

KIC 006219684

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})
006219684-01	OBS	No	421.285192	363.272454	158.9	2.300	14.6	2.6	3.37	9611	4.46	36.75
006219684-02	OBS	No	473.516816	362.536353	18.9	1.113	13.6	0.2	3.37	9611	1.51	31.45
006219684-03	OBS	No	284.547061	363.728670	453.4	2.920	13.7	5.5	3.37	9611	7.37	62.02
006219684-04	OBS	No	1.644176	132.021450	37.9	13.426	9.7	5.2	3.37	9611	2.17	59810.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006219684-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006219684-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006219684-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
006219684-04	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV

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

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

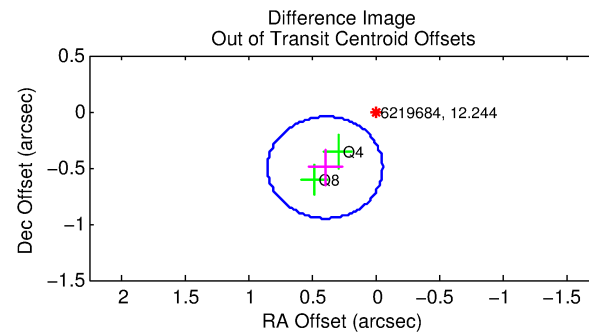
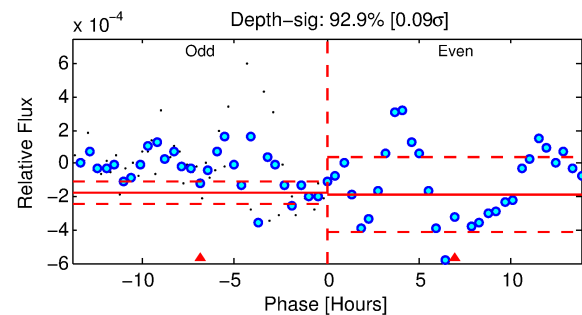
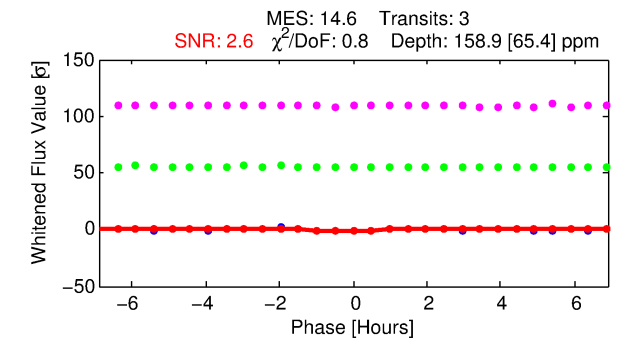
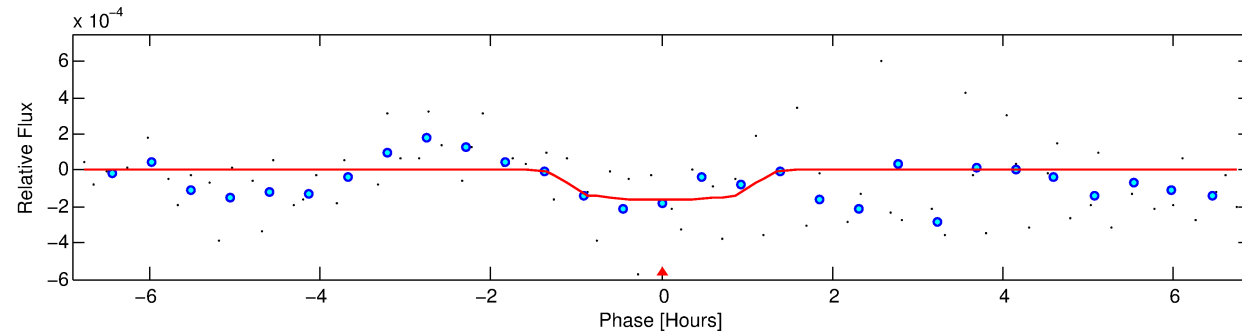
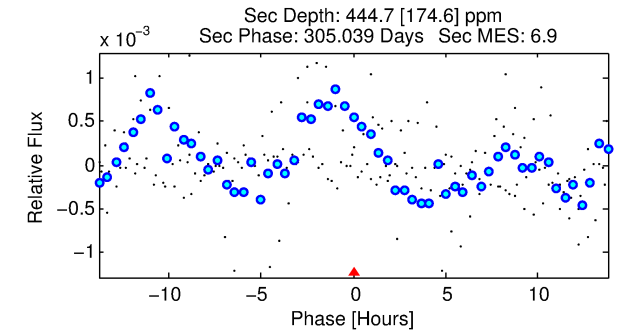
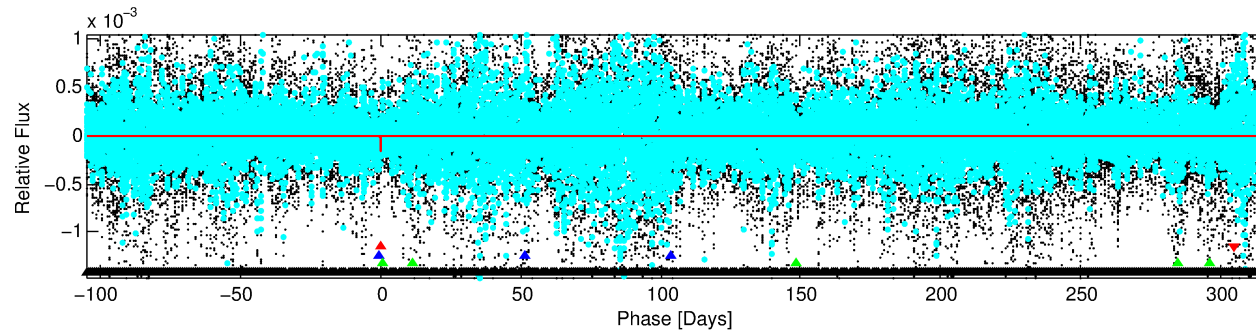
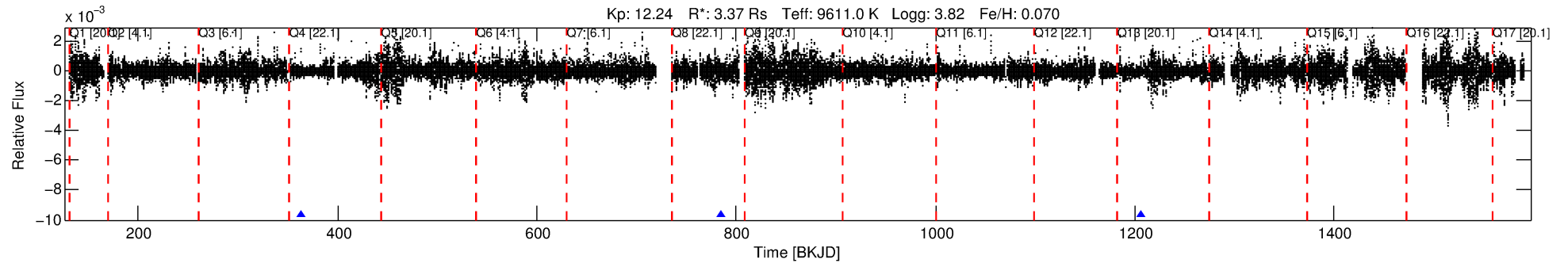
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006219684-01

No Significant Match Found

DV One-Page Summary

KIC: 6219684 Candidate: 1 of 4 Period: 421.285 d



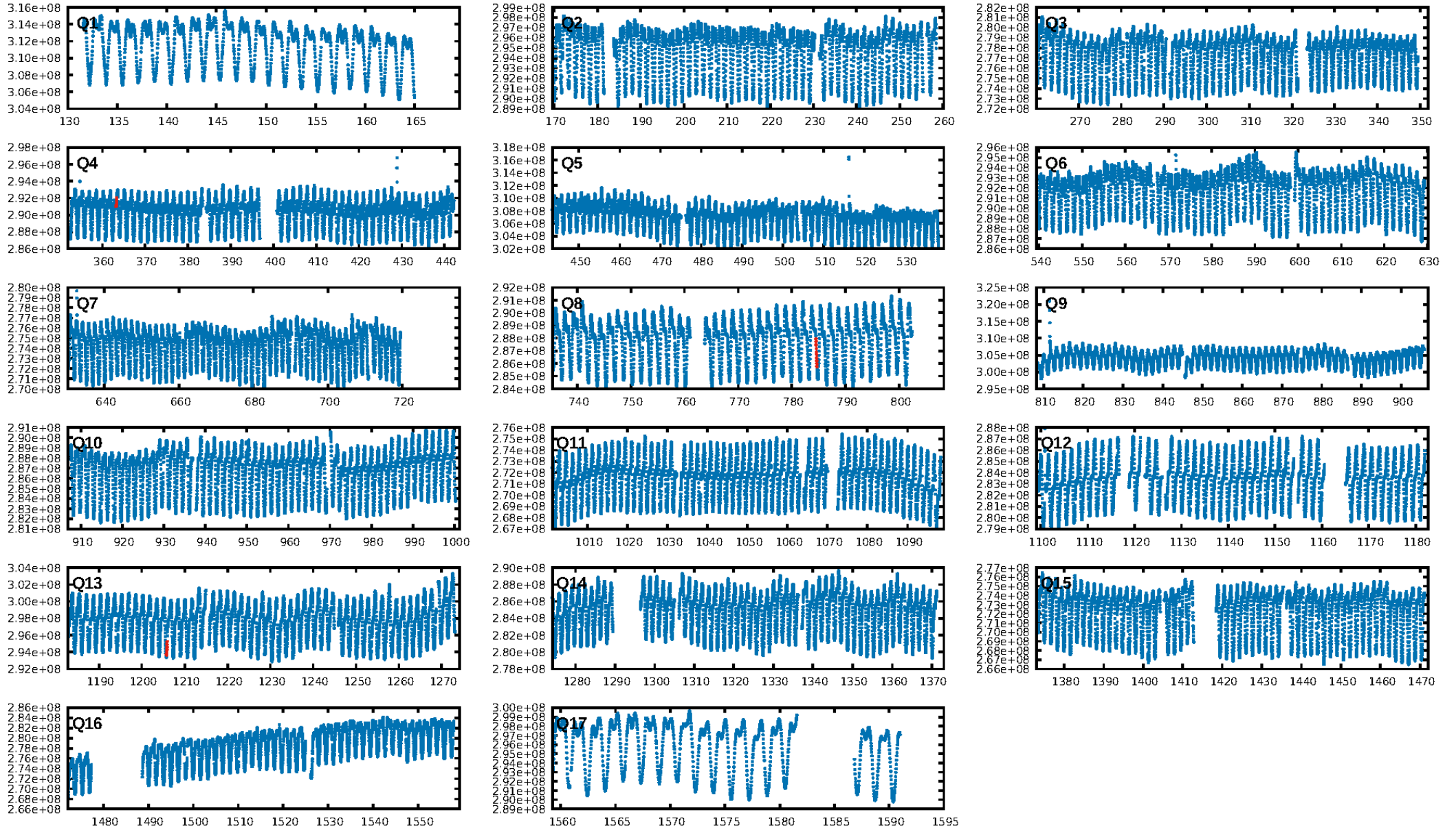
DV Fit Results:

Period = 421.28519 [0.00550] d
Epoch = 363.2725 [0.0081] BKJD
Rp/R* = 0.0122 [0.0098]
a/R* = 1189.10 [6509.64]
b = 0.55 [7.03]
Seff = 36.75 [26.46]
Teq = 628 [113] K
Rp = 4.46 [4.23] Re
a = 1.5352 [0.6915] AU
Ag = 28922.58 [52042.24] [0.56σ]
Teffp = 12659 [5289] K [2.27σ]

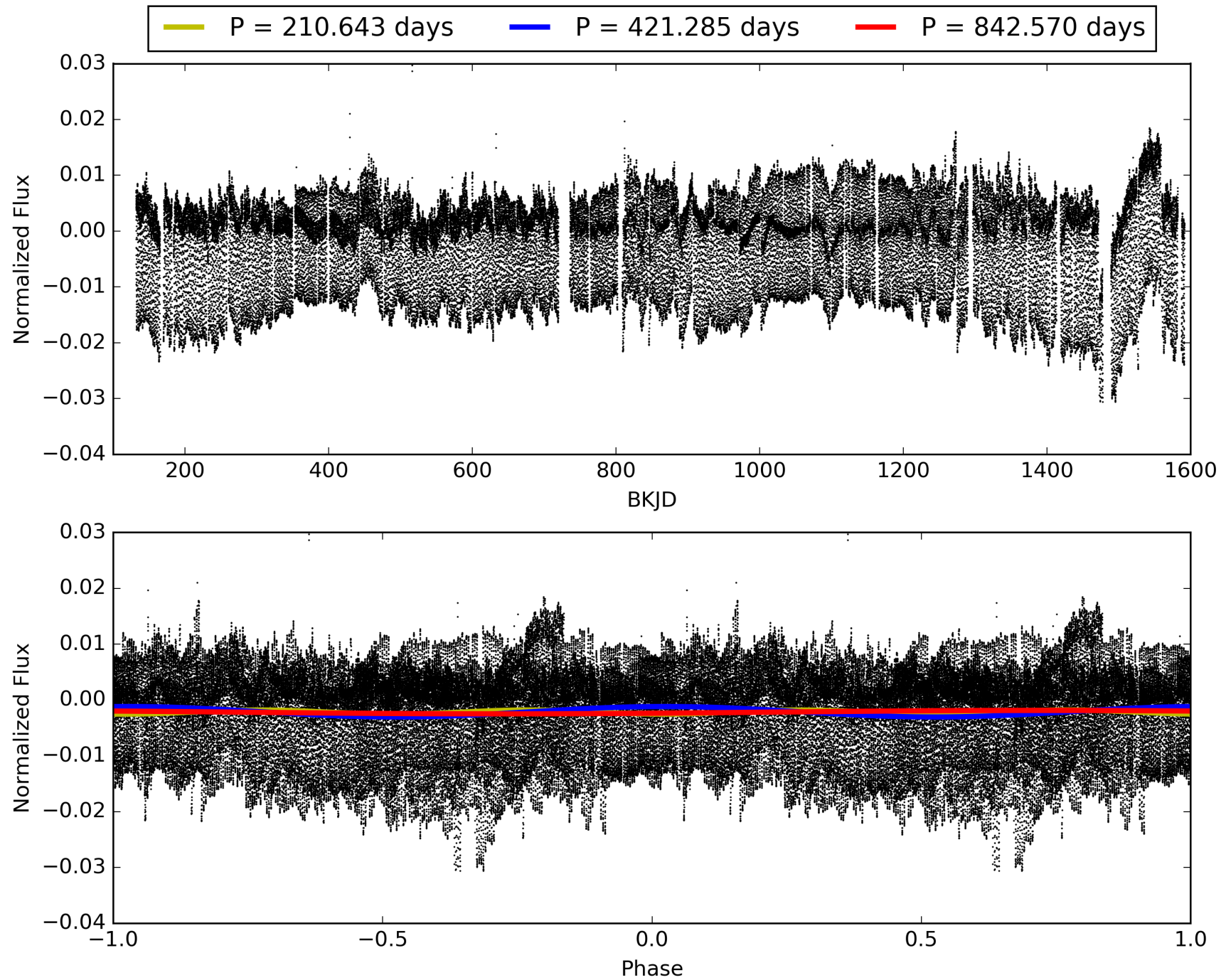
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [882.92σ]
LongPeriod-sig: 100.0% [490.61σ]
ModelChiSquare2-sig: 18.1%
ModelChiSquareGof-sig: 93.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.3755
Centroid-sig: 39.6%
Centroid-so: 1.664 arcsec [0.95σ]
OotOffset-rm: 0.635 arcsec [4.21σ]
KicOffset-rm: 0.733 arcsec [5.02σ]
OotOffset-st: 0/0/2/0 [2]
KicOffset-st: 0/0/2/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.50 [1/2]

TCE 006219684-01, PDC Light Curves

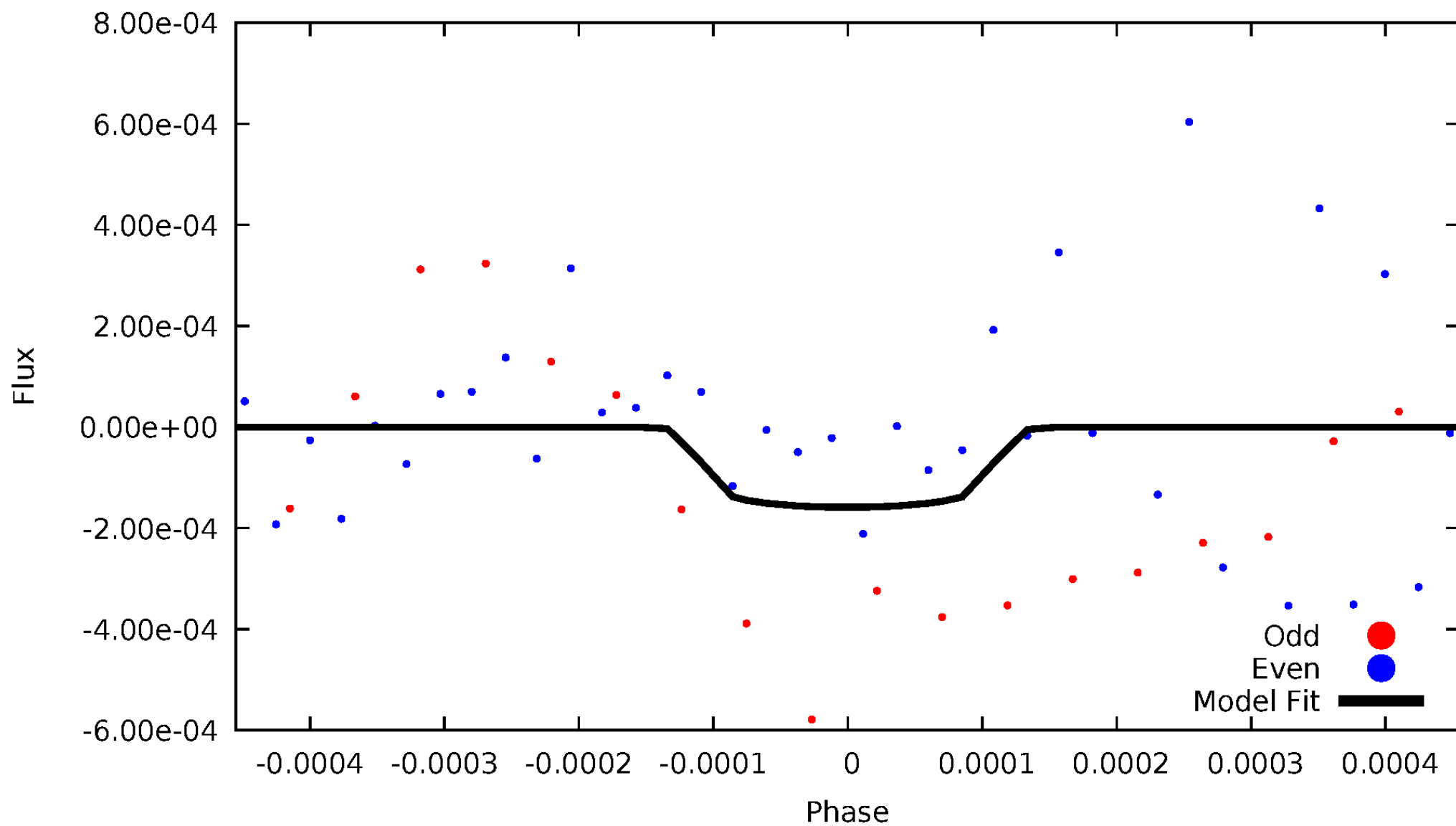


TCE 006219684-01



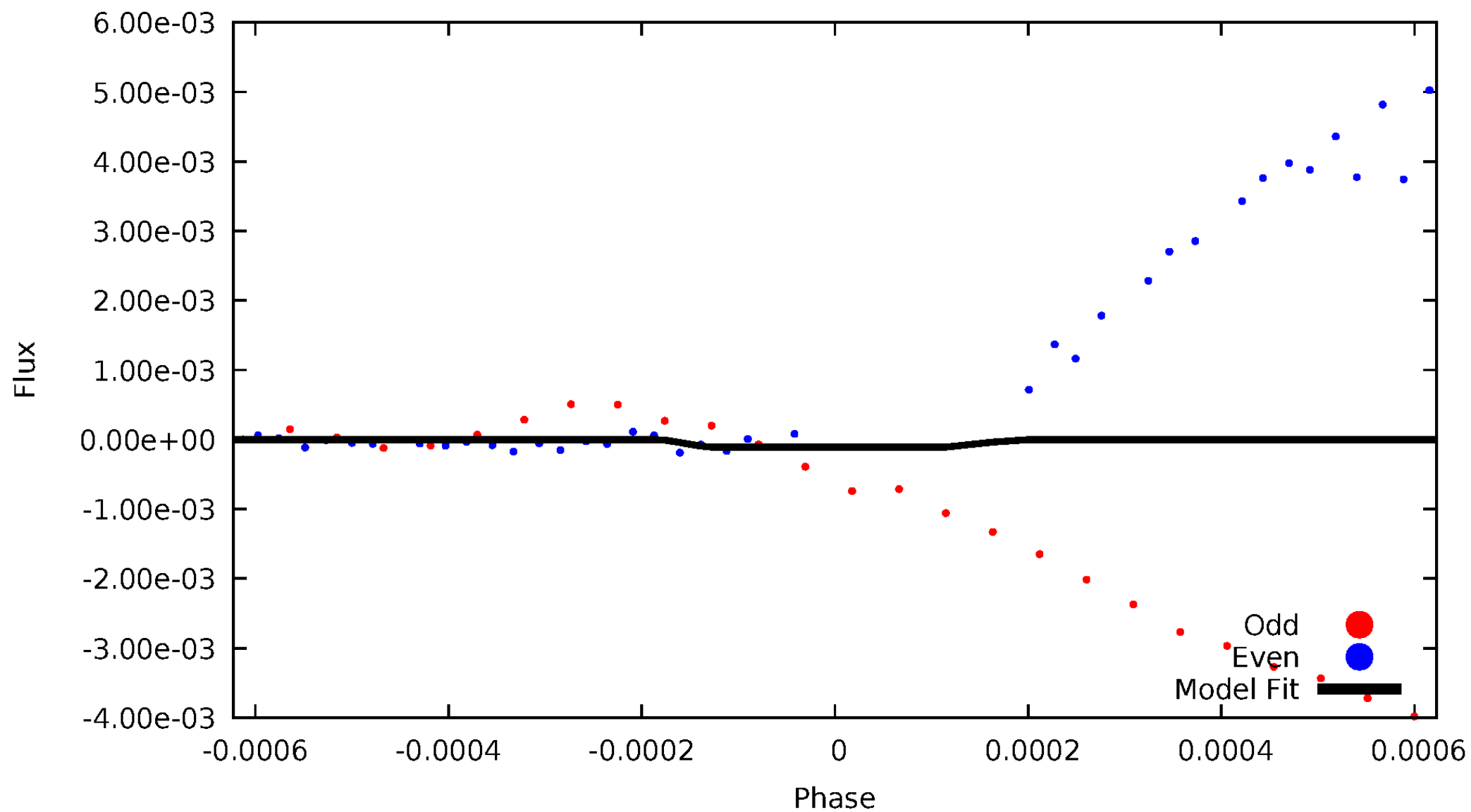
DV Odd/Even

TCE 006219684-01



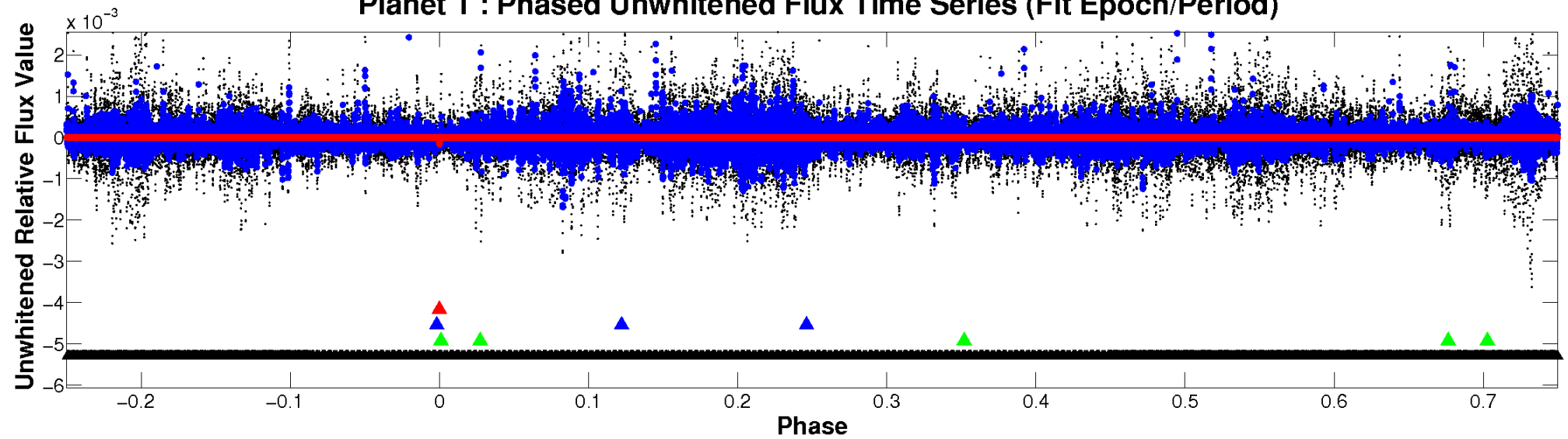
ALT Odd/Even

TCE 006219684-01

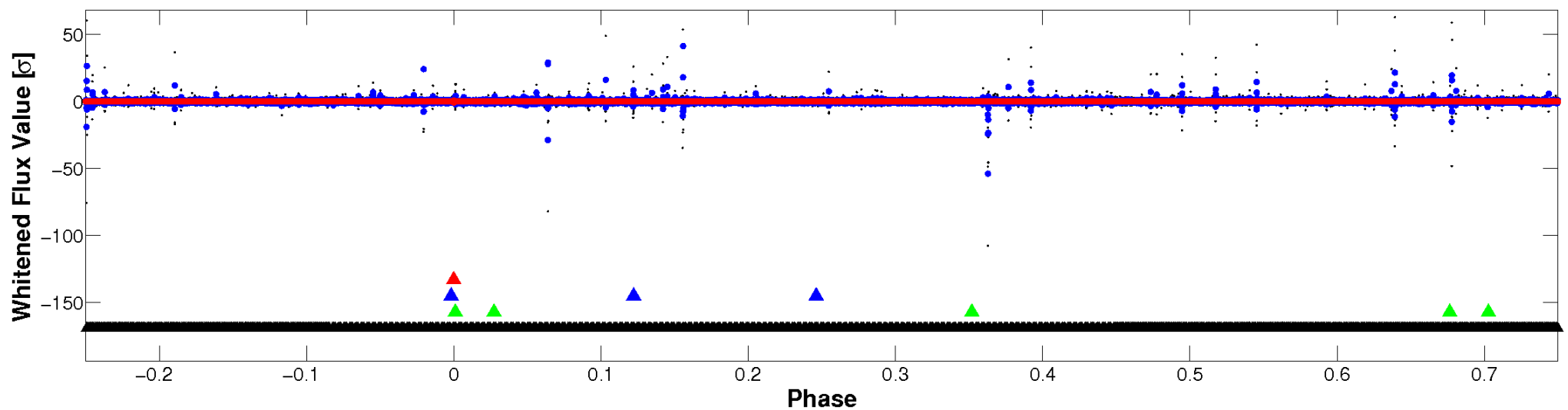


Non-Whitened Vs. Whitened Light Curve

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

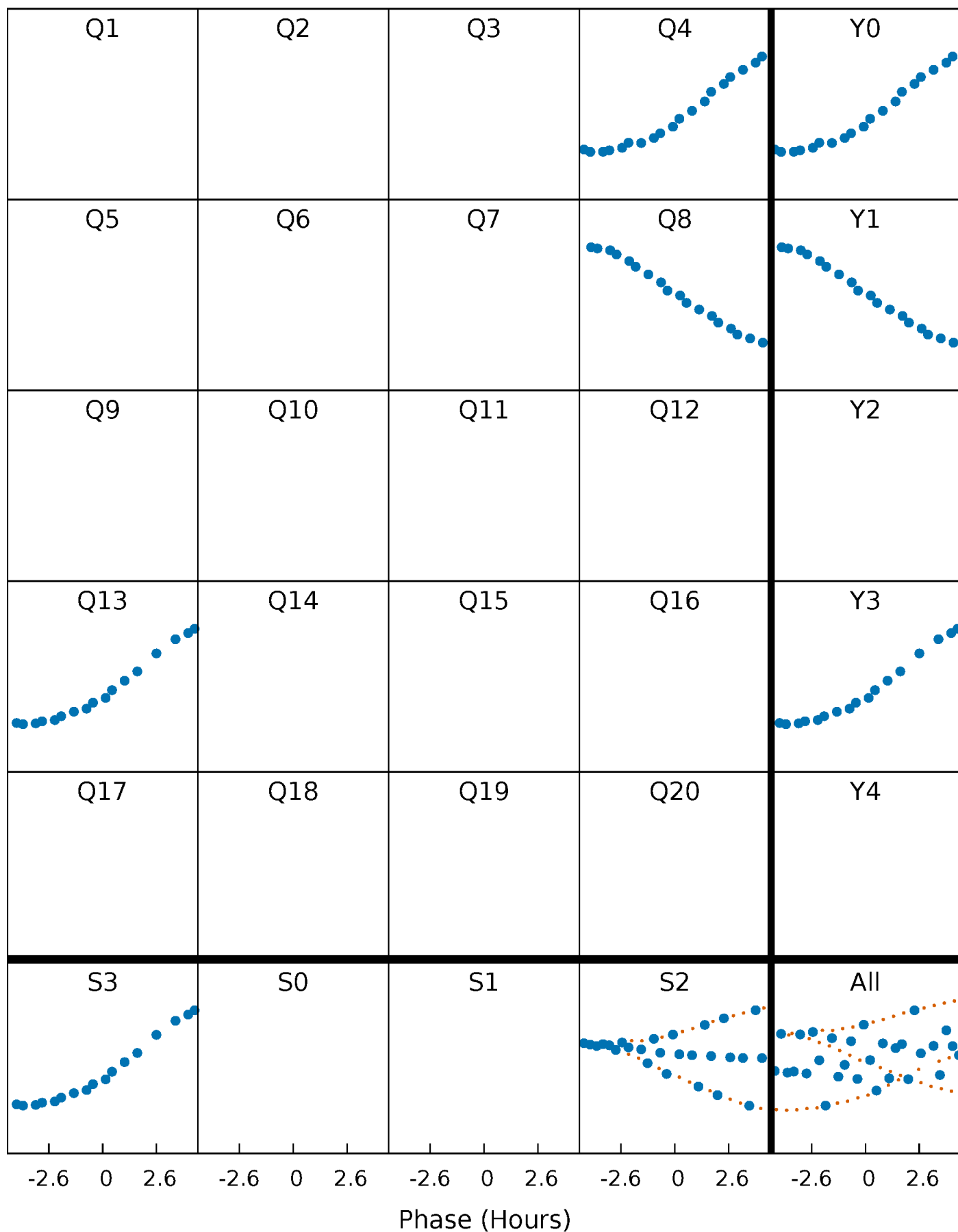


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 006219684-01 P=421.285192 Days $T_0=363.272454$ (BKJD)



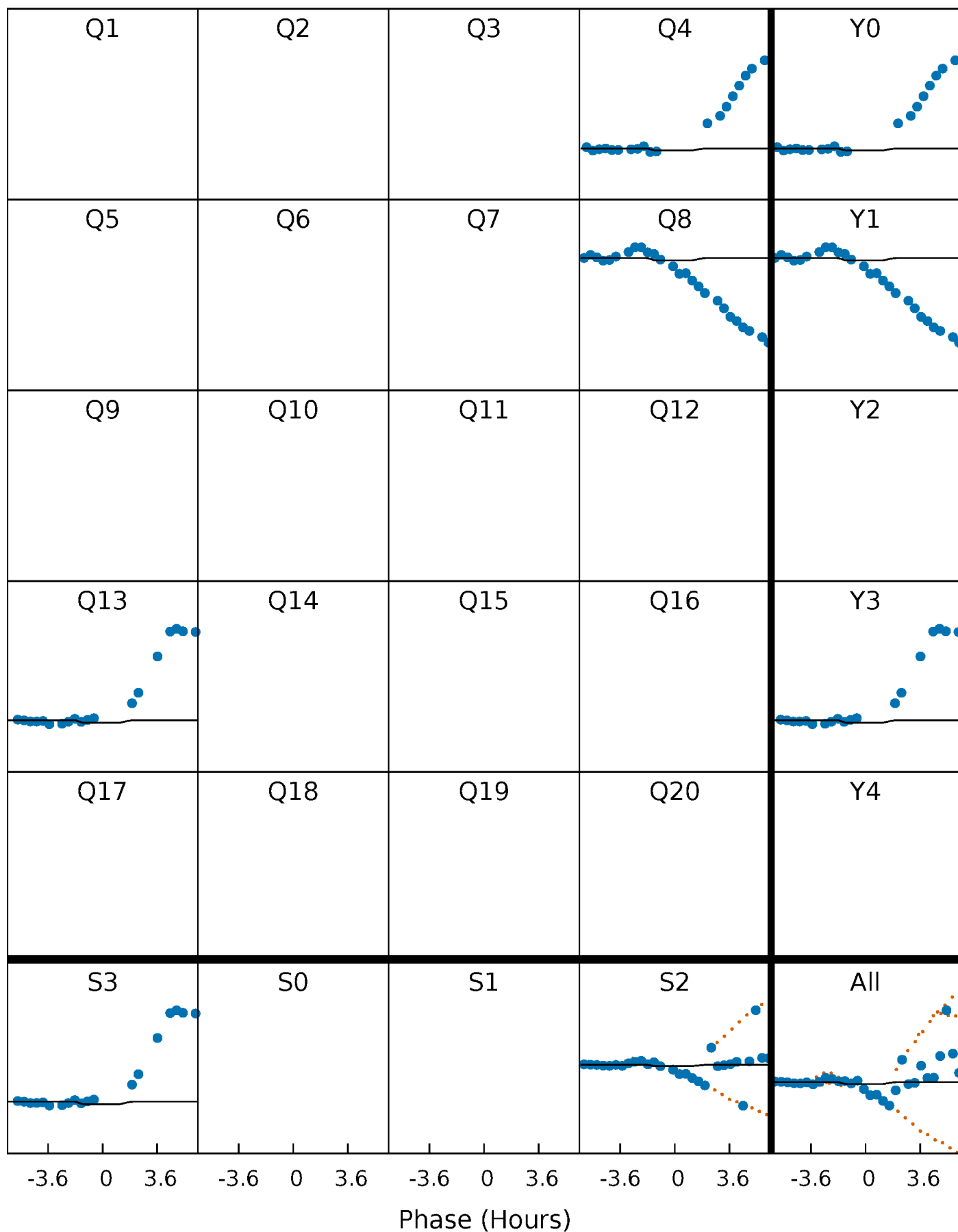
DV Quarter-Phased Transit Curves

TCE 006219684-01 P=421.285192 Days $T_0=363.272454$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

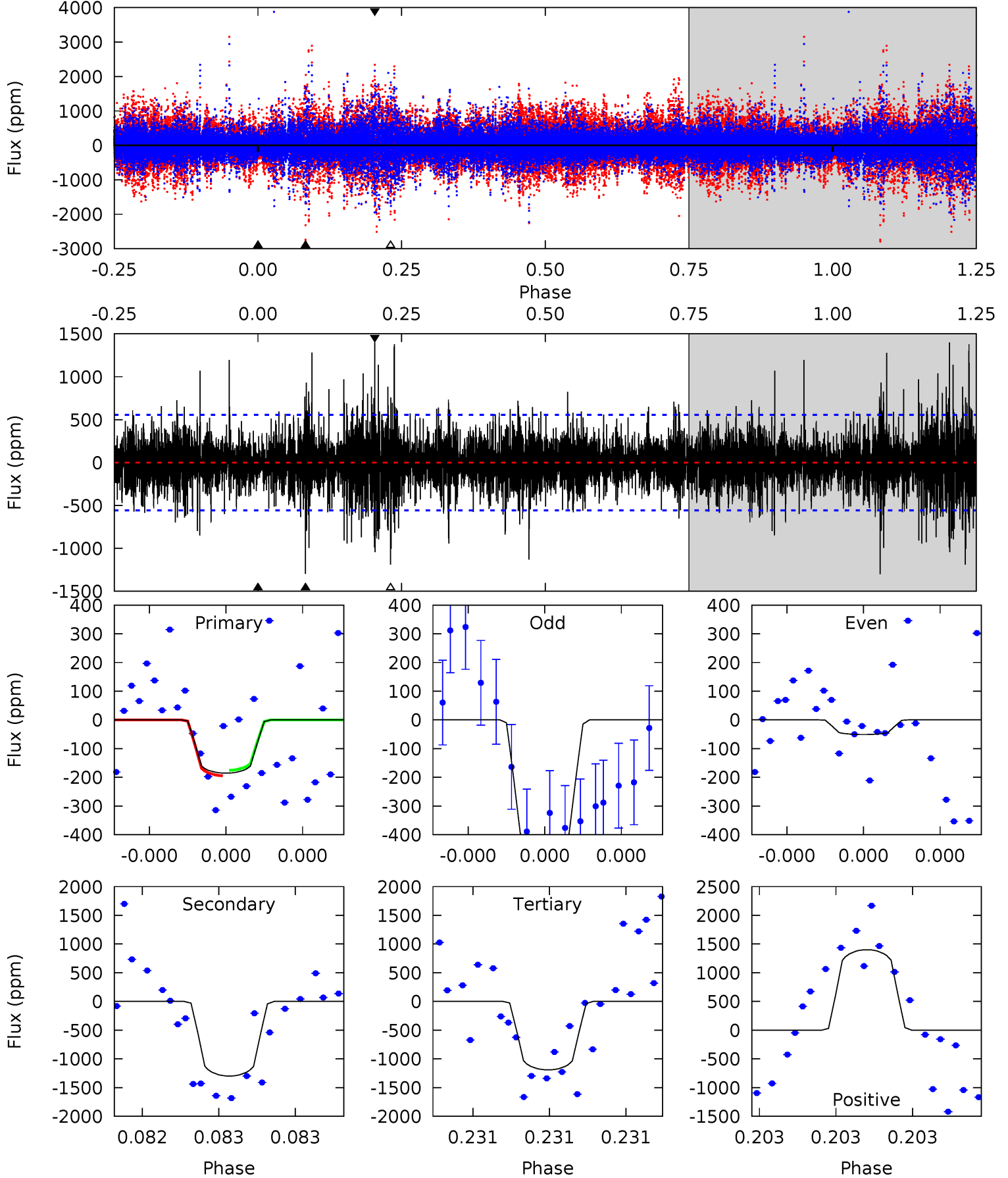
TCE 006219684-01 P=421.265084 Days $T_0=363.273766$ (BKJD)



