

KIC 005308666

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})
005308666-01	OBS	2718.01	0.784485	132.005978	89.9	1.838	19.1	24.4	78.87	3853	95.43	0.00
005308666-02	OBS	No	0.784643	131.832041	87.1	1.829	9.9	10.2	78.87	3853	93.51	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005308666-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005308666-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—MOD_NONUNIQU_ALT—RESIDUAL_TCE—CENT_RESOLVED_OFFSET

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 005308666-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	ΔRow	ΔCol	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005308666-01	5308666	1562.01	5308663	1:1	13.5	3	-1	15.59	13.82	8.40	Direct-PRF	0	3.52	0.83

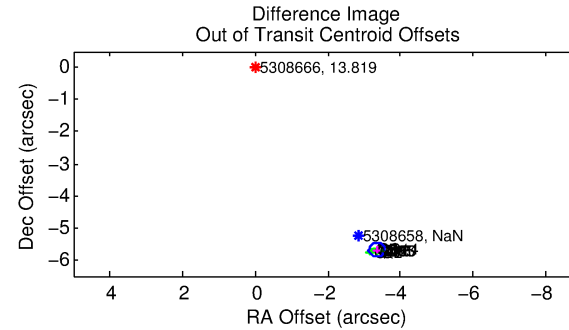
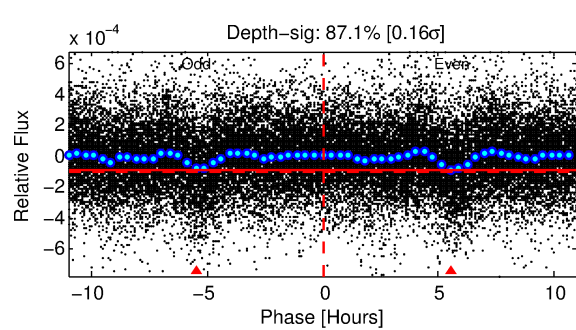
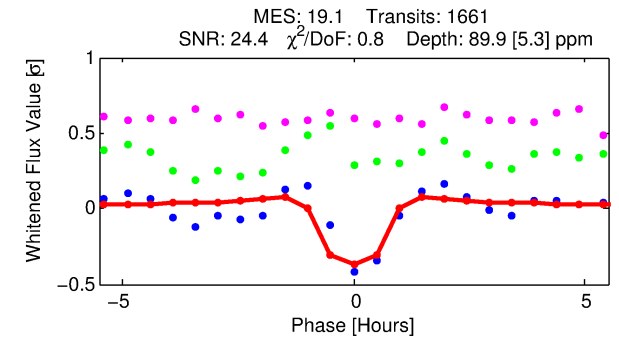
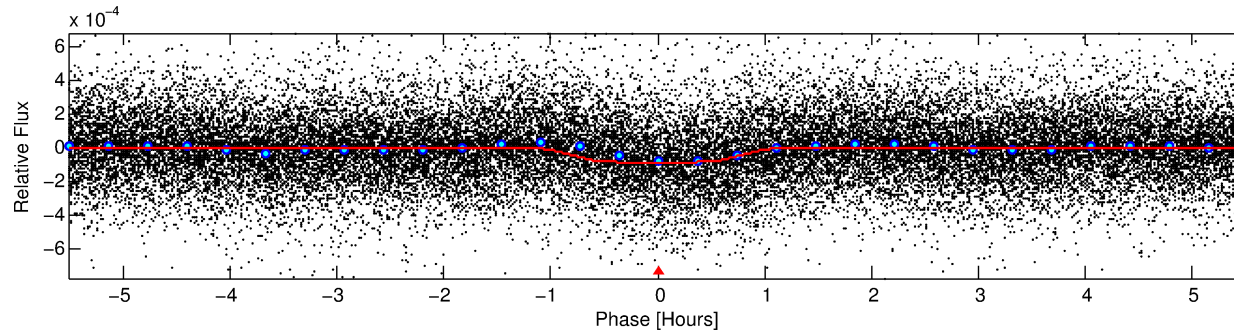
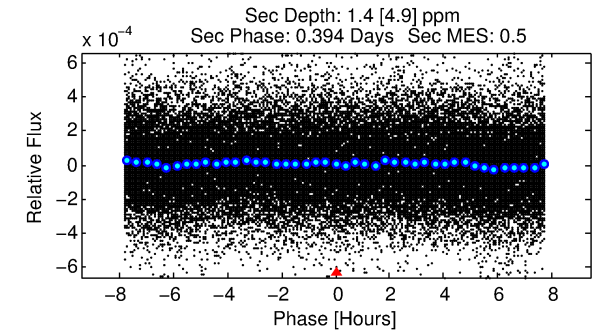
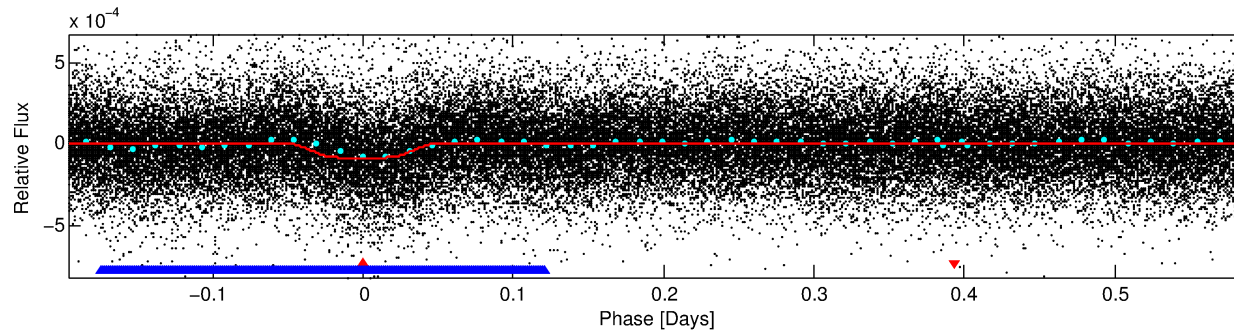
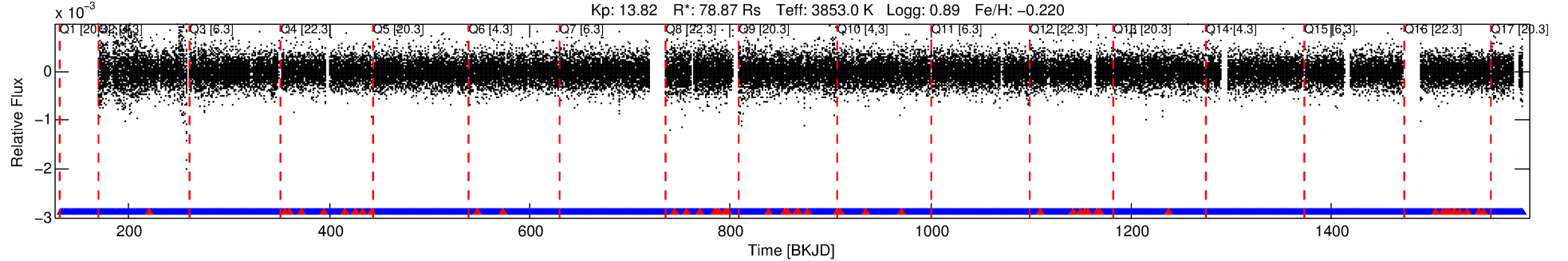
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 5308666 Candidate: 1 of 2 Period: 0.784 d

KOI: K02718.01 Corr: 0.814

Kp: 13.82 R*: 78.87 Rs Teff: 3853.0 K Logg: 0.89 Fe/H: -0.220



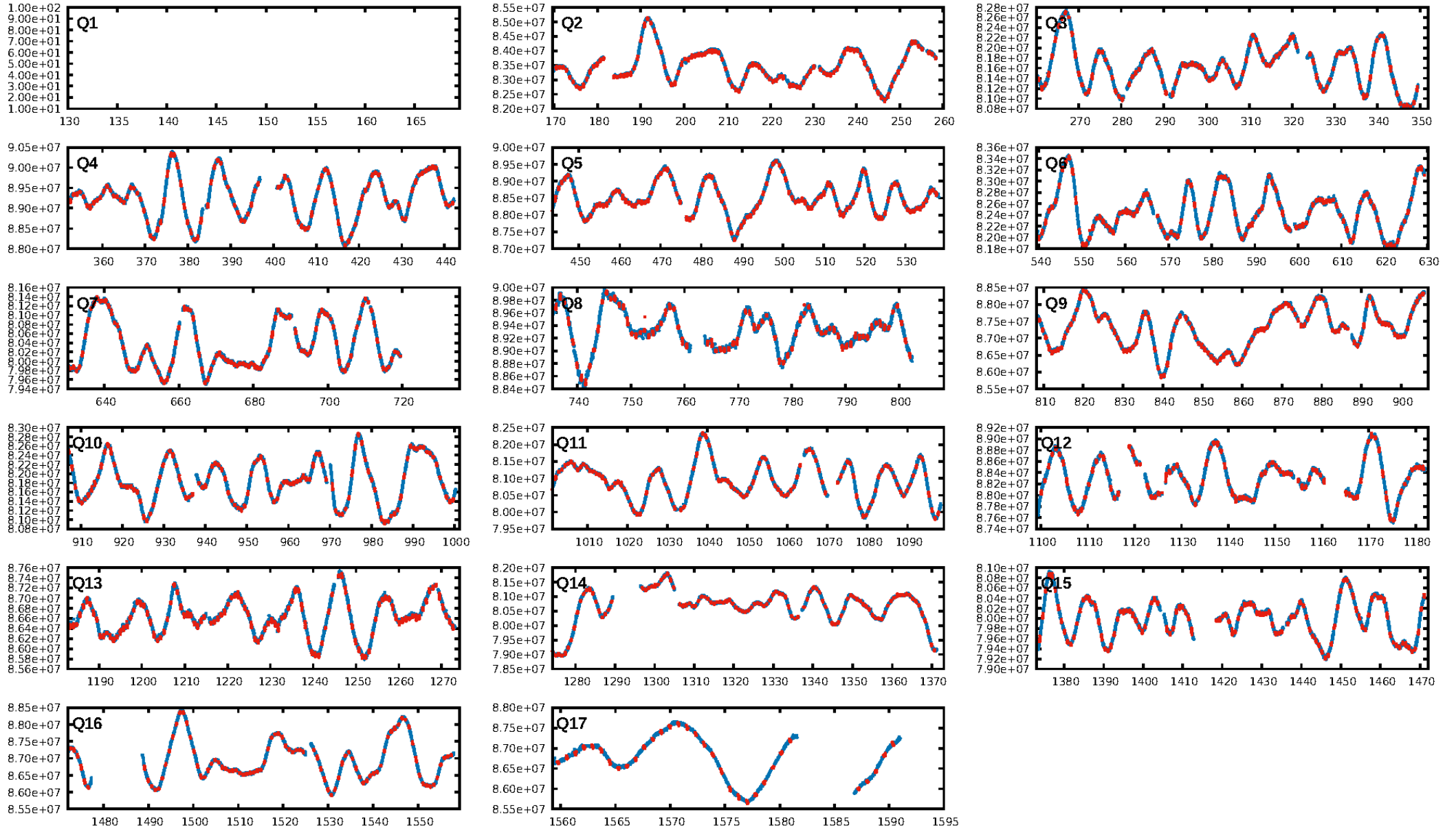
DV Fit Results:

Period = 0.78448 [0.00000] d
Epoch = 132.0060 [0.0009] BKJD
Rp/R* = 0.0111 [0.0044]
a/R* = 1.76 [1.52]
b = 0.90 [0.27]
Seff = N/A
Teq = N/A
Rp = 95.43 [42.29] Re
a = N/A
Ag = N/A
Teff = N/A

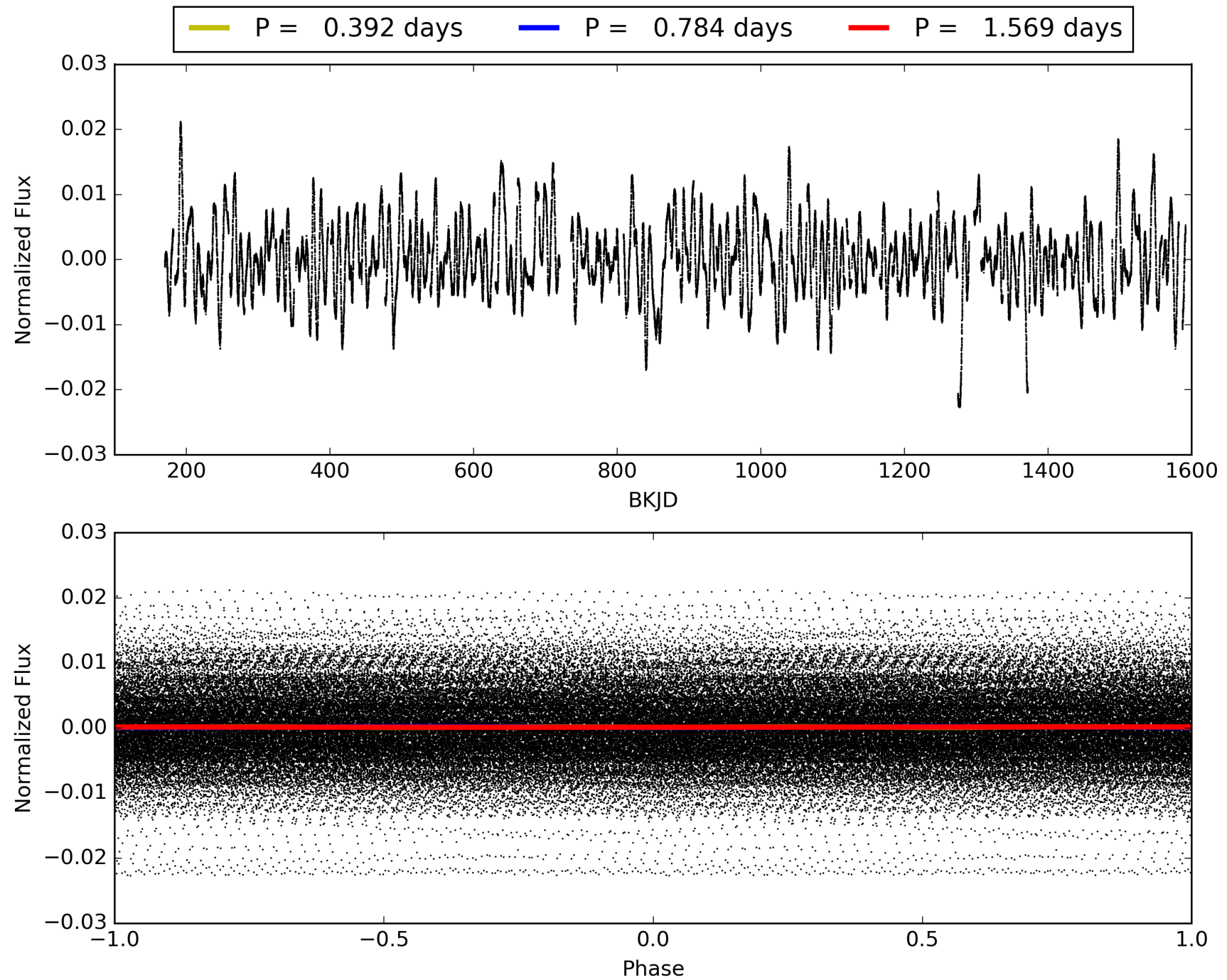
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.97e-69
RollingBand-fgt: 0.97 [1575/1628]
GhostDiagnostic-chr: -0.1537
Centroid-sig: 0.0%
Centroid-so: 60.301 arcsec [132.47σ]
OotOffset-rm: 6.594 arcsec [93.71σ]
KicOffset-rm: 6.484 arcsec [87.42σ]
OotOffset-st: 4/1/4/4 [13]
KicOffset-st: 4/1/4/4 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 0.00 [0/16]

