

KIC 009606739

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})
009606739-01	OBS	No	1.540106	132.195949	83.4	1.096	11.2	7.8	1.23	6744	1.31	3549.42
009606739-02	OBS	No	0.770032	132.210782	127.2	1.228	11.9	12.8	1.23	6744	1.49	8944.31
009606739-03	OBS	No	0.770027	131.637700	79.8	1.123	12.5	10.7	1.23	6744	1.28	8944.39
009606739-04	OBS	No	0.770054	132.004843	95.1	0.915	10.2	11.1	1.23	6744	1.42	8943.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009606739-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009606739-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
009606739-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
009606739-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

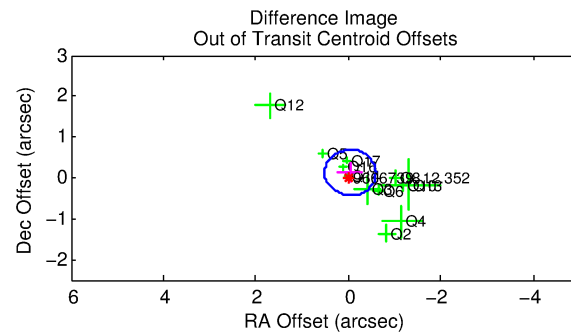
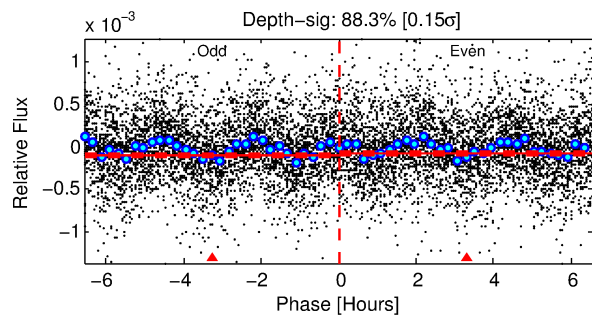
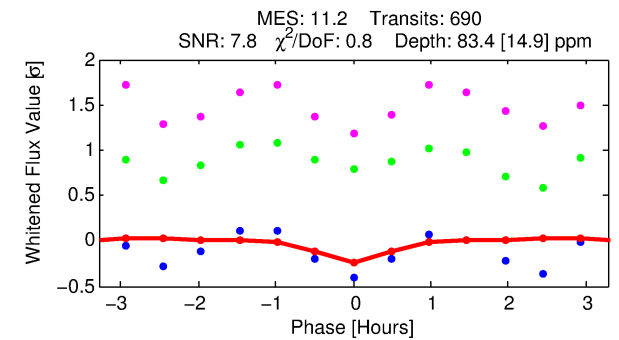
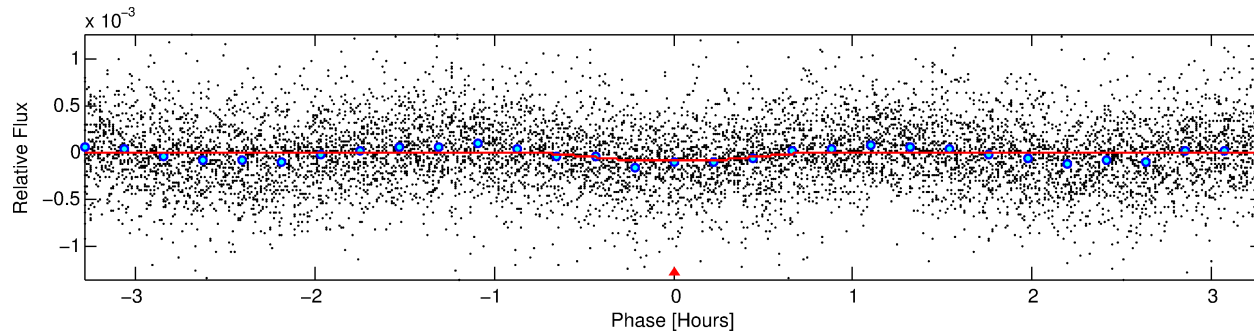
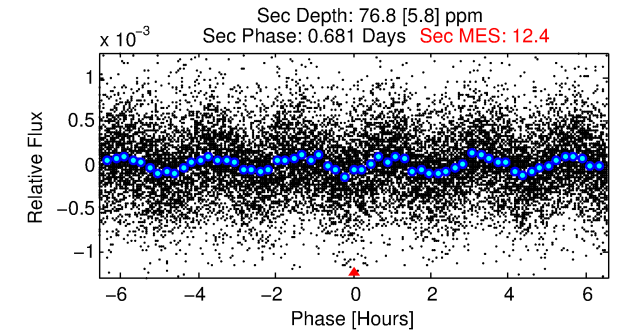
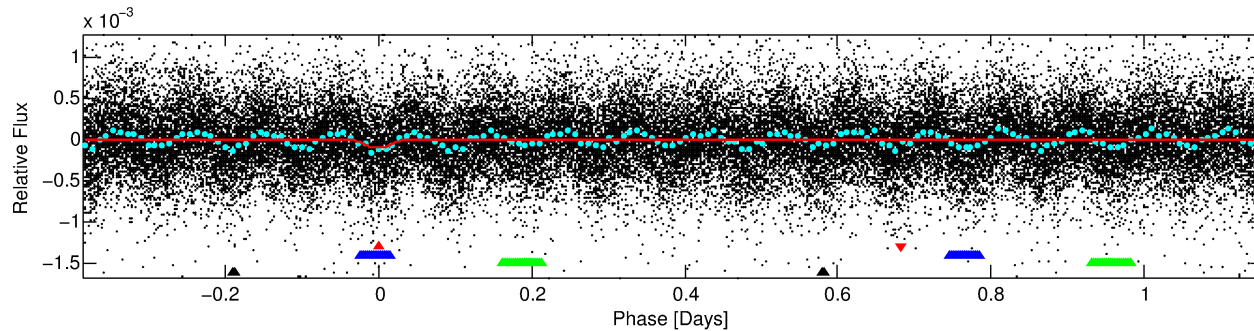
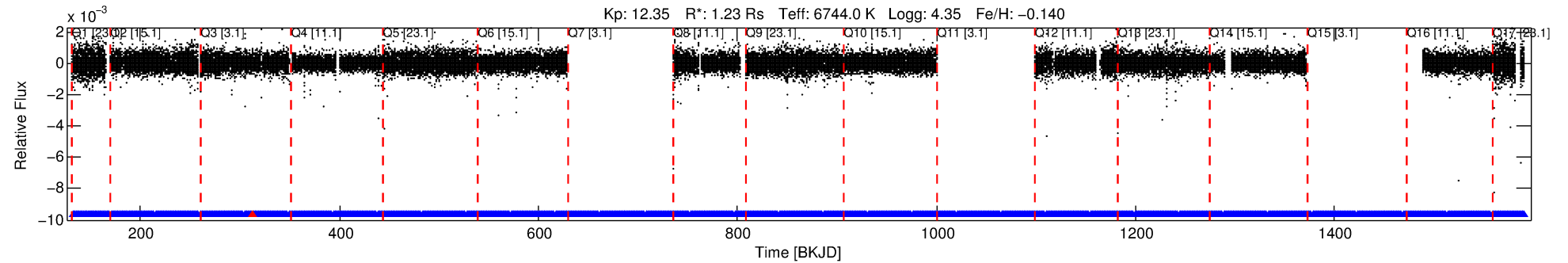
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009606739-01

No Significant Match Found

DV One-Page Summary

KIC: 9606739 Candidate: 1 of 4 Period: 1.540 d



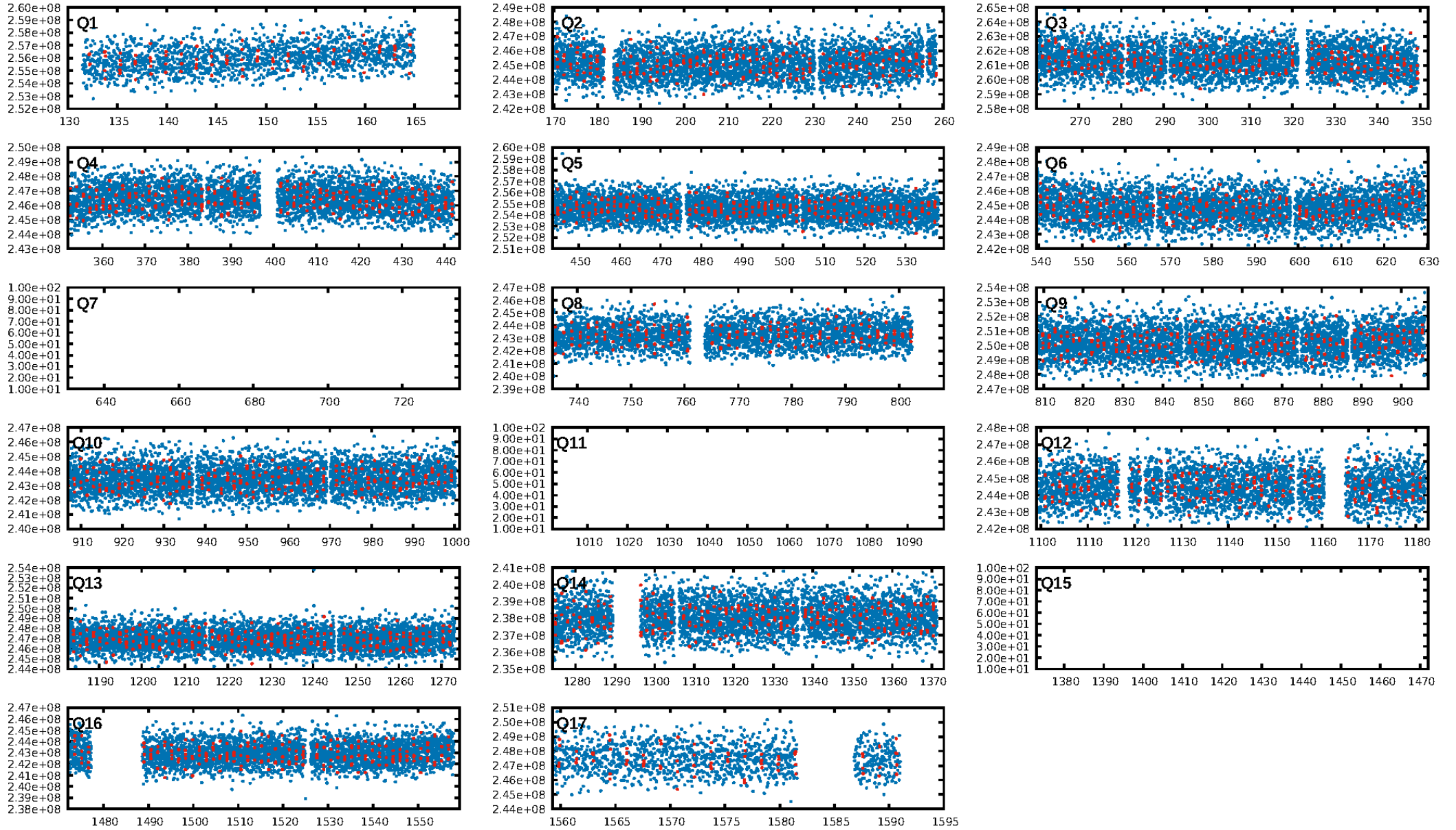
DV Fit Results:

Period = 1.54011 [0.00001] d
Epoch = 132.1959 [0.0026] BKJD
Rp/R* = 0.0098 [0.0058]
a/R* = 5.04 [16.80]
b = 0.90 [0.76]
Seff = 3549.42 [1550.42]
Teff = 1968 [215] K
Rp = 1.31 [0.90] Re
a = 0.0280 [0.0082] AU
Ag = 19.30 [24.10] [0.76 σ]
Teffp = 6378 [1888] K [2.32 σ]

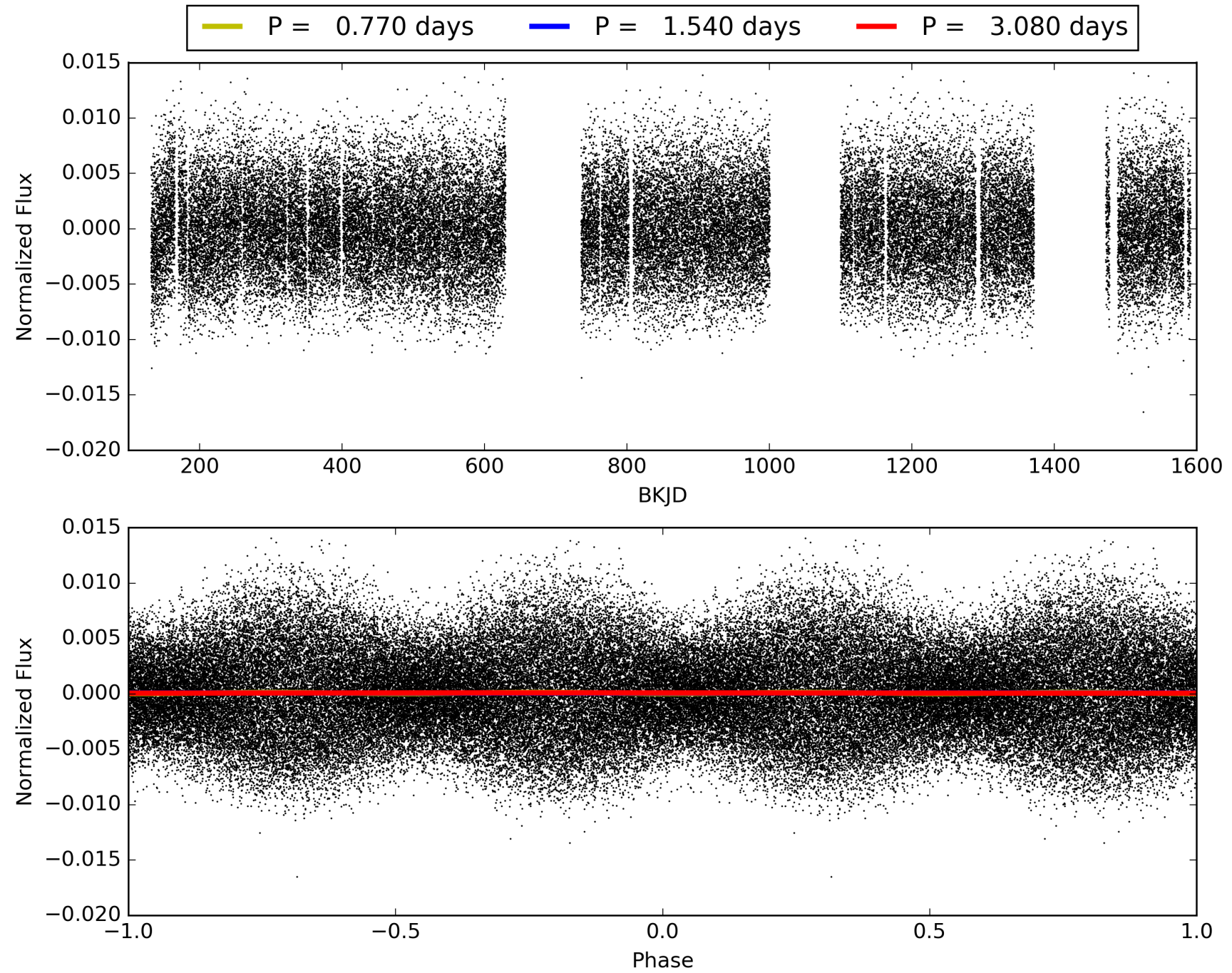
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.95 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.00e-47
RollingBand-fgt: 1.00 [649/650]
GhostDiagnostic-chr: -1.241
Centroid-sig: 1.3%
Centroid-so: 0.955 arcsec [1.93 σ]
OotOffset-rm: 0.133 arcsec [0.72 σ]
KicOffset-rm: 0.092 arcsec [0.30 σ]
OotOffset-st: 4/1/4/3 [12]
KicOffset-st: 4/1/4/3 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 009606739-01, PDC Light Curves

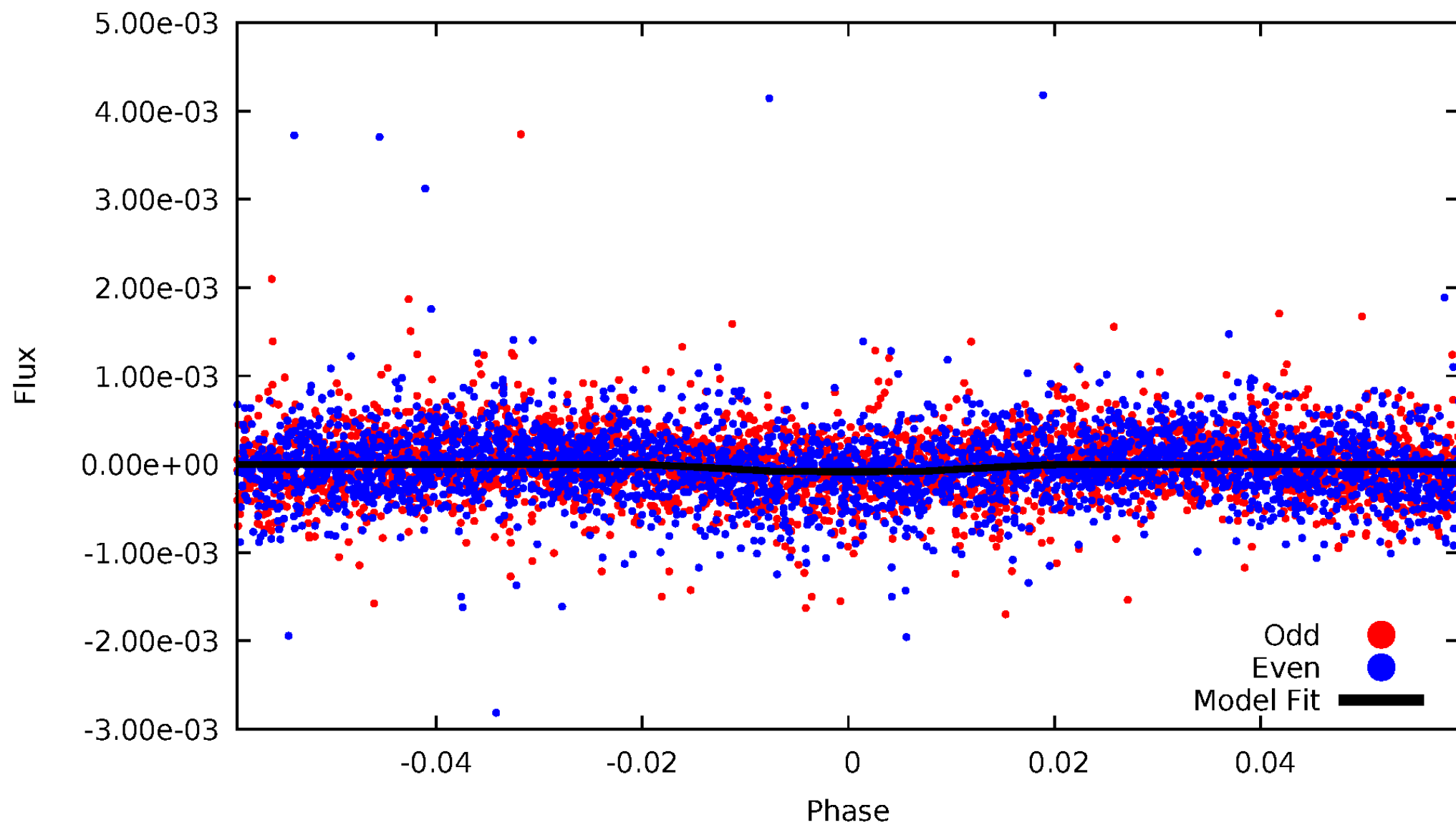


TCE 009606739-01



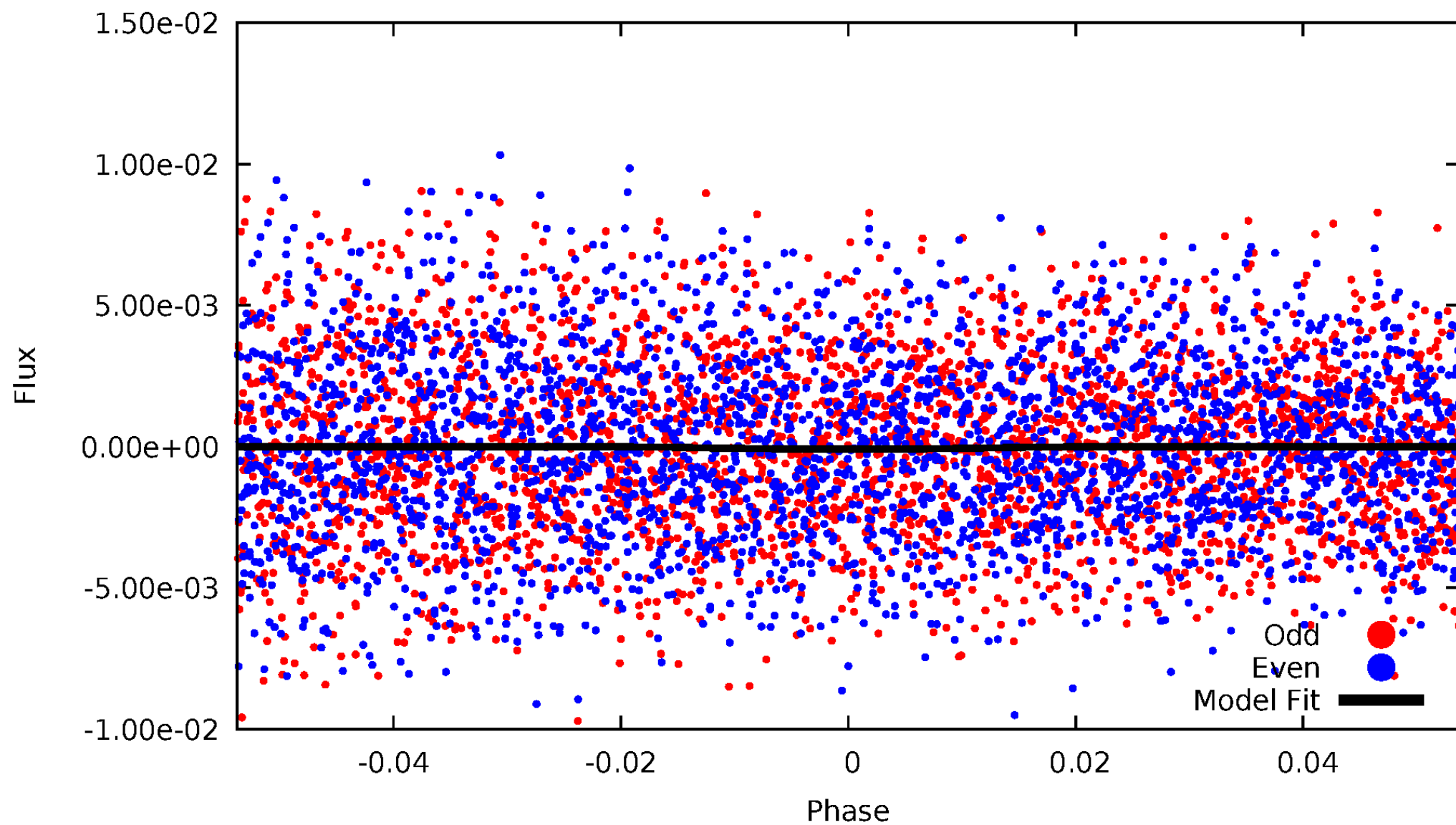
DV Odd/Even

TCE 009606739-01

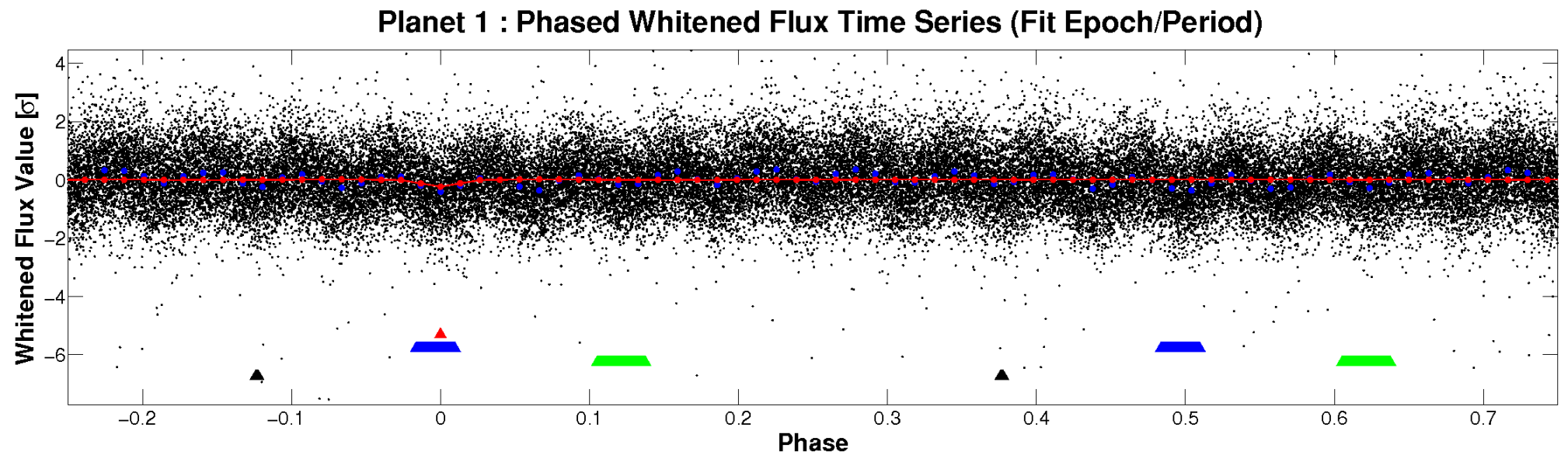
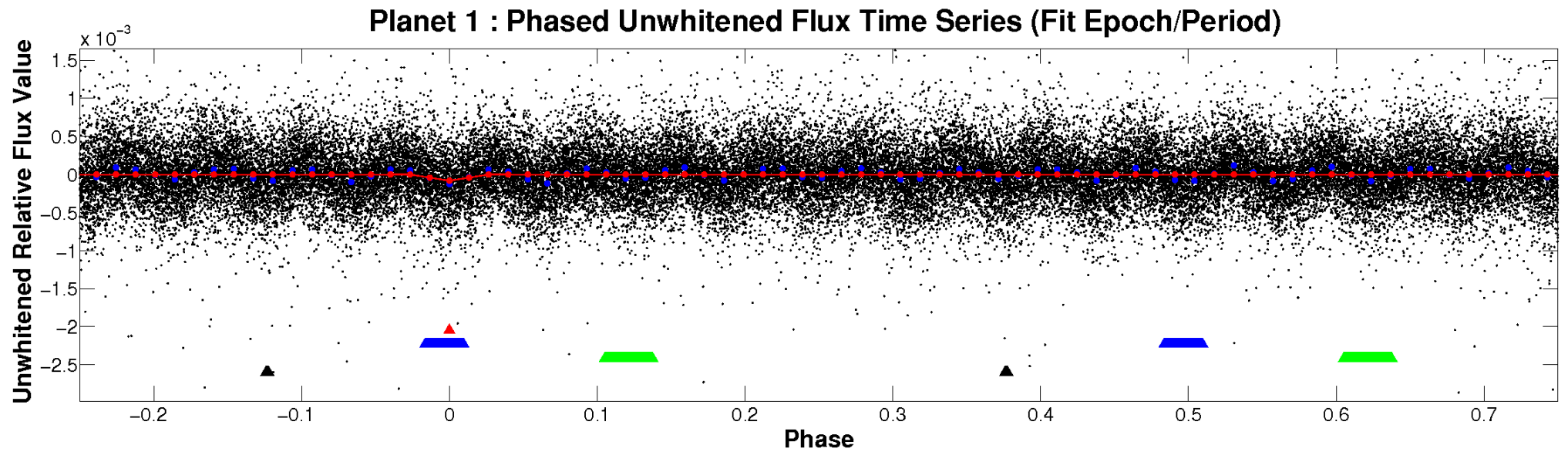


ALT Odd/Even

TCE 009606739-01

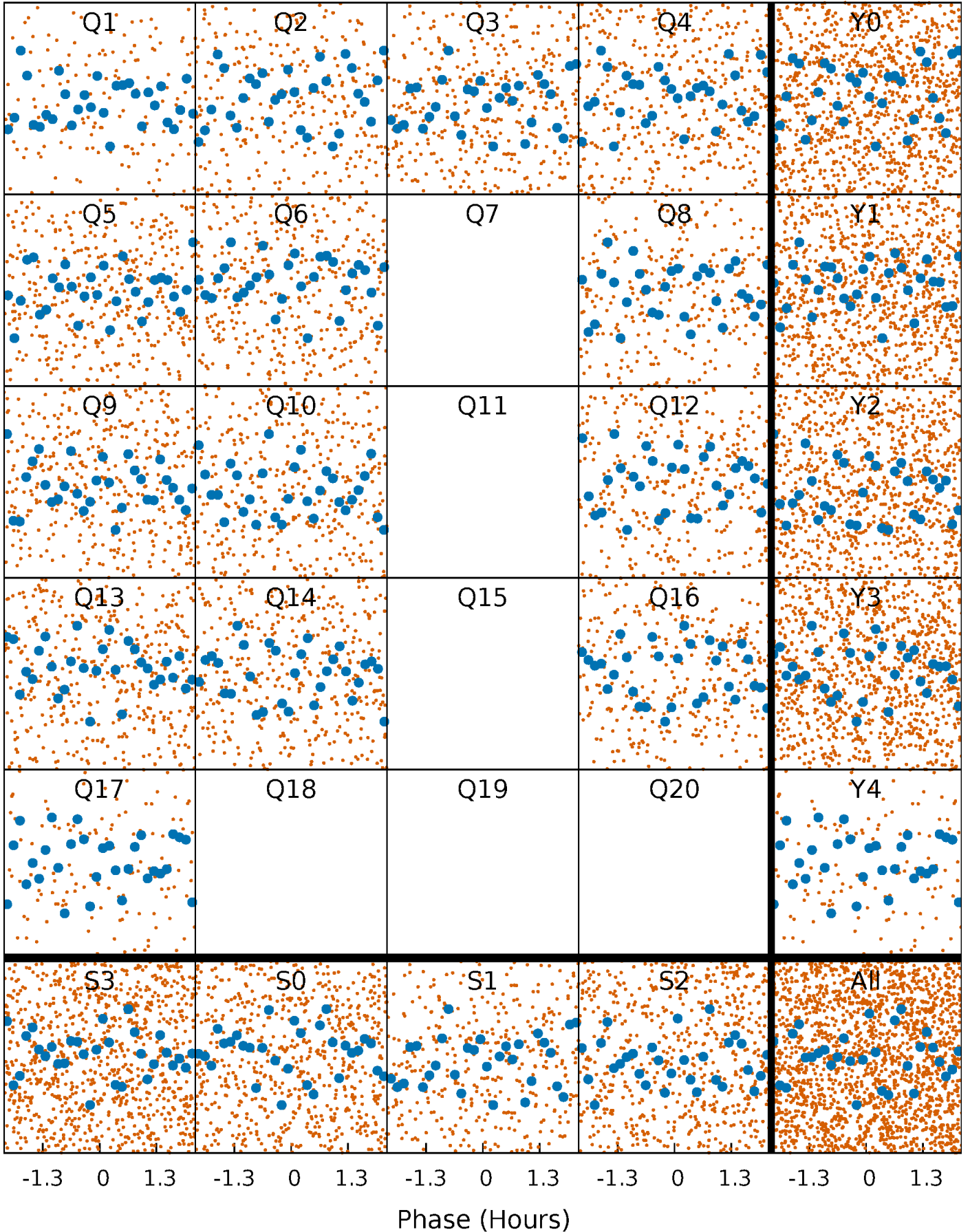


Non-Whitened Vs. Whitened Light Curve



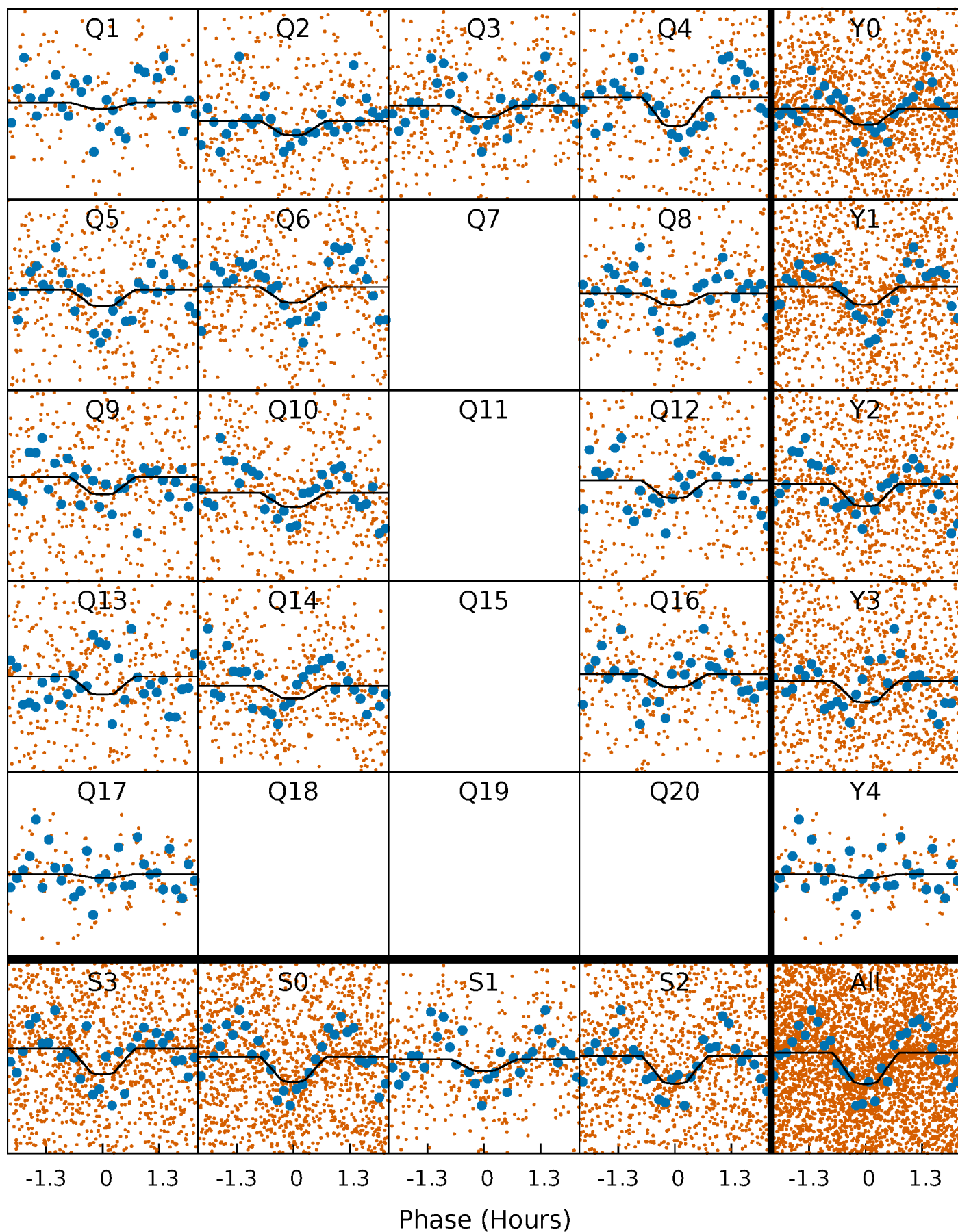
PDC Quarter-Phased Transit Curves

TCE 009606739-01 P= 1.540106 Days $T_0=132.195948$ (BKJD)



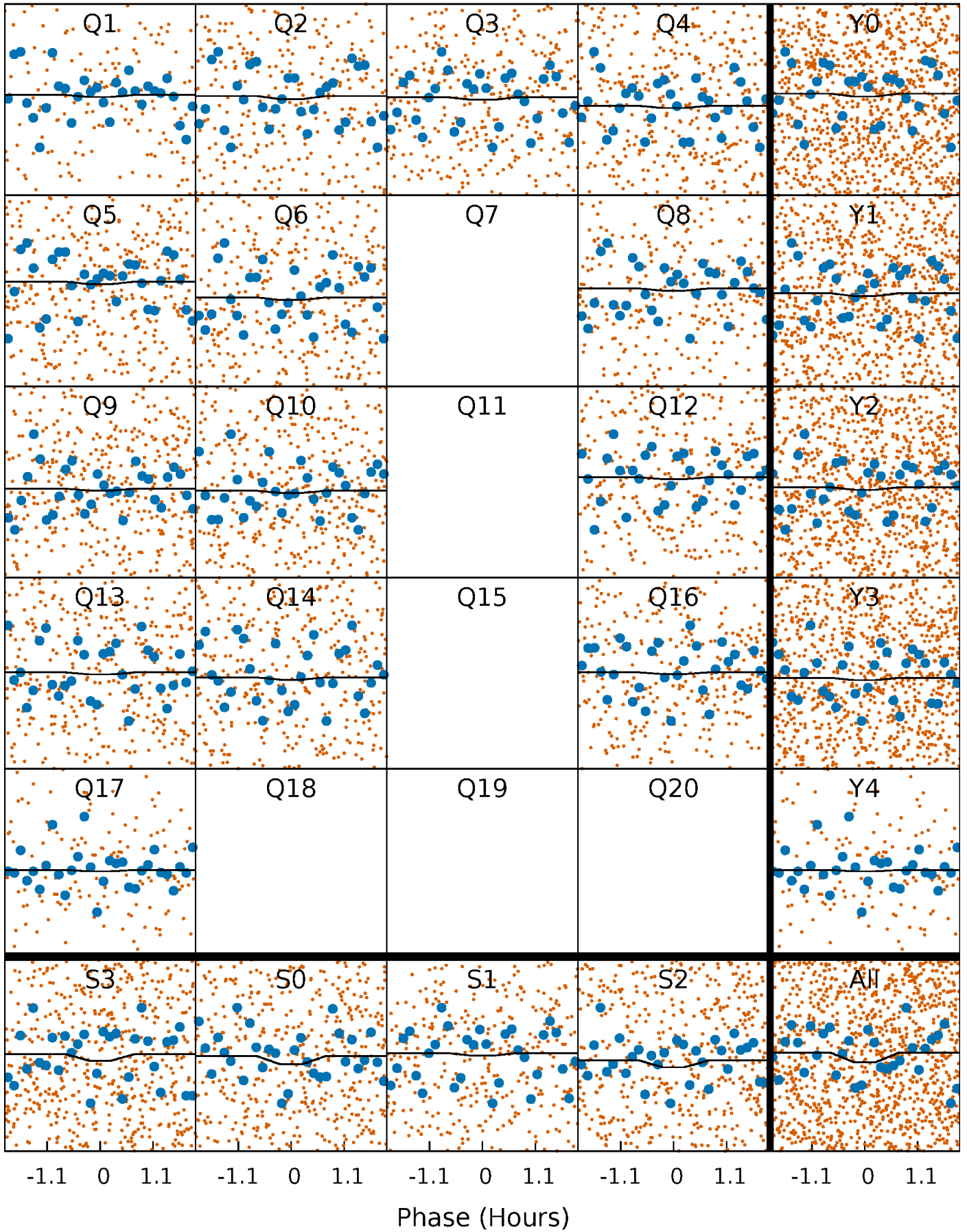
DV Quarter-Phased Transit Curves

TCE 009606739-01 P= 1.540106 Days $T_0=132.195948$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

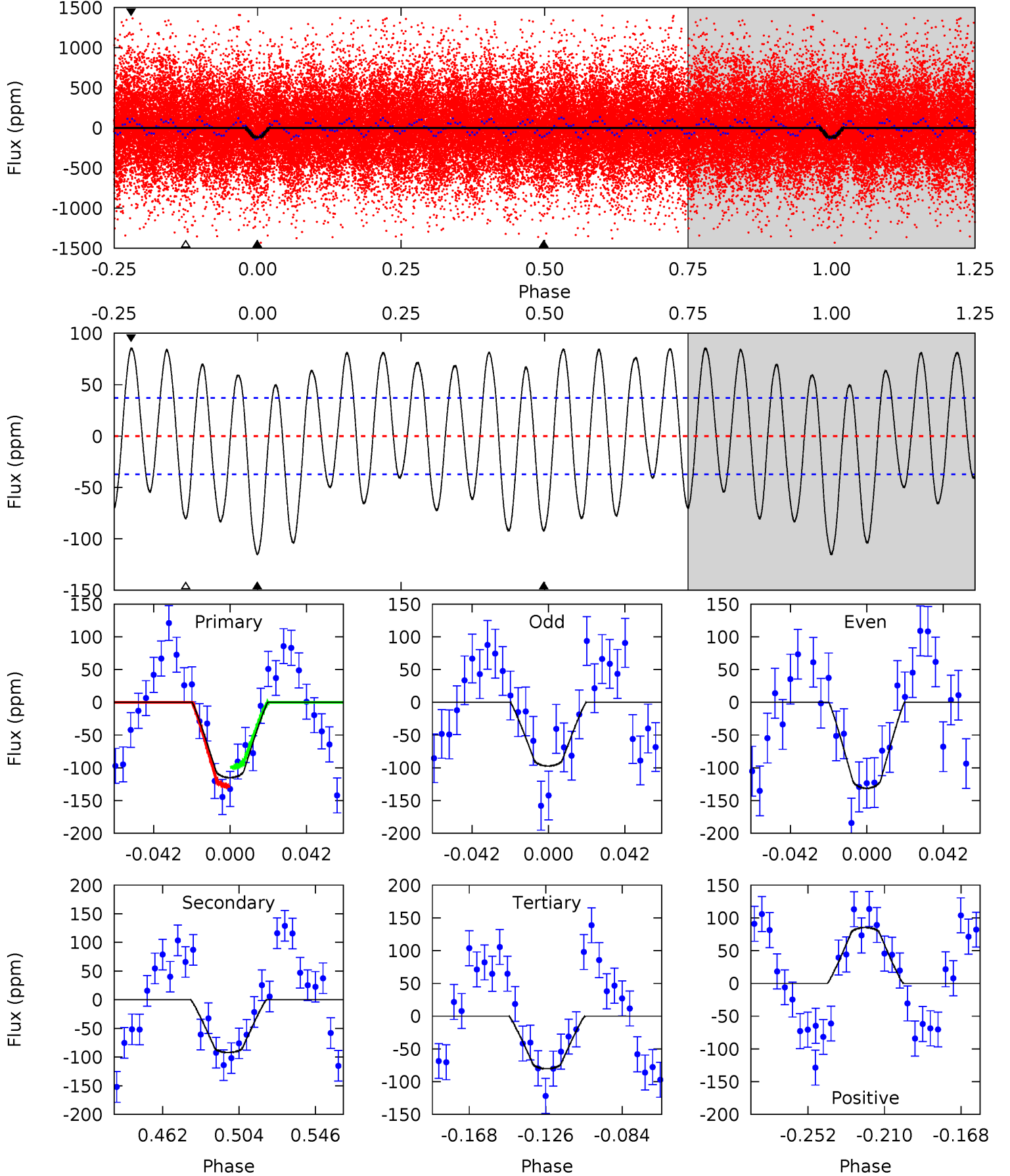
TCE 009606739-01 P= 1.540100 Days $T_0=132.195657$ (BKJD)



