

KIC 010583225

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})
010583225-01	OBS	3902.01	2.696339	132.999654	175.5	4.463	29.1	31.7	1.05	5418	1.94	650.06
010583225-02	OBS	No	2.696418	131.628981	53.2	4.240	10.1	11.0	1.05	5418	0.88	650.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010583225-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
010583225-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST—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.

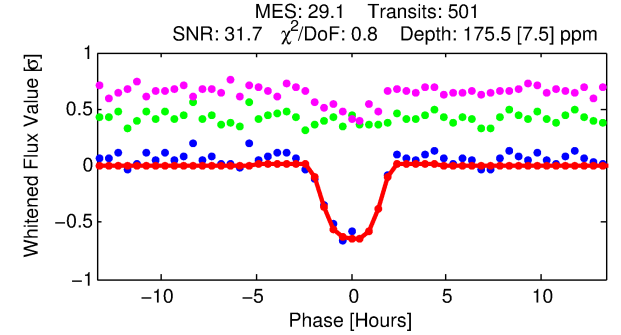
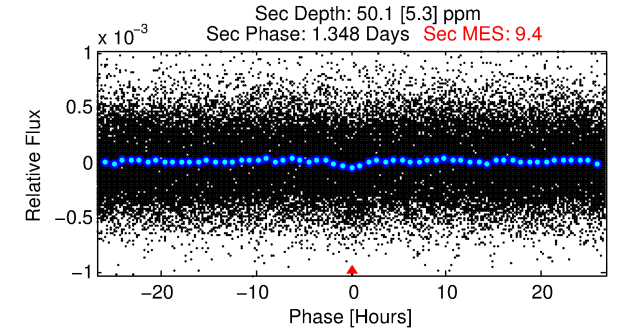
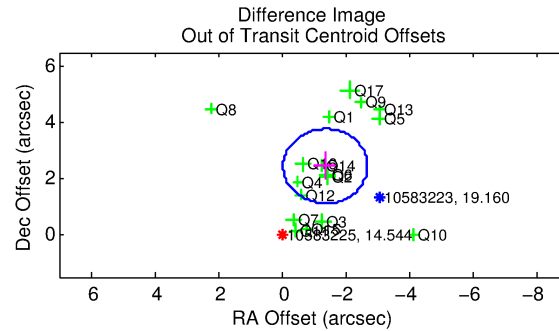
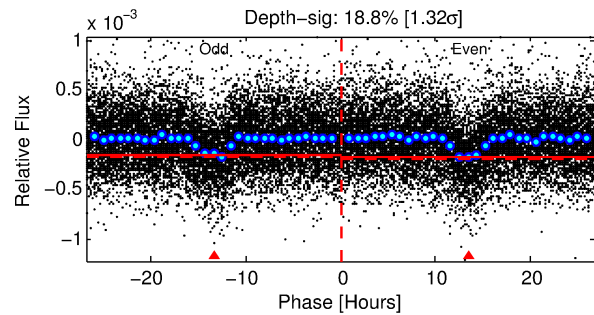
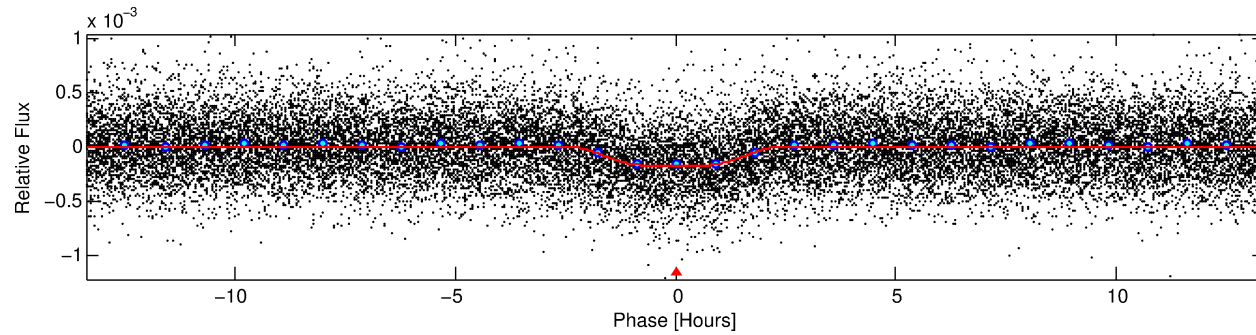
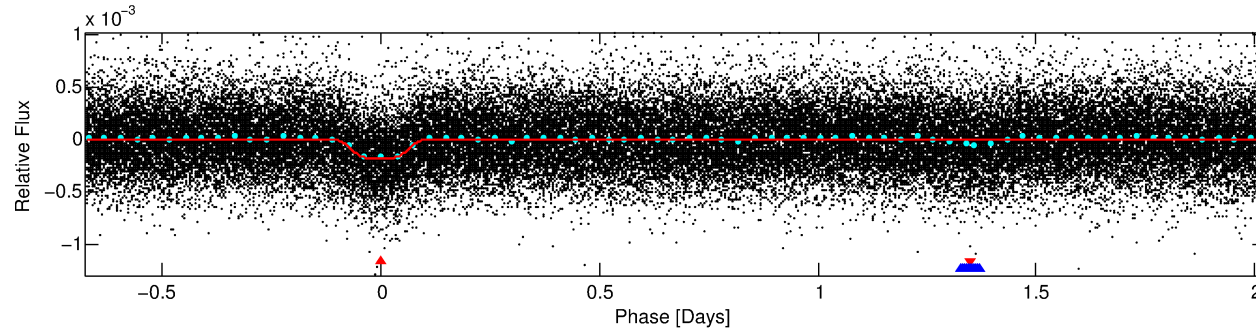
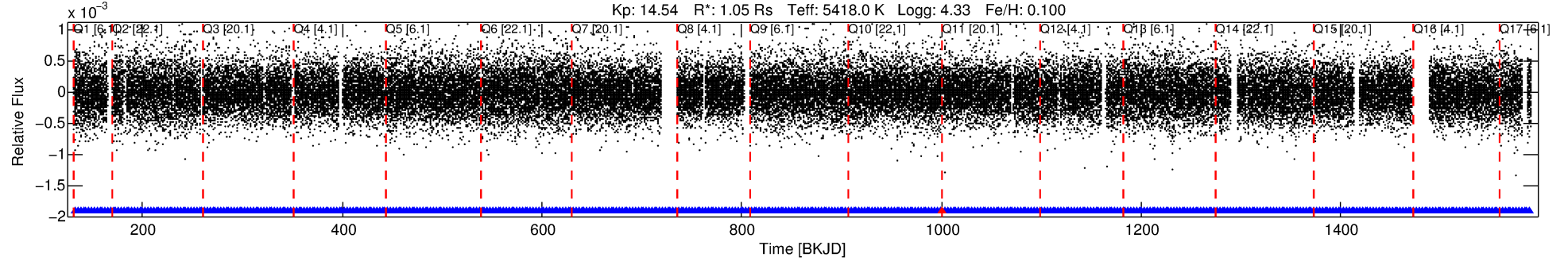
Ephemeris Match Information For 010583225-01

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
010583225-01	10583225	010583181-pri	10583181	1:1	71.8	-17	-4	11.01	14.55	1440.30	Direct-PRF	0	0.37	0.18

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: 10583225 Candidate: 1 of 2 Period: 2.696 d
KOI: K03902.01 Corr: 0.980



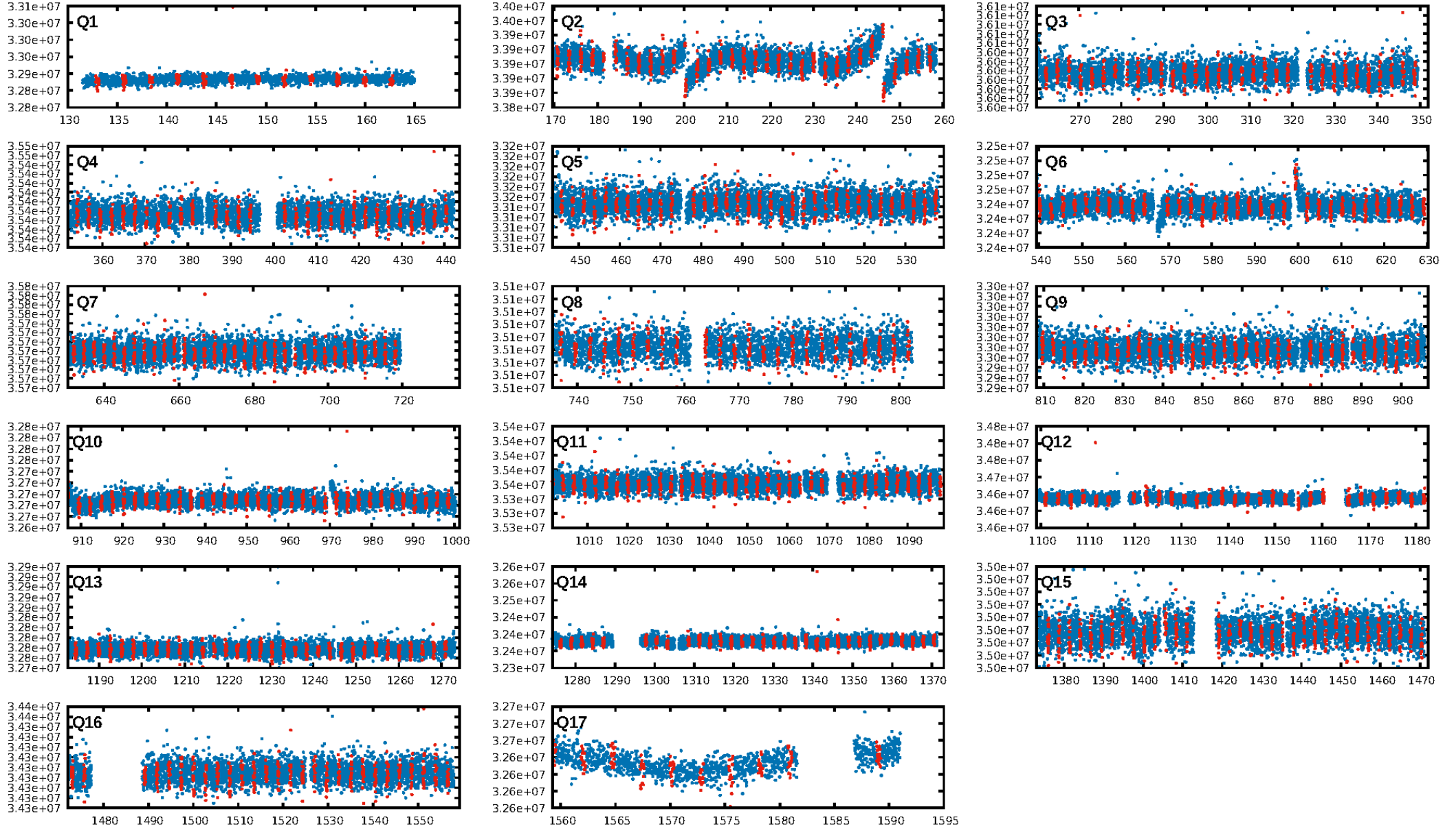
DV Fit Results:

Period = 2.69634 [0.00001] d
Epoch = 132.9997 [0.0027] BKJD
Rp/R* = 0.0169 [0.0006]
a/R* = 1.63 [0.09]
b = 0.98 [0.00]
Seff = 650.06 [272.06]
Teq = 1288 [135] K
Rp = 1.94 [0.59] Re
a = 0.0362 [0.0097] AU
Ag = 9.59 [4.03] [2.13 σ]
Teffp = 3503 [152] K [10.89 σ]

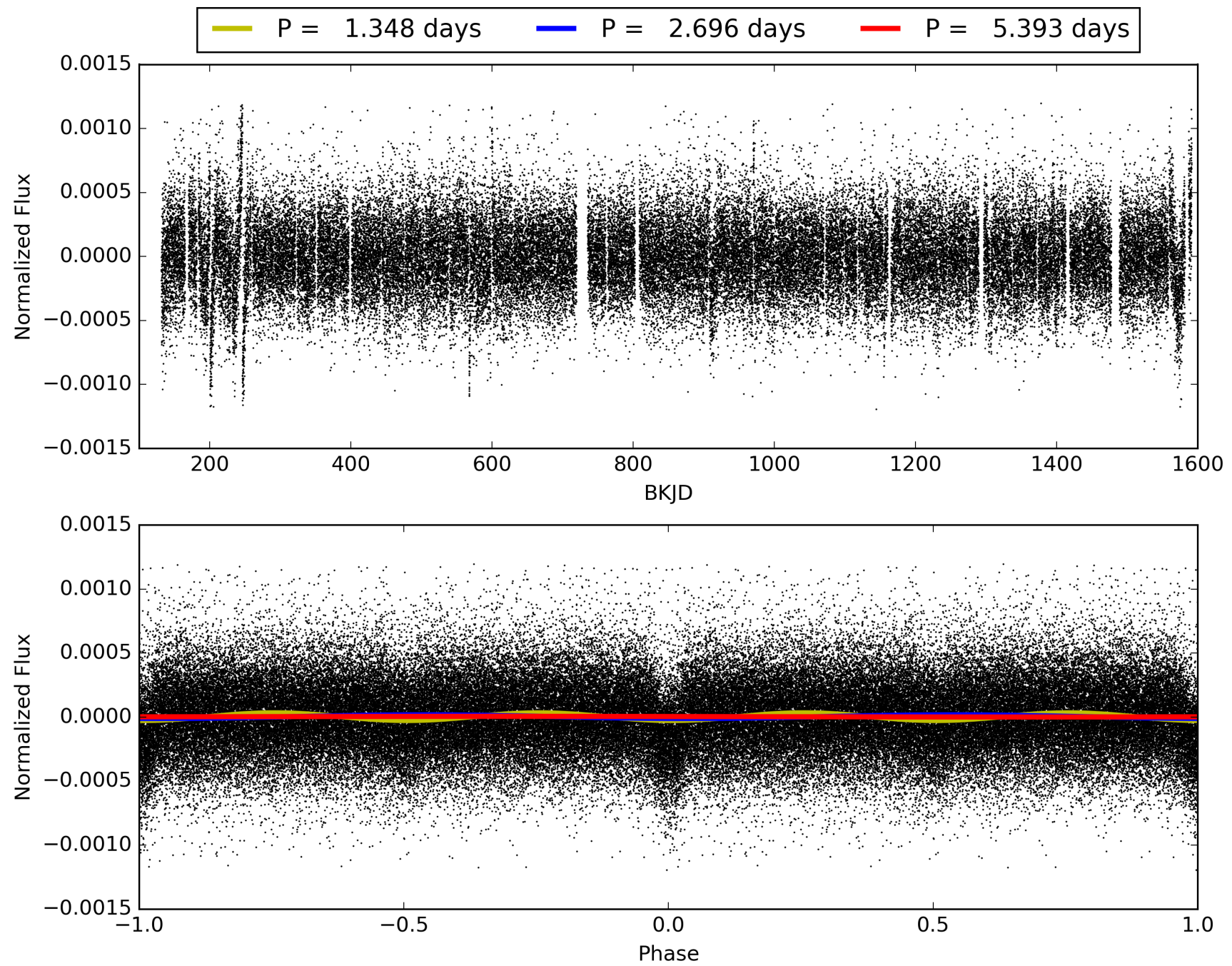
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.64e-177
RollingBand-fgt: 1.00 [478/479]
GhostDiagnostic-chr: 0.04808
Centroid-sig: 0.0%
Centroid-so: 6.383 arcsec [13.37 σ]
OotOffset-rm: 2.803 arcsec [6.34 σ]
KicOffset-rm: 2.598 arcsec [5.84 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010583225-01, PDC Light Curves