TCE 005308666-01, PDC Light Curves

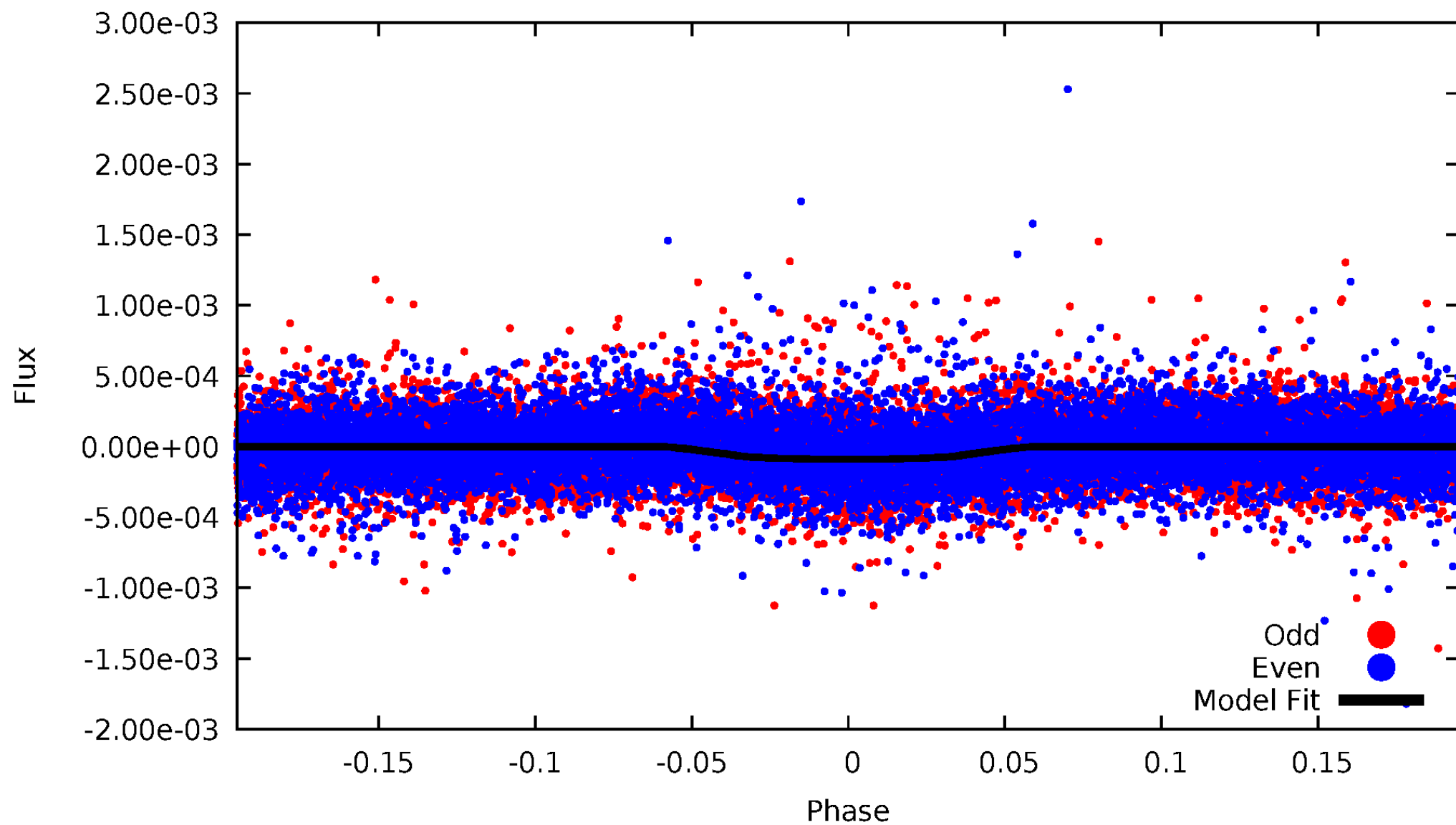


TCE 005308666-01



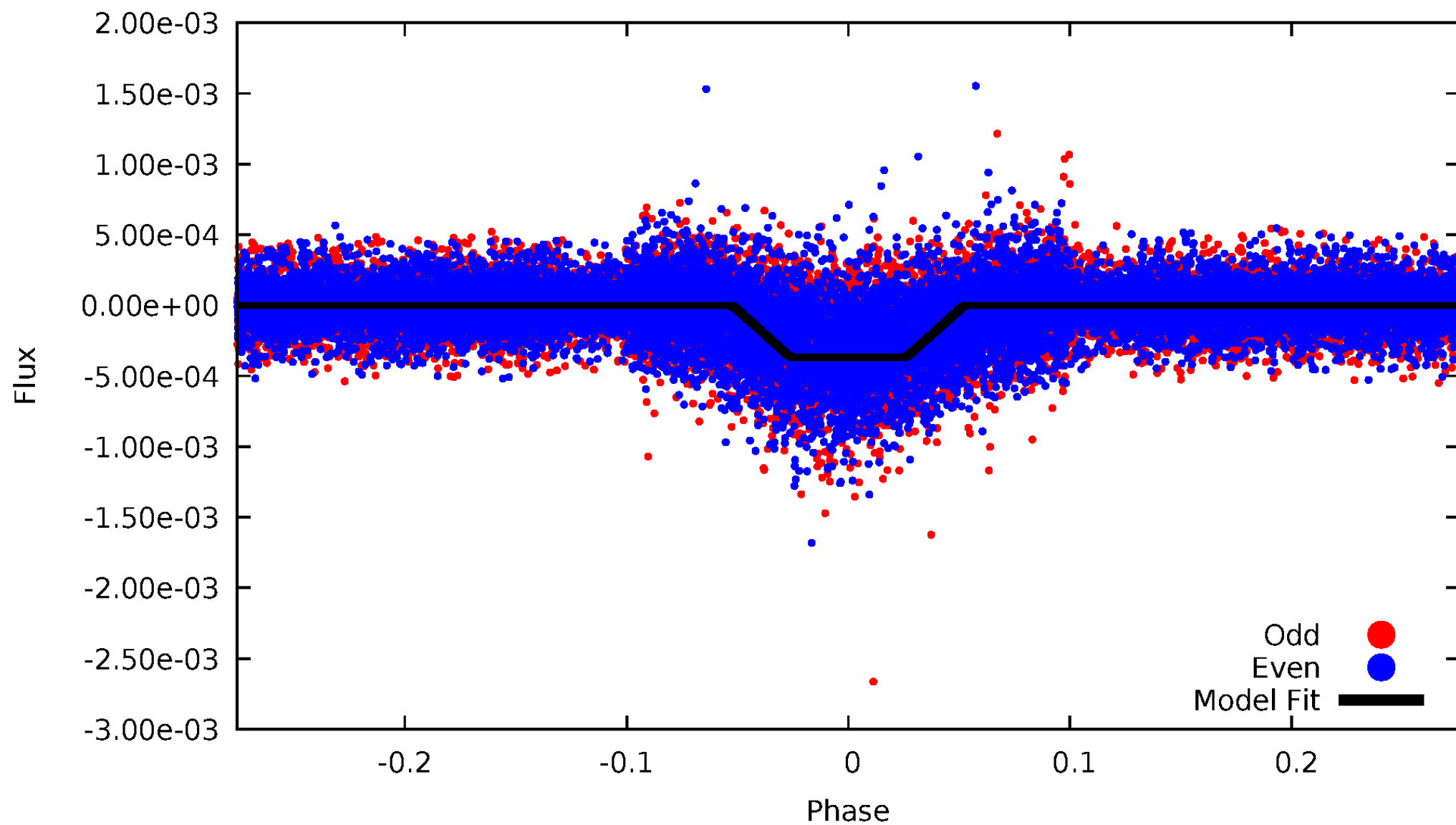
DV Odd/Even

TCE 005308666-01



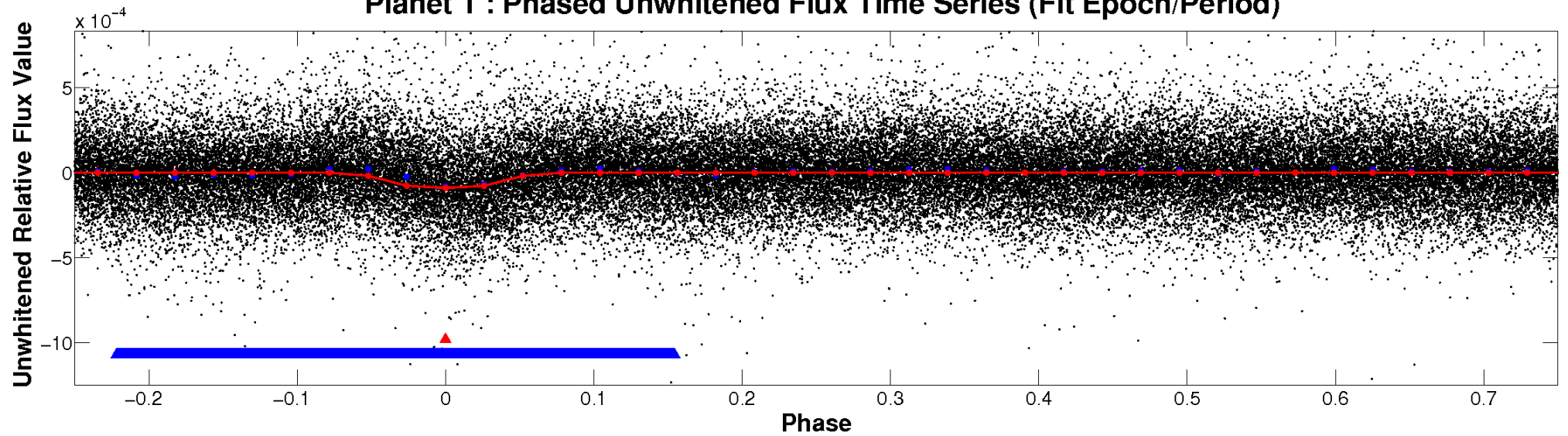
ALT Odd/Even

TCE 005308666-01

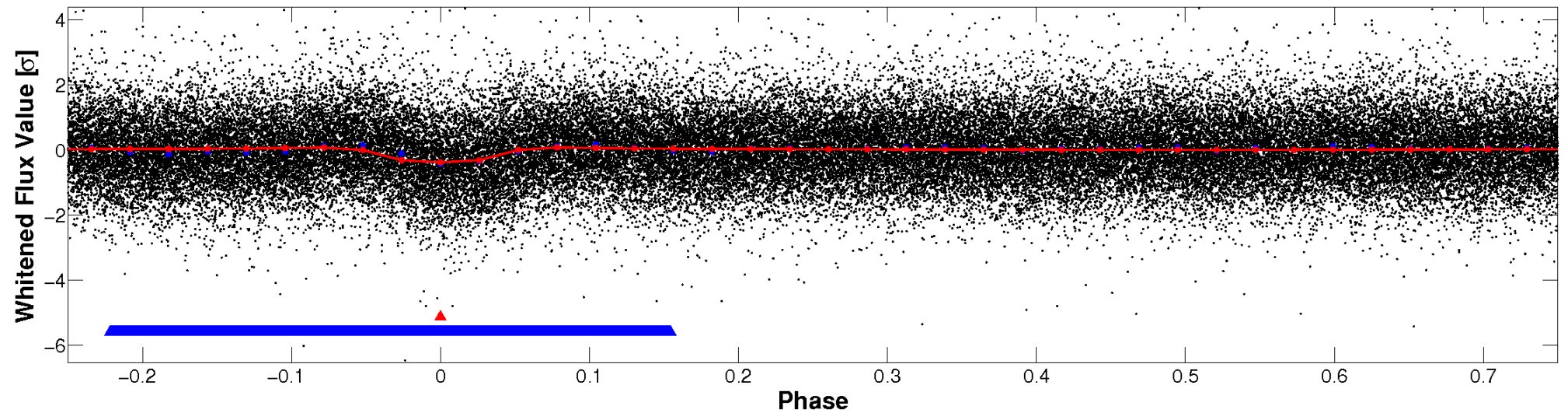


Non-Whitened Vs. Whitened Light Curve

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

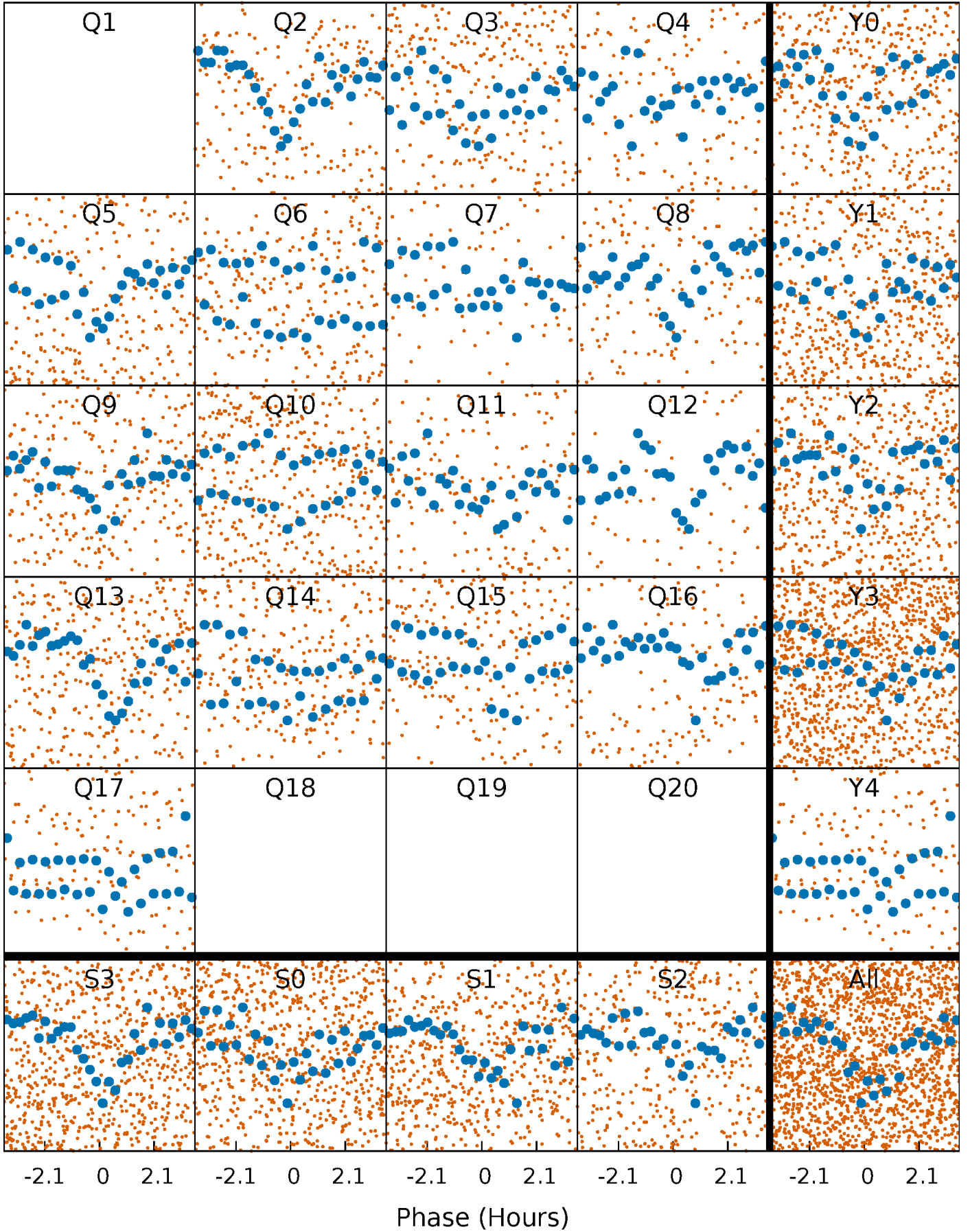


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



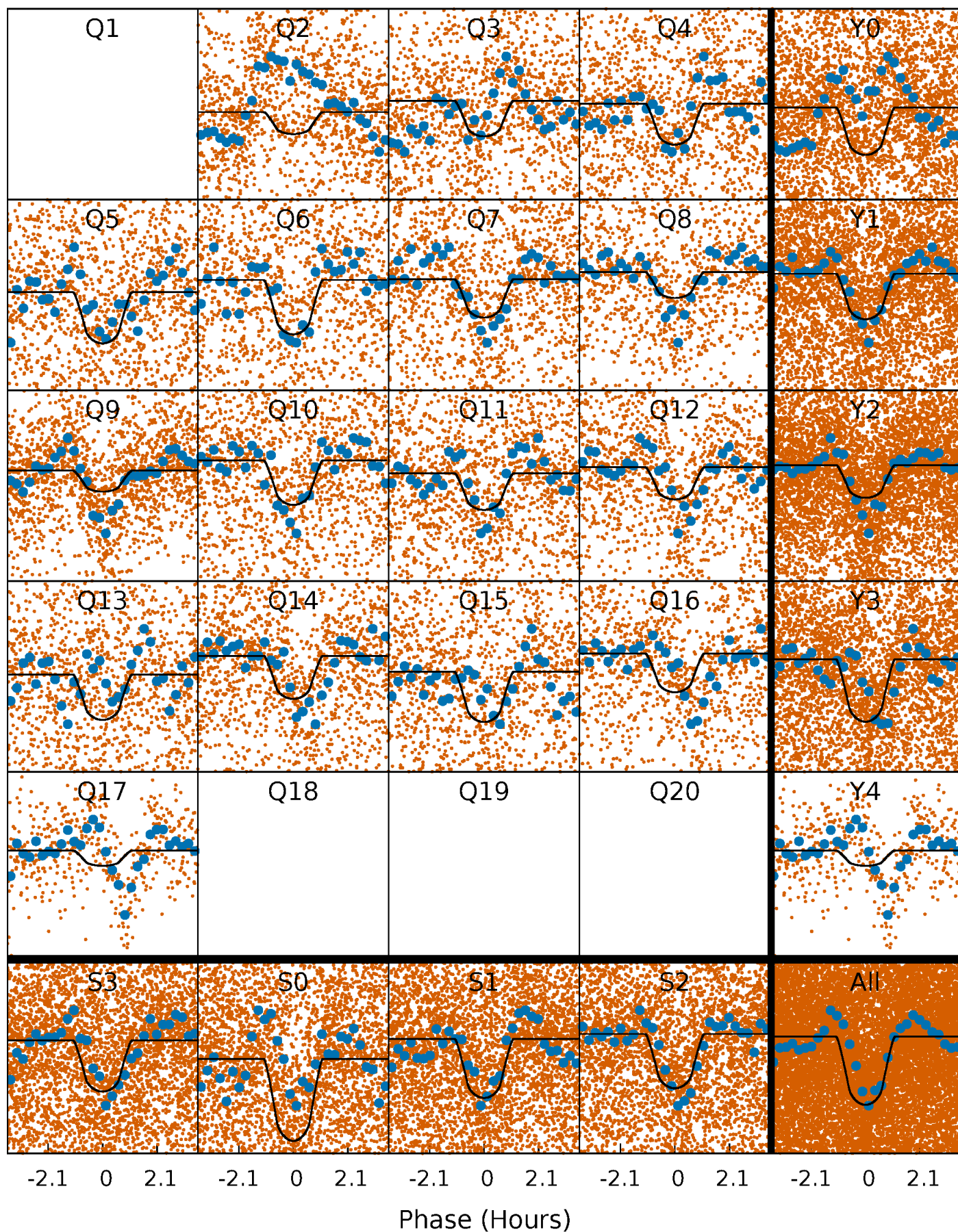
PDC Quarter-Phased Transit Curves

TCE 005308666-01 P= 0.784485 Days $T_0=132.005978$ (BKJD)



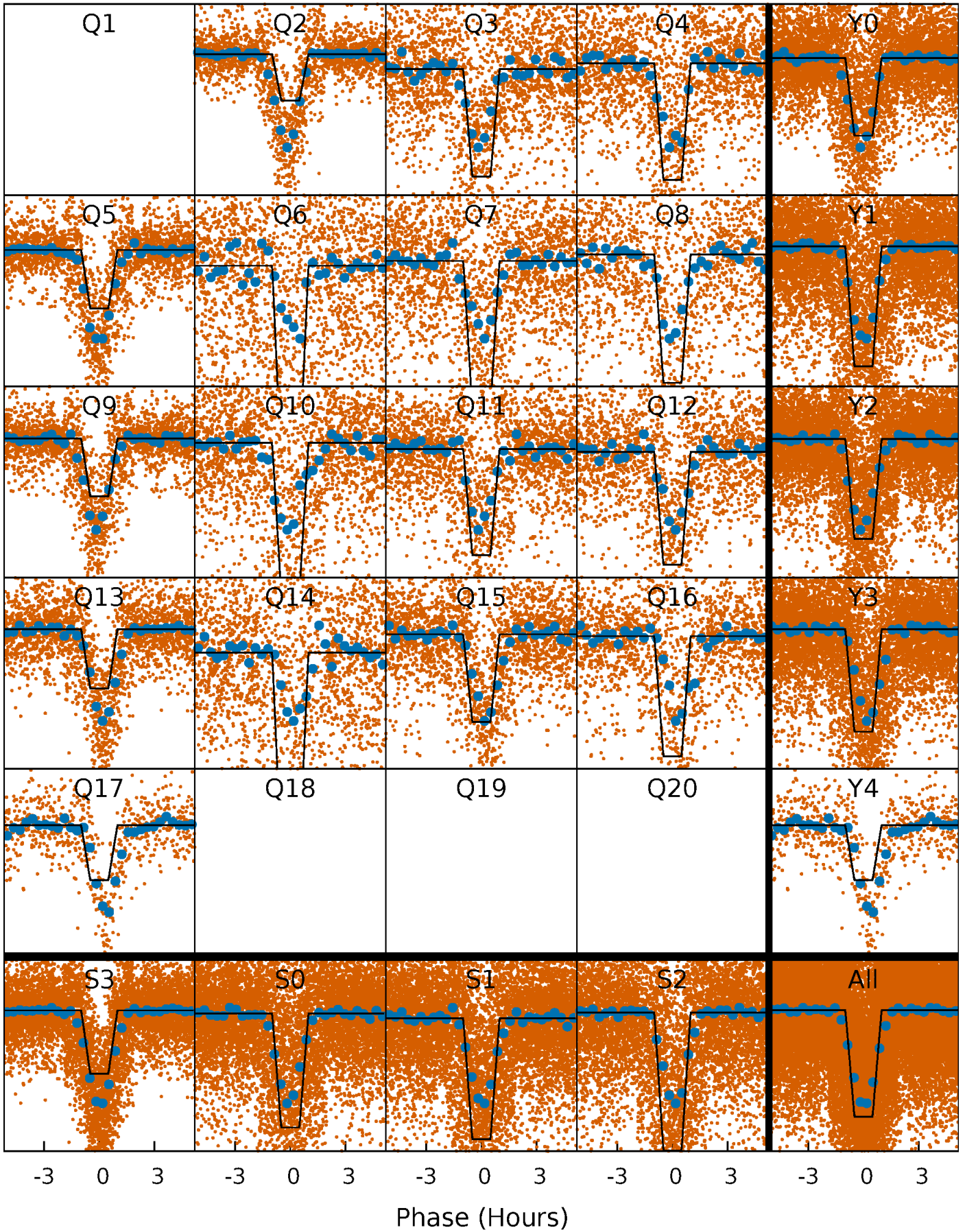
DV Quarter-Phased Transit Curves

TCE 005308666-01 P= 0.784485 Days $T_0=132.005978$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

