

KIC 003966912

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})
003966912-01	OBS	1186.01	55.664182	156.350063	3340.0	22.857	78.9	84.4	0.85	5587	9.23	8.40
003966912-02	OBS	No	55.663592	185.743910	6968.3	2.275	74.0	54.1	0.85	5587	13.23	8.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003966912-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
003966912-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_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 003966912-01

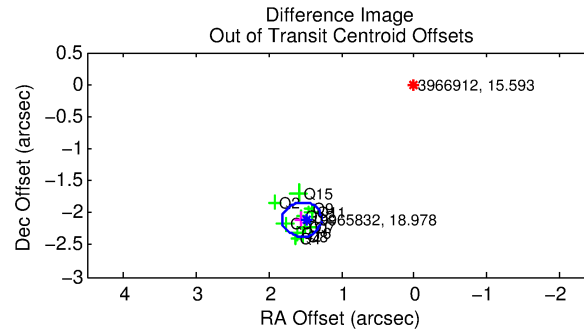
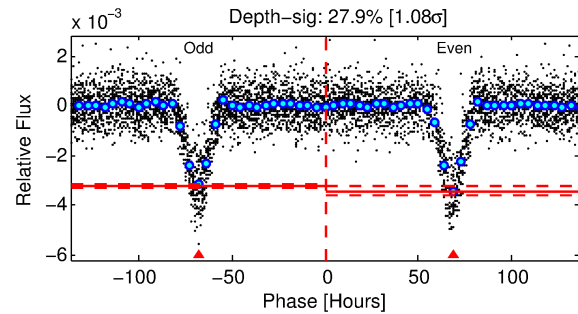
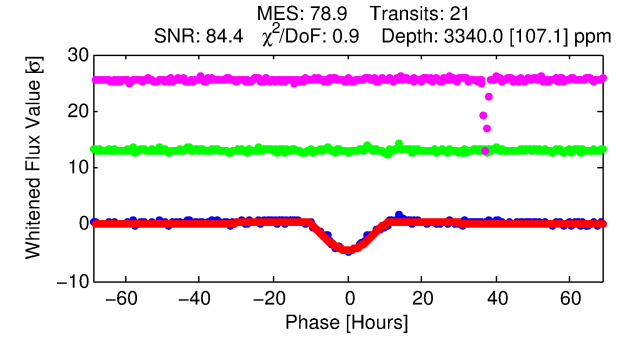
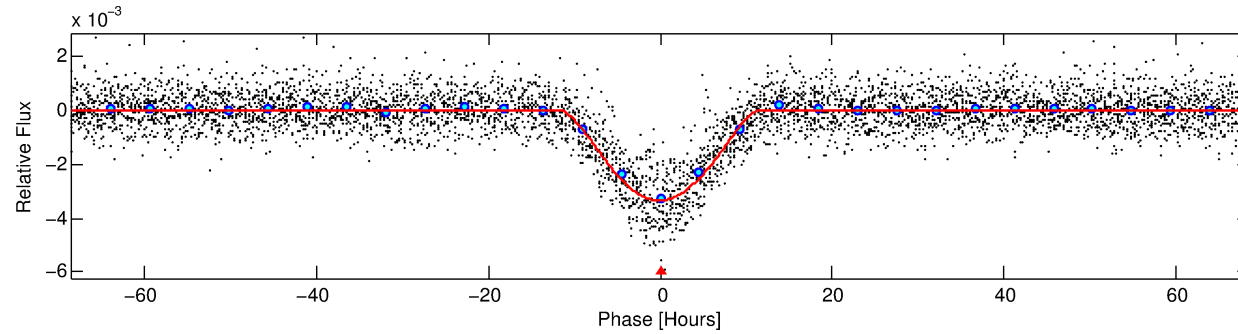
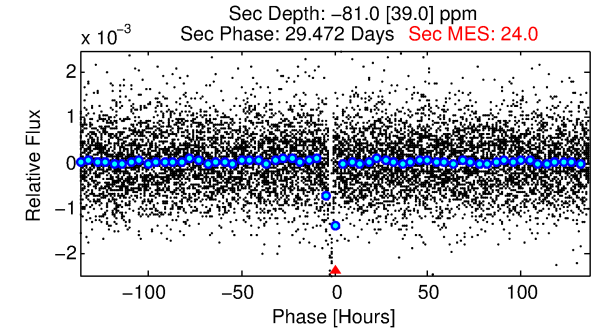
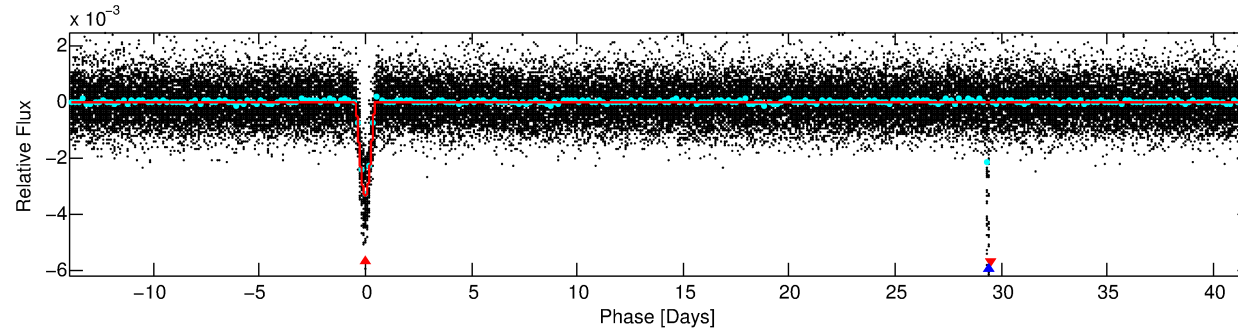
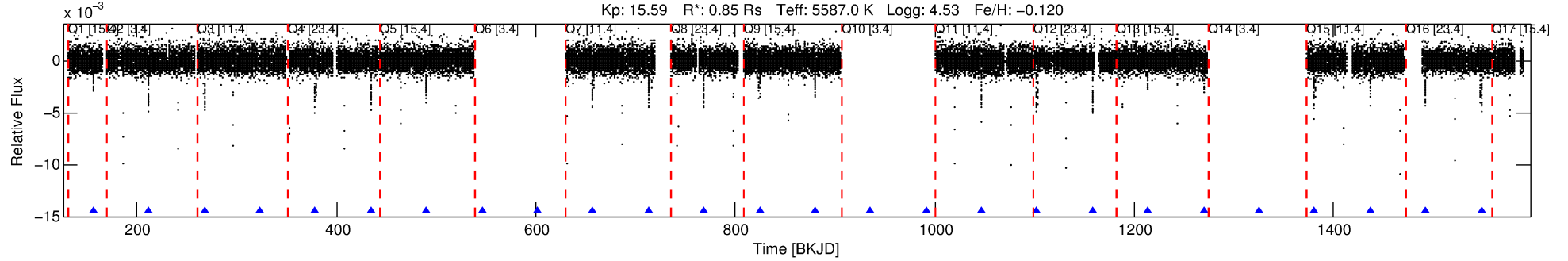
No Significant Match Found

DV One-Page Summary

KIC: 3966912 Candidate: 1 of 2 Period: 55.664 d

KOI: K01186.01 Corr: 0.990

Kp: 15.59 R*: 0.85 Rs Teff: 5587.0 K Logg: 4.53 Fe/H: -0.120



DV Fit Results:

Period = 55.66418 [0.00037] d
Epoch = 156.3501 [0.0057] BKJD
Rp/R* = 0.0992 [0.0464]
a/R* = 8.59 [0.77]
b = 1.00 [0.07]
Seff = 8.40 [2.73]
Teq = 434 [35] K
Rp = 9.23 [4.88] Re
a = 0.2750 [0.0572] AU
Ag = N/A
Teffp = N/A

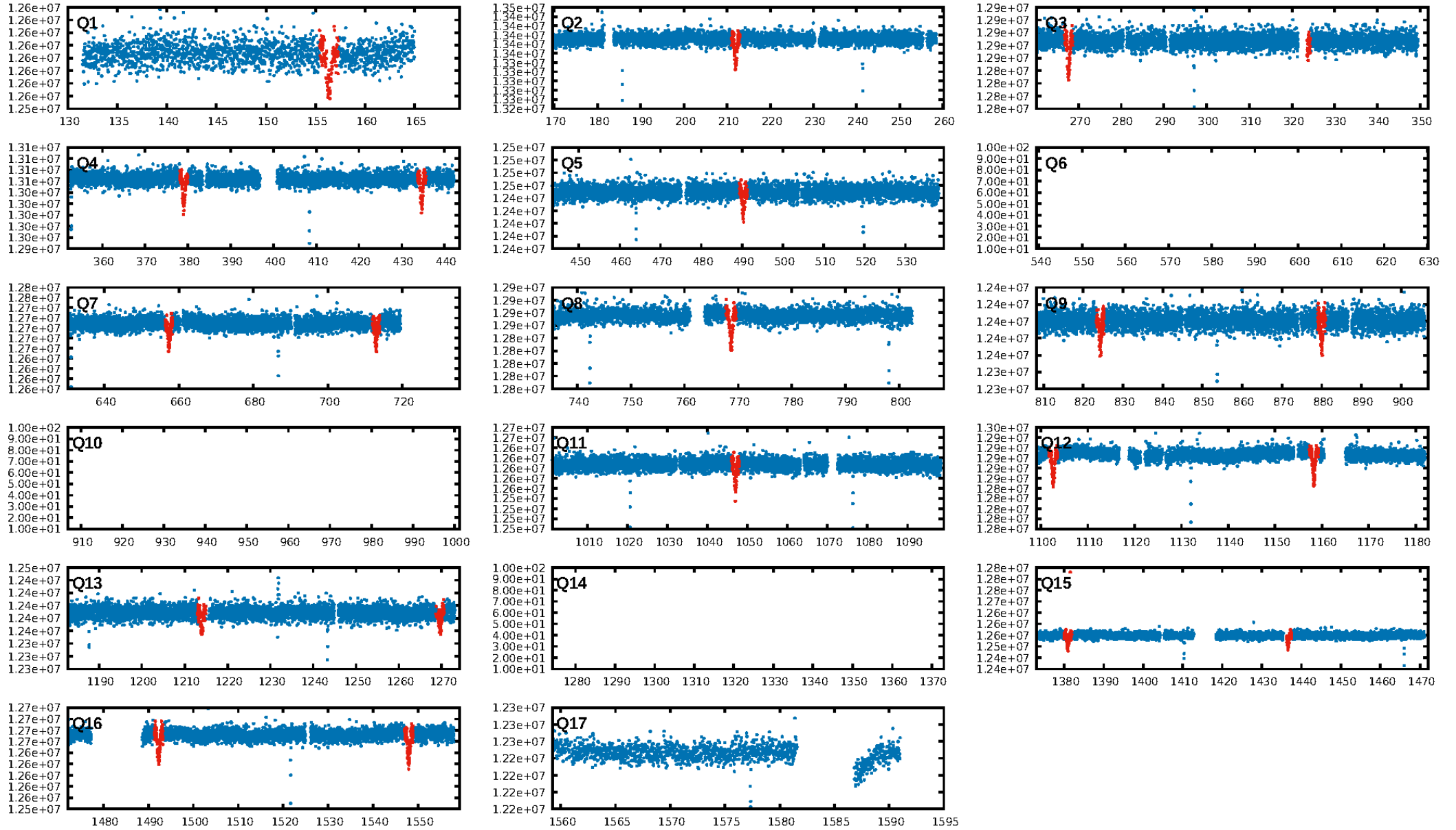
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [20/20]
GhostDiagnostic-chr: 1.107
Centroid-sig: 0.0%
Centroid-so: 2.608 arcsec [14.97σ]
OotOffset-rm: 2.610 arcsec [29.10σ]
KicOffset-rm: 2.796 arcsec [30.99σ]
OotOffset-st: 1/3/4/3 [11]
KicOffset-st: 1/3/4/3 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 1.00 [11/11]

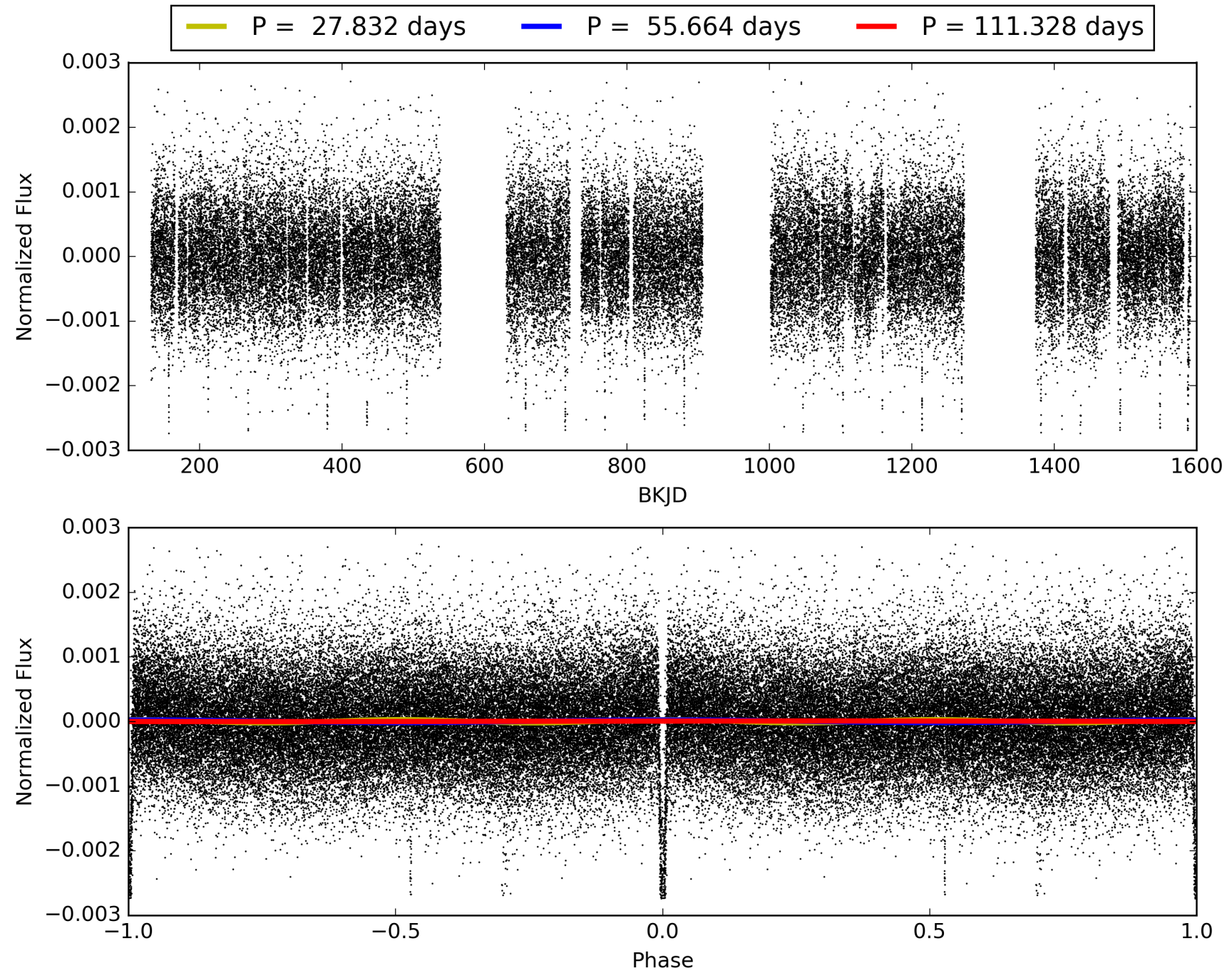
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:35:43 Z