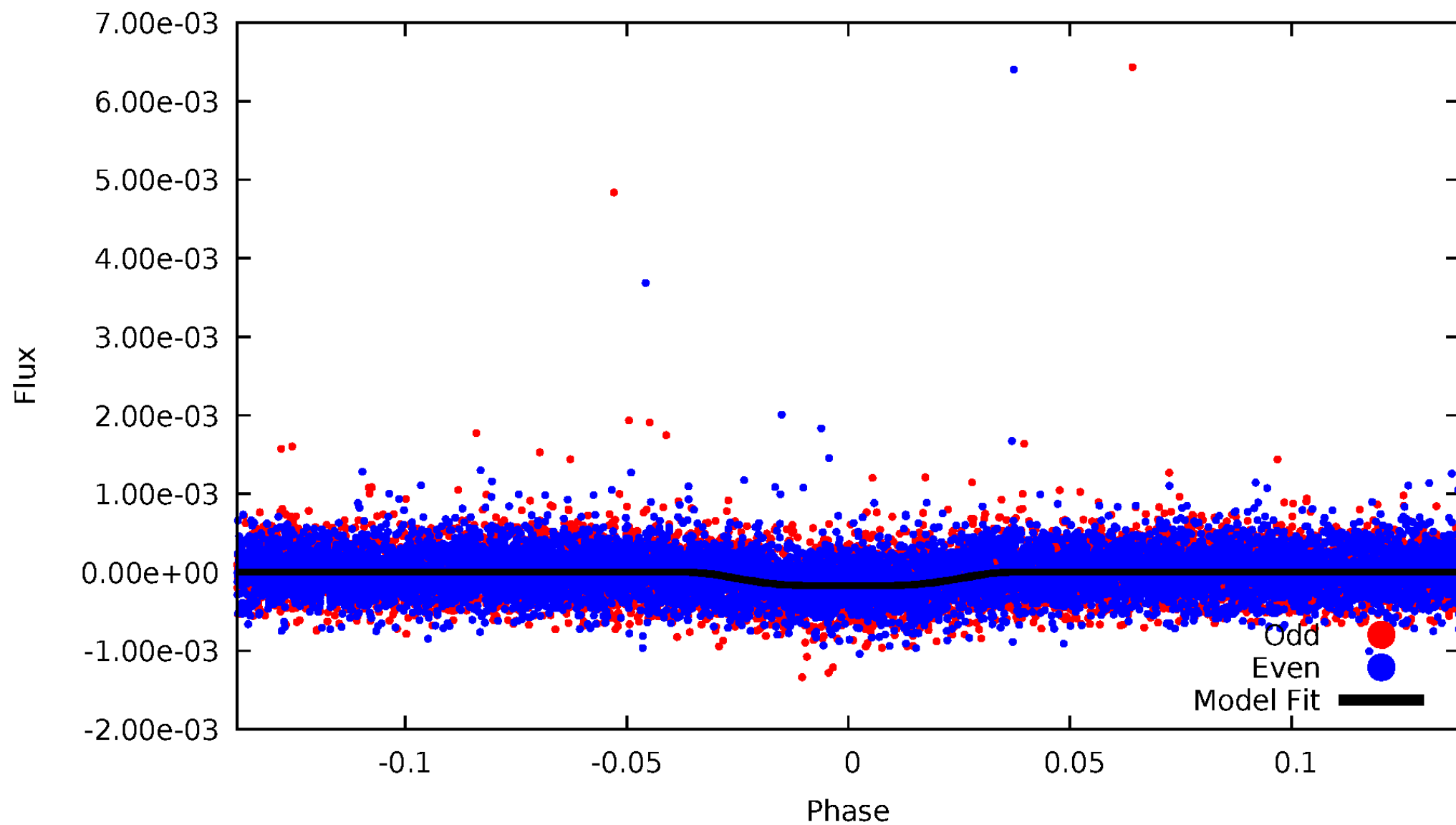


TCE 010583225-01



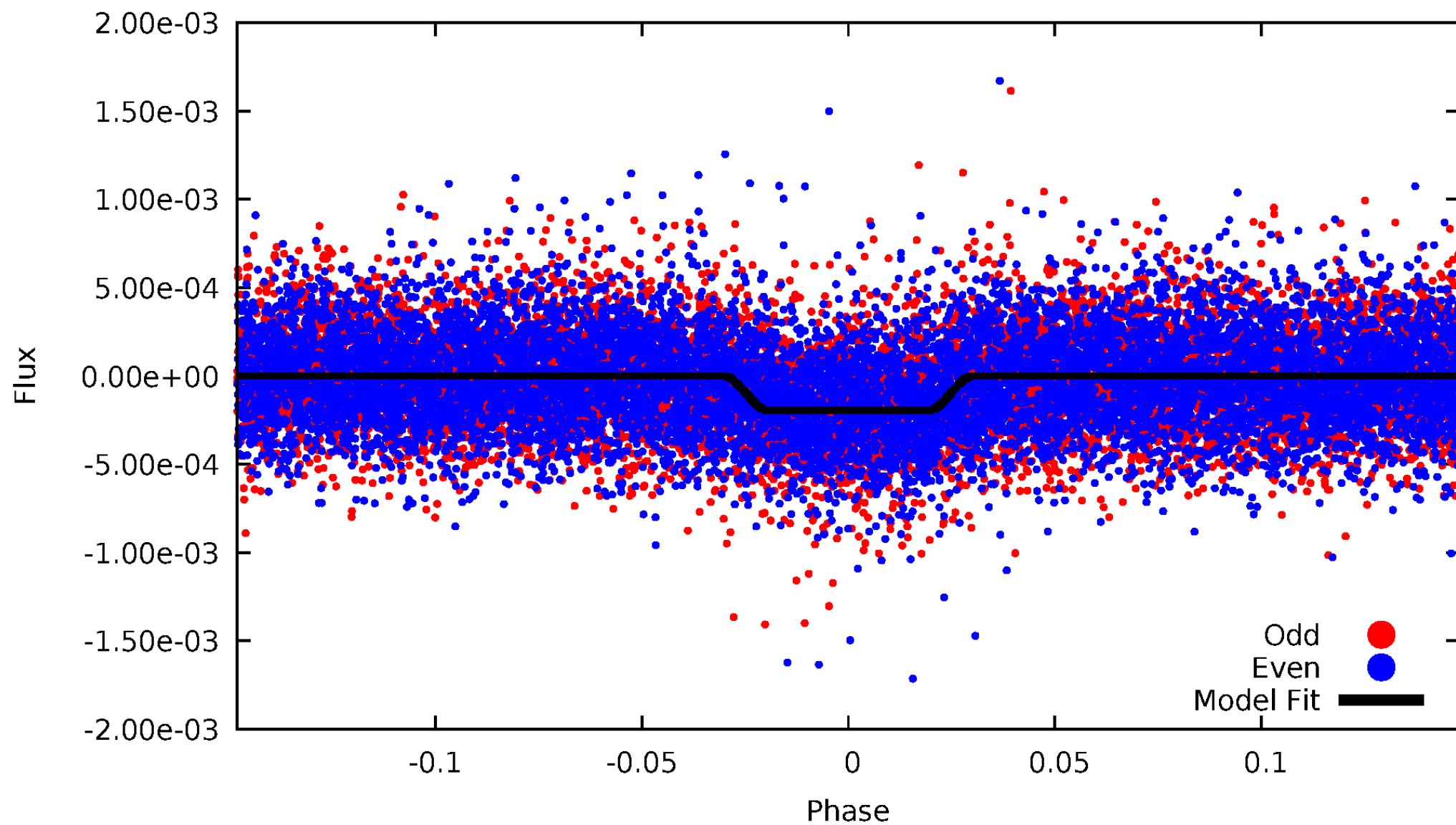
DV Odd/Even

TCE 010583225-01



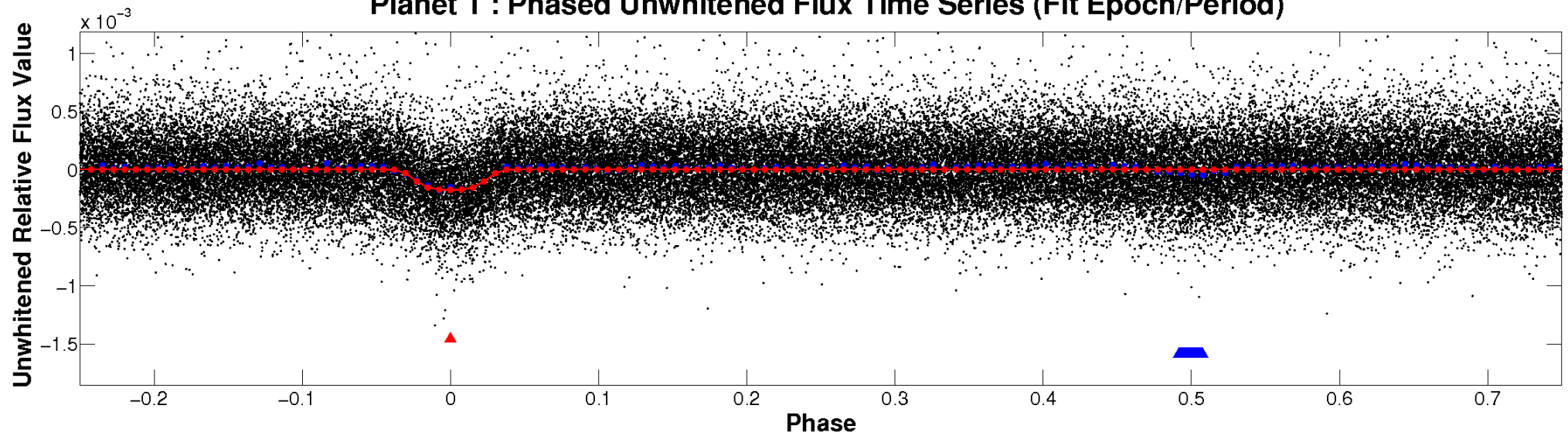
ALT Odd/Even

TCE 010583225-01

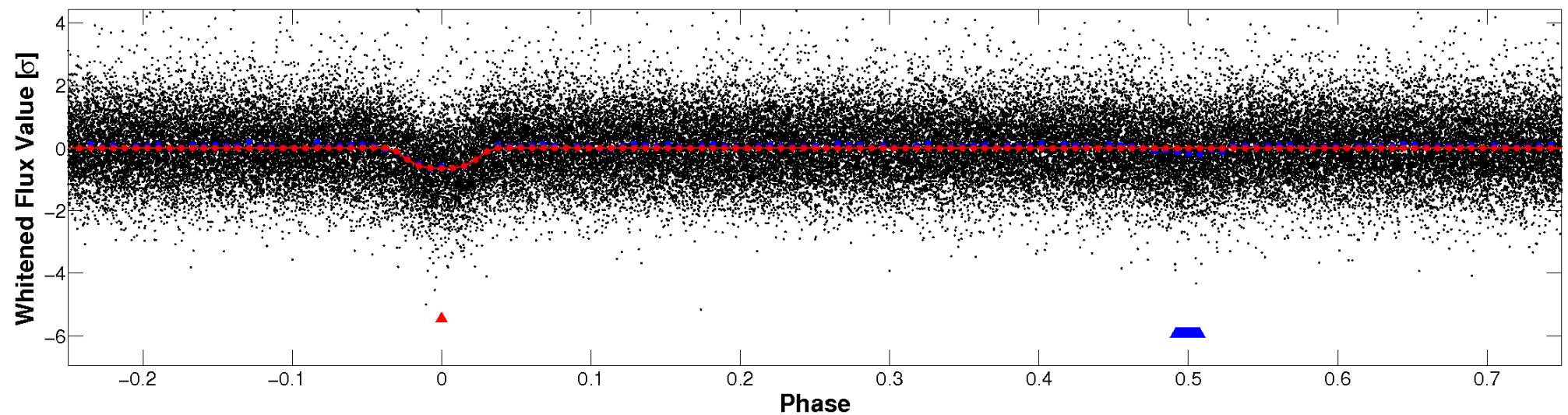


Non-Whitened Vs. Whitened Light Curve

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

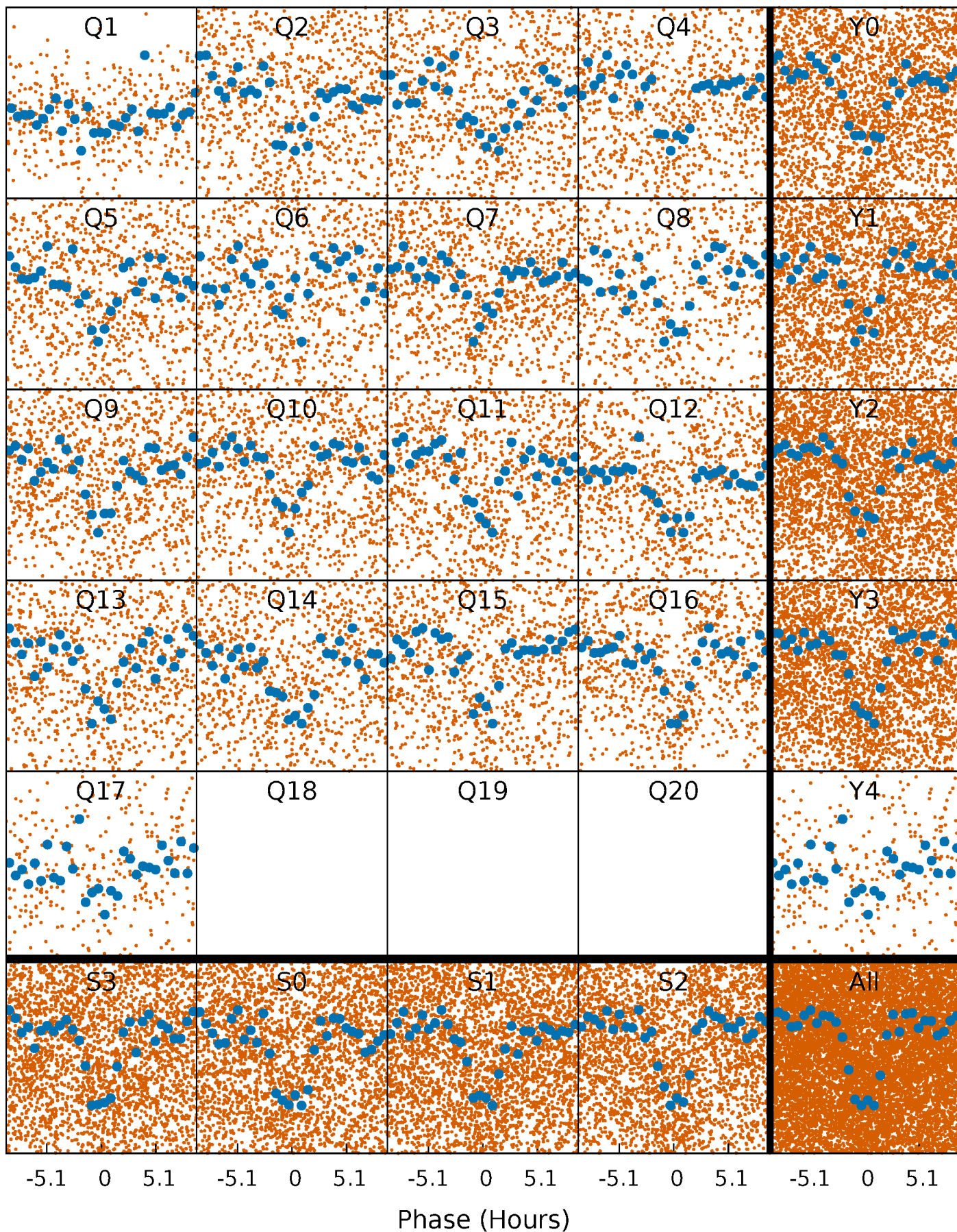


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



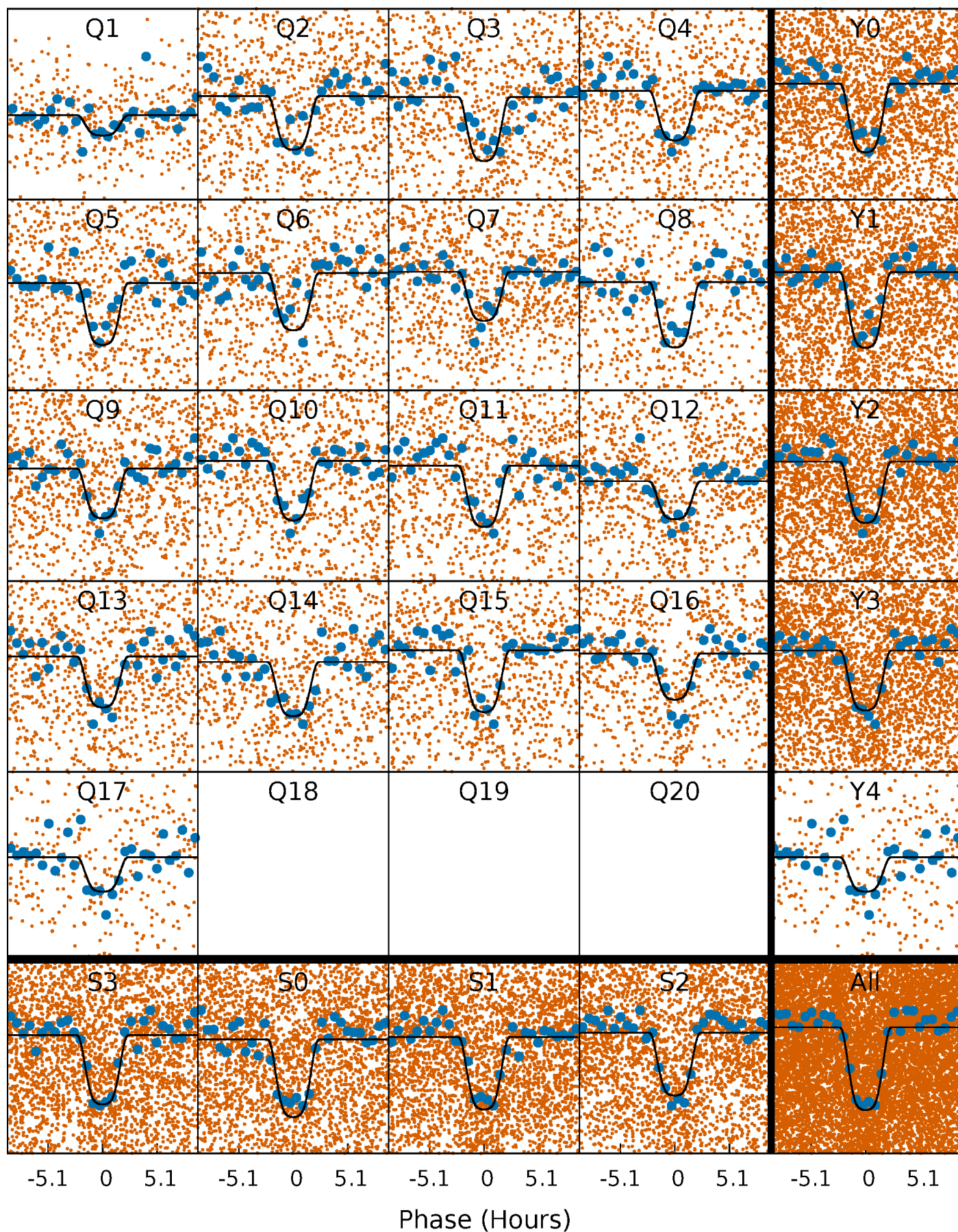
PDC Quarter-Phased Transit Curves

TCE 010583225-01 P= 2.696339 Days $T_0=132.999654$ (BKJD)



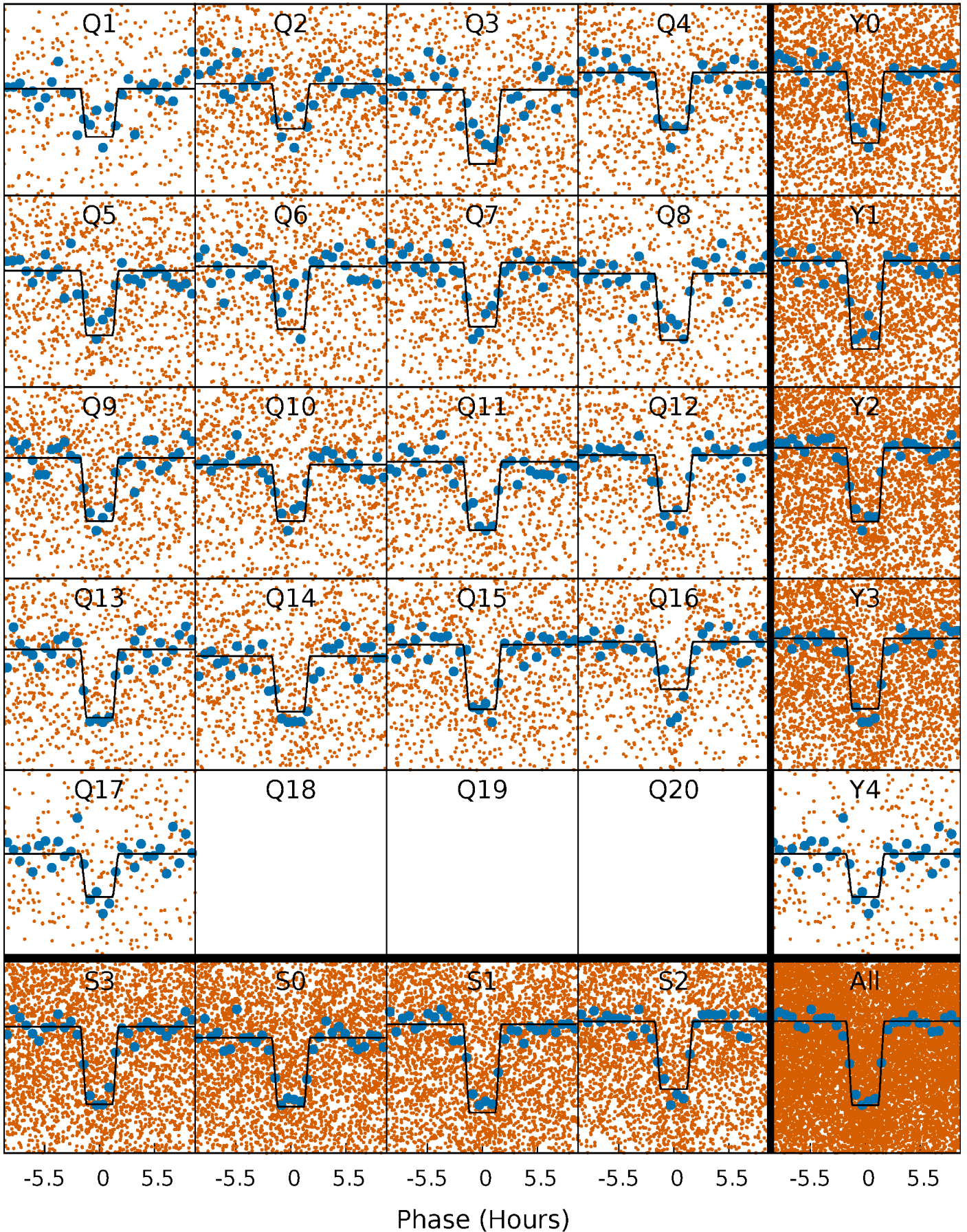
DV Quarter-Phased Transit Curves

TCE 010583225-01 P= 2.696339 Days $T_0=132.999654$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

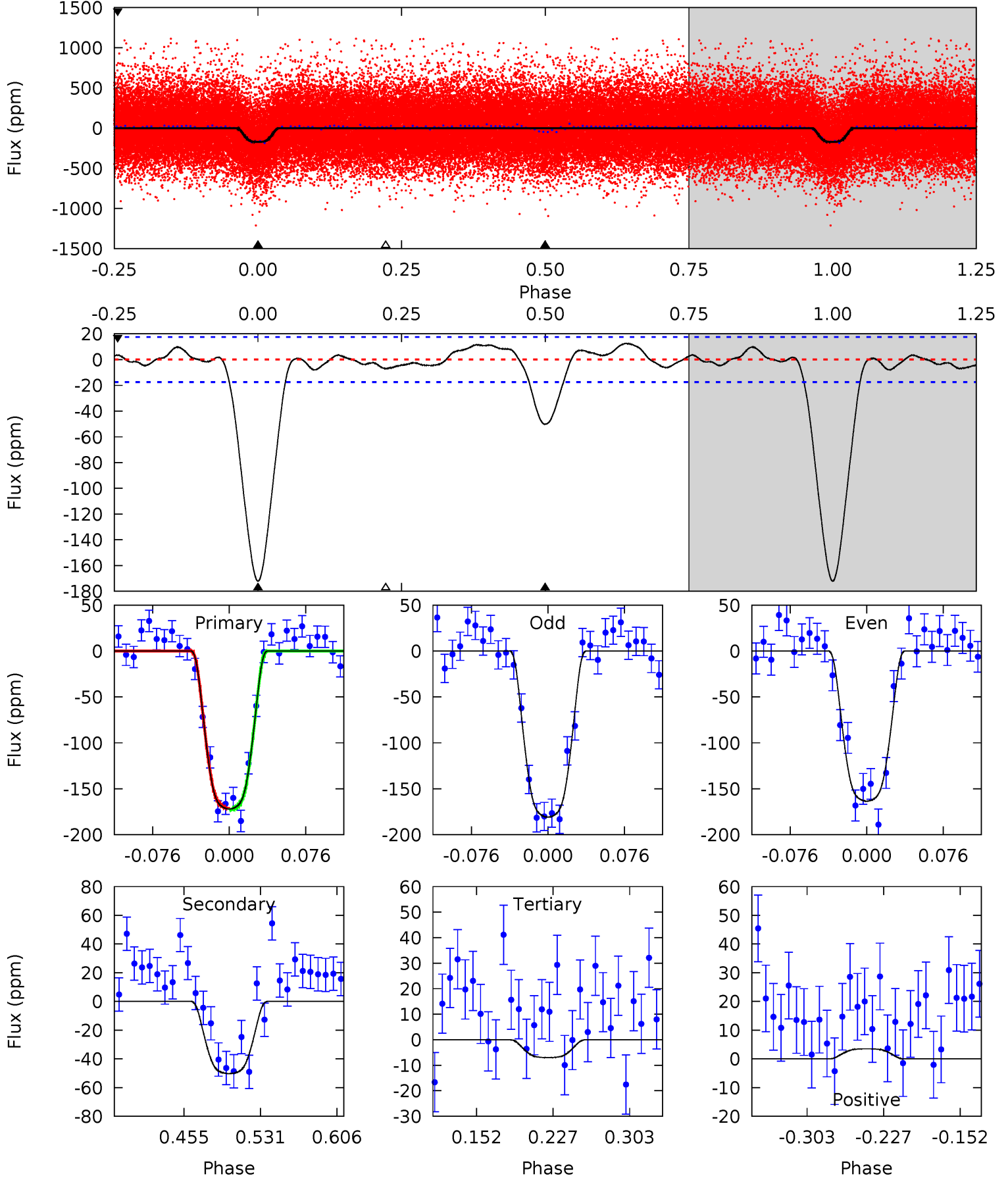
TCE 010583225-01 P= 2.696338 Days $T_0=133.000561$ (BKJD)



DV Model-Shift Uniqueness Test

010583225-01, P = 2.696339 Days, E = 130.303315 Days

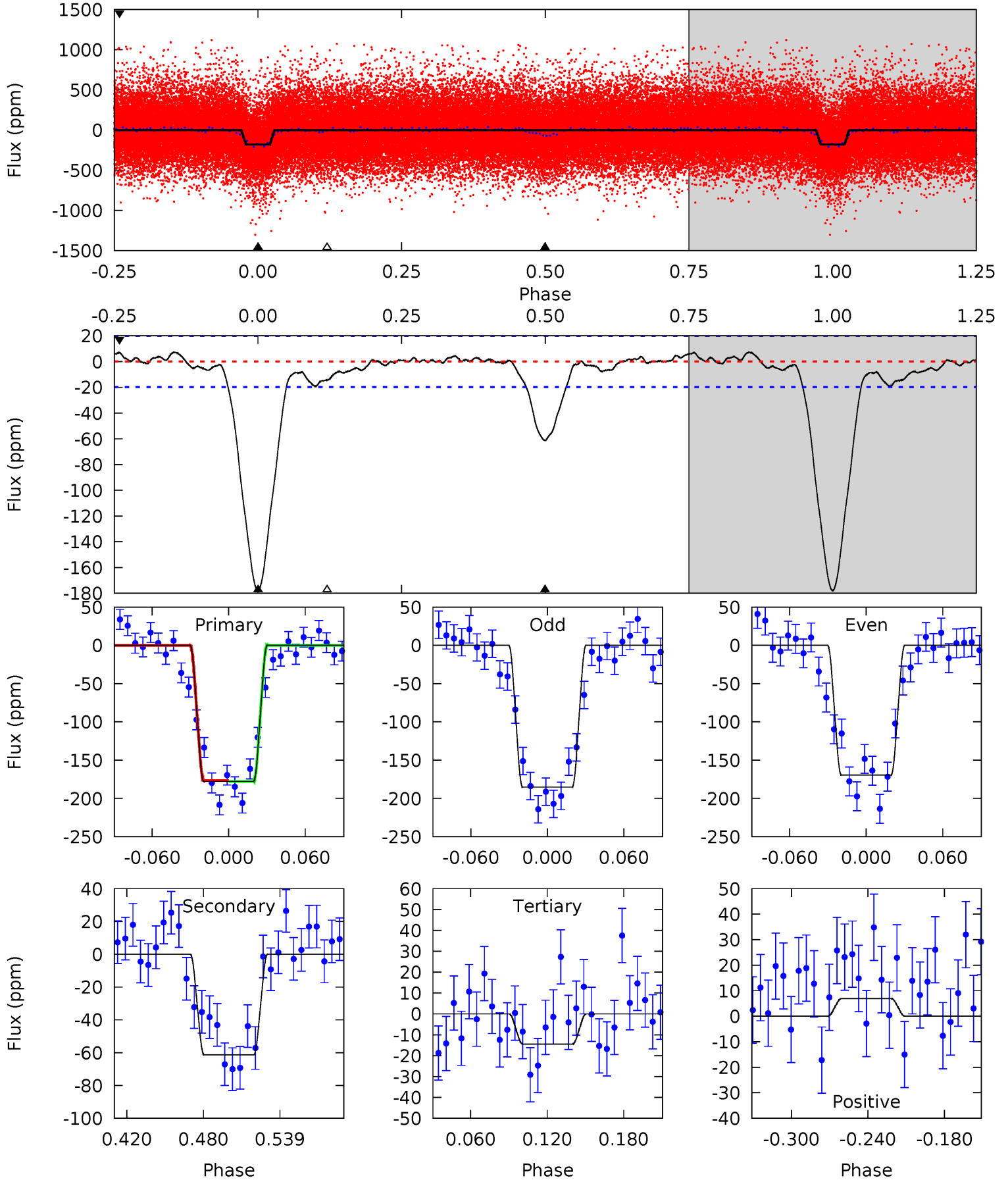
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.4	13.3	1.85	0.93	4.62	1.78	1.47	43.5	44.5	11.4	12.3	2.30	0.99	0.07	0.19



