

KIC 005396122

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})
005396122-01	OBS	1935.01	15.444269	138.168196	3531.4	2.041	39.9	45.1	0.99	5895	9.30	67.48
005396122-02	OBS	No	15.444372	145.330185	585.7	1.891	7.7	8.8	0.99	5895	2.85	67.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005396122-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
005396122-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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 005396122-01

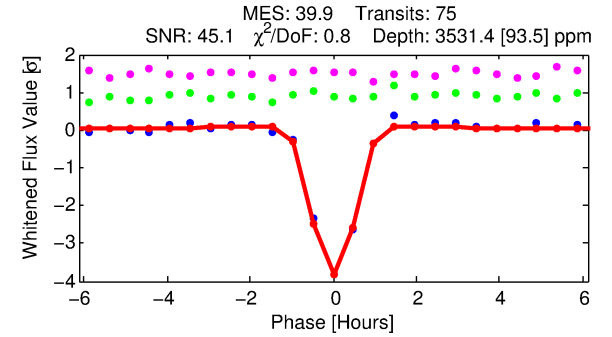
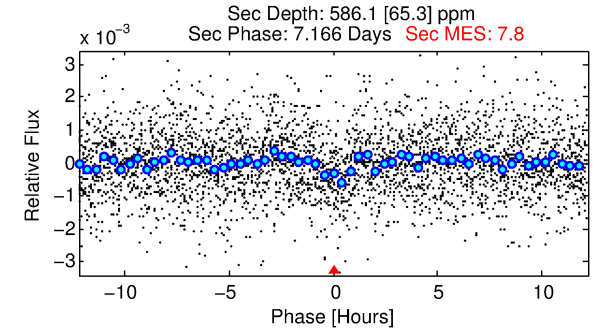
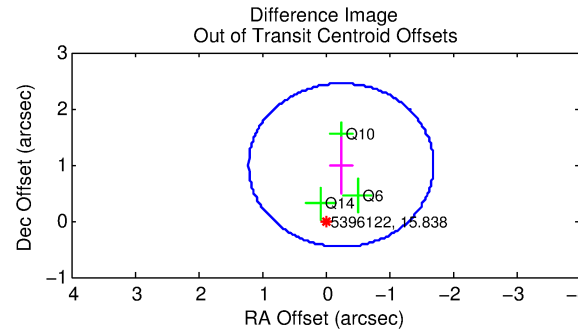
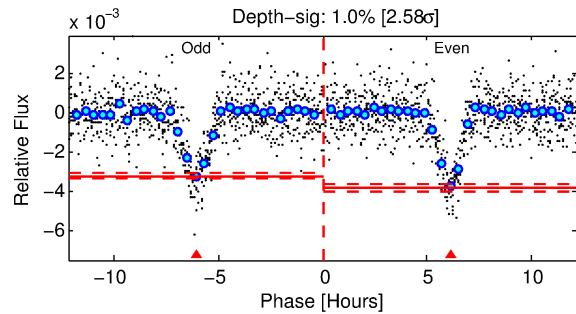
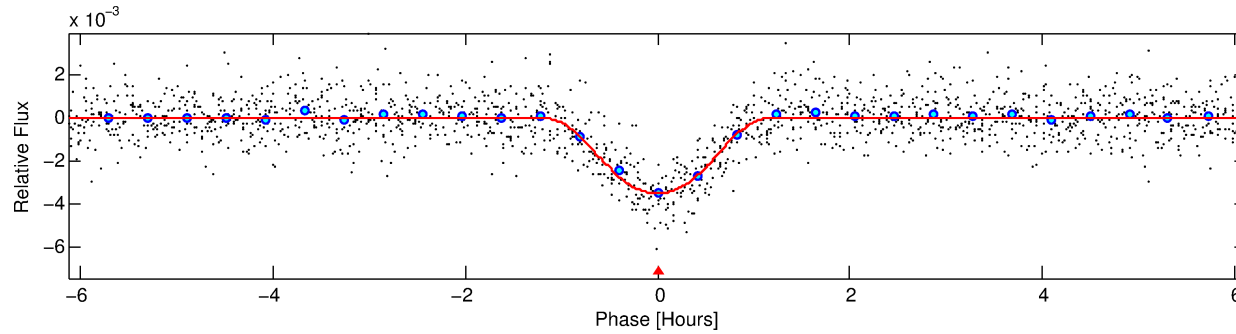
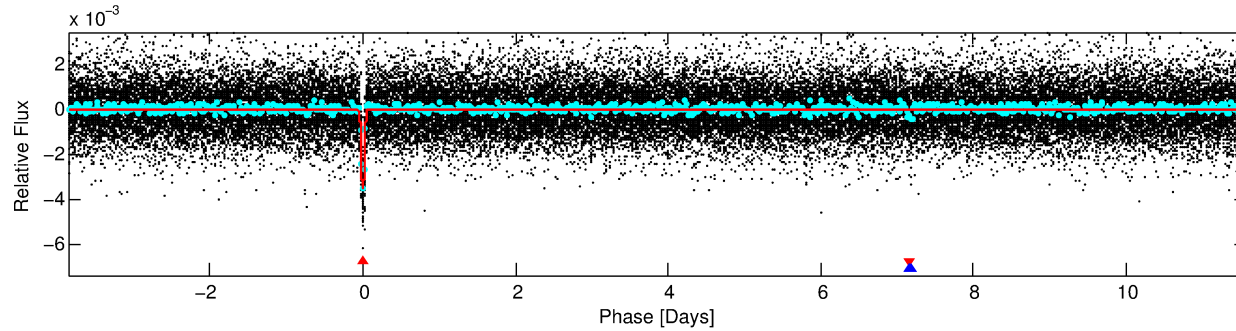
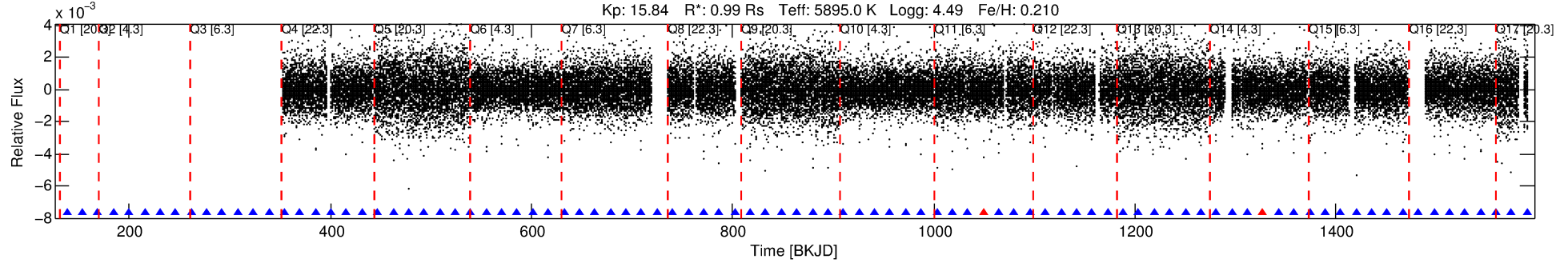
No Significant Match Found

DV One-Page Summary

KIC: 5396122 Candidate: 1 of 2 Period: 15.444 d

KOI: K01935.01 Corr: 0.981

Kp: 15.84 R*: 0.99 Rs Teff: 5895.0 K Logg: 4.49 Fe/H: 0.210



DV Fit Results:

Period = 15.44427 [0.00002] d
Epoch = 138.1682 [0.0014] BKJD
Rp/R* = 0.0860 [0.0638]
a/R* = 27.88 [6.00]
b = 0.97 [0.11]
Seff = 67.48 [26.95]
Teq = 731 [73] K
Rp = 9.30 [7.43] Re
a = 0.1255 [0.0315] AU
Ag = 58.76 [90.15] [0.64σ]
Teffp = 3128 [1171] K [2.04σ]

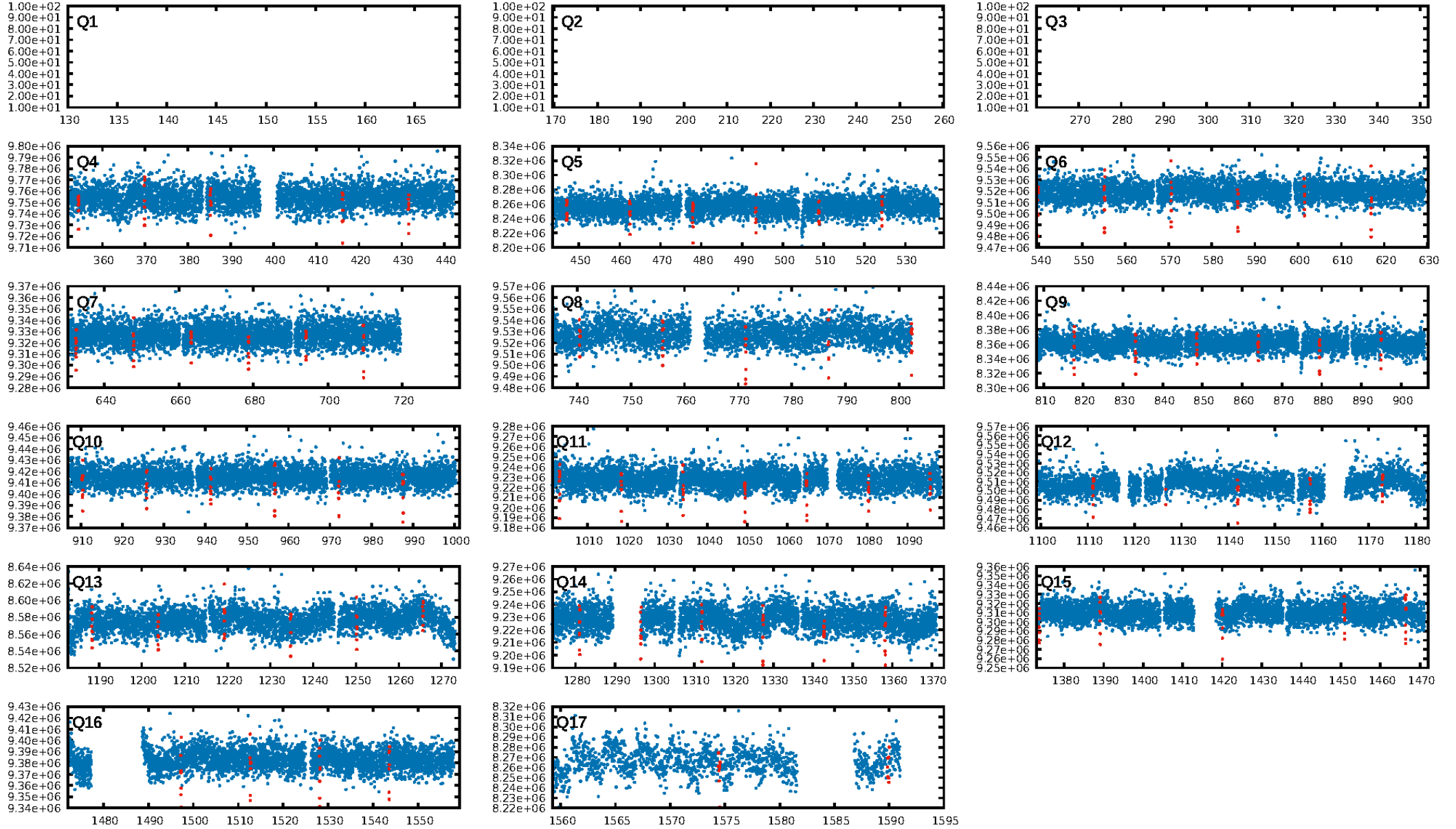
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: 65.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.97 [71/73]
GhostDiagnostic-chr: 2.813
Centroid-sig: 0.0%
Centroid-so: 3.430 arcsec [28.90σ]
OotOffset-rm: 1.022 arcsec [2.11σ]
KicOffset-rm: 0.246 arcsec [1.78σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/2/4/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 1.00 [14/14]

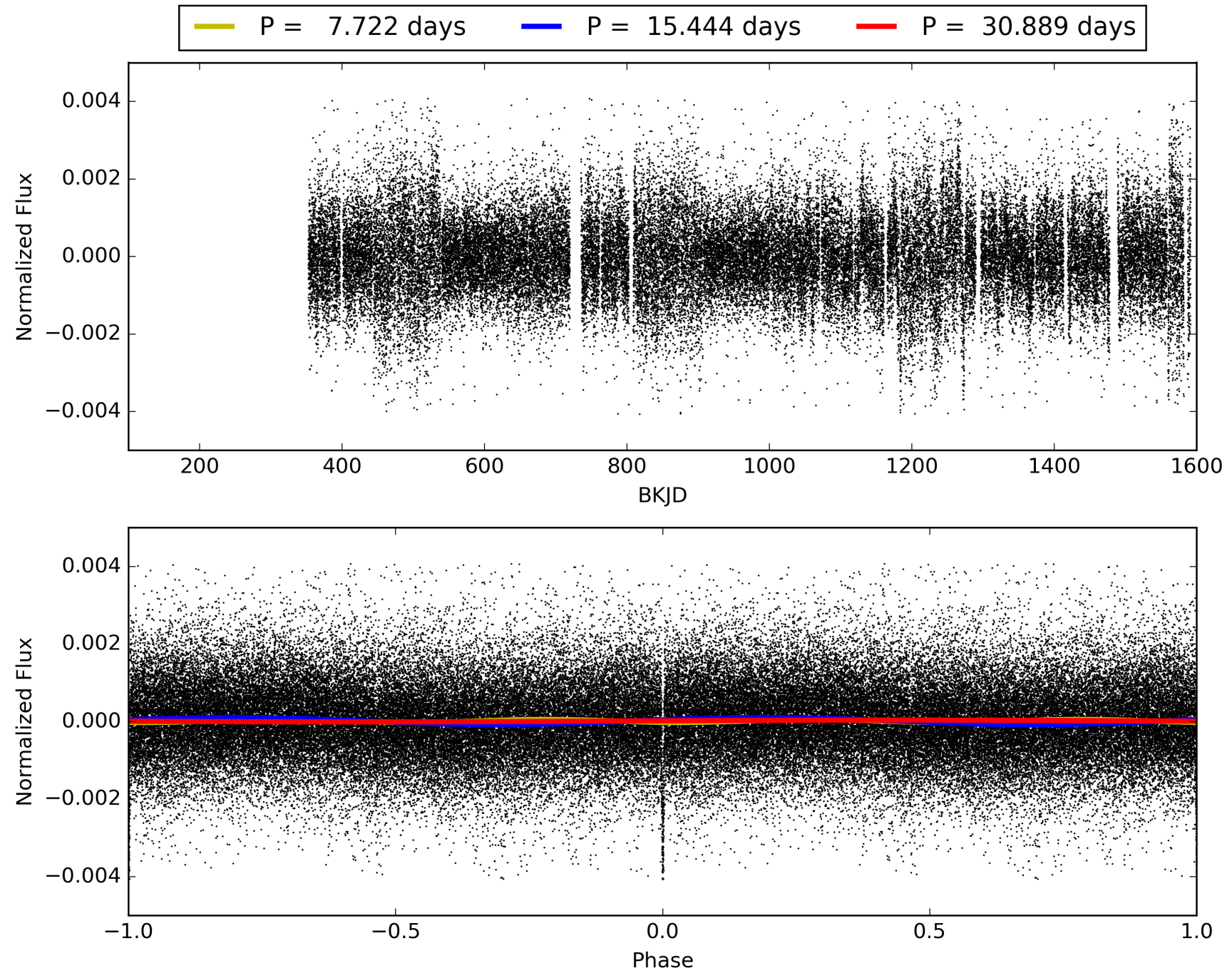
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:11:46 Z

