

KIC 010965740

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})
010965740-01	OBS	1887.01	21.787795	136.692880	446.6	4.420	35.5	30.0	3.05	5627	11.65	278.77
010965740-02	OBS	No	21.787898	146.388345	105.6	4.051	8.5	8.7	3.05	5627	3.67	278.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010965740-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
010965740-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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 010965740-01

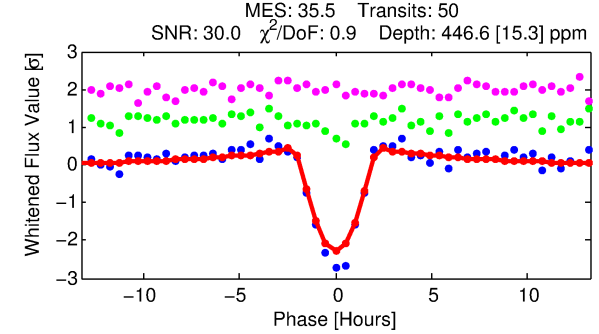
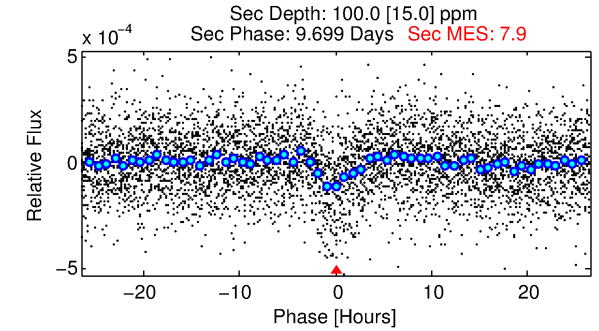
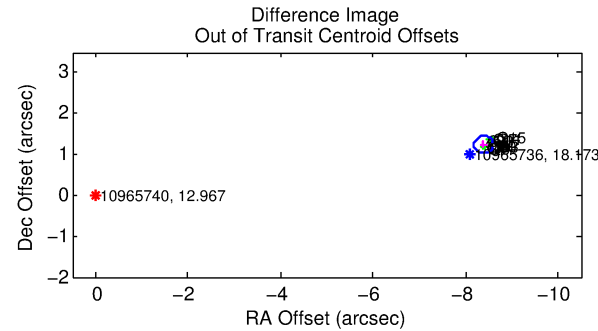
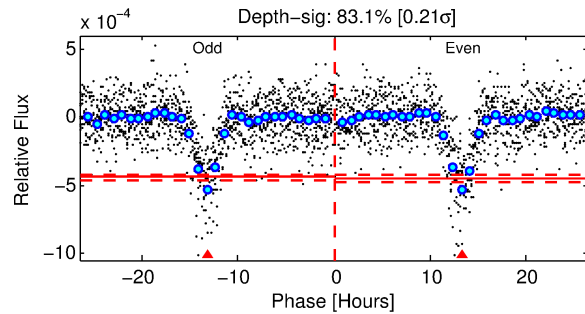
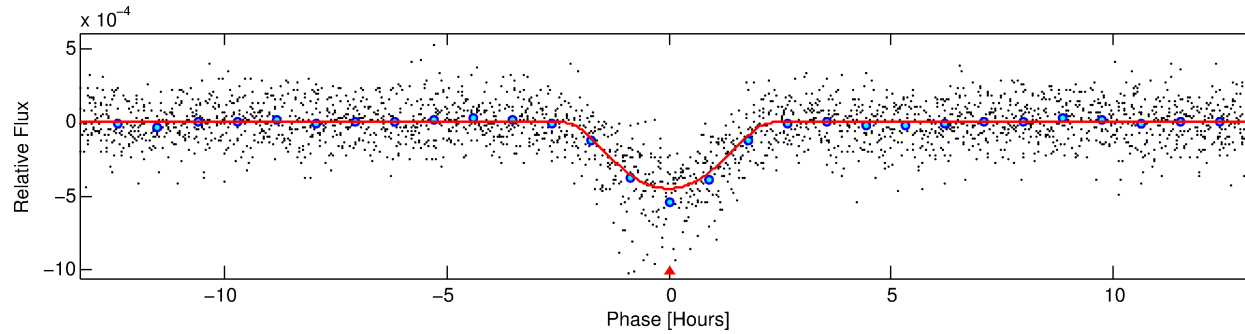
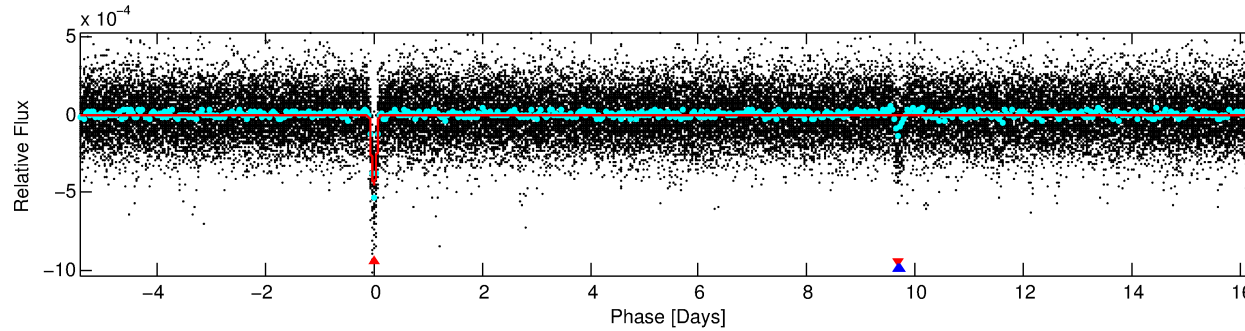
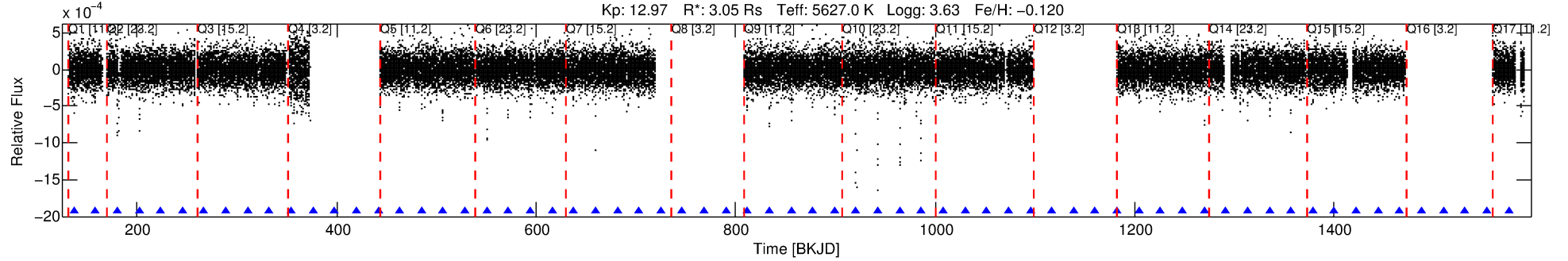
No Significant Match Found

DV One-Page Summary

KIC: 10965740 Candidate: 1 of 2 Period: 21.788 d

KOI: K01887.01 Corr: 0.998

Kp: 12.97 R*: 3.05 Rs Teff: 5627.0 K Logg: 3.63 Fe/H: -0.120



DV Fit Results:

Period = 21.78780 [0.00008] d
Epoch = 136.6929 [0.0030] BKJD
Rp/R* = 0.0350 [0.0221]
a/R* = 10.93 [2.03]
b = 0.99 [0.04]
Seff = 278.77 [353.84]
Teq = 1042 [331] K
Rp = 11.65 [10.58] Re
a = 0.1731 [0.1273] AU
Ag = 12.14 [21.77] [0.51σ]
Teff = 3007 [961] K [1.93σ]

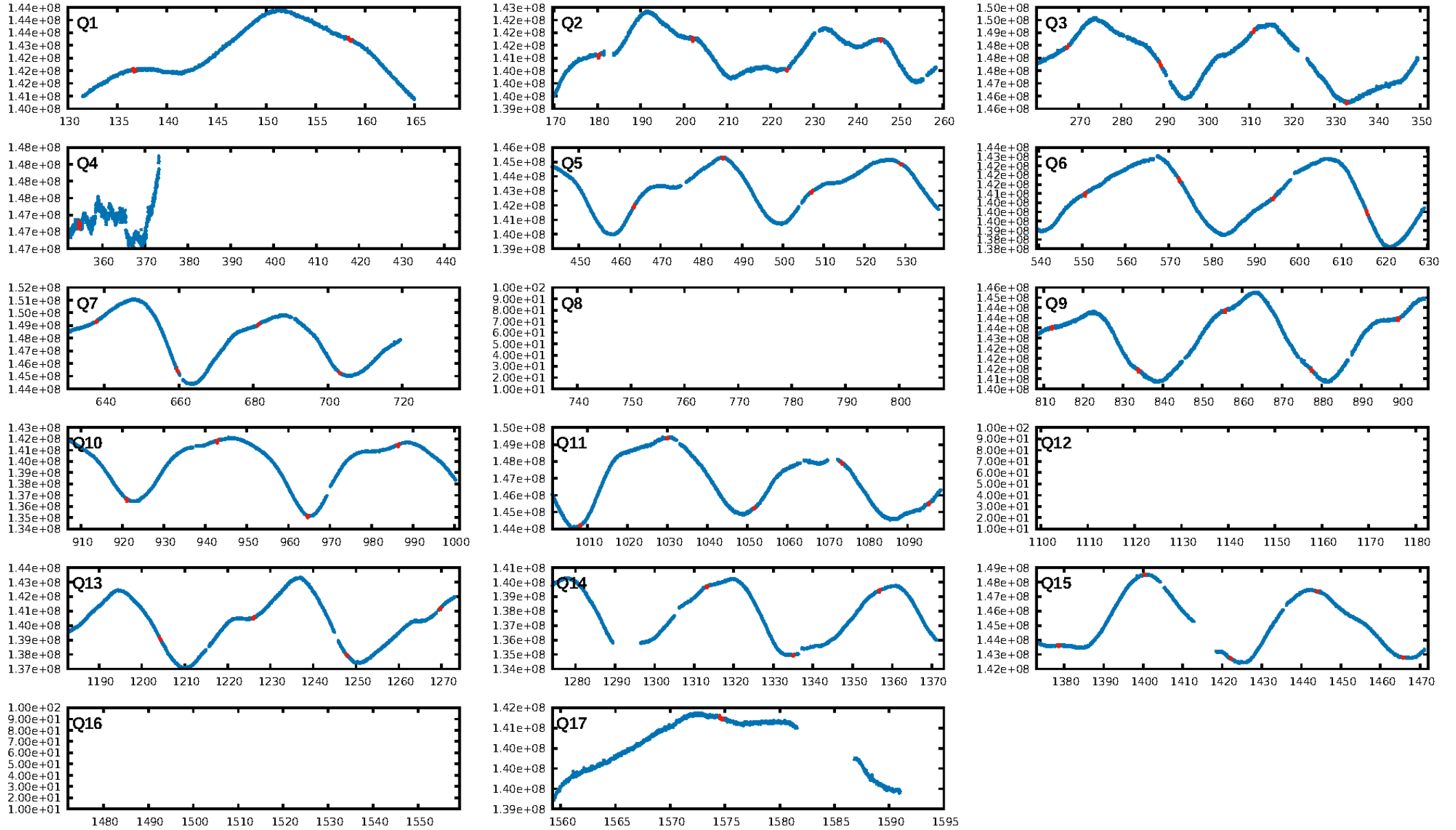
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 1.46e-249
RollingBand-fgt: 1.00 [46/46]
GhostDiagnostic-chr: -0.1155
Centroid-sig: 0.0%
Centroid-so: 60.334 arcsec [241.17σ]
OotOffset-rm: 8.485 arcsec [120.72σ]
KicOffset-rm: 8.594 arcsec [127.66σ]
OotOffset-st: 4/4/1/5 [14]
KicOffset-st: 4/4/1/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

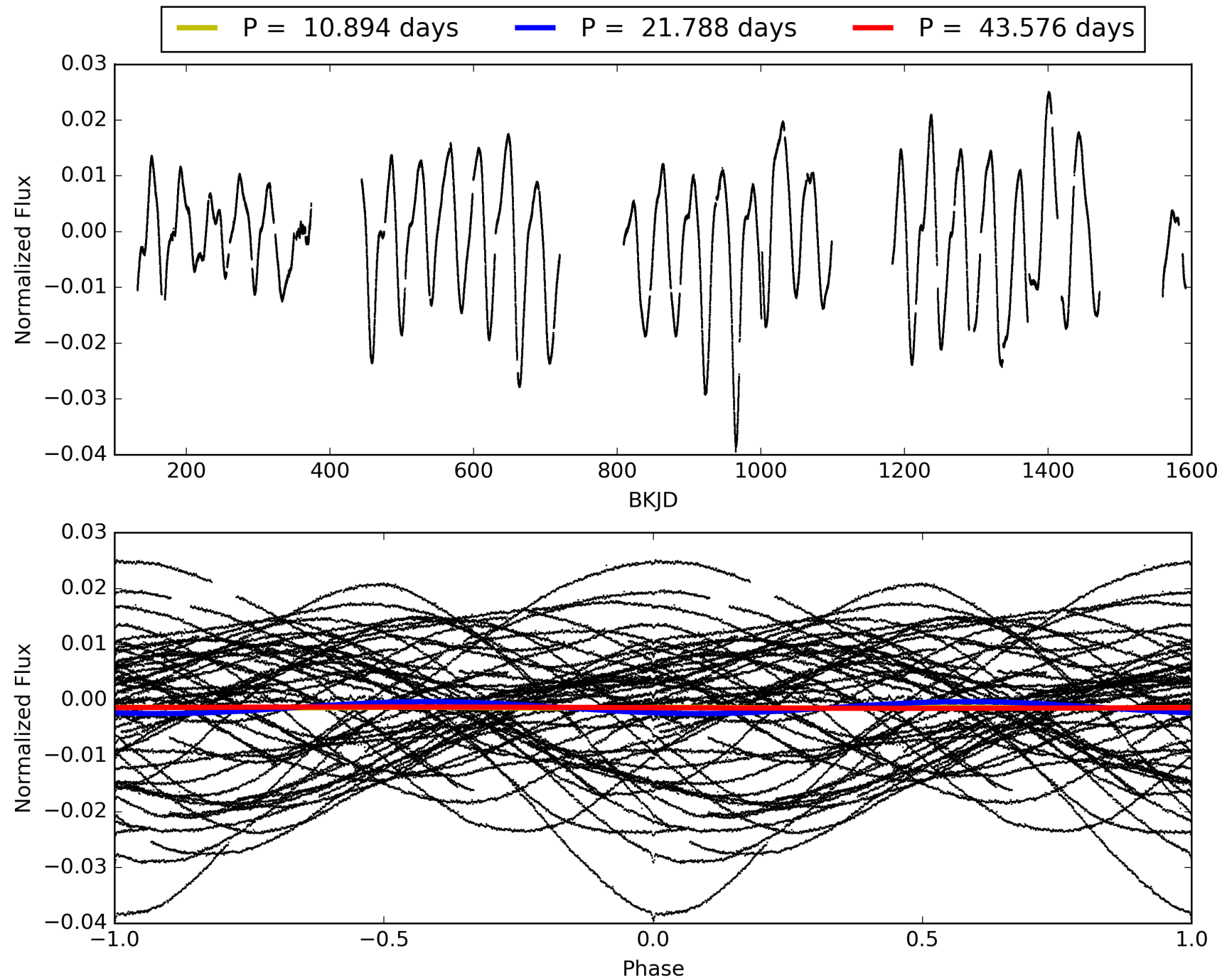
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:03:42 Z