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

TCE 003966912-01, PDC Light Curves

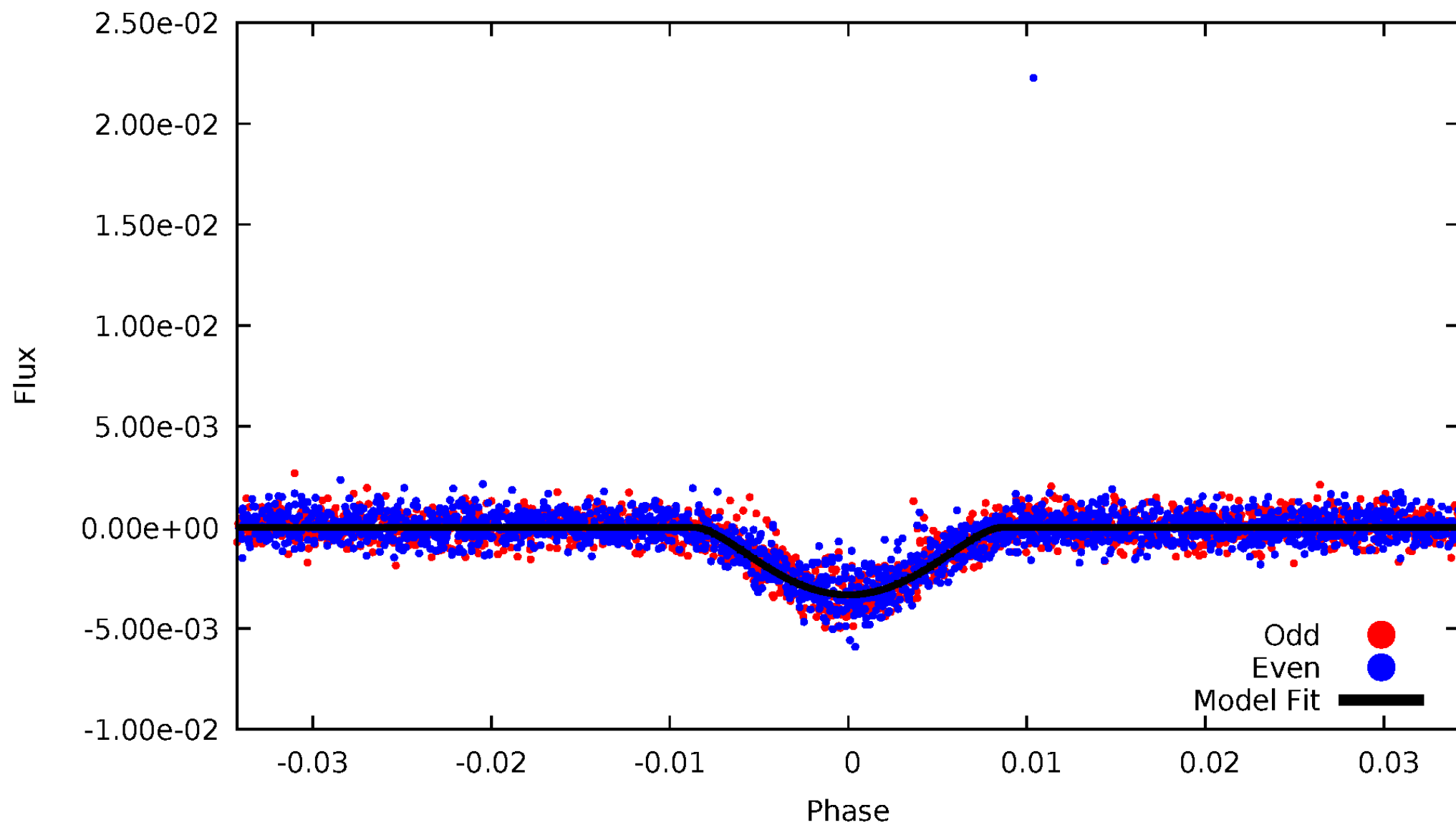


TCE 003966912-01



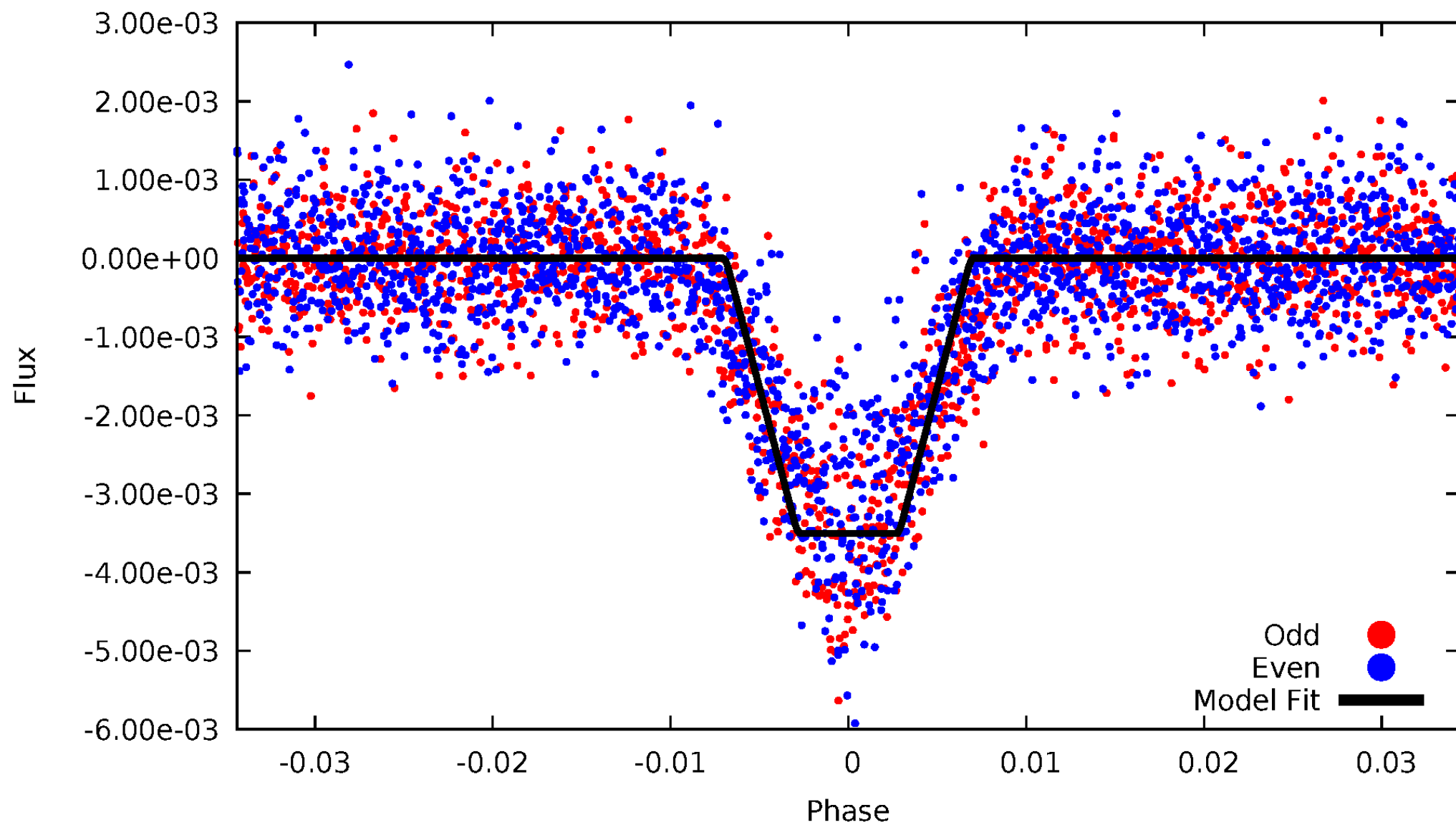
DV Odd/Even

TCE 003966912-01

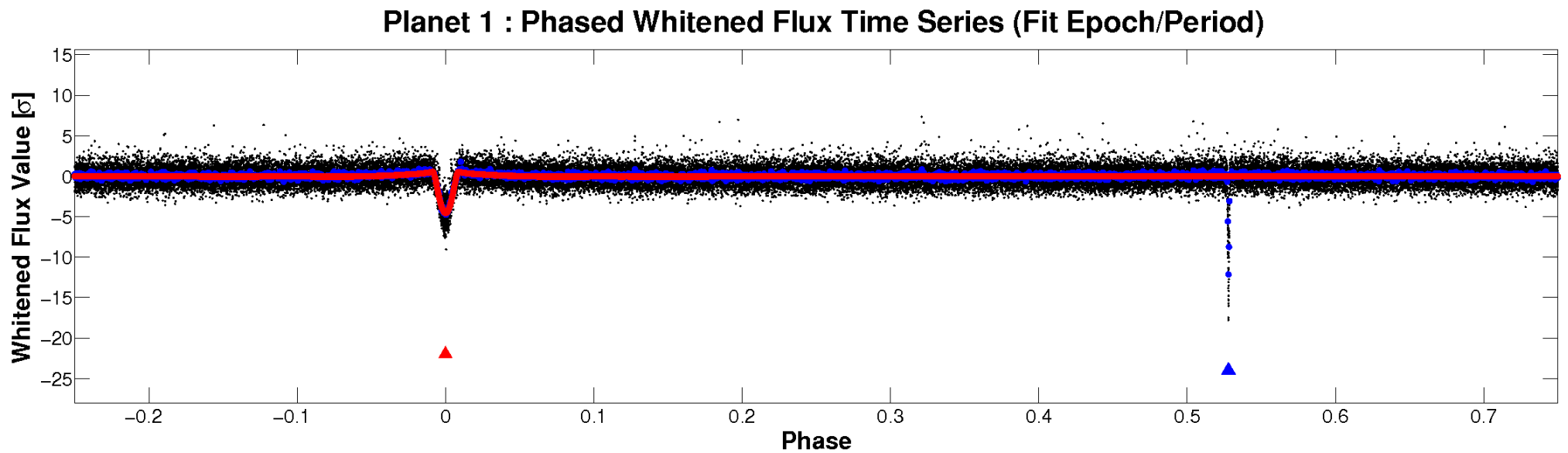
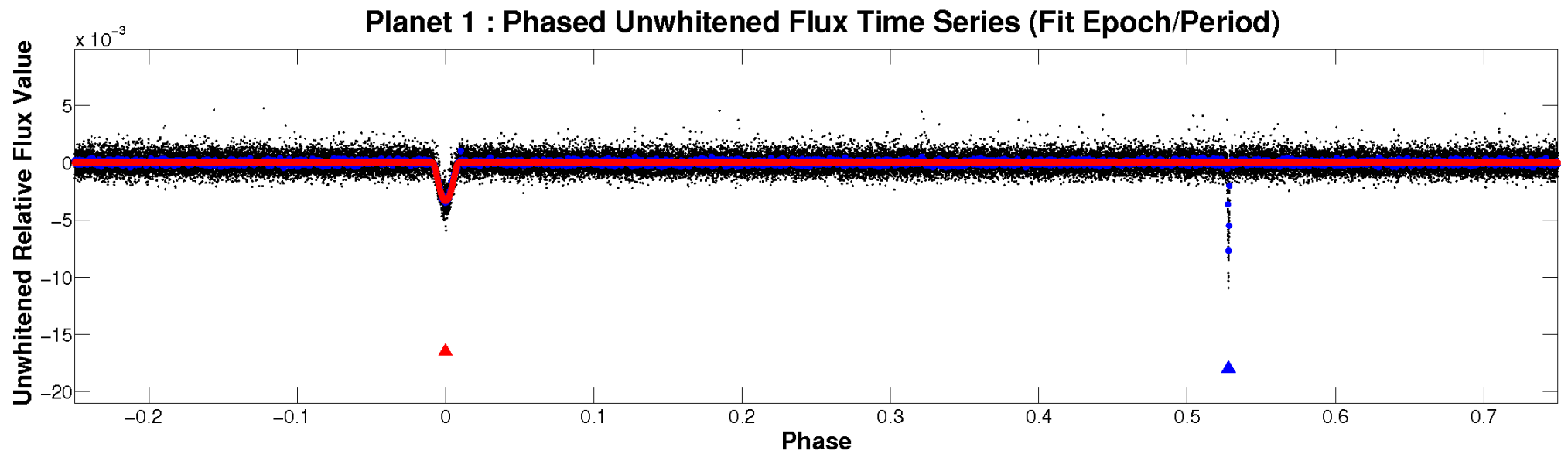


ALT Odd/Even

TCE 003966912-01

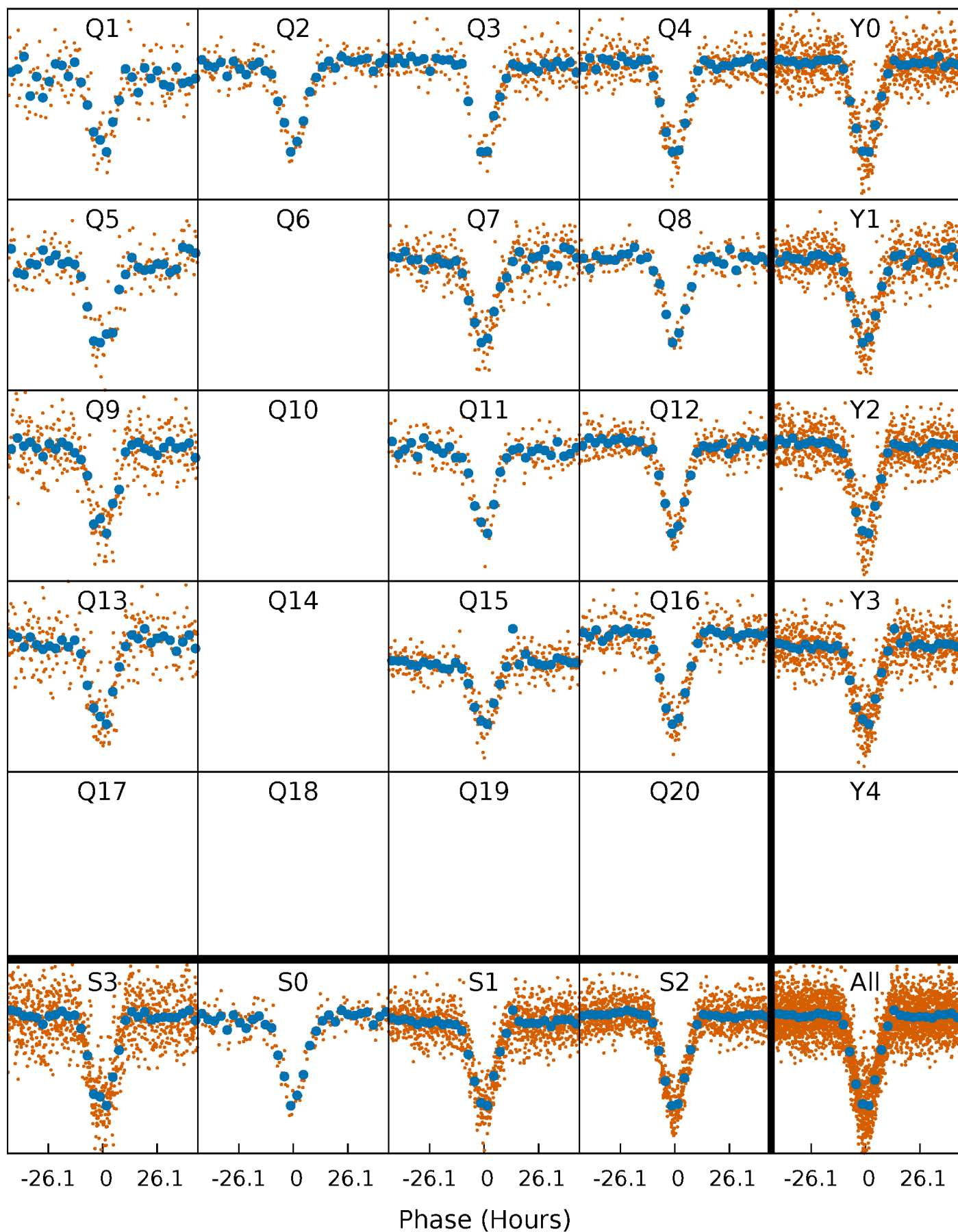


Non-Whitened Vs. Whitened Light Curve



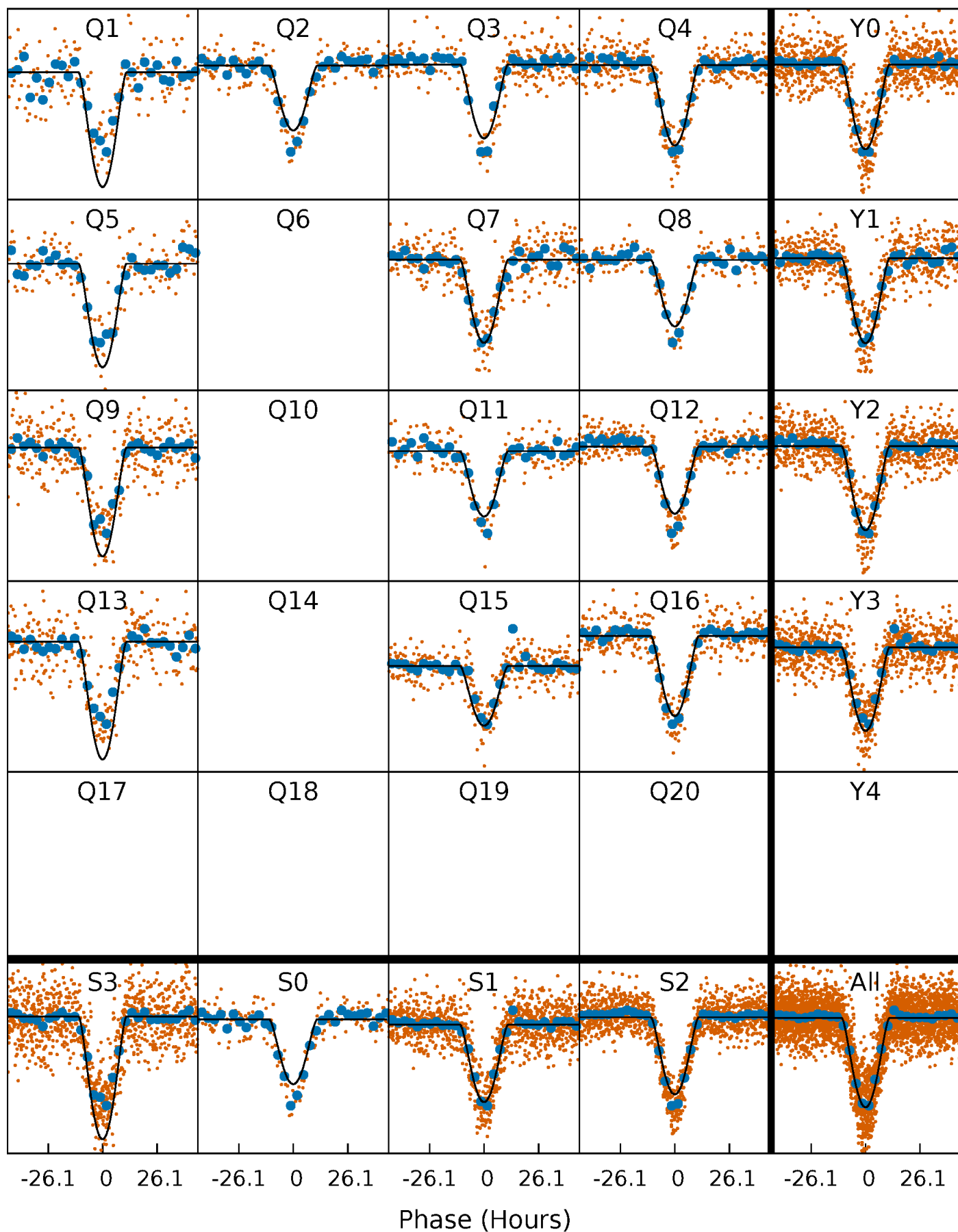
PDC Quarter-Phased Transit Curves

TCE 003966912-01 P= 55.664182 Days $T_0=156.350063$ (BKJD)



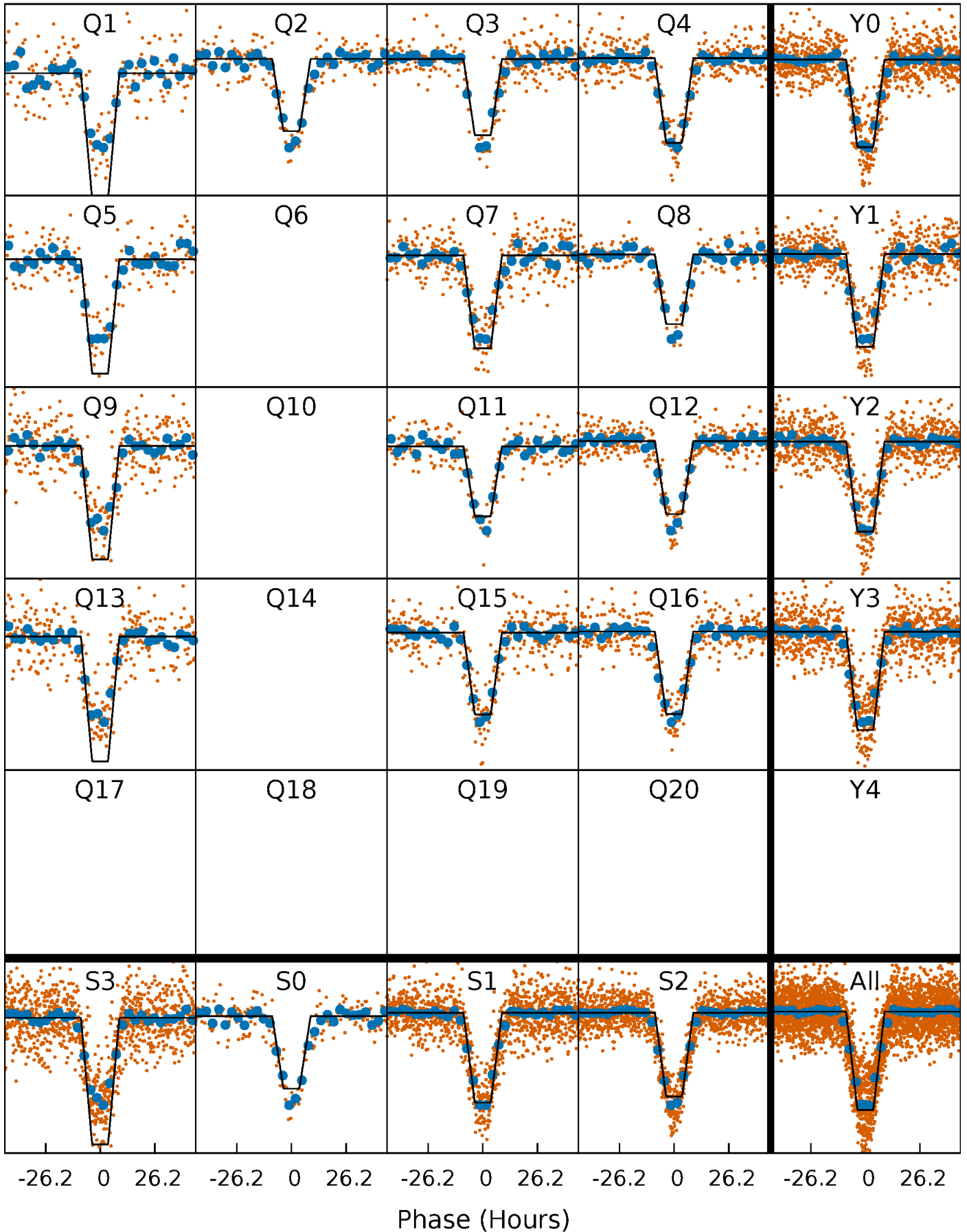
DV Quarter-Phased Transit Curves

TCE 003966912-01 P= 55.664182 Days $T_0=156.350063$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

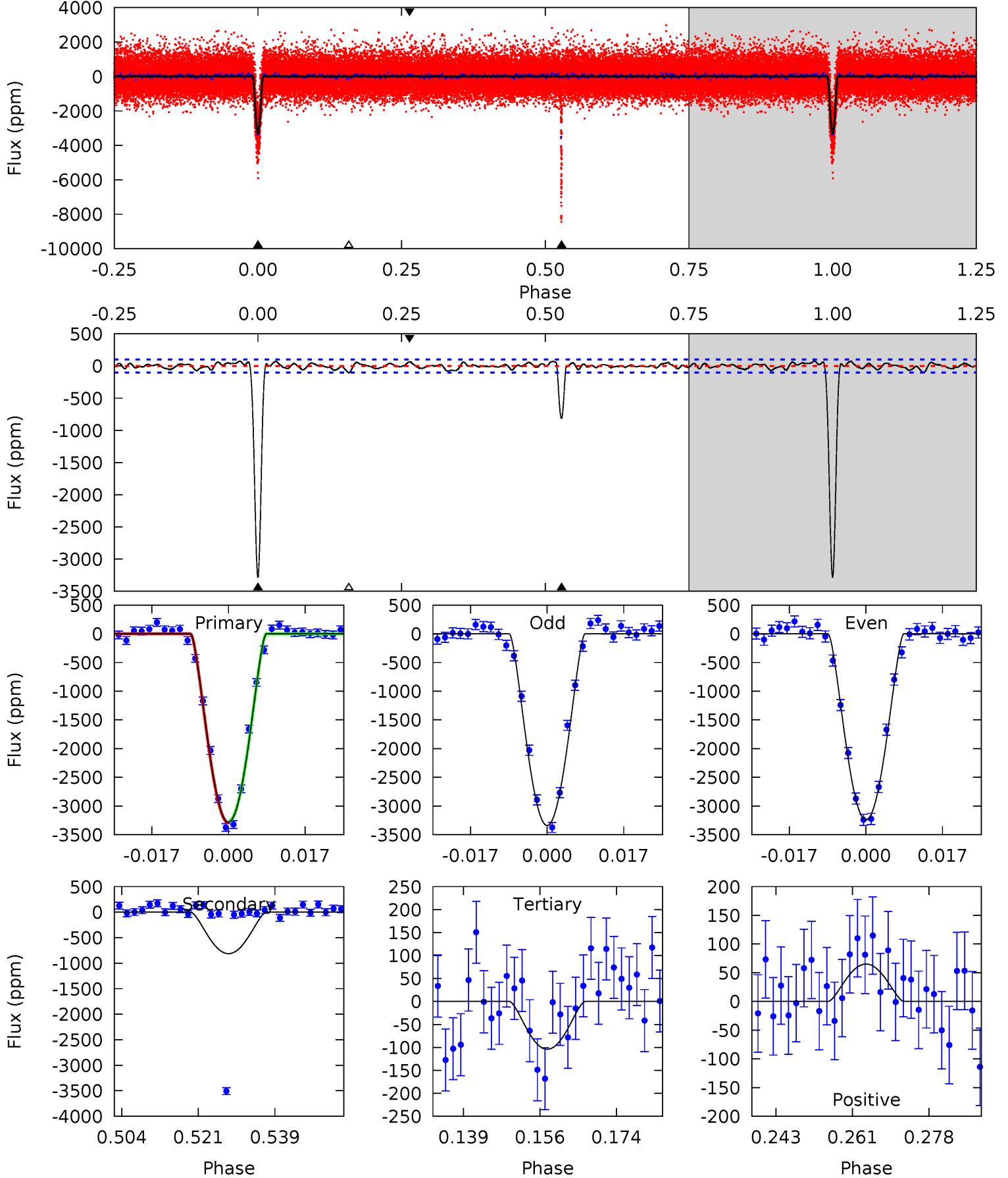
TCE 003966912-01 P= 55.665447 Days $T_0=156.330621$ (BKJD)



