

KIC 008103684

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})
008103684-01	OBS	No	376.848904	375.028035	460.4	23.073	8.6	7.4	1.02	5761	4.33	1.11
008103684-02	OBS	No	366.291716	185.450115	575.3	18.020	8.1	8.5	1.02	5761	2.79	1.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008103684-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008103684-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—CENT_FEW_DIFFS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

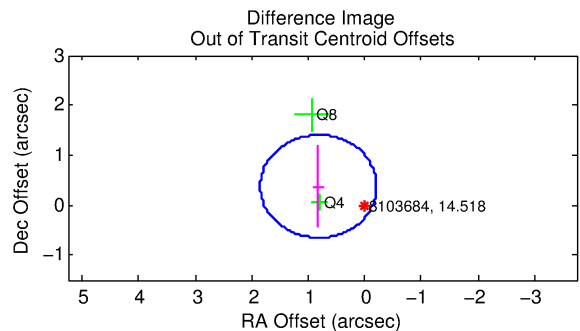
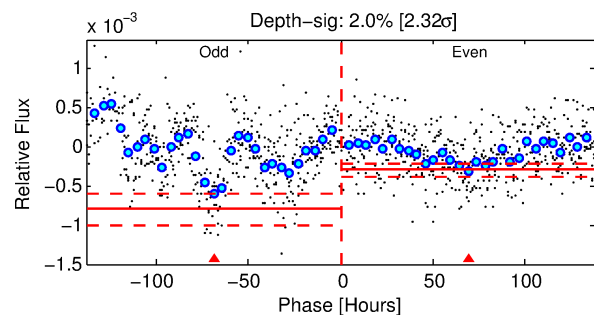
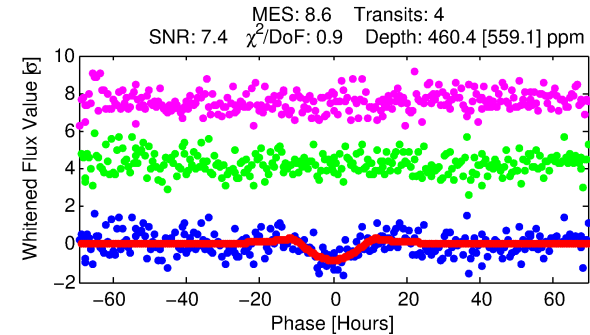
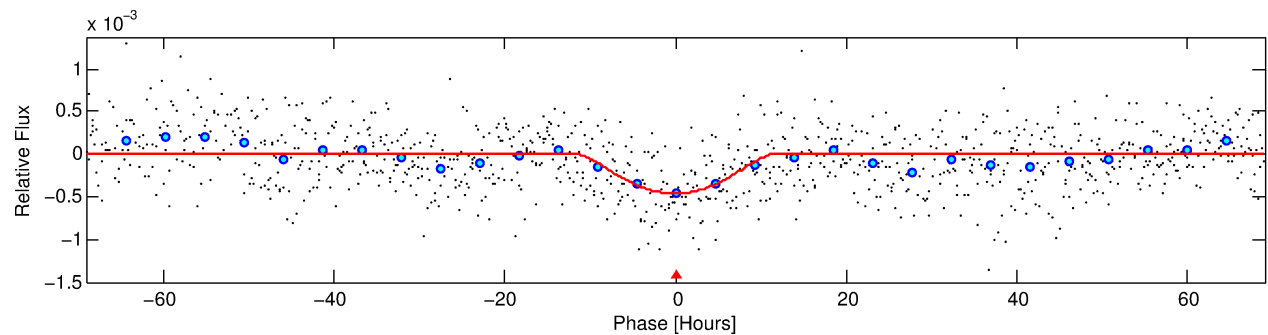
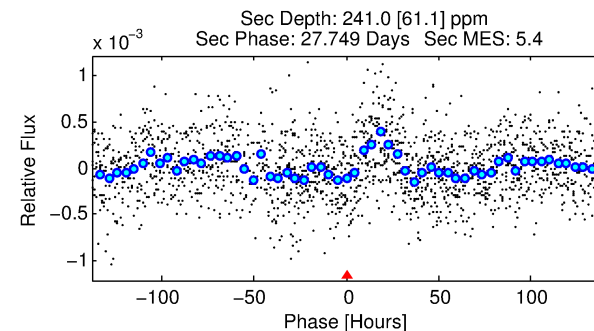
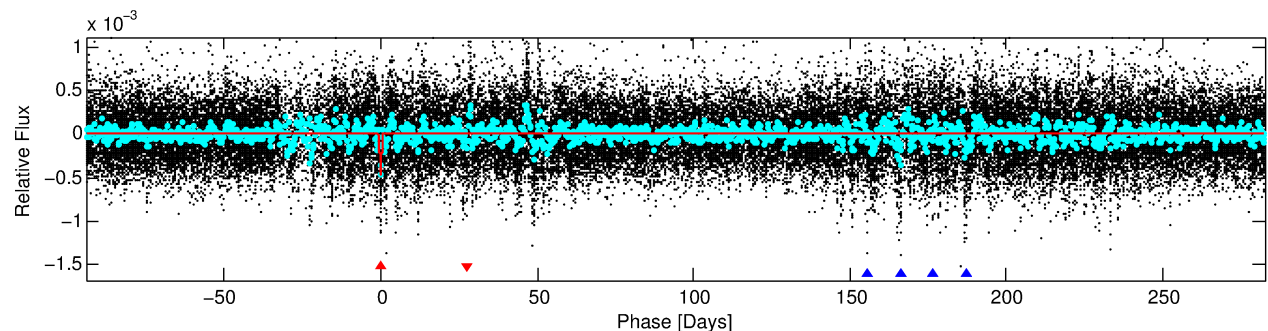
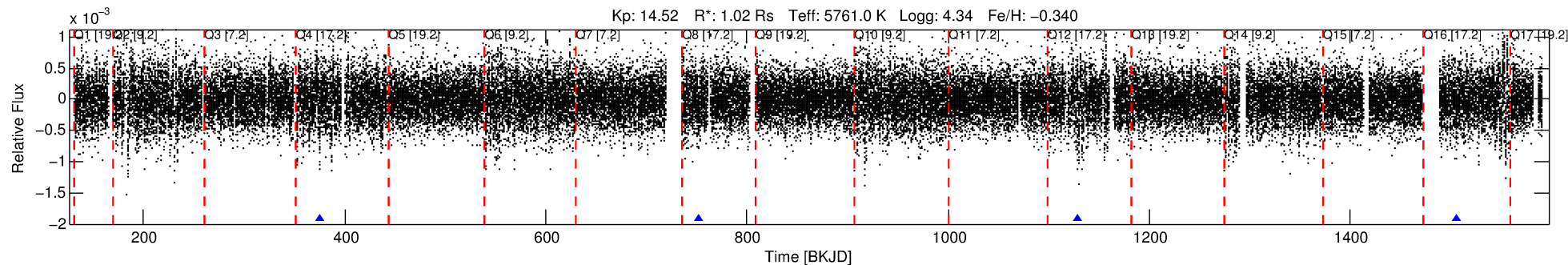
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008103684-01

No Significant Match Found

DV One-Page Summary

KIC: 8103684 Candidate: 1 of 2 Period: 376.849 d



DV Fit Results:

Period = 376.84890 [0.02789] d
Epoch = 375.0280 [0.0521] BKJD
Rp/R* = 0.0390 [0.1315]
a/R* = 35.21 [29.90]
b = 1.00 [0.16]
Seff = 1.11 [0.41]
Teq = 262 [24] K
Rp = 4.33 [14.66] Re
a = 0.9608 [0.2346] AU
Ag = 6519.57 [44042.36] [0.15 σ]
Teffp = 3635 [6131] K [0.55 σ]

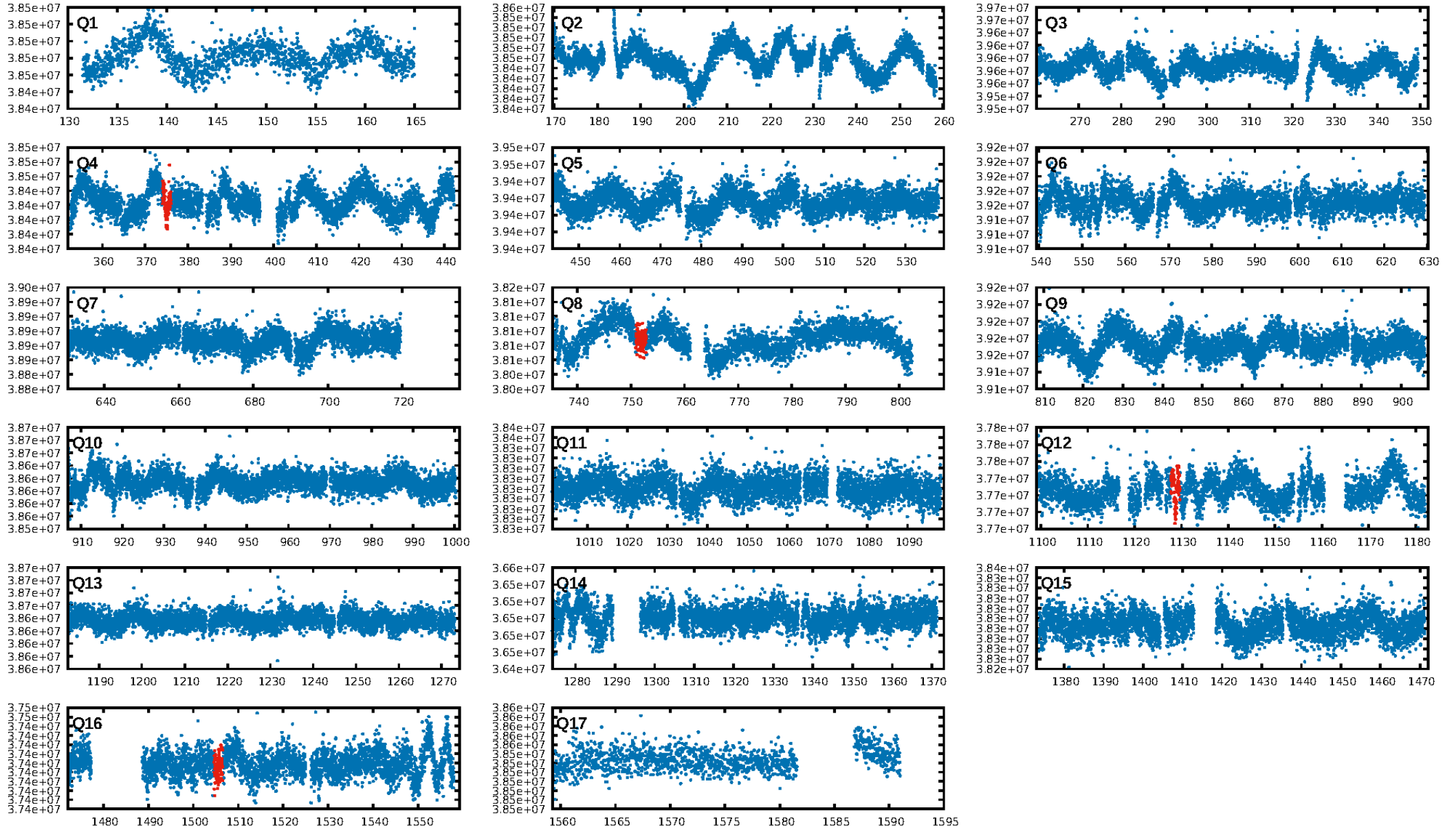
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [8.65 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.22e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.227
Centroid-sig: 43.7%
Centroid-so: 1.583 arcsec [0.82 σ]
OotOffset-rm: 0.902 arcsec [2.63 σ]
KicOffset-rm: 1.063 arcsec [2.44 σ]
OotOffset-st: 0/0/2/0 [2]
KicOffset-st: 0/0/2/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

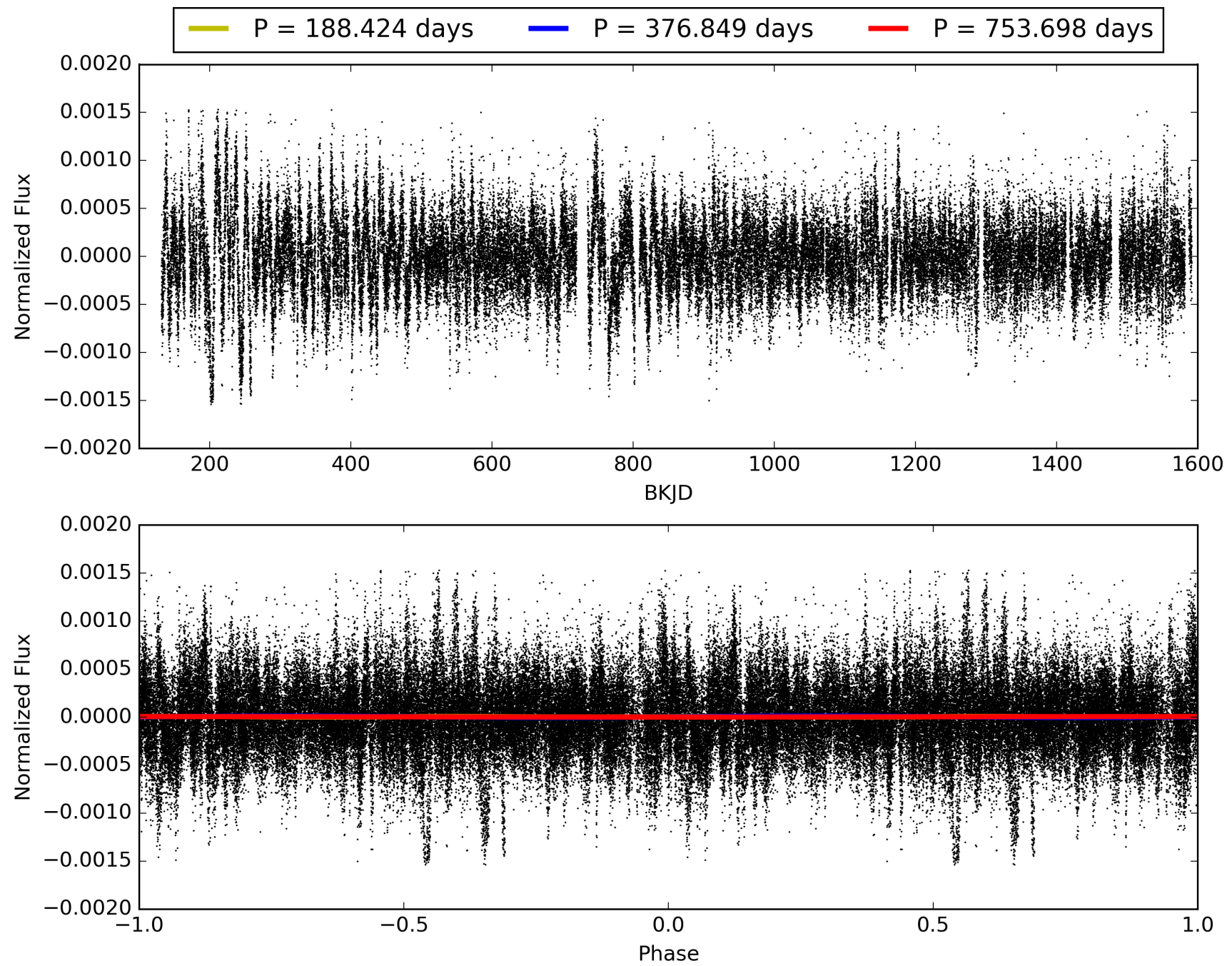
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:45:50 Z