Alt Model-Shift Uniqueness Test

010583225-01, P = 2.696338 Days, E = 130.304223 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.9	14.4	3.40	1.62	4.67	1.88	1.22	38.5	40.3	11.0	12.8	1.85	1.03	0.04	0.15



Stellar Parameters For KIC 010583225

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5418^{+164}_{-147}	$4.335^{+0.205}_{-0.225}$	$0.100^{+0.250}_{-0.250}$	$1.051^{+0.320}_{-0.187}$	$0.871^{+0.106}_{-0.065}$	$1.056^{+1.043}_{-0.551}$
	+3%/-3%	+5%/-5%	+250%/-250%	+30%/-18%	+12%/-7%	+99%/-52%
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 010583225-01 / KOI 3902.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-50 ± 4	$1.94^{+0.35}_{-0.26}$	1797^{+160}_{-124}	3829^{+109}_{-102}	$9.769^{+3.090}_{-2.782}$
Alt.	-61 ± 4	$1.59^{+0.29}_{-0.19}$	1794^{+154}_{-114}	4267^{+141}_{-133}	18^{+5}_{-5}

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

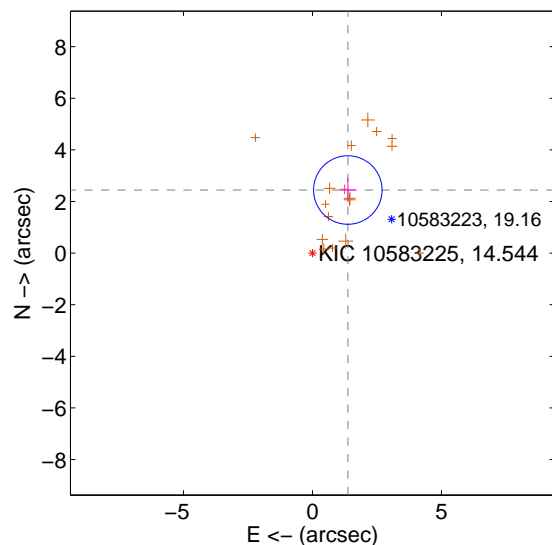
Supplemental centroid analysis for 010583225-01. Kepler magnitude: 14.54. Transit SNR 31.68

There are 0 quarters with good PRF difference image offsets

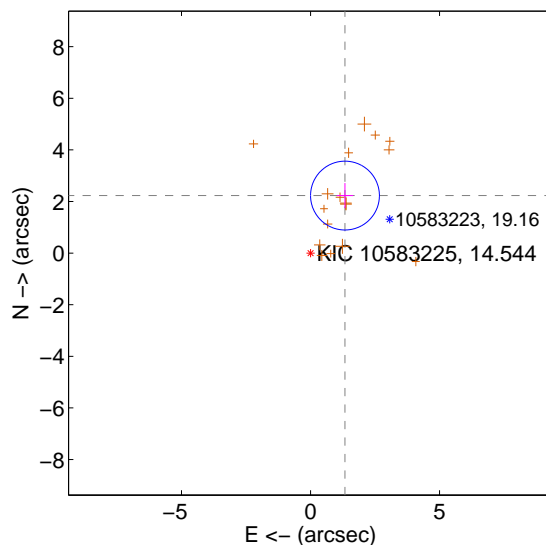
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.803 ± 0.442	6.34	-1.372 ± 0.325	2.445 ± 0.473
PRF-fit source offset from KIC position	2.598 ± 0.445	5.84	-1.335 ± 0.314	2.229 ± 0.483
photometric centroid source offset	6.38 ± 0.48	13.37	-5.39 ± 0.48	3.42 ± 0.46

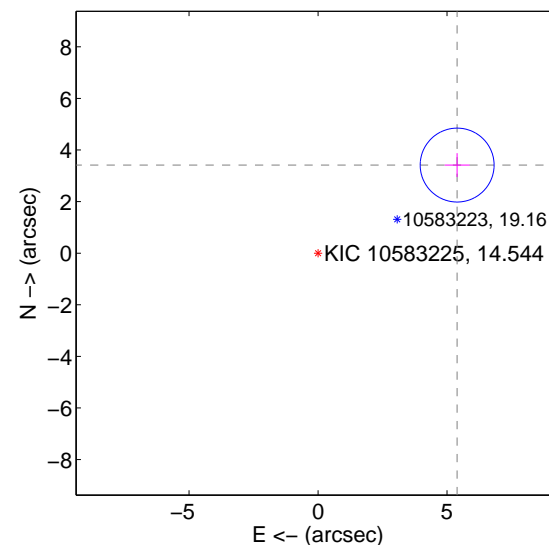
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

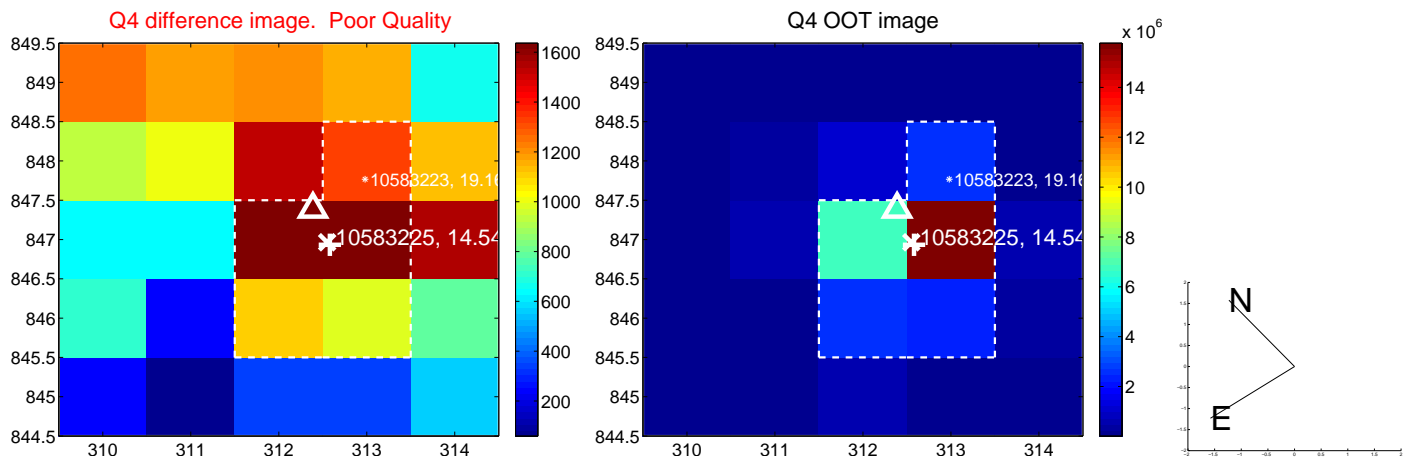
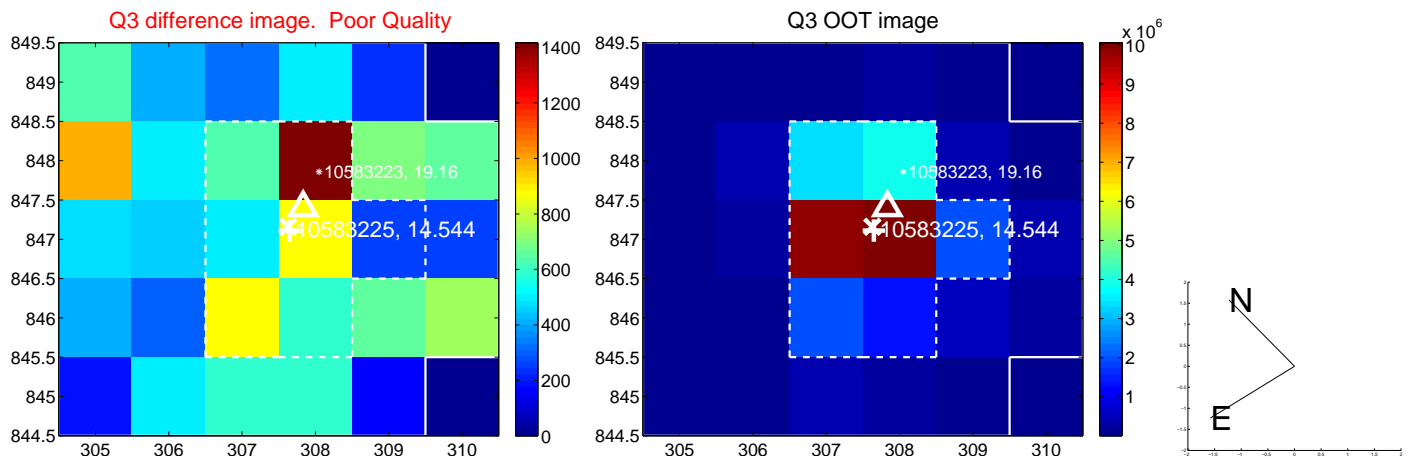
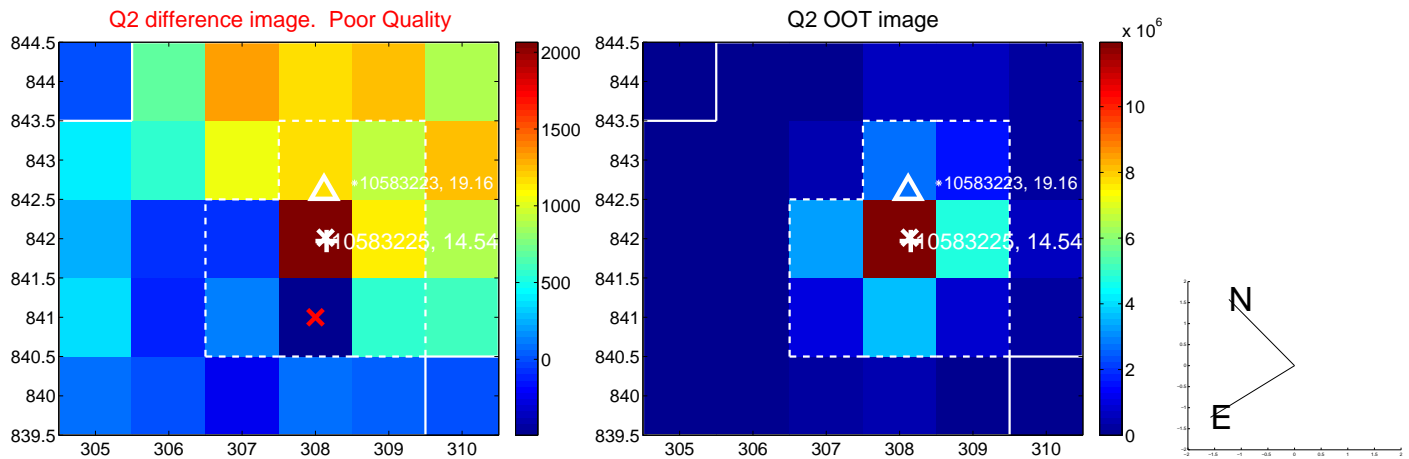
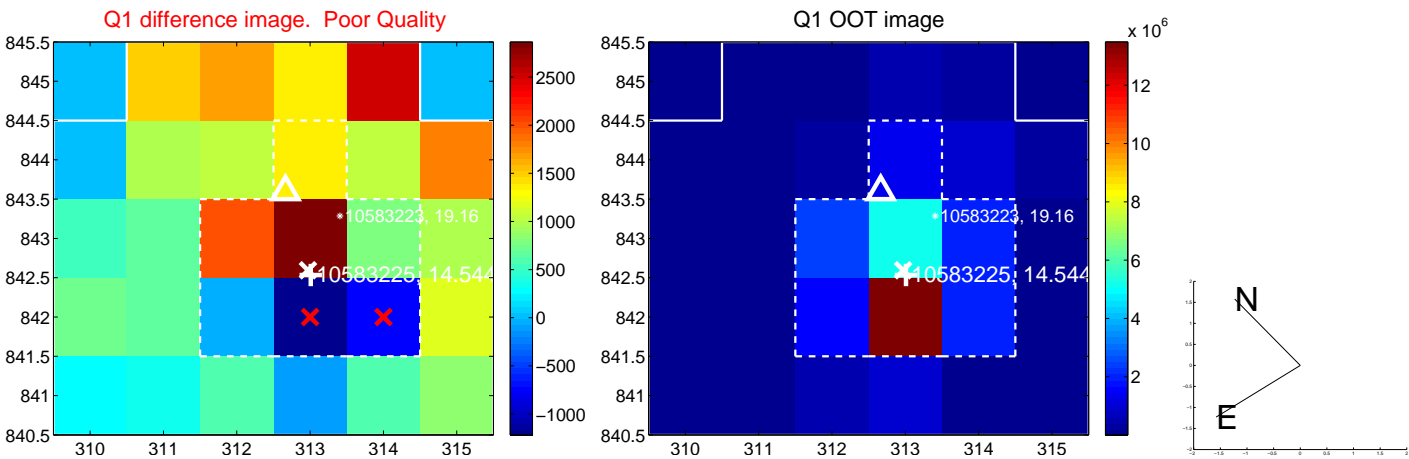


offset from photometric centroids

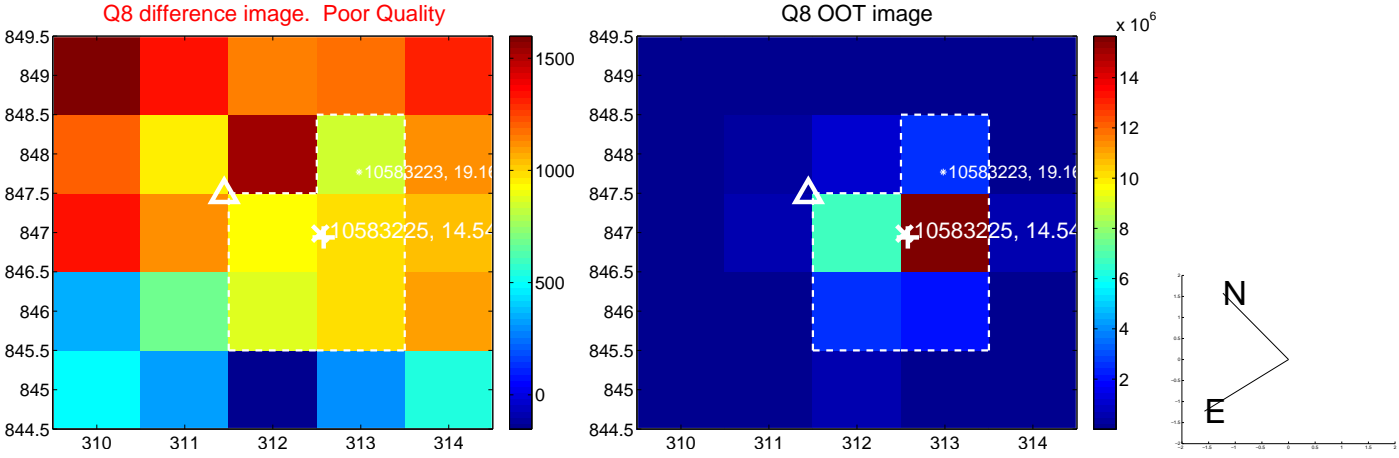
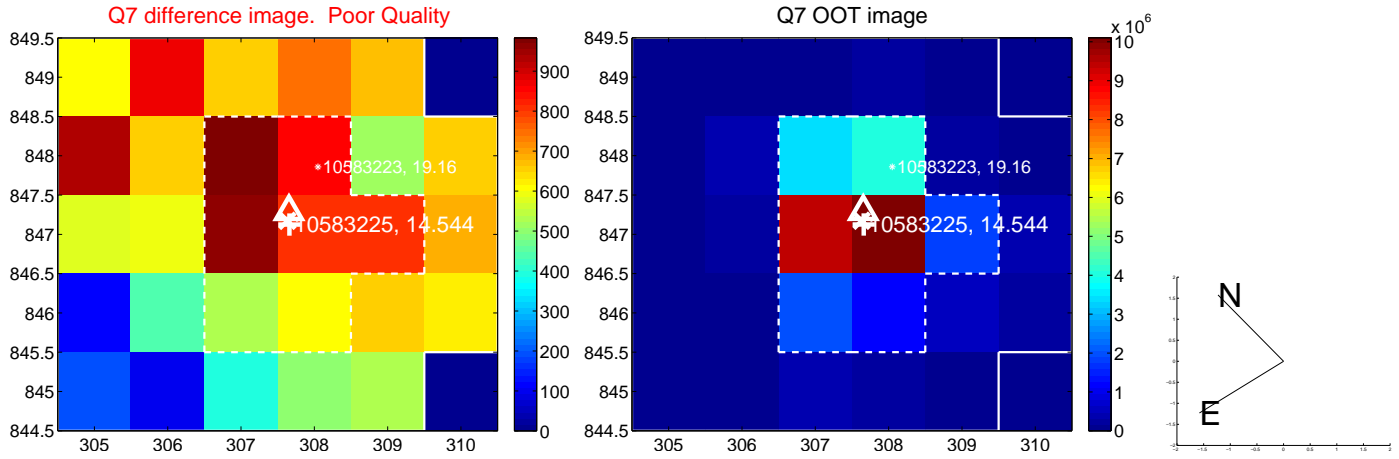
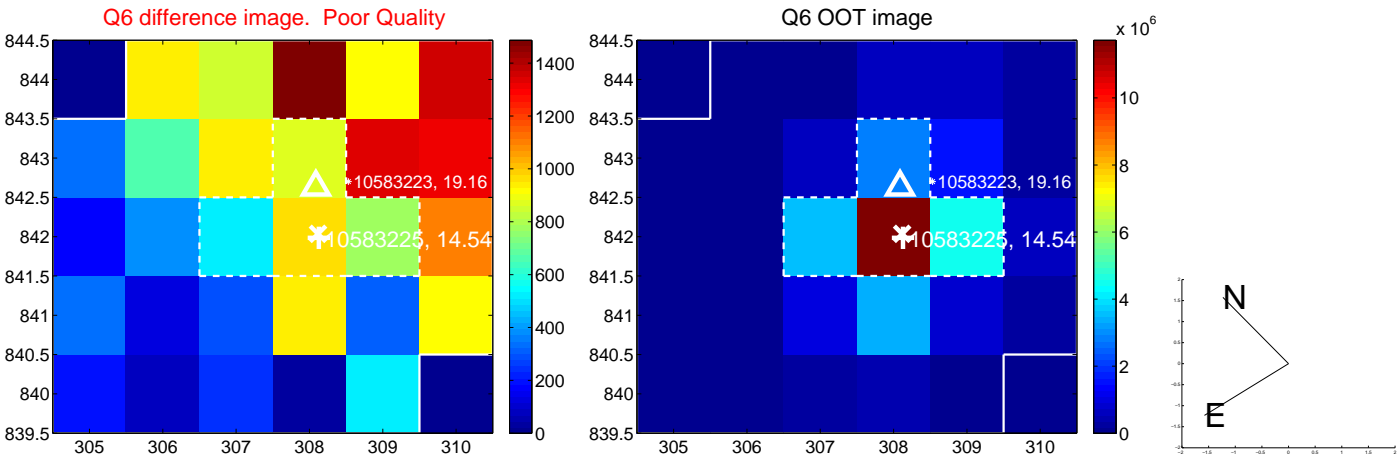
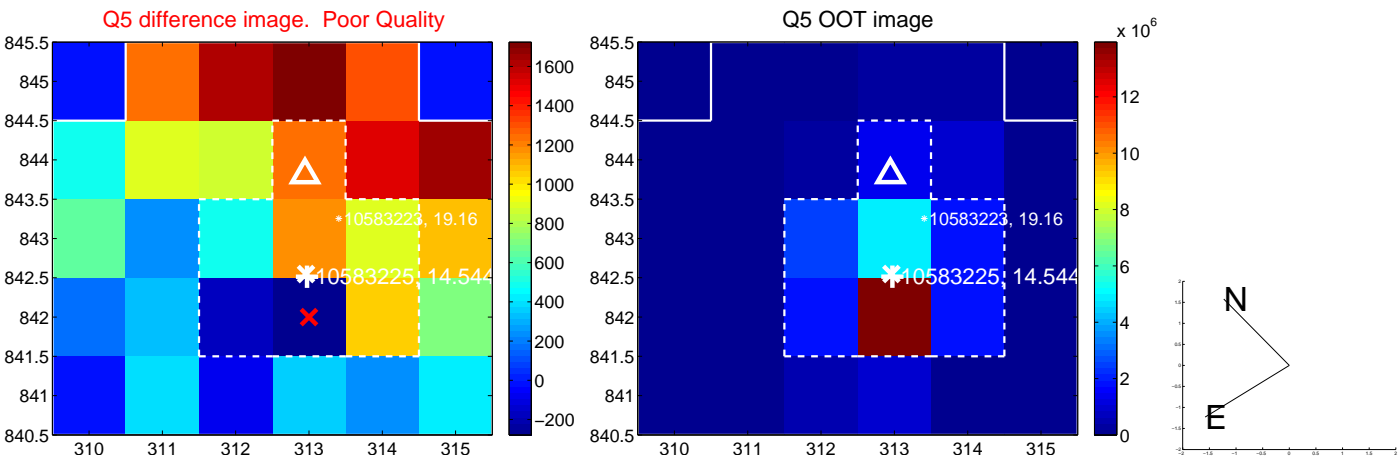