DV Model-Shift Uniqueness Test

003966912-01, P = 55.664182 Days, E = 100.685881 Days

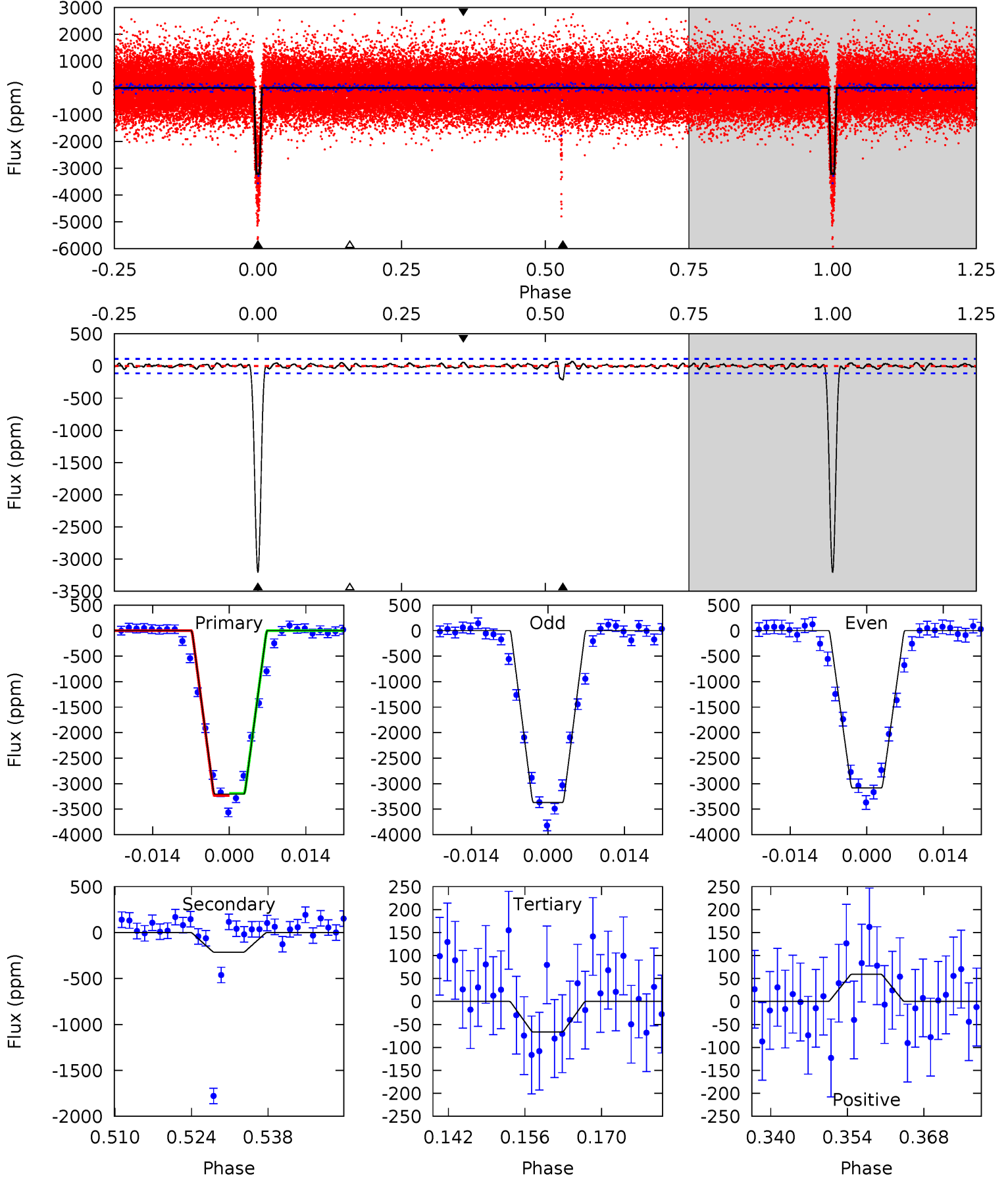
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
158.2	39.2	5.02	3.14	4.92	2.38	1.53	153.2	155.1	34.2	36.1	2.36	0.91	0.02	0.50



Alt Model-Shift Uniqueness Test

003966912-01, P = 55.665447 Days, E = 100.665174 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
140.9	9.41	2.92	2.60	4.96	2.45	0.98	138.0	138.3	6.49	6.81	6.28	0.94	0.02	0.90



Stellar Parameters For KIC 003966912

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5587^{+166}_{-166}	$4.528^{+0.055}_{-0.165}$	$-0.120^{+0.300}_{-0.300}$	$0.853^{+0.211}_{-0.090}$	$0.894^{+0.102}_{-0.092}$	$2.029^{+0.465}_{-0.935}$
	+3%/-3%	+1%/-4%	+250%/-250%	+25%/-11%	+11%/-10%	+23%/-46%
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 003966912-01 / KOI 1186.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-814 ± 21	$9.38^{+4.79}_{-4.28}$	616^{+40}_{-28}	3503^{+846}_{-412}	382^{+910}_{-217}
Alt.	-214 ± 23	$6.28^{+4.45}_{-3.84}$	617^{+39}_{-28}	3221^{+1212}_{-462}	225^{+1282}_{-150}

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

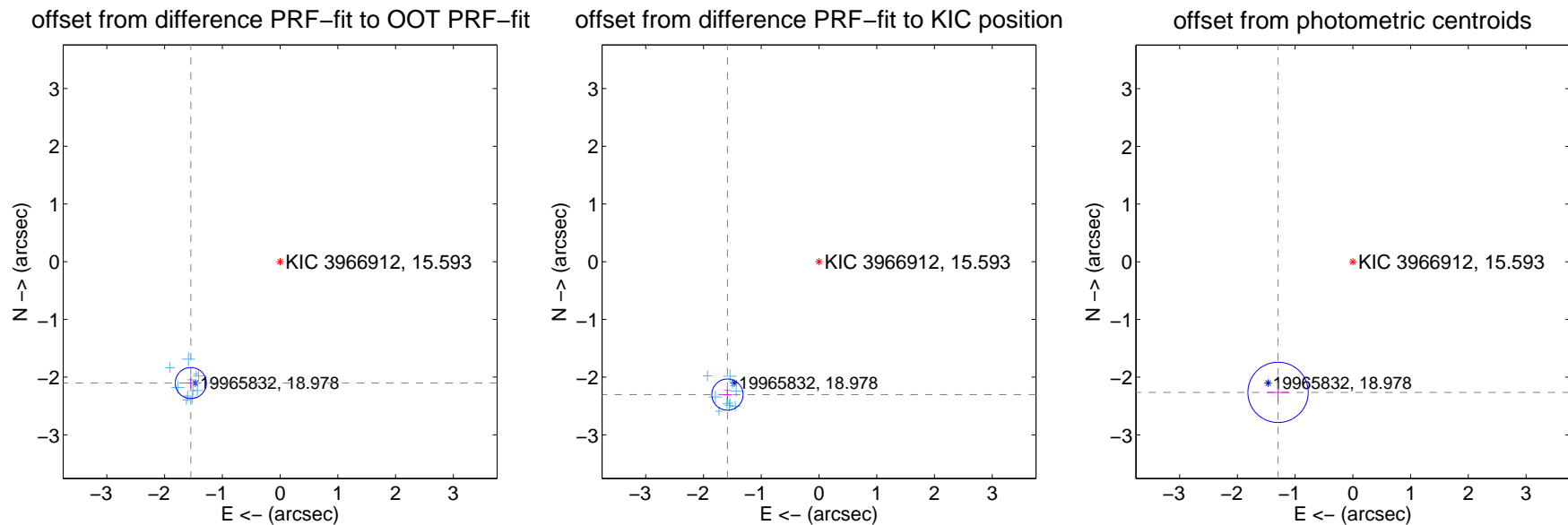
DV Centroid Data

Supplemental centroid analysis for 003966912-01. Kepler magnitude: 15.59. Transit SNR 84.39

There are 11 quarters with good PRF difference image offsets

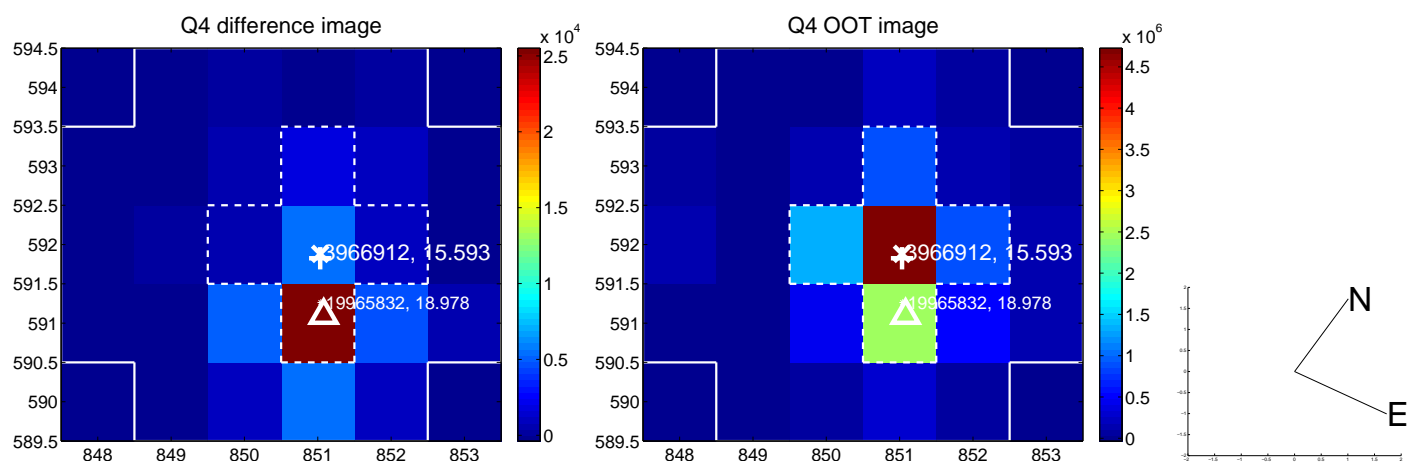
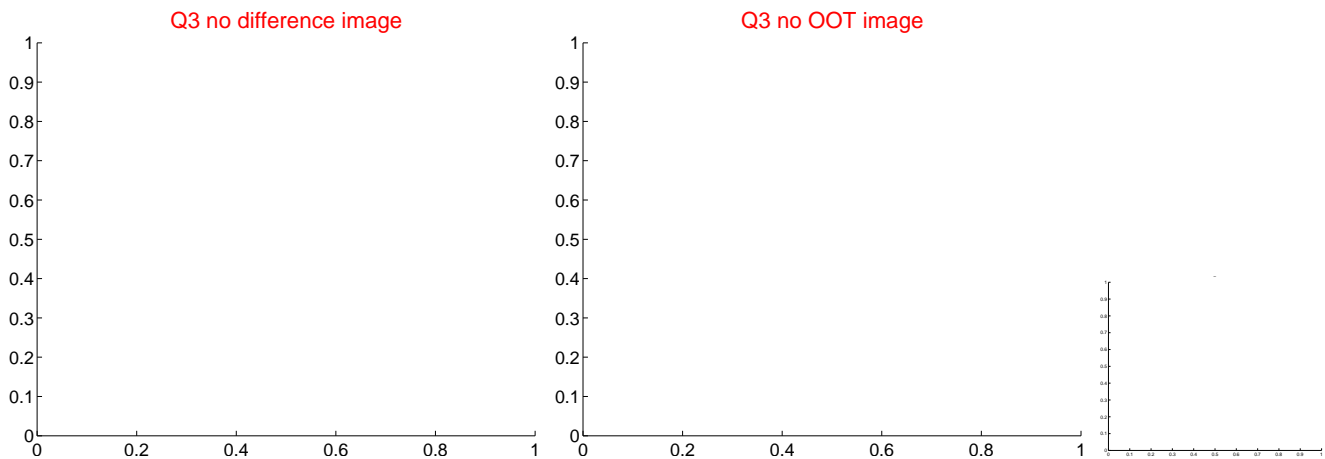
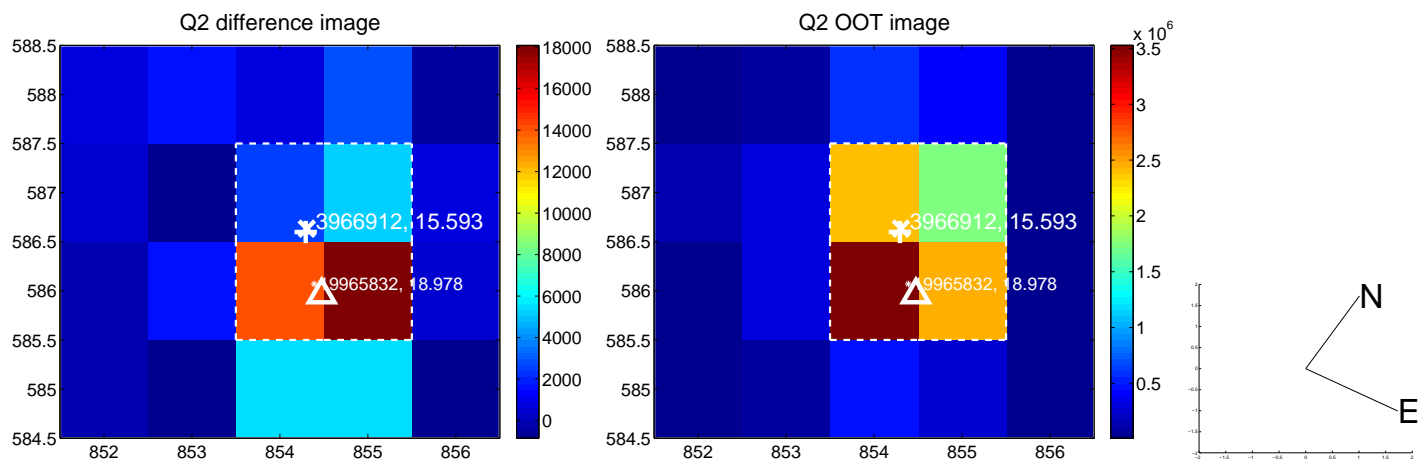
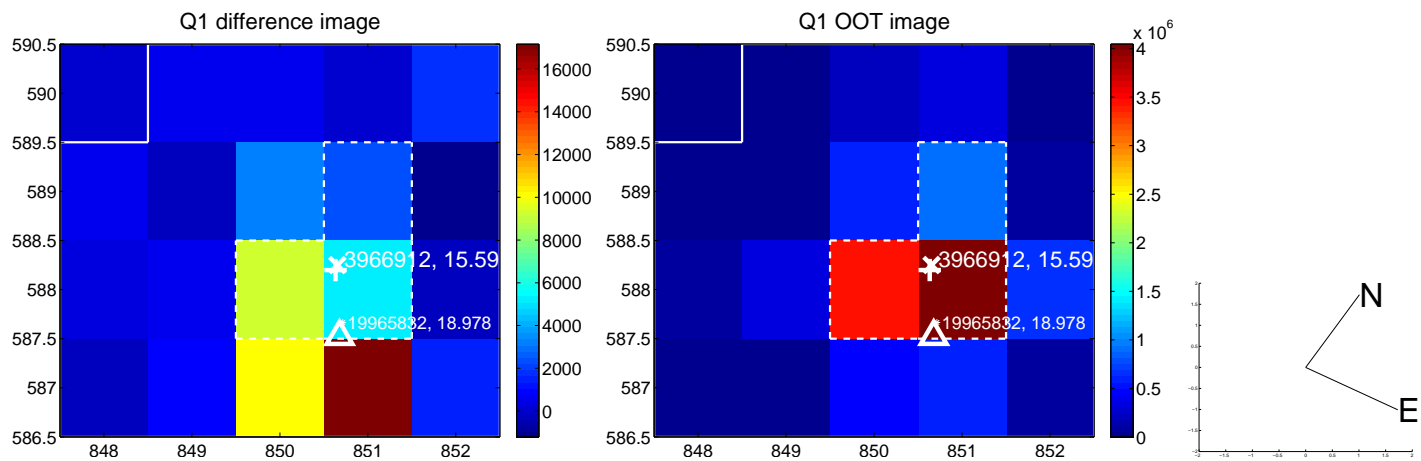
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.610 ± 0.090	29.10	1.546 ± 0.077	-2.103 ± 0.096
PRF-fit source offset from KIC position	2.796 ± 0.090	30.99	1.585 ± 0.079	-2.303 ± 0.095
photometric centroid source offset	2.61 ± 0.17	14.97	1.30 ± 0.19	-2.26 ± 0.17