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

TCE 010965740-01, PDC Light Curves

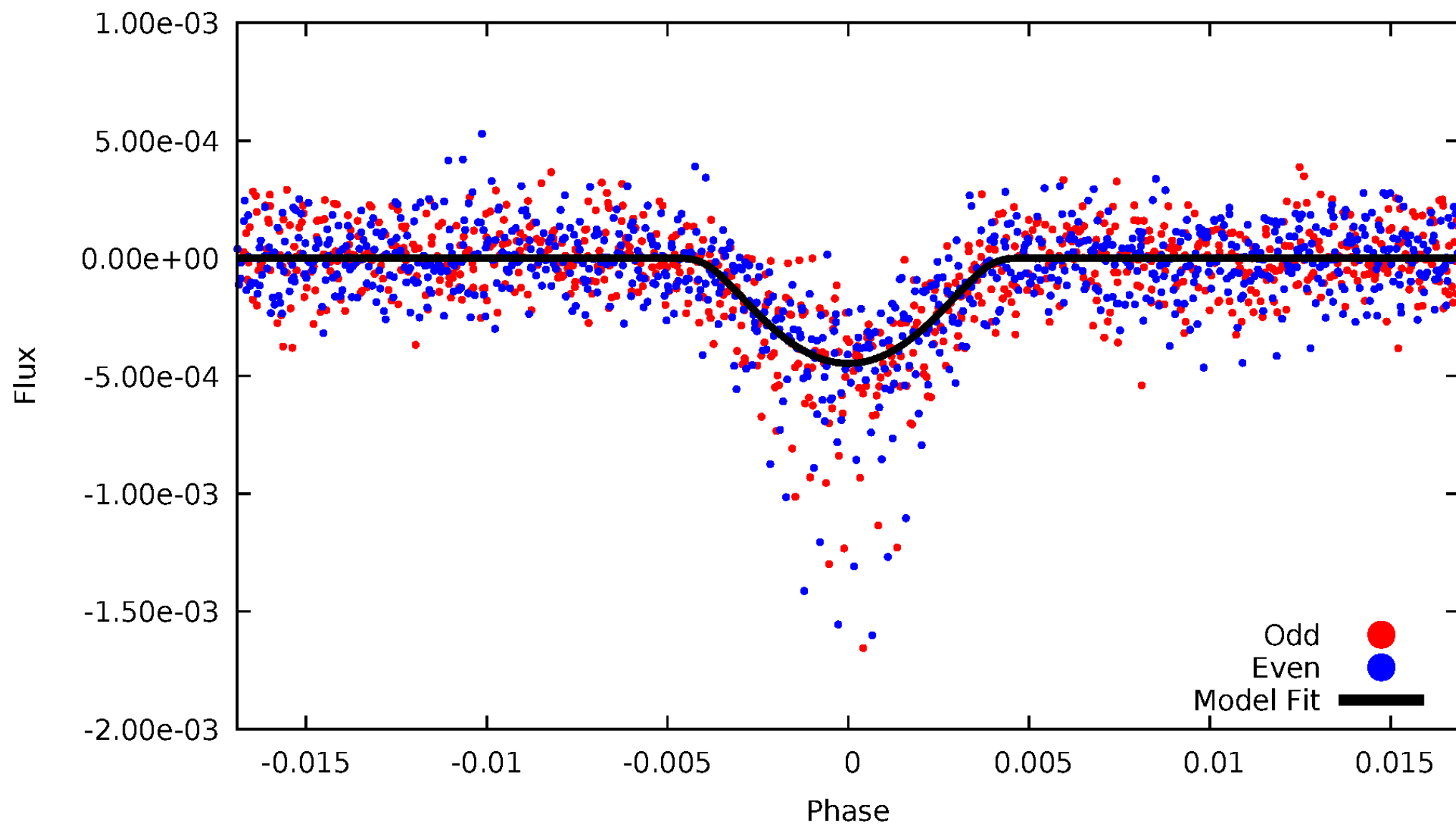


TCE 010965740-01



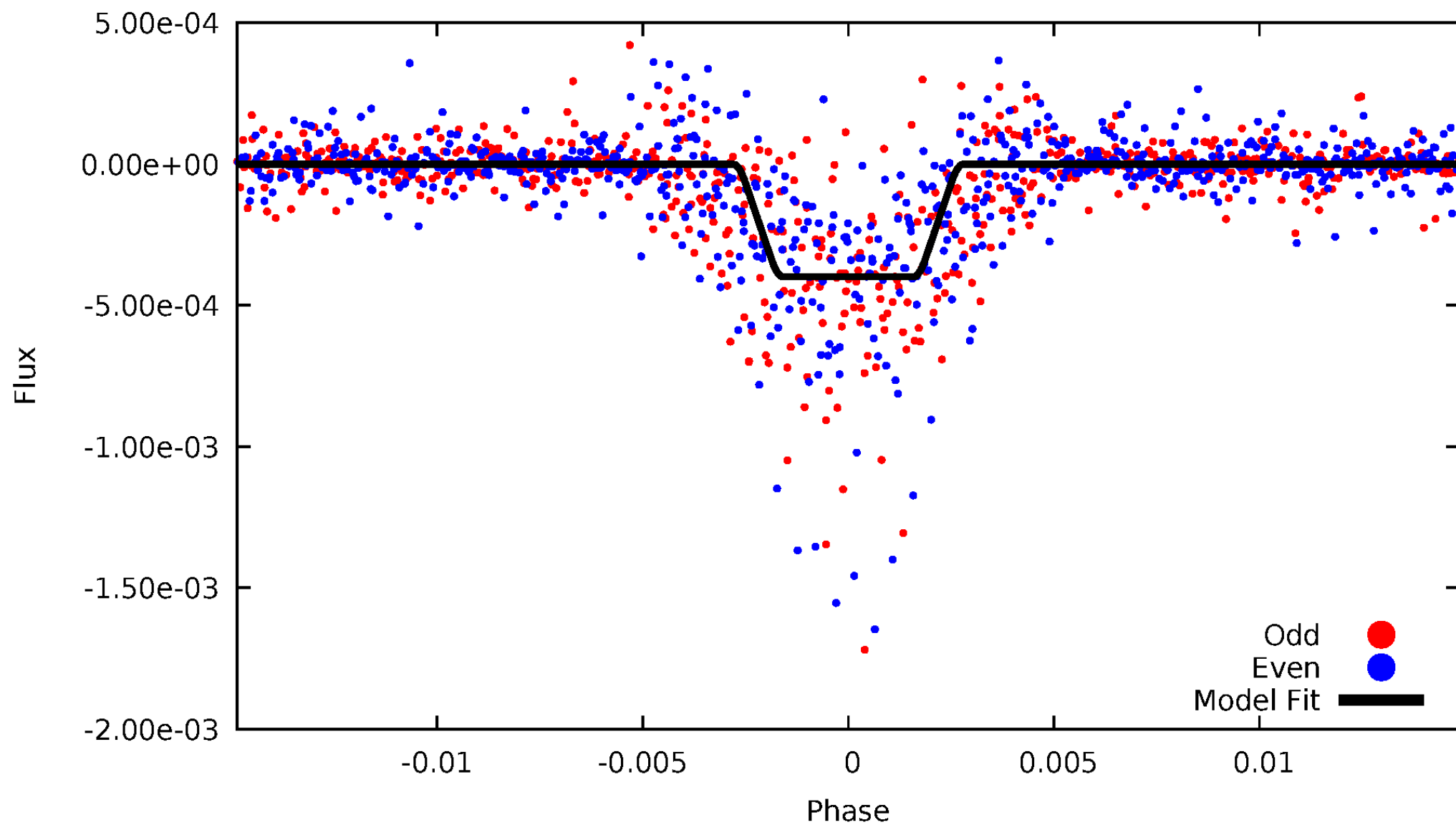
DV Odd/Even

TCE 010965740-01



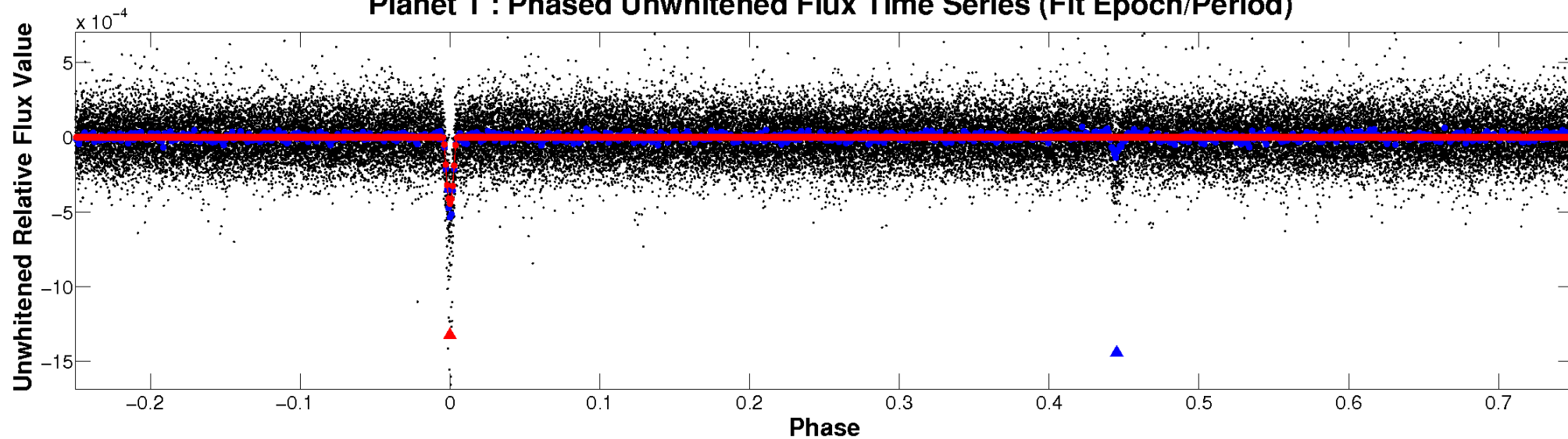
ALT Odd/Even

TCE 010965740-01

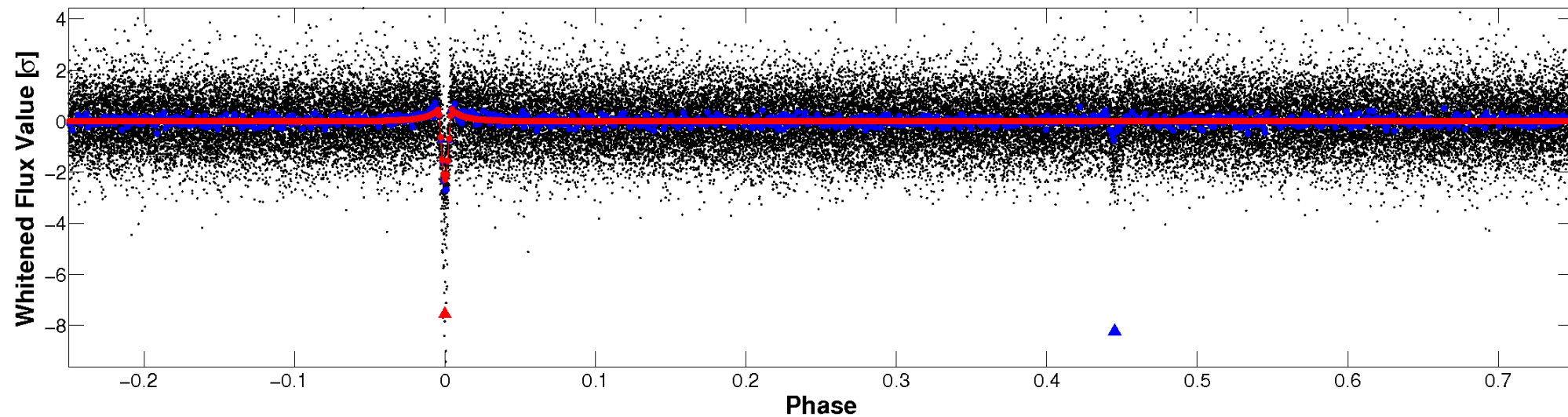


Non-Whitened Vs. Whitened Light Curve

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

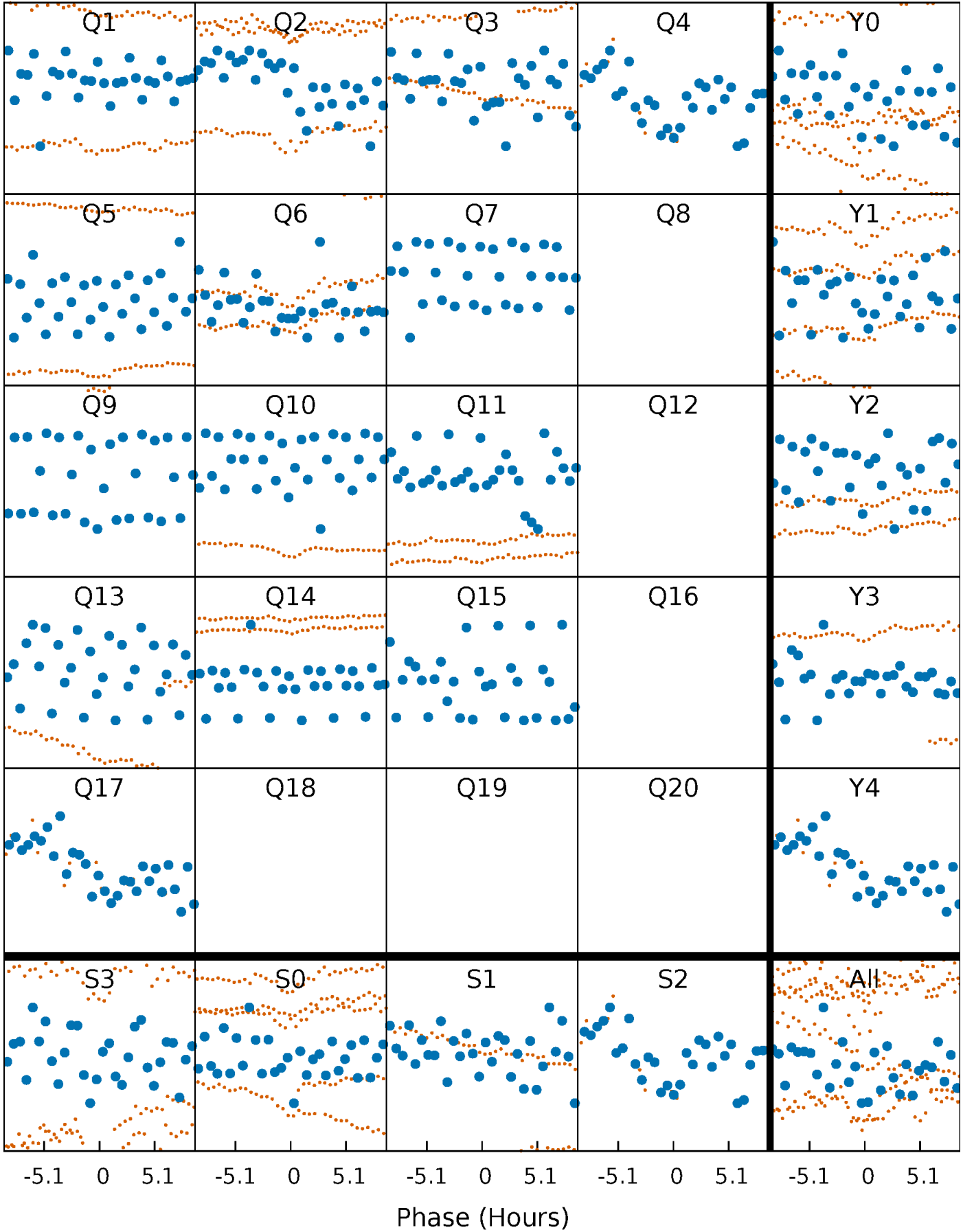


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



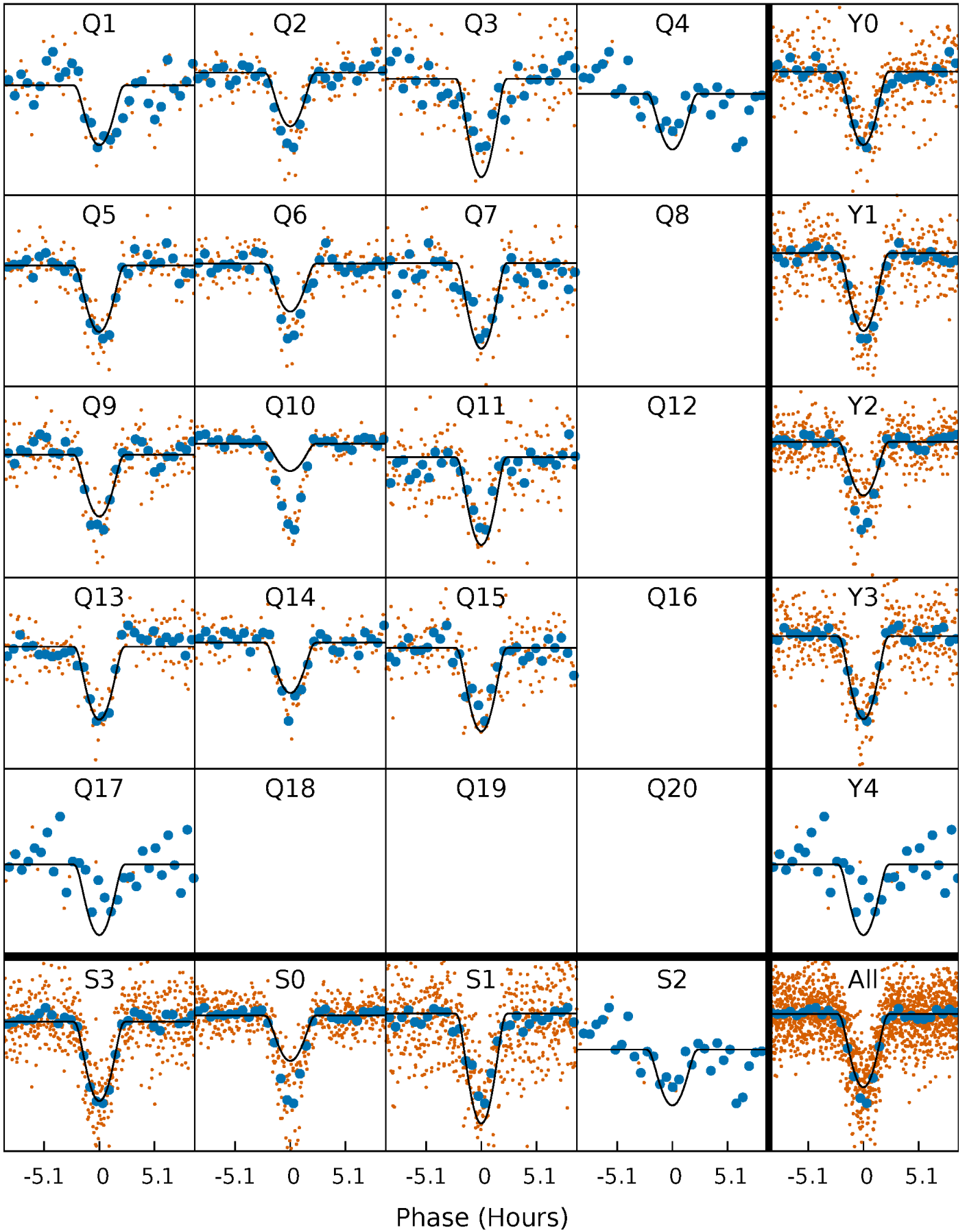
PDC Quarter-Phased Transit Curves

TCE 010965740-01 P= 21.787795 Days $T_0=136.692880$ (BKJD)



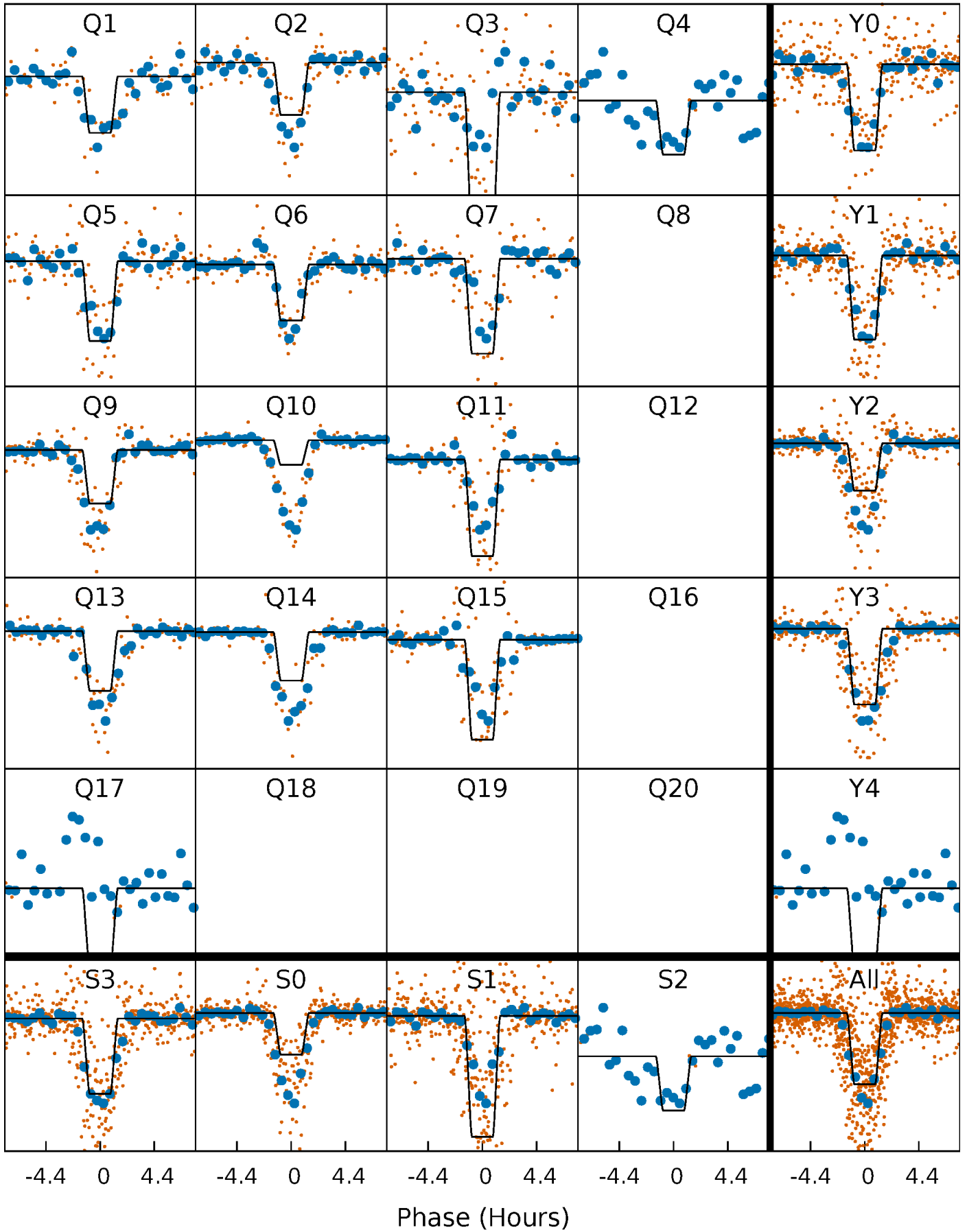
DV Quarter-Phased Transit Curves

TCE 010965740-01 P= 21.787795 Days $T_0=136.692880$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

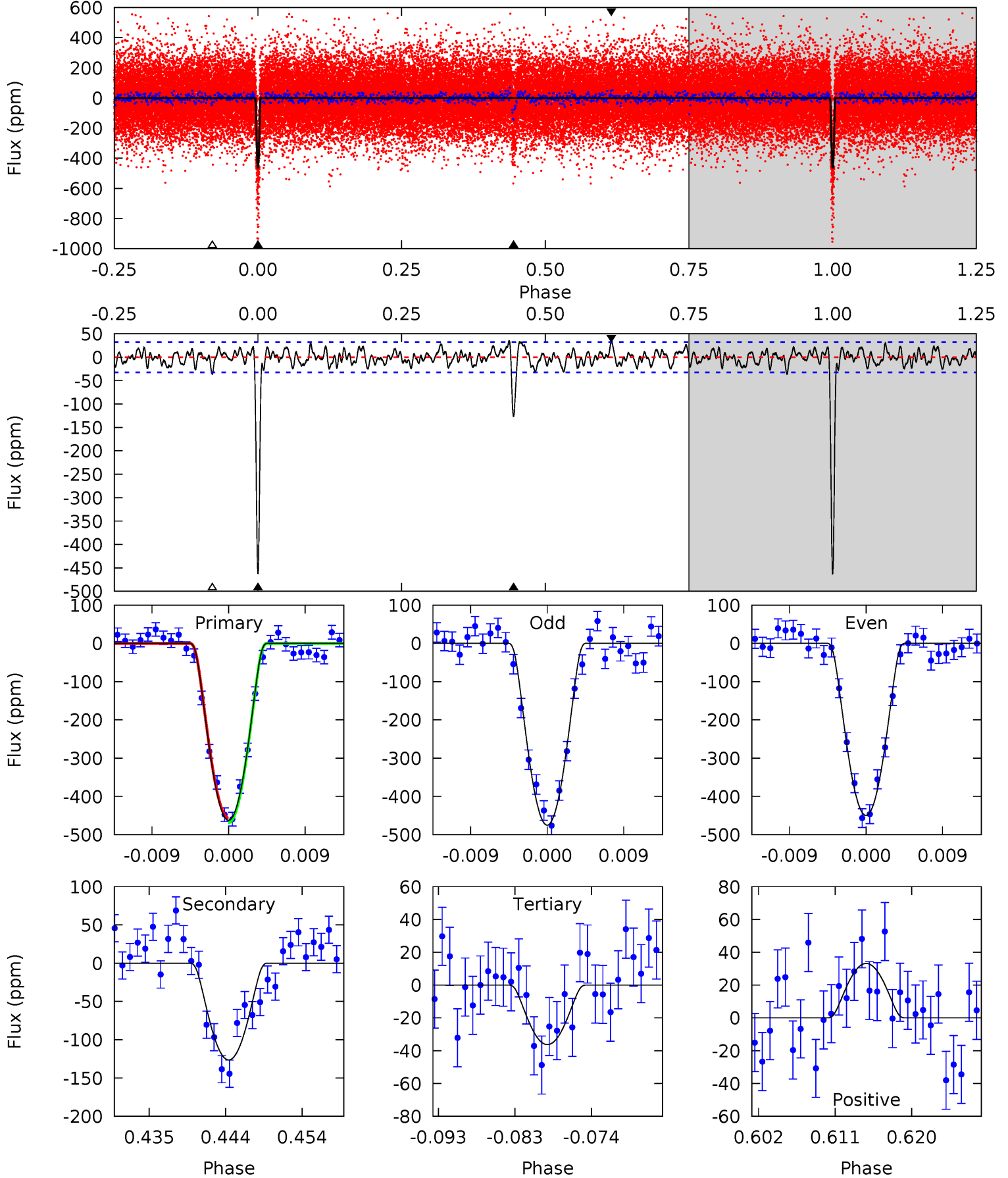
TCE 010965740-01 P= 21.787801 Days $T_0=136.692957$ (BKJD)