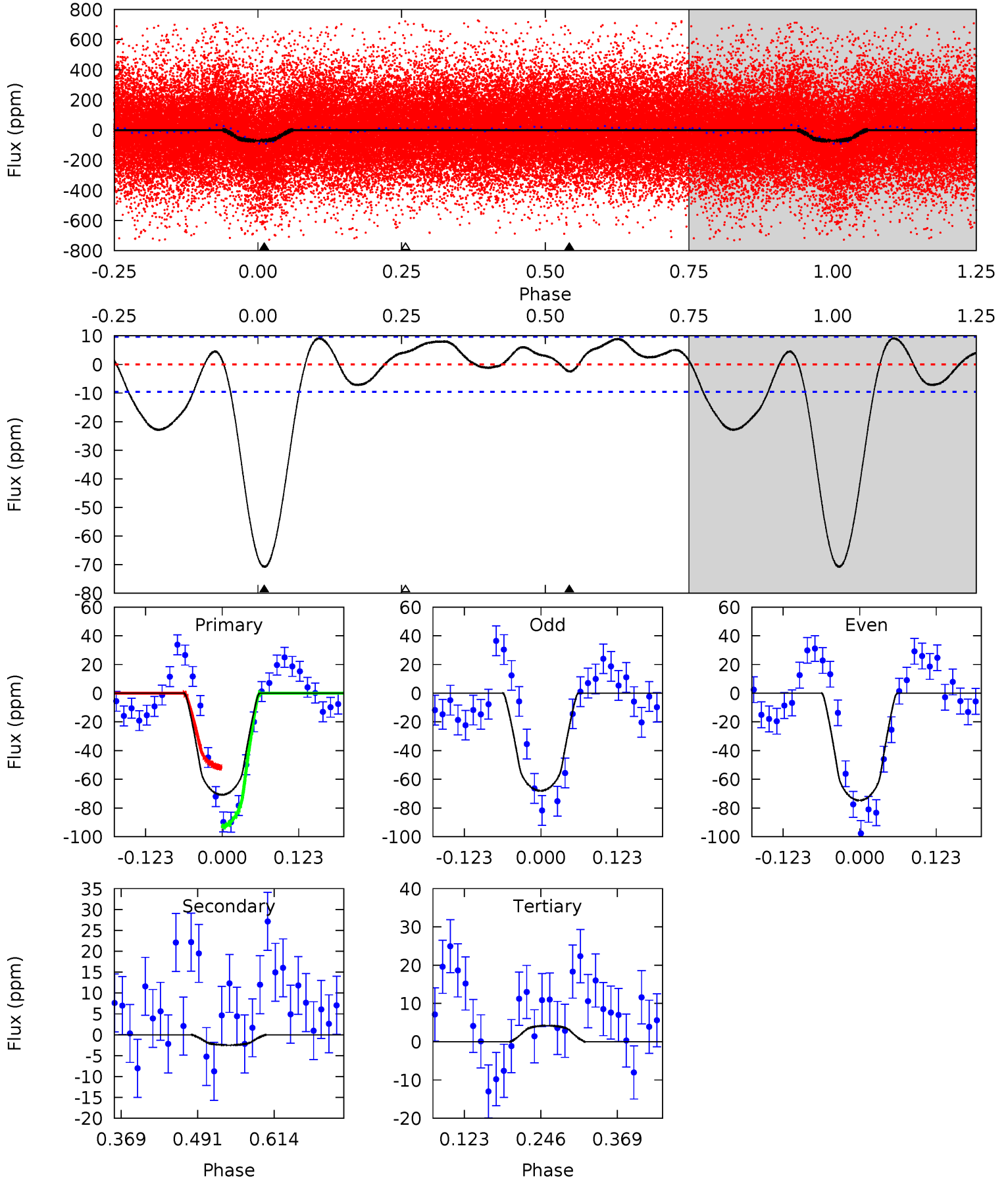
TCE 005308666-01 P= 0.784501 Days $T_0=131.997327$ (BKJD)



DV Model-Shift Uniqueness Test

005308666-01, P = 0.784485 Days, E = 132.005978 Days

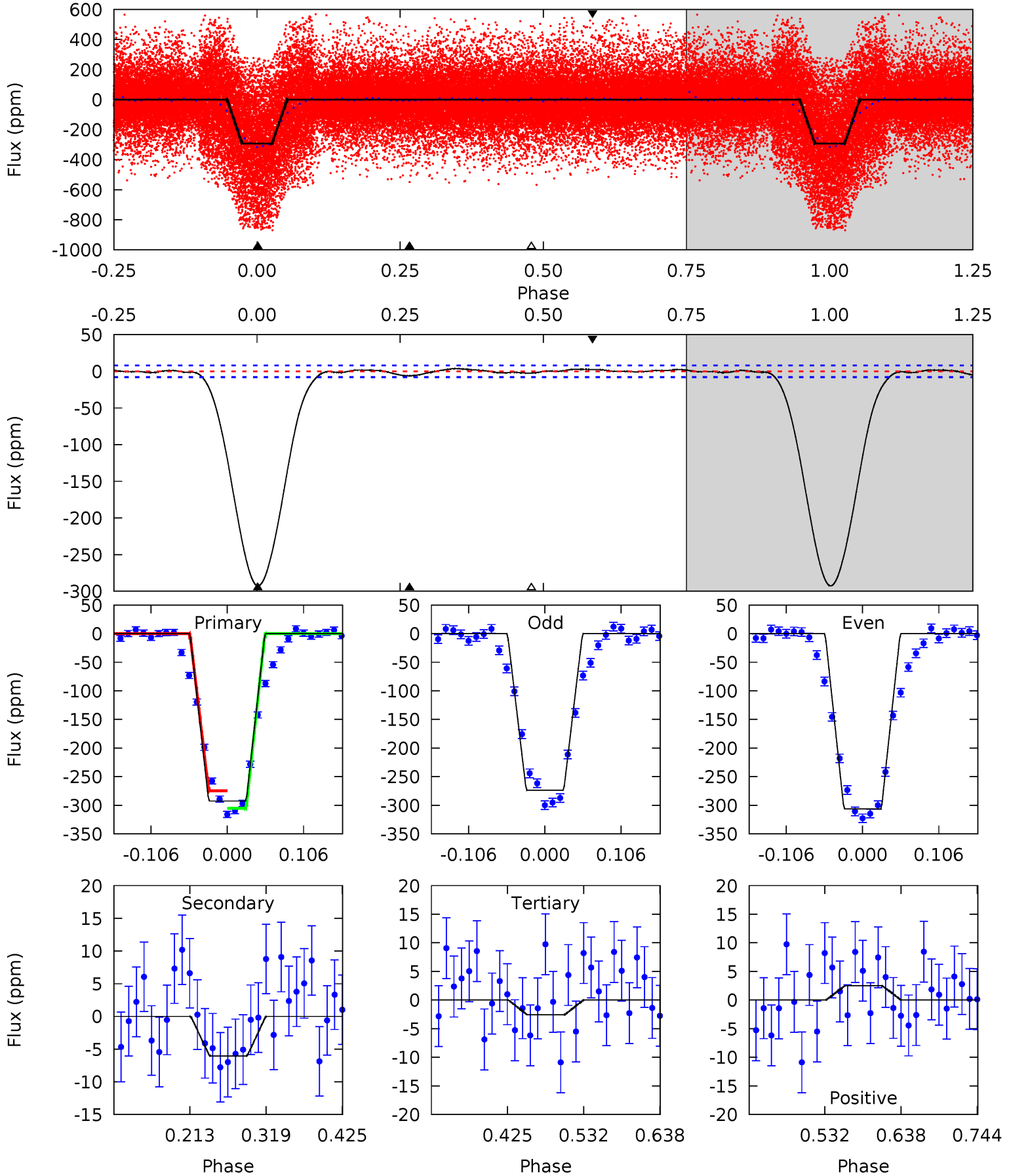
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.4	1.18	-1.99	0	4.52	1.54	4.37	35.3	33.4	3.16	1.18	1.60	0.89	0.11	9.73



Alt Model-Shift Uniqueness Test

005308666-01, P = 0.784501 Days, E = 131.997327 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
168.2	3.48	1.48	1.43	4.55	1.61	0.86	166.7	166.8	2.00	2.05	9.34	1.09	0.01	8.83



Stellar Parameters For KIC 005308666

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3853^{+76}_{-105}	$0.892^{+0.030}_{-0.030}$	$-0.220^{+0.200}_{-0.250}$	$78.869^{+2.010}_{-16.083}$	$1.772^{+0.077}_{-0.658}$	$0.000^{+0.000}_{-0.000}$
	+2%/-3%	+3%/-3%	+91%/-114%	+3%/-20%	+4%/-37%	+29%/-8%
Source	PHO54	AST54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 005308666-01 / KOI 2718.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2 ± 2	$95.41^{+39.38}_{-34.58}$	14821^{+336}_{-431}	-13211^{+901}_{-793}	$0.000^{+0.000}_{-0.000}$
Alt.	-6 ± 2	$165.77^{+39.31}_{-39.93}$	14849^{+351}_{-418}	-13319^{+891}_{-813}	$0.000^{+0.000}_{-0.000}$

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 $A_{obs} \gg 1.0$

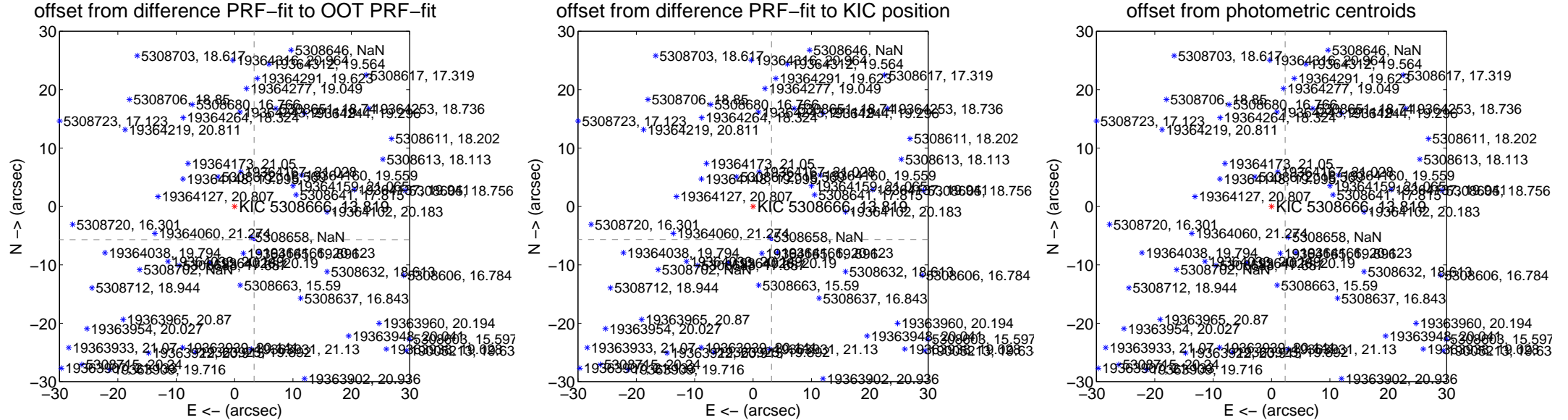
DV Centroid Data

Supplemental centroid analysis for 005308666-01. Kepler magnitude: 13.82. Transit SNR 24.40

There are 13 quarters with good PRF difference image offsets

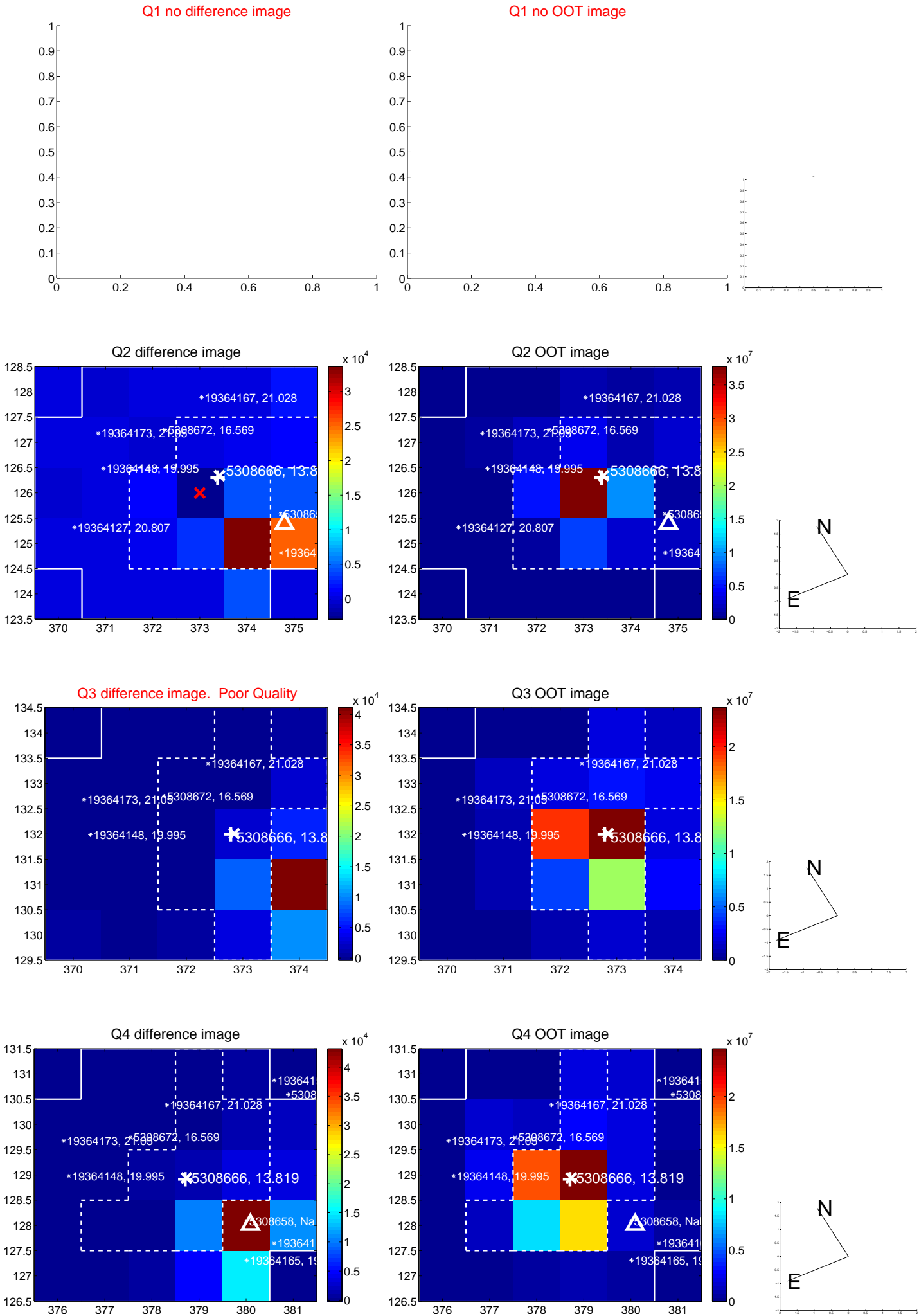
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.594 \pm 0.070	93.71	-3.343 \pm 0.075	-5.684 \pm 0.068
PRF-fit source offset from KIC position	6.484 \pm 0.074	87.42	-3.166 \pm 0.070	-5.658 \pm 0.073
photometric centroid source offset	60.30 \pm 0.46	132.47	-2.34 \pm 0.44	-60.26 \pm 0.46