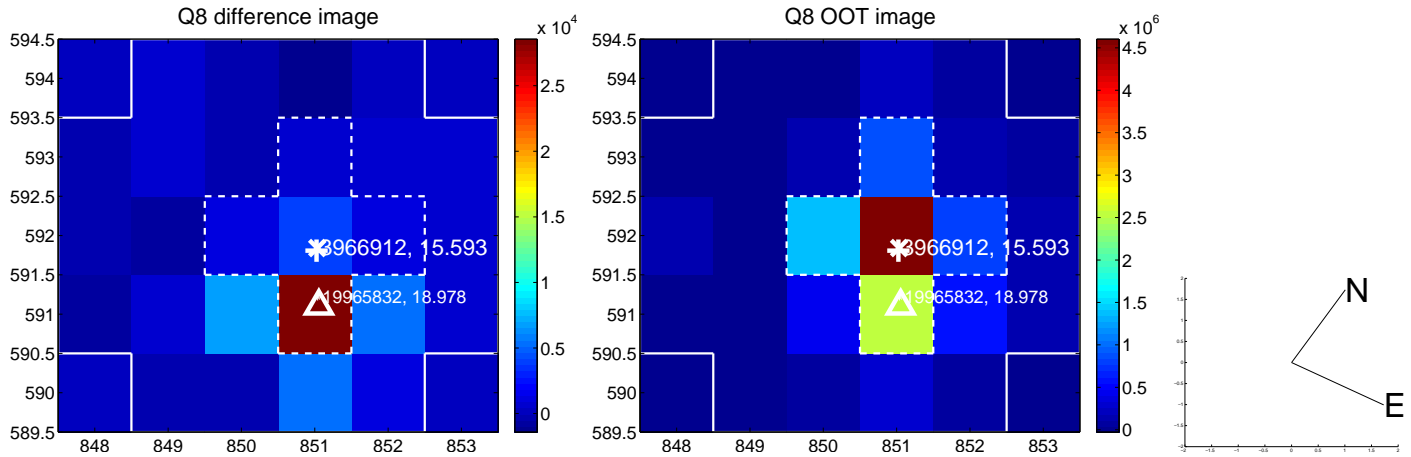
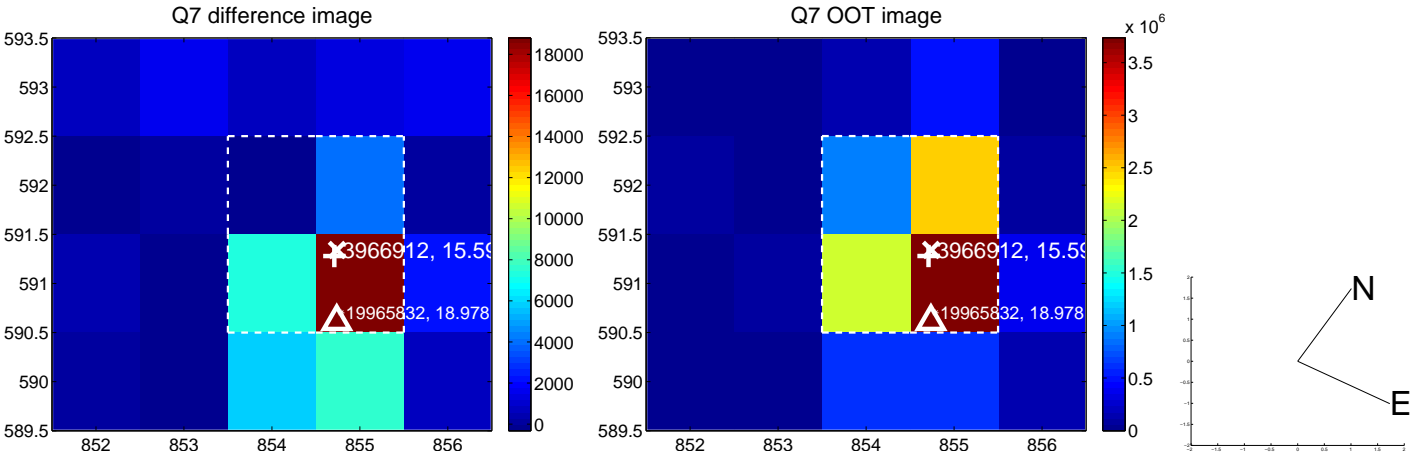
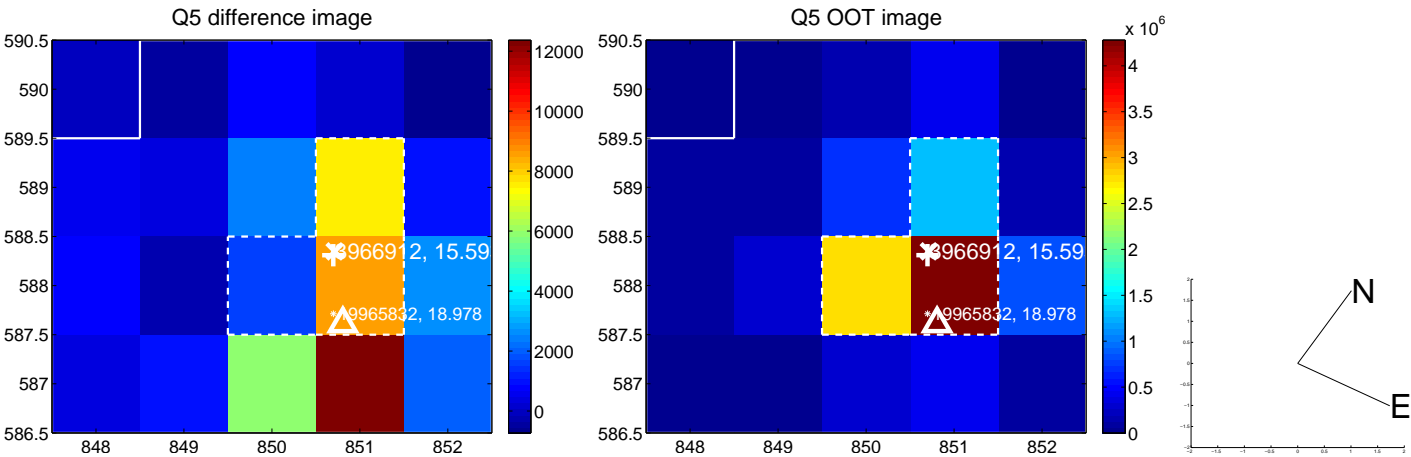


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

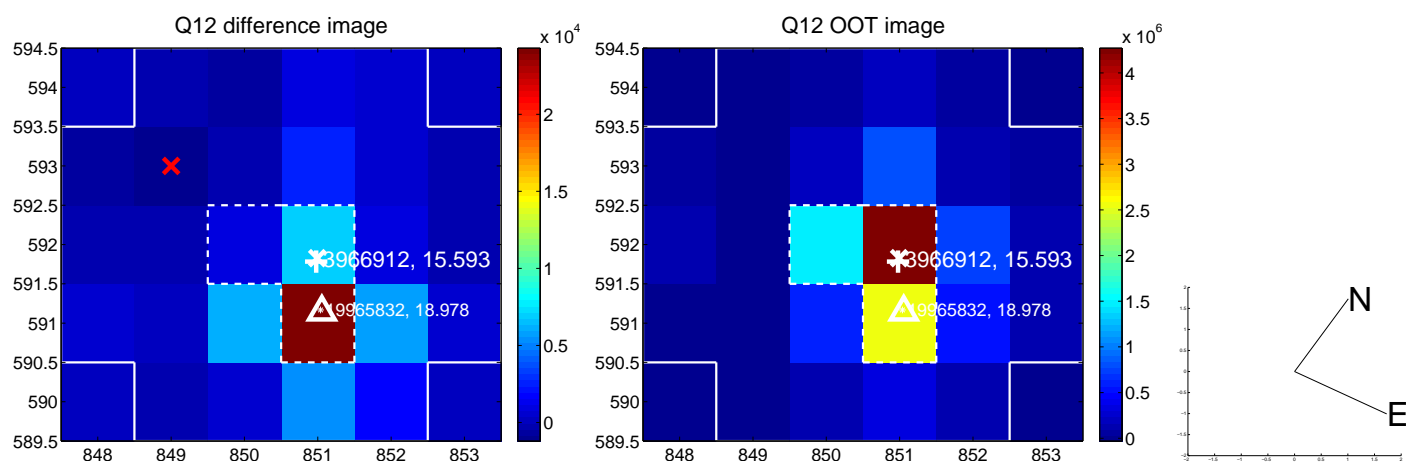
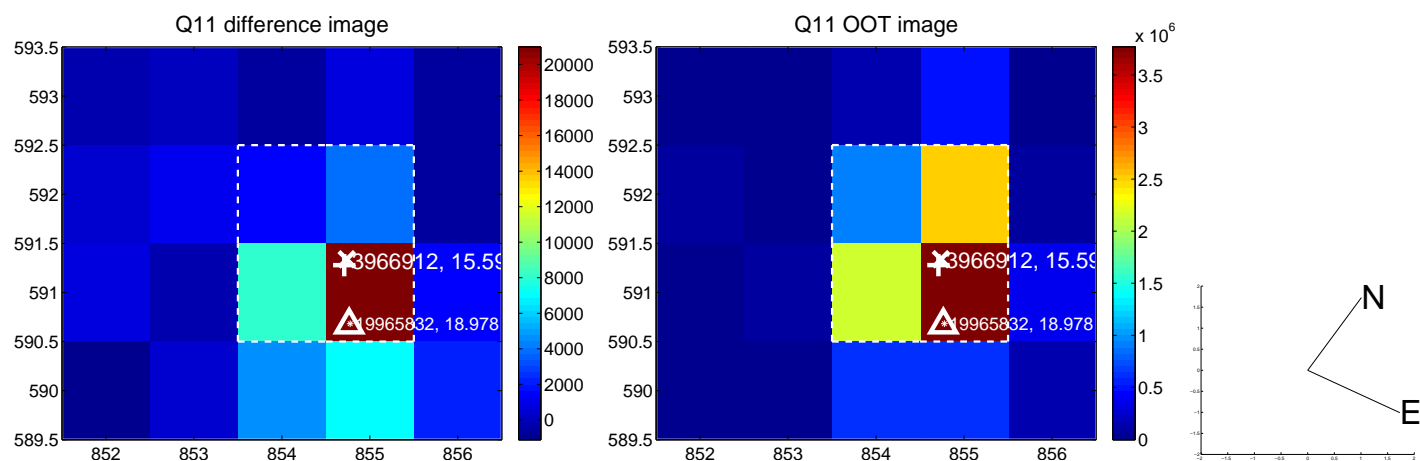
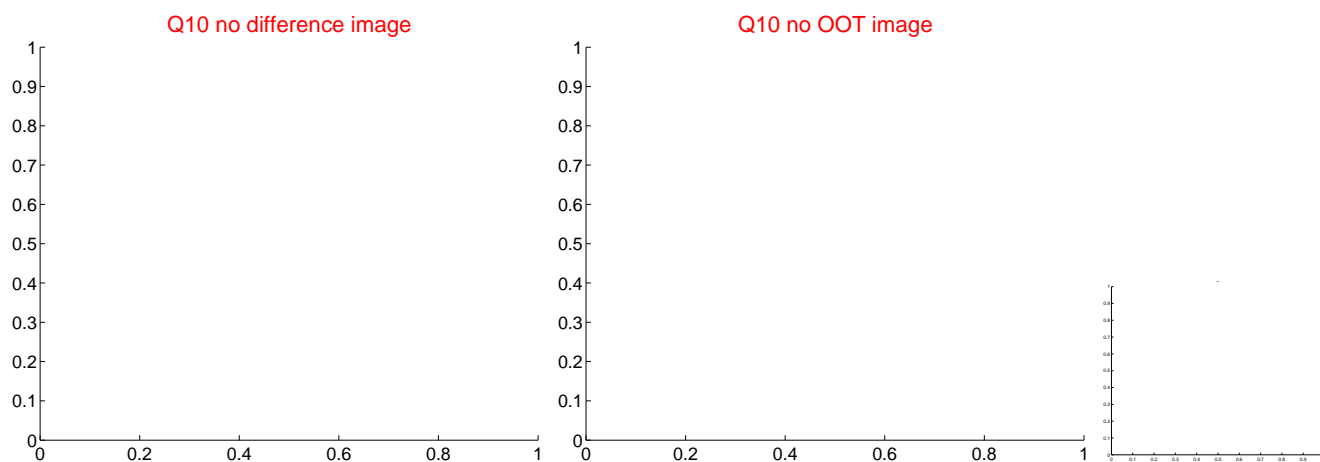
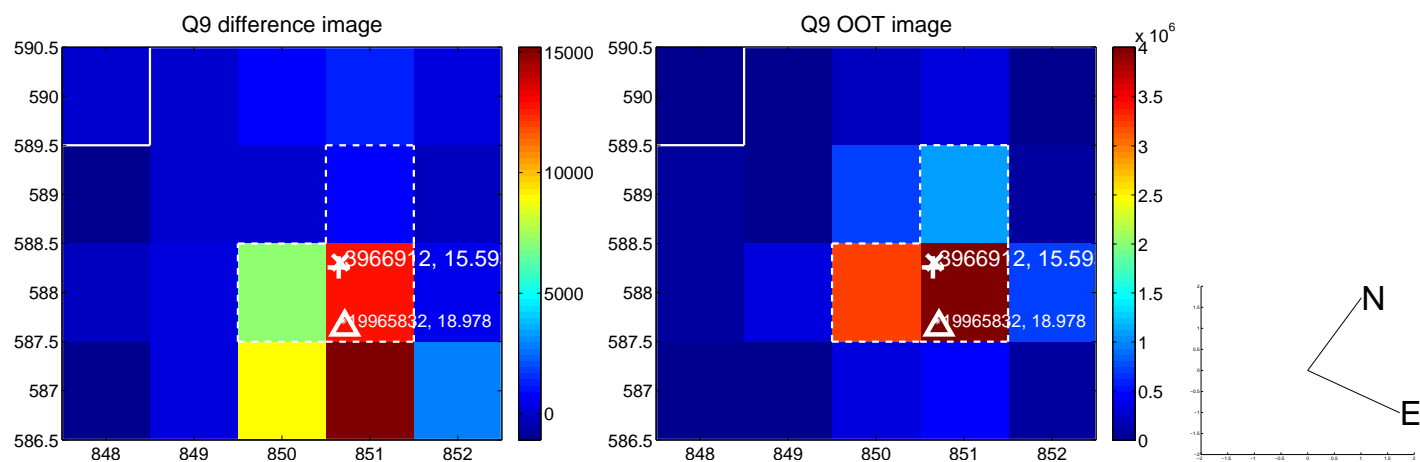
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



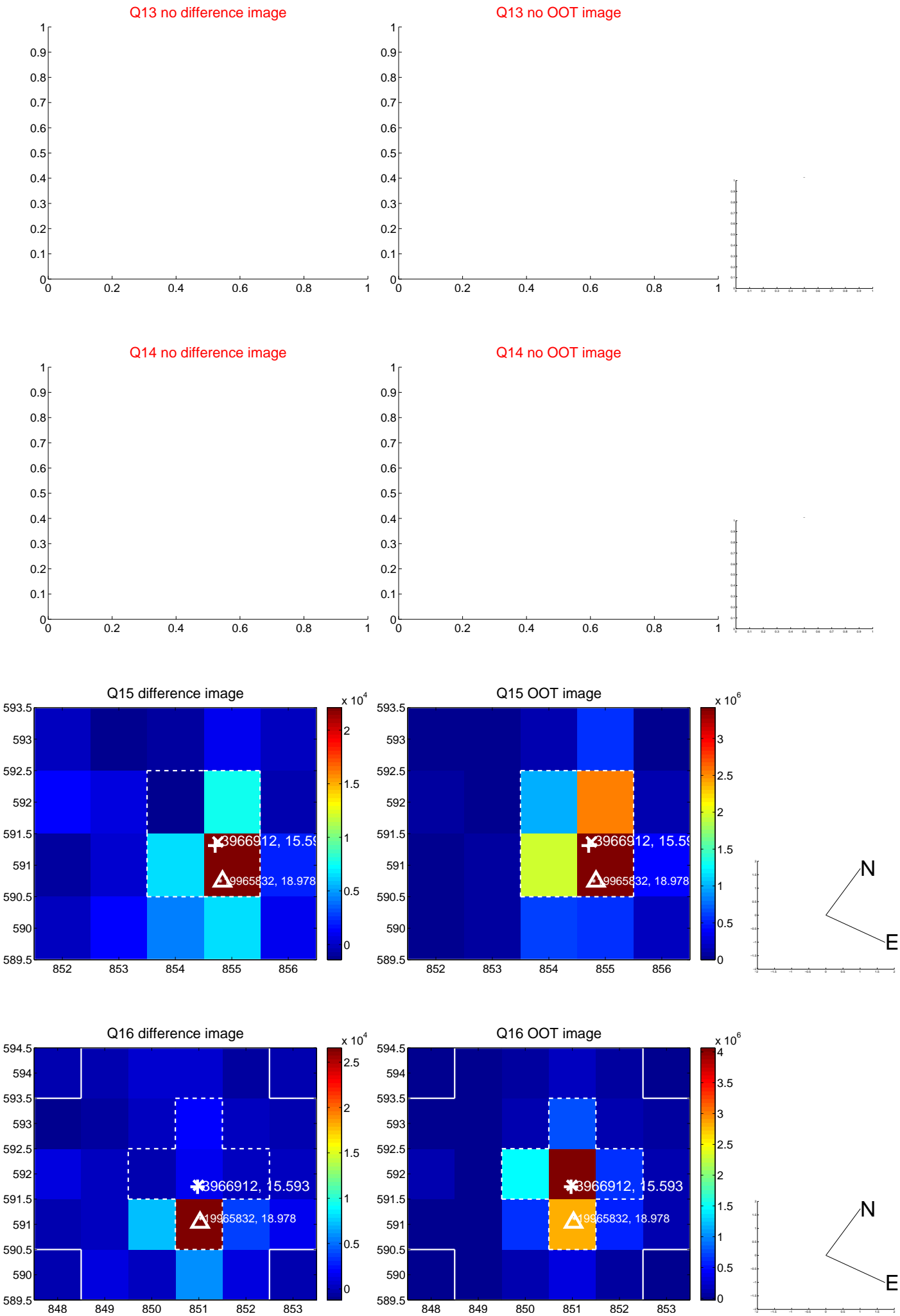
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



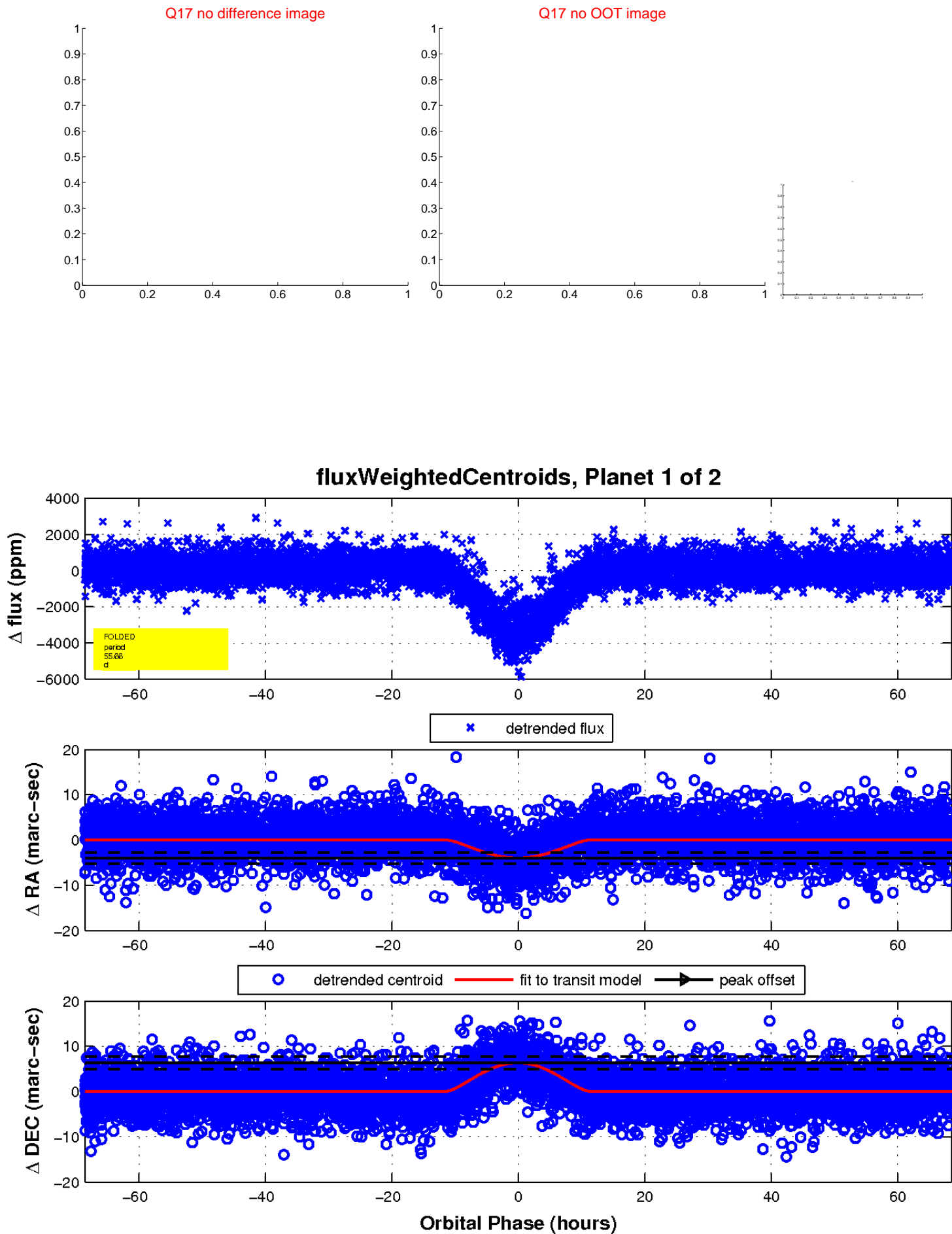
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

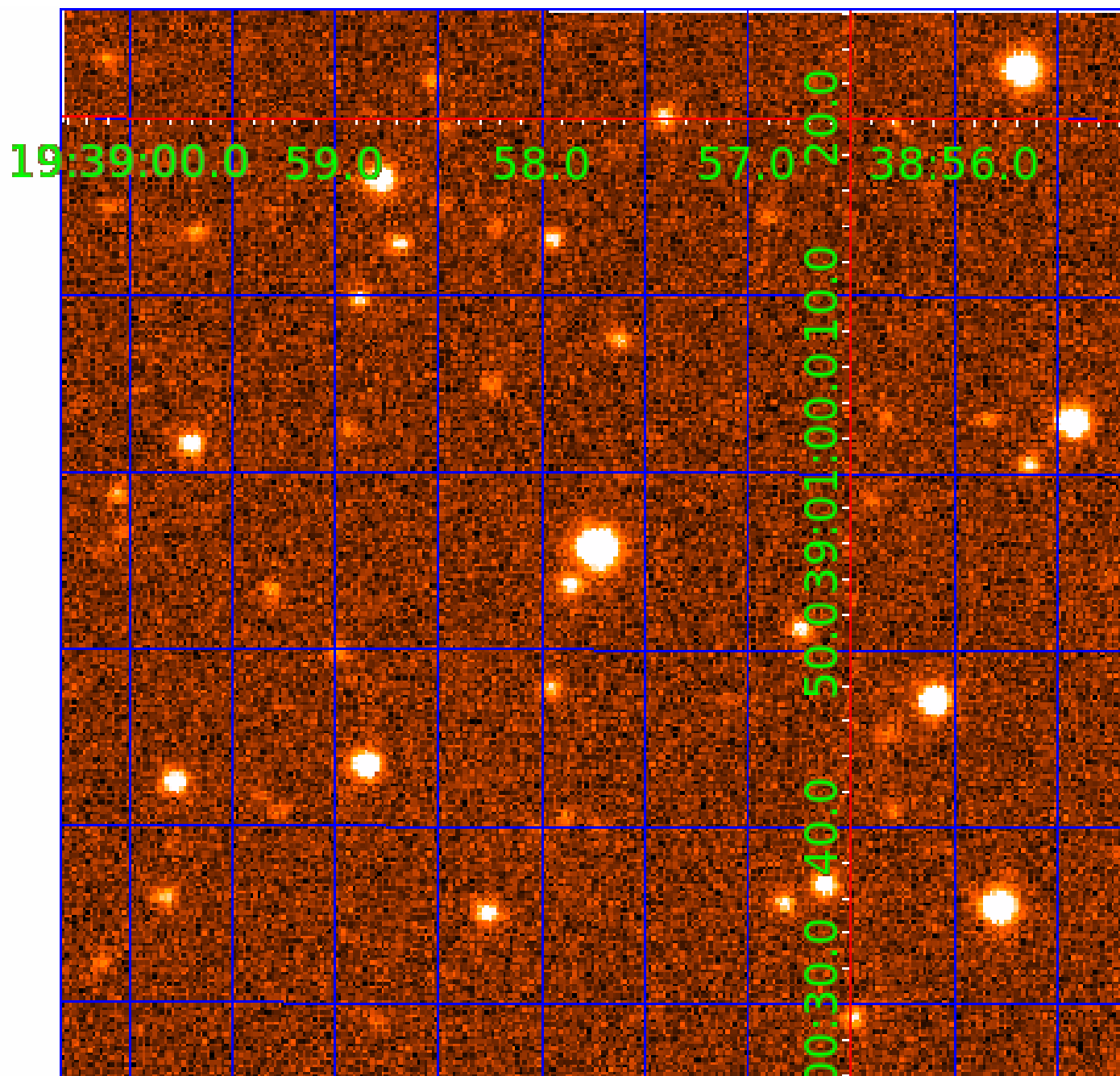


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003966912

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})
003966912-01	OBS	1186.01	55.664182	156.350063	3340.0	22.857	78.9	84.4	0.85	5587	9.23	8.40
003966912-02	OBS	No	55.663592	185.743910	6968.3	2.275	74.0	54.1	0.85	5587	13.23	8.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003966912-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
003966912-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_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.

