

KIC 009368424

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})
009368424-01	OBS	No	0.963400	131.651560	60.4	6.892	7.8	7.6	0.74	4765	0.56	866.53
009368424-02	OBS	No	17.051872	143.413051	985.1	1.880	11.4	11.4	0.74	4765	2.65	18.79
009368424-03	OBS	No	30.499766	134.763394	1081.5	3.097	10.3	10.3	0.74	4765	2.64	8.65
009368424-04	OBS	No	24.480135	144.764857	1582.0	1.469	10.4	11.2	0.74	4765	3.49	11.60
009368424-05	OBS	No	41.849879	170.470341	1645.1	1.641	10.5	11.0	0.74	4765	3.57	5.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009368424-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
009368424-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
009368424-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
009368424-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009368424-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

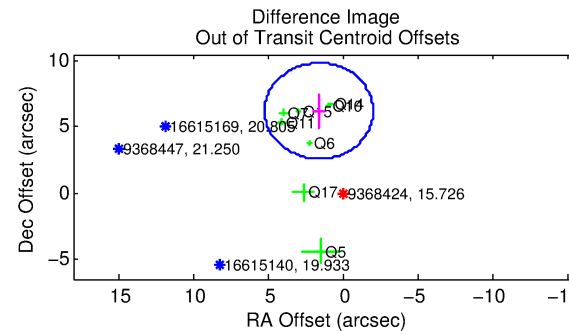
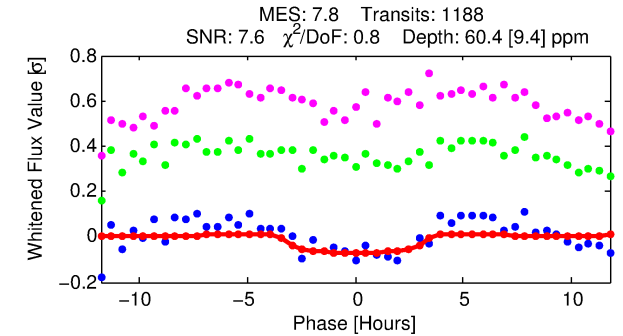
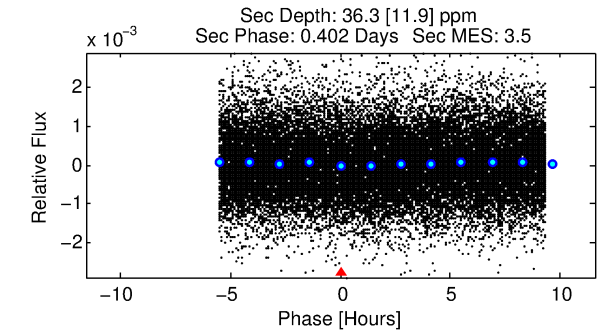
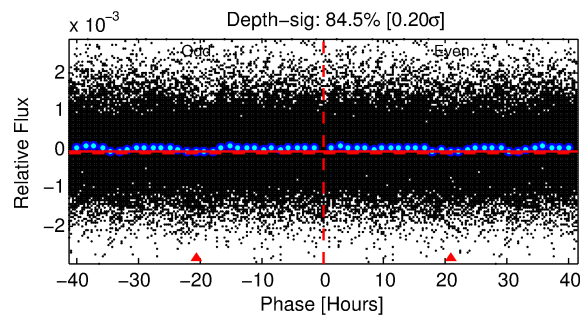
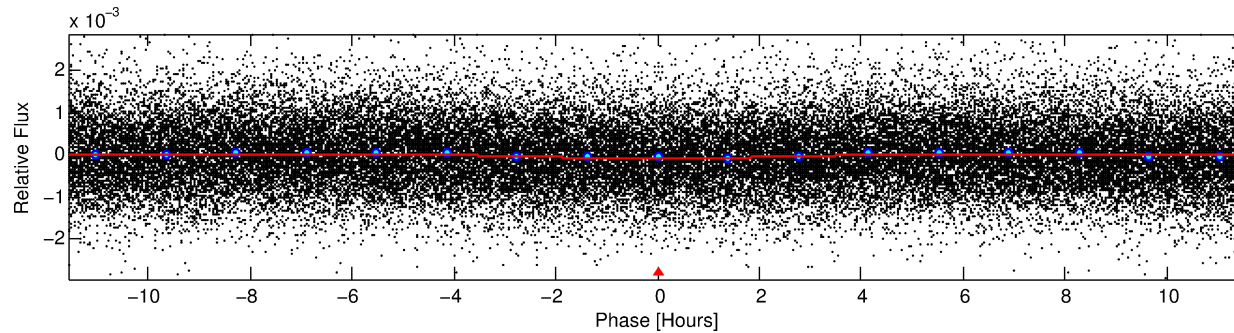
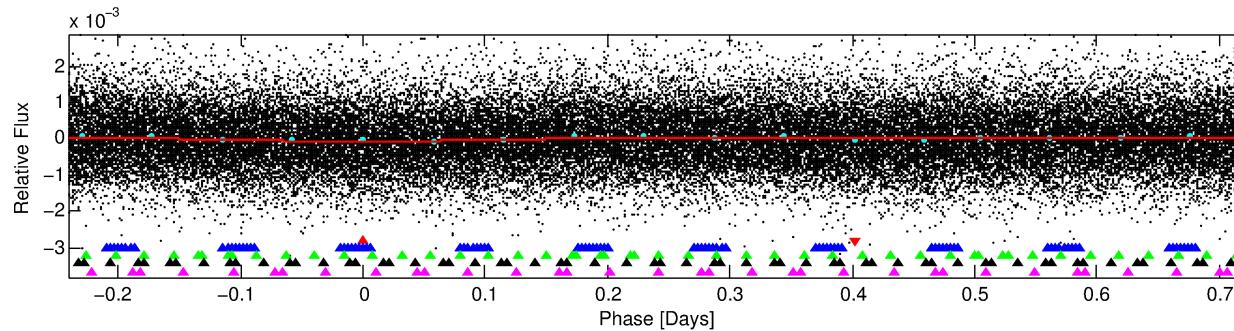
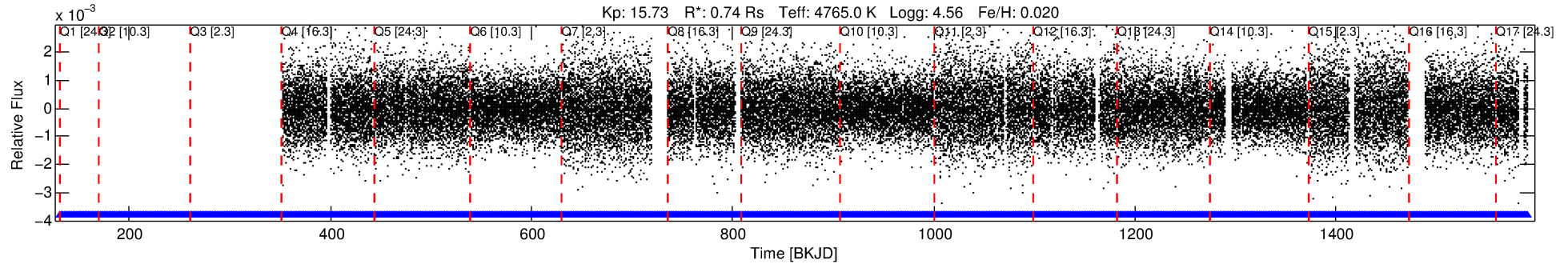
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009368424-01

No Significant Match Found

DV One-Page Summary

KIC: 9368424 Candidate: 1 of 5 Period: 0.963 d



DV Fit Results:

Period = 0.96340 [0.00002] d
Epoch = 131.6516 [0.0106] BKJD
Rp/R* = 0.0069 [0.0089]
a/R* = 1.24 [1.70]
b = 0.24 [16.46]
Seff = 866.53 [159.24]
Teq = 1383 [64] K
Rp = 0.56 [0.72] Re
a = 0.0172 [0.0014] AU
Ag = 18.76 [48.75] [0.36 σ]
Teffp = 4452 [2893] K [1.06 σ]

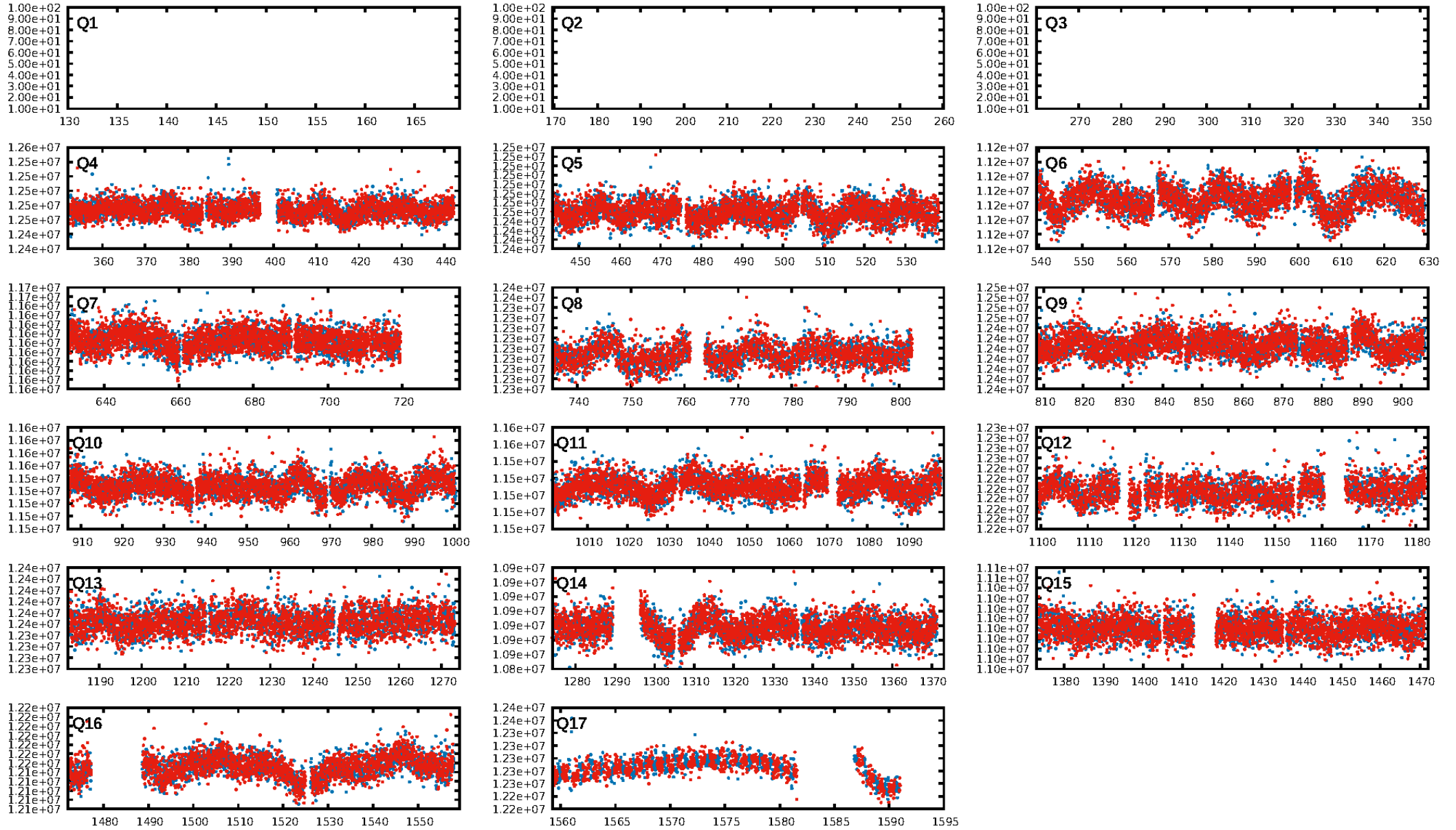
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [54.05 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.15e-10
RollingBand-fgt: 1.00 [1160/1160]
GhostDiagnostic-chr: -0.1905
Centroid-sig: 0.0%
Centroid-so: 10.334 arcsec [6.55 σ]
OotOffset-rm: 6.419 arcsec [5.30 σ]
KicOffset-rm: 6.470 arcsec [4.44 σ]
OotOffset-st: 3/3/0/2 [8]
KicOffset-st: 3/3/0/2 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 1.00 [14/14]

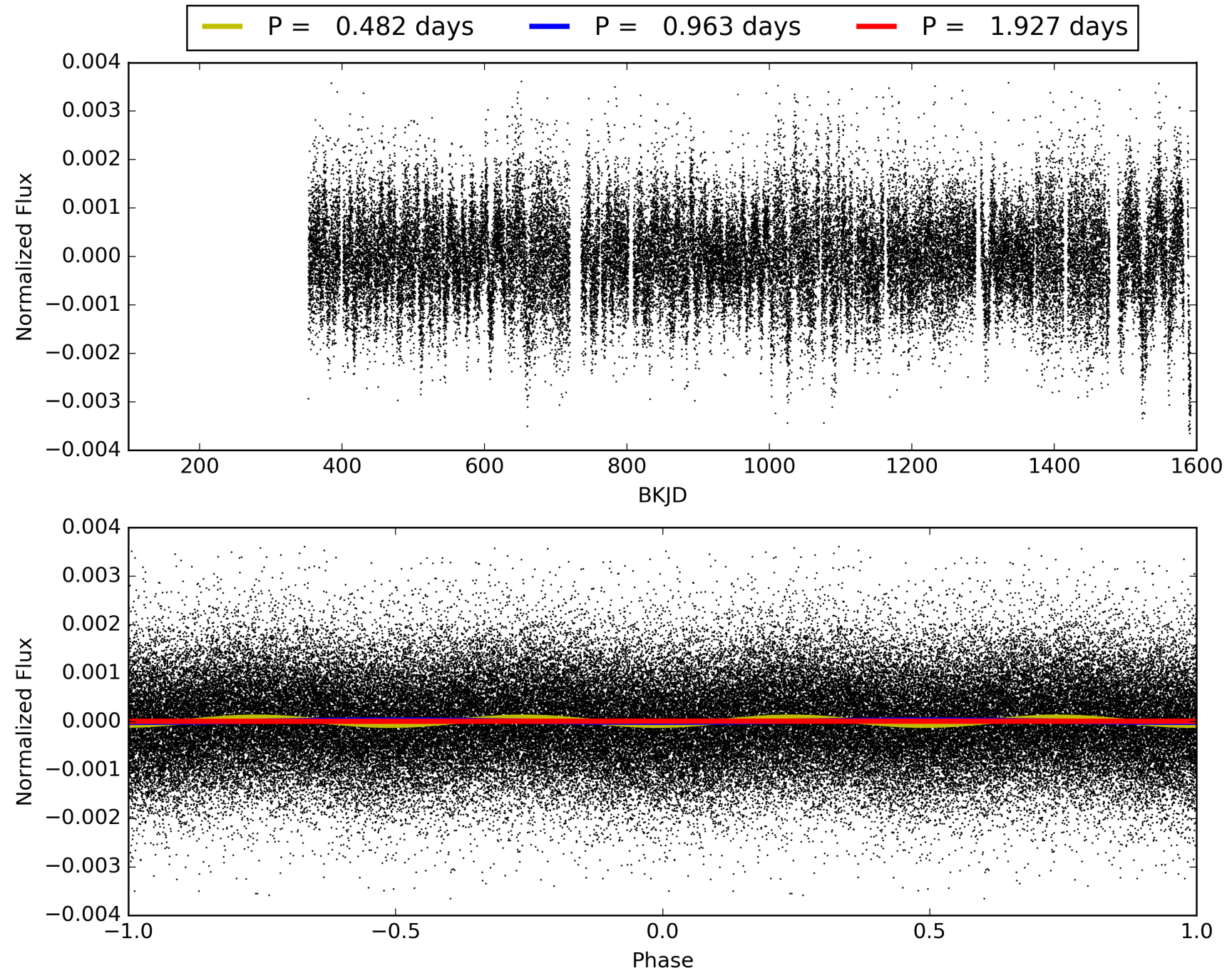
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:19:03 Z

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

TCE 009368424-01, PDC Light Curves

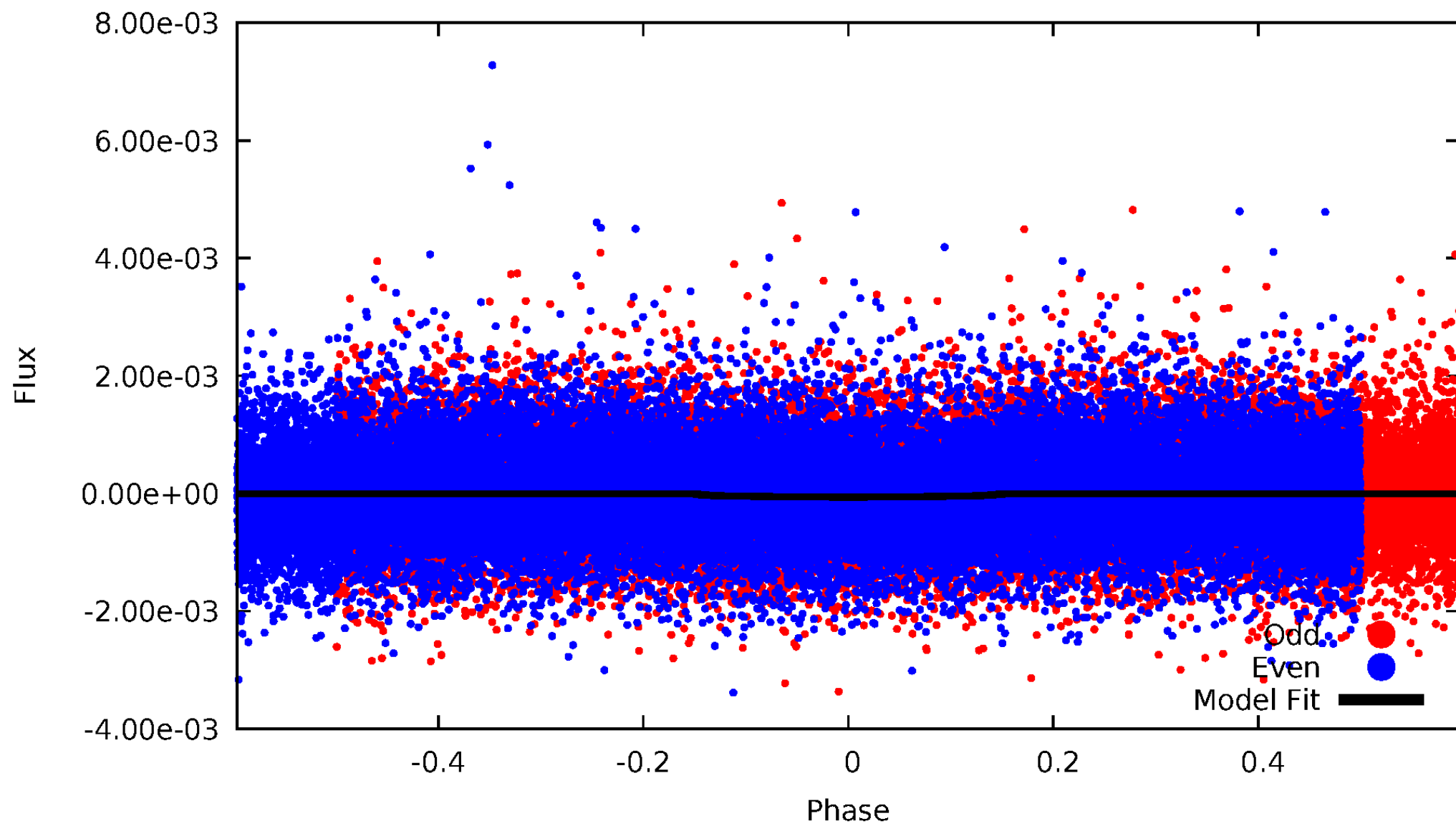


TCE 009368424-01



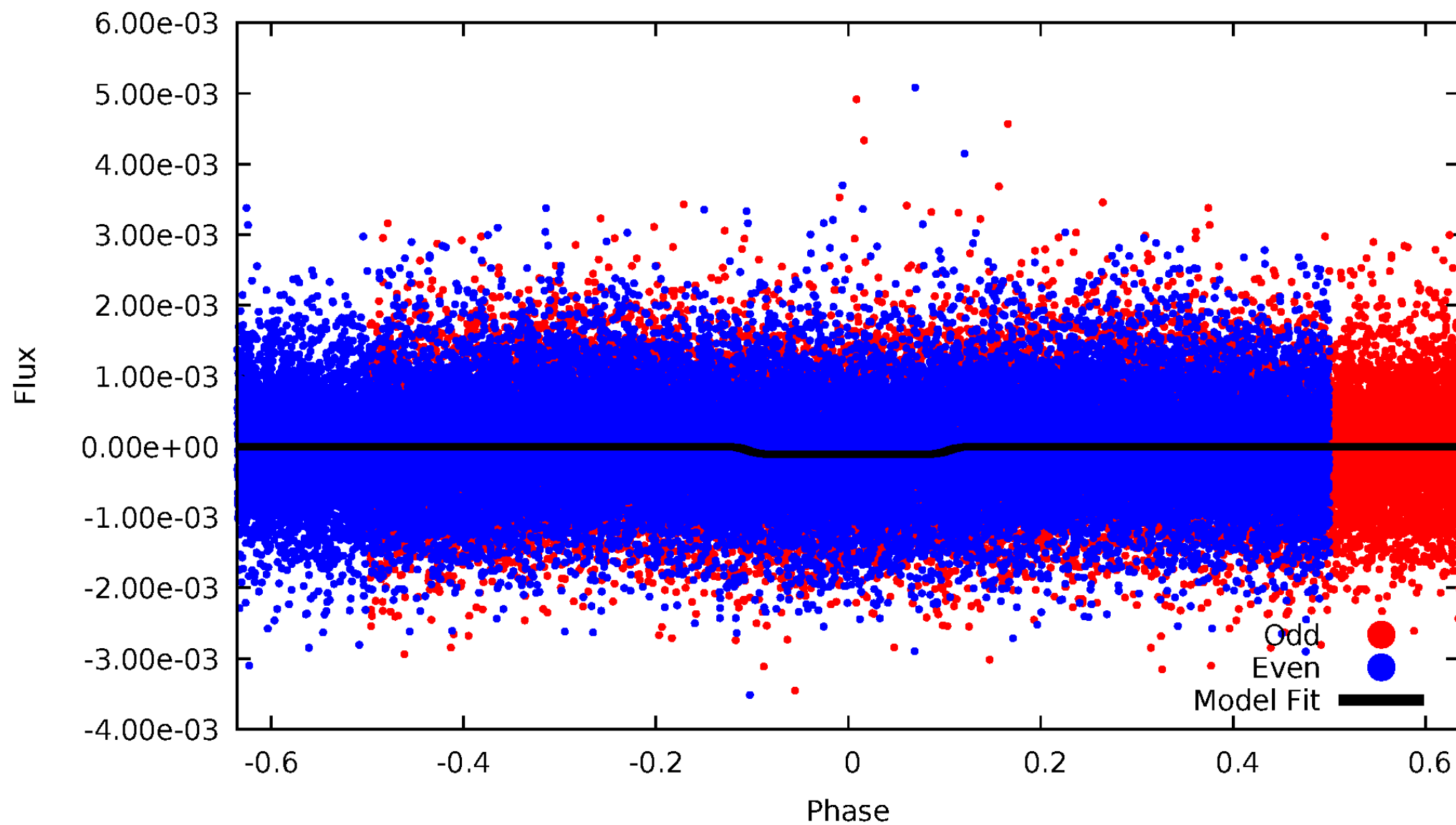
DV Odd/Even

TCE 009368424-01



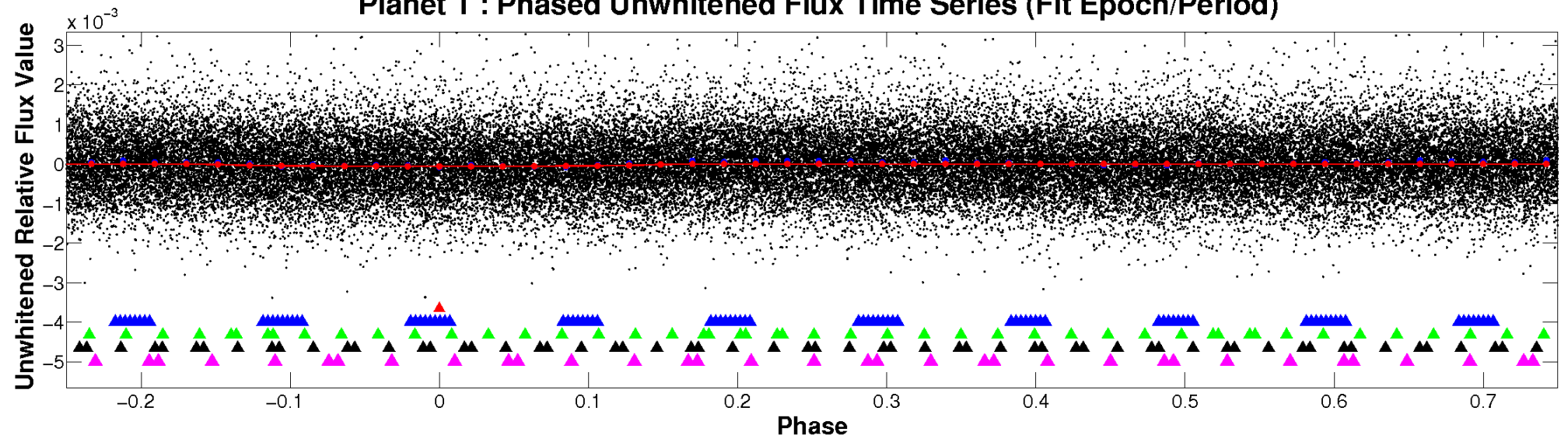
ALT Odd/Even

TCE 009368424-01

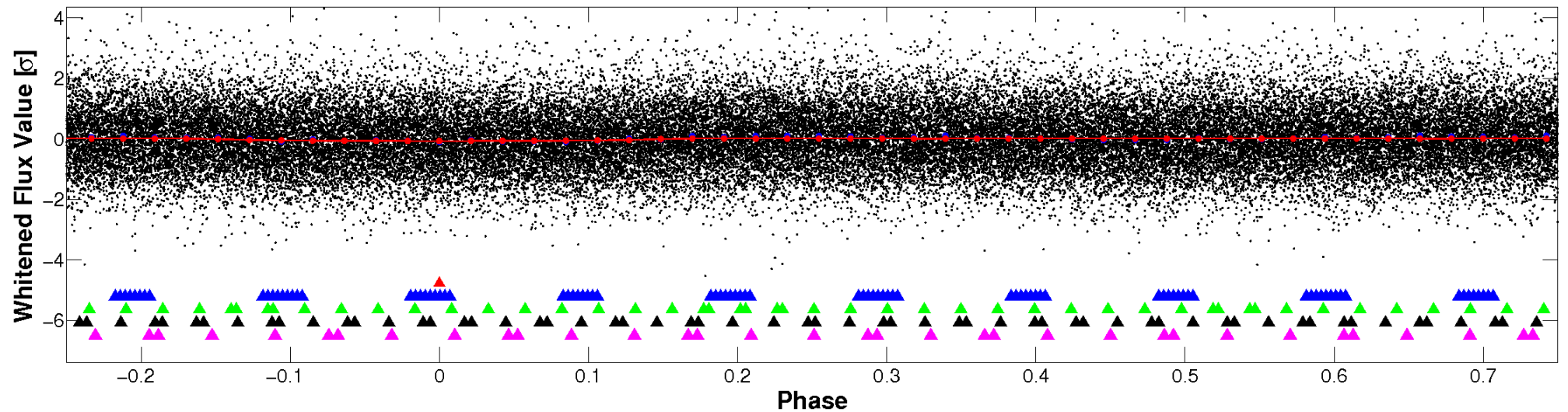


Non-Whitened Vs. Whitened Light Curve

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

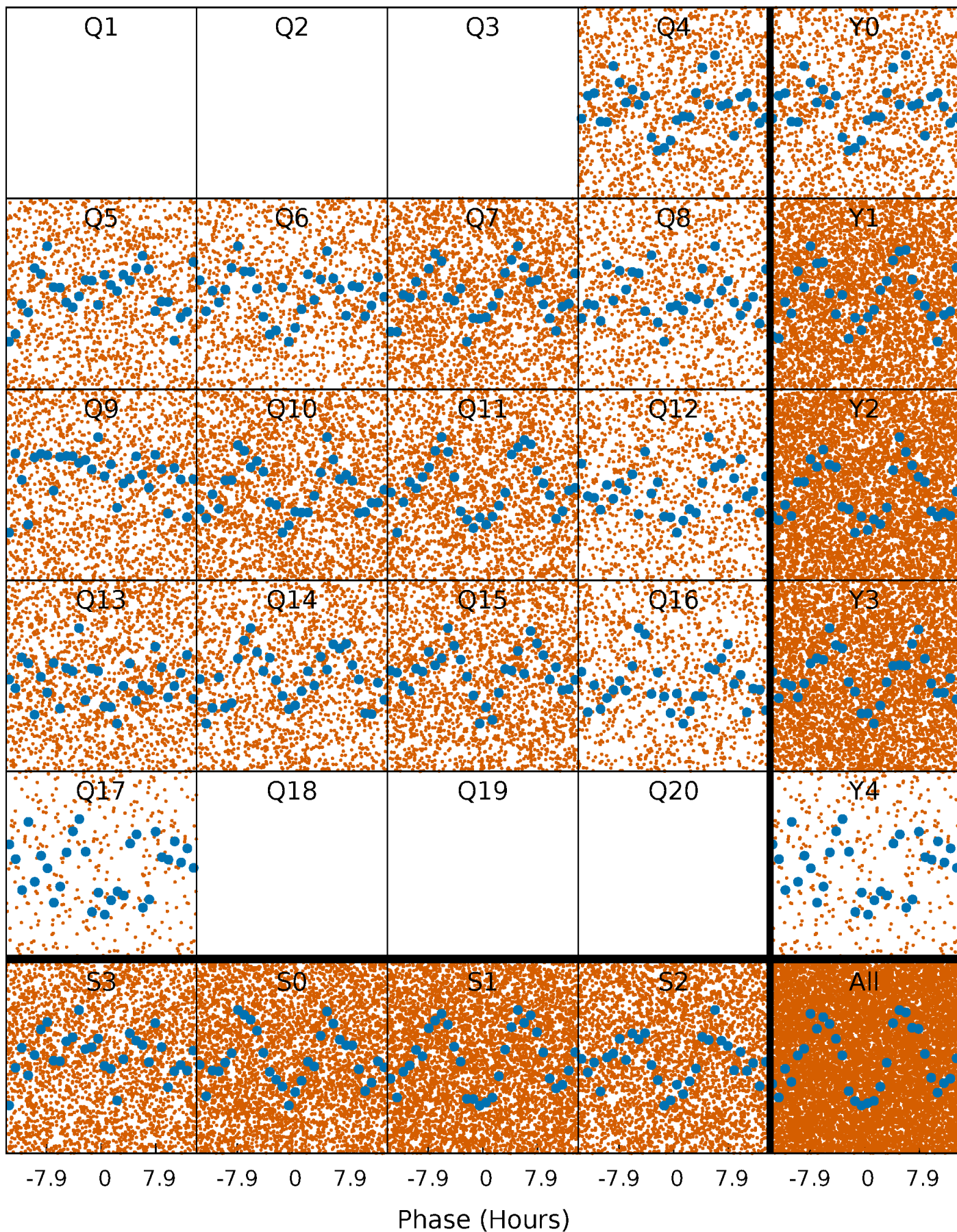


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



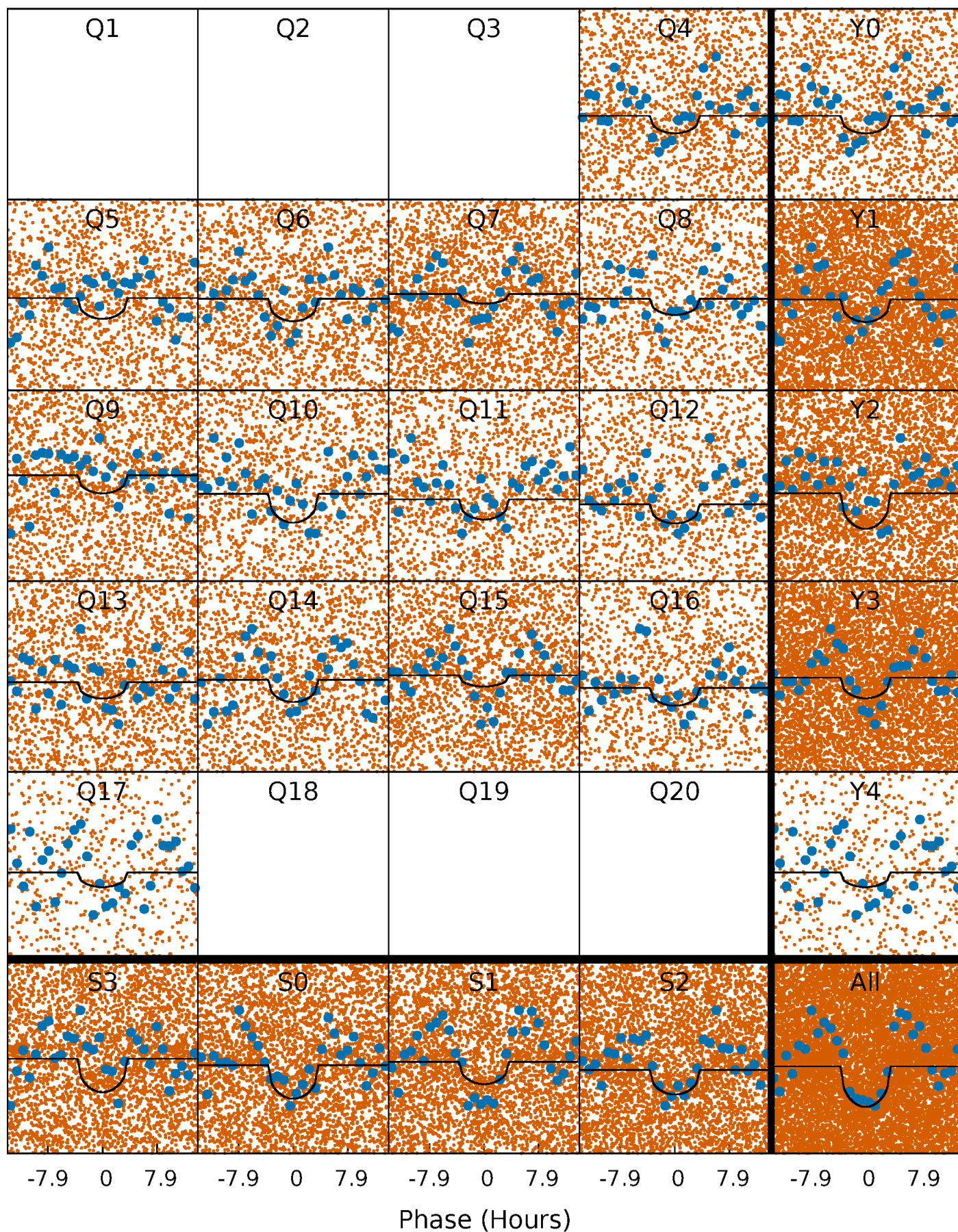
PDC Quarter-Phased Transit Curves

TCE 009368424-01 P= 0.963400 Days $T_0=131.651560$ (BKJD)



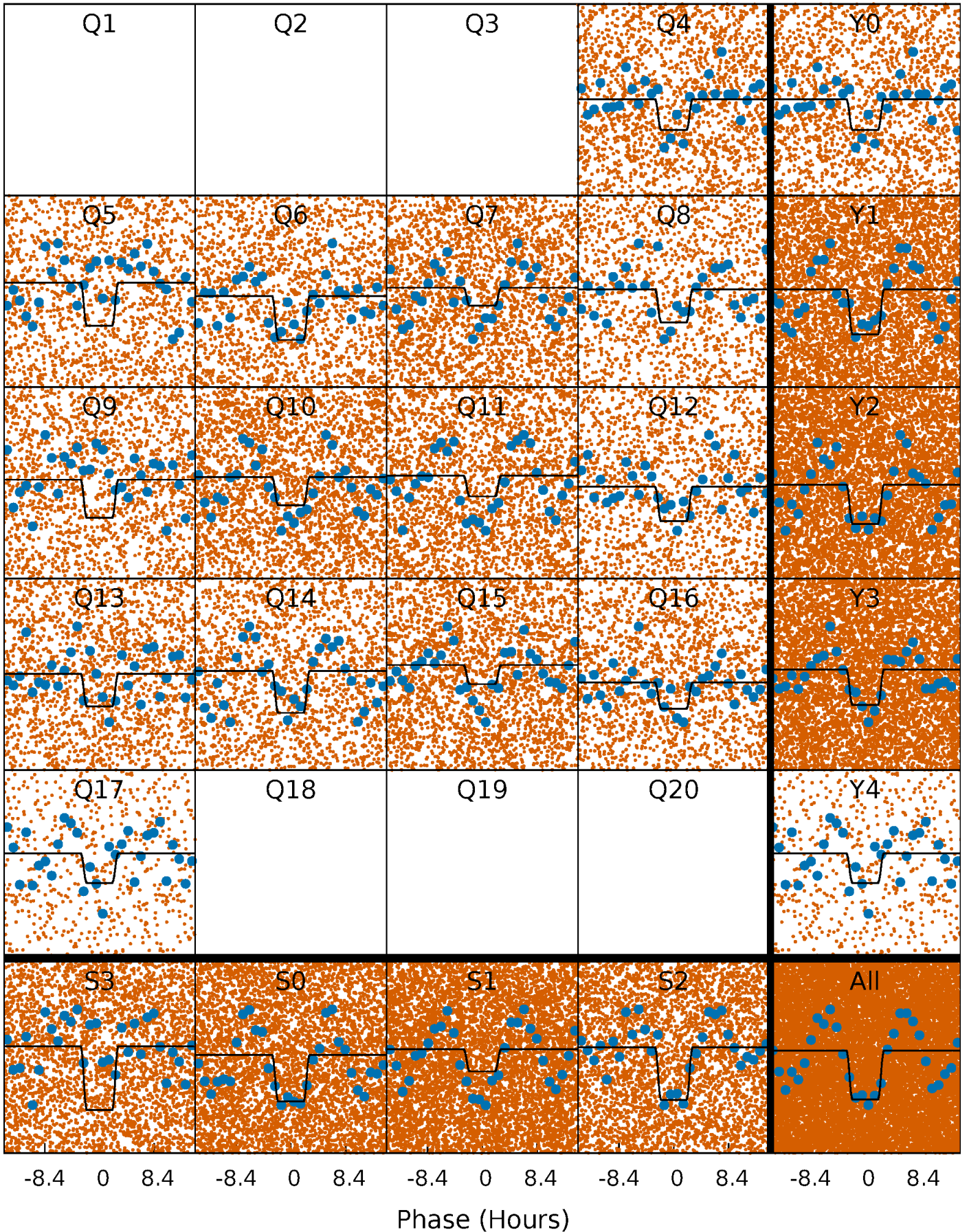
DV Quarter-Phased Transit Curves

TCE 009368424-01 P= 0.963400 Days $T_0=131.651560$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

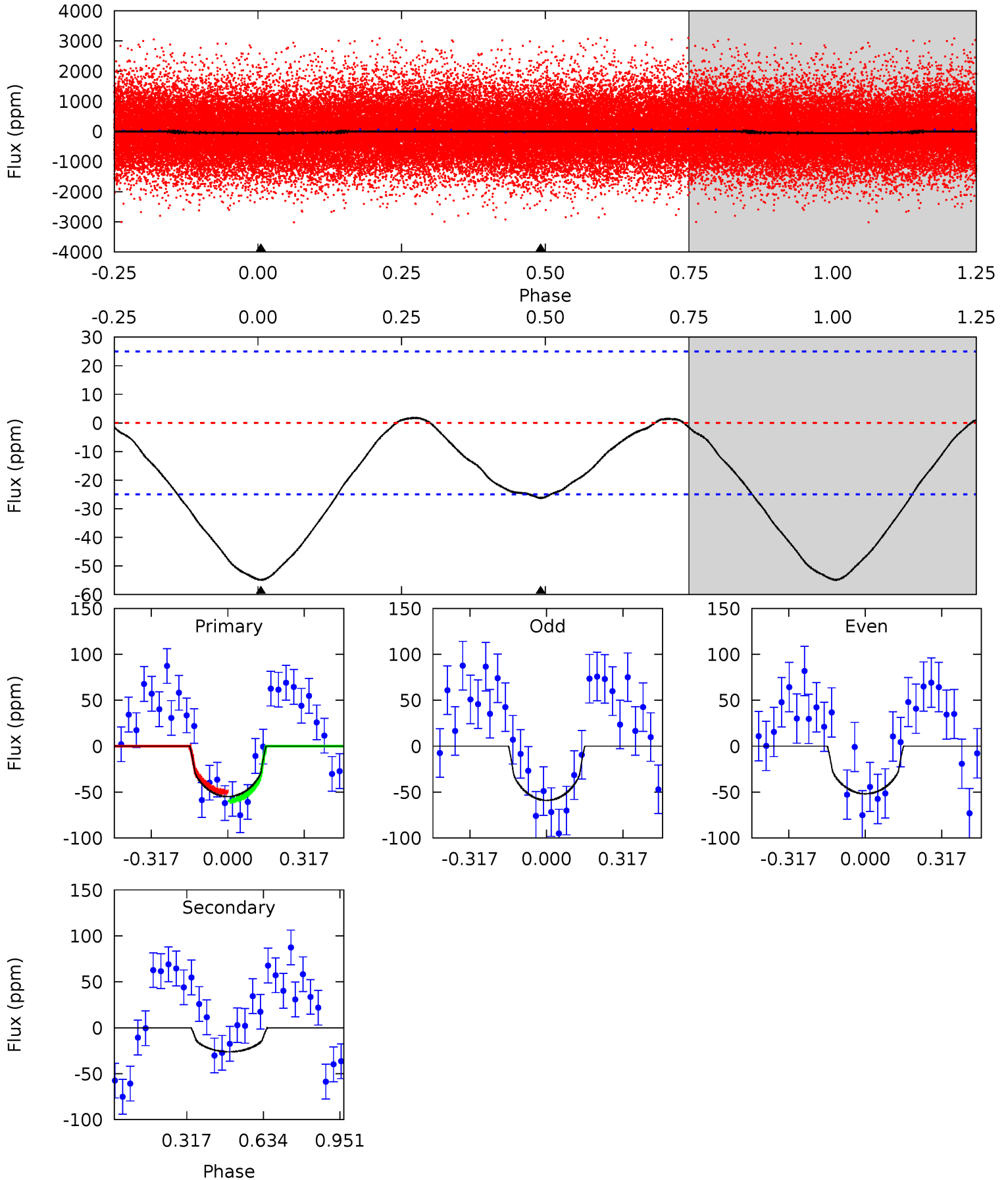
TCE 009368424-01 P= 0.963491 Days $T_0=131.559934$ (BKJD)



DV Model-Shift Uniqueness Test

009368424-01, P = 0.963400 Days, E = 131.651560 Days

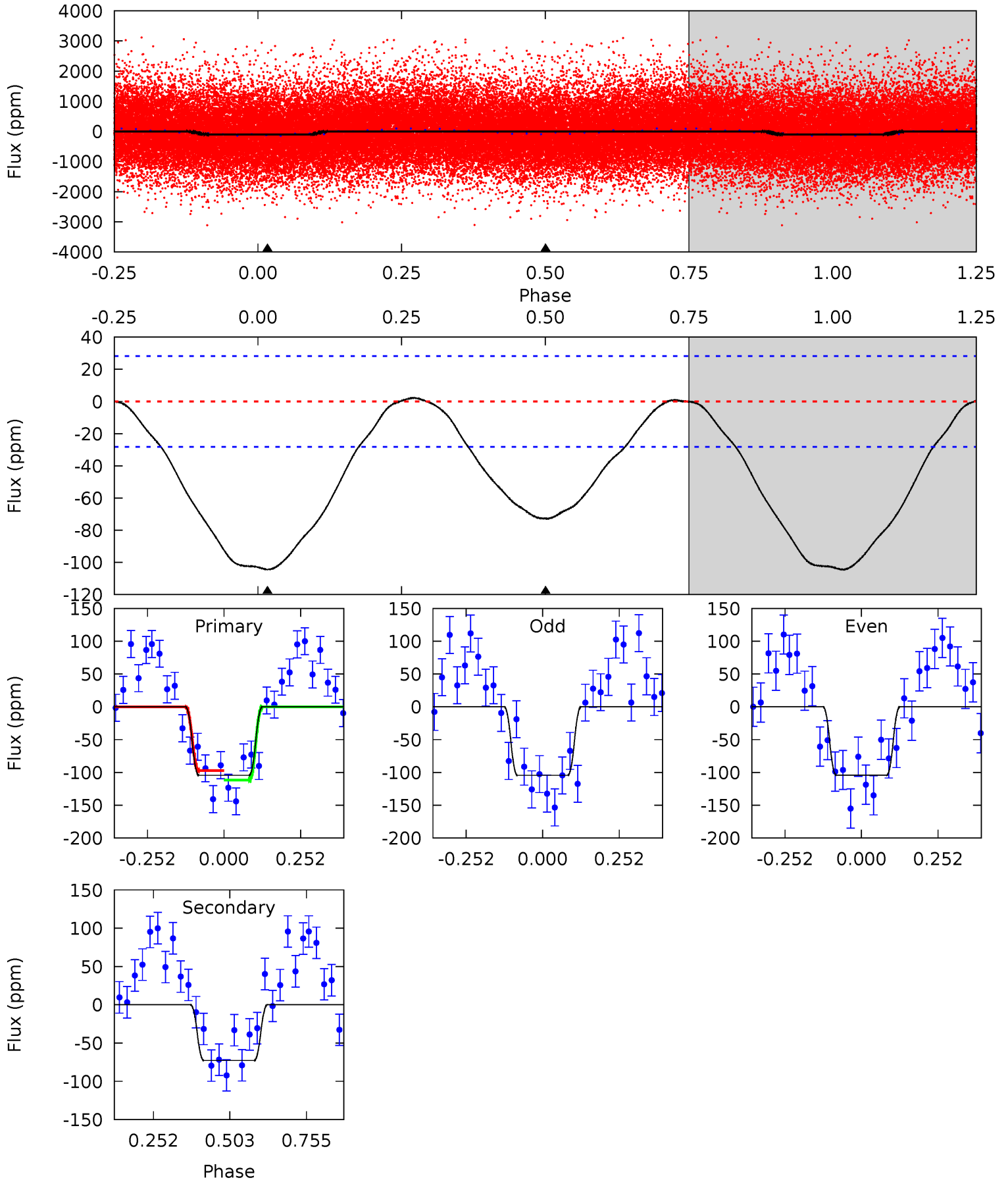
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.48	4.53	0	0	4.32	1.00	0.38	9.48	9.48	4.53	4.53	0.62	0.94	0.03	0.82



Alt Model-Shift Uniqueness Test

009368424-01, P = 0.963491 Days, E = 131.559934 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	11.3	0	0	4.37	1.15	0.50	16.2	16.2	11.3	11.3	0.01	0.95	0.02	1.13



Stellar Parameters For KIC 009368424

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4765^{+167}_{-167}	$4.557^{+0.065}_{-0.035}$	$0.020^{+0.250}_{-0.300}$	$0.744^{+0.052}_{-0.072}$	$0.728^{+0.077}_{-0.058}$	$2.491^{+0.719}_{-0.318}$
	+4%/-4%	+1%/-1%	+1250%/-1500%	+7%/-10%	+11%/-8%	+29%/-13%
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 009368424-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-26 ± 6	$0.75^{+0.58}_{-0.48}$	1917^{+82}_{-74}	3768^{+1923}_{-694}	$7.577^{+50.234}_{-5.319}$
Alt.	-73 ± 6	$0.90^{+0.67}_{-0.53}$	1919^{+82}_{-78}	4271^{+1994}_{-784}	15^{+71}_{-10}

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

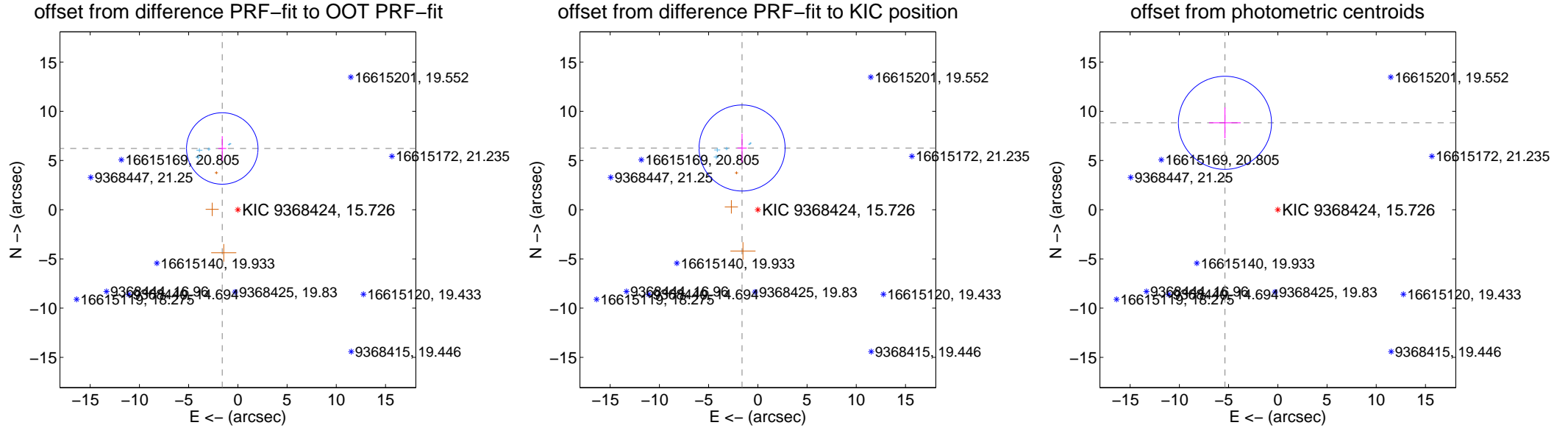
DV Centroid Data

Supplemental centroid analysis for 009368424-01. Kepler magnitude: 15.73. Transit SNR 7.61

There are 5 quarters with good PRF difference image offsets

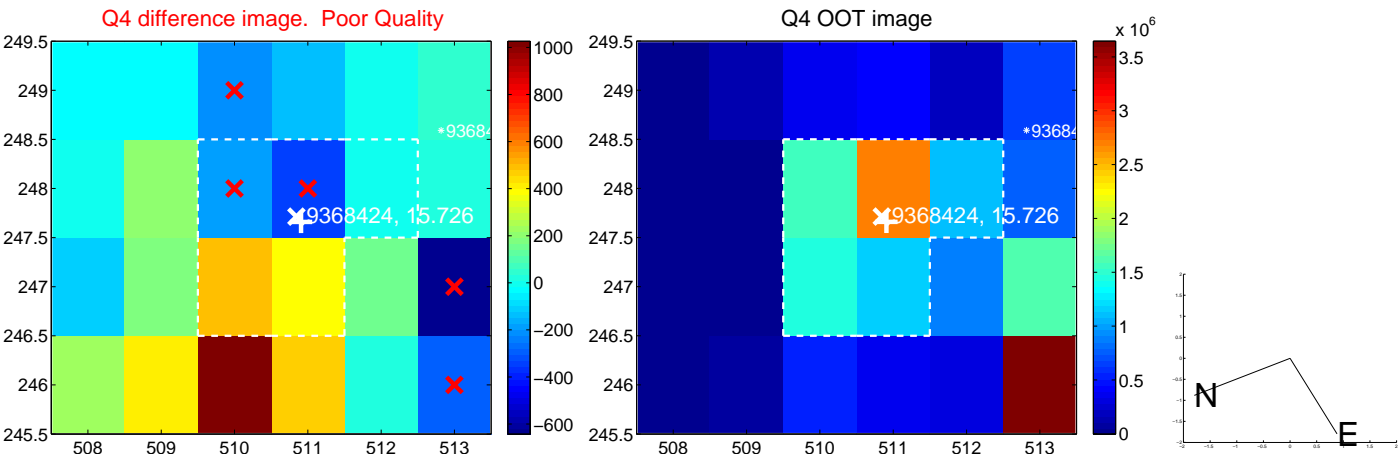
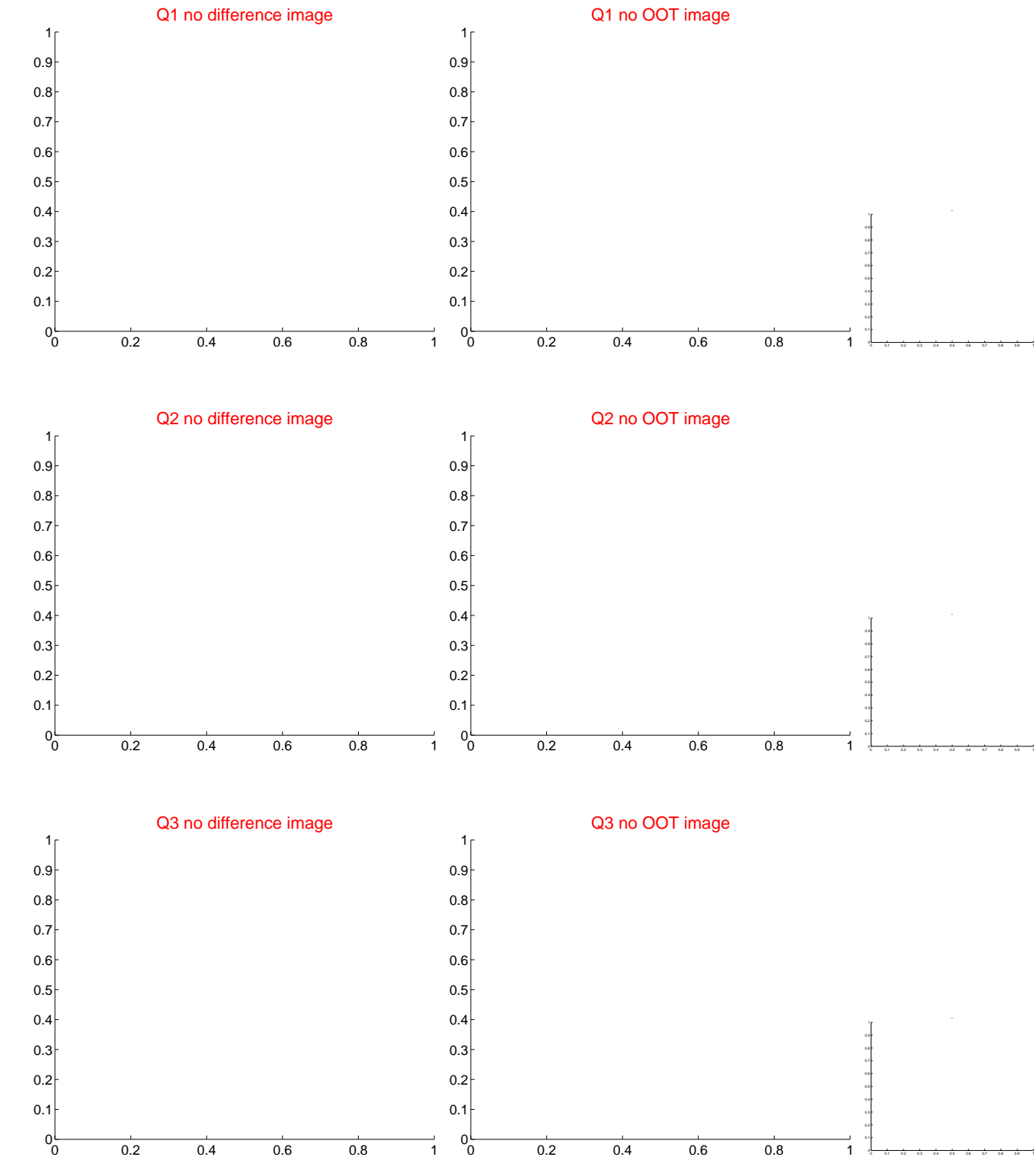
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.419 \pm 1.210	5.30	1.584 \pm 0.405	6.221 \pm 1.252
PRF-fit source offset from KIC position	6.470 \pm 1.457	4.44	1.601 \pm 0.478	6.269 \pm 1.463
photometric centroid source offset	10.33 \pm 1.58	6.55	5.37 \pm 1.60	8.83 \pm 1.57

