

KIC 010924340

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})
010924340-01	OBS	No	0.750736	131.808420	49.8	0.965	10.1	14.2	0.94	6187	0.79	4378.50
010924340-02	OBS	4326.01	0.750731	132.188695	36.7	1.250	9.8	12.2	0.94	6187	0.67	4378.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010924340-01	OBS	FP	0.00	1	0	0	1	MOD_NONUNIQ_ALT—EPHEM_MATCH
010924340-02	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—EPHEM_MATCH

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 010924340-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
010924340-01	10924340	010924462-pri	10924462	2:1	182.0	46	-1	13.40	13.94	6880.00	Col-Anomaly	0	2.52	0.02

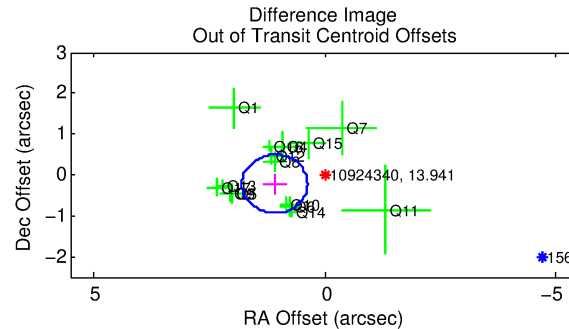
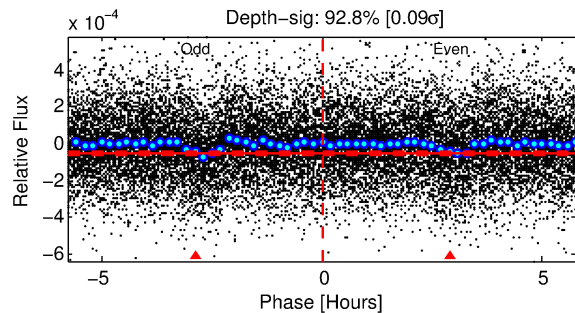
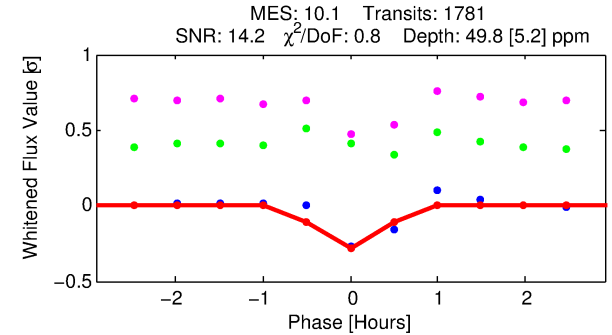
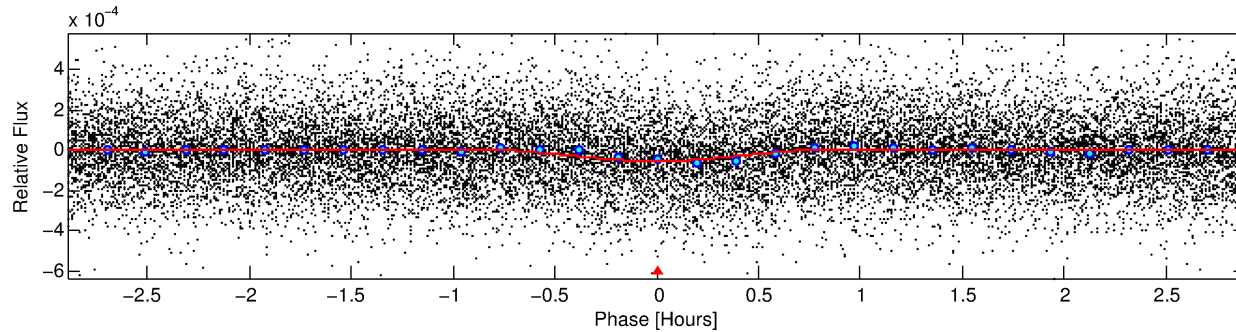
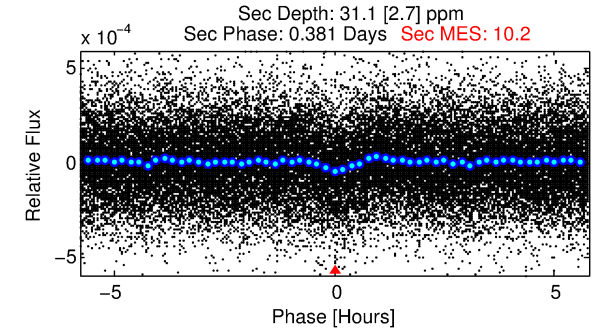
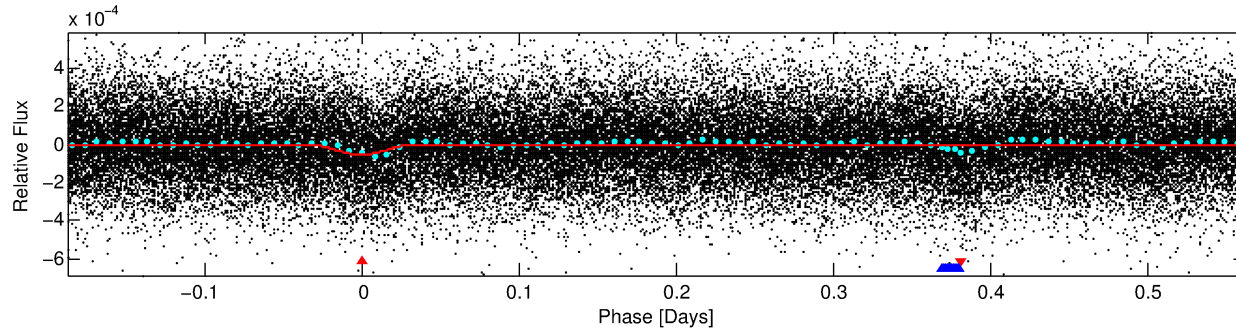
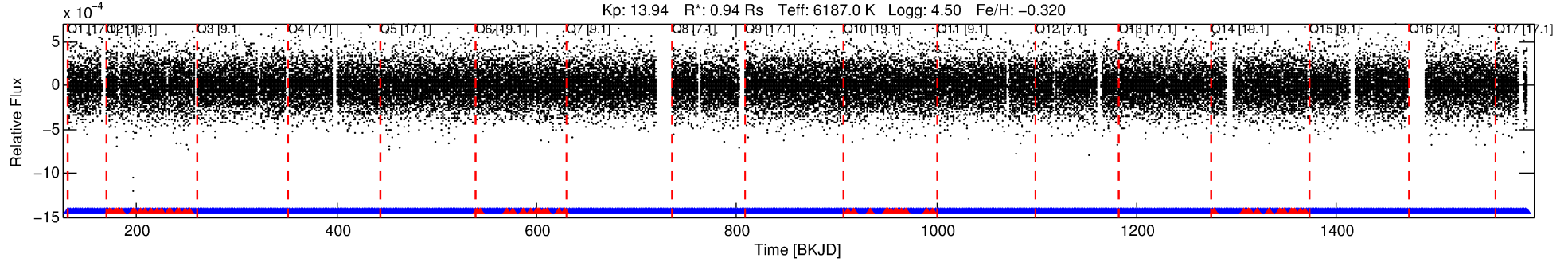
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10924340 Candidate: 1 of 2 Period: 0.751 d

KOI: K04326 Corr: No Ephemeris Match

Kp: 13.94 R*: 0.94 Rs Teff: 6187.0 K Logg: 4.50 Fe/H: -0.320



DV Fit Results:

Period = 0.75074 [0.00001] d
Epoch = 131.8084 [0.0012] BKJD
Rp/R* = 0.0077 [0.0016]
a/R* = 2.80 [2.76]
b = 0.90 [0.23]
Seff = 4378.50 [1890.97]
Teq = 2074 [224] K
Rp = 0.78 [0.30] Re
a = 0.0162 [0.0045] AU
Ag = 7.32 [4.36] [1.45σ]
Teffp = 5276 [587] K [5.10σ]

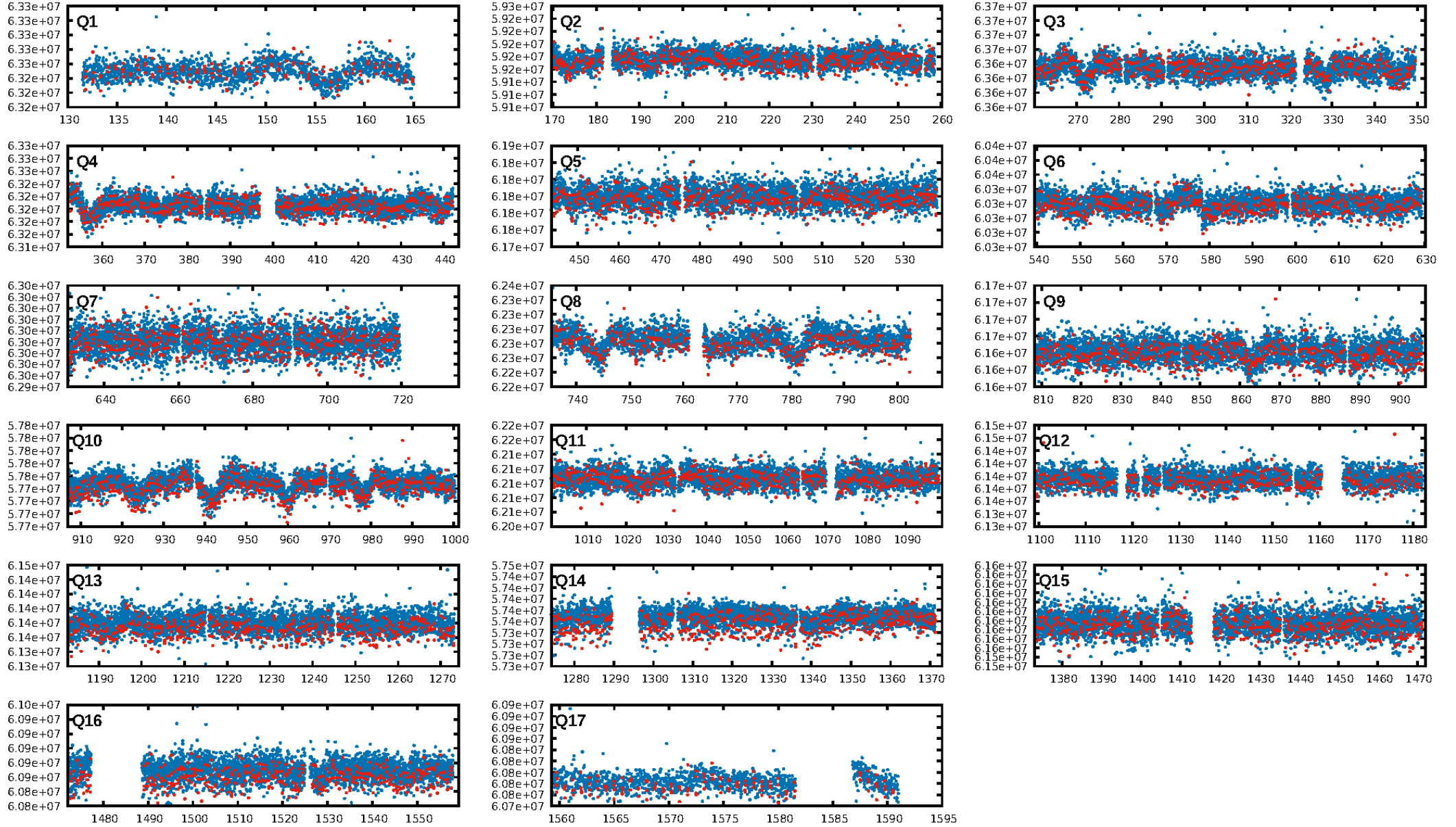
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.73e-28
RollingBand-fgt: 0.96 [1639/1701]
GhostDiagnostic-chr: 1.967
Centroid-sig: 0.0%
Centroid-so: 2.484 arcsec [2.76σ]
OotOffset-rm: 1.101 arcsec [4.62σ]
KicOffset-rm: 1.171 arcsec [4.51σ]
OotOffset-st: 3/3/4/5 [15]
KicOffset-st: 3/3/4/5 [15]
DiffImageQuality-fgm: 0.93 [14/15]
DiffImageOverlap-fno: 1.00 [17/17]

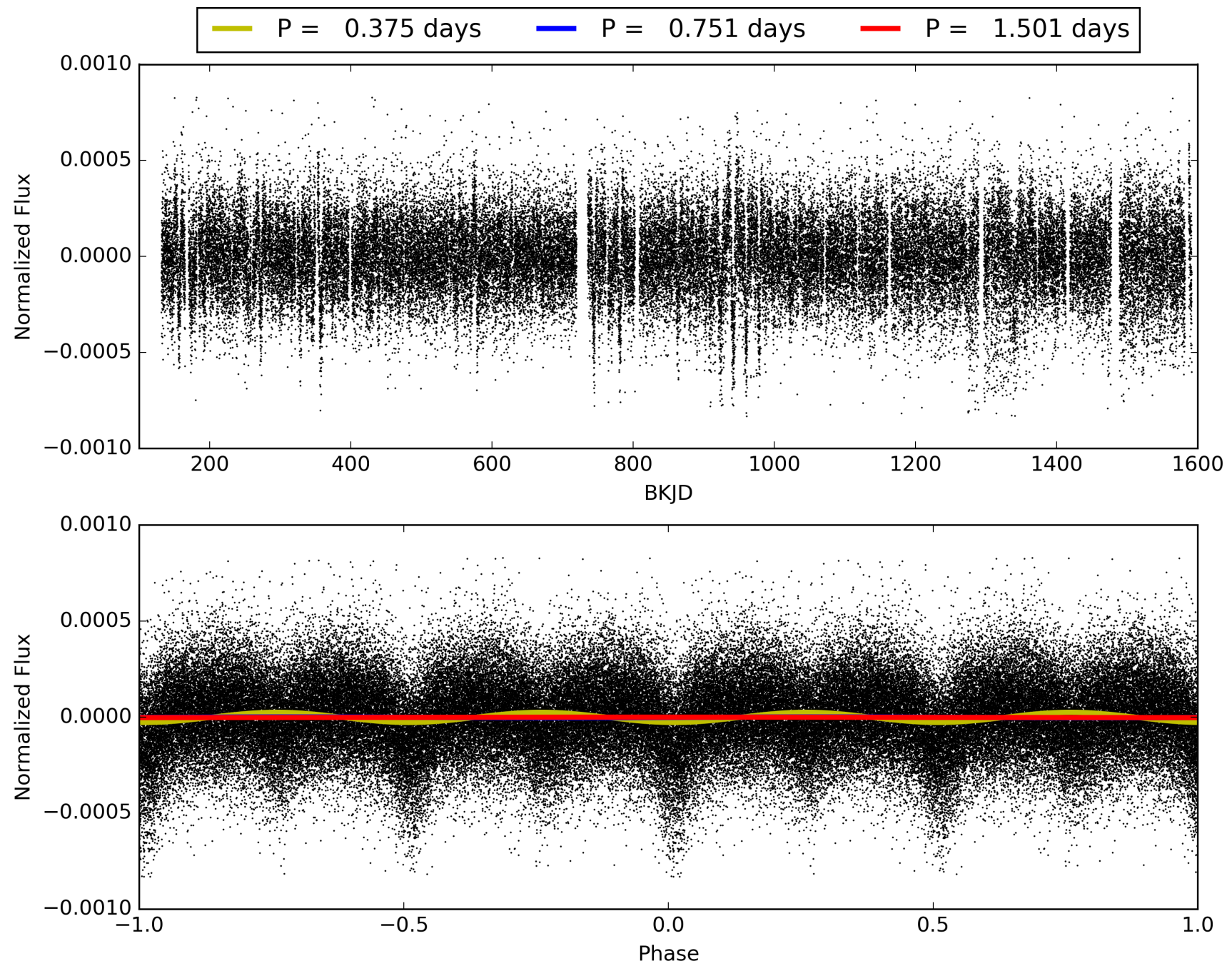
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:41:07 Z

