

KIC 008226050

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})
008226050-01	OBS	1910.01	34.268610	147.049435	691.5	4.846	27.8	30.6	0.87	5083	2.47	12.22
008226050-02	OBS	1910.02	18.384682	135.479859	154.2	3.460	7.8	8.6	0.87	5083	1.36	28.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008226050-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
008226050-02	OBS	PC	0.95	0	0	0	0	NO_COMMENT

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.

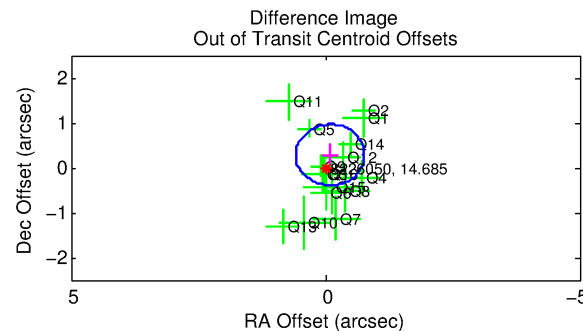
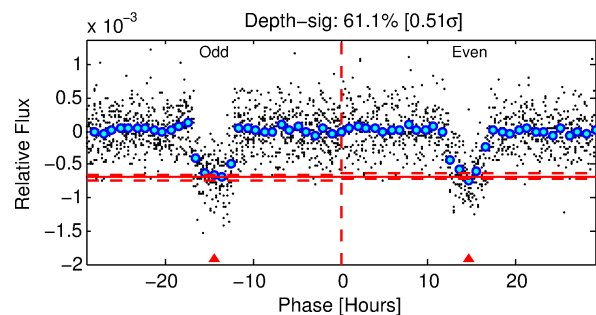
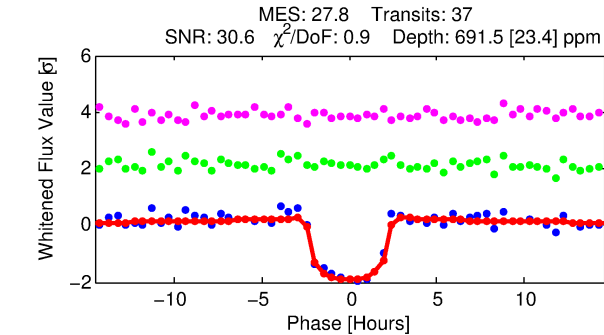
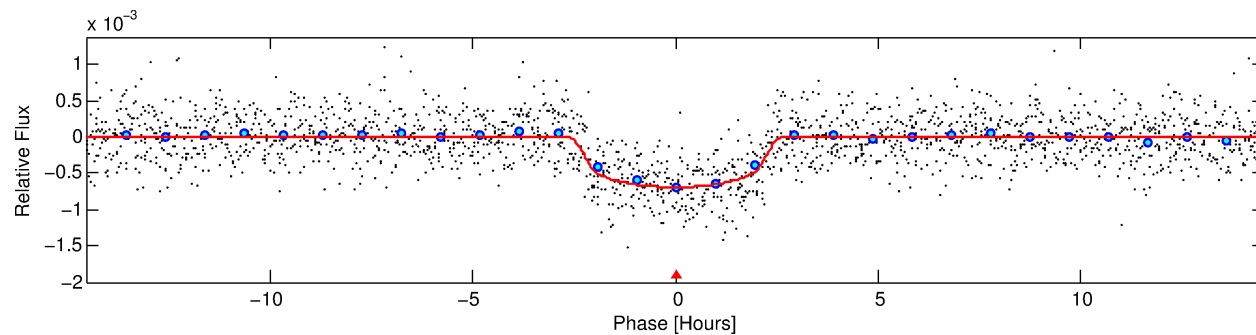
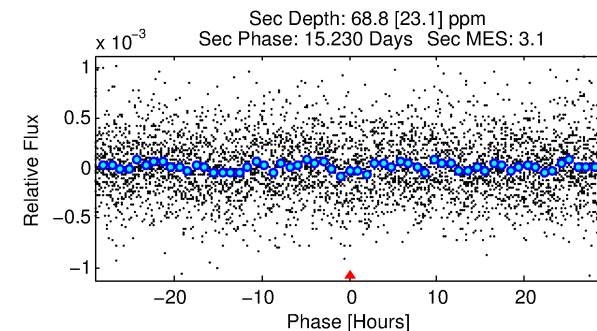
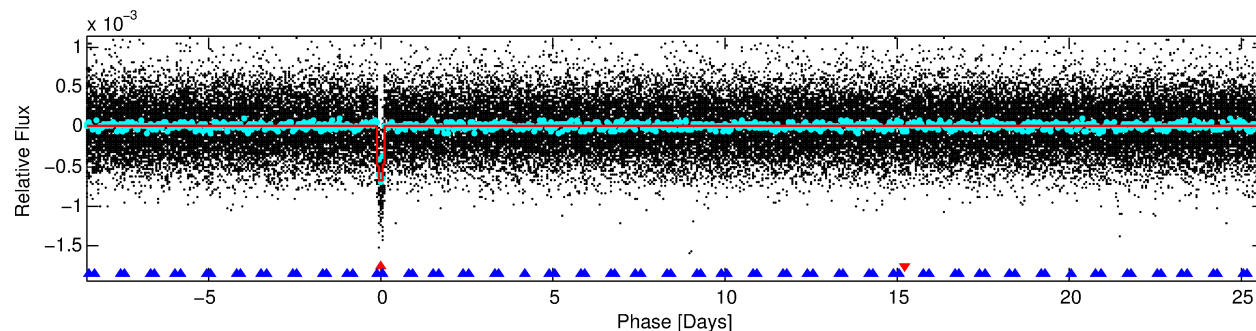
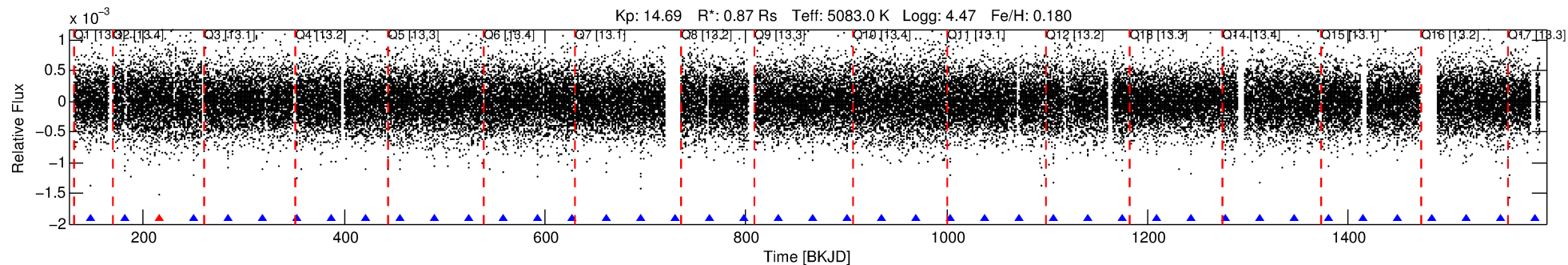
Ephemeris Match Information For 008226050-01

No Significant Match Found

DV One-Page Summary

KIC: 8226050 Candidate: 1 of 2 Period: 34.269 d

KOI: K01910.01 Corr: 0.990



DV Fit Results:

Period = 34.26861 [0.00012] d
Epoch = 147.0494 [0.0030] BKJD
Rp/R* = 0.0259 [0.0071]
a/R* = 39.37 [37.77]
b = 0.72 [0.65]
Seff = 12.22 [1.95]
Teff = 477 [19] K
Rp = 2.47 [0.70] Re
a = 0.1929 [0.0168] AU
Ag = 231.22 [151.71] [1.52σ]
Teffp = 2875 [462] K [5.18σ]

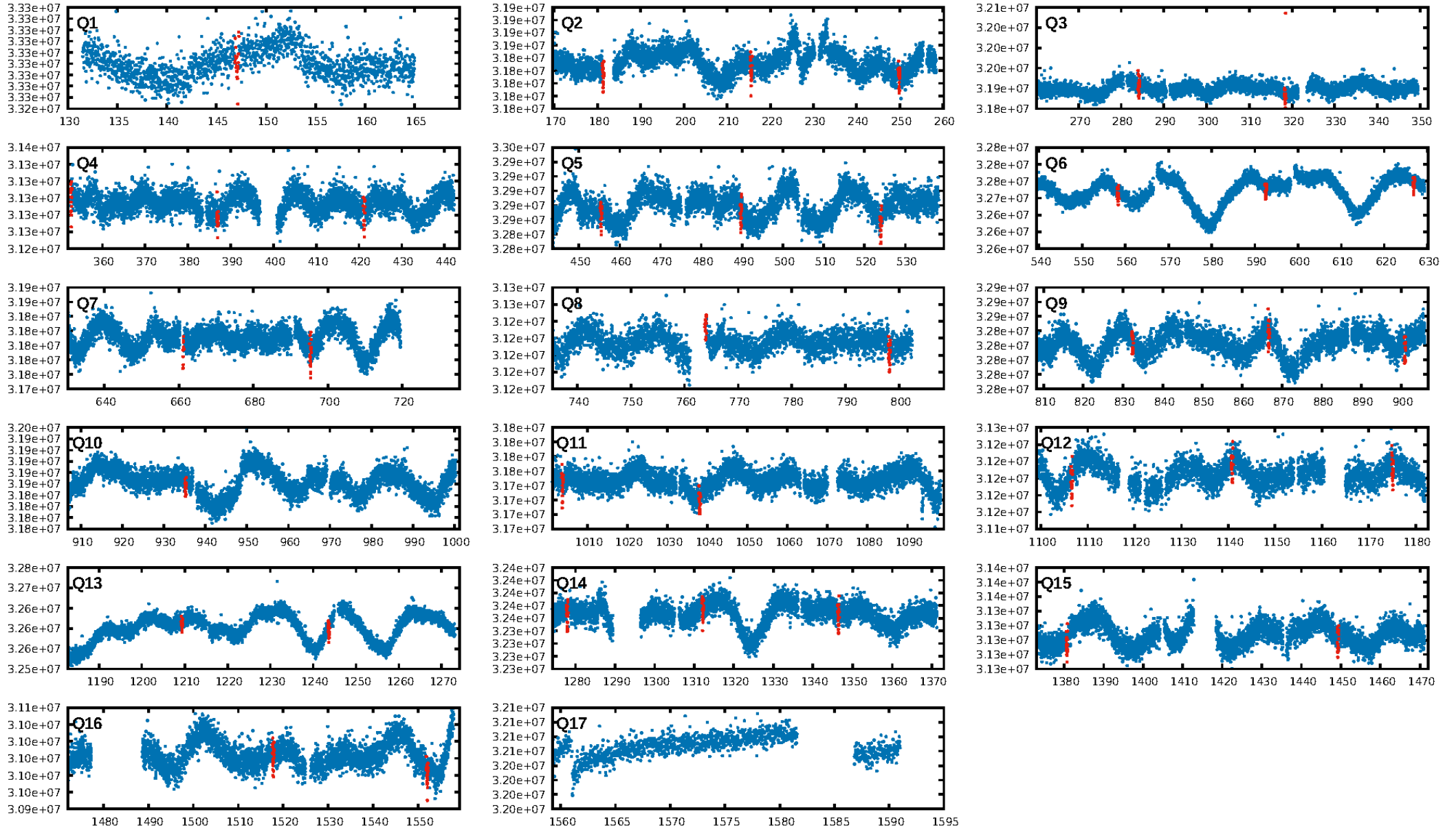
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [64.02σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 68.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.13e-158
RollingBand-fgt: 0.97 [35/36]
GhostDiagnostic-chr: 4.574
Centroid-sig: 24.7%
Centroid-so: 0.433 arcsec [1.05σ]
OotOffset-rm: 0.300 arcsec [1.33σ]
KicOffset-rm: 0.419 arcsec [1.87σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

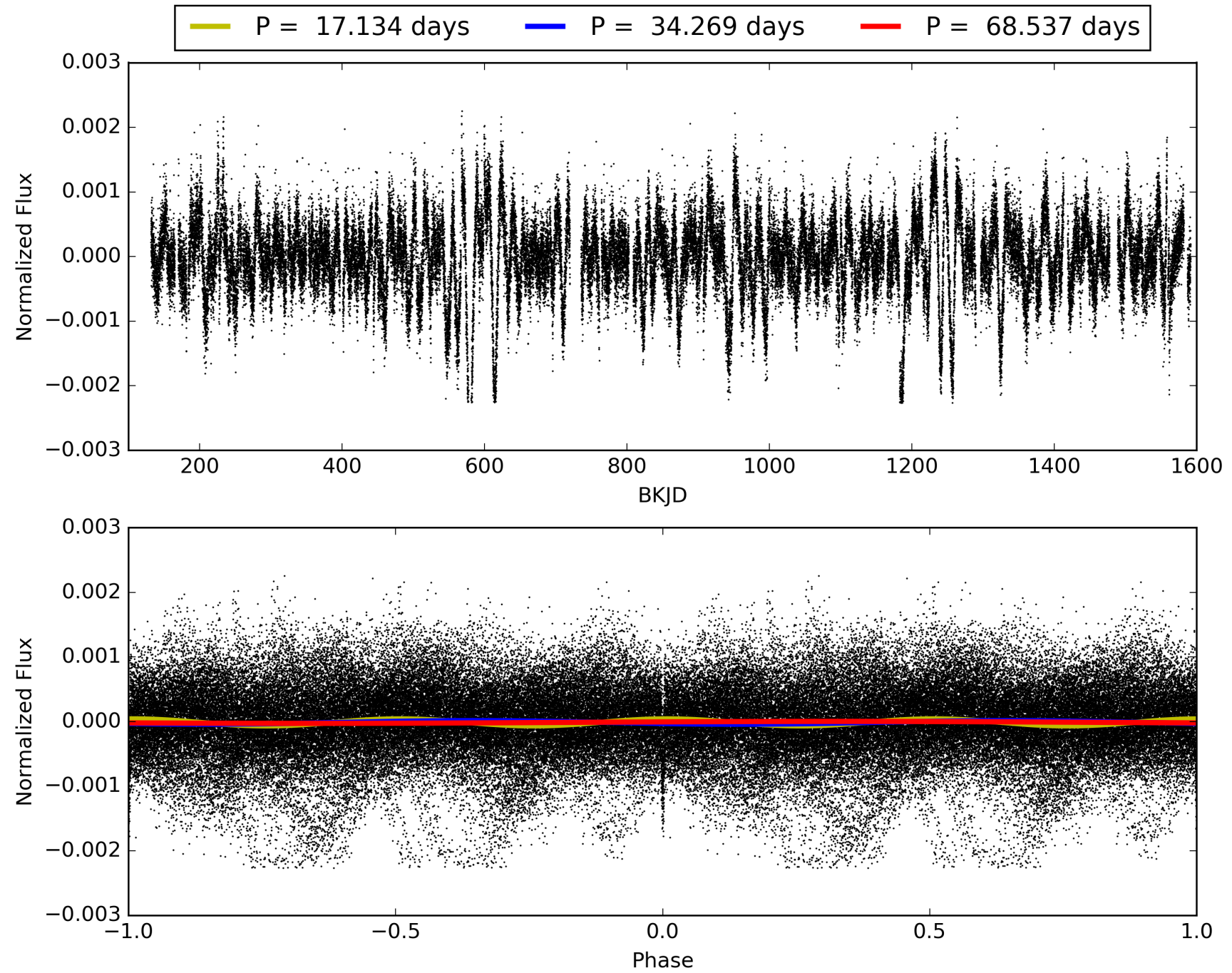
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:19:50 Z