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

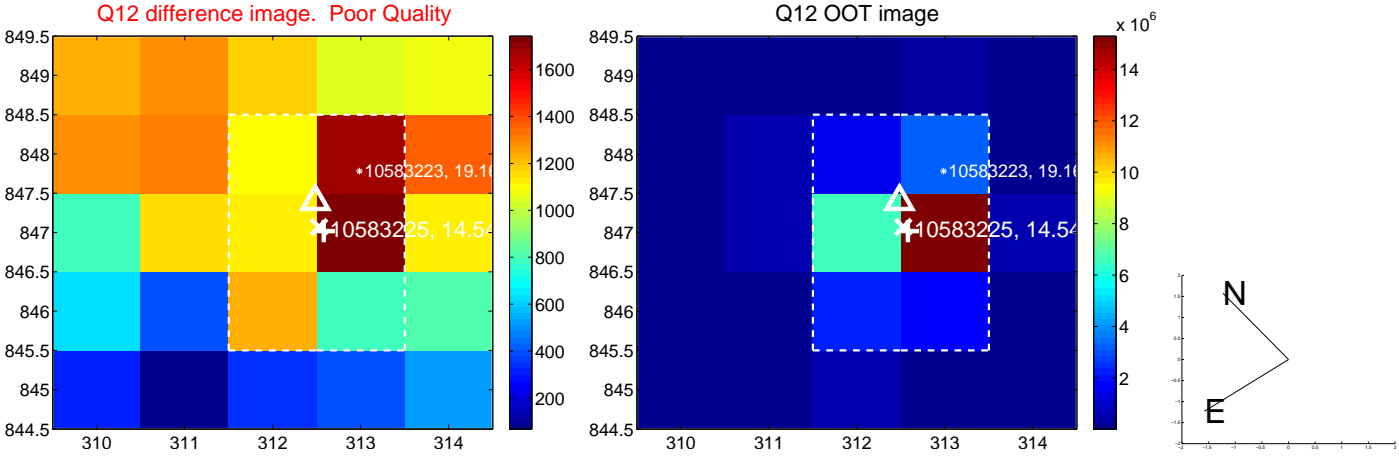
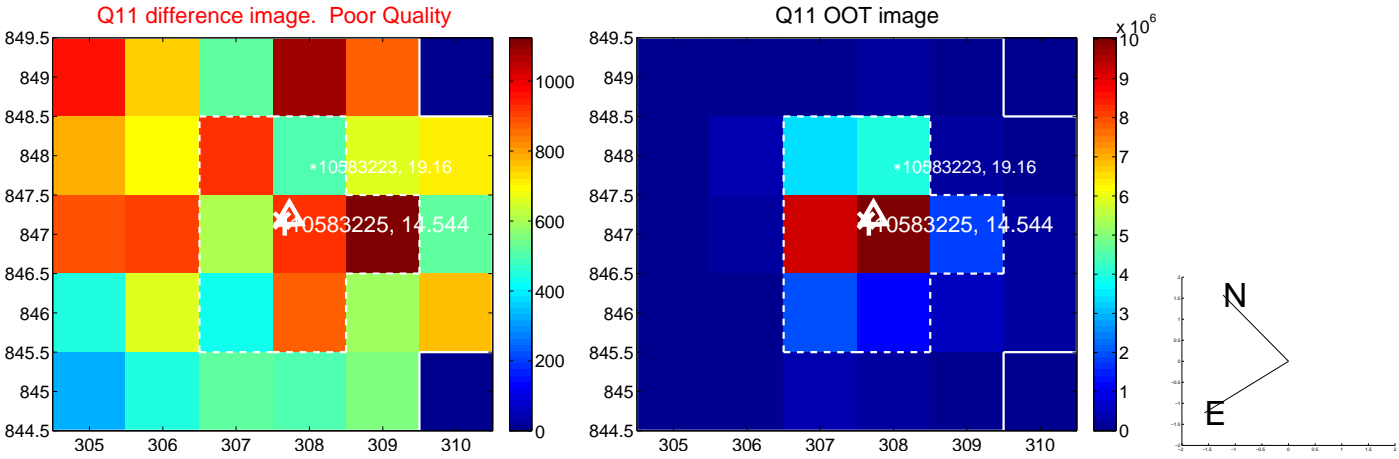
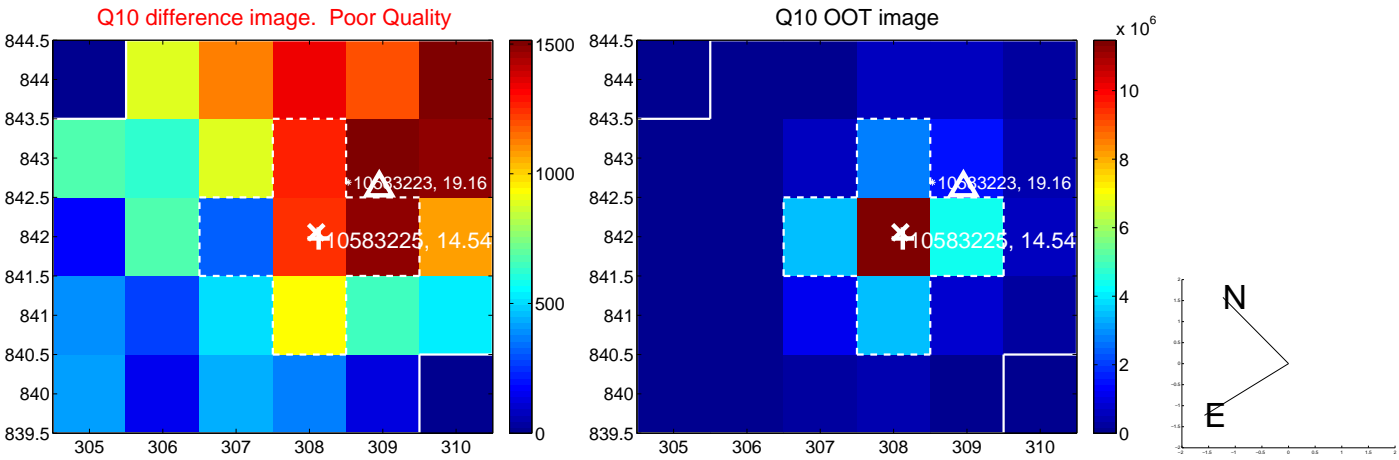
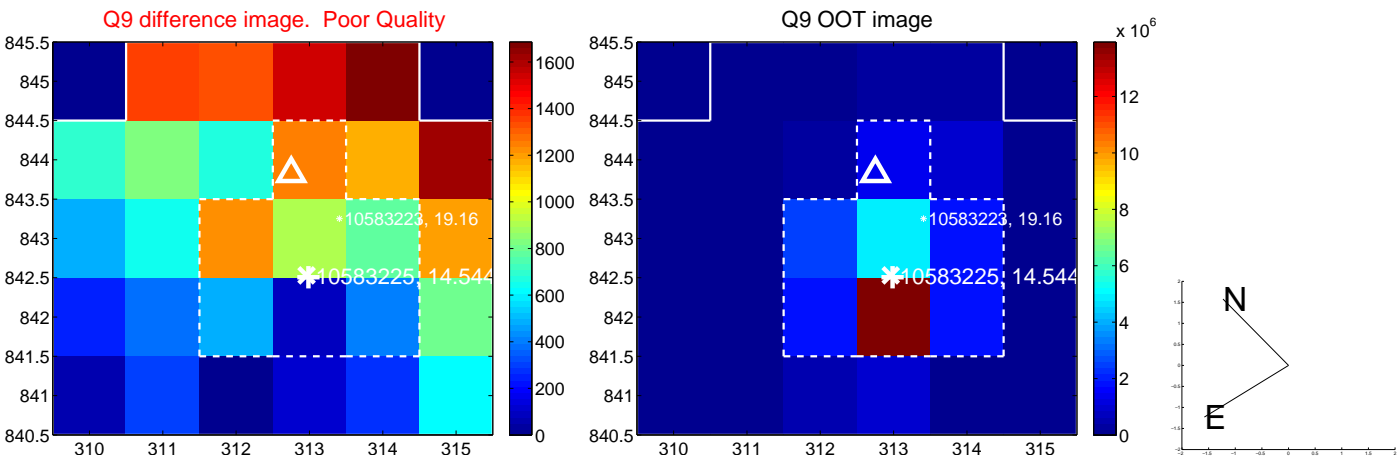
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



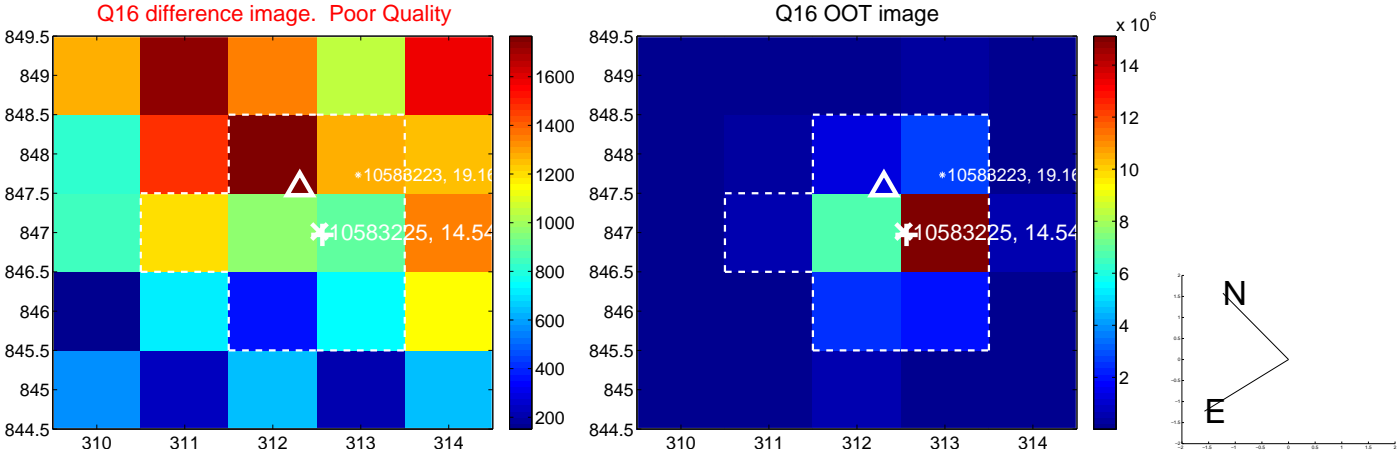
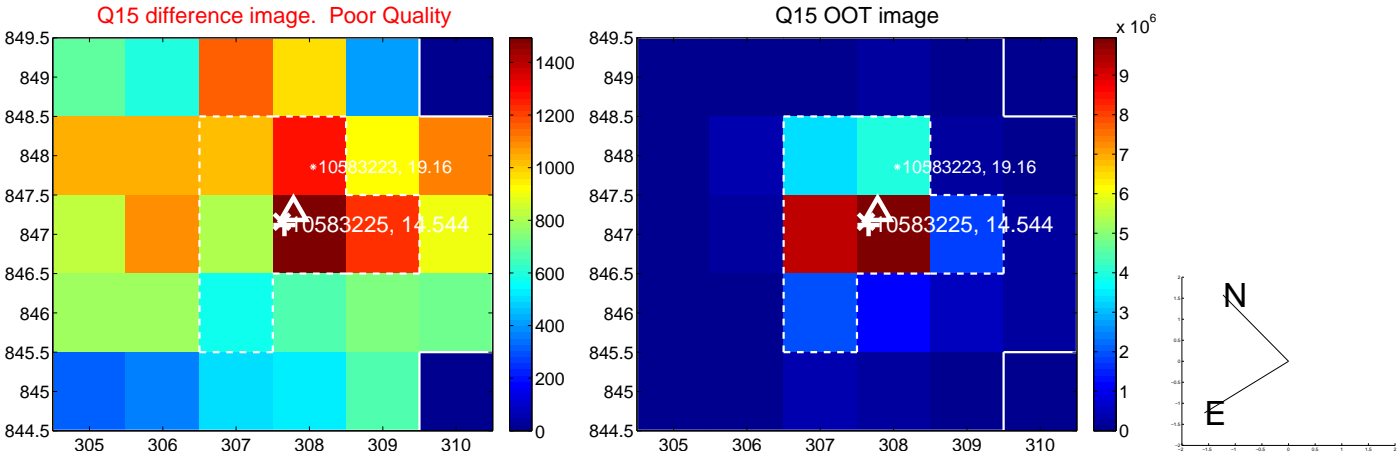
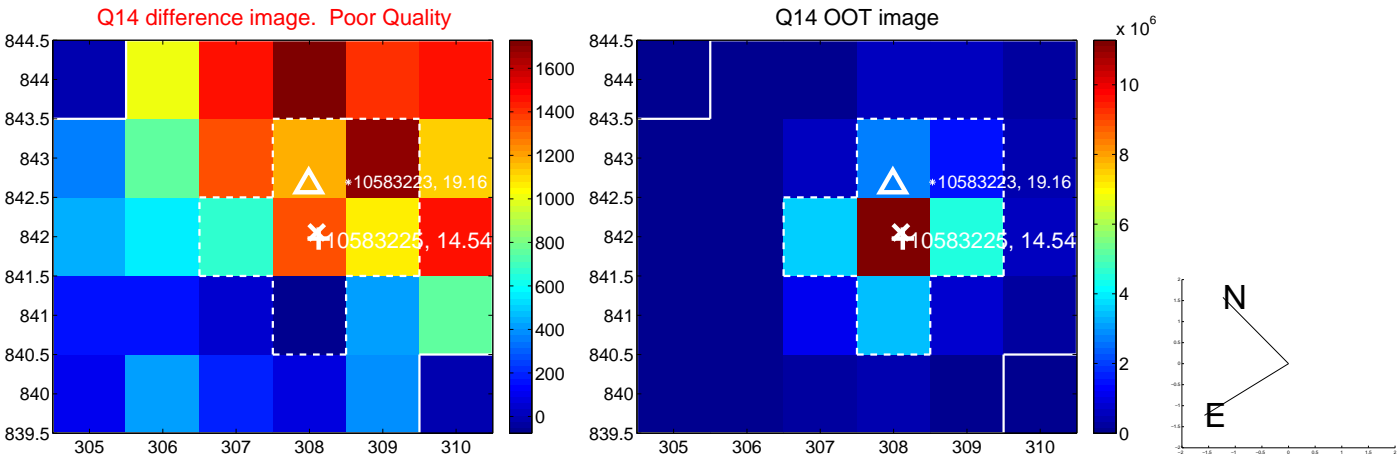
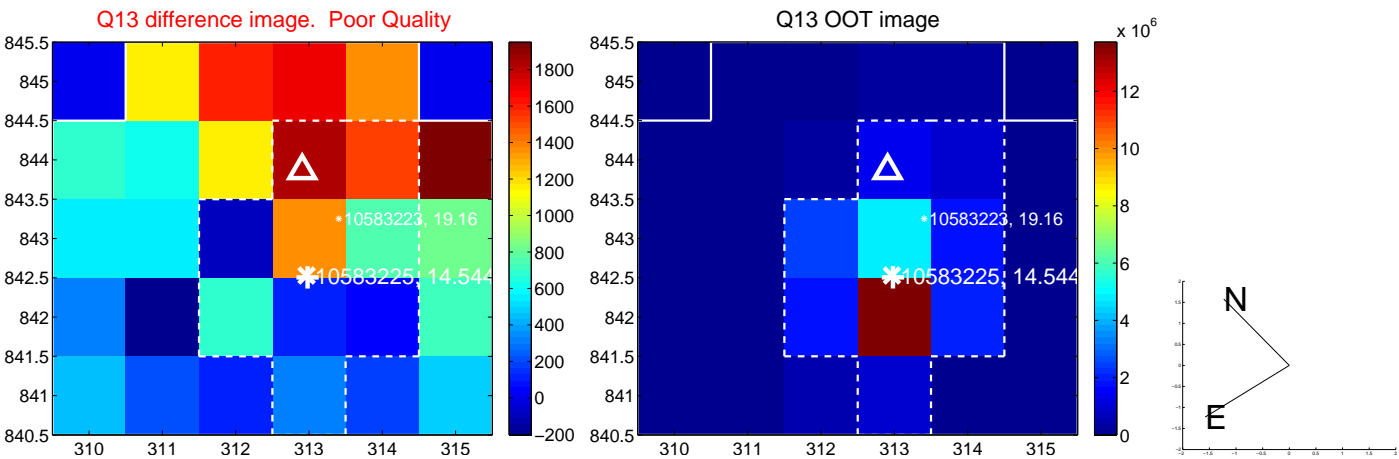
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



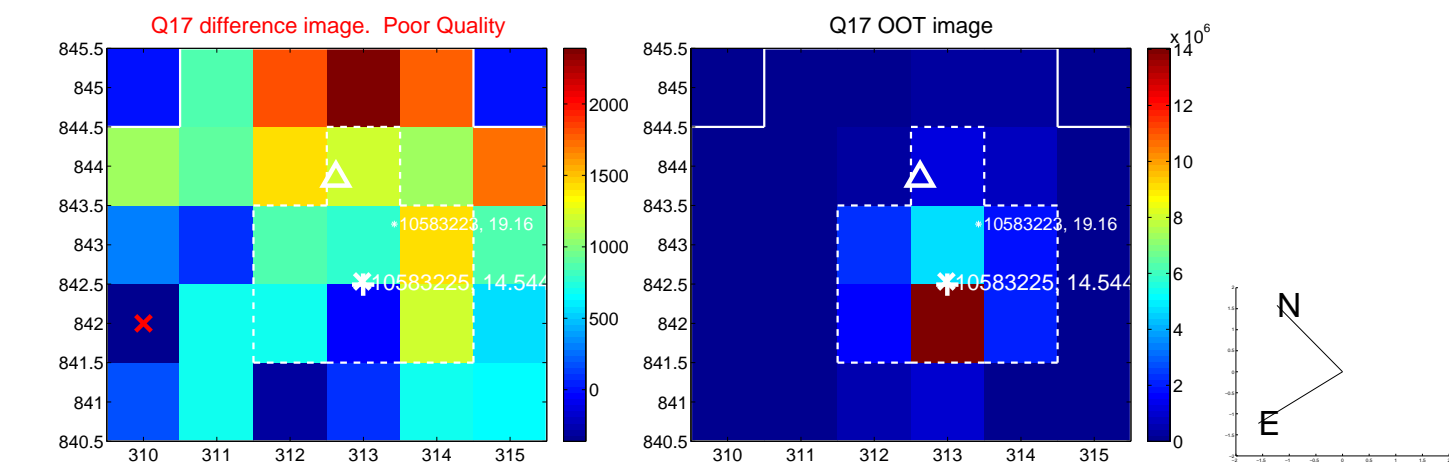
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



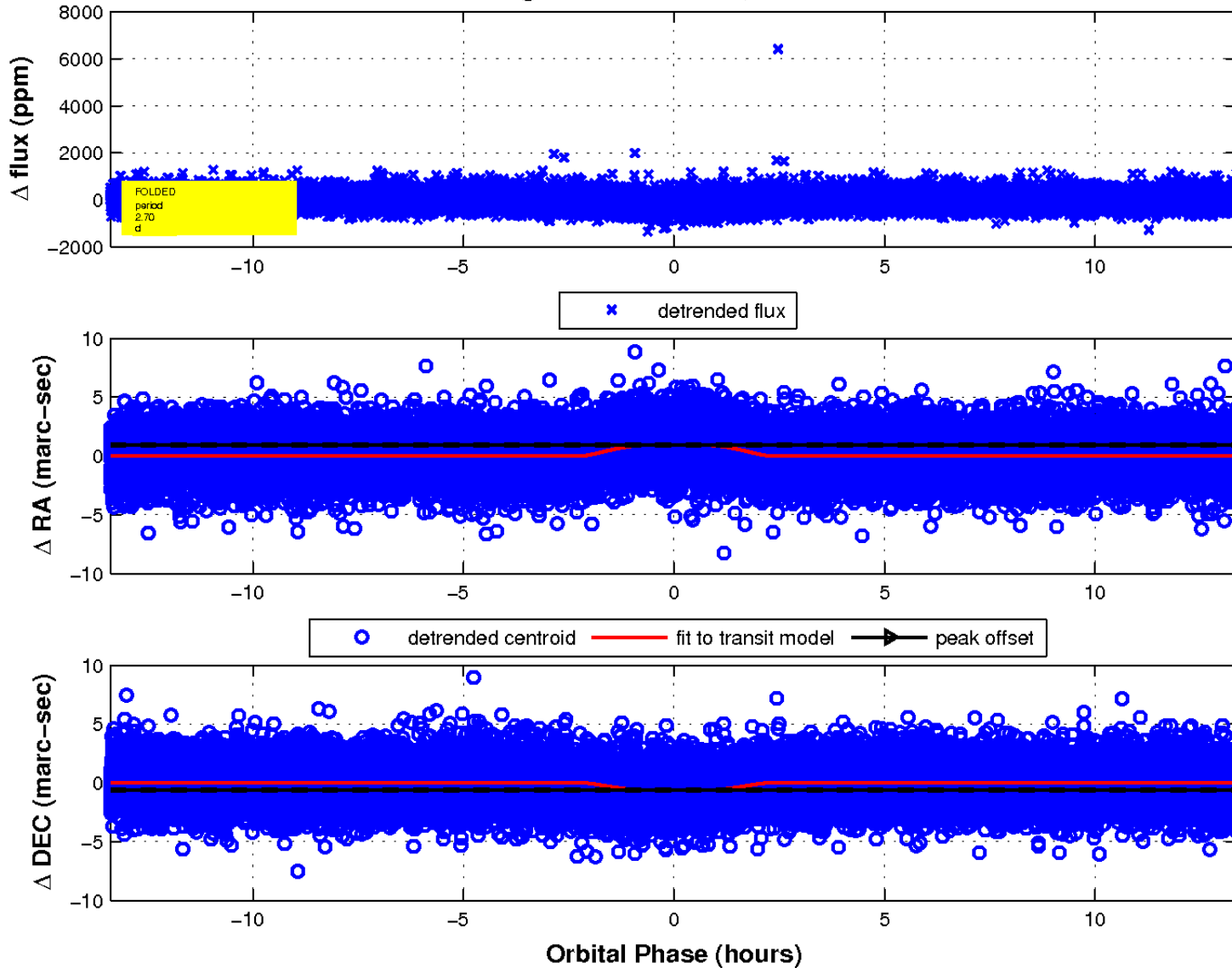
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

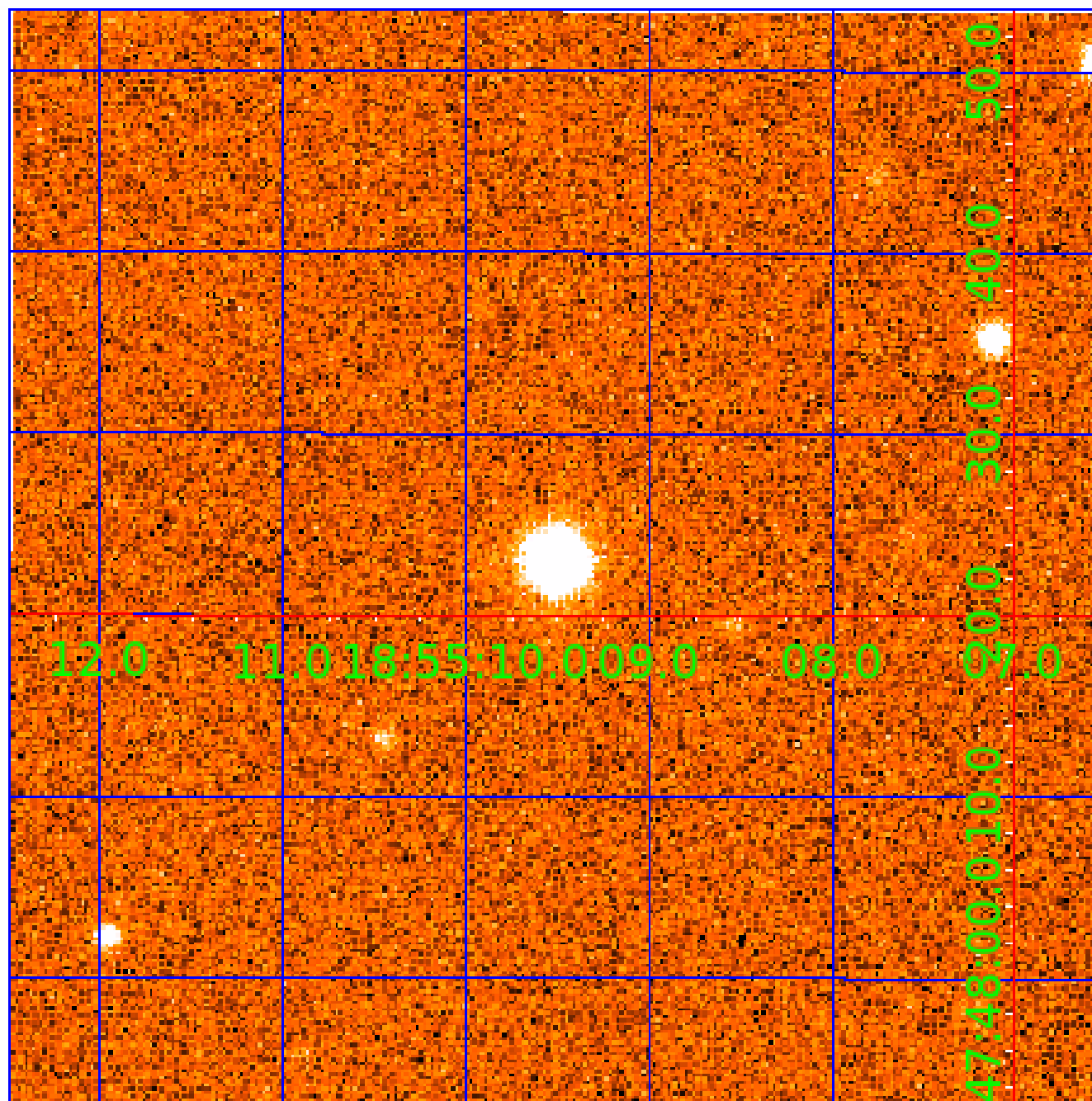


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010583225

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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010583225-02	OBS	No	2.696418	131.628981	53.2	4.240	10.1	11.0	1.05	5418	0.88	650.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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010583225-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST—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 010583225-02

