

KIC 004750938

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})
004750938-01	OBS	No	562.012724	138.313349	454.2	4.826	13.8	6.5	0.90	6089	2.10	0.70
004750938-02	OBS	No	410.899635	316.253179	459.9	2.322	12.5	7.0	0.90	6089	2.01	1.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004750938-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004750938-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_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.

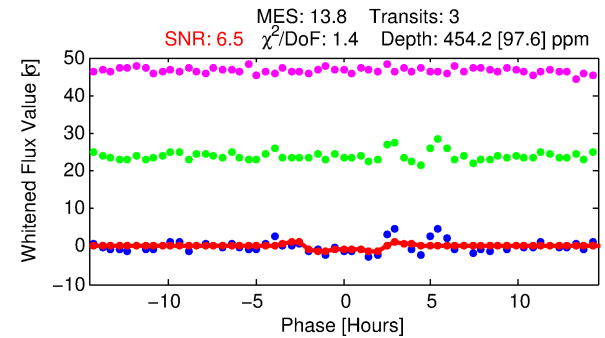
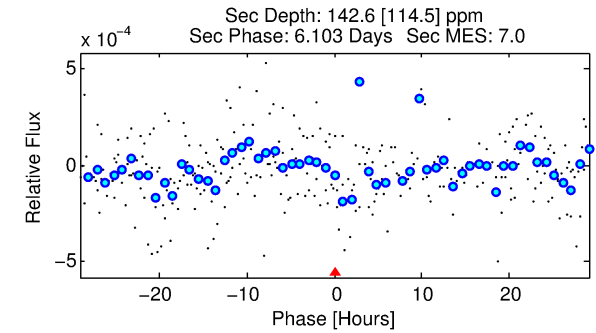
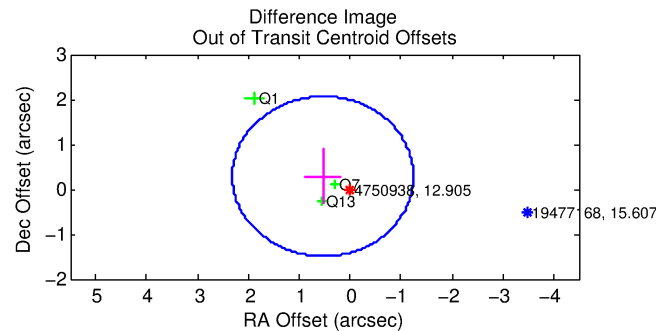
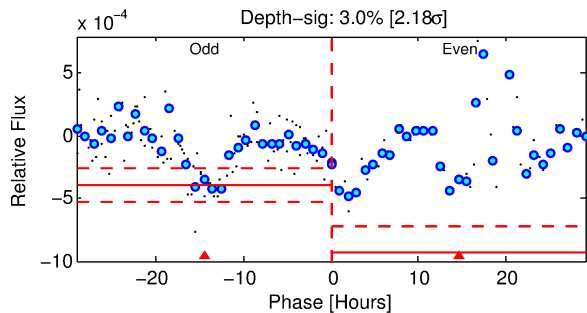
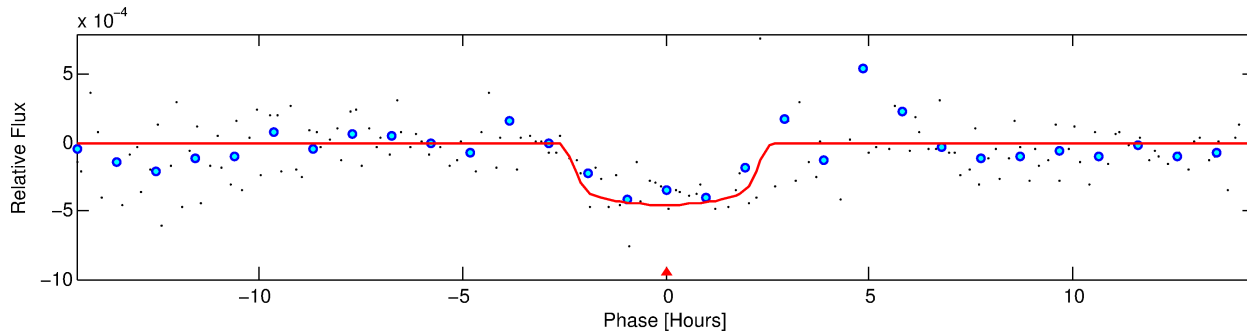
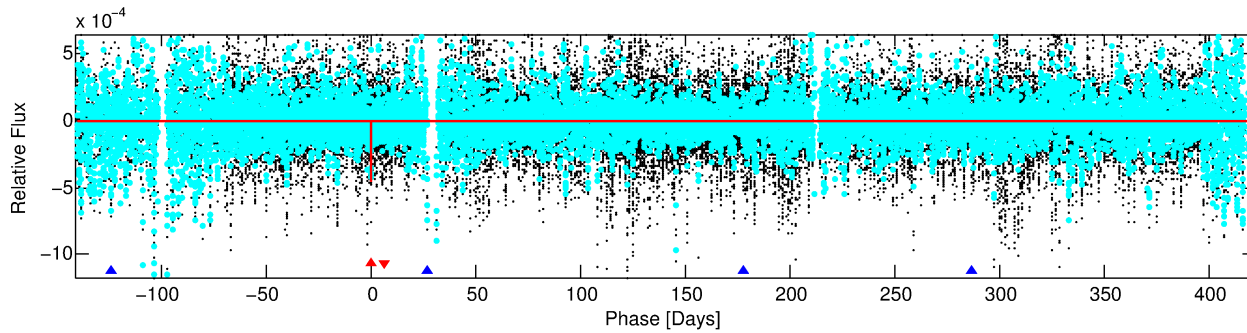
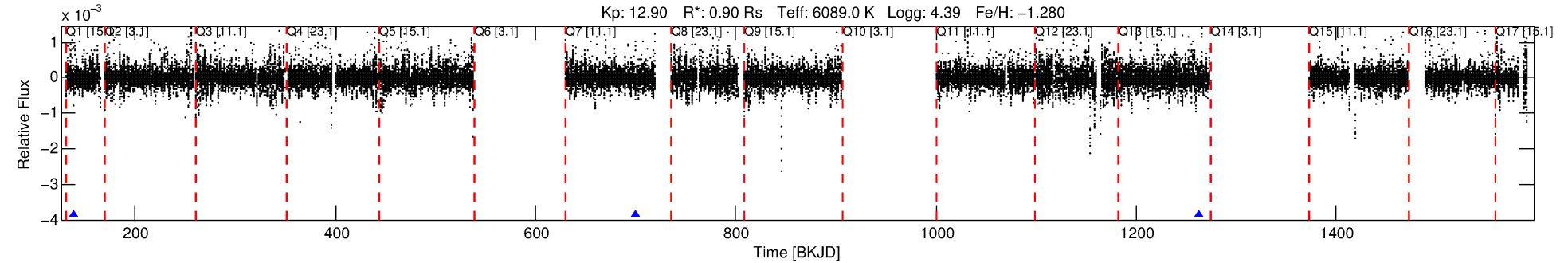
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004750938-01

No Significant Match Found

DV One-Page Summary

KIC: 4750938 Candidate: 1 of 2 Period: 562.013 d



DV Fit Results:

Period = 562.01272 [0.00607] d
Epoch = 138.3133 [0.0081] BKJD
Rp/R* = 0.0214 [0.0100]
a/R* = 585.37 [1425.70]
b = 0.78 [1.22]
Seff = 0.70 [0.26]
Teq = 233 [22] K
Rp = 2.10 [1.09] Re
a = 1.1932 [0.2640] AU
Ag = 25411.57 [32505.83] [0.78 σ]
Teffp = 4547 [1403] K [3.07 σ]

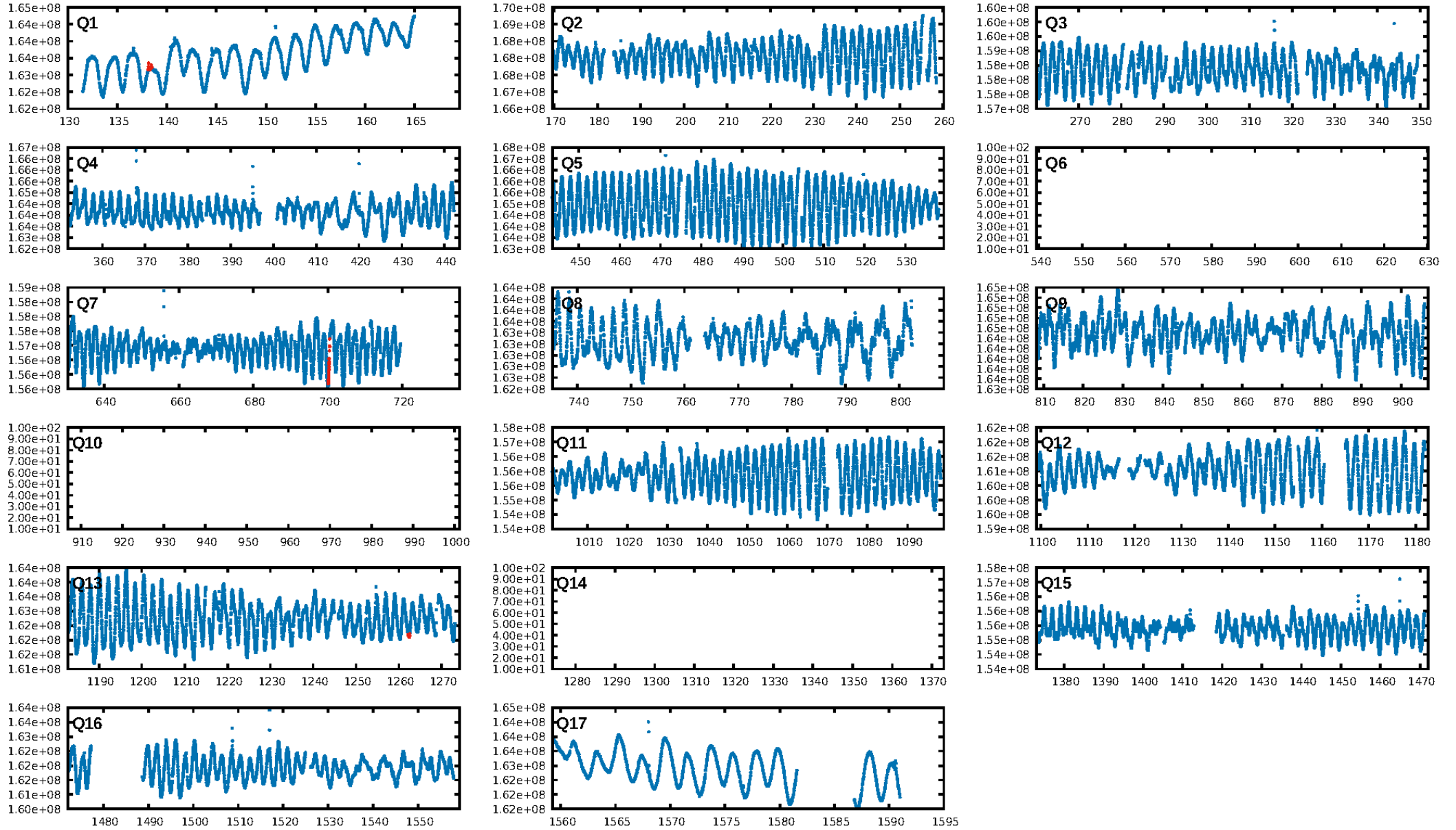
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [677.18 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 4.0%
ModelChiSquareGof-sig: 75.6%
Bootstrap-pfa: 4.80e-11
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.7906
Centroid-sig: 99.4%
Centroid-so: 0.382 arcsec [0.37 σ]
OotOffset-rm: 0.604 arcsec [1.02 σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-rm: 0.318 arcsec [0.37 σ]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

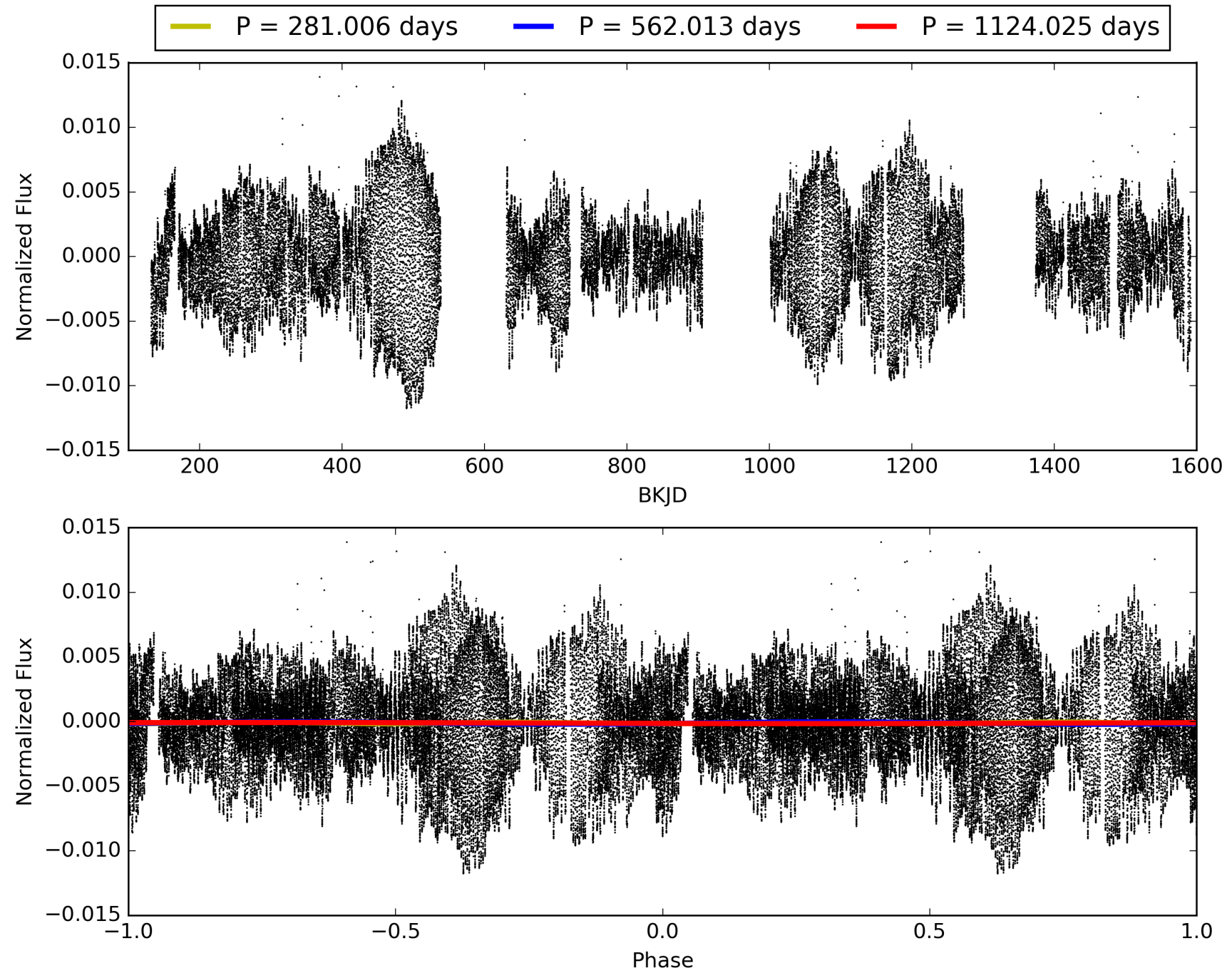
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:56:41 Z