DV Model-Shift Uniqueness Test

009606739-01, P = 1.540106 Days, E = 130.655842 Days

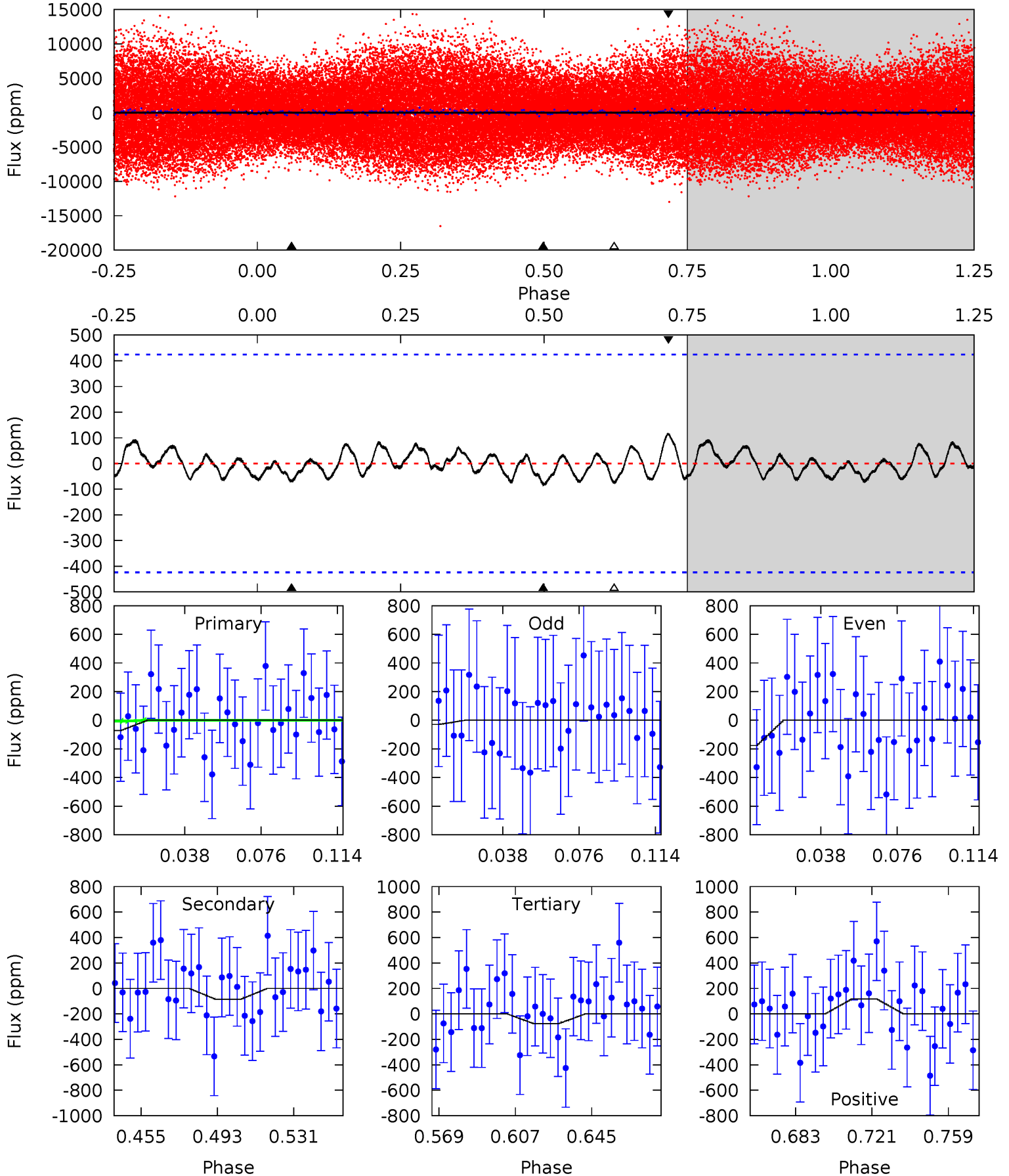
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	11.8	10.3	10.9	4.74	2.03	6.76	4.45	3.80	1.51	0.85	2.19	1.05	0.43	1.88



Alt Model-Shift Uniqueness Test

009606739-01, P = 1.540100 Days, E = 130.655557 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.81	0.96	0.86	1.32	4.76	2.08	0.48	-0.05	-0.51	0.10	-0.35	0.85	0.59	0.58	0.75



Stellar Parameters For KIC 009606739

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6744^{+151}_{-219}	$4.353^{+0.056}_{-0.224}$	$-0.140^{+0.250}_{-0.350}$	$1.226^{+0.434}_{-0.145}$	$1.246^{+0.194}_{-0.177}$	$0.952^{+0.292}_{-0.528}$
	+2%/-3%	+1%/-5%	+179%/-250%	+35%/-12%	+16%/-14%	+31%/-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 009606739-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-92 ± 8	$1.46^{+0.84}_{-0.73}$	2815^{+197}_{-153}	6400^{+3901}_{-1193}	18^{+57}_{-11}
Alt.	-86 ± 89	$1.37^{+0.78}_{-0.73}$	2824^{+228}_{-147}	6281^{+4518}_{-10120}	15^{+80}_{-16}

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

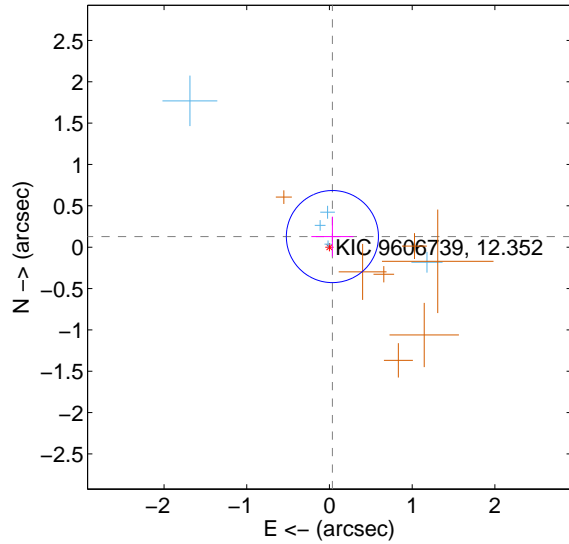
Supplemental centroid analysis for 009606739-01. Kepler magnitude: 12.35. Transit SNR 7.78

There are 5 quarters with good PRF difference image offsets

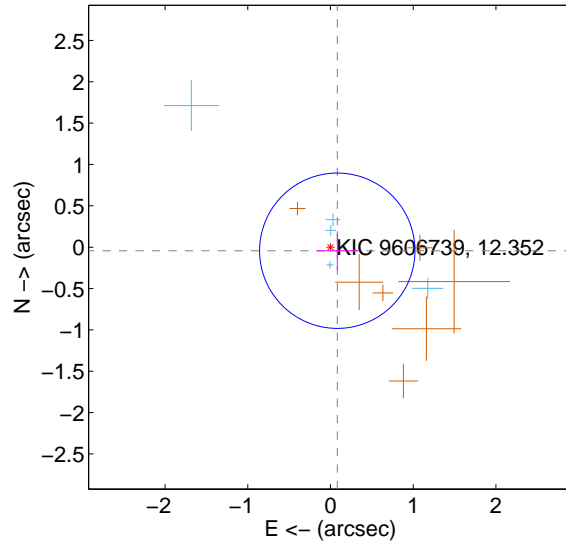
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.133 ± 0.186	0.72	-0.035 ± 0.255	0.128 ± 0.241
PRF-fit source offset from KIC position	0.092 ± 0.313	0.30	-0.082 ± 0.251	-0.043 ± 0.234
photometric centroid source offset	0.95 ± 0.49	1.93	-0.67 ± 0.50	-0.68 ± 0.49

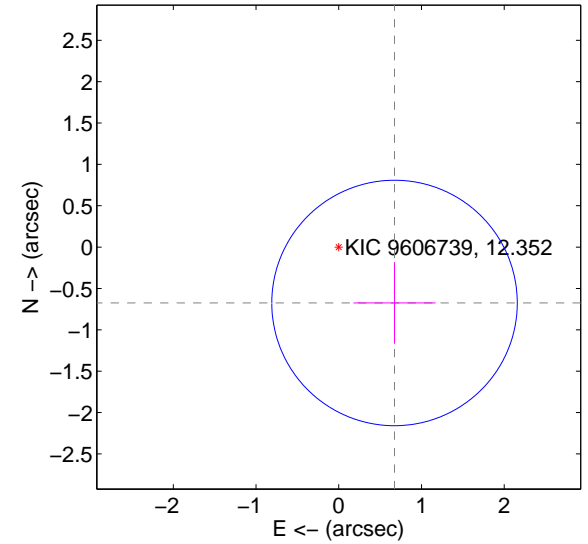
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

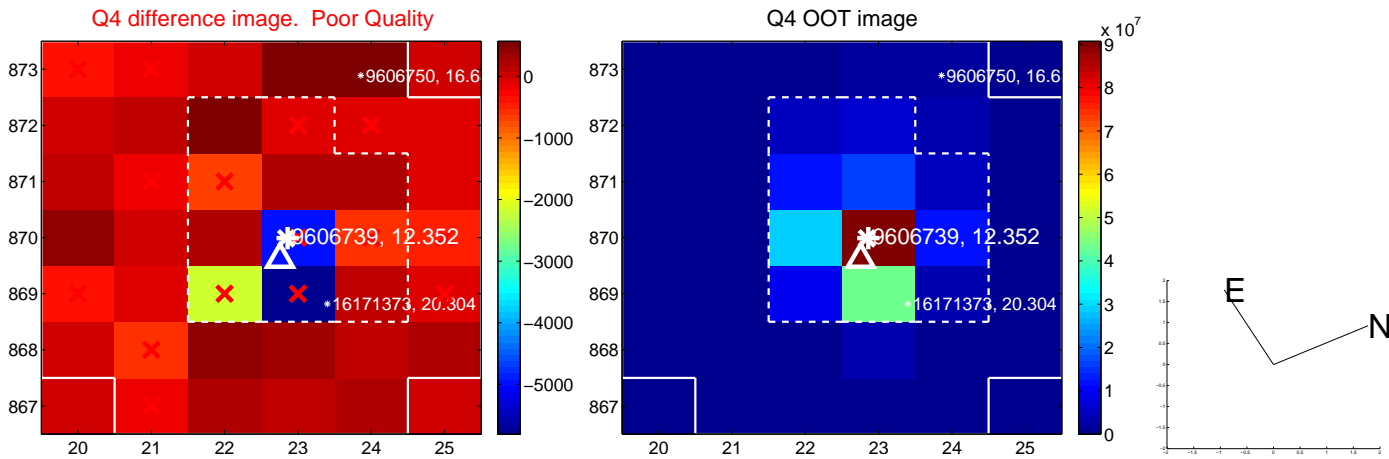
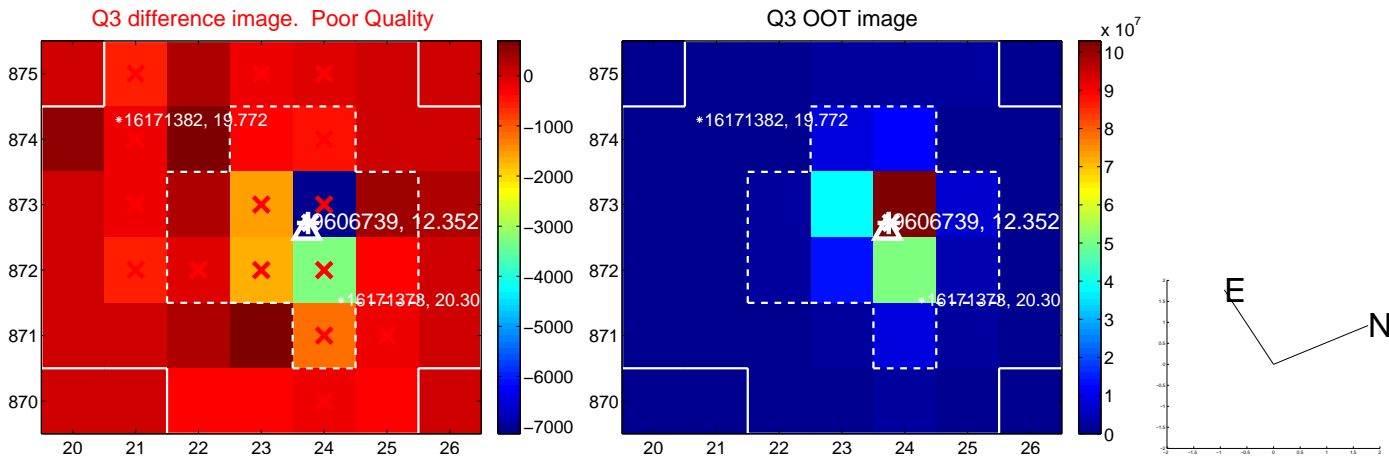
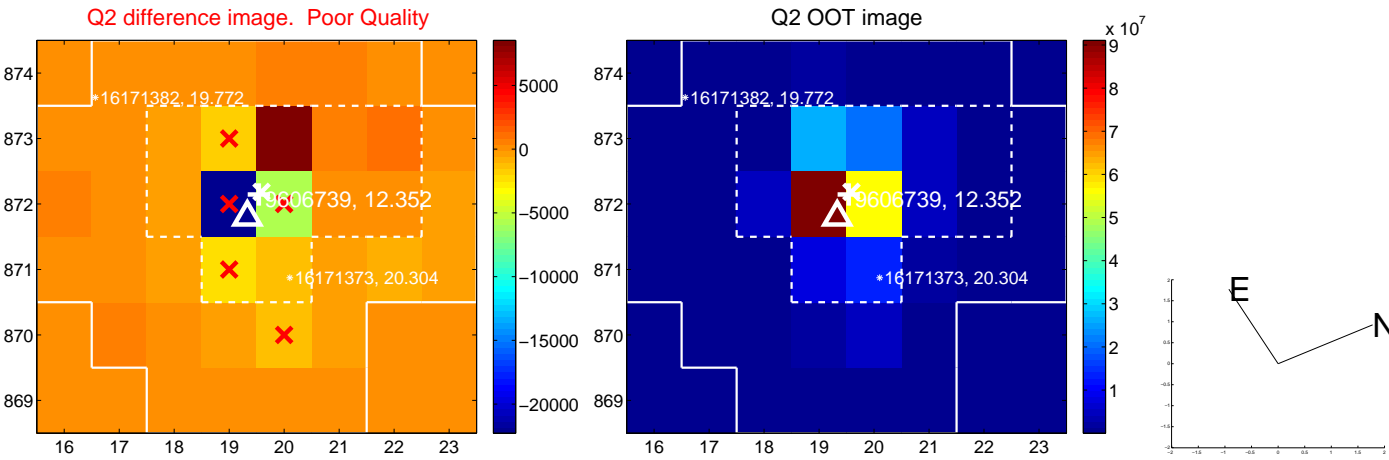
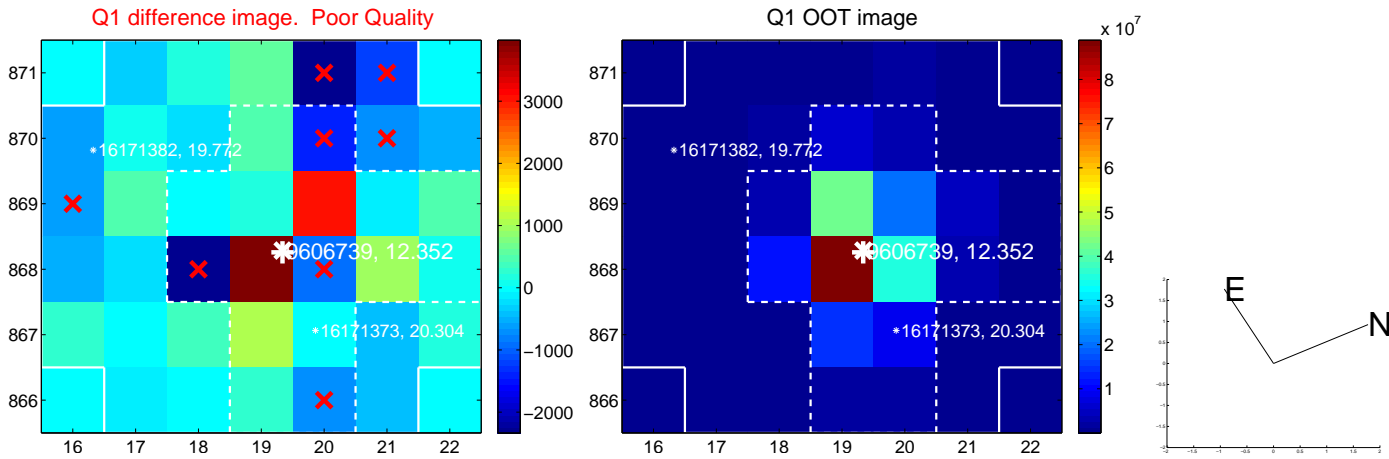


offset from photometric centroids

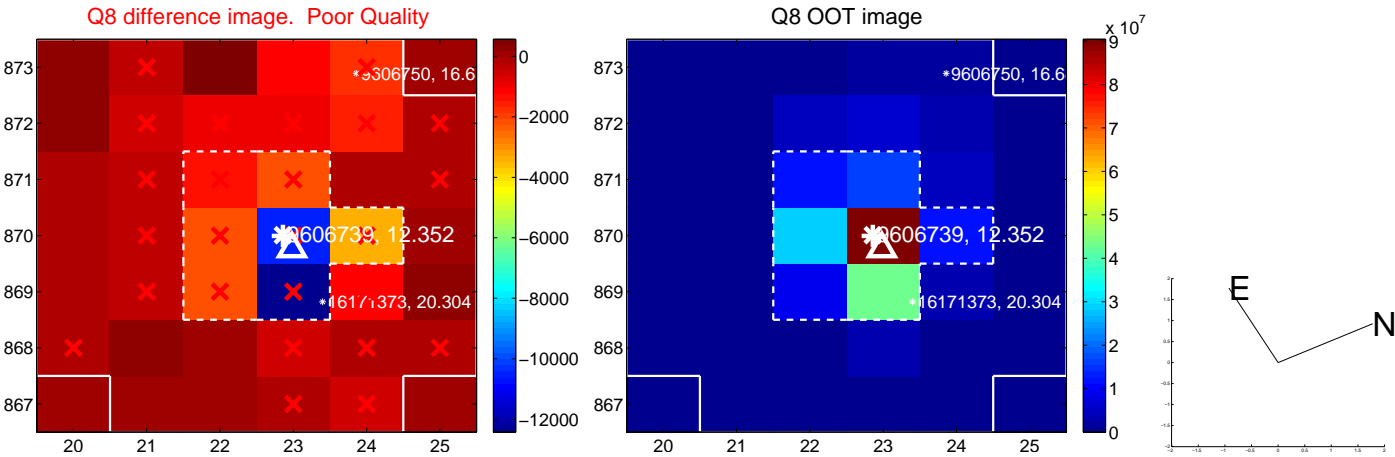
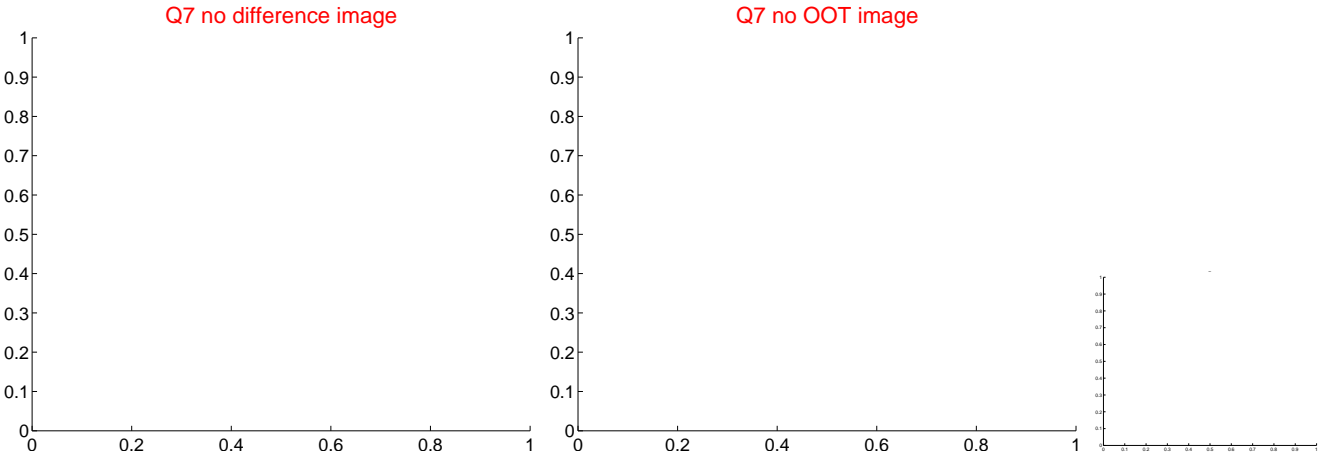
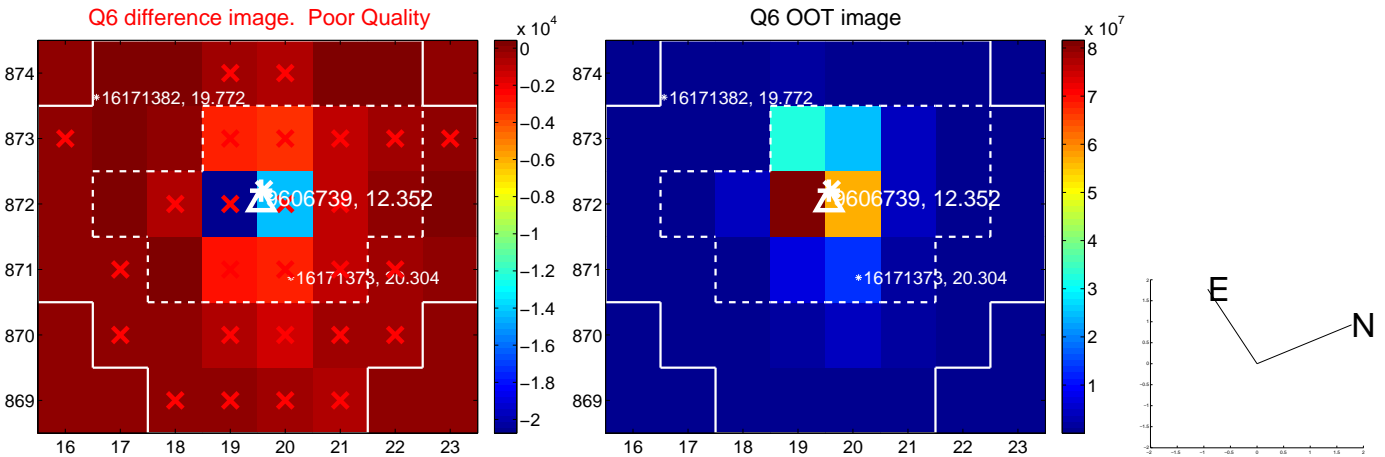
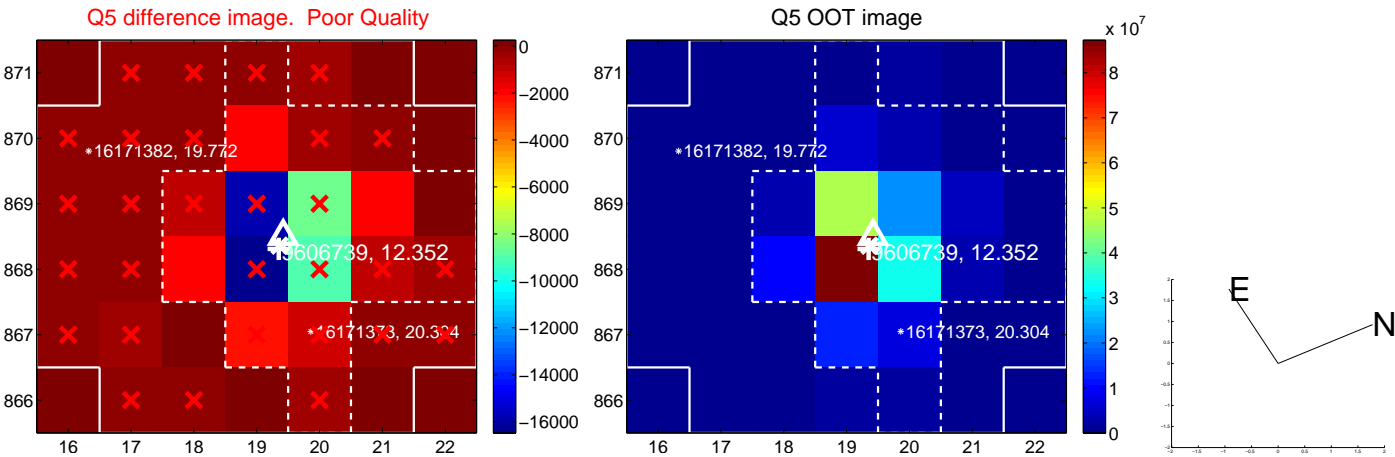


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

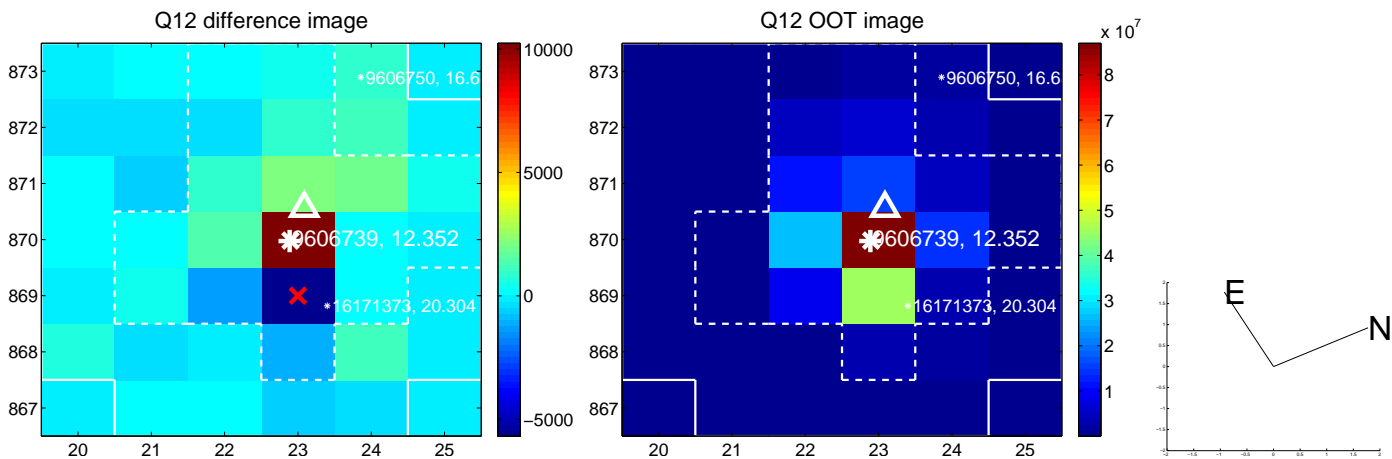
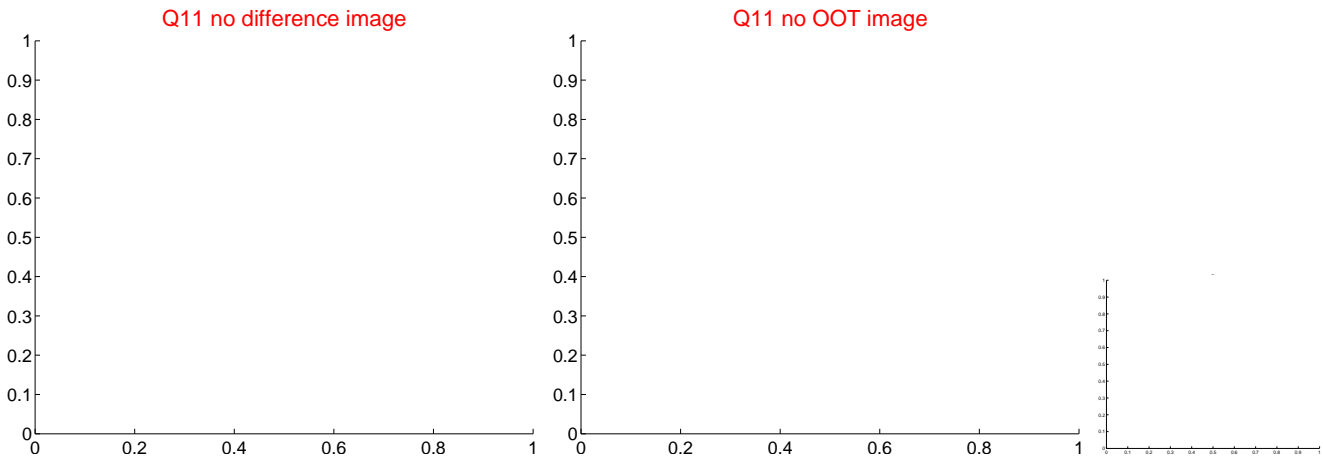
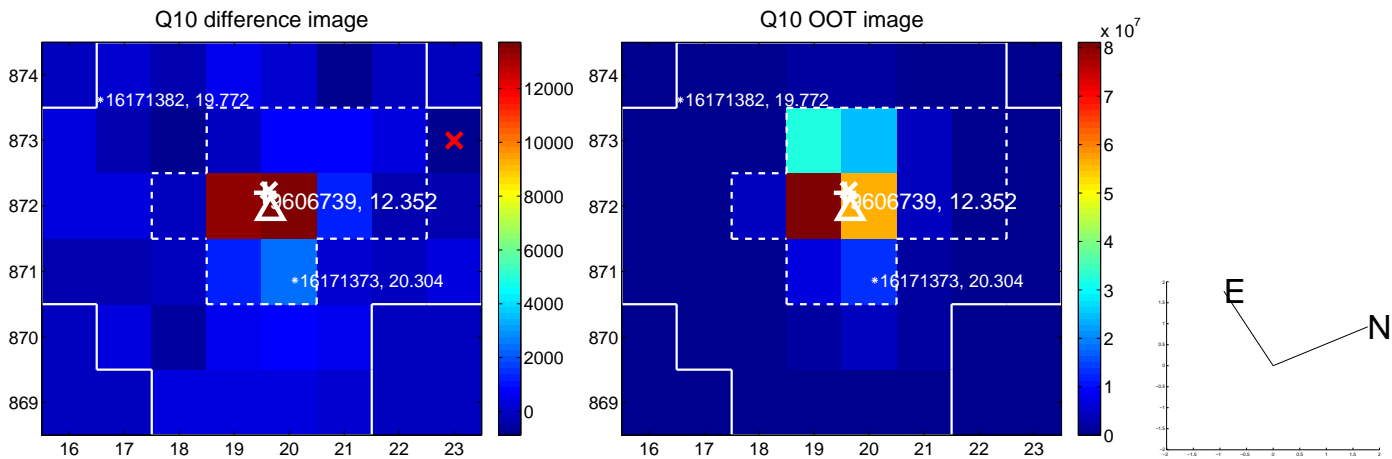
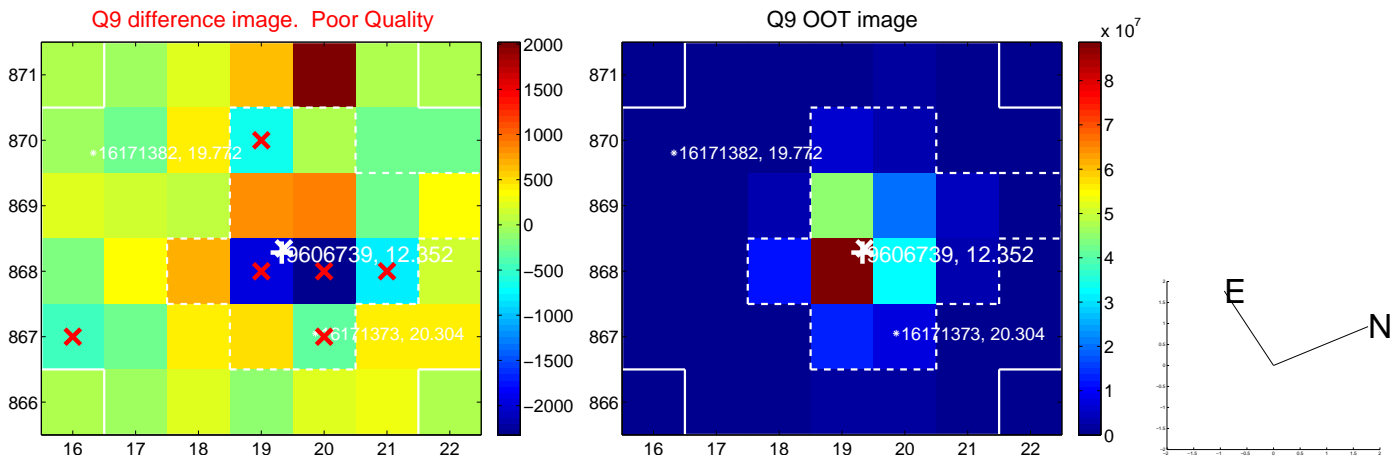
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



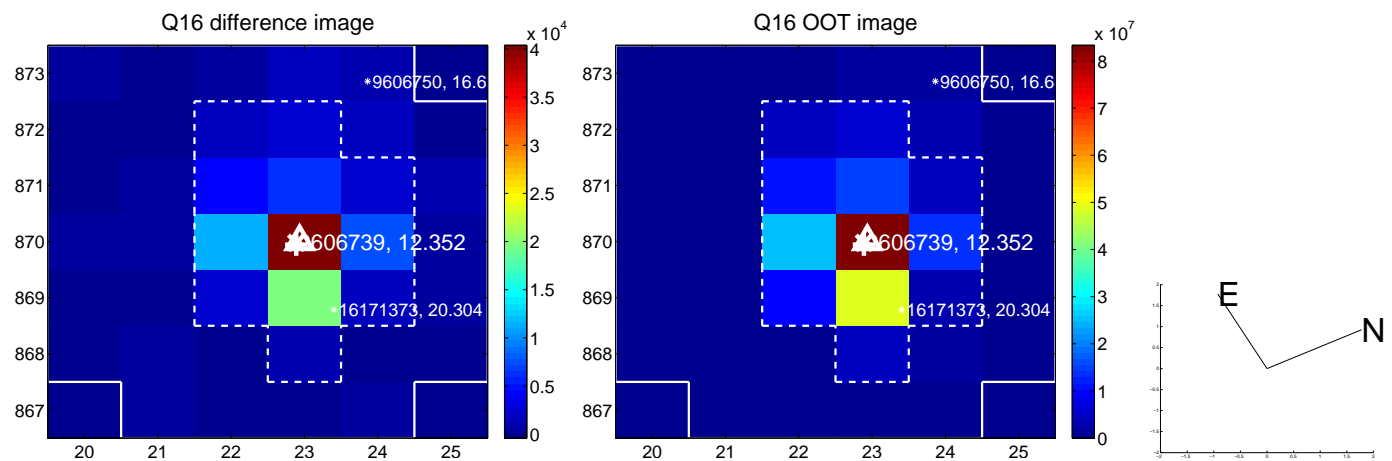
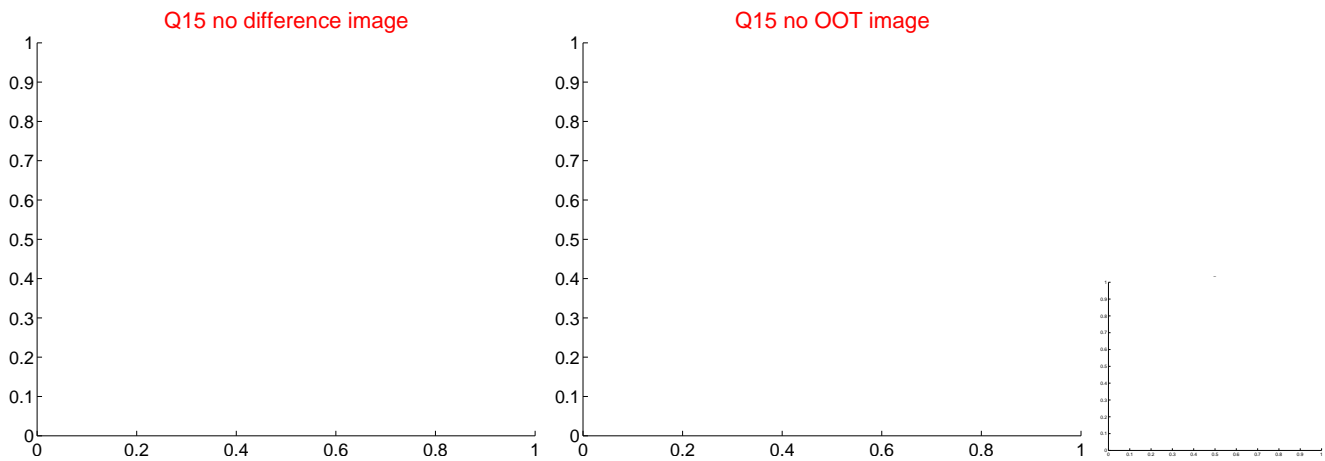
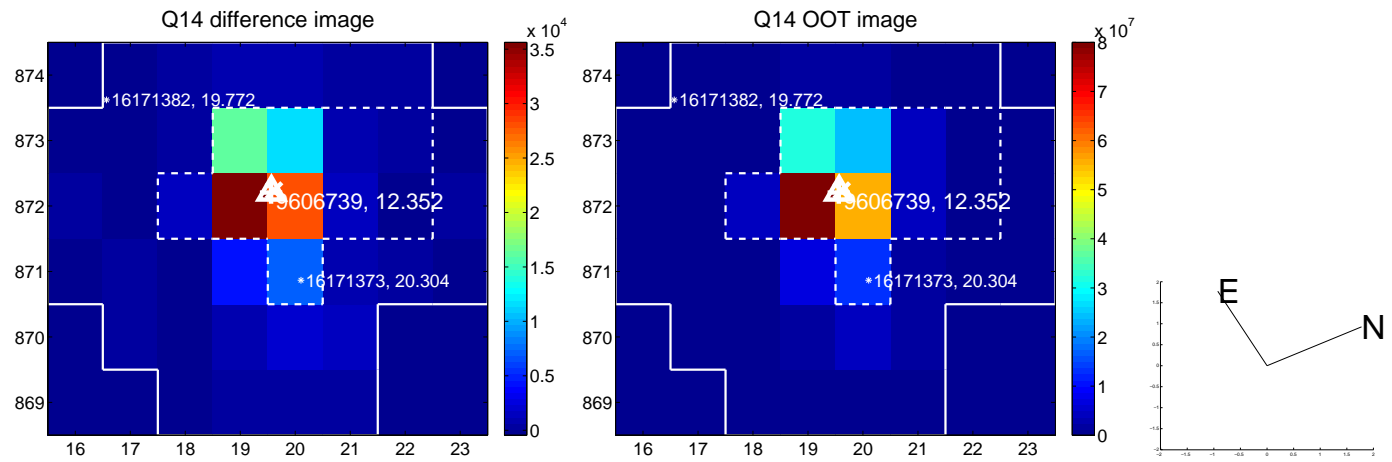
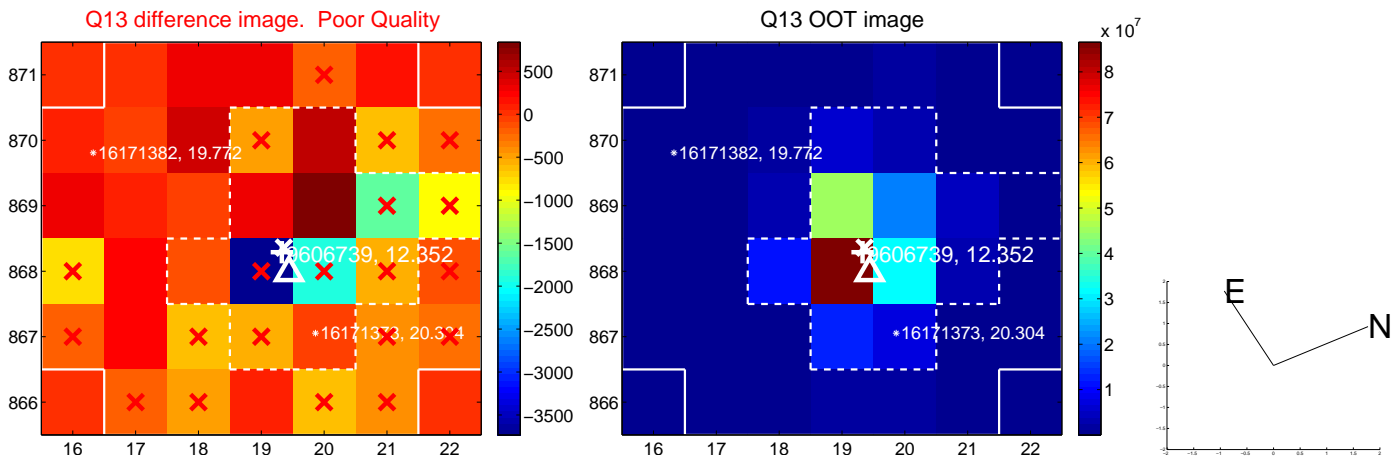
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



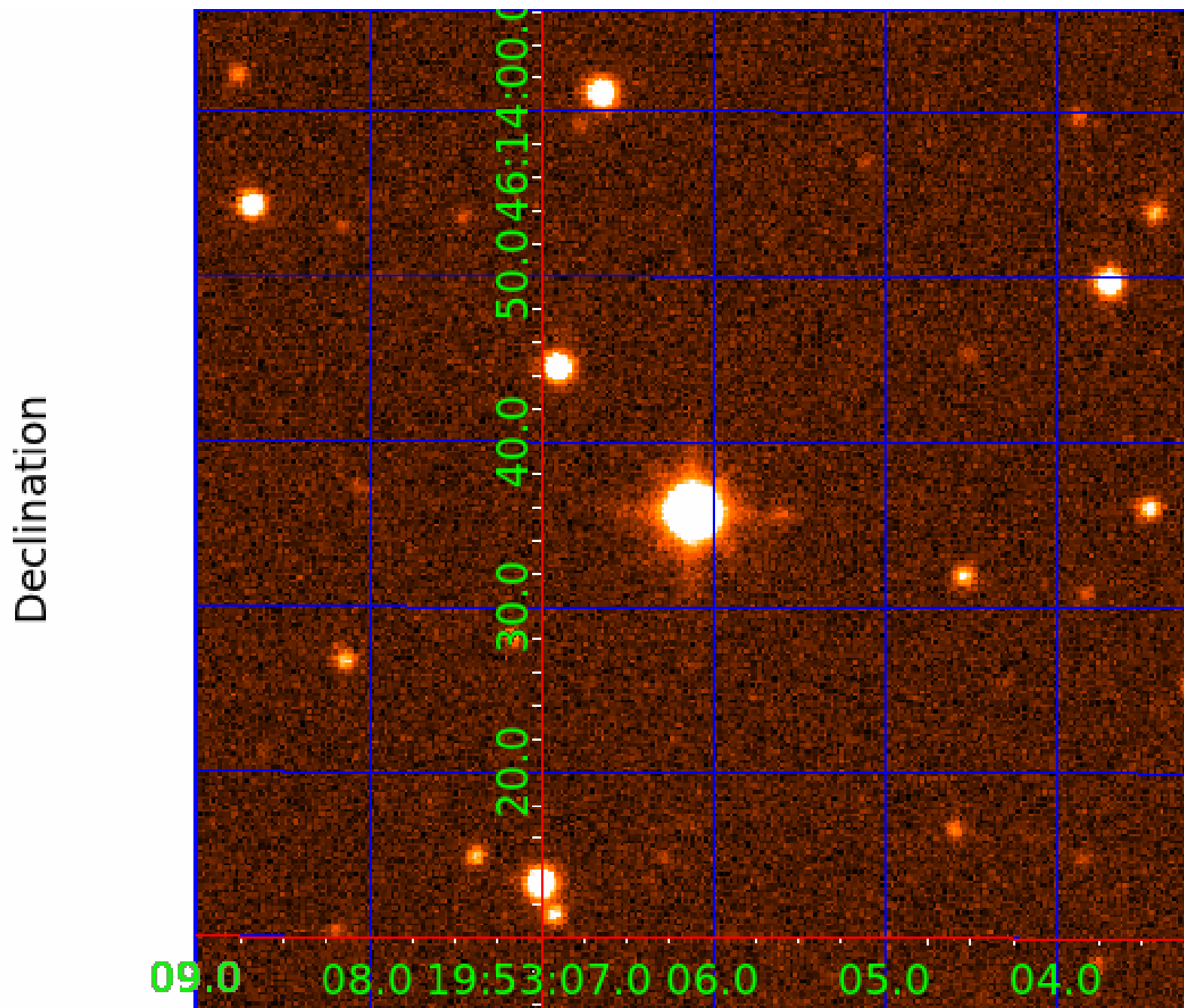
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009606739