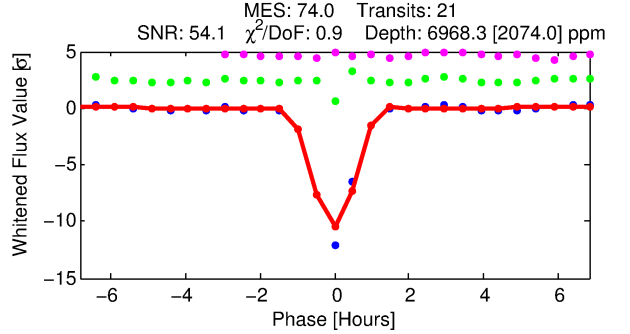
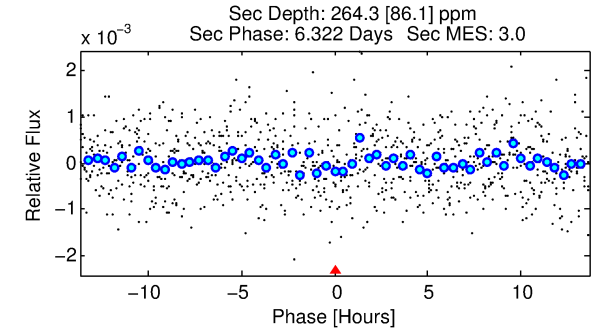
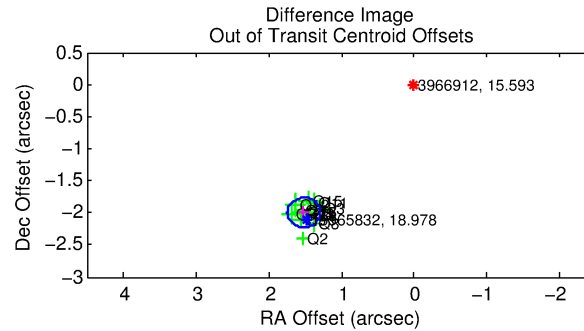
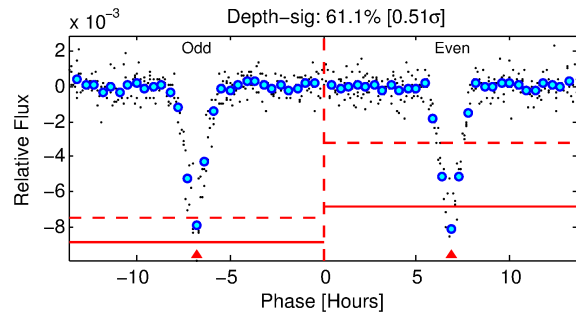
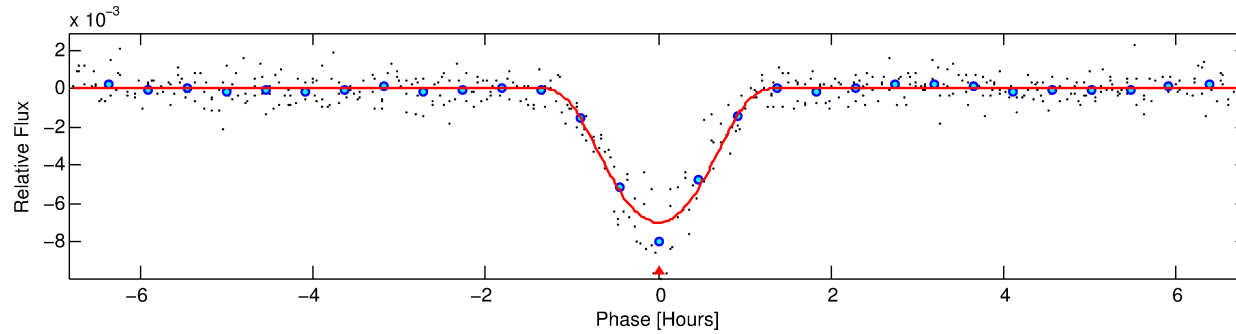
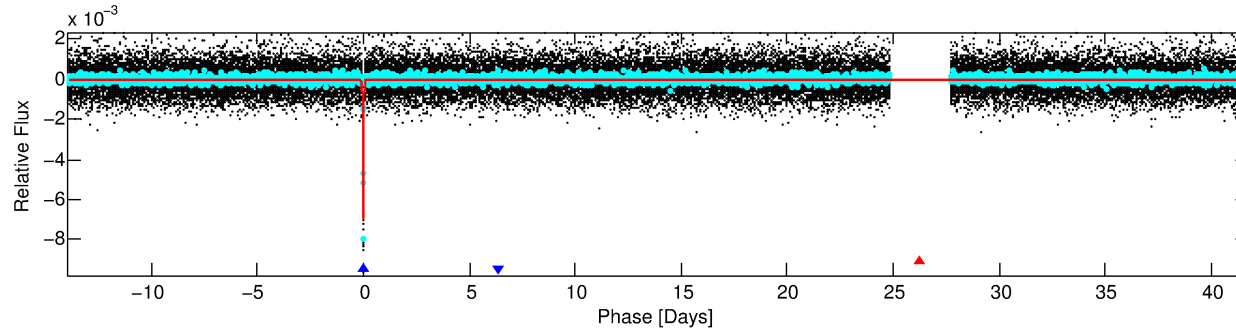
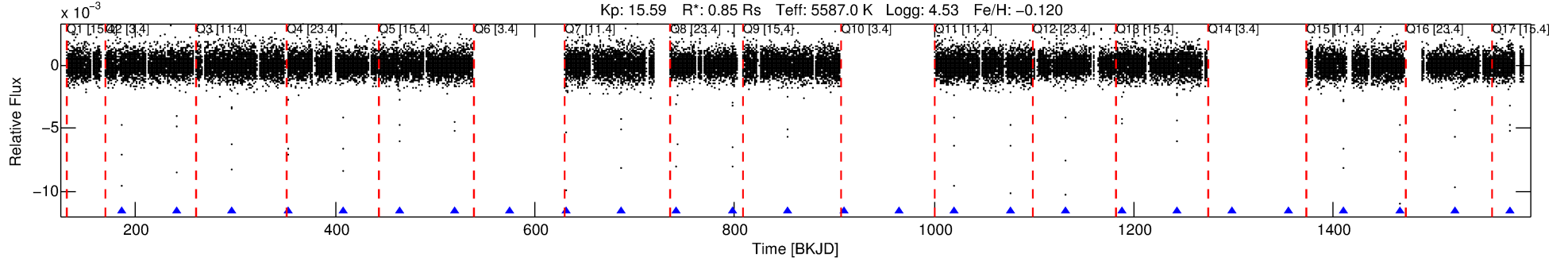
Ephemeris Match Information For 003966912-02

No Significant Match Found

DV One-Page Summary

KIC: 3966912 Candidate: 2 of 2 Period: 55.664 d
KOI: K01186 Corr: No Ephemeris Match

Kp: 15.59 R*: 0.85 Rs Teff: 5587.0 K Logg: 4.53 Fe/H: -0.120



DV Fit Results:

Period = 55.66359 [0.00006] d
Epoch = 185.7439 [0.0009] BKJD
Rp/R* = 0.1421 [0.1692]
a/R* = 103.14 [19.92]
b = 1.00 [0.21]
Seff = 8.40 [2.73]
Teq = 434 [35] K
Rp = 13.23 [16.09] Re
a = 0.2750 [0.0572] AU
Ag = 62.84 [152.23] [0.41σ]
Teffp = 1890 [1137] K [1.28σ]

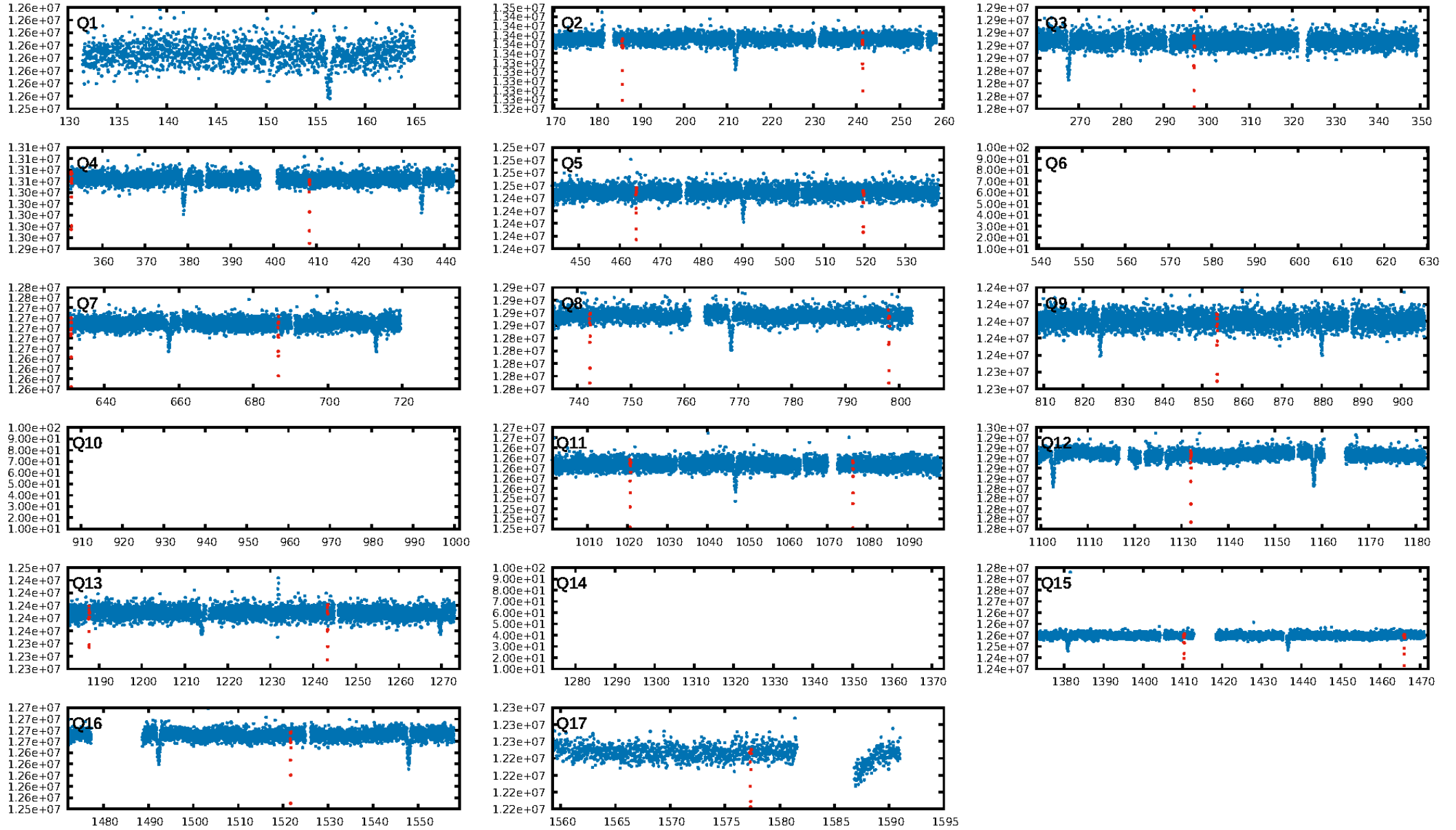
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [20/20]
GhostDiagnostic-chr: 1.51
Centroid-sig: 0.0%
Centroid-so: 3.393 arcsec [13.86σ]
OotOffset-rm: 2.508 arcsec [32.79σ]
KicOffset-rm: 2.688 arcsec [34.78σ]
OotOffset-st: 1/4/4/4 [13]
KicOffset-st: 1/4/4/4 [13]
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DiffImageOverlap-fno: 1.00 [13/13]

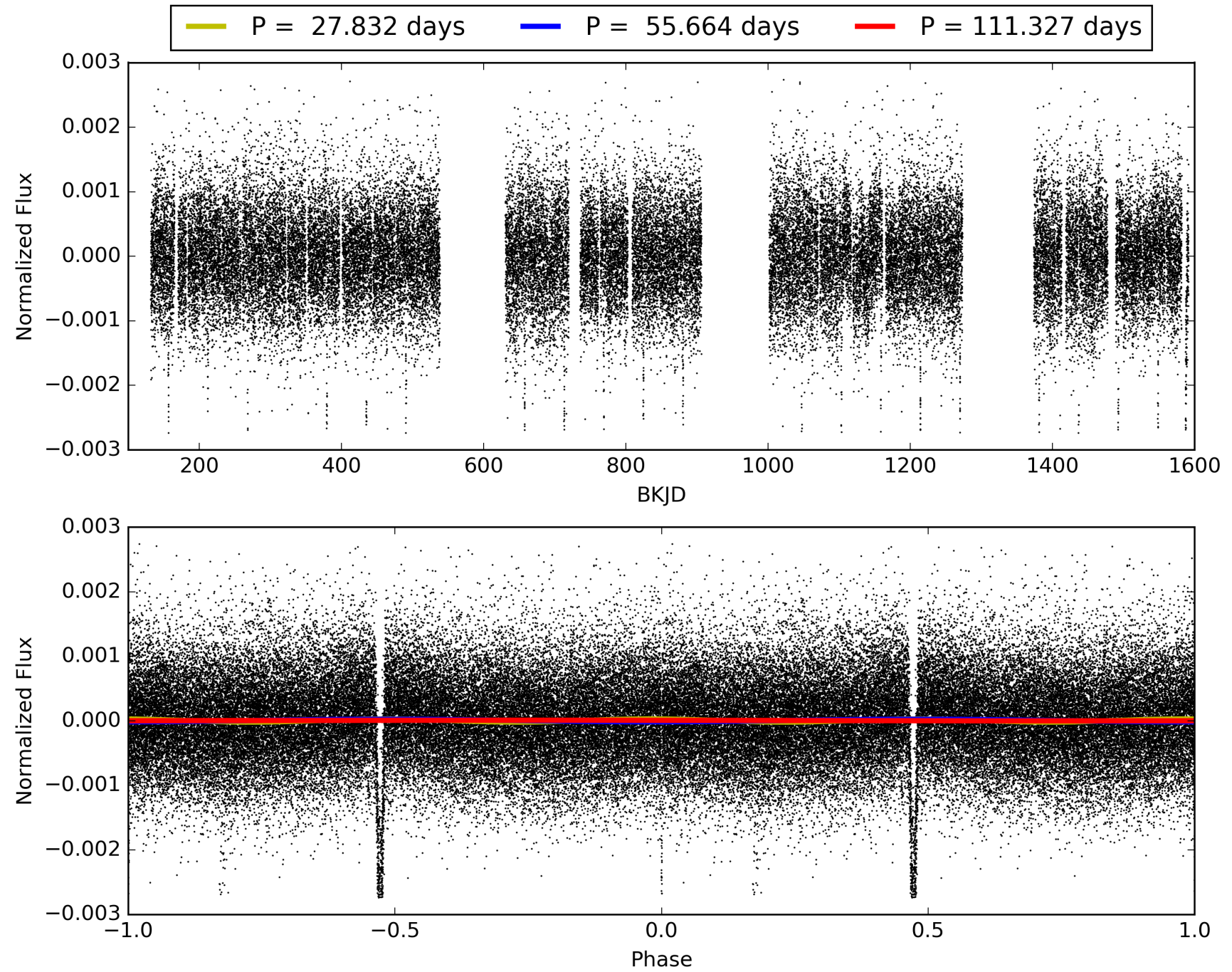
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:35:50 Z