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

TCE 010924340-01, PDC Light Curves

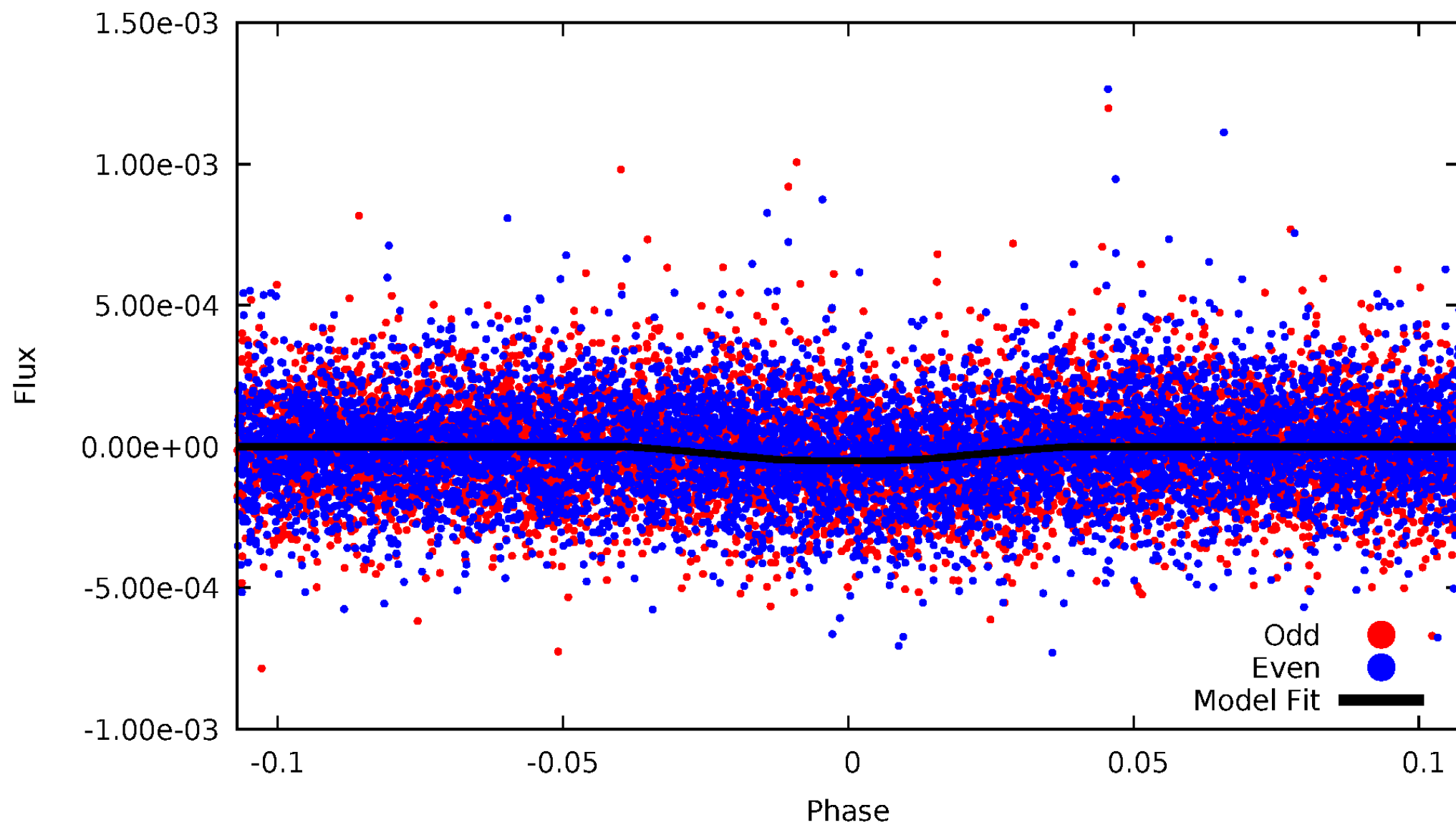


TCE 010924340-01



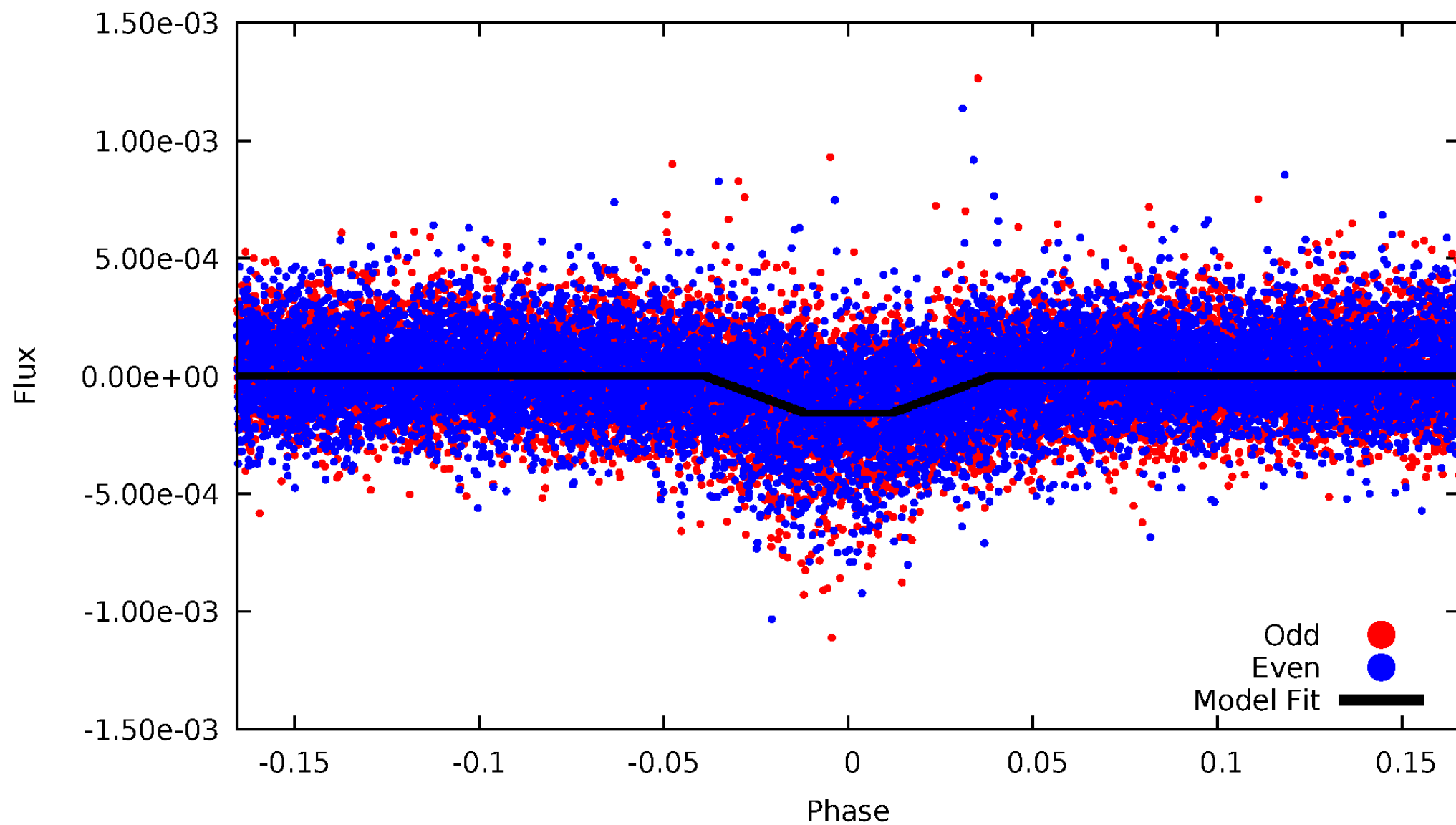
DV Odd/Even

TCE 010924340-01



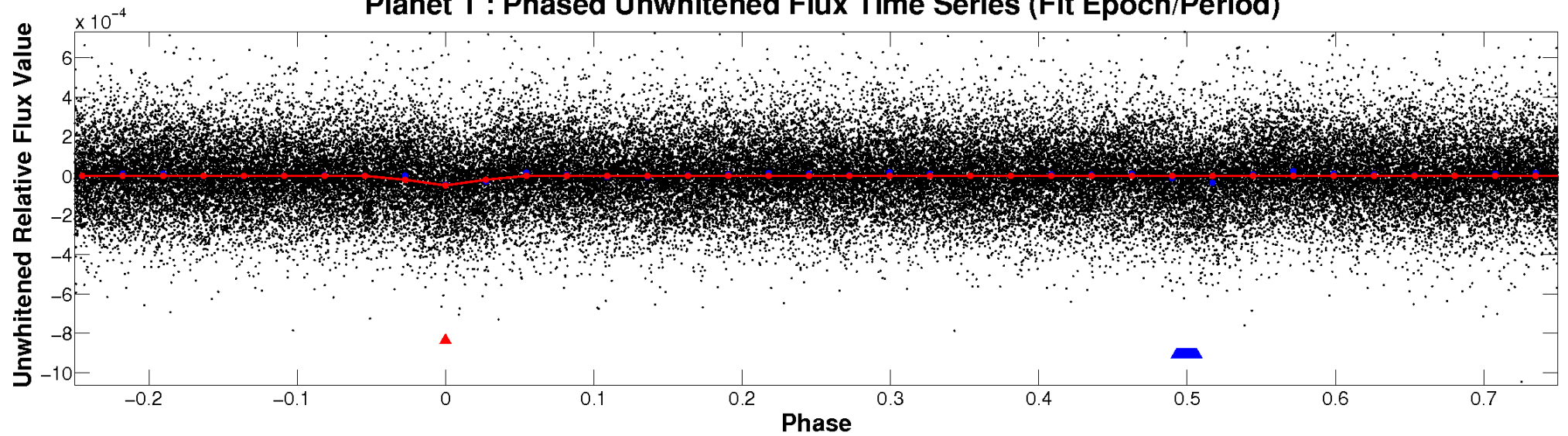
ALT Odd/Even

TCE 010924340-01

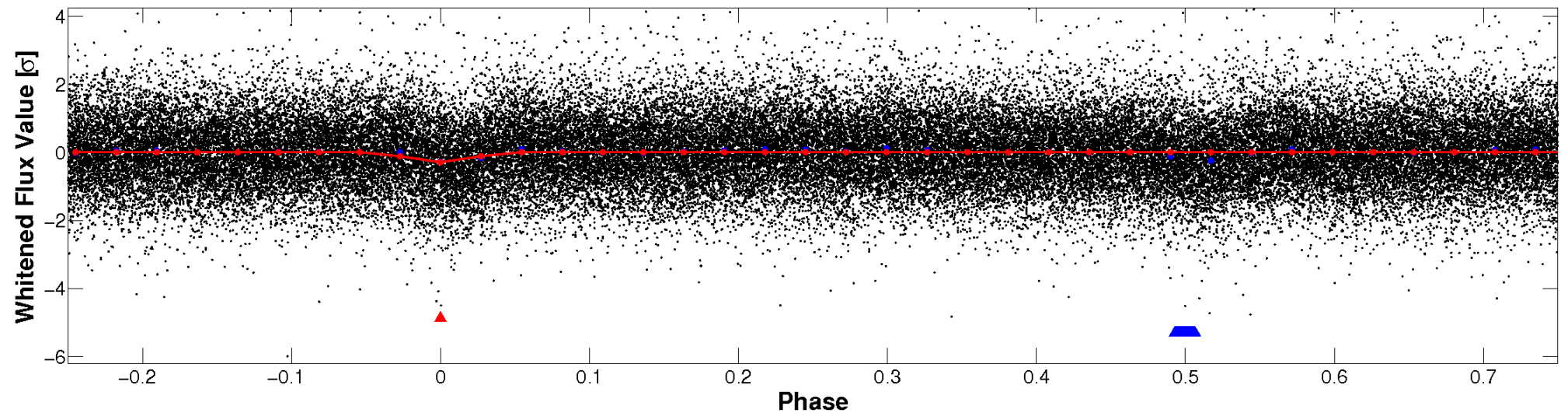


Non-Whitened Vs. Whitened Light Curve

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

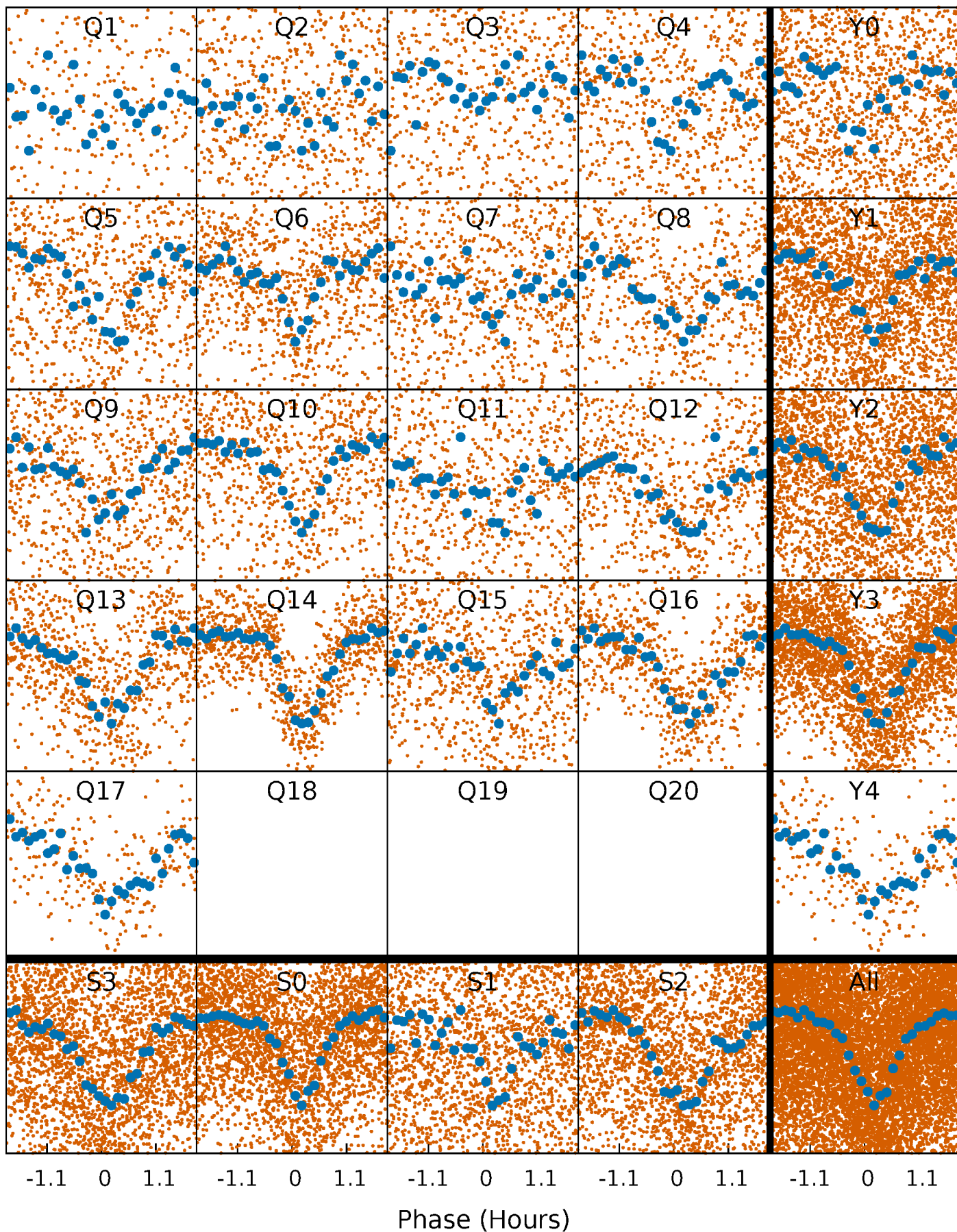


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



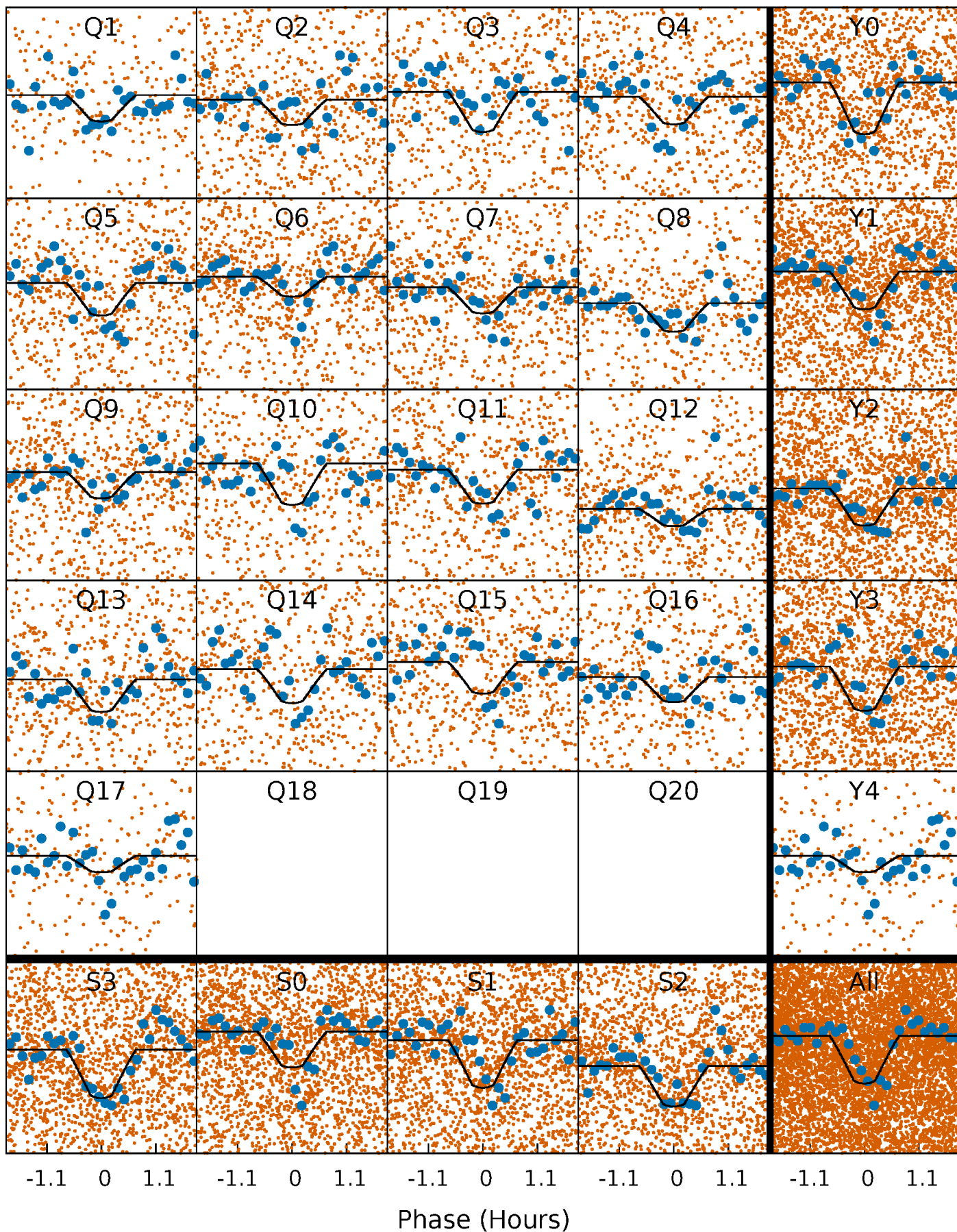
PDC Quarter-Phased Transit Curves

TCE 010924340-01 P= 0.750736 Days $T_0=131.808420$ (BKJD)



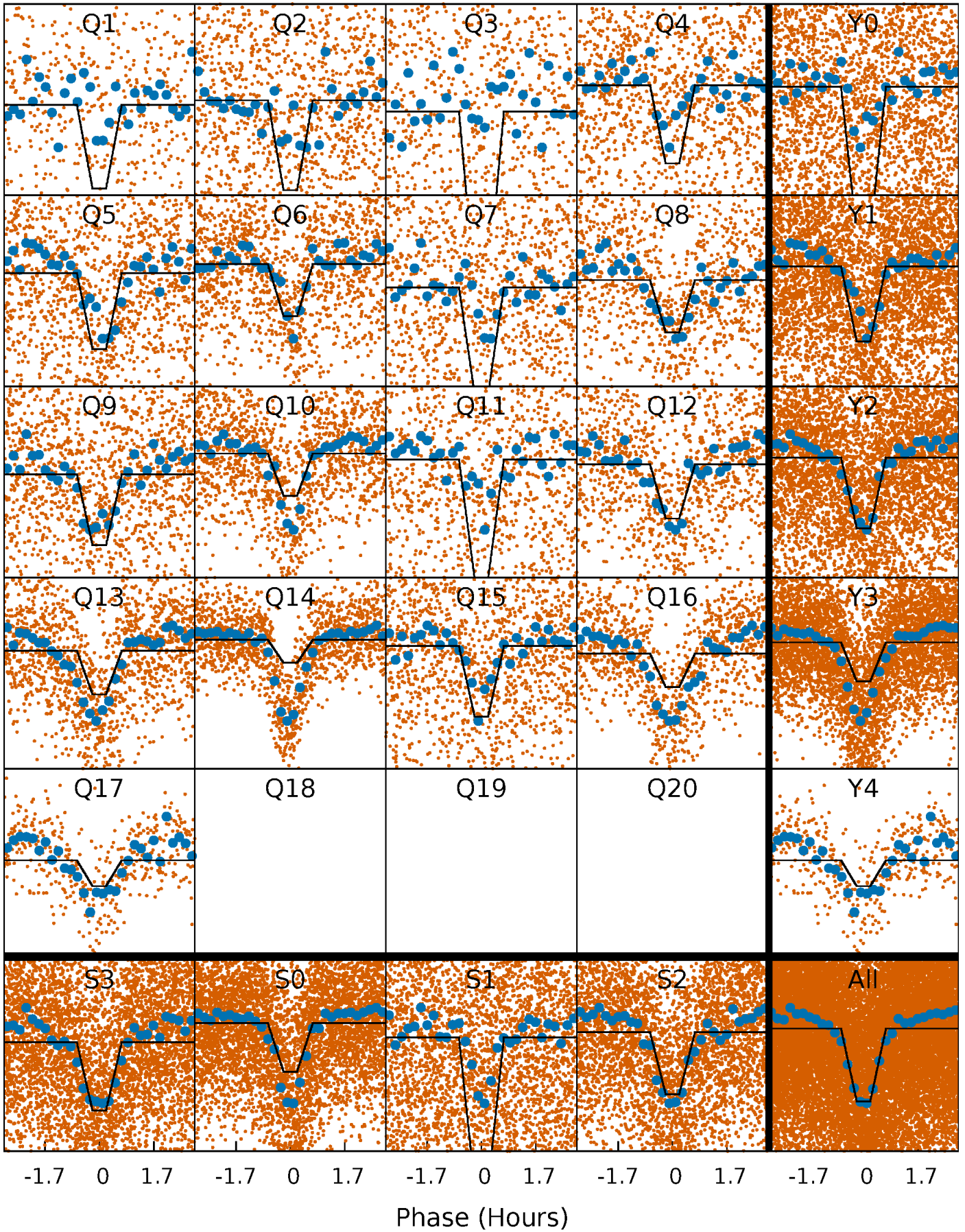
DV Quarter-Phased Transit Curves

TCE 010924340-01 P= 0.750736 Days $T_0=131.808420$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

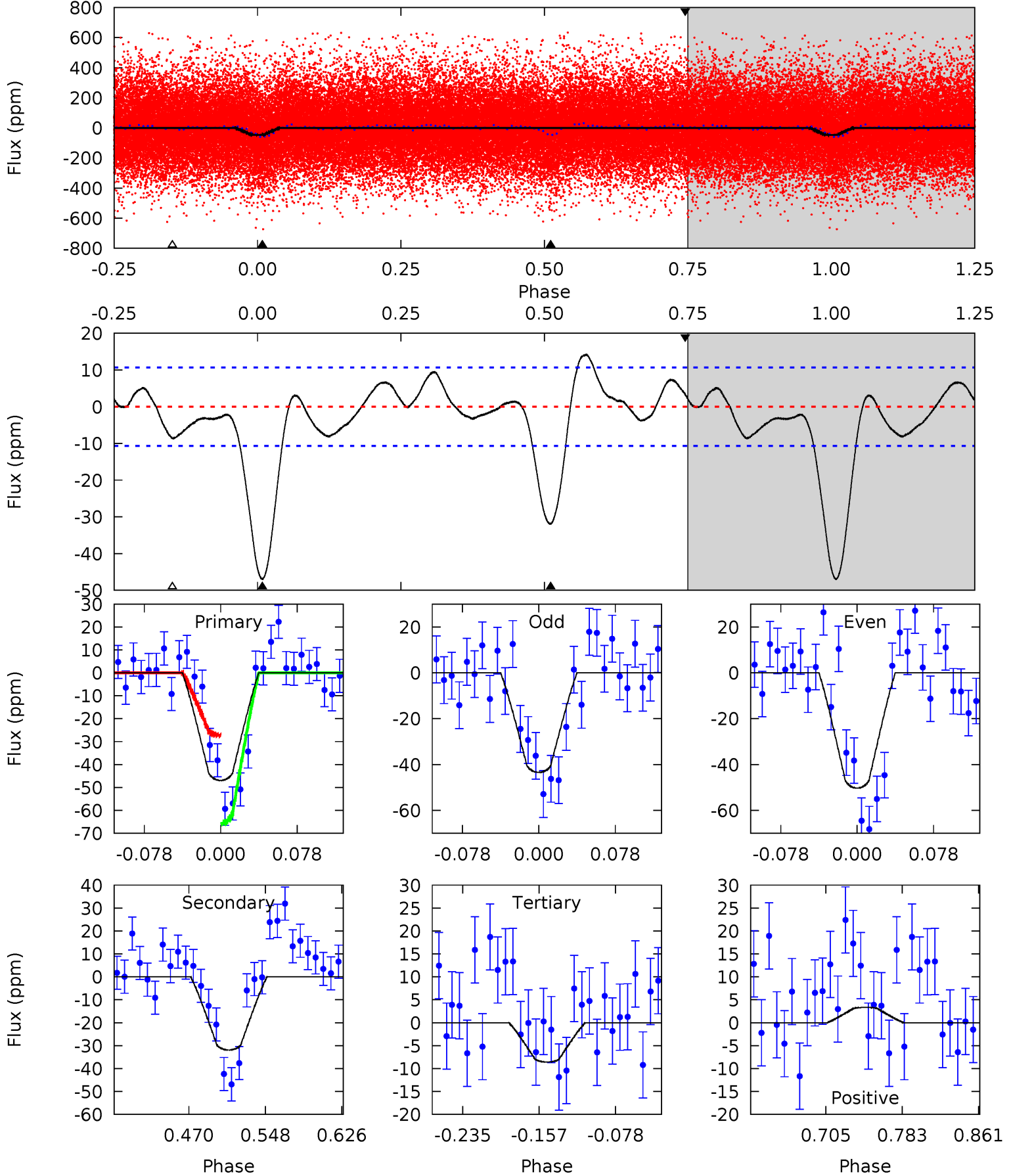
TCE 010924340-01 P= 0.750748 Days $T_0=131.802299$ (BKJD)



DV Model-Shift Uniqueness Test

010924340-01, P = 0.750736 Days, E = 131.057684 Days

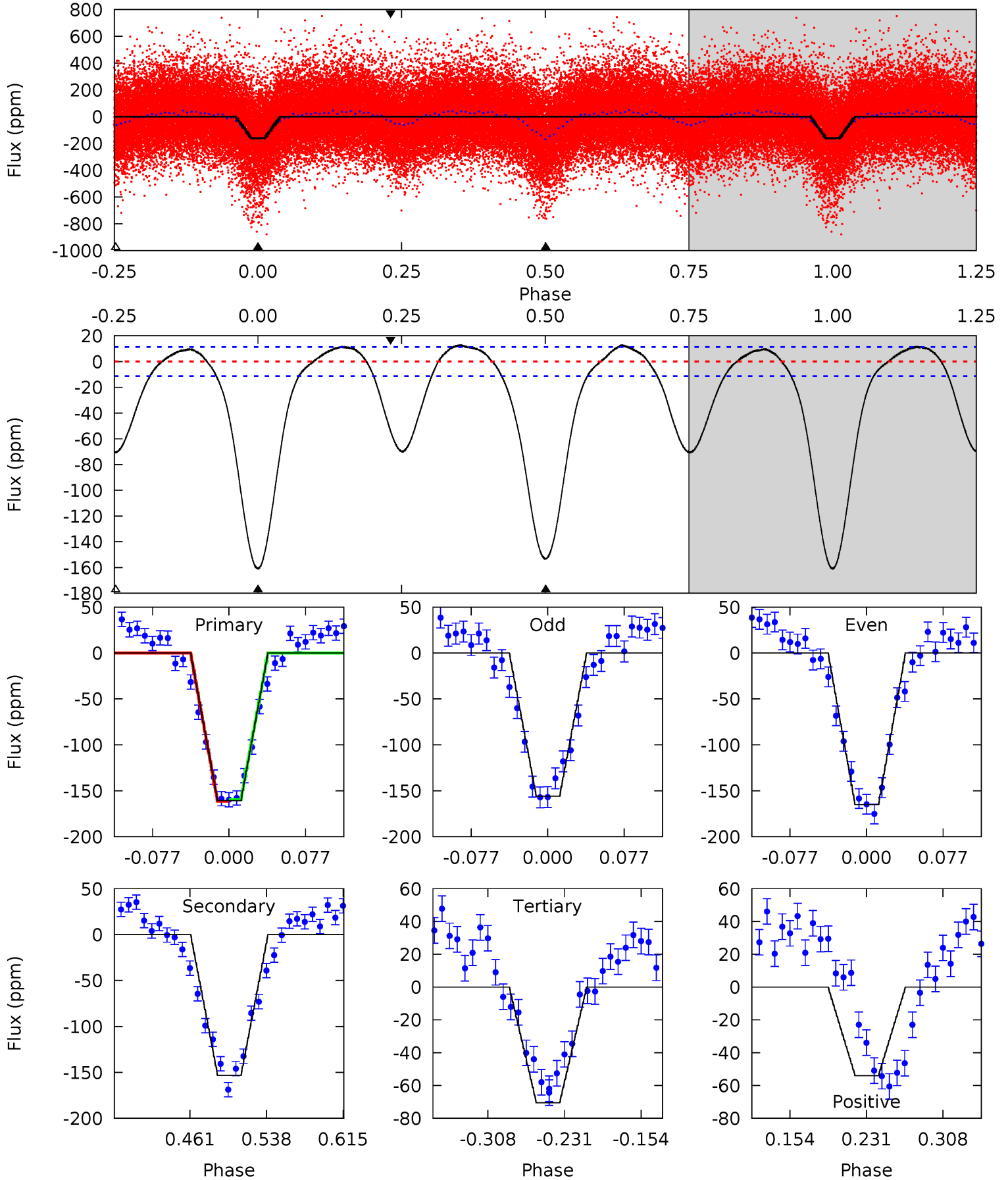
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	13.8	3.70	1.44	4.62	1.76	1.95	16.6	18.8	10.1	12.3	1.49	1.05	0.23	8.32



