

KIC 008374582

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})
008374582-01	OBS	No	368.812757	233.579869	2363.8	15.144	11.8	11.7	0.88	5750	4.93	0.76
008374582-03	OBS	No	368.592004	235.731042	2544.8	28.275	9.1	9.2	0.88	5750	8.24	0.76
008374582-04	OBS	No	358.917937	231.955857	3025.1	23.684	8.3	11.5	0.88	5750	5.75	0.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008374582-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008374582-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008374582-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

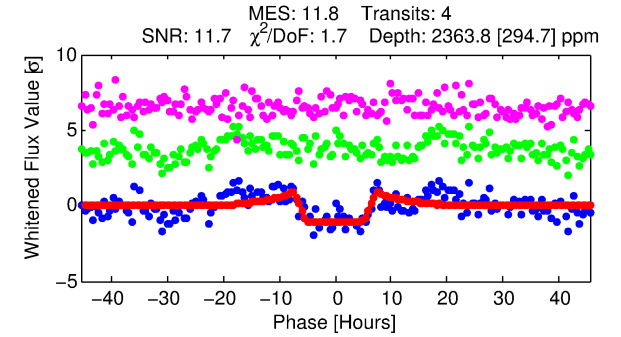
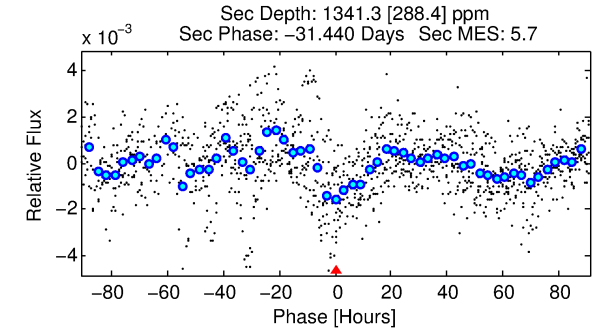
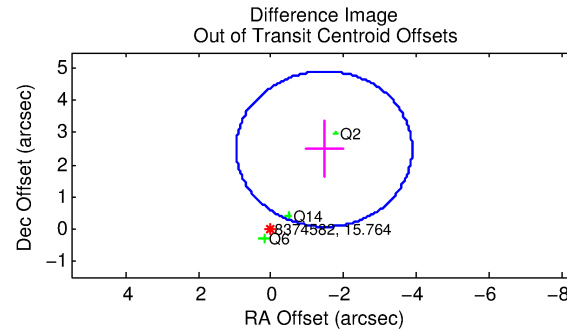
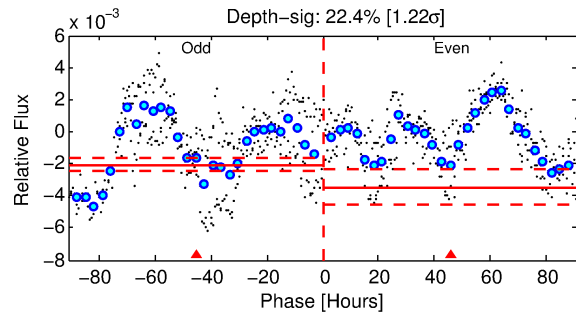
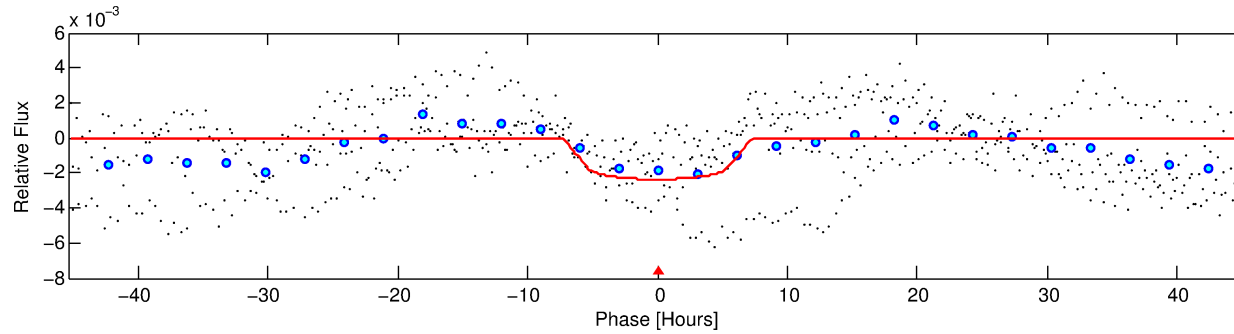
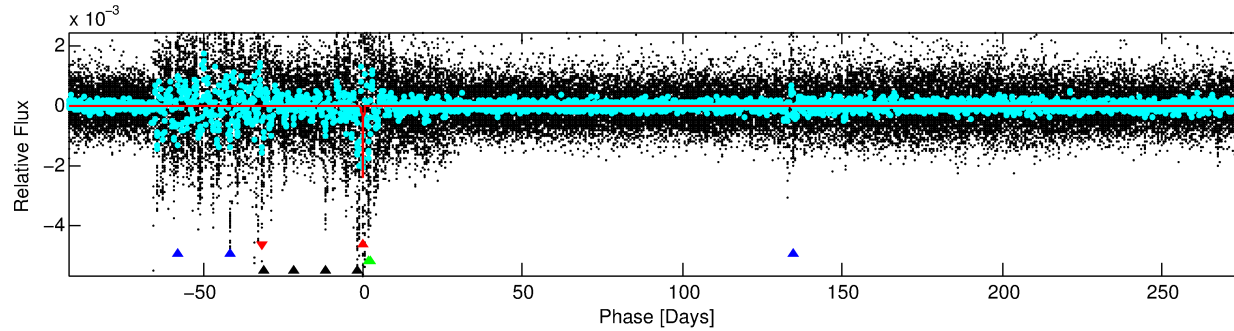
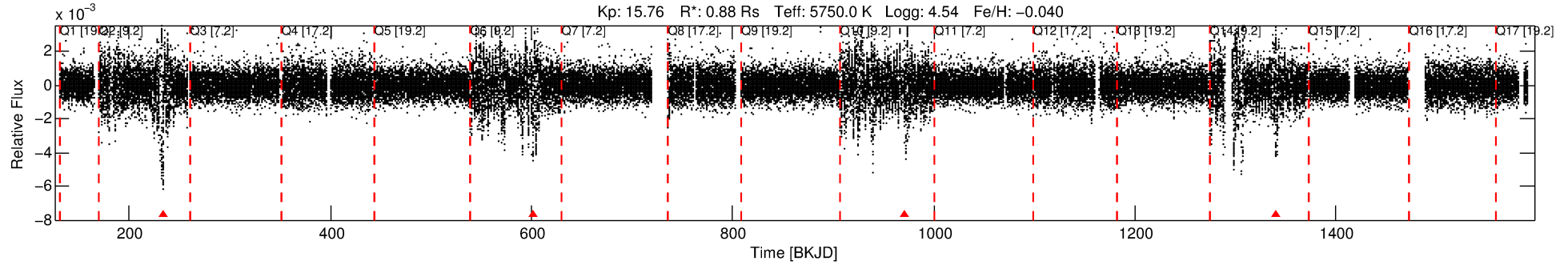
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008374582-01

