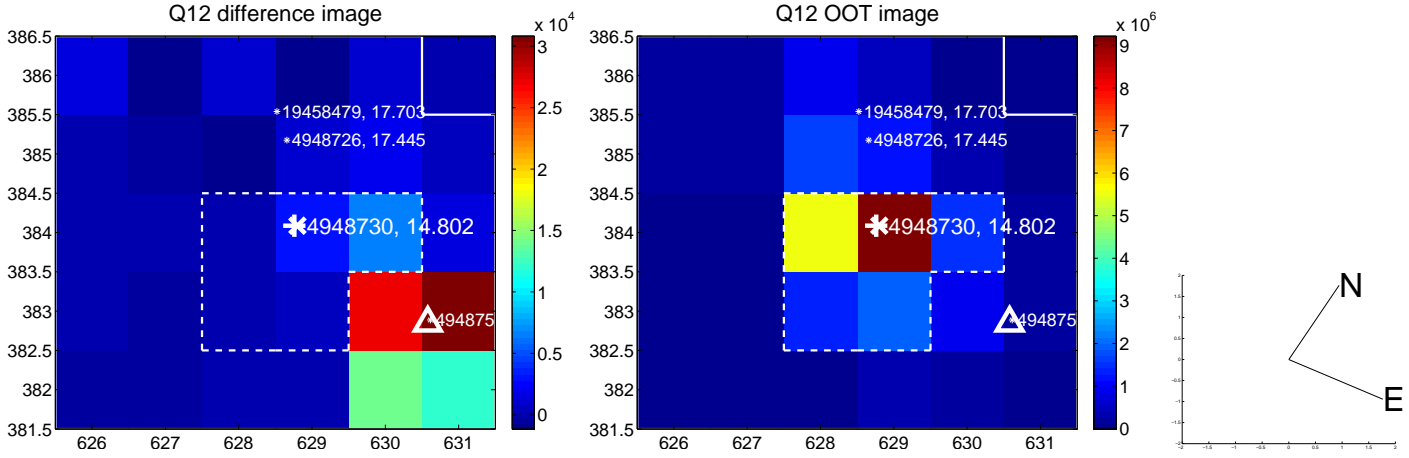
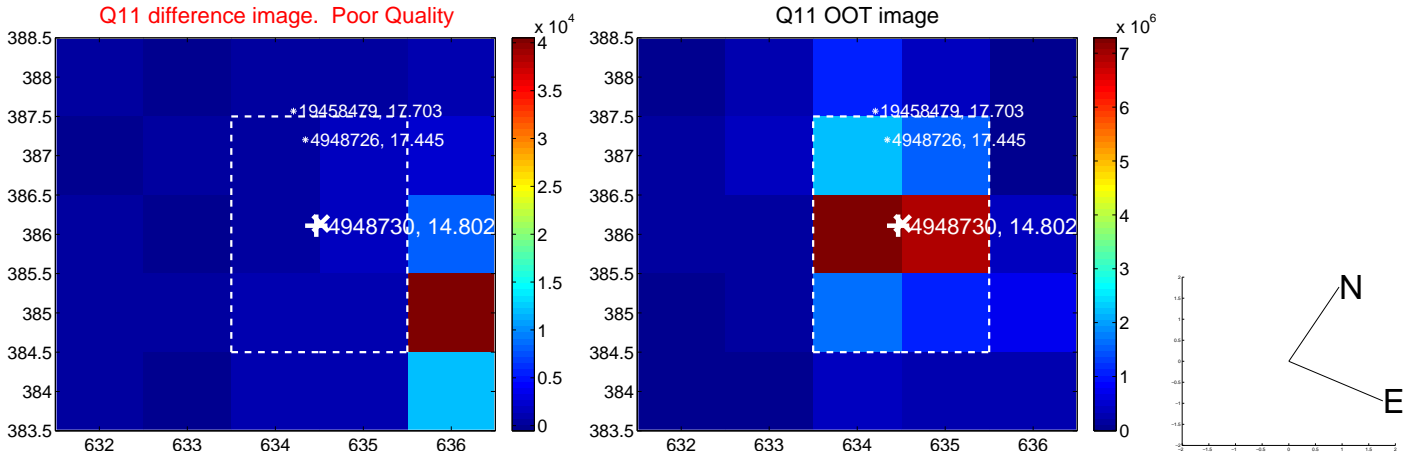
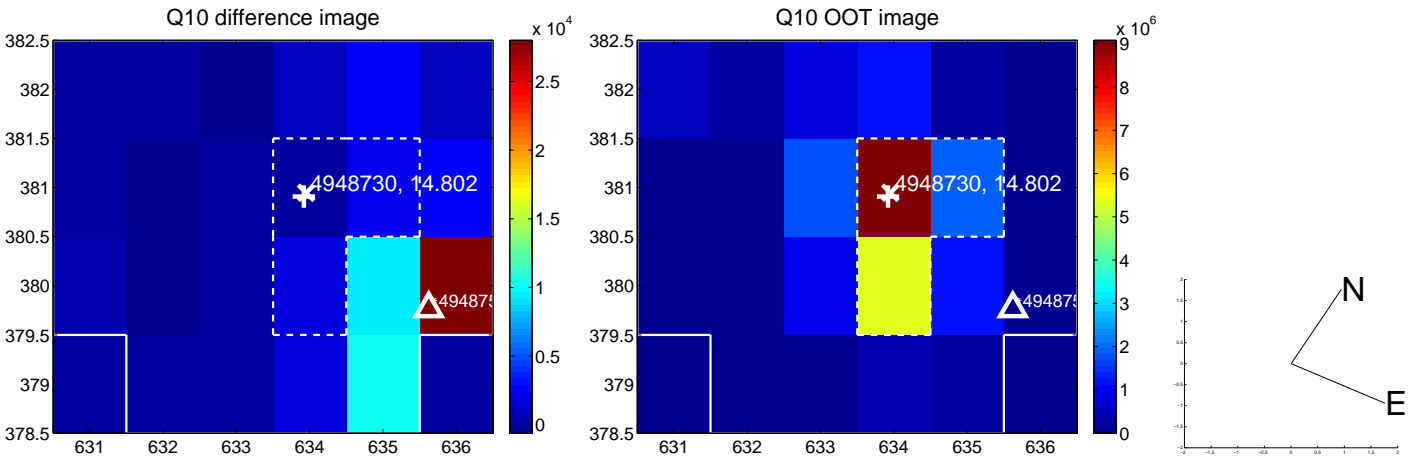