Alt Model-Shift Uniqueness Test

010924340-01, P = 0.750748 Days, E = 131.051551 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
65.5	62.4	28.7	-22.0	4.62	1.77	10.5	36.8	87.5	33.7	84.4	1.91	1.09	0.07	0.40



Stellar Parameters For KIC 010924340

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6187^{+169}_{-188}	$4.499^{+0.041}_{-0.230}$	$-0.320^{+0.300}_{-0.350}$	$0.937^{+0.305}_{-0.081}$	$1.011^{+0.136}_{-0.123}$	$1.732^{+0.378}_{-0.945}$
	+3%/-3%	+1%/-5%	+94%/-109%	+33%/-9%	+13%/-12%	+22%/-55%
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 010924340-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-32 ± 2	$0.82^{+0.23}_{-0.19}$	2988^{+212}_{-146}	5315^{+696}_{-479}	$6.686^{+4.639}_{-2.483}$
Alt.	-153 ± 2	$1.35^{+0.29}_{-0.20}$	2980^{+233}_{-146}	6103^{+484}_{-411}	12^{+5}_{-4}

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

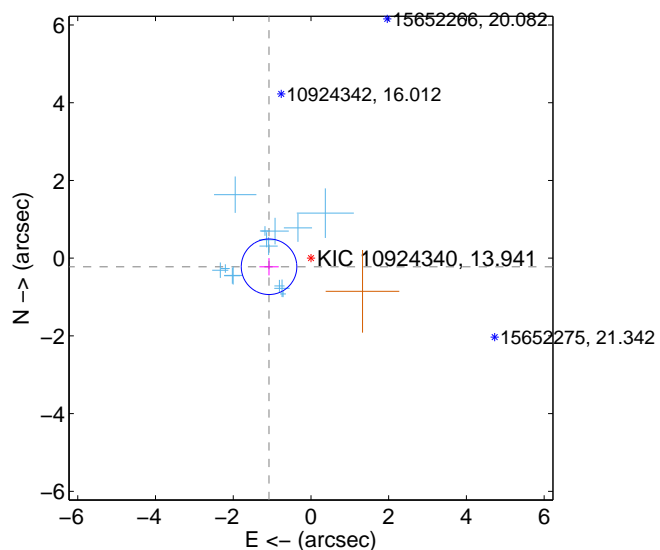
Supplemental centroid analysis for 010924340-01. Kepler magnitude: 13.94. Transit SNR 14.18

There are 14 quarters with good PRF difference image offsets

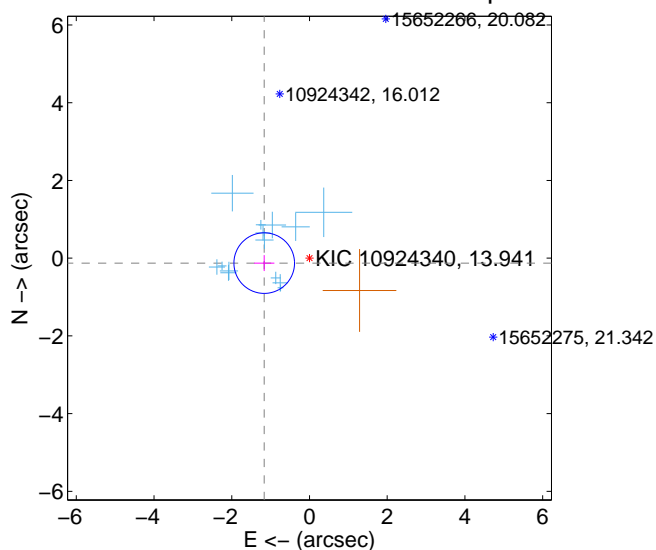
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.101 ± 0.238	4.62	1.078 ± 0.249	-0.221 ± 0.222
PRF-fit source offset from KIC position	1.171 ± 0.260	4.51	1.164 ± 0.261	-0.127 ± 0.206
photometric centroid source offset	2.48 ± 0.90	2.76	2.08 ± 0.93	-1.35 ± 0.84

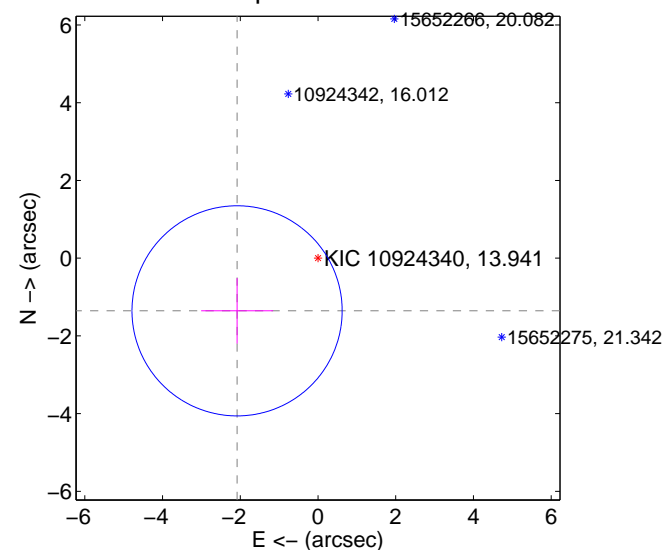
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

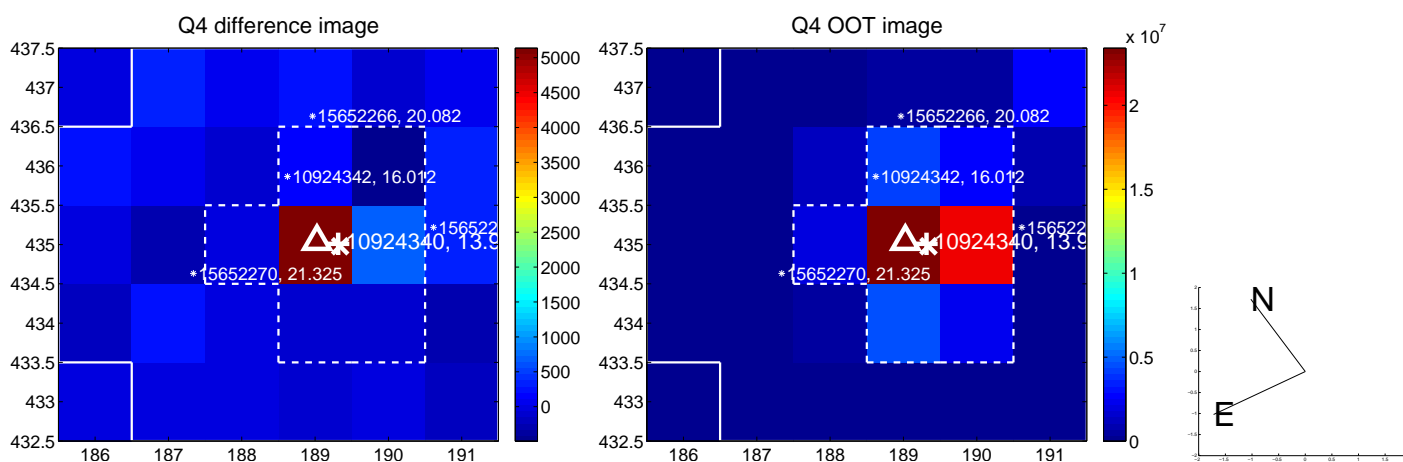
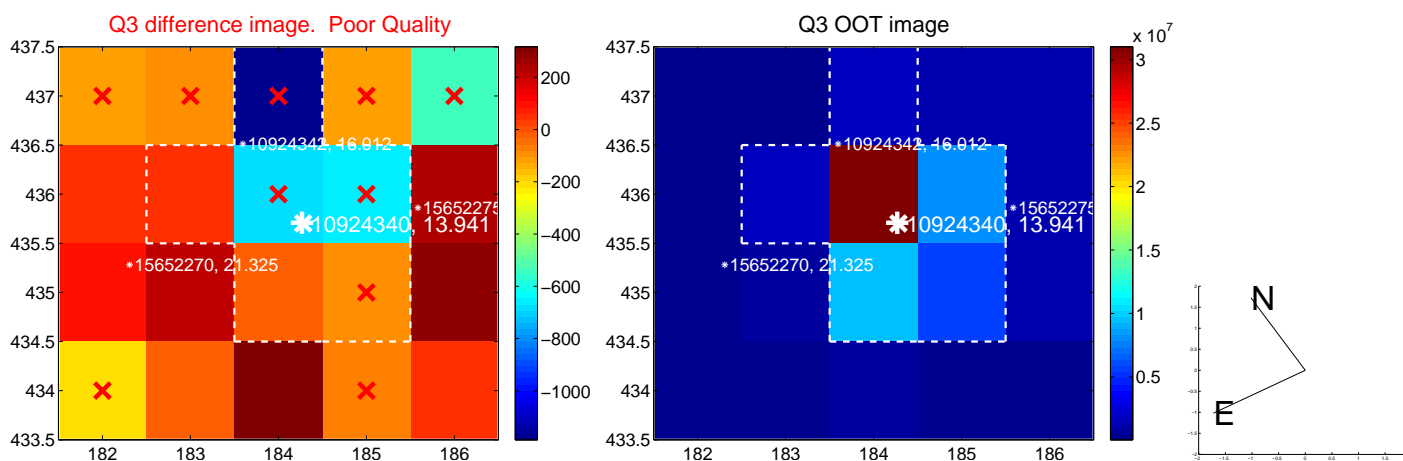
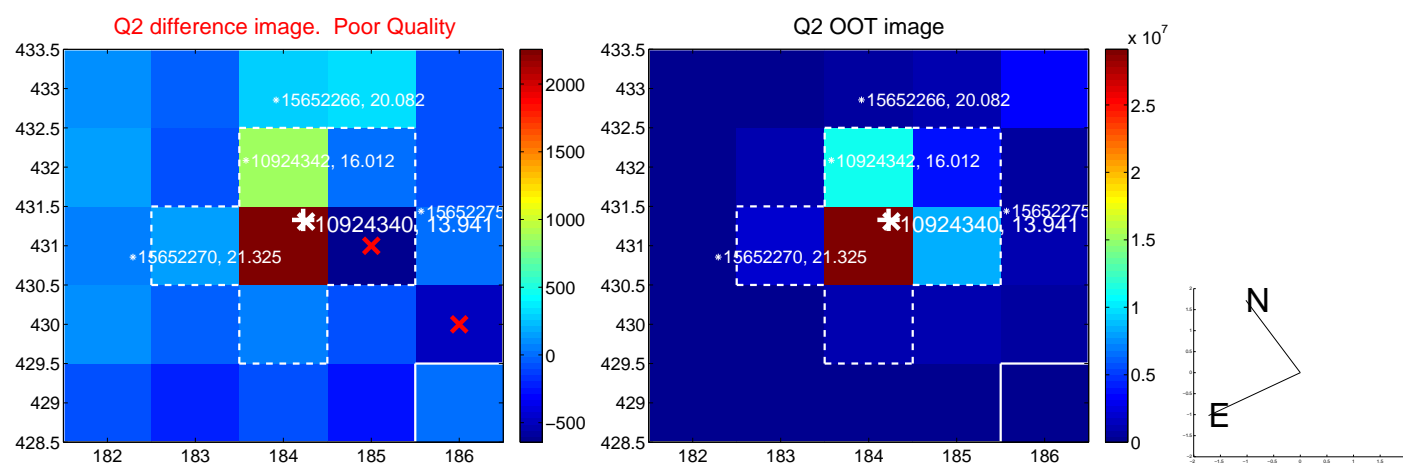
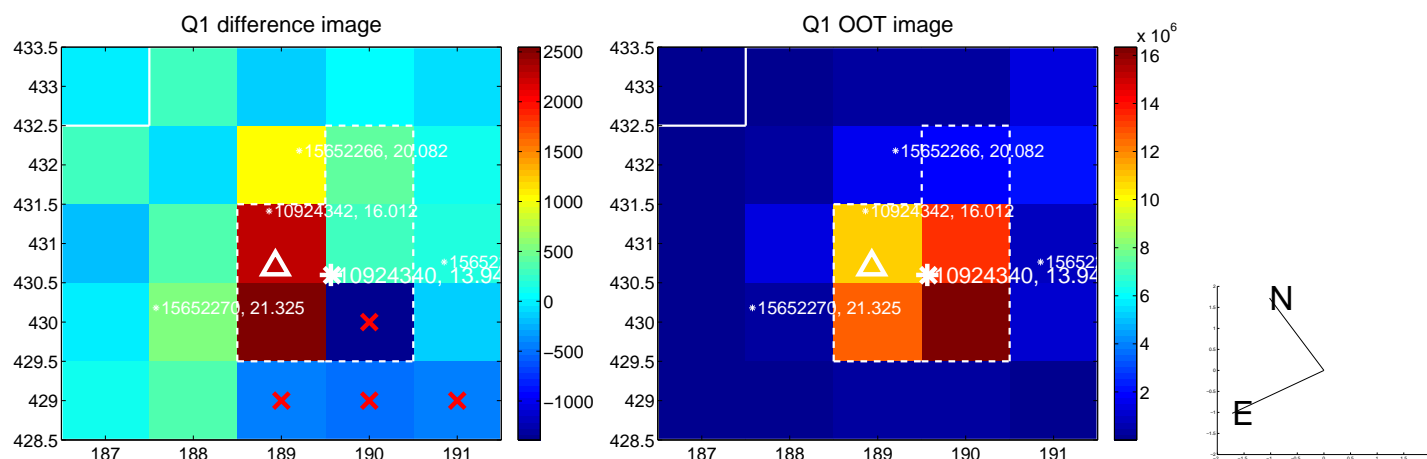


offset from photometric centroids

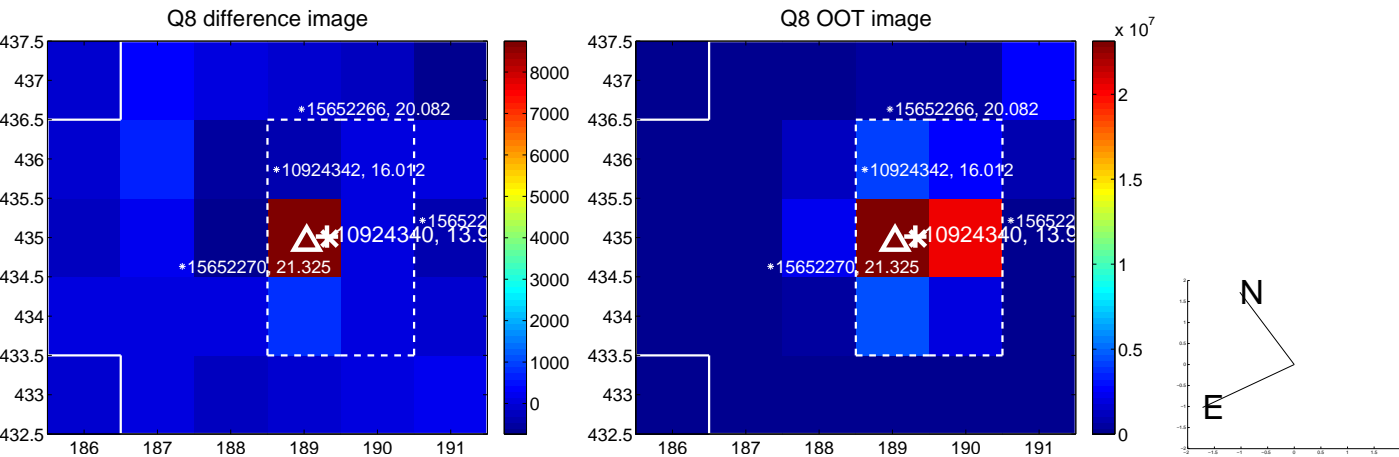
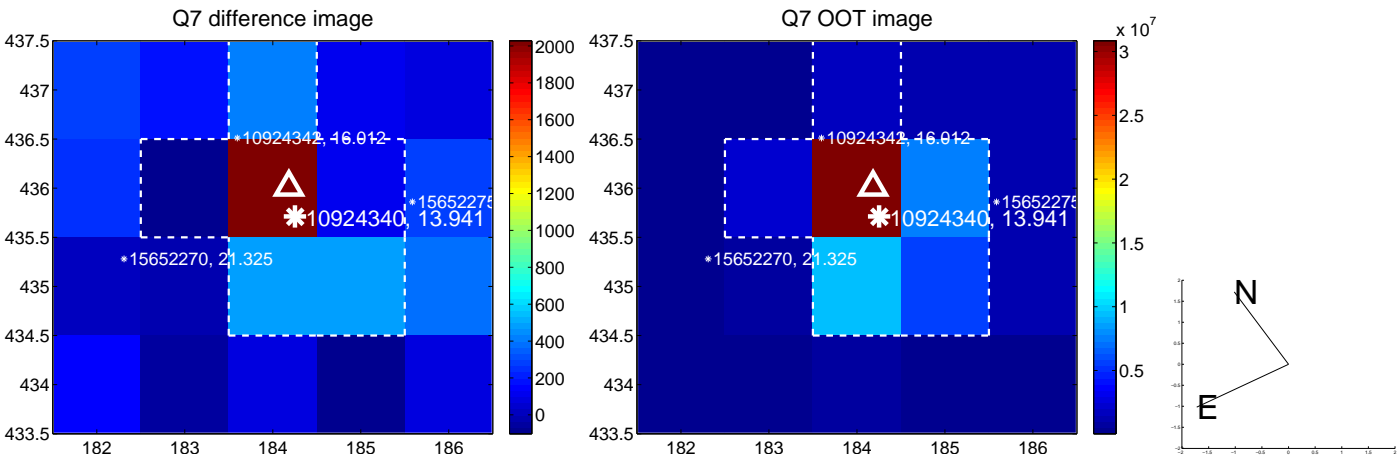
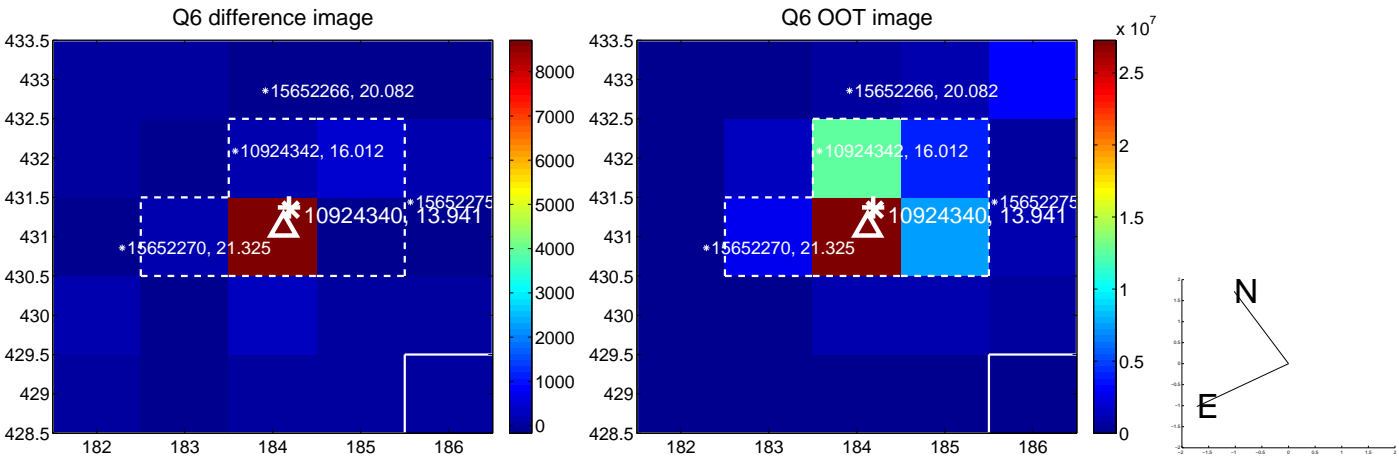
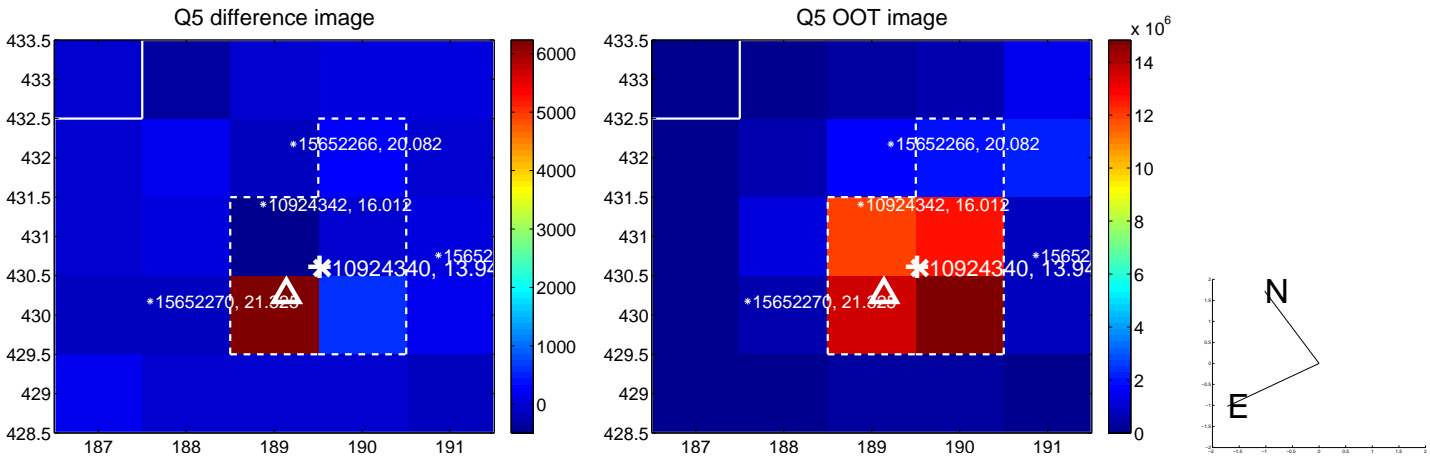