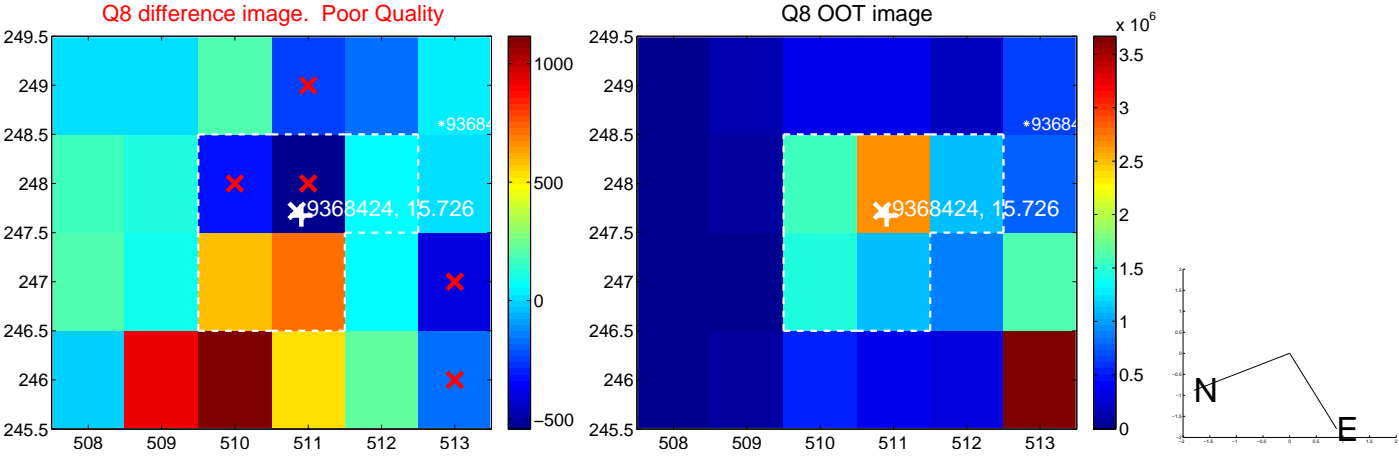
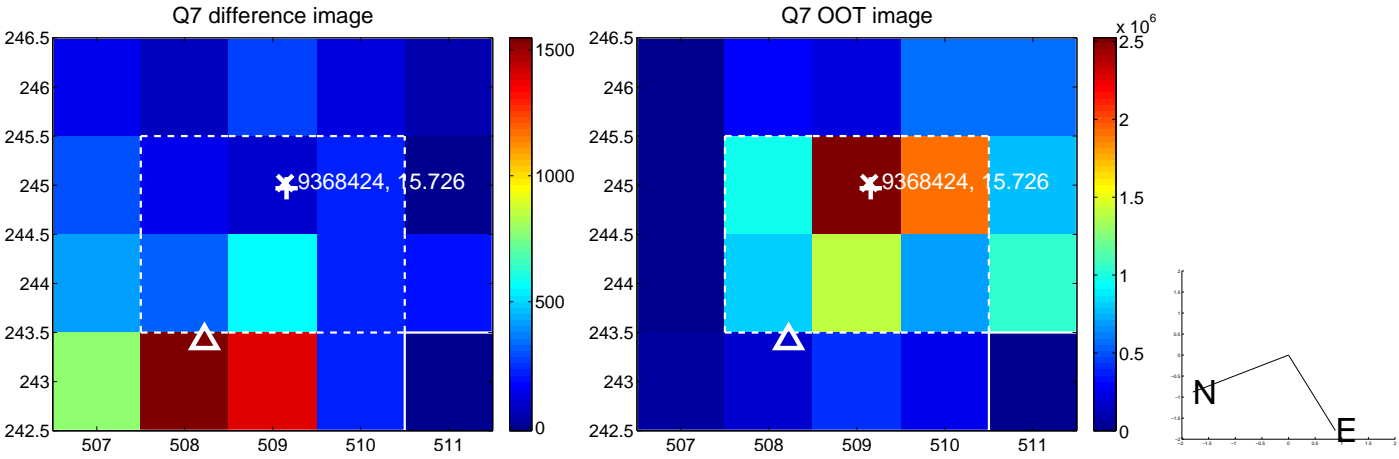
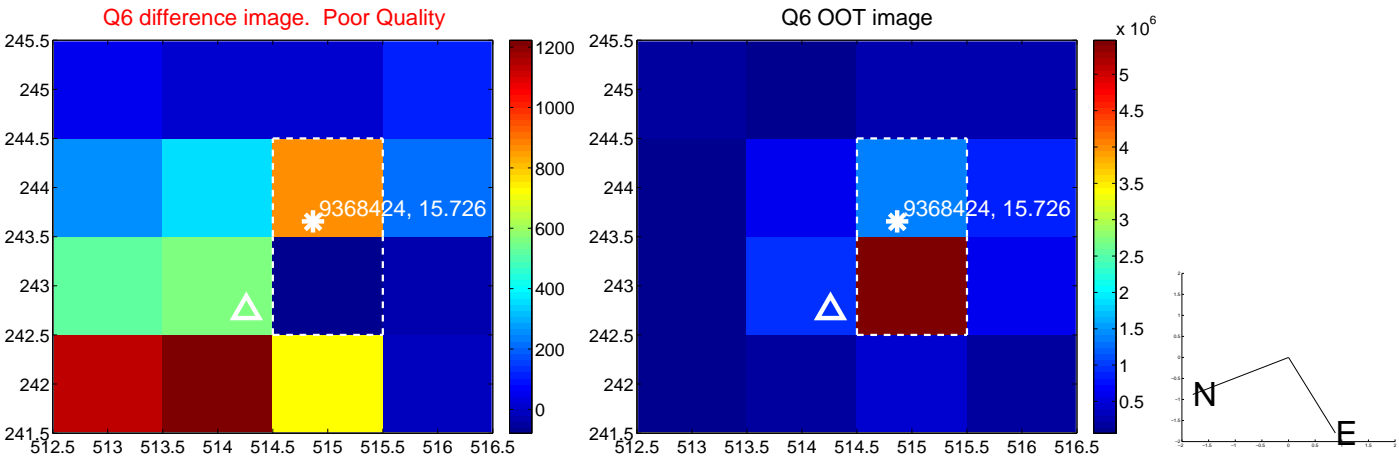
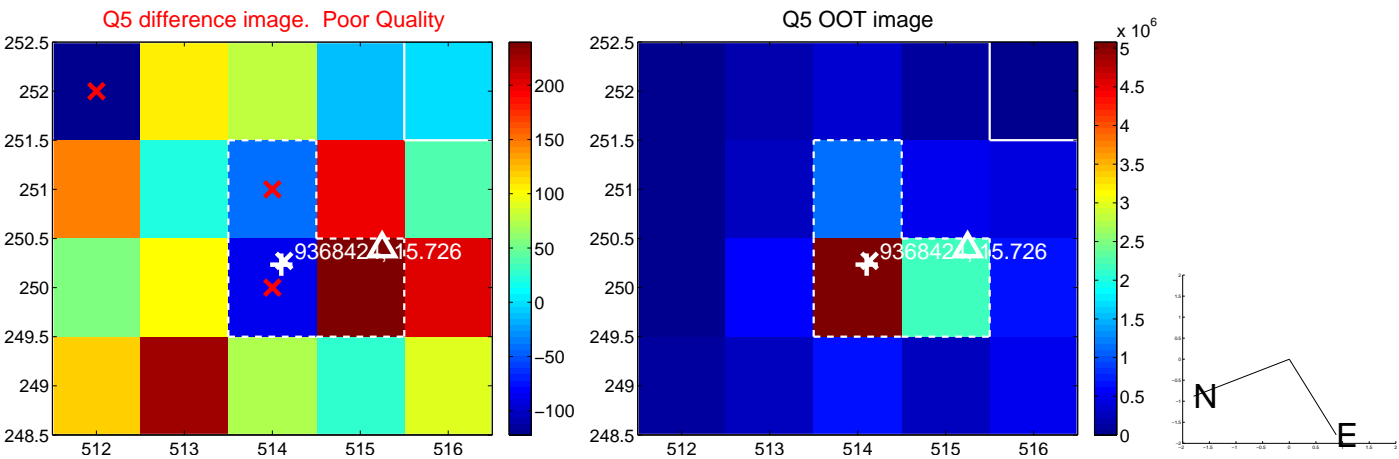


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

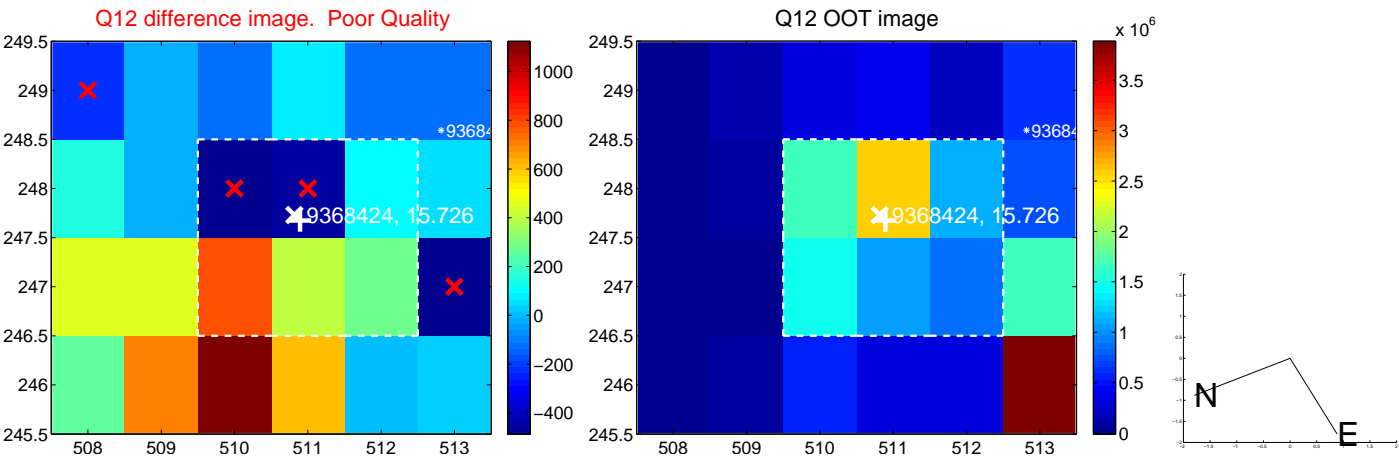
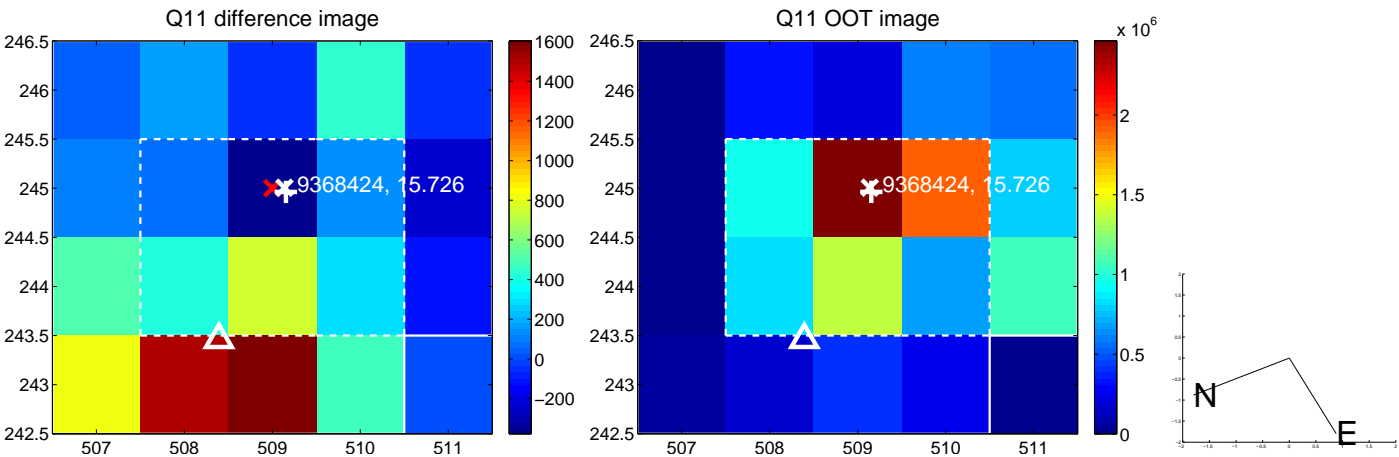
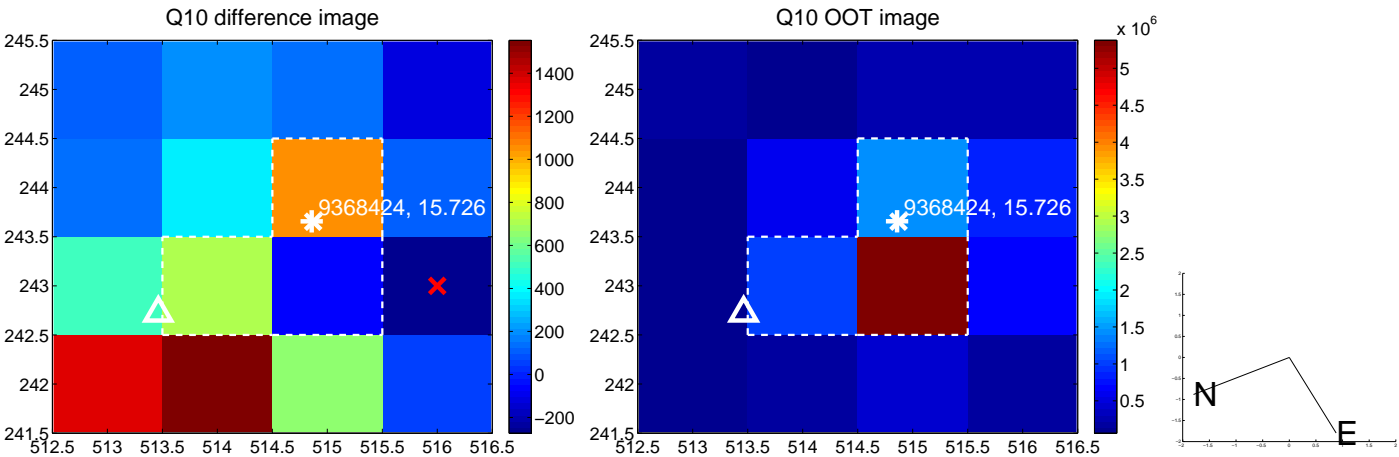
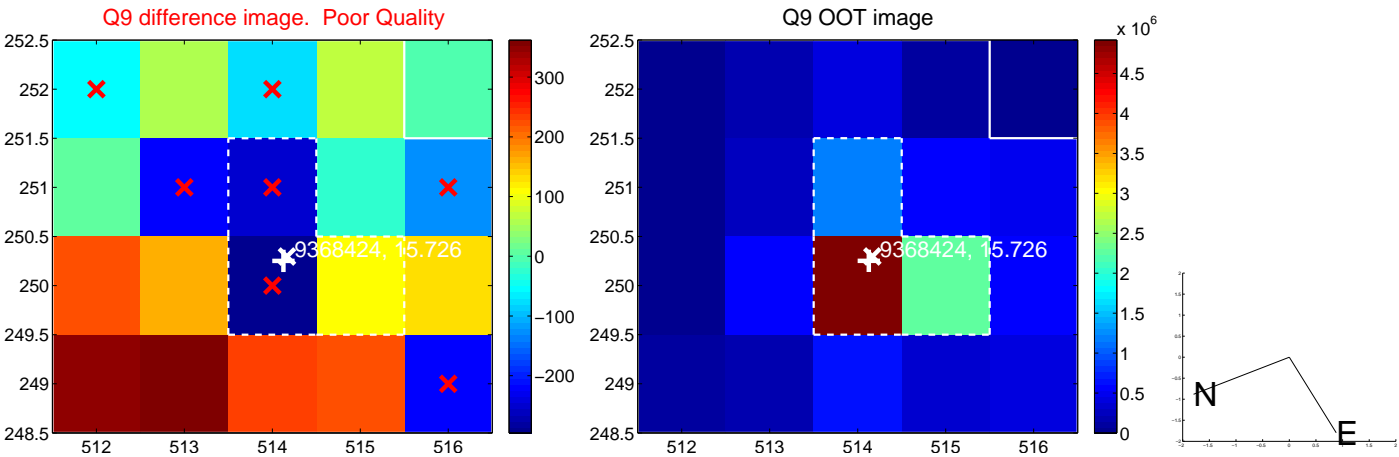
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



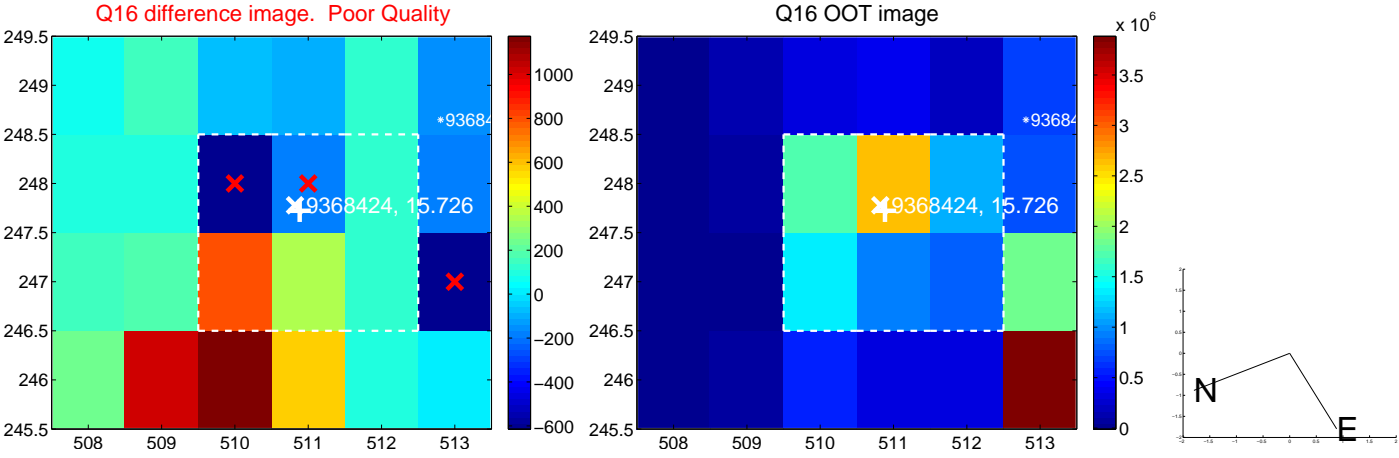
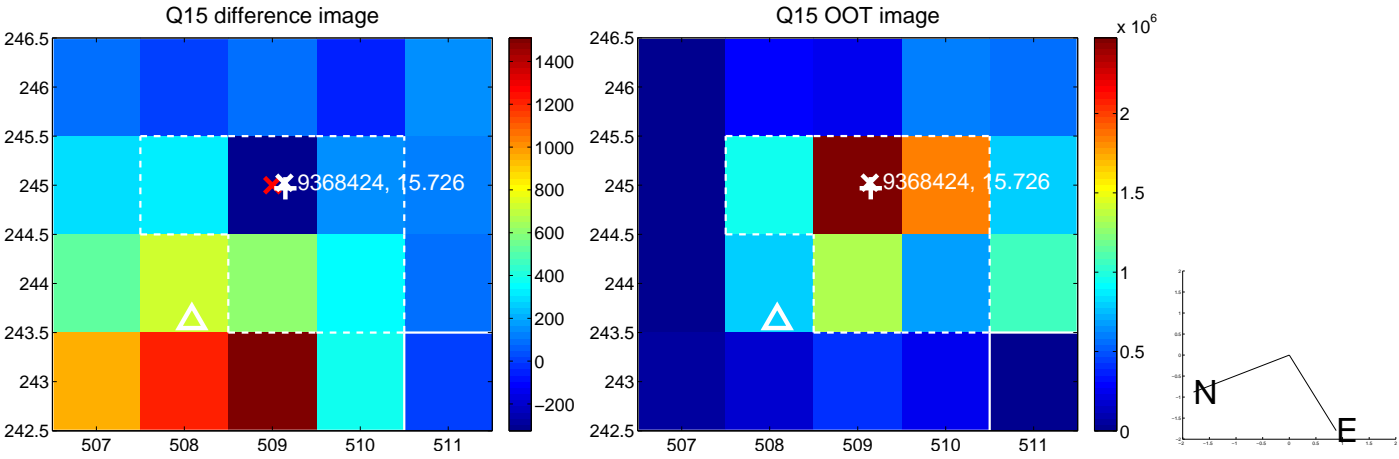
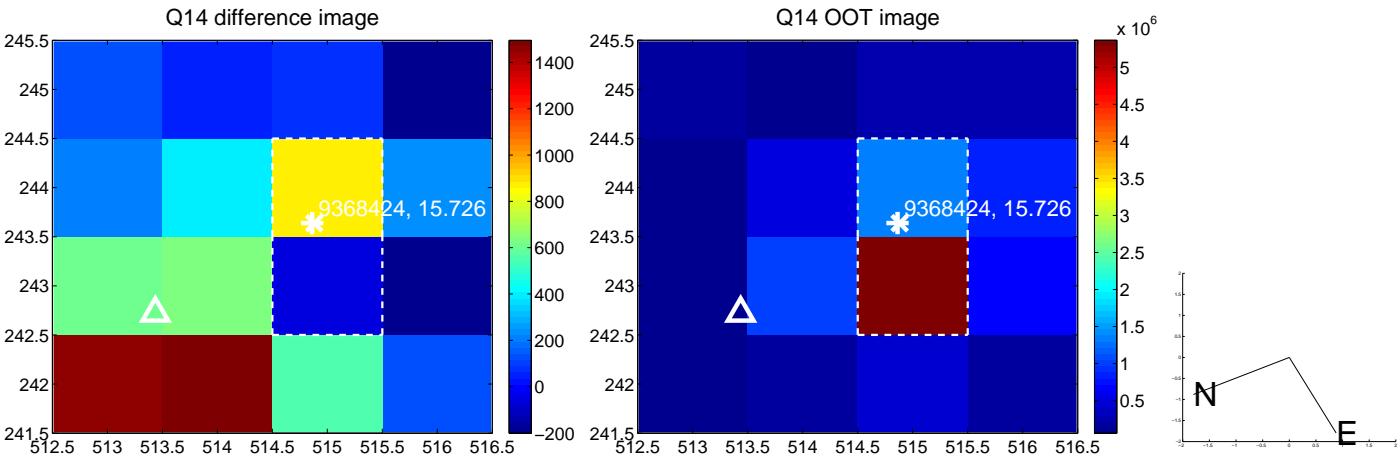
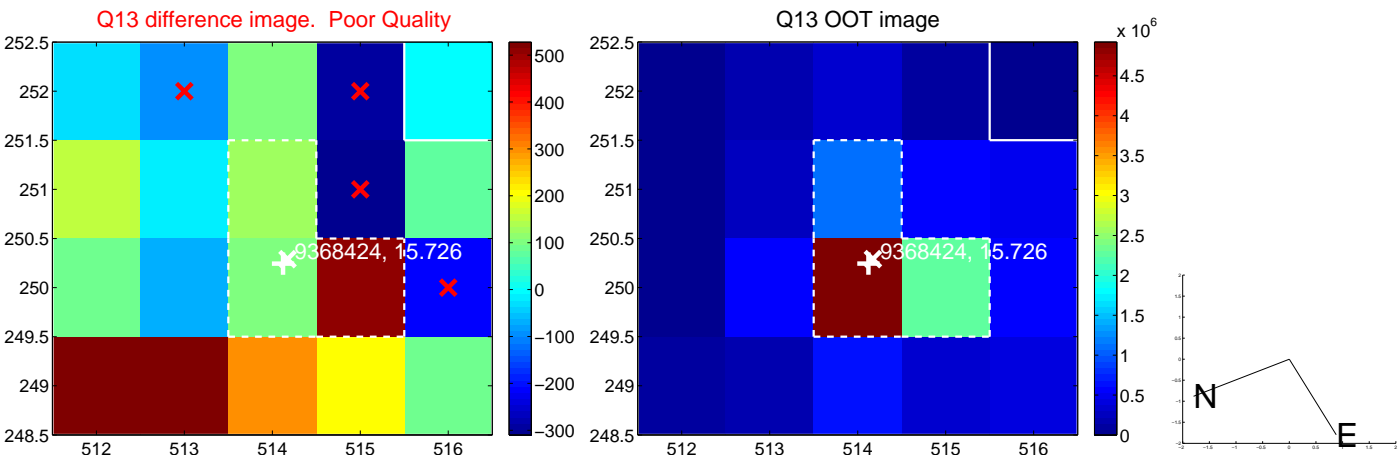
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



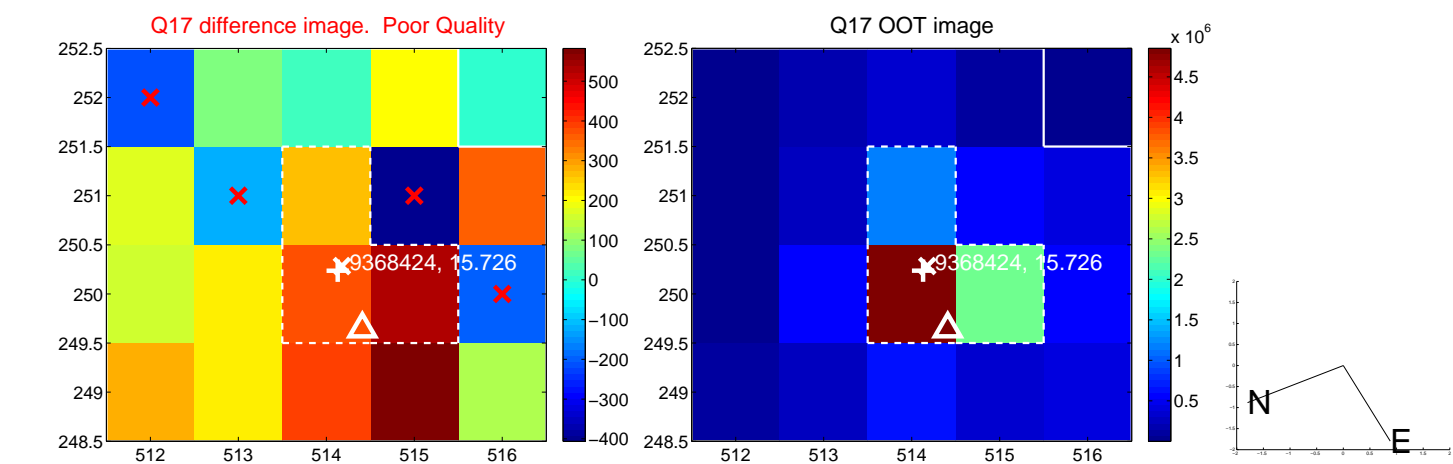
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



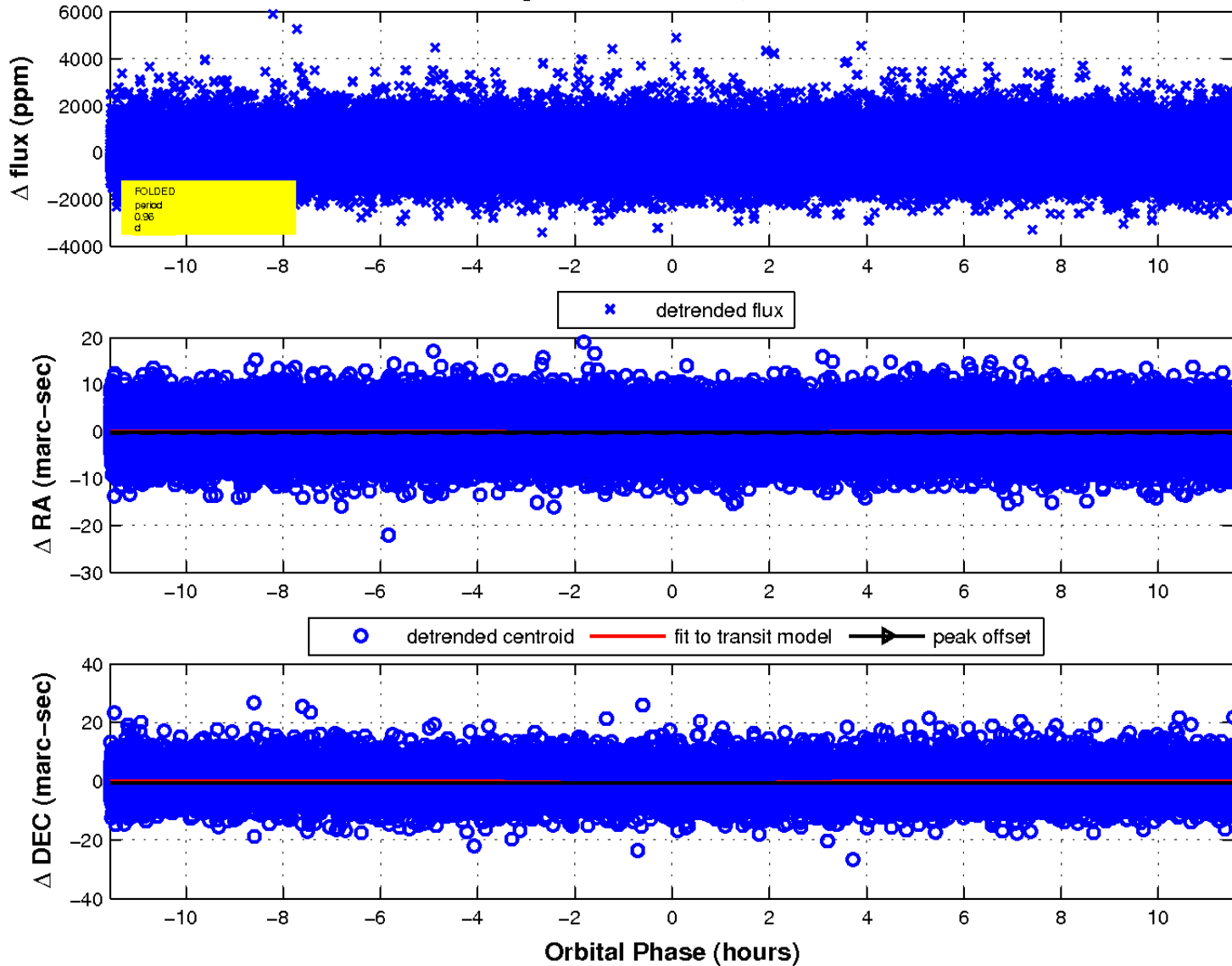
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

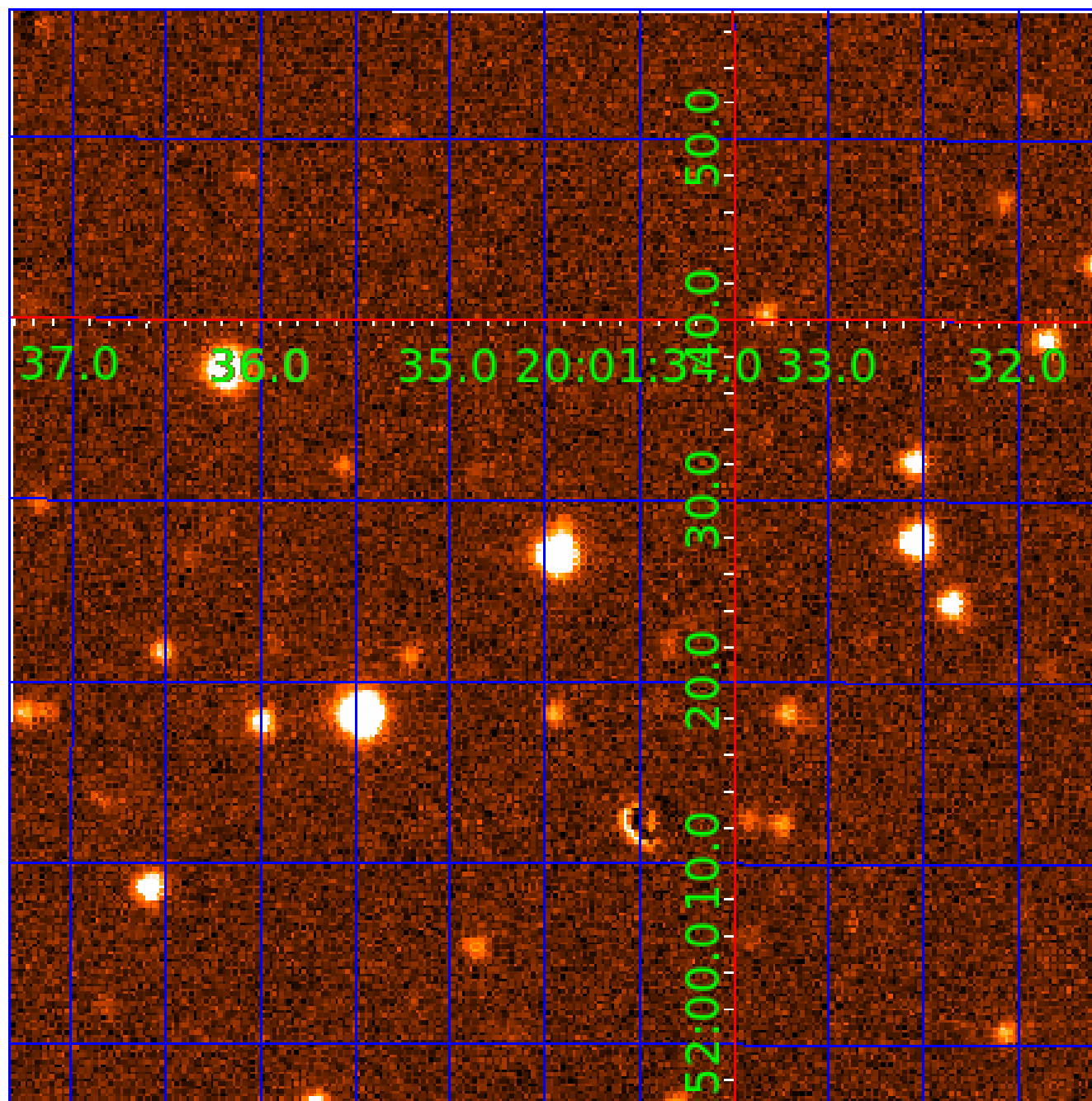


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



KIC 009368424

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})
009368424-01	OBS	No	0.963400	131.651560	60.4	6.892	7.8	7.6	0.74	4765	0.56	866.53
009368424-02	OBS	No	17.051872	143.413051	985.1	1.880	11.4	11.4	0.74	4765	2.65	18.79
009368424-03	OBS	No	30.499766	134.763394	1081.5	3.097	10.3	10.3	0.74	4765	2.64	8.65
009368424-04	OBS	No	24.480135	144.764857	1582.0	1.469	10.4	11.2	0.74	4765	3.49	11.60
009368424-05	OBS	No	41.849879	170.470341	1645.1	1.641	10.5	11.0	0.74	4765	3.57	5.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009368424-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
009368424-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
009368424-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
009368424-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009368424-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

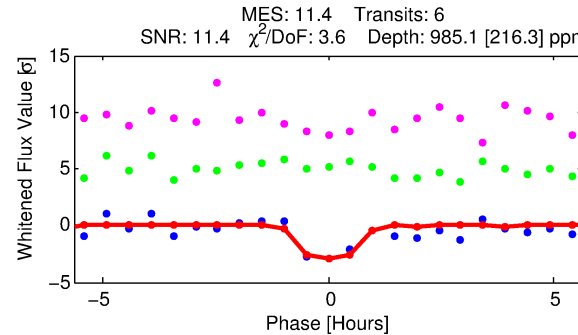
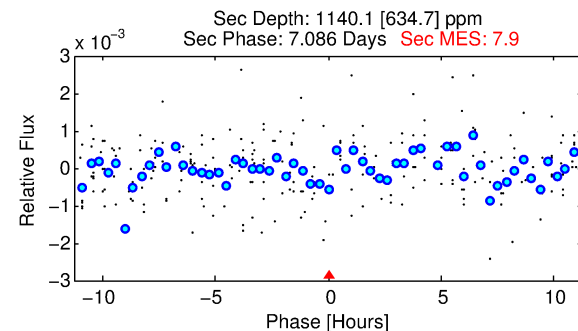
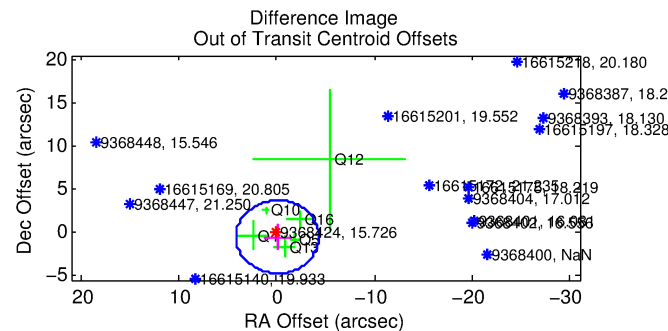
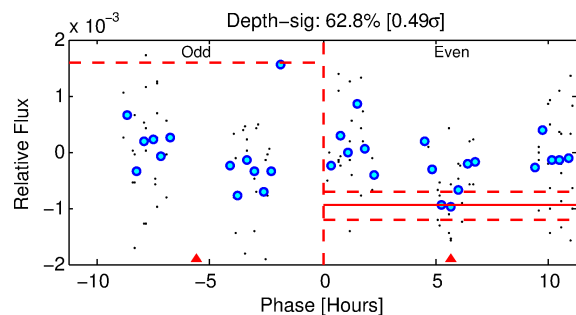
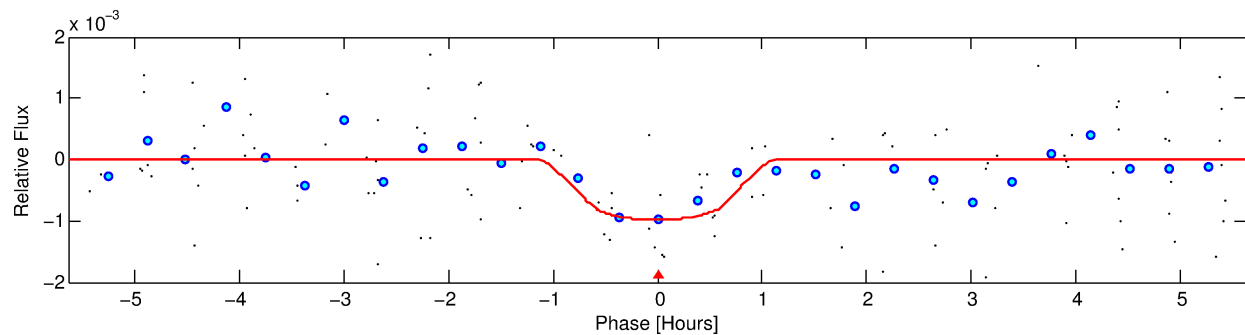
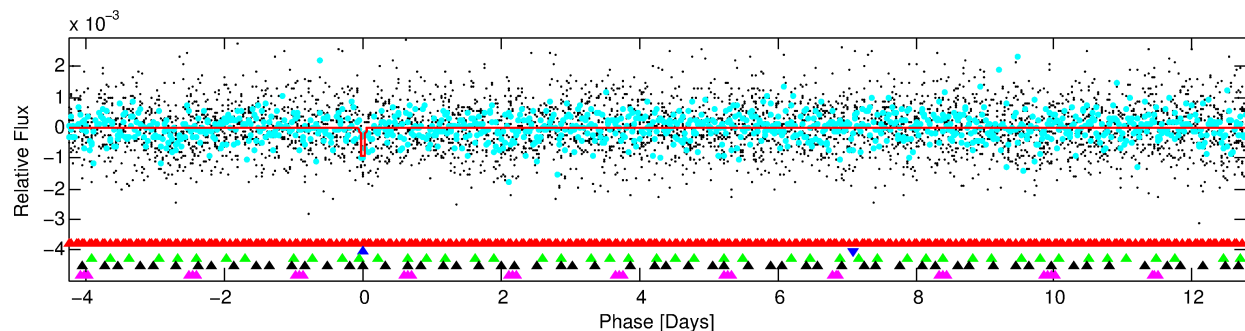
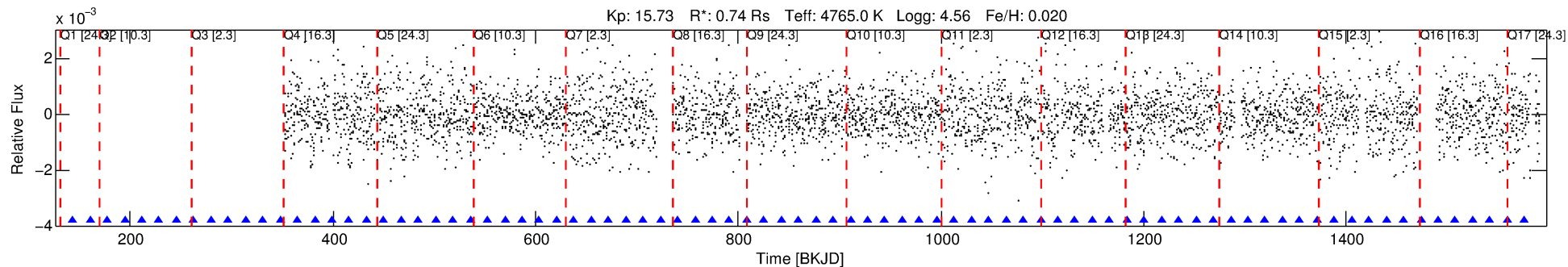
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009368424-02

No Significant Match Found

DV One-Page Summary

KIC: 9368424 Candidate: 2 of 5 Period: 17.052 d



DV Fit Results:

Period = 17.05187 [0.00044] d
Epoch = 143.4131 [0.0240] BKJD
Rp/R* = 0.0326 [0.1246]
a/R* = 44.42 [580.05]
b = 0.81 [5.73]
Seff = 18.79 [3.45]
Teq = 531 [24] K
Rp = 2.65 [10.12] Re
a = 0.1167 [0.0095] AU
Ag = 1214.93 [9299.65] [0.13 σ]
Teffp = 4846 [9273] K [0.47 σ]

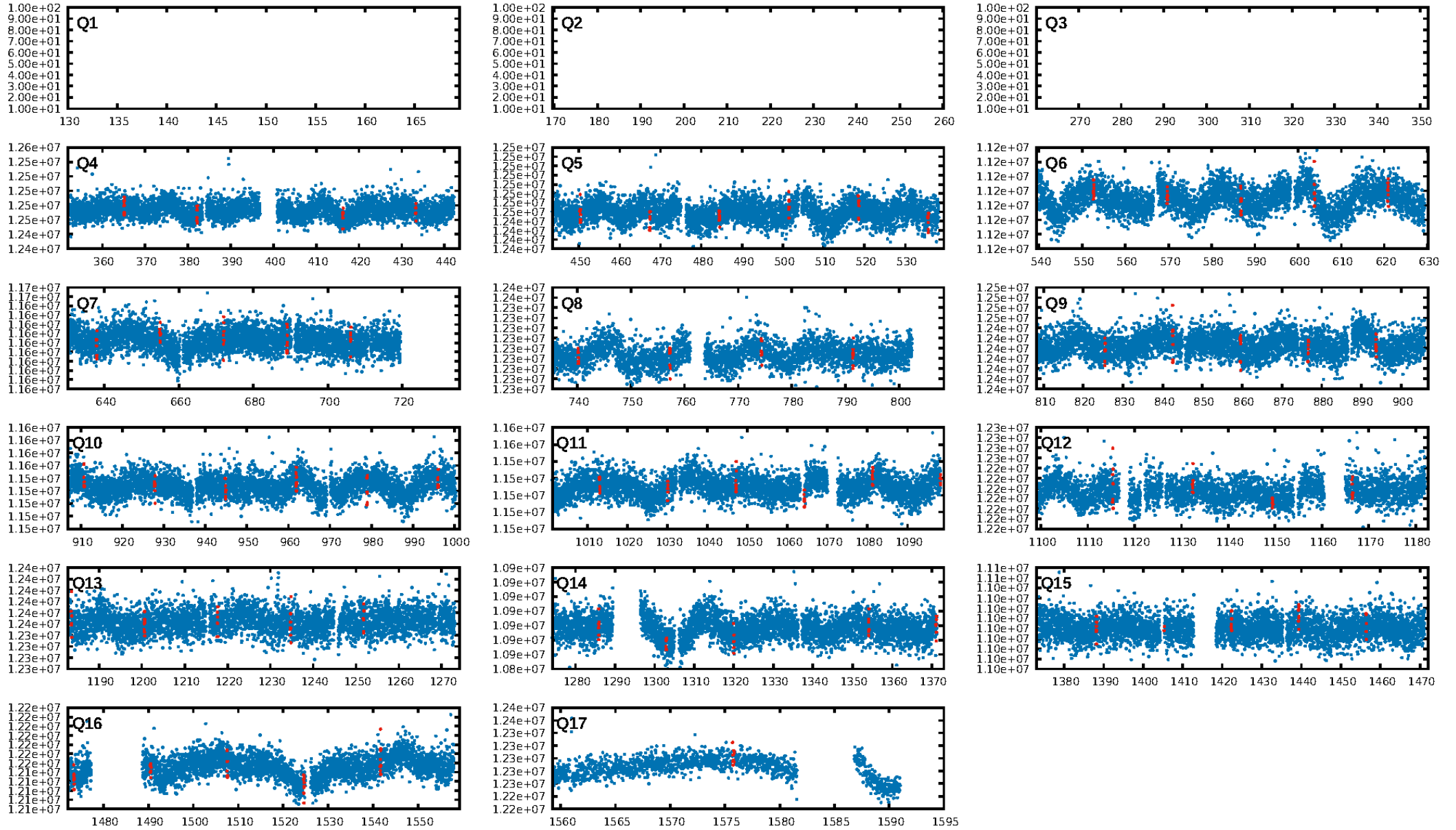
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [54.05 σ]
LongPeriod-sig: 100.0% [74.73 σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 13.9%
Bootstrap-pfa: 2.45e-10
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.2435
Centroid-sig: 34.0%
Centroid-so: 0.976 arcsec [1.21 σ]
OotOffset-rm: 0.527 arcsec [0.37 σ]
OotOffset-st: 1/0/3/2 [6]
KicOffset-rm: 0.410 arcsec [0.29 σ]
KicOffset-st: 1/0/3/2 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.57 [8/14]

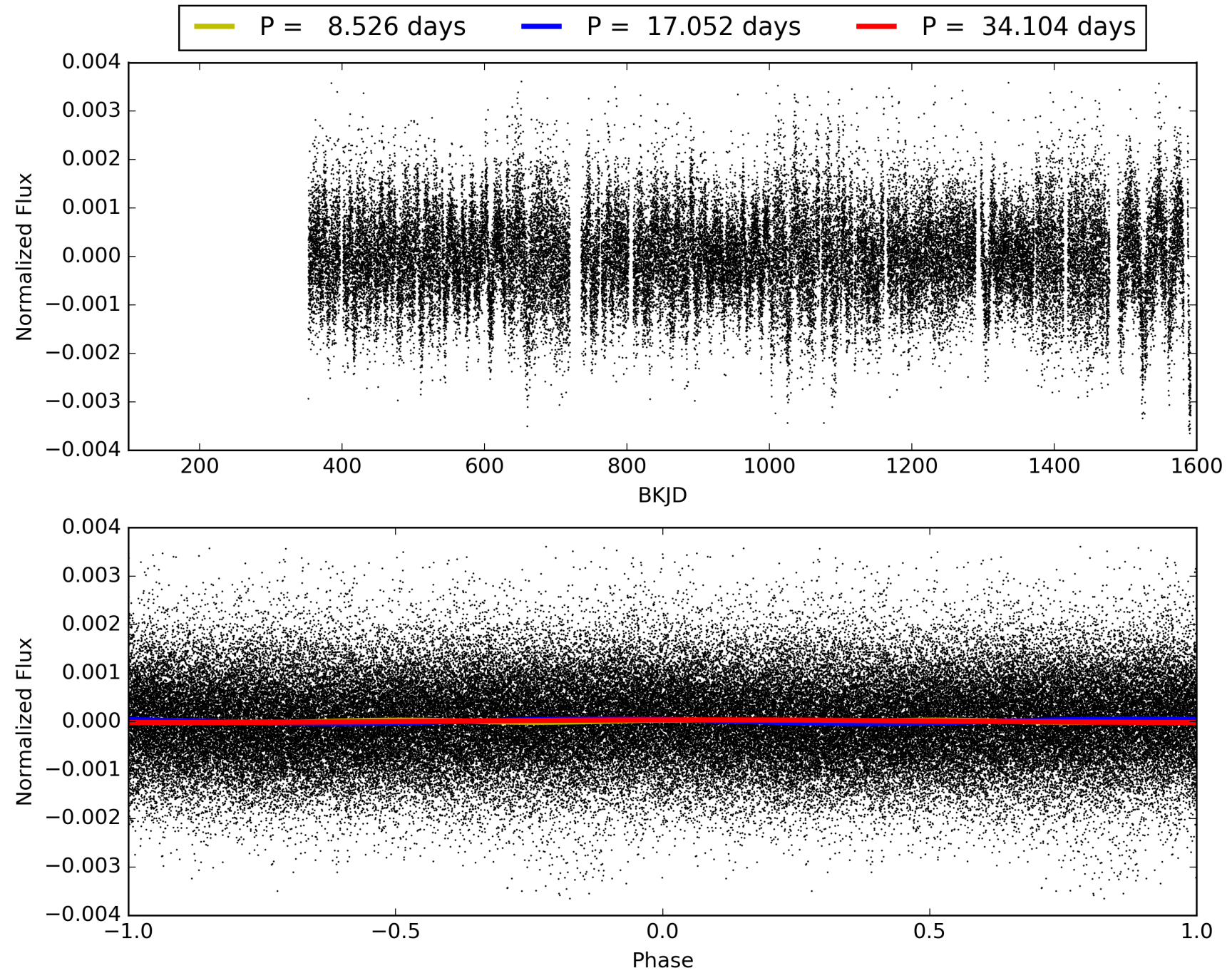
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:19:13 Z