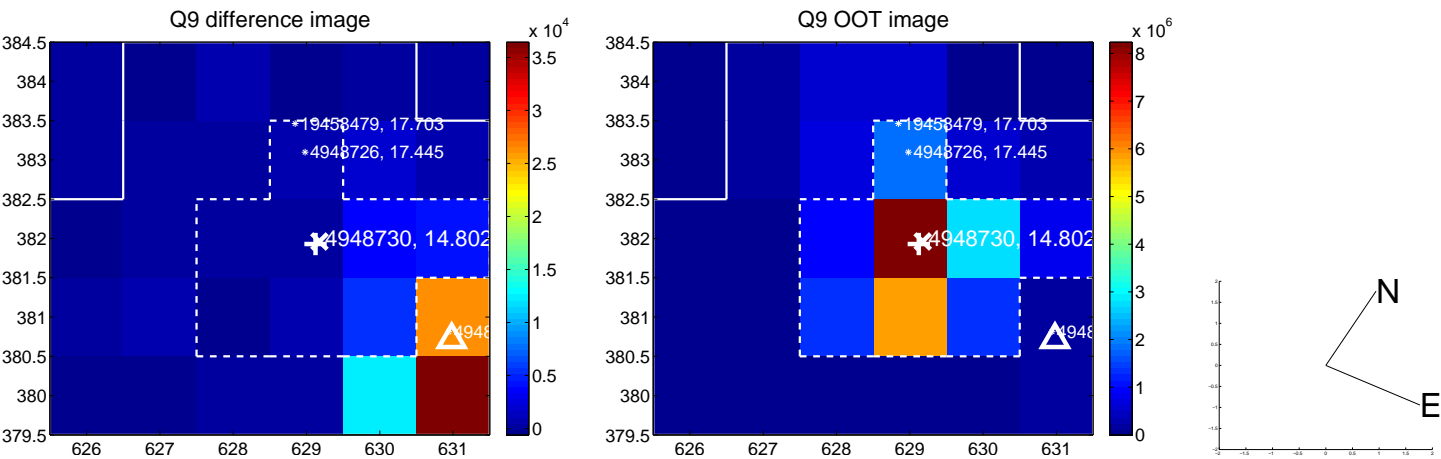
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.751 \pm 0.096	90.88	8.710 \pm 0.096	-0.843 \pm 0.069