No Significant Match Found

DV One-Page Summary

KIC: 8374582 Candidate: 1 of 4 Period: 368.813 d



DV Fit Results:

Period = 368.81276 [0.01017] d
Epoch = 233.5799 [0.0195] BKJD
Rp/R* = 0.0513 [0.0044]
a/R* = 112.67 [24.31]
b = 0.86 [0.07]
Seff = 0.76 [0.26]
Teq = 238 [21] K
Rp = 4.94 [1.27] Re
a = 0.9997 [0.2122] AU
Ag = 30280.54 [12723.43] [2.38 σ]
Teff = 4860 [370] K [12.46 σ]

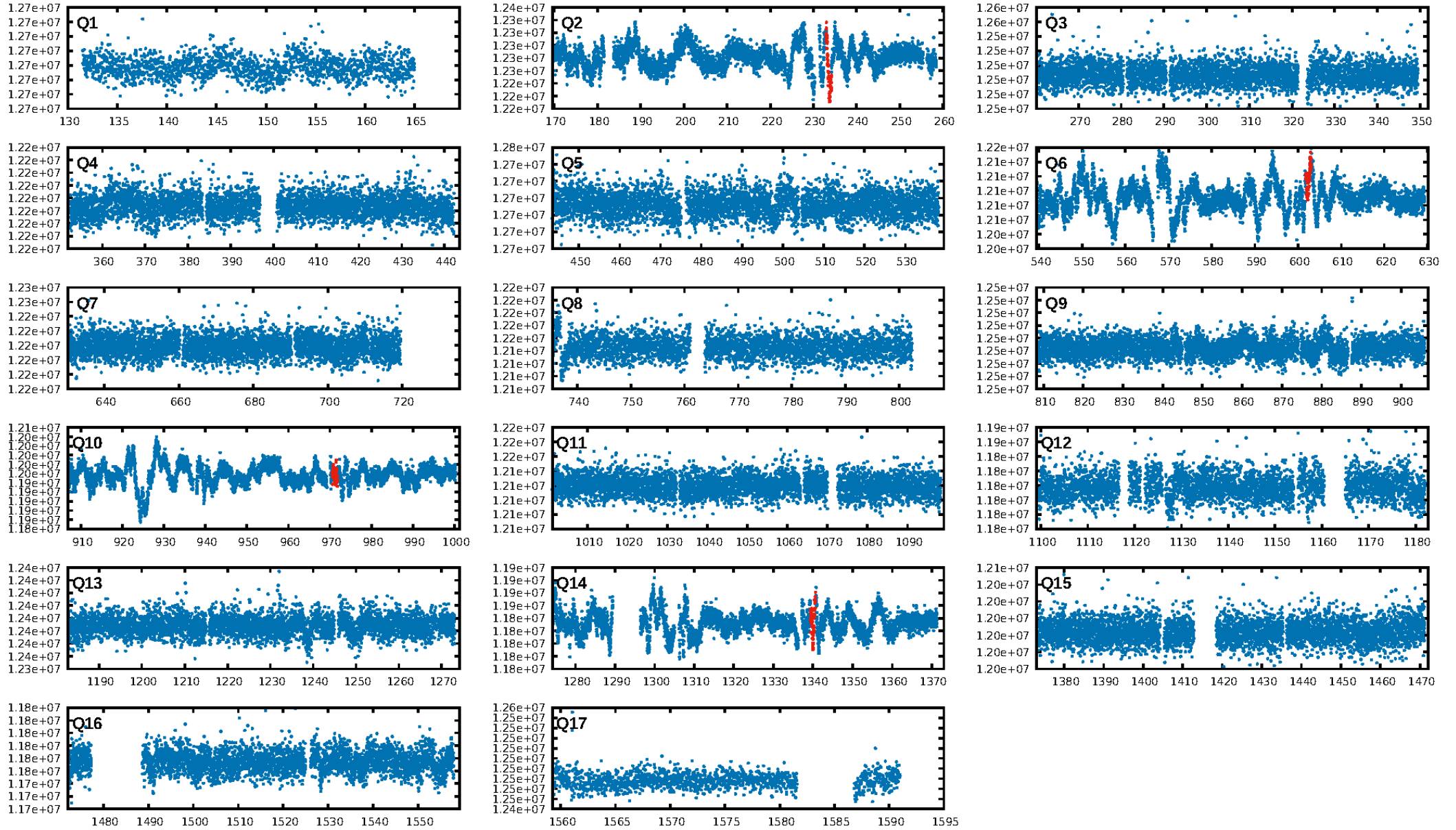
DV Diagnostic Results:

ShortPeriod-sig: 13.1% [0.17 σ]
LongPeriod-sig: 100.0% [251.52 σ]
ModelChiSquare2-sig: 1.4%
ModelChiSquareGof-sig: 10.4%
Bootstrap-pfa: 1.91e-18
RollingBand-fgt: 0.00 [0/4]
GhostDiagnostic-chr: 0.6244
Centroid-sig: 0.0%
Centroid-so: 6.681 arcsec [3.62 σ]
OotOffset-rm: 2.884 arcsec [3.57 σ]
KicOffset-rm: 2.818 arcsec [3.46 σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.67 [2/3]