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

TCE 009368424-02, PDC Light Curves

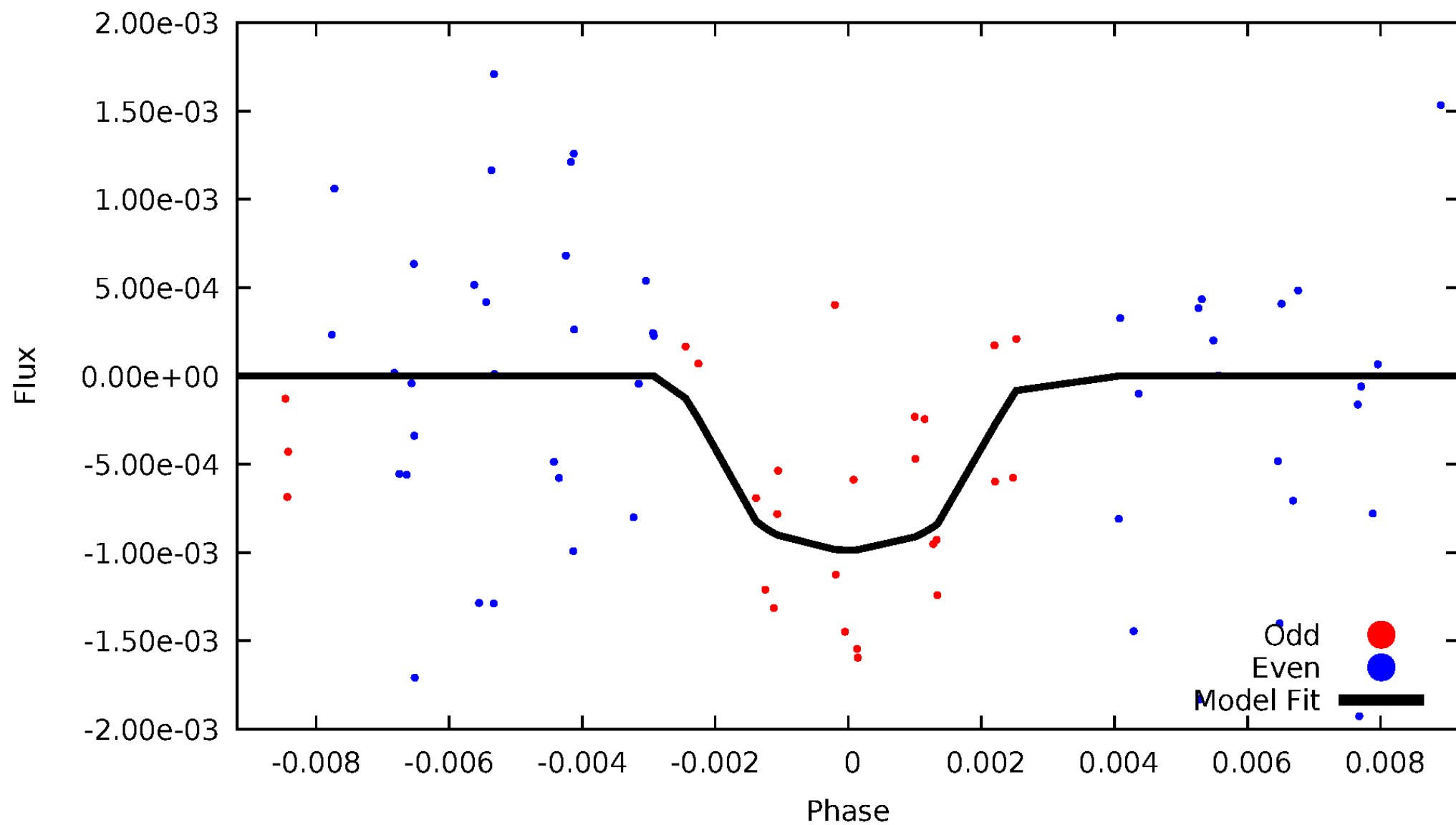


TCE 009368424-02



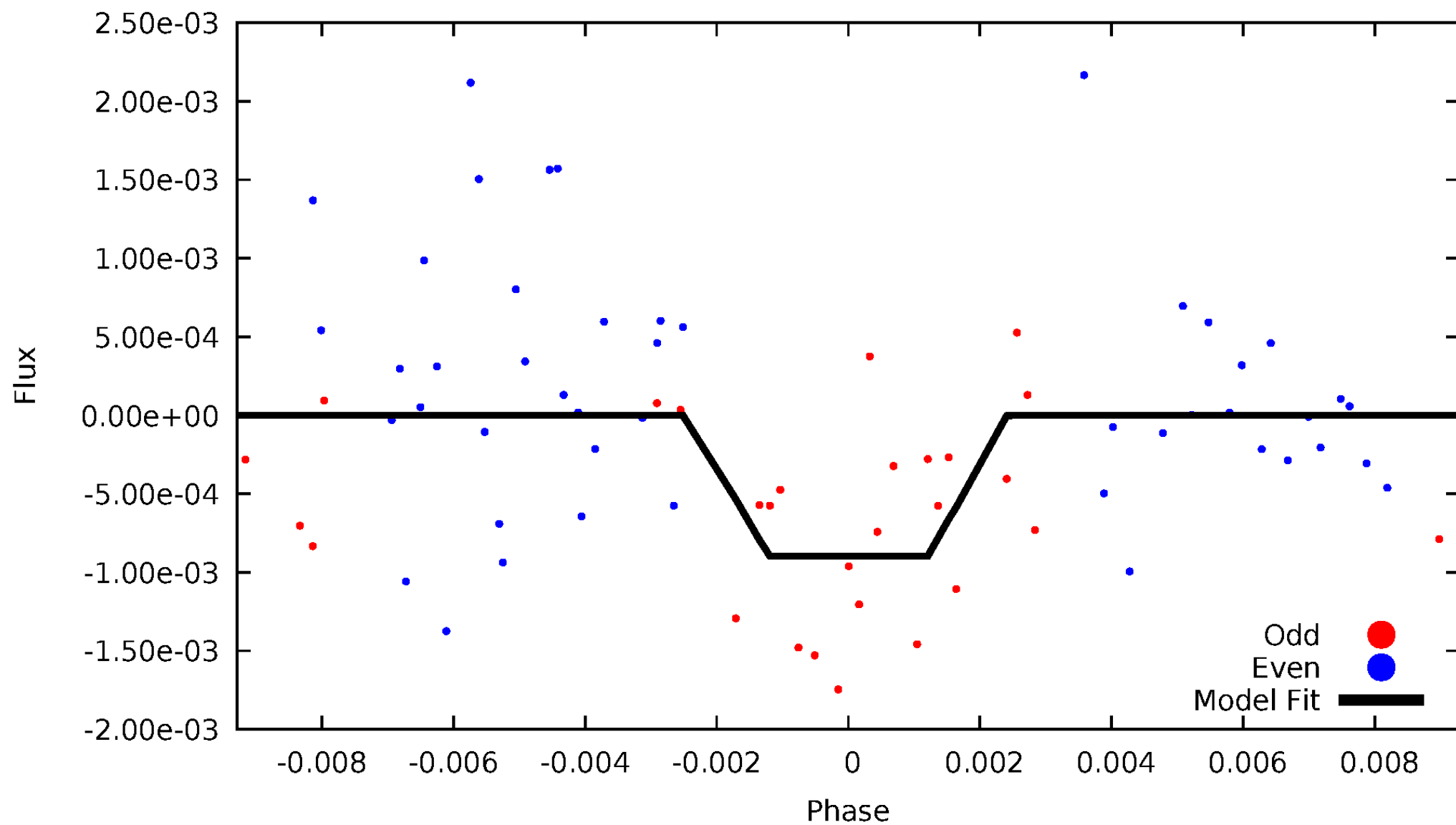
DV Odd/Even

TCE 009368424-02



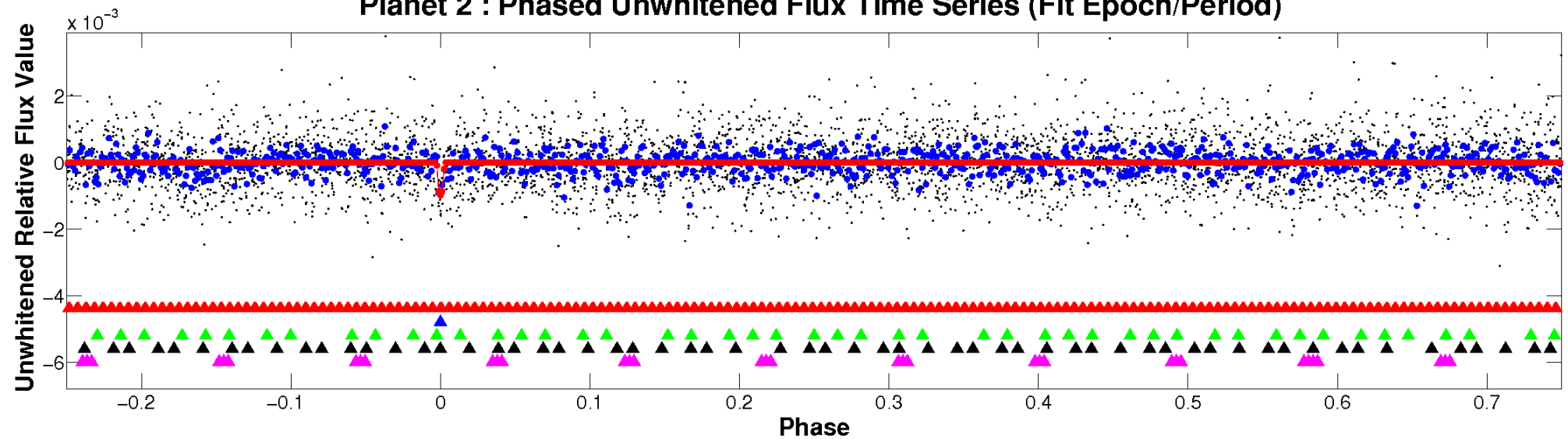
ALT Odd/Even

TCE 009368424-02

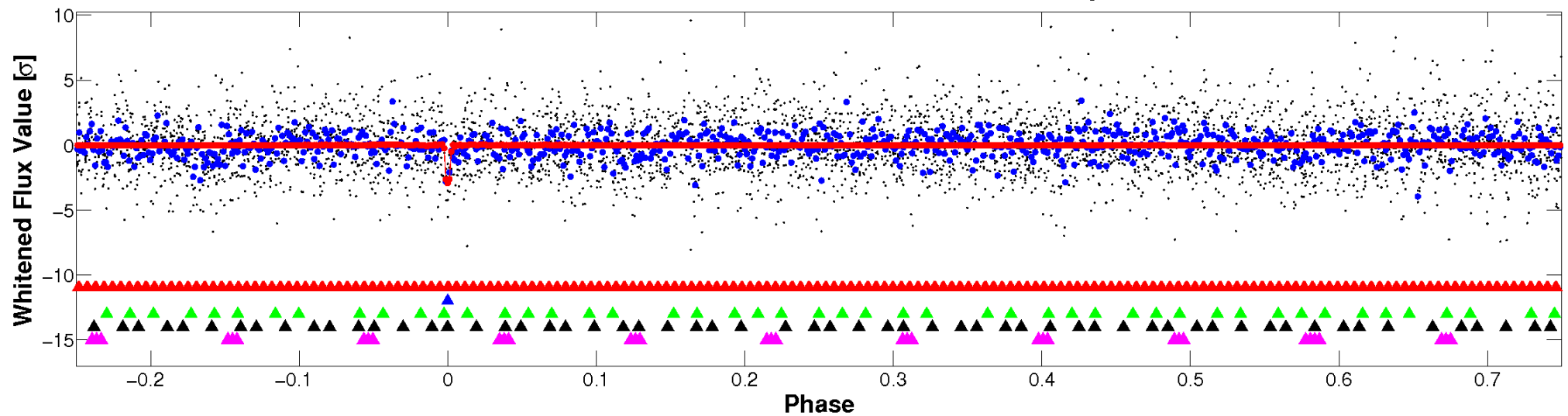


Non-Whitened Vs. Whitened Light Curve

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

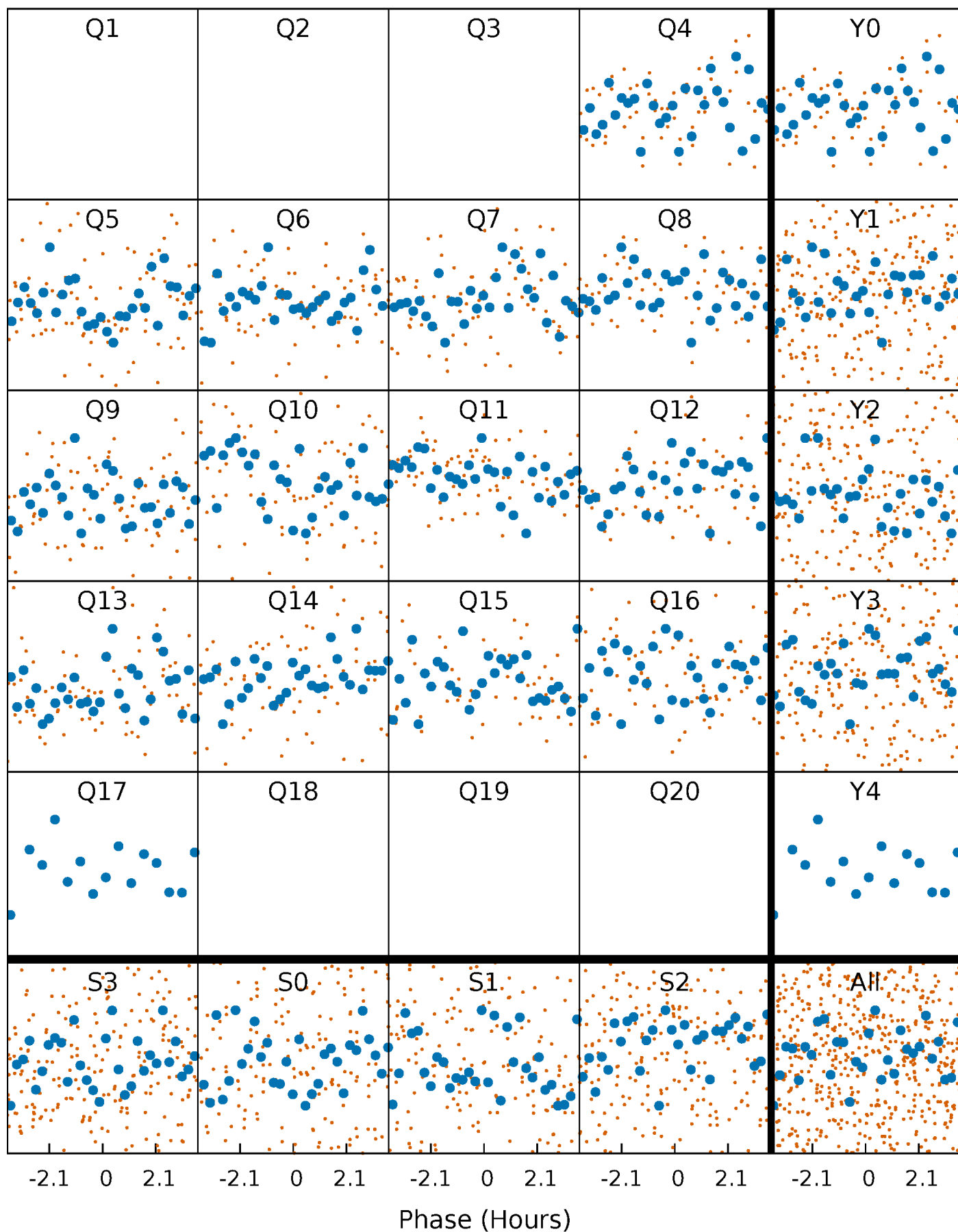


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



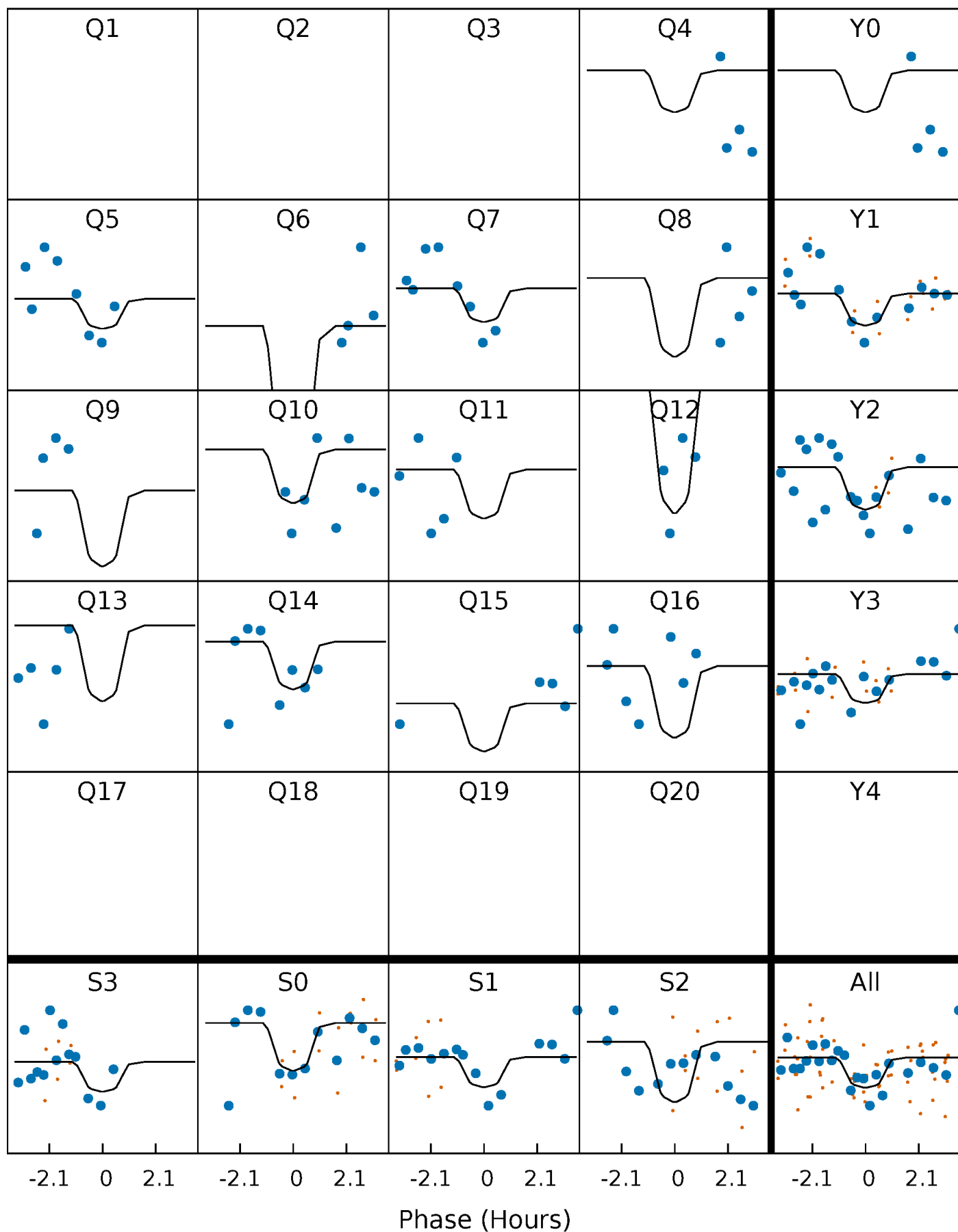
PDC Quarter-Phased Transit Curves

TCE 009368424-02 P= 17.051872 Days $T_0=143.413051$ (BKJD)



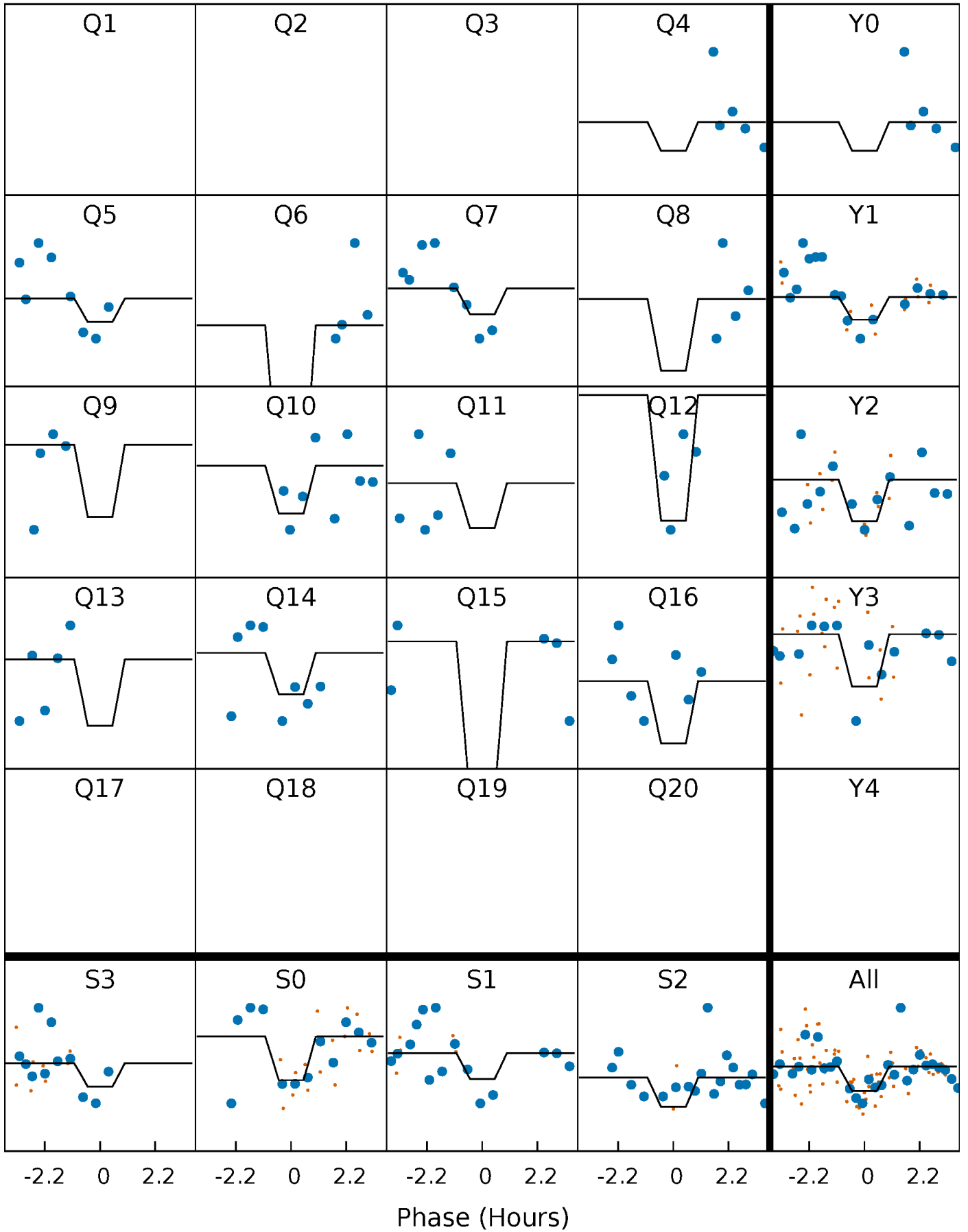
DV Quarter-Phased Transit Curves

TCE 009368424-02 P= 17.051872 Days $T_0=143.413051$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

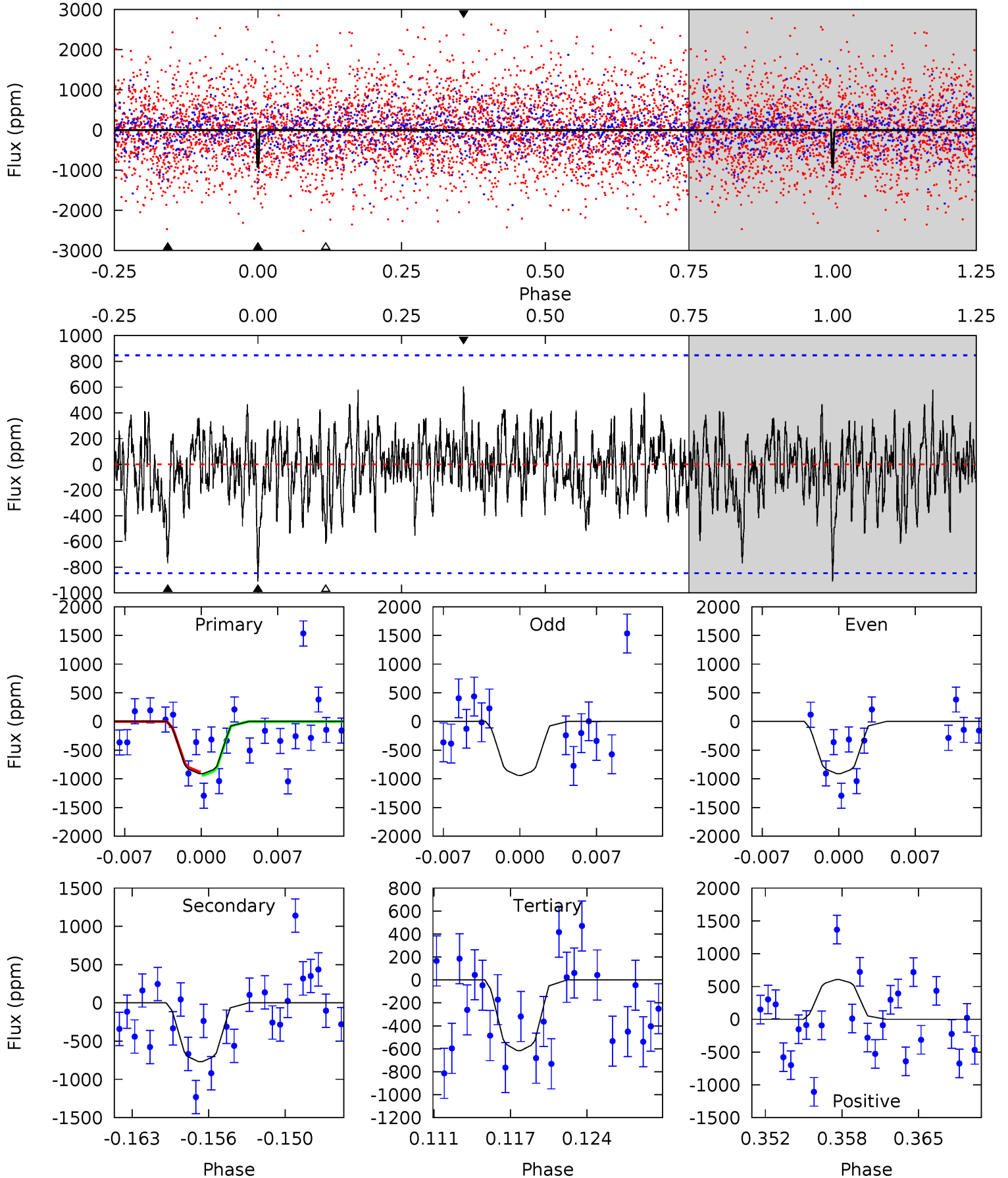
TCE 009368424-02 P= 17.051592 Days $T_0=143.426200$ (BKJD)



DV Model-Shift Uniqueness Test

009368424-02, $P = 17.051872$ Days, $E = 143.413051$ Days

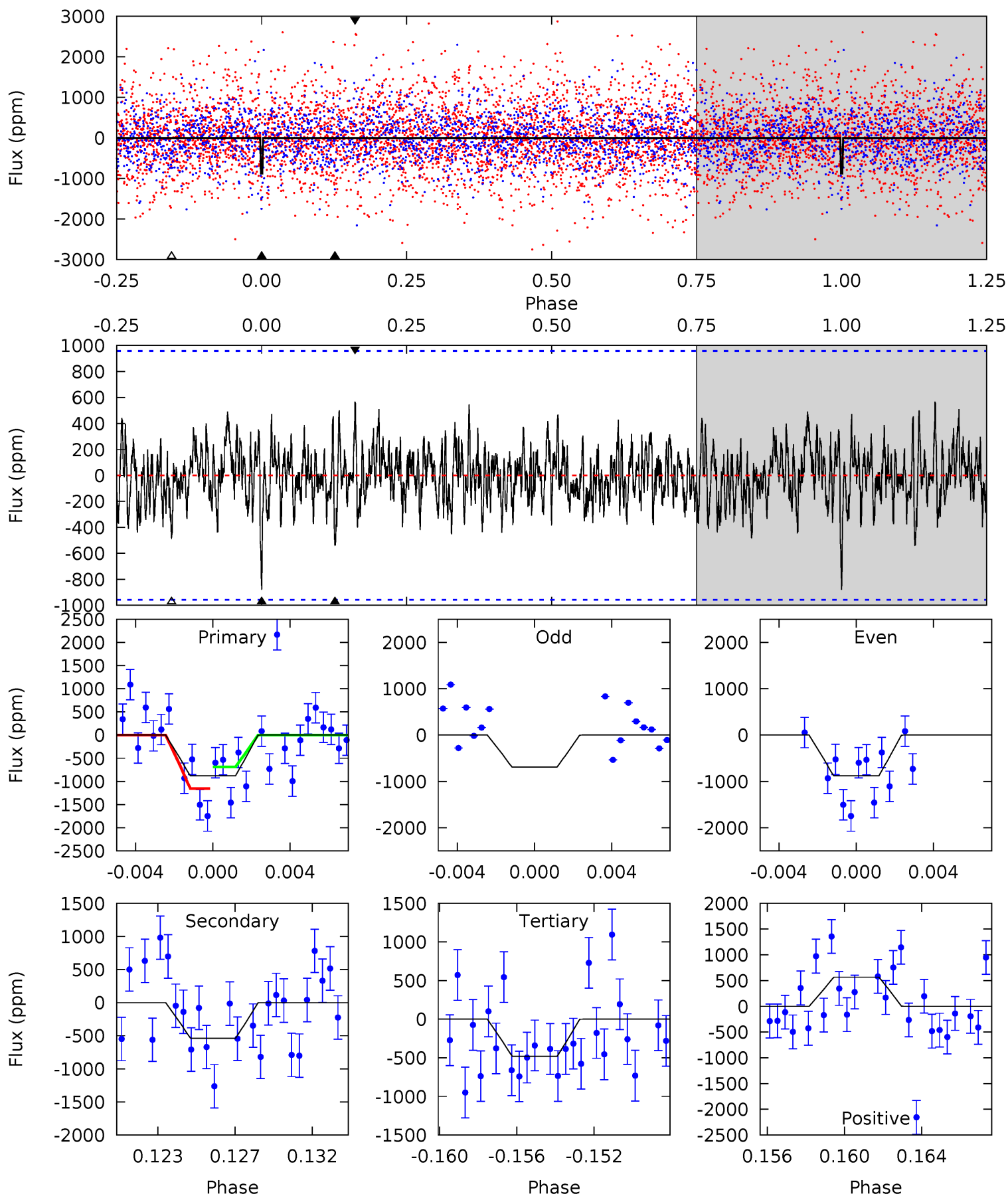
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.49	4.63	3.72	3.65	5.11	2.72	1.20	1.78	1.84	0.92	0.98	0.11	0.83	0.40	0.19



Alt Model-Shift Uniqueness Test

009368424-02, P = 17.051592 Days, E = 143.426200 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.78	2.91	2.60	3.07	5.19	2.87	0.96	2.18	1.70	0.31	-0.16	0.66	0.86	0.39	1.23



Stellar Parameters For KIC 009368424

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4765^{+167}_{-167}	$4.557^{+0.065}_{-0.035}$	$0.020^{+0.250}_{-0.300}$	$0.744^{+0.052}_{-0.072}$	$0.728^{+0.077}_{-0.058}$	$2.491^{+0.719}_{-0.318}$
	+4%/-4%	+1%/-1%	+1250%/-1500%	+7%/-10%	+11%/-8%	+29%/-13%
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 009368424-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-768 ± 166	$8.08^{+7.92}_{-5.51}$	737^{+31}_{-28}	3083^{+1452}_{-525}	90^{+798}_{-67}
Alt.	-537 ± 184	$7.55^{+8.07}_{-5.19}$	737^{+32}_{-32}	2983^{+1274}_{-527}	70^{+604}_{-53}

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 $A_{obs} \gg 1.0$

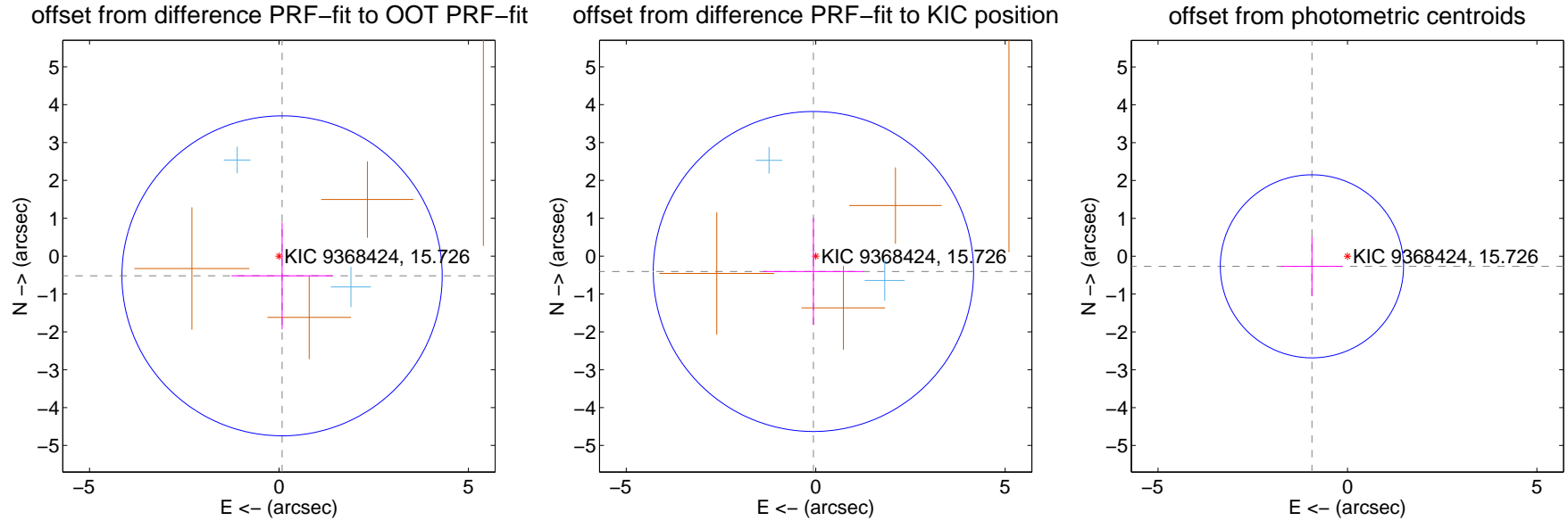
DV Centroid Data

Supplemental centroid analysis for 009368424-02. Kepler magnitude: 15.73. Transit SNR 11.44

There are 2 quarters with good PRF difference image offsets

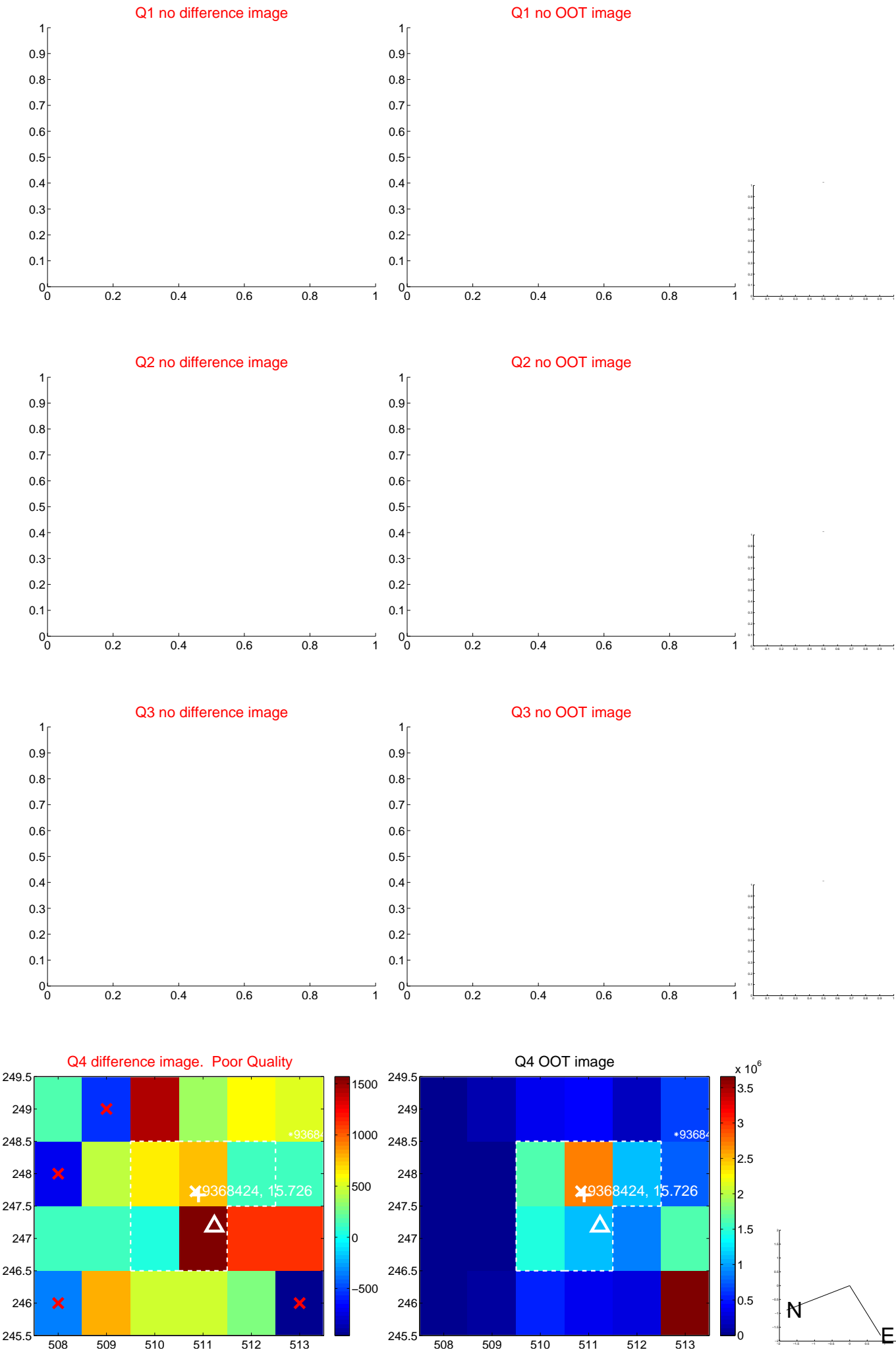
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.527 ± 1.408	0.37	-0.081 ± 1.336	-0.520 ± 1.410
PRF-fit source offset from KIC position	0.410 ± 1.408	0.29	0.061 ± 1.336	-0.406 ± 1.410
photometric centroid source offset	0.98 ± 0.81	1.21	0.94 ± 0.81	-0.27 ± 0.79

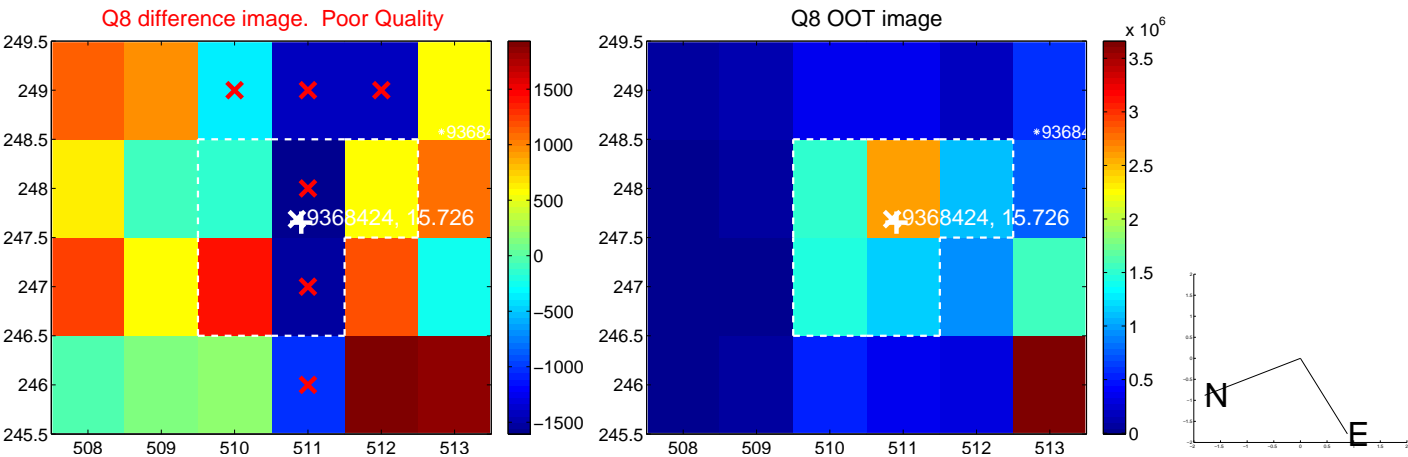
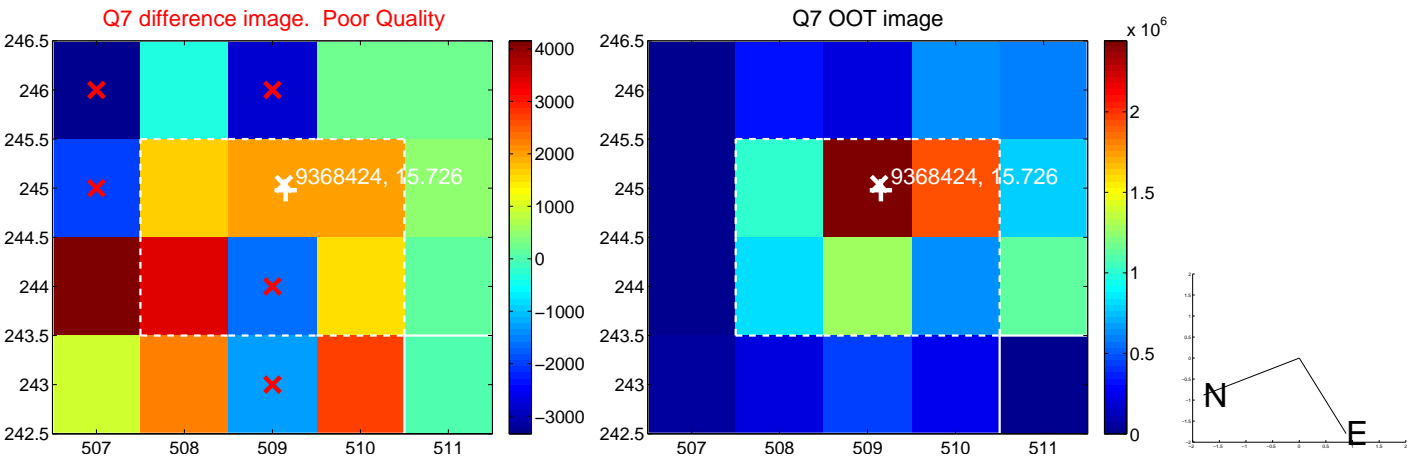
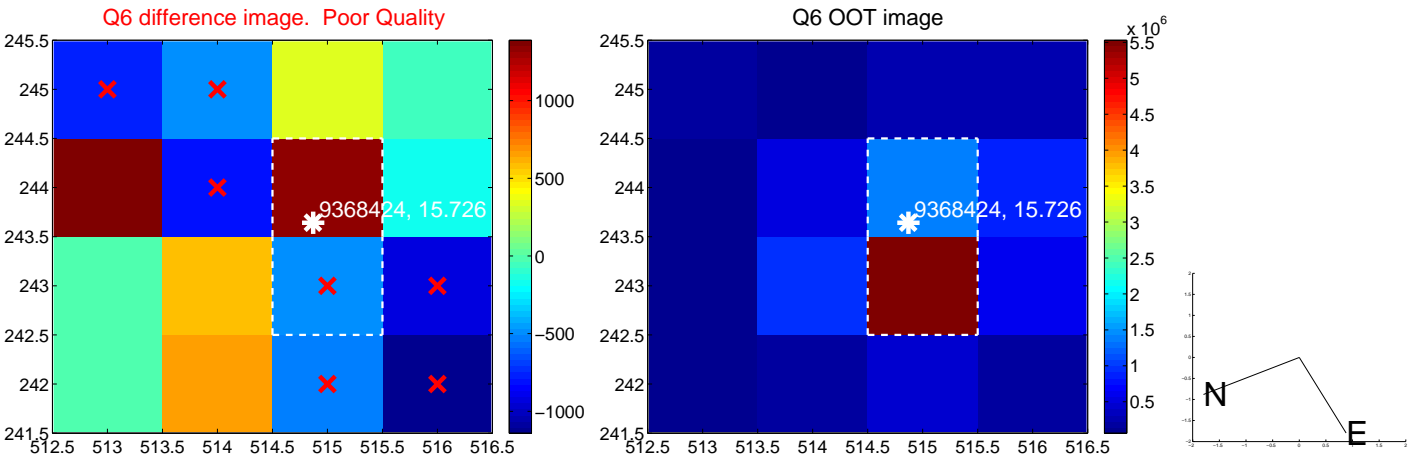
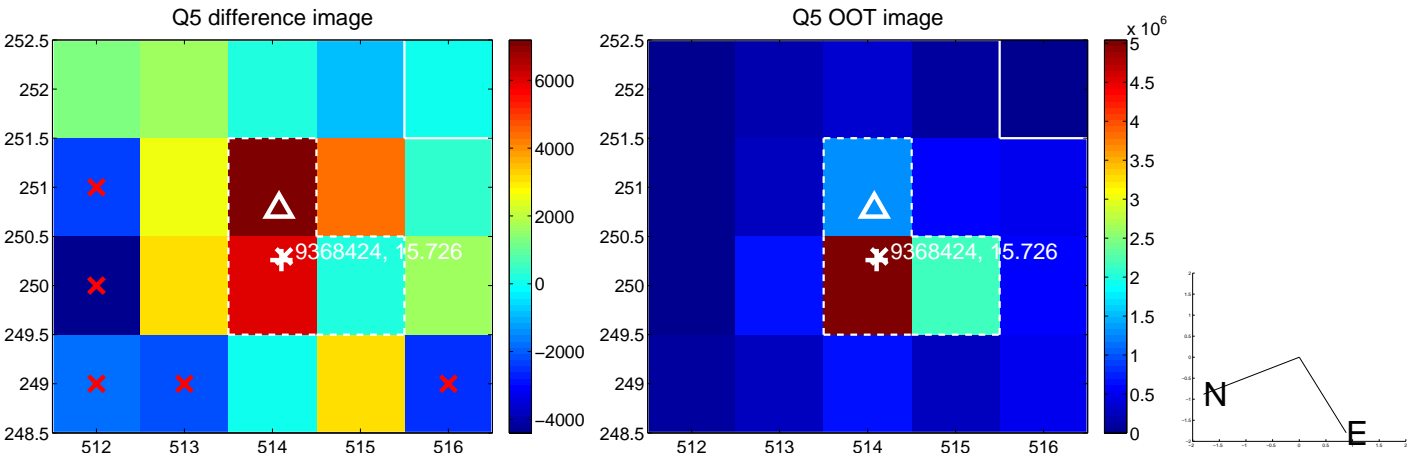


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

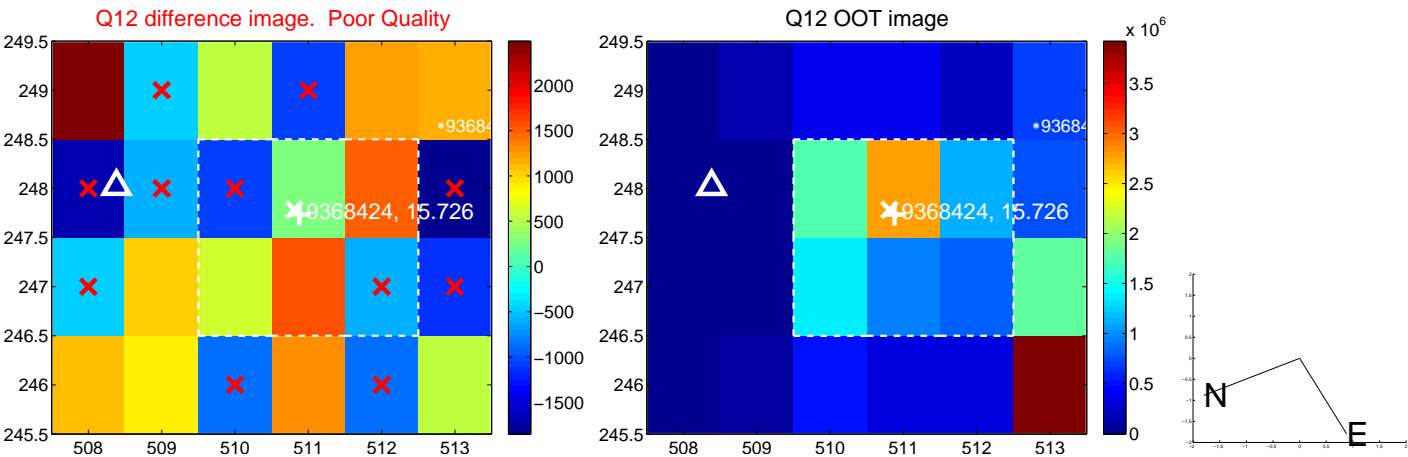
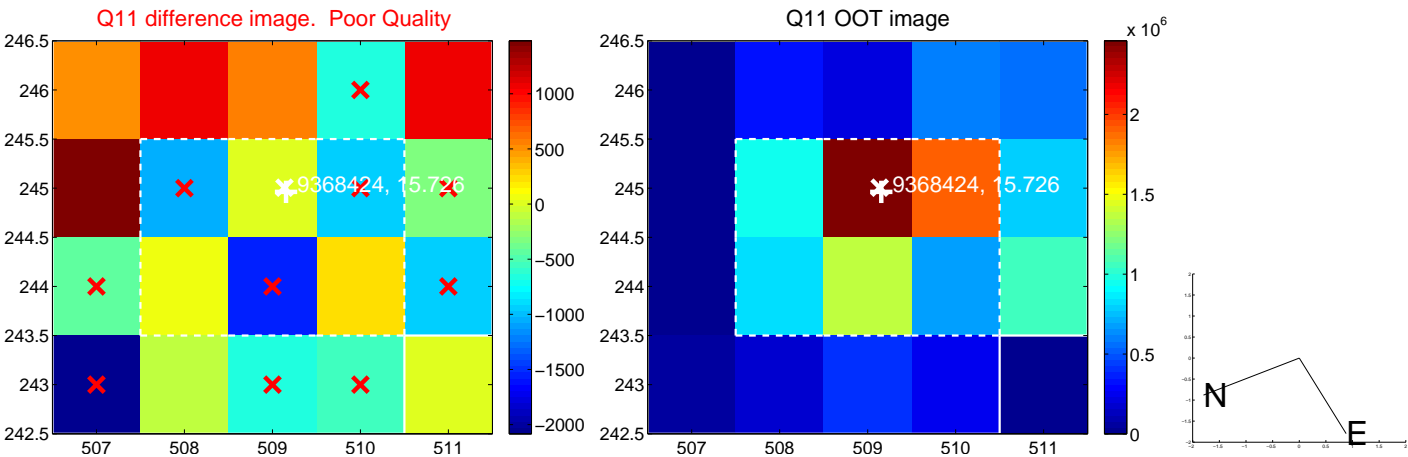
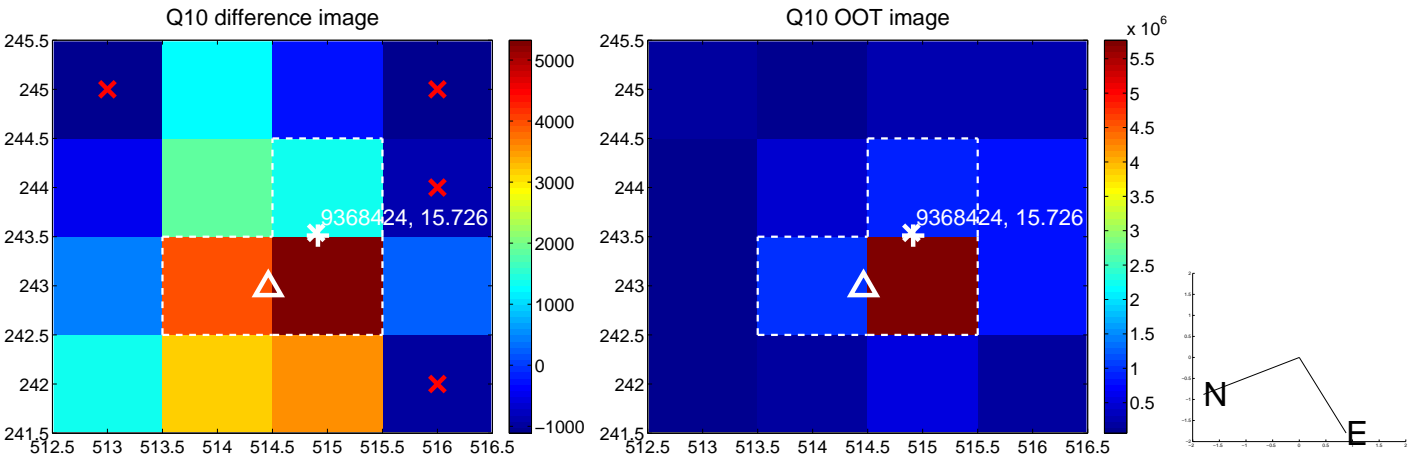
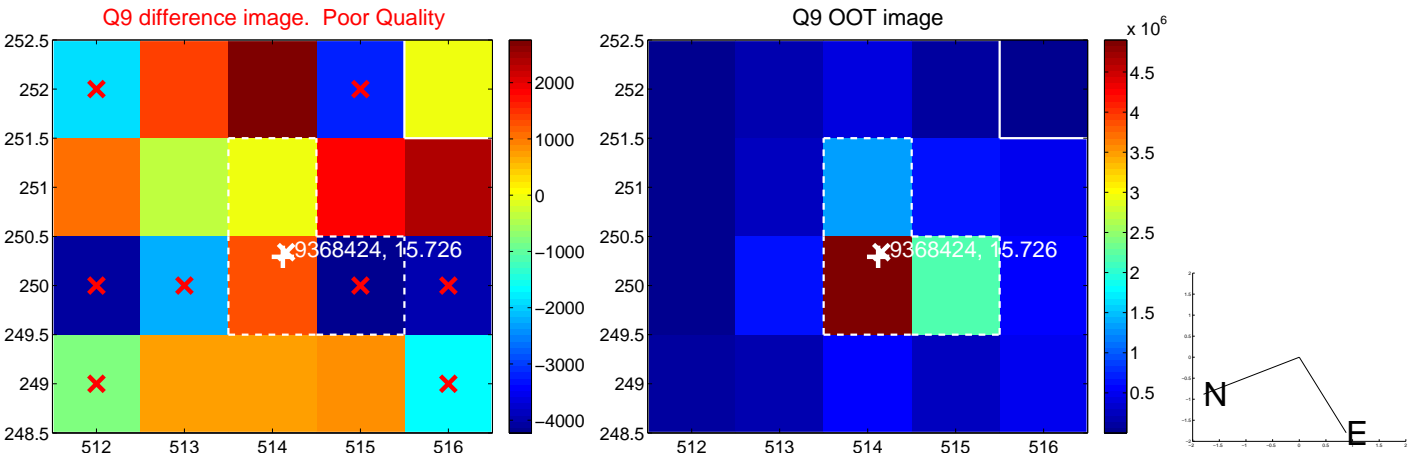
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