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

TCE 005396122-01, PDC Light Curves

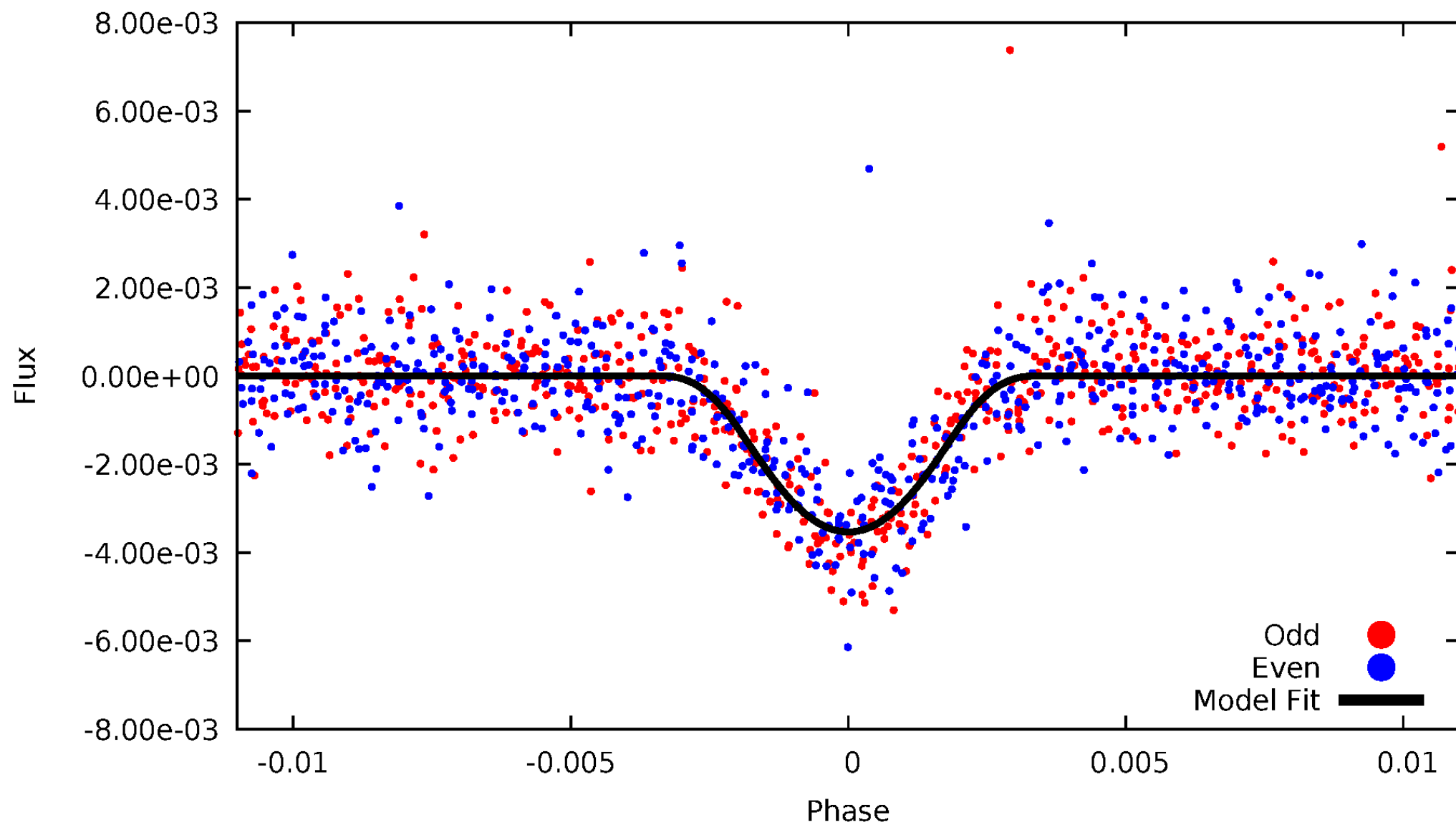


TCE 005396122-01



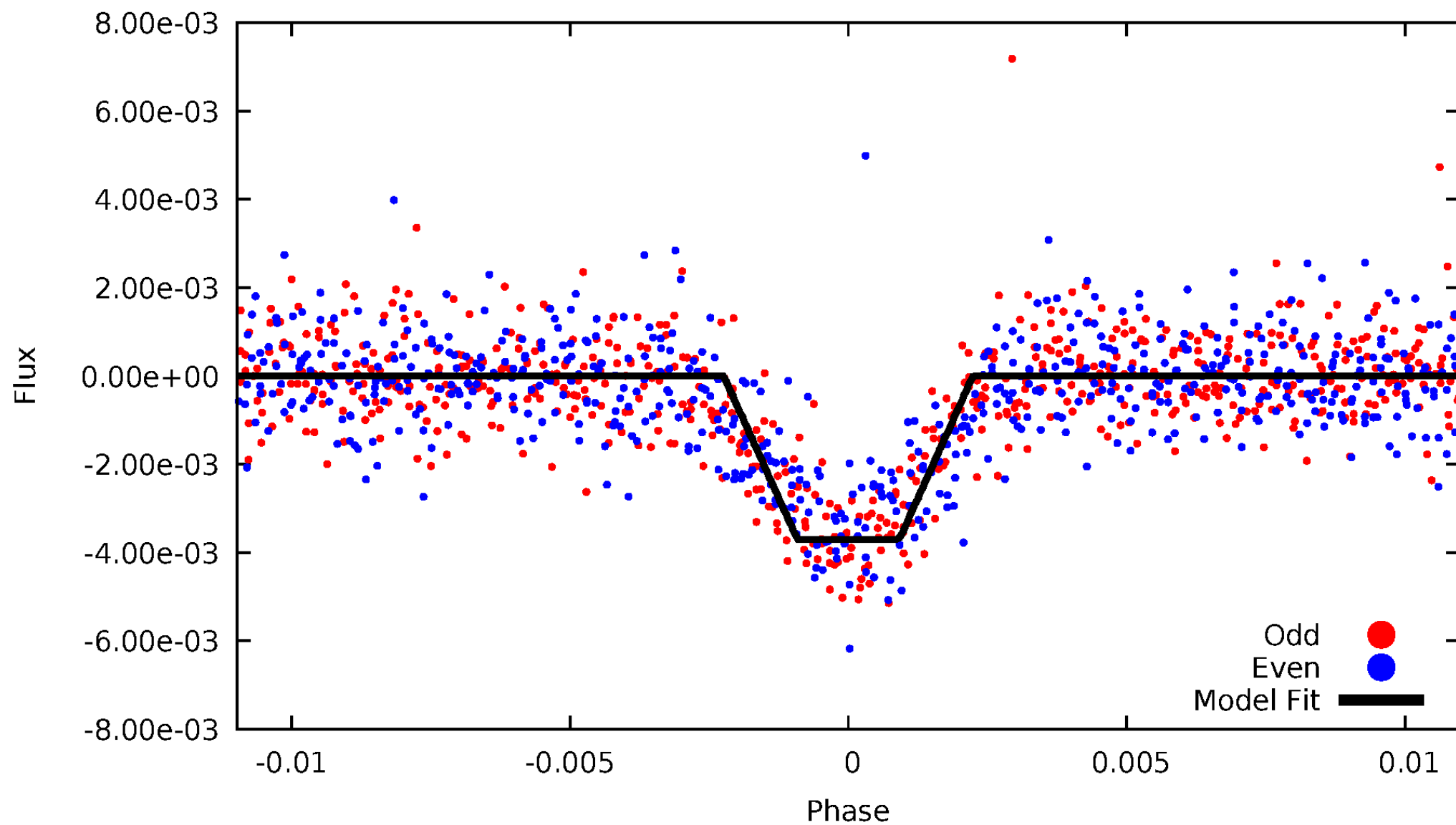
DV Odd/Even

TCE 005396122-01



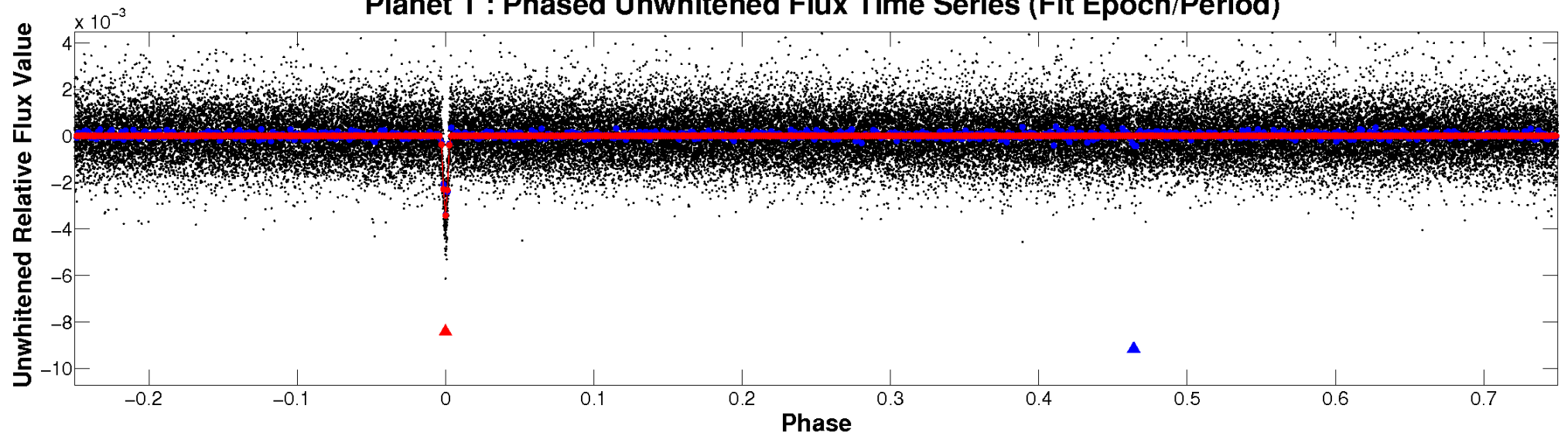
ALT Odd/Even

TCE 005396122-01

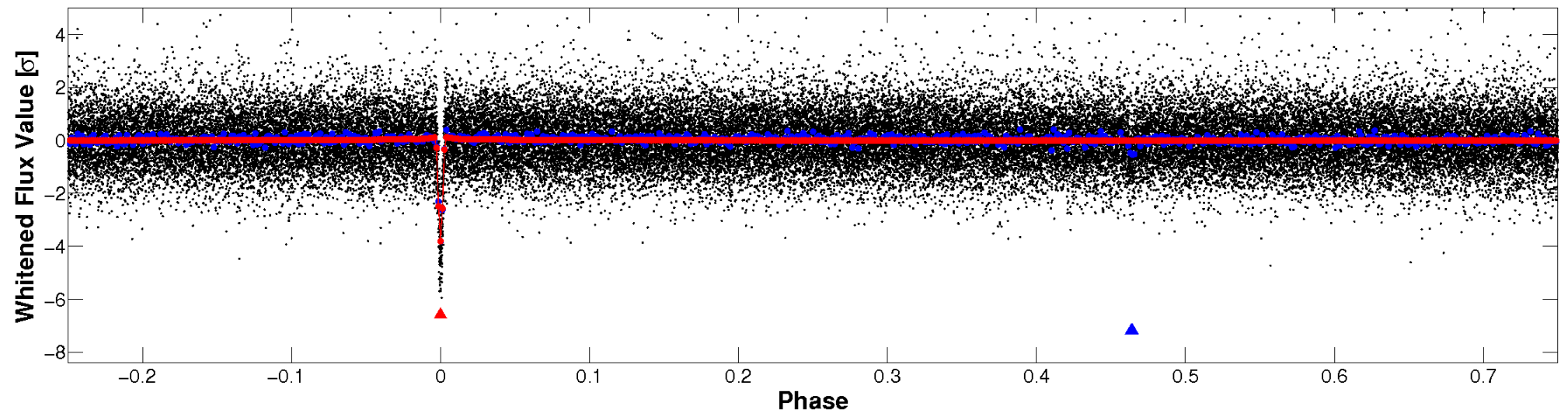


Non-Whitened Vs. Whitened Light Curve

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

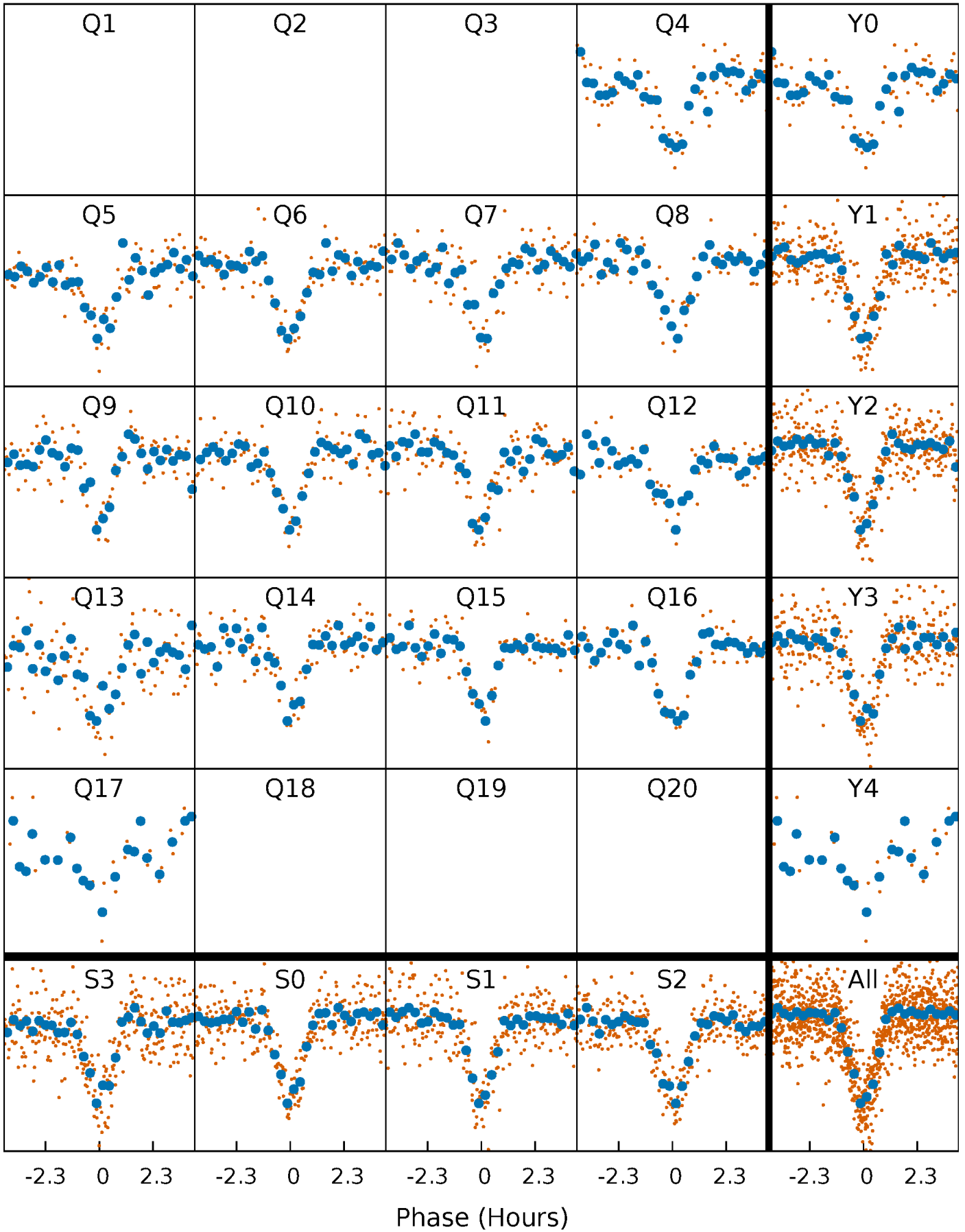


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



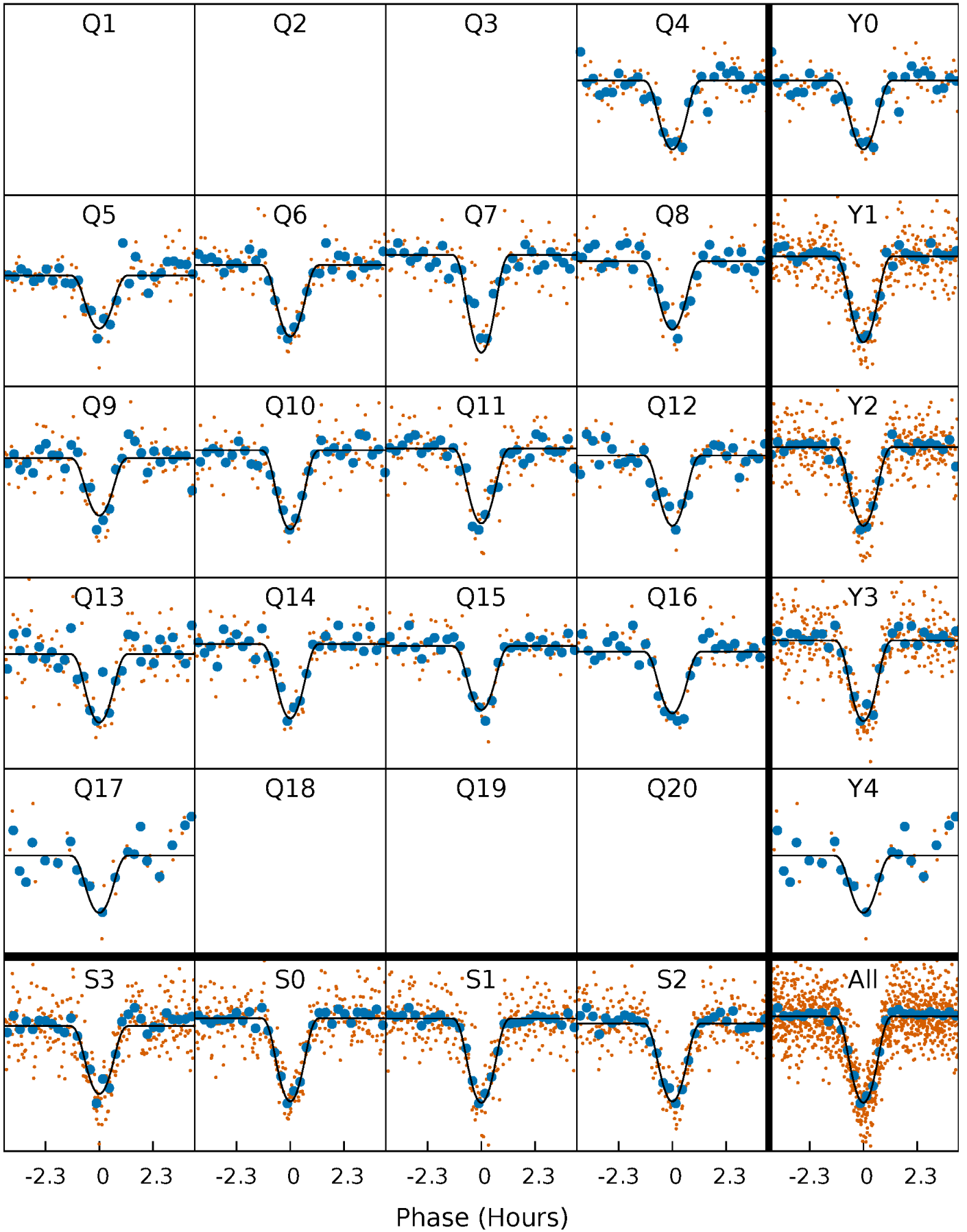
PDC Quarter-Phased Transit Curves

TCE 005396122-01 P= 15.444269 Days $T_0=138.168196$ (BKJD)



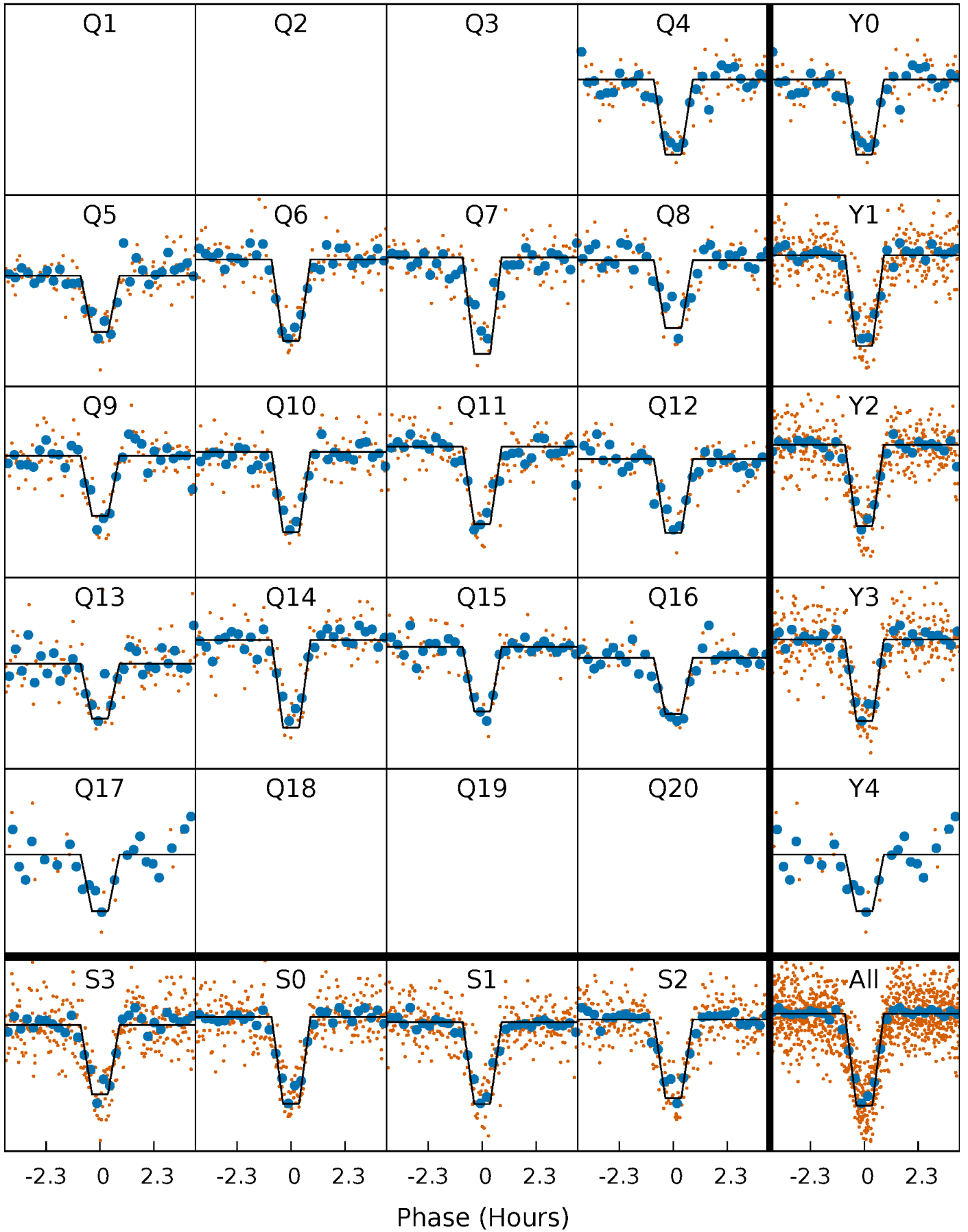
DV Quarter-Phased Transit Curves

TCE 005396122-01 P= 15.444269 Days $T_0=138.168196$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

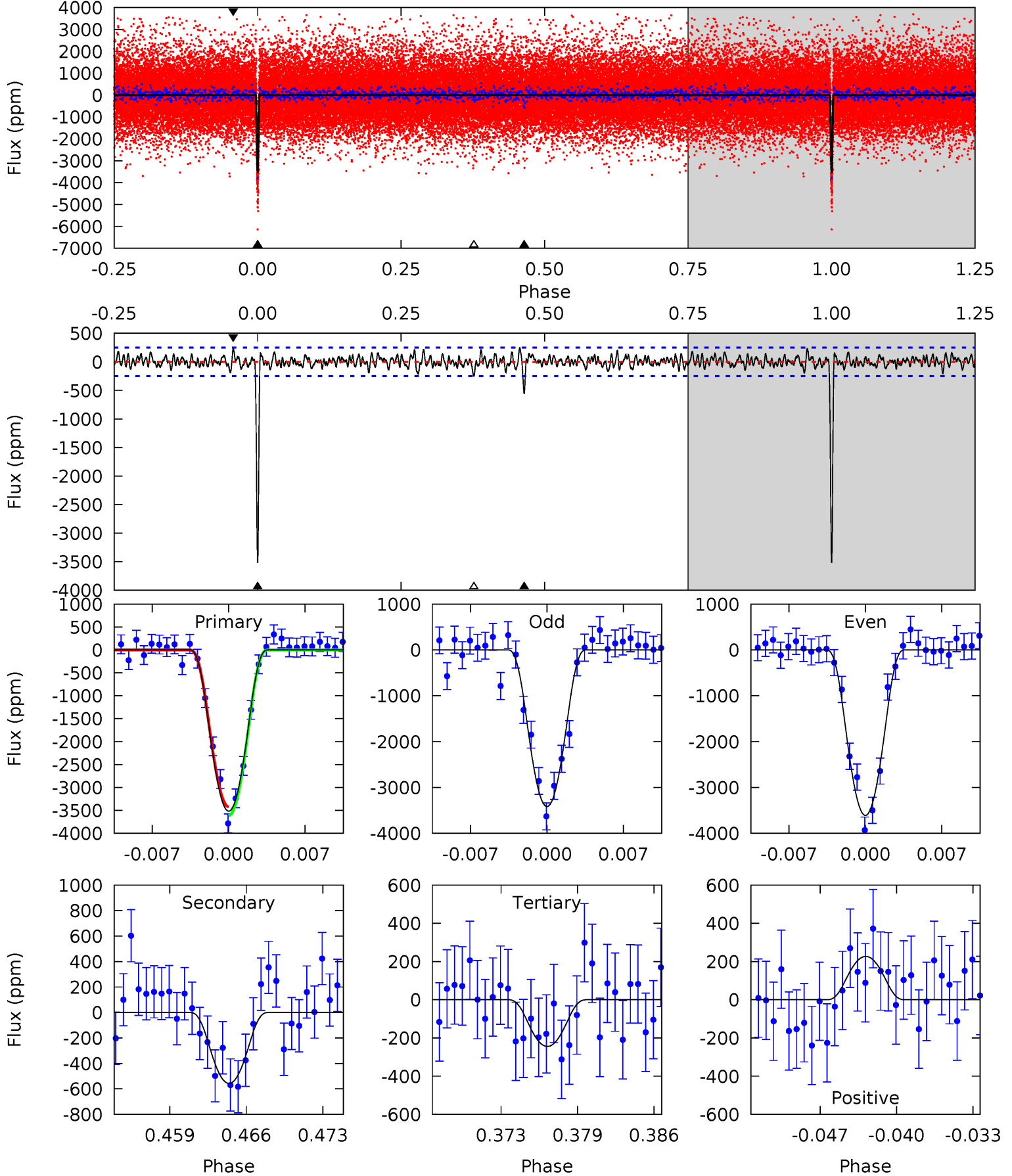
TCE 005396122-01 P= 15.444300 Days $T_0=138.167060$ (BKJD)