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

TCE 003966912-02, PDC Light Curves

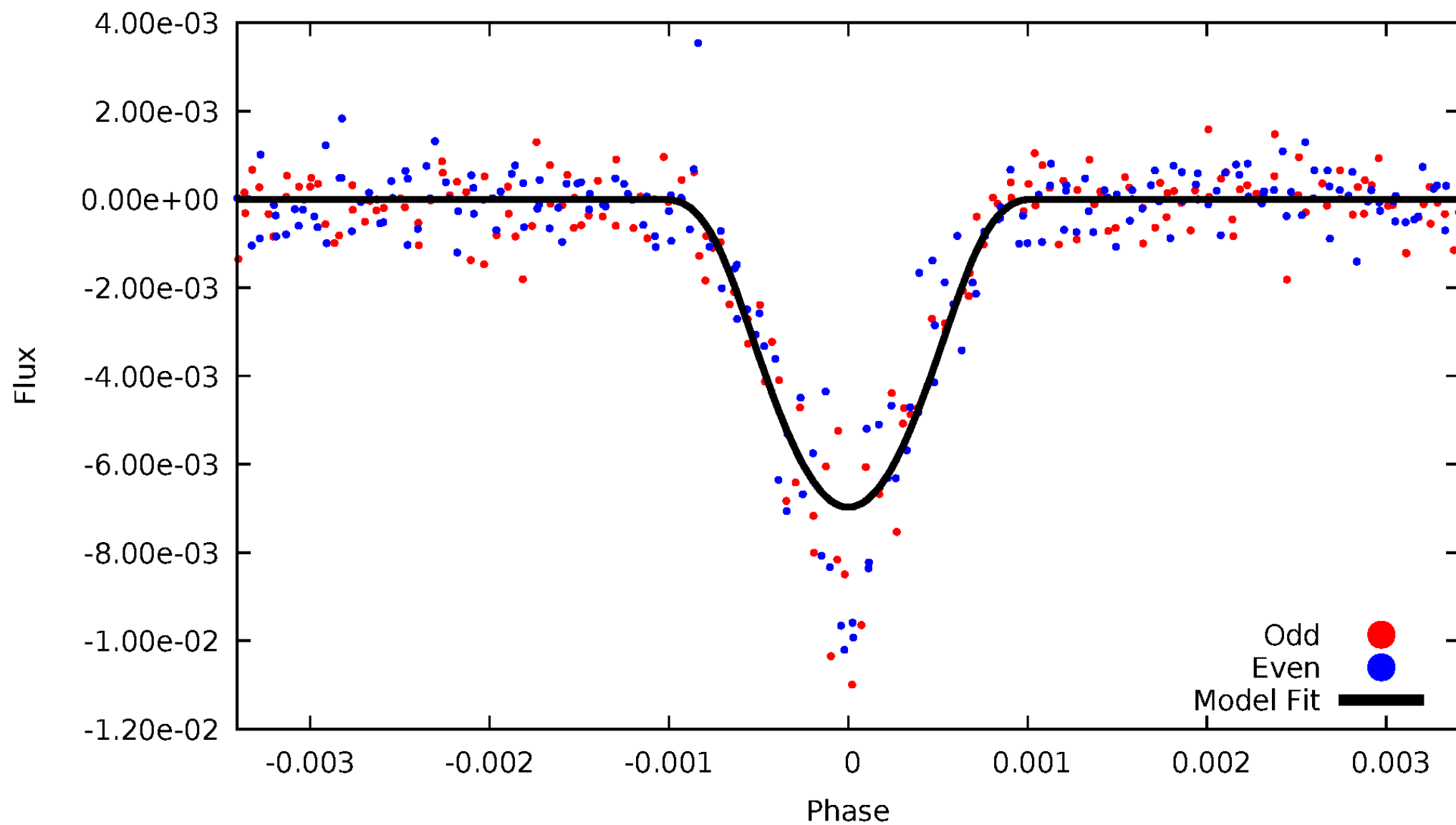


TCE 003966912-02



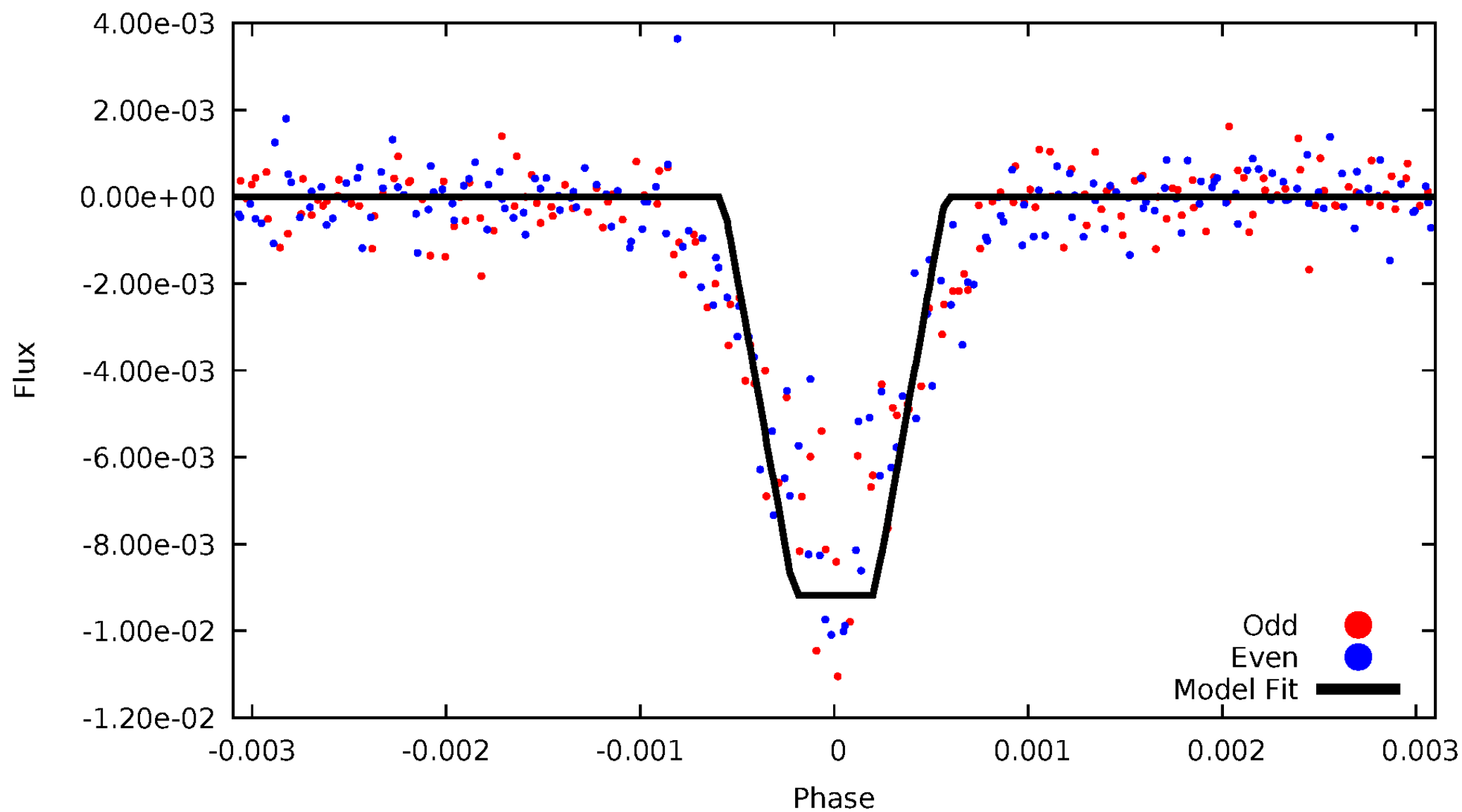
DV Odd/Even

TCE 003966912-02



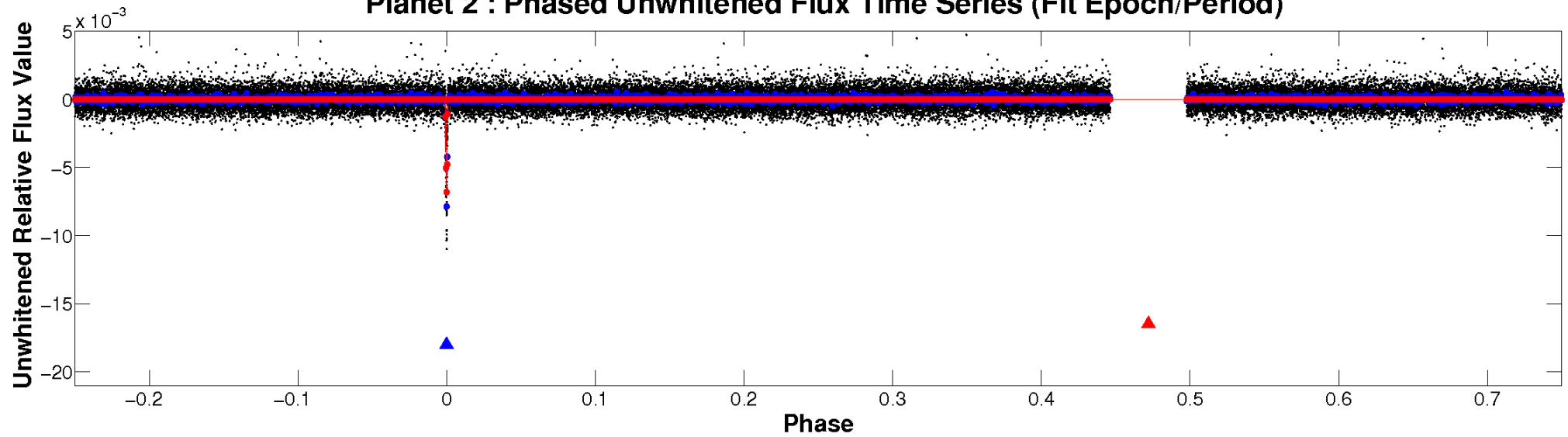
ALT Odd/Even

TCE 003966912-02

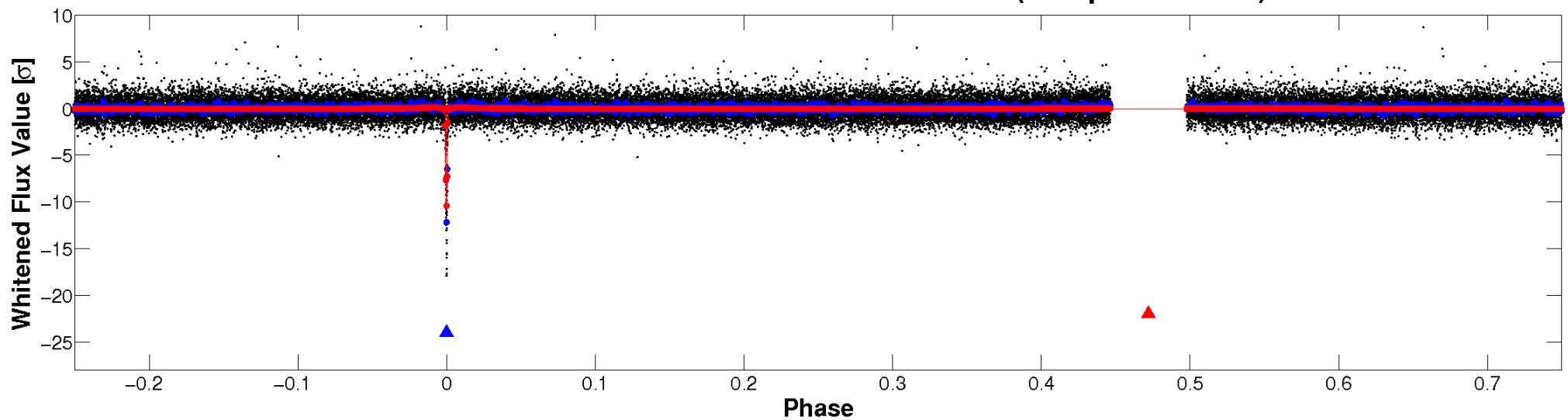


Non-Whitened Vs. Whitened Light Curve

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

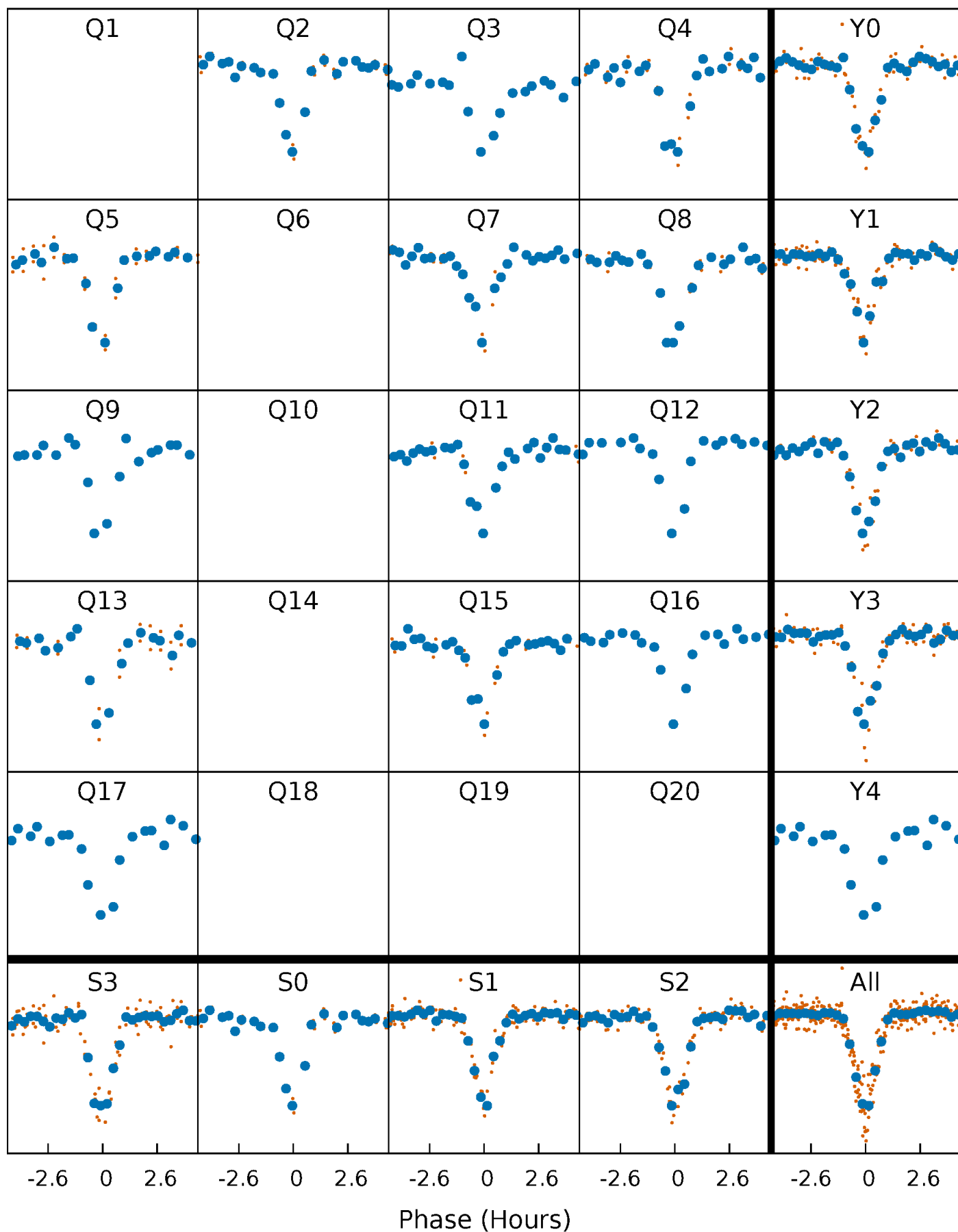


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



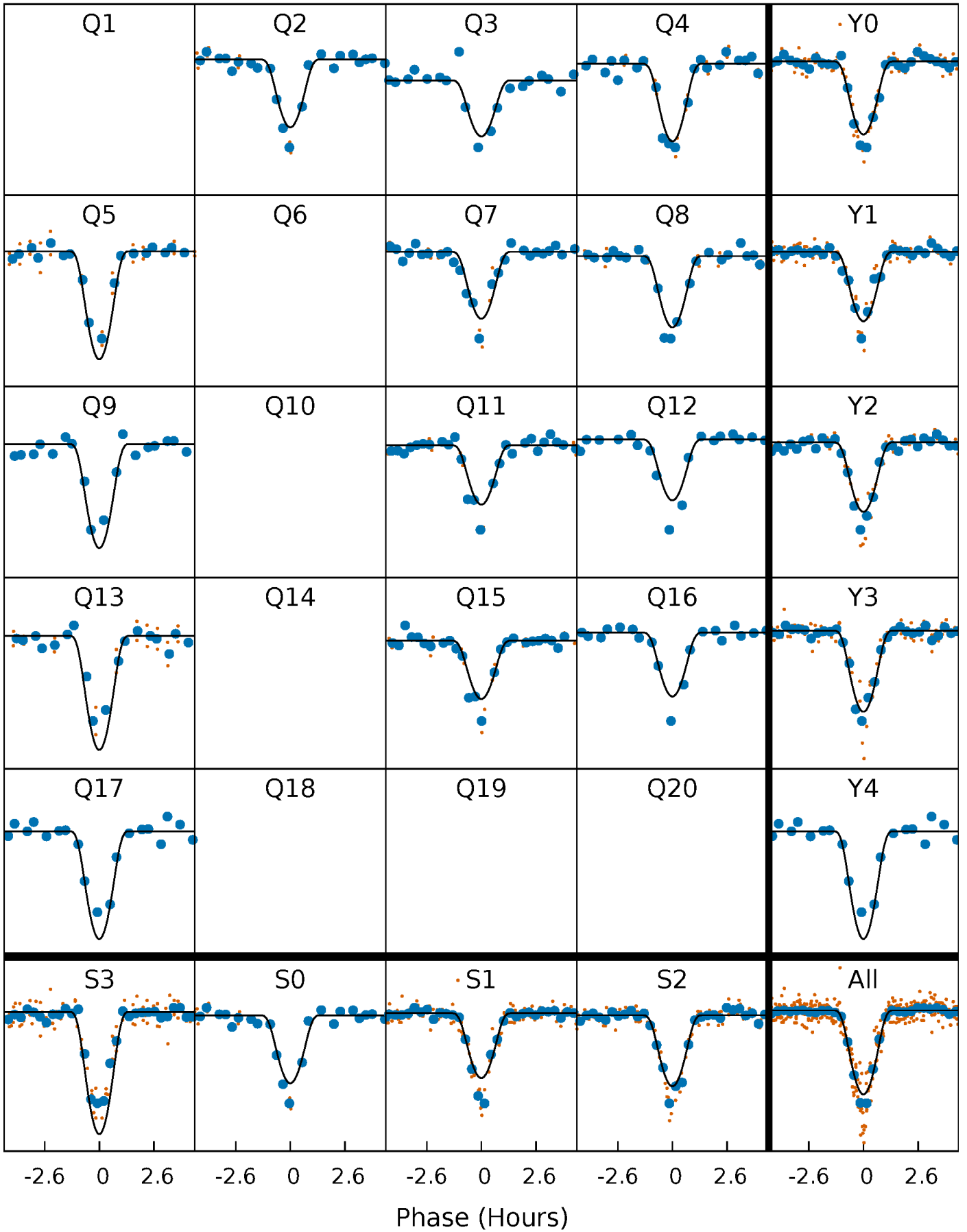
PDC Quarter-Phased Transit Curves

TCE 003966912-02 P= 55.663592 Days $T_0=185.743910$ (BKJD)



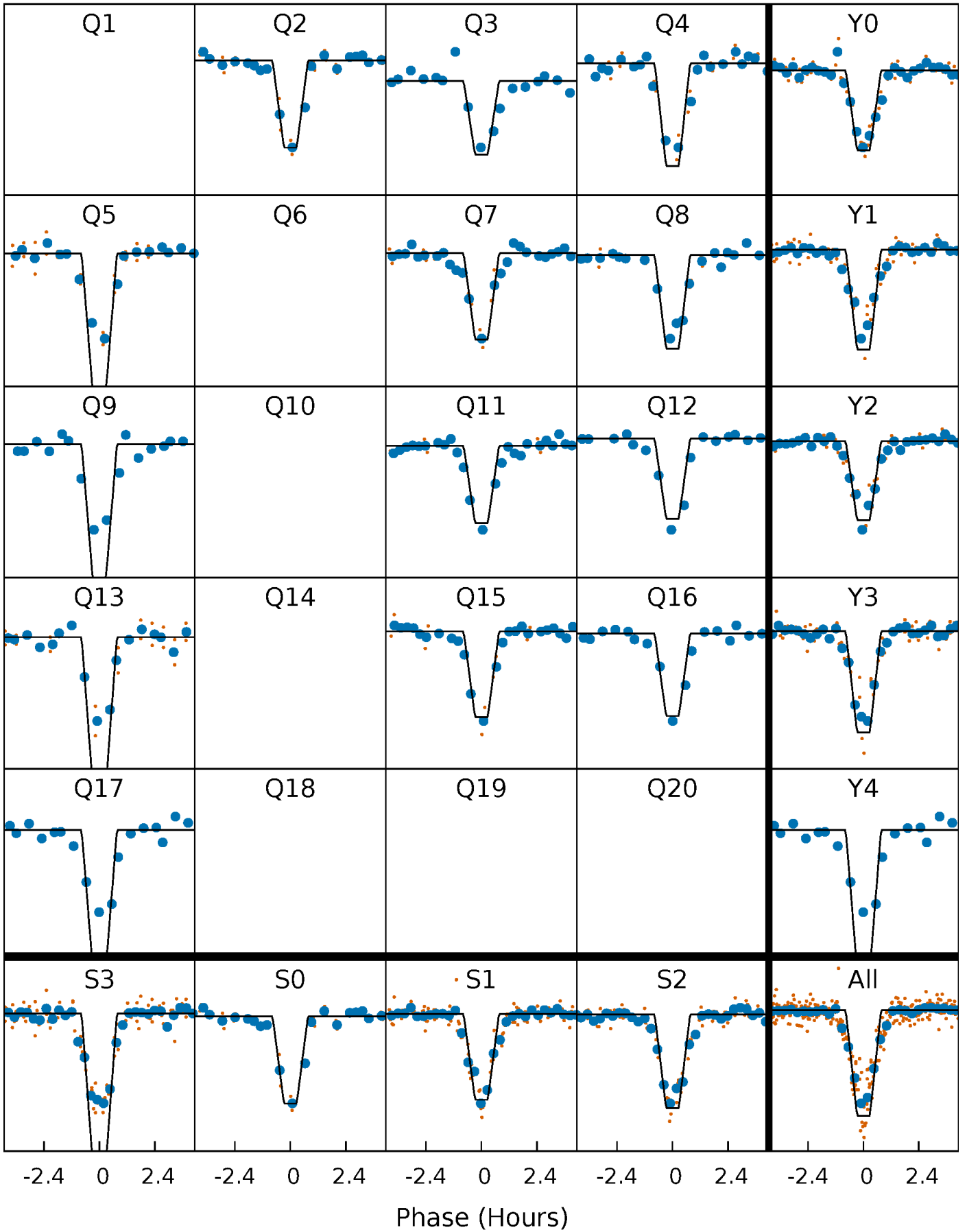
DV Quarter-Phased Transit Curves

TCE 003966912-02 P= 55.663592 Days $T_0=185.743910$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