DV Model-Shift Uniqueness Test

006219684-01, P = 421.285192 Days, E = 363.272454 Days

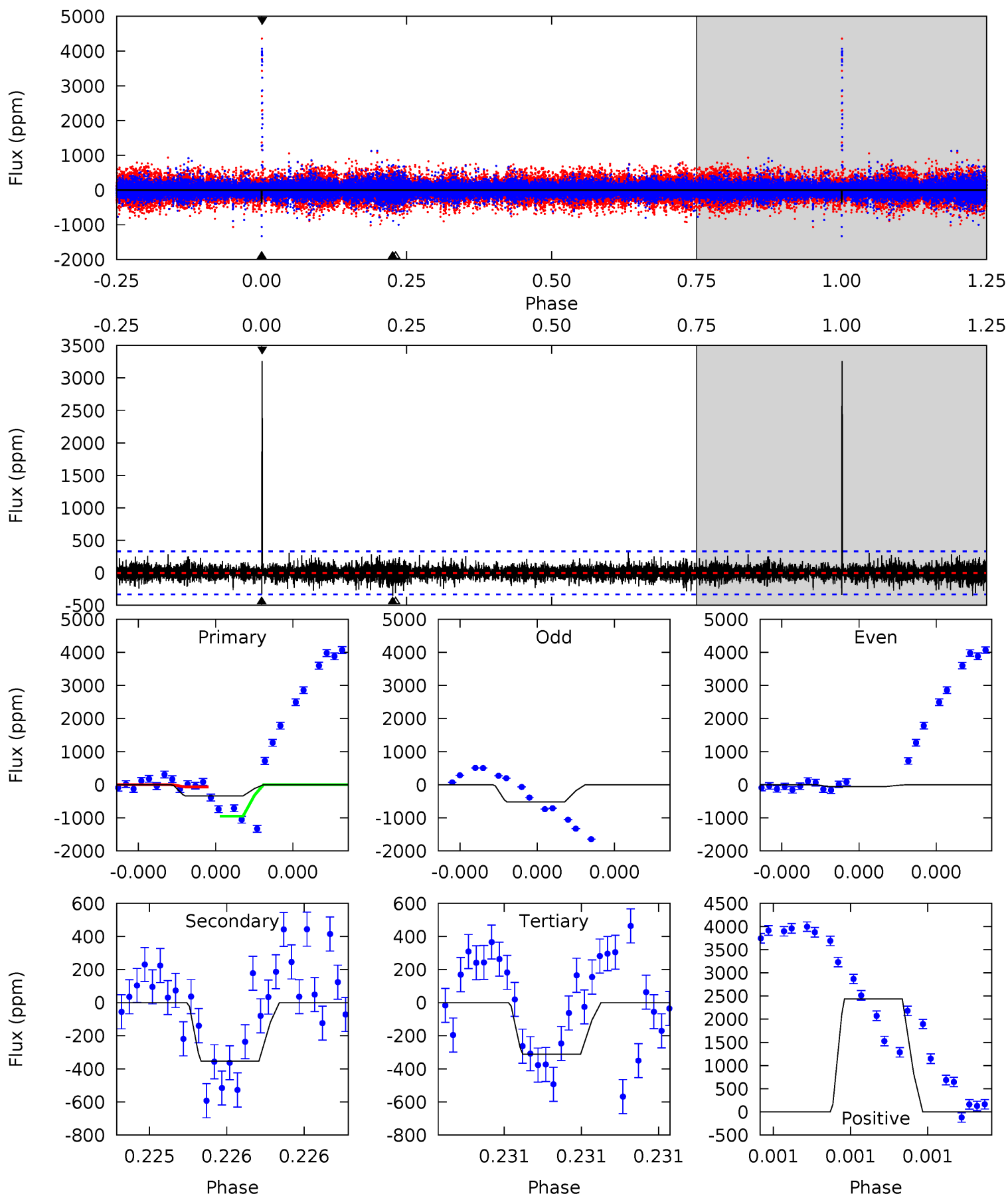
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.89	13.2	12.2	14.3	5.68	3.64	2.16	-10.3	-12.4	1.10	-1.04	1.45	2.01	0.52	0.10



Alt Model-Shift Uniqueness Test

006219684-01, P = 421.265084 Days, E = 363.273766 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.80	6.03	5.31	41.5	5.65	3.60	1.37	0.48	-35.7	0.71	-35.5	3.36	1.16	0.90	6.74



Stellar Parameters For KIC 006219684

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9611^{+269}_{-461}	$3.818^{+0.397}_{-0.132}$	$0.070^{+0.150}_{-0.750}$	$3.366^{+0.902}_{-1.675}$	$2.719^{+0.336}_{-1.008}$	$0.101^{+0.400}_{-0.042}$
	+3%/-5%	+10%/-3%	+214%/-1071%	+27%/-50%	+12%/-37%	+398%/-41%
Source	KIC0	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 006219684-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1297 ± 98	$4.57^{+3.57}_{-2.76}$	854^{+67}_{-104}	23608^{+57306}_{-10232}	$79606^{+380203}_{-54581}$
Alt.	-354 ± 59	$3.88^{+3.32}_{-2.50}$	853^{+68}_{-106}	13837^{+31002}_{-5147}	$29640^{+184910}_{-21352}$

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

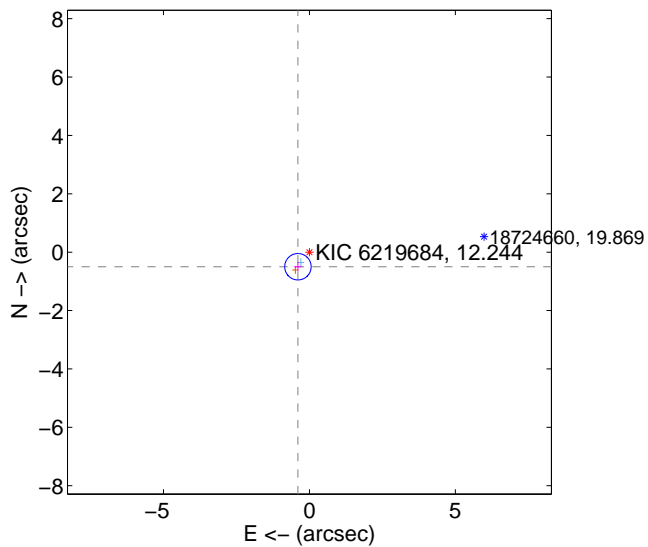
Supplemental centroid analysis for 006219684-01. Kepler magnitude: 12.24. Transit SNR 2.63

There are 1 quarters with good PRF difference image offsets

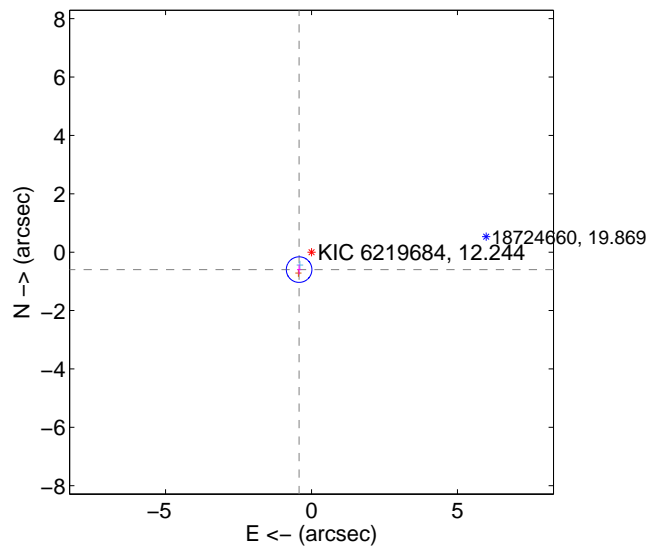
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.635 ± 0.151	4.21	0.393 ± 0.129	-0.499 ± 0.163
PRF-fit source offset from KIC position	0.733 ± 0.146	5.02	0.425 ± 0.073	-0.597 ± 0.171
photometric centroid source offset	1.66 ± 1.75	0.95	-0.68 ± 2.06	-1.52 ± 1.68

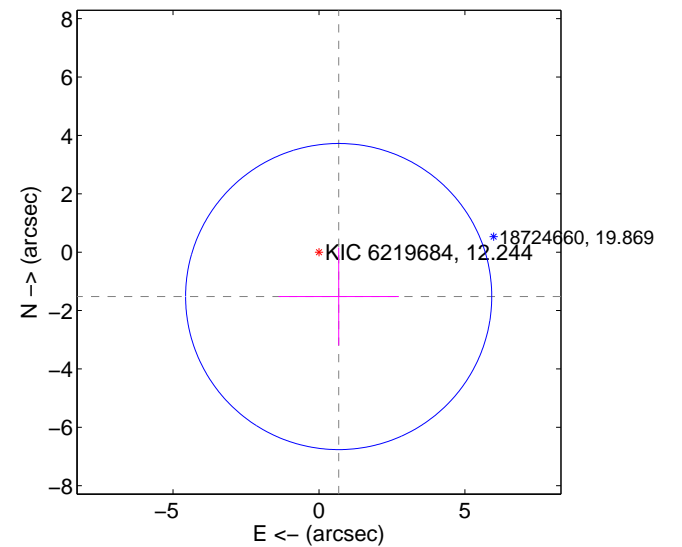
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

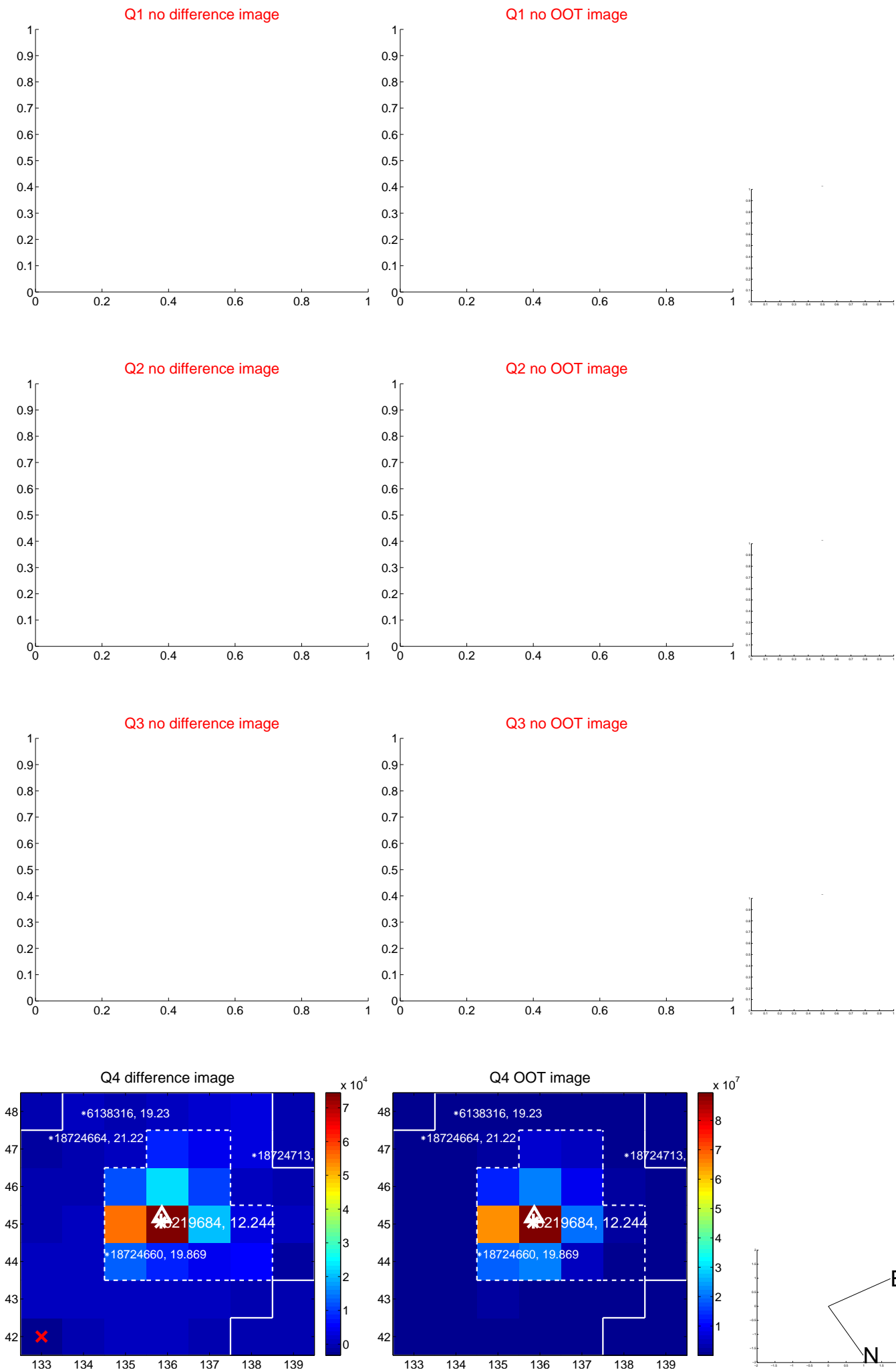


offset from photometric centroids

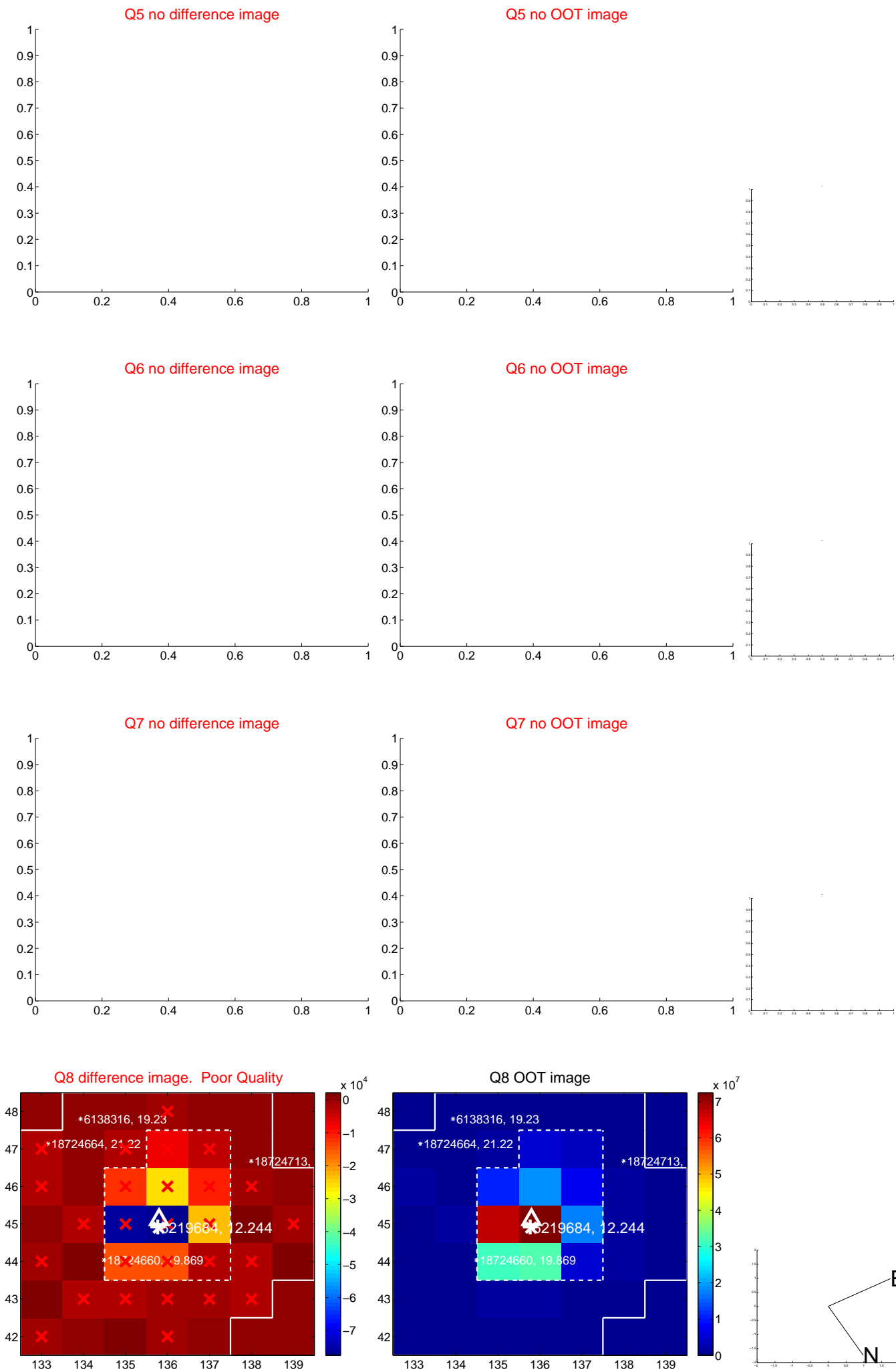


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



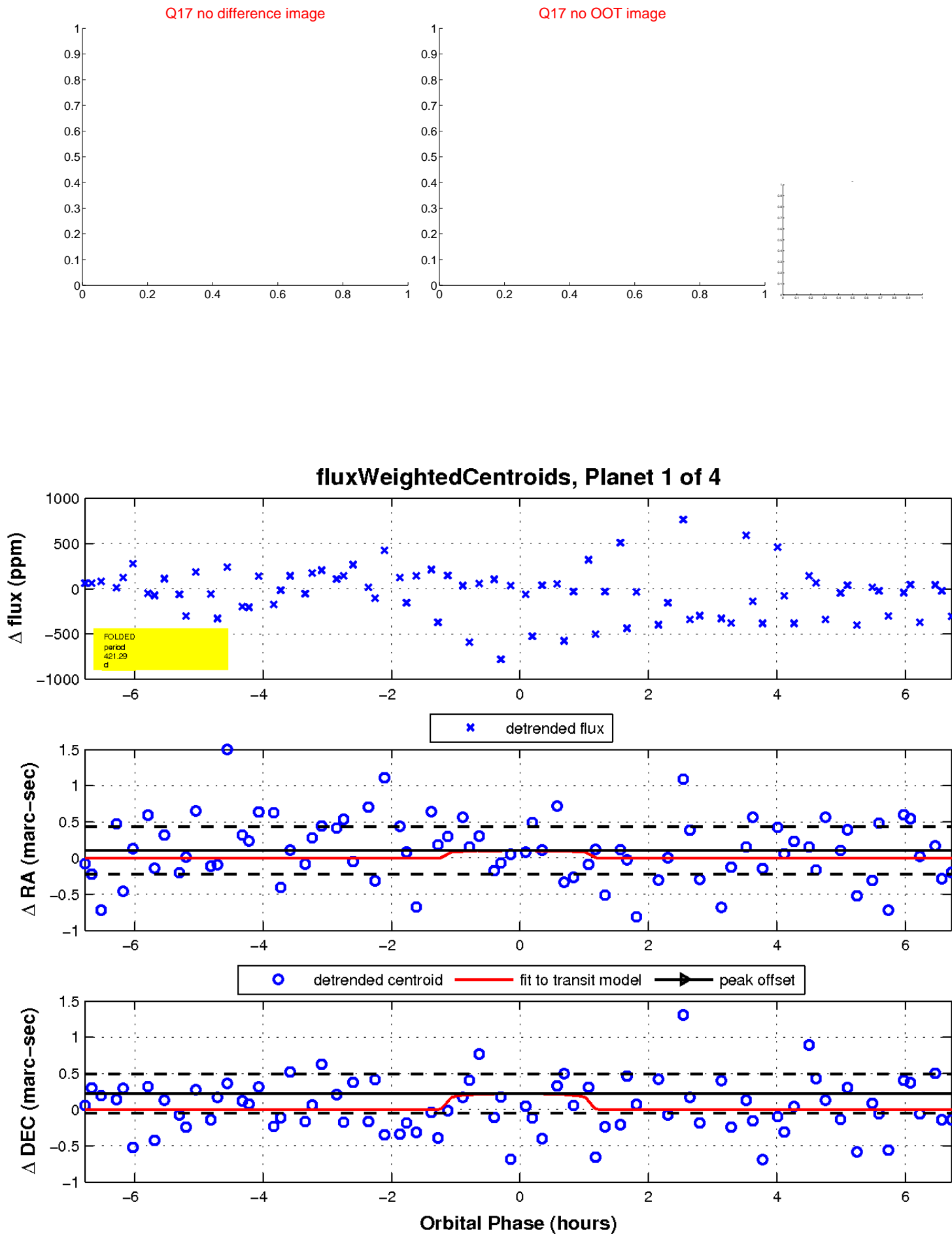
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



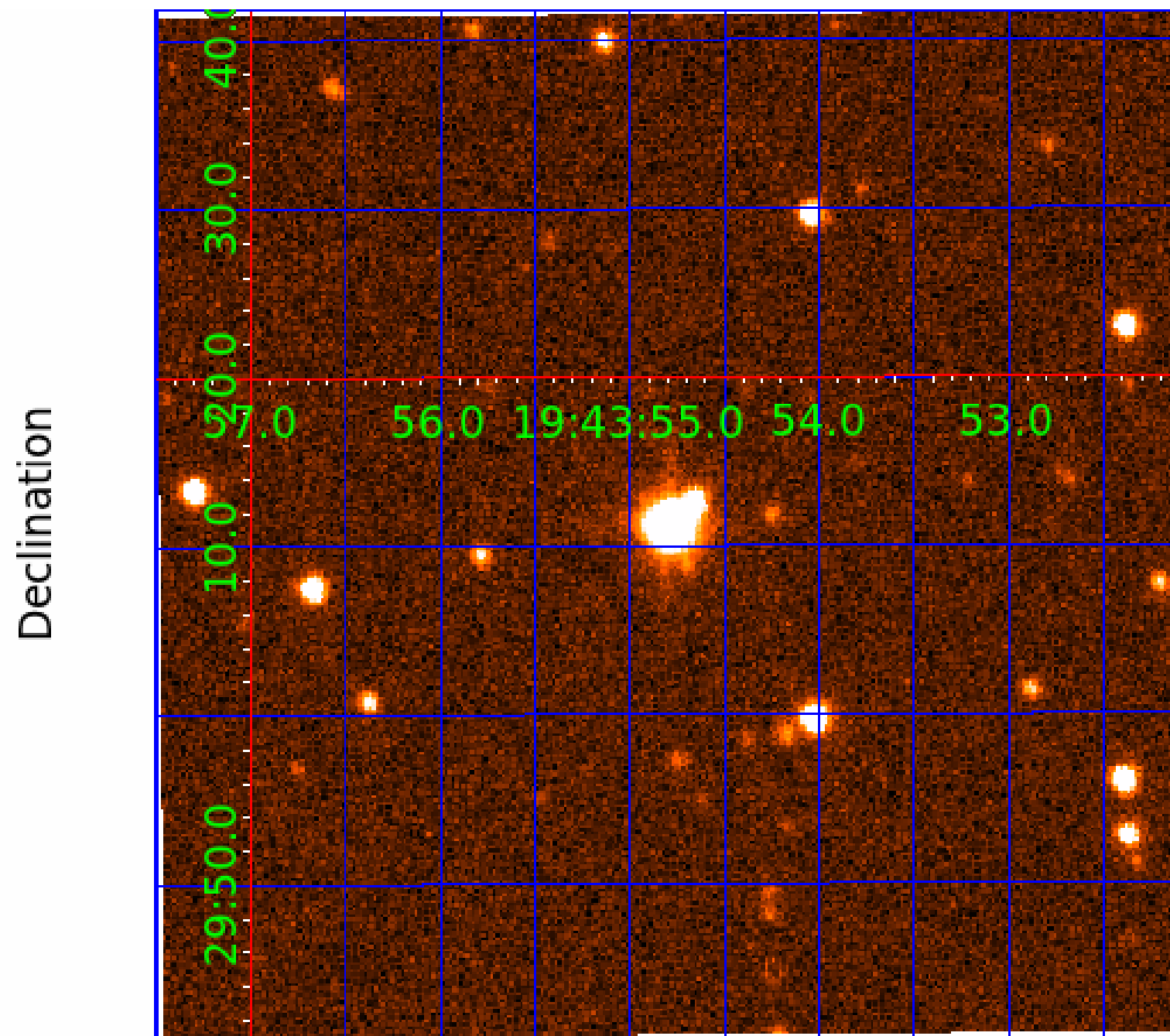
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006219684

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})
006219684-01	OBS	No	421.285192	363.272454	158.9	2.300	14.6	2.6	3.37	9611	4.46	36.75
006219684-02	OBS	No	473.516816	362.536353	18.9	1.113	13.6	0.2	3.37	9611	1.51	31.45
006219684-03	OBS	No	284.547061	363.728670	453.4	2.920	13.7	5.5	3.37	9611	7.37	62.02
006219684-04	OBS	No	1.644176	132.021450	37.9	13.426	9.7	5.2	3.37	9611	2.17	59810.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006219684-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006219684-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006219684-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
006219684-04	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV

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

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

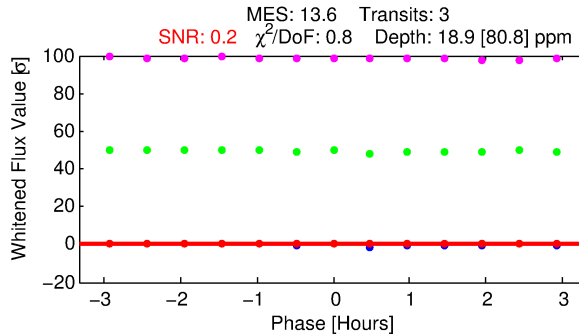
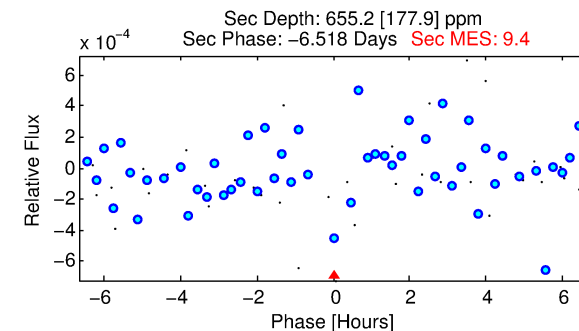
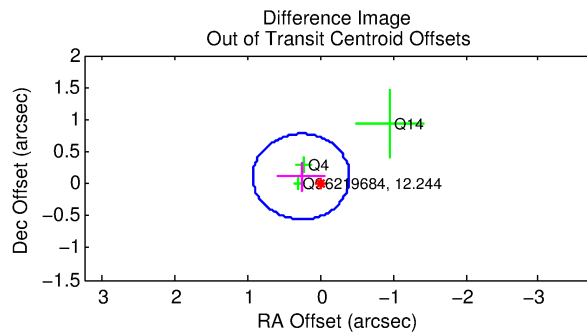
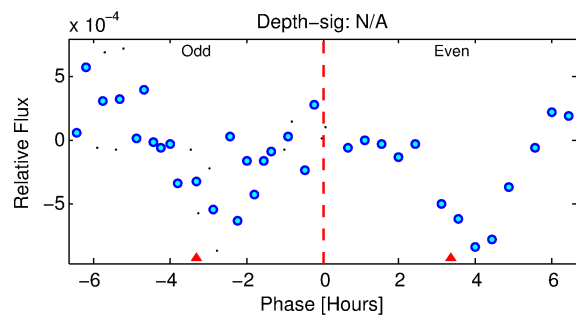
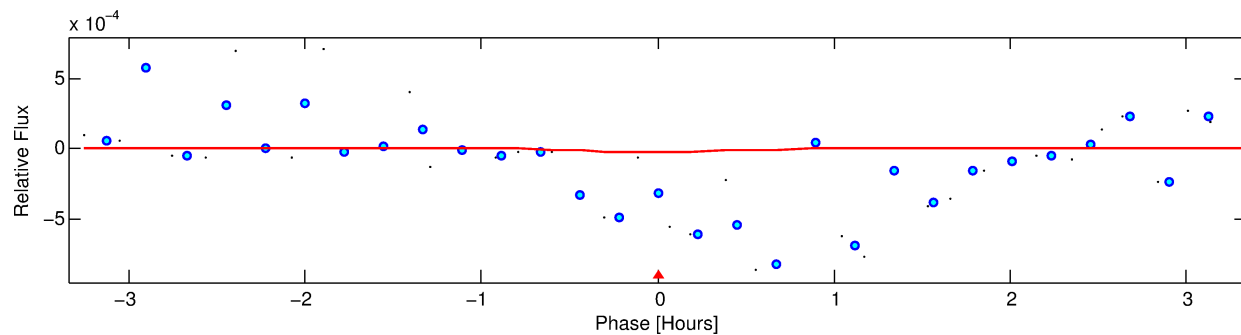
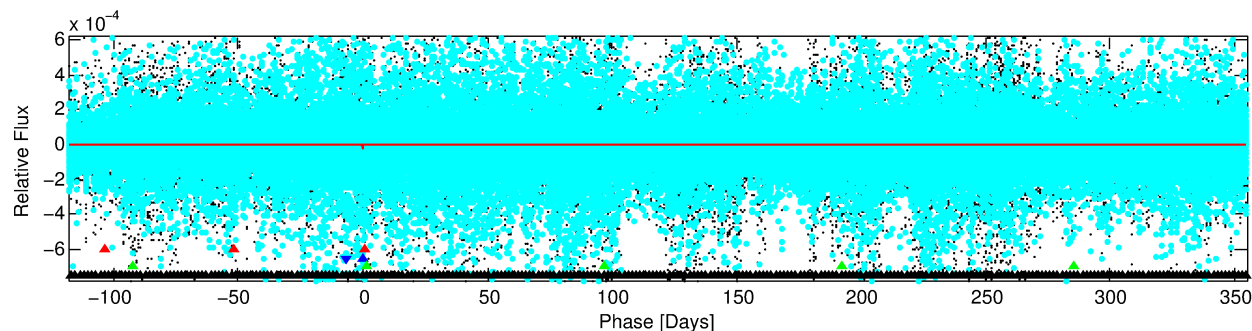
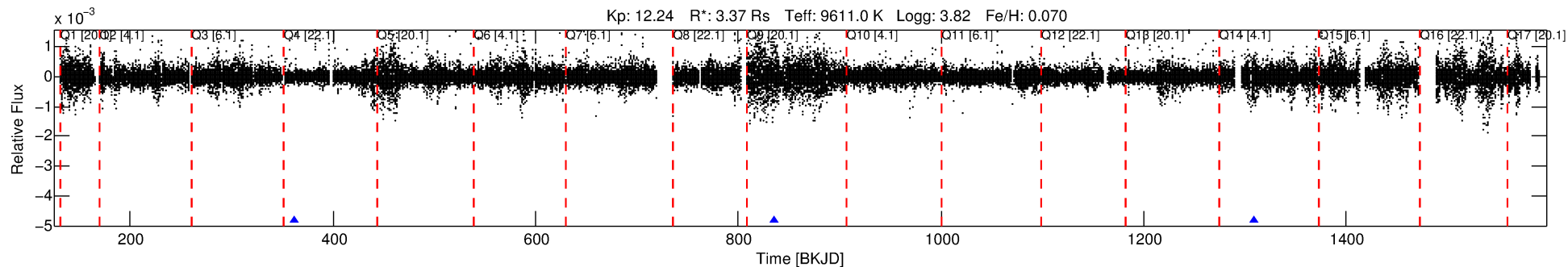
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006219684-02

No Significant Match Found

DV One-Page Summary

KIC: 6219684 Candidate: 2 of 4 Period: 473.517 d



DV Fit Results:

Period = 473.51682 [0.03824] d
Epoch = 362.5364 [0.0750] BKJD
Rp/R* = 0.0041 [0.2062]
a/R* = 3164.02 [1087617.90]
b = 0.24 [1322.21]
Seff = 31.45 [22.64]
Teq = 604 [109] K
Rp = 1.51 [75.74] Re
a = 1.6596 [0.7476] AU
Ag = 432849.97 [43296616.38] [0.01]
Teffp = 23947 [598821] K [0.04]

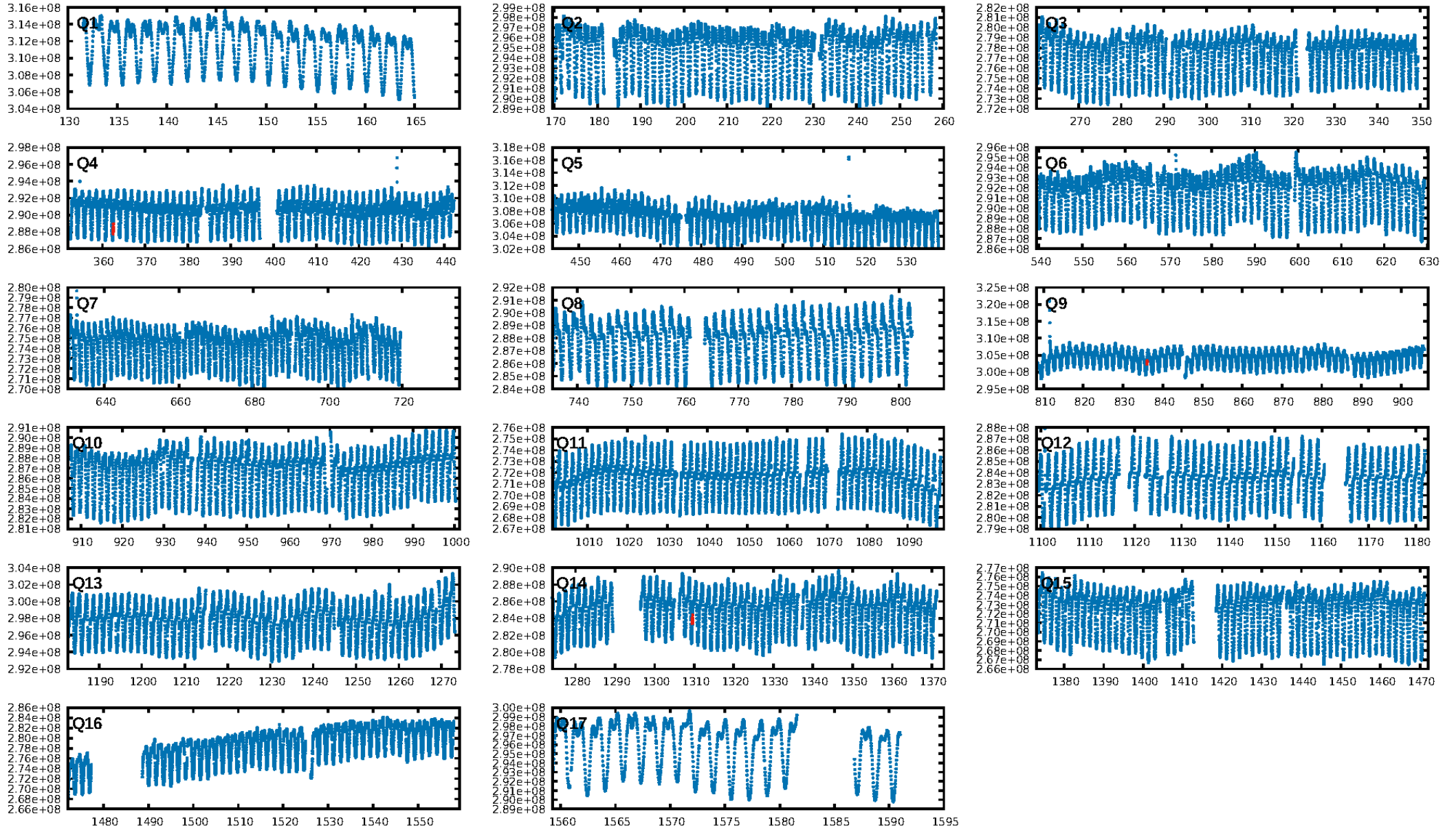
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [490.61σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 58.7%
ModelChiSquareGof-sig: 82.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.391
Centroid-sig: 55.0%
Centroid-so: 12.021 arcsec [0.55σ]
OotOffset-rm: 0.286 arcsec [1.29σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-rm: 0.287 arcsec [0.77σ]
KicOffset-st: 1/0/1/1 [3]
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DiffImageOverlap-fno: 0.00 [0/3]

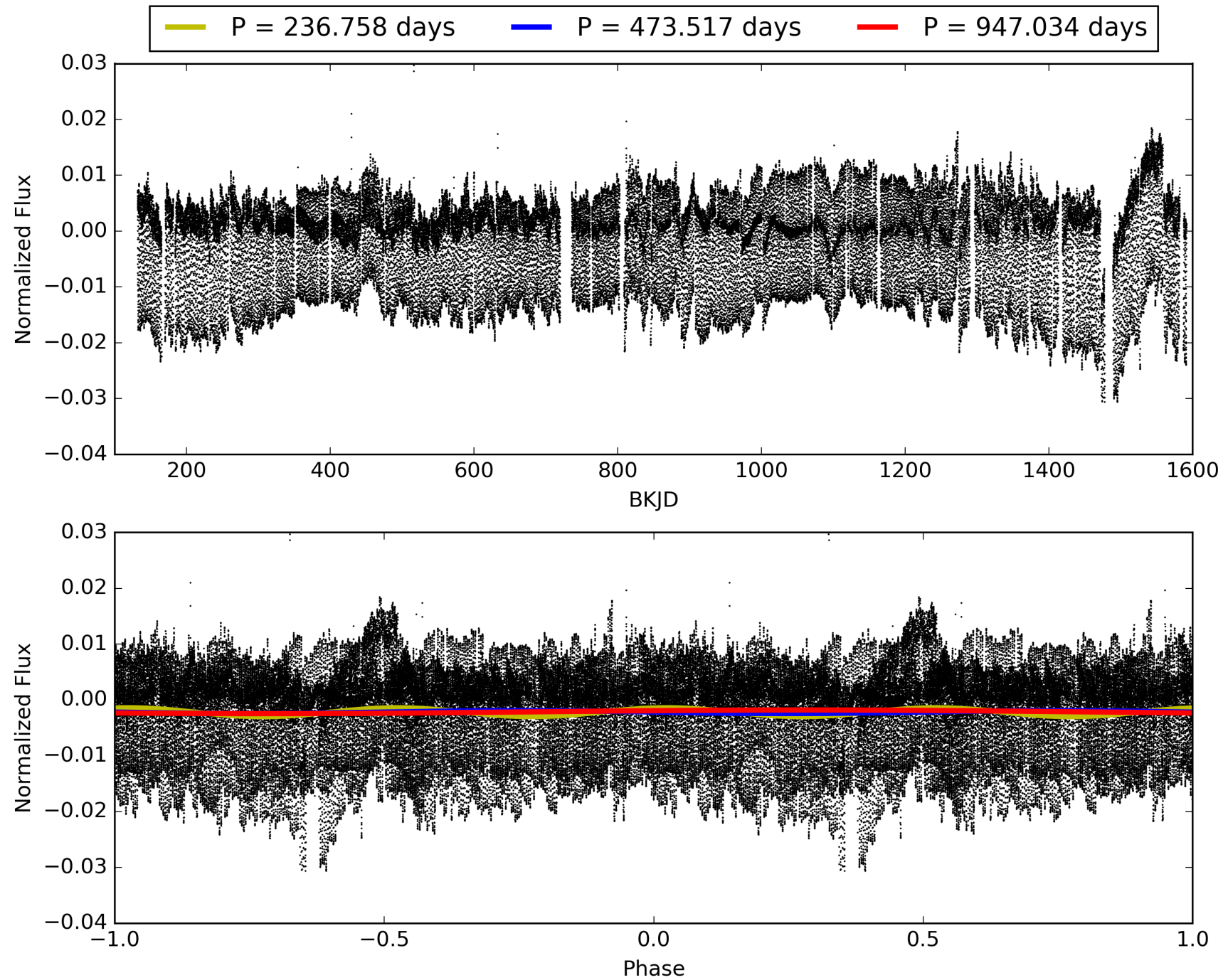
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006219684-02, PDC Light Curves

