

KIC 004914737

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})
004914737-01	OBS	6471.01	8.653072	134.298654	138.8	2.993	8.4	8.8	0.55	3929	0.74	13.98
004914737-02	OBS	No	8.653182	136.651446	229.1	1.079	8.7	9.1	0.55	3929	0.96	13.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004914737-01	OBS	FP	0.00	0	1	0	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—EPHEM_MATCH
004914737-02	OBS	FP	0.00	1	1	0	1	IS_SEC_TCE—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.

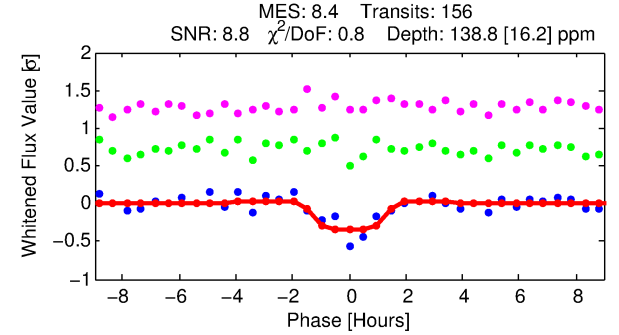
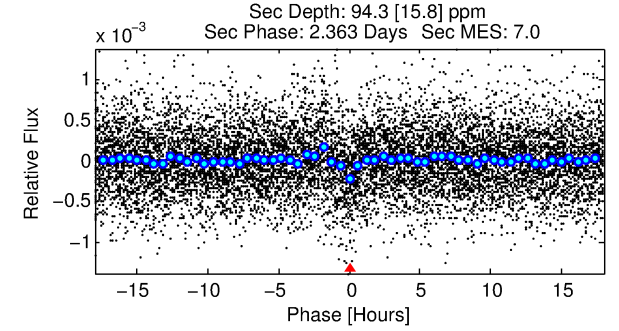
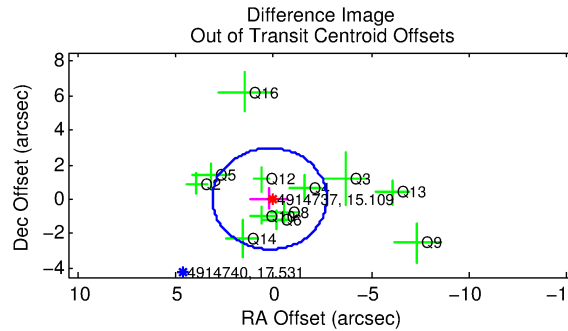
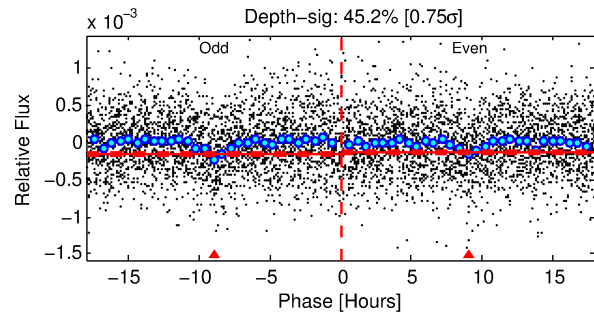
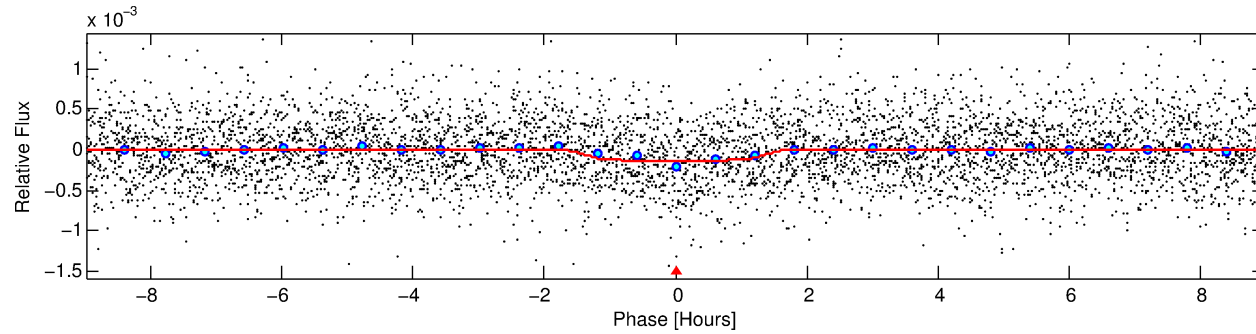
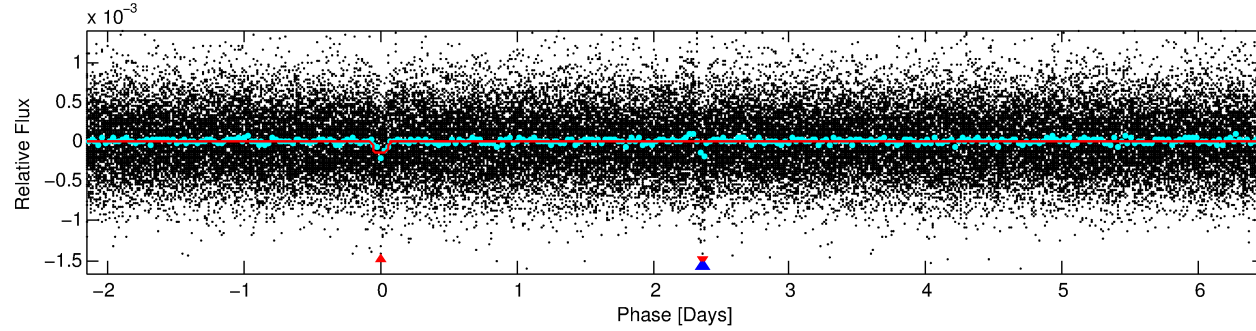
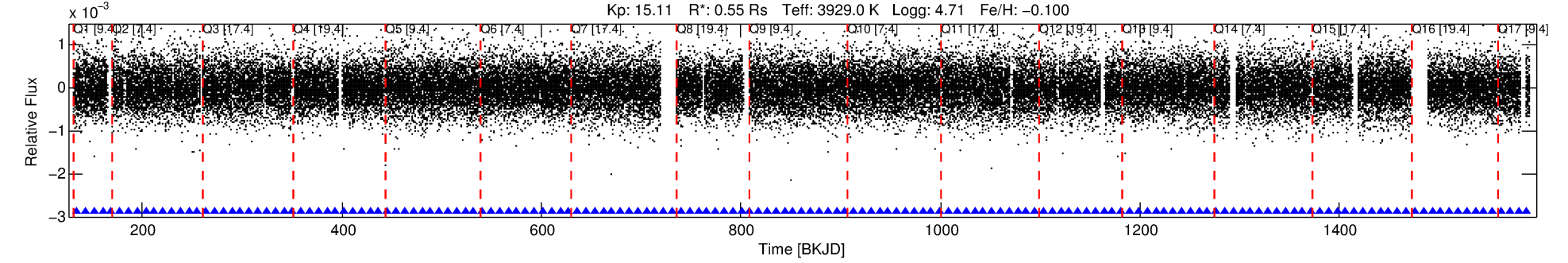
Ephemeris Match Information For 004914737-01

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
004914737-01	4914737	004150611-02	4150611	1:1	3255.1	819	0	7.90	15.11	389.54	Col-Anomaly	0	0.18	0.13

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: 4914737 Candidate: 1 of 2 Period: 8.653 d
KOI: K06471 Corr: No Ephemeris Match



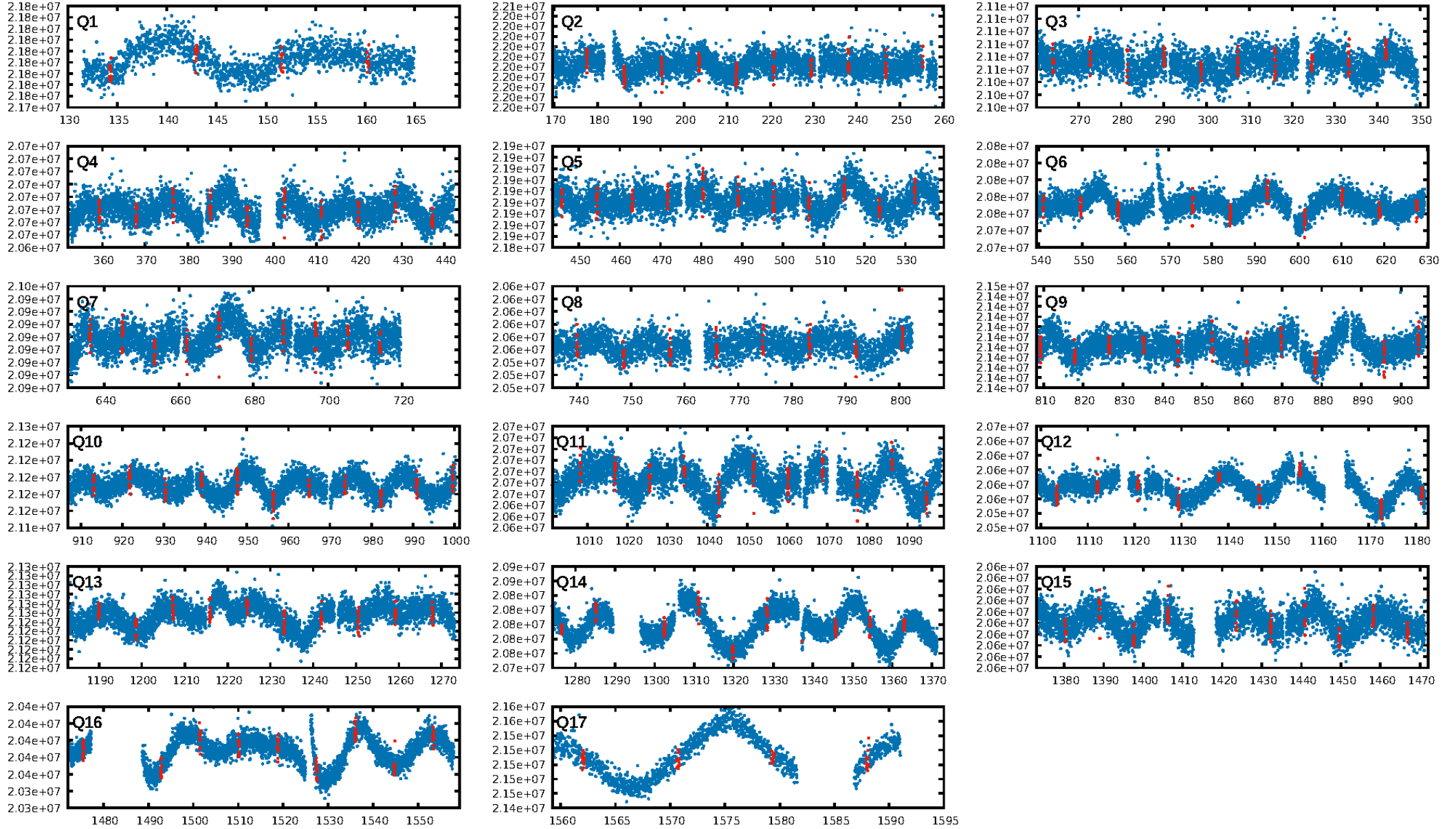
DV Fit Results:

Period = 8.65307 [0.00008] d
Epoch = 134.2987 [0.0071] BKJD
Rp/R* = 0.0124 [0.0116]
a/R* = 12.03 [49.38]
b = 0.85 [1.32]
Seff = 13.98 [1.35]
Teq = 493 [12] K
Rp = 0.74 [0.70] Re
a = 0.0680 [0.0028] AU
Ag = 432.92 [814.29] [0.53 σ]
Teffp = 3477 [1636] K [1.82 σ]

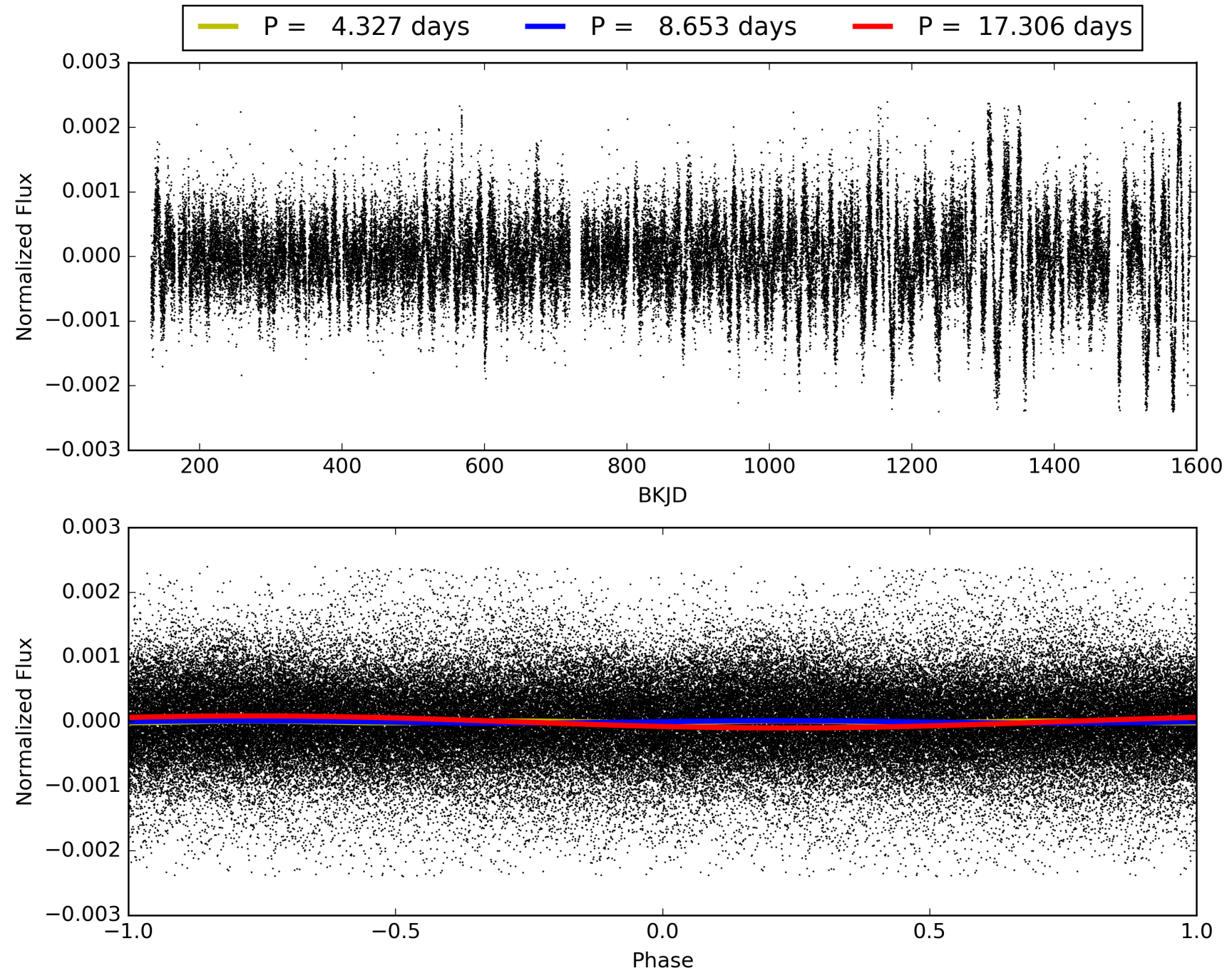
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00 σ]
ModelChiSquare2-sig: 99.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.21e-17
RollingBand-fgt: 1.00 [148/148]
GhostDiagnostic-chr: 0.7495
Centroid-sig: 0.0%
Centroid-so: 3.559 arcsec [2.60 σ]
OotOffset-rm: 0.206 arcsec [0.21 σ]
KicOffset-rm: 0.536 arcsec [0.64 σ]
OotOffset-st: 4/1/4/3 [12]
KicOffset-st: 4/1/4/3 [12]
DiffImageQuality-fgm: 0.25 [3/12]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 004914737-01, PDC Light Curves