DV Model-Shift Uniqueness Test

005396122-01, P = 15.444269 Days, E = 138.168196 Days

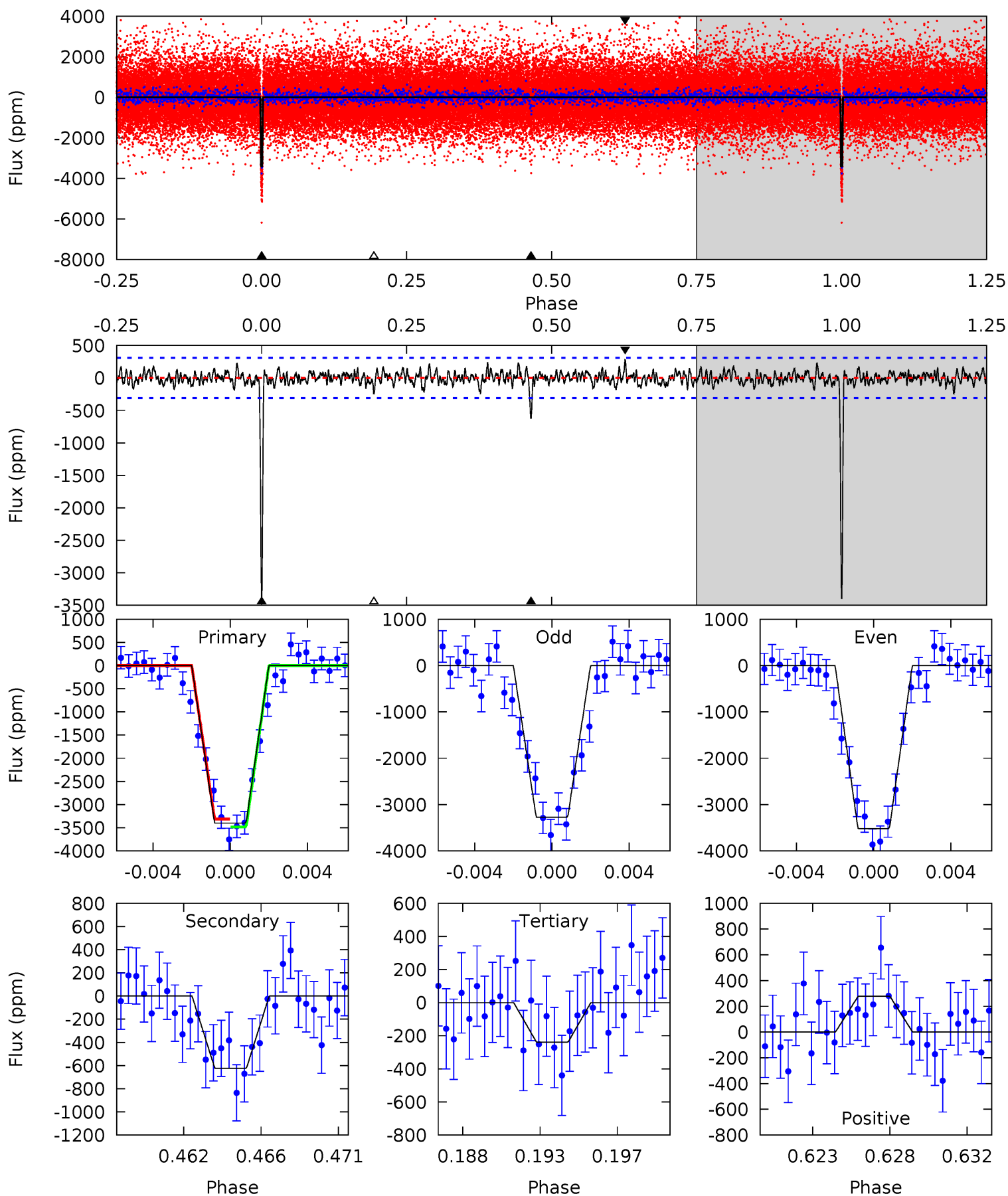
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
72.4	11.5	5.03	4.67	5.10	2.71	1.52	67.4	67.8	6.44	6.79	1.99	0.98	0.07	1.95



Alt Model-Shift Uniqueness Test

005396122-01, $P = 15.444300$ Days, $E = 138.167060$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.7	10.4	3.99	4.65	5.18	2.84	1.26	52.7	52.1	6.44	5.77	2.02	0.96	0.08	1.44



Stellar Parameters For KIC 005396122

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5895^{+182}_{-223}	$4.489^{+0.036}_{-0.204}$	$0.210^{+0.200}_{-0.250}$	$0.991^{+0.292}_{-0.091}$	$1.105^{+0.112}_{-0.137}$	$1.597^{+0.312}_{-0.813}$
	+3%/-4%	+1%/-5%	+95%/-119%	+29%/-9%	+10%/-12%	+20%/-51%
Source	KIC0	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 005396122-01 / KOI 1935.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-557 ± 49	$10.59^{+7.11}_{-6.01}$	1049^{+78}_{-51}	3461^{+1309}_{-498}	42^{+198}_{-27}
Alt.	-625 ± 60	$8.55^{+6.77}_{-5.57}$	1047^{+83}_{-51}	3799^{+1985}_{-666}	72^{+526}_{-50}

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

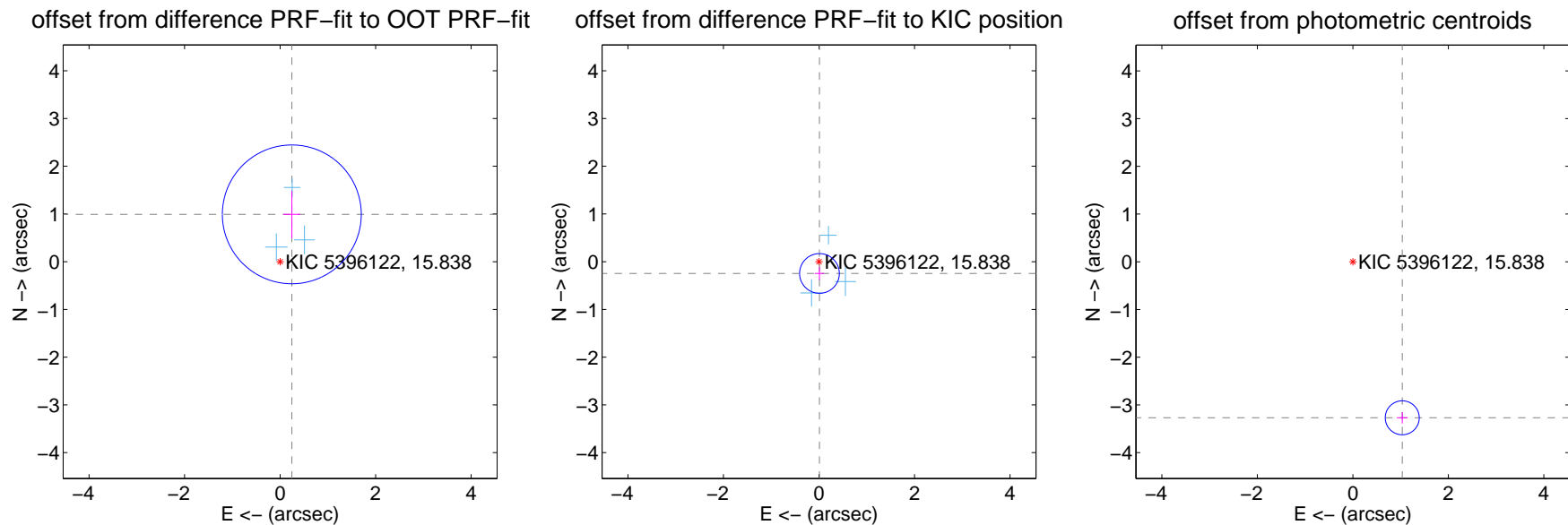
DV Centroid Data

Supplemental centroid analysis for 005396122-01. Kepler magnitude: 15.84. Transit SNR 45.07

There are 12 quarters with good PRF difference image offsets

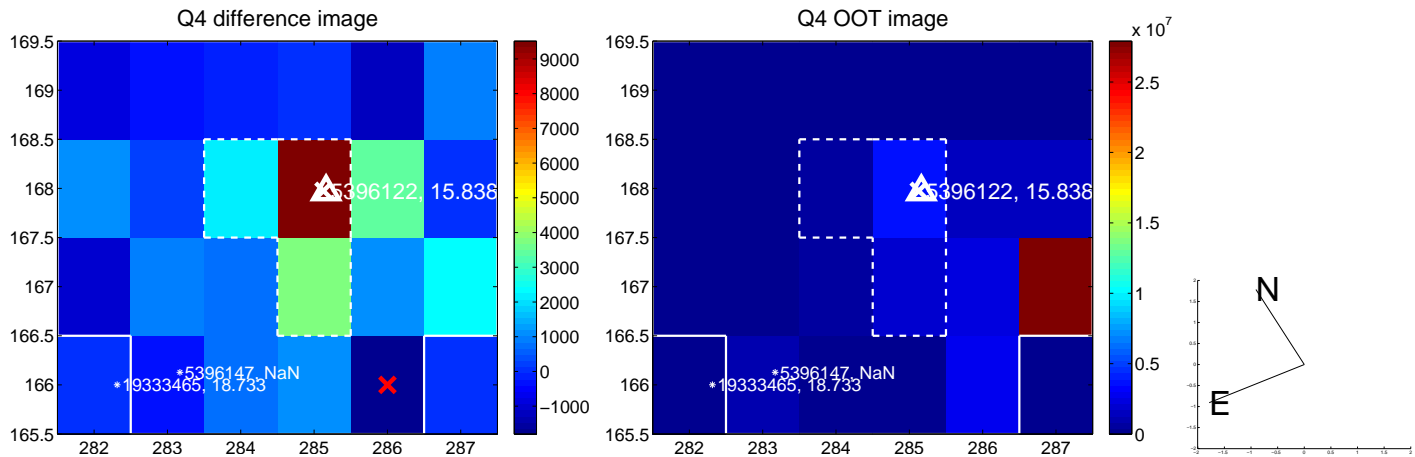
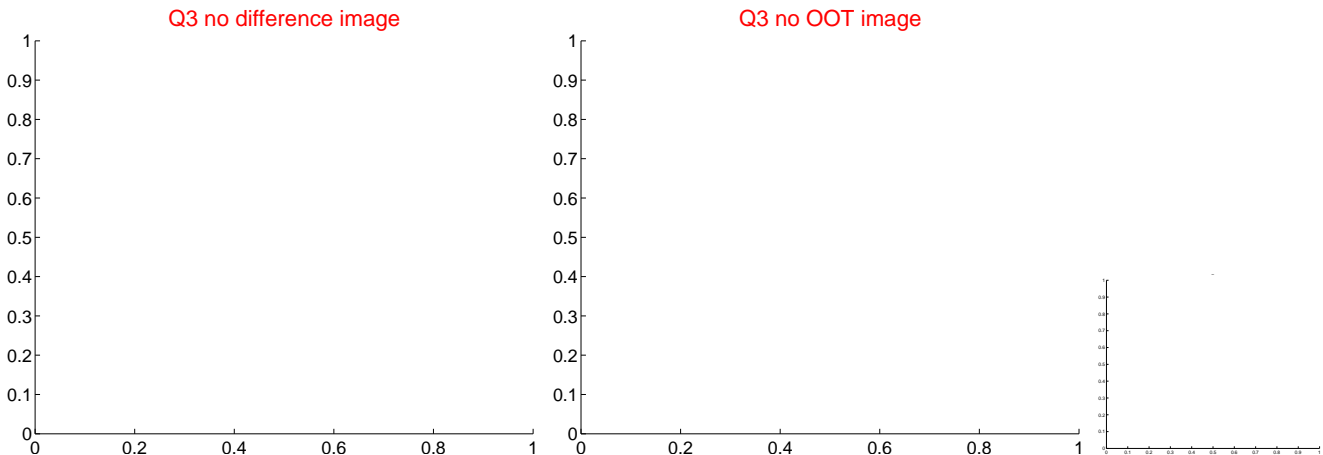
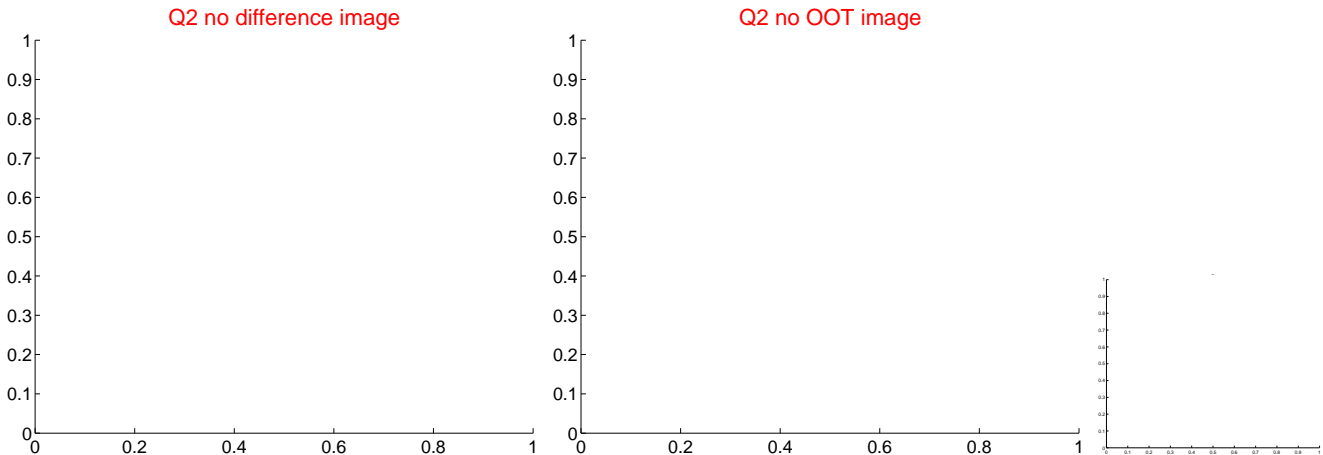
The direct PRF centroid is offset from the target star catalog position by about 0.96 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.022 ± 0.485	2.11	-0.245 ± 0.178	0.992 ± 0.497
PRF-fit source offset from KIC position	0.246 ± 0.139	1.78	-0.010 ± 0.094	-0.246 ± 0.139
photometric centroid source offset	3.43 ± 0.12	28.90	-1.03 ± 0.11	-3.27 ± 0.12

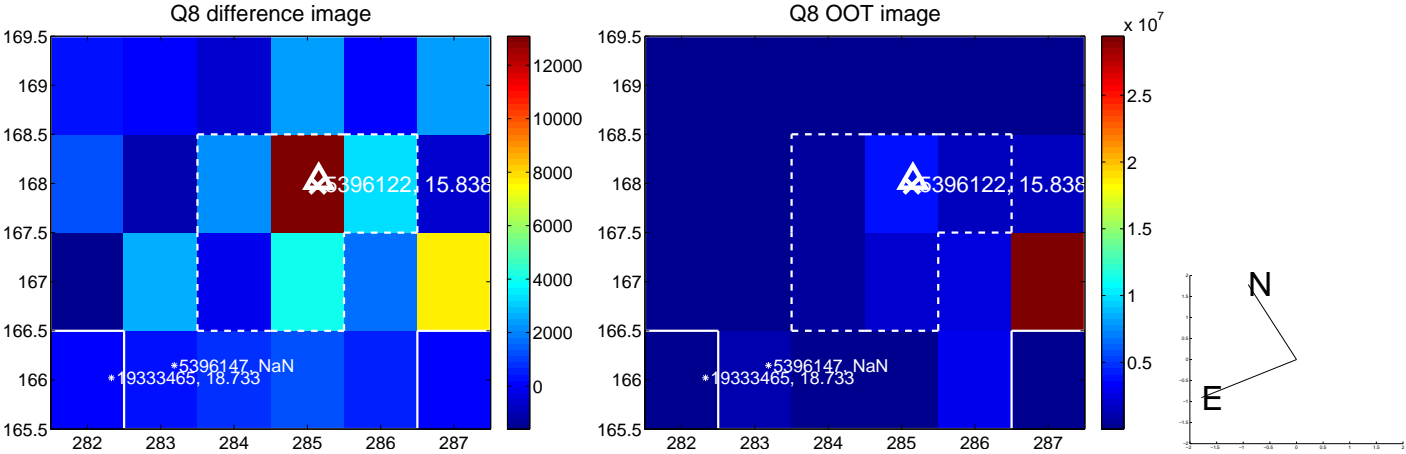
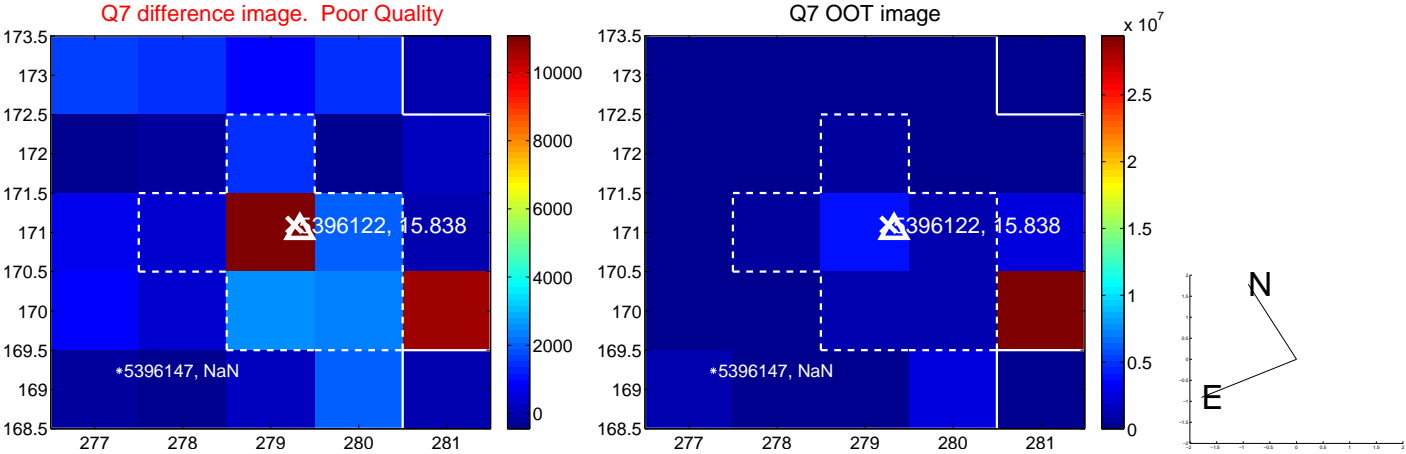
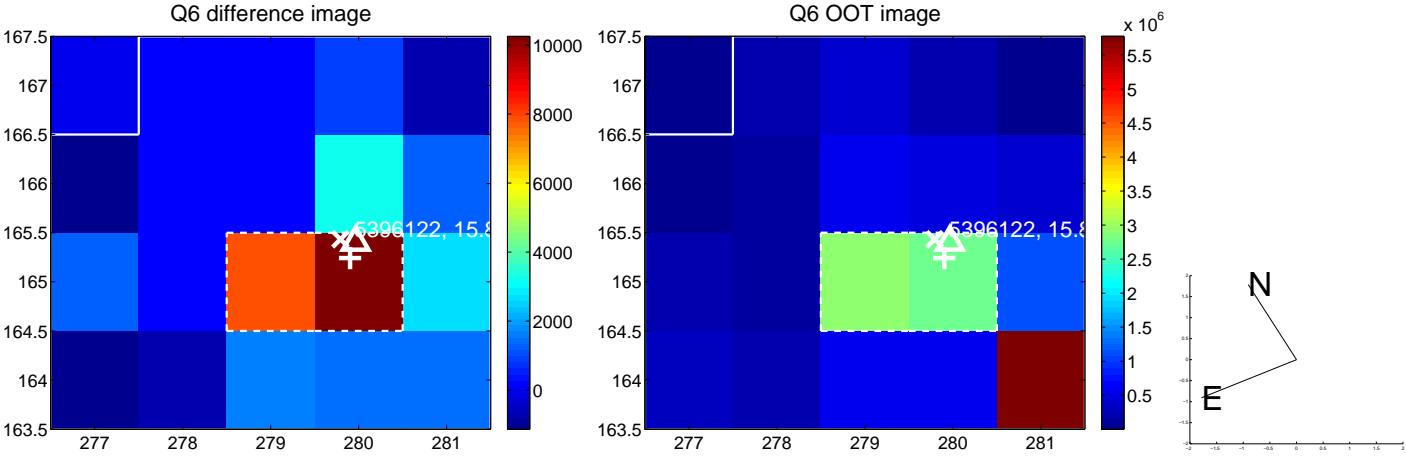
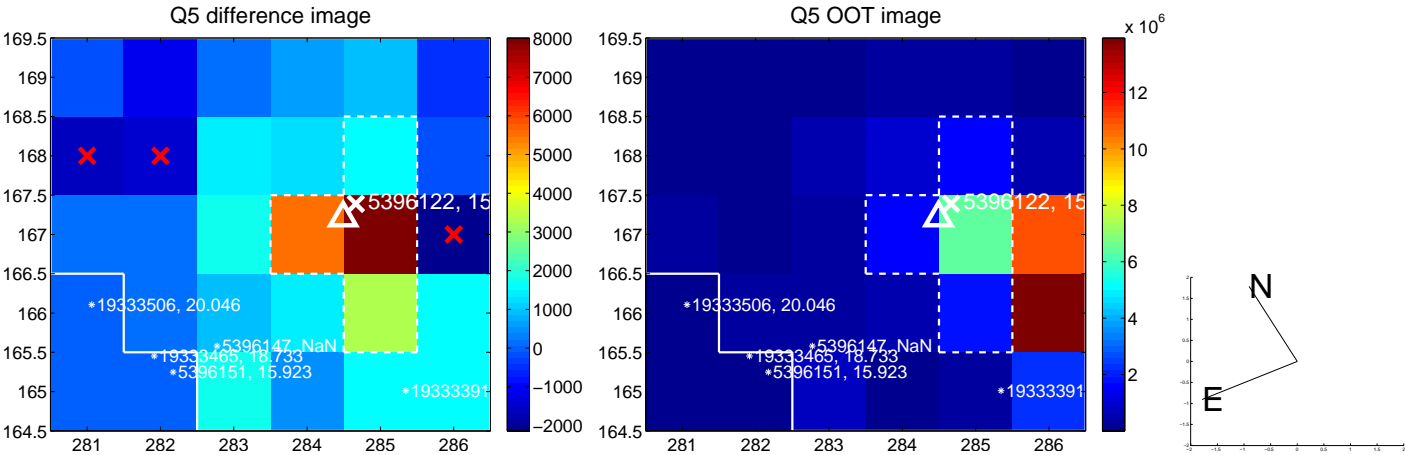