DV Model-Shift Uniqueness Test

010965740-01, $P = 21.787795$ Days, $E = 114.905085$ Days

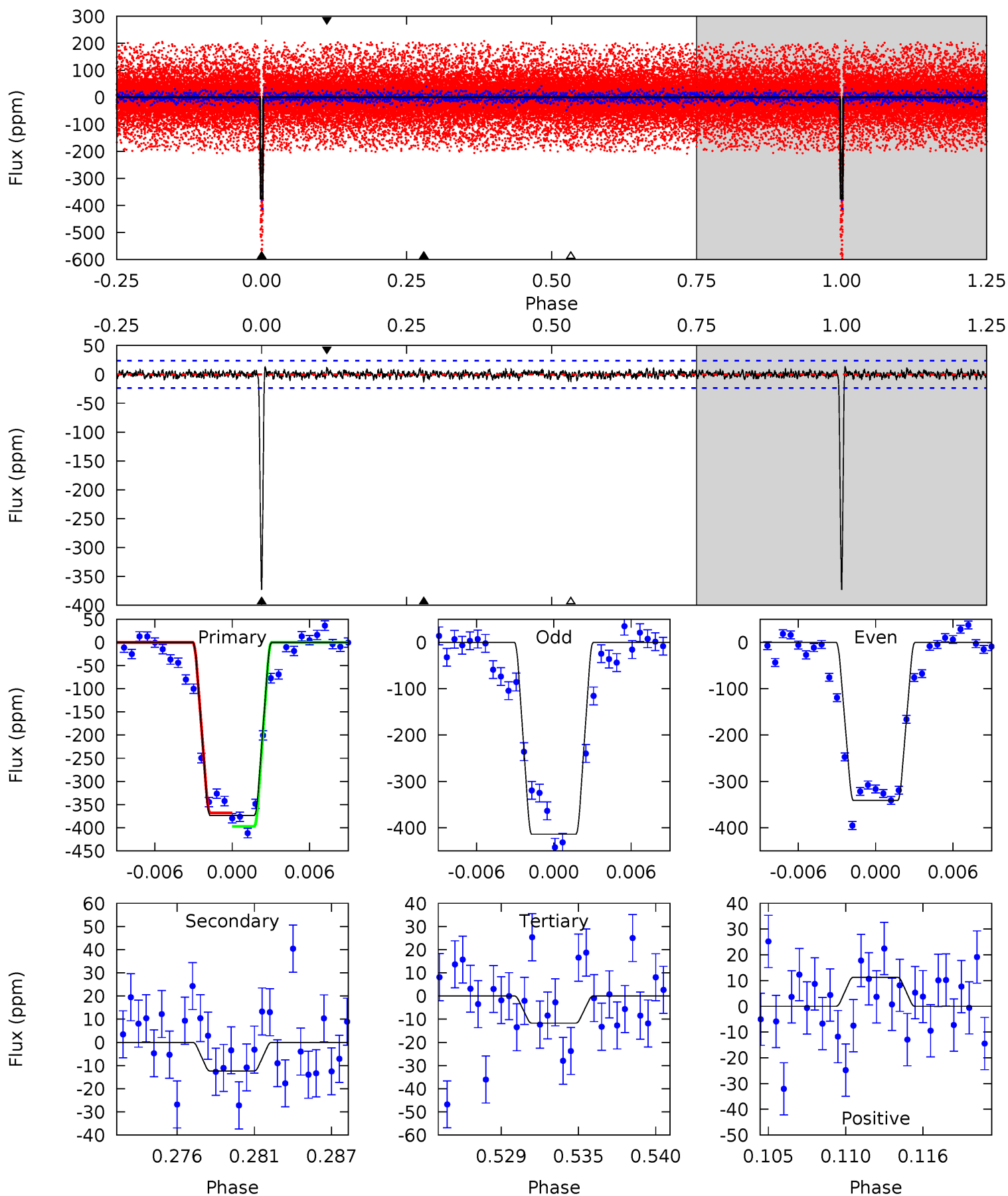
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
72.2	19.7	5.66	5.17	5.04	2.60	1.92	66.5	67.0	14.1	14.5	1.98	1.21	0.07	0.98



Alt Model-Shift Uniqueness Test

010965740-01, P = 21.787801 Days, E = 114.905156 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
81.1	2.69	2.54	2.45	5.14	2.78	0.77	78.6	78.7	0.14	0.24	8.04	1.22	0.04	3.11



Stellar Parameters For KIC 010965740

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5627^{+170}_{-153}	$3.633^{+0.773}_{-0.182}$	$-0.120^{+0.350}_{-0.250}$	$3.050^{+0.851}_{-1.986}$	$1.456^{+0.231}_{-0.538}$	$0.072^{+1.151}_{-0.034}$
	+3%/-3%	+21%/-5%	+292%/-208%	+28%/-65%	+16%/-37%	+1592%/-47%
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 010965740-01 / KOI 1887.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-126 ± 6	$10.59^{+7.95}_{-6.19}$	1430^{+132}_{-256}	3578^{+1079}_{-507}	19^{+86}_{-13}
Alt.	-12 ± 5	$7.07^{+6.71}_{-4.81}$	1424^{+137}_{-240}	2778^{+1111}_{-492}	$3.607^{+31.540}_{-2.728}$

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 $A_{obs} \gg 1.0$

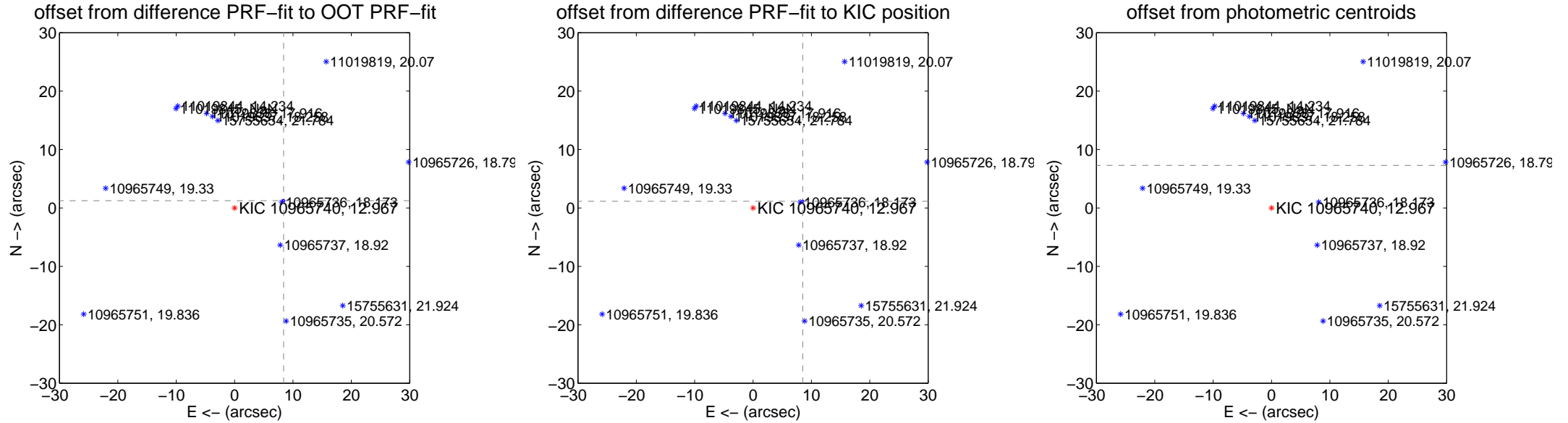
DV Centroid Data

Supplemental centroid analysis for 010965740-01. Kepler magnitude: 12.97. Transit SNR 29.96

There are 14 quarters with good PRF difference image offsets

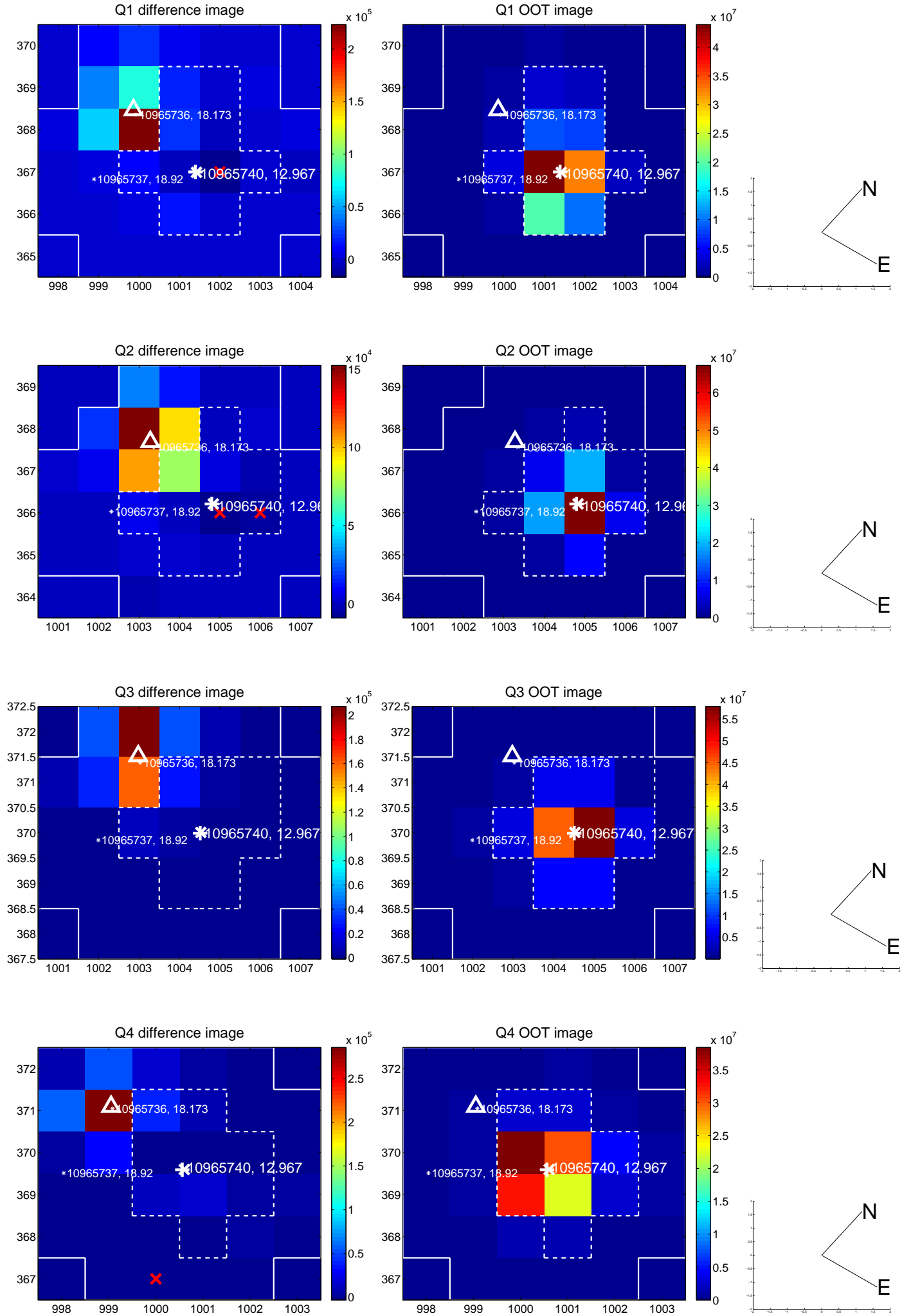
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.485 \pm 0.070	120.72	-8.393 \pm 0.070	1.243 \pm 0.070
PRF-fit source offset from KIC position	8.594 \pm 0.067	127.66	-8.517 \pm 0.067	1.146 \pm 0.071
photometric centroid source offset	60.33 \pm 0.25	241.17	-59.89 \pm 0.25	7.29 \pm 0.27

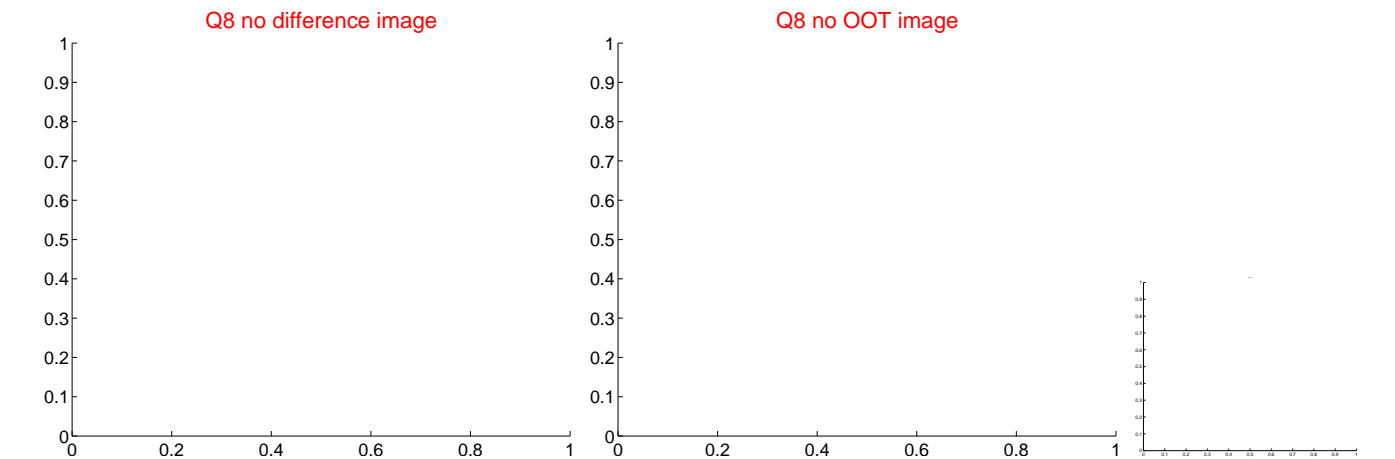
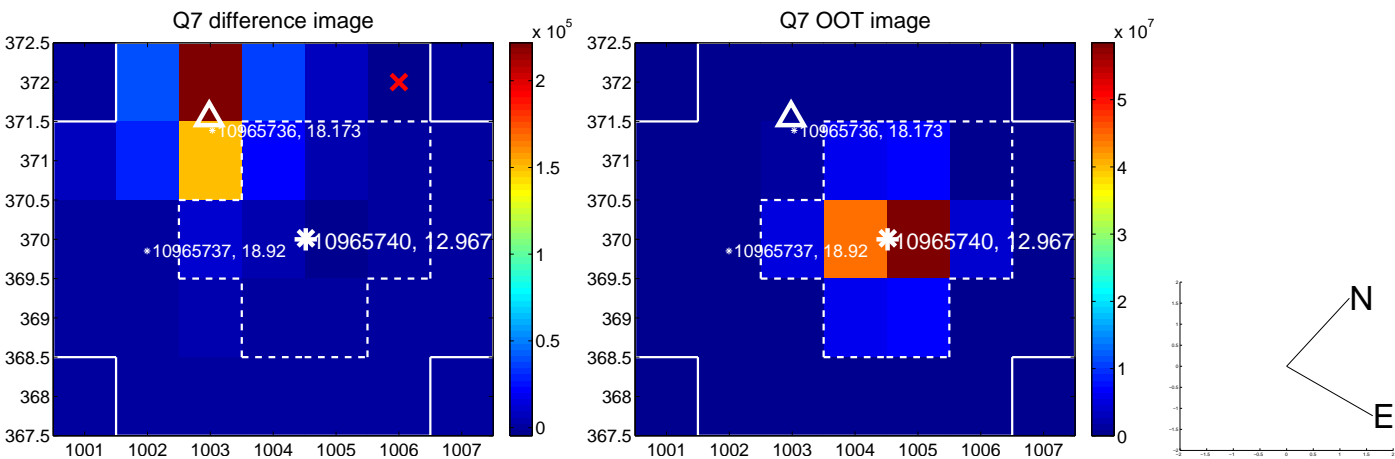
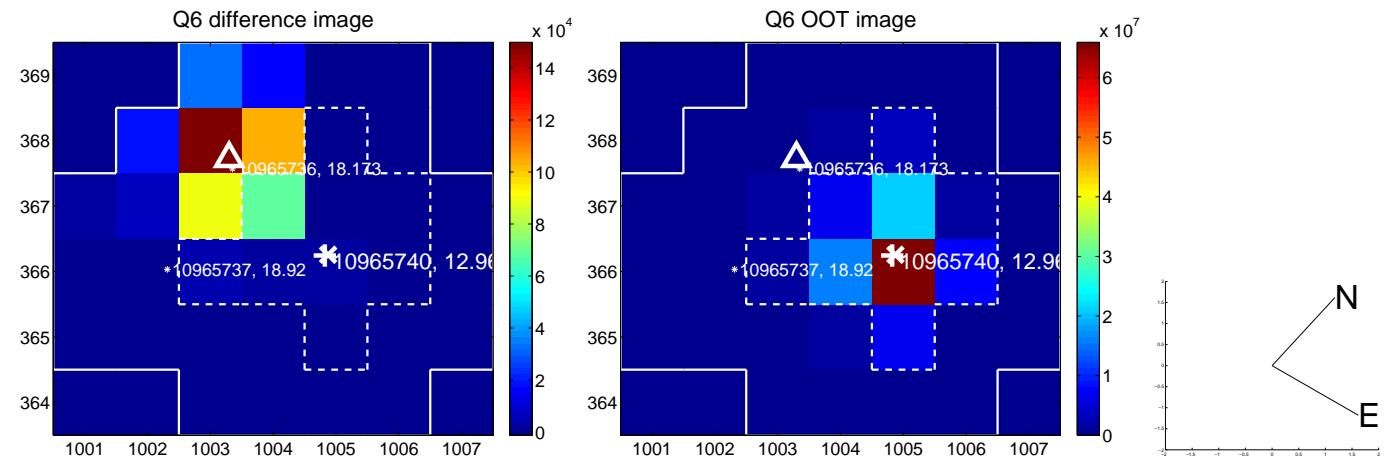
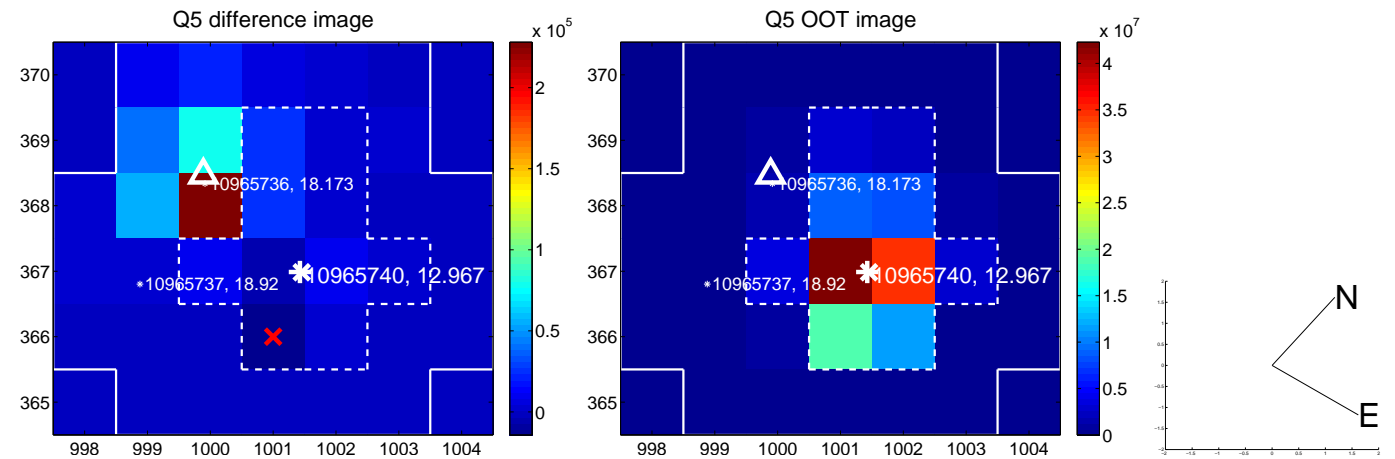