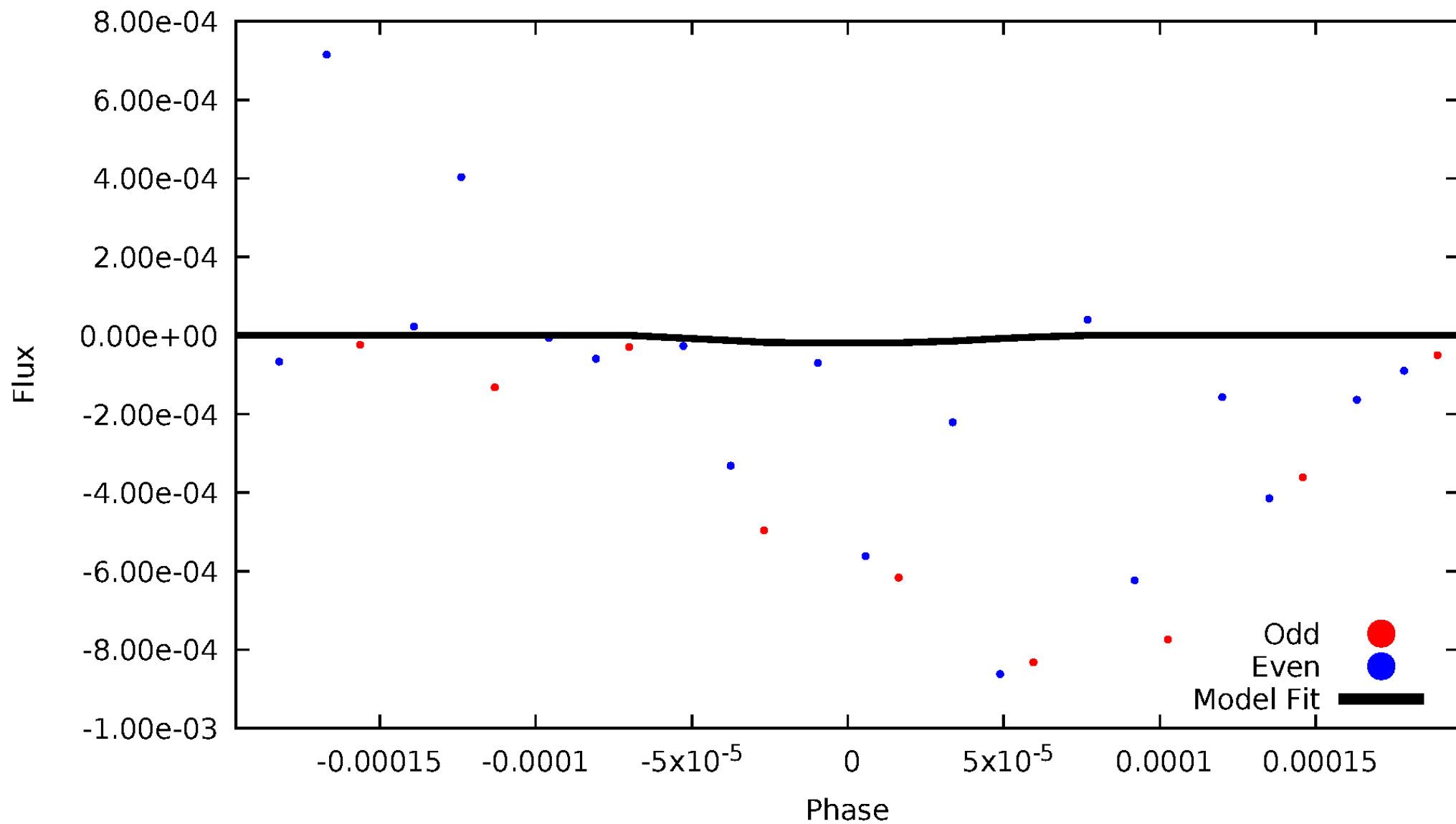


TCE 006219684-02



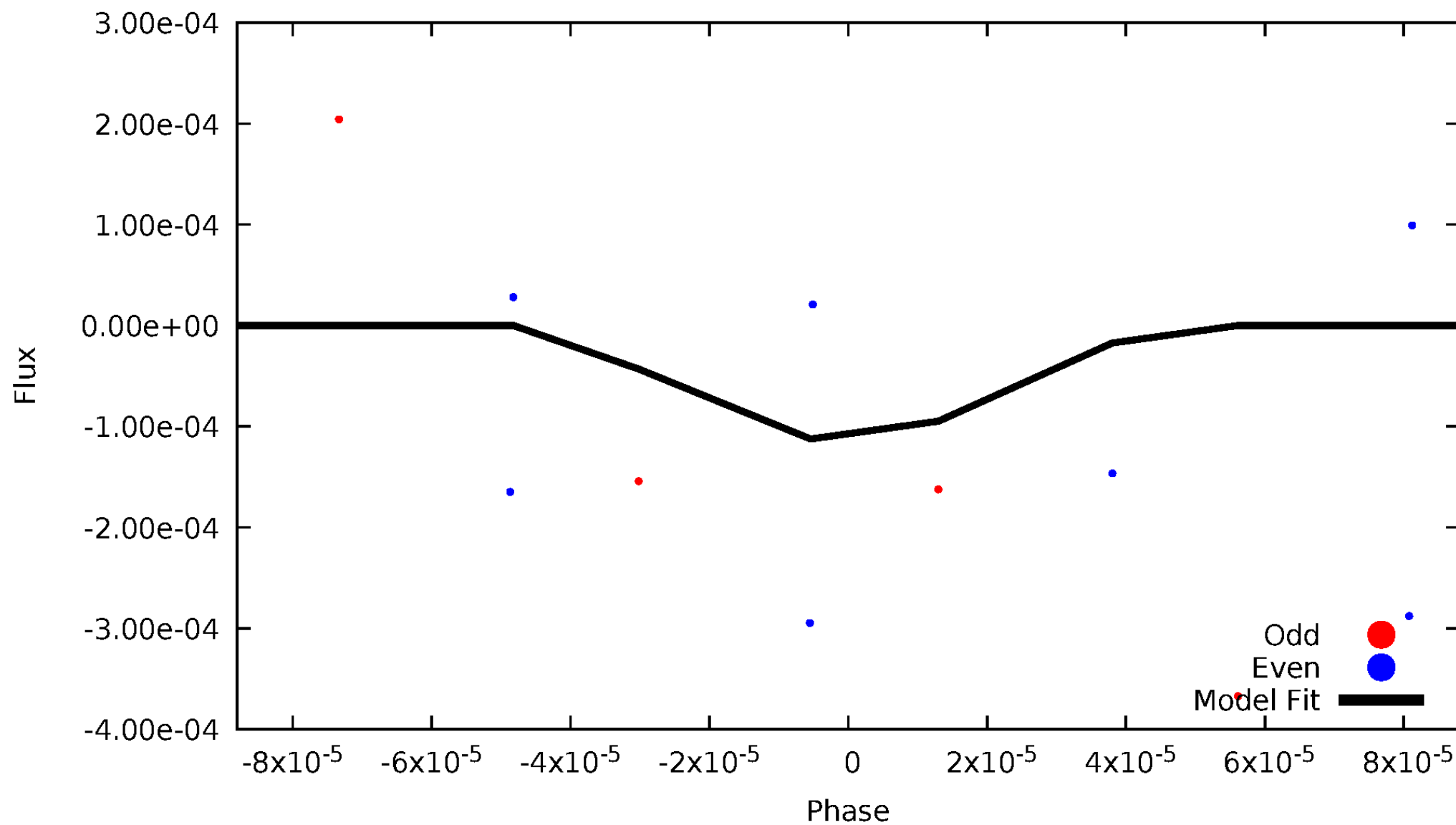
DV Odd/Even

TCE 006219684-02



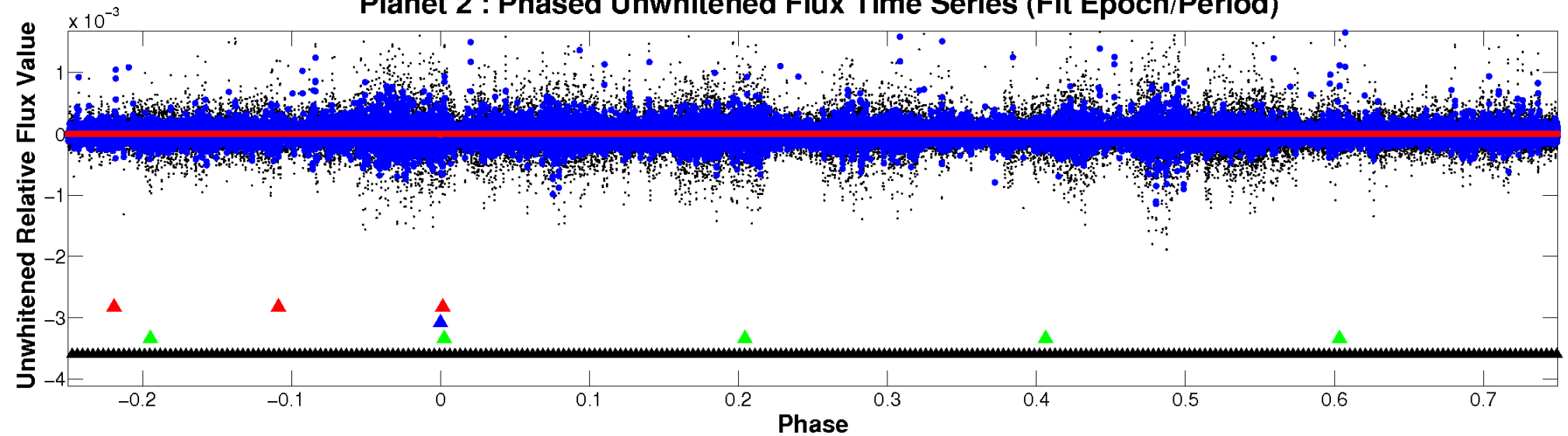
ALT Odd/Even

TCE 006219684-02

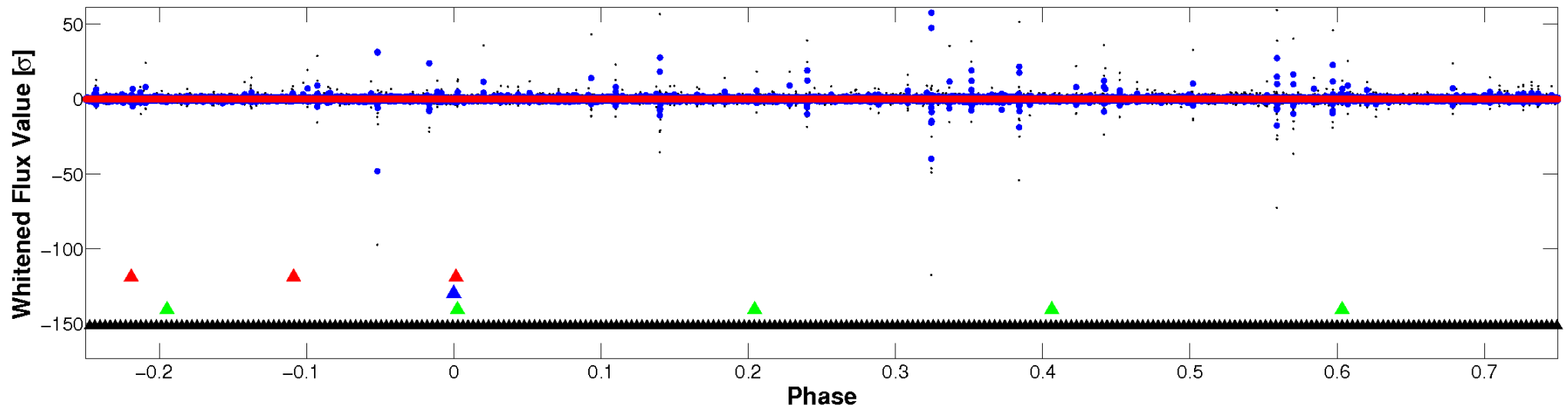


Non-Whitened Vs. Whitened Light Curve

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

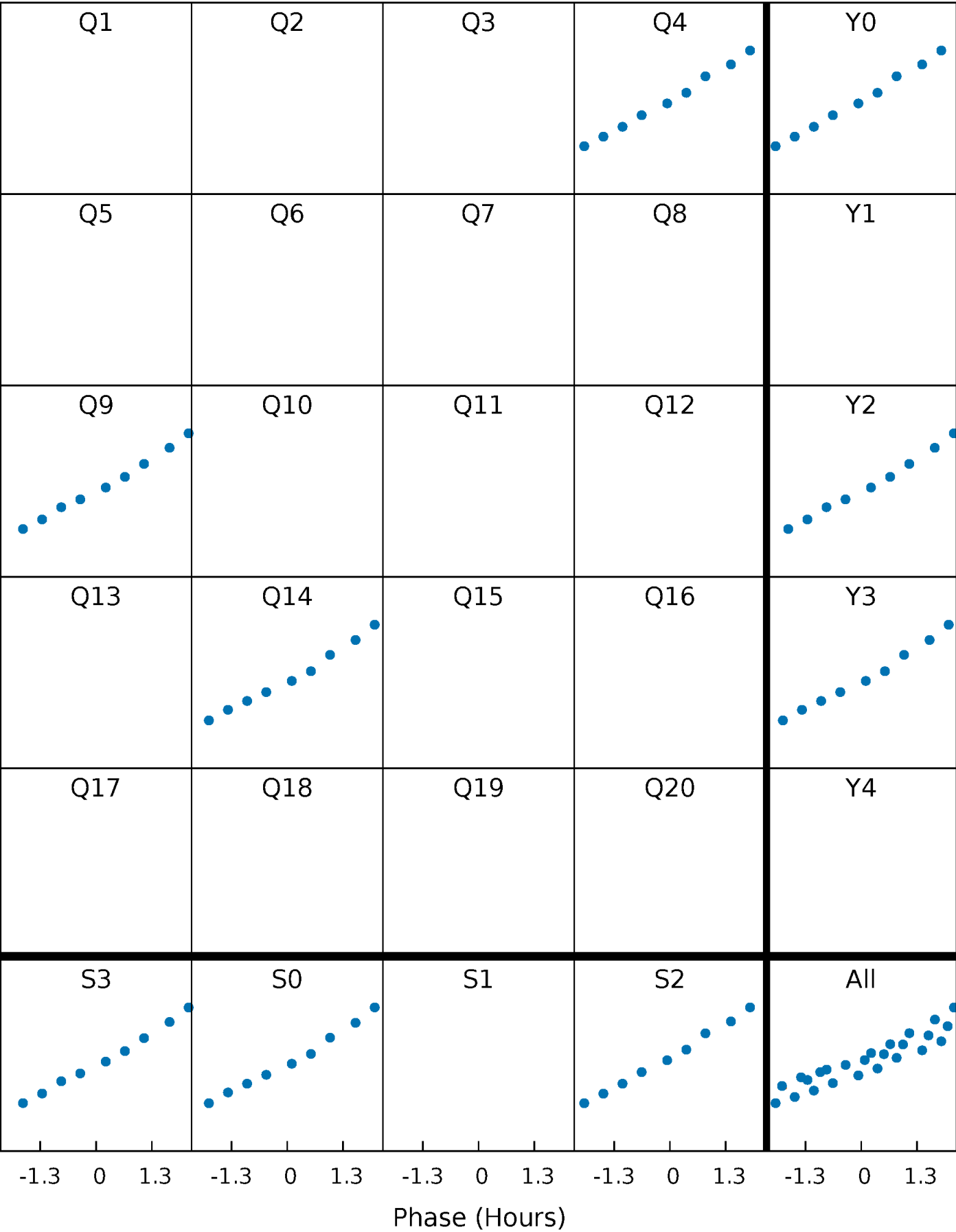


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



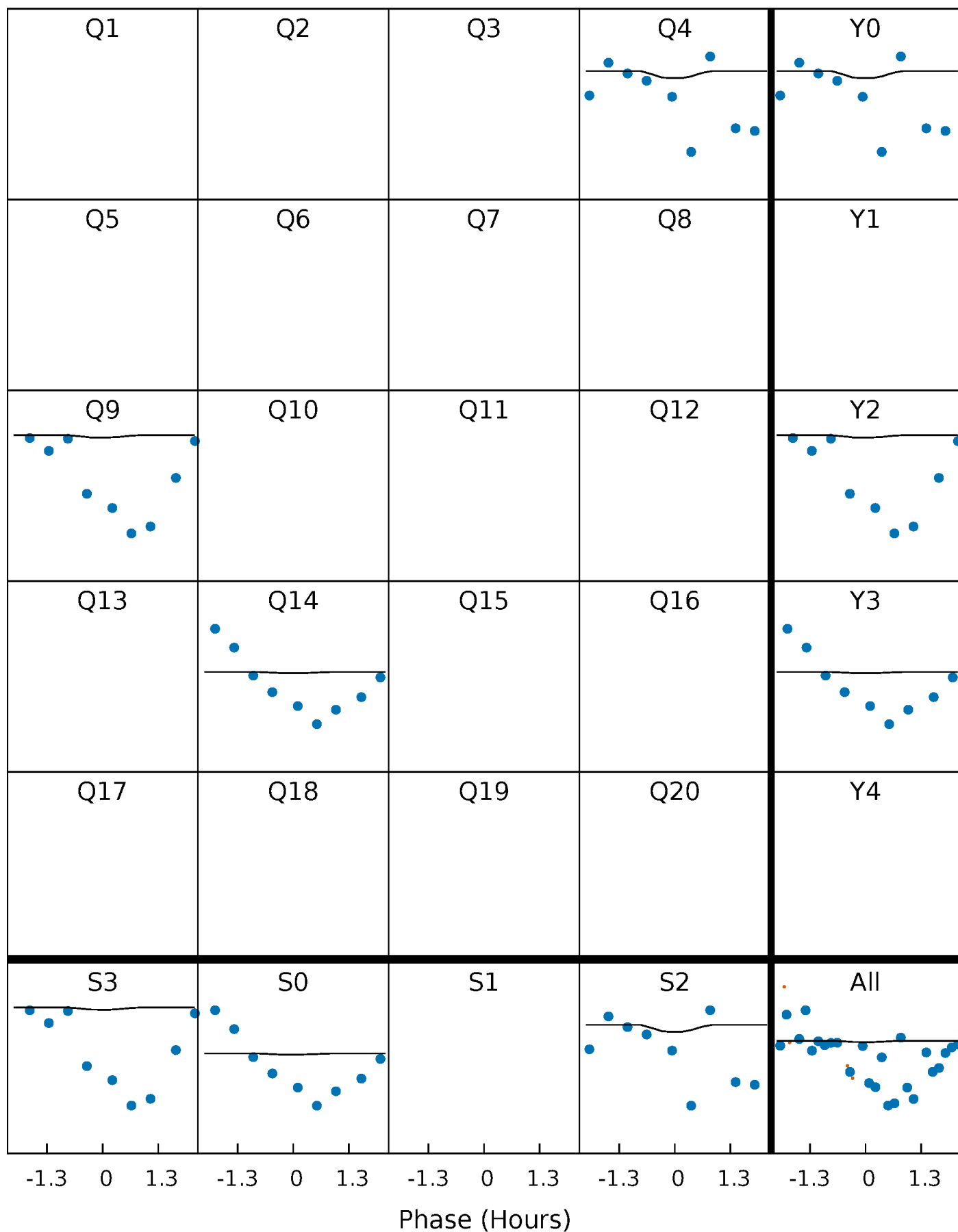
PDC Quarter-Phased Transit Curves

TCE 006219684-02 P=473.516816 Days T₀=362.536353 (BKJD)



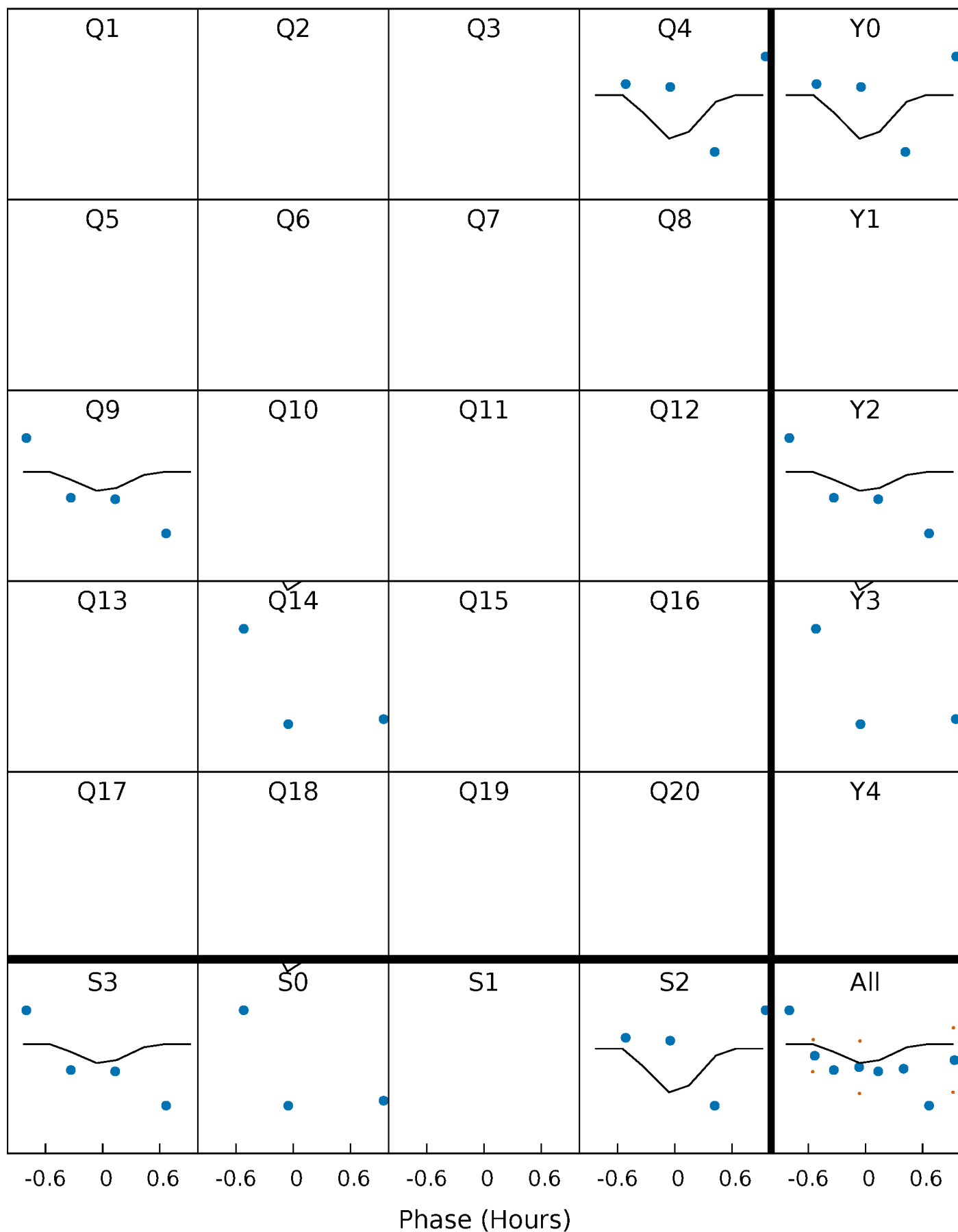
DV Quarter-Phased Transit Curves

TCE 006219684-02 P=473.516816 Days $T_0=362.536353$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

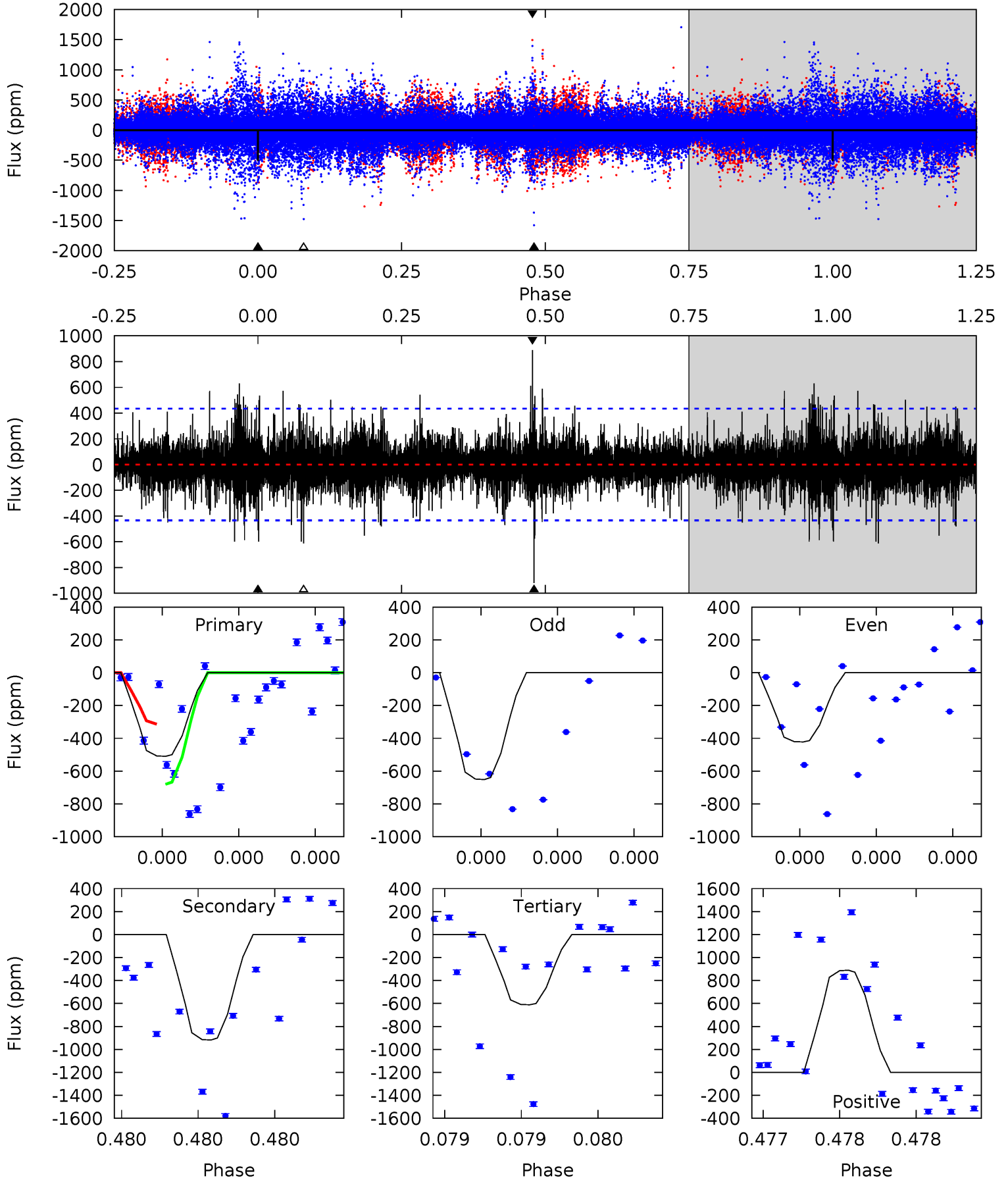
TCE 006219684-02 P=473.520508 Days $T_0=362.534265$ (BKJD)



DV Model-Shift Uniqueness Test

006219684-02, P = 473.516816 Days, E = 362.536353 Days

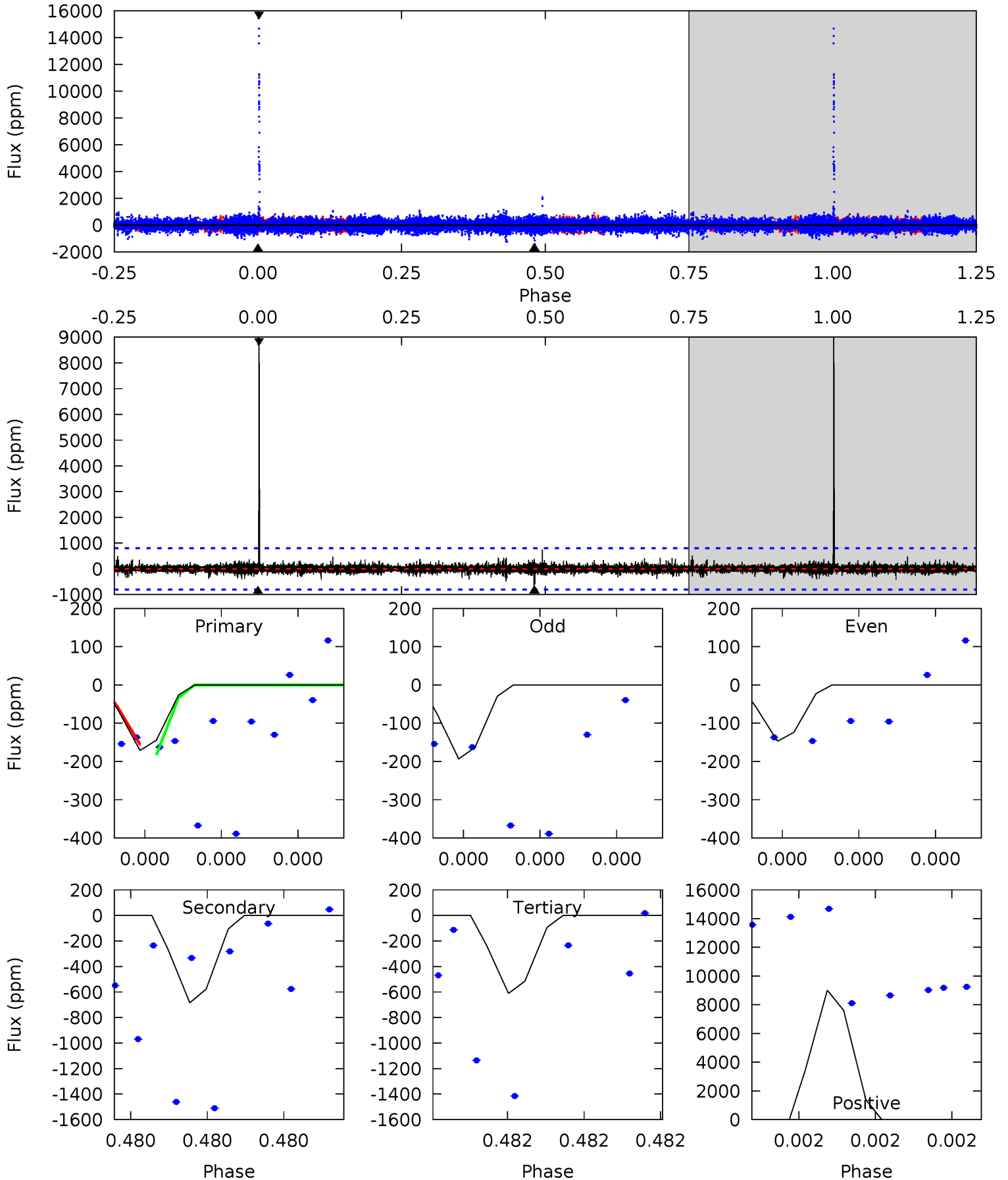
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.81	12.3	8.17	11.9	5.80	3.83	1.45	-1.36	-5.07	4.10	0.39	0.96	0.76	0.49	2.43



Alt Model-Shift Uniqueness Test

006219684-02, P = 473.520508 Days, E = 362.534265 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.25	4.99	4.45	65.8	5.87	3.93	1.20	-3.21	-64.5	0.53	-60.8	0.13	1.00	0.93	0.10



Stellar Parameters For KIC 006219684

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9611^{+269}_{-461}	$3.818^{+0.397}_{-0.132}$	$0.070^{+0.150}_{-0.750}$	$3.366^{+0.902}_{-1.675}$	$2.719^{+0.336}_{-1.008}$	$0.101^{+0.400}_{-0.042}$
	+3%/-5%	+10%/-3%	+214%/-1071%	+27%/-50%	+12%/-37%	+398%/-41%
Source	KIC0	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 006219684-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-919 ± 75	$49.78^{+53.11}_{-35.37}$	815^{+72}_{-88}	4276^{+3285}_{-894}	551^{+5563}_{-415}
Alt.	-682 ± 137	$49.22^{+54.97}_{-36.07}$	813^{+72}_{-95}	4042^{+2909}_{-873}	405^{+5101}_{-316}

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 $A_{obs} \gg 1.0$

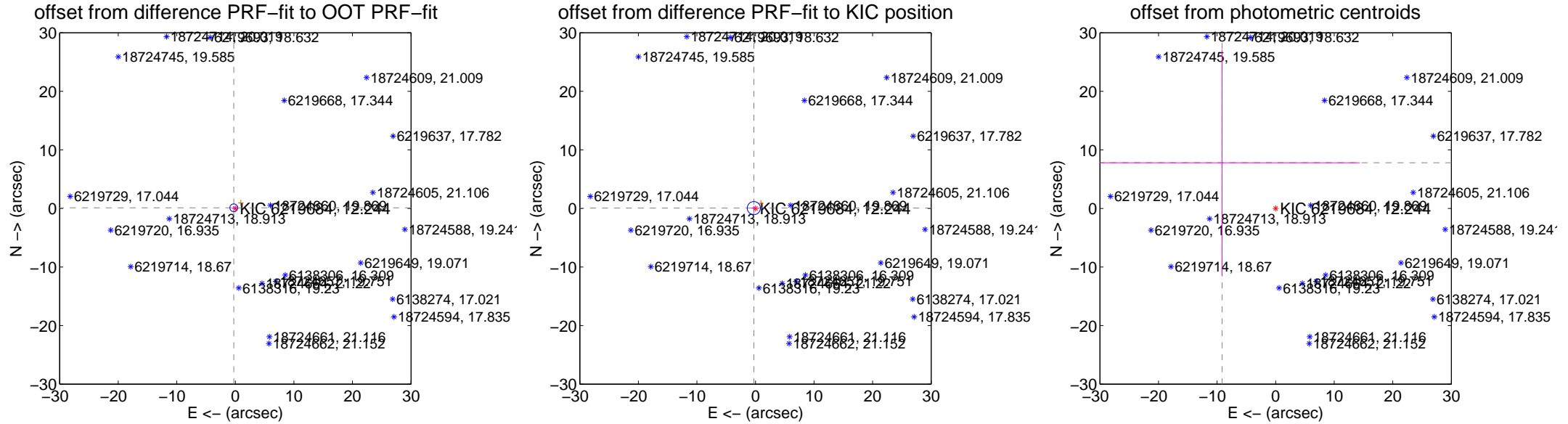
DV Centroid Data

Supplemental centroid analysis for 006219684-02. Kepler magnitude: 12.24. Transit SNR 0.23

There are 2 quarters with good PRF difference image offsets

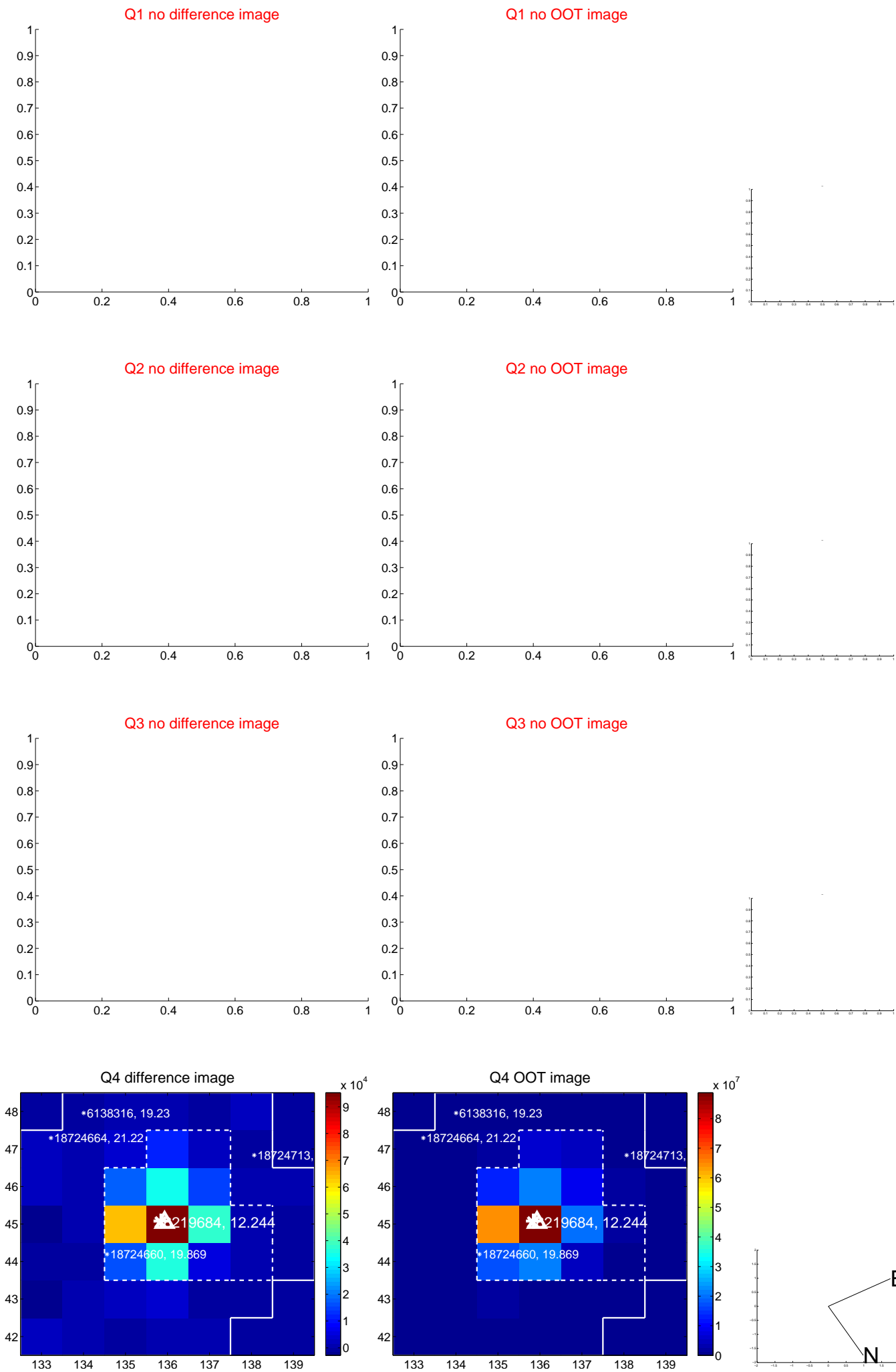
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.286 ± 0.222	1.29	0.264 ± 0.320	0.111 ± 0.216
PRF-fit source offset from KIC position	0.287 ± 0.374	0.77	0.281 ± 0.443	0.057 ± 0.317
photometric centroid source offset	12.02 ± 21.86	0.55	9.15 ± 23.53	7.80 ± 19.32