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

TCE 004750938-01, PDC Light Curves

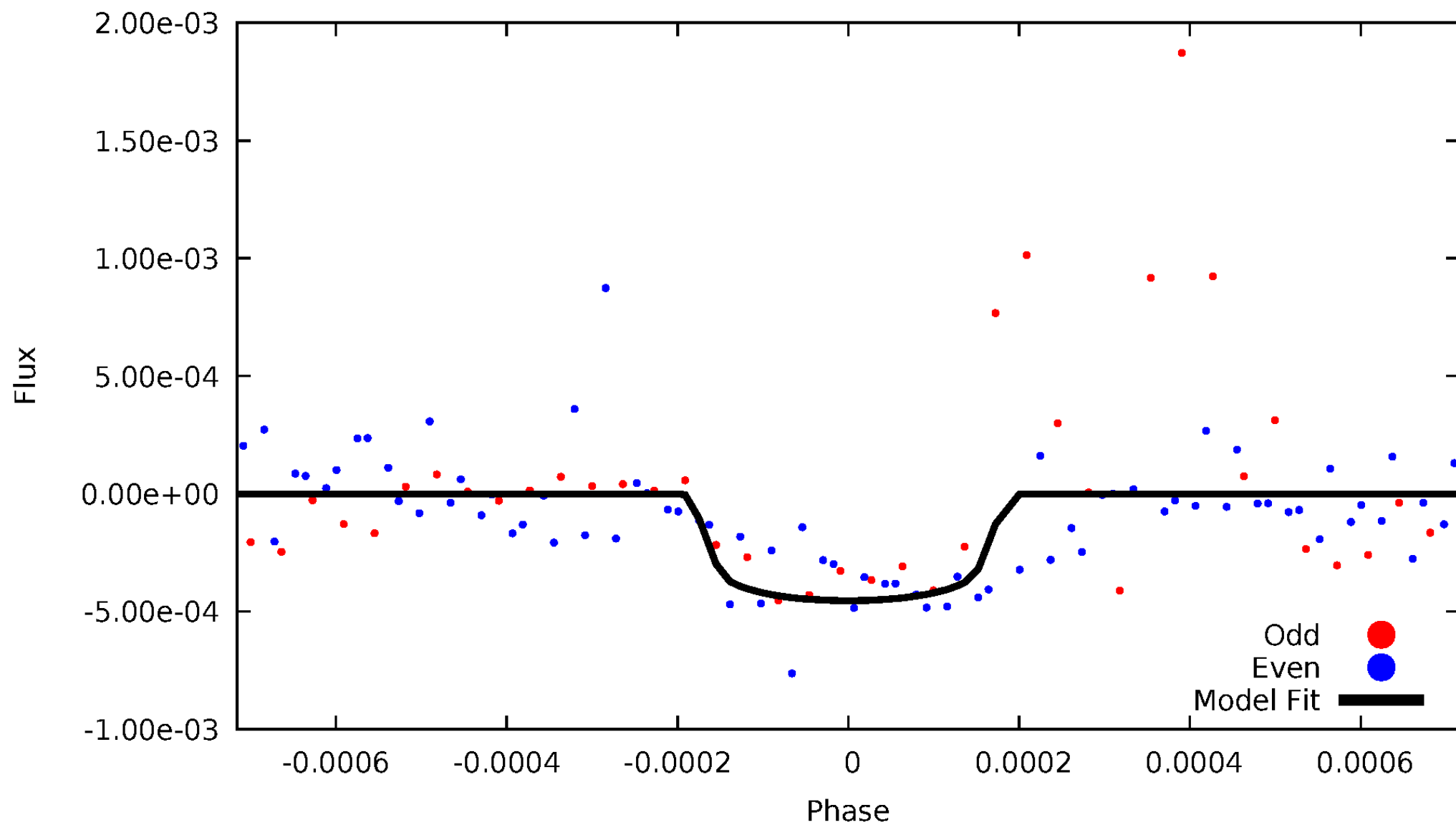


TCE 004750938-01



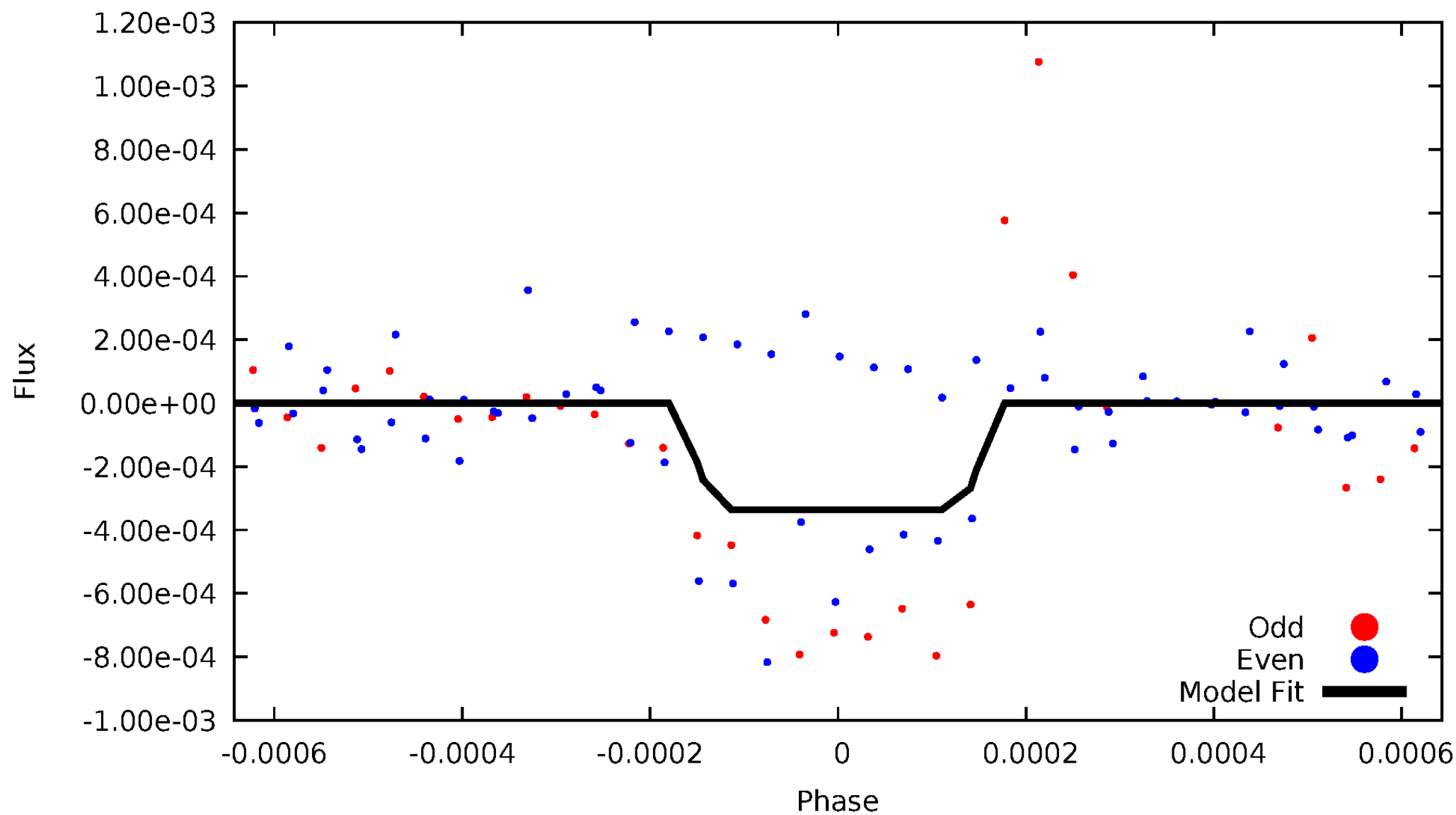
DV Odd/Even

TCE 004750938-01



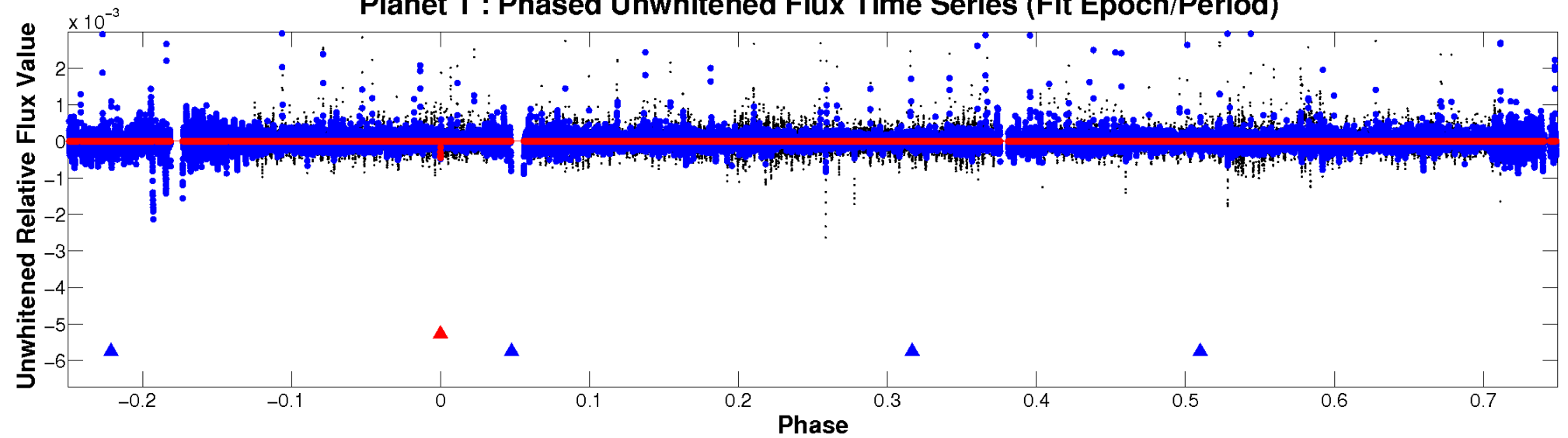
ALT Odd/Even

TCE 004750938-01

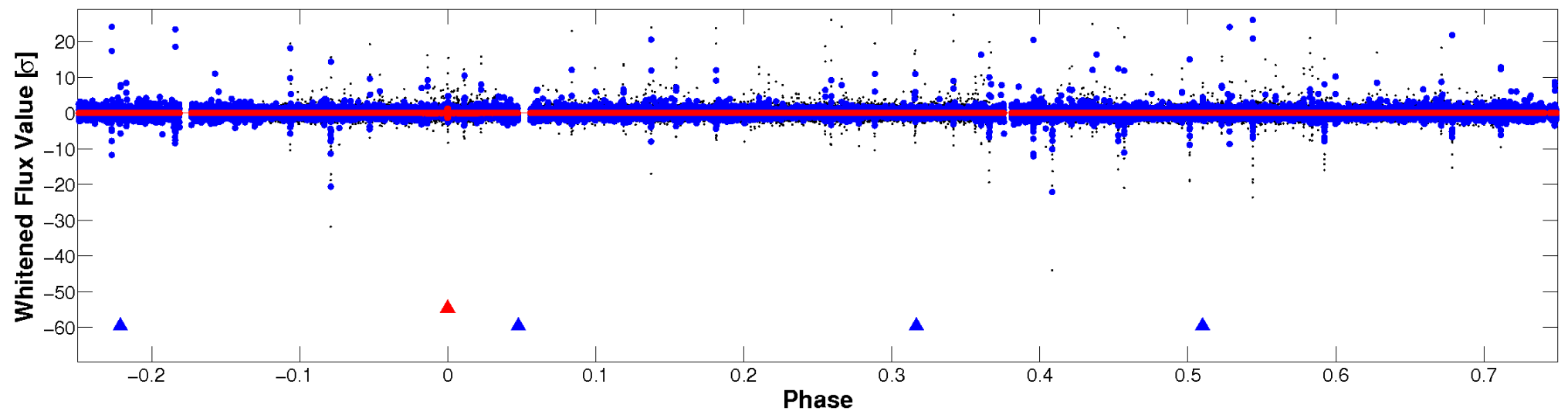


Non-Whitened Vs. Whitened Light Curve

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

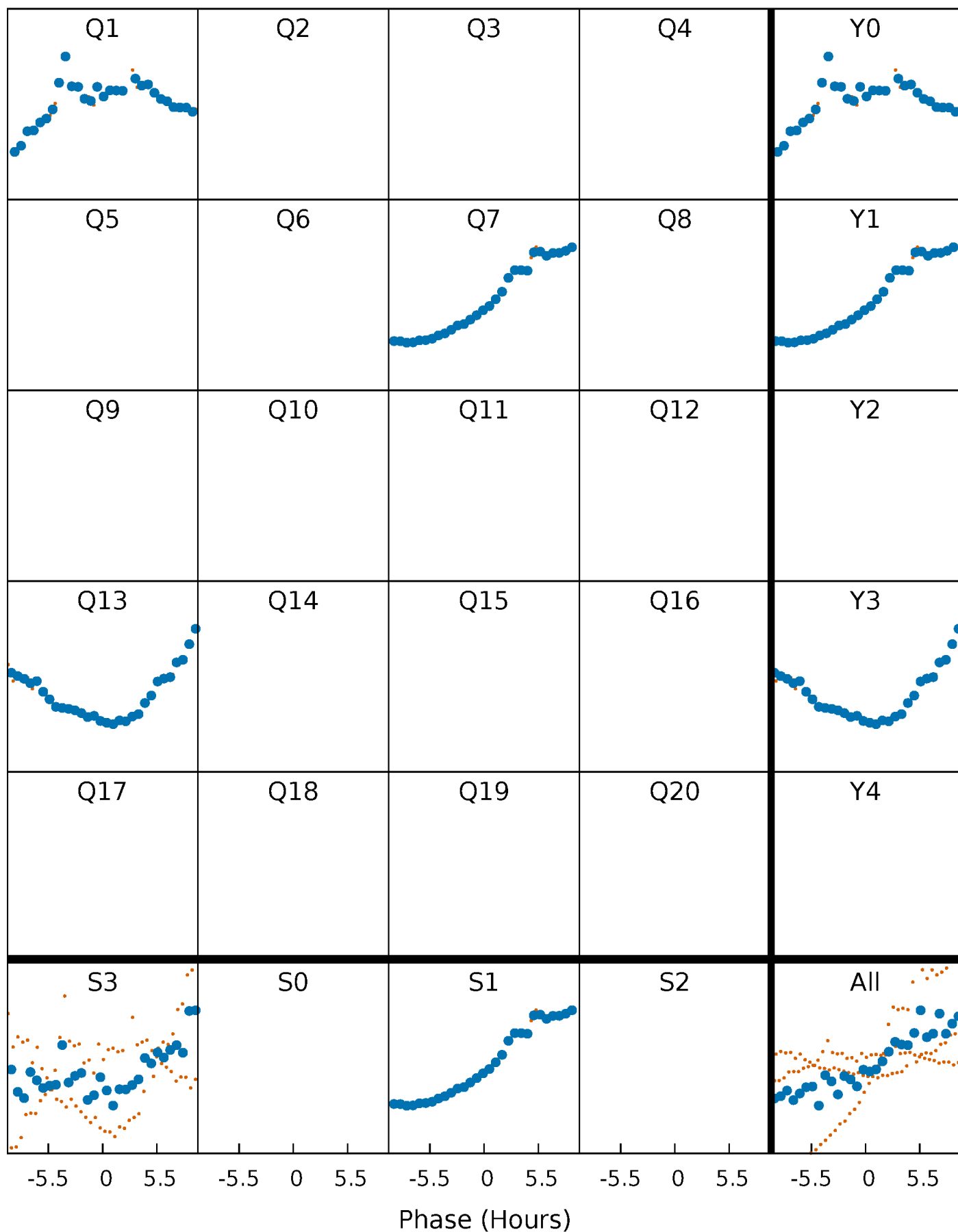


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



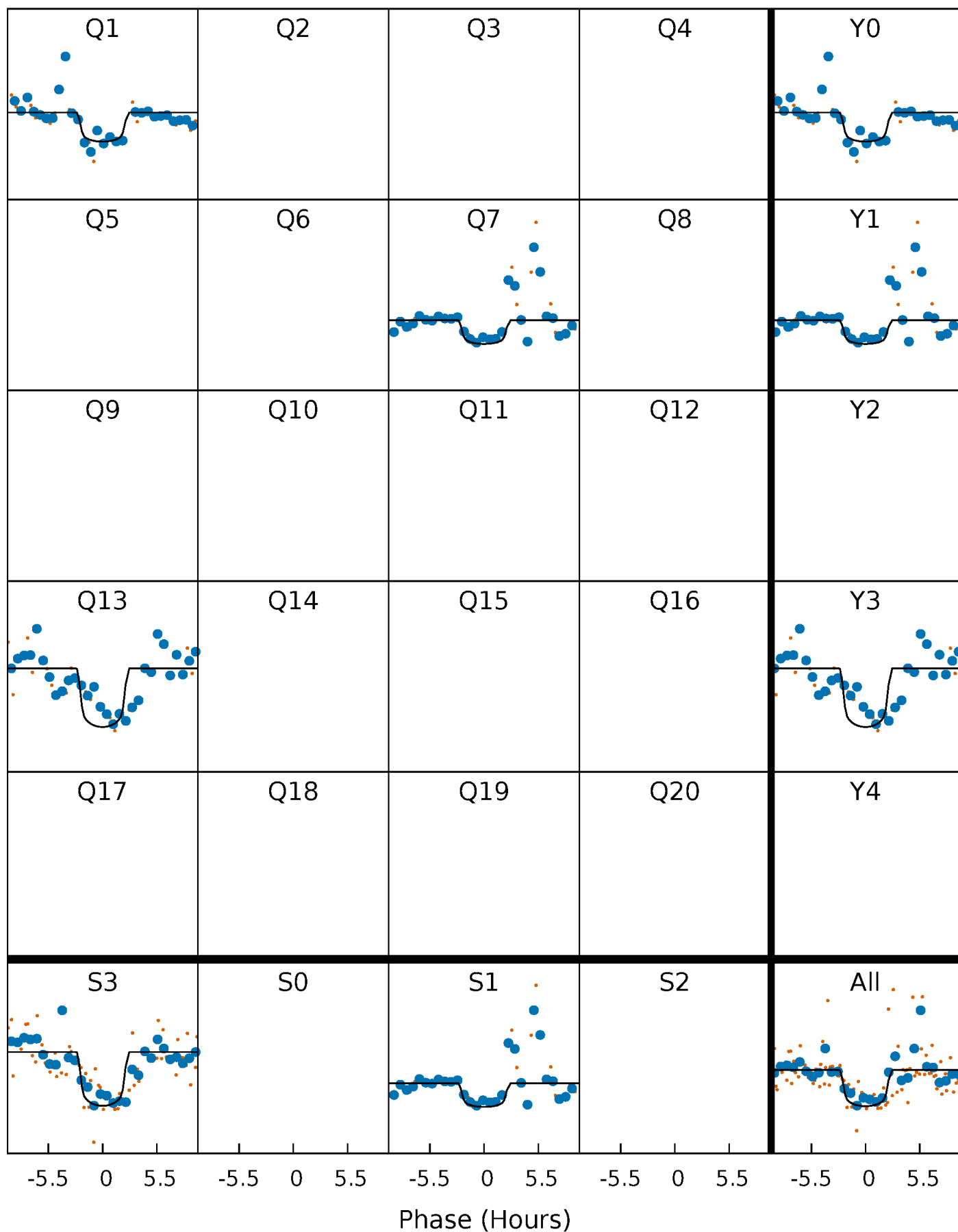
PDC Quarter-Phased Transit Curves

TCE 004750938-01 P=562.012724 Days $T_0=138.313349$ (BKJD)



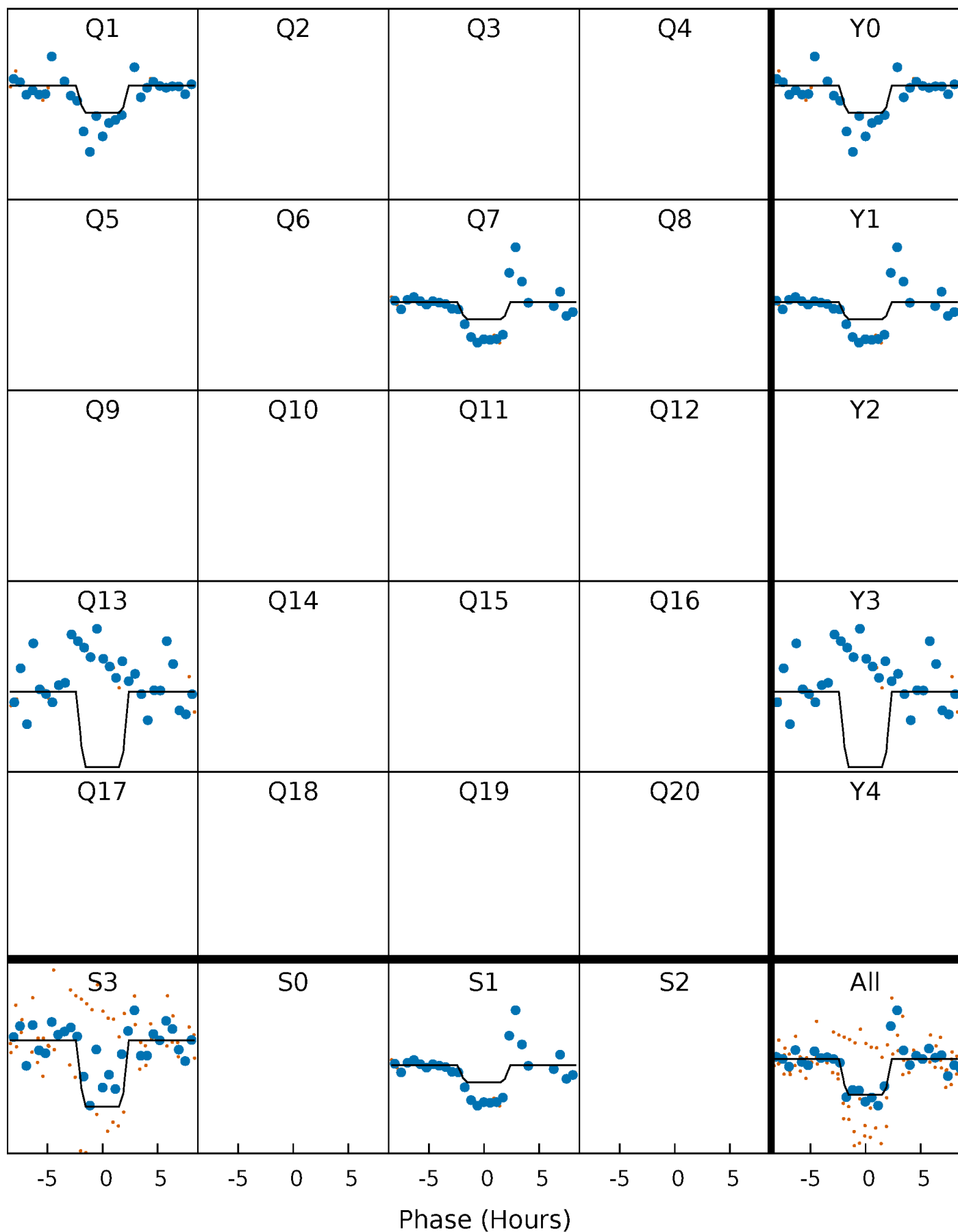
DV Quarter-Phased Transit Curves

TCE 004750938-01 P=562.012724 Days $T_0=138.313349$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