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

TCE 008103684-01, PDC Light Curves

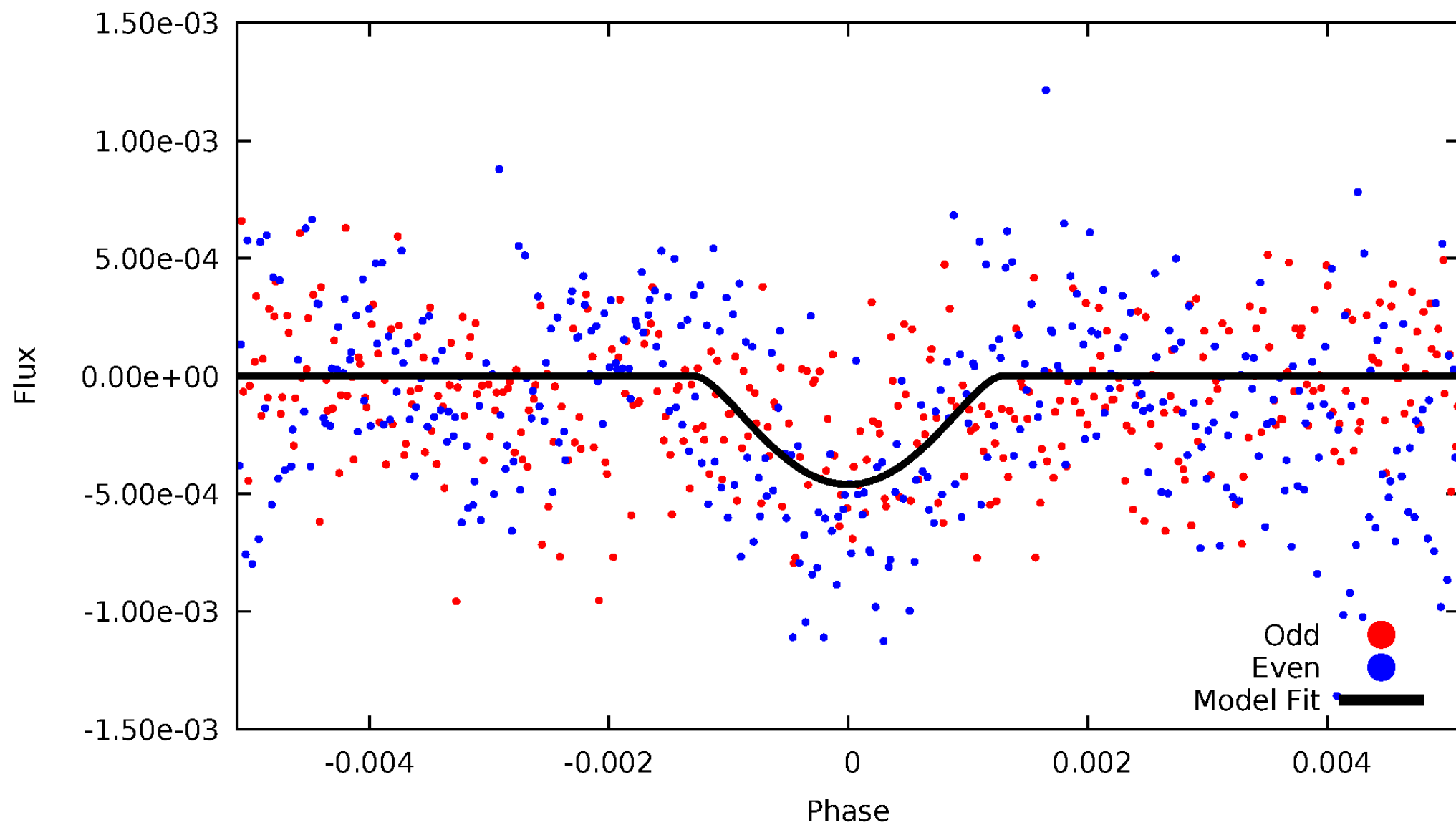


TCE 008103684-01



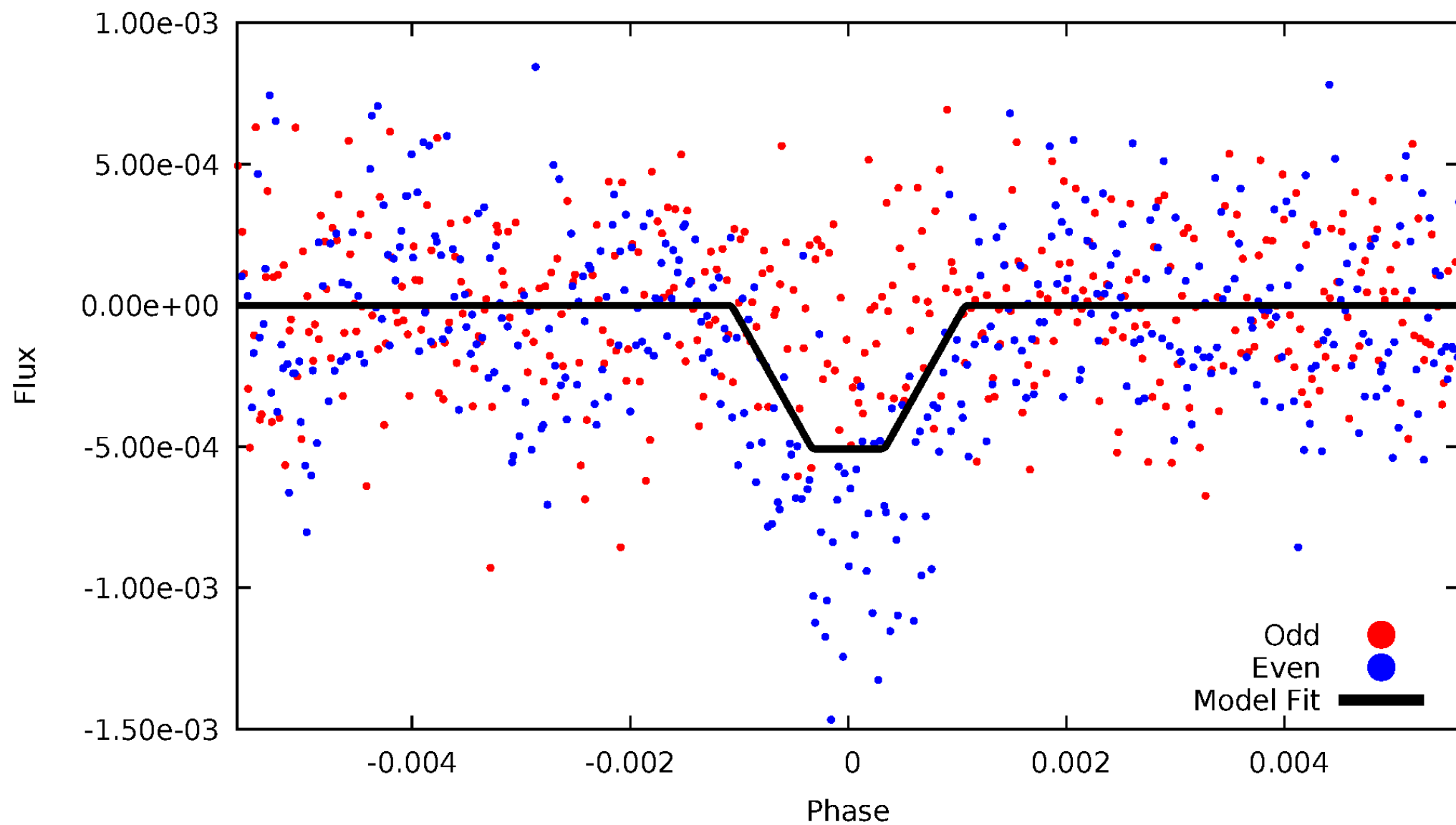
DV Odd/Even

TCE 008103684-01



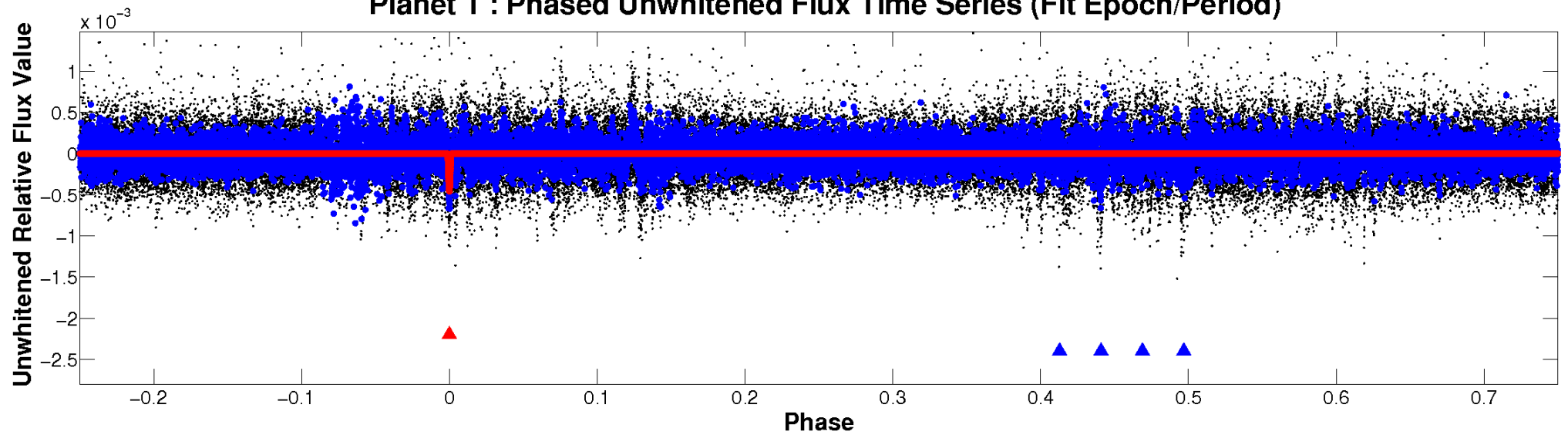
ALT Odd/Even

TCE 008103684-01

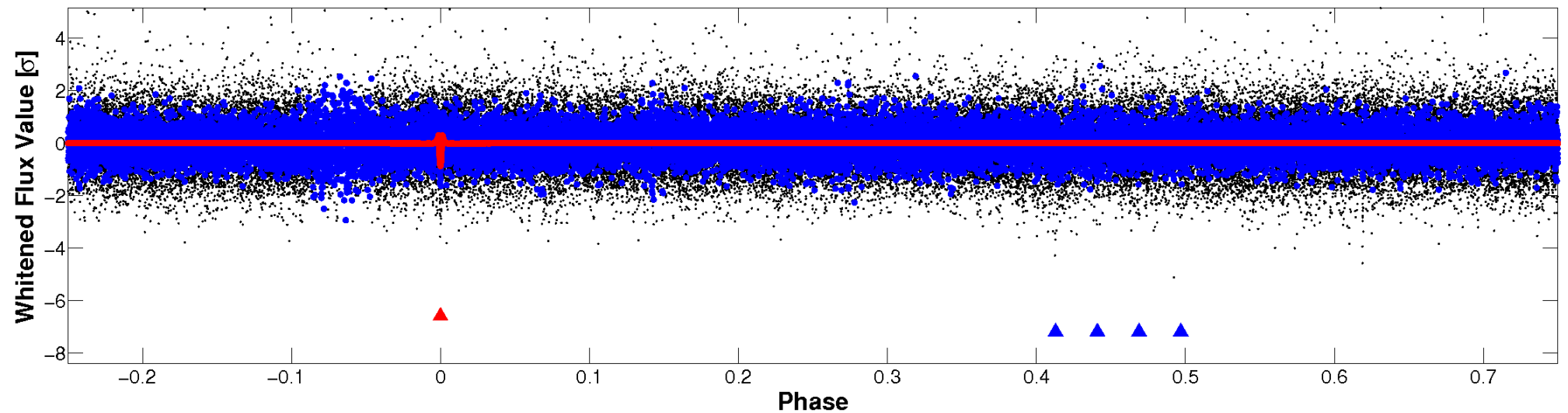


Non-Whitened Vs. Whitened Light Curve

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 008103684-01 P=376.848904 Days $T_0=375.028035$ (BKJD)



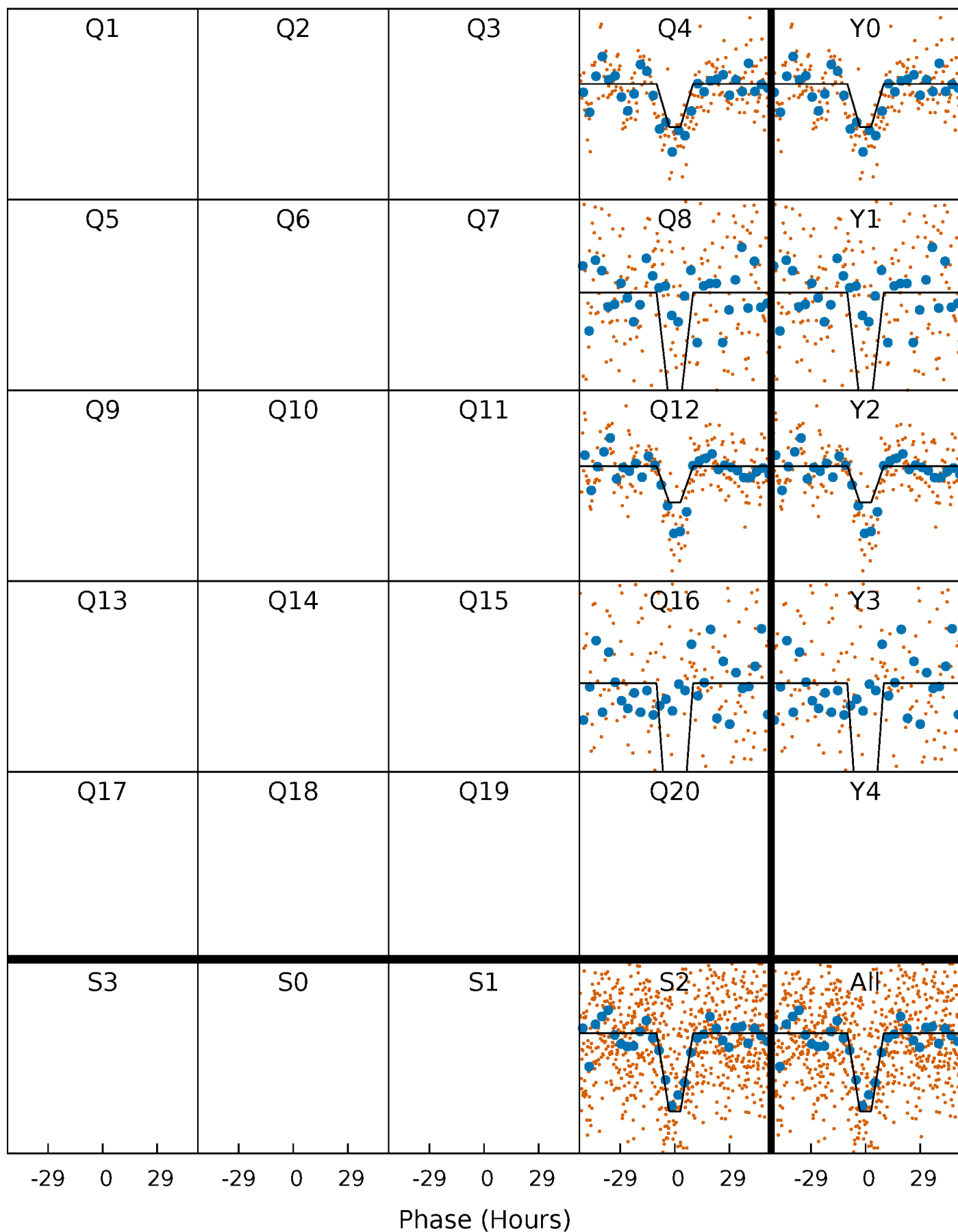
DV Quarter-Phased Transit Curves

TCE 008103684-01 P=376.848904 Days $T_0=375.028035$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