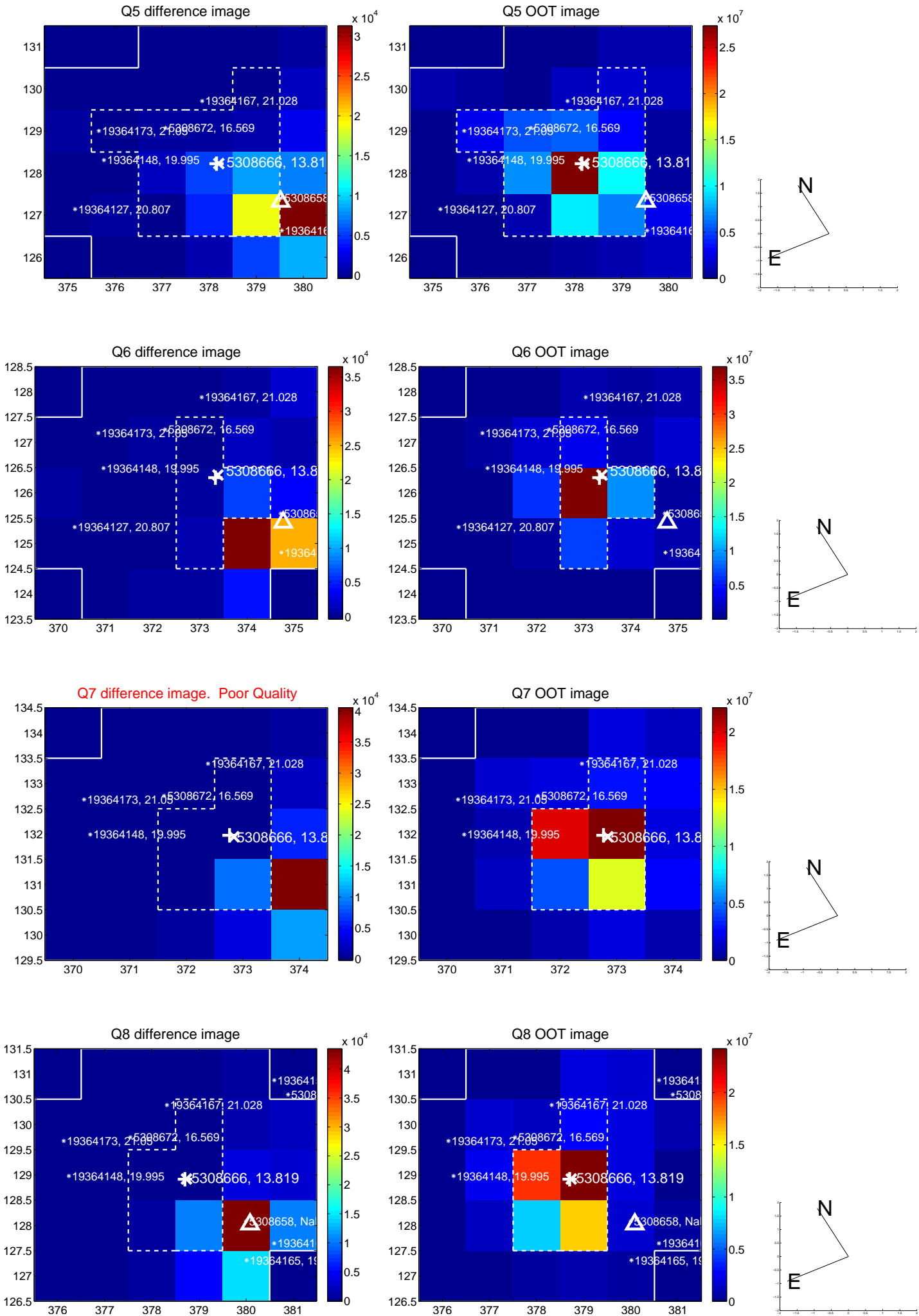


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

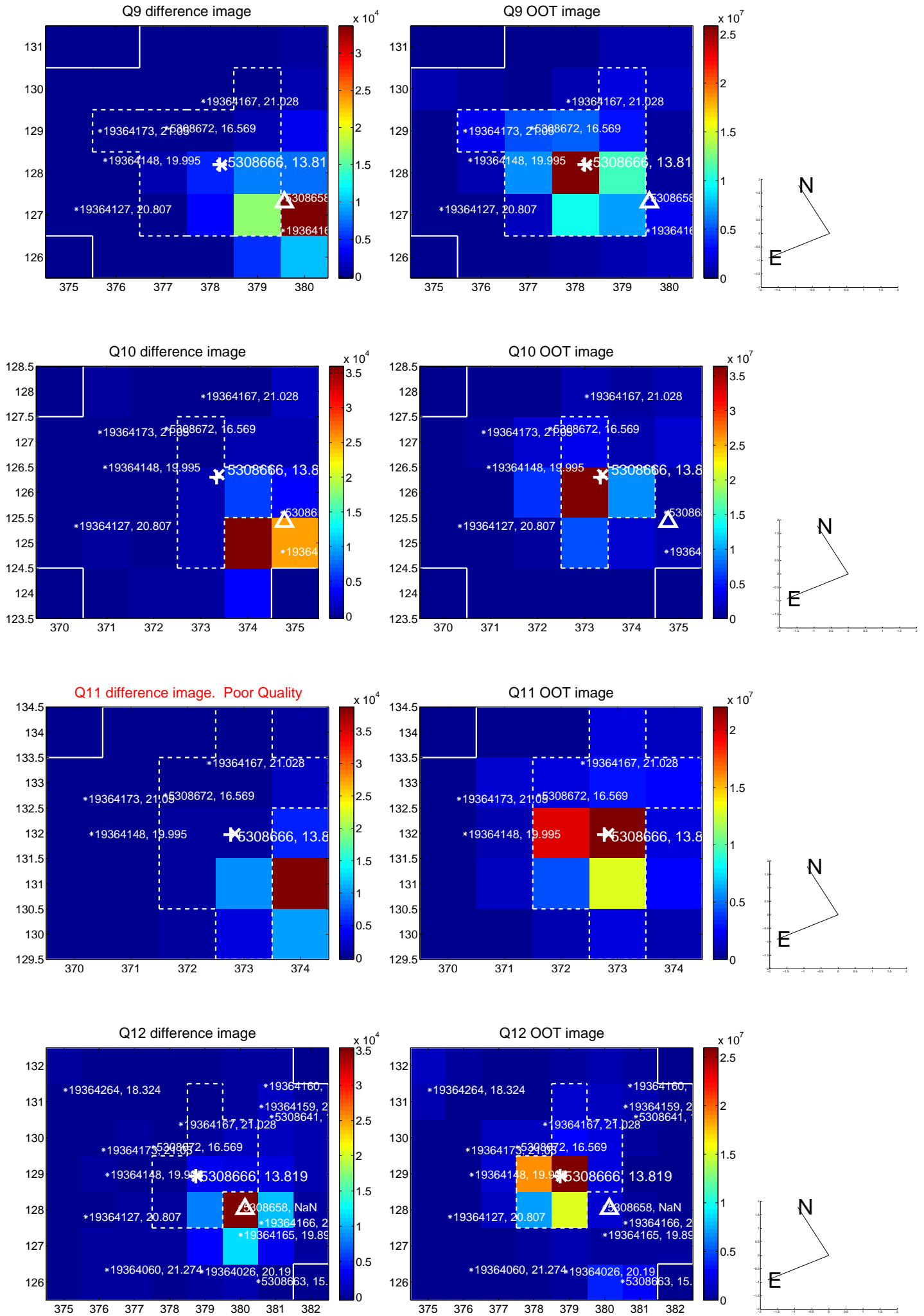
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



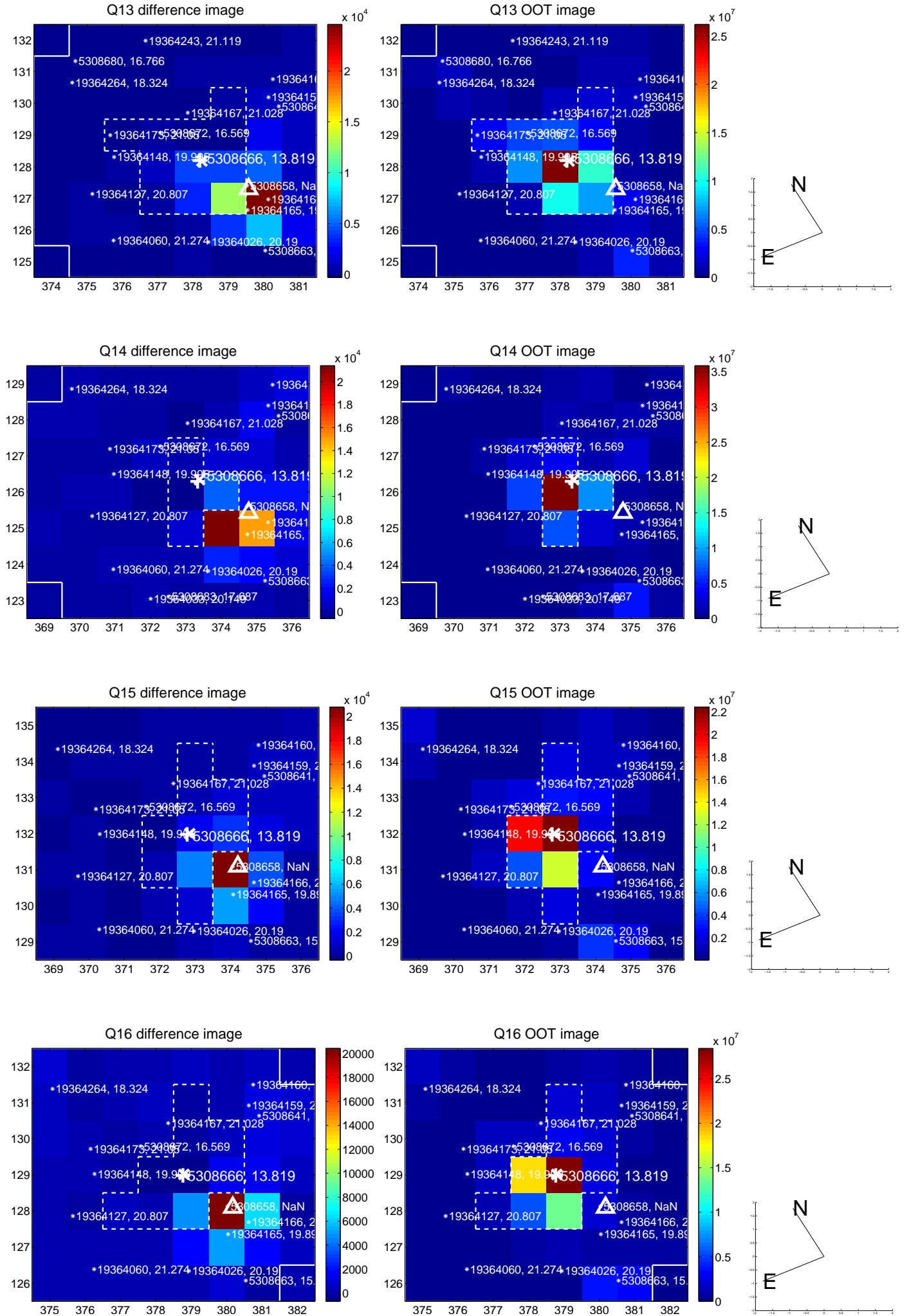
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



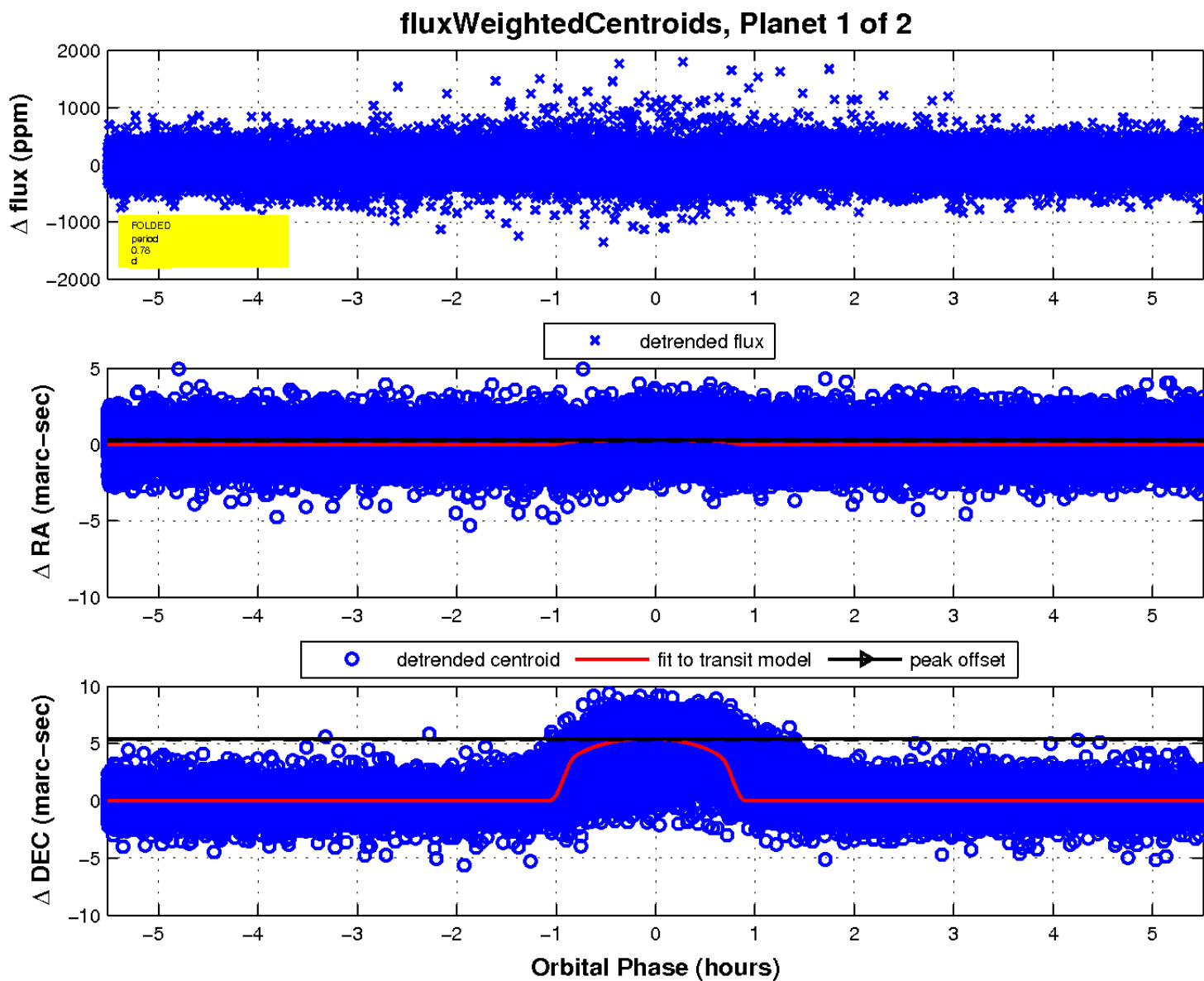
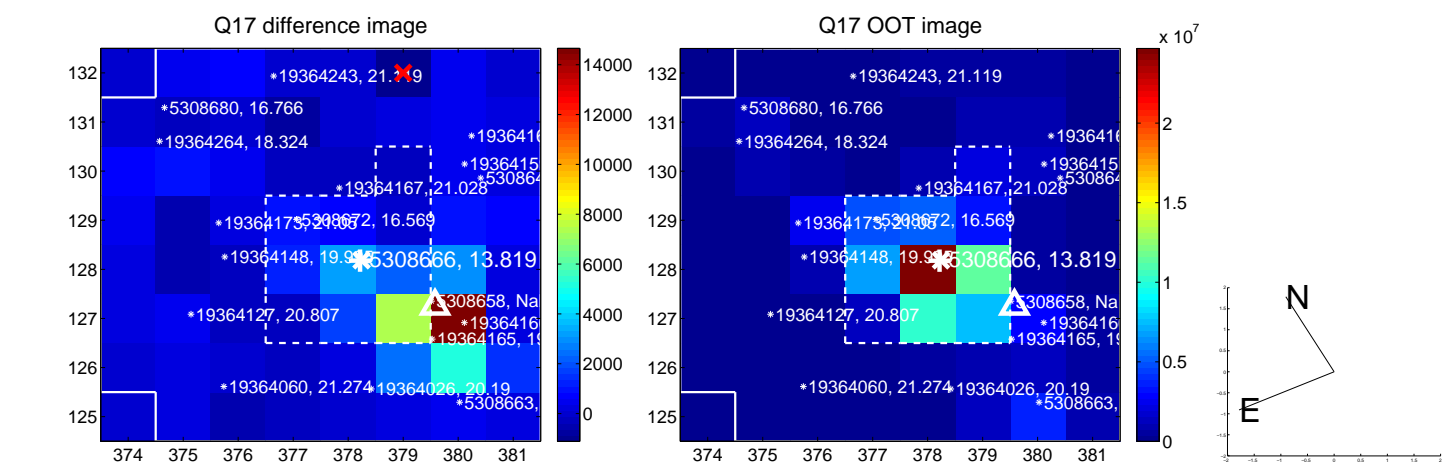
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



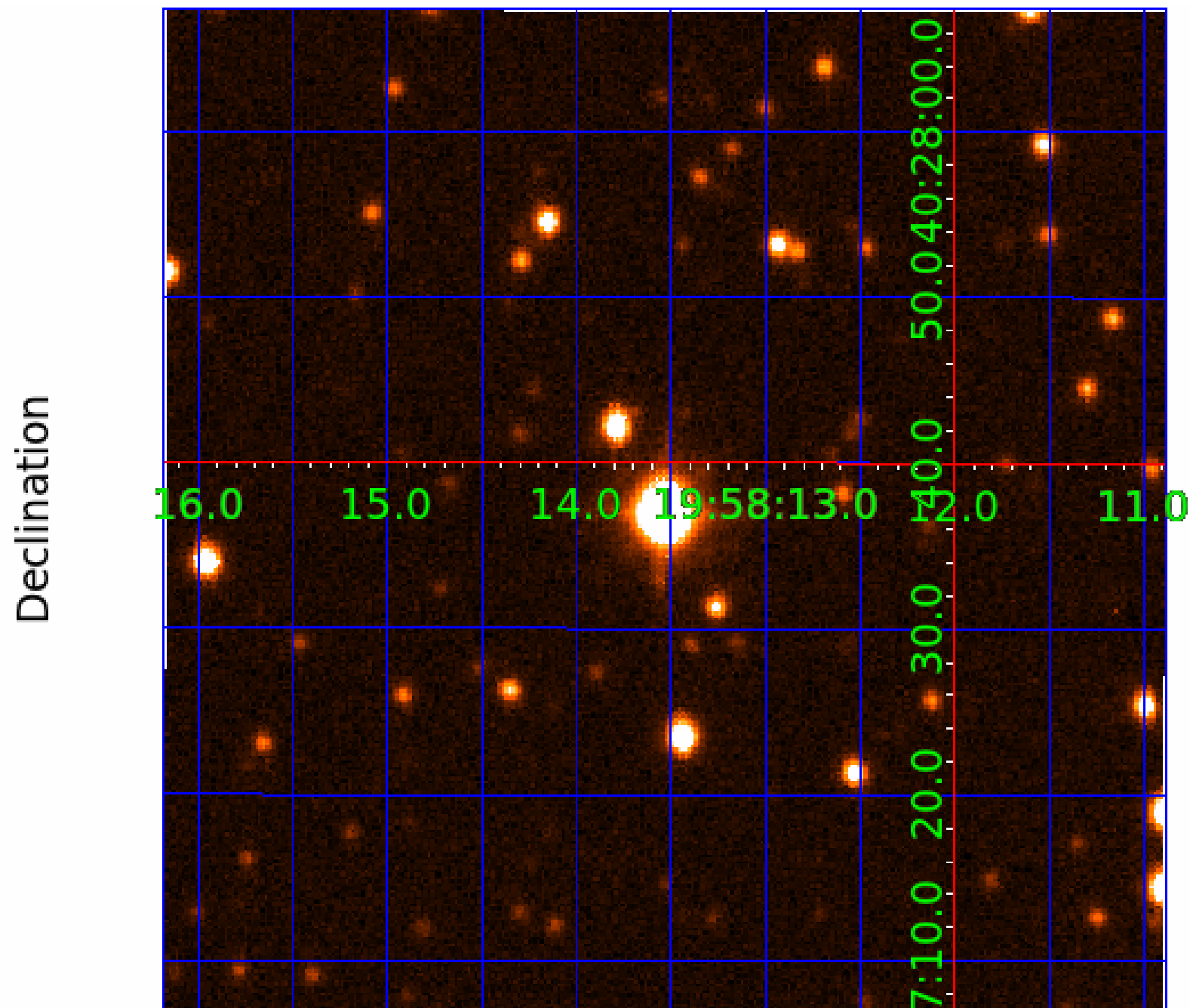
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005308666

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})
005308666-01	OBS	2718.01	0.784485	132.005978	89.9	1.838	19.1	24.4	78.87	3853	95.43	0.00
005308666-02	OBS	No	0.784643	131.832041	87.1	1.829	9.9	10.2	78.87	3853	93.51	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005308666-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005308666-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_RESOLVED_OFFSET

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.