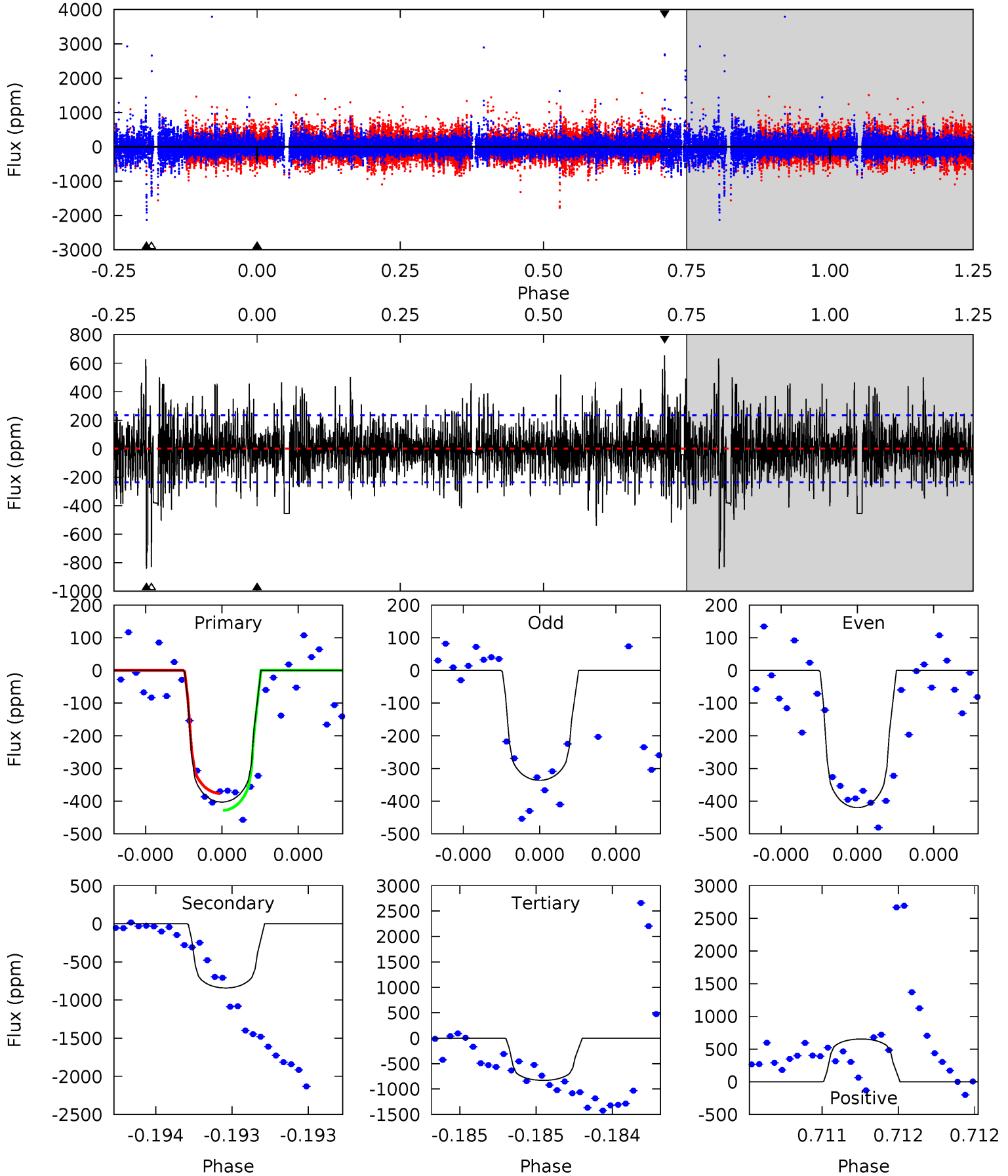
TCE 004750938-01 P=562.004634 Days $T_0=138.318673$ (BKJD)



DV Model-Shift Uniqueness Test

004750938-01, P = 562.012724 Days, E = 138.313349 Days

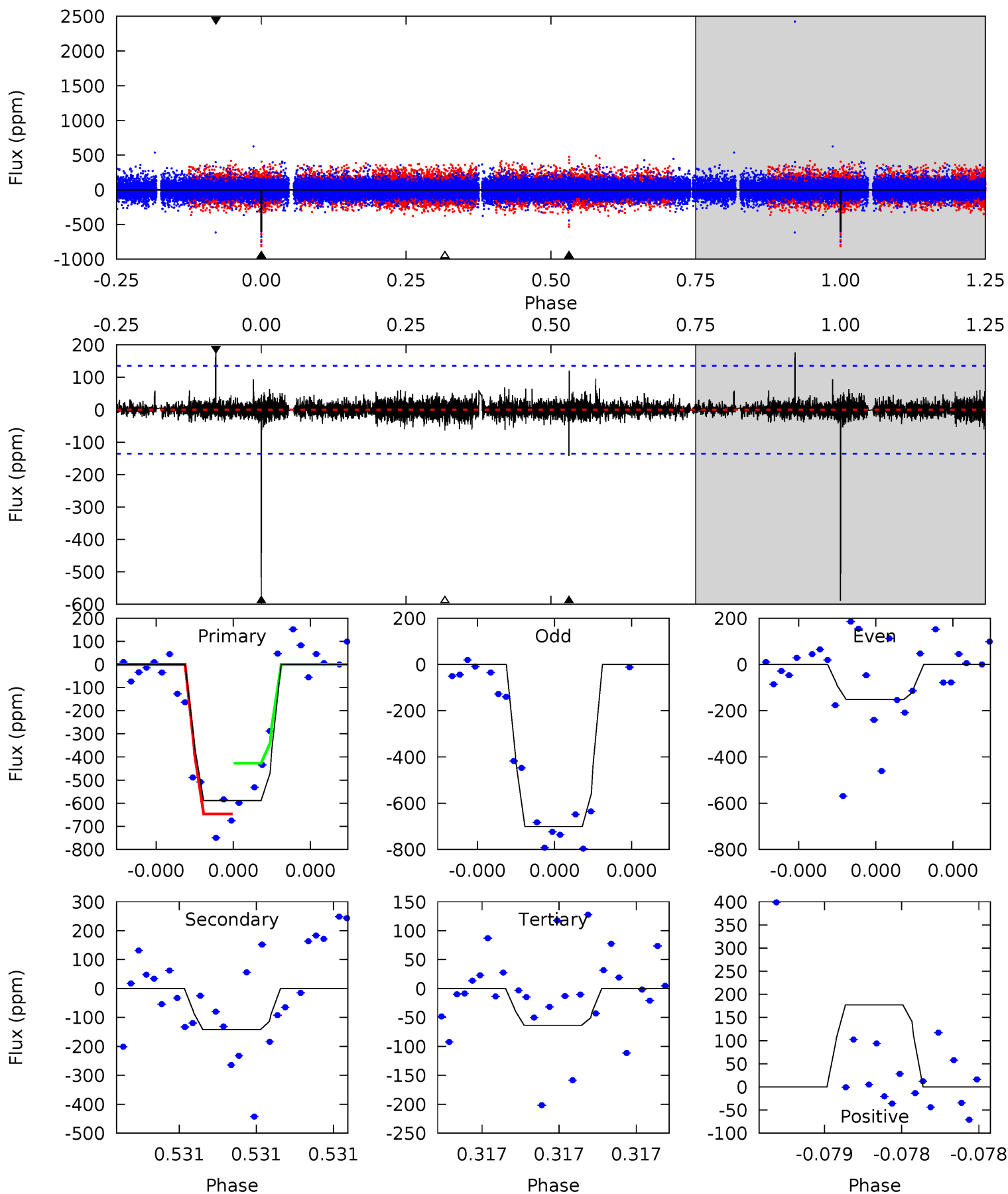
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.62	20.1	19.8	15.6	5.62	3.55	3.03	-10.2	-6.00	0.31	4.49	0.87	1.16	0.44	0.62



Alt Model-Shift Uniqueness Test

004750938-01, P = 562.004634 Days, E = 138.318673 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.6	5.95	2.65	7.40	5.66	3.62	0.57	22.0	17.2	3.30	-1.45	13.6	0.67	0.23	4.76



Stellar Parameters For KIC 004750938

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6089^{+183}_{-164}	$4.388^{+0.209}_{-0.171}$	$-1.280^{+0.300}_{-0.300}$	$0.897^{+0.205}_{-0.168}$	$0.718^{+0.080}_{-0.027}$	$1.400^{+1.290}_{-0.627}$
	+3%/-3%	+5%/-4%	+23%/-23%	+23%/-19%	+11%/-4%	+92%/-45%
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 004750938-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-842 ± 42	$2.08^{+1.03}_{-0.92}$	325^{+22}_{-22}	7211^{+3117}_{-1347}	$152171^{+351327}_{-81929}$
Alt.	-142 ± 24	$1.78^{+1.06}_{-0.90}$	324^{+24}_{-22}	4997^{+2016}_{-839}	$35754^{+112904}_{-22014}$

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

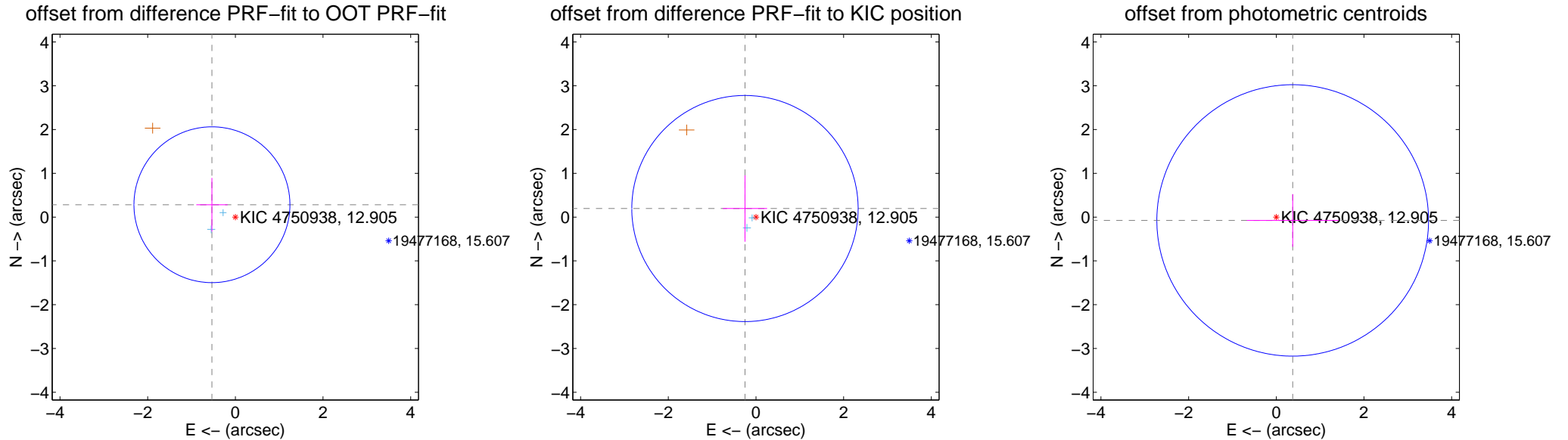
DV Centroid Data

Supplemental centroid analysis for 004750938-01. Kepler magnitude: 12.90. Transit SNR 6.54

There are 2 quarters with good PRF difference image offsets

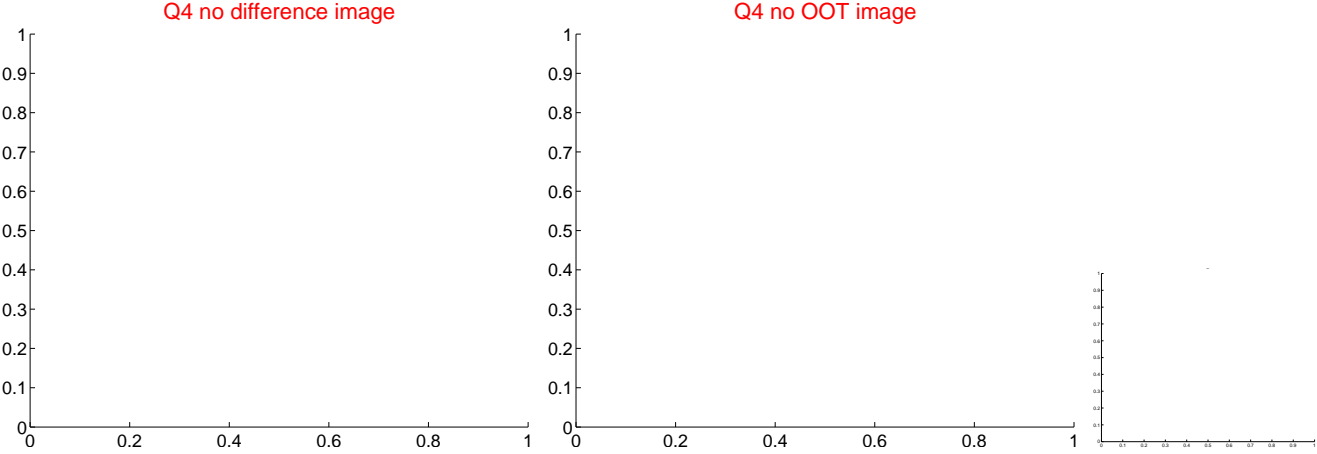
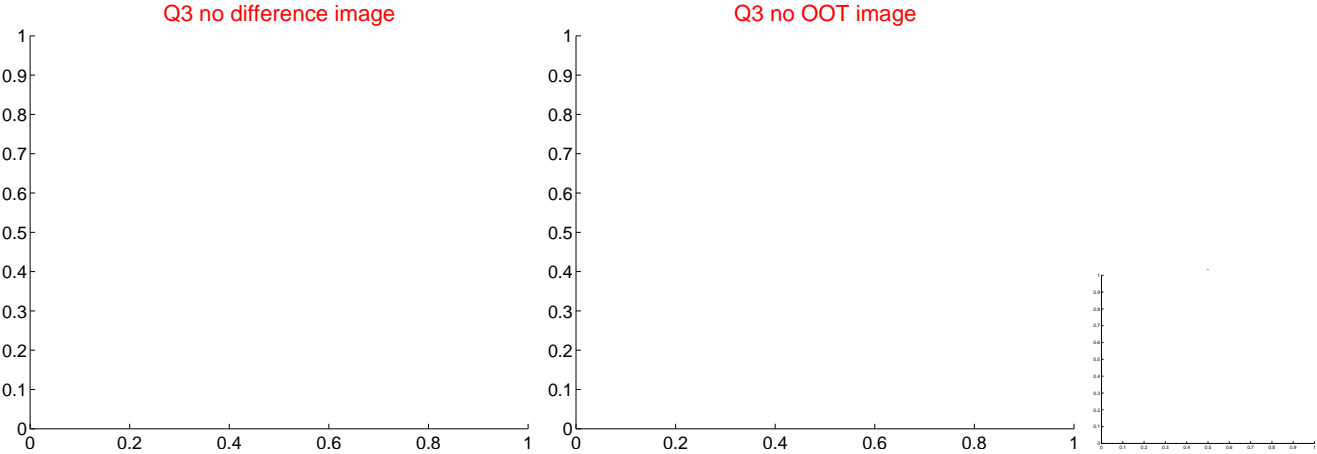
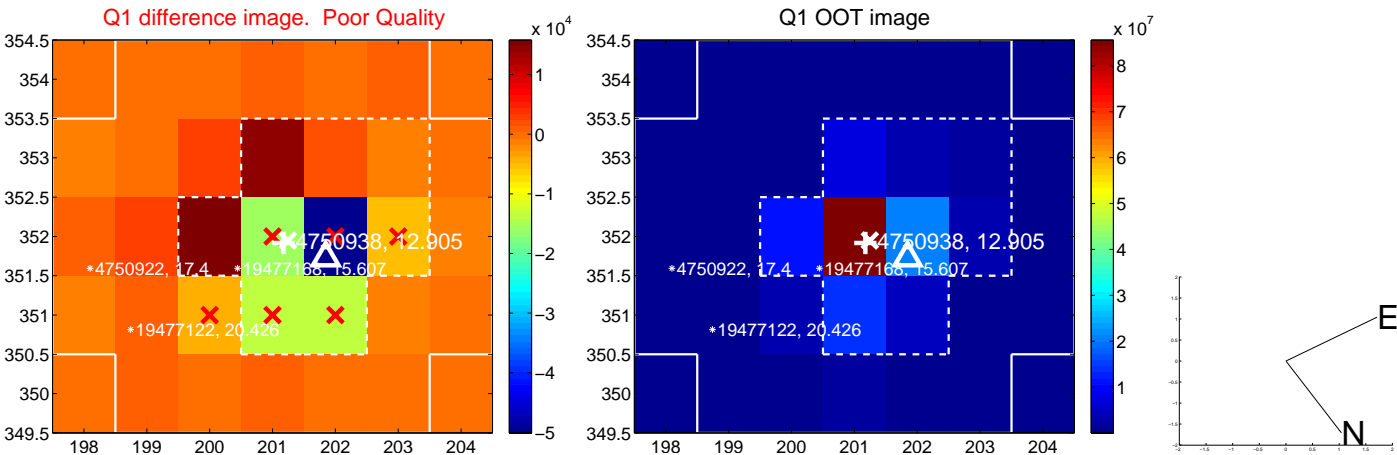
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.604 ± 0.593	1.02	0.534 ± 0.357	0.282 ± 0.613
PRF-fit source offset from KIC position	0.318 ± 0.860	0.37	0.251 ± 0.505	0.196 ± 0.758
photometric centroid source offset	0.38 ± 1.03	0.37	-0.37 ± 1.05	-0.08 ± 0.60



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.