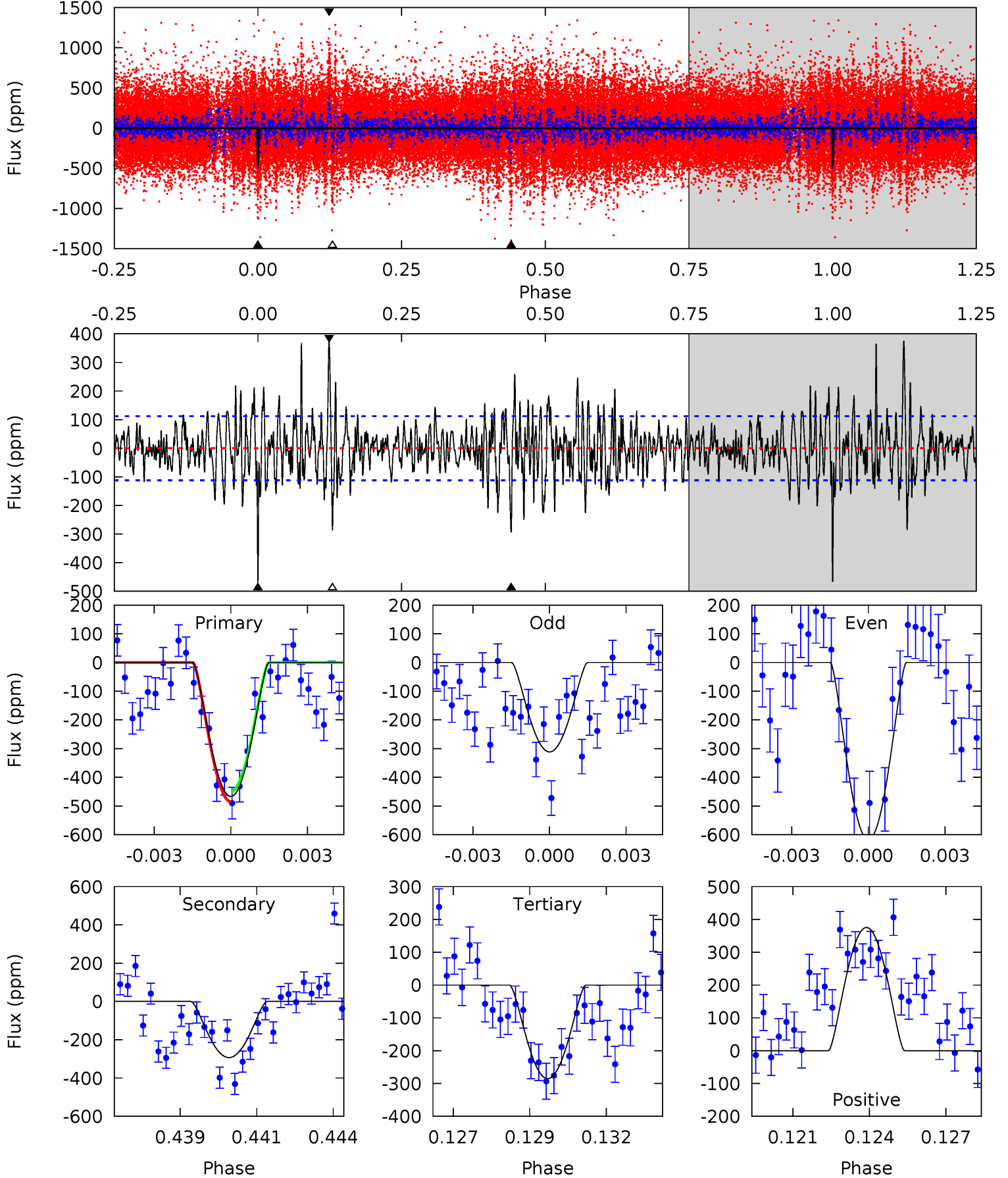
TCE 008103684-01 P=376.869769 Days $T_0=374.968242$ (BKJD)



DV Model-Shift Uniqueness Test

008103684-01, P = 376.848904 Days, E = 375.028035 Days

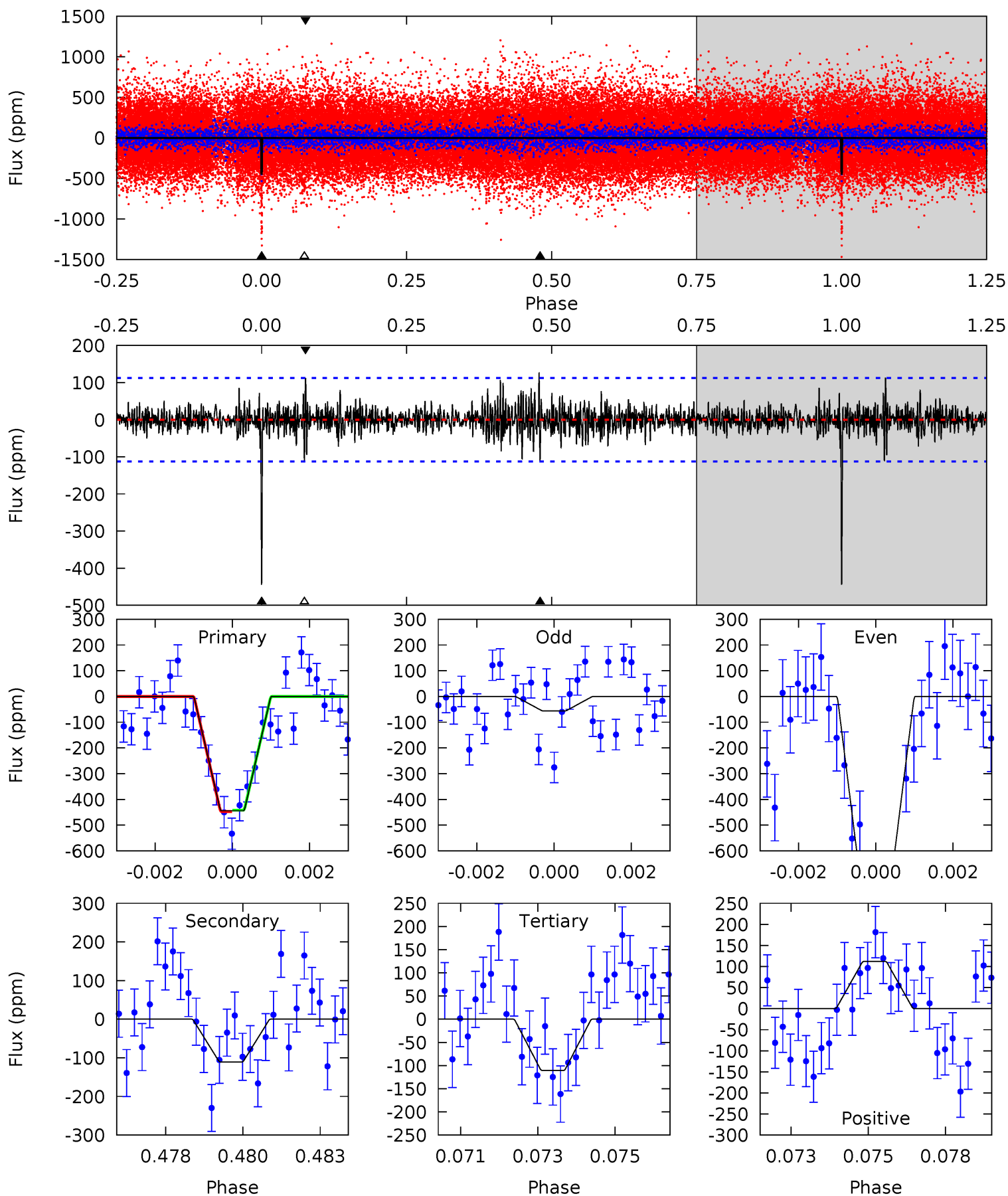
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	13.8	13.4	17.7	5.28	3.01	3.79	8.56	4.30	0.38	-3.88	7.22	1.16	0.45	0.85



Alt Model-Shift Uniqueness Test

008103684-01, P = 376.869769 Days, E = 374.968242 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.0	5.23	5.22	5.29	5.31	3.07	1.17	15.8	15.7	0.01	-0.06	18.2	1.08	0.22	0.13



Stellar Parameters For KIC 008103684

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5761^{+172}_{-155}	$4.343^{+0.190}_{-0.190}$	$-0.340^{+0.300}_{-0.250}$	$1.018^{+0.299}_{-0.224}$	$0.833^{+0.127}_{-0.063}$	$1.112^{+1.026}_{-0.526}$
	+3%/-3%	+4%/-4%	+88%/-74%	+29%/-22%	+15%/-8%	+92%/-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 008103684-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-293 ± 21	$11.72^{+11.91}_{-8.54}$	366^{+26}_{-25}	2994^{+1578}_{-490}	1101^{+13108}_{-828}
Alt.	-111 ± 21	$10.50^{+12.22}_{-7.36}$	367^{+29}_{-27}	2710^{+1186}_{-466}	520^{+5403}_{-410}

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

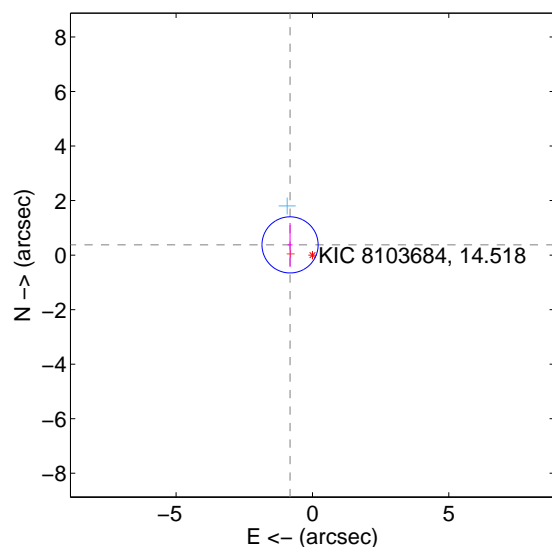
Supplemental centroid analysis for 008103684-01. Kepler magnitude: 14.52. Transit SNR 7.41

There are 1 quarters with good PRF difference image offsets

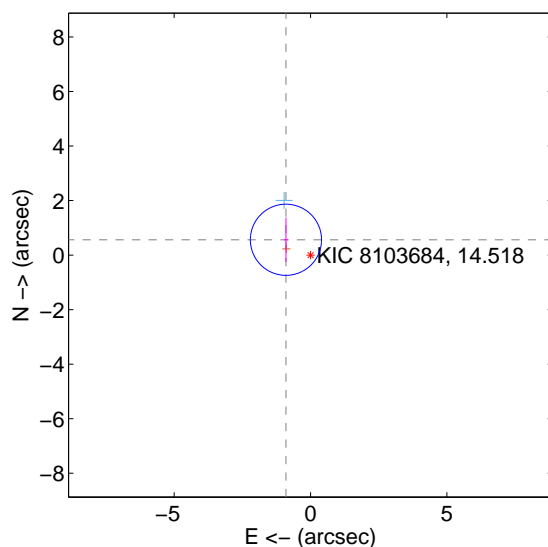
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.902 ± 0.343	2.63	0.821 ± 0.087	0.374 ± 0.804
PRF-fit source offset from KIC position	1.063 ± 0.435	2.44	0.902 ± 0.076	0.562 ± 0.813
photometric centroid source offset	1.58 ± 1.94	0.82	-1.06 ± 1.81	1.18 ± 2.03

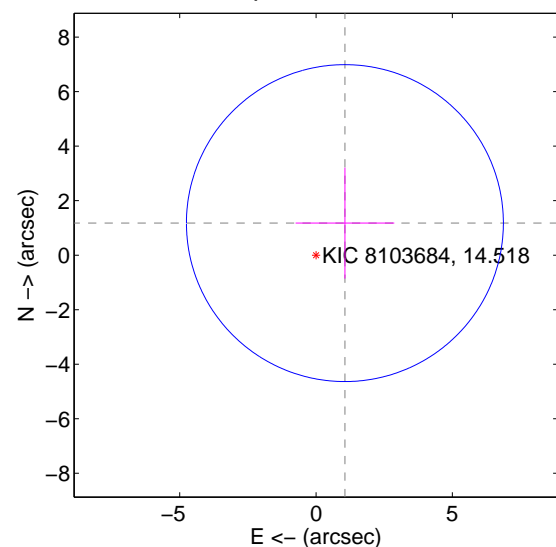
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

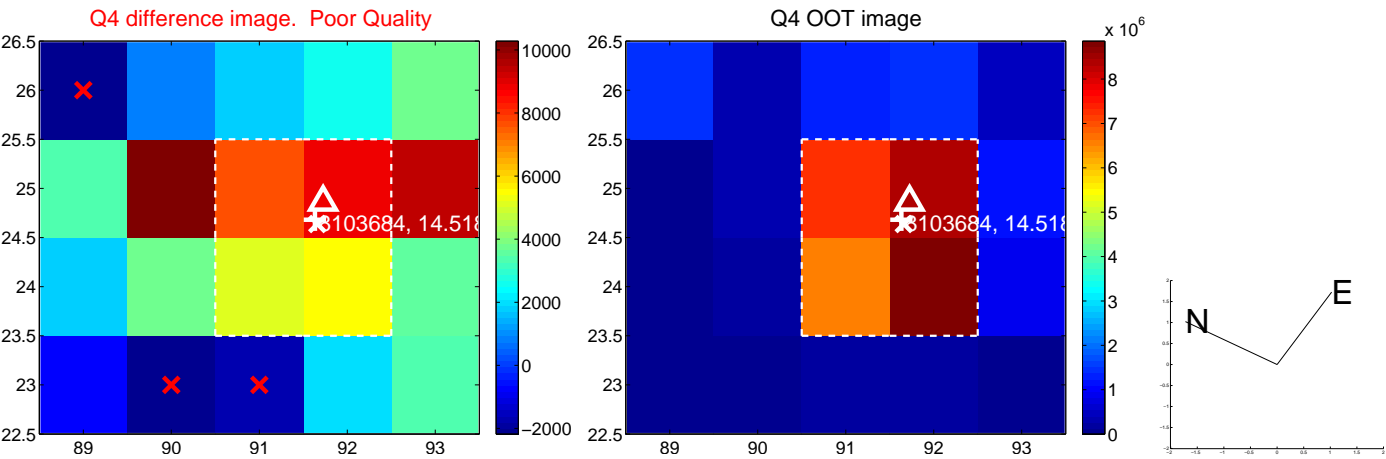


offset from photometric centroids

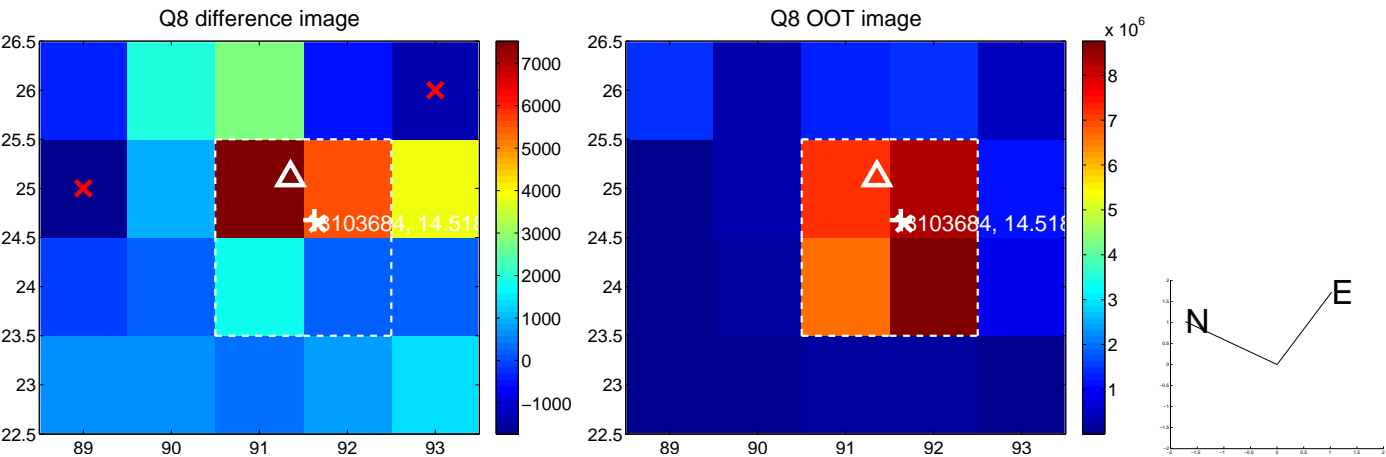


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



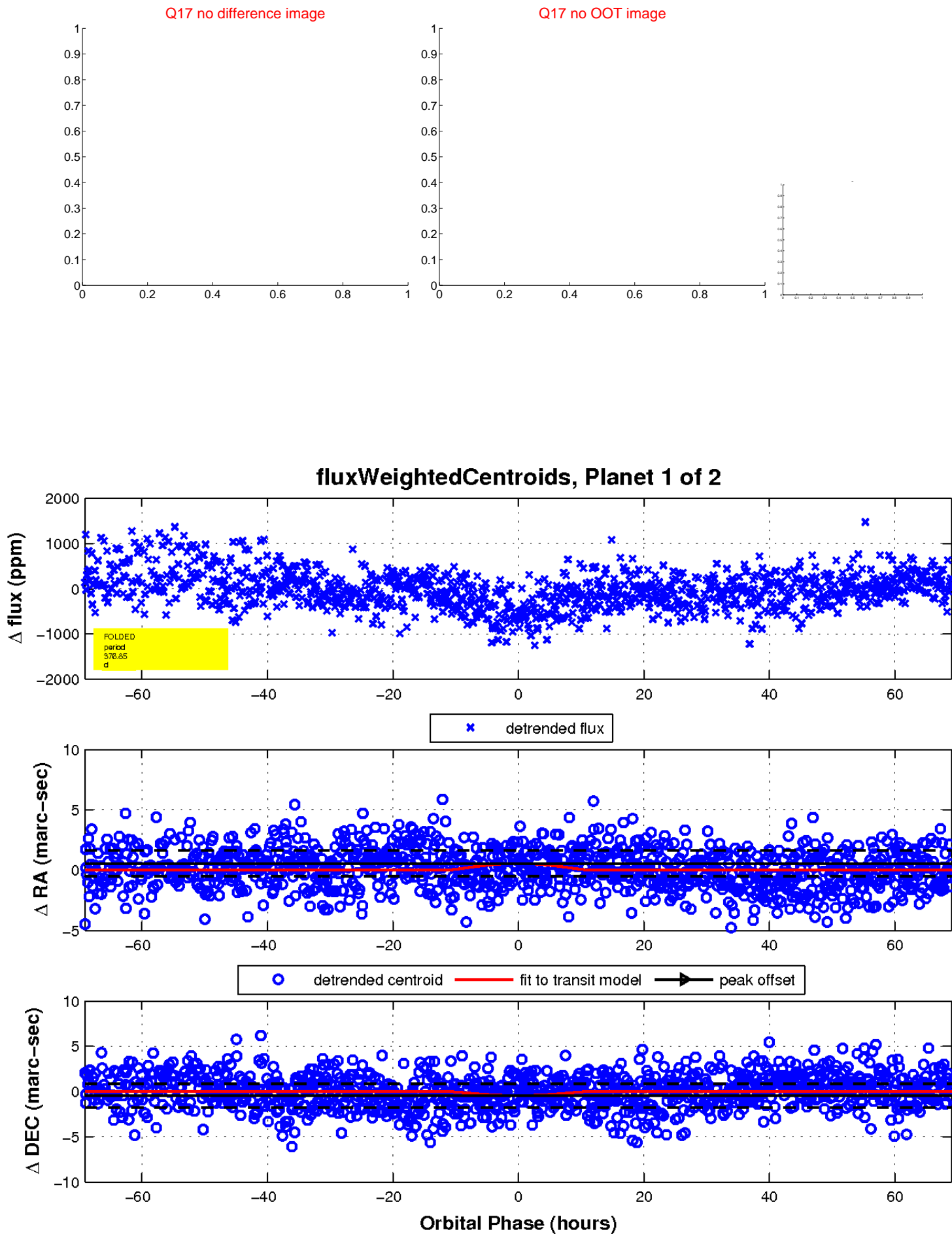
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



