

KIC 006058896

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})
006058896-01	OBS	5233.01	1.129825	131.804070	169.0	2.062	242.0	24.1	0.90	5808	1.36	2224.18
006058896-02	OBS	No	1.129864	132.354744	7465.7	1.500	272.3	-1.0	0.90	5808	7.79	2224.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006058896-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
006058896-02	OBS	FP	0.00	1	0	0	1	SAME_NTL_PERIOD—CENT_NOFITS—EPHEM_MATCH

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

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

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

Ephemeris Match Information For 006058896-01

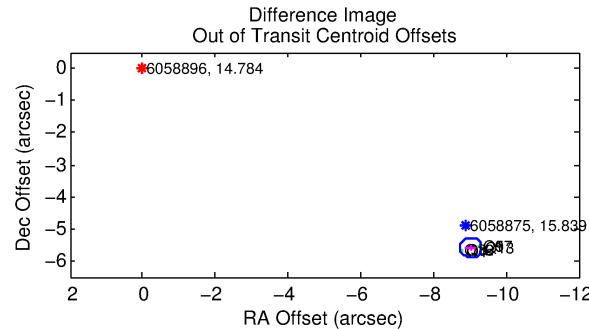
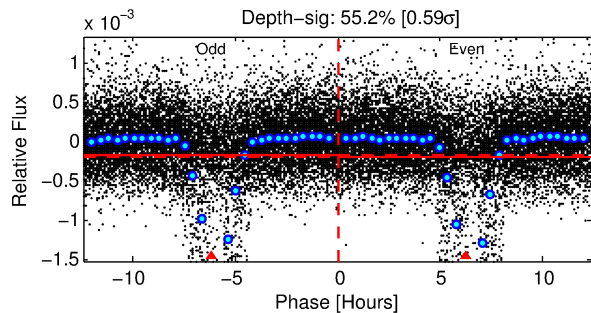
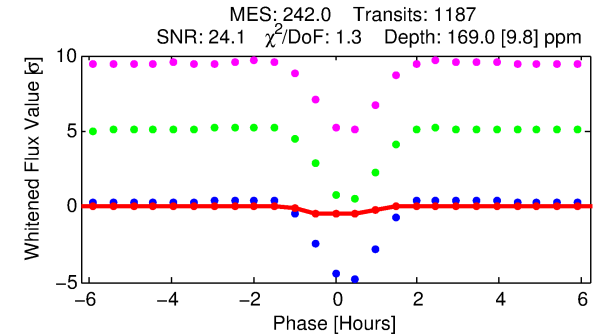
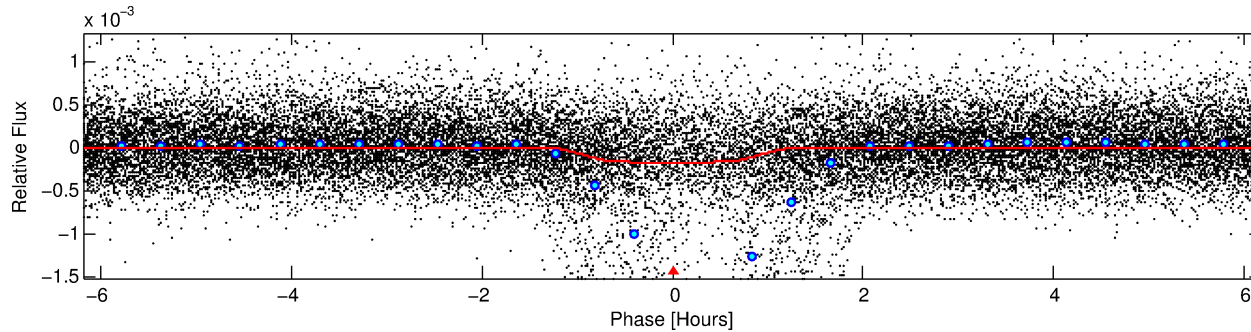
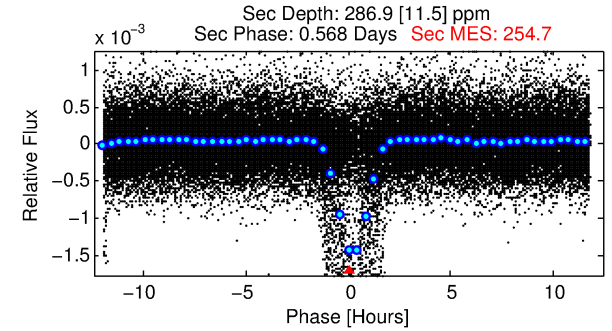
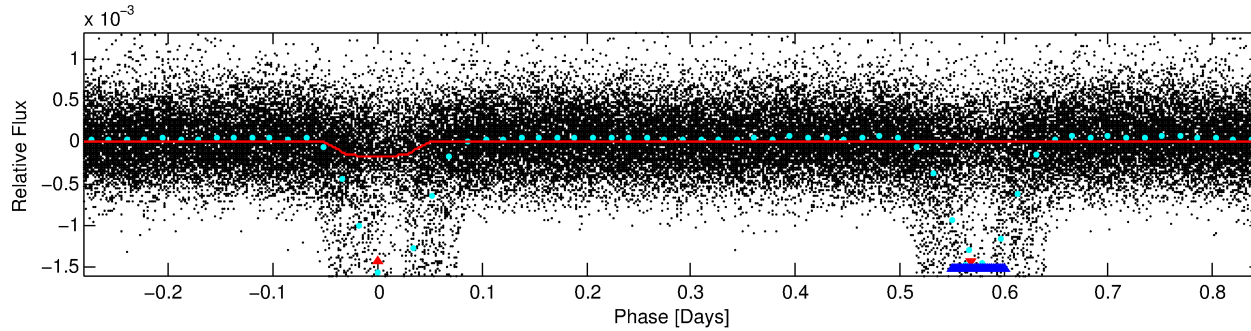
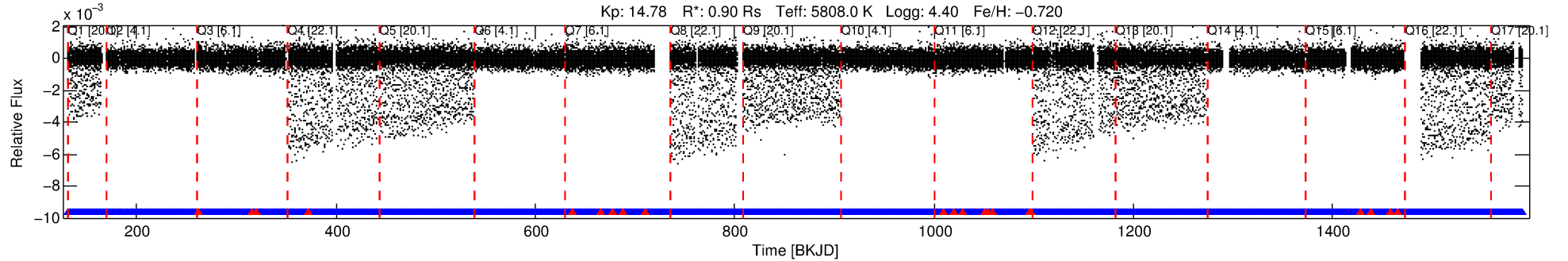
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
006058896-01	6058896	006058875-pri	6058875	1:1	10.2	0	2	15.84	14.79	1511.20	Direct-PRF	0	3.40	1.09

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

DV One-Page Summary

KIC: 6058896 Candidate: 1 of 2 Period: 1.130 d
KOI: K05233 Corr: No Ephemeris Match

Kp: 14.78 R*: 0.90 Rs Teff: 5808.0 K Logg: 4.40 Fe/H: -0.720



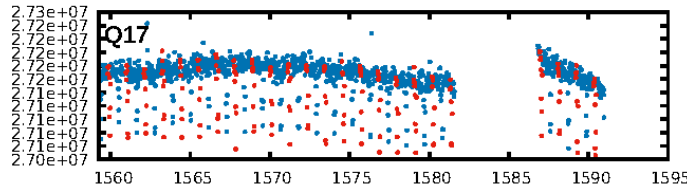
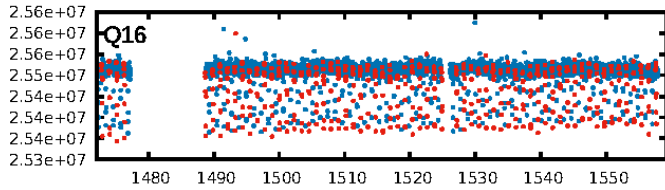
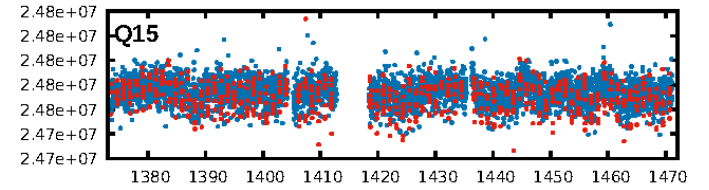
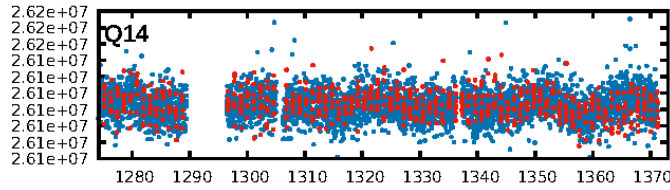
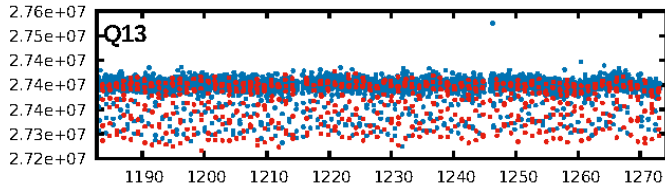
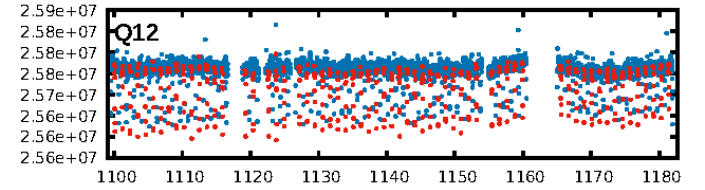
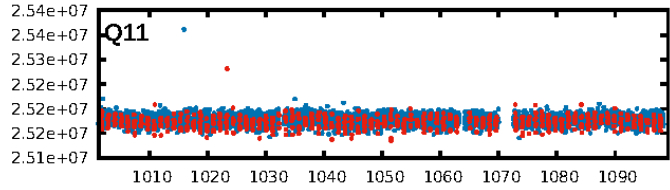
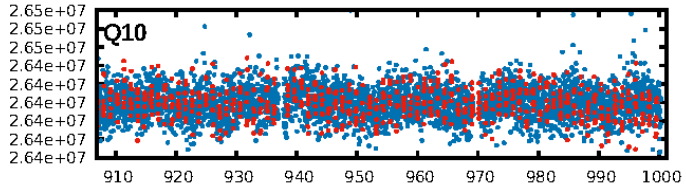
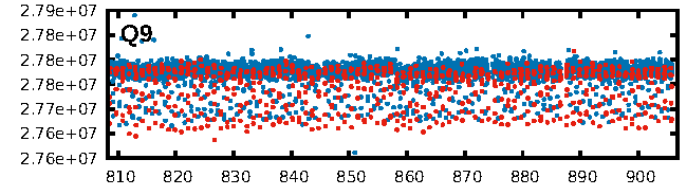
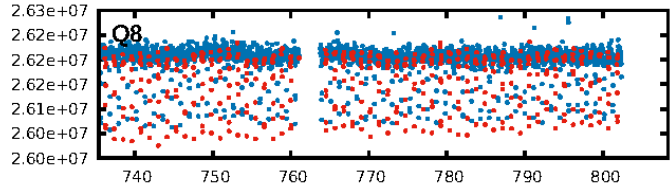
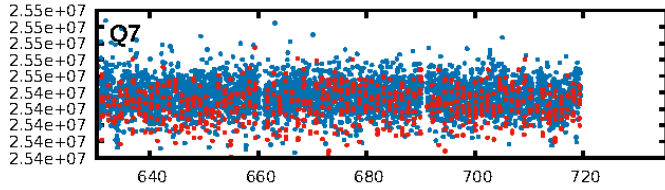
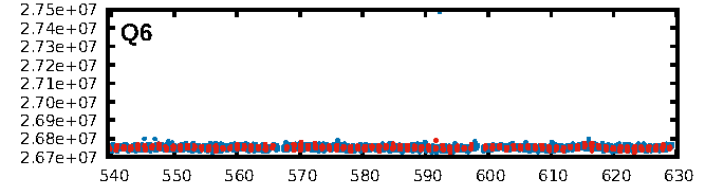
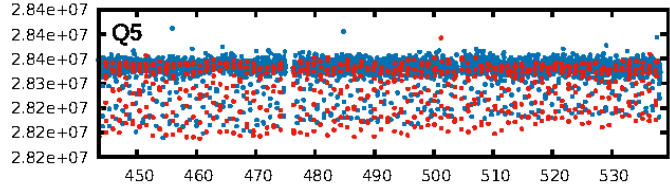
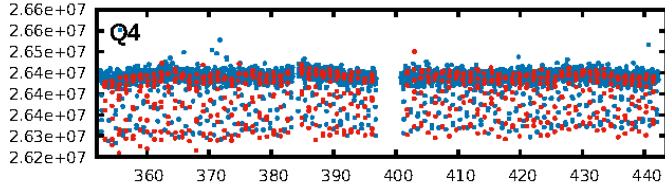
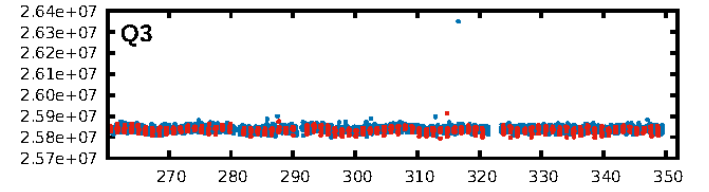
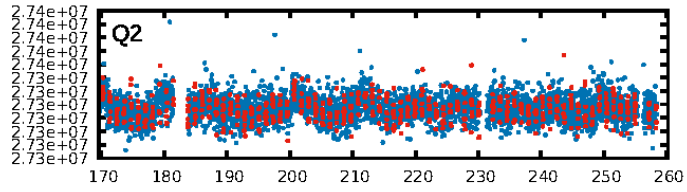
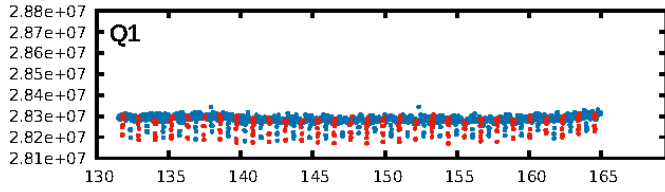
DV Fit Results:

Period = 1.12982 [0.00000] d
Epoch = 131.8041 [0.0012] BKJD
Rp/R* = 0.0139 [0.0042]
a/R* = 2.26 [2.85]
b = 0.89 [0.38]
Seff = 2224.18 [780.55]
Teff = 1751 [154] K
Rp = 1.36 [0.53] Re
a = 0.0192 [0.0042] AU
Ag = 31.52 [21.69] [1.41σ]
Teff = 6415 [987] K [4.67σ]

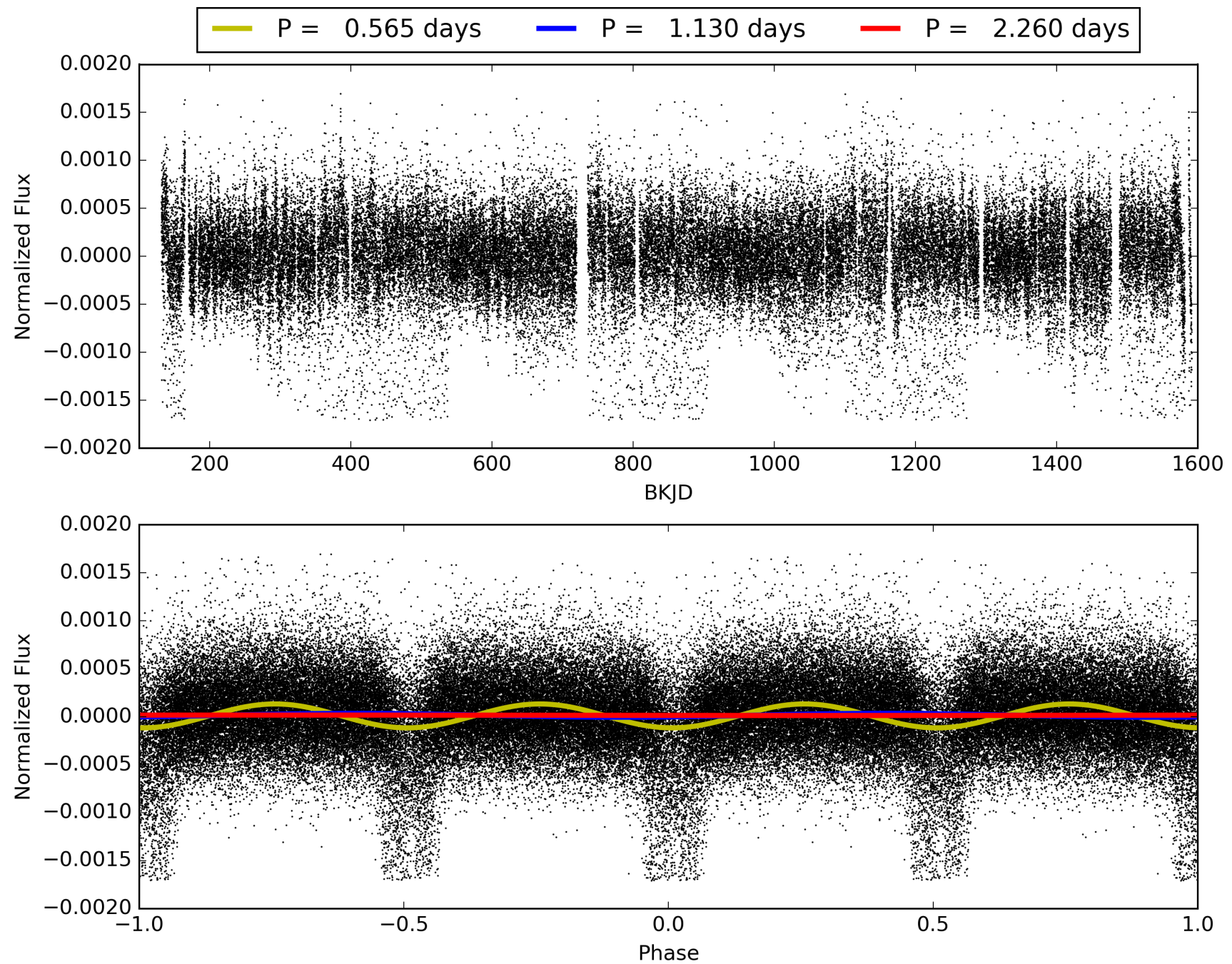
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1112/1133]
GhostDiagnostic-chr: -0.5295
Centroid-sig: N/A
Centroid-so: 237.160 arcsec [541.11σ]
OotOffset-rm: 10.616 arcsec [103.41σ]
KicOffset-rm: 10.546 arcsec [101.01σ]
OotOffset-st: 0/0/4/5 [9]
KicOffset-st: 0/0/4/5 [9]
DiffImageQuality-fgm: 1.00 [9/9]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 006058896-01, PDC Light Curves

