

KIC 005722737

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})
005722737-01	OBS	No	1.166044	132.185045	42.5	5.233	8.2	7.7	2.54	7336	2.32	26546.62
005722737-02	OBS	No	4.965774	132.024529	24.7	20.021	9.1	2.7	2.54	7336	1.46	3845.74

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005722737-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005722737-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

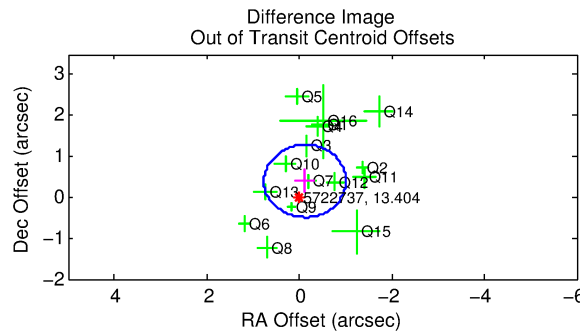
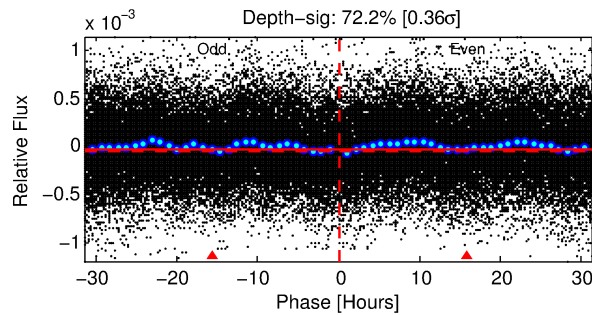
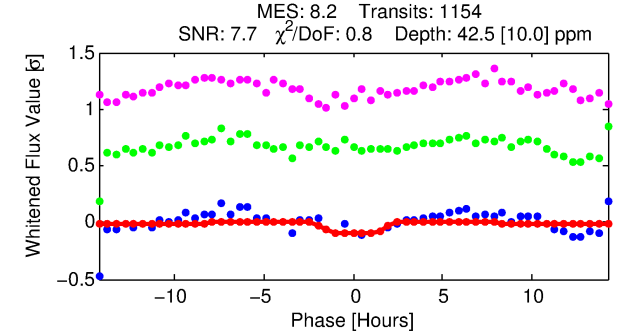
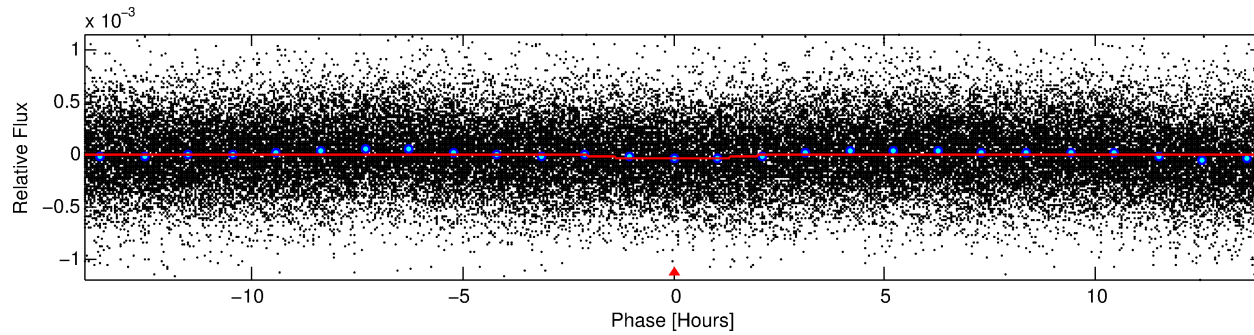
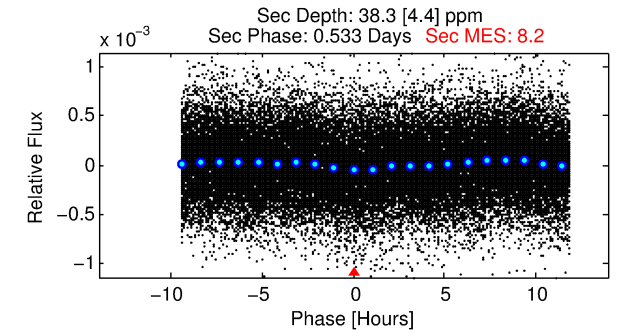
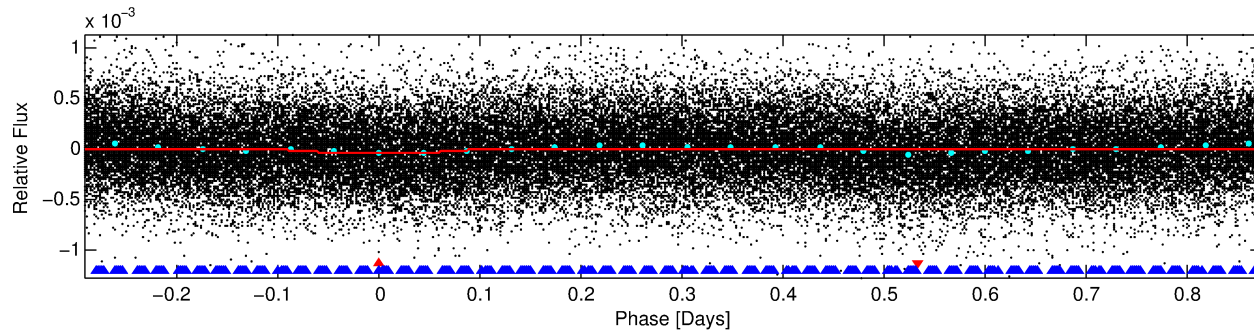
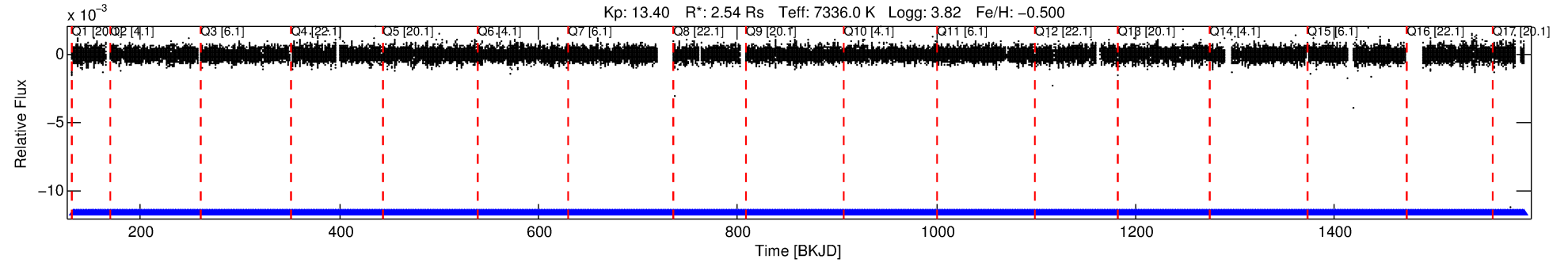
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005722737-01

No Significant Match Found

DV One-Page Summary

KIC: 5722737 Candidate: 1 of 2 Period: 1.166 d



DV Fit Results:

Period = 1.16604 [0.00002] d
Epoch = 132.1850 [0.0073] BKJD
Rp/R* = 0.0083 [0.0013]
a/R* = 1.04 [0.01]
b = 0.99 [0.00]
Seff = 26546.62 [19457.90]
Teq = 3255 [596] K
Rp = 2.32 [1.10] Re
a = 0.0251 [0.0111] AU
Ag = 2.48 [1.96] [0.76σ]
Teffp = 6317 [576] K [3.69σ]

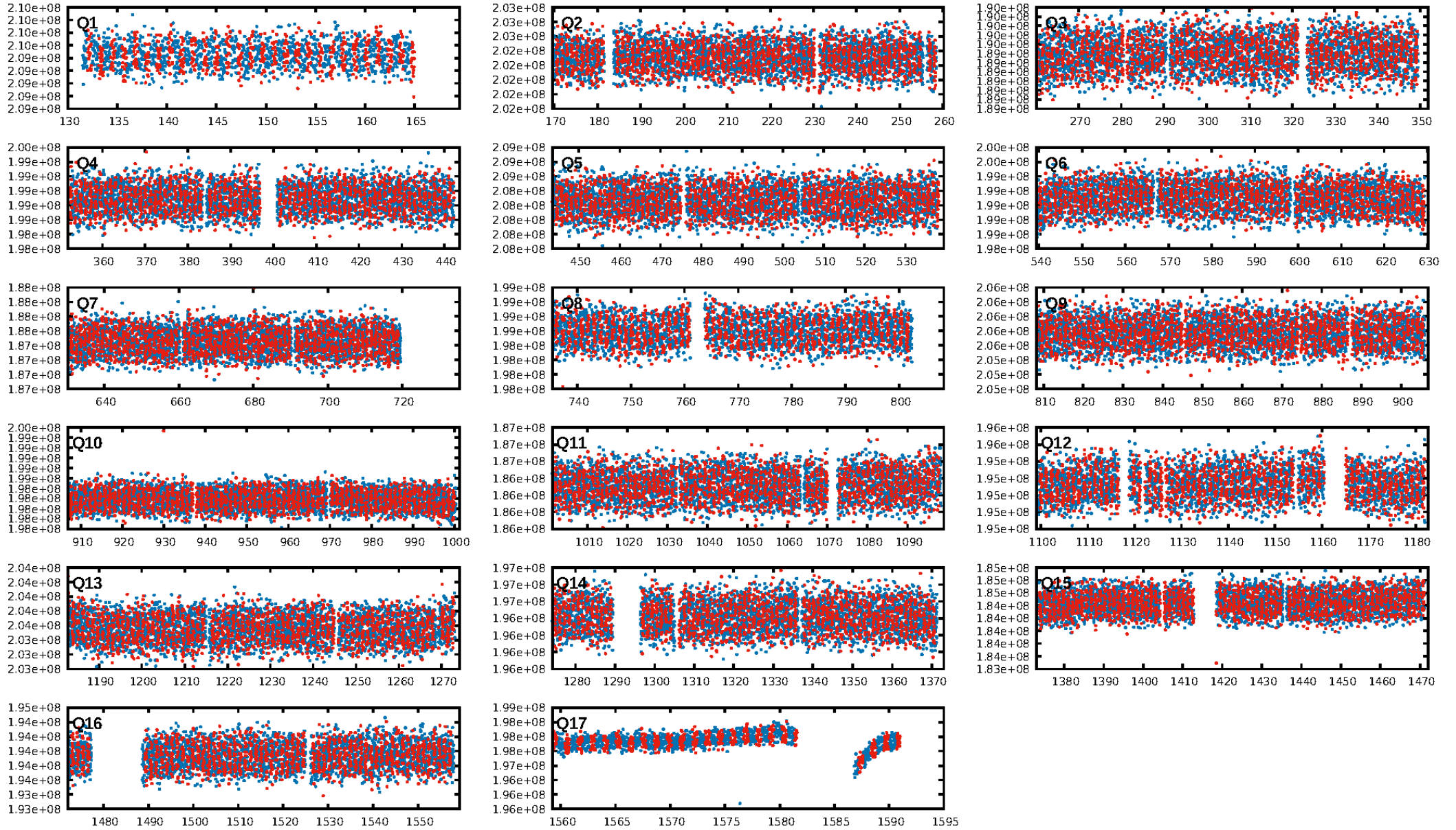
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.41σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.93e-08
RollingBand-fgt: 1.00 [1101/1101]
GhostDiagnostic-chr: 5.913
Centroid-sig: 0.0%
Centroid-so: 0.816 arcsec [2.19σ]
OotOffset-rm: 0.415 arcsec [1.40σ]
KicOffset-rm: 0.448 arcsec [1.50σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 1.00 [17/17]

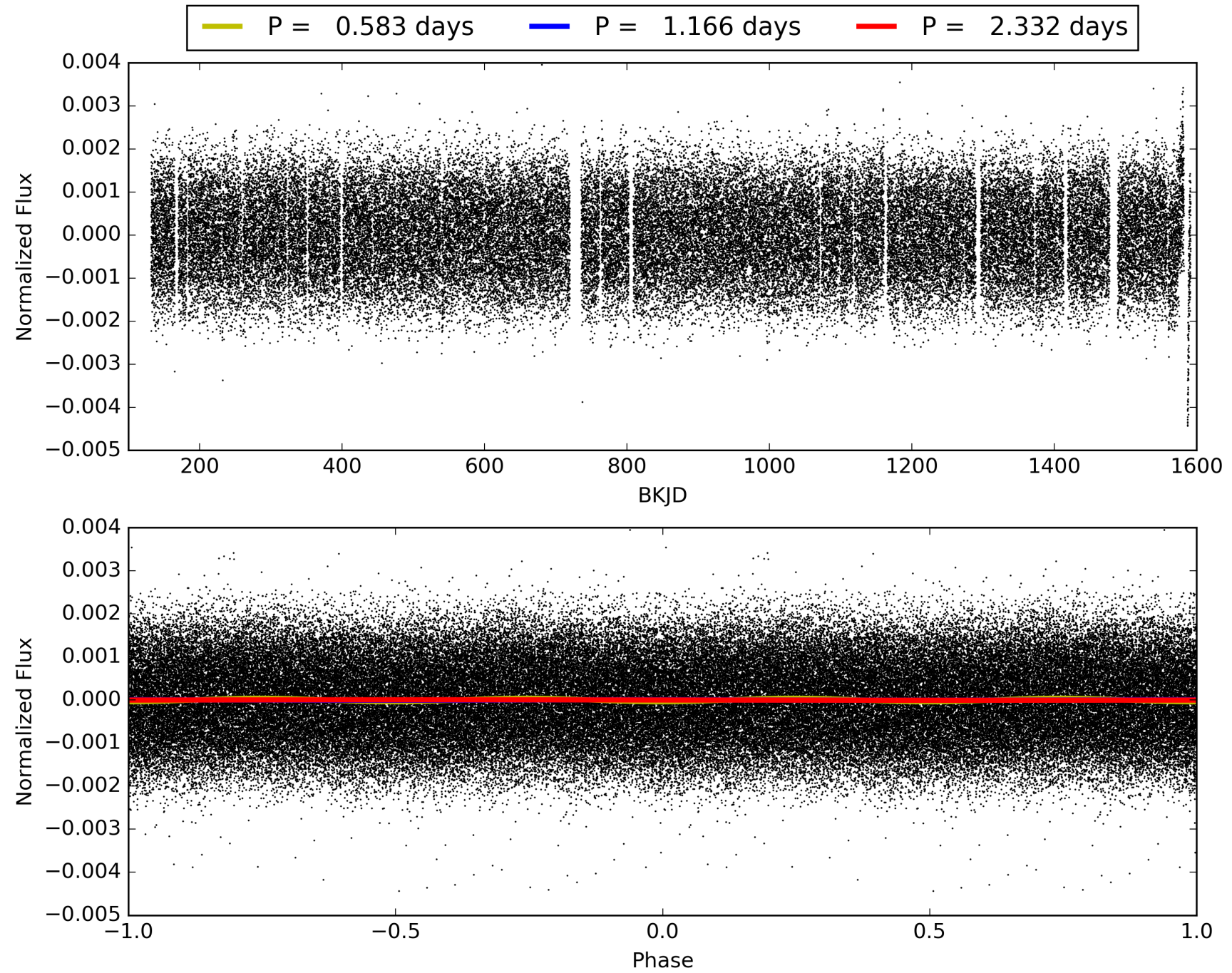
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:37:03 Z