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

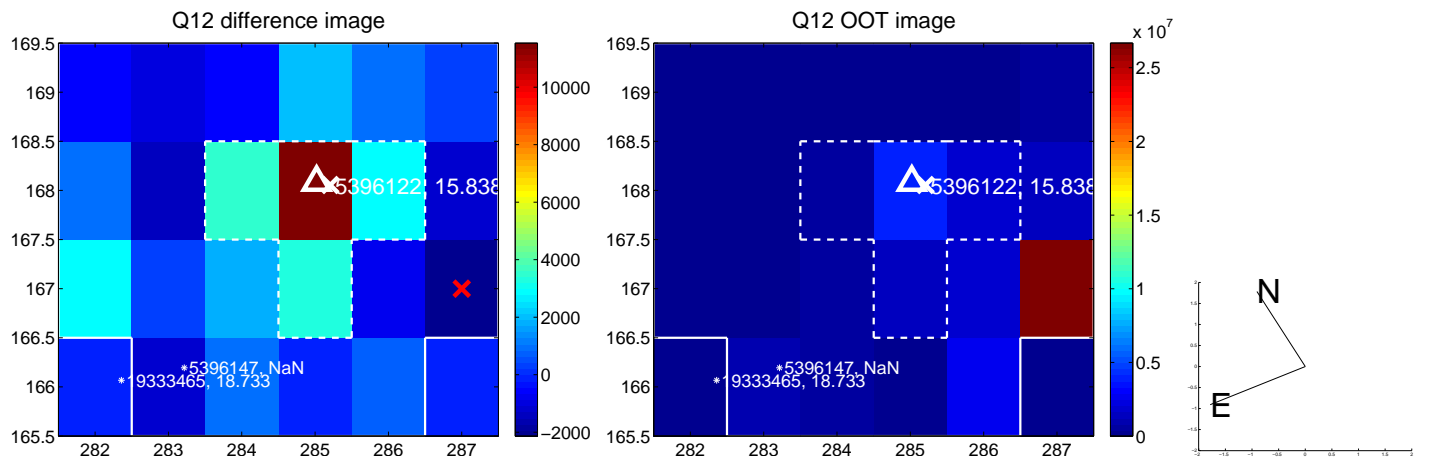
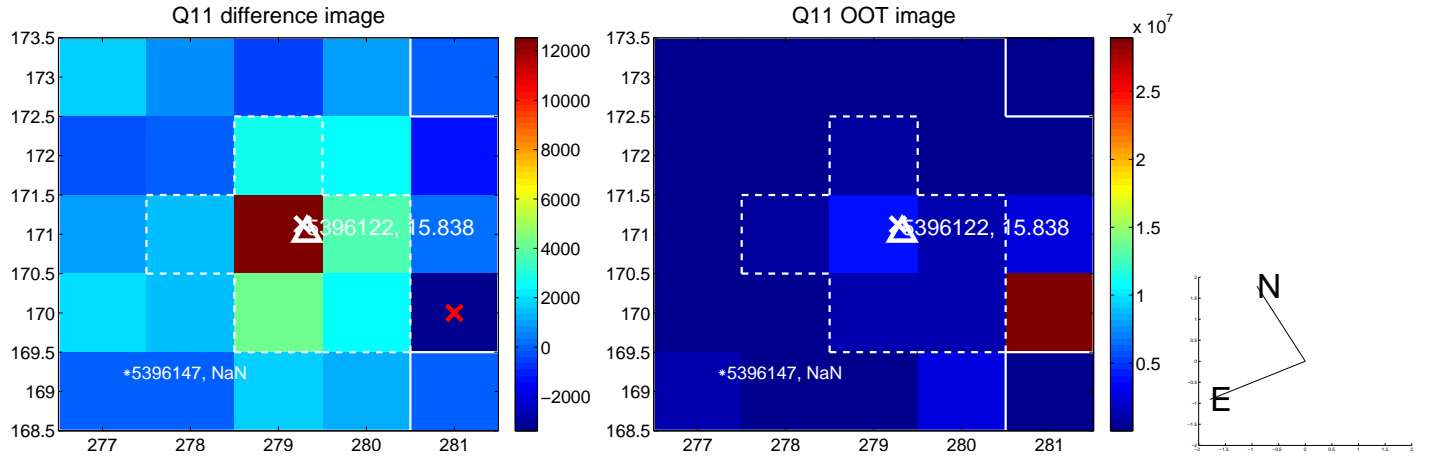
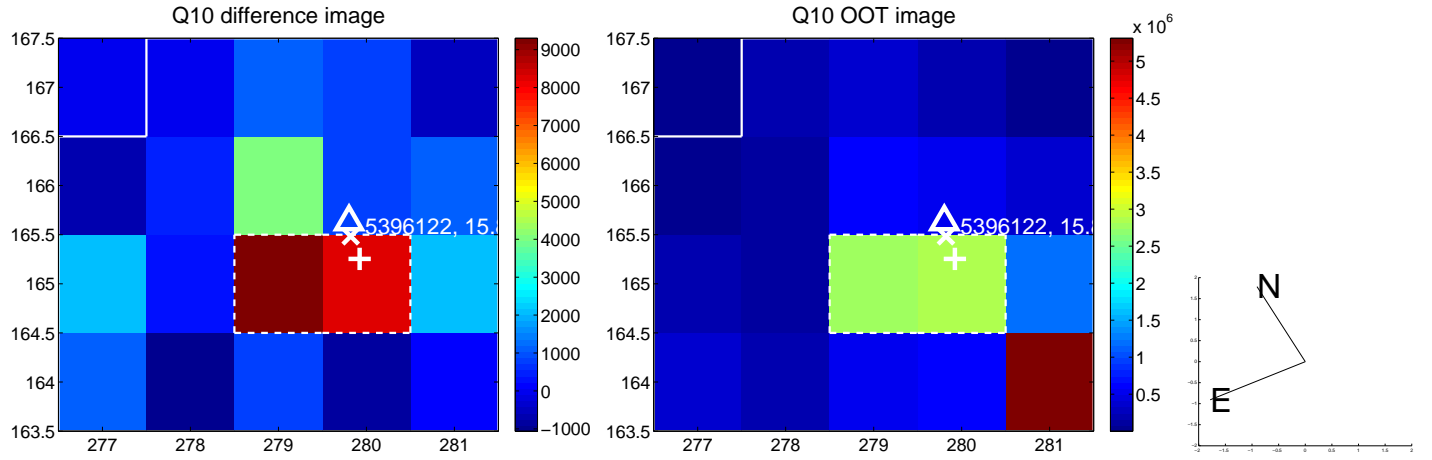
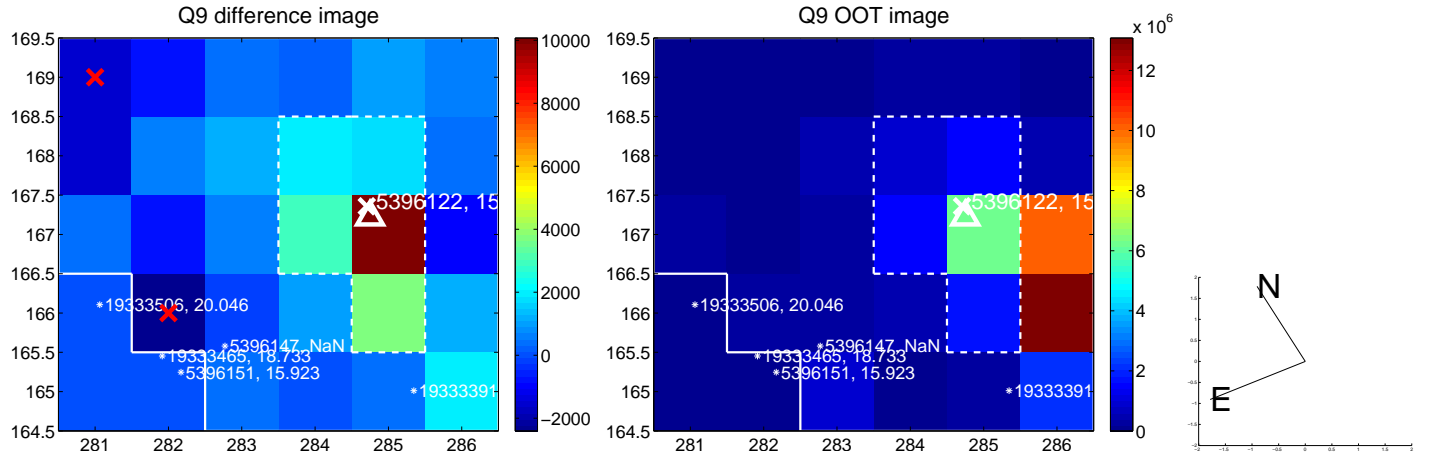
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



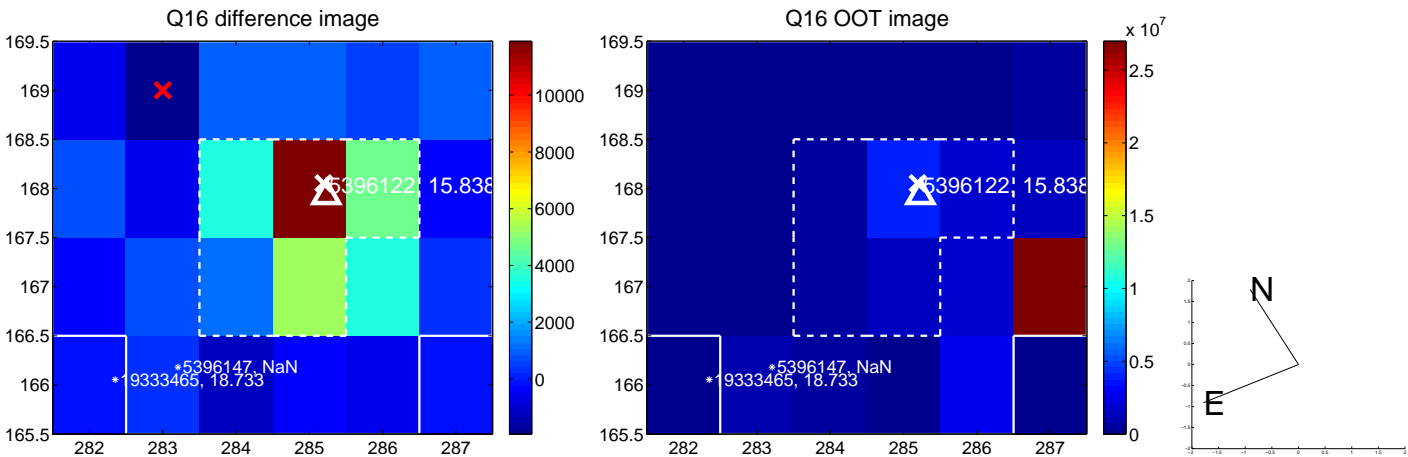
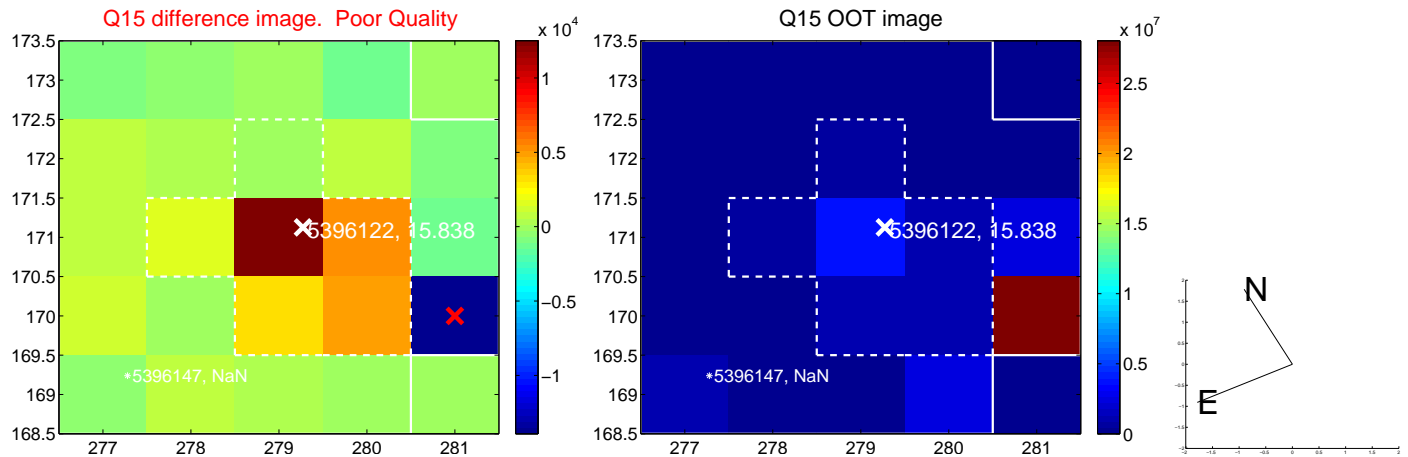
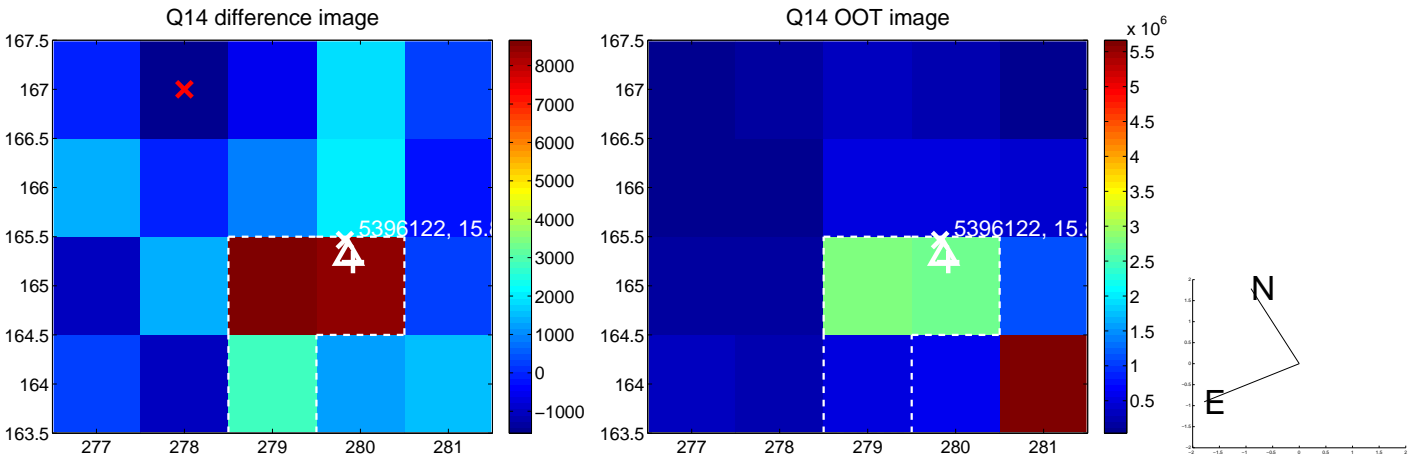
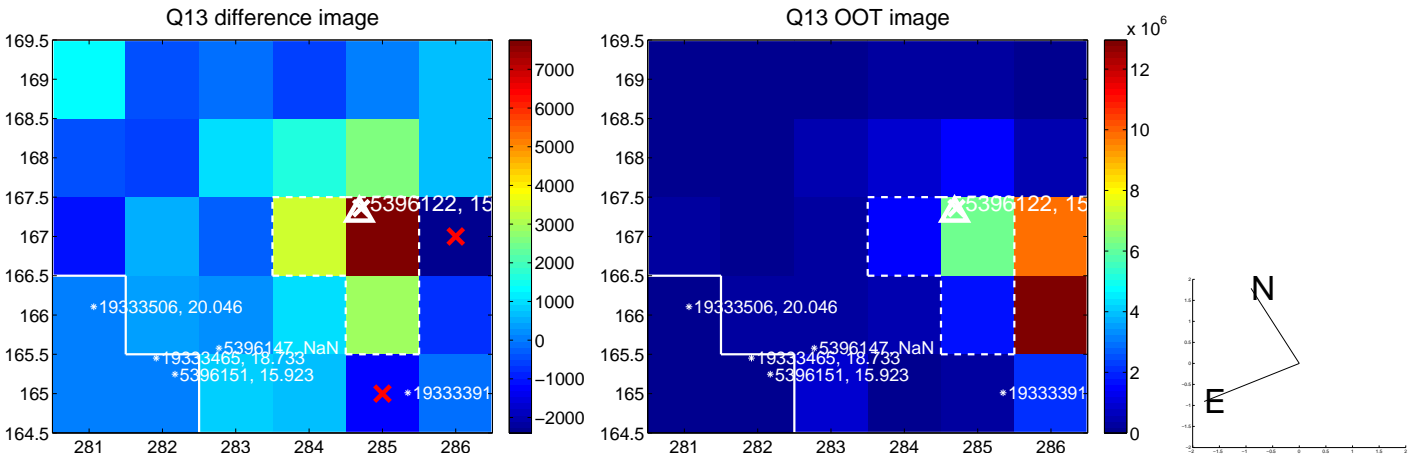
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



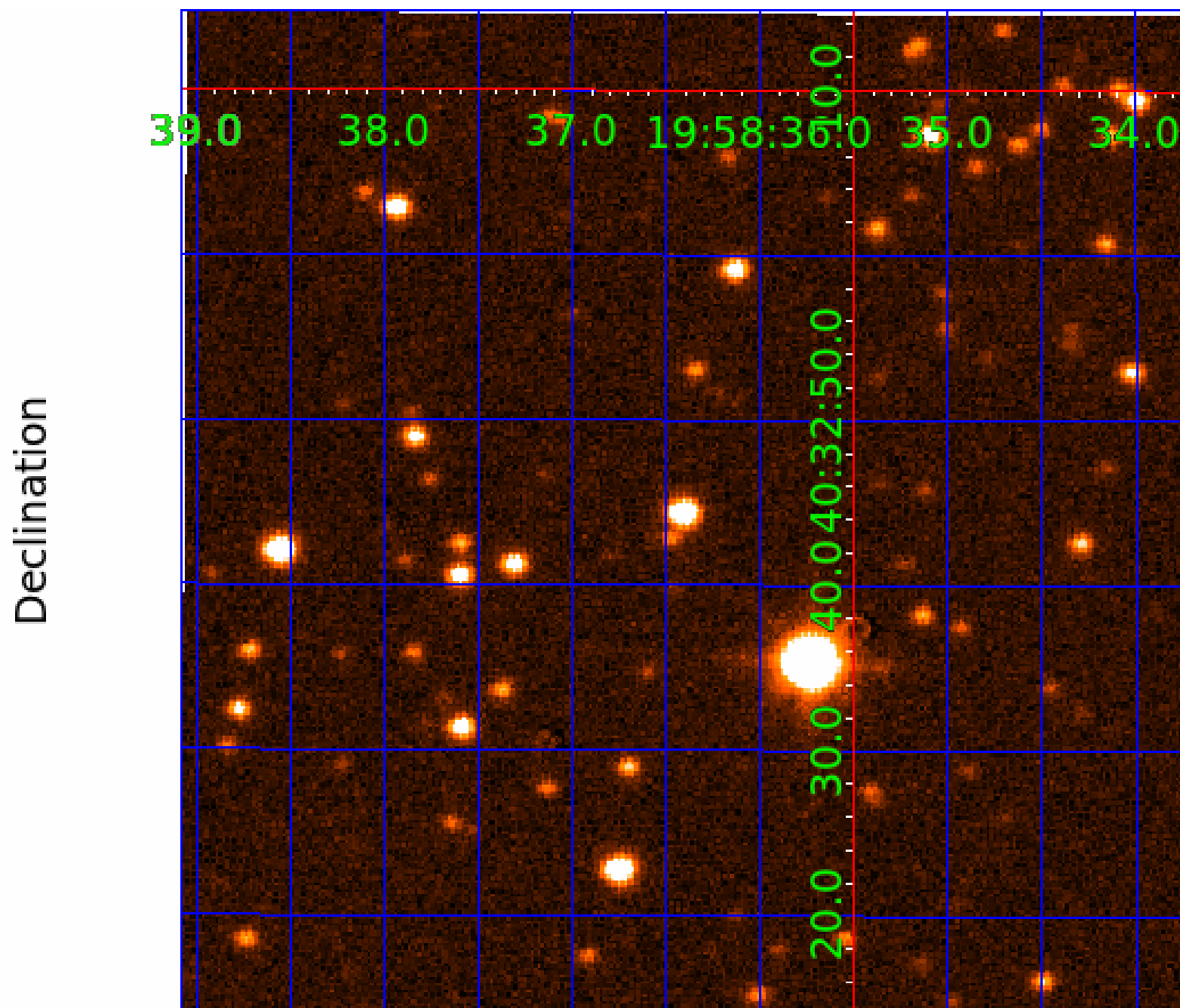
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005396122