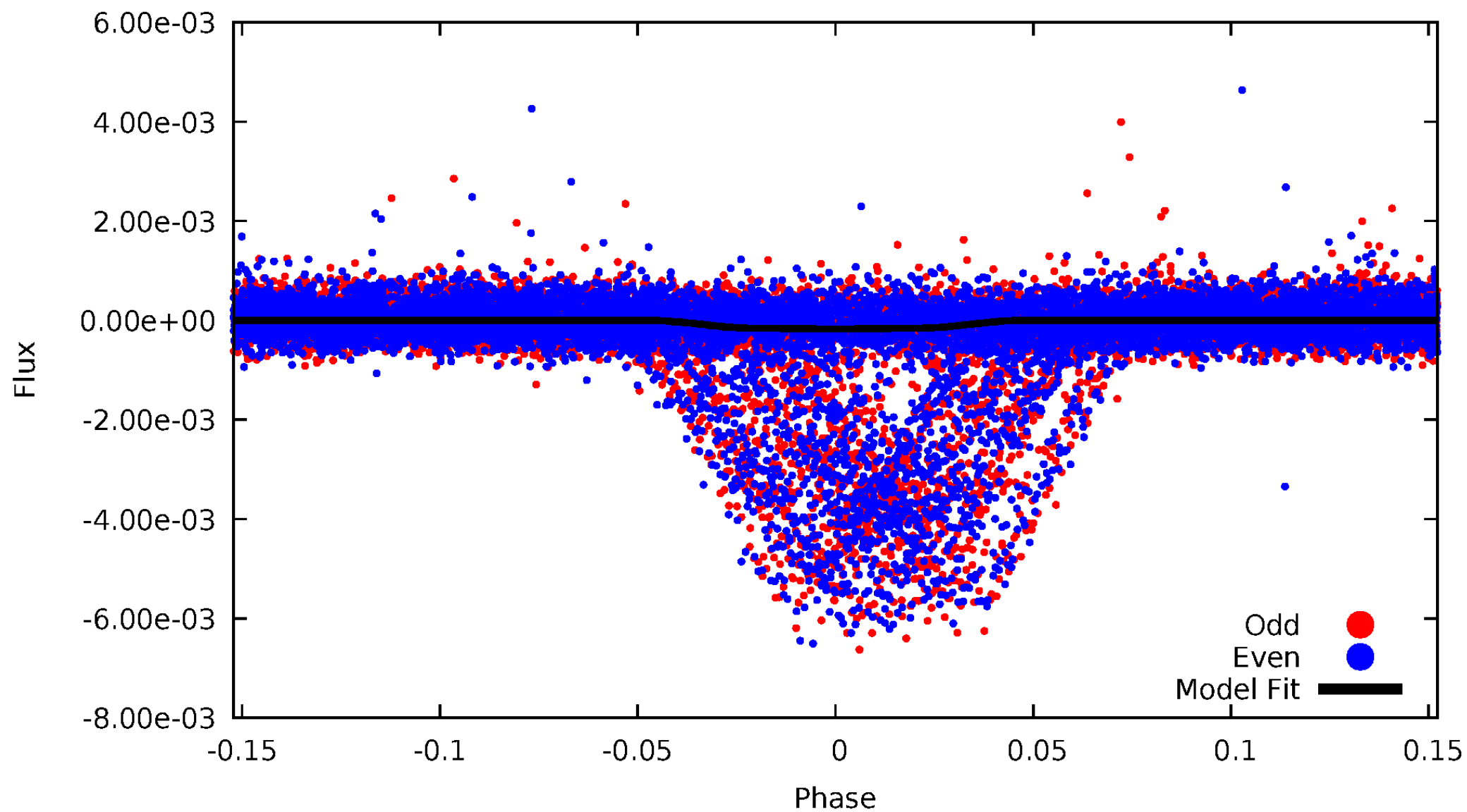


TCE 006058896-01



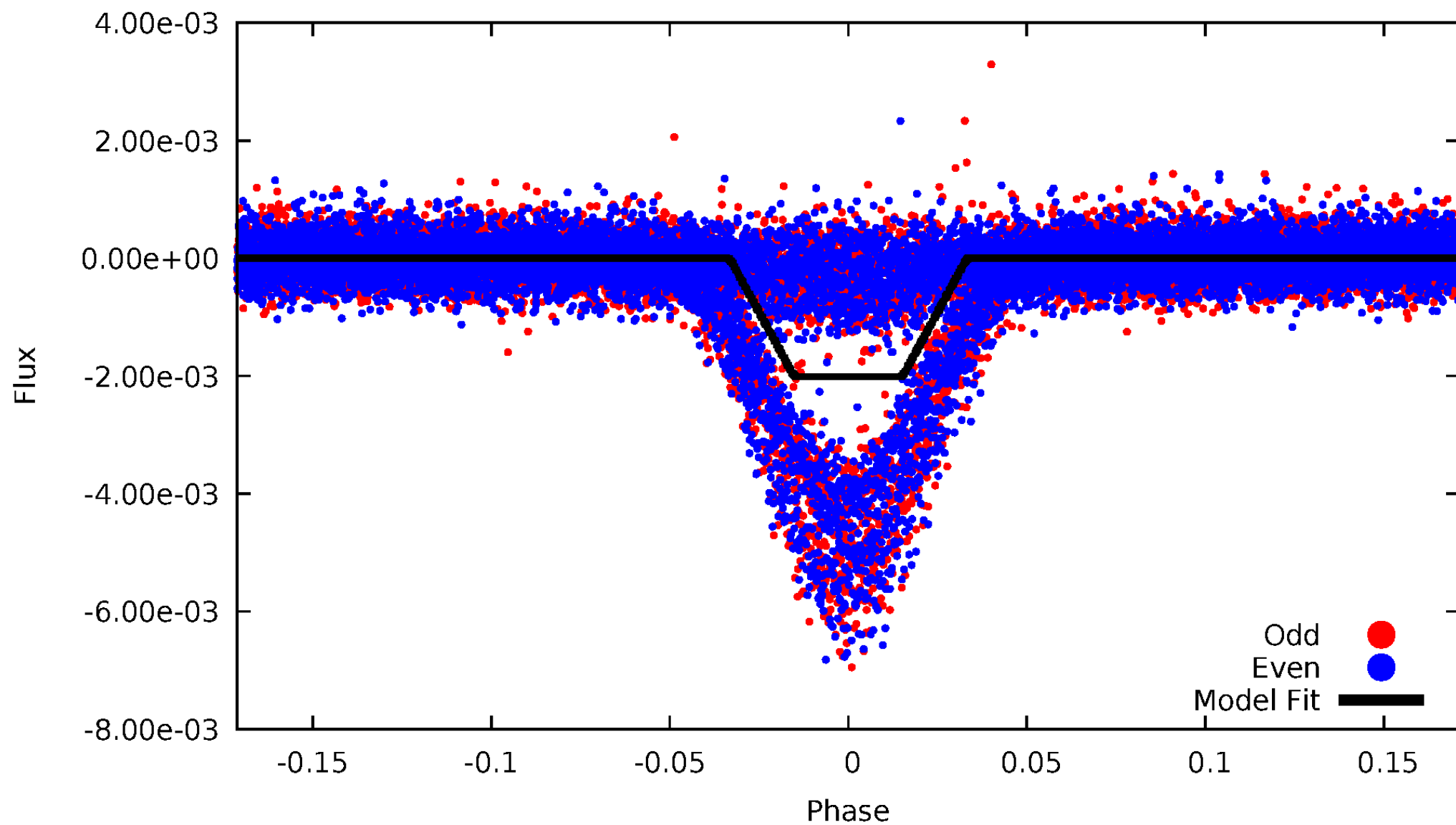
DV Odd/Even

TCE 006058896-01



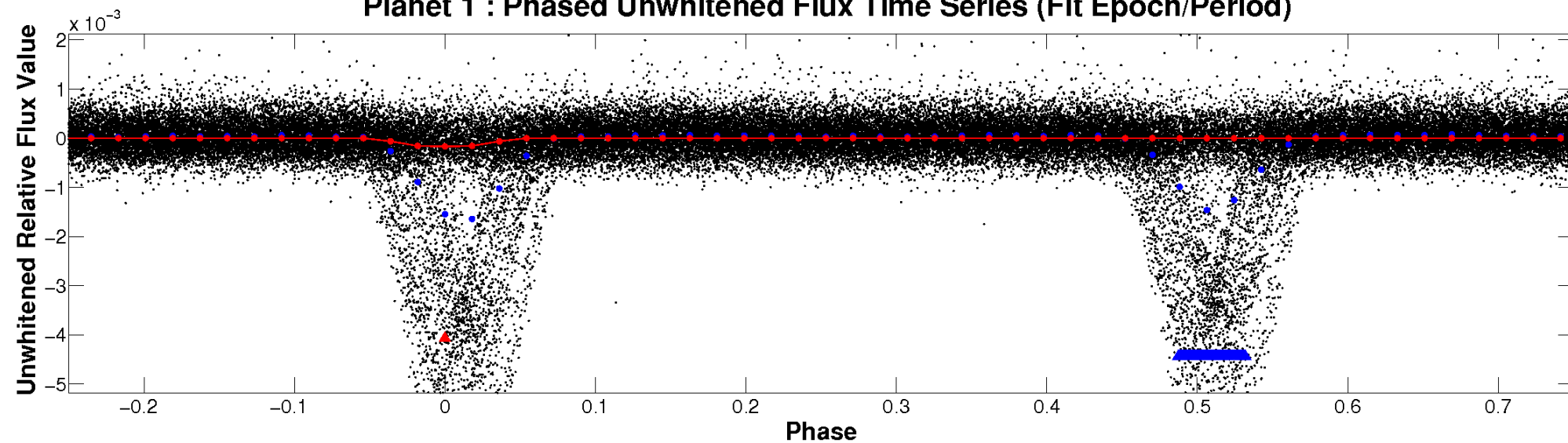
ALT Odd/Even

TCE 006058896-01

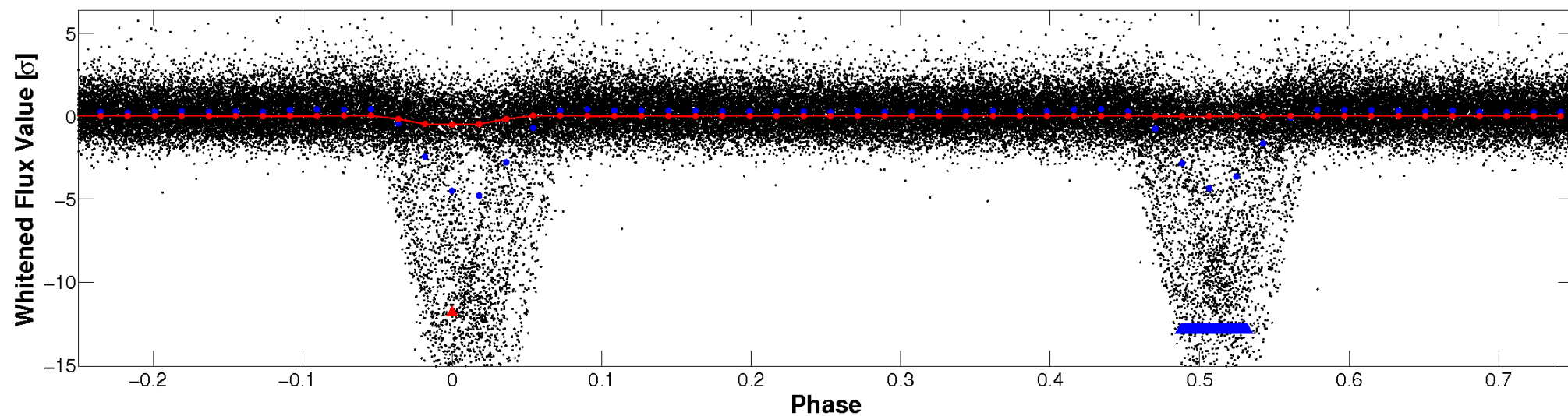


Non-Whitened Vs. Whitened Light Curve

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

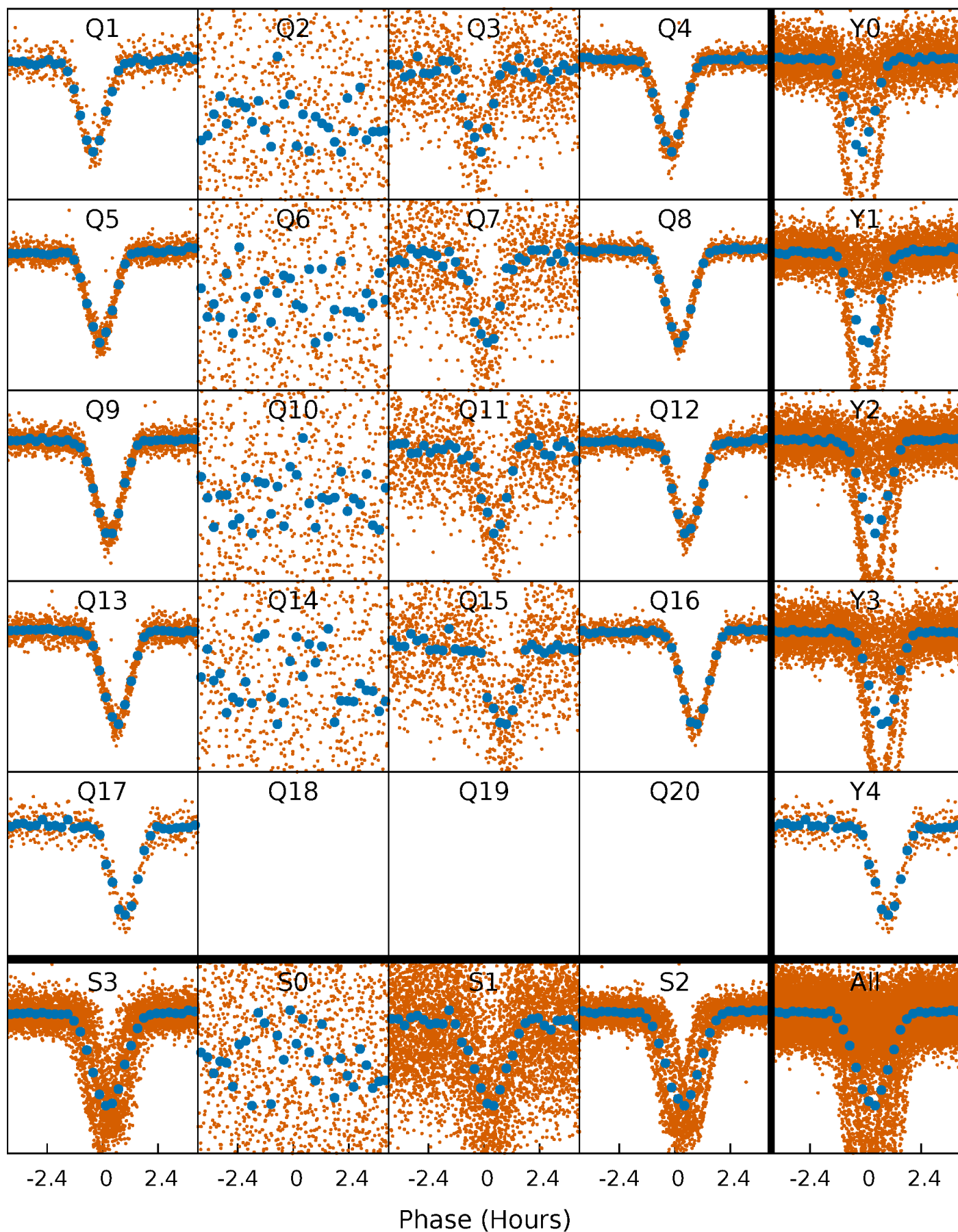


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



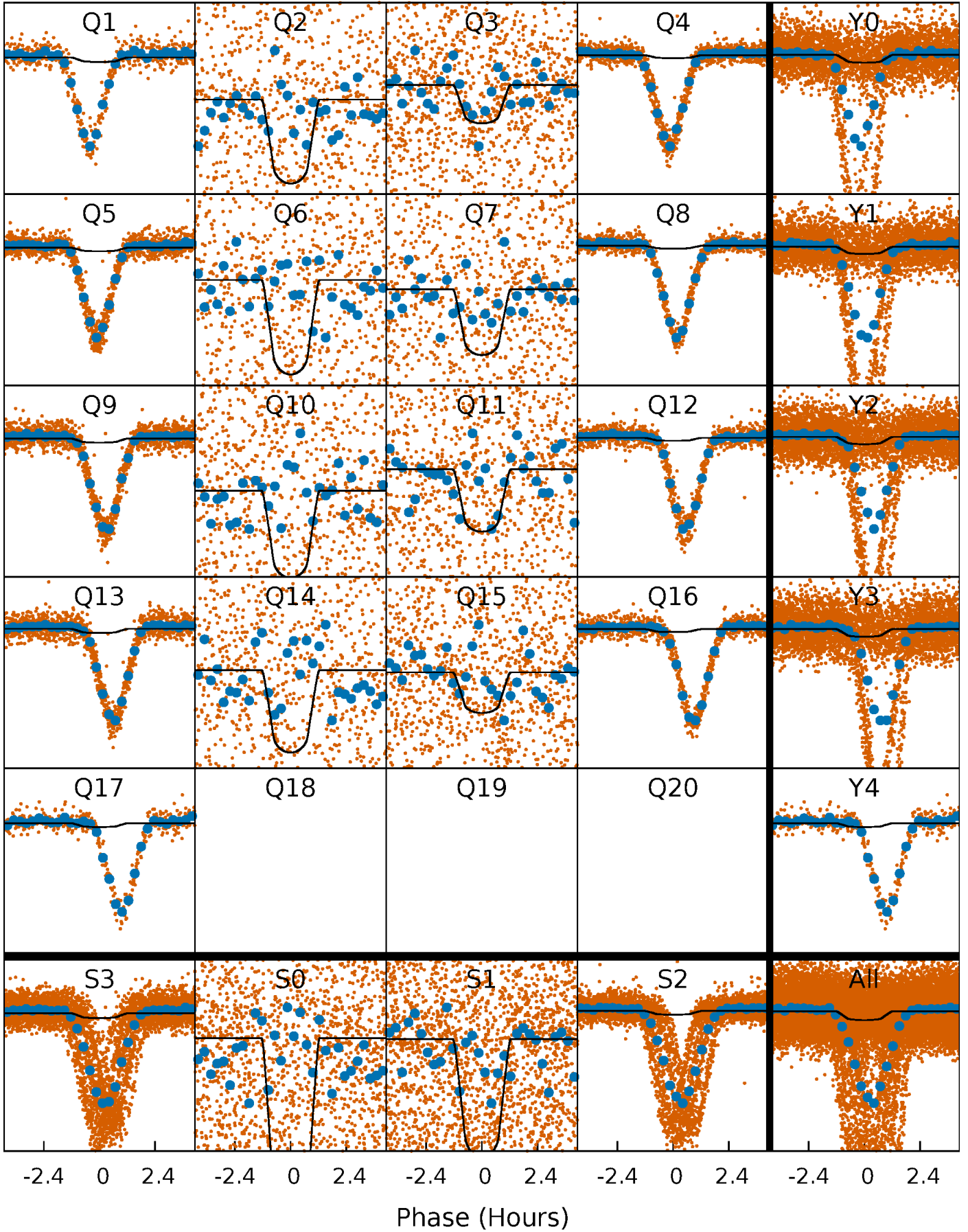
PDC Quarter-Phased Transit Curves

TCE 006058896-01 P= 1.129825 Days $T_0=131.804070$ (BKJD)



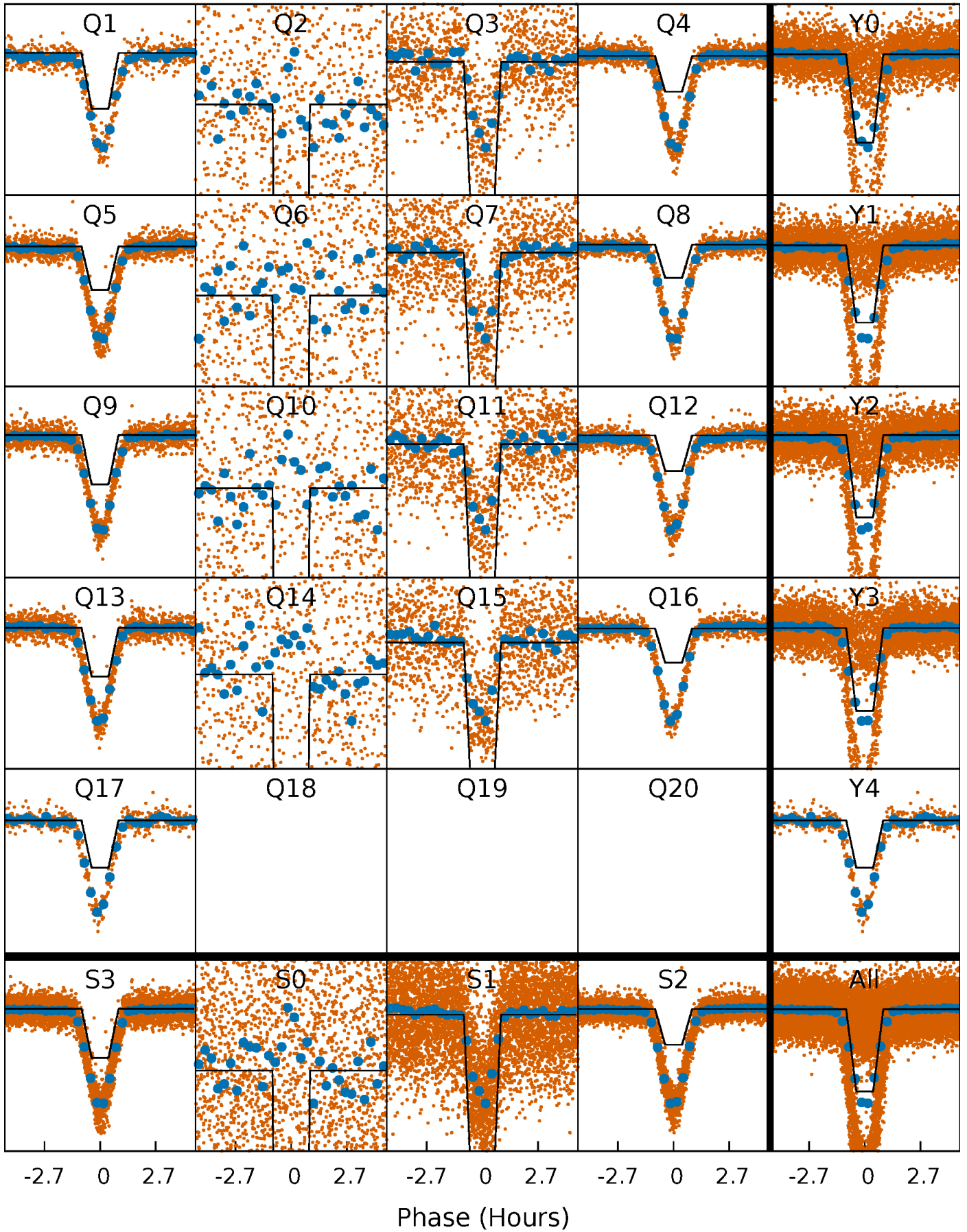
DV Quarter-Phased Transit Curves

TCE 006058896-01 P= 1.129825 Days $T_0=131.804070$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

