

KIC 010398659

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})
010398659-01	OBS	No	3.411897	133.875512	99.1	11.094	8.9	8.9	0.41	3540	0.52	21.45
010398659-02	OBS	No	296.634426	172.713325	2210.7	58.853	12.6	12.0	0.41	3540	3.74	0.06
010398659-03	OBS	No	384.302950	244.756151	1279.8	6.847	8.1	5.9	0.41	3540	2.73	0.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010398659-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010398659-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010398659-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

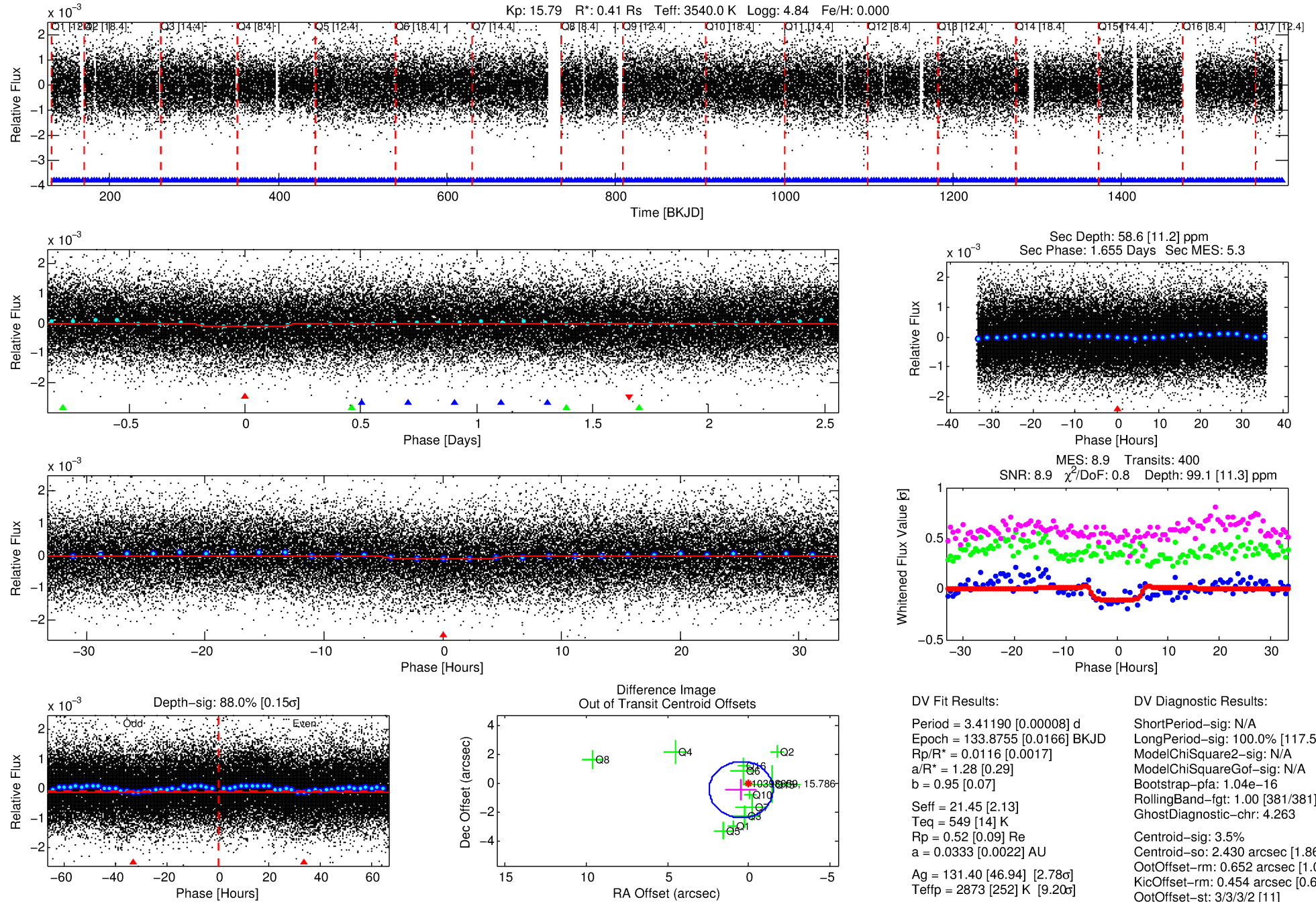
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010398659-01

No Significant Match Found

DV One-Page Summary

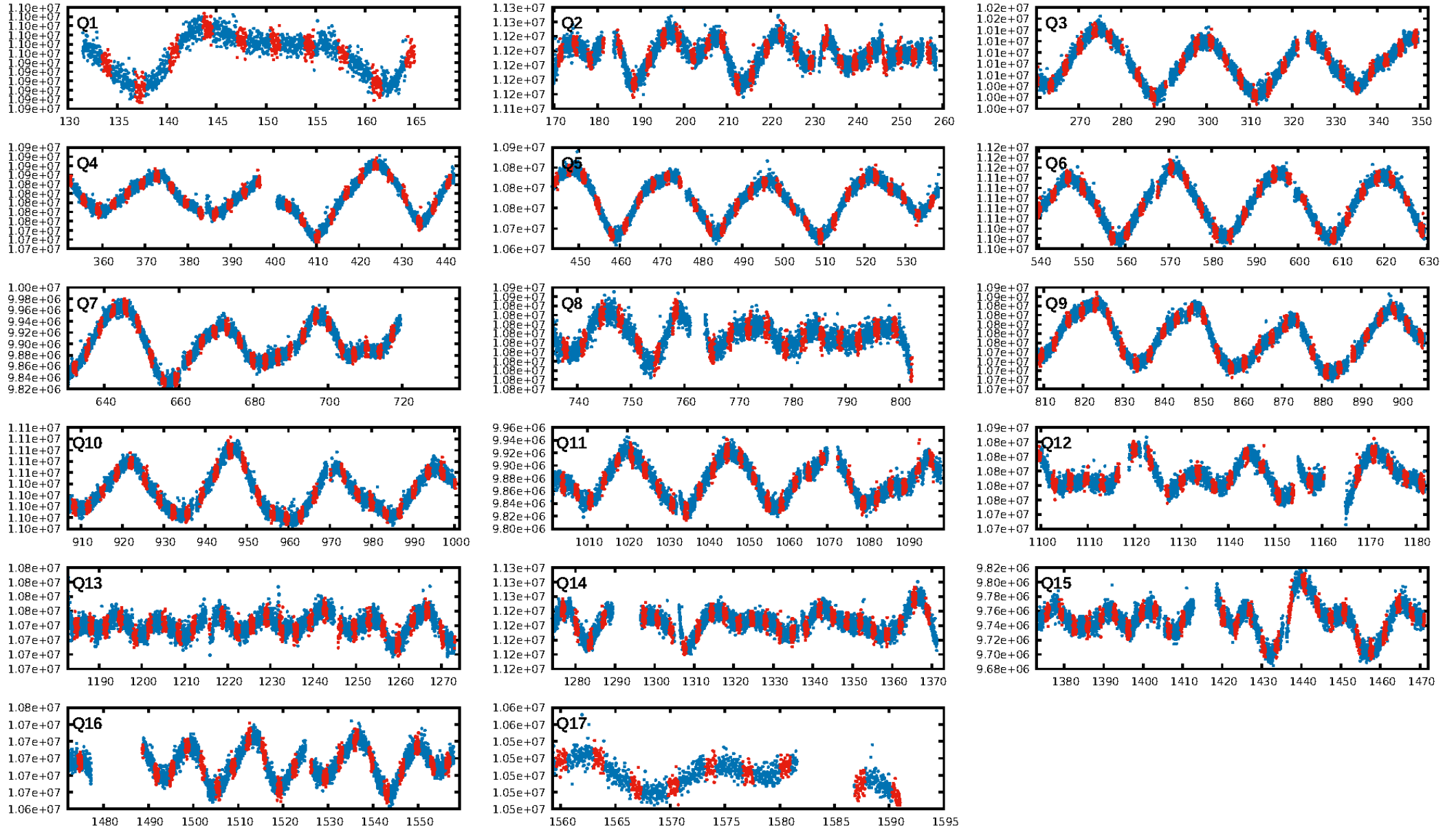
KIC: 10398659 Candidate: 1 of 3 Period: 3.412 d



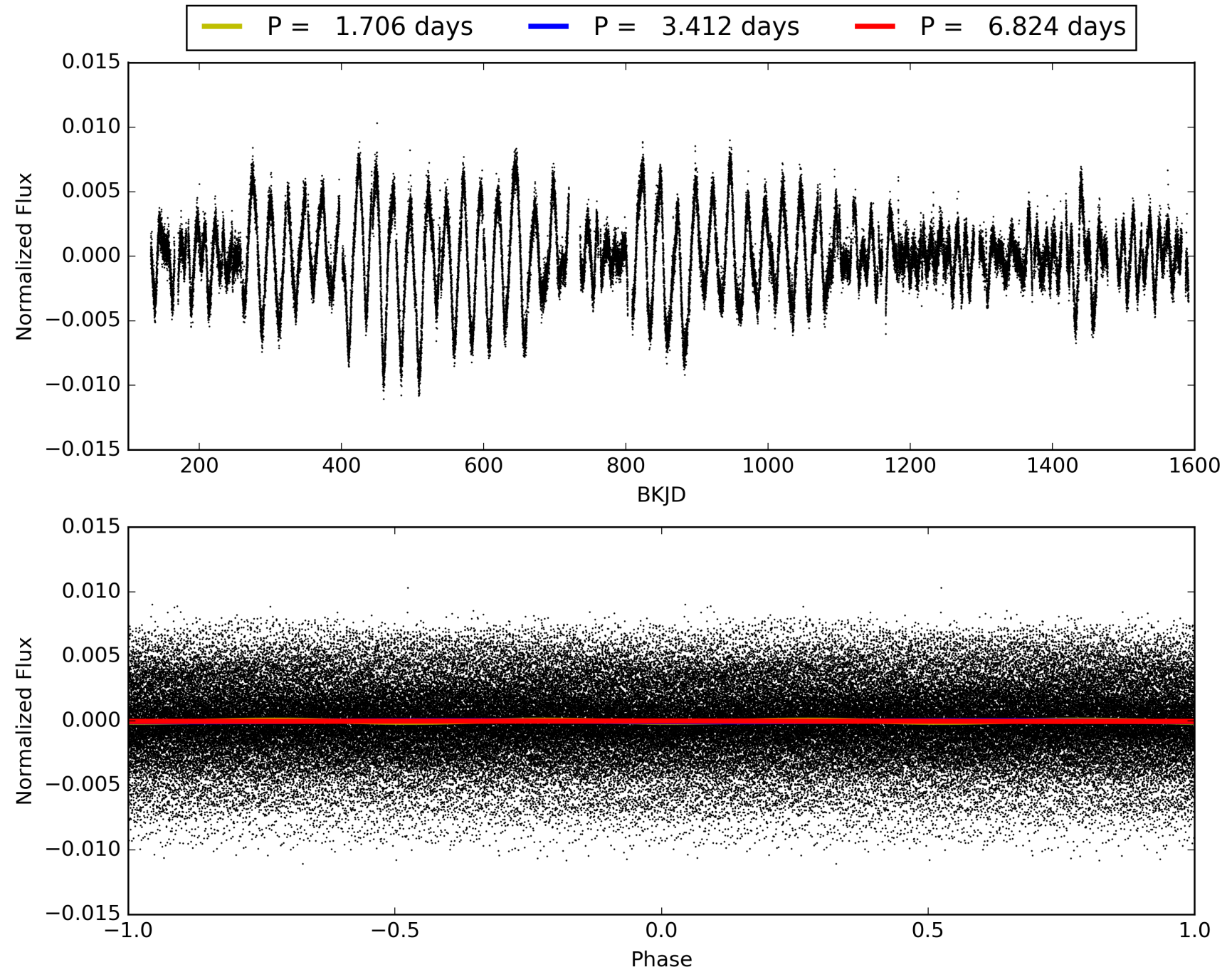
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:25:23 Z

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

TCE 010398659-01, PDC Light Curves

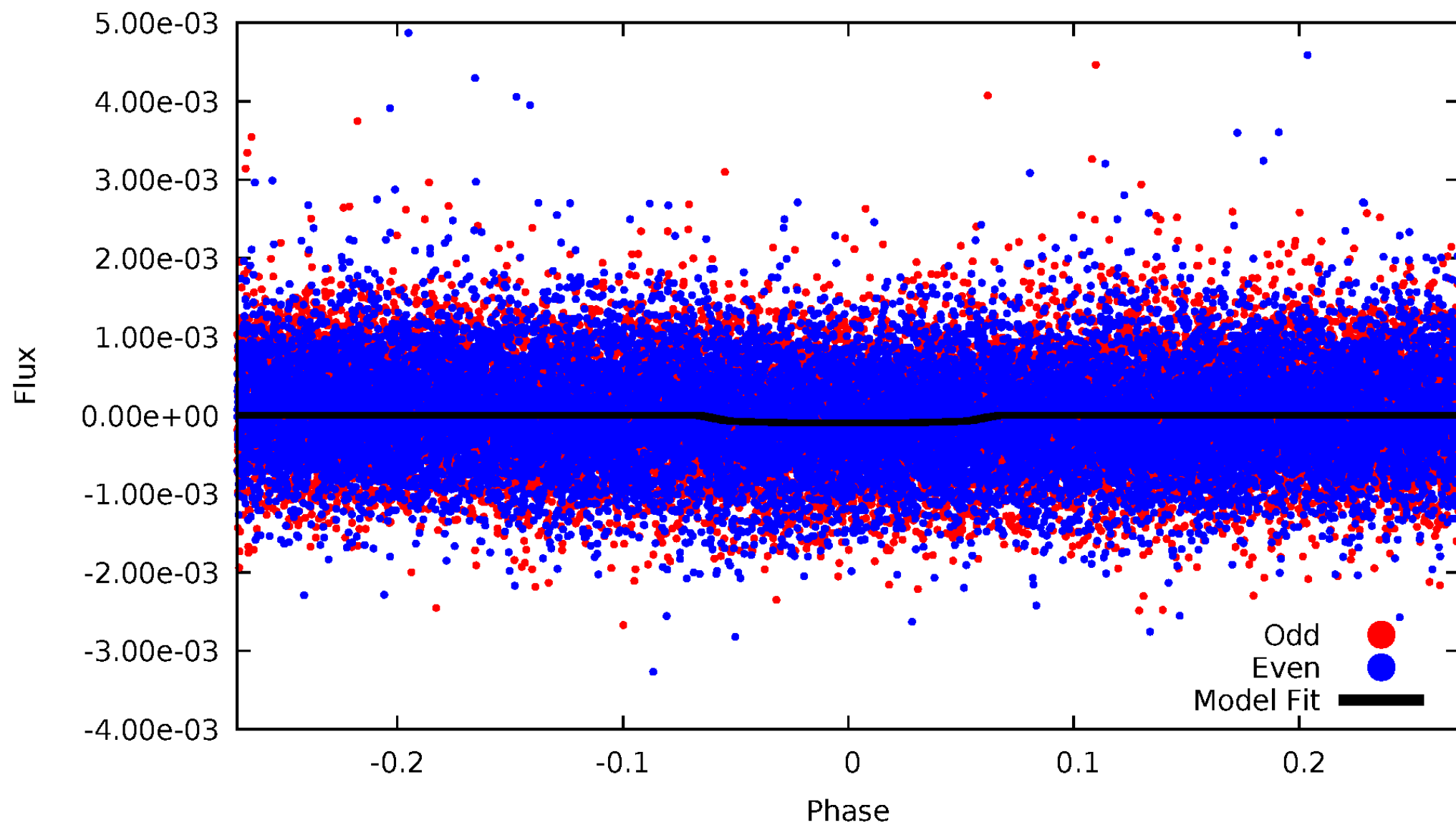


TCE 010398659-01



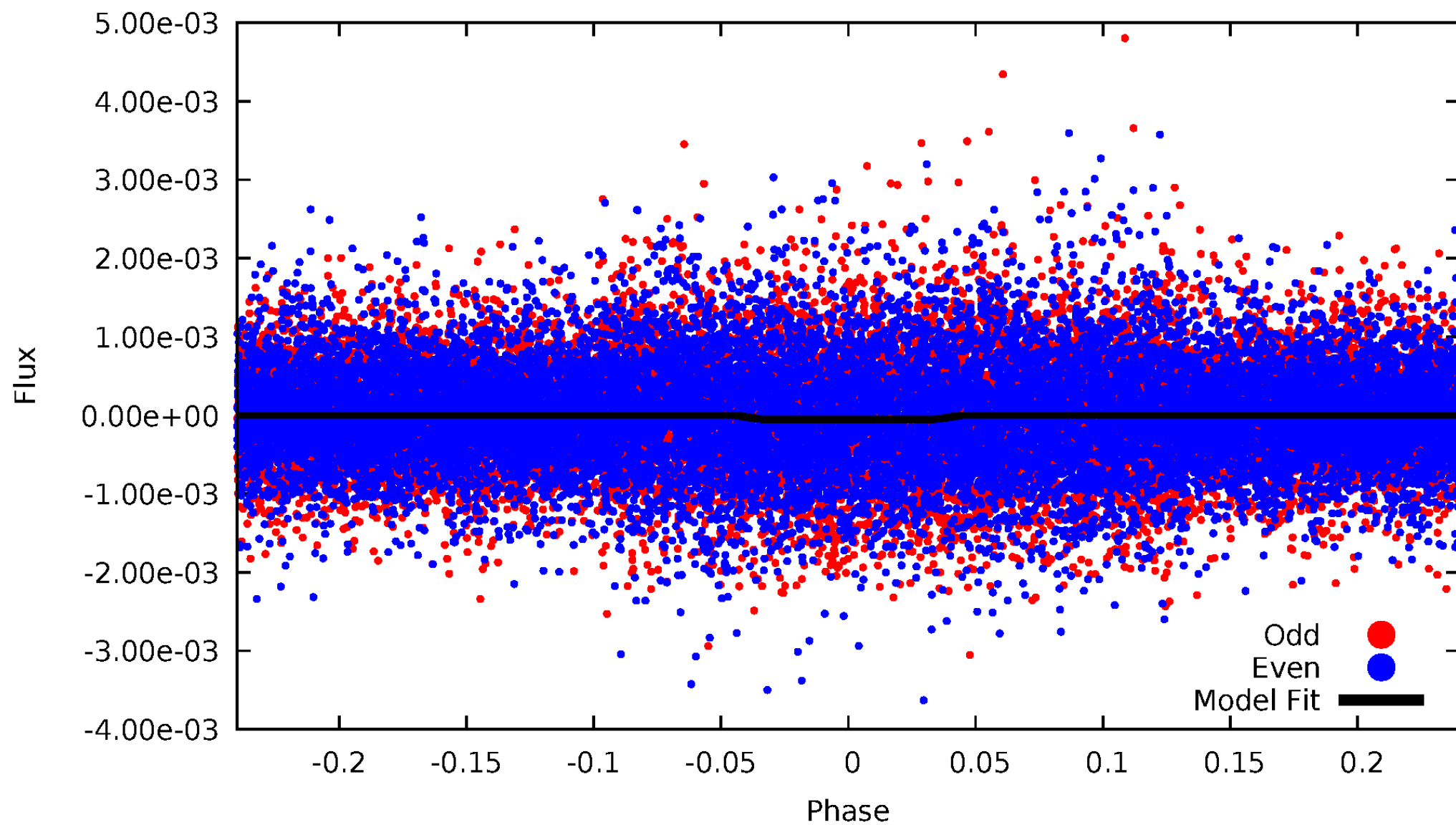
DV Odd/Even

TCE 010398659-01

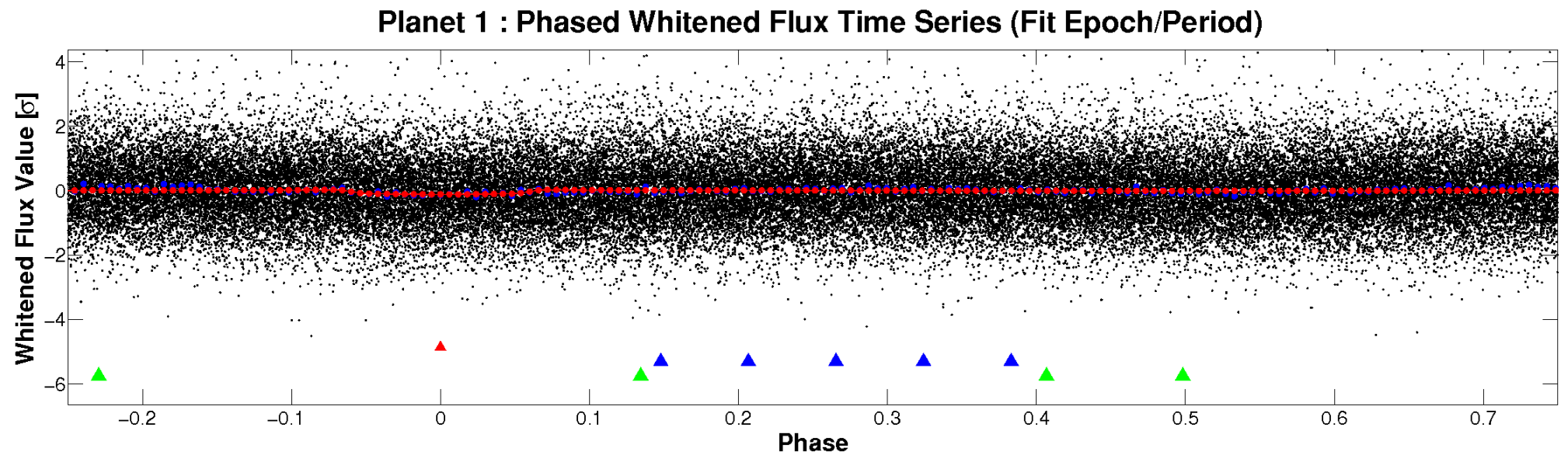
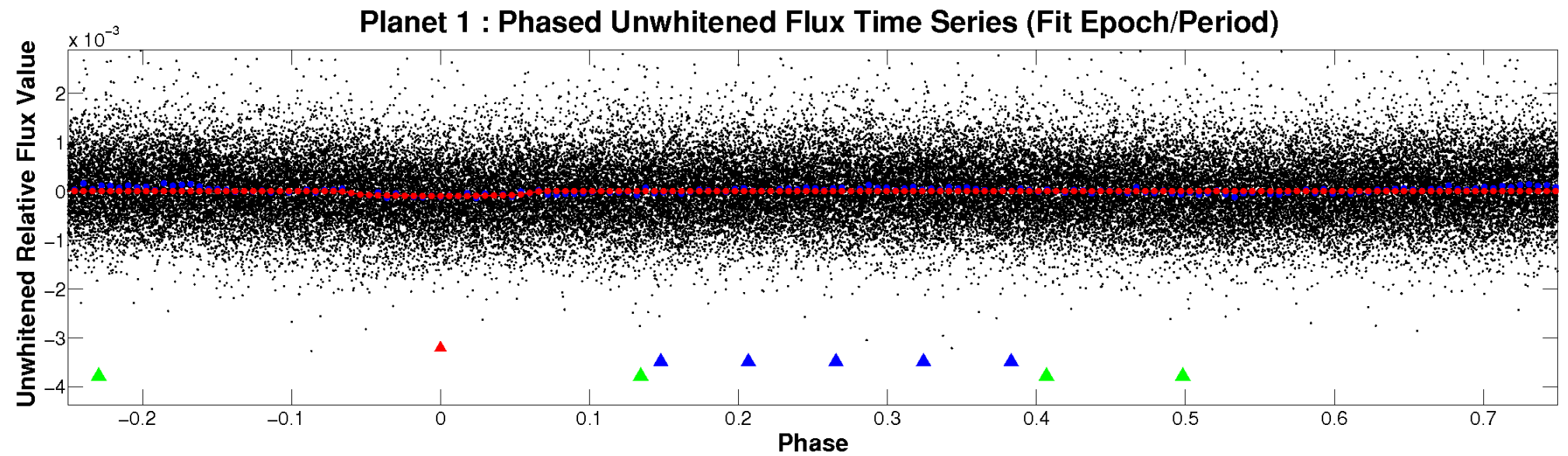


ALT Odd/Even

TCE 010398659-01

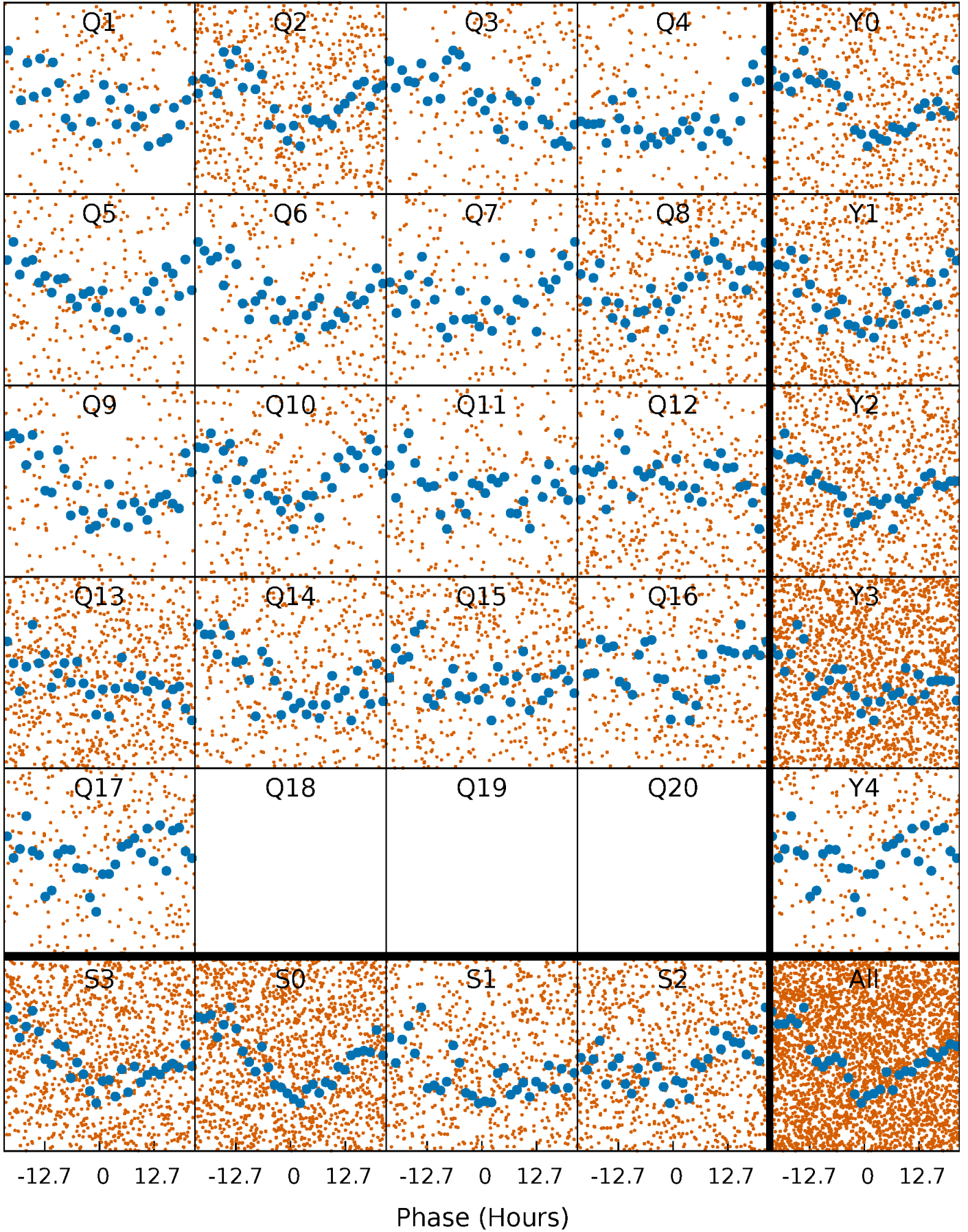


Non-Whitened Vs. Whitened Light Curve



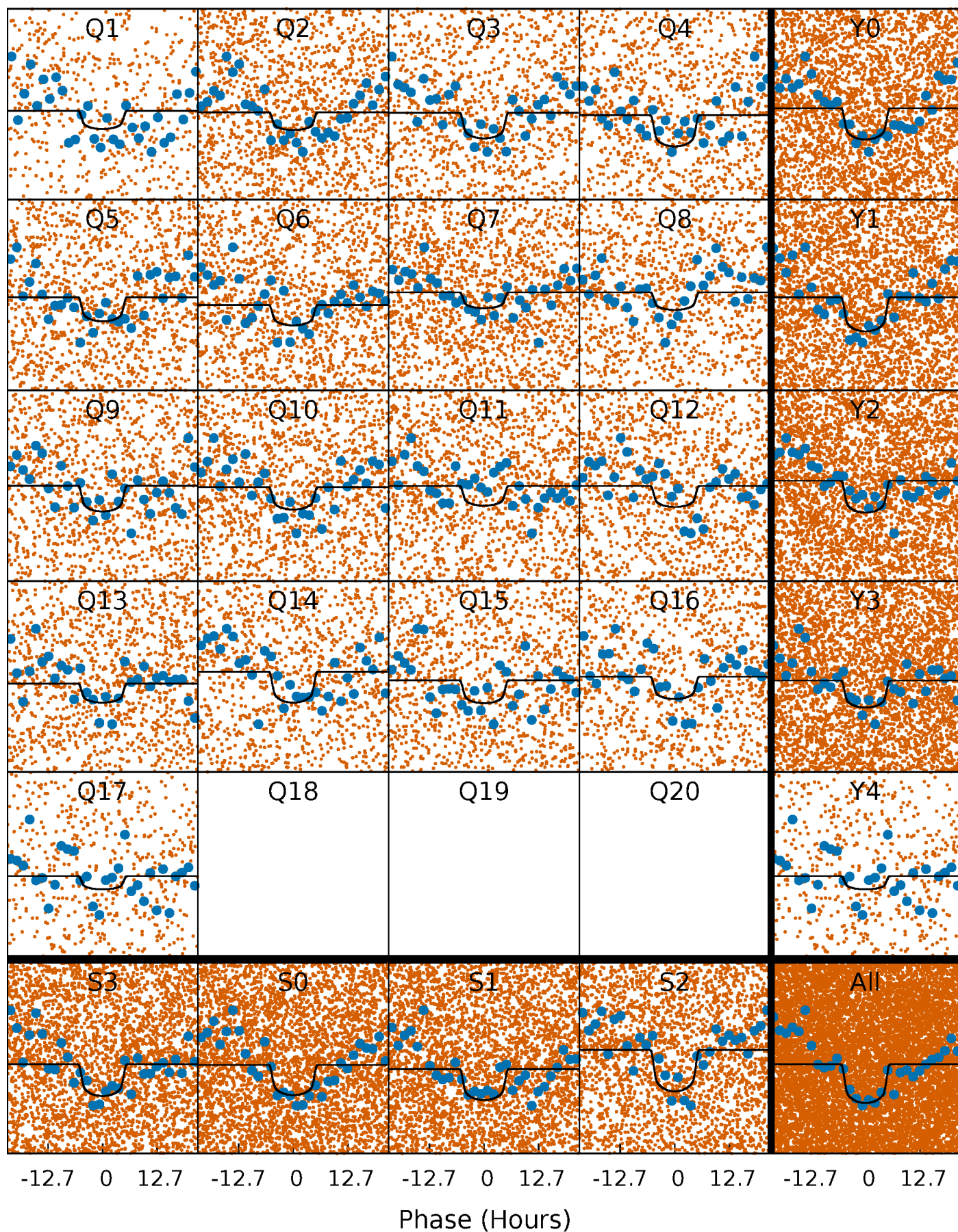
PDC Quarter-Phased Transit Curves

TCE 010398659-01 P= 3.411897 Days $T_0=133.875512$ (BKJD)