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

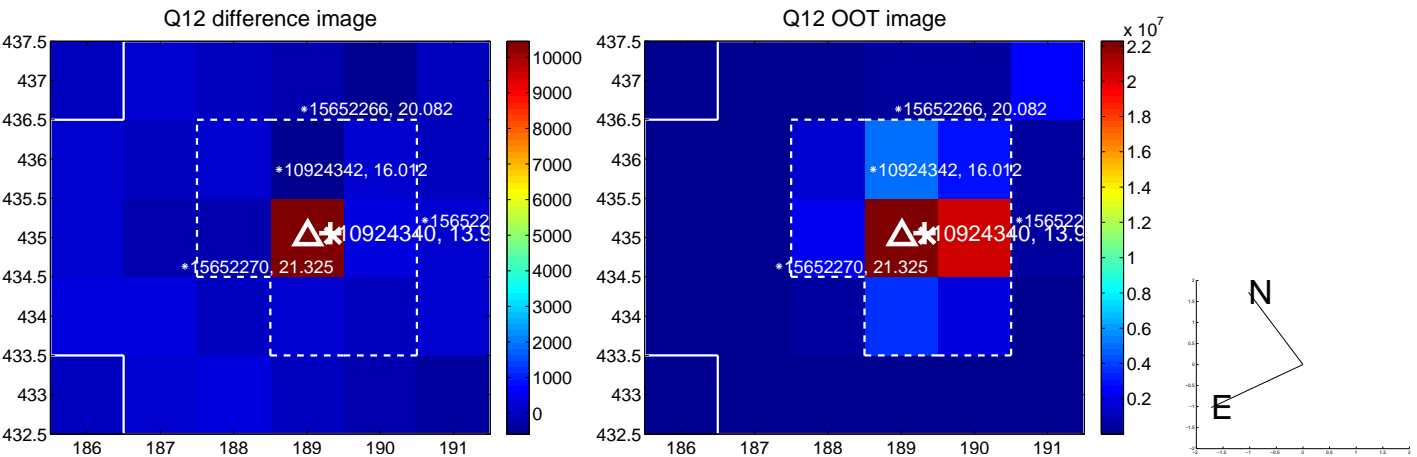
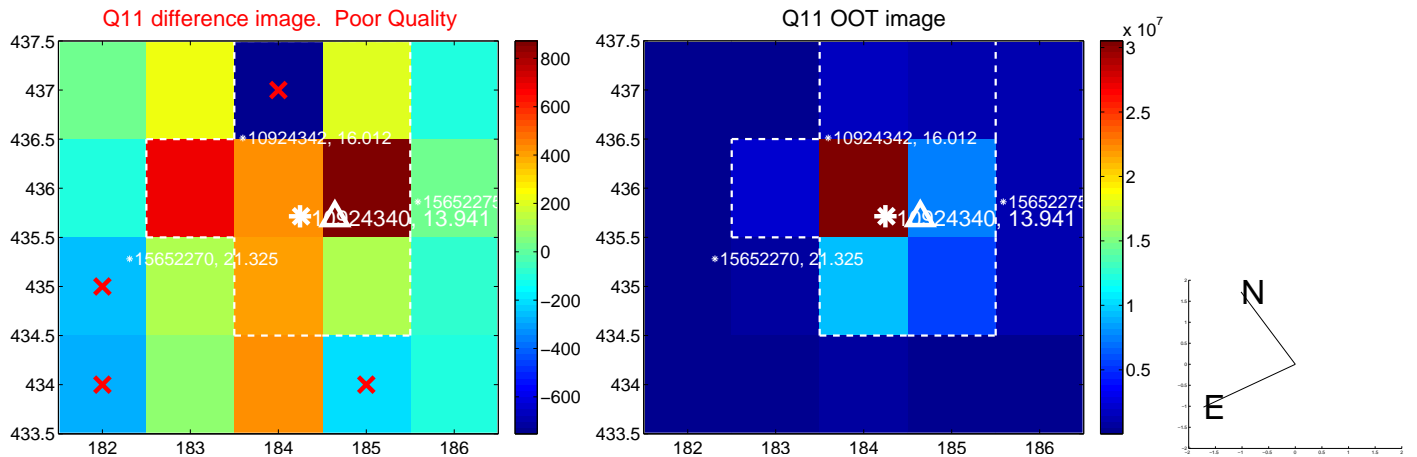
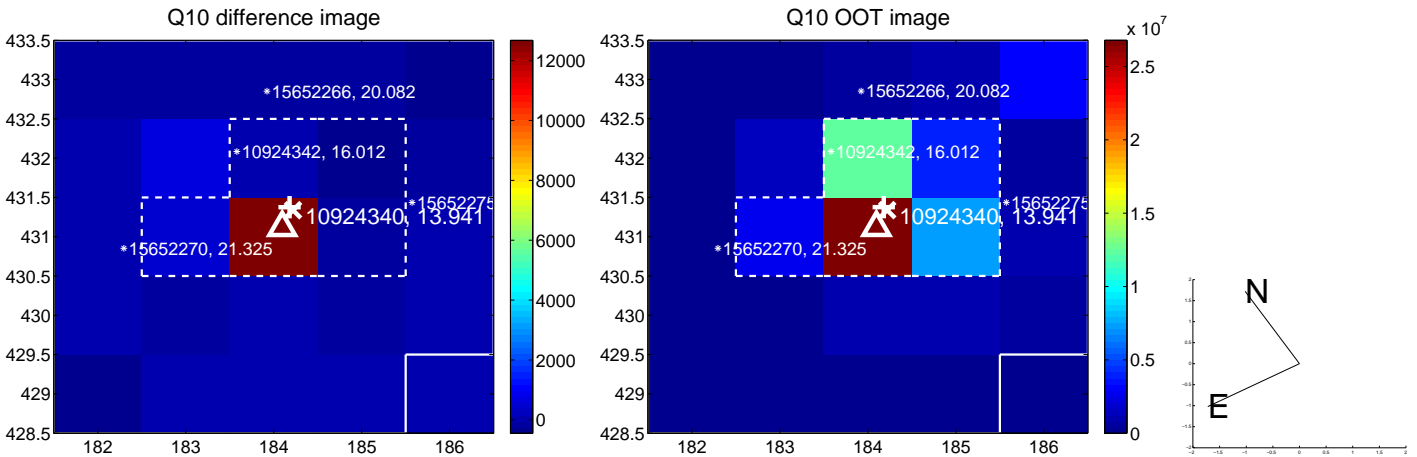
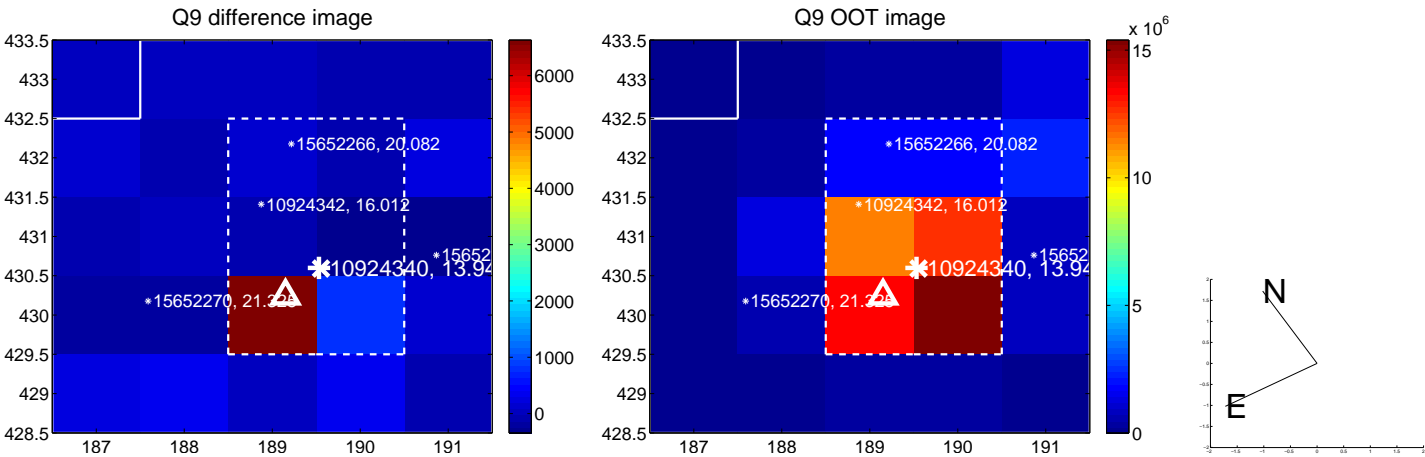
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



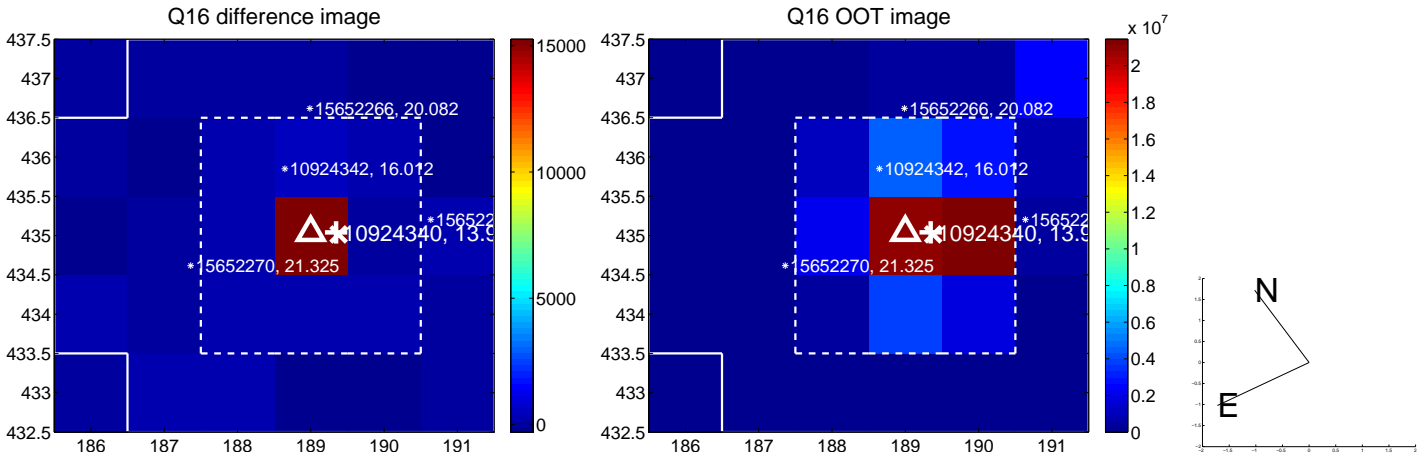
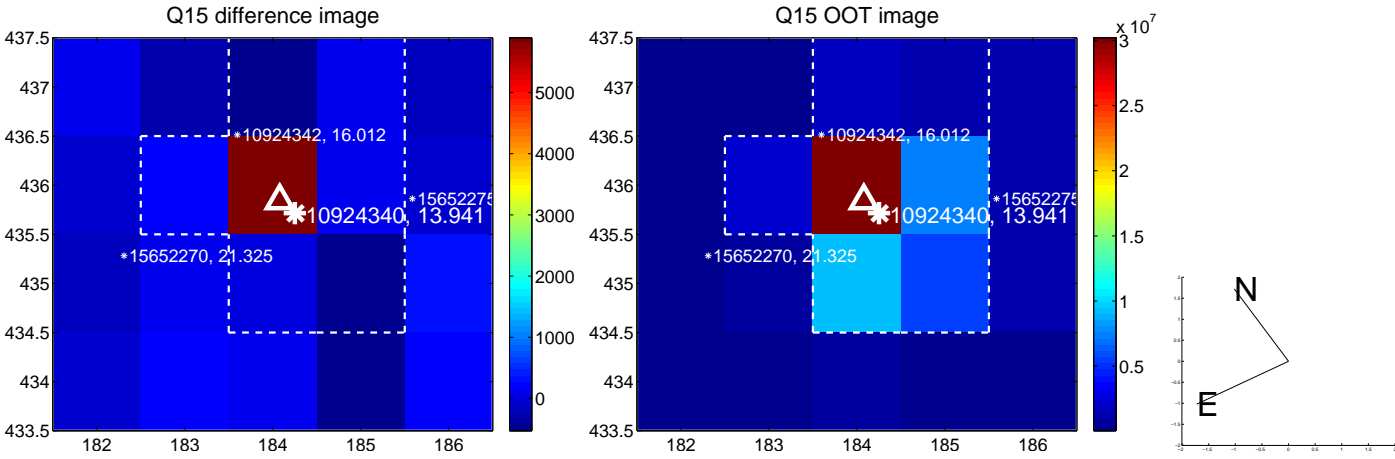
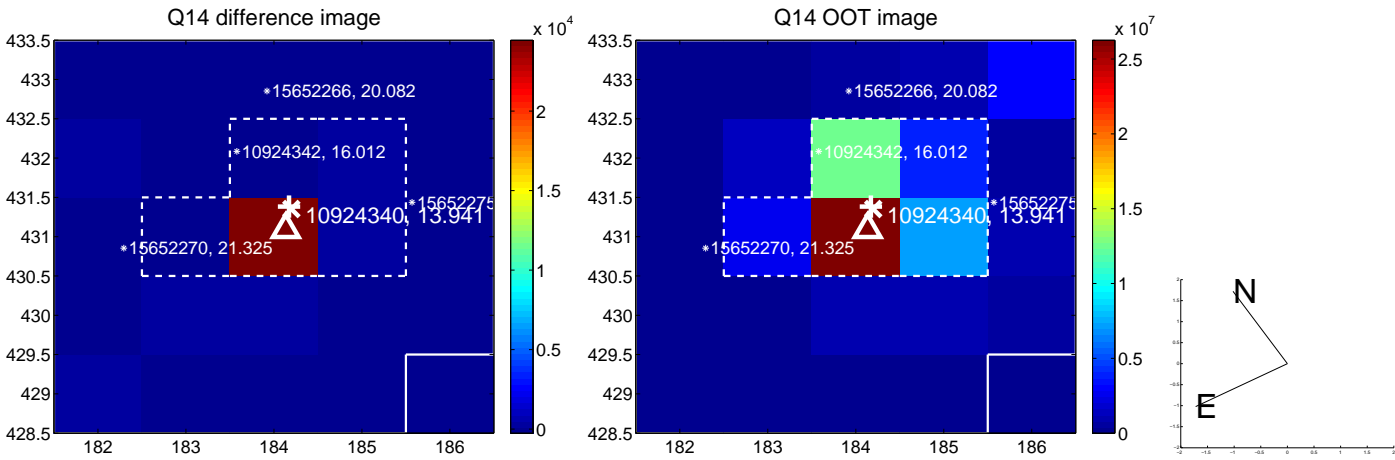
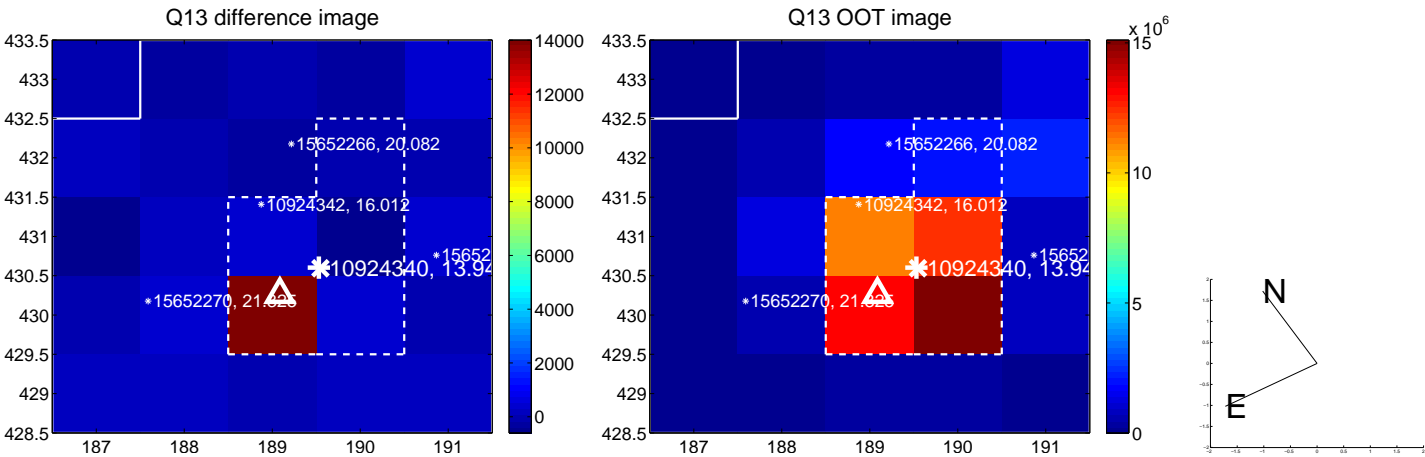
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



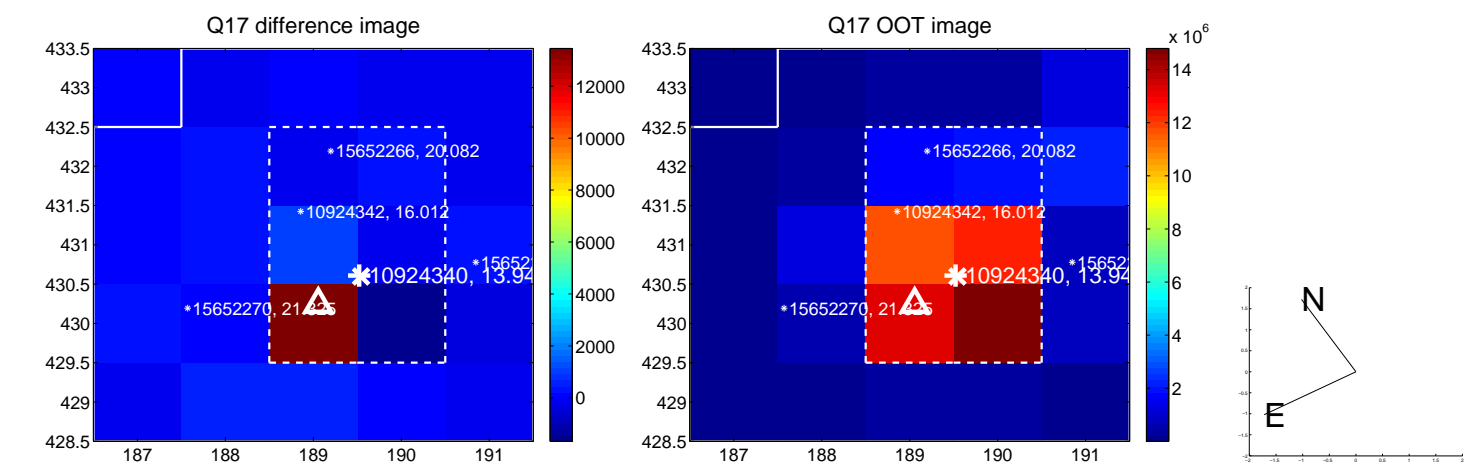
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



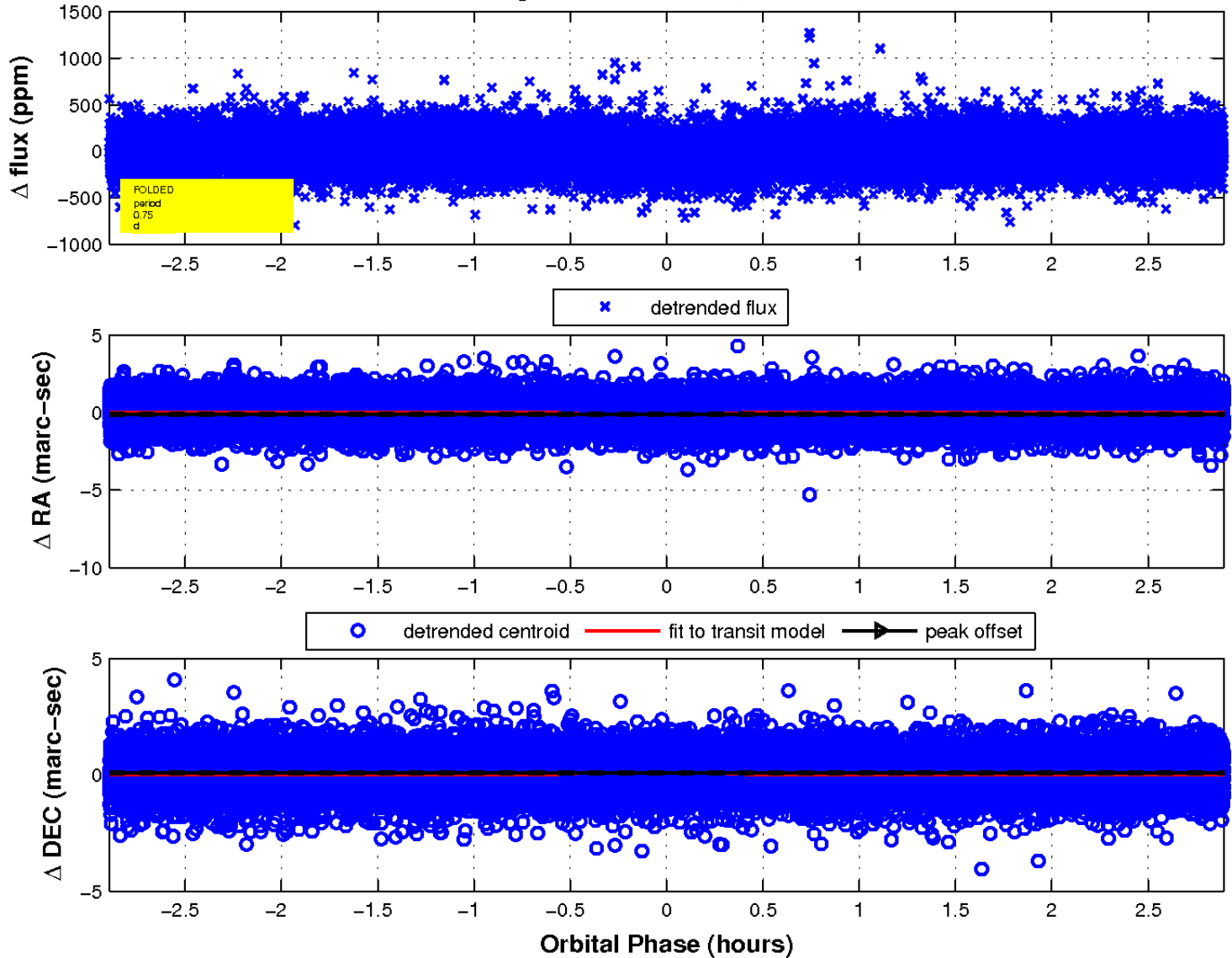
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