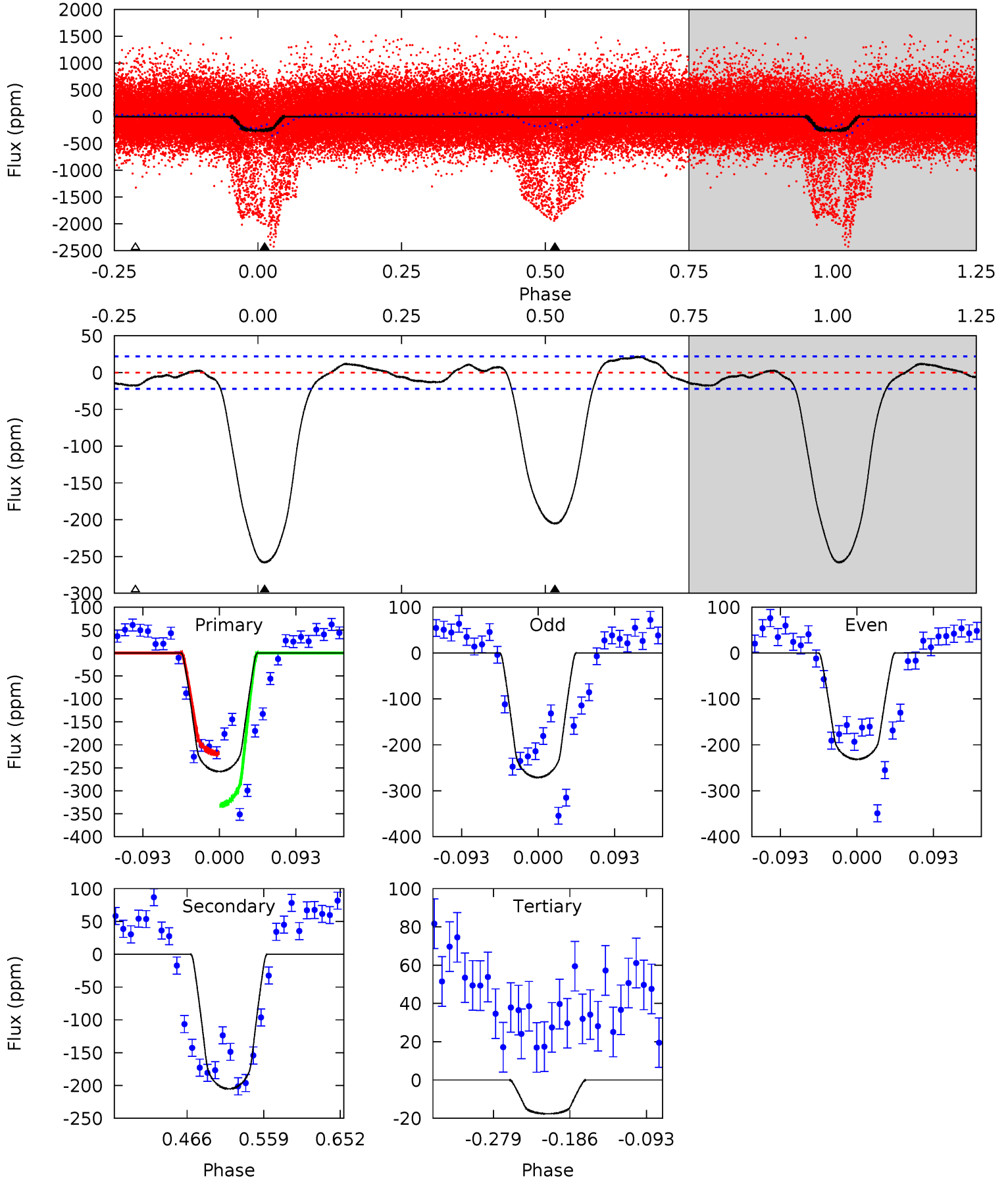
TCE 006058896-01 P= 1.129874 Days $T_0=131.782959$ (BKJD)



DV Model-Shift Uniqueness Test

006058896-01, P = 1.129825 Days, E = 130.674245 Days

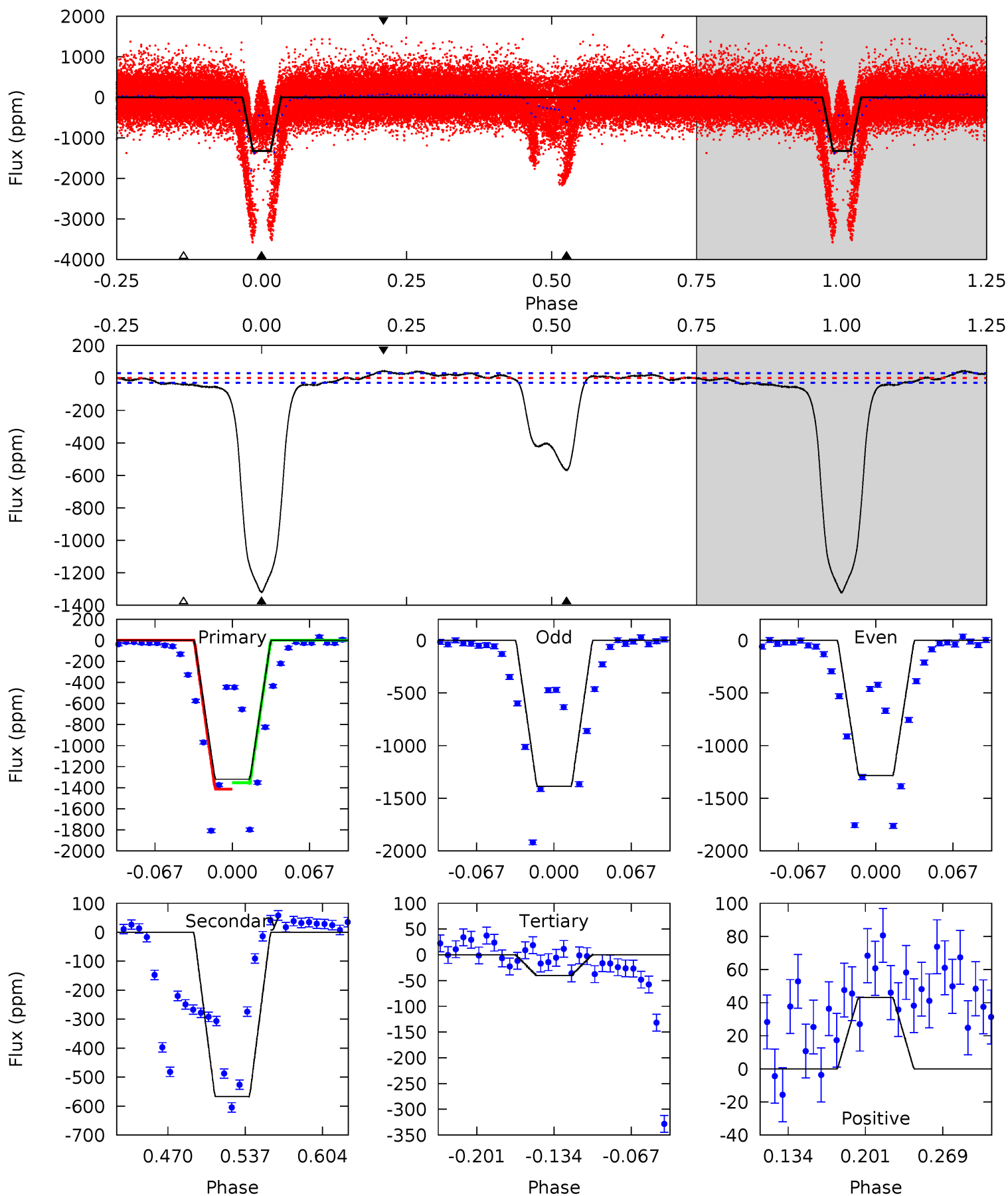
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.7	42.7	3.67	0	4.58	1.68	2.19	50.1	53.7	39.1	42.7	4.10	4.28	0.08	11.5



Alt Model-Shift Uniqueness Test

006058896-01, P = 1.129874 Days, E = 130.653085 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
208.0	89.3	6.36	6.79	4.65	1.83	5.26	201.6	201.2	83.0	82.5	7.86	2.21	0.03	0



Stellar Parameters For KIC 006058896

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5808^{+174}_{-174}	$4.402^{+0.167}_{-0.185}$	$-0.720^{+0.300}_{-0.300}$	$0.898^{+0.226}_{-0.169}$	$0.743^{+0.103}_{-0.041}$	$1.444^{+1.129}_{-0.690}$
	+3%/-3%	+4%/-4%	+42%/-42%	+25%/-19%	+14%/-6%	+78%/-48%
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 006058896-01 / KOI 5233.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-205 ± 5	$1.38^{+0.49}_{-0.42}$	2457^{+177}_{-160}	5887^{+1136}_{-695}	23^{+23}_{-10}
Alt.	-567 ± 6	$4.45^{+0.81}_{-0.64}$	2457^{+166}_{-157}	4388^{+204}_{-185}	$5.896^{+2.177}_{-1.607}$

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 $A_{obs} \gg 1.0$

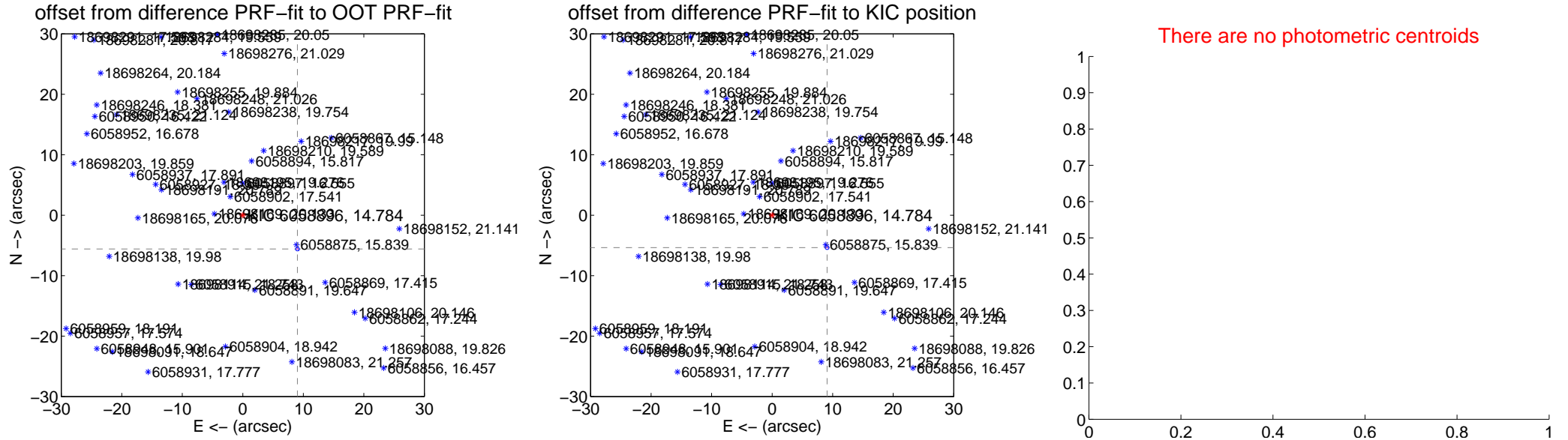
DV Centroid Data

Supplemental centroid analysis for 006058896-01. Kepler magnitude: 14.78. Transit SNR 24.10

There are 9 quarters with good PRF difference image offsets

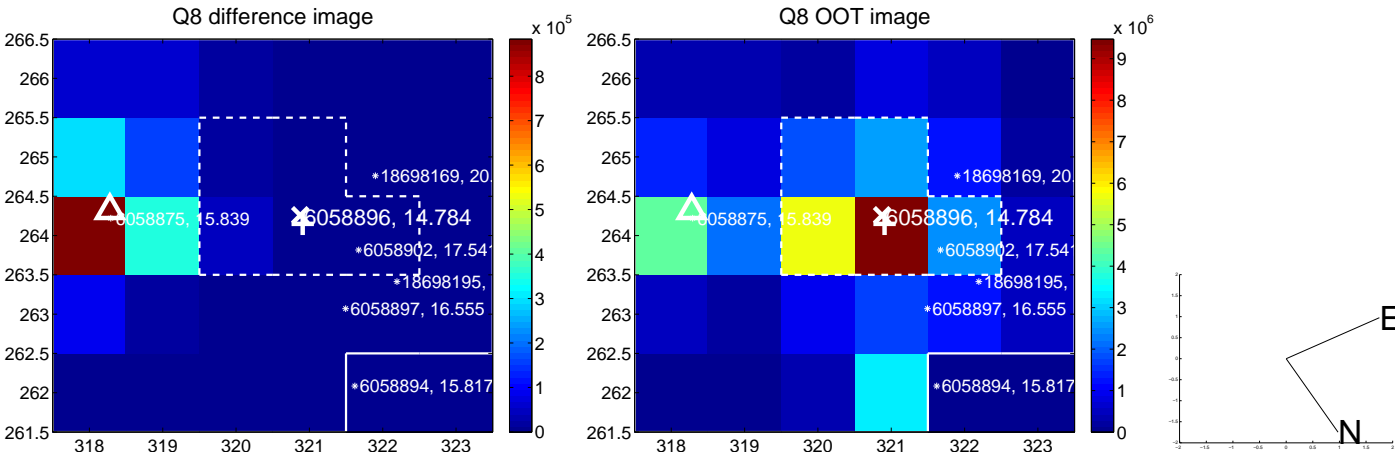
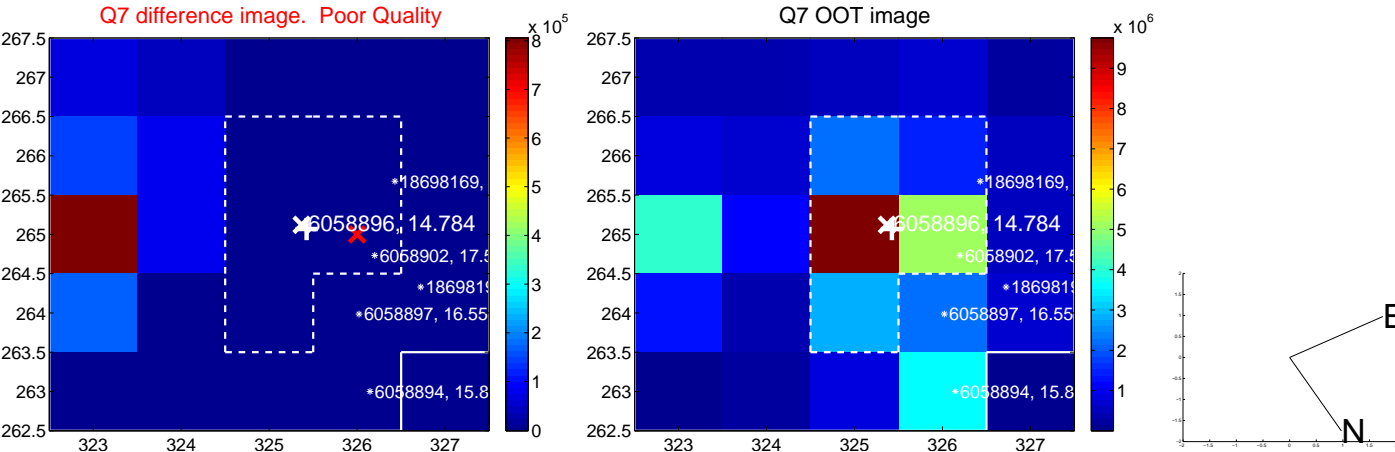
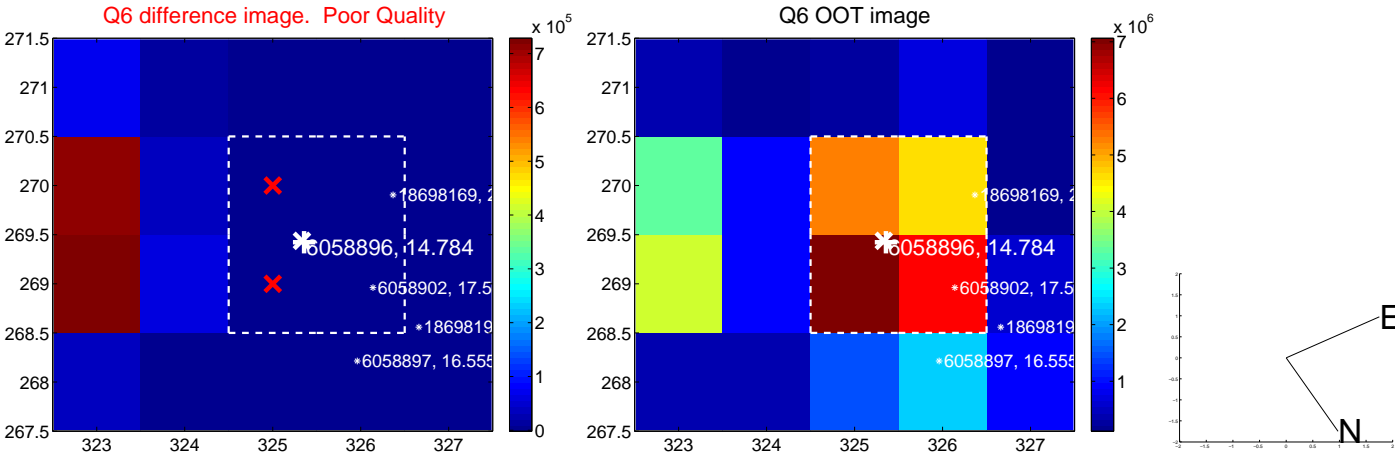
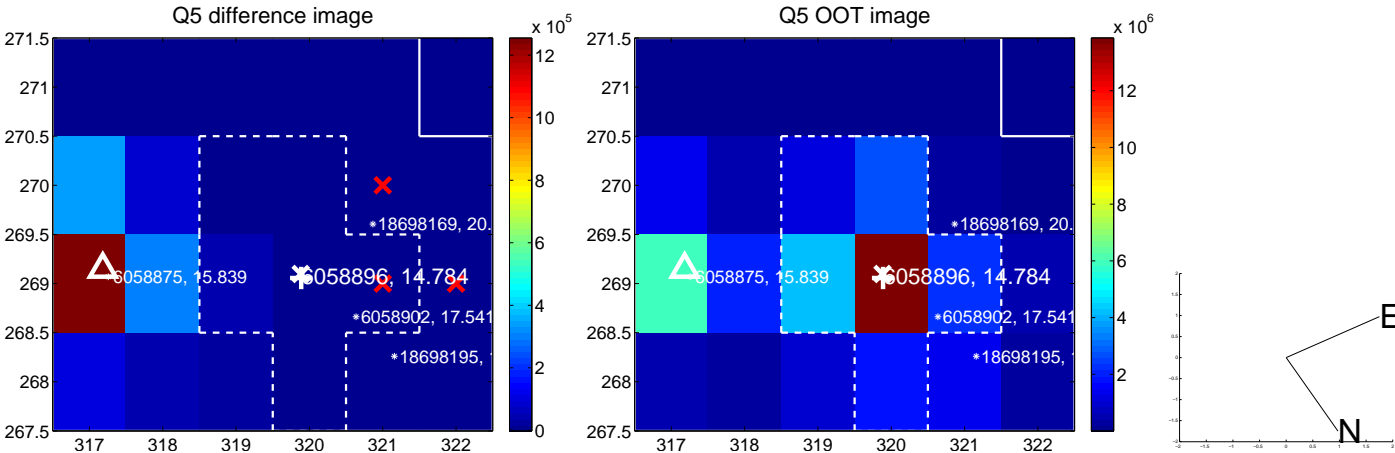
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.616 \pm 0.103	103.41	-9.023 \pm 0.113	-5.593 \pm 0.071
PRF-fit source offset from KIC position	10.546 \pm 0.104	101.01	-9.081 \pm 0.101	-5.363 \pm 0.073
photometric centroid source offset	—	—	—	—