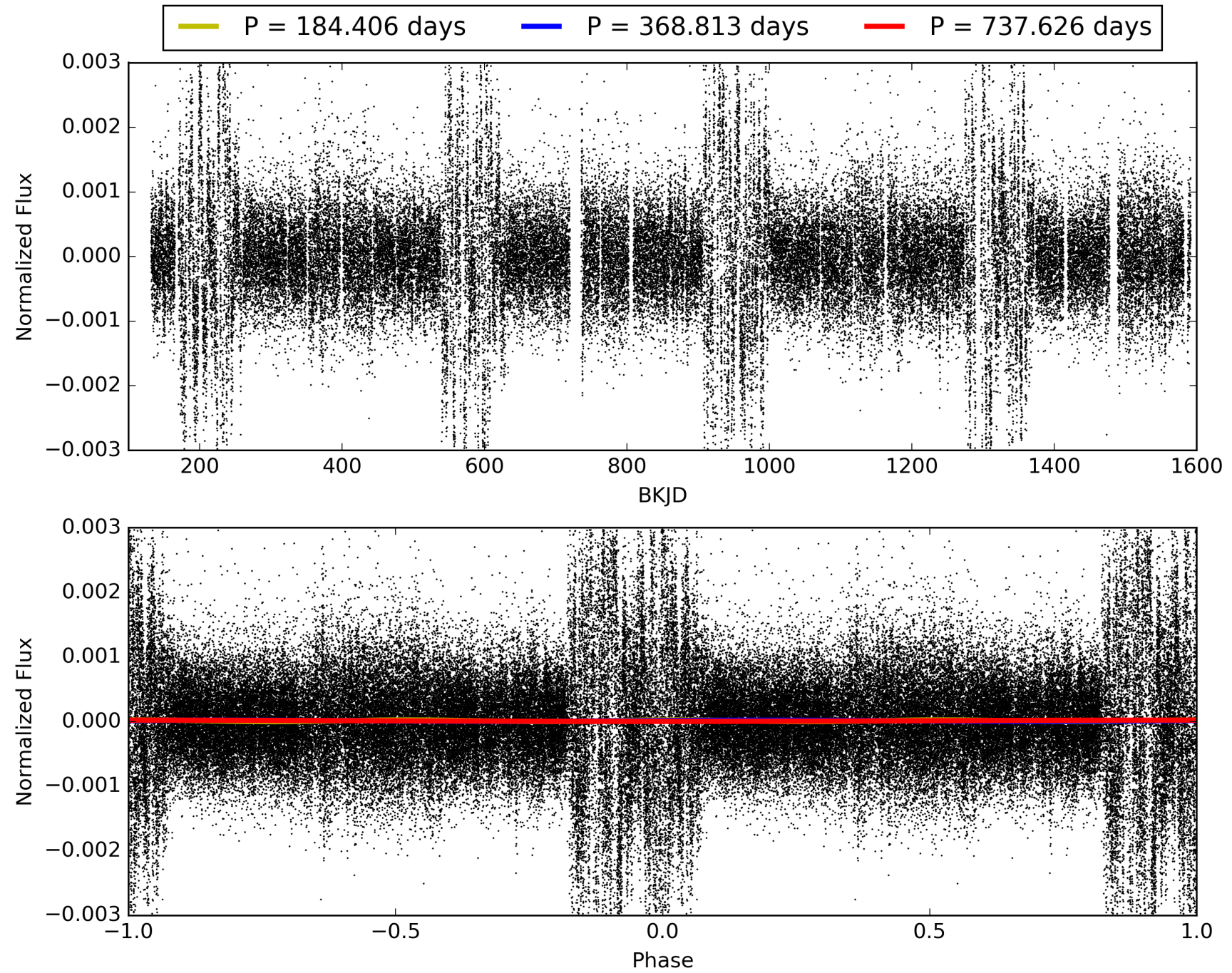
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:23:30 Z