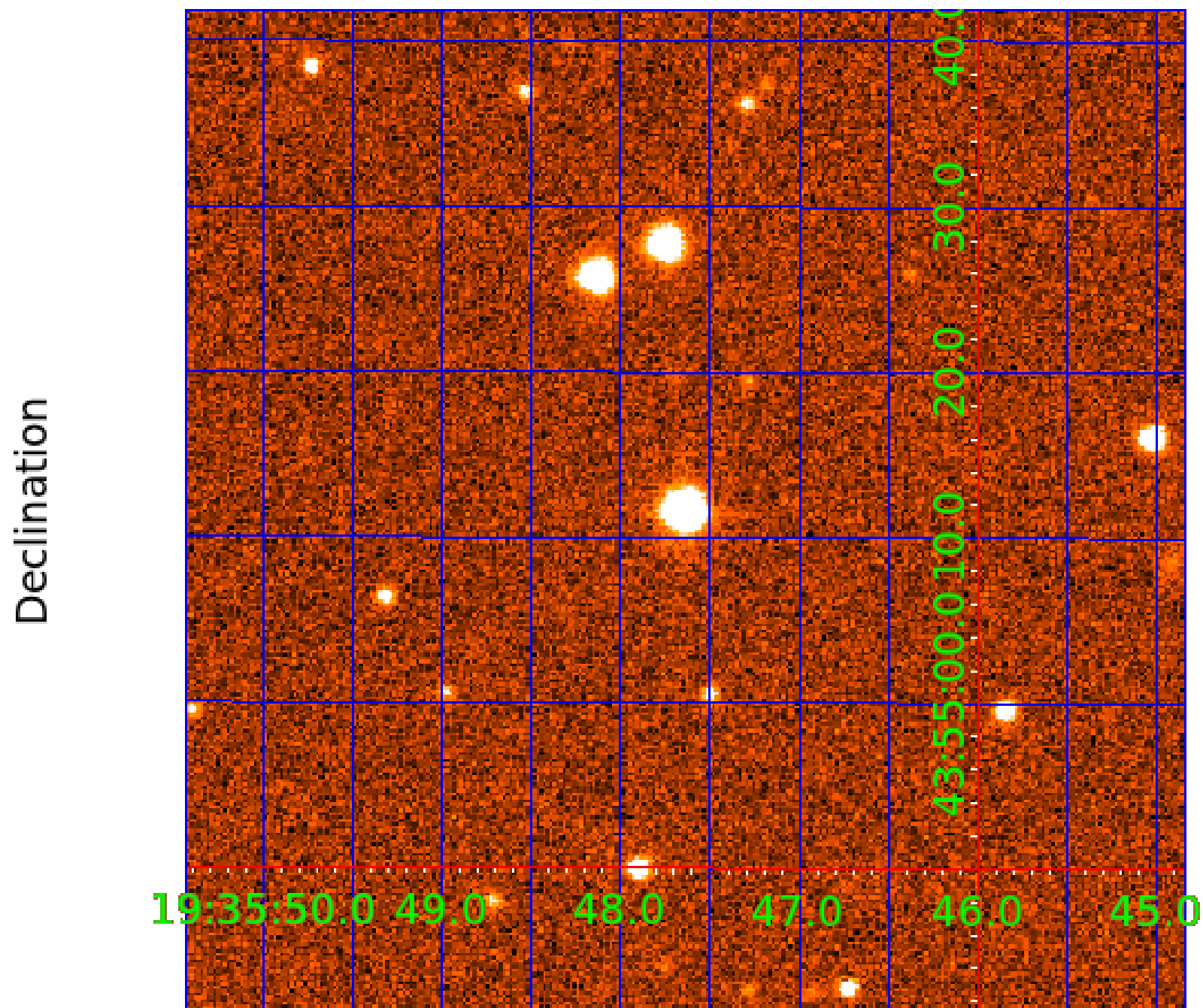
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008103684

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})
008103684-01	OBS	No	376.848904	375.028035	460.4	23.073	8.6	7.4	1.02	5761	4.33	1.11
008103684-02	OBS	No	366.291716	185.450115	575.3	18.020	8.1	8.5	1.02	5761	2.79	1.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008103684-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008103684-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—CENT_FEW_DIFFS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

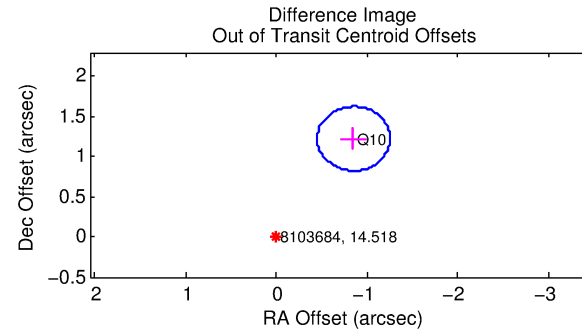
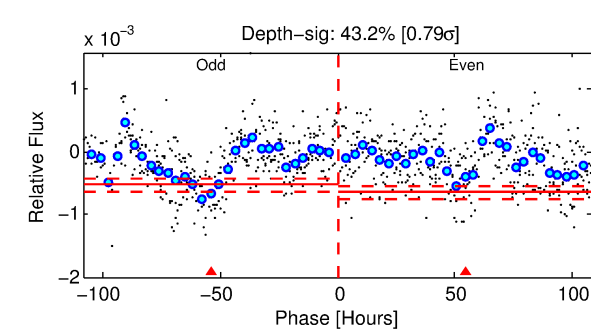
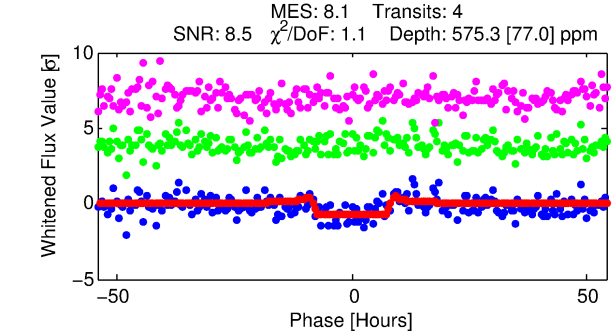
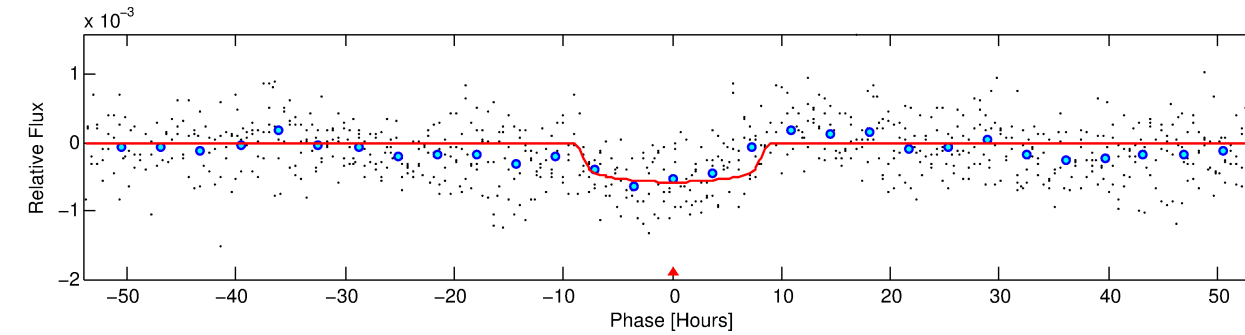
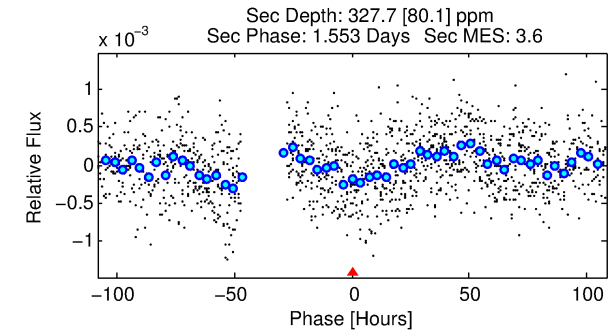
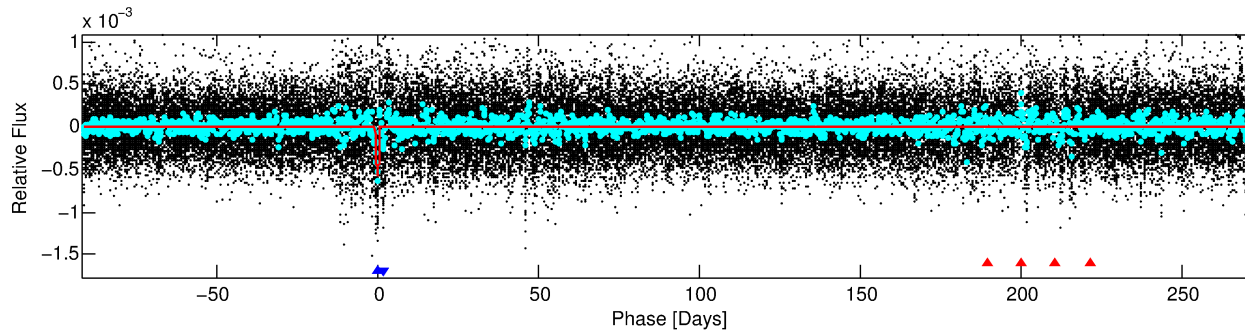
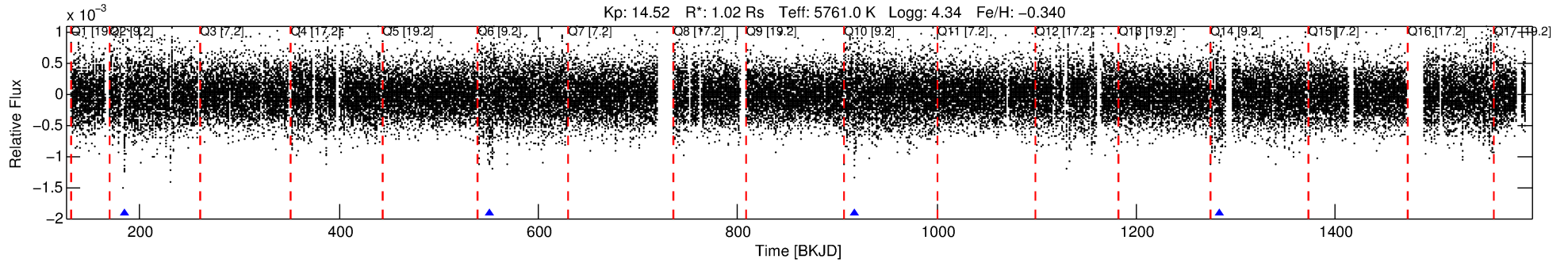
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008103684-02

No Significant Match Found

DV One-Page Summary

KIC: 8103684 Candidate: 2 of 2 Period: 366.292 d



DV Fit Results:

Period = 366.29172 [0.01087] d
Epoch = 185.4501 [0.0203] BKJD
Rp/R* = 0.0252 [0.0027]
a/R* = 87.17 [33.12]
b = 0.86 [0.12]
Seff = 1.15 [0.43]
Teq = 264 [24] K
Rp = 2.79 [0.88] Re
a = 0.9428 [0.2302] AU
Ag = 20523.22 [9853.31] [2.08σ]
Teffp = 4887 [426] K [10.84σ]

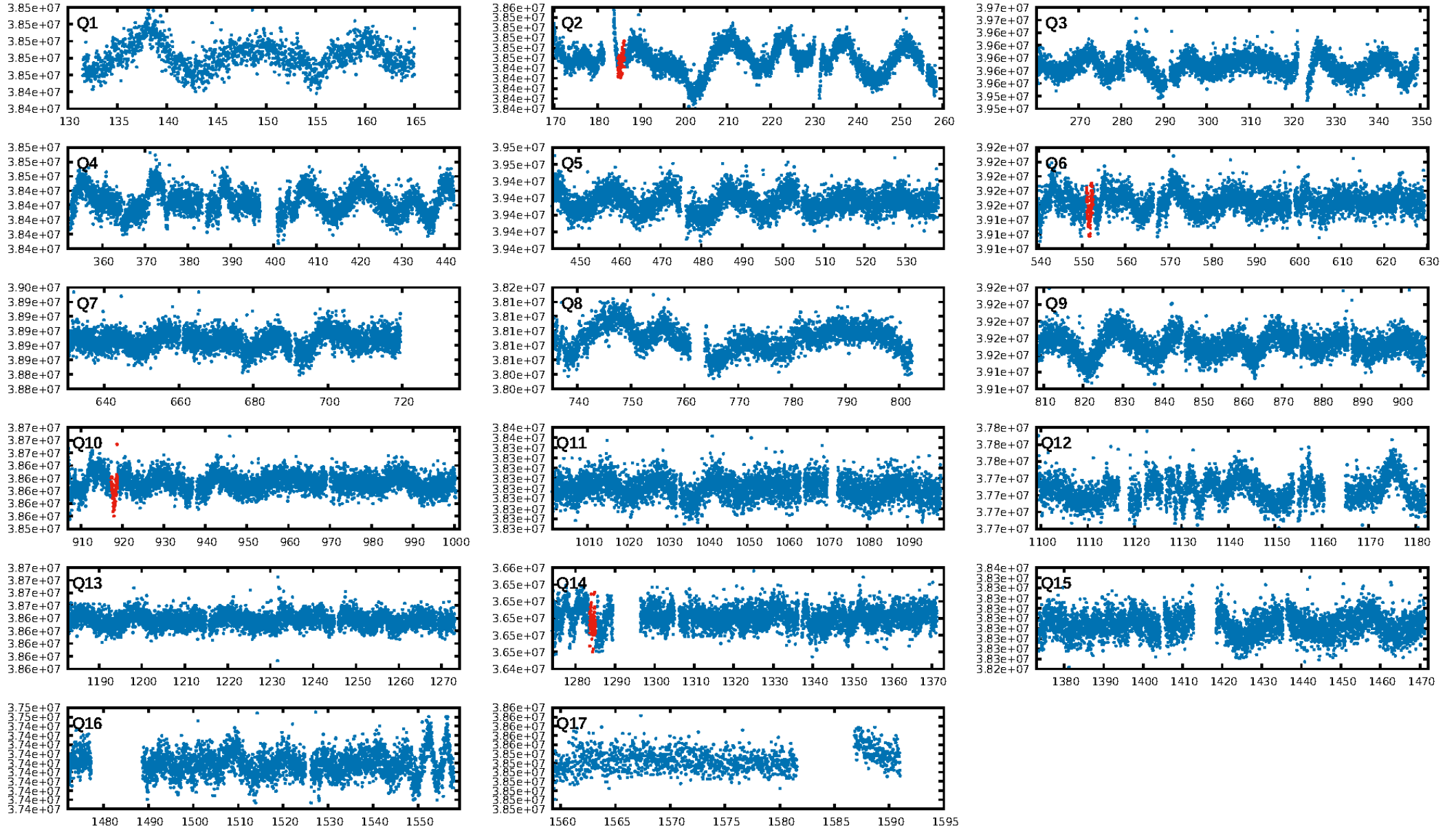
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [8.65σ]
ModelChiSquare2-sig: 26.7%
ModelChiSquareGof-sig: 99.1%
Bootstrap-pfa: 2.21e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.8388
Centroid-sig: 0.0%
Centroid-so: 5.614 arcsec [3.02σ]
OotOffset-rm: 1.491 arcsec [11.19σ]
KicOffset-rm: 1.328 arcsec [9.92σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