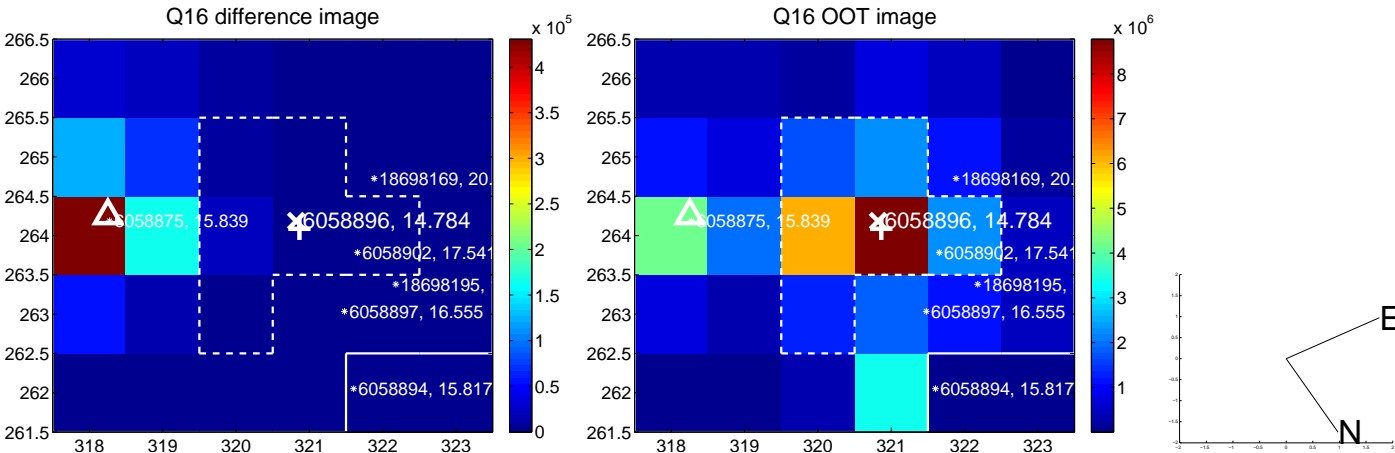
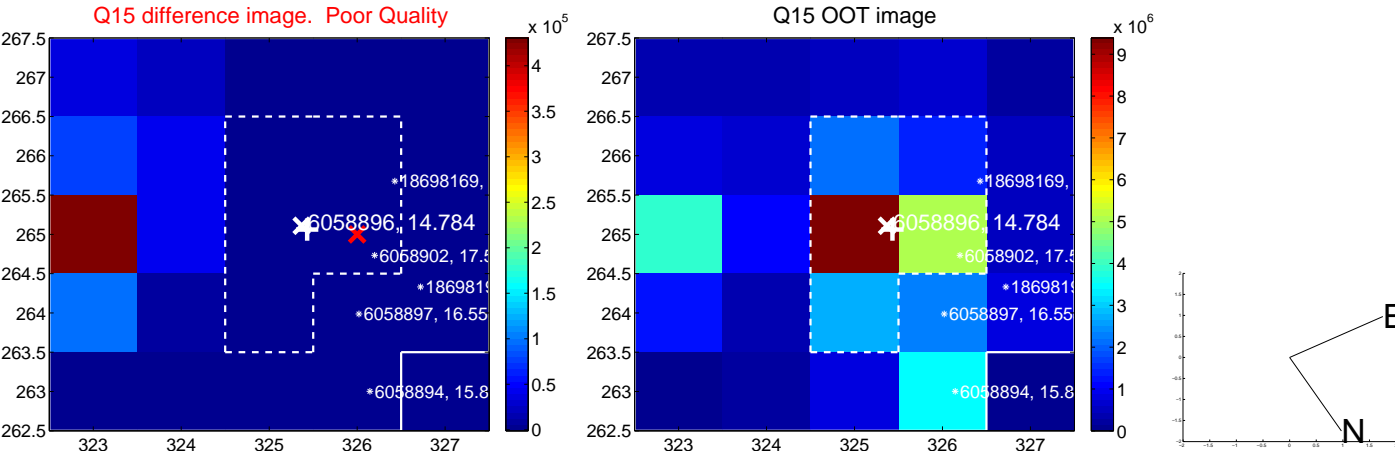
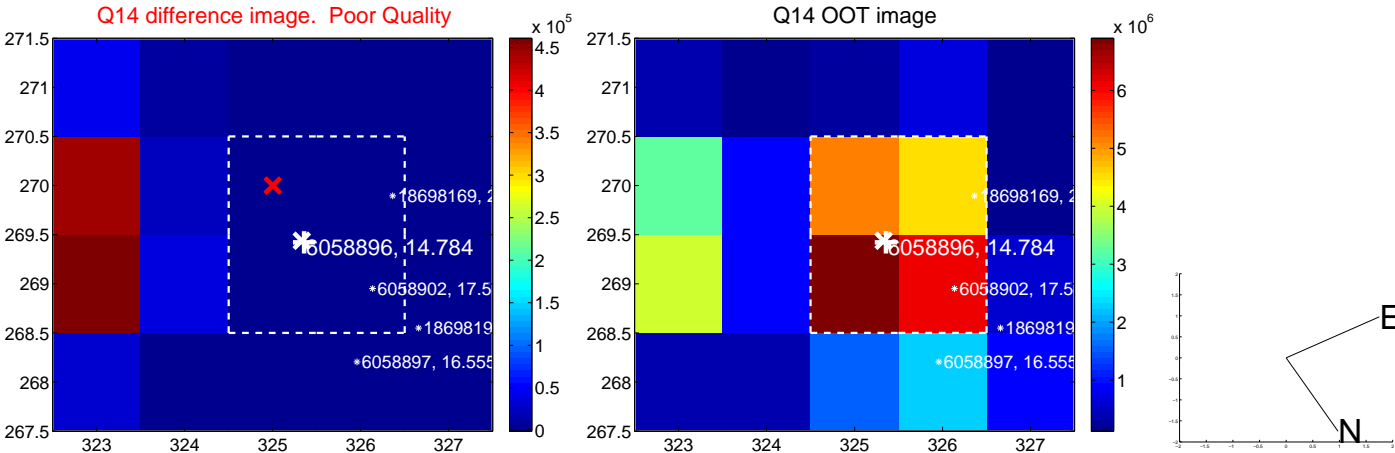
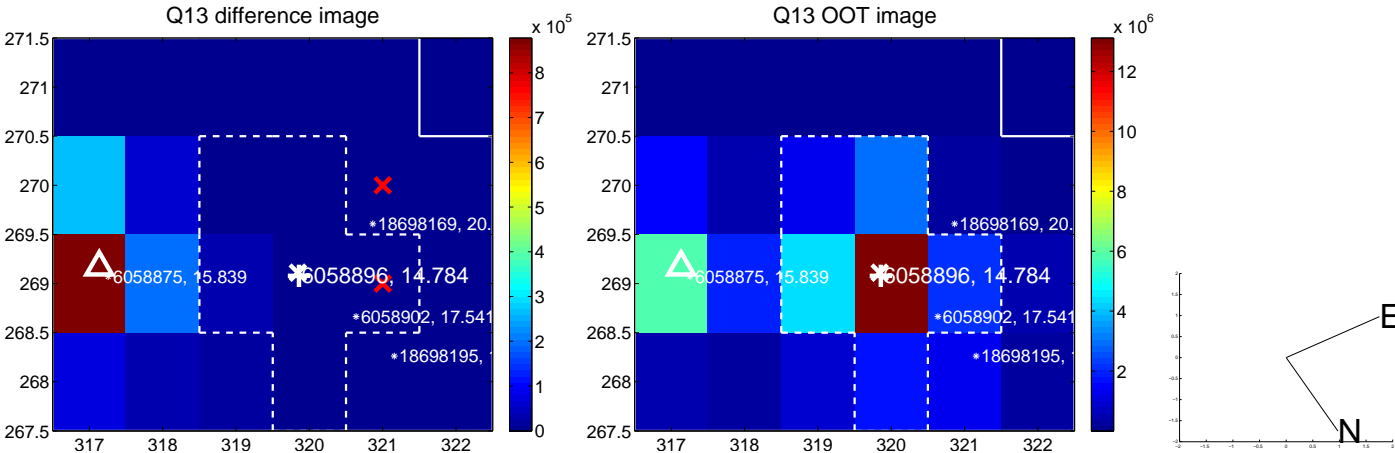


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

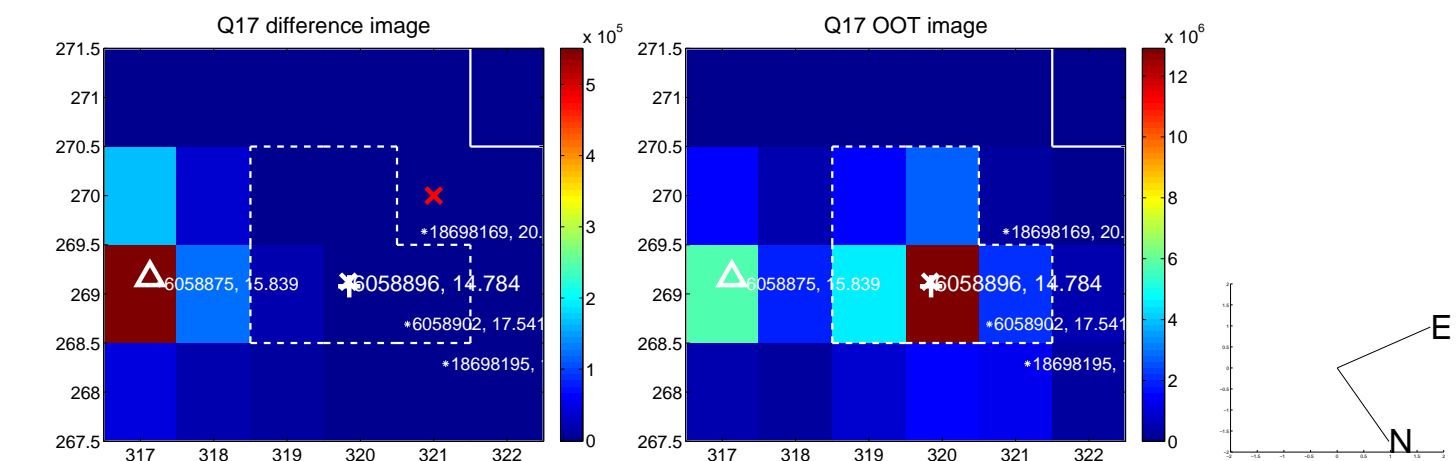
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



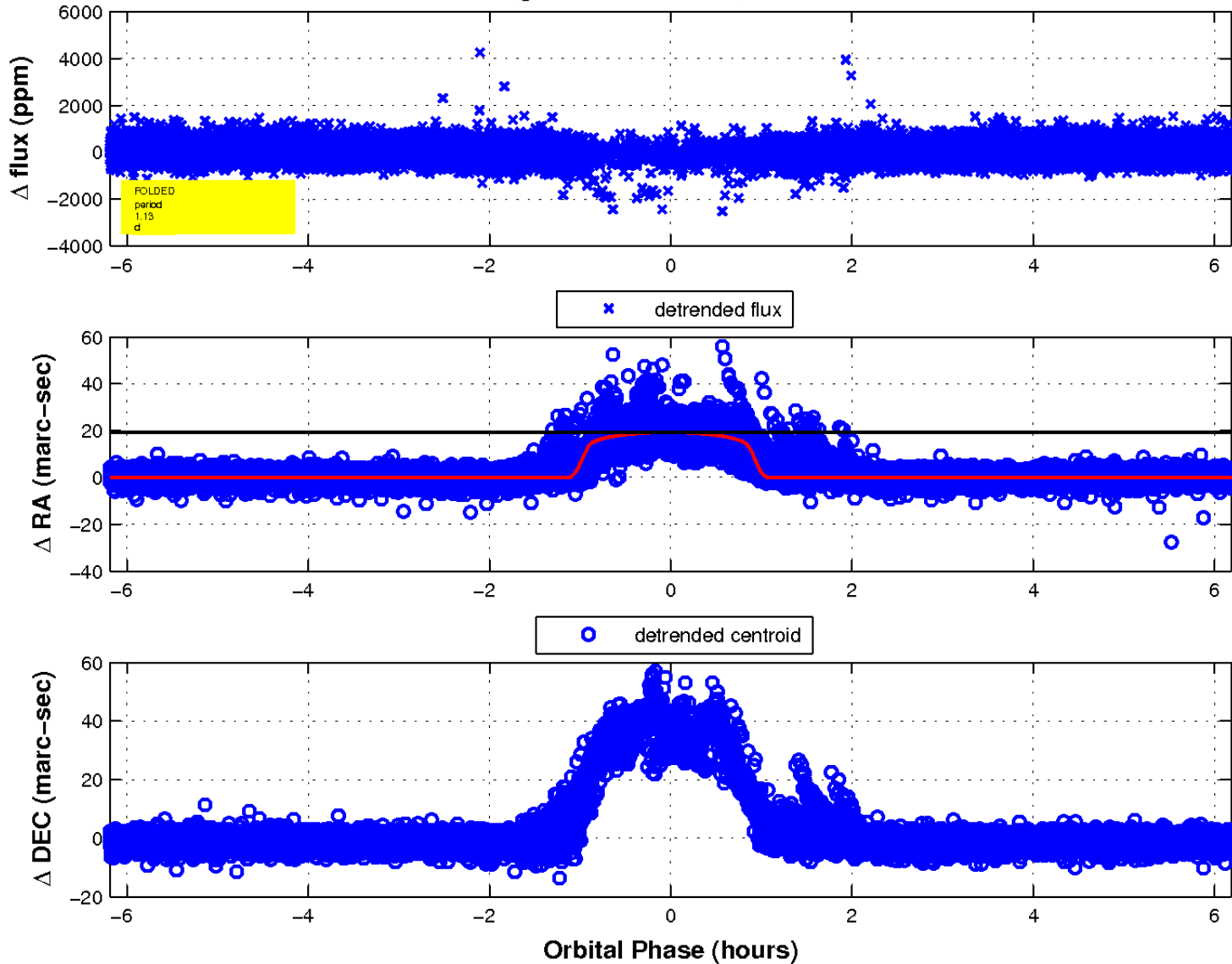
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

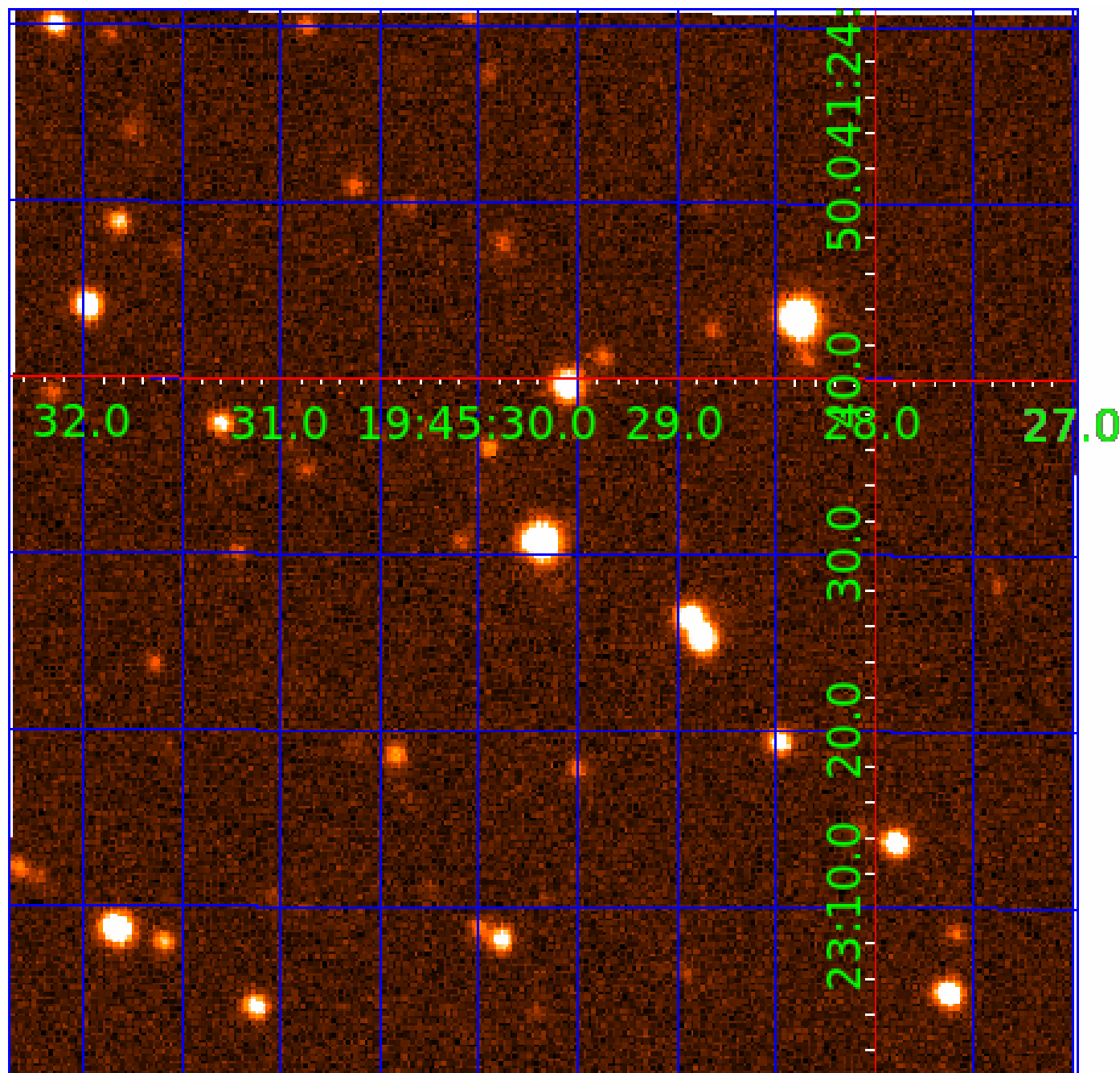


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 006058896

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})
006058896-01	OBS	5233.01	1.129825	131.804070	169.0	2.062	242.0	24.1	0.90	5808	1.36	2224.18
006058896-02	OBS	No	1.129864	132.354744	7465.7	1.500	272.3	-1.0	0.90	5808	7.79	2224.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006058896-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
006058896-02	OBS	FP	0.00	1	0	0	1	SAME_NTL_PERIOD—CENT_NOFITS—EPHEM_MATCH

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

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

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

Ephemeris Match Information For 006058896-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
006058896-02	6058896	3616.01	6058875	2:1	10.2	0	2	15.84	14.79	38.28	Direct-PRF	0	0.94	0.24

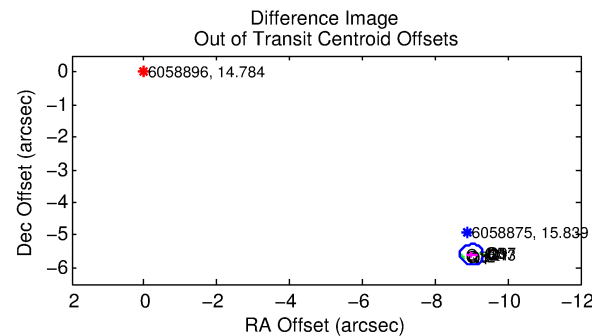
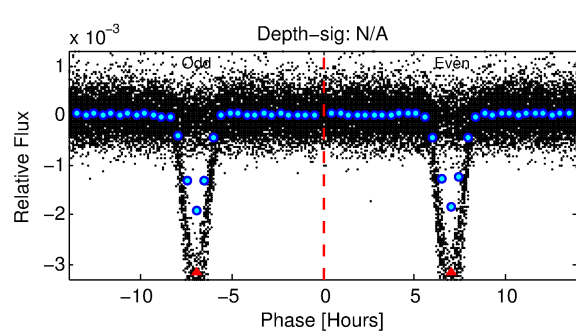
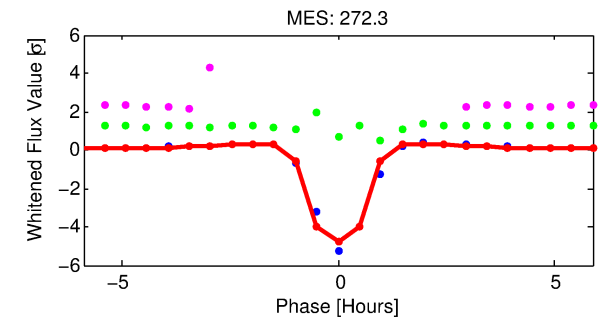
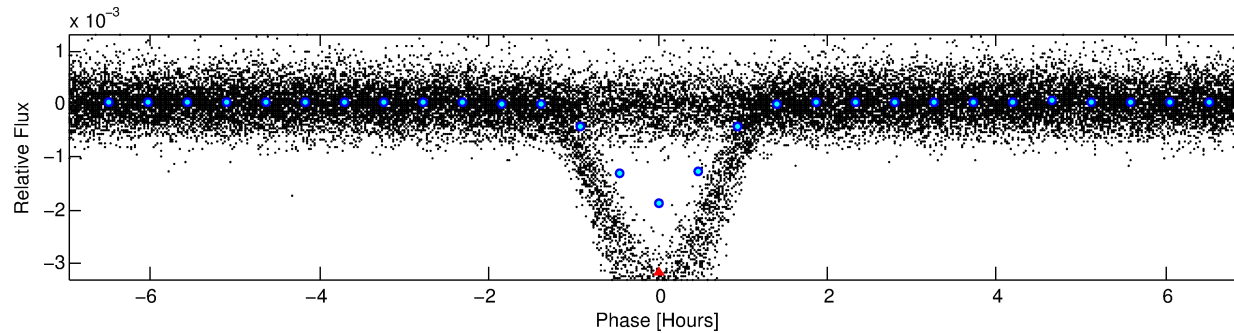
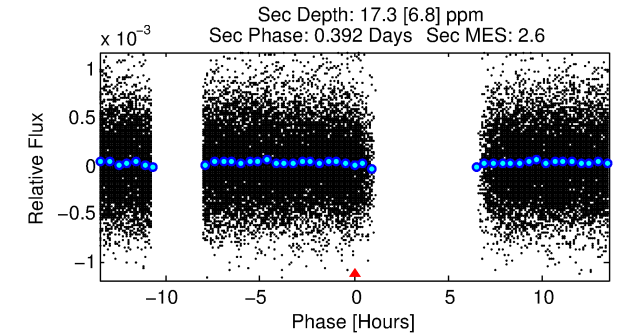
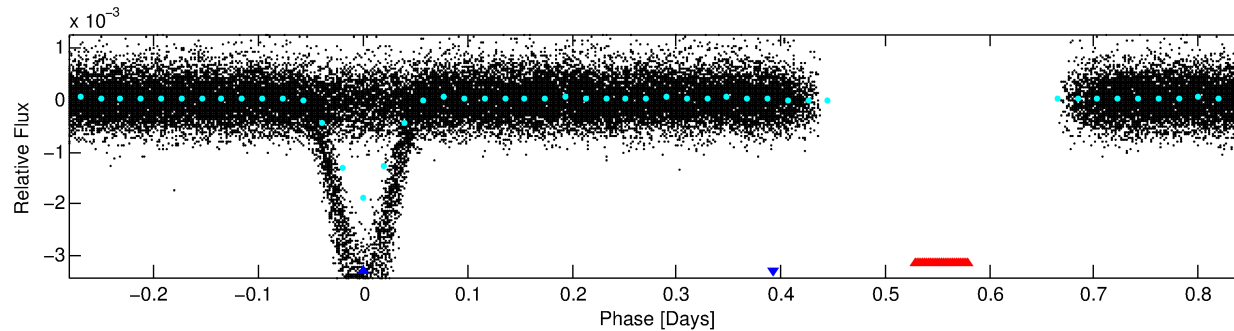
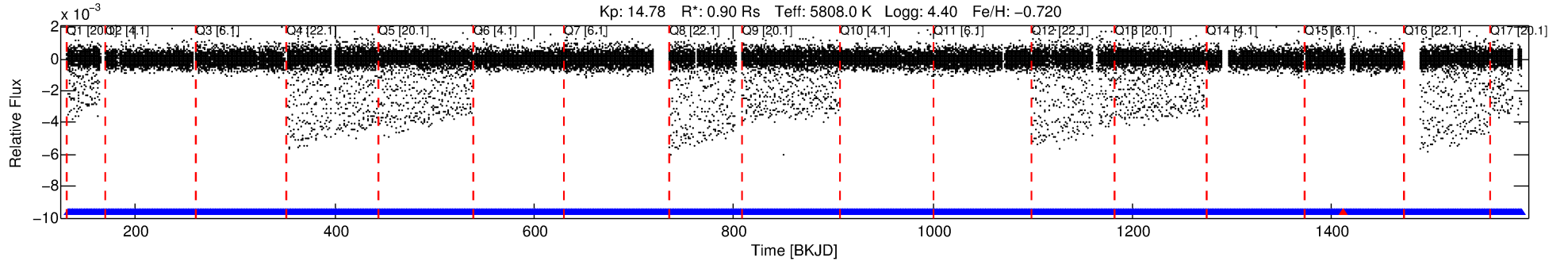
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match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