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

TCE 008374582-01, PDC Light Curves

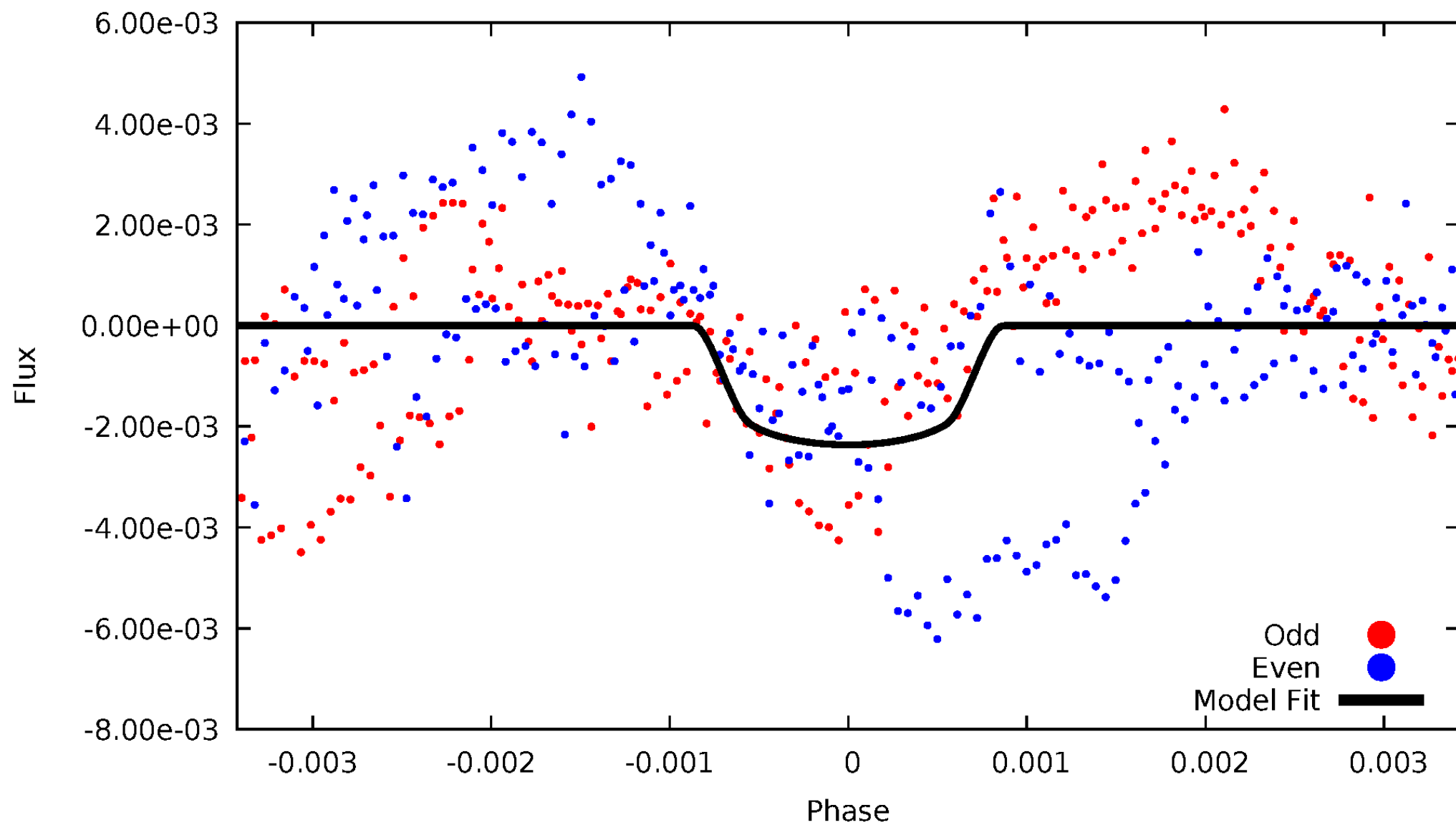


TCE 008374582-01