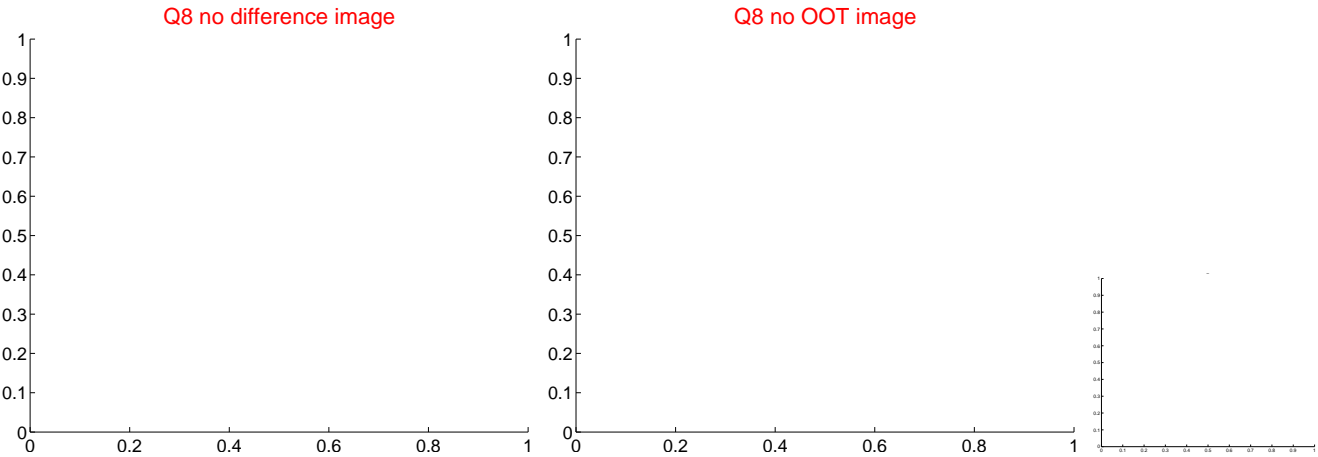
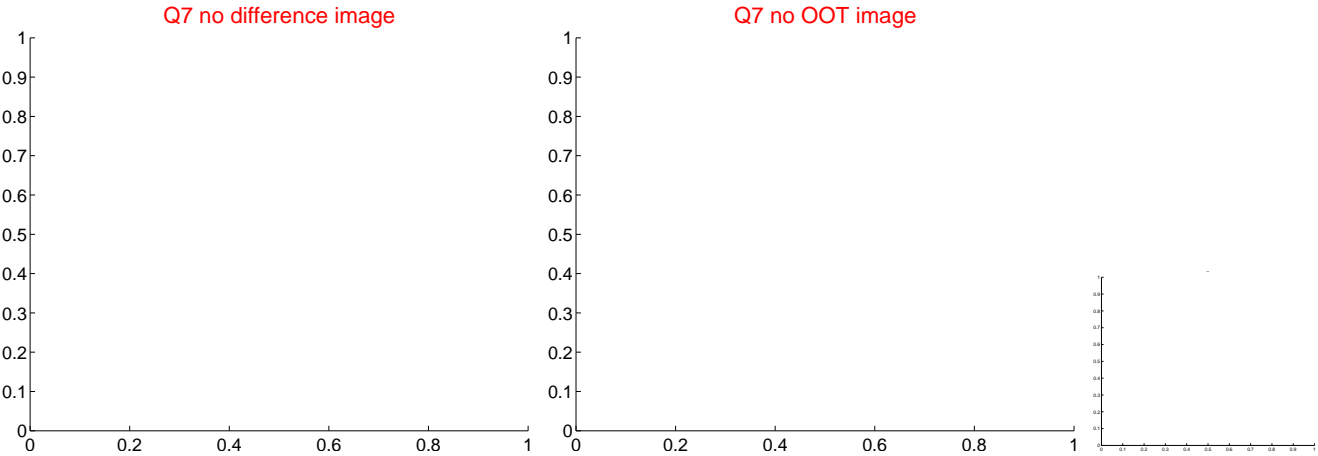
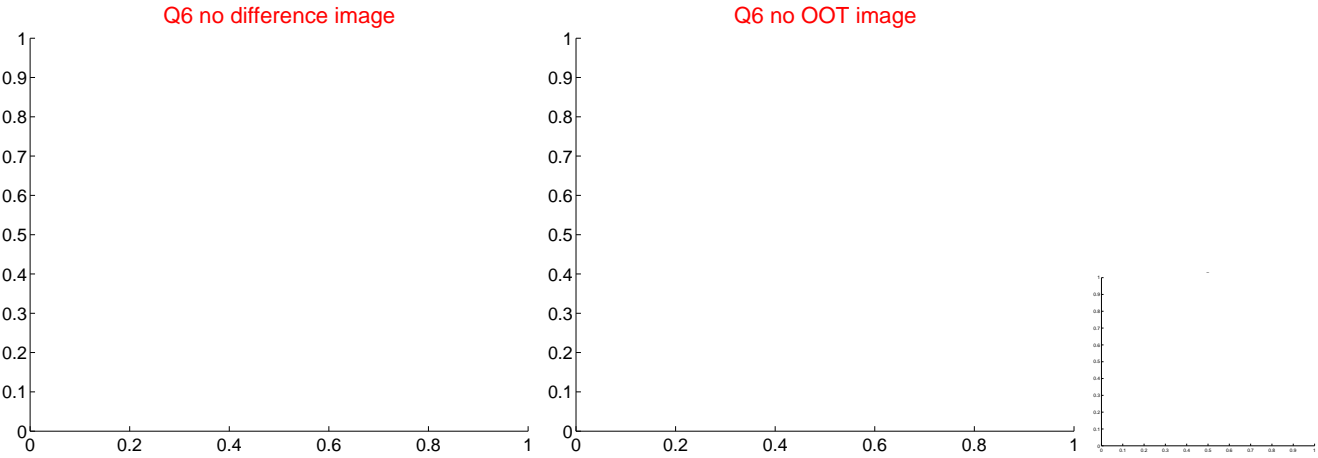
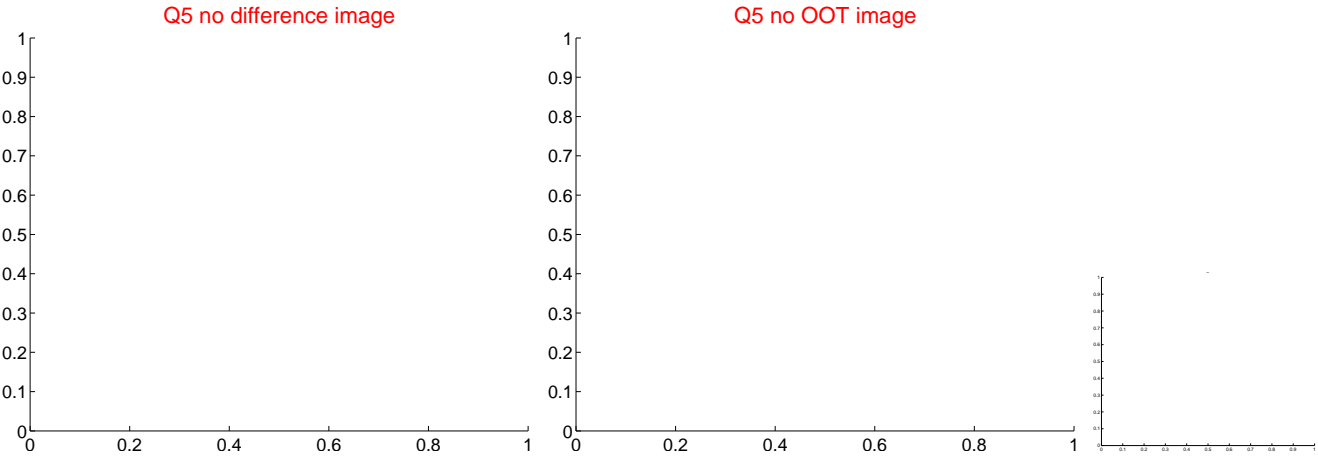


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

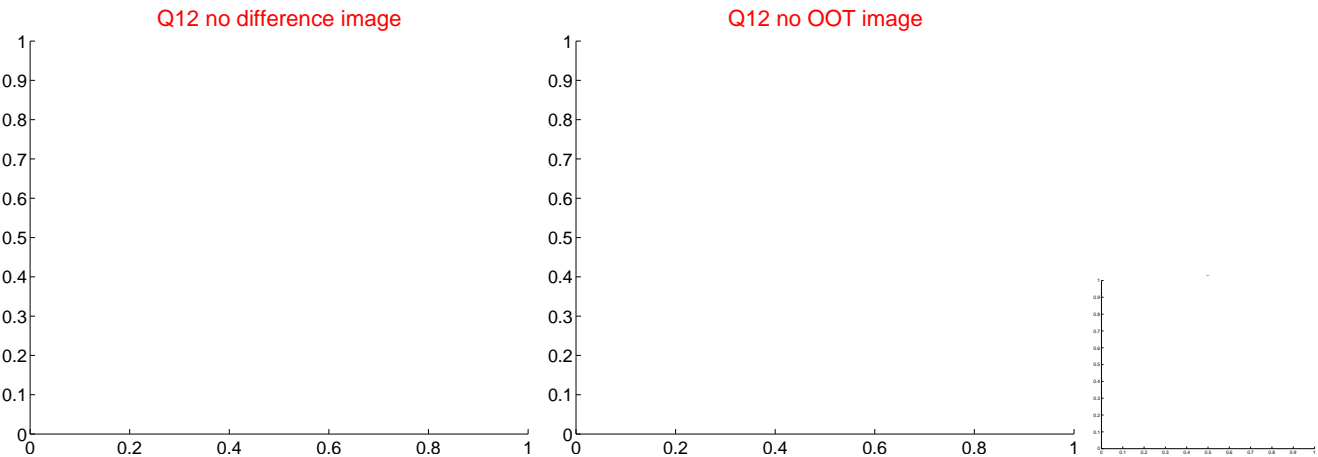
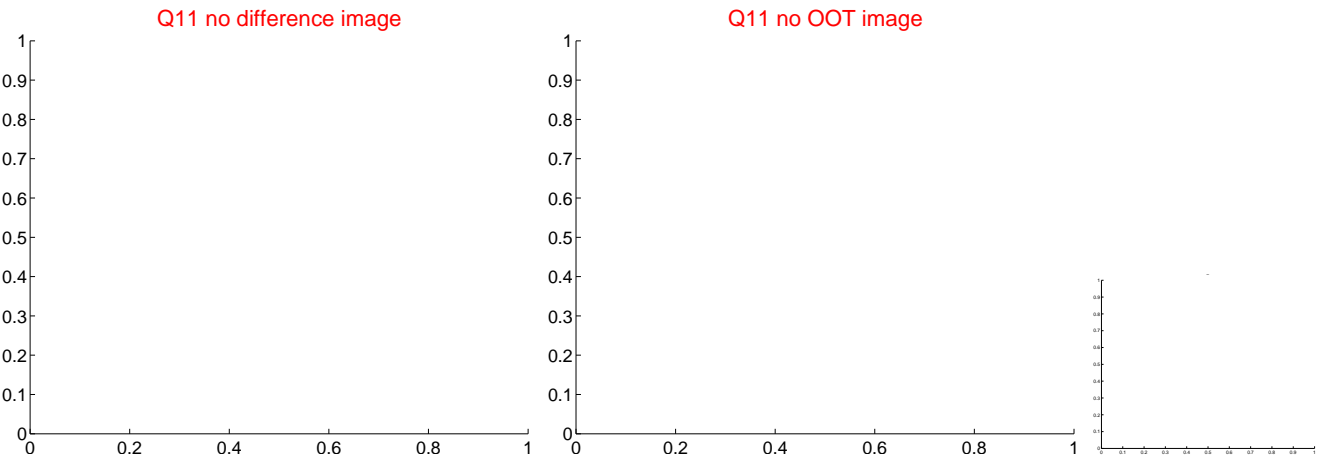
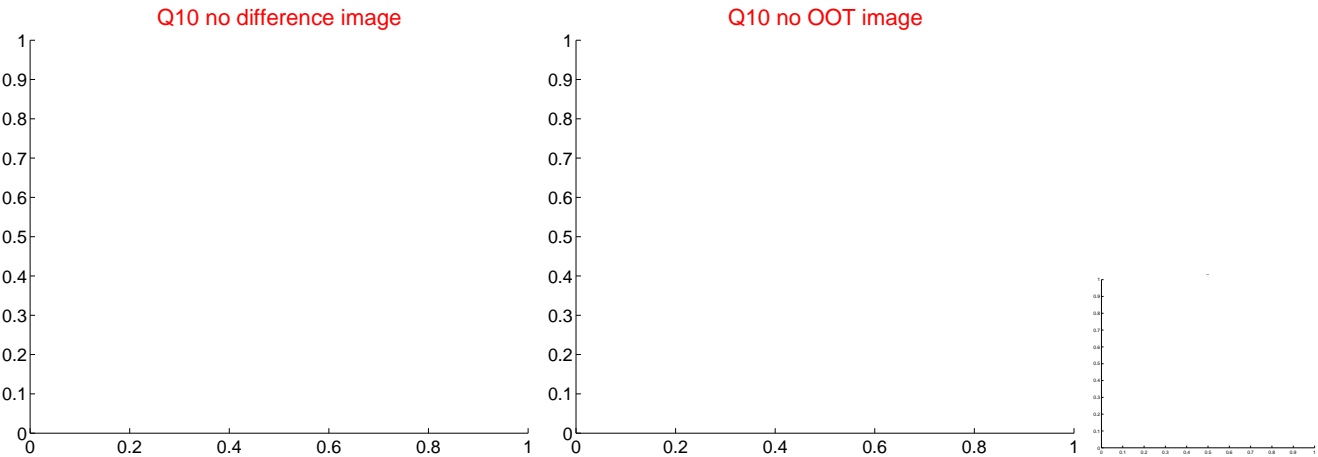
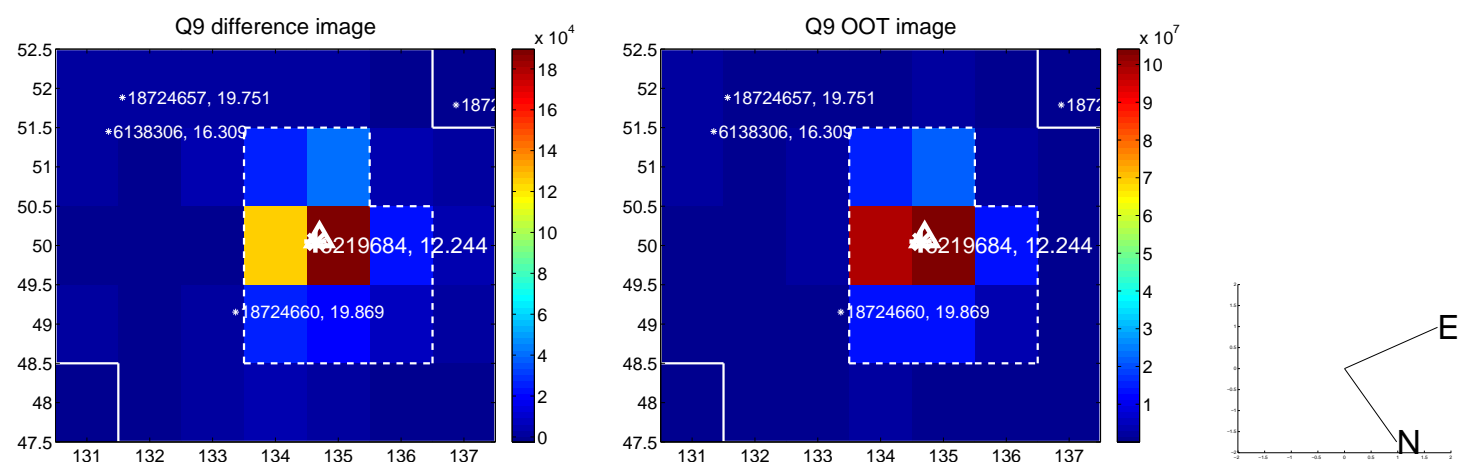
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



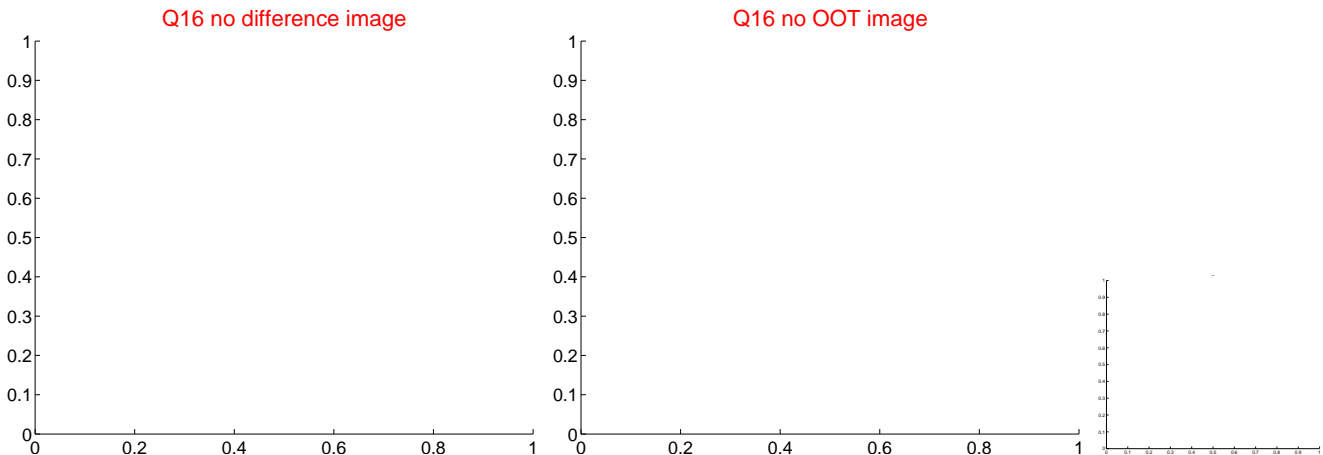
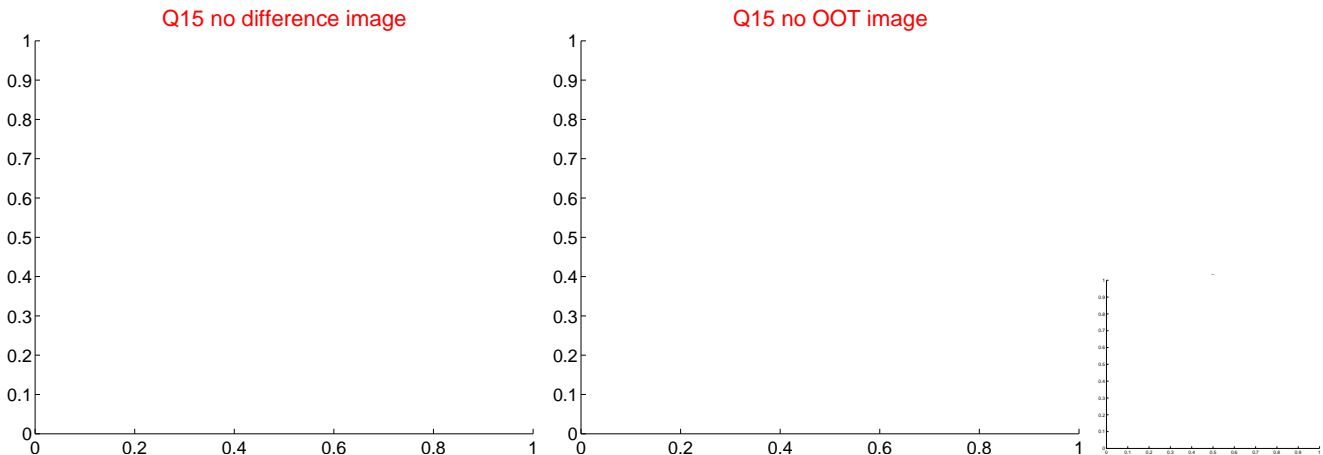
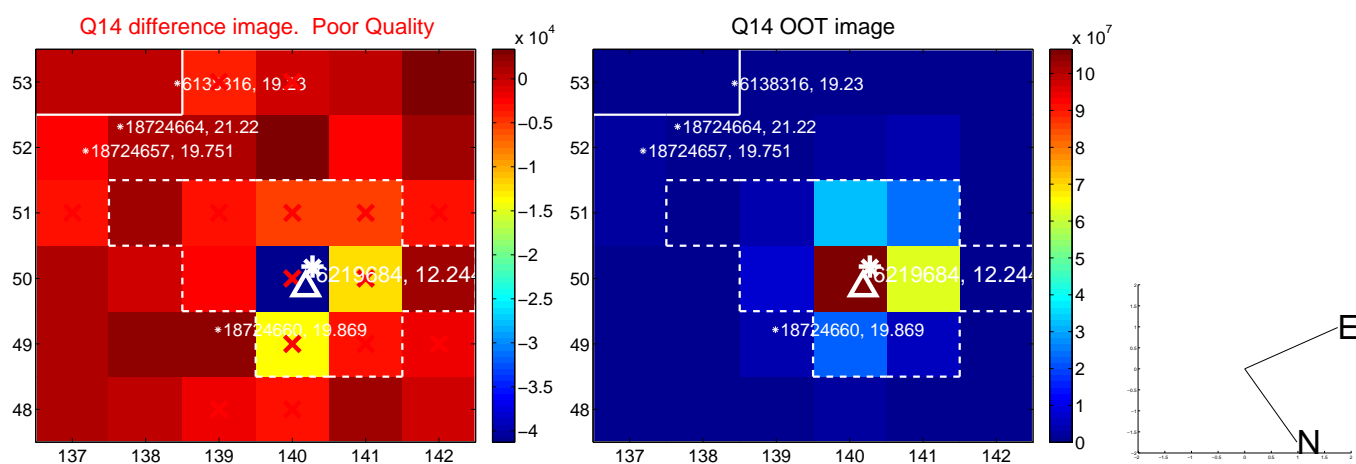
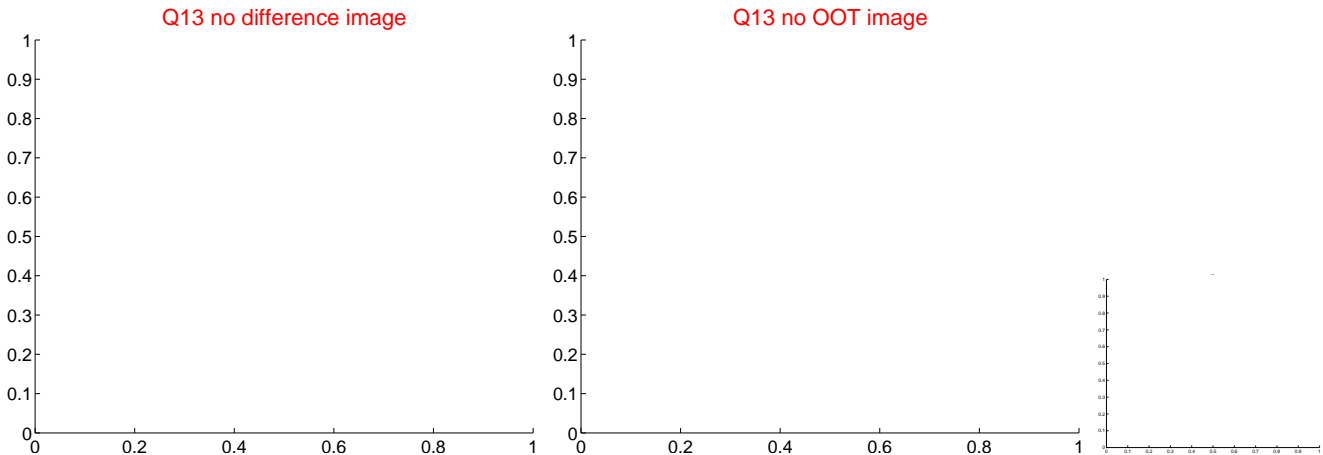
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



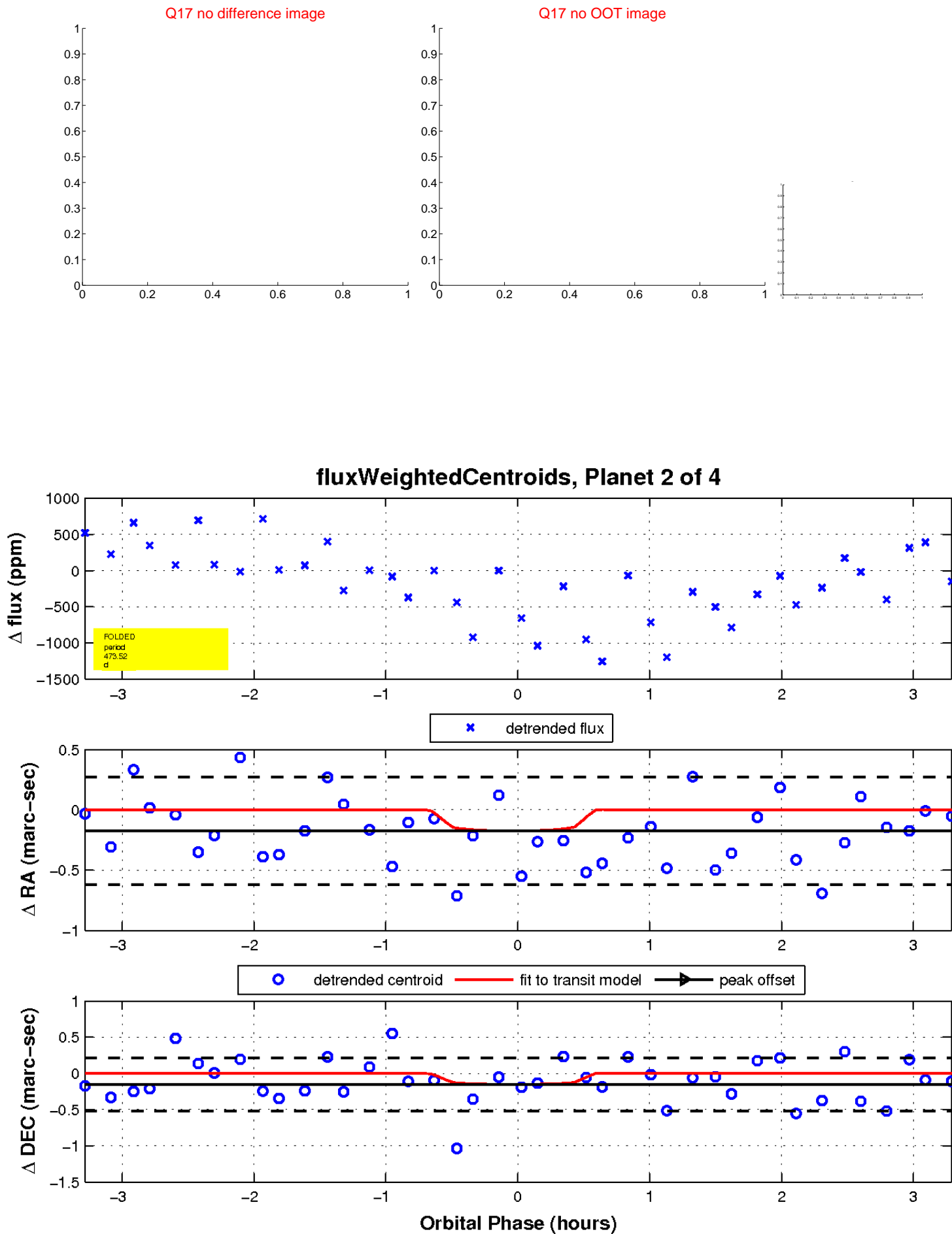
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



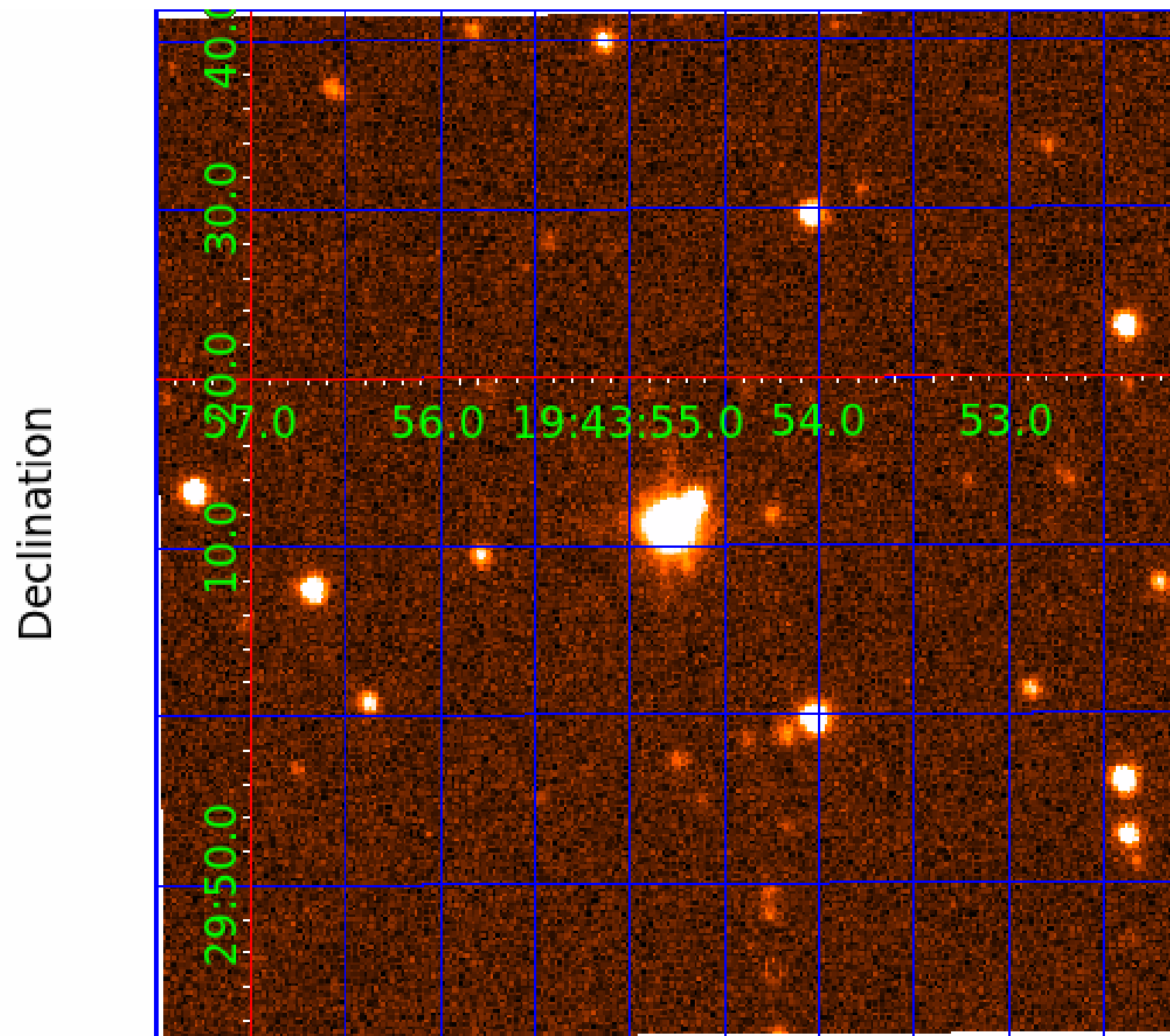
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006219684

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})
006219684-01	OBS	No	421.285192	363.272454	158.9	2.300	14.6	2.6	3.37	9611	4.46	36.75
006219684-02	OBS	No	473.516816	362.536353	18.9	1.113	13.6	0.2	3.37	9611	1.51	31.45
006219684-03	OBS	No	284.547061	363.728670	453.4	2.920	13.7	5.5	3.37	9611	7.37	62.02
006219684-04	OBS	No	1.644176	132.021450	37.9	13.426	9.7	5.2	3.37	9611	2.17	59810.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006219684-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006219684-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006219684-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
006219684-04	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV

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

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

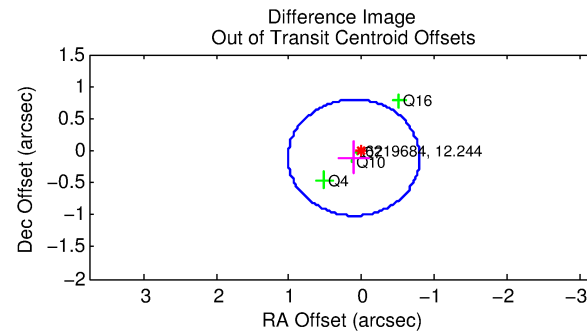
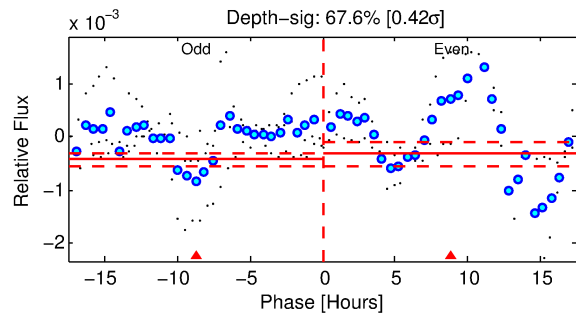
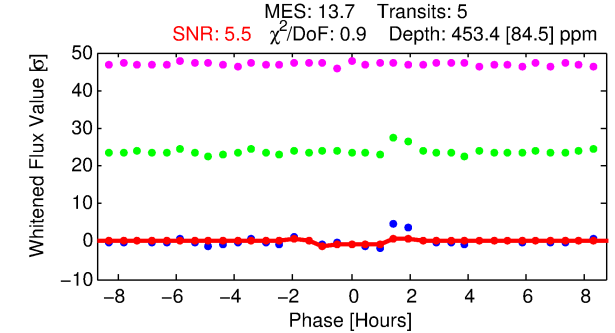
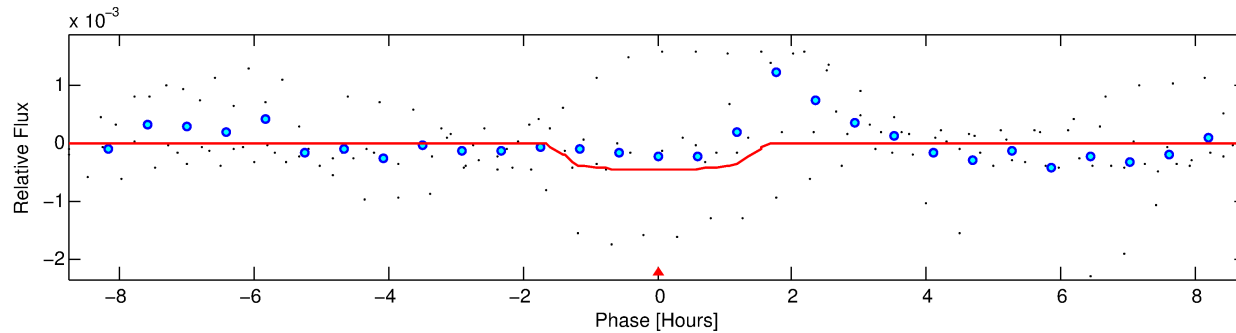
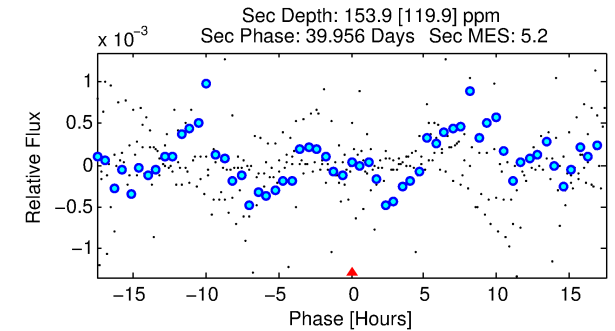
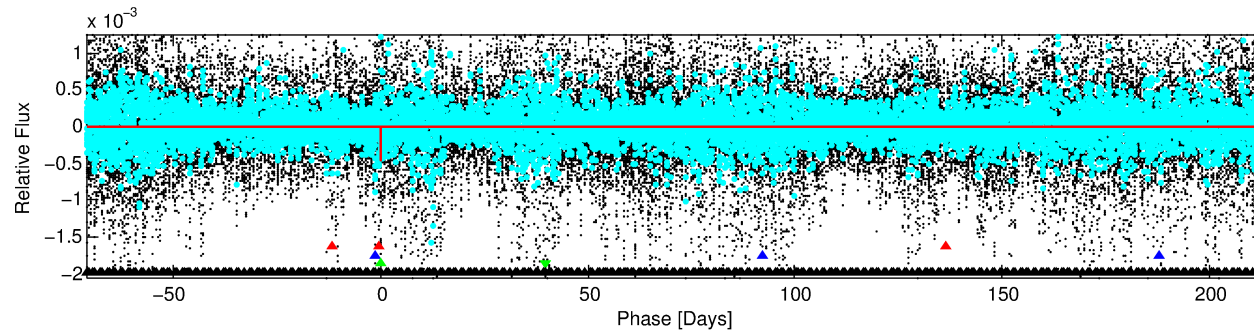
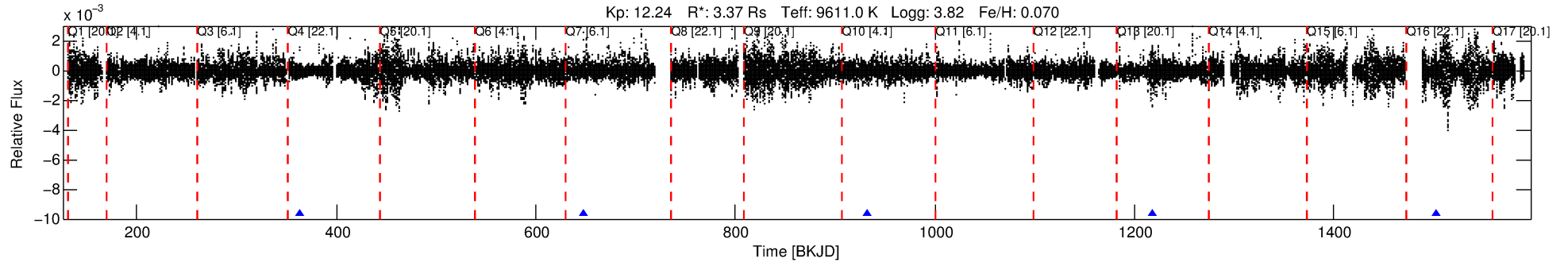
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006219684-03

No Significant Match Found

DV One-Page Summary

KIC: 6219684 Candidate: 3 of 4 Period: 284.547 d



DV Fit Results:

Period = 284.54706 [0.00205] d
Epoch = 363.7287 [0.0043] BKJD
Rp/R* = 0.0201 [0.0116]
a/R* = 736.78 [2803.24]
b = 0.25 [14.56]
Seff = 62.02 [44.65]
Teff = 716 [129] K
Rp = 7.37 [5.63] Re
a = 1.1818 [0.5323] AU
Ag = 2175.81 [3391.88] [0.64 σ]
Teffp = 7556 [2662] K [2.57 σ]