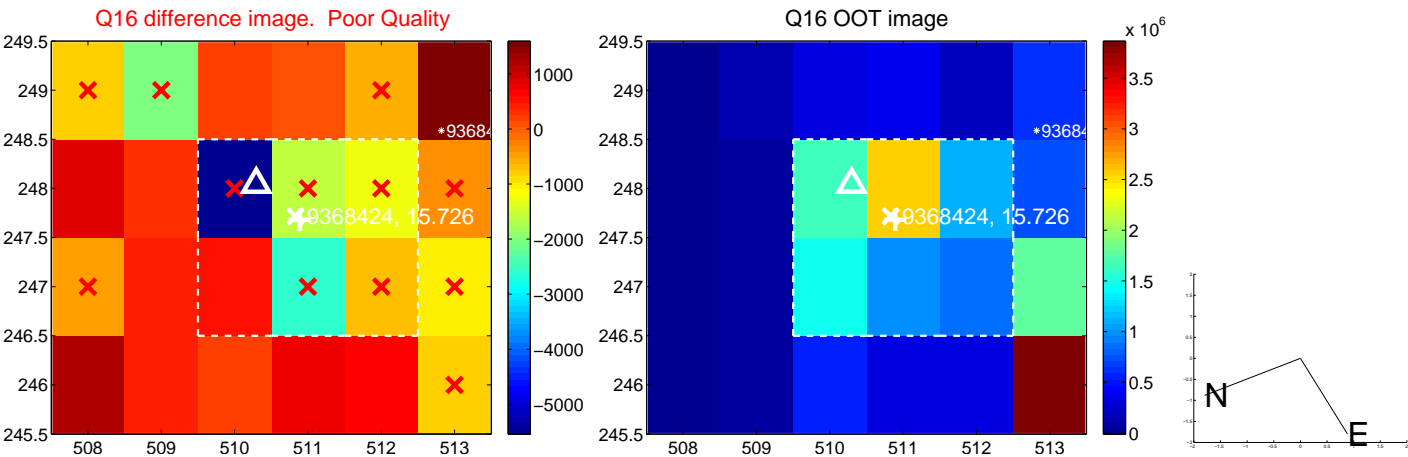
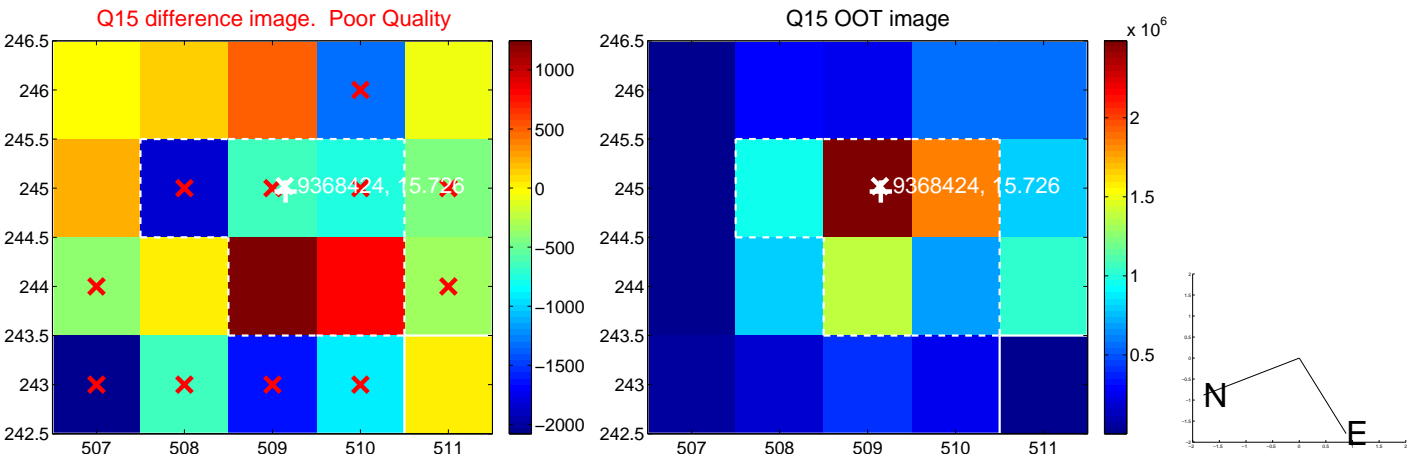
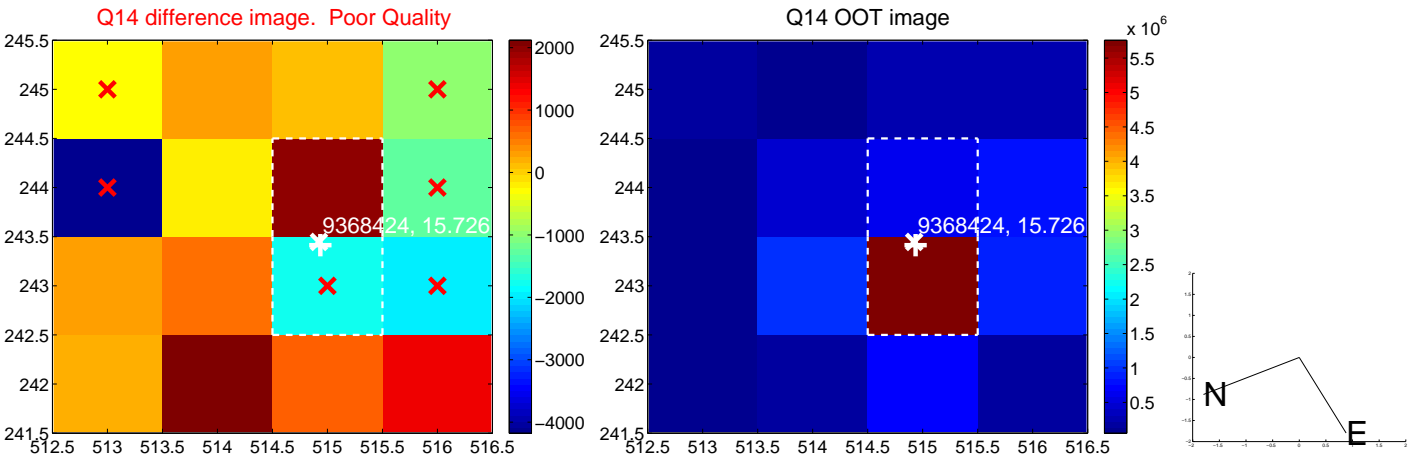
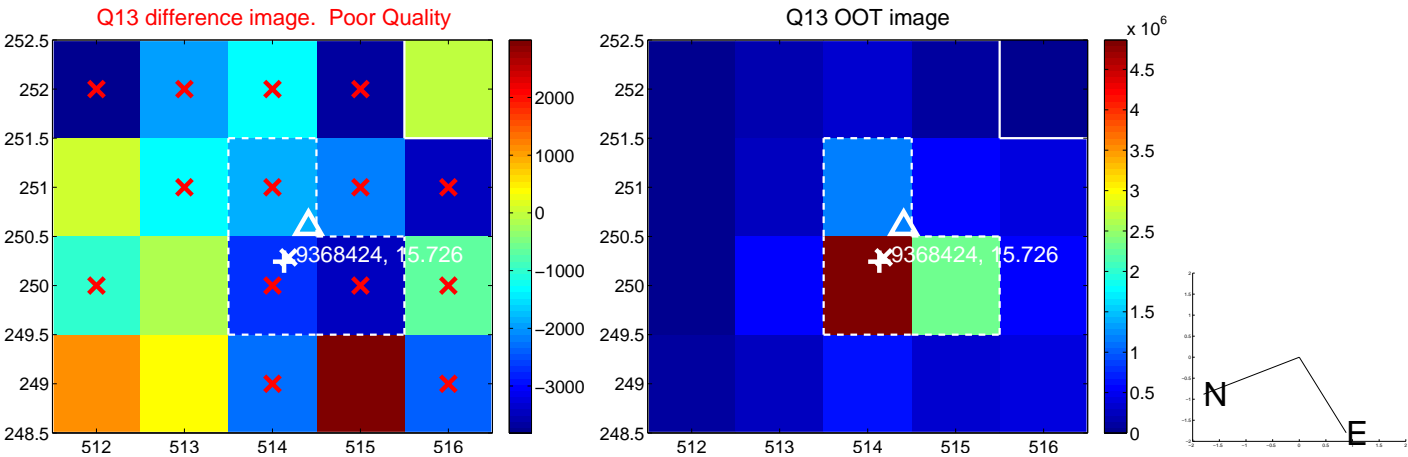
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



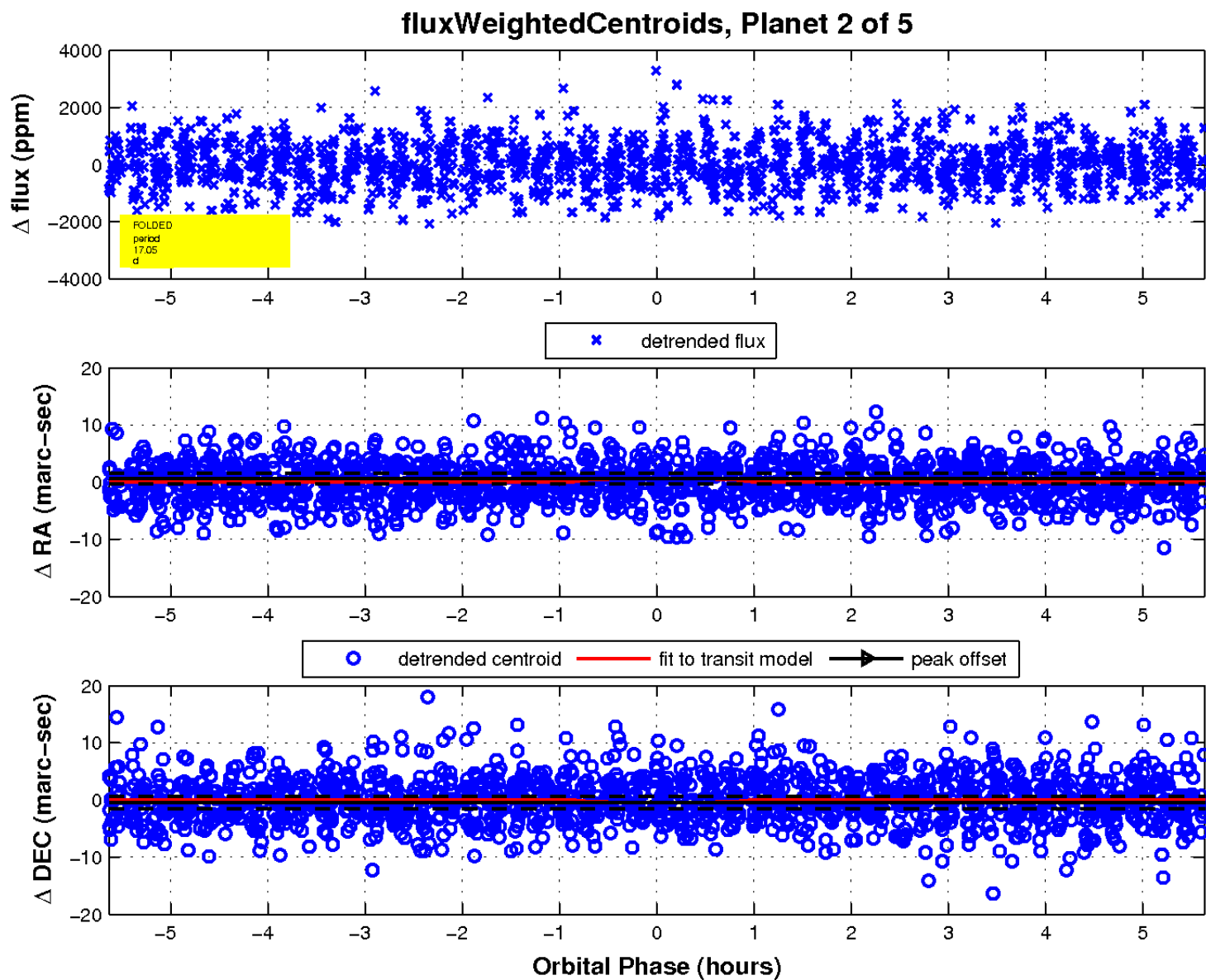
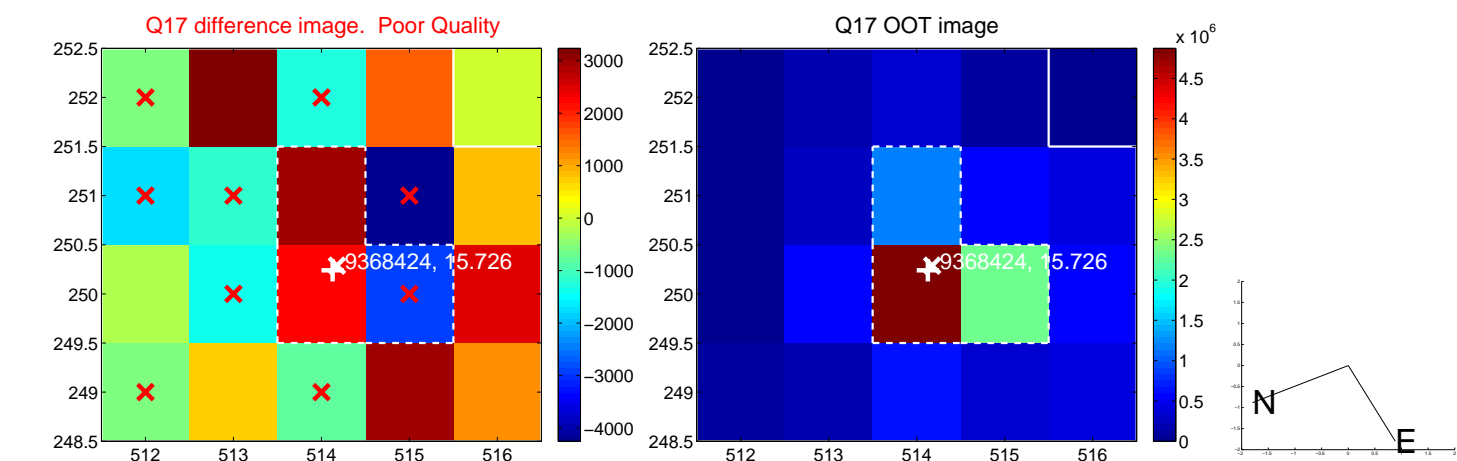
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

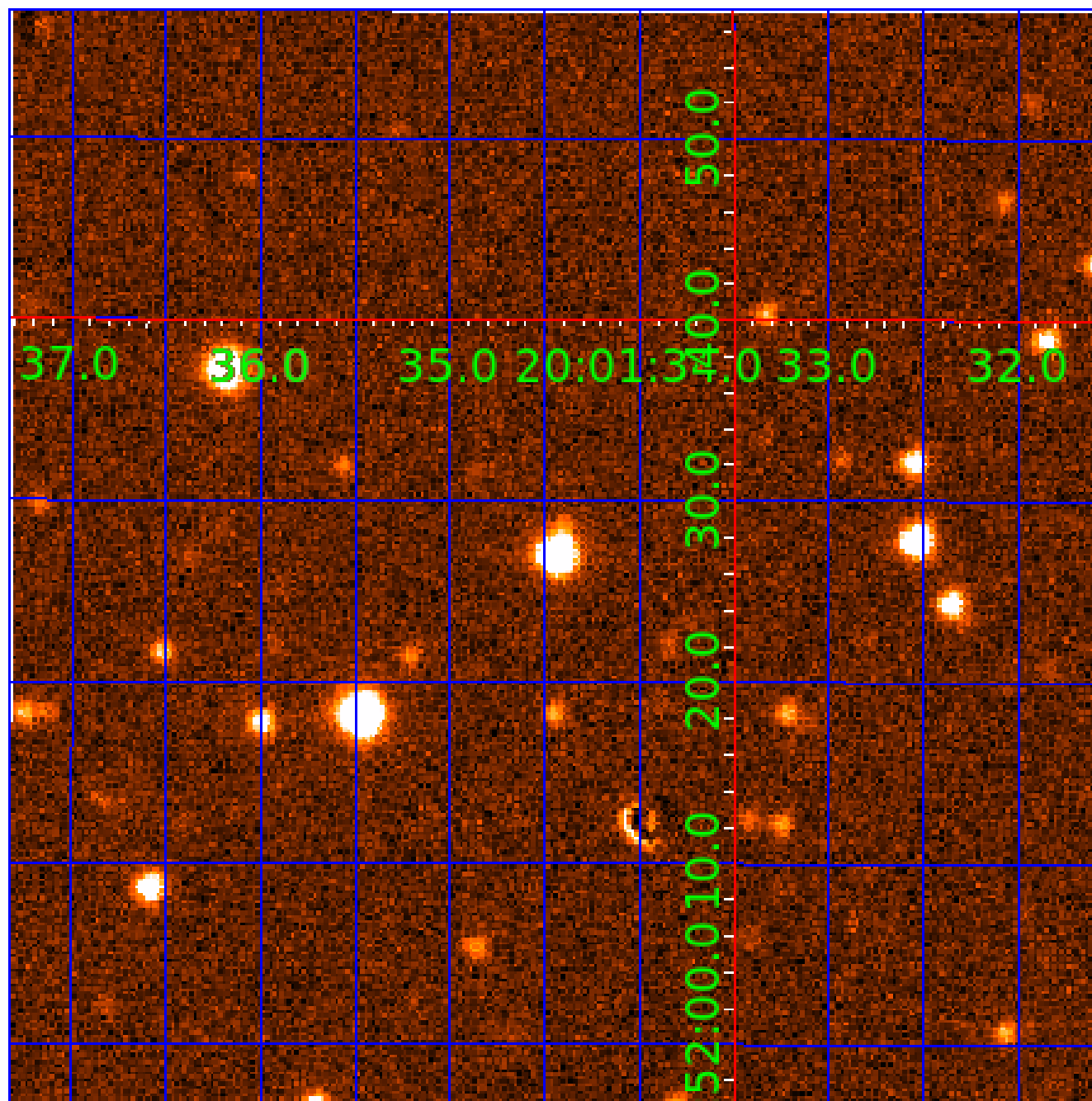


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009368424

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})
009368424-01	OBS	No	0.963400	131.651560	60.4	6.892	7.8	7.6	0.74	4765	0.56	866.53
009368424-02	OBS	No	17.051872	143.413051	985.1	1.880	11.4	11.4	0.74	4765	2.65	18.79
009368424-03	OBS	No	30.499766	134.763394	1081.5	3.097	10.3	10.3	0.74	4765	2.64	8.65
009368424-04	OBS	No	24.480135	144.764857	1582.0	1.469	10.4	11.2	0.74	4765	3.49	11.60
009368424-05	OBS	No	41.849879	170.470341	1645.1	1.641	10.5	11.0	0.74	4765	3.57	5.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009368424-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
009368424-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
009368424-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
009368424-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009368424-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

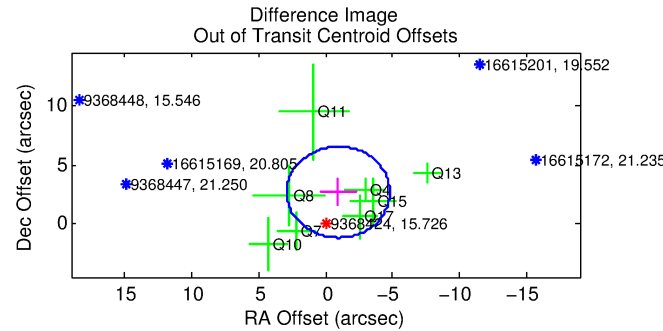
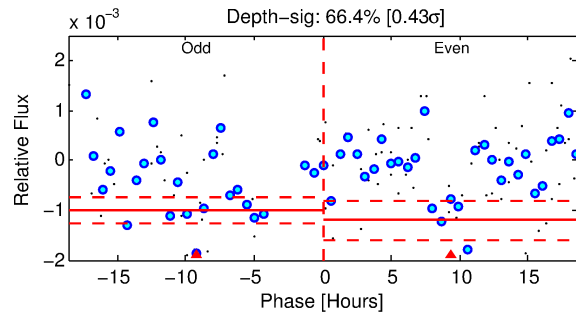
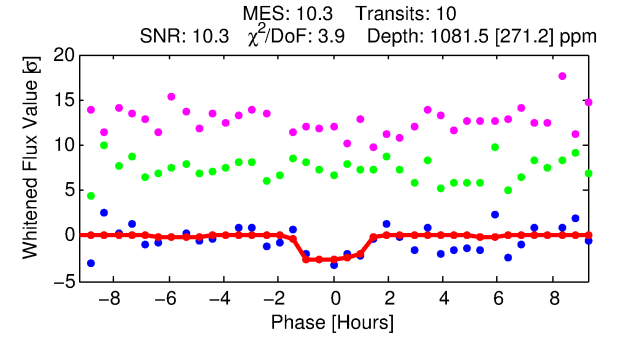
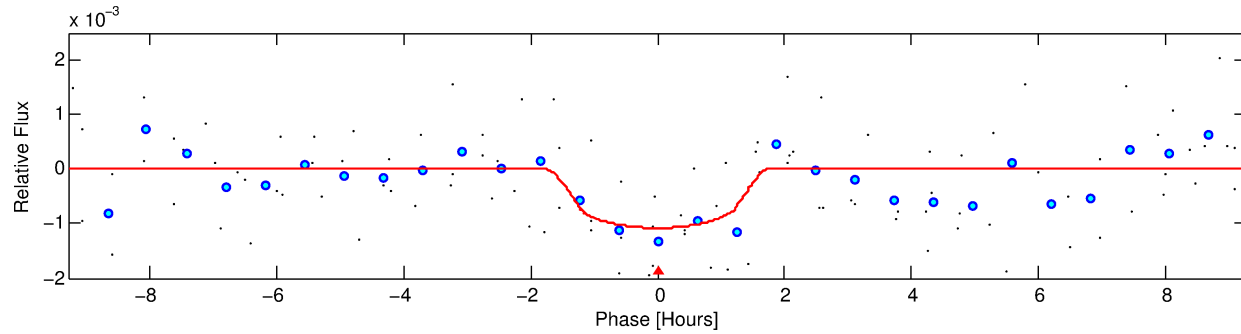
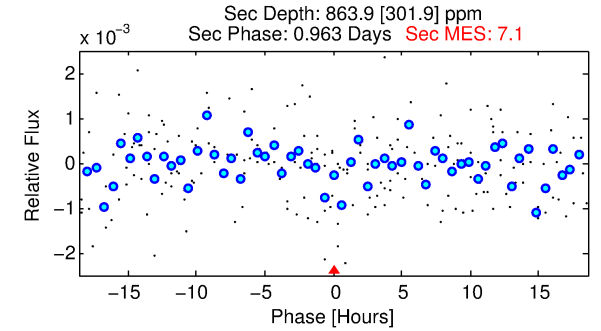
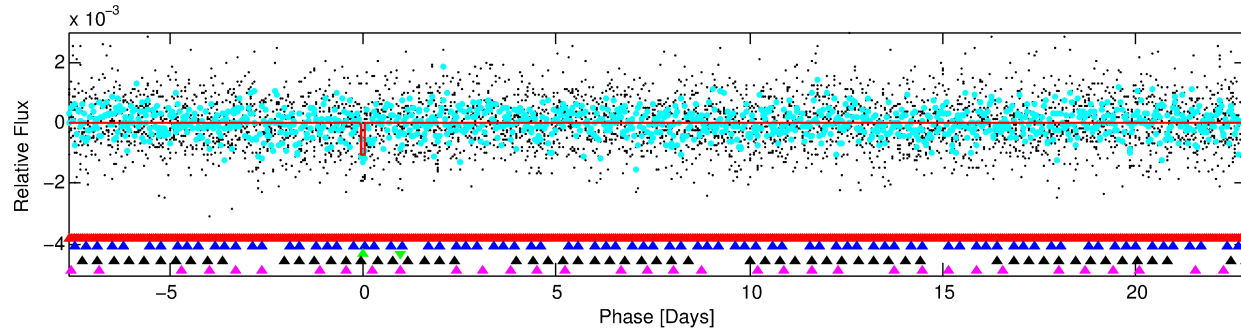
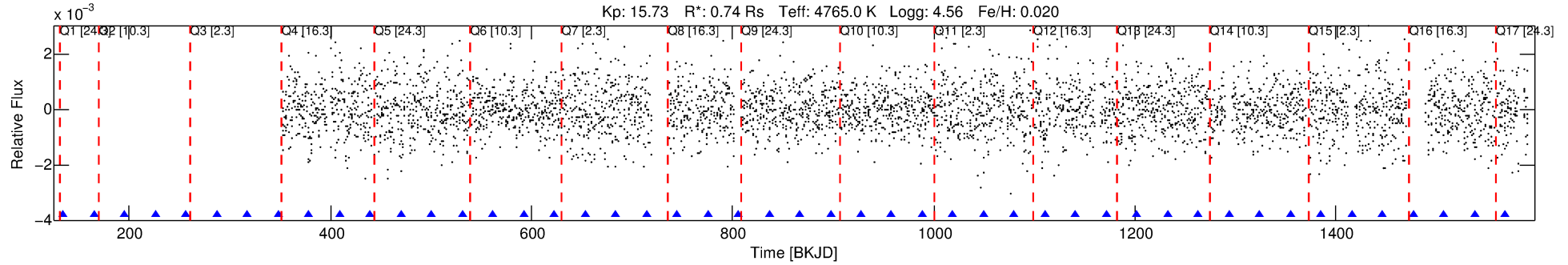
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009368424-03

No Significant Match Found

DV One-Page Summary

KIC: 9368424 Candidate: 3 of 5 Period: 30.500 d



DV Fit Results:

Period = 30.49977 [0.00186] d
Epoch = 134.7634 [0.0511] BKJD
Rp/R* = 0.0325 [0.0836]
a/R* = 55.55 [475.28]
b = 0.72 [5.79]
Seff = 8.65 [1.59]
Teq = 437 [20] K
Rp = 2.64 [6.79] Re
a = 0.1719 [0.0140] AU
Ag = 2018.61 [10410.46] [0.19σ]
Teffp = 4532 [5844] K [0.70σ]

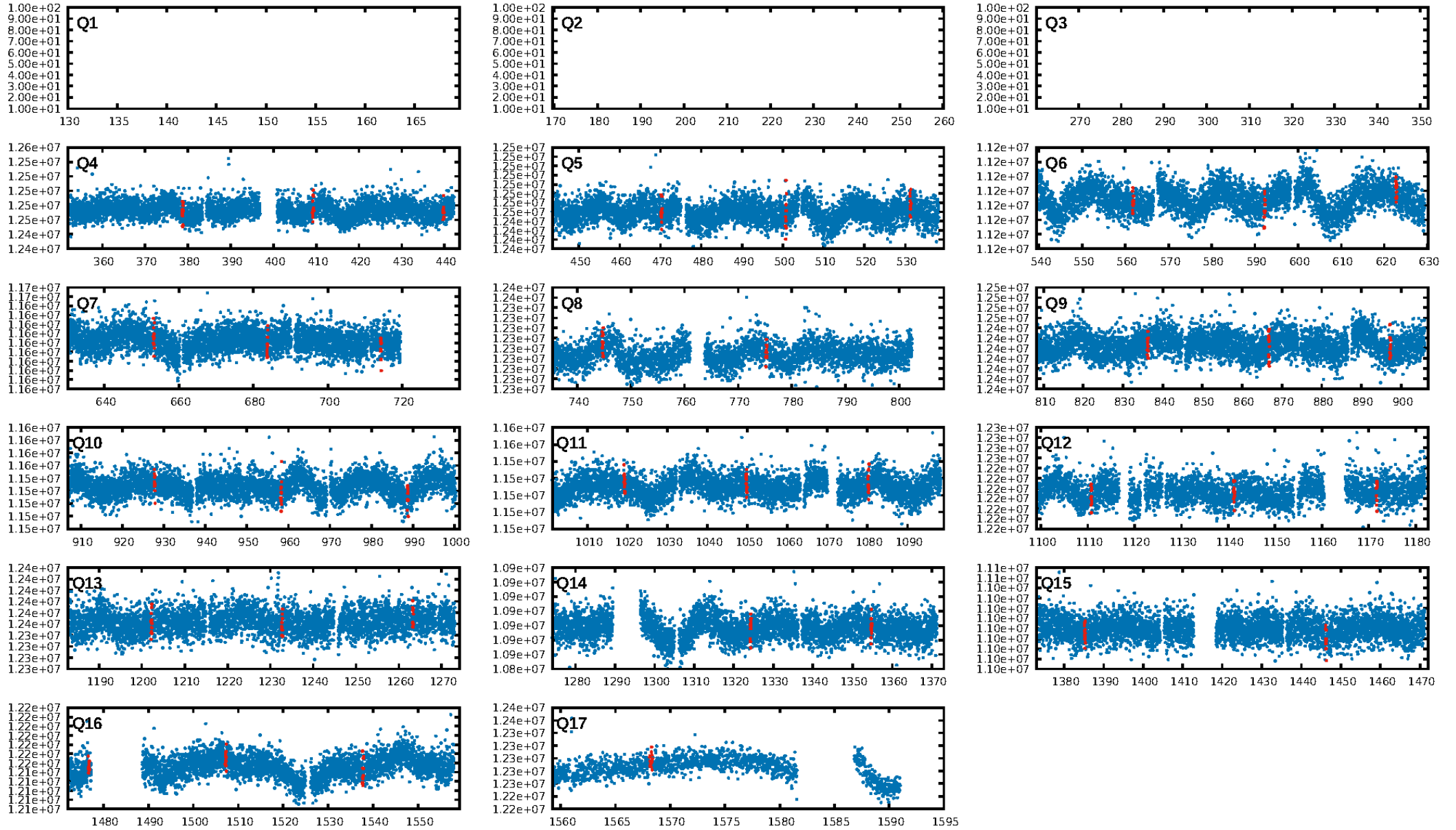
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [42.15σ]
LongPeriod-sig: 100.0% [77.72σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 41.0%
Bootstrap-pfa: 9.39e-10
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: -0.02376
Centroid-sig: 0.0%
Centroid-so: 3.134 arcsec [4.19σ]
OotOffset-rm: 2.836 arcsec [2.21σ]
KicOffset-rm: 2.811 arcsec [1.99σ]
OotOffset-st: 1/3/2/2 [8]
KicOffset-st: 1/3/2/2 [8]
DiffImageQuality-fgm: 0.00 [0/8]
DiffImageOverlap-fno: 0.07 [1/14]

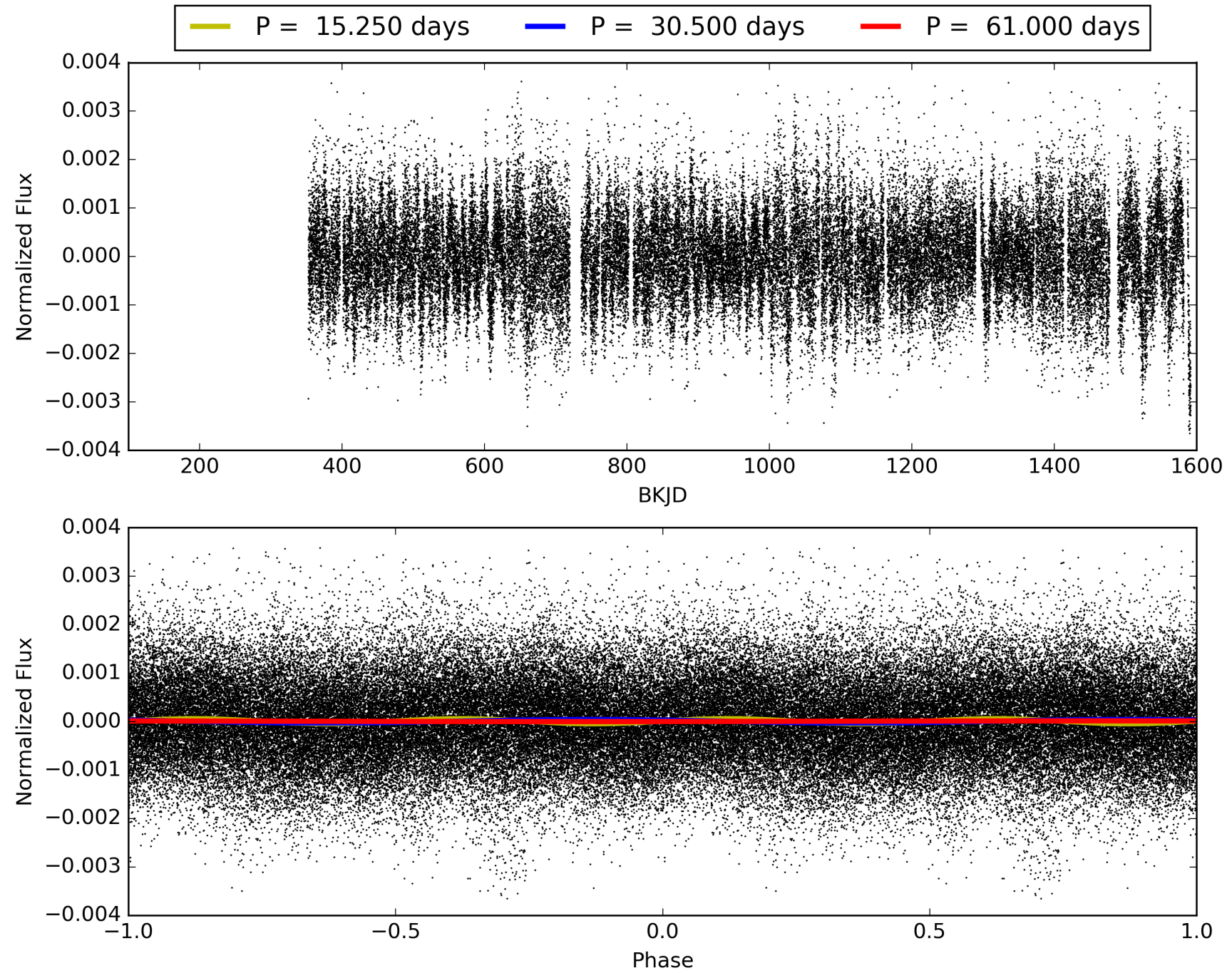
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:19:16 Z

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

TCE 009368424-03, PDC Light Curves

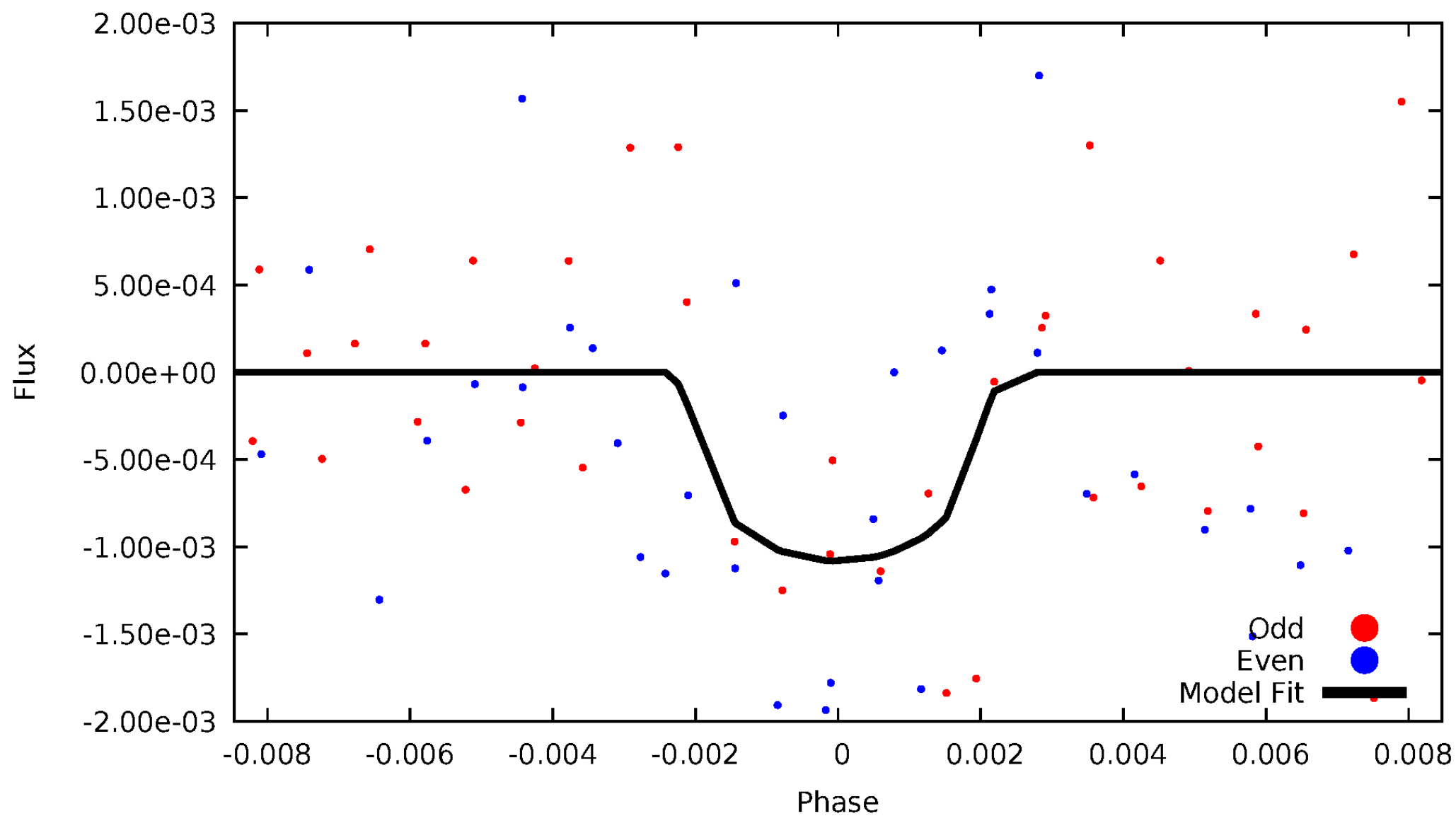


TCE 009368424-03



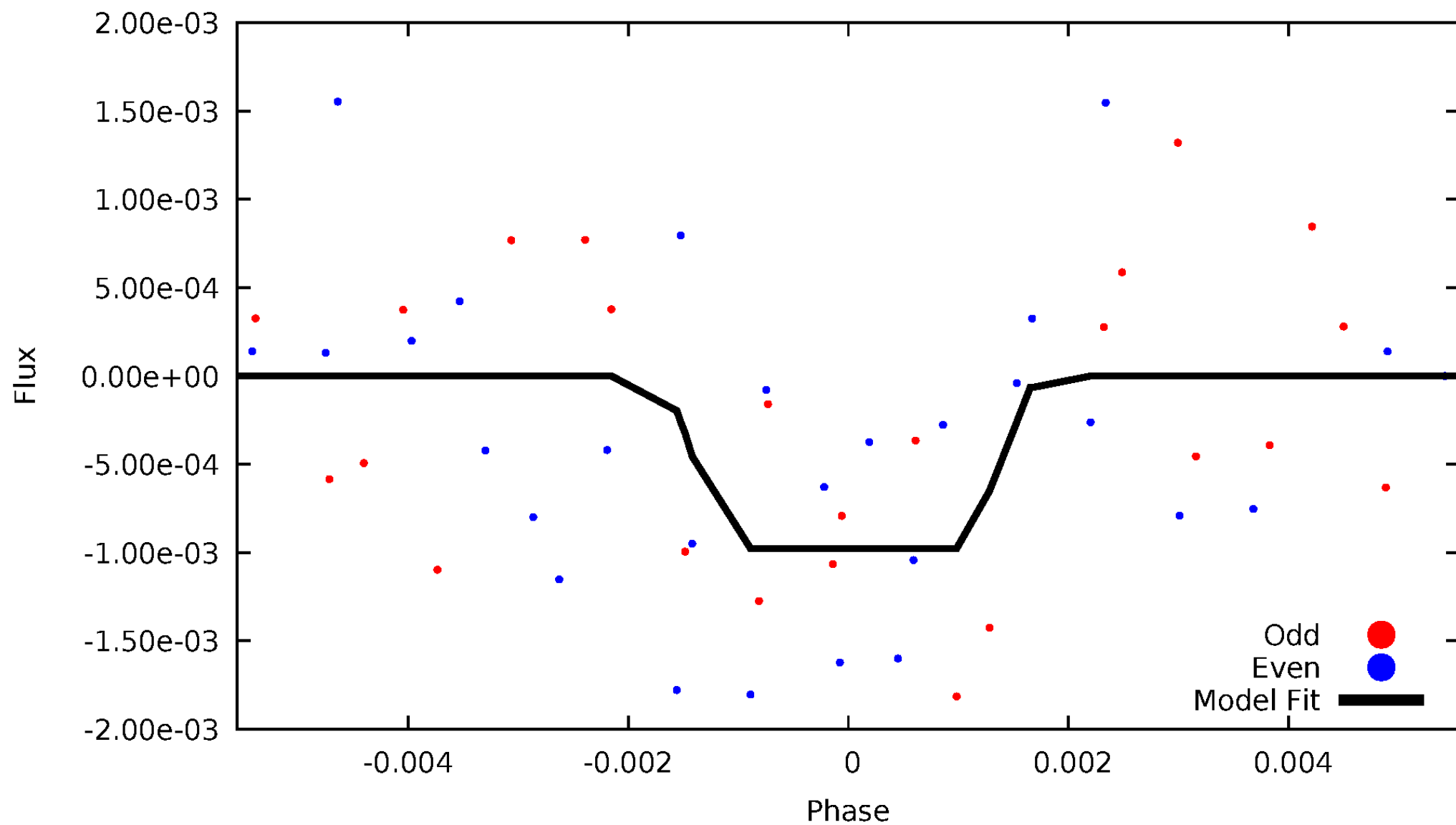
DV Odd/Even

TCE 009368424-03



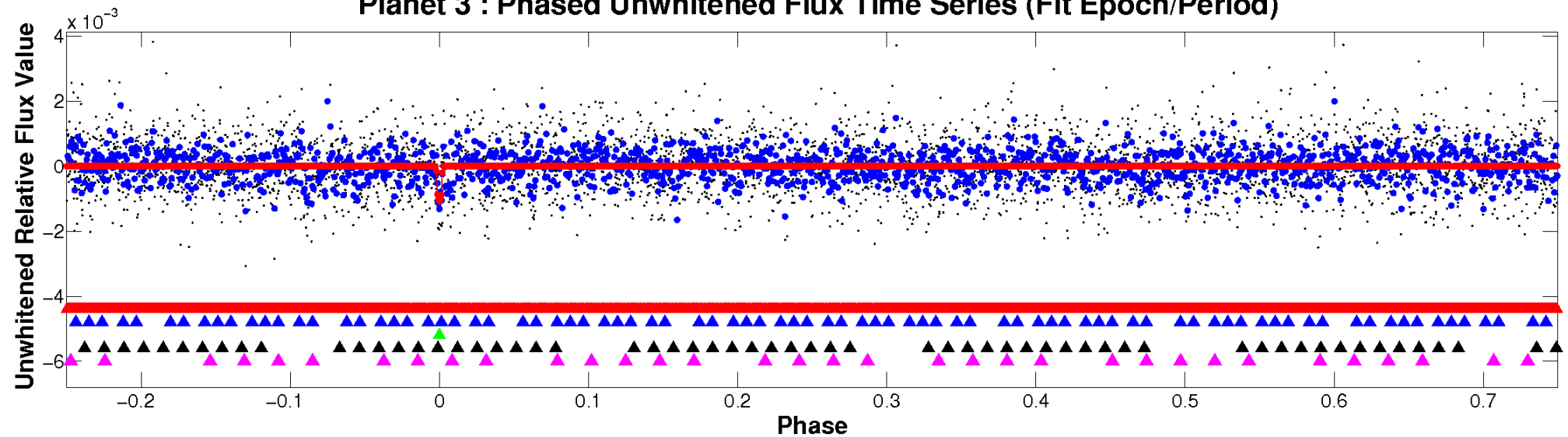
ALT Odd/Even

TCE 009368424-03

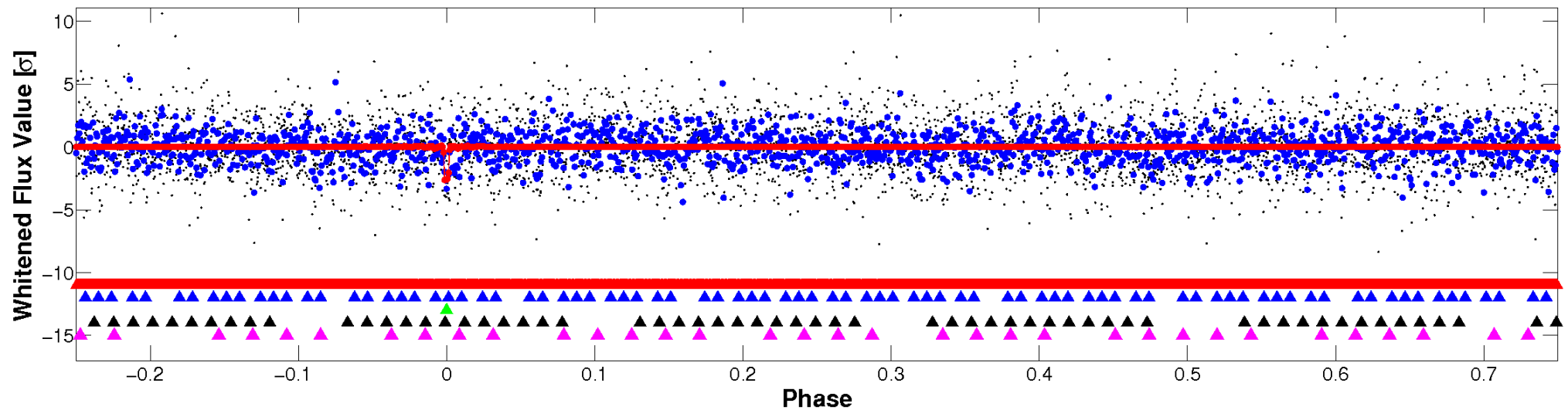


Non-Whitened Vs. Whitened Light Curve

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

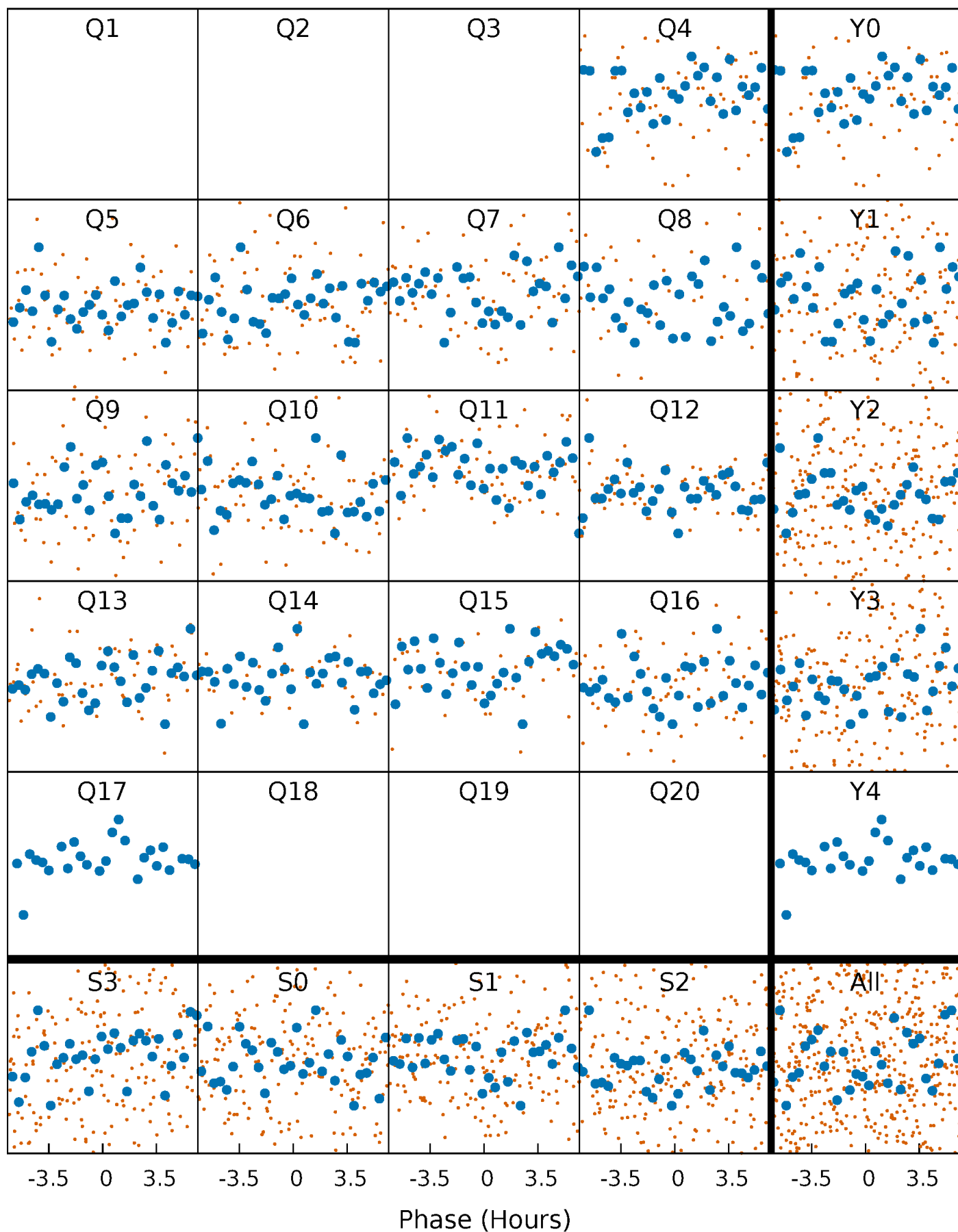


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



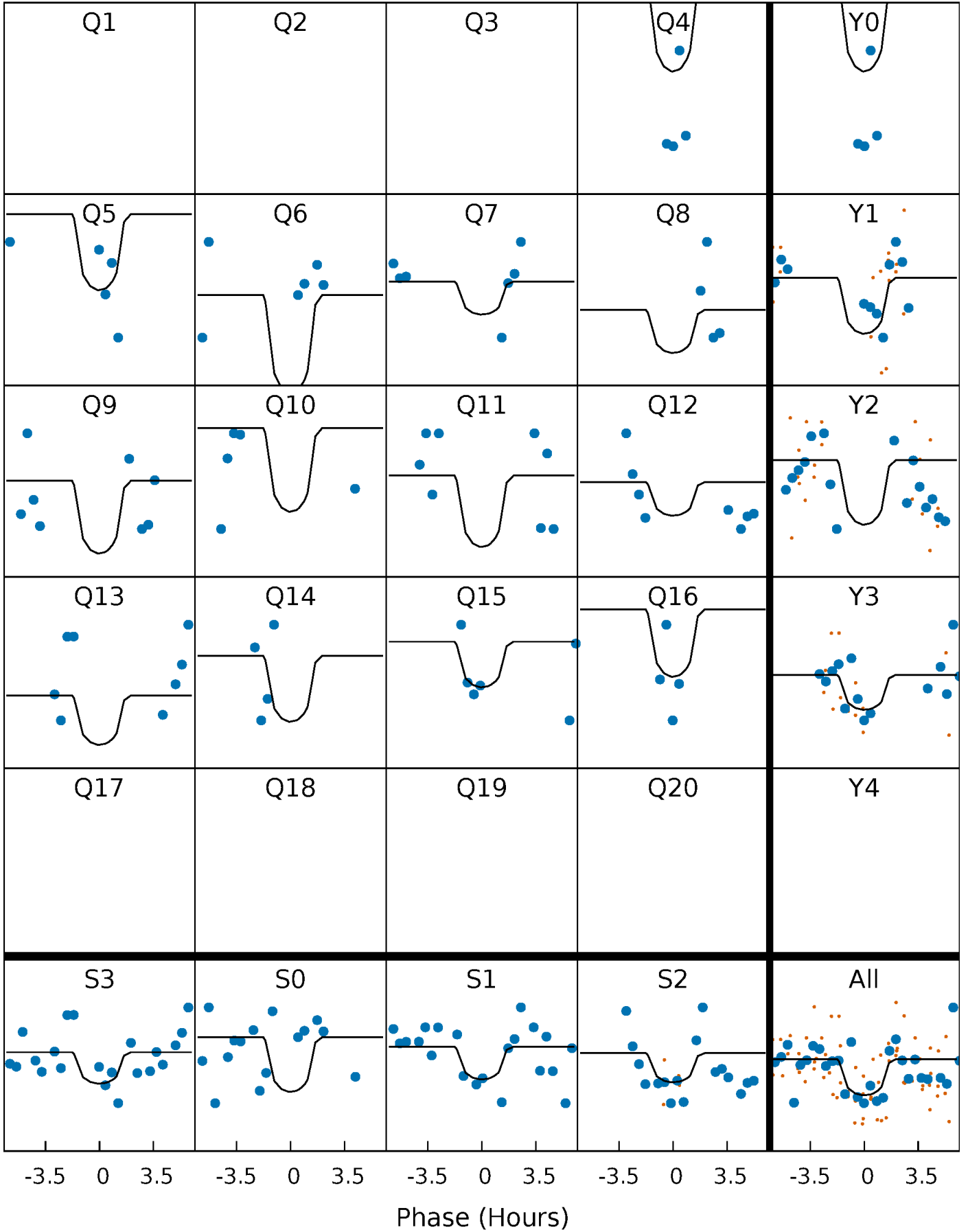
PDC Quarter-Phased Transit Curves

TCE 009368424-03 $P = 30.499766$ Days $T_0 = 134.763394$ (BKJD)



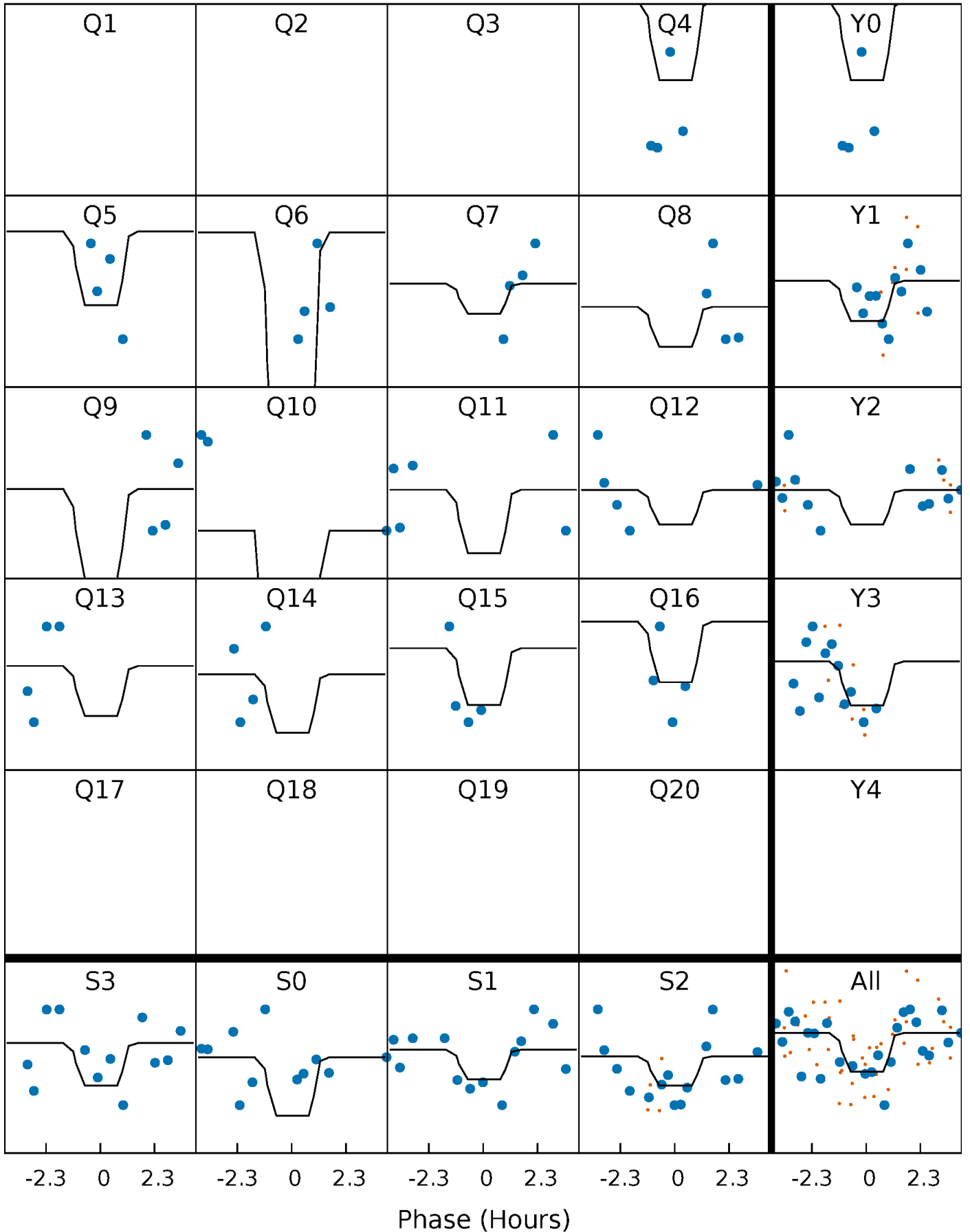
DV Quarter-Phased Transit Curves

TCE 009368424-03 P= 30.499766 Days $T_0=134.763394$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