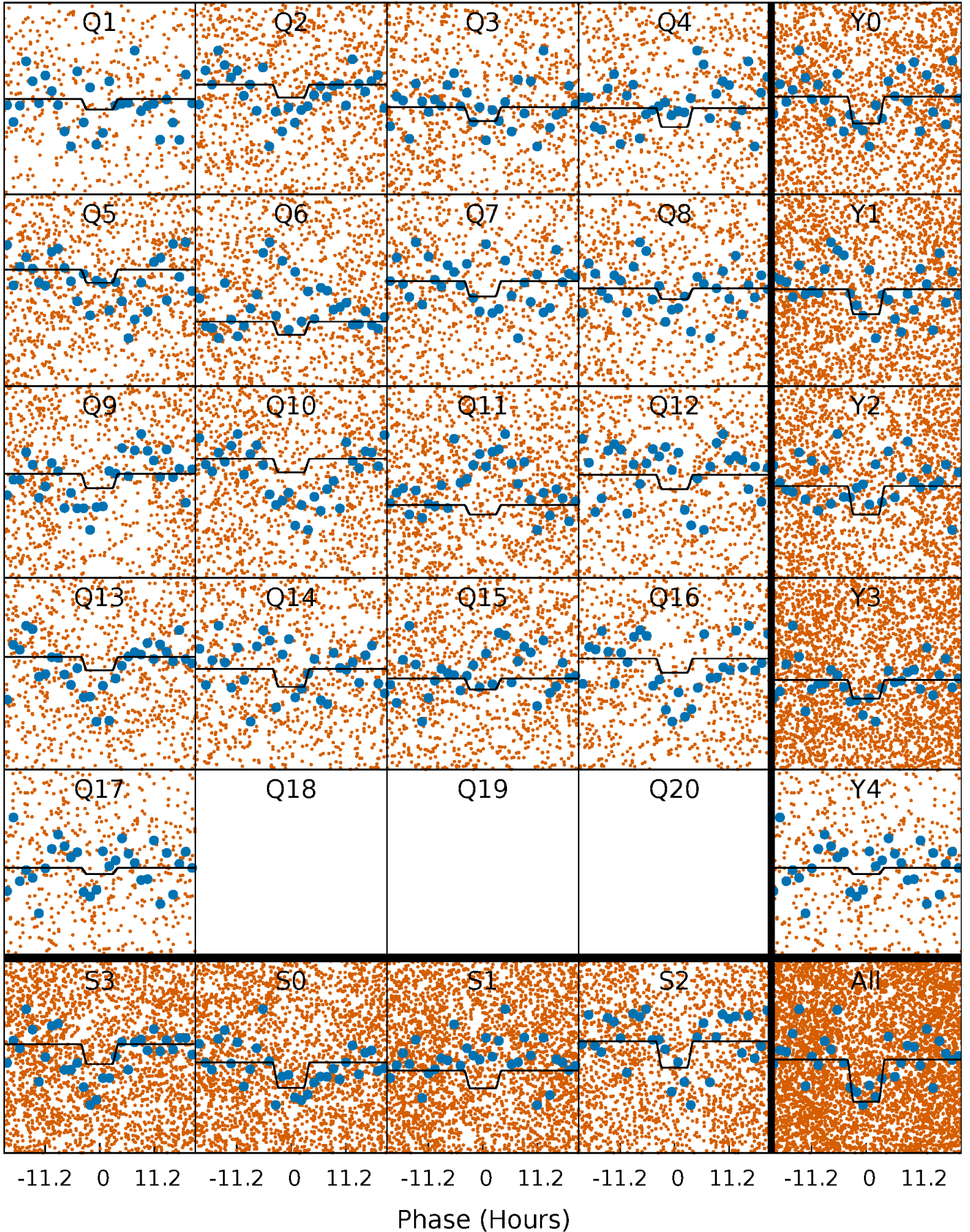
DV Quarter-Phased Transit Curves

TCE 010398659-01 P= 3.411897 Days $T_0=133.875512$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

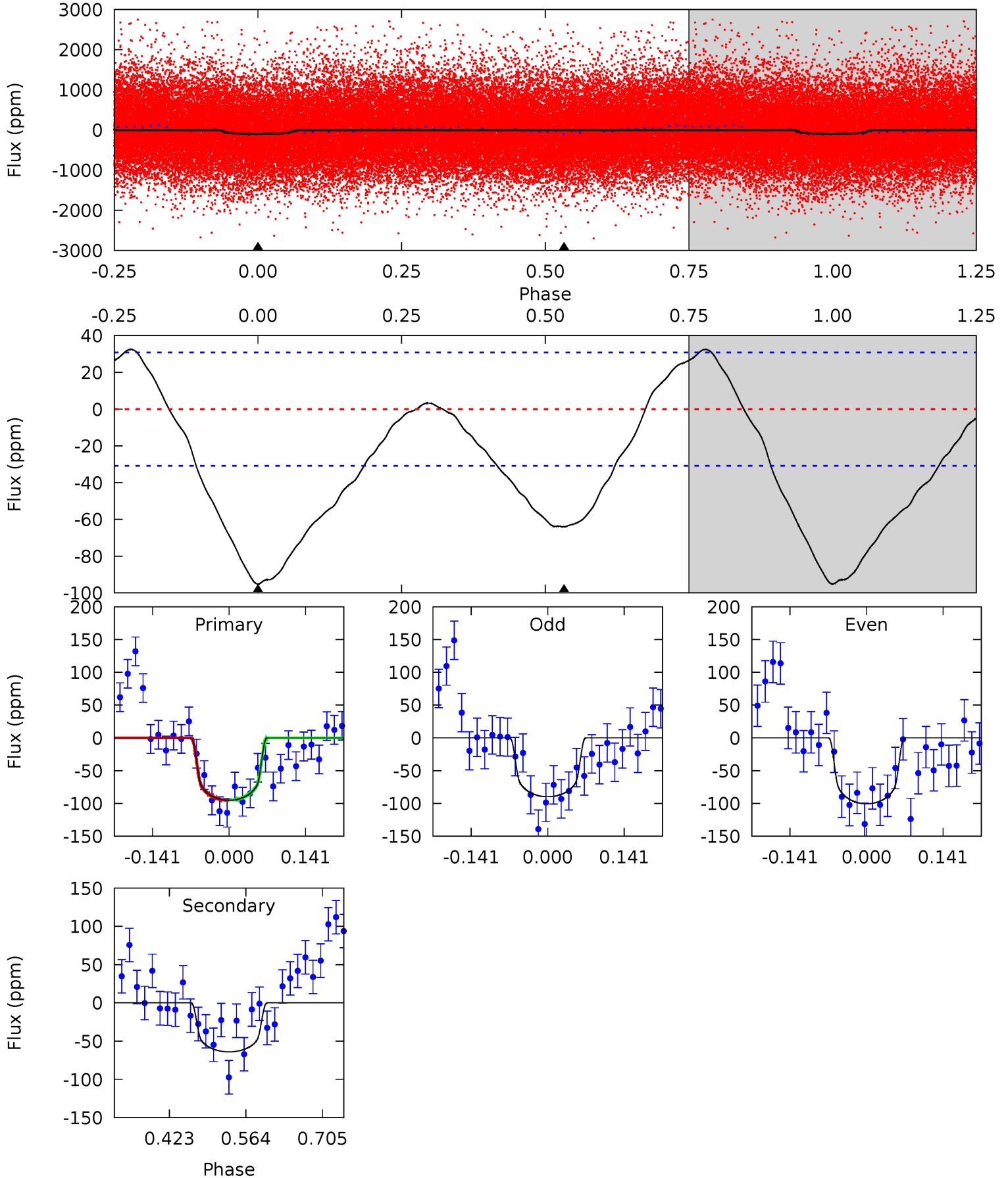
TCE 010398659-01 P= 3.412024 Days $T_0=133.843698$ (BKJD)



DV Model-Shift Uniqueness Test

010398659-01, P = 3.411897 Days, E = 130.463615 Days

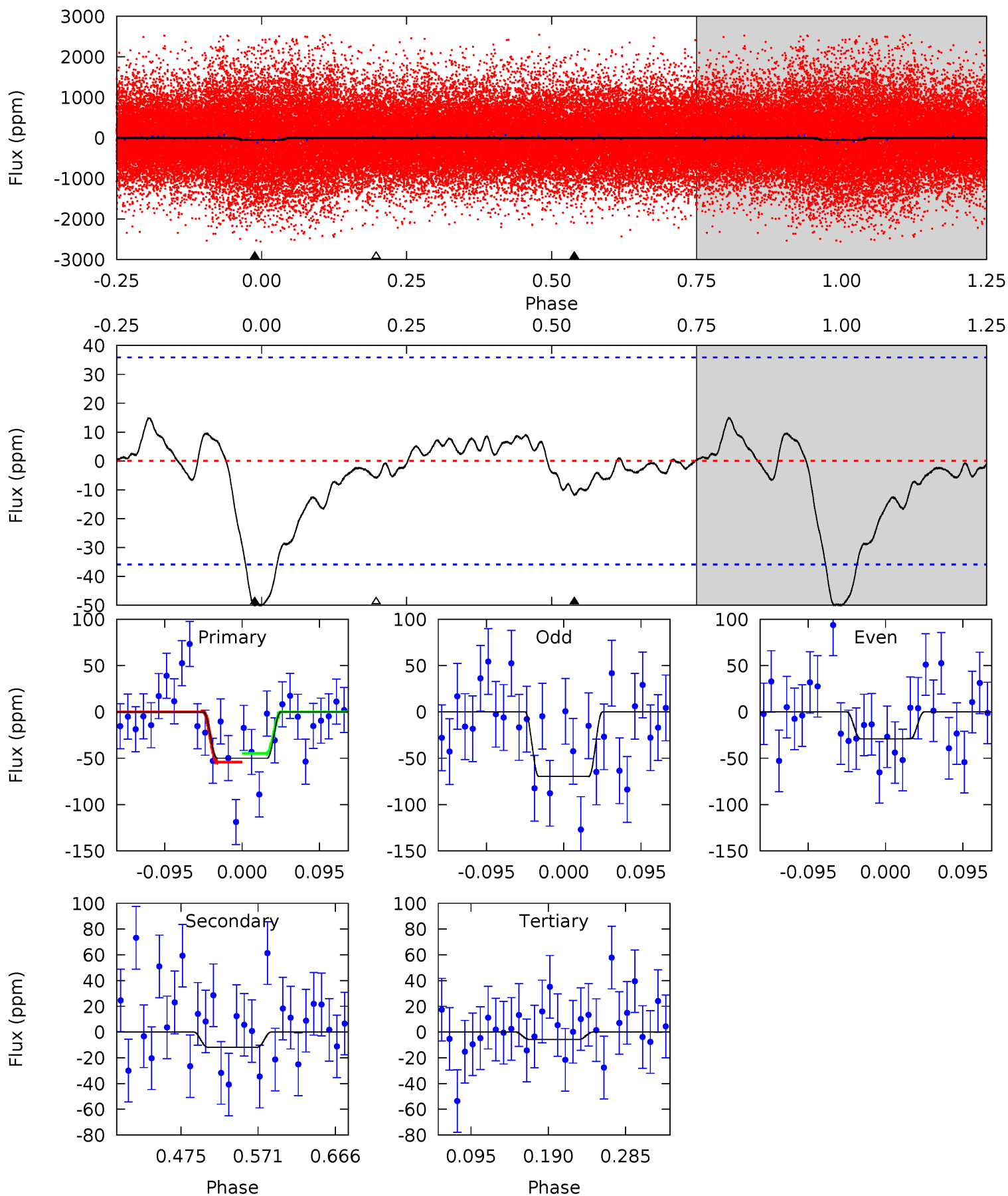
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	9.33	0	0	4.49	1.47	3.00	13.9	13.9	9.33	9.33	0.78	0.95	0.25	0.04



Alt Model-Shift Uniqueness Test

010398659-01, P = 3.412024 Days, E = 130.431674 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.38	1.50	0.74	0	4.58	1.67	0.77	5.64	6.38	0.76	1.50	2.61	0.84	0.23	0.61



Stellar Parameters For KIC 010398659

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3540^{+42}_{-47}	$4.836^{+0.039}_{-0.025}$	$0.000^{+0.100}_{-0.100}$	$0.411^{+0.026}_{-0.036}$	$0.422^{+0.035}_{-0.035}$	$8.590^{+1.670}_{-1.041}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+6%/-9%	+8%/-8%	+19%/-12%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010398659-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-64 ± 7	$0.51^{+0.09}_{-0.07}$	765^{+13}_{-15}	3151^{+170}_{-130}	145^{+54}_{-37}
Alt.	-12 ± 8	$0.33^{+0.07}_{-0.08}$	765^{+14}_{-14}	2831^{+313}_{-379}	67^{+74}_{-45}

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

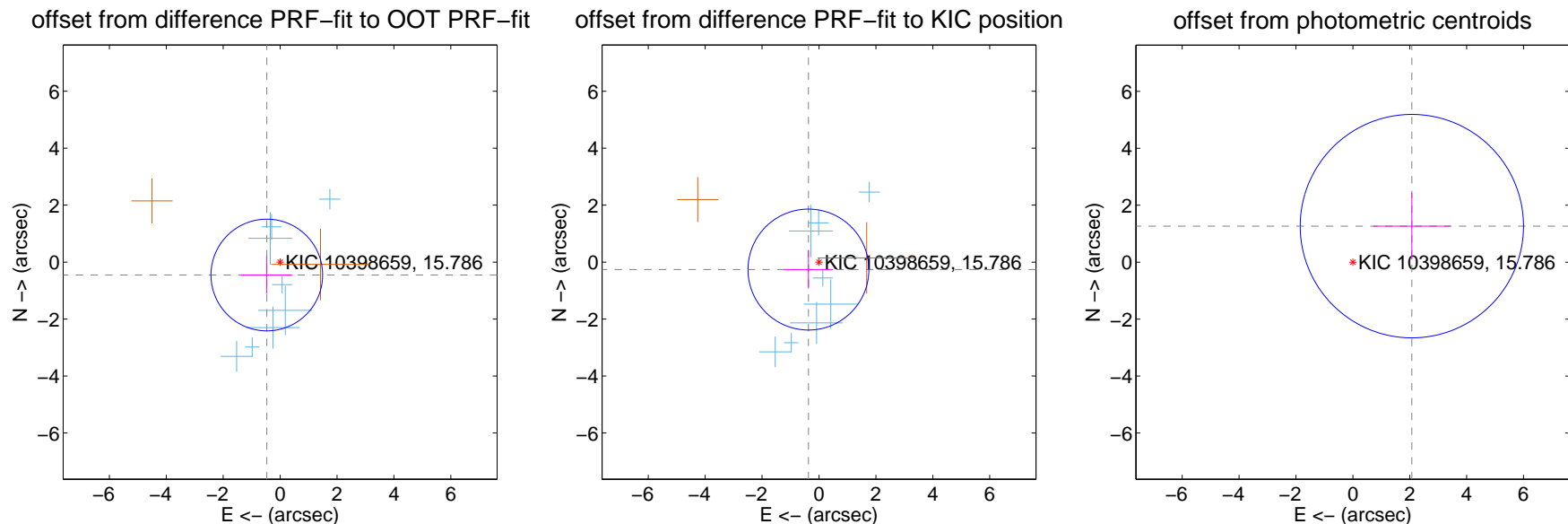
DV Centroid Data

Supplemental centroid analysis for 010398659-01. Kepler magnitude: 15.79. Transit SNR 8.91

There are 8 quarters with good PRF difference image offsets

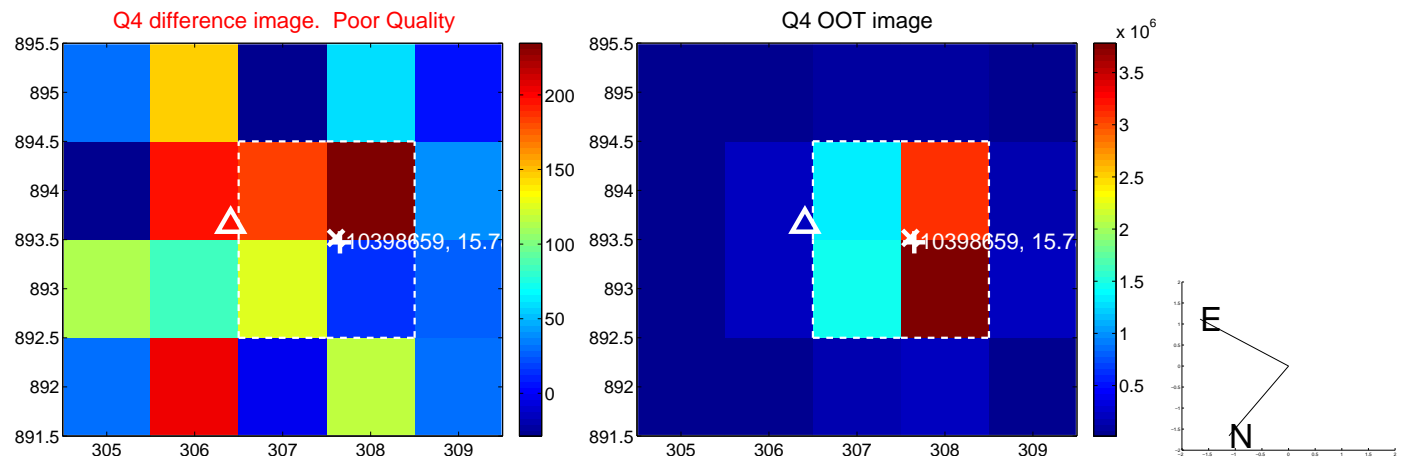
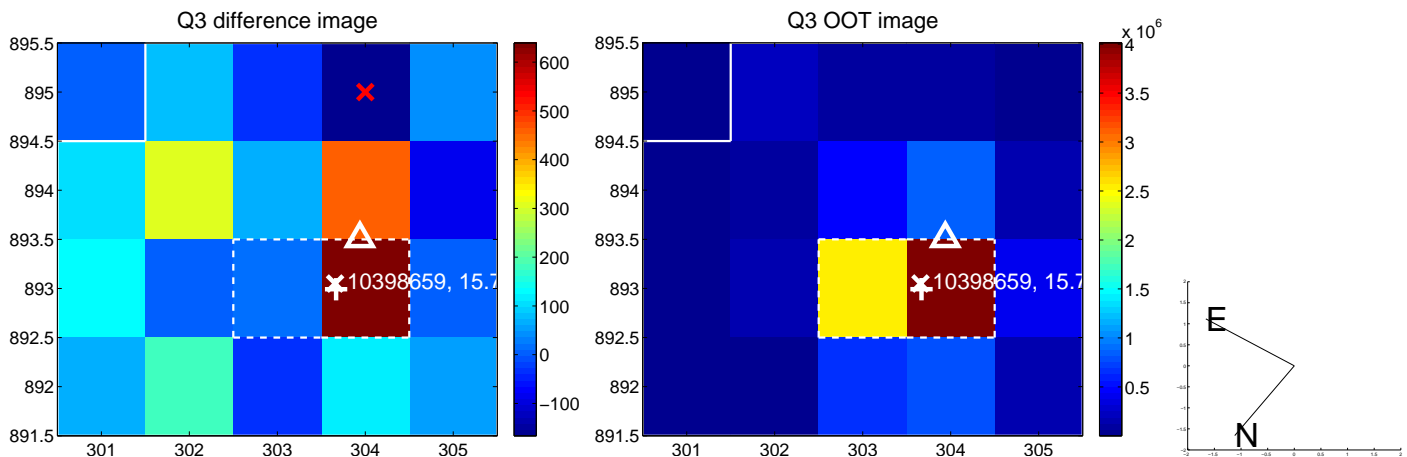
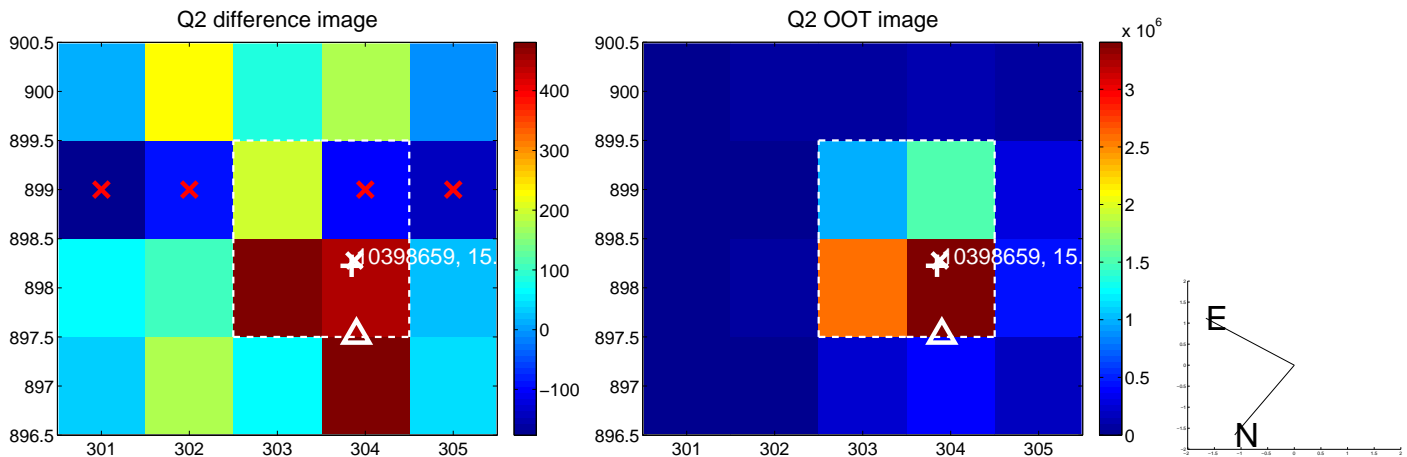
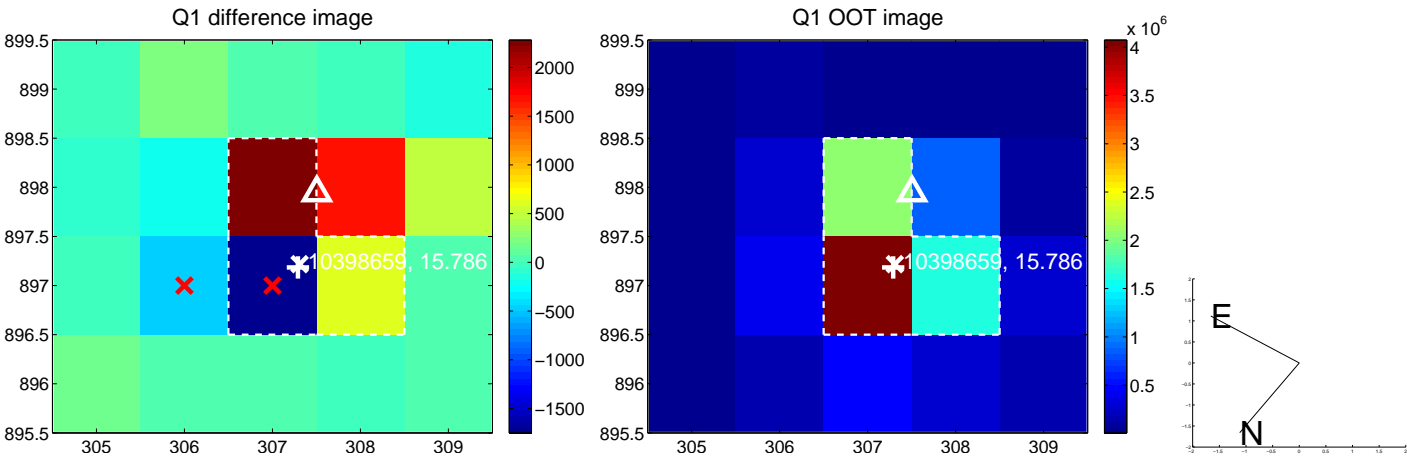
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.652 ± 0.654	1.00	0.468 ± 0.904	-0.454 ± 0.661
PRF-fit source offset from KIC position	0.454 ± 0.708	0.64	0.371 ± 0.866	-0.263 ± 0.668
photometric centroid source offset	2.43 ± 1.31	1.86	-2.07 ± 1.36	1.27 ± 1.17