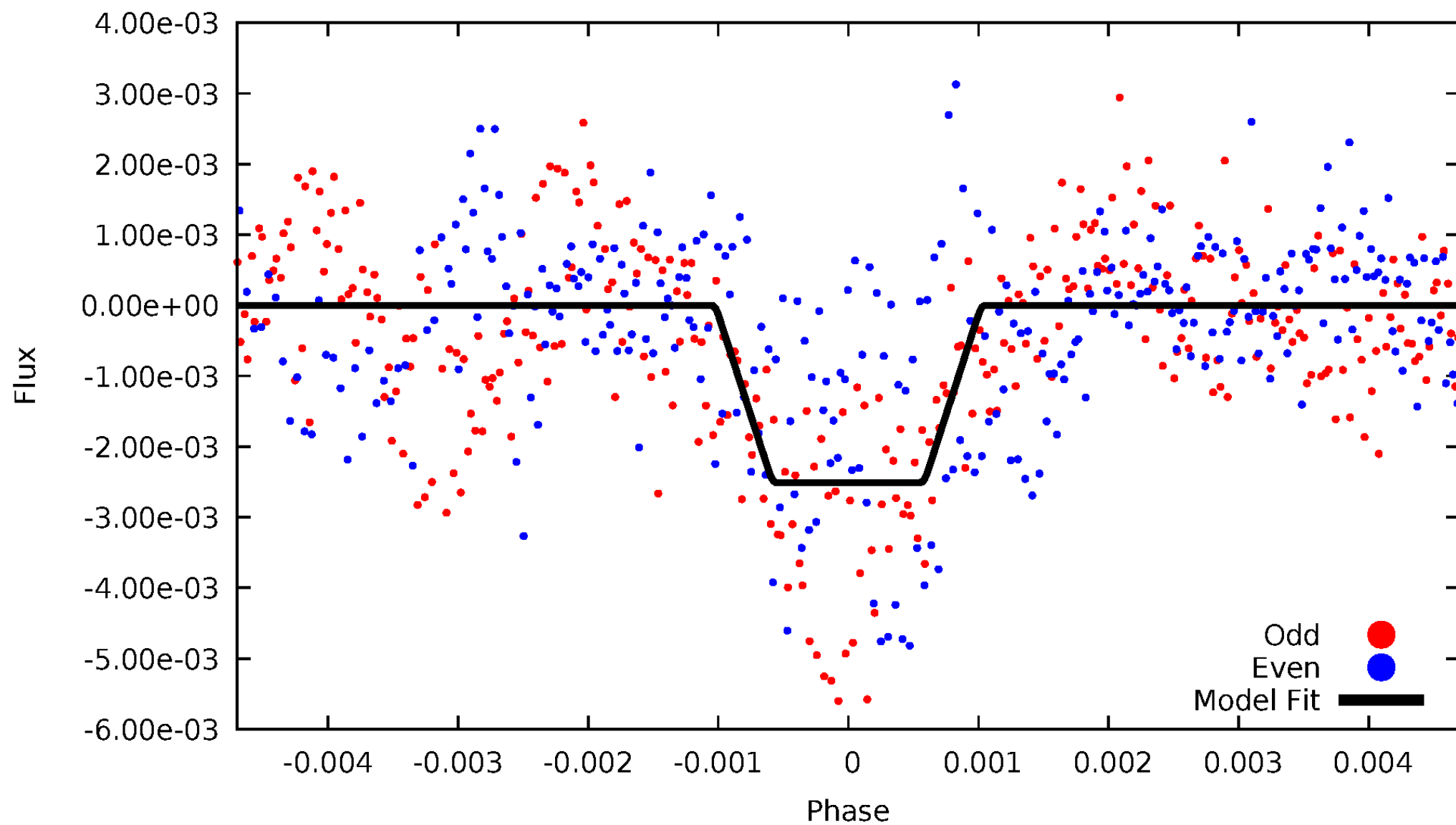
DV Odd/Even

TCE 008374582-01



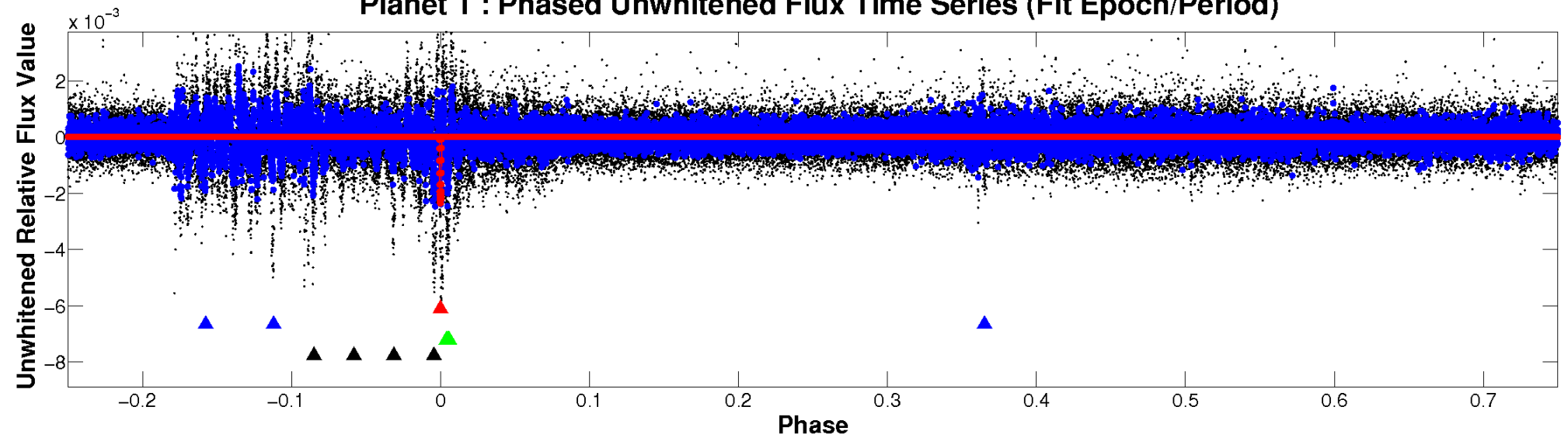
ALT Odd/Even

TCE 008374582-01

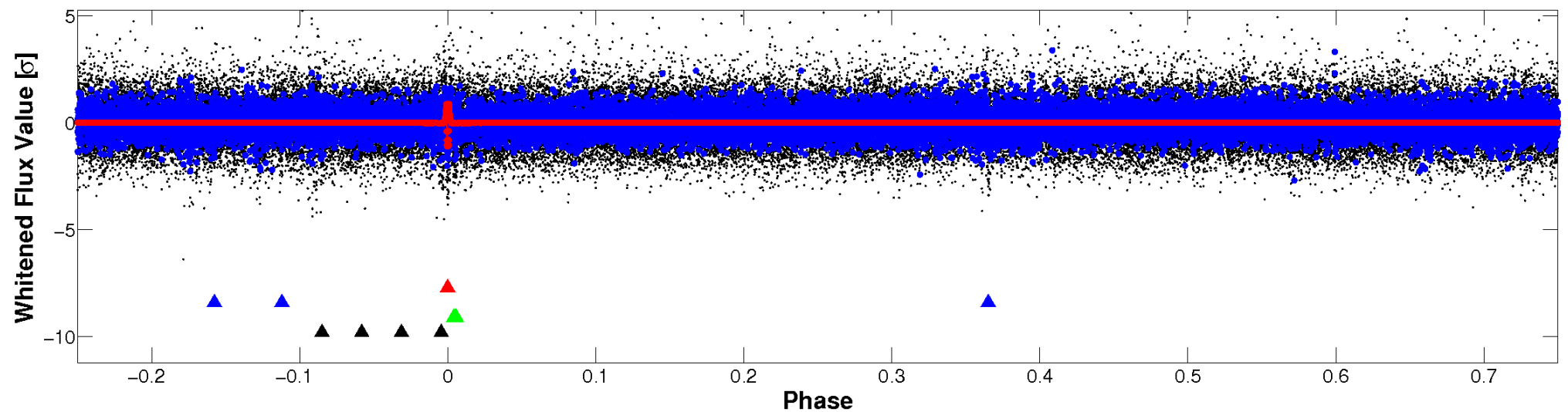