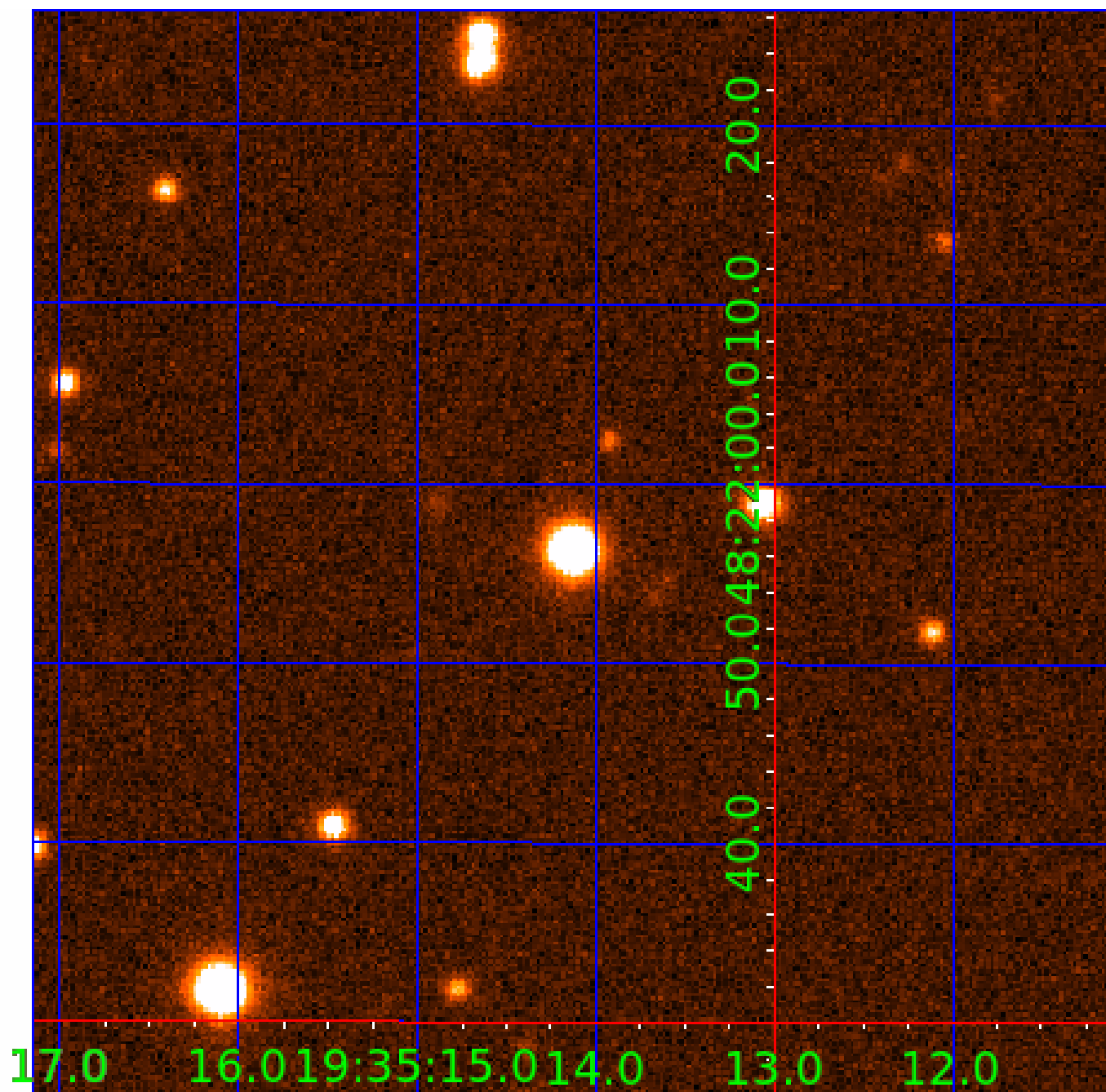


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010924340

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})
010924340-01	OBS	No	0.750736	131.808420	49.8	0.965	10.1	14.2	0.94	6187	0.79	4378.50
010924340-02	OBS	4326.01	0.750731	132.188695	36.7	1.250	9.8	12.2	0.94	6187	0.67	4378.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010924340-01	OBS	FP	0.00	1	0	0	1	MOD_NONUNIQ_ALT—EPHEM_MATCH
010924340-02	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—EPHEM_MATCH

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.

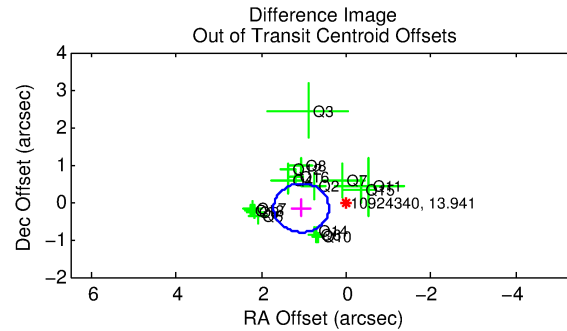
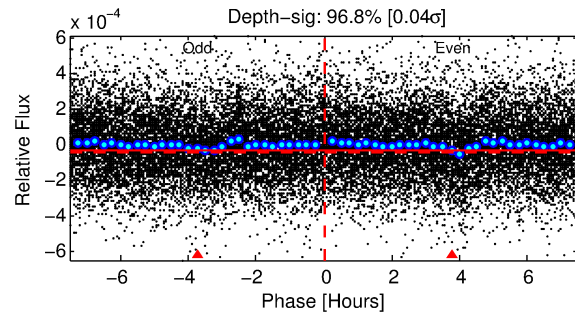
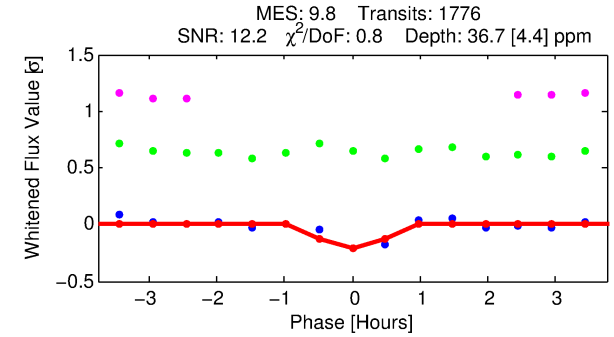
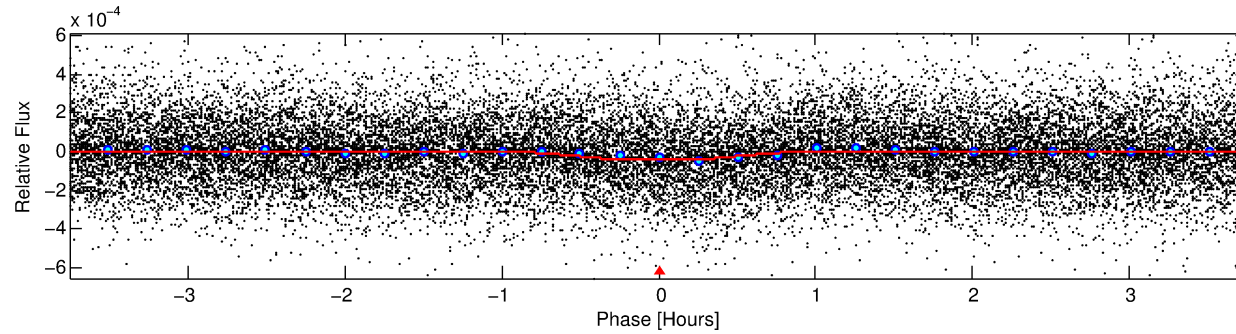
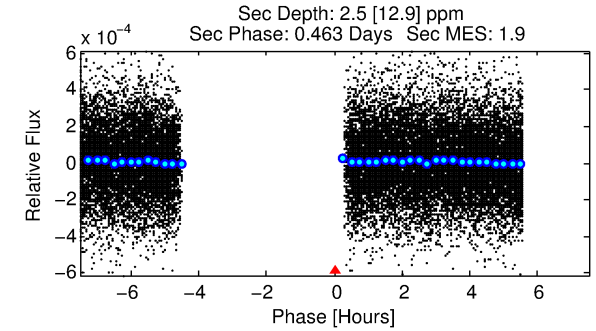
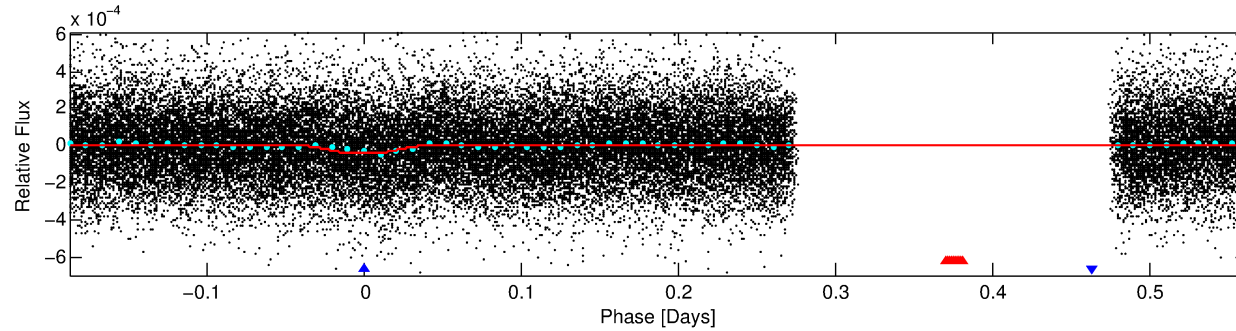
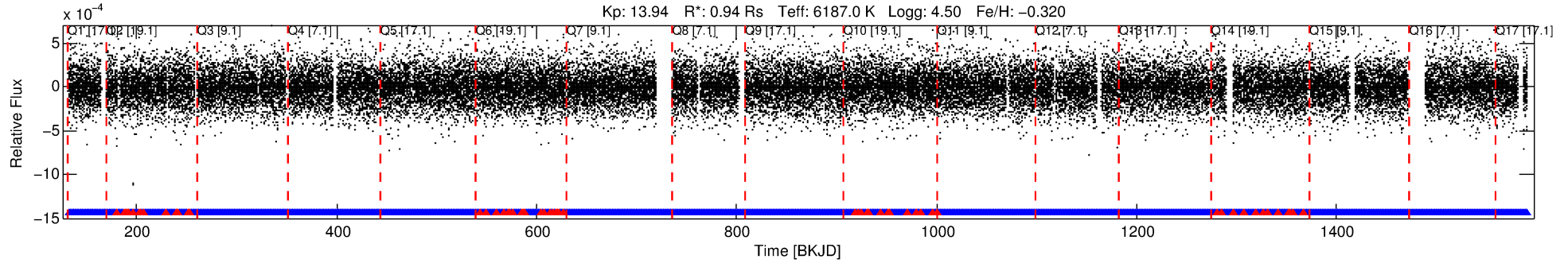
Ephemeris Match Information For 010924340-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
010924340-02	10924340	010924462-pri	10924462	2:1	182.0	46	-1	13.40	13.94	9297.30	Col-Anomaly	0	4.40	0.49

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10924340 Candidate: 2 of 2 Period: 0.751 d
KOI: K04326.01 Corr: 0.793



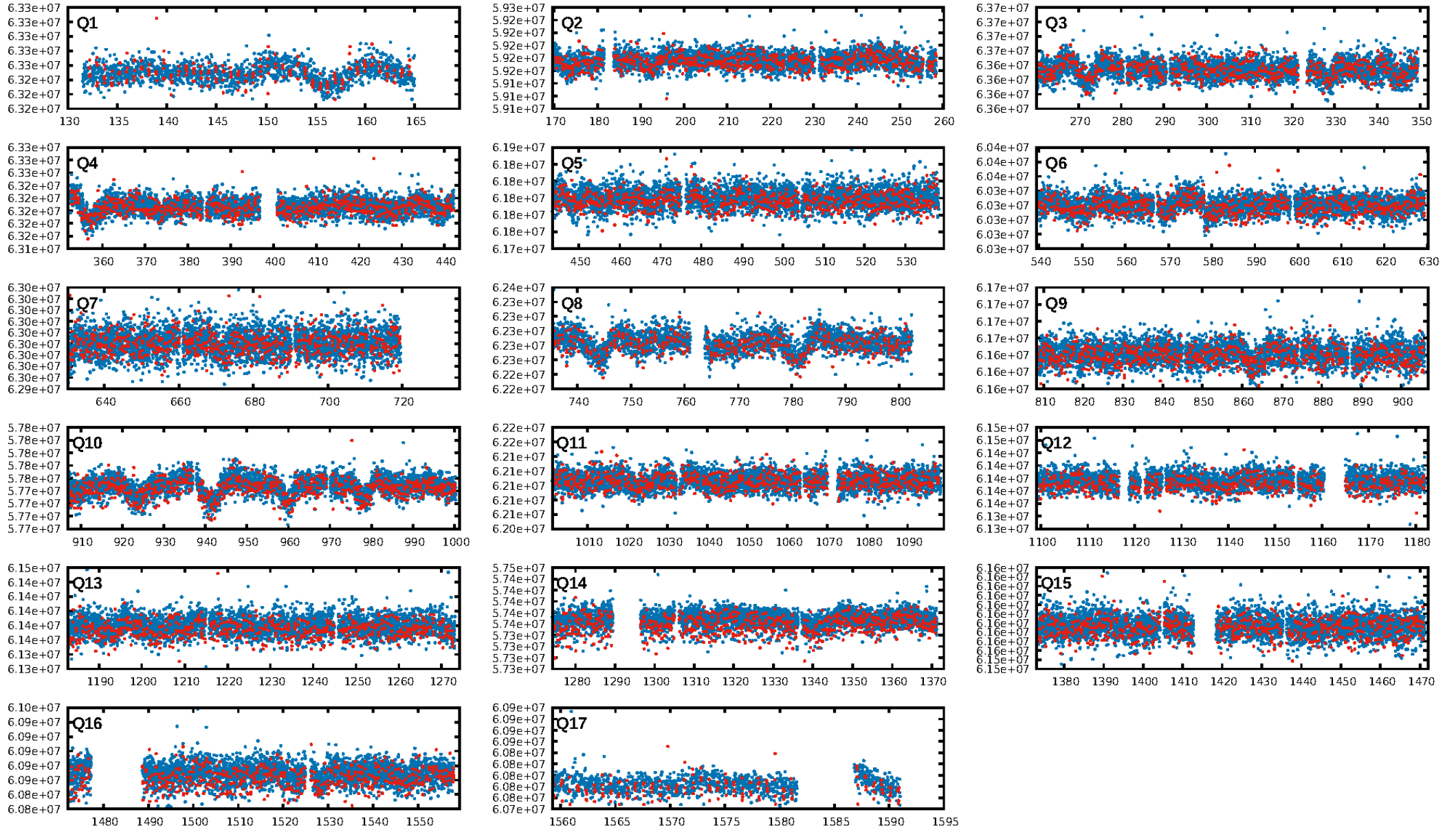
DV Fit Results:

Period = 0.75073 [0.00001] d
Epoch = 132.1887 [0.0017] BKJD
Rp/R* = 0.0065 [0.0016]
a/R* = 2.27 [2.34]
b = 0.90 [0.27]
Seff = 4378.54 [1890.99]
Teq = 2074 [224] K
Rp = 0.67 [0.27] Re
a = 0.0162 [0.0045] AU
Ag = 0.82 [4.22] [-0.04σ]
Teffp = 3055 [3900] K [0.25σ]

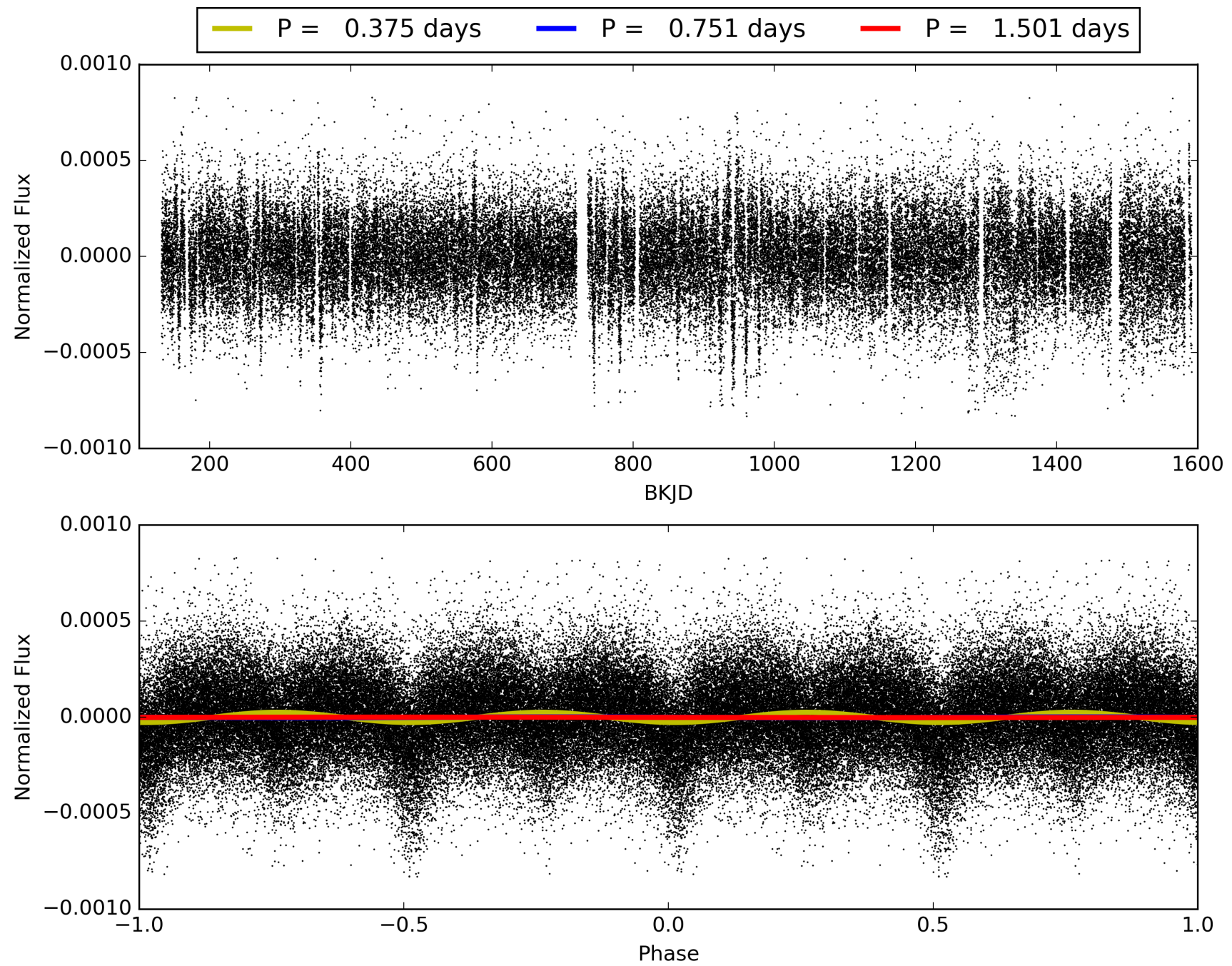
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.23e-27
RollingBand-fgt: 0.96 [1633/1696]
GhostDiagnostic-chr: 2.514
Centroid-sig: 0.1%
Centroid-so: 2.209 arcsec [2.07σ]
OotOffset-rm: 1.065 arcsec [4.91σ]
KicOffset-rm: 1.156 arcsec [5.15σ]
OotOffset-st: 4/4/4/4 [16]
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TCE 010924340-02, PDC Light Curves