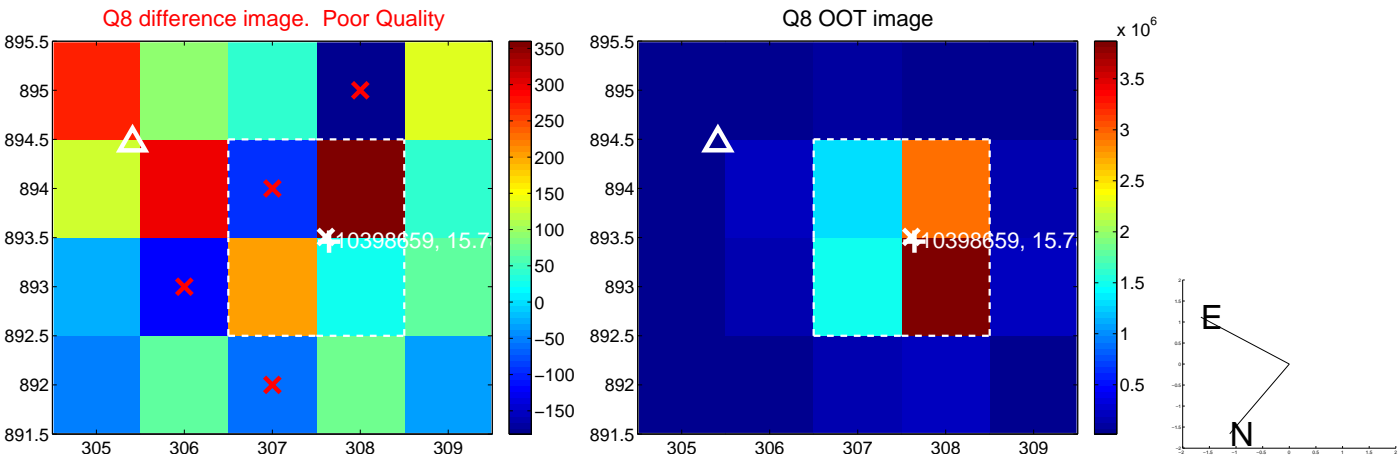
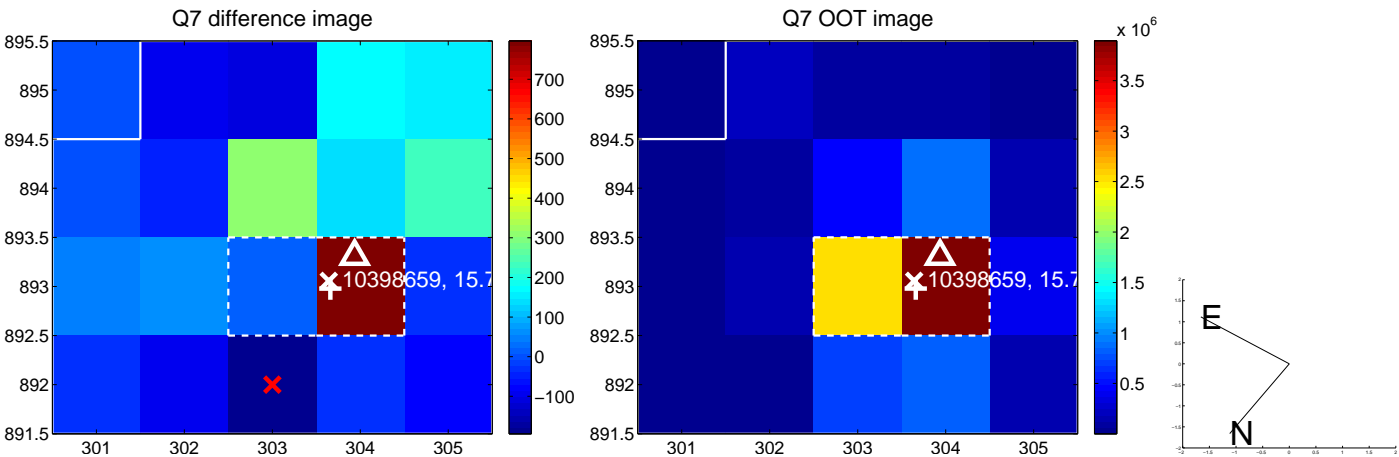
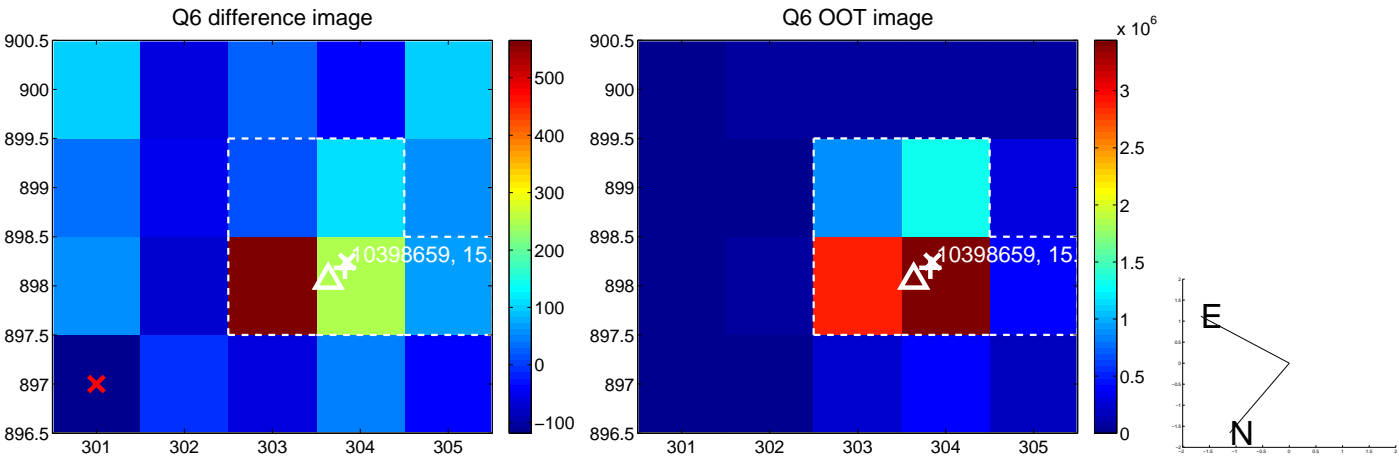
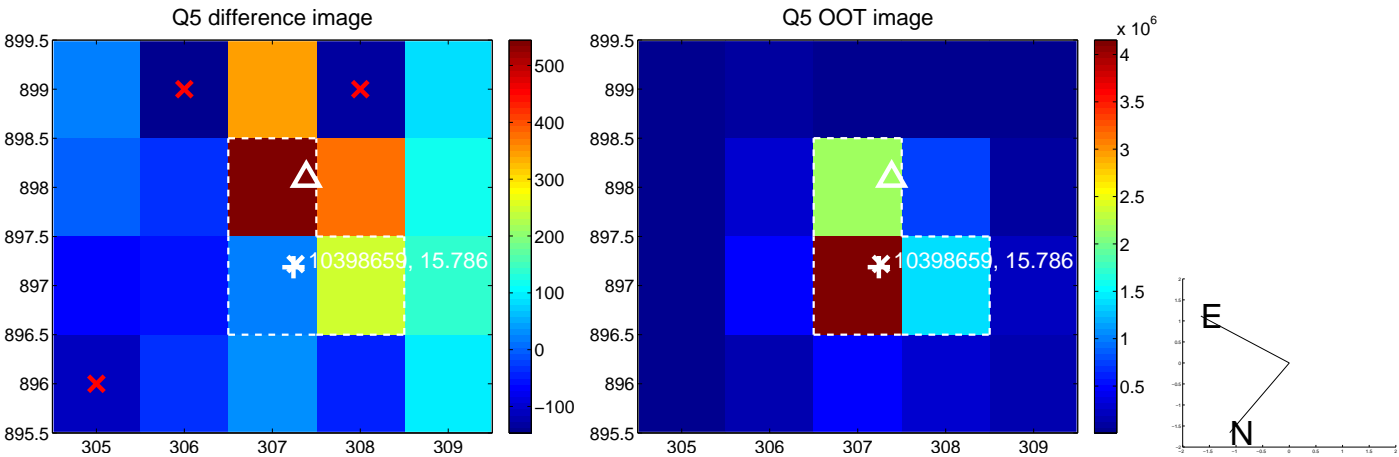


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

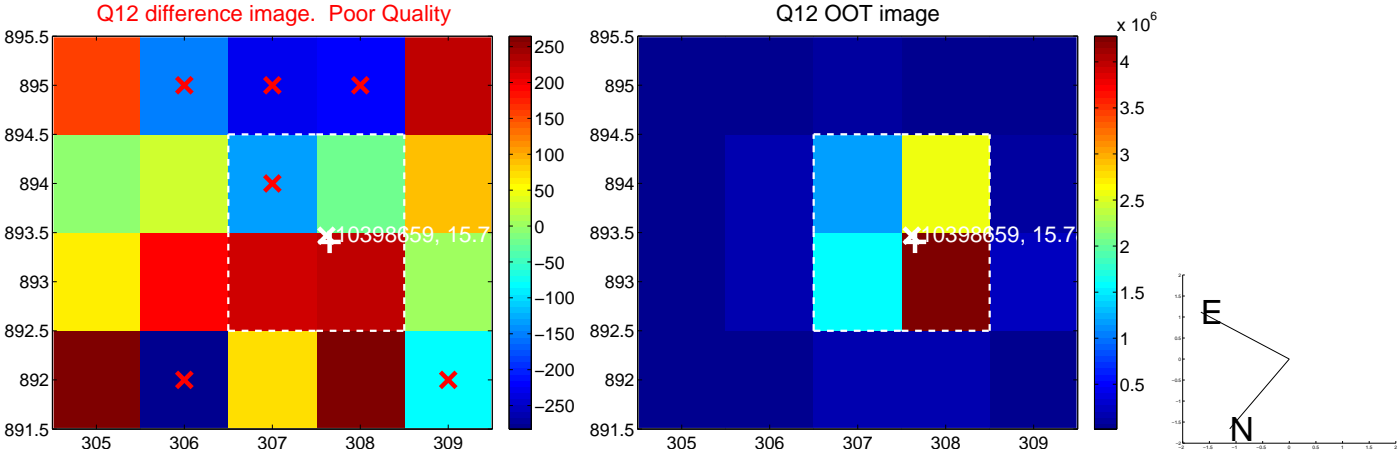
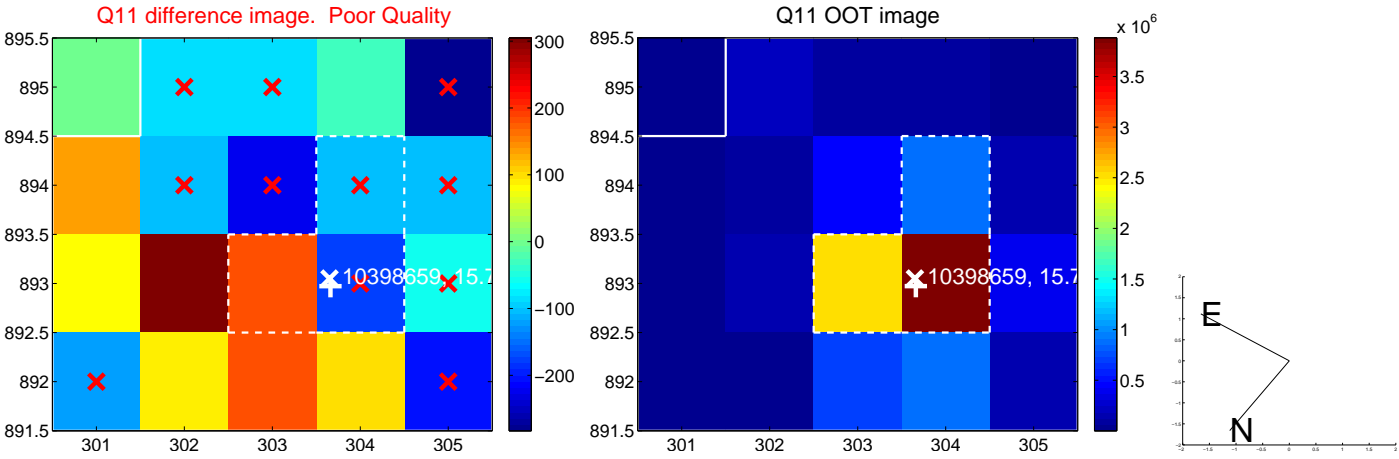
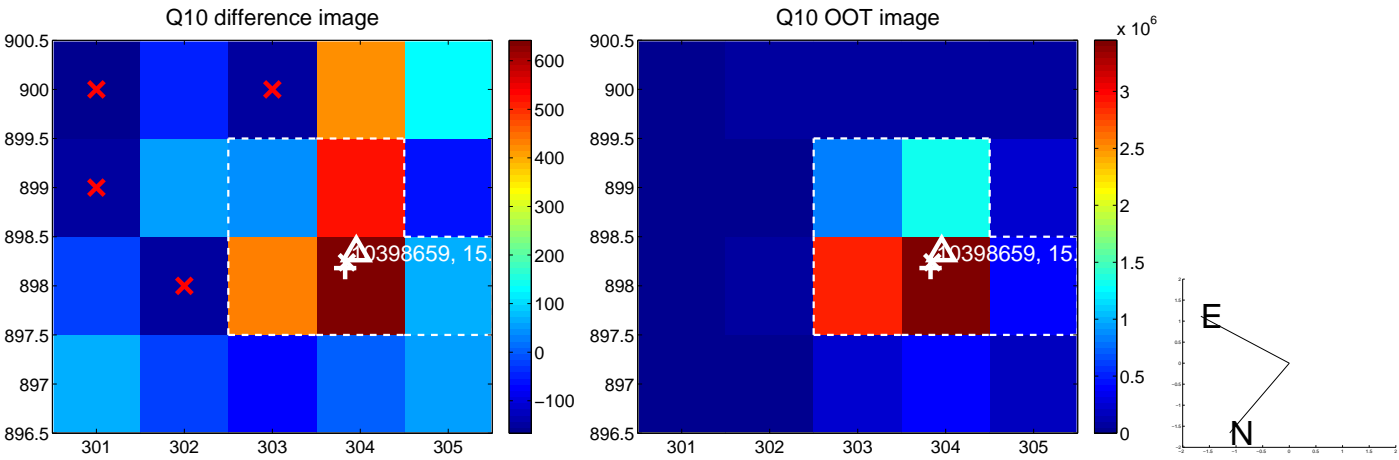
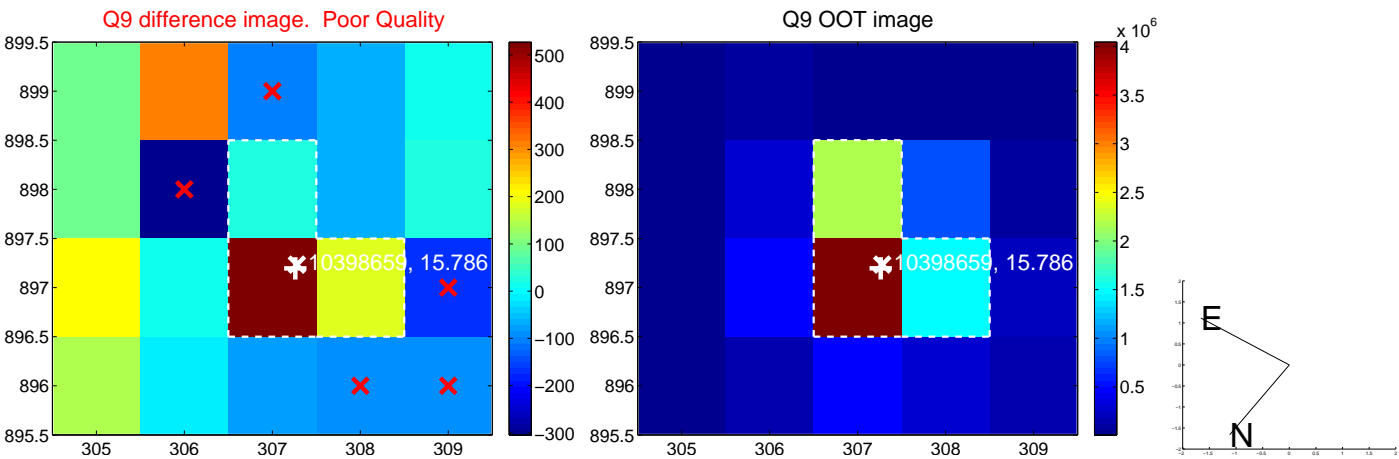
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



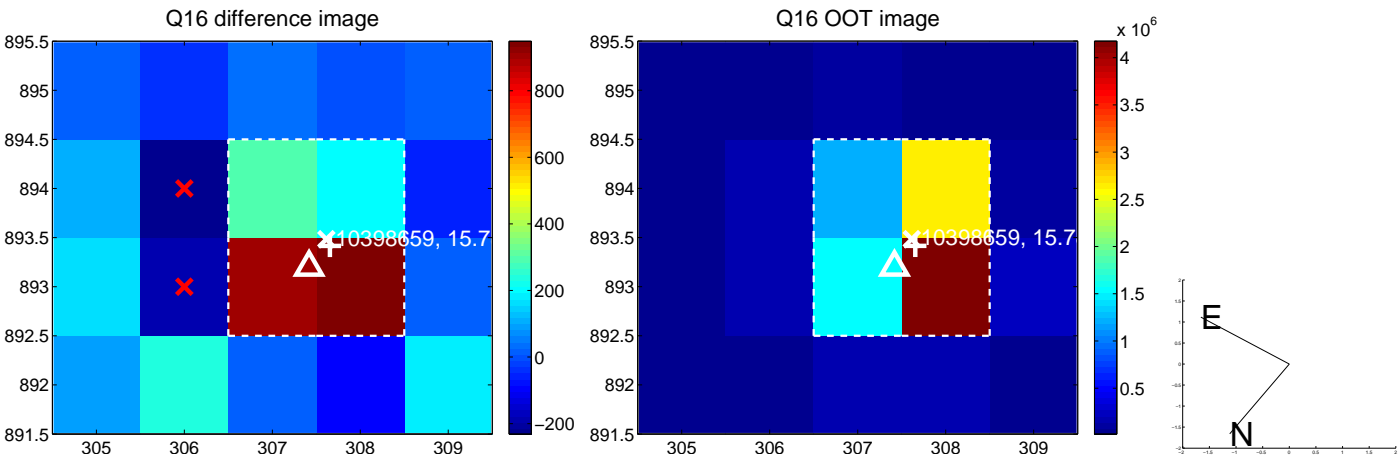
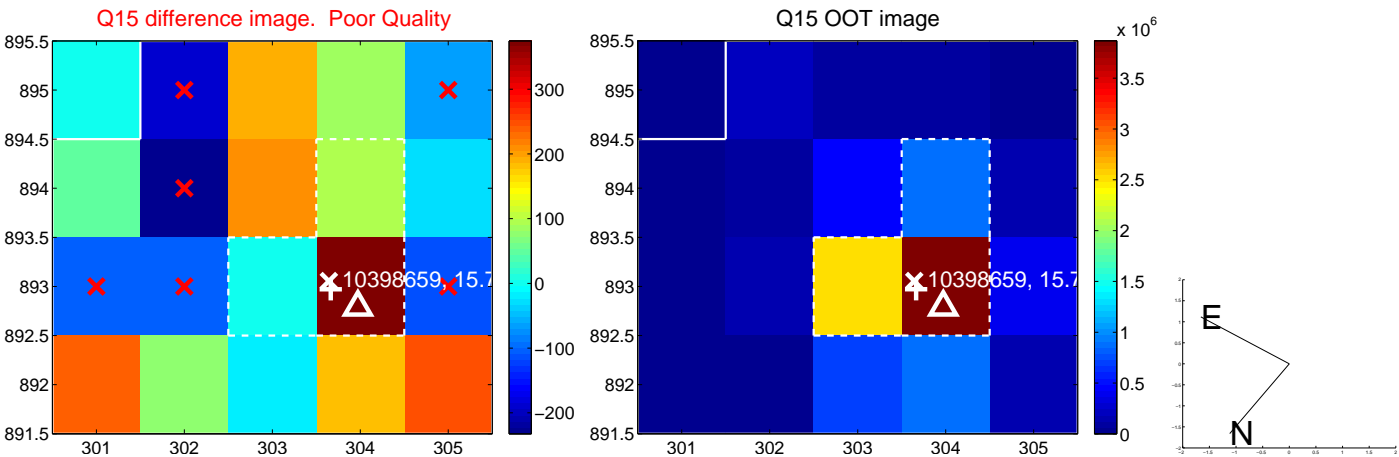
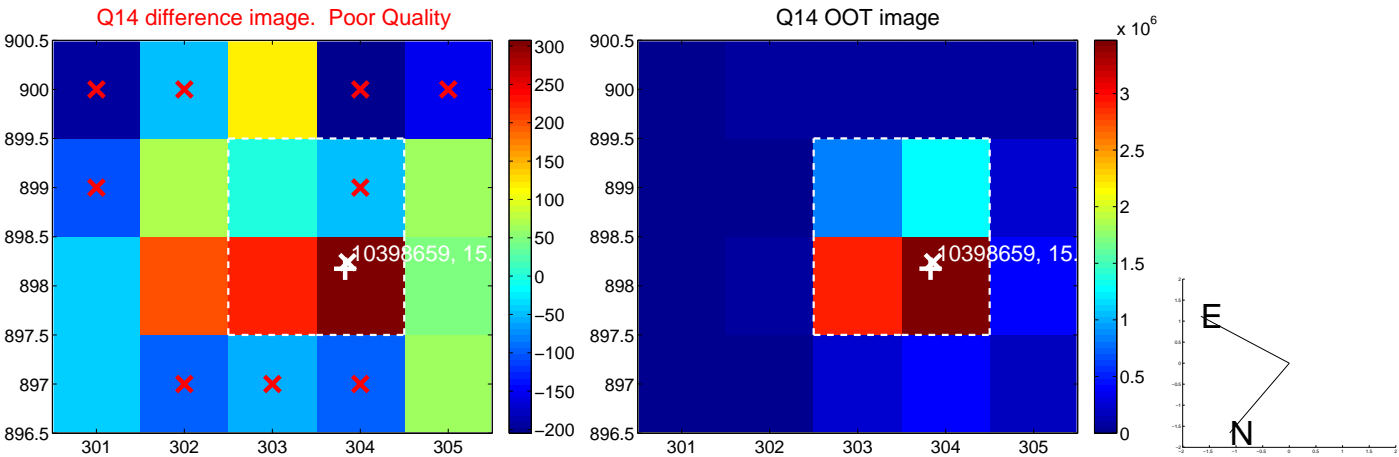
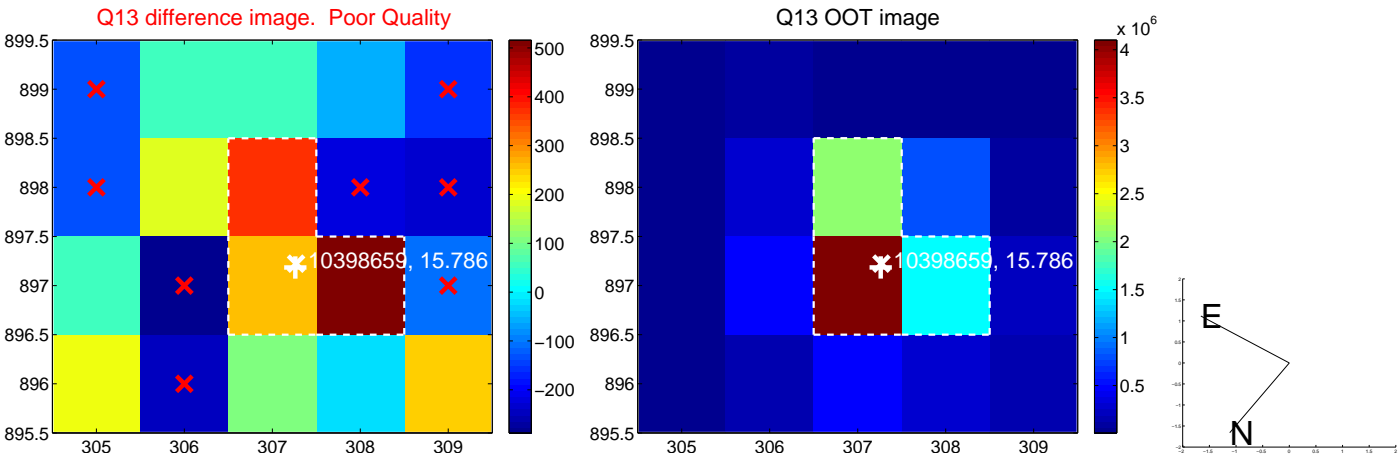
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



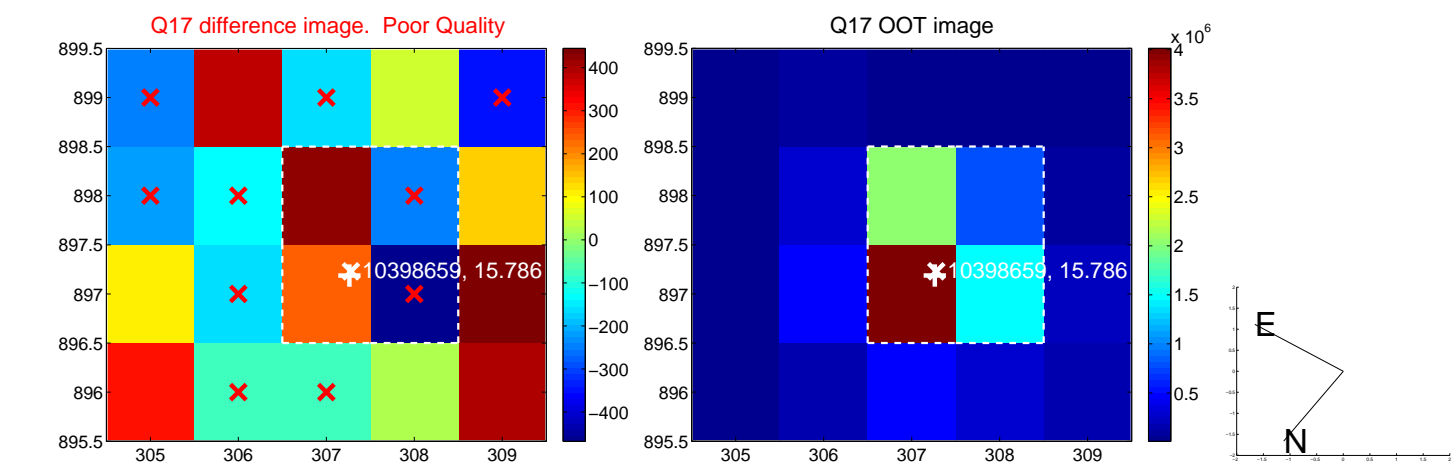
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



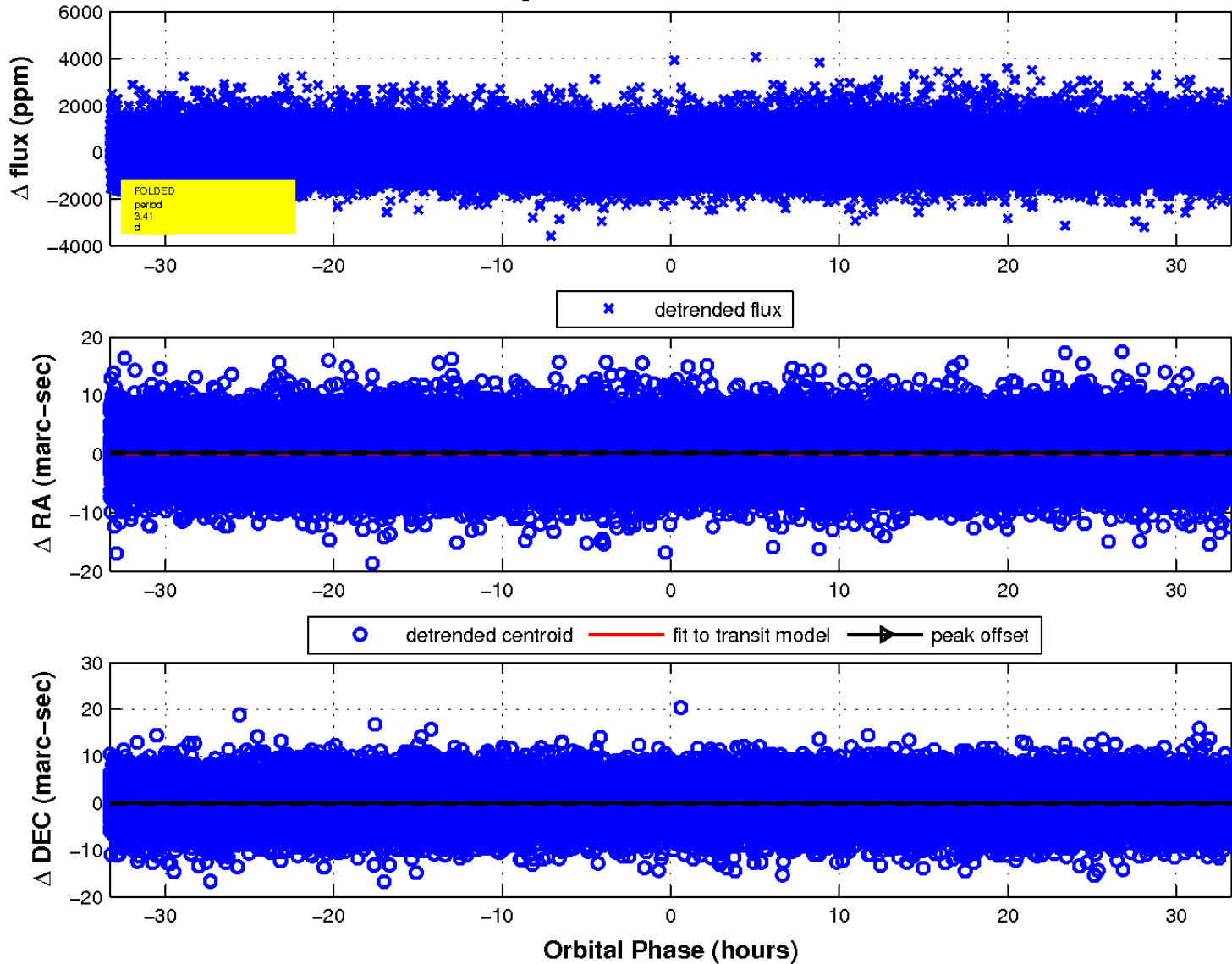
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