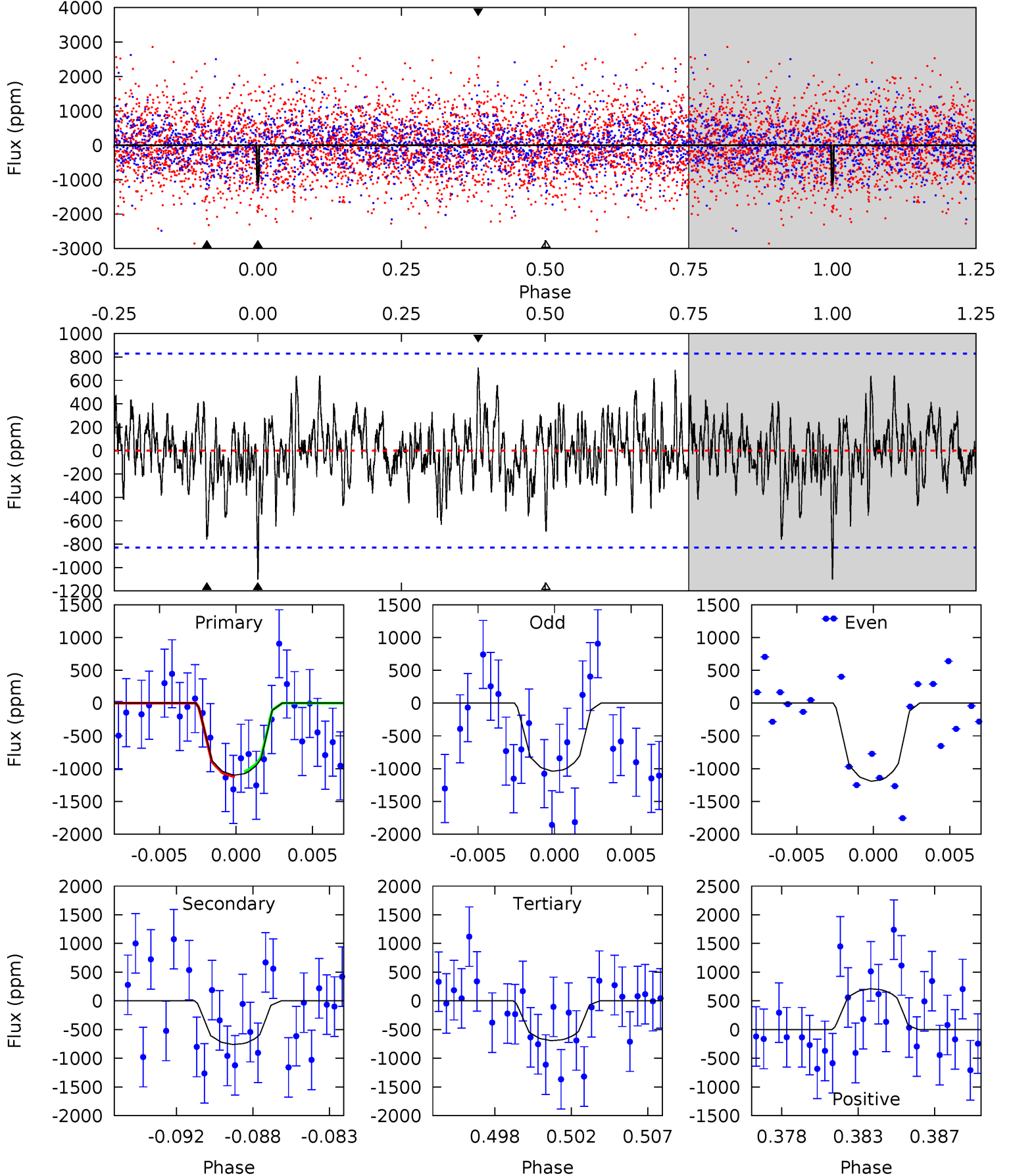
TCE 009368424-03 $P = 30.499173$ Days $T_0 = 134.789871$ (BKJD)



DV Model-Shift Uniqueness Test

009368424-03, P = 30.499766 Days, E = 134.763394 Days

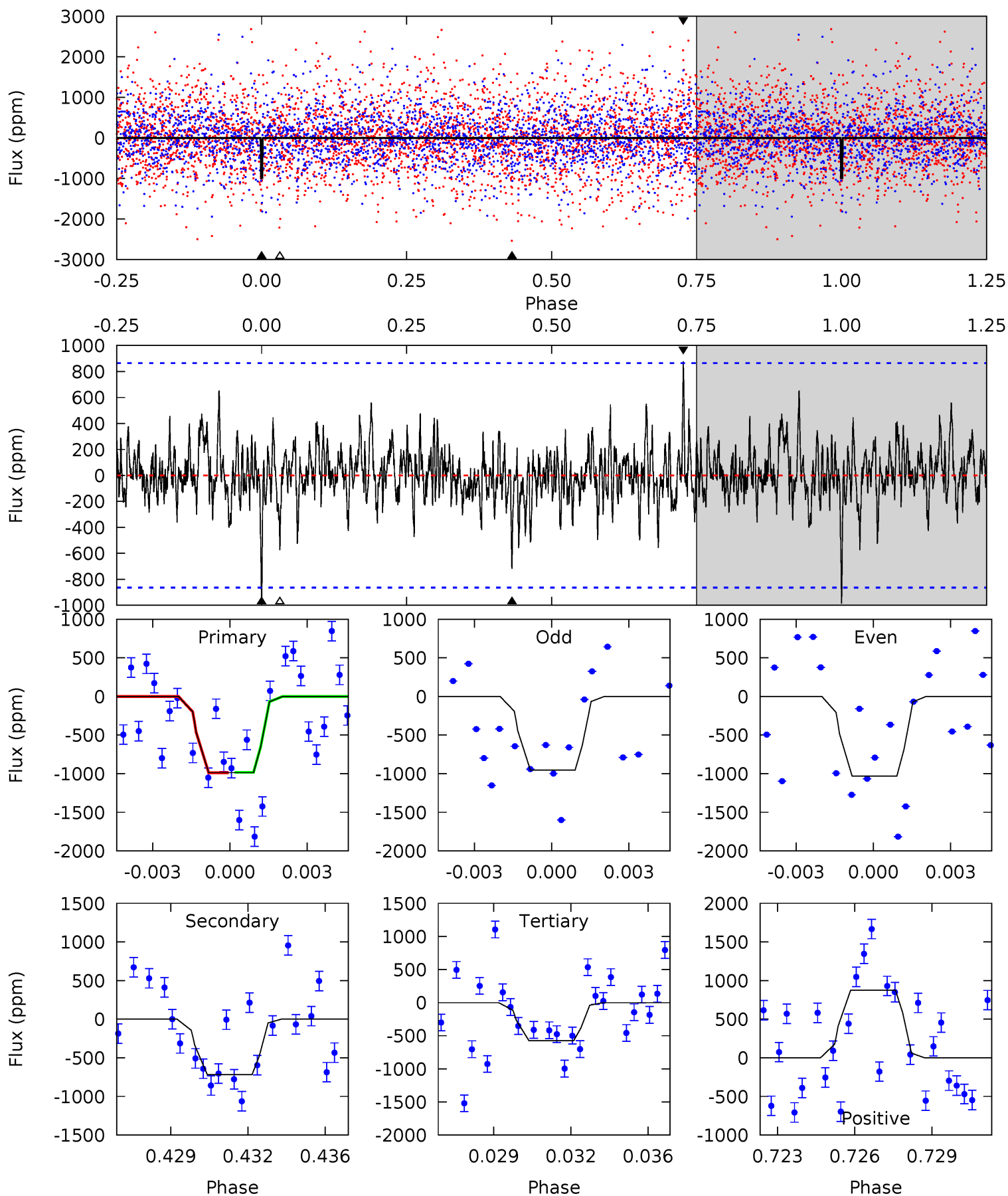
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.86	4.74	4.32	4.43	5.17	2.83	1.34	2.54	2.43	0.42	0.31	0.48	0.86	0.39	0.23



Alt Model-Shift Uniqueness Test

009368424-03, P = 30.499173 Days, E = 134.789871 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.98	4.35	3.48	5.31	5.24	2.95	1.10	2.50	0.67	0.87	-0.96	0.23	0.96	0.47	0.02



Stellar Parameters For KIC 009368424

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4765^{+167}_{-167}	$4.557^{+0.065}_{-0.035}$	$0.020^{+0.250}_{-0.300}$	$0.744^{+0.052}_{-0.072}$	$0.728^{+0.077}_{-0.058}$	$2.491^{+0.719}_{-0.318}$
	+4%/-4%	+1%/-1%	+1250%/-1500%	+7%/-10%	+11%/-8%	+29%/-13%
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 009368424-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-760 ± 160	$5.64^{+5.55}_{-4.05}$	608^{+23}_{-24}	3413^{+2216}_{-637}	390^{+4826}_{-297}
Alt.	-717 ± 165	$5.58^{+5.73}_{-4.05}$	608^{+24}_{-23}	3387^{+2000}_{-633}	371^{+4456}_{-285}

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

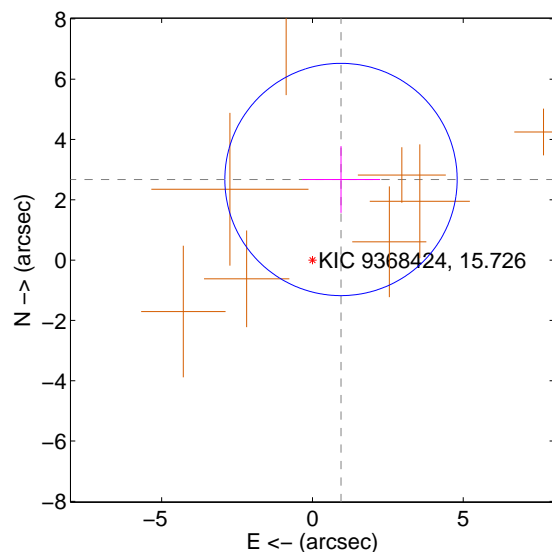
Supplemental centroid analysis for 009368424-03. Kepler magnitude: 15.73. Transit SNR 10.34

There are 0 quarters with good PRF difference image offsets

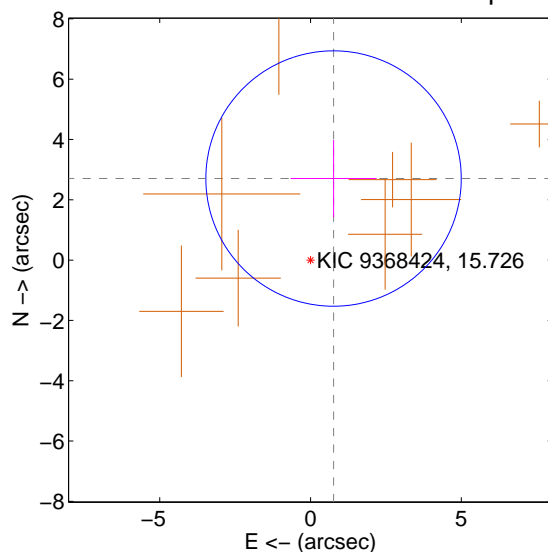
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.836 ± 1.284	2.21	-0.947 ± 1.297	2.674 ± 1.109
PRF-fit source offset from KIC position	2.811 ± 1.412	1.99	-0.764 ± 1.425	2.705 ± 1.283
photometric centroid source offset	3.13 ± 0.75	4.19	1.97 ± 0.75	-2.44 ± 0.75

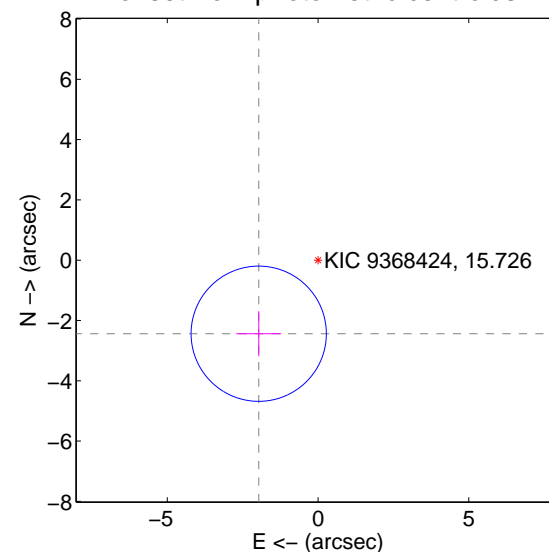
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

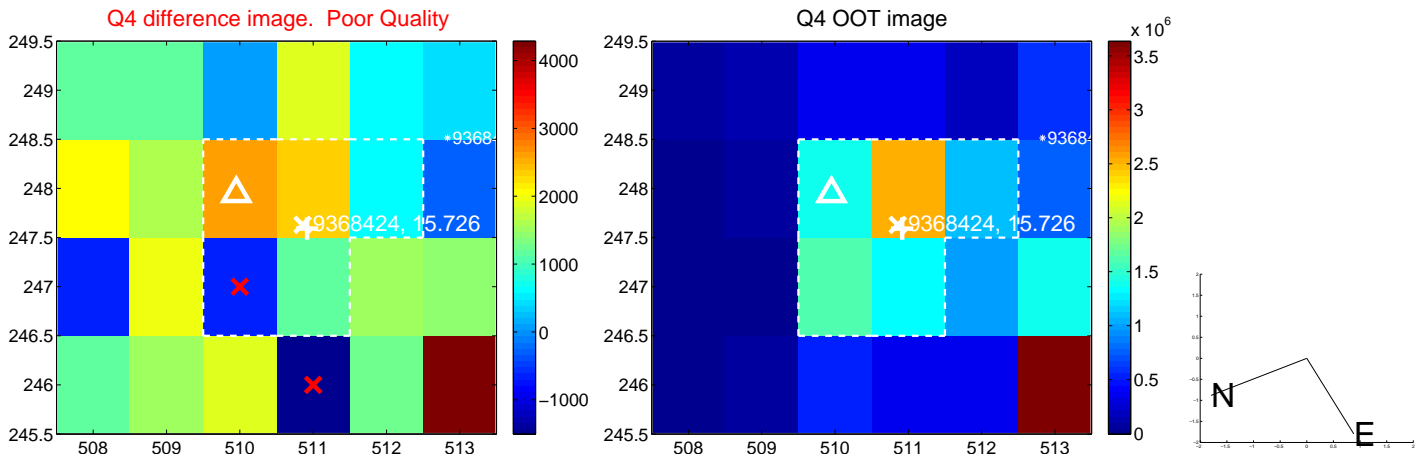
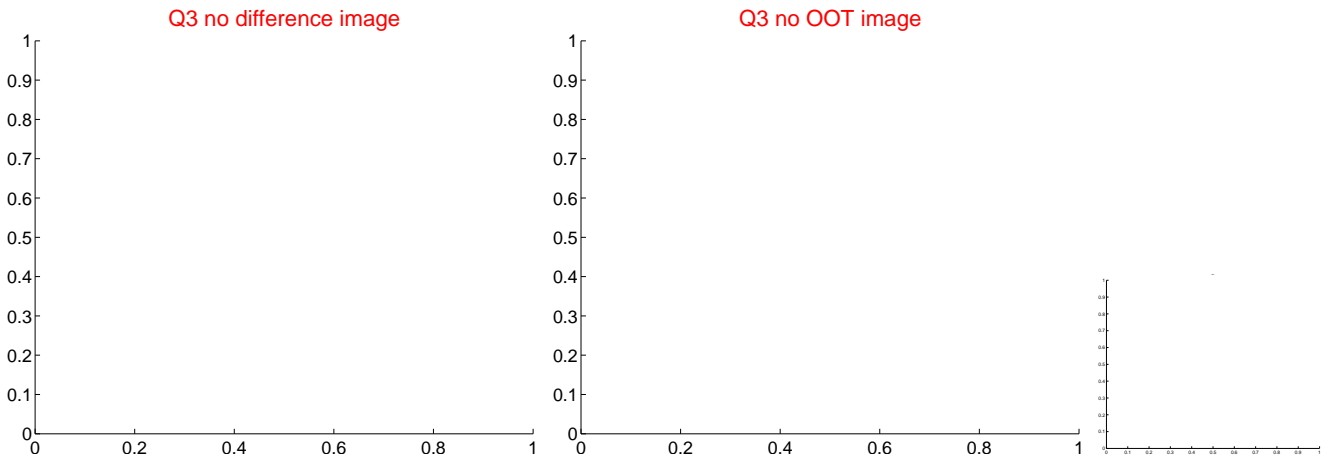
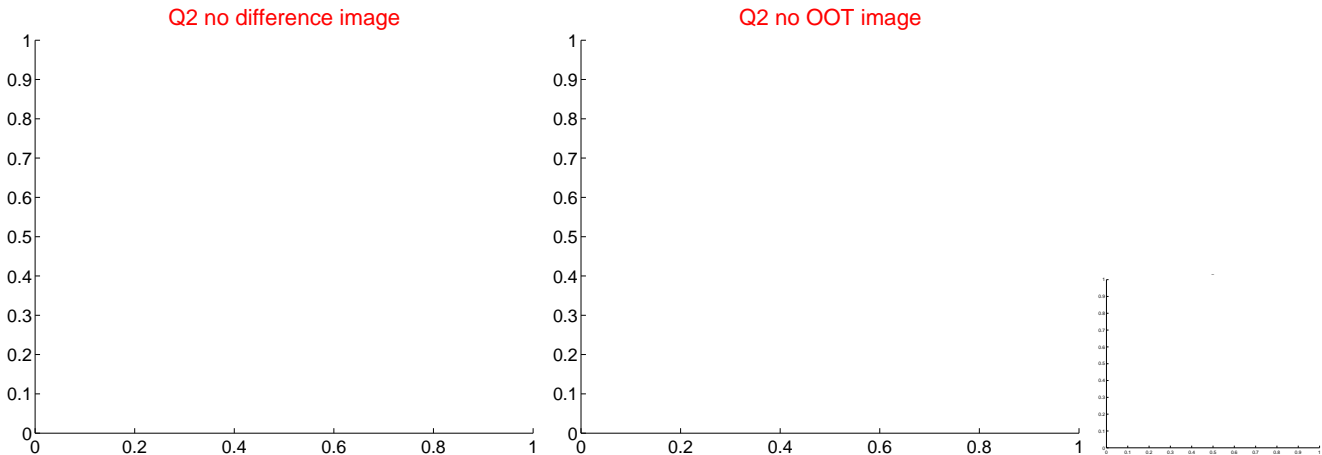
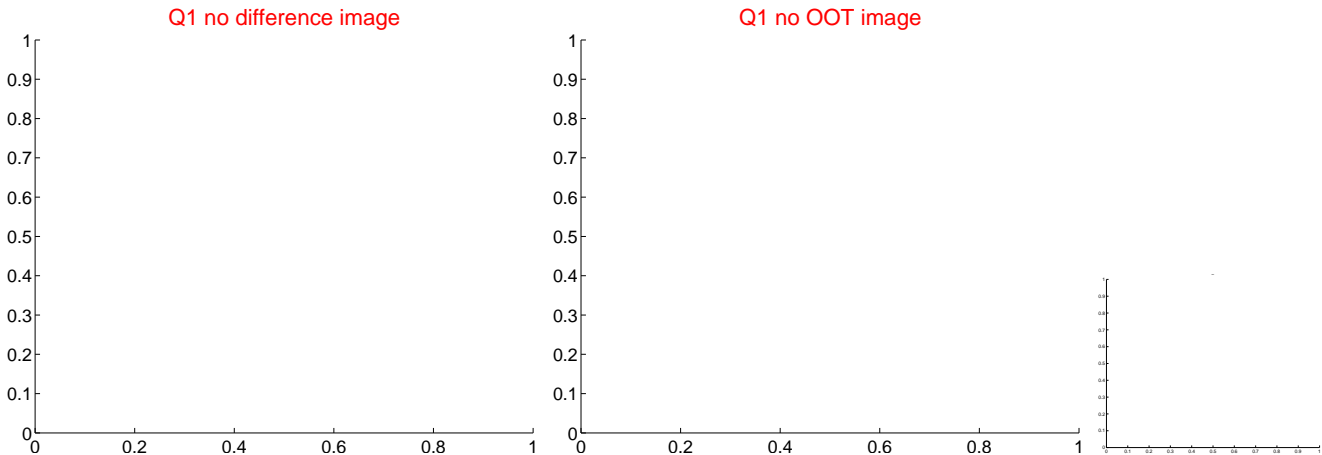


offset from photometric centroids

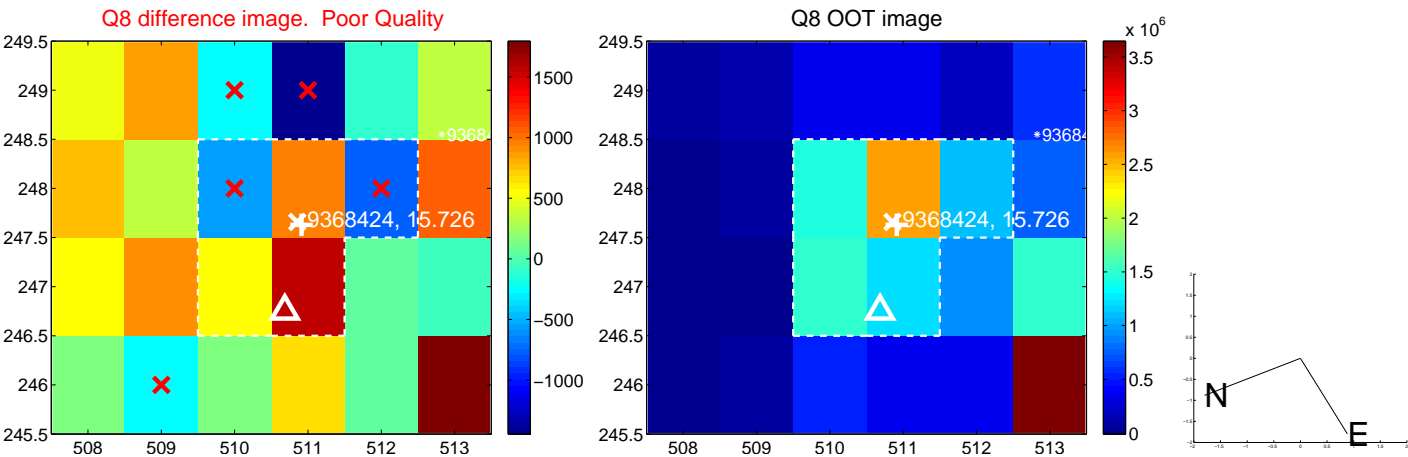
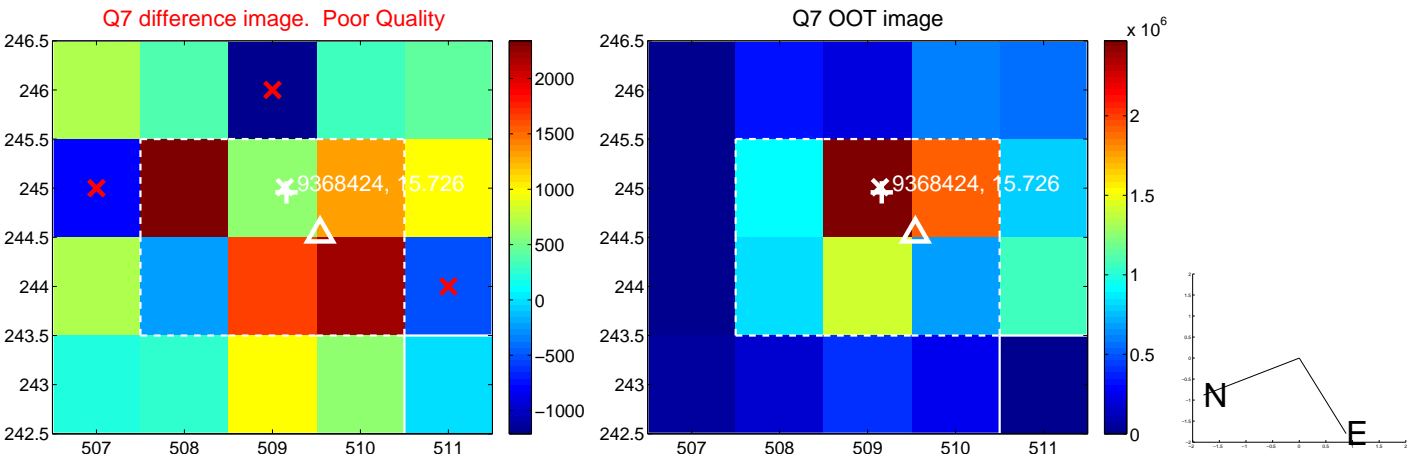
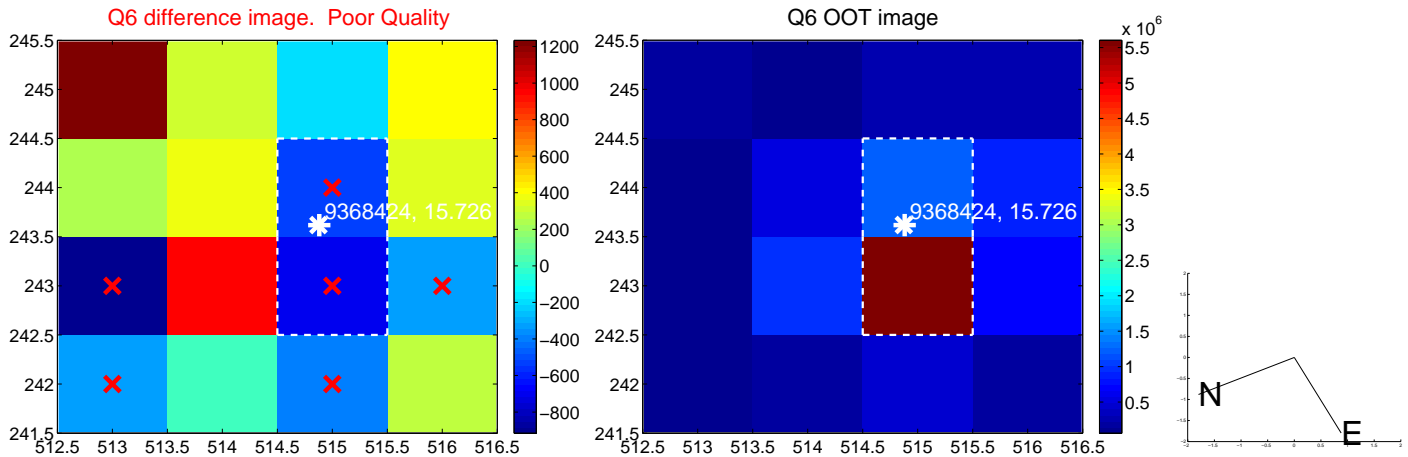
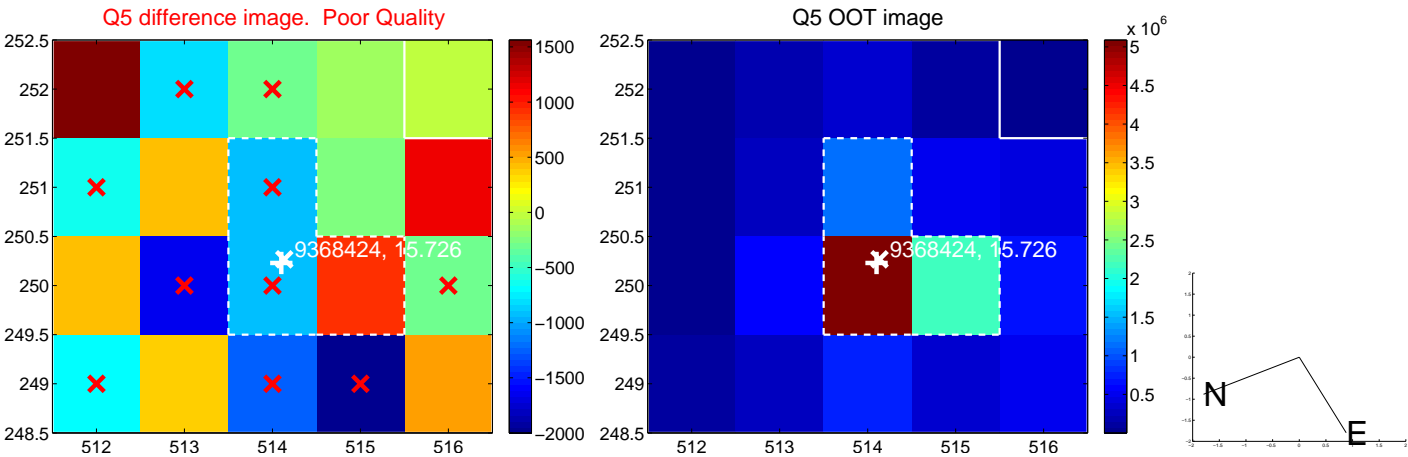


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

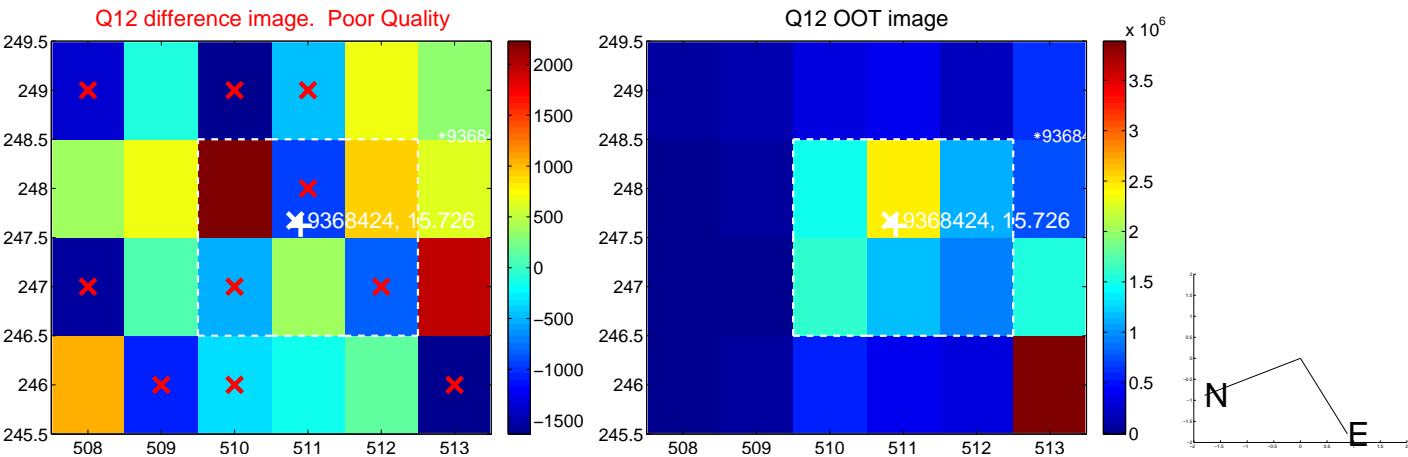
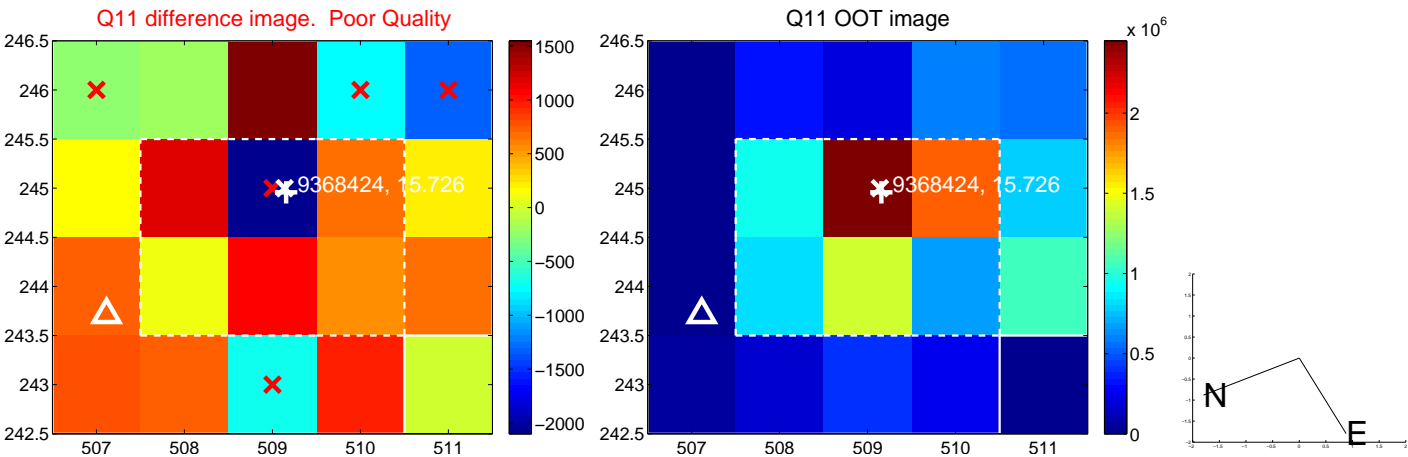
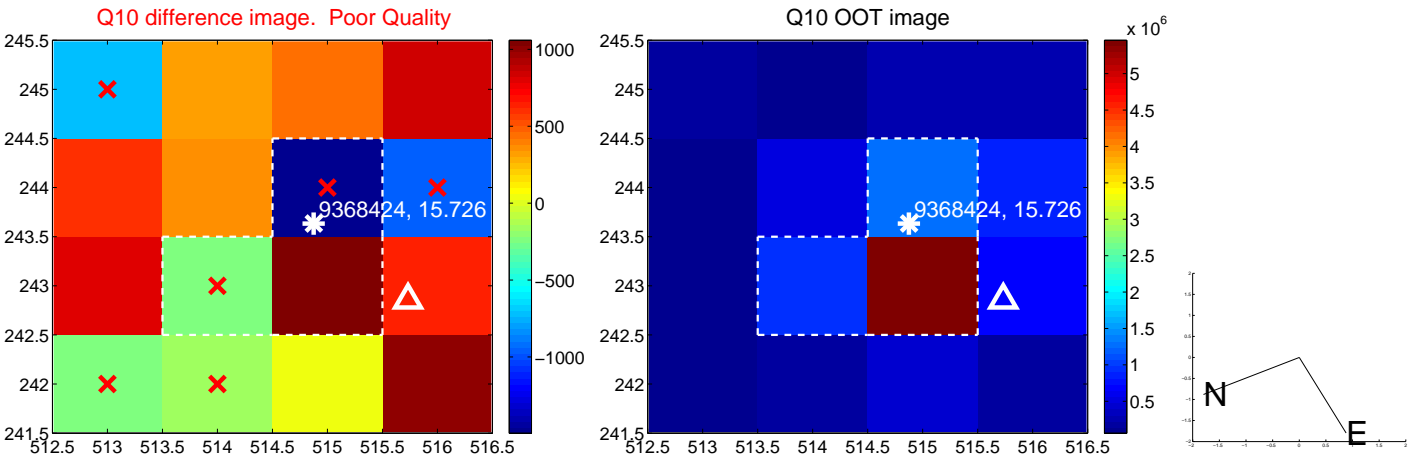
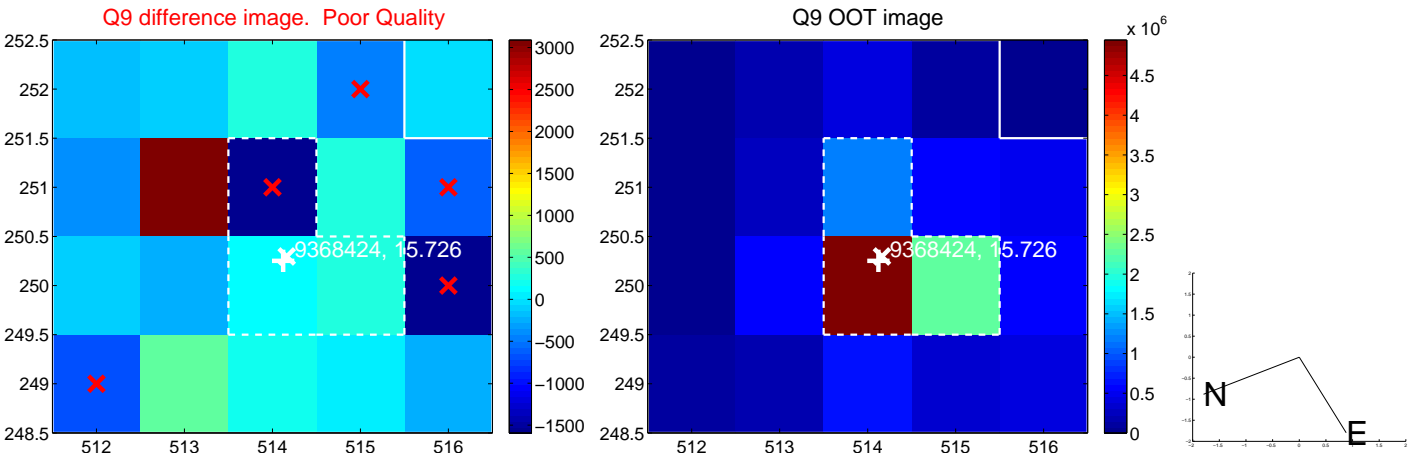
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



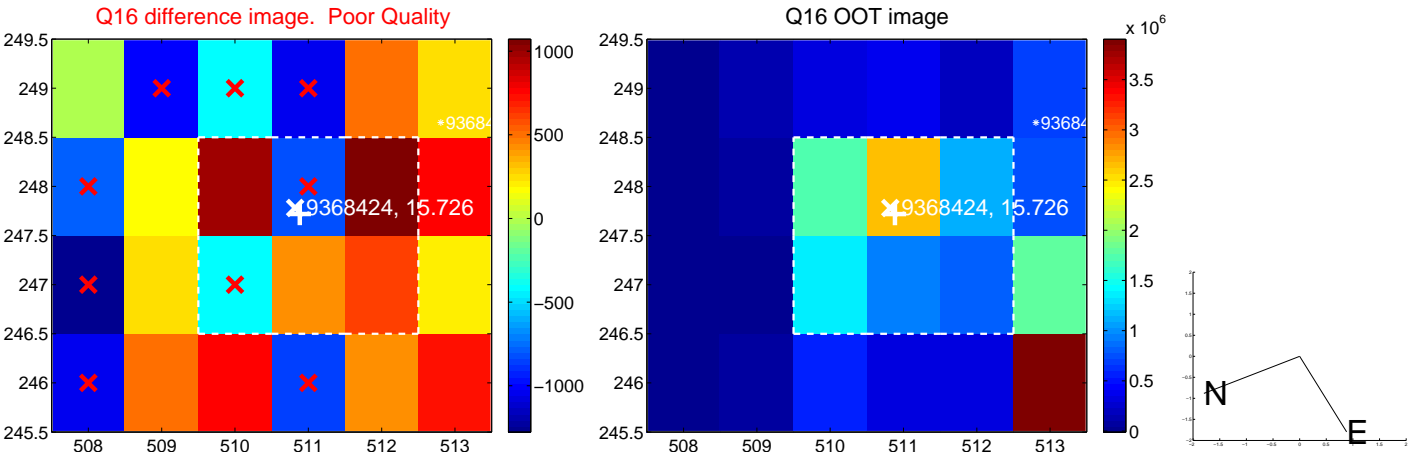
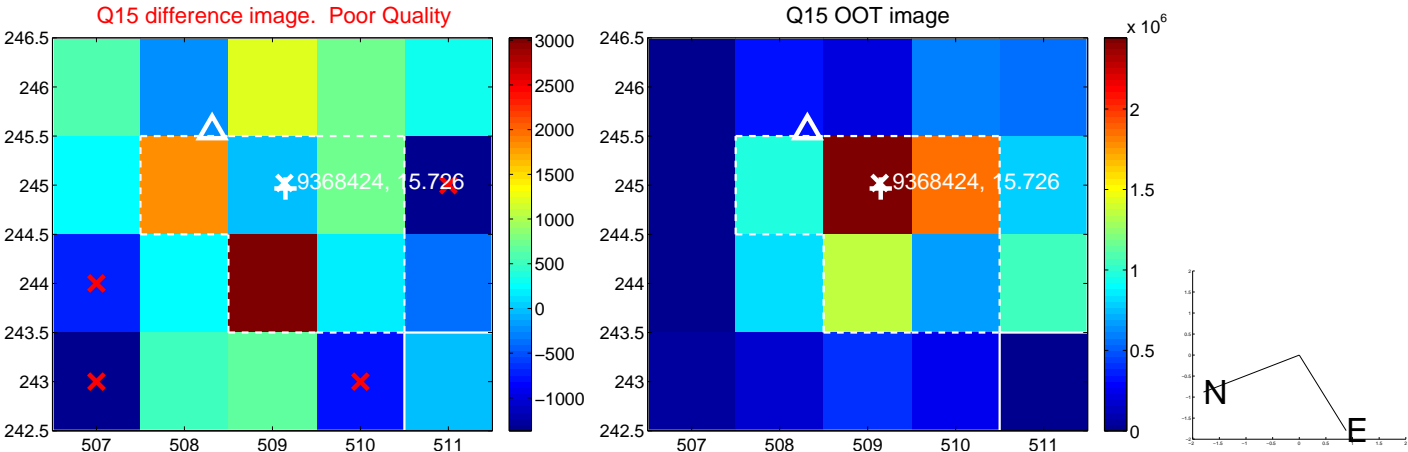
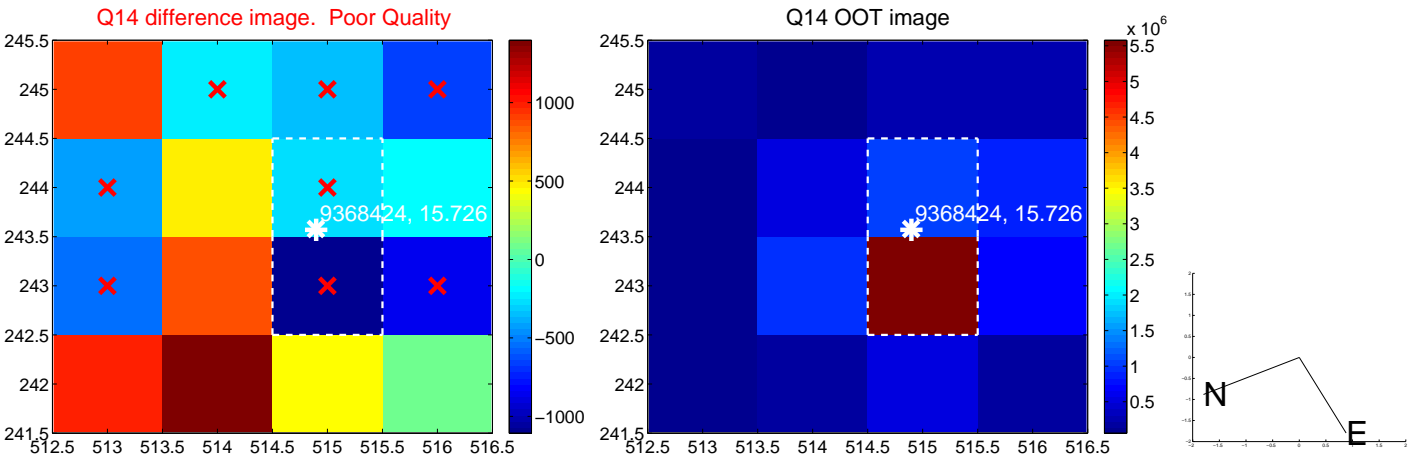
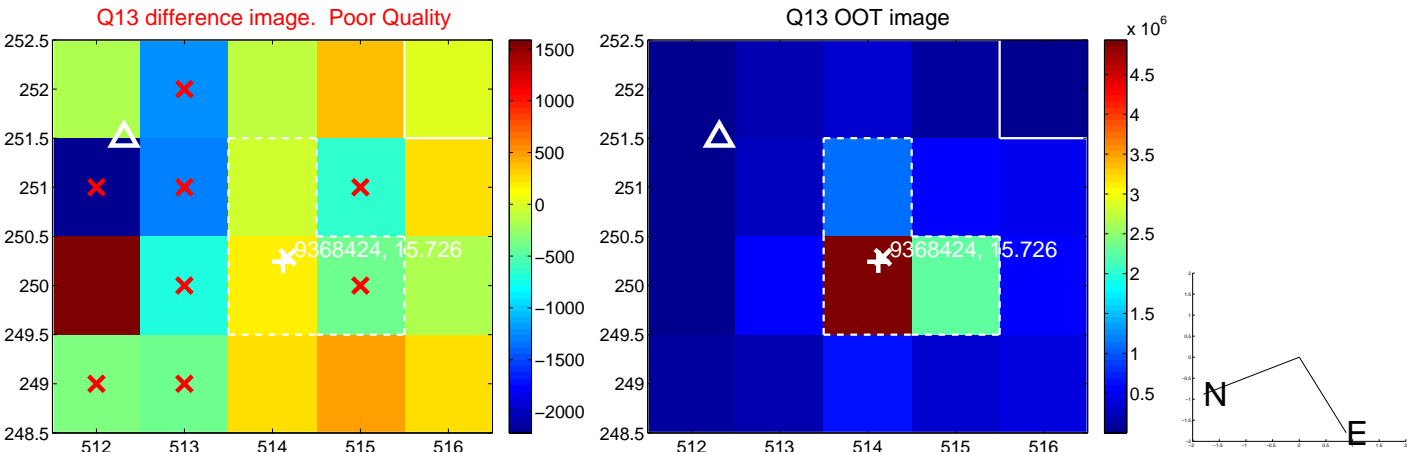
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



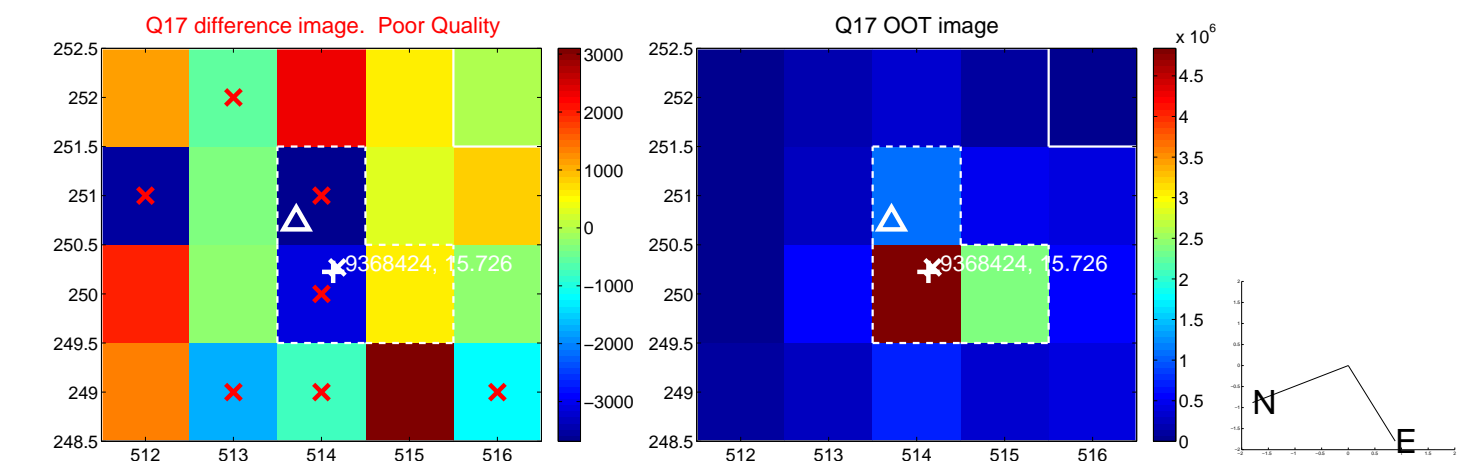
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



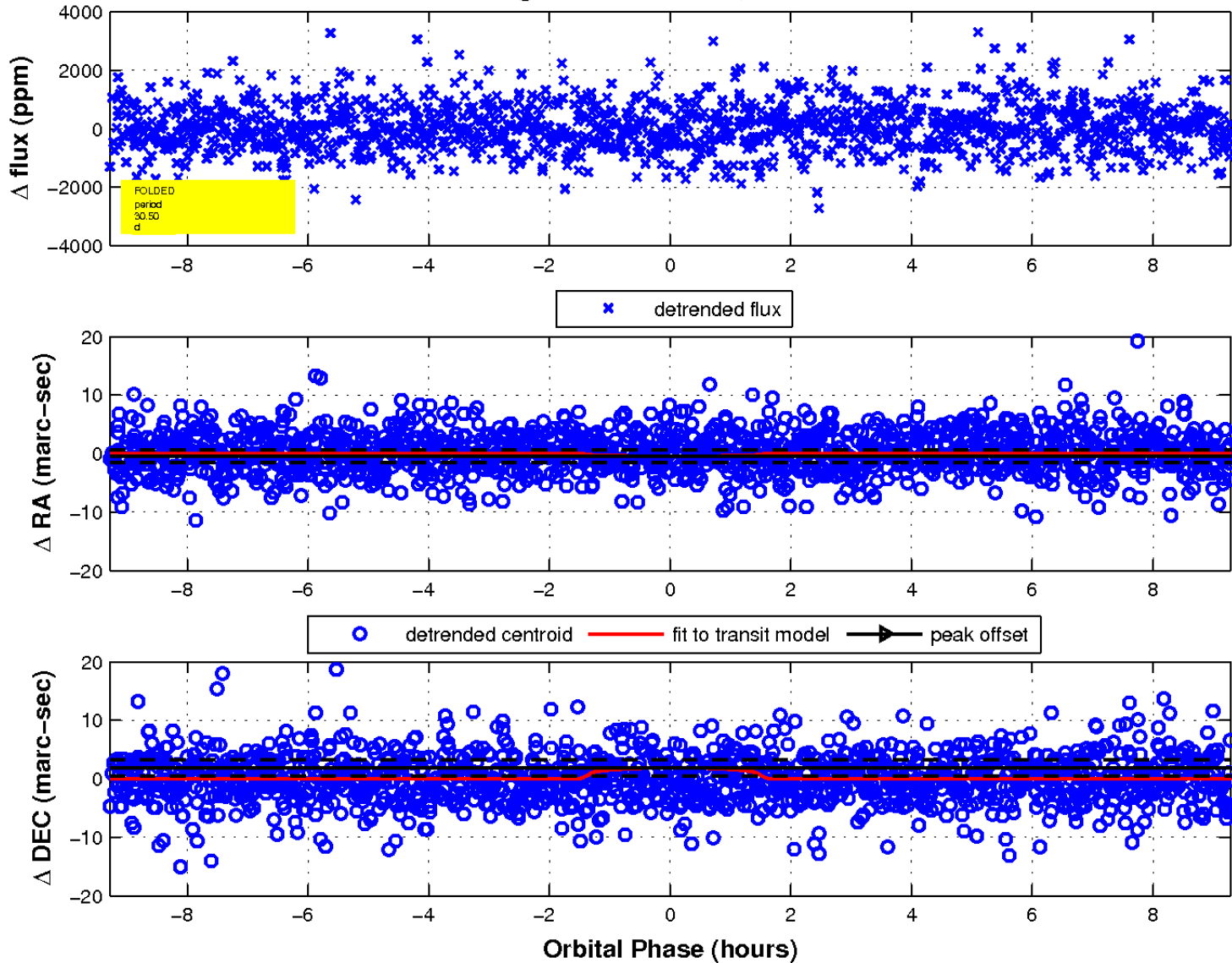
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

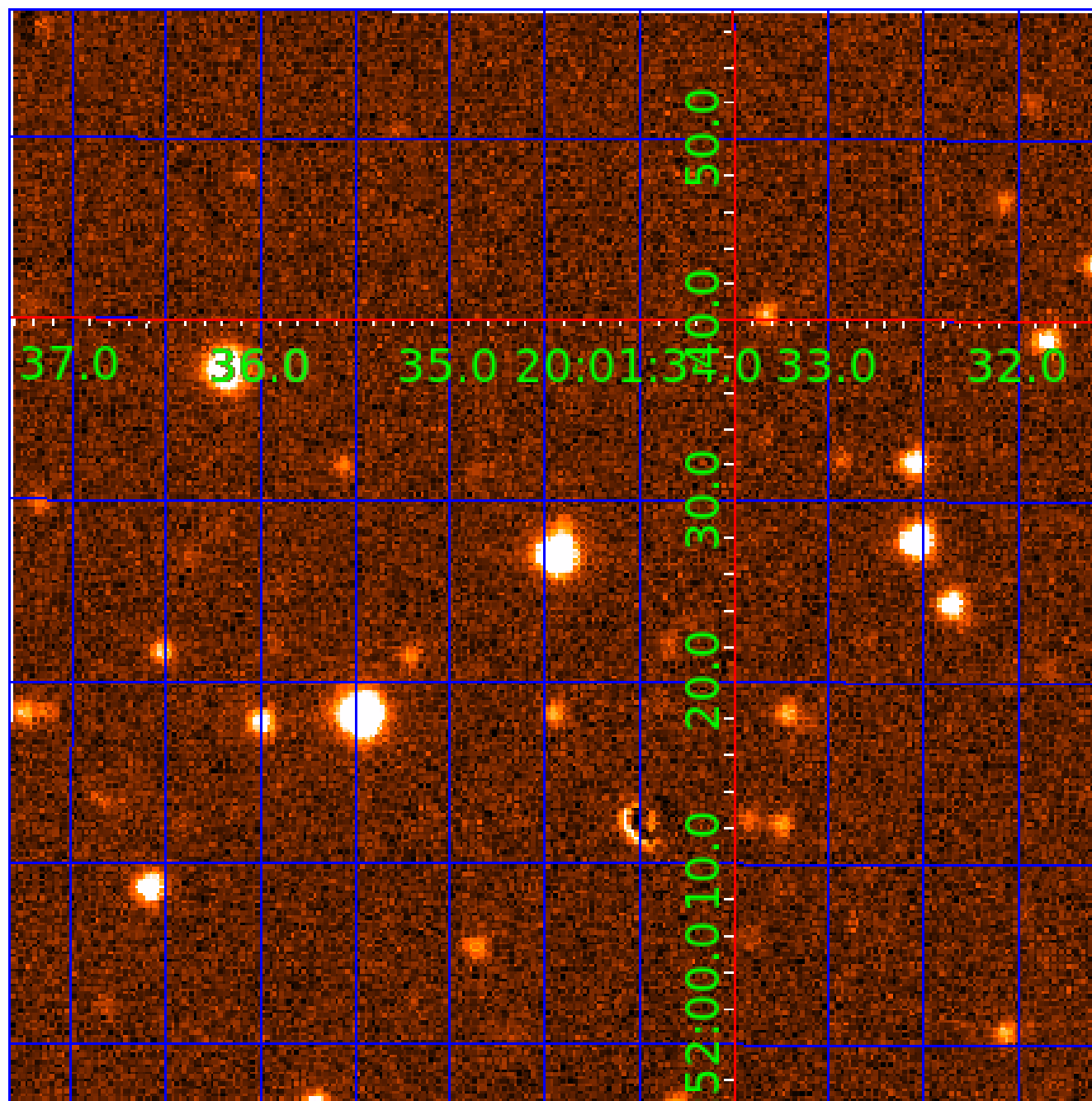


fluxWeightedCentroids, Planet 3 of 5



UKIRT Image

Declination



KIC 009368424

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})
009368424-01	OBS	No	0.963400	131.651560	60.4	6.892	7.8	7.6	0.74	4765	0.56	866.53
009368424-02	OBS	No	17.051872	143.413051	985.1	1.880	11.4	11.4	0.74	4765	2.65	18.79
009368424-03	OBS	No	30.499766	134.763394	1081.5	3.097	10.3	10.3	0.74	4765	2.64	8.65
009368424-04	OBS	No	24.480135	144.764857	1582.0	1.469	10.4	11.2	0.74	4765	3.49	11.60
009368424-05	OBS	No	41.849879	170.470341	1645.1	1.641	10.5	11.0	0.74	4765	3.57	5.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009368424-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
009368424-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
009368424-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
009368424-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009368424-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