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

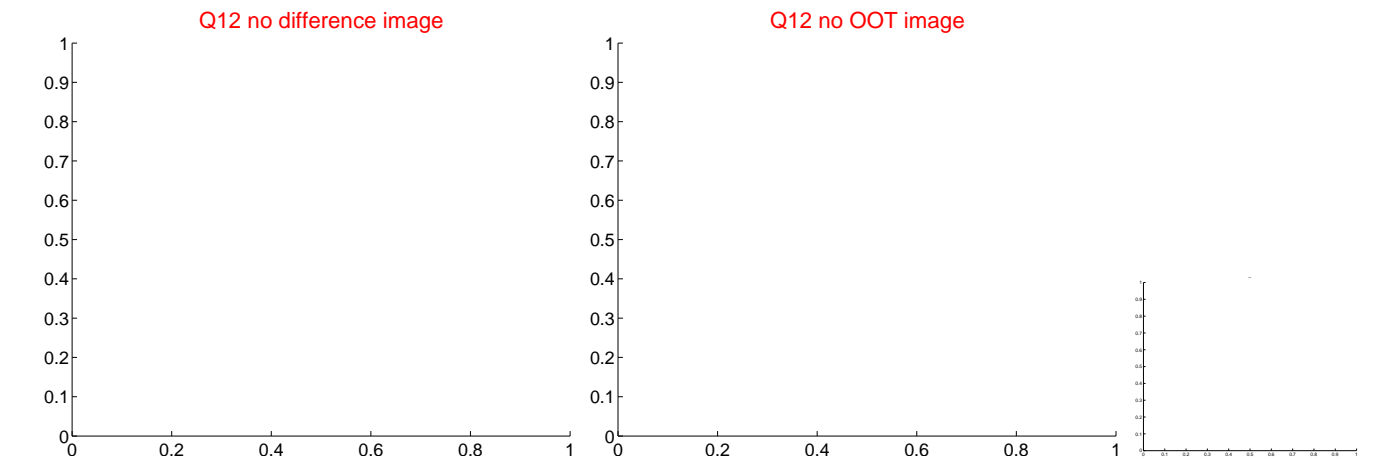
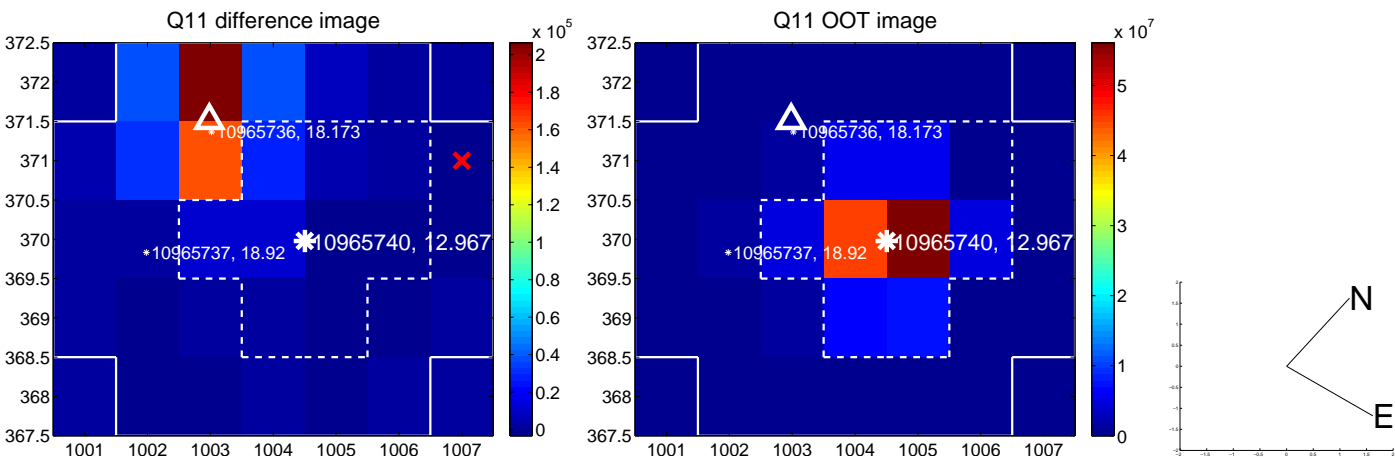
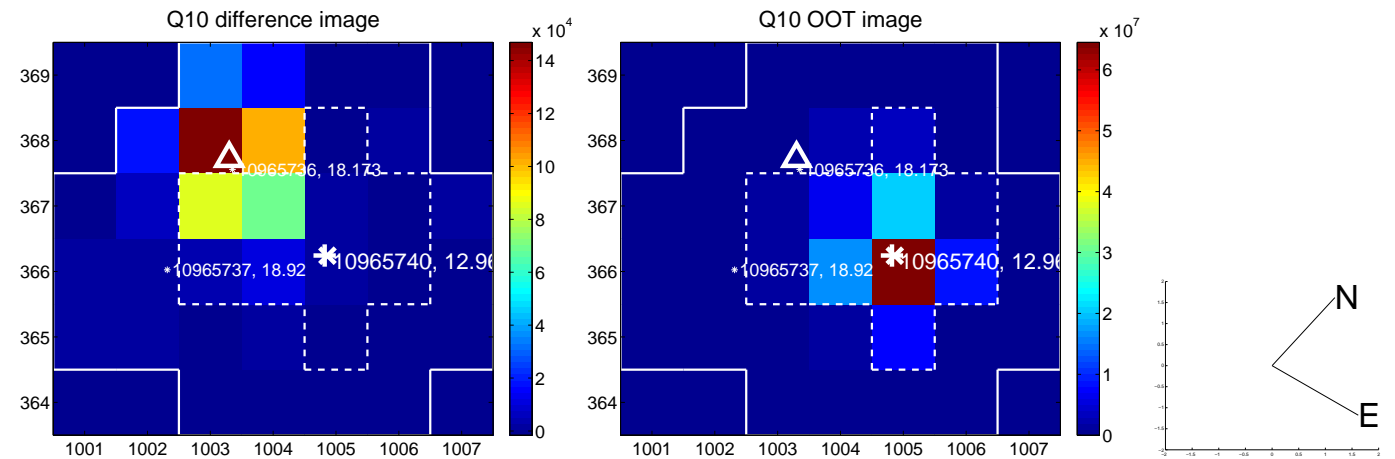
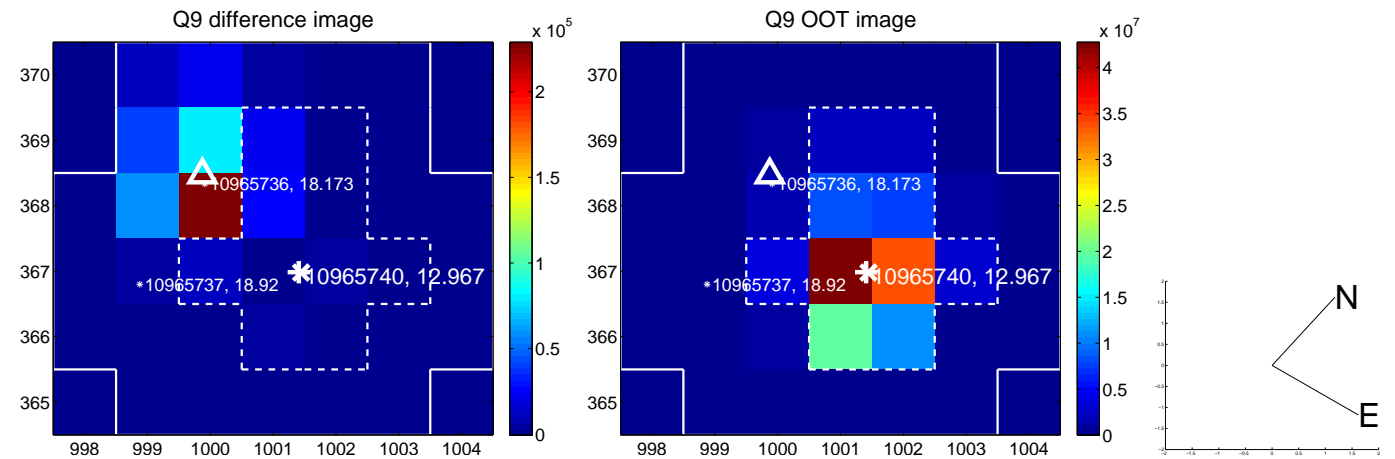
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



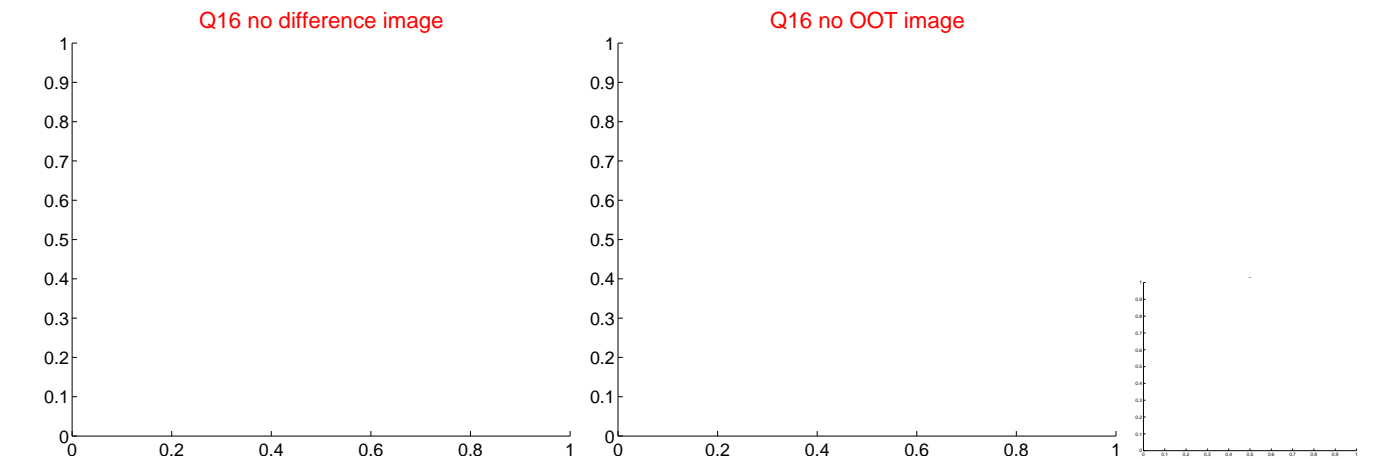
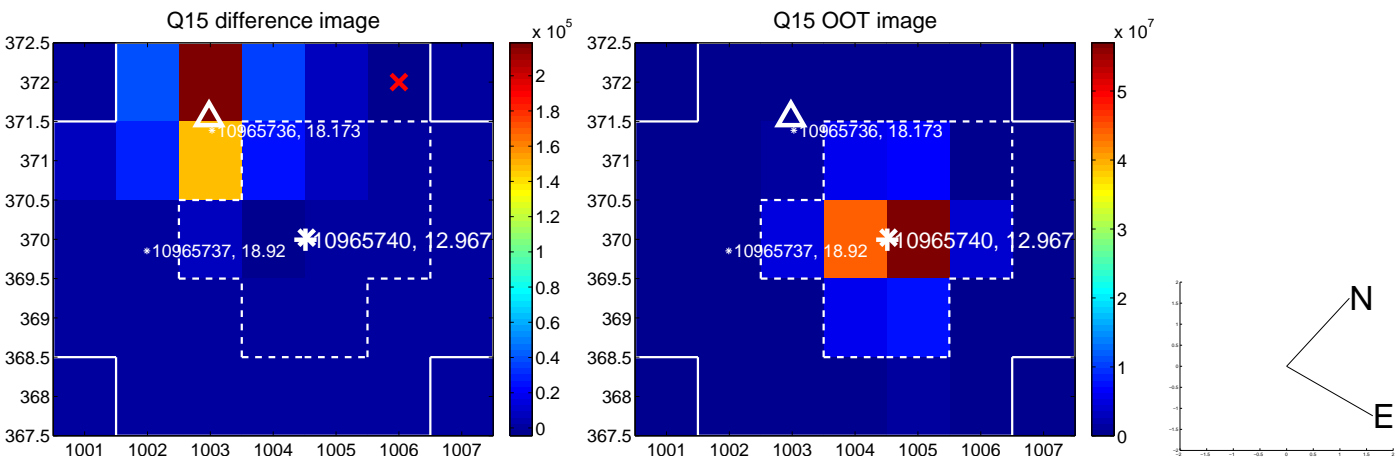
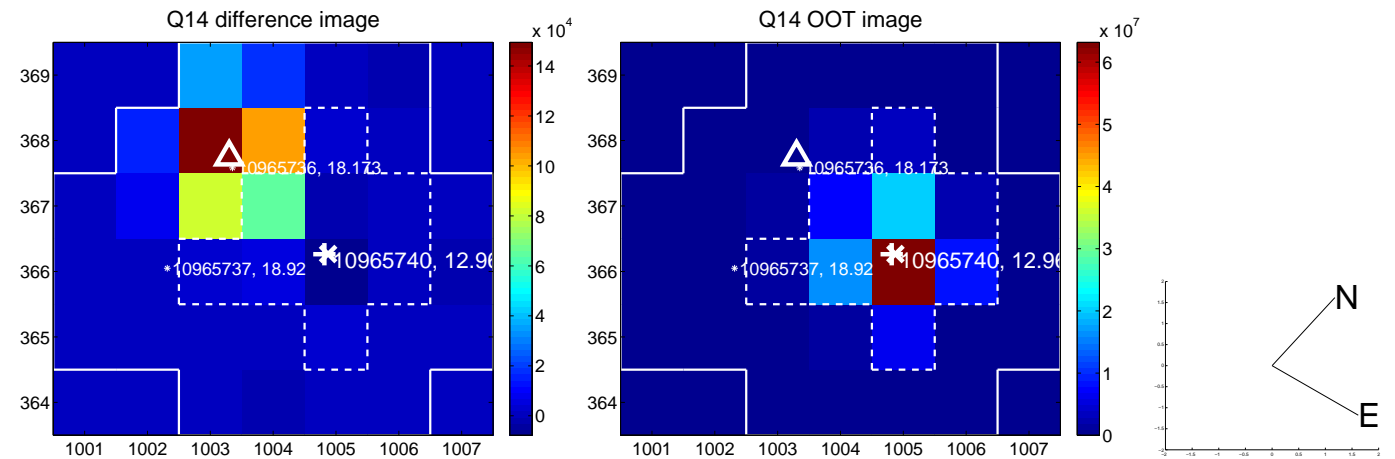
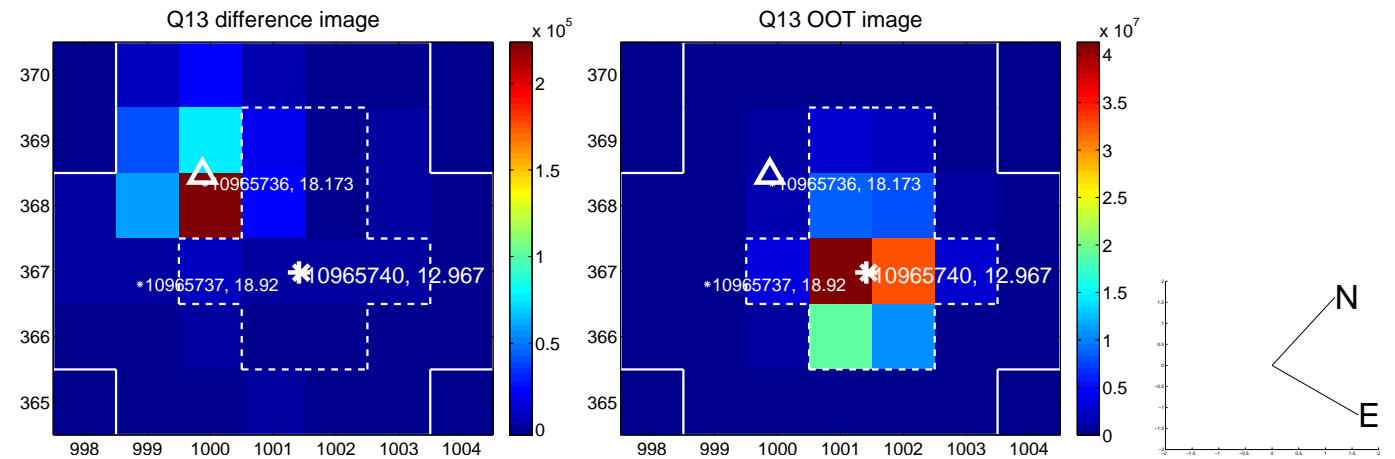
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



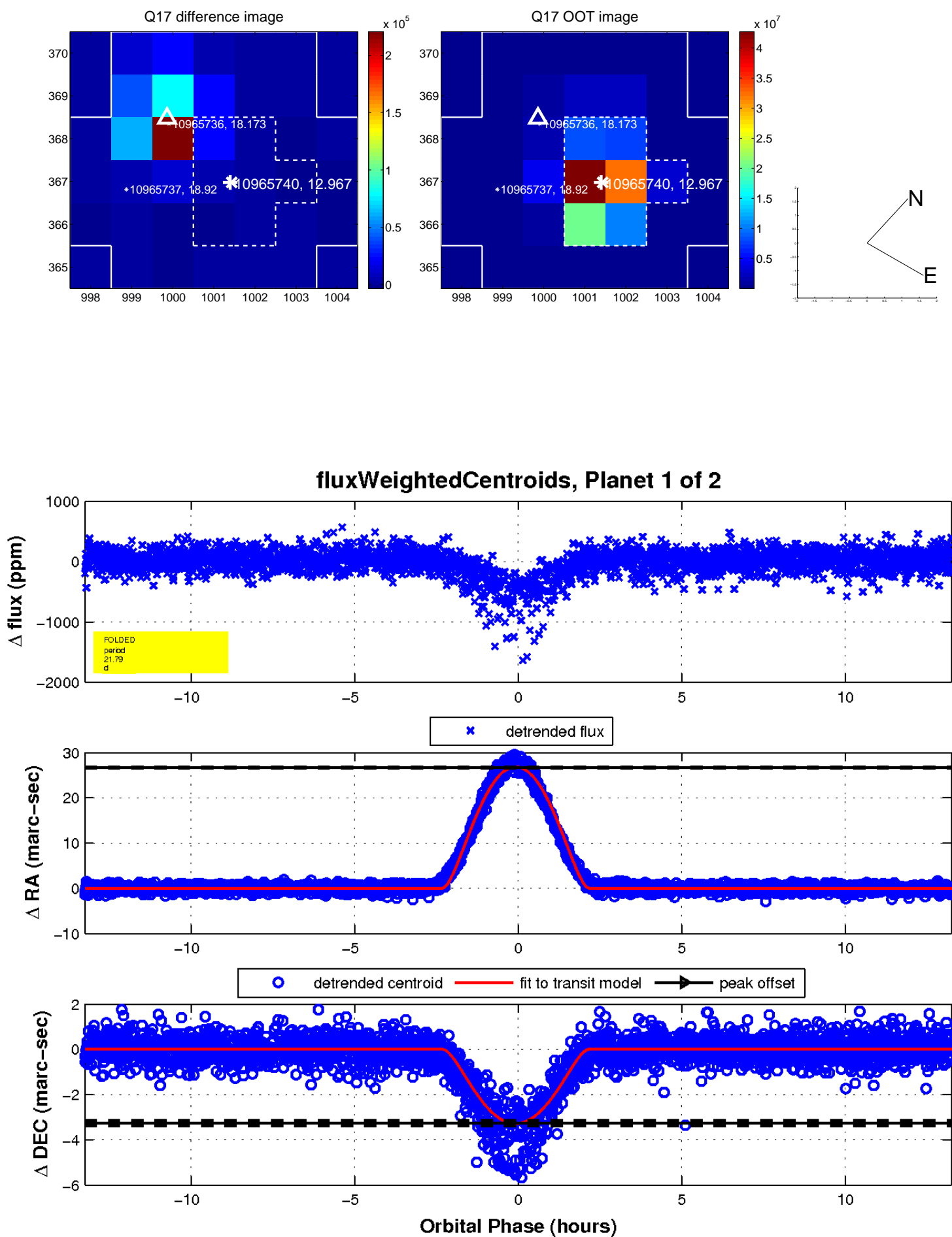
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

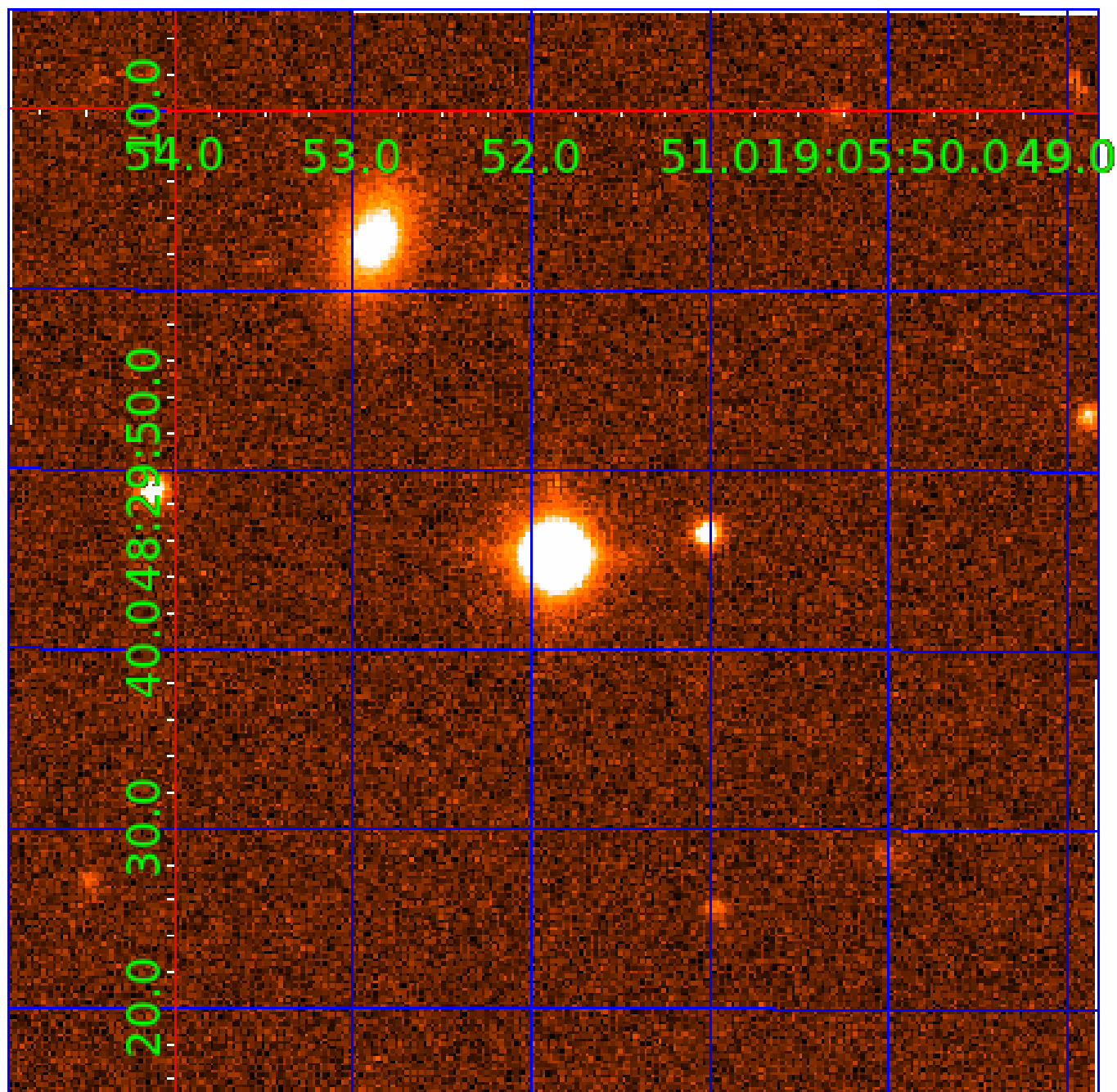


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010965740

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})
010965740-01	OBS	1887.01	21.787795	136.692880	446.6	4.420	35.5	30.0	3.05	5627	11.65	278.77
010965740-02	OBS	No	21.787898	146.388345	105.6	4.051	8.5	8.7	3.05	5627	3.67	278.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010965740-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
010965740-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