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

TCE 008226050-01, PDC Light Curves

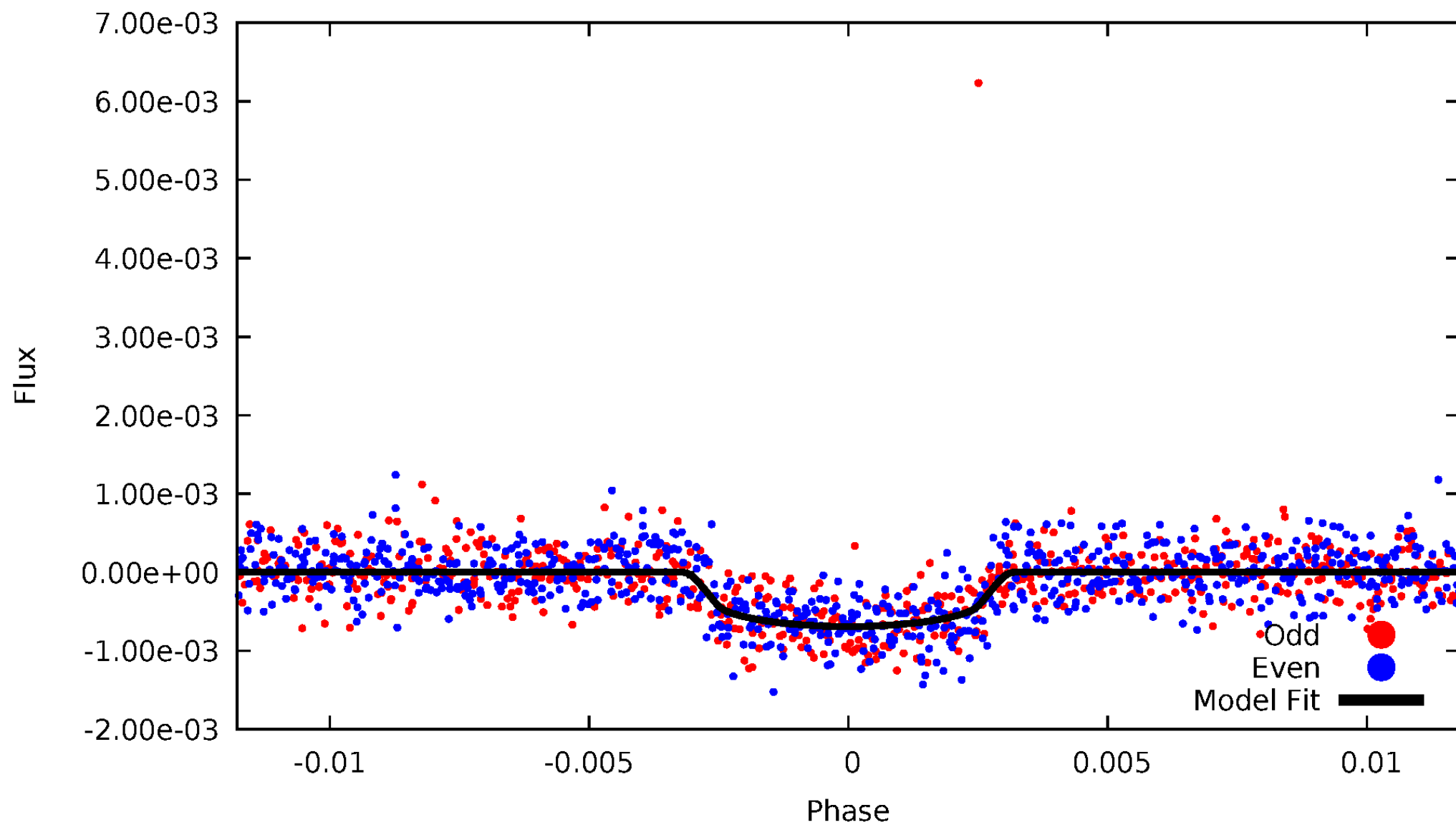


TCE 008226050-01



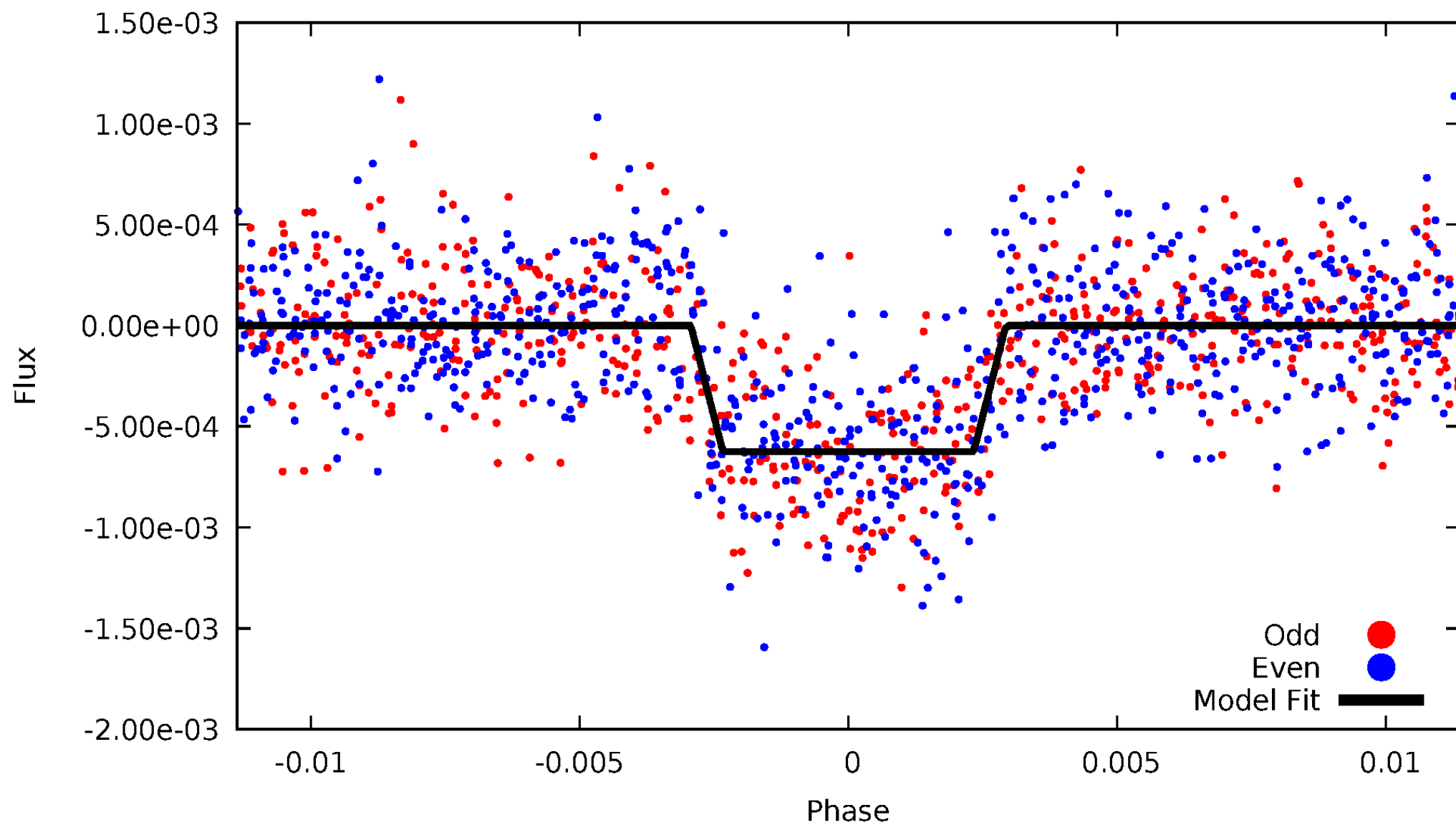
DV Odd/Even

TCE 008226050-01



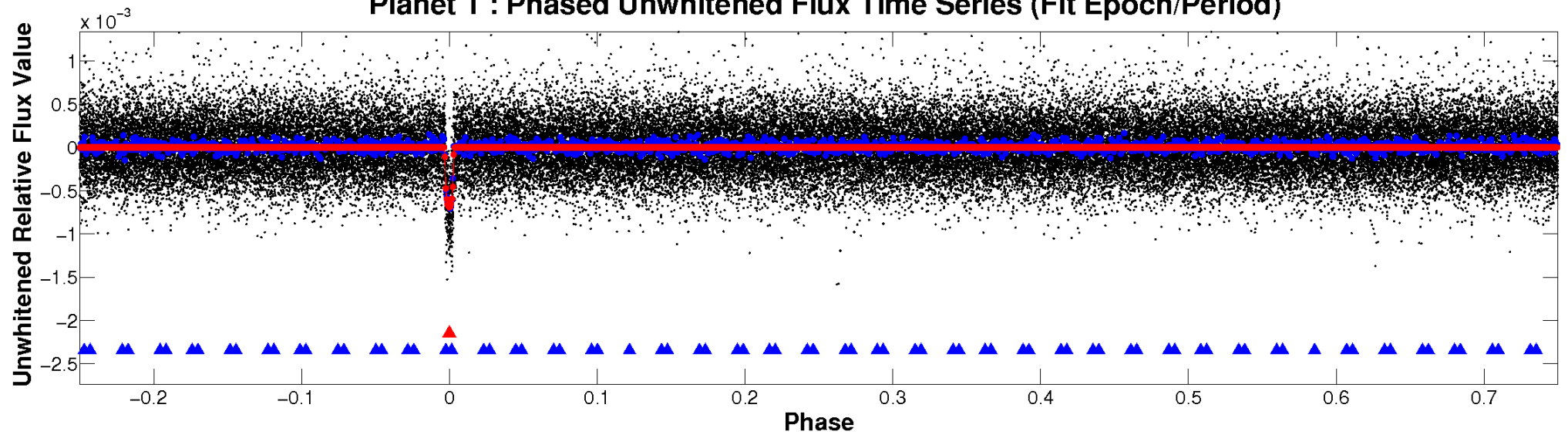
ALT Odd/Even

TCE 008226050-01

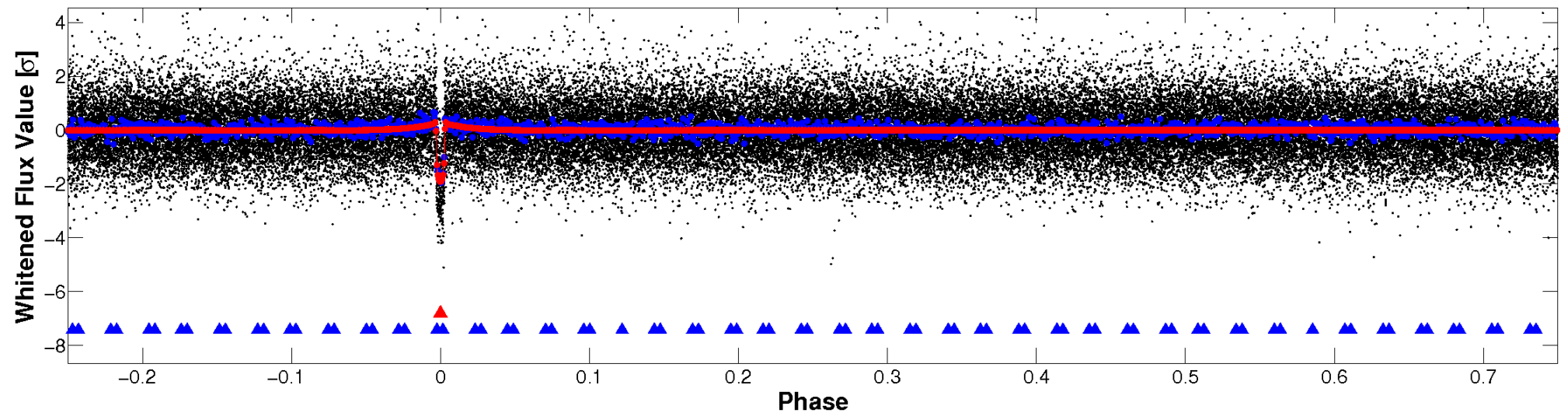


Non-Whitened Vs. Whitened Light Curve

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

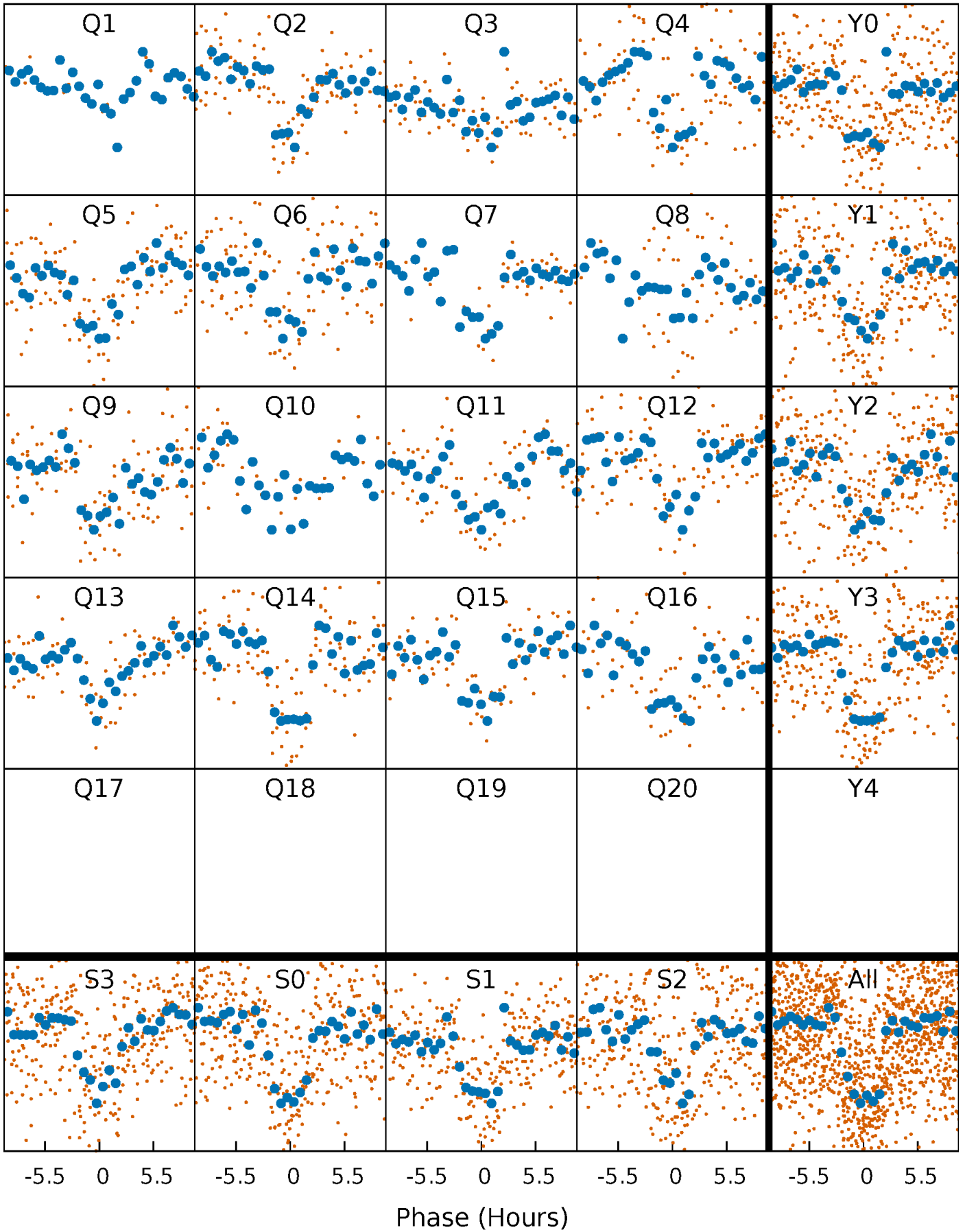


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



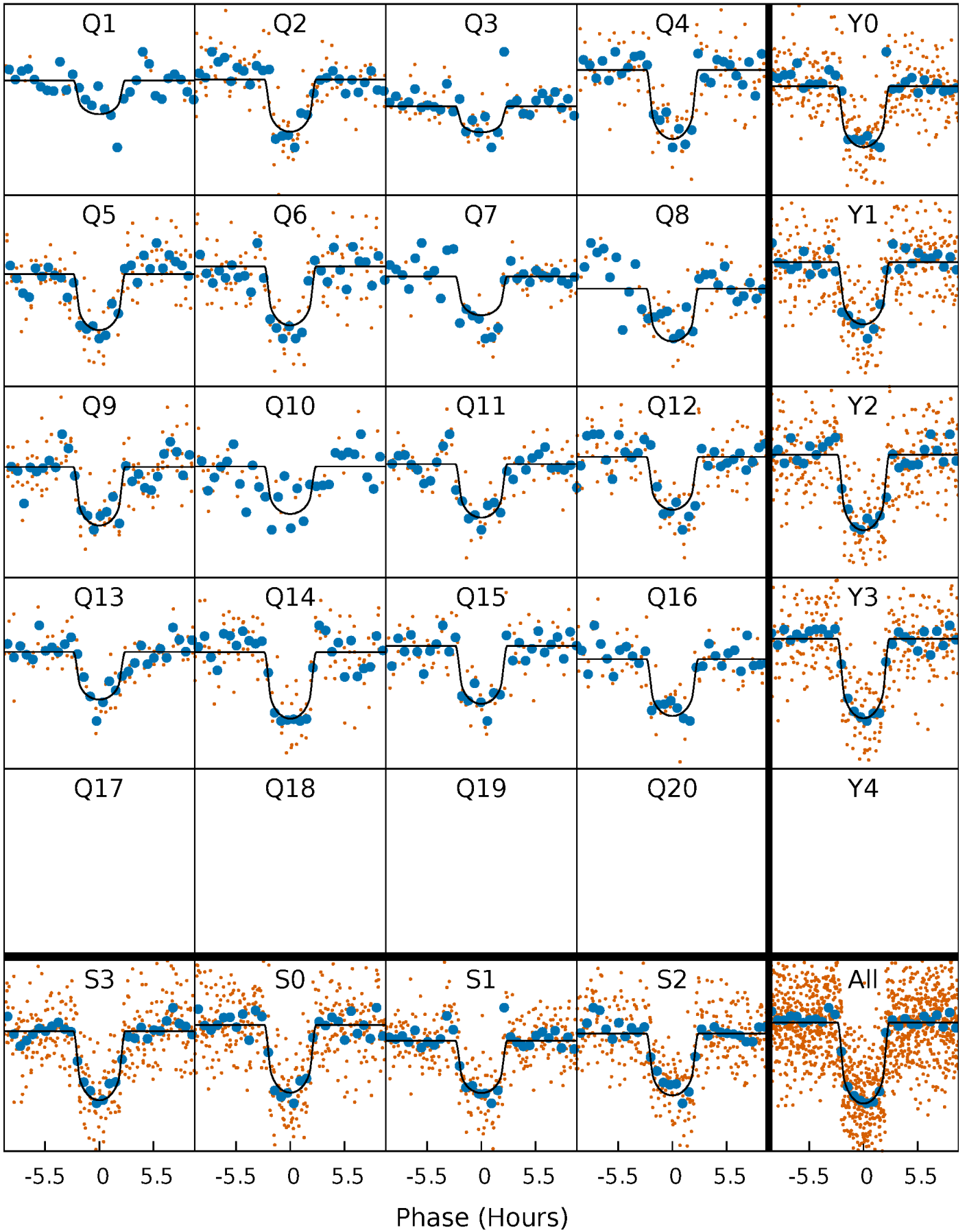
PDC Quarter-Phased Transit Curves

TCE 008226050-01 P= 34.268610 Days $T_0=147.049435$ (BKJD)



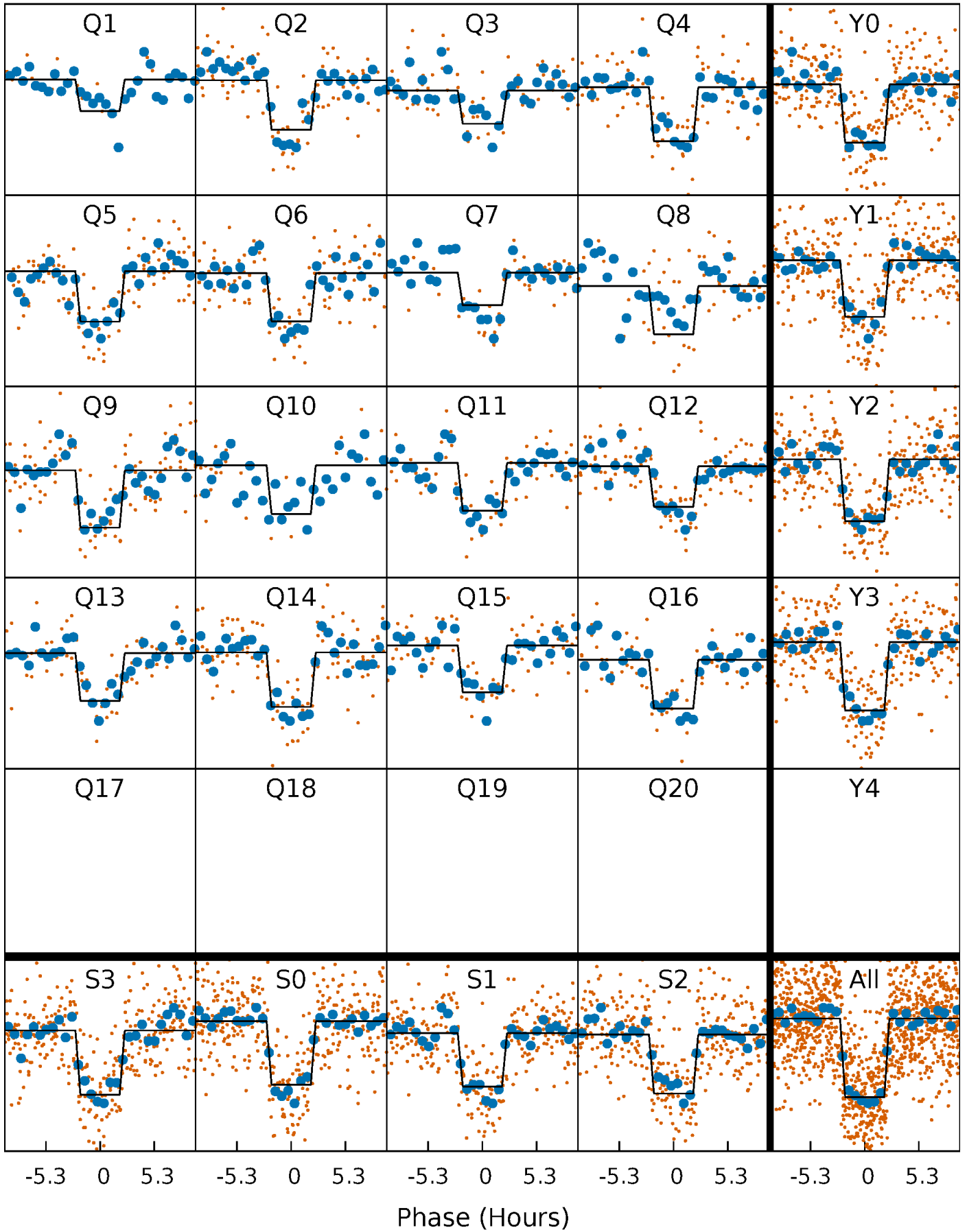
DV Quarter-Phased Transit Curves

TCE 008226050-01 P= 34.268610 Days $T_0=147.049435$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

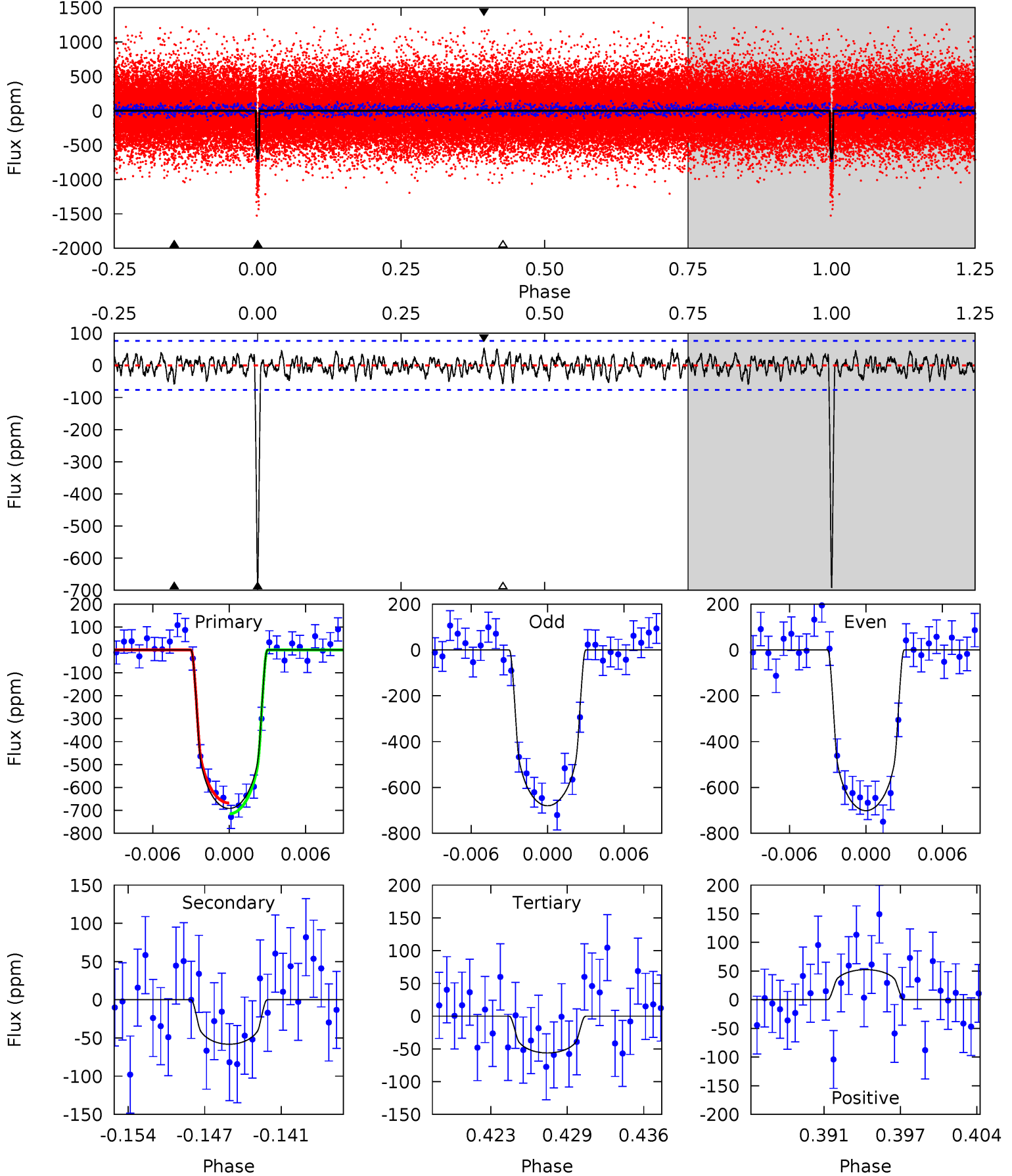
TCE 008226050-01 P= 34.268459 Days $T_0=147.053889$ (BKJD)