DV One-Page Summary

KIC: 6058896 Candidate: 2 of 2 Period: 1.130 d

KOI: K05233 Corr: No Ephemeris Match

Kp: 14.78 R*: 0.90 Rs Teff: 5808.0 K Logg: 4.40 Fe/H: -0.720



TPS TCE Results:

Period = 1.12986 d
Epoch = 132.3547 BKJD

DV fit results are unavailable

DV Diagnostic Results:

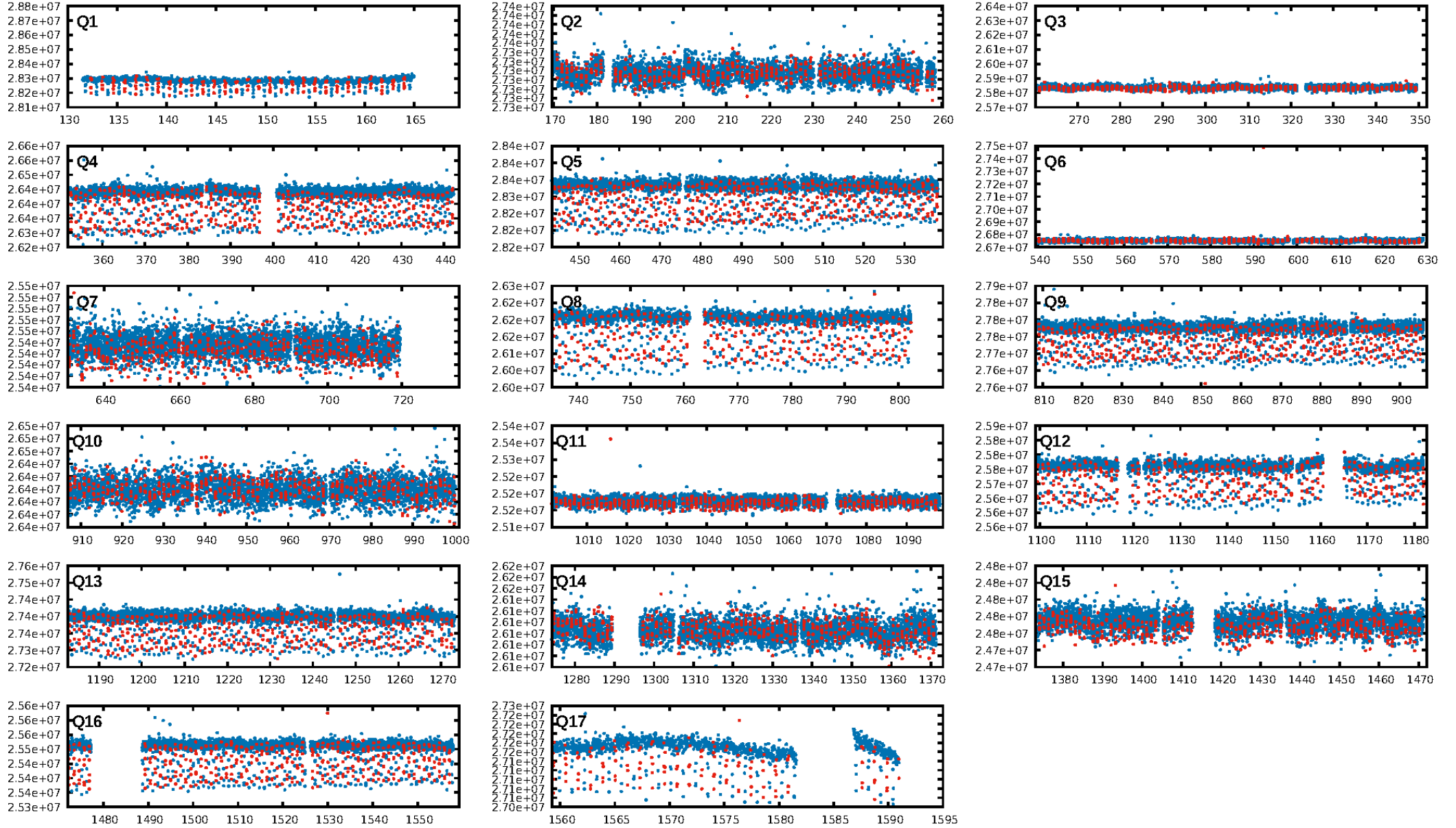
ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1131/1132]
GhostDiagnostic-chr: -0.6918

Centroid-sig: N/A
Centroid-so: 23.231 arcsec [543.45σ]
OotOffset-rm: 10.607 arcsec [99.34σ]
KicOffset-rm: 10.531 arcsec [101.69σ]
OotOffset-st: 0/0/4/5 [9]
KicOffset-st: 0/0/4/5 [9]
DiffImageQuality-fgm: 1.00 [9/9]
DiffImageOverlap-fno: 1.00 [17/17]

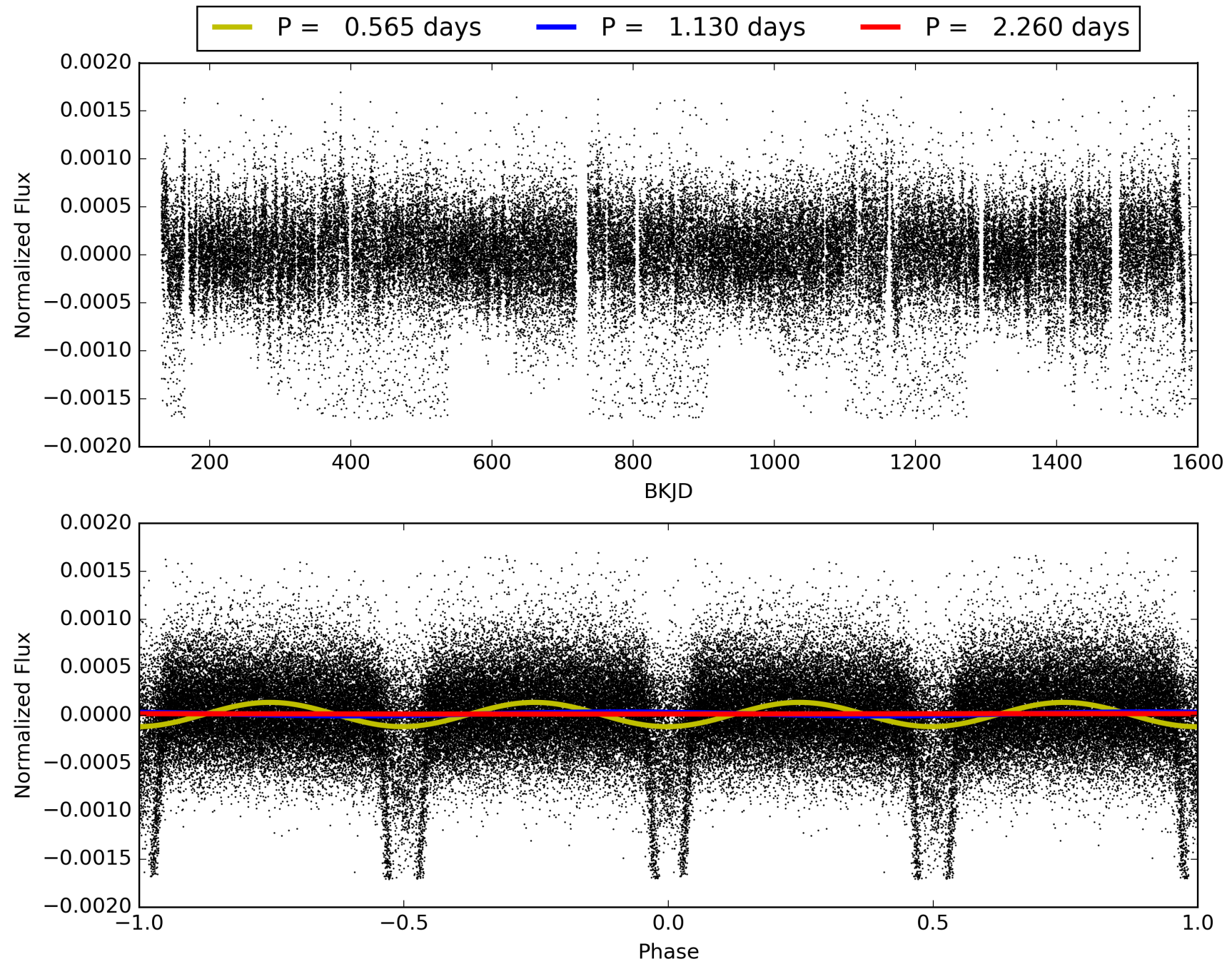
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006058896-02, PDC Light Curves