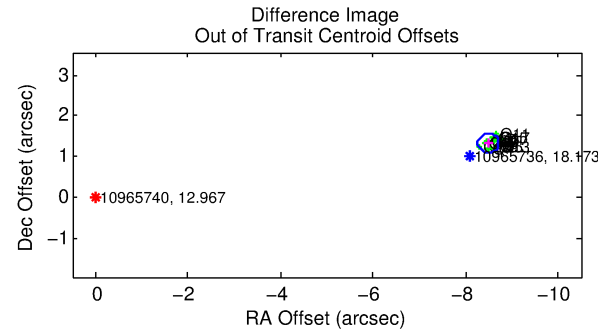
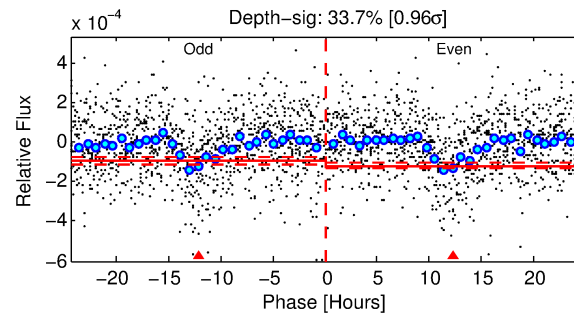
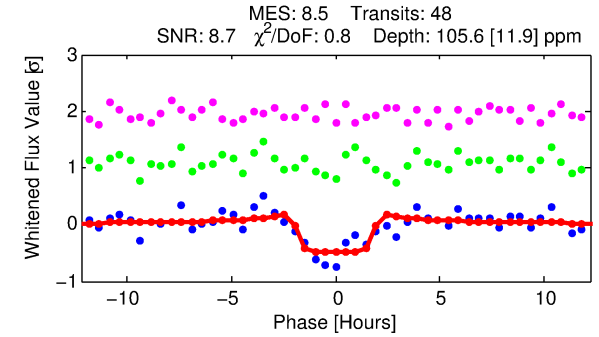
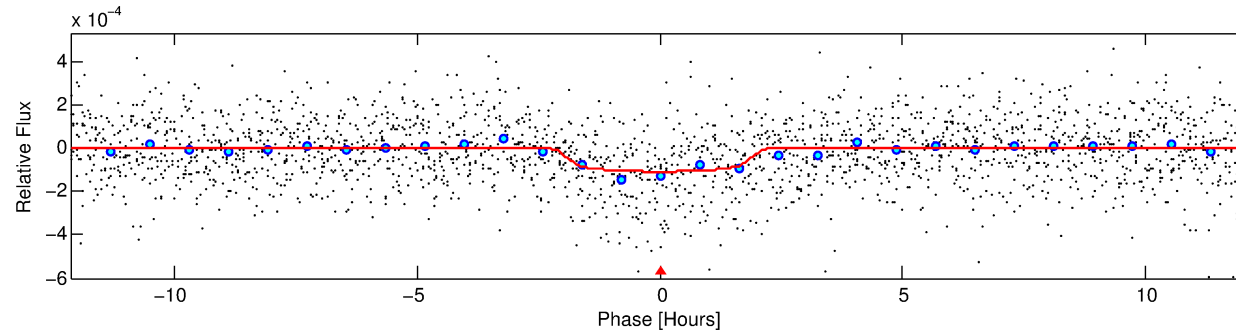
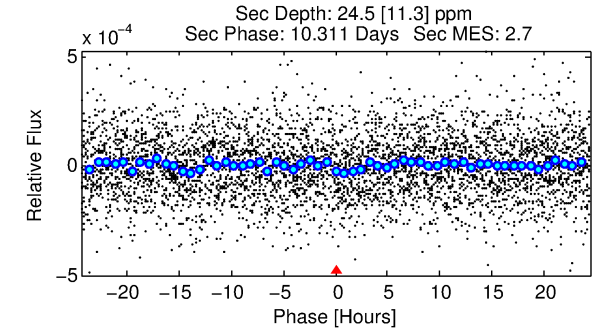
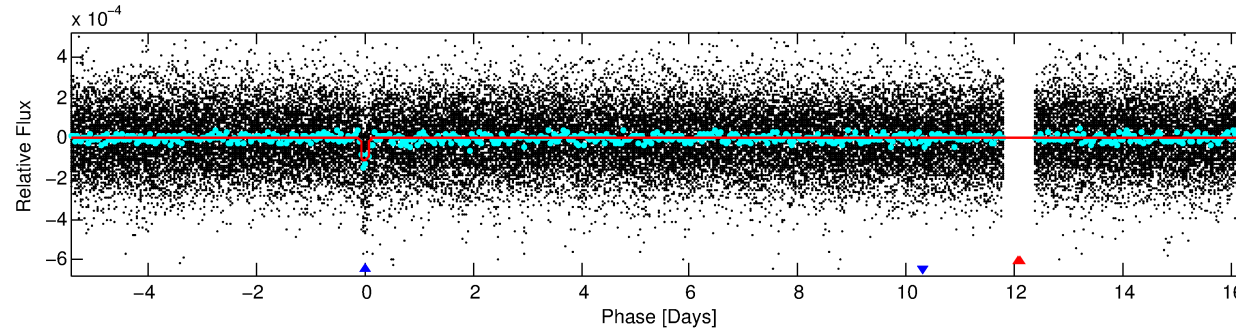
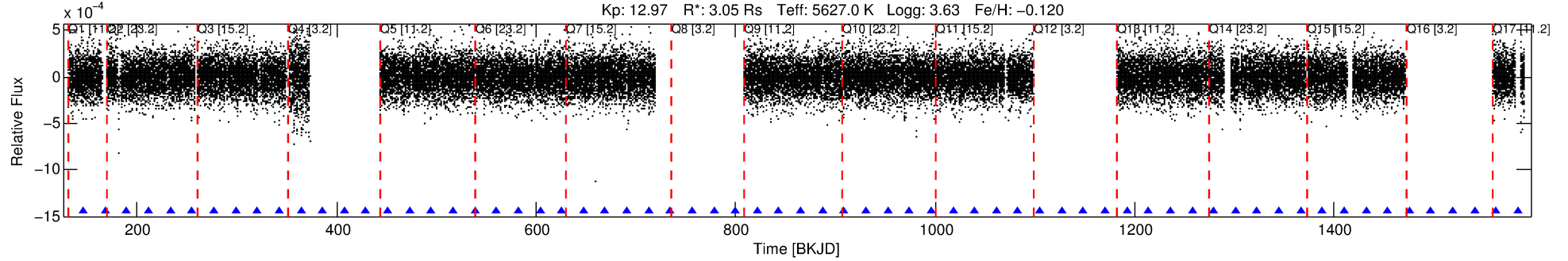
Ephemeris Match Information For 010965740-02

No Significant Match Found

DV One-Page Summary

KIC: 10965740 Candidate: 2 of 2 Period: 21.788 d
KOI: K01887 Corr: No Ephemeris Match

Kp: 12.97 R*: 3.05 Rs Teff: 5627.0 K Logg: 3.63 Fe/H: -0.120



DV Fit Results:

Period = 21.78790 [0.00020] d
Epoch = 146.3883 [0.0073] BKJD
Rp/R* = 0.0110 [0.0058]
a/R* = 20.34 [50.38]
b = 0.88 [0.64]
Seff = 278.77 [353.84]
Teq = 1042 [331] K
Rp = 3.67 [3.08] Re
a = 0.1731 [0.1273] AU
Ag = 30.05 [51.44] [0.56σ]
Teff = 3772 [1095] K [2.39σ]

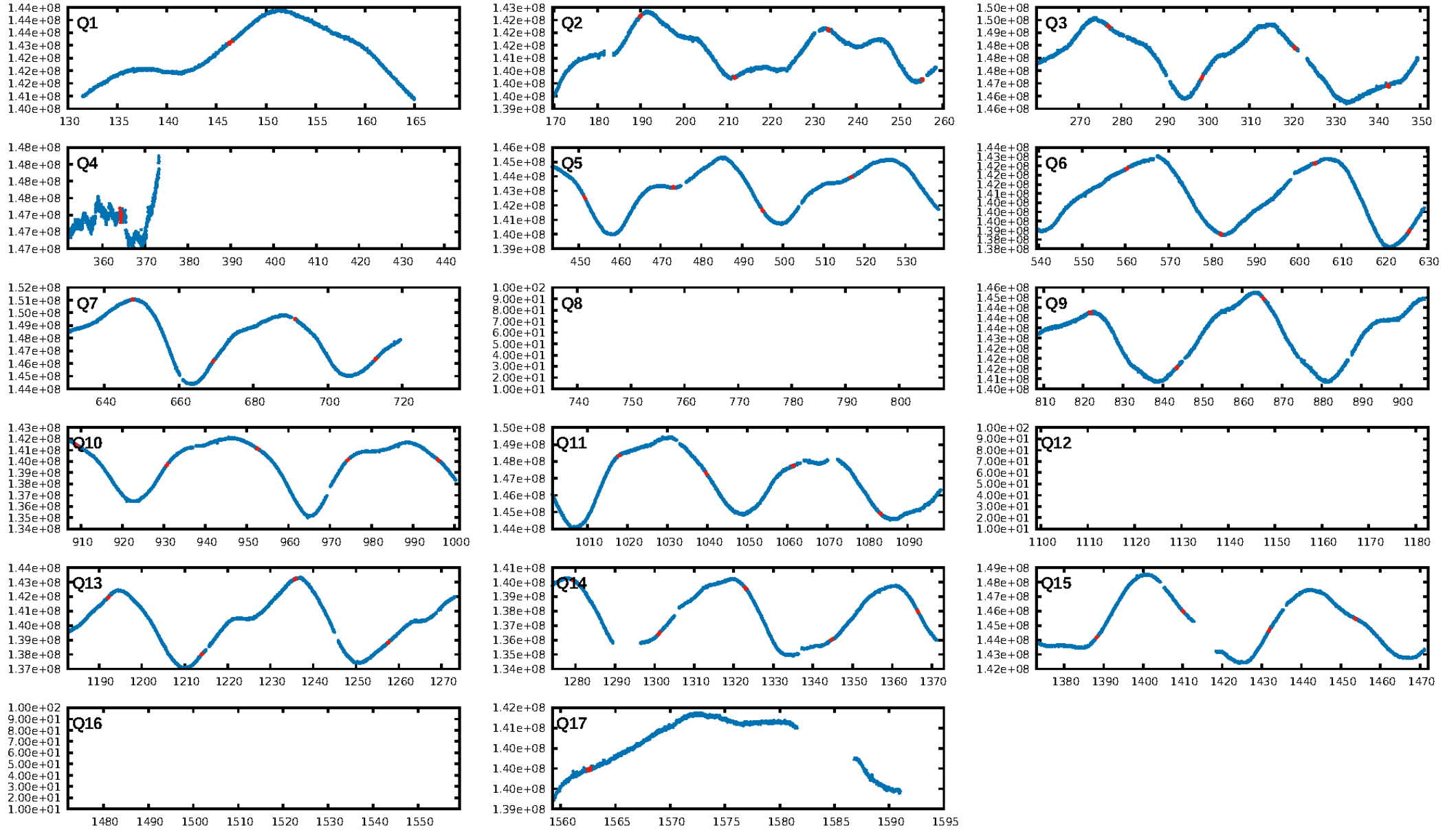
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 94.9%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 9.80e-17
RollingBand-fgt: 1.00 [45/45]
GhostDiagnostic-chr: -0.1275
Centroid-sig: 0.0%
Centroid-so: 48.660 arcsec [54.60σ]
OotOffset-rm: 8.591 arcsec [111.75σ]
KicOffset-rm: 8.684 arcsec [116.73σ]
OotOffset-st: 4/4/1/5 [14]
KicOffset-st: 4/4/1/5 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 1.00 [14/14]

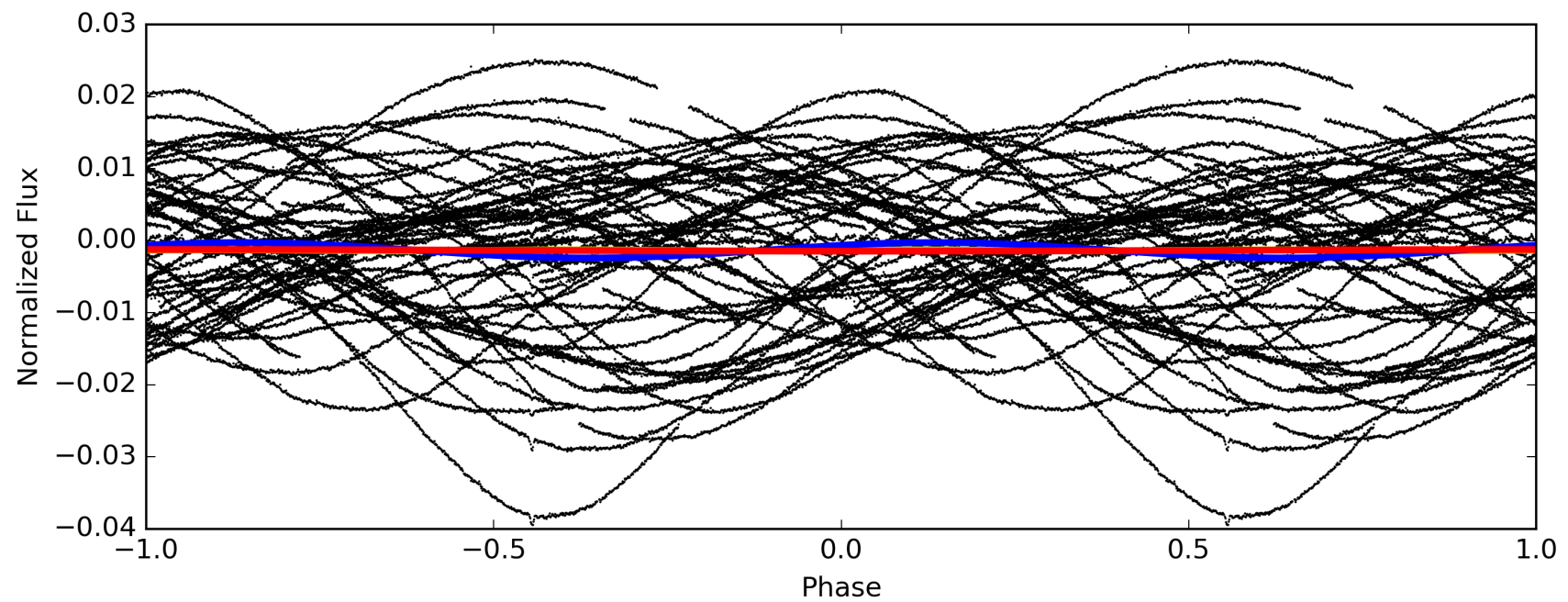
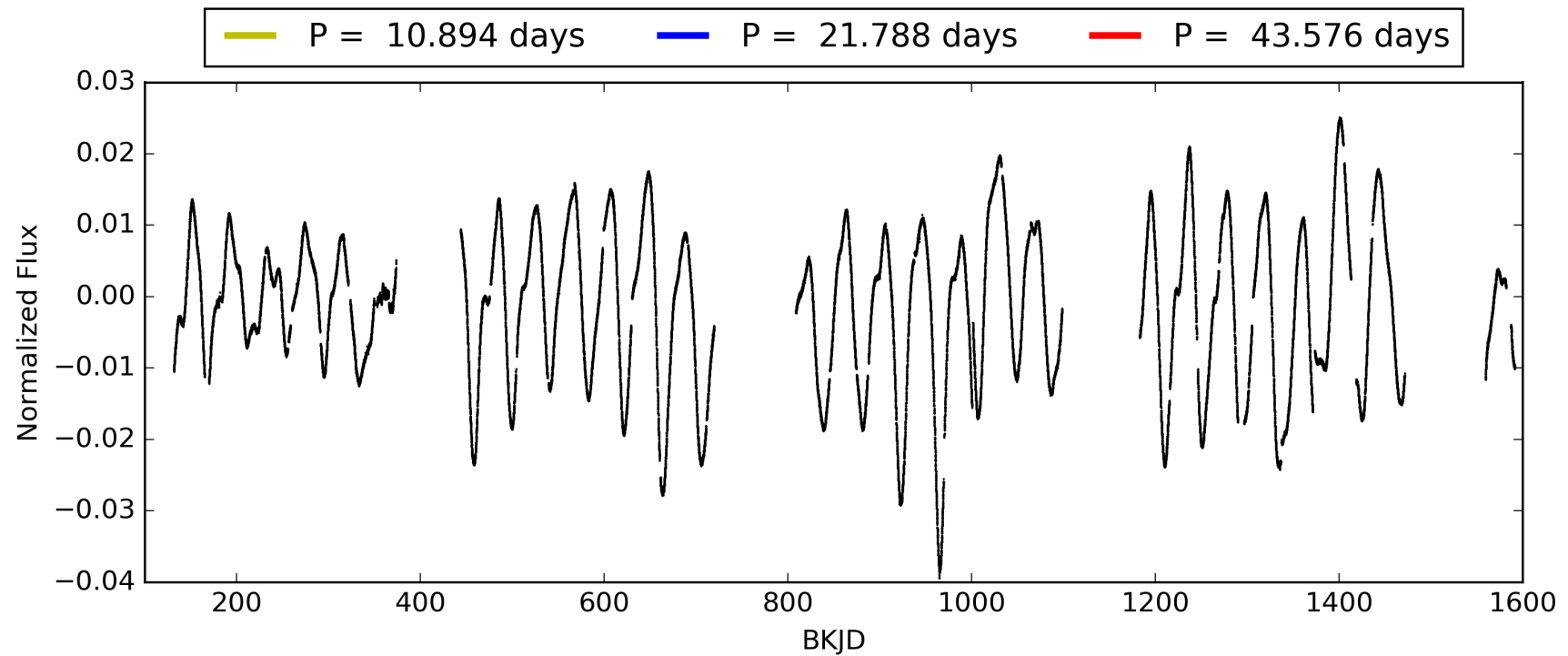
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:03:48 Z

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TCE 010965740-02, PDC Light Curves