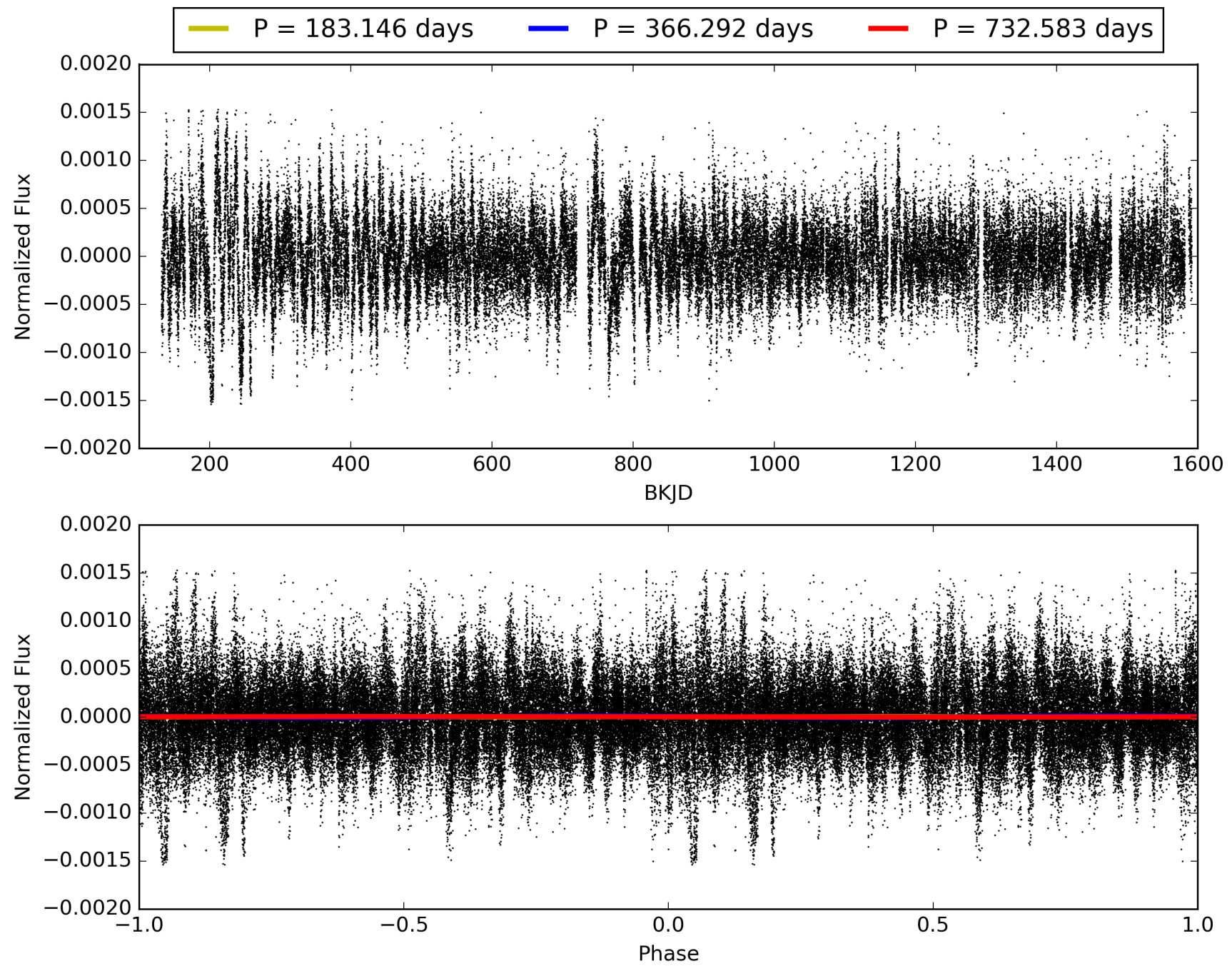
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:45:58 Z