DV Model-Shift Uniqueness Test

008226050-01, $P = 34.268610$ Days, $E = 112.780825$ Days

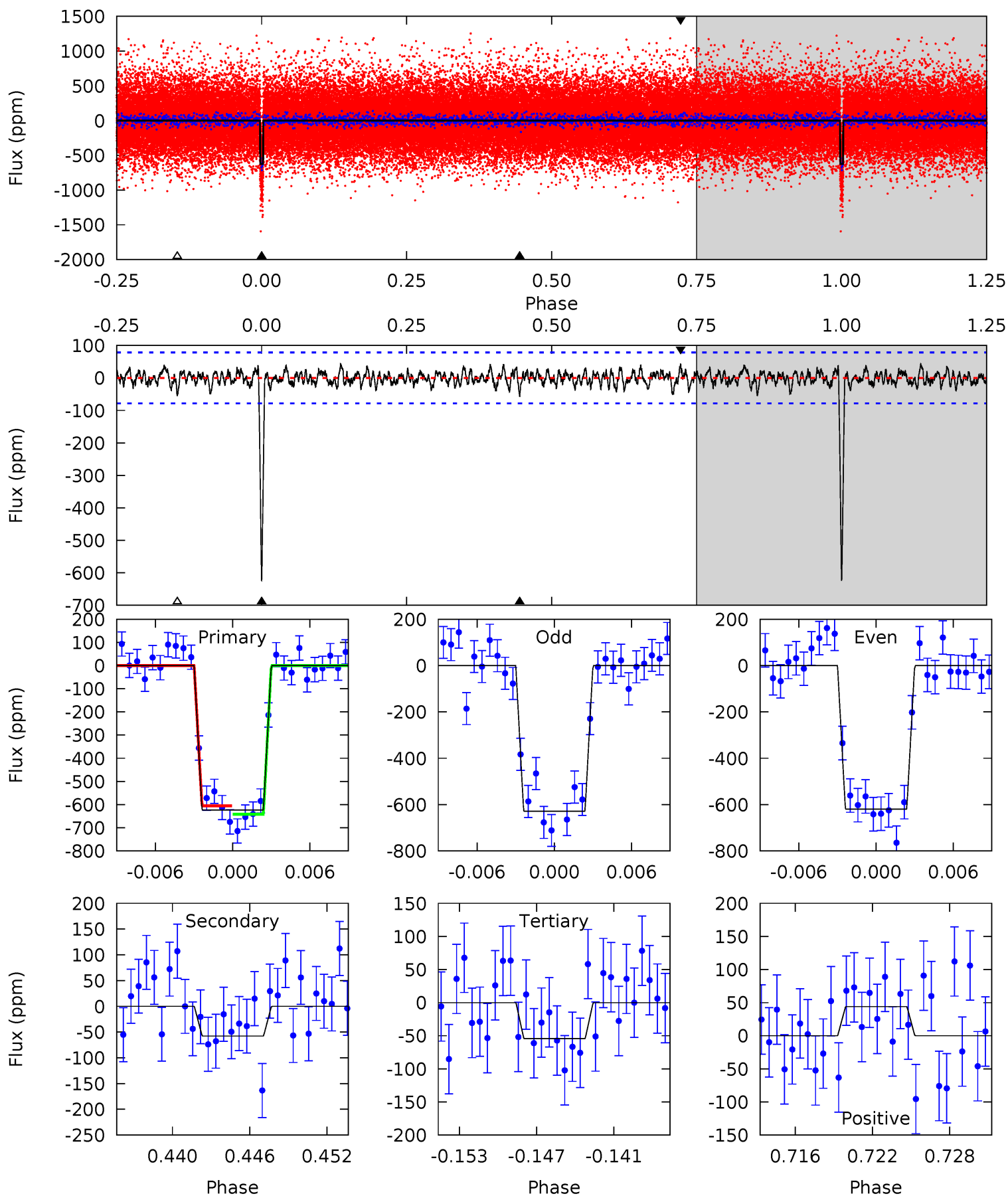
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.4	3.90	3.77	3.52	5.11	2.73	1.33	42.6	42.9	0.13	0.38	0.71	0.96	0.07	1.59



Alt Model-Shift Uniqueness Test

008226050-01, P = 34.268459 Days, E = 112.785430 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.9	3.78	3.55	2.88	5.13	2.75	1.09	37.3	38.0	0.22	0.90	0.28	0.94	0.07	1.19



Stellar Parameters For KIC 008226050

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5083^{+83}_{-76}	$4.468^{+0.088}_{-0.033}$	$0.180^{+0.150}_{-0.150}$	$0.872^{+0.042}_{-0.072}$	$0.815^{+0.053}_{-0.028}$	$1.730^{+0.547}_{-0.192}$
	+2%/-1%	+2%/-1%	+83%/-83%	+5%/-8%	+7%/-3%	+32%/-11%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 008226050-01 / KOI 1910.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-58 ± 15	$2.39^{+0.69}_{-0.67}$	661^{+15}_{-17}	3284^{+390}_{-258}	204^{+211}_{-90}
Alt.	-58 ± 15	$2.34^{+0.71}_{-0.67}$	663^{+15}_{-16}	3318^{+380}_{-269}	219^{+214}_{-100}

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

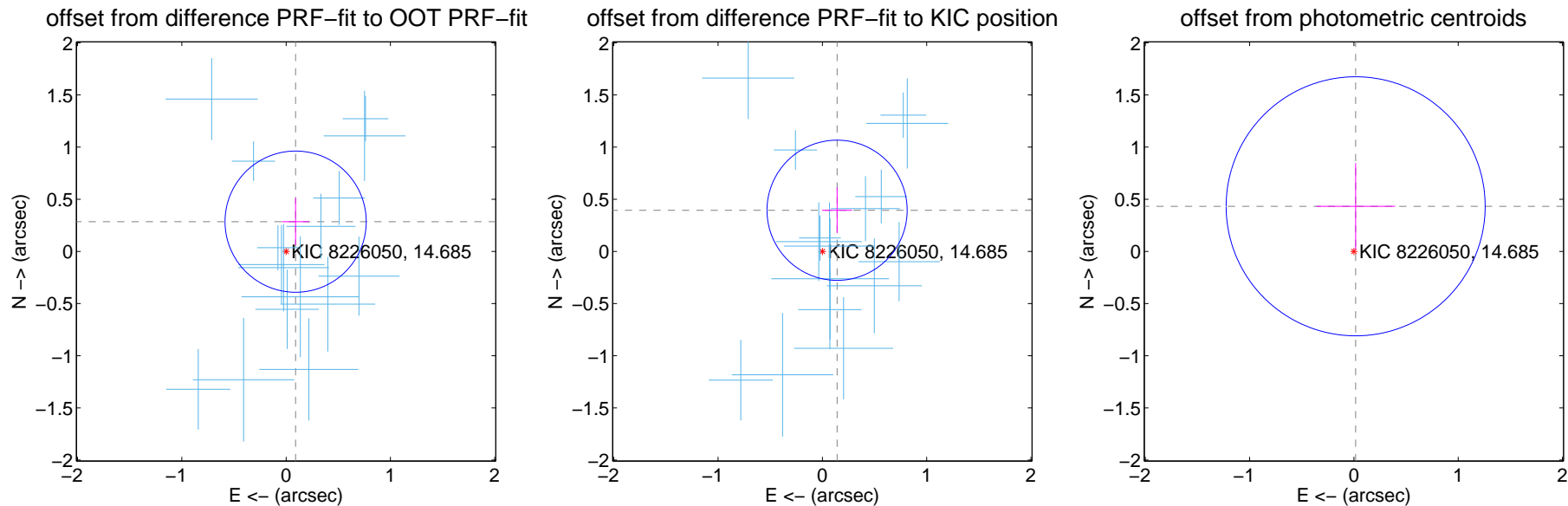
DV Centroid Data

Supplemental centroid analysis for 008226050-01. Kepler magnitude: 14.69. Transit SNR 30.57

There are 16 quarters with good PRF difference image offsets

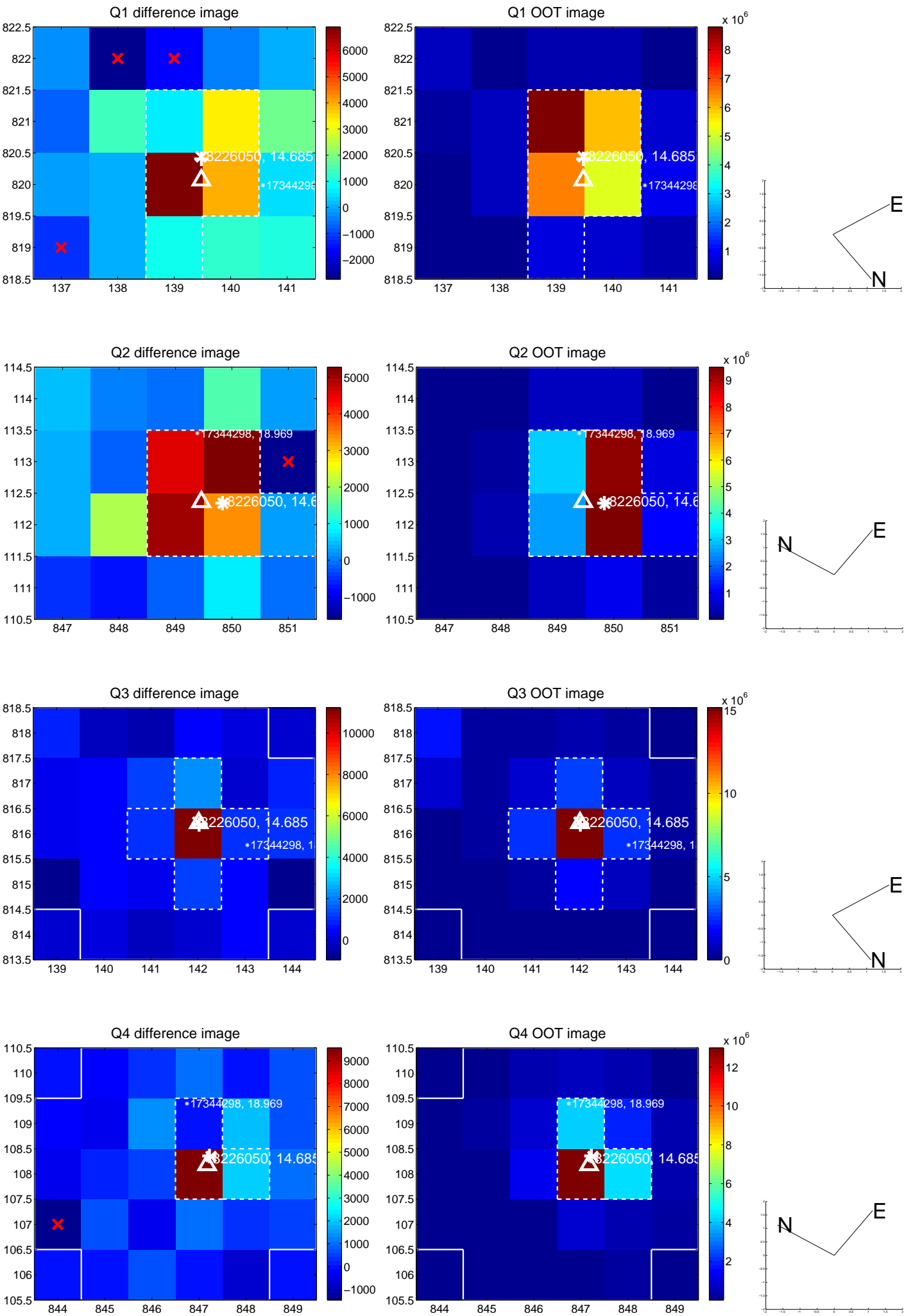
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.300 ± 0.226	1.33	-0.091 ± 0.132	0.285 ± 0.226
PRF-fit source offset from KIC position	0.419 ± 0.224	1.87	-0.141 ± 0.143	0.395 ± 0.220
photometric centroid source offset	0.43 ± 0.41	1.05	-0.02 ± 0.38	0.43 ± 0.41

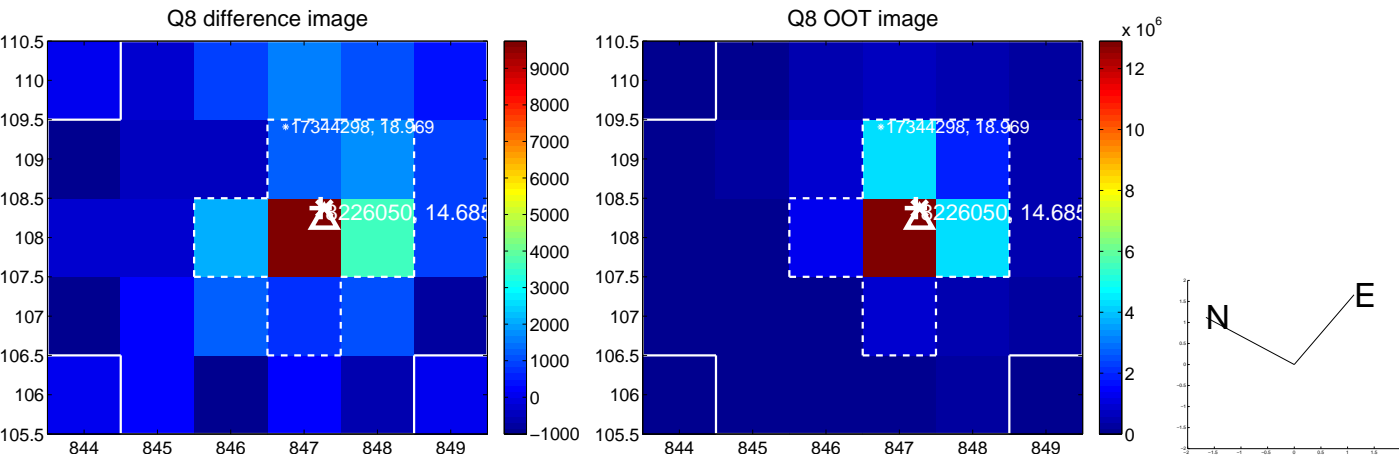
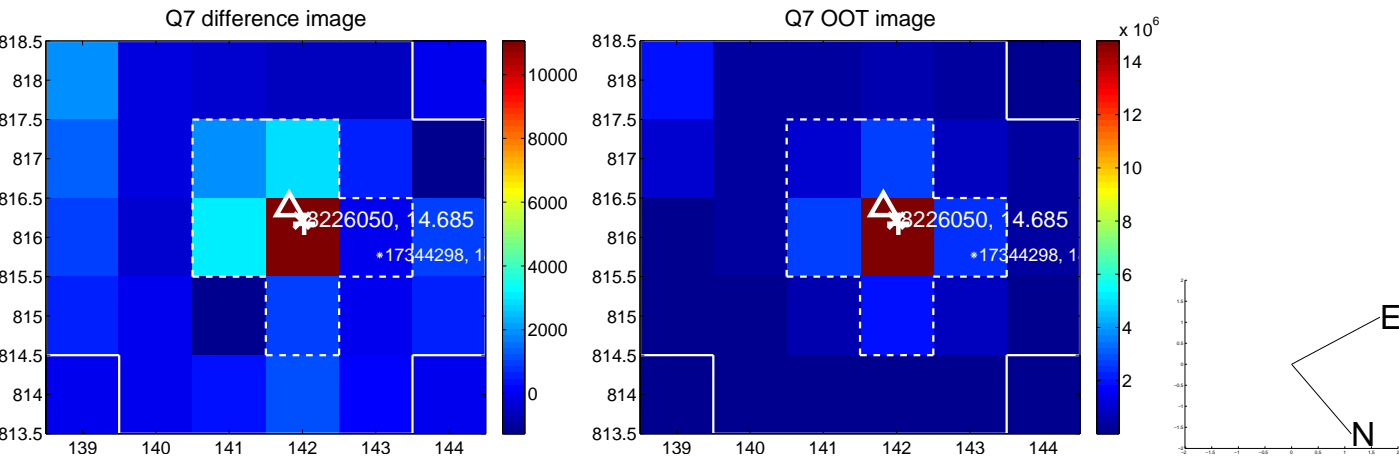
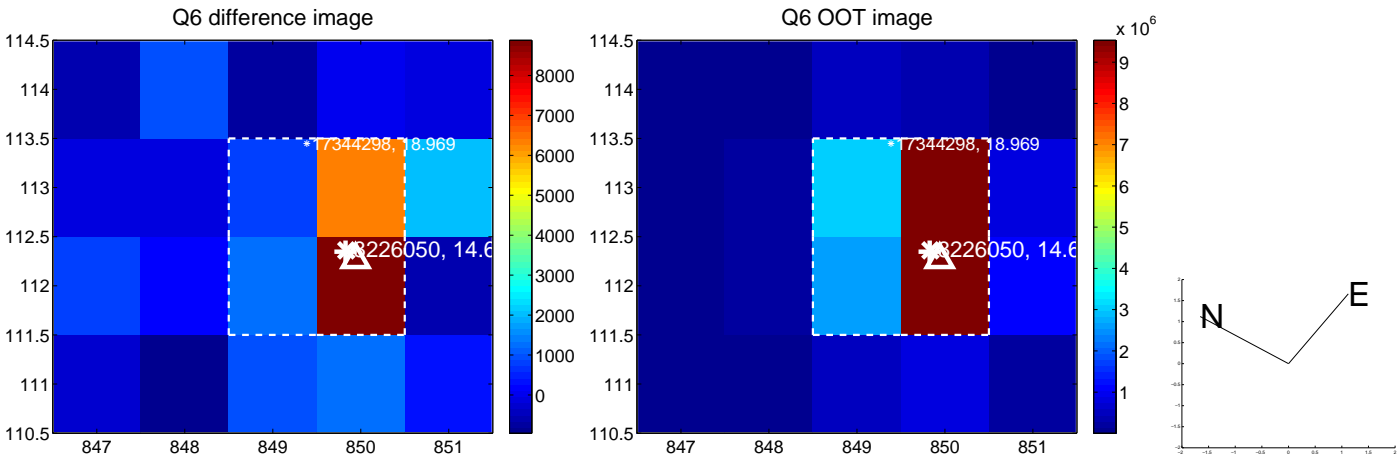
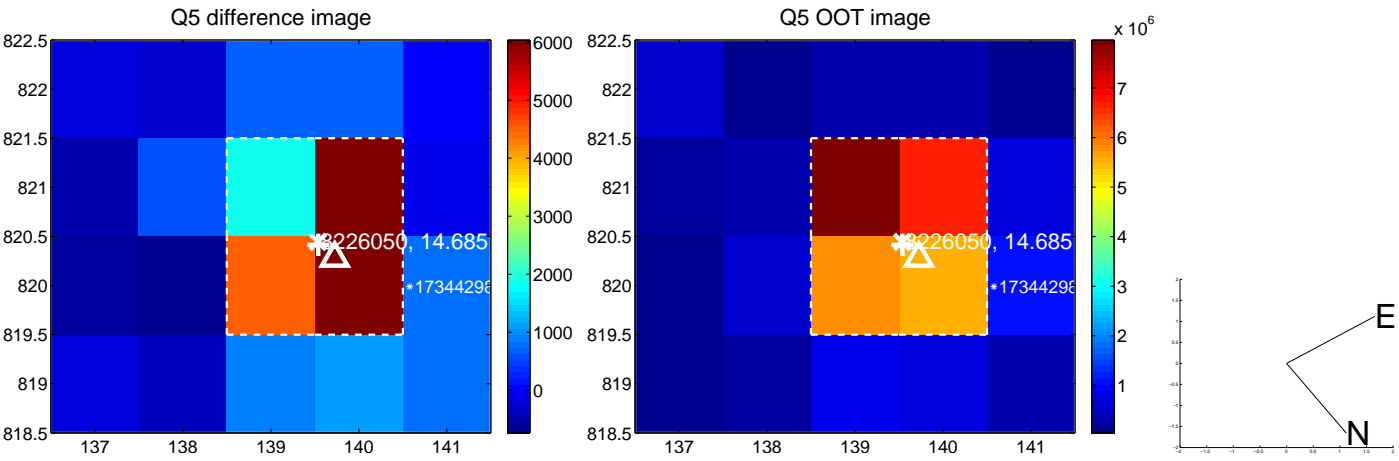