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})
009606739-01	OBS	No	1.540106	132.195949	83.4	1.096	11.2	7.8	1.23	6744	1.31	3549.42
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009606739-03	OBS	No	0.770027	131.637700	79.8	1.123	12.5	10.7	1.23	6744	1.28	8944.39
009606739-04	OBS	No	0.770054	132.004843	95.1	0.915	10.2	11.1	1.23	6744	1.42	8943.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009606739-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009606739-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
009606739-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
009606739-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

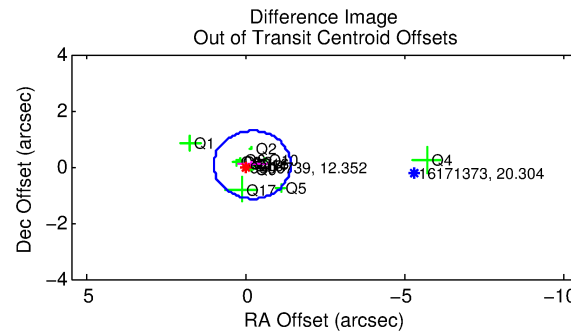
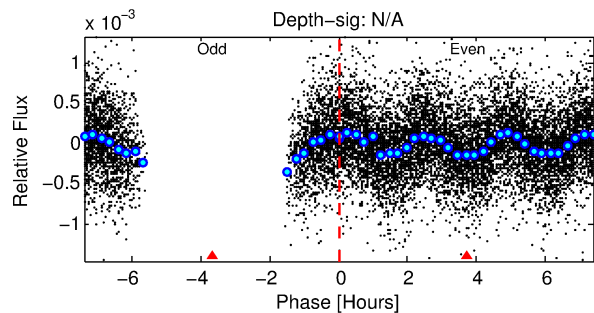
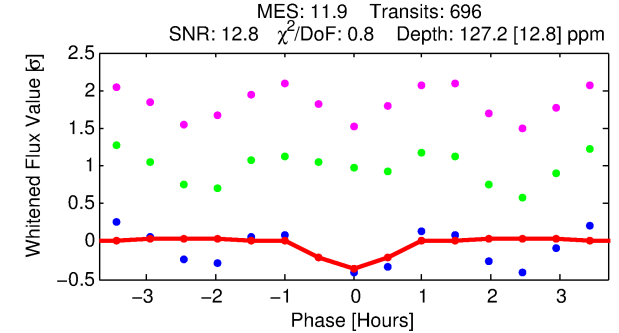
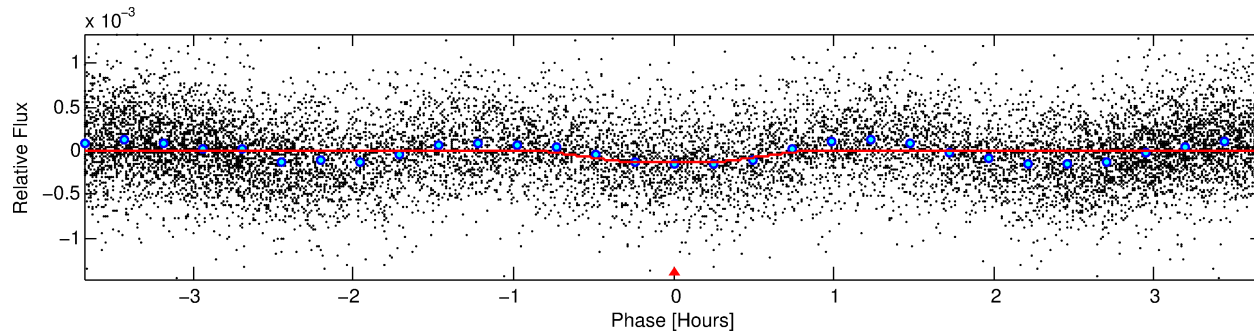
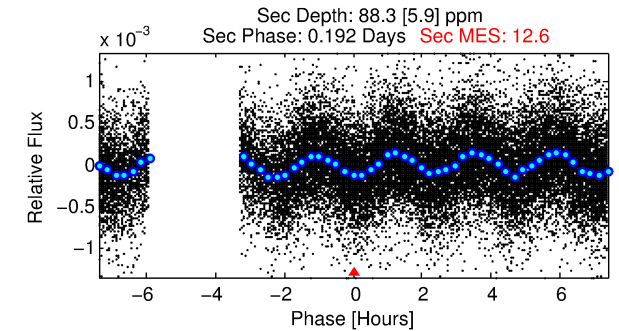
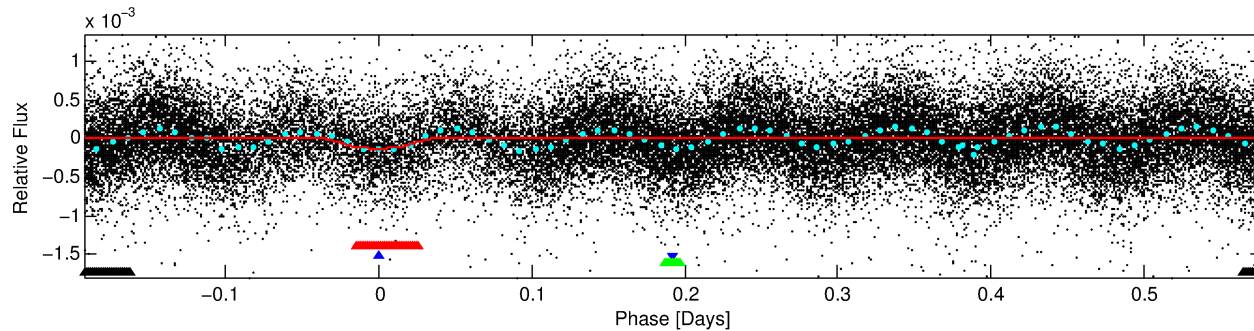
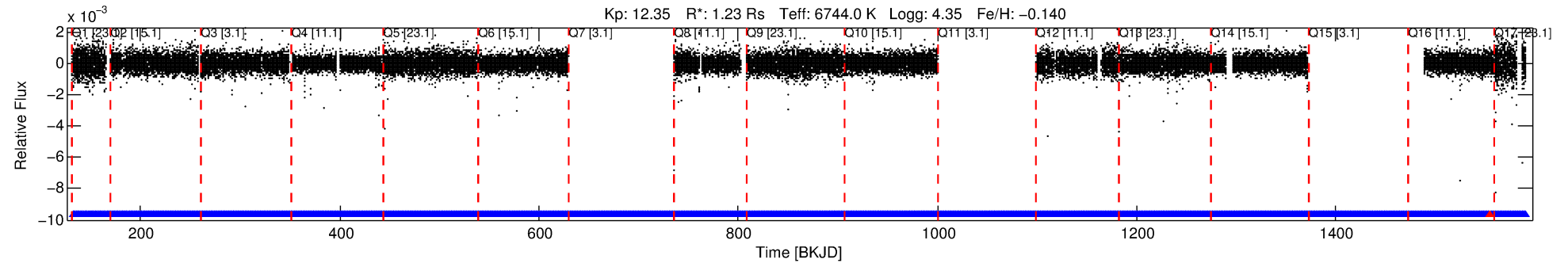
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009606739-02

No Significant Match Found

DV One-Page Summary

KIC: 9606739 Candidate: 2 of 4 Period: 0.770 d



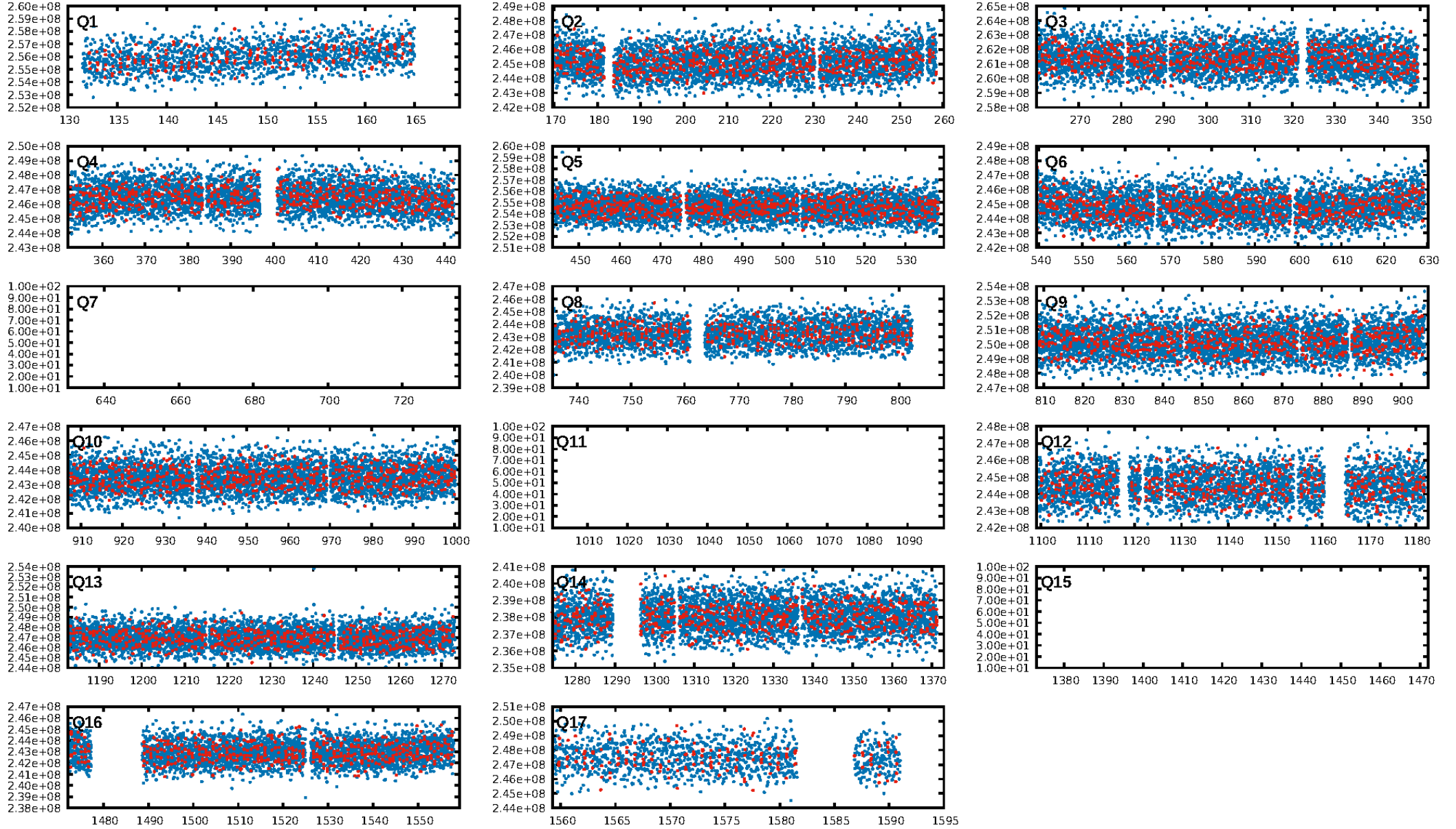
DV Fit Results:

Period = 0.77003 [0.00001] d
Epoch = 132.2108 [0.0016] BKJD
Rp/R* = 0.0111 [0.0034]
a/R* = 3.59 [5.66]
b = 0.70 [1.25]
Seff = 8944.31 [3906.95]
Teq = 2480 [271] K
Rp = 1.49 [0.70] Re
a = 0.0176 [0.0052] AU
Ag = 6.83 [5.07] [1.15σ]
Teffp = 6199 [972] K [3.69σ]

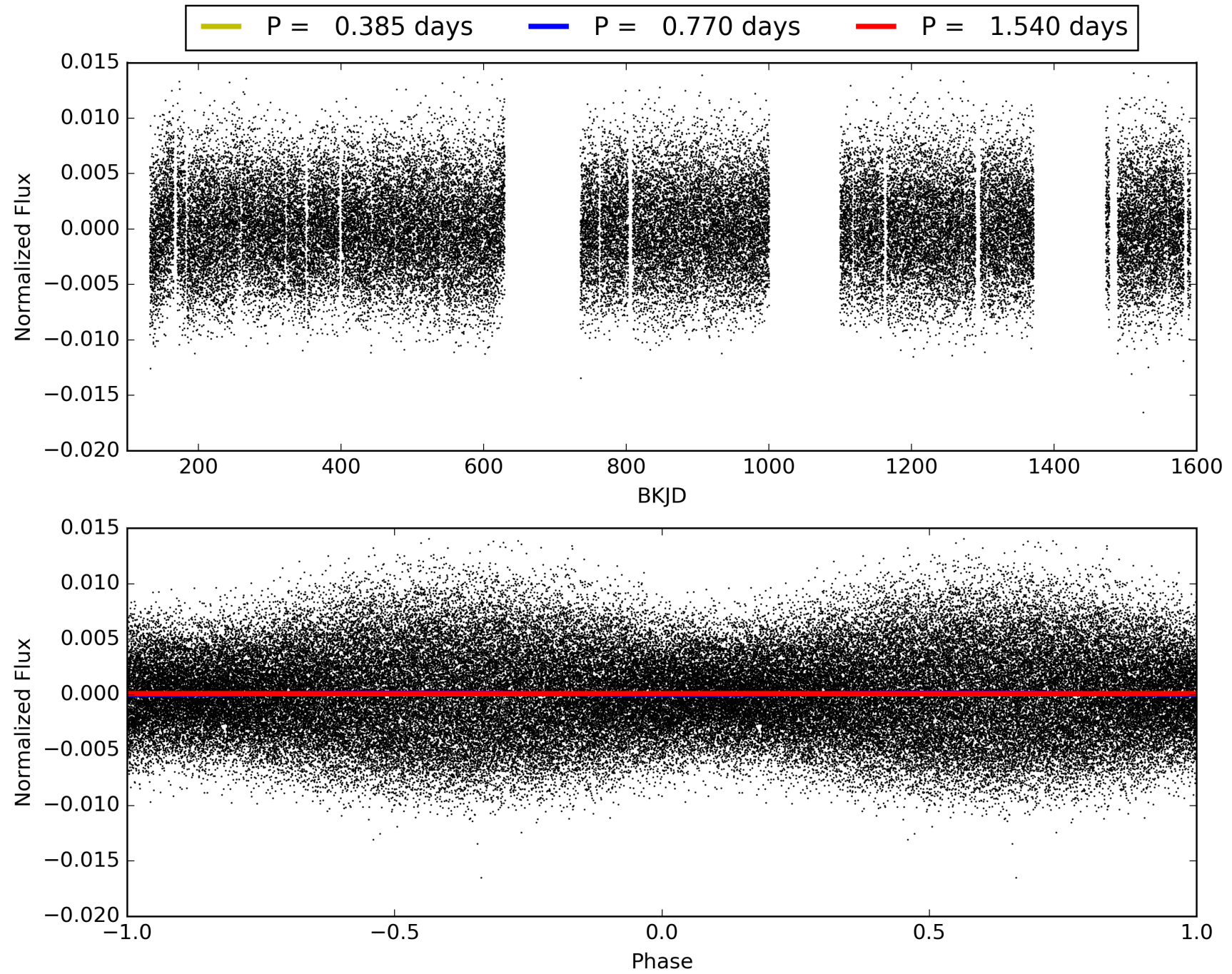
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.21e-63
RollingBand-fgt: 1.00 [657/658]
GhostDiagnostic-chr: 1.204
Centroid-sig: 18.0%
Centroid-so: 0.292 arcsec [1.37σ]
OotOffset-rm: 0.209 arcsec [0.52σ]
KicOffset-rm: 0.259 arcsec [0.66σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 009606739-02, PDC Light Curves

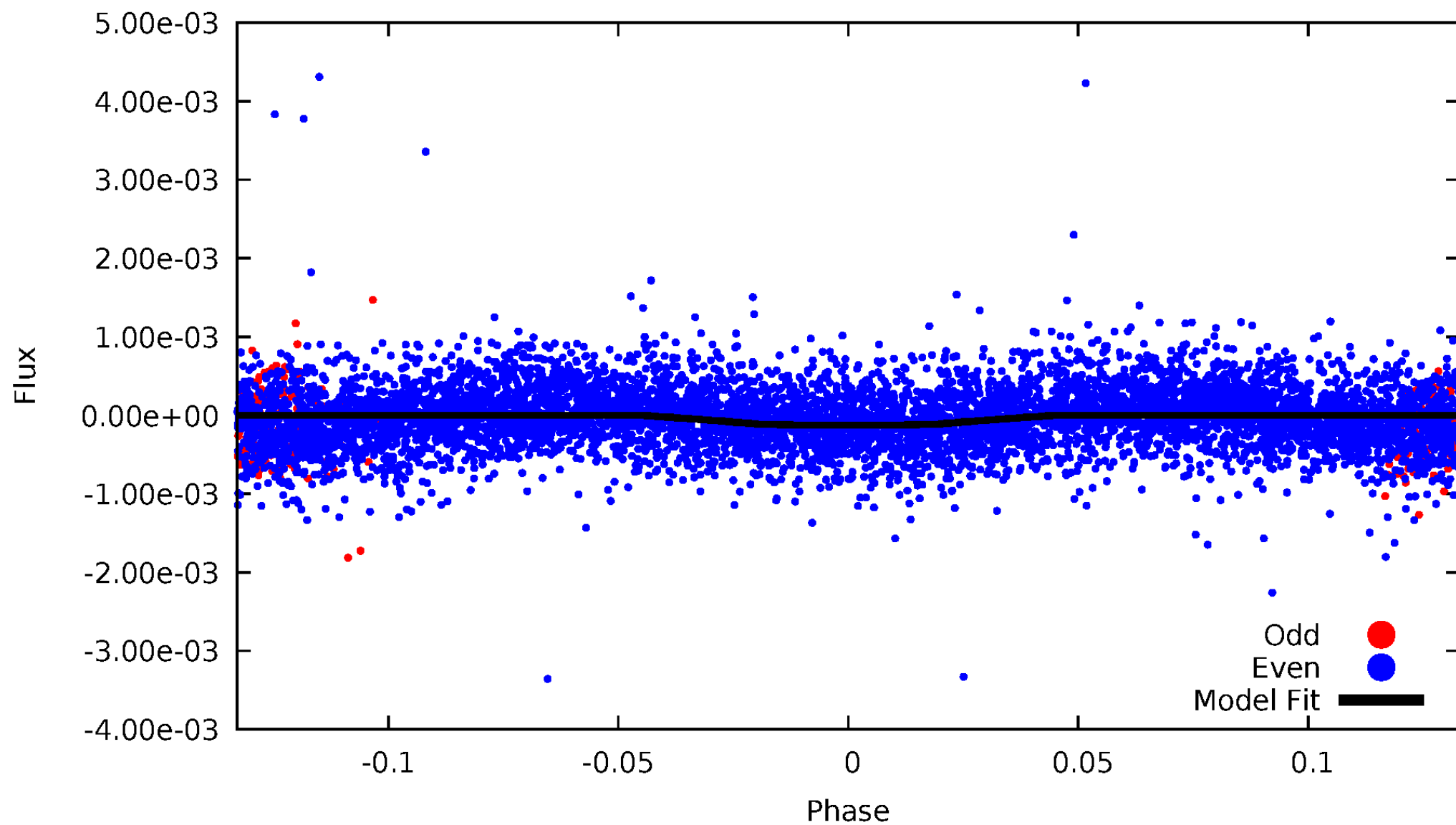


TCE 009606739-02



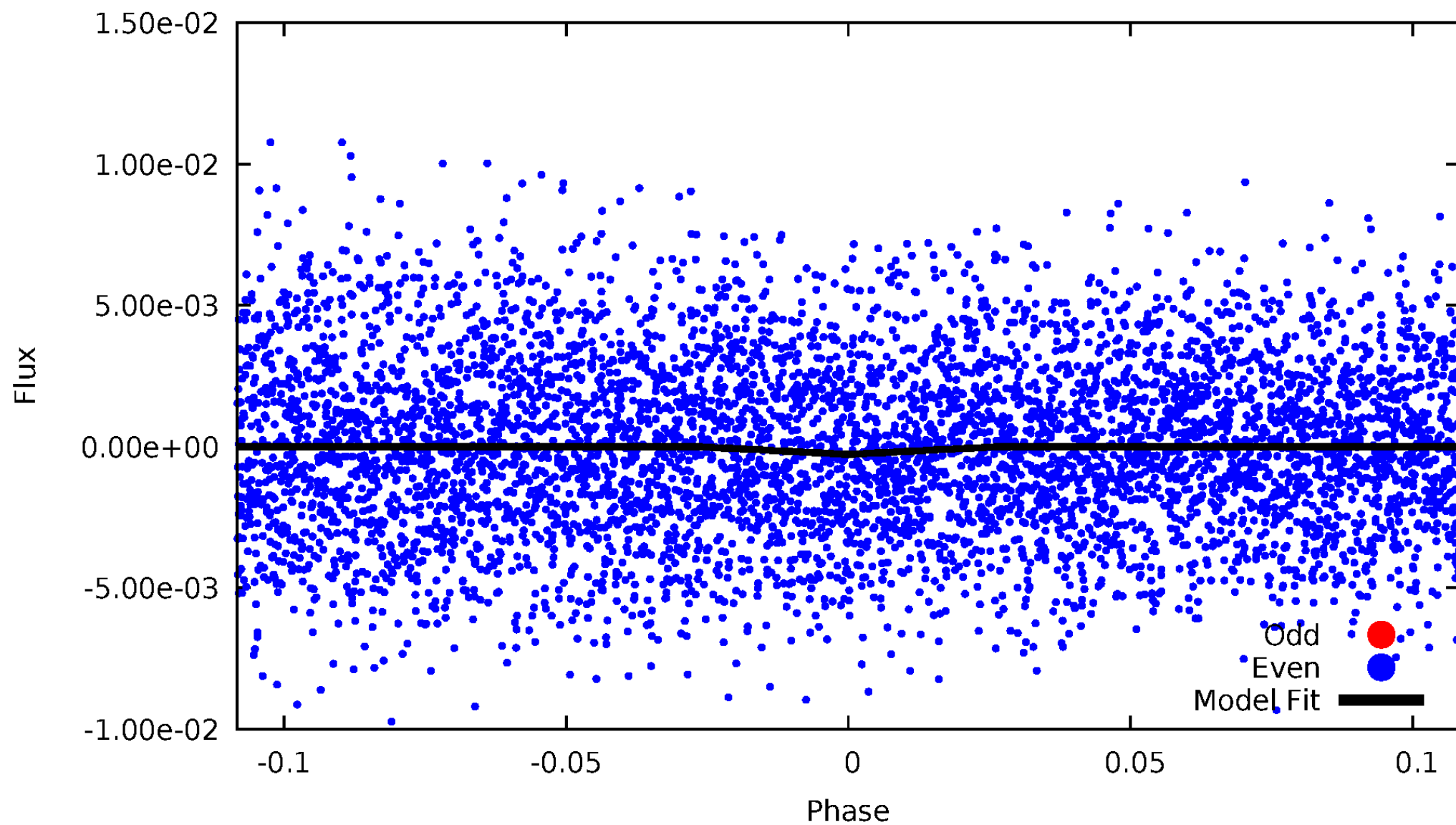
DV Odd/Even

TCE 009606739-02



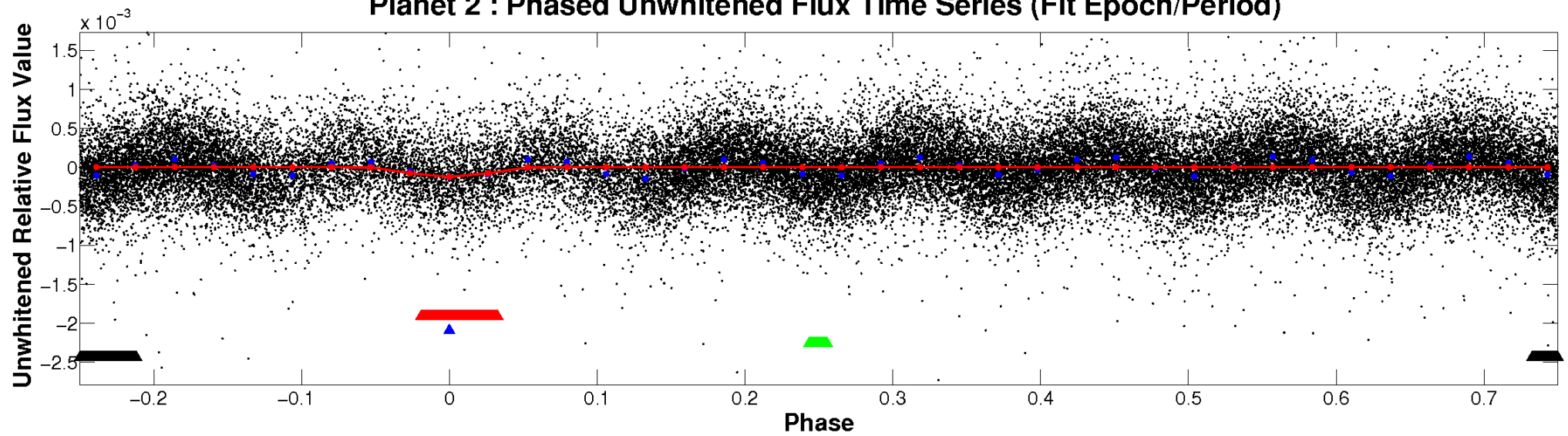
ALT Odd/Even

TCE 009606739-02

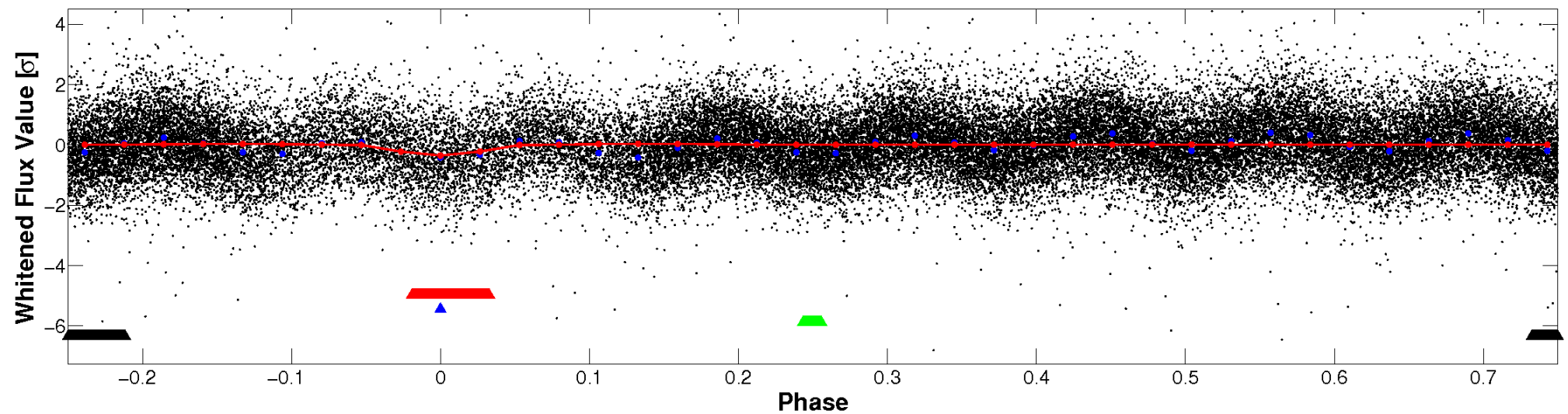


Non-Whitened Vs. Whitened Light Curve

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

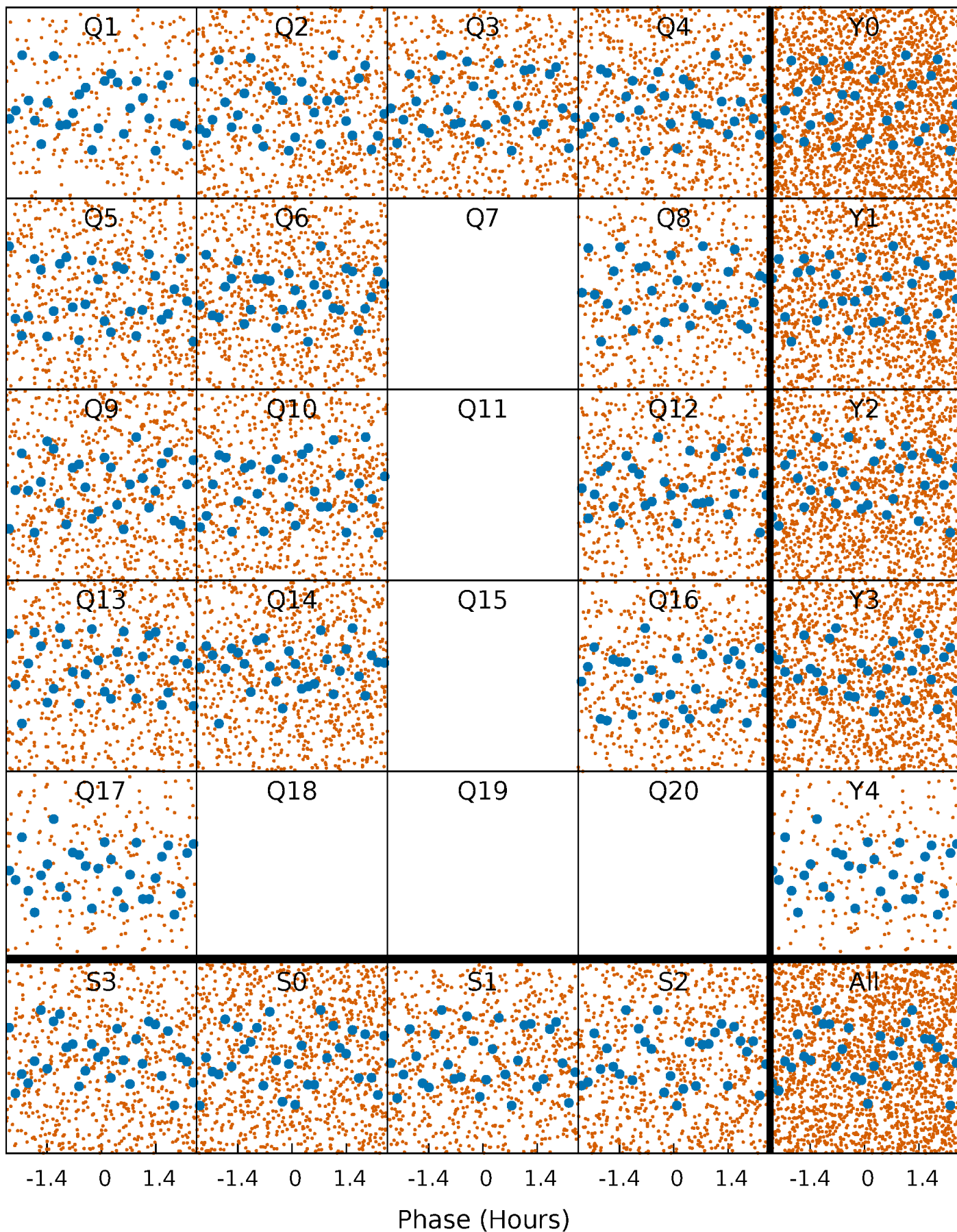


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



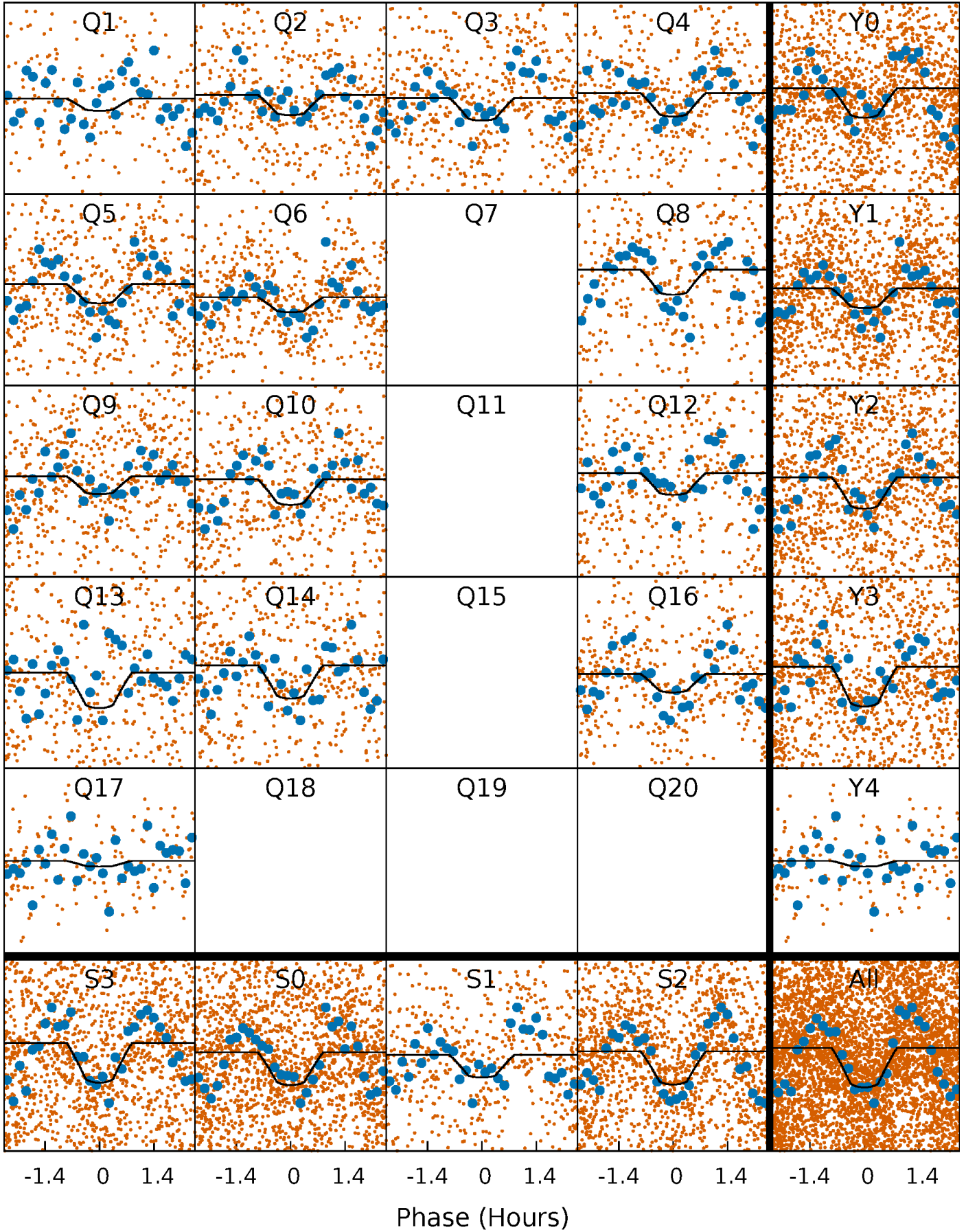
PDC Quarter-Phased Transit Curves

TCE 009606739-02 P= 0.770032 Days $T_0=132.210782$ (BKJD)



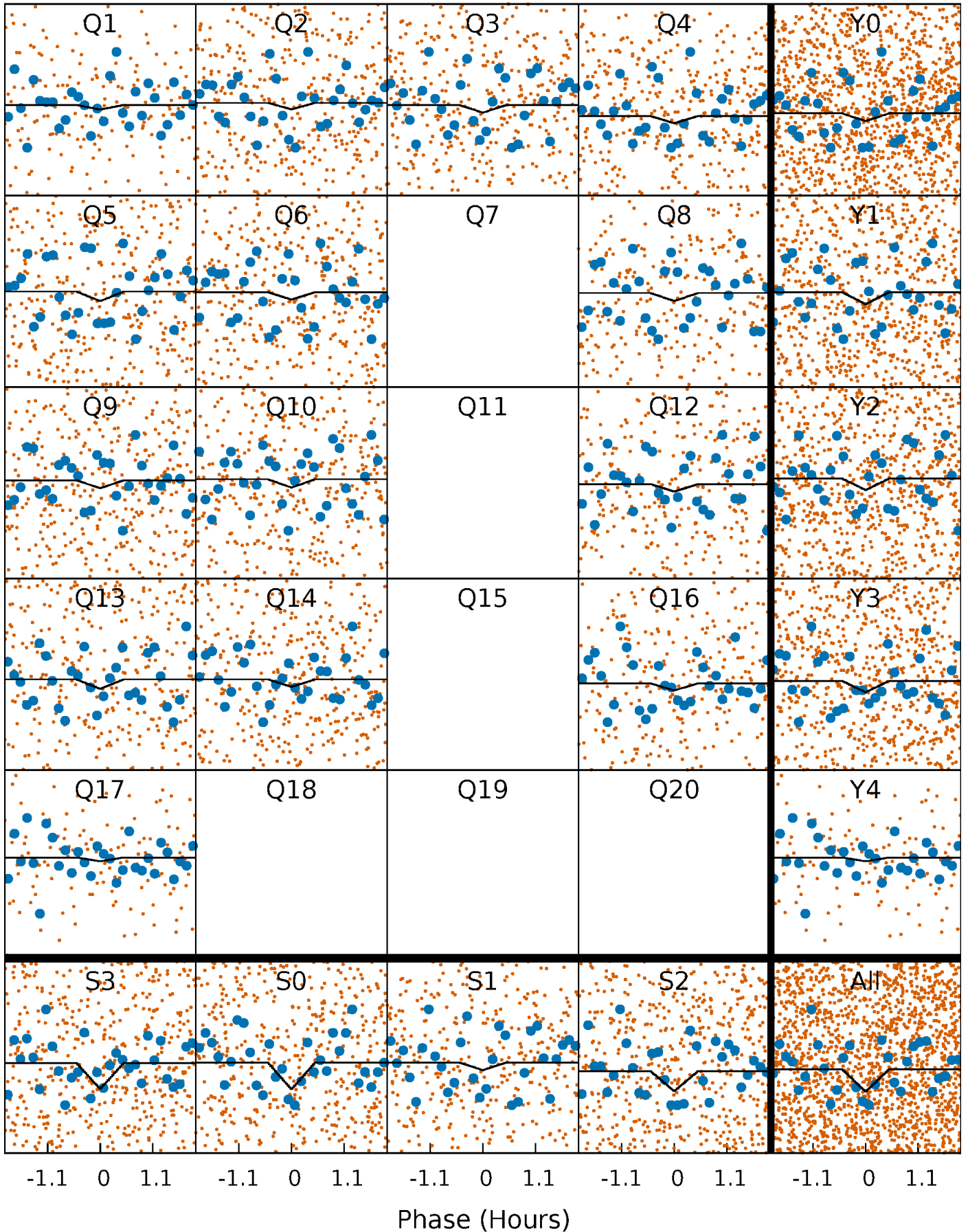
DV Quarter-Phased Transit Curves

TCE 009606739-02 P= 0.770032 Days $T_0=132.210782$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

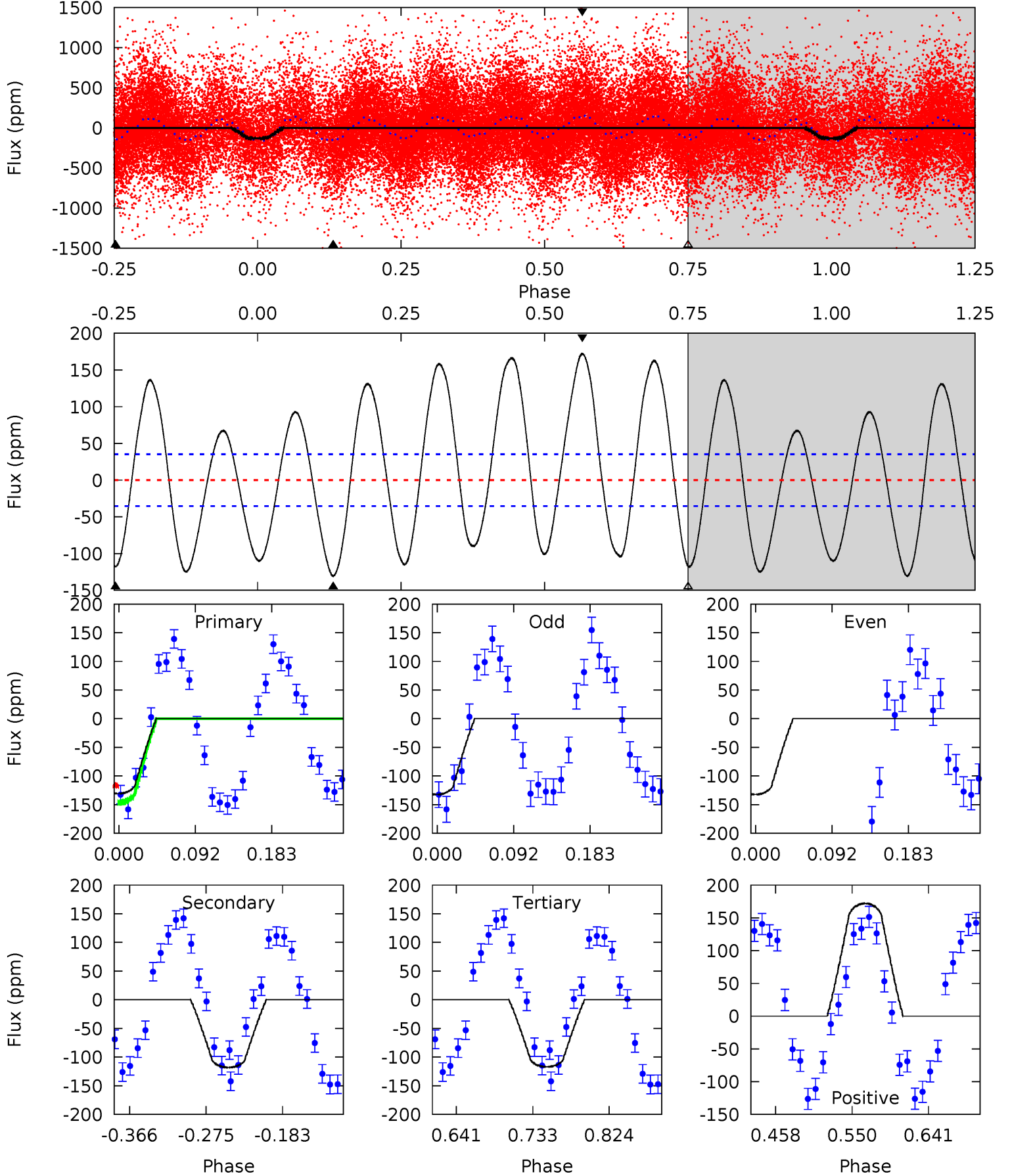
TCE 009606739-02 P= 0.770038 Days $T_0=132.209514$ (BKJD)