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

TCE 005722737-01, PDC Light Curves

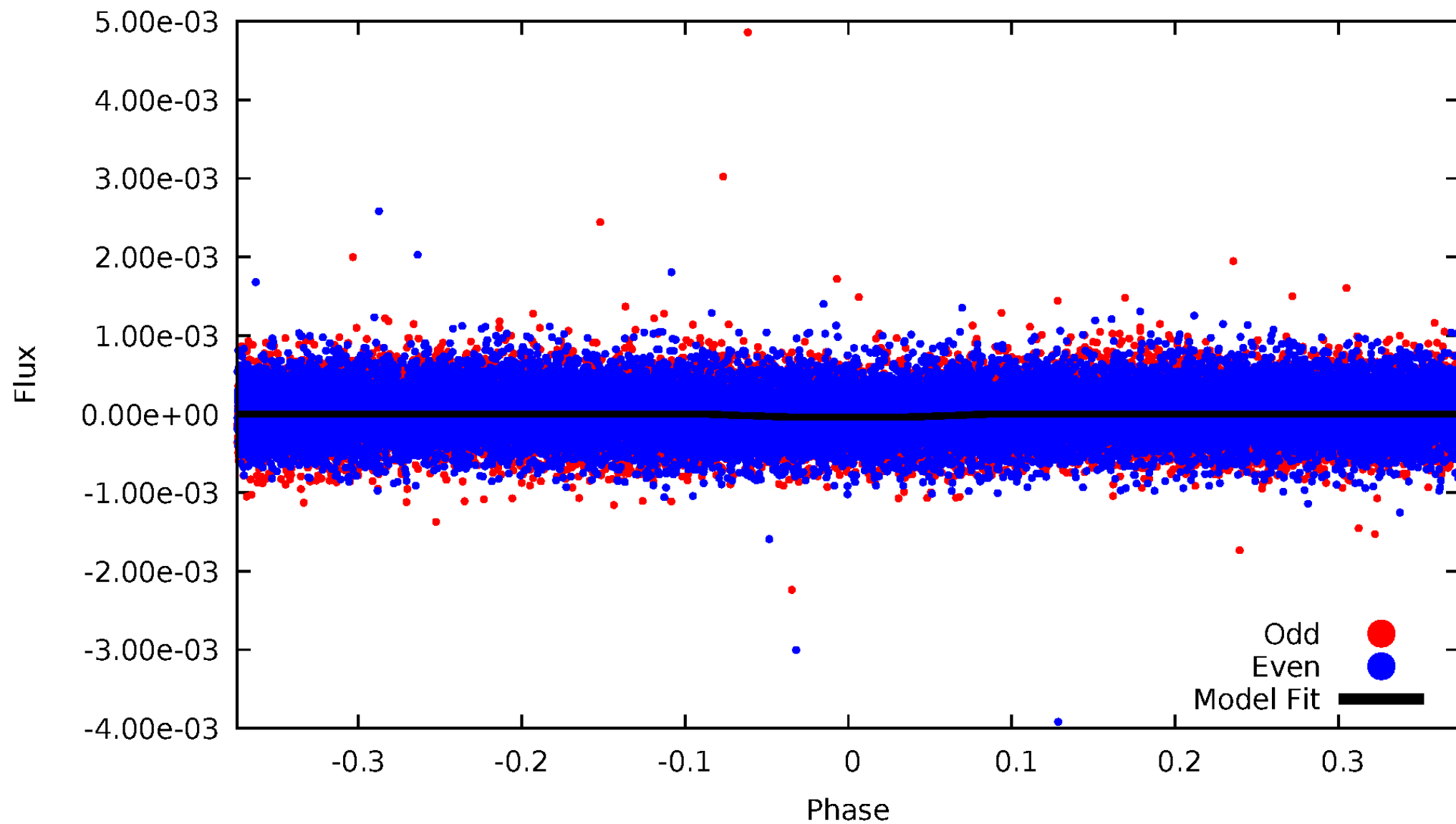


TCE 005722737-01



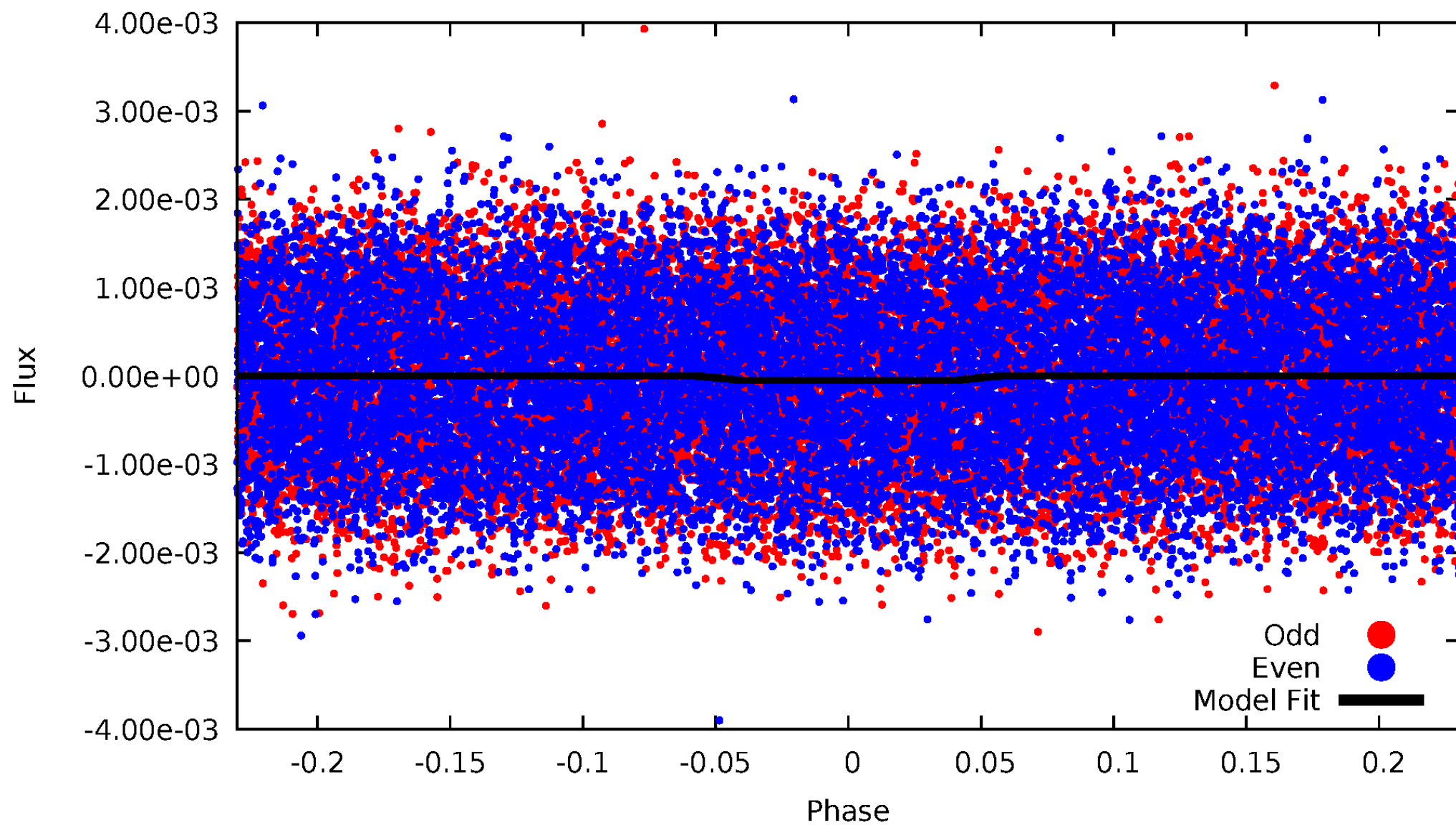
DV Odd/Even

TCE 005722737-01



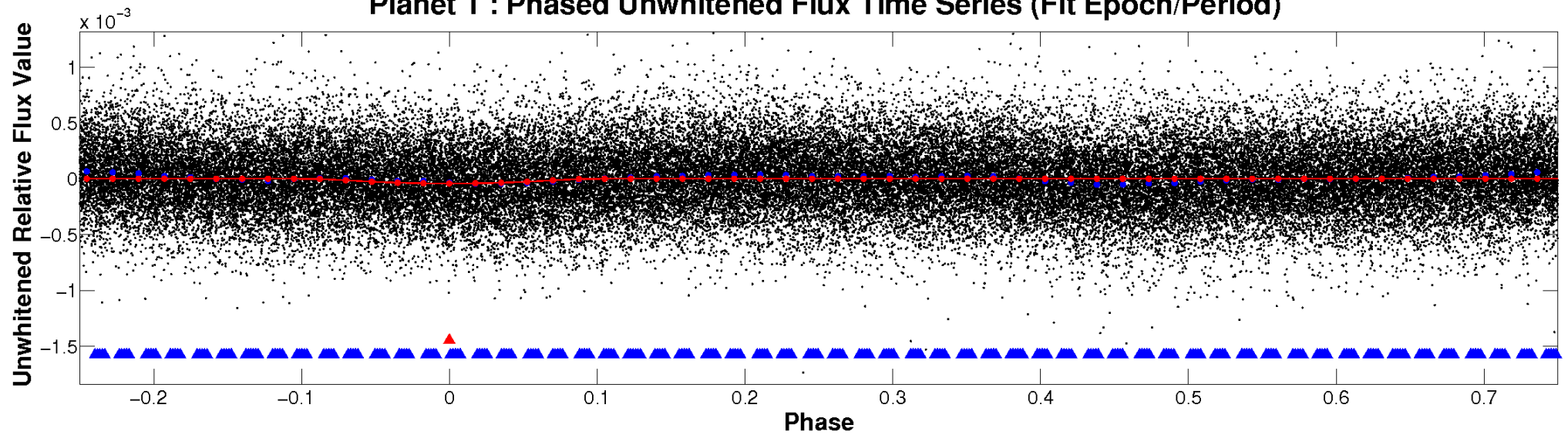
ALT Odd/Even

TCE 005722737-01

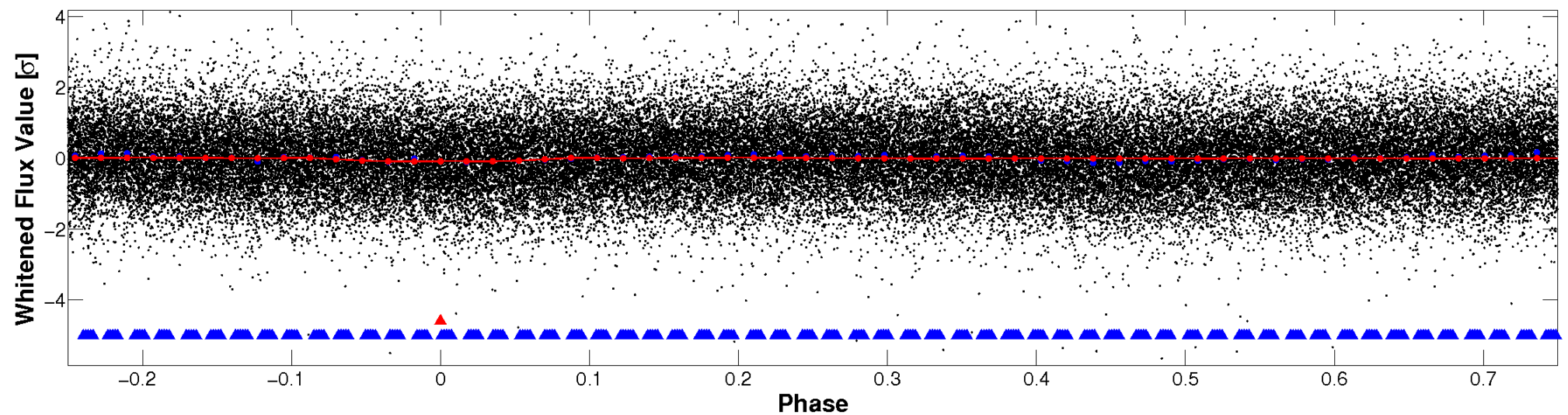


Non-Whitened Vs. Whitened Light Curve

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

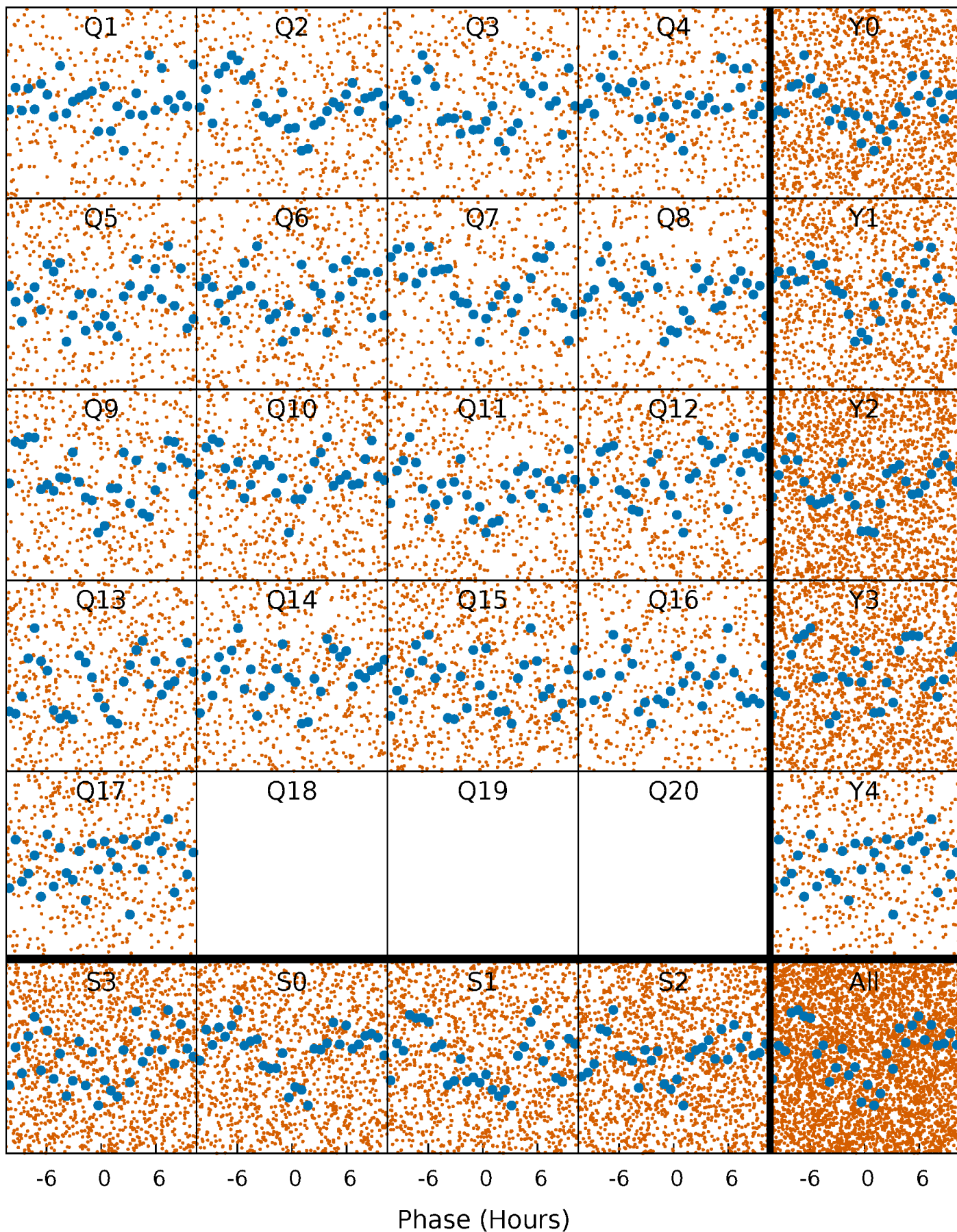


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



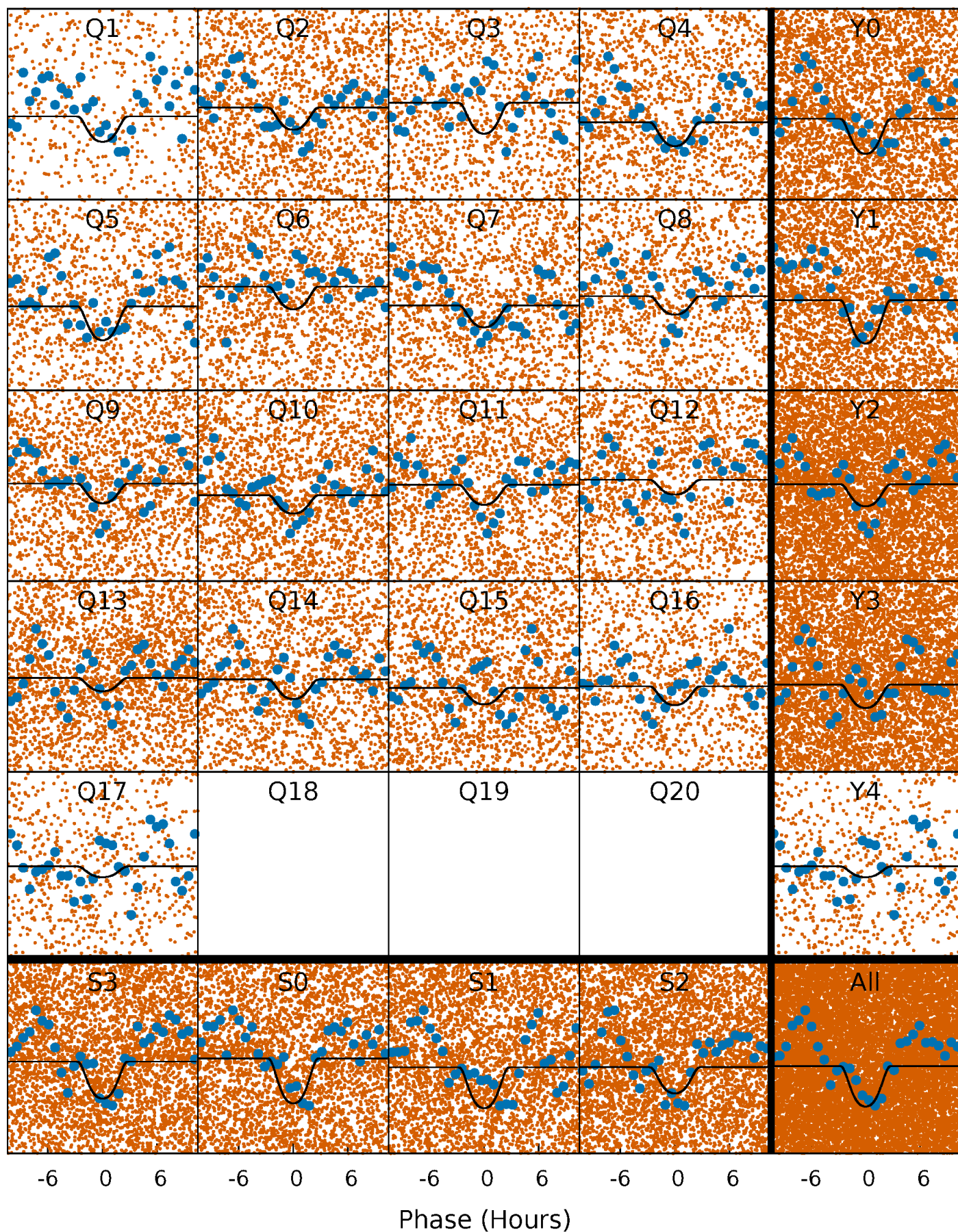
PDC Quarter-Phased Transit Curves

TCE 005722737-01 P= 1.166044 Days $T_0=132.185045$ (BKJD)



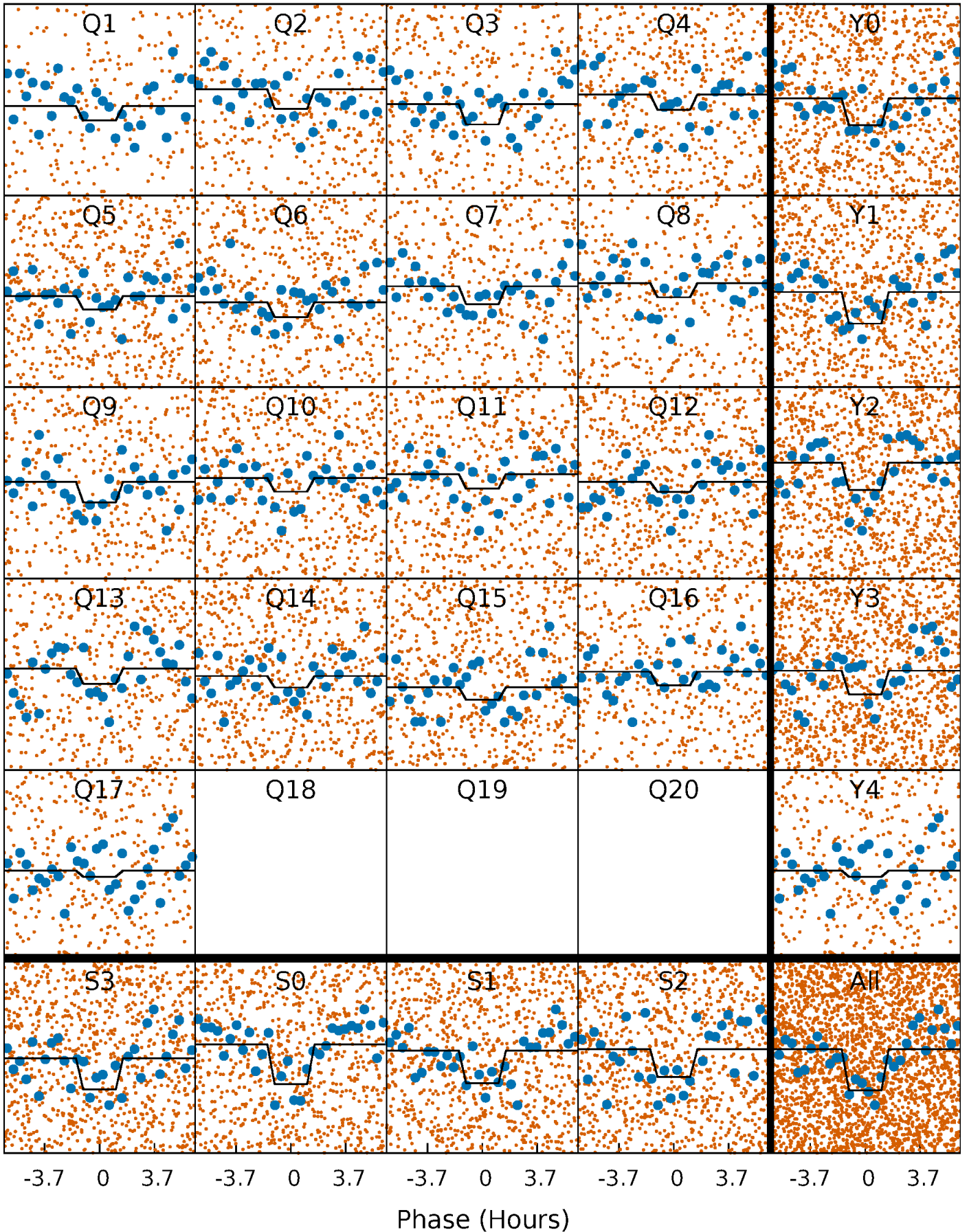
DV Quarter-Phased Transit Curves

TCE 005722737-01 P= 1.166044 Days $T_0=132.185045$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

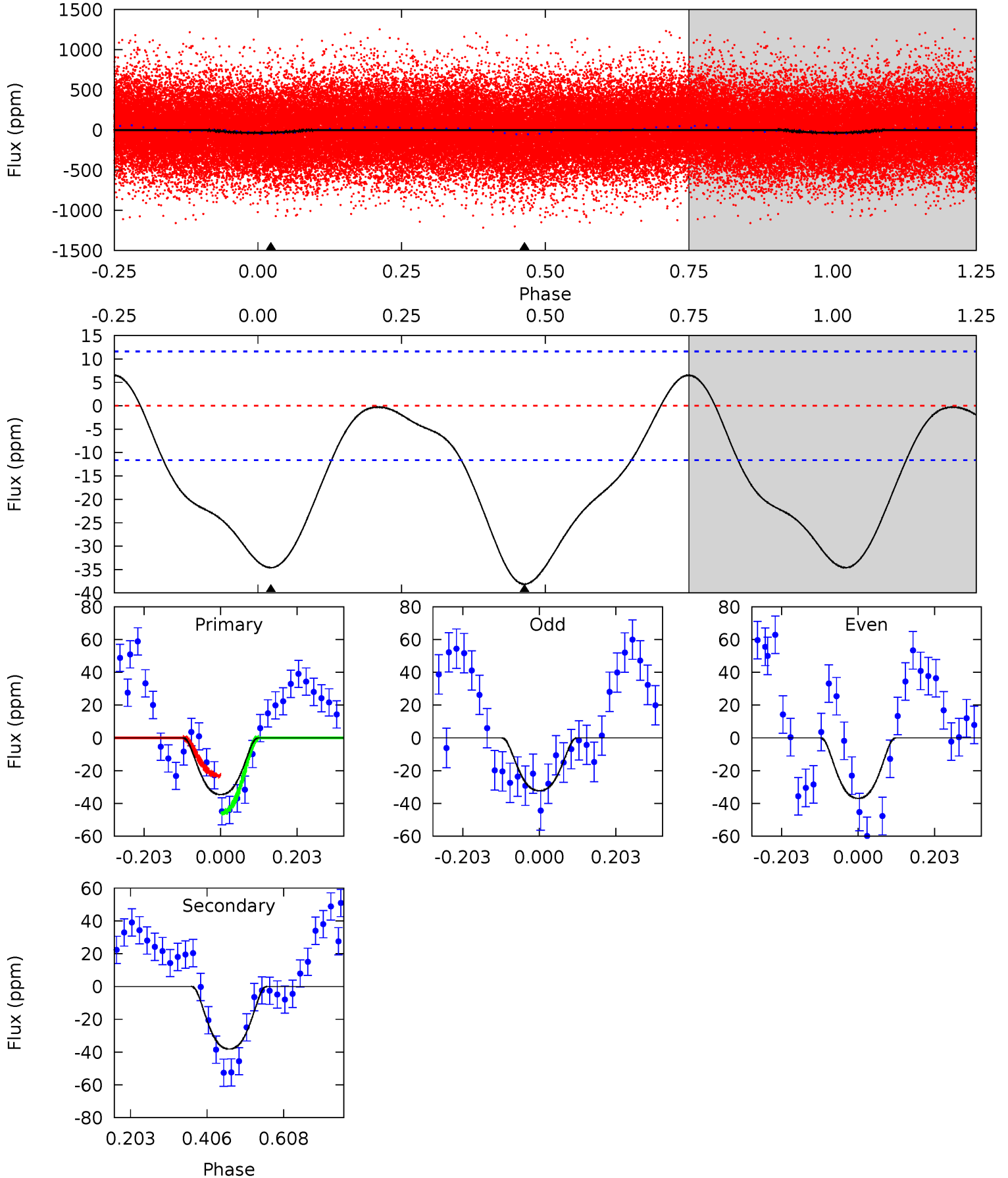
TCE 005722737-01 P= 1.166074 Days $T_0=132.189078$ (BKJD)