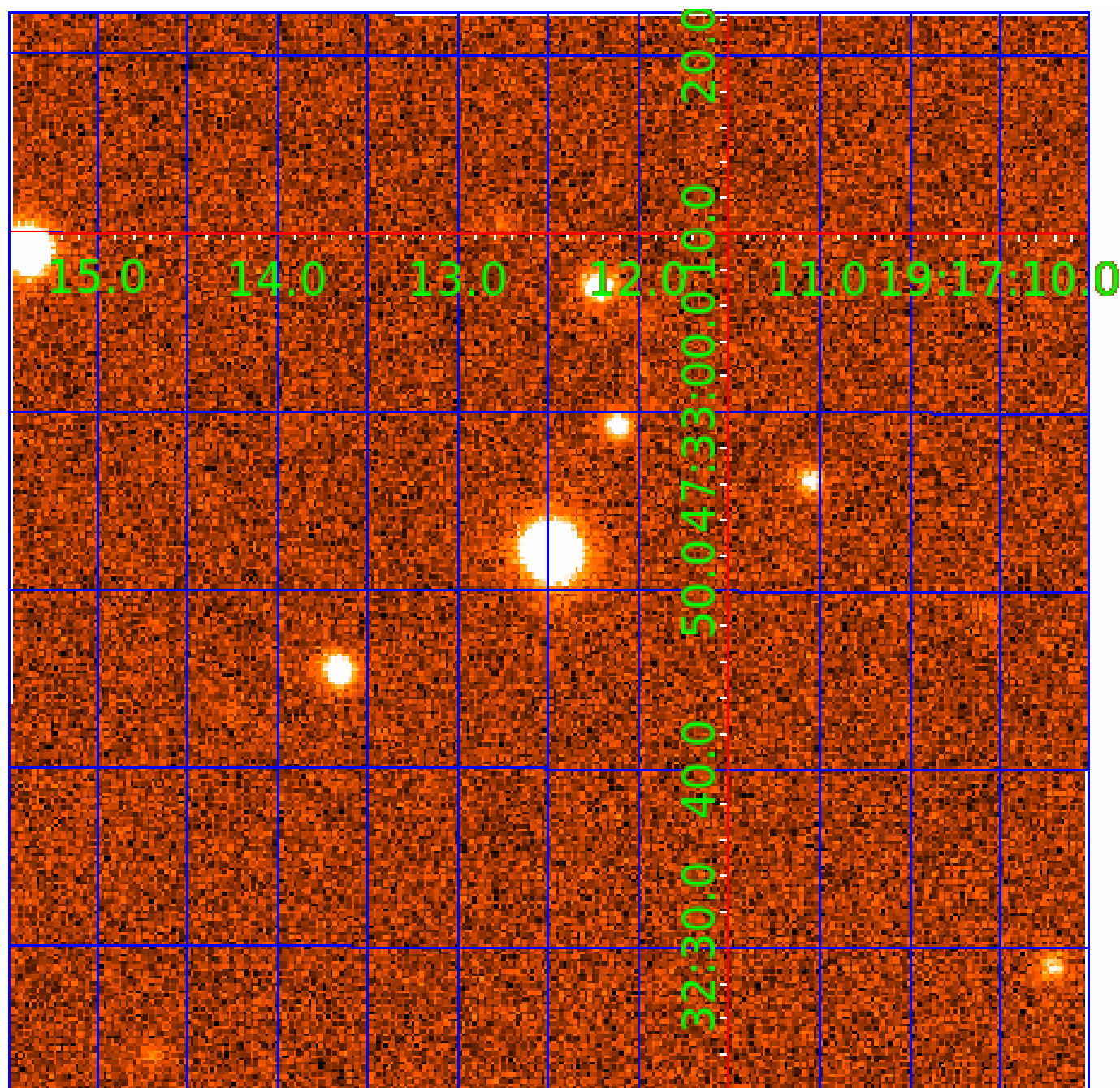


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 010398659

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})
010398659-01	OBS	No	3.411897	133.875512	99.1	11.094	8.9	8.9	0.41	3540	0.52	21.45
010398659-02	OBS	No	296.634426	172.713325	2210.7	58.853	12.6	12.0	0.41	3540	3.74	0.06
010398659-03	OBS	No	384.302950	244.756151	1279.8	6.847	8.1	5.9	0.41	3540	2.73	0.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010398659-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010398659-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010398659-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

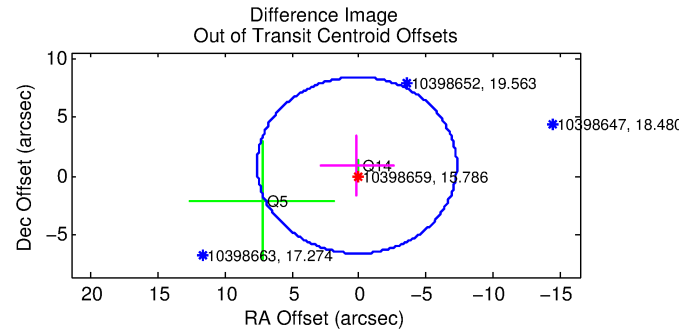
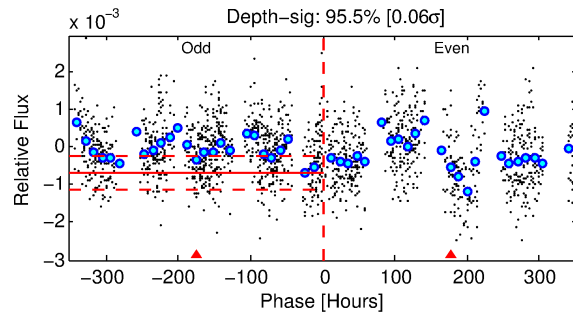
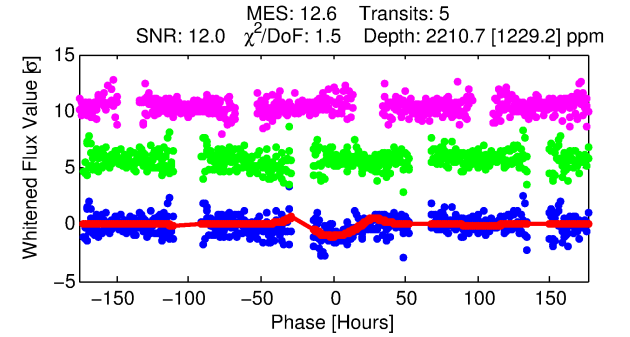
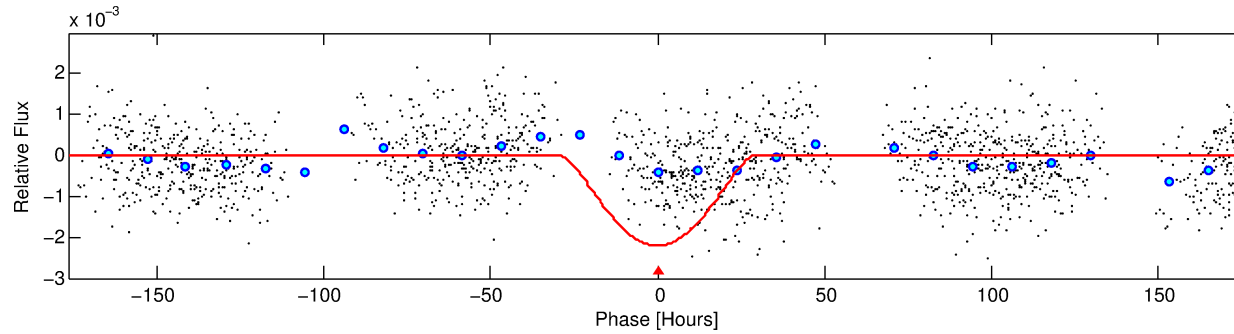
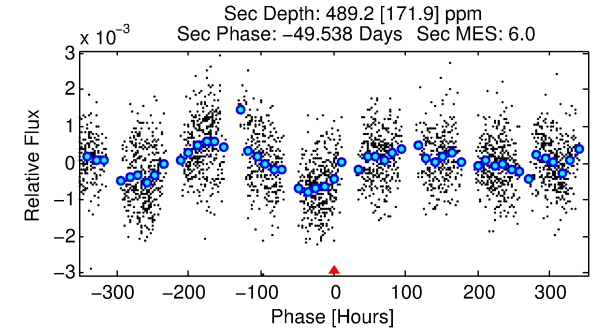
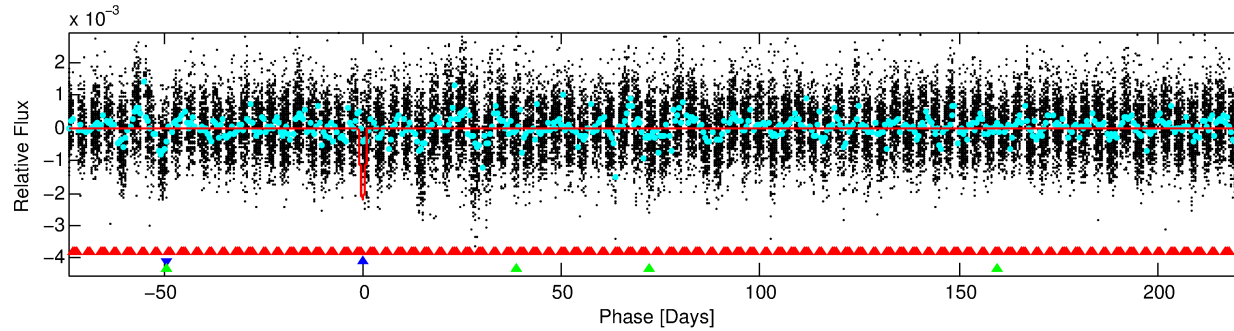
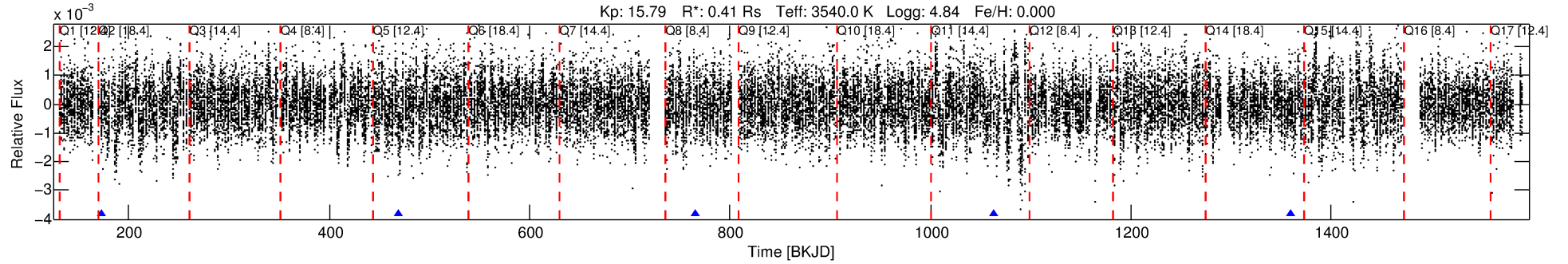
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010398659-02

No Significant Match Found

DV One-Page Summary

KIC: 10398659 Candidate: 2 of 3 Period: 296.634 d



DV Fit Results:

Period = 296.63443 [0.04656] d
Epoch = 172.7133 [0.1206] BKJD
Rp/R* = 0.0835 [0.1930]
a/R* = 16.09 [8.12]
b = 1.00 [0.30]
Seff = 0.06 [0.01]
Teq = 124 [3] K
Rp = 3.74 [8.66] Re
a = 0.6532 [0.0429] AU
Ag = 8195.86 [38026.31] [0.22σ]
Teff = 1822 [2114] K [0.80σ]

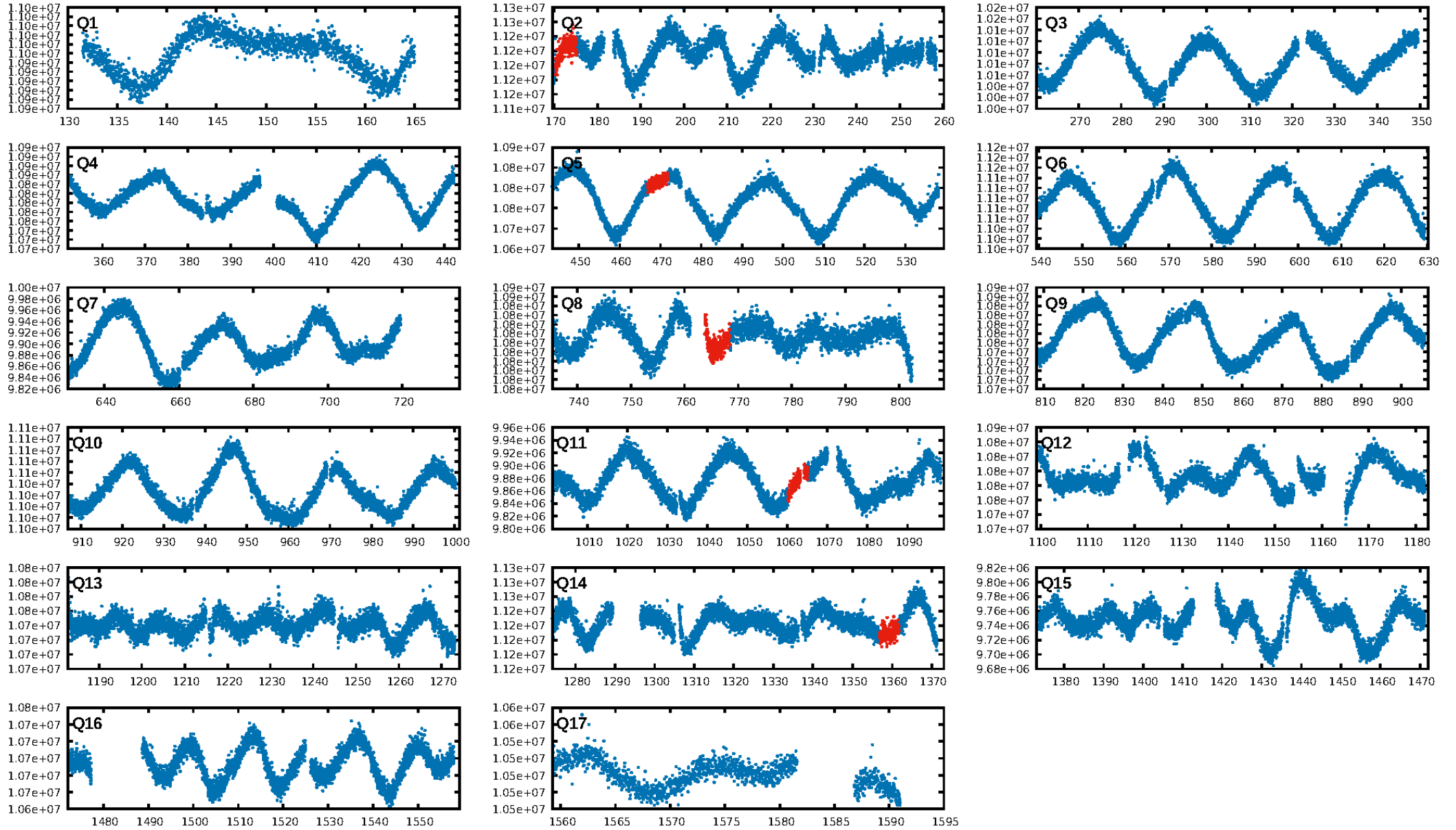
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [117.51σ]
LongPeriod-sig: 100.0% [35.51σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.32e-17
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.614
Centroid-sig: 11.2%
Centroid-so: 0.396 arcsec [1.33σ]
OotOffset-rm: 0.956 arcsec [0.38σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-rm: 1.239 arcsec [0.50σ]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/2]

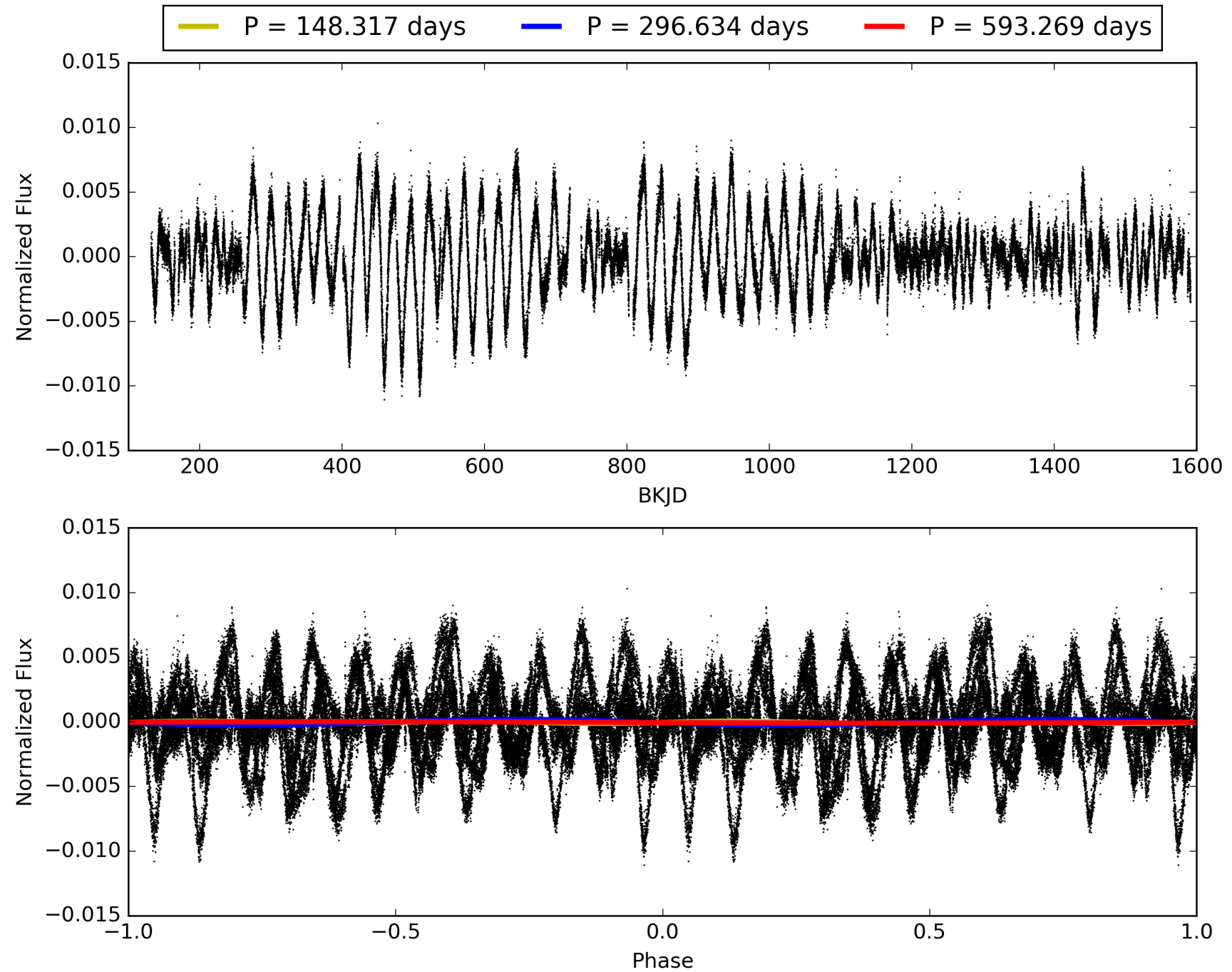
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:25:35 Z