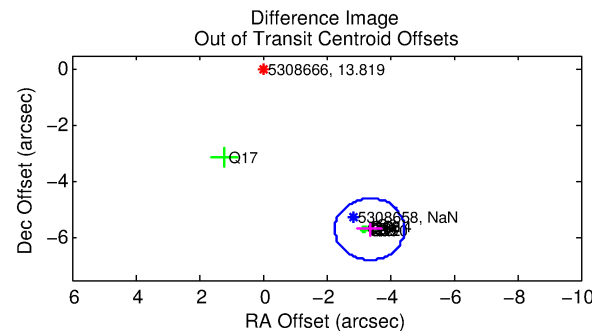
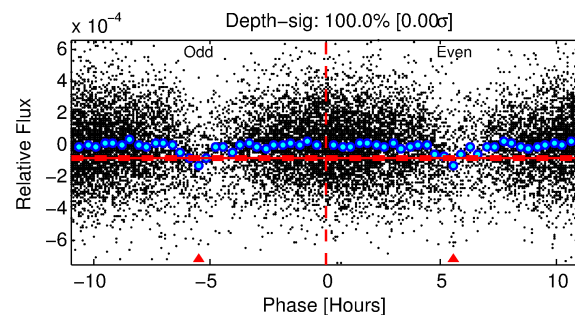
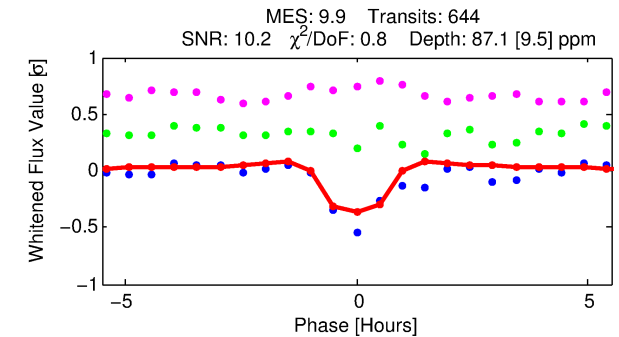
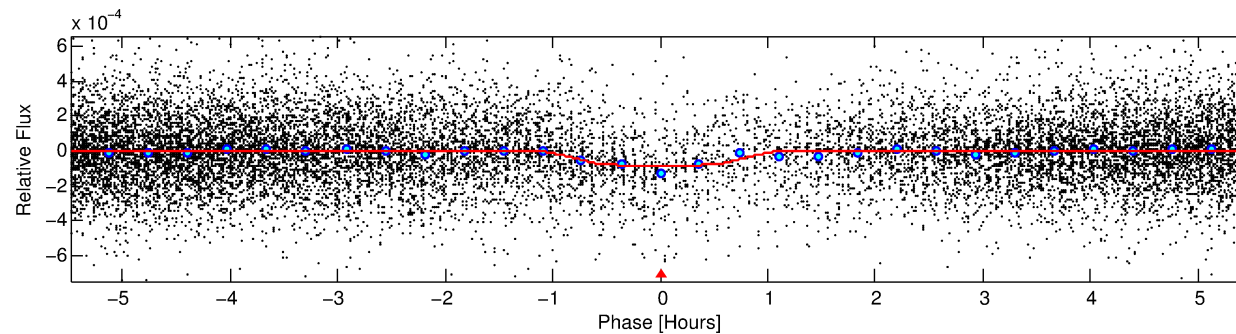
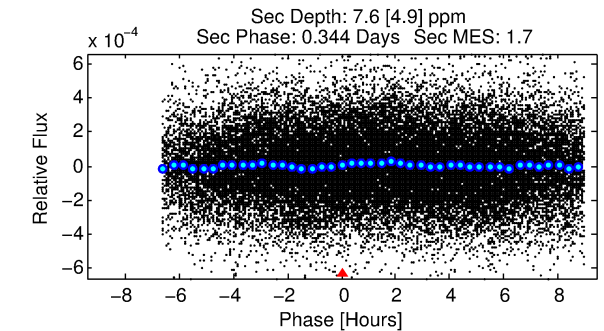
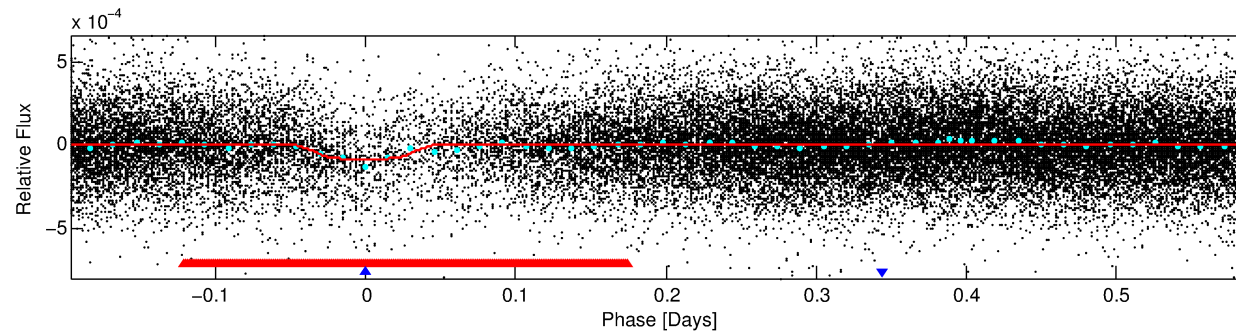
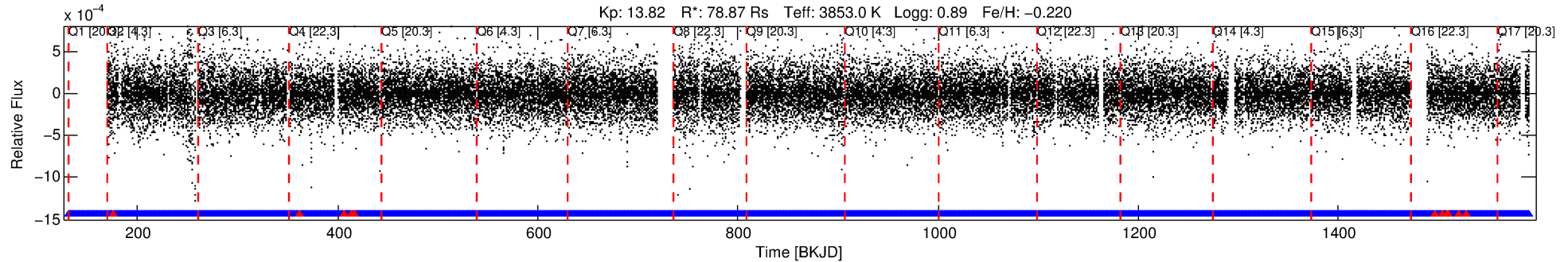
Ephemeris Match Information For 005308666-02

No Significant Match Found

DV One-Page Summary

KIC: 5308666 Candidate: 2 of 2 Period: 0.785 d
KOI: K02718 Corr: No Ephemeris Match

Kp: 13.82 R*: 78.87 Rs Teff: 3853.0 K Logg: 0.89 Fe/H: -0.220



DV Fit Results:

Period = 0.78464 [0.00001] d
Epoch = 131.8320 [0.0021] BKJD
Rp/R* = 0.0109 [0.0095]
a/R* = 1.78 [3.46]
b = 0.90 [0.63]
Seff = N/A
Teq = N/A
Rp = 93.51 [84.19] Re
a = N/A
Ag = N/A
Teffp = N/A

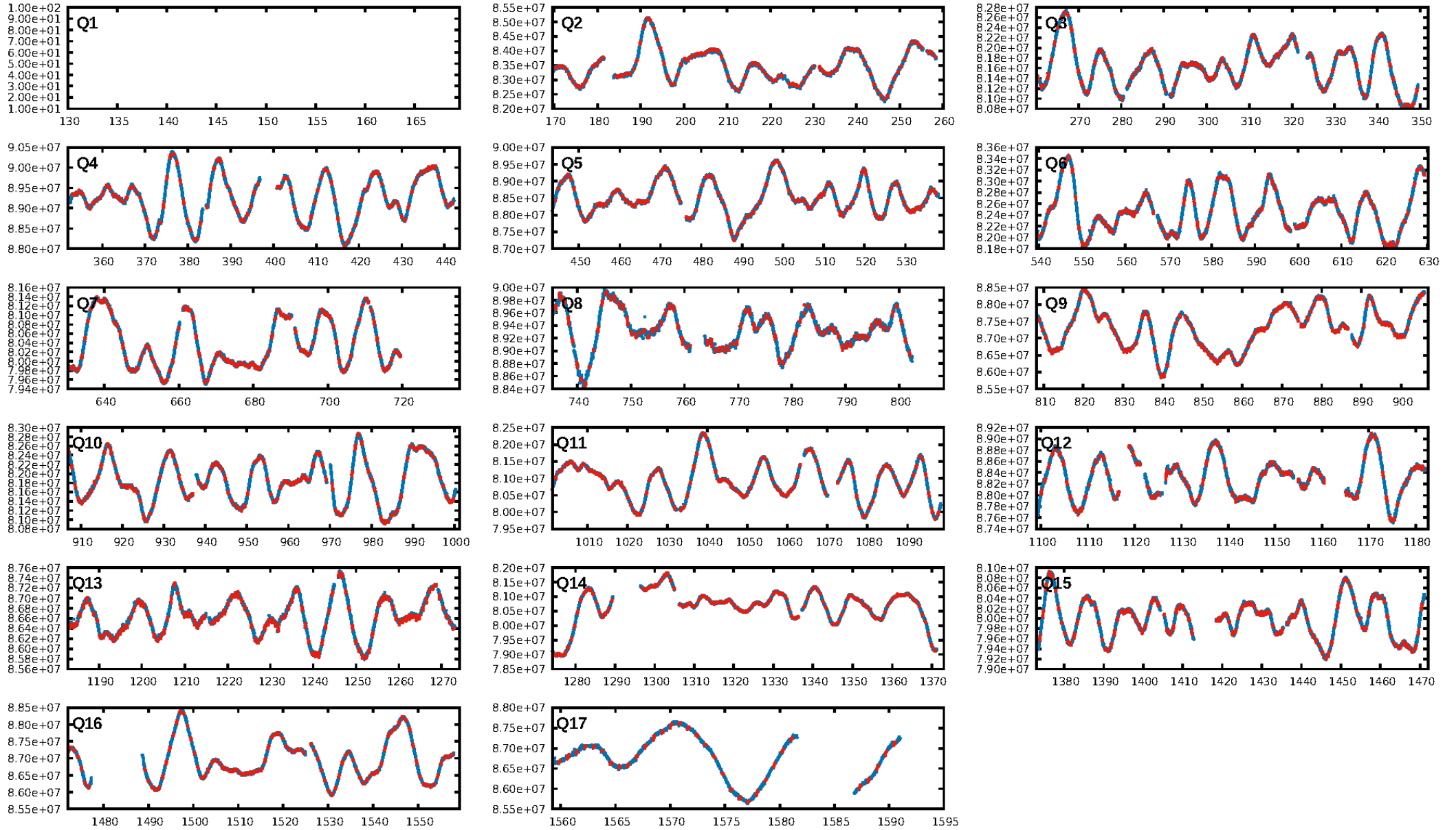
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.30e-20
RollingBand-fgt: 0.98 [600/611]
GhostDiagnostic-chr: 0.3944
Centroid-sig: 0.1%
Centroid-so: 1.800 arcsec [3.87σ]
OotOffset-rm: 6.606 arcsec [18.09σ]
KicOffset-rm: 6.479 arcsec [16.79σ]
OotOffset-st: 3/1/3/4 [11]
KicOffset-st: 3/1/3/4 [11]
DiffImageQuality-fgm: 0.64 [7/11]
DiffImageOverlap-fno: 0.00 [0/16]

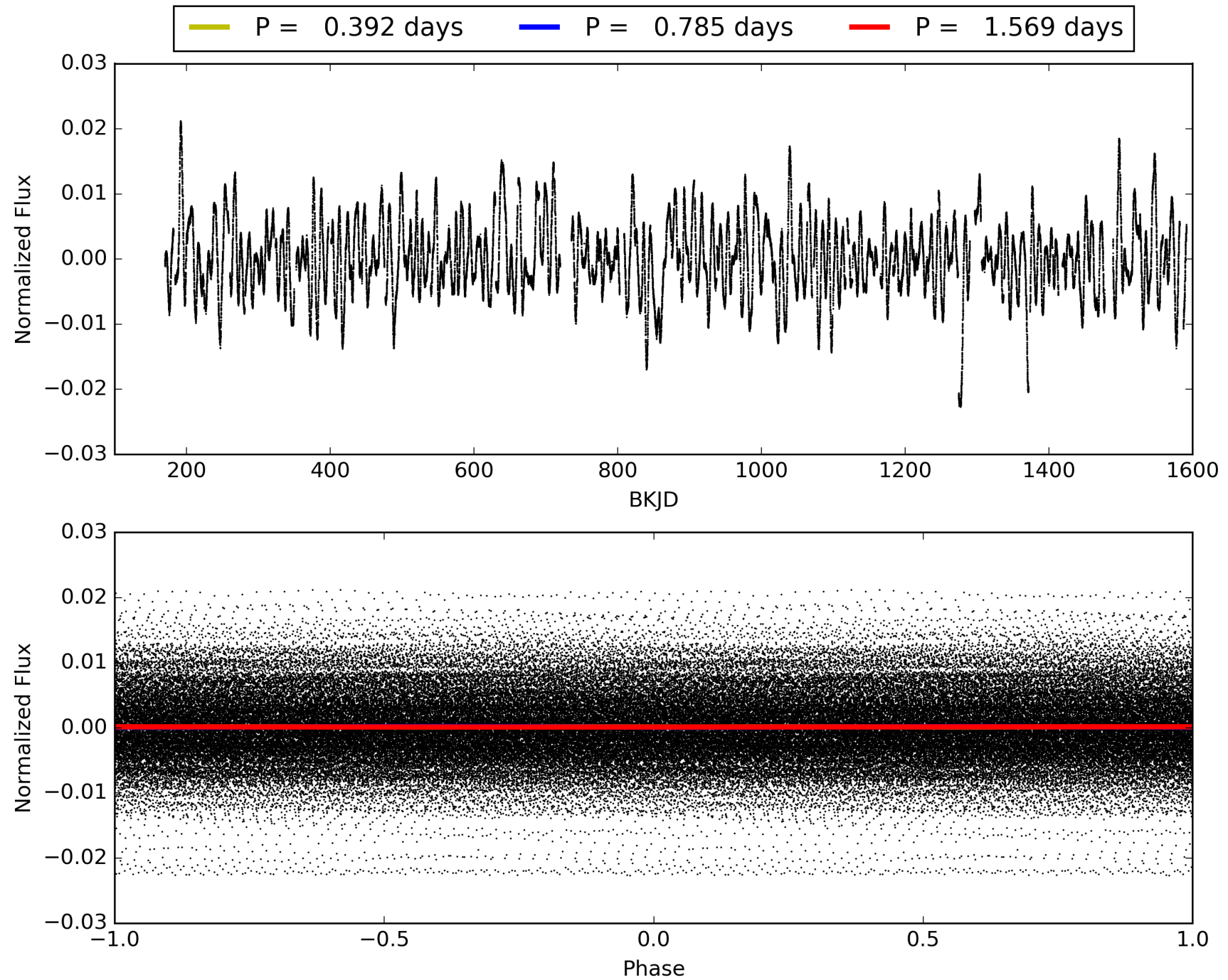
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005308666-02, PDC Light Curves