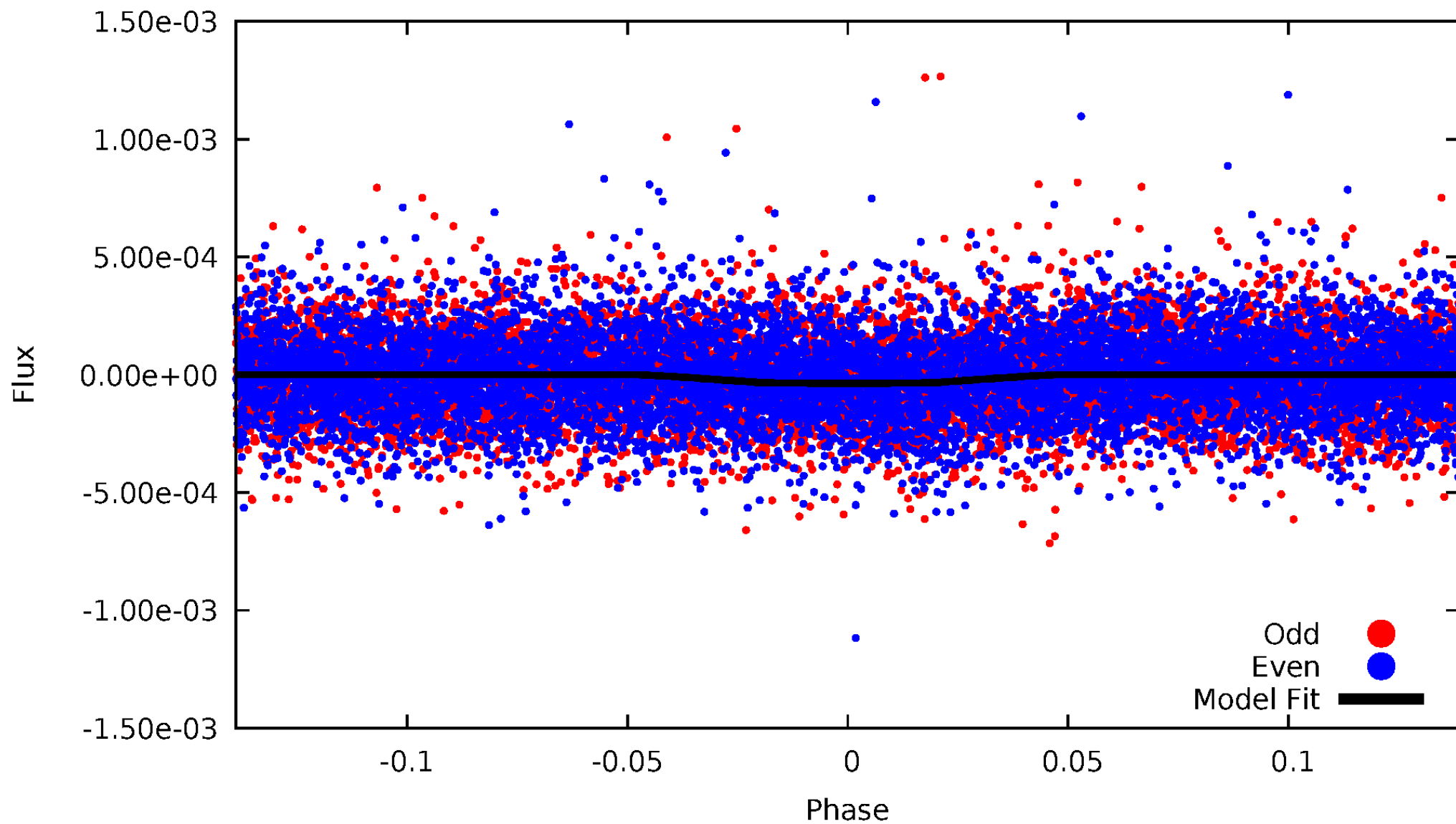


TCE 010924340-02



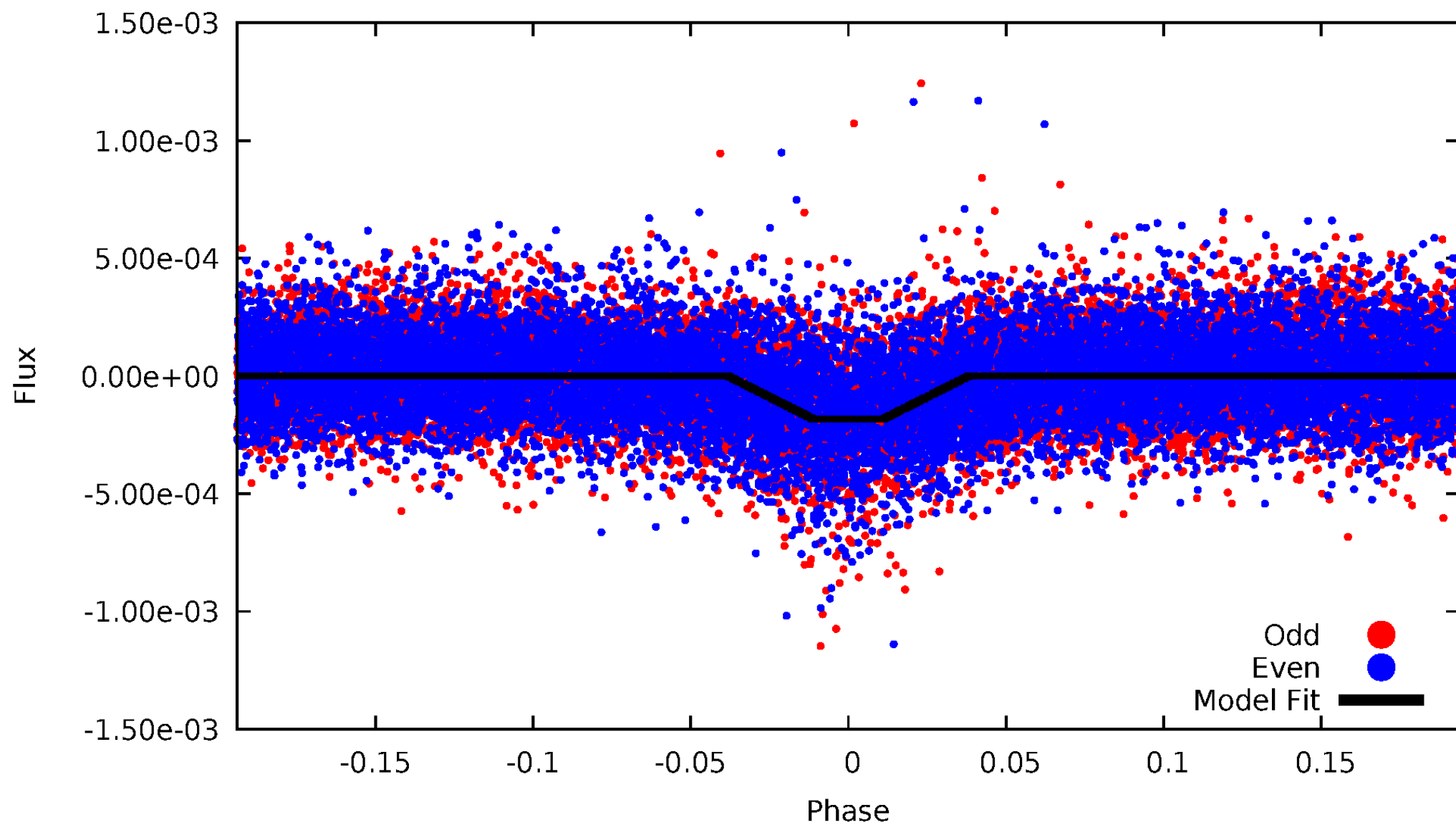
DV Odd/Even

TCE 010924340-02



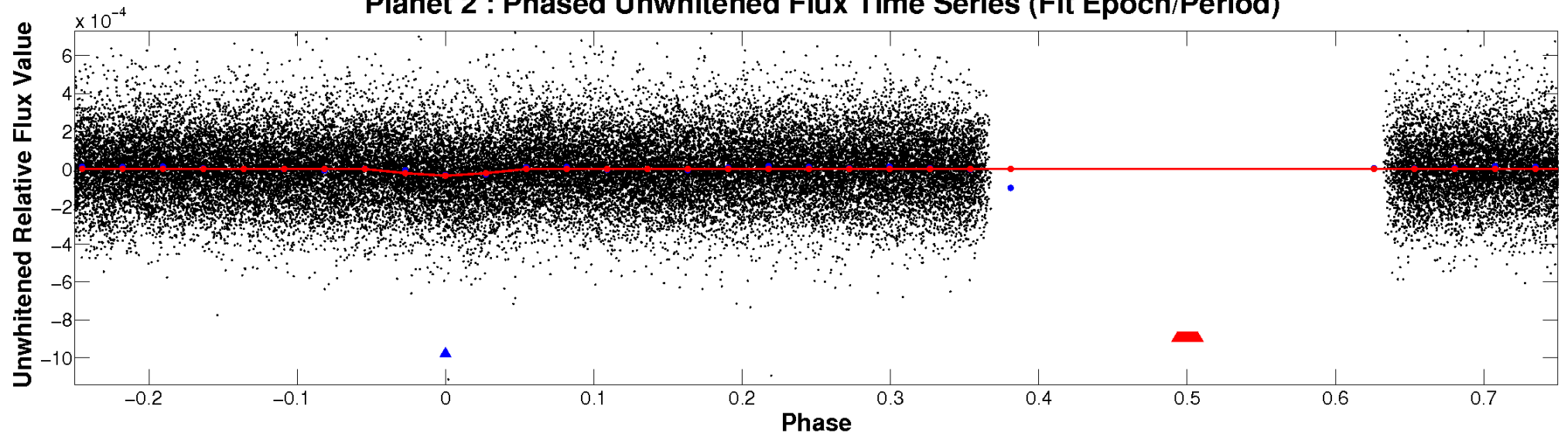
ALT Odd/Even

TCE 010924340-02

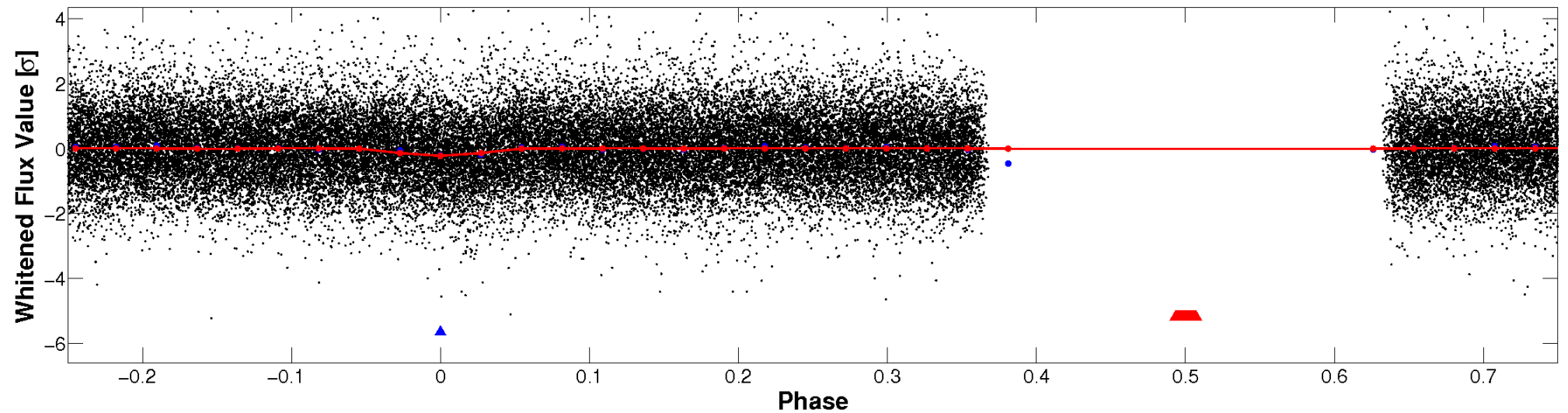


Non-Whitened Vs. Whitened Light Curve

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

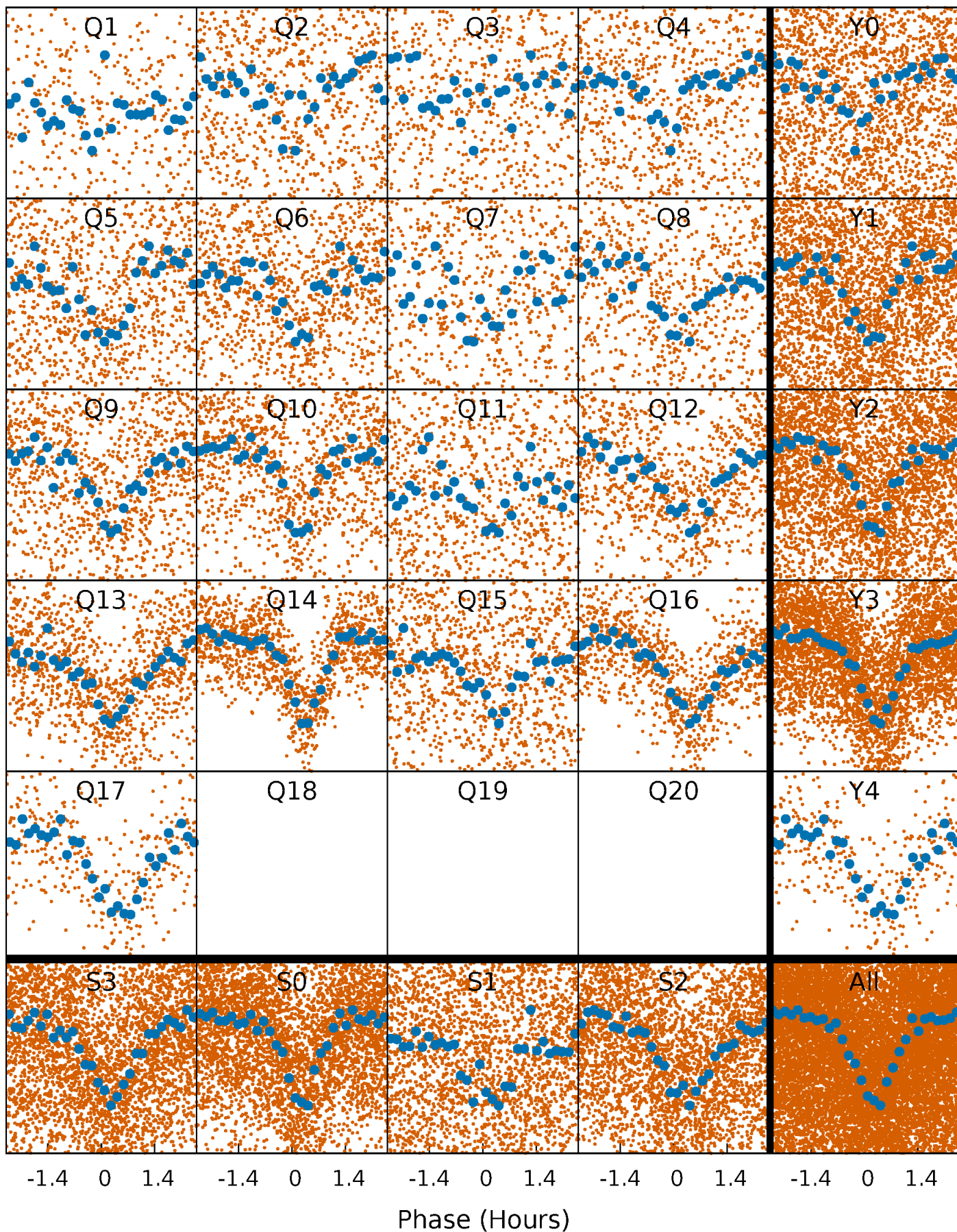


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



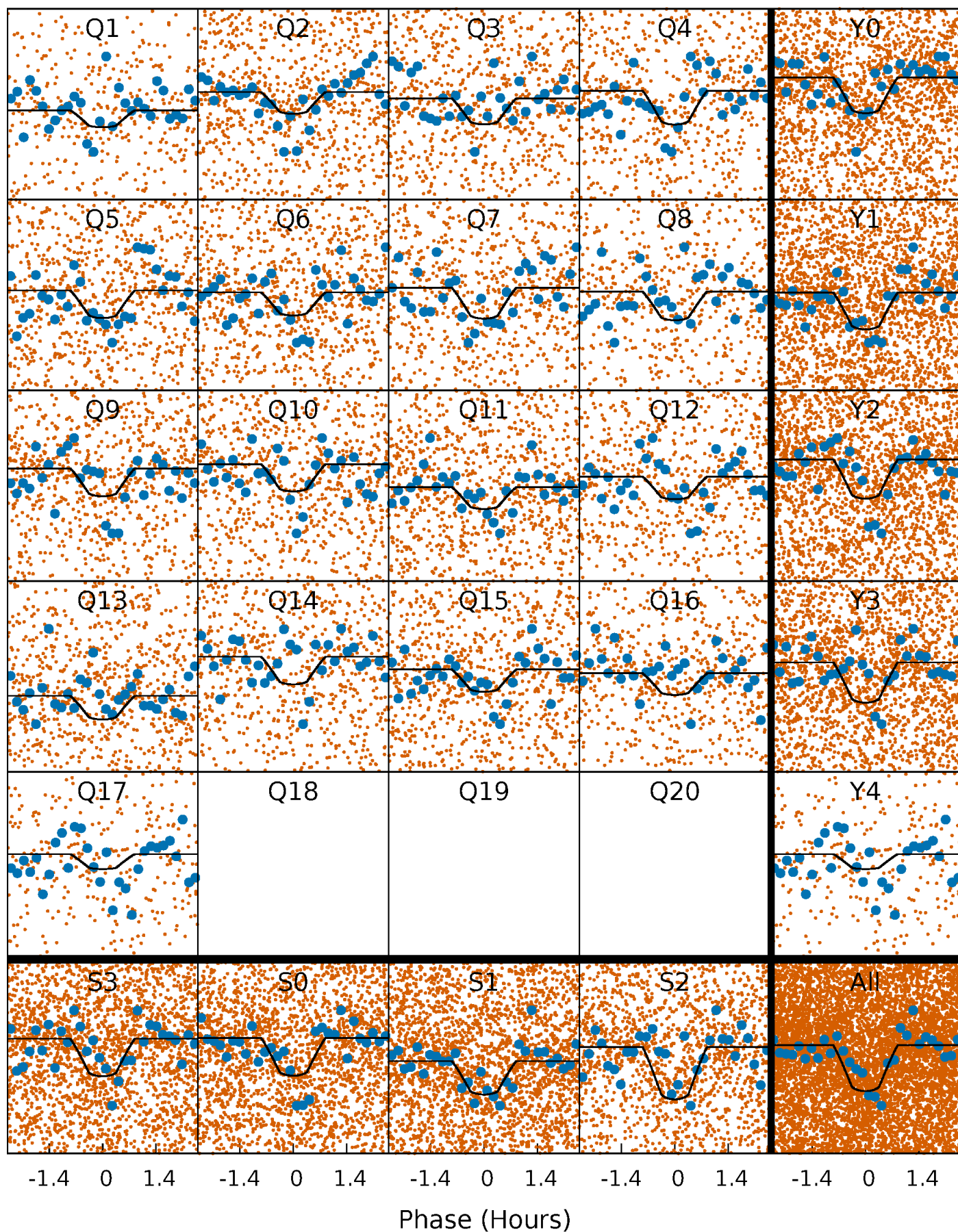
PDC Quarter-Phased Transit Curves

TCE 010924340-02 P= 0.750731 Days $T_0=132.188695$ (BKJD)



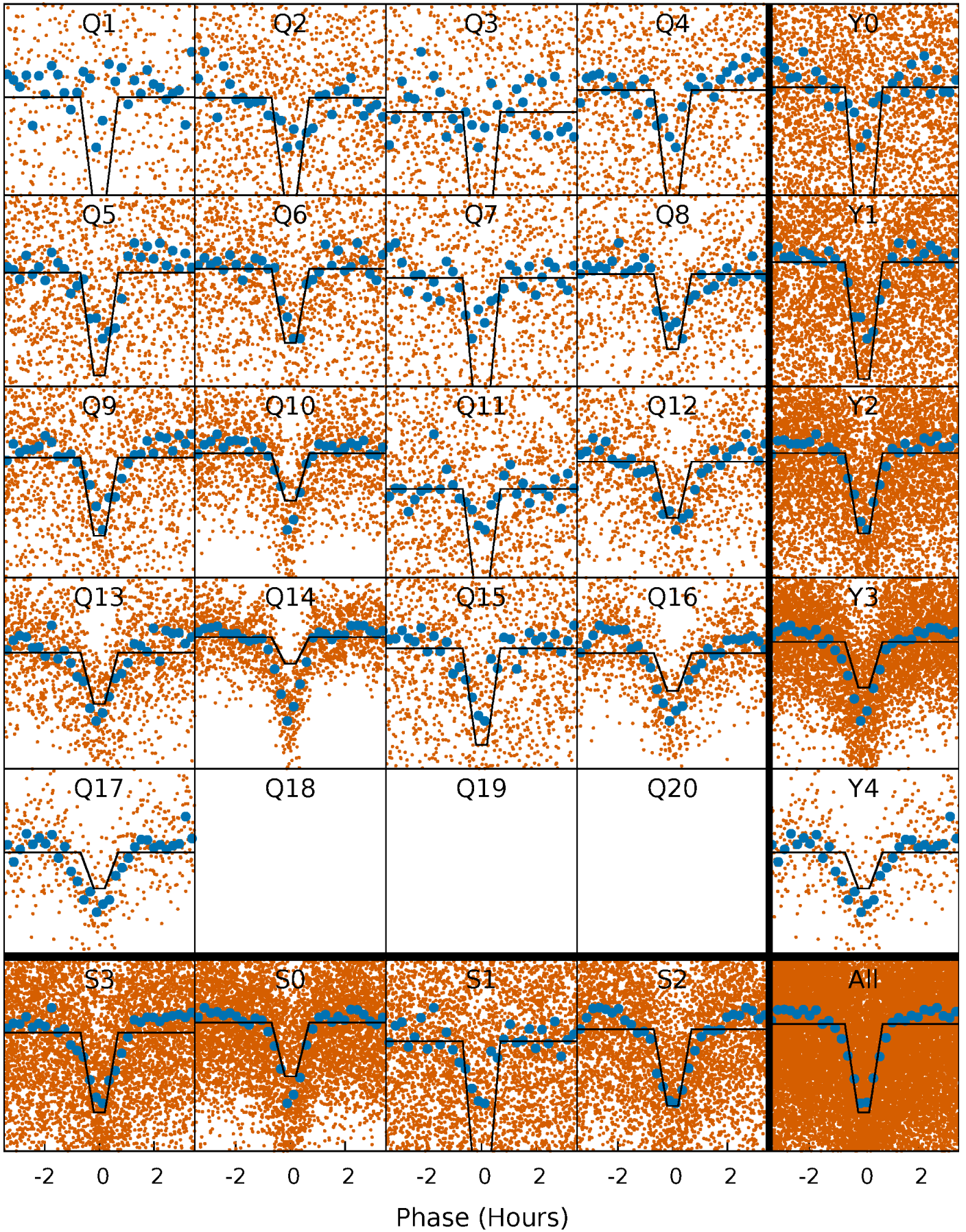
DV Quarter-Phased Transit Curves

TCE 010924340-02 $P = 0.750731$ Days $T_0 = 132.188695$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

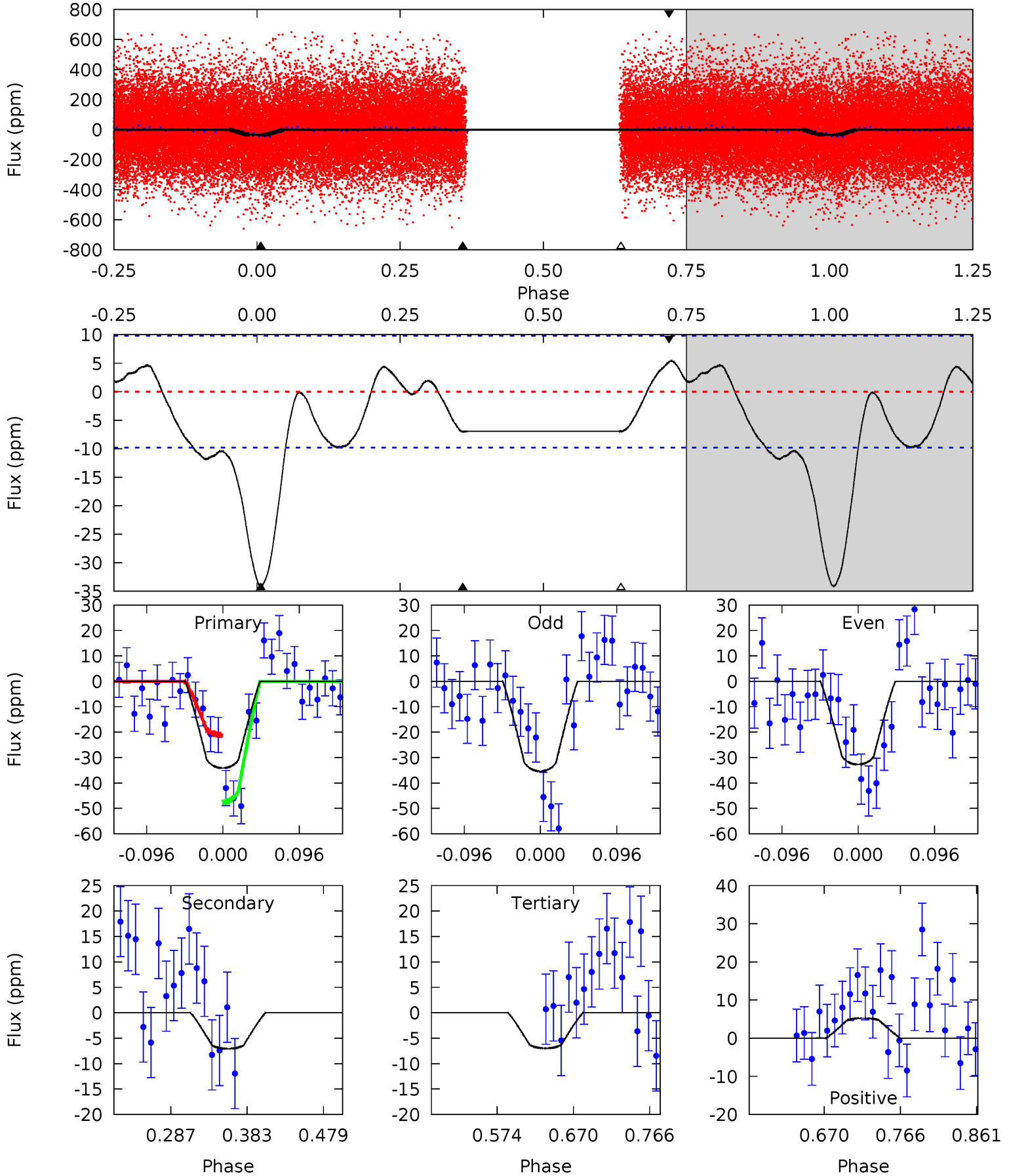
TCE 010924340-02 P= 0.750748 Days $T_0=132.177781$ (BKJD)