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

TCE 010398659-02, PDC Light Curves

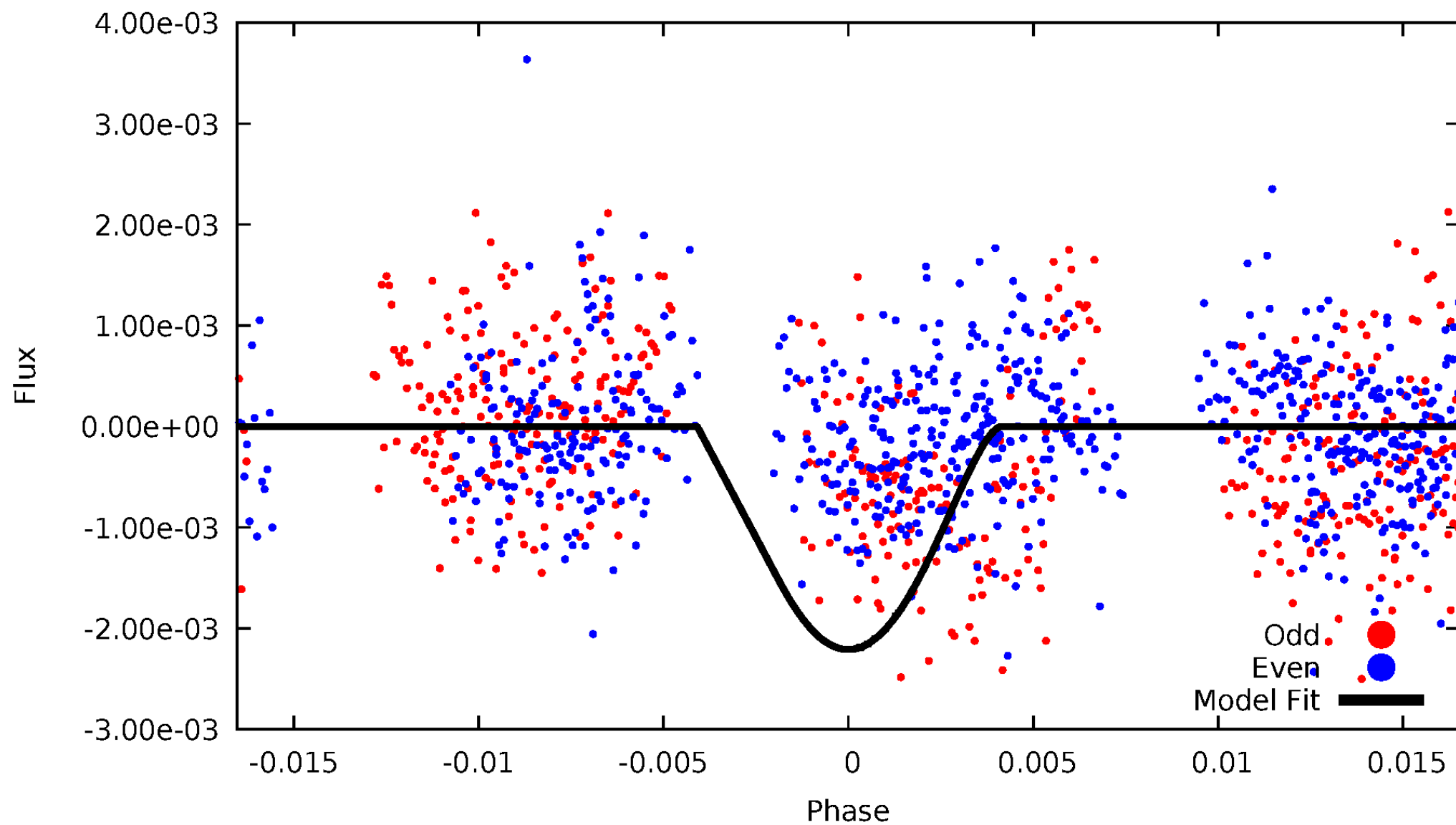


TCE 010398659-02



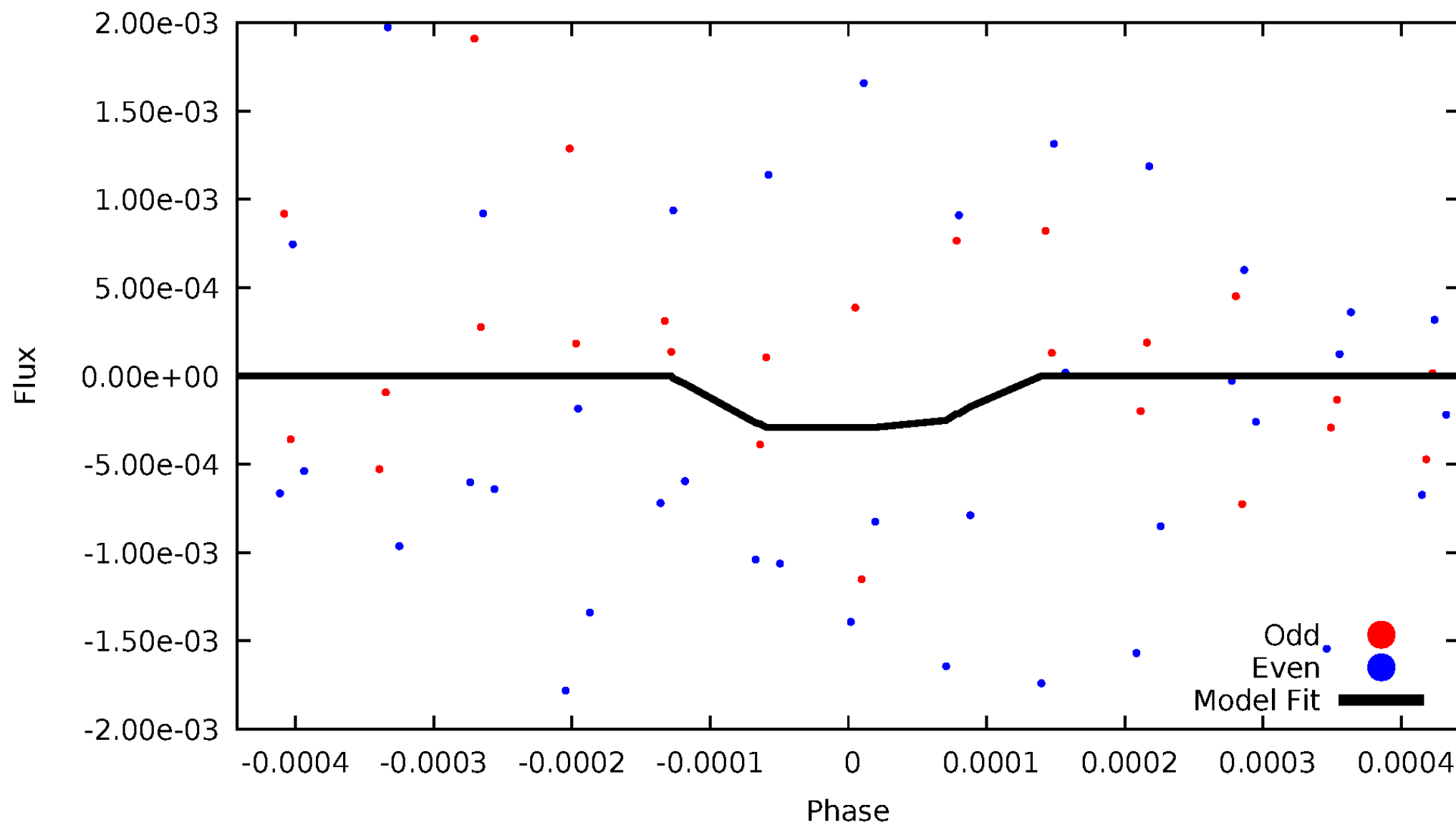
DV Odd/Even

TCE 010398659-02



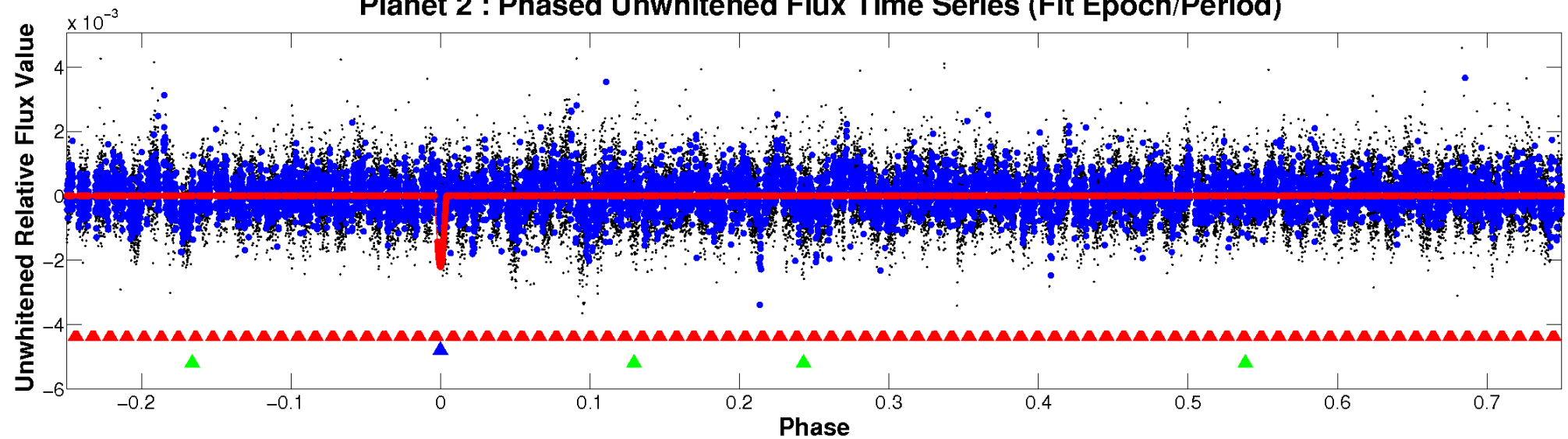
ALT Odd/Even

TCE 010398659-02

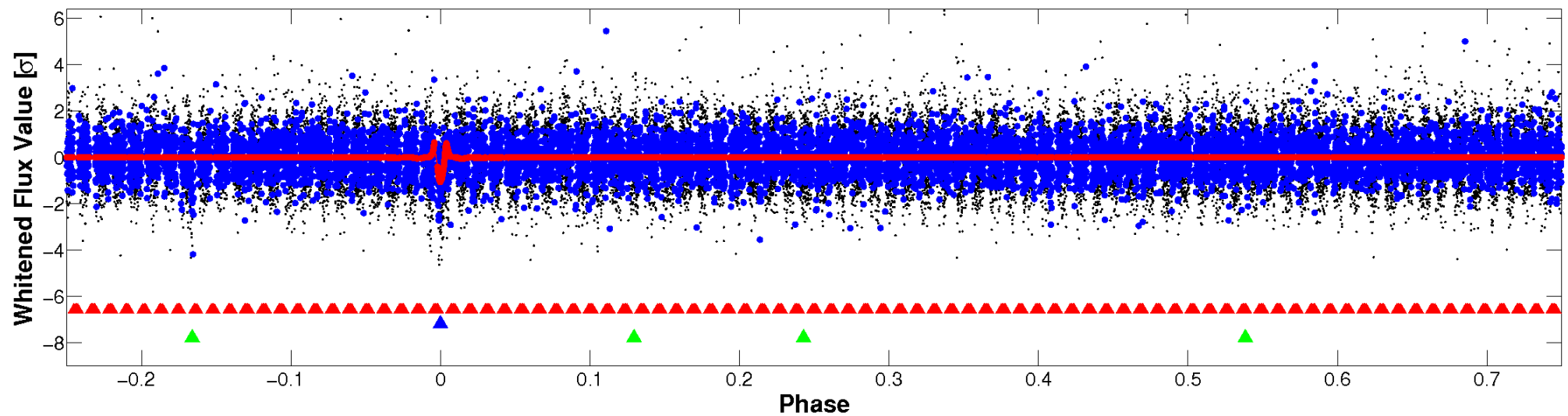


Non-Whitened Vs. Whitened Light Curve

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

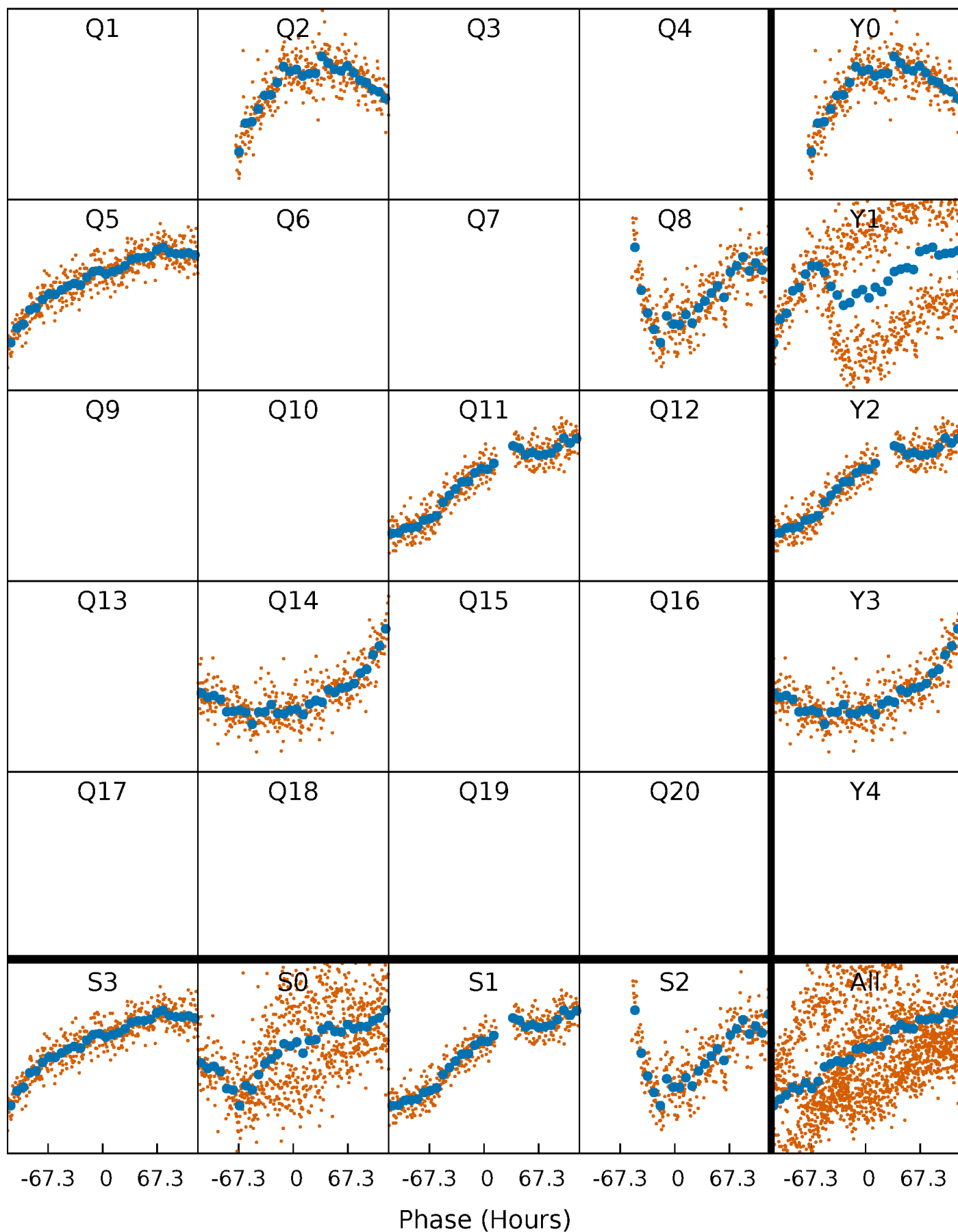


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



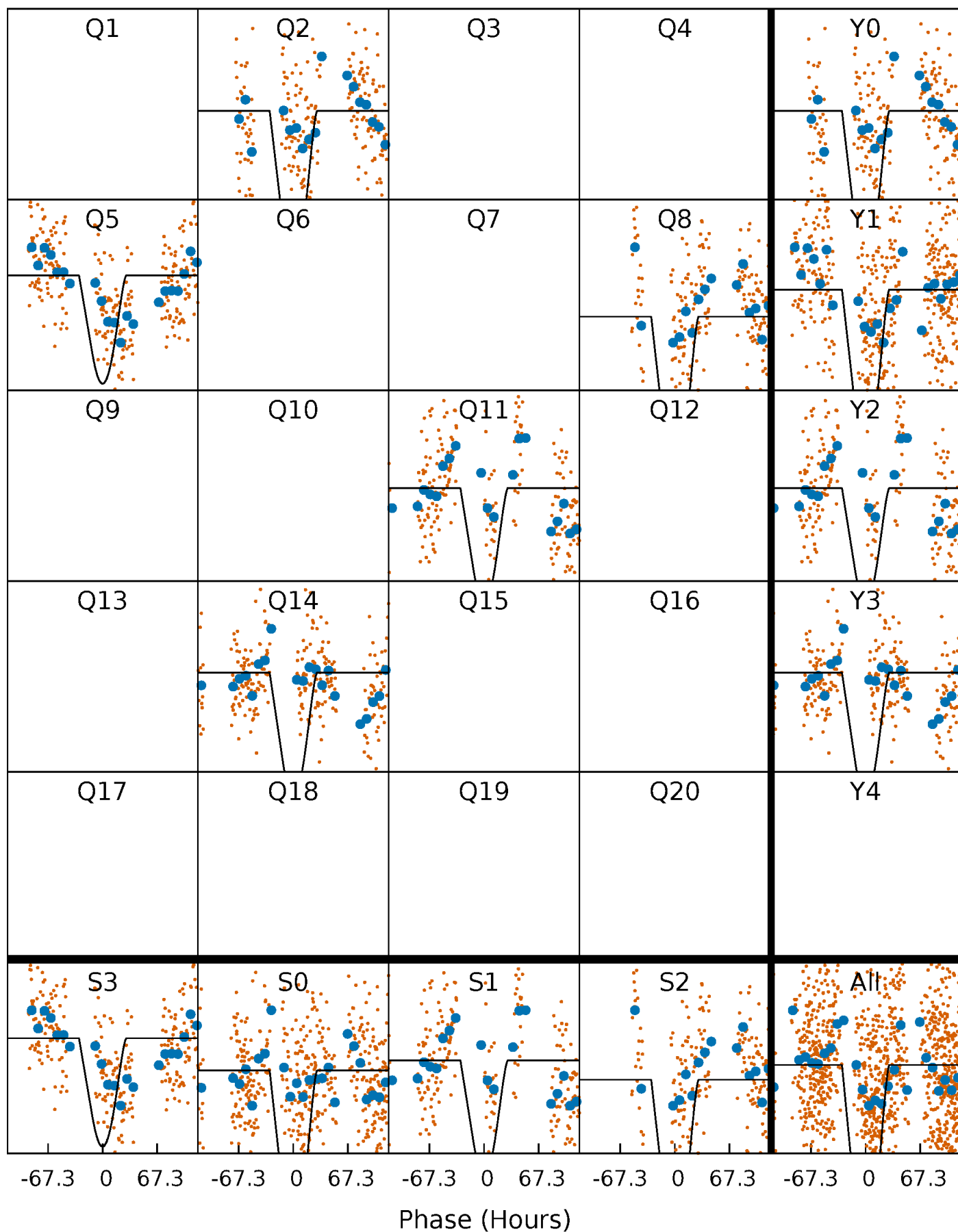
PDC Quarter-Phased Transit Curves

TCE 010398659-02 $P=296.634426$ Days $T_0=172.713325$ (BKJD)



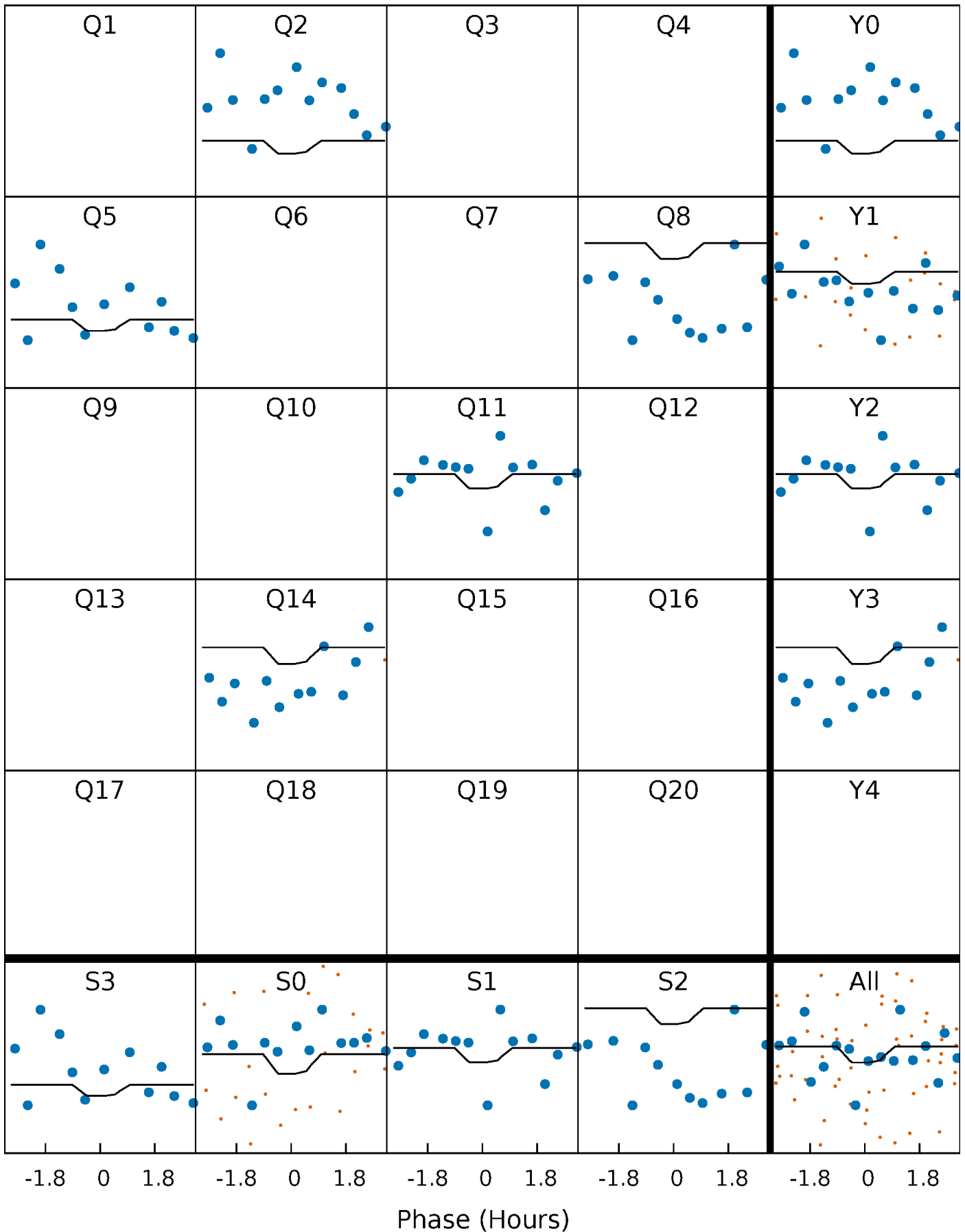
DV Quarter-Phased Transit Curves

TCE 010398659-02 P=296.634426 Days $T_0=172.713325$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

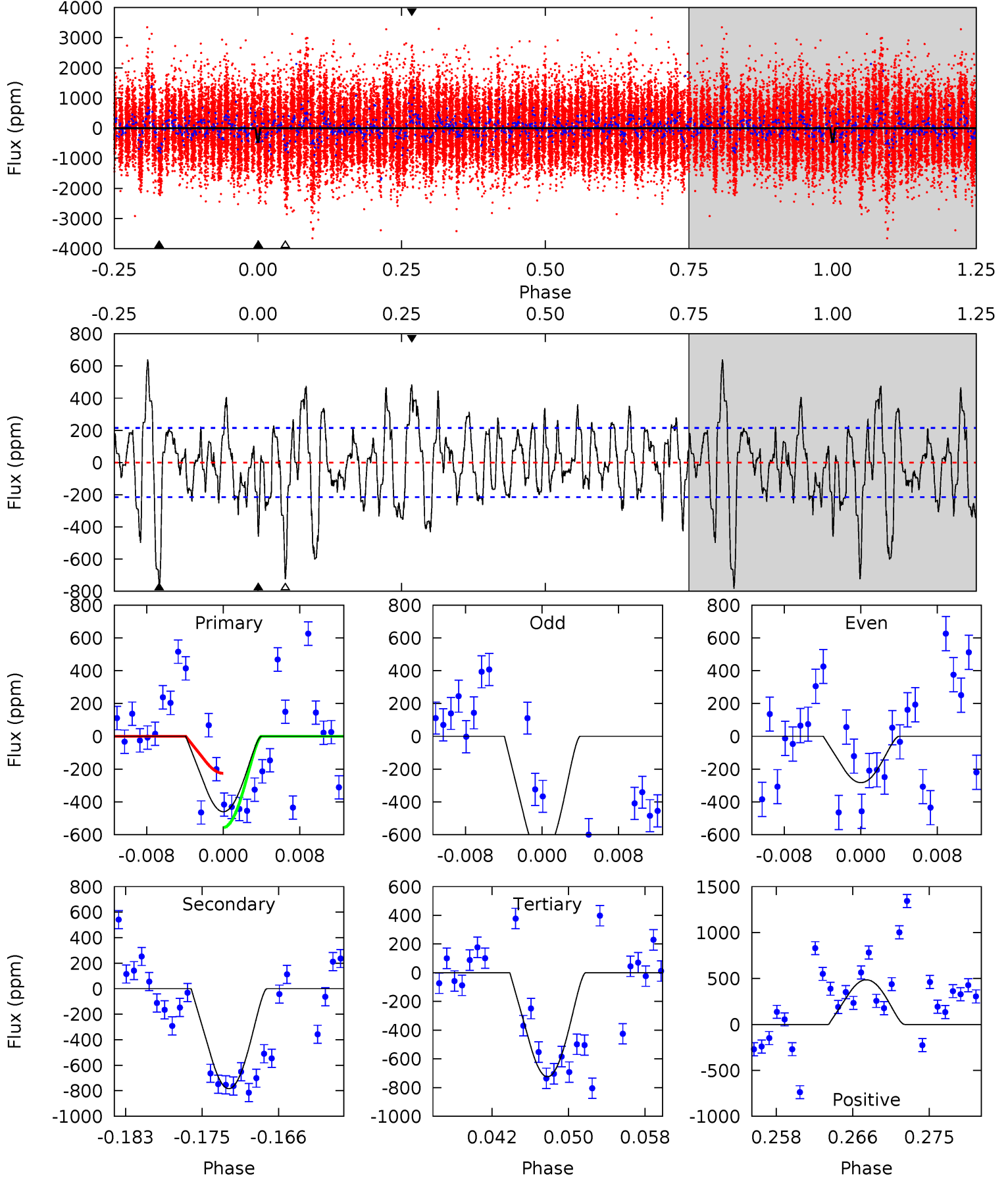
TCE 010398659-02 P=296.817893 Days $T_0=172.397796$ (BKJD)



DV Model-Shift Uniqueness Test

010398659-02, P = 296.634426 Days, E = 172.713325 Days

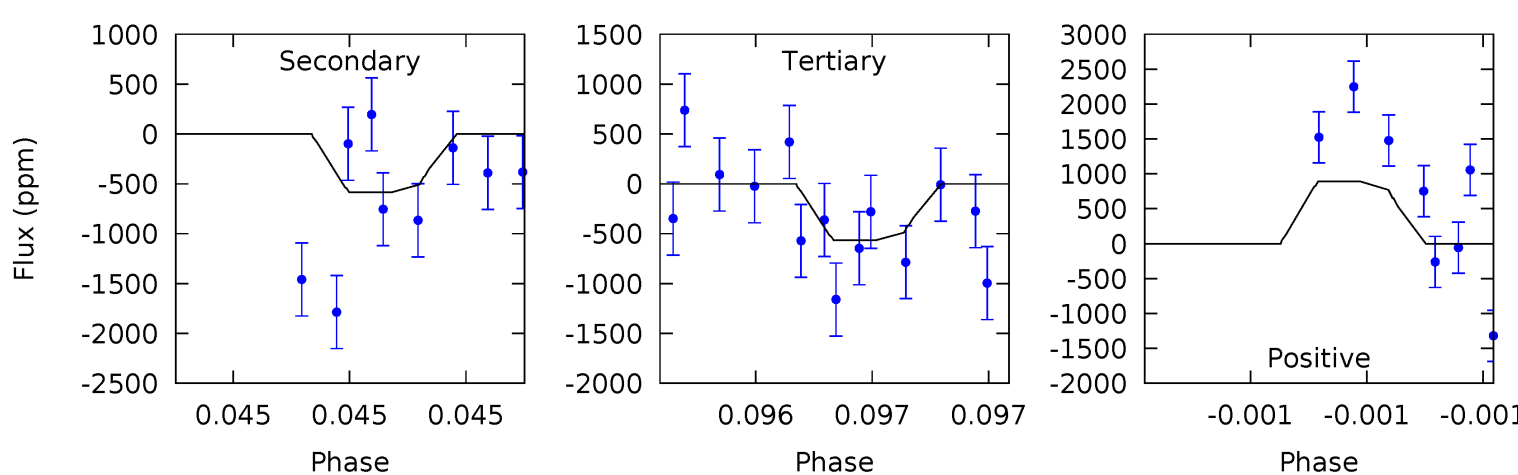
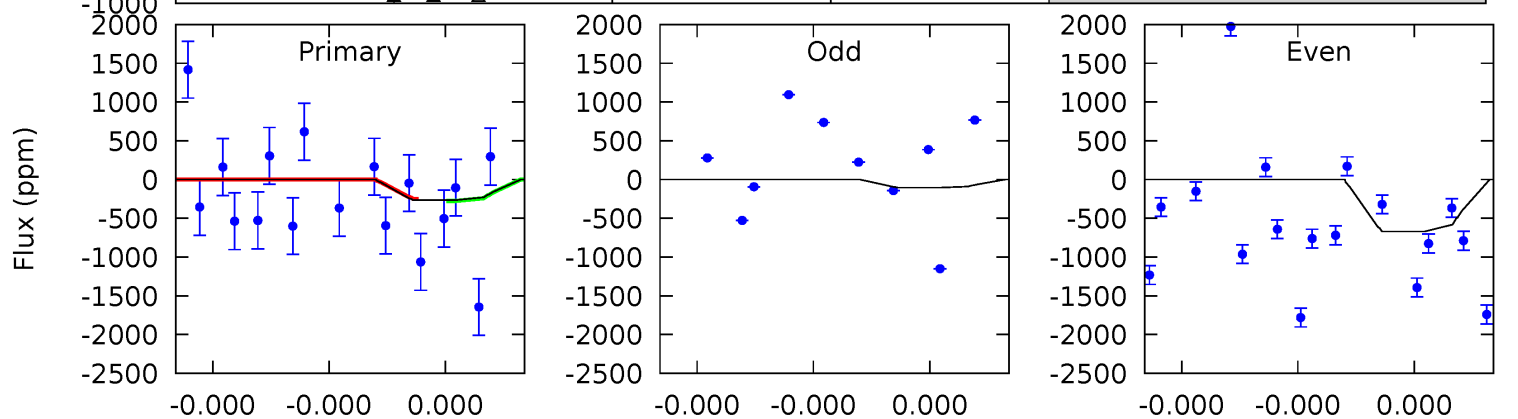
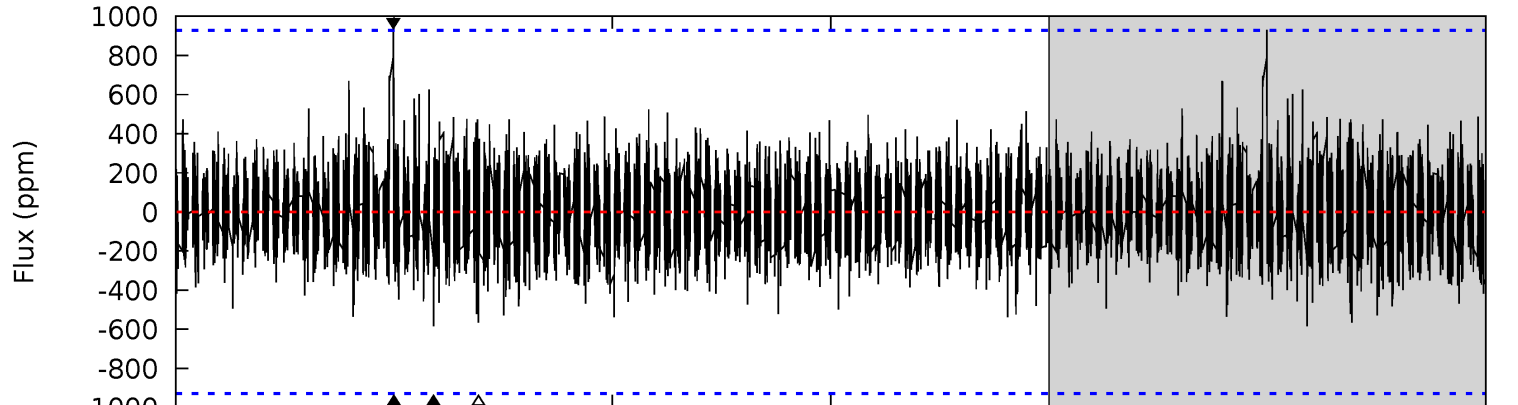
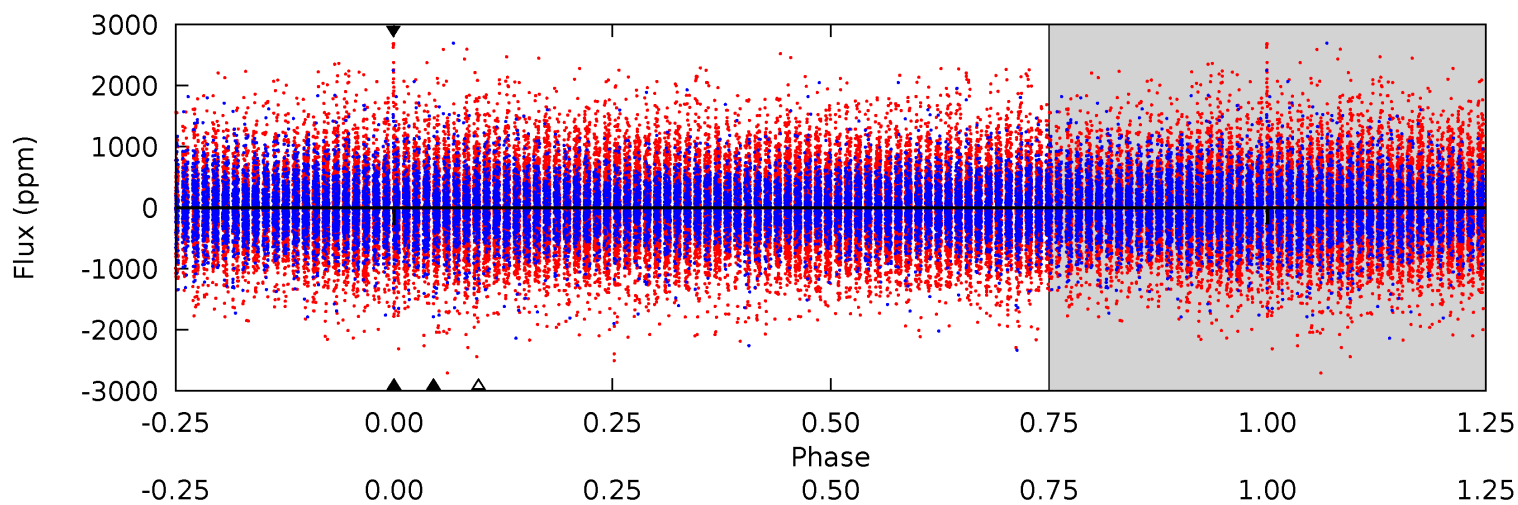
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	18.4	17.1	11.4	5.06	2.64	4.96	-6.23	-0.61	1.38	7.00	5.01	1.30	0.45	3.12



Alt Model-Shift Uniqueness Test

010398659-02, P = 296.817893 Days, E = 172.397796 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.64	3.60	3.48	5.47	5.72	3.70	0.89	-1.84	-3.83	0.12	-1.87	1.69	1.34	0.61	0.09



Stellar Parameters For KIC 010398659

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3540^{+42}_{-47}	$4.836^{+0.039}_{-0.025}$	$0.000^{+0.100}_{-0.100}$	$0.411^{+0.026}_{-0.036}$	$0.422^{+0.035}_{-0.035}$	$8.590^{+1.670}_{-1.041}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+6%/-9%	+8%/-8%	+19%/-12%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010398659-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-783 ± 43	$7.45^{+6.97}_{-5.21}$	173^{+3}_{-3}	2212^{+759}_{-287}	3351^{+33788}_{-2453}
Alt.	-585 ± 162	$6.43^{+6.25}_{-4.49}$	173^{+3}_{-3}	2210^{+736}_{-310}	3275^{+29428}_{-2489}

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

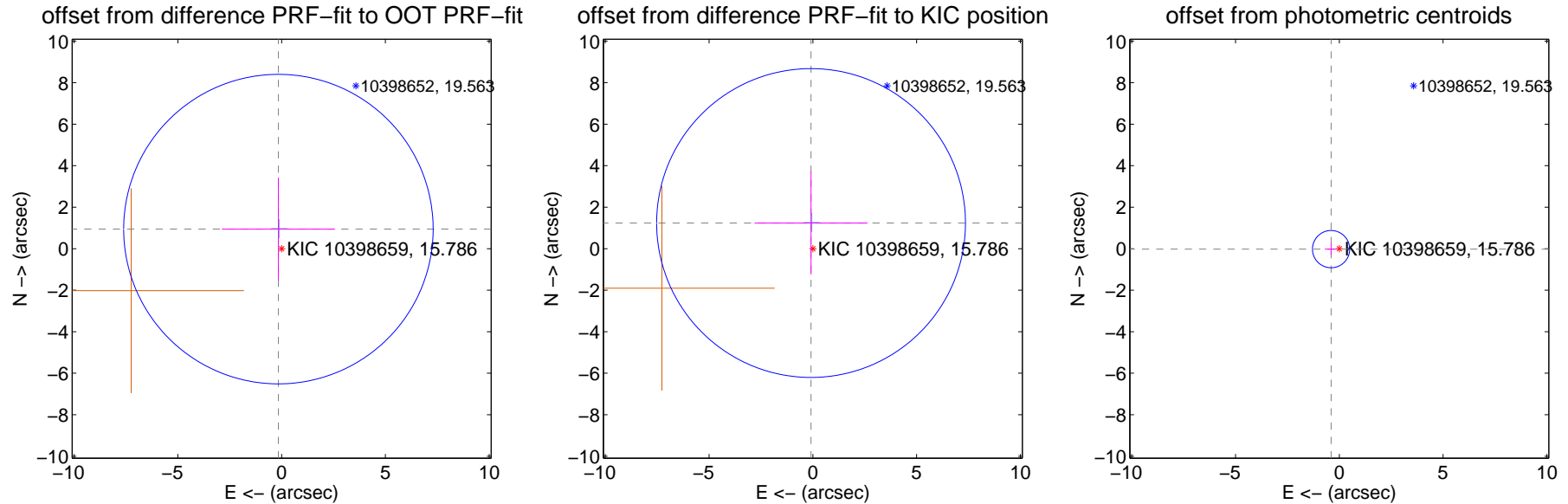
DV Centroid Data

Supplemental centroid analysis for 010398659-02. Kepler magnitude: 15.79. Transit SNR 11.97