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

TCE 008103684-02, PDC Light Curves

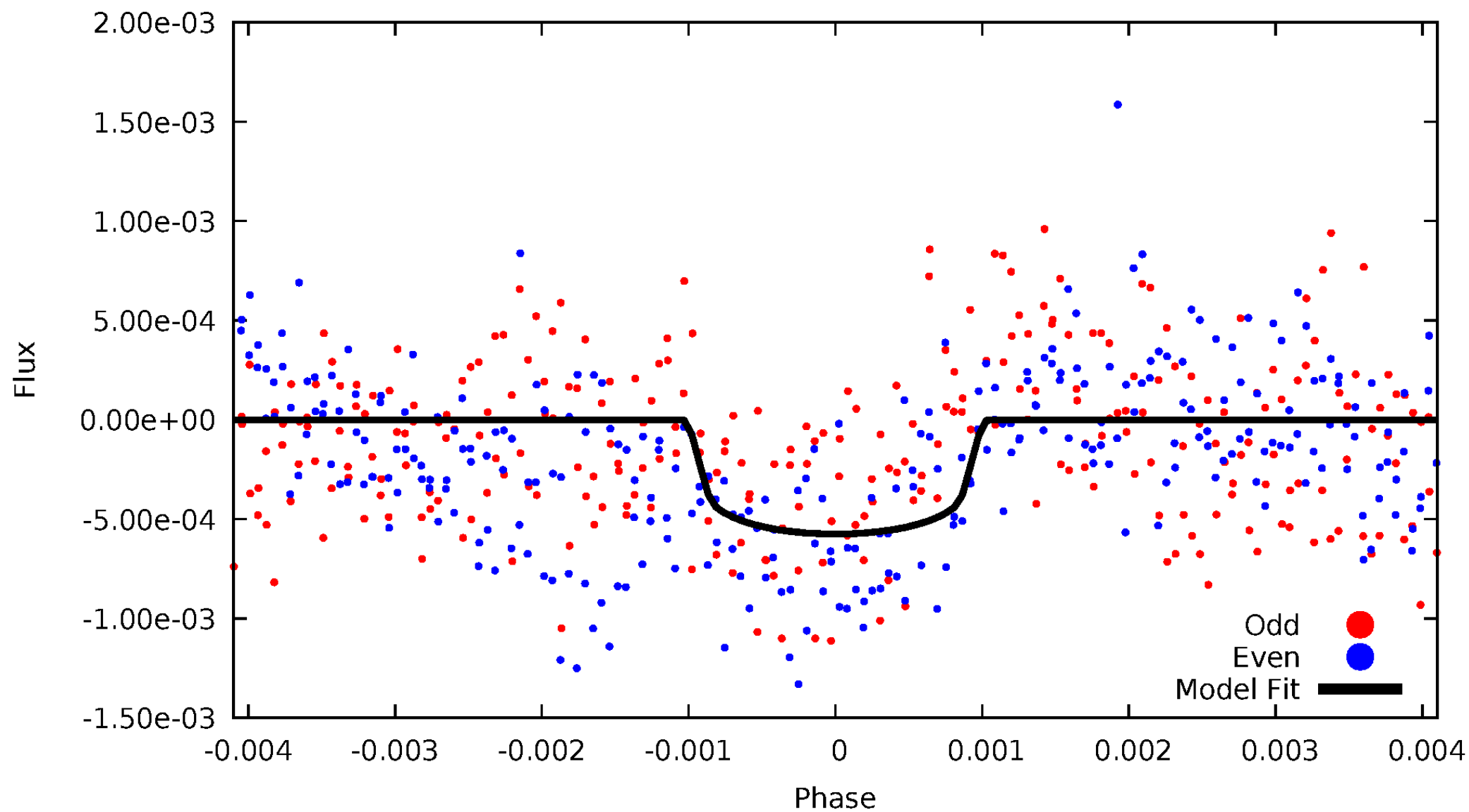


TCE 008103684-02



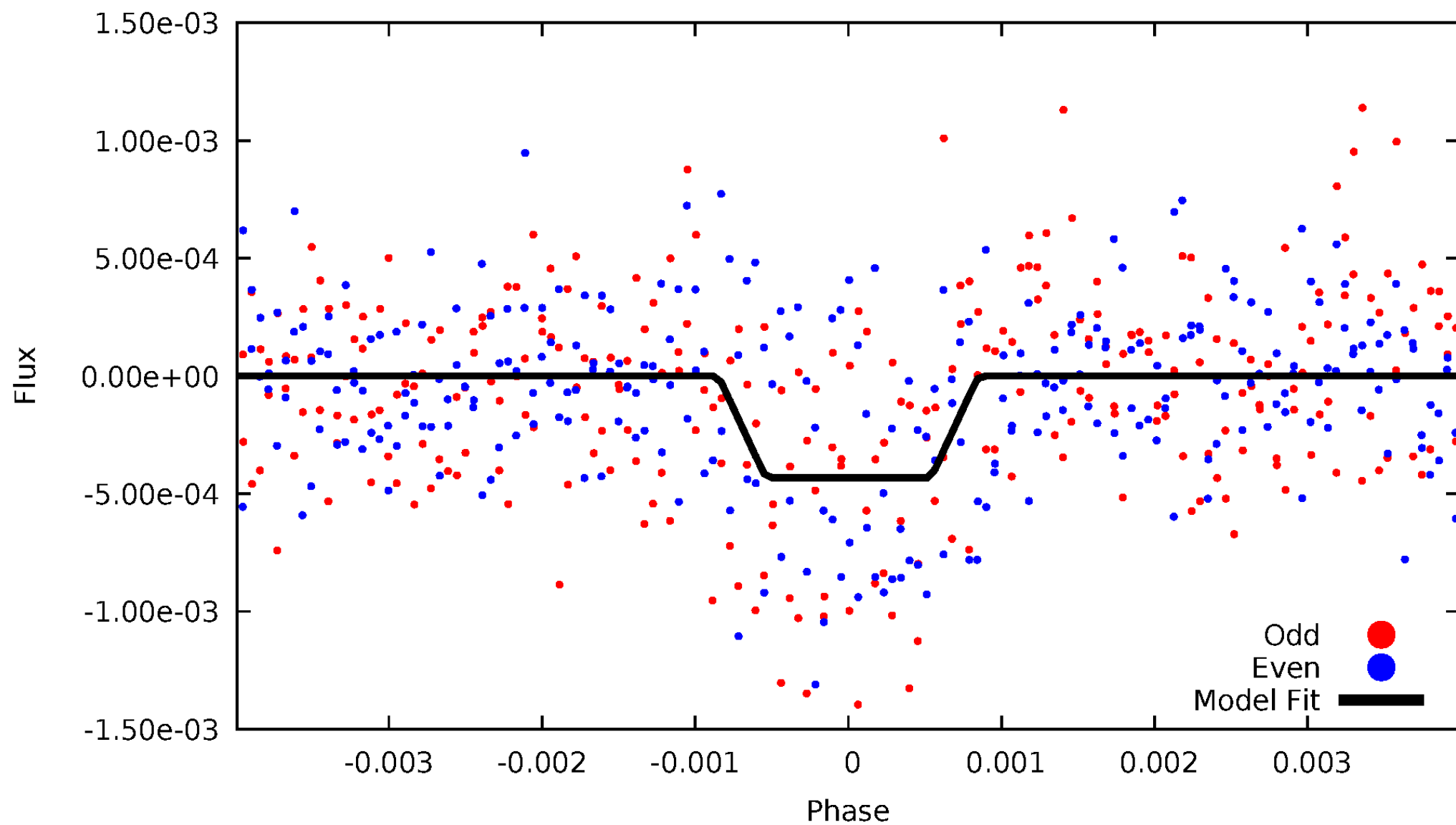
DV Odd/Even

TCE 008103684-02



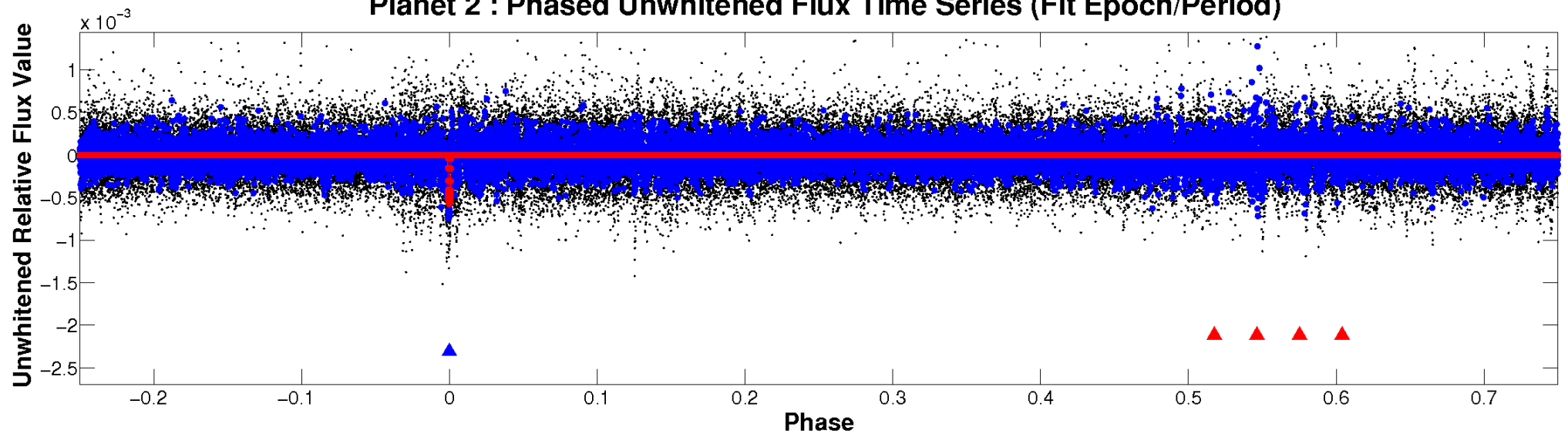
ALT Odd/Even

TCE 008103684-02

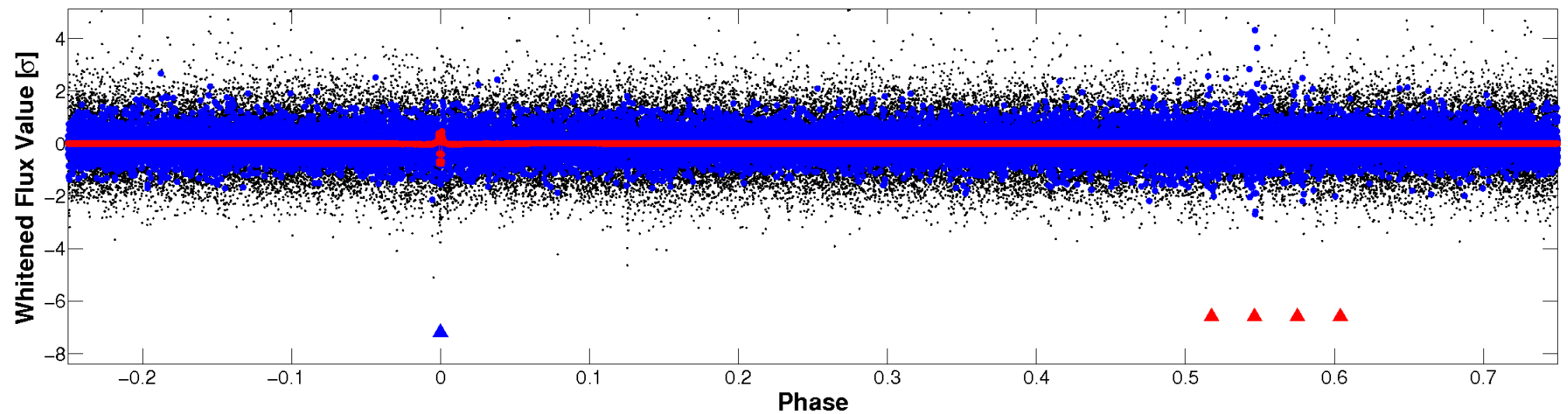


Non-Whitened Vs. Whitened Light Curve

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

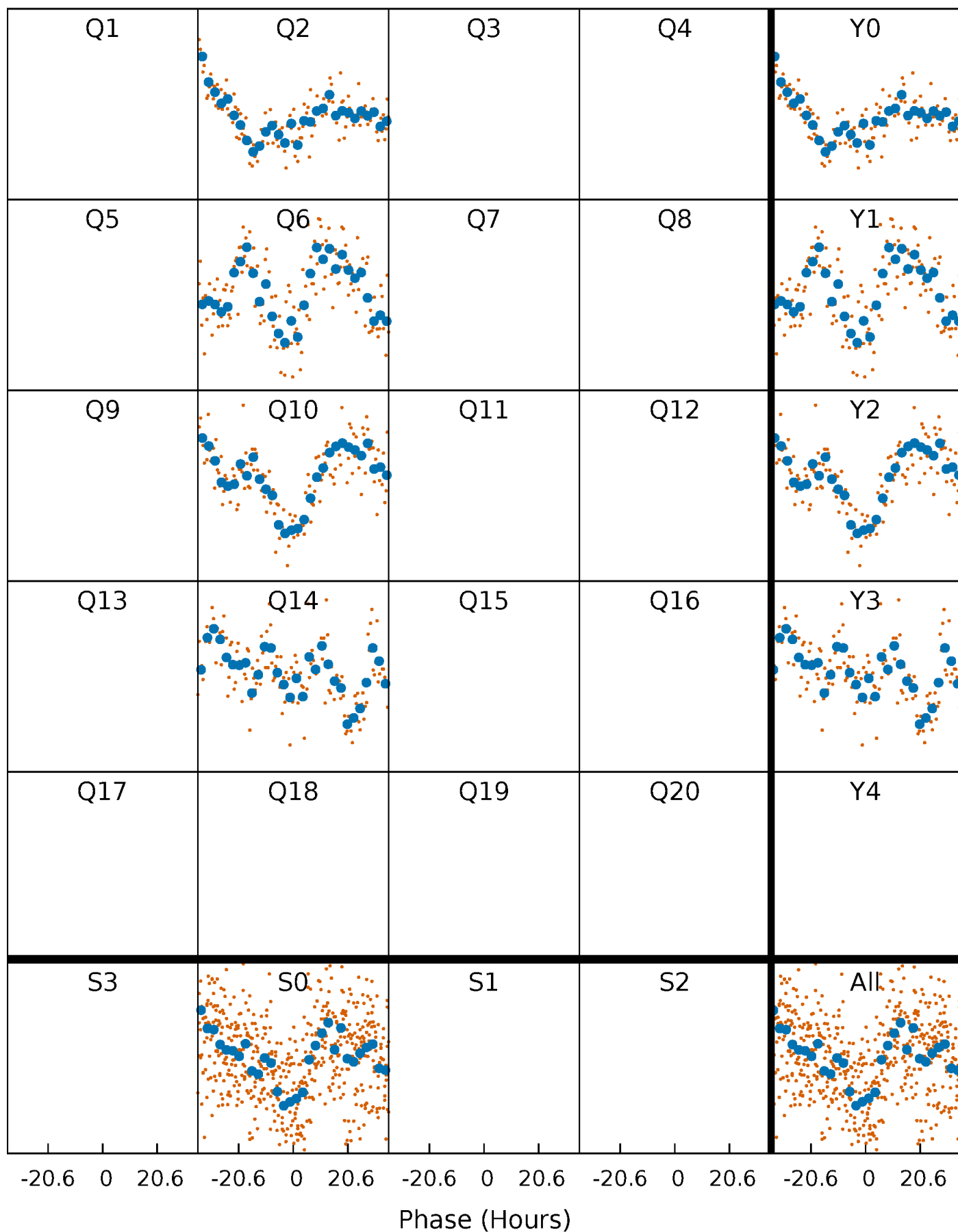


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



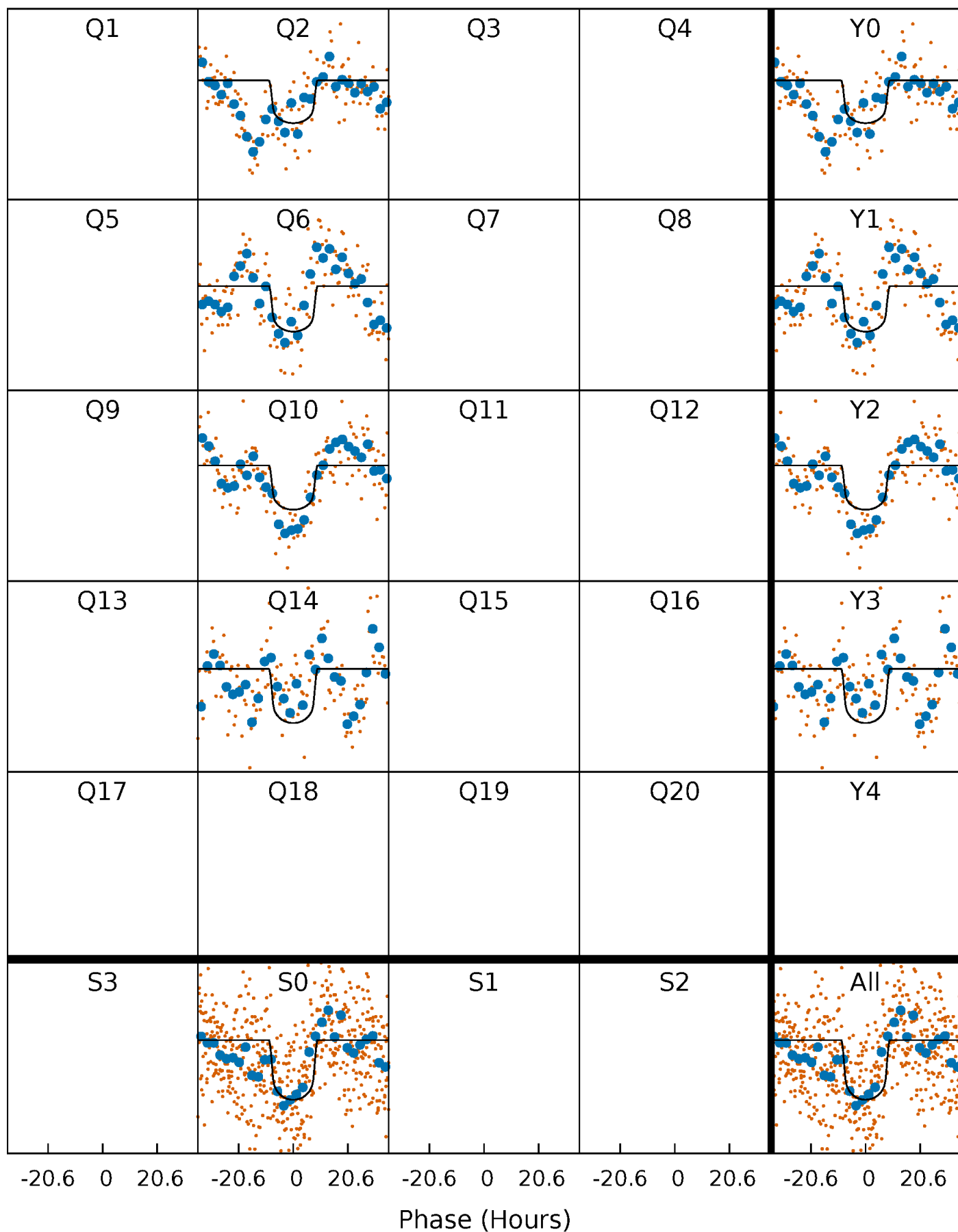
PDC Quarter-Phased Transit Curves

TCE 008103684-02 P=366.291716 Days $T_0=185.450115$ (BKJD)



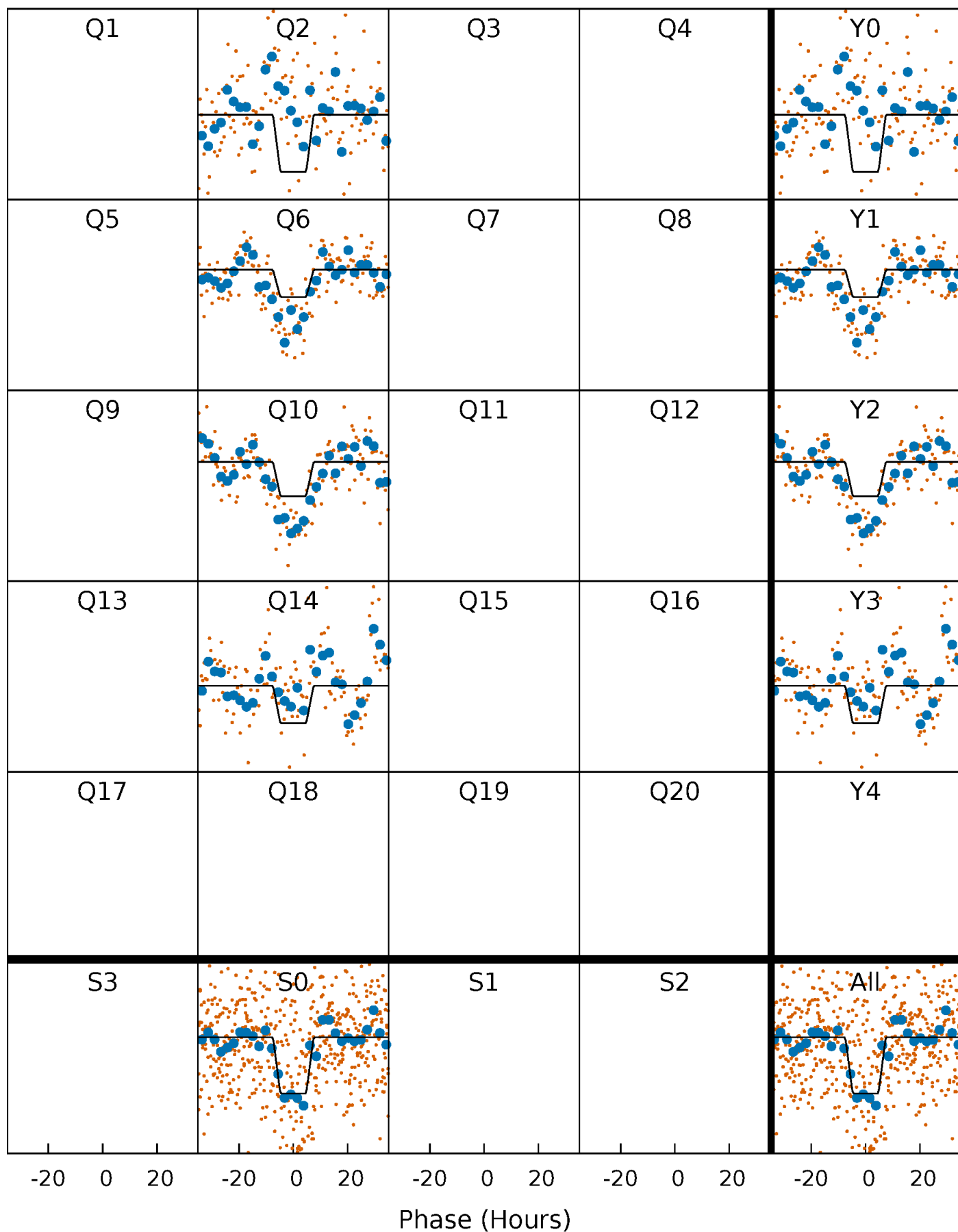
DV Quarter-Phased Transit Curves

TCE 008103684-02 P=366.291716 Days $T_0=185.450115$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

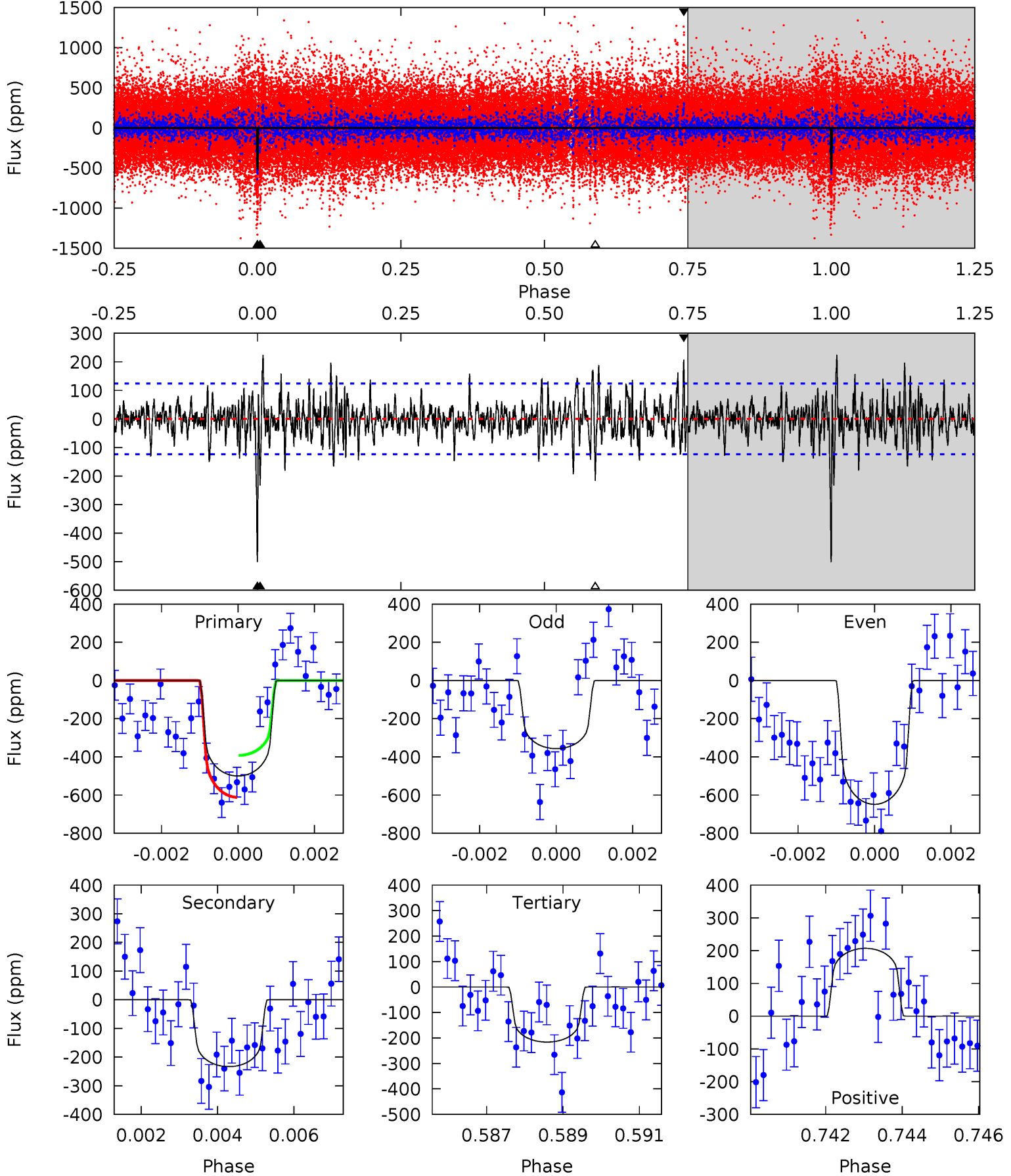
TCE 008103684-02 P=366.312430 Days $T_0=185.395348$ (BKJD)