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})
005396122-01	OBS	1935.01	15.444269	138.168196	3531.4	2.041	39.9	45.1	0.99	5895	9.30	67.48
005396122-02	OBS	No	15.444372	145.330185	585.7	1.891	7.7	8.8	0.99	5895	2.85	67.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005396122-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
005396122-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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

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

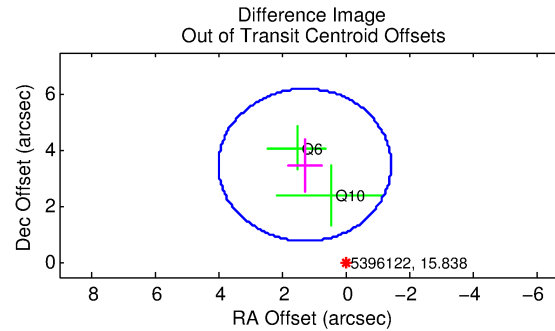
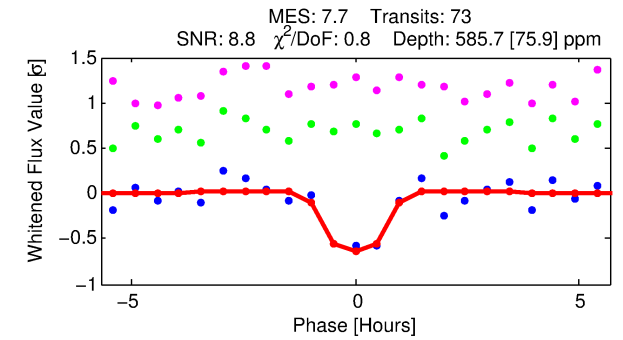
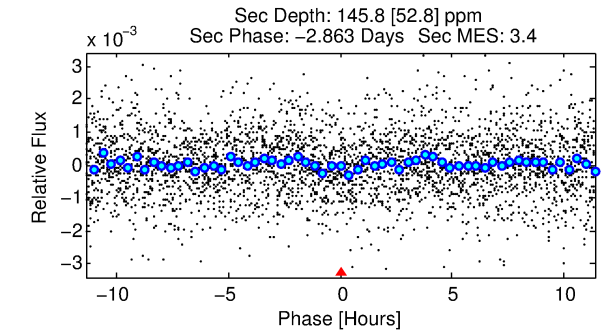
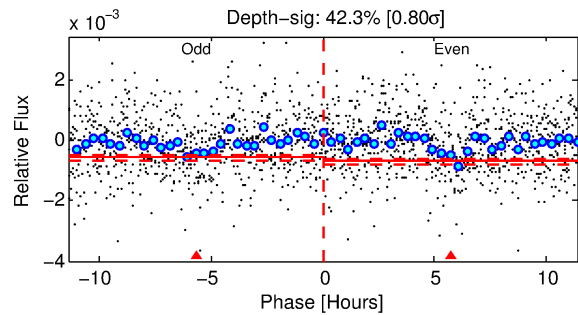
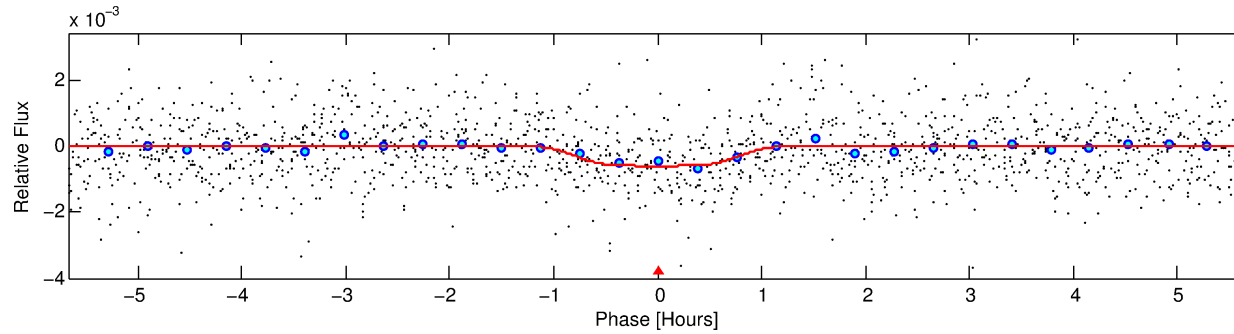
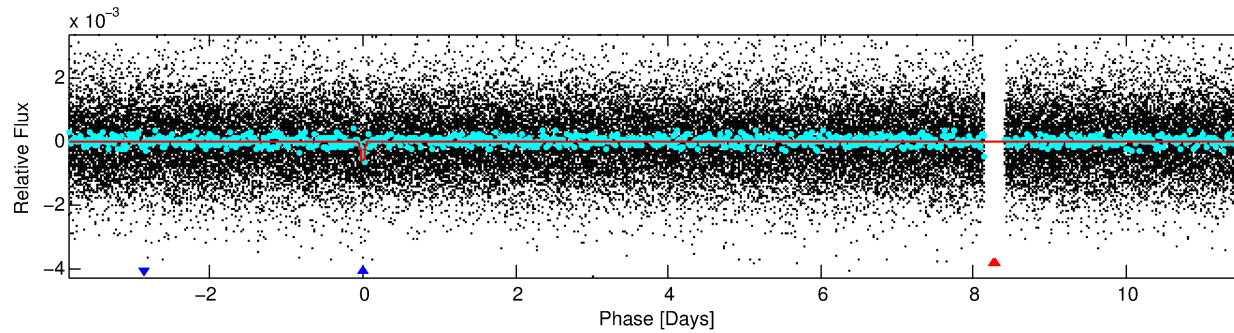
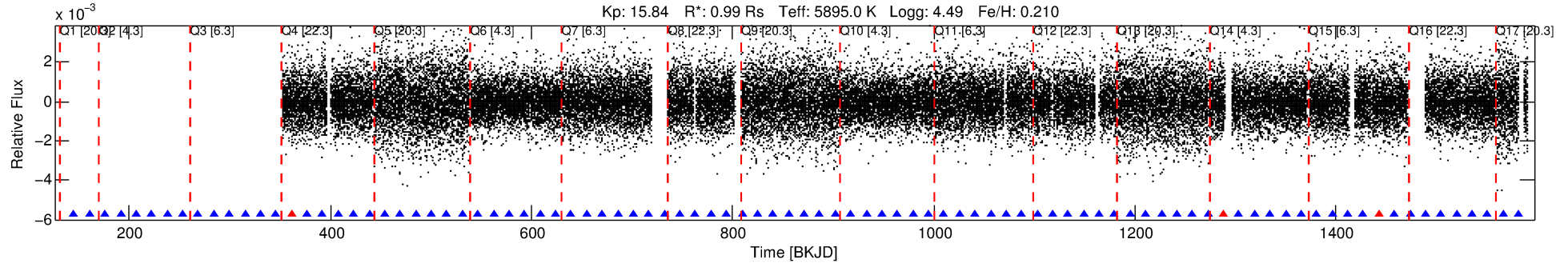
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005396122-02

No Significant Match Found

DV One-Page Summary

KIC: 5396122 Candidate: 2 of 2 Period: 15.444 d
KOI: K01935 Corr: No Ephemeris Match



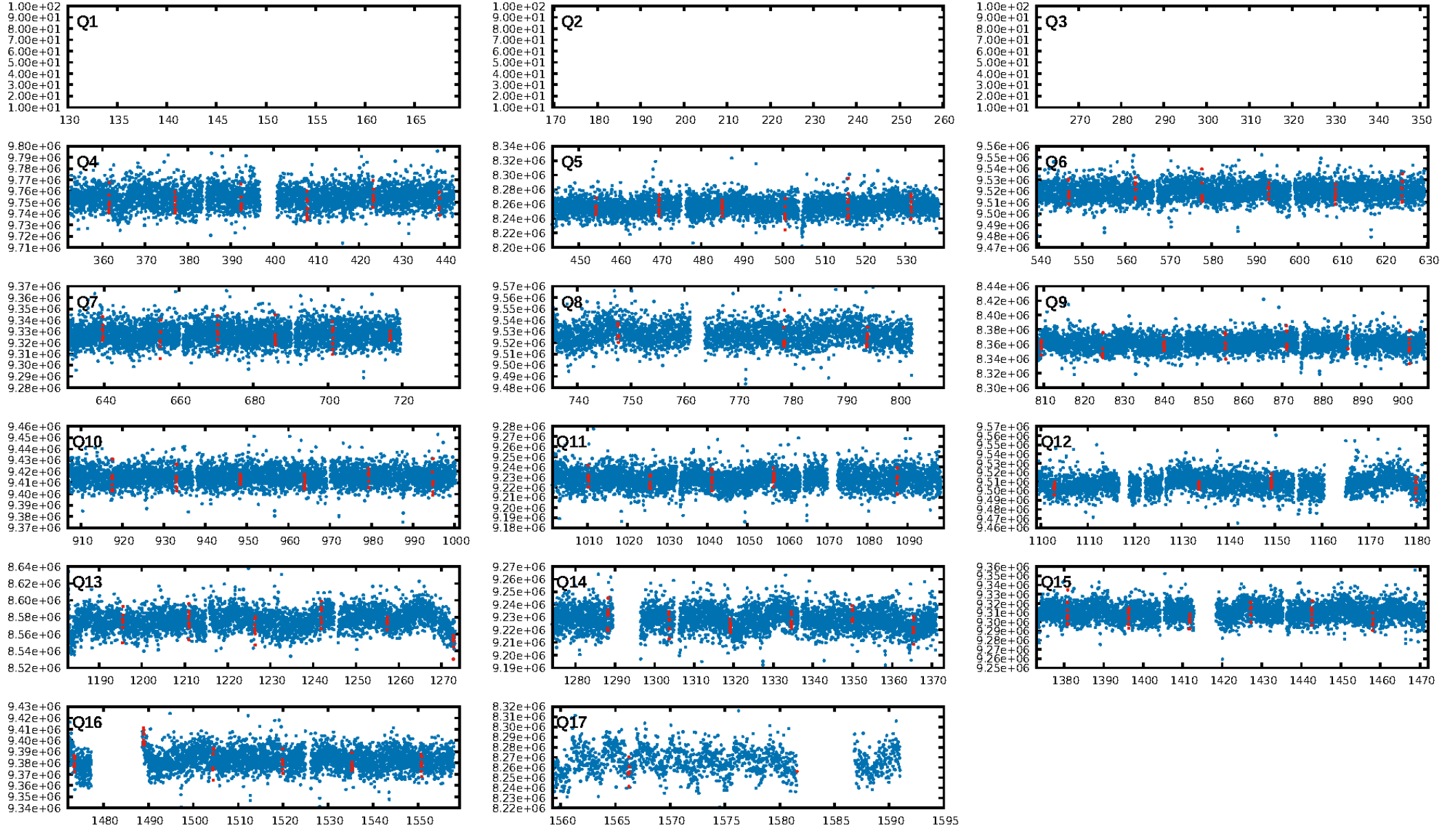
DV Fit Results:

Period = 15.44437 [0.00012] d
Epoch = 145.3302 [0.0069] BKJD
Rp/R* = 0.0263 [0.0150]
a/R* = 31.30 [81.54]
b = 0.90 [0.59]
Seff = 67.48 [26.95]
Teq = 731 [73] K
Rp = 2.85 [1.82] Re
a = 0.1255 [0.0315] AU
Ag = 155.94 [194.86] [0.80 σ]
Teffp = 3993 [1201] K [2.71 σ]

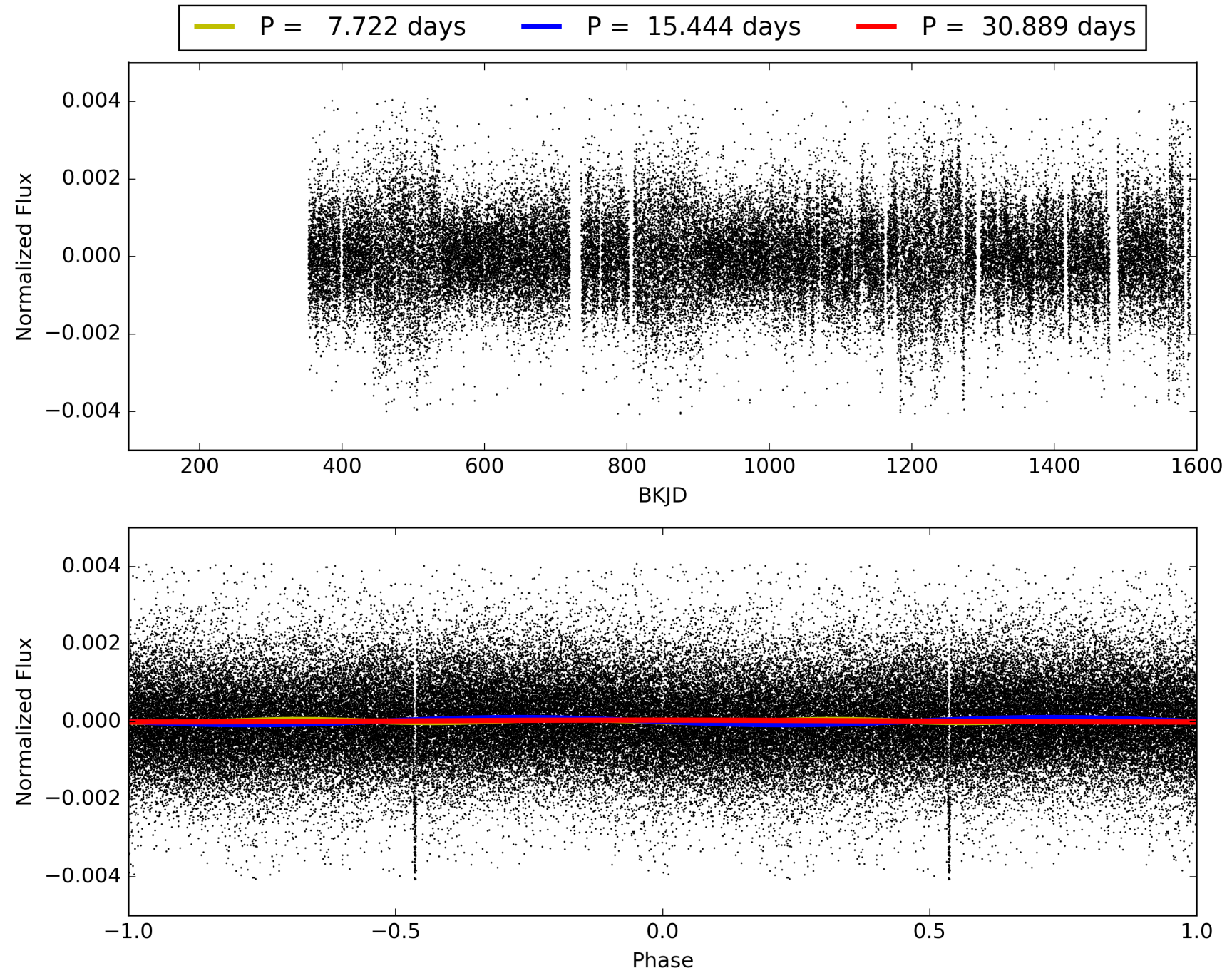
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.05e-14
RollingBand-fgt: 0.96 [69/72]
GhostDiagnostic-chr: 5.498
Centroid-sig: 0.0%
Centroid-so: 3.183 arcsec [5.27 σ]
OotOffset-rm: 3.715 arcsec [4.11 σ]
KicOffset-rm: 1.801 arcsec [2.19 σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/2/0/3 [7]
DiffImageQuality-fgm: 0.14 [1/7]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 005396122-02, PDC Light Curves