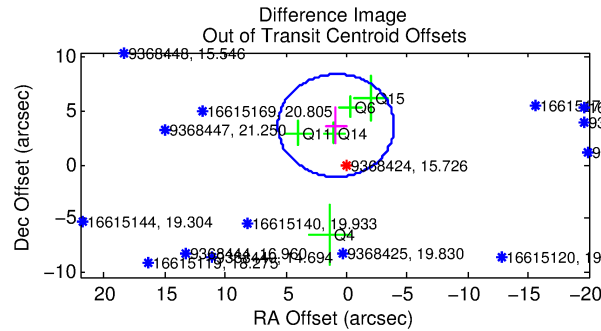
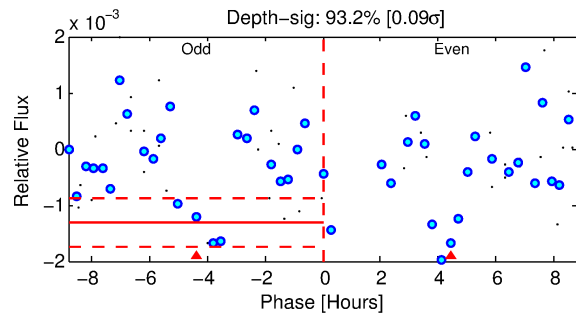
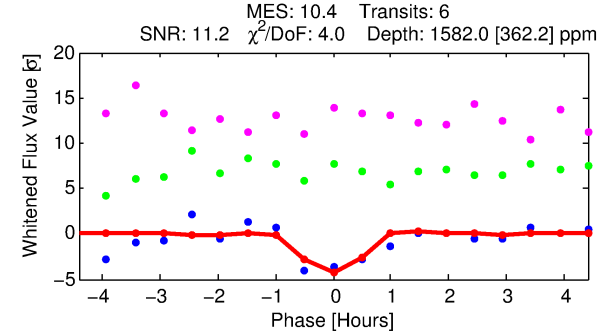
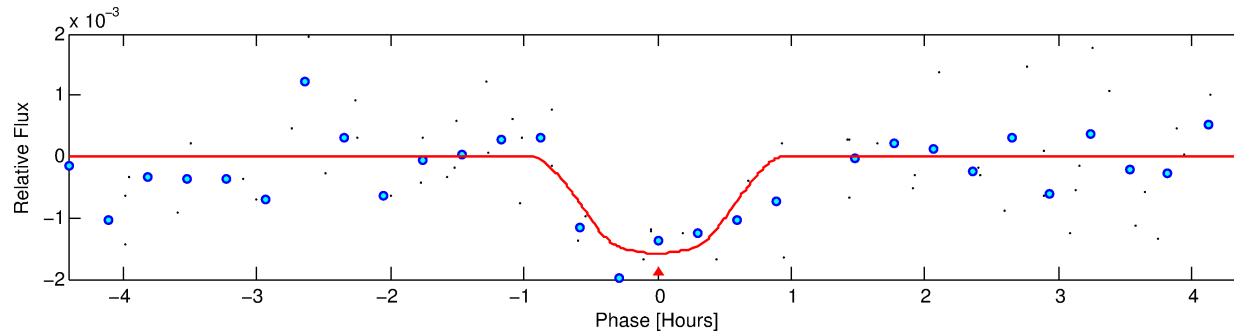
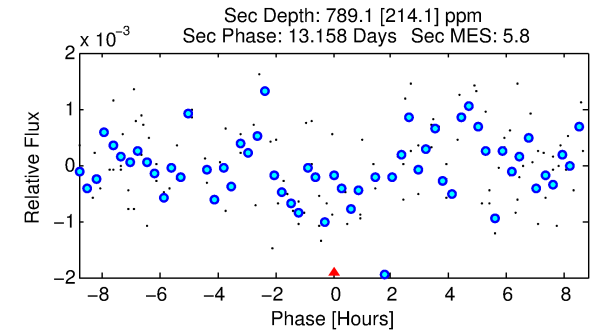
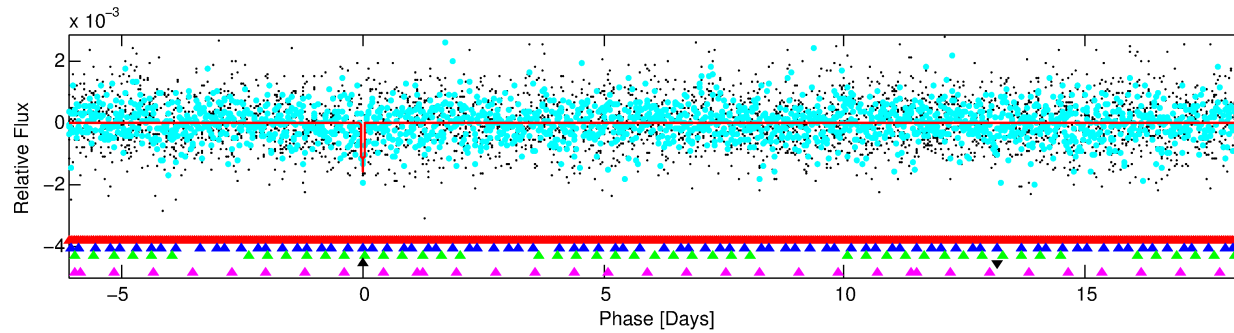
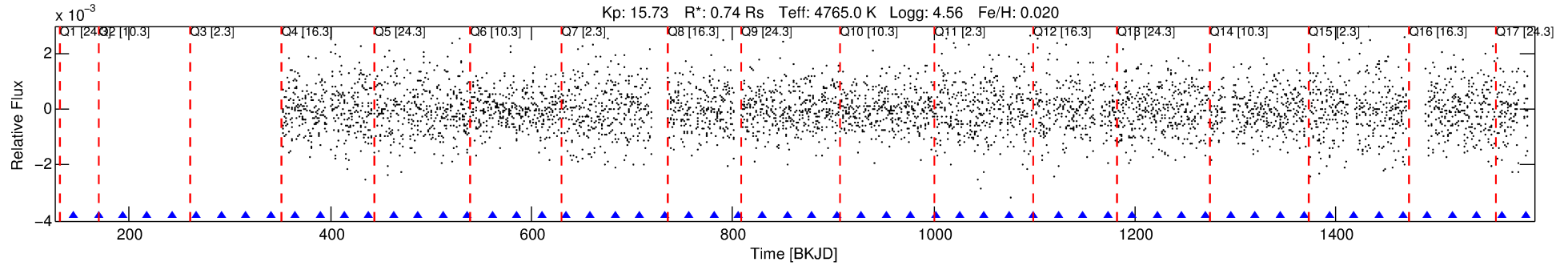
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009368424-04

No Significant Match Found

DV One-Page Summary

KIC: 9368424 Candidate: 4 of 5 Period: 24.480 d



DV Fit Results:

Period = 24.48014 [0.00038] d
Epoch = 144.7649 [0.0131] BKJD
Rp/R* = 0.0430 [0.1069]
a/R* = 76.10 [648.89]
b = 0.85 [2.81]
Seff = 11.60 [2.13]
Teq = 471 [22] K
Rp = 3.49 [8.69] Re
a = 0.1485 [0.0121] AU
Ag = 785.12 [3912.06] [0.20σ]
Teffp = 3851 [4798] K [0.70σ]

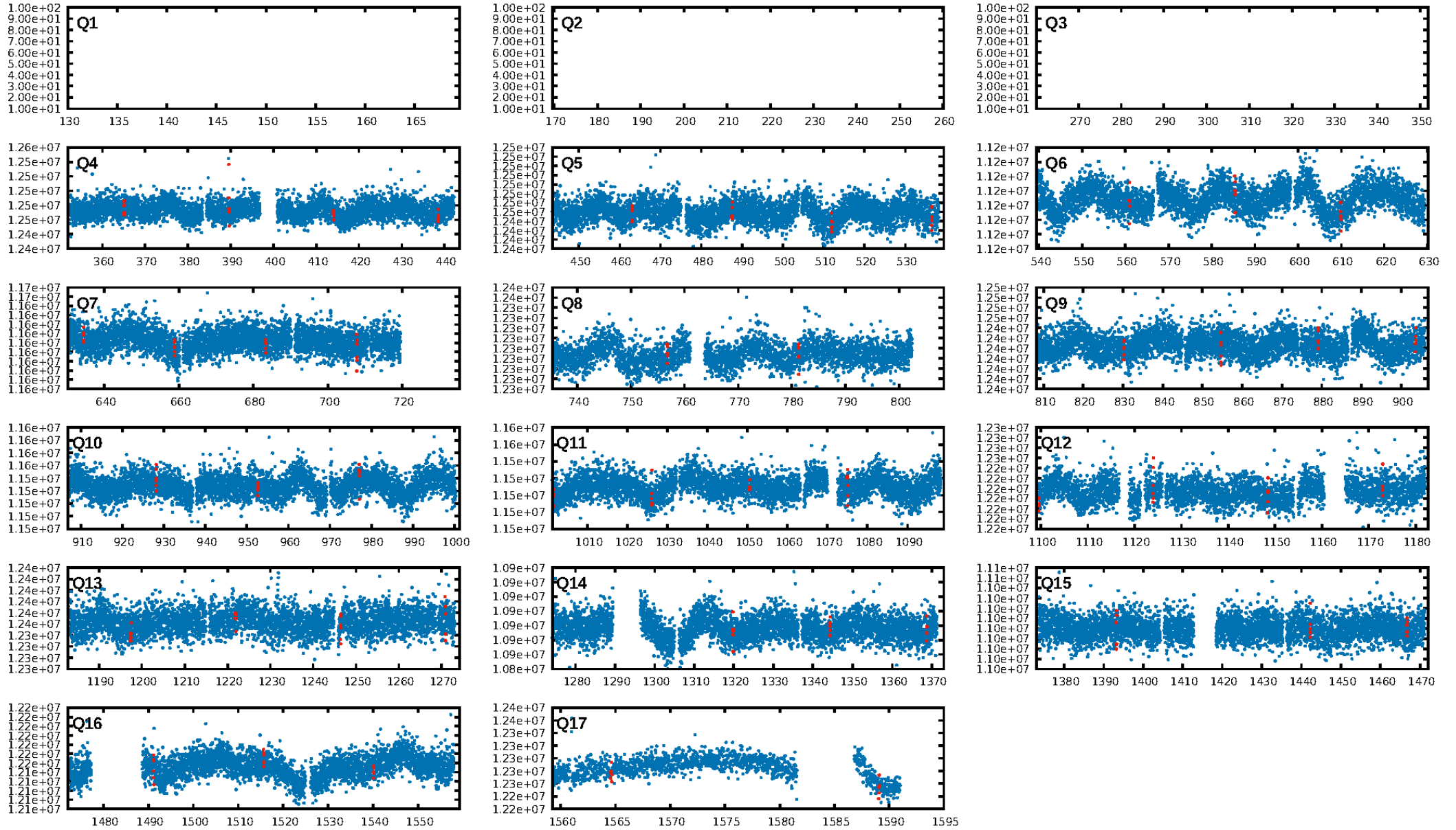
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [74.73σ]
LongPeriod-sig: 100.0% [42.15σ]
ModelChiSquare2-sig: 1.2%
ModelChiSquareGof-sig: 27.2%
Bootstrap-pfa: 2.60e-10
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.4639
Centroid-sig: 2.3%
Centroid-so: 3.016 arcsec [4.37σ]
OotOffset-rm: 3.762 arcsec [2.35σ]
KicOffset-rm: 3.754 arcsec [2.43σ]
OotOffset-st: 2/2/1/0 [5]
KicOffset-st: 2/2/1/0 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 0.57 [8/14]

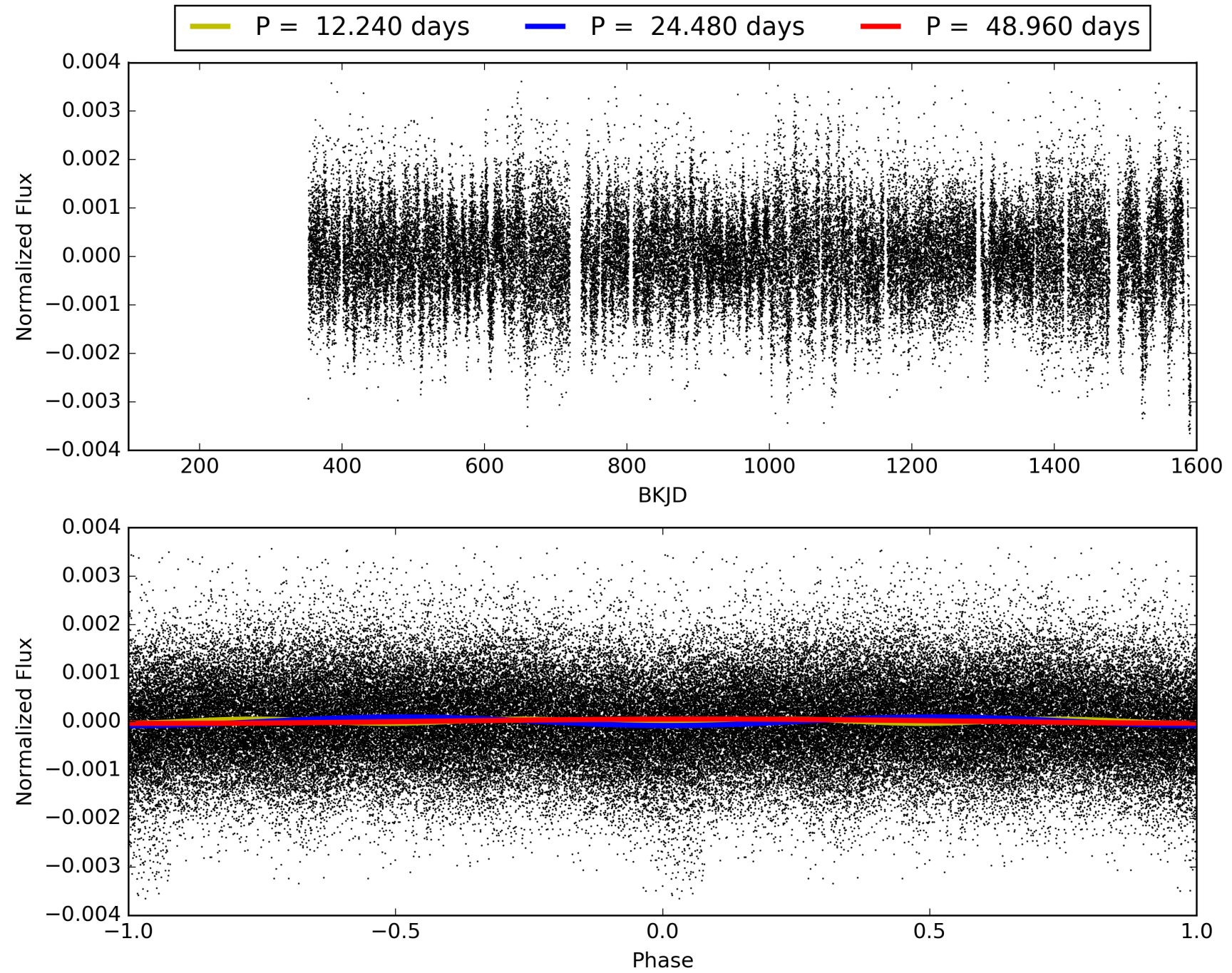
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:19:19 Z

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

TCE 009368424-04, PDC Light Curves

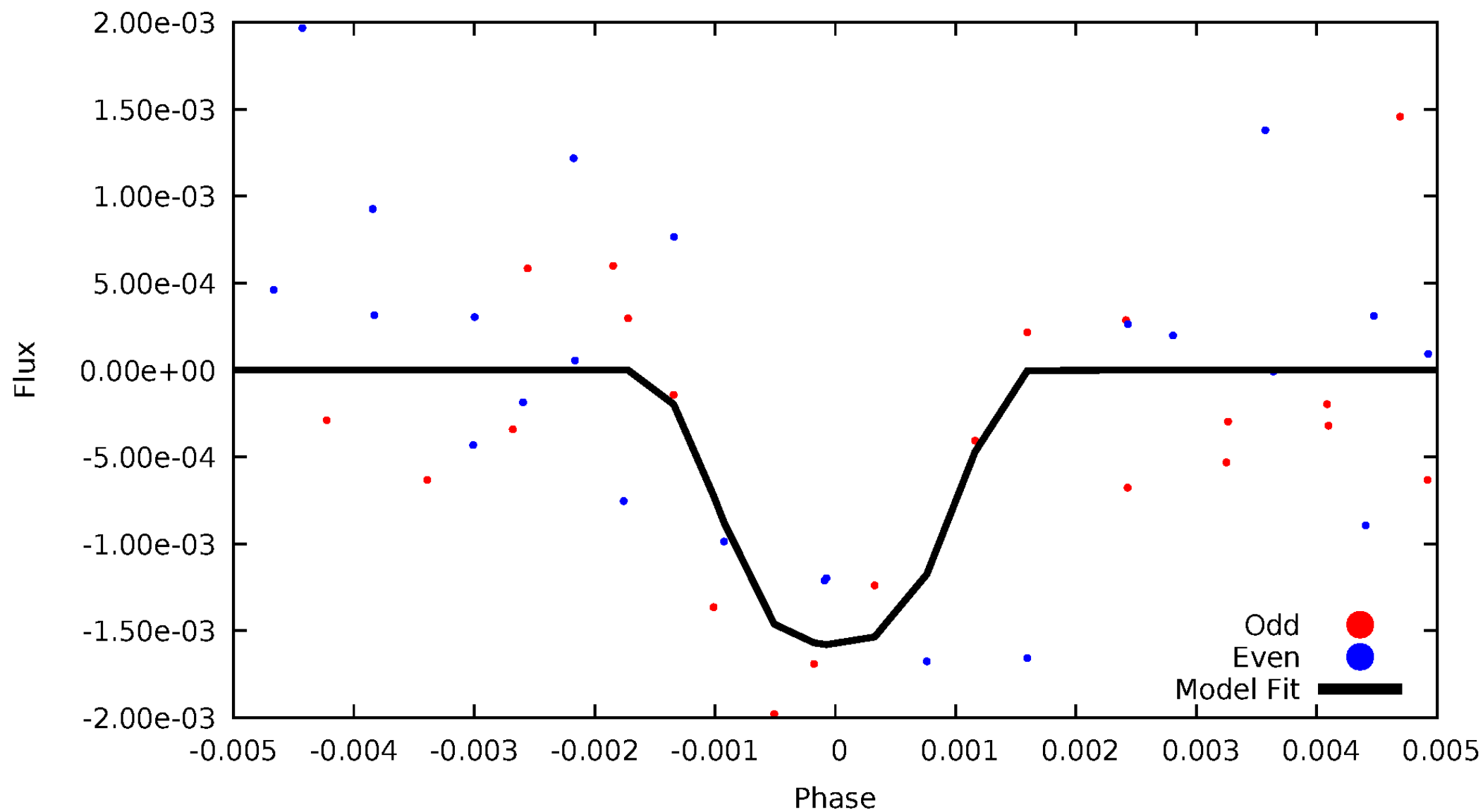


TCE 009368424-04



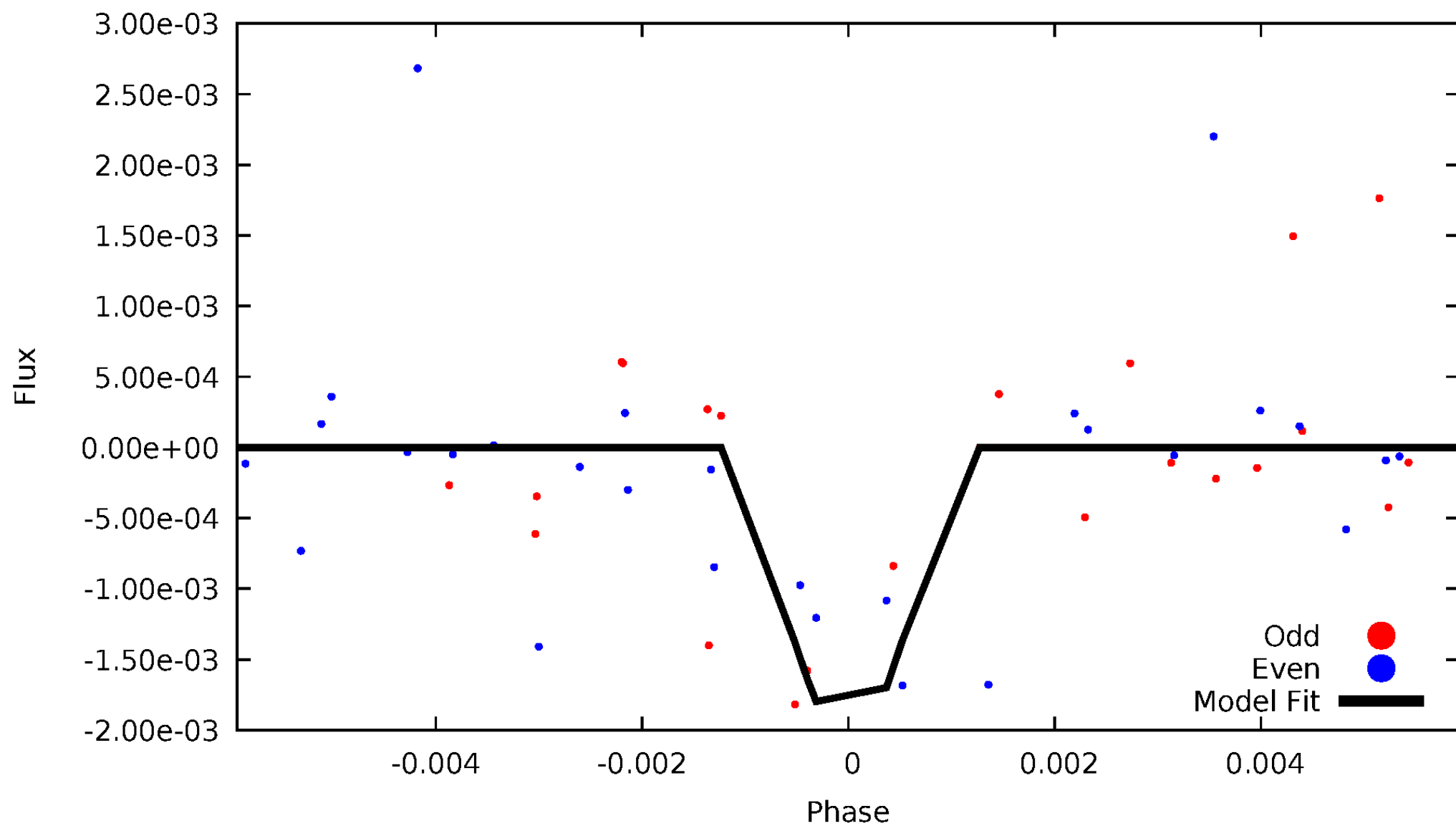
DV Odd/Even

TCE 009368424-04



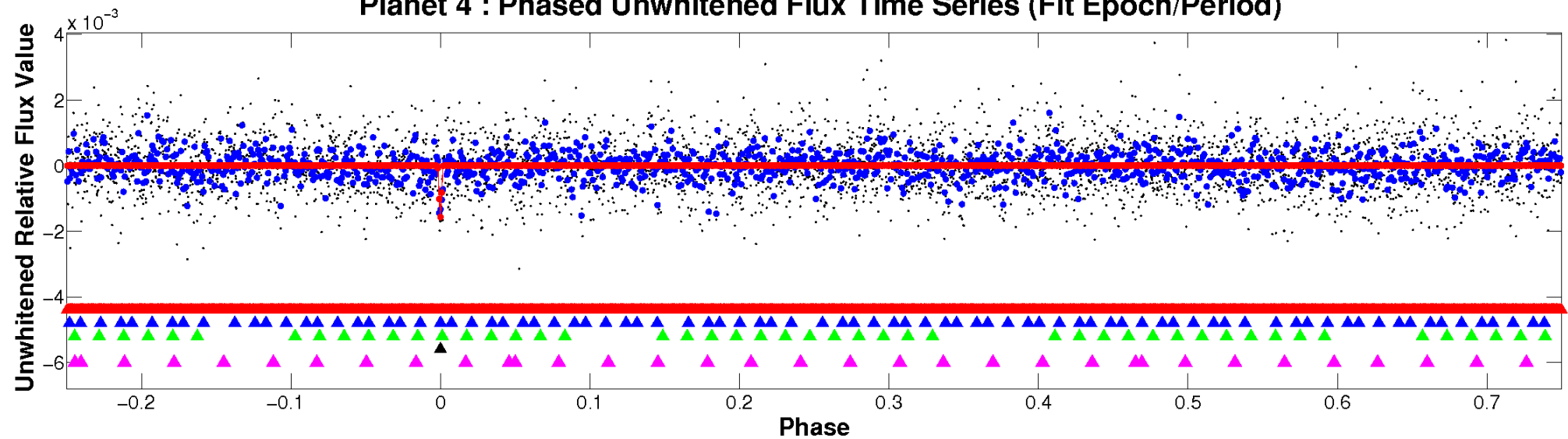
ALT Odd/Even

TCE 009368424-04

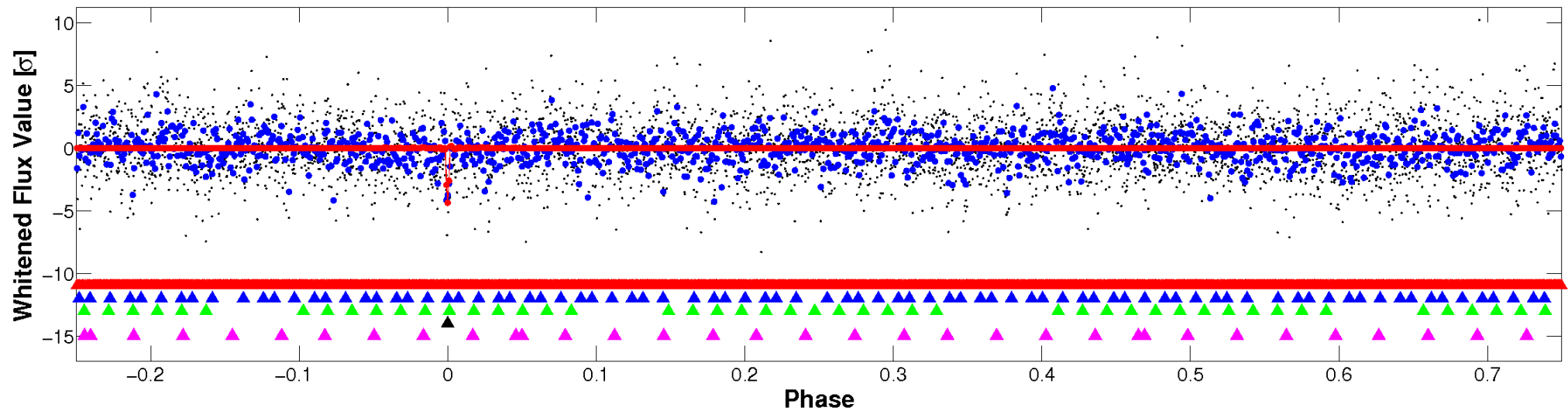


Non-Whitened Vs. Whitened Light Curve

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

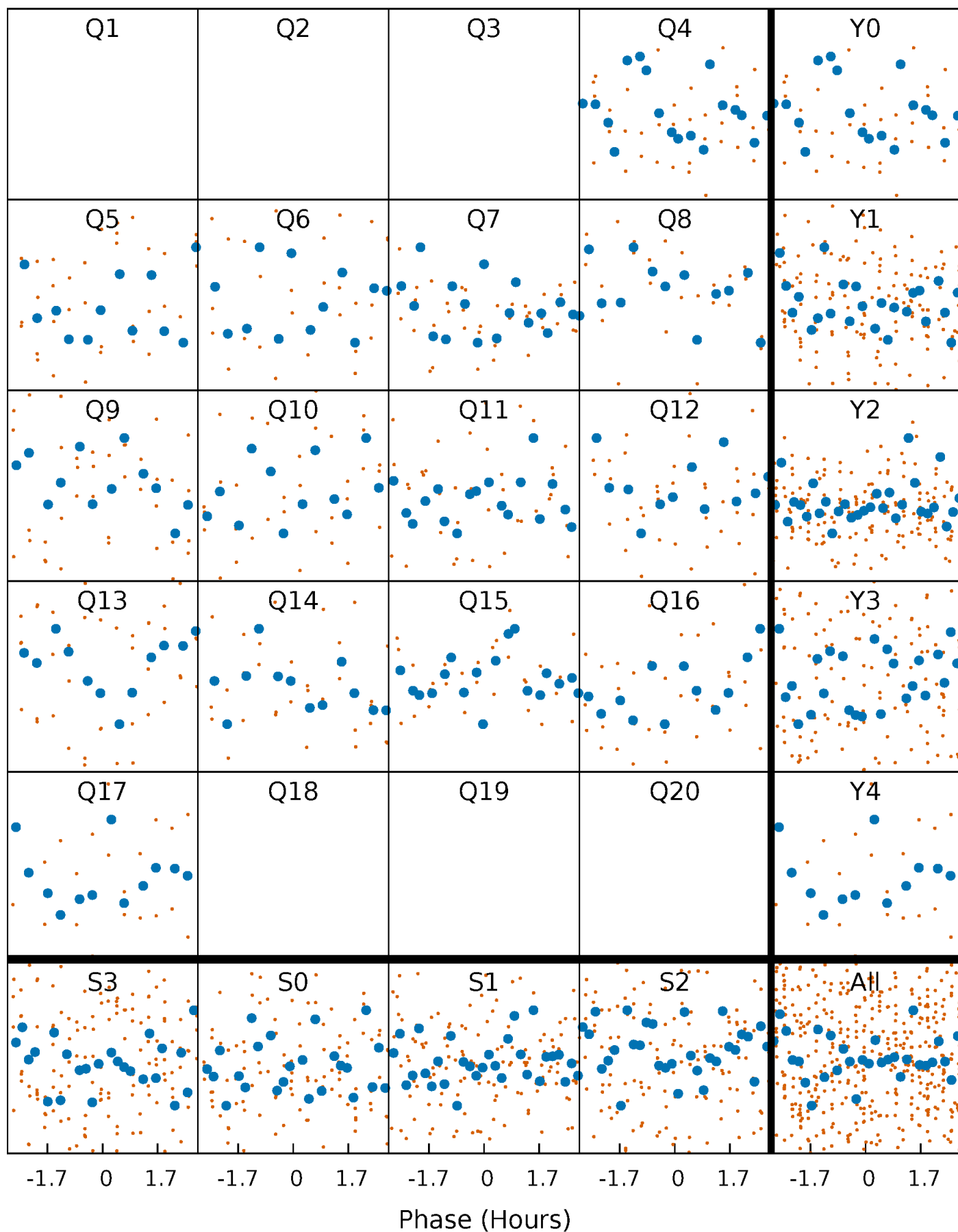


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



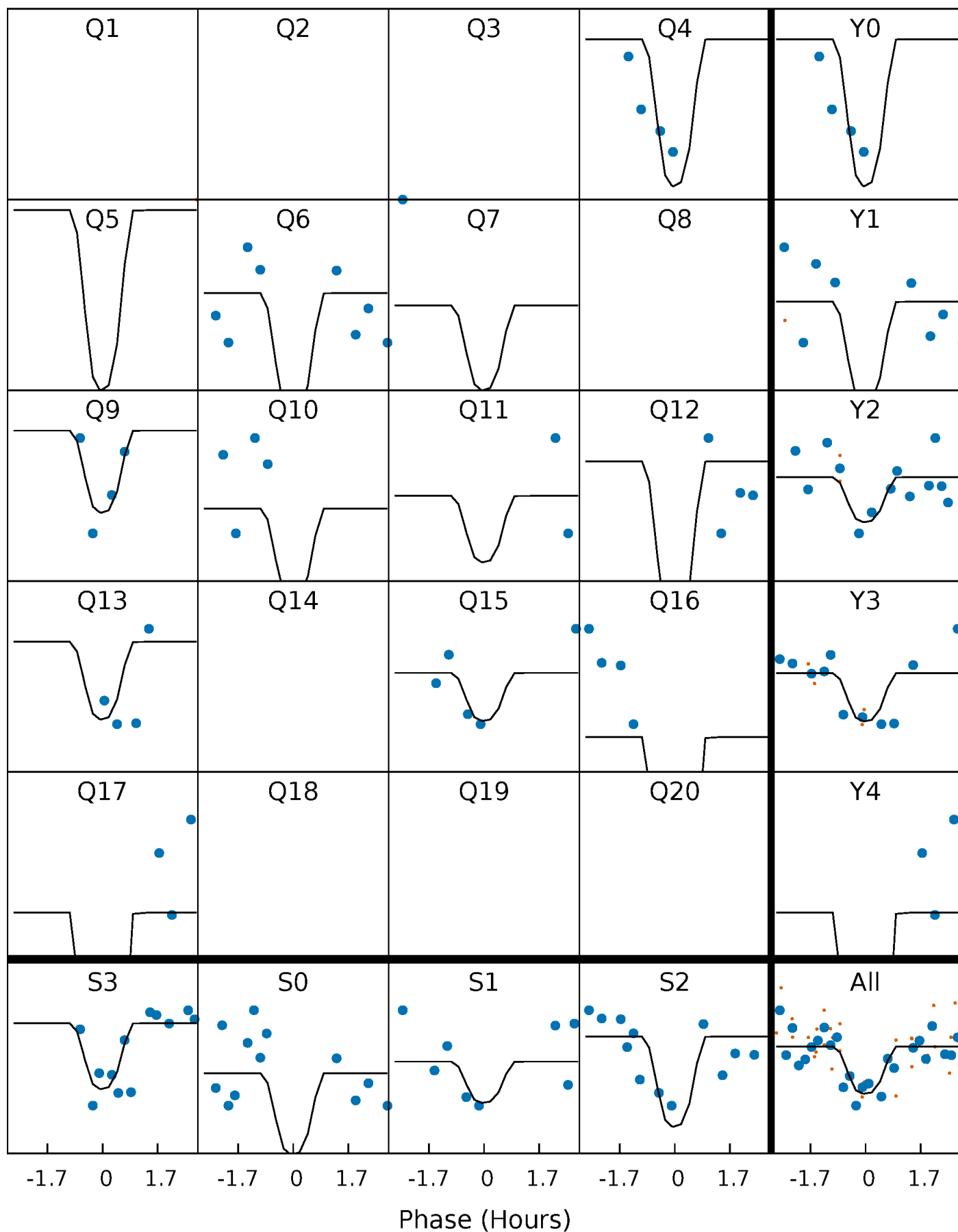
PDC Quarter-Phased Transit Curves

TCE 009368424-04 P= 24.480135 Days $T_0=144.764857$ (BKJD)



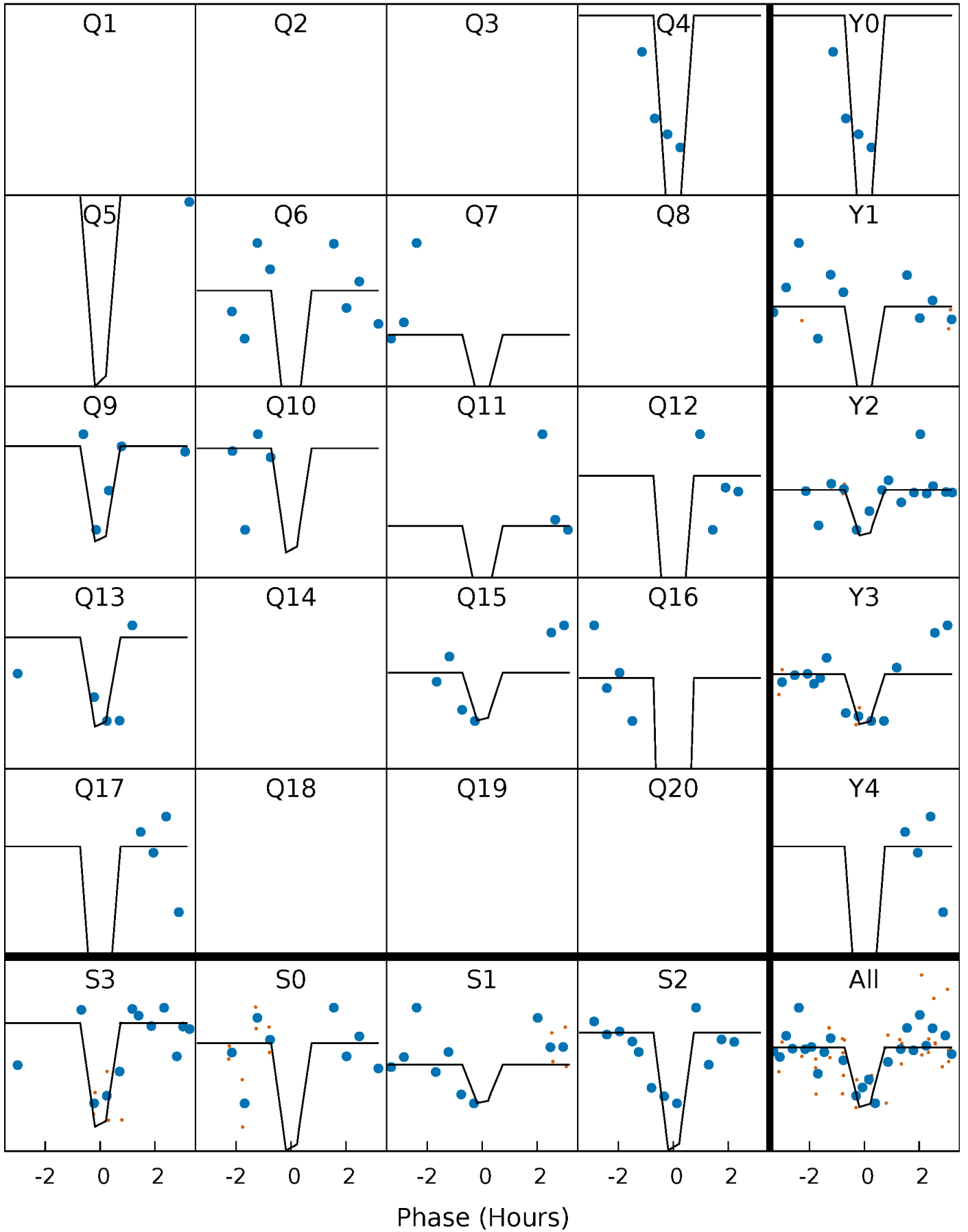
DV Quarter-Phased Transit Curves

TCE 009368424-04 P= 24.480135 Days $T_0=144.764857$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

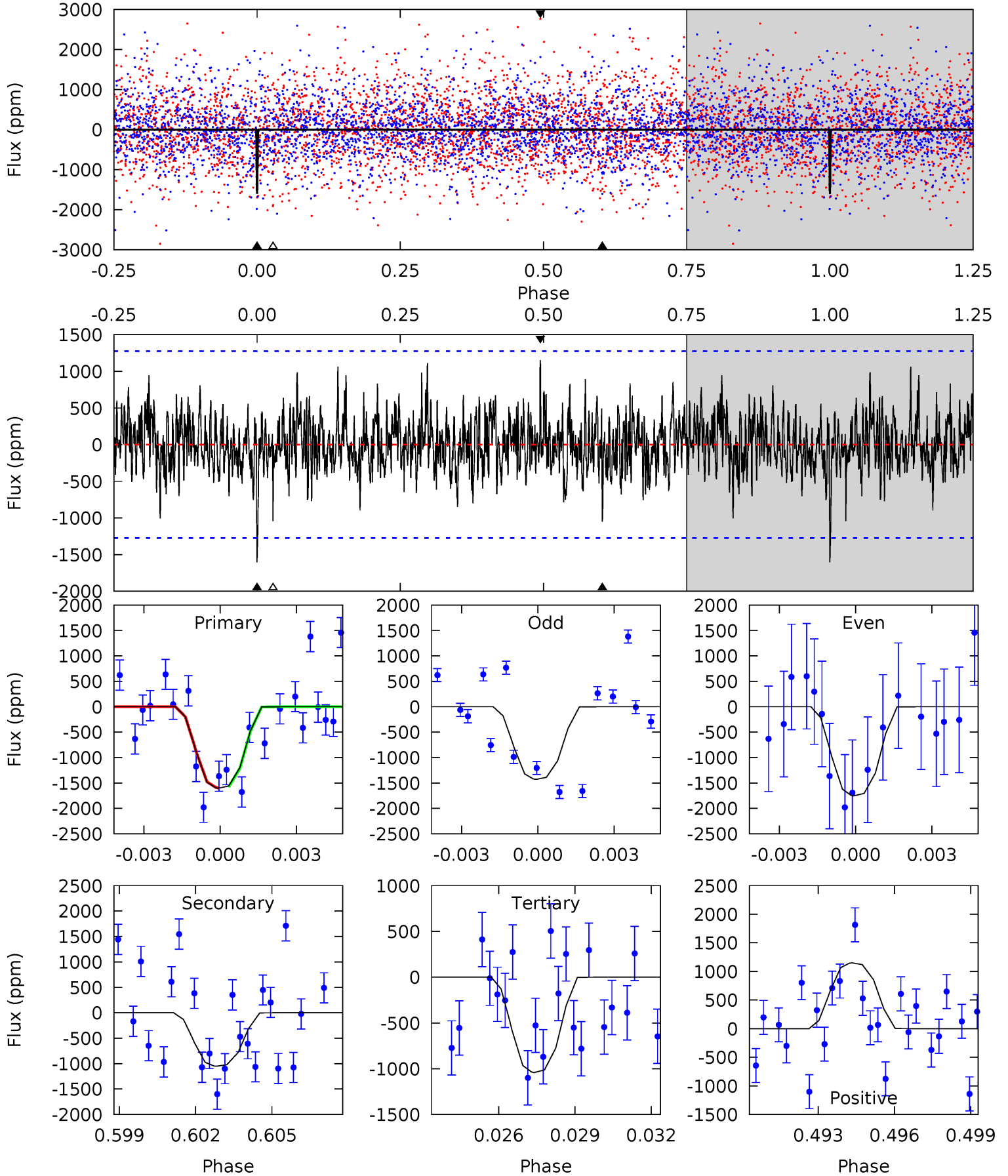
TCE 009368424-04 P= 24.480636 Days $T_0=144.747626$ (BKJD)



DV Model-Shift Uniqueness Test

009368424-04, P = 24.480135 Days, E = 144.764857 Days

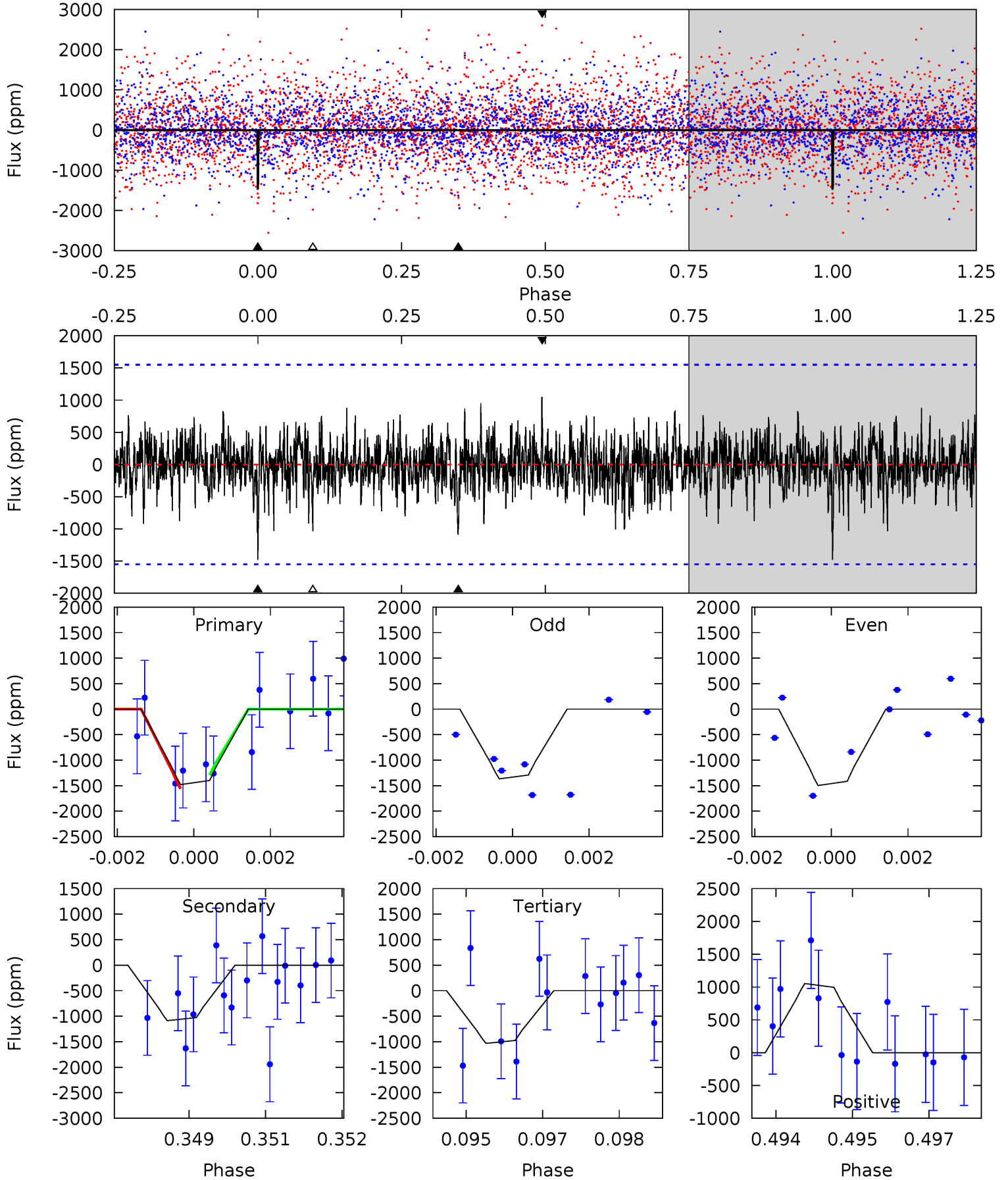
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.61	4.34	4.30	4.75	5.26	2.97	1.29	2.32	1.87	0.04	-0.41	0.66	1.00	0.42	0.04



Alt Model-Shift Uniqueness Test

009368424-04, P = 24.480636 Days, E = 144.747626 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.10	3.75	3.56	3.63	5.35	3.12	1.01	1.54	1.47	0.19	0.12	0.21	1.00	0.42	0.47



Stellar Parameters For KIC 009368424

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4765^{+167}_{-167}	$4.557^{+0.065}_{-0.035}$	$0.020^{+0.250}_{-0.300}$	$0.744^{+0.052}_{-0.072}$	$0.728^{+0.077}_{-0.058}$	$2.491^{+0.719}_{-0.318}$
	+4%/-4%	+1%/-1%	+1250%/-1500%	+7%/-10%	+11%/-8%	+29%/-13%
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 009368424-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1051 ± 242	$7.05^{+6.47}_{-4.69}$	652^{+28}_{-27}	3352^{+1637}_{-593}	244^{+2015}_{-176}
Alt.	-1087 ± 290	$7.10^{+6.93}_{-4.74}$	653^{+26}_{-26}	3363^{+1554}_{-609}	256^{+1917}_{-195}

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 $A_{obs} \gg 1.0$

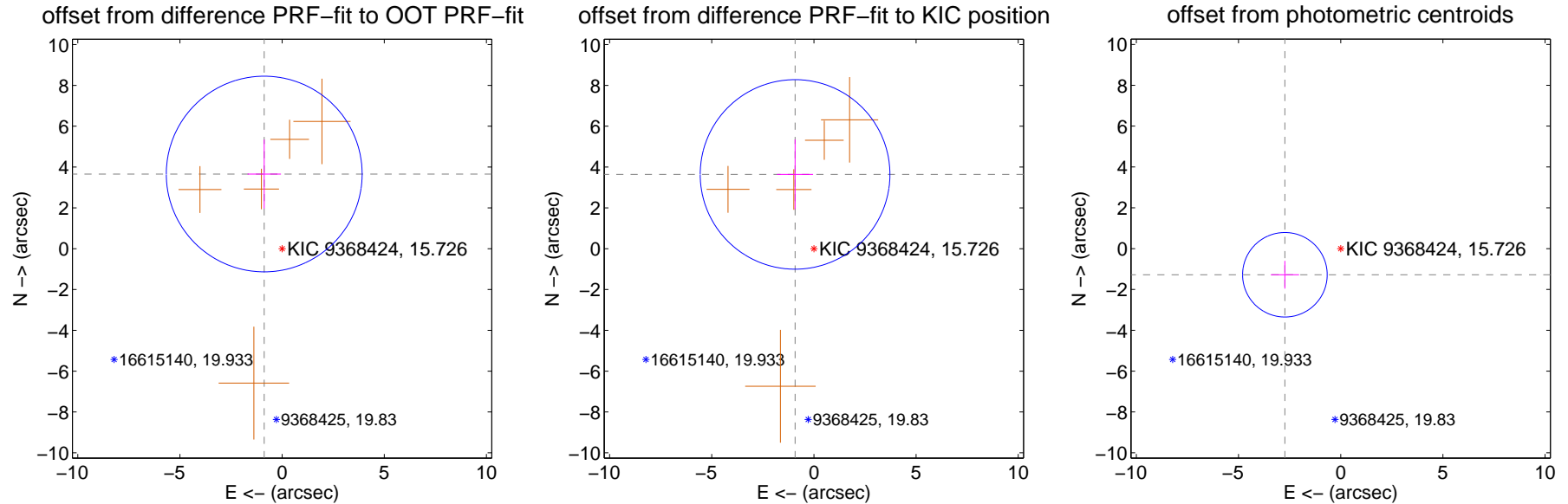
DV Centroid Data

Supplemental centroid analysis for 009368424-04. Kepler magnitude: 15.73. Transit SNR 11.23

There are 0 quarters with good PRF difference image offsets

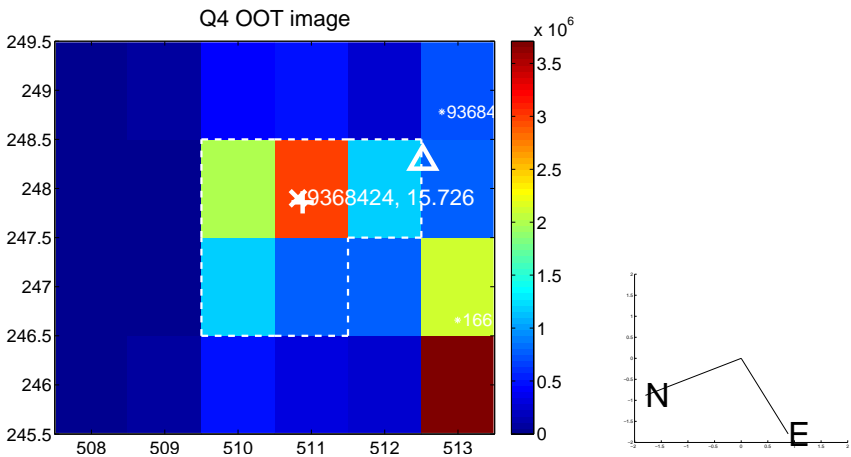
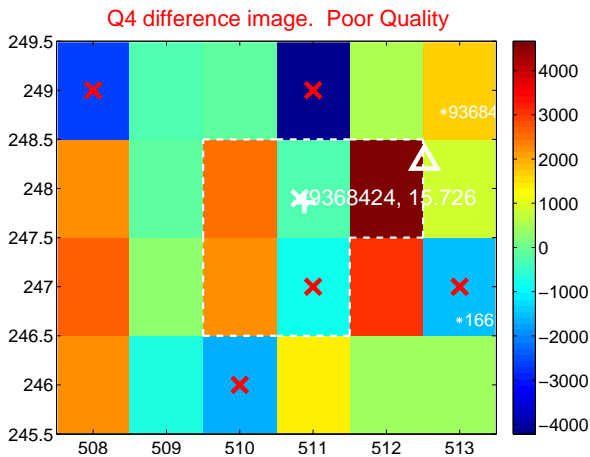
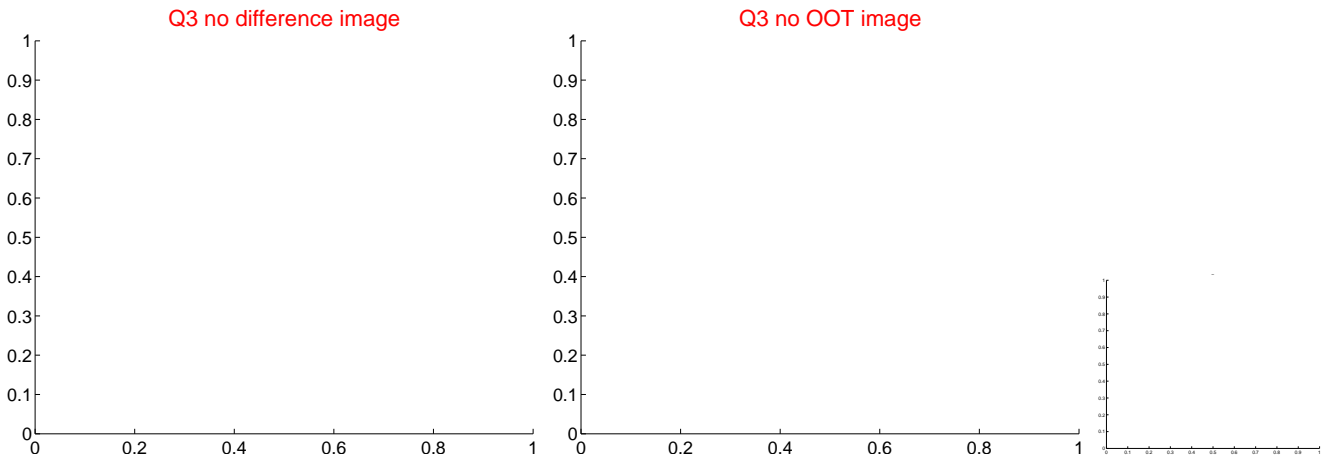
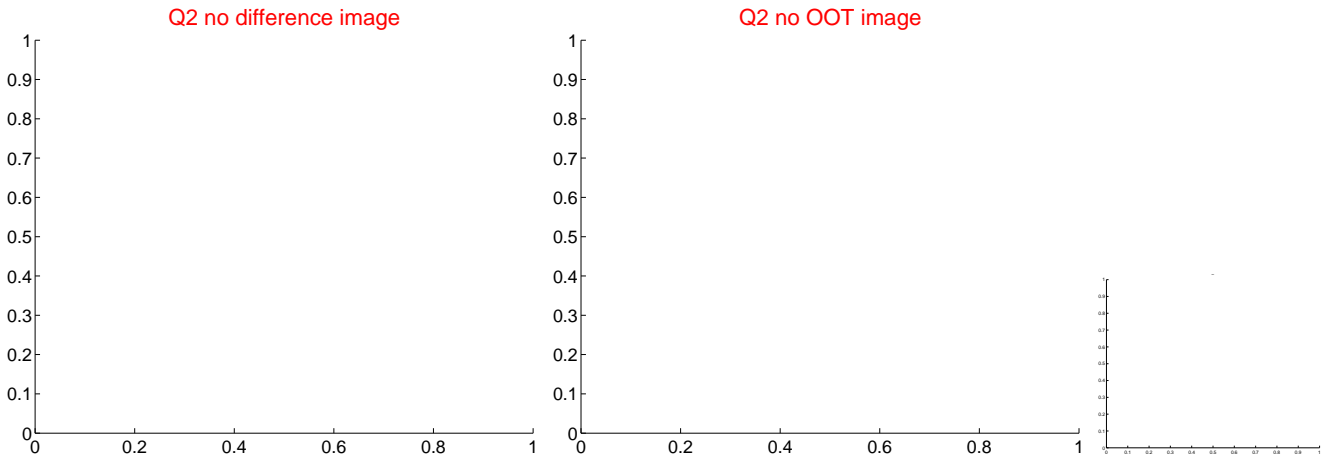
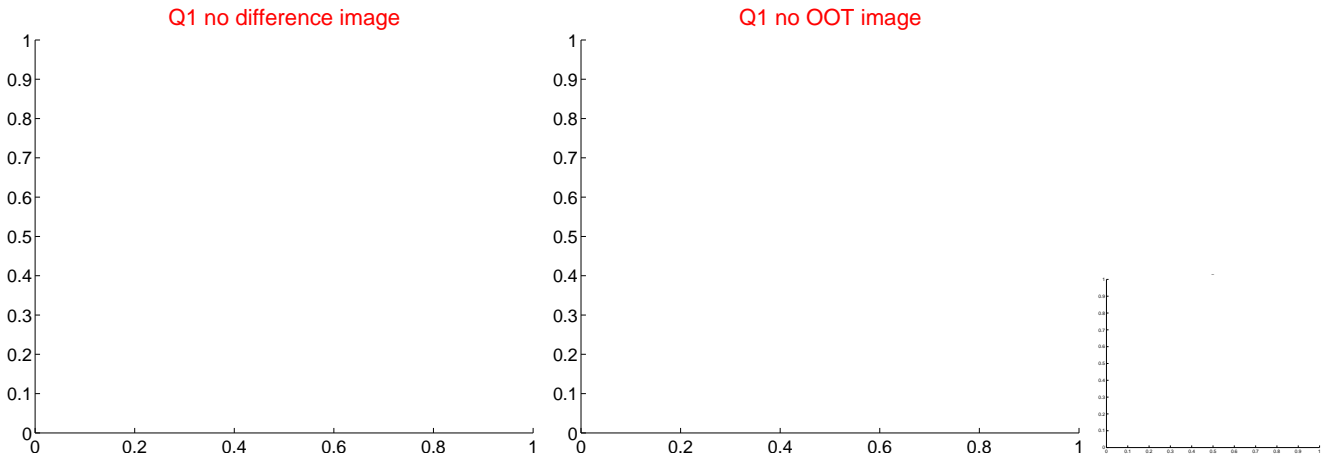
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.762 ± 1.598	2.35	0.876 ± 0.818	3.658 ± 1.686
PRF-fit source offset from KIC position	3.754 ± 1.548	2.43	0.923 ± 0.880	3.639 ± 1.710
photometric centroid source offset	3.02 ± 0.69	4.37	2.73 ± 0.69	-1.28 ± 0.68