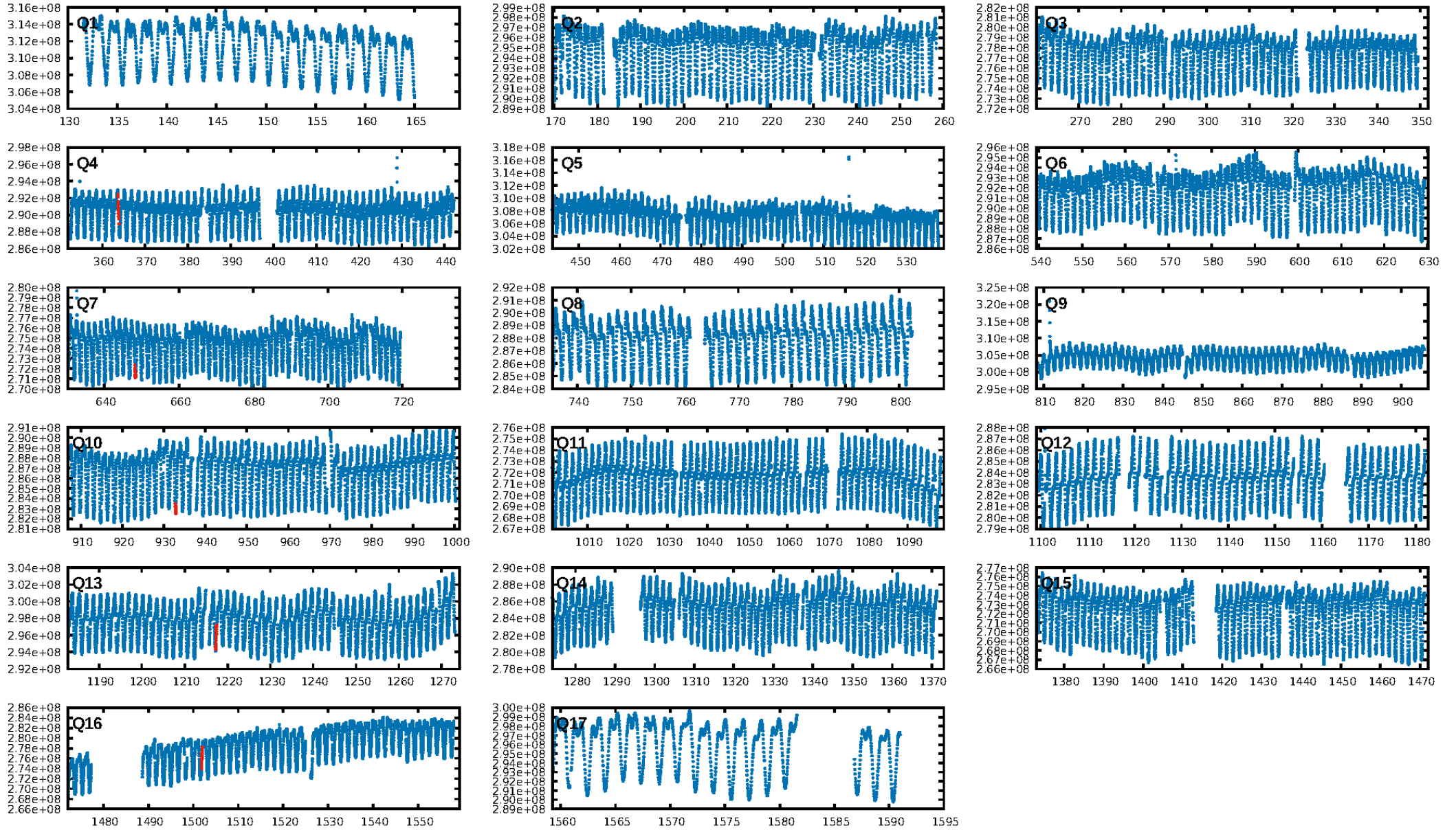
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [494.16 σ]
LongPeriod-sig: 100.0% [882.92 σ]
ModelChiSquare2-sig: 4.7%
ModelChiSquareGof-sig: 80.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.4354
Centroid-sig: 27.1%
Centroid-so: 0.611 arcsec [1.26 σ]
OotOffset-rm: 0.153 arcsec [0.51 σ]
KicOffset-rm: 0.362 arcsec [1.25 σ]
OotOffset-st: 1/1/2/0 [4]
KicOffset-st: 1/1/2/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.00 [0/4]

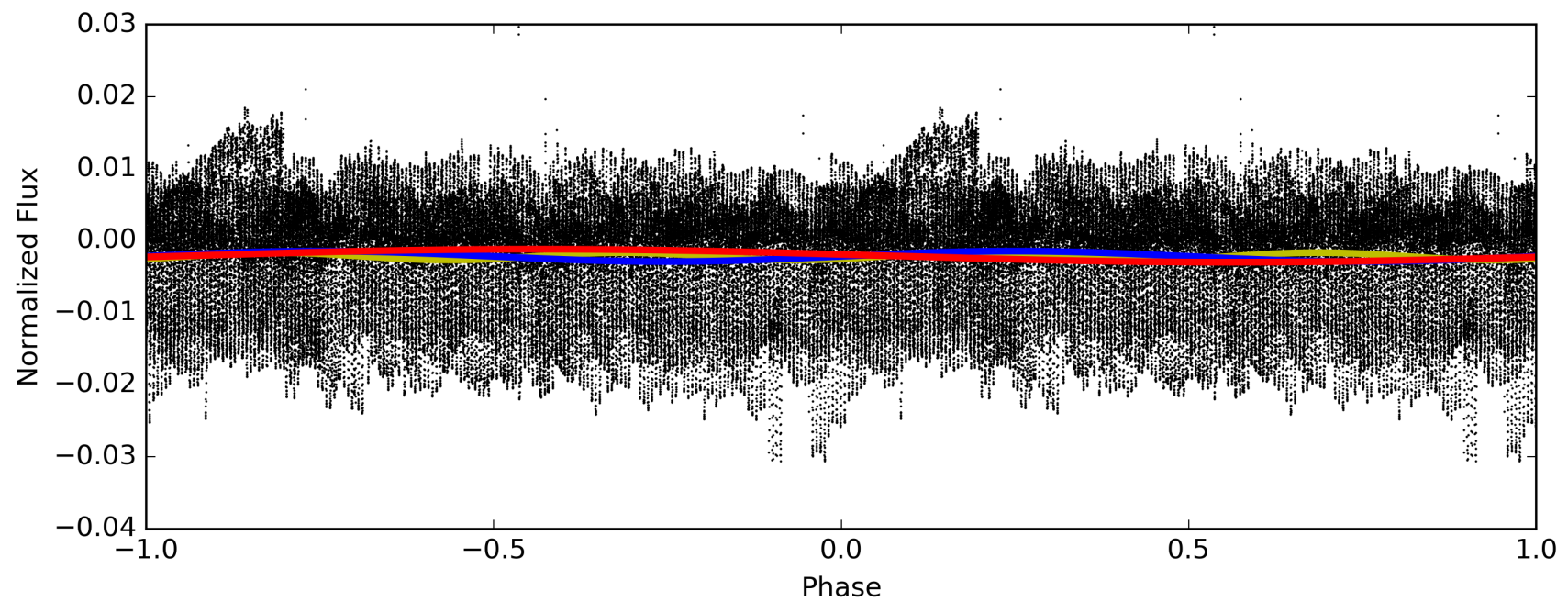
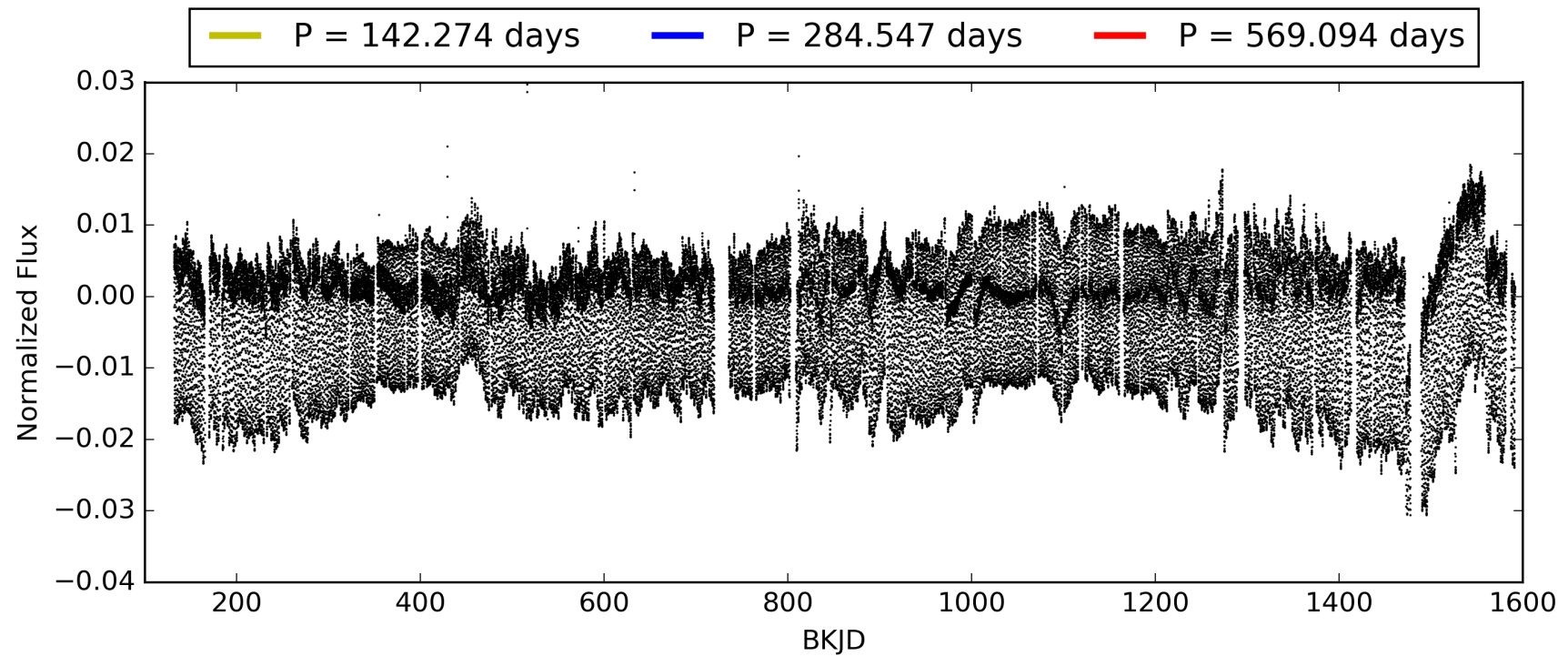
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:37:24 Z

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

TCE 006219684-03, PDC Light Curves

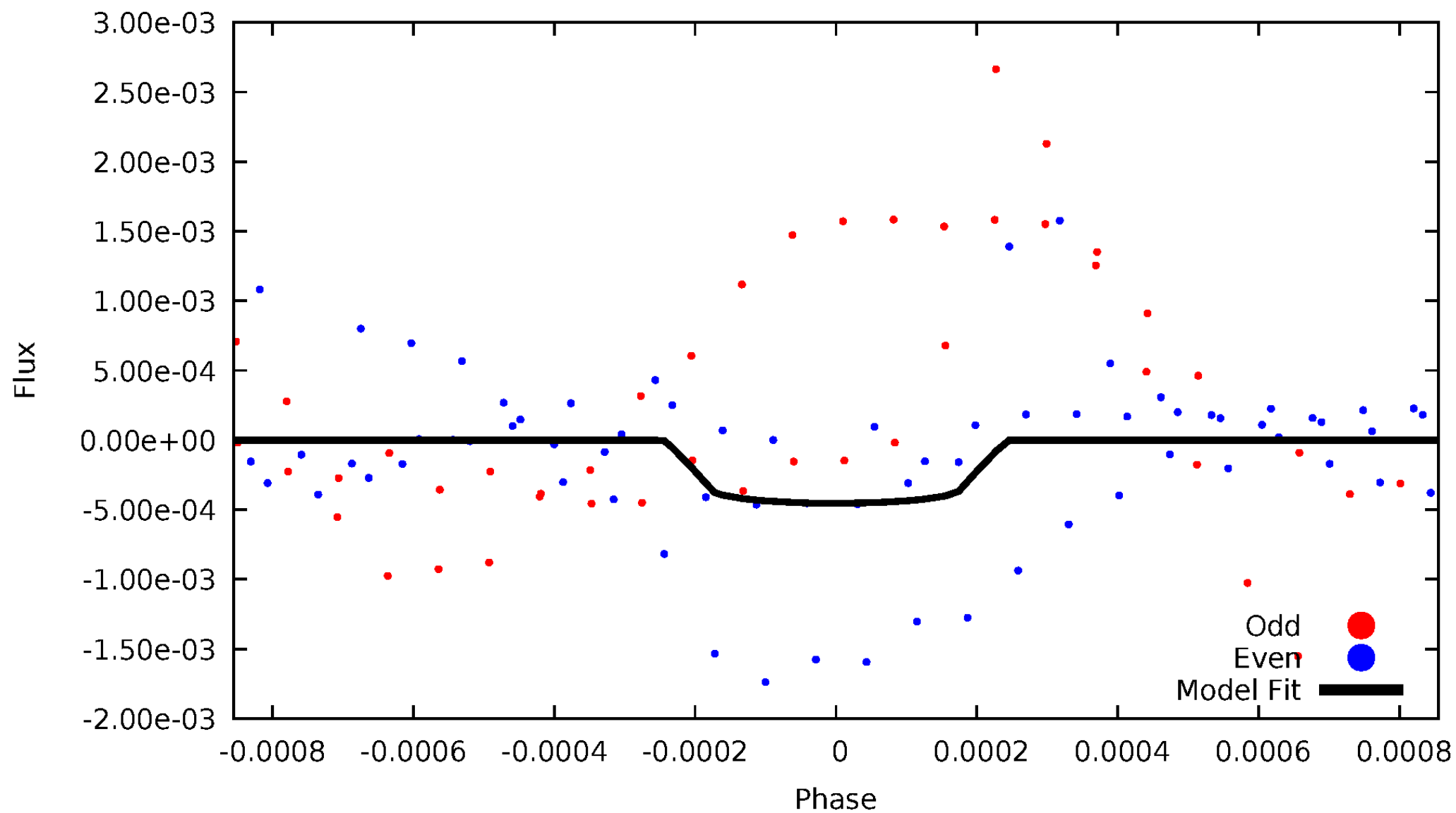


TCE 006219684-03



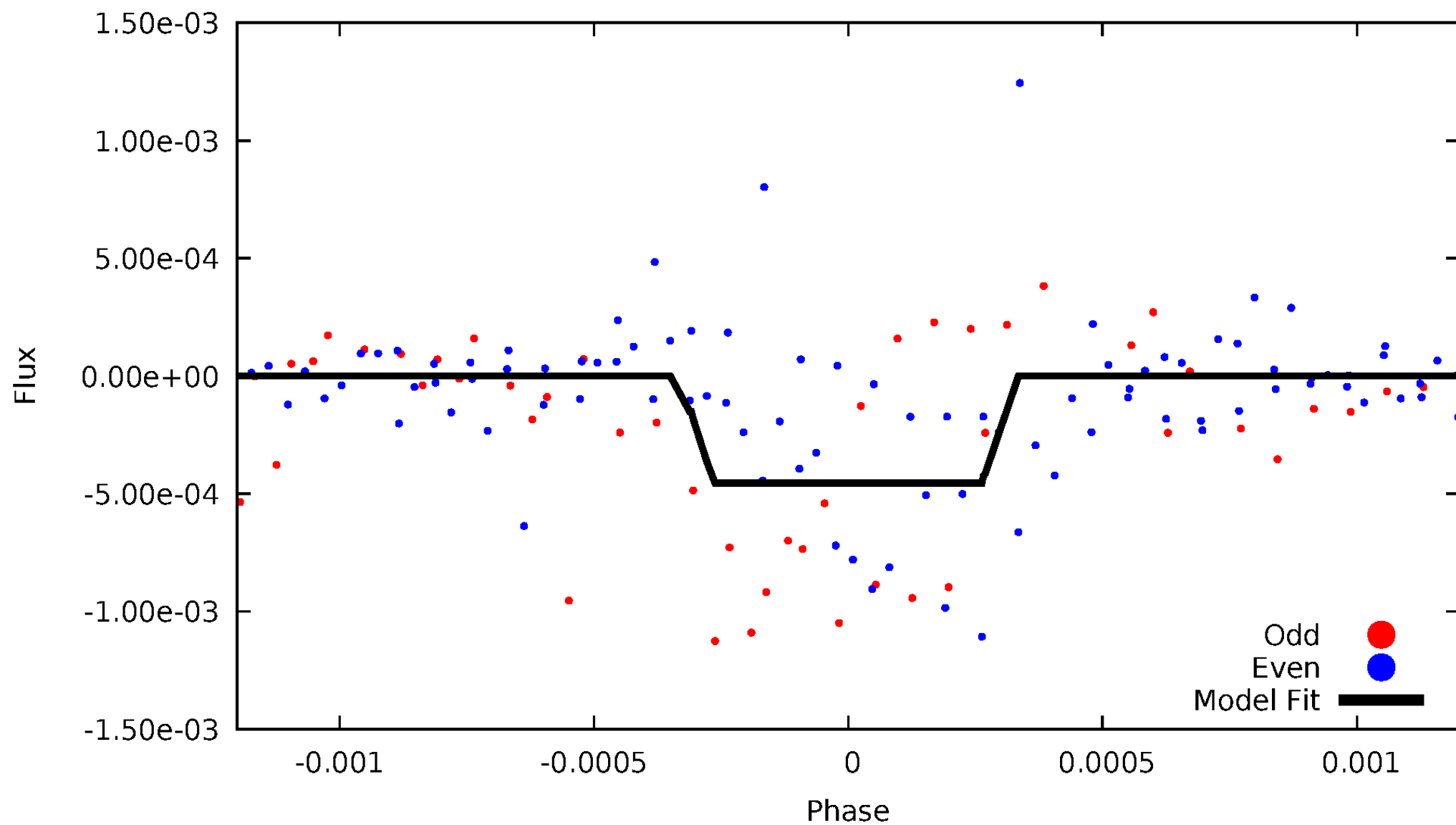
DV Odd/Even

TCE 006219684-03



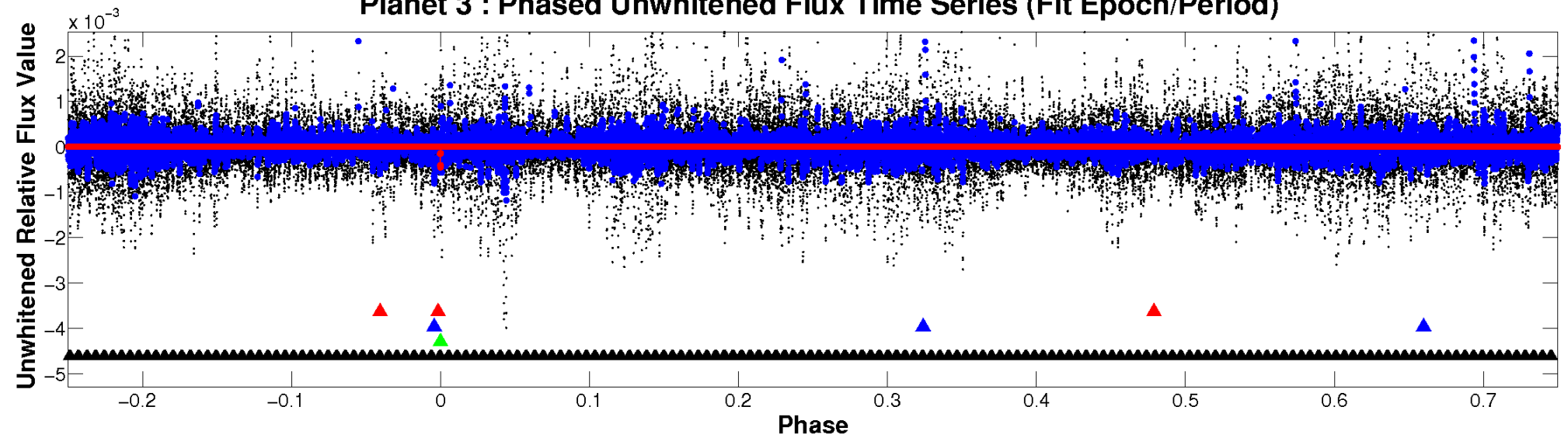
ALT Odd/Even

TCE 006219684-03

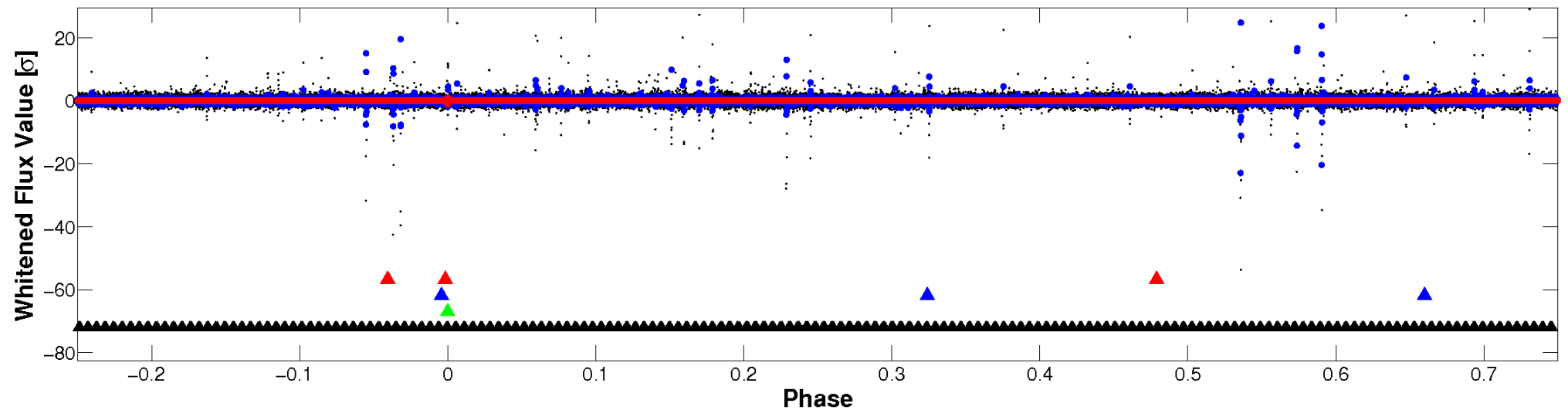


Non-Whitened Vs. Whitened Light Curve

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

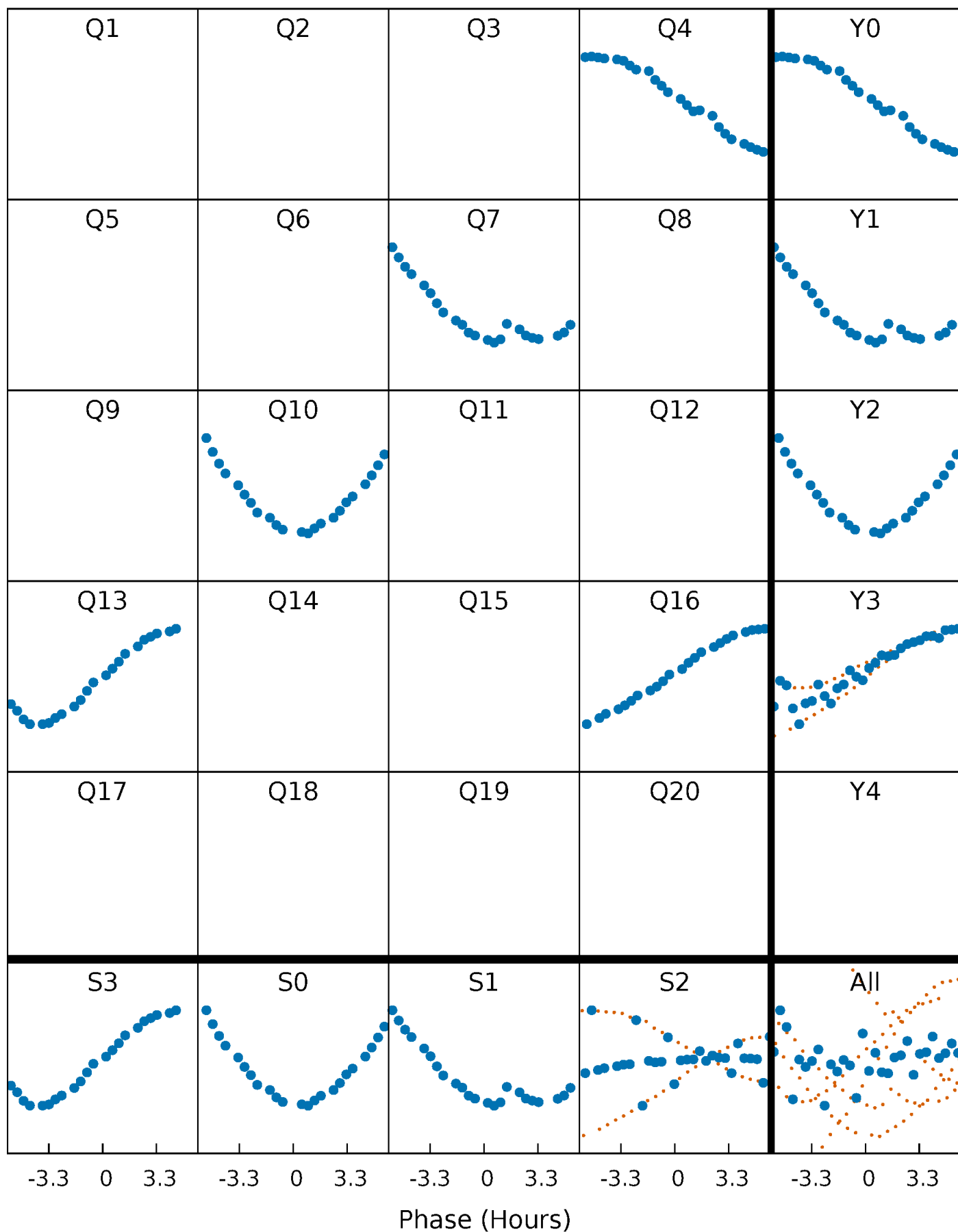


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



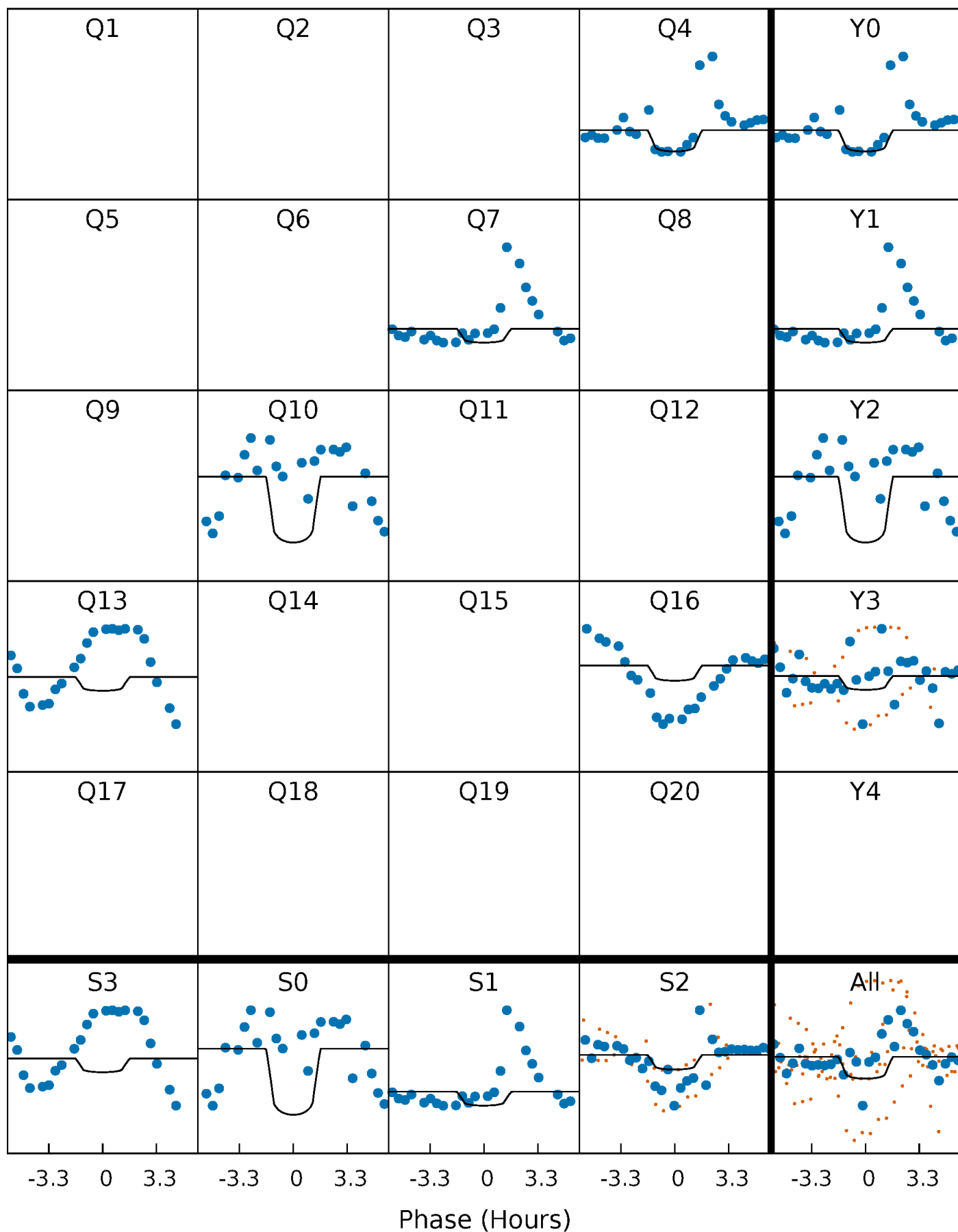
PDC Quarter-Phased Transit Curves

TCE 006219684-03 P=284.547061 Days $T_0=363.728670$ (BKJD)



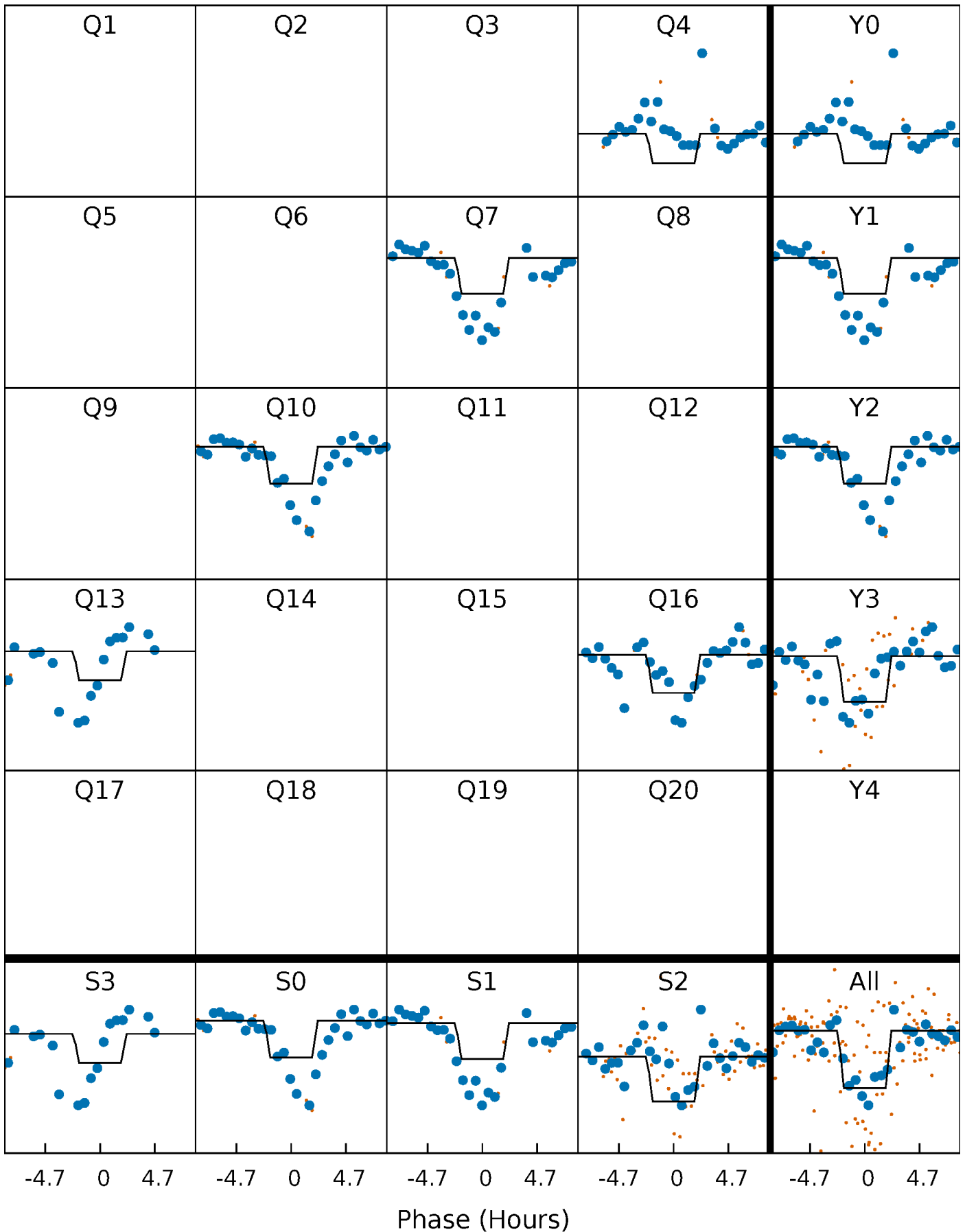
DV Quarter-Phased Transit Curves

TCE 006219684-03 $P=284.547061$ Days $T_0=363.728670$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

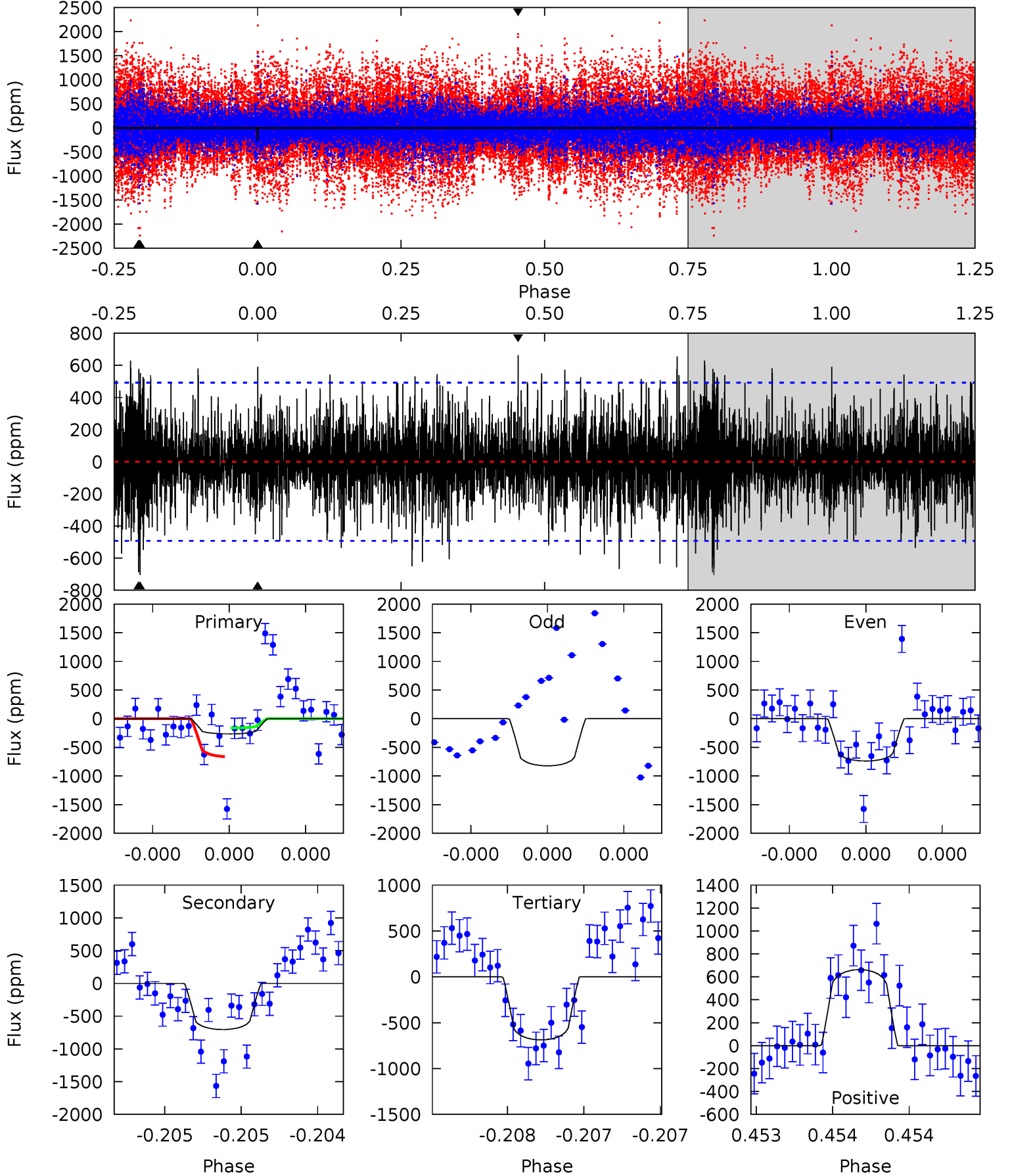
TCE 006219684-03 P=284.540668 Days $T_0=363.702695$ (BKJD)



DV Model-Shift Uniqueness Test

006219684-03, P = 284.547061 Days, E = 79.181609 Days

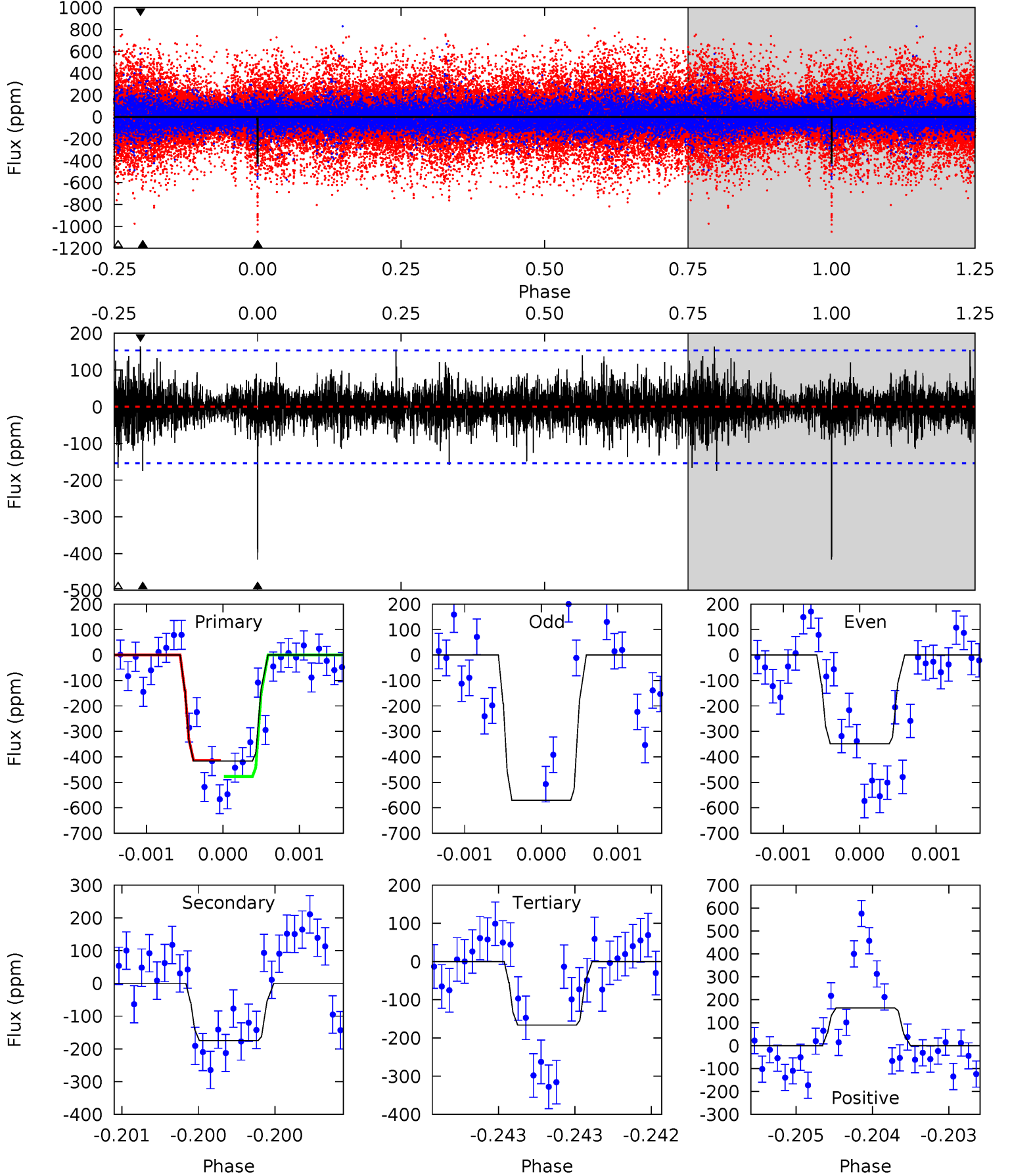
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.01	7.98	7.79	7.51	5.58	3.49	1.90	-4.78	-4.50	0.19	0.47	0.51	-3.19	0.48	2.85