PRF-fit source offset from KIC position	8.648 \pm 0.089	97.40	8.588 \pm 0.088	-1.021 \pm 0.068
photometric centroid source offset	52.28 \pm 0.73	71.92	52.28 \pm 0.73	0.12 \pm 0.69

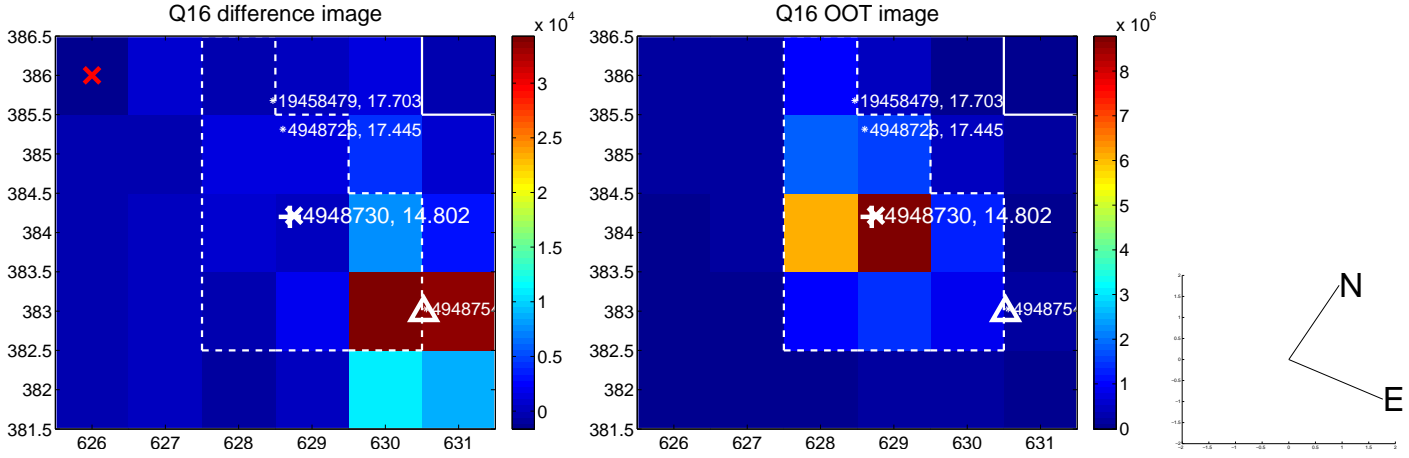
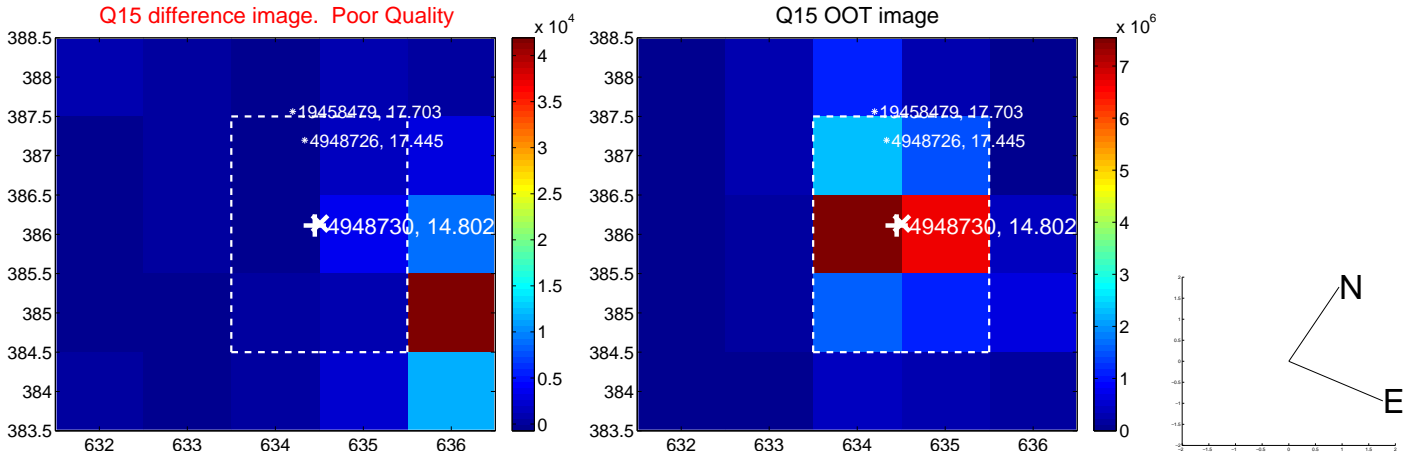
