

KIC 012255382

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})
012255382-01	OBS	3167.01	0.999308	131.638493	21.9	2.060	15.8	17.1	0.85	5570	0.48	1680.20
012255382-02	OBS	No	0.999309	132.137331	22.9	1.933	19.1	18.8	0.85	5570	0.49	1680.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012255382-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT SATURATED
012255382-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT SATURATED

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.

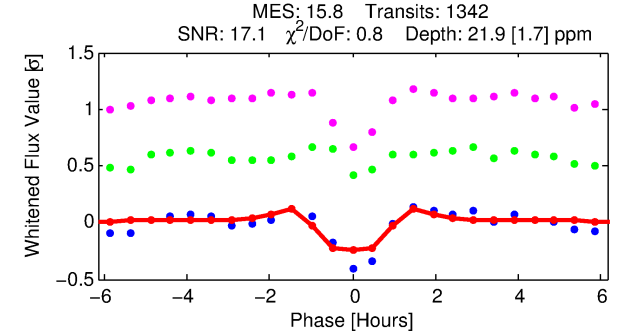
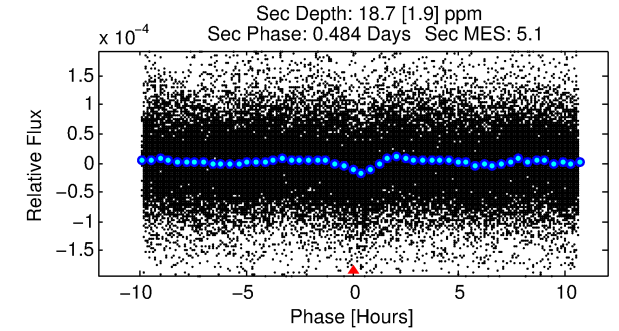
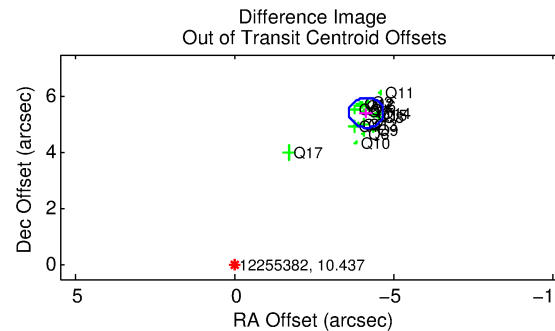
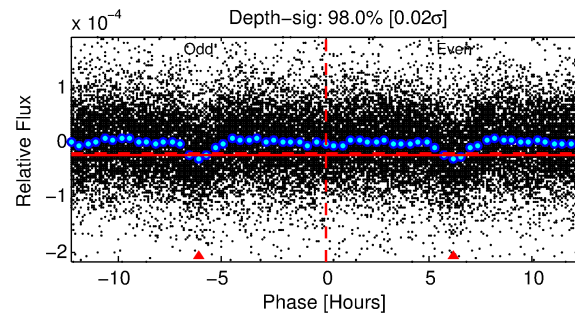
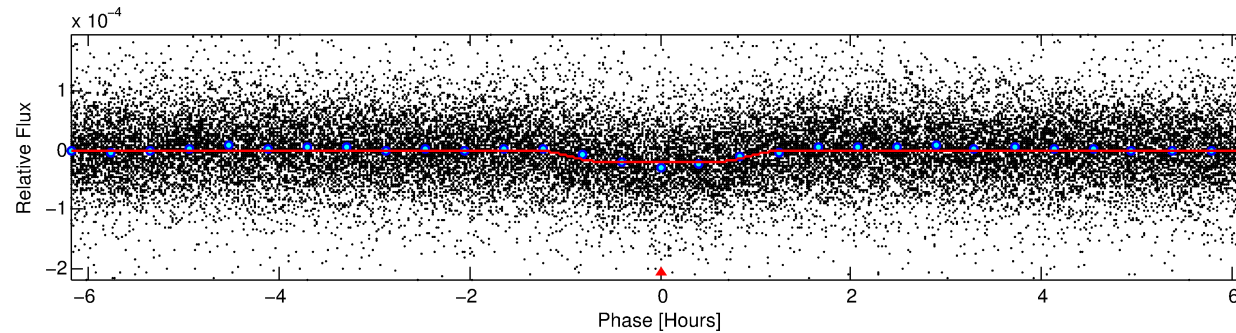
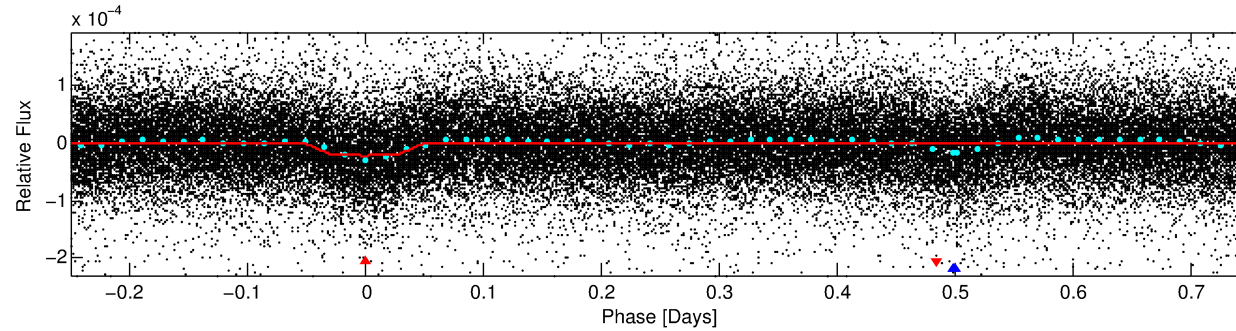
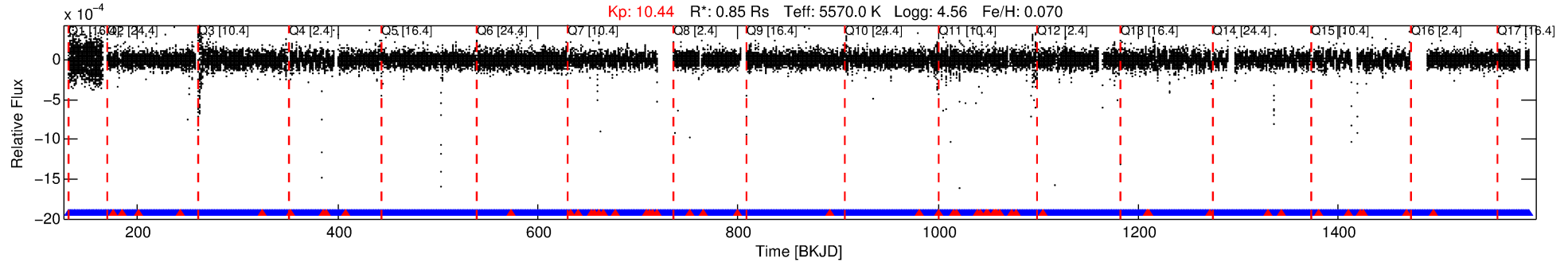
Ephemeris Match Information For 012255382-01

No Significant Match Found

DV One-Page Summary

KIC: 12255382 Candidate: 1 of 2 Period: 0.999 d
KOI: K03167 Corr: No Ephemeris Match

Kp: 10.44 R*: 0.85 Rs Teff: 5570.0 K Logg: 4.56 Fe/H: 0.070



DV Fit Results:

Period = 0.99931 [0.00001] d
Epoch = 131.6385 [0.0011] BKJD
Rp/R* = 0.0051 [0.0010]
a/R* = 1.89 [1.14]
b = 0.90 [0.18]
Seff = 1680.20 [345.80]
Teq = 1633 [84] K
Rp = 0.48 [0.11] Re
a = 0.0194 [0.0024] AU
Ag = 16.76 [7.24] [2.18σ]
Teffp = 5107 [496] K [6.90σ]

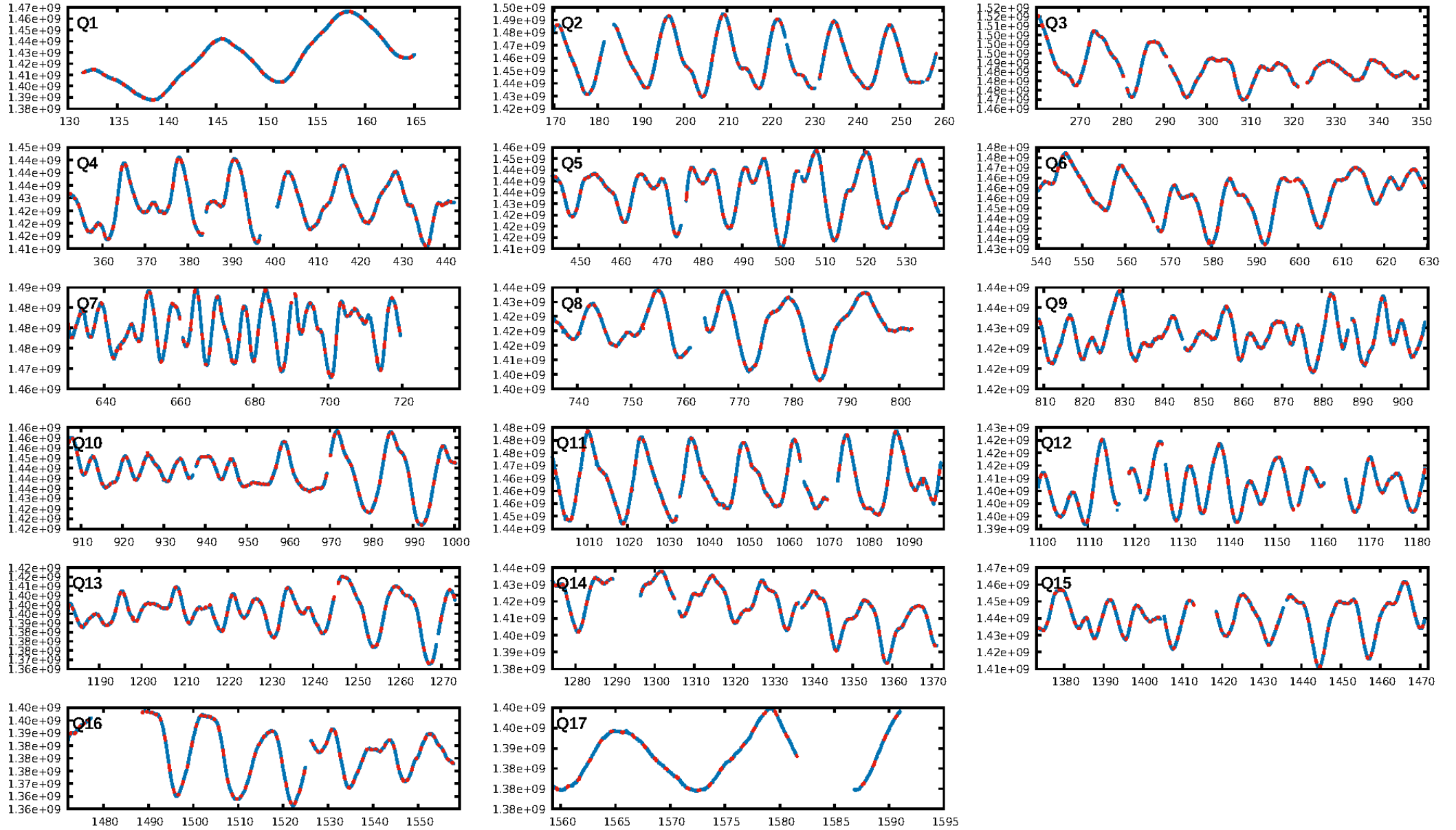
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.81e-42
RollingBand-fgt: 0.96 [1227/1282]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 9.597 arcsec [9.48σ]
OotOffset-rm: 6.812 arcsec [37.74σ]
KicOffset-rm: 6.266 arcsec [40.86σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 1.00 [17/17]

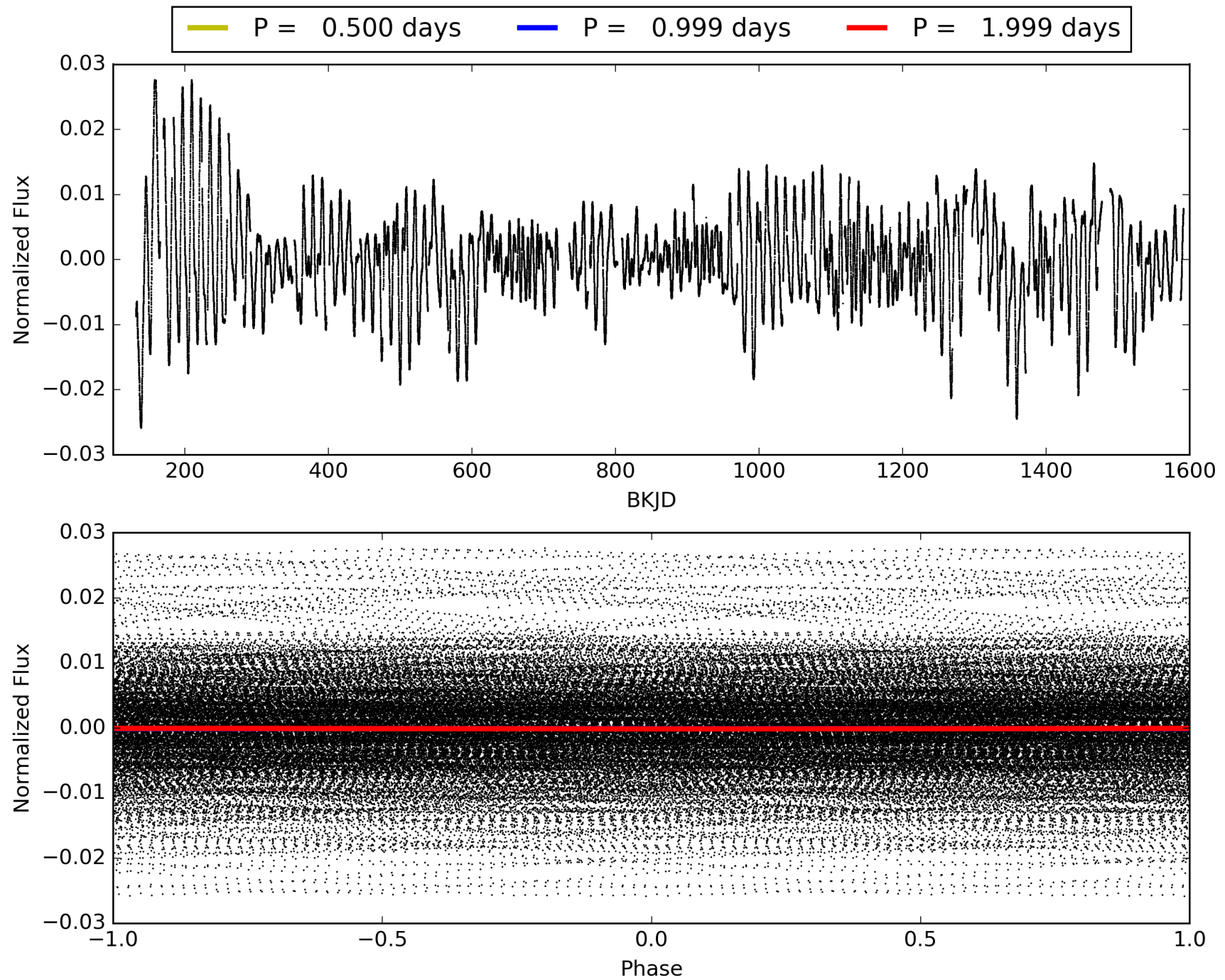
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 012255382-01, PDC Light Curves