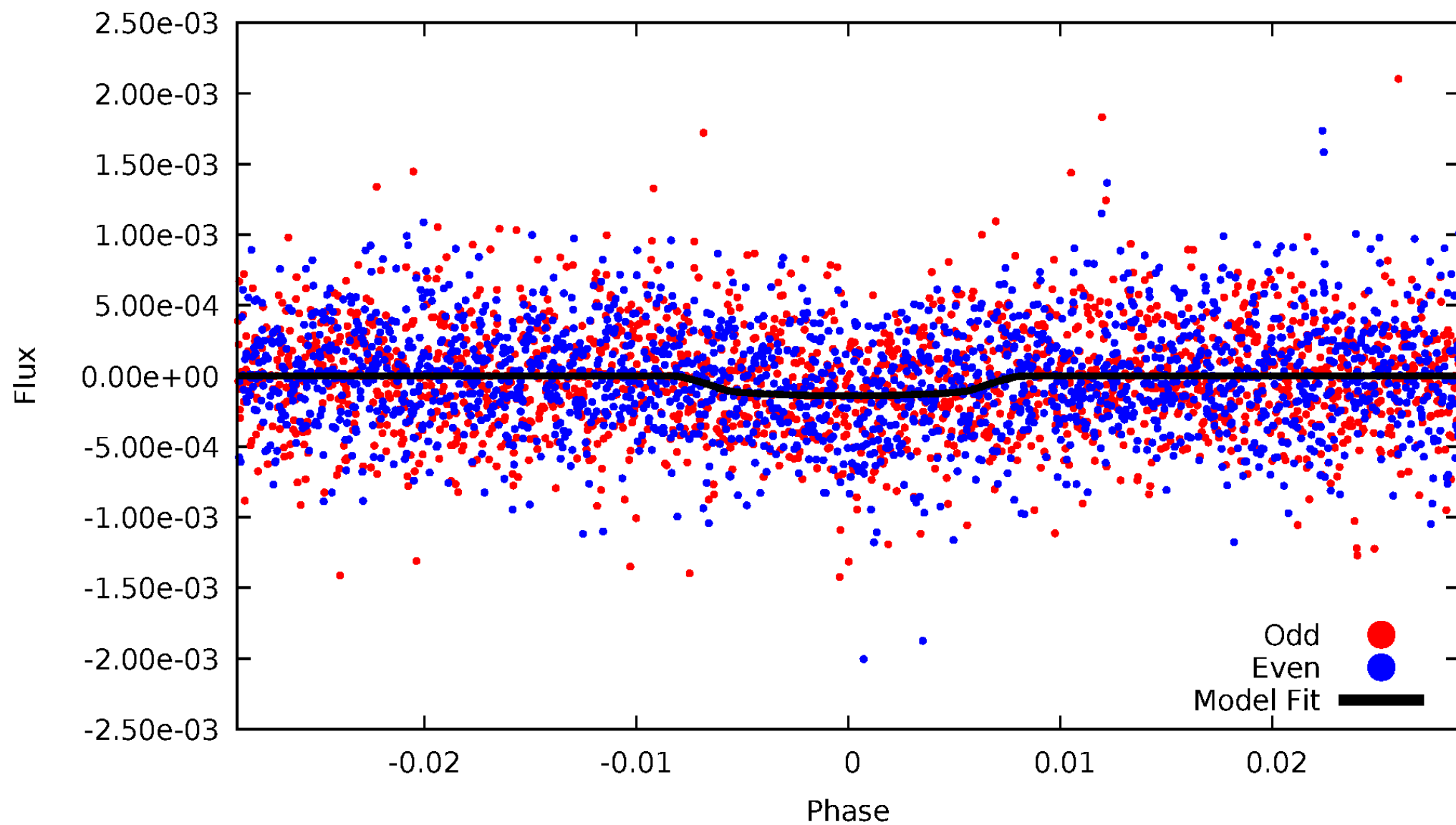


TCE 004914737-01



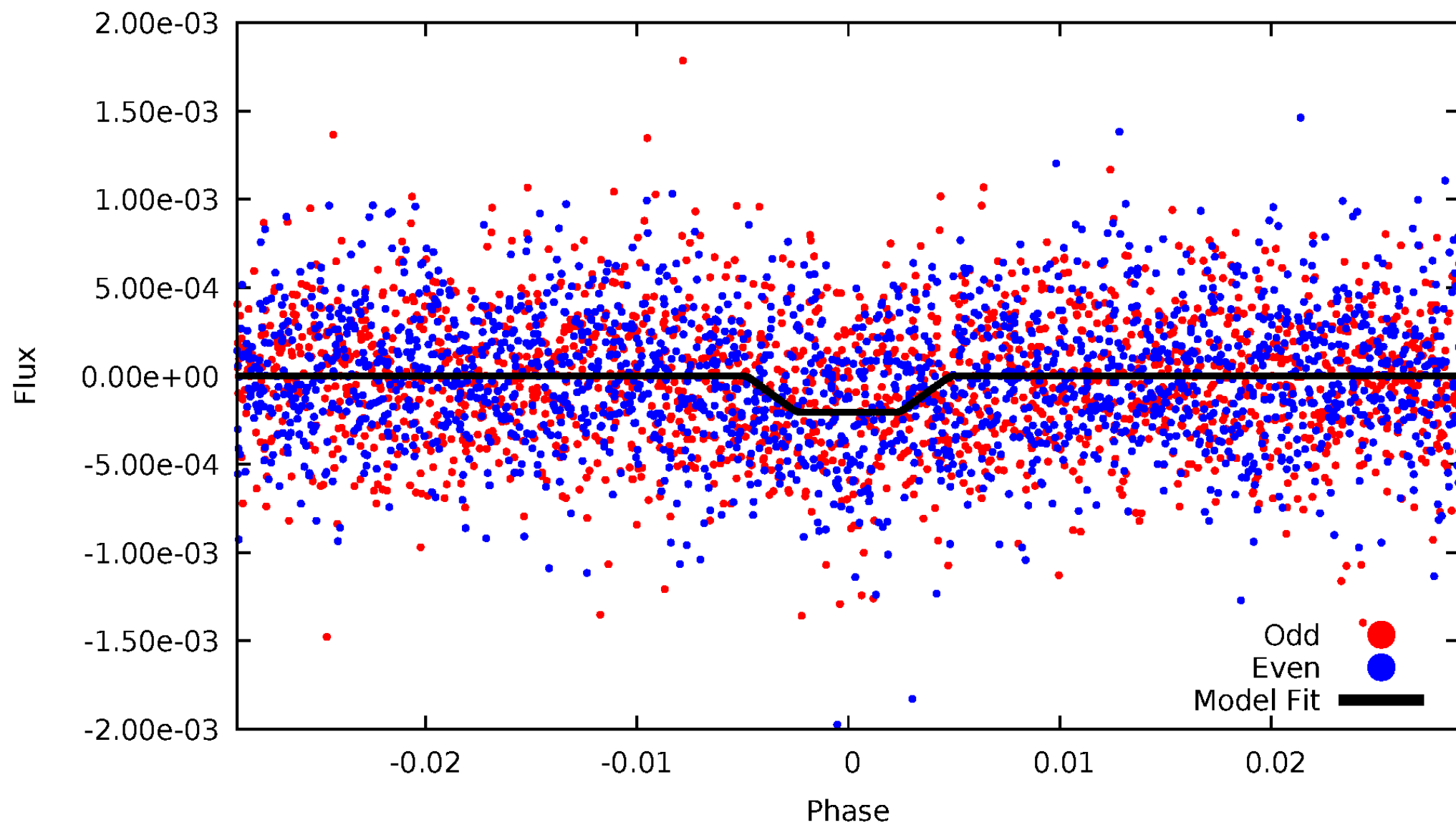
DV Odd/Even

TCE 004914737-01



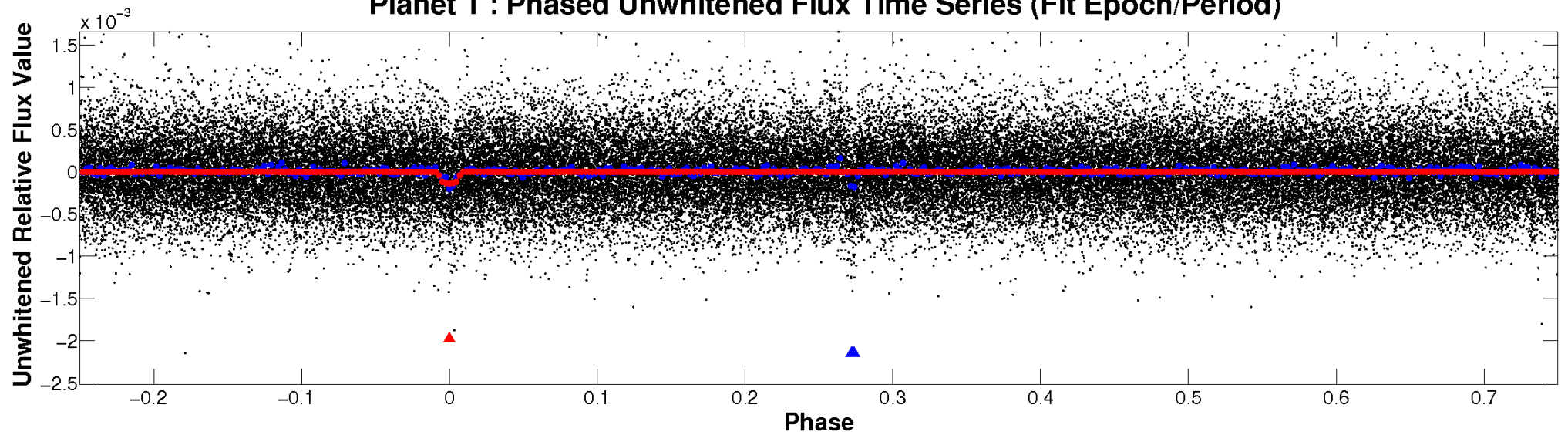
ALT Odd/Even

TCE 004914737-01

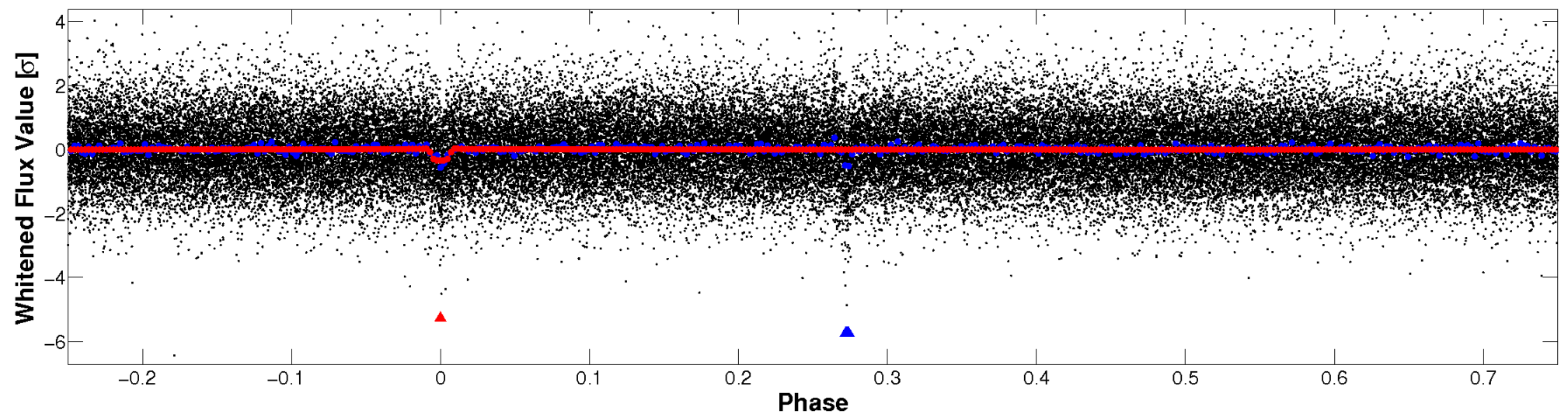


Non-Whitened Vs. Whitened Light Curve

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

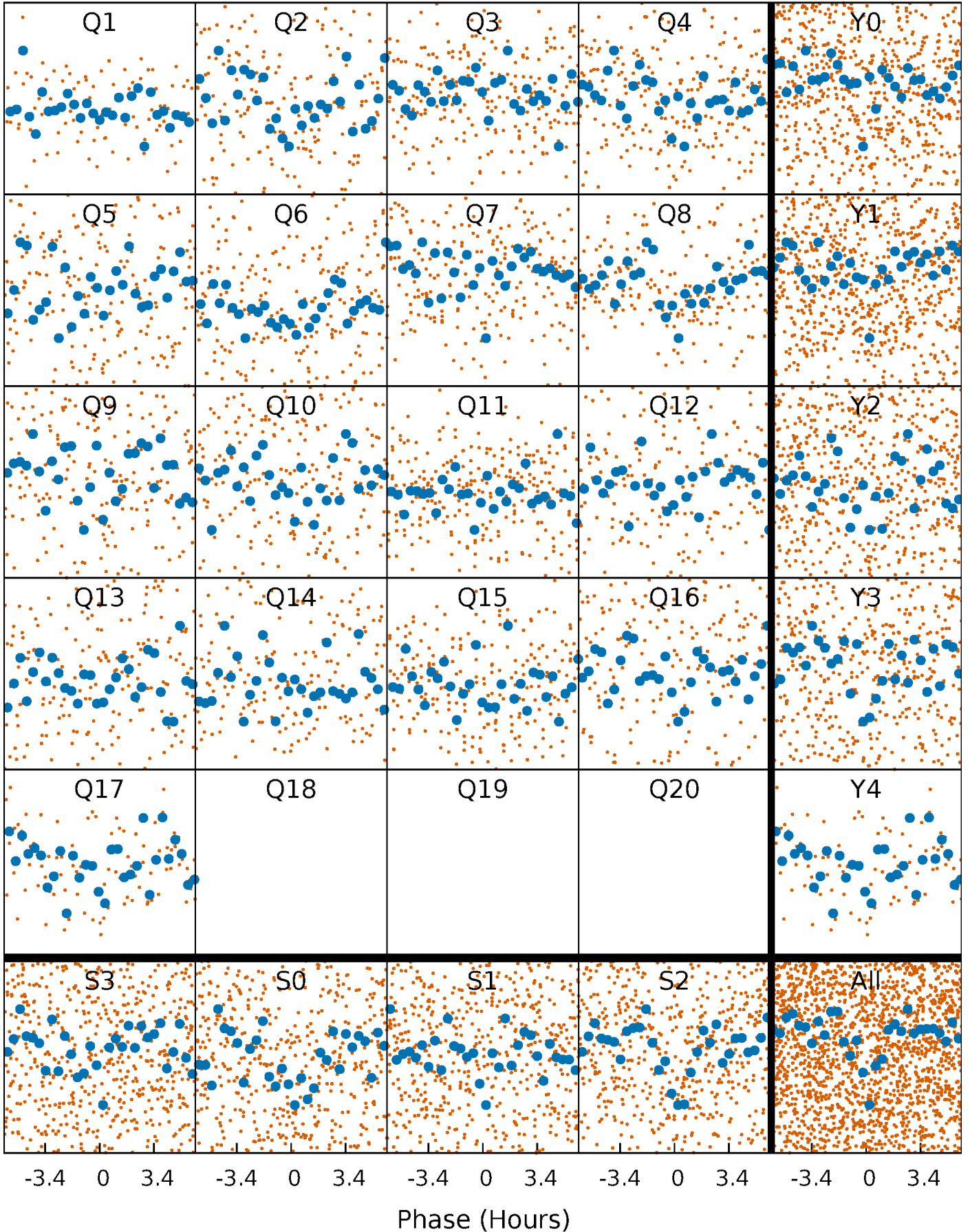


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



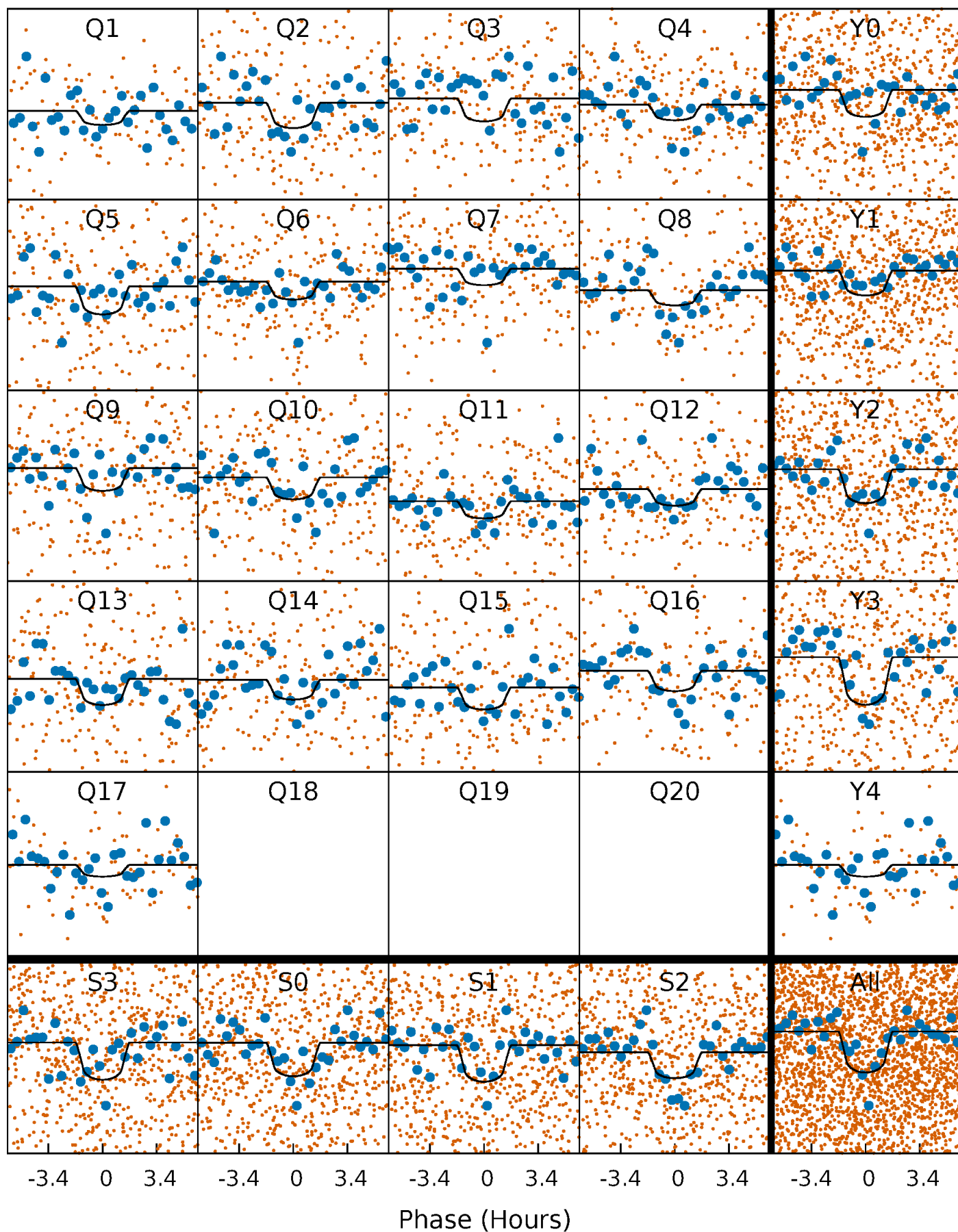
PDC Quarter-Phased Transit Curves

TCE 004914737-01 P= 8.653072 Days $T_0=134.298654$ (BKJD)



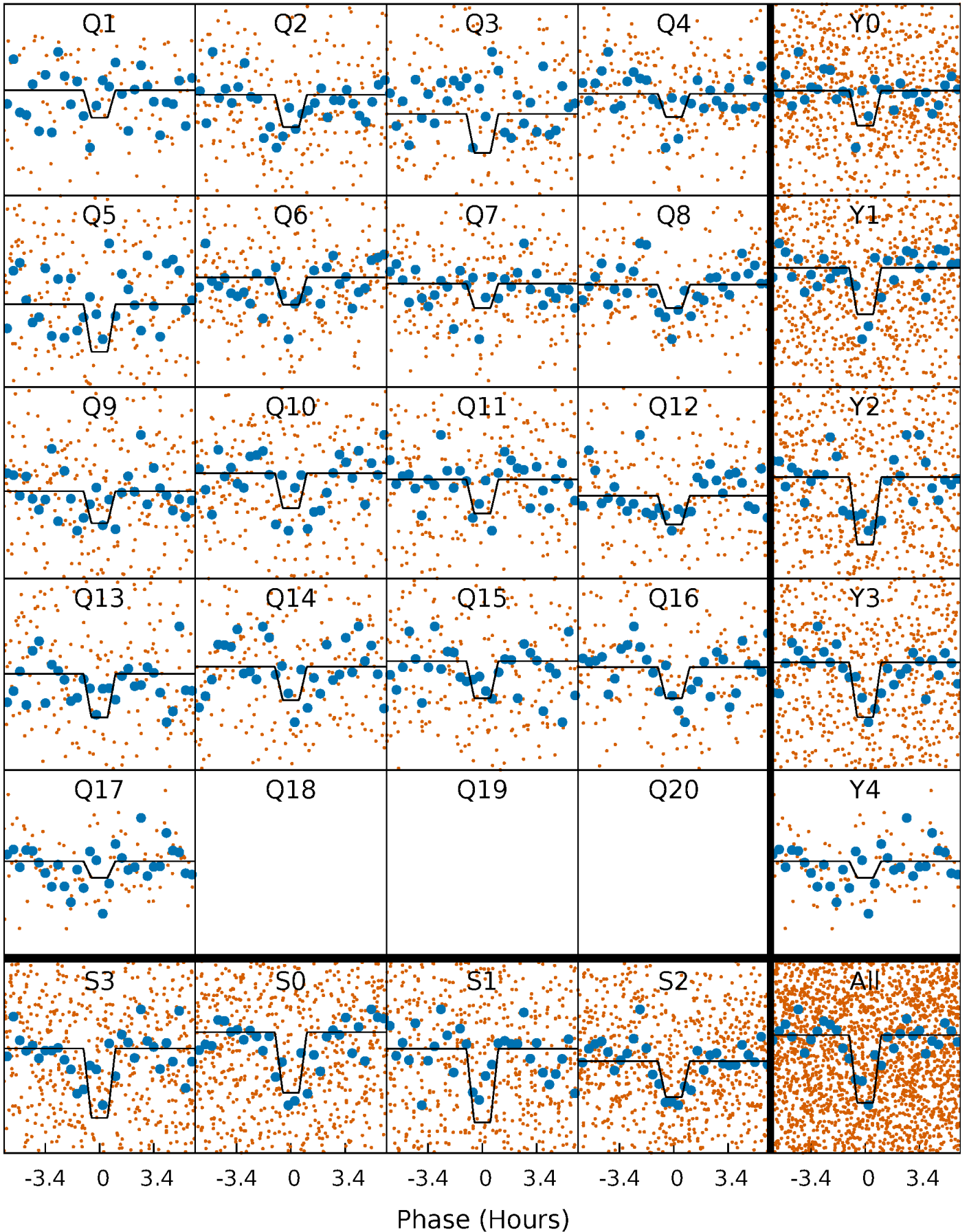
DV Quarter-Phased Transit Curves

TCE 004914737-01 P= 8.653072 Days $T_0=134.298654$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

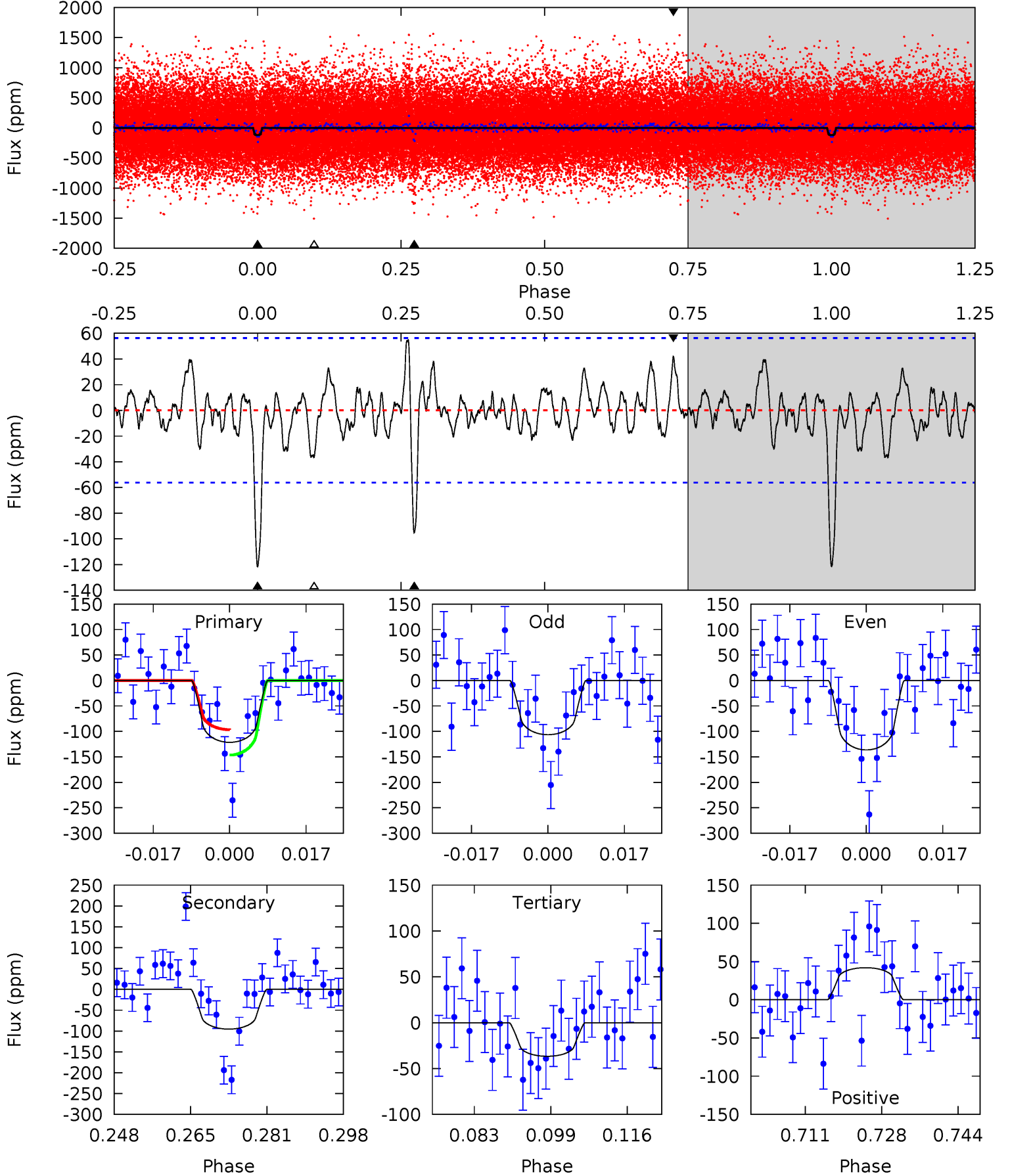
TCE 004914737-01 P= 8.652920 Days $T_0=134.318868$ (BKJD)



DV Model-Shift Uniqueness Test

004914737-01, P = 8.653072 Days, E = 125.645582 Days

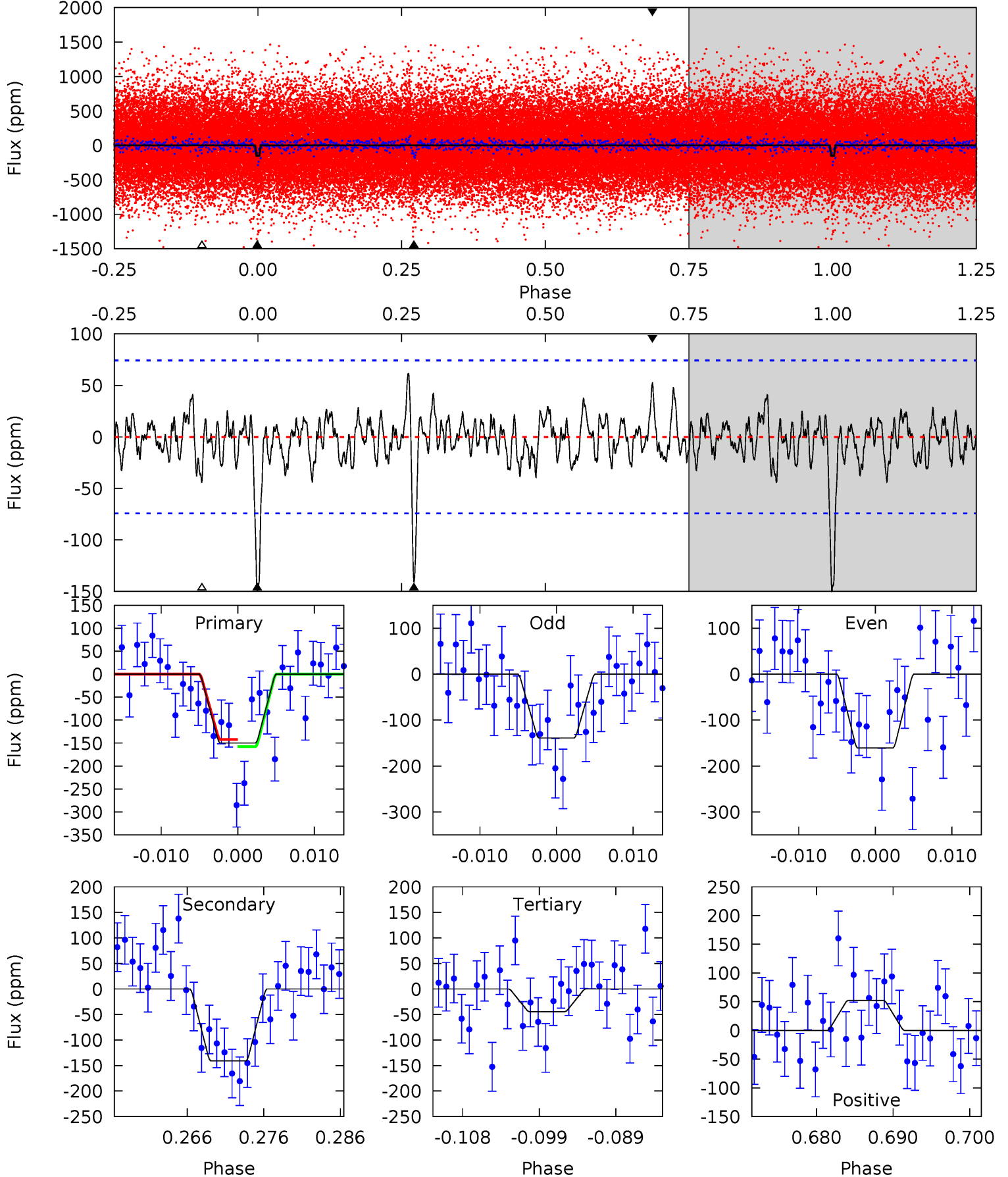
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	8.36	3.21	3.68	4.93	2.40	1.22	7.43	6.97	5.15	4.68	1.31	1.21	0.31	2.19