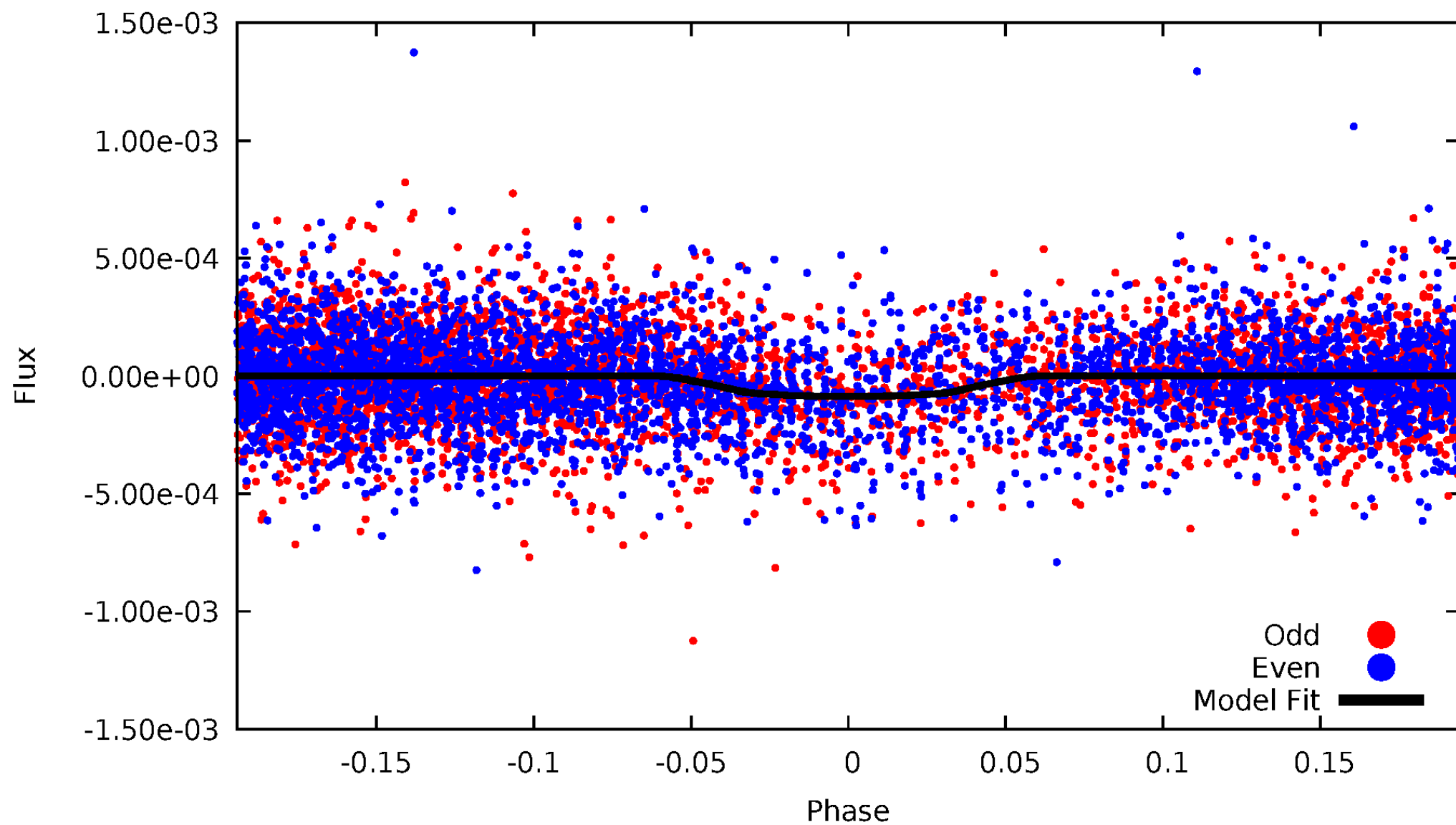


TCE 005308666-02



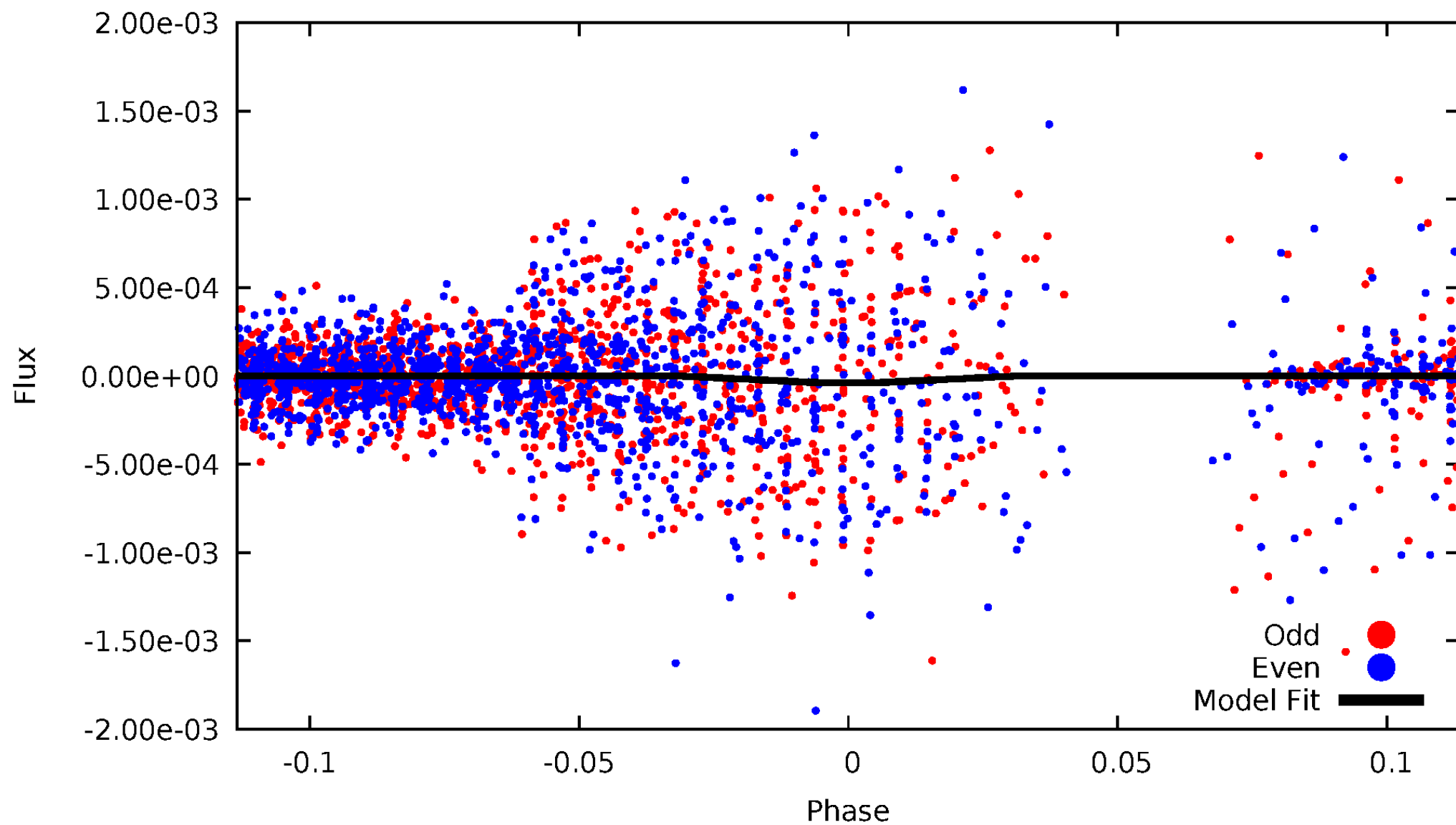
DV Odd/Even

TCE 005308666-02



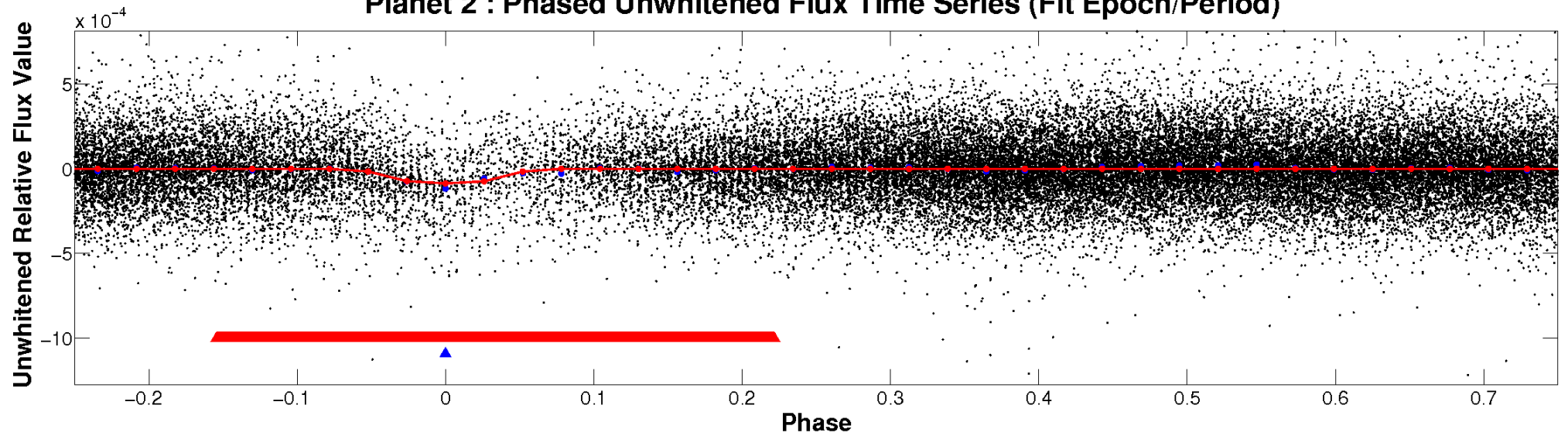
ALT Odd/Even

TCE 005308666-02

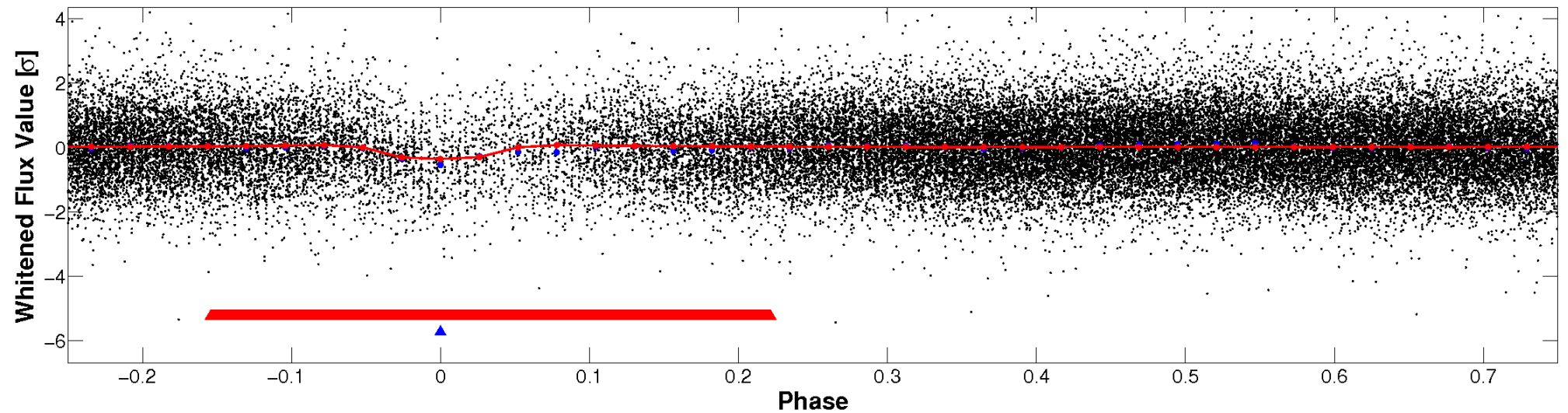


Non-Whitened Vs. Whitened Light Curve

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

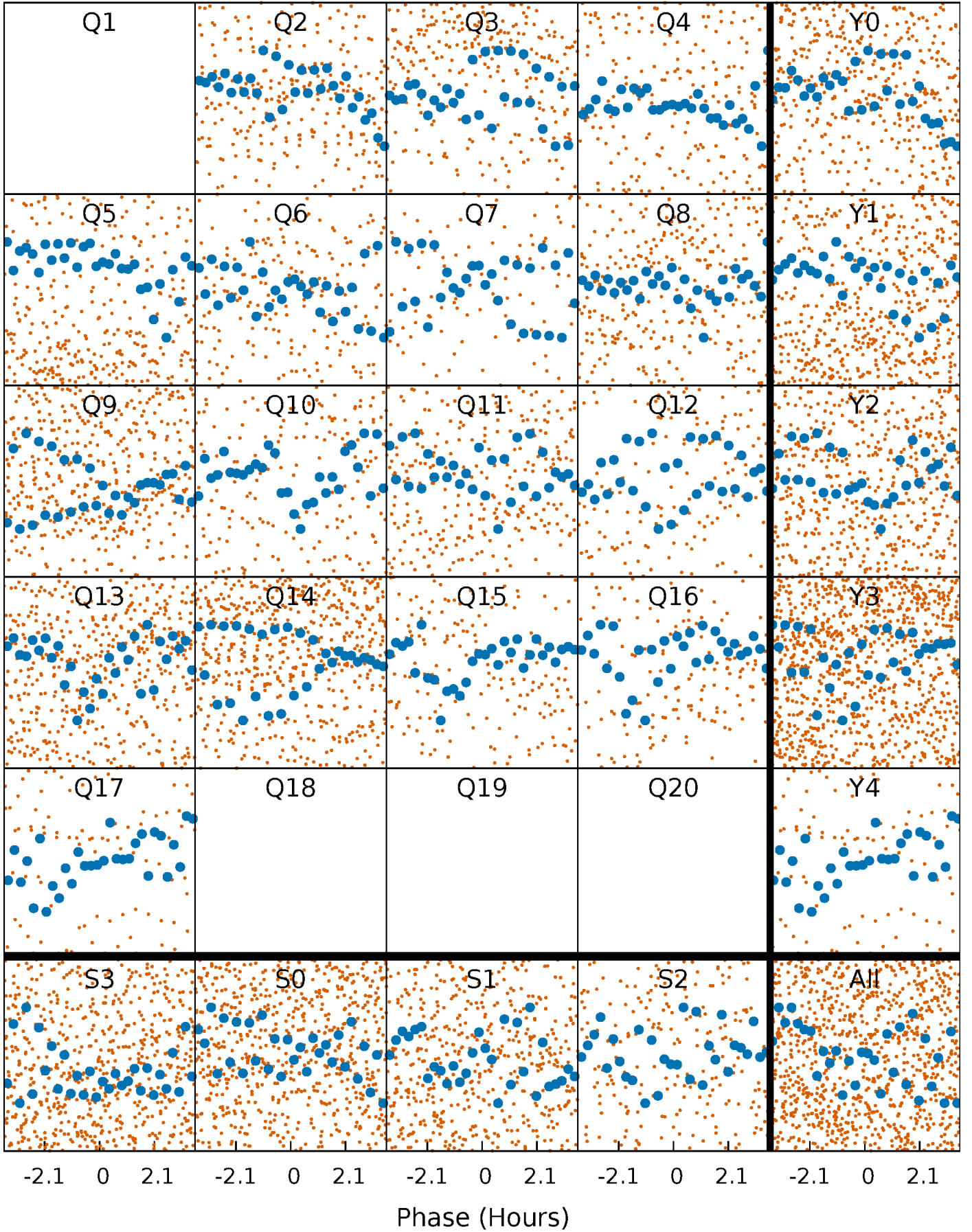


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



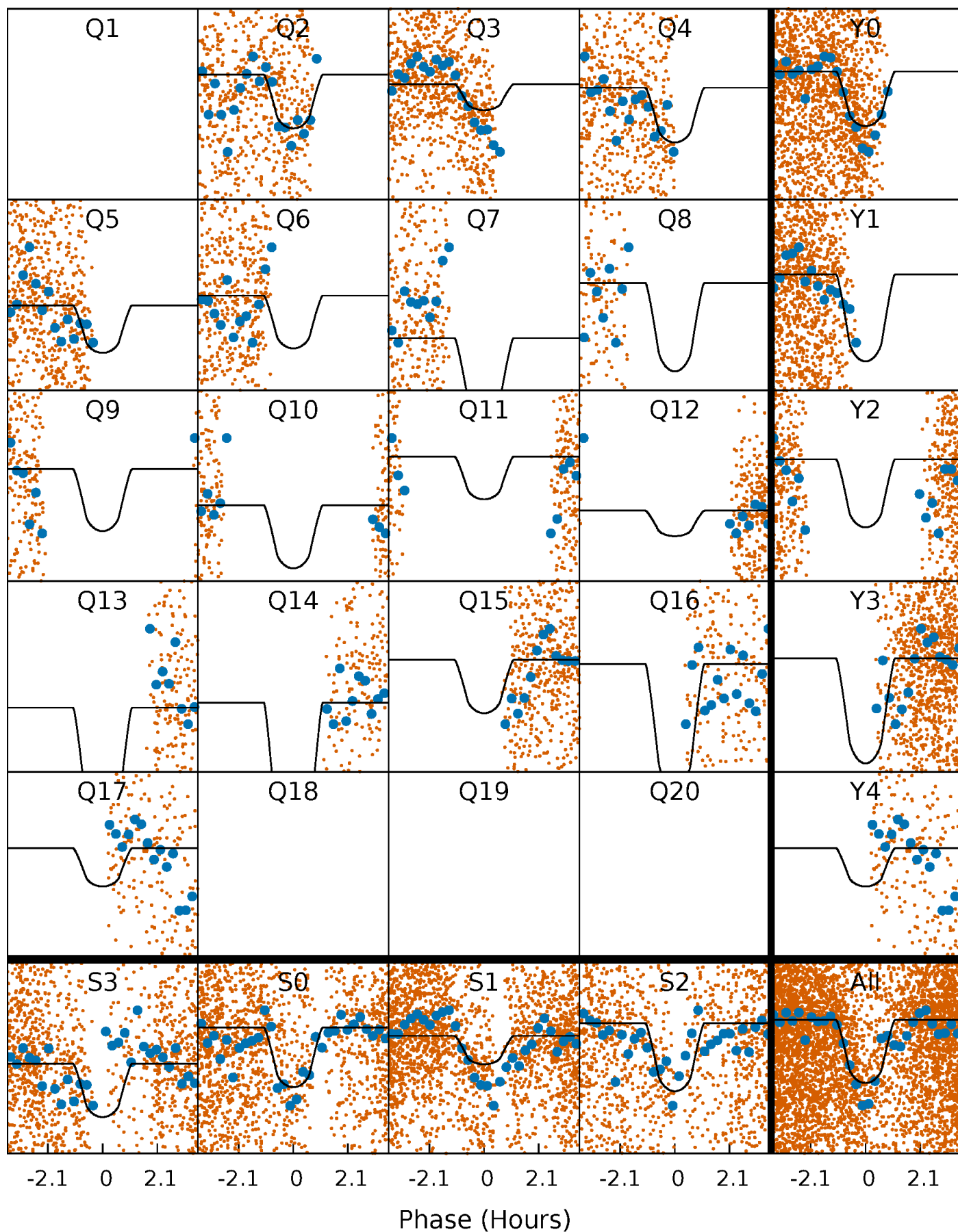
PDC Quarter-Phased Transit Curves

TCE 005308666-02 P= 0.784643 Days $T_0=131.832041$ (BKJD)



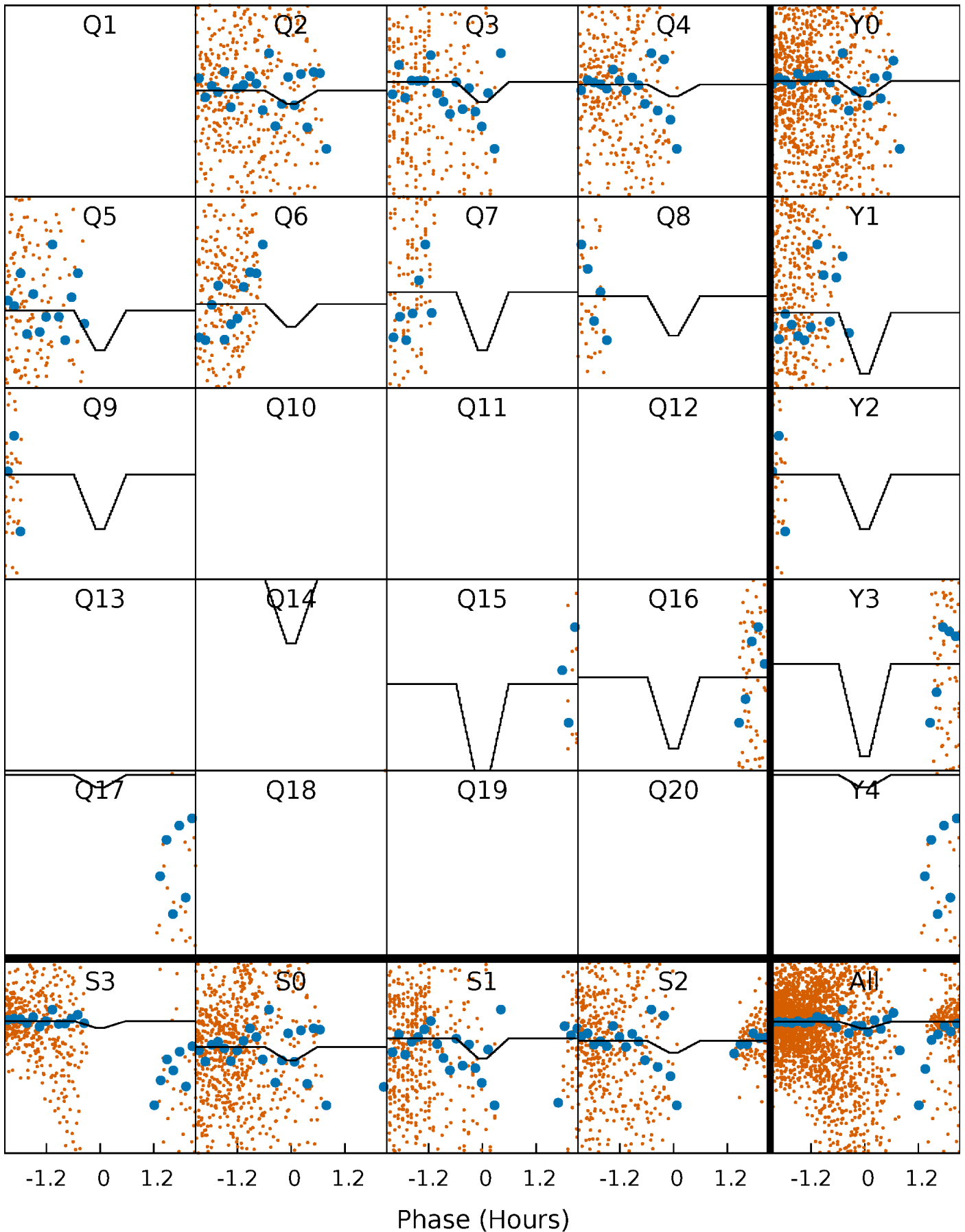
DV Quarter-Phased Transit Curves

TCE 005308666-02 P= 0.784643 Days $T_0=131.832041$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

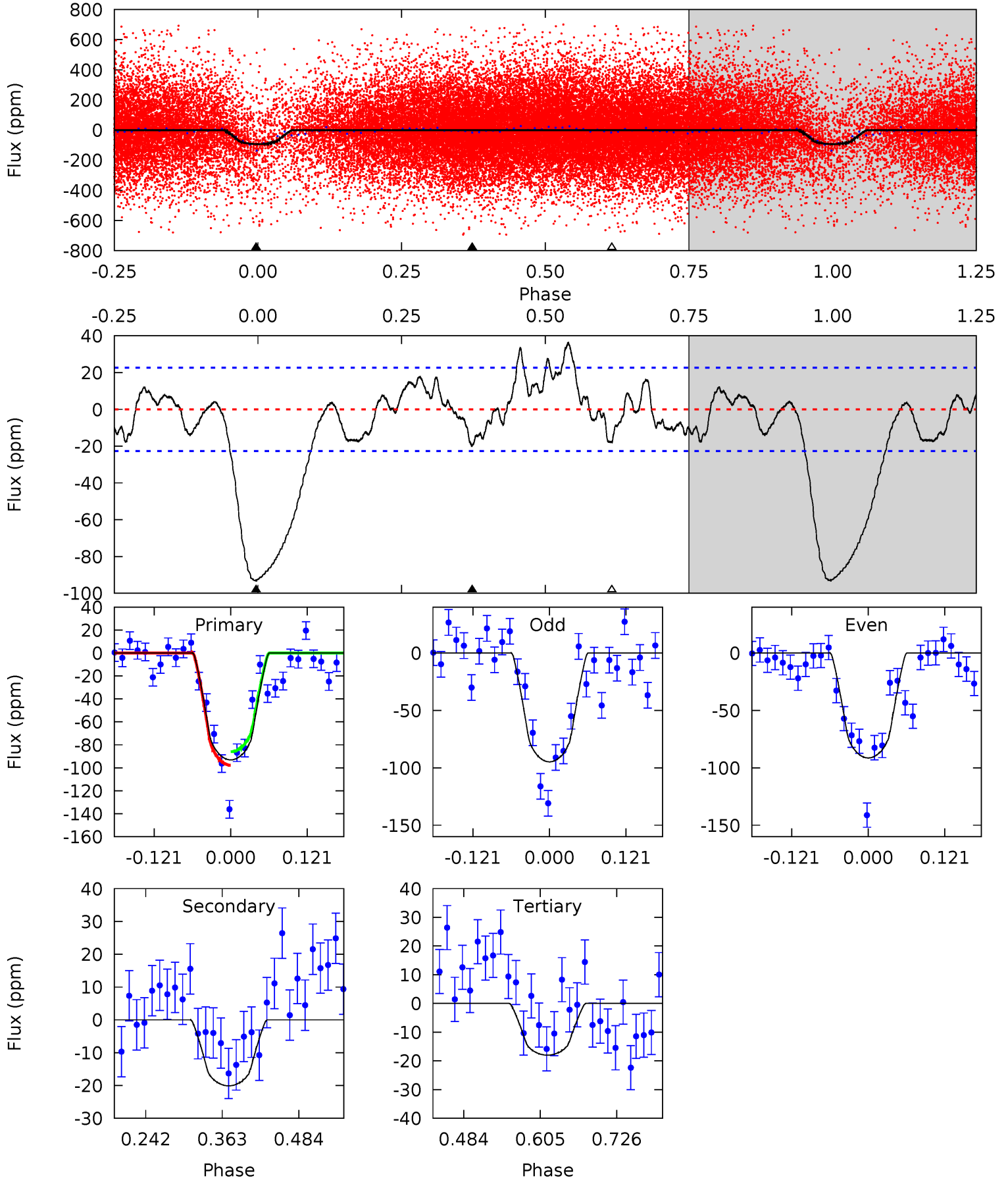
TCE 005308666-02 P= 0.784614 Days $T_0=131.839896$ (BKJD)