DV Model-Shift Uniqueness Test

009606739-02, P = 0.770032 Days, E = 131.440750 Days

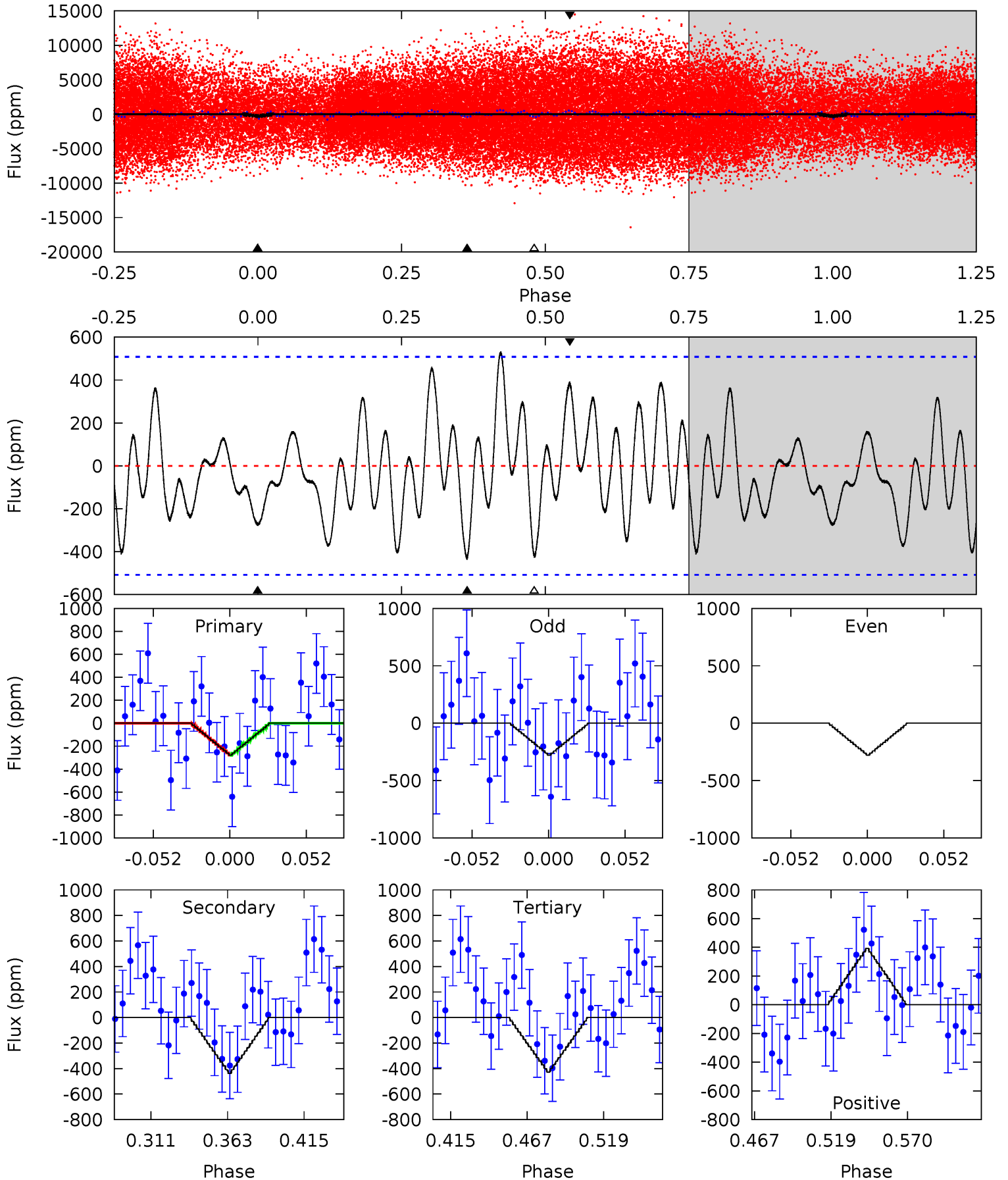
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	15.3	15.2	22.3	4.58	1.69	12.2	1.77	-5.36	0.14	-6.99	0	1.03	0.57	1.95



Alt Model-Shift Uniqueness Test

009606739-02, P = 0.770038 Days, E = 131.439476 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.58	4.05	3.96	3.64	4.70	1.94	1.92	-1.38	-1.06	0.09	0.41	0	0.60	0.55	0.01



Stellar Parameters For KIC 009606739

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6744^{+151}_{-219}	$4.353^{+0.056}_{-0.224}$	$-0.140^{+0.250}_{-0.350}$	$1.226^{+0.434}_{-0.145}$	$1.246^{+0.194}_{-0.177}$	$0.952^{+0.292}_{-0.528}$
	+2%/-3%	+1%/-5%	+179%/-250%	+35%/-12%	+16%/-14%	+31%/-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 009606739-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-118 ± 8	$1.56^{+0.59}_{-0.49}$	3542^{+280}_{-169}	6592^{+1625}_{-883}	$8.027^{+8.988}_{-3.594}$
Alt.	-438 ± 108	$2.36^{+0.65}_{-0.52}$	3535^{+287}_{-174}	7574^{+1327}_{-972}	13^{+9}_{-6}

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 $A_{obs} \gg 1.0$

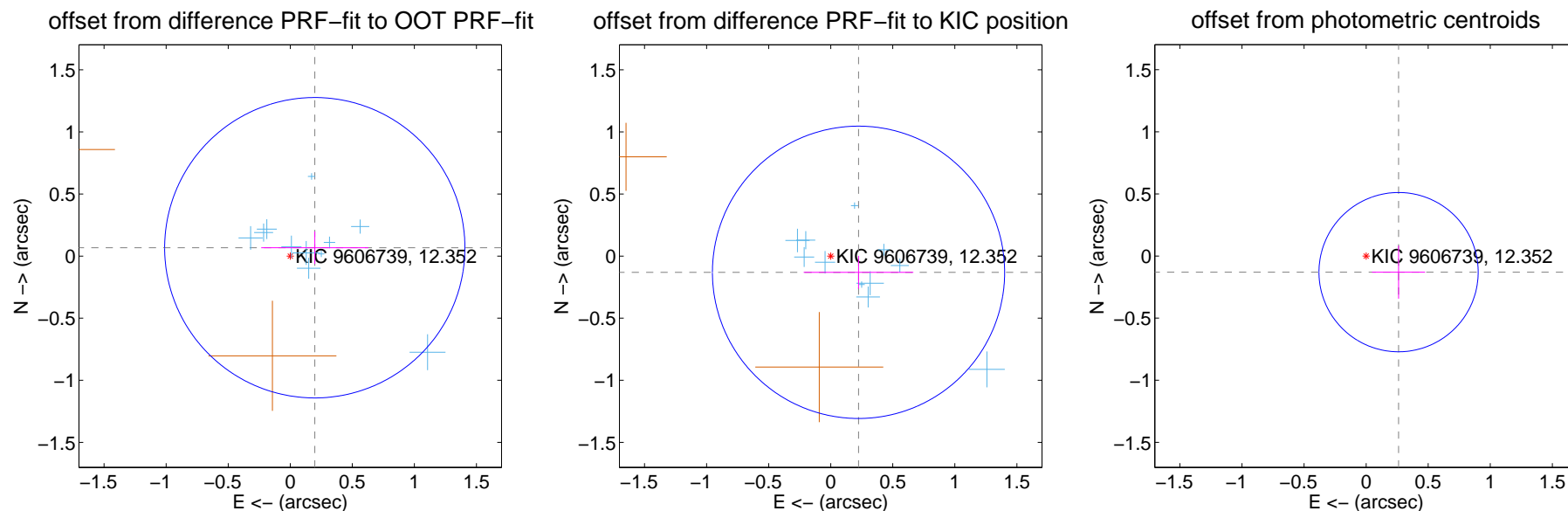
DV Centroid Data

Supplemental centroid analysis for 009606739-02. Kepler magnitude: 12.35. Transit SNR 12.76

There are 11 quarters with good PRF difference image offsets

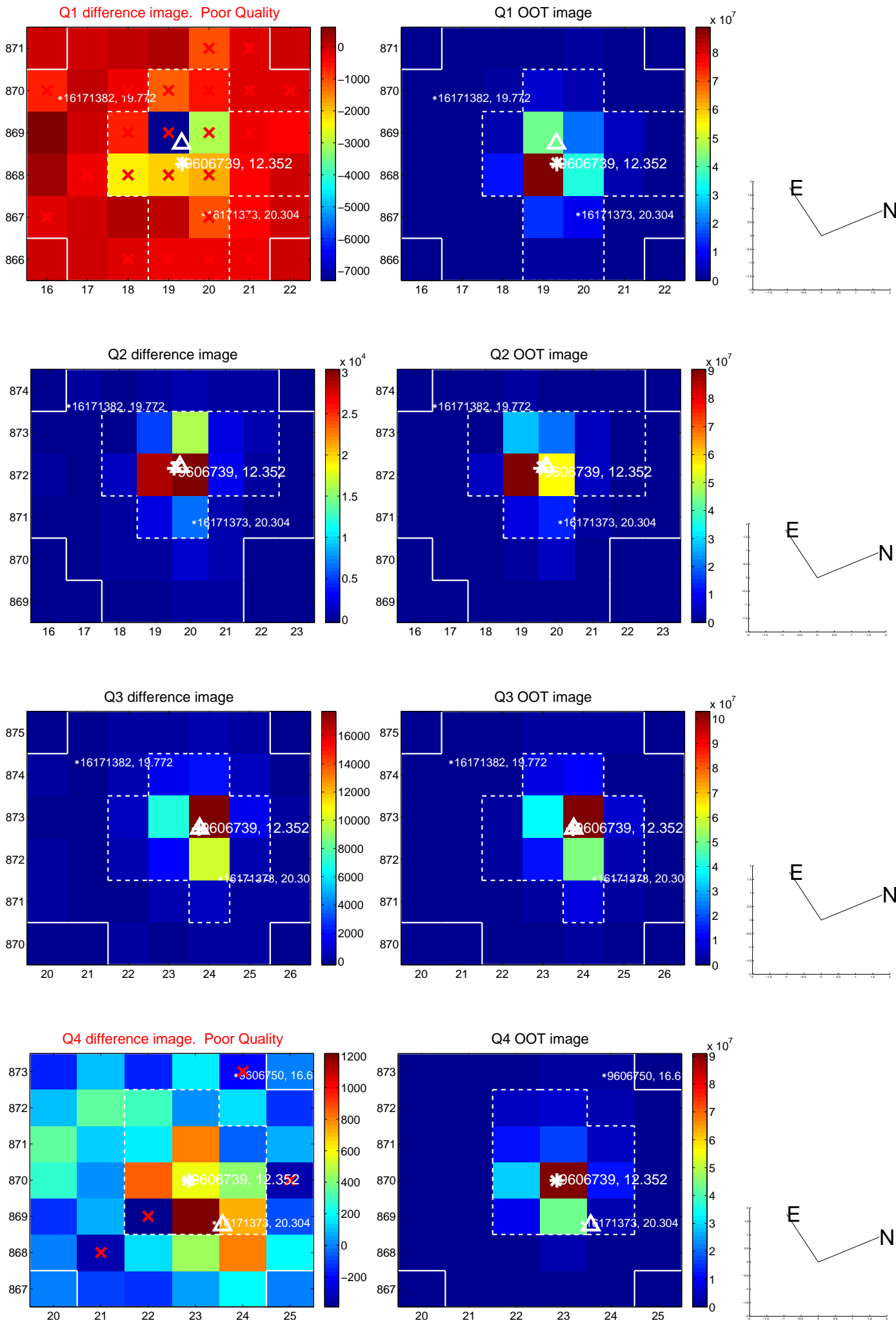
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.209 ± 0.403	0.52	-0.197 ± 0.431	0.067 ± 0.130
PRF-fit source offset from KIC position	0.259 ± 0.392	0.66	-0.224 ± 0.441	-0.131 ± 0.132
photometric centroid source offset	0.29 ± 0.21	1.37	-0.26 ± 0.21	-0.13 ± 0.21

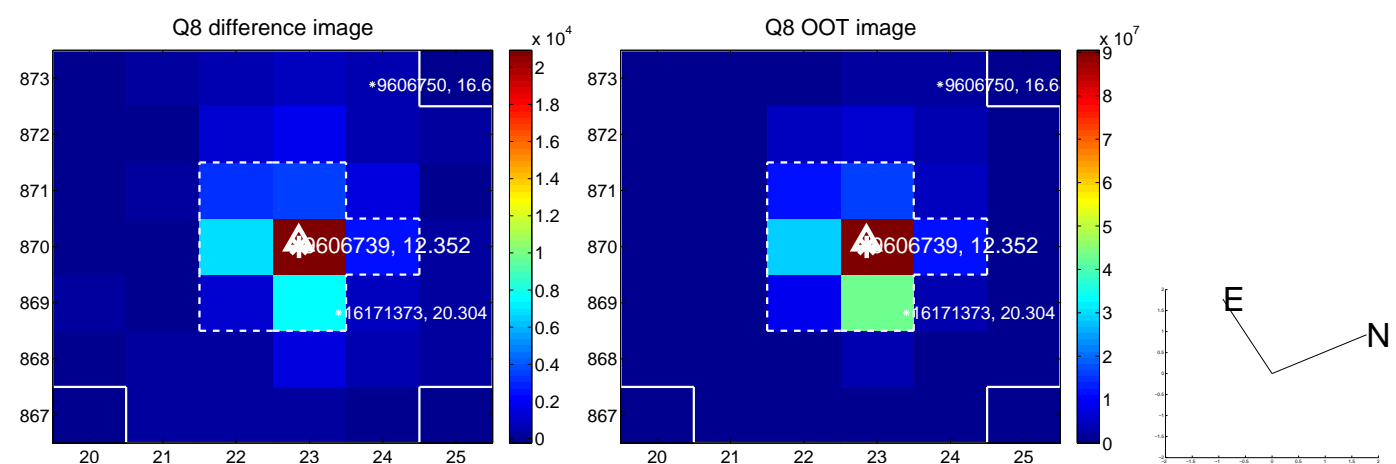
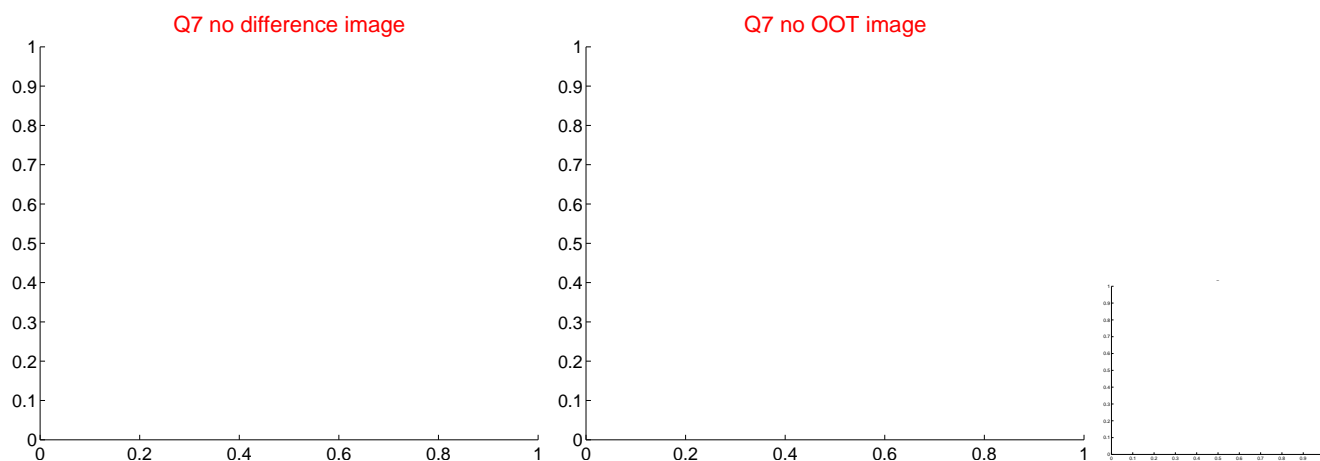
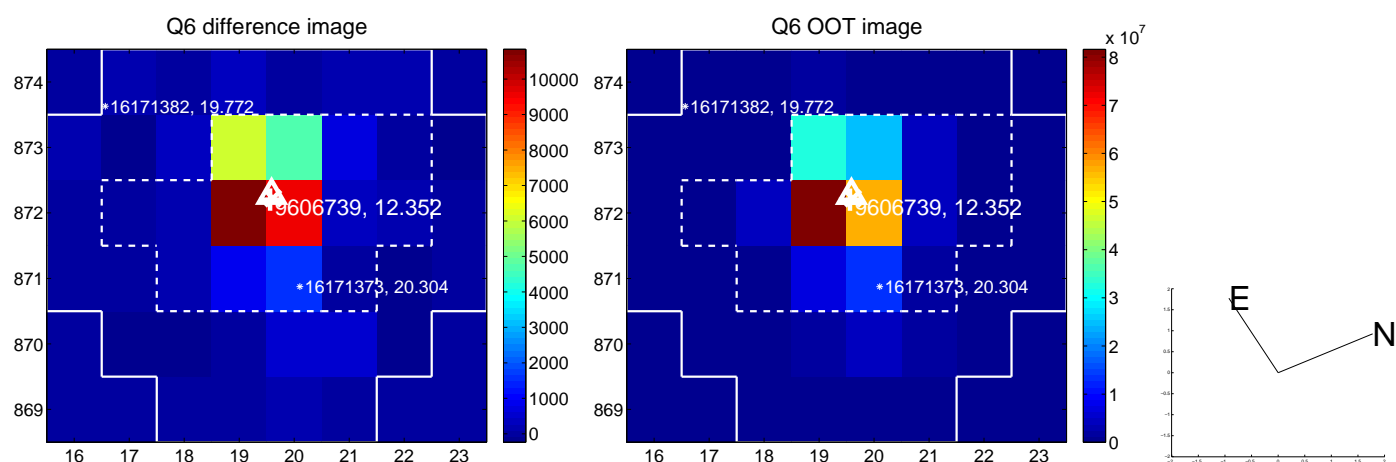
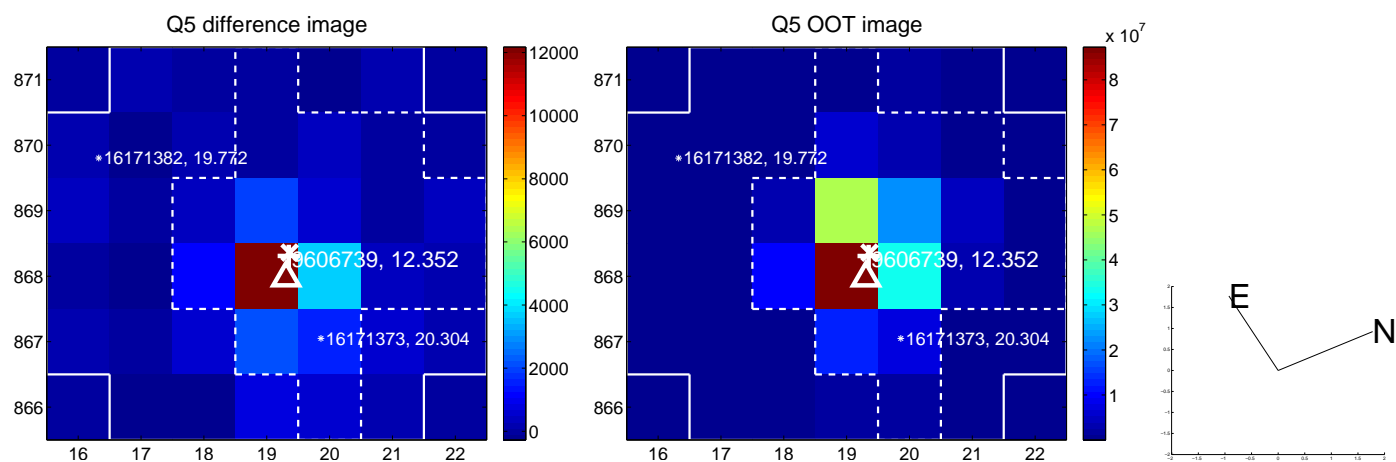


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

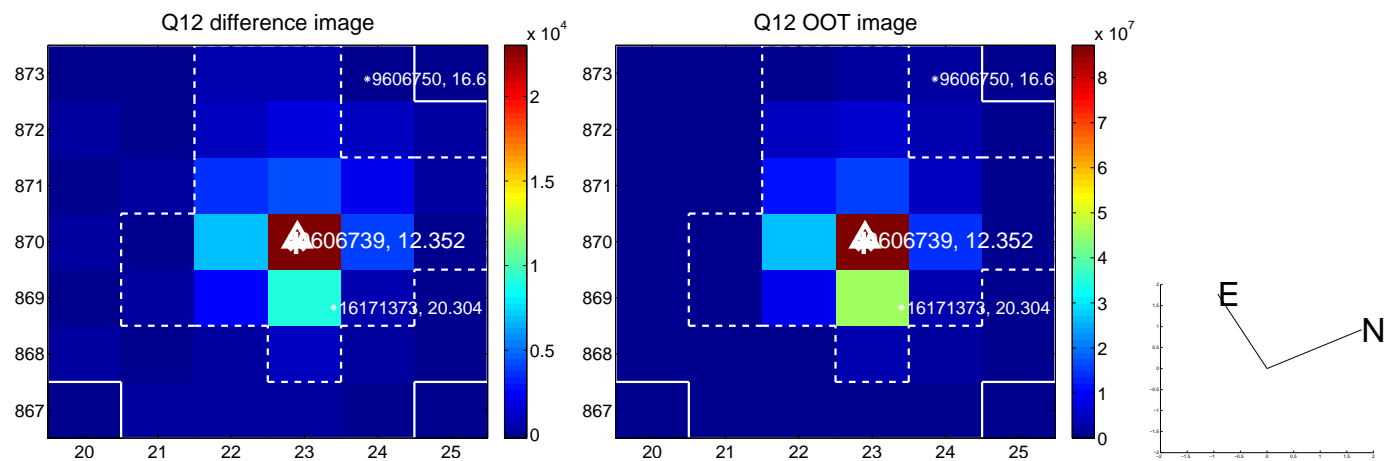
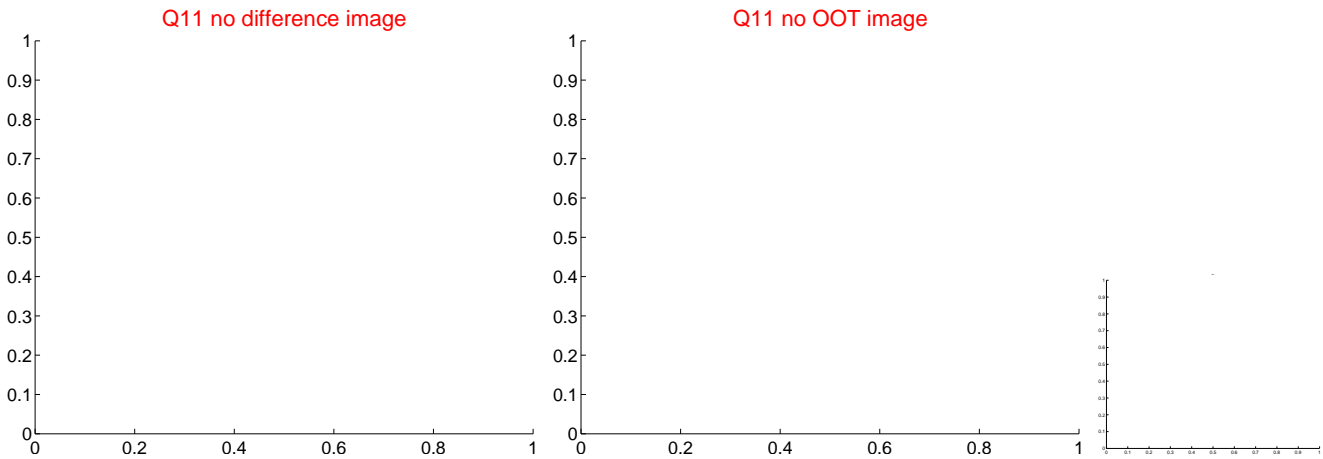
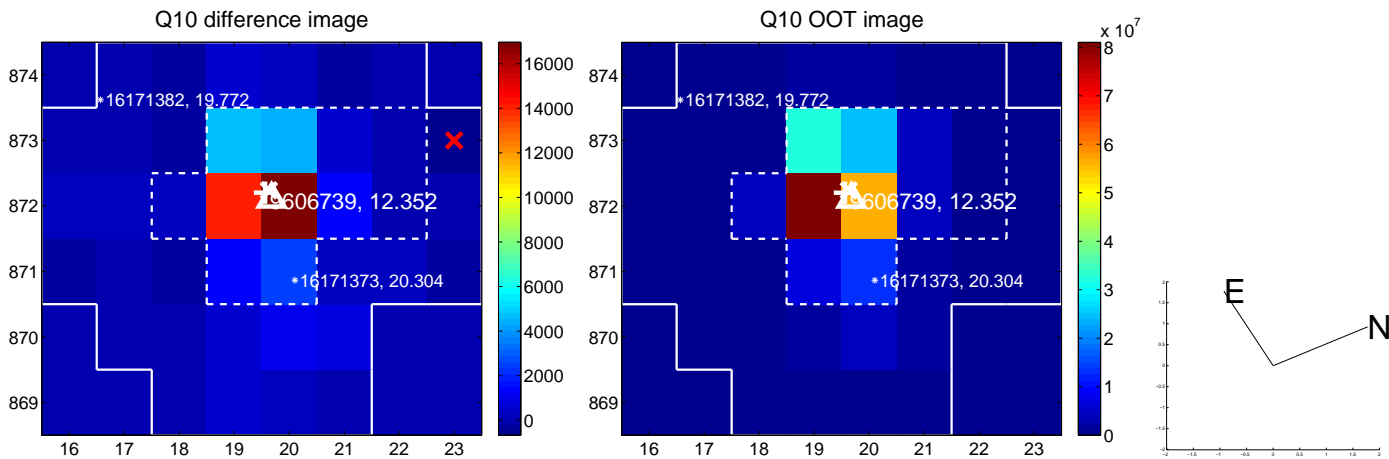
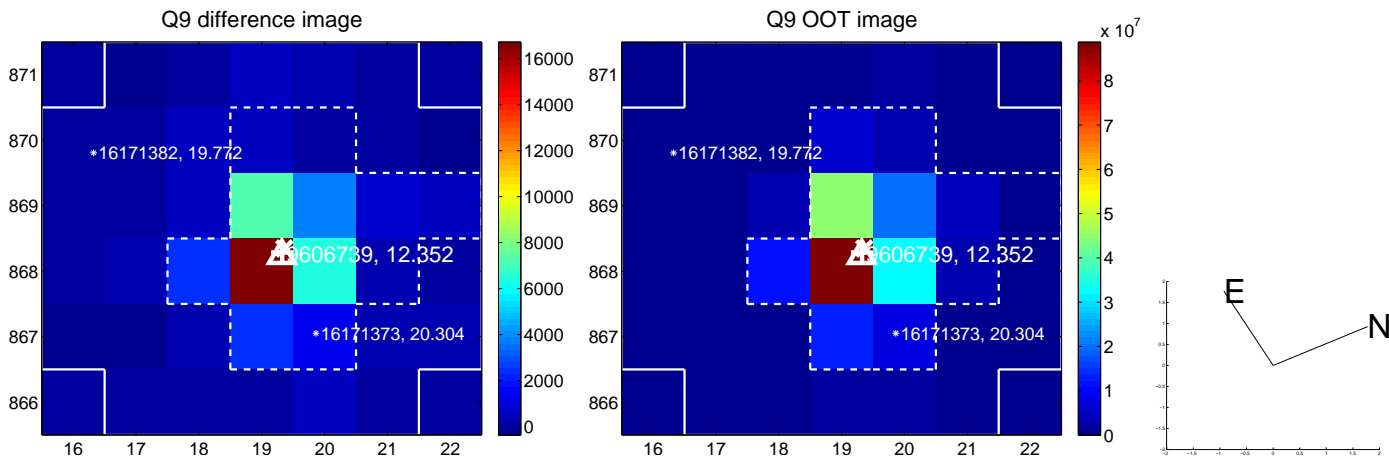
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



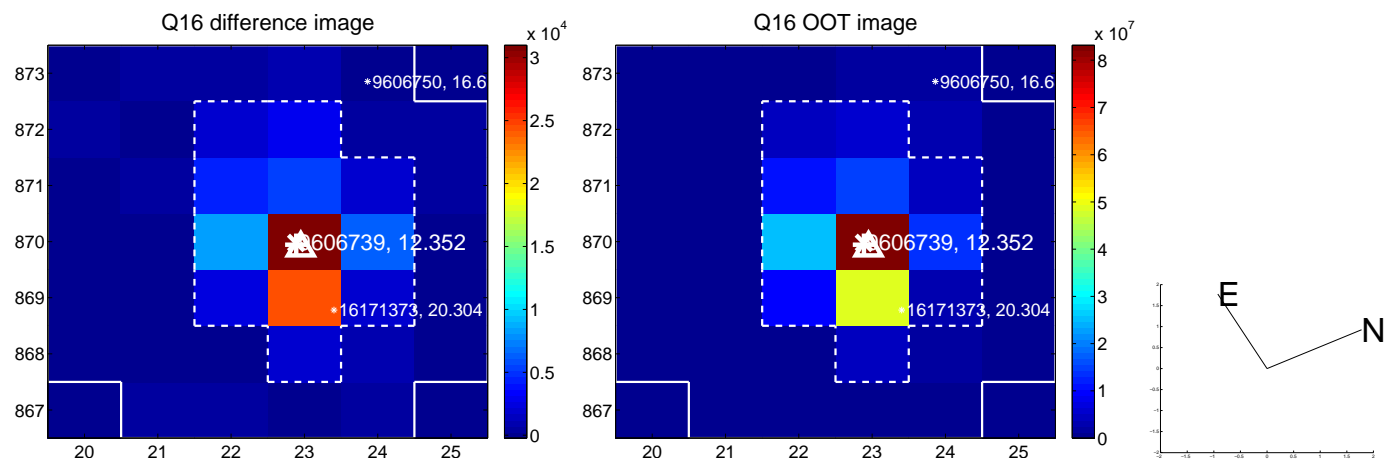
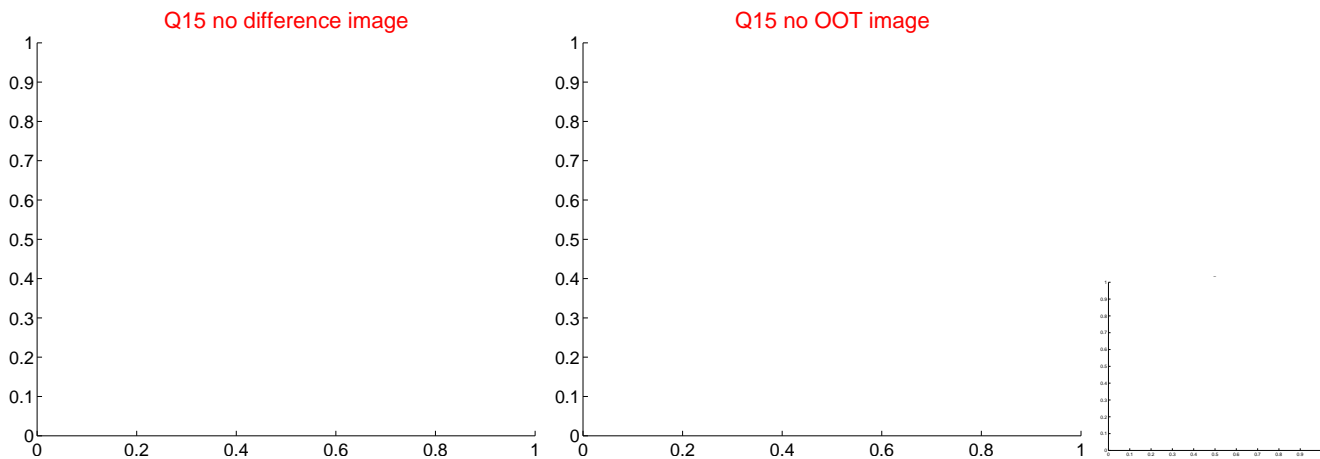
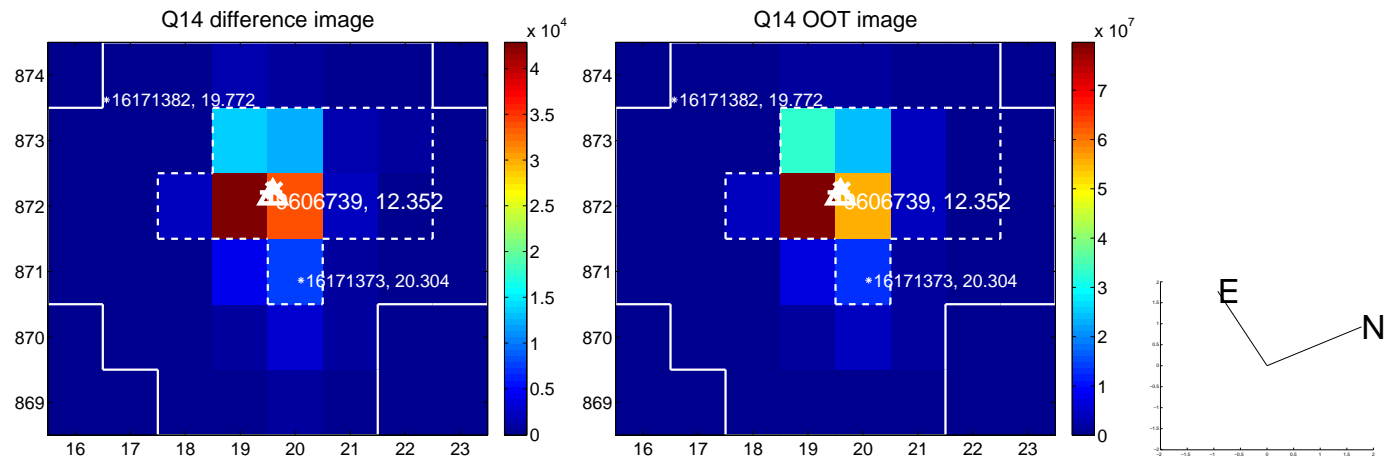
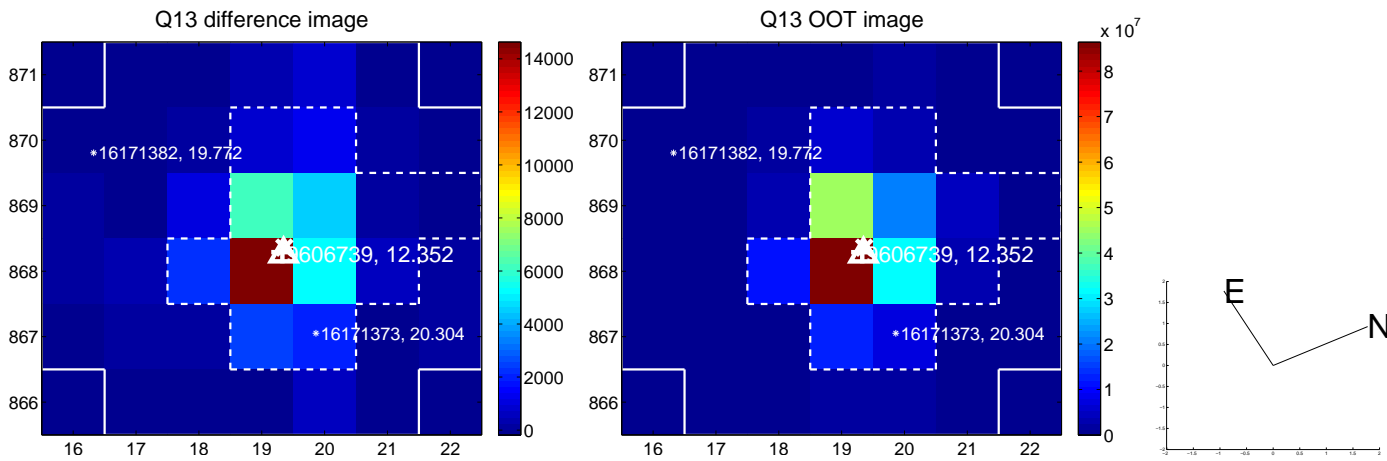
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



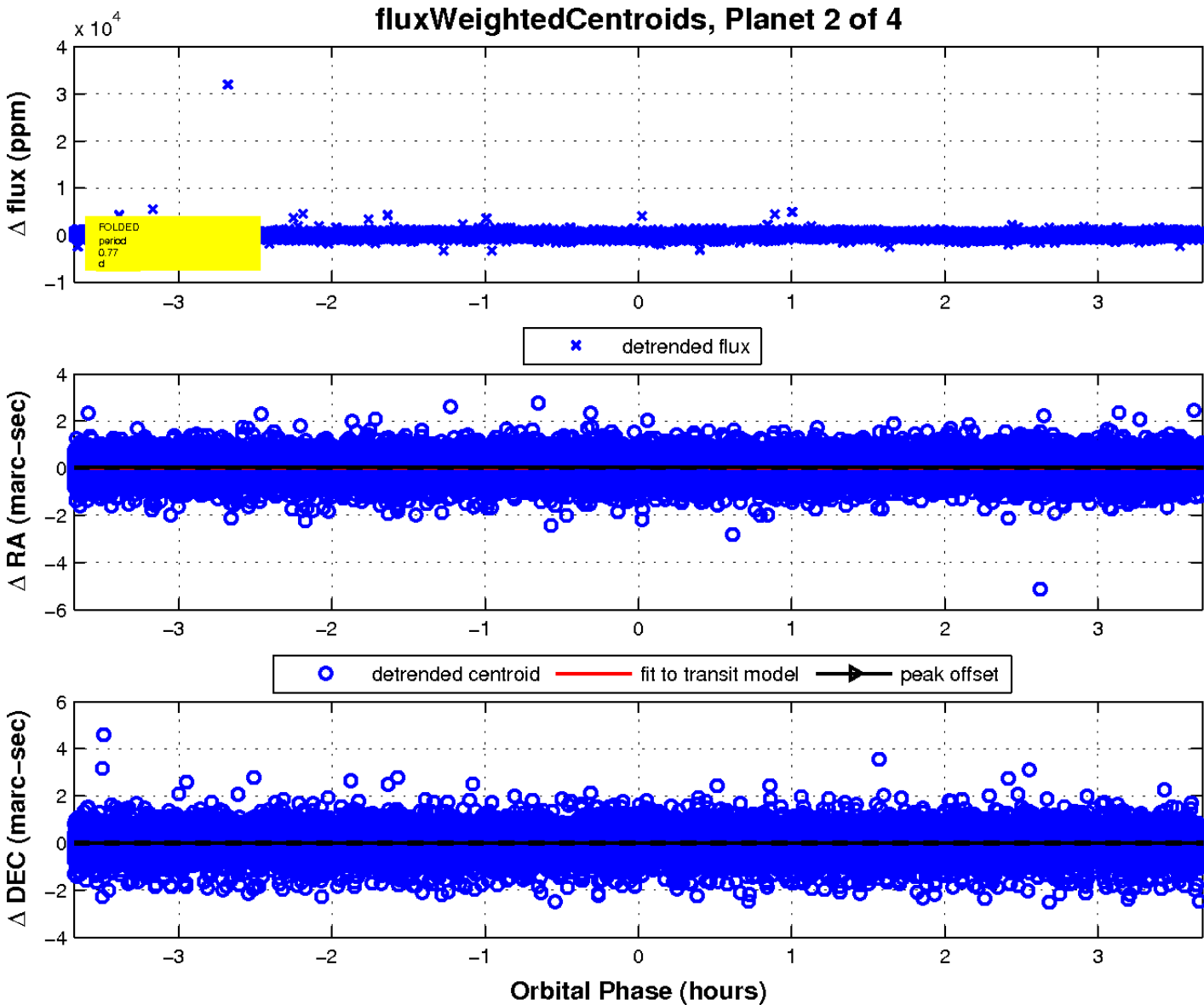
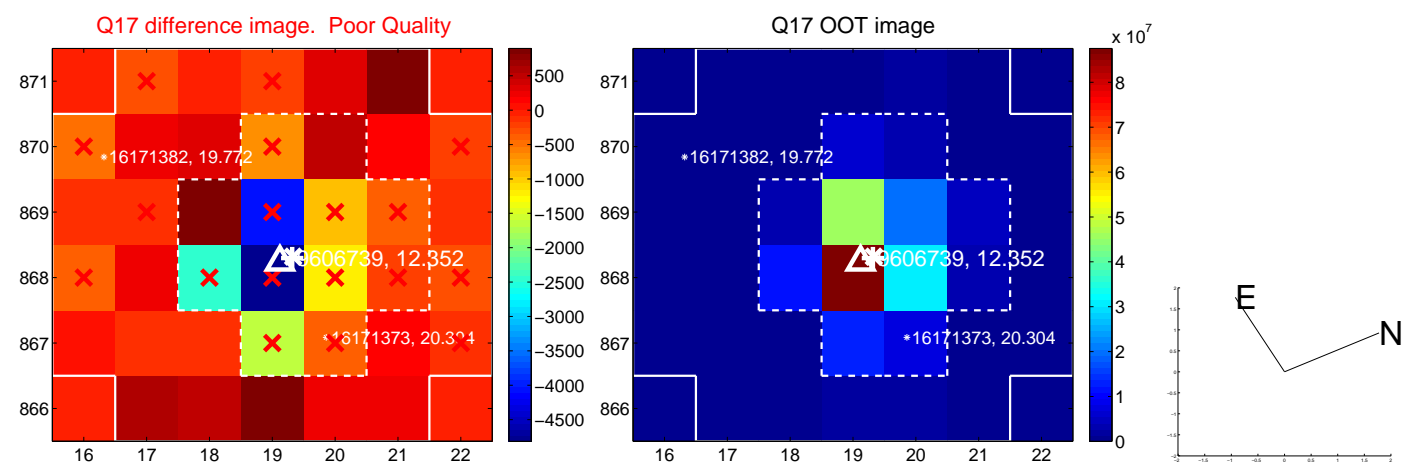
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