Alt Model-Shift Uniqueness Test

004914737-01, P = 8.652920 Days, E = 125.665948 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	9.54	3.02	3.54	5.03	2.58	1.13	7.14	6.62	6.52	5.99	0.74	1.00	0.29	0.53



Stellar Parameters For KIC 004914737

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3929^{+70}_{-78}	$4.705^{+0.027}_{-0.020}$	$-0.100^{+0.100}_{-0.100}$	$0.550^{+0.024}_{-0.030}$	$0.559^{+0.025}_{-0.028}$	$4.736^{+0.624}_{-0.375}$
	+2%/-2%	+1%/-0%	+100%/-100%	+4%/-5%	+4%/-5%	+13%/-8%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 004914737-01 / KOI 6471.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-95 ± 11	$0.89^{+0.64}_{-0.56}$	687^{+14}_{-15}	3402^{+1495}_{-466}	300^{+1945}_{-193}
Alt.	-141 ± 15	$0.96^{+0.64}_{-0.60}$	687^{+14}_{-15}	3561^{+1481}_{-531}	395^{+2266}_{-257}

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 $A_{obs} \gg 1.0$

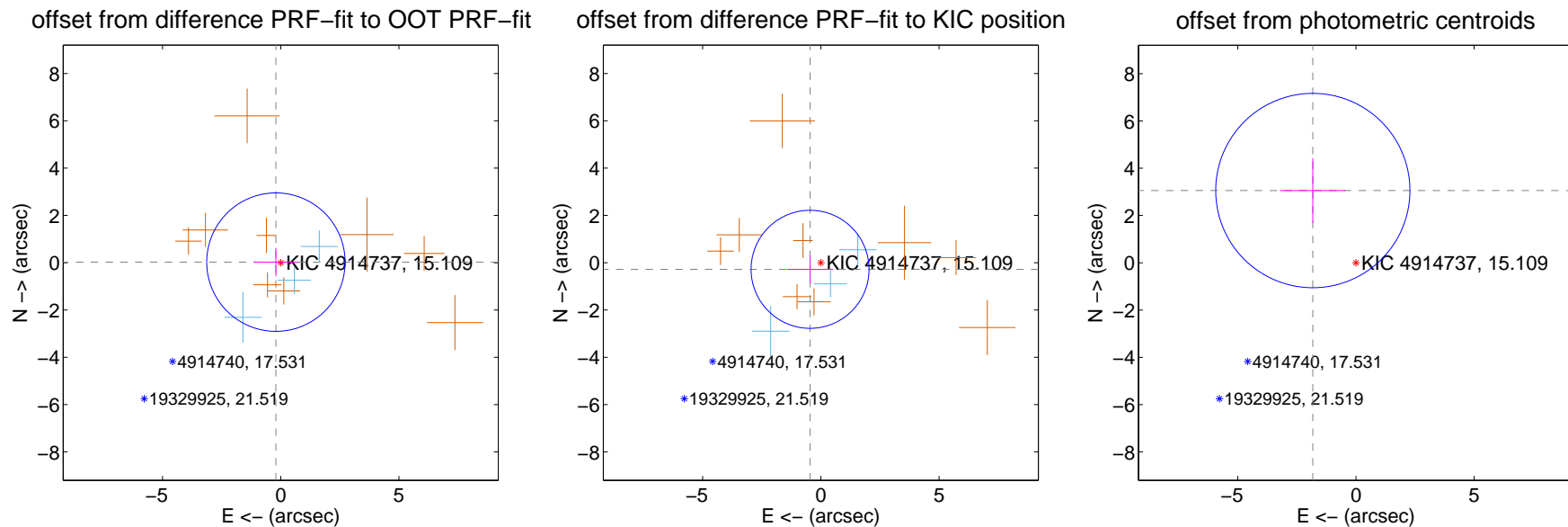
DV Centroid Data

Supplemental centroid analysis for 004914737-01. Kepler magnitude: 15.11. Transit SNR 8.80

There are 3 quarters with good PRF difference image offsets

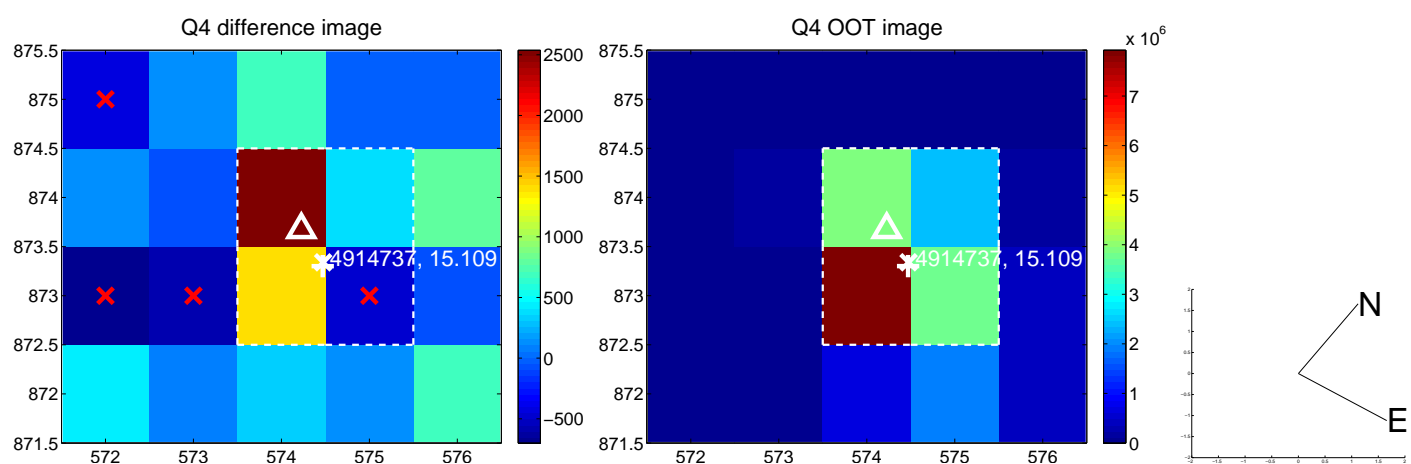
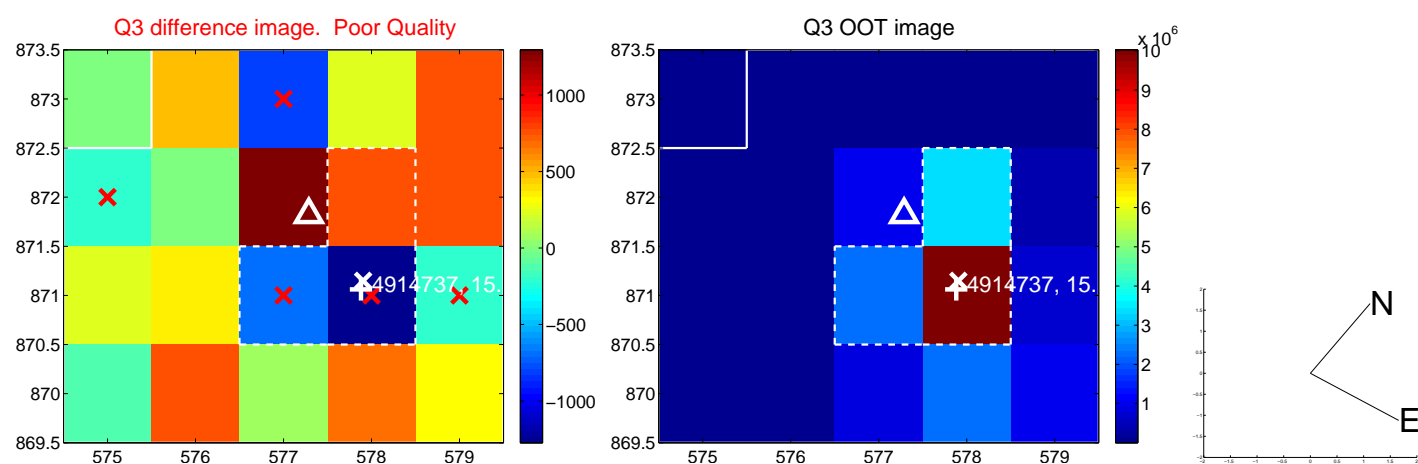
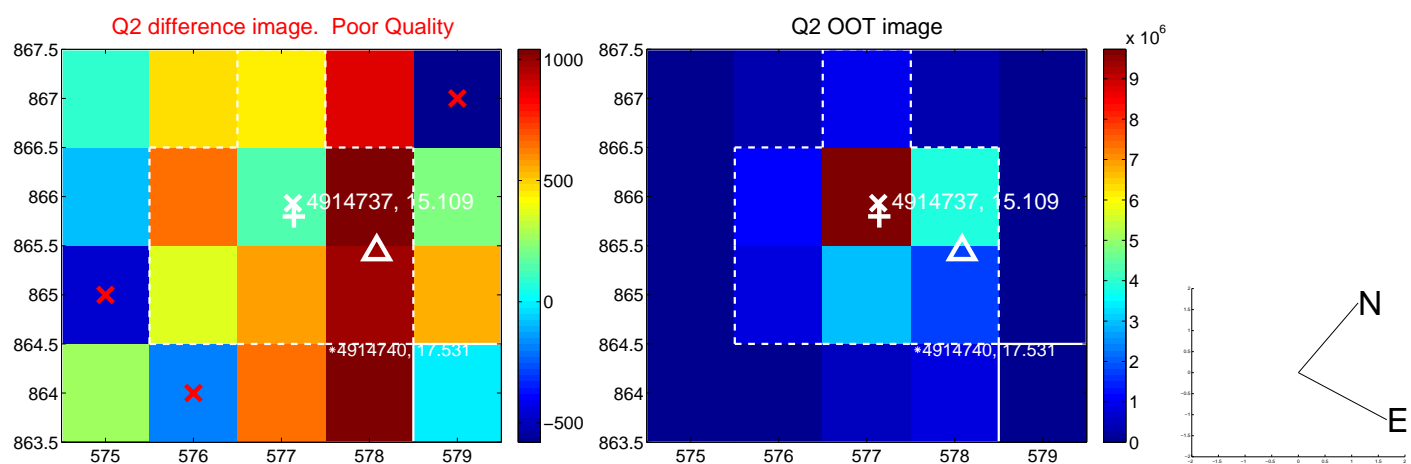
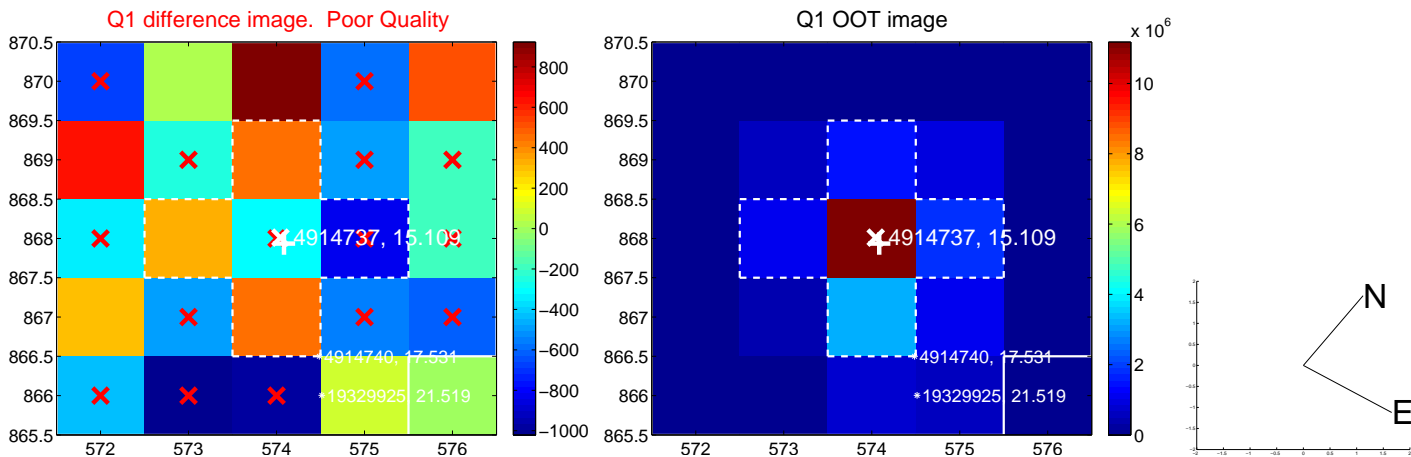
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.206 ± 0.976	0.21	0.205 ± 0.952	0.024 ± 0.598
PRF-fit source offset from KIC position	0.536 ± 0.832	0.64	0.457 ± 0.975	-0.280 ± 0.602
photometric centroid source offset	3.56 ± 1.37	2.60	1.83 ± 1.39	3.05 ± 1.36

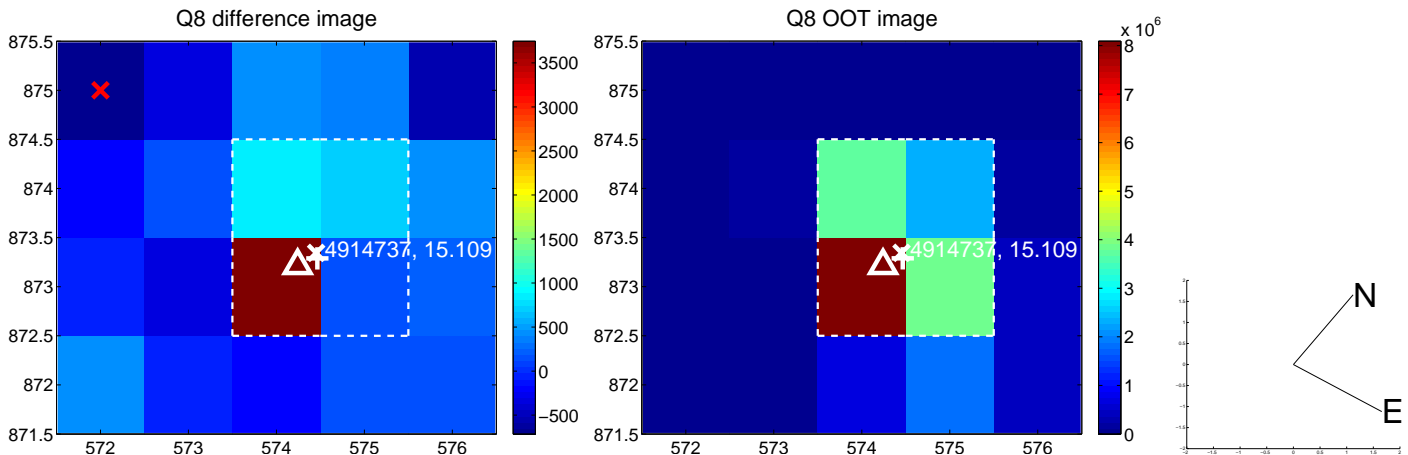
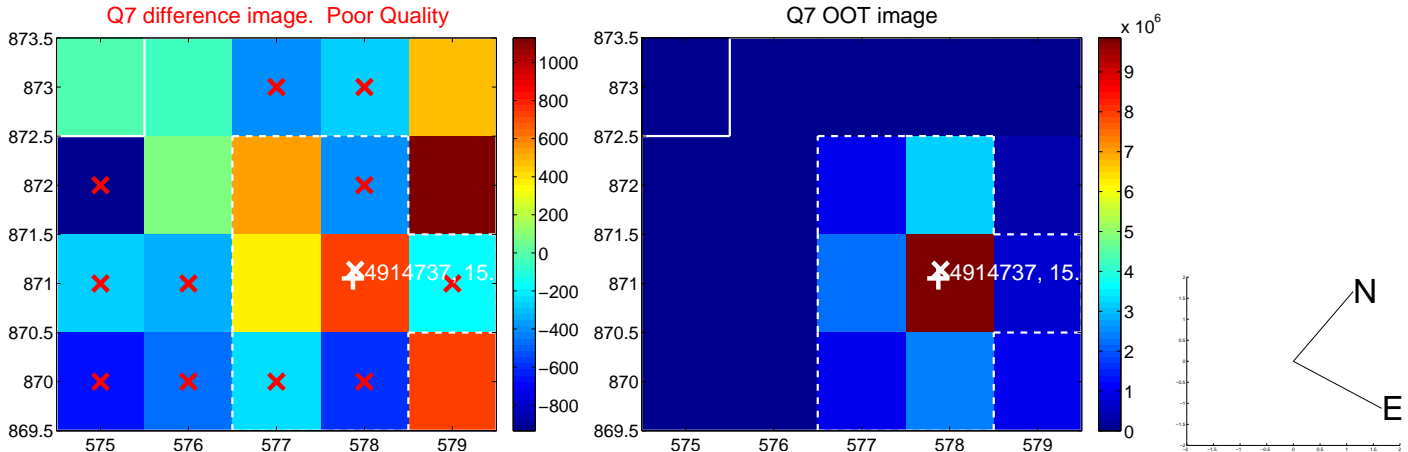
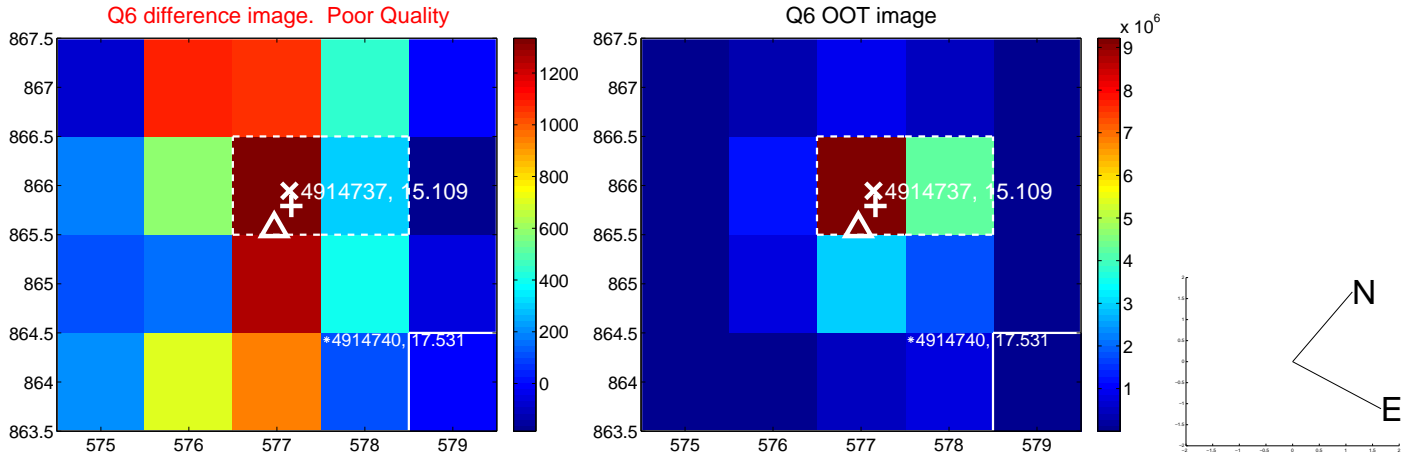
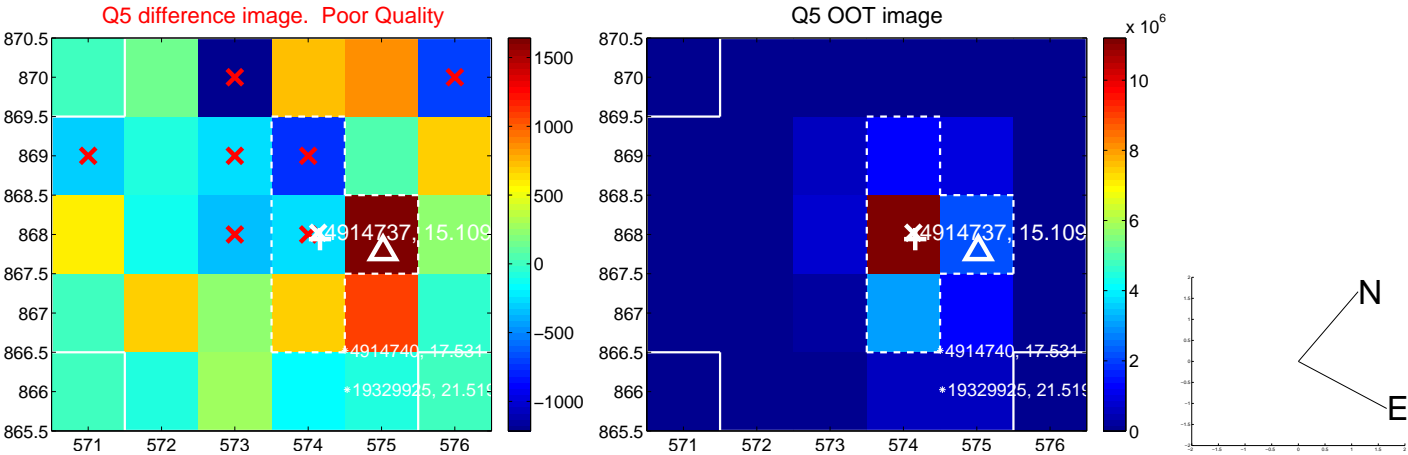