DV Model-Shift Uniqueness Test

005722737-01, P = 1.166044 Days, E = 131.019001 Days

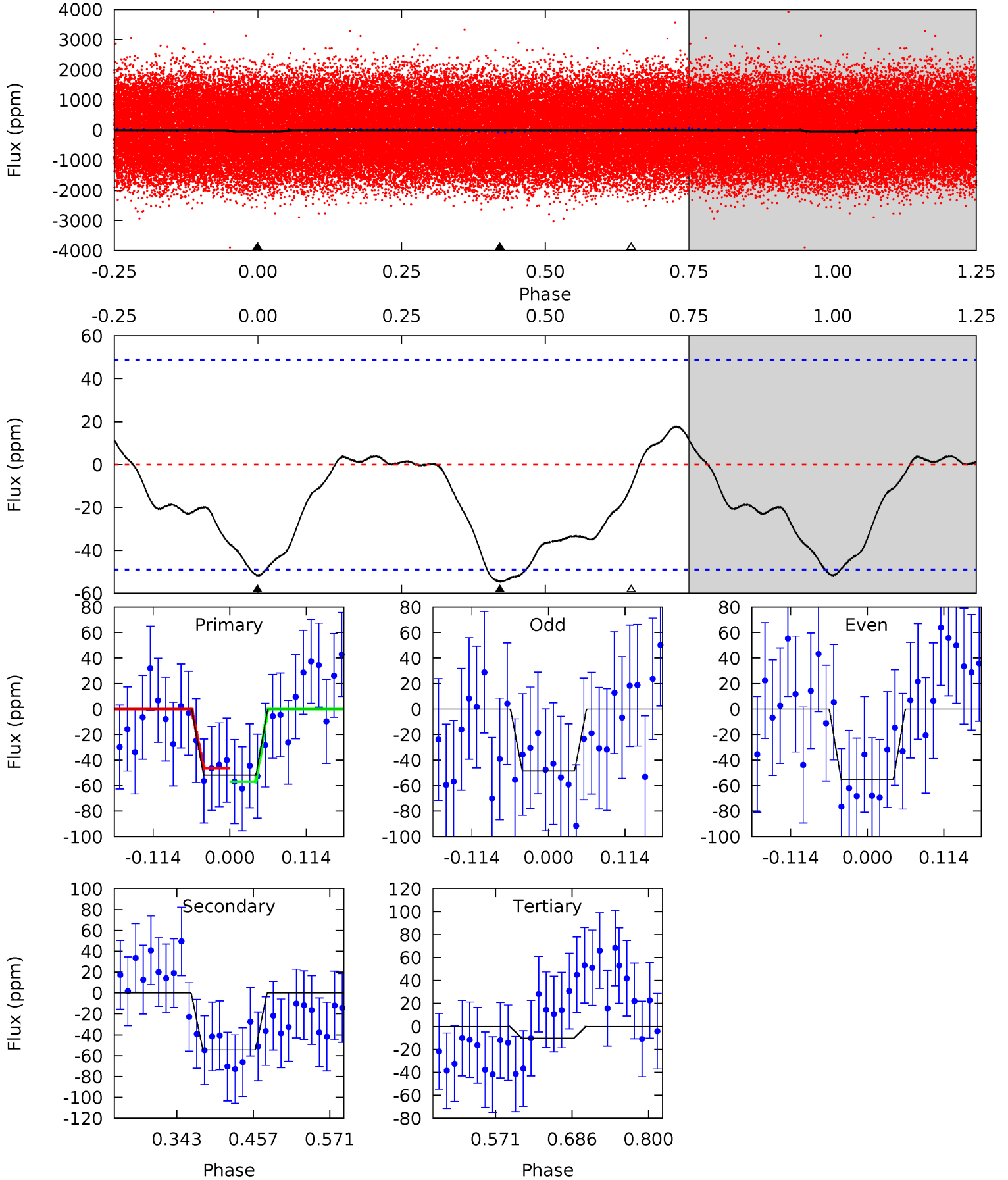
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	14.5	0	0	4.41	1.27	1.58	13.1	13.1	14.5	14.5	0.89	0.92	0.15	4.34



Alt Model-Shift Uniqueness Test

005722737-01, P = 1.166074 Days, E = 131.023004 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.79	5.06	0.94	0	4.54	1.58	1.38	3.85	4.79	4.11	5.06	0.30	1.13	0.25	0.49



Stellar Parameters For KIC 005722737

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7336^{+233}_{-285}	$3.820^{+0.424}_{-0.106}$	$-0.500^{+0.250}_{-0.300}$	$2.543^{+0.408}_{-1.141}$	$1.556^{+0.202}_{-0.375}$	$0.133^{+0.532}_{-0.044}$
	+3%/-4%	+11%/-3%	+50%/-60%	+16%/-45%	+13%/-24%	+399%/-33%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 005722737-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-38 ± 3	$2.18^{+0.49}_{-0.57}$	4437^{+329}_{-515}	6011^{+700}_{-489}	$2.819^{+2.086}_{-0.985}$
Alt.	-54 ± 11	$1.89^{+0.51}_{-0.48}$	4454^{+295}_{-488}	7245^{+1171}_{-831}	$5.412^{+4.405}_{-2.253}$

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 $A_{obs} \gg 1.0$

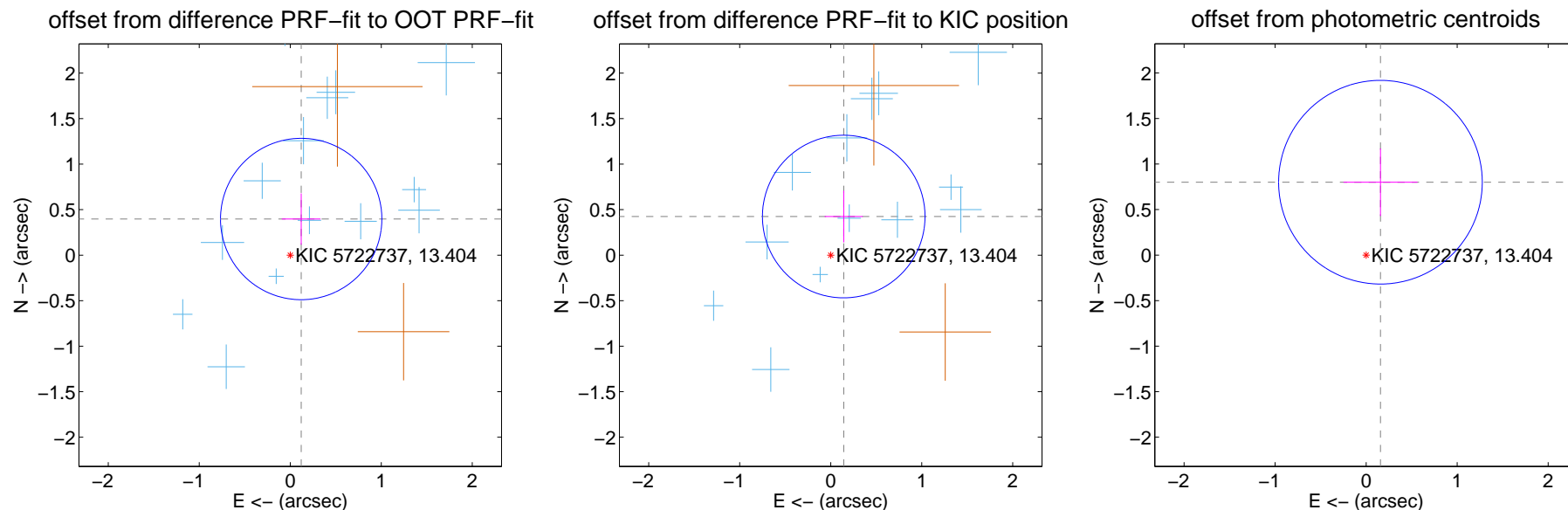
DV Centroid Data

Supplemental centroid analysis for 005722737-01. Kepler magnitude: 13.40. Transit SNR 7.67

There are 14 quarters with good PRF difference image offsets

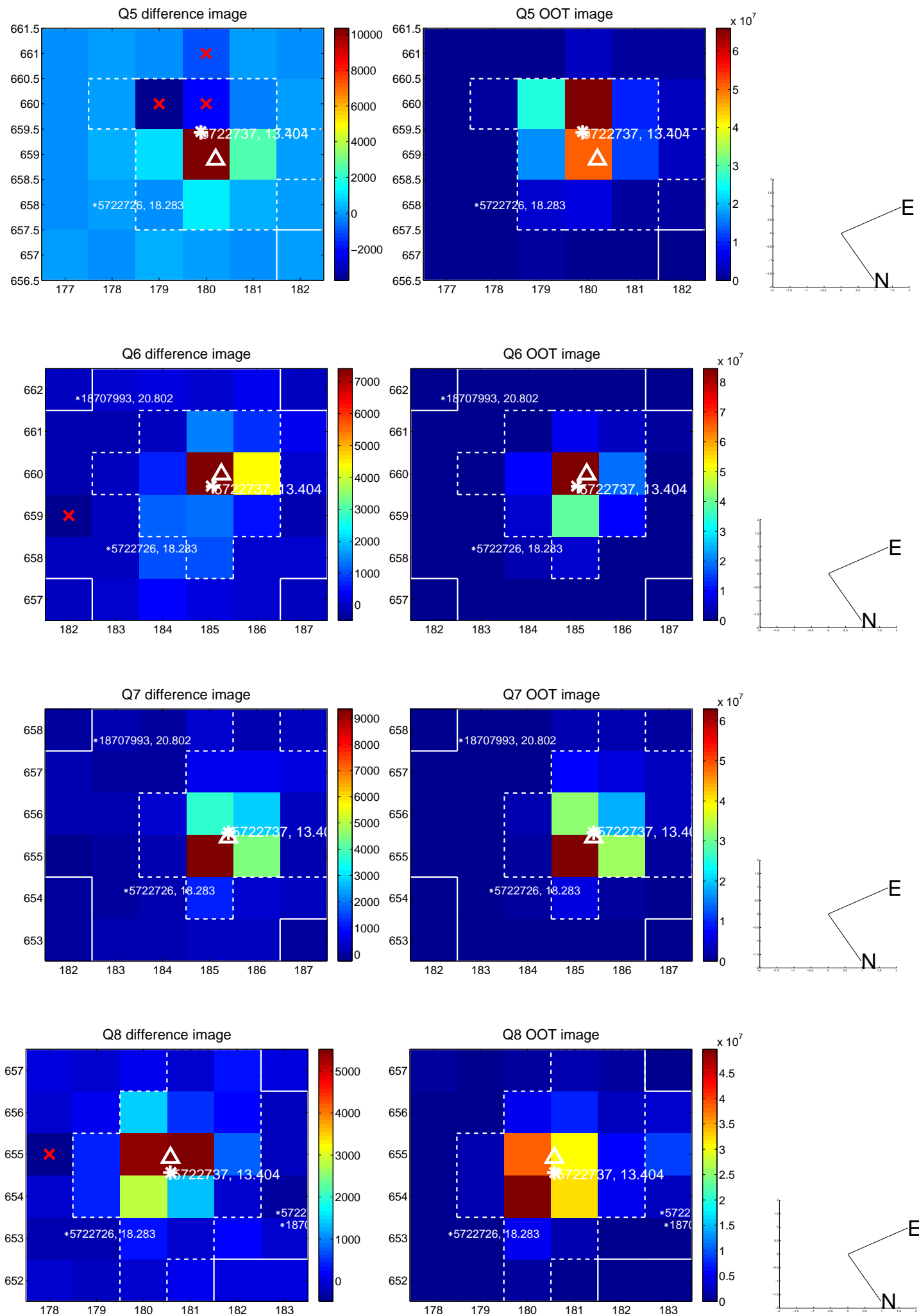
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.415 ± 0.296	1.40	-0.120 ± 0.213	0.397 ± 0.282
PRF-fit source offset from KIC position	0.448 ± 0.298	1.50	-0.143 ± 0.209	0.424 ± 0.284
photometric centroid source offset	0.82 ± 0.37	2.19	-0.16 ± 0.41	0.80 ± 0.37