DV Model-Shift Uniqueness Test

008103684-02, P = 366.291716 Days, E = 185.450115 Days

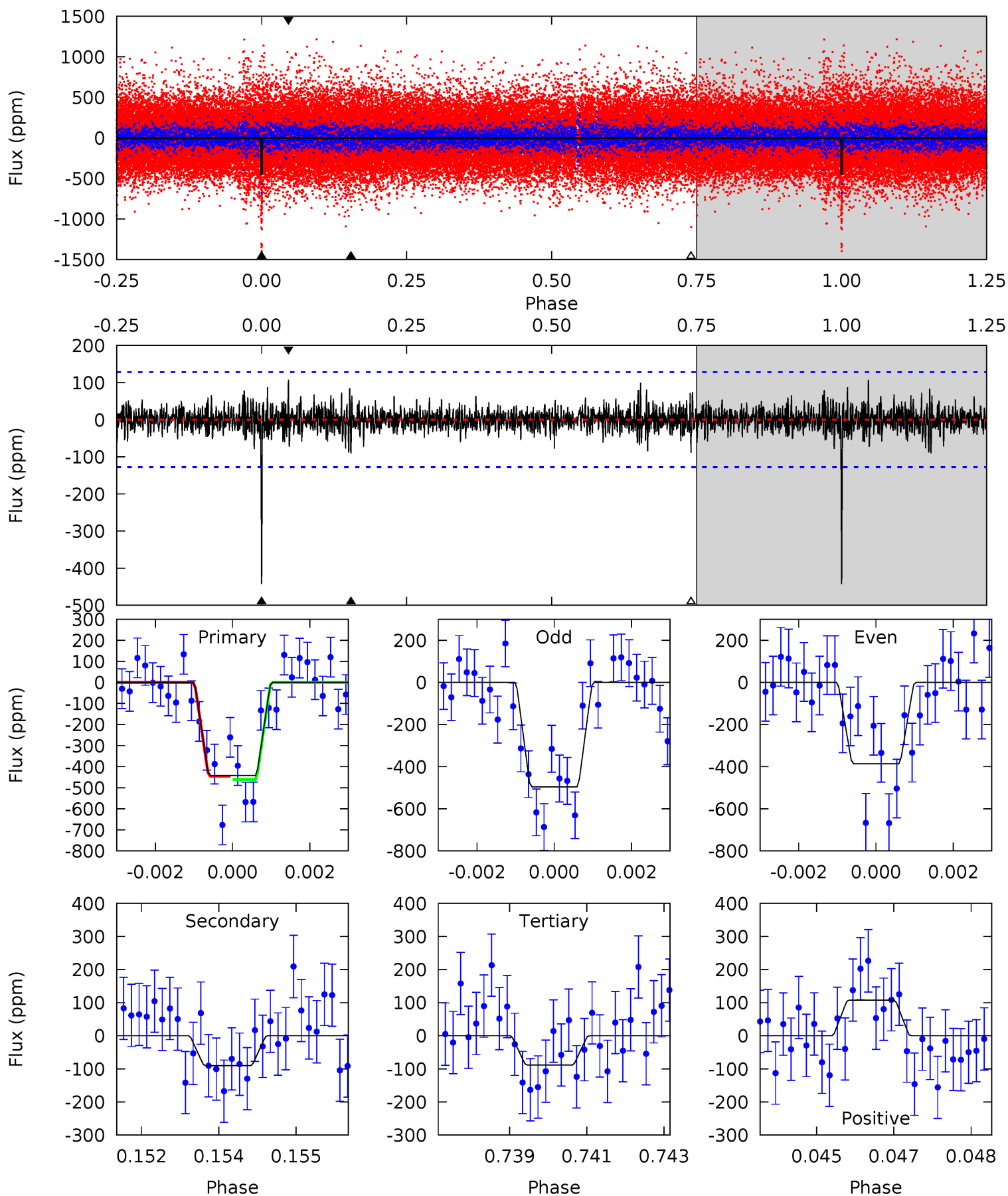
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.5	10.0	9.28	8.89	5.32	3.08	2.20	12.2	12.6	0.74	1.14	6.26	1.03	0.31	4.71



Alt Model-Shift Uniqueness Test

008103684-02, P = 366.312430 Days, E = 185.395348 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	3.78	3.69	4.50	5.35	3.13	0.96	14.8	14.0	0.08	-0.72	2.31	0.93	0.20	0.32



Stellar Parameters For KIC 008103684

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5761^{+172}_{-155}	$4.343^{+0.190}_{-0.190}$	$-0.340^{+0.300}_{-0.250}$	$1.018^{+0.299}_{-0.224}$	$0.833^{+0.127}_{-0.063}$	$1.112^{+1.026}_{-0.526}$
	+3%/-3%	+4%/-4%	+88%/-74%	+29%/-22%	+15%/-8%	+92%/-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 008103684-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-233 ± 23	$2.85^{+0.55}_{-0.46}$	371^{+28}_{-25}	4635^{+275}_{-227}	14236^{+6359}_{-4241}
Alt.	-90 ± 24	$2.35^{+0.49}_{-0.41}$	371^{+29}_{-26}	4158^{+315}_{-303}	7998^{+4733}_{-2944}

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

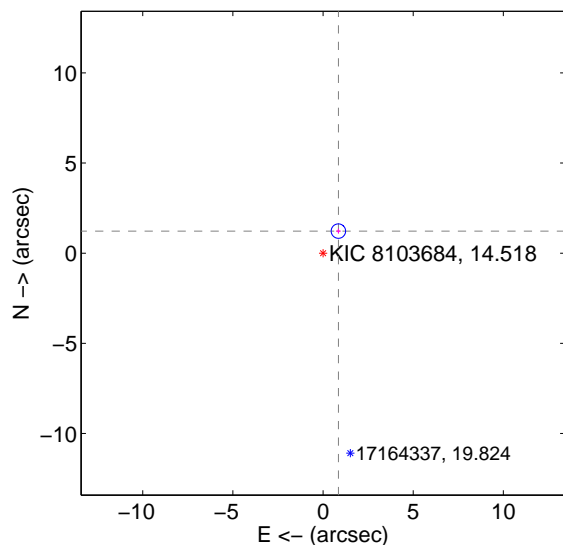
Supplemental centroid analysis for 008103684-02. Kepler magnitude: 14.52. Transit SNR 8.53

There are 0 quarters with good PRF difference image offsets

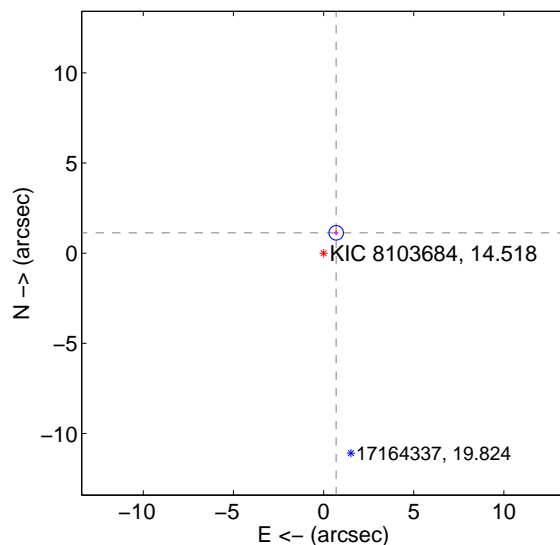
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.491 ± 0.133	11.19	-0.852 ± 0.126	1.224 ± 0.137
PRF-fit source offset from KIC position	1.328 ± 0.134	9.92	-0.698 ± 0.126	1.129 ± 0.137
photometric centroid source offset	5.61 ± 1.86	3.02	0.55 ± 1.35	-5.59 ± 1.86

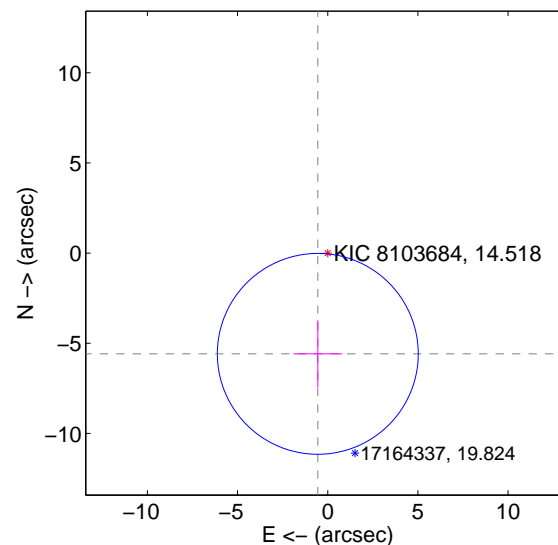
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

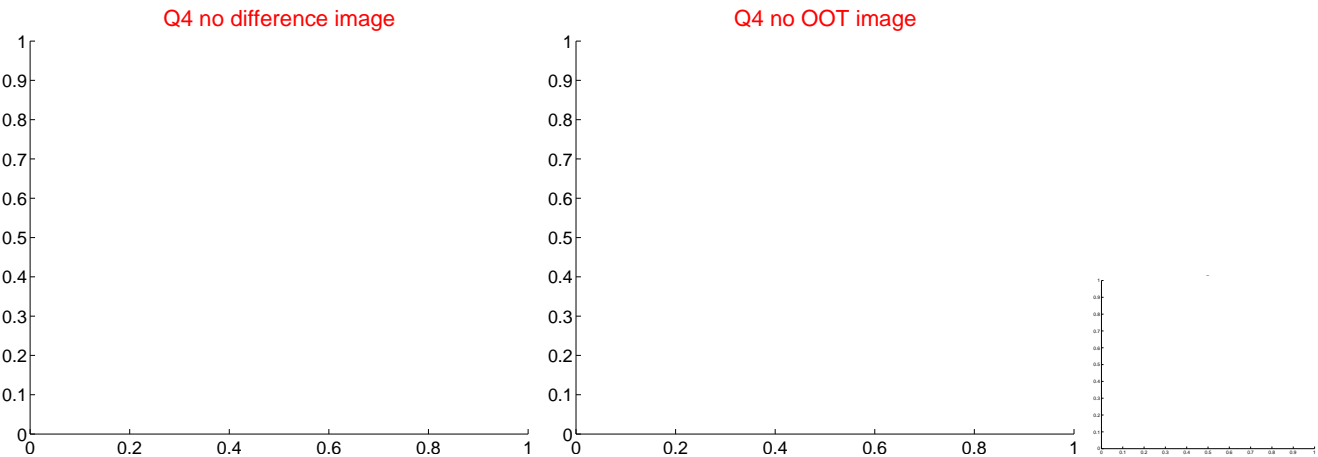
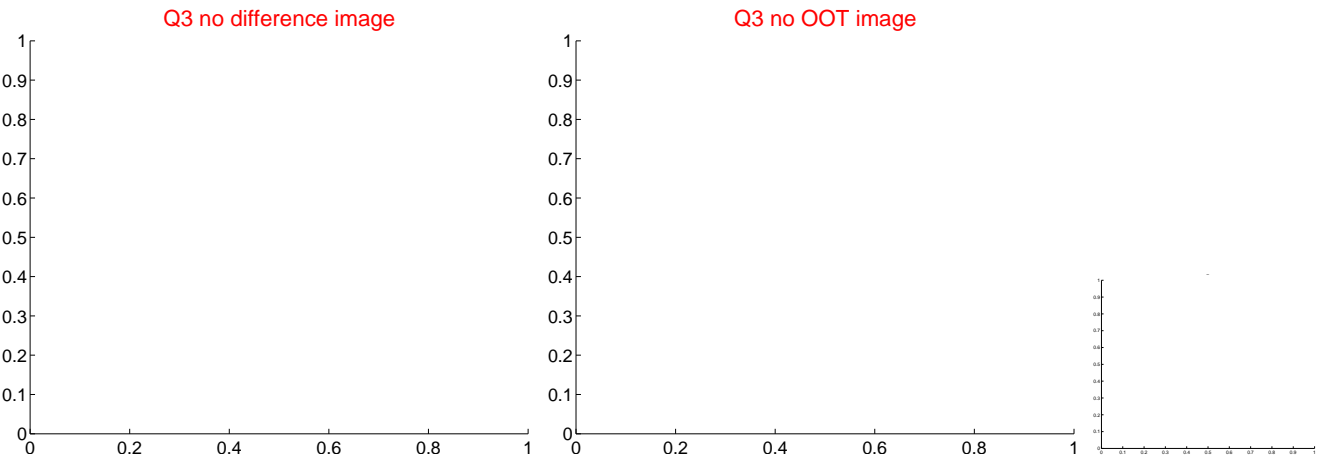
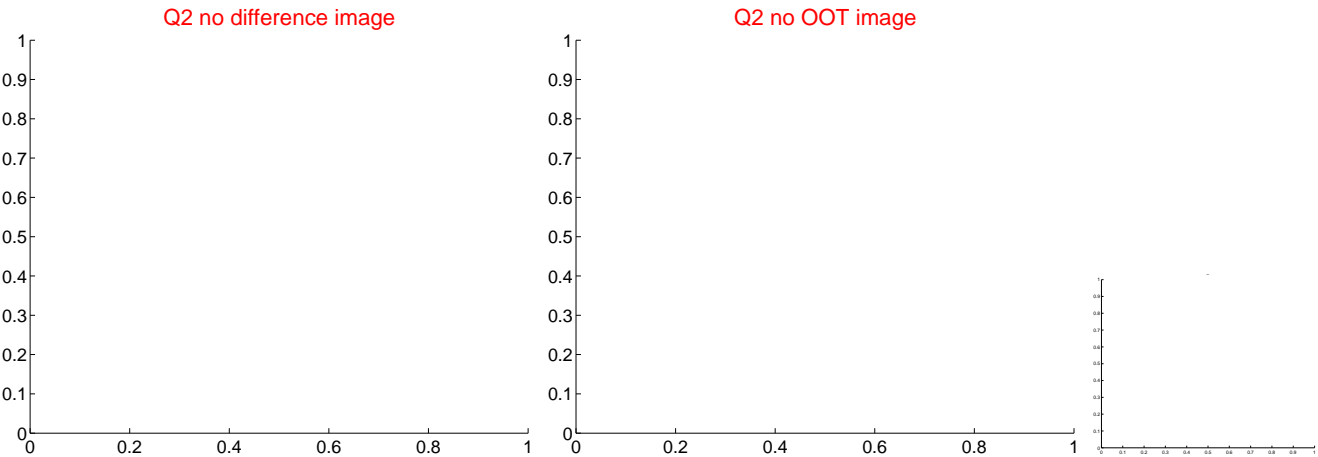
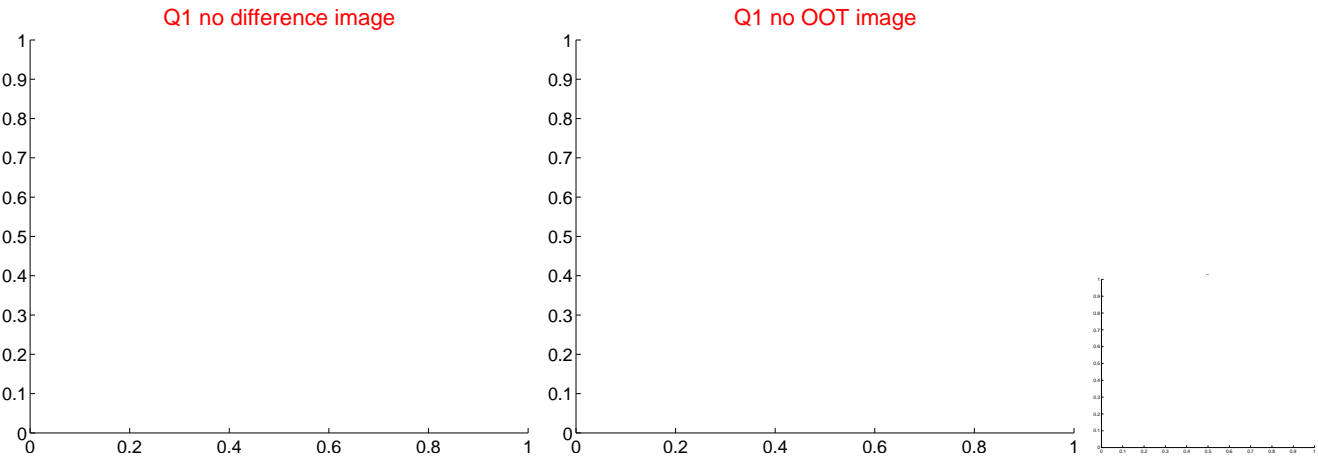


offset from photometric centroids



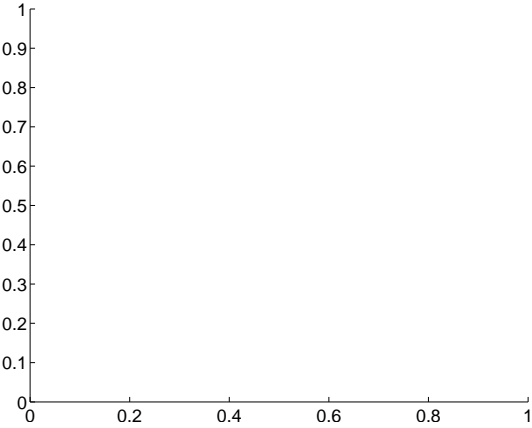
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