DV Model-Shift Uniqueness Test

010924340-02, P = 0.750731 Days, E = 131.437964 Days

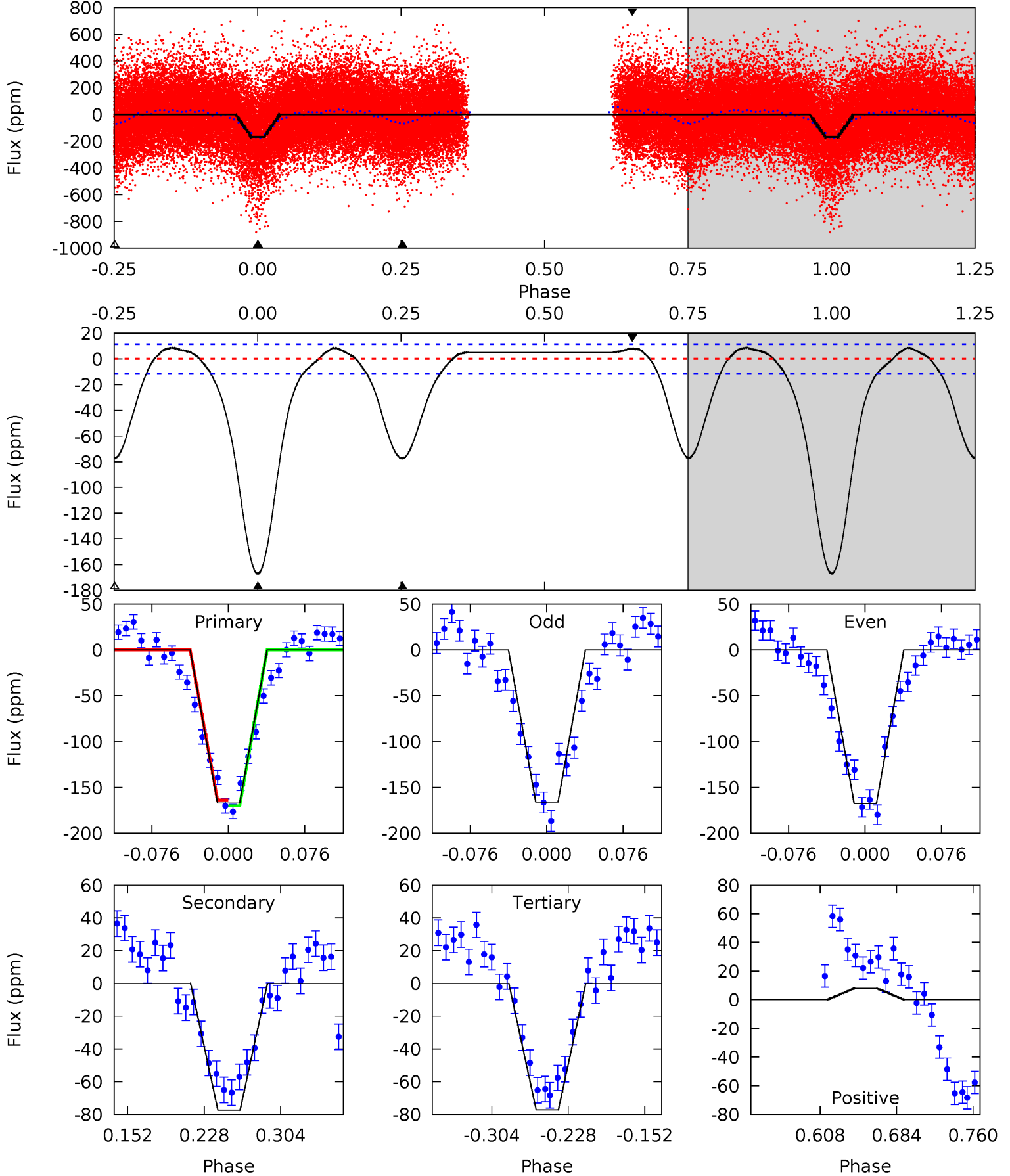
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	3.30	3.26	2.45	4.57	1.67	2.51	12.7	13.5	0.04	0.85	0.62	1.03	0.14	6.19



Alt Model-Shift Uniqueness Test

010924340-02, P = 0.750748 Days, E = 131.427033 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
67.1	31.1	31.0	3.22	4.62	1.77	10.1	36.1	63.9	0.09	27.9	0.33	1.09	0.05	1.29



Stellar Parameters For KIC 010924340

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6187^{+169}_{-188}	$4.499^{+0.041}_{-0.230}$	$-0.320^{+0.300}_{-0.350}$	$0.937^{+0.305}_{-0.081}$	$1.011^{+0.136}_{-0.123}$	$1.732^{+0.378}_{-0.945}$
	+3%/-3%	+1%/-5%	+94%/-109%	+33%/-9%	+13%/-12%	+22%/-55%
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 010924340-02 / KOI 4326.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-7 ± 2	$0.72^{+0.20}_{-0.18}$	2983^{+234}_{-148}	4019^{+564}_{-466}	$1.876^{+1.689}_{-0.852}$
Alt.	-77 ± 2	$1.44^{+0.28}_{-0.22}$	2967^{+224}_{-135}	4995^{+343}_{-281}	$5.229^{+1.865}_{-1.493}$

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

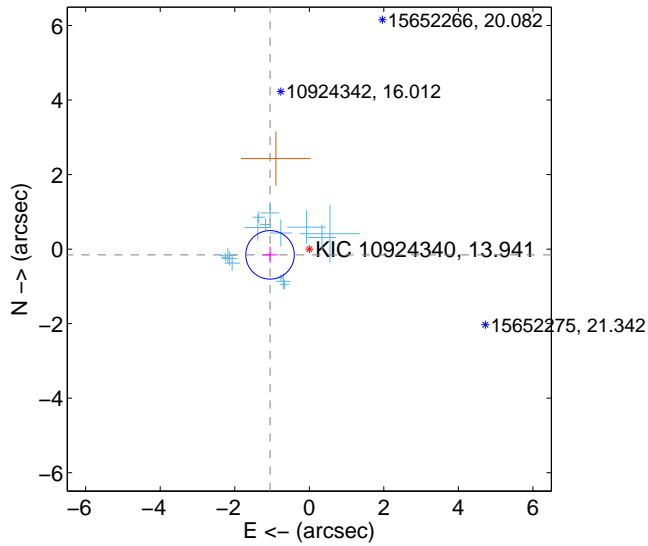
Supplemental centroid analysis for 010924340-02. Kepler magnitude: 13.94. Transit SNR 12.23

There are 15 quarters with good PRF difference image offsets

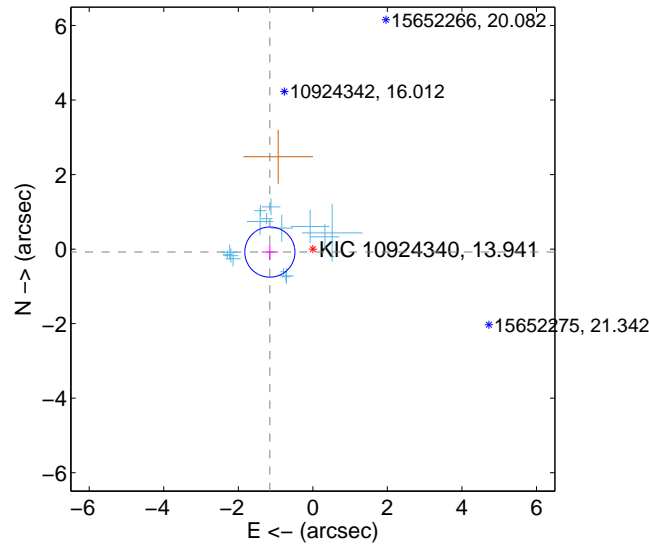
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.065 ± 0.217	4.91	1.054 ± 0.210	-0.154 ± 0.215
PRF-fit source offset from KIC position	1.156 ± 0.224	5.15	1.153 ± 0.223	-0.080 ± 0.214
photometric centroid source offset	2.21 ± 1.07	2.07	1.86 ± 1.10	-1.19 ± 0.99

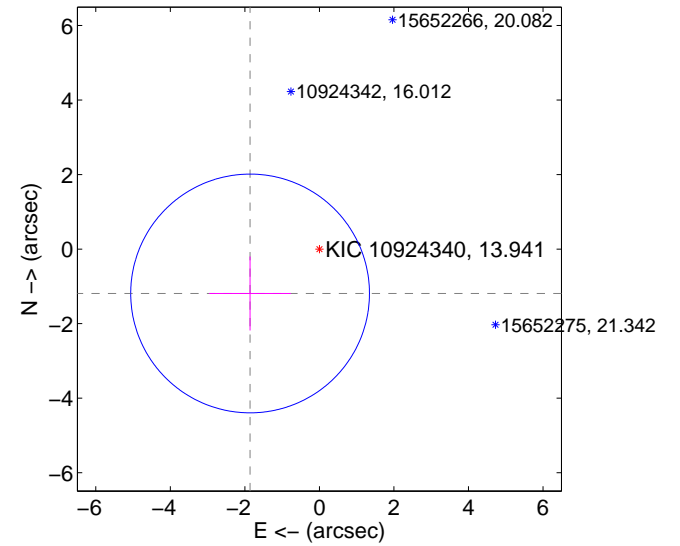
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

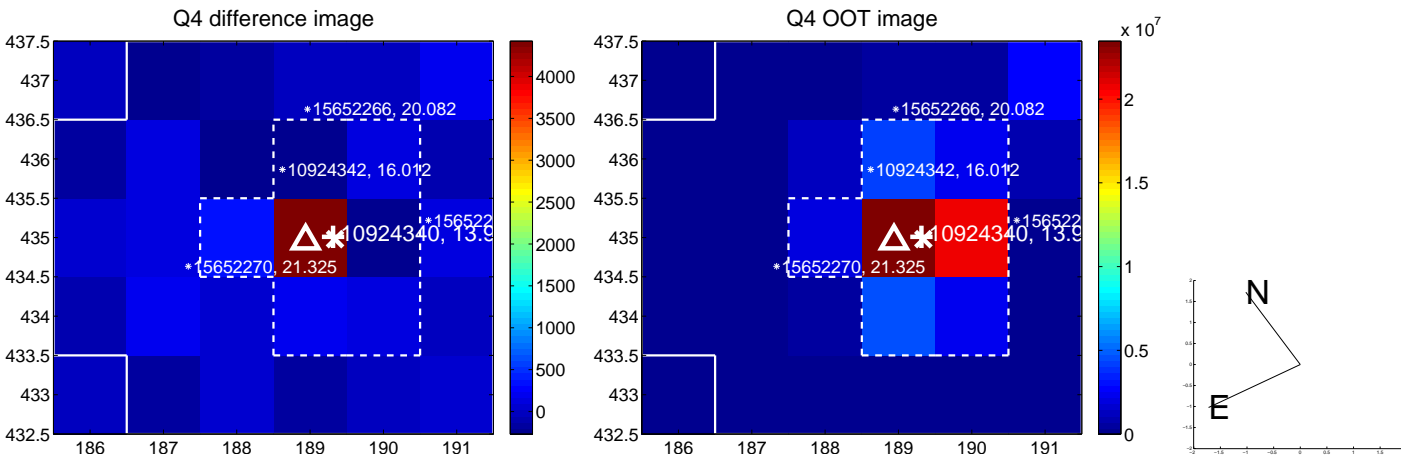
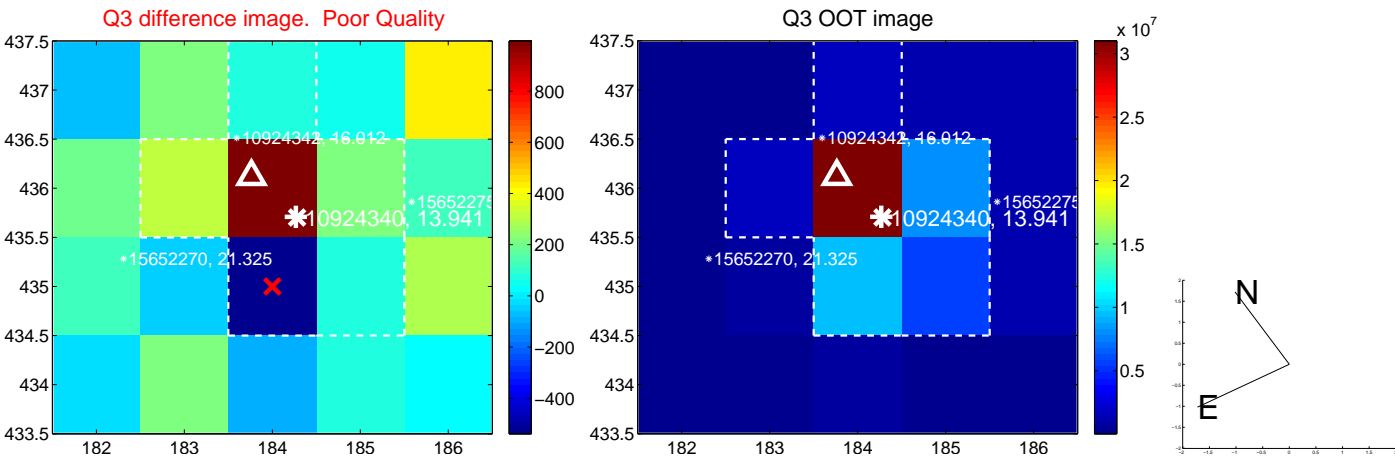
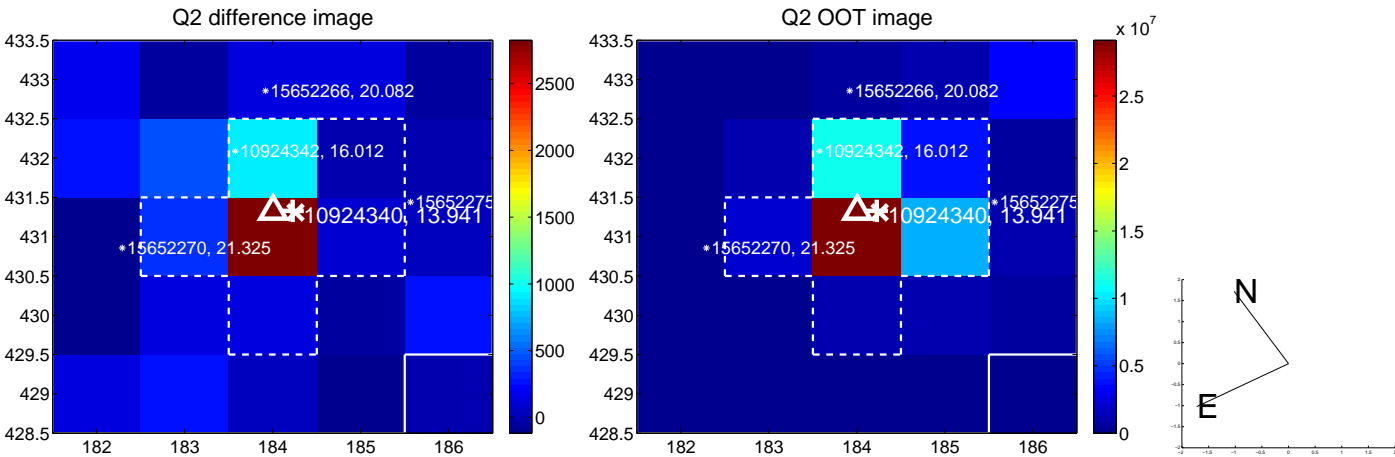
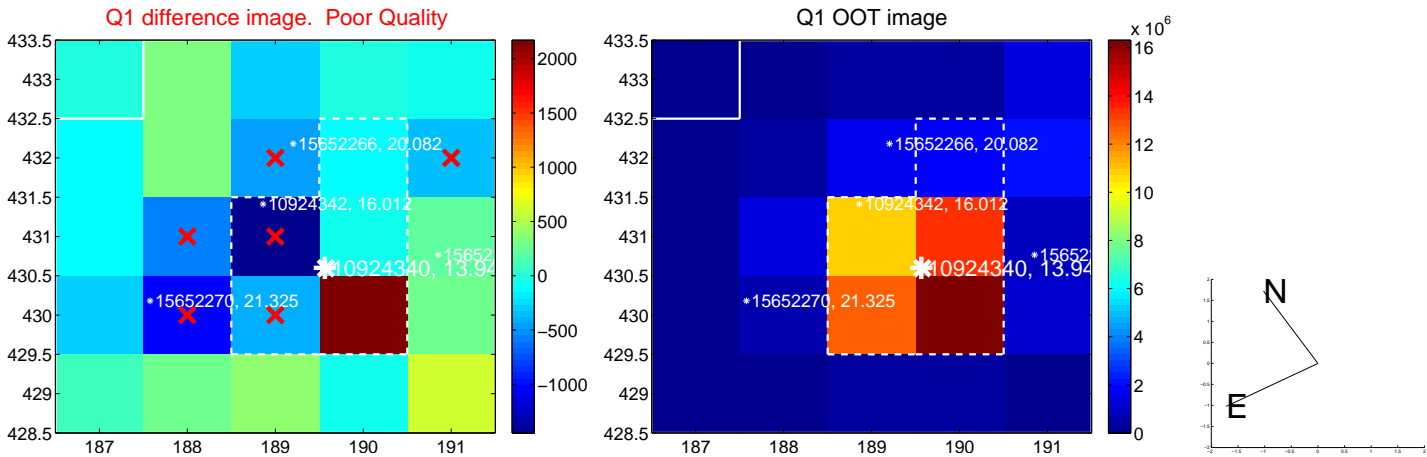