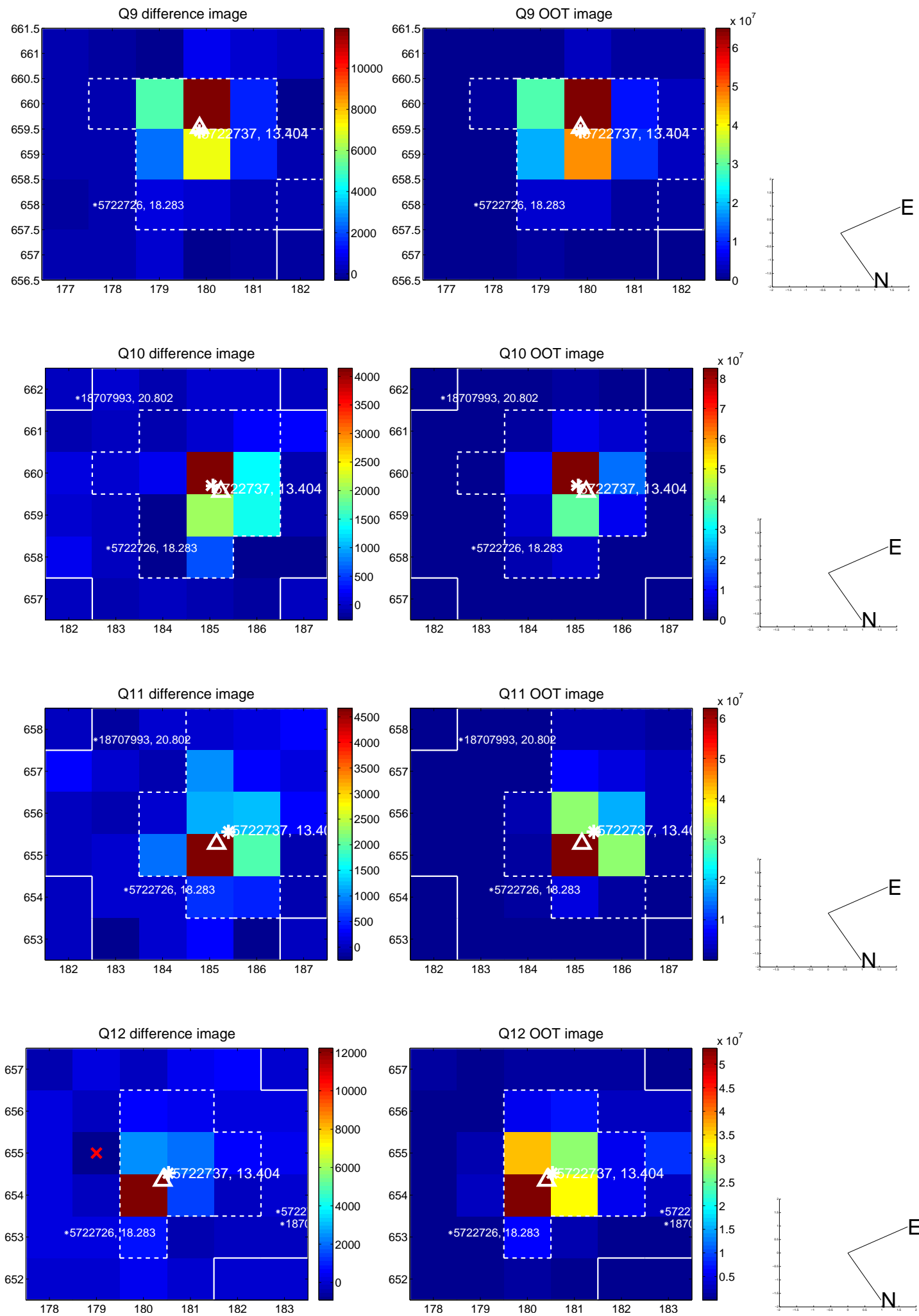


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

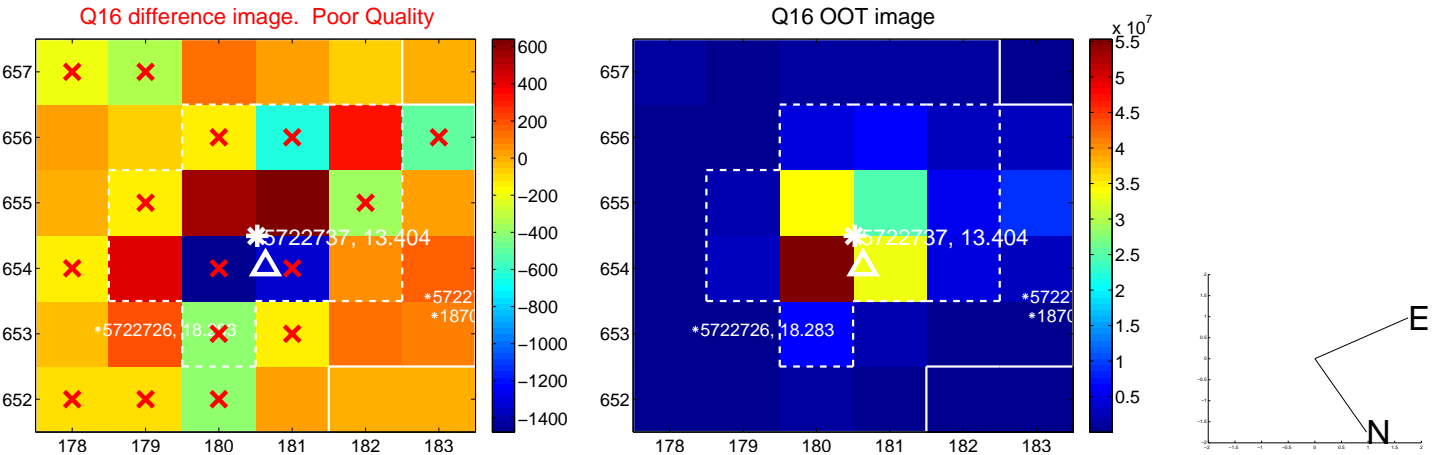
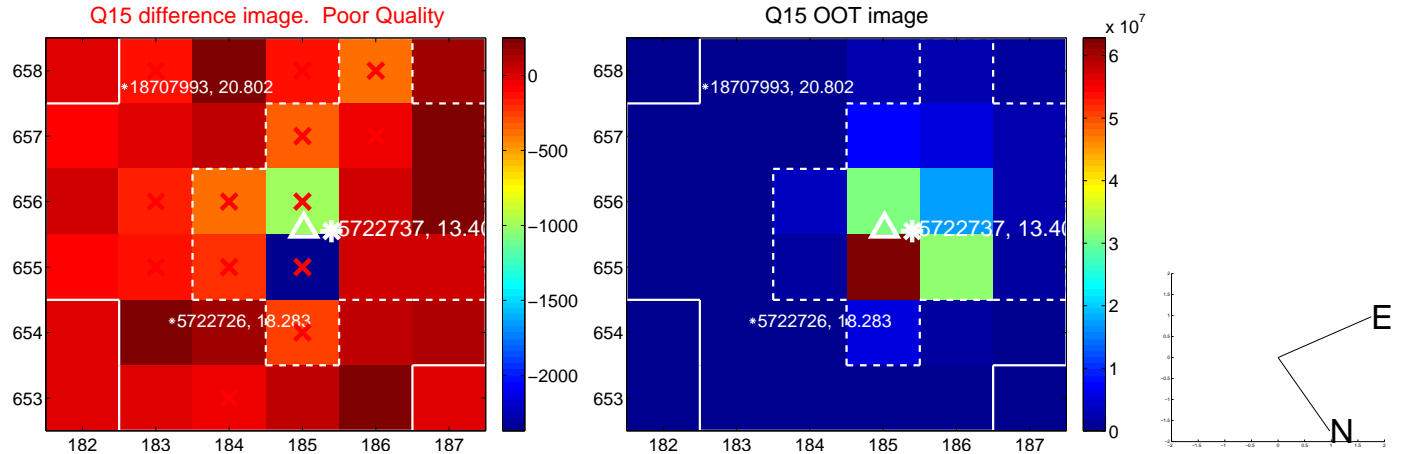
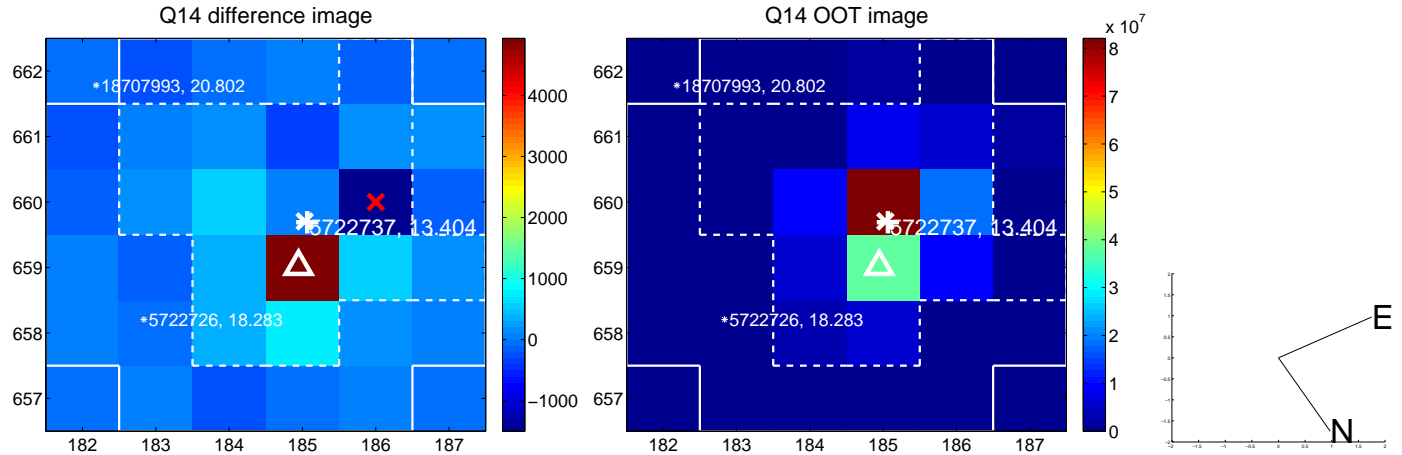
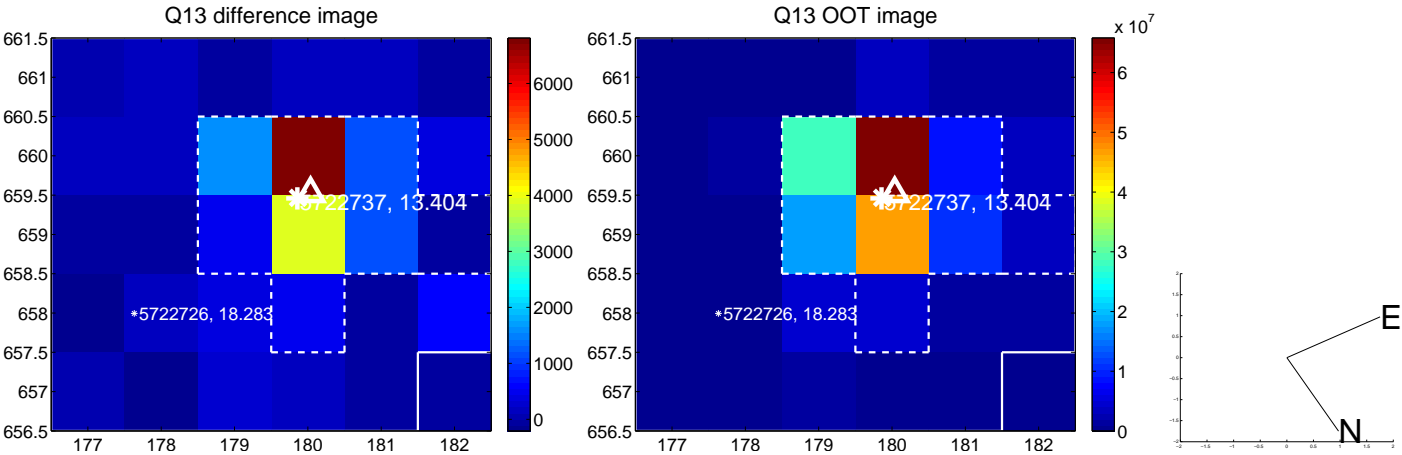
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



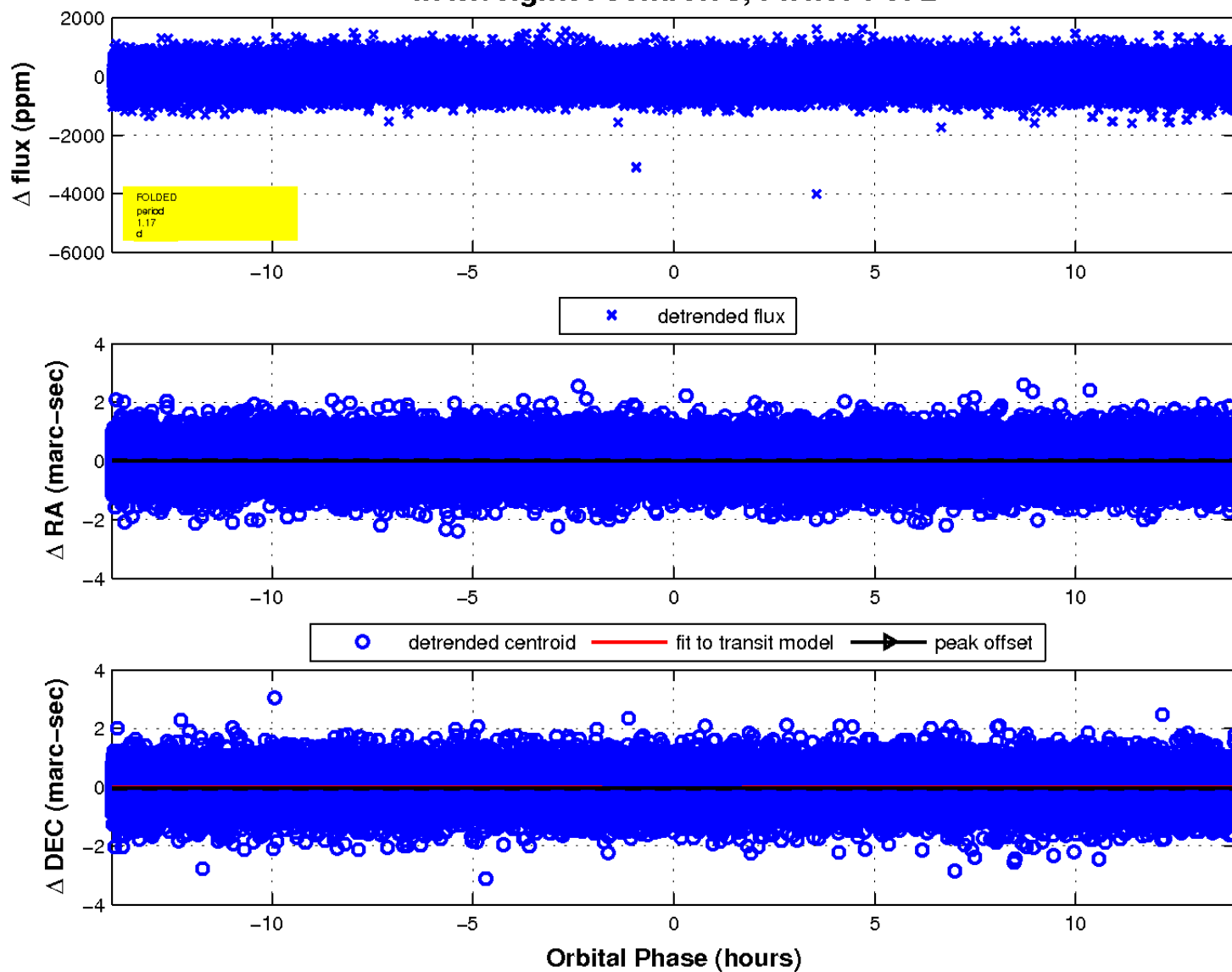
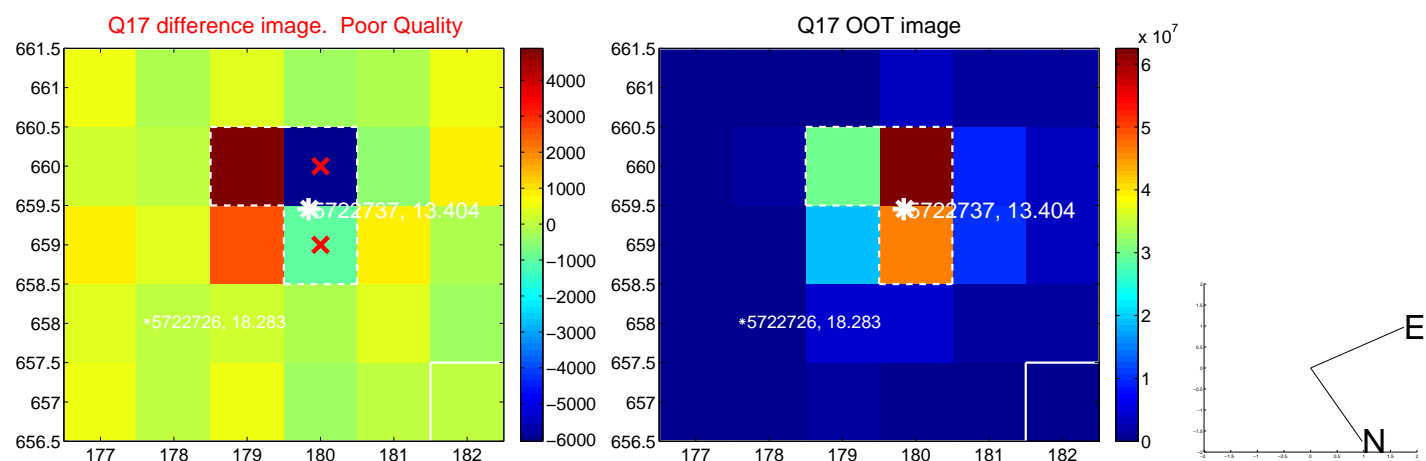
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

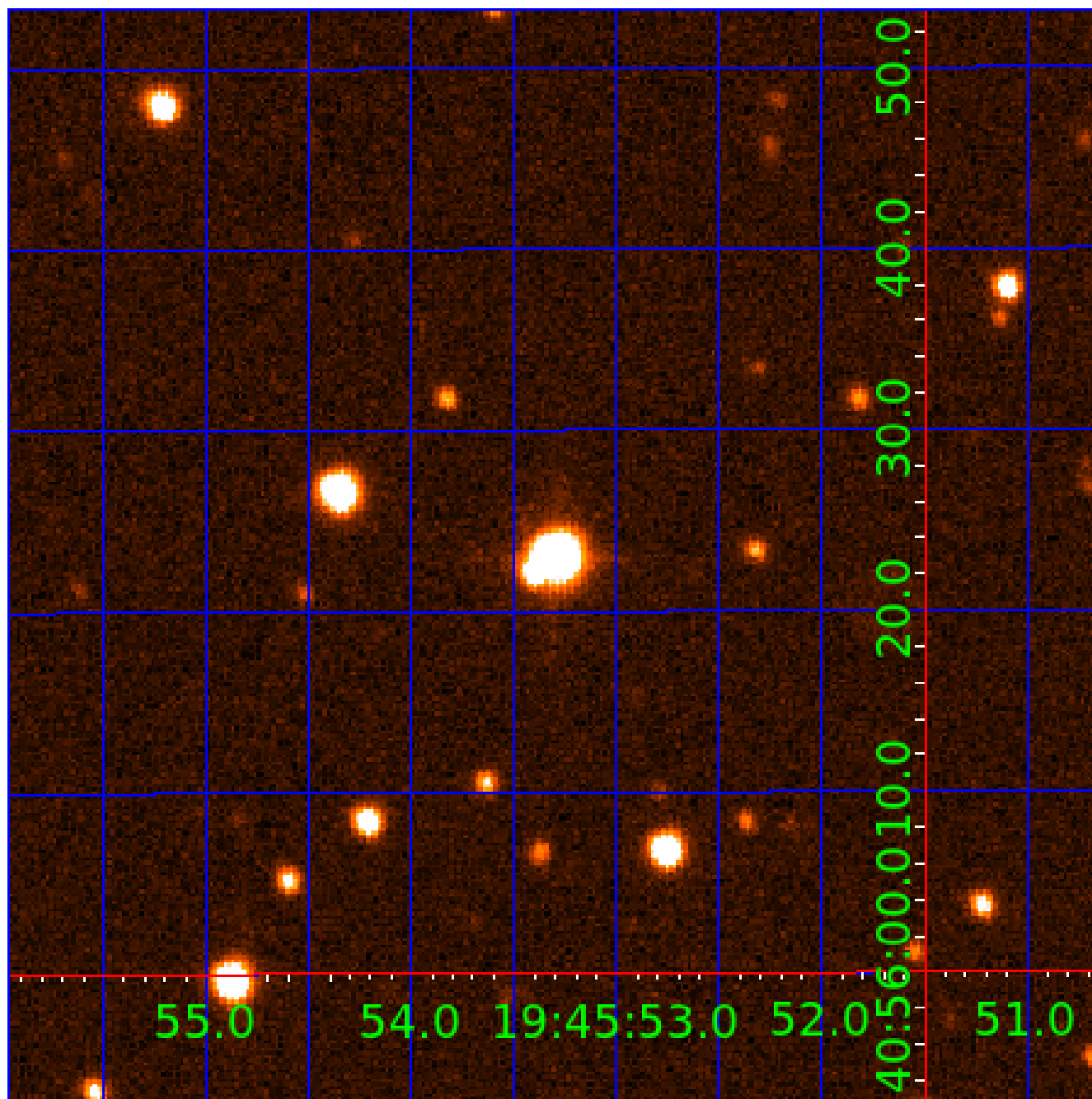


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005722737

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})
005722737-01	OBS	No	1.166044	132.185045	42.5	5.233	8.2	7.7	2.54	7336	2.32	26546.62
005722737-02	OBS	No	4.965774	132.024529	24.7	20.021	9.1	2.7	2.54	7336	1.46	3845.74

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005722737-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005722737-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

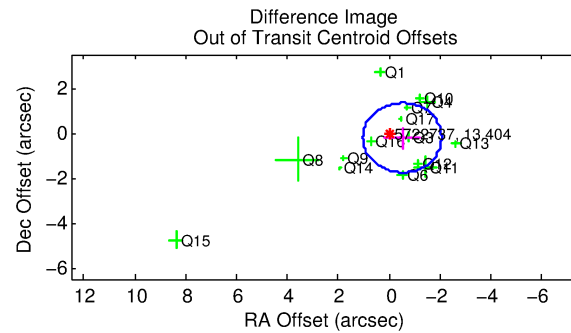
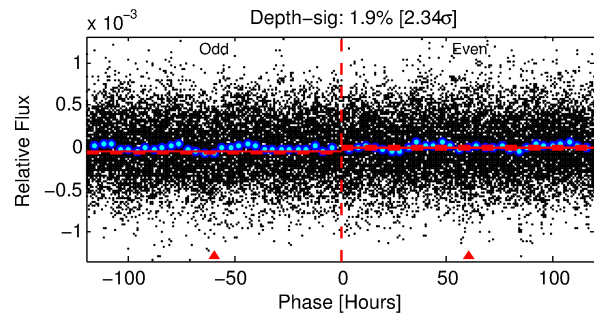
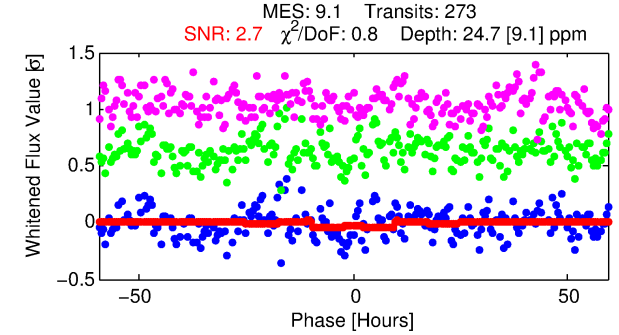
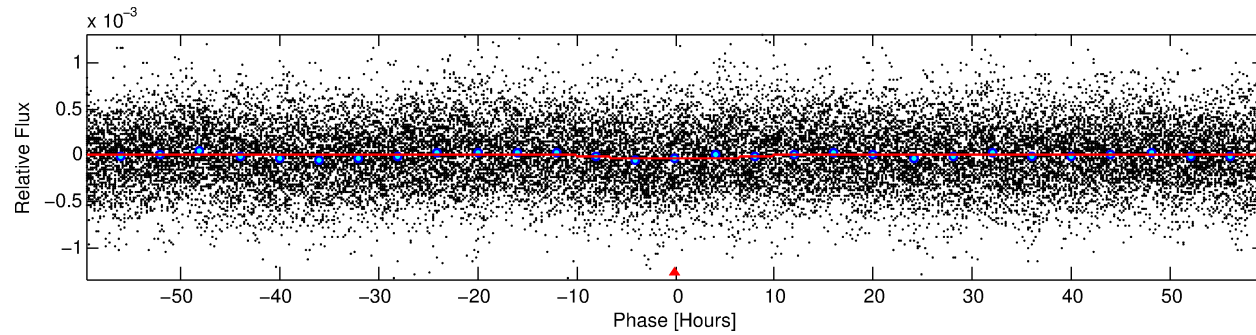
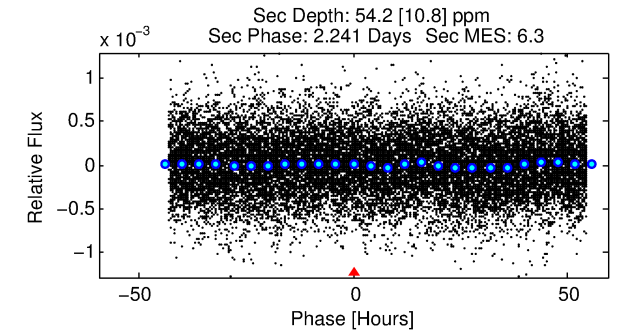
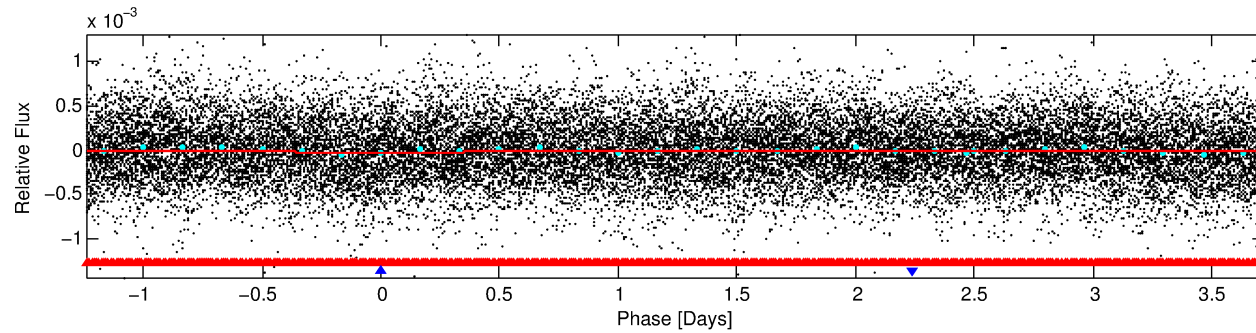
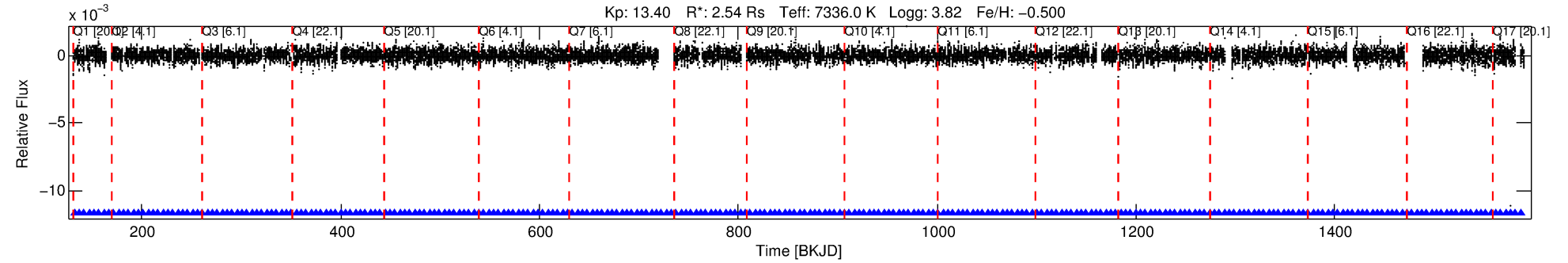
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005722737-02