There are 1 quarters with good PRF difference image offsets

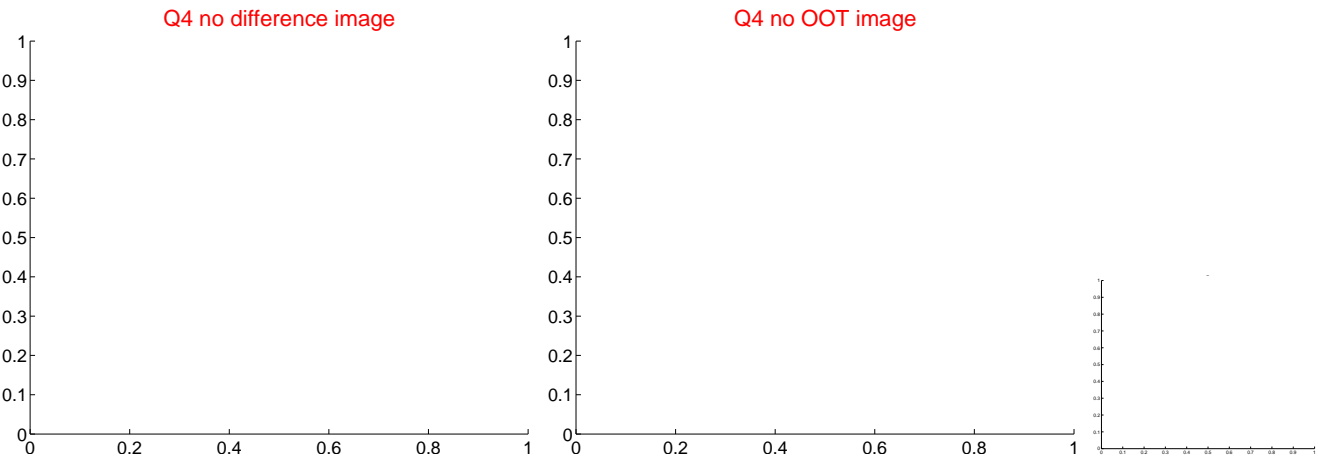
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.956 ± 2.485	0.38	0.155 ± 2.723	0.943 ± 2.479
PRF-fit source offset from KIC position	1.239 ± 2.480	0.50	0.086 ± 2.723	1.236 ± 2.479
photometric centroid source offset	0.40 ± 0.30	1.33	0.40 ± 0.30	-0.02 ± 0.28

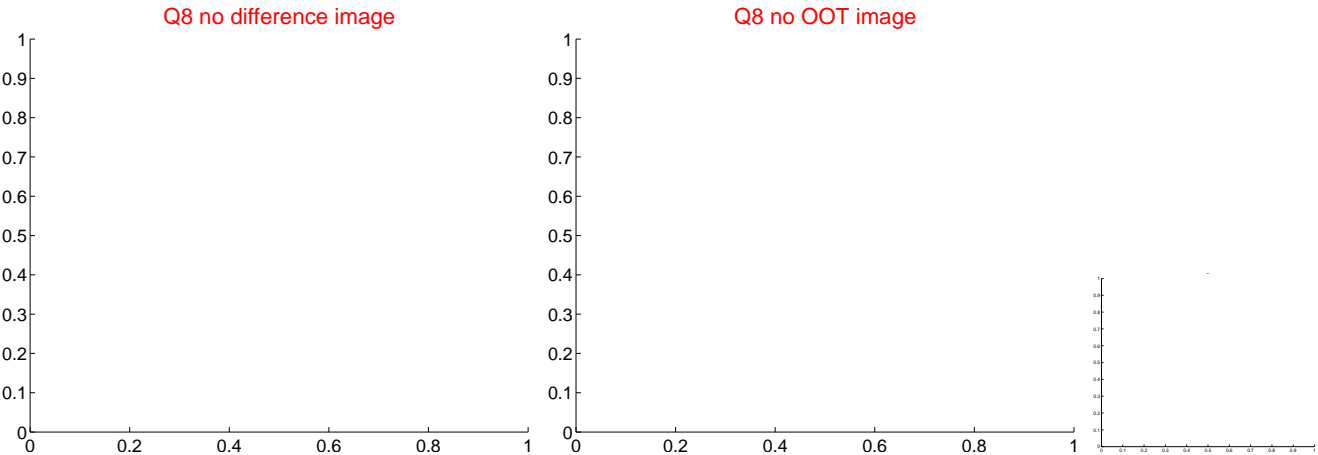
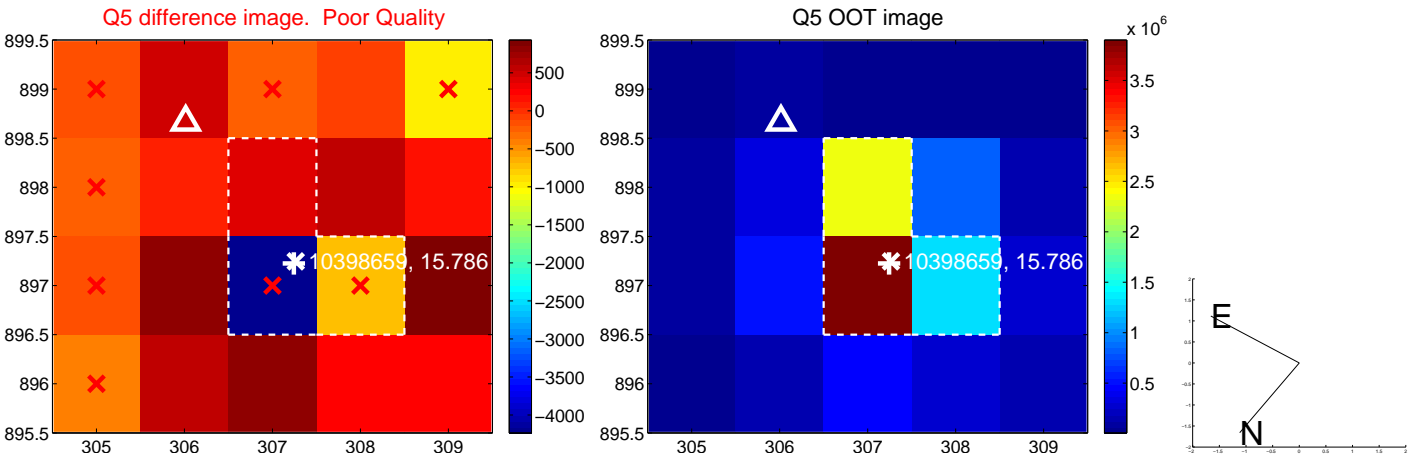


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

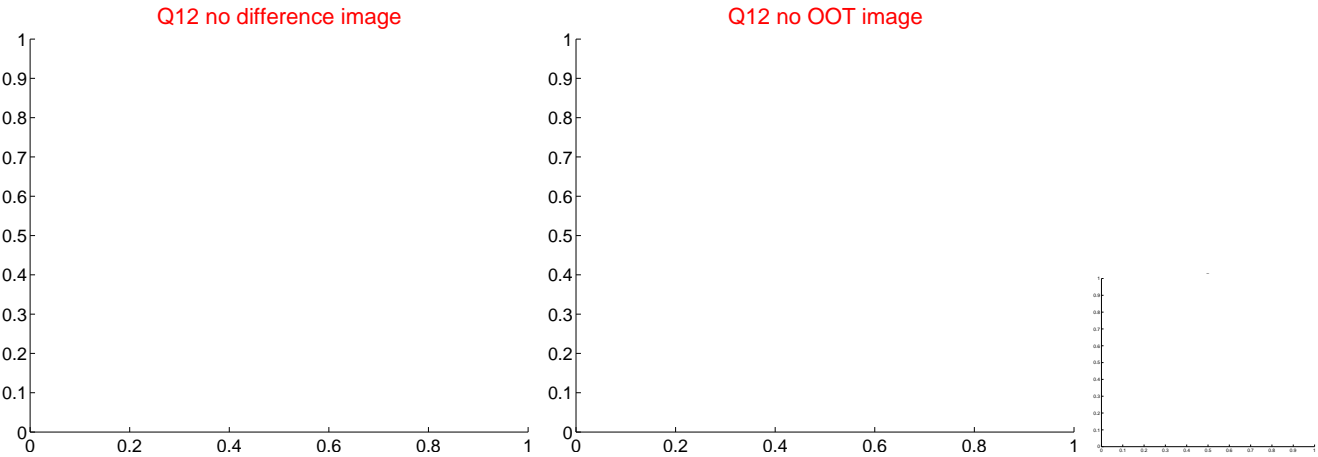
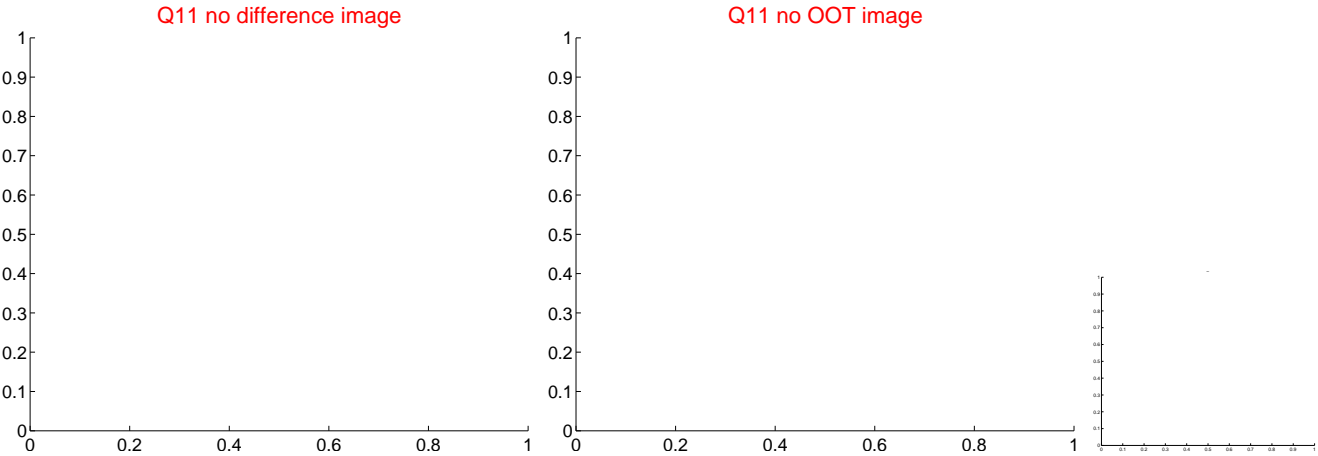
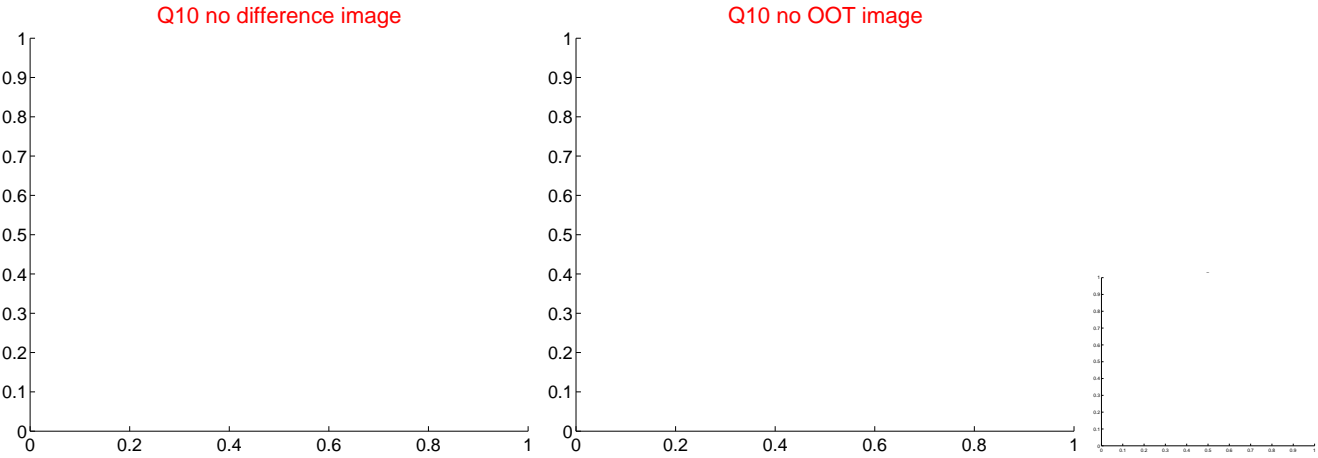
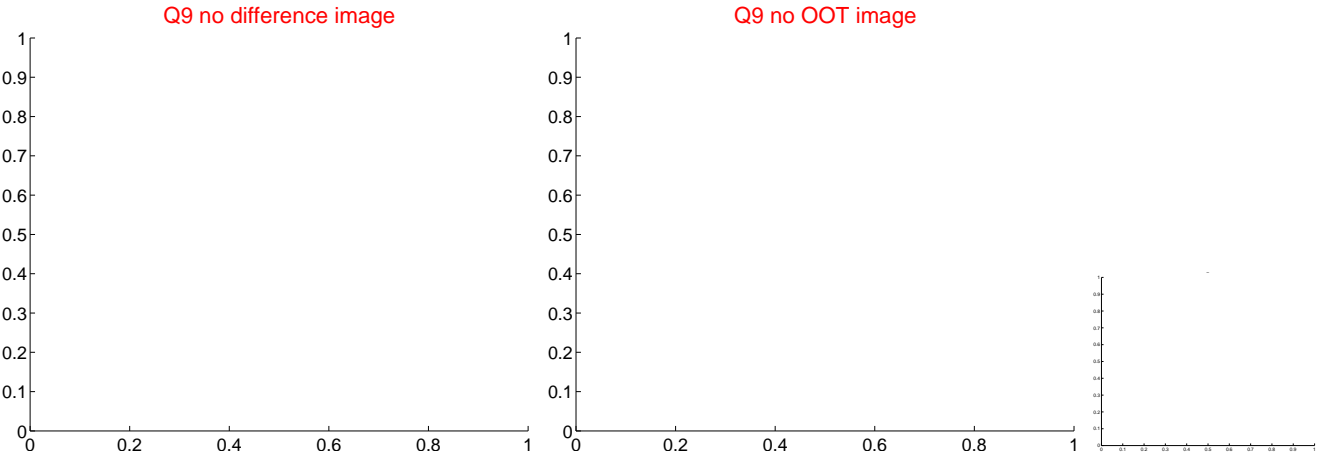
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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

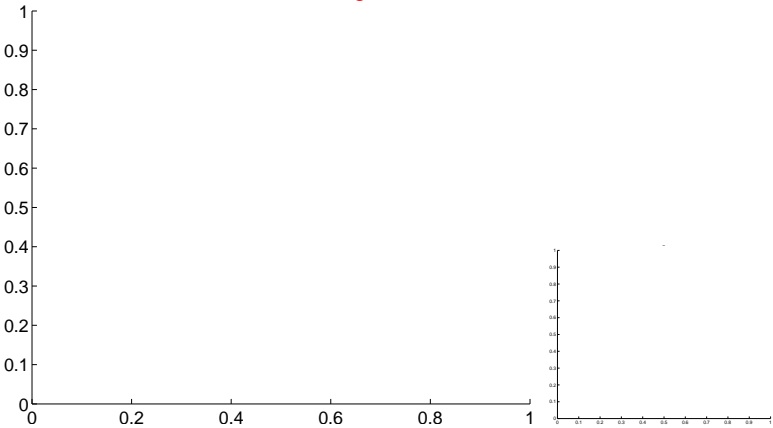


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

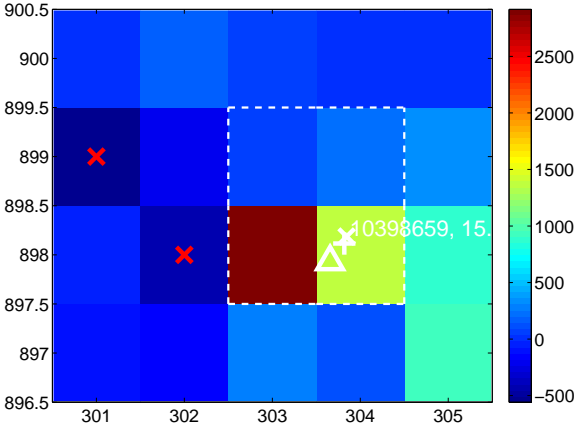
Q13 no difference image



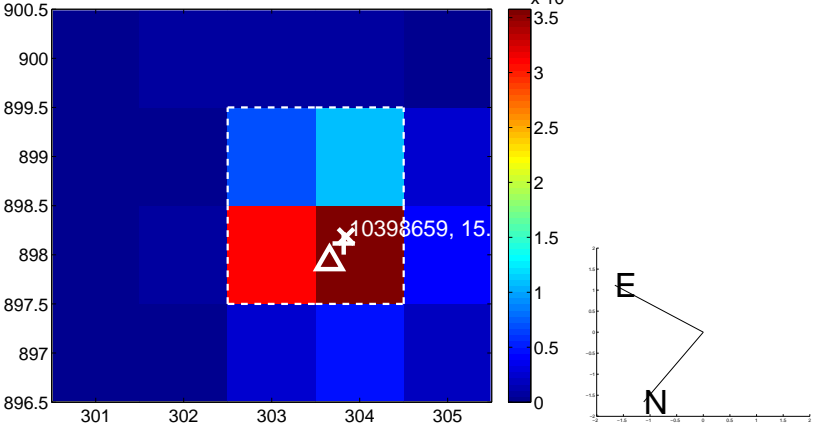
Q13 no OOT image



Q14 difference image



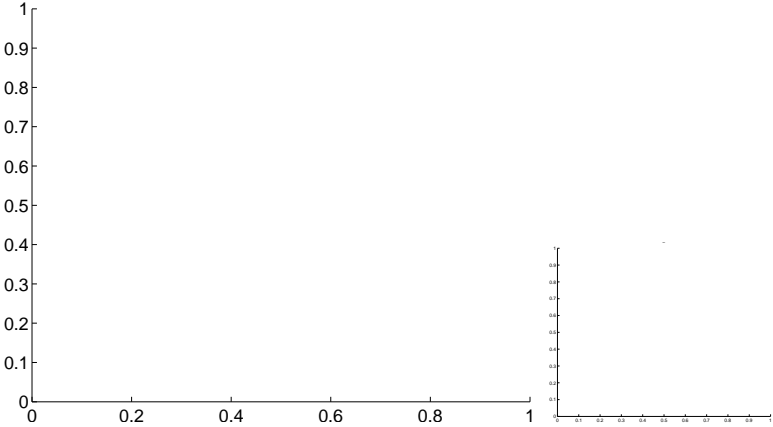
Q14 OOT image



Q15 no difference image



Q15 no OOT image



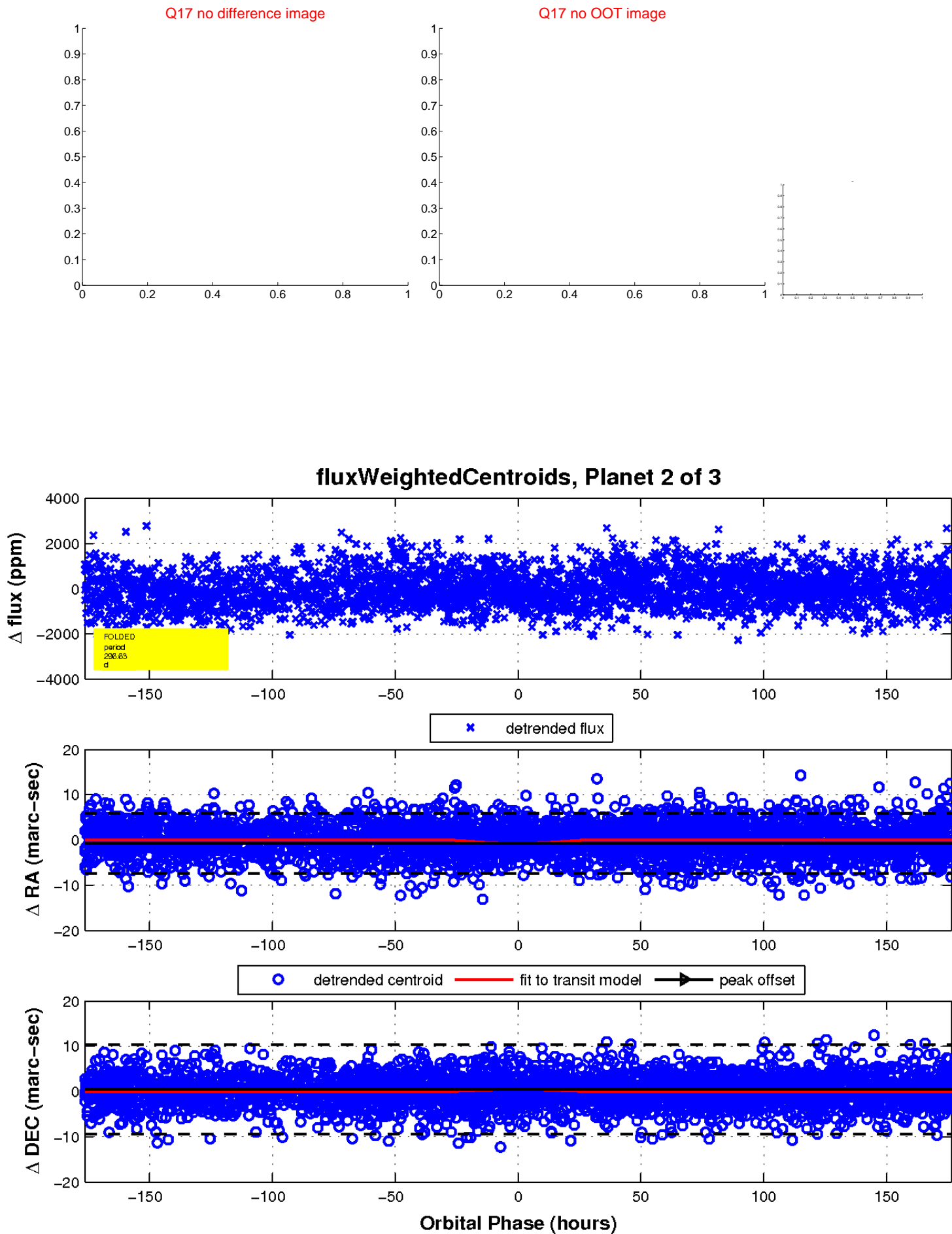
Q16 no difference image



Q16 no OOT image

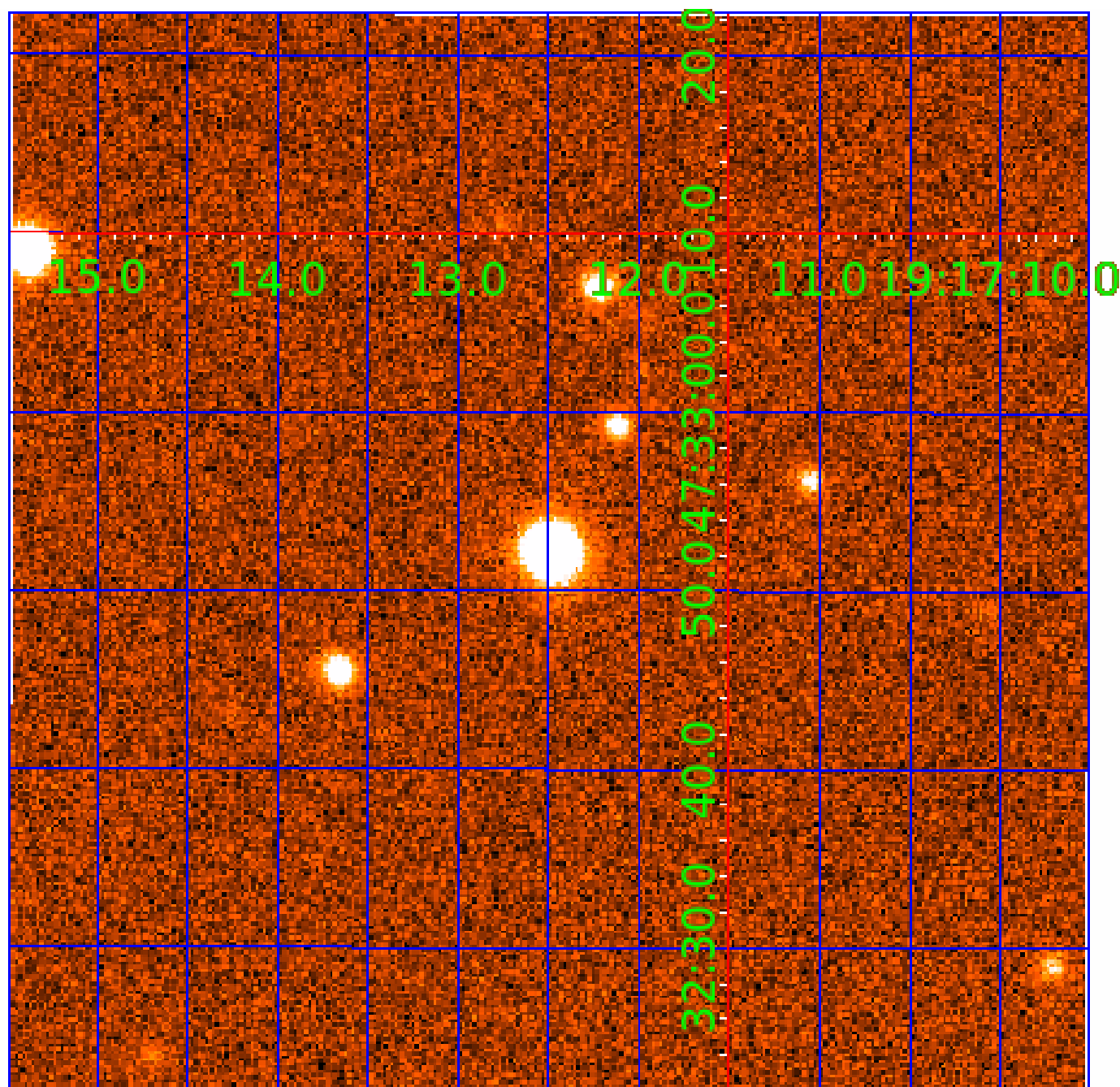


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010398659

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})
010398659-01	OBS	No	3.411897	133.875512	99.1	11.094	8.9	8.9	0.41	3540	0.52	21.45
010398659-02	OBS	No	296.634426	172.713325	2210.7	58.853	12.6	12.0	0.41	3540	3.74	0.06
010398659-03	OBS	No	384.302950	244.756151	1279.8	6.847	8.1	5.9	0.41	3540	2.73	0.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010398659-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010398659-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010398659-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

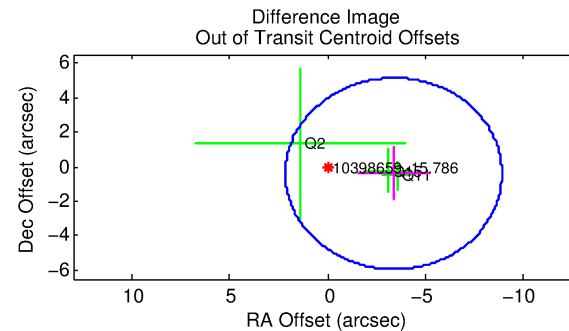
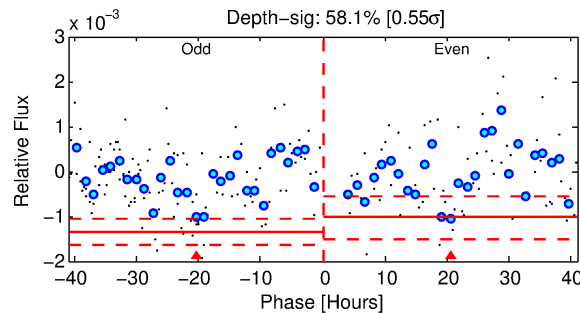
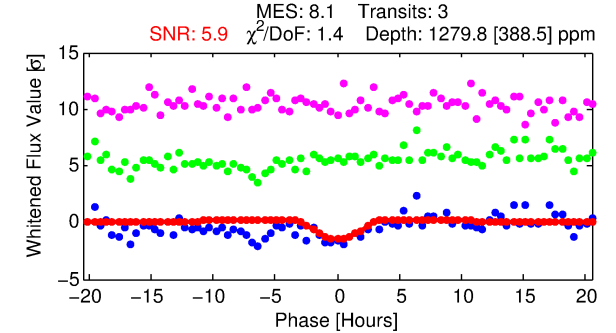
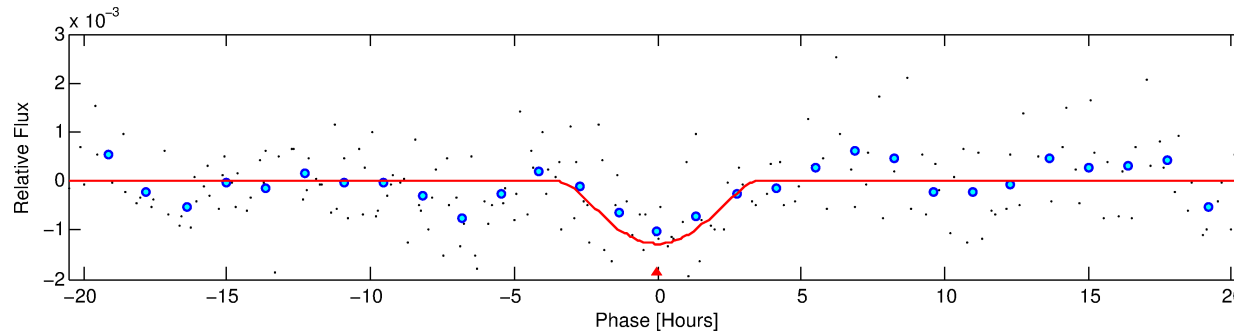
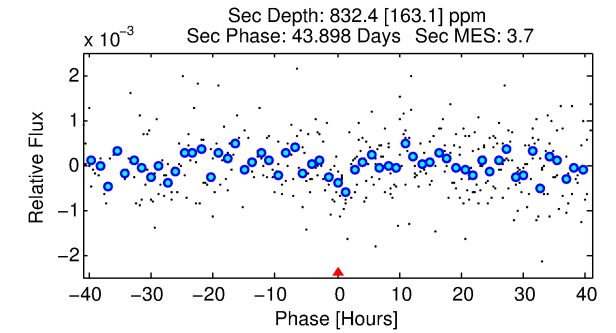
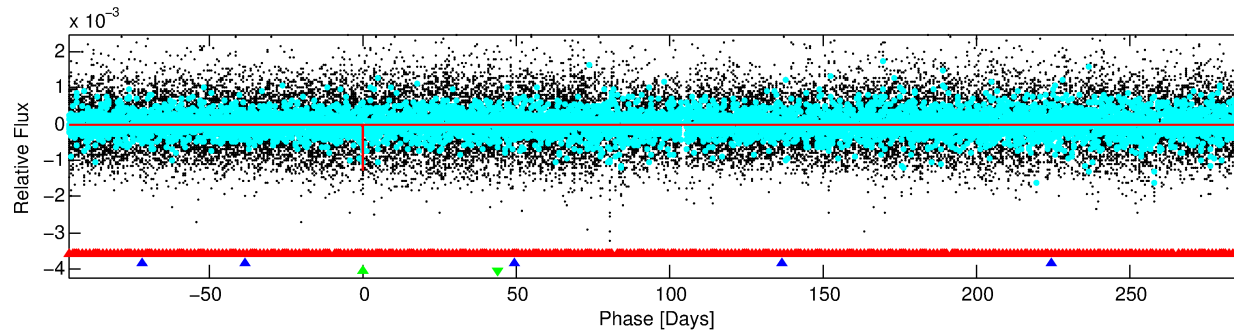
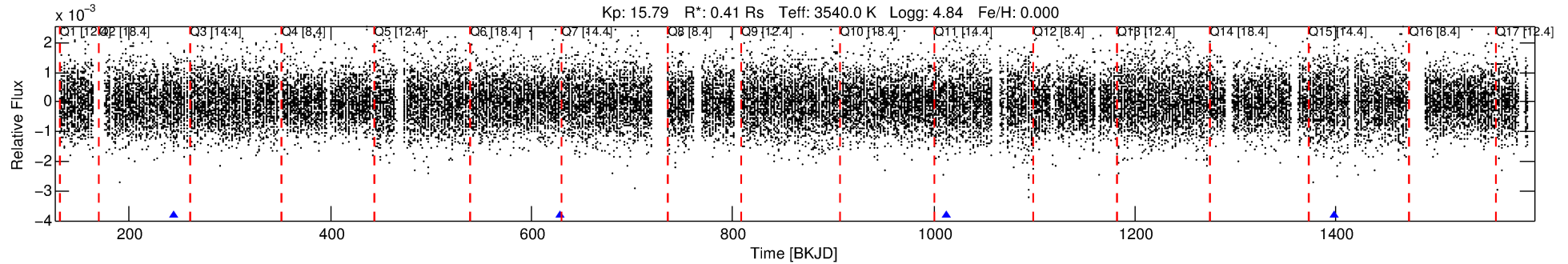
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010398659-03