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

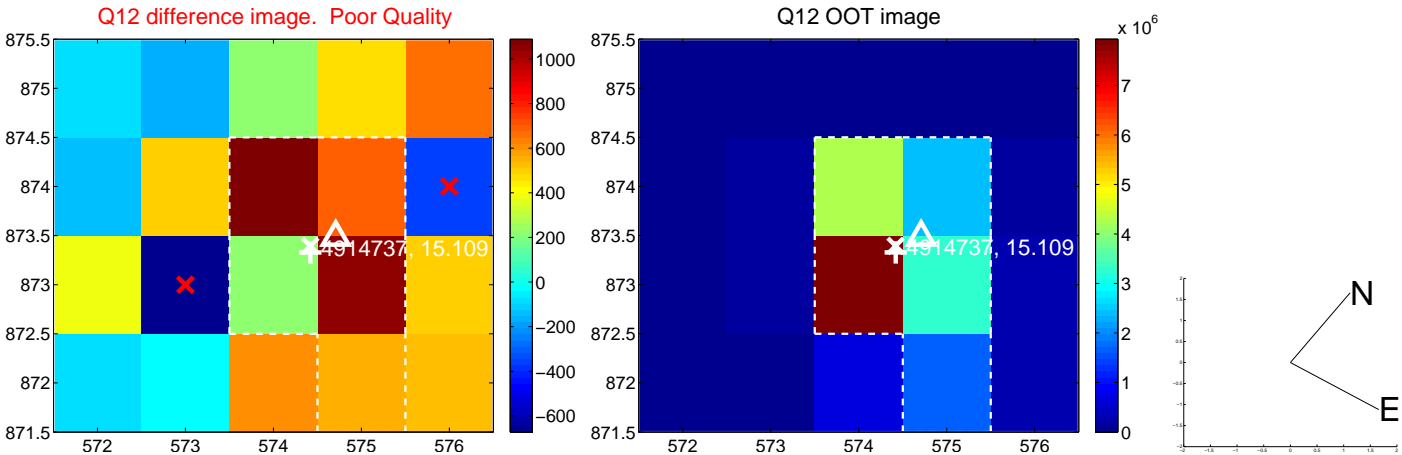
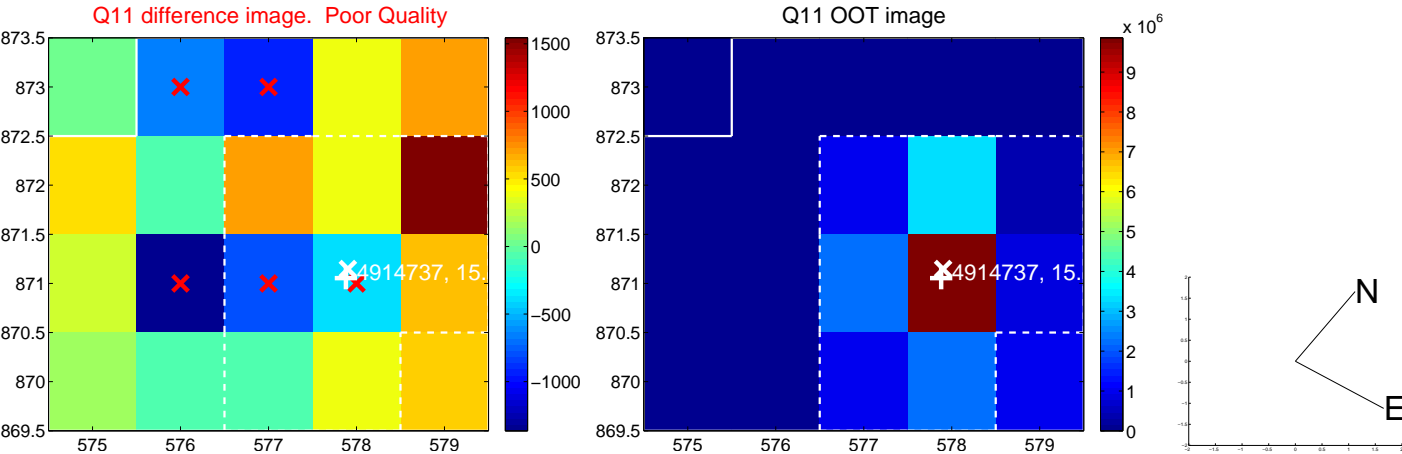
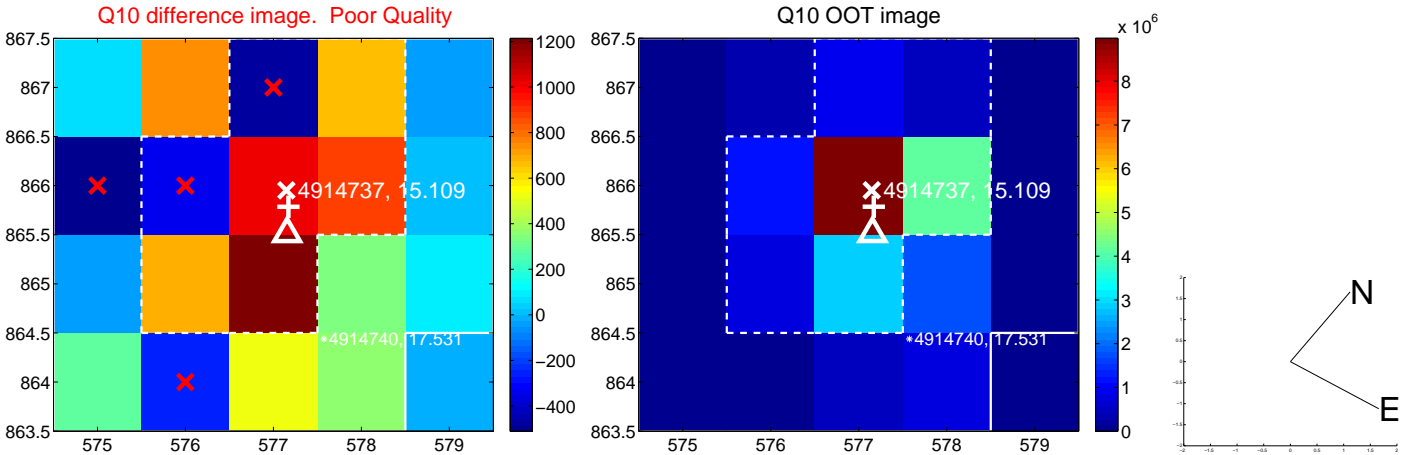
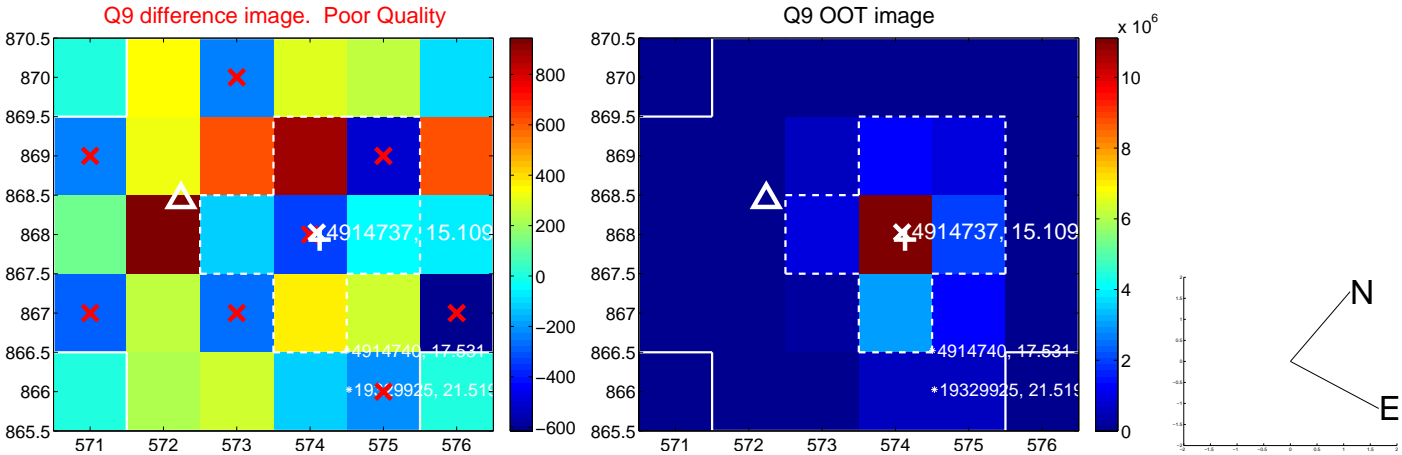
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



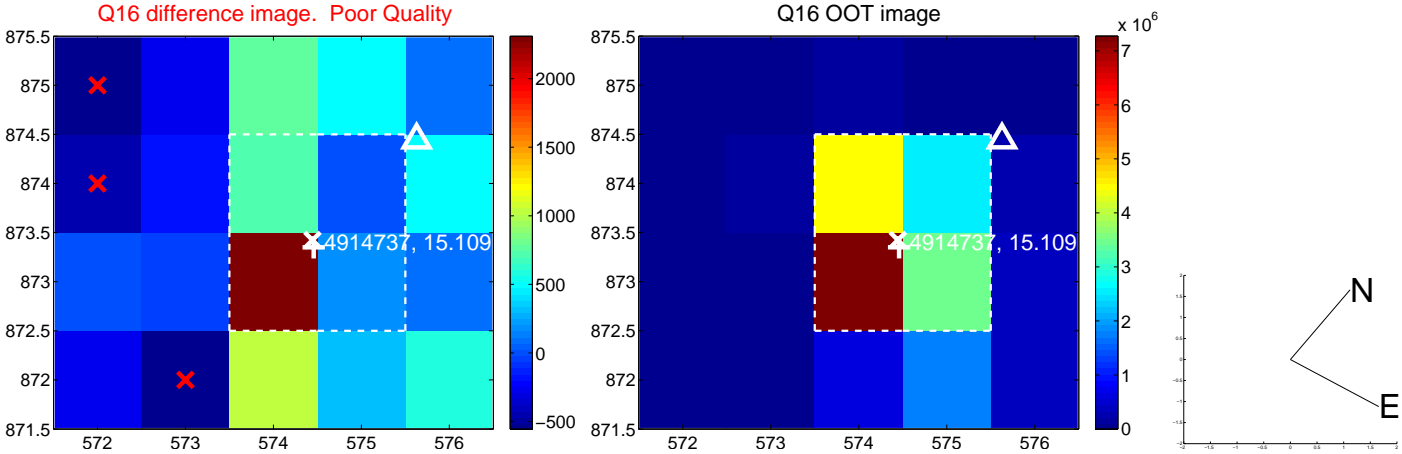
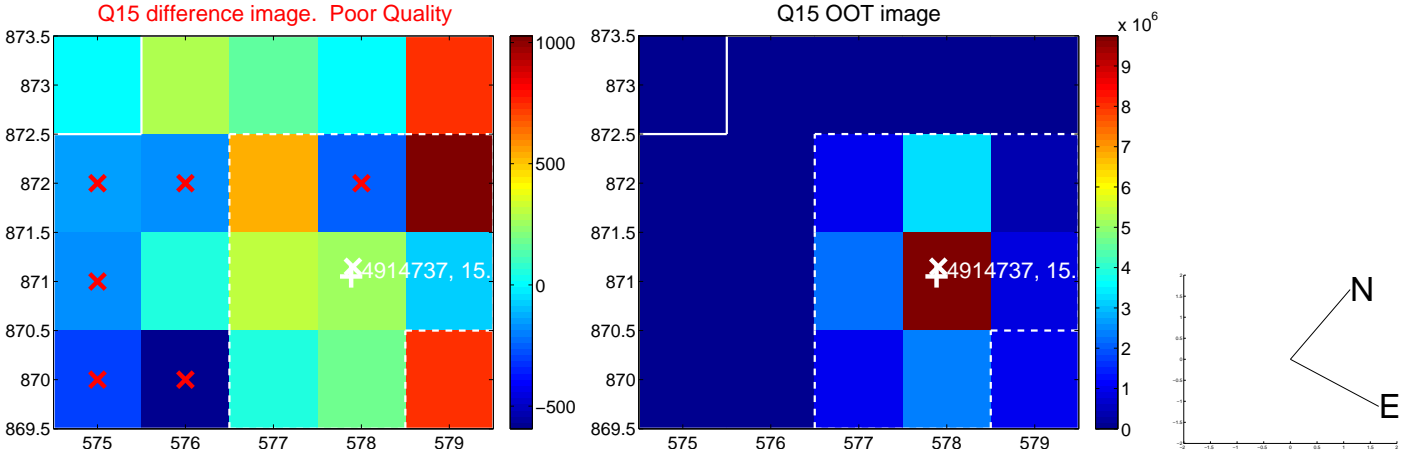
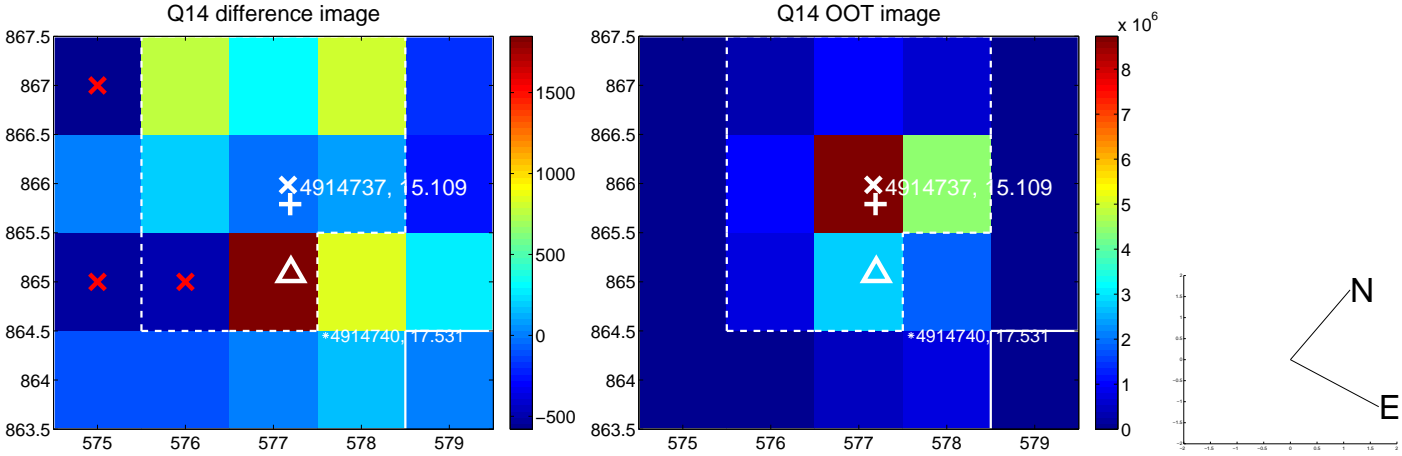
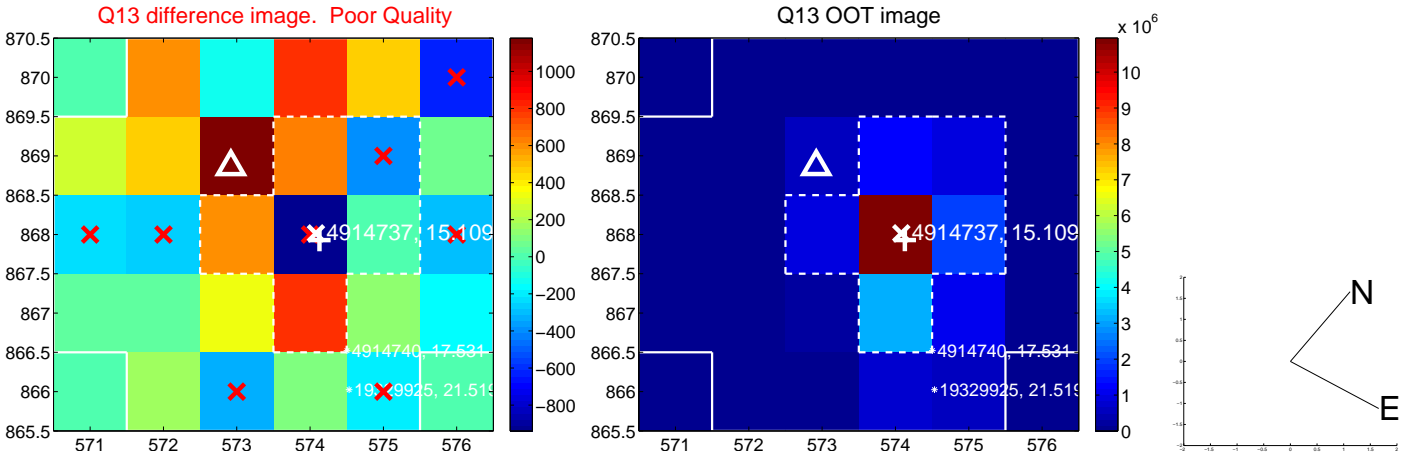
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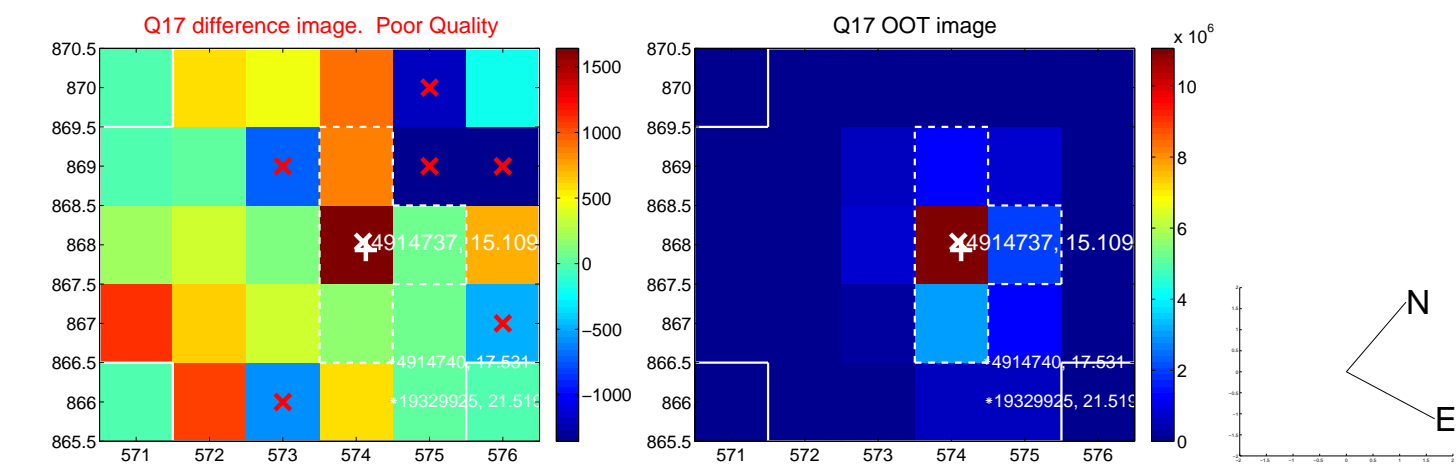
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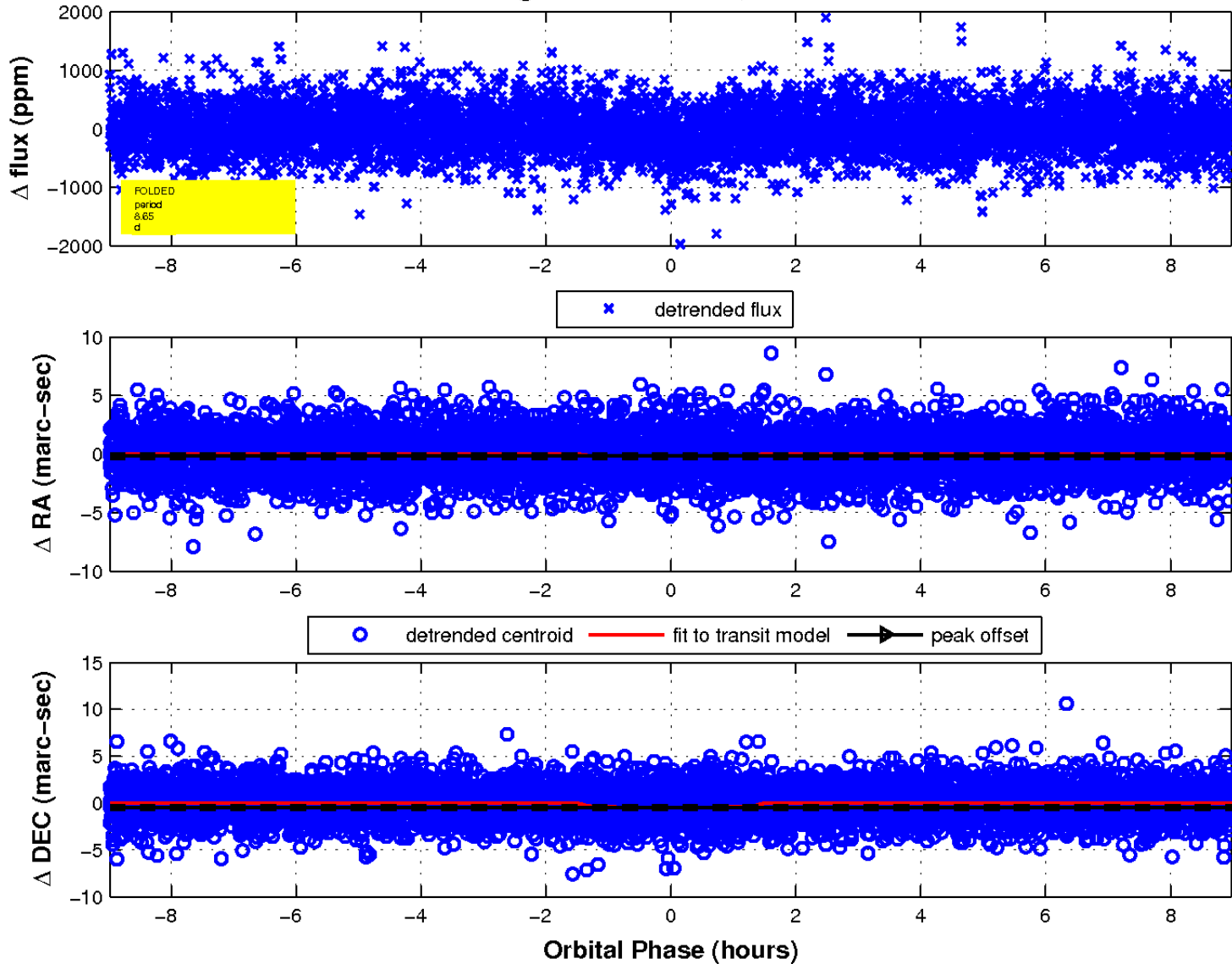
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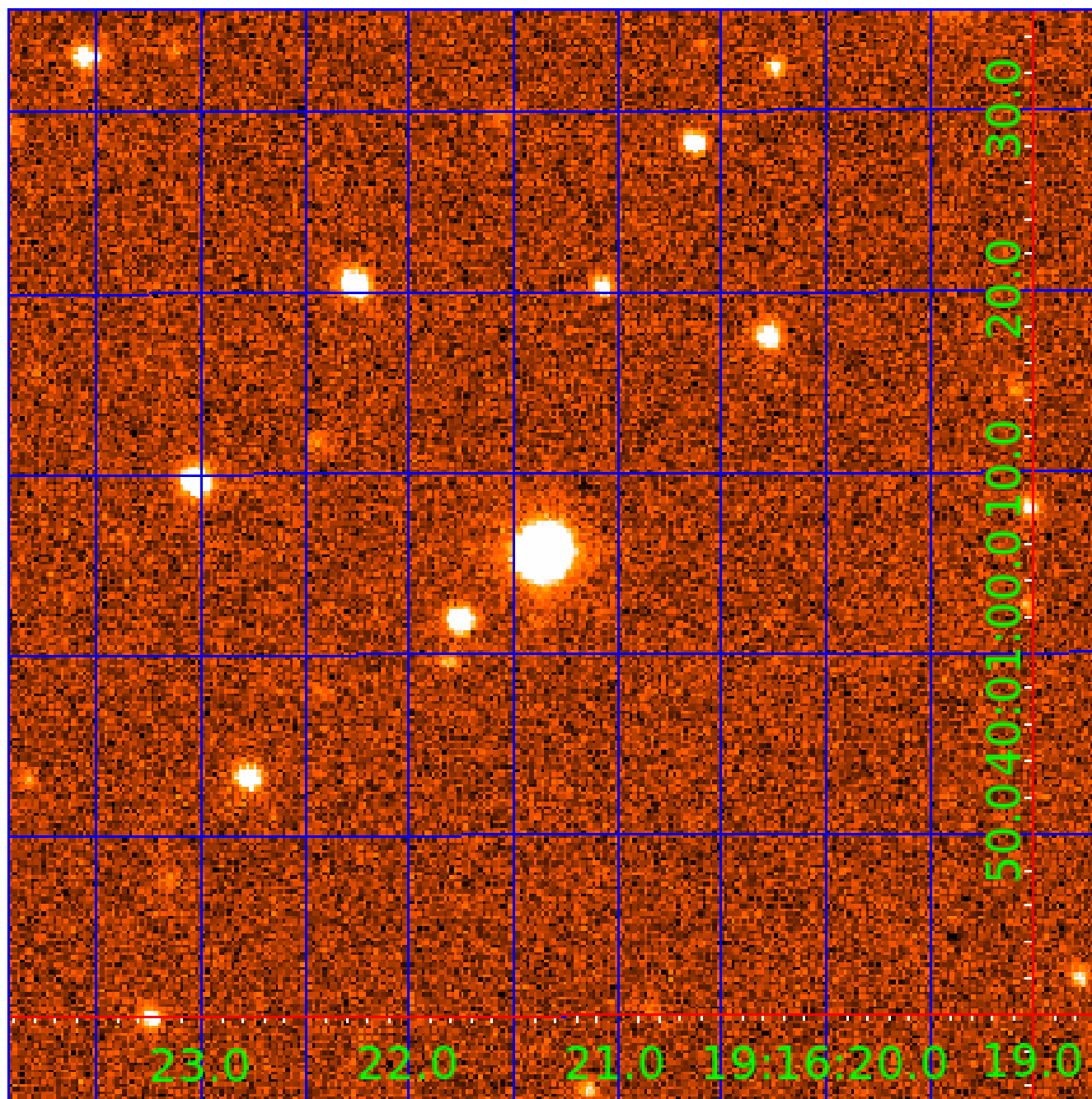


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004914737

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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004914737-02	OBS	FP	0.00	1	1	0	1	IS_SEC_TCE—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.