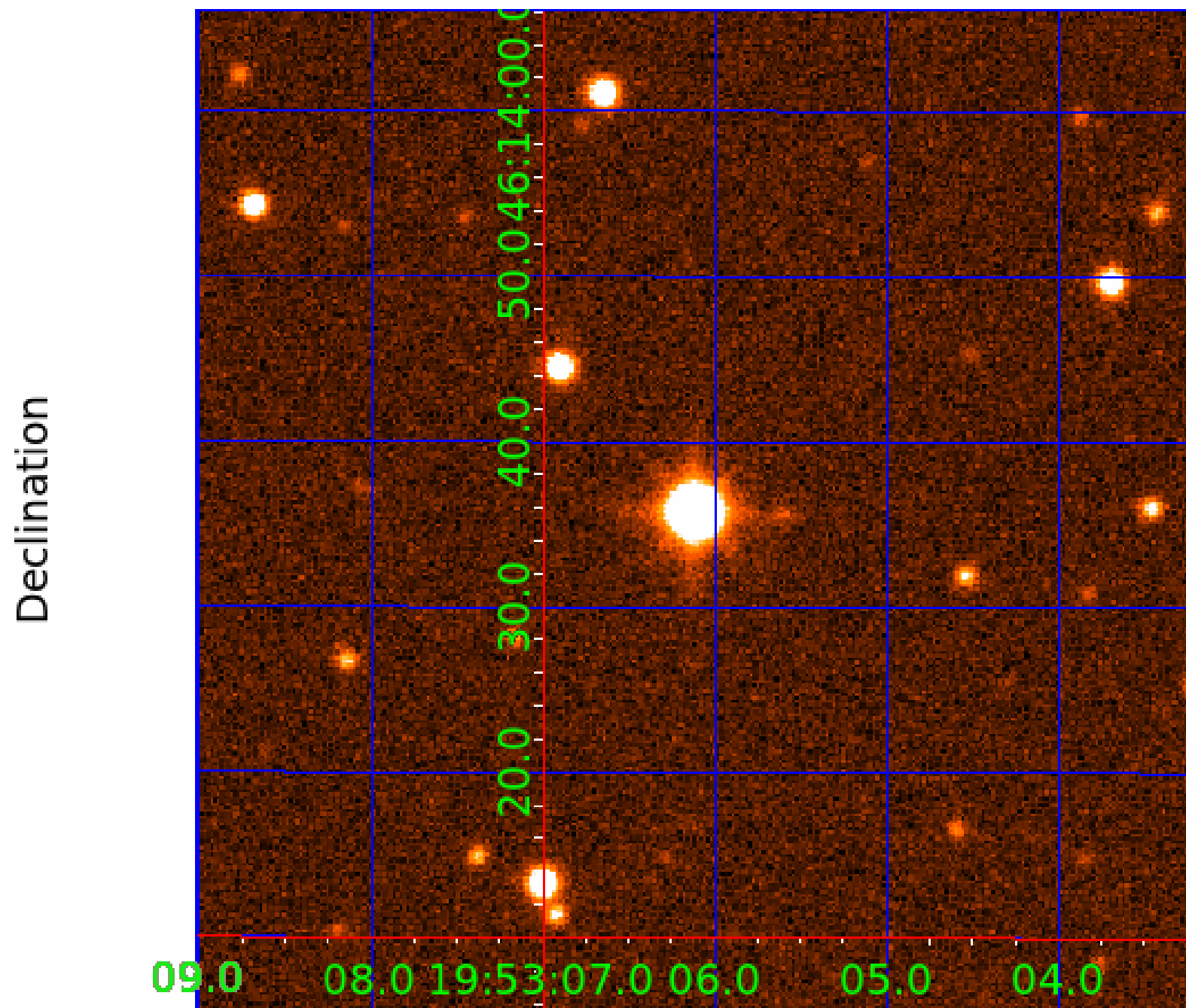
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009606739

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})
009606739-01	OBS	No	1.540106	132.195949	83.4	1.096	11.2	7.8	1.23	6744	1.31	3549.42
009606739-02	OBS	No	0.770032	132.210782	127.2	1.228	11.9	12.8	1.23	6744	1.49	8944.31
009606739-03	OBS	No	0.770027	131.637700	79.8	1.123	12.5	10.7	1.23	6744	1.28	8944.39
009606739-04	OBS	No	0.770054	132.004843	95.1	0.915	10.2	11.1	1.23	6744	1.42	8943.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009606739-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009606739-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
009606739-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
009606739-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

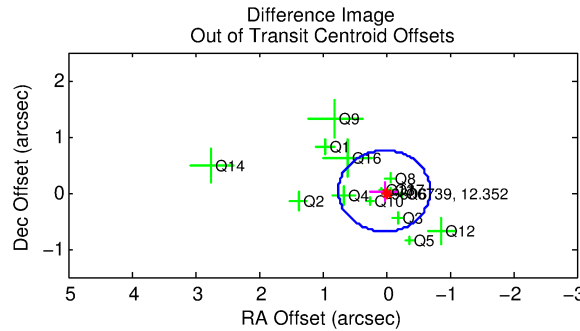
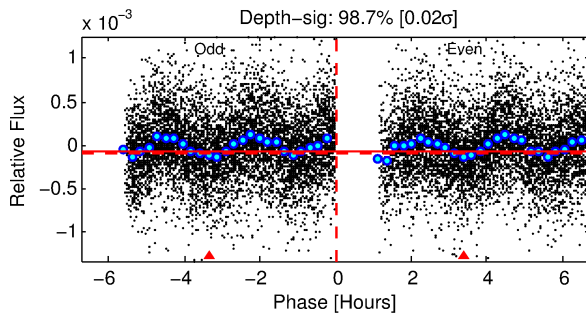
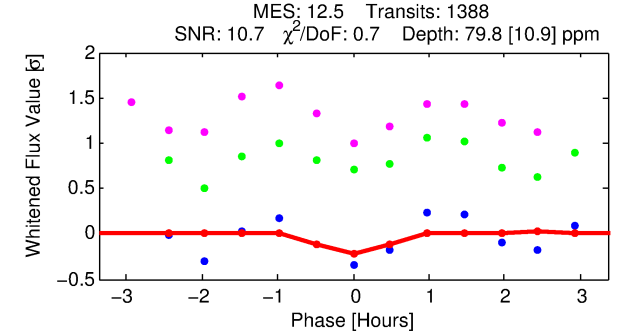
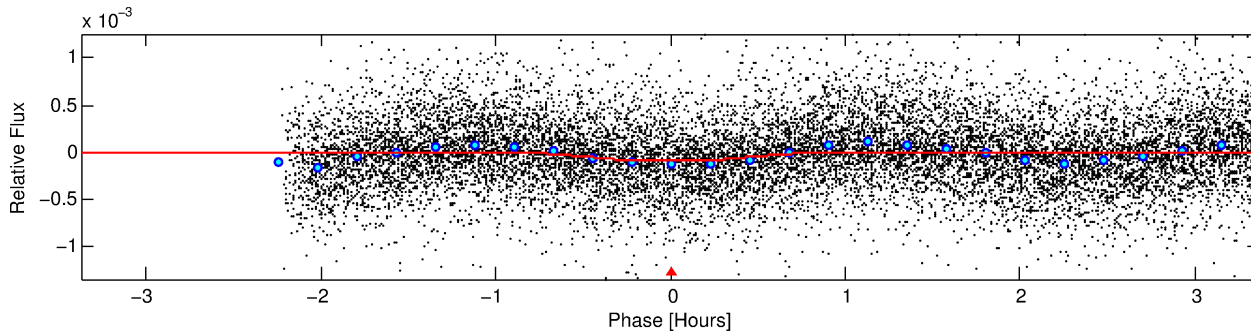
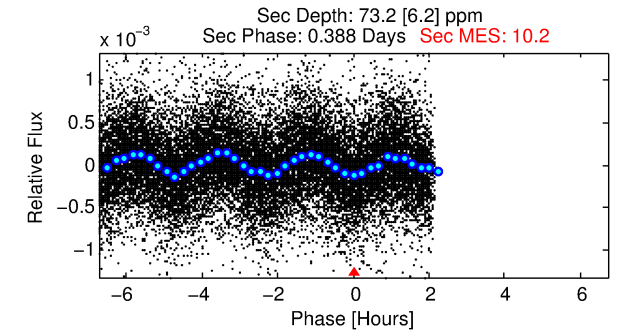
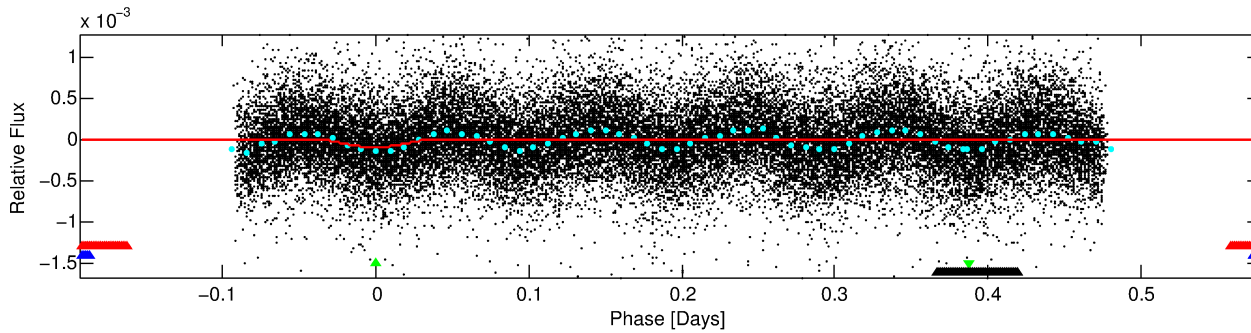
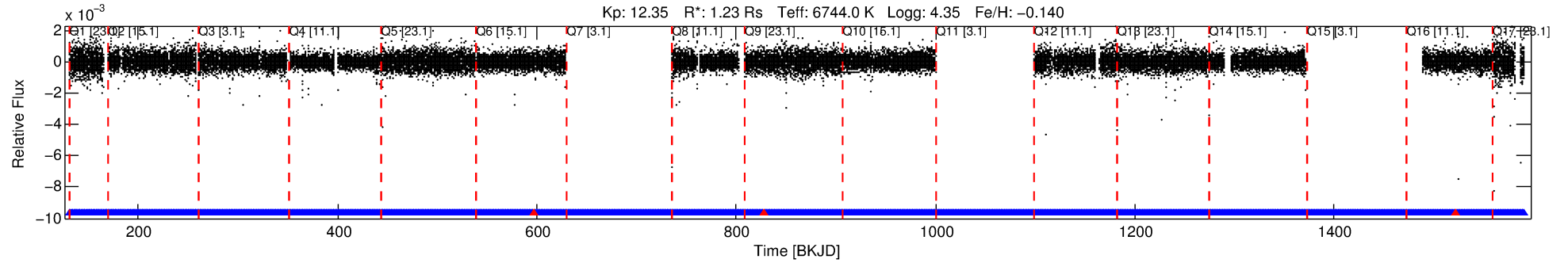
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009606739-03

No Significant Match Found

DV One-Page Summary

KIC: 9606739 Candidate: 3 of 4 Period: 0.770 d



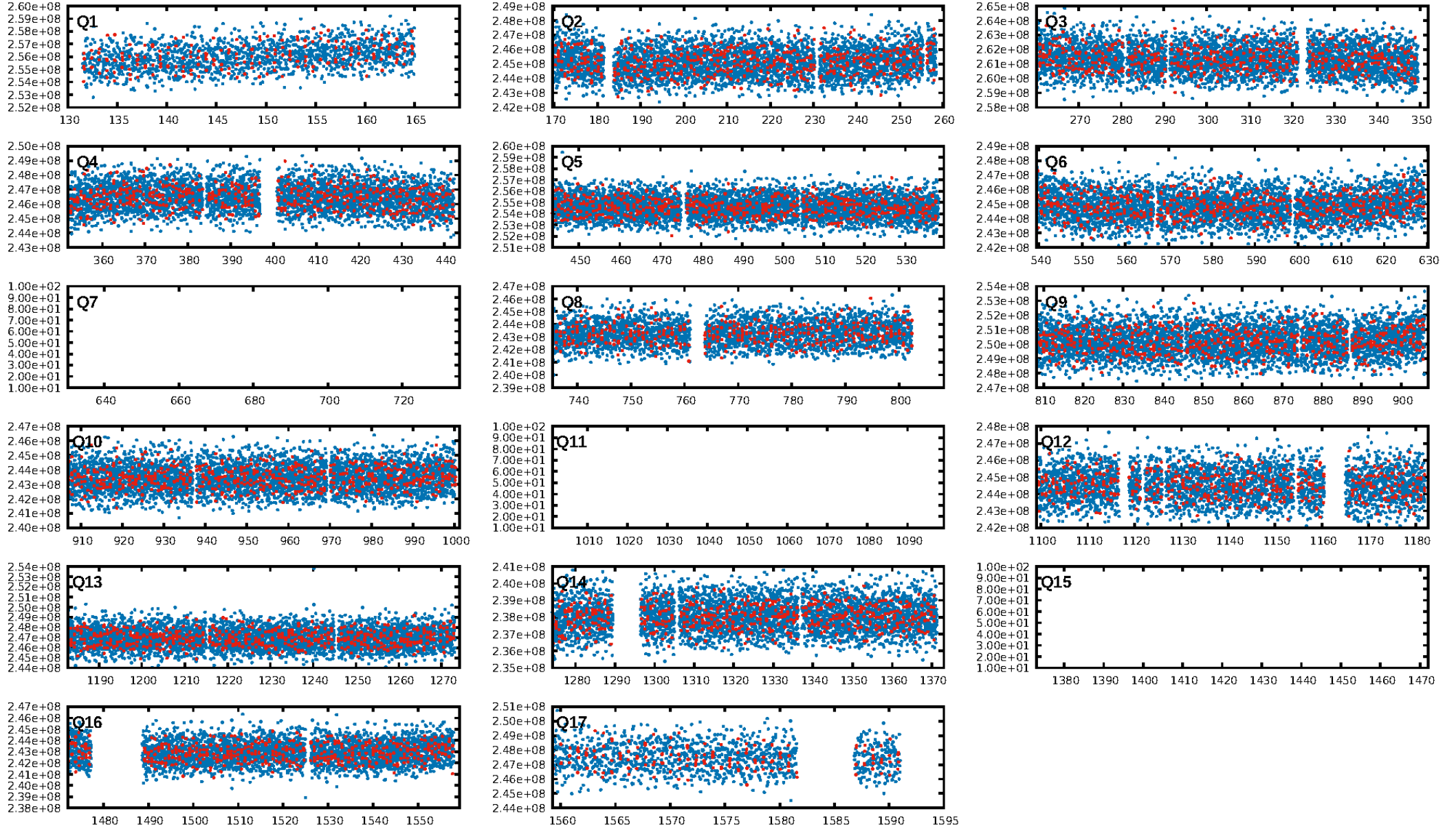
DV Fit Results:

Period = 0.77003 [0.00001] d
Epoch = 131.6377 [0.0018] BKJD
Rp/R* = 0.0096 [0.0040]
a/R* = 2.60 [5.42]
b = 0.90 [0.54]
Seff = 8944.39 [3906.99]
Teq = 2480 [271] K
Rp = 1.28 [0.70] Re
a = 0.0176 [0.0052] AU
Ag = 7.66 [7.15] [0.93σ]
Teffp = 6377 [1348] K [2.83σ]

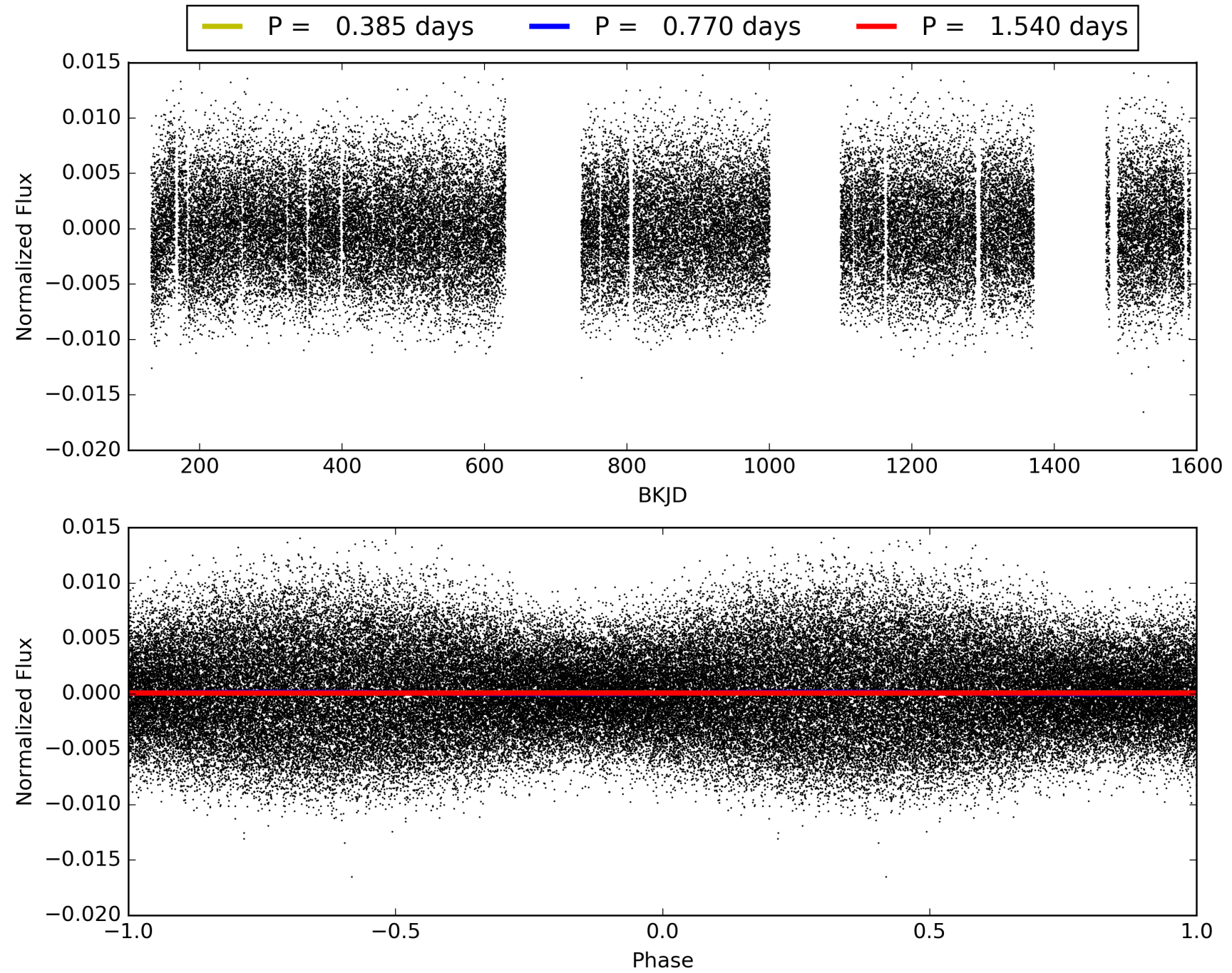
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.15e-68
RollingBand-fgt: 1.00 [1305/1308]
GhostDiagnostic-chr: 0.7465
Centroid-sig: 41.8%
Centroid-so: 0.371 arcsec [1.30σ]
OotOffset-rm: 0.040 arcsec [0.17σ]
KicOffset-rm: 0.185 arcsec [0.90σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.64 [9/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 009606739-03, PDC Light Curves

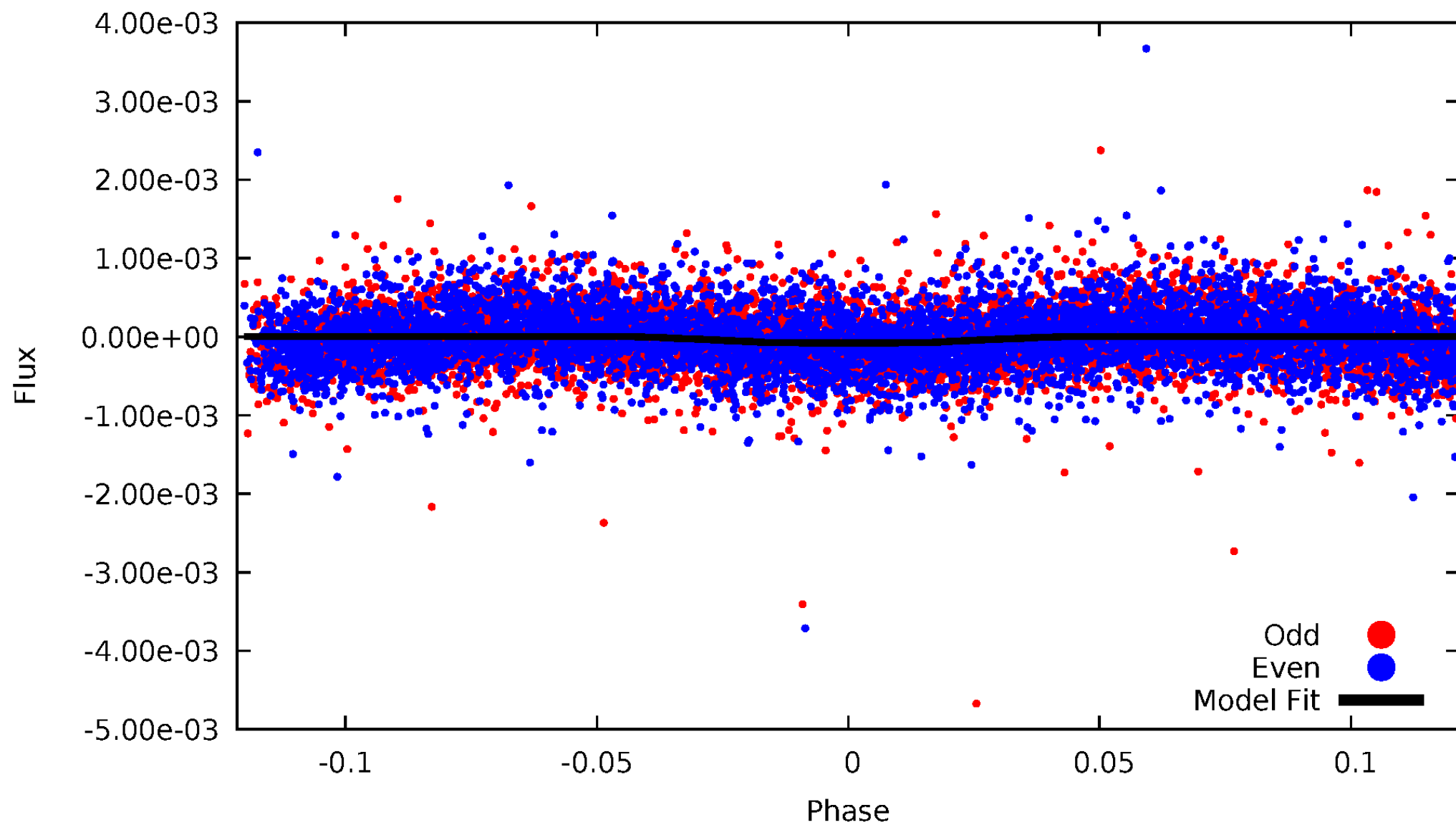


TCE 009606739-03



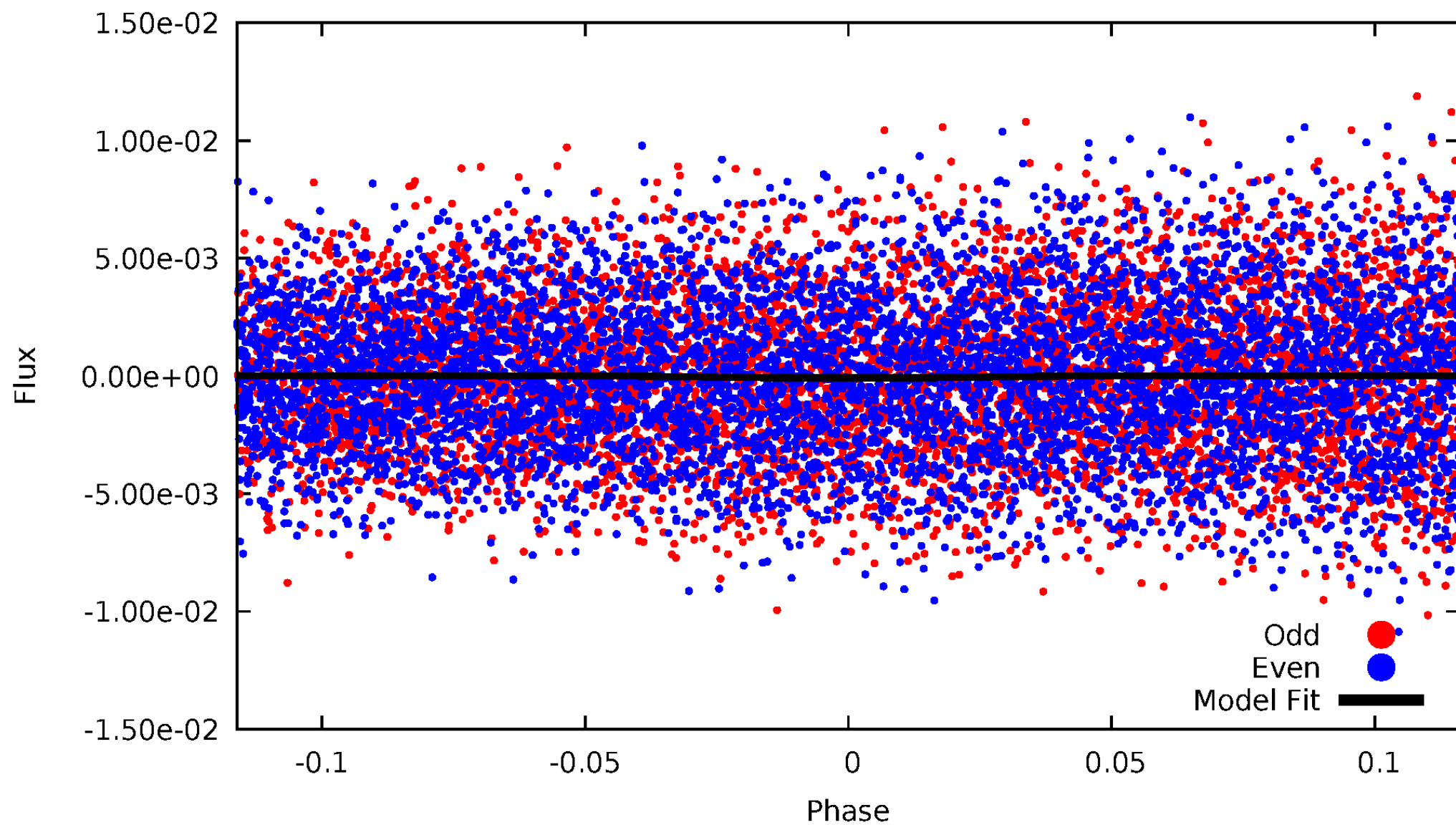
DV Odd/Even

TCE 009606739-03

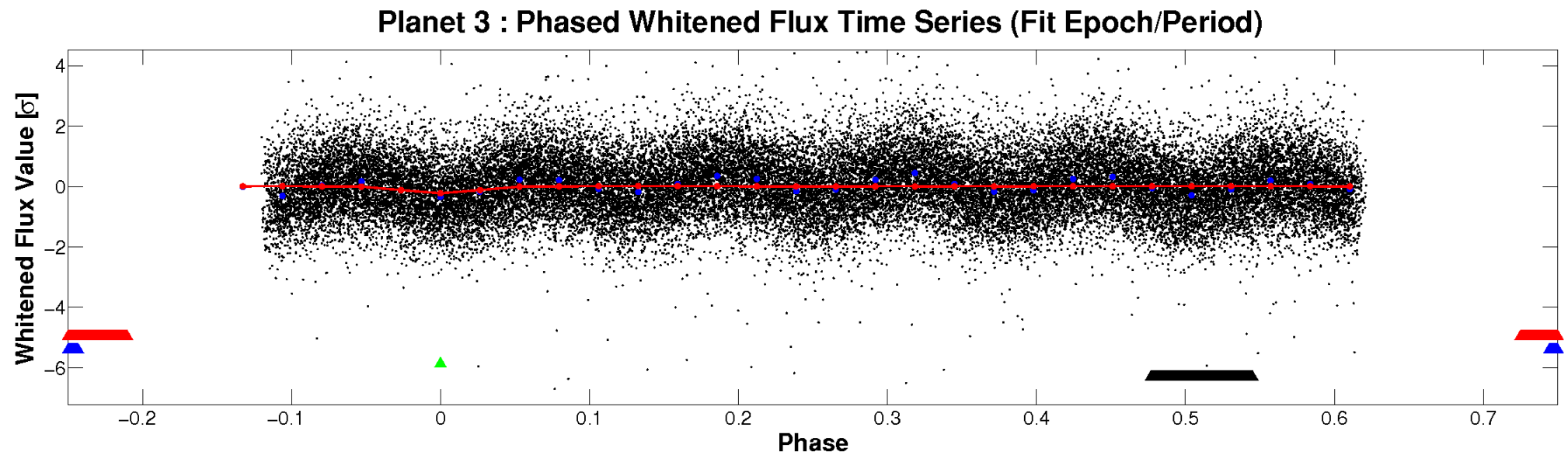
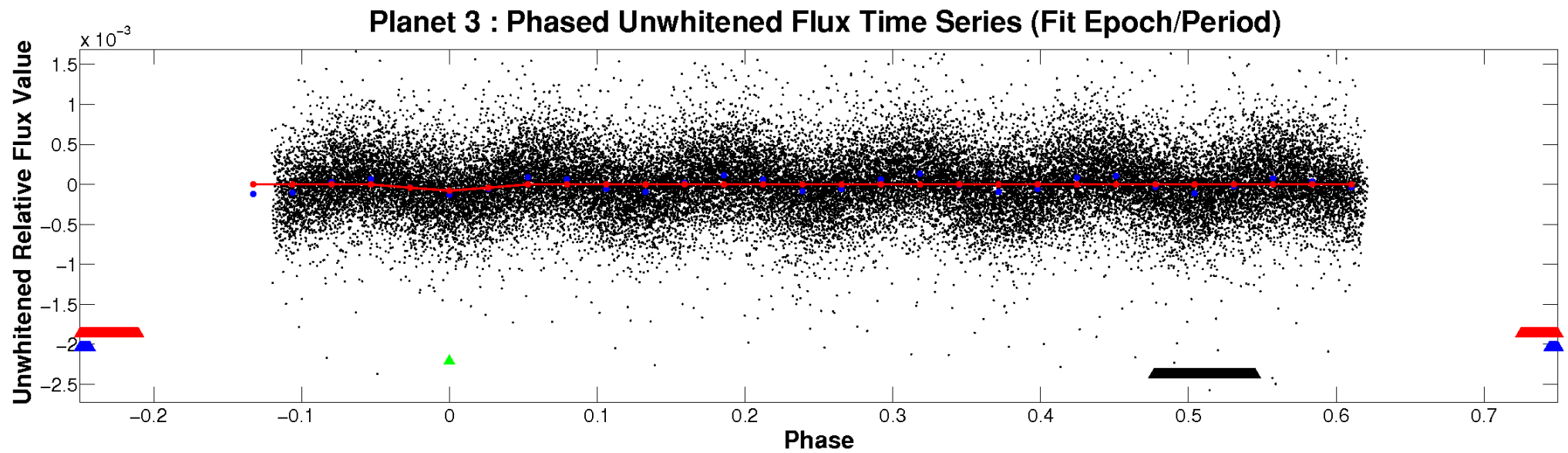


ALT Odd/Even

TCE 009606739-03

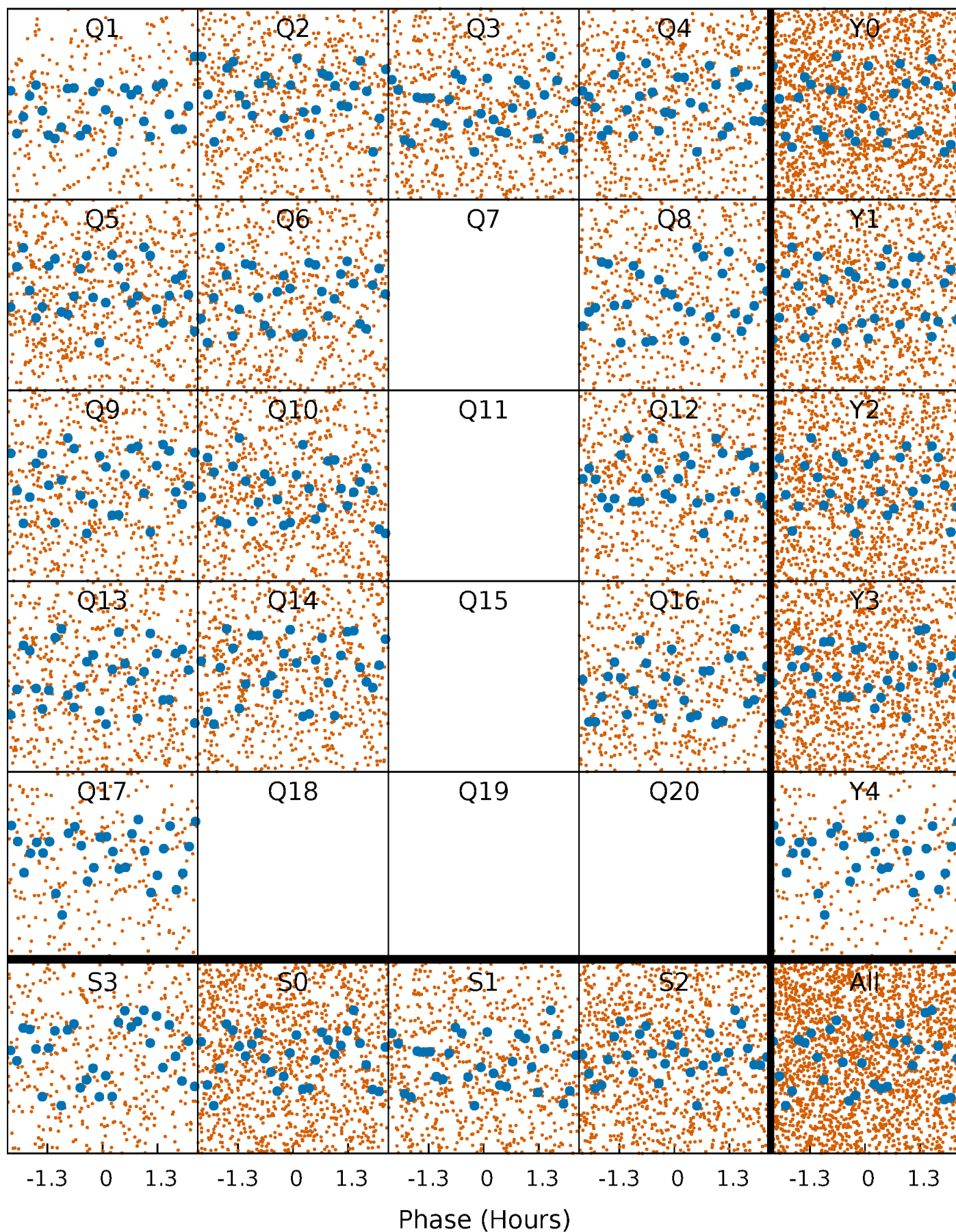


Non-Whitened Vs. Whitened Light Curve



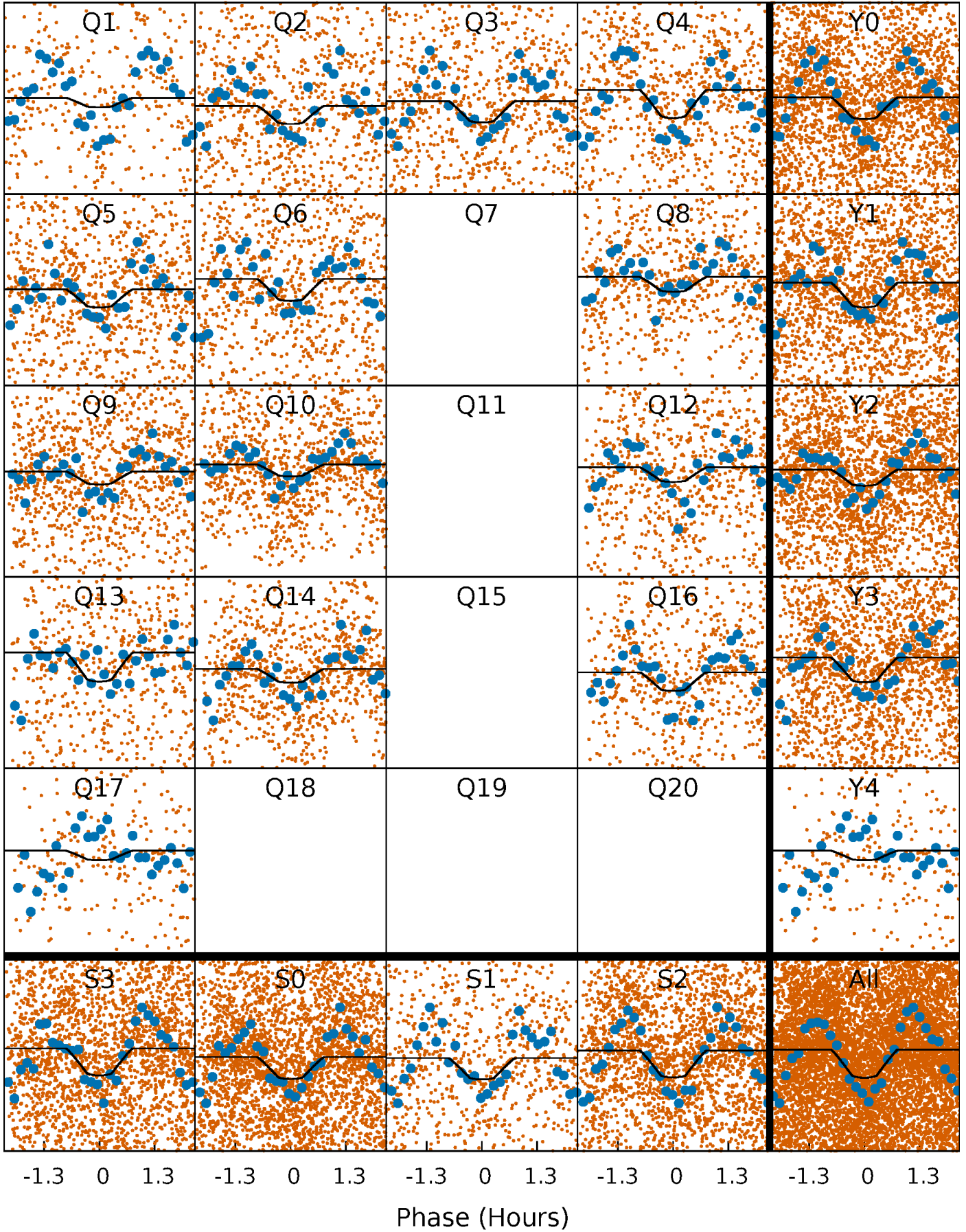
PDC Quarter-Phased Transit Curves

TCE 009606739-03 P= 0.770027 Days $T_0=131.637700$ (BKJD)



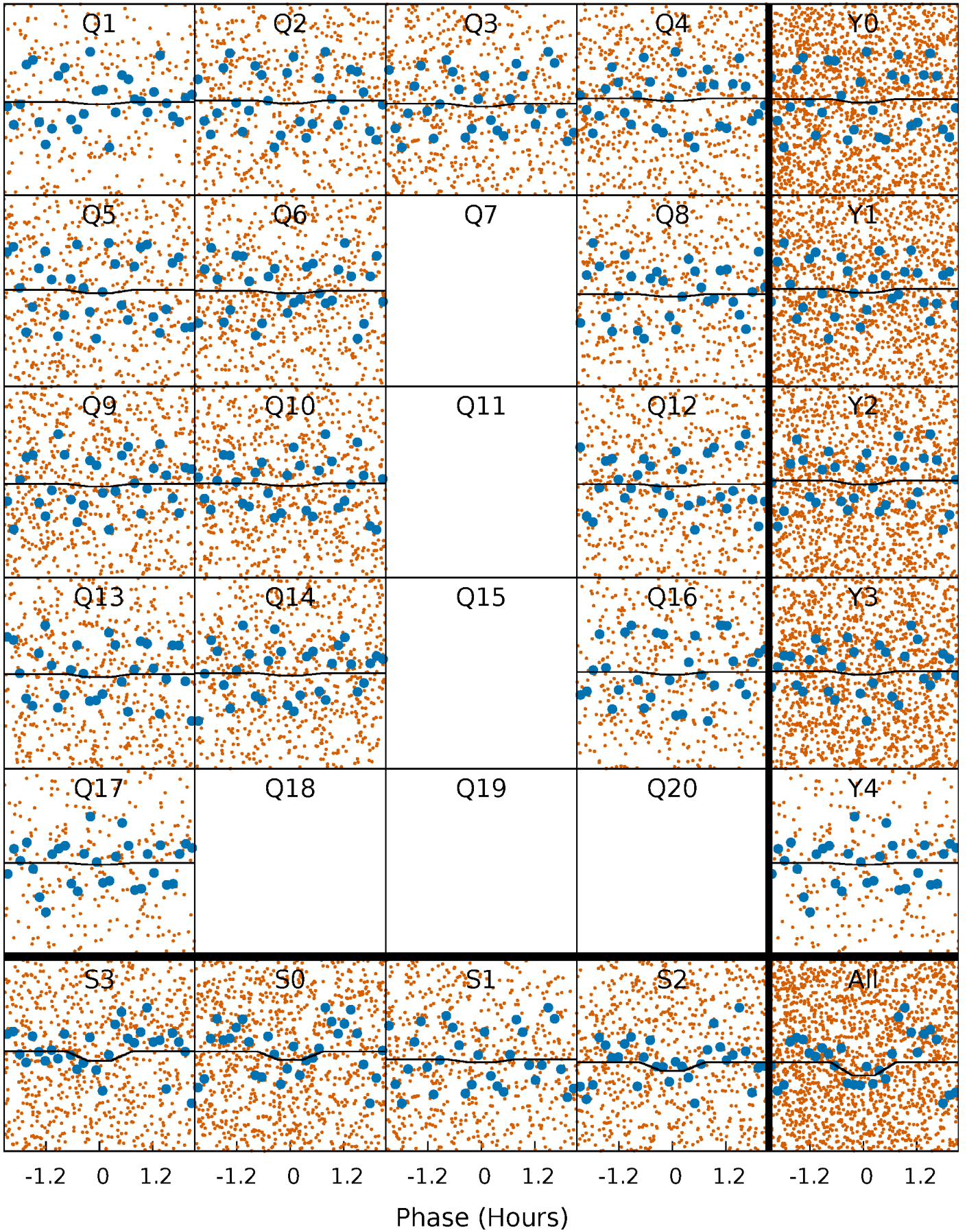
DV Quarter-Phased Transit Curves

TCE 009606739-03 $P = 0.770027$ Days $T_0 = 131.637700$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