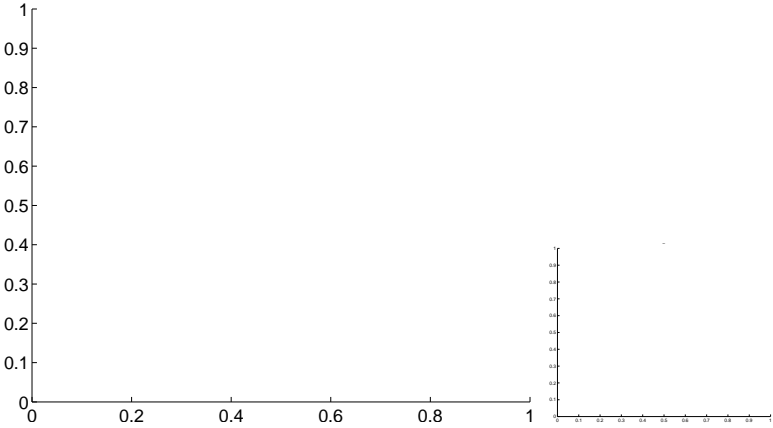


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

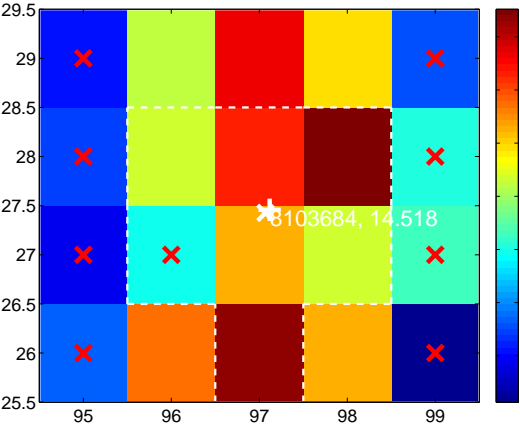
Q5 no difference image



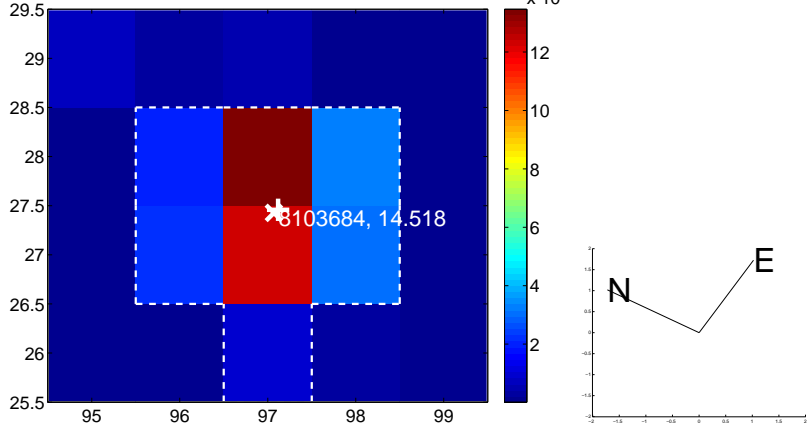
Q5 no OOT image



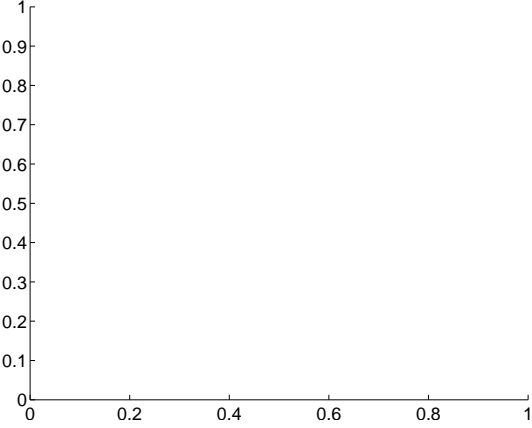
Q6 difference image. Poor Quality



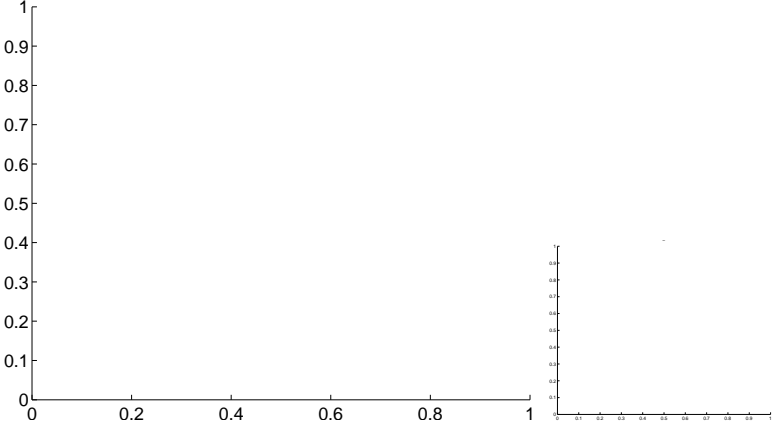
Q6 OOT image



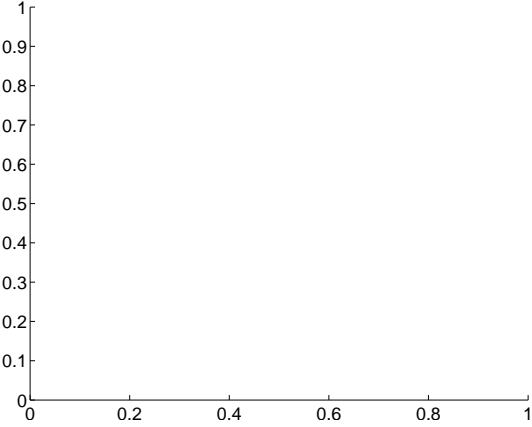
Q7 no difference image



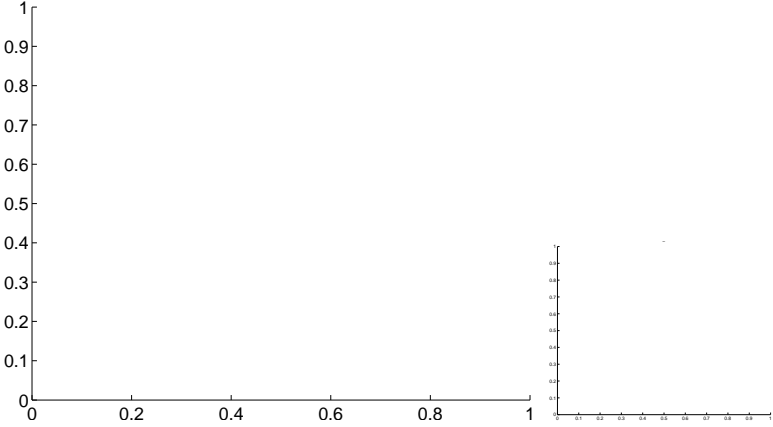
Q7 no OOT image



Q8 no difference image



Q8 no OOT image

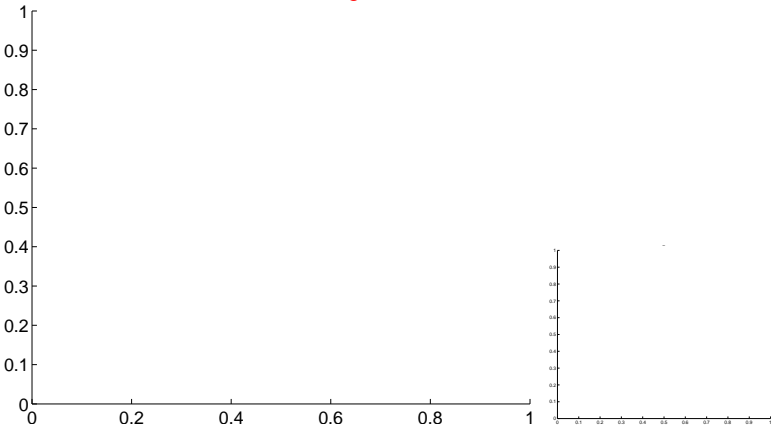


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

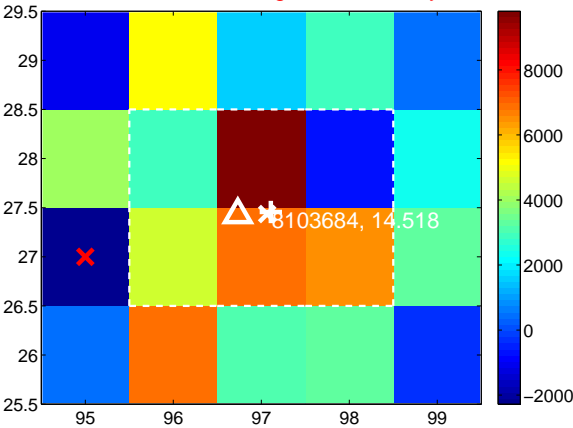
Q9 no difference image



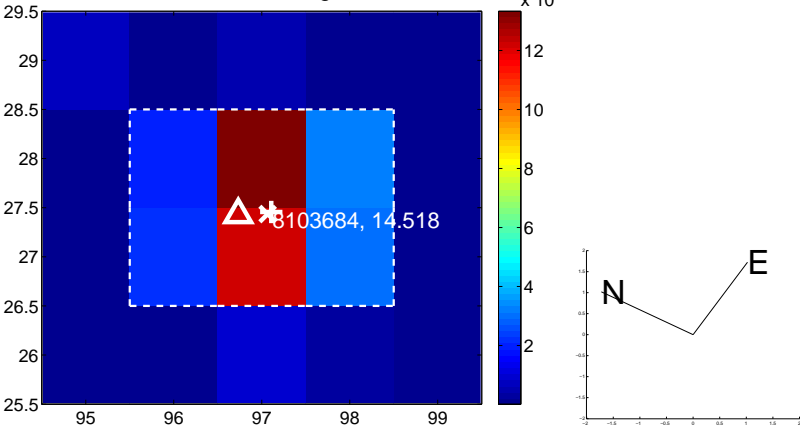
Q9 no OOT image



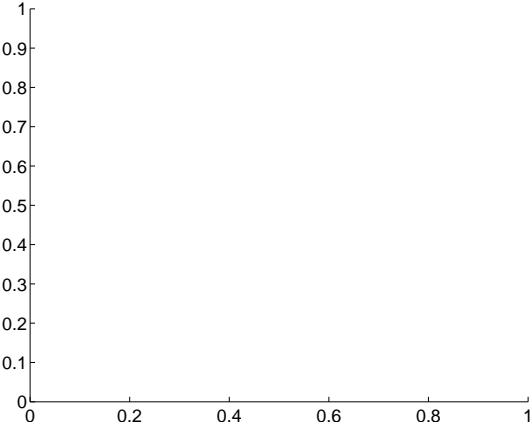
Q10 difference image. Poor Quality



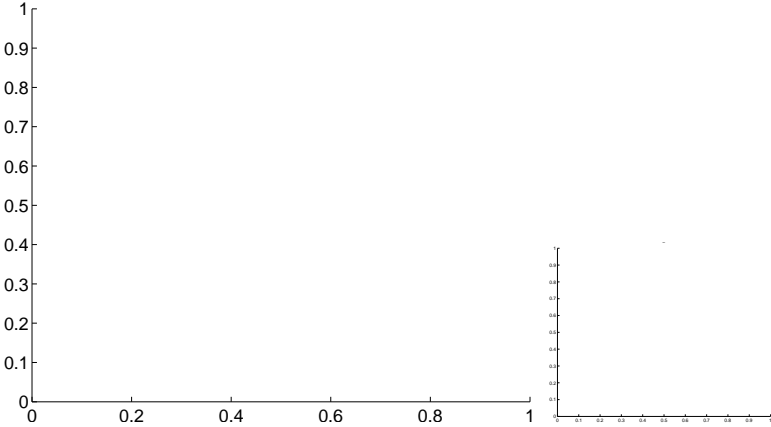
Q10 OOT image



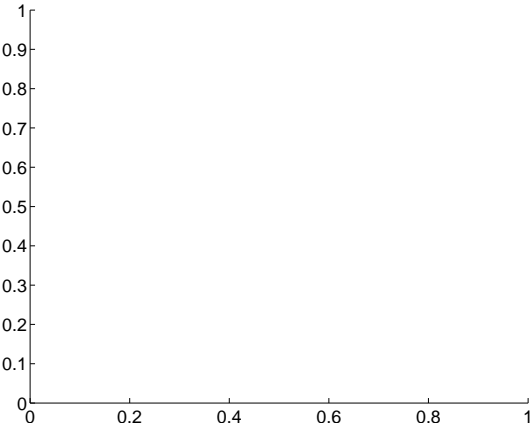
Q11 no difference image



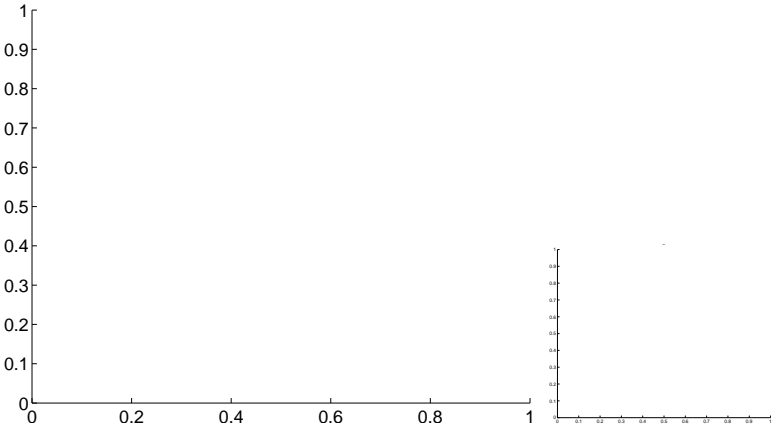
Q11 no OOT image



Q12 no difference image



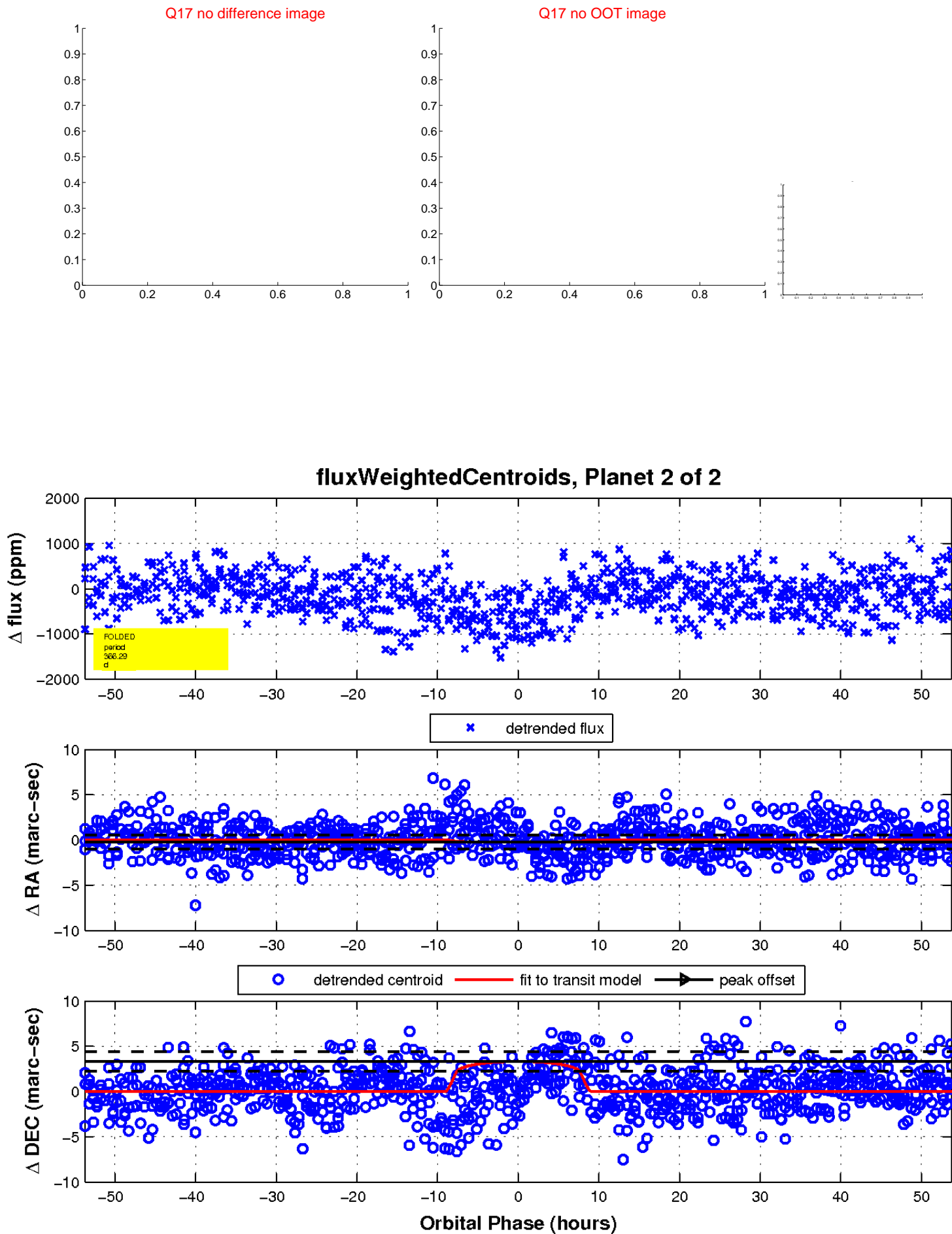
Q12 no OOT image



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