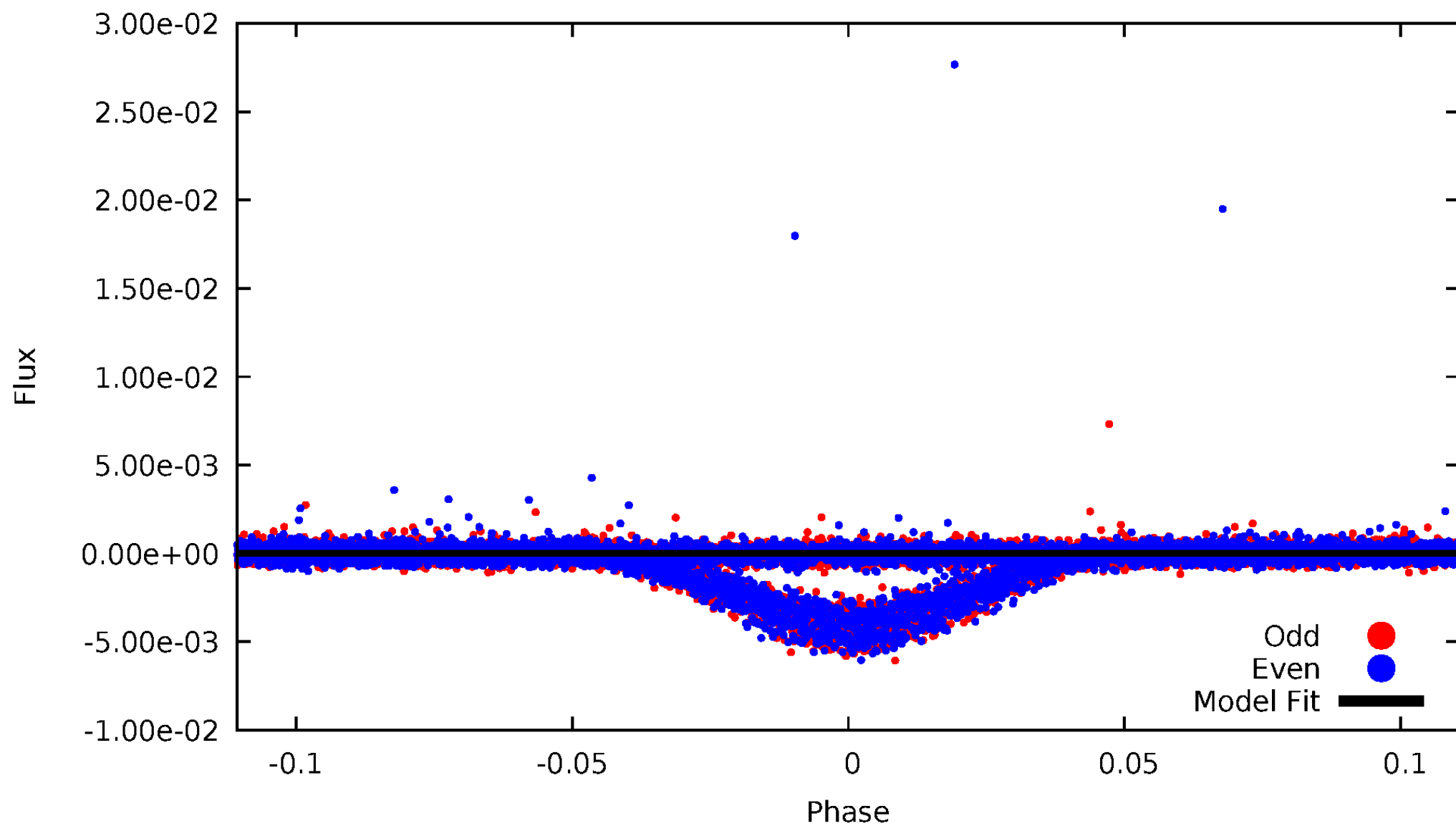


TCE 006058896-02



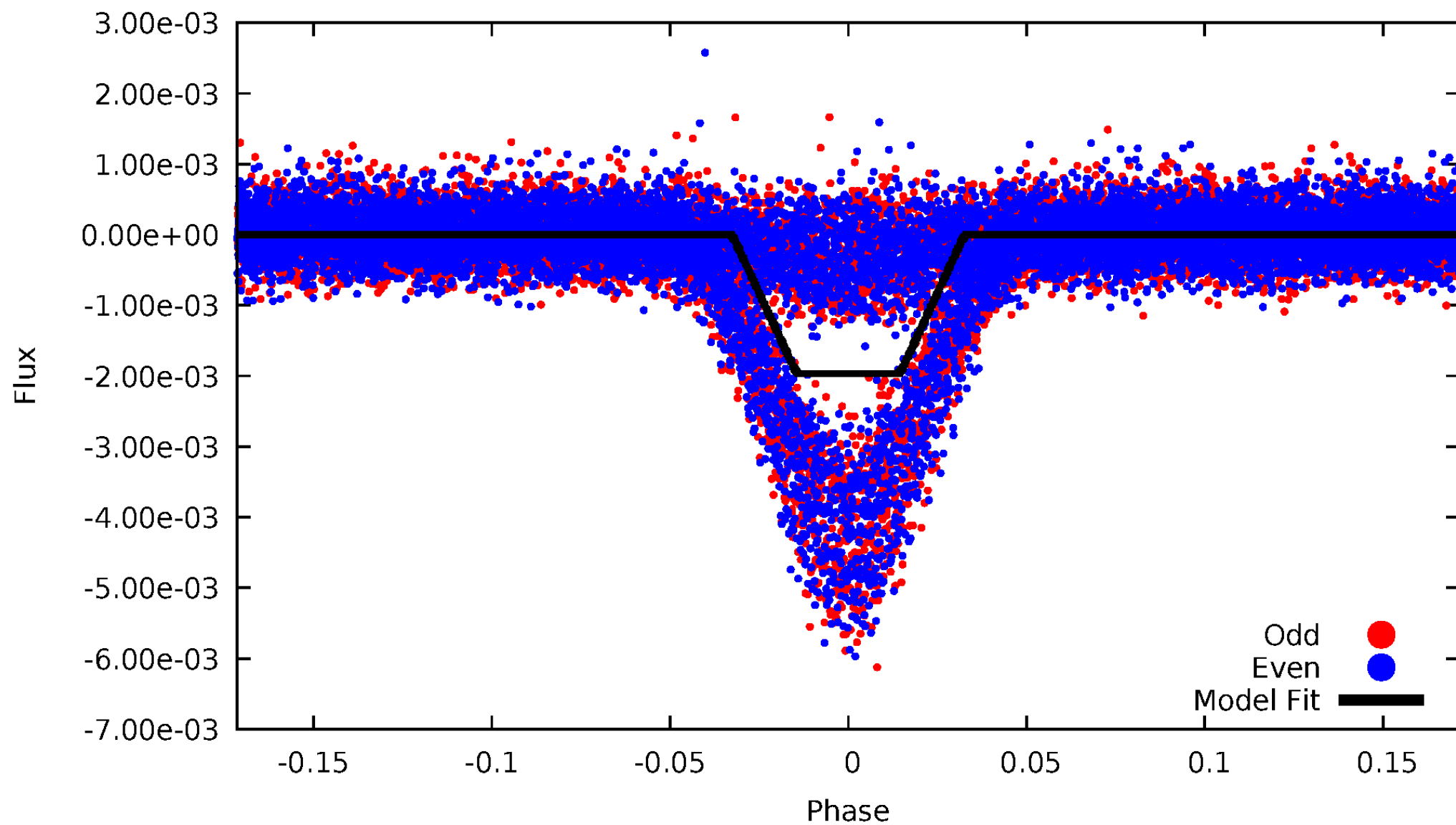
DV Odd/Even

TCE 006058896-02



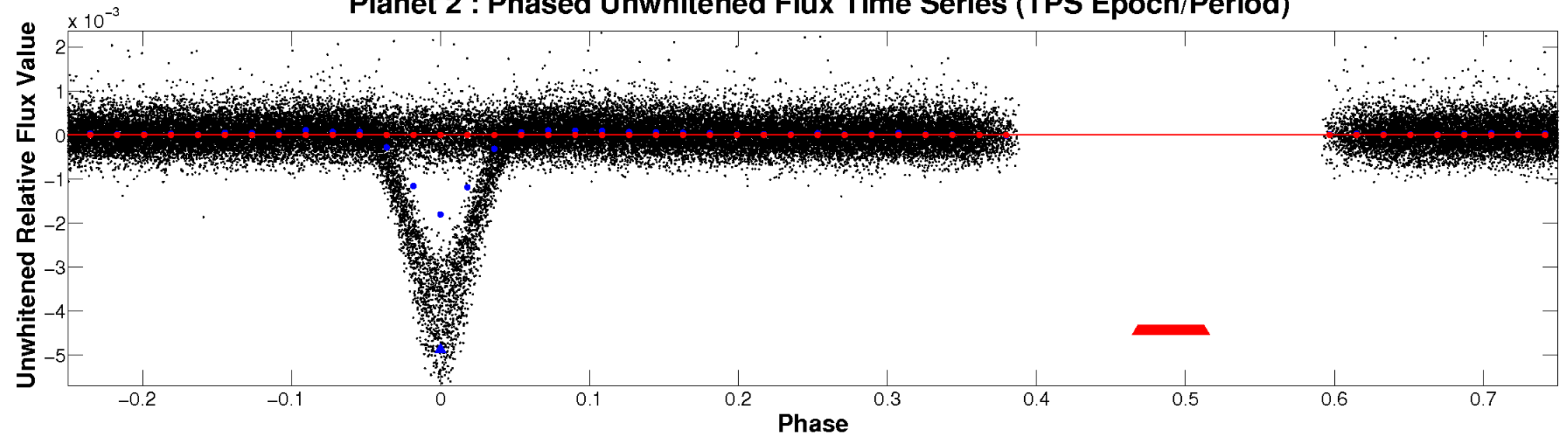
ALT Odd/Even

TCE 006058896-02

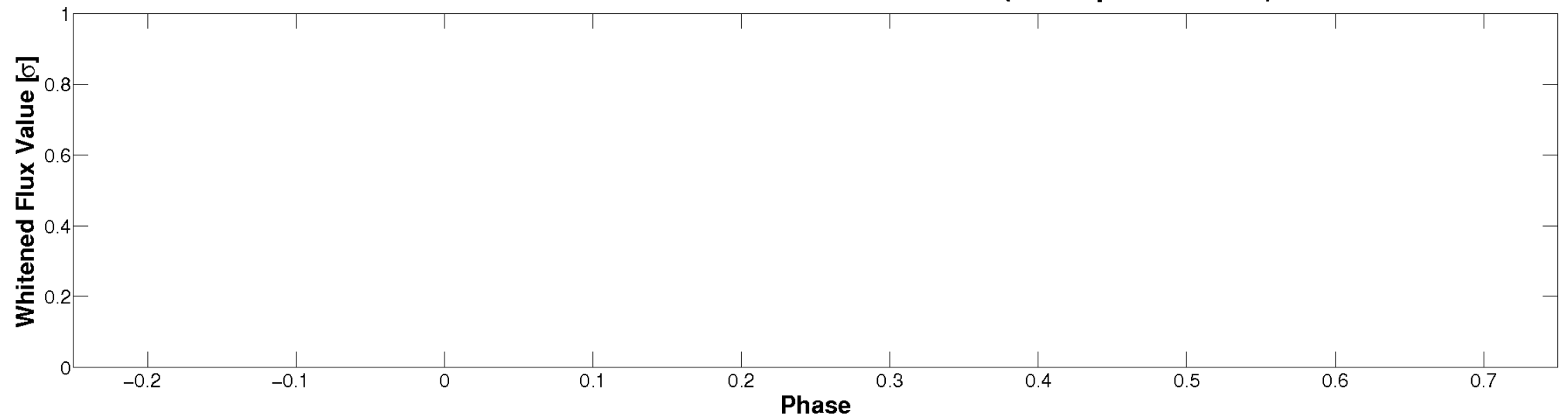


Non-Whitened Vs. Whitened Light Curve

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

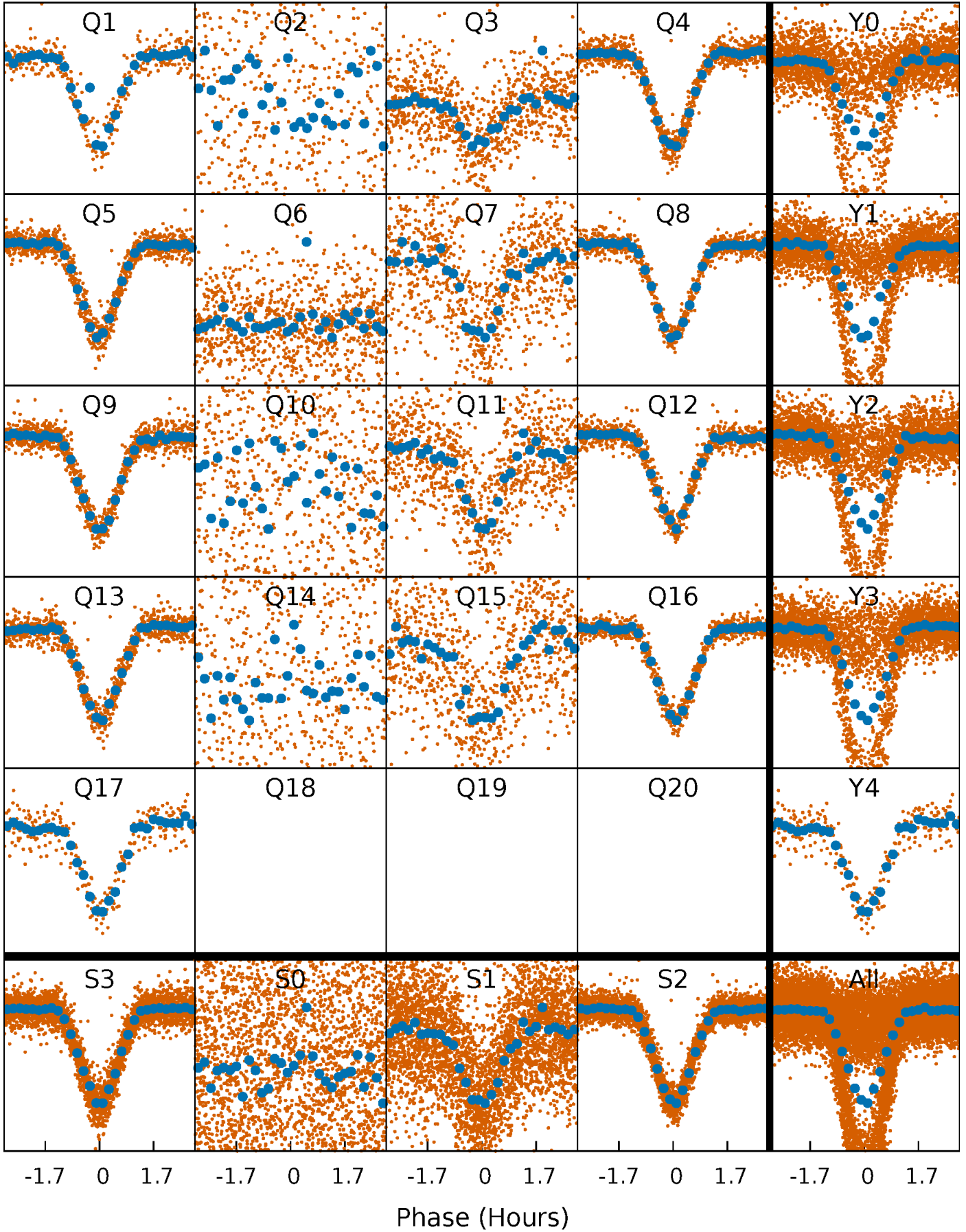


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



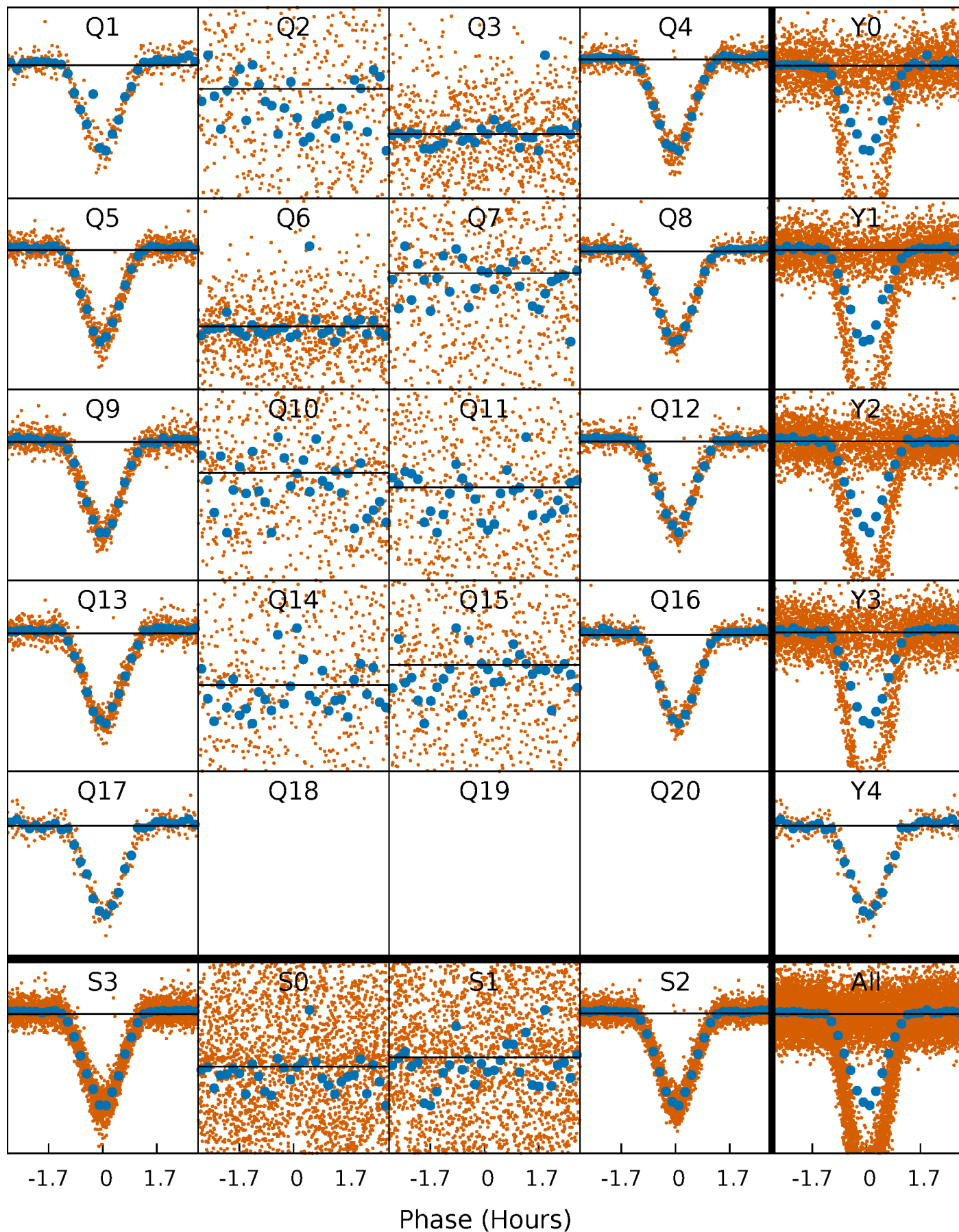
PDC Quarter-Phased Transit Curves

TCE 006058896-02 P= 1.129864 Days $T_0=132.354744$ (BKJD)



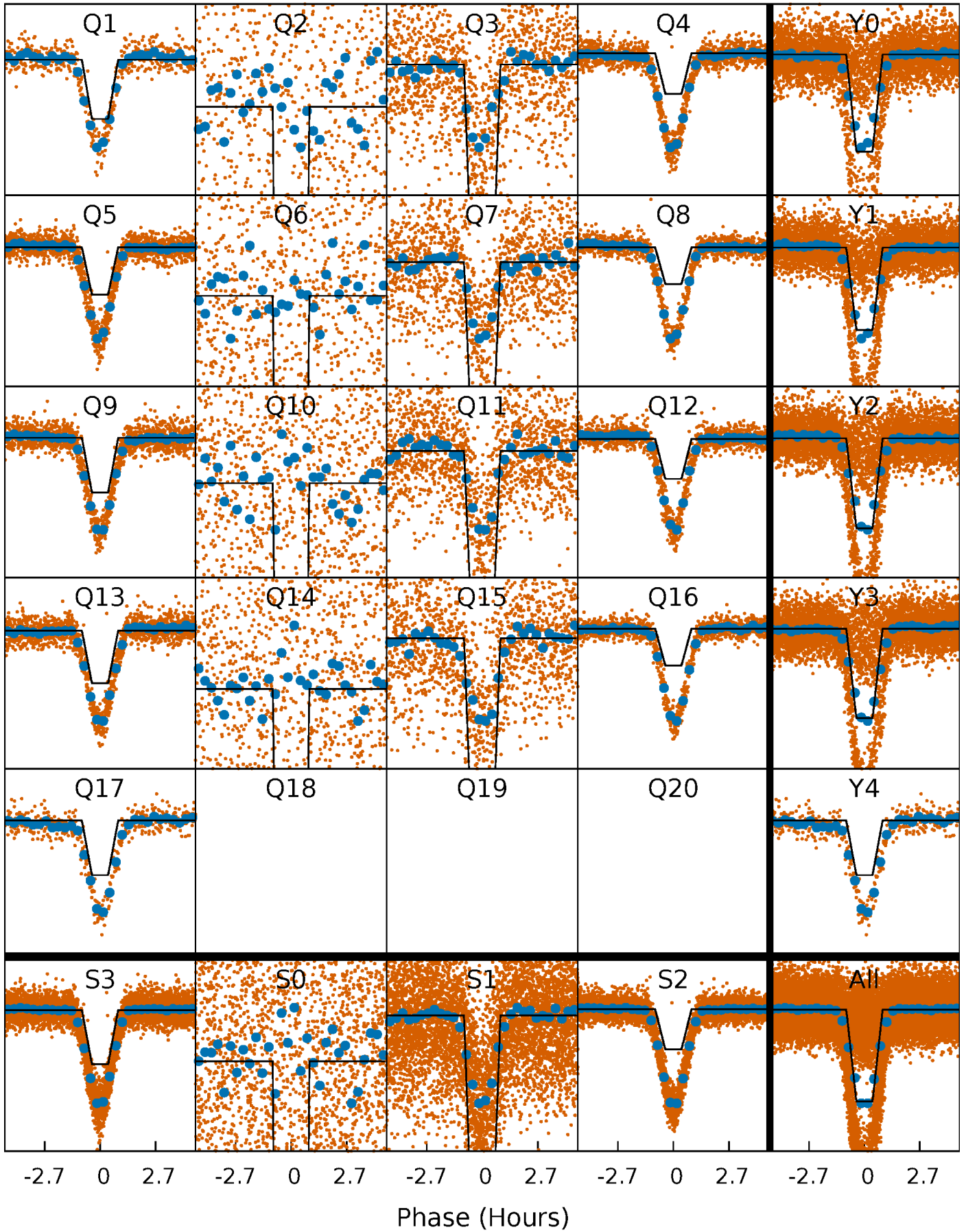
DV Quarter-Phased Transit Curves

TCE 006058896-02 P= 1.129864 Days $T_0=132.354744$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

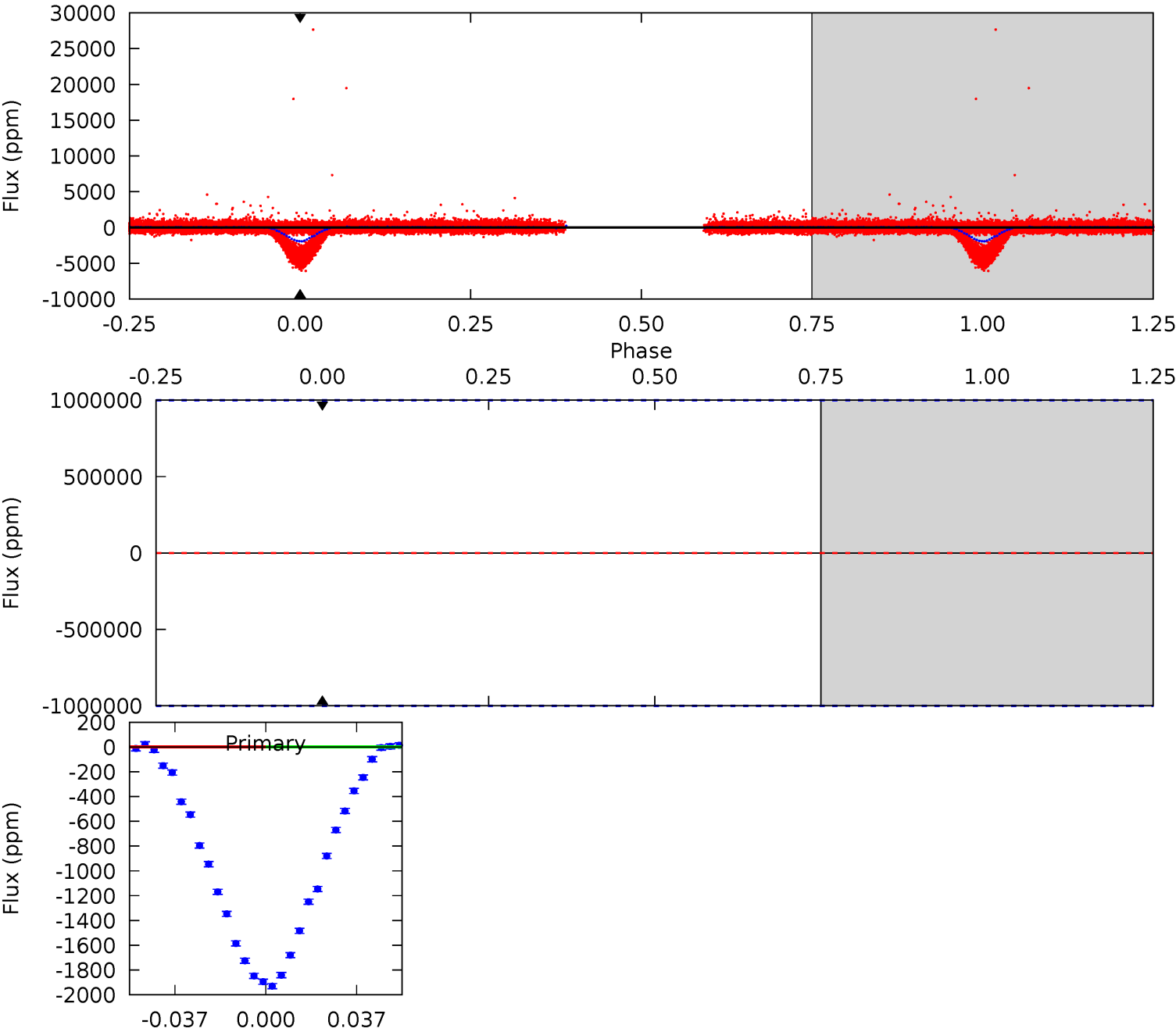
TCE 006058896-02 $P = 1.129864$ Days $T_0 = 132.355214$ (BKJD)



DV Model-Shift Uniqueness Test

006058896-02, P = 1.129864 Days, E = 131.224880 Days

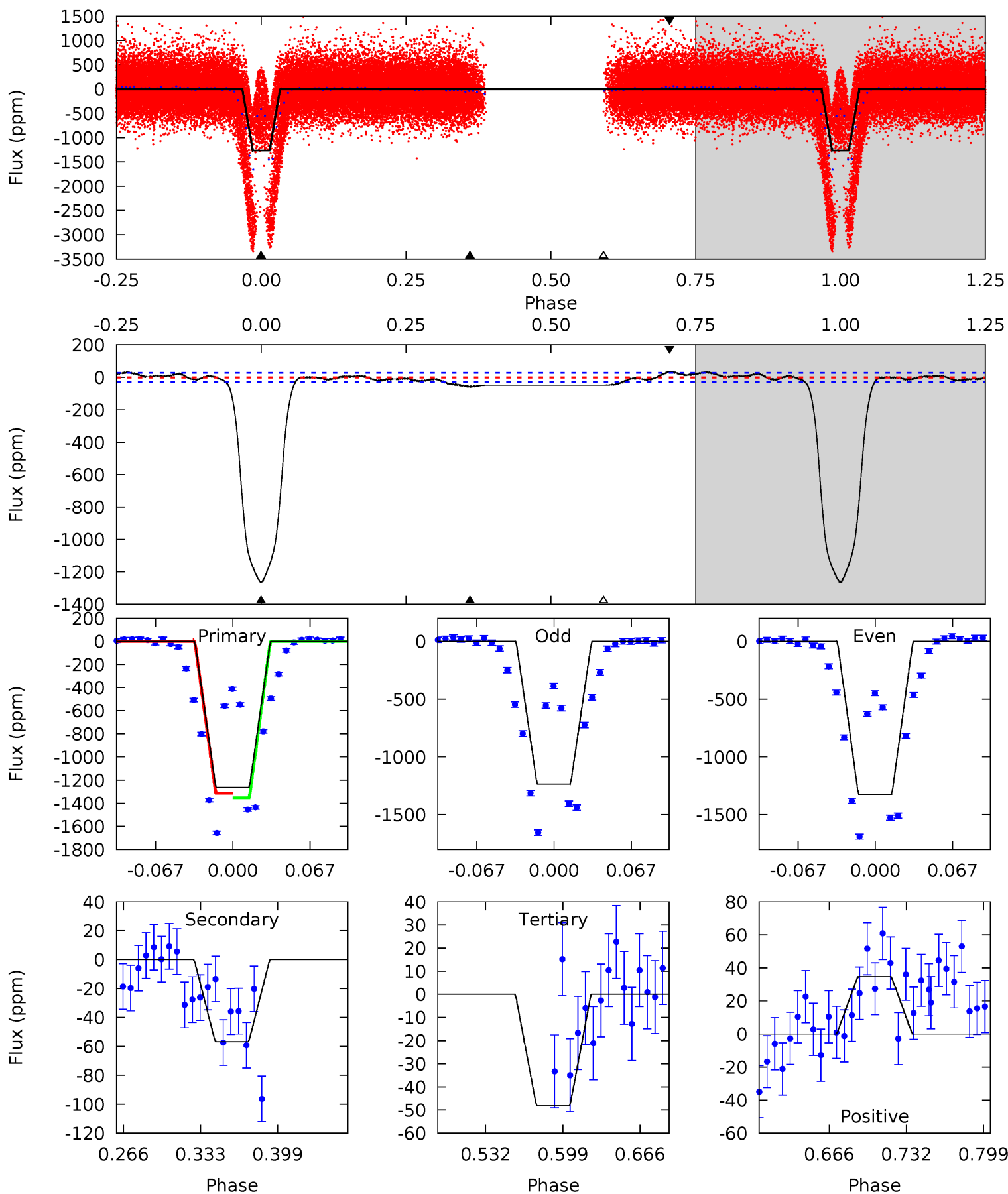
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006058896-02, P = 1.129864 Days, E = 131.225350 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
208.3	9.36	7.94	5.73	4.65	1.83	2.57	200.4	202.6	1.42	3.63	7.07	2.08	0.03	0