offset from photometric centroids

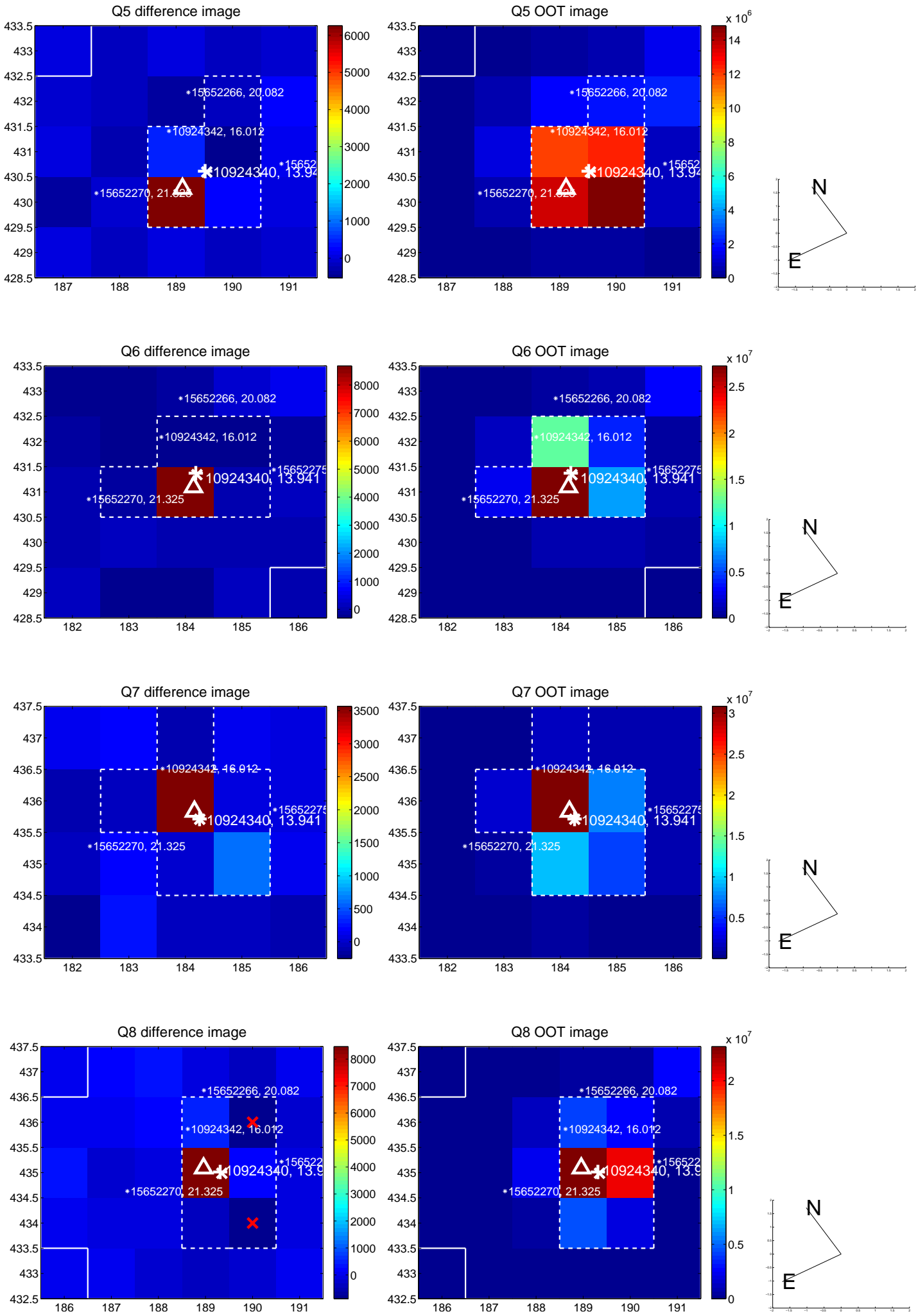


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

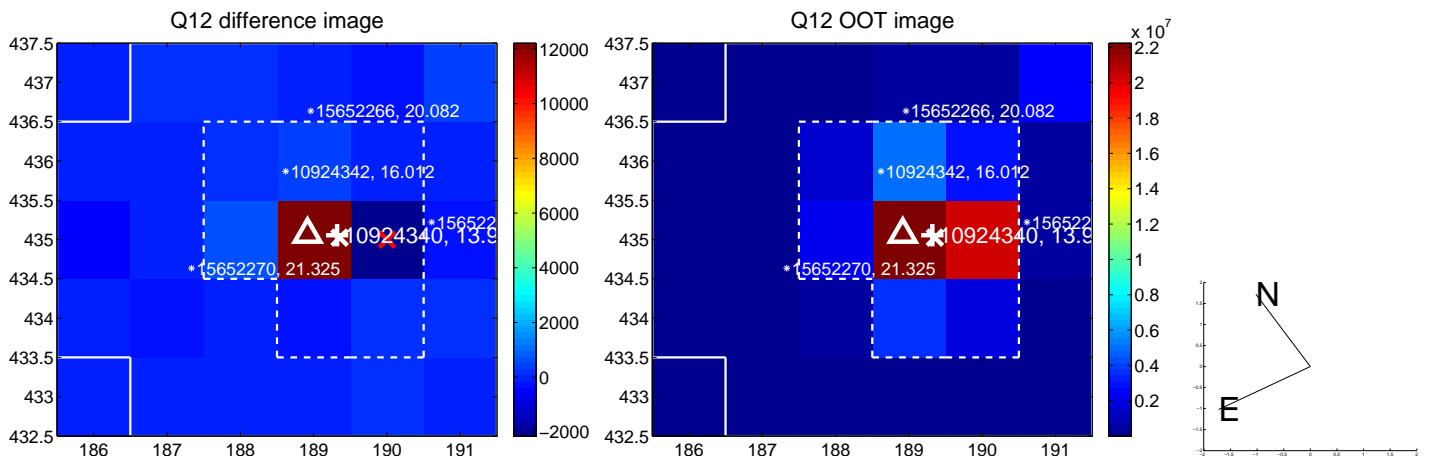
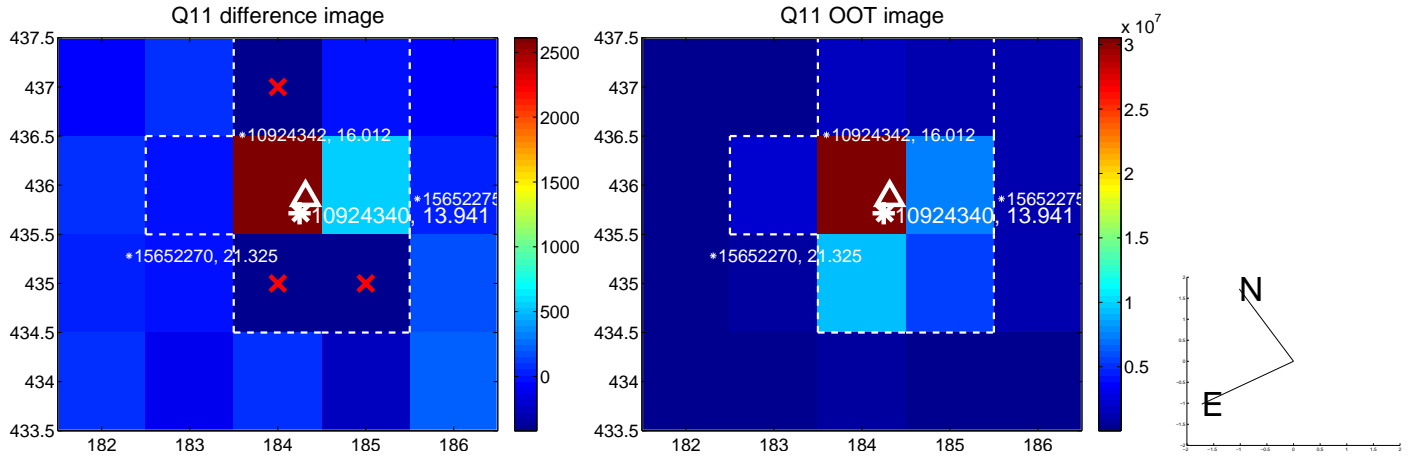
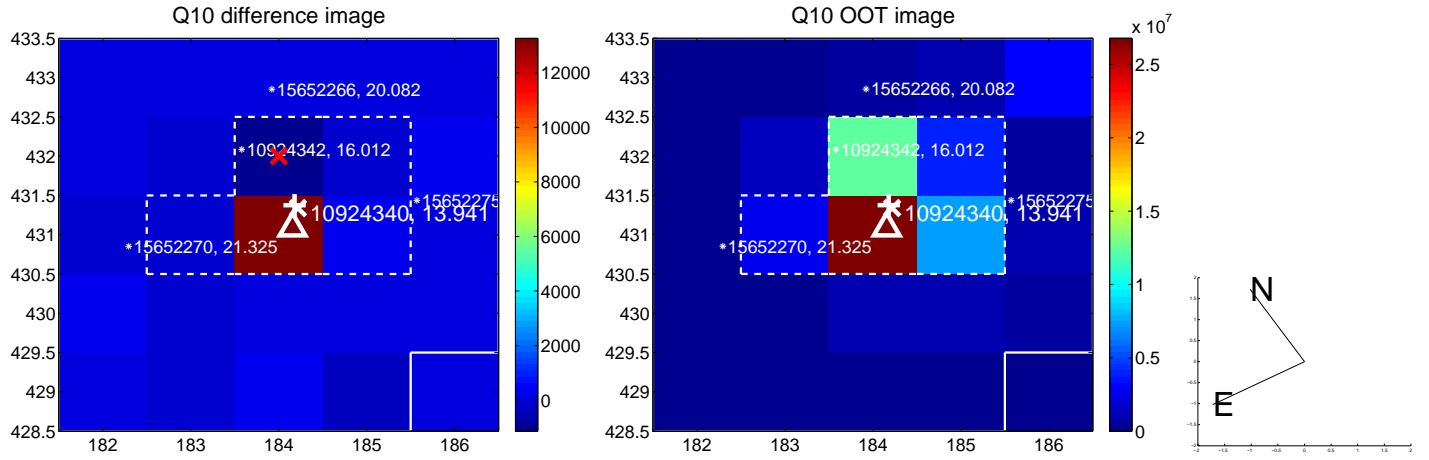
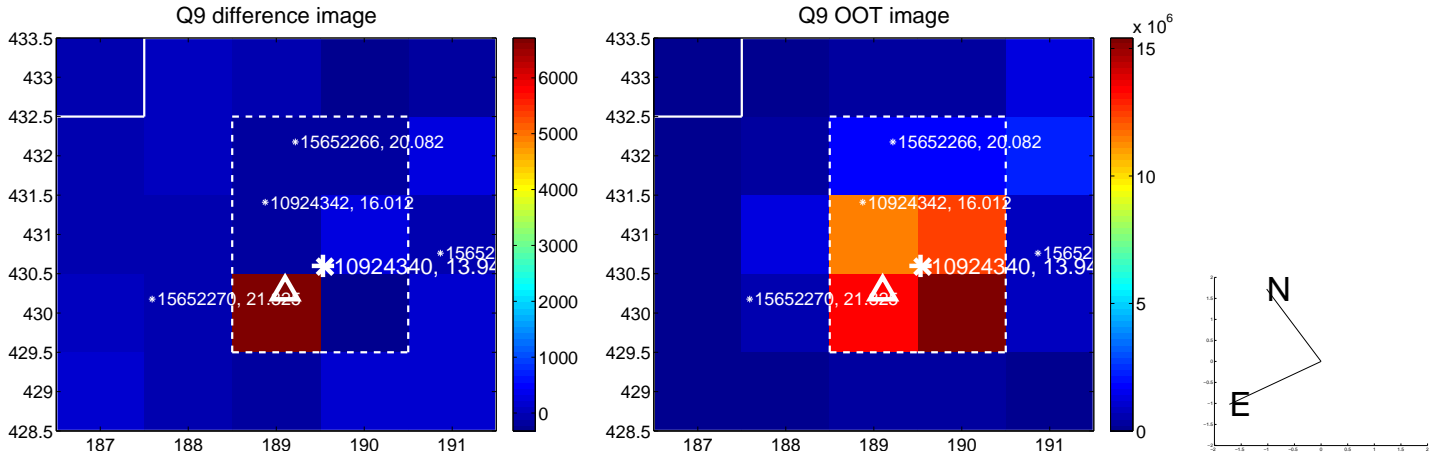
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



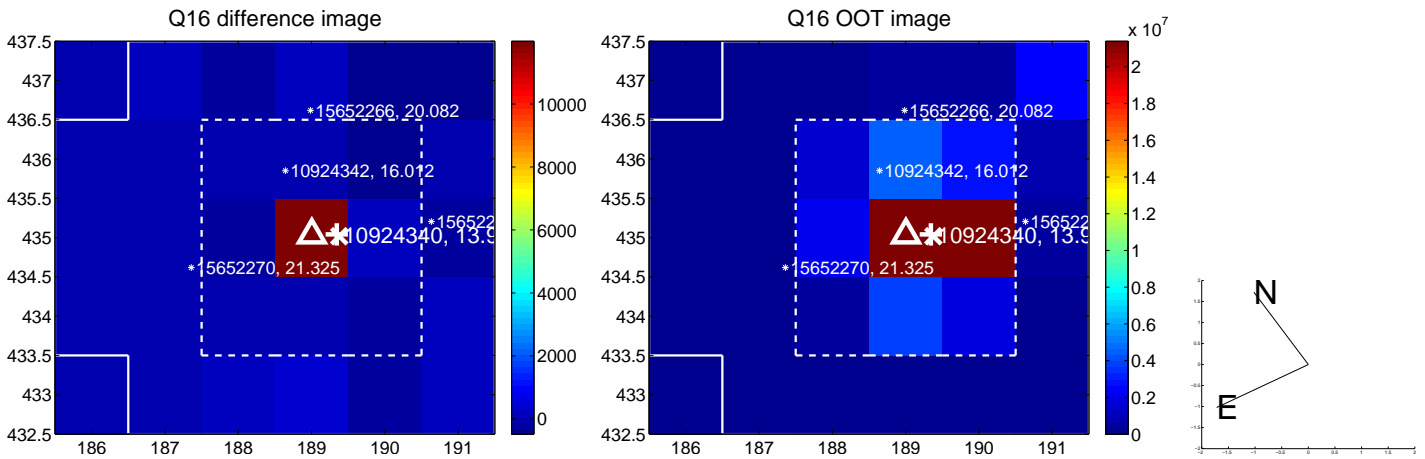
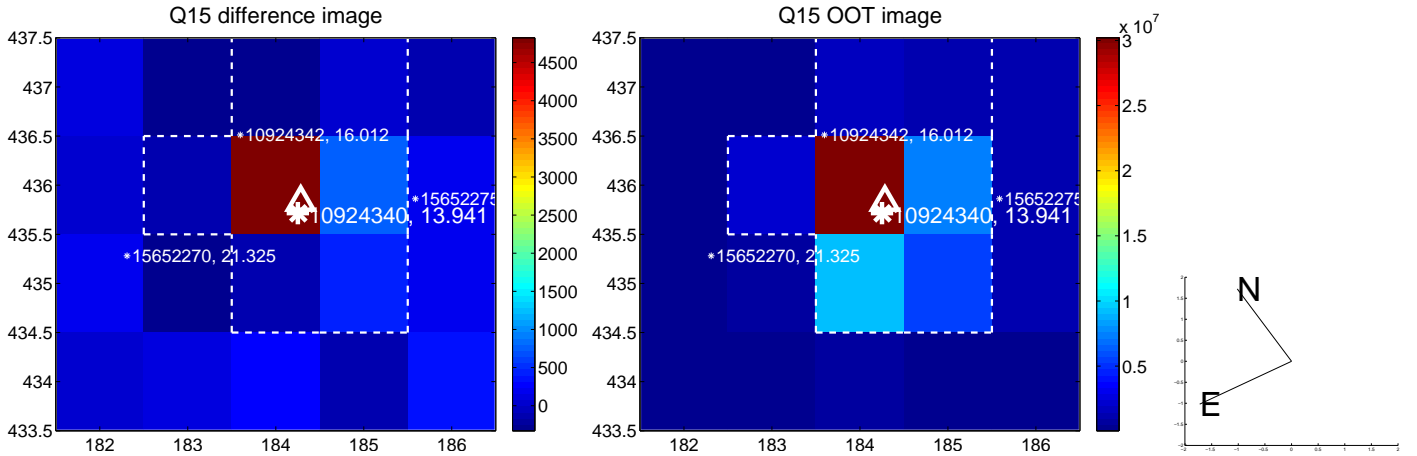
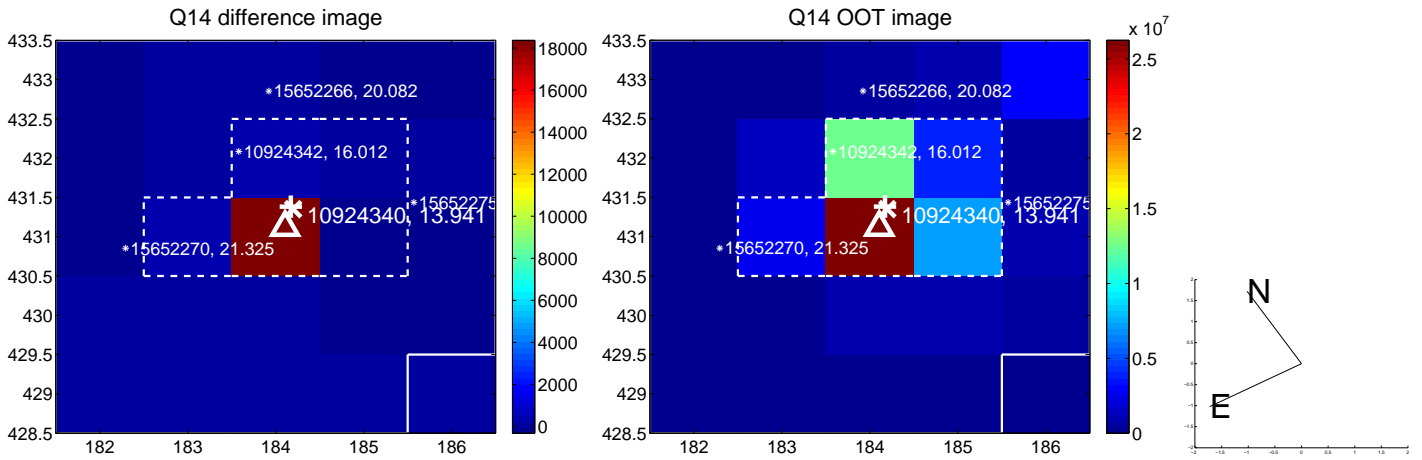
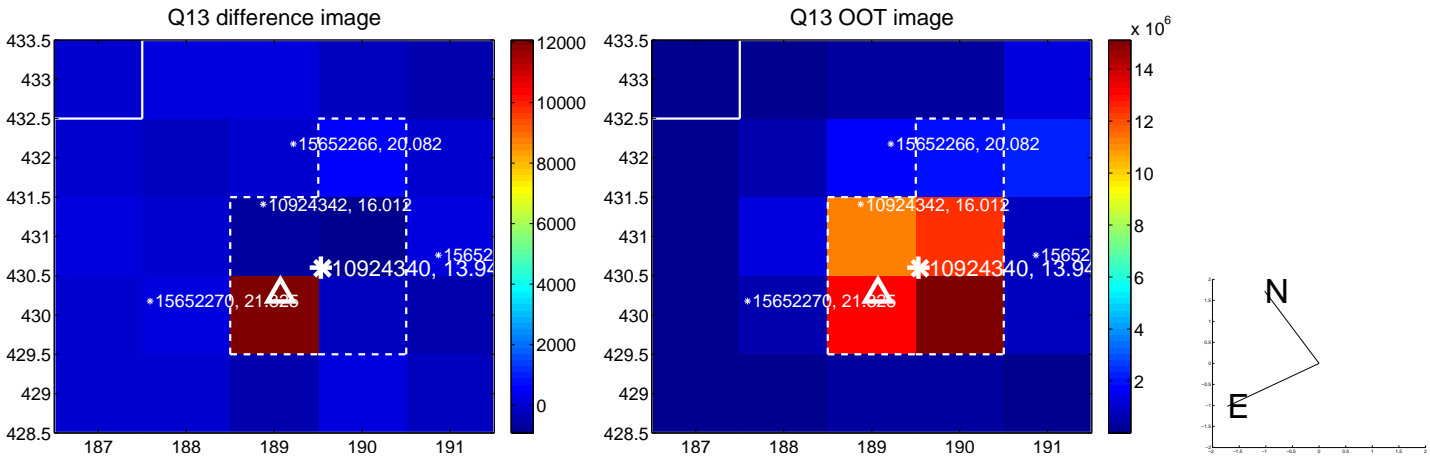
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



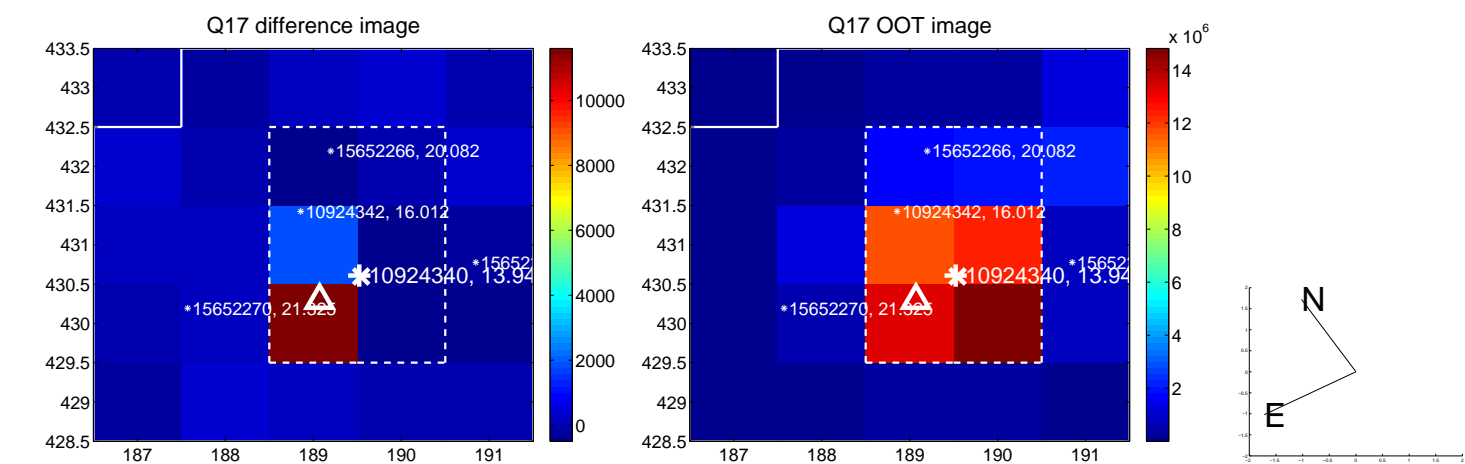
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



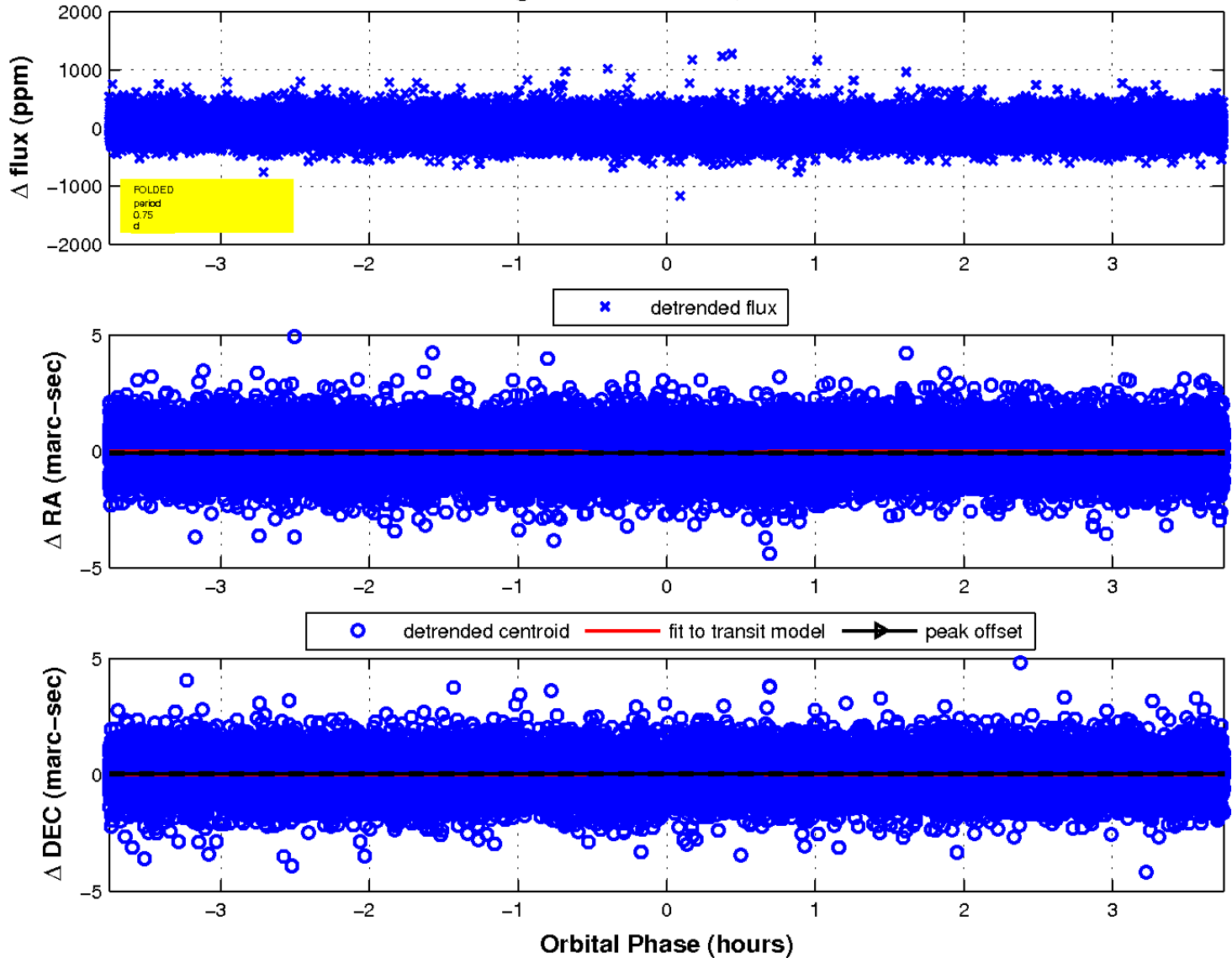
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