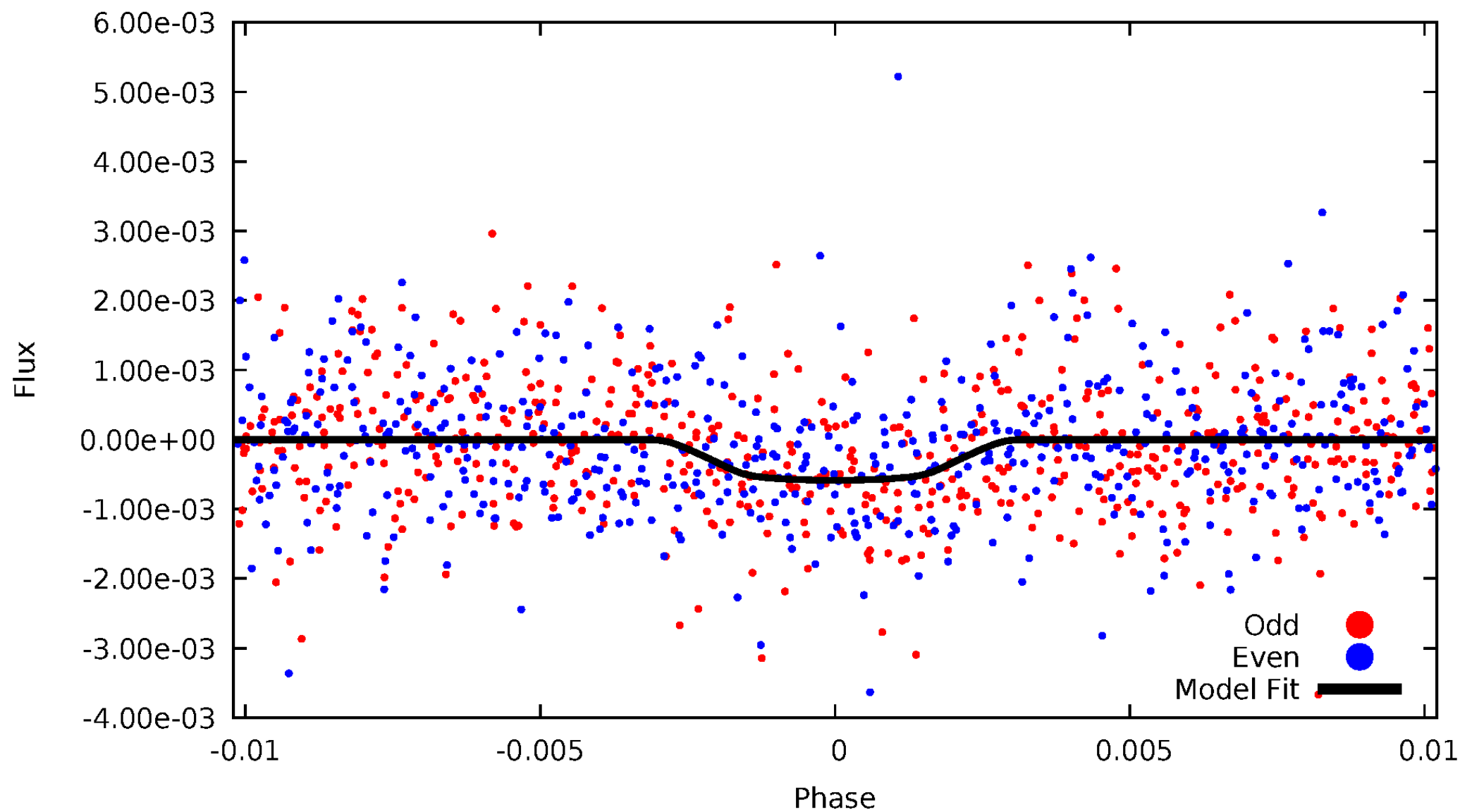


TCE 005396122-02



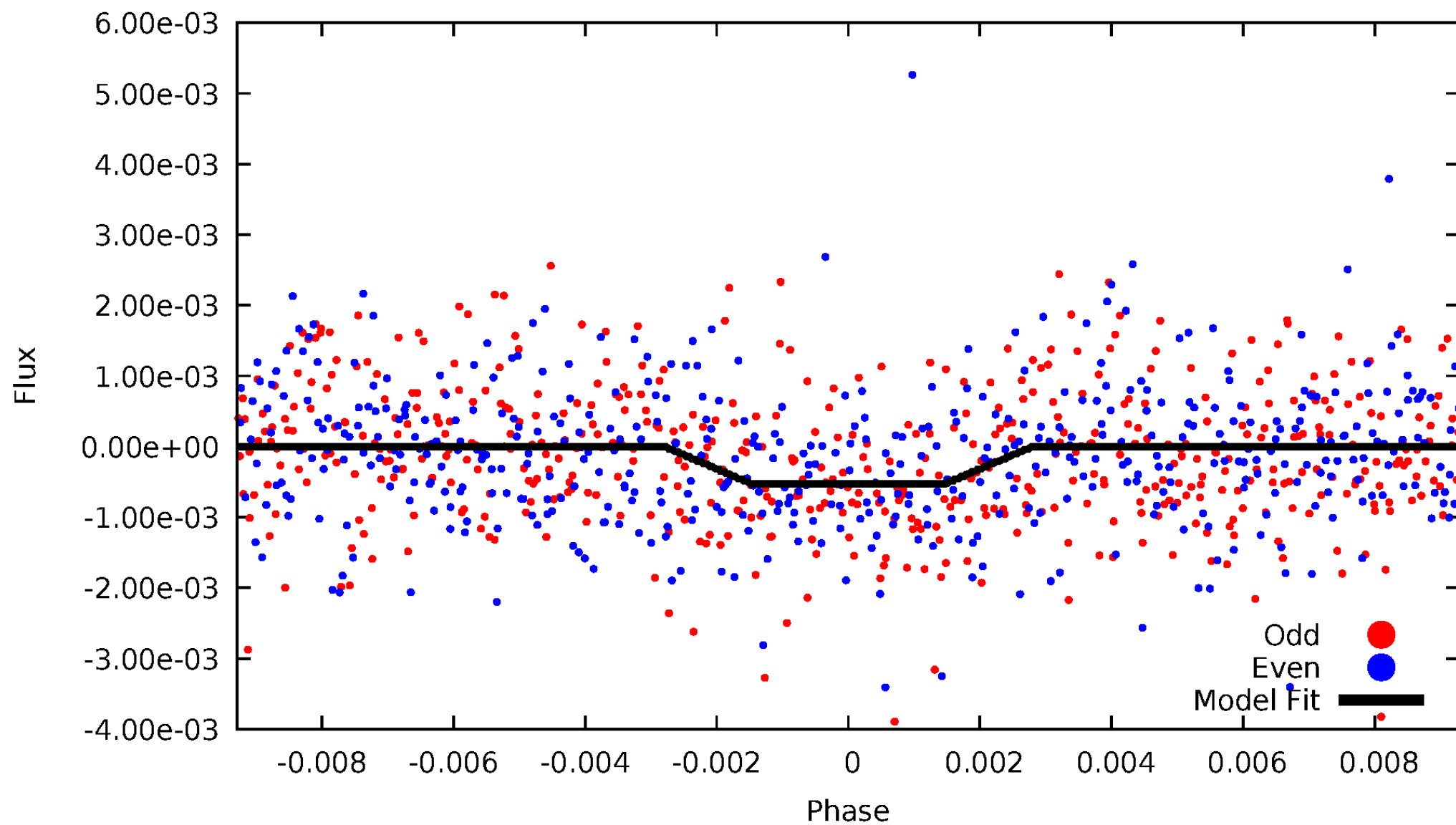
DV Odd/Even

TCE 005396122-02



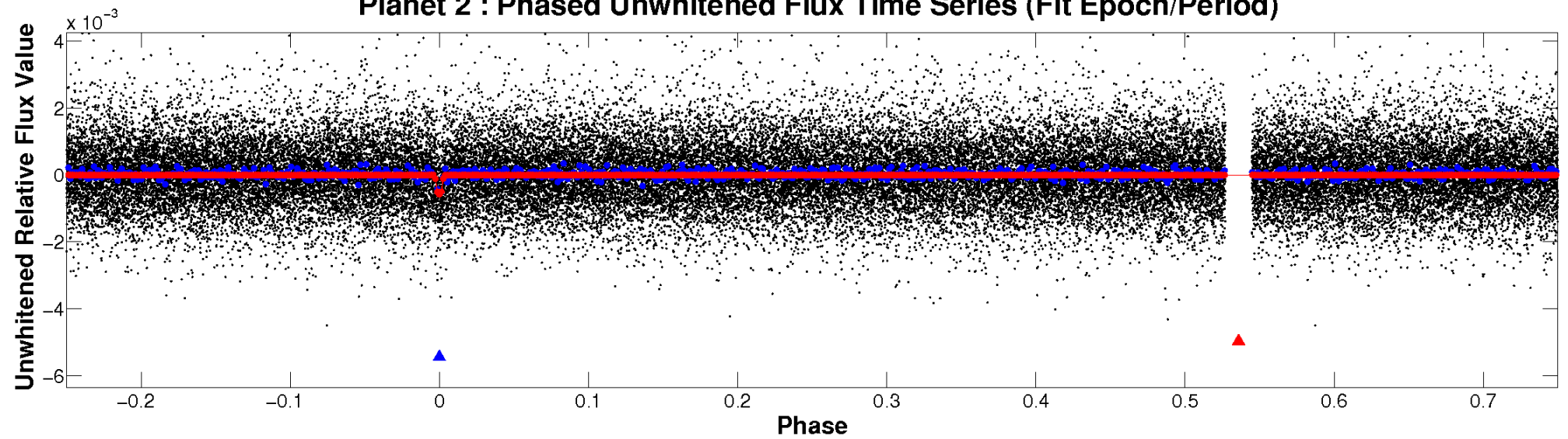
ALT Odd/Even

TCE 005396122-02

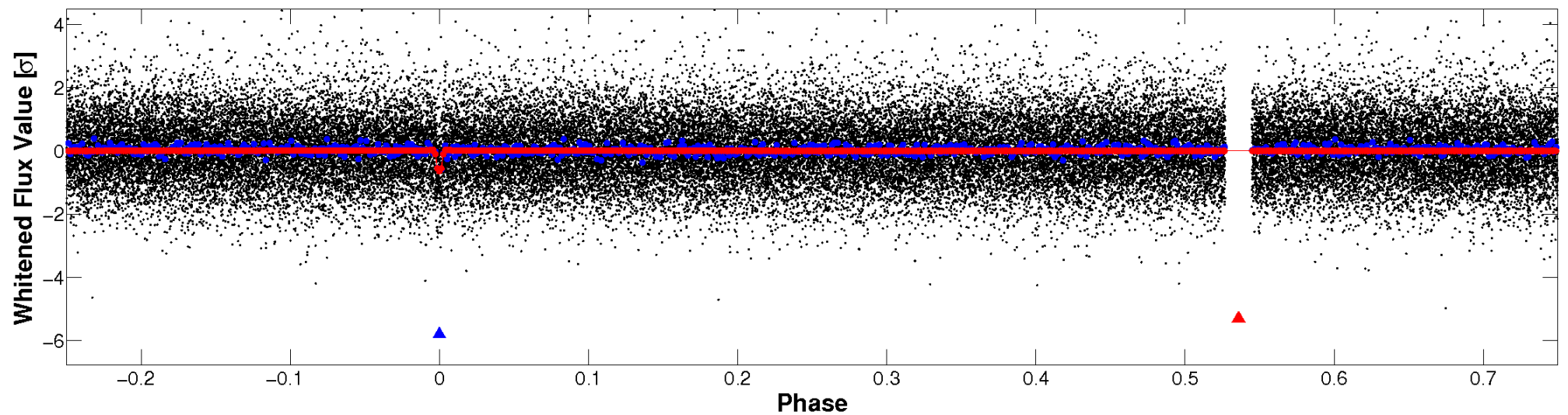


Non-Whitened Vs. Whitened Light Curve

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

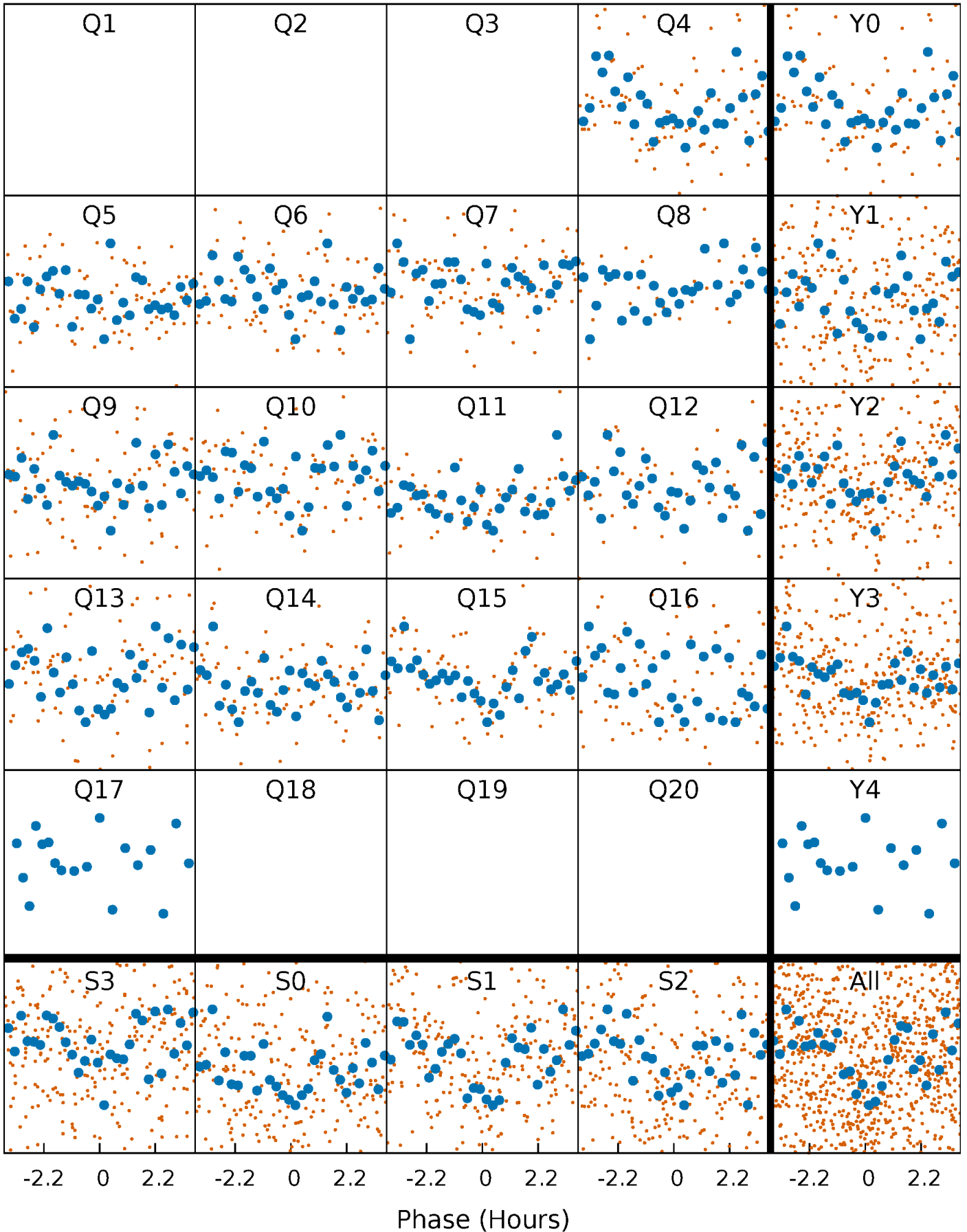


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



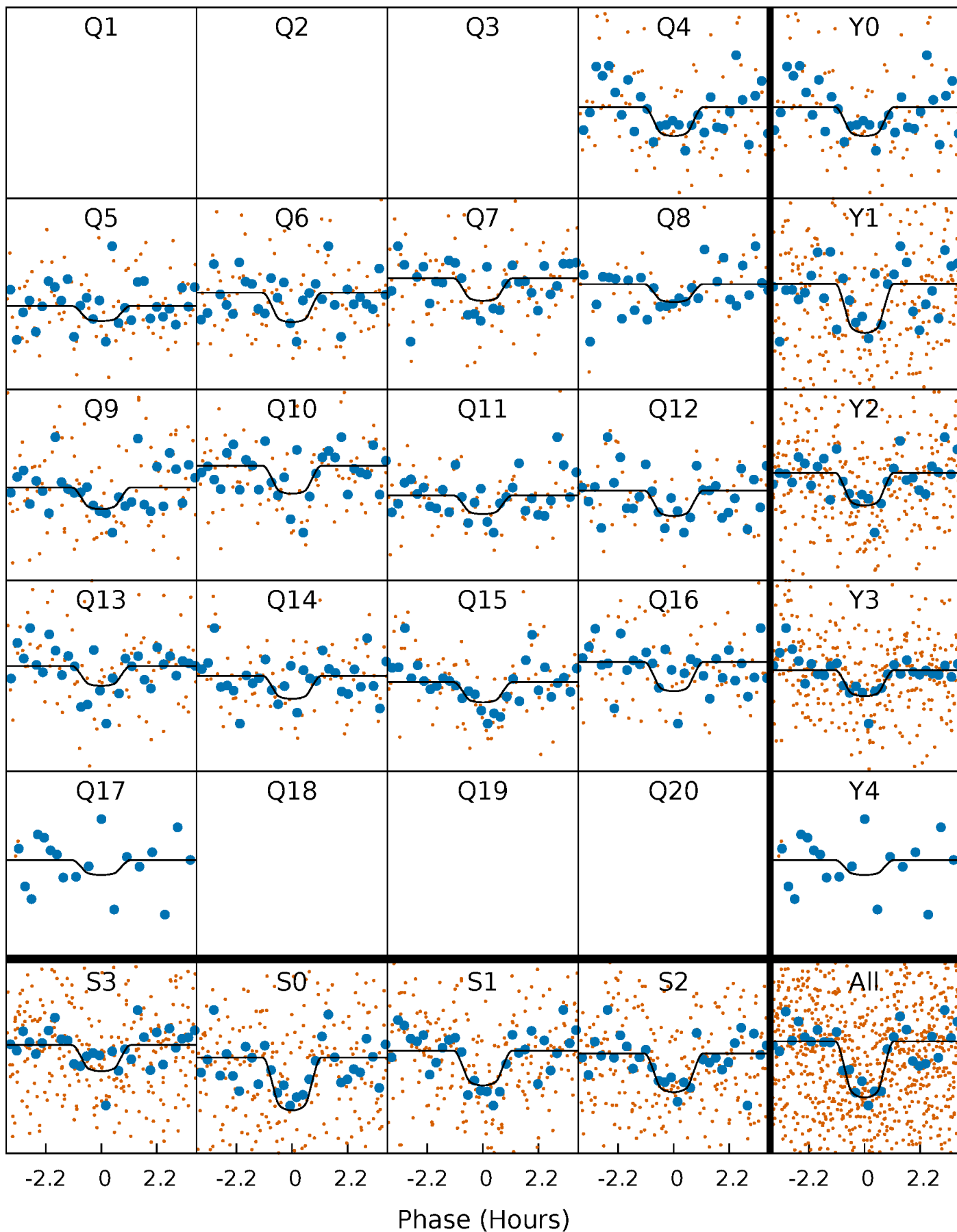
PDC Quarter-Phased Transit Curves

TCE 005396122-02 P= 15.444372 Days $T_0=145.330185$ (BKJD)



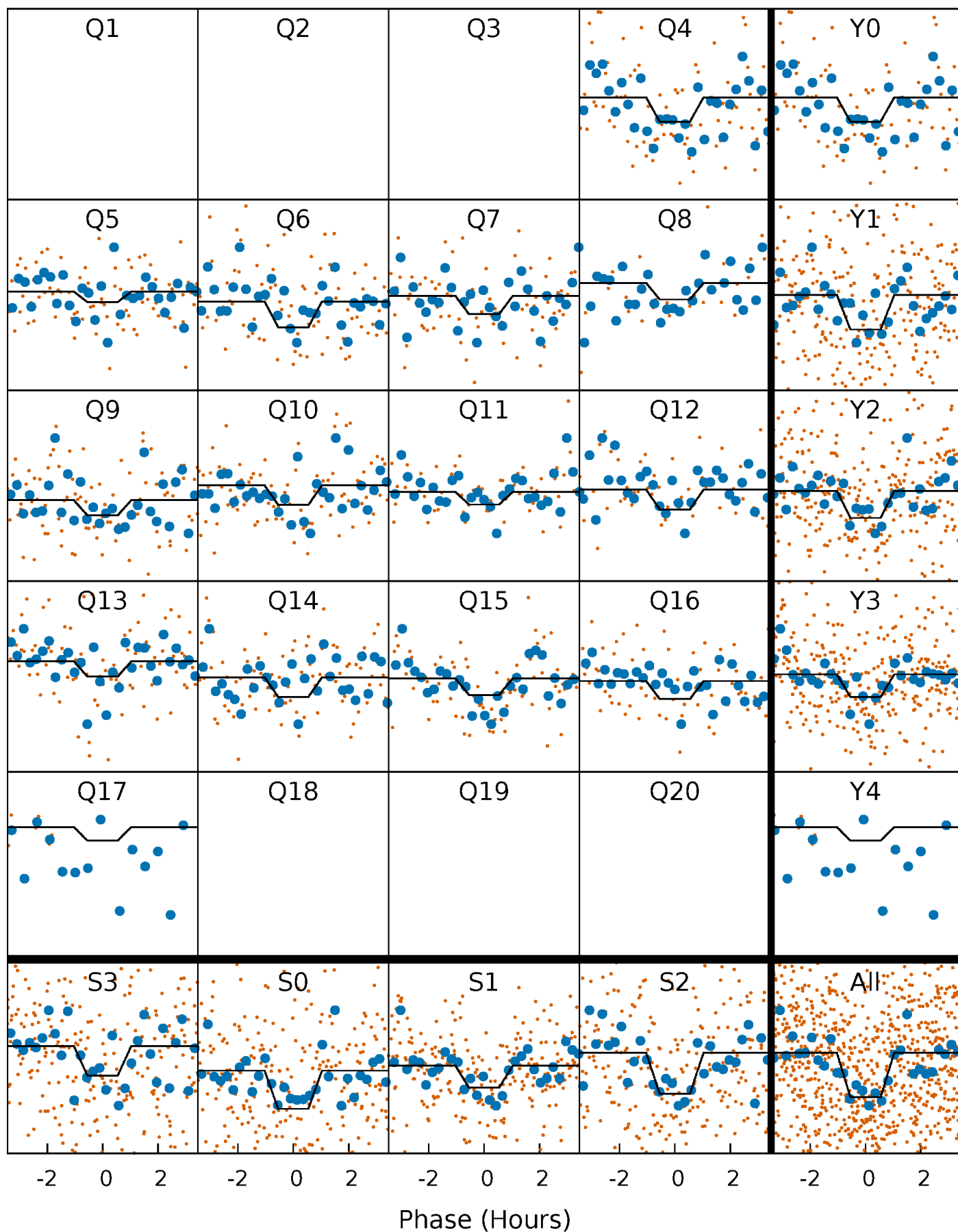
DV Quarter-Phased Transit Curves

TCE 005396122-02 P= 15.444372 Days $T_0=145.330185$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

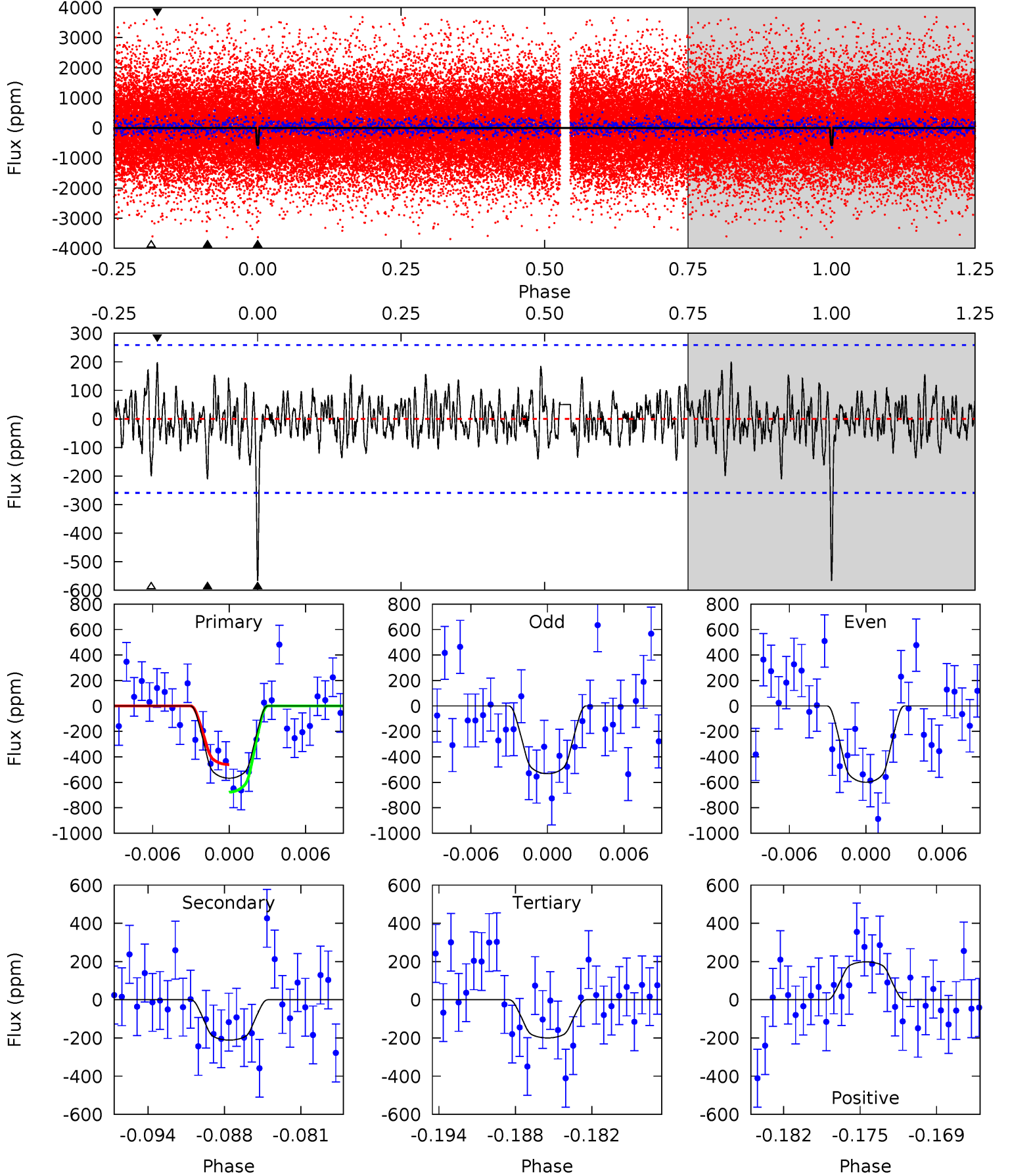
TCE 005396122-02 P= 15.444350 Days $T_0=145.332177$ (BKJD)