Alt Model-Shift Uniqueness Test

006219684-03, P = 284.540668 Days, E = 79.162027 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	6.30	5.98	5.91	5.53	3.42	1.27	9.01	9.09	0.32	0.39	3.80	0.99	0.28	1.13



Stellar Parameters For KIC 006219684

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	9611^{+269}_{-461}	$3.818^{+0.397}_{-0.132}$	$0.070^{+0.150}_{-0.750}$	$3.366^{+0.902}_{-1.675}$	$2.719^{+0.336}_{-1.008}$	$0.101^{+0.400}_{-0.042}$
	+3%/-5%	+10%/-3%	+214%/-1071%	+27%/-50%	+12%/-37%	+398%/-41%
Source	KIC0	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 006219684-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-704 ± 88	$6.79^{+4.26}_{-3.65}$	969^{+80}_{-119}	11457^{+12699}_{-3050}	11559^{+37809}_{-7223}
Alt.	-175 ± 28	$7.15^{+4.91}_{-3.86}$	962^{+94}_{-111}	6907^{+4751}_{-1348}	2504^{+9125}_{-1579}

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

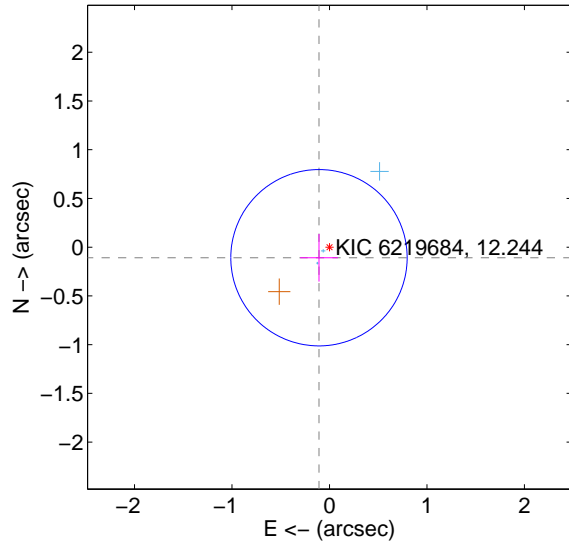
Supplemental centroid analysis for 006219684-03. Kepler magnitude: 12.24. Transit SNR 5.54

There are 3 quarters with good PRF difference image offsets

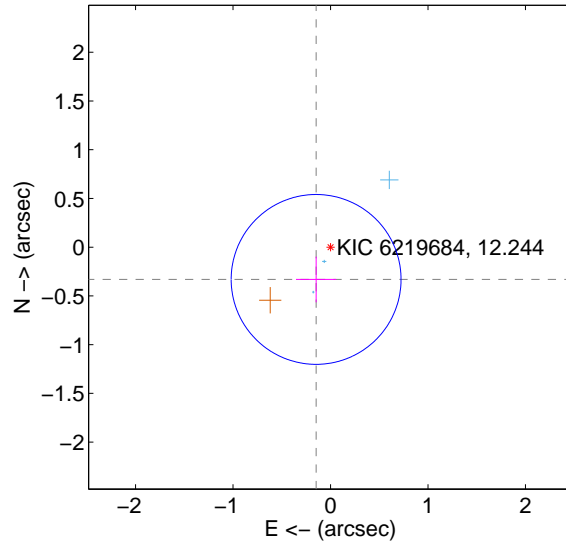
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.153 ± 0.302	0.51	0.108 ± 0.194	-0.108 ± 0.245
PRF-fit source offset from KIC position	0.362 ± 0.291	1.25	0.148 ± 0.206	-0.331 ± 0.234
photometric centroid source offset	0.61 ± 0.49	1.26	-0.48 ± 0.52	-0.37 ± 0.43

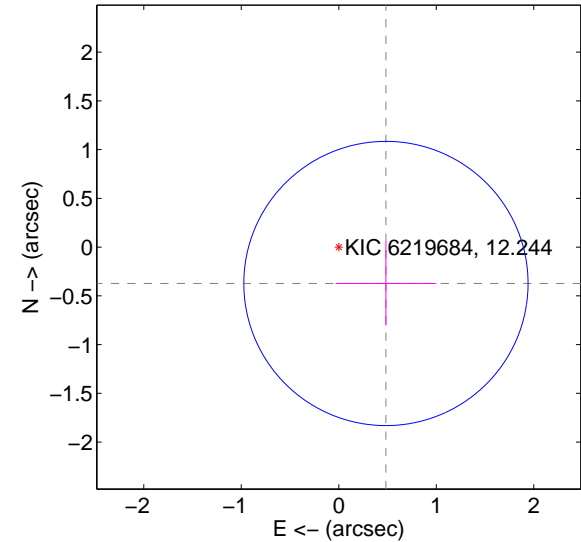
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

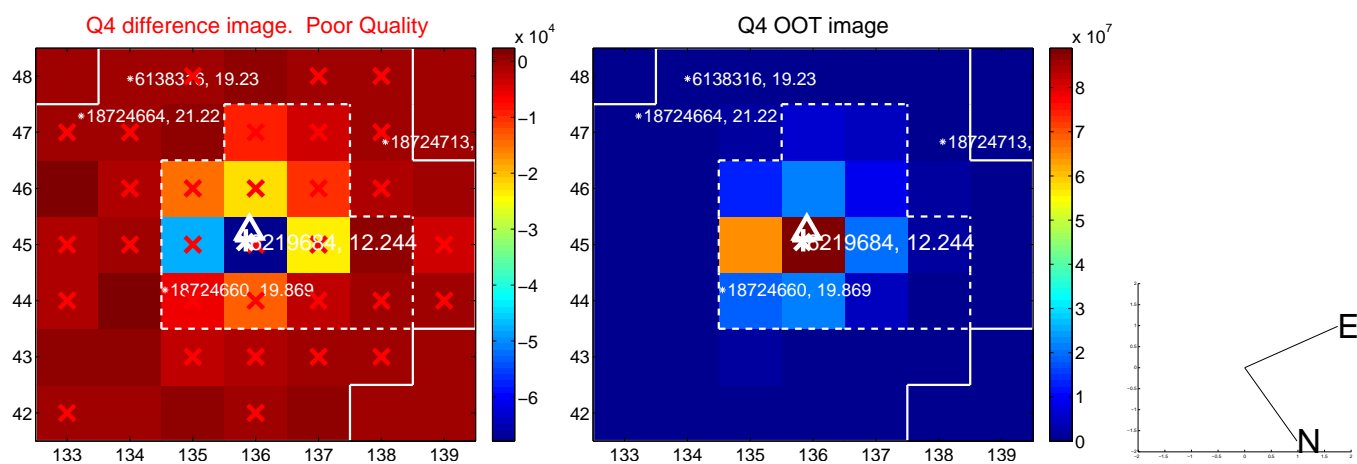
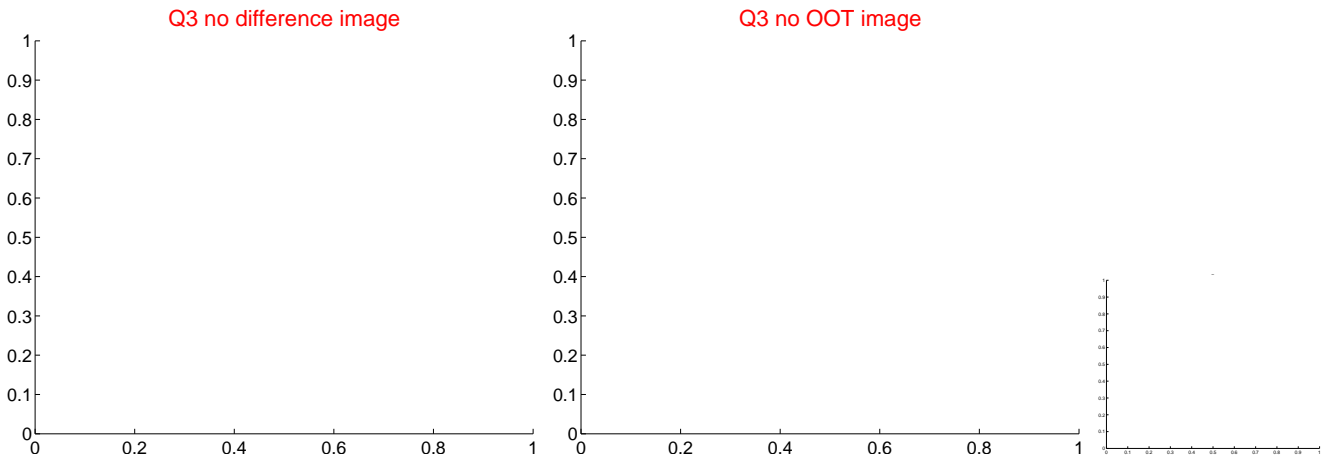
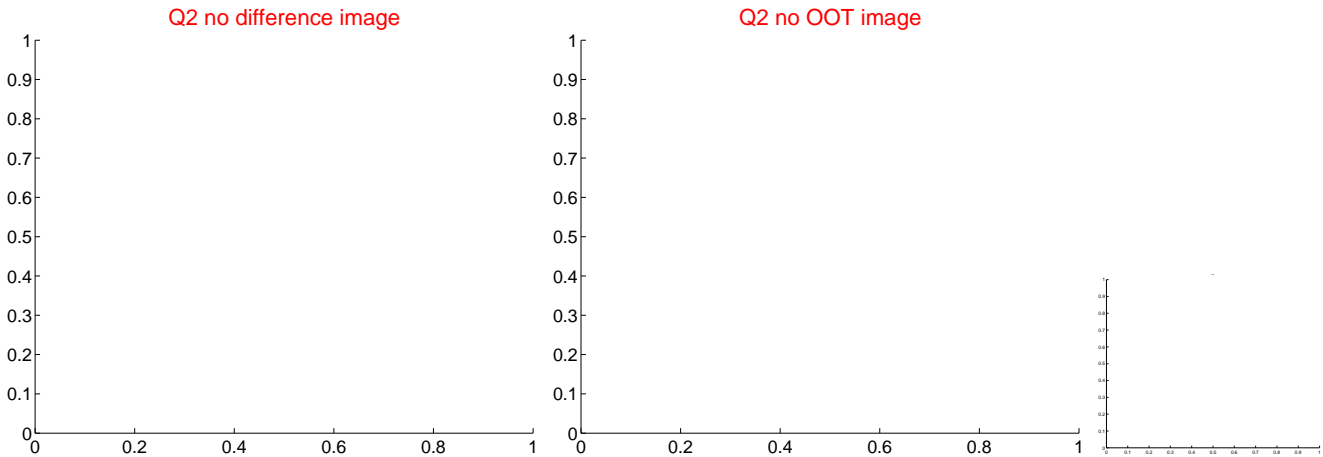
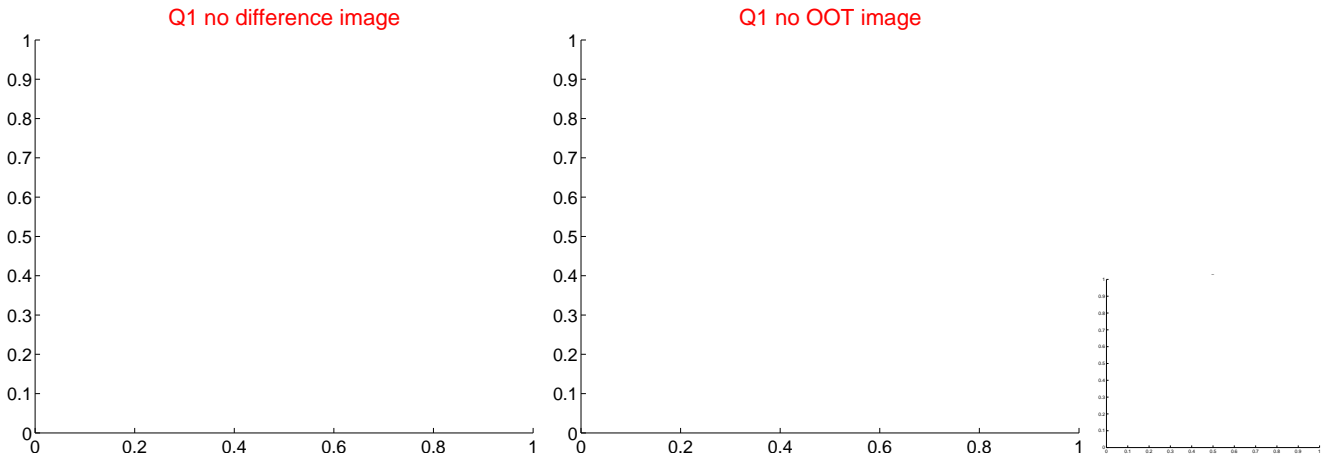


offset from photometric centroids



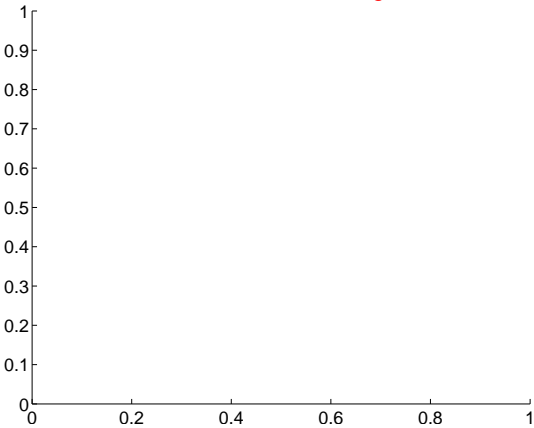
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

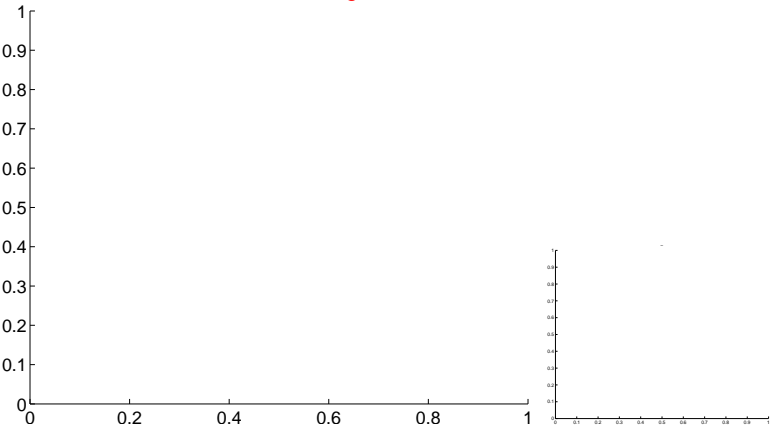


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

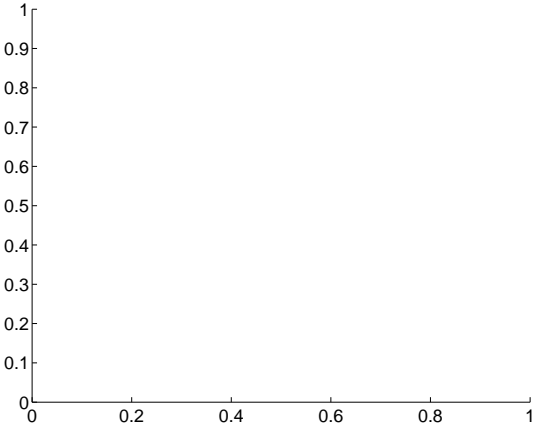
Q5 no difference image



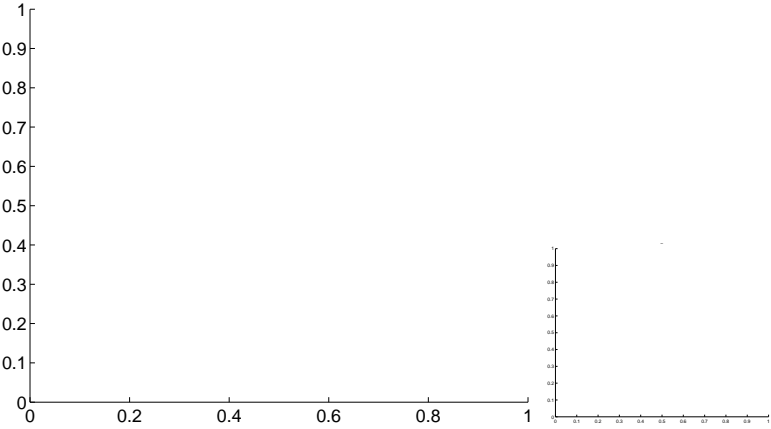
Q5 no OOT image



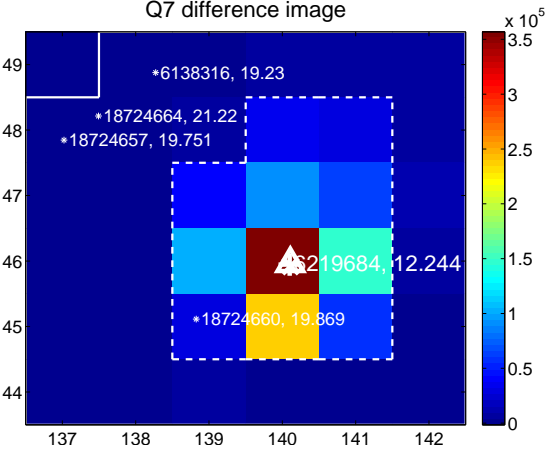
Q6 no difference image



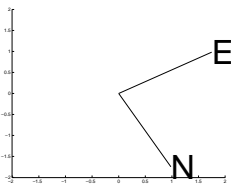
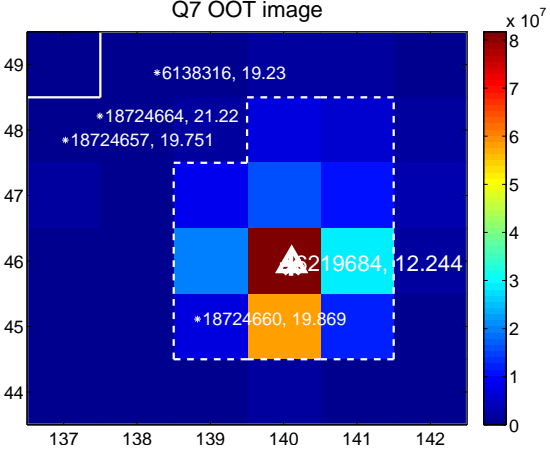
Q6 no OOT image



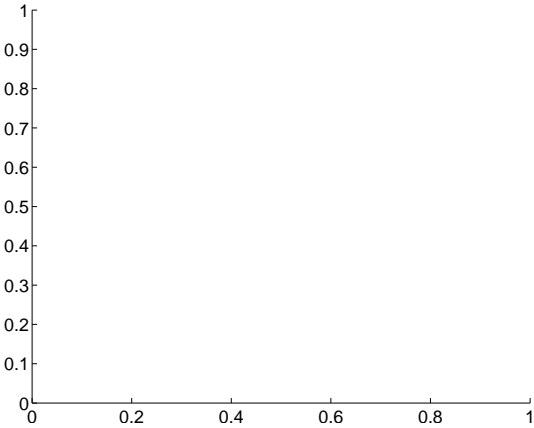
Q7 difference image



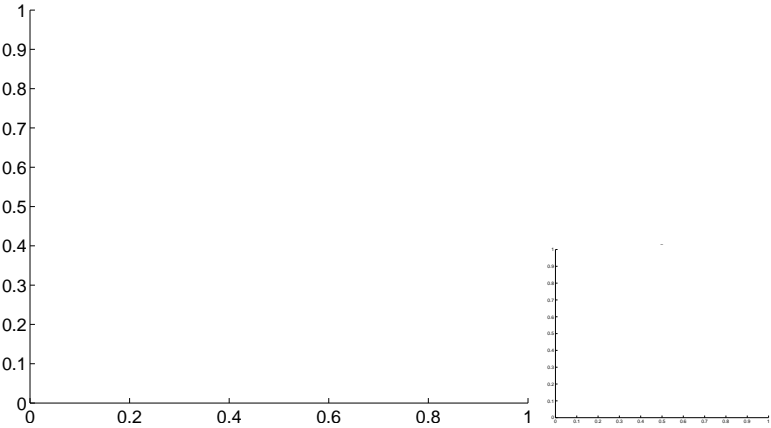
Q7 OOT image



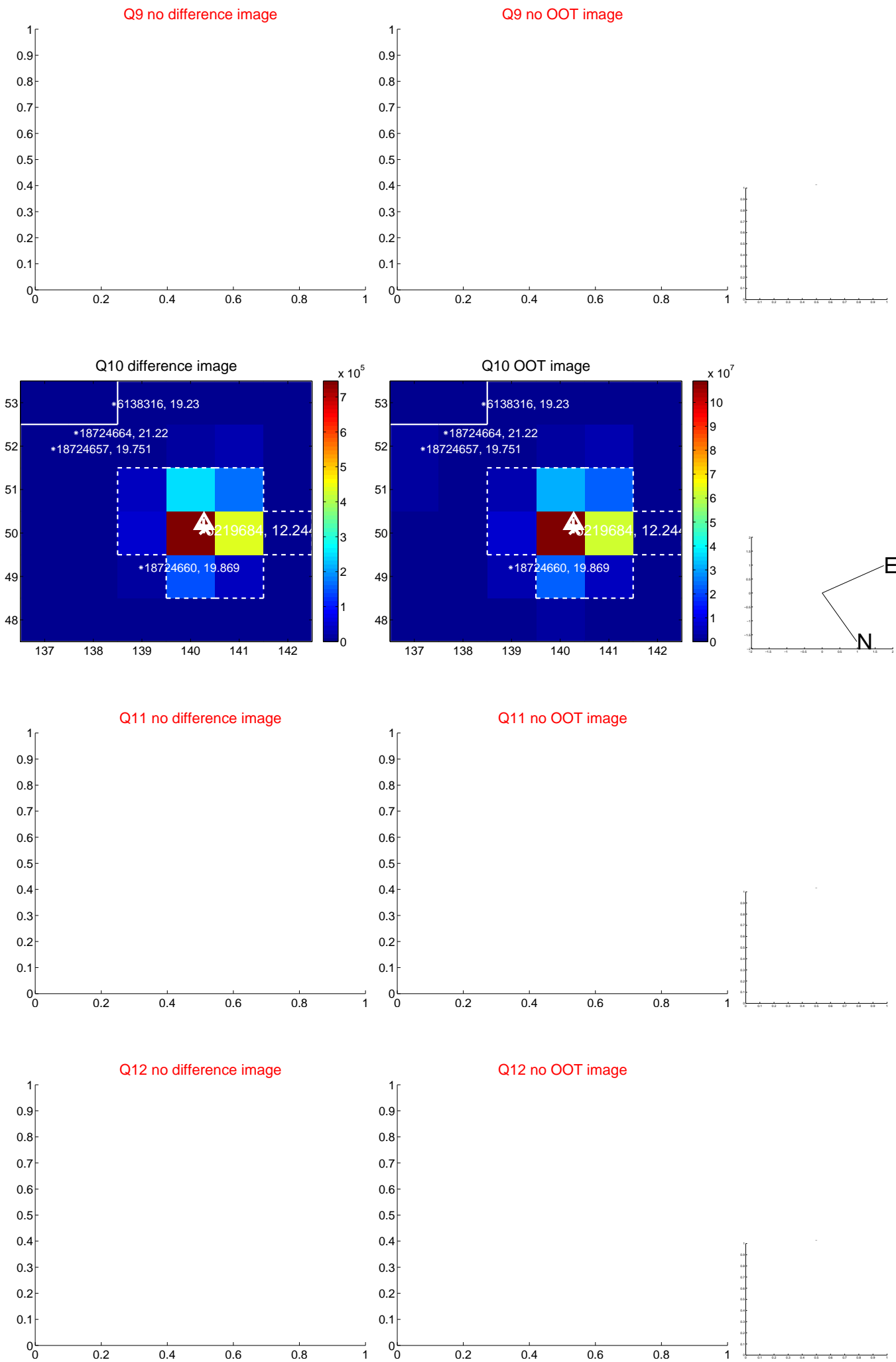
Q8 no difference image



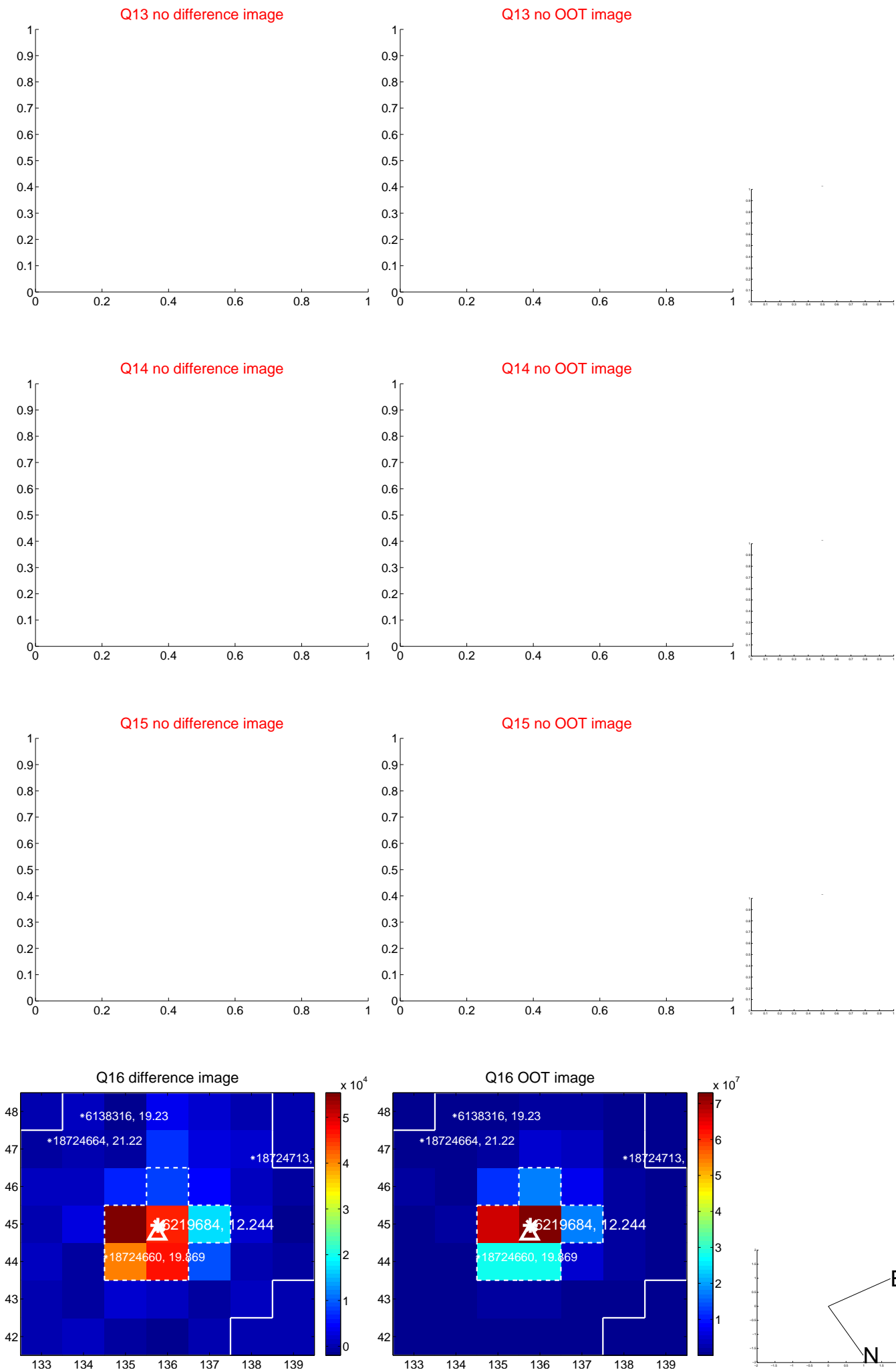
Q8 no OOT image



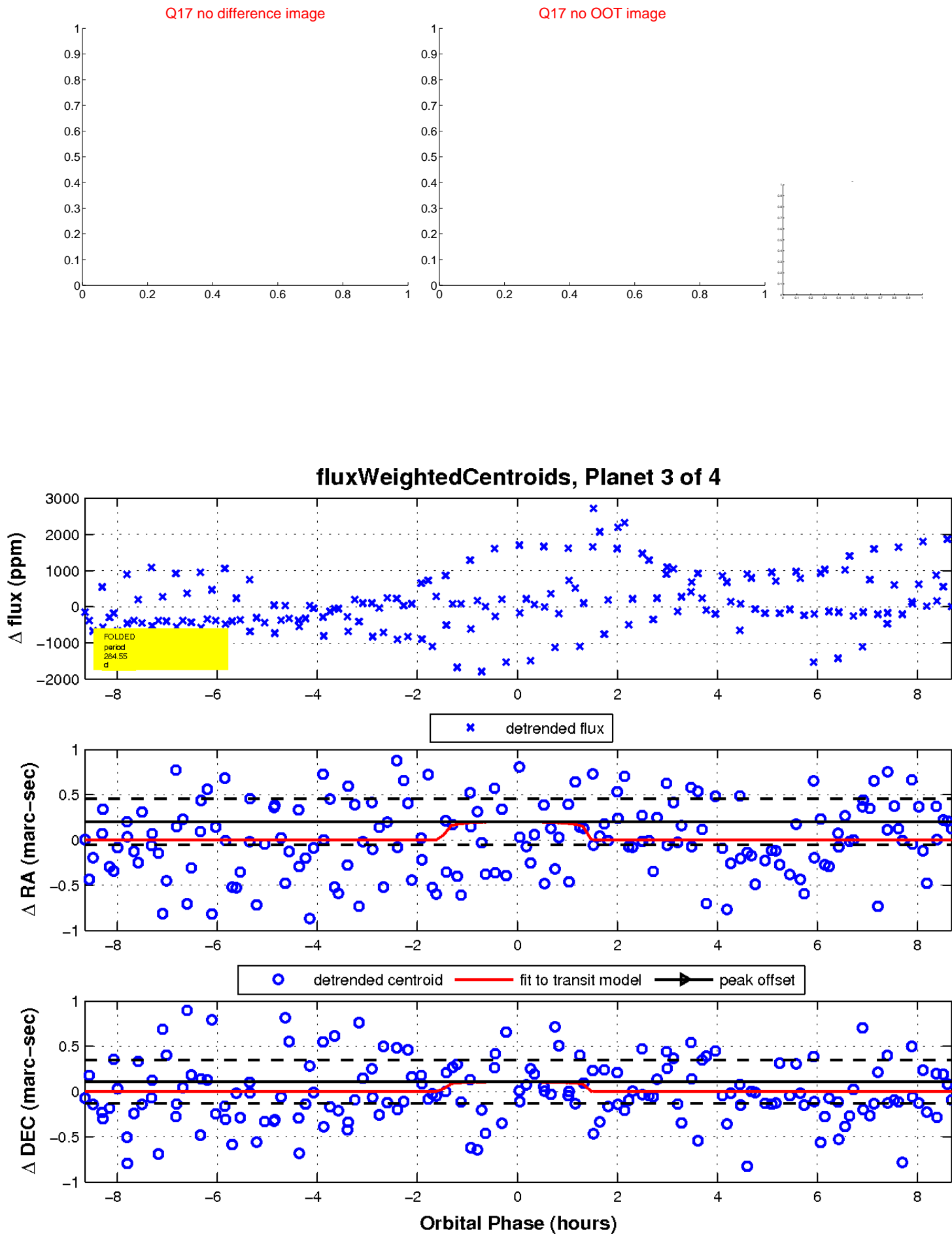
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



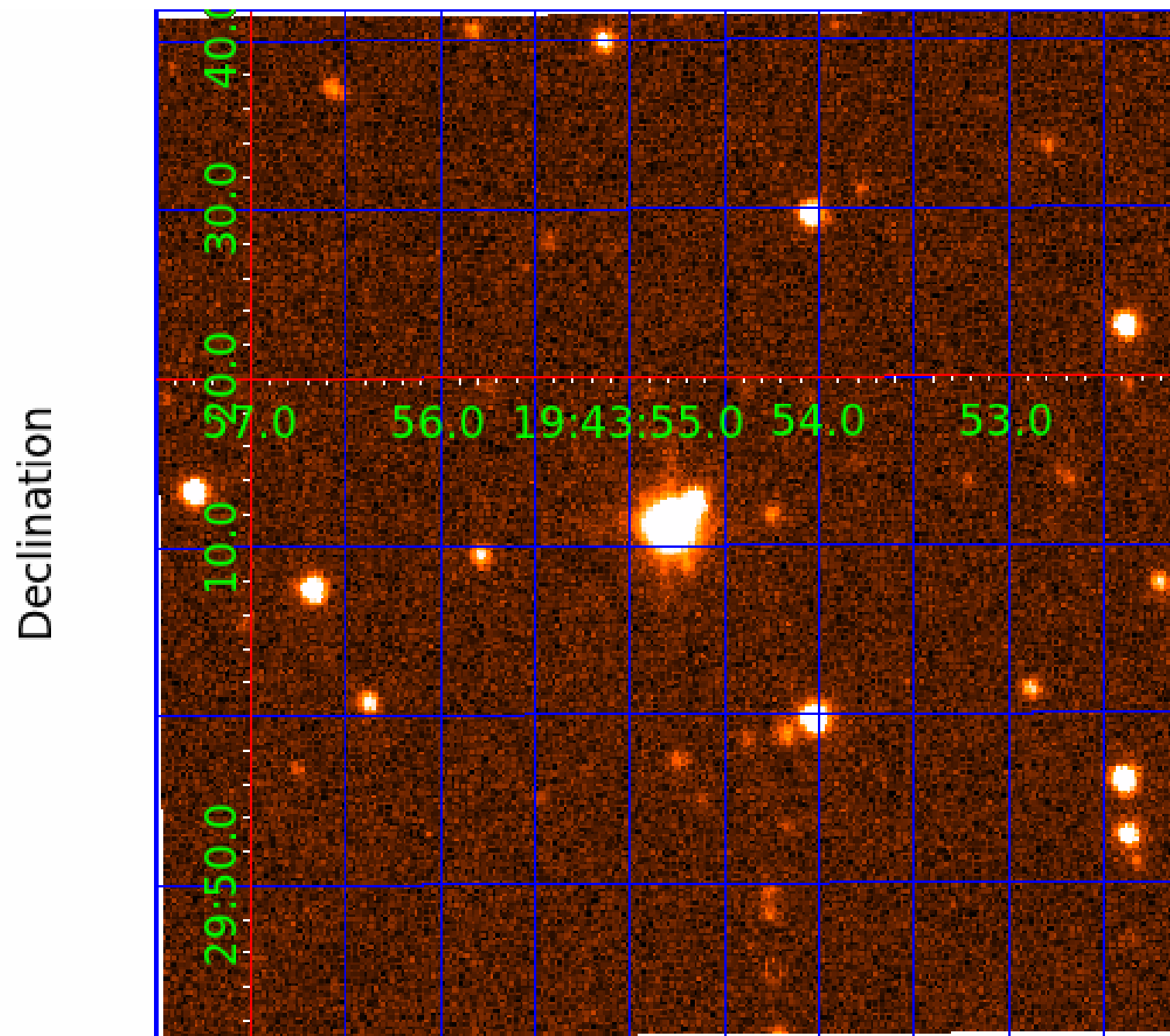
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006219684

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})
006219684-01	OBS	No	421.285192	363.272454	158.9	2.300	14.6	2.6	3.37	9611	4.46	36.75
006219684-02	OBS	No	473.516816	362.536353	18.9	1.113	13.6	0.2	3.37	9611	1.51	31.45
006219684-03	OBS	No	284.547061	363.728670	453.4	2.920	13.7	5.5	3.37	9611	7.37	62.02
006219684-04	OBS	No	1.644176	132.021450	37.9	13.426	9.7	5.2	3.37	9611	2.17	59810.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006219684-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006219684-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006219684-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
006219684-04	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV

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

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

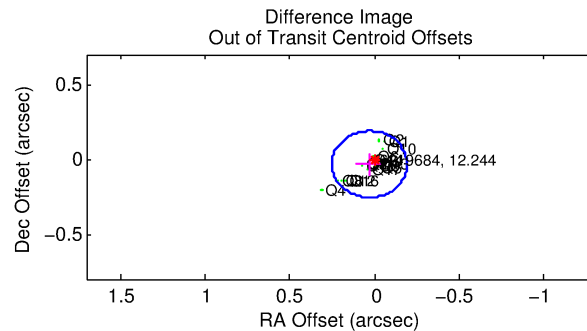
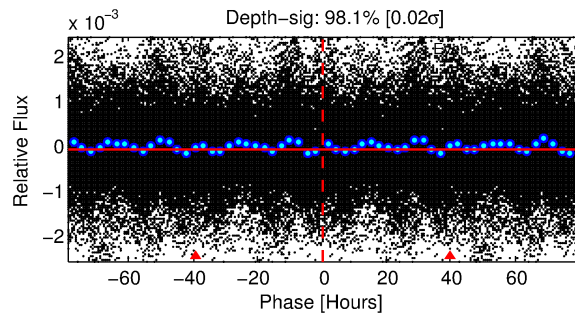
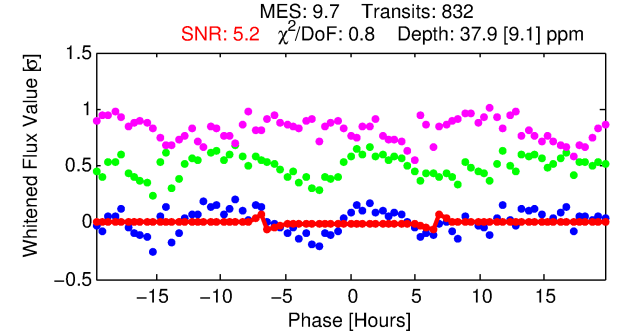
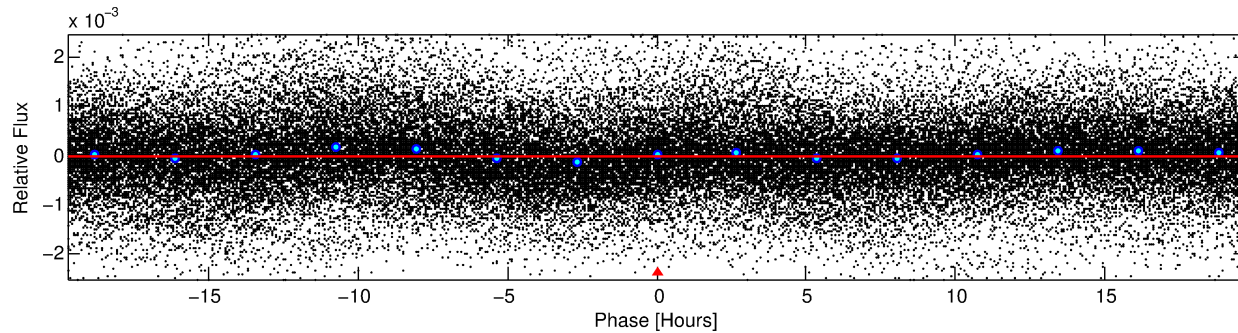
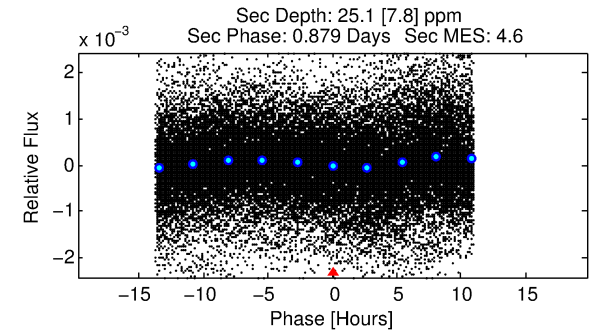
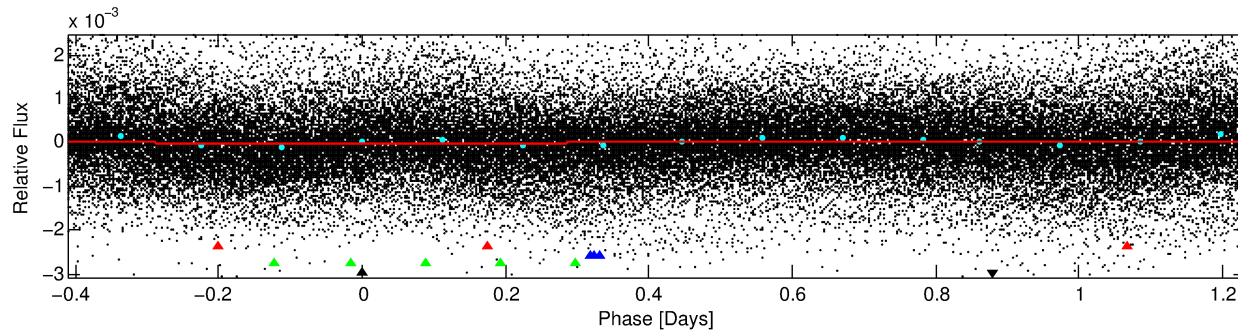
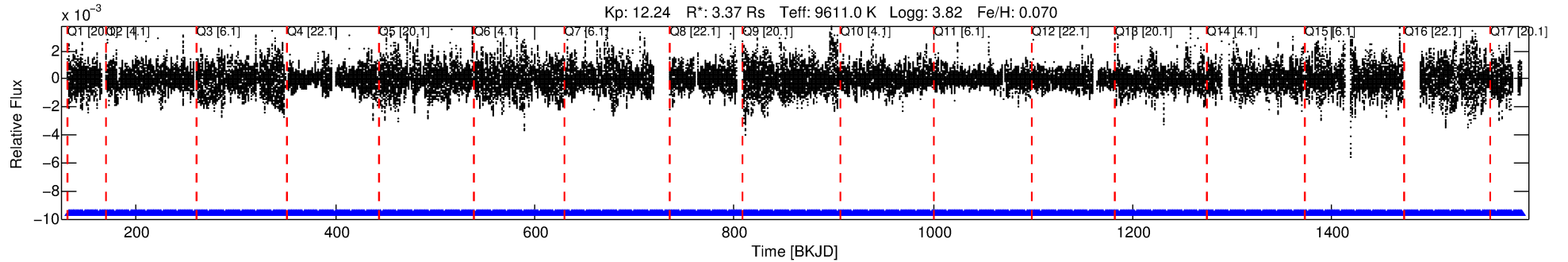
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006219684-04