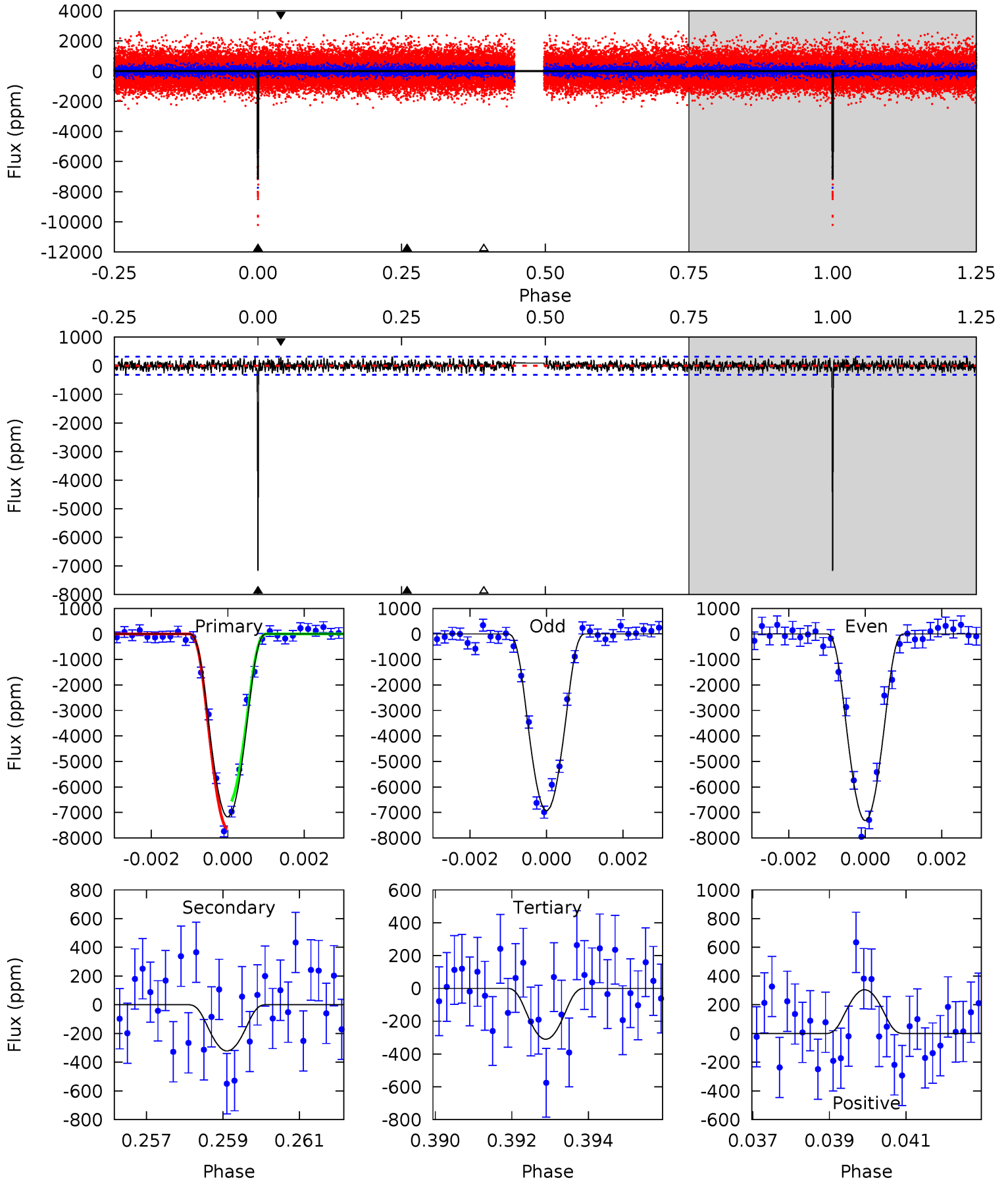
TCE 003966912-02 P= 55.663678 Days $T_0=185.742127$ (BKJD)



DV Model-Shift Uniqueness Test

003966912-02, P = 55.663592 Days, E = 130.080318 Days

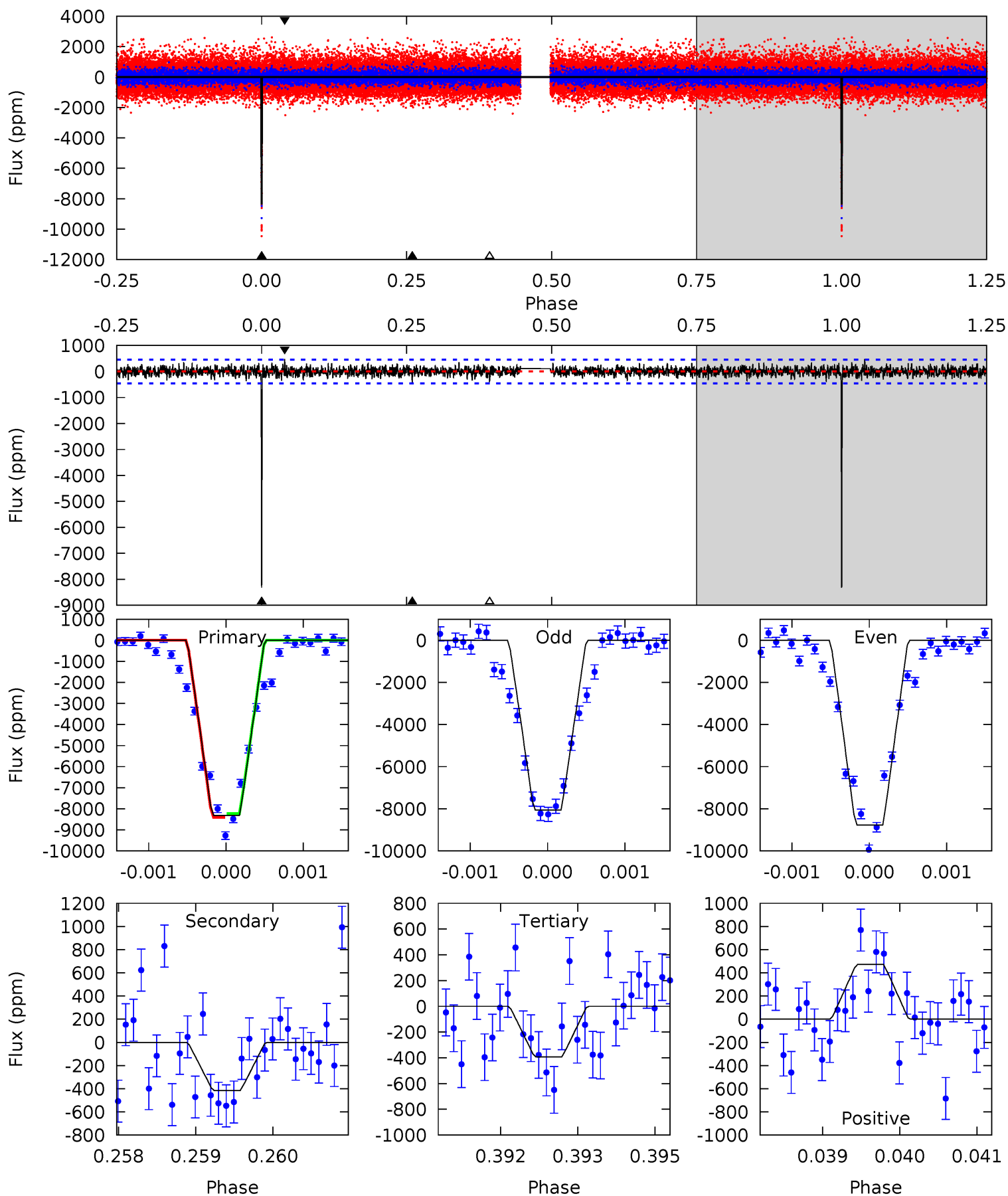
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
119.8	5.37	5.18	5.09	5.32	3.08	1.57	114.6	114.7	0.19	0.28	3.17	0.97	0.04	8.81



Alt Model-Shift Uniqueness Test

003966912-02, P = 55.663678 Days, E = 130.078449 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
98.5	4.93	4.65	5.58	5.43	3.25	1.30	93.8	92.9	0.28	-0.66	4.17	0.97	0.05	1.08



Stellar Parameters For KIC 003966912

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5587^{+166}_{-166}	$4.528^{+0.055}_{-0.165}$	$-0.120^{+0.300}_{-0.300}$	$0.853^{+0.211}_{-0.090}$	$0.894^{+0.102}_{-0.092}$	$2.029^{+0.465}_{-0.935}$
	+3%/-3%	+1%/-4%	+250%/-250%	+25%/-11%	+11%/-10%	+23%/-46%
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 003966912-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-322 ± 60	$17.81^{+14.97}_{-11.46}$	617^{+39}_{-28}	2587^{+850}_{-375}	43^{+276}_{-31}
Alt.	-416 ± 85	$15.82^{+14.18}_{-10.60}$	616^{+38}_{-28}	2716^{+1051}_{-384}	65^{+534}_{-47}

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

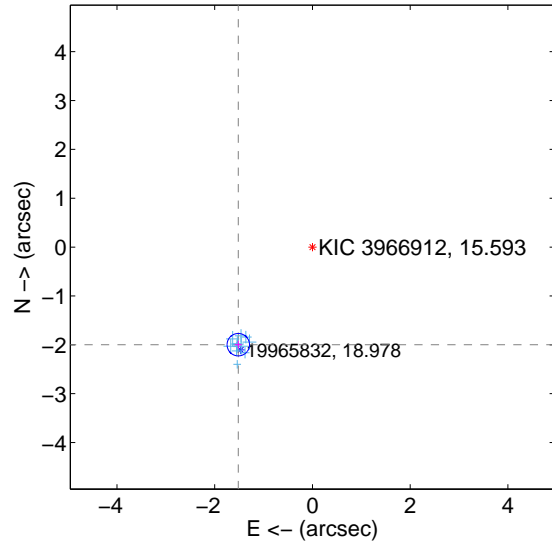
Supplemental centroid analysis for 003966912-02. Kepler magnitude: 15.59. Transit SNR 54.12

There are 13 quarters with good PRF difference image offsets

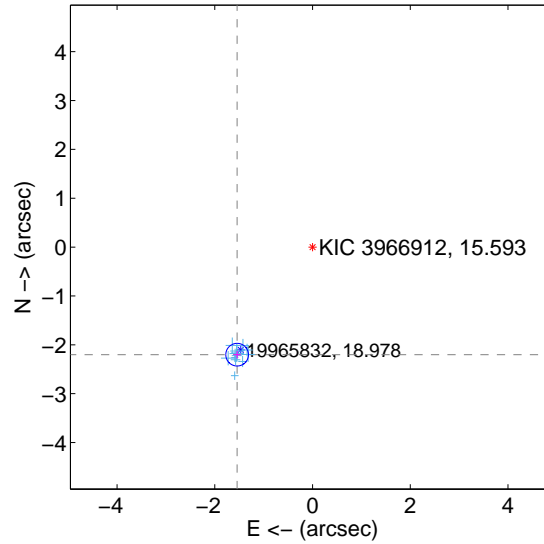
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.508 \pm 0.076	32.79	1.517 \pm 0.072	-1.997 \pm 0.078
PRF-fit source offset from KIC position	2.688 \pm 0.077	34.78	1.543 \pm 0.073	-2.202 \pm 0.077
photometric centroid source offset	3.39 \pm 0.24	13.86	2.06 \pm 0.26	-2.70 \pm 0.23

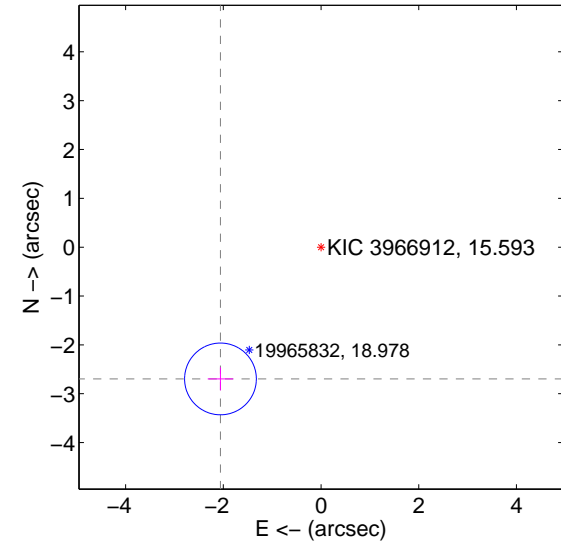
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

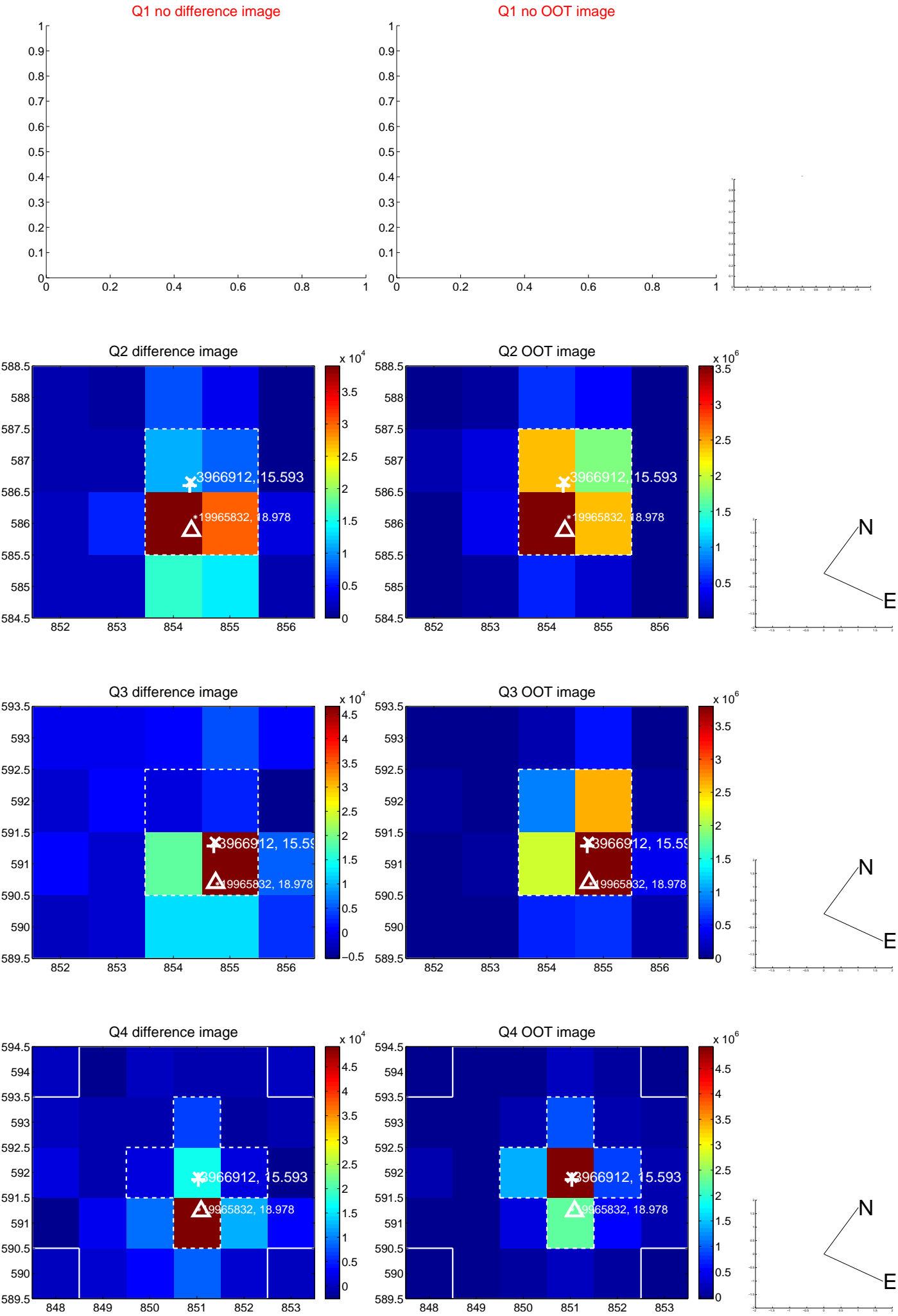


offset from photometric centroids

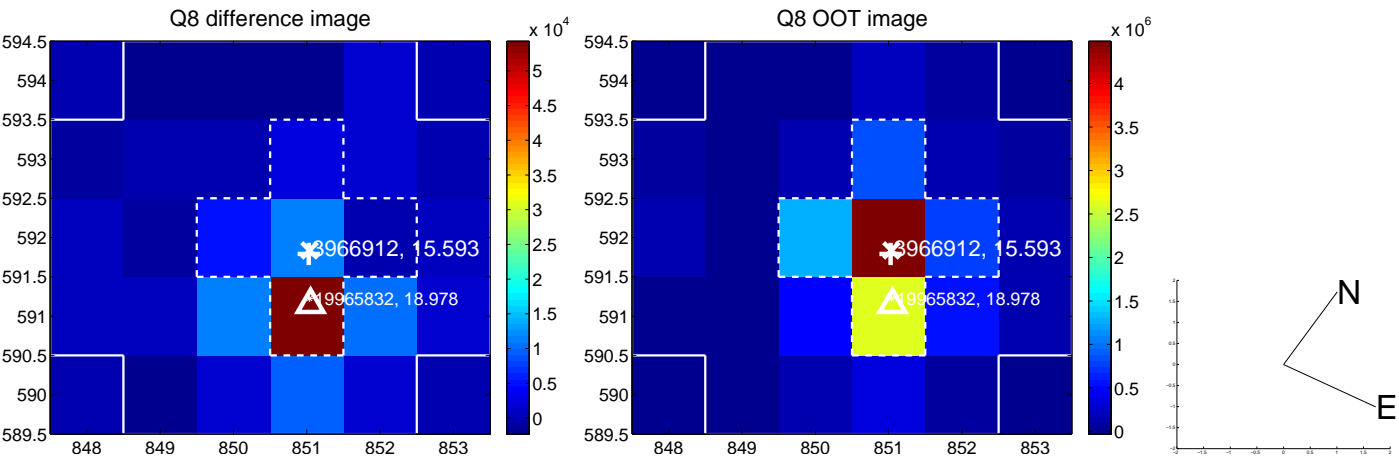
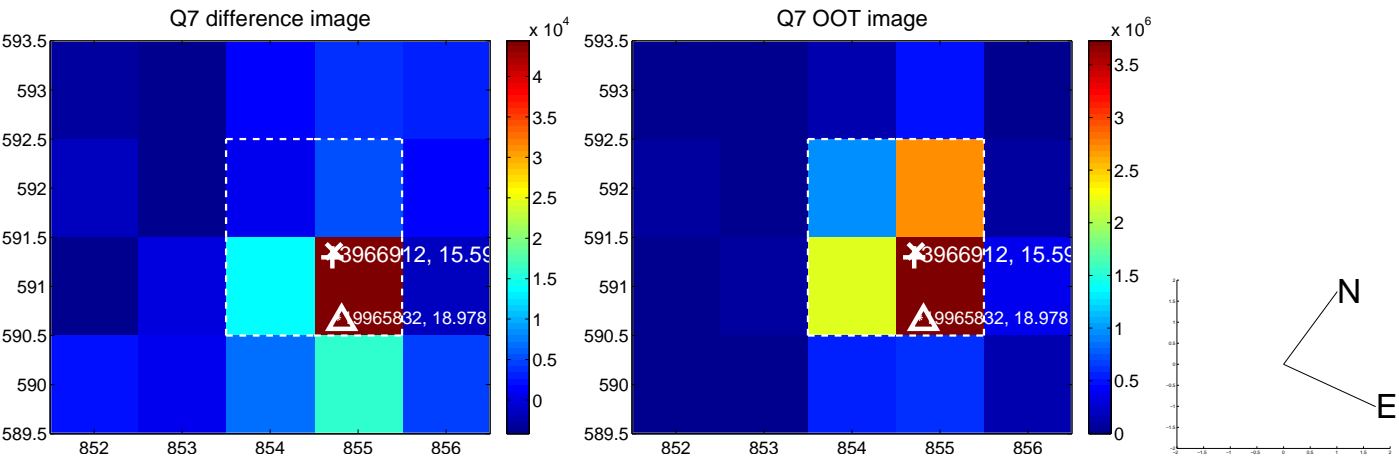
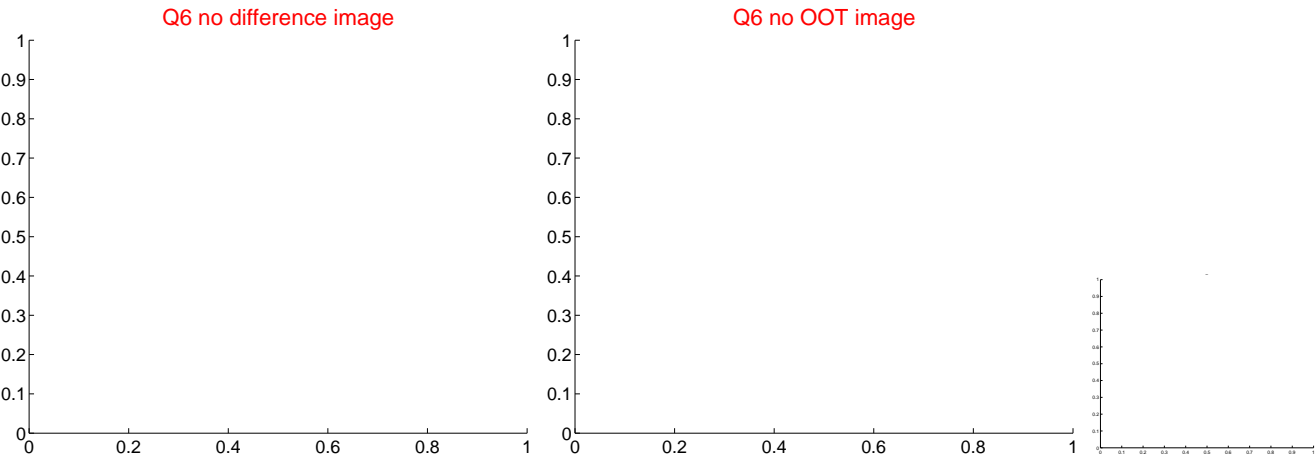
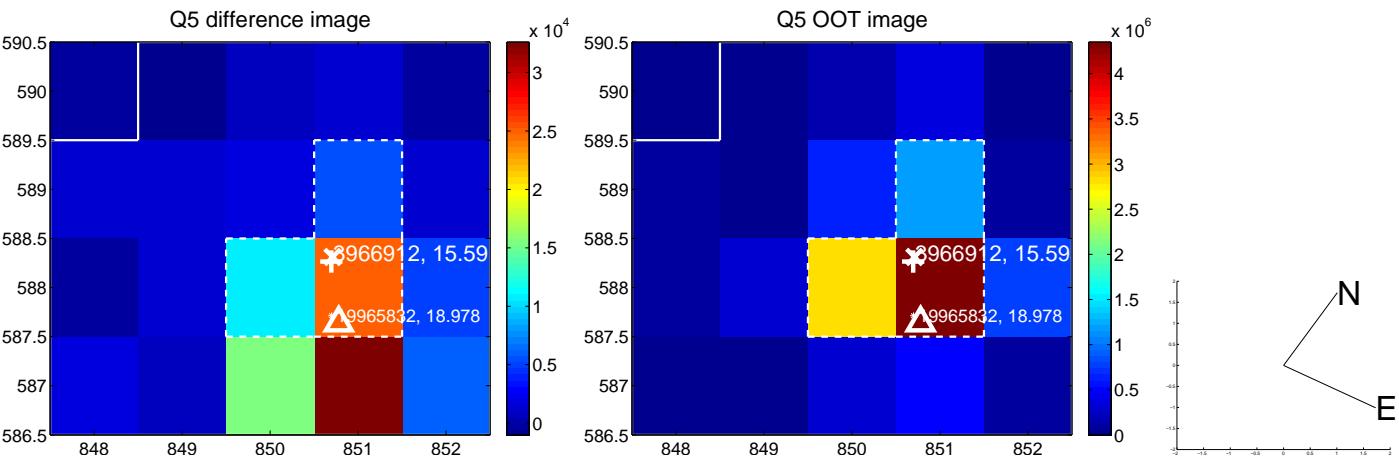