DV Model-Shift Uniqueness Test

005396122-02, P = 15.444372 Days, E = 145.330185 Days

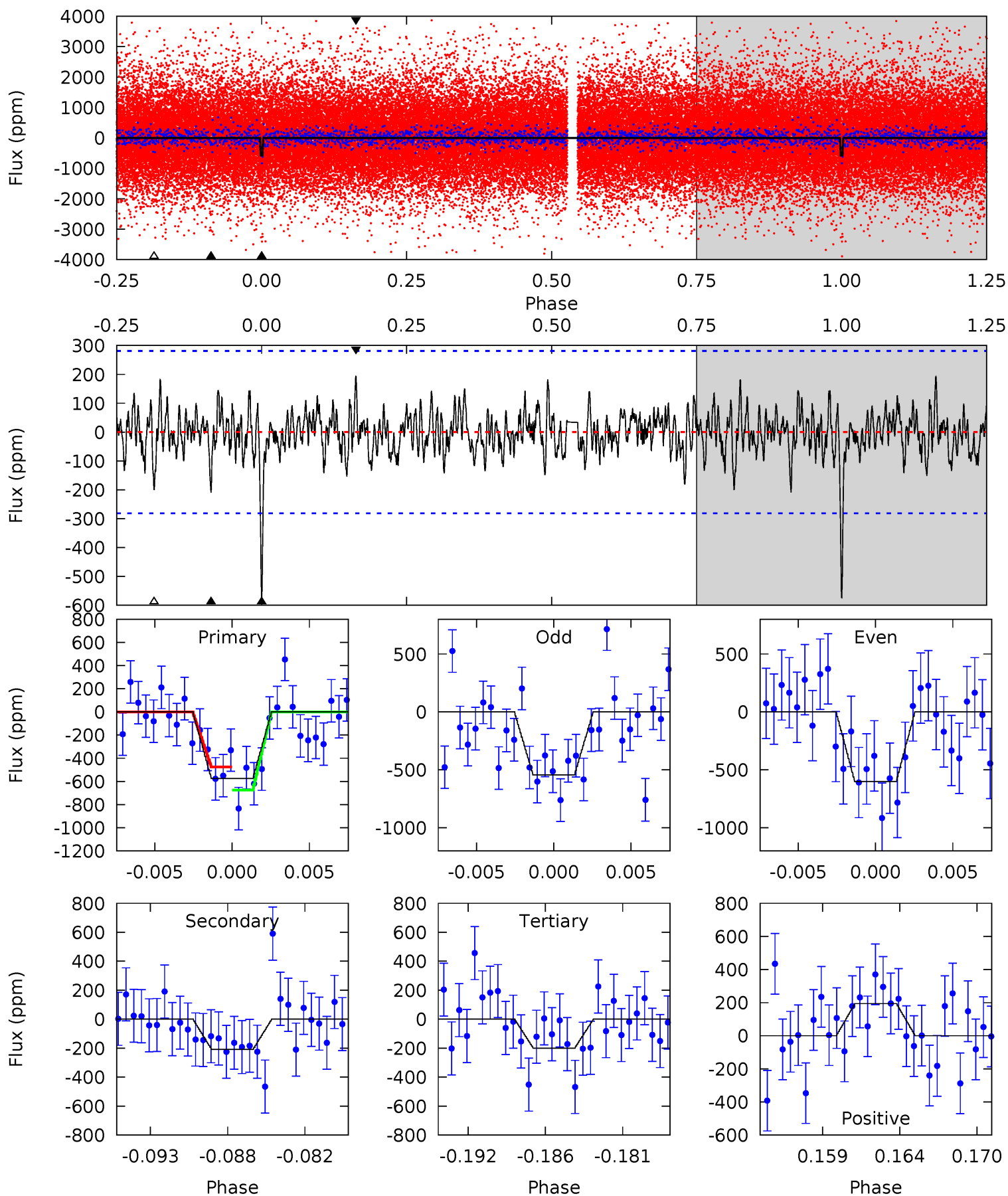
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	4.17	3.94	3.92	5.12	2.73	1.17	7.26	7.29	0.22	0.25	0.66	1.02	0.26	2.14



Alt Model-Shift Uniqueness Test

005396122-02, $P = 15.444350$ Days, $E = 145.332177$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	3.81	3.65	3.55	5.14	2.78	1.11	6.84	6.94	0.16	0.26	0.53	0.99	0.25	1.82



Stellar Parameters For KIC 005396122

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5895^{+182}_{-223}	$4.489^{+0.036}_{-0.204}$	$0.210^{+0.200}_{-0.250}$	$0.991^{+0.292}_{-0.091}$	$1.105^{+0.112}_{-0.137}$	$1.597^{+0.312}_{-0.813}$
	+3%/-4%	+1%/-5%	+95%/-119%	+29%/-9%	+10%/-12%	+20%/-51%
Source	KIC0	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 005396122-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-211 ± 51	$3.05^{+1.77}_{-1.65}$	1047^{+79}_{-50}	4527^{+1634}_{-719}	196^{+615}_{-121}
Alt.	-209 ± 55	$2.79^{+1.64}_{-1.44}$	1045^{+77}_{-54}	4633^{+1793}_{-764}	216^{+743}_{-133}

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

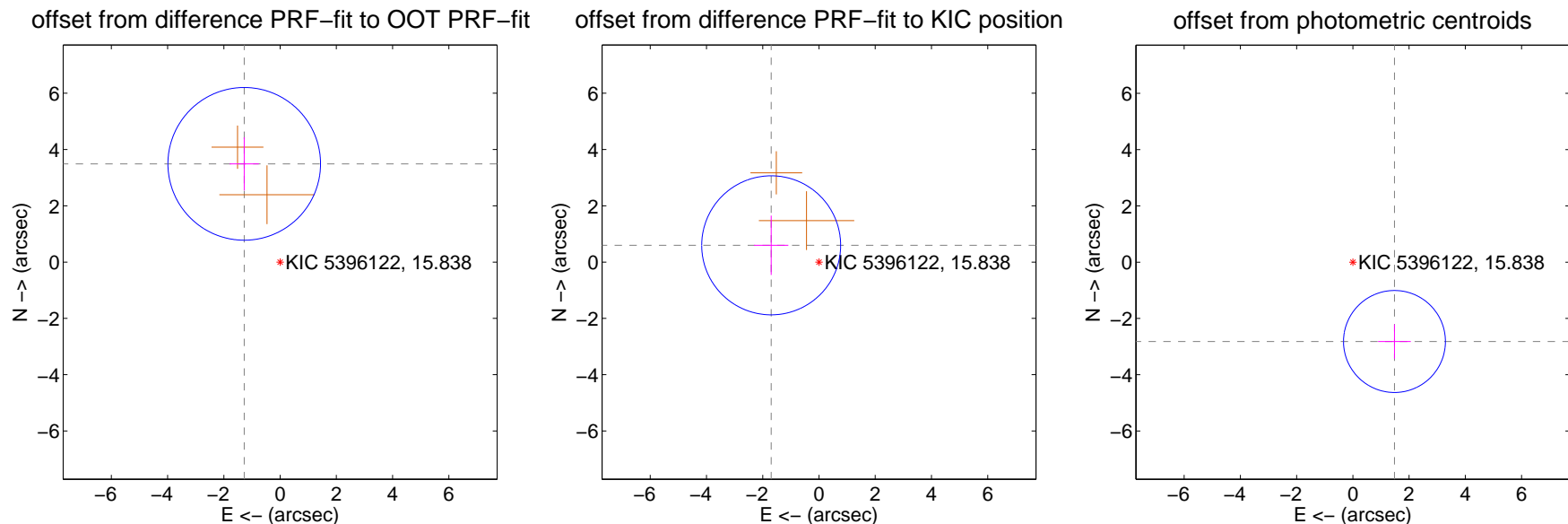
DV Centroid Data

Supplemental centroid analysis for 005396122-02. Kepler magnitude: 15.84. Transit SNR 8.78

There are 1 quarters with good PRF difference image offsets

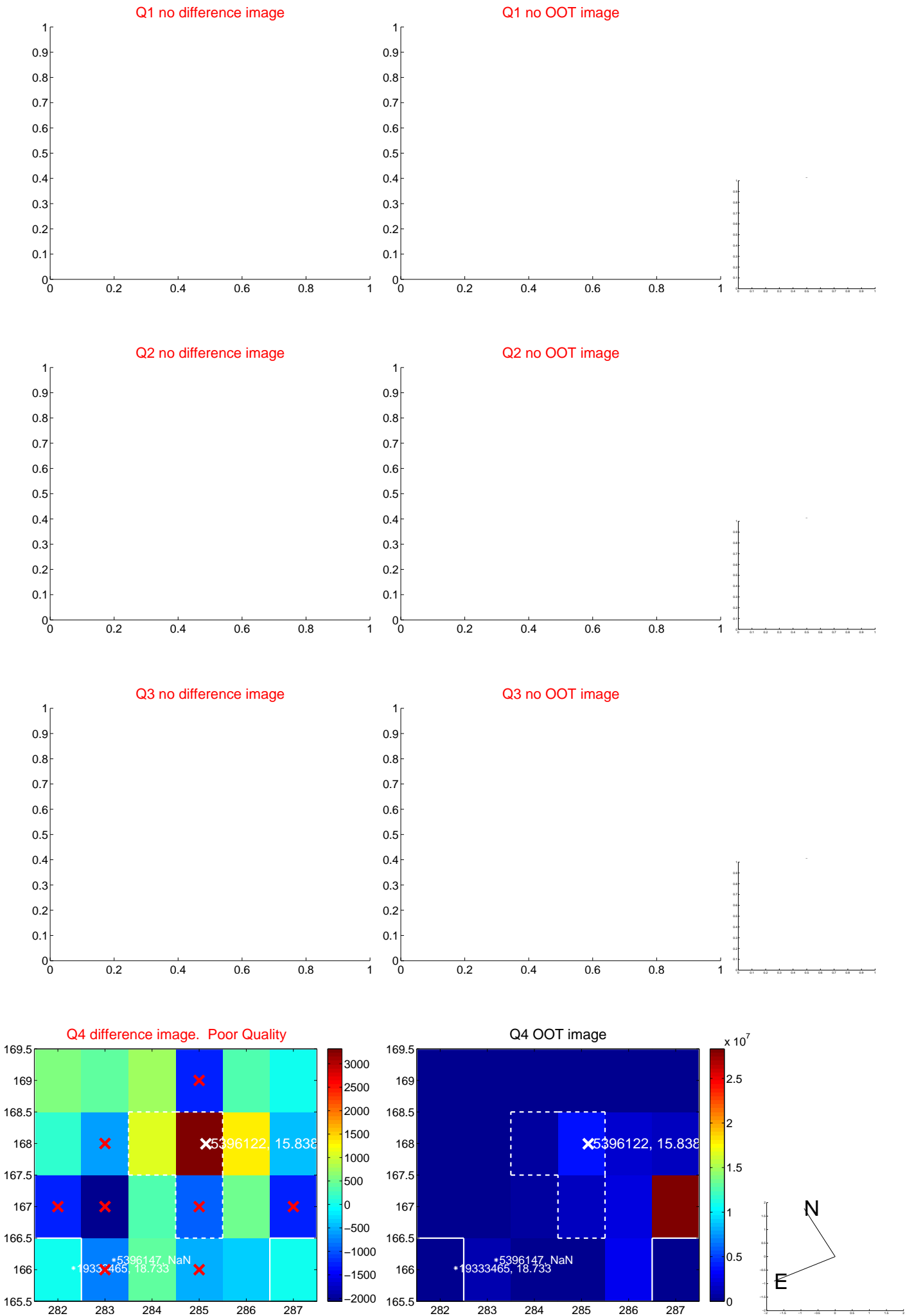
The direct PRF centroid is offset from the target star catalog position by about 0.92 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.715 ± 0.904	4.11	1.275 ± 0.519	3.489 ± 0.944
PRF-fit source offset from KIC position	1.801 ± 0.823	2.19	1.700 ± 0.611	0.596 ± 1.055
photometric centroid source offset	3.18 ± 0.60	5.27	-1.48 ± 0.58	-2.82 ± 0.61

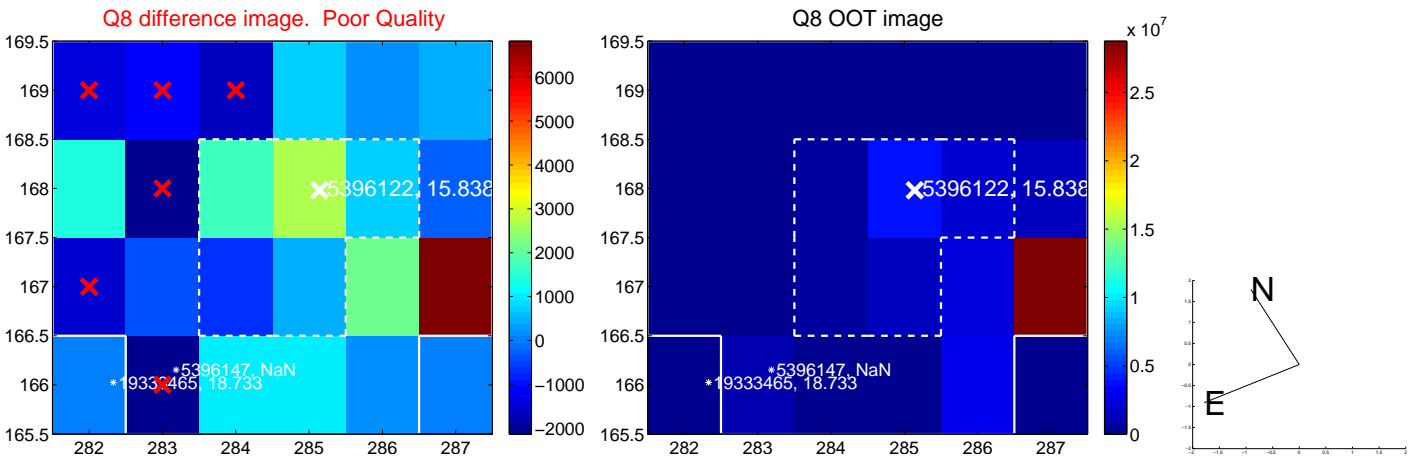
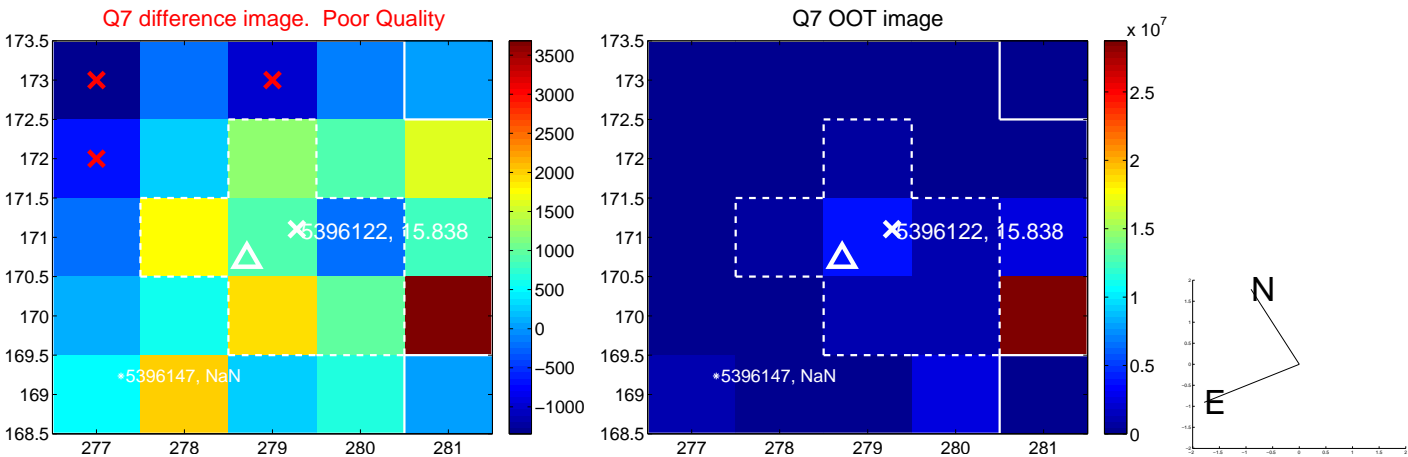
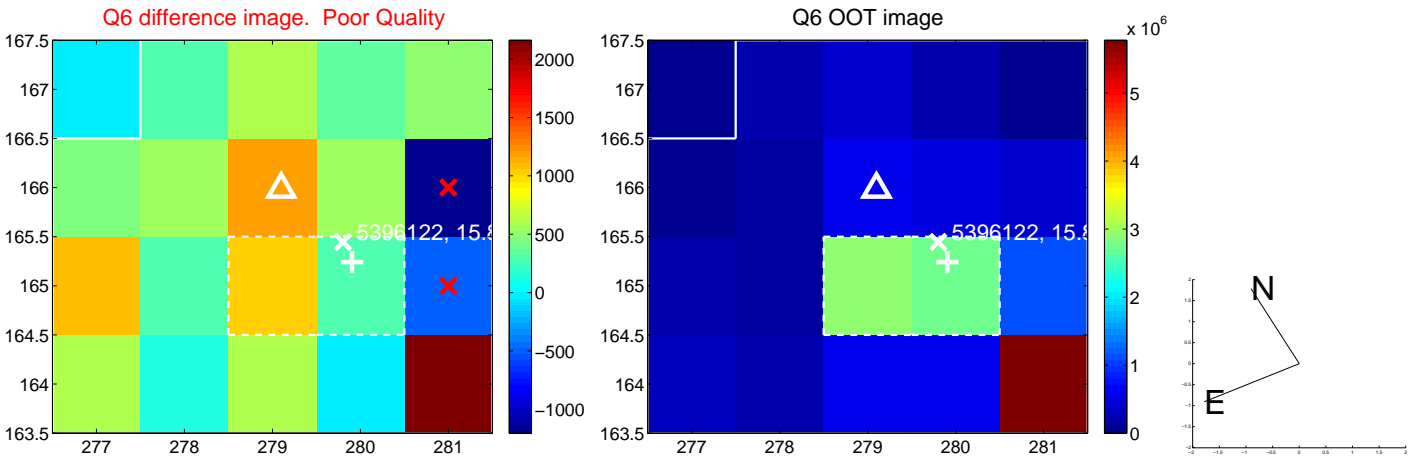
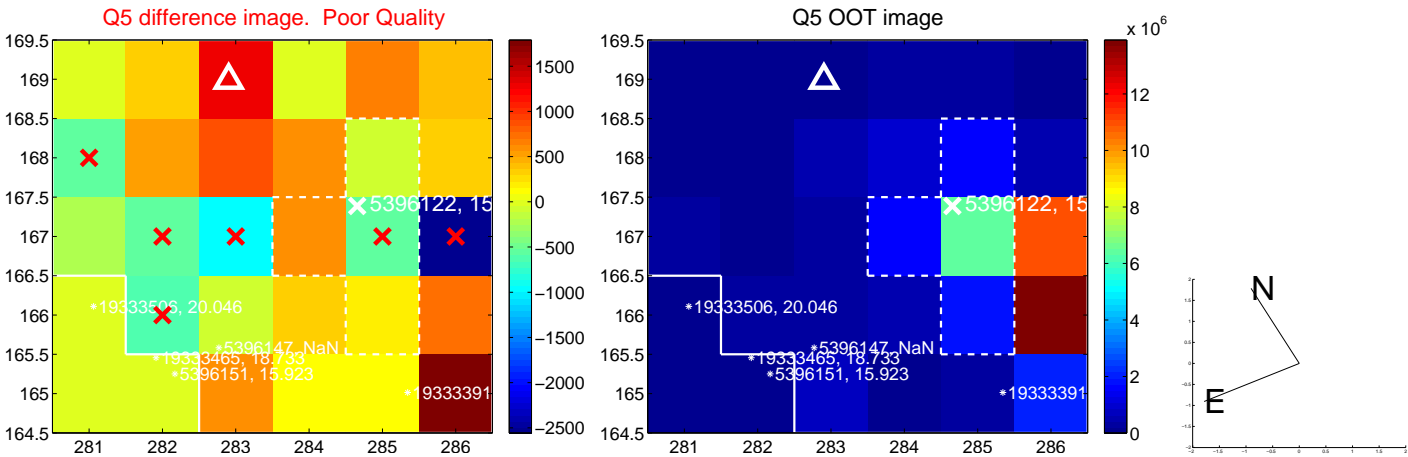