No Significant Match Found

DV One-Page Summary

KIC: 5722737 Candidate: 2 of 2 Period: 4.966 d



DV Fit Results:

Period = 4.96577 [0.00022] d
Epoch = 132.0245 [0.0279] BKJD
Rp/R* = 0.0053 [0.0014]
a/R* = 1.27 [0.56]
b = 0.90 [0.25]
Seff = 3845.74 [2818.82]
Teff = 2008 [368] K
Rp = 1.46 [0.76] Re
a = 0.0661 [0.0292] AU
Ag = 60.89 [55.44] [1.08 σ]
Teffp = 8673 [1264] K [5.06 σ]

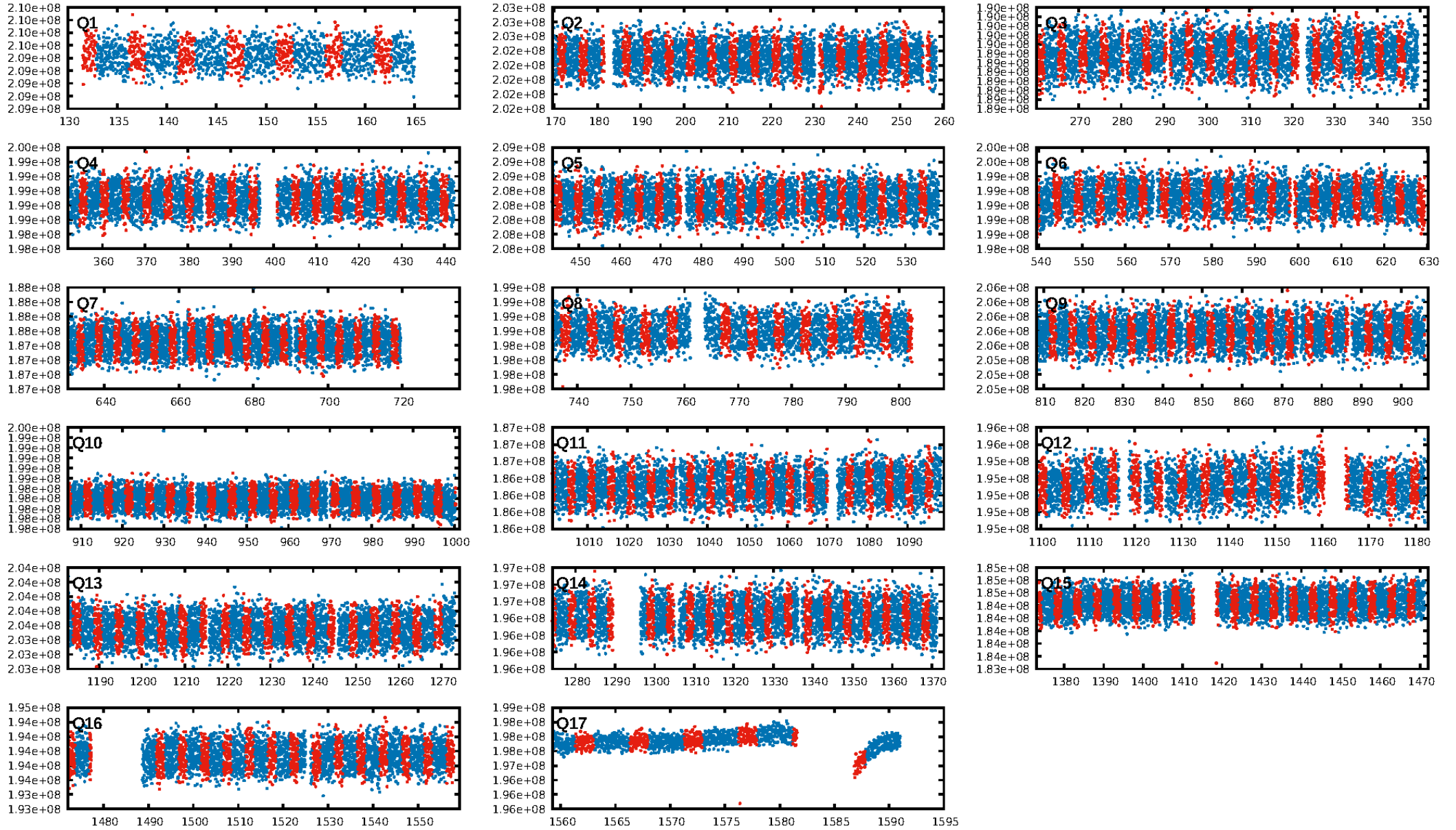
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.41 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.94e-07
RollingBand-fgt: 1.00 [261/261]
GhostDiagnostic-chr: 0.2819
Centroid-sig: 9.0%
Centroid-so: 1.104 arcsec [1.49 σ]
OotOffset-rm: 0.558 arcsec [1.08 σ]
KicOffset-rm: 0.617 arcsec [1.07 σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.47 [7/15]
DiffImageOverlap-fno: 0.00 [0/17]

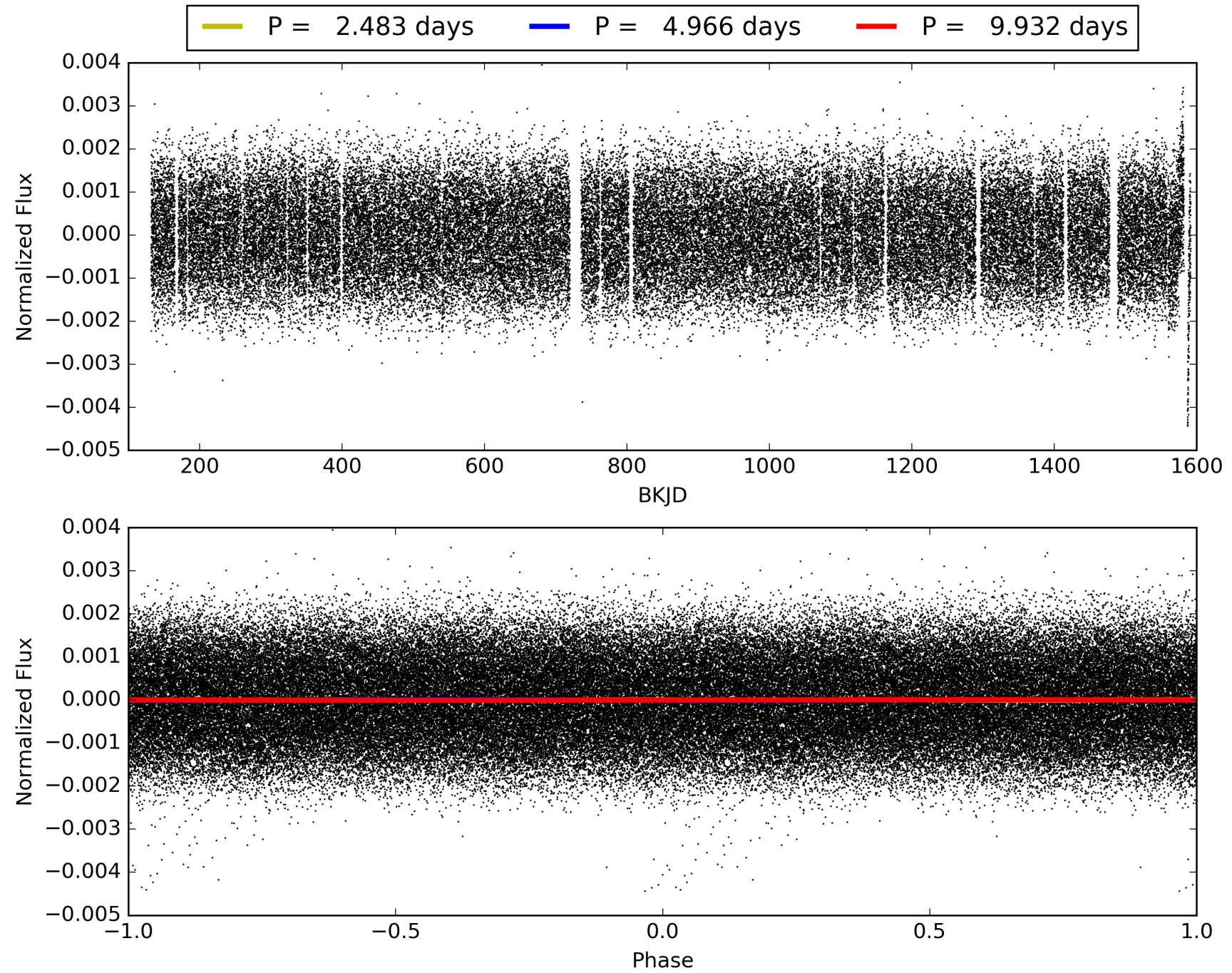
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:37:15 Z