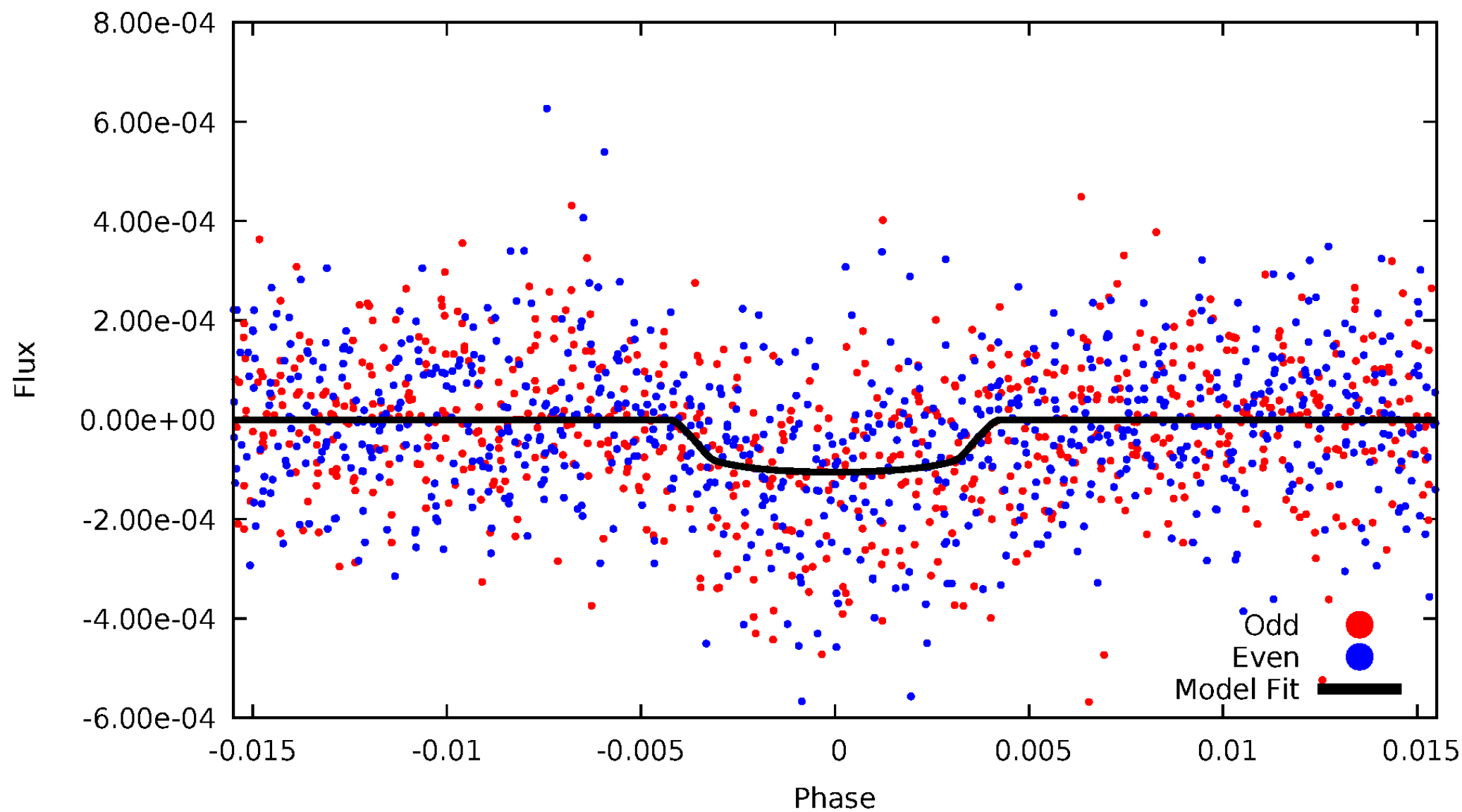


TCE 010965740-02



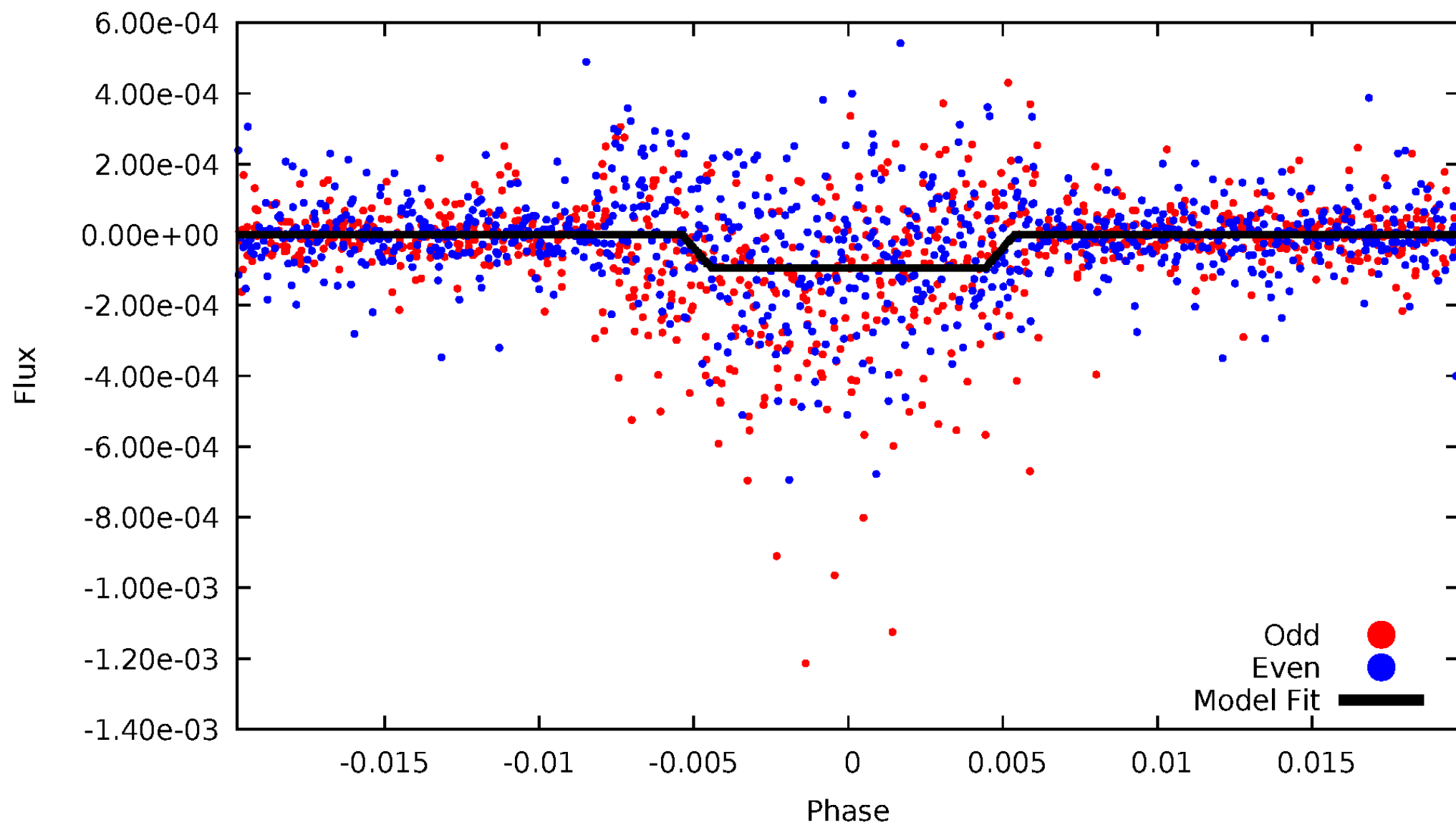
DV Odd/Even

TCE 010965740-02



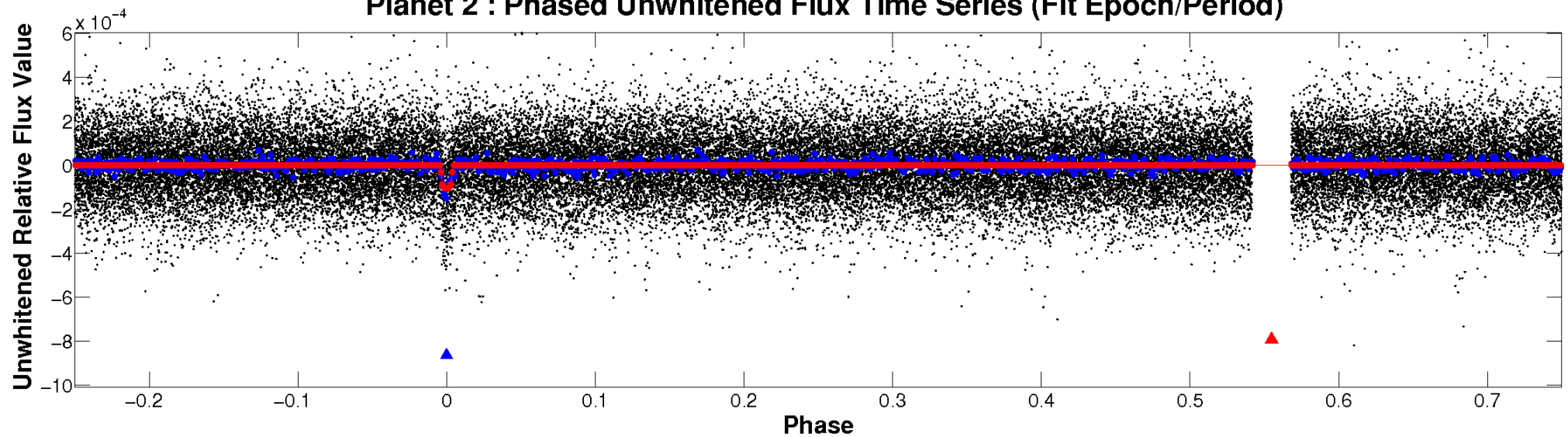
ALT Odd/Even

TCE 010965740-02

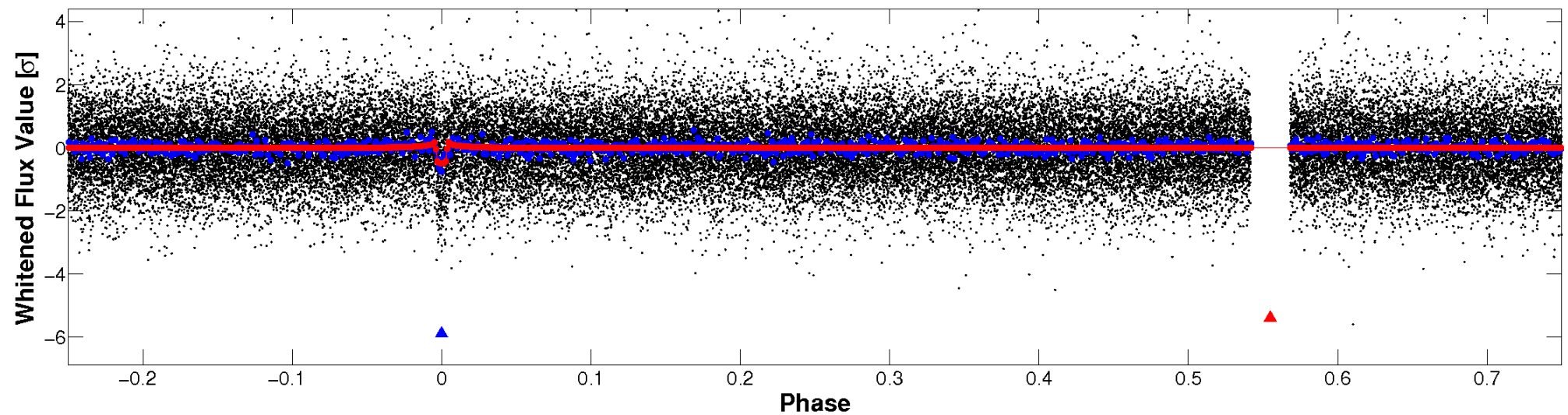


Non-Whitened Vs. Whitened Light Curve

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

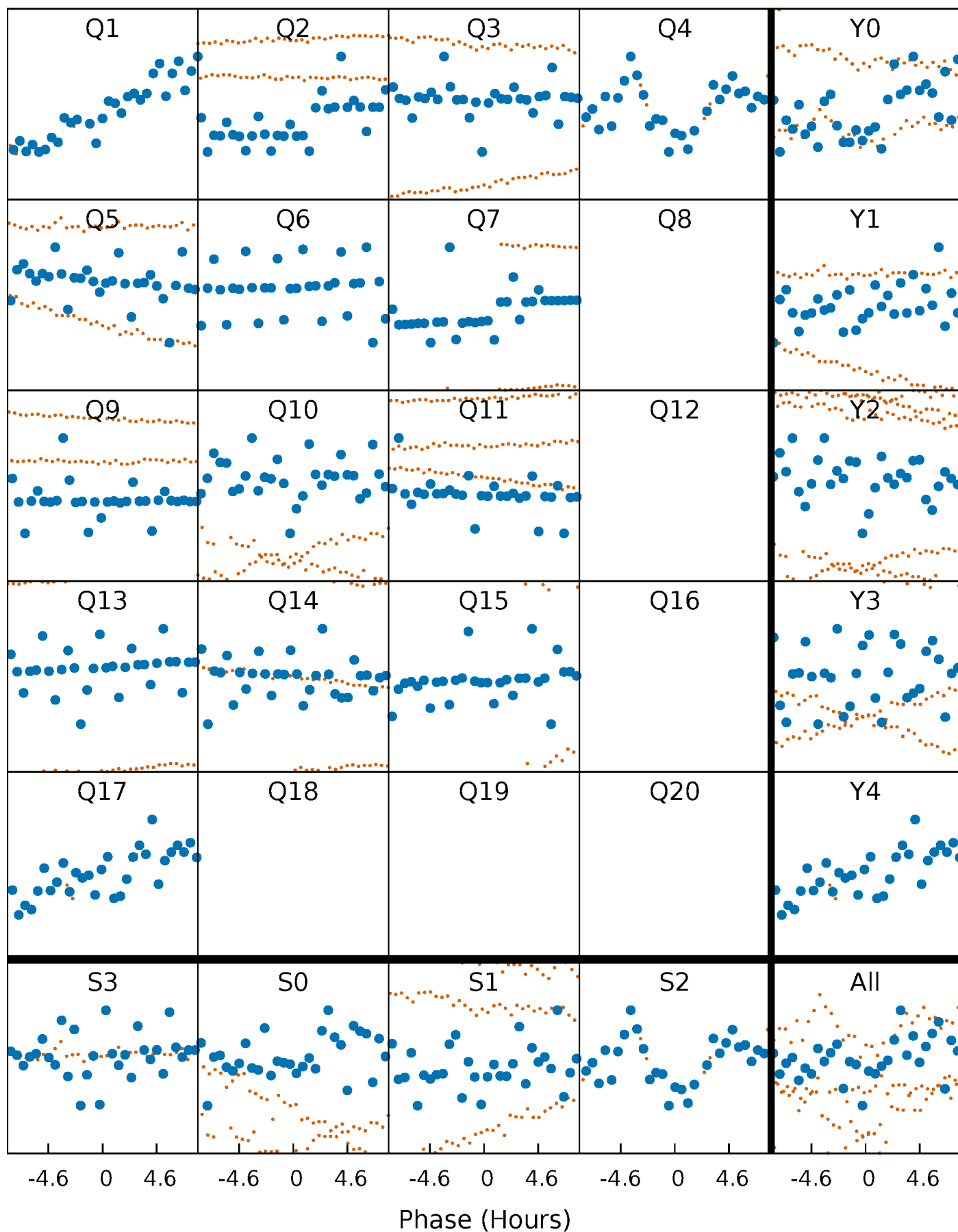


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



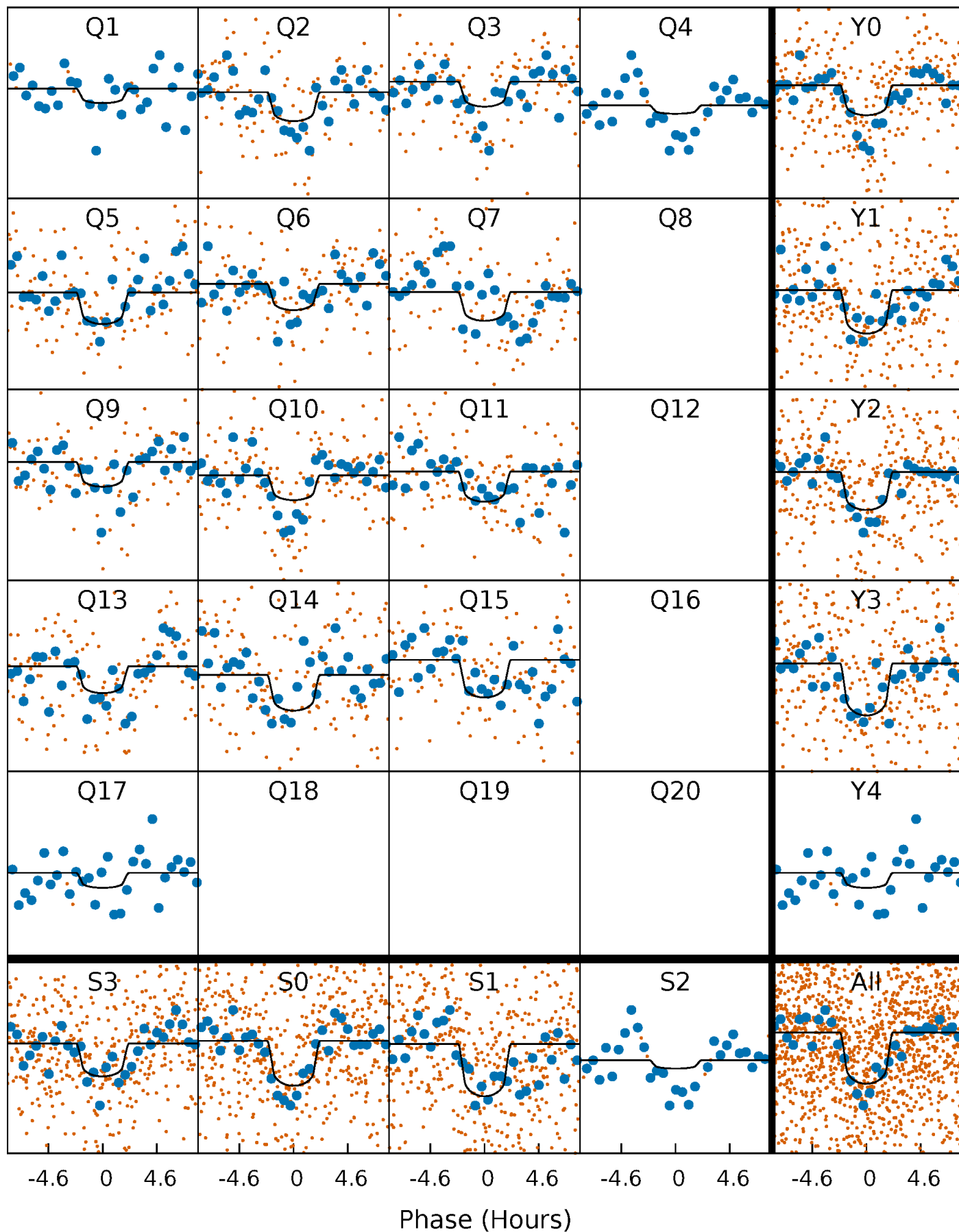
PDC Quarter-Phased Transit Curves

TCE 010965740-02 P= 21.787898 Days $T_0=146.388345$ (BKJD)



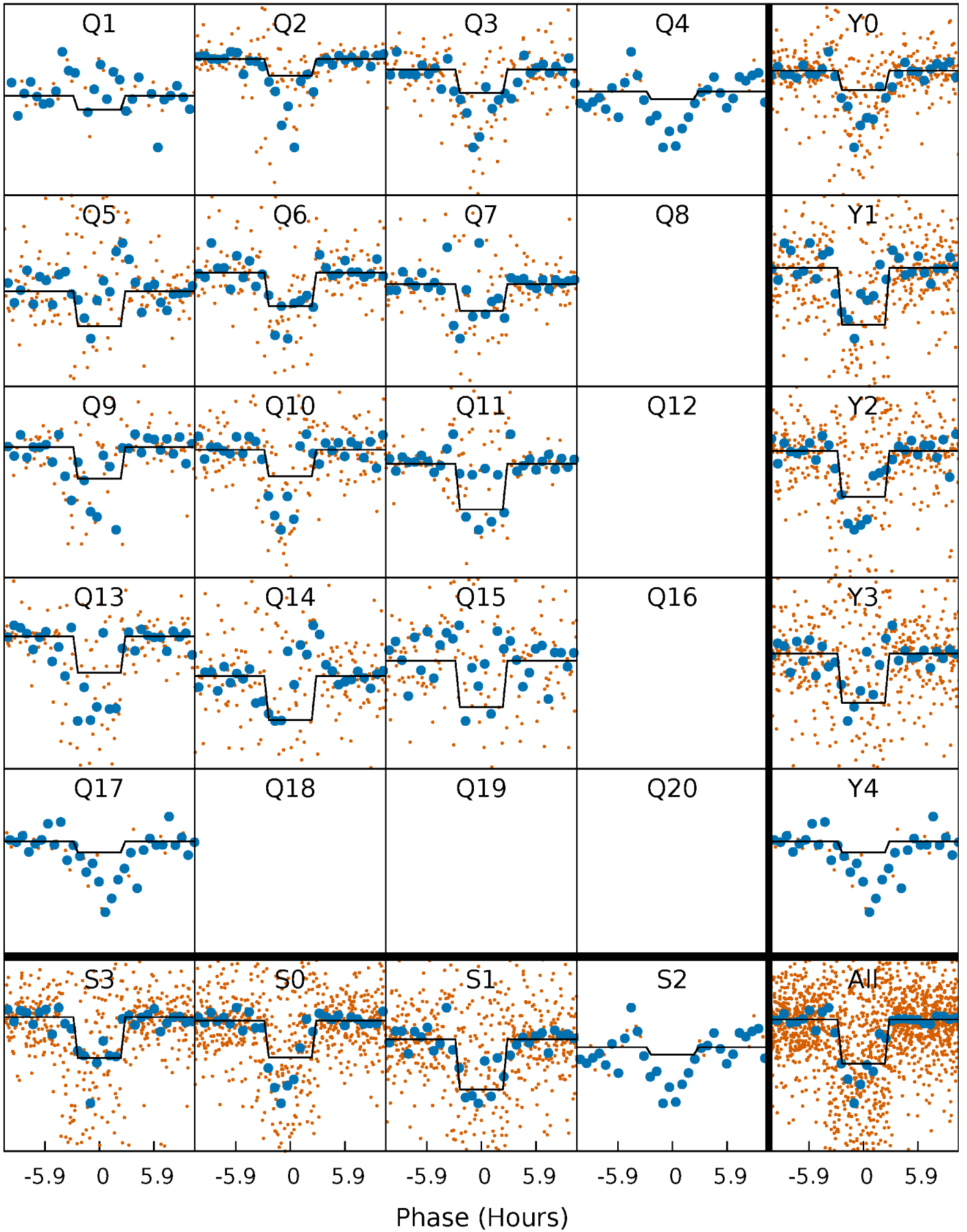
DV Quarter-Phased Transit Curves

TCE 010965740-02 P= 21.787898 Days $T_0=146.388345$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