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

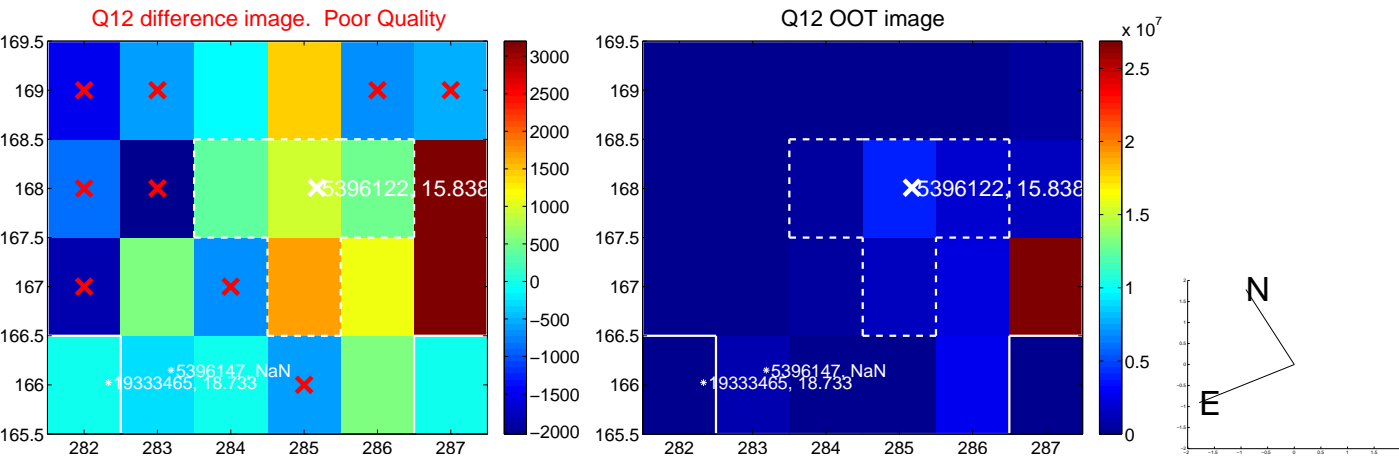
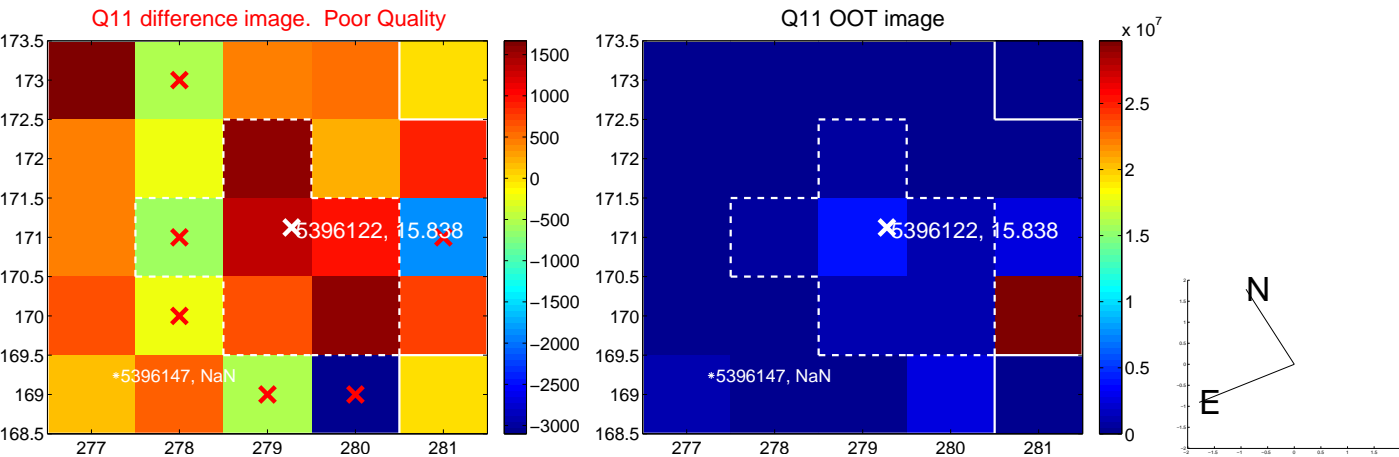
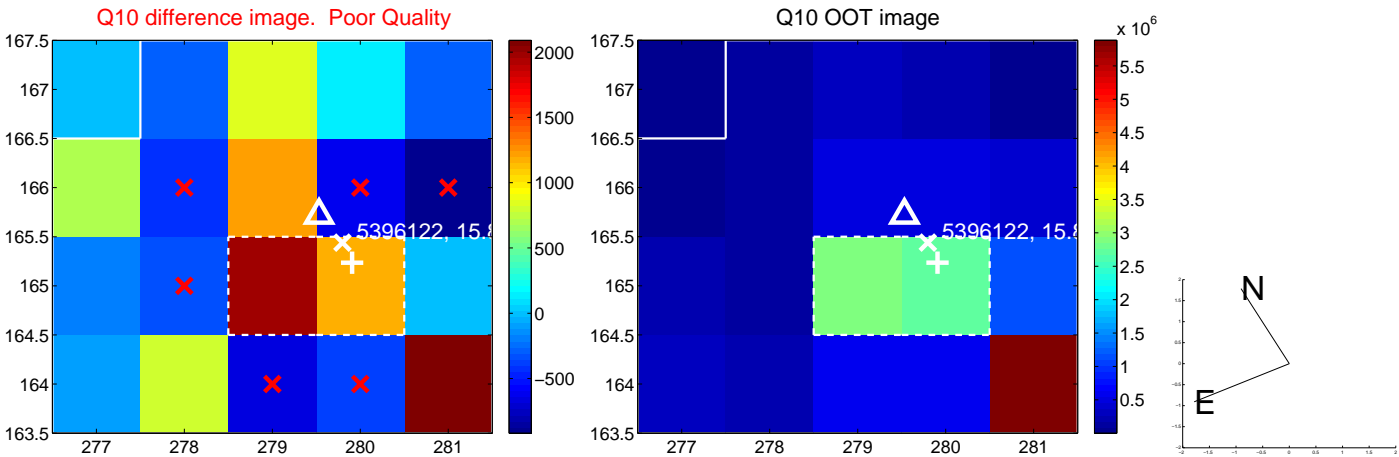
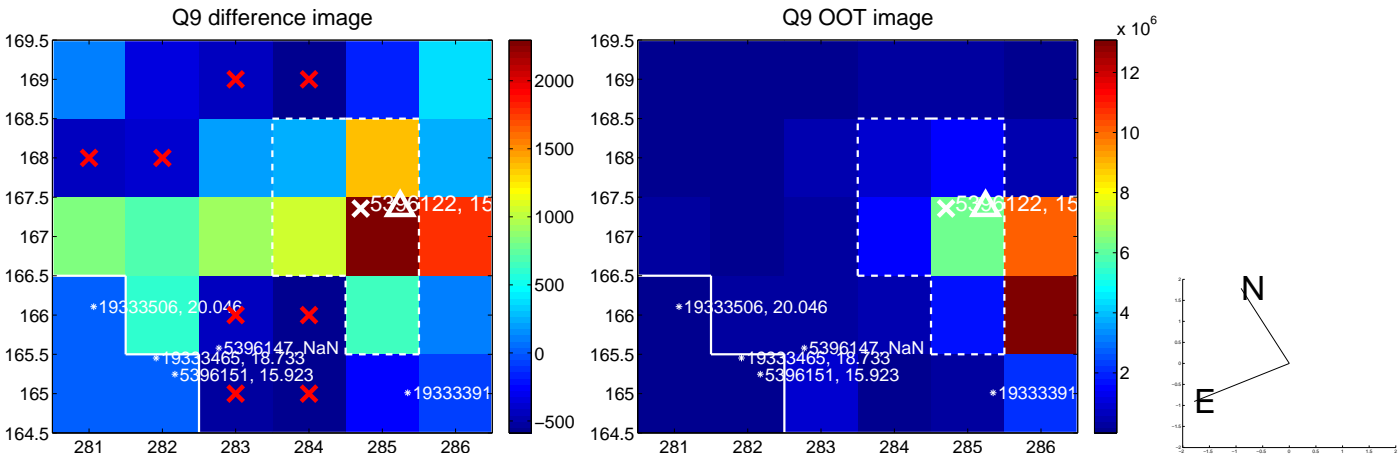
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



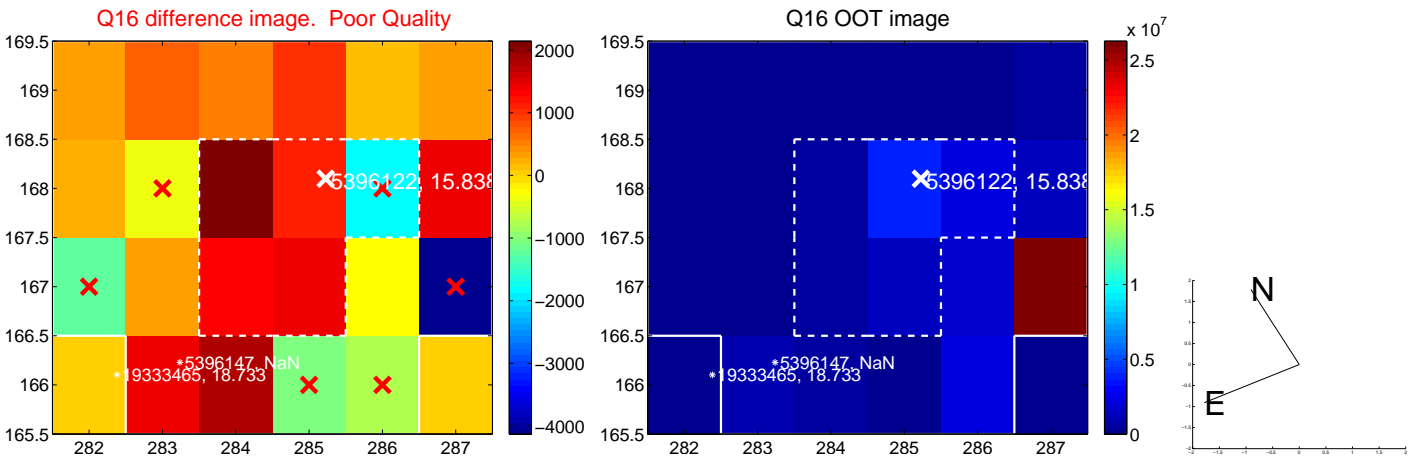
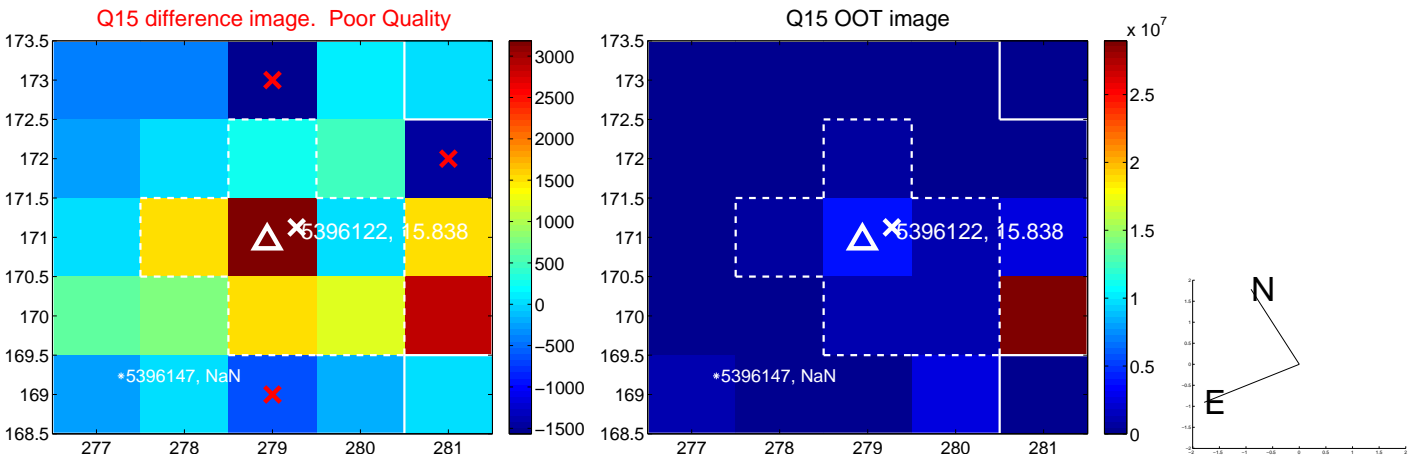
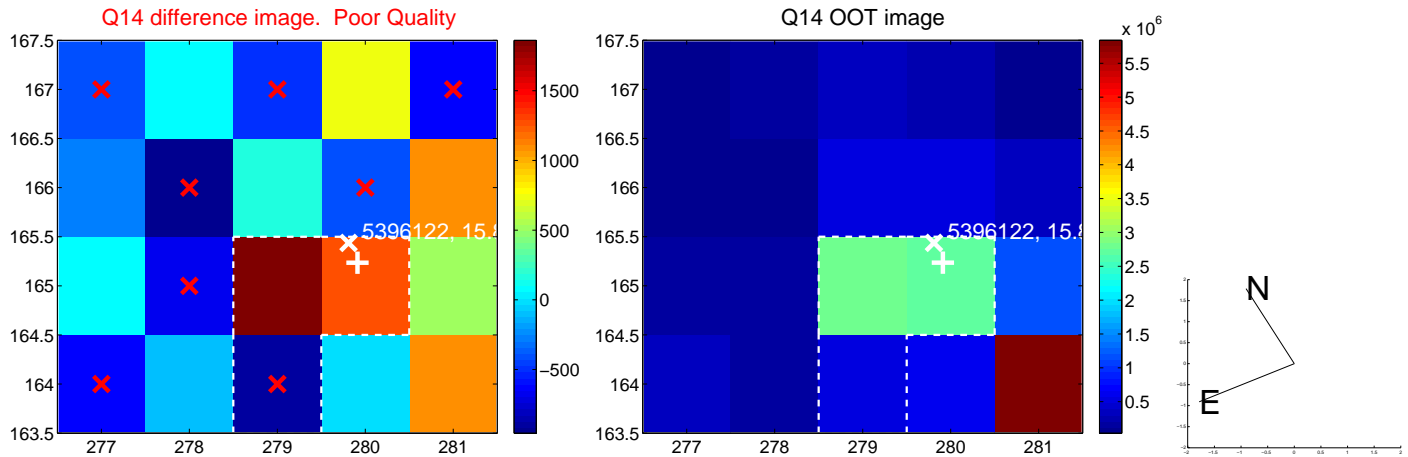
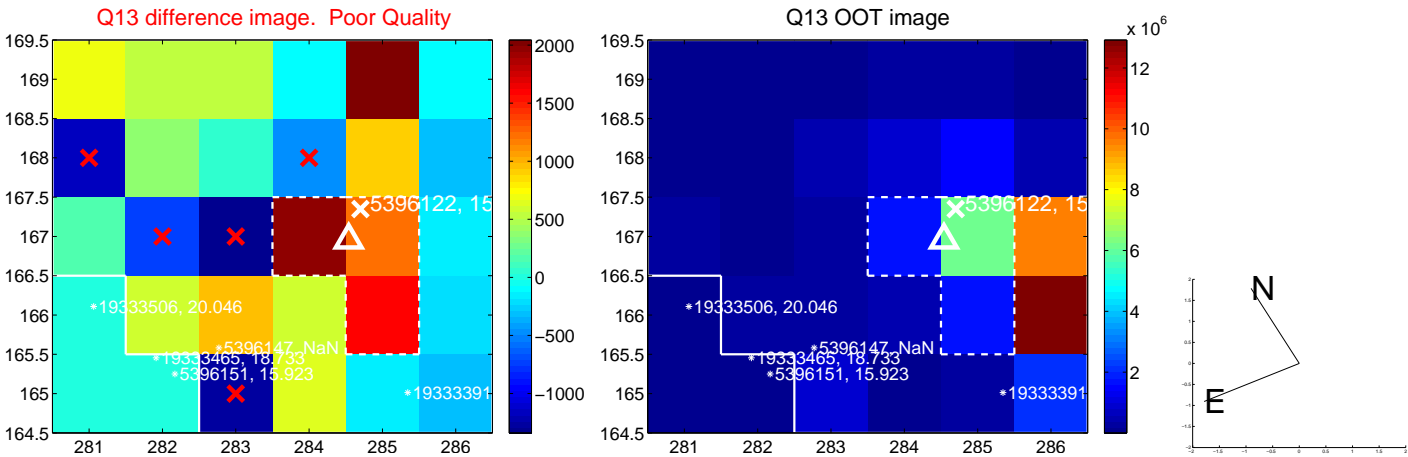
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



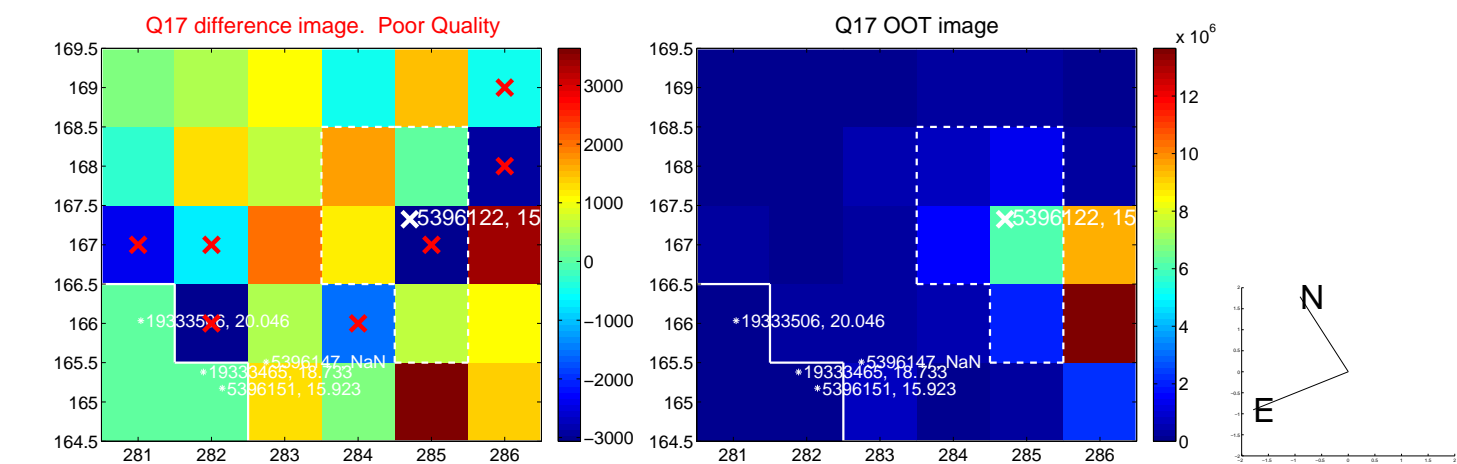
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



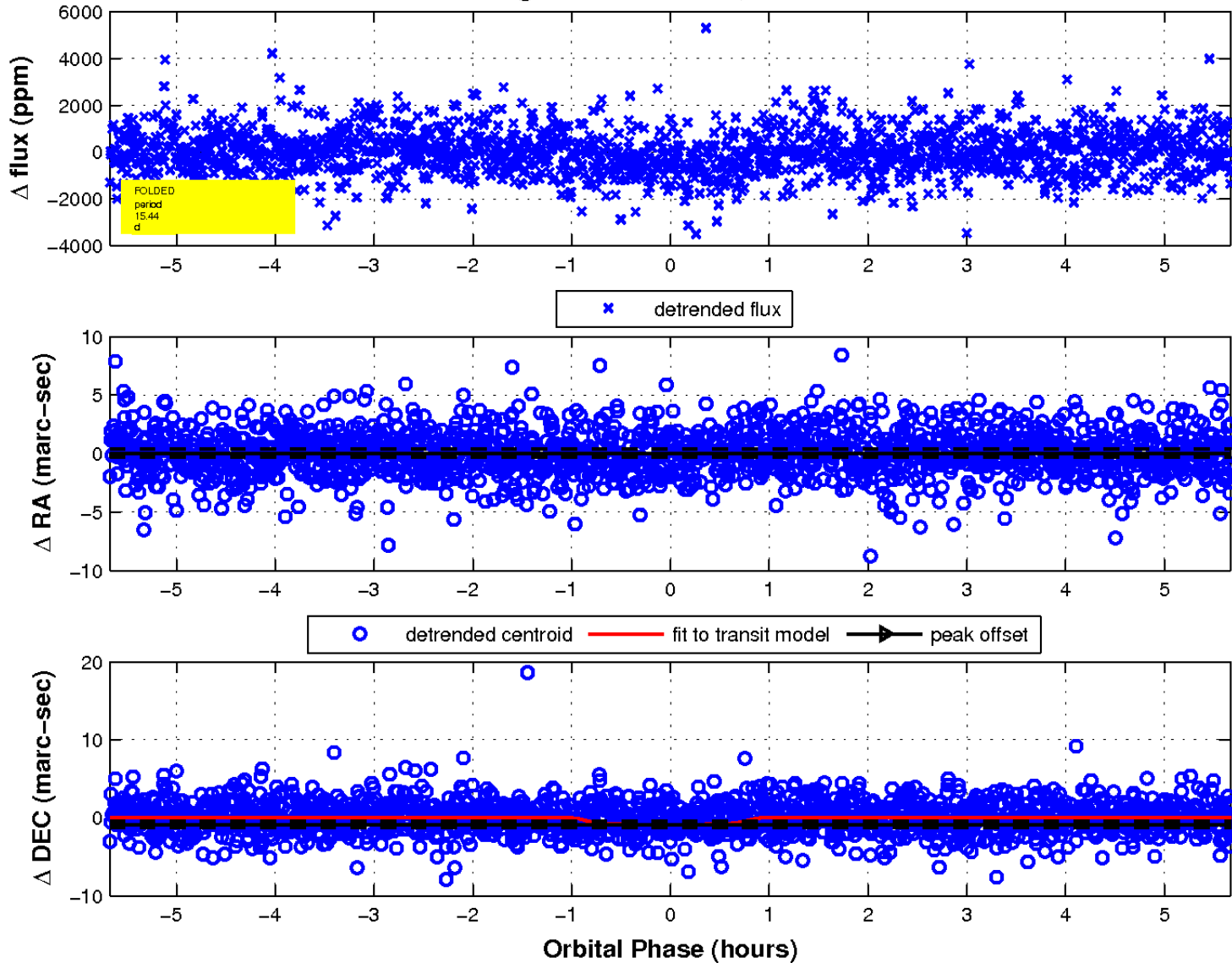
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