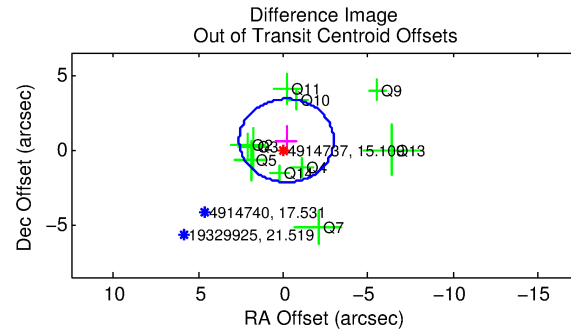
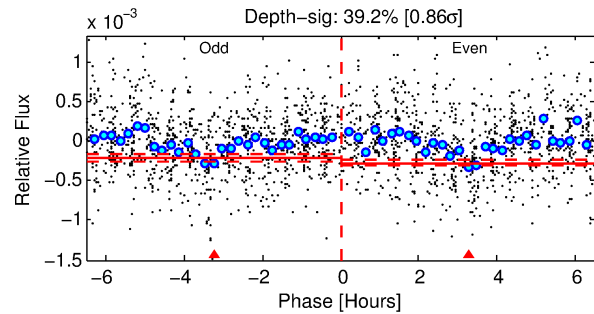
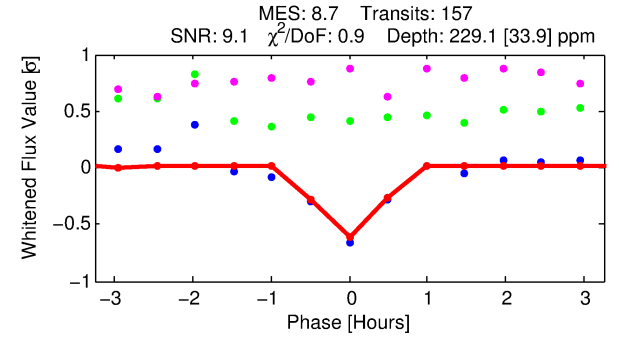
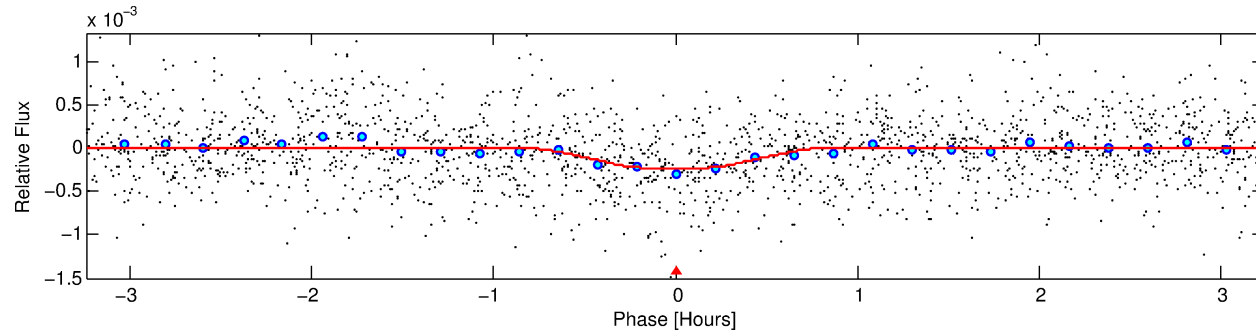
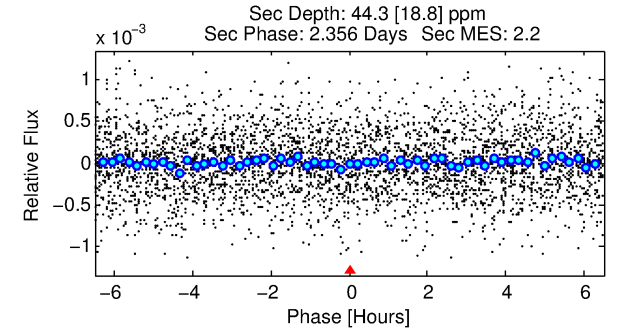
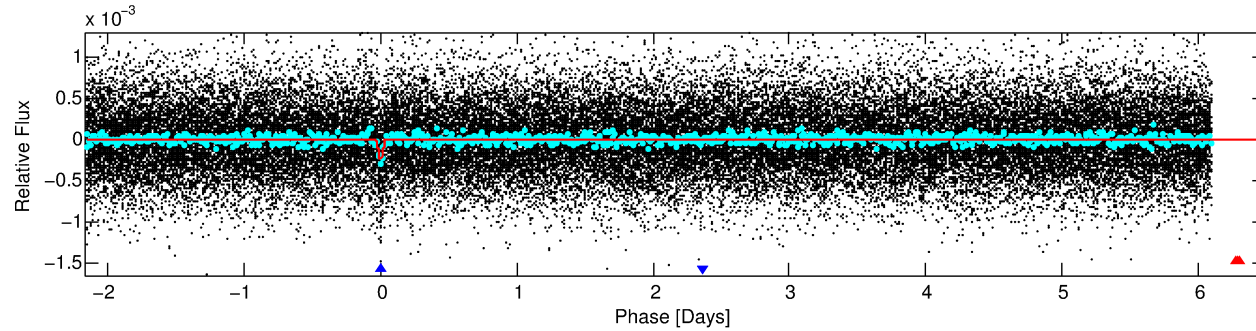
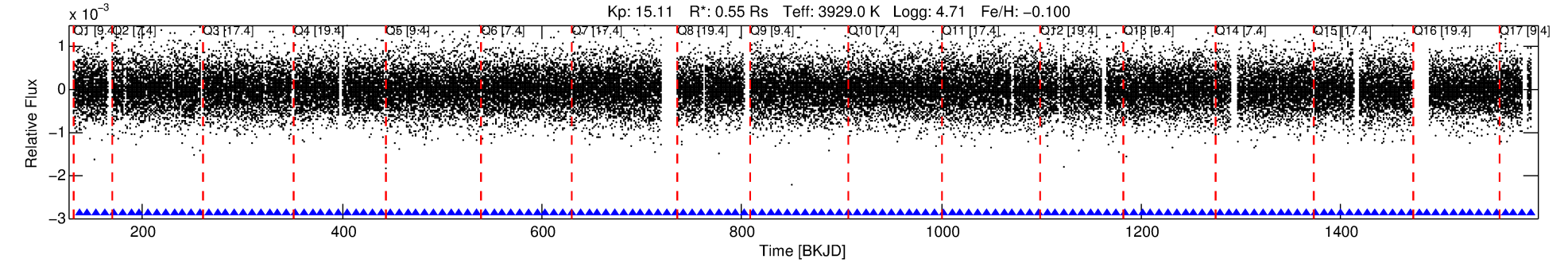
Ephemeris Match Information For 004914737-02

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
004914737-02	4914737	004150611-01	4150611	1:1	3255.1	819	0	7.90	15.11	253.60	Col-Anomaly	0	0.23	0.13

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: 4914737 Candidate: 2 of 2 Period: 8.653 d
KOI: K06471 Corr: No Ephemeris Match



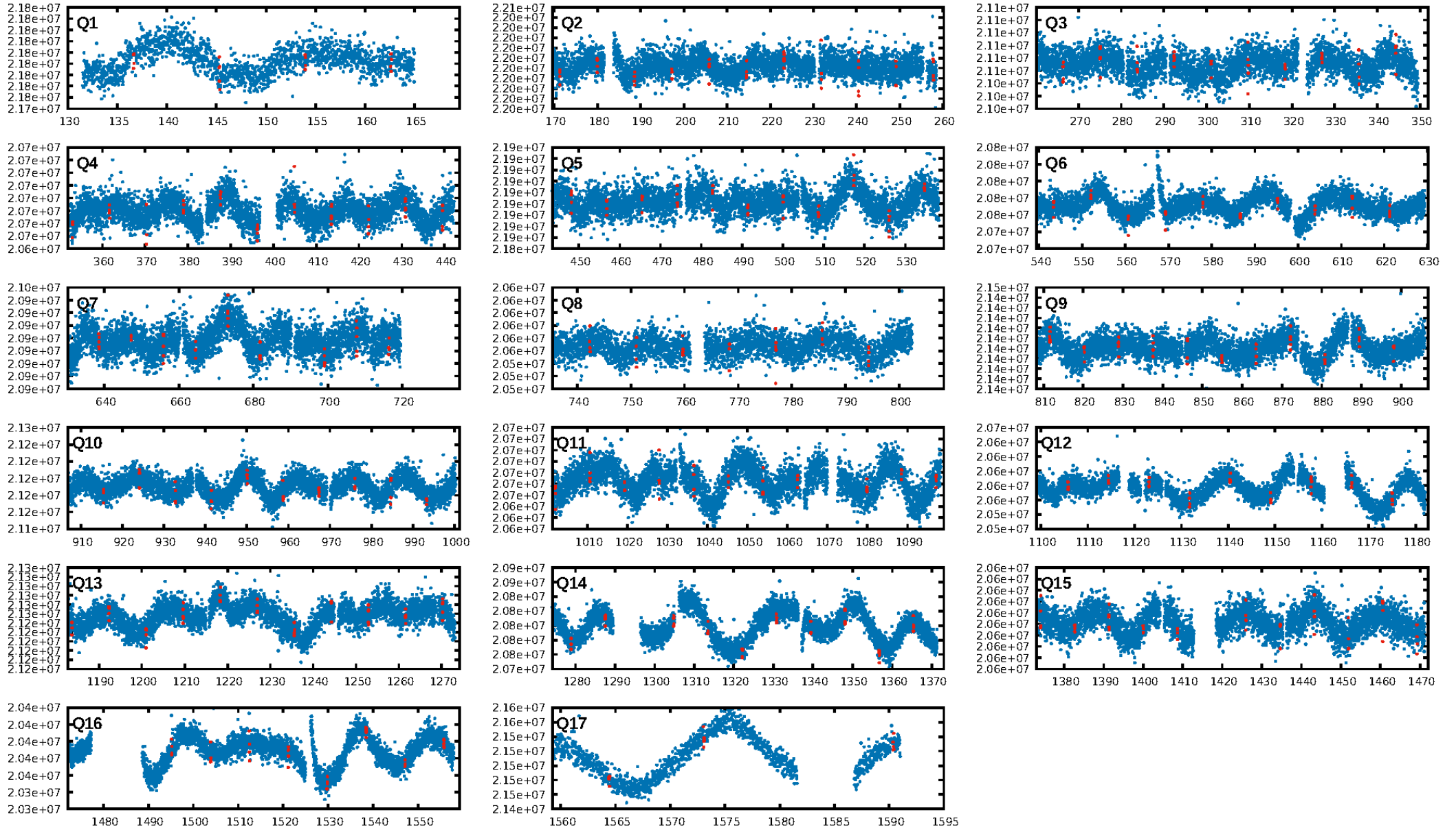
DV Fit Results:

Period = 8.65318 [0.00004] d
Epoch = 136.6514 [0.0034] BKJD
Rp/R* = 0.0161 [0.0222]
a/R* = 33.66 [203.60]
b = 0.85 [1.94]
Seff = 13.98 [1.35]
Teff = 493 [12] K
Rp = 0.96 [1.33] Re
a = 0.0680 [0.0028] AU
Ag = 121.11 [338.78] [0.35σ]
Teffp = 2529 [1769] K [1.15σ]

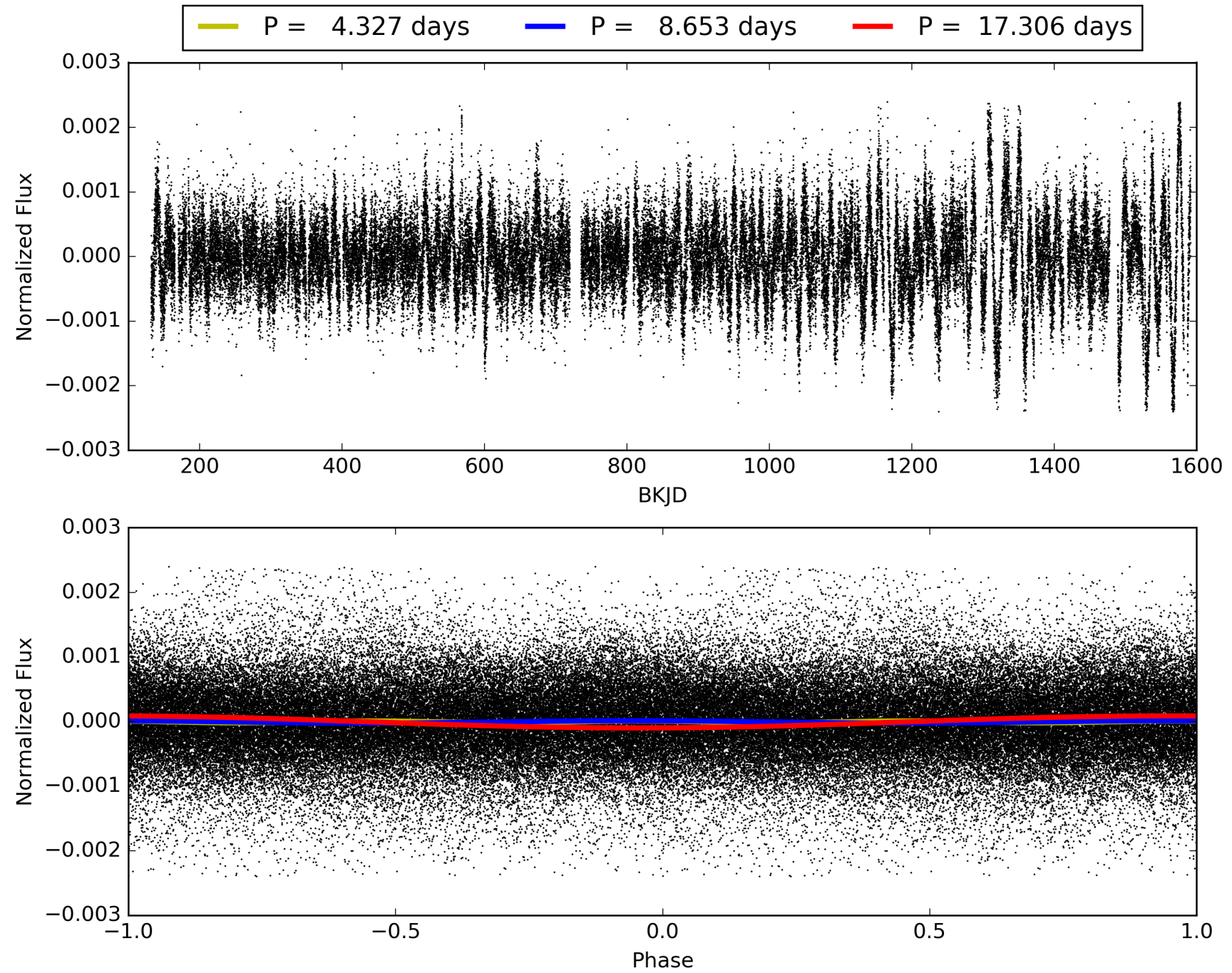
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.05e-18
RollingBand-fgt: 1.00 [150/150]
GhostDiagnostic-chr: 0.8716
Centroid-sig: 26.2%
Centroid-so: 0.660 arcsec [0.48σ]
OotOffset-rm: 0.635 arcsec [0.69σ]
KicOffset-rm: 0.243 arcsec [0.26σ]
OotOffset-st: 3/3/1/3 [10]
KicOffset-st: 3/3/1/3 [10]
DiffImageQuality-fgm: 0.10 [1/10]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 004914737-02, PDC Light Curves