No Significant Match Found

DV One-Page Summary

KIC: 10398659 Candidate: 3 of 3 Period: 384.303 d



DV Fit Results:

Period = 384.30295 [0.01321] d
Epoch = 244.7562 [0.0268] BKJD
Rp/R* = 0.0610 [0.3906]
a/R* = 159.15 [250.87]
b = 0.99 [0.59]
Seff = 0.04 [0.00]
Teq = 114 [3] K
Rp = 2.73 [17.52] Re
a = 0.7763 [0.0509] AU
Ag = 36928.95 [473344.38] [0.08σ]
Teffp = 2435 [7804] K [0.30σ]

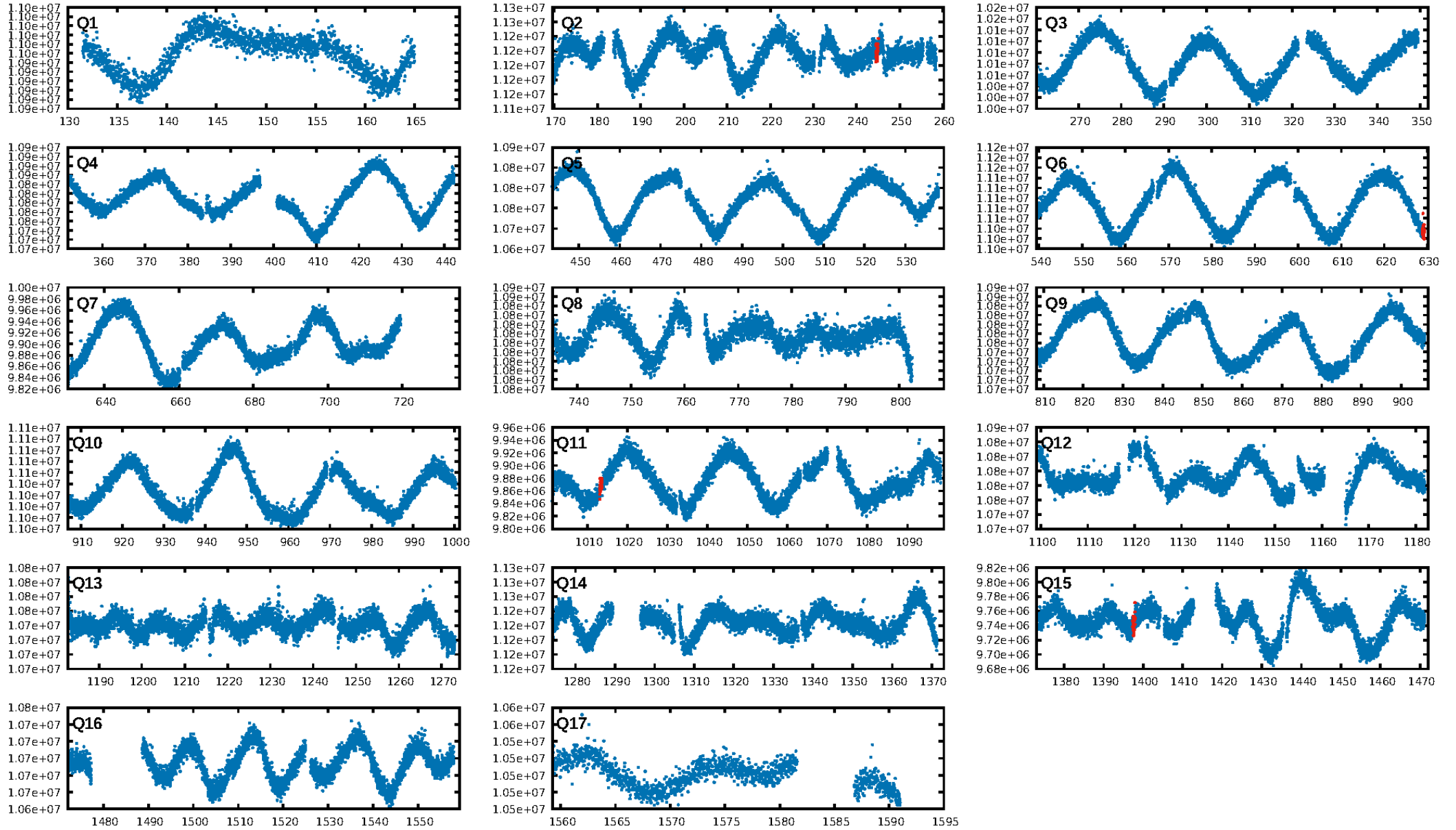
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [35.51σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.5%
ModelChiSquareGof-sig: 94.5%
Bootstrap-pfa: 3.13e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.5624
Centroid-sig: 71.1%
Centroid-so: 0.875 arcsec [0.51σ]
OotOffset-rm: 3.407 arcsec [1.85σ]
KicOffset-rm: 3.610 arcsec [1.95σ]
OotOffset-st: 1/2/0/0 [3]
KicOffset-st: 1/2/0/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.67 [2/3]

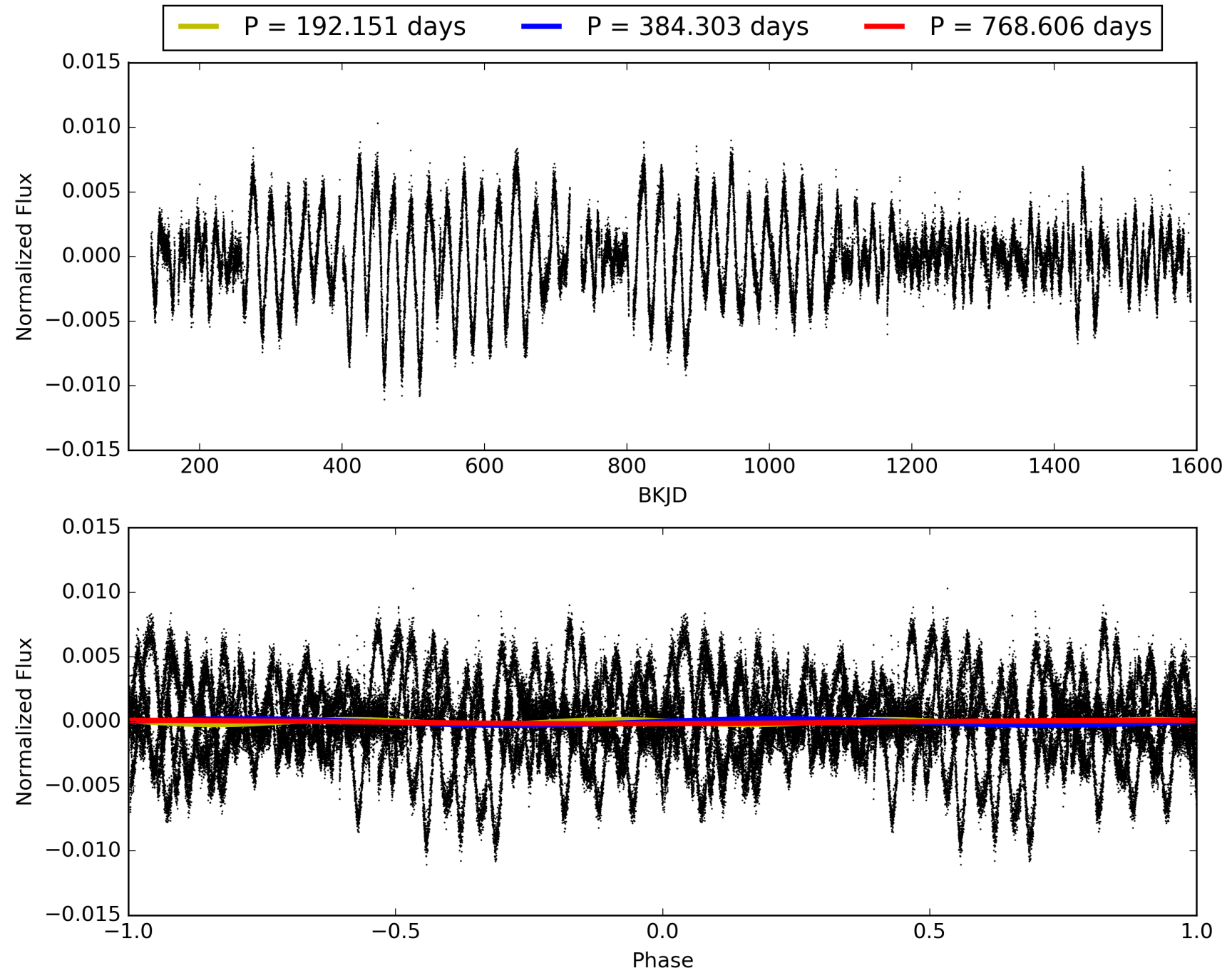
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:25:43 Z

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

TCE 010398659-03, PDC Light Curves

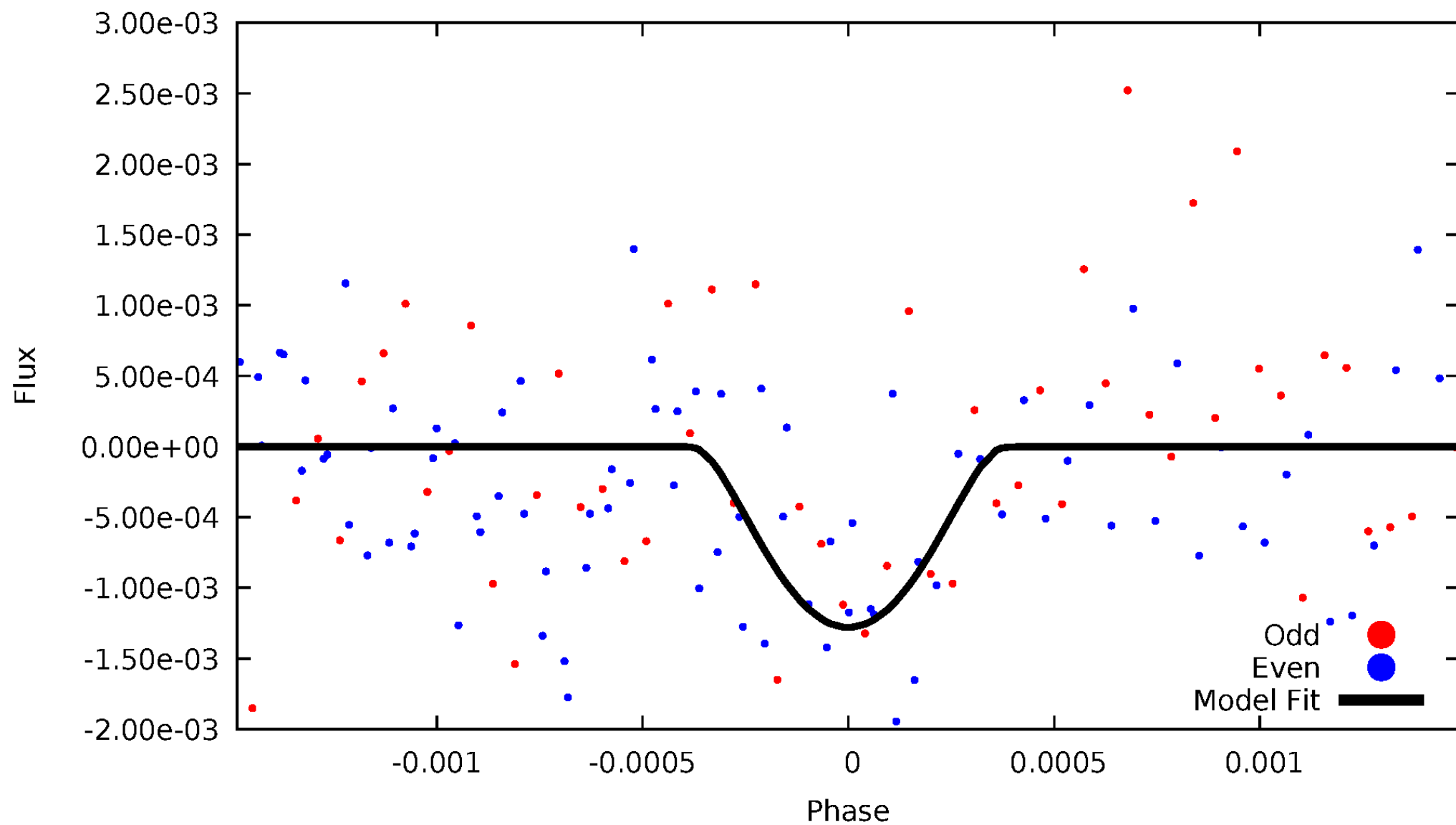


TCE 010398659-03



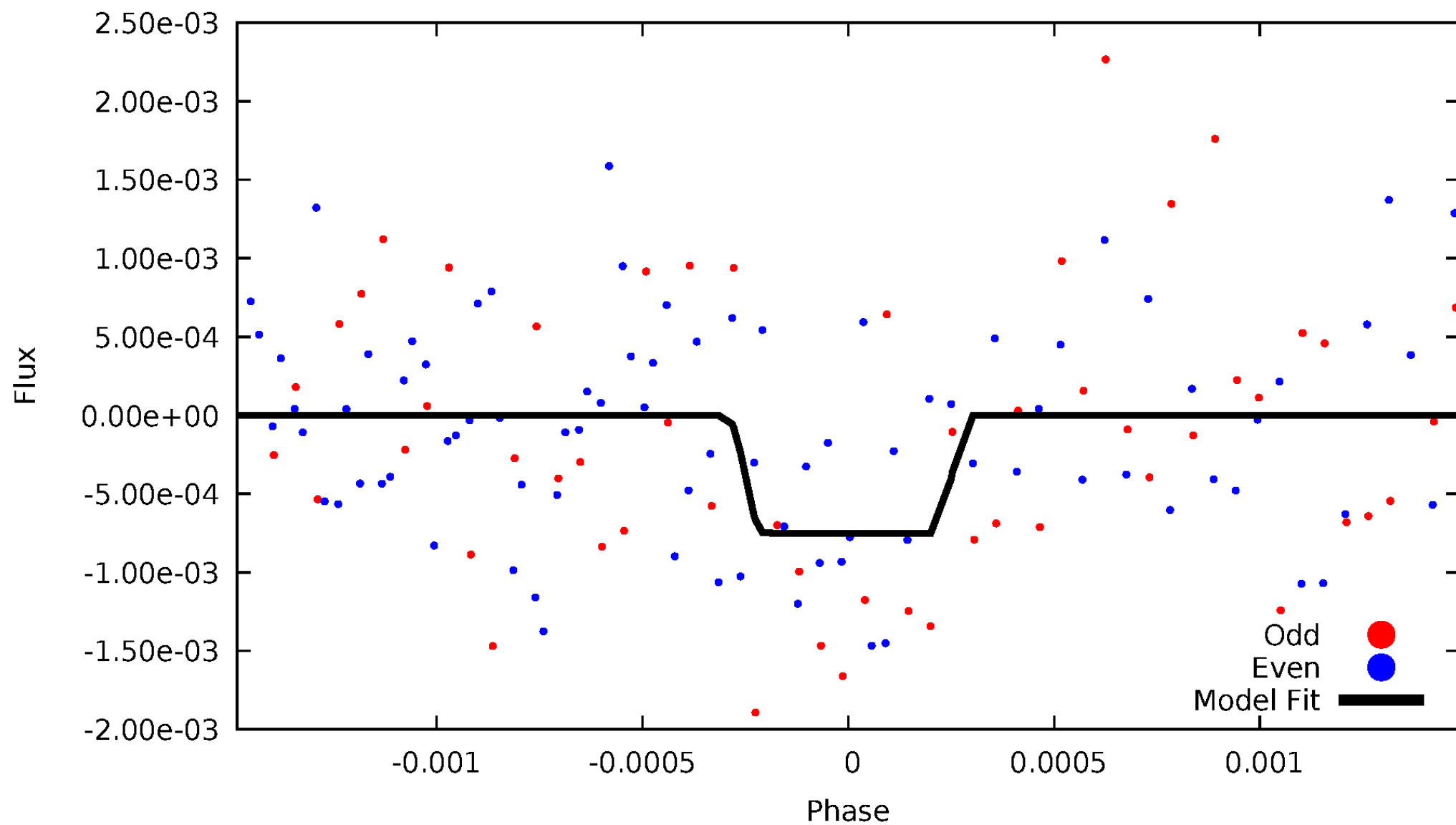
DV Odd/Even

TCE 010398659-03



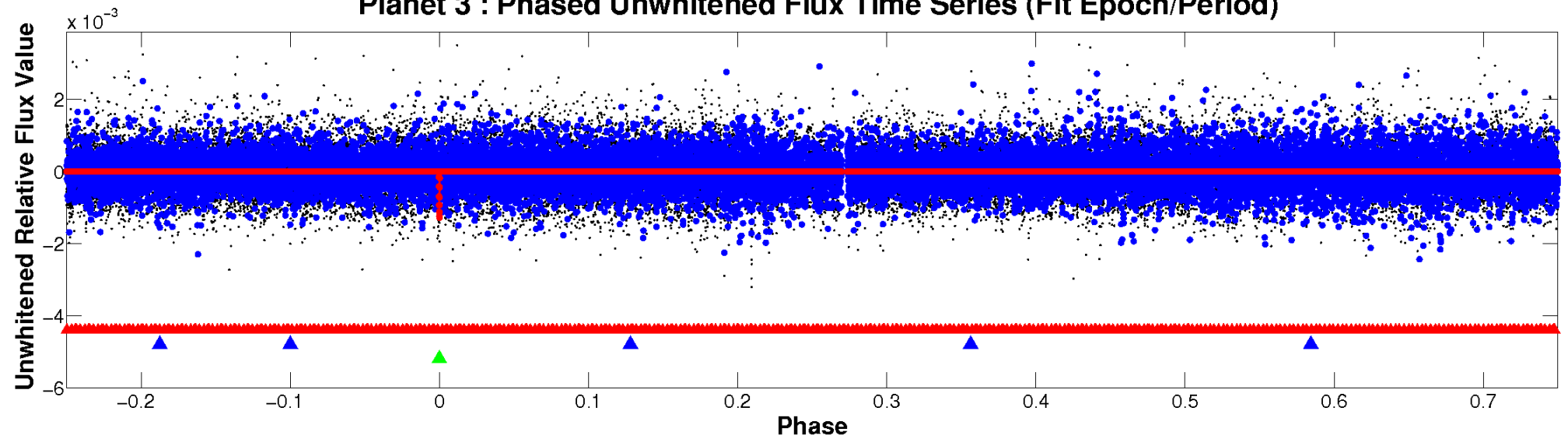
ALT Odd/Even

TCE 010398659-03

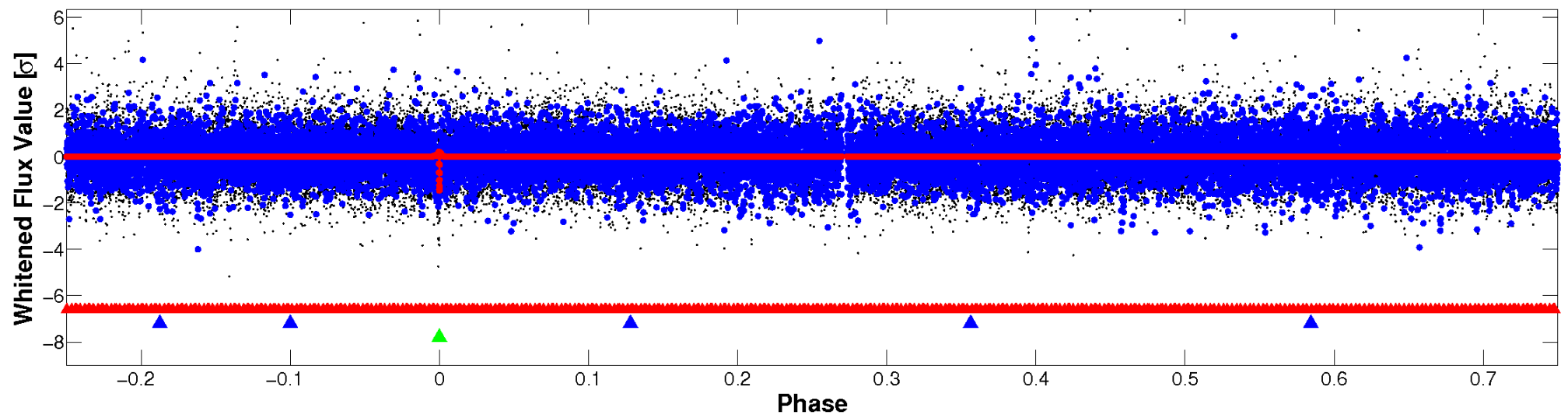


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

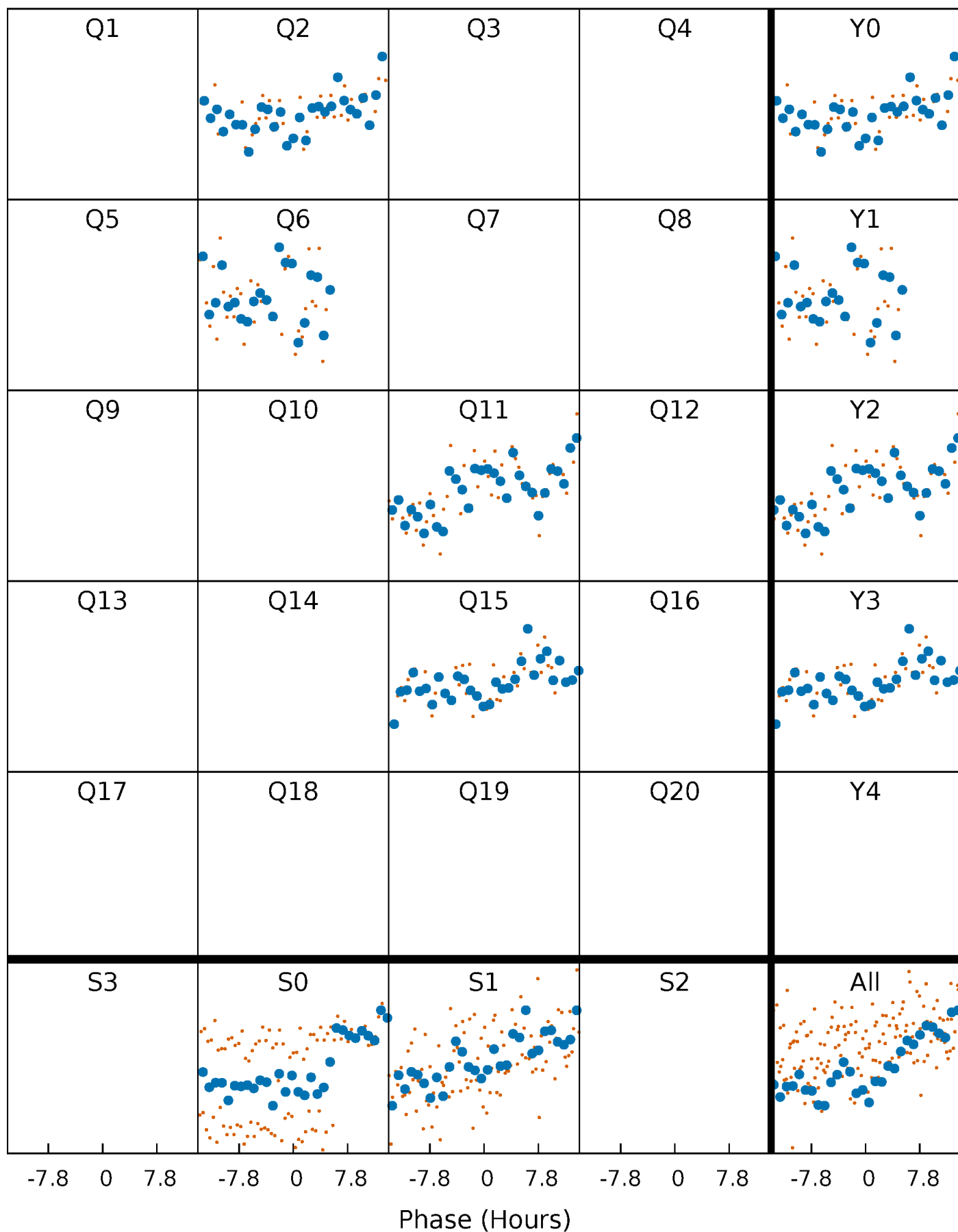


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 010398659-03 $P=384.302950$ Days $T_0=244.756151$ (BKJD)



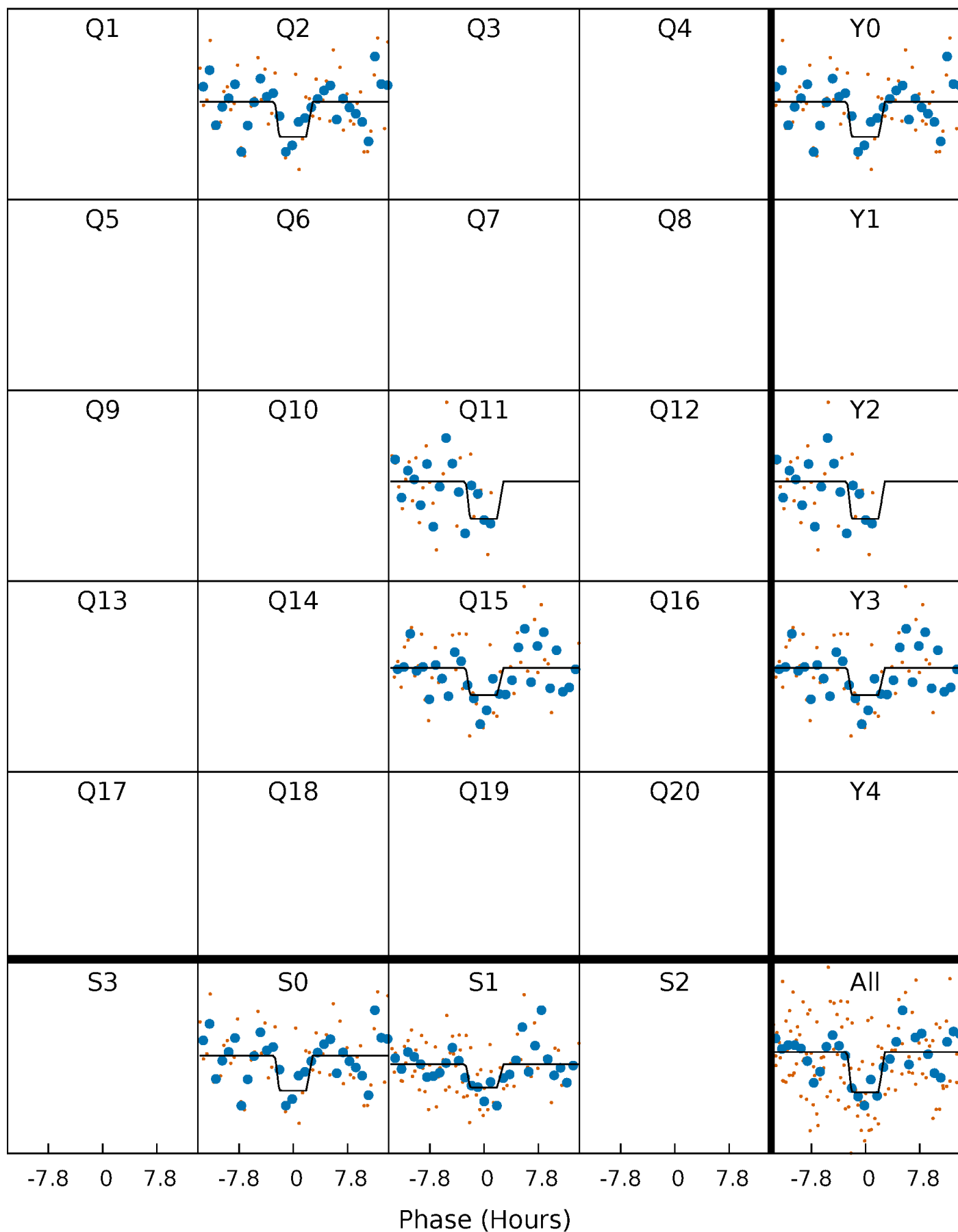
DV Quarter-Phased Transit Curves

TCE 010398659-03 $P=384.302950$ Days $T_0=244.756151$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