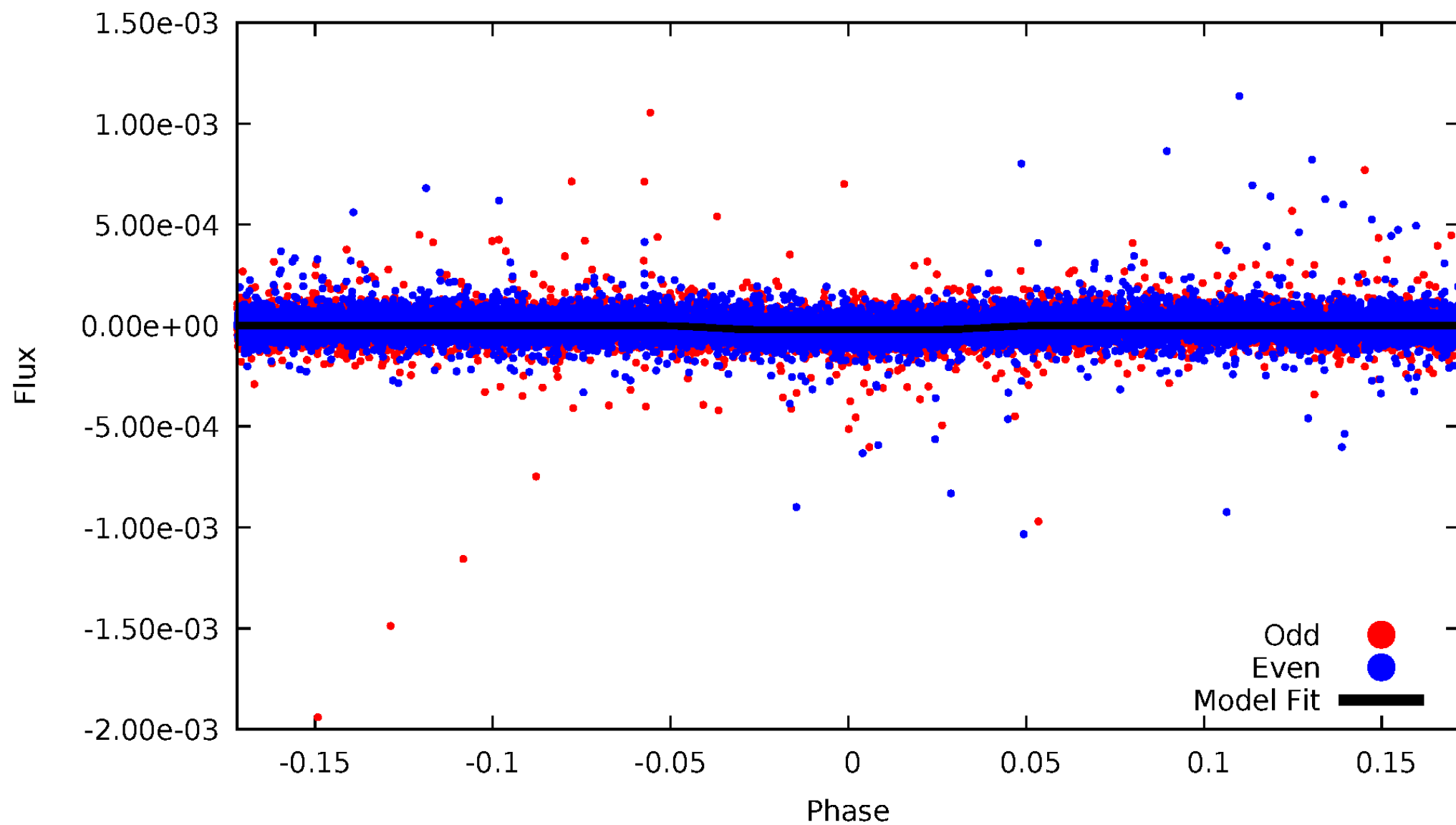


TCE 012255382-01



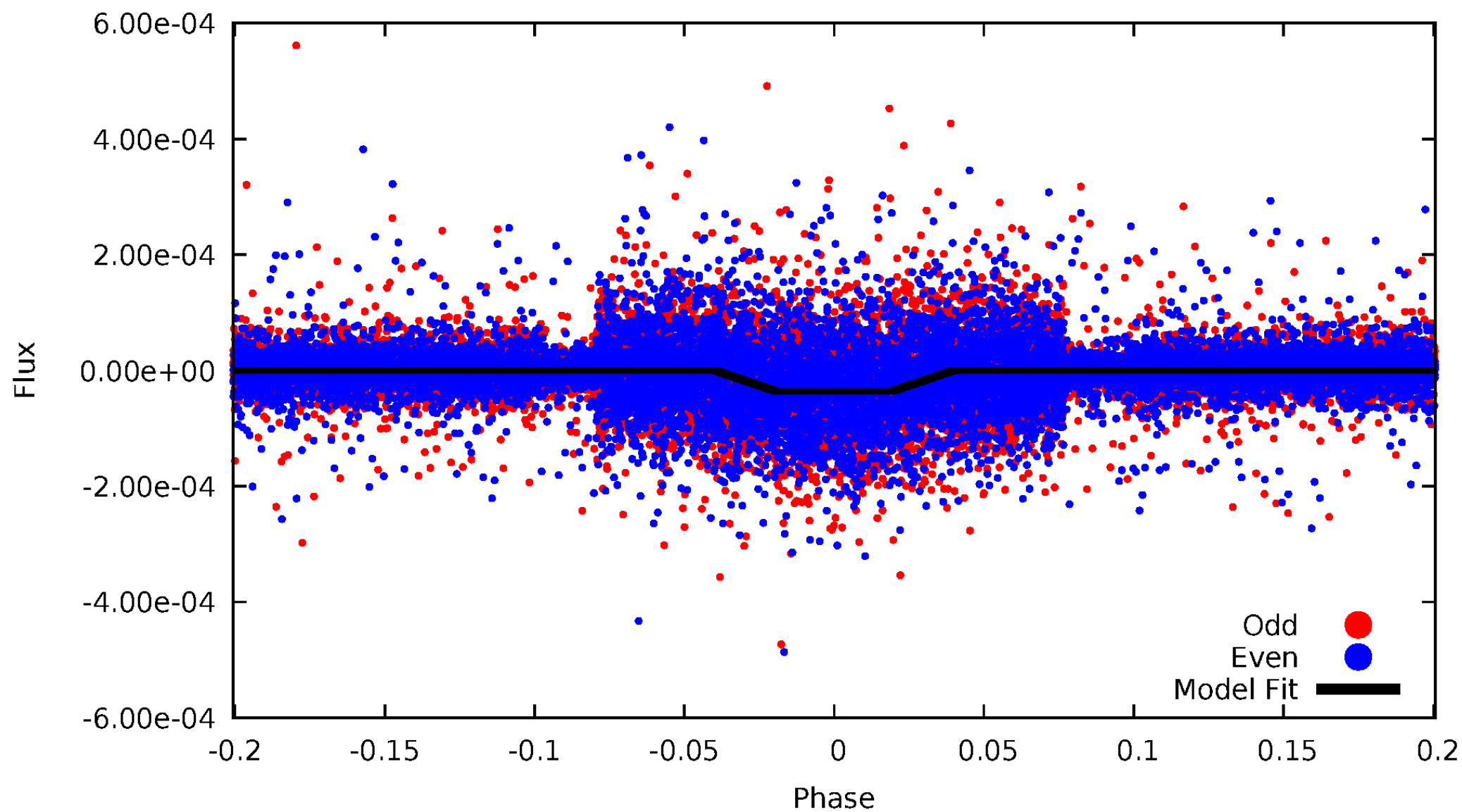
DV Odd/Even

TCE 012255382-01

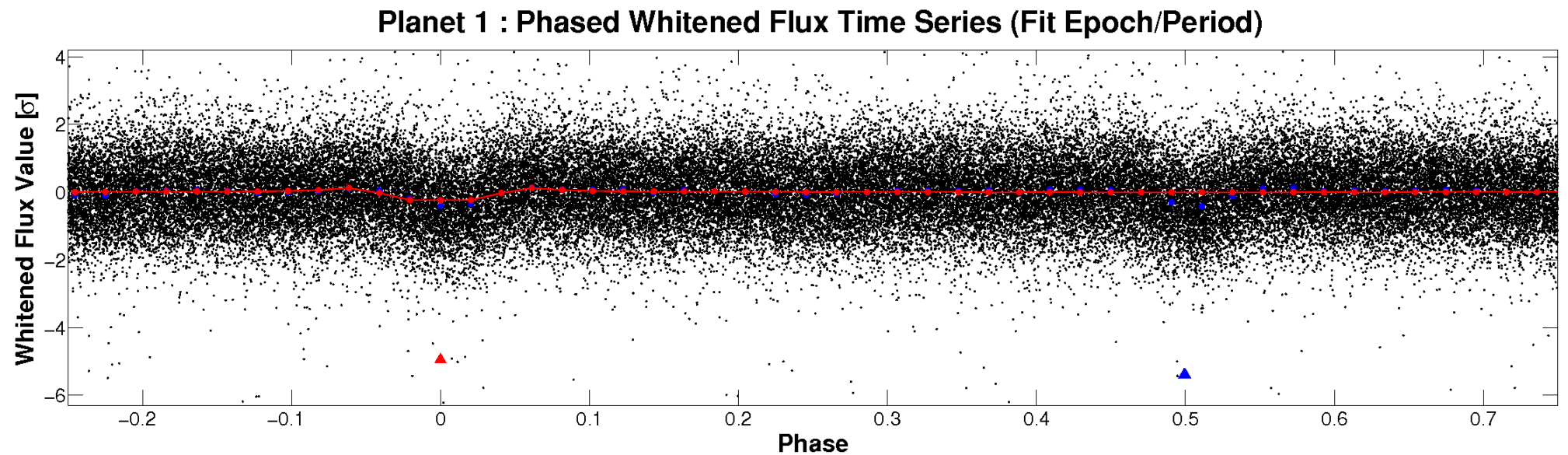
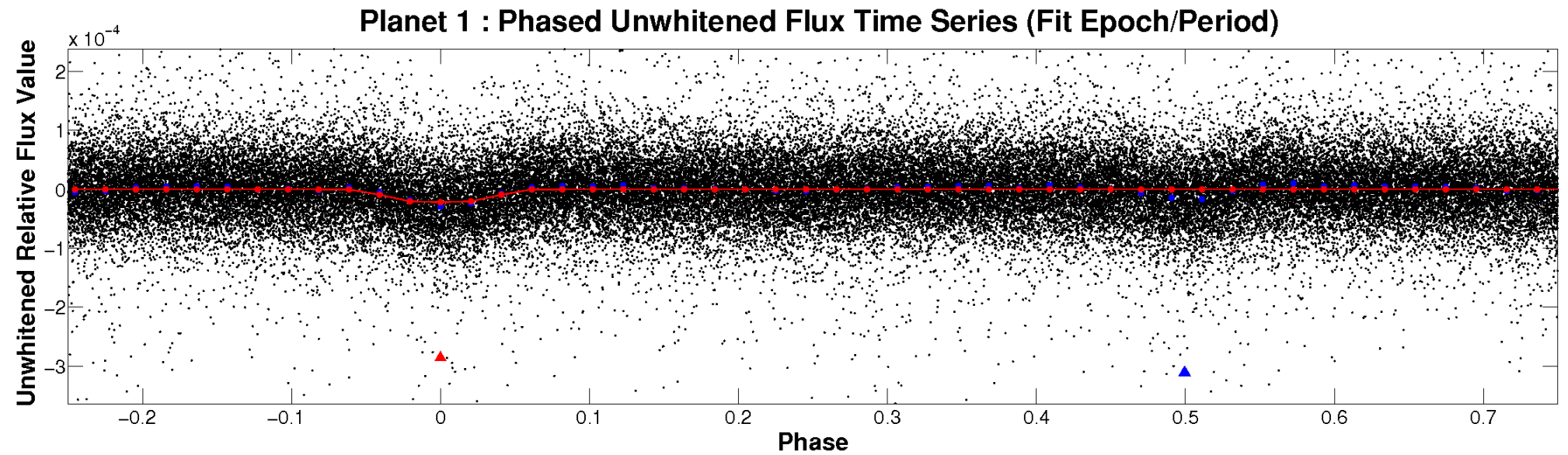


ALT Odd/Even

TCE 012255382-01

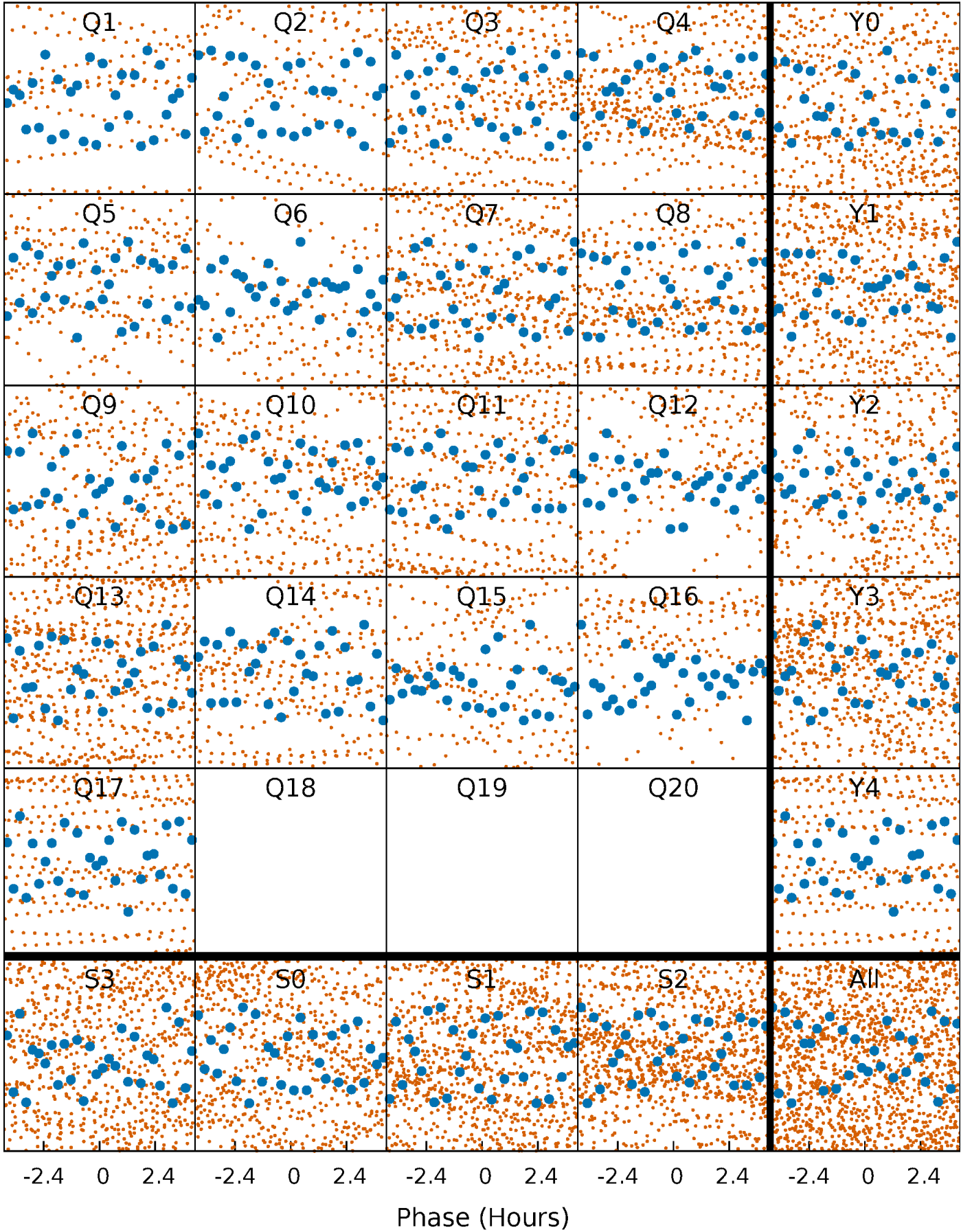


Non-Whitened Vs. Whitened Light Curve



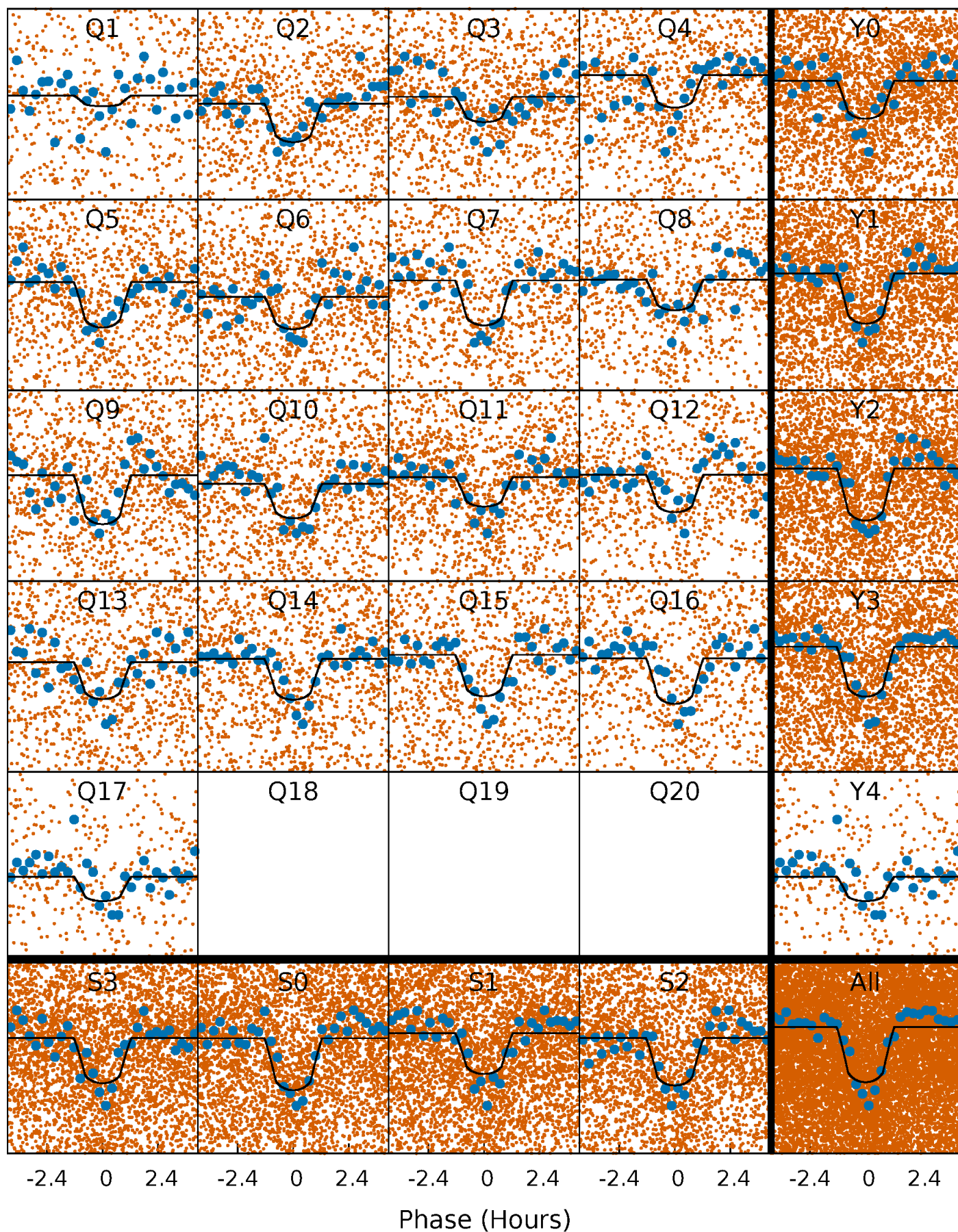
PDC Quarter-Phased Transit Curves

TCE 012255382-01 P= 0.999308 Days $T_0=131.638493$ (BKJD)



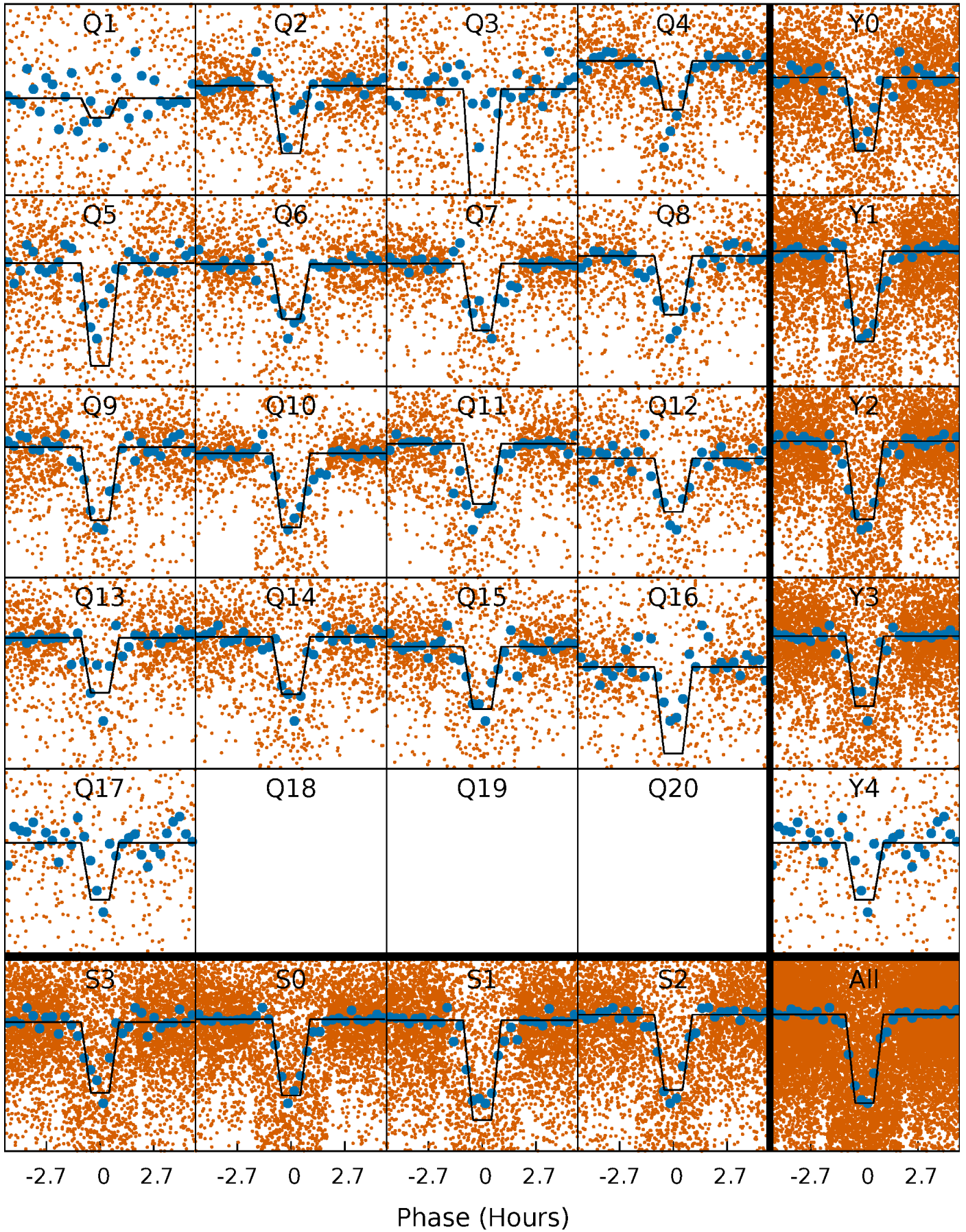
DV Quarter-Phased Transit Curves

TCE 012255382-01 P= 0.999308 Days $T_0=131.638493$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

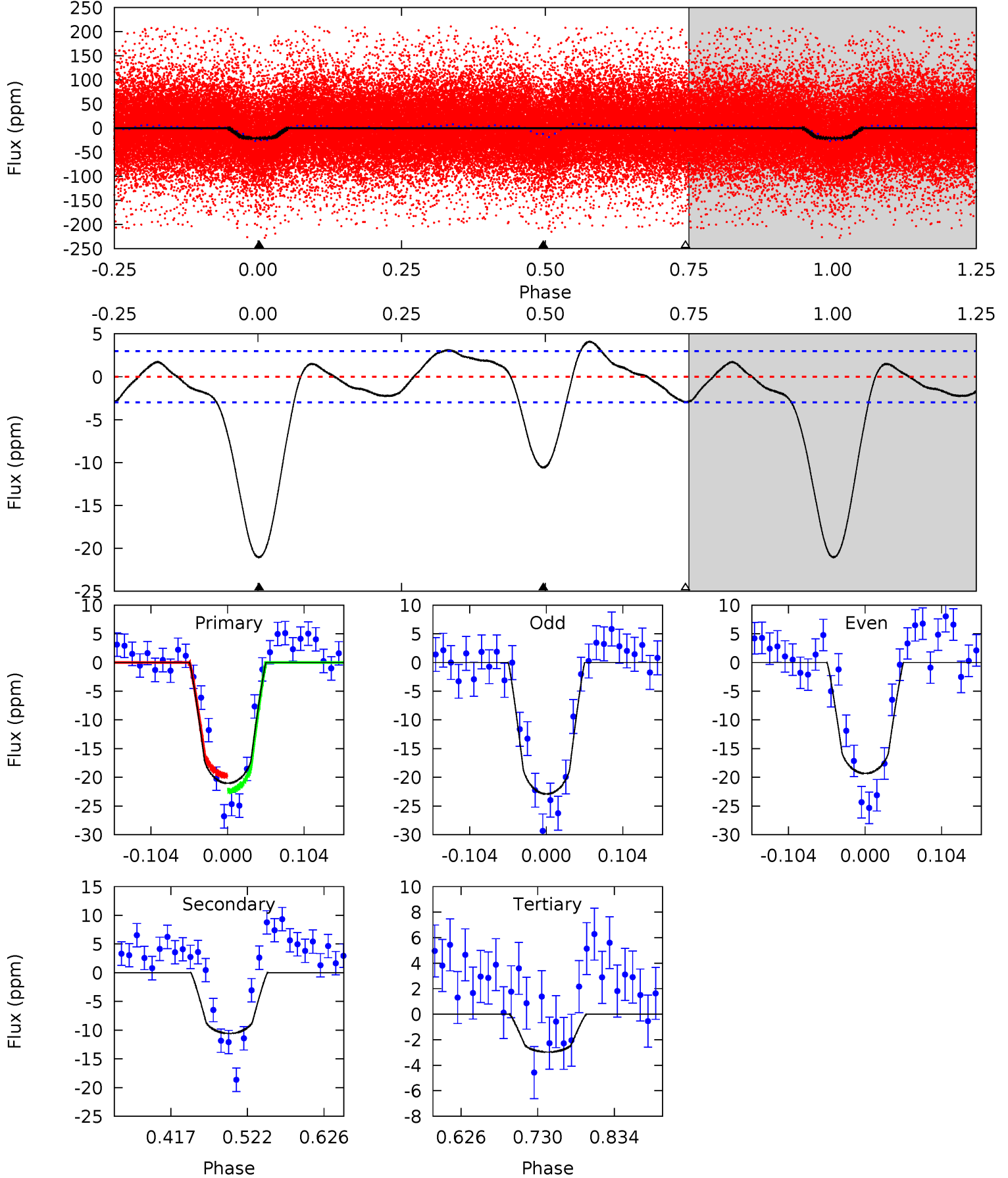
TCE 012255382-01 P= 0.999323 Days $T_0=131.636098$ (BKJD)