No Significant Match Found

DV One-Page Summary

KIC: 6219684 Candidate: 4 of 4 Period: 1.644 d



DV Fit Results:

Period = 1.64418 [0.00002] d
Epoch = 132.0214 [0.0026] BKJD
Rp/R* = 0.0059 [0.0017]
a/R* = 1.11 [0.44]
b = 0.50 [3.05]
Seff = 59810.92 [43057.99]
Teq = 3988 [718] K
Rp = 2.16 [1.25] Re
a = 0.0381 [0.0171] AU
Ag = 4.27 [4.11] [0.80σ]
Teffp = 8861 [1539] K [2.87σ]

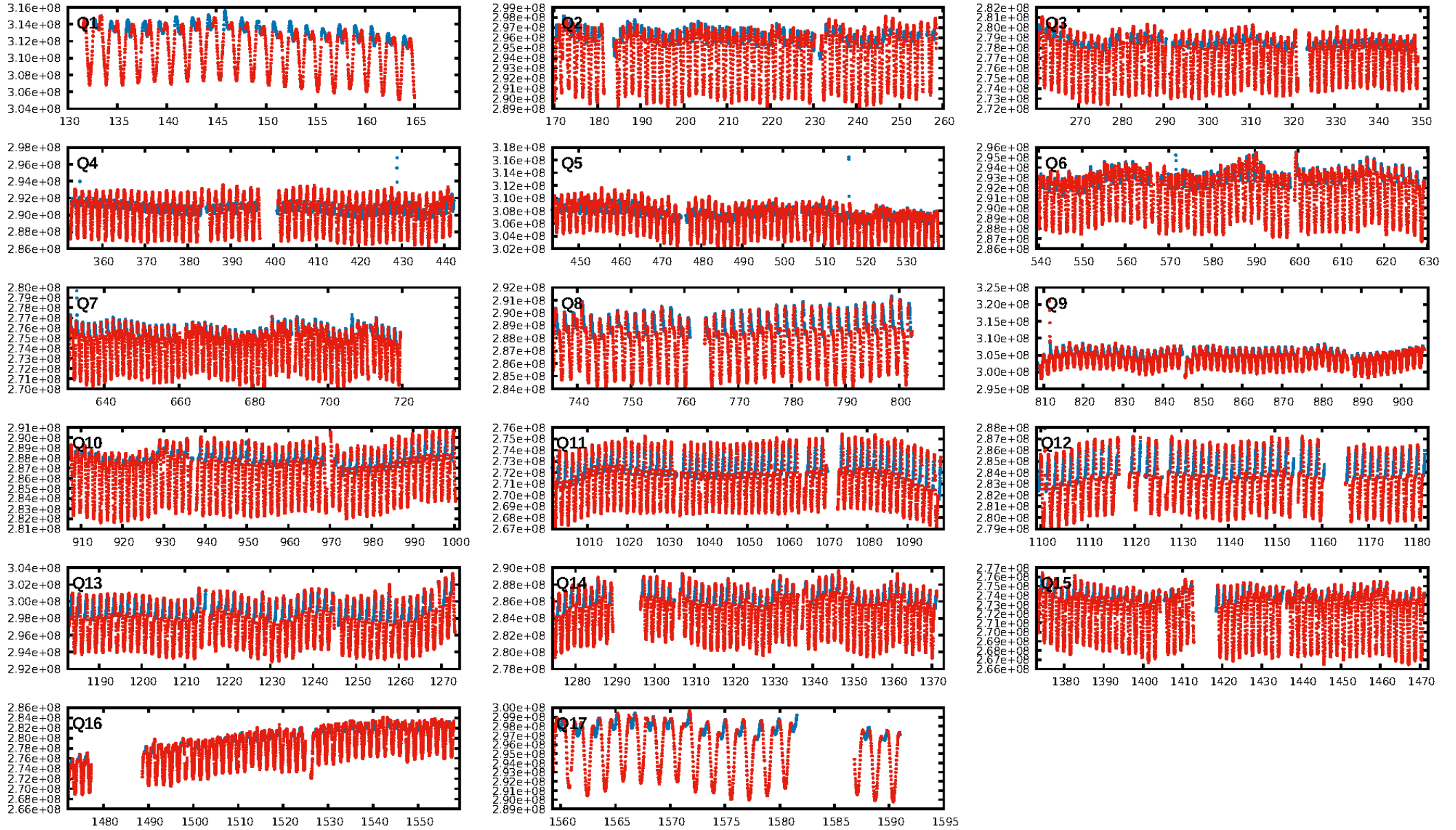
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [494.16σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [794/794]
GhostDiagnostic-chr: 1.221
Centroid-sig: 0.0%
Centroid-so: 1.342 arcsec [4.52σ]
OotOffset-rm: 0.046 arcsec [0.63σ]
KicOffset-rm: 0.118 arcsec [1.54σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

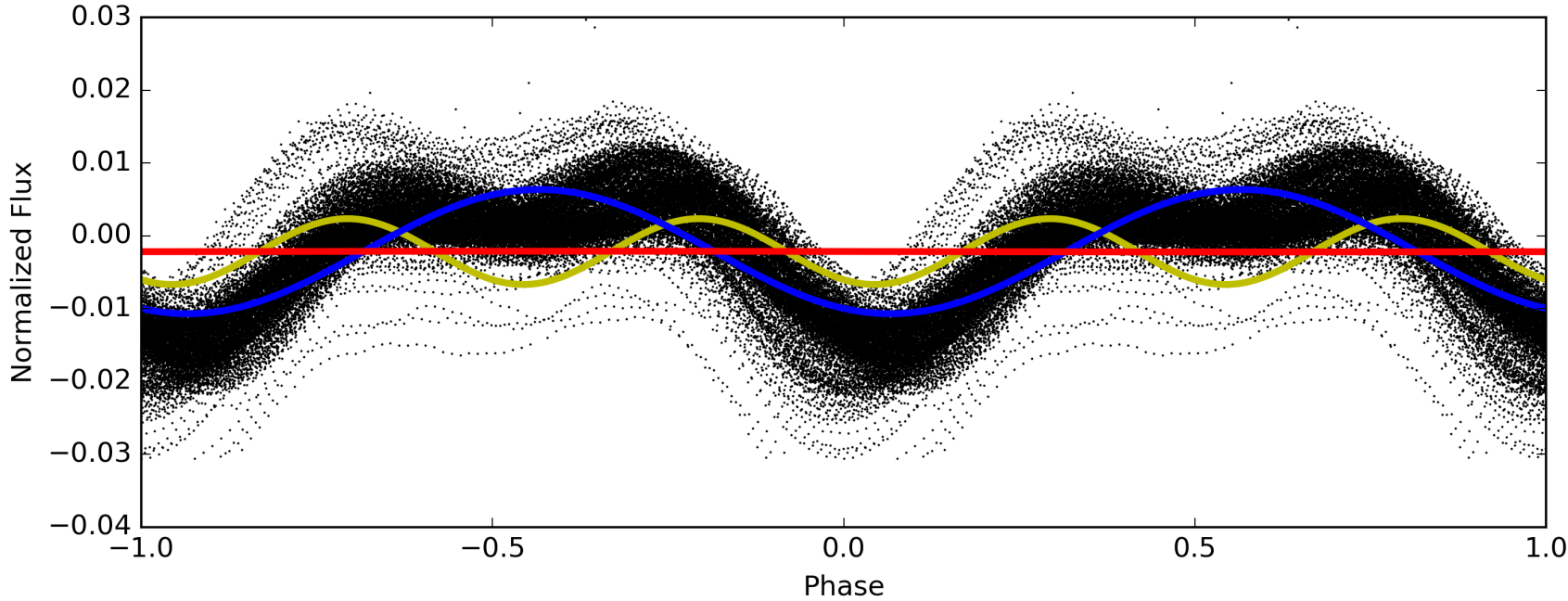
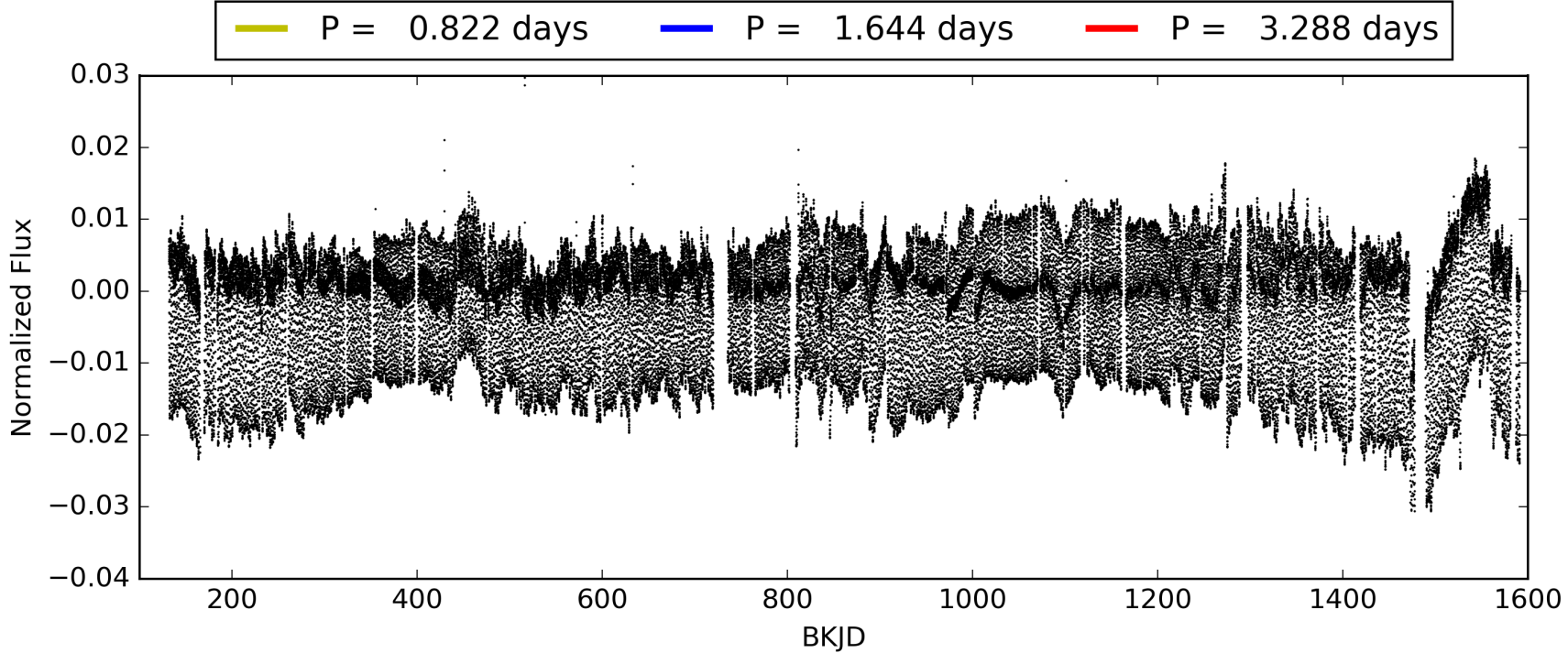
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:37:35 Z

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

TCE 006219684-04, PDC Light Curves

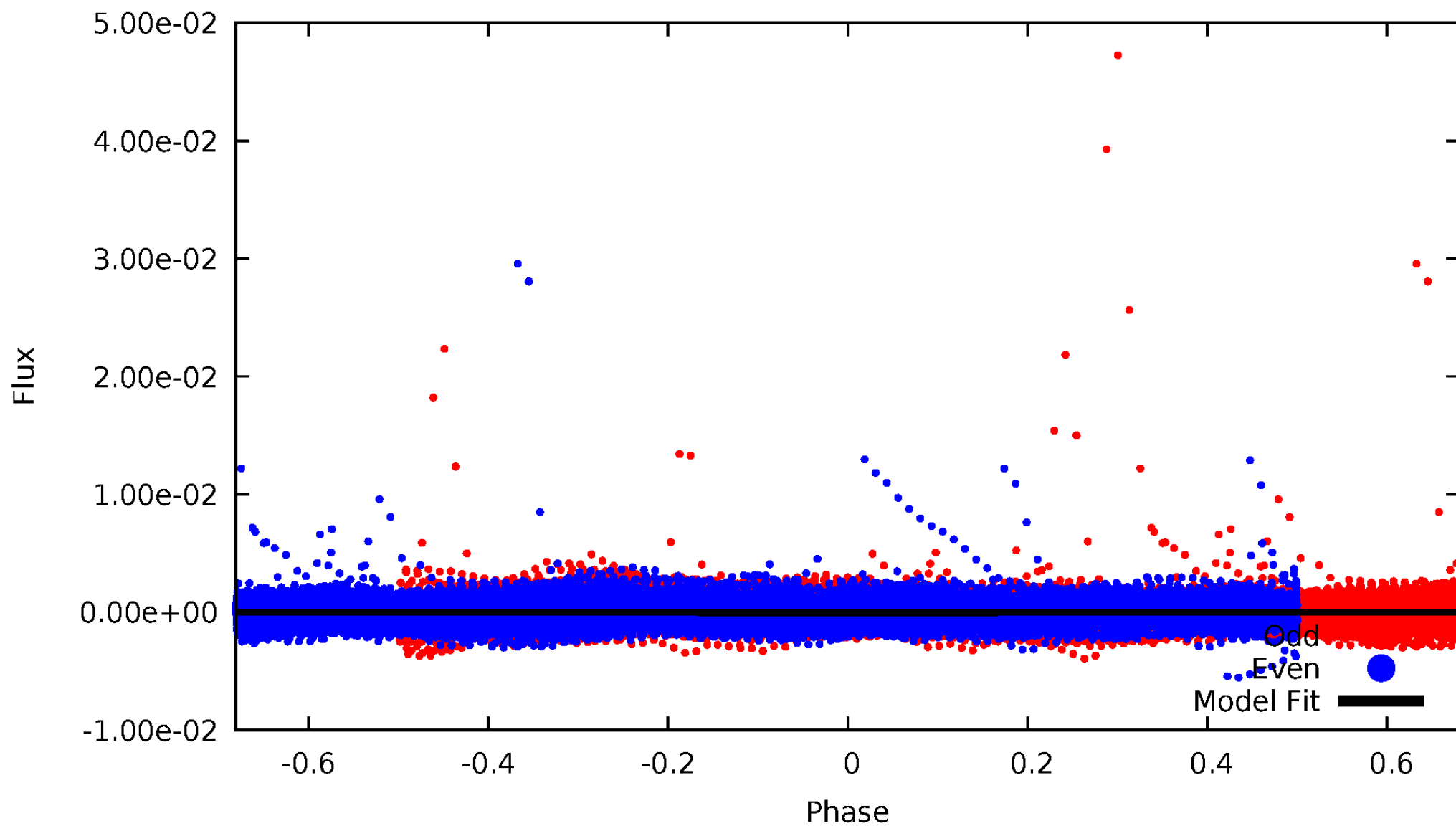


TCE 006219684-04



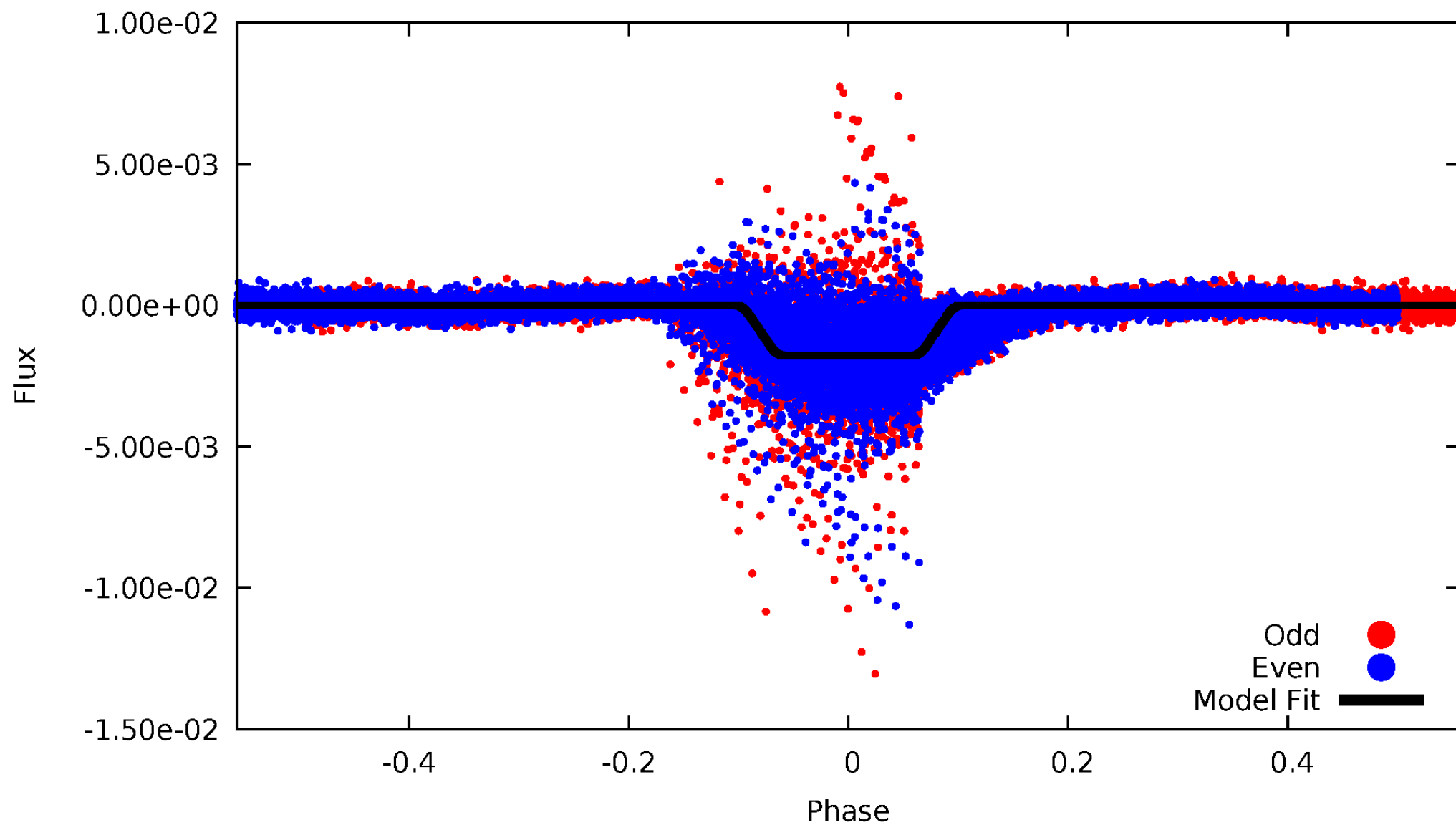
DV Odd/Even

TCE 006219684-04



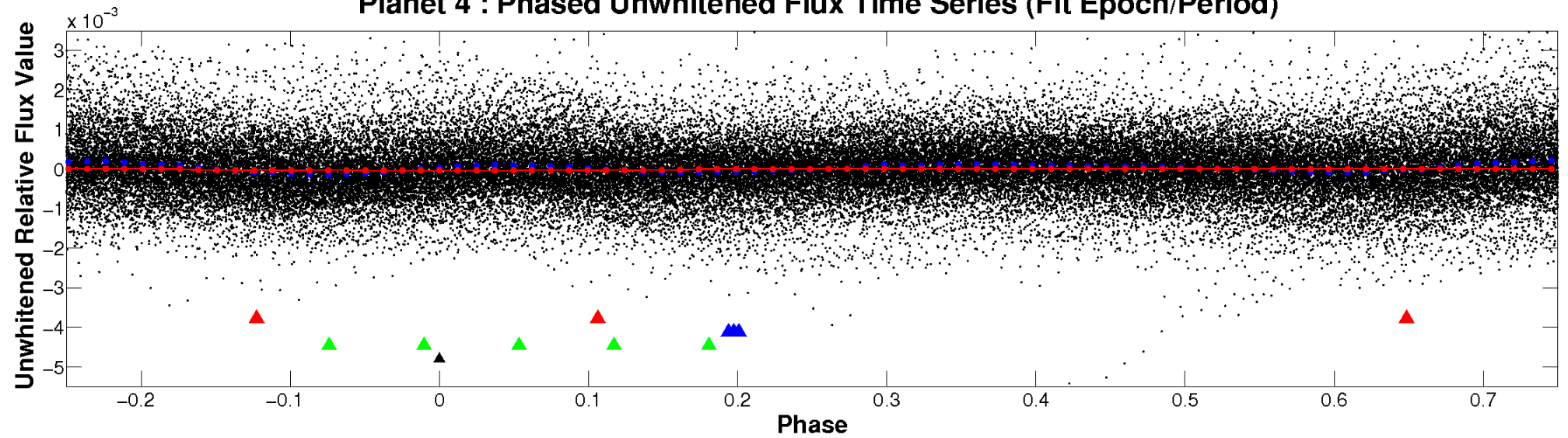
ALT Odd/Even

TCE 006219684-04

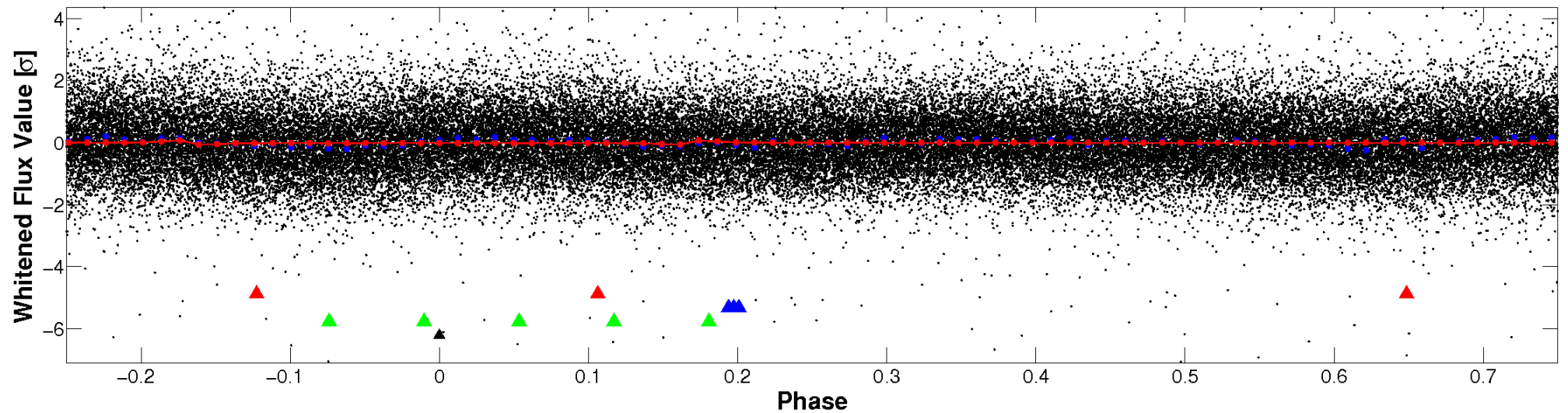


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

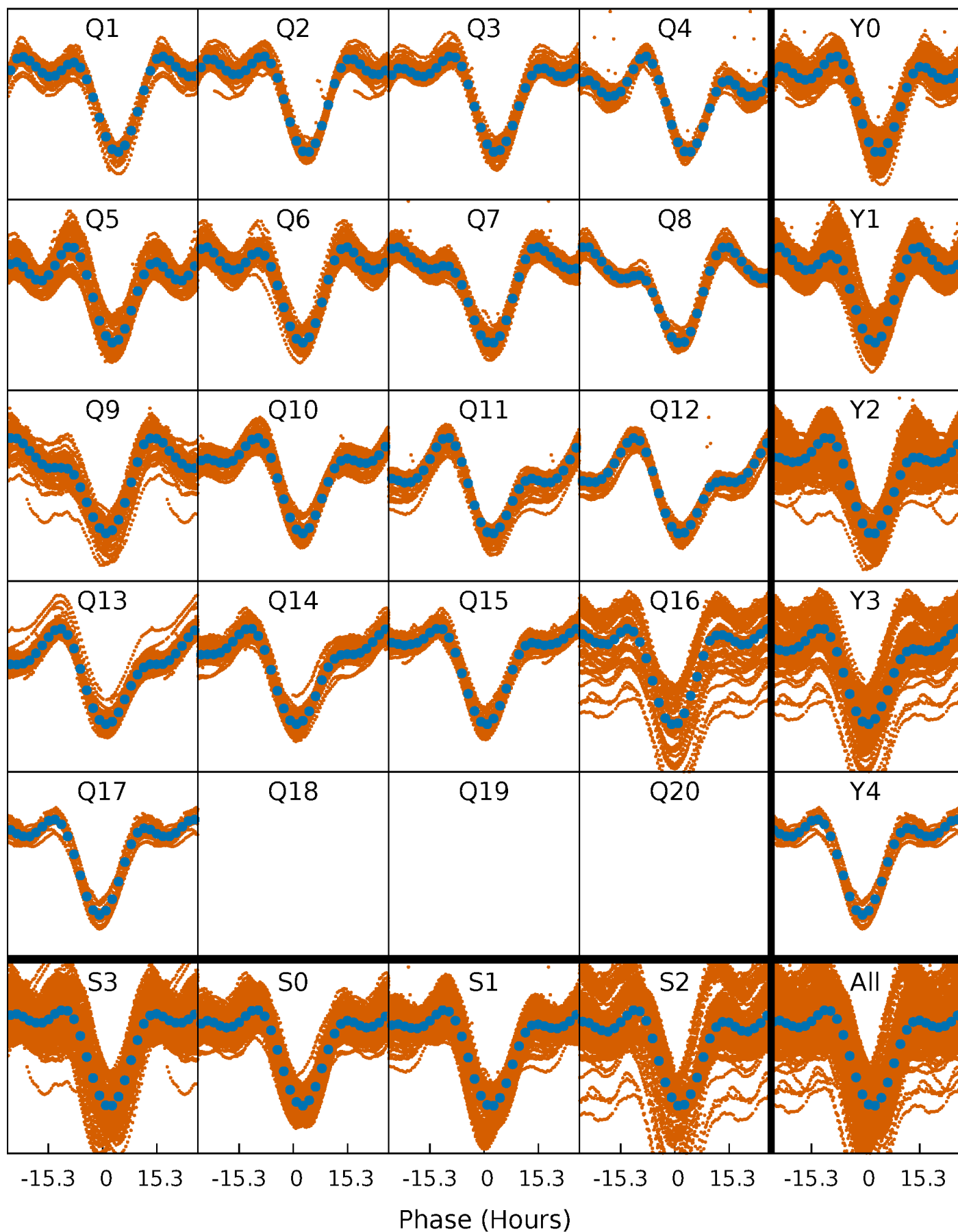


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



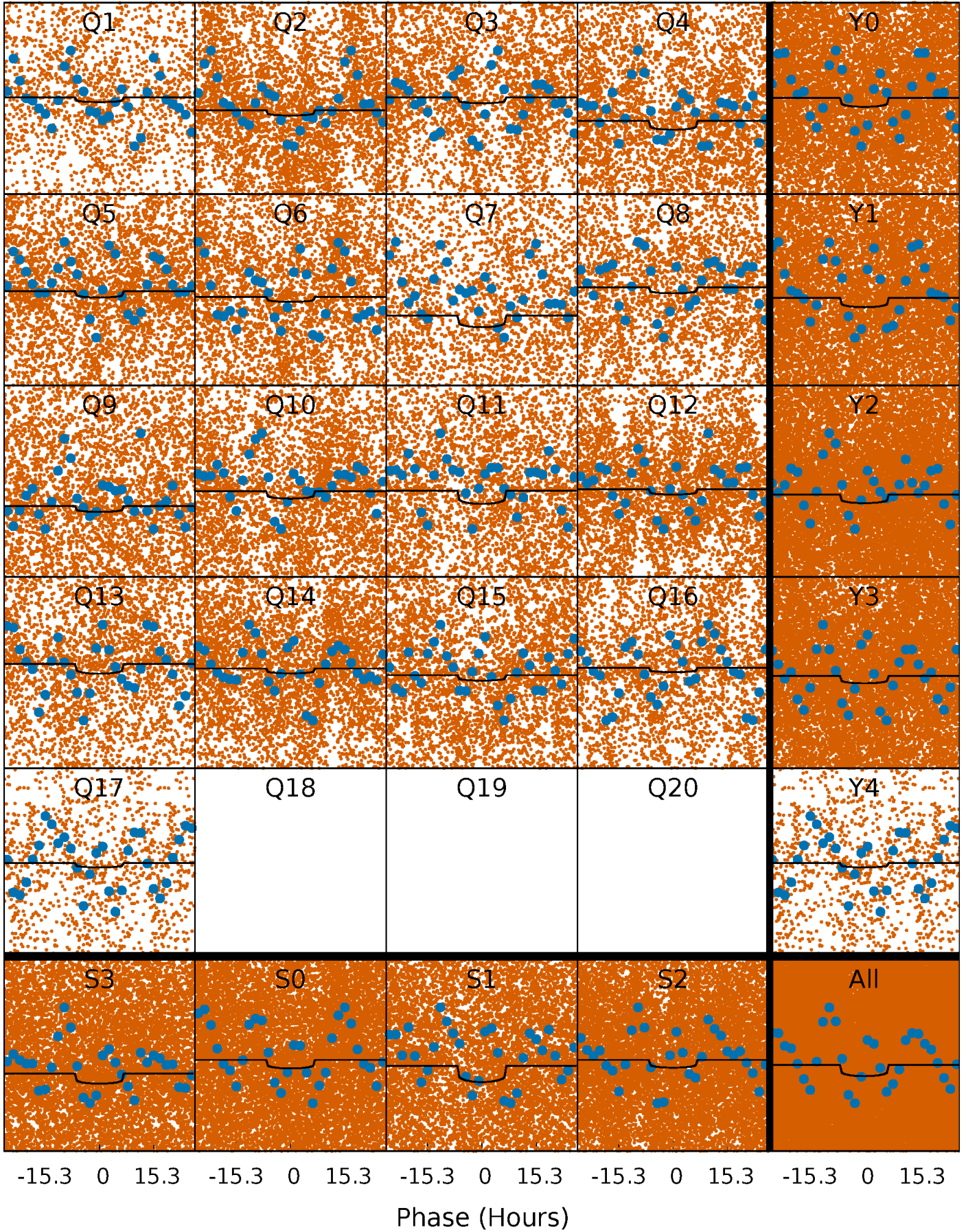
PDC Quarter-Phased Transit Curves

TCE 006219684-04 P= 1.644176 Days $T_0=132.021450$ (BKJD)



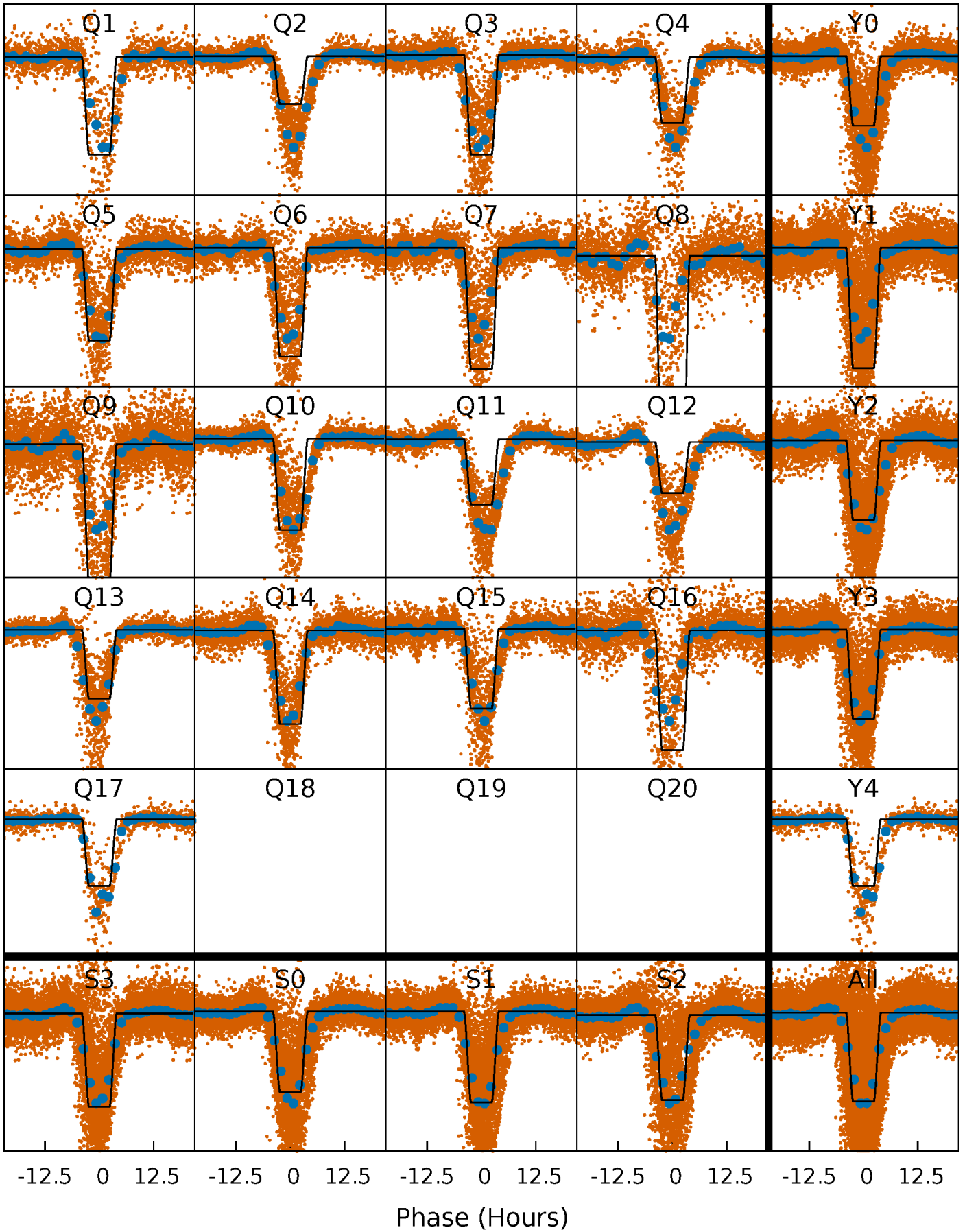
DV Quarter-Phased Transit Curves

TCE 006219684-04 P= 1.644176 Days $T_0=132.021450$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

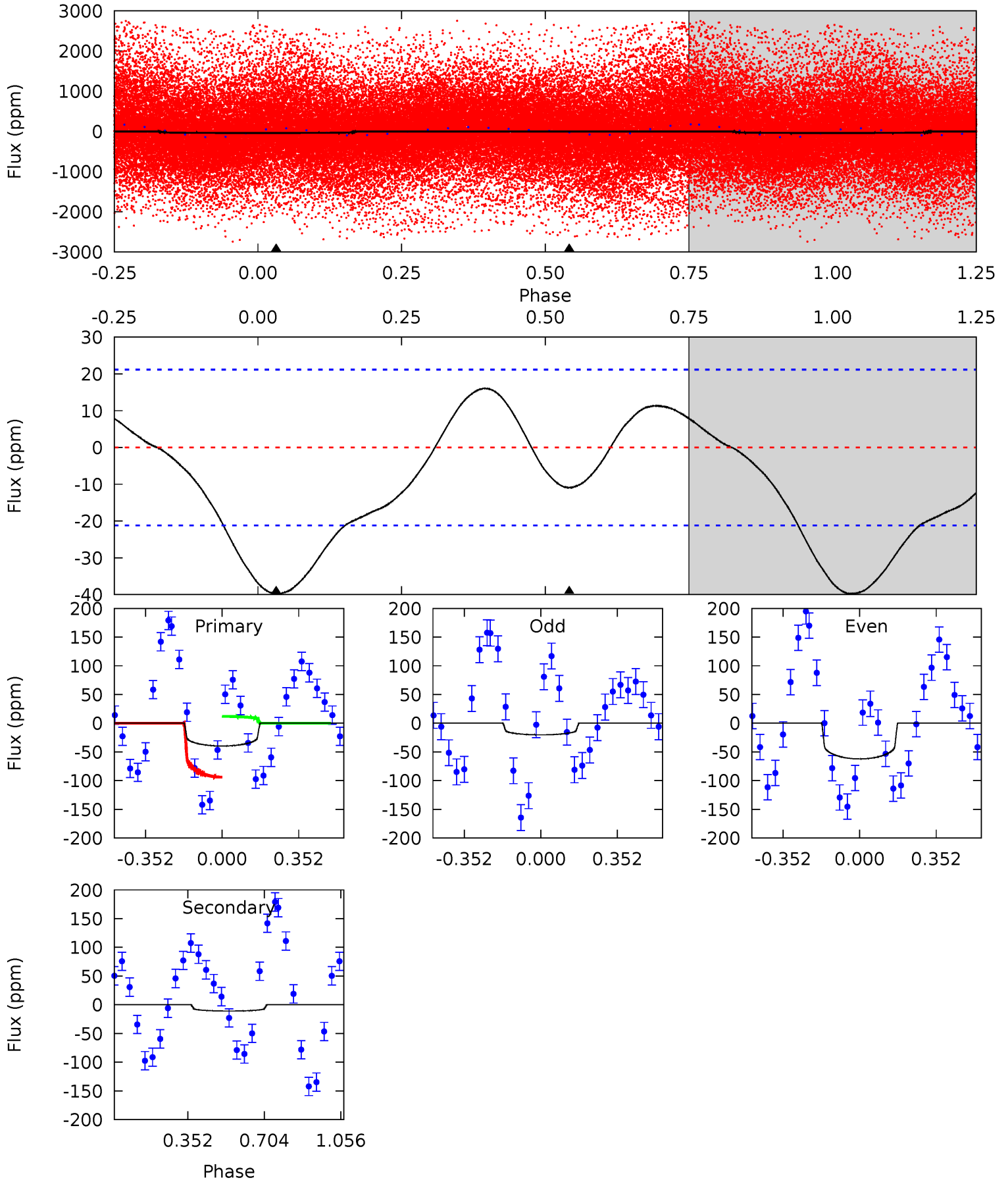
TCE 006219684-04 $P = 1.643999$ Days $T_0 = 132.042438$ (BKJD)