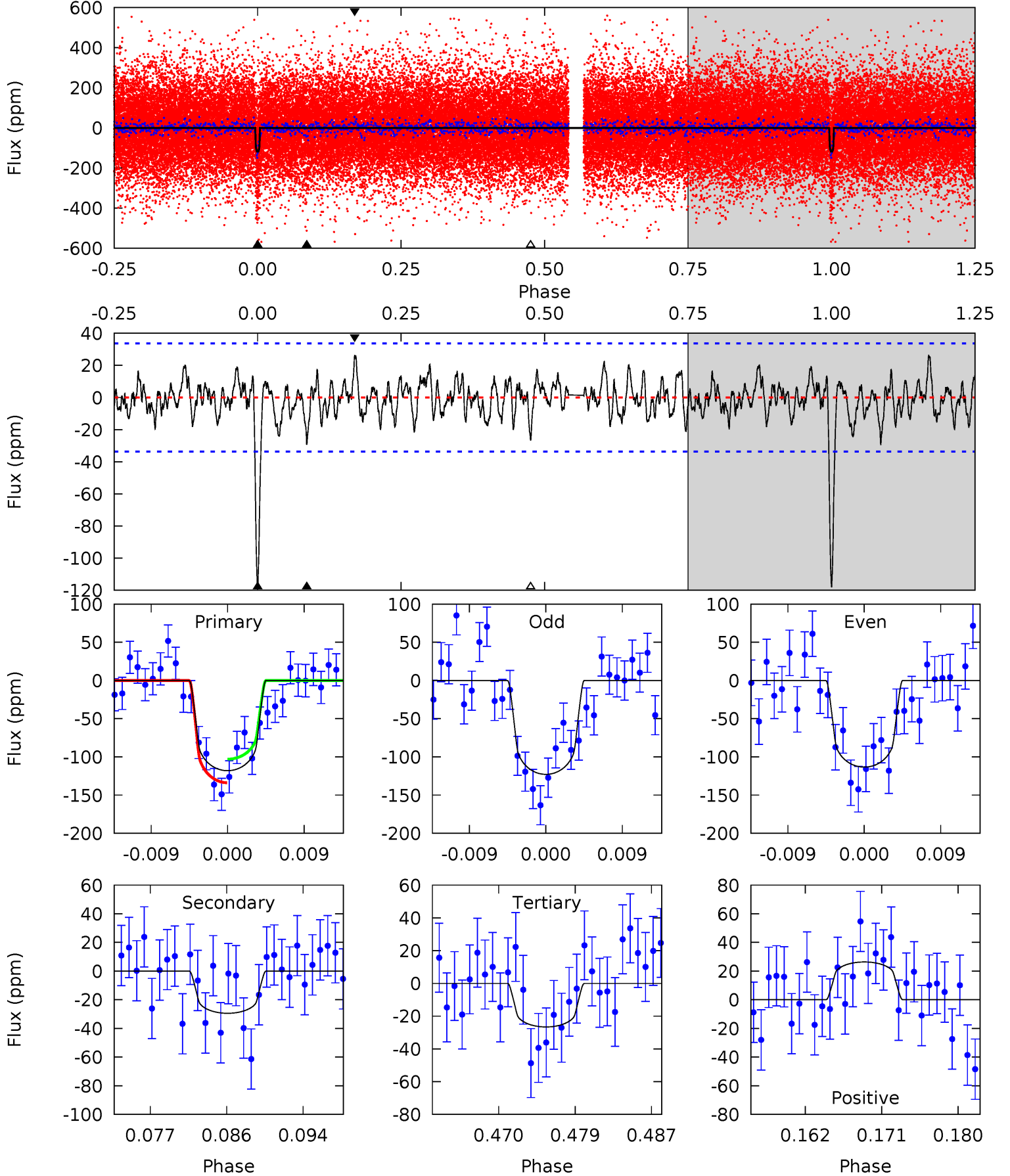
TCE 010965740-02 P= 21.787952 Days $T_0=146.410769$ (BKJD)



DV Model-Shift Uniqueness Test

010965740-02, $P = 21.787898$ Days, $E = 124.600447$ Days

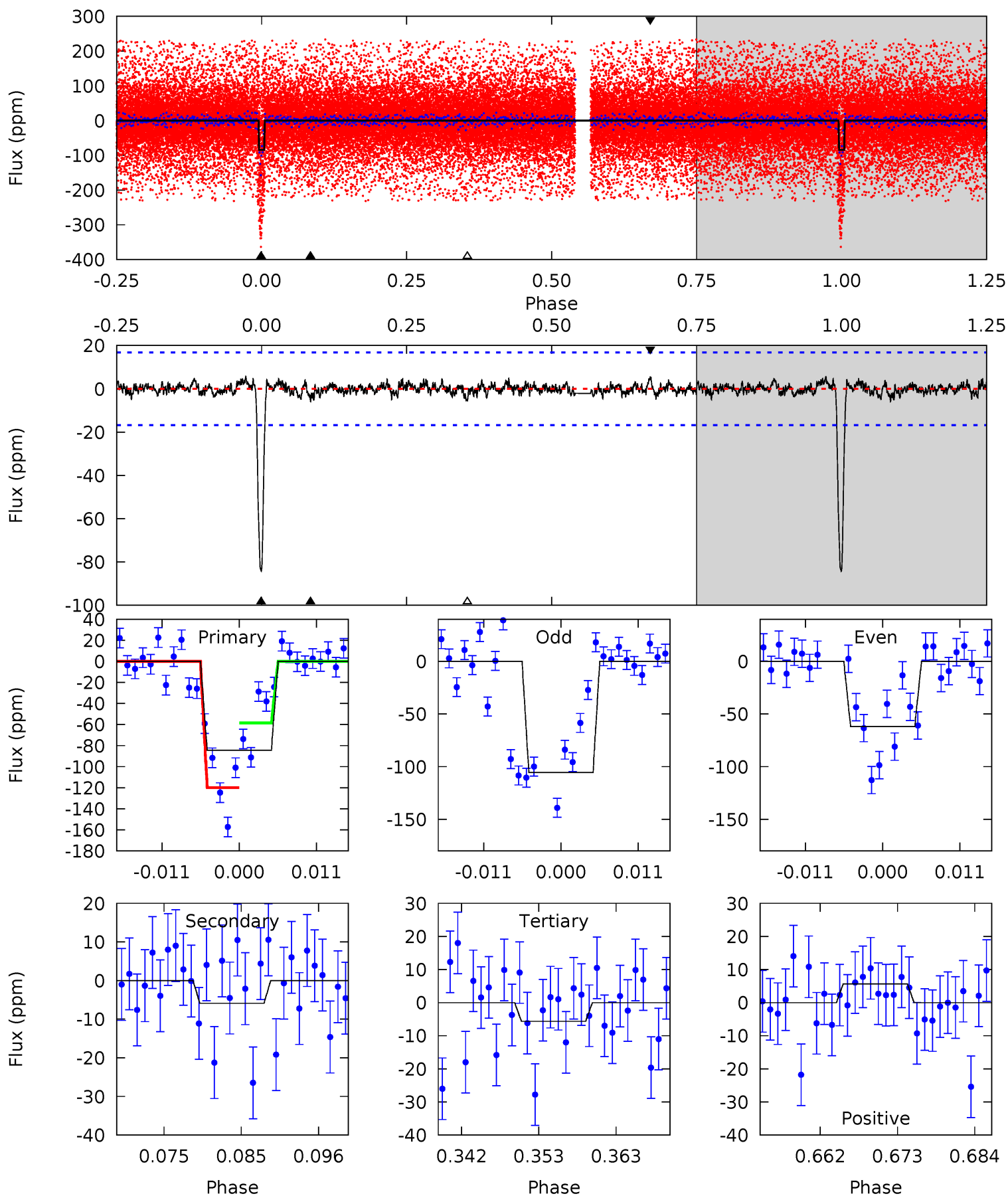
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	4.42	3.99	3.96	5.06	2.63	1.34	13.7	13.8	0.42	0.46	0.71	1.12	0.18	2.32



Alt Model-Shift Uniqueness Test

010965740-02, P = 21.787952 Days, E = 124.622817 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	1.76	1.69	1.69	5.01	2.55	0.52	23.5	23.5	0.07	0.07	6.53	1.12	0.06	9.17



Stellar Parameters For KIC 010965740

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5627^{+170}_{-153}	$3.633^{+0.773}_{-0.182}$	$-0.120^{+0.350}_{-0.250}$	$3.050^{+0.851}_{-1.986}$	$1.456^{+0.231}_{-0.538}$	$0.072^{+1.151}_{-0.034}$
	+3%/-3%	+21%/-5%	+292%/-208%	+28%/-65%	+16%/-37%	+1592%/-47%
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 010965740-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-29 ± 7	$3.22^{+2.21}_{-1.84}$	1426^{+151}_{-248}	4188^{+1344}_{-591}	45^{+178}_{-30}
Alt.	-6 ± 3	$2.88^{+2.20}_{-1.59}$	1420^{+134}_{-228}	3295^{+934}_{-574}	11^{+50}_{-8}

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 $A_{obs} \gg 1.0$

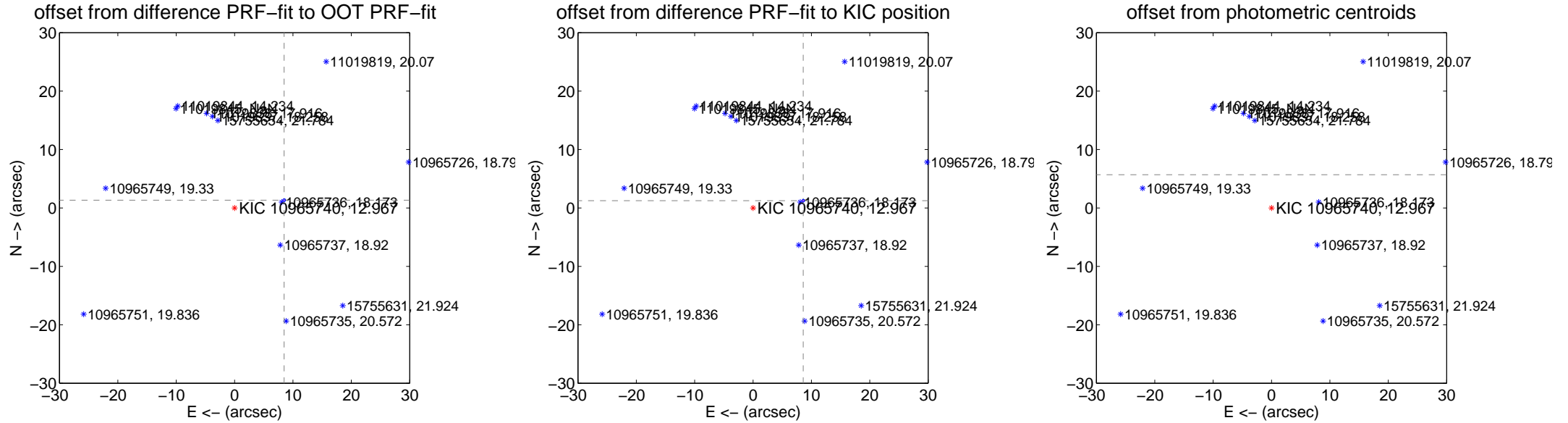
DV Centroid Data

Supplemental centroid analysis for 010965740-02. Kepler magnitude: 12.97. Transit SNR 8.72

There are 13 quarters with good PRF difference image offsets

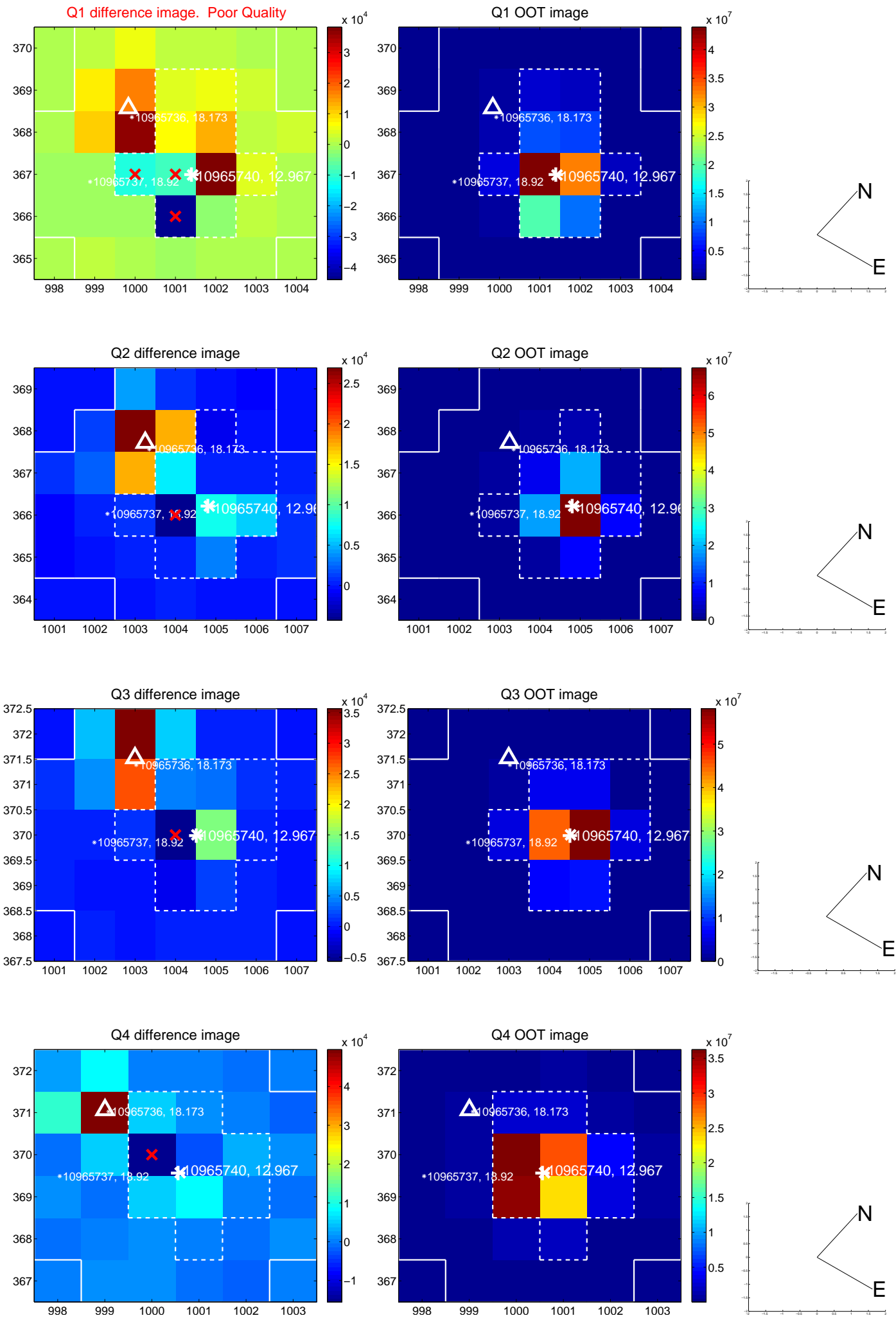
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.591 \pm 0.077	111.75	-8.488 \pm 0.077	1.329 \pm 0.073
PRF-fit source offset from KIC position	8.684 \pm 0.074	116.73	-8.595 \pm 0.074	1.236 \pm 0.074
photometric centroid source offset	48.66 \pm 0.89	54.60	-48.32 \pm 0.89	5.69 \pm 0.93

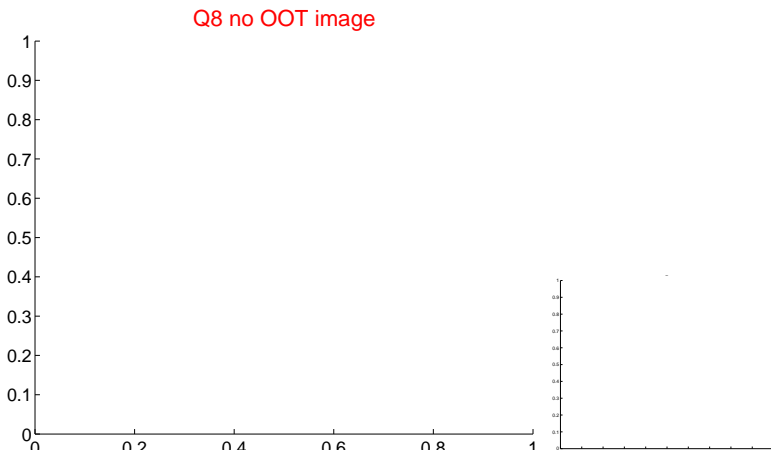
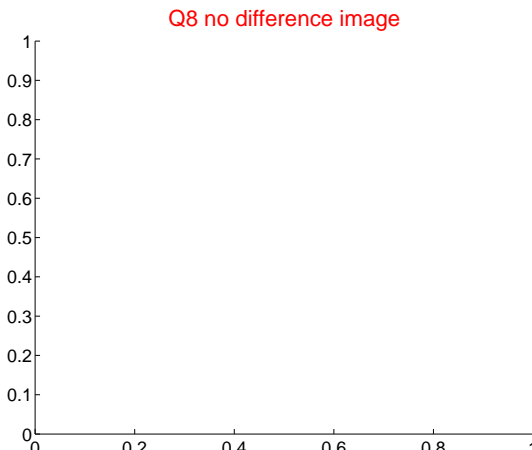
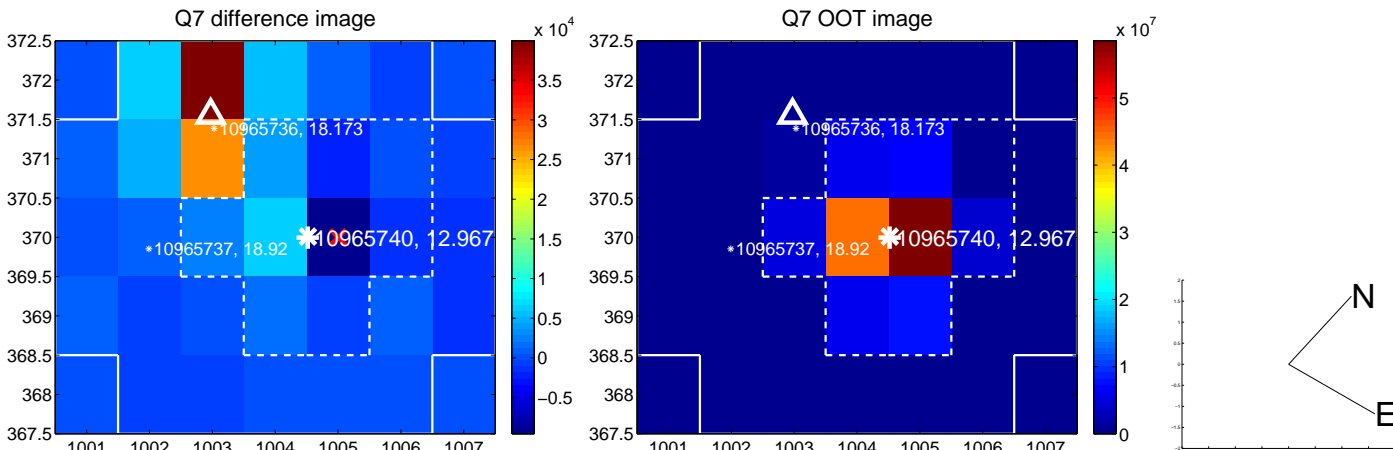
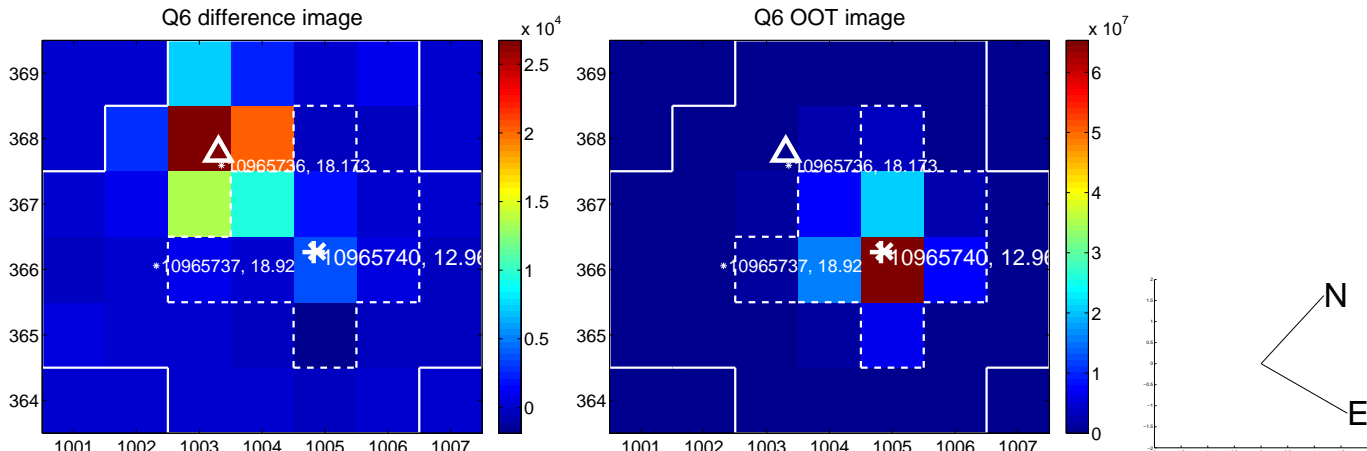
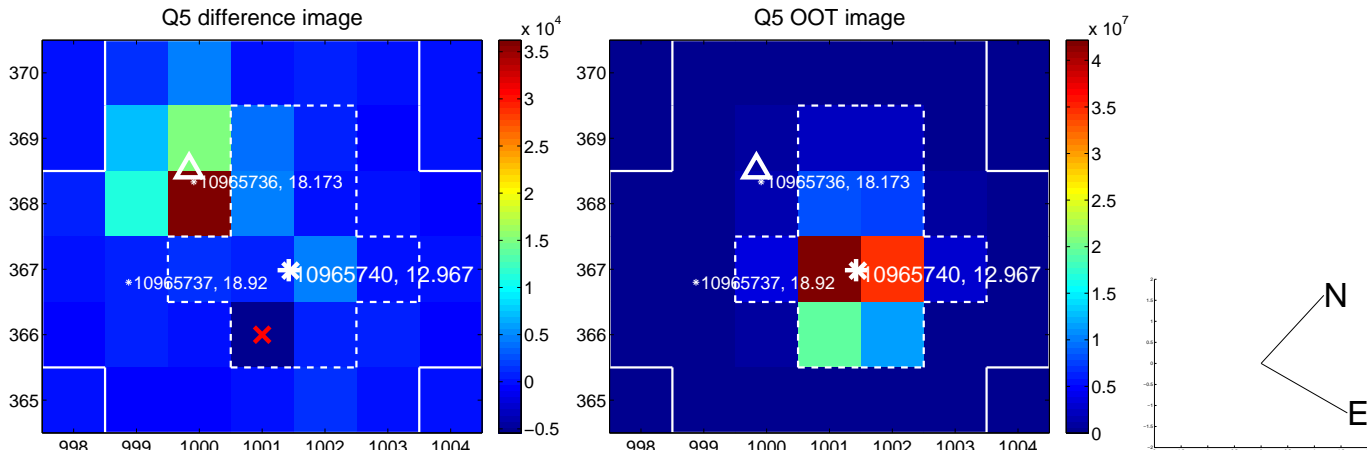