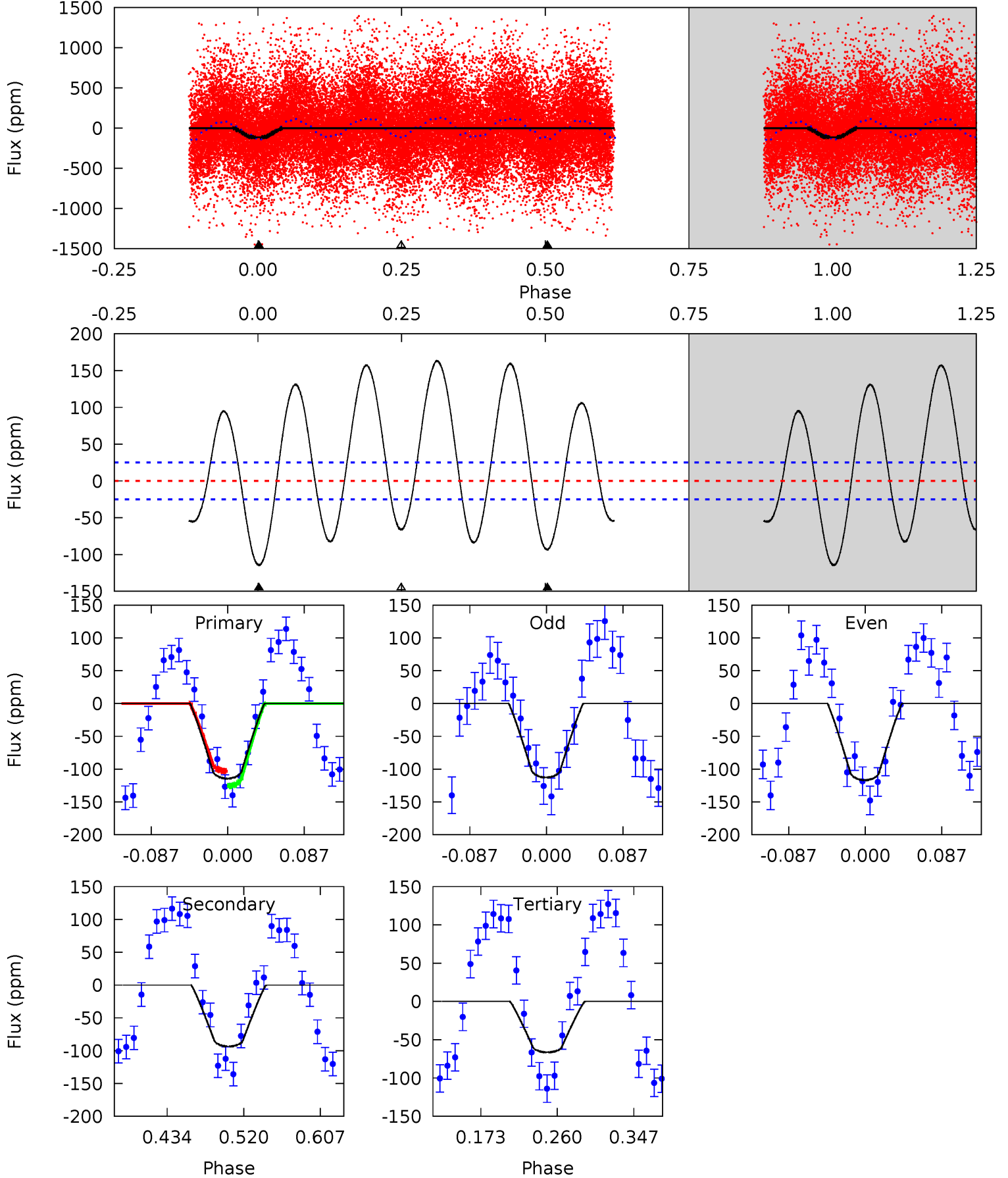
TCE 009606739-03 P= 0.770032 Days $T_0=131.638070$ (BKJD)



DV Model-Shift Uniqueness Test

009606739-03, P = 0.770027 Days, E = 130.867673 Days

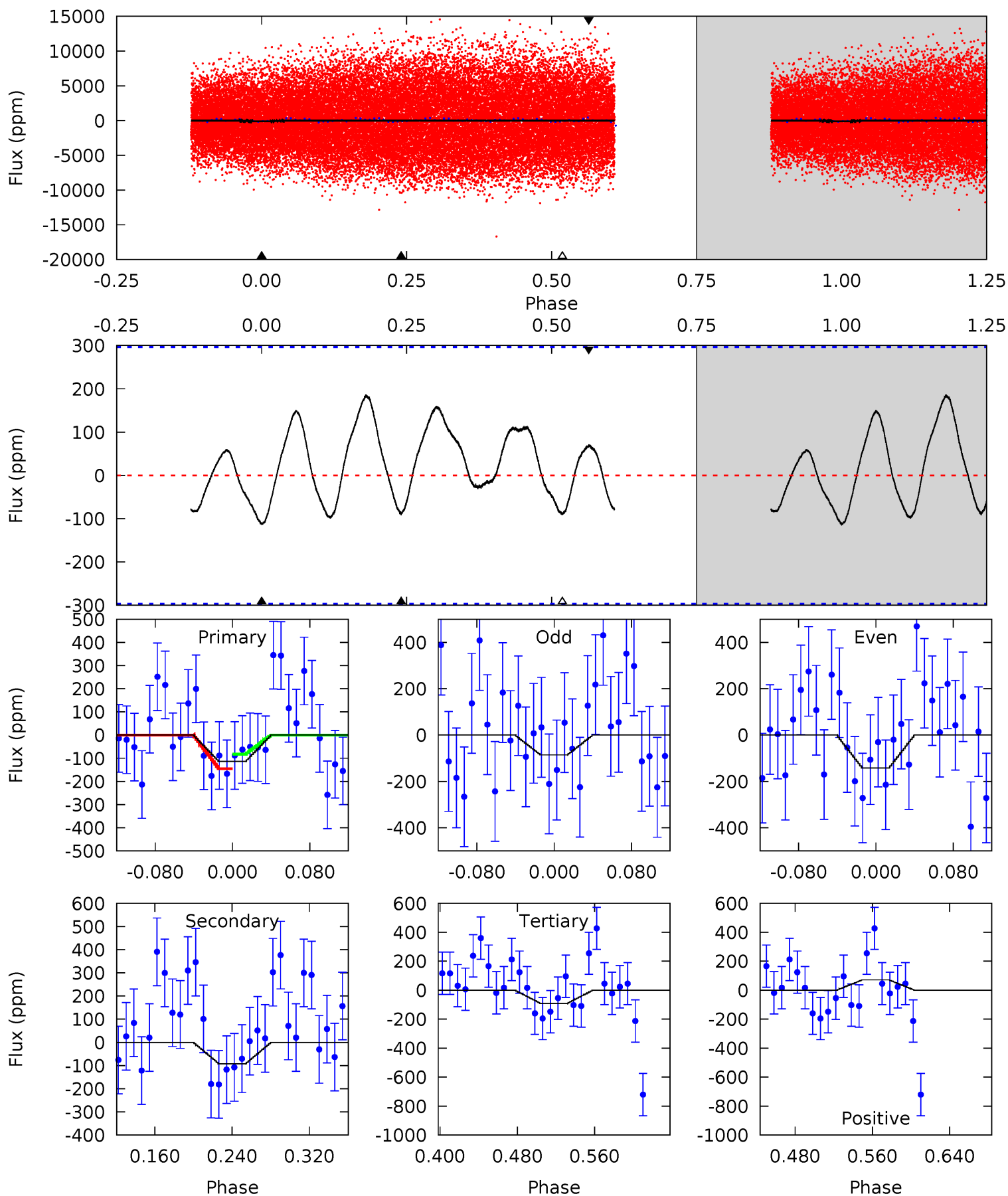
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.0	17.1	12.2	0	4.59	1.71	14.4	8.82	21.0	4.98	17.1	0.38	1.05	0.59	2.10



Alt Model-Shift Uniqueness Test

009606739-03, P = 0.770032 Days, E = 130.868038 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.78	1.44	1.42	1.11	4.61	1.75	0.97	0.35	0.66	0.01	0.32	0.44	1.16	0.62	0.51



Stellar Parameters For KIC 009606739

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6744^{+151}_{-219}	$4.353^{+0.056}_{-0.224}$	$-0.140^{+0.250}_{-0.350}$	$1.226^{+0.434}_{-0.145}$	$1.246^{+0.194}_{-0.177}$	$0.952^{+0.292}_{-0.528}$
	+2%/-3%	+1%/-5%	+179%/-250%	+35%/-12%	+16%/-14%	+31%/-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 009606739-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-94 ± 5	$1.36^{+0.67}_{-0.58}$	3530^{+295}_{-167}	6728^{+2595}_{-1238}	$8.636^{+16.651}_{-4.658}$
Alt.	-92 ± 64	$1.28^{+0.61}_{-0.53}$	3537^{+254}_{-166}	6661^{+3047}_{-1912}	$8.291^{+20.617}_{-5.968}$

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

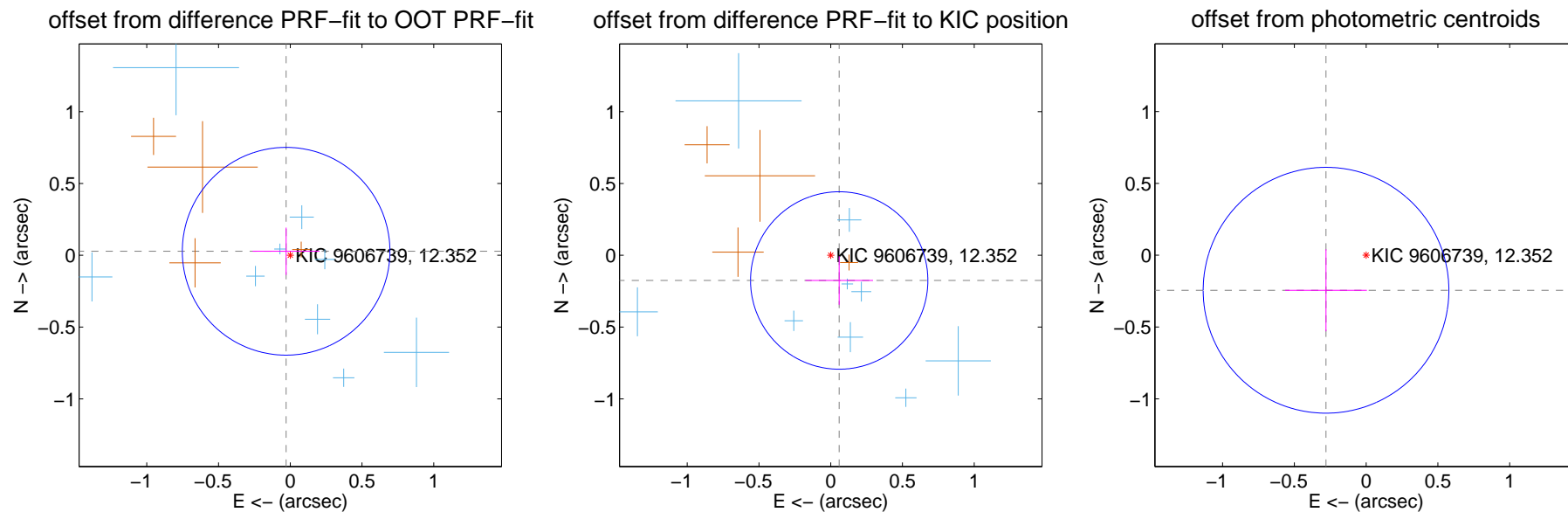
DV Centroid Data

Supplemental centroid analysis for 009606739-03. Kepler magnitude: 12.35. Transit SNR 10.66

There are 9 quarters with good PRF difference image offsets

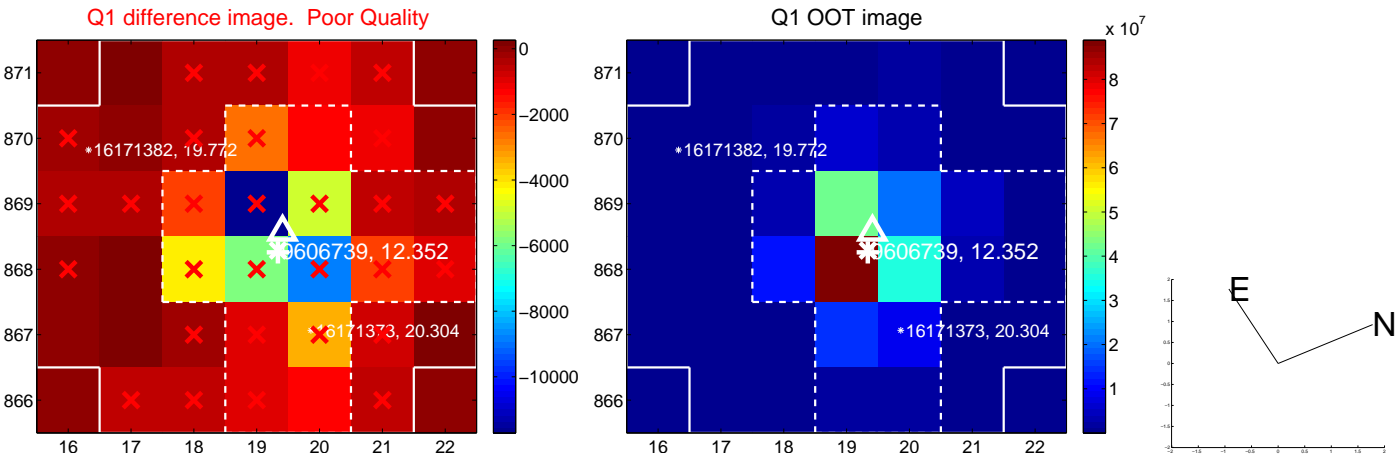
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.040 ± 0.241	0.17	0.029 ± 0.233	0.028 ± 0.165
PRF-fit source offset from KIC position	0.185 ± 0.206	0.90	-0.059 ± 0.236	-0.175 ± 0.169
photometric centroid source offset	0.37 ± 0.29	1.30	0.28 ± 0.28	-0.24 ± 0.29

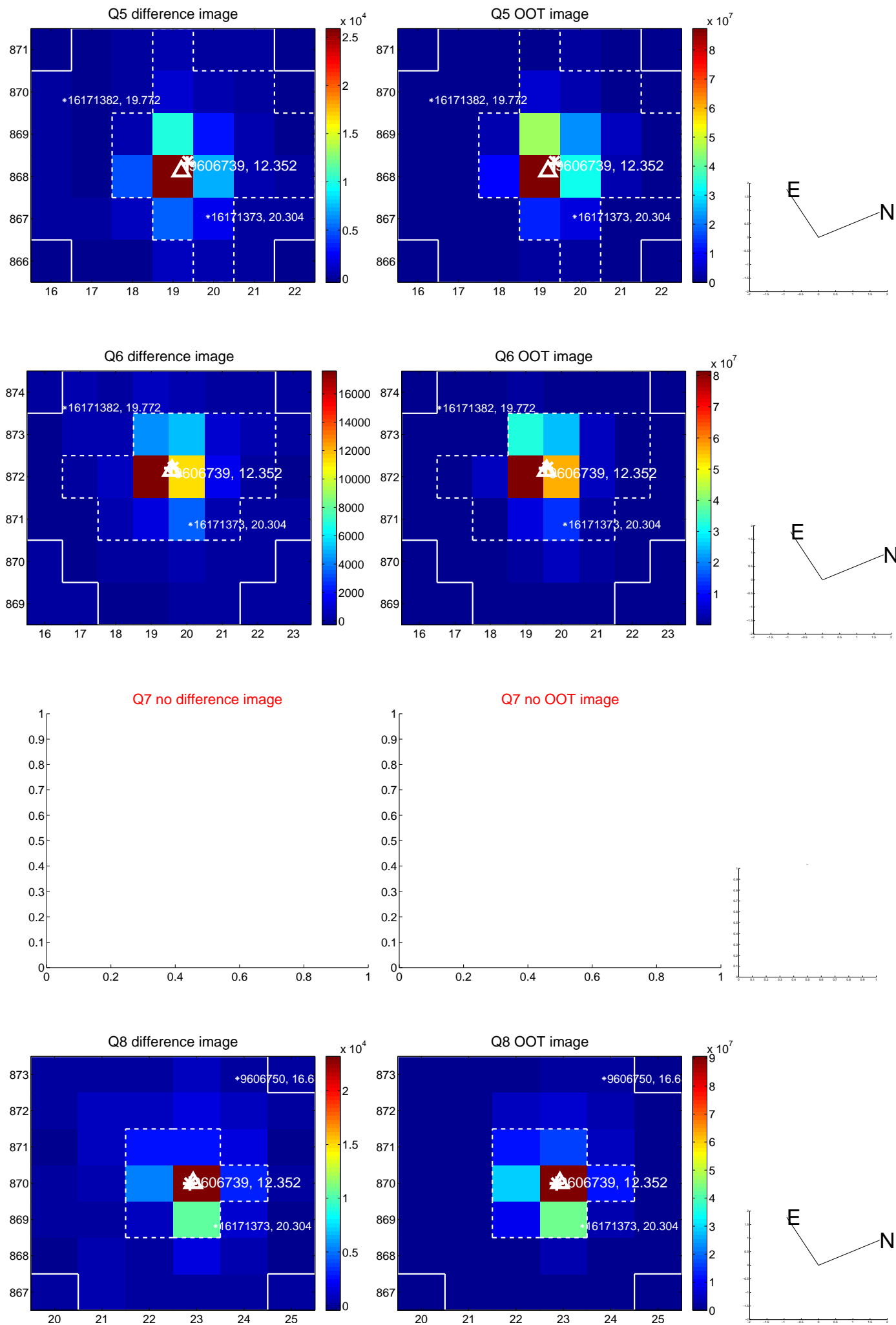


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

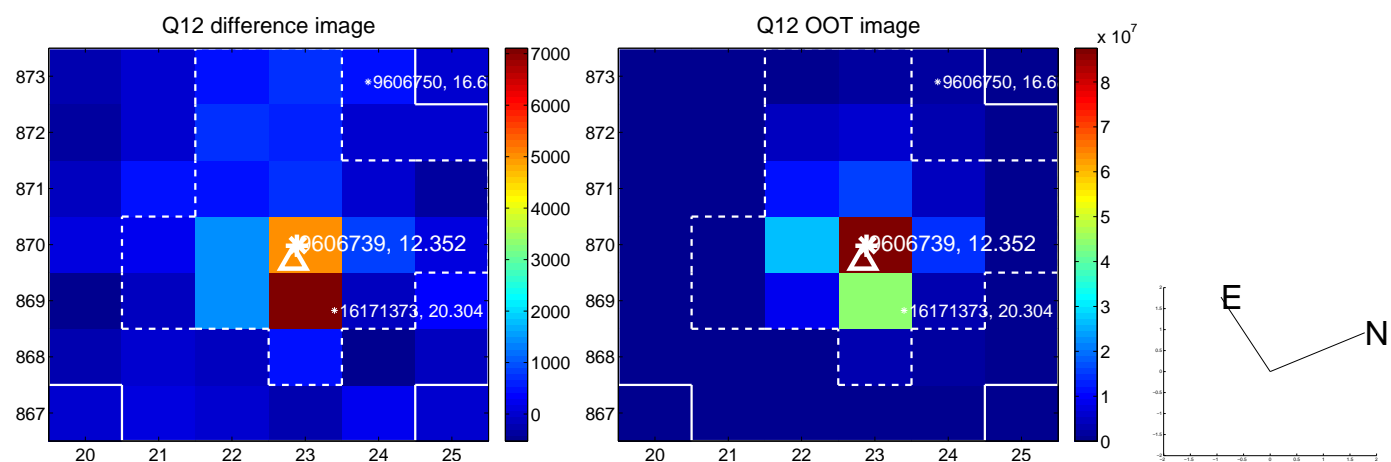
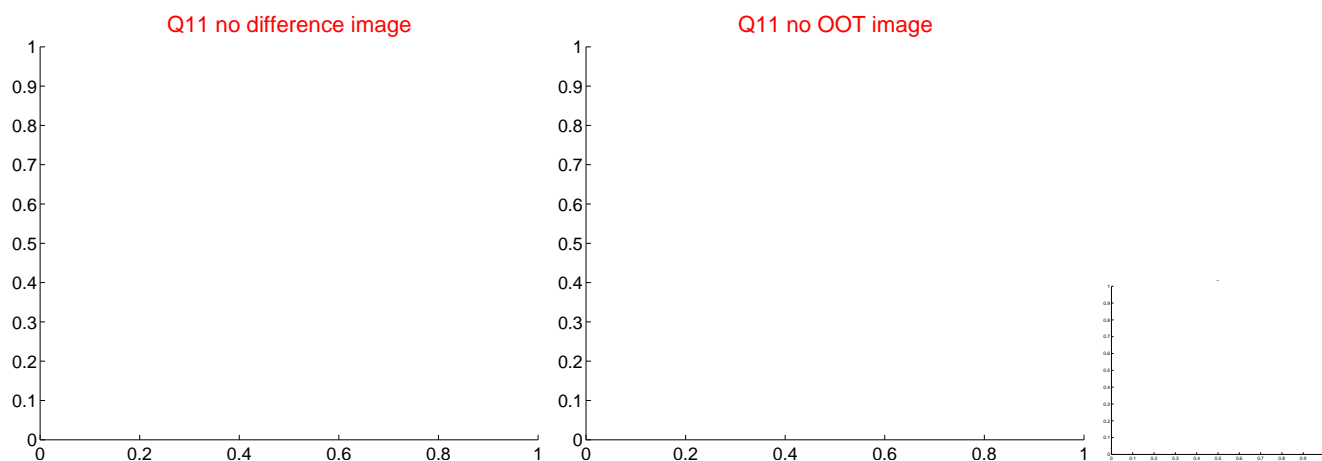
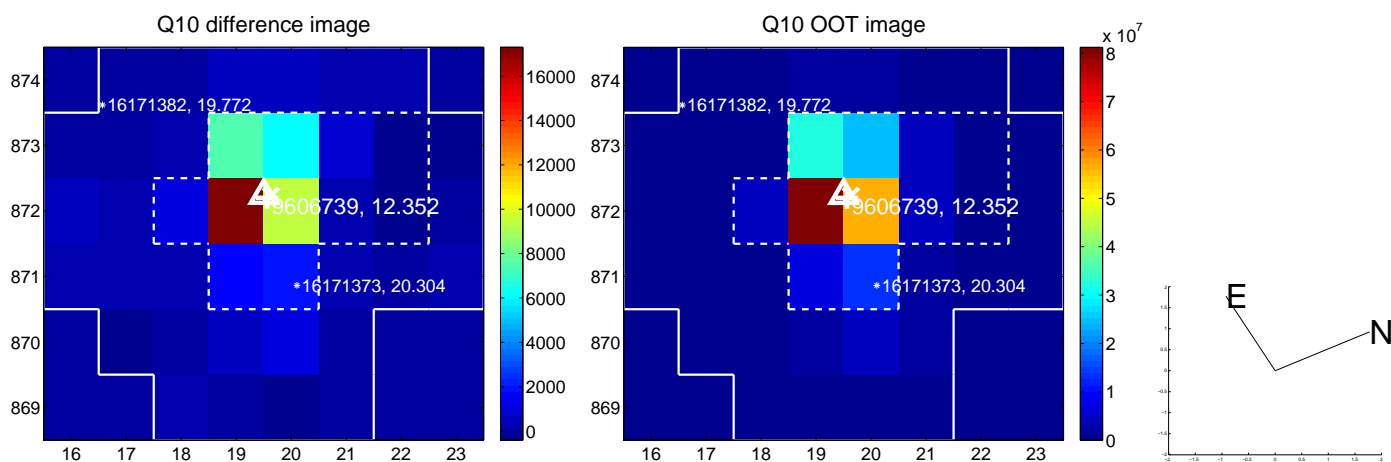
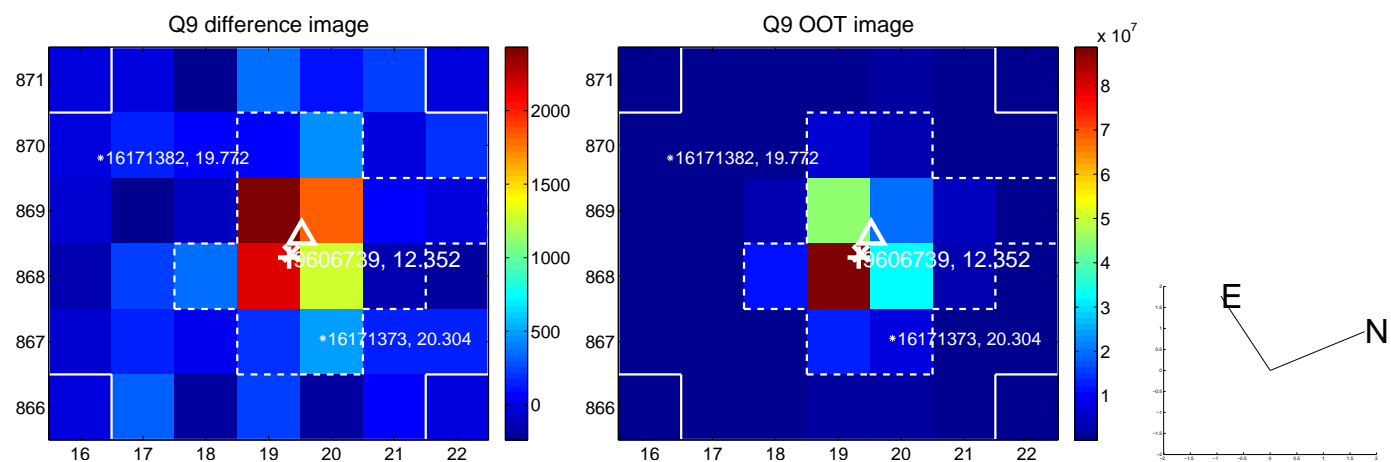
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



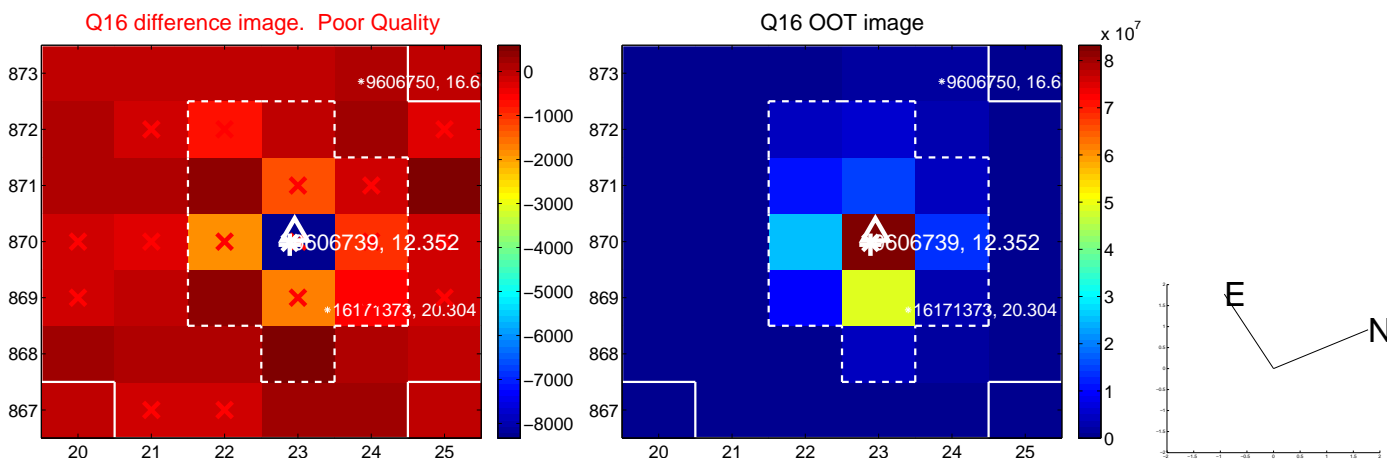
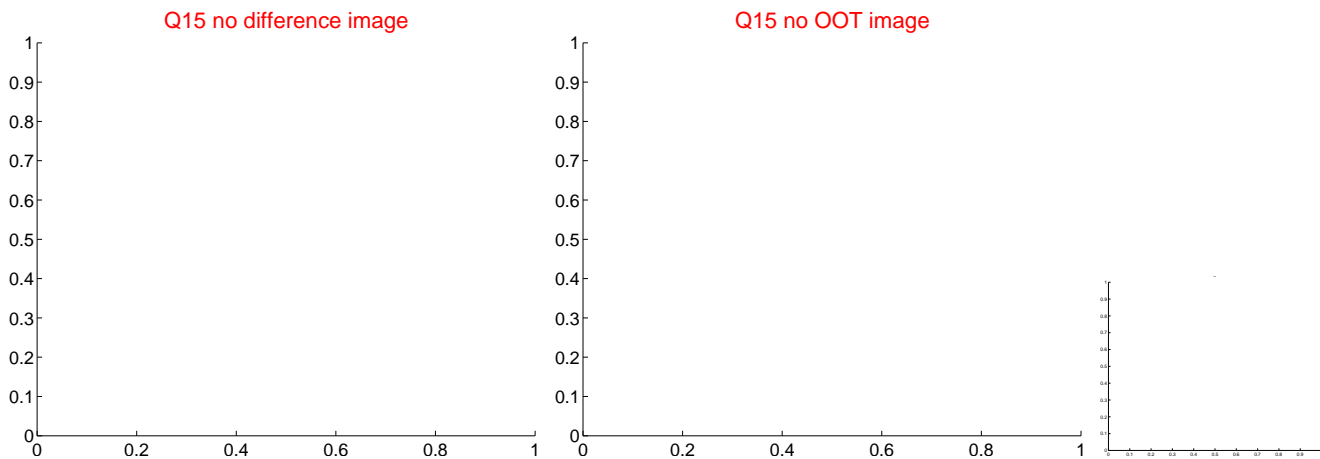
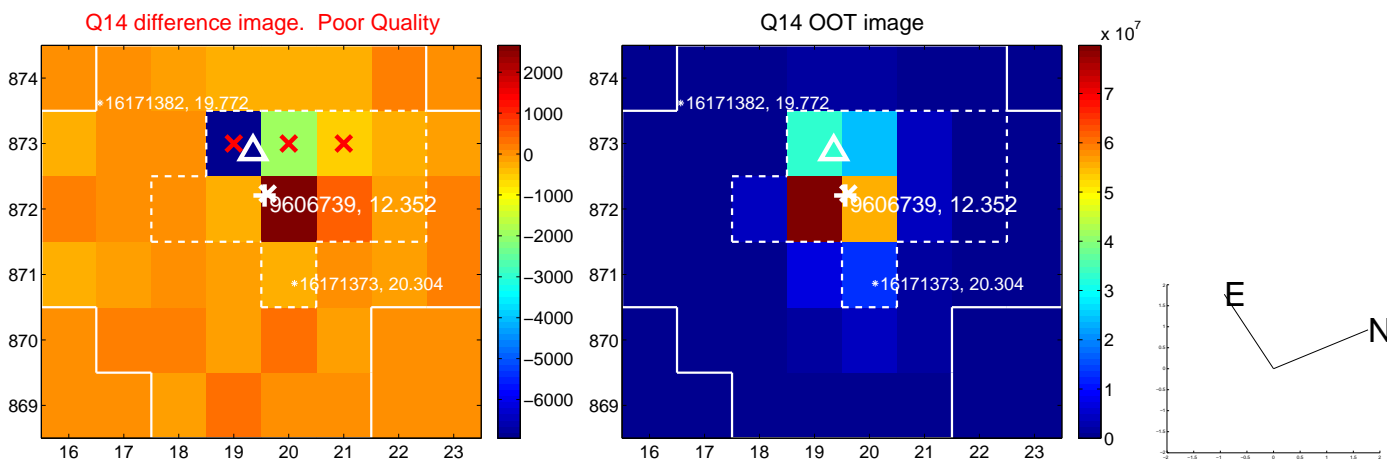
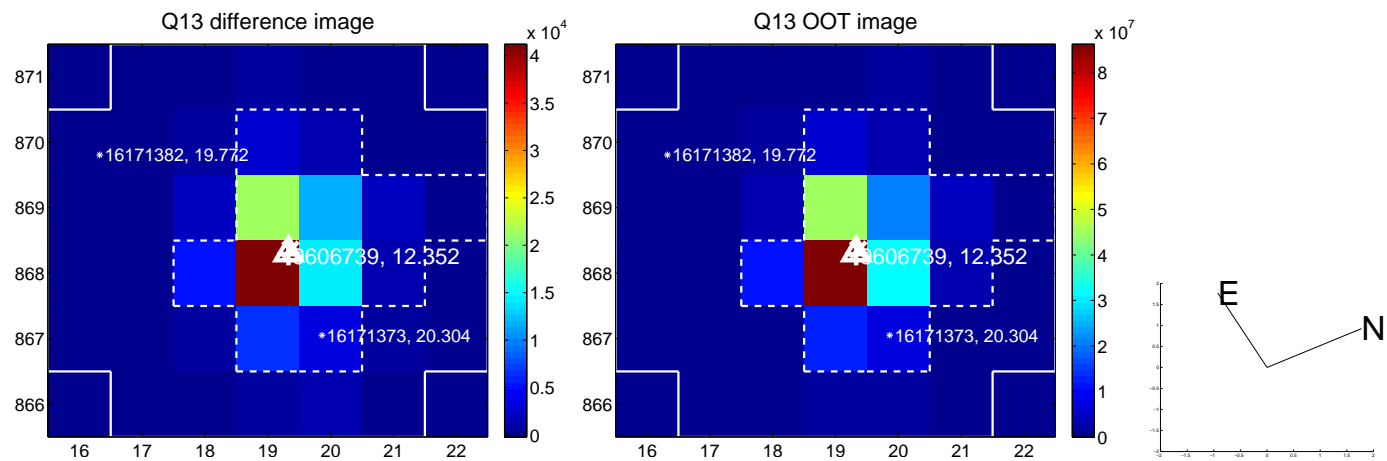
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



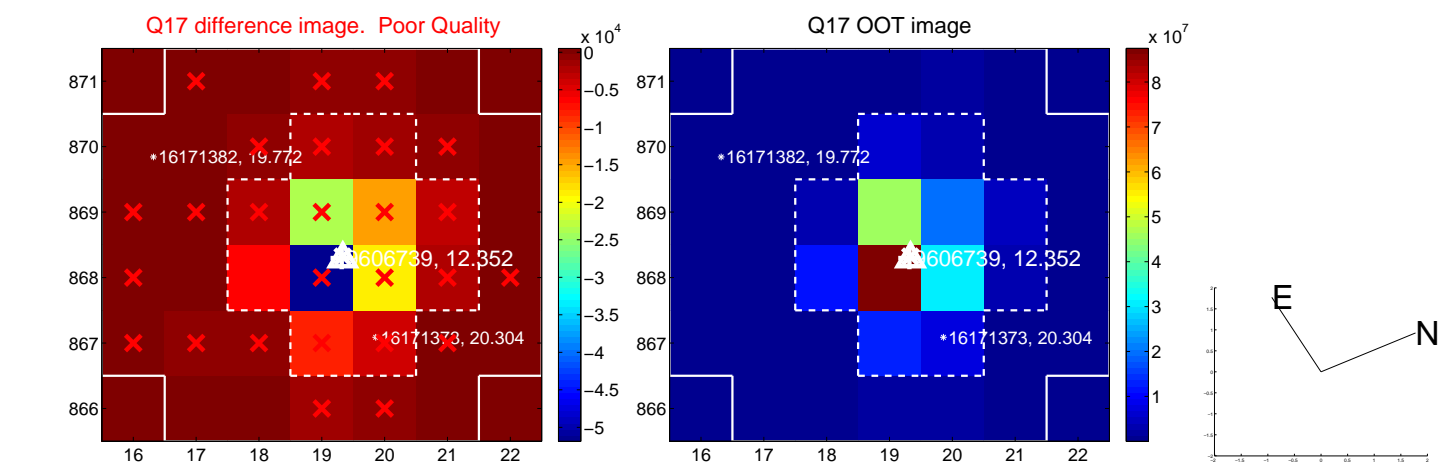
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



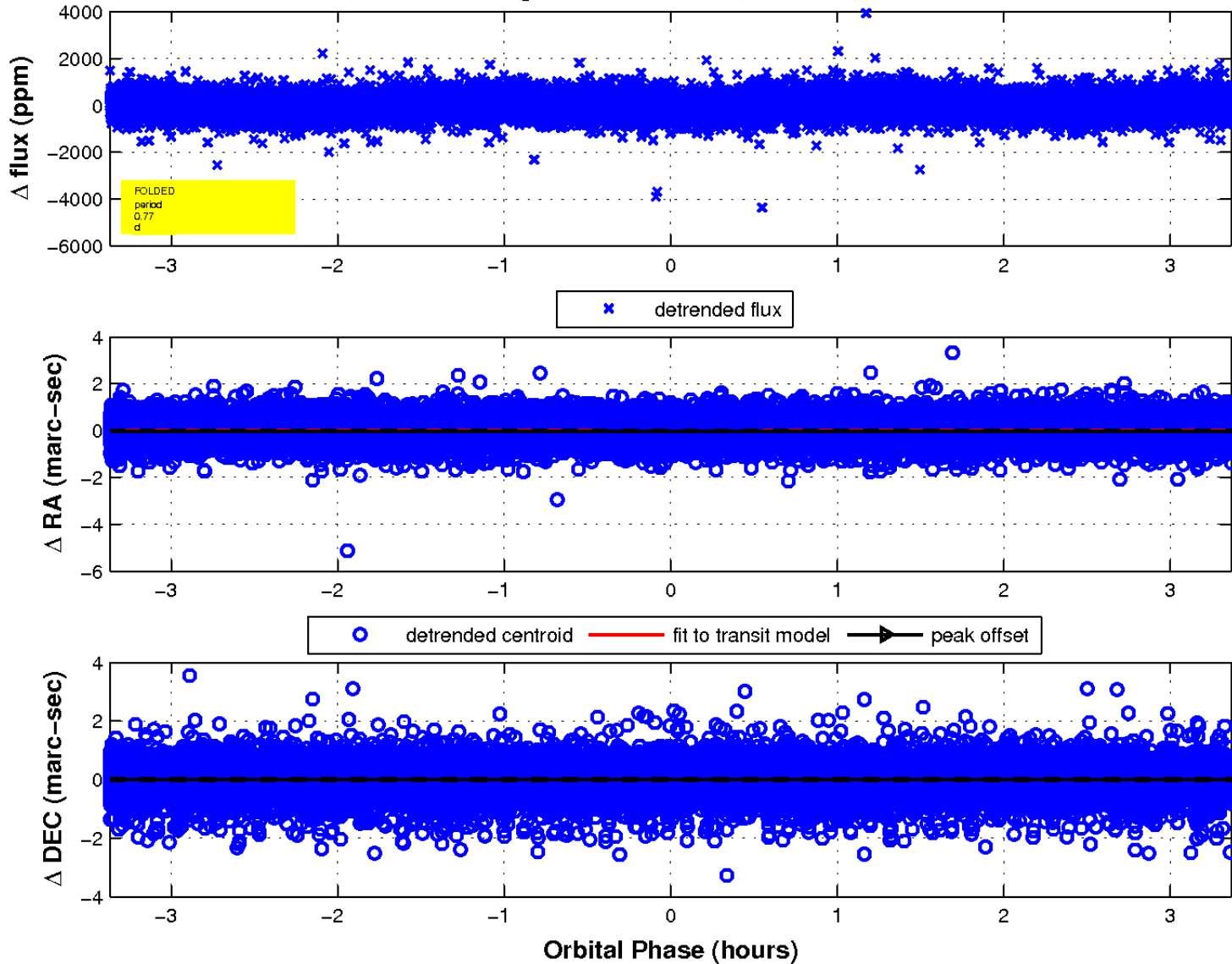
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



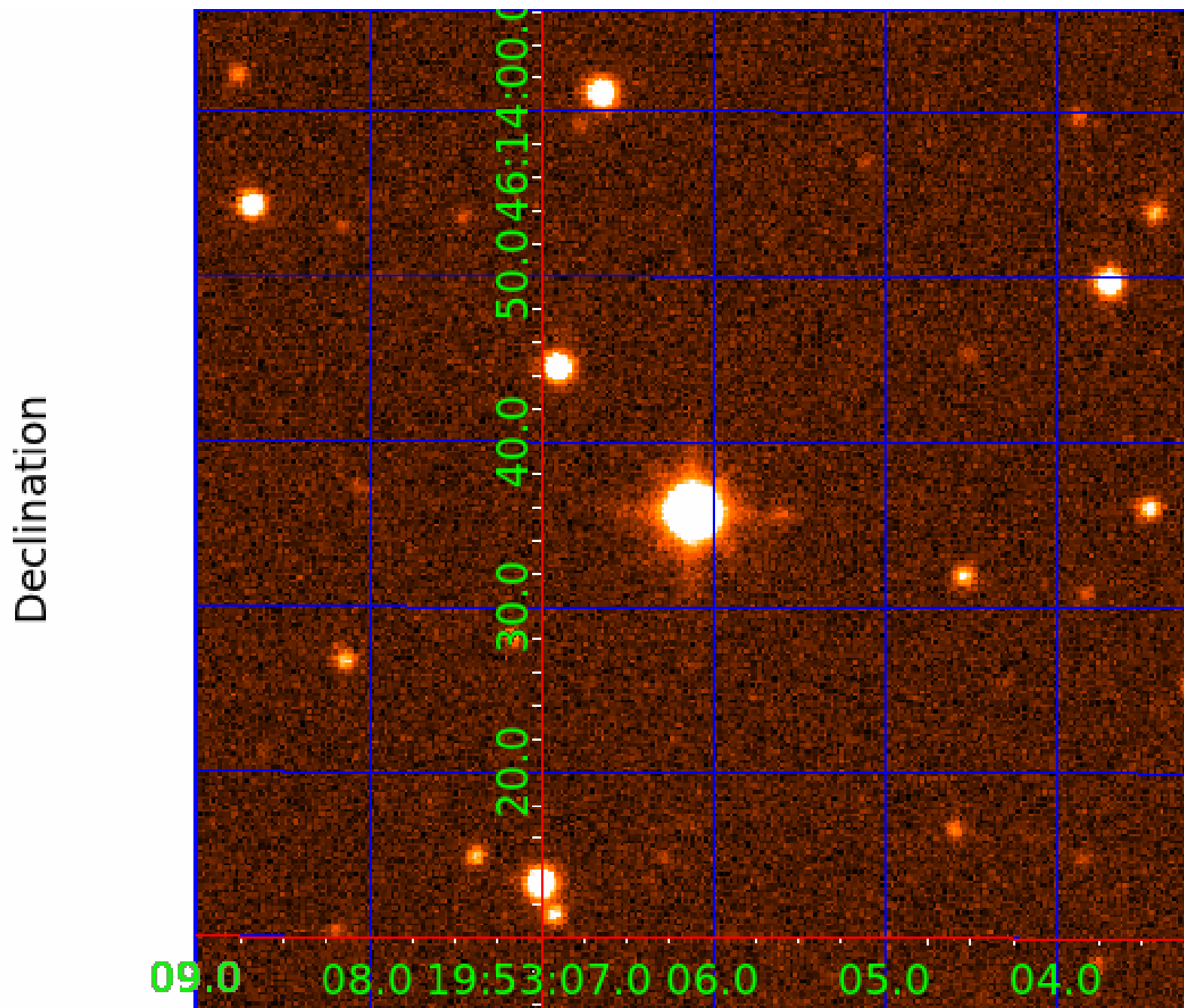
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 4



UKIRT Image



KIC 009606739

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})
009606739-01	OBS	No	1.540106	132.195949	83.4	1.096	11.2	7.8	1.23	6744	1.31	3549.42
009606739-02	OBS	No	0.770032	132.210782	127.2	1.228	11.9	12.8	1.23	6744	1.49	8944.31
009606739-03	OBS	No	0.770027	131.637700	79.8	1.123	12.5	10.7	1.23	6744	1.28	8944.39
009606739-04	OBS	No	0.770054	132.004843	95.1	0.915	10.2	11.1	1.23	6744	1.42	8943.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009606739-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009606739-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
009606739-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
009606739-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