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

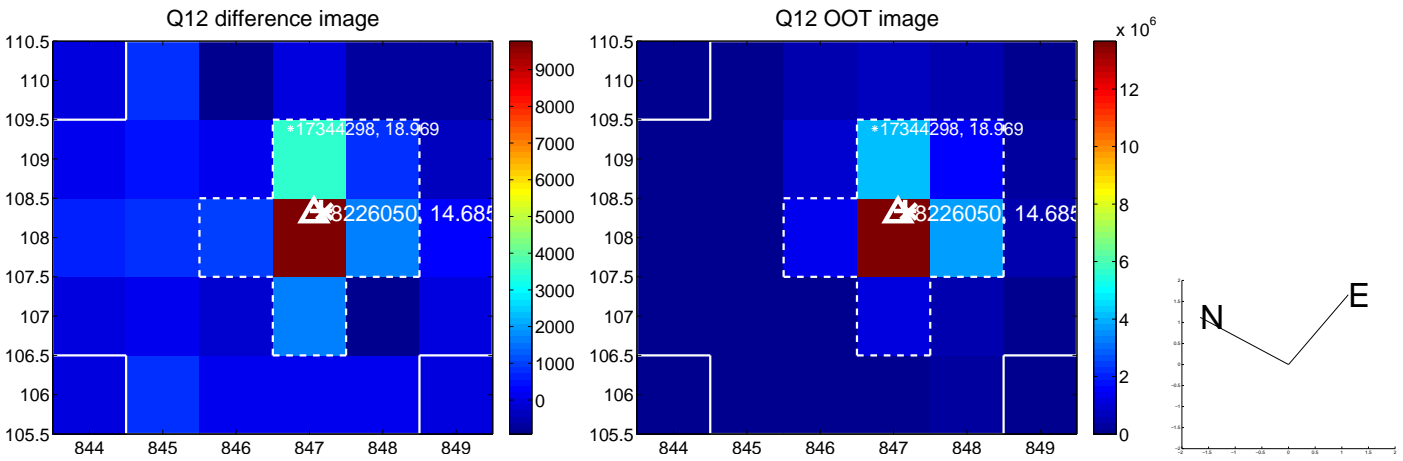
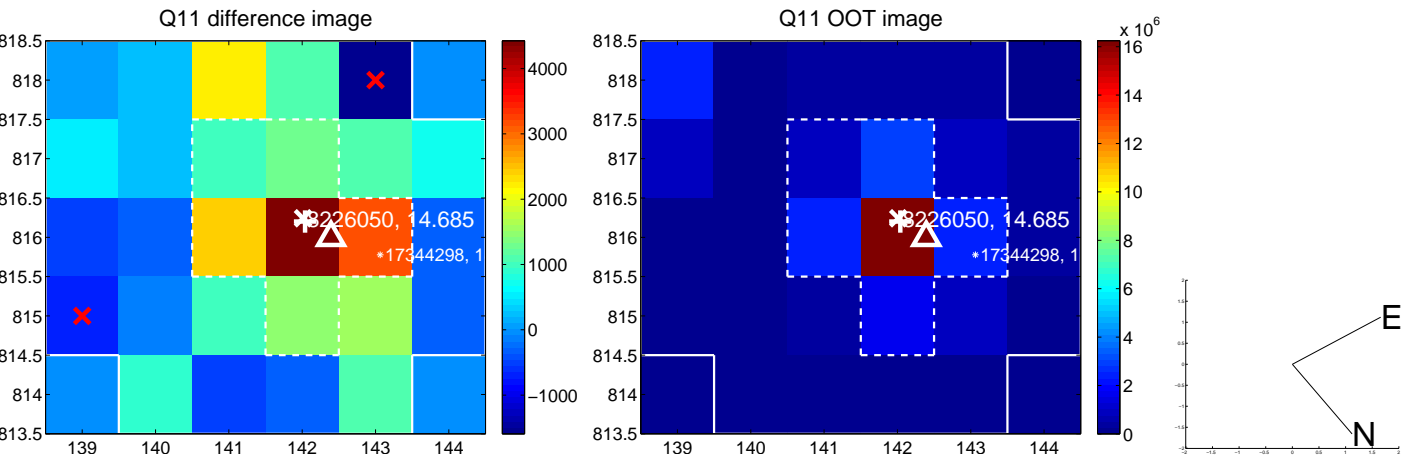
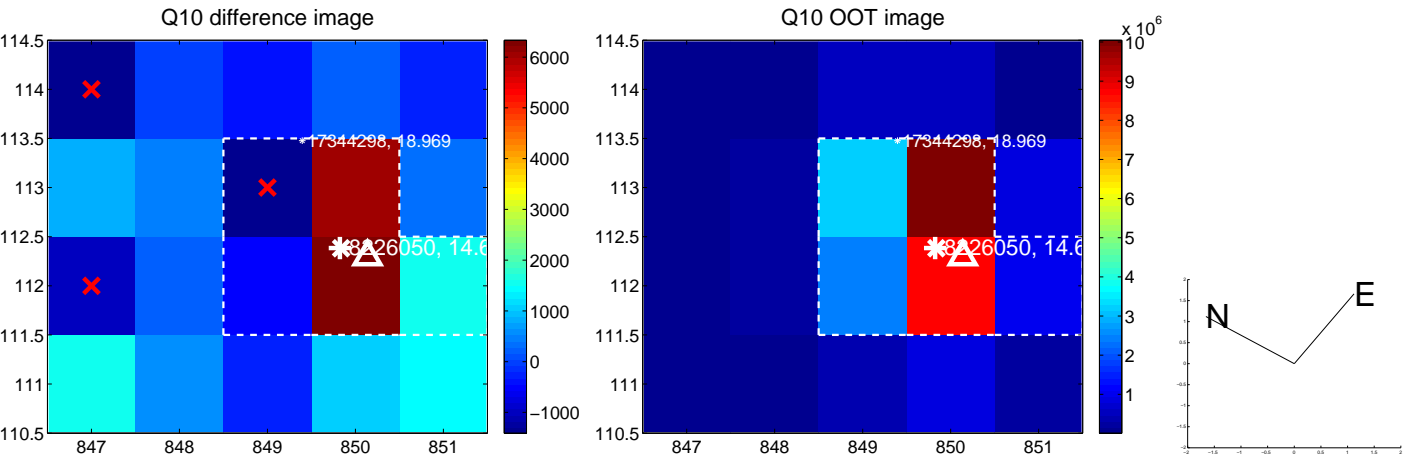
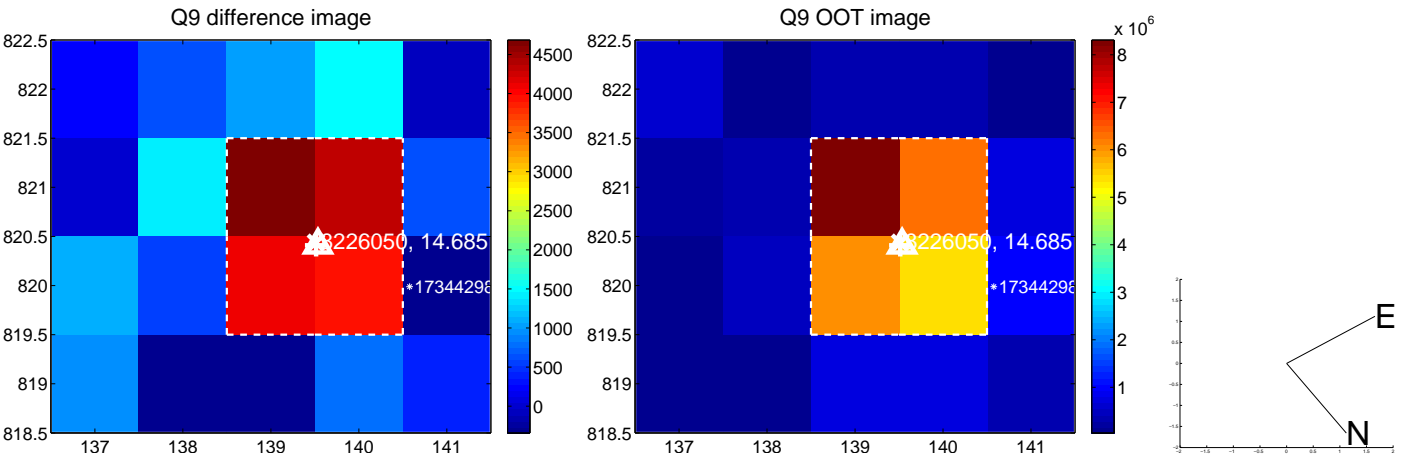
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



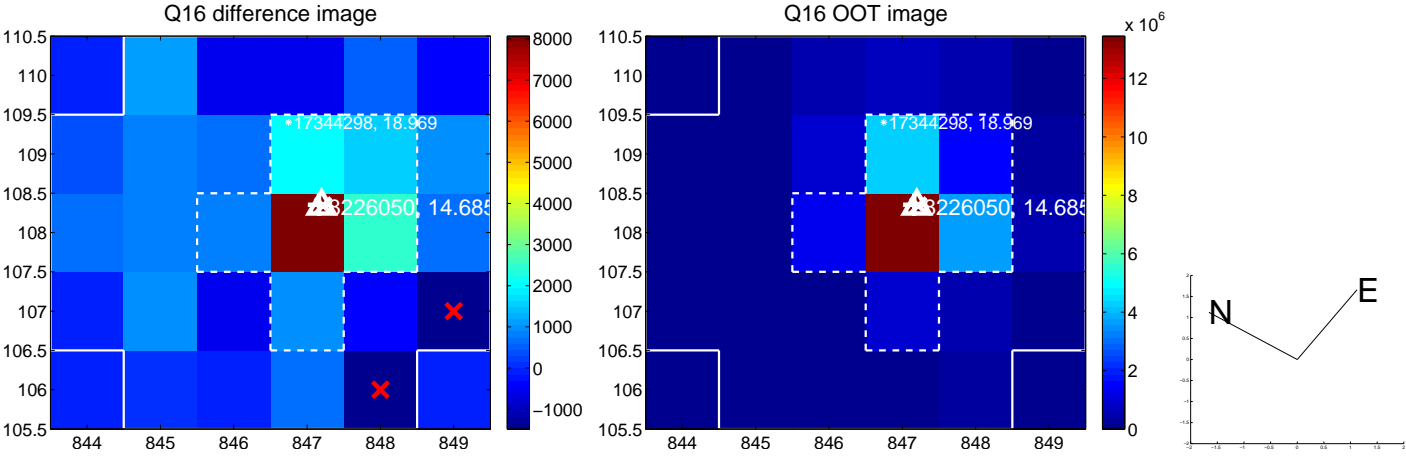
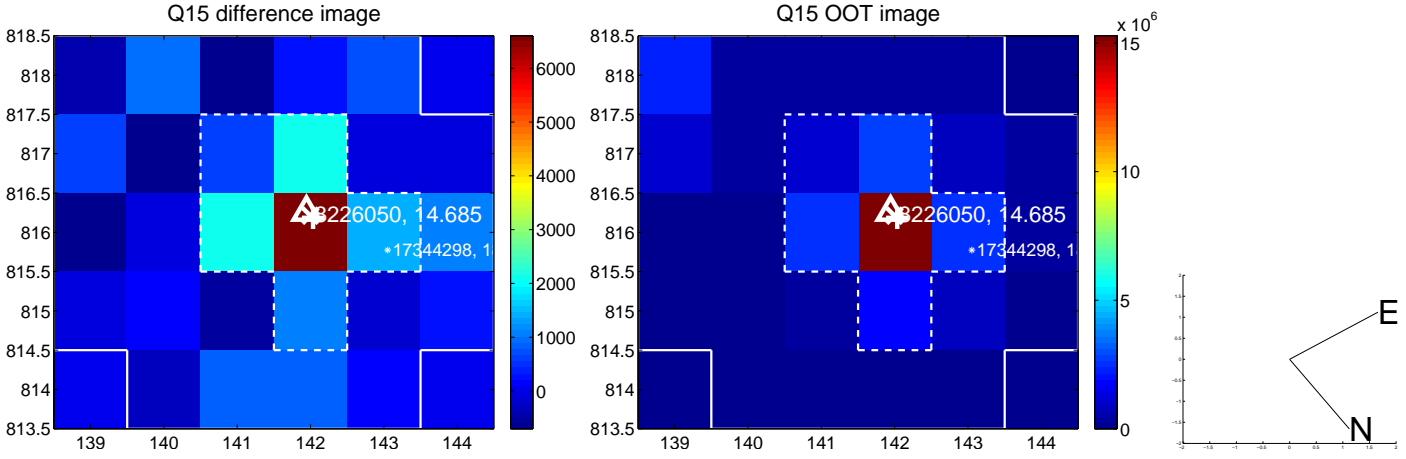
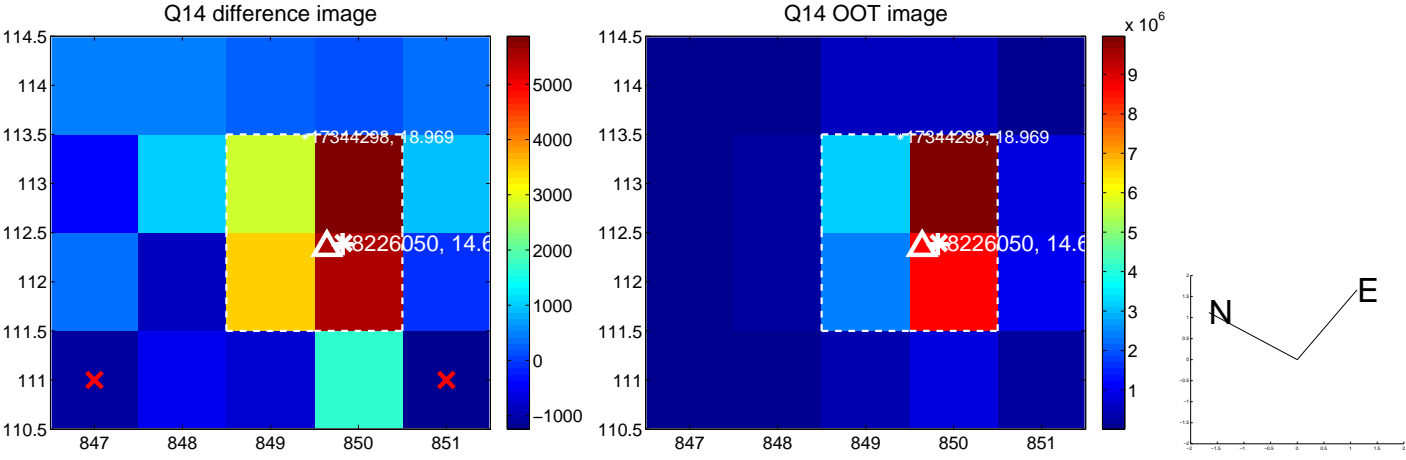
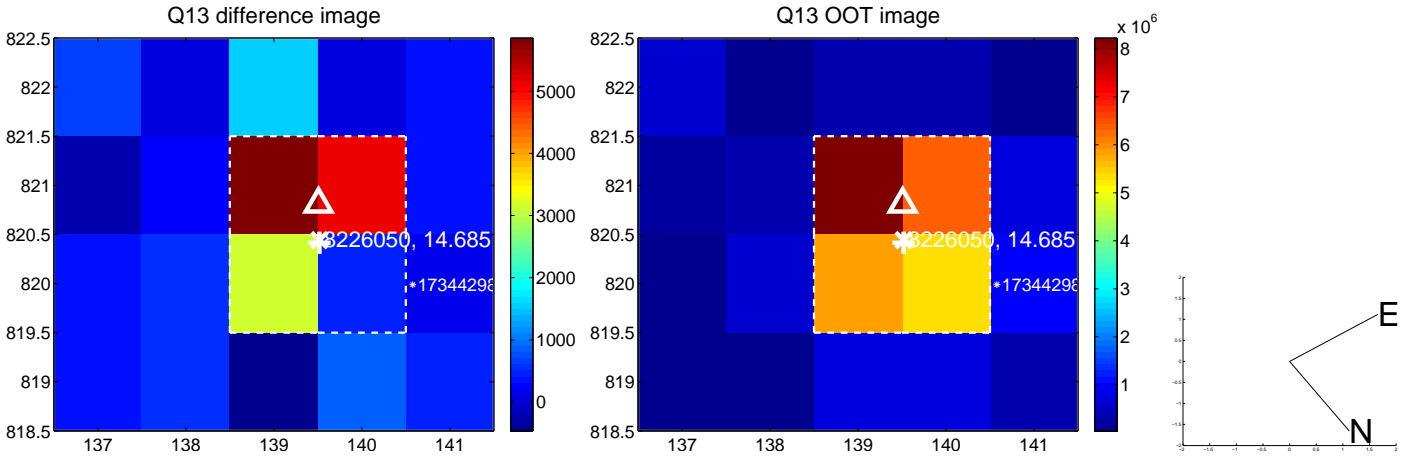
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



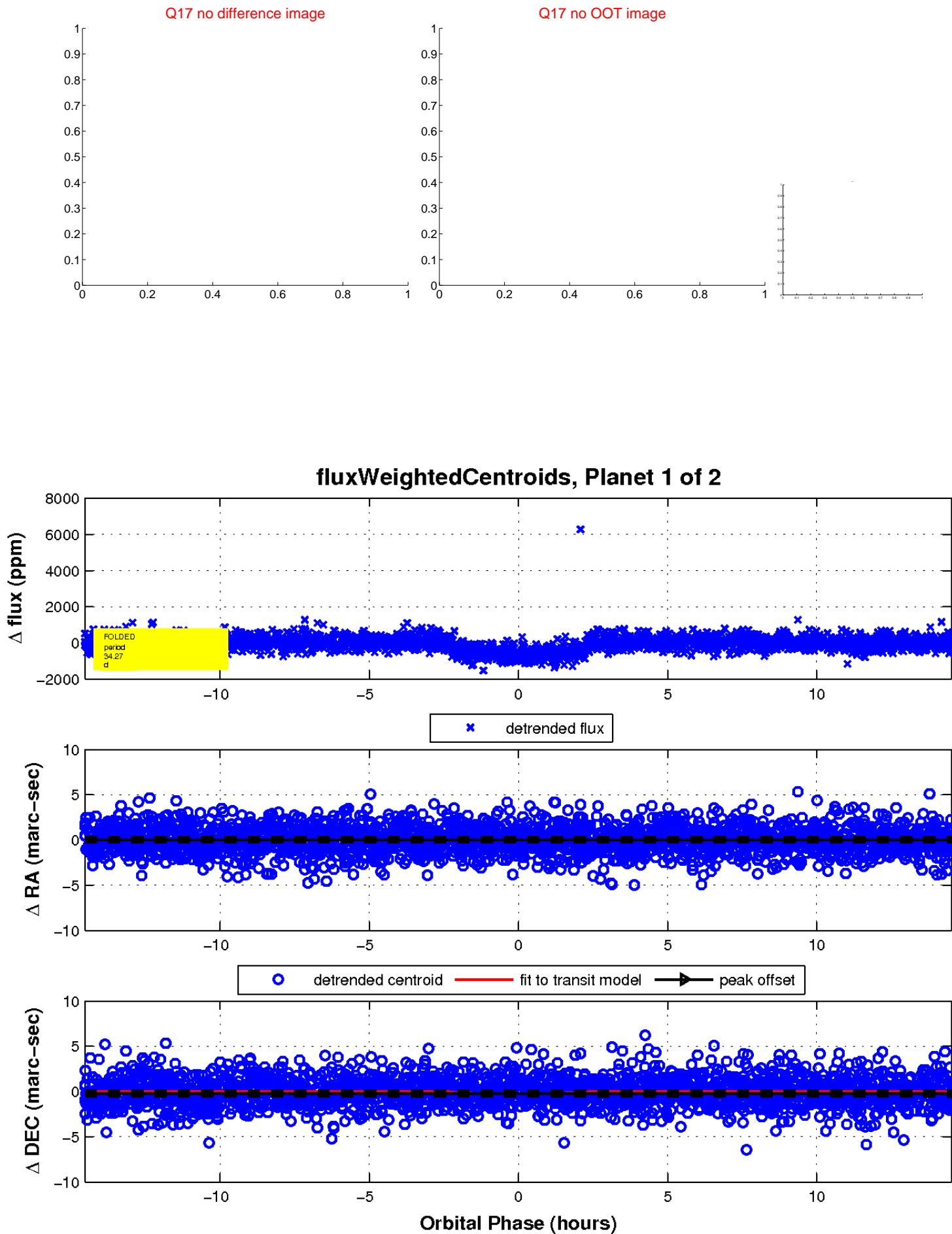
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

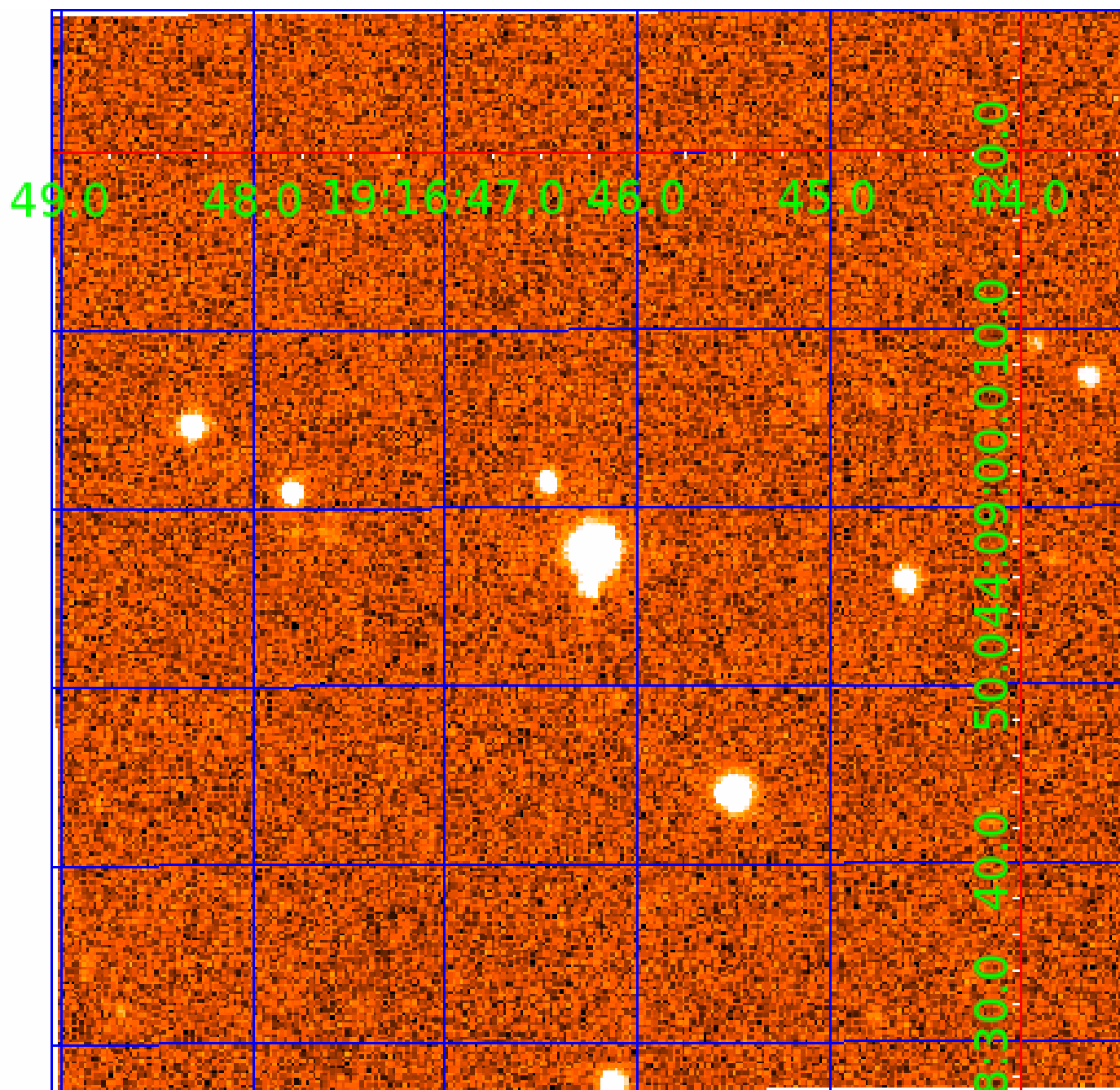


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008226050

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})
008226050-01	OBS	1910.01	34.268610	147.049435	691.5	4.846	27.8	30.6	0.87	5083	2.47	12.22
008226050-02	OBS	1910.02	18.384682	135.479859	154.2	3.460	7.8	8.6	0.87	5083	1.36	28.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008226050-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
008226050-02	OBS	PC	0.95	0	0	0	0	NO_COMMENT