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

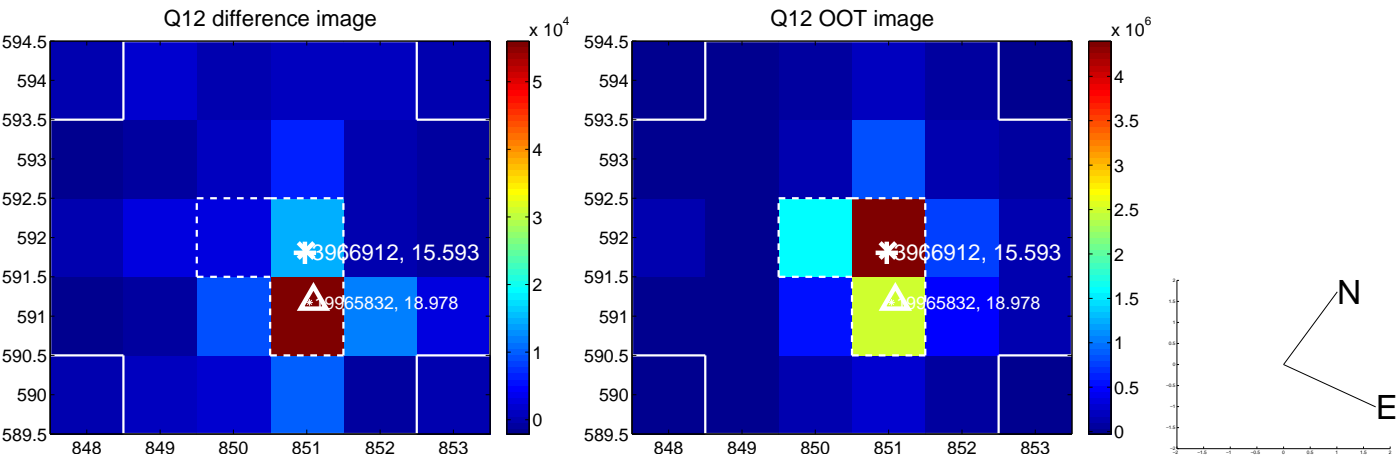
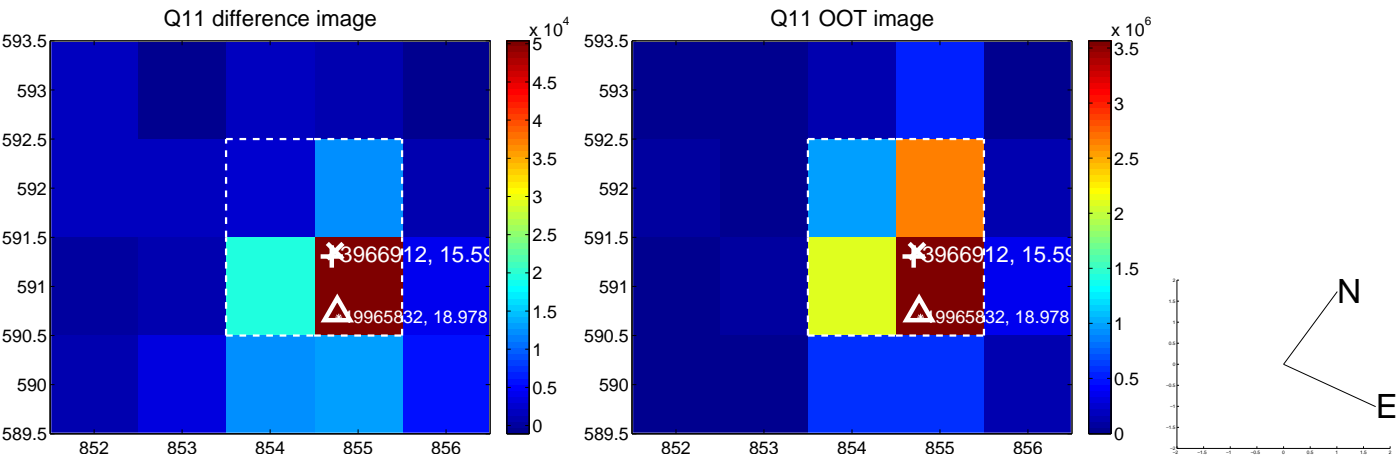
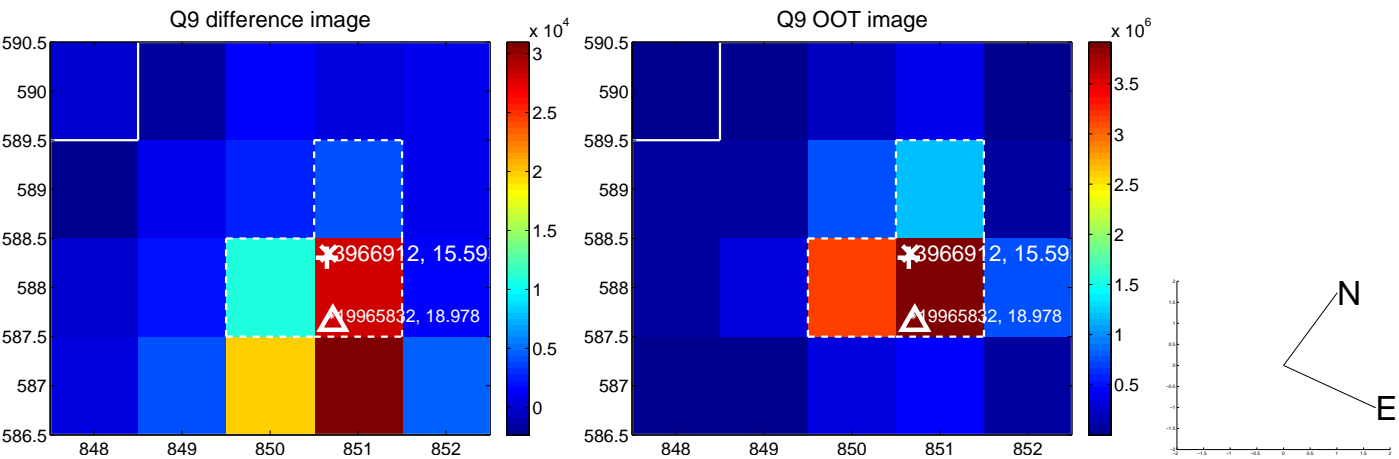
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



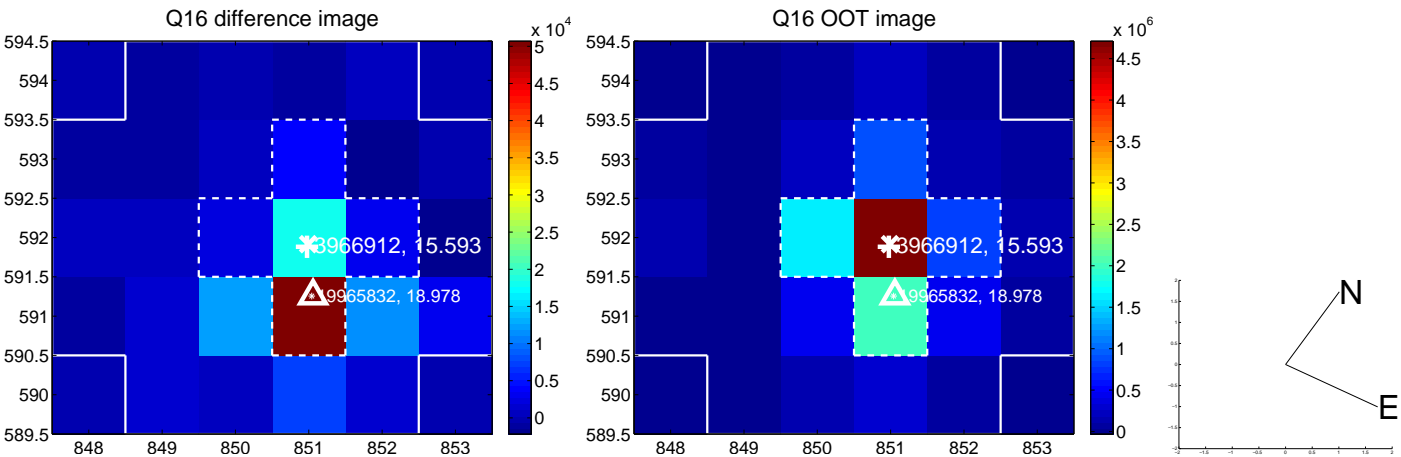
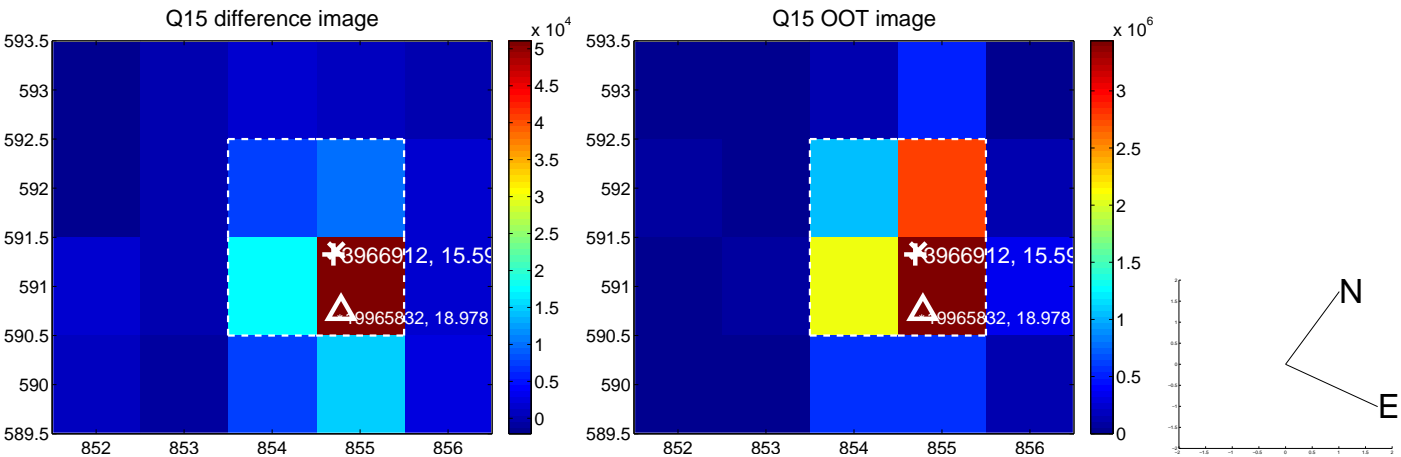
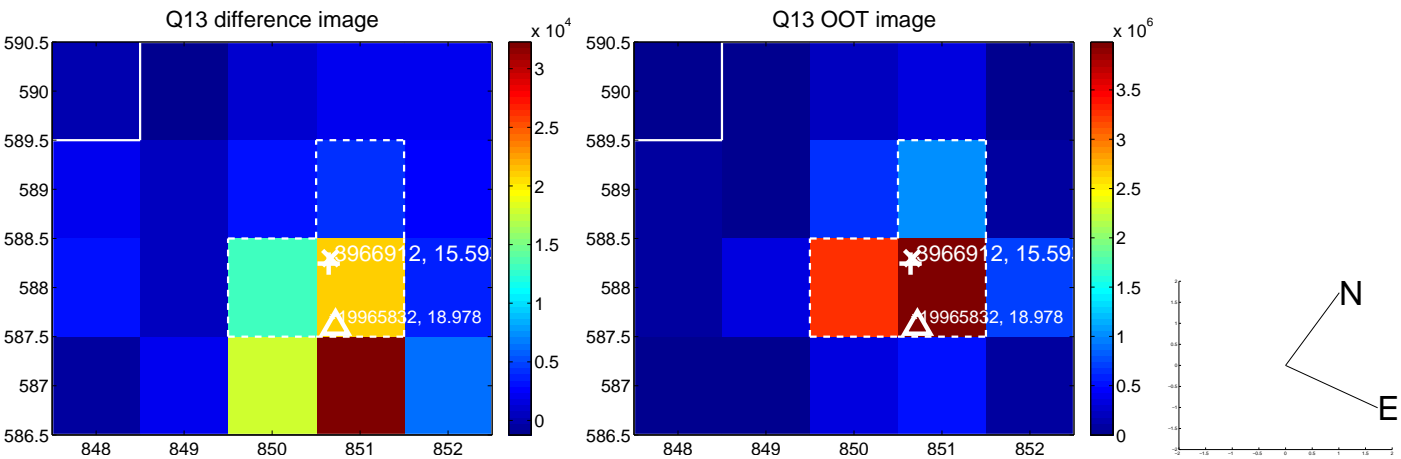
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



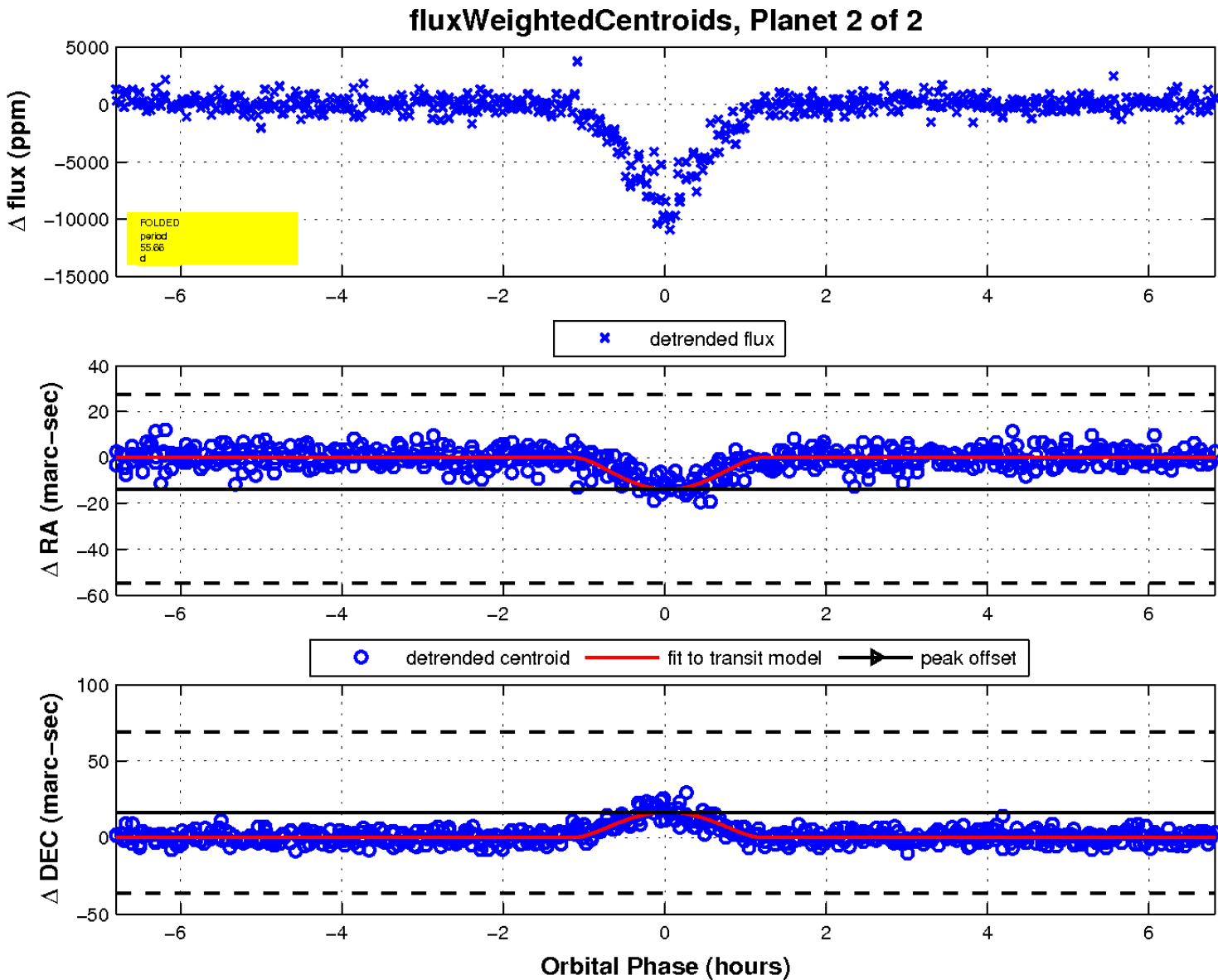
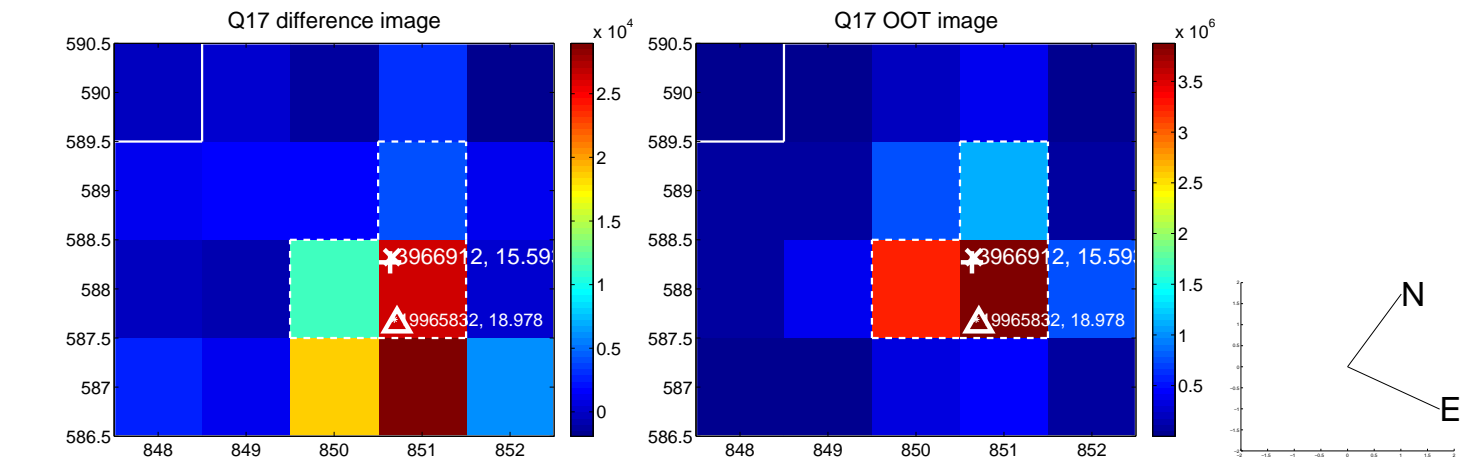
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