DV Model-Shift Uniqueness Test

012255382-01, P = 0.999308 Days, E = 130.639185 Days

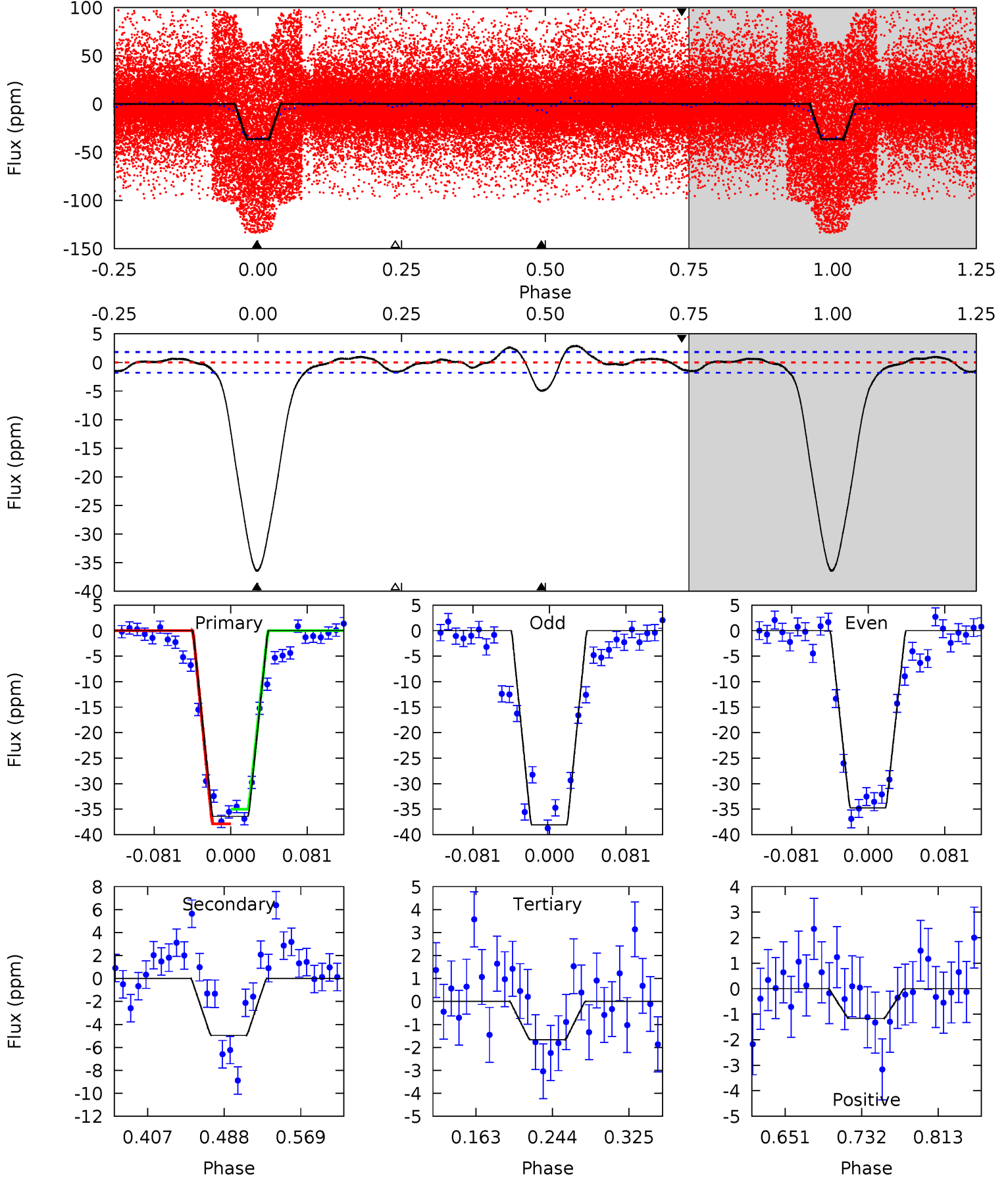
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.2	16.2	4.54	0	4.56	1.62	2.58	27.7	32.2	11.7	16.2	2.75	1.15	0.16	2.06



Alt Model-Shift Uniqueness Test

012255382-01, P = 0.999323 Days, E = 130.636775 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
92.9	12.7	4.24	-2.98	4.61	1.74	1.74	88.6	95.9	8.41	15.6	4.22	0.91	0.07	3.65



Stellar Parameters For KIC 012255382

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5570^{+75}_{-83}	$4.561^{+0.012}_{-0.114}$	$0.070^{+0.150}_{-0.150}$	$0.855^{+0.116}_{-0.031}$	$0.971^{+0.038}_{-0.072}$	$2.185^{+0.158}_{-0.716}$
	+1%/-1%	+0%/-2%	+214%/-214%	+14%/-4%	+4%/-7%	+7%/-33%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 012255382-01 / KOI 3167.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-11 ± 1	$0.49^{+0.10}_{-0.10}$	2317^{+76}_{-50}	4553^{+423}_{-316}	$8.841^{+4.814}_{-2.721}$
Alt.	-5 ± 0	$0.58^{+0.10}_{-0.10}$	2313^{+89}_{-51}	3708^{+259}_{-216}	$3.017^{+1.370}_{-0.829}$

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

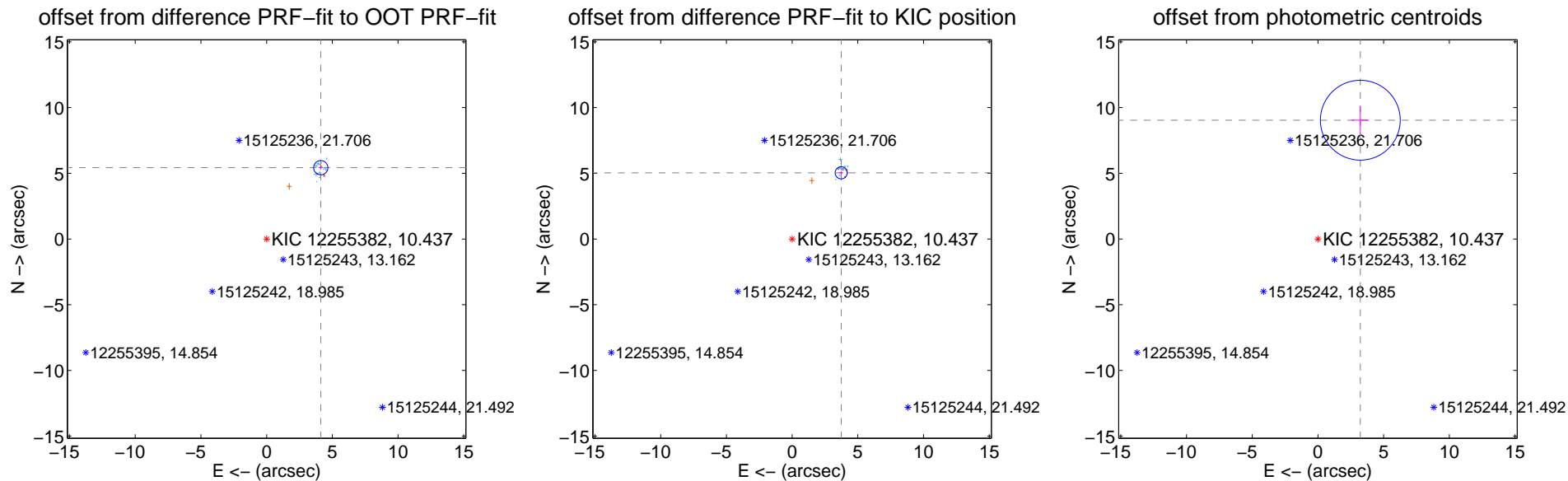
DV Centroid Data

Supplemental centroid analysis for 012255382-01. **Kepler magnitude: 10.44.** Transit SNR 17.08

There are 13 quarters with good PRF difference image offsets

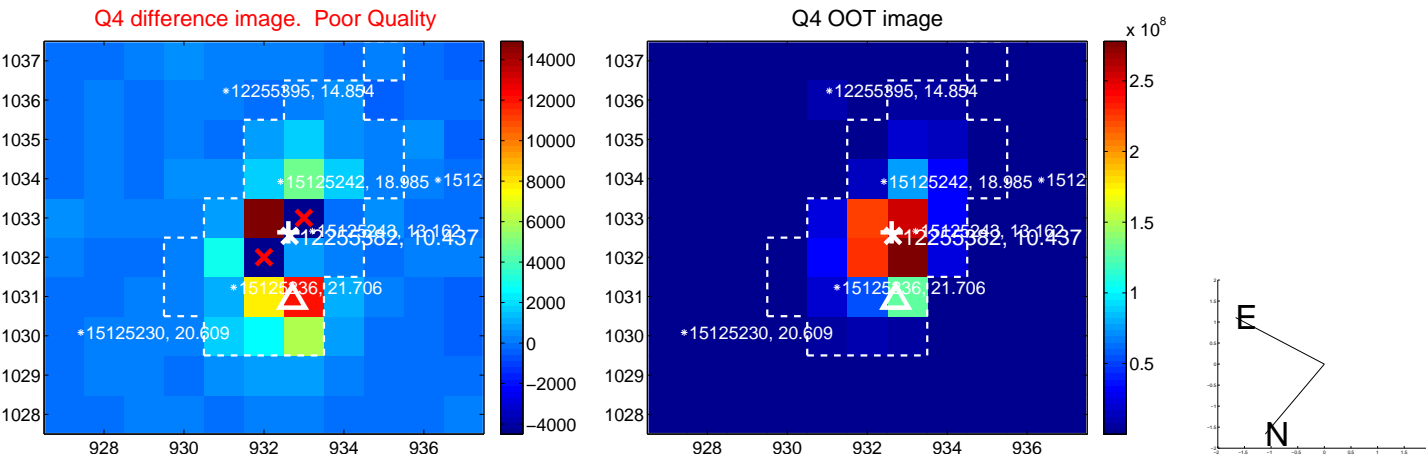
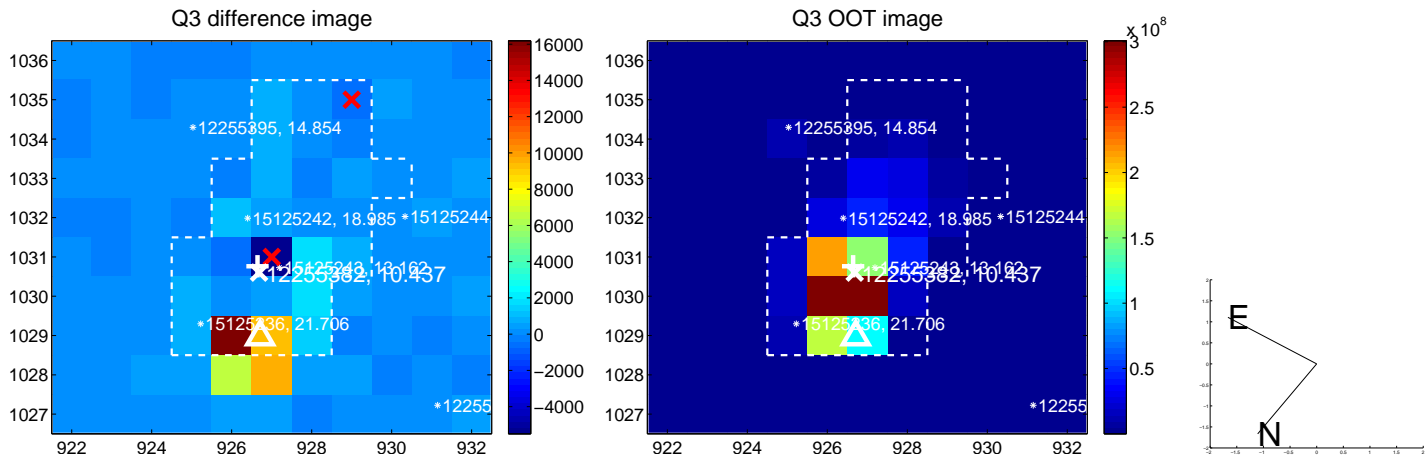
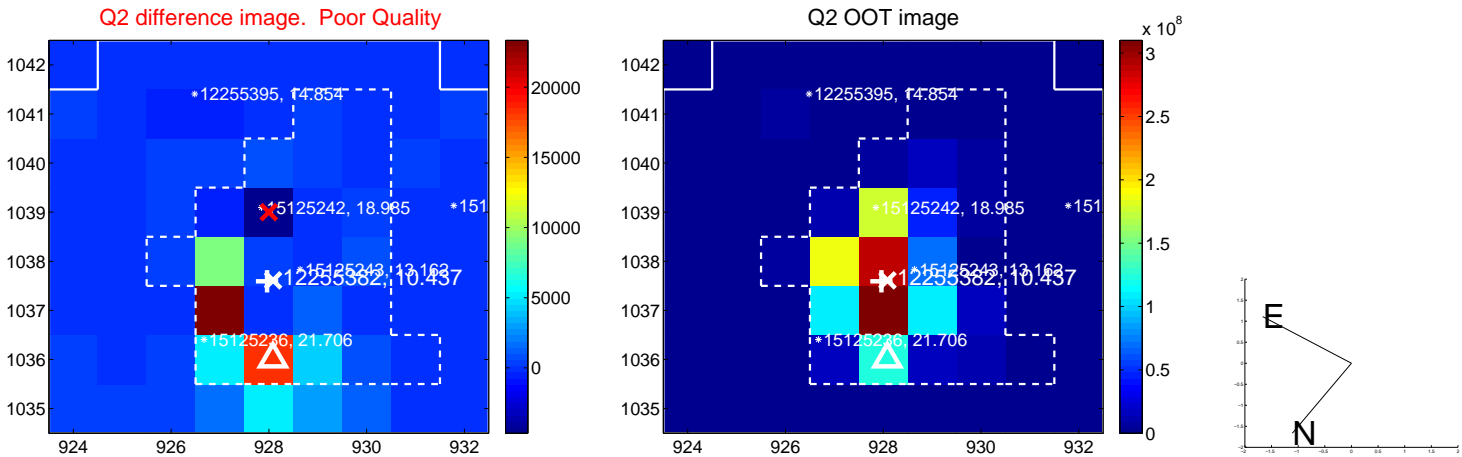
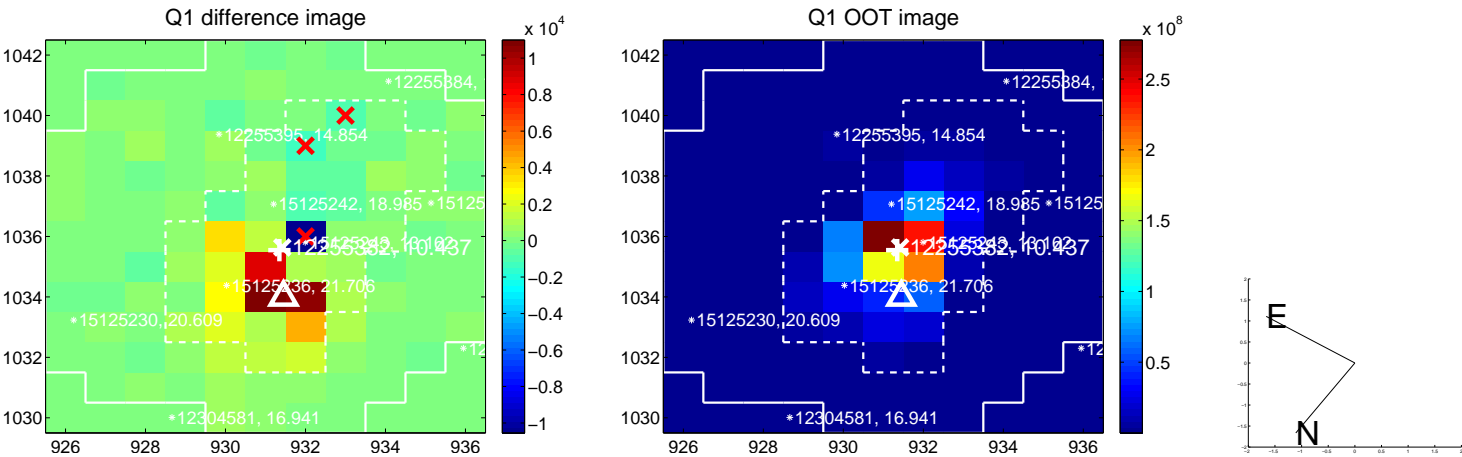
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.812 \pm 0.180	37.74	-4.119 \pm 0.159	5.426 \pm 0.141
PRF-fit source offset from KIC position	6.266 \pm 0.153	40.86	-3.732 \pm 0.156	5.034 \pm 0.116
photometric centroid source offset	9.60 \pm 1.01	9.48	-3.23 \pm 0.67	9.04 \pm 1.05

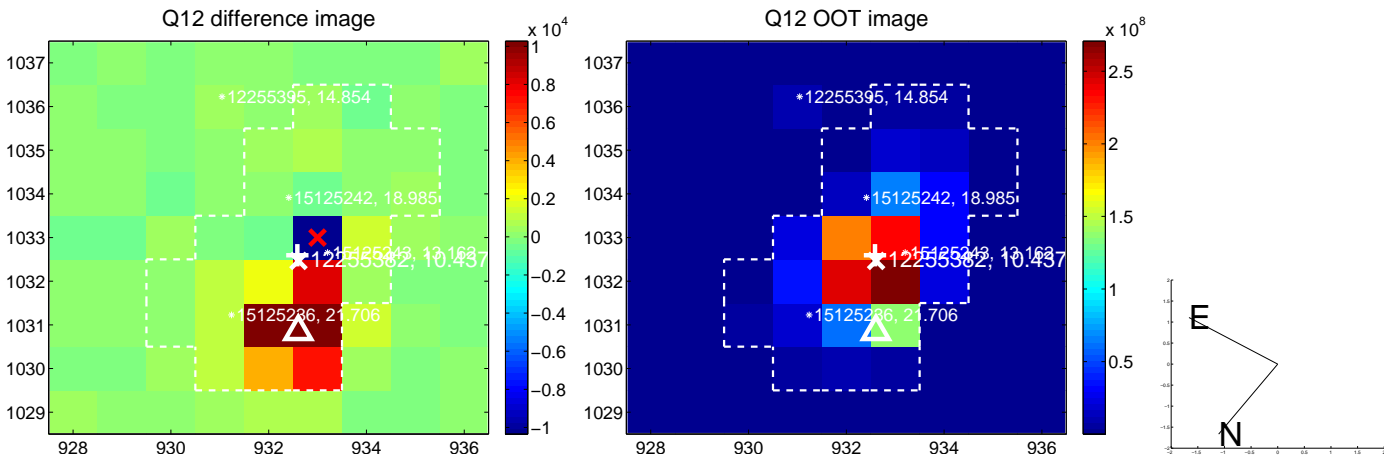
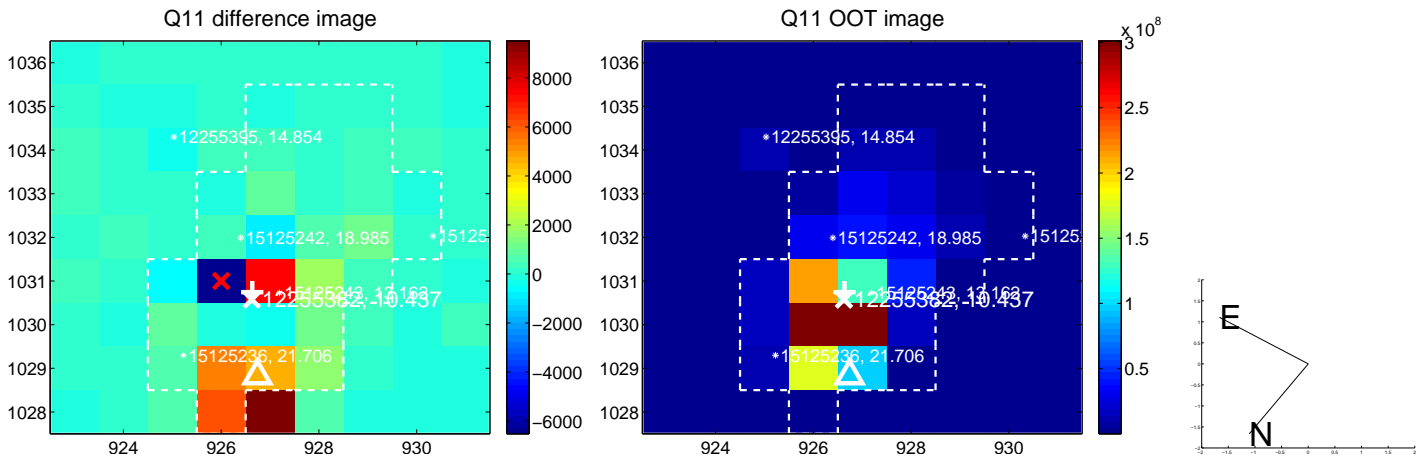
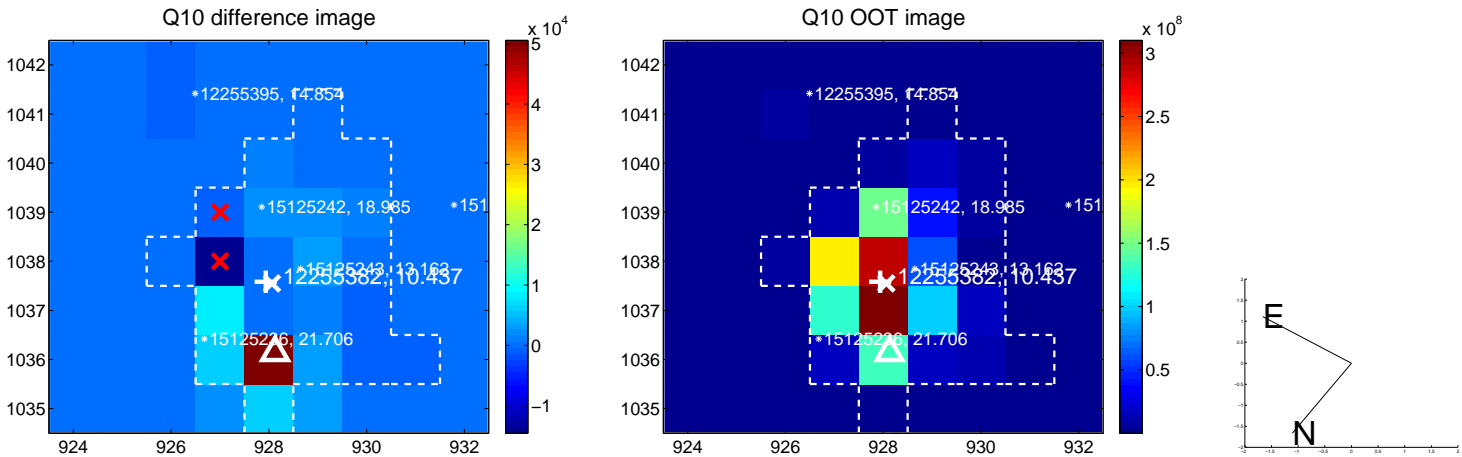
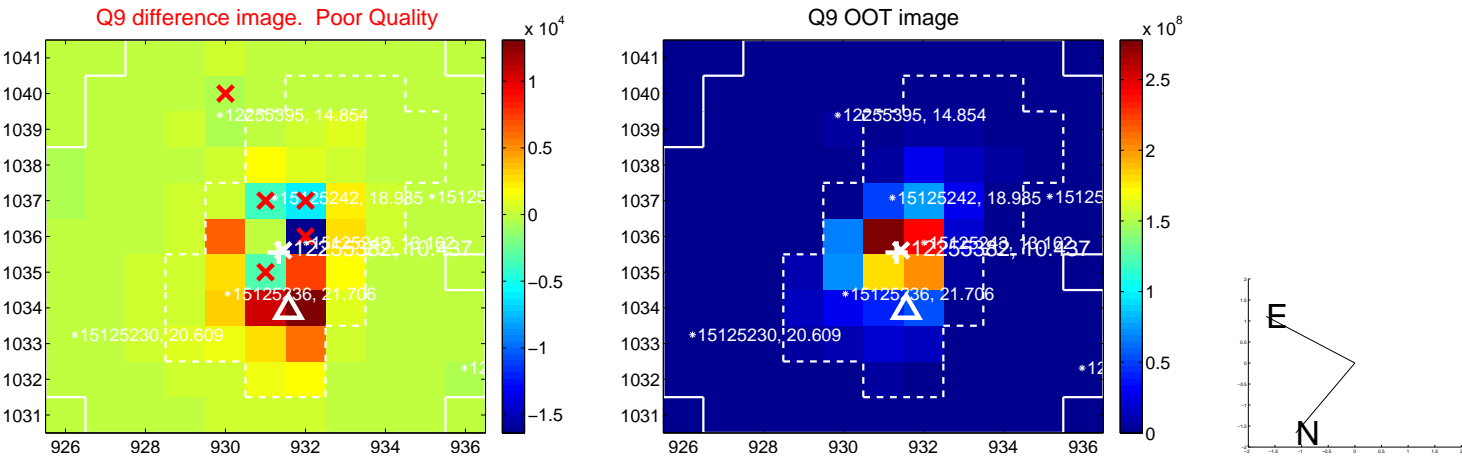