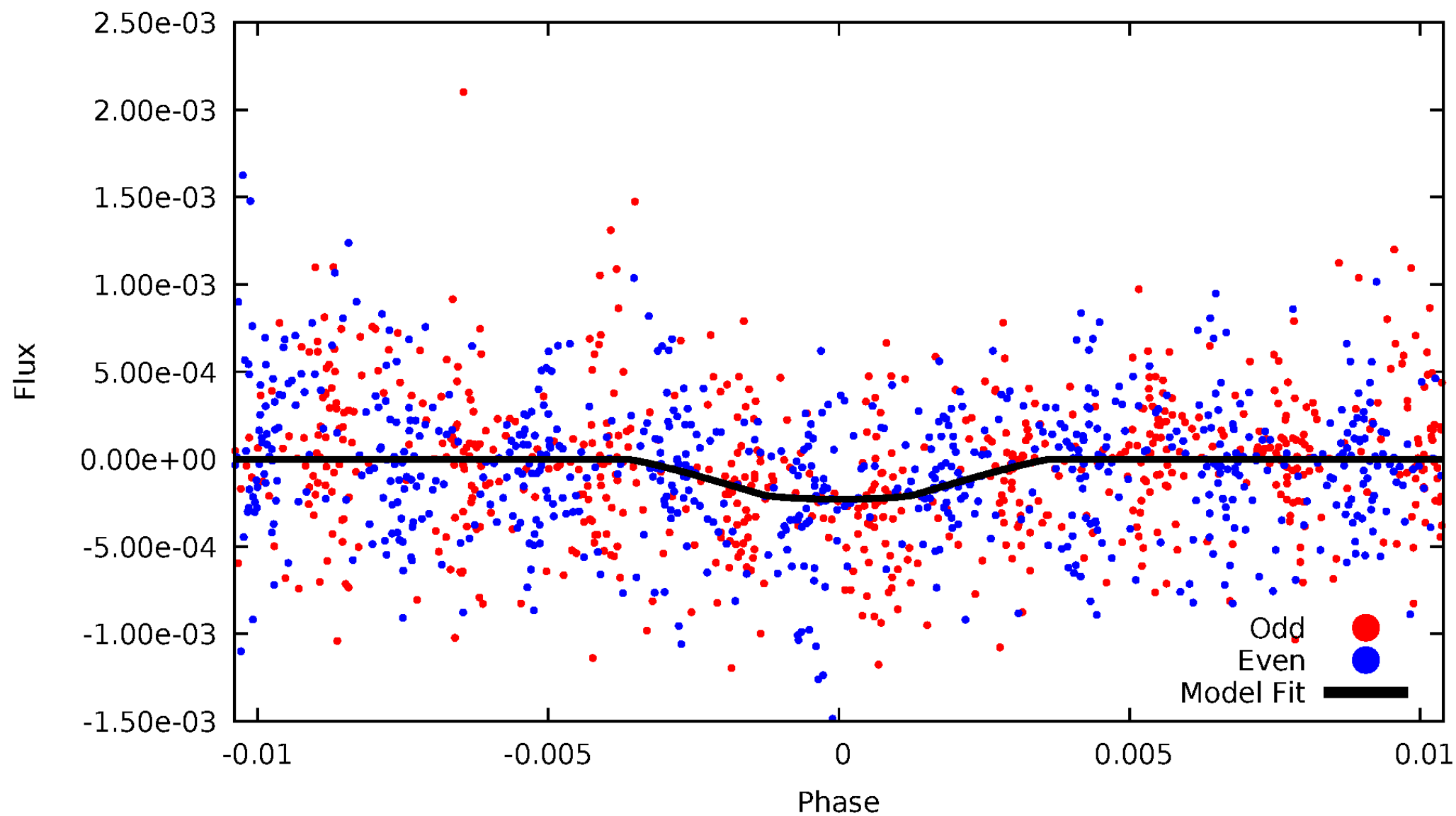


TCE 004914737-02



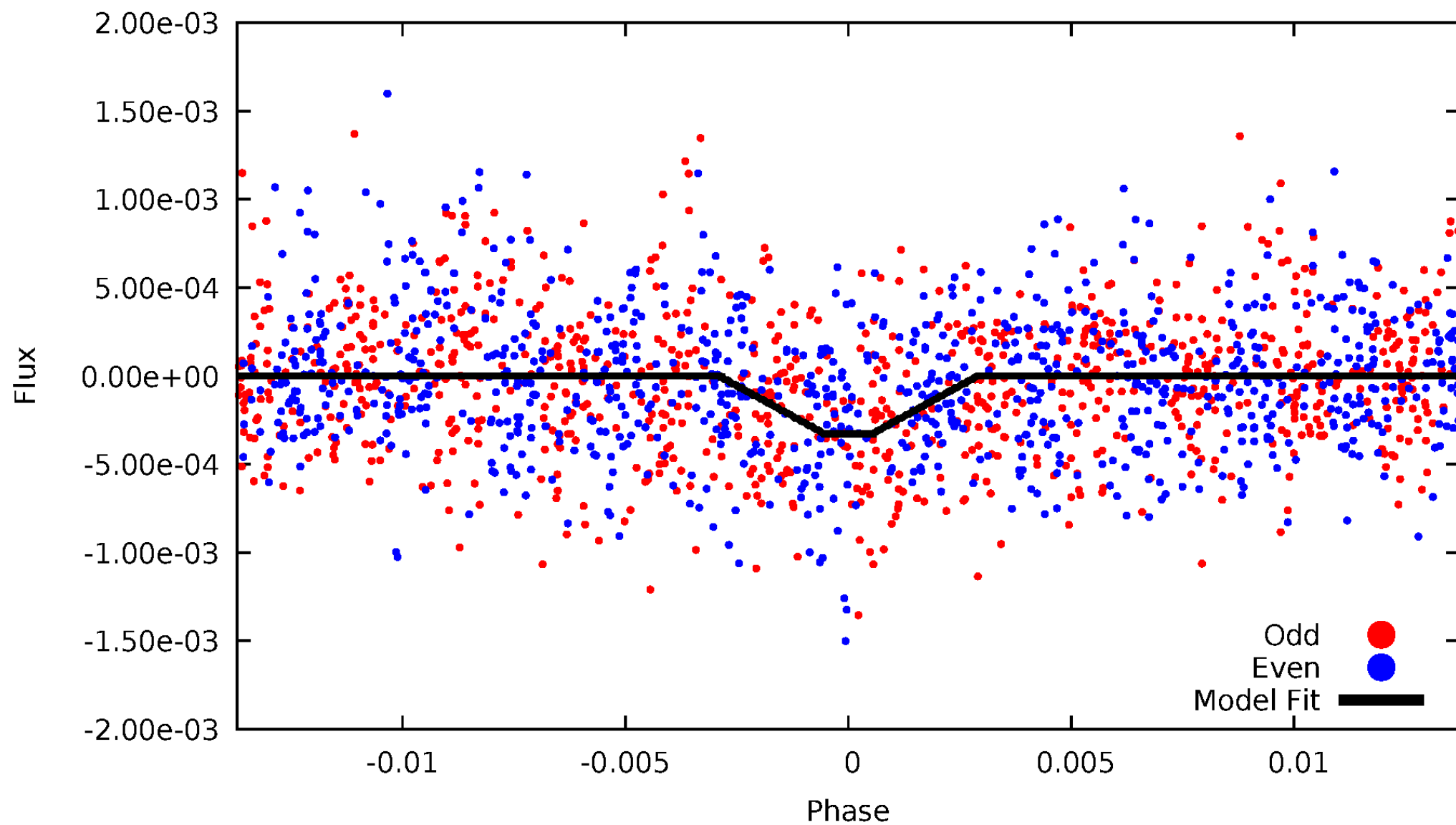
DV Odd/Even

TCE 004914737-02



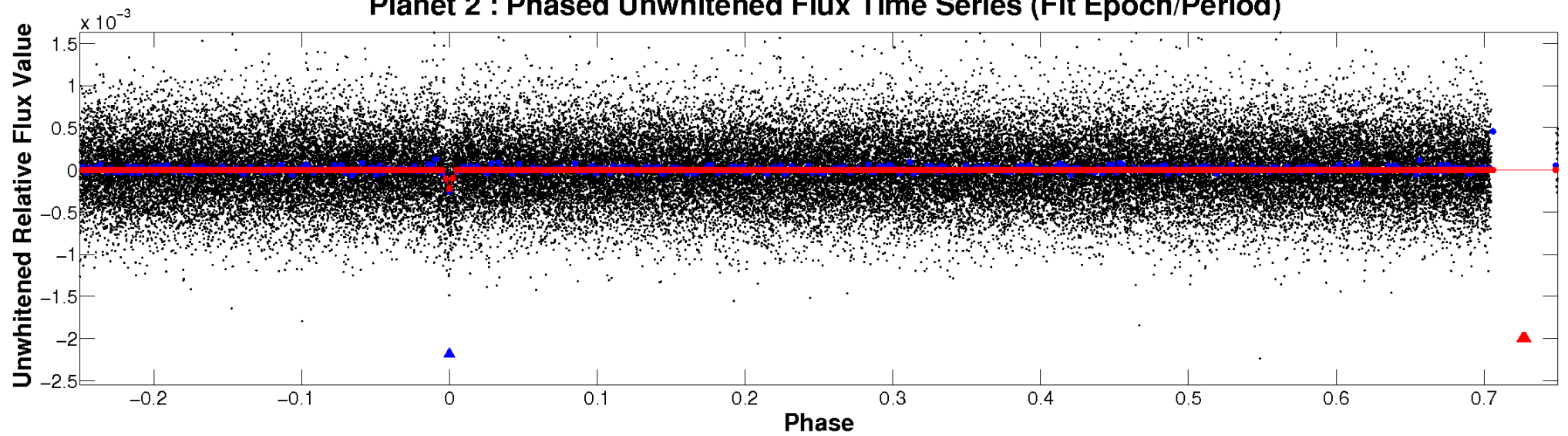
ALT Odd/Even

TCE 004914737-02

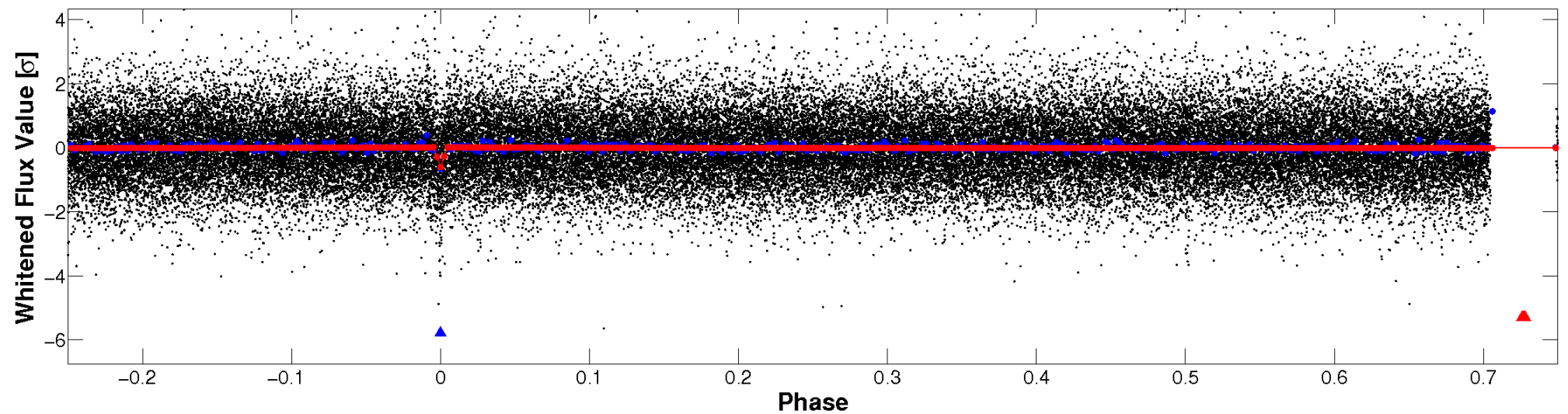


Non-Whitened Vs. Whitened Light Curve

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

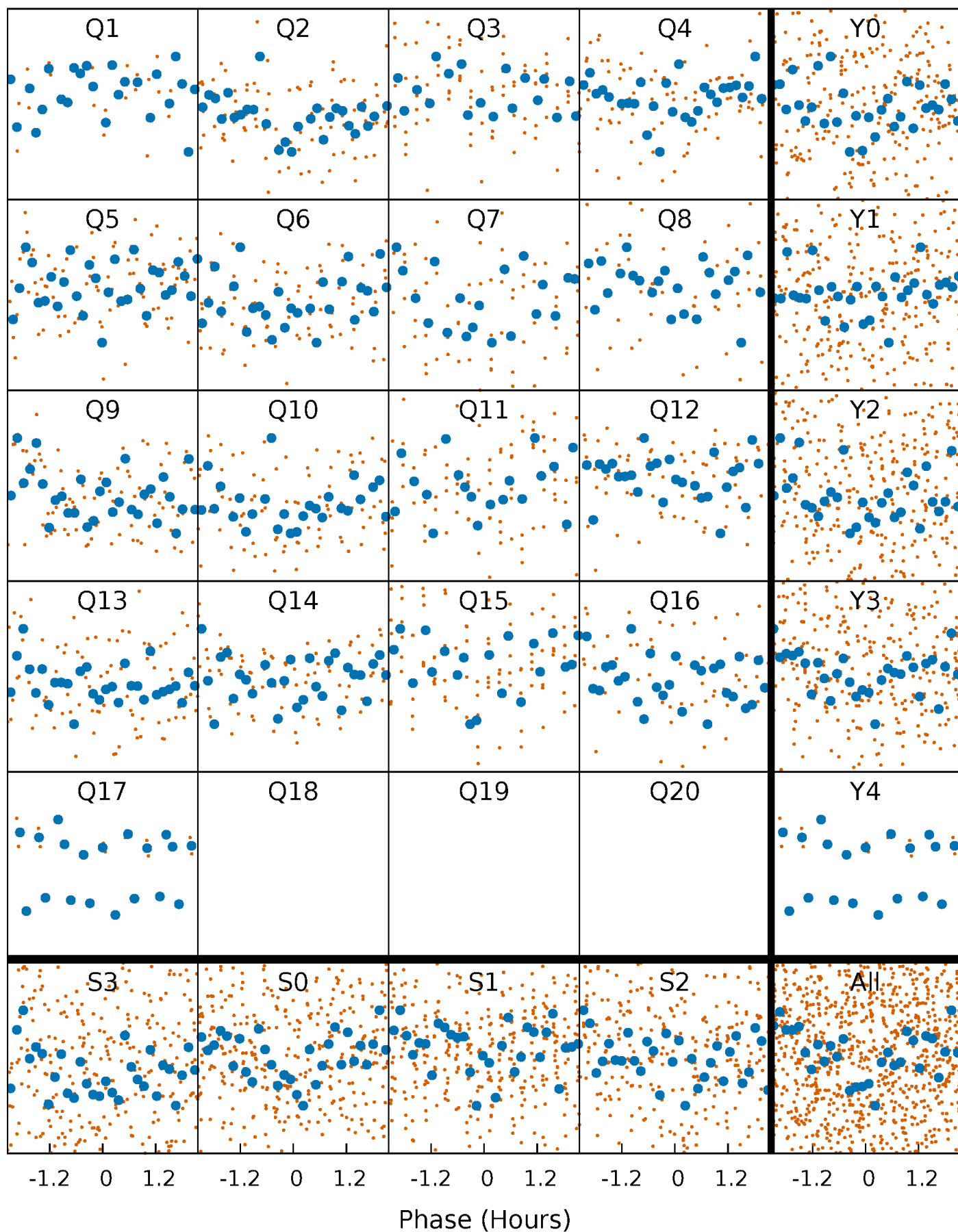


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



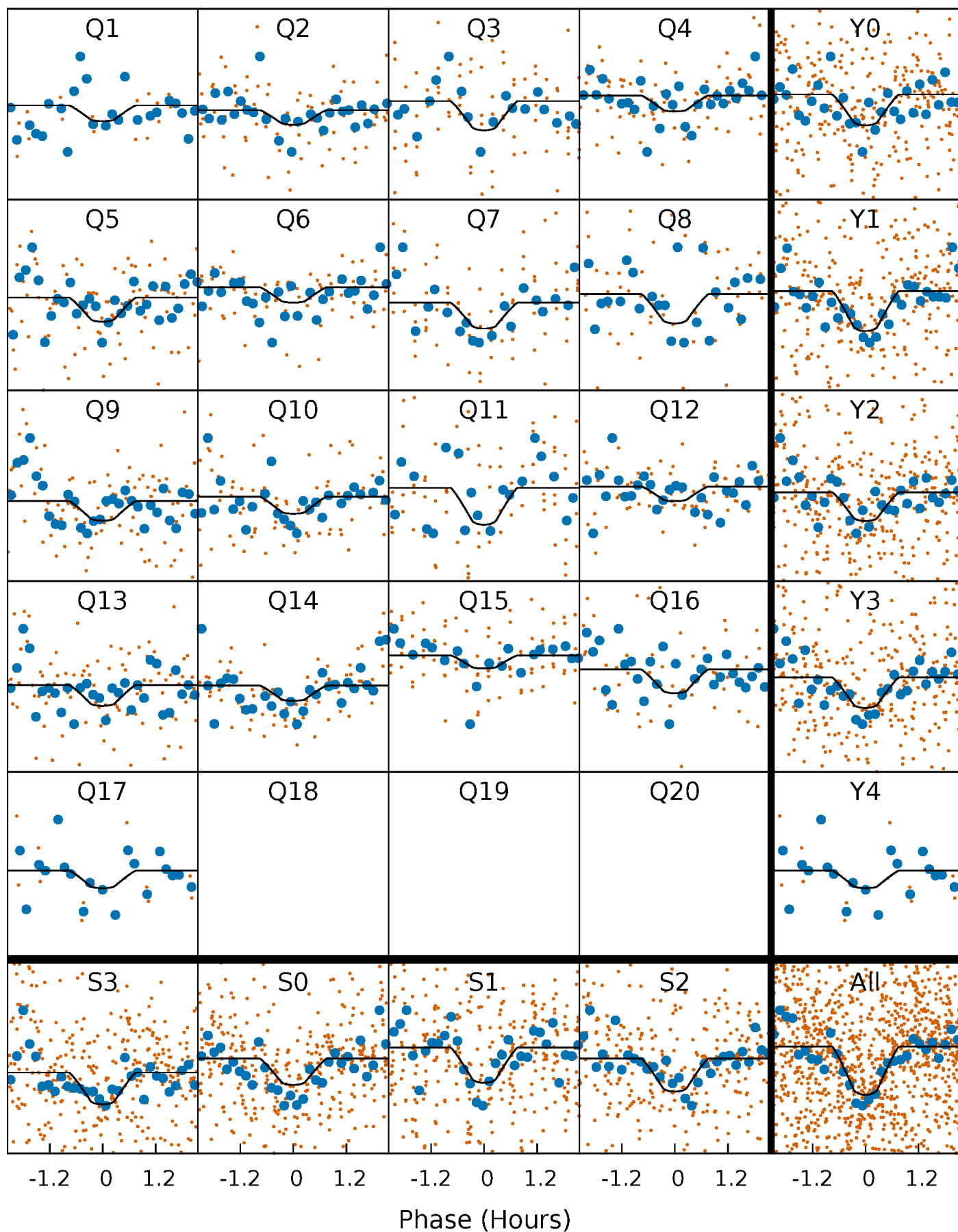
PDC Quarter-Phased Transit Curves

TCE 004914737-02 P= 8.653182 Days $T_0=136.651446$ (BKJD)



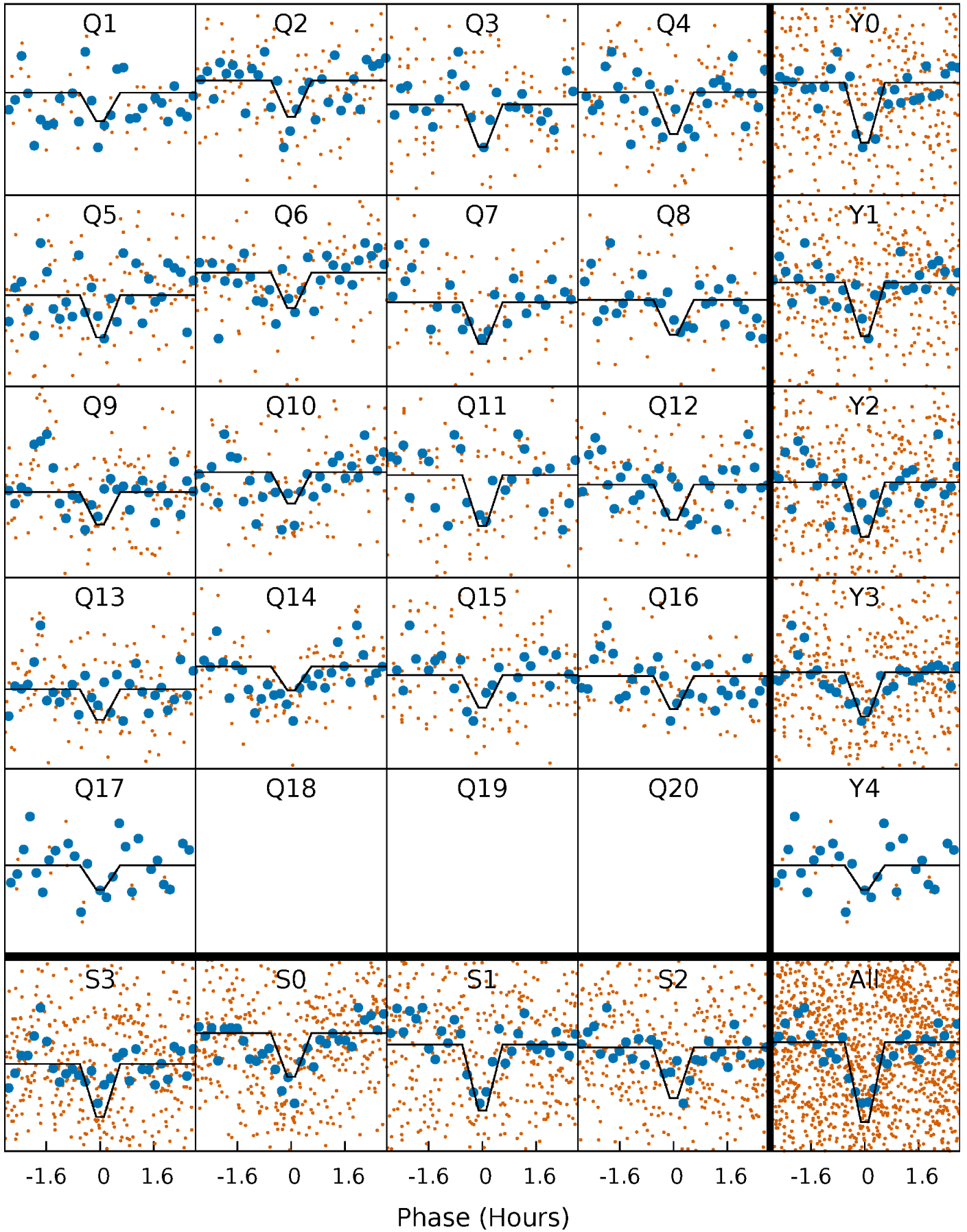
DV Quarter-Phased Transit Curves

TCE 004914737-02 P= 8.653182 Days $T_0=136.651446$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

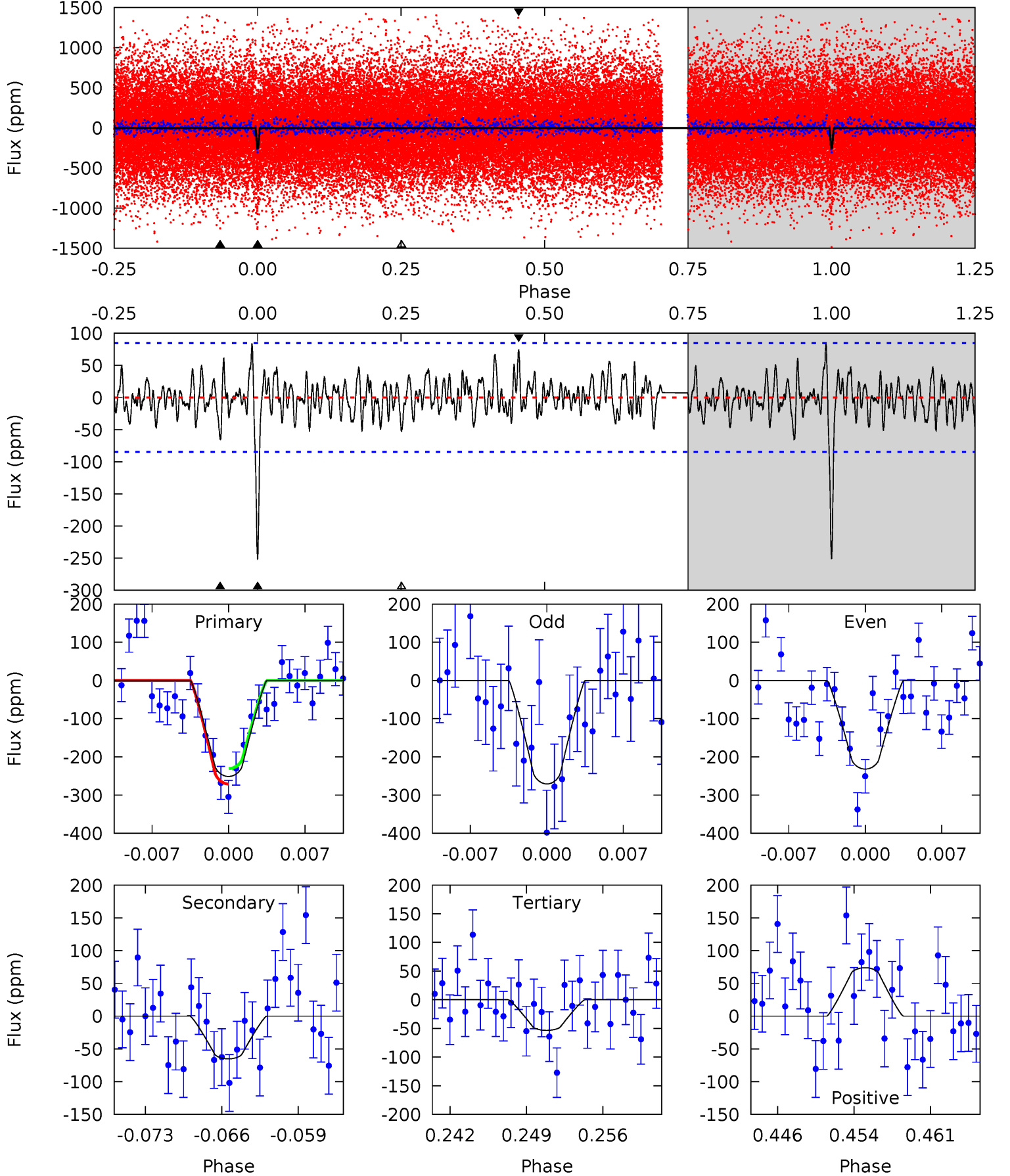
TCE 004914737-02 P= 8.653212 Days $T_0=136.648842$ (BKJD)