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
010583225-02	10583225	010583181-sec	10583181	1:1	71.8	-17	-4	11.01	14.55	1881.10	Direct-PRF	0	2.23	0.93

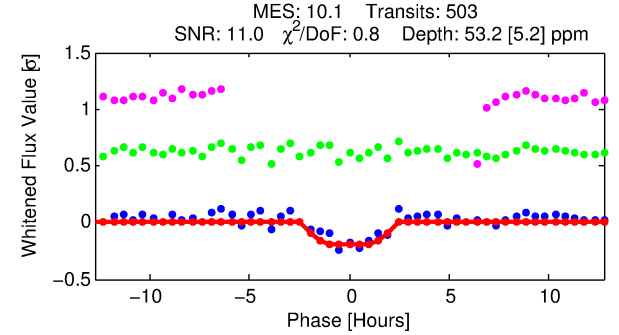
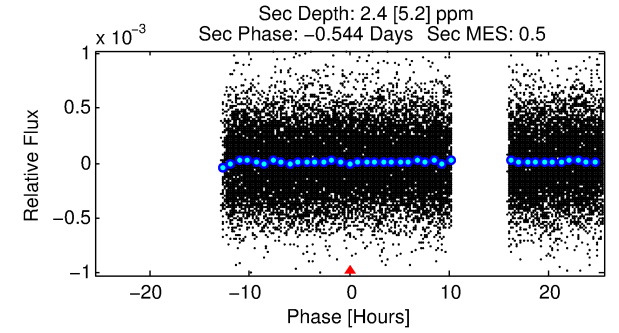
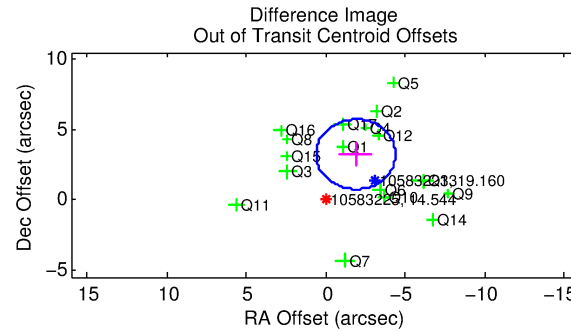
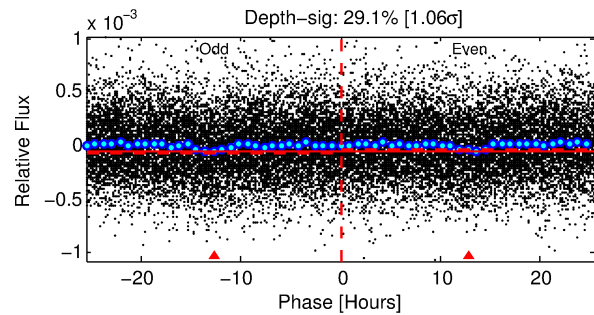
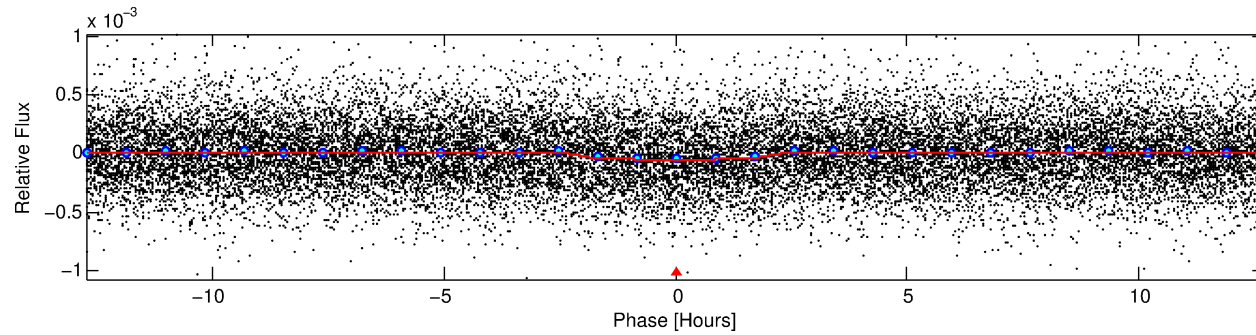
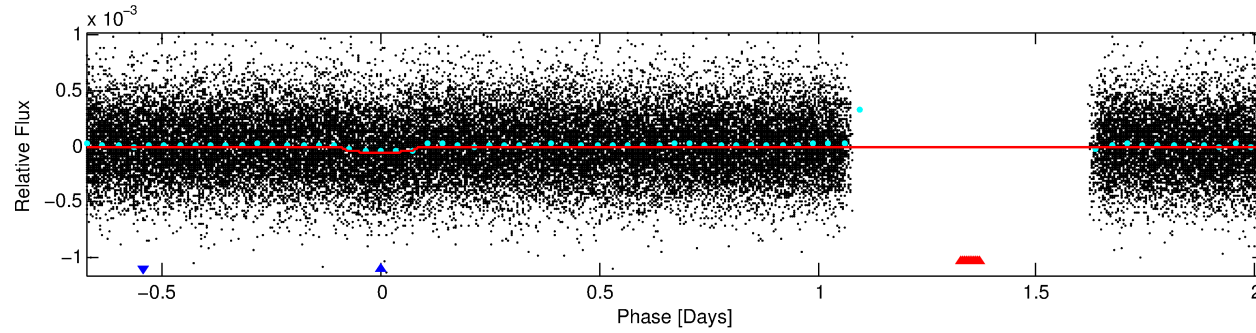
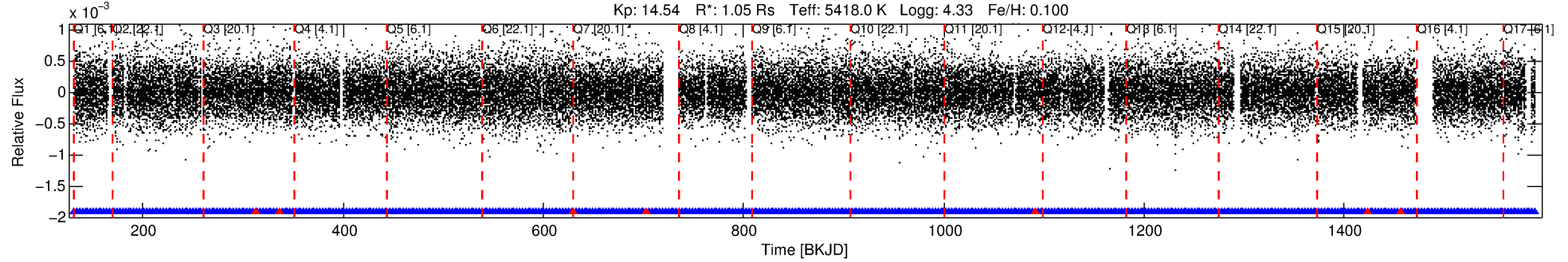
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 10583225 Candidate: 2 of 2 Period: 2.696 d

KOI: K03902 Corr: No Ephemeris Match

Kp: 14.54 R*: 1.05 Rs Teff: 5418.0 K Logg: 4.33 Fe/H: 0.100



DV Fit Results:

Period = 2.69642 [0.00002] d
Epoch = 131.6290 [0.0058] BKJD
Rp/R* = 0.0076 [0.0050]
a/R* = 2.86 [6.83]
b = 0.84 [0.99]
Seff = 650.03 [272.05]
Teff = 1288 [135] K
Rp = 0.87 [0.63] Re
a = 0.0362 [0.0097] AU
Ag = 2.25 [5.79] [0.21σ]
Teffp = 2437 [1555] K [0.74σ]

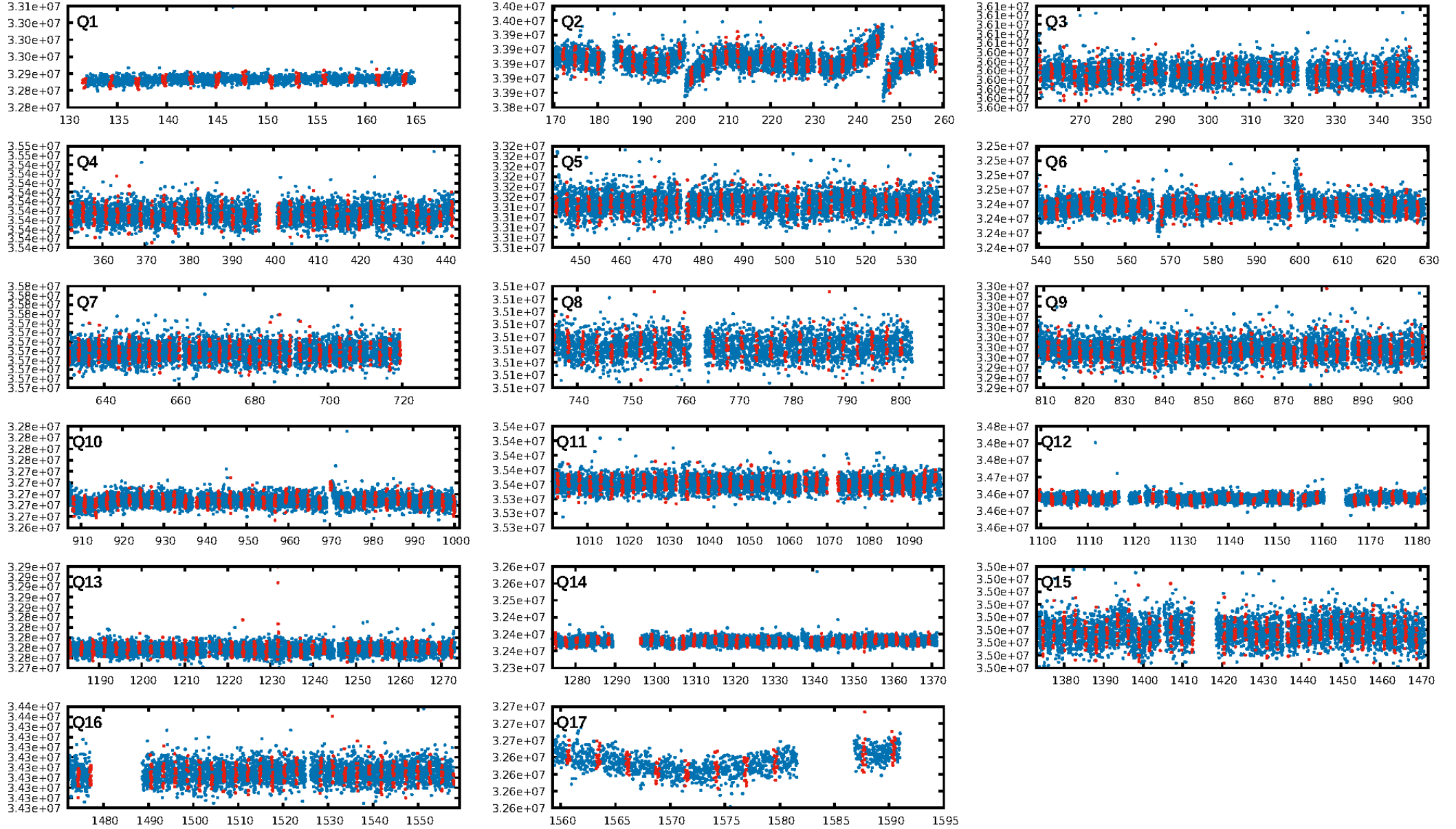
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.56e-25
RollingBand-fgt: 0.99 [473/480]
GhostDiagnostic-chr: -0.1103
Centroid-sig: 0.0%
Centroid-so: 10.908 arcsec [7.82σ]
OotOffset-rm: 3.755 arcsec [4.53σ]
KicOffset-rm: 3.557 arcsec [4.25σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
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DiffImageOverlap-fno: 1.00 [17/17]

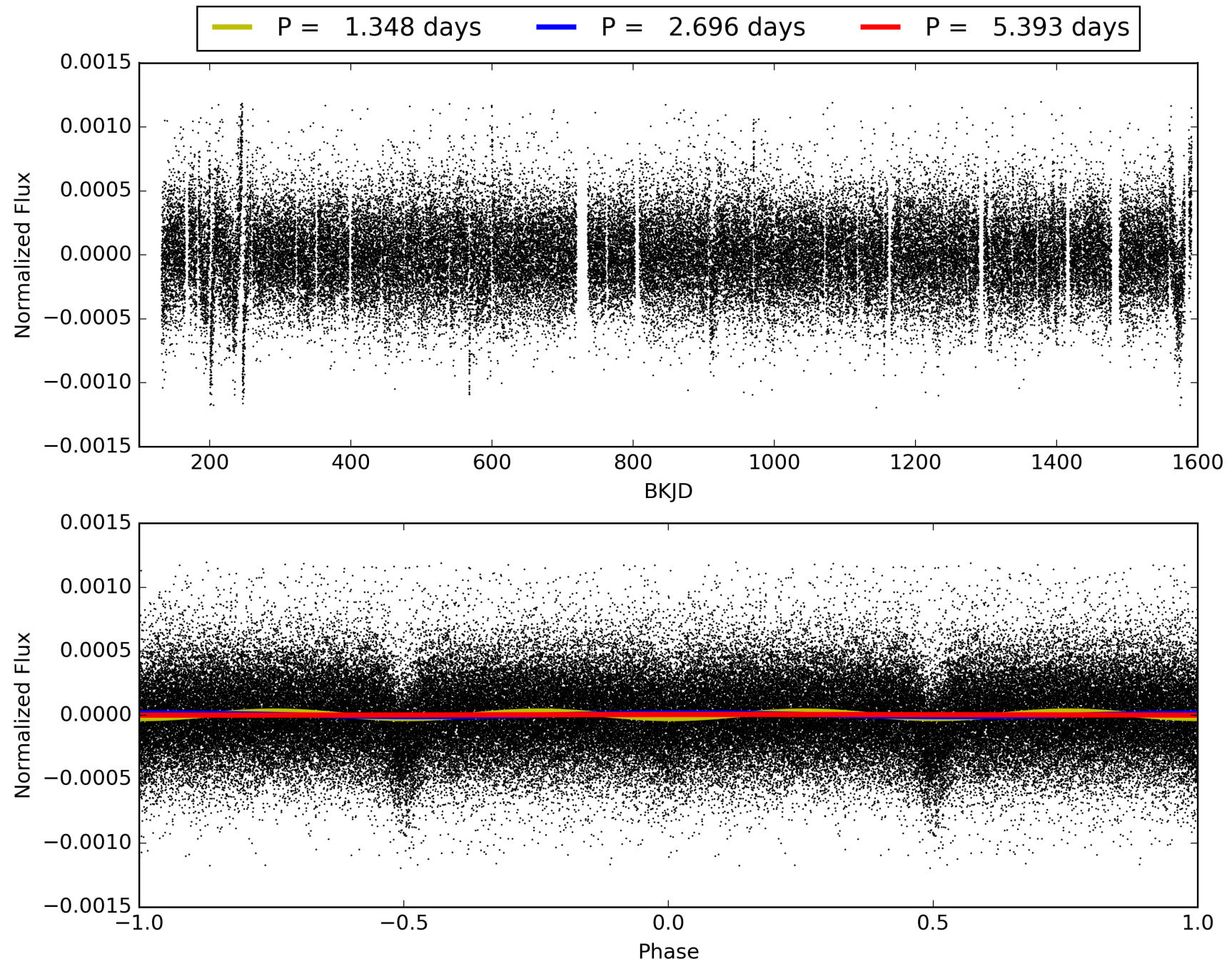
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010583225-02, PDC Light Curves