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

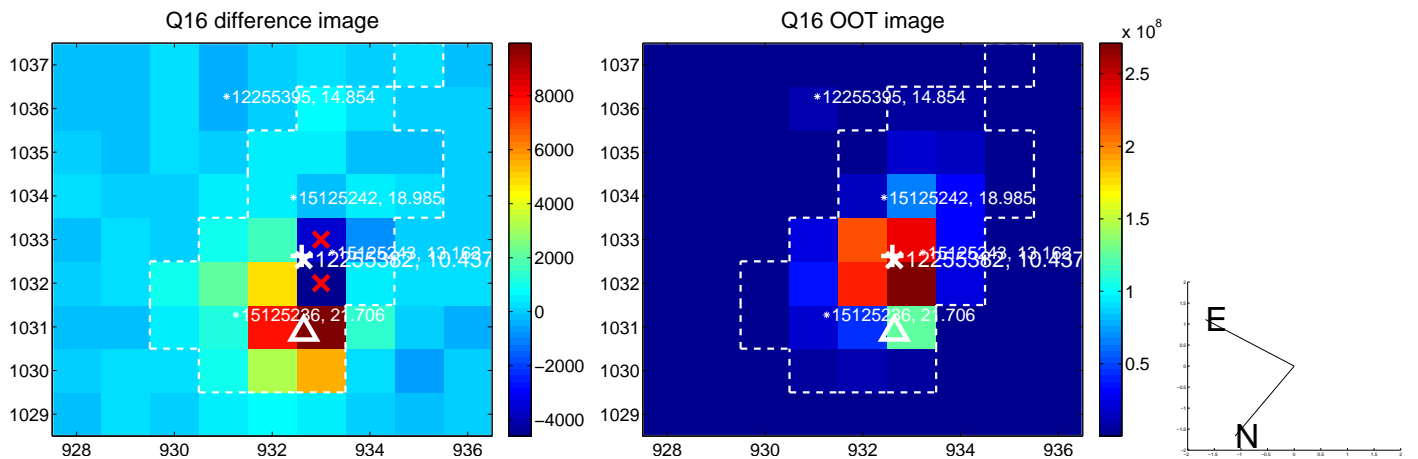
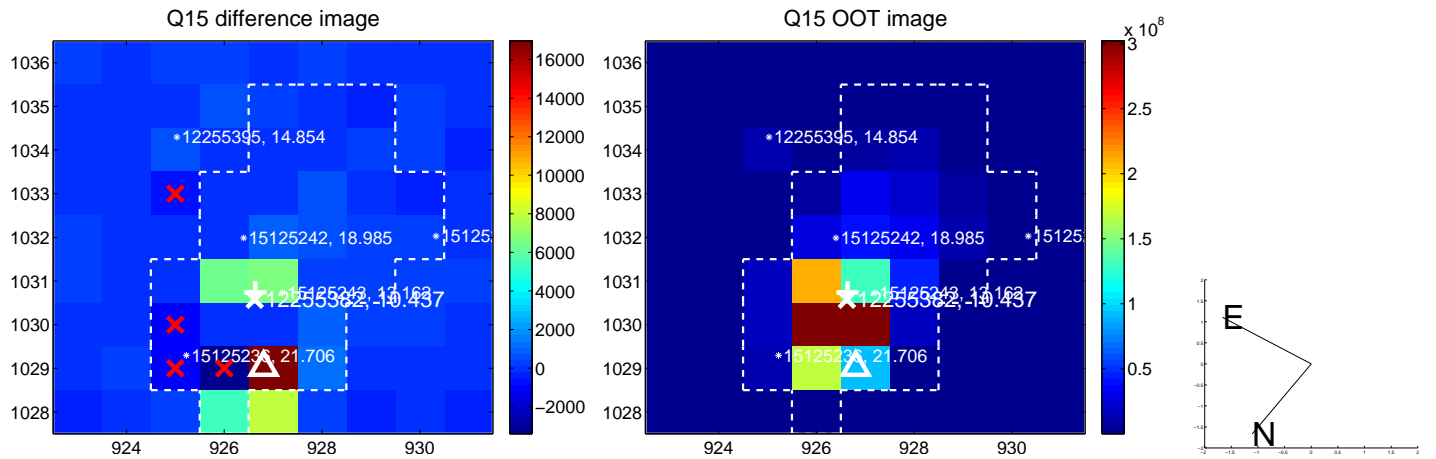
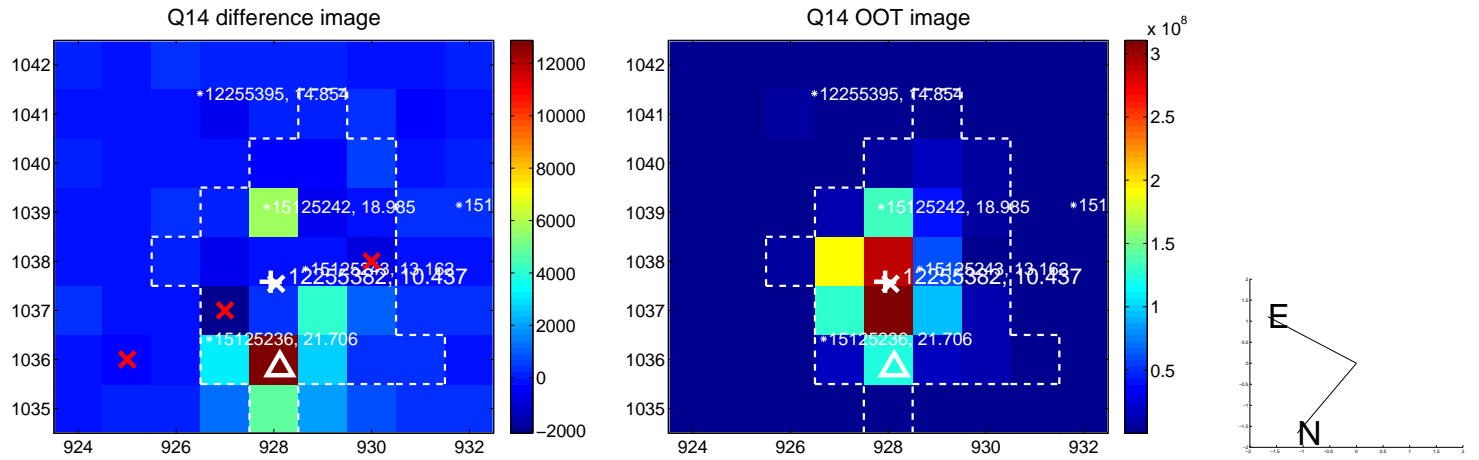
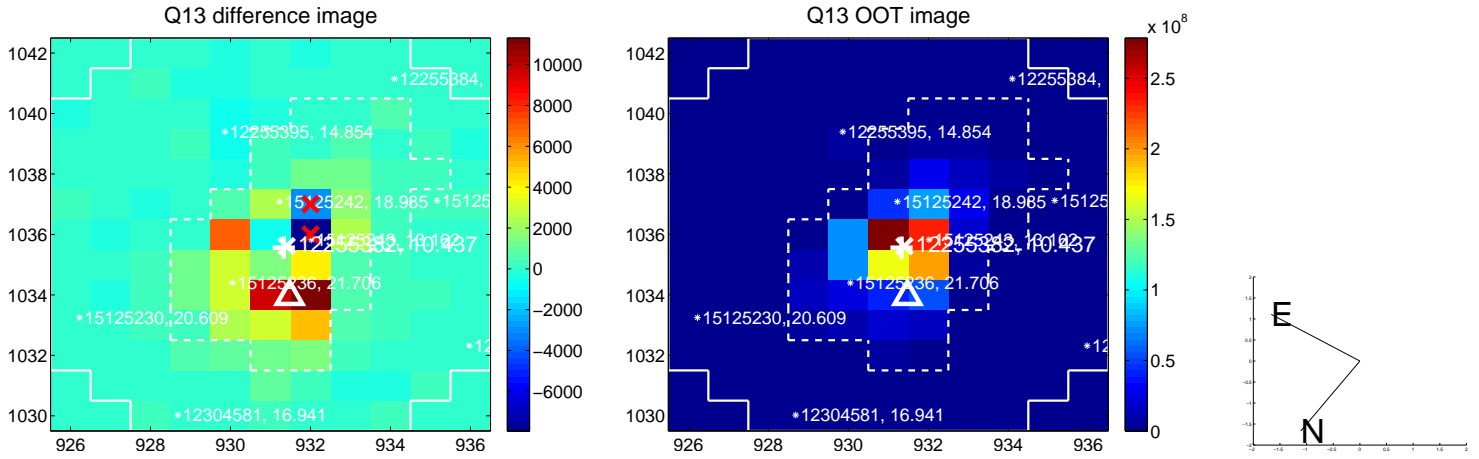
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



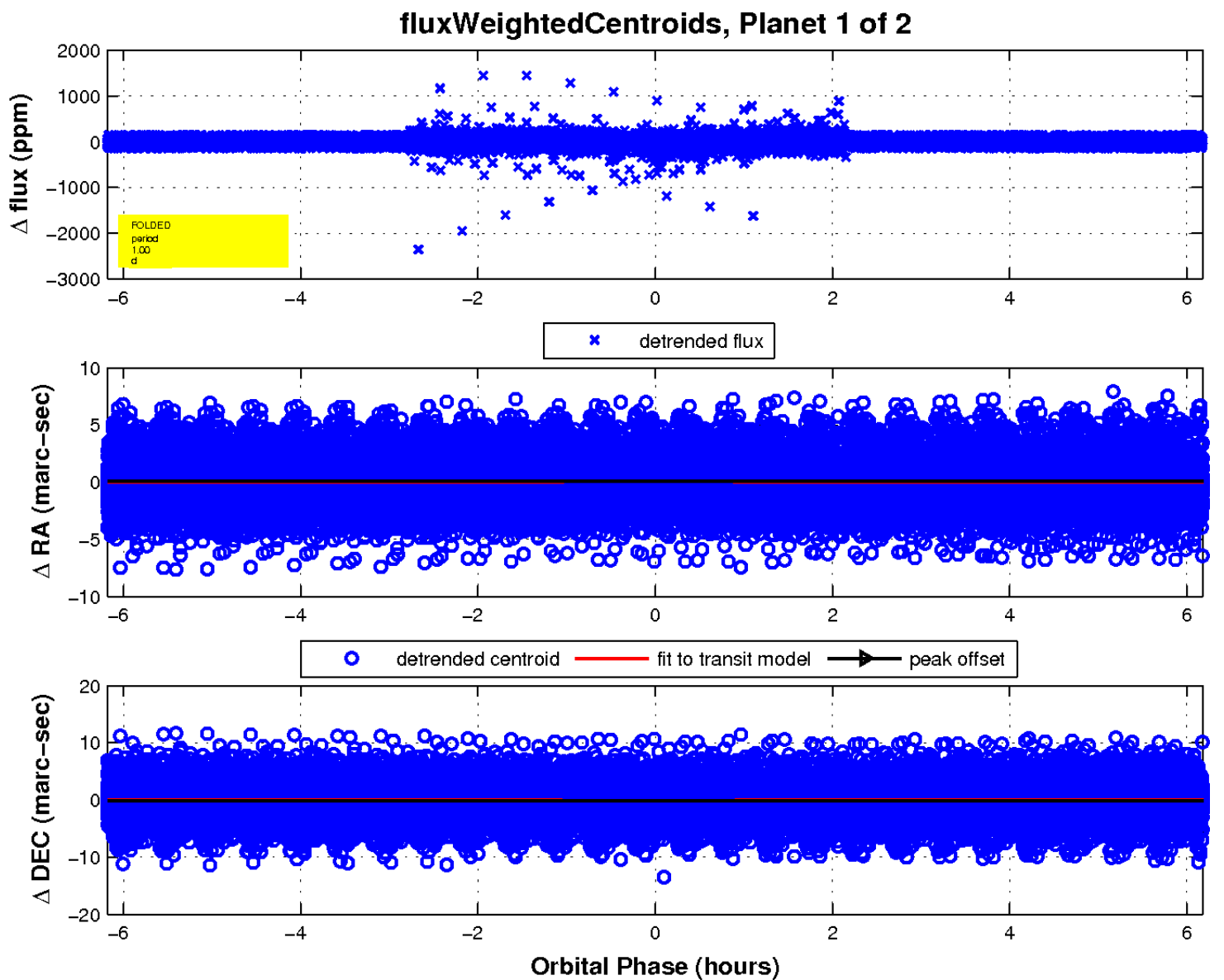
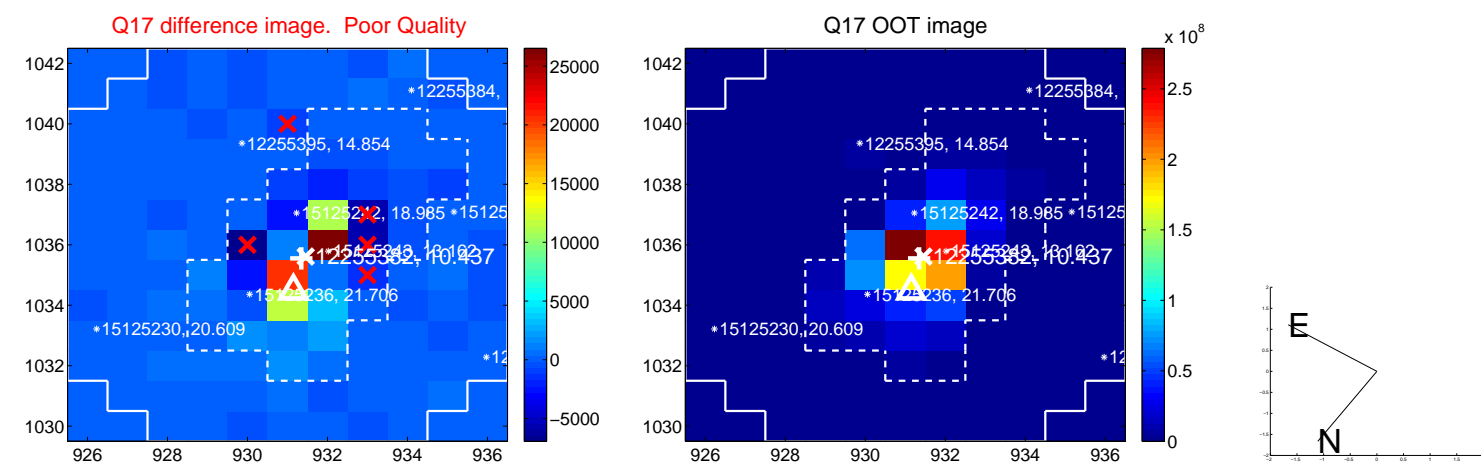
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

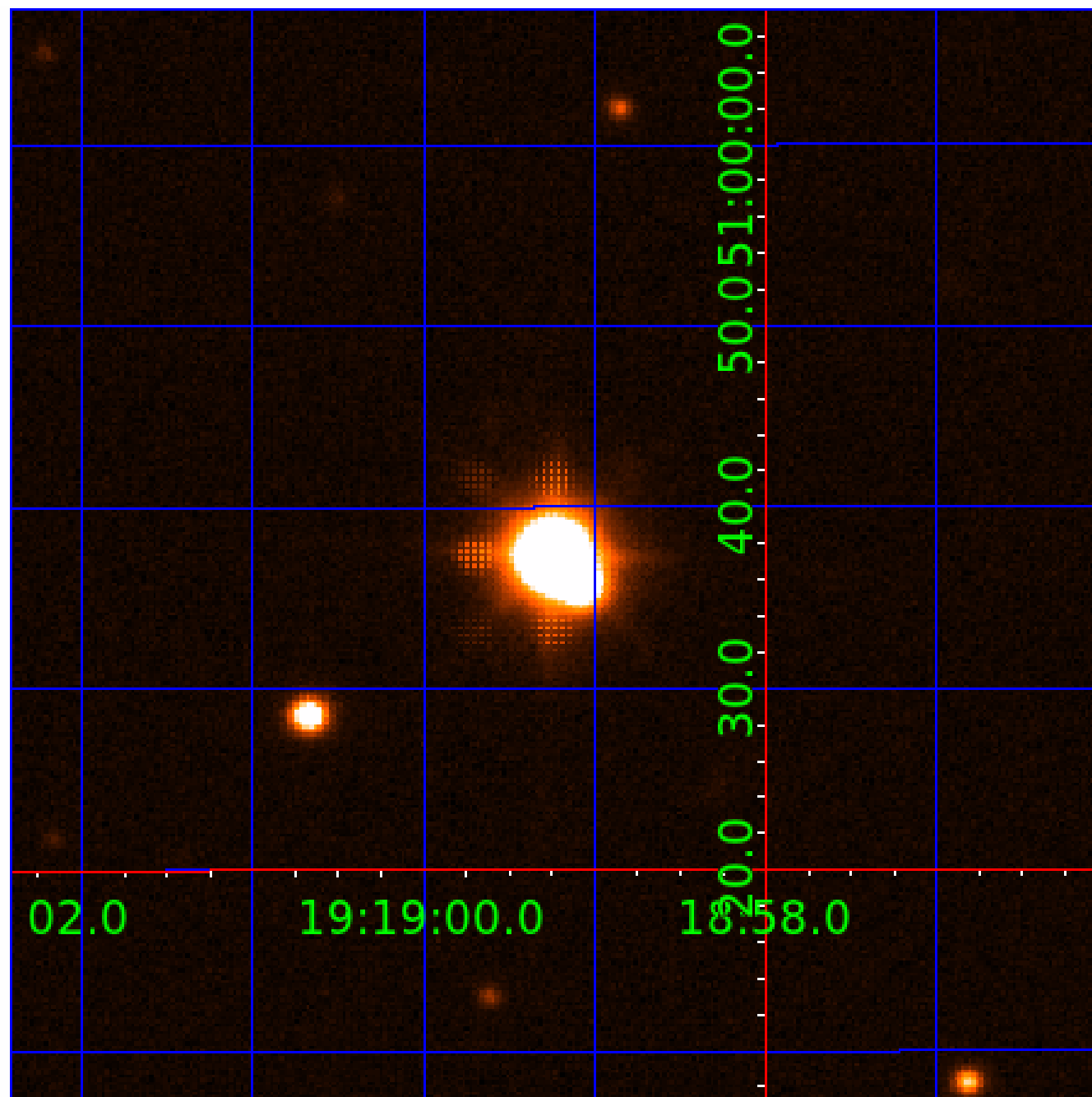


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012255382

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})
012255382-01	OBS	3167.01	0.999308	131.638493	21.9	2.060	15.8	17.1	0.85	5570	0.48	1680.20
012255382-02	OBS	No	0.999309	132.137331	22.9	1.933	19.1	18.8	0.85	5570	0.49	1680.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012255382-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT SATURATED
012255382-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT SATURATED

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.