Q5 no difference image



Q5 no OOT image



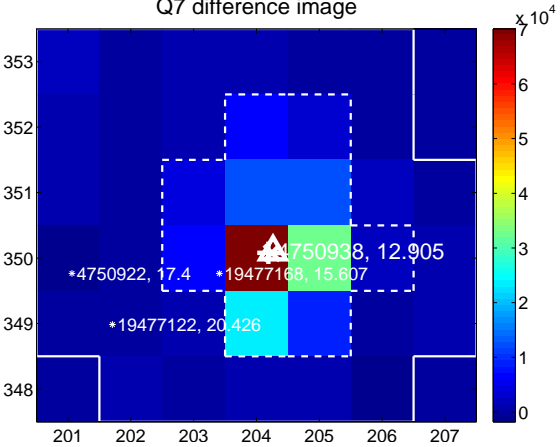
Q6 no difference image



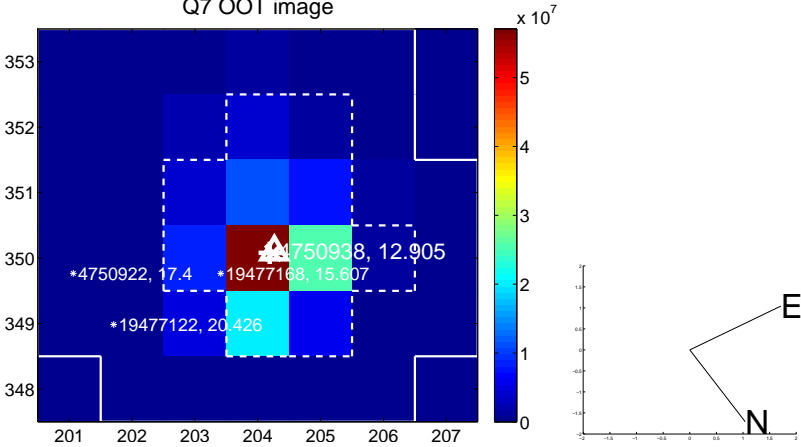
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



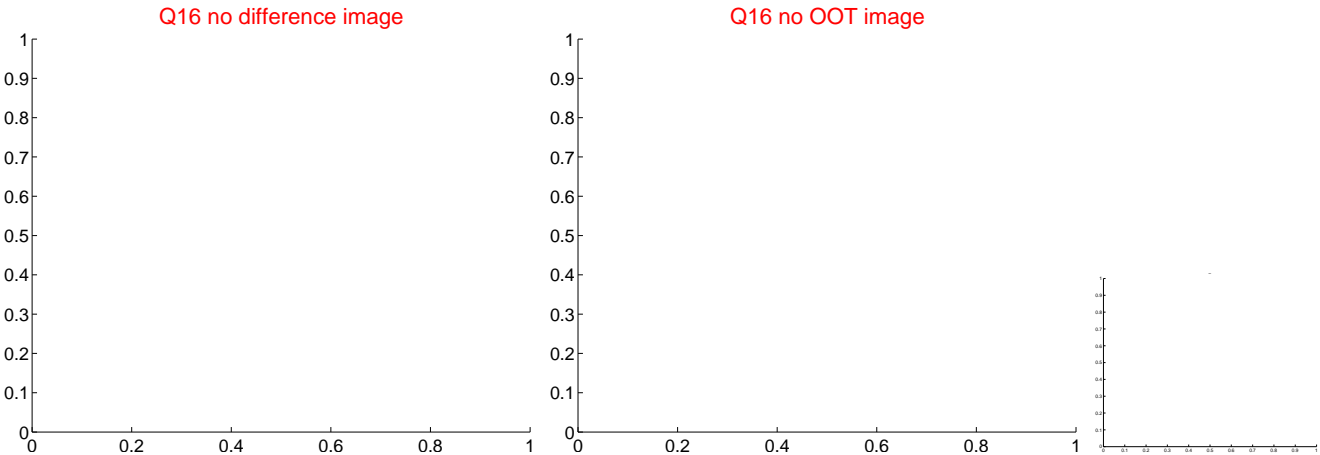
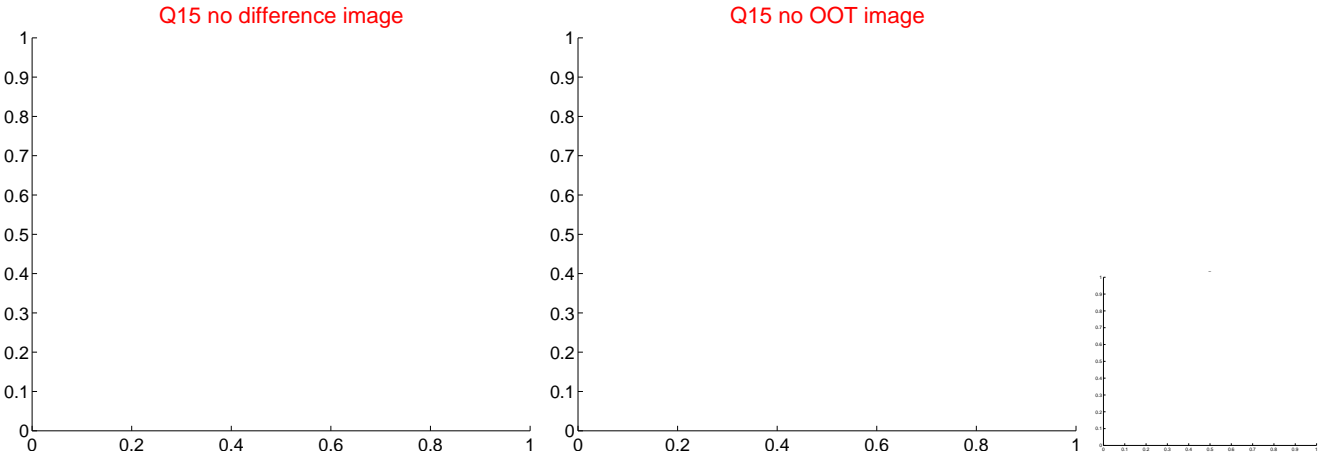
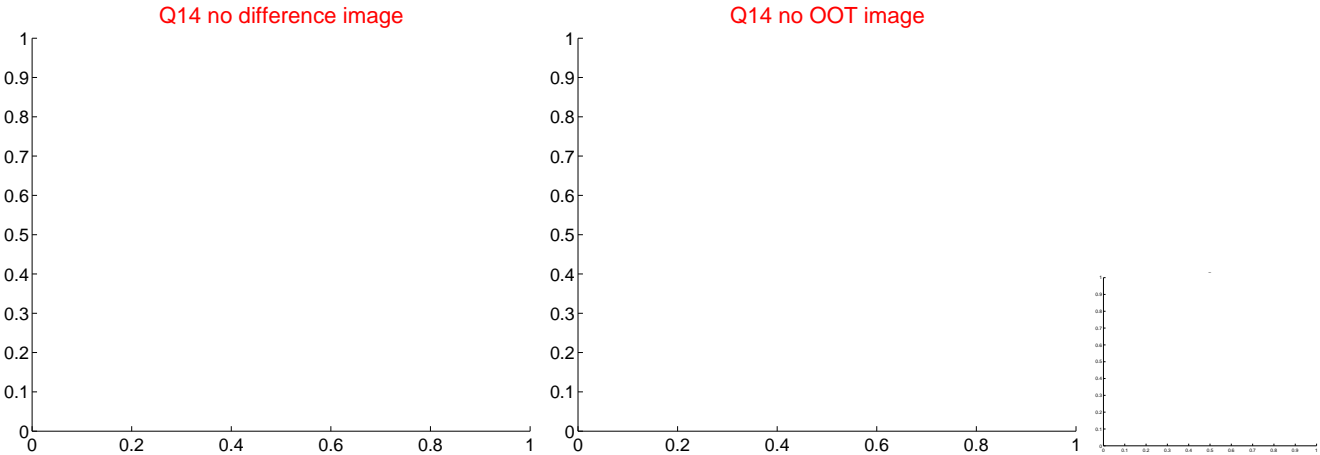
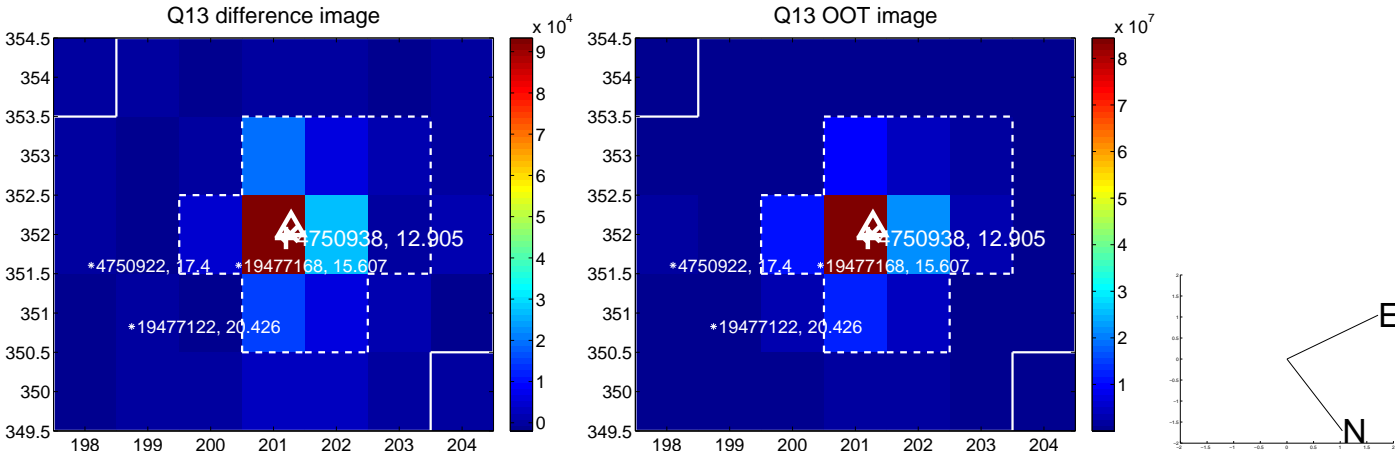
Q8 no OOT image



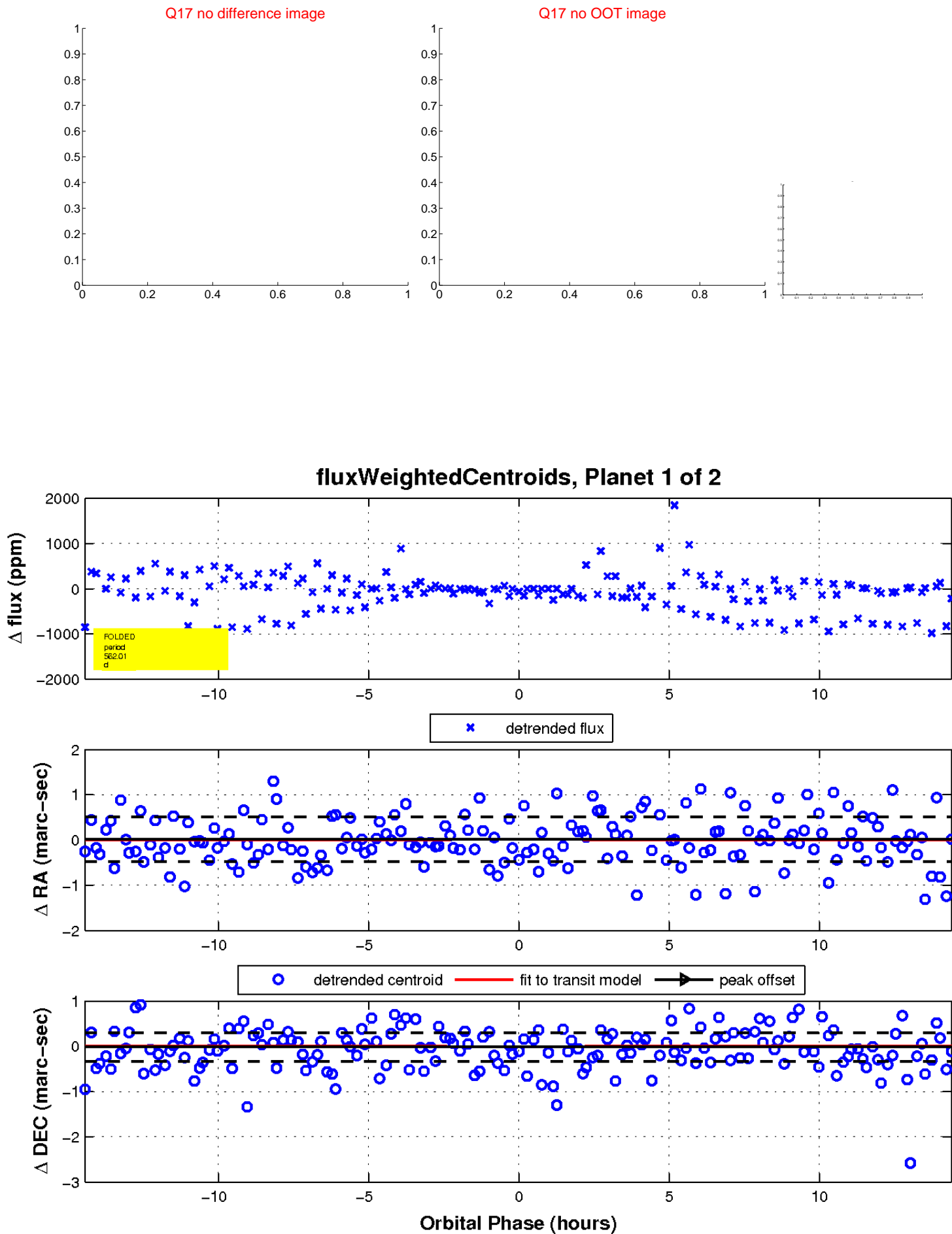
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

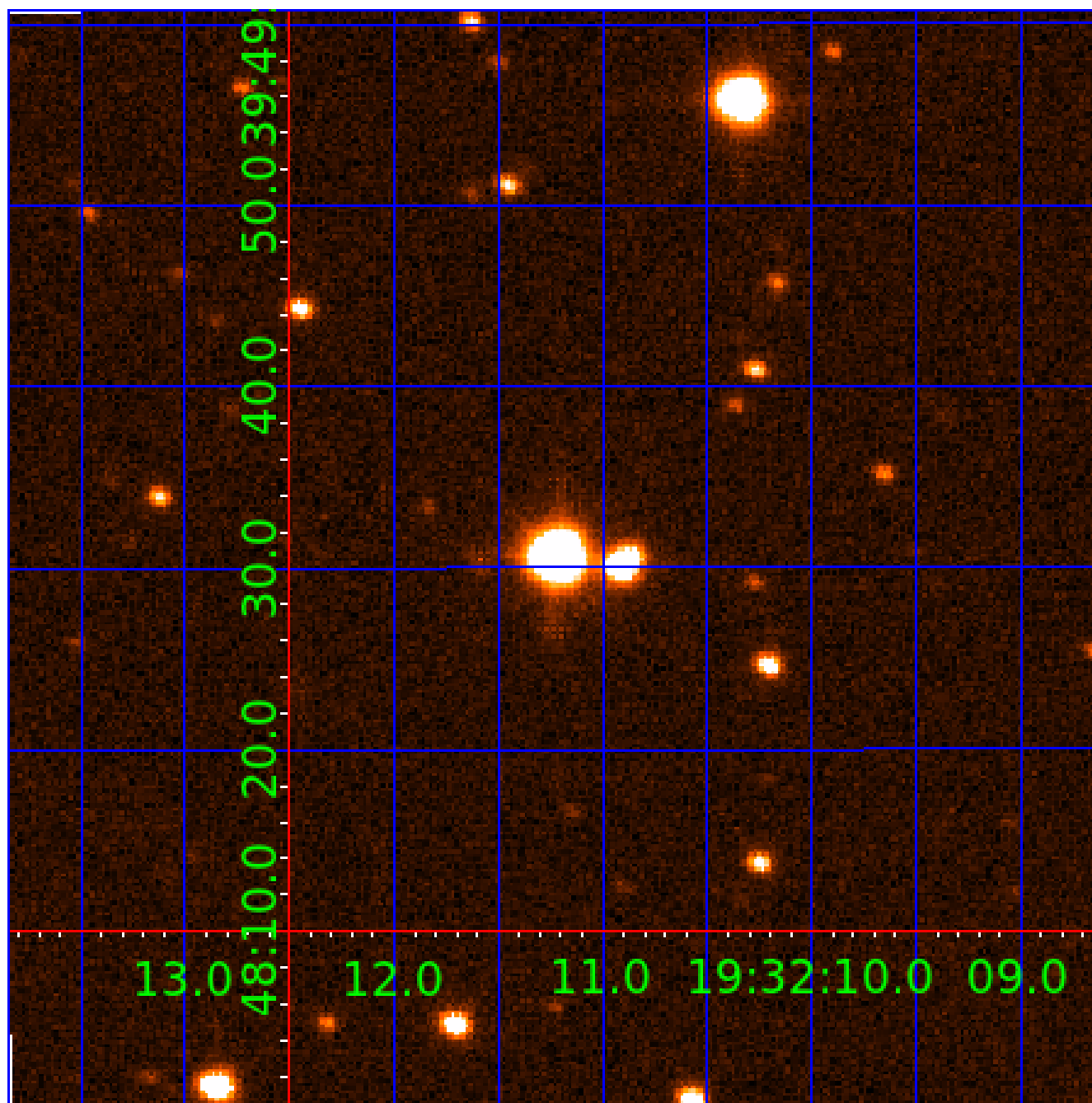


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004750938

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})
004750938-01	OBS	No	562.012724	138.313349	454.2	4.826	13.8	6.5	0.90	6089	2.10	0.70
004750938-02	OBS	No	410.899635	316.253179	459.9	2.322	12.5	7.0	0.90	6089	2.01	1.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004750938-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004750938-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_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.