Stellar Parameters For KIC 006058896

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5808^{+174}_{-174}	$4.402^{+0.167}_{-0.185}$	$-0.720^{+0.300}_{-0.300}$	$0.898^{+0.226}_{-0.169}$	$0.743^{+0.103}_{-0.041}$	$1.444^{+1.129}_{-0.690}$
	+3%/-3%	+4%/-4%	+42%/-42%	+25%/-19%	+14%/-6%	+78%/-48%
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 006058896-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$10.42^{+9.23}_{-6.20}$	2456^{+179}_{-161}	-4626^{+19308}_{-9308}	$-5.805^{+336.549}_{-294.880}$
Alt.	-57 ± 6	$8.75^{+8.77}_{-5.91}$	2447^{+190}_{-151}	-2499^{+5807}_{-243}	$0.154^{+1.251}_{-0.115}$

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 $A_{obs} \gg 1.0$

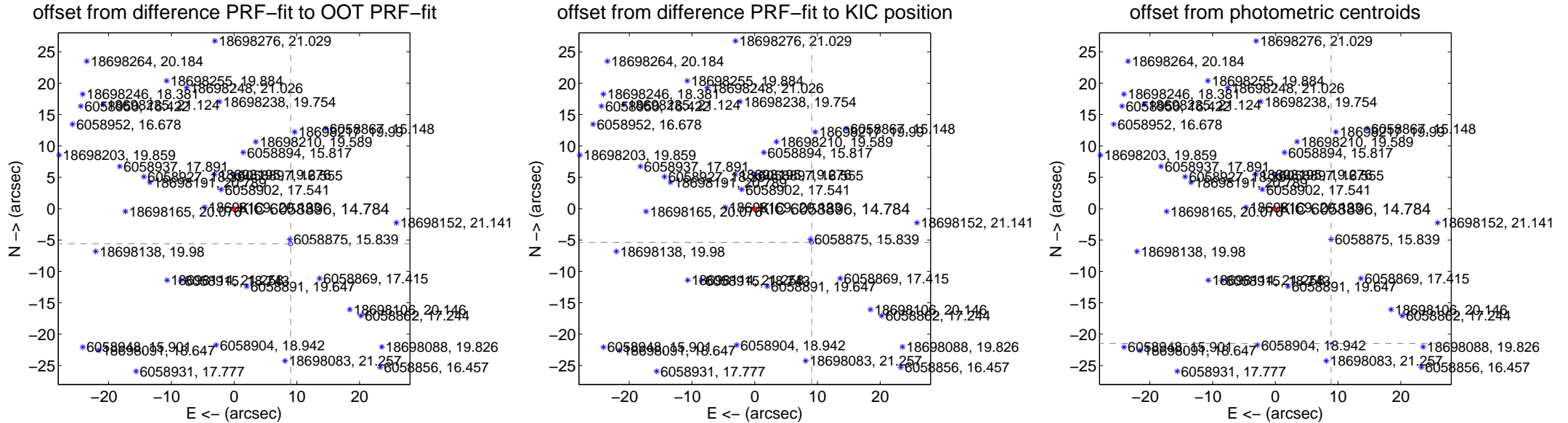
DV Centroid Data

Supplemental centroid analysis for 006058896-02. Kepler magnitude: 14.78. Transit SNR -1.00

There are 9 quarters with good PRF difference image offsets

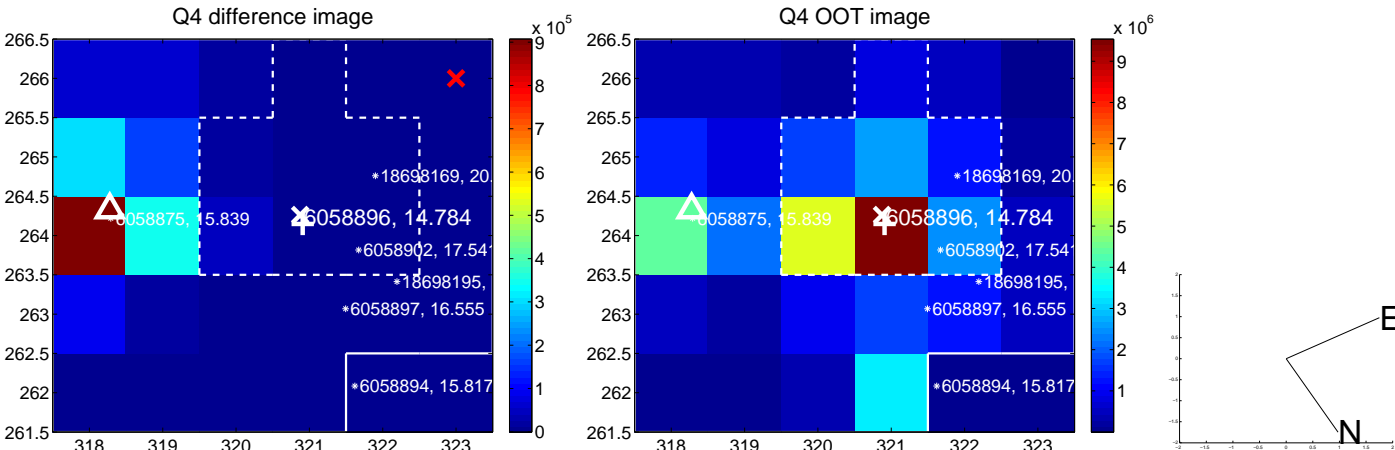
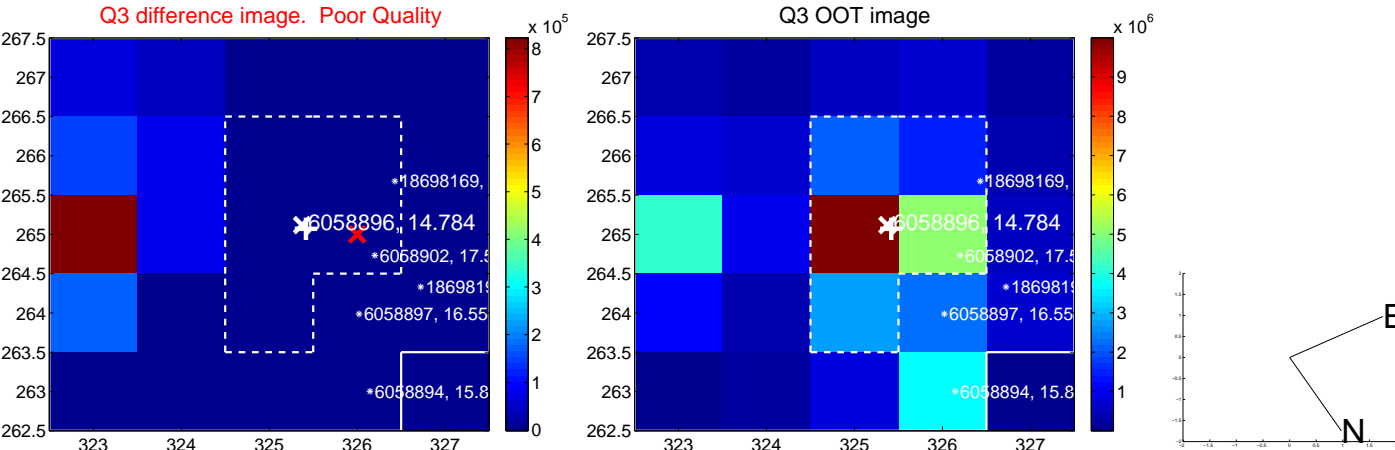
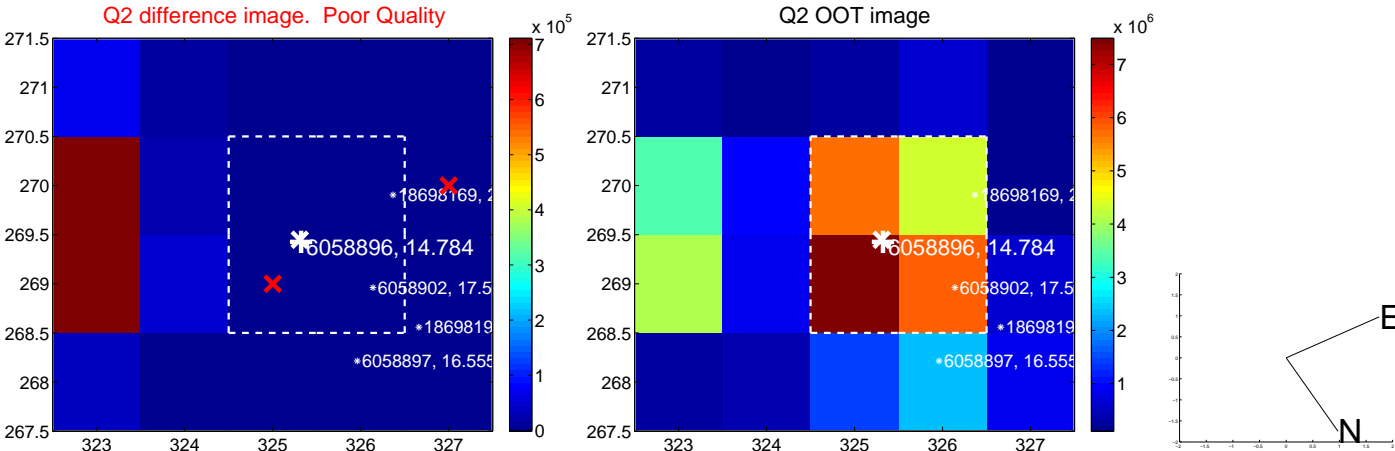
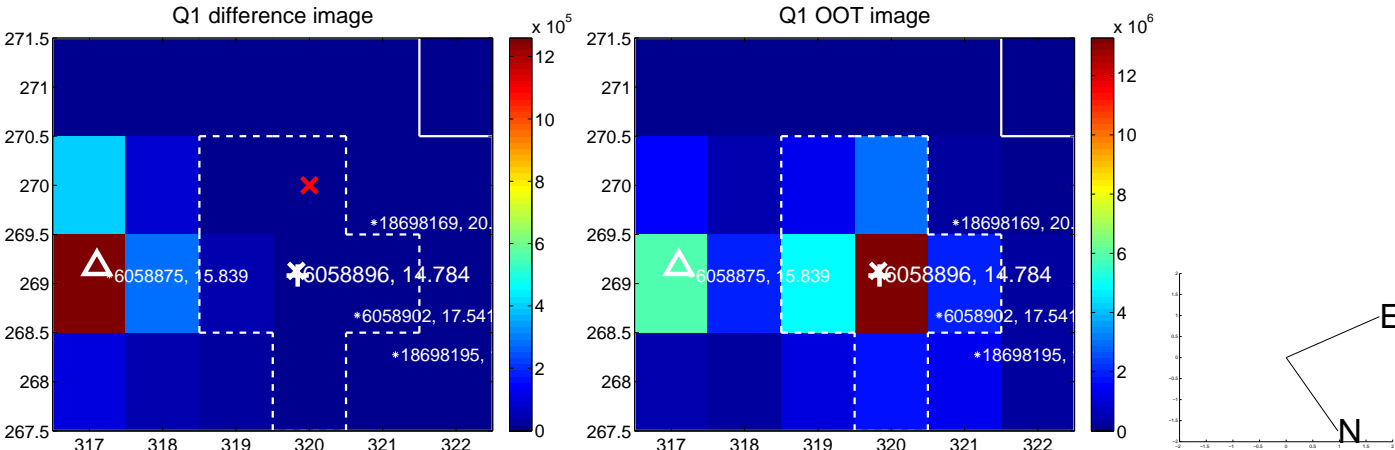
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.607 ± 0.107	99.34	-9.008 ± 0.118	-5.601 ± 0.070
PRF-fit source offset from KIC position	10.531 ± 0.104	101.69	-9.061 ± 0.112	-5.365 ± 0.073
photometric centroid source offset	23.23 ± 0.04	543.45	-8.89 ± 0.04	-21.47 ± 0.04

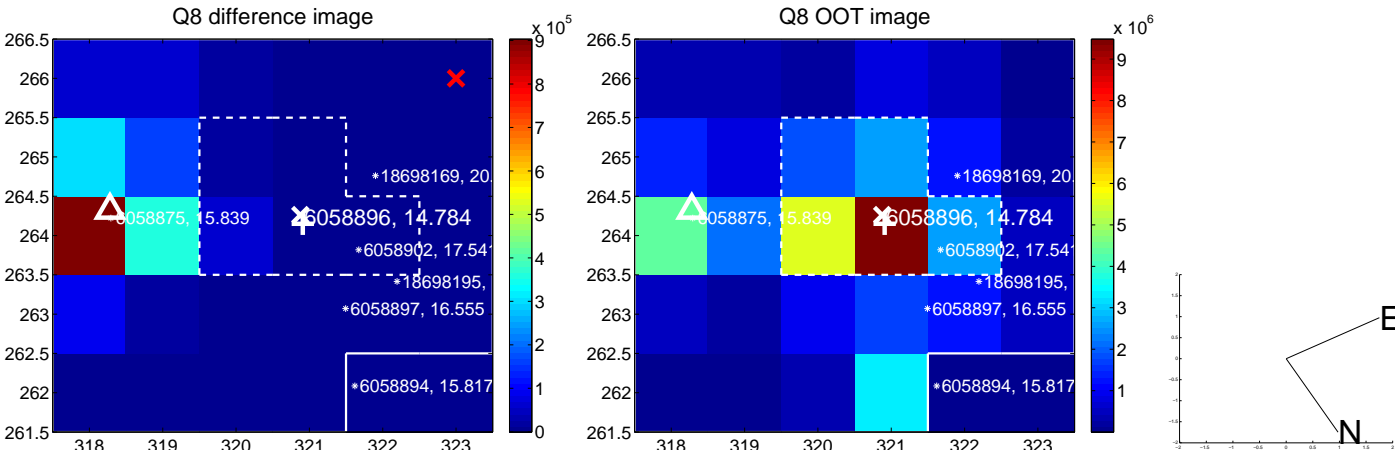
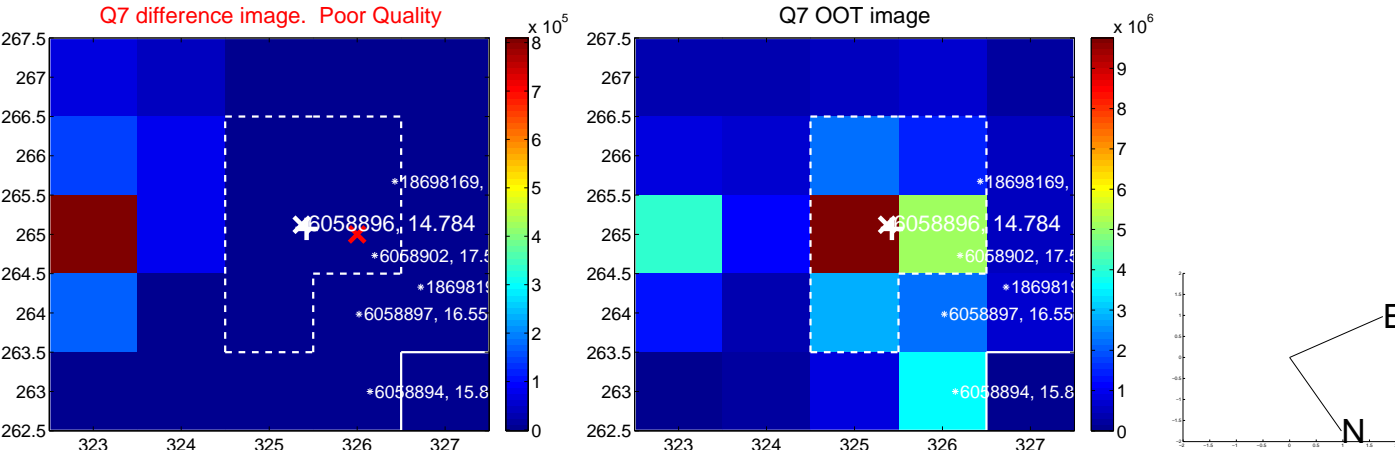
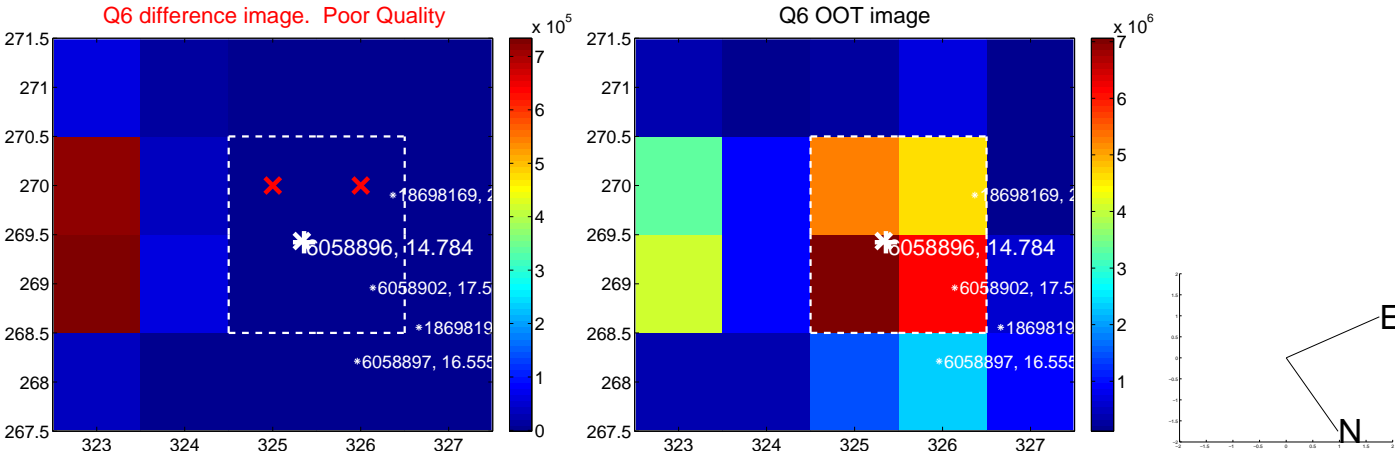
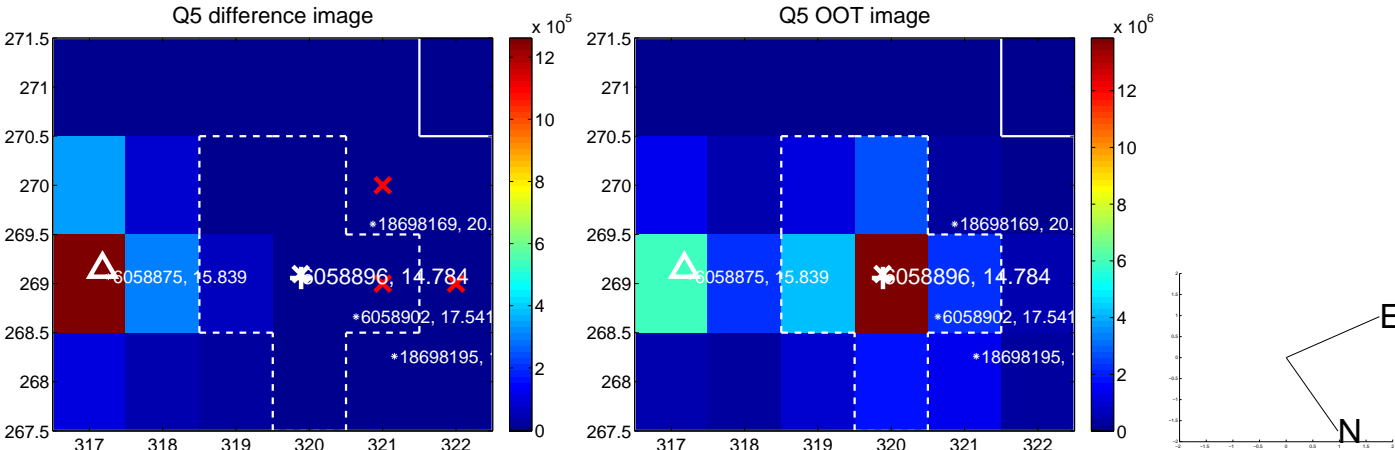