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 008226050-02

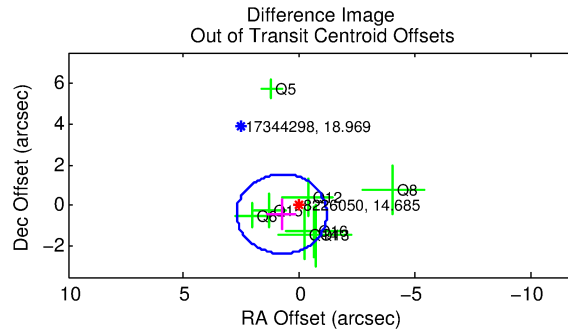
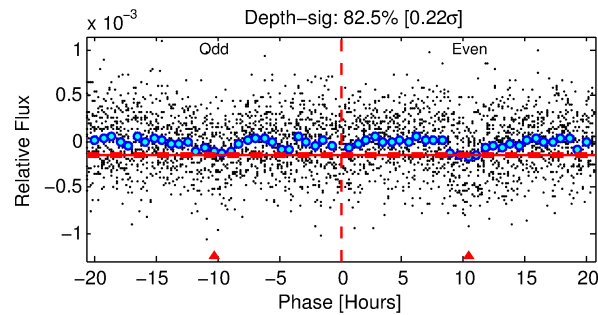
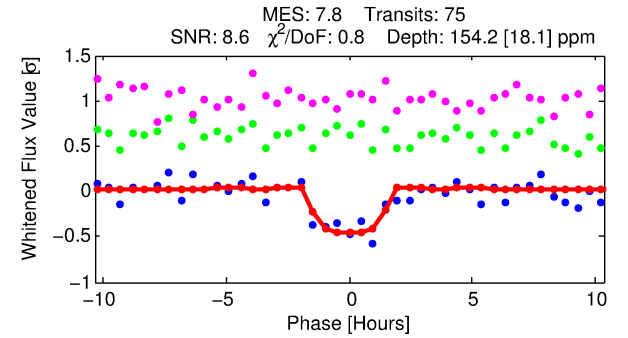
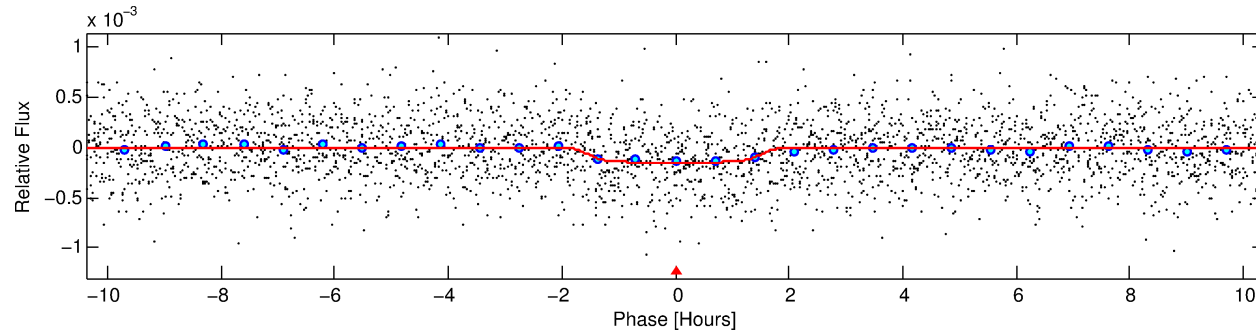
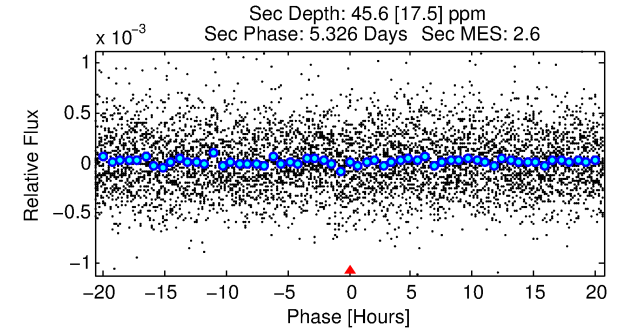
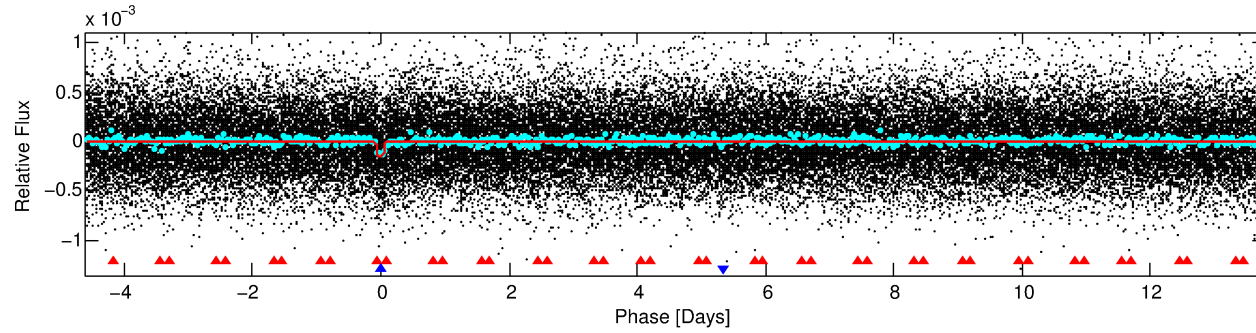
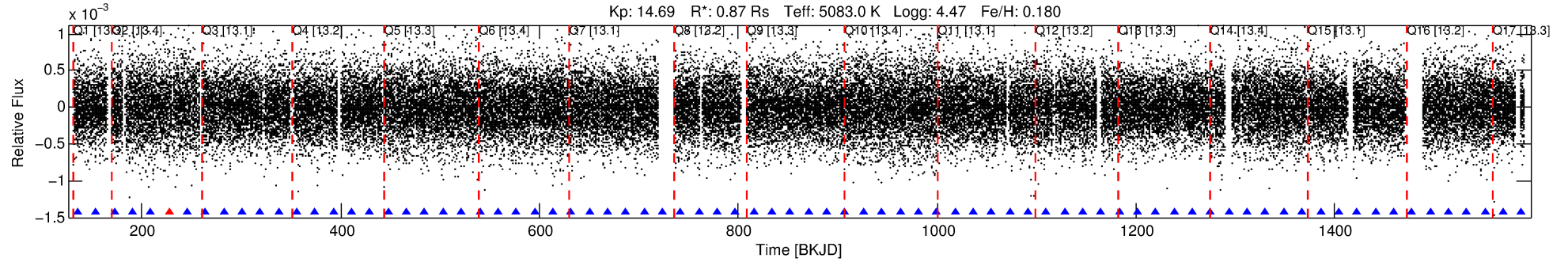
No Significant Match Found

DV One-Page Summary

KIC: 8226050 Candidate: 2 of 2 Period: 18.385 d

KOI: K01910 Corr: No Ephemeris Match

Kp: 14.69 R*: 0.87 Rs Teff: 5083.0 K Logg: 4.47 Fe/H: 0.180



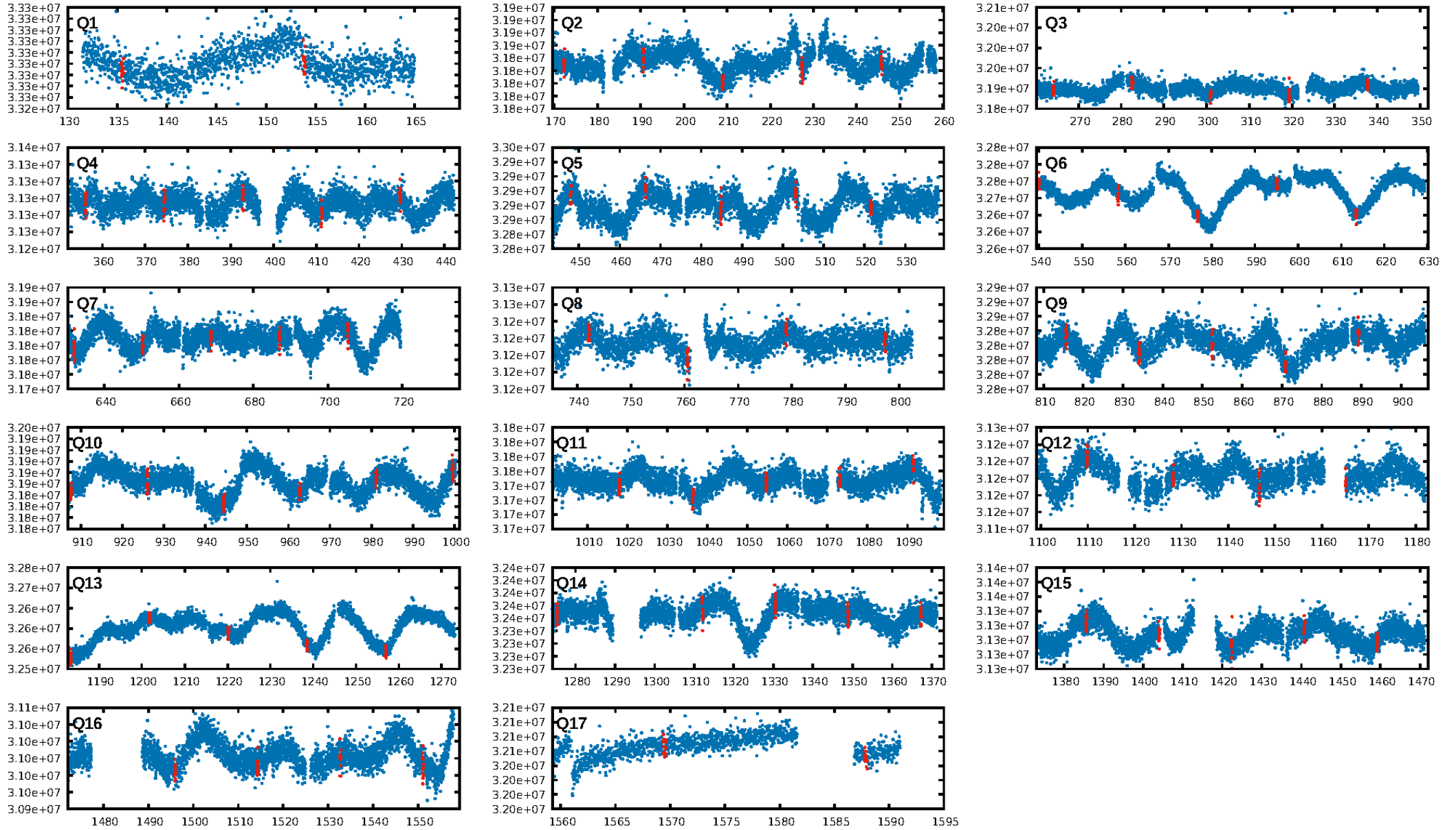
DV Fit Results:

Period = 18.38468 [0.00019] d
Epoch = 135.4799 [0.0087] BKJD
Rp/R* = 0.0143 [0.0071]
a/R* = 17.07 [35.21]
b = 0.92 [0.34]
Seff = 28.04 [4.48]
Teq = 587 [23] K
Rp = 1.36 [0.68] Re
a = 0.1274 [0.0111] AU
Ag = 220.37 [236.27] [0.93σ]
Teffp = 3495 [930] K [3.13σ]

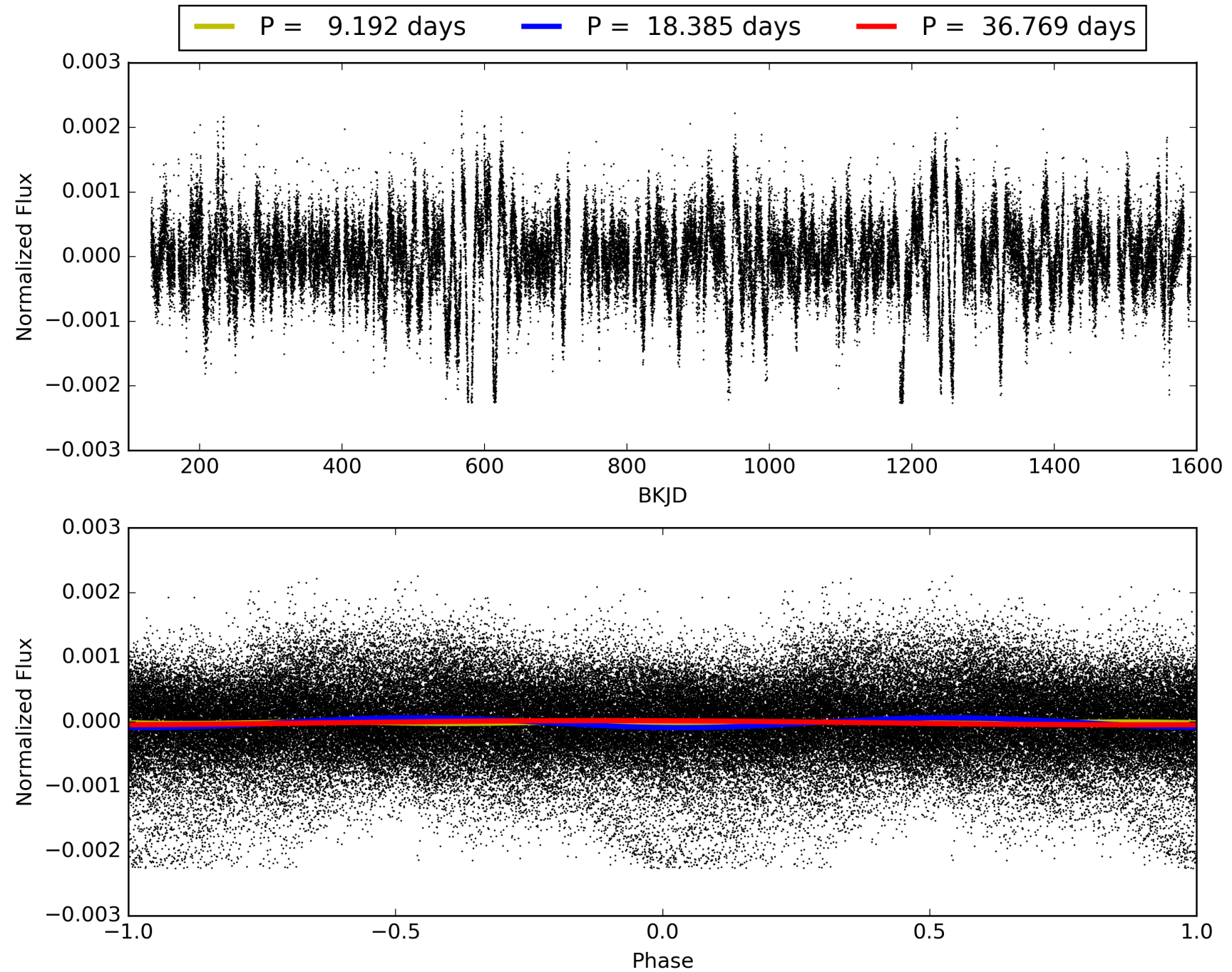
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [64.02σ]
ModelChiSquare2-sig: 99.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.53e-15
RollingBand-fgt: 0.99 [70/71]
GhostDiagnostic-chr: 0.4913
Centroid-sig: 2.2%
Centroid-so: 2.330 arcsec [1.59σ]
OotOffset-rm: 0.868 arcsec [1.34σ]
KicOffset-rm: 0.795 arcsec [1.24σ]
OotOffset-st: 2/1/3/2 [8]
KicOffset-st: 2/1/3/2 [8]
DiffImageQuality-fgm: 0.50 [4/8]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008226050-02, PDC Light Curves