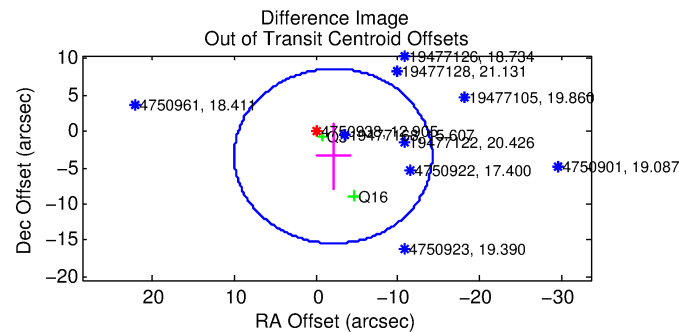
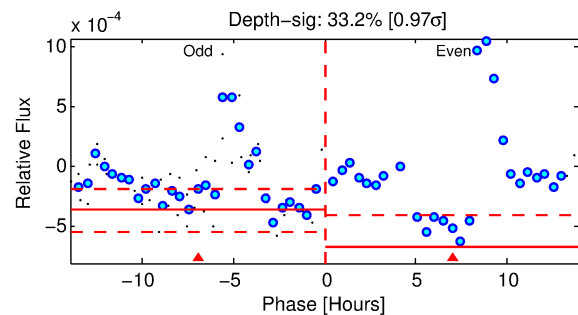
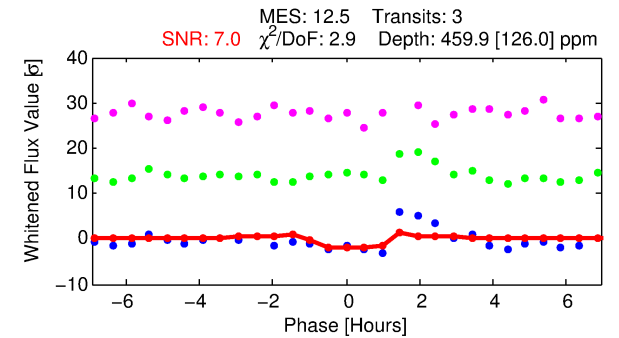
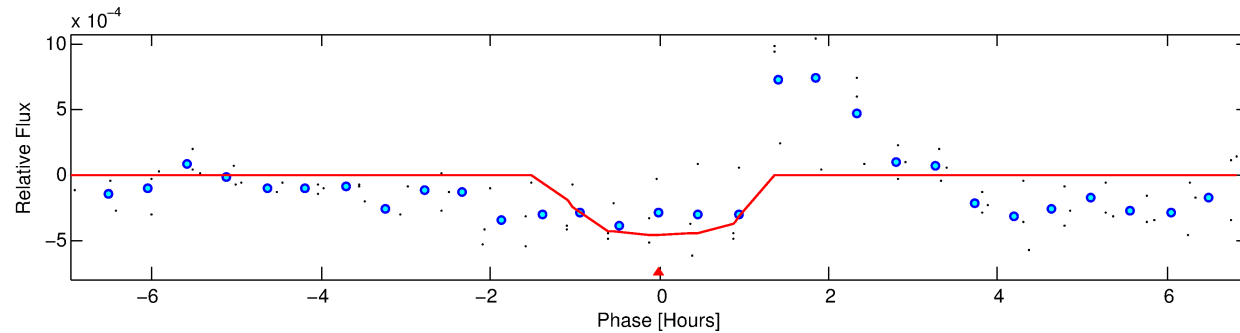
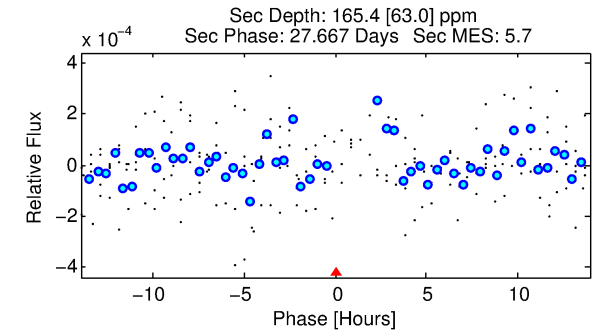
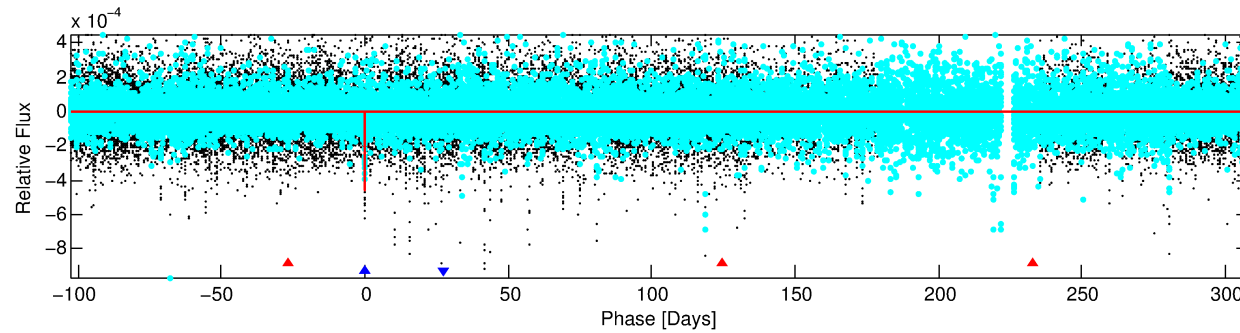
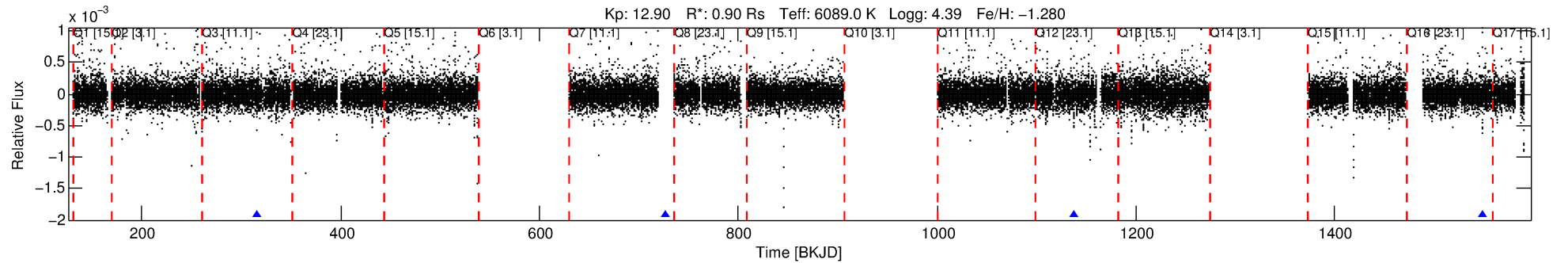
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004750938-02

No Significant Match Found

DV One-Page Summary

KIC: 4750938 Candidate: 2 of 2 Period: 410.900 d



DV Fit Results:

Period = 410.89963 [0.00632] d
Epoch = 316.2532 [0.0094] BKJD
Rp/R* = 0.0205 [0.0951]
a/R* = 1142.09 [28522.73]
b = 0.57 [29.58]
Seff = 1.06 [0.40]
Teff = 259 [24] K
Rp = 2.01 [9.32] Re
a = 0.9684 [0.2142] AU
Ag = 21101.53 [195672.10] [0.11σ]
Teffp = 4818 [11161] K [0.41σ]

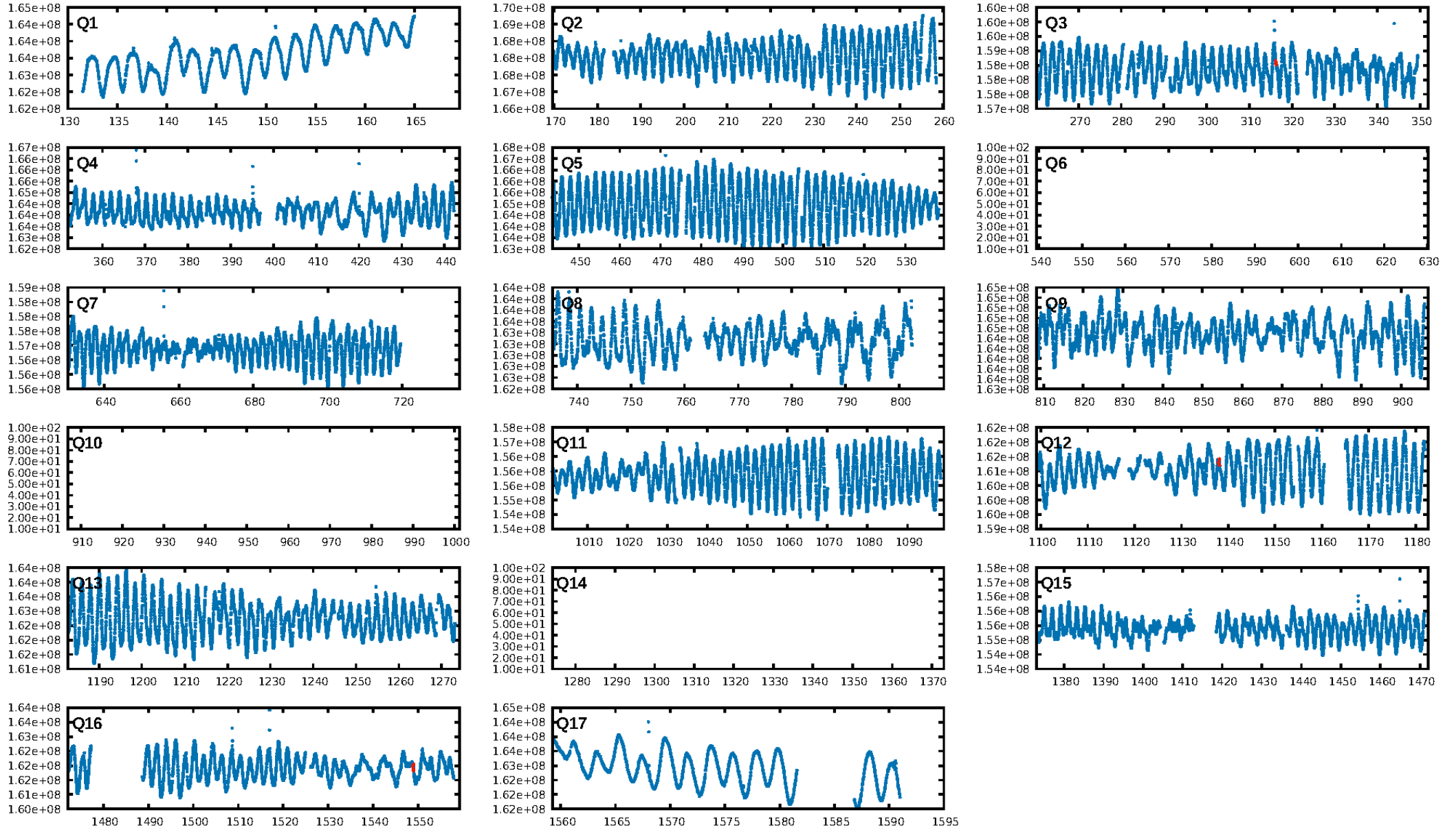
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [677.18σ]
ModelChiSquare2-sig: 2.0%
ModelChiSquareGof-sig: 24.8%
Bootstrap-pfa: 2.52e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.076
Centroid-sig: 3.6%
Centroid-so: 1.623 arcsec [1.49σ]
OotOffset-rm: 4.003 arcsec [1.00σ]
KicOffset-rm: 4.188 arcsec [0.97σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

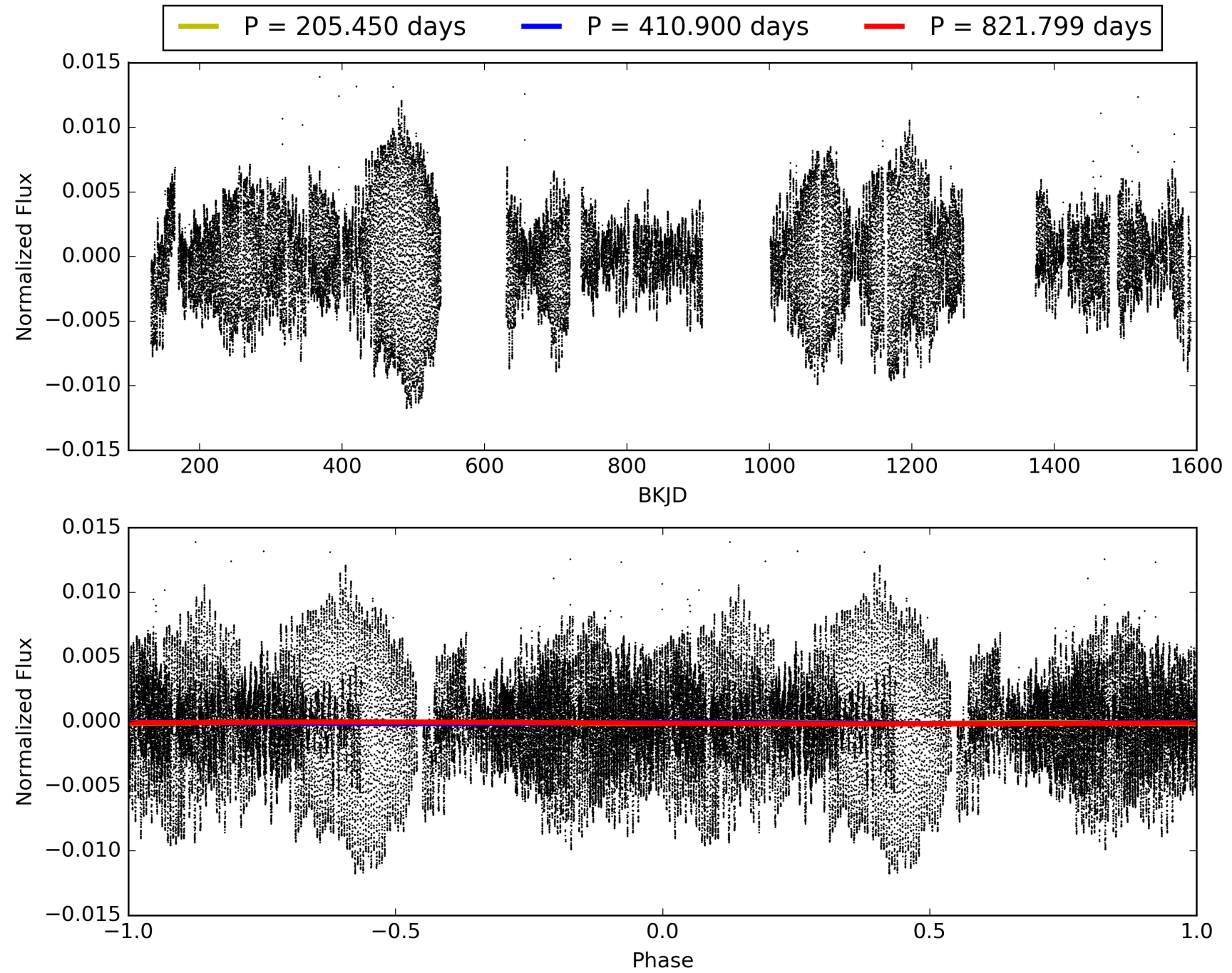
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:57:00 Z