DV Model-Shift Uniqueness Test

005308666-02, P = 0.784643 Days, E = 131.832041 Days

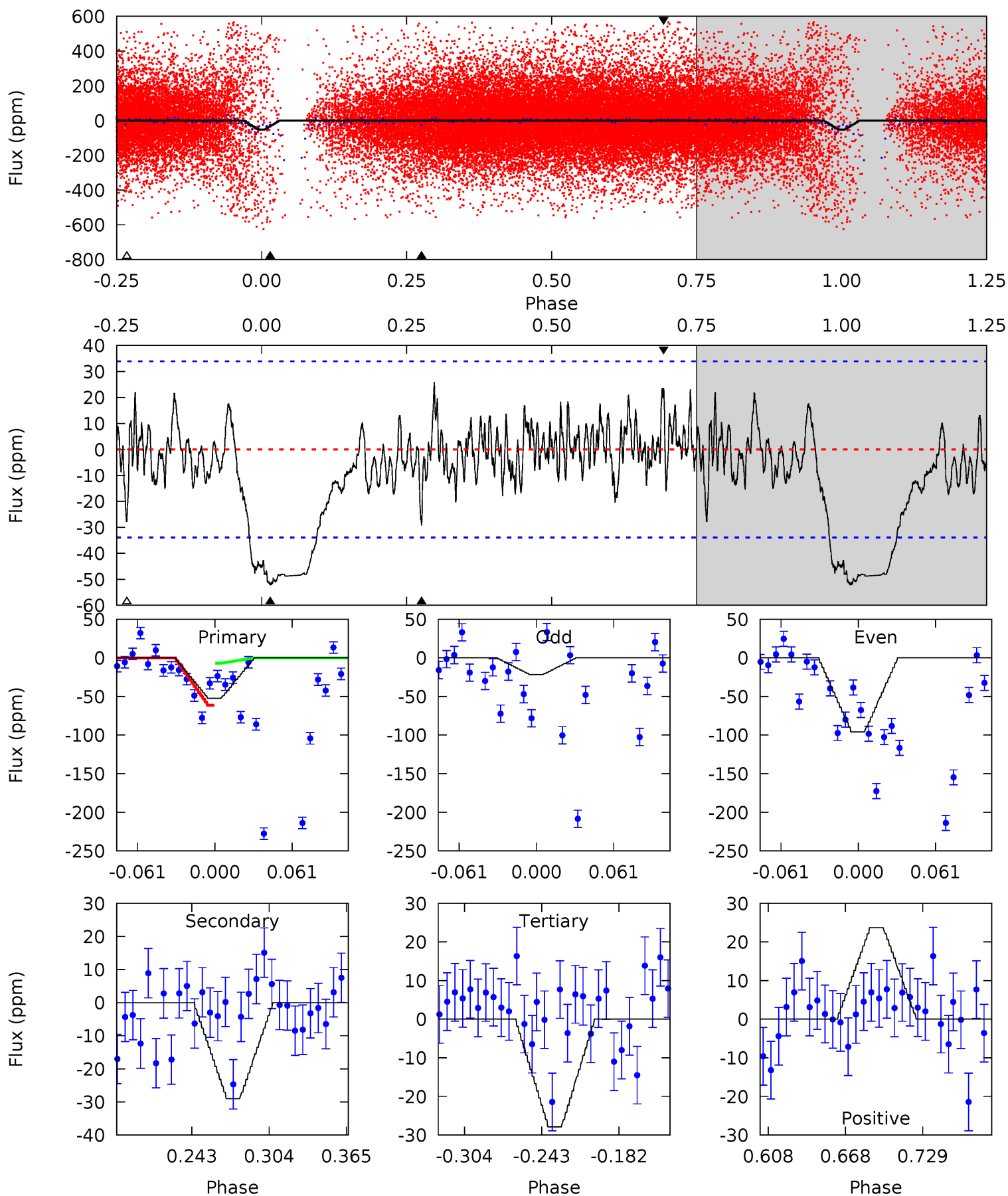
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	4.02	3.60	0	4.52	1.55	2.53	15.0	18.6	0.42	4.02	0.34	1.06	0.28	1.13



Alt Model-Shift Uniqueness Test

005308666-02, P = 0.784614 Days, E = 131.839896 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.21	3.99	3.84	3.26	4.67	1.88	1.22	3.37	3.94	0.15	0.73	5.08	-2.93	0.33	0



Stellar Parameters For KIC 005308666

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3853^{+76}_{-105}	$0.892^{+0.030}_{-0.030}$	$-0.220^{+0.200}_{-0.250}$	$78.869^{+2.010}_{-16.083}$	$1.772^{+0.077}_{-0.658}$	$0.000^{+0.000}_{-0.000}$
	+2%/-3%	+3%/-3%	+91%/-114%	+3%/-20%	+4%/-37%	+29%/-8%
Source	PHO54	AST54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 005308666-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-20 ± 5	$104.07^{+72.87}_{-64.73}$	14858^{+345}_{-452}	-13237^{+1039}_{-860}	$0.000^{+0.002}_{-0.000}$
Alt.	-29 ± 7	$83.79^{+67.74}_{-51.91}$	14847^{+337}_{-425}	-13175^{+1037}_{-860}	$0.001^{+0.005}_{-0.001}$

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

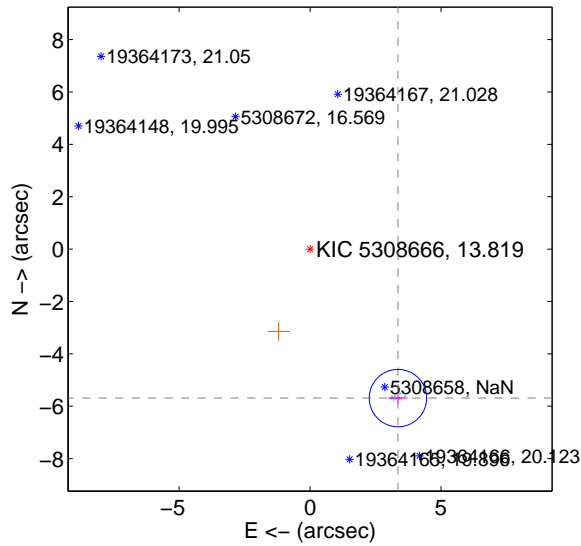
Supplemental centroid analysis for 005308666-02. Kepler magnitude: 13.82. Transit SNR 10.18

There are 7 quarters with good PRF difference image offsets

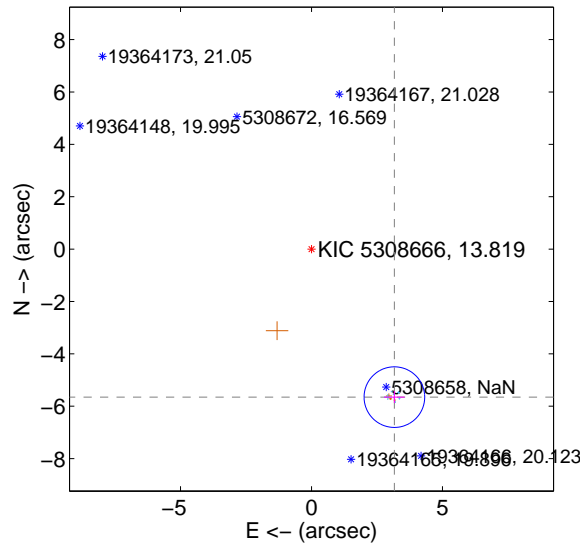
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.606 ± 0.365	18.09	-3.356 ± 0.368	-5.690 ± 0.215
PRF-fit source offset from KIC position	6.479 ± 0.386	16.79	-3.165 ± 0.394	-5.653 ± 0.230
photometric centroid source offset	1.80 ± 0.46	3.87	1.21 ± 0.46	-1.33 ± 0.47

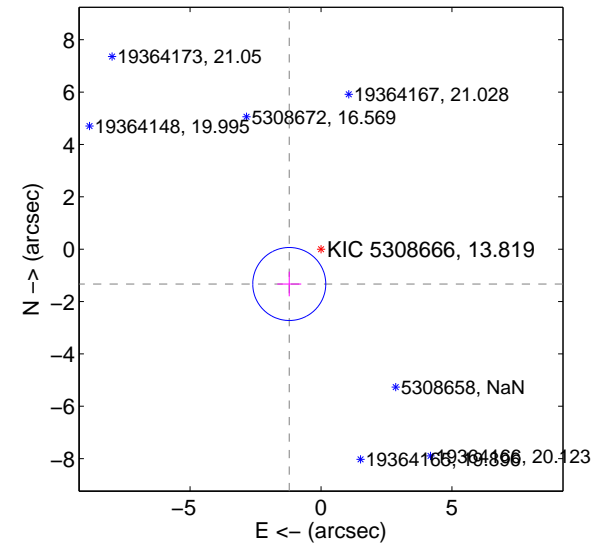
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

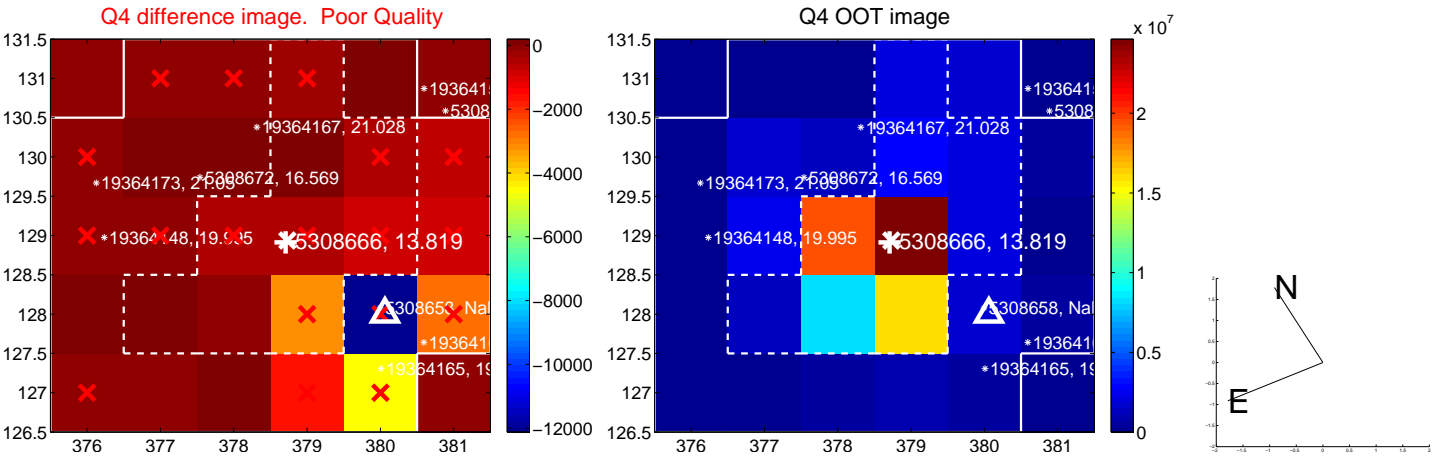
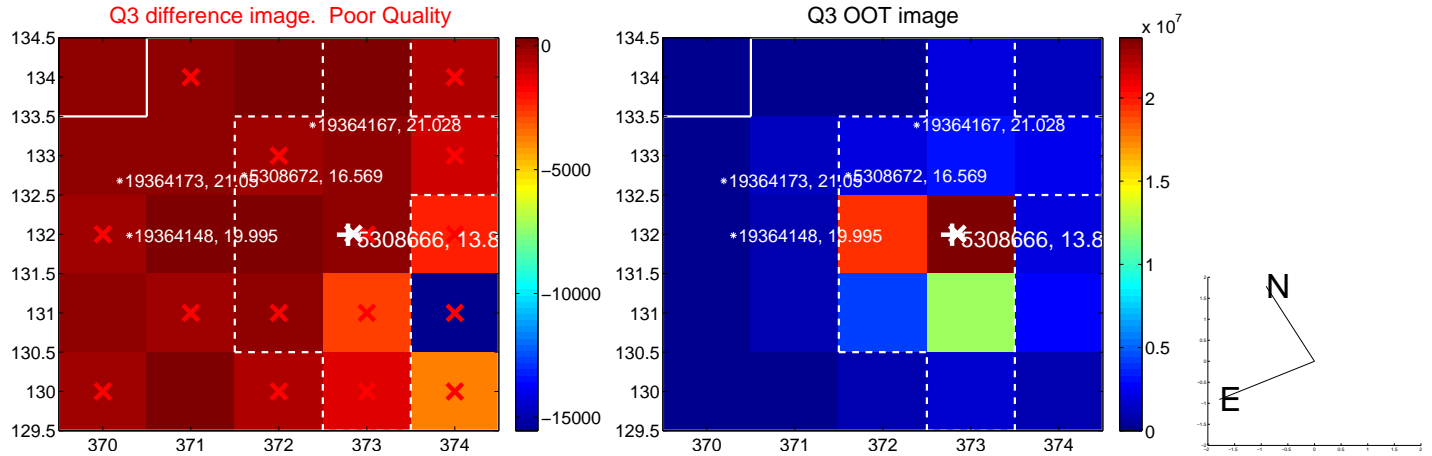
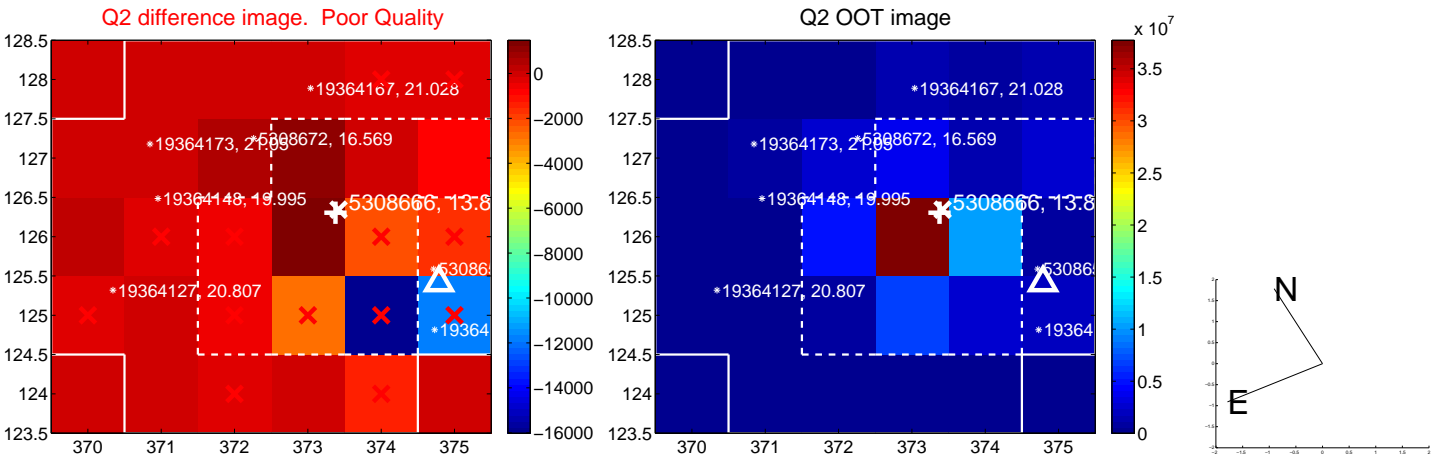
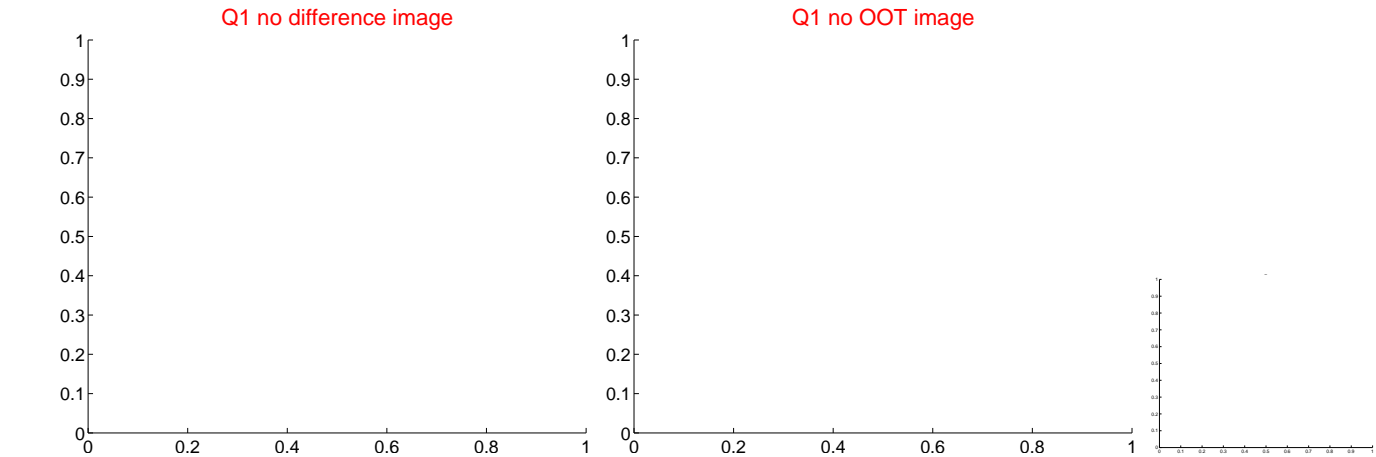