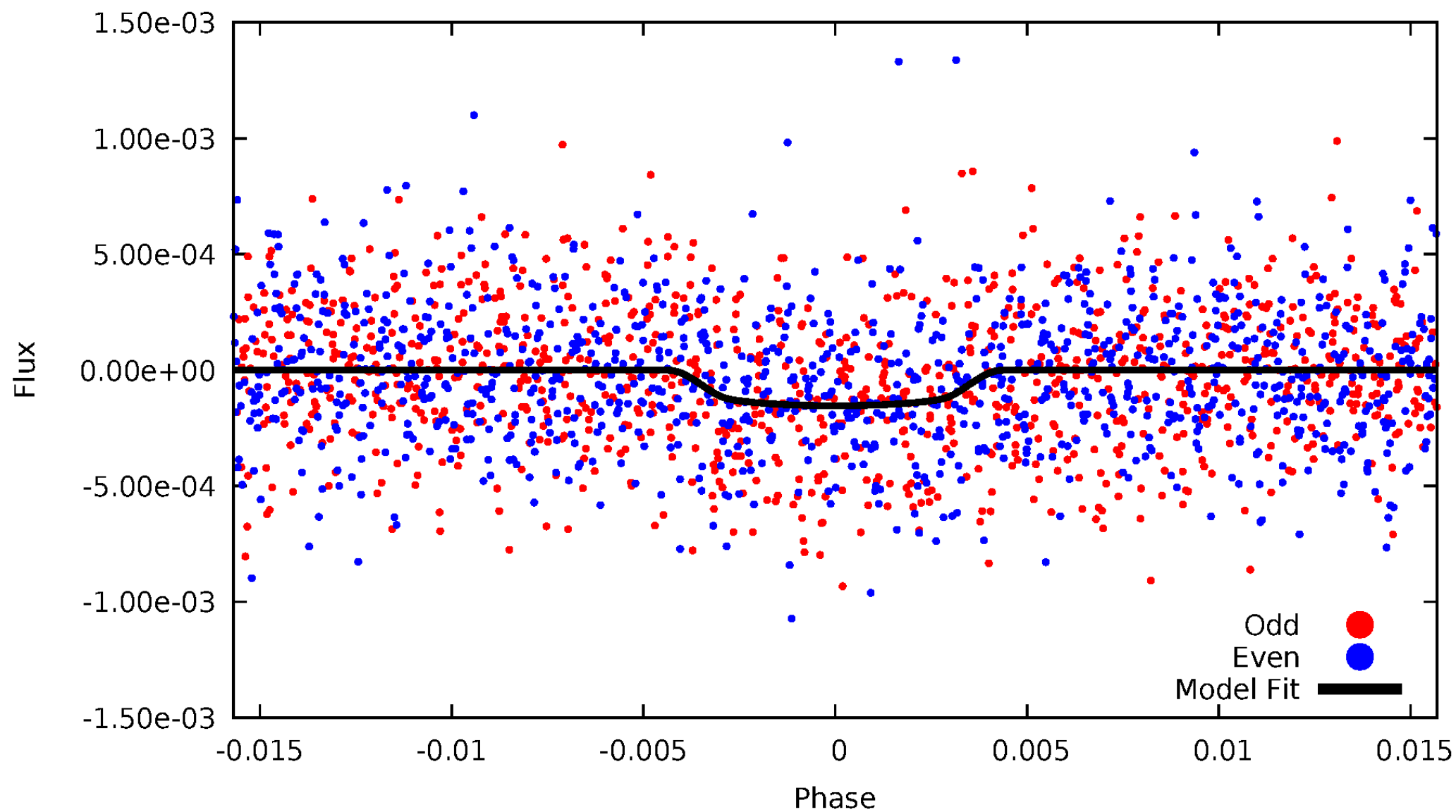


TCE 008226050-02



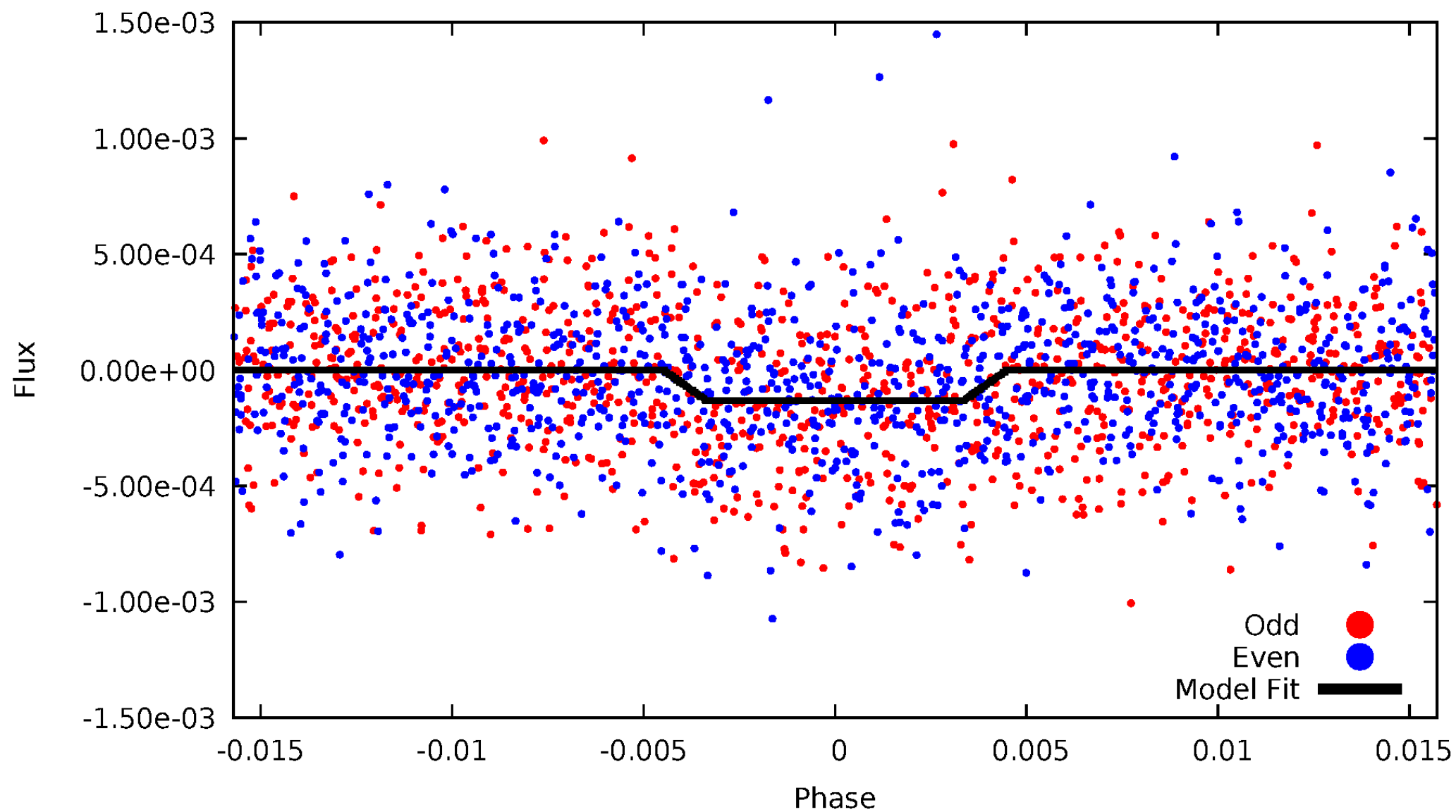
DV Odd/Even

TCE 008226050-02



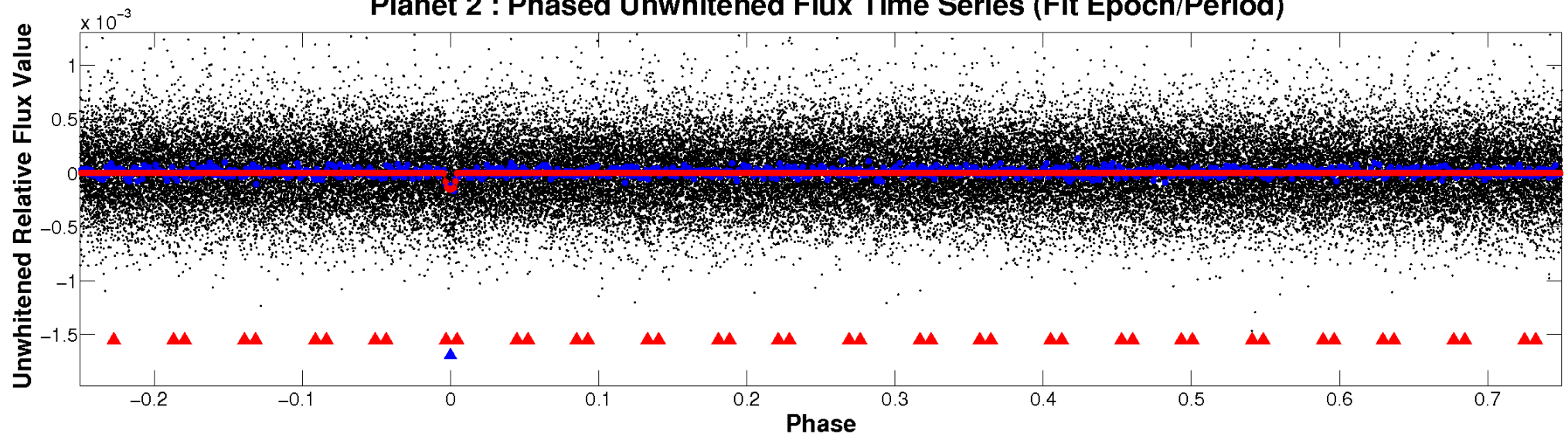
ALT Odd/Even

TCE 008226050-02

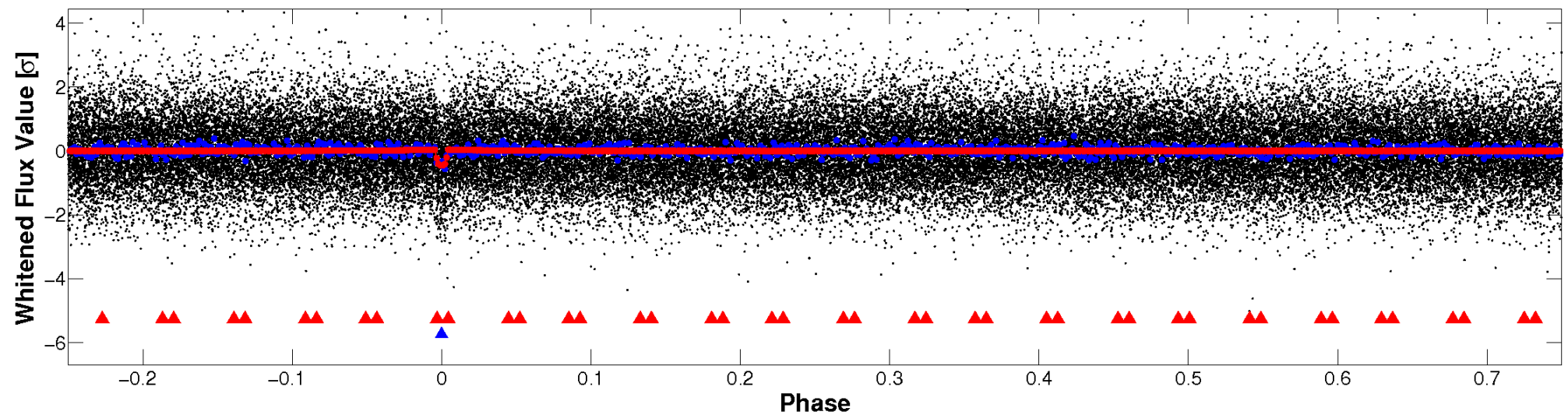


Non-Whitened Vs. Whitened Light Curve

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

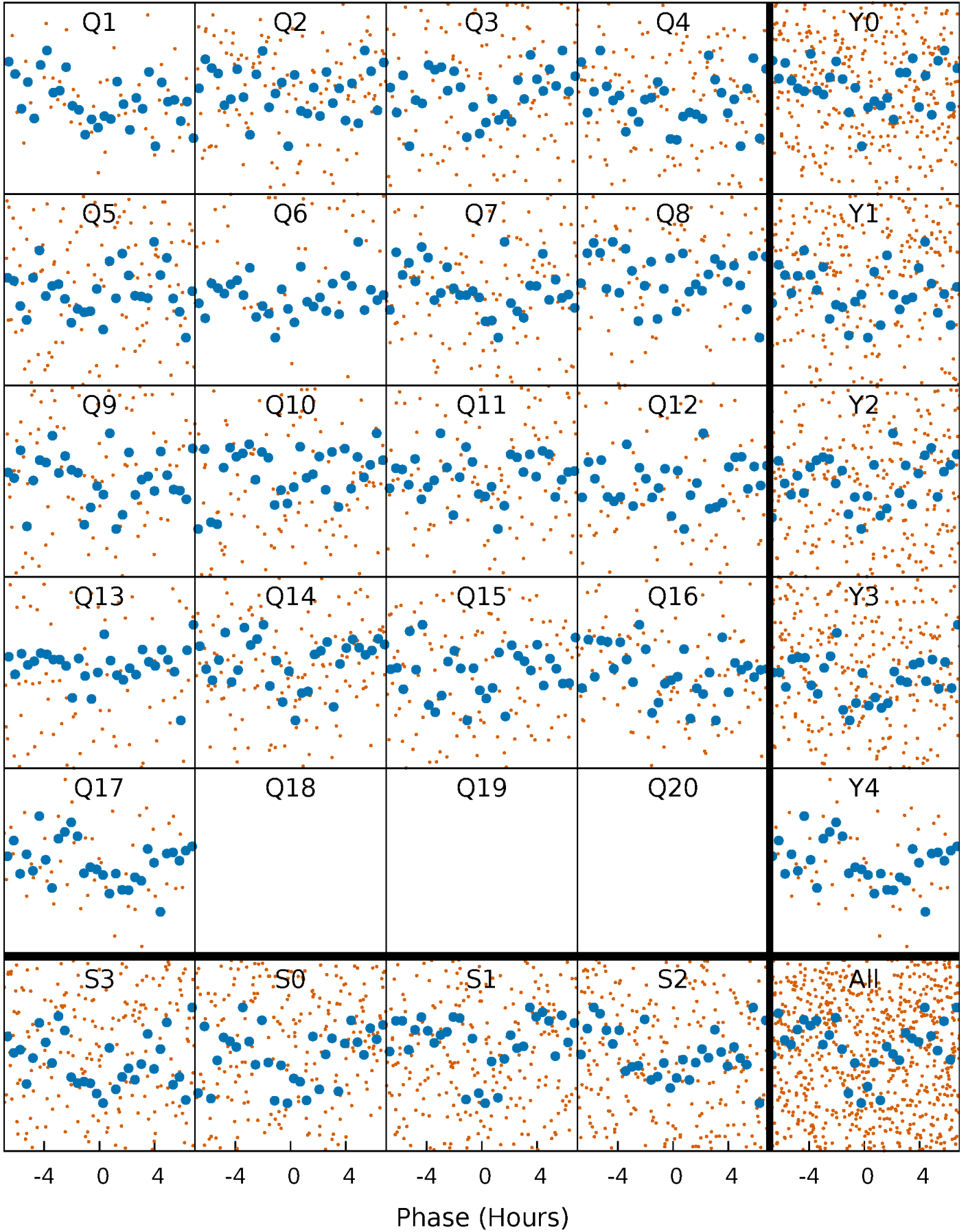


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



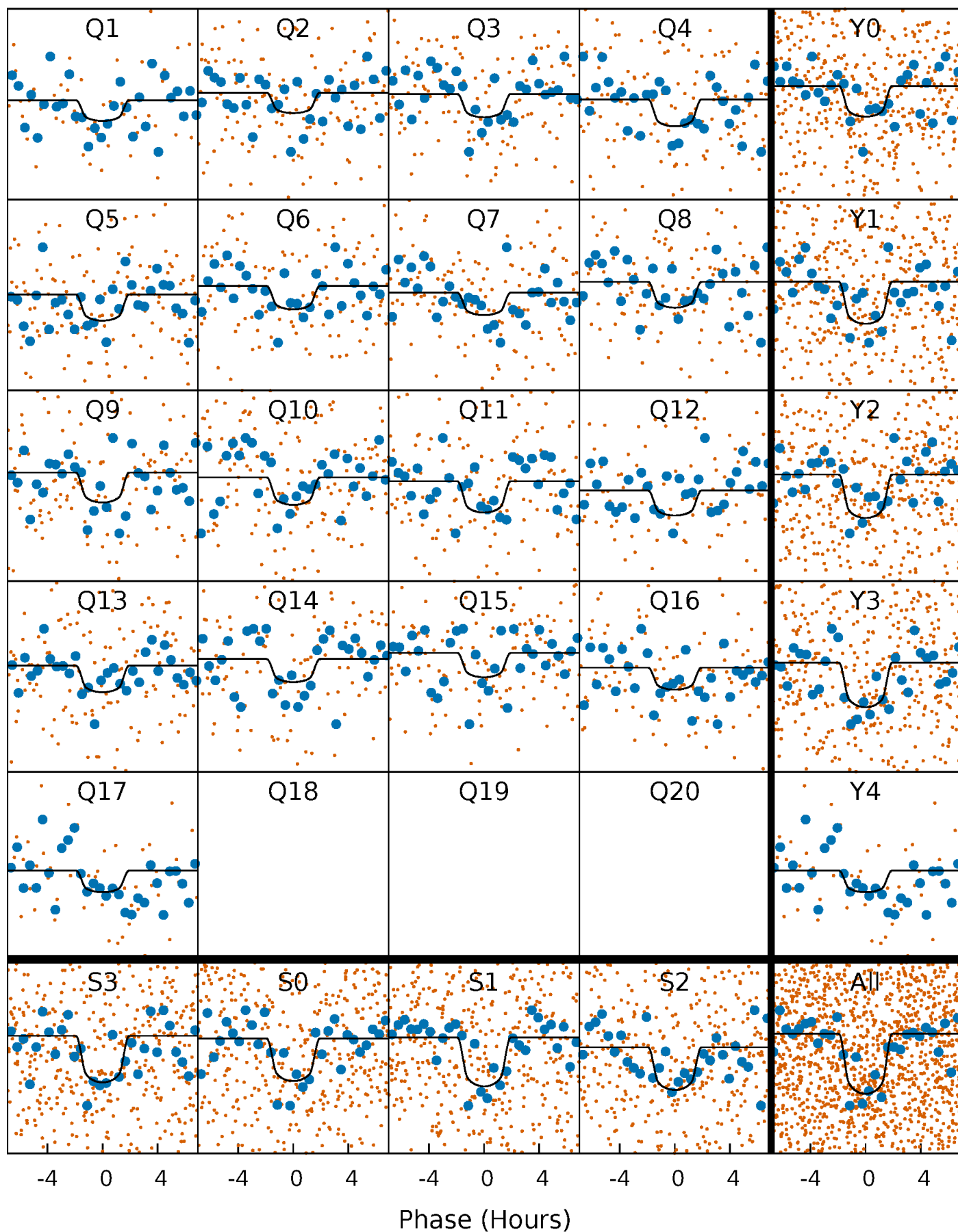
PDC Quarter-Phased Transit Curves

TCE 008226050-02 P= 18.384682 Days $T_0=135.479859$ (BKJD)



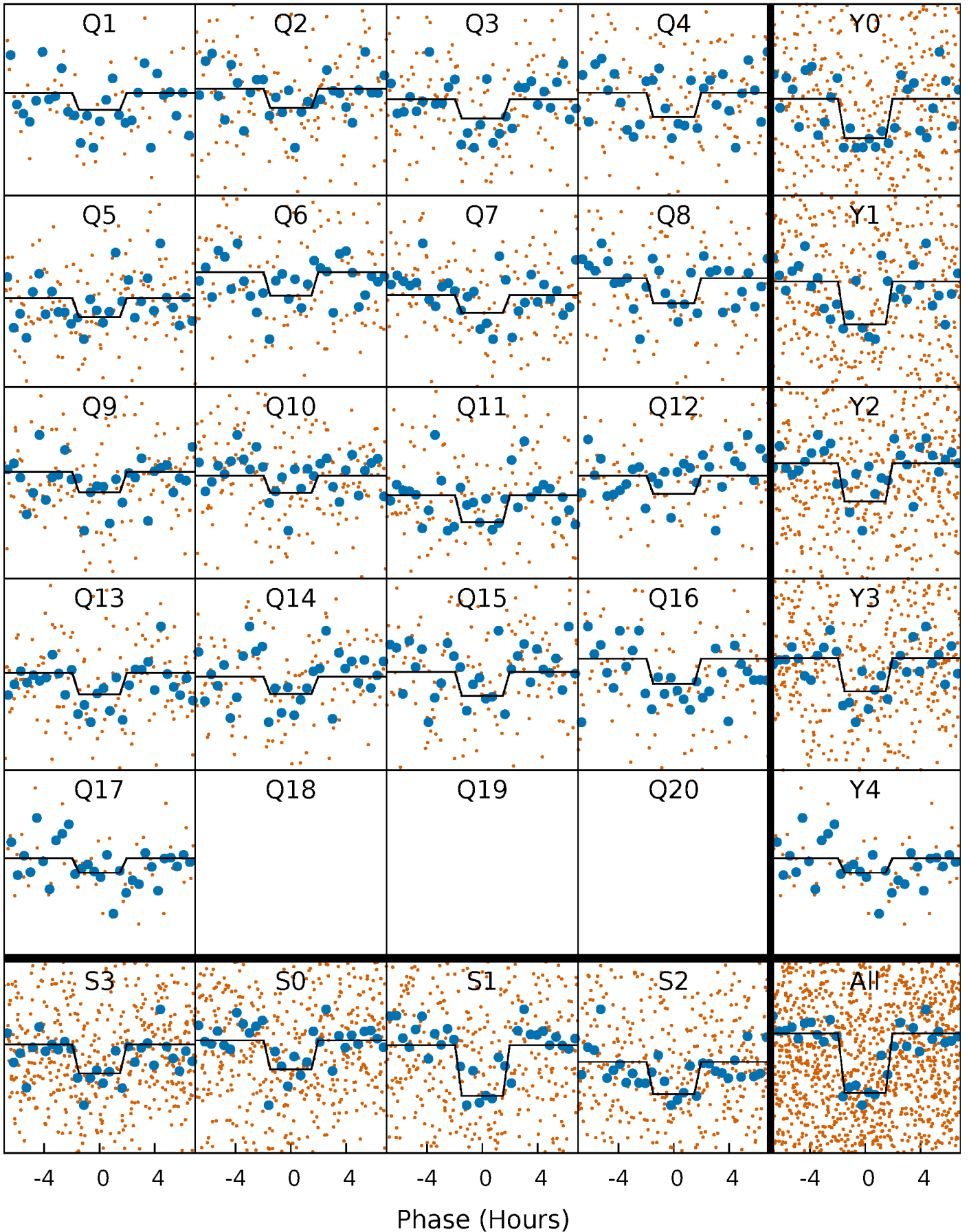
DV Quarter-Phased Transit Curves

TCE 008226050-02 P= 18.384682 Days $T_0=135.479859$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

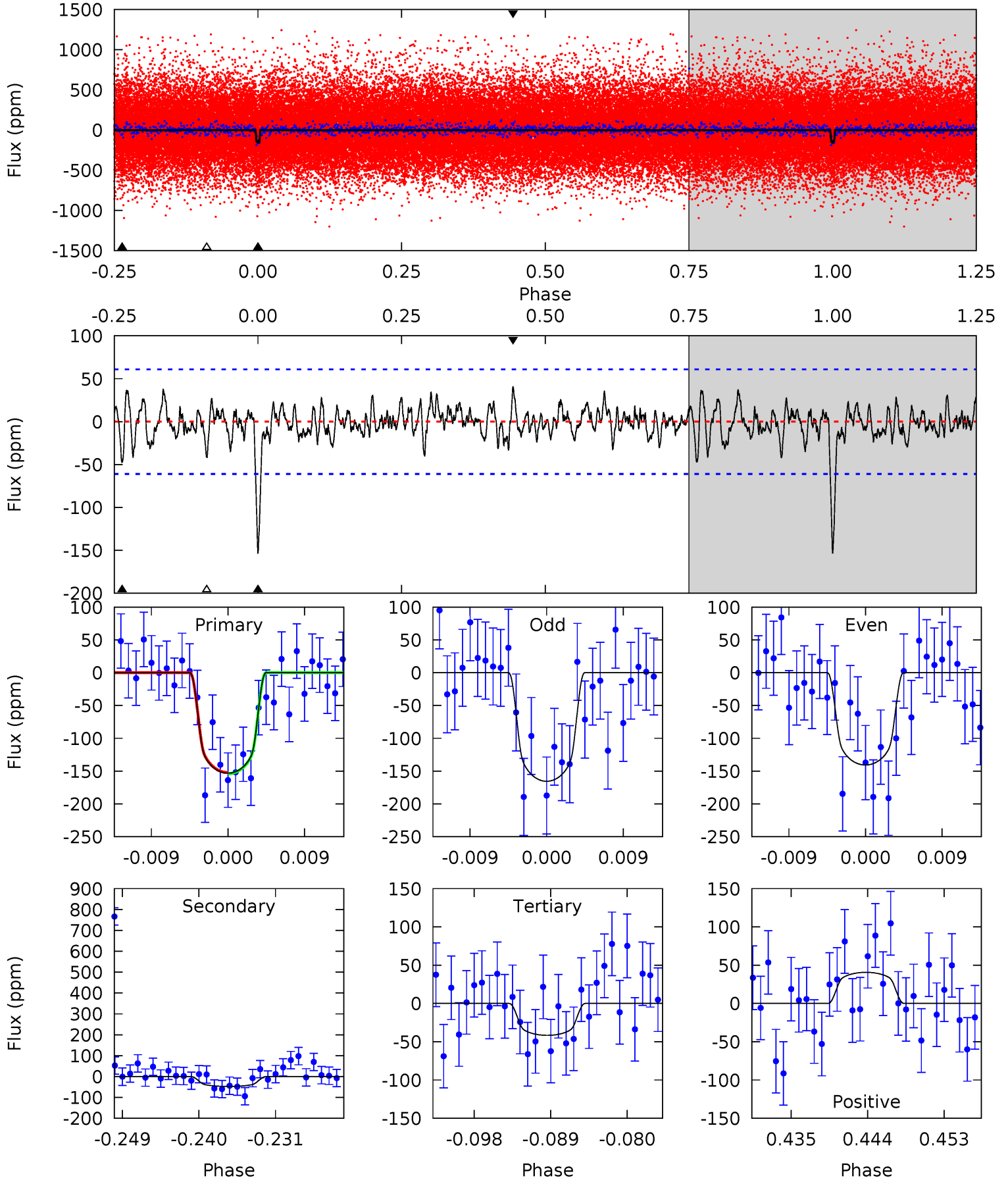
TCE 008226050-02 P= 18.384682 Days $T_0=135.489094$ (BKJD)



DV Model-Shift Uniqueness Test

008226050-02, P = 18.384682 Days, E = 117.095177 Days

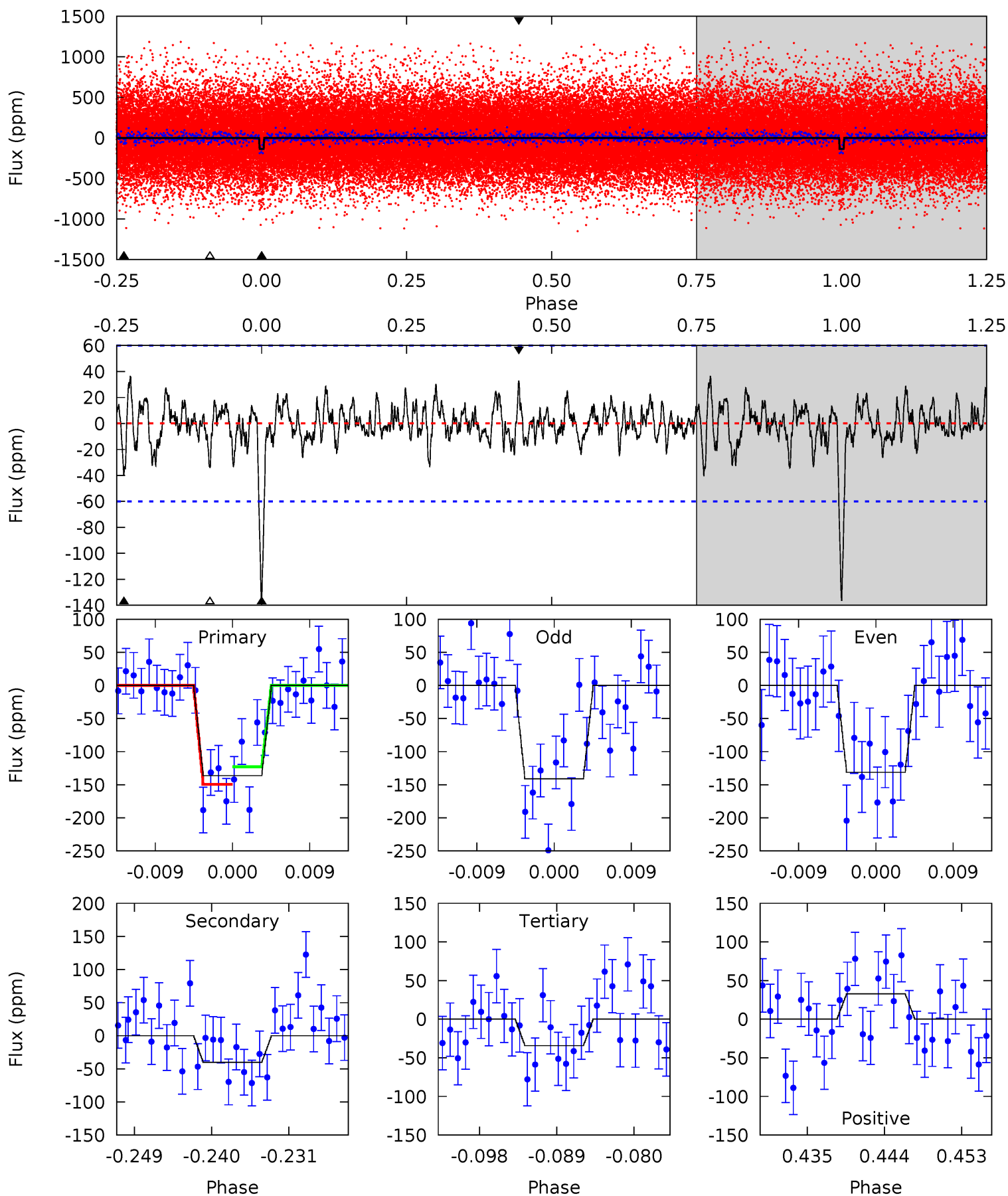
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	3.91	3.45	3.37	5.05	2.62	1.13	9.23	9.31	0.47	0.55	1.03	0.87	0.21	0.07