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

TCE 005722737-02, PDC Light Curves

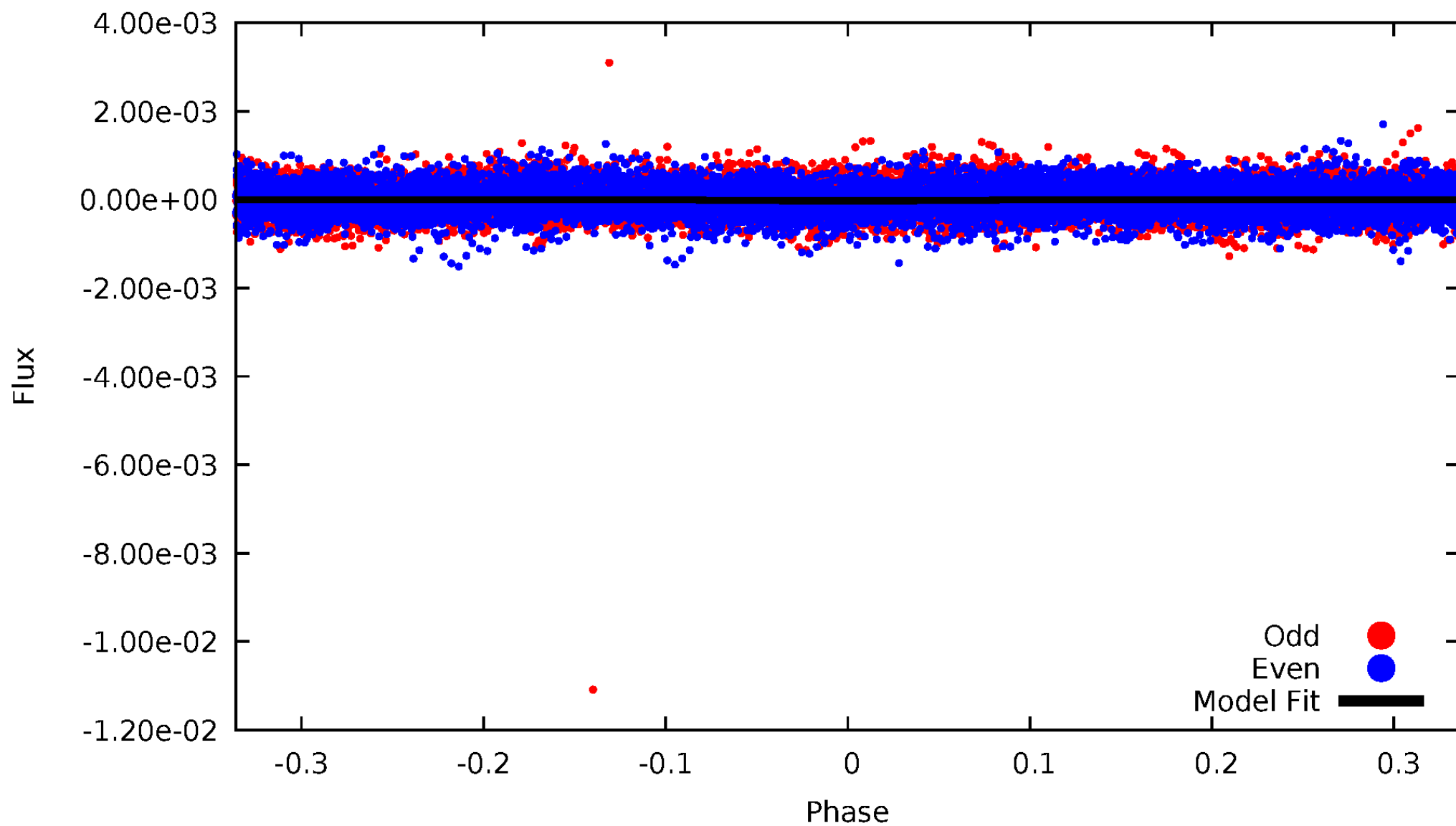


TCE 005722737-02



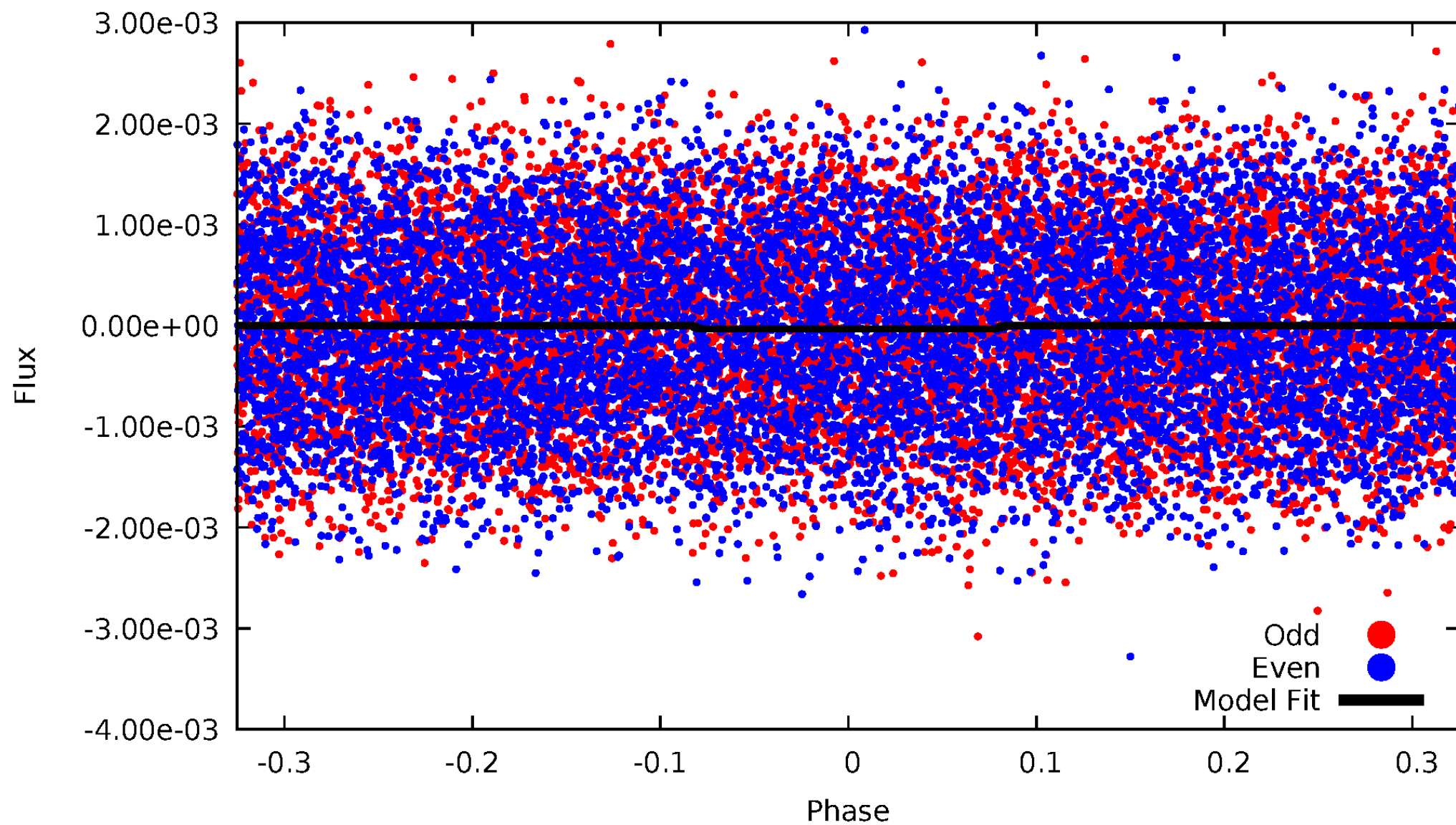
DV Odd/Even

TCE 005722737-02



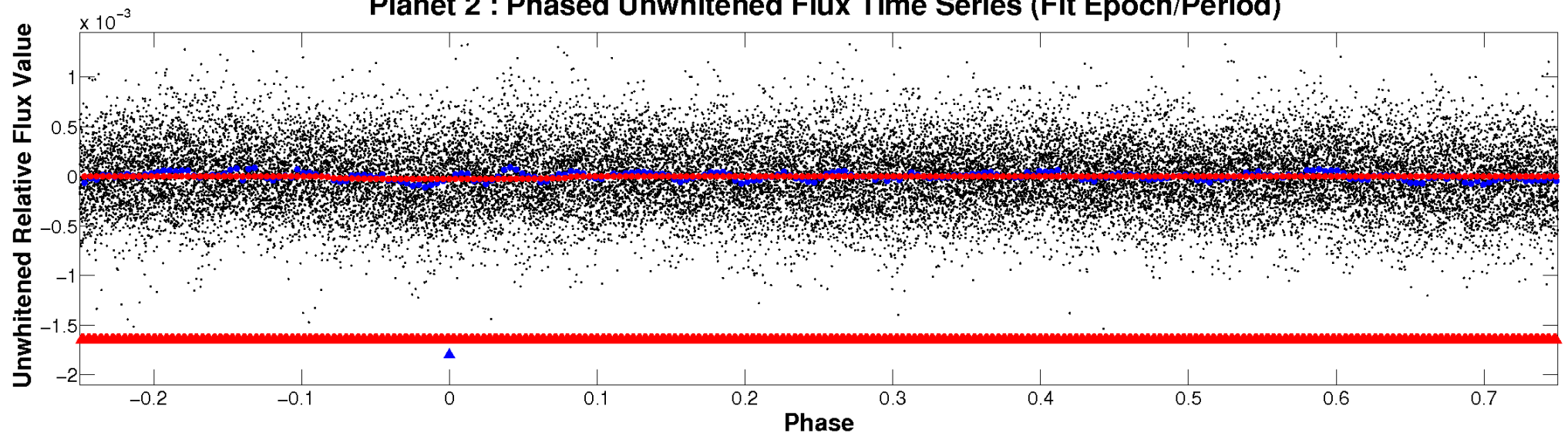
ALT Odd/Even

TCE 005722737-02

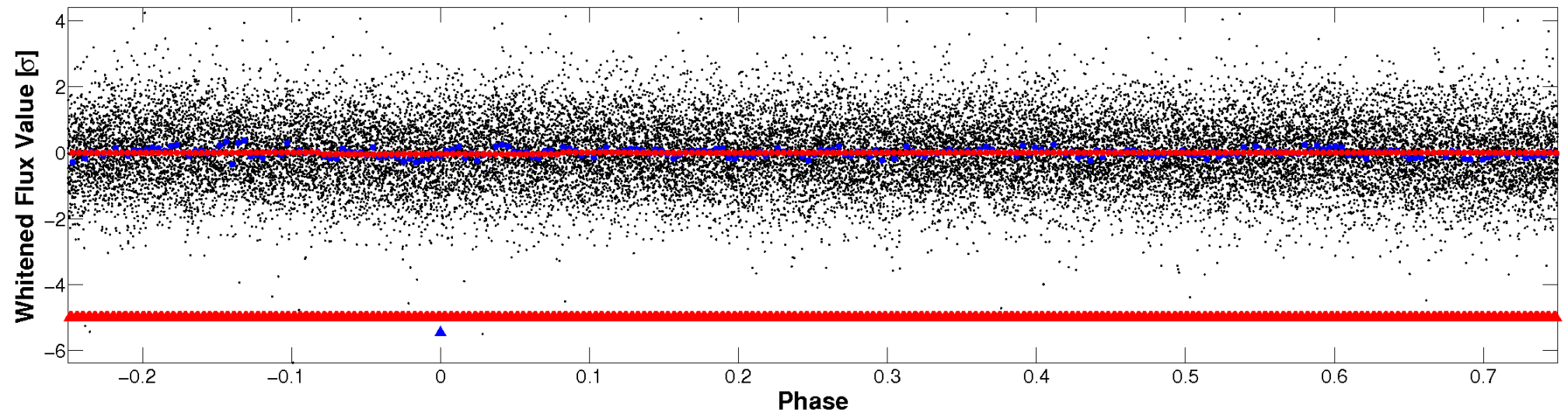


Non-Whitened Vs. Whitened Light Curve

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

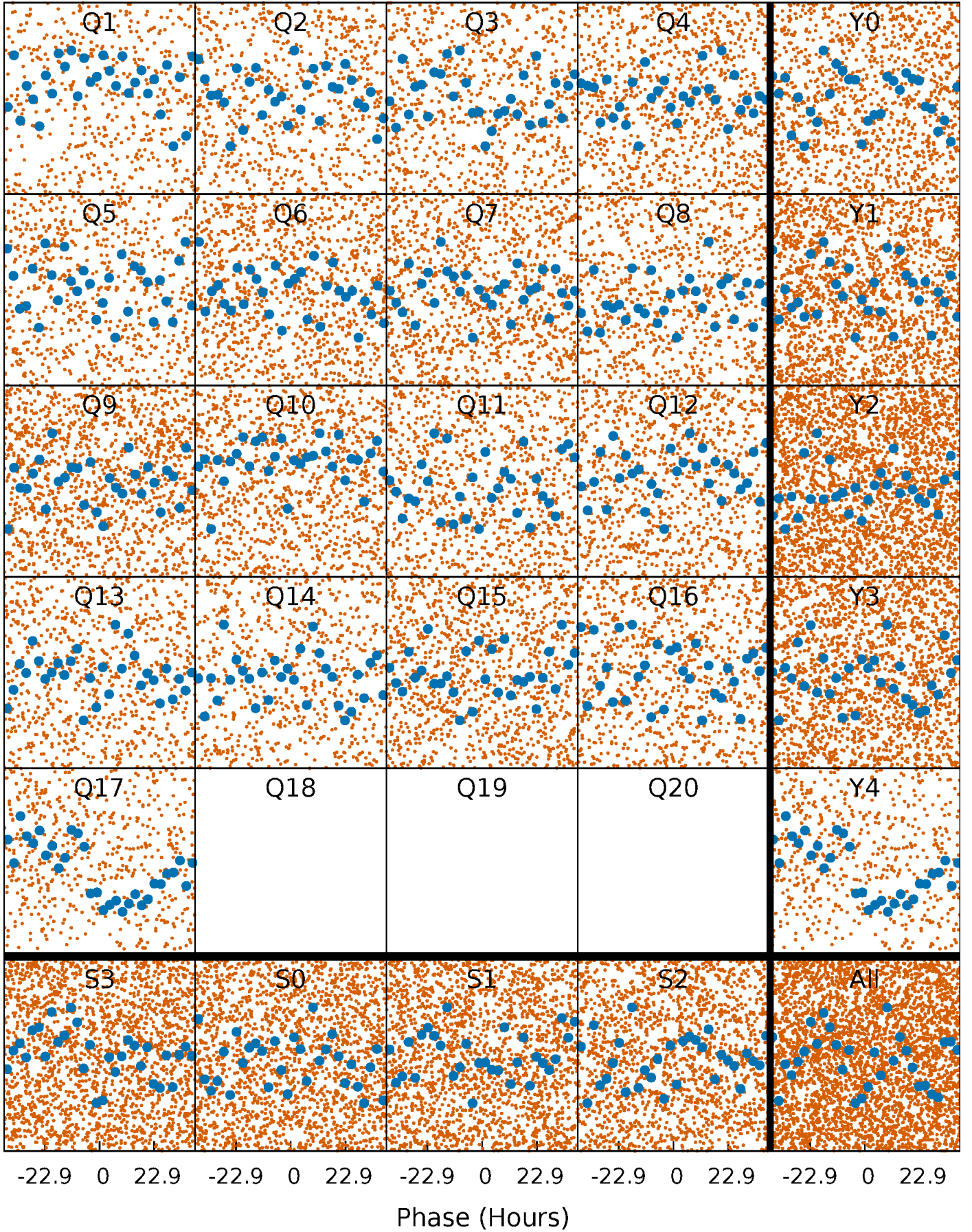


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



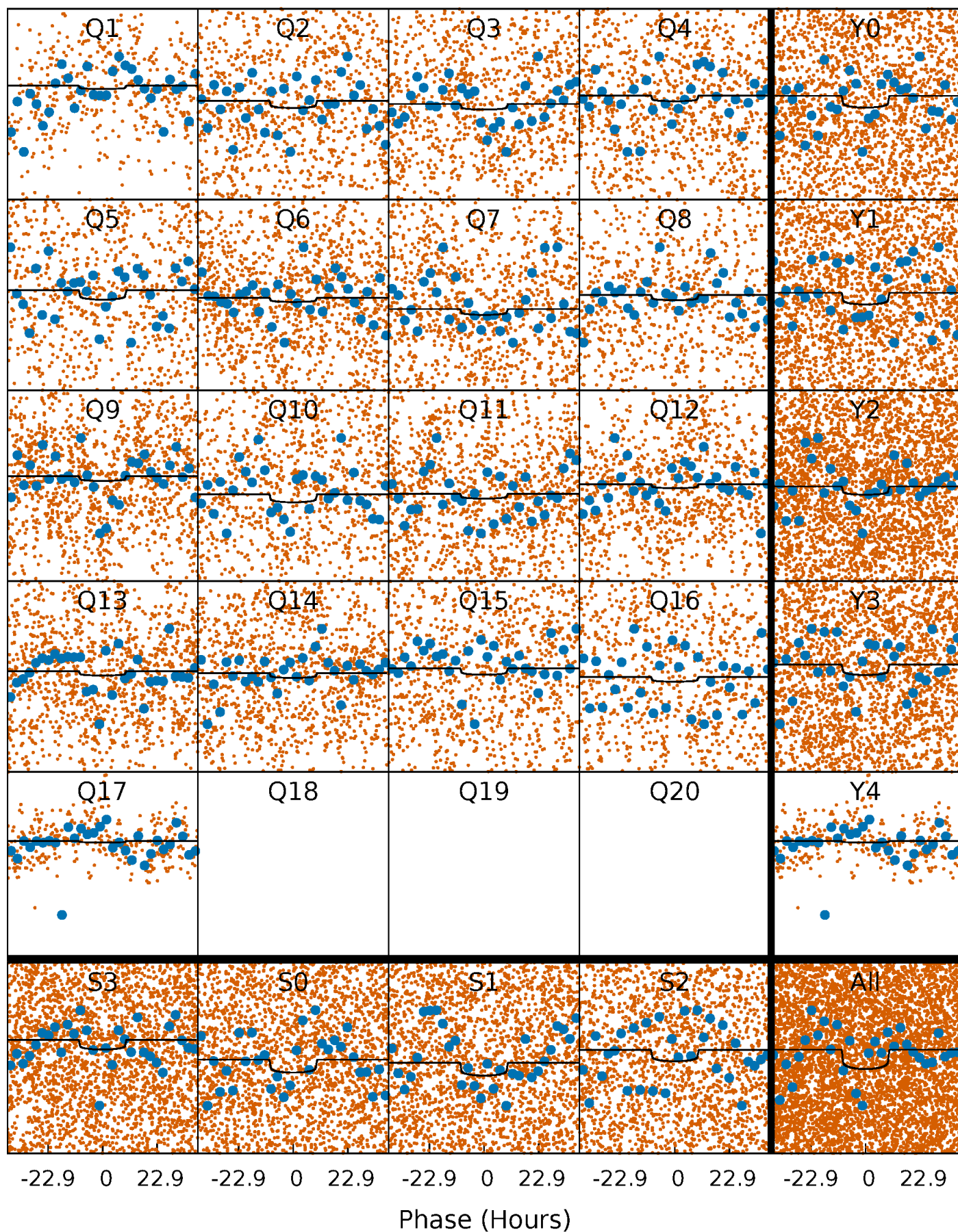
PDC Quarter-Phased Transit Curves

TCE 005722737-02 P= 4.965774 Days $T_0=132.024529$ (BKJD)



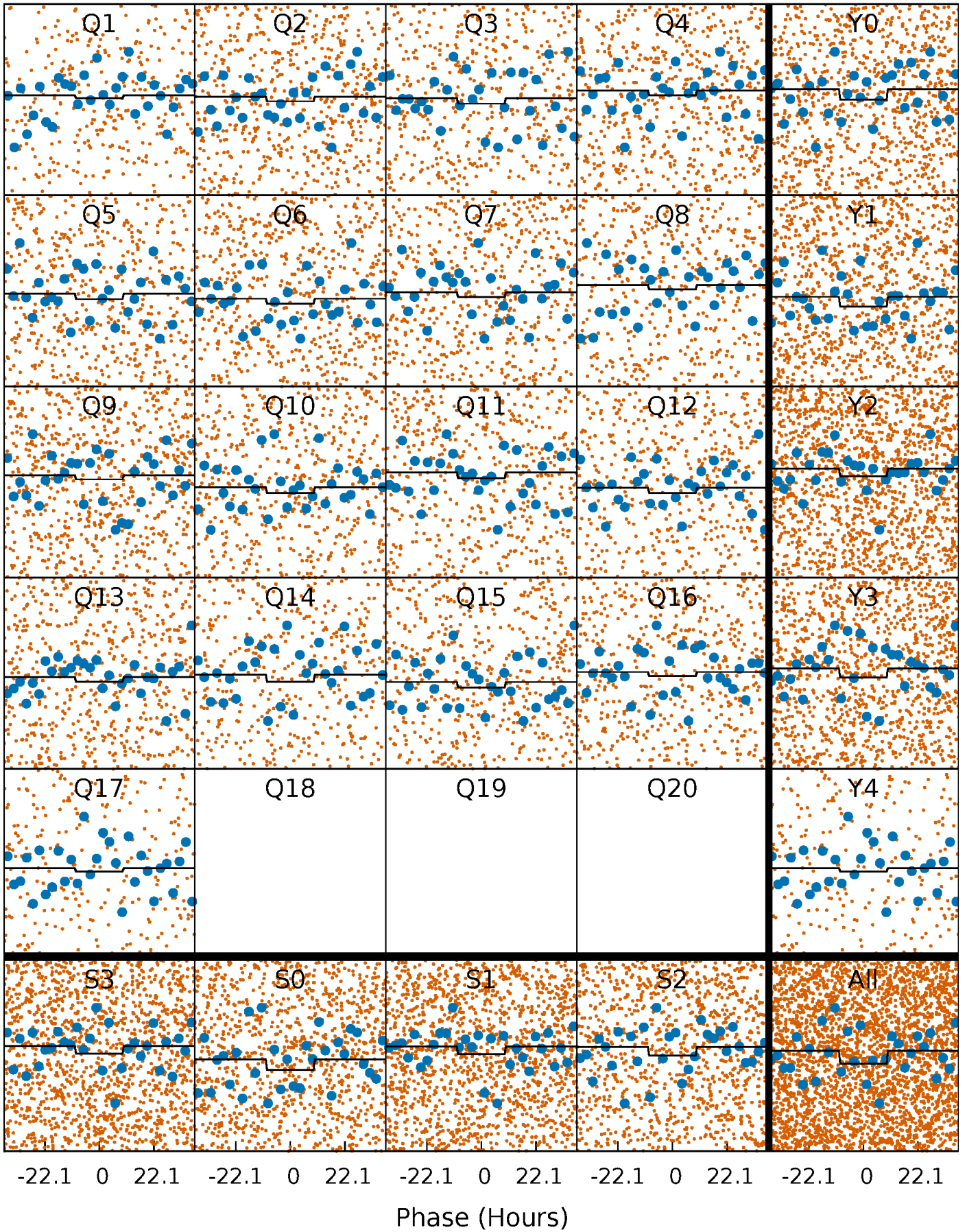
DV Quarter-Phased Transit Curves

TCE 005722737-02 P= 4.965774 Days $T_0=132.024529$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

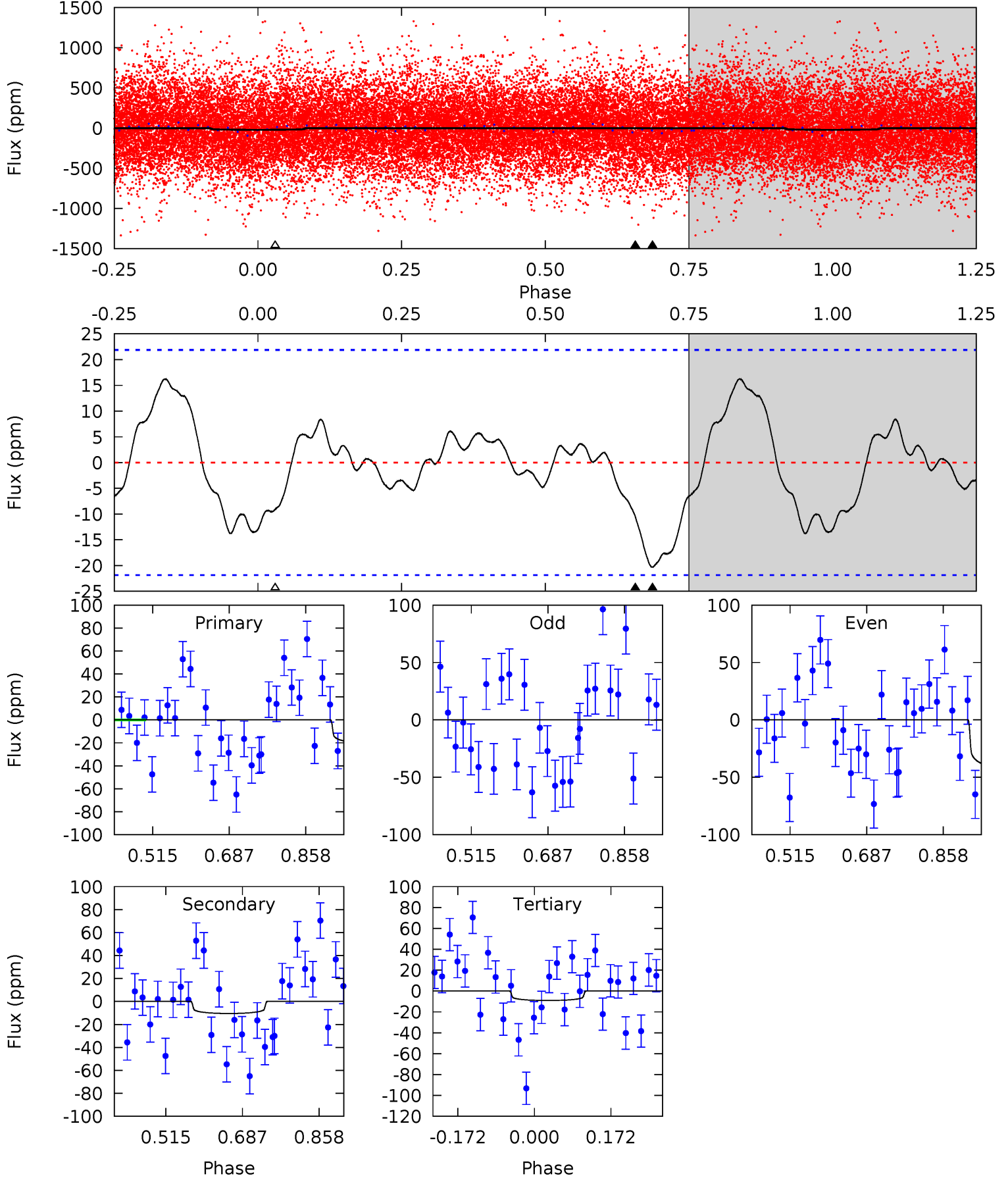
TCE 005722737-02 P= 4.964731 Days $T_0=131.865013$ (BKJD)



DV Model-Shift Uniqueness Test

005722737-02, P = 4.965774 Days, E = 127.058755 Days

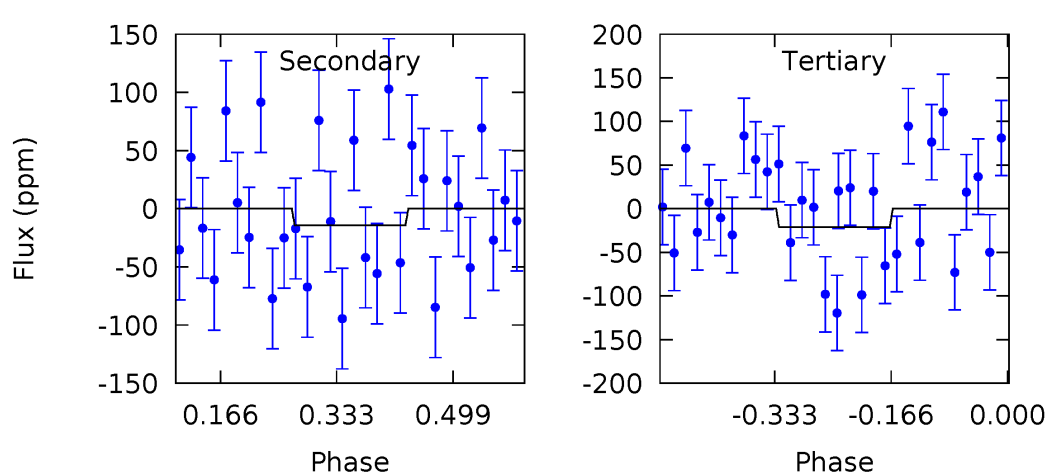
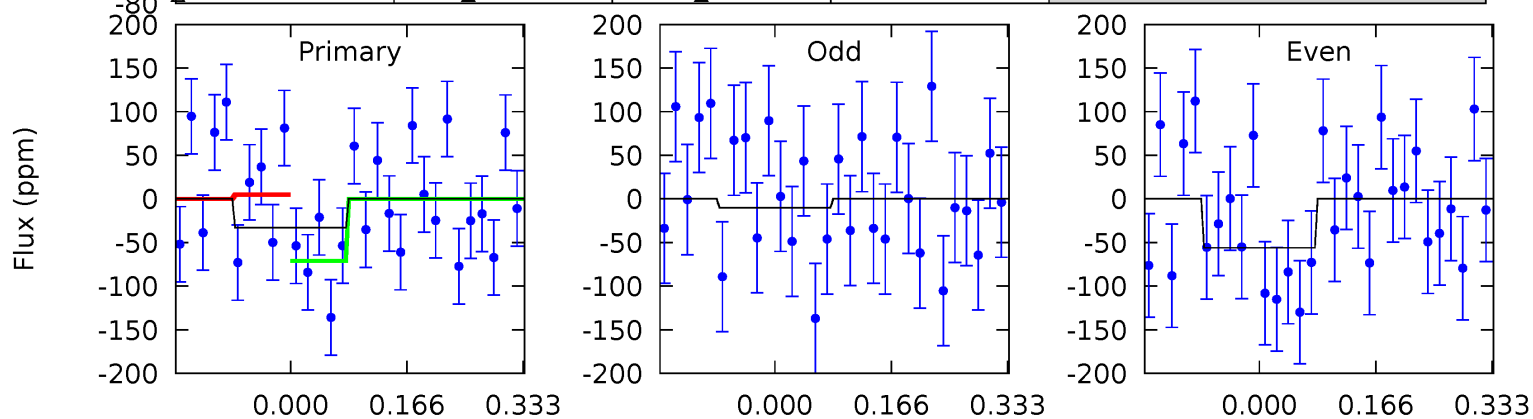
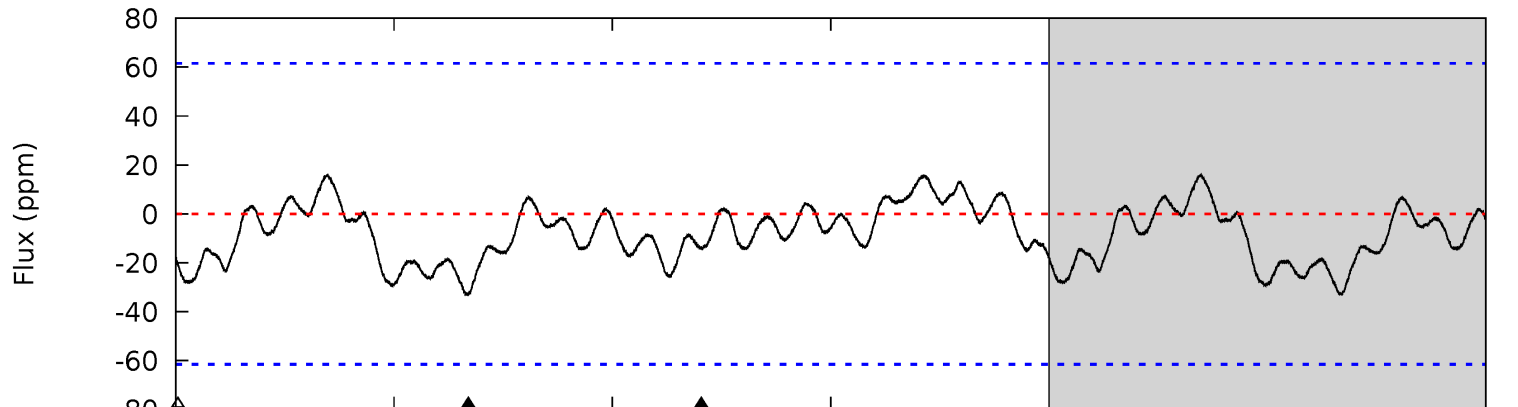
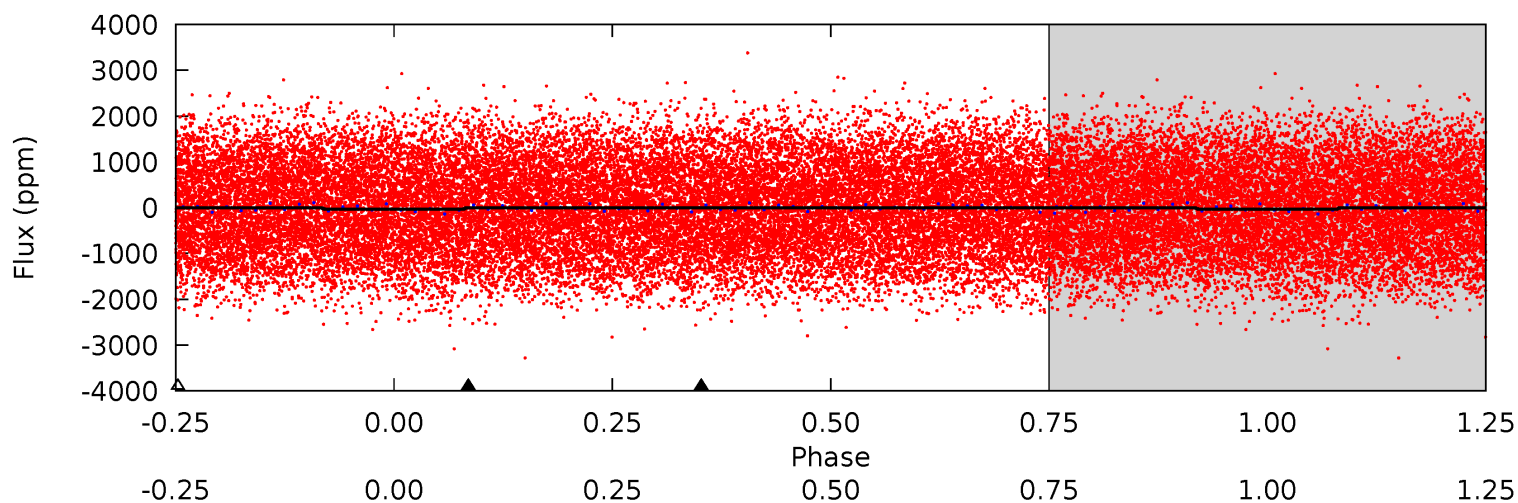
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.14	2.14	1.85	0	4.45	1.37	1.28	2.29	4.14	0.29	2.14	4.25	0.79	0.44	4.36