offset from photometric centroids

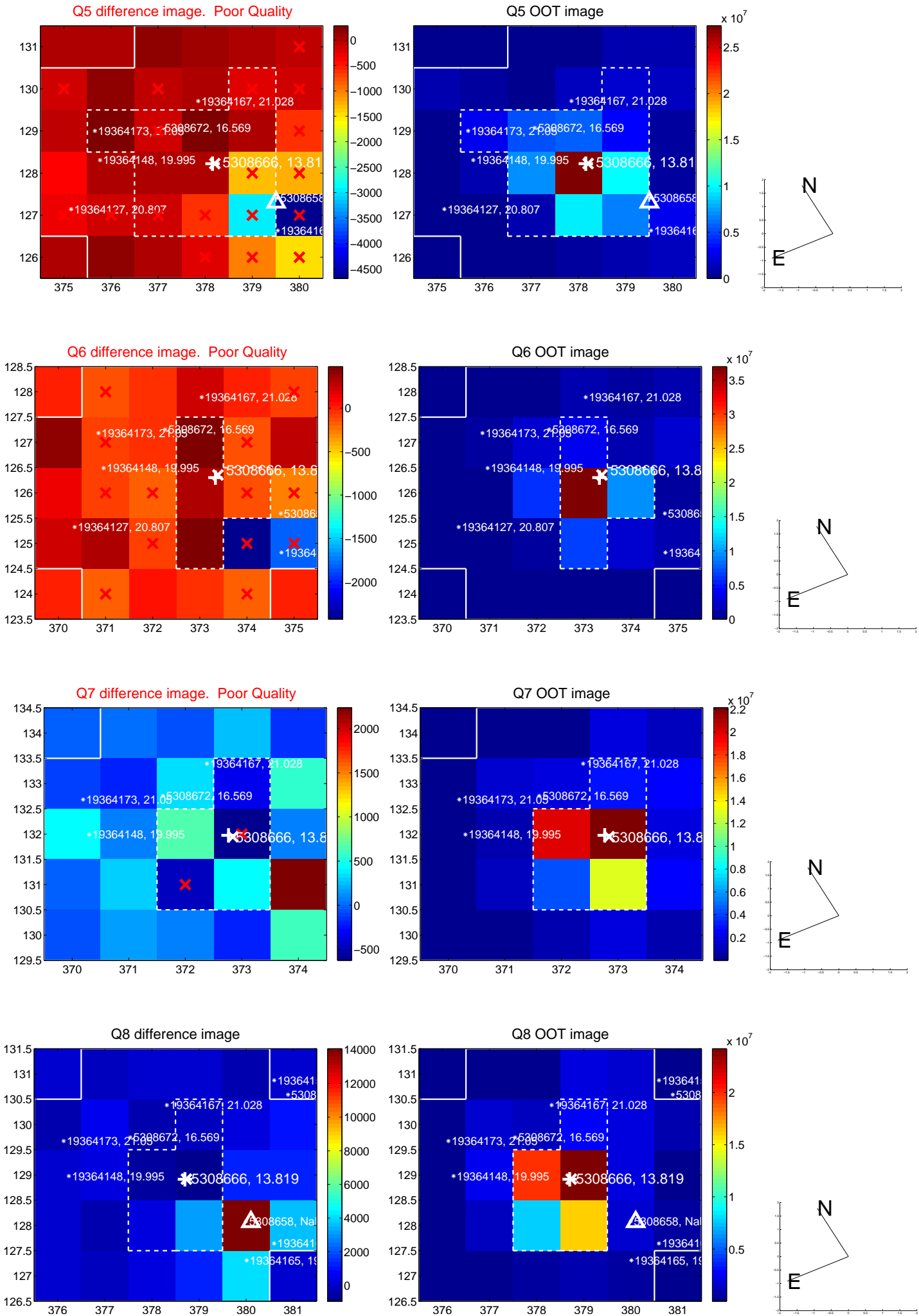


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

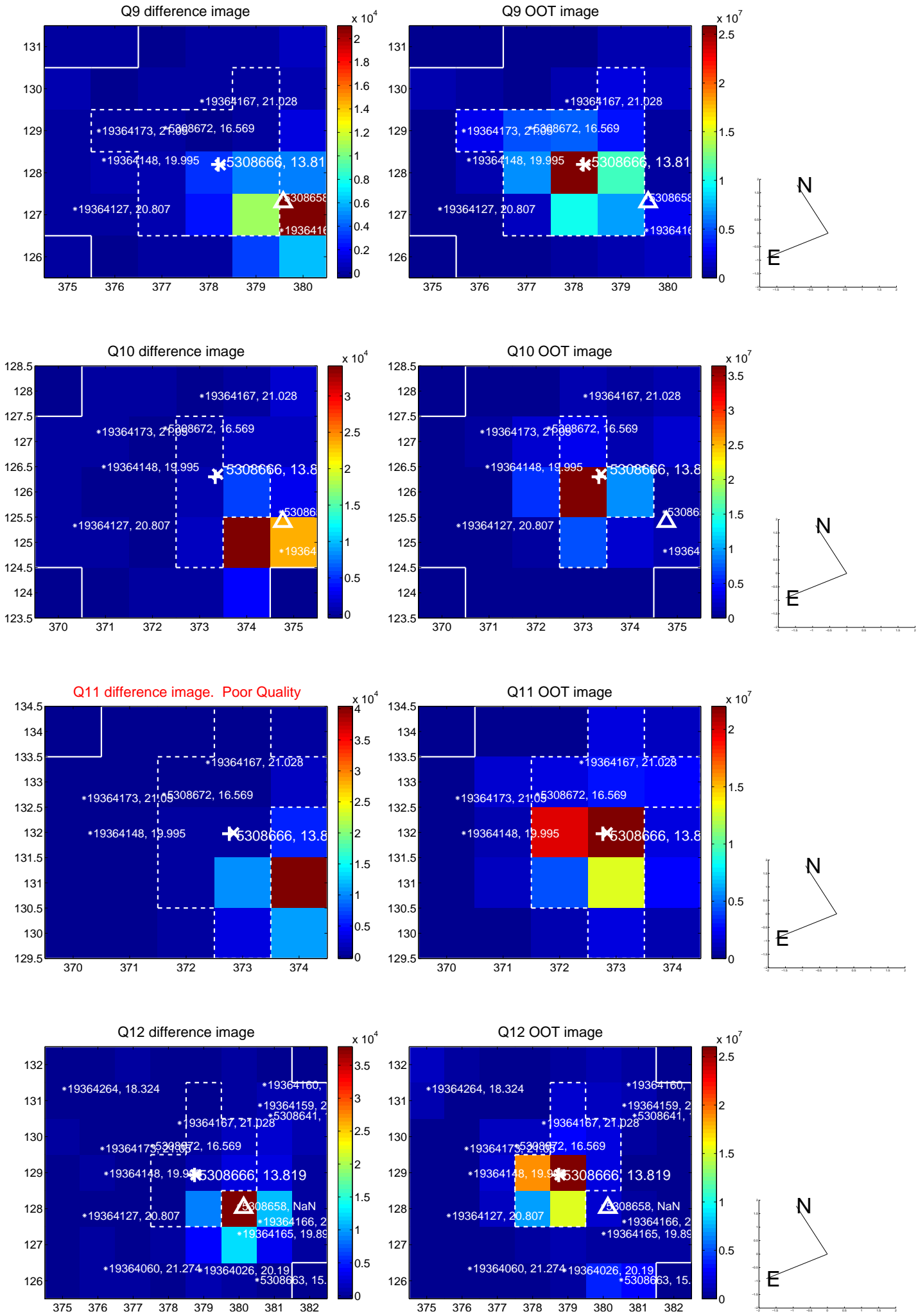
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



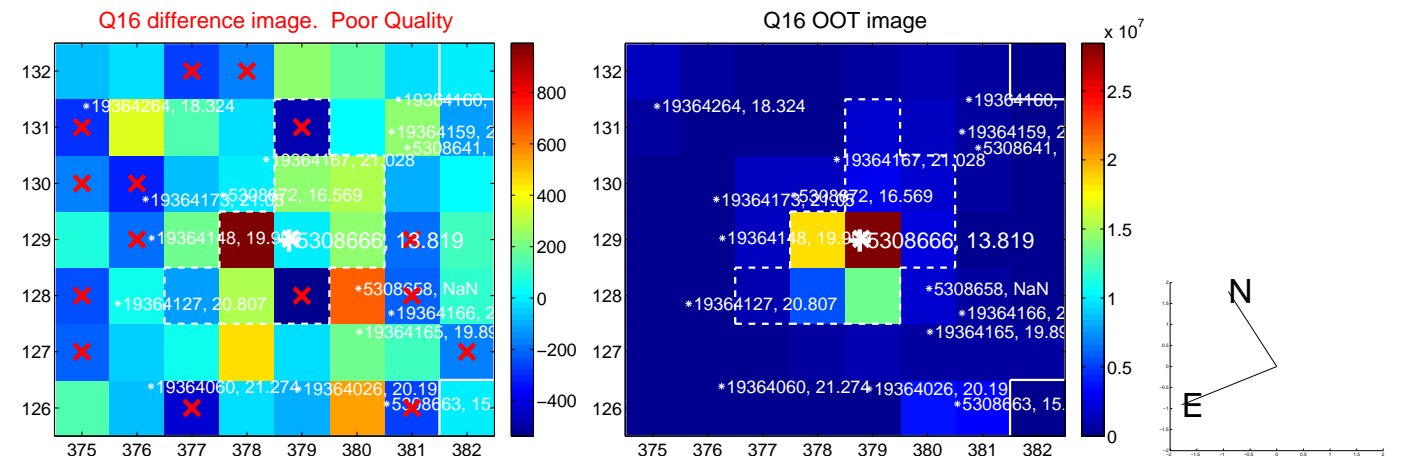
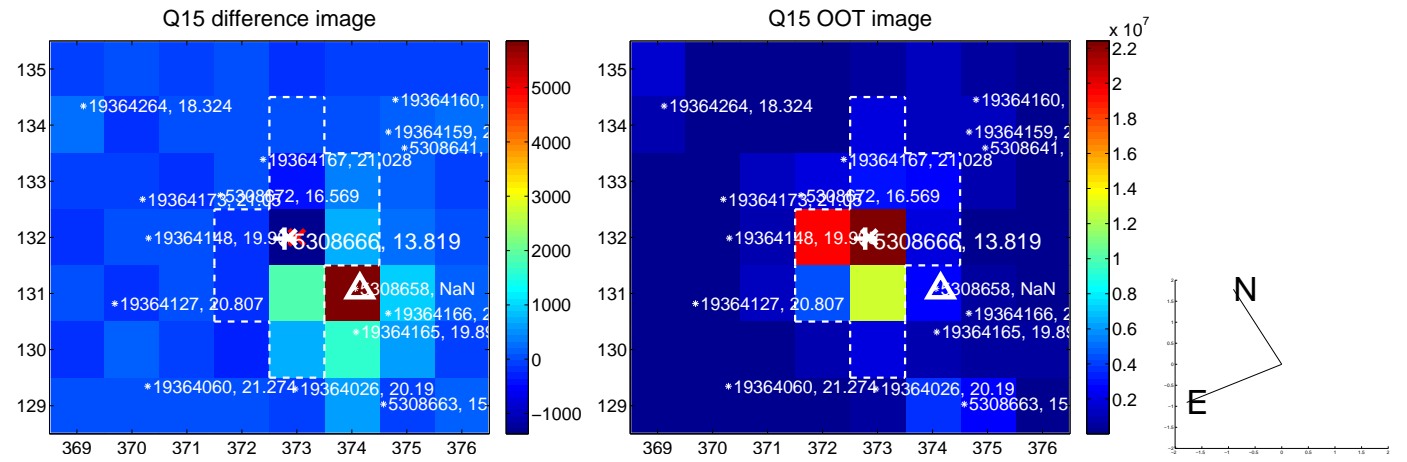
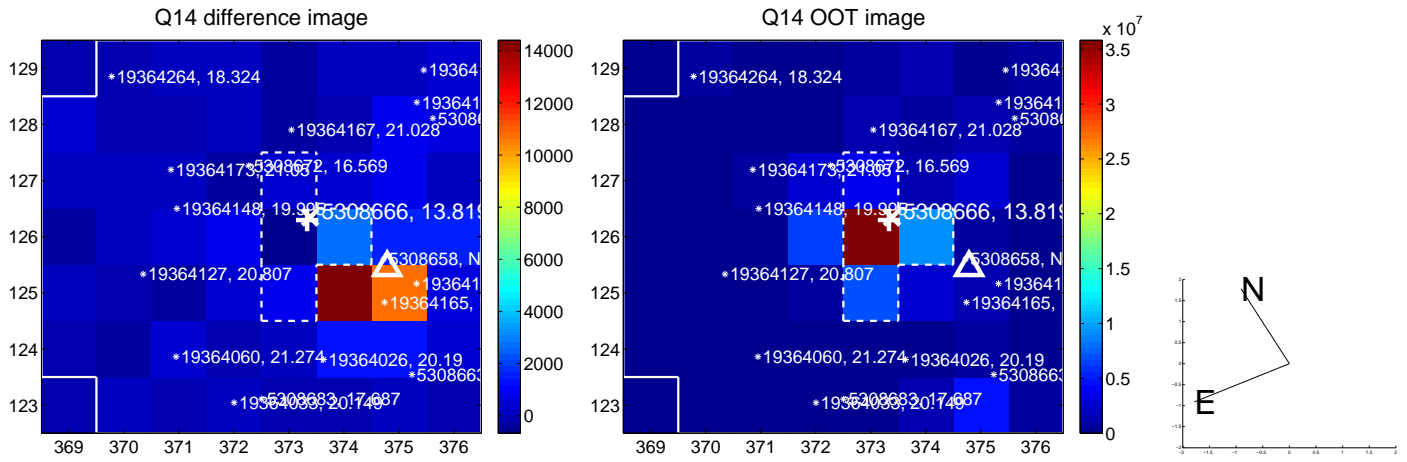
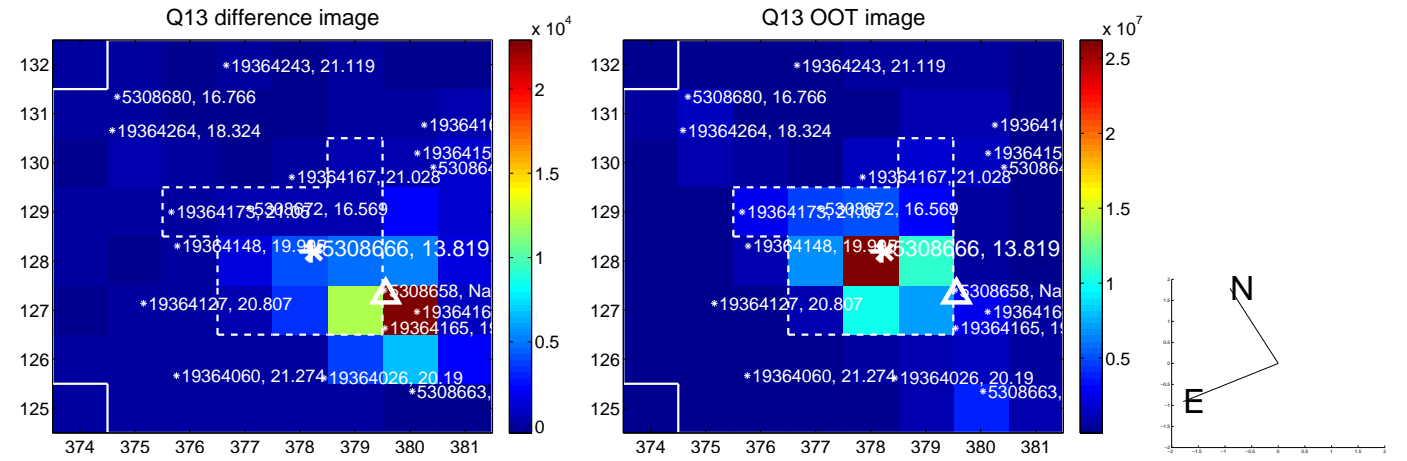
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



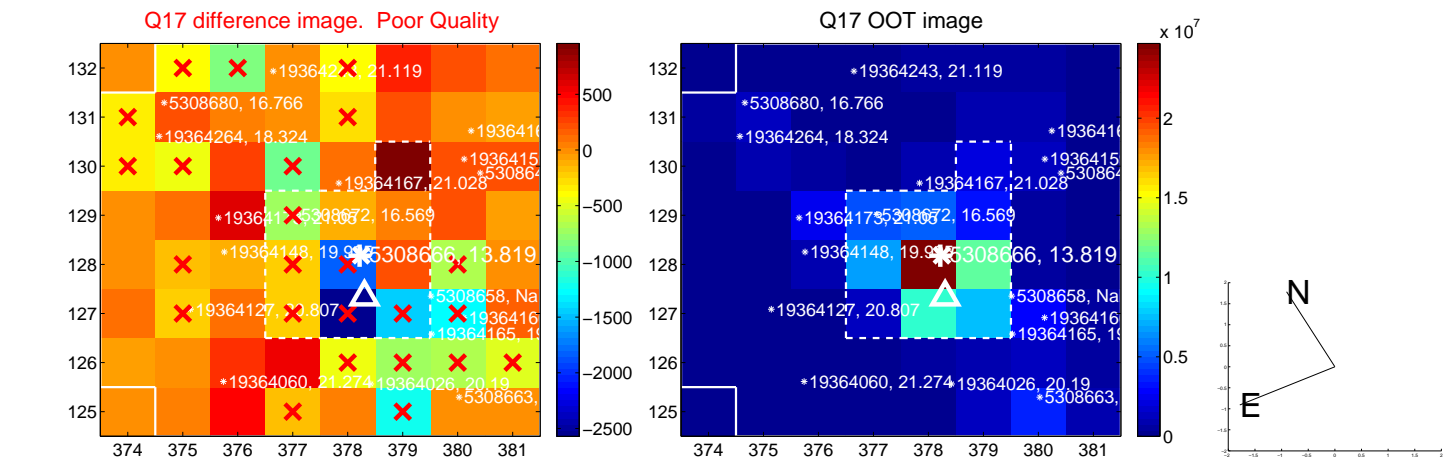
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



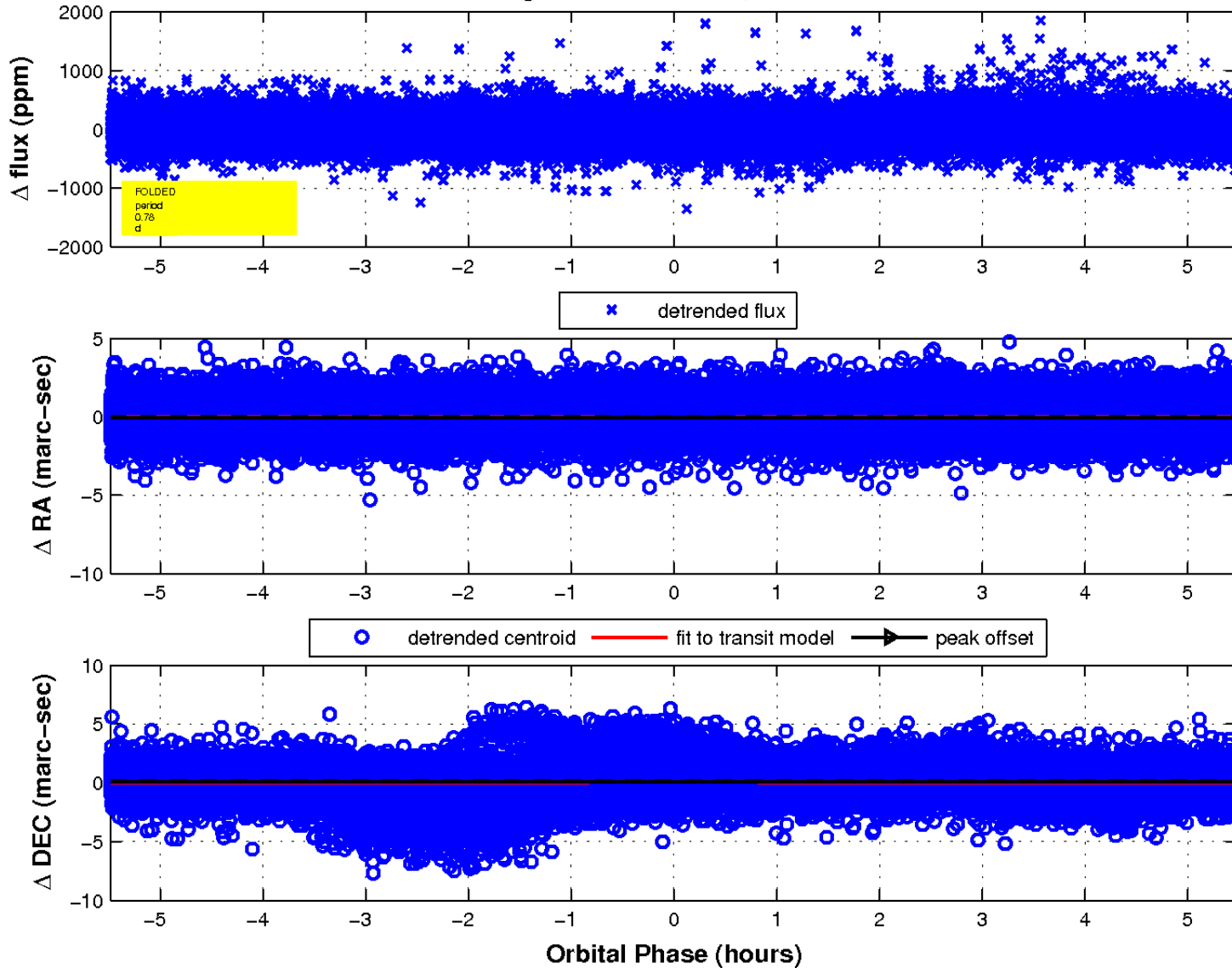
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