Alt Model-Shift Uniqueness Test

008226050-02, P = 18.384682 Days, E = 117.104412 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	3.39	2.88	2.77	5.05	2.62	0.96	8.59	8.71	0.51	0.62	0.42	0.85	0.21	1.12



Stellar Parameters For KIC 008226050

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5083^{+83}_{-76}	$4.468^{+0.088}_{-0.033}$	$0.180^{+0.150}_{-0.150}$	$0.872^{+0.042}_{-0.072}$	$0.815^{+0.053}_{-0.028}$	$1.730^{+0.547}_{-0.192}$
	+2%/-1%	+2%/-1%	+83%/-83%	+5%/-8%	+7%/-3%	+32%/-11%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 008226050-02 / KOI 1910.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-47 ± 12	$1.34^{+0.63}_{-0.60}$	816^{+18}_{-25}	3844^{+994}_{-486}	239^{+586}_{-136}
Alt.	-40 ± 12	$1.12^{+0.66}_{-0.60}$	816^{+18}_{-20}	3964^{+1464}_{-611}	285^{+1094}_{-184}

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

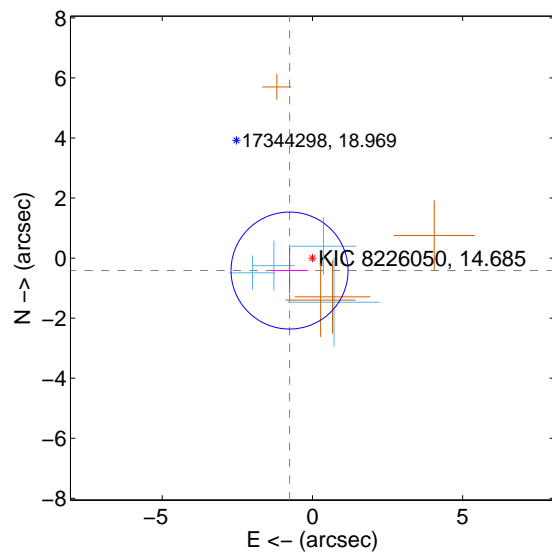
Supplemental centroid analysis for 008226050-02. Kepler magnitude: 14.69. Transit SNR 8.55

There are 4 quarters with good PRF difference image offsets

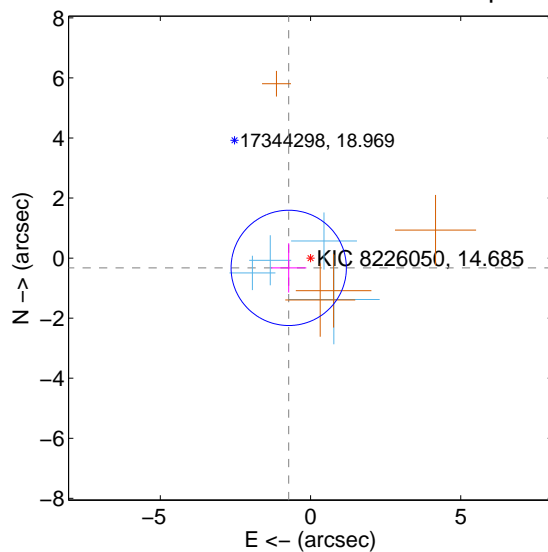
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.868 ± 0.649	1.34	0.762 ± 0.607	-0.414 ± 0.754
PRF-fit source offset from KIC position	0.795 ± 0.640	1.24	0.726 ± 0.586	-0.326 ± 0.819
photometric centroid source offset	2.33 ± 1.46	1.59	-1.64 ± 1.40	-1.65 ± 1.52

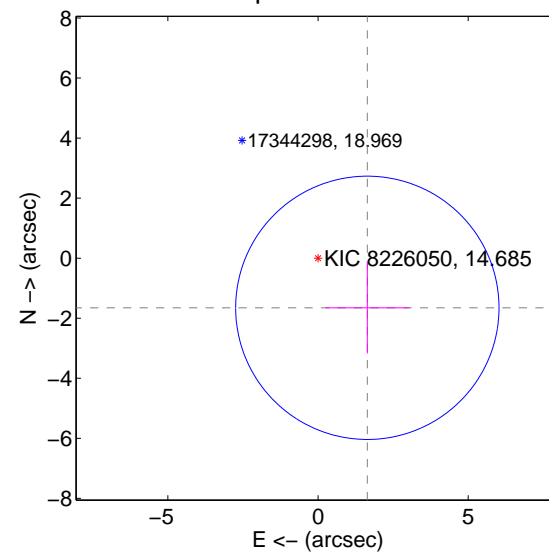
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

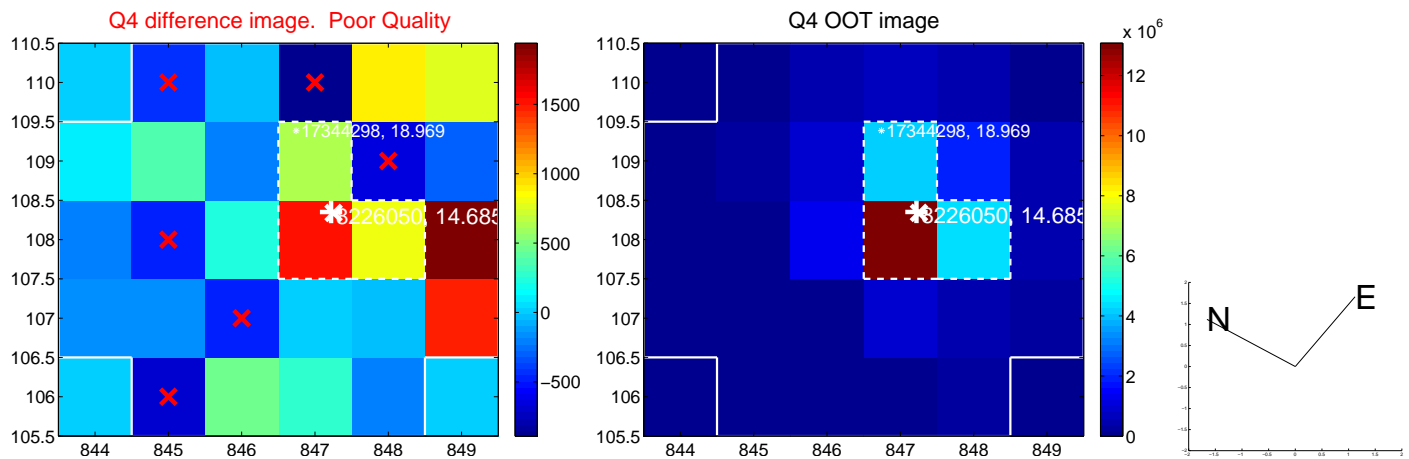
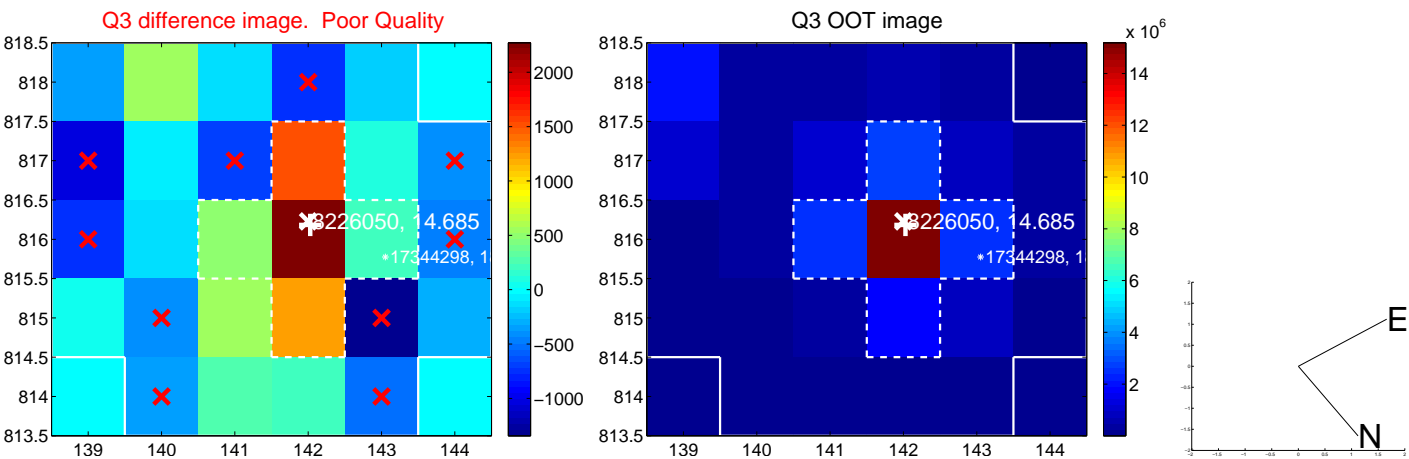
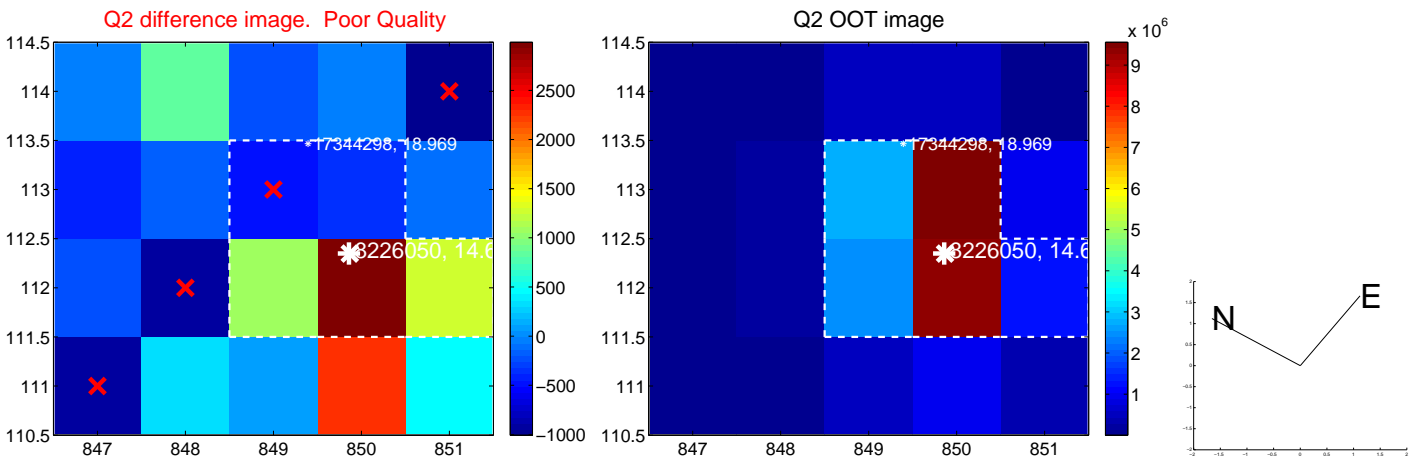
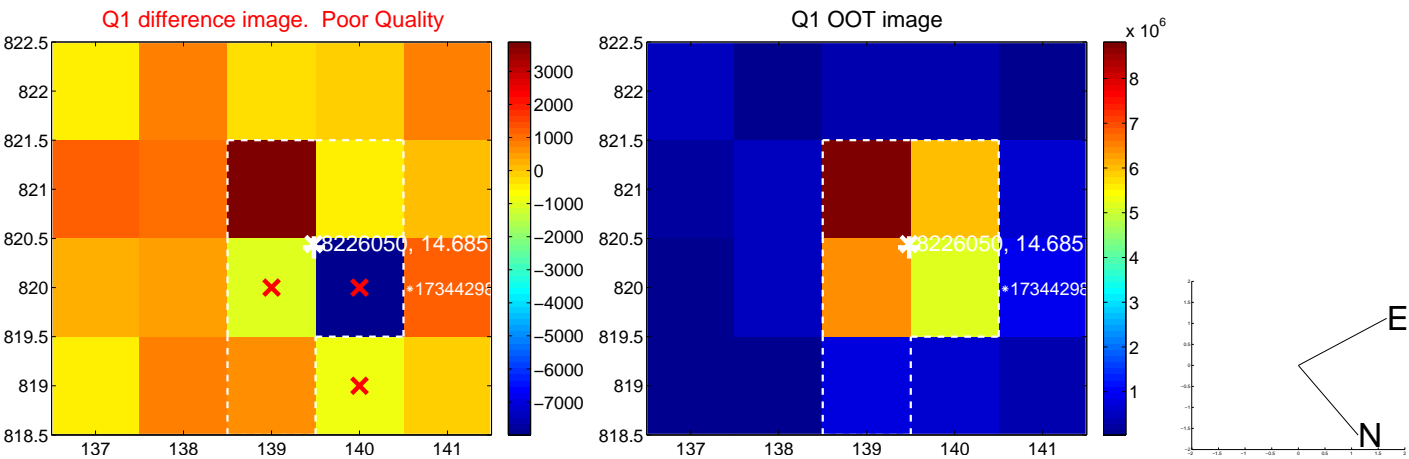


offset from photometric centroids

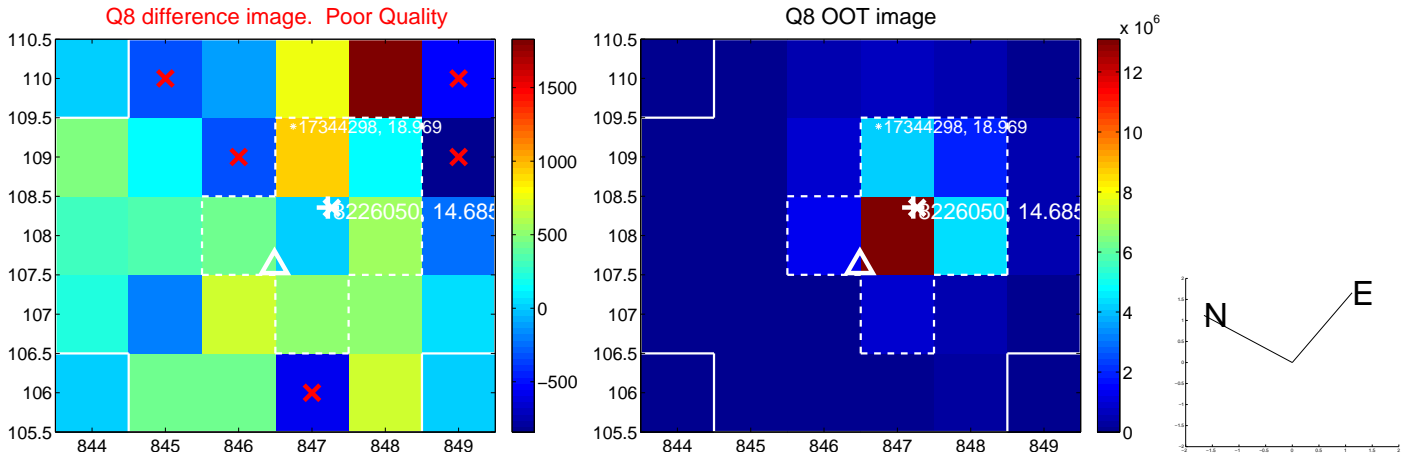
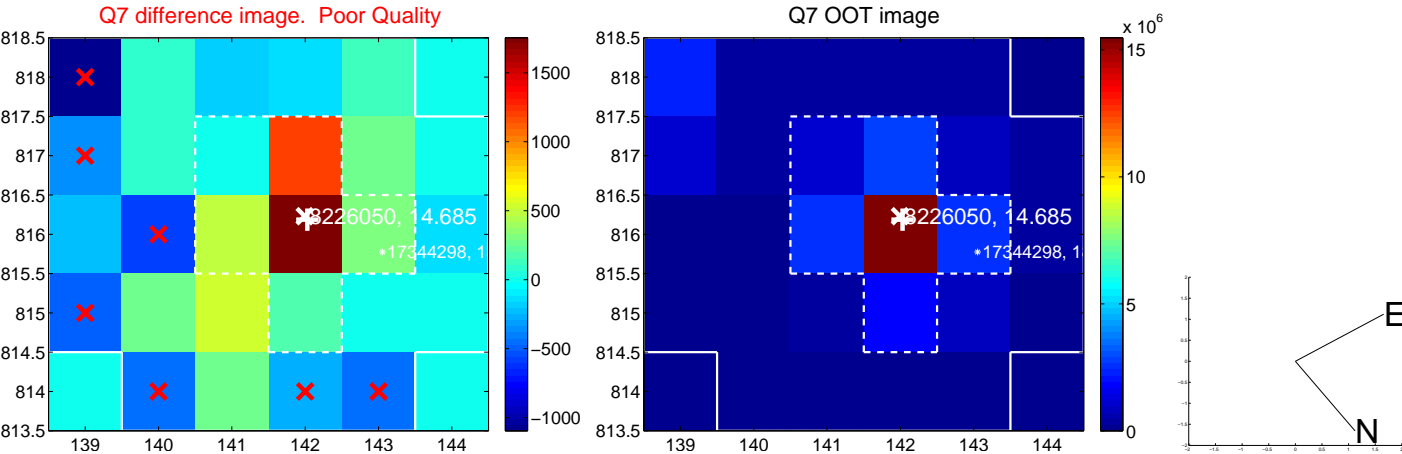
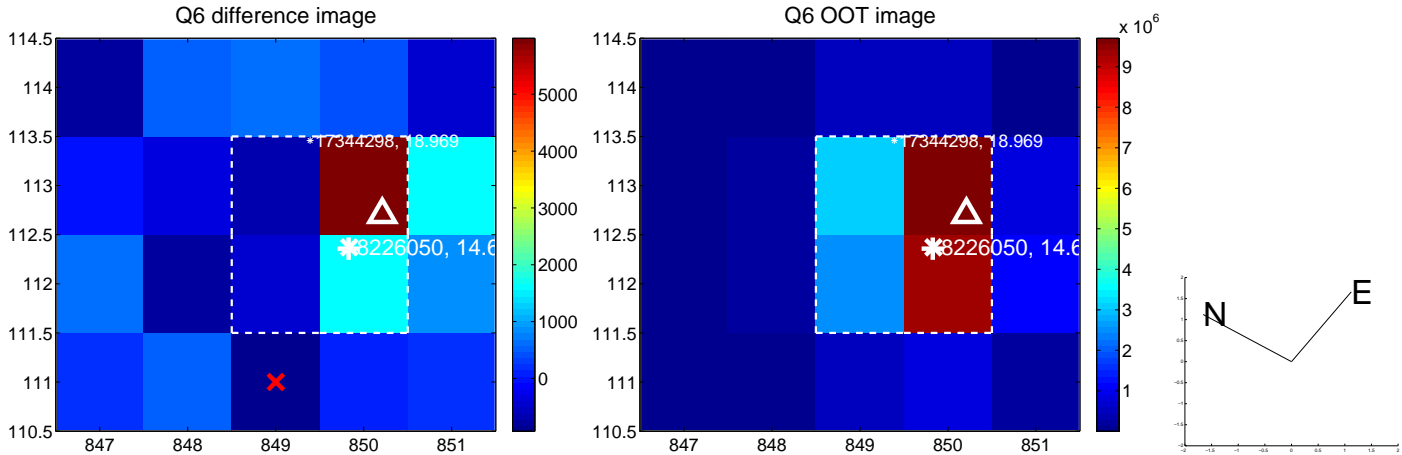
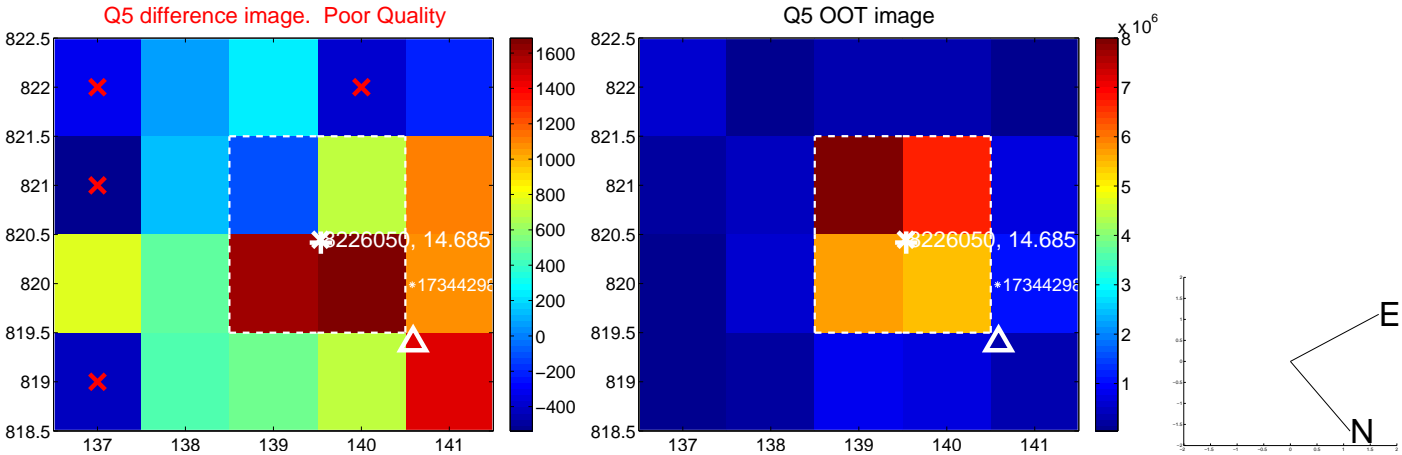