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

TCE 004750938-02, PDC Light Curves

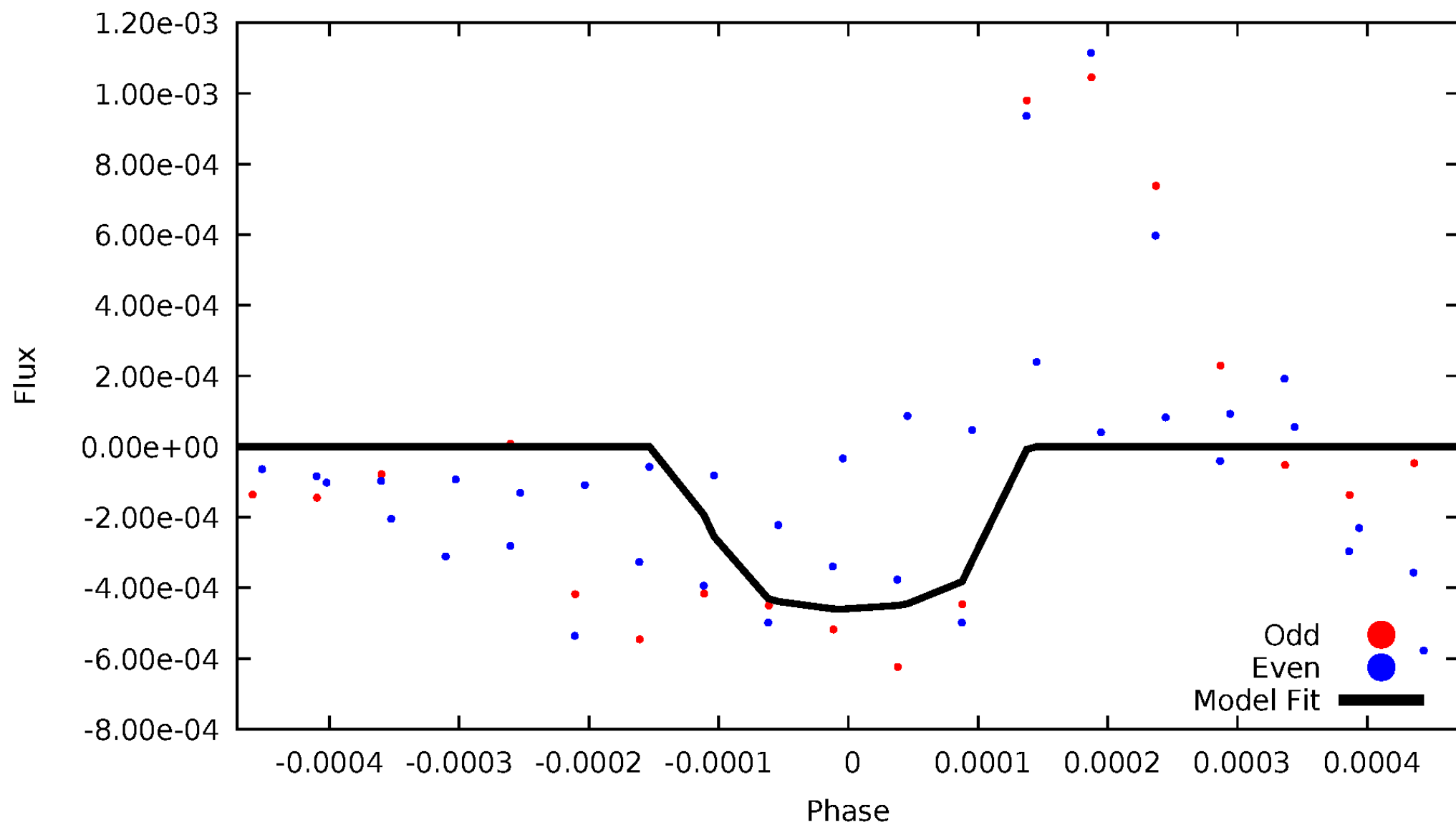


TCE 004750938-02



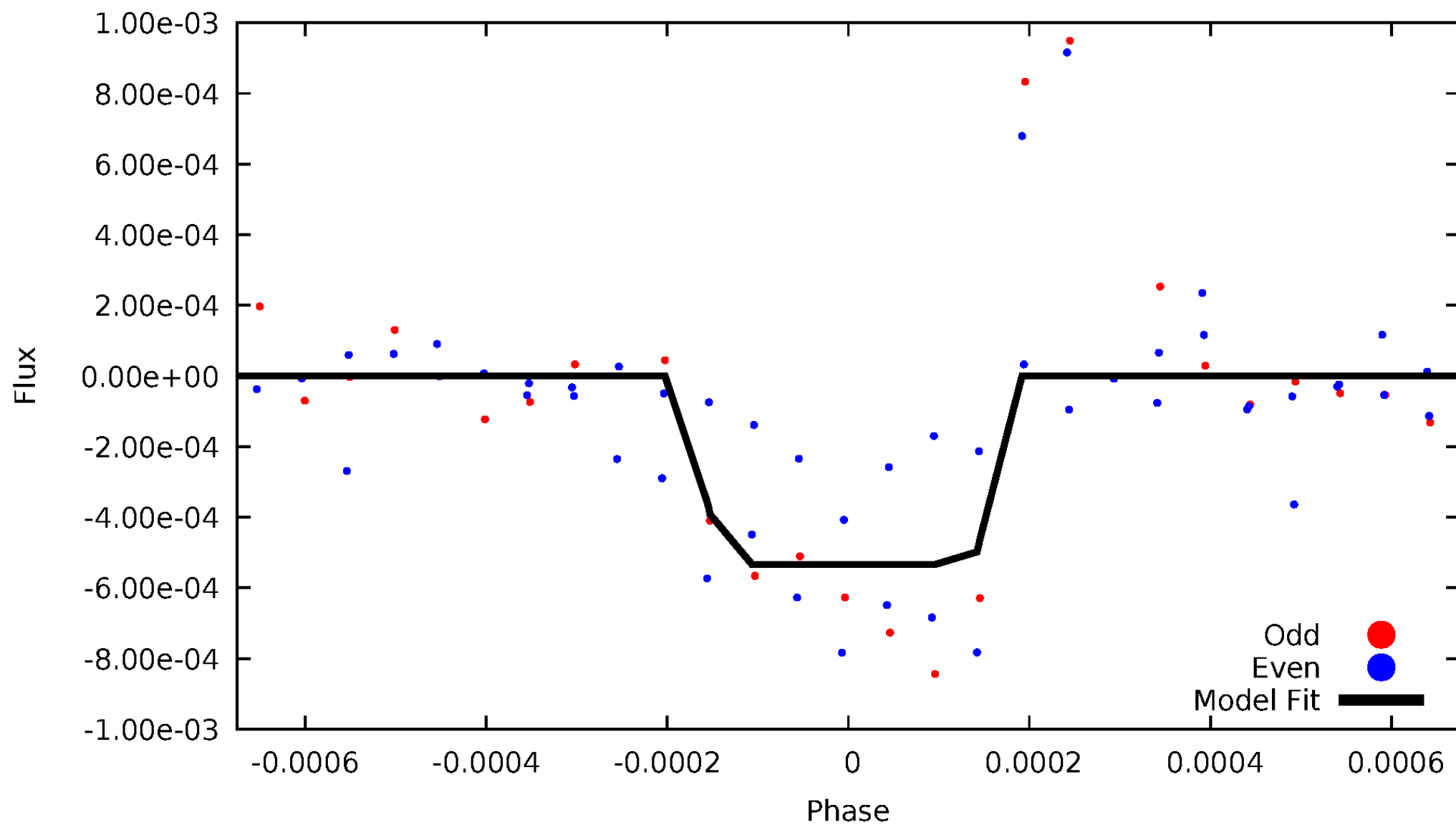
DV Odd/Even

TCE 004750938-02



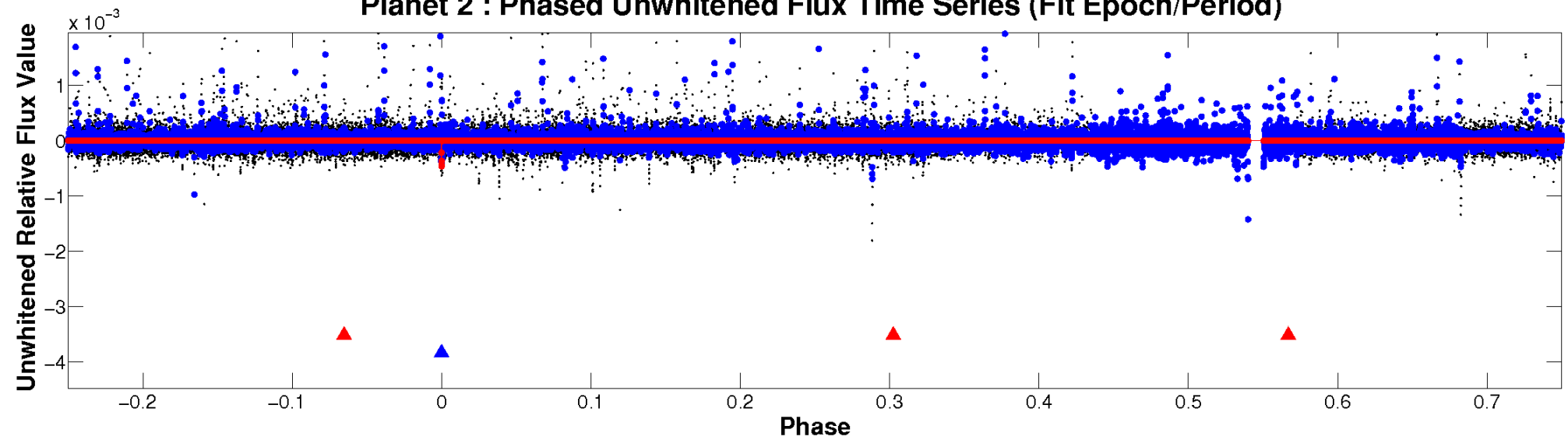
ALT Odd/Even

TCE 004750938-02

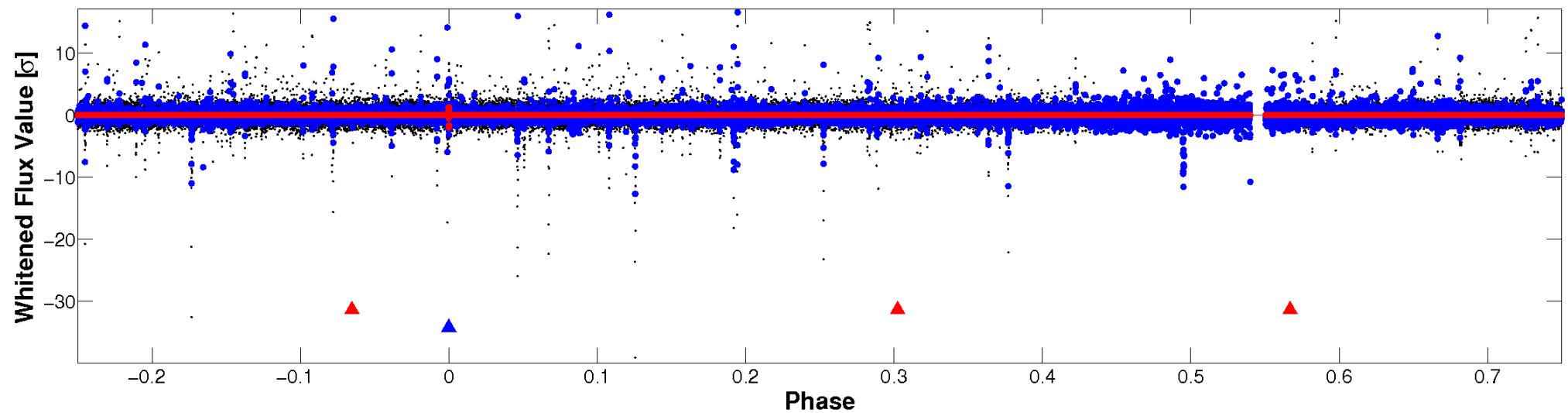


Non-Whitened Vs. Whitened Light Curve

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

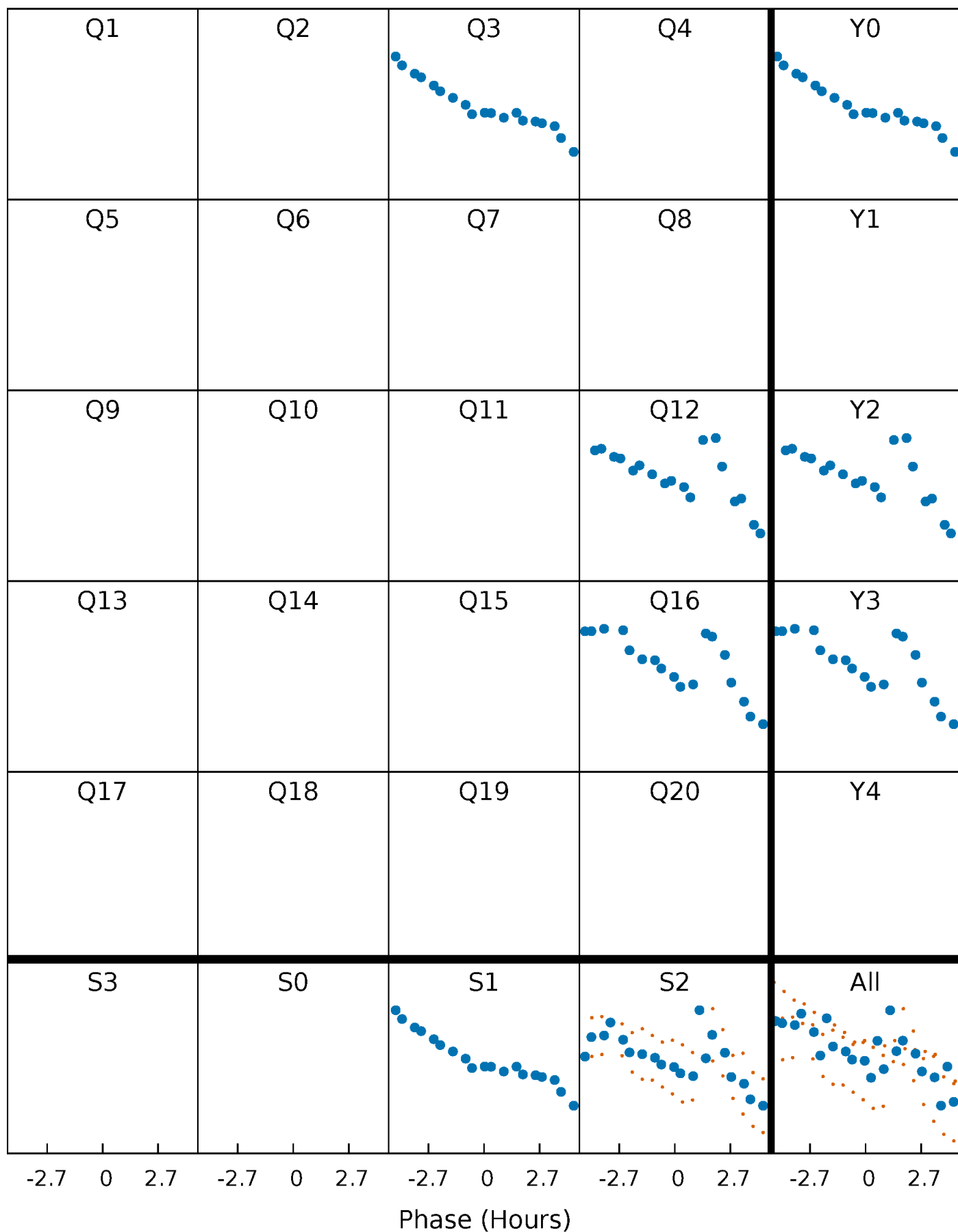


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



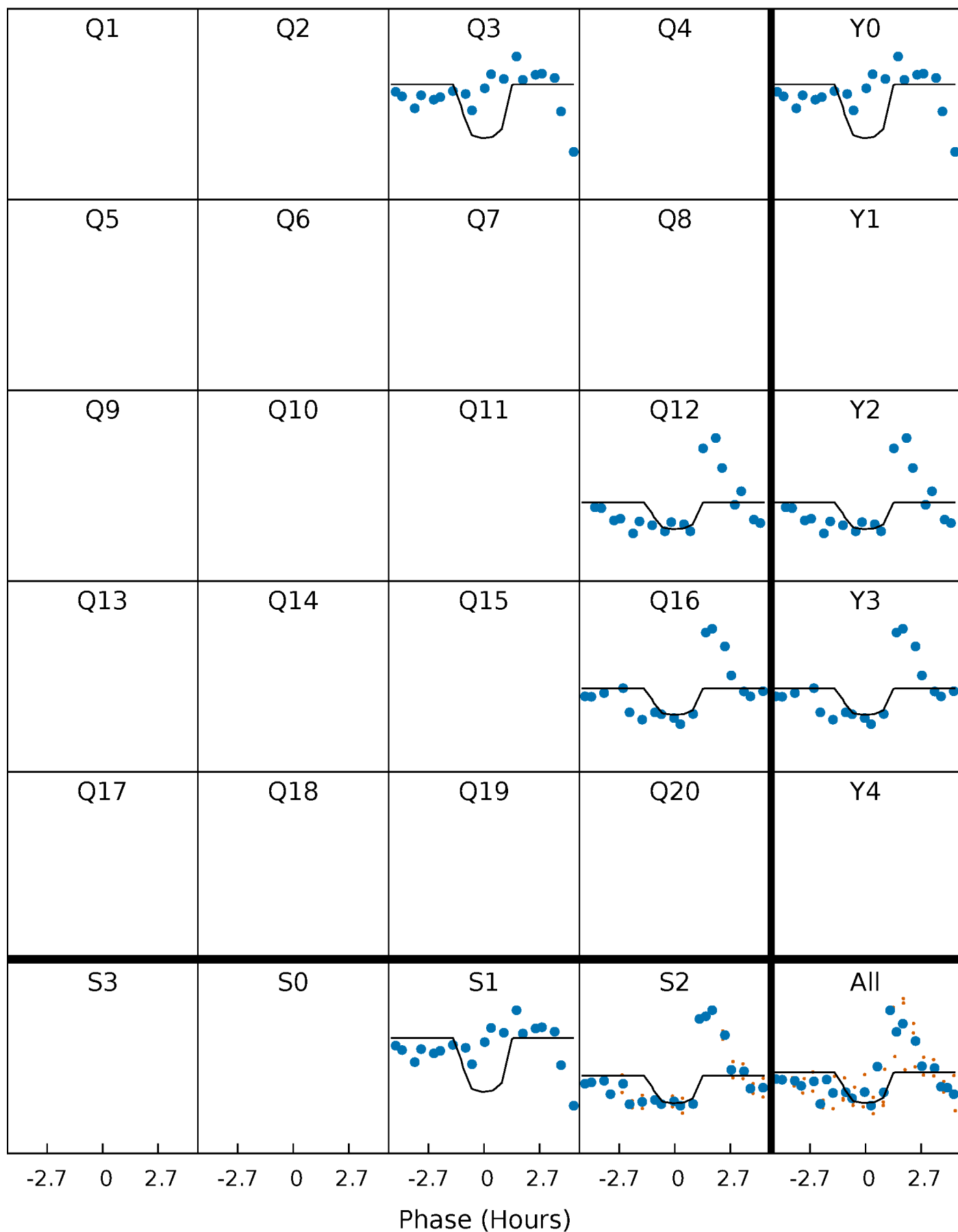
PDC Quarter-Phased Transit Curves

TCE 004750938-02 P=410.899635 Days $T_0=316.253179$ (BKJD)



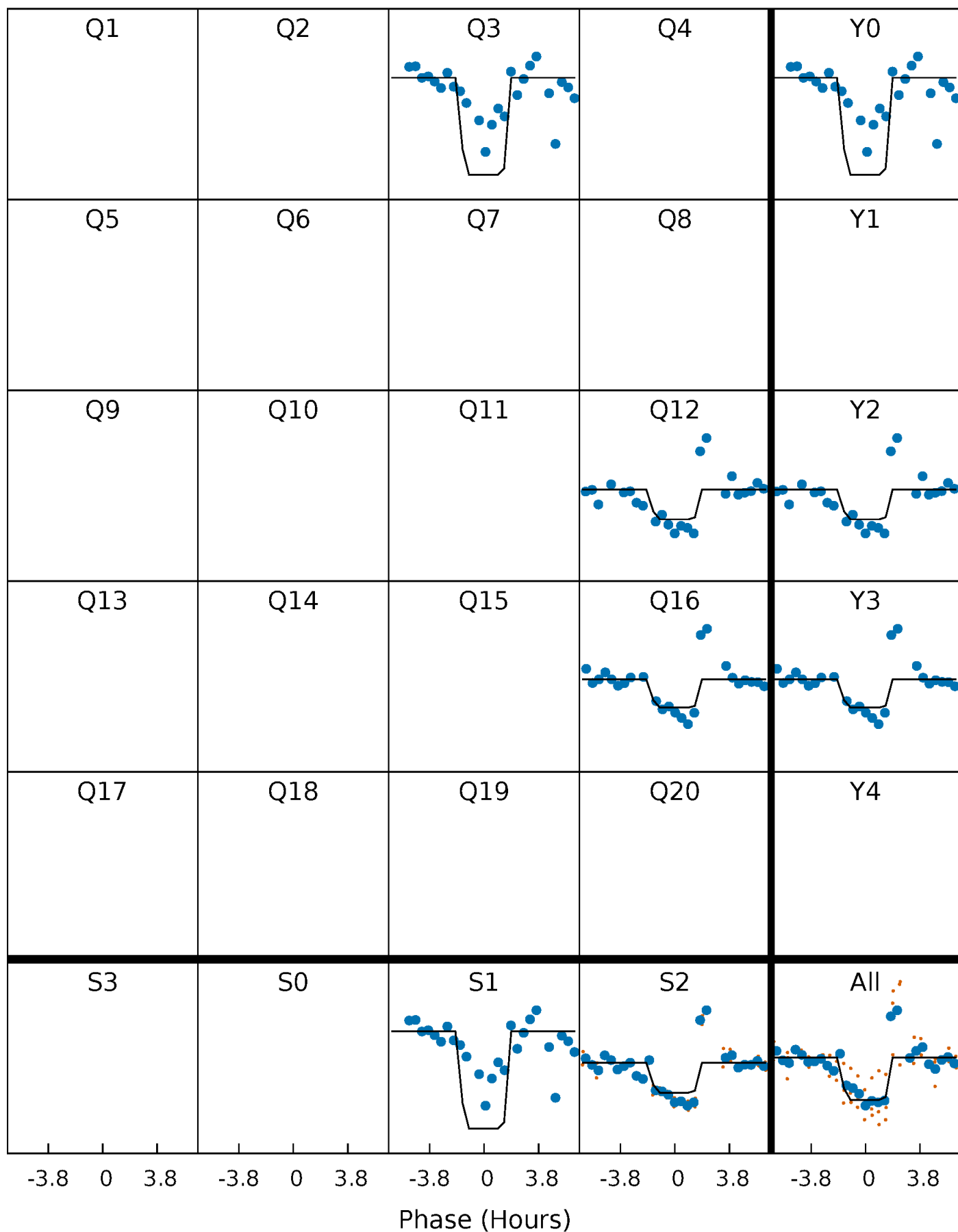
DV Quarter-Phased Transit Curves

TCE 004750938-02 P=410.899635 Days $T_0=316.253179$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