DV Model-Shift Uniqueness Test

004914737-02, P = 8.653182 Days, E = 127.998264 Days

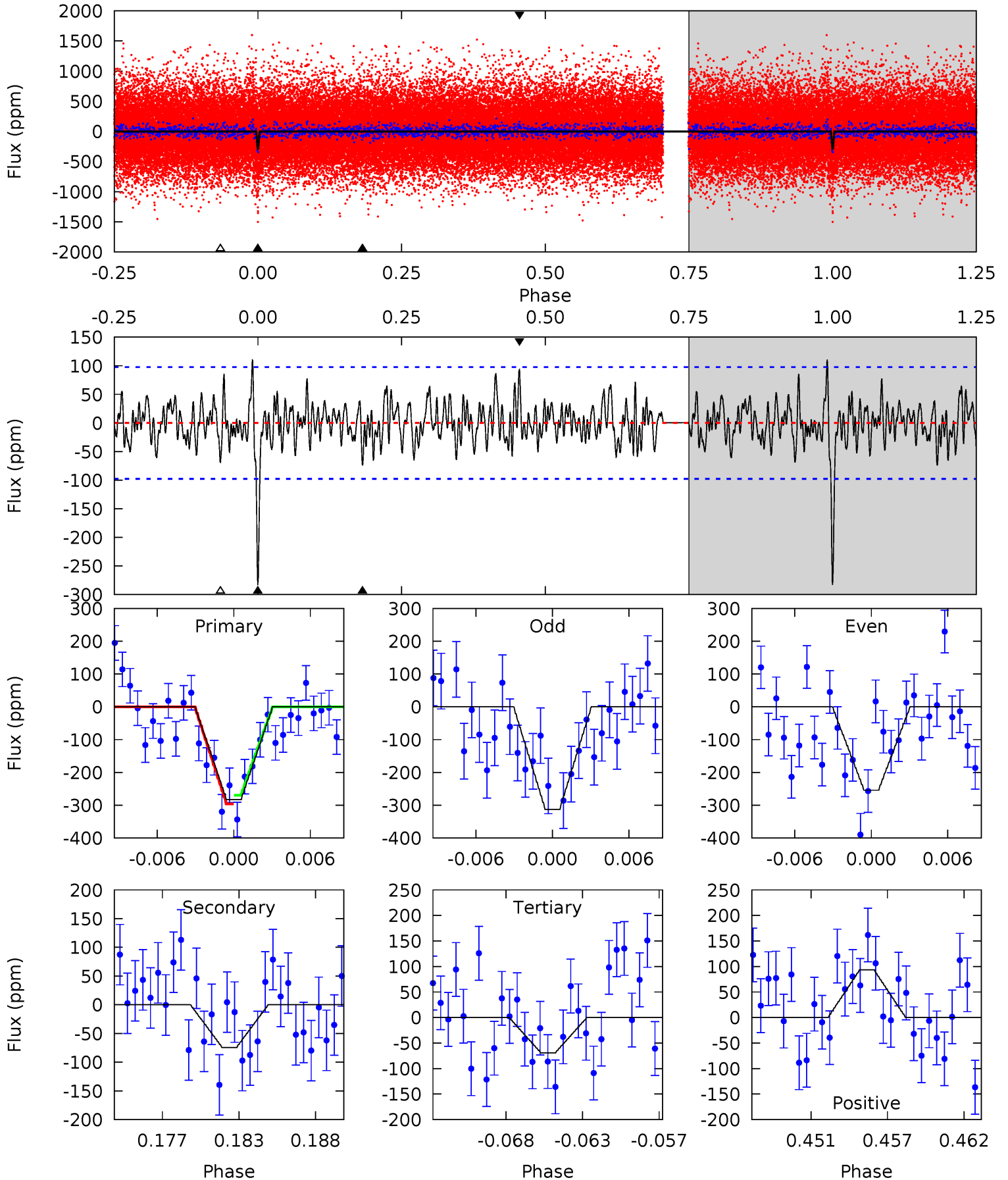
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	3.92	3.21	4.44	5.09	2.68	1.34	11.9	10.7	0.71	-0.52	1.17	0.97	0.25	1.21



Alt Model-Shift Uniqueness Test

004914737-02, P = 8.653212 Days, E = 127.995630 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	3.91	3.64	4.91	5.13	2.76	1.49	11.3	9.98	0.27	-1.00	1.54	1.19	0.28	0.68



Stellar Parameters For KIC 004914737

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3929^{+70}_{-78}	$4.705^{+0.027}_{-0.020}$	$-0.100^{+0.100}_{-0.100}$	$0.550^{+0.024}_{-0.030}$	$0.559^{+0.025}_{-0.028}$	$4.736^{+0.624}_{-0.375}$
	+2%/-2%	+1%/-0%	+100%/-100%	+4%/-5%	+4%/-5%	+13%/-8%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 004914737-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-65 ± 17	$1.43^{+1.14}_{-0.88}$	687^{+15}_{-15}	2810^{+1033}_{-391}	78^{+521}_{-54}
Alt.	-74 ± 19	$1.46^{+1.16}_{-0.91}$	688^{+14}_{-14}	2838^{+1036}_{-404}	86^{+568}_{-61}

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 $A_{obs} \gg 1.0$

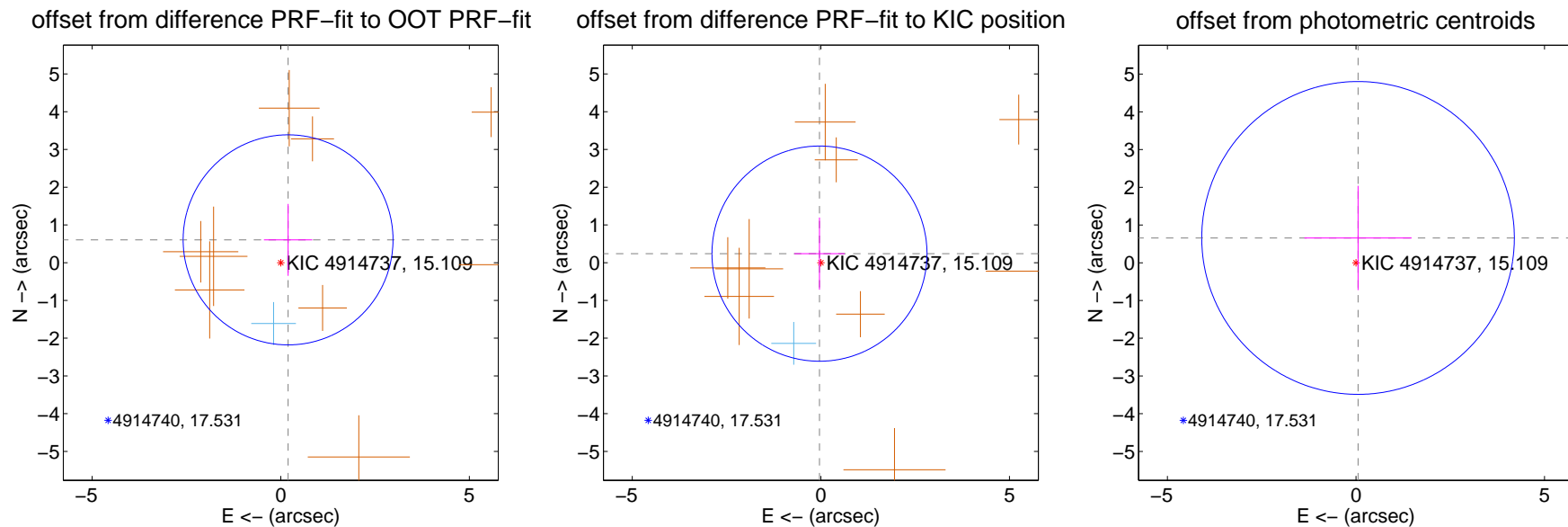
DV Centroid Data

Supplemental centroid analysis for 004914737-02. Kepler magnitude: 15.11. Transit SNR 9.09

There are 1 quarters with good PRF difference image offsets

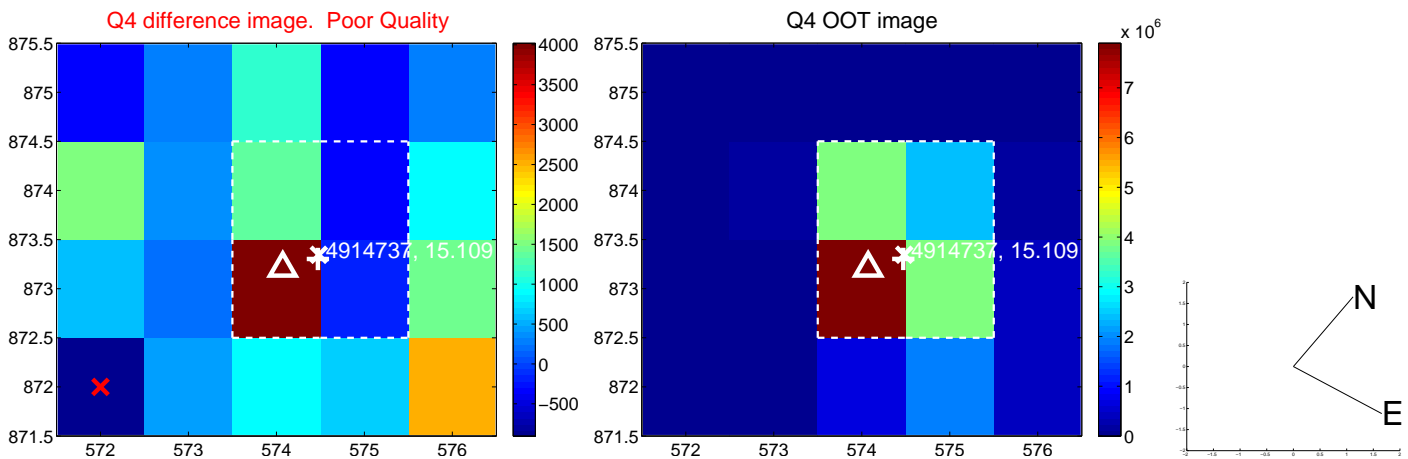
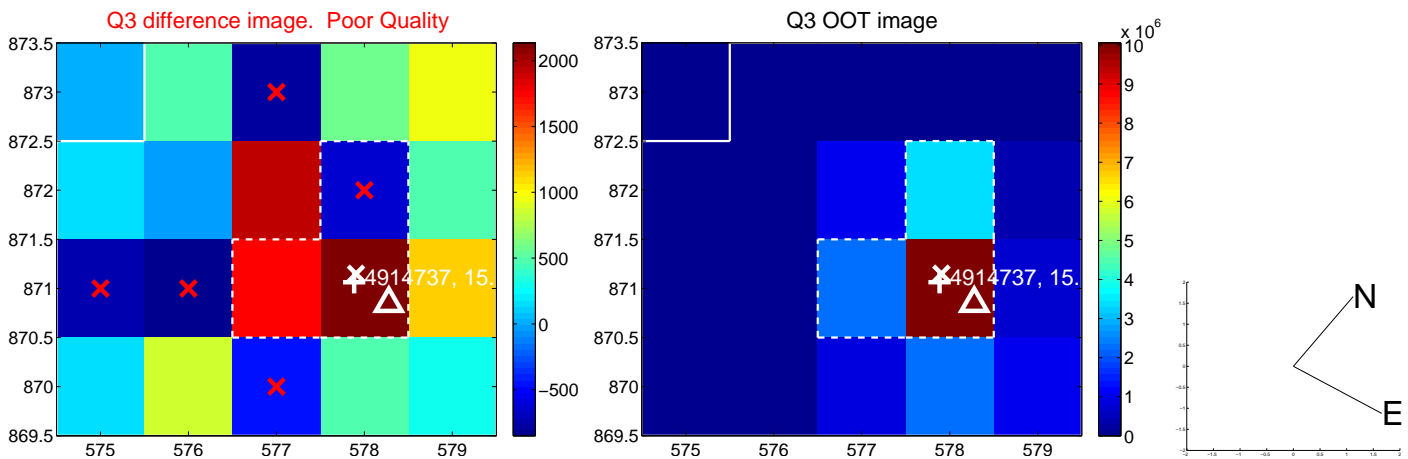
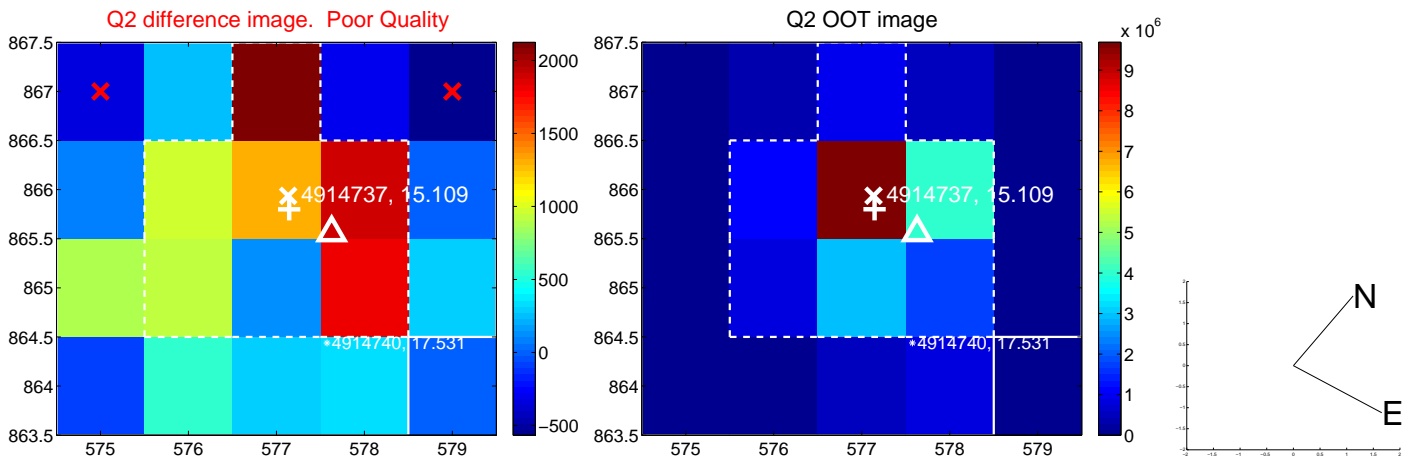
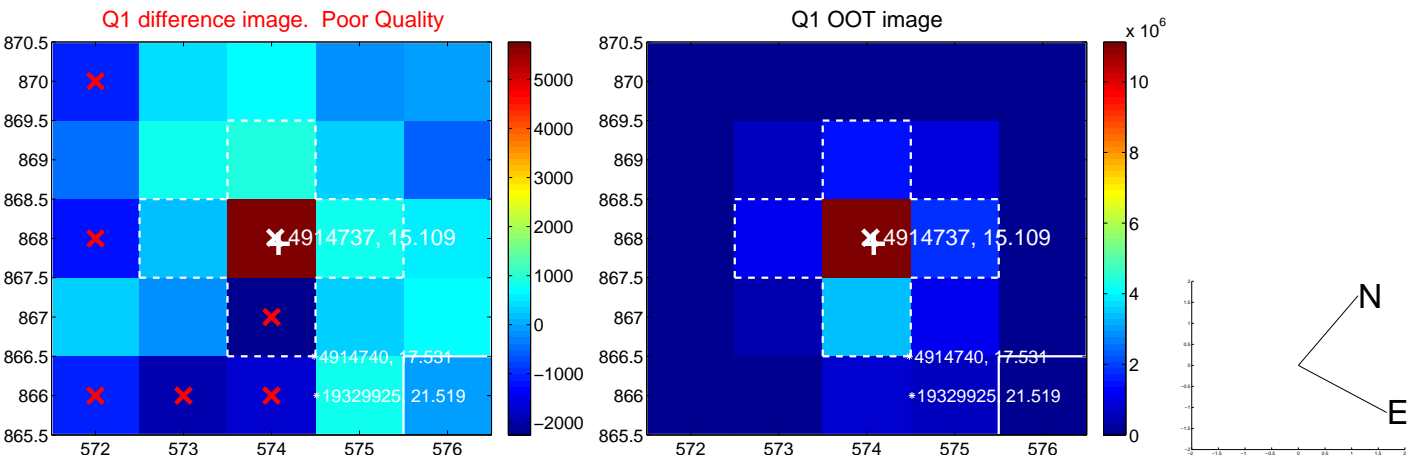
The direct PRF centroid is offset from the target star catalog position by about 0.75 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.635 ± 0.927	0.69	-0.194 ± 0.642	0.605 ± 0.952
PRF-fit source offset from KIC position	0.243 ± 0.950	0.26	0.037 ± 0.668	0.240 ± 0.956
photometric centroid source offset	0.66 ± 1.38	0.48	-0.05 ± 1.42	0.66 ± 1.38

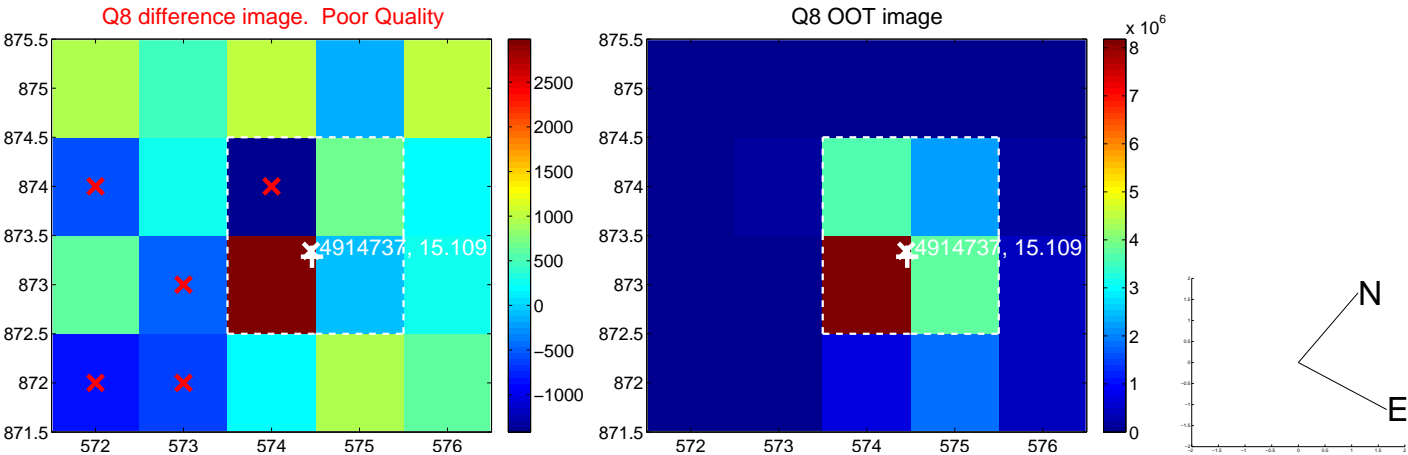
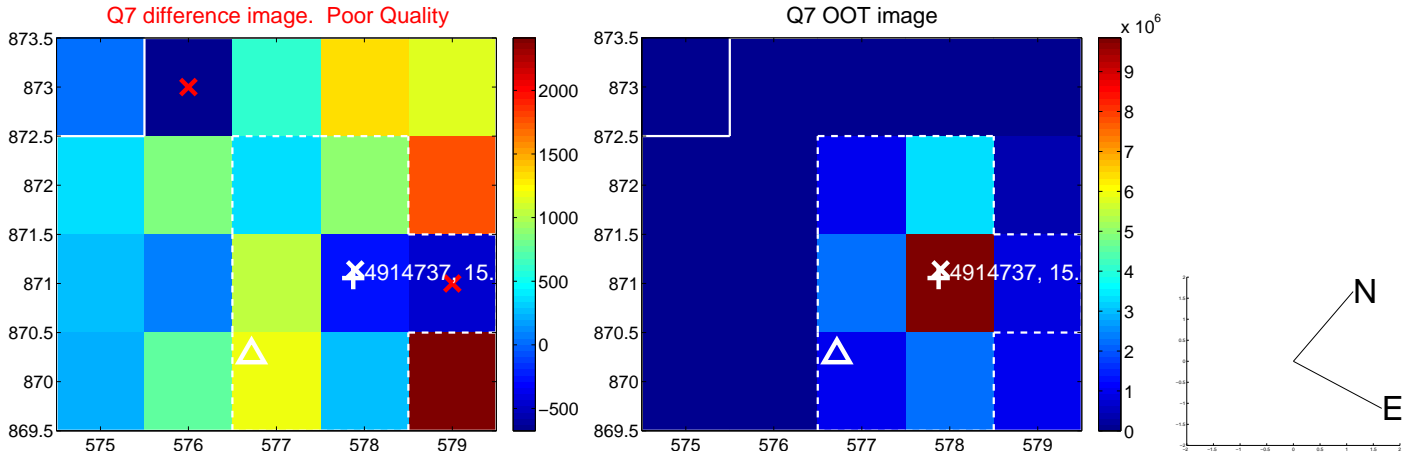
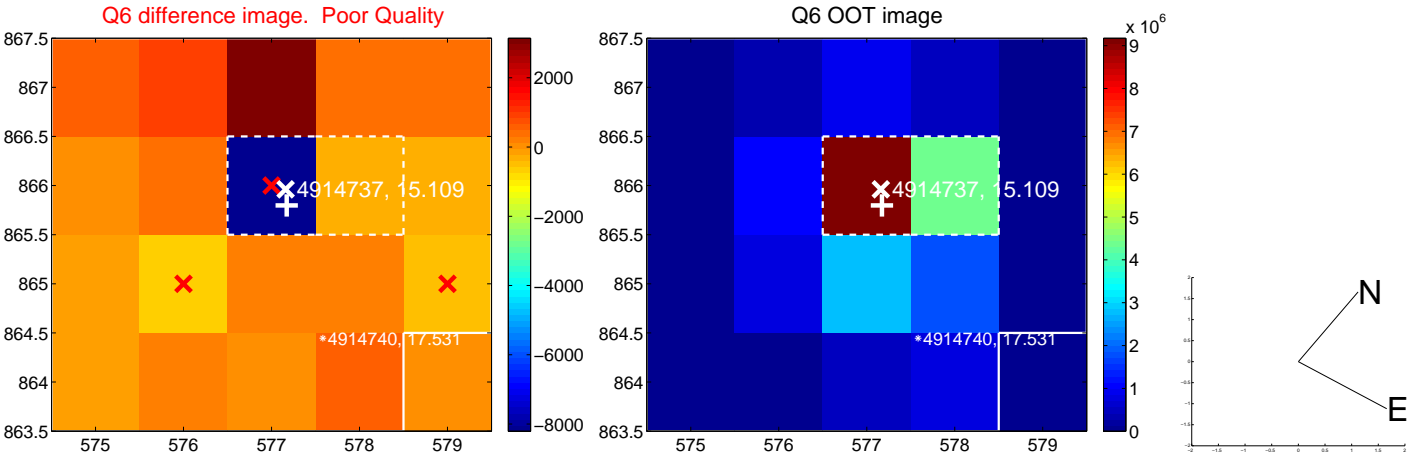
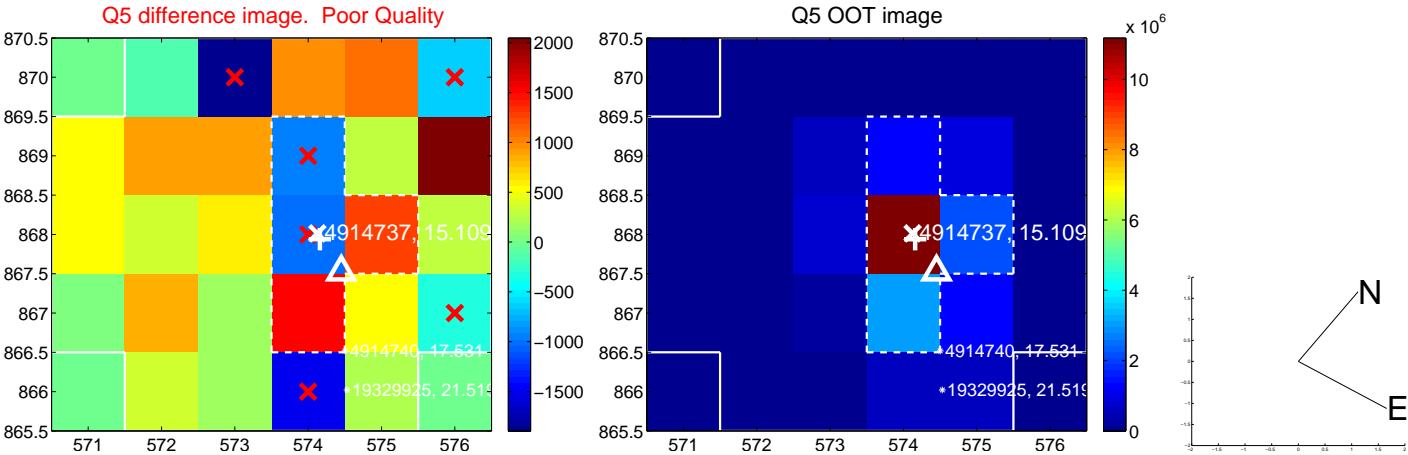