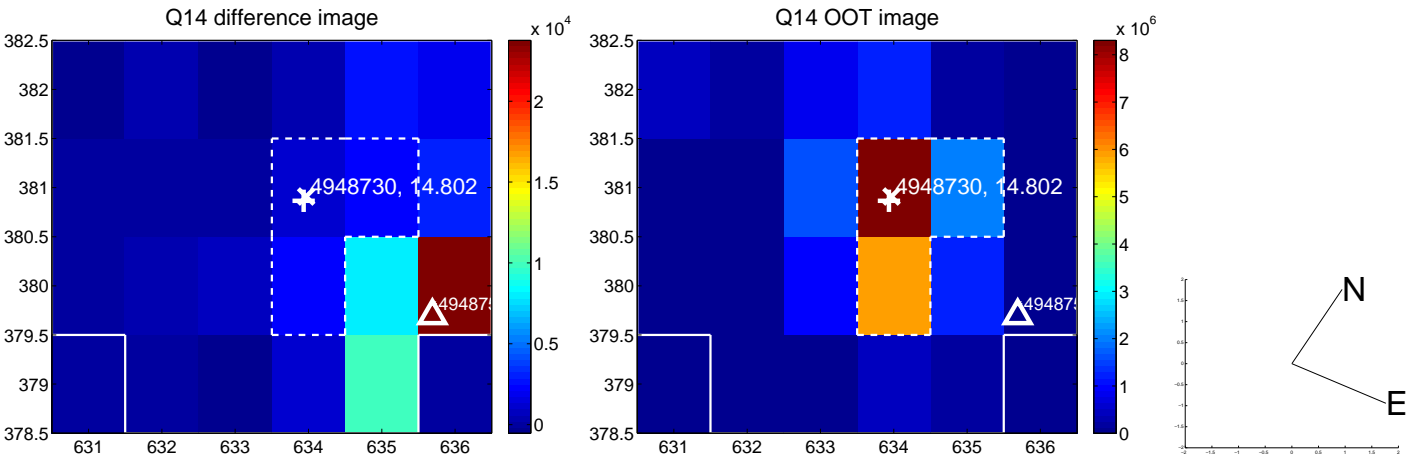
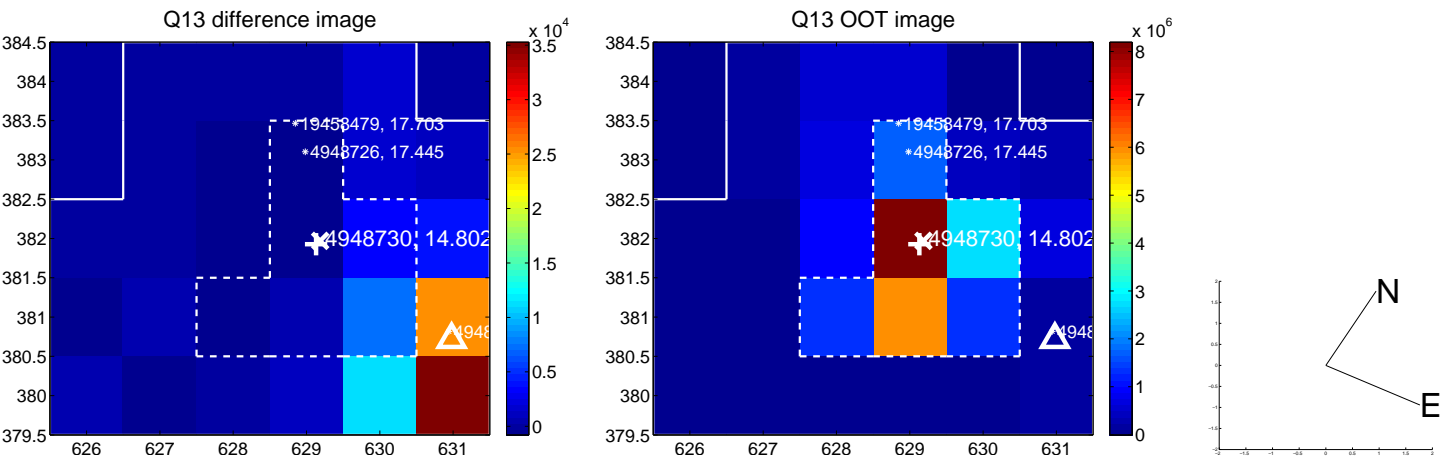


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