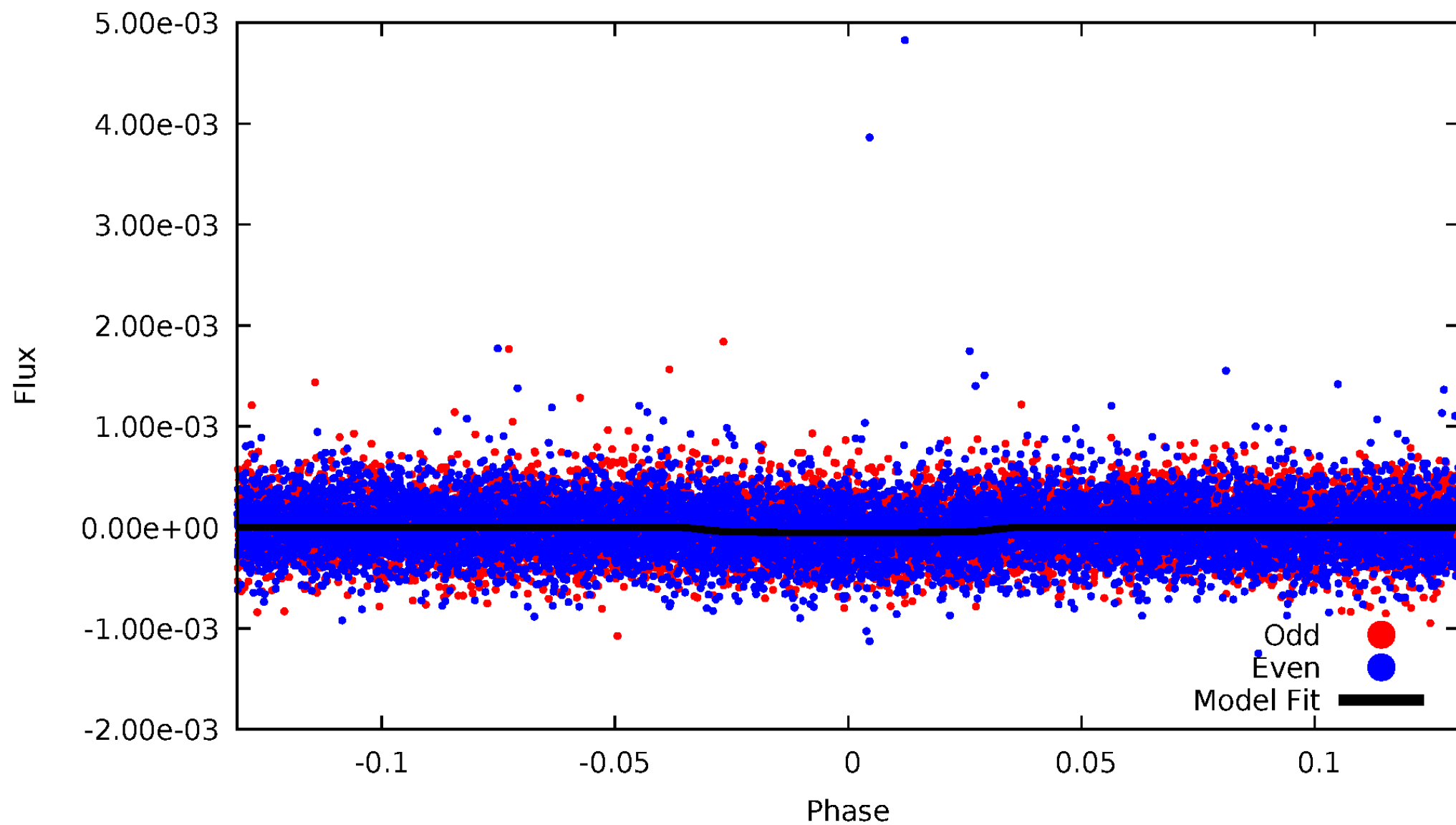


TCE 010583225-02



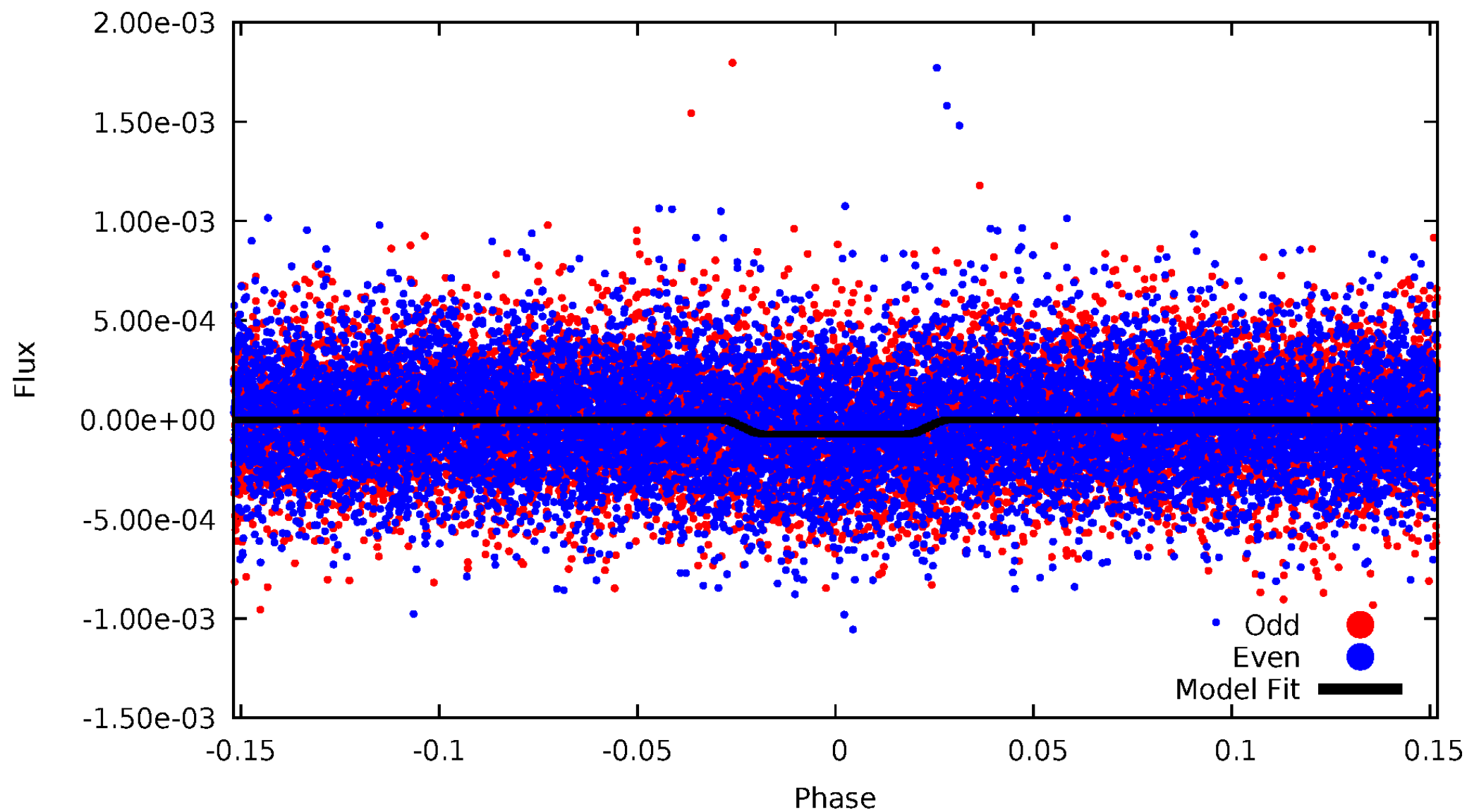
DV Odd/Even

TCE 010583225-02



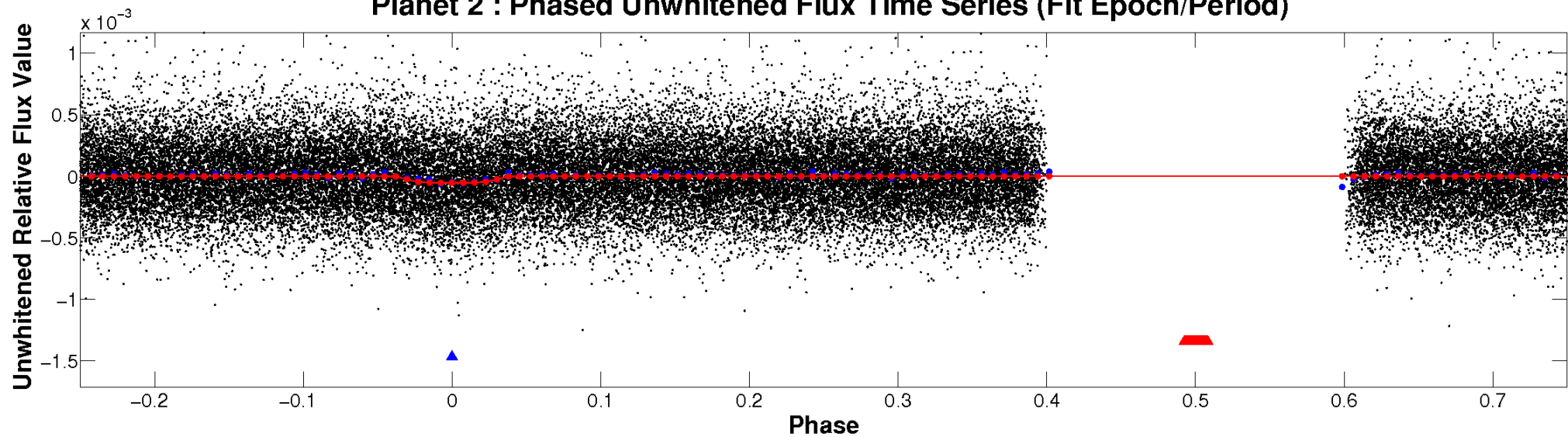
ALT Odd/Even

TCE 010583225-02

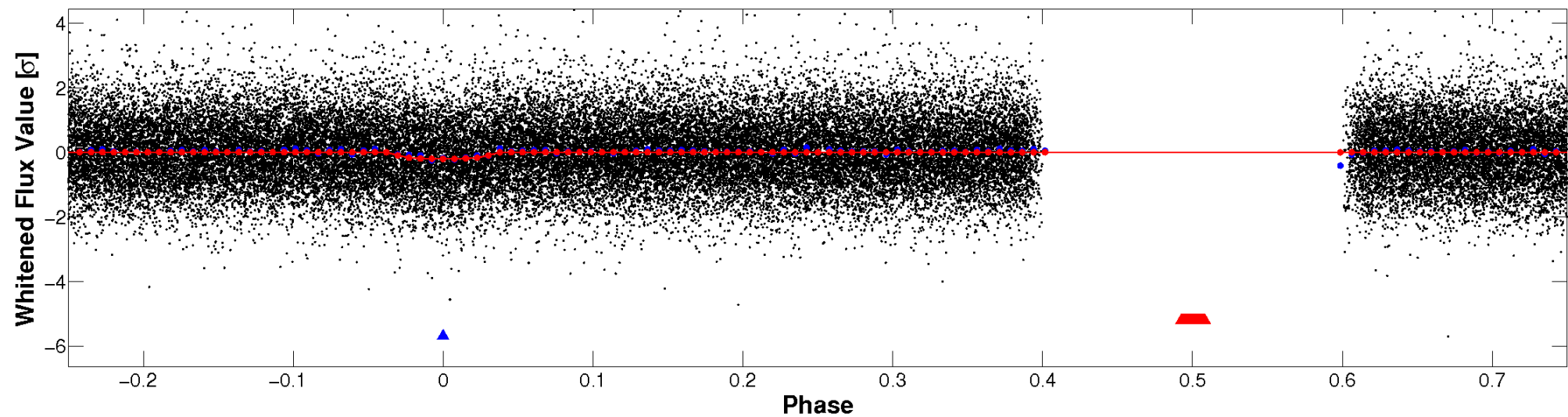


Non-Whitened Vs. Whitened Light Curve

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

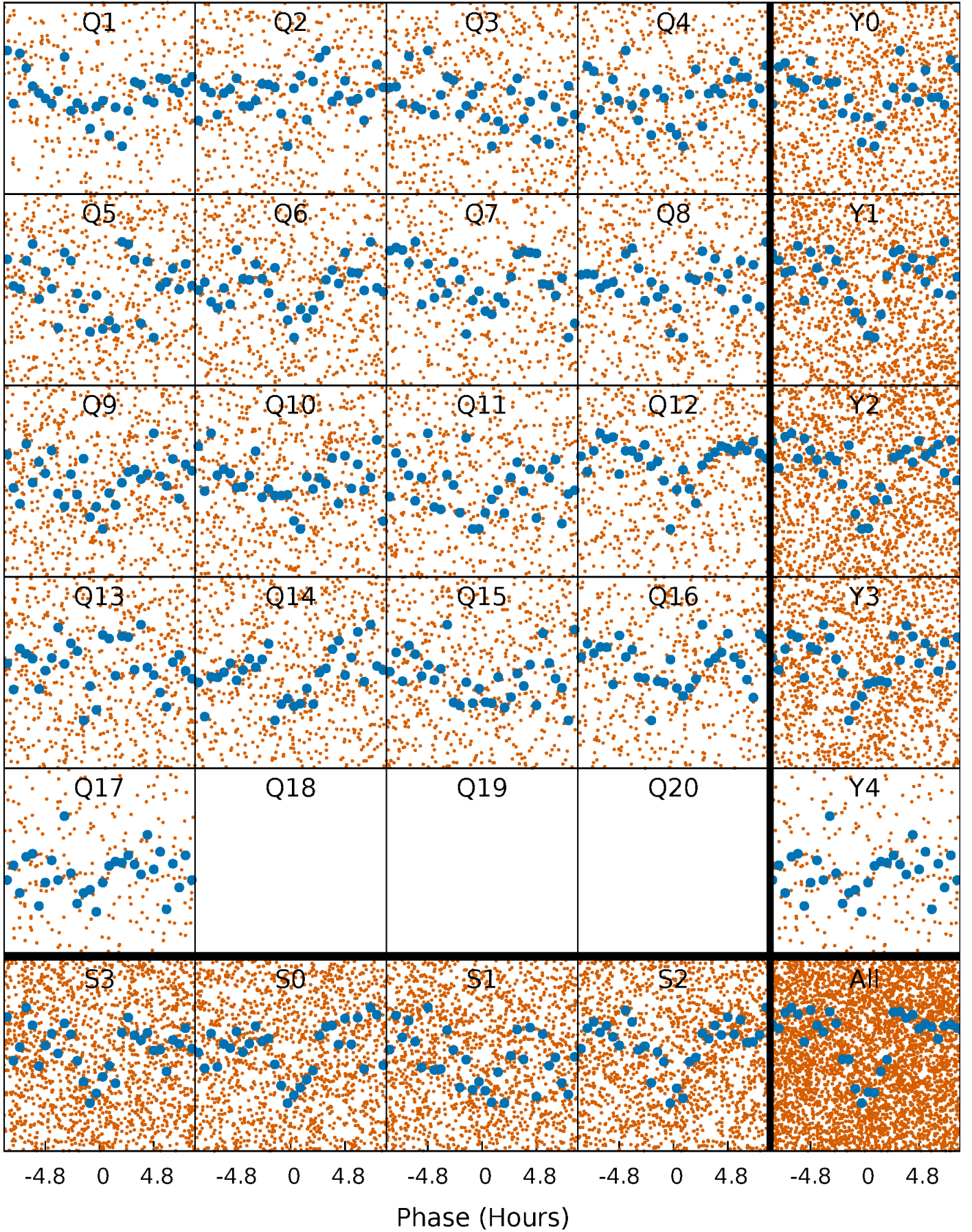


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



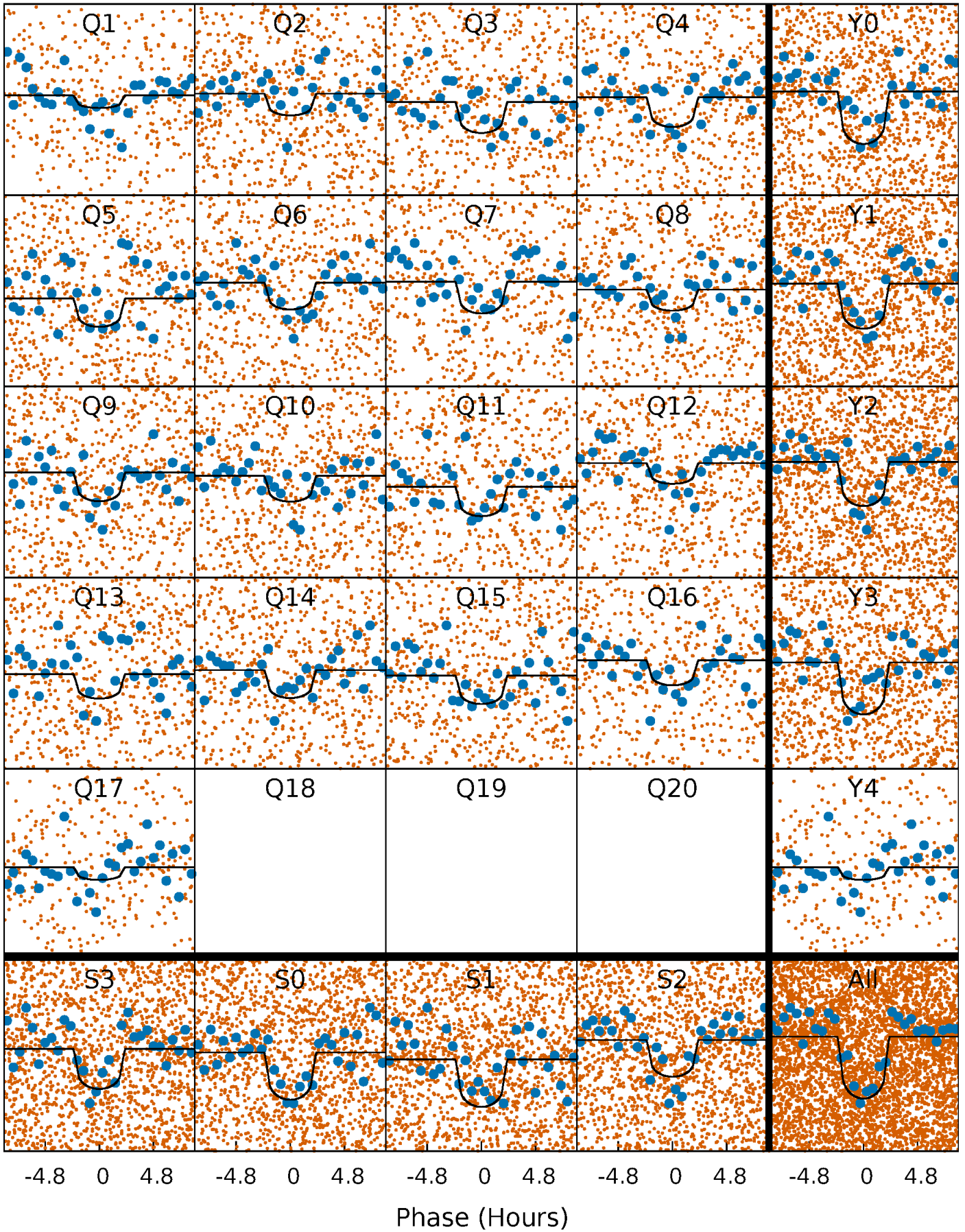
PDC Quarter-Phased Transit Curves

TCE 010583225-02 P= 2.696418 Days $T_0=131.628981$ (BKJD)



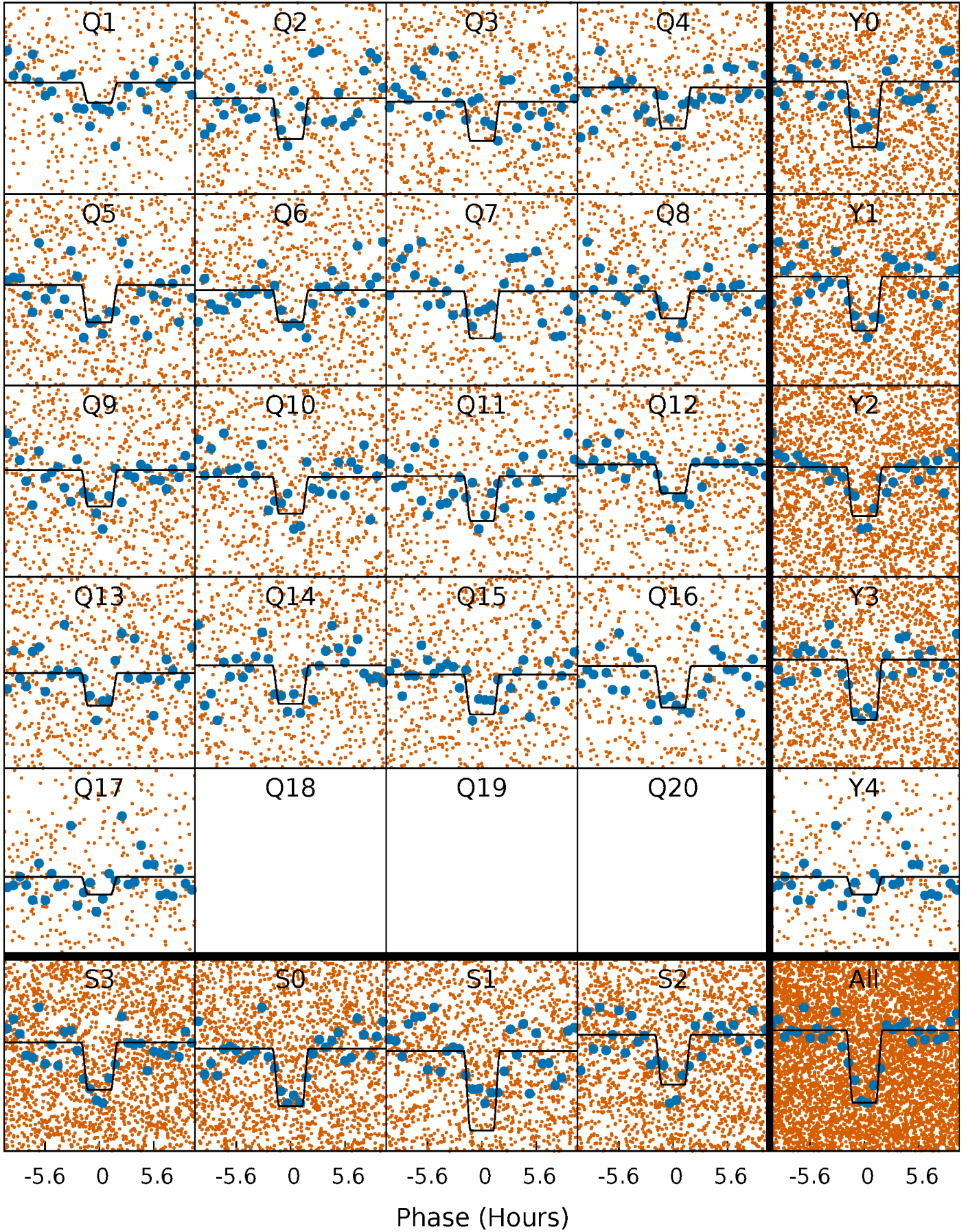
DV Quarter-Phased Transit Curves

TCE 010583225-02 P= 2.696418 Days $T_0=131.628981$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

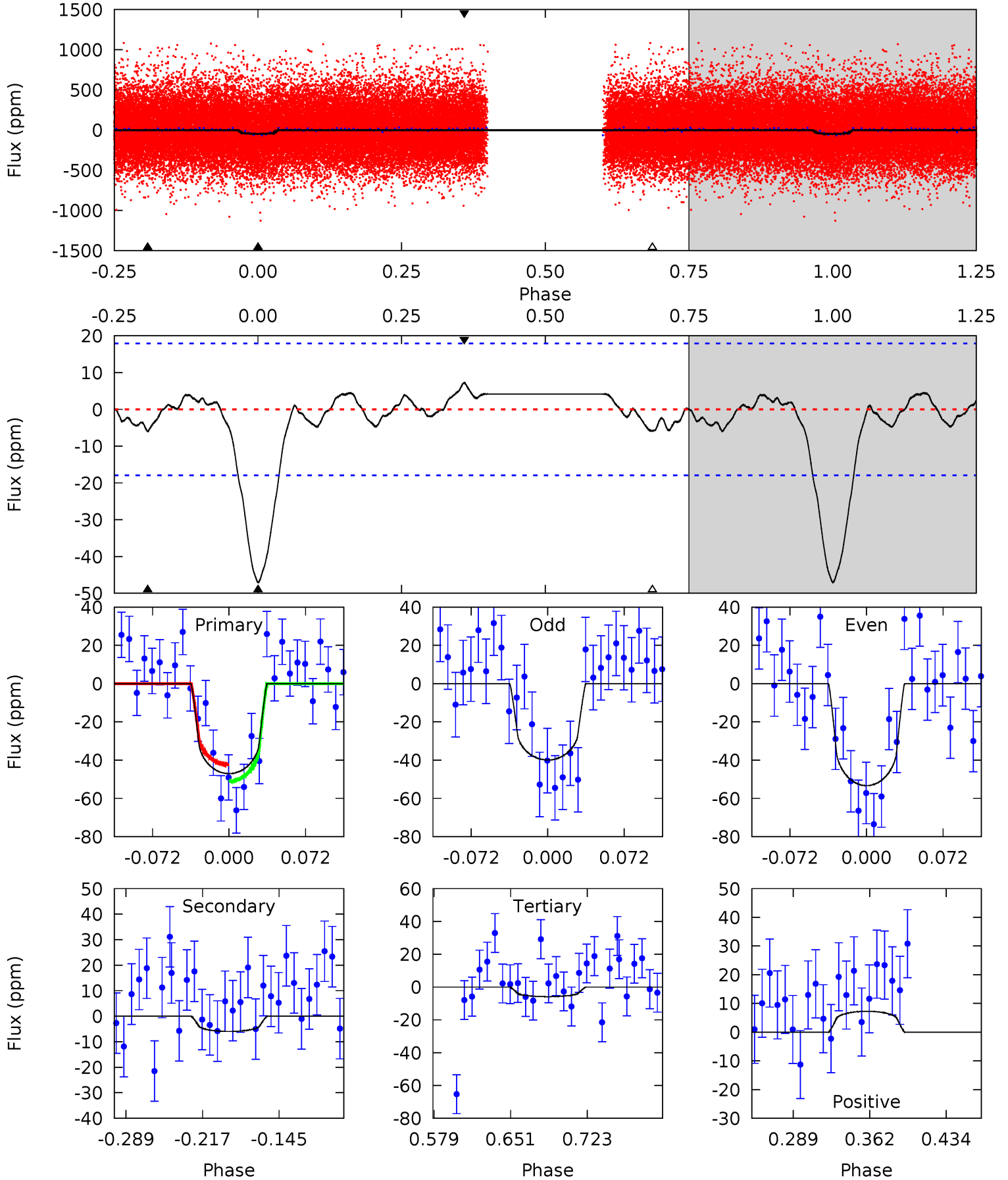
TCE 010583225-02 P= 2.696392 Days $T_0=131.637389$ (BKJD)