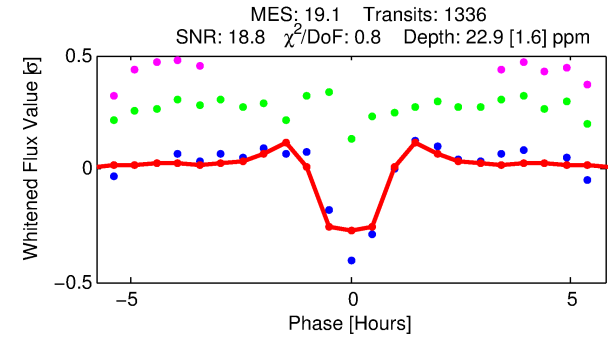
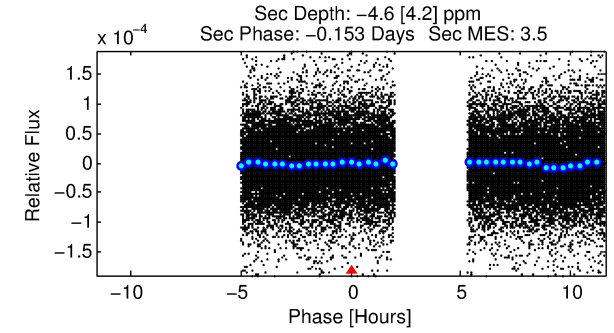
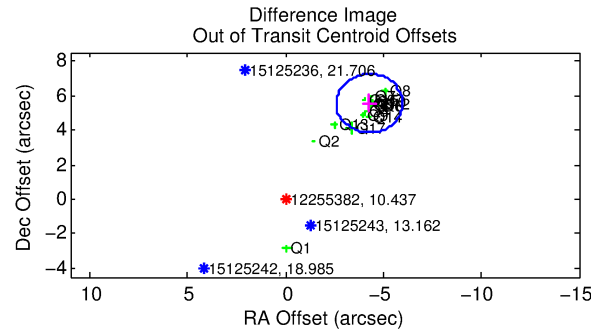
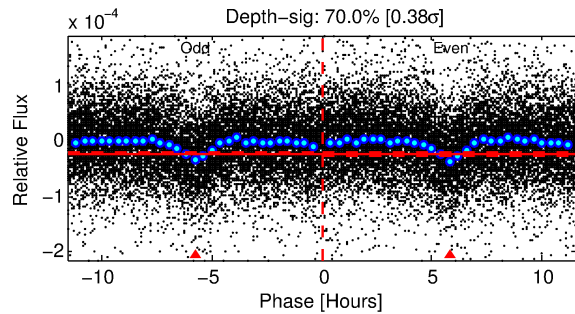
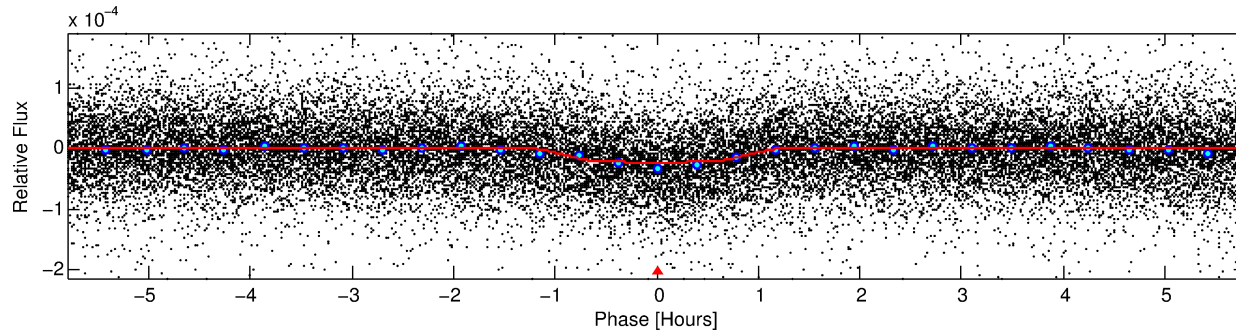
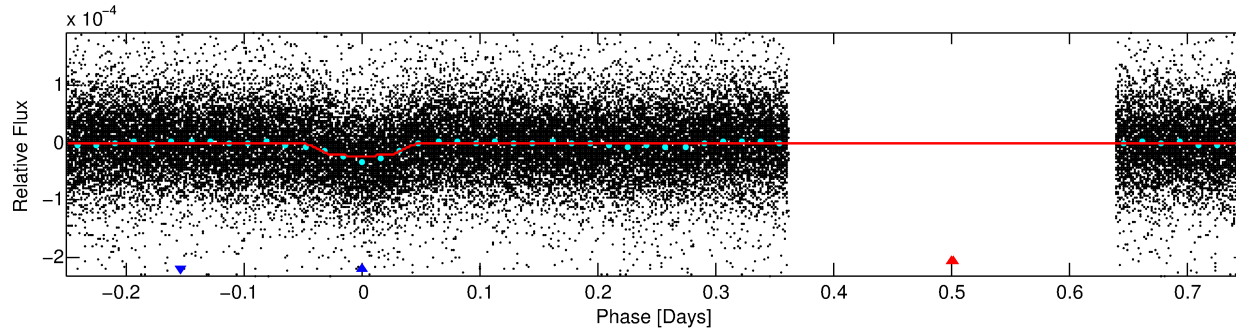
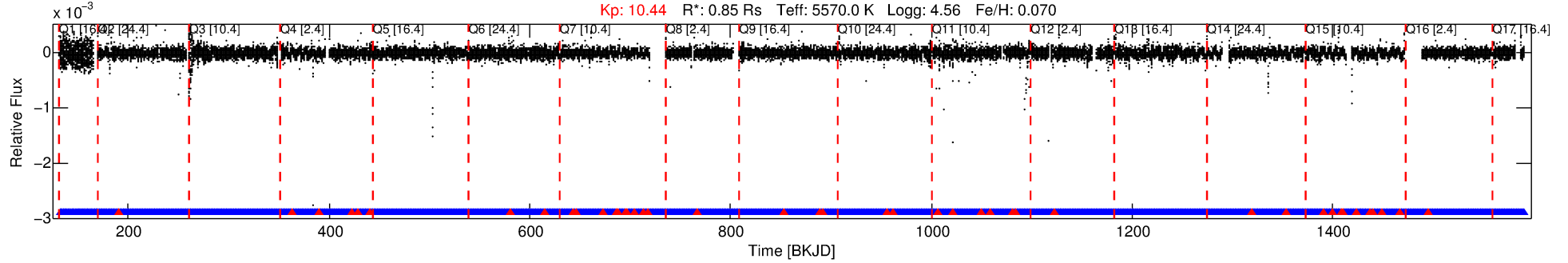
Ephemeris Match Information For 012255382-02

No Significant Match Found

DV One-Page Summary

KIC: 12255382 Candidate: 2 of 2 Period: 0.999 d
KOI: K03167 Corr: No Ephemeris Match

Kp: 10.44 R*: 0.85 Rs Teff: 5570.0 K Logg: 4.56 Fe/H: 0.070



DV Fit Results:

Period = 0.99931 [0.00001] d
Epoch = 132.1373 [0.0010] BKJD
Rp/R* = 0.0053 [0.0009]
a/R* = 1.97 [1.15]
b = 0.90 [0.16]
Seff = 1680.19 [345.80]
Teq = 1633 [84] K
Rp = 0.49 [0.11] Re
a = 0.0194 [0.0024] AU
Ag = N/A
Teffp = N/A

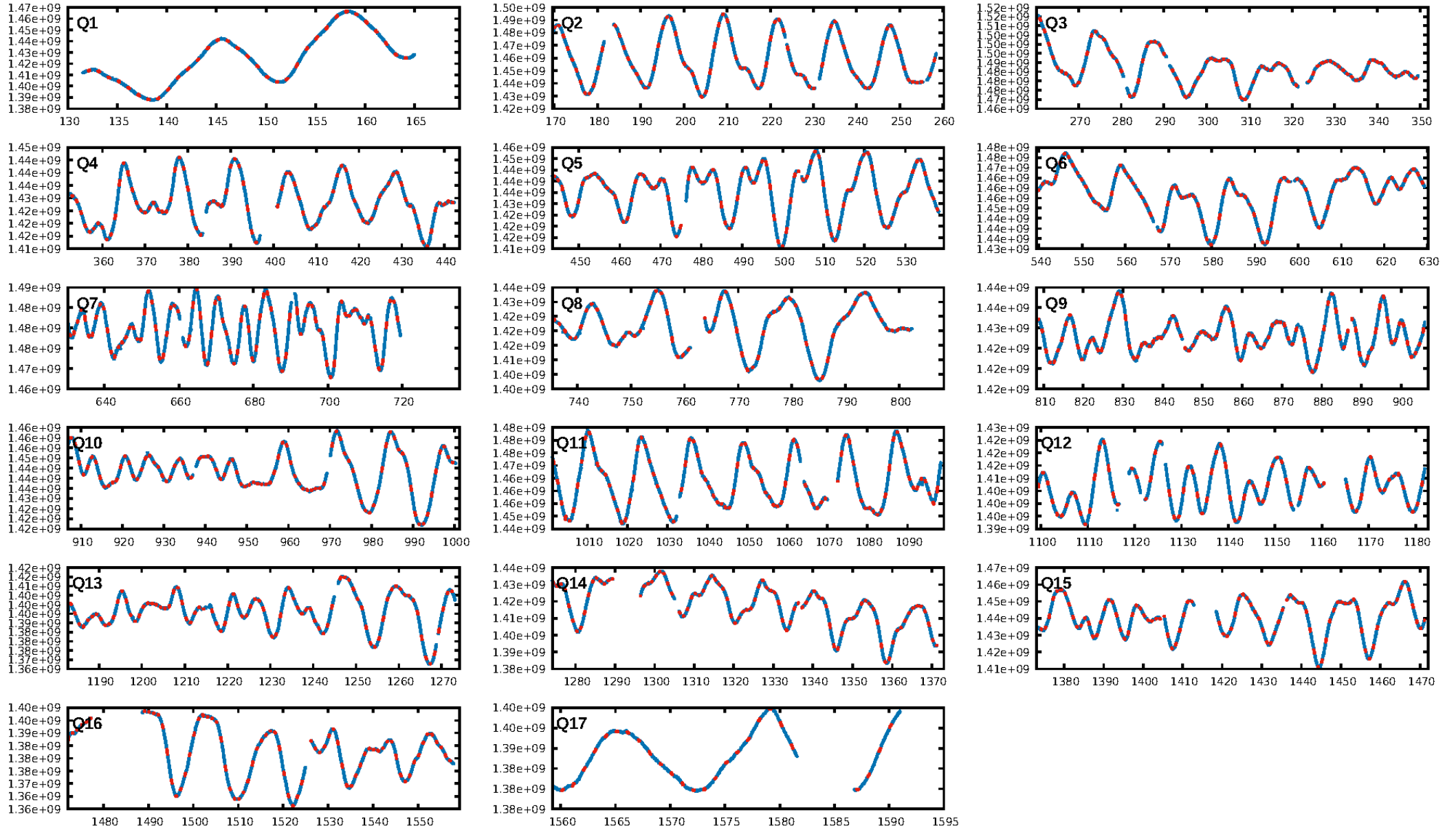
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.29e-67
RollingBand-fgt: 0.97 [1233/1277]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 7.356 arcsec [8.06σ]
OotOffset-rm: 7.005 arcsec [12.40σ]
KicOffset-rm: 6.560 arcsec [11.29σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
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DiffImageOverlap-fno: 1.00 [17/17]

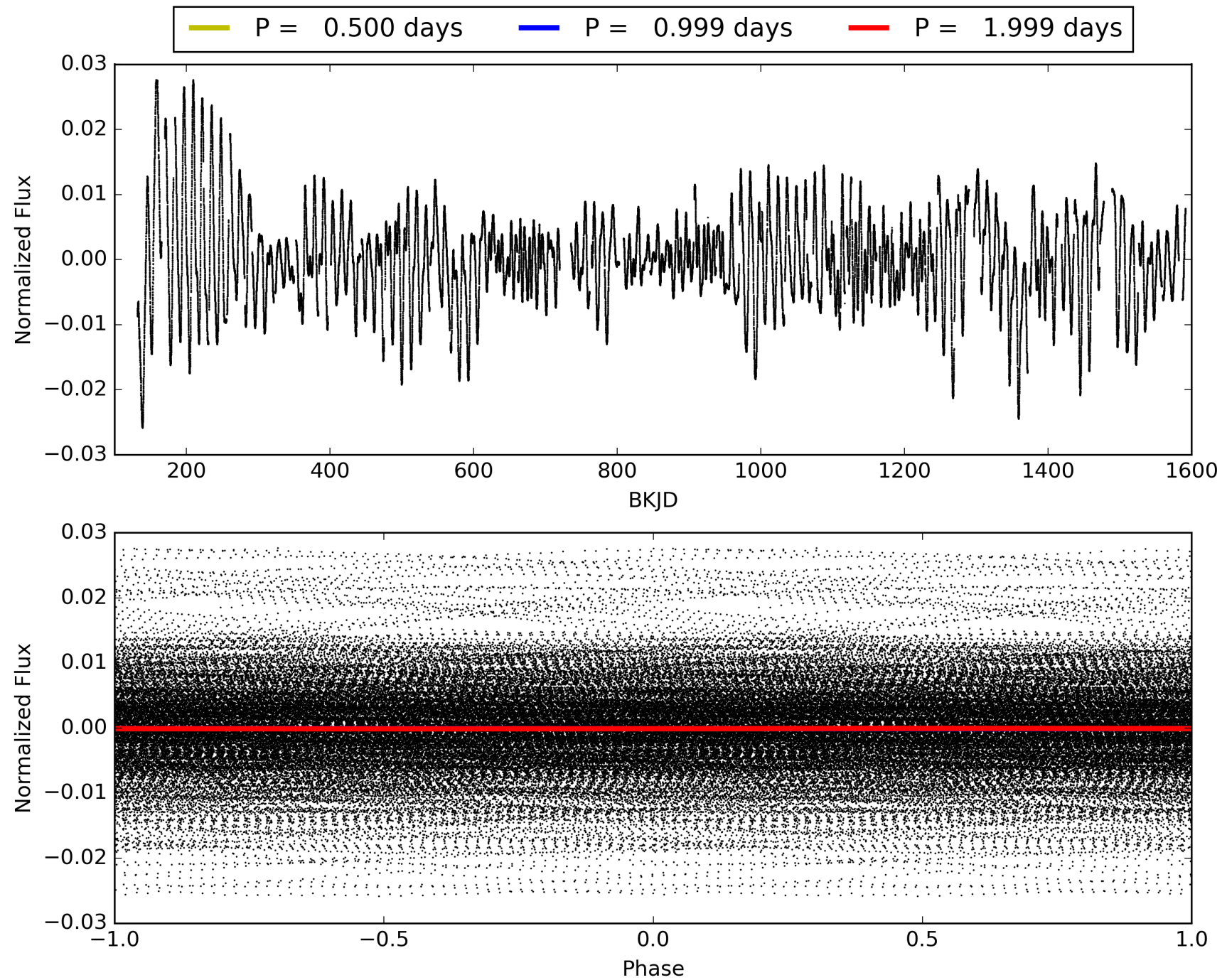
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 012255382-02, PDC Light Curves