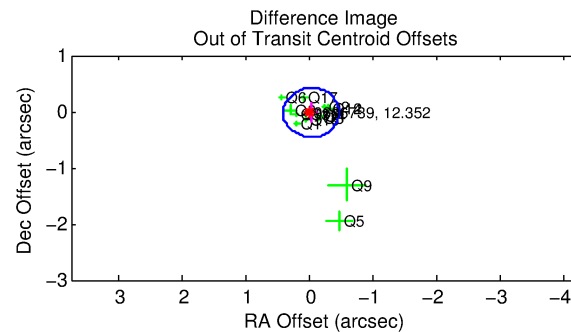
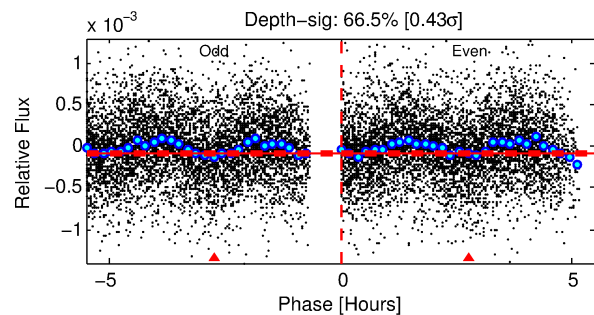
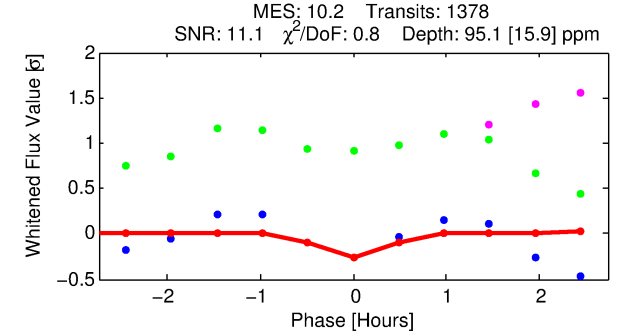
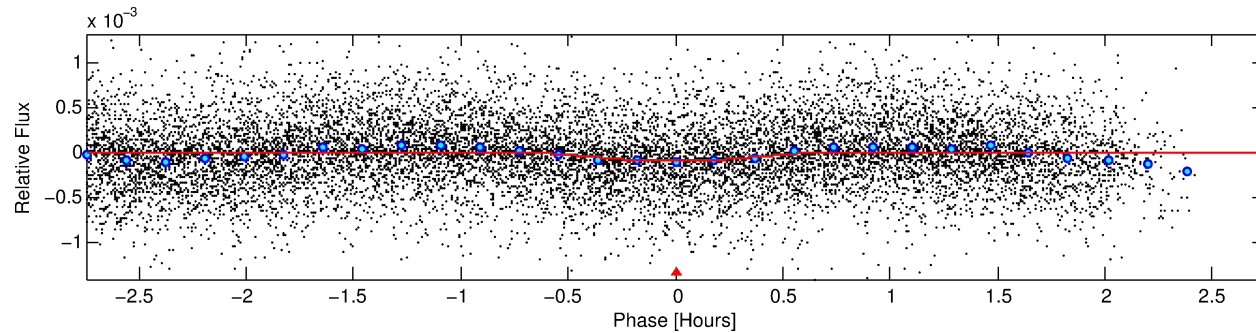
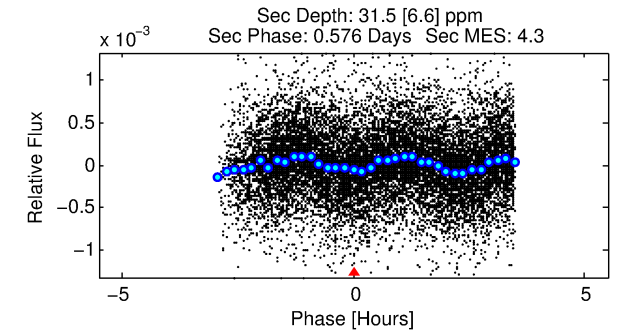
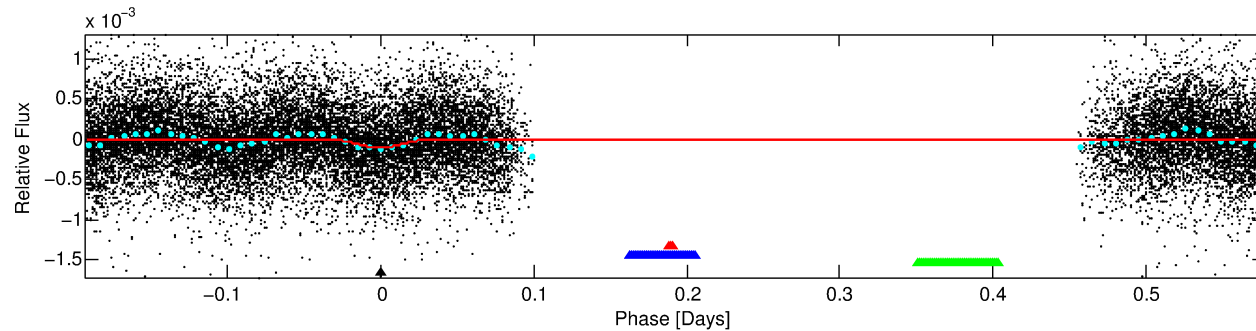
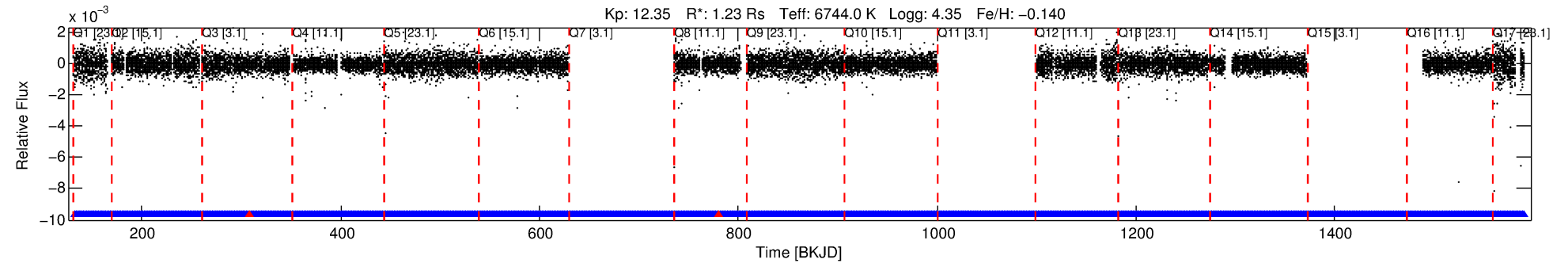
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009606739-04

No Significant Match Found

DV One-Page Summary

KIC: 9606739 Candidate: 4 of 4 Period: 0.770 d



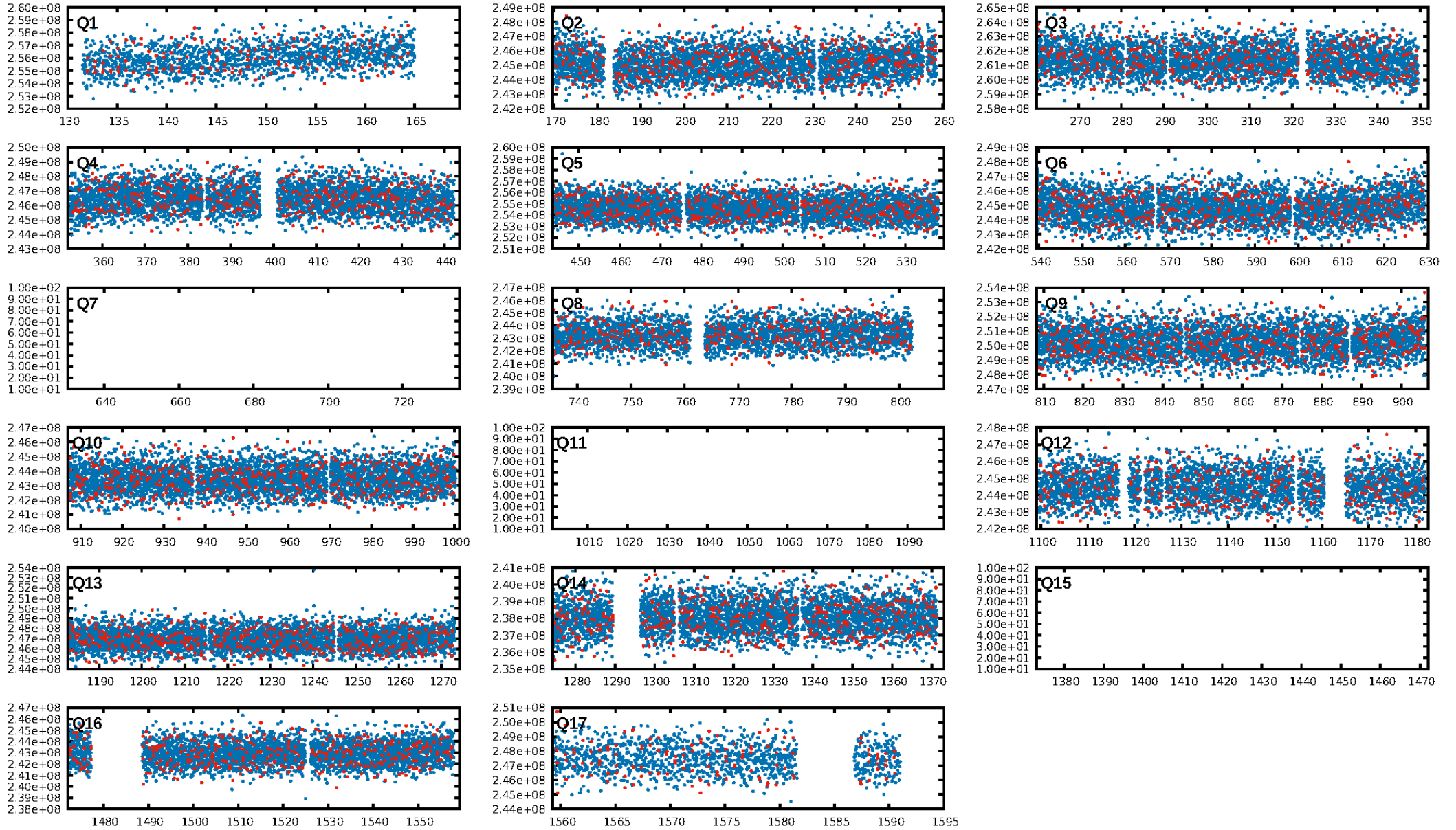
DV Fit Results:

Period = 0.77005 [0.00001] d
Epoch = 132.0048 [0.0015] BKJD
Rp/R* = 0.0106 [0.0042]
a/R* = 2.98 [6.19]
b = 0.91 [0.45]
Seff = 8943.96 [3906.80]
Teff = 2480 [271] K
Rp = 1.42 [0.75] Re
a = 0.0176 [0.0052] AU
Ag = 2.69 [2.48] [0.68σ]
Teffp = 4910 [1021] K [2.30σ]

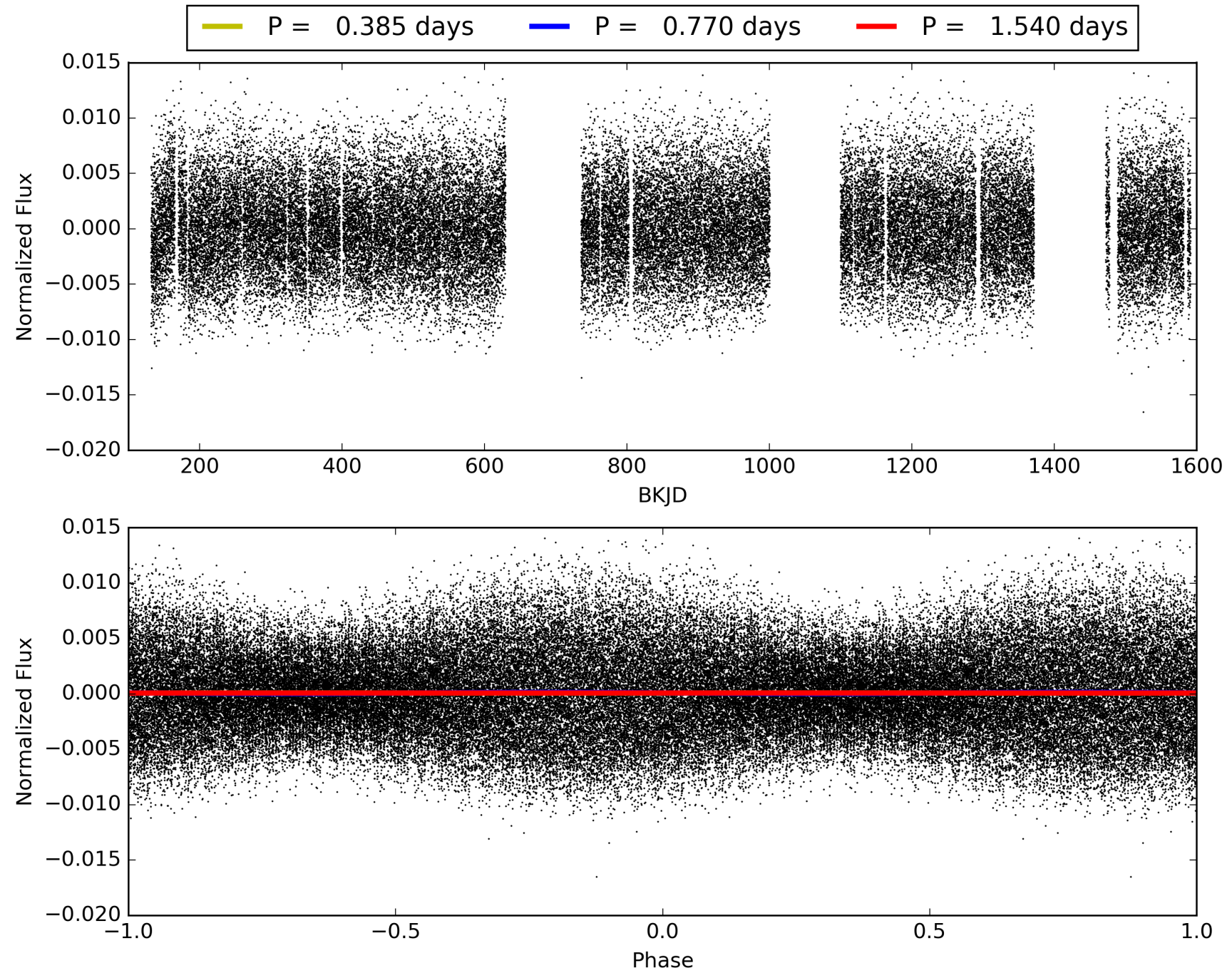
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [12.95σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.59e-52
RollingBand-fgt: 1.00 [1299/1301]
GhostDiagnostic-chr: 4.57
Centroid-sig: 2.8%
Centroid-so: 0.644 arcsec [2.39σ]
OotOffset-rm: 0.030 arcsec [0.21σ]
KicOffset-rm: 0.192 arcsec [1.03σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 009606739-04, PDC Light Curves

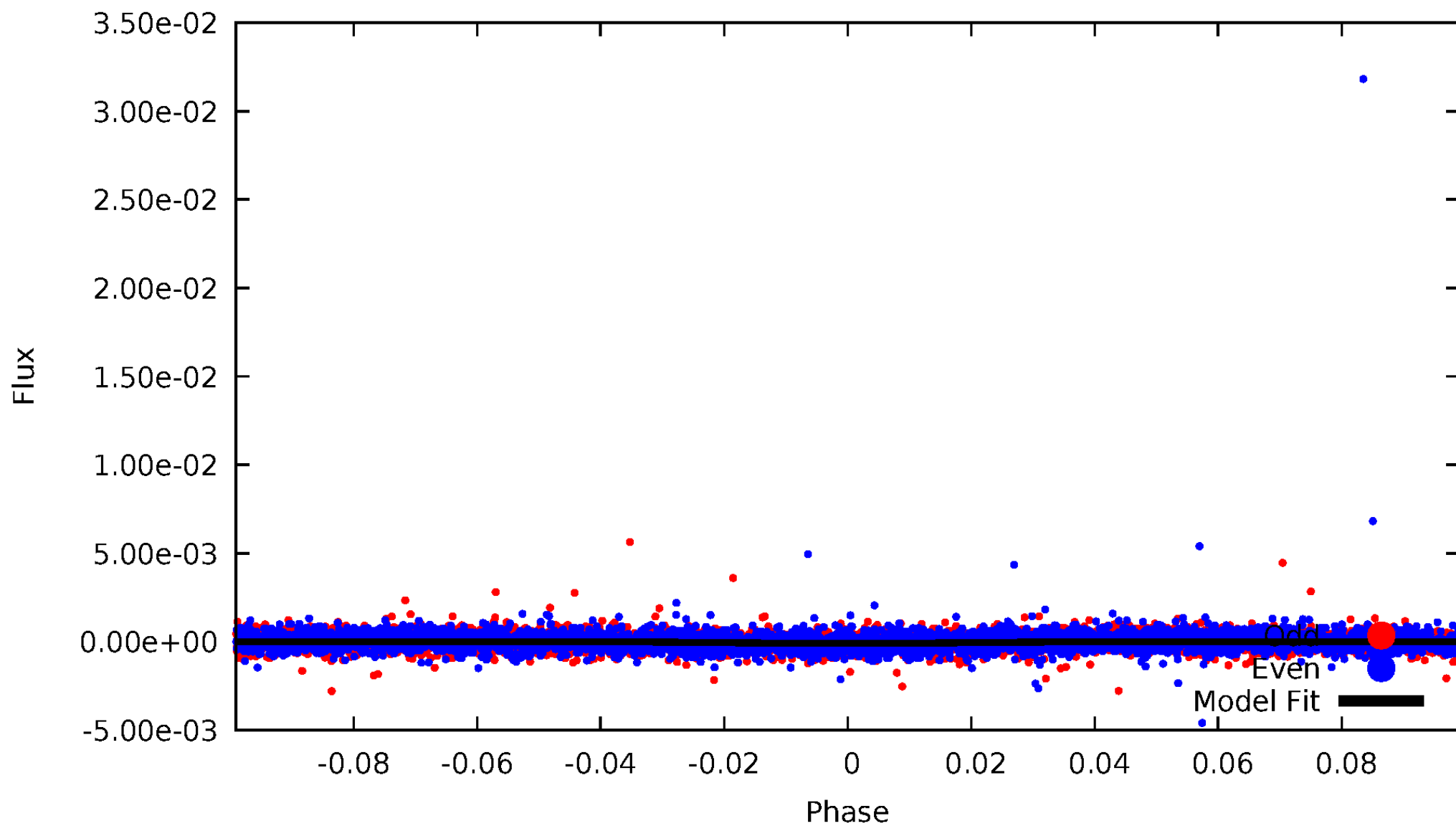


TCE 009606739-04



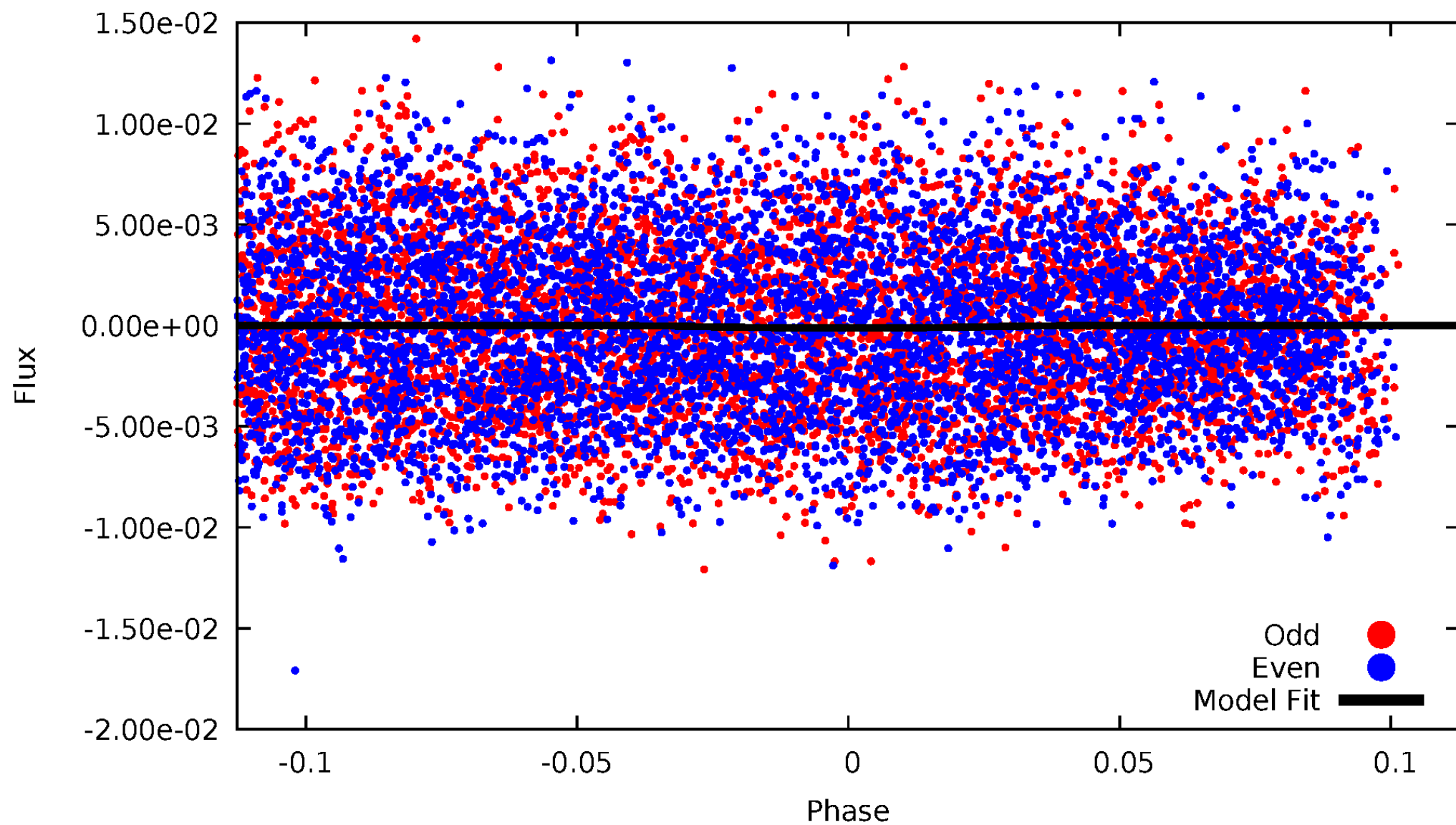
DV Odd/Even

TCE 009606739-04



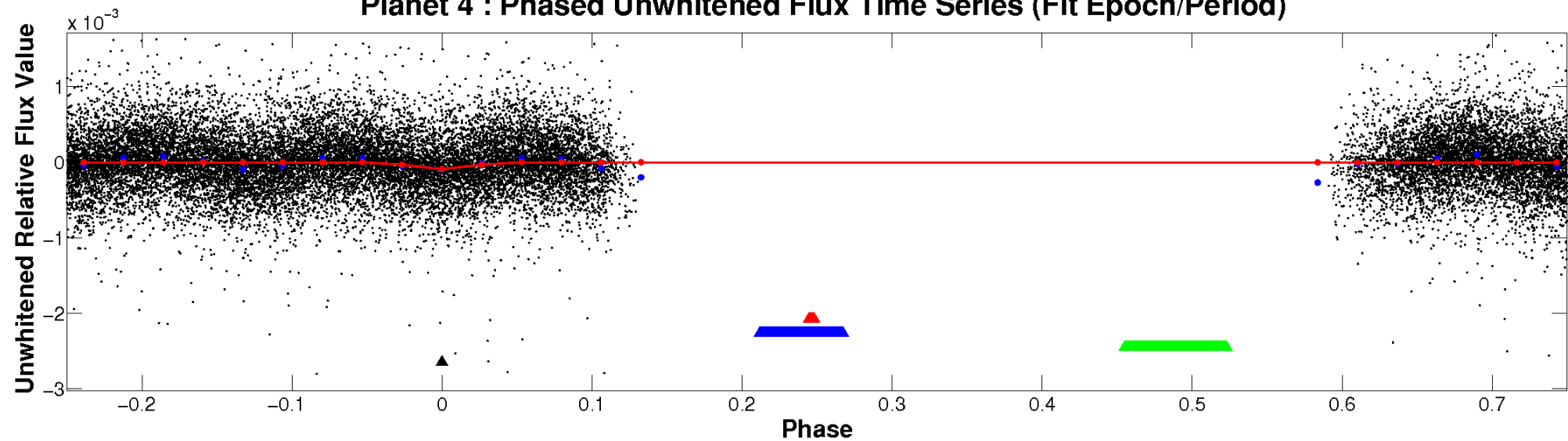
ALT Odd/Even

TCE 009606739-04

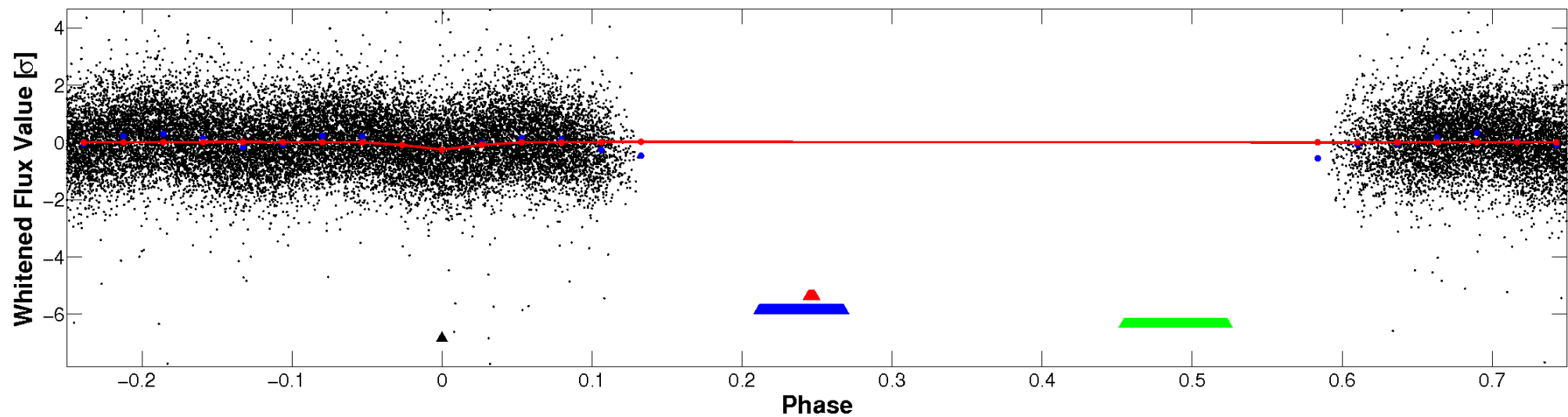


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

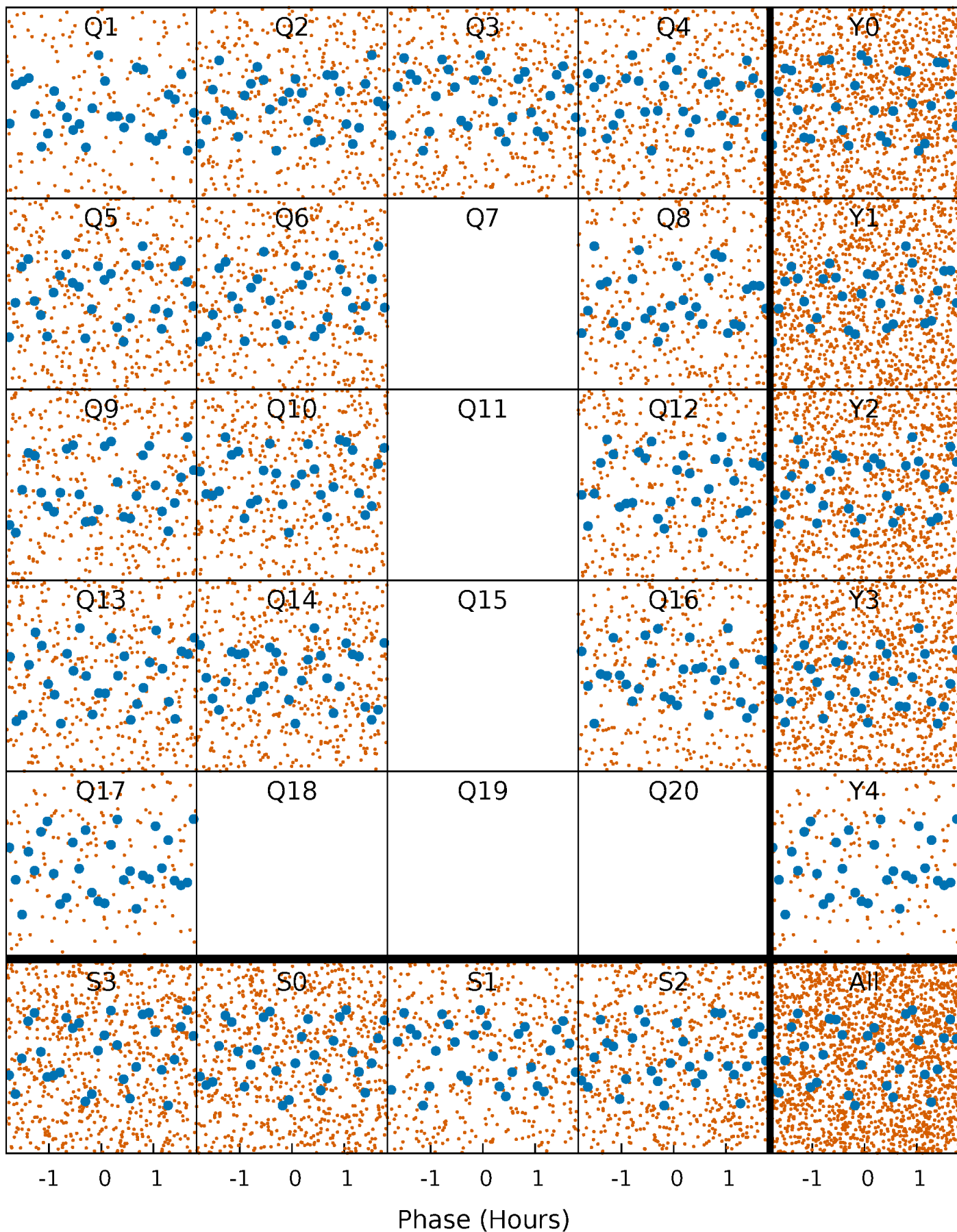


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



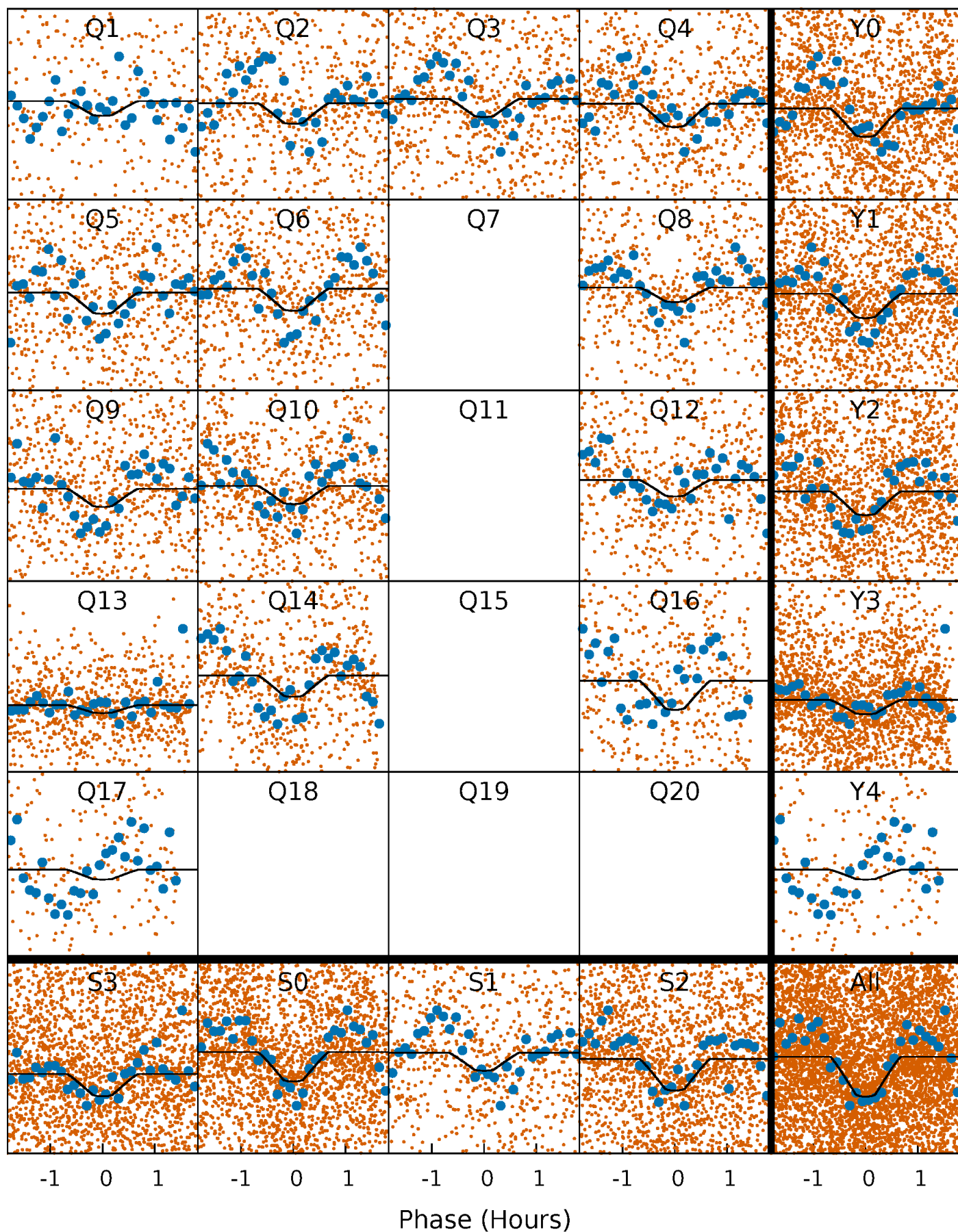
PDC Quarter-Phased Transit Curves

TCE 009606739-04 P= 0.770054 Days $T_0=132.004843$ (BKJD)



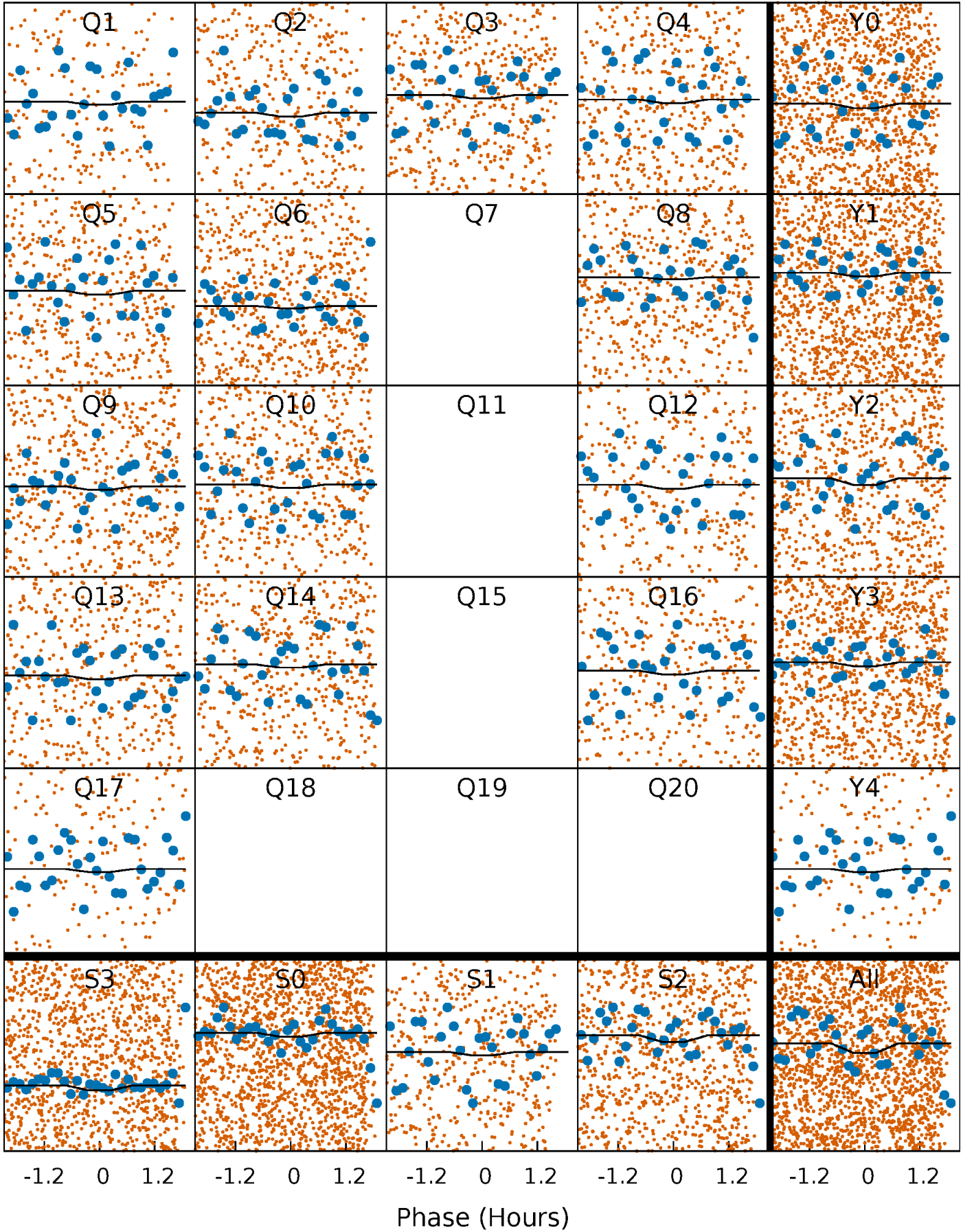
DV Quarter-Phased Transit Curves

TCE 009606739-04 P= 0.770054 Days $T_0=132.004843$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

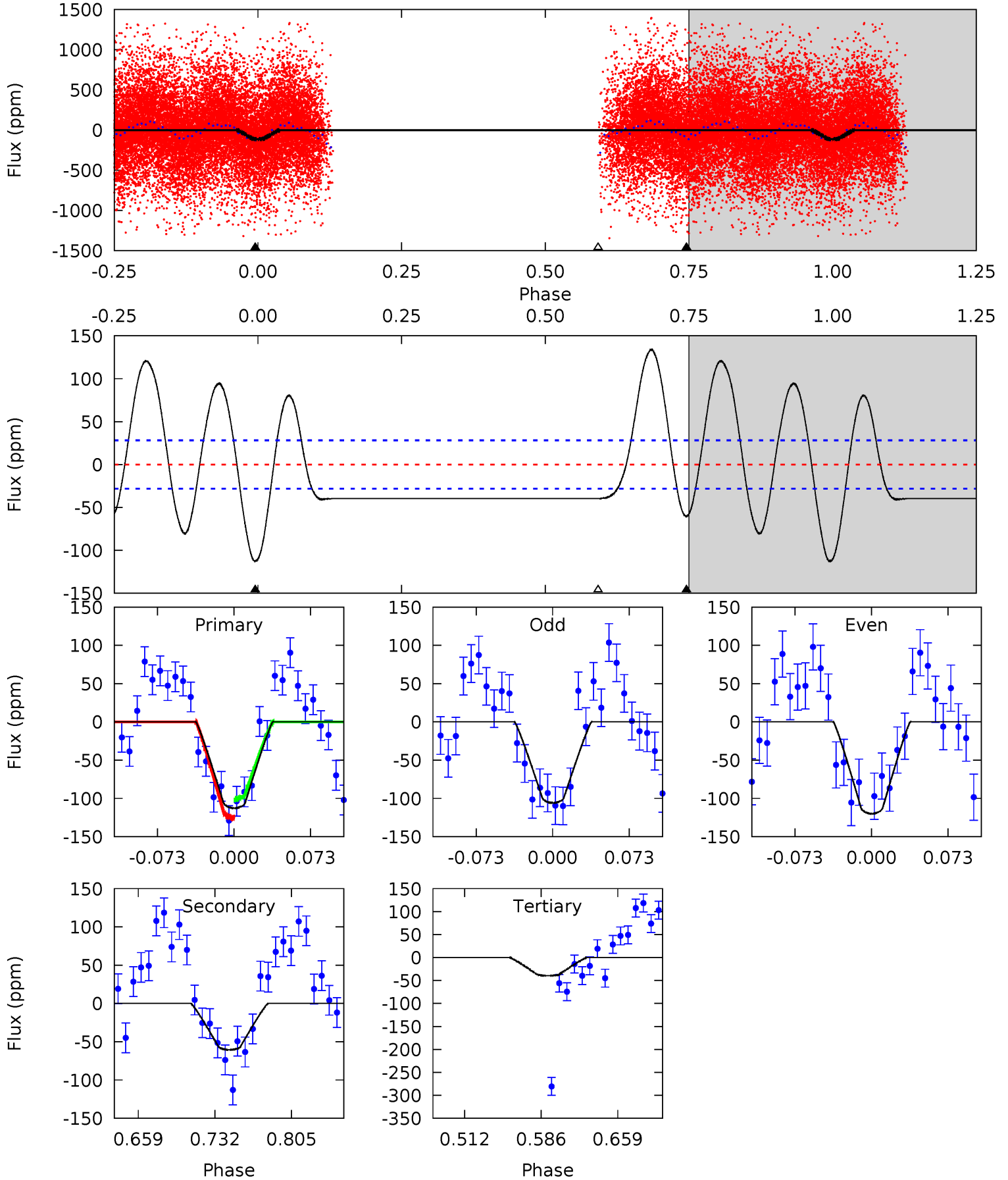
TCE 009606739-04 P= 0.770025 Days $T_0=132.040698$ (BKJD)