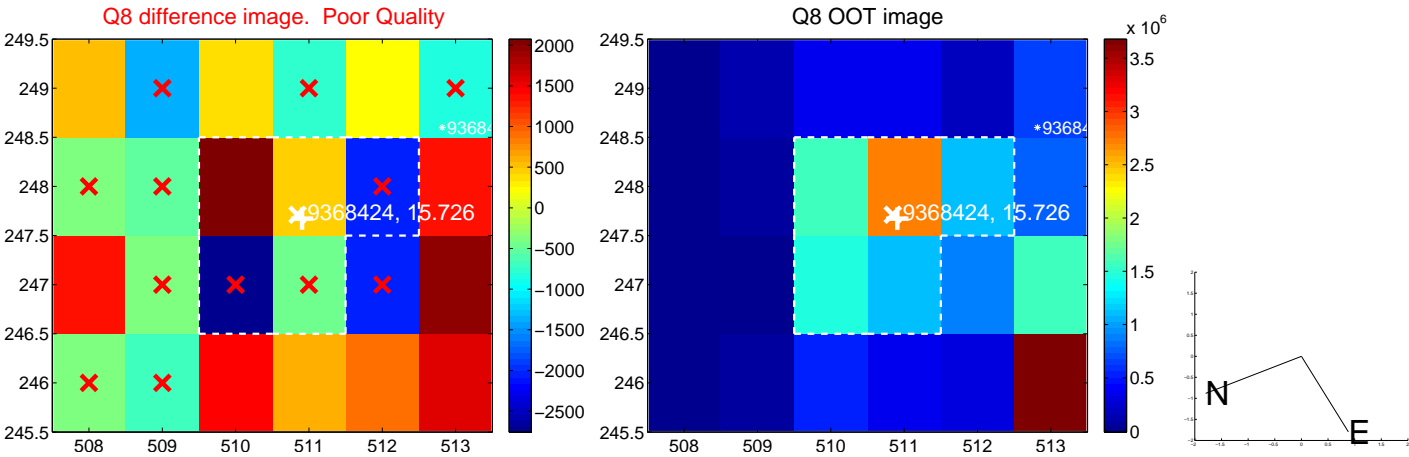
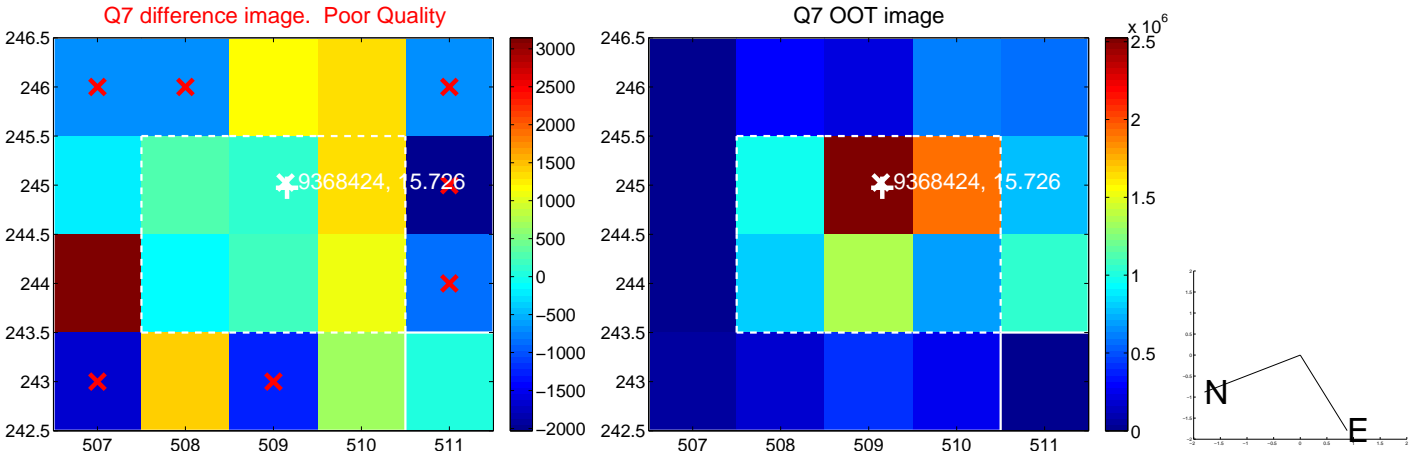
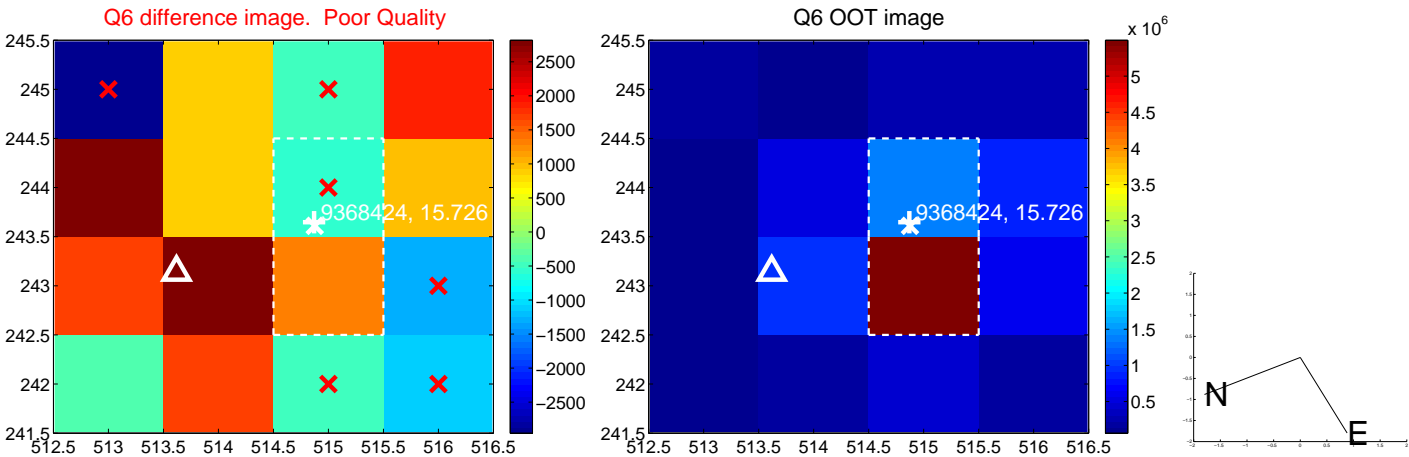
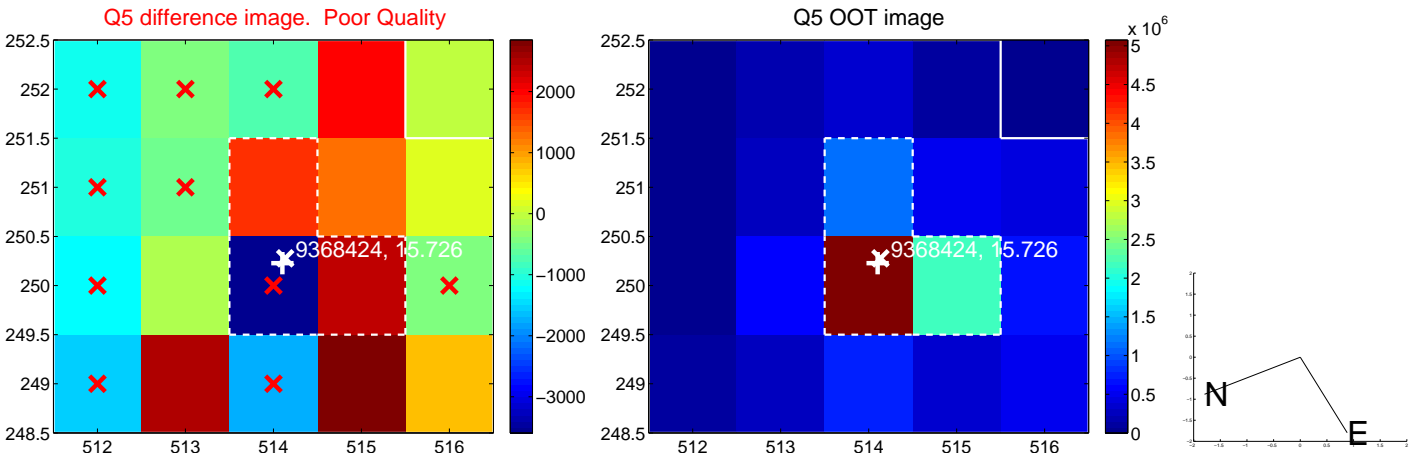


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

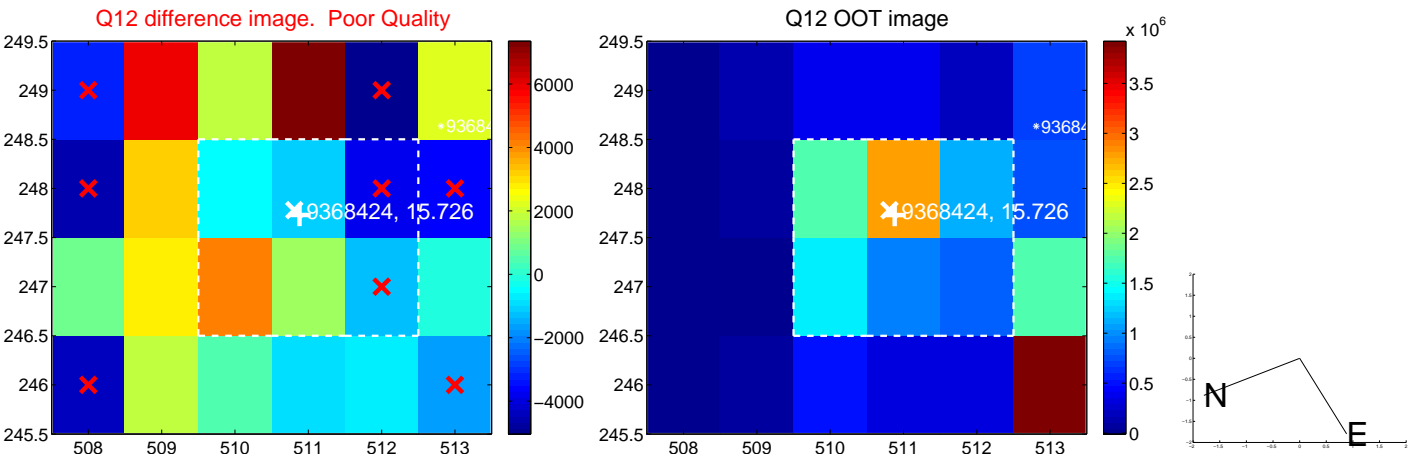
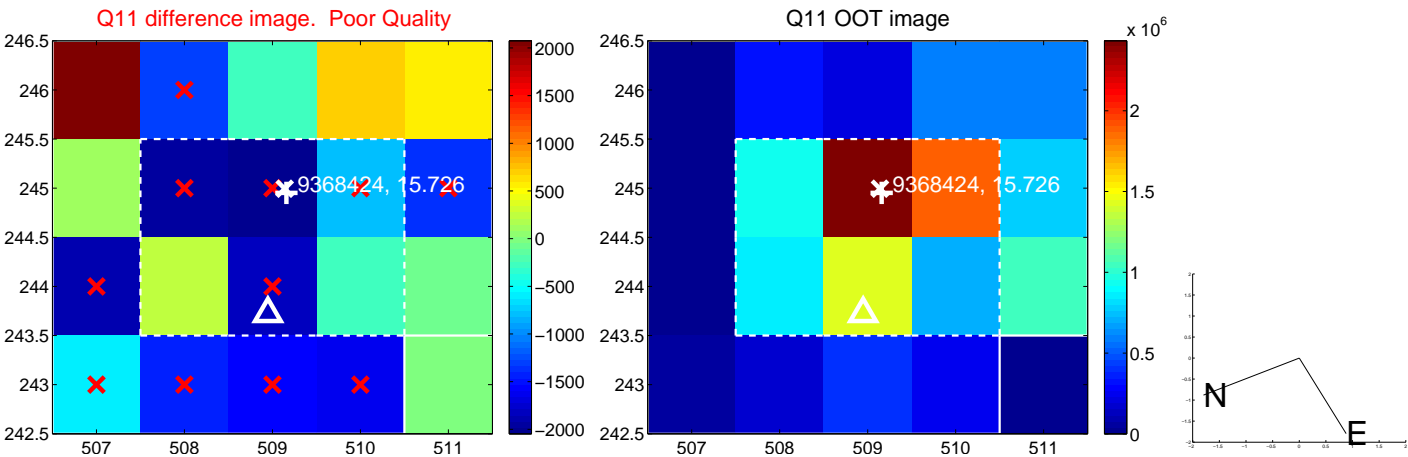
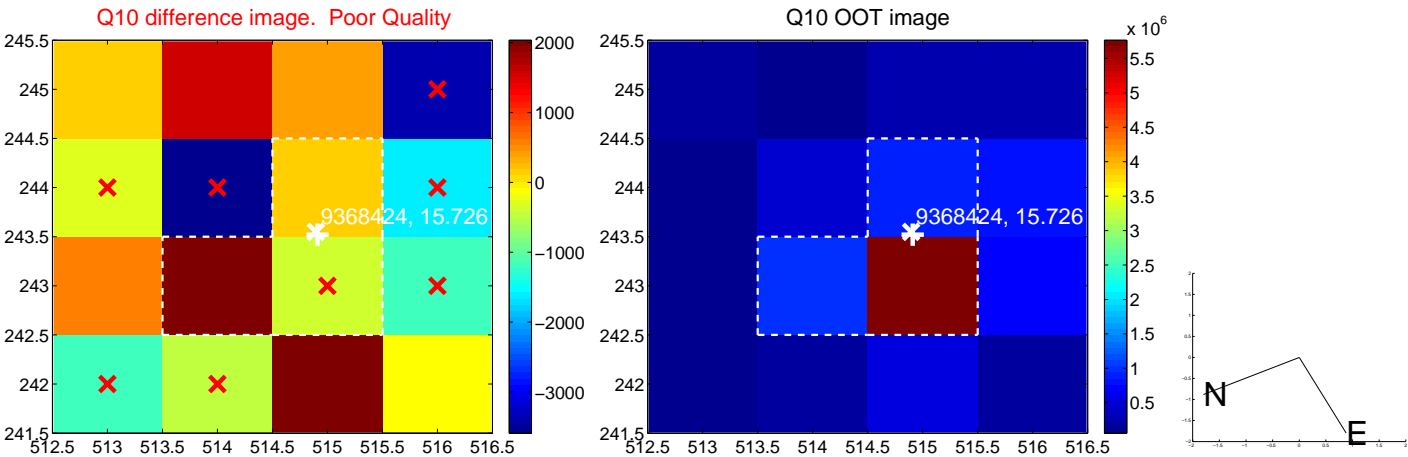
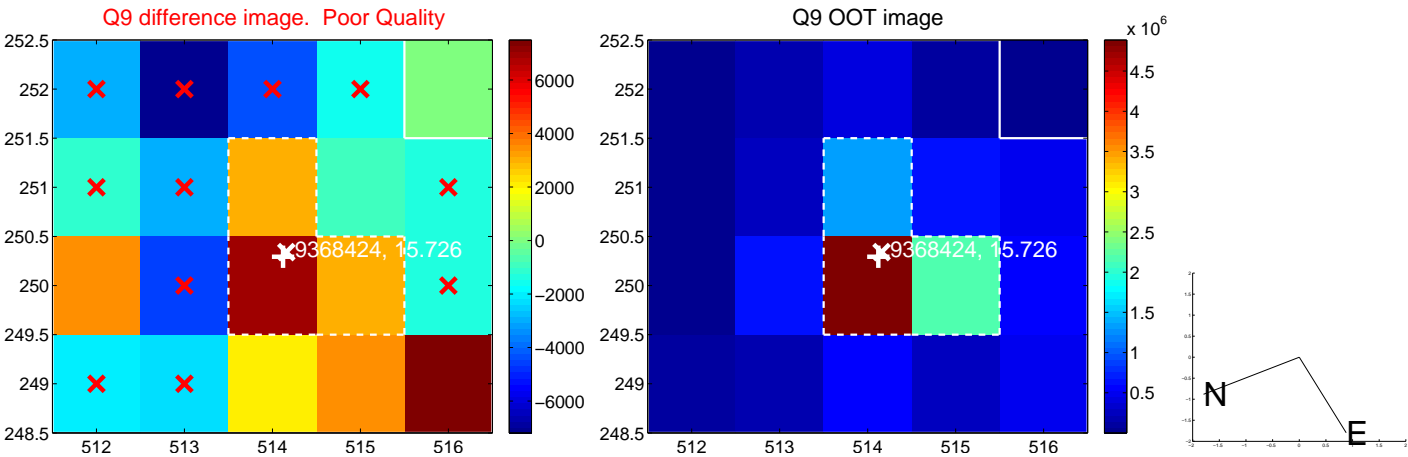
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



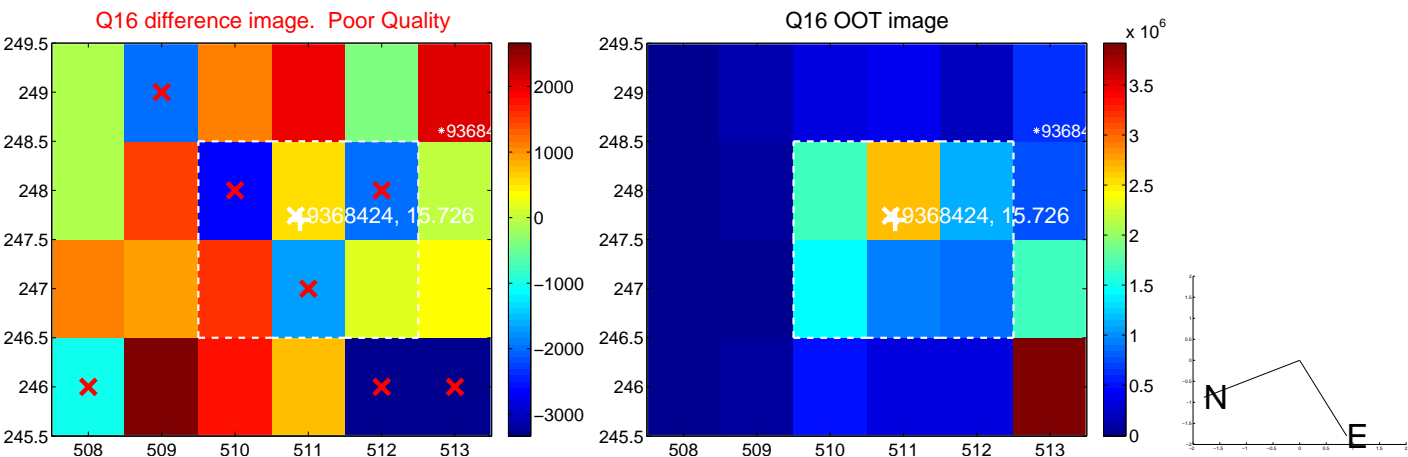
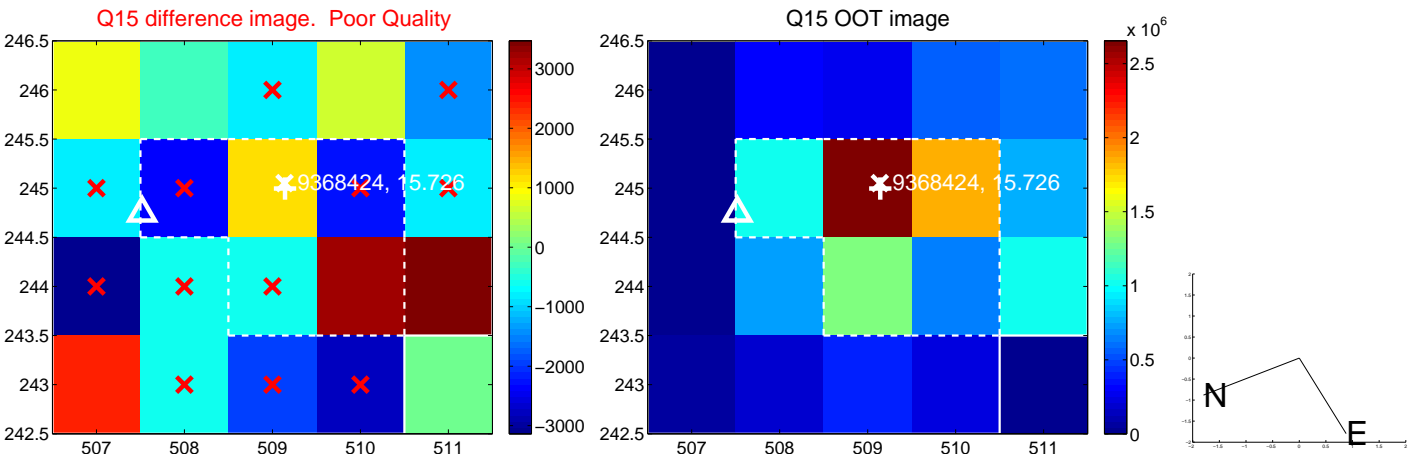
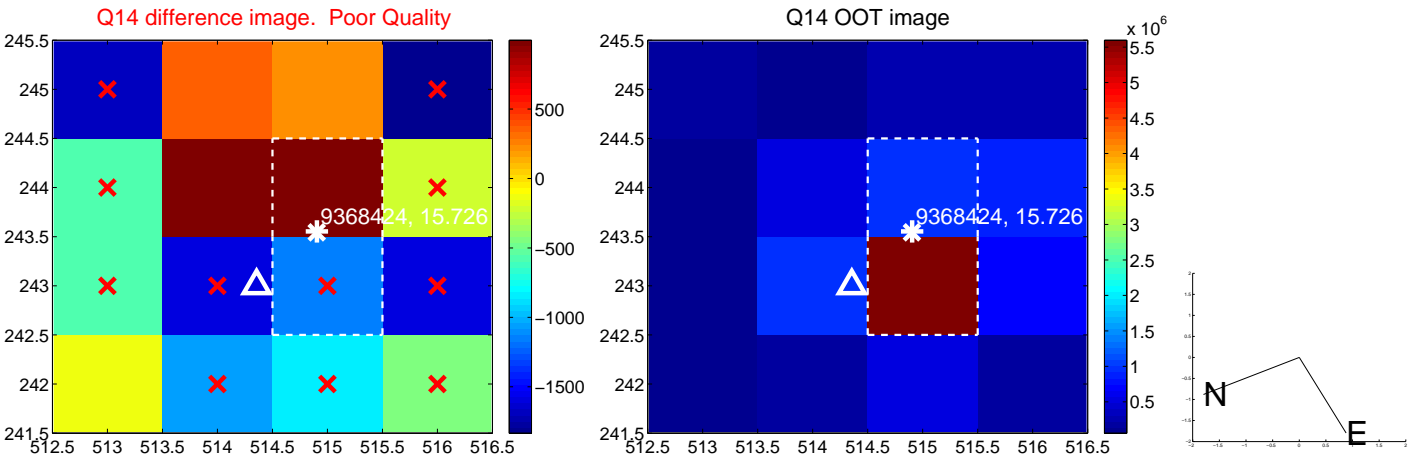
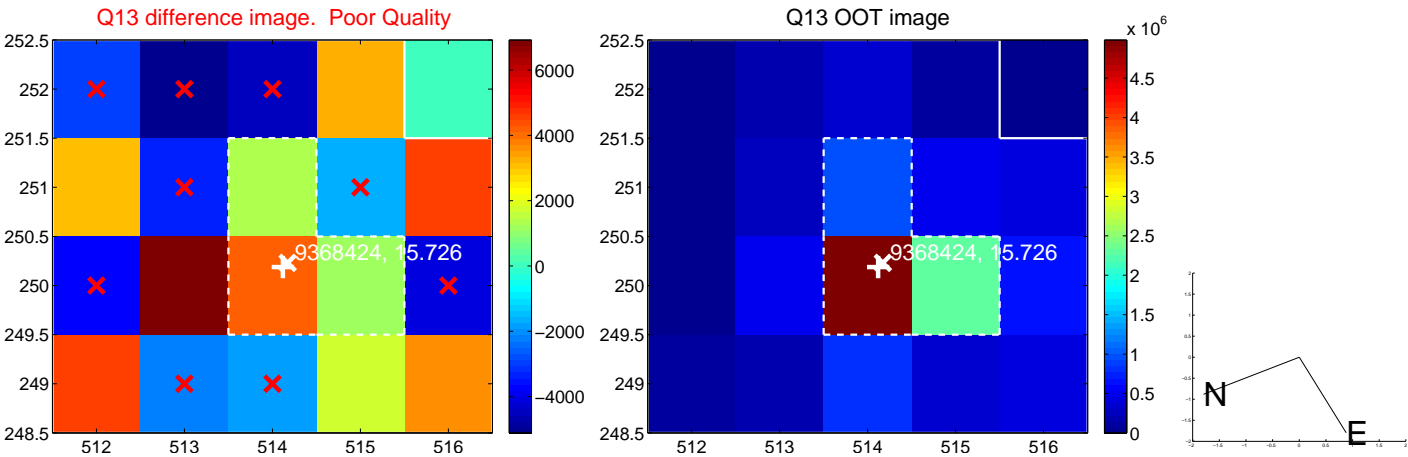
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



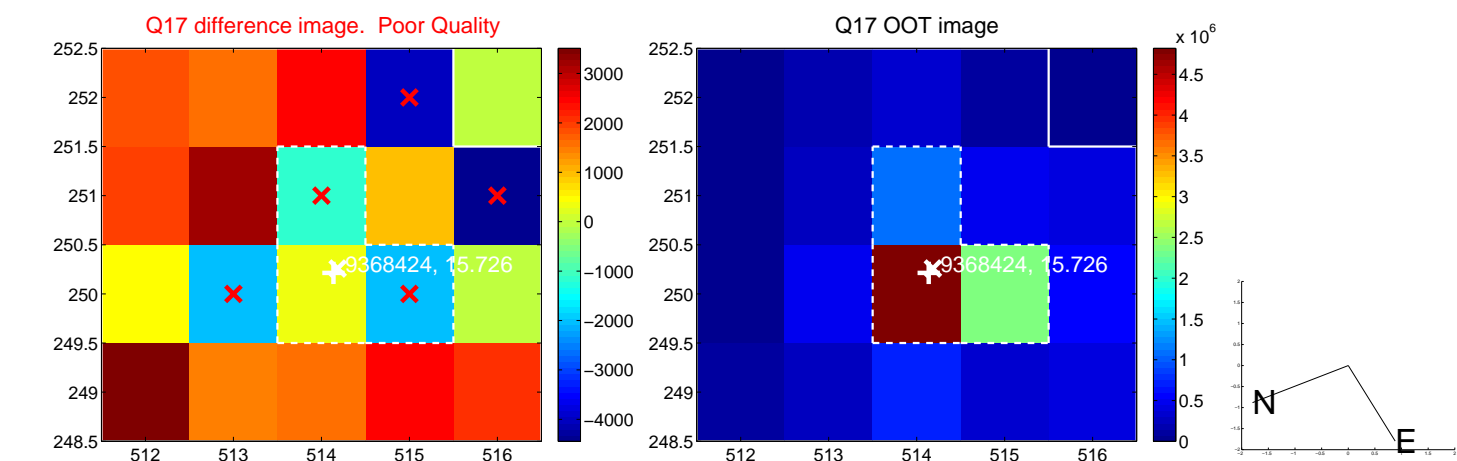
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



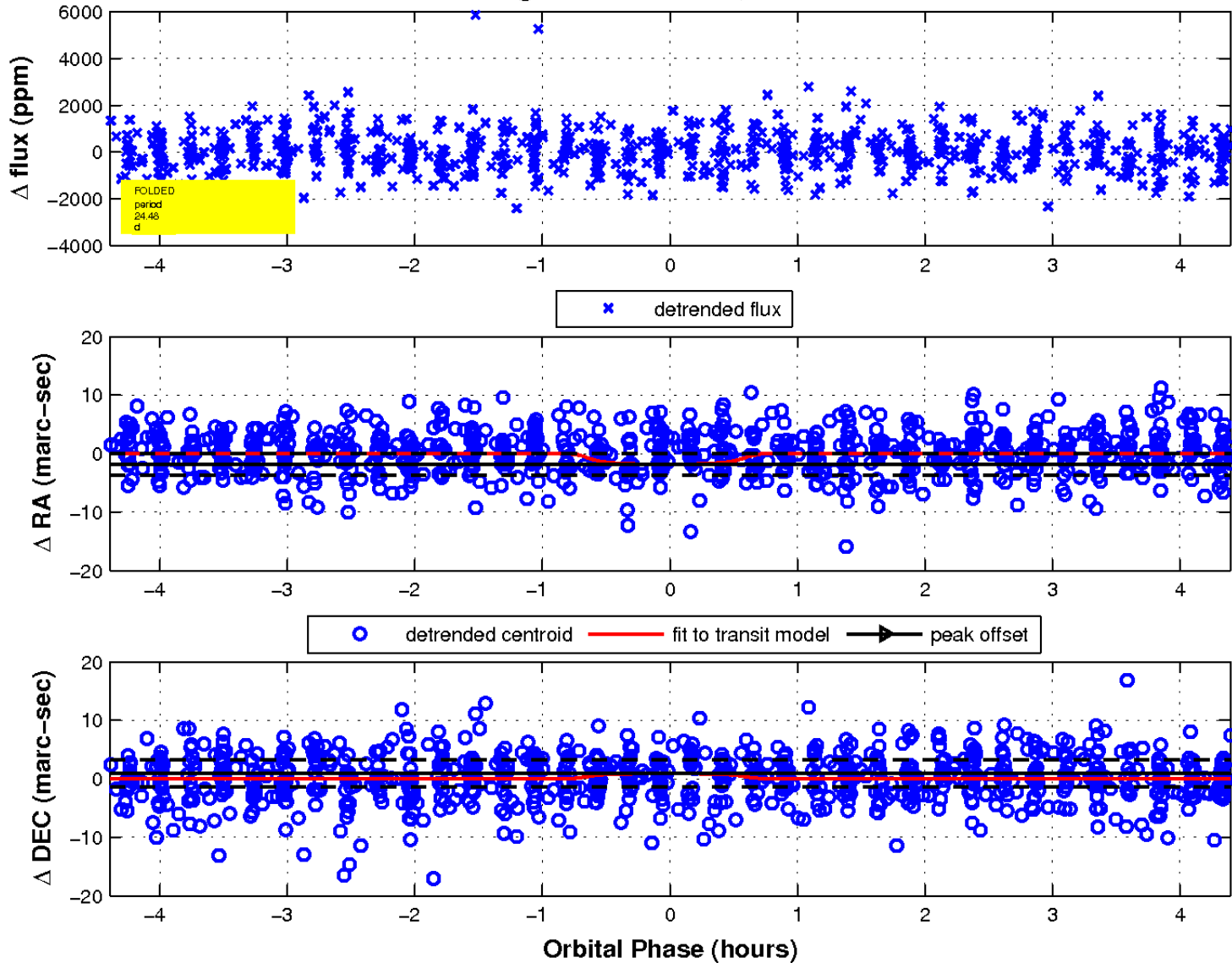
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

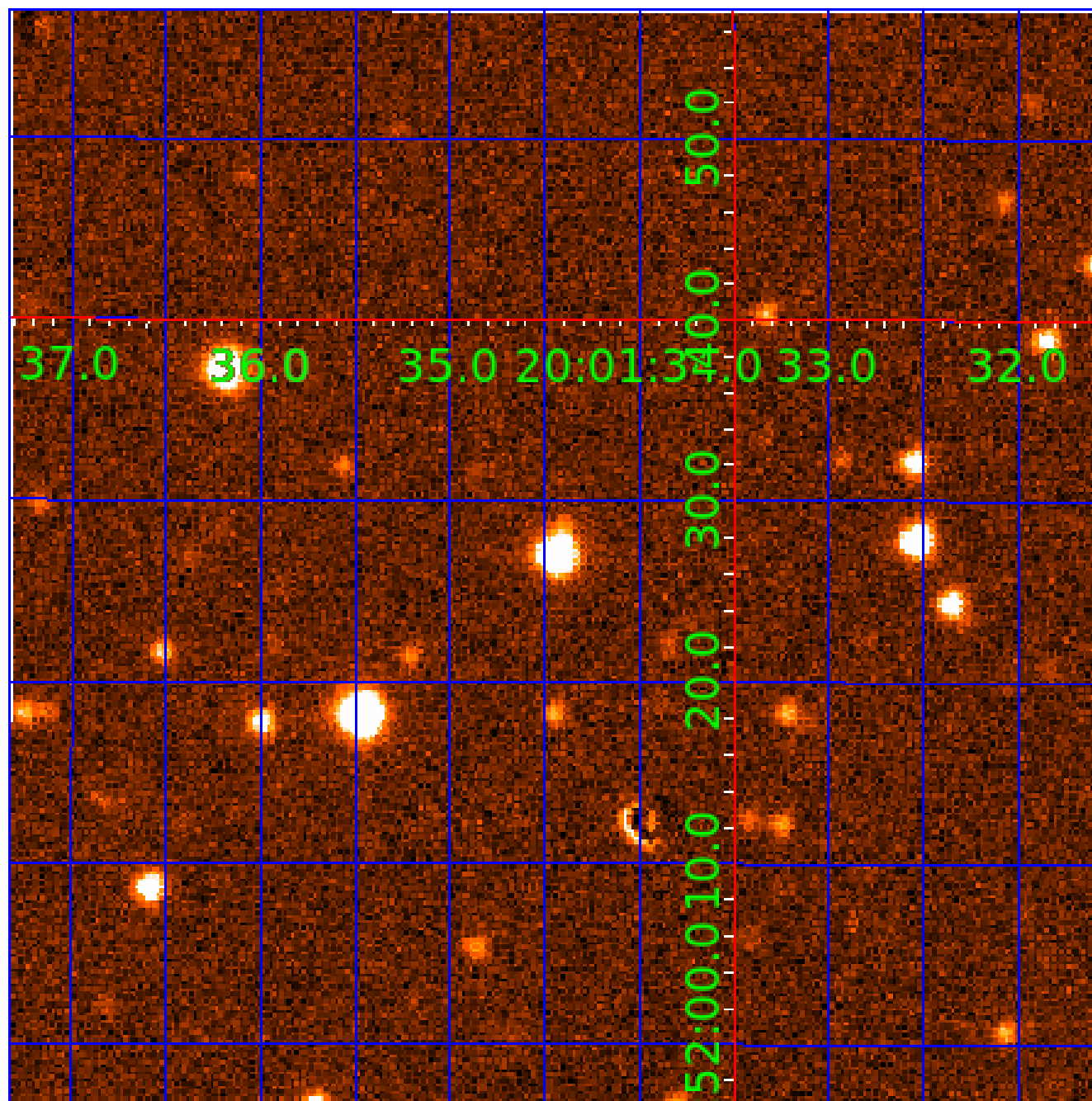


fluxWeightedCentroids, Planet 4 of 5



UKIRT Image

Declination



KIC 009368424

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})
009368424-01	OBS	No	0.963400	131.651560	60.4	6.892	7.8	7.6	0.74	4765	0.56	866.53
009368424-02	OBS	No	17.051872	143.413051	985.1	1.880	11.4	11.4	0.74	4765	2.65	18.79
009368424-03	OBS	No	30.499766	134.763394	1081.5	3.097	10.3	10.3	0.74	4765	2.64	8.65
009368424-04	OBS	No	24.480135	144.764857	1582.0	1.469	10.4	11.2	0.74	4765	3.49	11.60
009368424-05	OBS	No	41.849879	170.470341	1645.1	1.641	10.5	11.0	0.74	4765	3.57	5.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009368424-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
009368424-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
009368424-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
009368424-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009368424-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

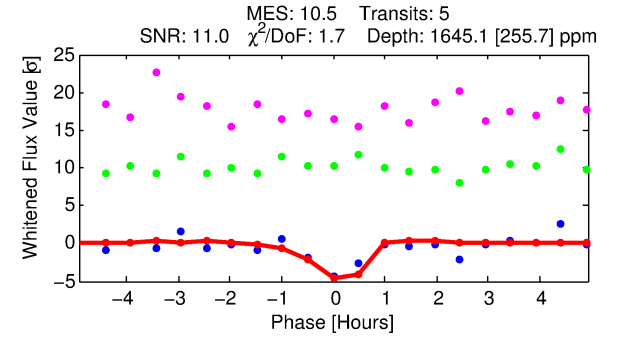
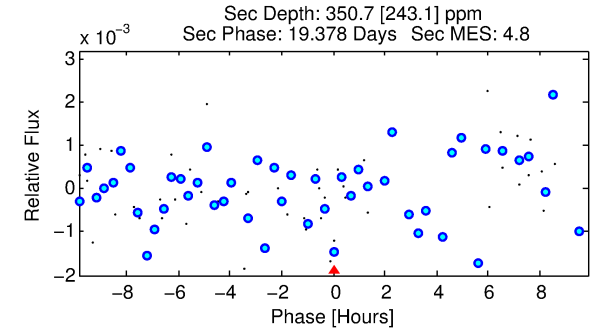
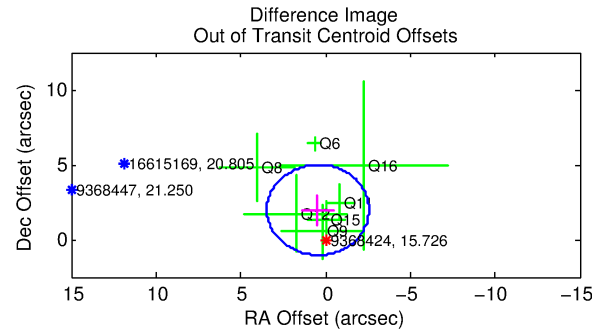
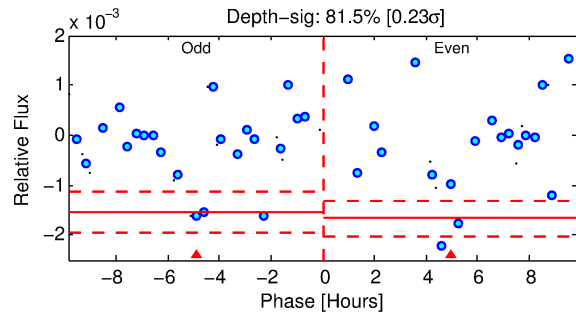
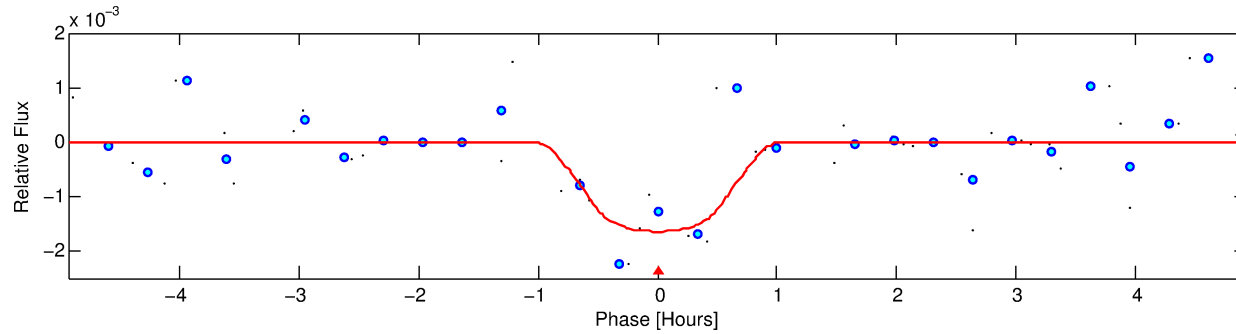
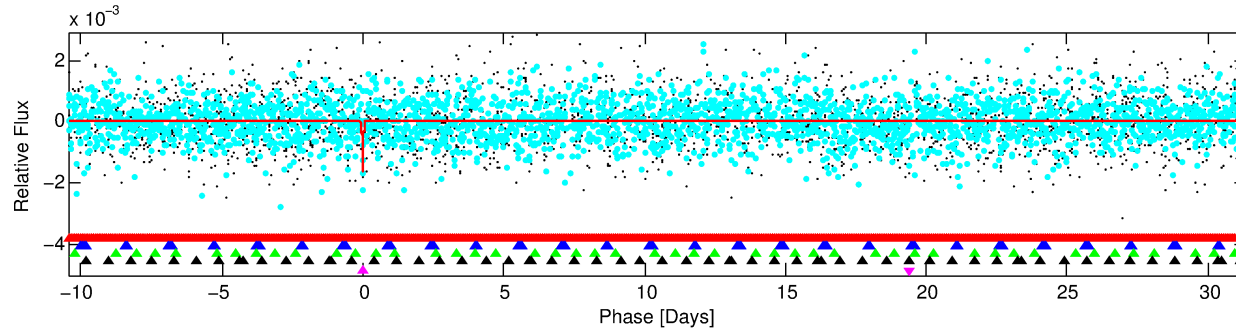
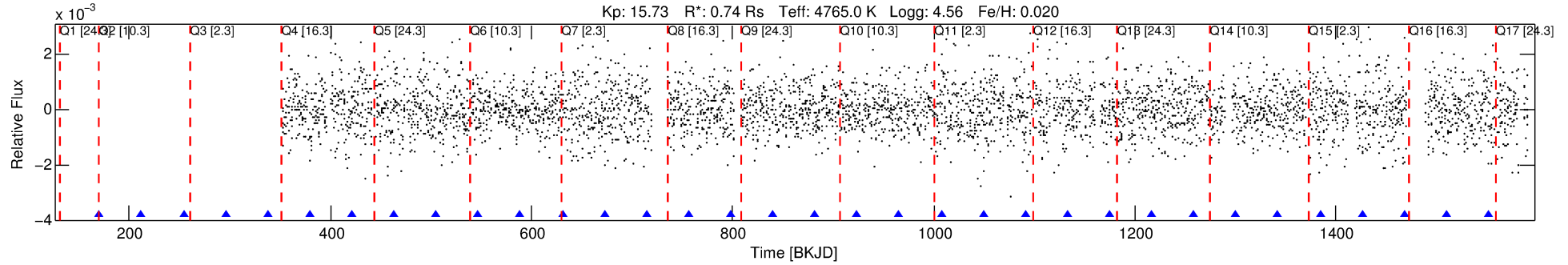
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009368424-05

No Significant Match Found

DV One-Page Summary

KIC: 9368424 Candidate: 5 of 5 Period: 41.850 d



DV Fit Results:

Period = 41.84988 [0.00029] d
Epoch = 170.4703 [0.0066] BKJD
Rp/R* = 0.0439 [0.0356]
a/R* = 115.69 [318.48]
b = 0.86 [0.87]
Seff = 5.67 [1.04]
Teq = 394 [18] K
Rp = 3.57 [2.91] Re
a = 0.2123 [0.0173] AU
Ag = 682.86 [1206.55] [0.57 σ]
Teffp = 3111 [1375] K [1.98 σ]

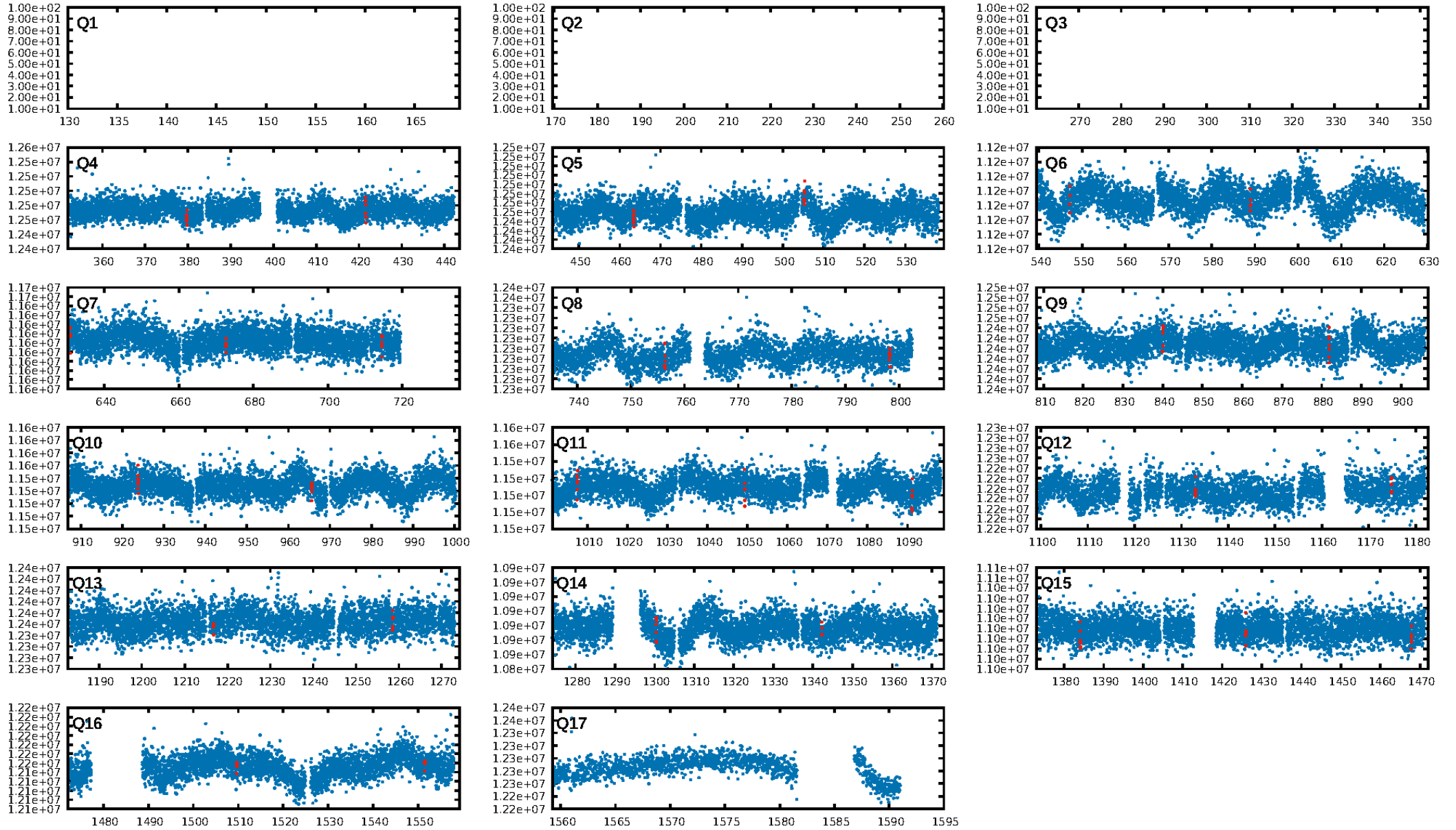
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [77.72 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 63.7%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 7.35e-09
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.3182
Centroid-sig: 1.8%
Centroid-so: 0.220 arcsec [0.28 σ]
OotOffset-rm: 2.024 arcsec [2.02 σ]
KicOffset-rm: 2.056 arcsec [2.05 σ]
OotOffset-st: 1/2/3/1 [7]
KicOffset-st: 1/2/3/1 [7]
DiffImageQuality-fgm: 0.00 [0/7]
DiffImageOverlap-fno: 0.54 [7/13]

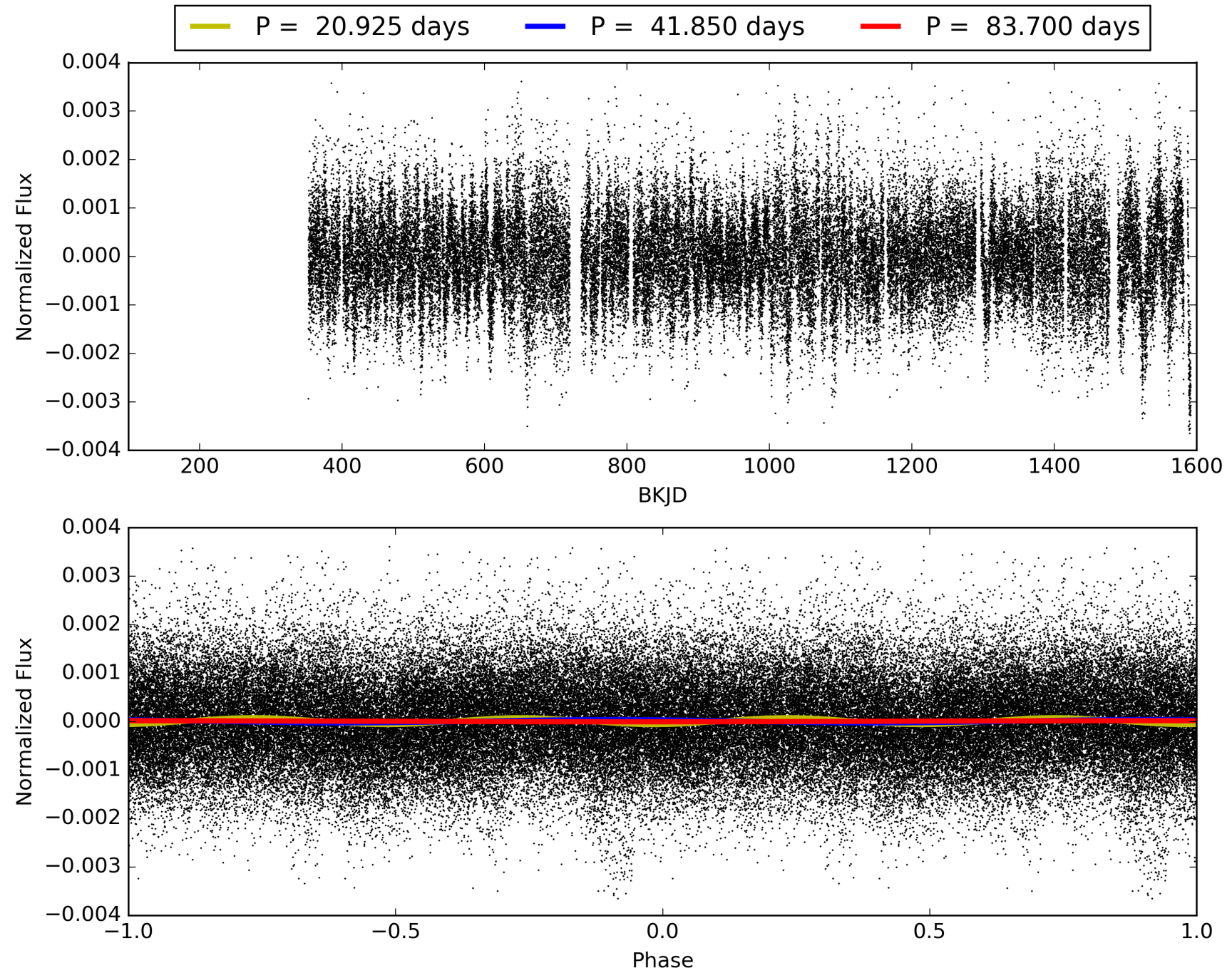
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:19:22 Z