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

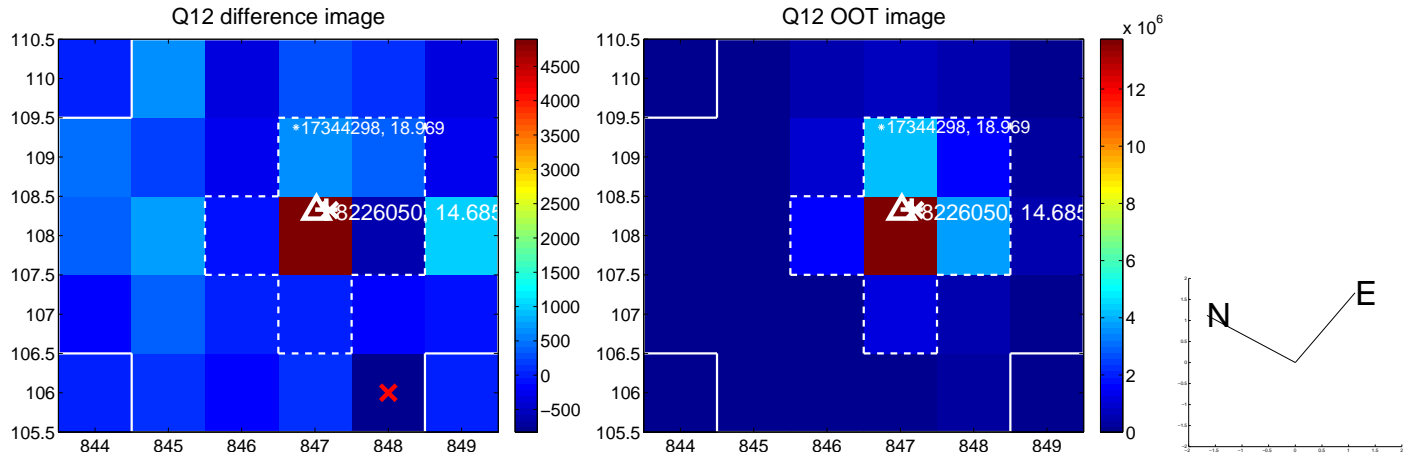
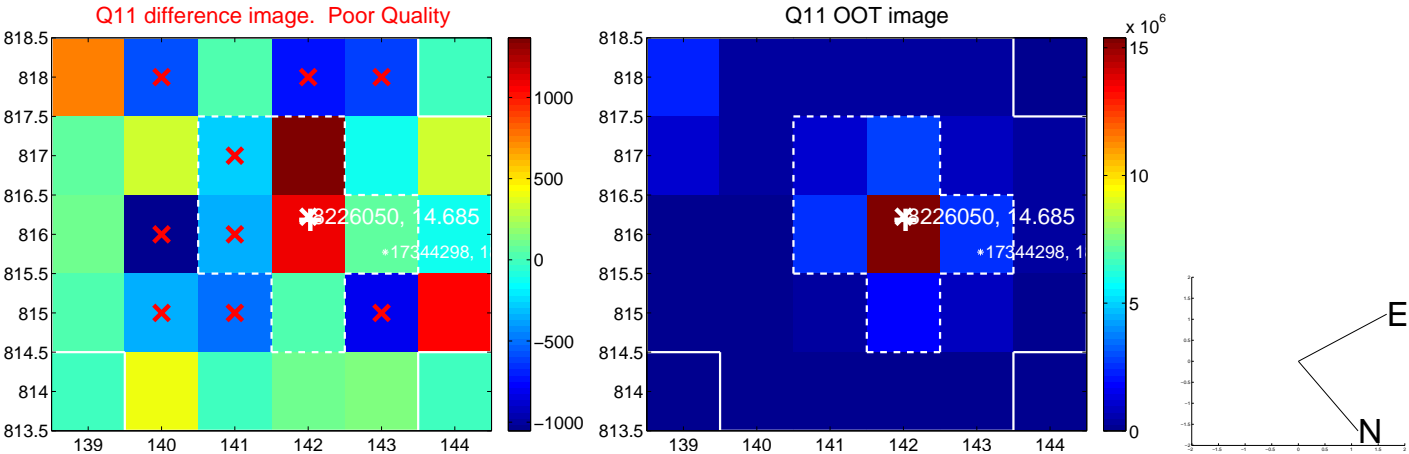
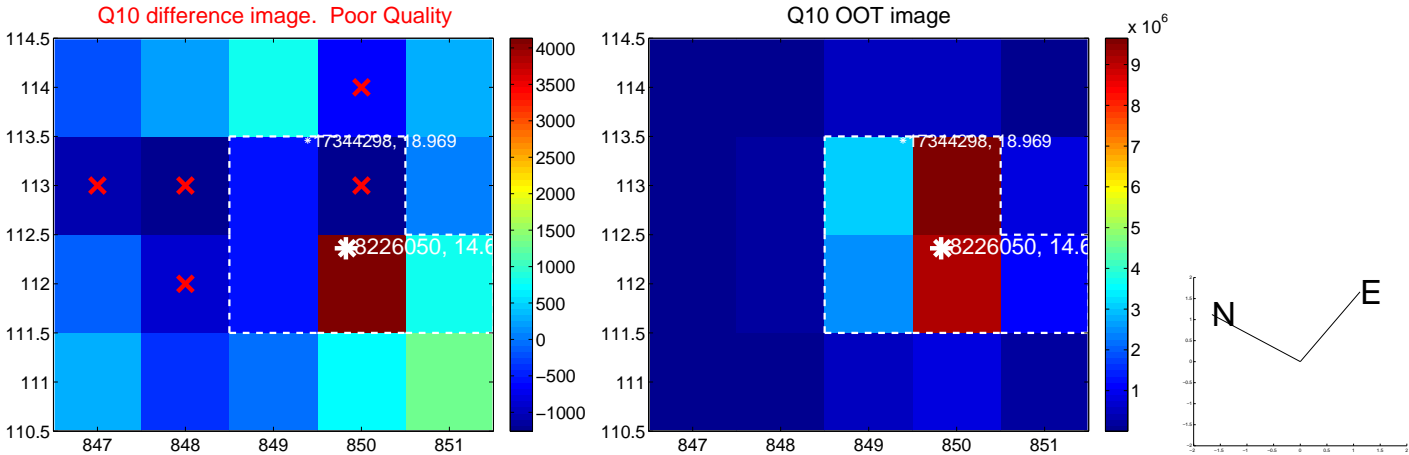
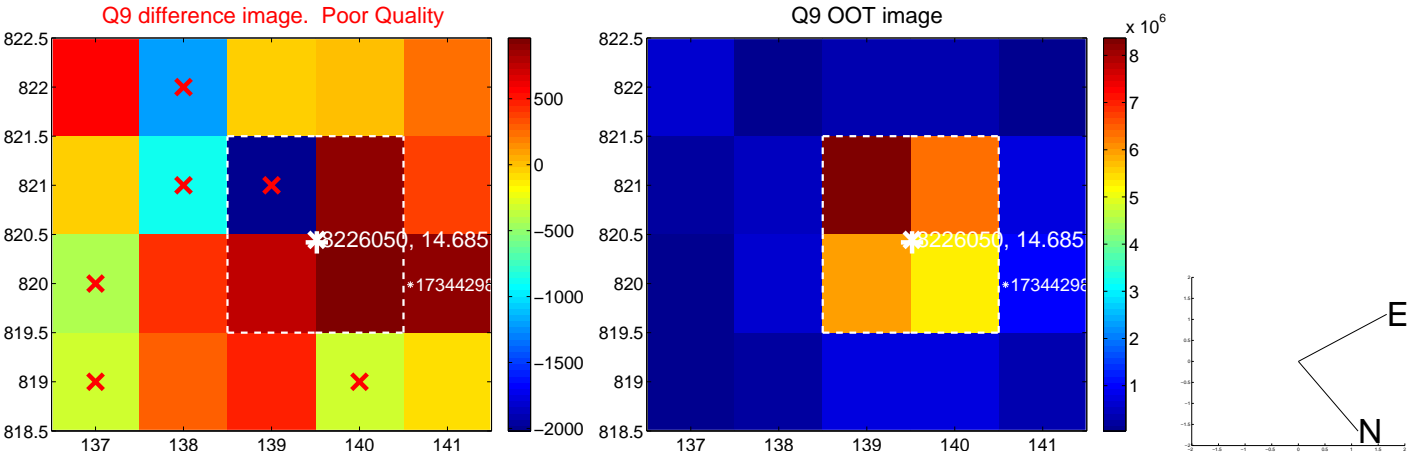
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



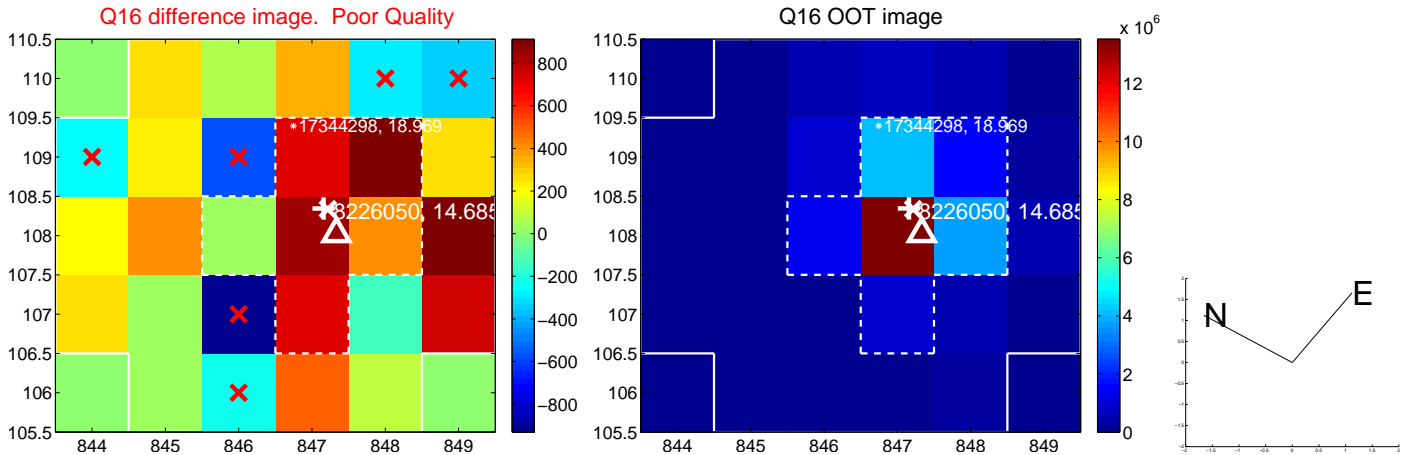
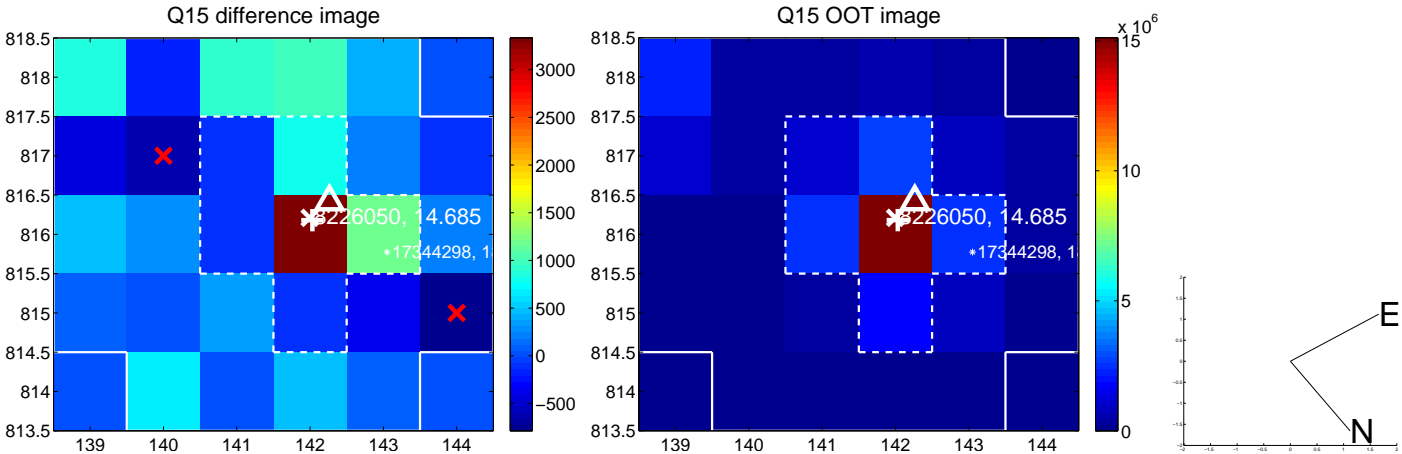
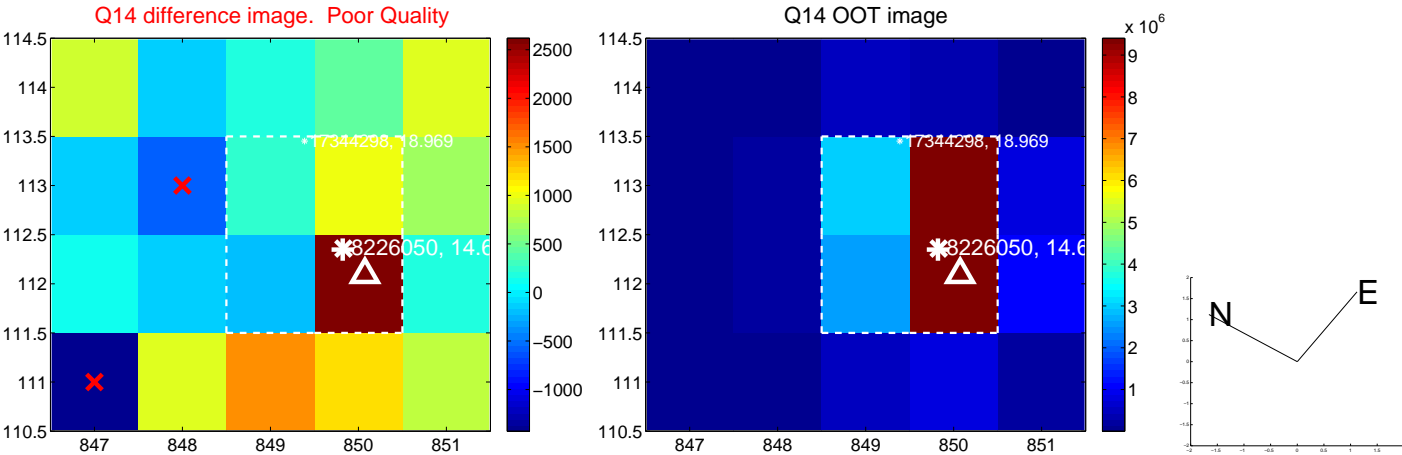
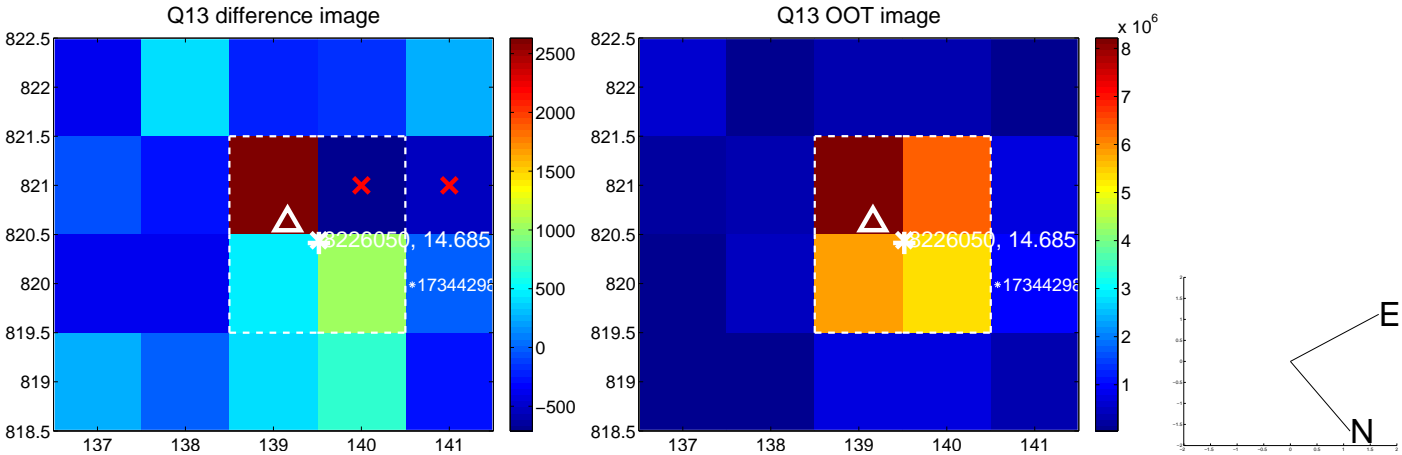
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



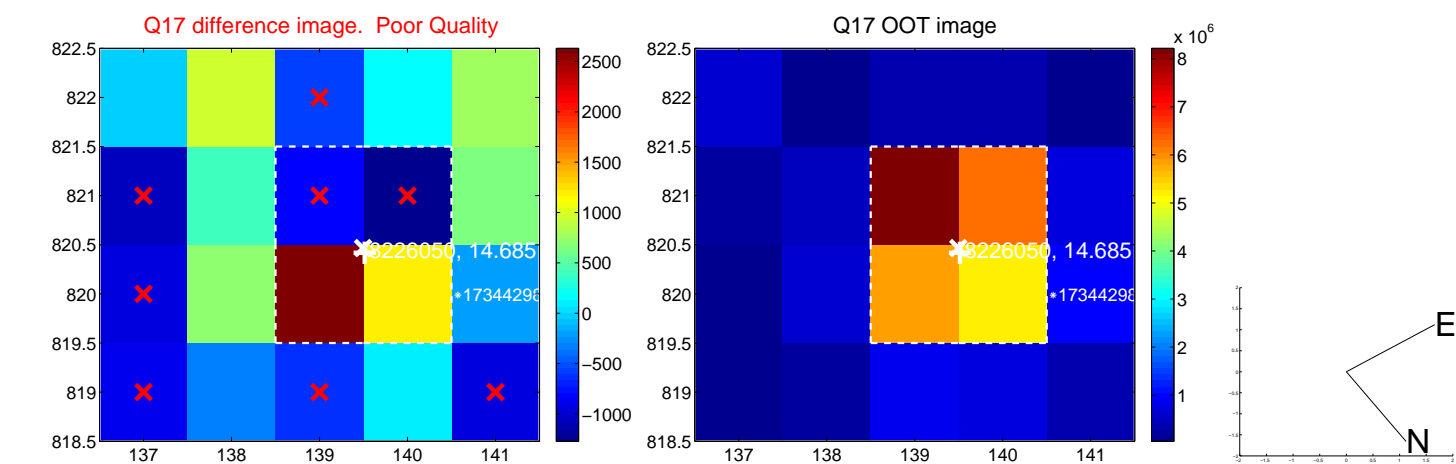
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



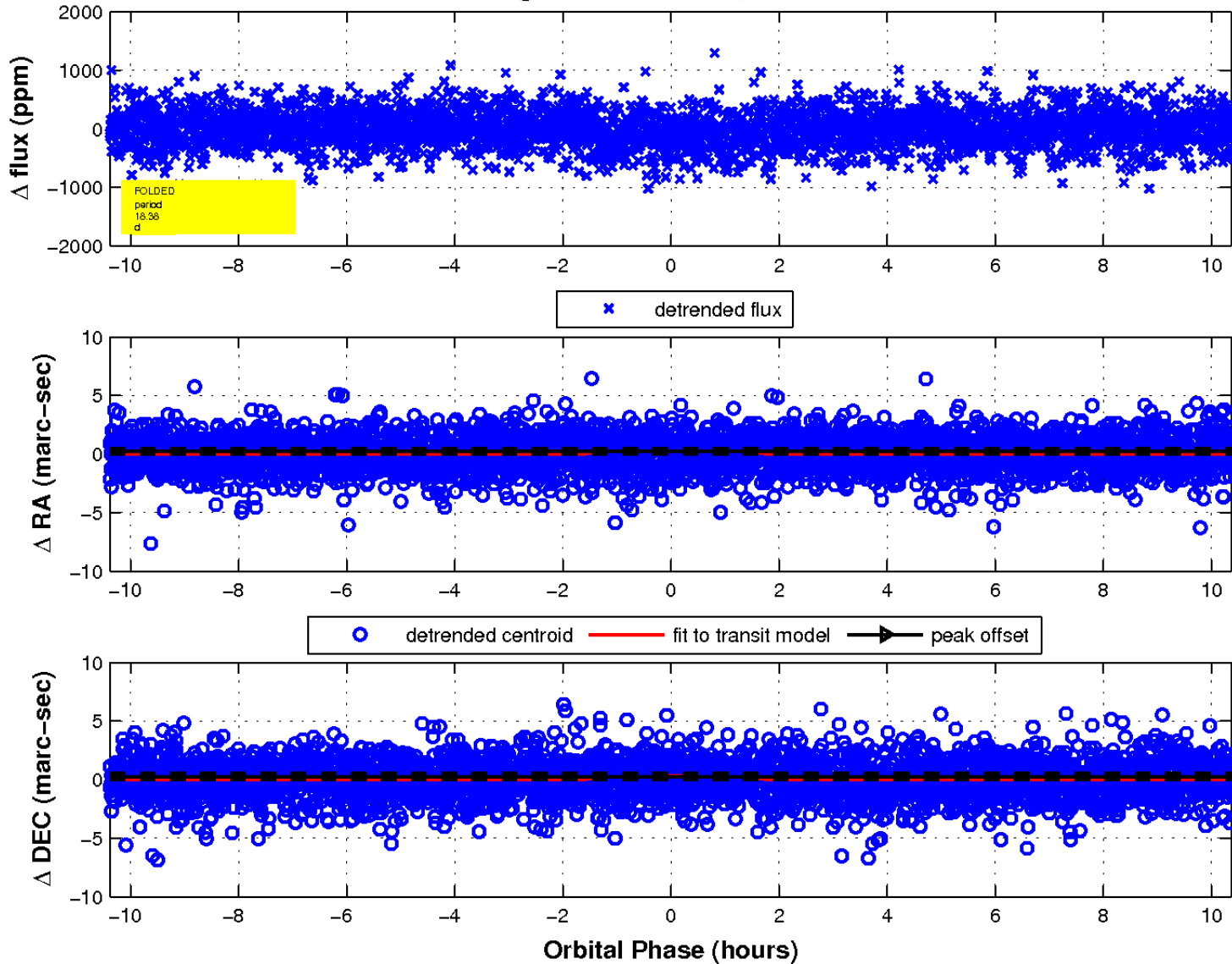
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