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

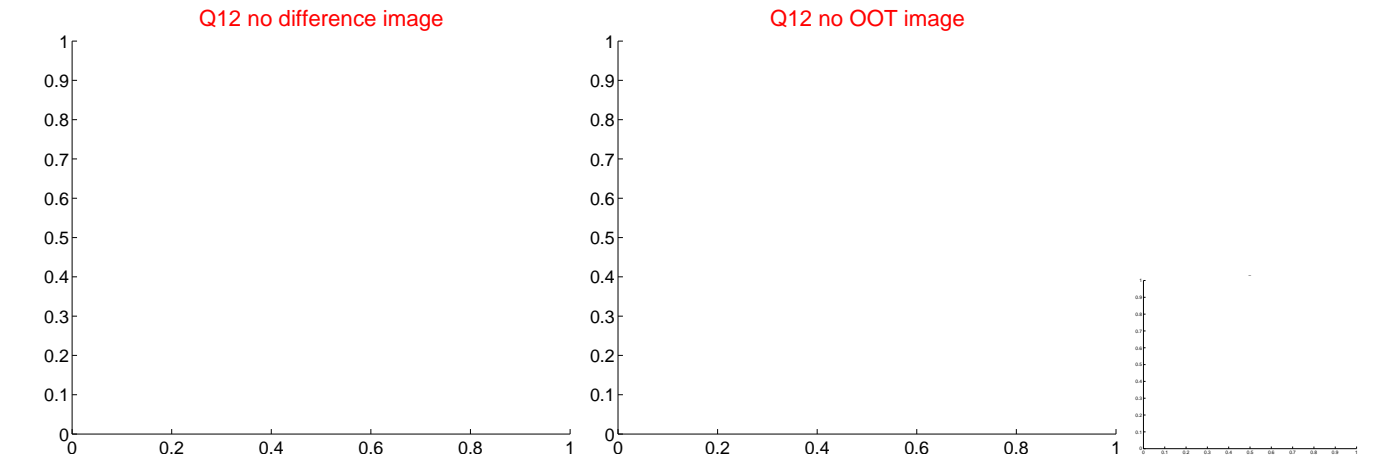
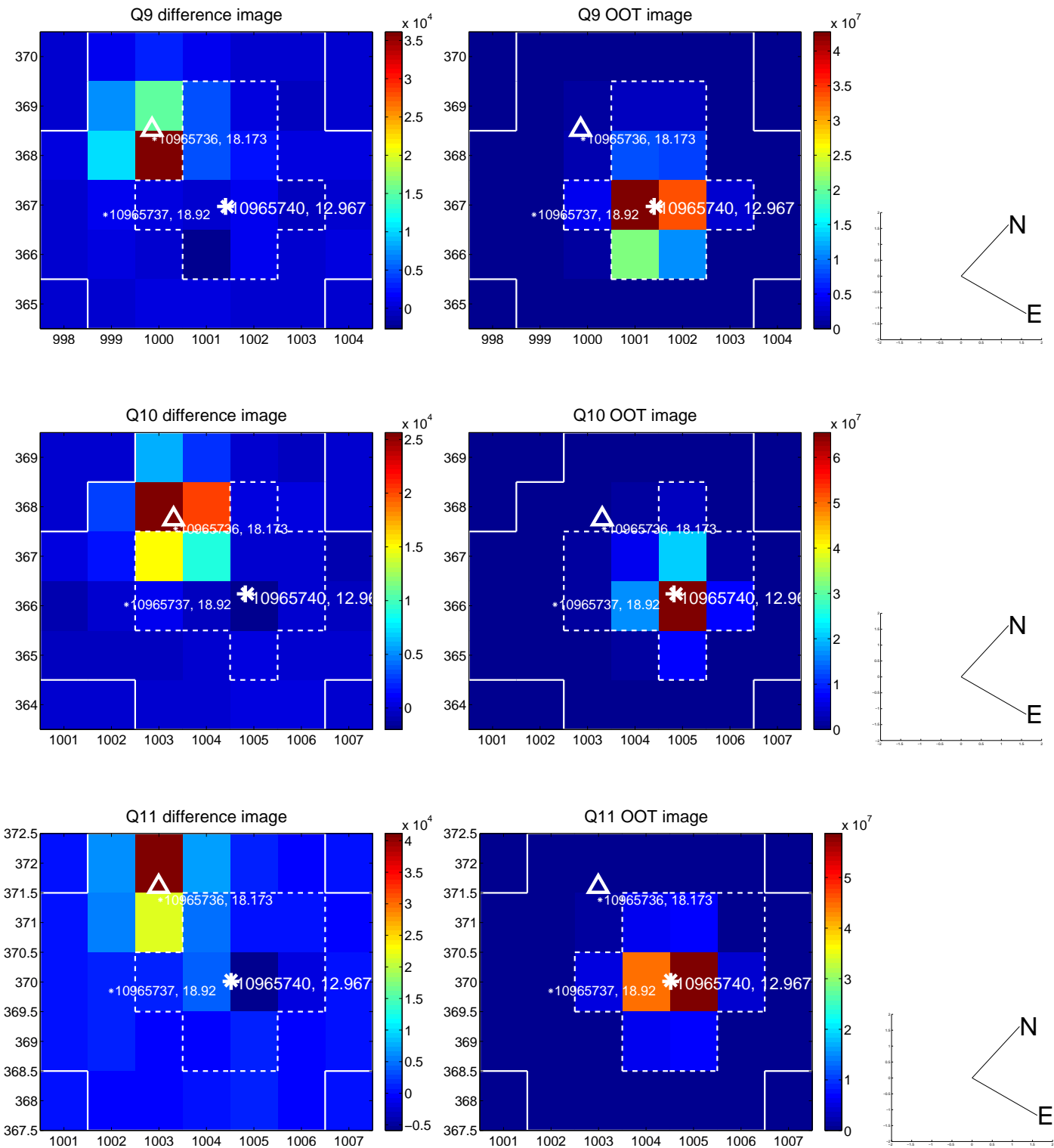
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



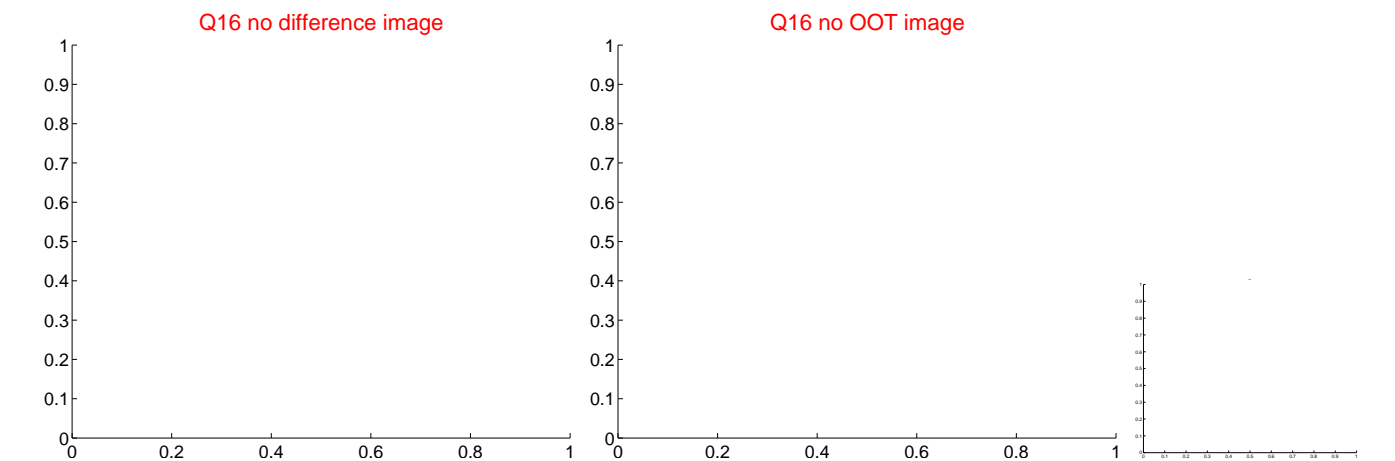
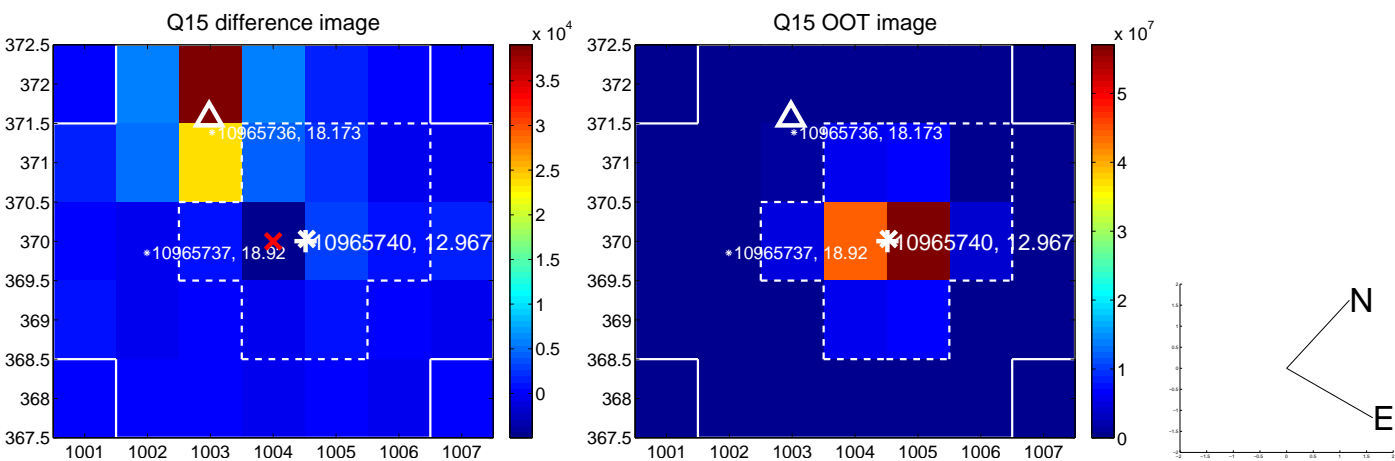
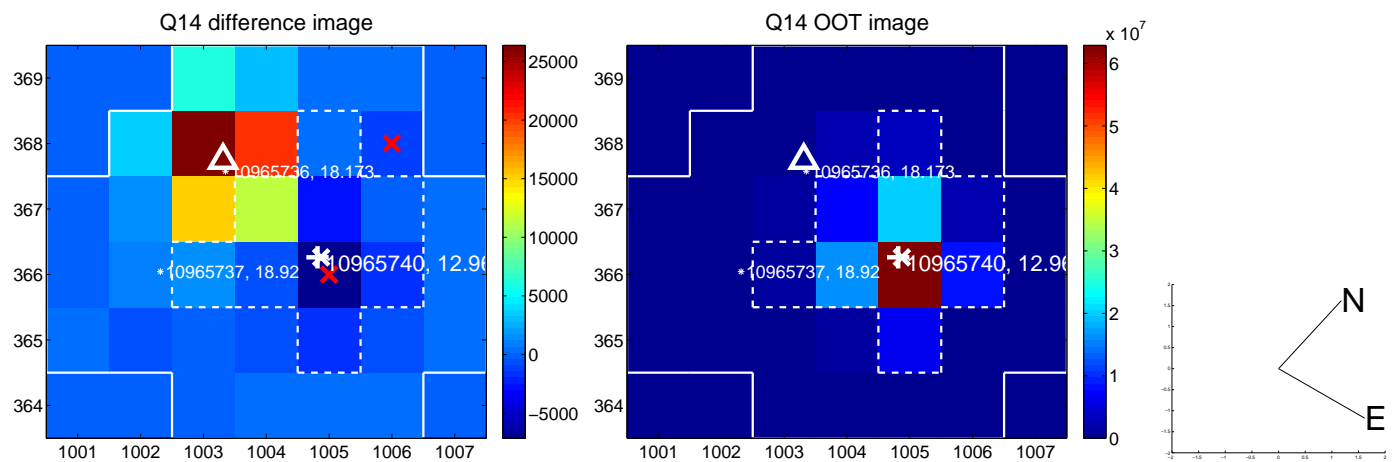
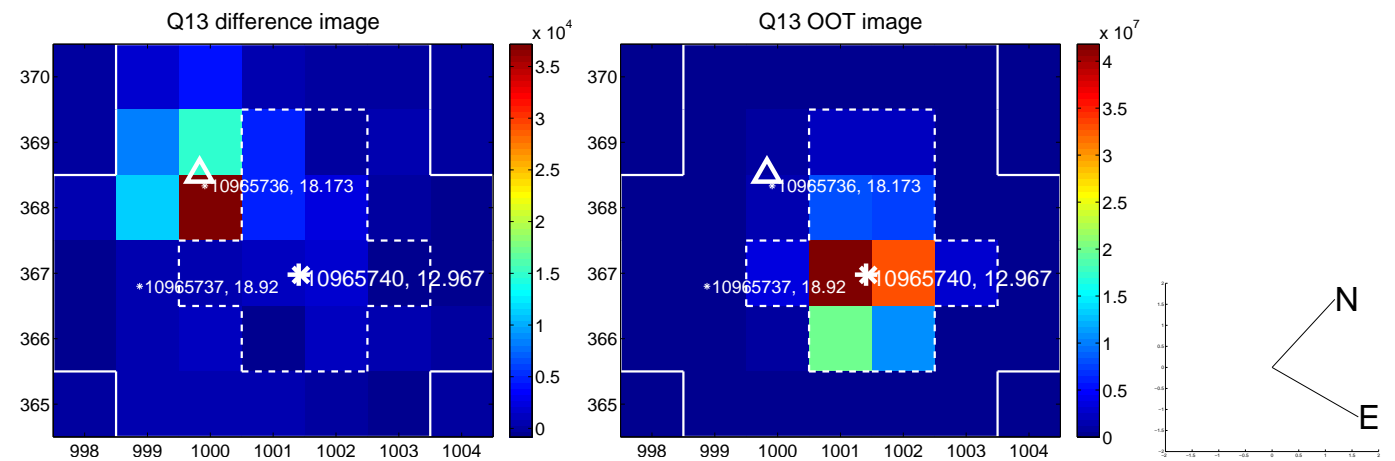
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



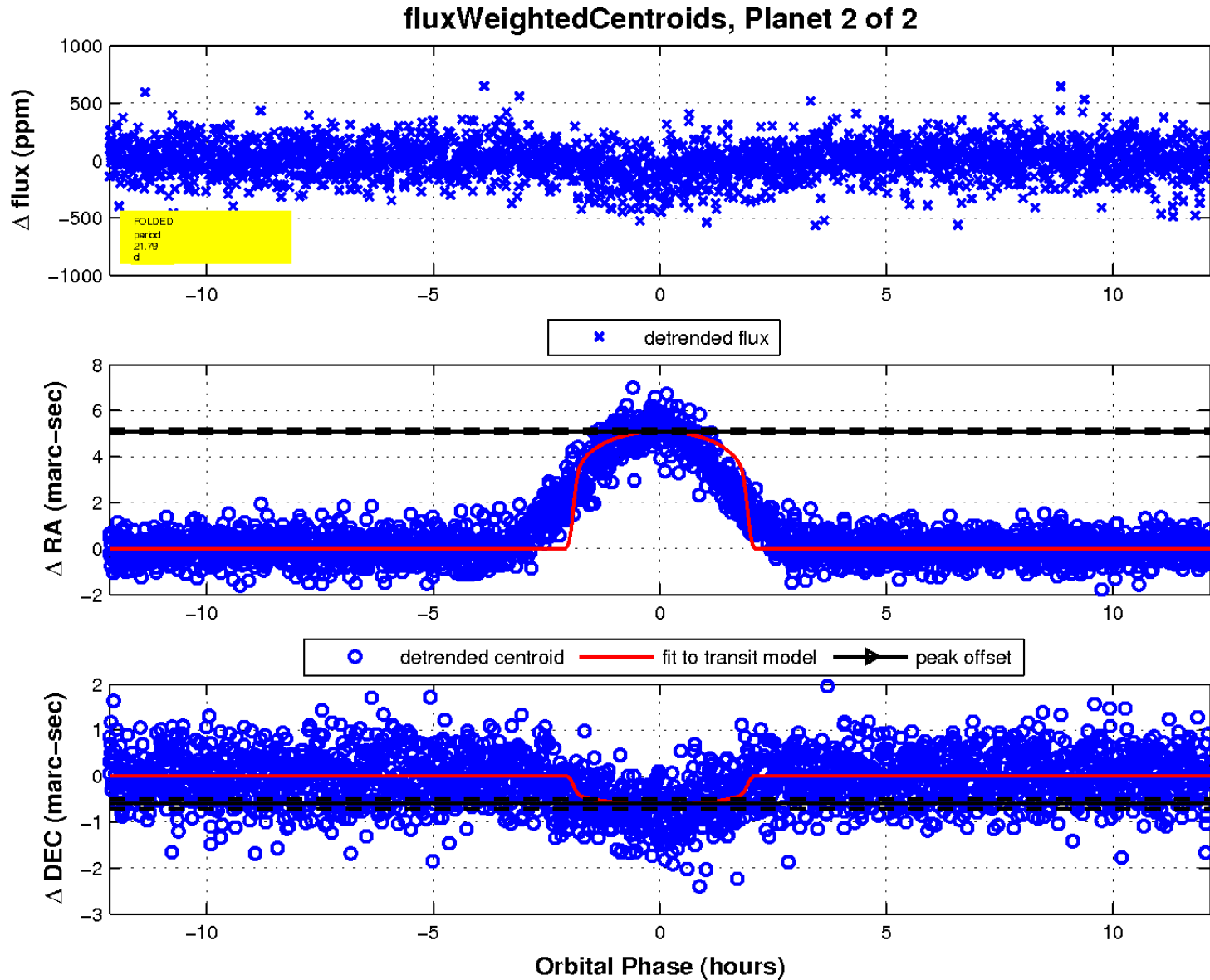
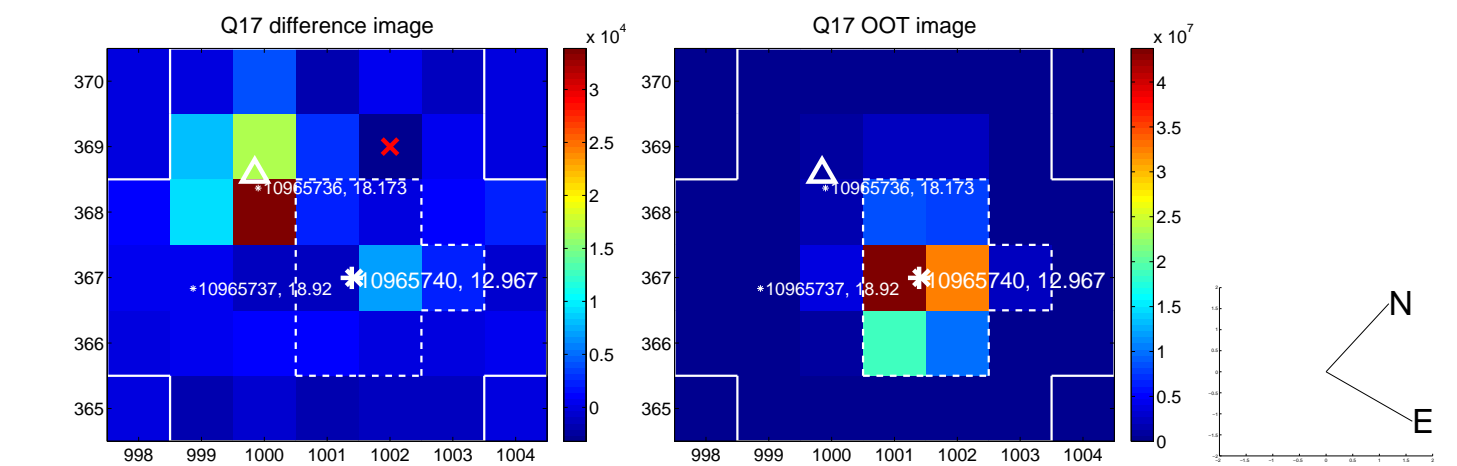
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