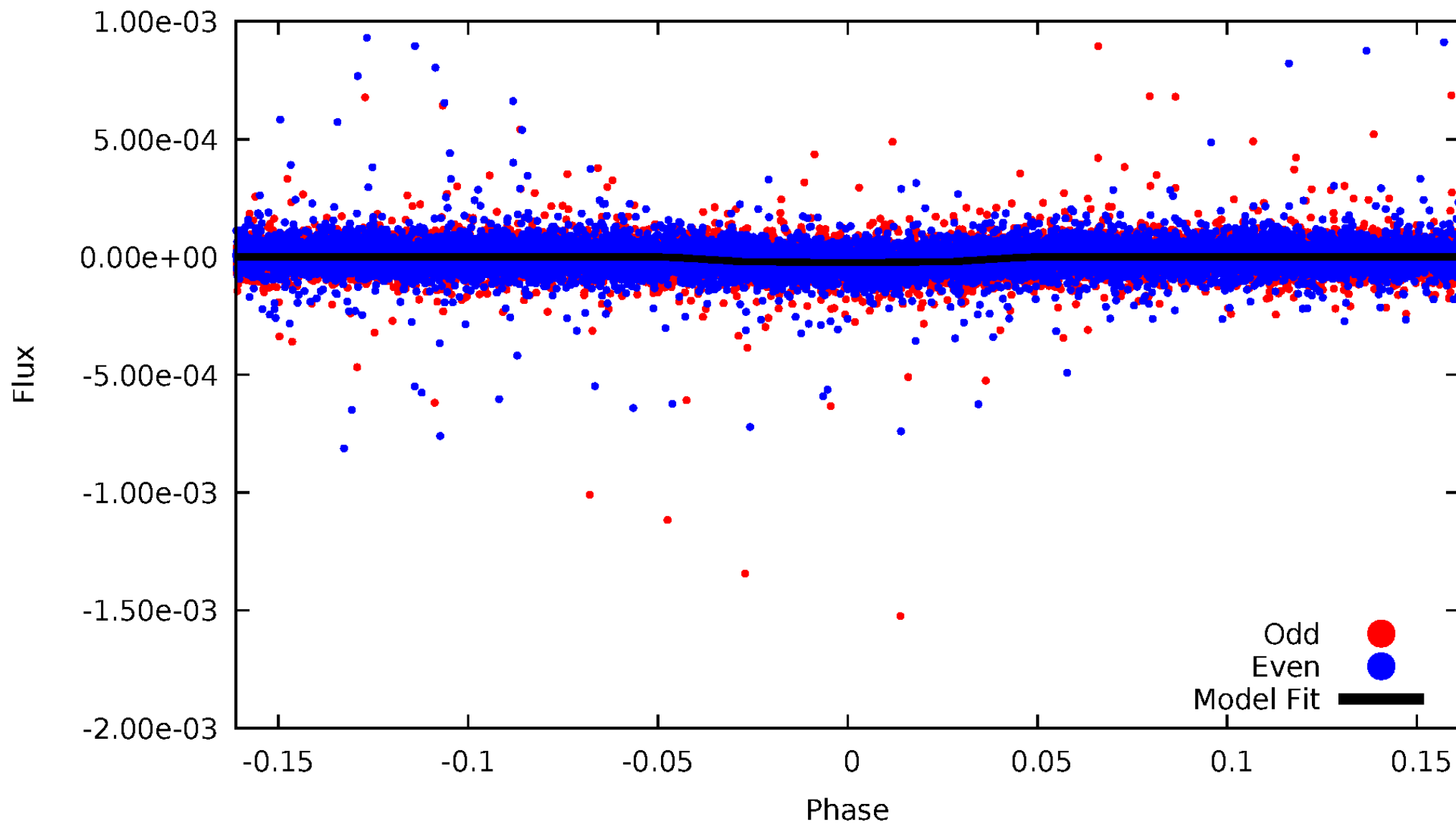


TCE 012255382-02



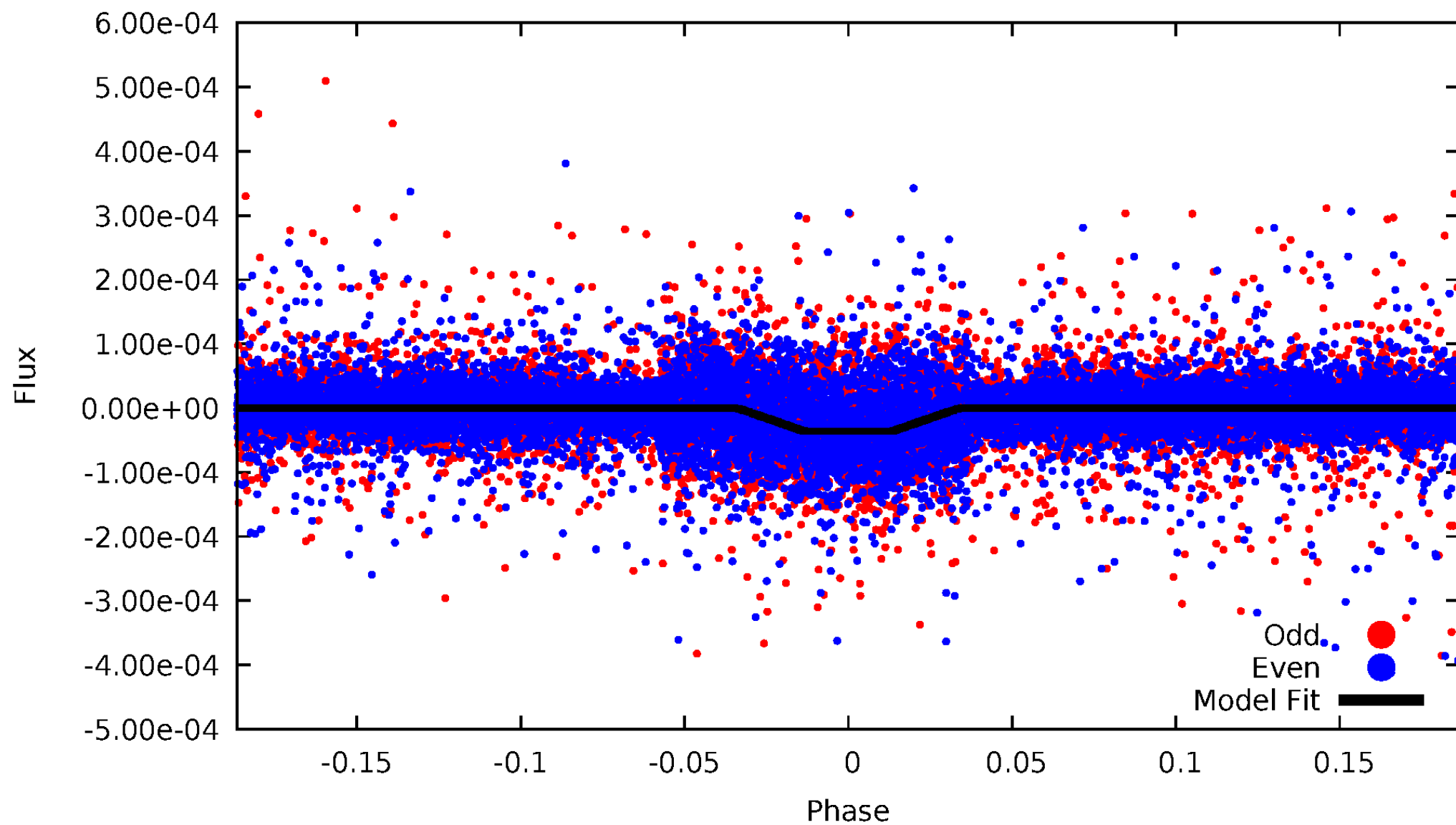
DV Odd/Even

TCE 012255382-02



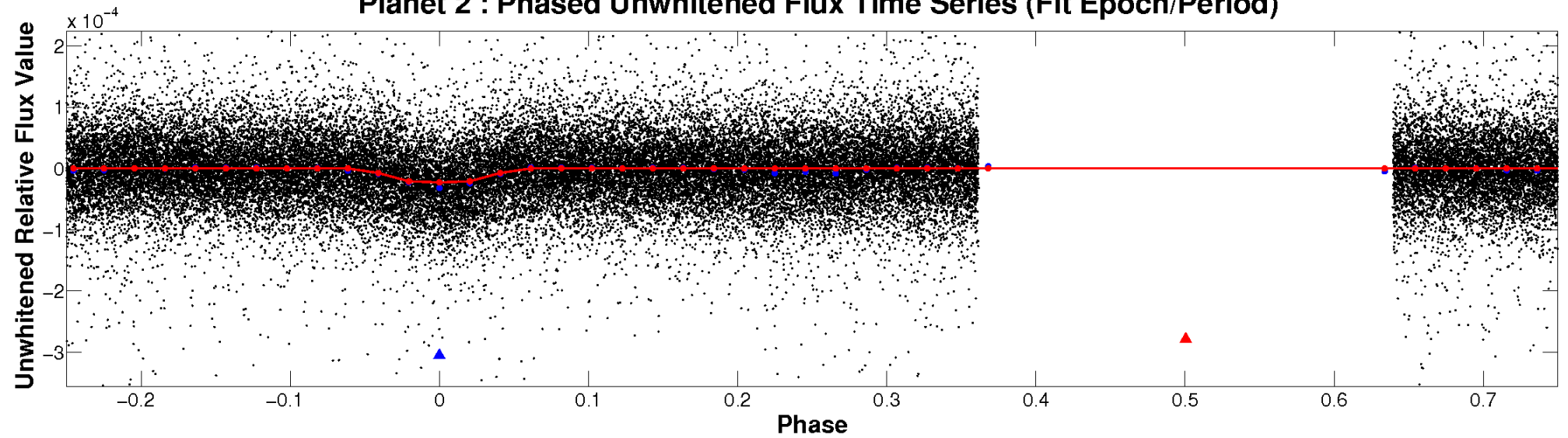
ALT Odd/Even

TCE 012255382-02

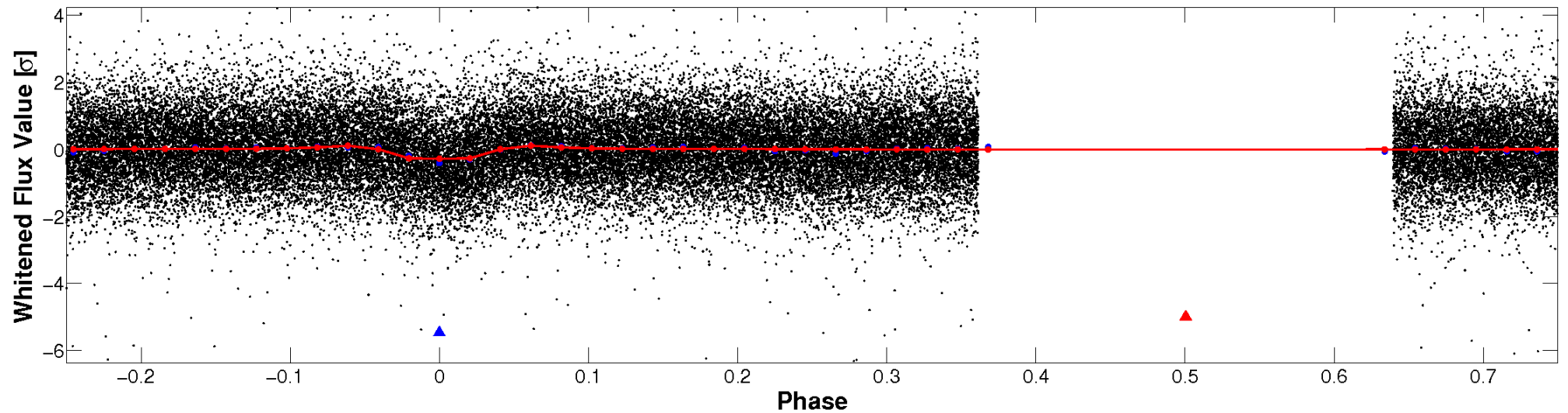


Non-Whitened Vs. Whitened Light Curve

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

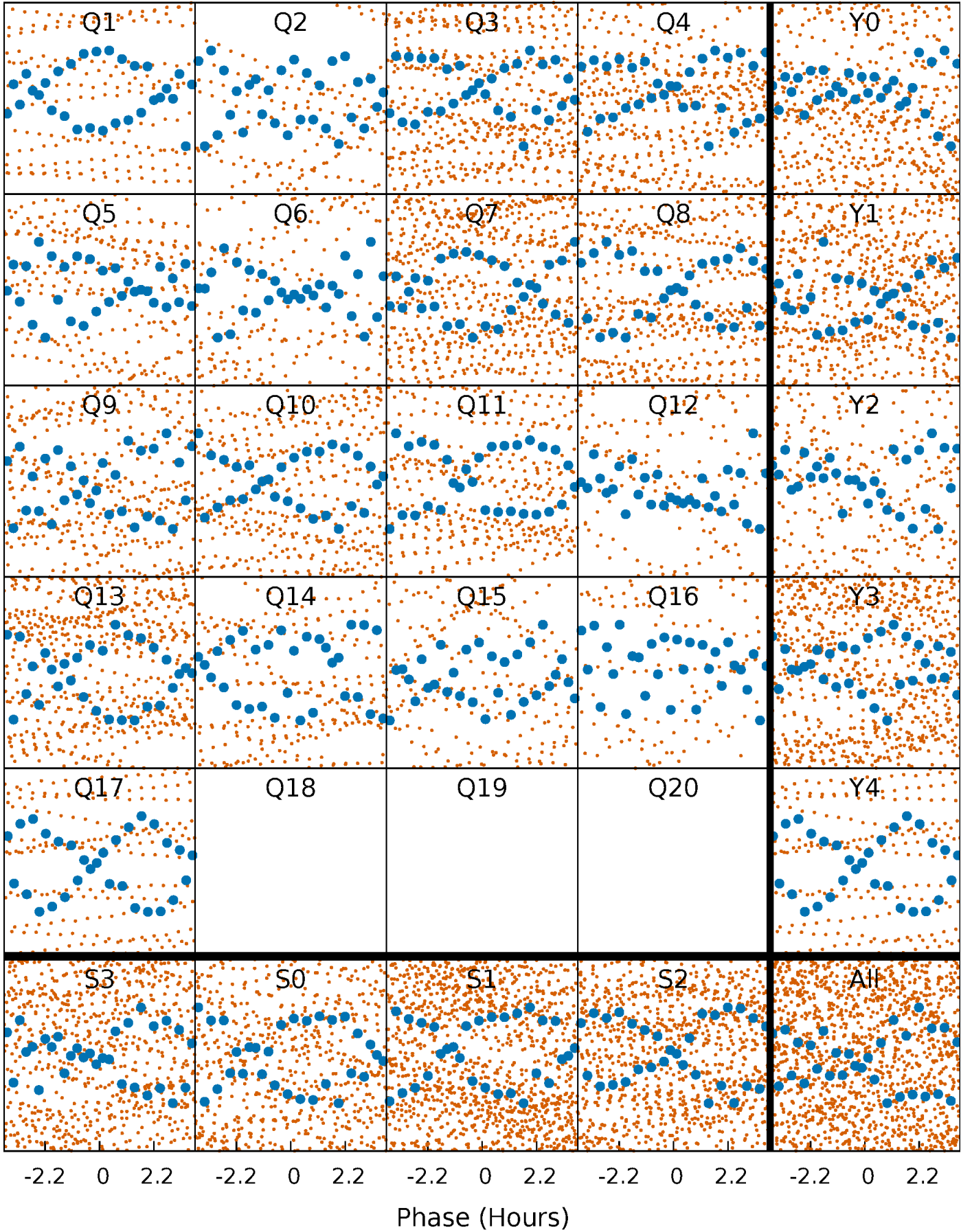


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



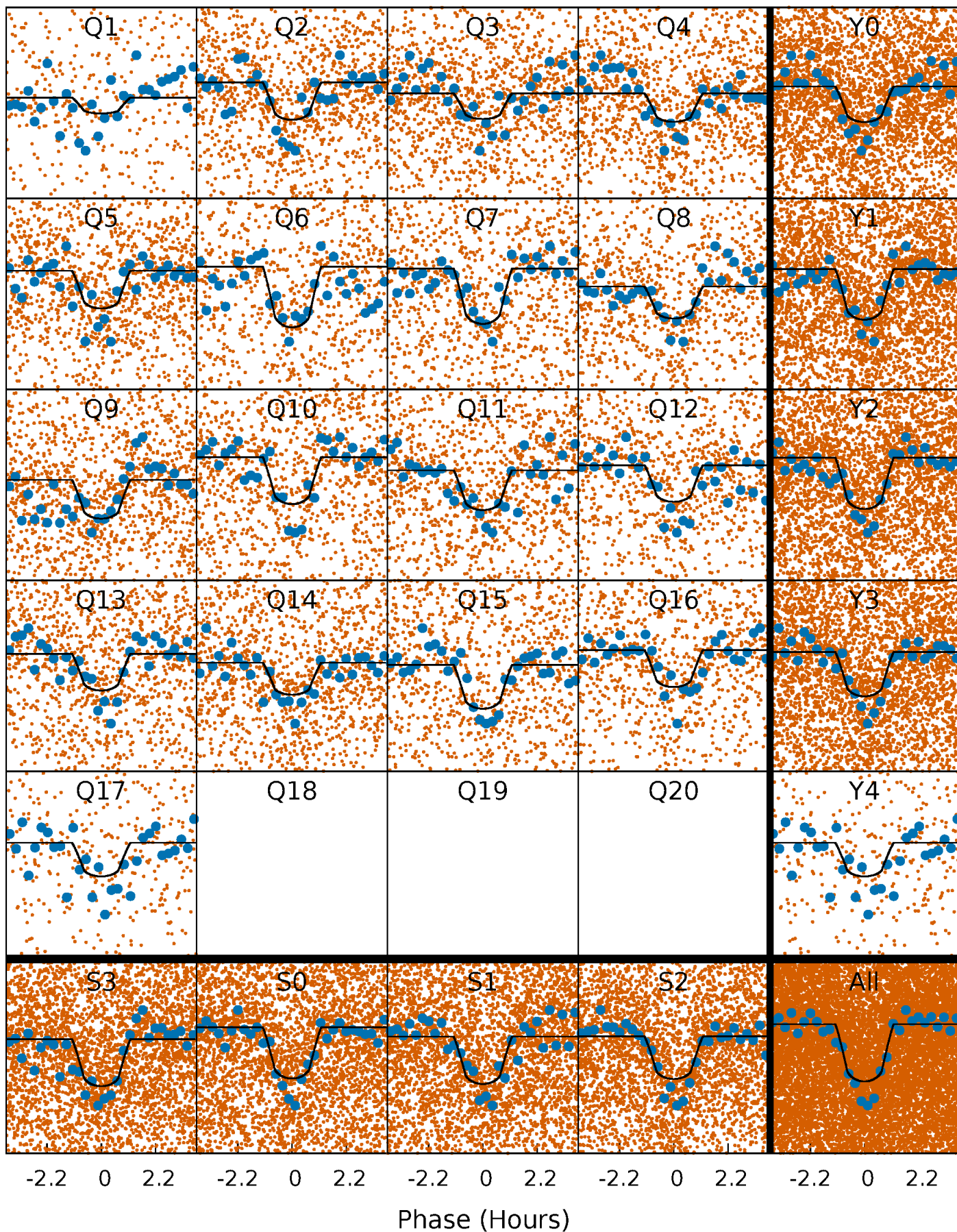
PDC Quarter-Phased Transit Curves

TCE 012255382-02 P= 0.999309 Days $T_0=132.137331$ (BKJD)



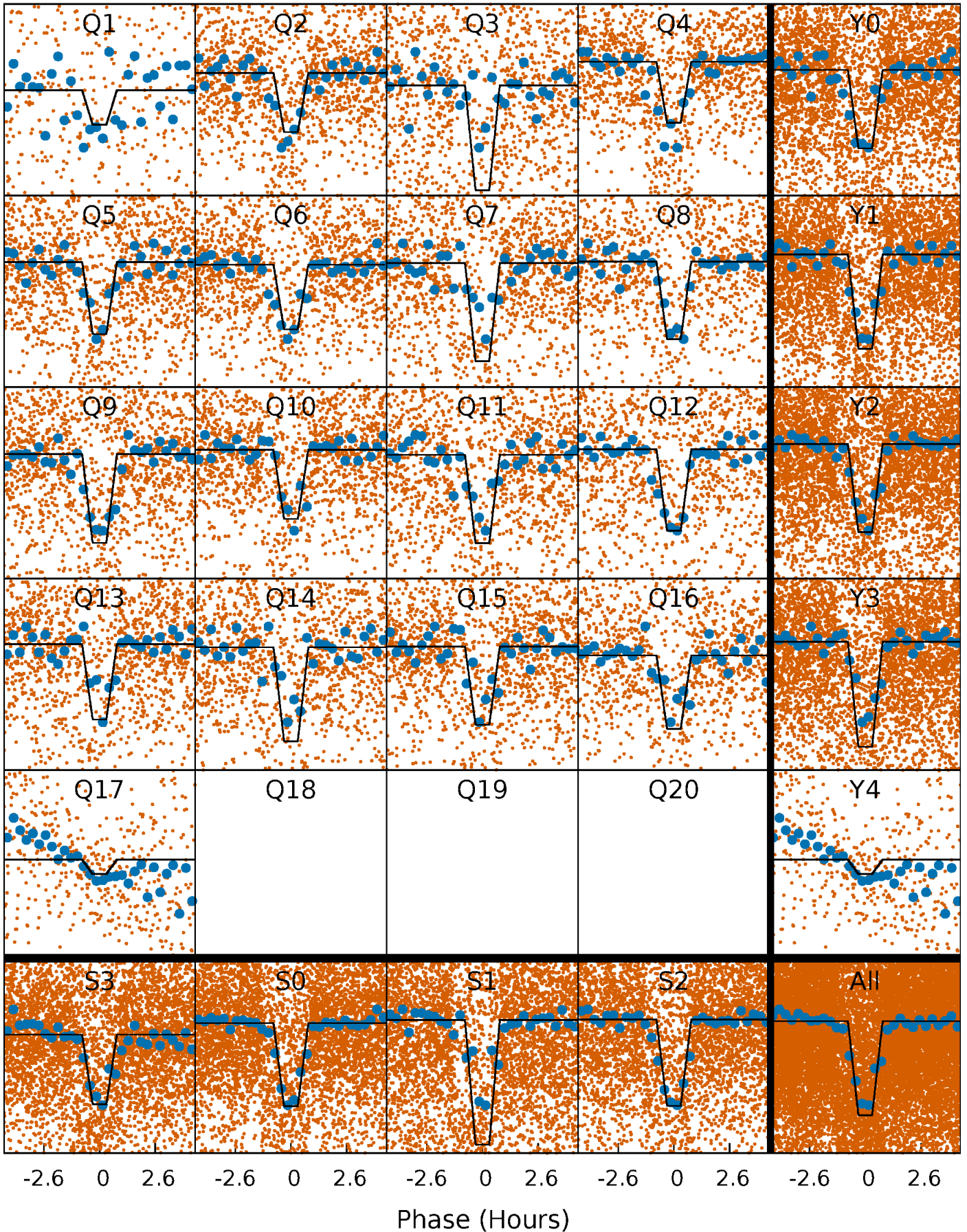
DV Quarter-Phased Transit Curves

TCE 012255382-02 P= 0.999309 Days $T_0=132.137331$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

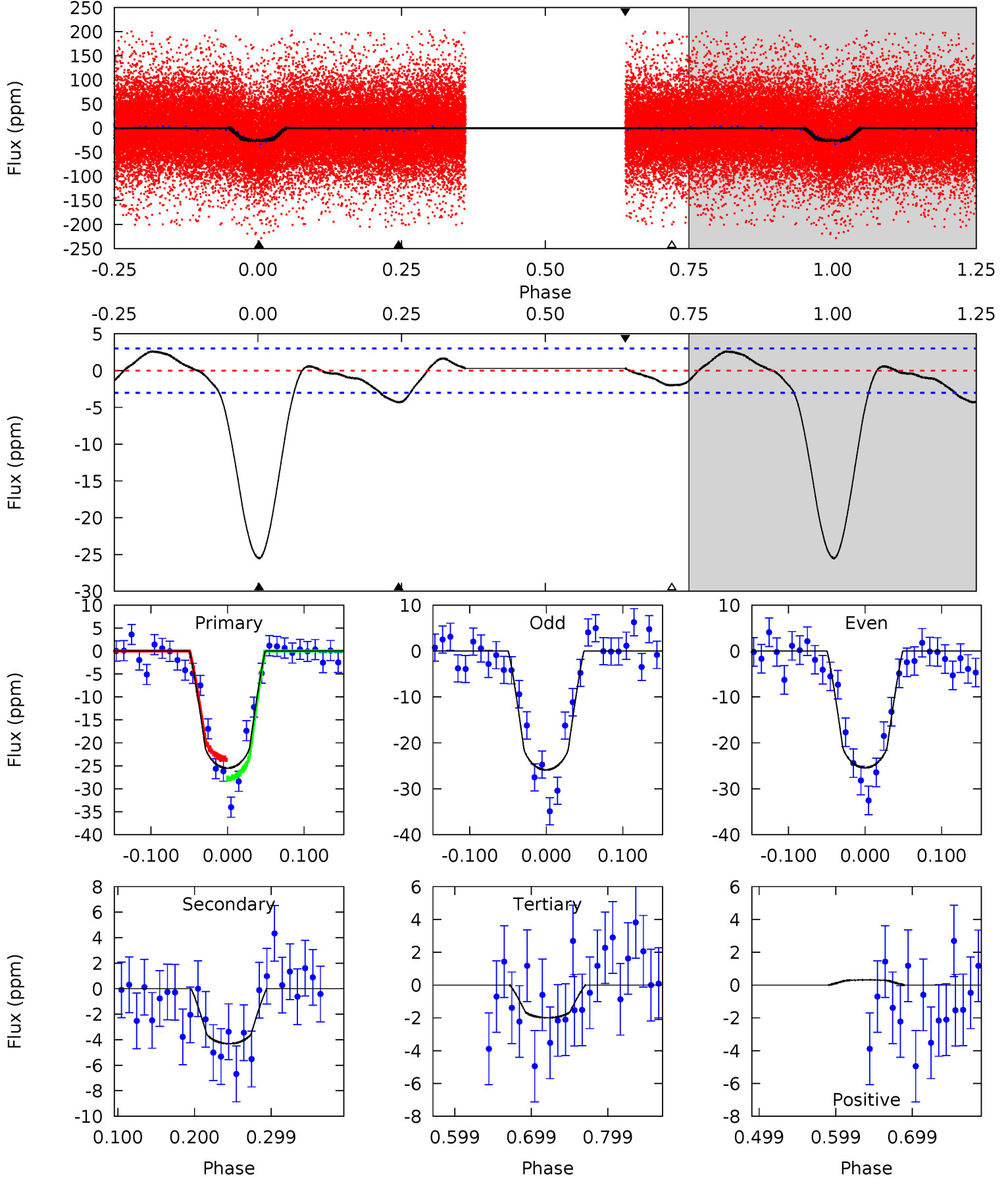
TCE 012255382-02 $P = 0.999318$ Days $T_0 = 132.135429$ (BKJD)