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

TCE 009368424-05, PDC Light Curves

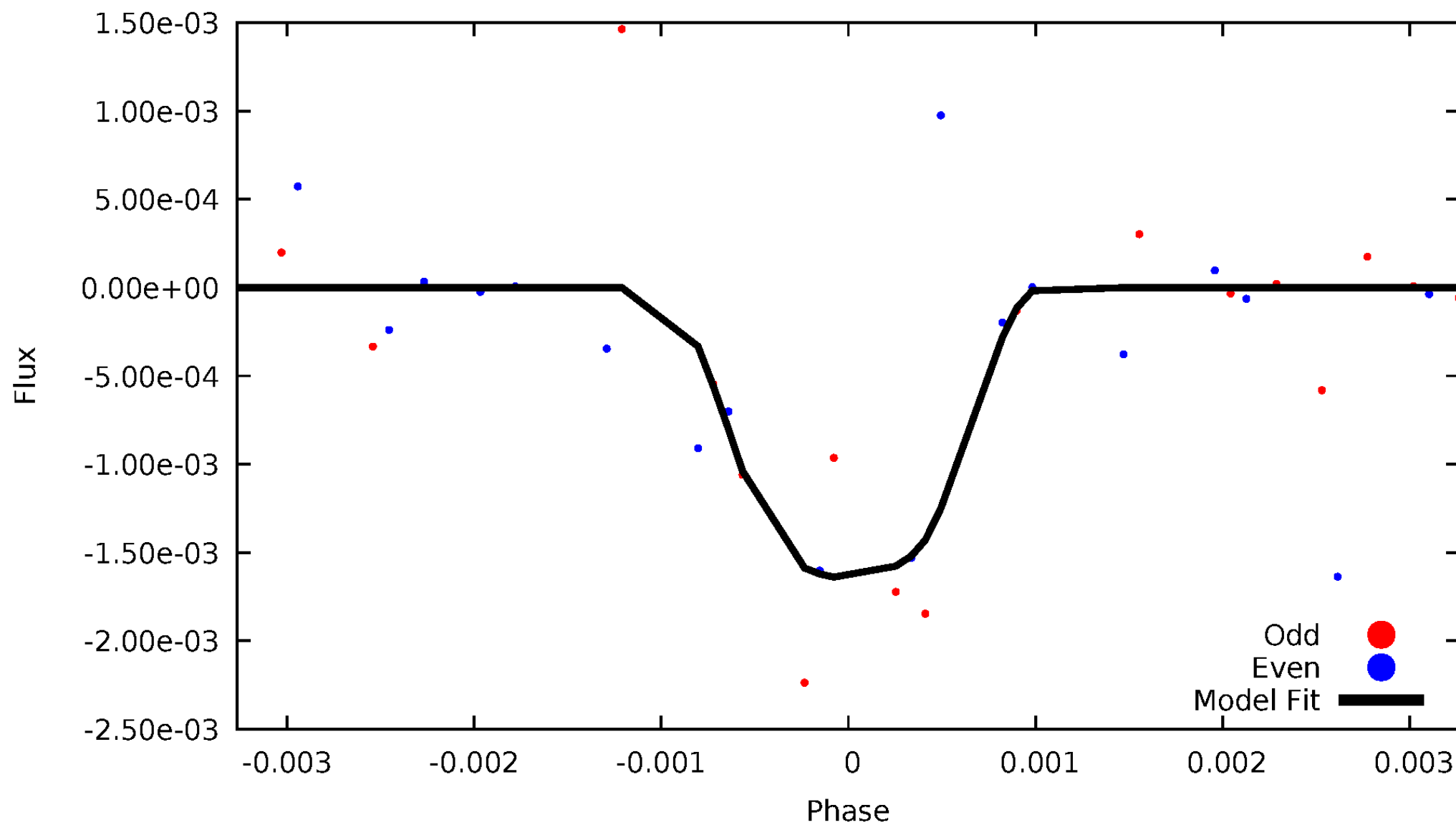


TCE 009368424-05



DV Odd/Even

TCE 009368424-05

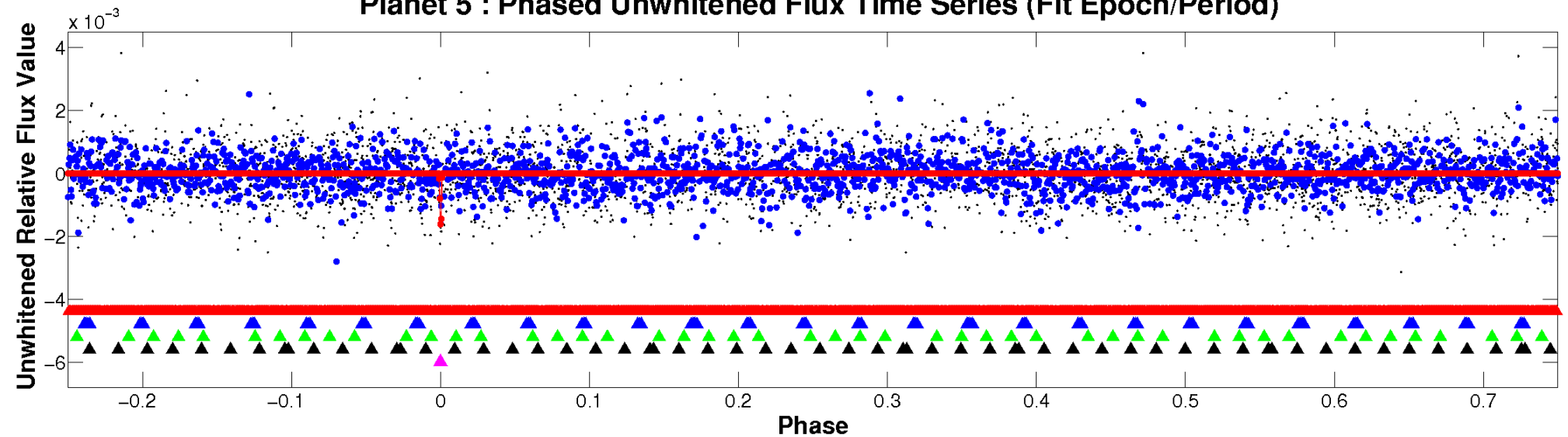


ALT Odd/Even

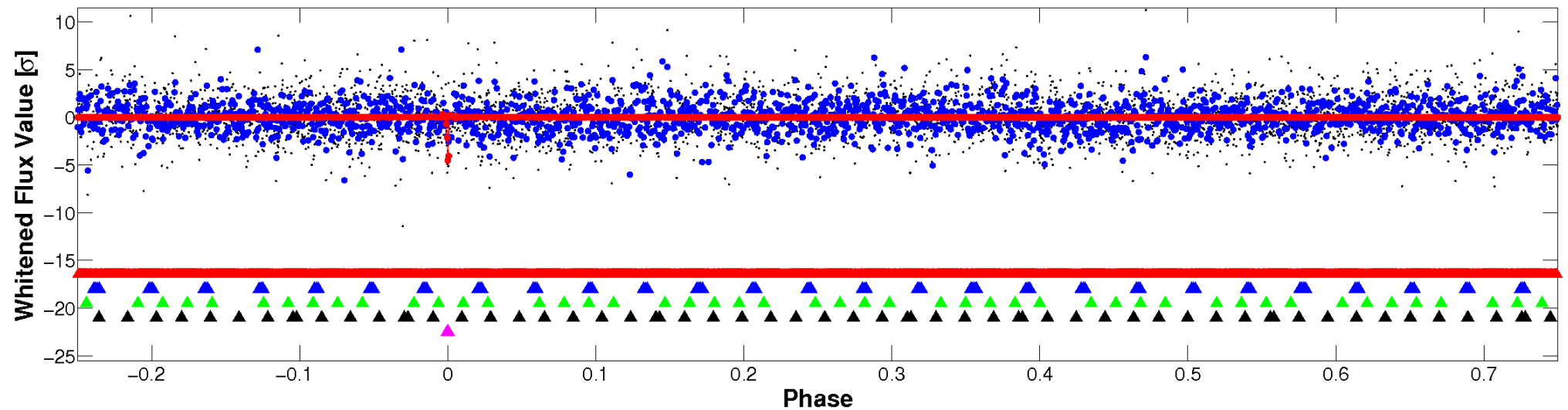
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

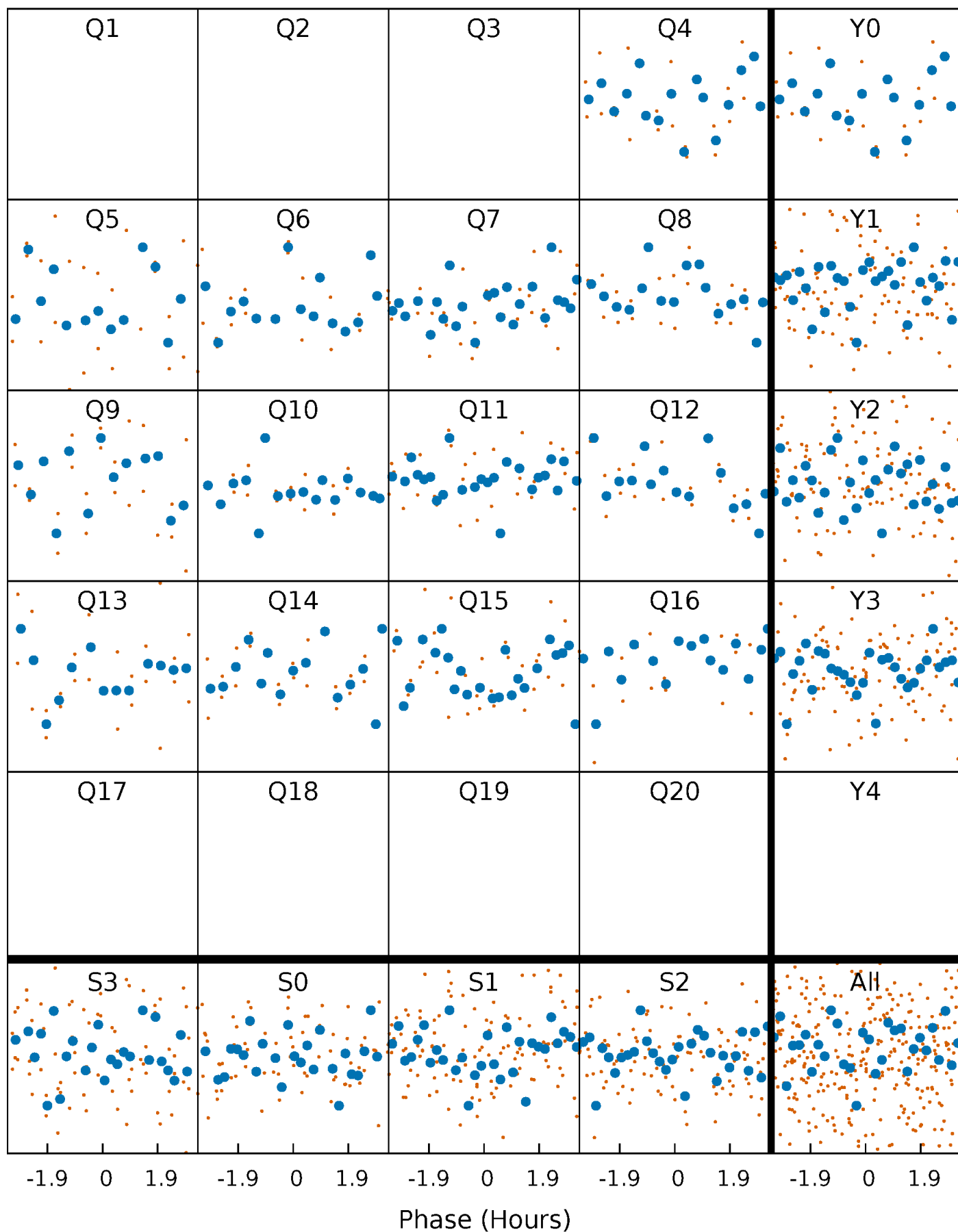


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



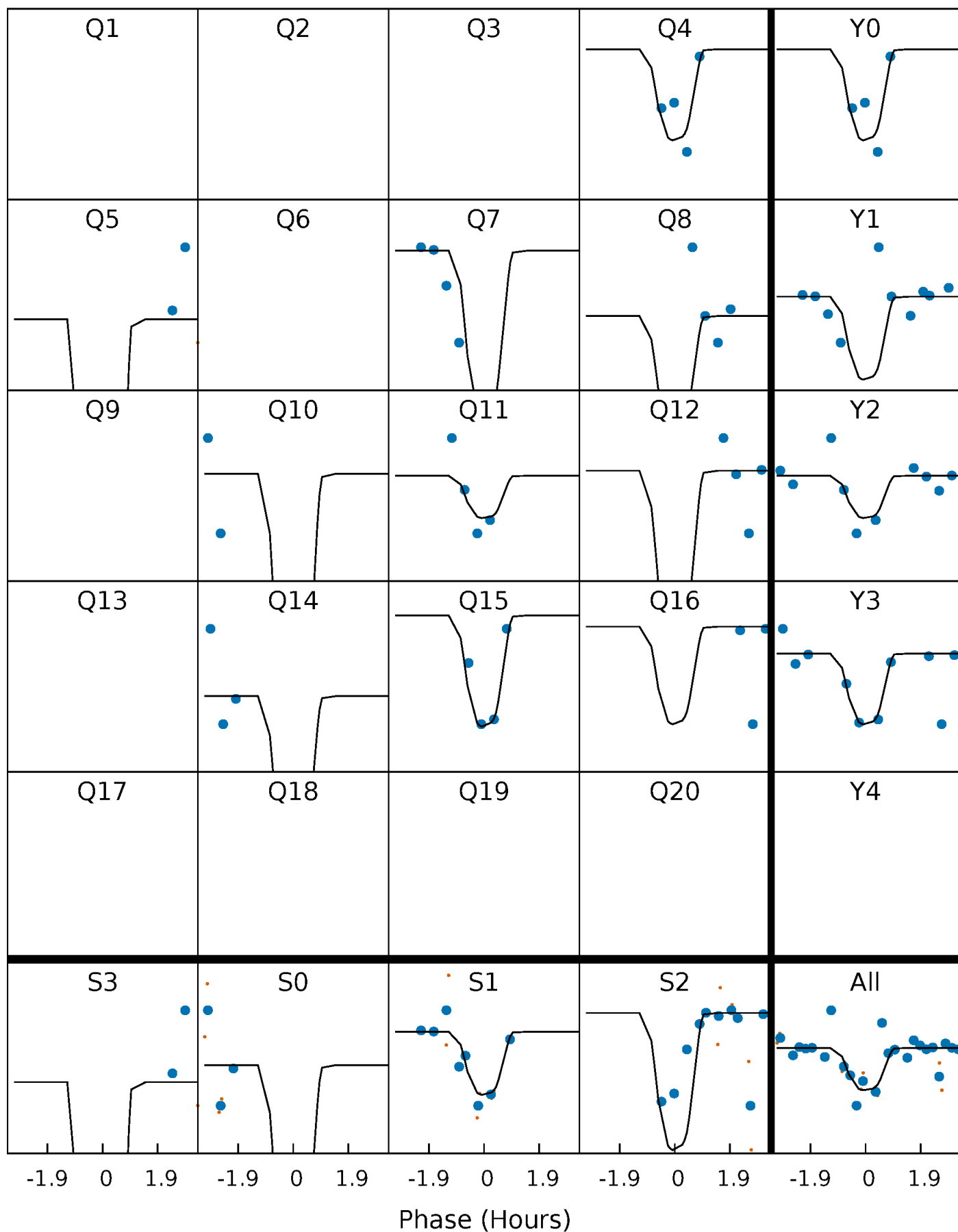
PDC Quarter-Phased Transit Curves

TCE 009368424-05 $P = 41.849879$ Days $T_0 = 170.470341$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009368424-05 $P = 41.849879$ Days $T_0 = 170.470341$ (BKJD)

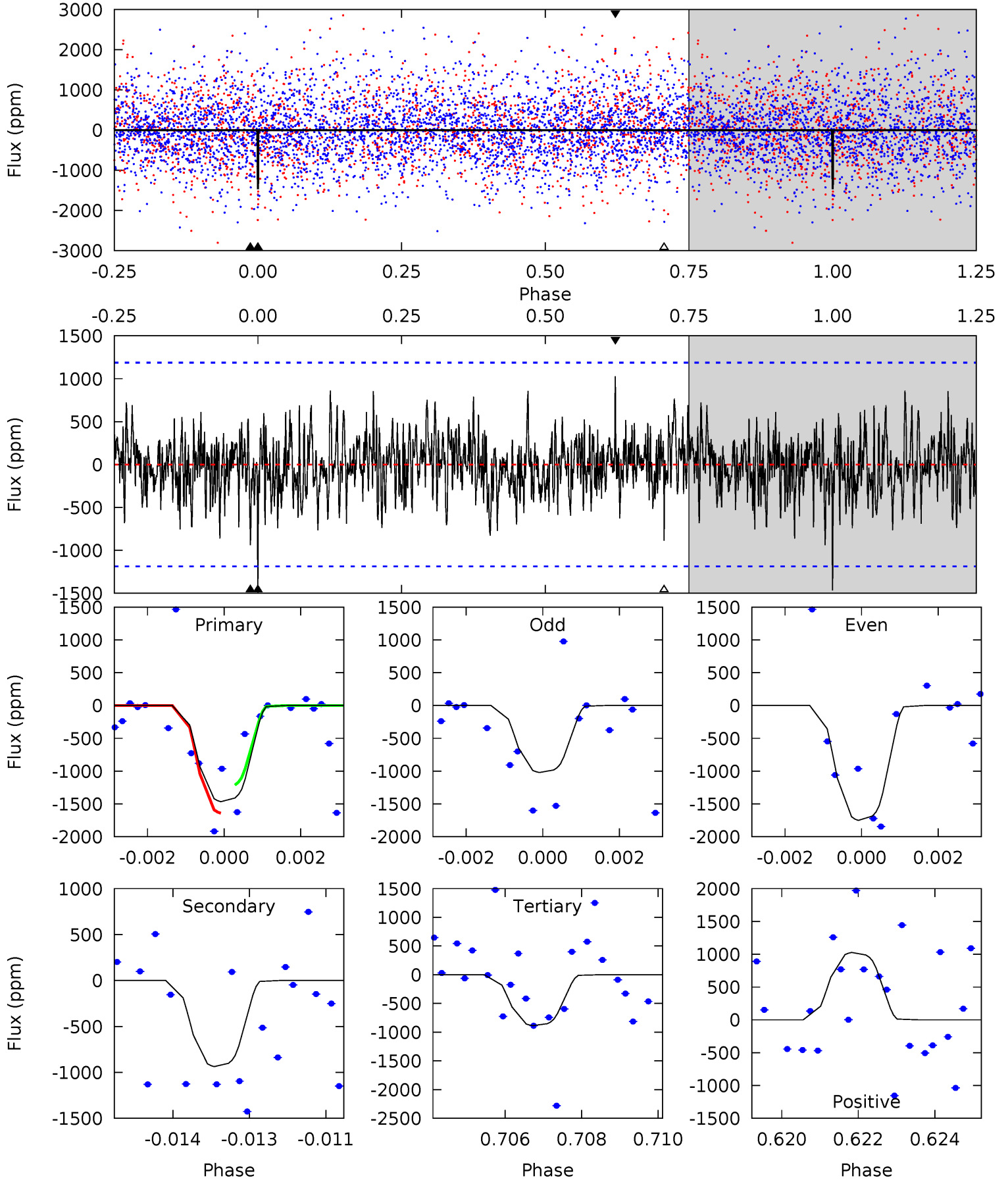


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009368424-05, P = 41.849879 Days, E = 170.470341 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.61	4.22	3.99	4.63	5.35	3.12	1.26	2.61	1.98	0.23	-0.41	1.61	0.62	0.41	0.97



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009368424

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4765^{+167}_{-167}	$4.557^{+0.065}_{-0.035}$	$0.020^{+0.250}_{-0.300}$	$0.744^{+0.052}_{-0.072}$	$0.728^{+0.077}_{-0.058}$	$2.491^{+0.719}_{-0.318}$
	+4%/-4%	+1%/-1%	+1250%/-1500%	+7%/-10%	+11%/-8%	+29%/-13%
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 009368424-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-937 ± 222	$3.84^{+2.77}_{-2.32}$	548^{+22}_{-24}	3988^{+1845}_{-643}	1515^{+8221}_{-1006}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

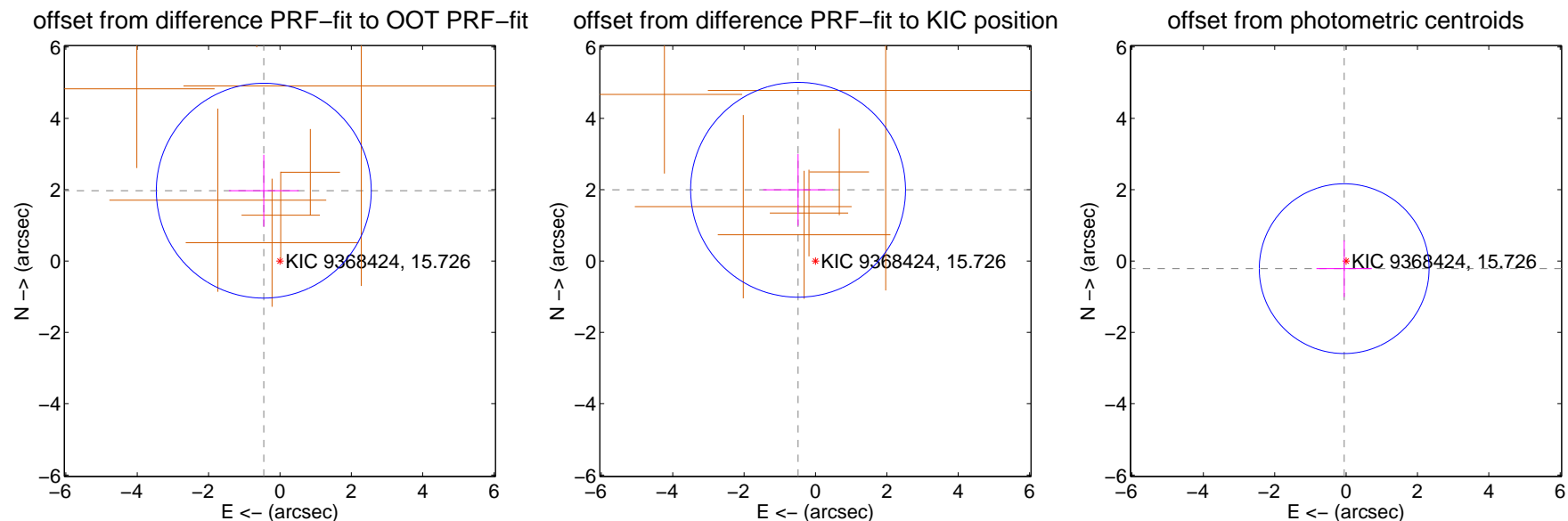
DV Centroid Data

Supplemental centroid analysis for 009368424-05. Kepler magnitude: 15.73. Transit SNR 11.05

There are 0 quarters with good PRF difference image offsets

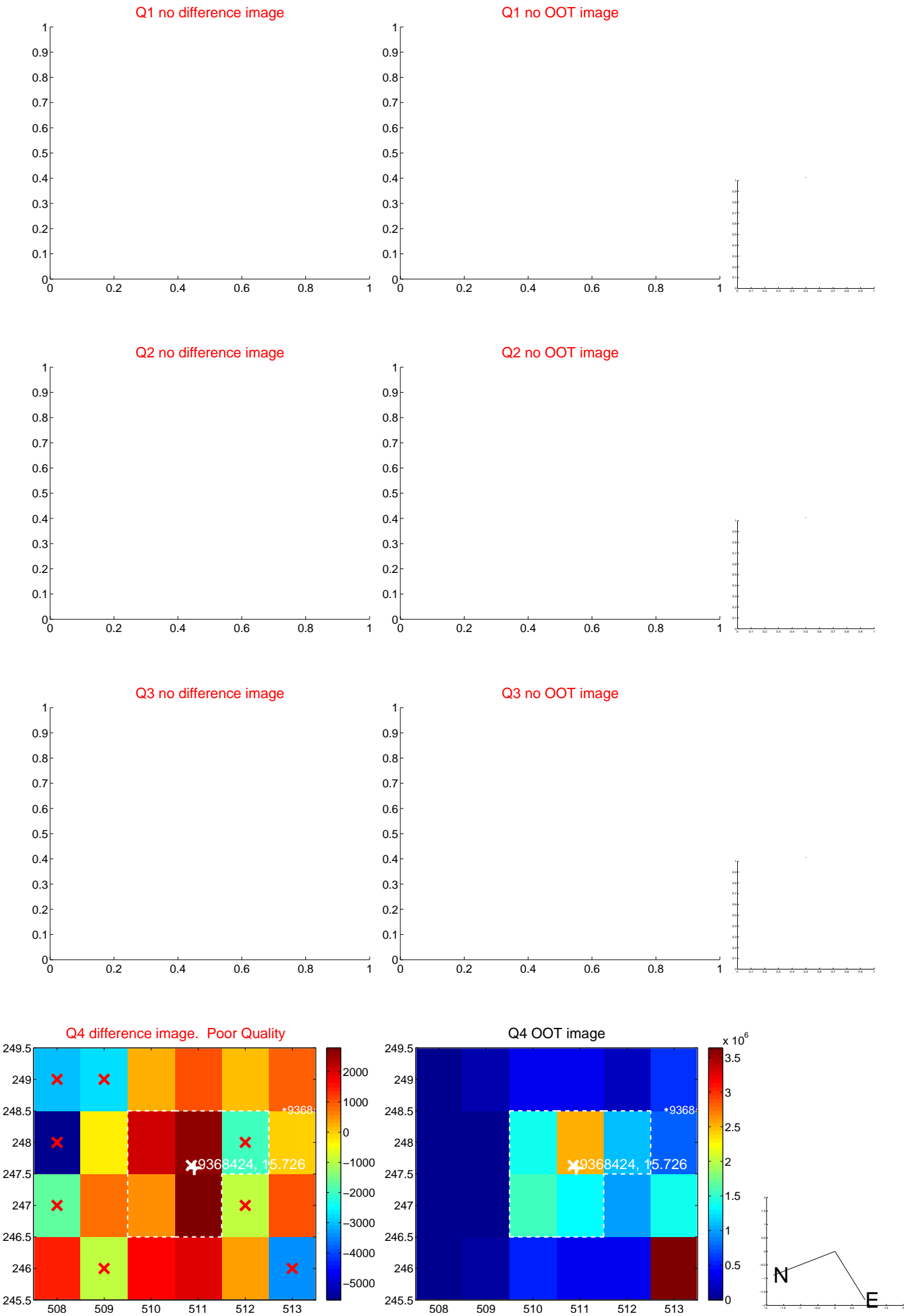
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.024 ± 1.004	2.02	0.453 ± 0.979	1.973 ± 1.005
PRF-fit source offset from KIC position	2.056 ± 1.004	2.05	0.488 ± 0.979	1.997 ± 1.005
photometric centroid source offset	0.22 ± 0.79	0.28	0.05 ± 0.78	-0.21 ± 0.79

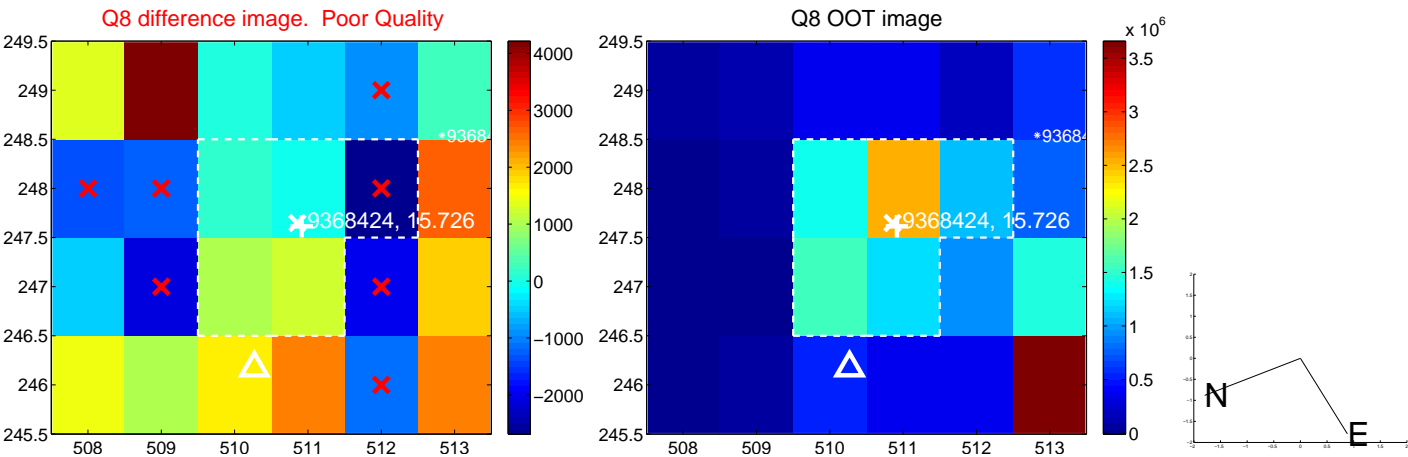
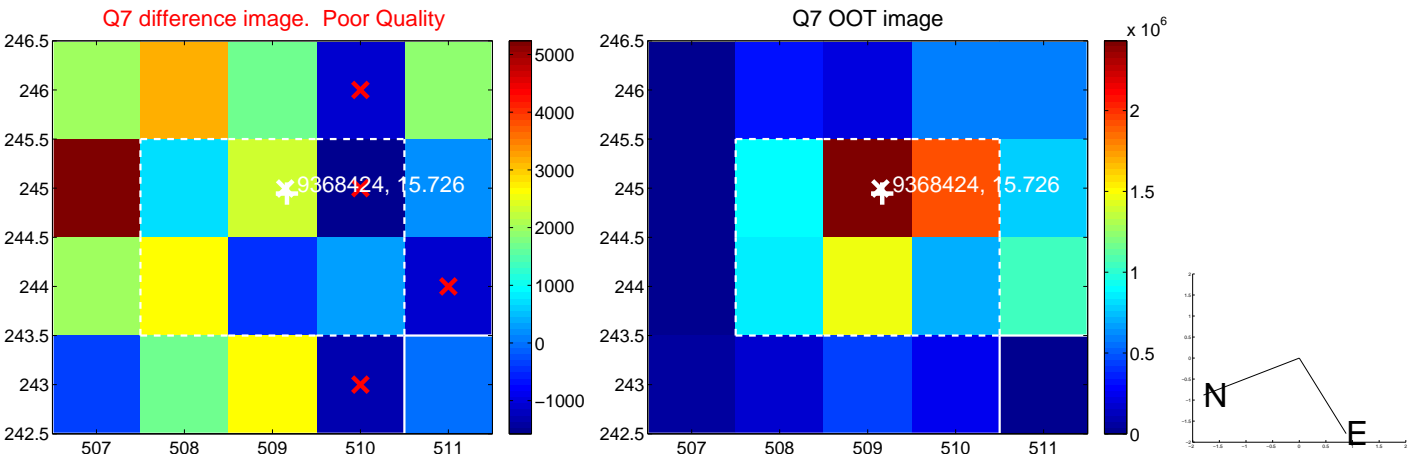
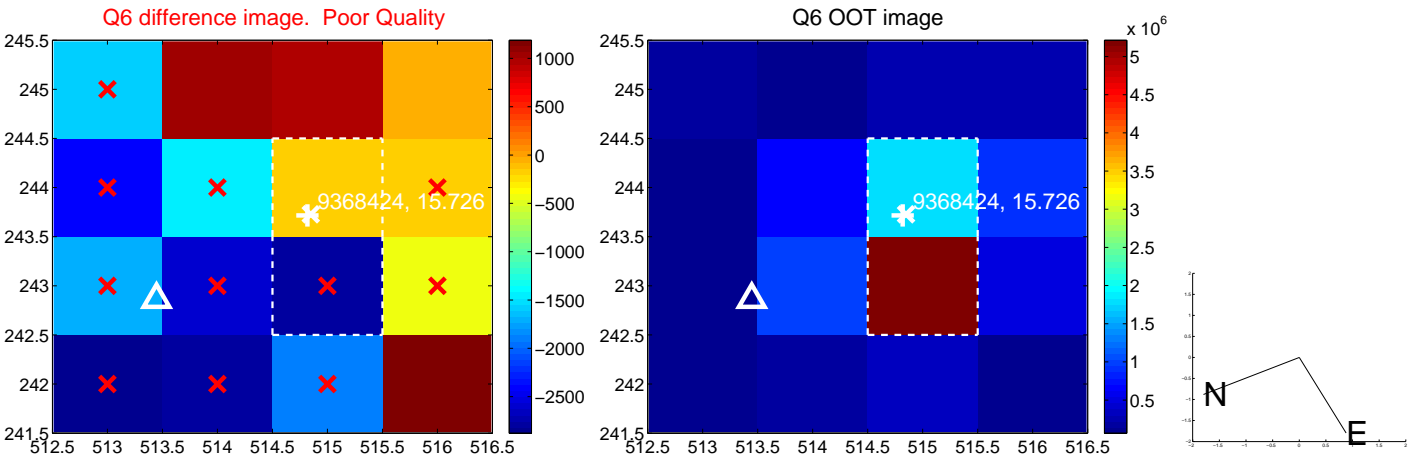
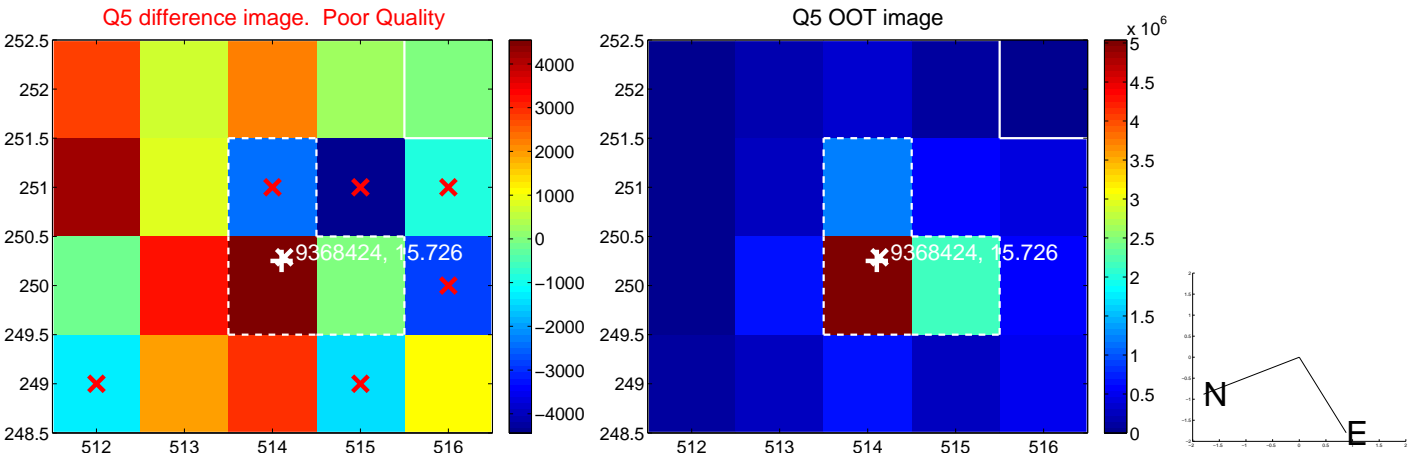


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

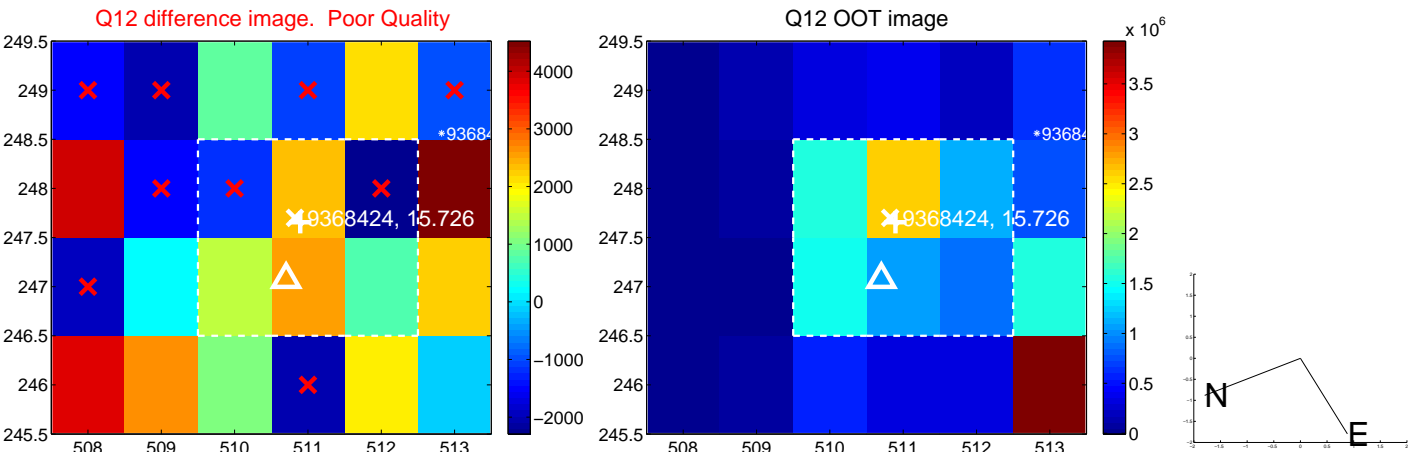
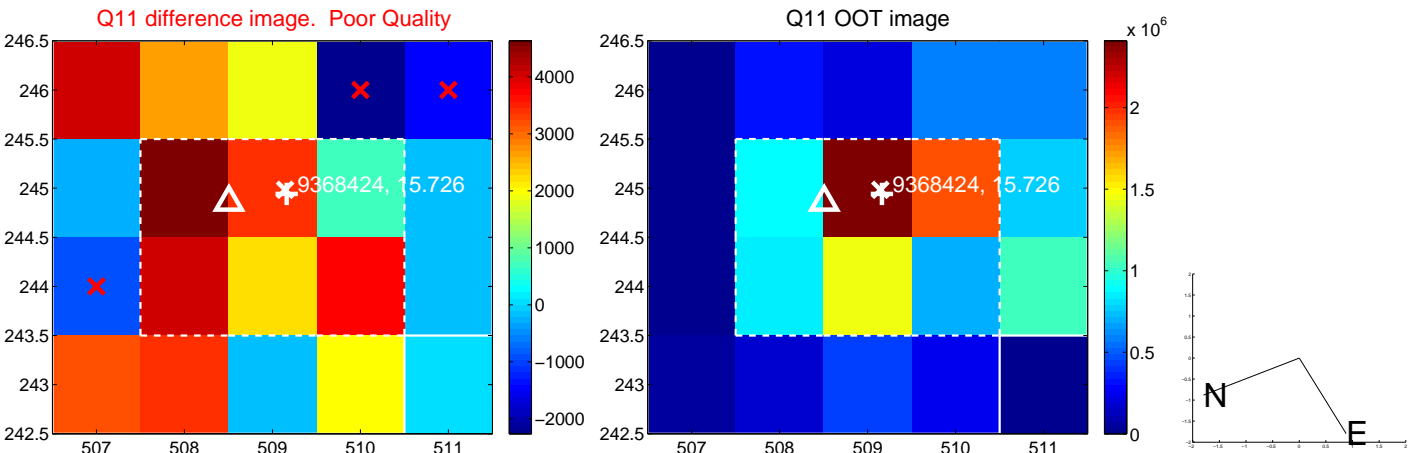
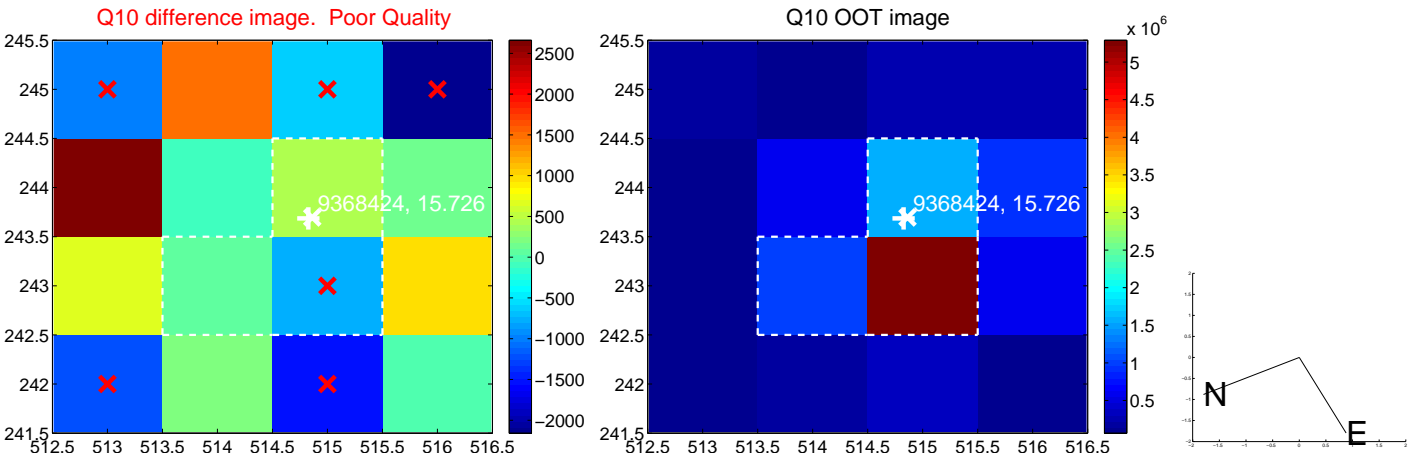
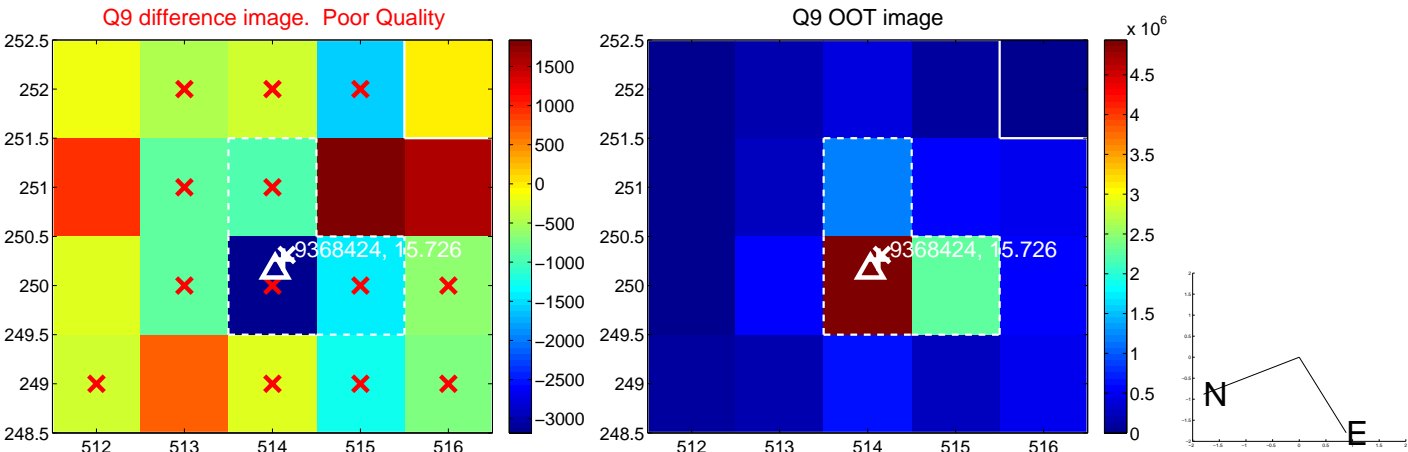
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



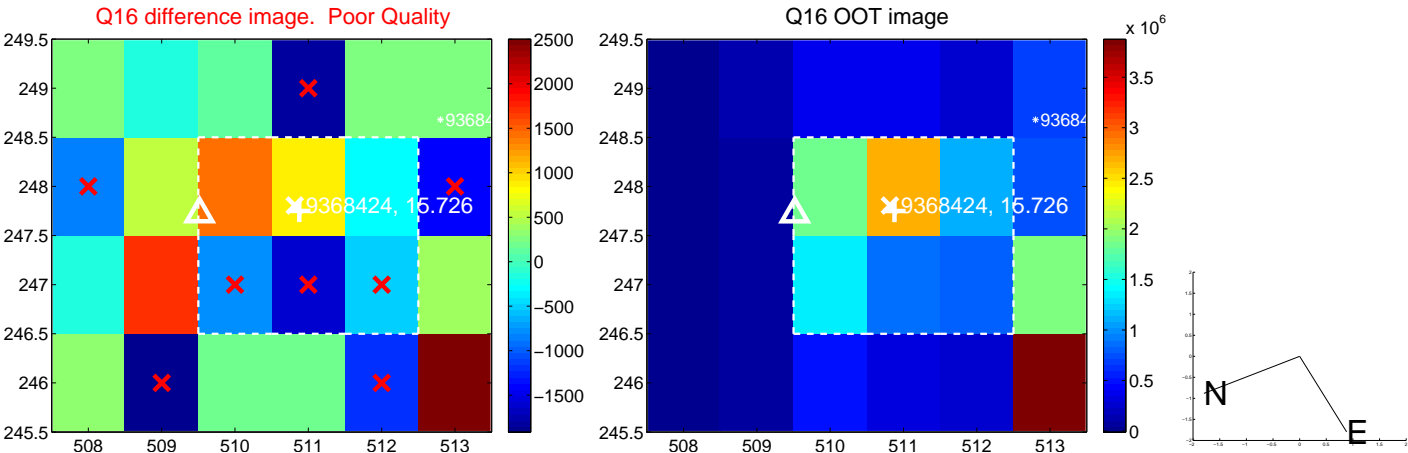
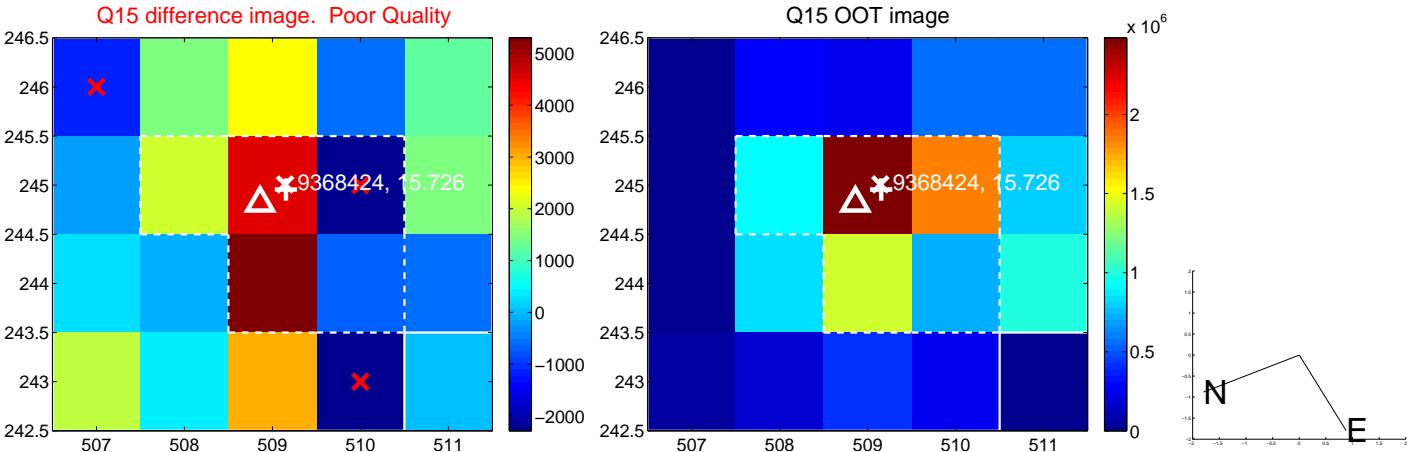
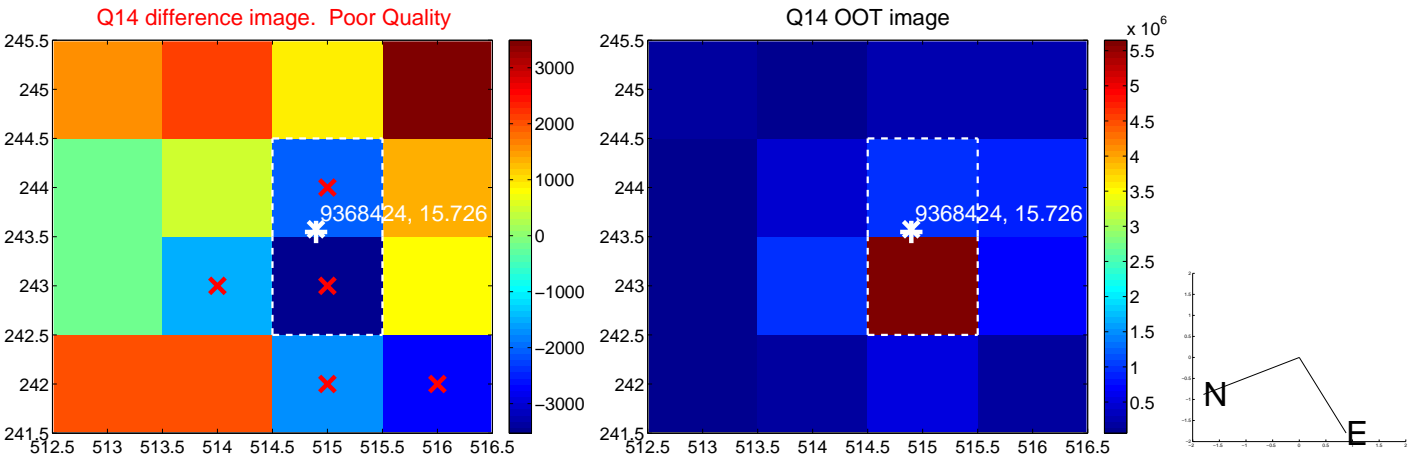
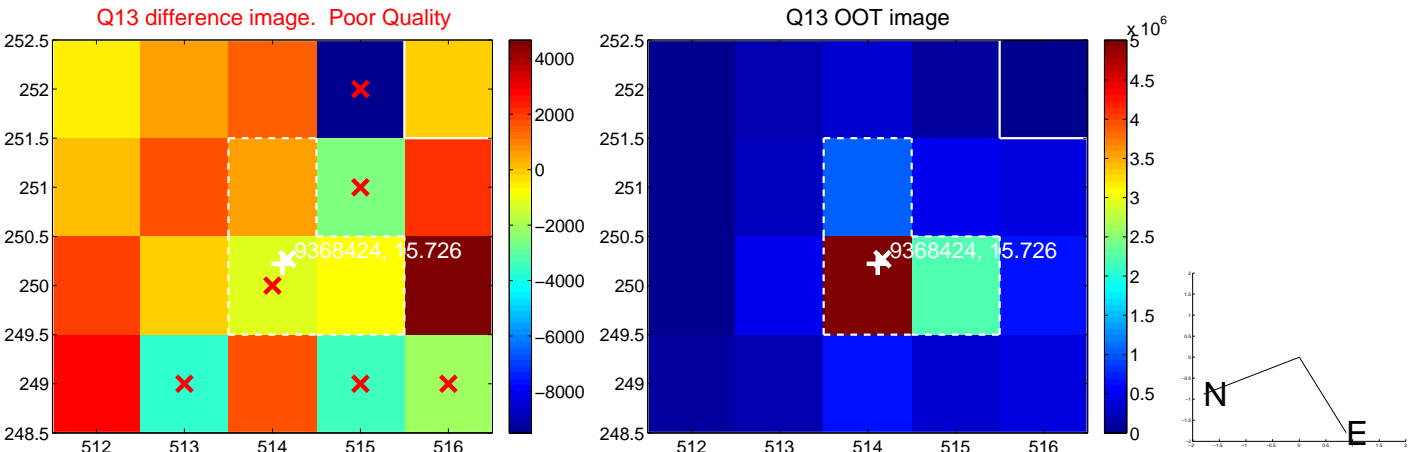
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



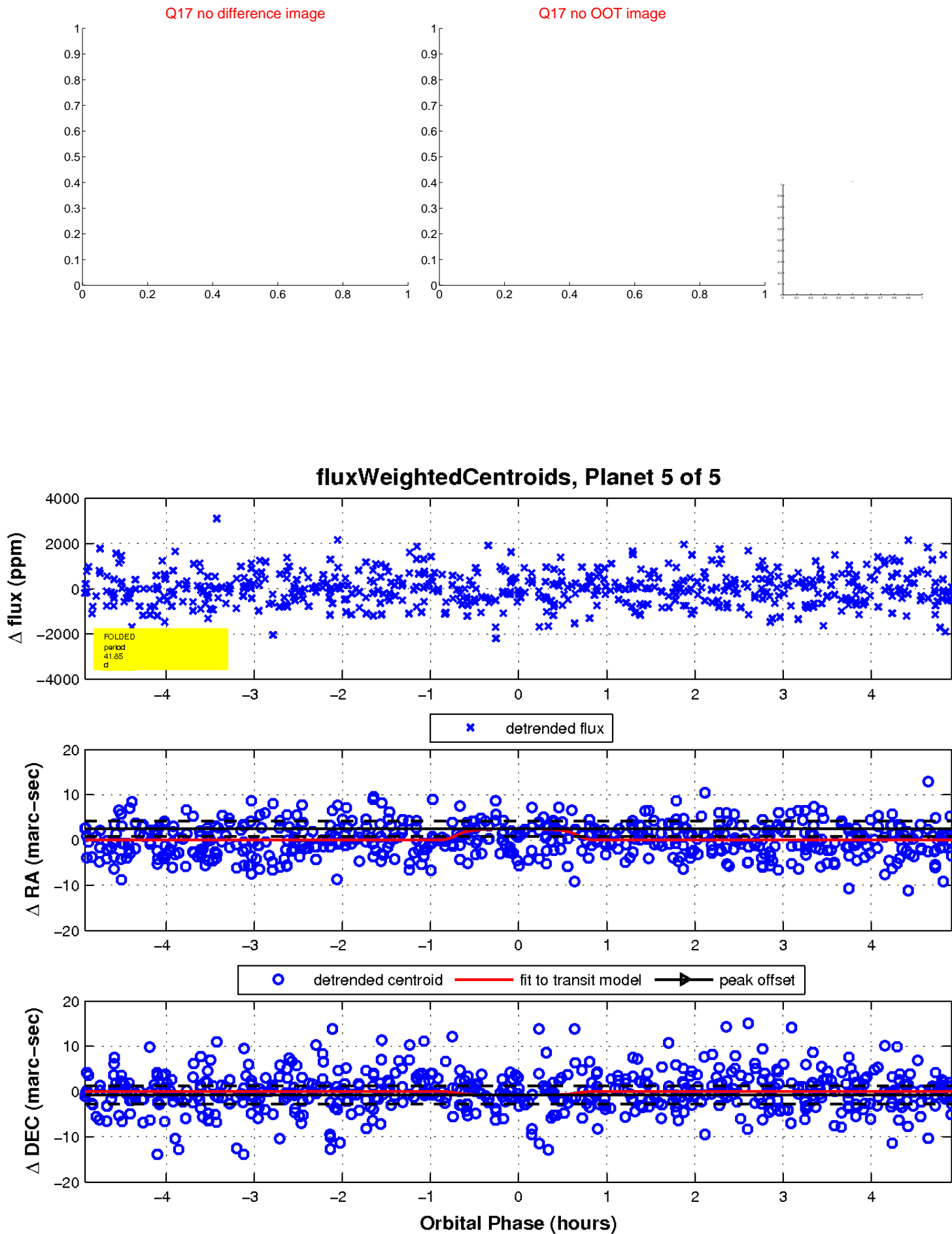
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