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

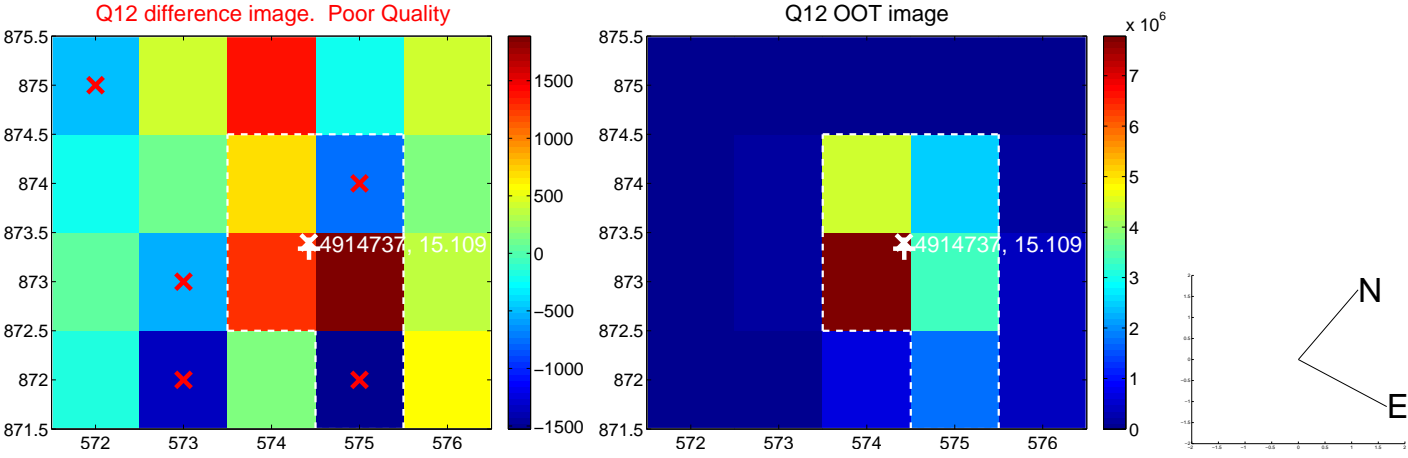
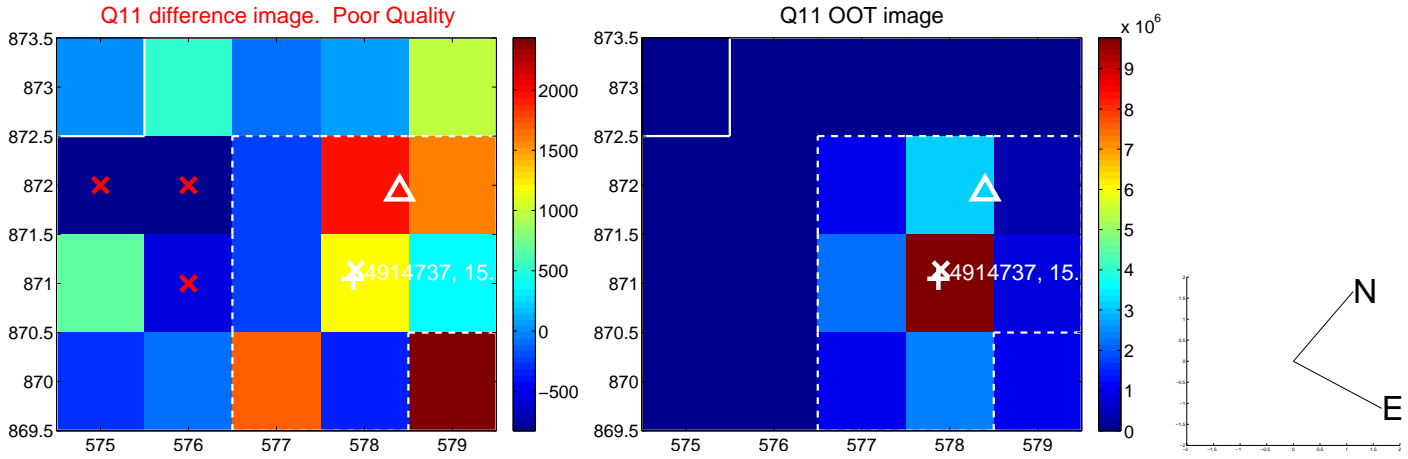
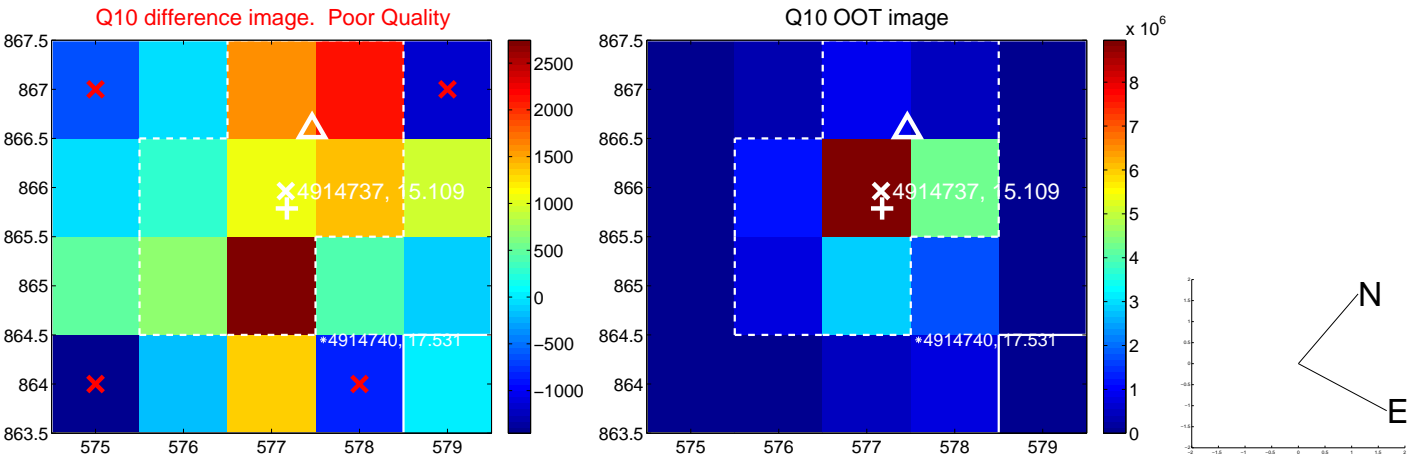
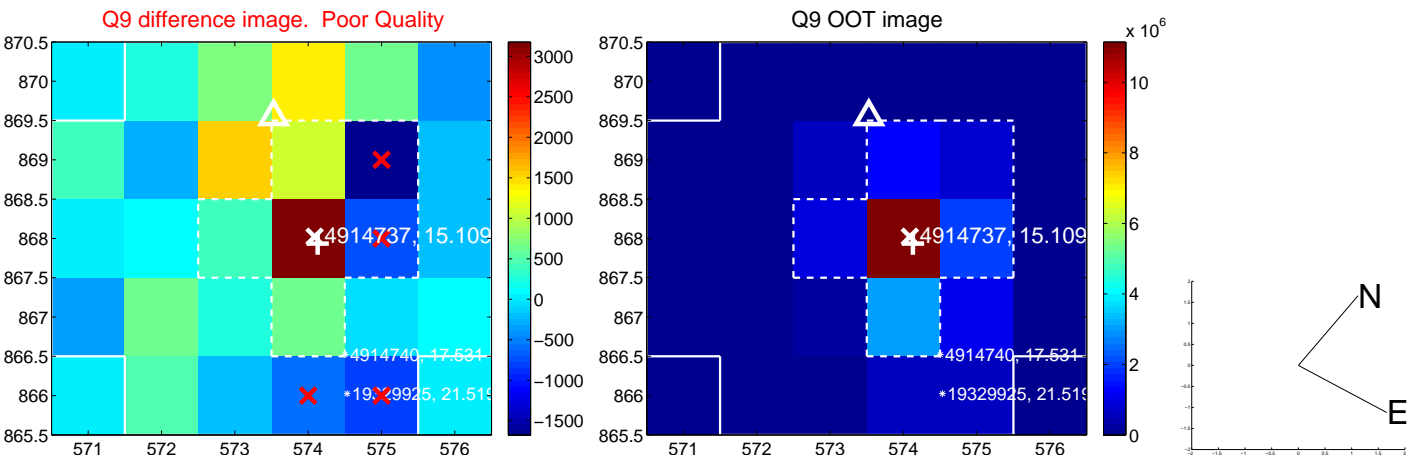
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



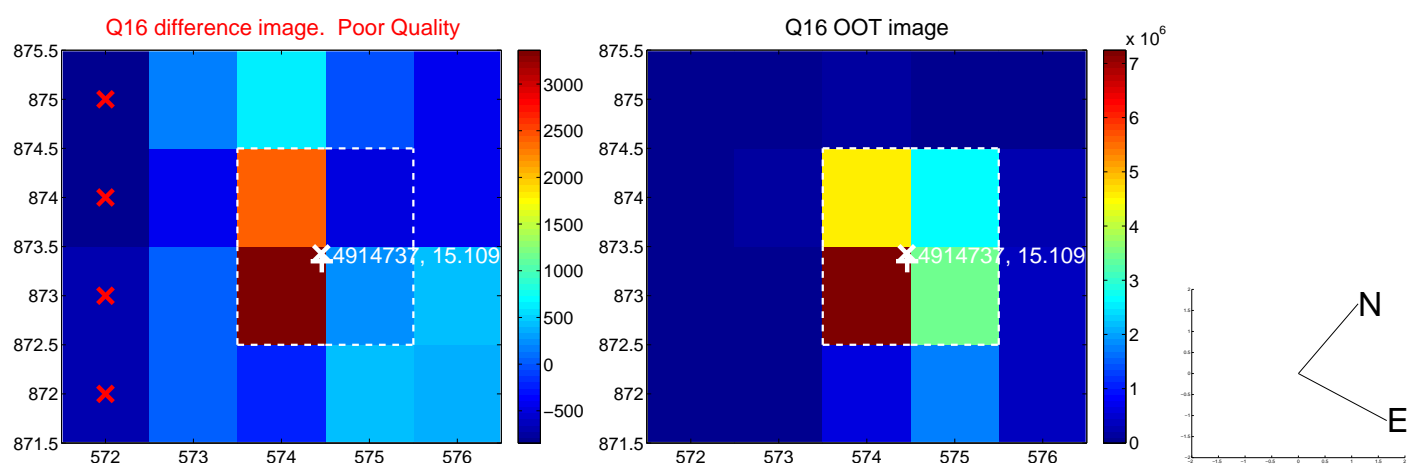
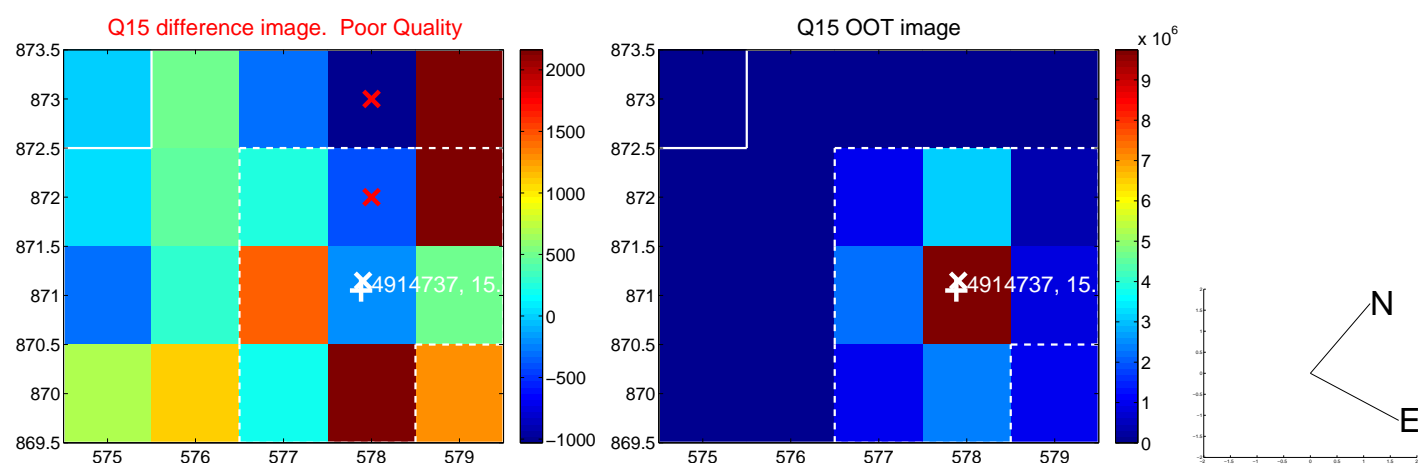
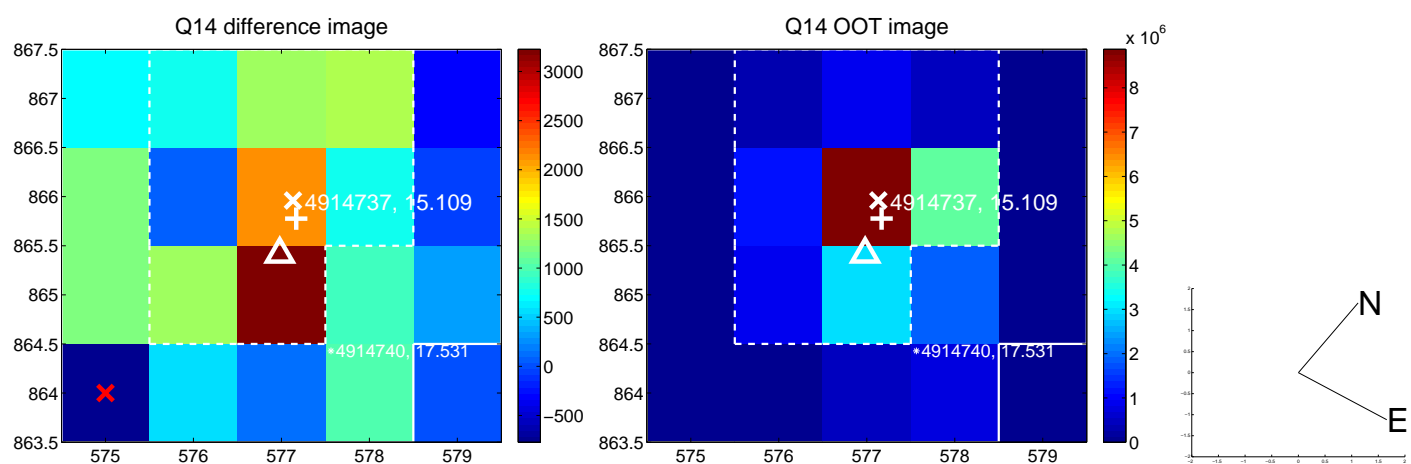
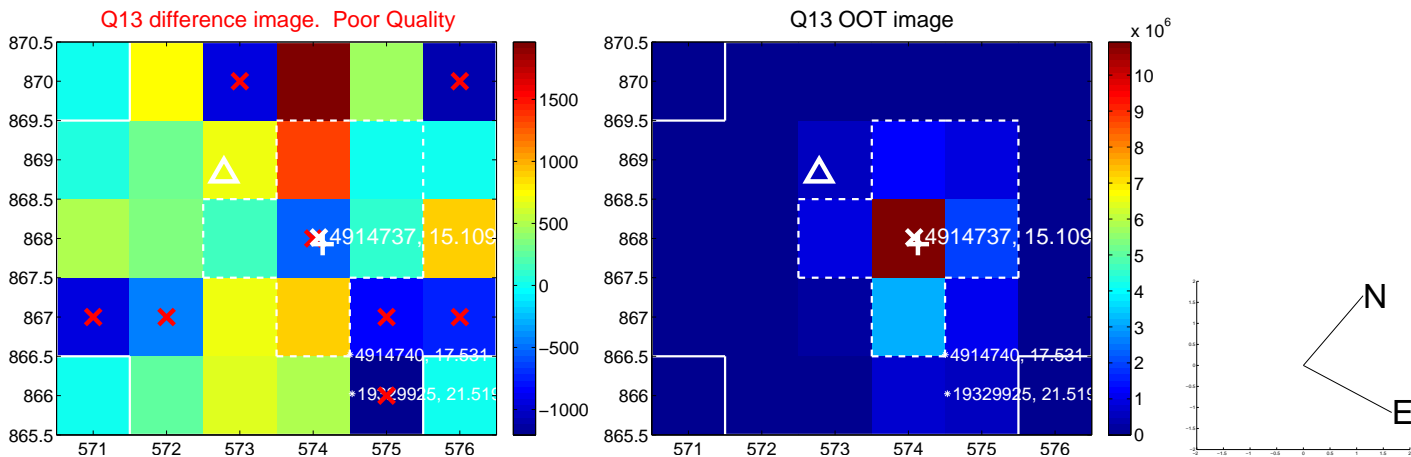
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



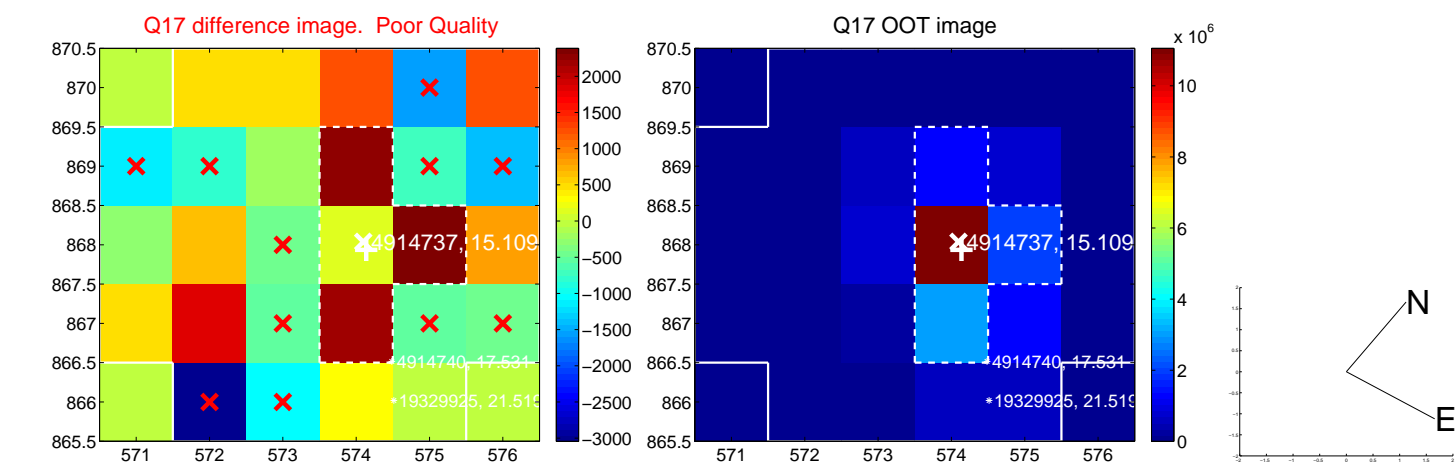
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



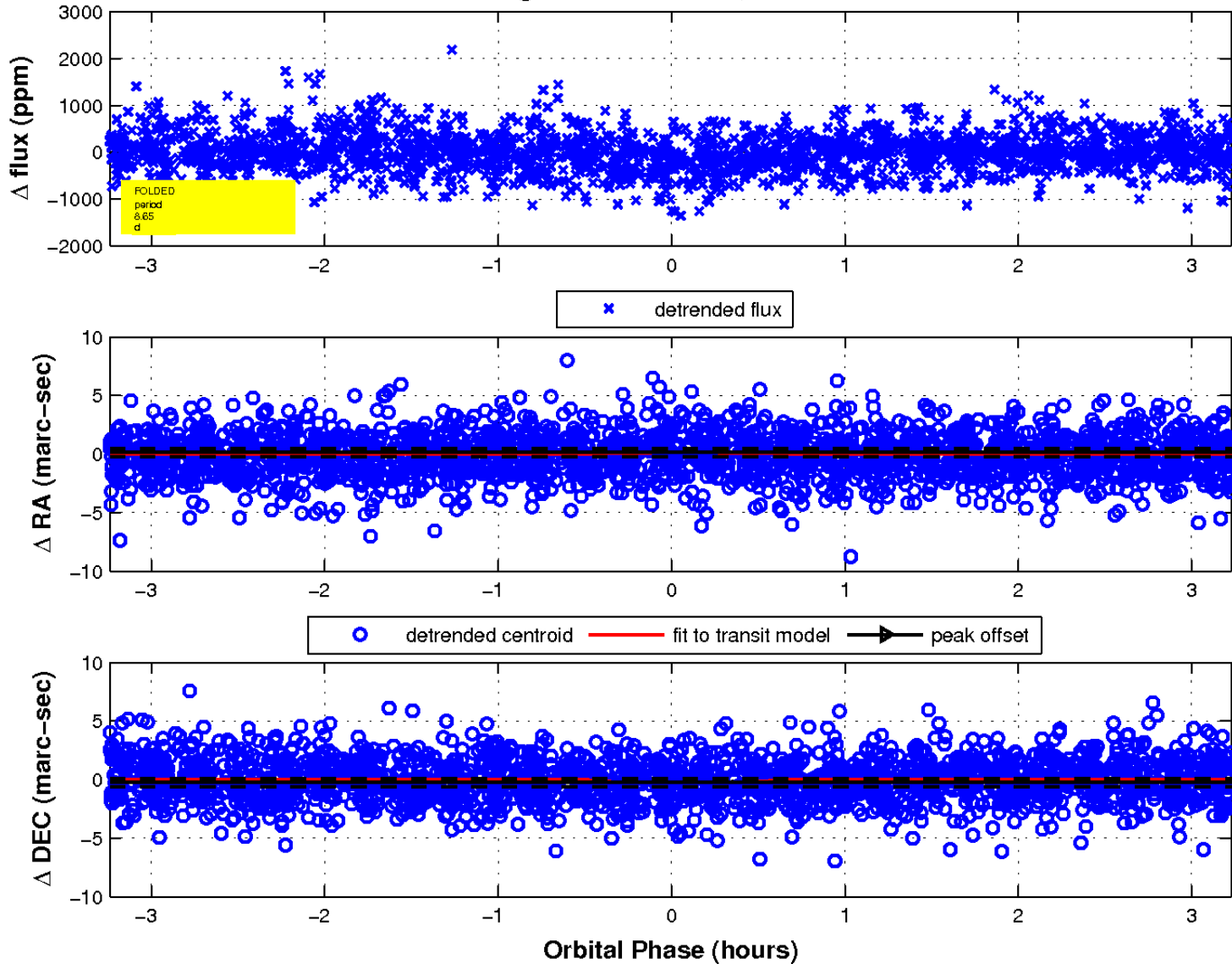
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