Alt Model-Shift Uniqueness Test

005722737-02, P = 4.964731 Days, E = 126.900282 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.39	1.03	1.52	0	4.46	1.38	0.81	0.87	2.39	-0.49	1.03	1.66	1.11	0.33	2.40



Stellar Parameters For KIC 005722737

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7336^{+233}_{-285}	$3.820^{+0.424}_{-0.106}$	$-0.500^{+0.250}_{-0.300}$	$2.543^{+0.408}_{-1.141}$	$1.556^{+0.202}_{-0.375}$	$0.133^{+0.532}_{-0.044}$
	+3%/-4%	+11%/-3%	+50%/-60%	+16%/-45%	+13%/-24%	+399%/-33%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 005722737-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-11 ± 5	$1.34^{+0.46}_{-0.42}$	2720^{+214}_{-299}	5605^{+1245}_{-907}	14^{+19}_{-8}
Alt.	-14 ± 14	$1.46^{+0.46}_{-0.43}$	2744^{+198}_{-304}	5821^{+1531}_{-3189}	15^{+24}_{-14}

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 $A_{obs} \gg 1.0$

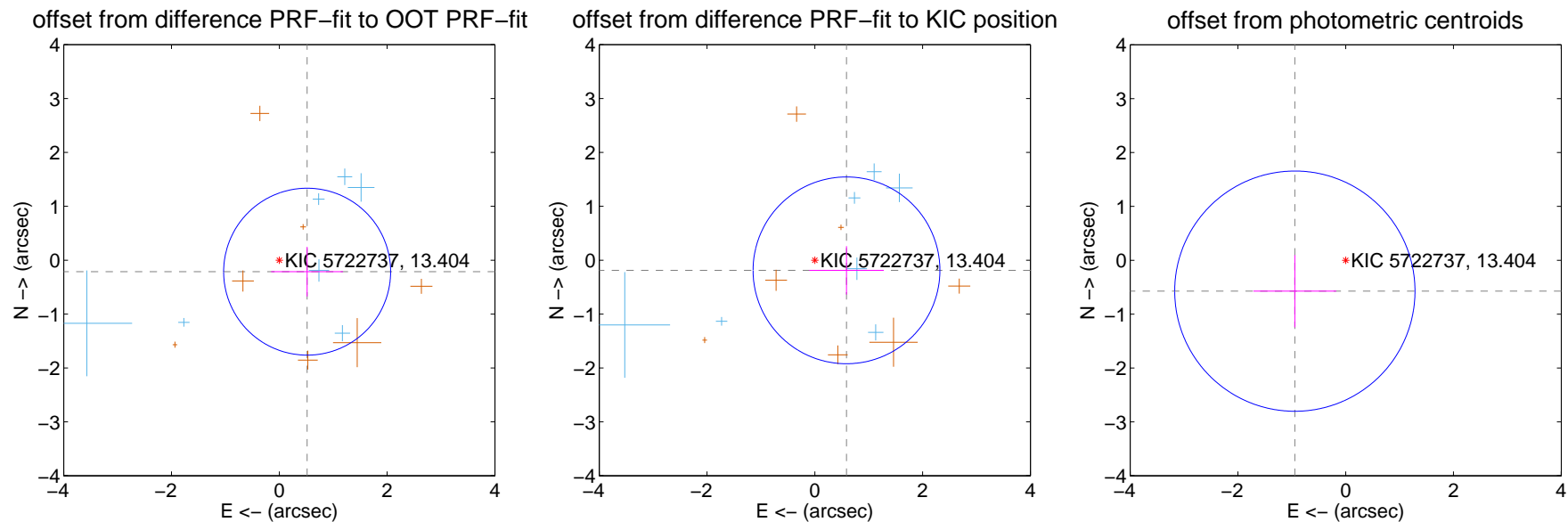
DV Centroid Data

Supplemental centroid analysis for 005722737-02. Kepler magnitude: 13.40. Transit SNR 2.71

There are 7 quarters with good PRF difference image offsets

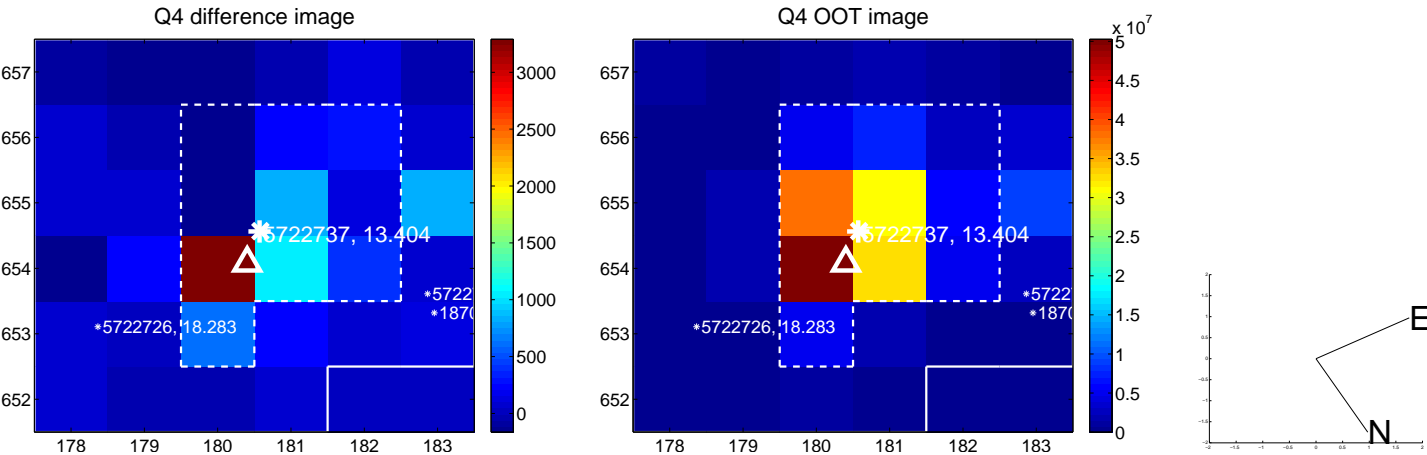
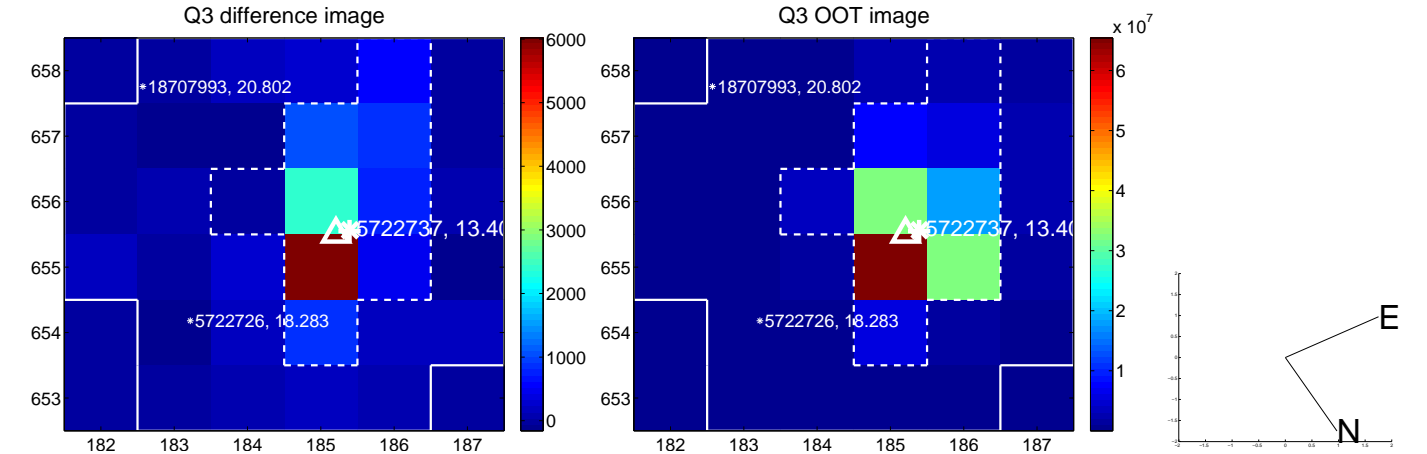
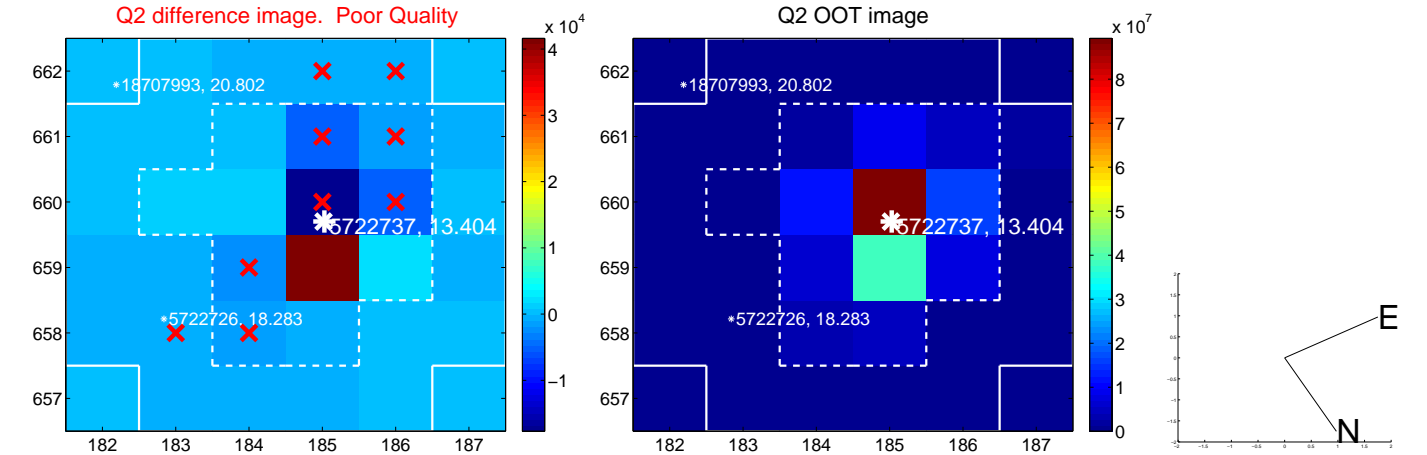
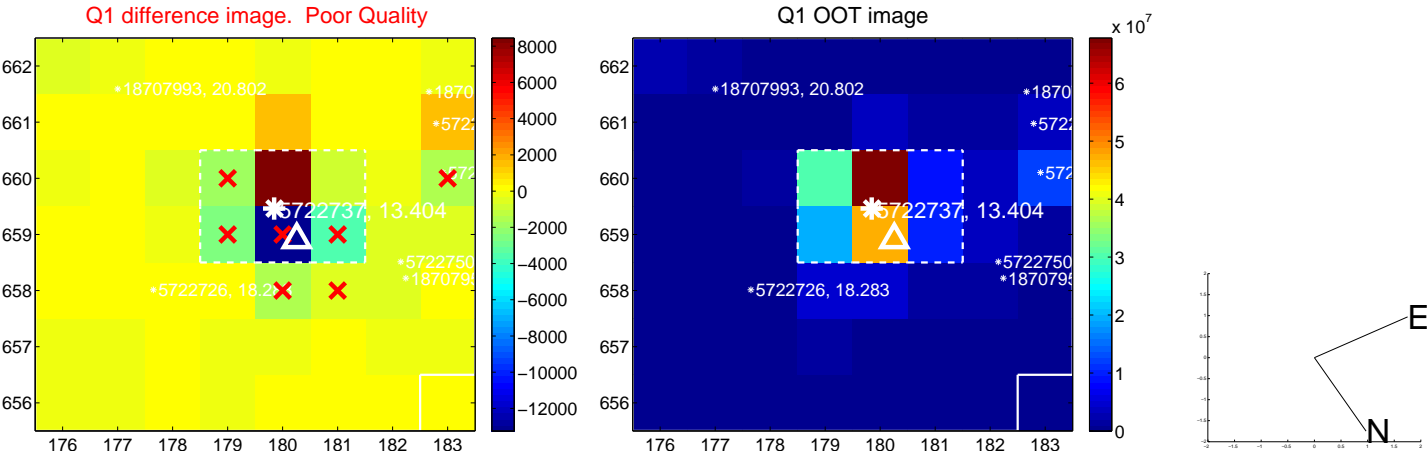
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.558 ± 0.516	1.08	-0.516 ± 0.666	-0.213 ± 0.461
PRF-fit source offset from KIC position	0.617 ± 0.578	1.07	-0.588 ± 0.691	-0.188 ± 0.449
photometric centroid source offset	1.10 ± 0.74	1.49	0.94 ± 0.77	-0.57 ± 0.67

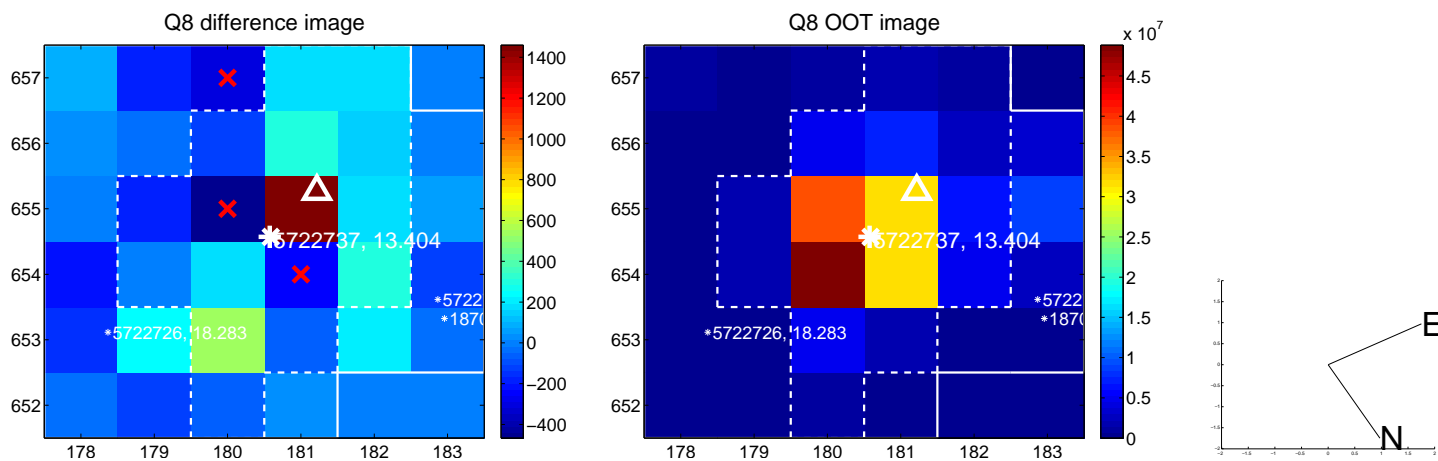
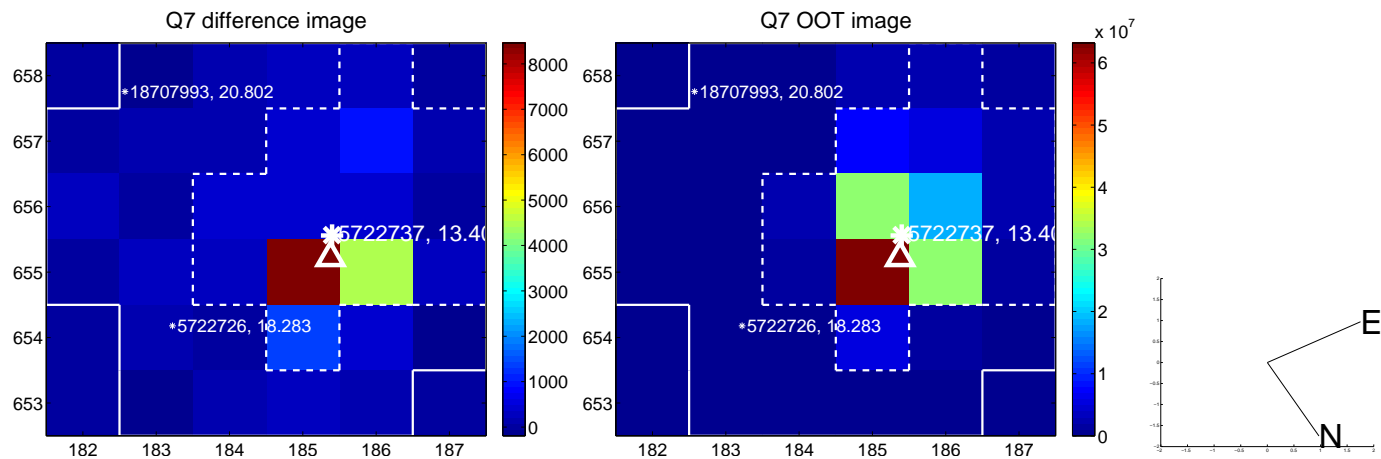
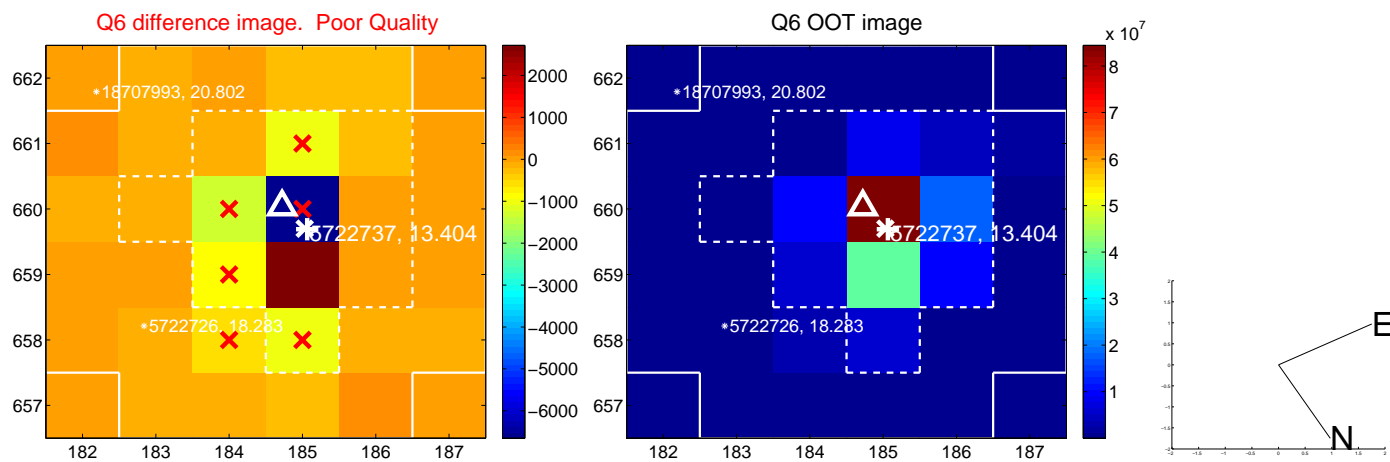
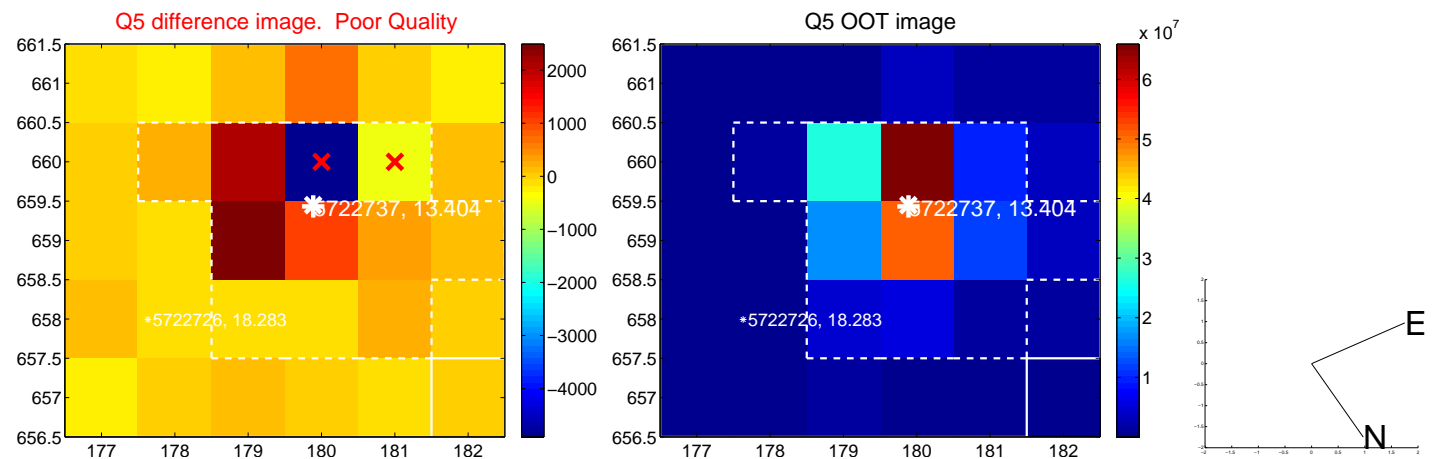