DV Model-Shift Uniqueness Test

010583225-02, P = 2.696418 Days, E = 128.932563 Days

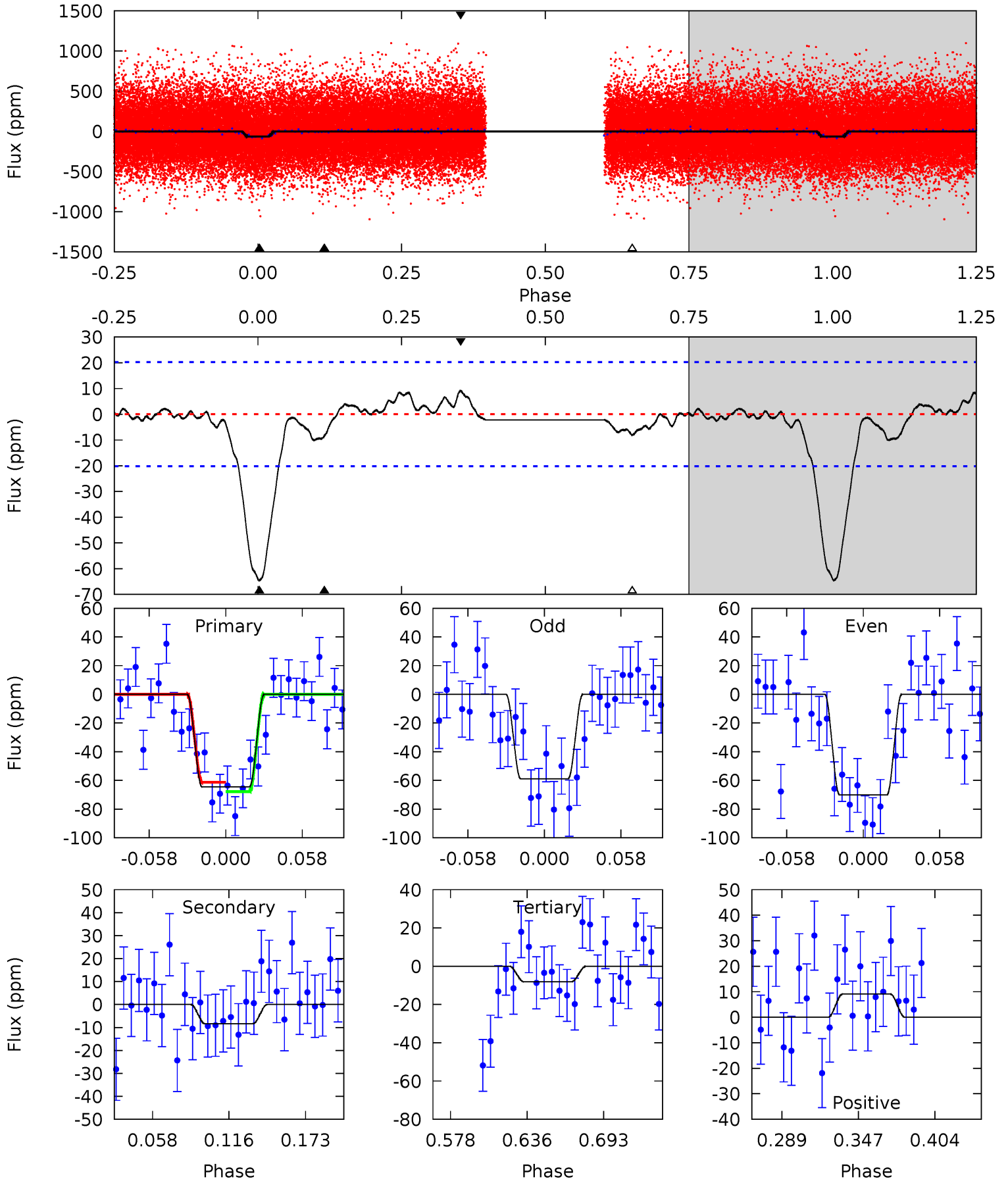
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	1.55	1.51	1.88	4.63	1.80	0.81	10.6	10.3	0.03	-0.33	1.73	0.83	0.13	1.12



Alt Model-Shift Uniqueness Test

010583225-02, P = 2.696392 Days, E = 128.940997 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	1.95	1.87	2.11	4.68	1.90	0.89	13.1	12.8	0.08	-0.16	1.31	1.00	0.12	0.75



Stellar Parameters For KIC 010583225

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5418^{+164}_{-147}	$4.335^{+0.205}_{-0.225}$	$0.100^{+0.250}_{-0.250}$	$1.051^{+0.320}_{-0.187}$	$0.871^{+0.106}_{-0.065}$	$1.056^{+1.043}_{-0.551}$
	+3%/-3%	+5%/-5%	+250%/-250%	+30%/-18%	+12%/-7%	+99%/-52%
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 010583225-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 4	$0.92^{+0.56}_{-0.52}$	1798^{+156}_{-123}	3432^{+1190}_{-713}	$5.074^{+21.062}_{-3.850}$
Alt.	-8 ± 4	$1.00^{+0.54}_{-0.51}$	1792^{+149}_{-119}	3527^{+1089}_{-636}	$6.066^{+22.091}_{-4.306}$

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

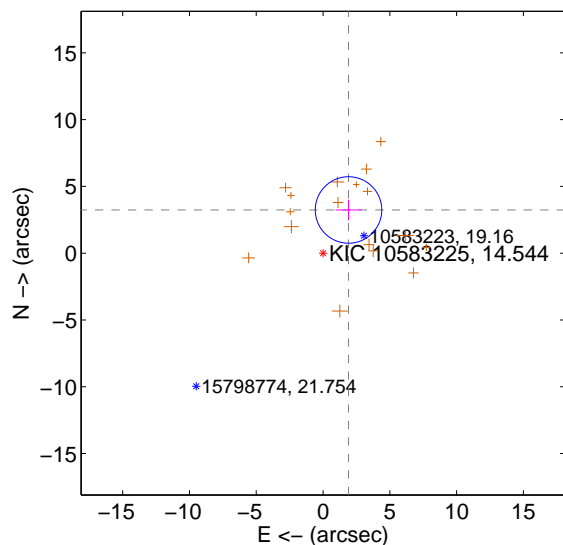
Supplemental centroid analysis for 010583225-02. Kepler magnitude: 14.54. Transit SNR 11.02

There are 0 quarters with good PRF difference image offsets

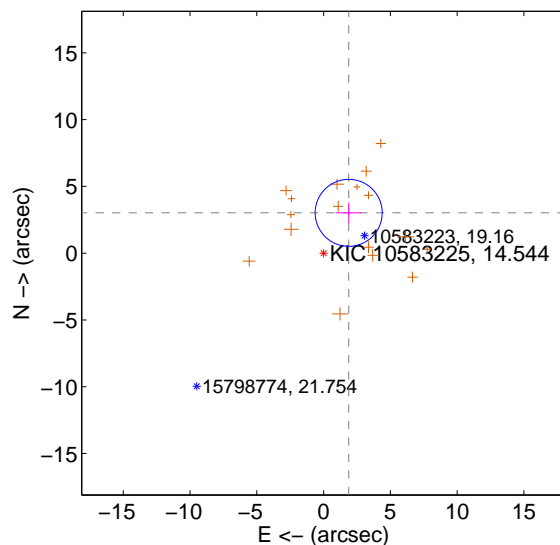
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.755 ± 0.830	4.53	-1.907 ± 0.978	3.234 ± 0.772
PRF-fit source offset from KIC position	3.557 ± 0.836	4.25	-1.881 ± 0.974	3.020 ± 0.776
photometric centroid source offset	10.91 ± 1.40	7.82	-8.31 ± 1.42	7.07 ± 1.36

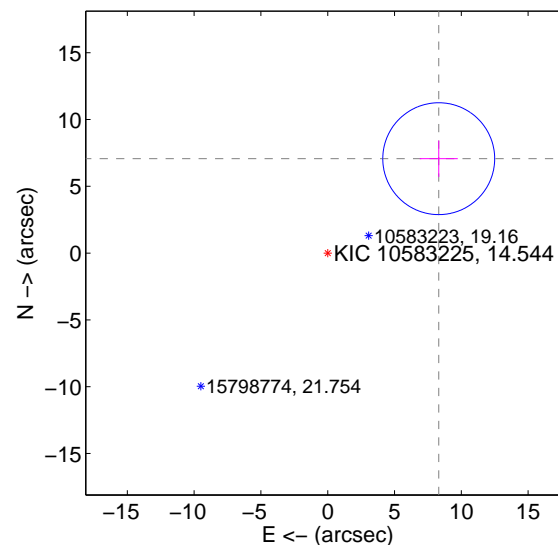
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

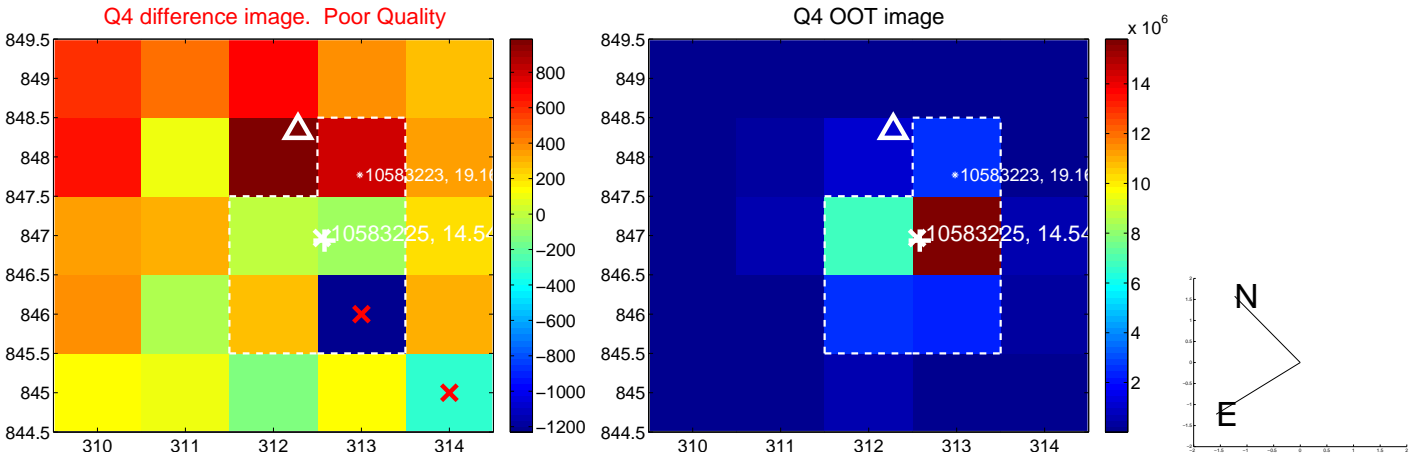
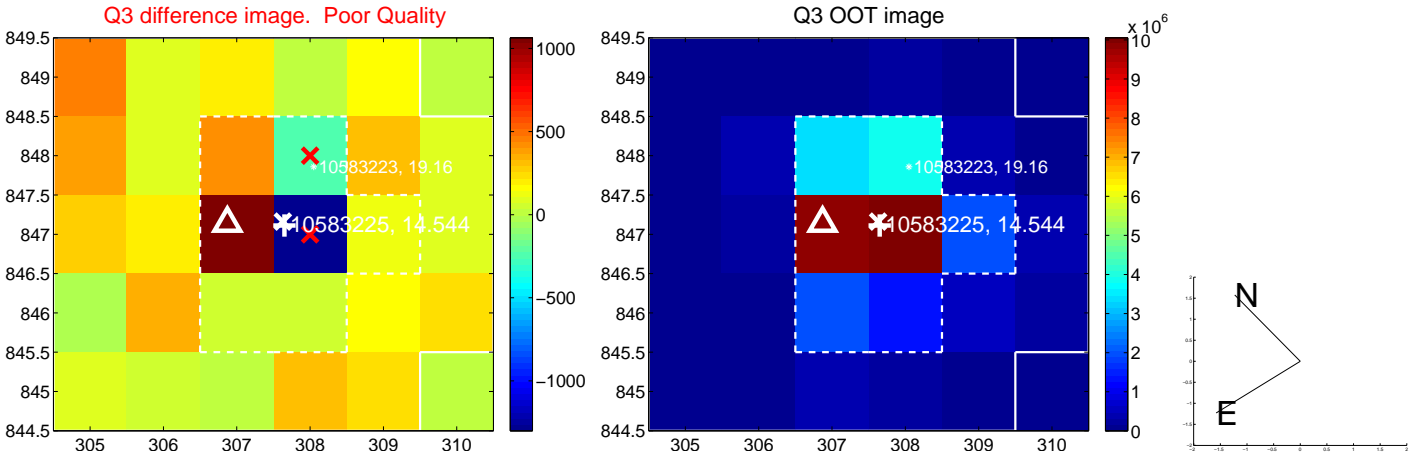
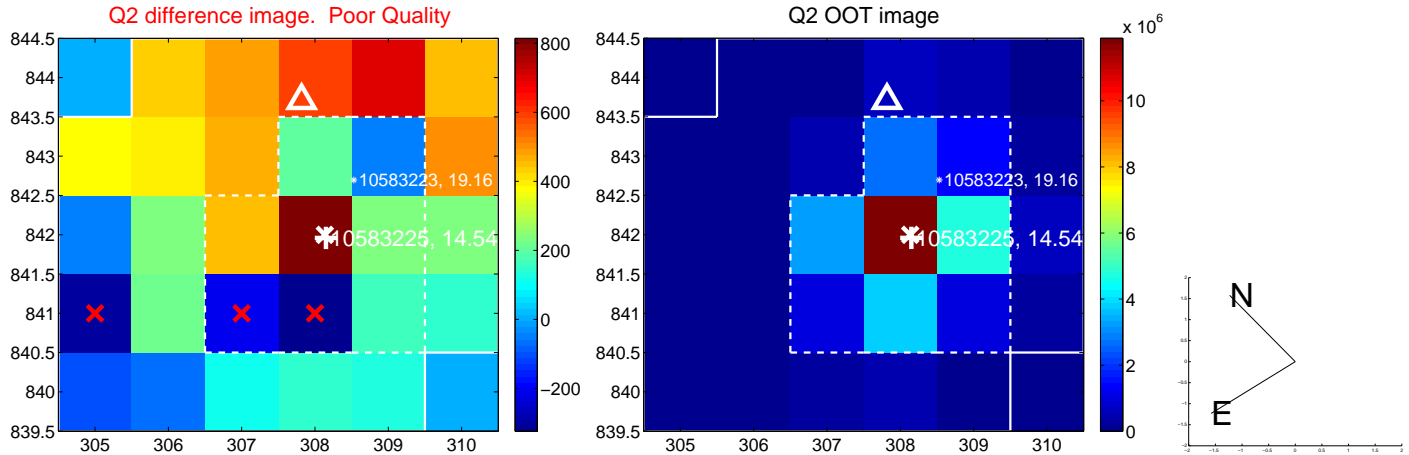
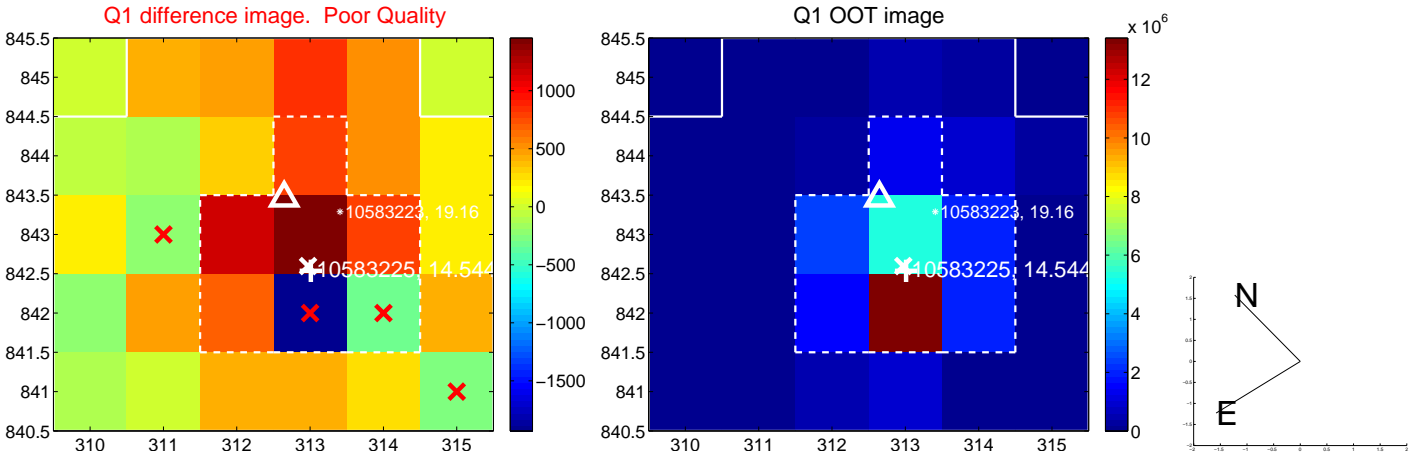


offset from photometric centroids

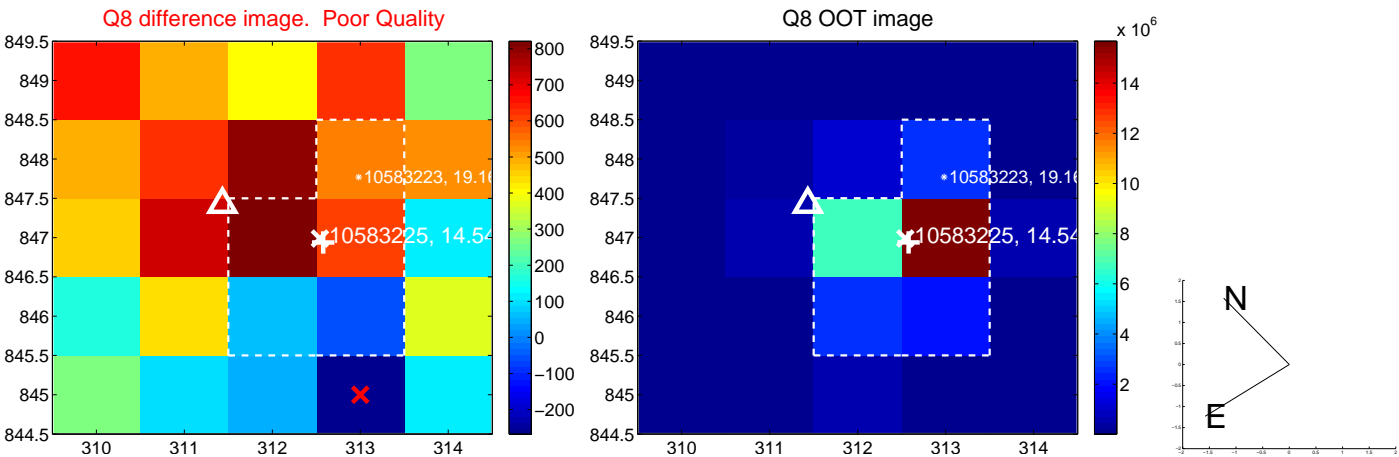
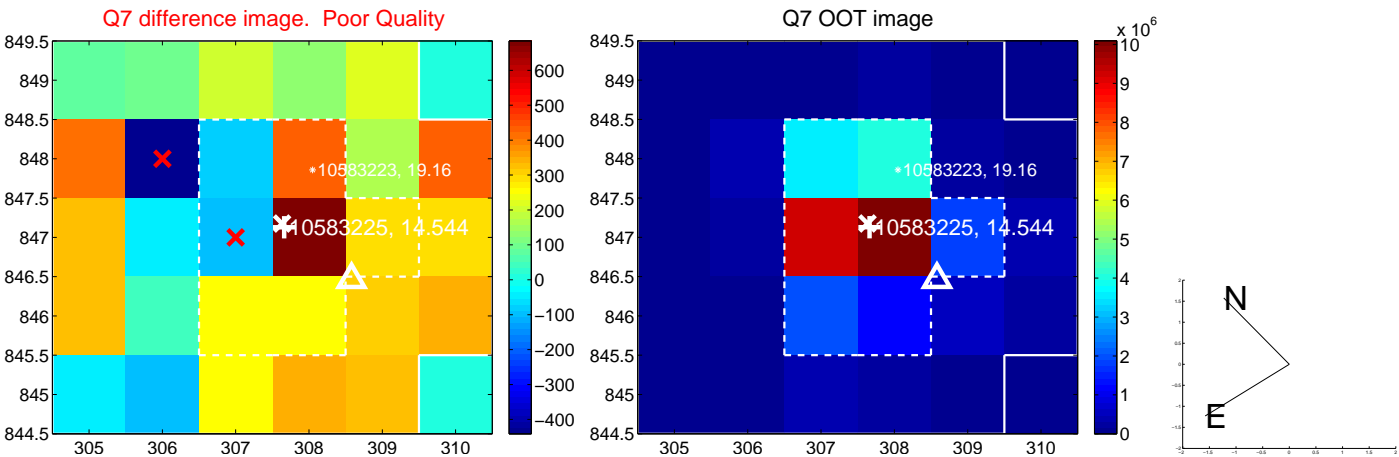
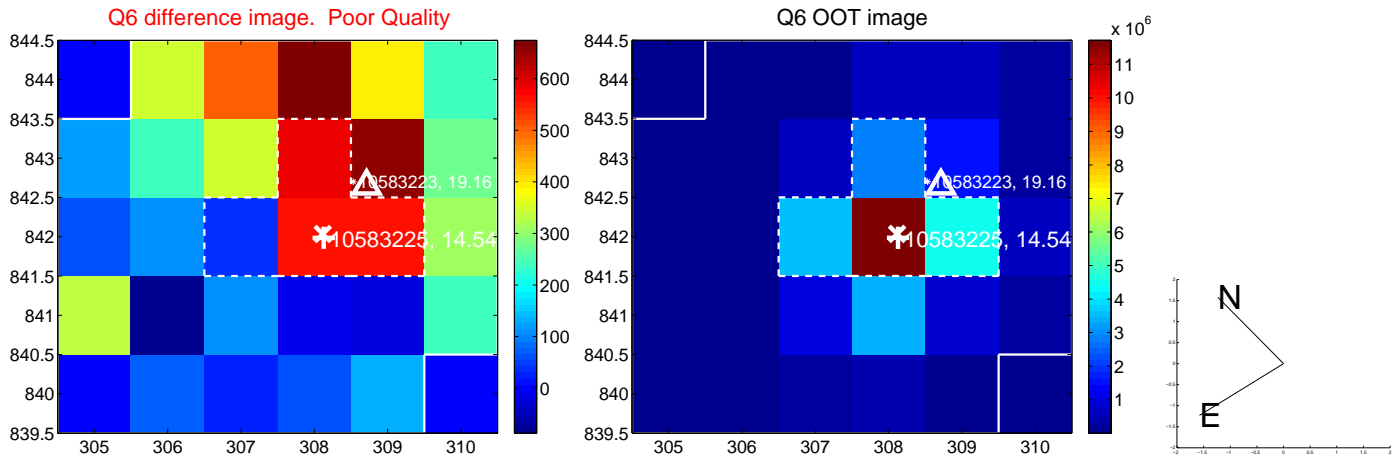
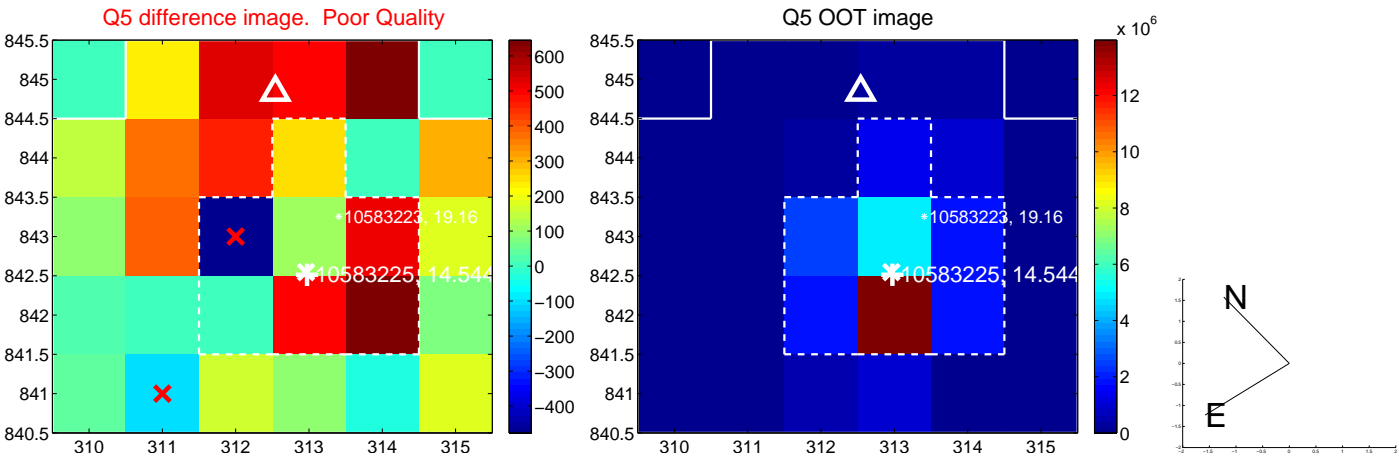