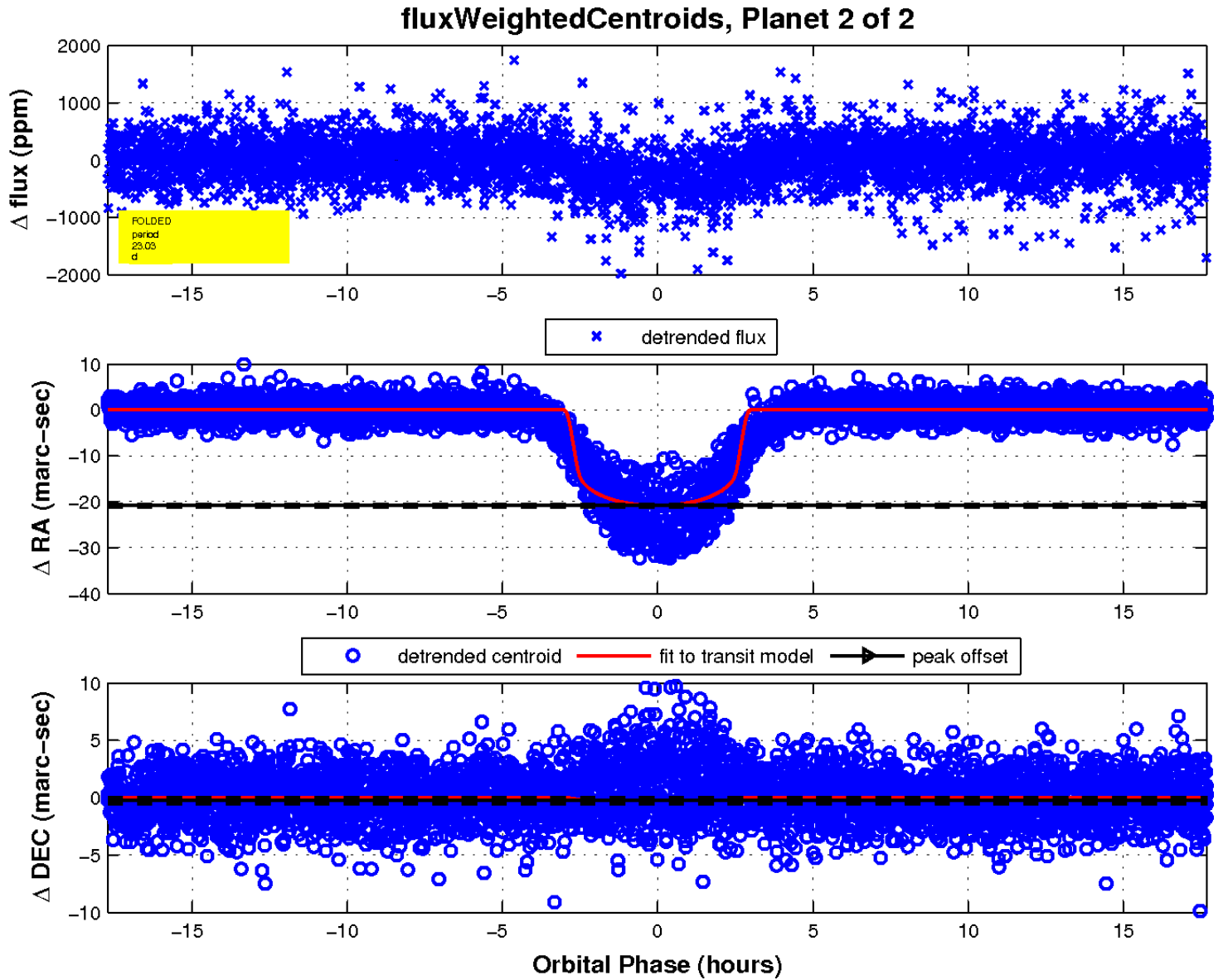
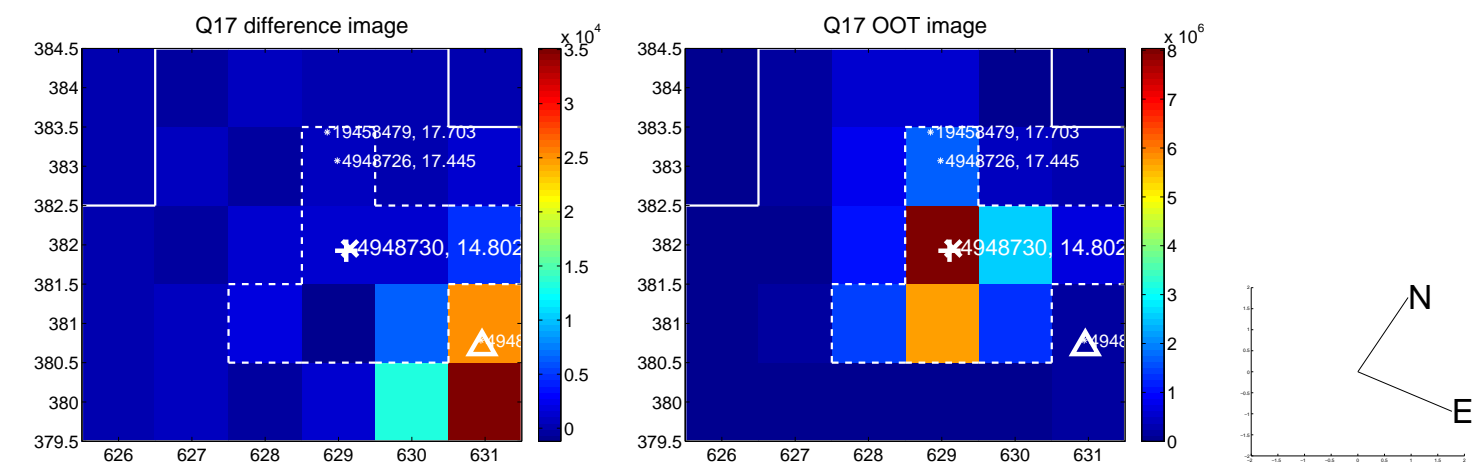
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