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

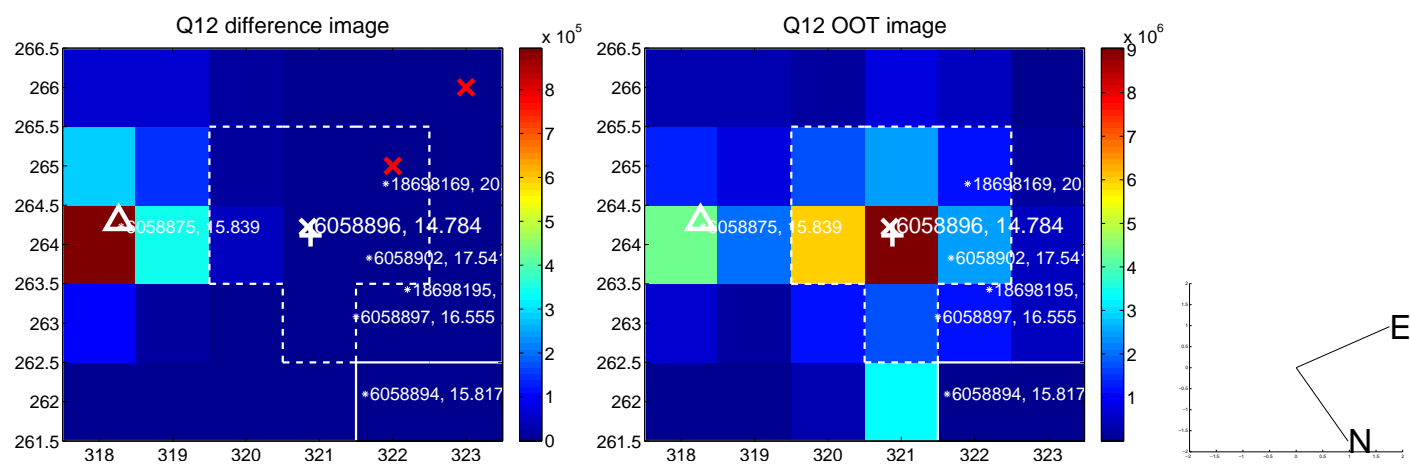
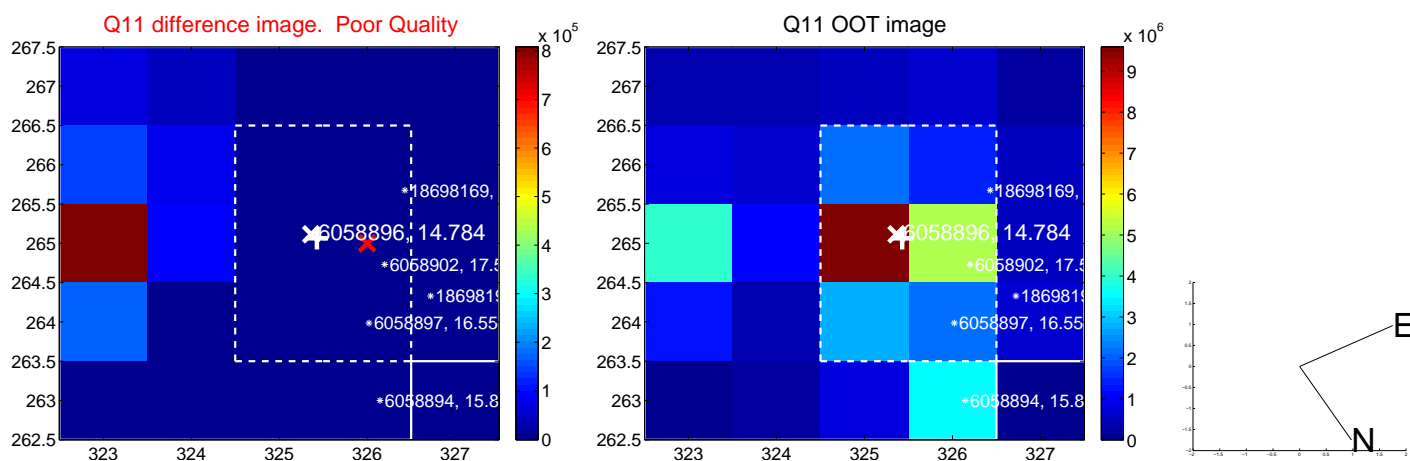
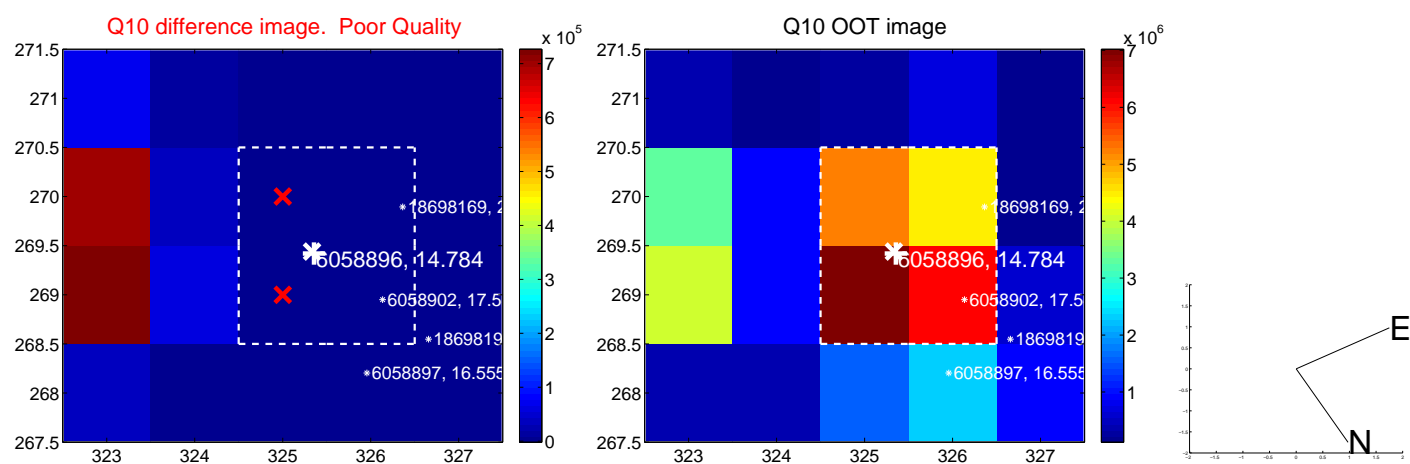
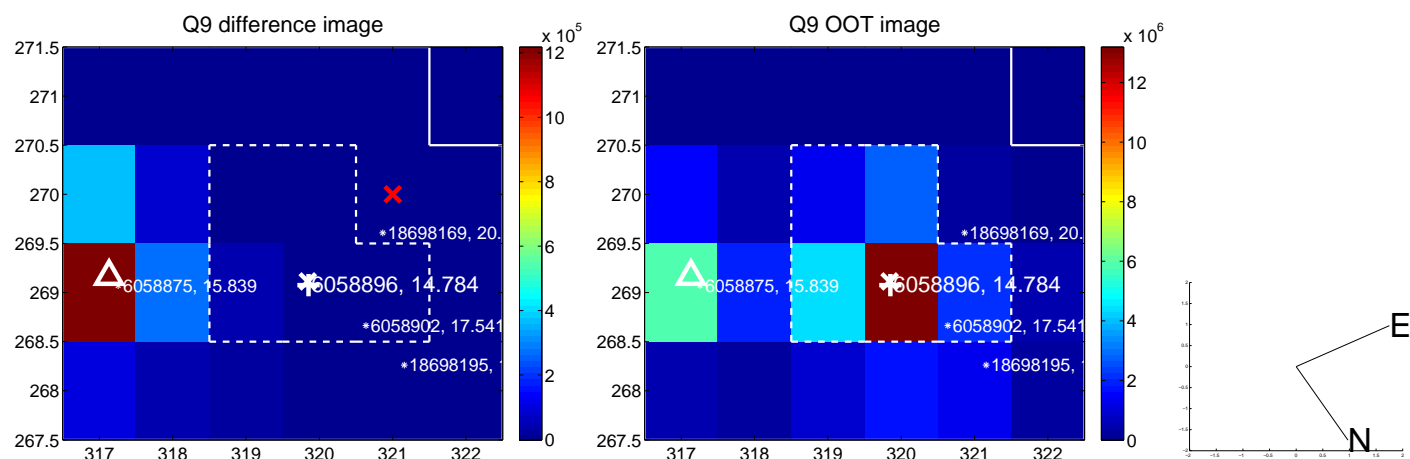
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



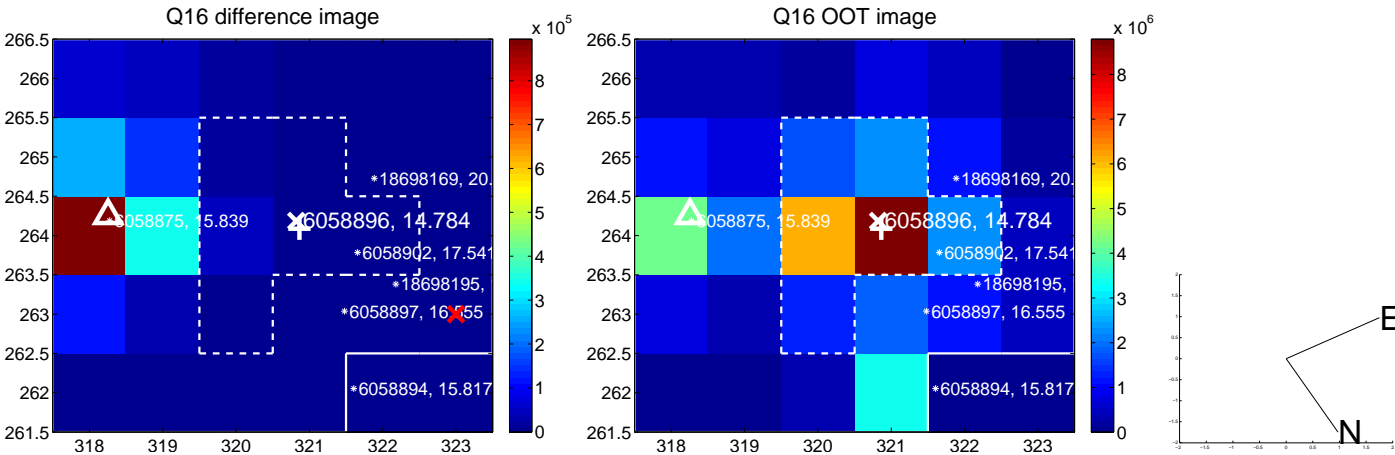
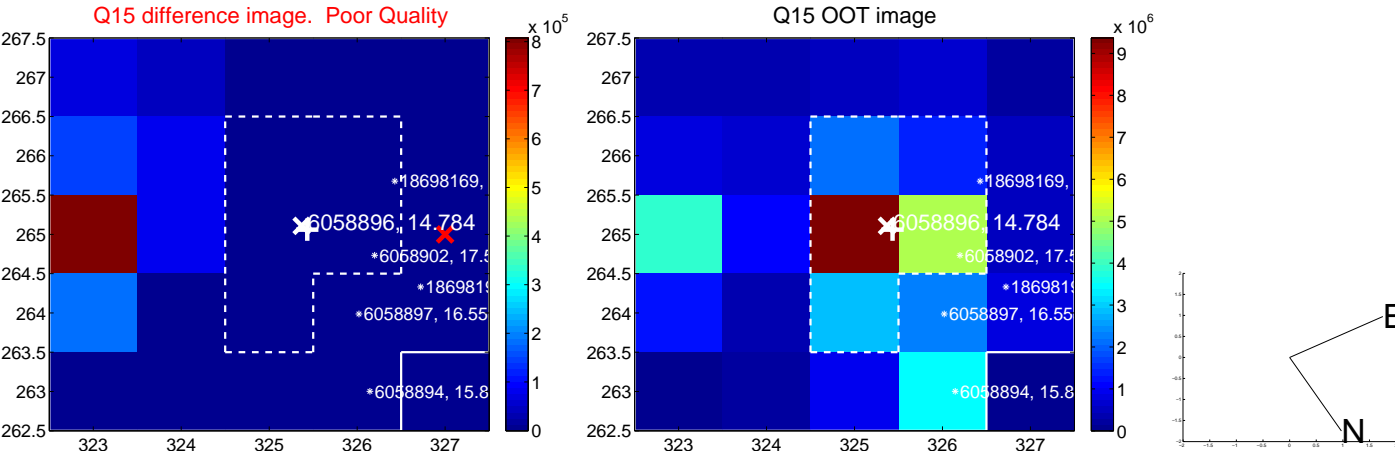
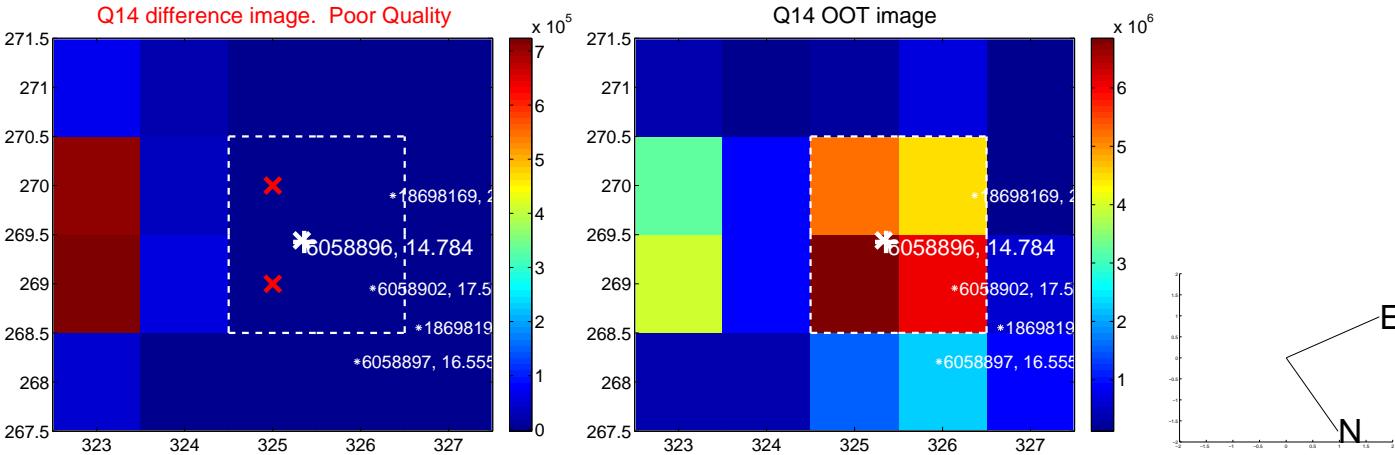
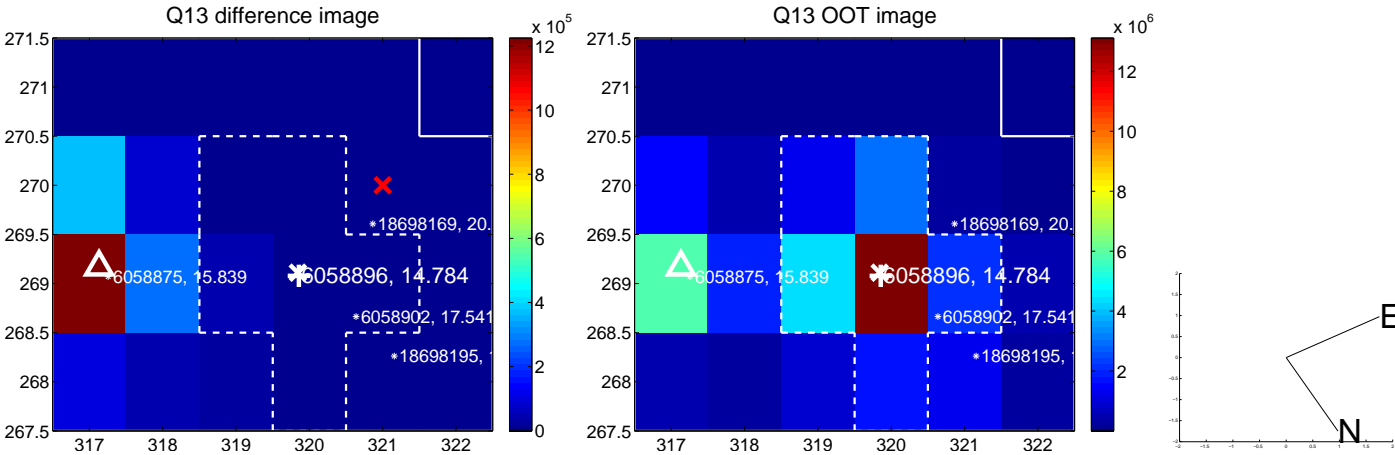
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



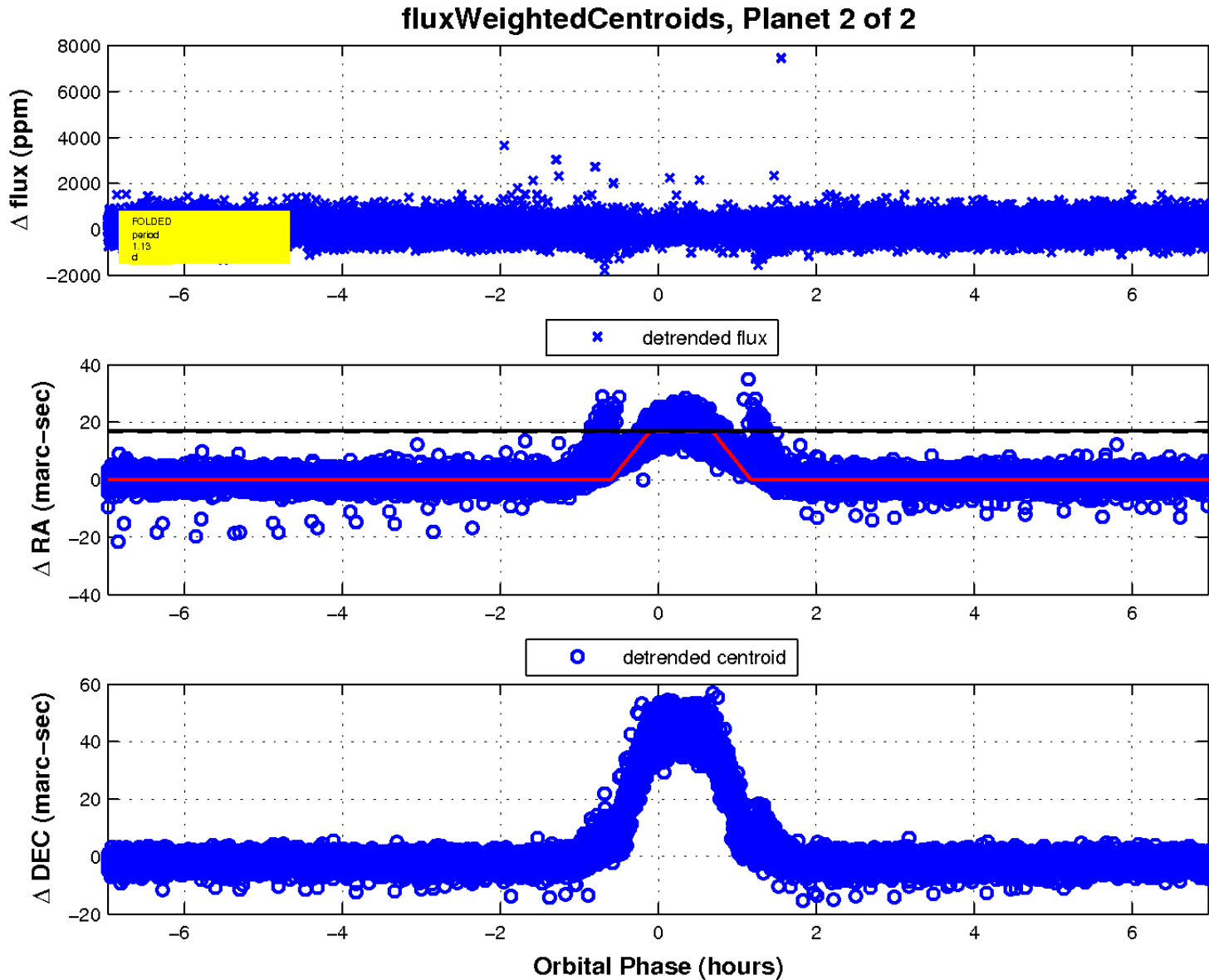
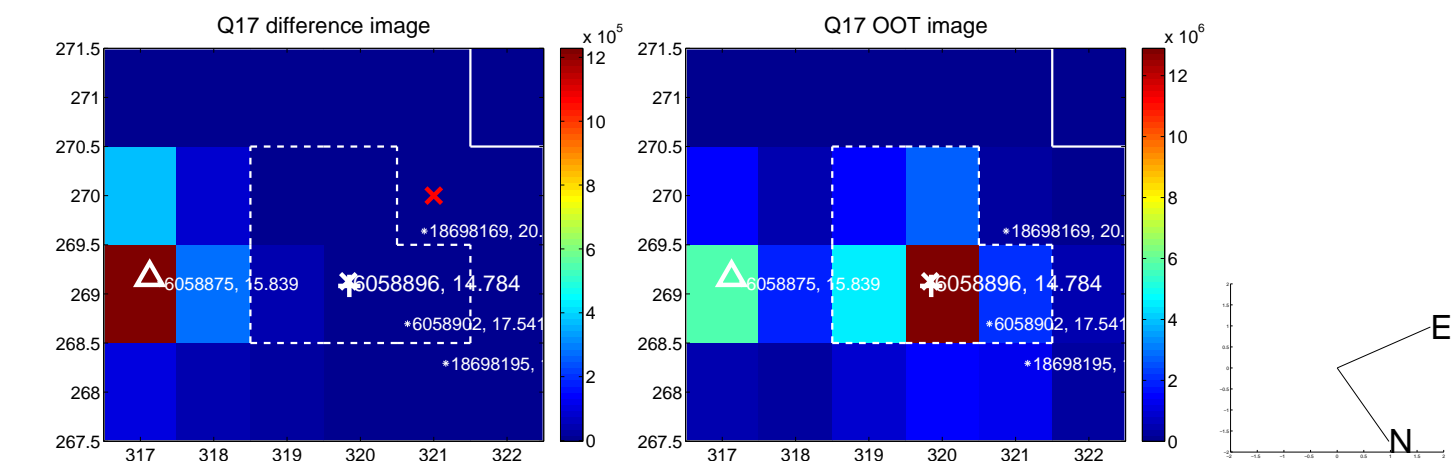
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