DV Model-Shift Uniqueness Test

006219684-04, P = 1.644176 Days, E = 130.377274 Days

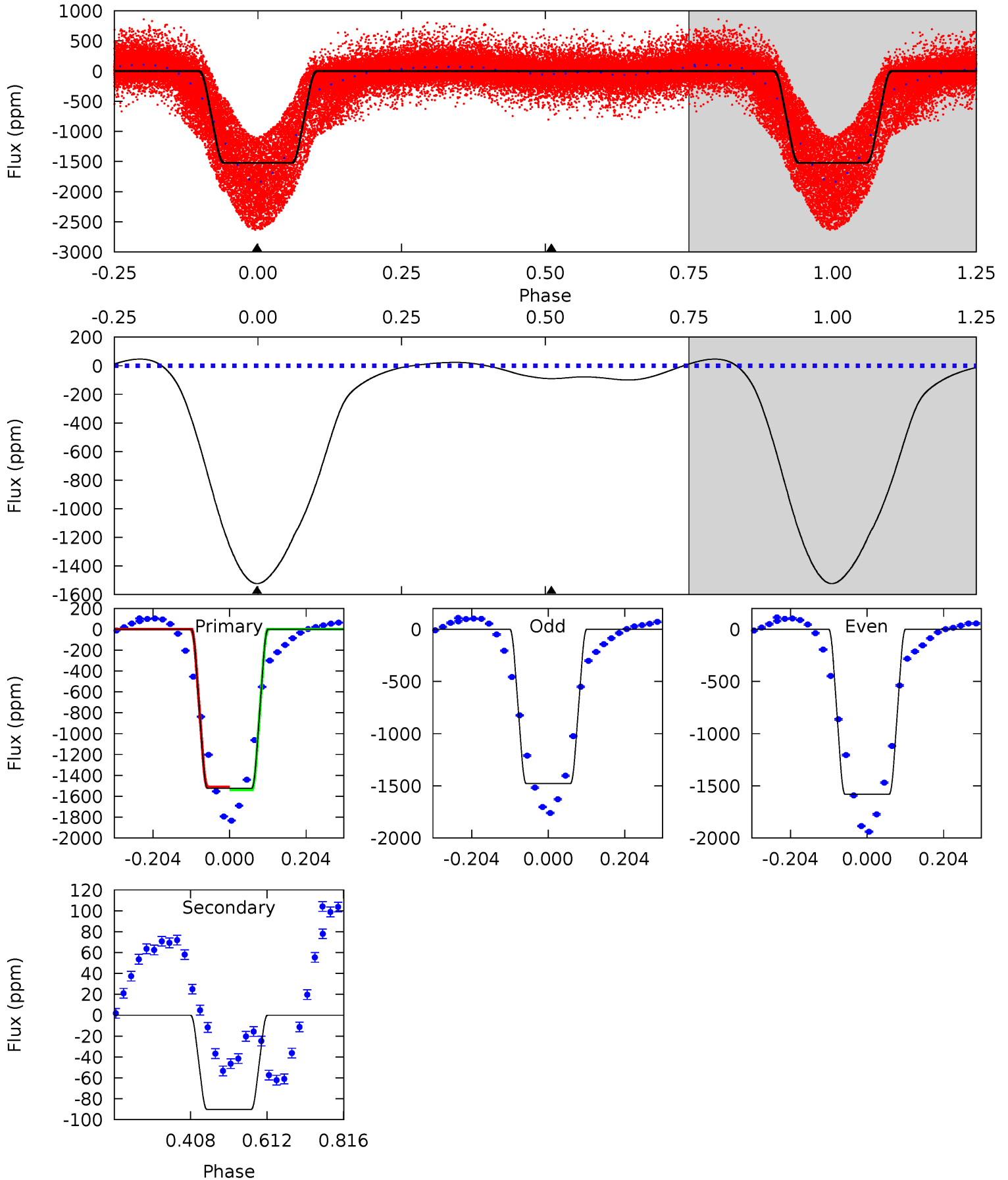
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.05	2.22	0	0	4.29	0.93	1.09	8.05	8.05	2.22	2.22	4.28	0.19	0.29	8.41



Alt Model-Shift Uniqueness Test

006219684-04, P = 1.643999 Days, E = 130.398439 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
797.8	47.3	0	0	4.41	1.27	15.7	797.8	797.8	47.3	47.3	26.4	1.05	0.03	7.28



Stellar Parameters For KIC 006219684

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9611^{+269}_{-461}	$3.818^{+0.397}_{-0.132}$	$0.070^{+0.150}_{-0.750}$	$3.366^{+0.902}_{-1.675}$	$2.719^{+0.336}_{-1.008}$	$0.101^{+0.400}_{-0.042}$
	+3%/-5%	+10%/-3%	+214%/-1071%	+27%/-50%	+12%/-37%	+398%/-41%
Source	KIC0	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 006219684-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 5	$1.97^{+0.80}_{-0.67}$	5377^{+474}_{-628}	6360^{+1708}_{-1393}	$2.178^{+2.925}_{-1.314}$
Alt.	-90 ± 2	$14.91^{+2.33}_{-3.81}$	5387^{+475}_{-639}	2928^{+889}_{-6312}	$0.327^{+0.194}_{-0.076}$

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

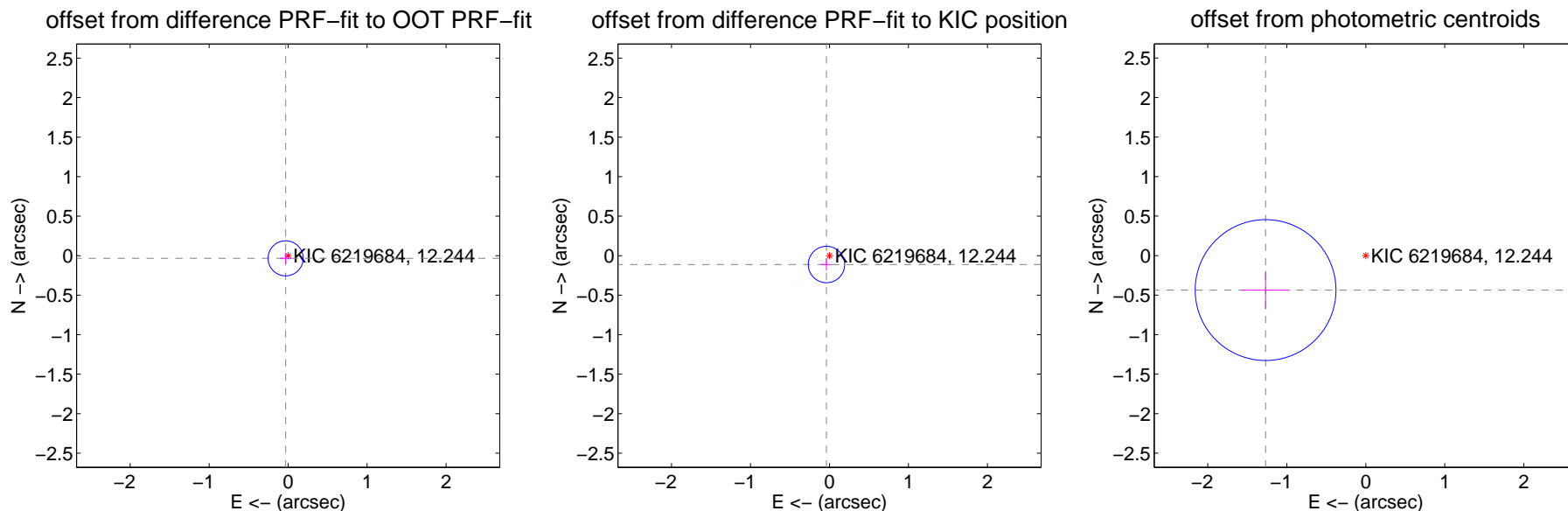
DV Centroid Data

Supplemental centroid analysis for 006219684-04. Kepler magnitude: 12.24. Transit SNR 5.22

There are 17 quarters with good PRF difference image offsets

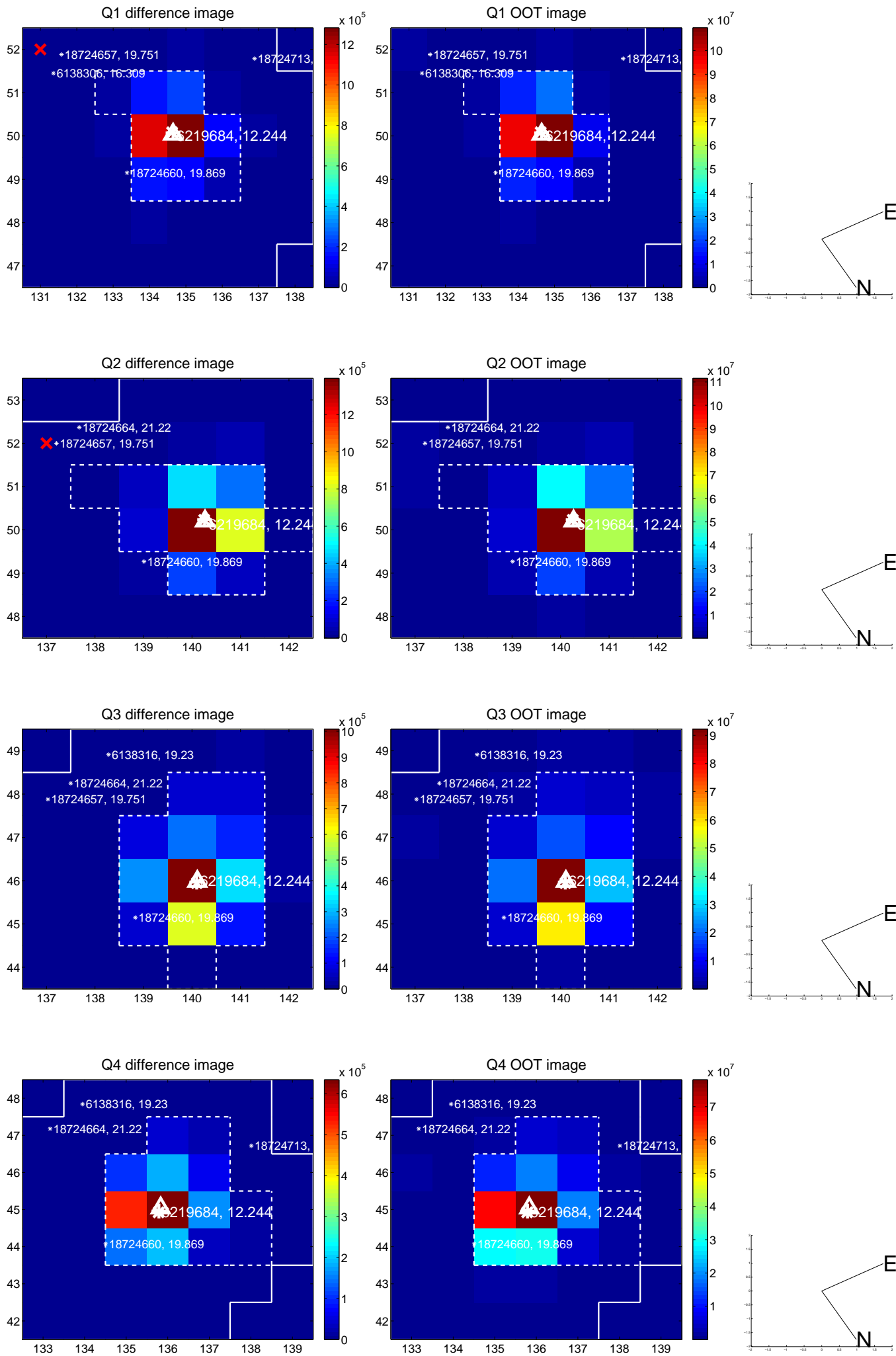
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.046 ± 0.074	0.63	0.032 ± 0.071	-0.034 ± 0.070
PRF-fit source offset from KIC position	0.118 ± 0.077	1.54	0.038 ± 0.072	-0.112 ± 0.075
photometric centroid source offset	1.34 ± 0.30	4.52	1.27 ± 0.30	-0.44 ± 0.24

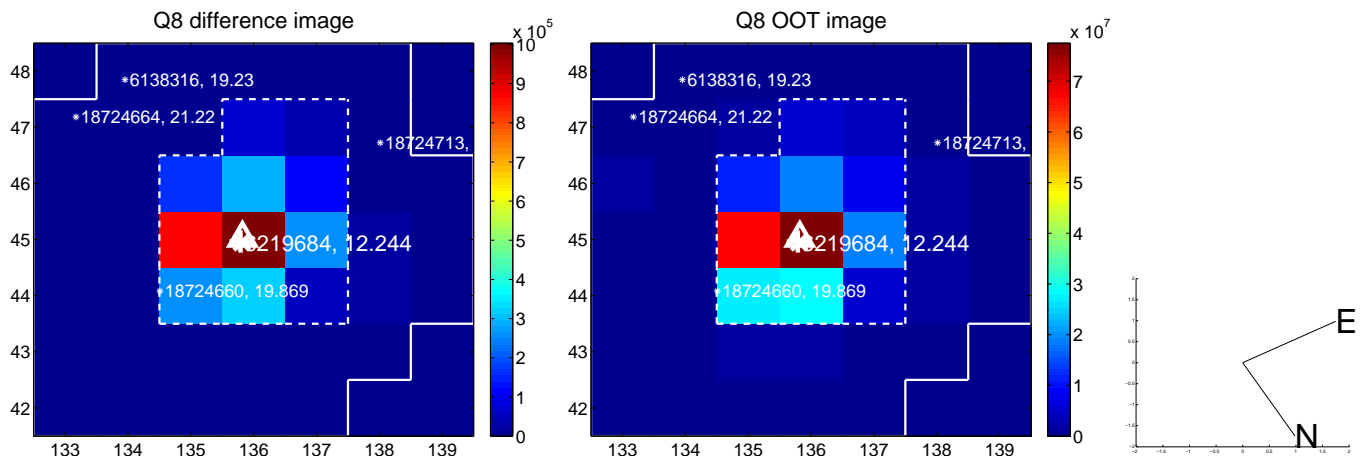
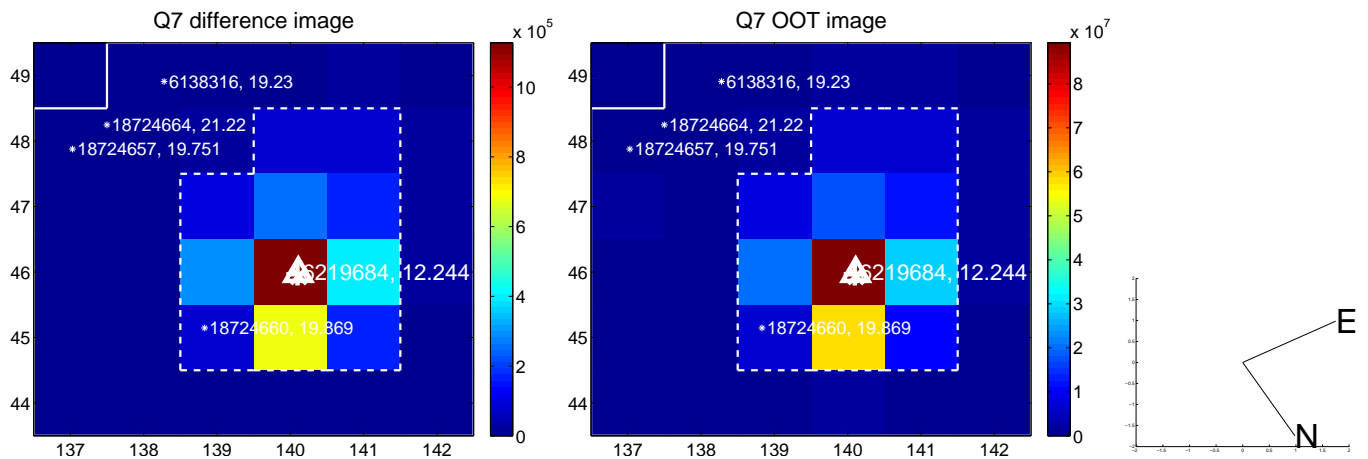
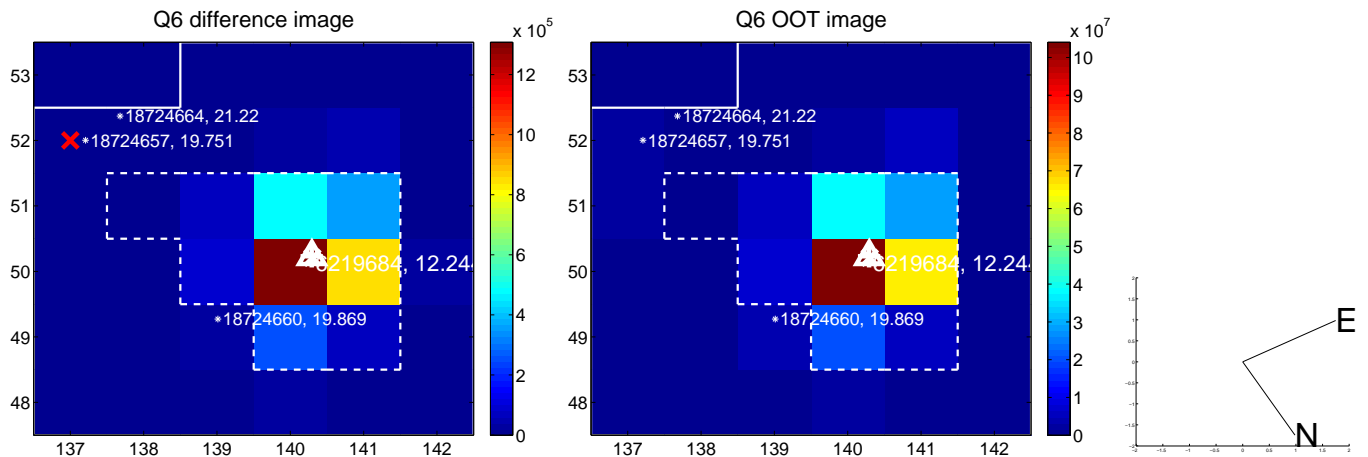
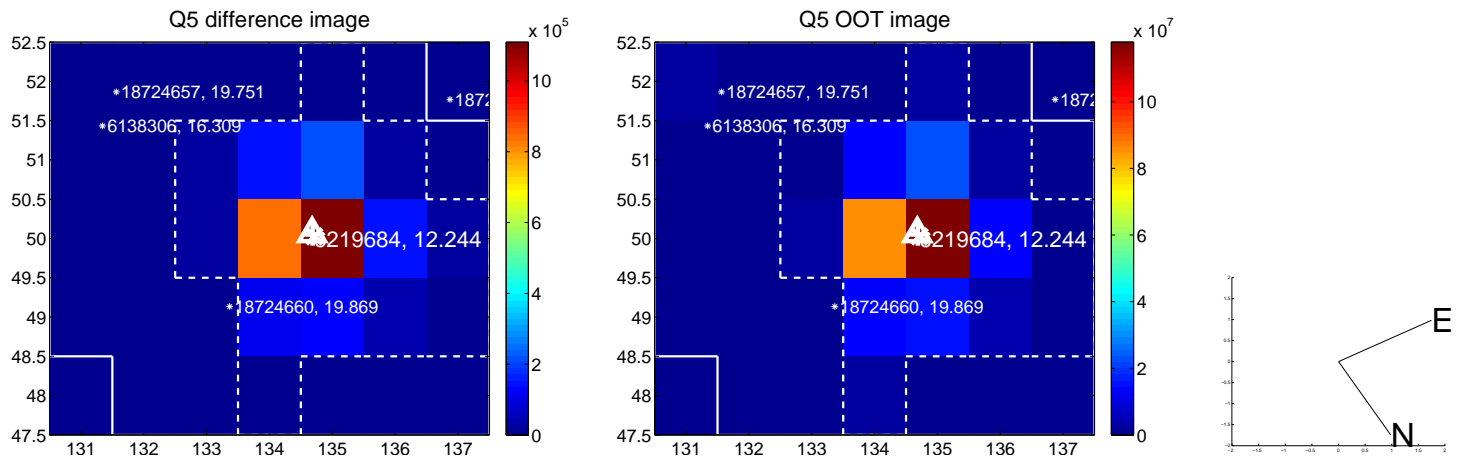


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

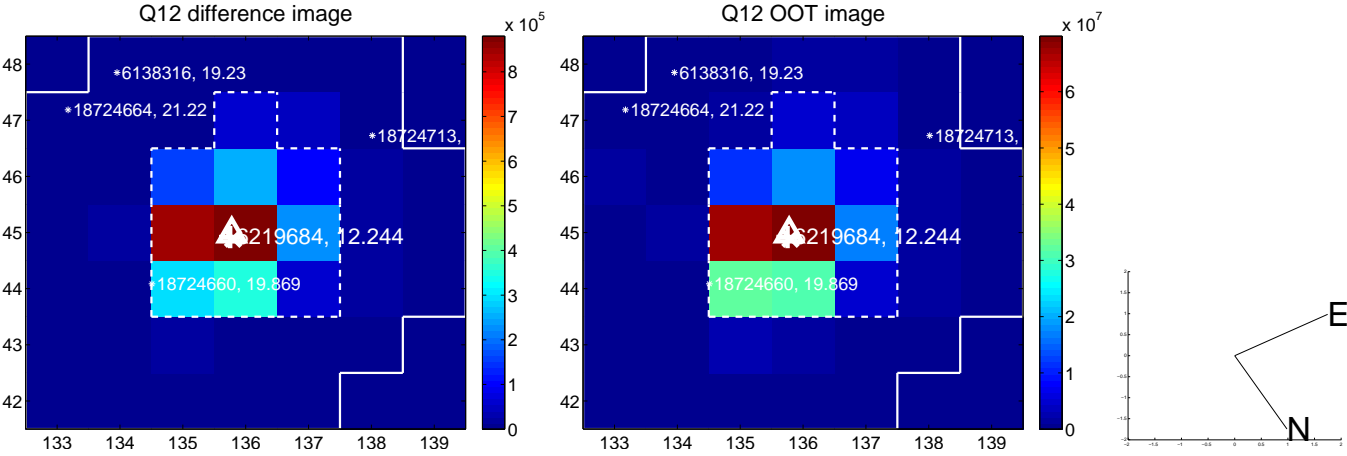
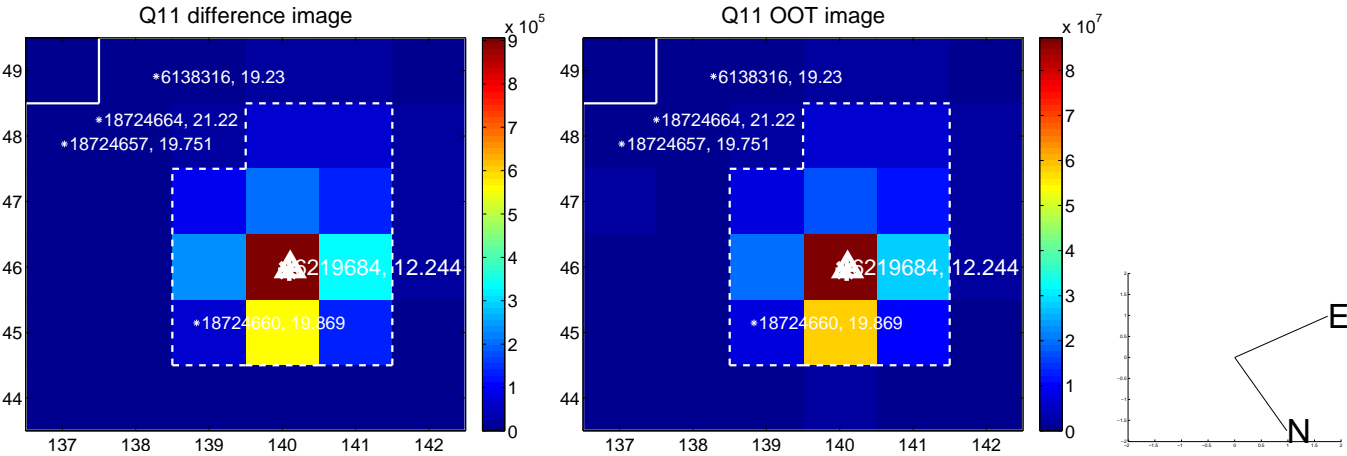
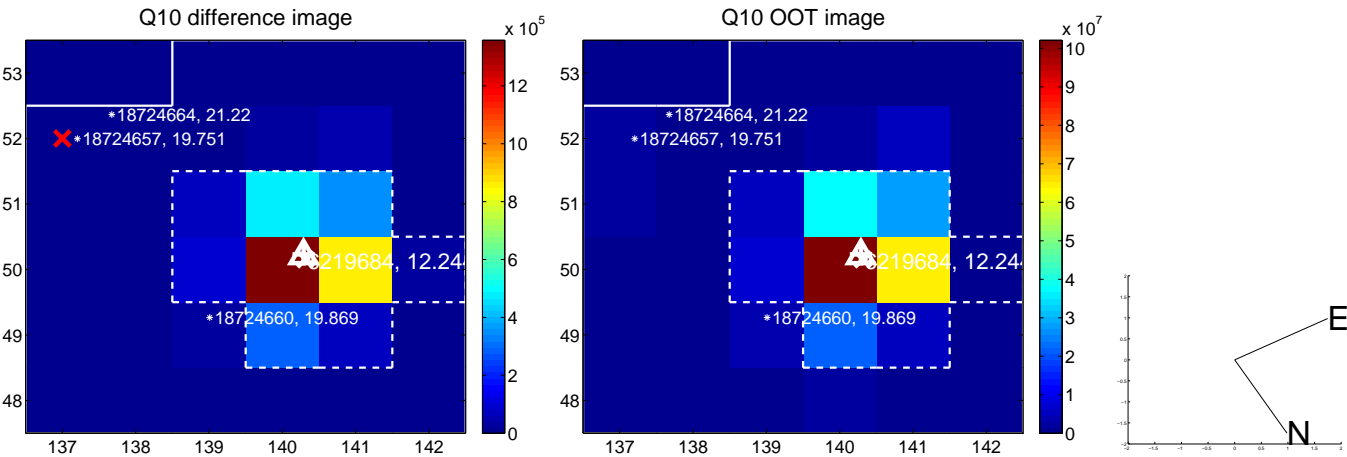
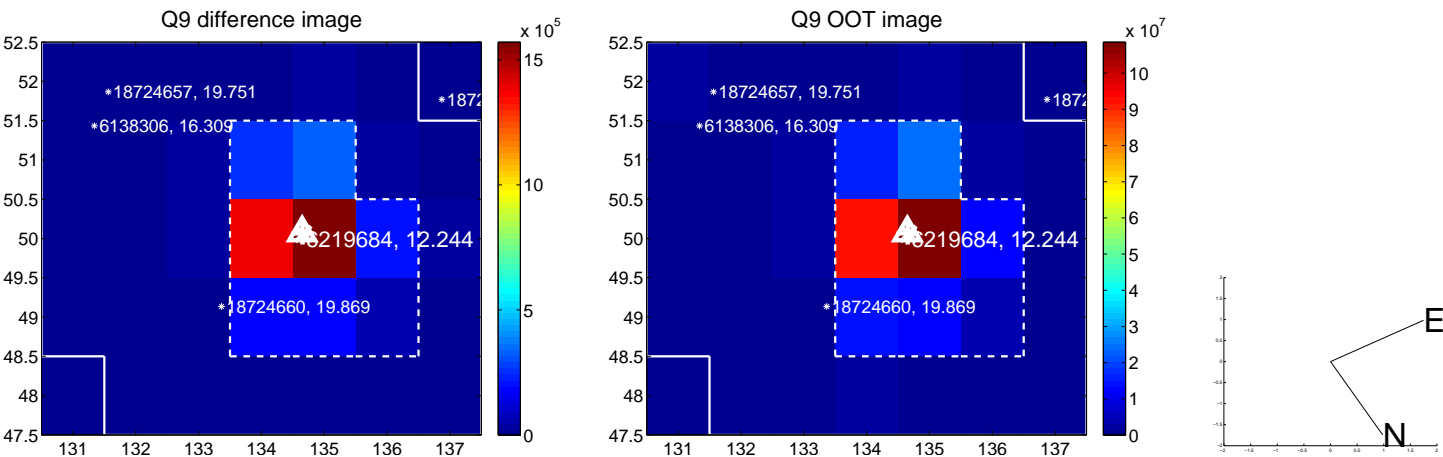
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



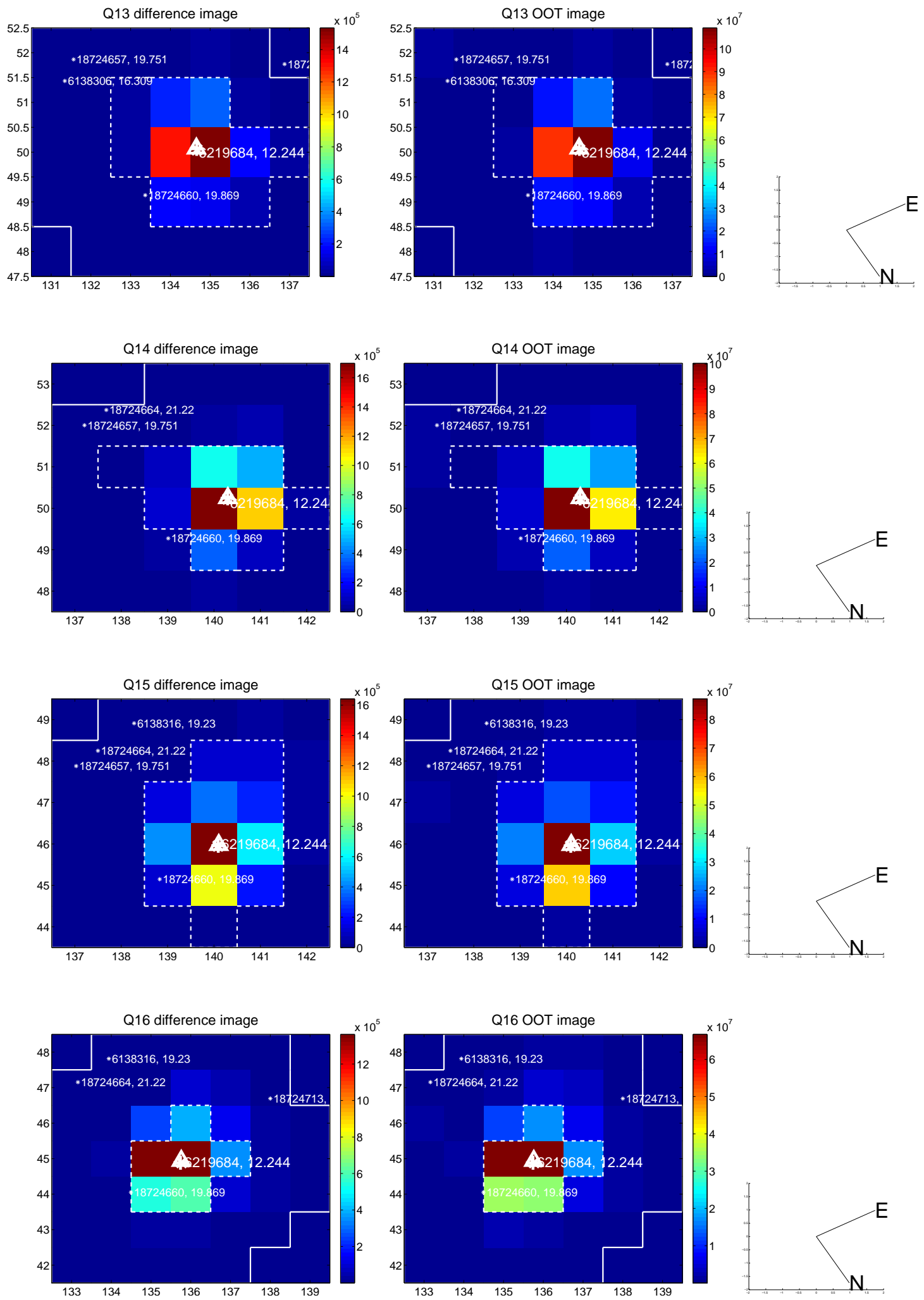
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



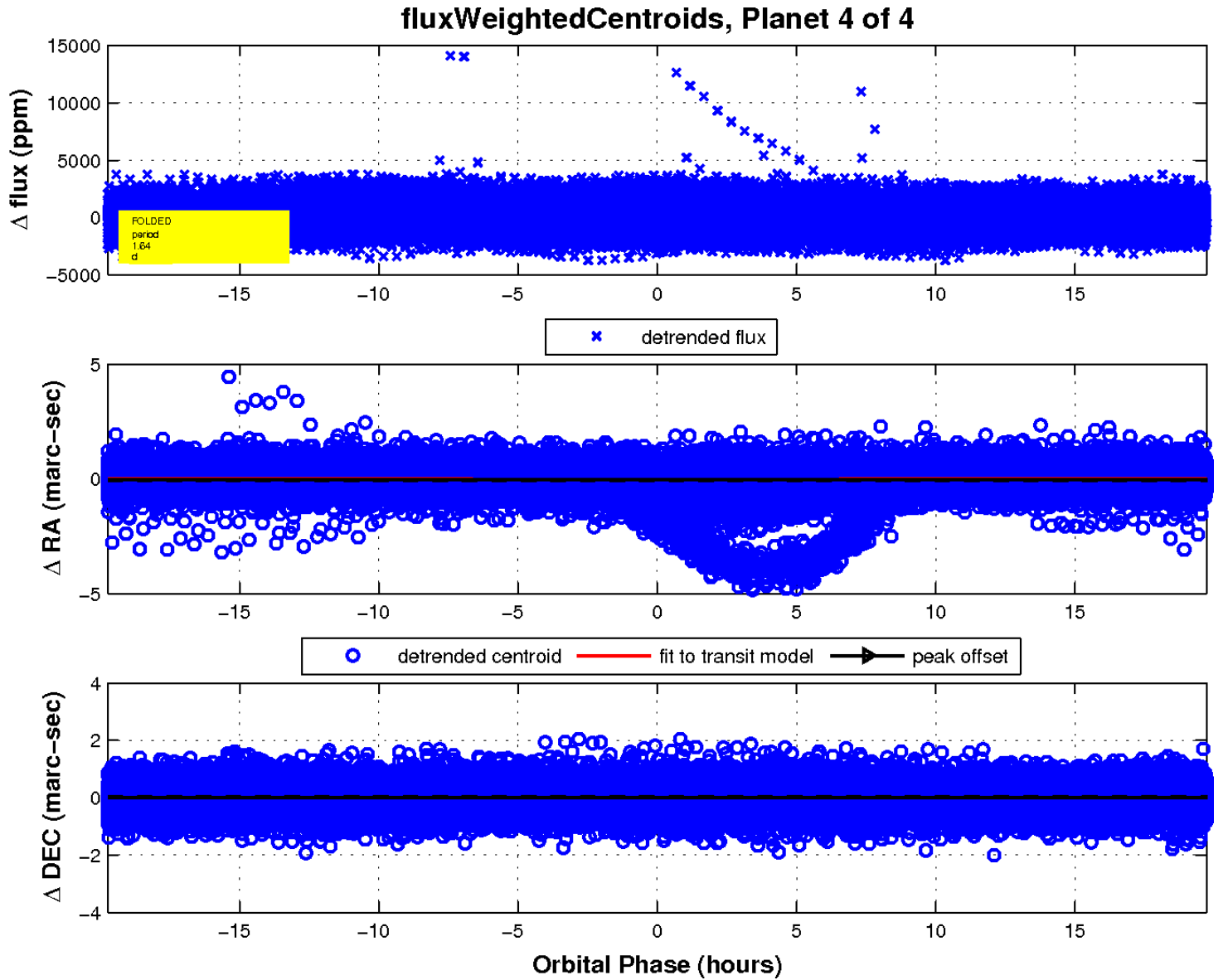
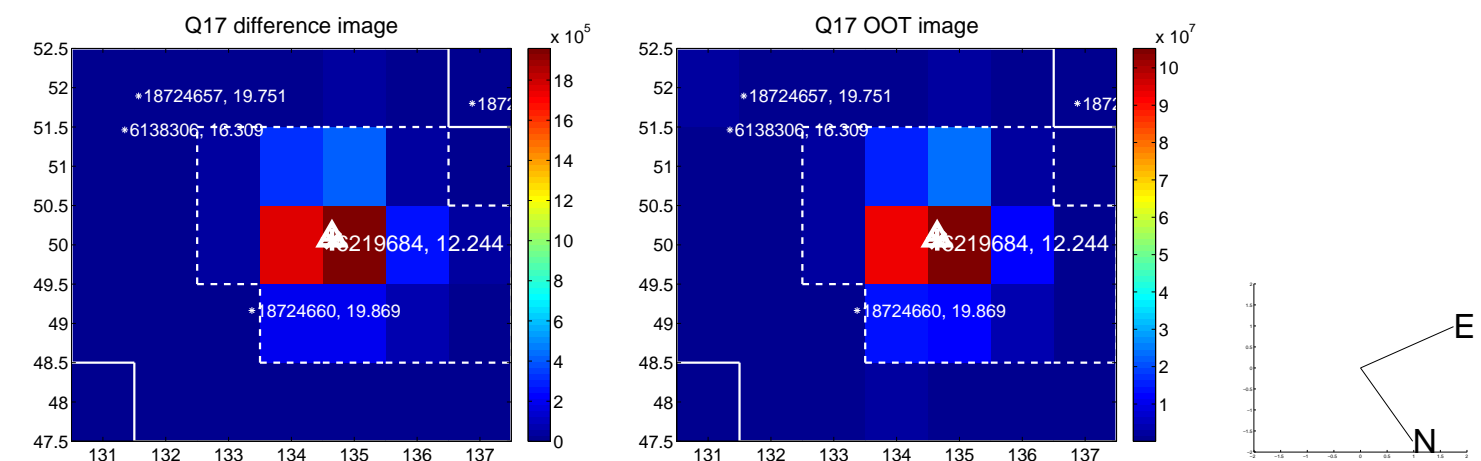
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