Non-Whitened Vs. Whitened Light Curve

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

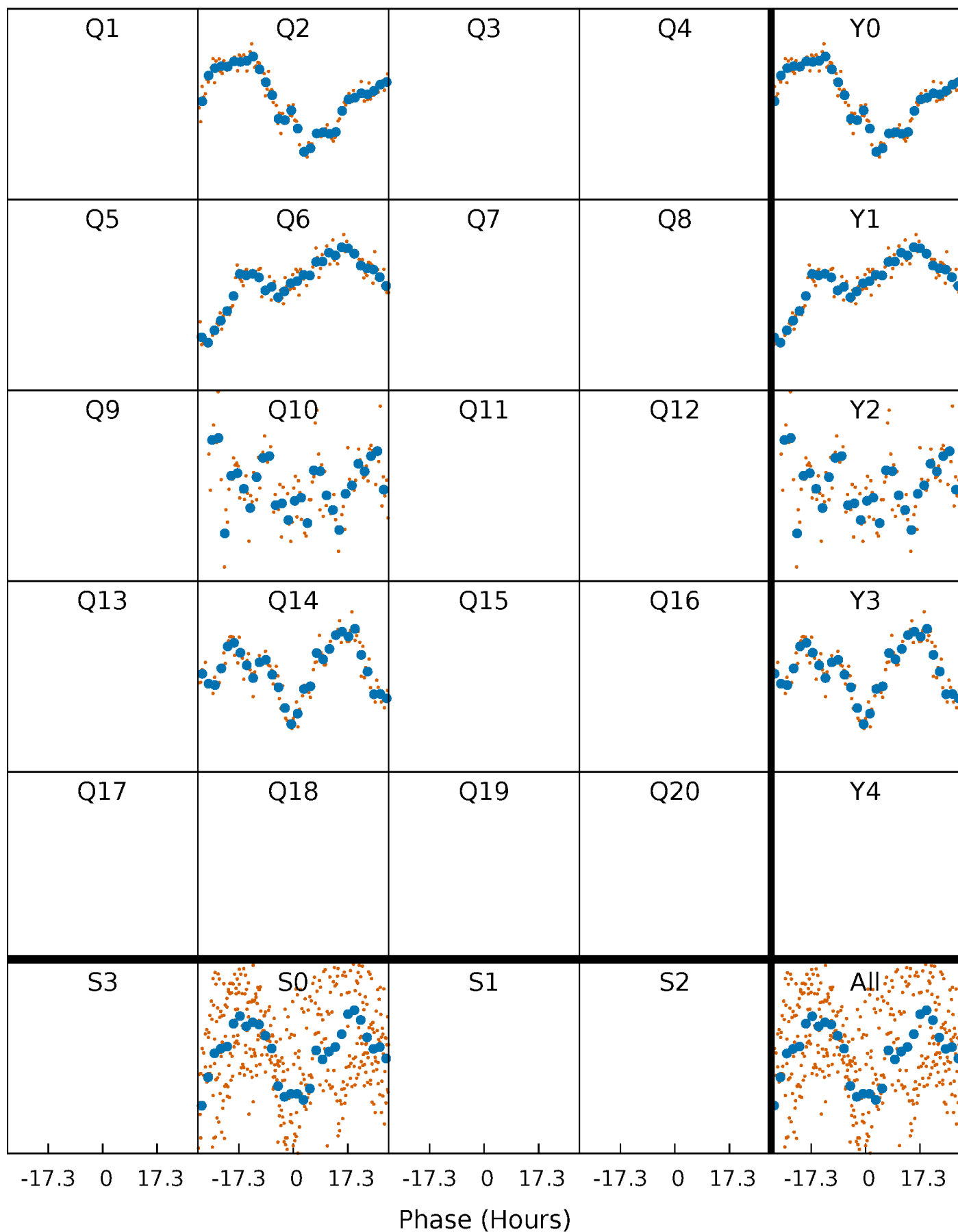