DV Model-Shift Uniqueness Test

012255382-02, P = 0.999309 Days, E = 131.138022 Days

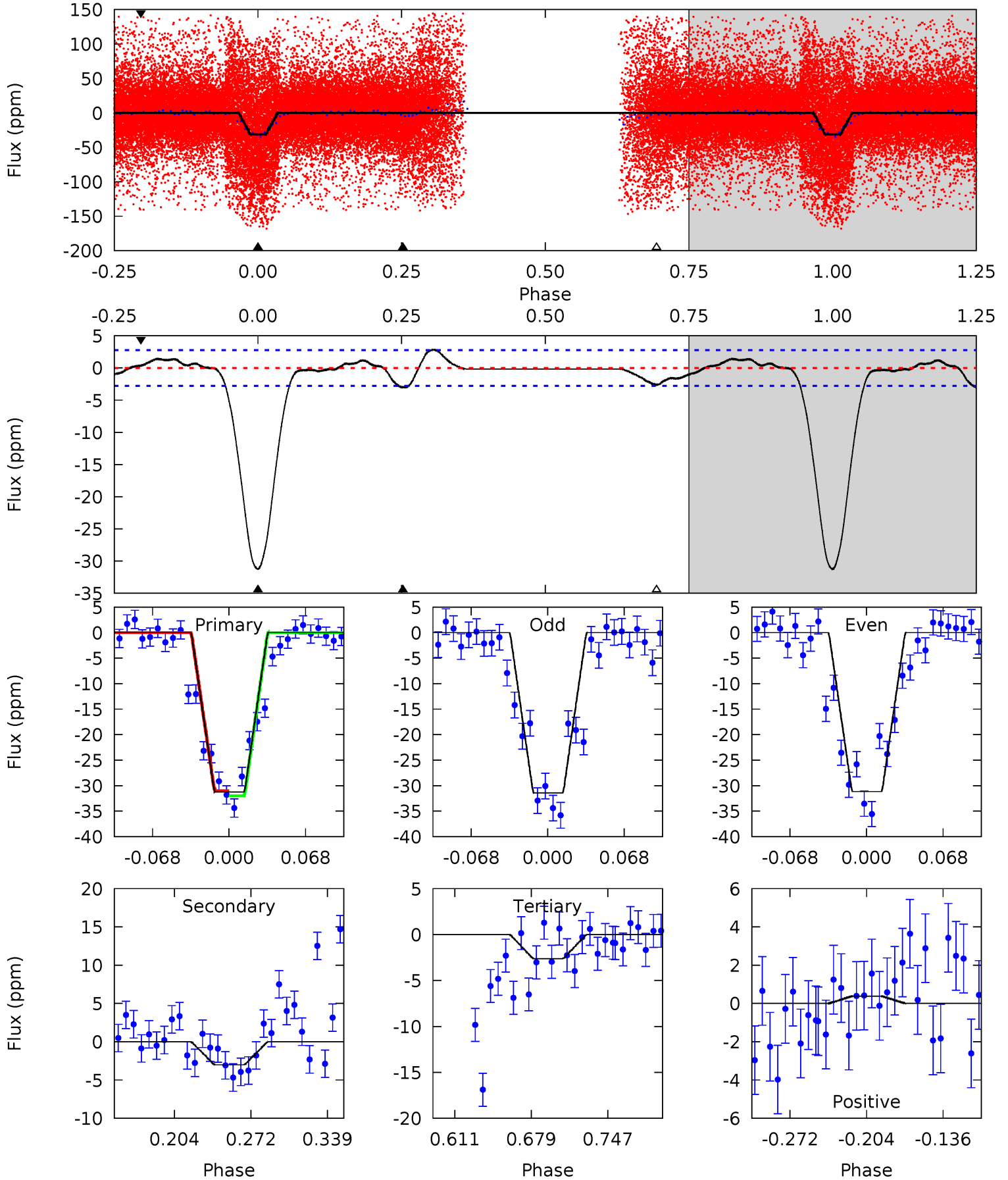
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.7	6.53	3.03	0.48	4.57	1.65	2.06	35.7	38.2	3.50	6.05	0.36	1.09	0.09	3.28



Alt Model-Shift Uniqueness Test

012255382-02, P = 0.999318 Days, E = 131.136111 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.3	5.05	4.39	0.63	4.65	1.83	1.74	48.0	51.7	0.66	4.42	0.22	1.02	0.08	0.88



Stellar Parameters For KIC 012255382

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5570^{+75}_{-83}	$4.561^{+0.012}_{-0.114}$	$0.070^{+0.150}_{-0.150}$	$0.855^{+0.116}_{-0.031}$	$0.971^{+0.038}_{-0.072}$	$2.185^{+0.158}_{-0.716}$
	+1%/-1%	+0%/-2%	+214%/-214%	+14%/-4%	+4%/-7%	+7%/-33%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 012255382-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-4 ± 1	$0.50^{+0.09}_{-0.08}$	2311^{+76}_{-49}	3792^{+279}_{-241}	$3.442^{+1.566}_{-1.059}$
Alt.	-3 ± 1	$0.58^{+0.10}_{-0.09}$	2317^{+79}_{-54}	3371^{+234}_{-226}	$1.807^{+0.814}_{-0.589}$

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

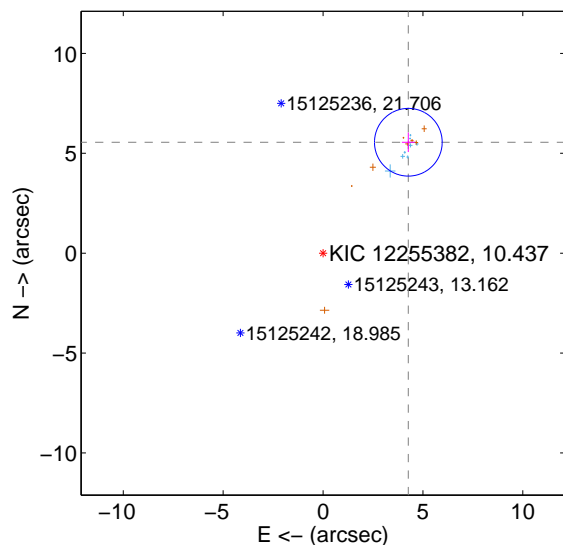
Supplemental centroid analysis for 012255382-02. **Kepler magnitude: 10.44.** Transit SNR 18.78

There are 8 quarters with good PRF difference image offsets

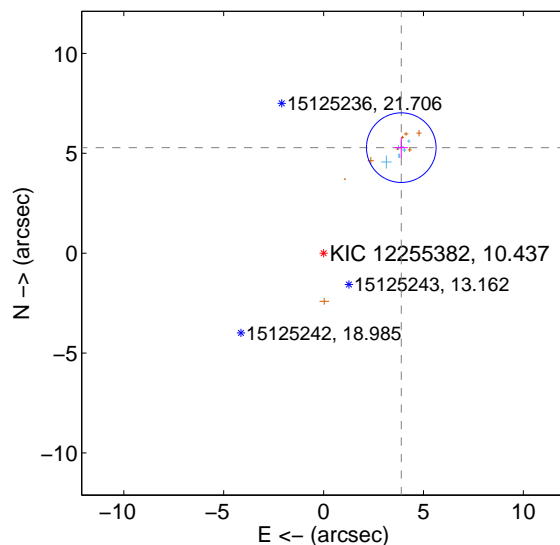
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.005 \pm 0.565	12.40	-4.270 \pm 0.322	5.554 \pm 0.487
PRF-fit source offset from KIC position	6.560 \pm 0.581	11.29	-3.889 \pm 0.327	5.283 \pm 0.504
photometric centroid source offset	7.36 \pm 0.91	8.06	-4.10 \pm 0.65	6.11 \pm 1.01

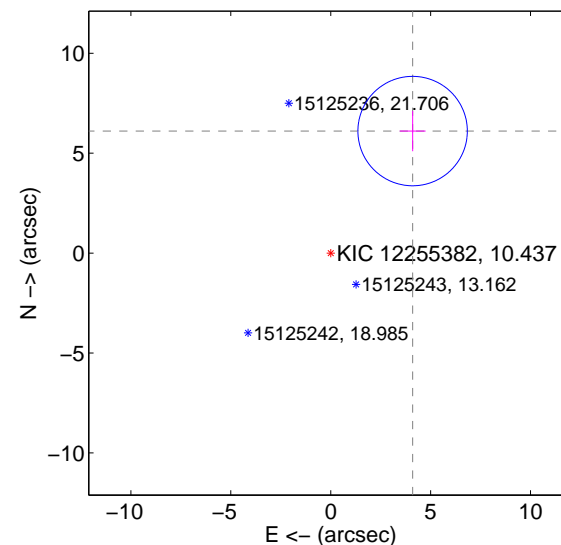
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

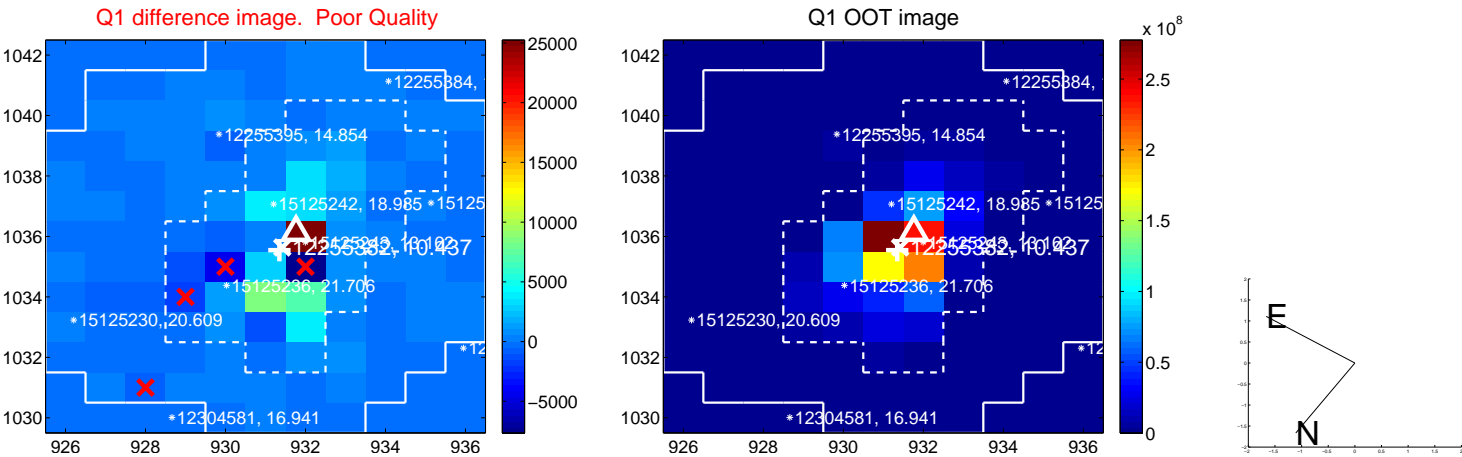


offset from photometric centroids

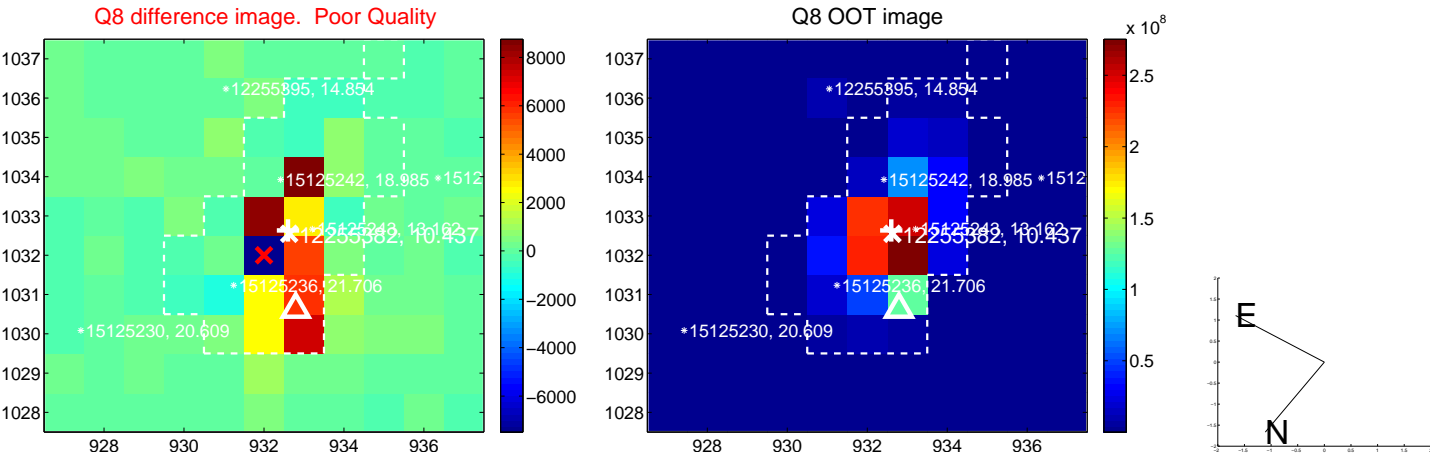
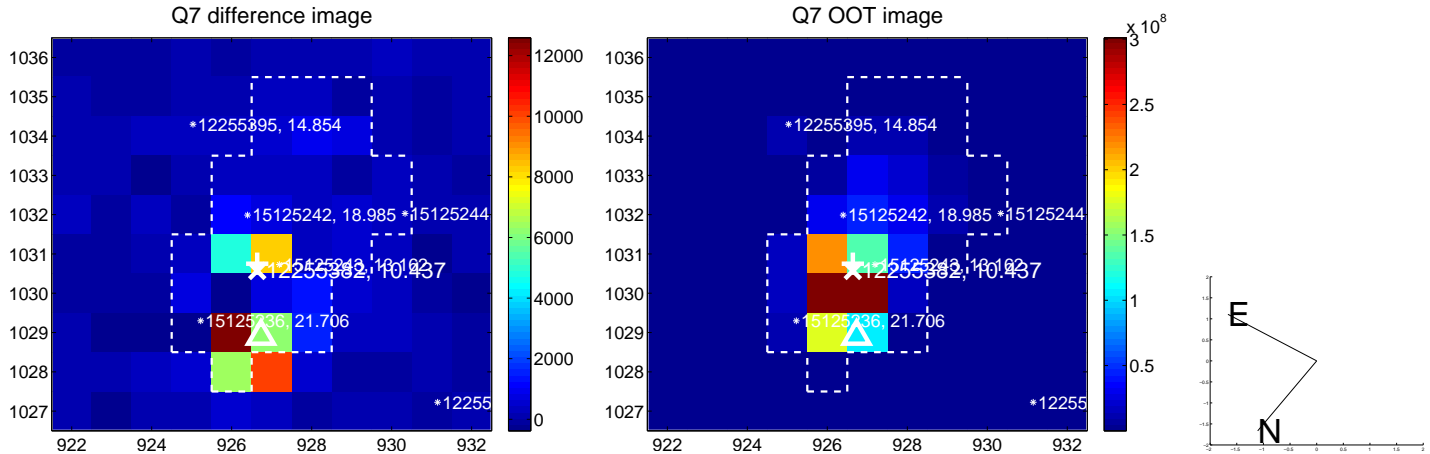
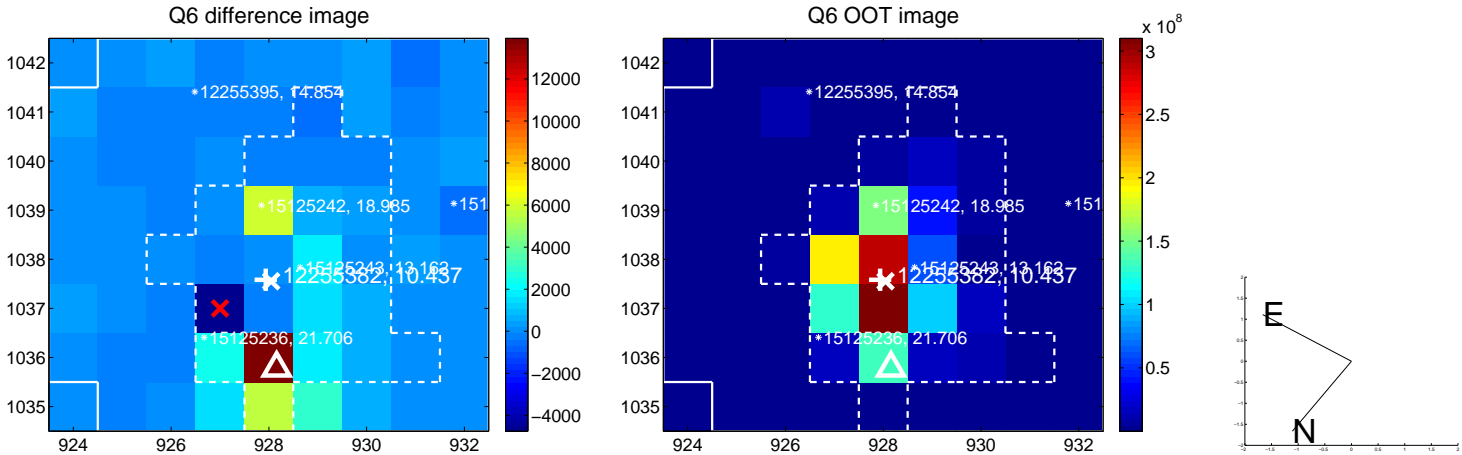
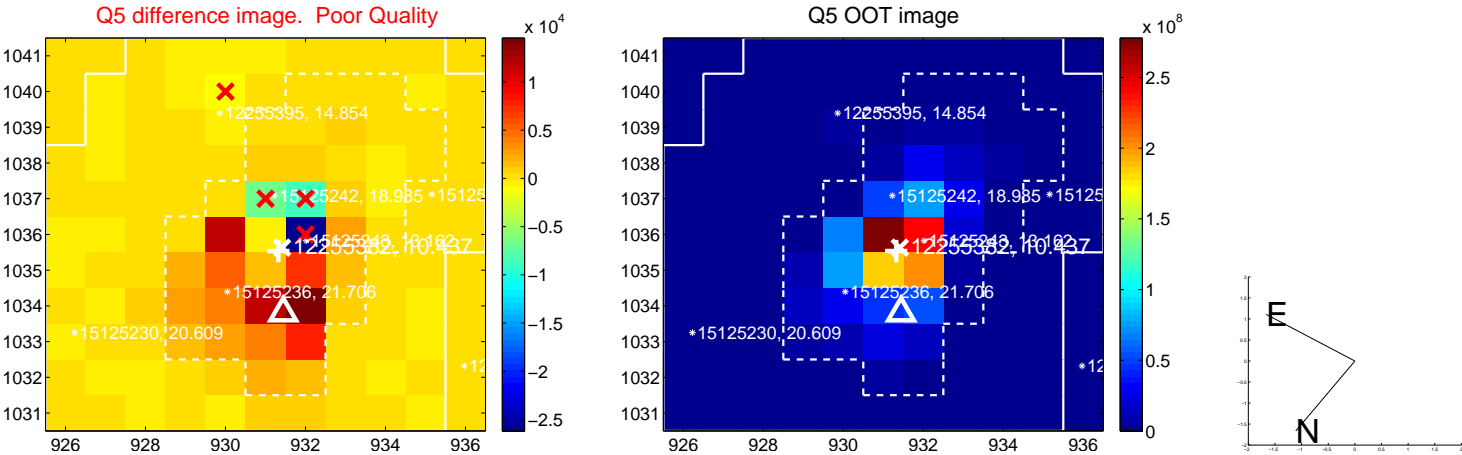