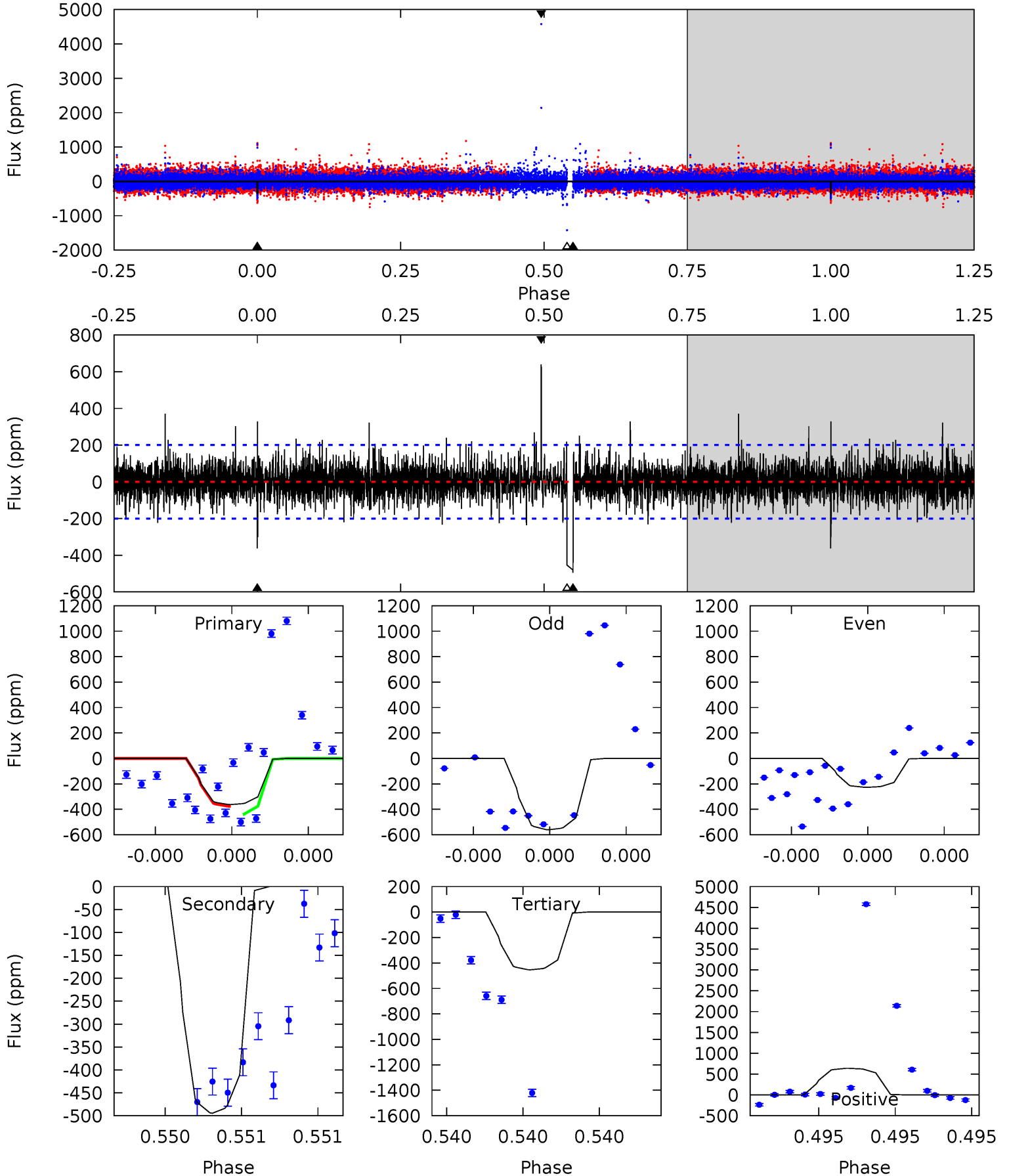
TCE 004750938-02 $P=410.898458$ Days $T_0=316.233037$ (BKJD)



DV Model-Shift Uniqueness Test

004750938-02, P = 410.899635 Days, E = 316.253179 Days

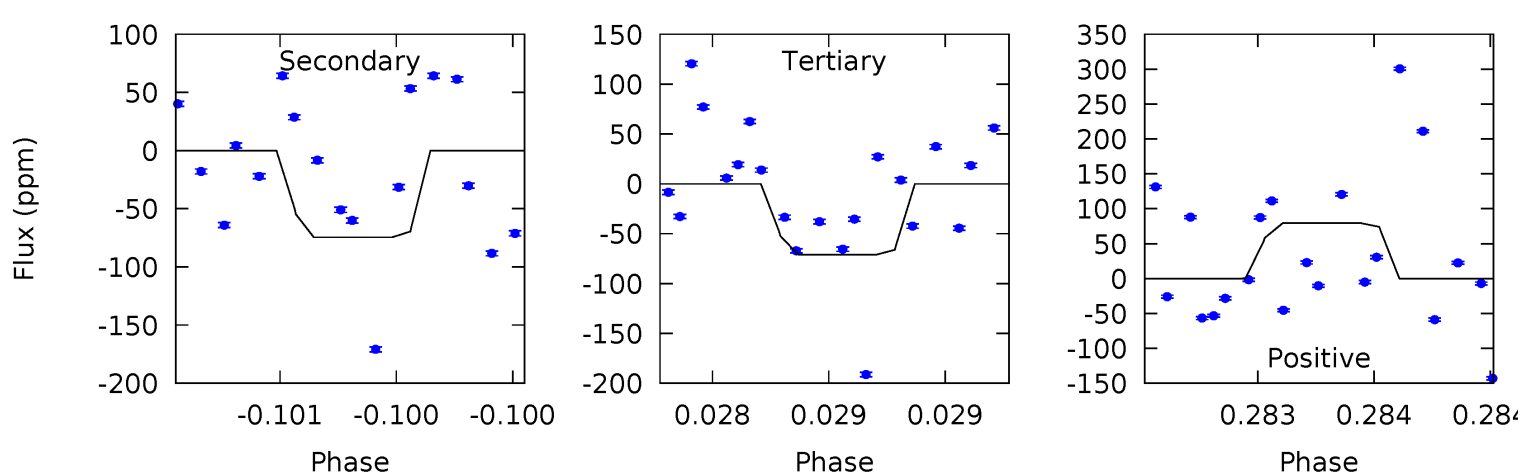
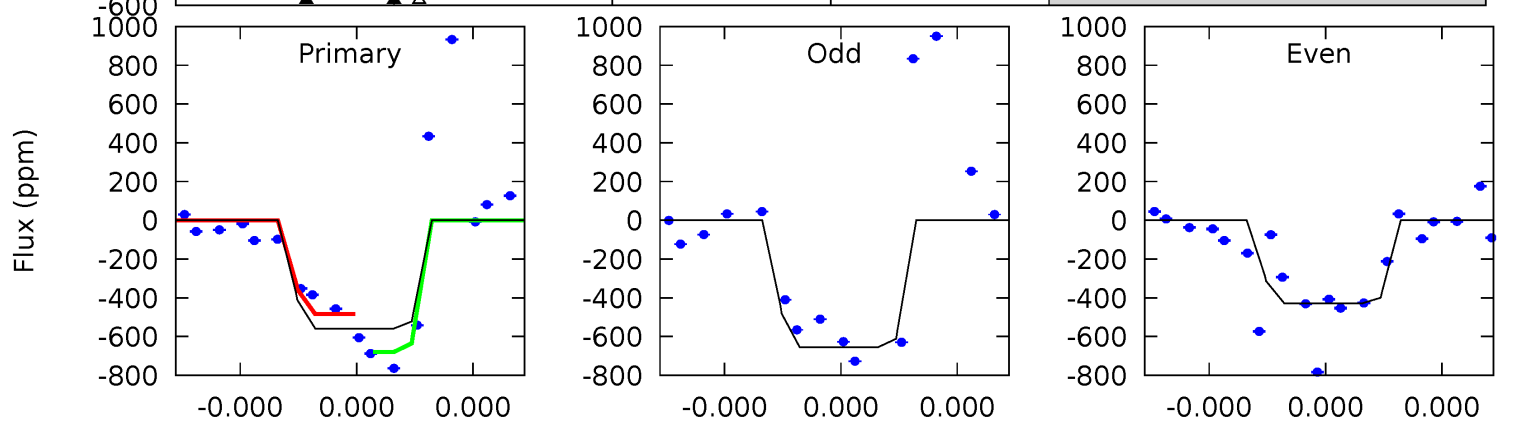
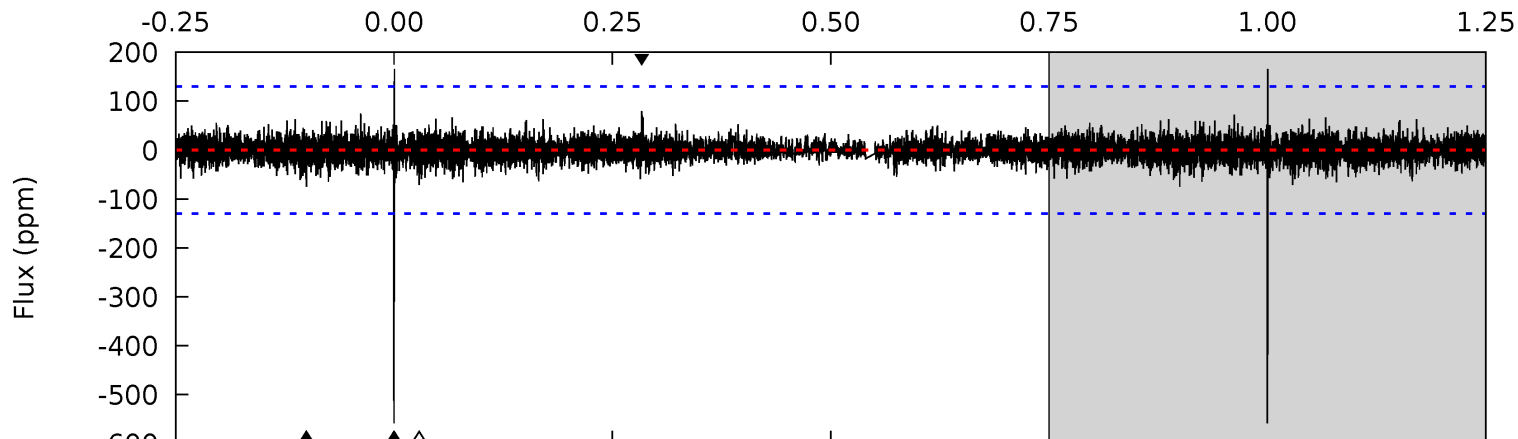
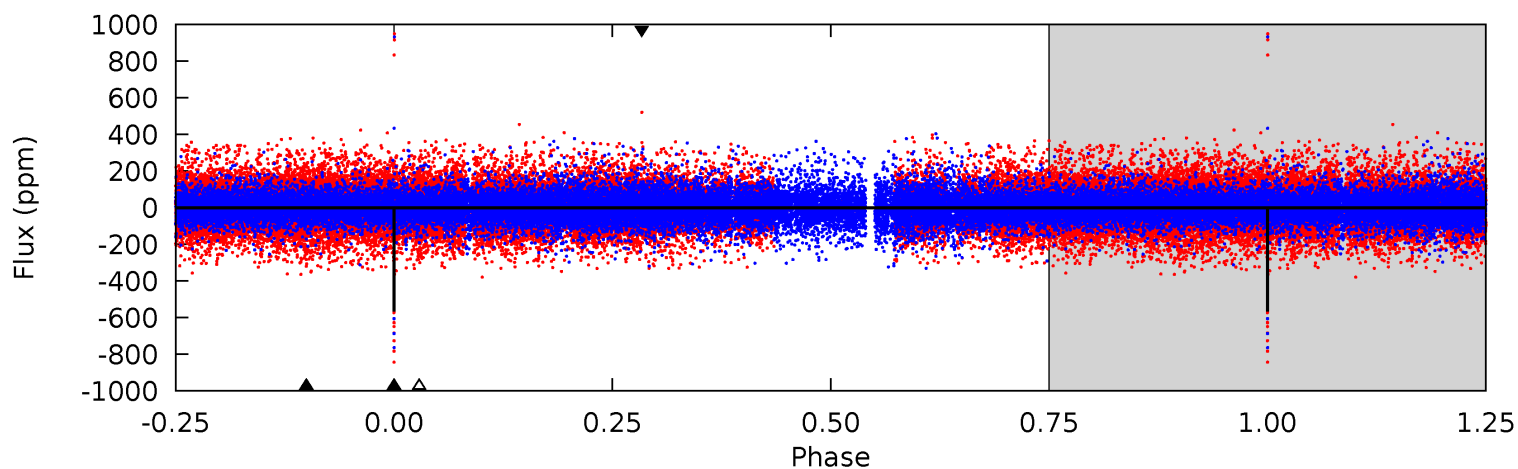
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	14.0	12.9	18.1	5.69	3.66	1.64	-2.58	-7.83	1.16	-4.09	4.08	0.77	0.56	0.89



Alt Model-Shift Uniqueness Test

004750938-02, P = 410.898458 Days, E = 316.233037 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.4	3.25	3.09	3.46	5.66	3.62	0.65	21.3	20.9	0.15	-0.21	4.77	0.80	0.23	4.15



Stellar Parameters For KIC 004750938

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6089^{+183}_{-164}	$4.388^{+0.209}_{-0.171}$	$-1.280^{+0.300}_{-0.300}$	$0.897^{+0.205}_{-0.168}$	$0.718^{+0.080}_{-0.027}$	$1.400^{+1.290}_{-0.627}$
	+3%/-3%	+5%/-4%	+23%/-23%	+23%/-19%	+11%/-4%	+92%/-45%
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 004750938-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-495 ± 35	$7.08^{+7.35}_{-4.81}$	360^{+24}_{-23}	3758^{+2300}_{-733}	5189^{+45460}_{-3943}
Alt.	-74 ± 23	$6.96^{+7.48}_{-4.60}$	360^{+26}_{-23}	2821^{+1189}_{-463}	749^{+6311}_{-569}

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 $A_{obs} \gg 1.0$

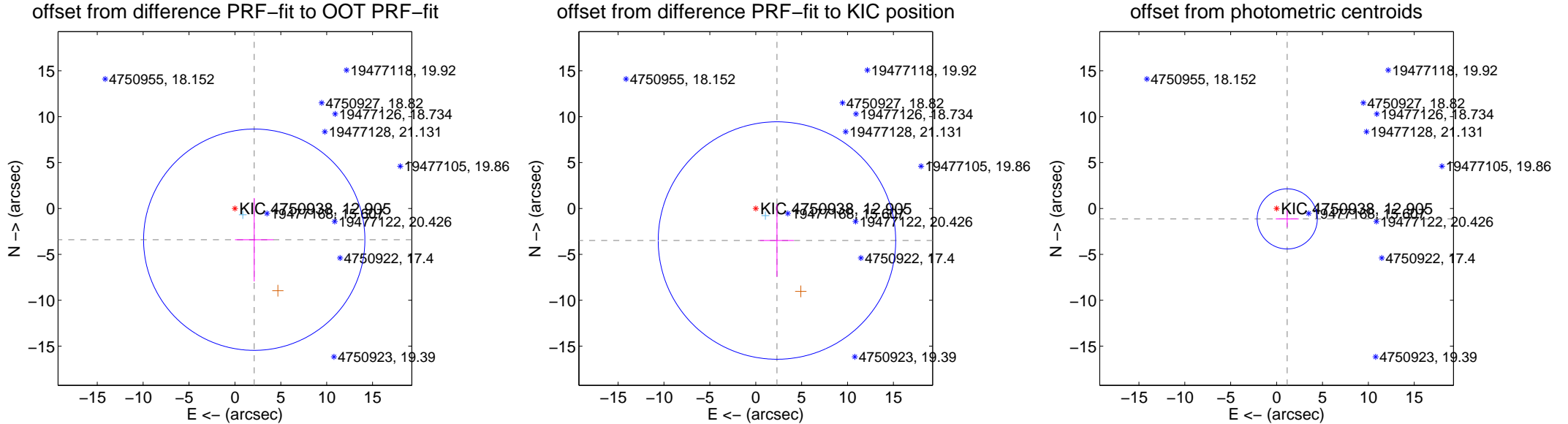
DV Centroid Data

Supplemental centroid analysis for 004750938-02. Kepler magnitude: 12.90. Transit SNR 6.96