DV Model-Shift Uniqueness Test

009606739-04, P = 0.770054 Days, E = 131.234789 Days

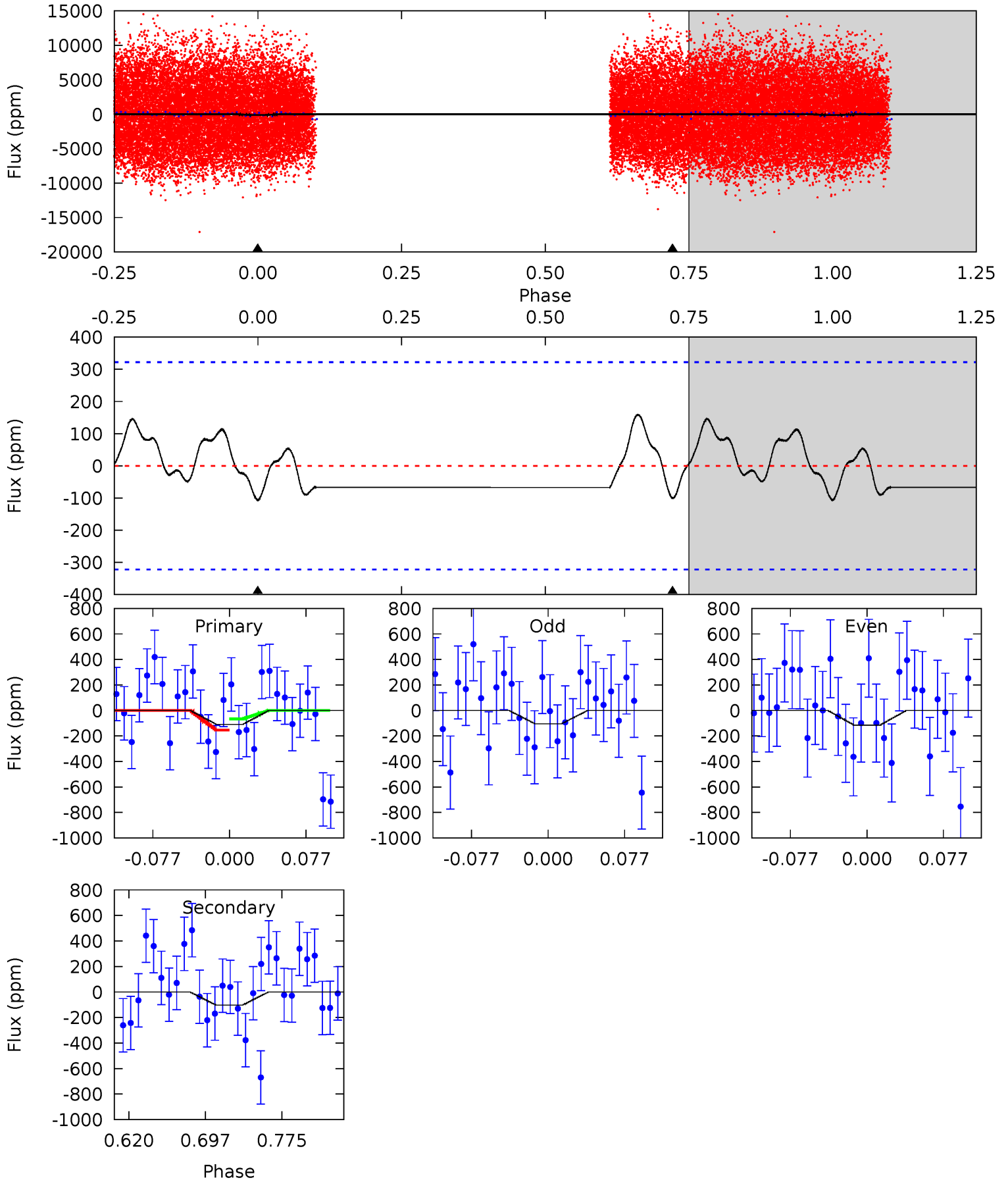
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	9.96	6.53	0	4.63	1.79	8.91	12.0	18.5	3.43	9.96	1.17	0.95	0.54	2.03



Alt Model-Shift Uniqueness Test

009606739-04, P = 0.770025 Days, E = 131.270673 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.57	1.47	0	0	4.62	1.77	0.79	1.57	1.57	1.47	1.47	0.07	0.84	0.59	0.63



Stellar Parameters For KIC 009606739

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6744^{+151}_{-219}	$4.353^{+0.056}_{-0.224}$	$-0.140^{+0.250}_{-0.350}$	$1.226^{+0.434}_{-0.145}$	$1.246^{+0.194}_{-0.177}$	$0.952^{+0.292}_{-0.528}$
	+2%/-3%	+1%/-5%	+179%/-250%	+35%/-12%	+16%/-14%	+31%/-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 009606739-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-61 ± 6	$1.54^{+0.62}_{-0.60}$	3540^{+270}_{-175}	5628^{+1594}_{-846}	$4.441^{+7.266}_{-2.216}$
Alt.	-103 ± 70	$1.51^{+0.66}_{-0.70}$	3550^{+291}_{-184}	6345^{+3093}_{-1757}	$7.246^{+18.312}_{-5.460}$

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 $A_{obs} \gg 1.0$

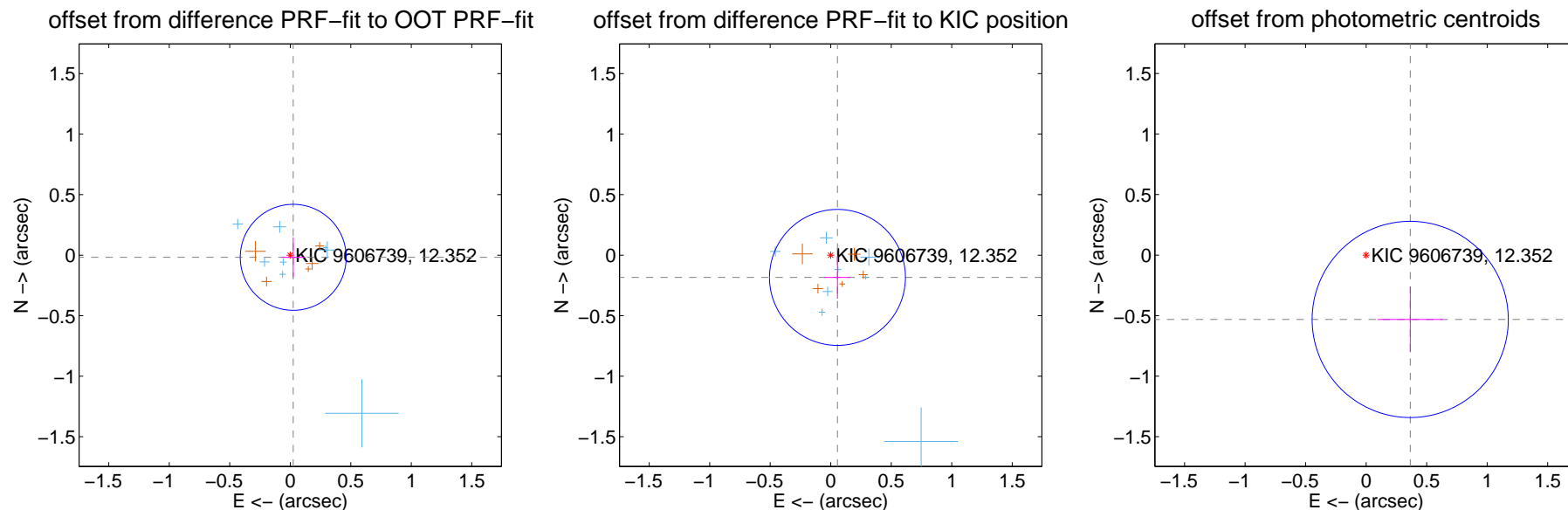
DV Centroid Data

Supplemental centroid analysis for 009606739-04. Kepler magnitude: 12.35. Transit SNR 11.05

There are 8 quarters with good PRF difference image offsets

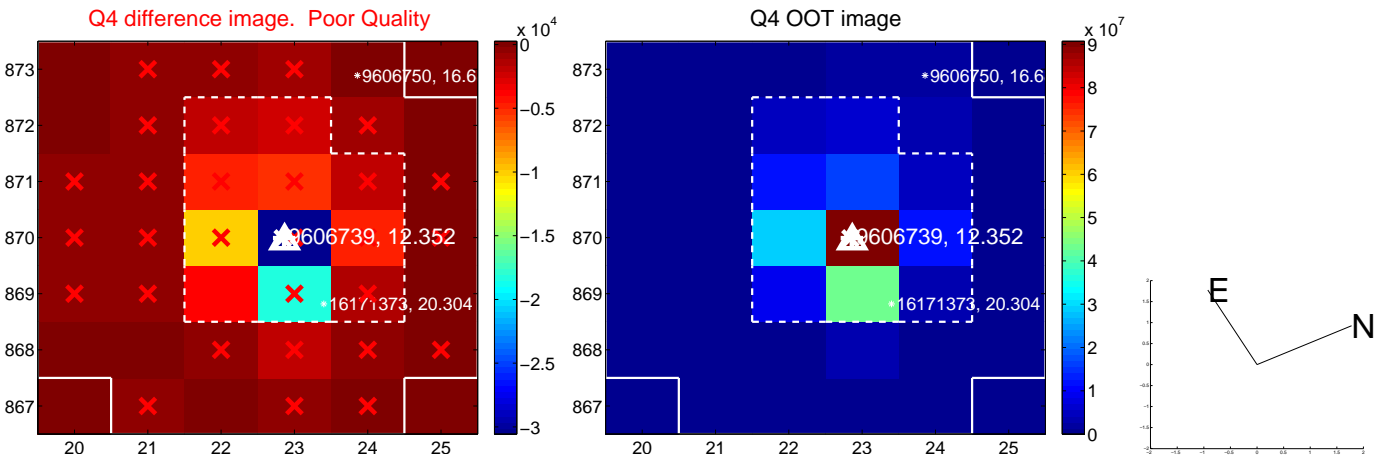
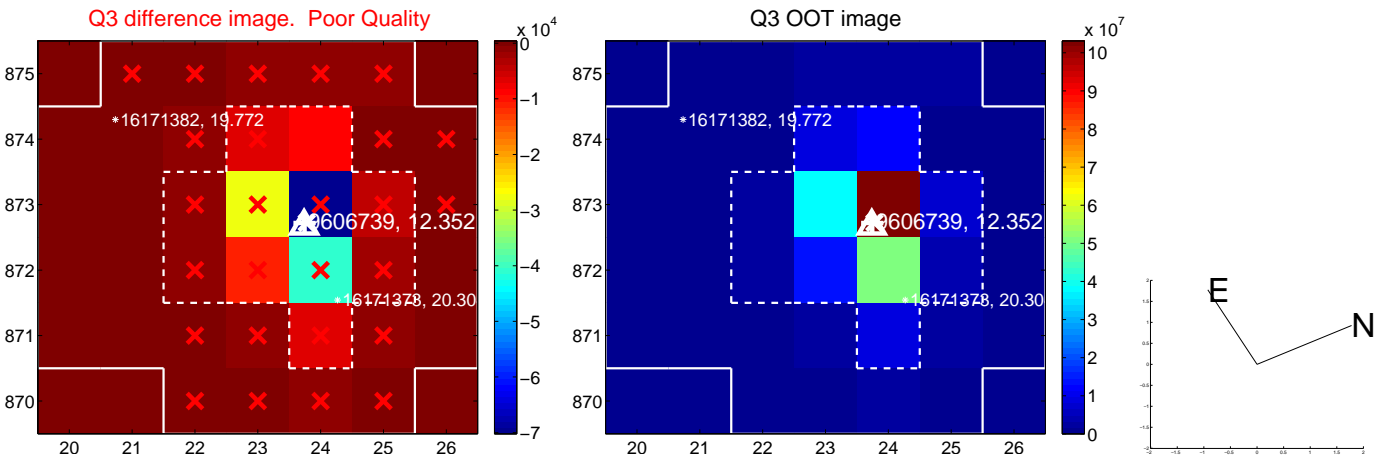
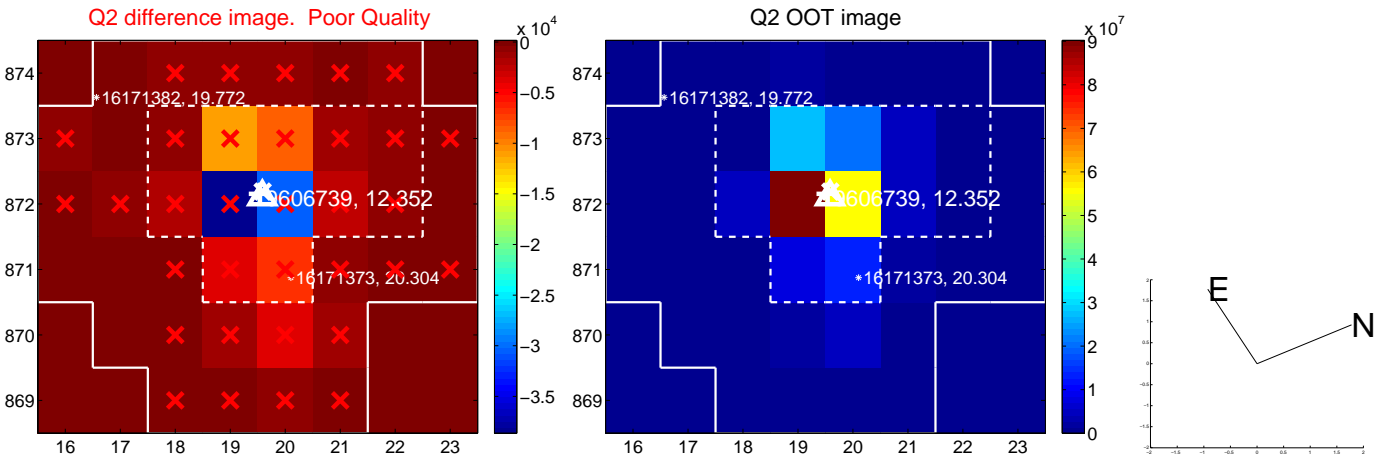
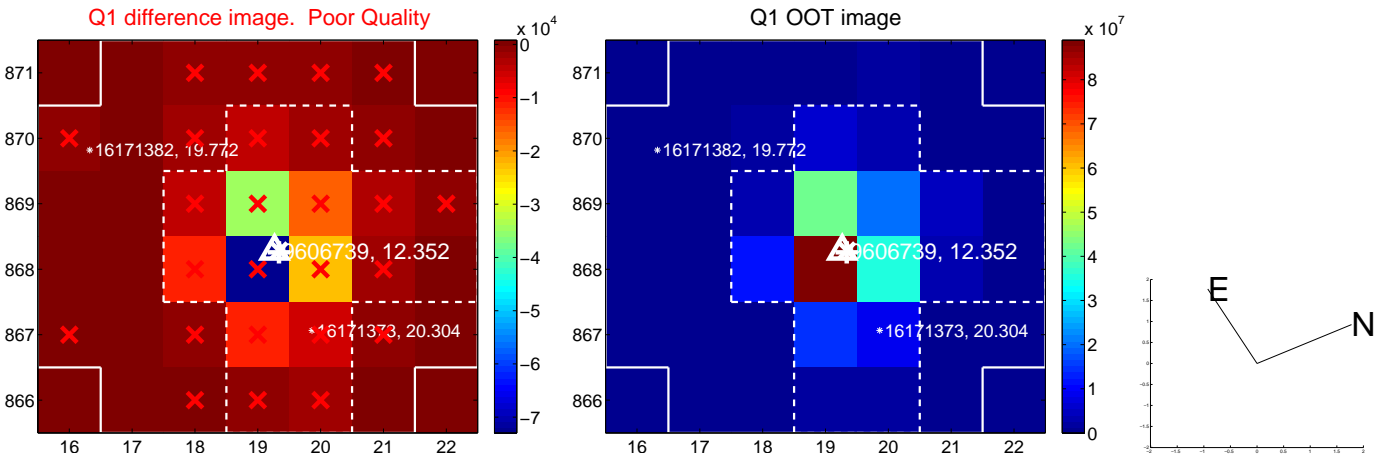
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.030 ± 0.146	0.21	-0.025 ± 0.096	-0.018 ± 0.164
PRF-fit source offset from KIC position	0.192 ± 0.187	1.03	-0.056 ± 0.106	-0.184 ± 0.176
photometric centroid source offset	0.64 ± 0.27	2.39	-0.36 ± 0.27	-0.53 ± 0.27

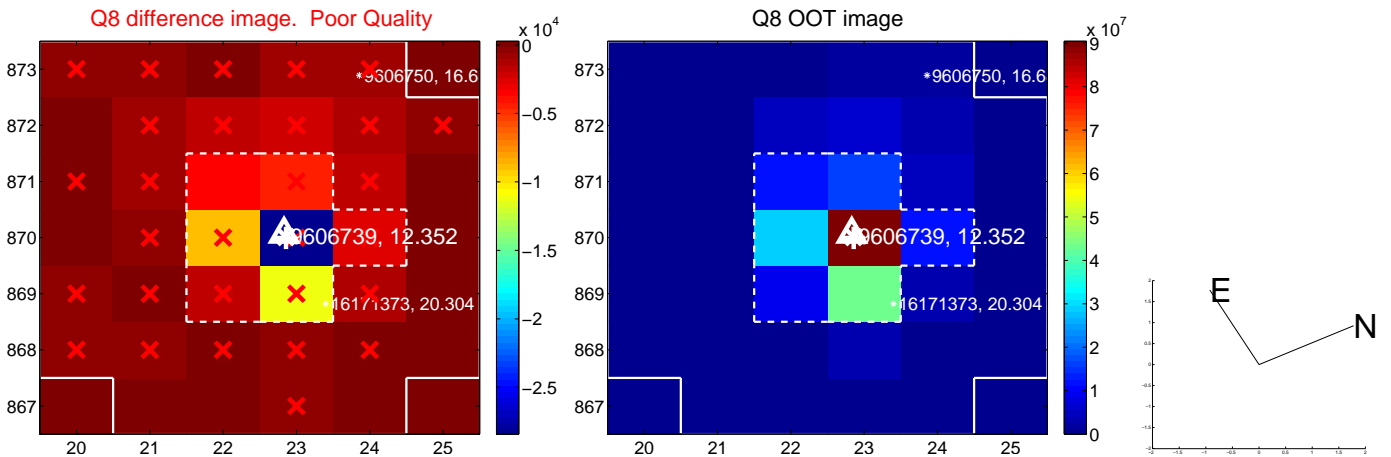
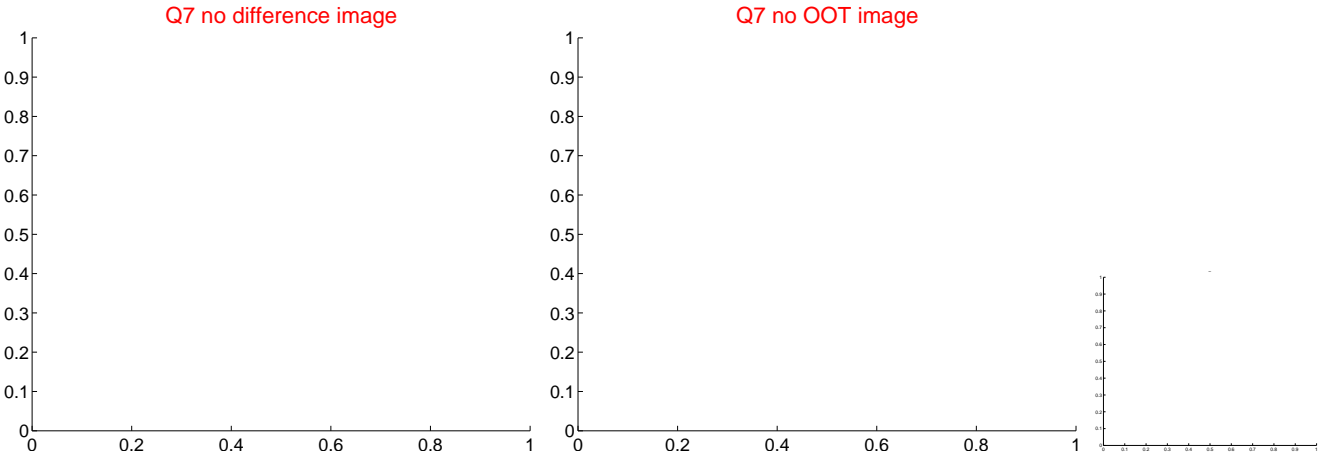
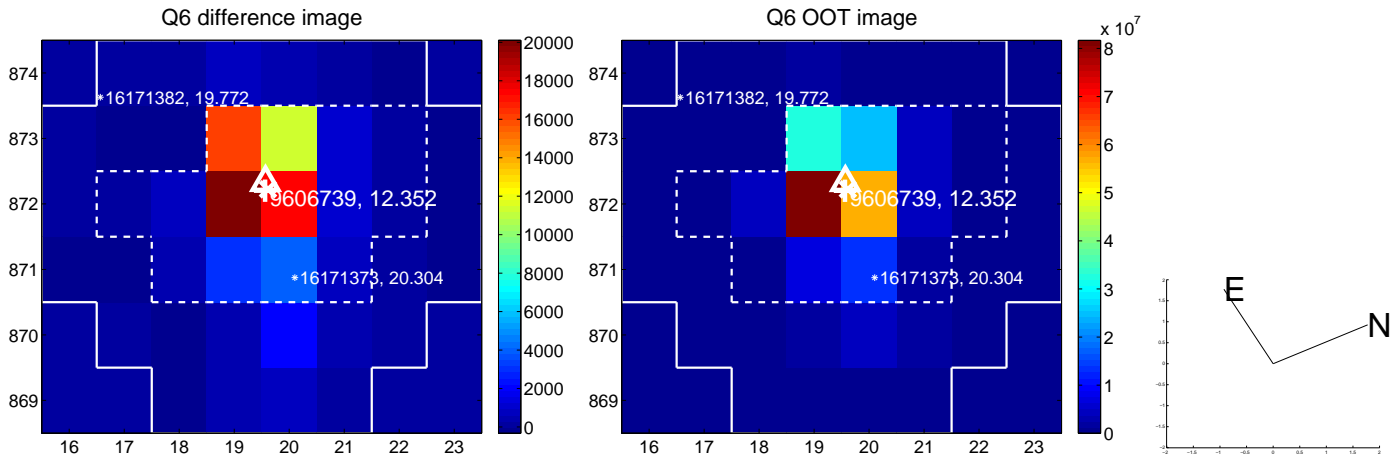
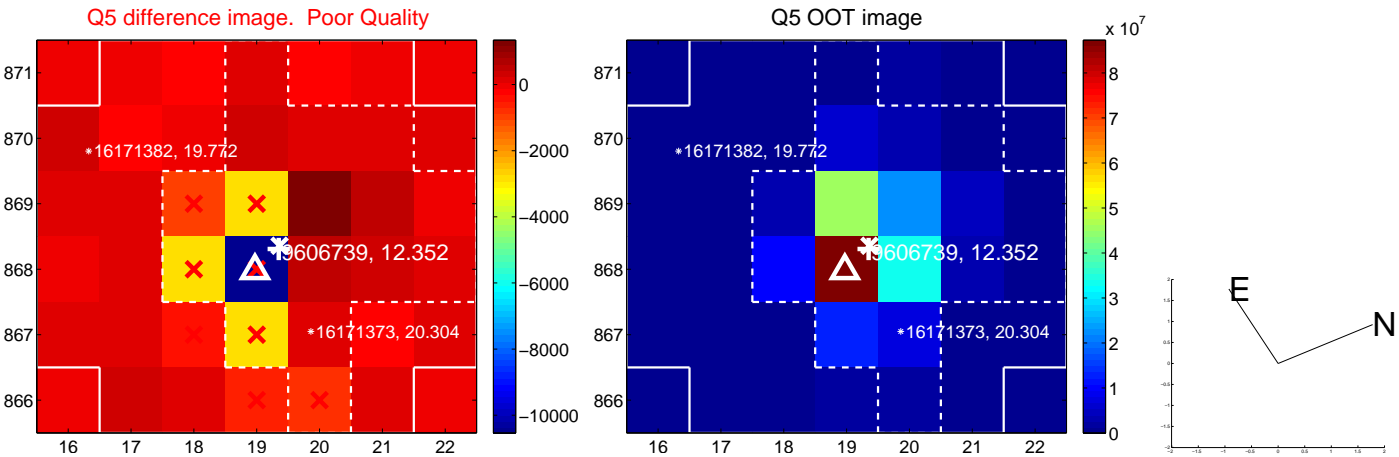


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

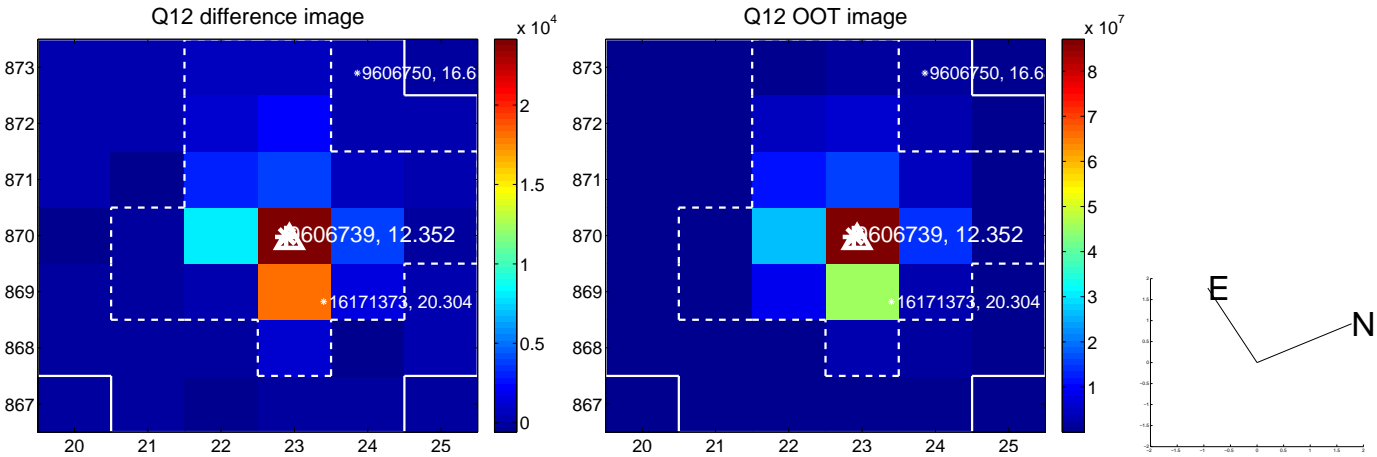
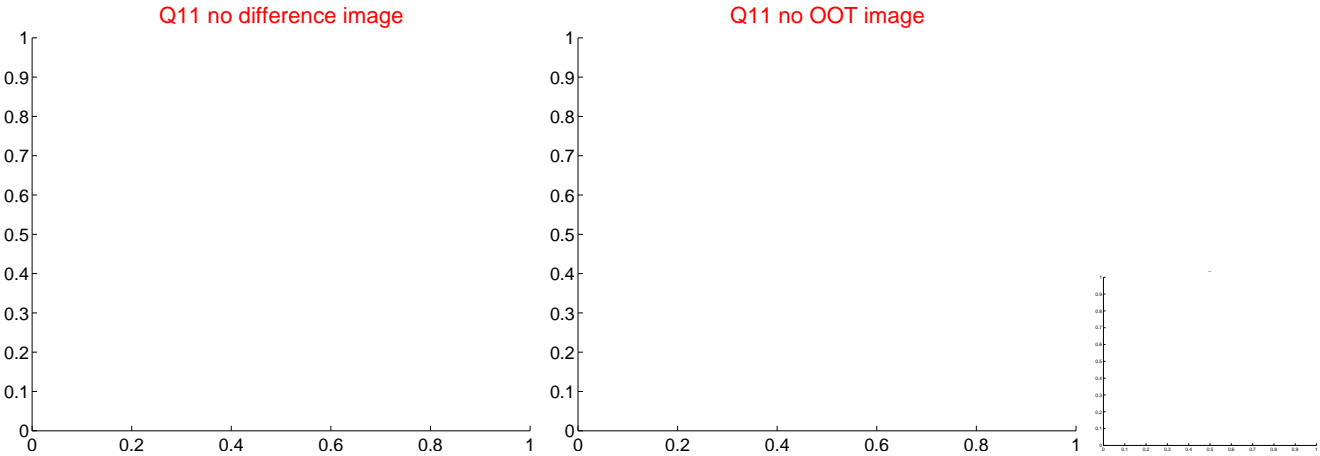
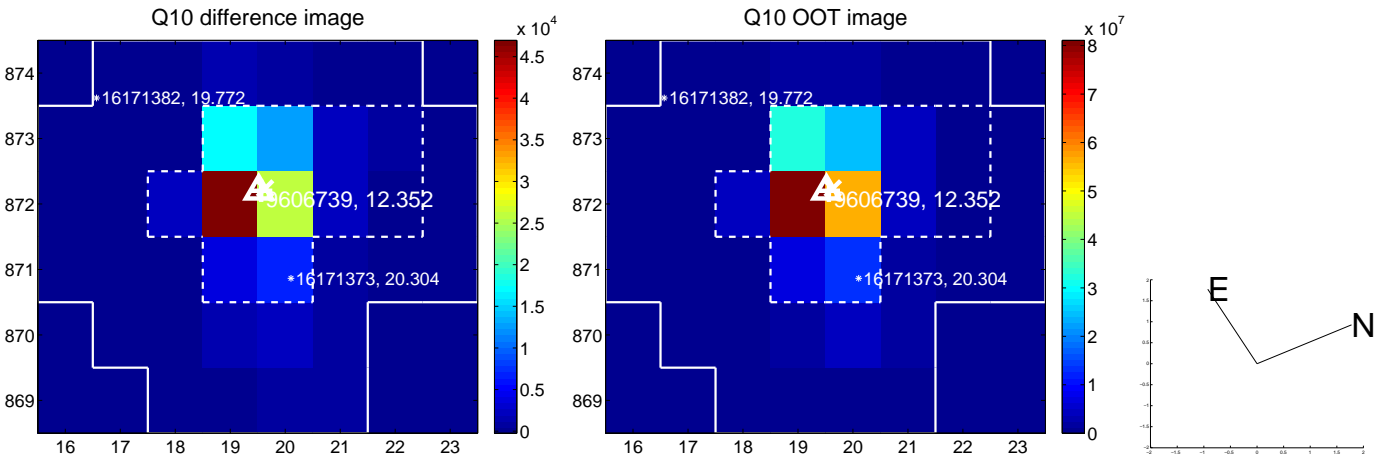
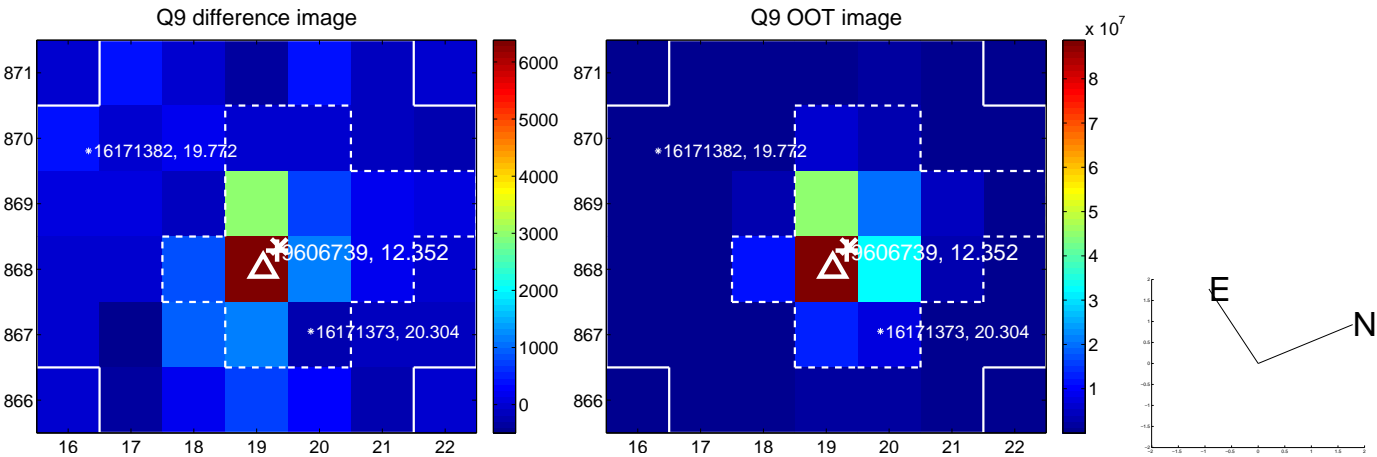
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



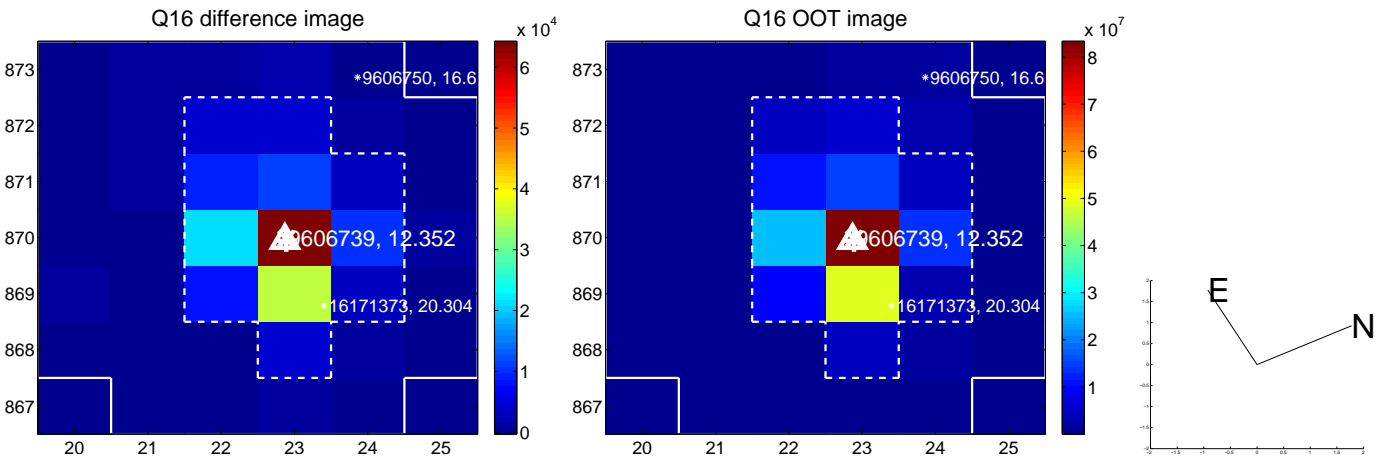
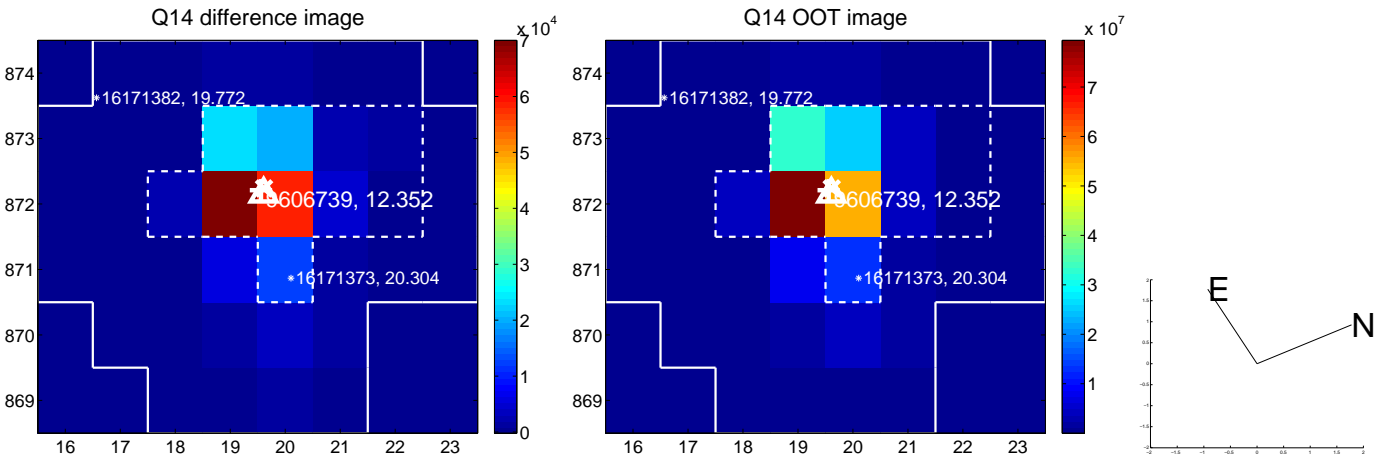
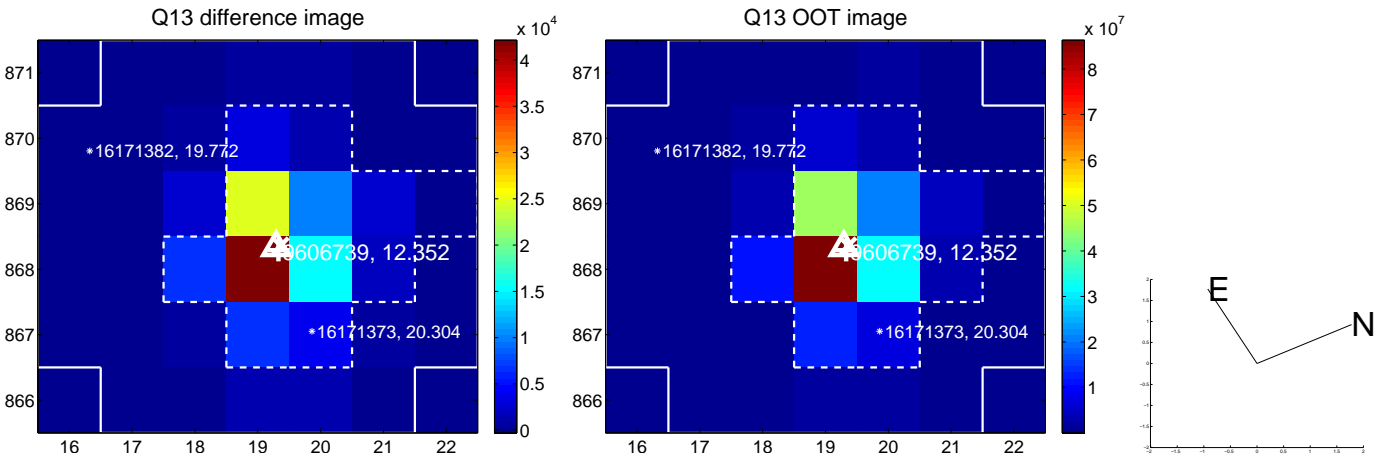
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



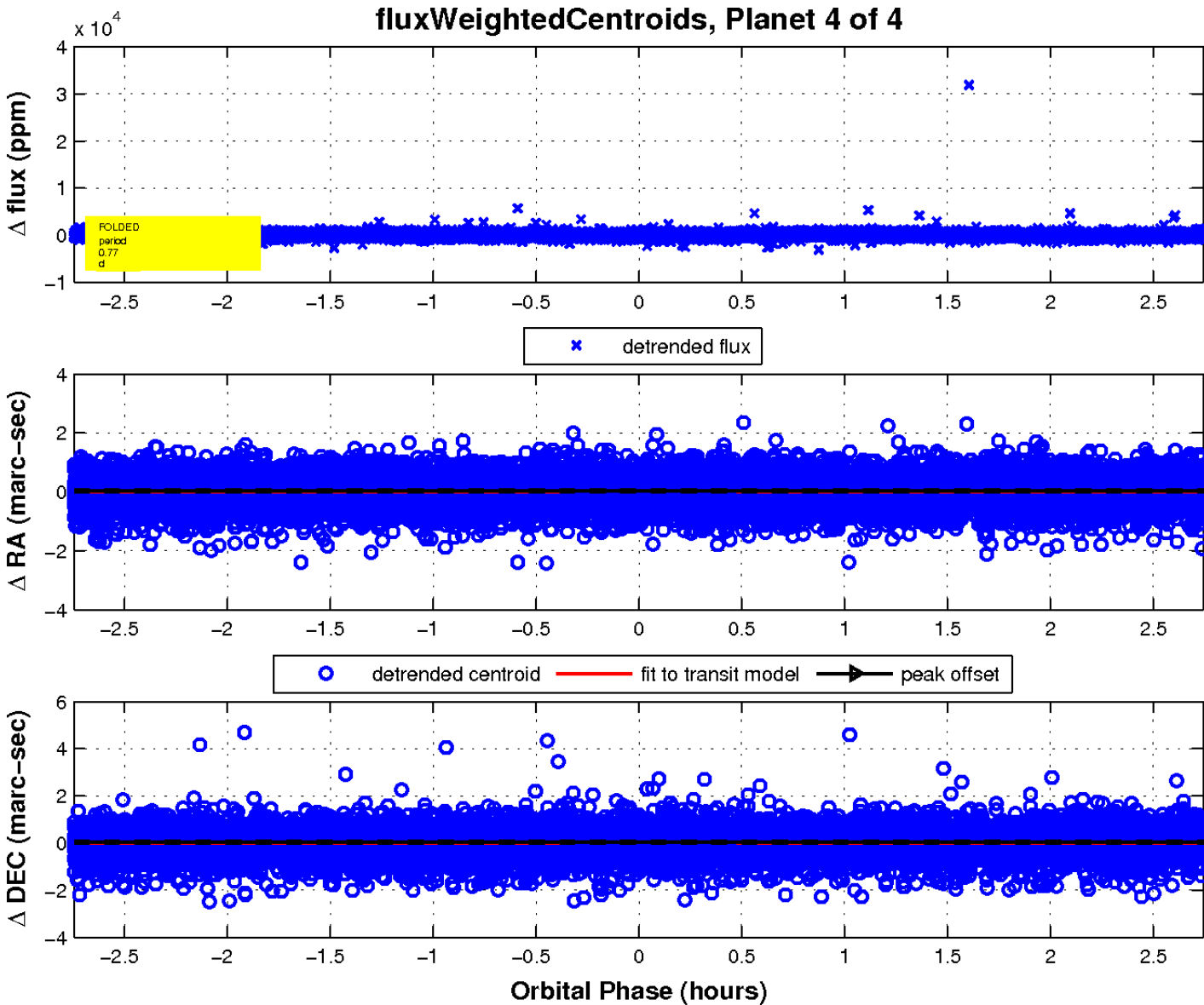
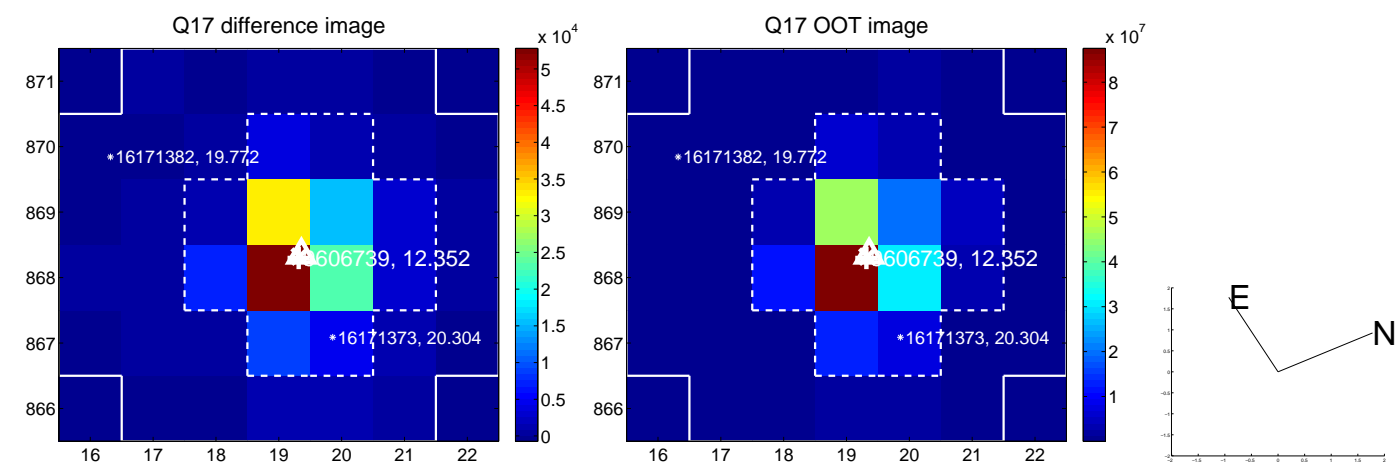
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