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

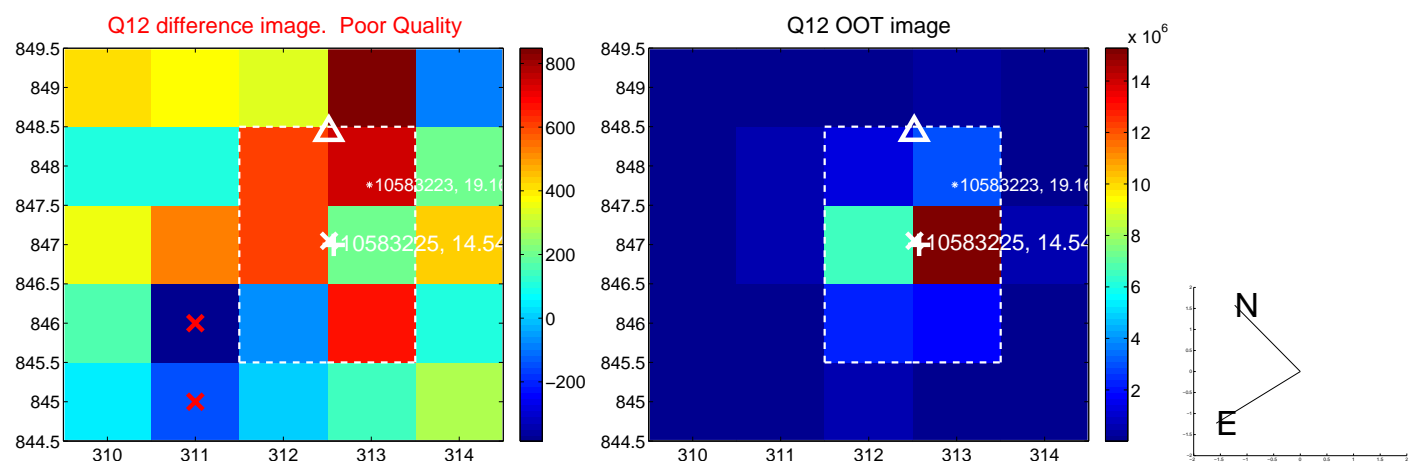
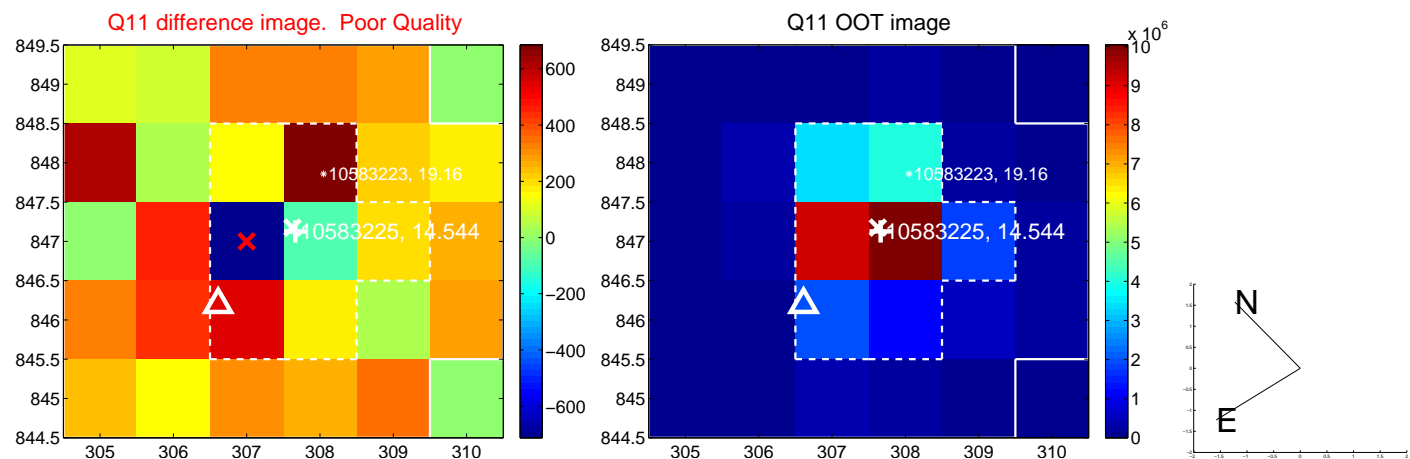
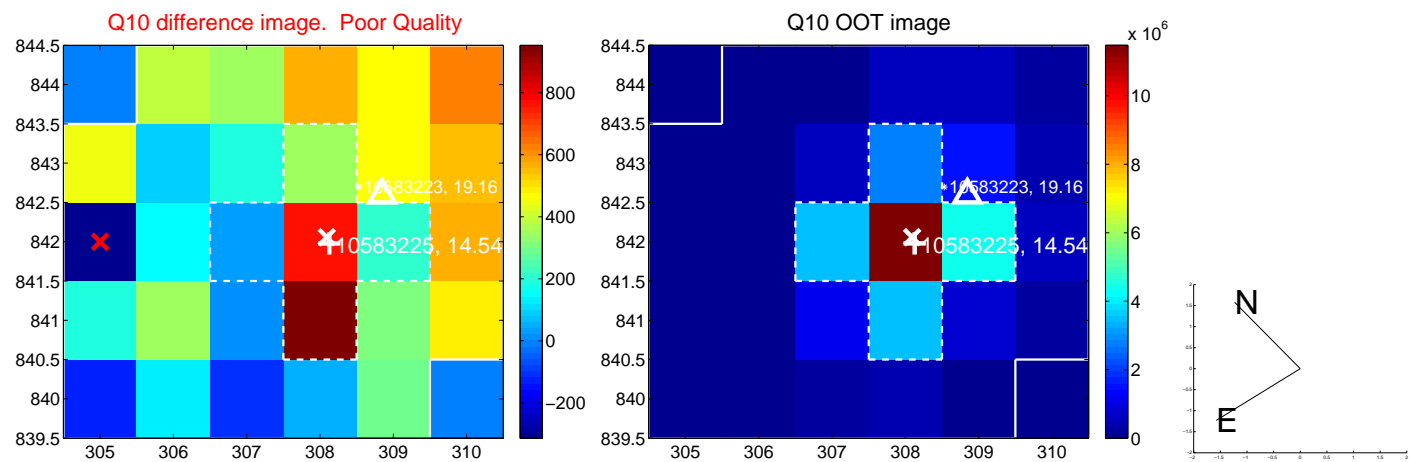
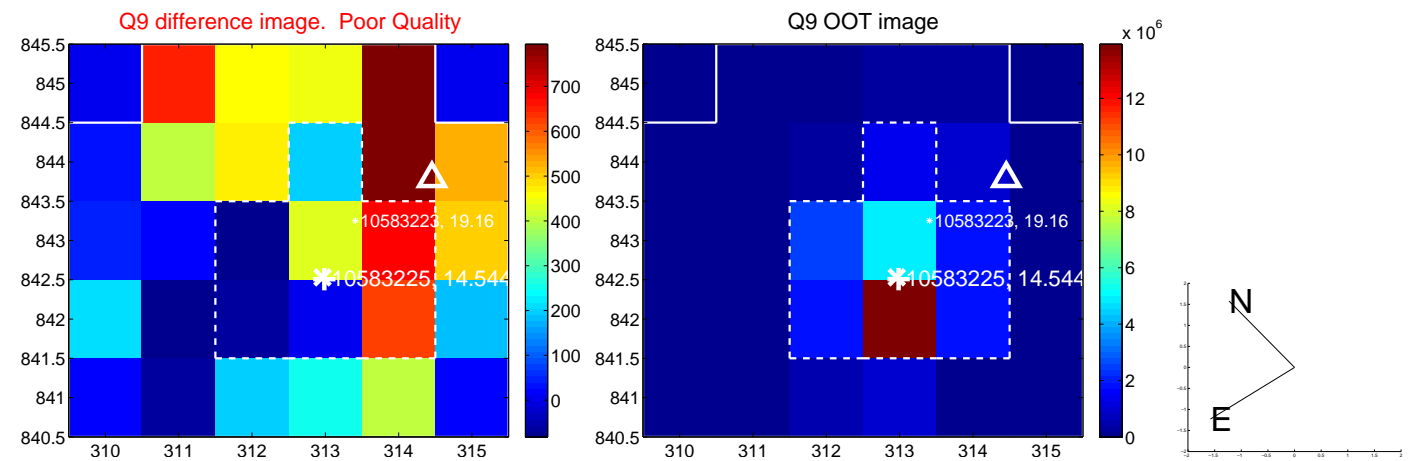
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



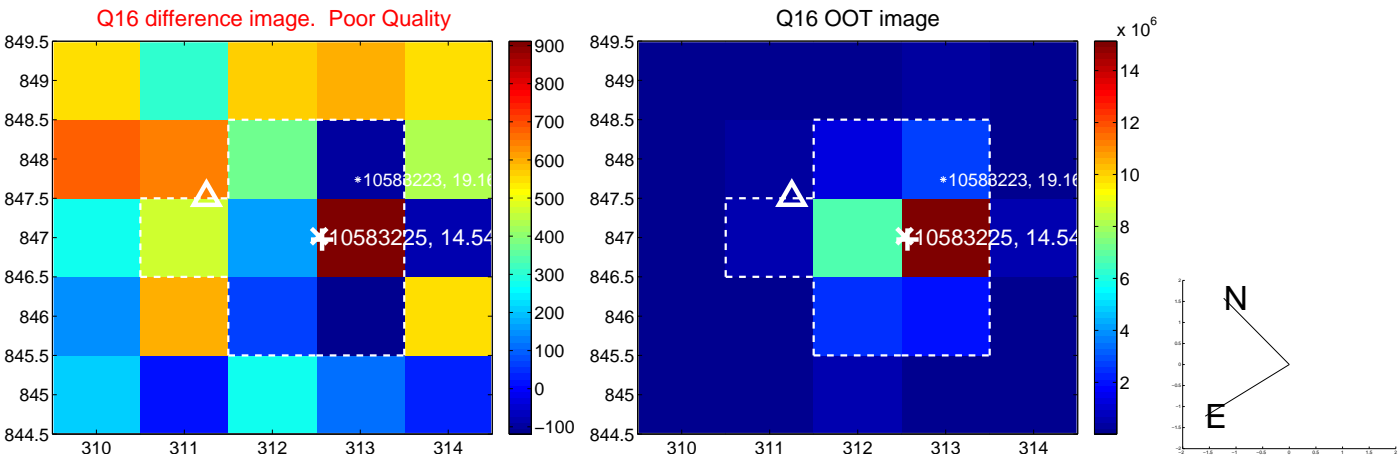
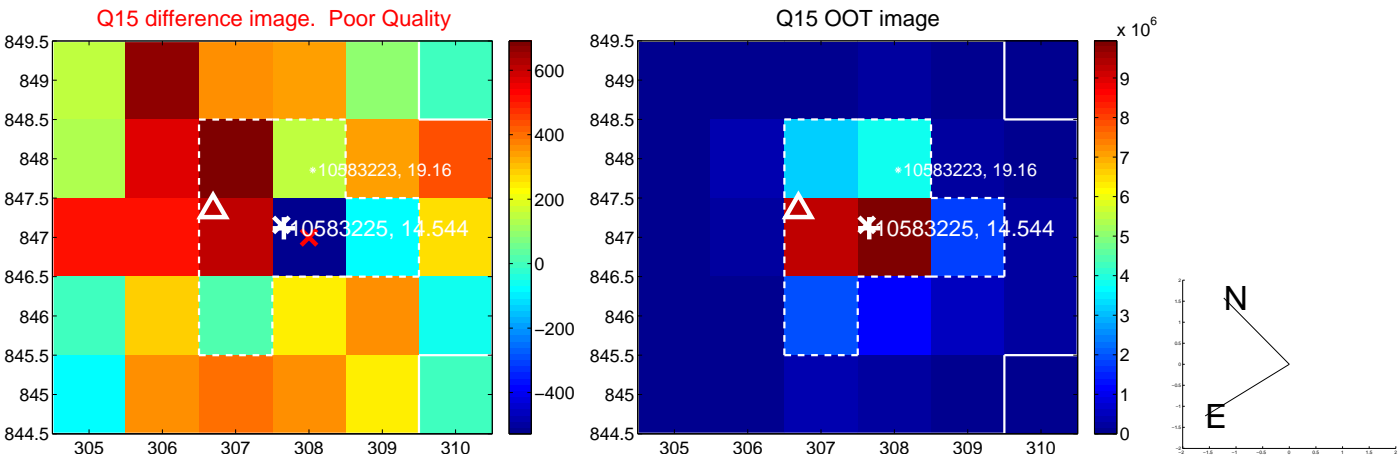
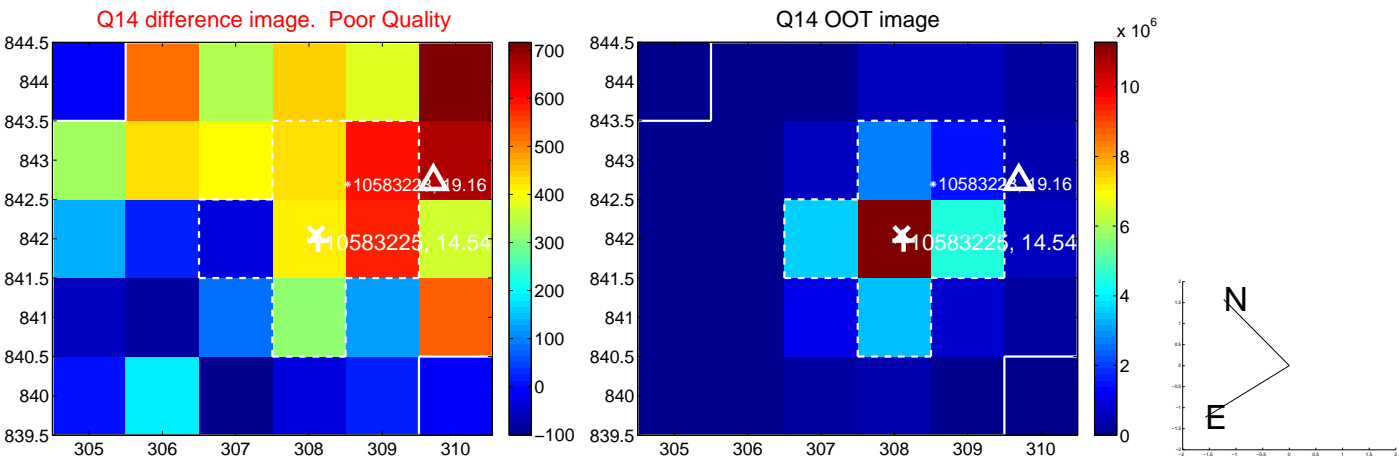
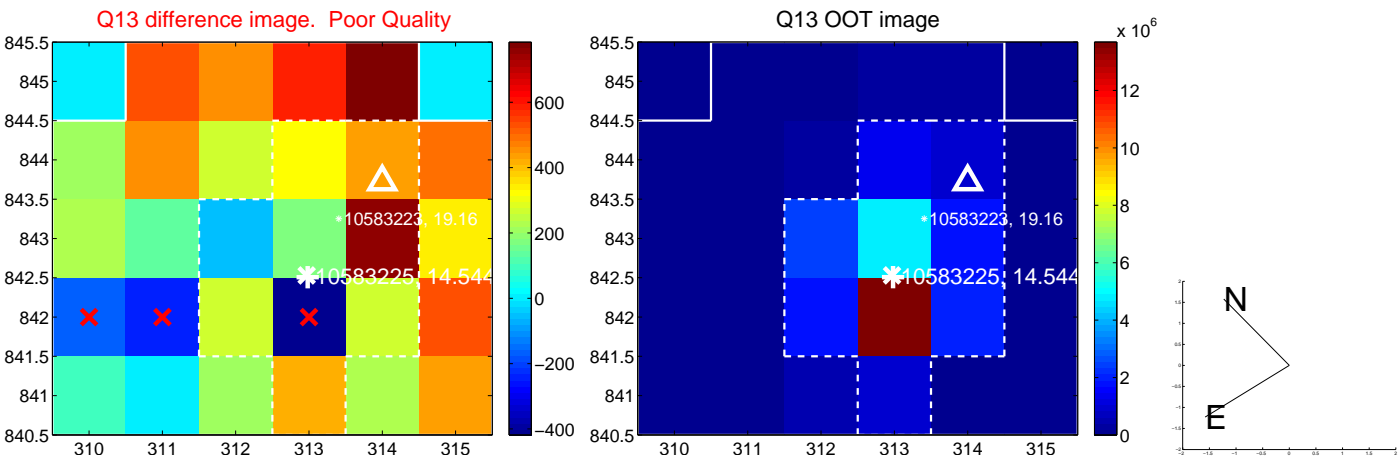
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



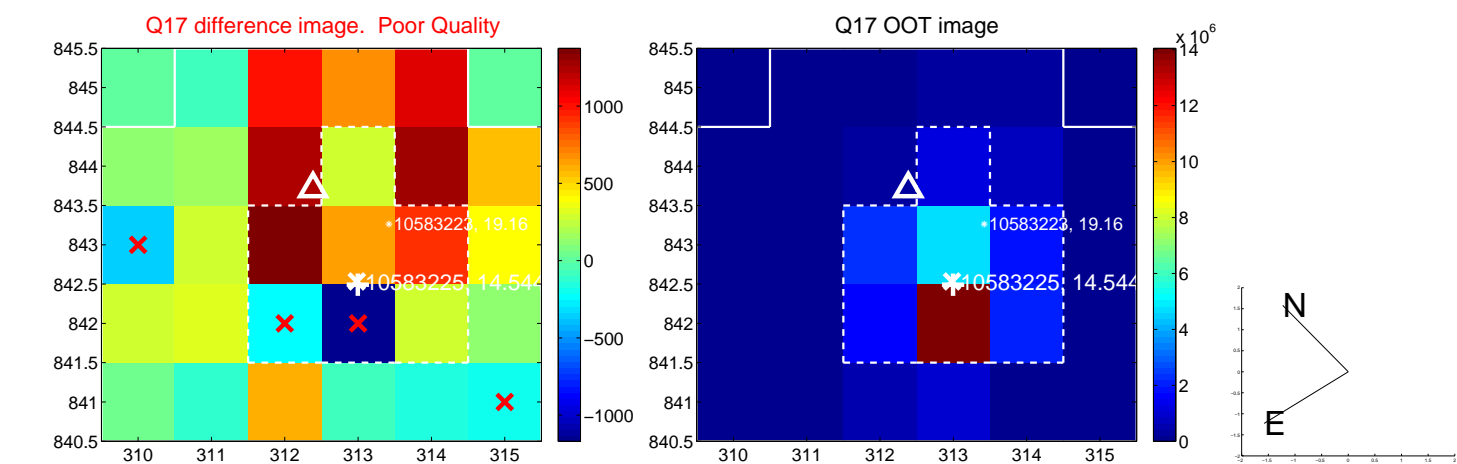
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



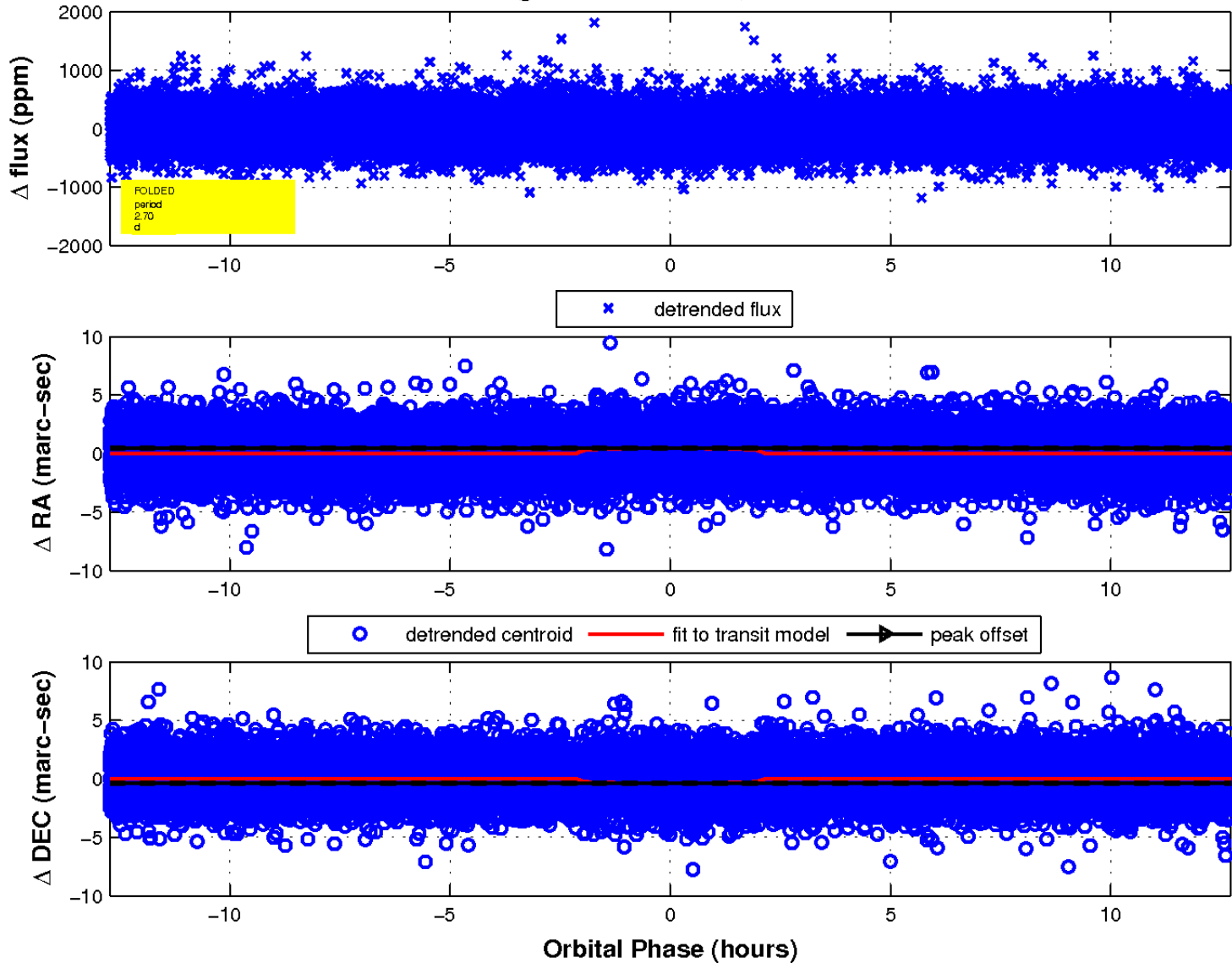
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