There are 1 quarters with good PRF difference image offsets

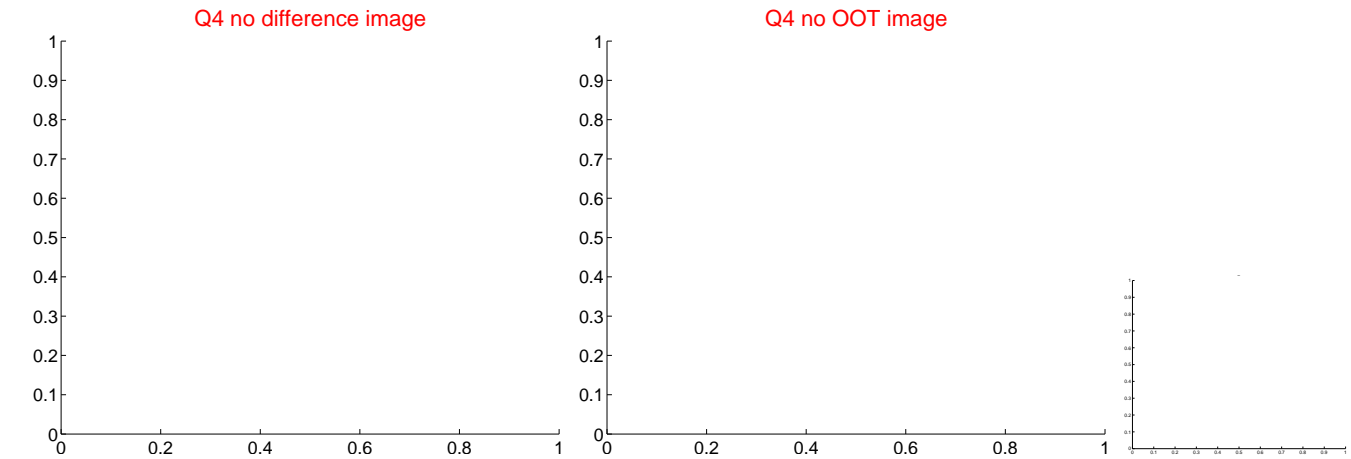
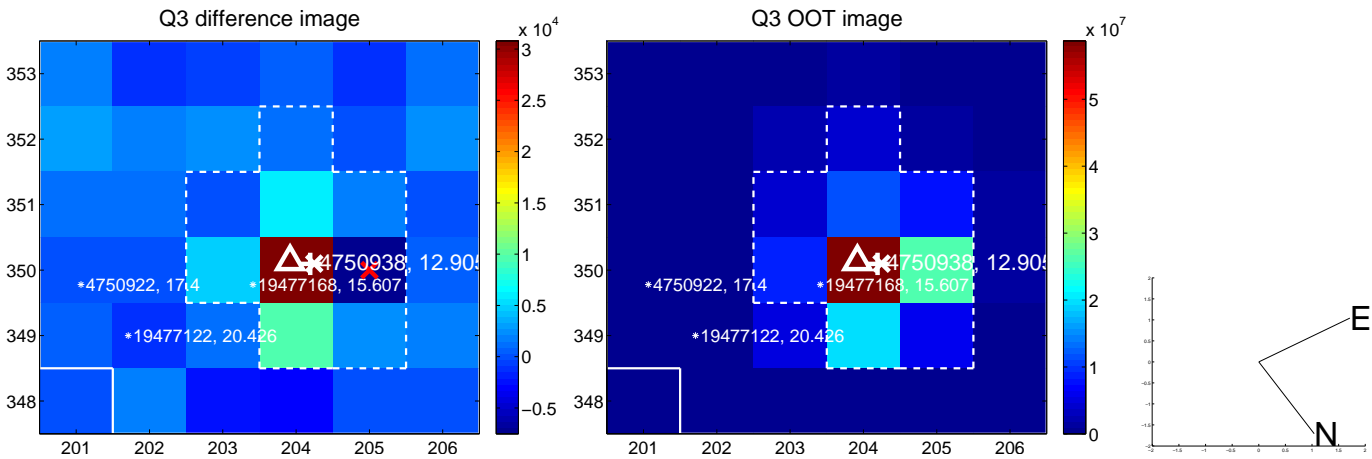
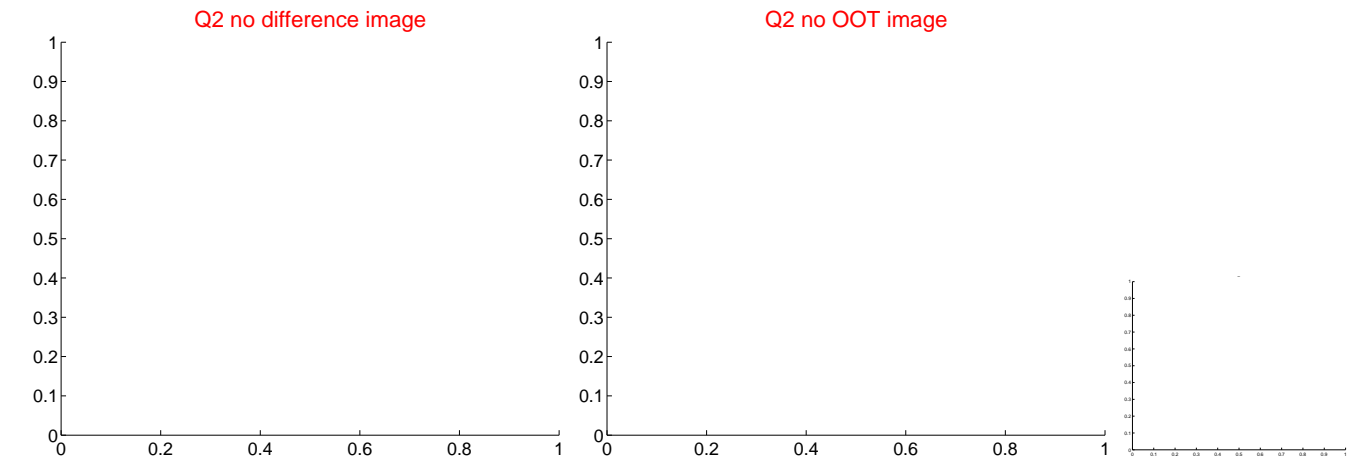
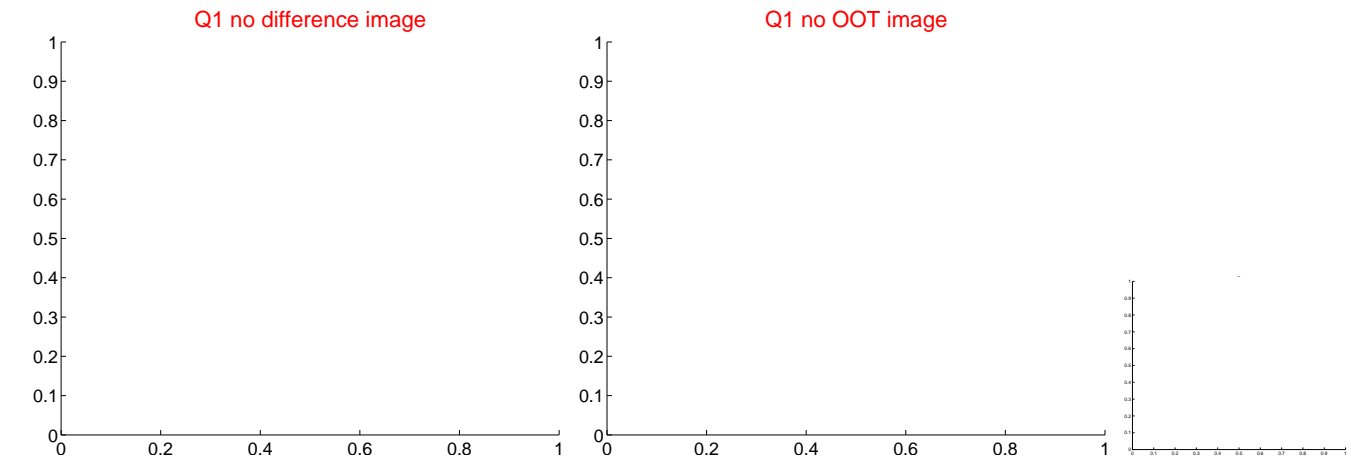
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.003 ± 4.019	1.00	-2.106 ± 2.096	-3.405 ± 4.544
PRF-fit source offset from KIC position	4.188 ± 4.312	0.97	-2.310 ± 1.846	-3.493 ± 3.949
photometric centroid source offset	1.62 ± 1.09	1.49	-1.16 ± 1.25	-1.14 ± 0.90



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.

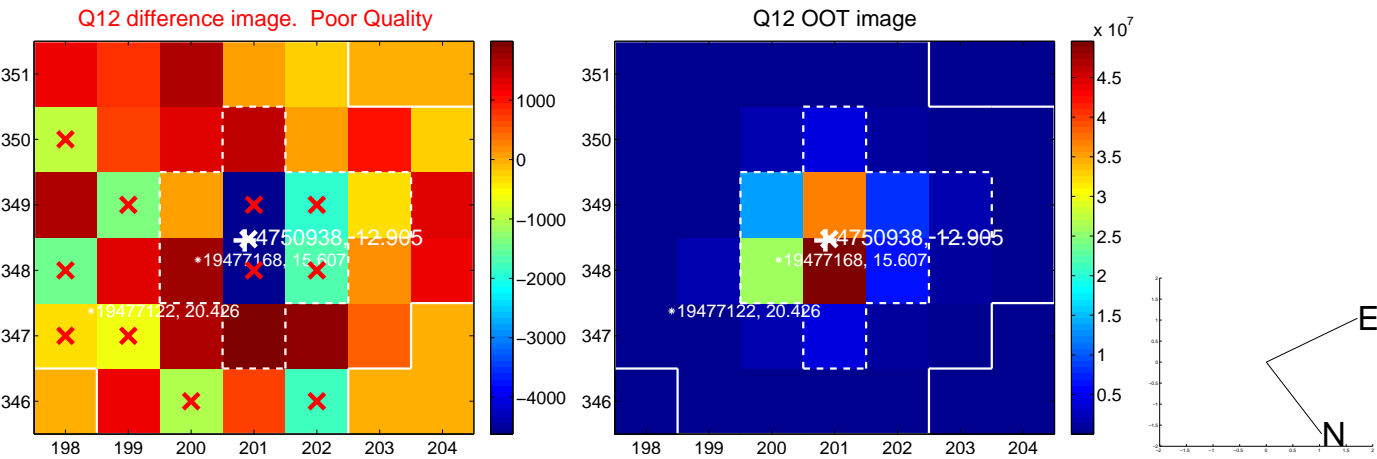
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



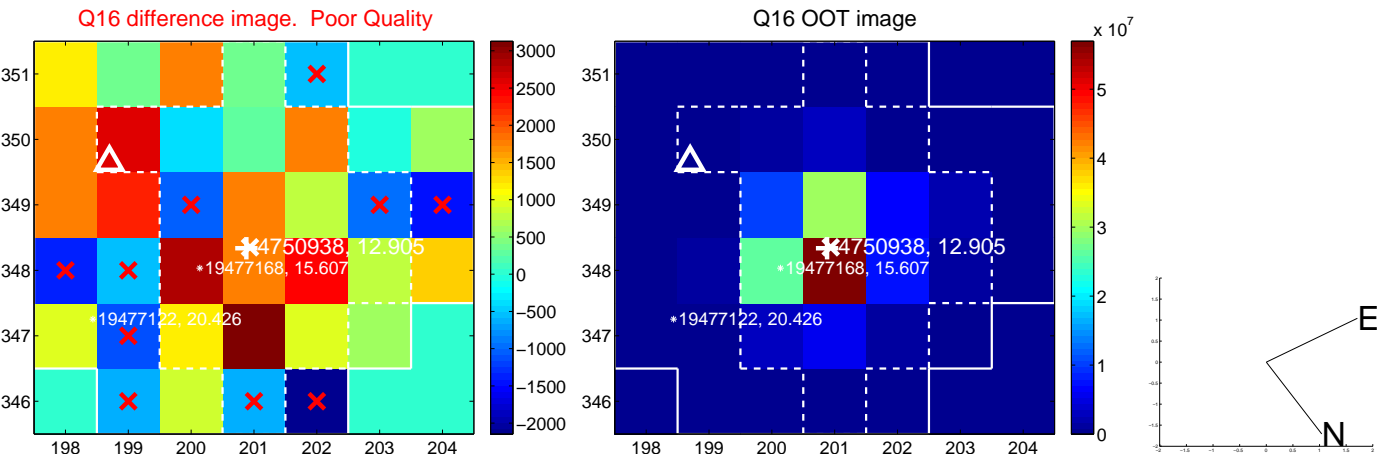
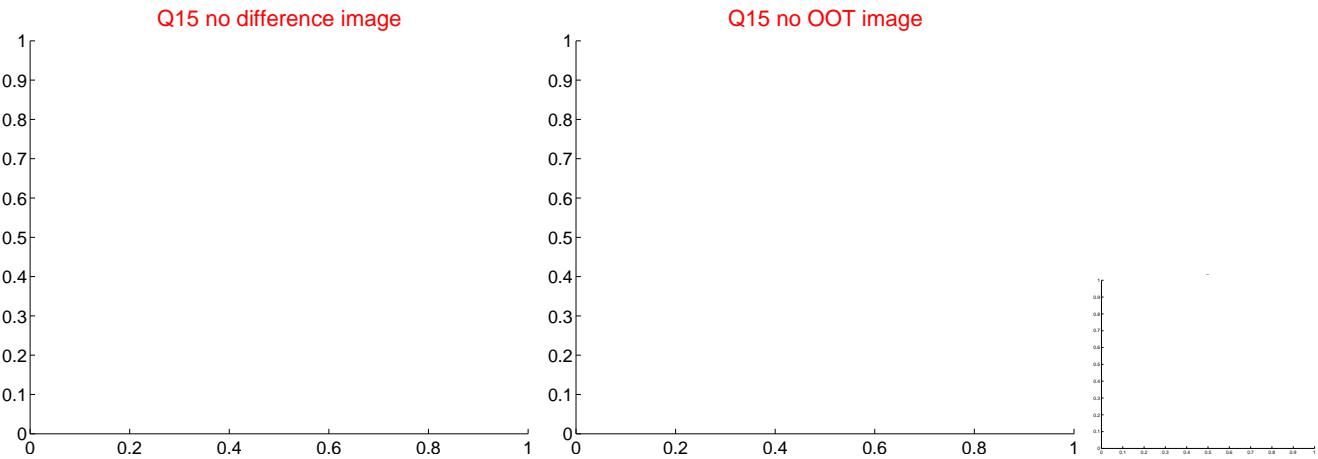
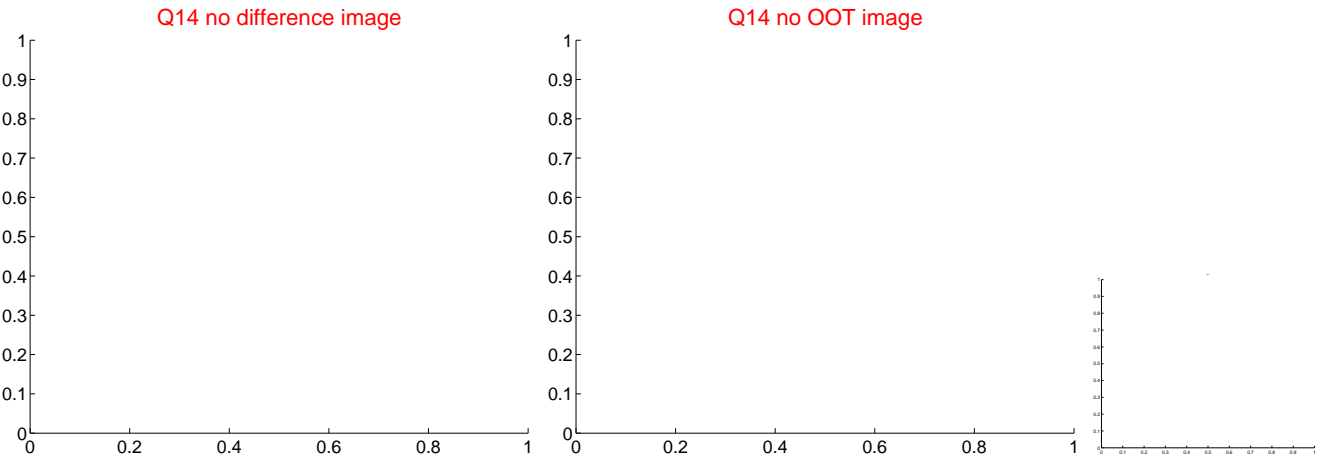
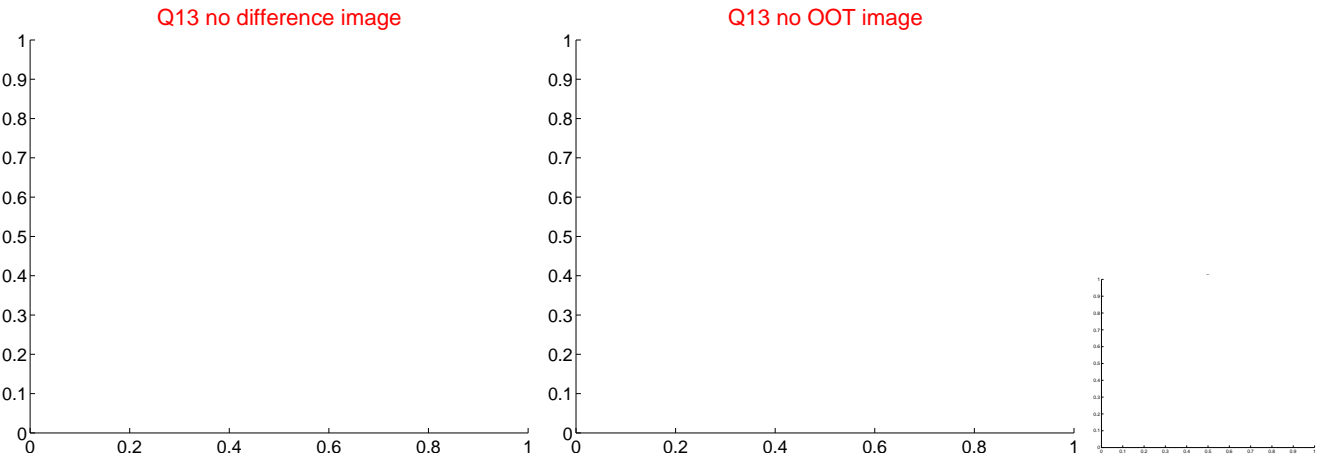
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



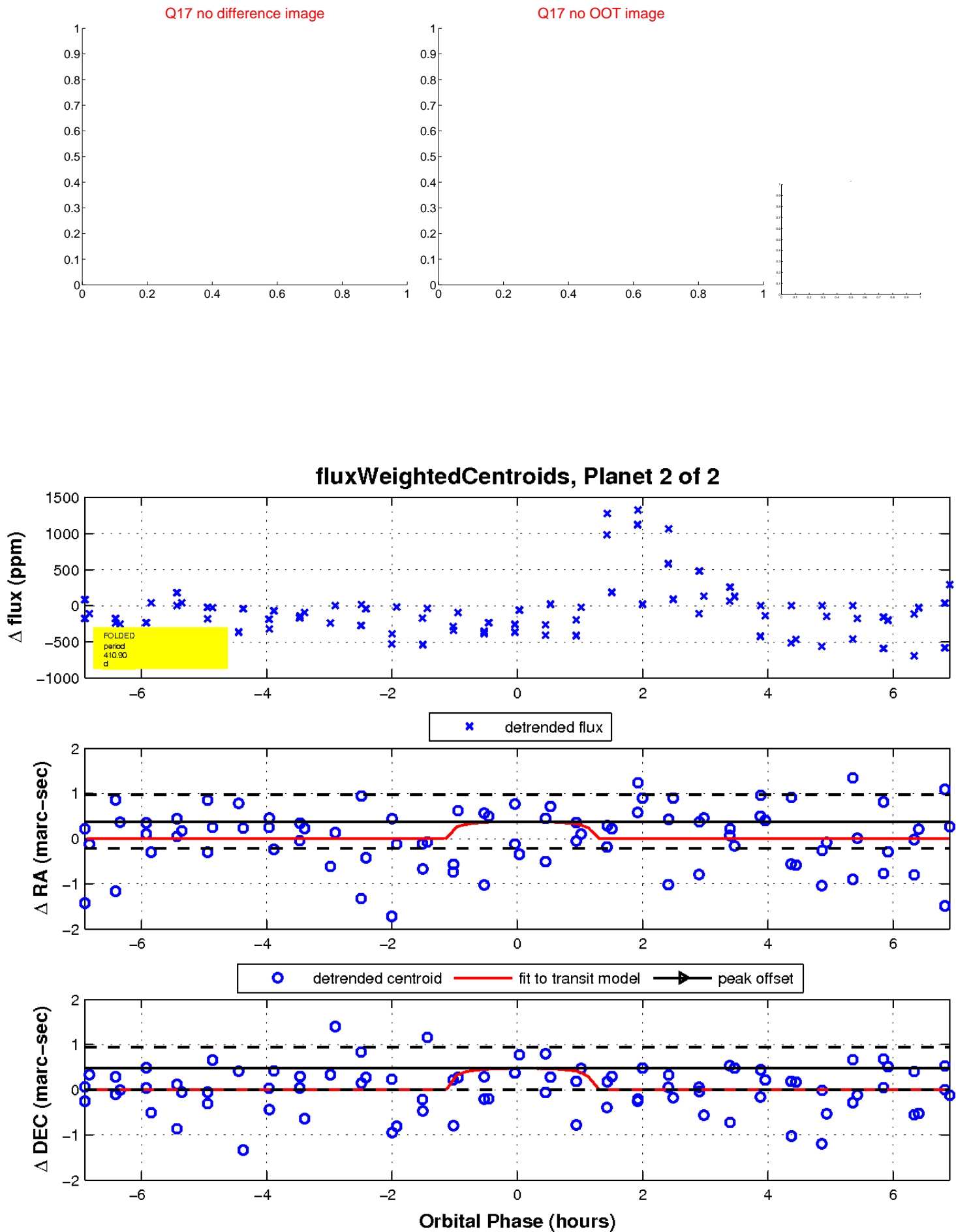
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