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

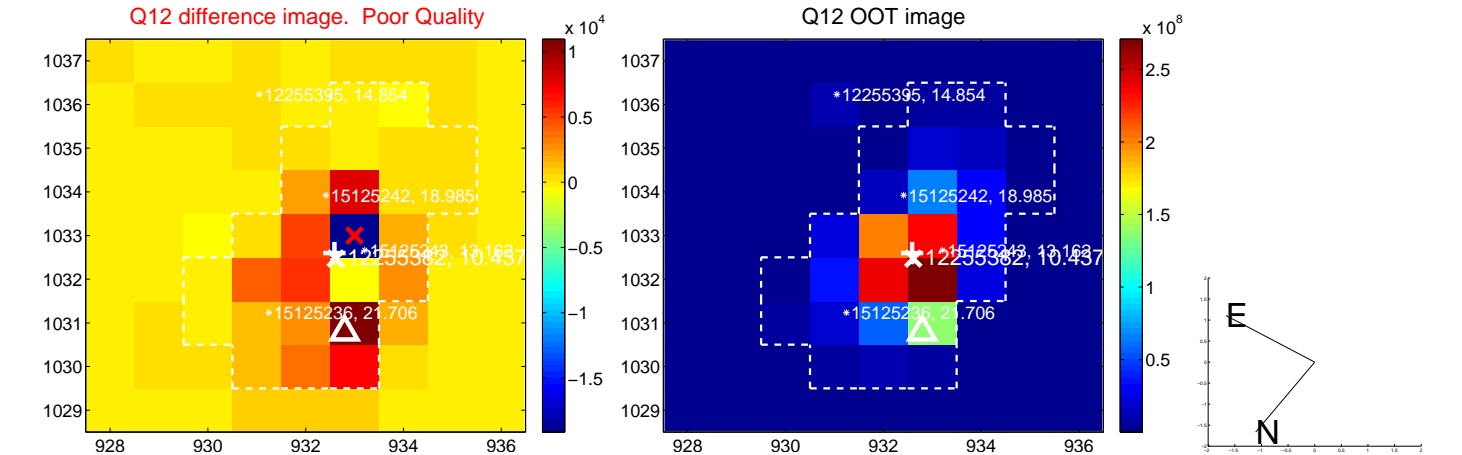
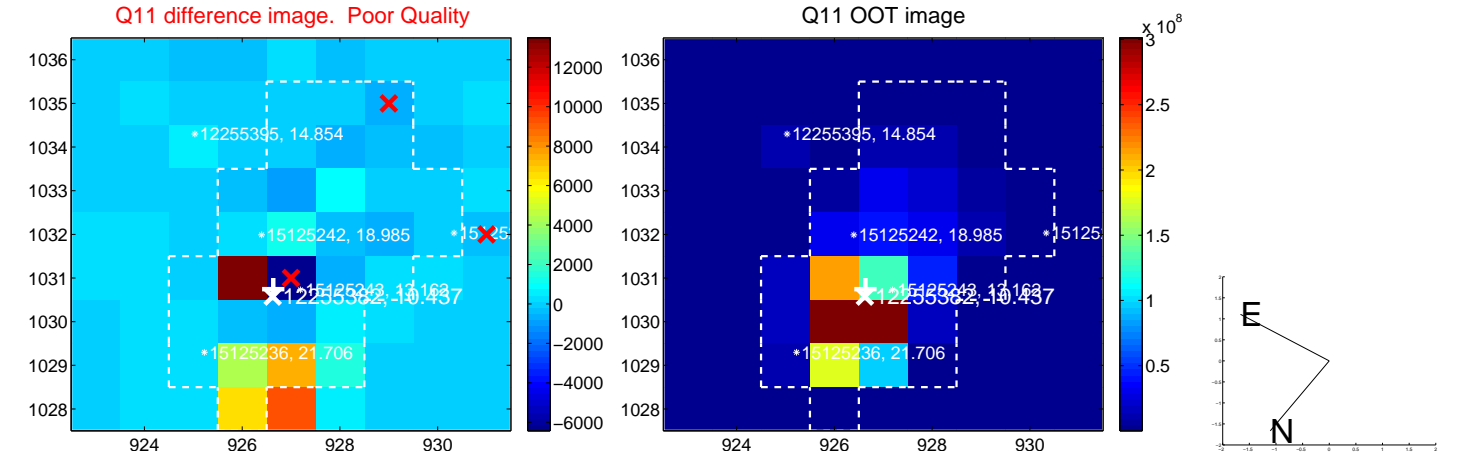
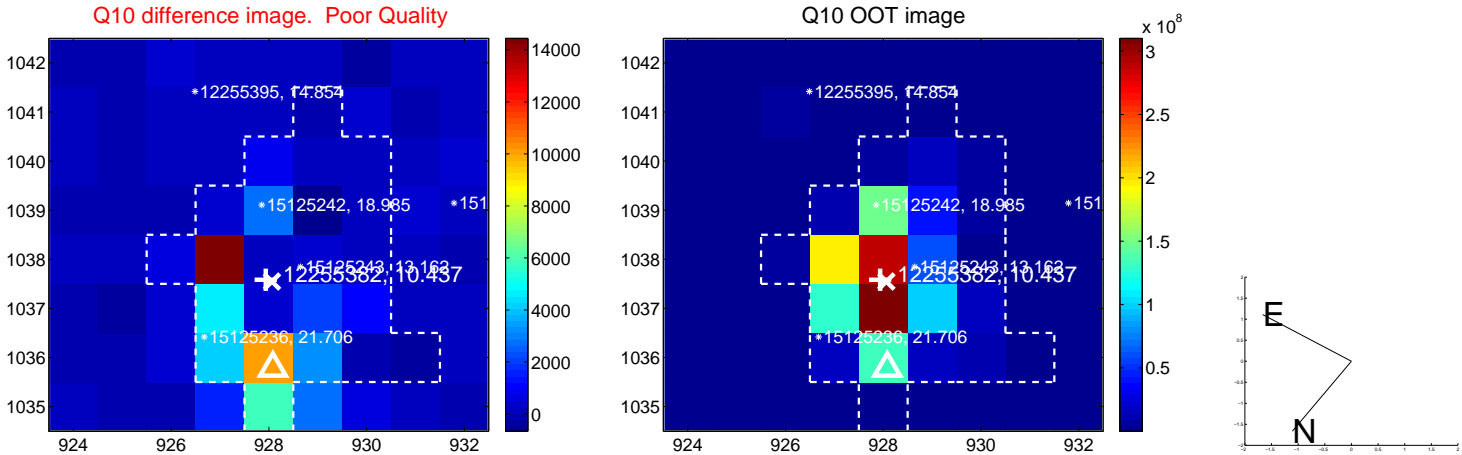
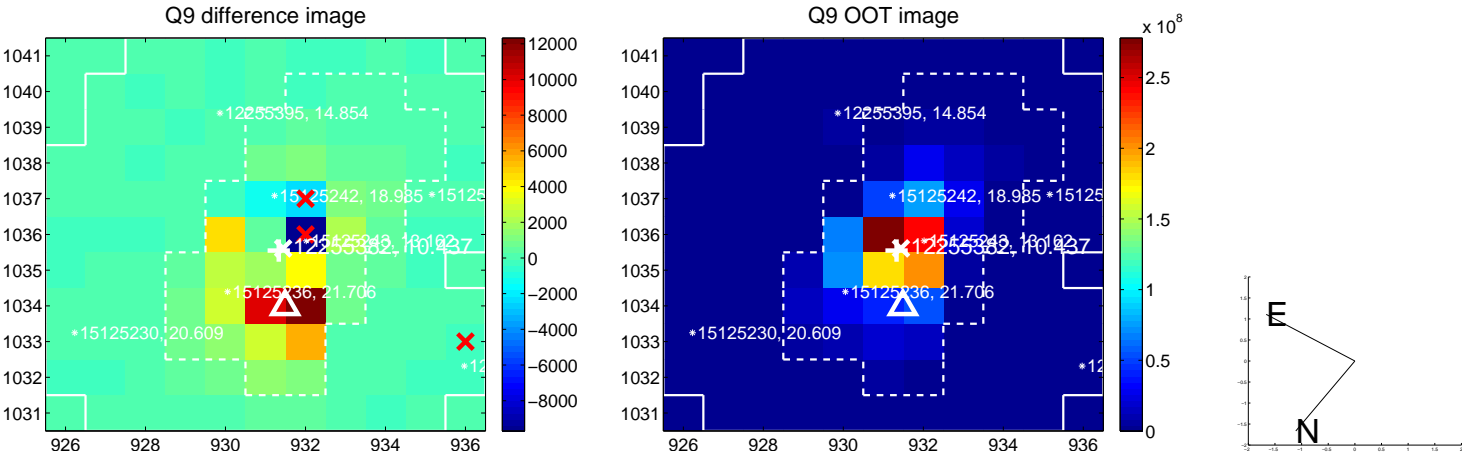
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



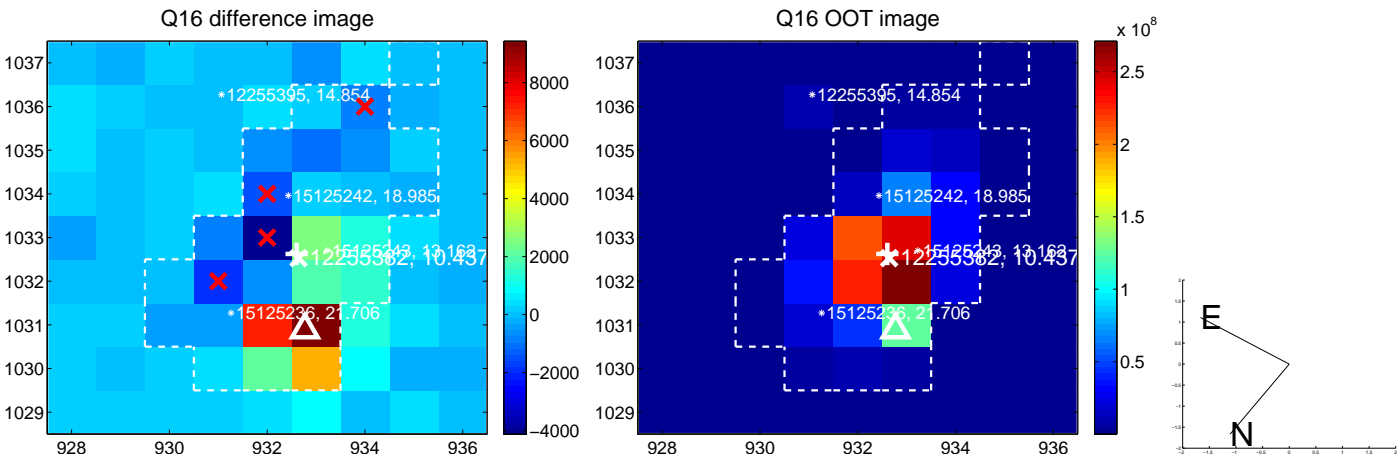
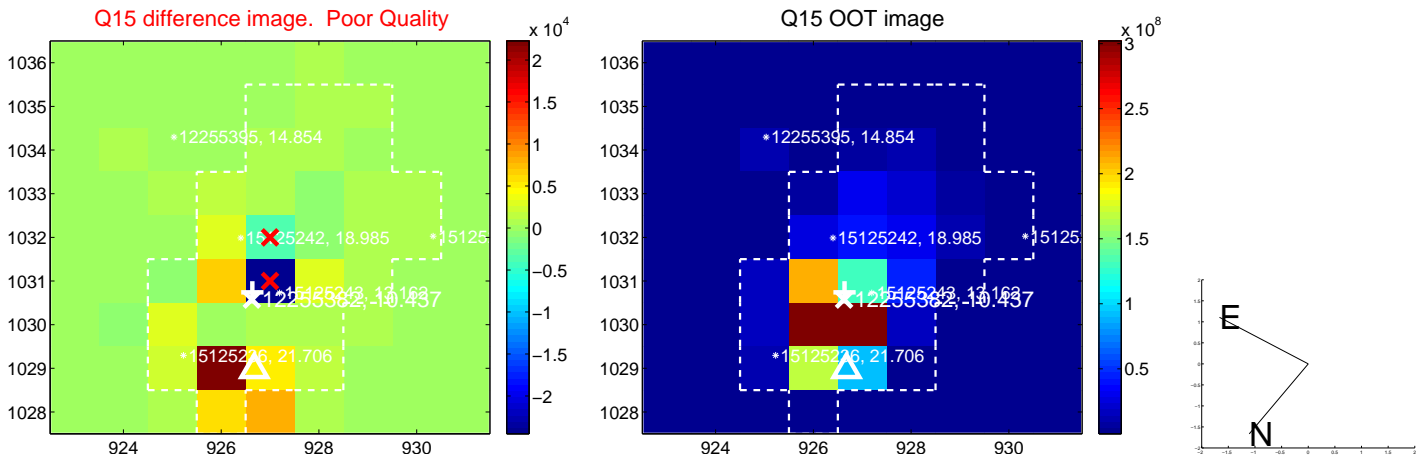
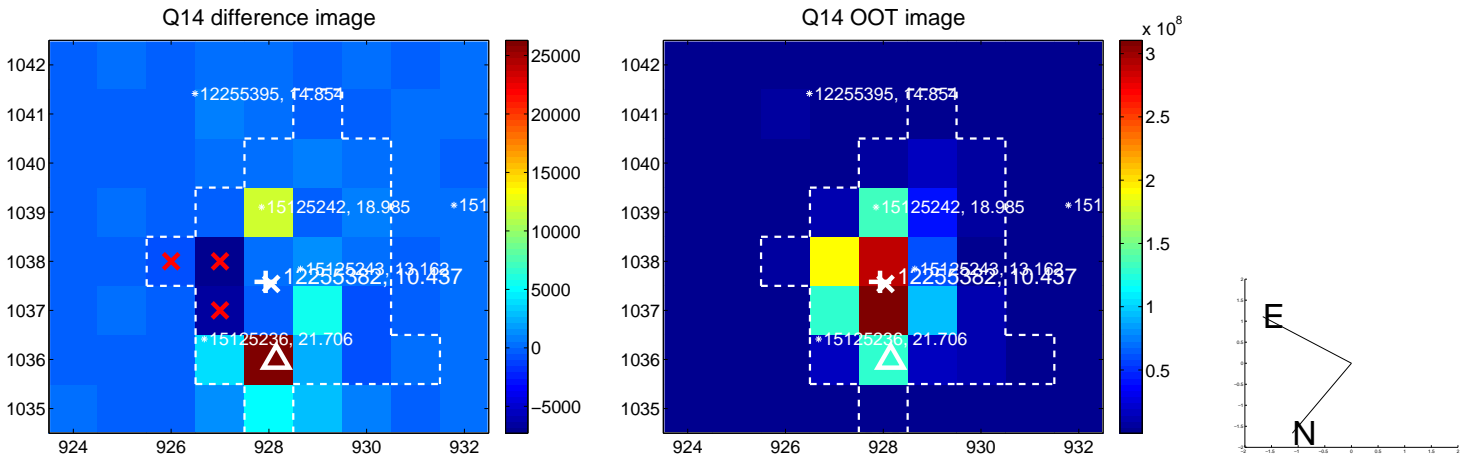
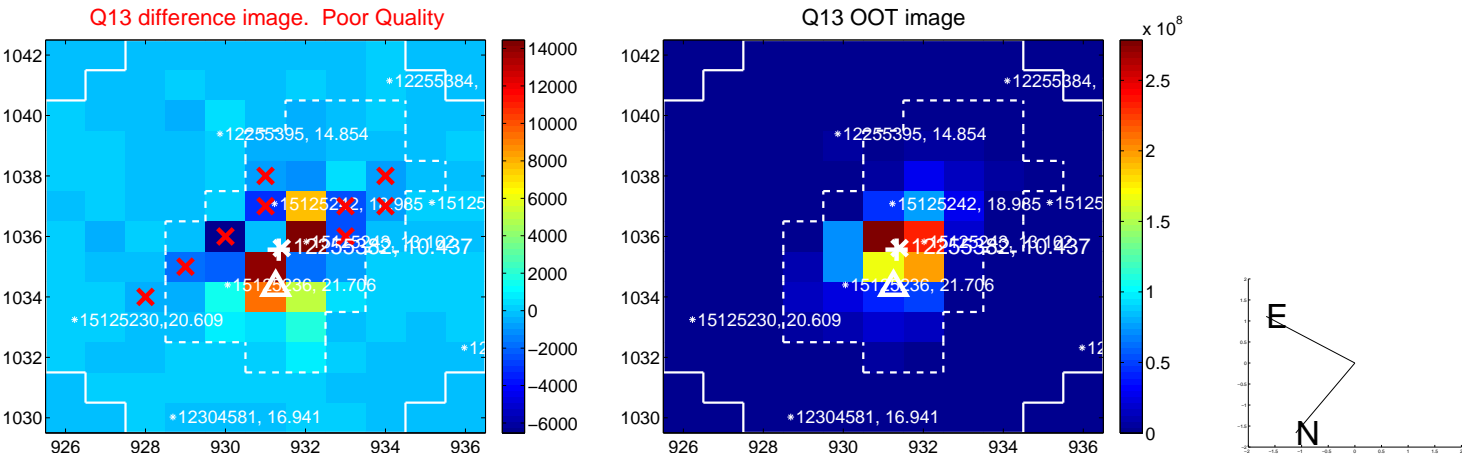
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



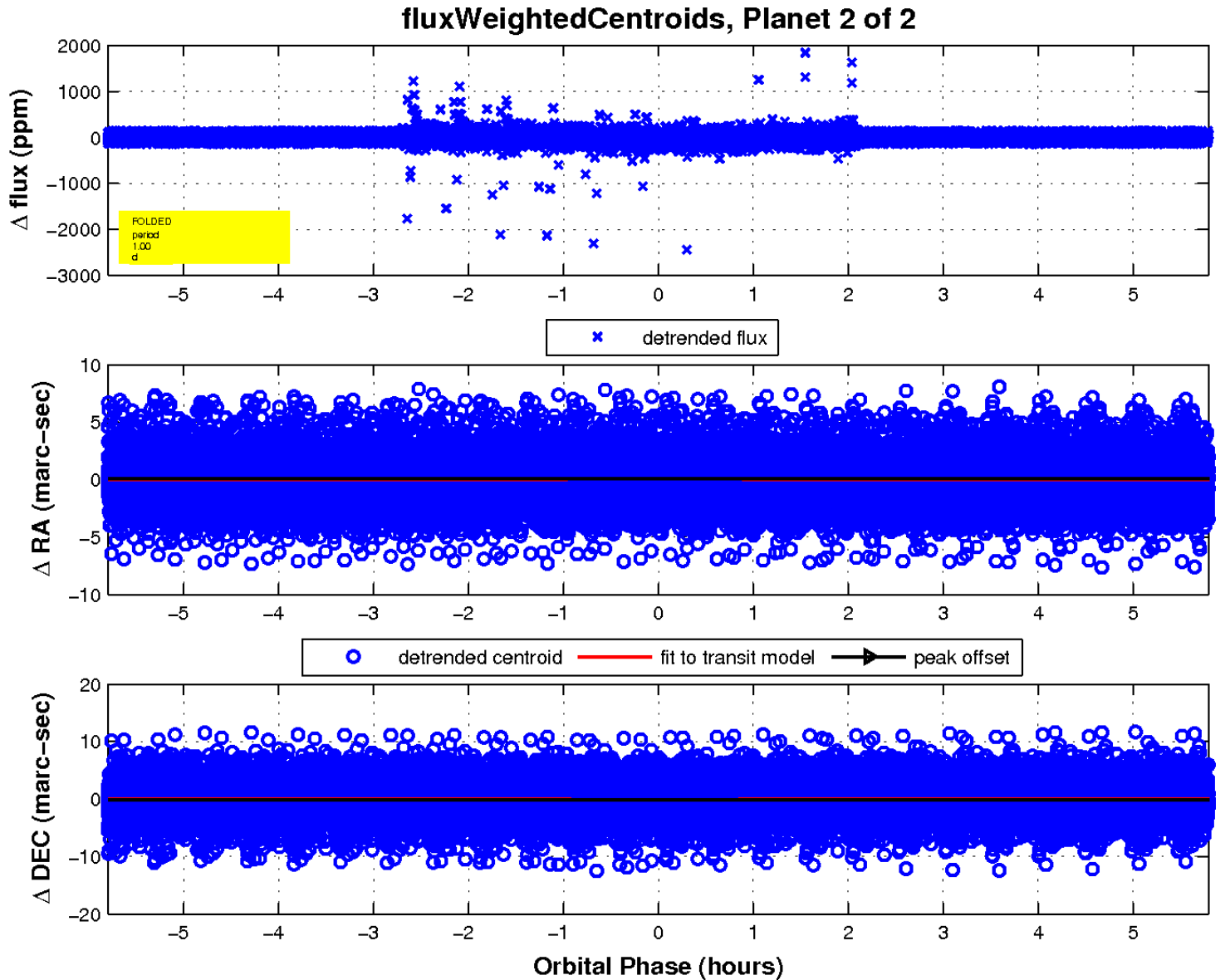
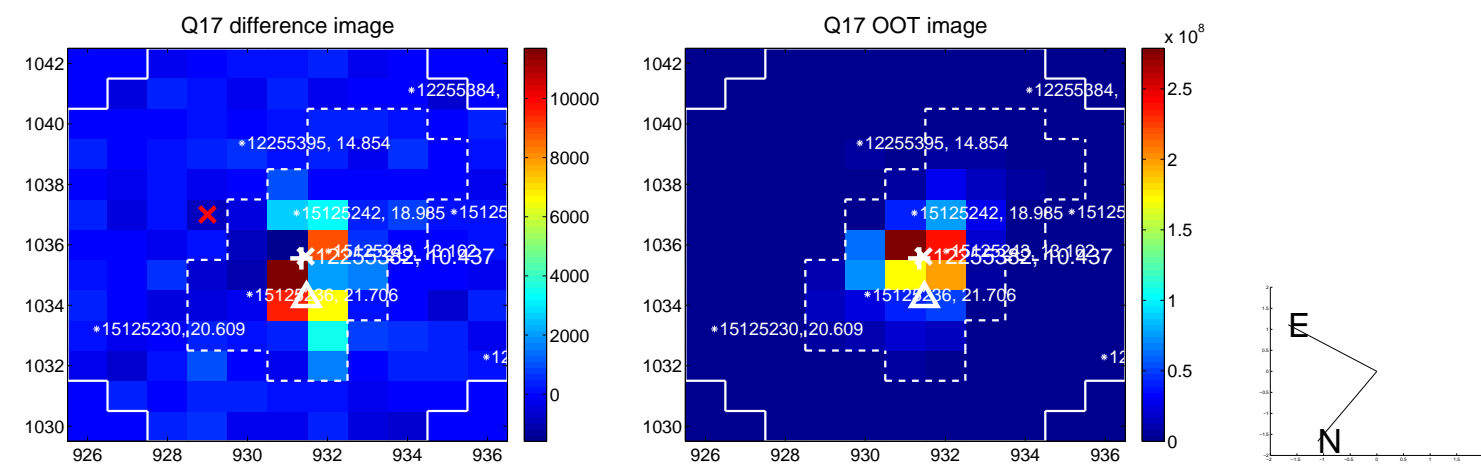
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