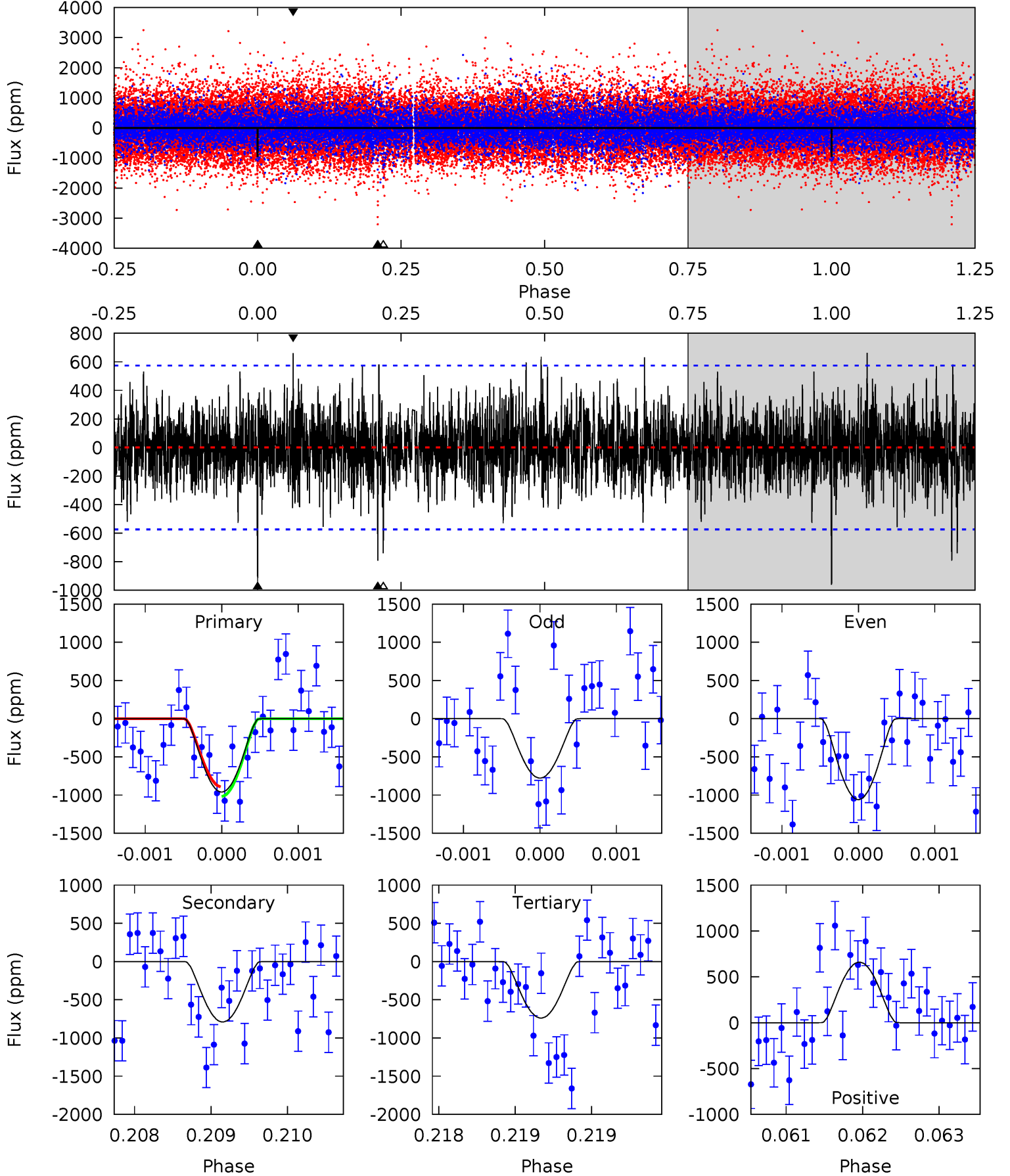
TCE 010398659-03 P=384.300774 Days $T_0=244.783297$ (BKJD)



DV Model-Shift Uniqueness Test

010398659-03, P = 384.302950 Days, E = 244.756151 Days

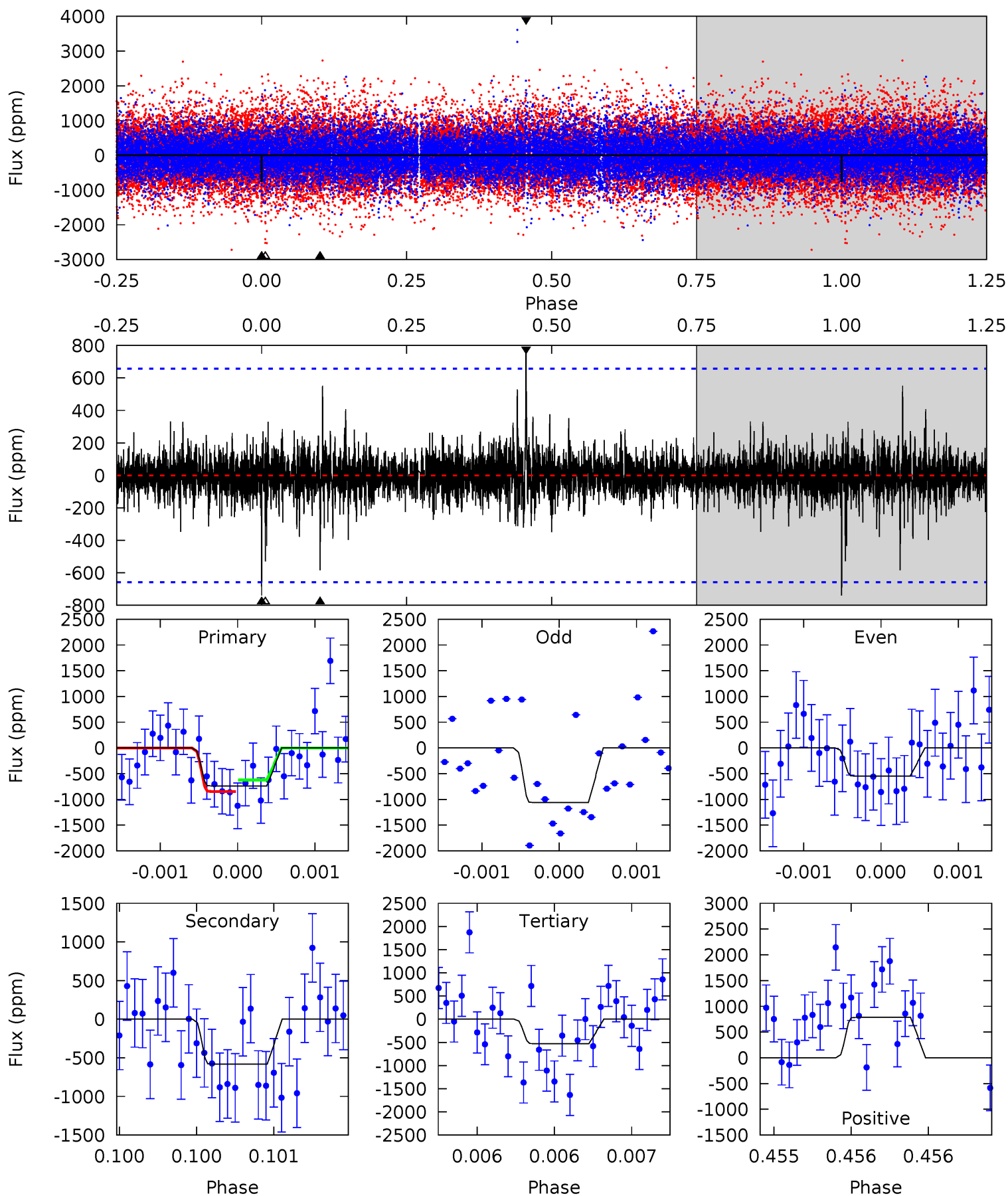
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.20	7.58	7.09	6.32	5.49	3.36	1.61	2.11	2.88	0.49	1.26	1.30	0.97	0.41	0.60



Alt Model-Shift Uniqueness Test

010398659-03, P = 384.300774 Days, E = 244.783297 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.26	4.93	4.48	6.65	5.56	3.46	0.77	1.78	-0.39	0.45	-1.72	2.06	1.20	0.52	0.95



Stellar Parameters For KIC 010398659

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3540^{+42}_{-47}	$4.836^{+0.039}_{-0.025}$	$0.000^{+0.100}_{-0.100}$	$0.411^{+0.026}_{-0.036}$	$0.422^{+0.035}_{-0.035}$	$8.590^{+1.670}_{-1.041}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+6%/-9%	+8%/-8%	+19%/-12%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010398659-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-792 ± 104	$12.88^{+12.19}_{-8.82}$	158^{+3}_{-3}	1975^{+583}_{-240}	1673^{+14189}_{-1248}
Alt.	-583 ± 118	$13.13^{+13.46}_{-9.19}$	158^{+3}_{-3}	1894^{+572}_{-224}	1098^{+11527}_{-820}

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

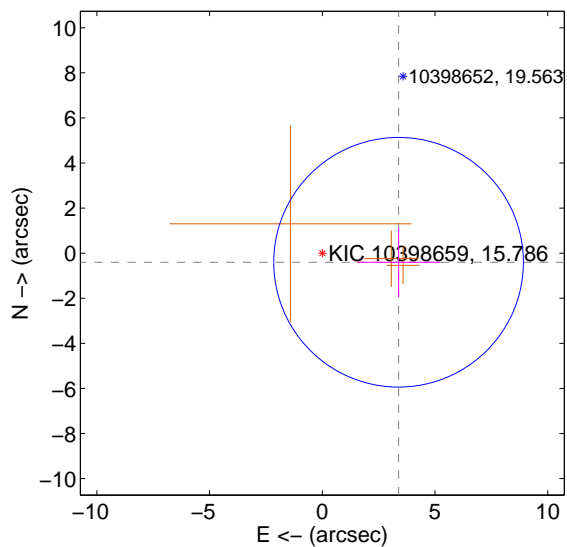
Supplemental centroid analysis for 010398659-03. Kepler magnitude: 15.79. Transit SNR 5.87

There are 0 quarters with good PRF difference image offsets

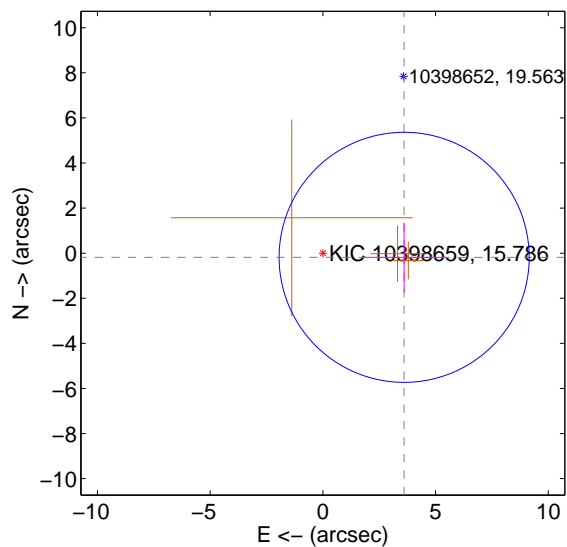
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.407 ± 1.845	1.85	-3.383 ± 1.849	-0.404 ± 1.537
PRF-fit source offset from KIC position	3.610 ± 1.849	1.95	-3.606 ± 1.849	-0.184 ± 1.537
photometric centroid source offset	0.87 ± 1.70	0.51	-0.87 ± 1.70	-0.06 ± 1.57

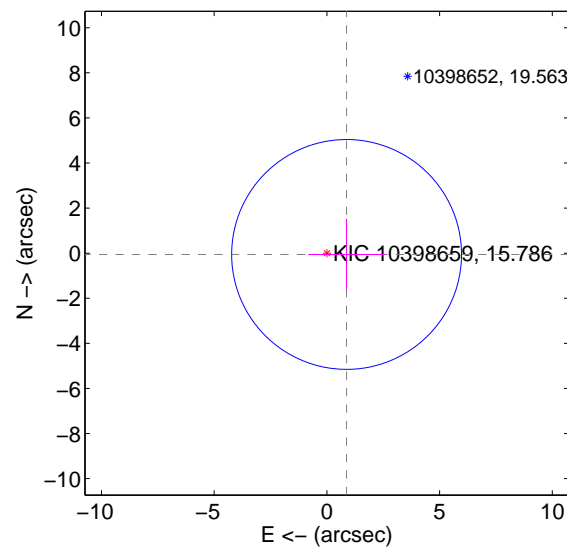
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

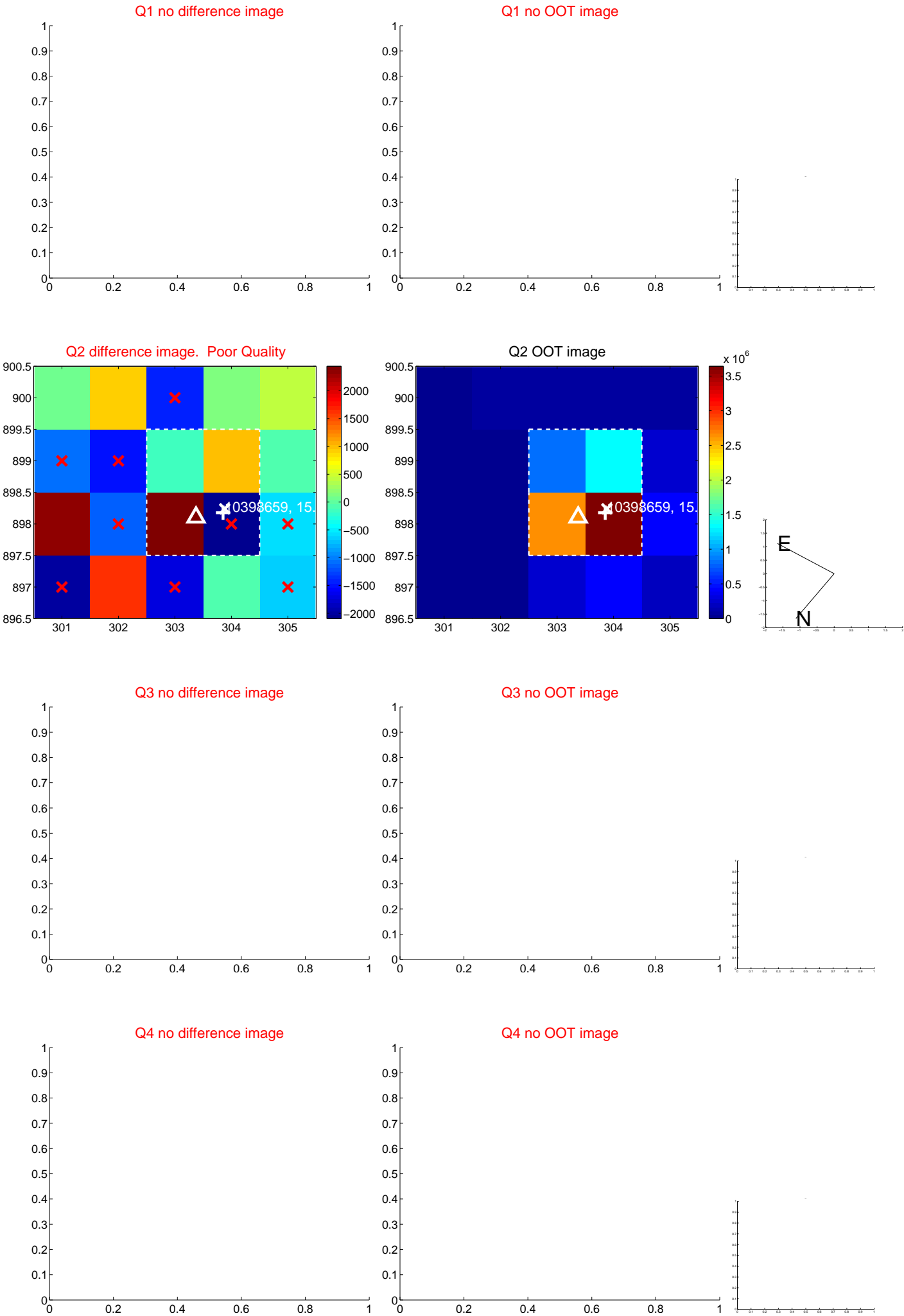


offset from photometric centroids



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.

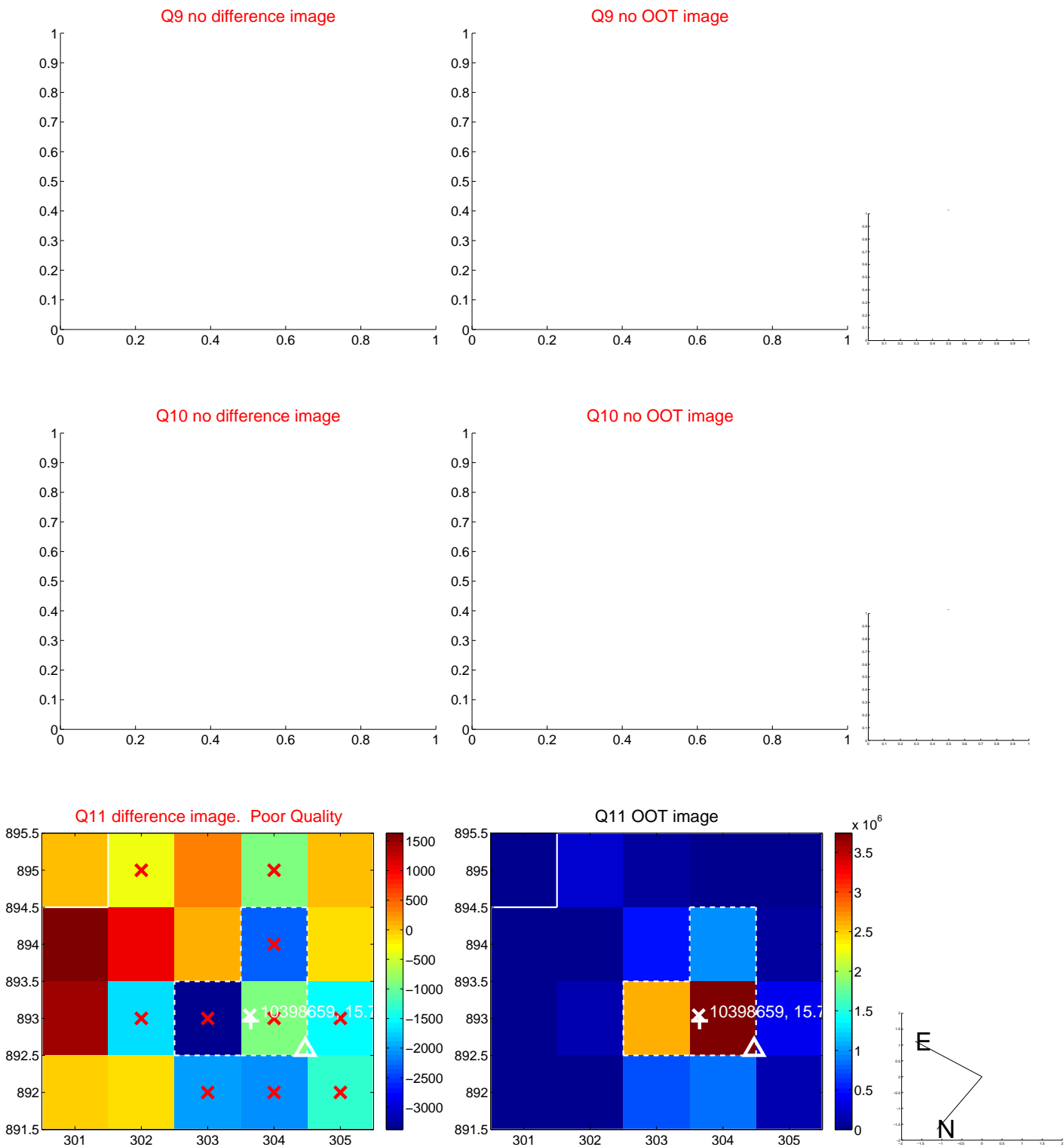
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



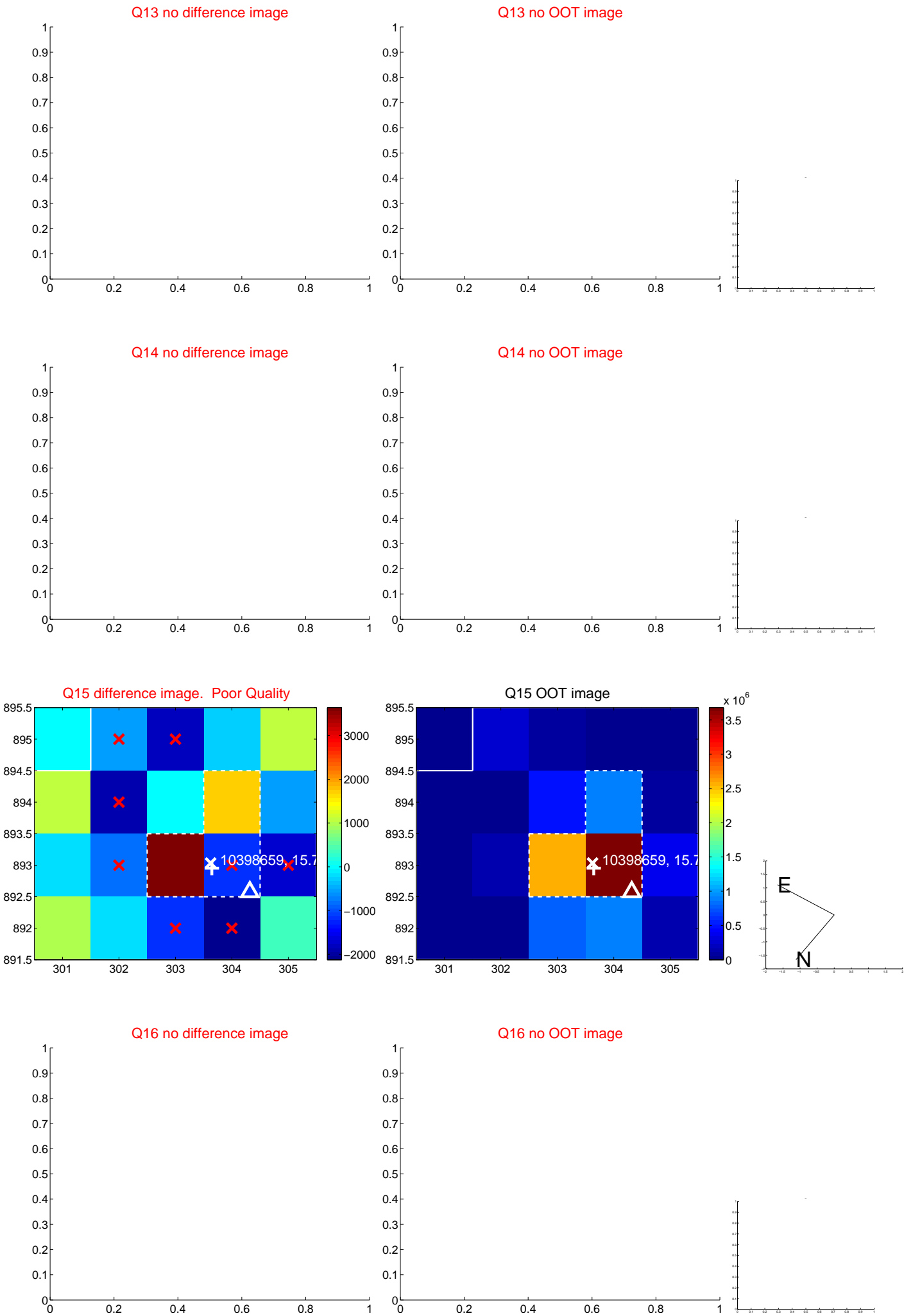
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



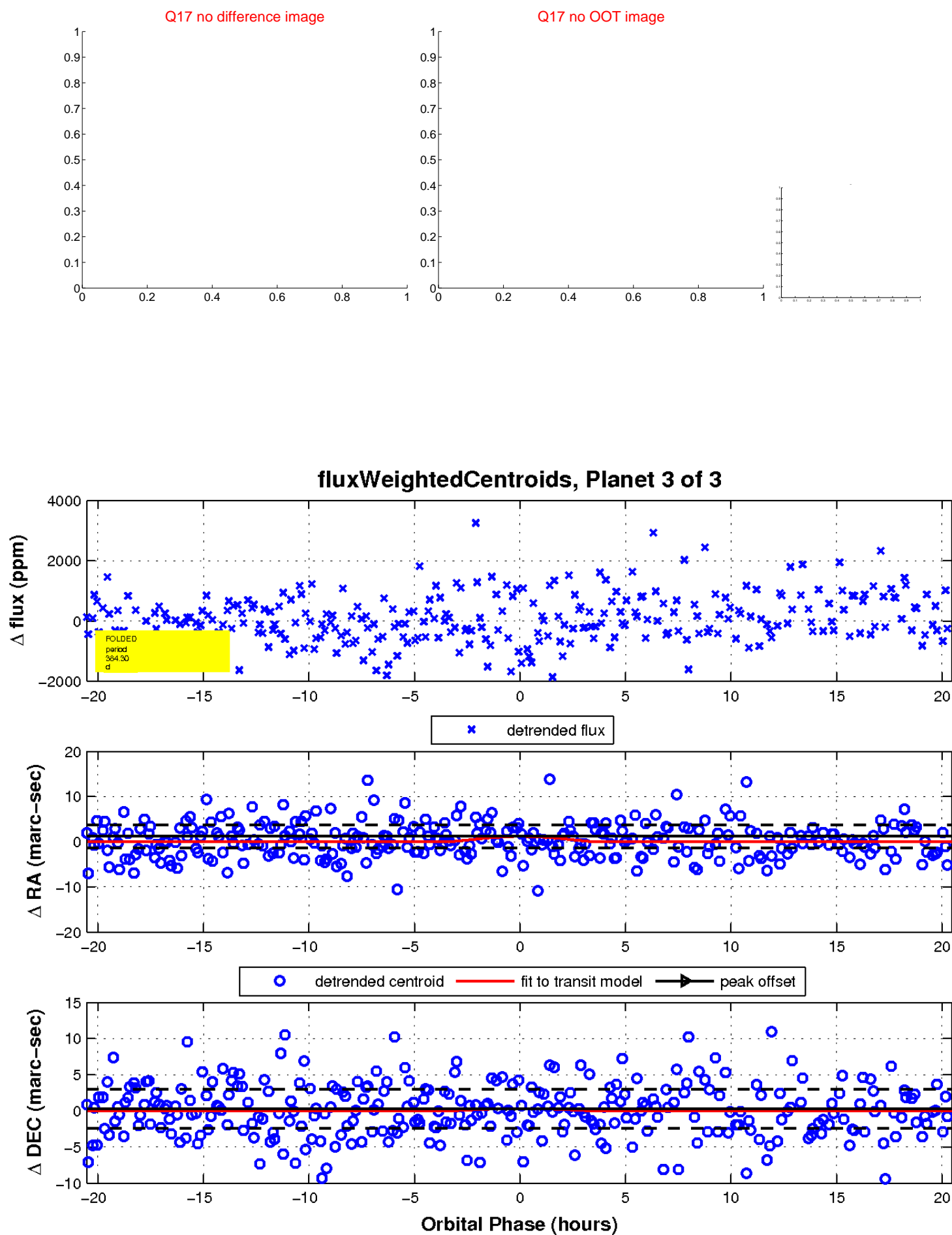
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