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

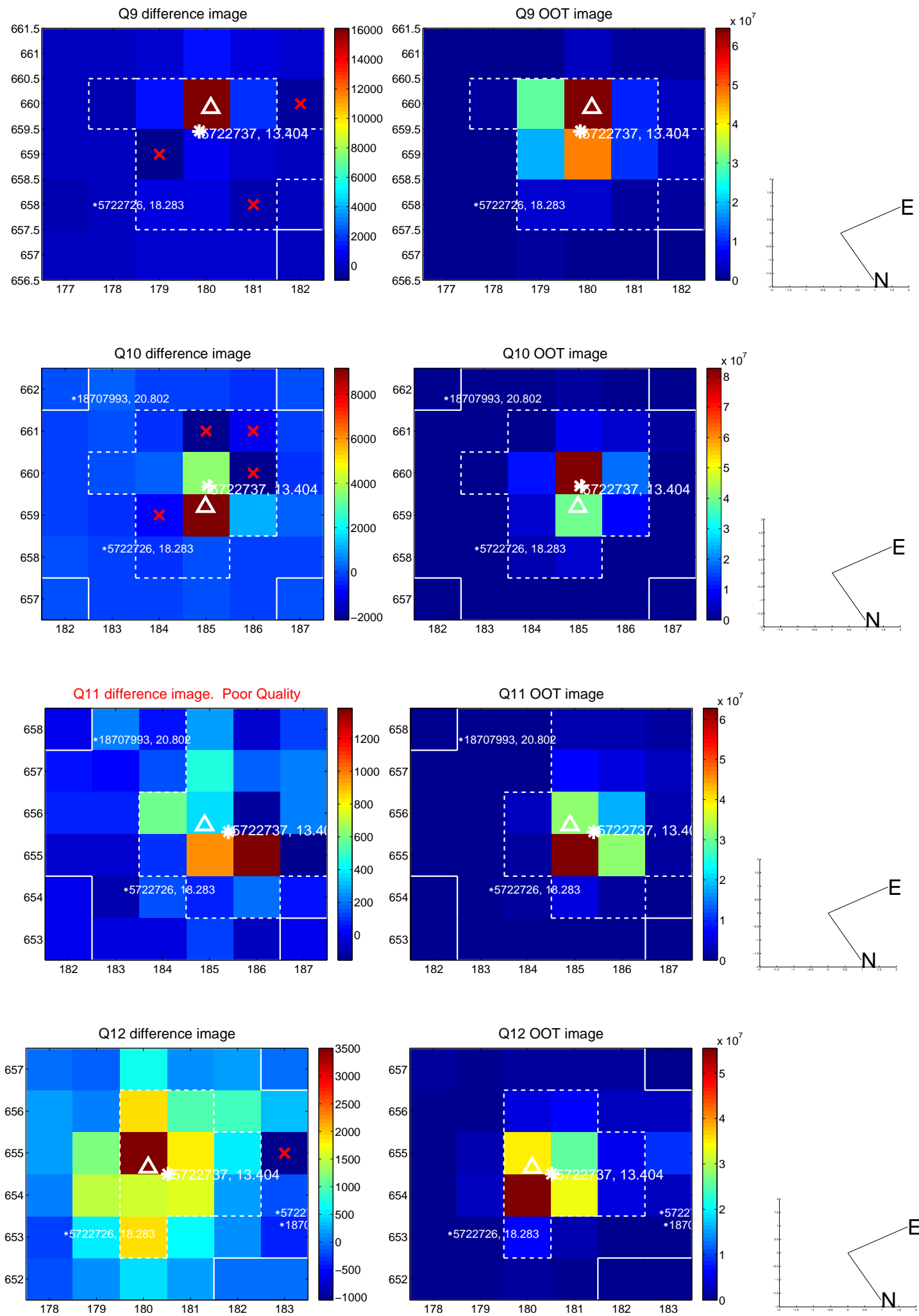
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



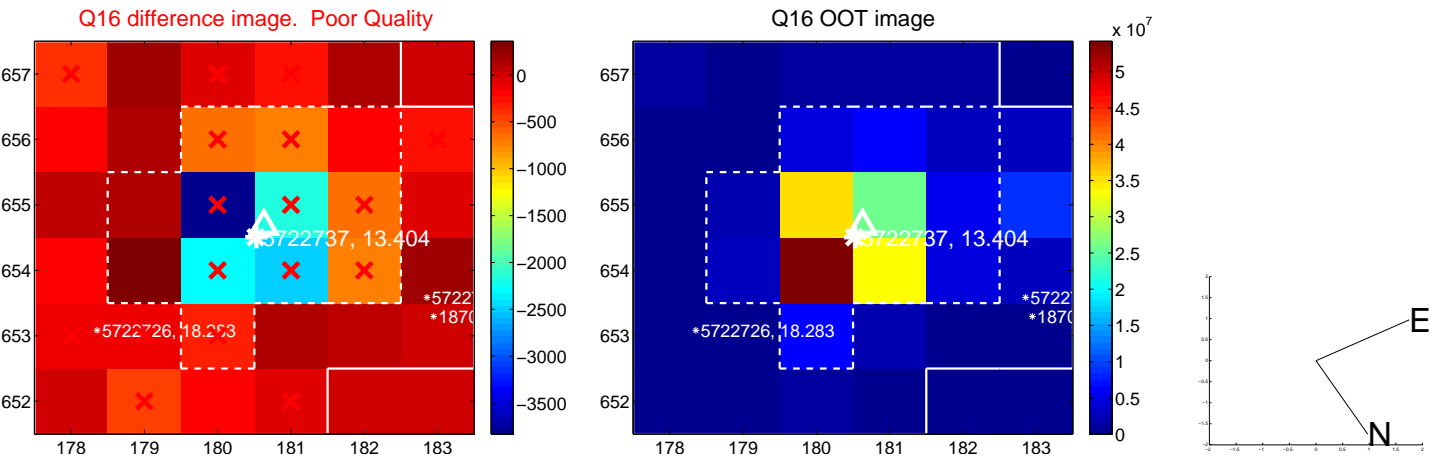
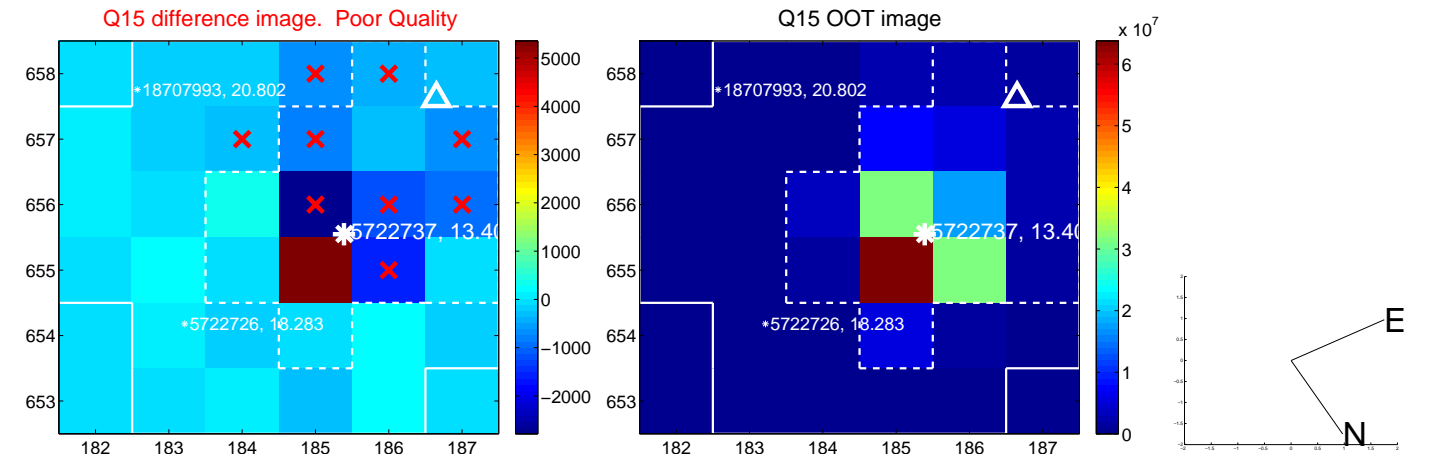
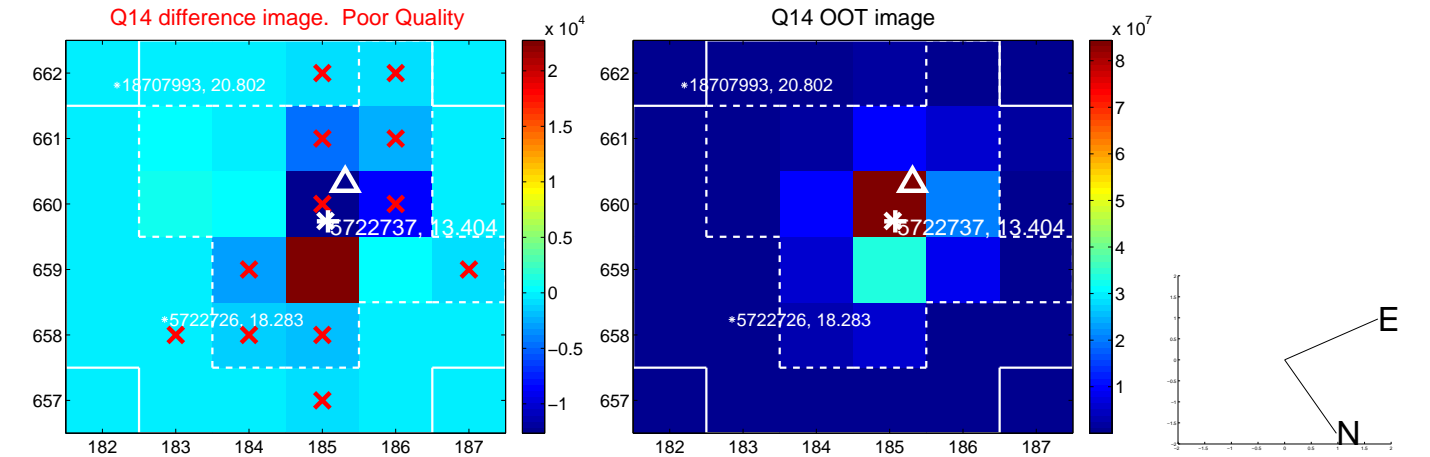
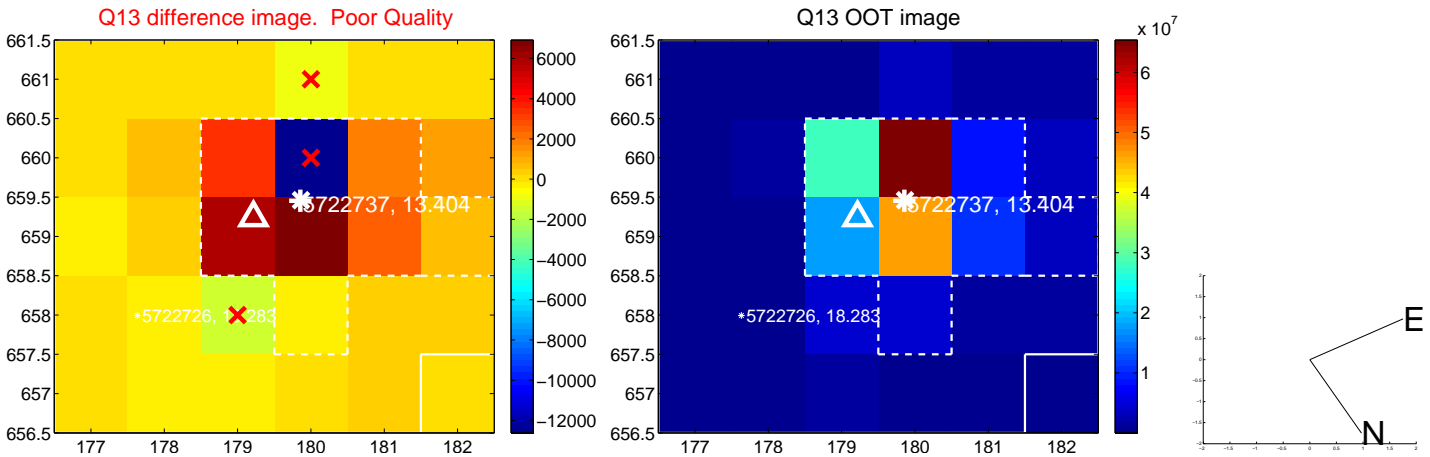
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



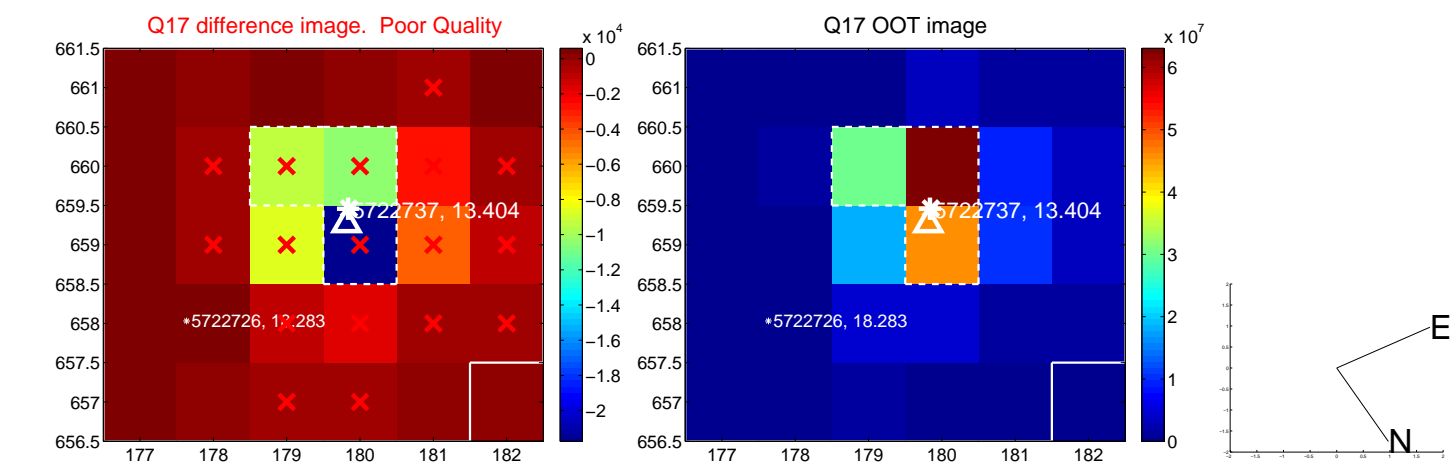
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



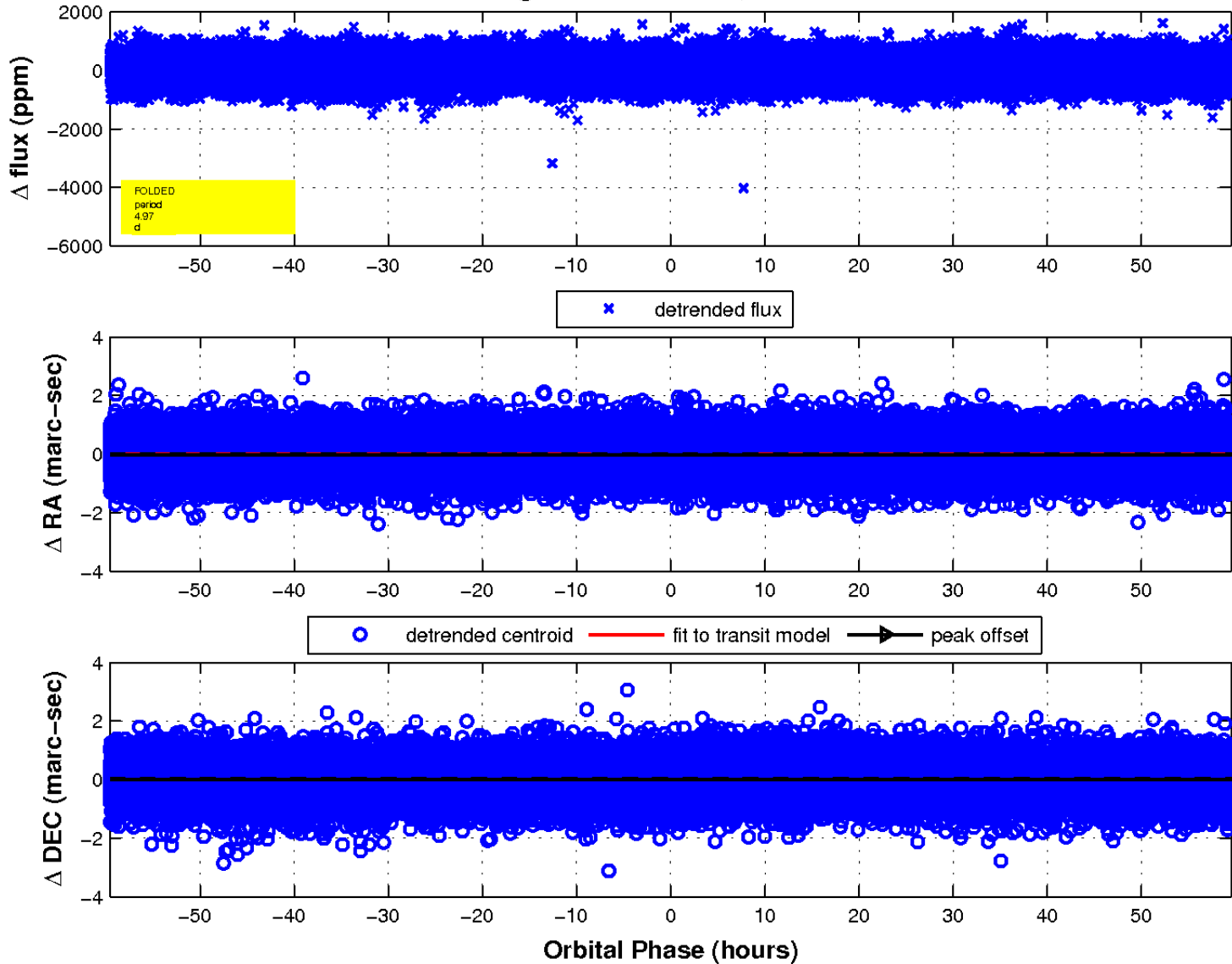
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