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



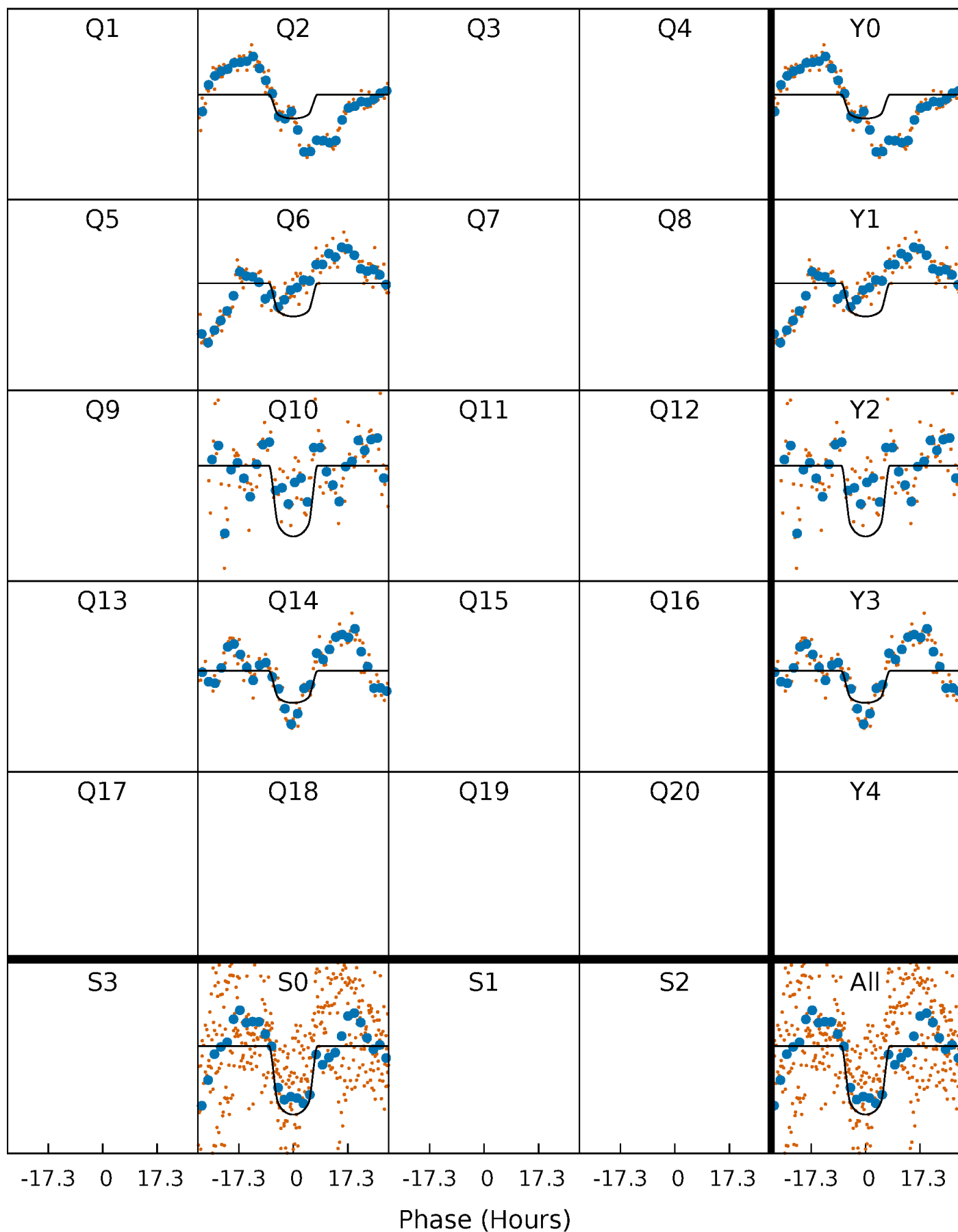
PDC Quarter-Phased Transit Curves

TCE 008374582-01 P=368.812757 Days $T_0=233.579869$ (BKJD)



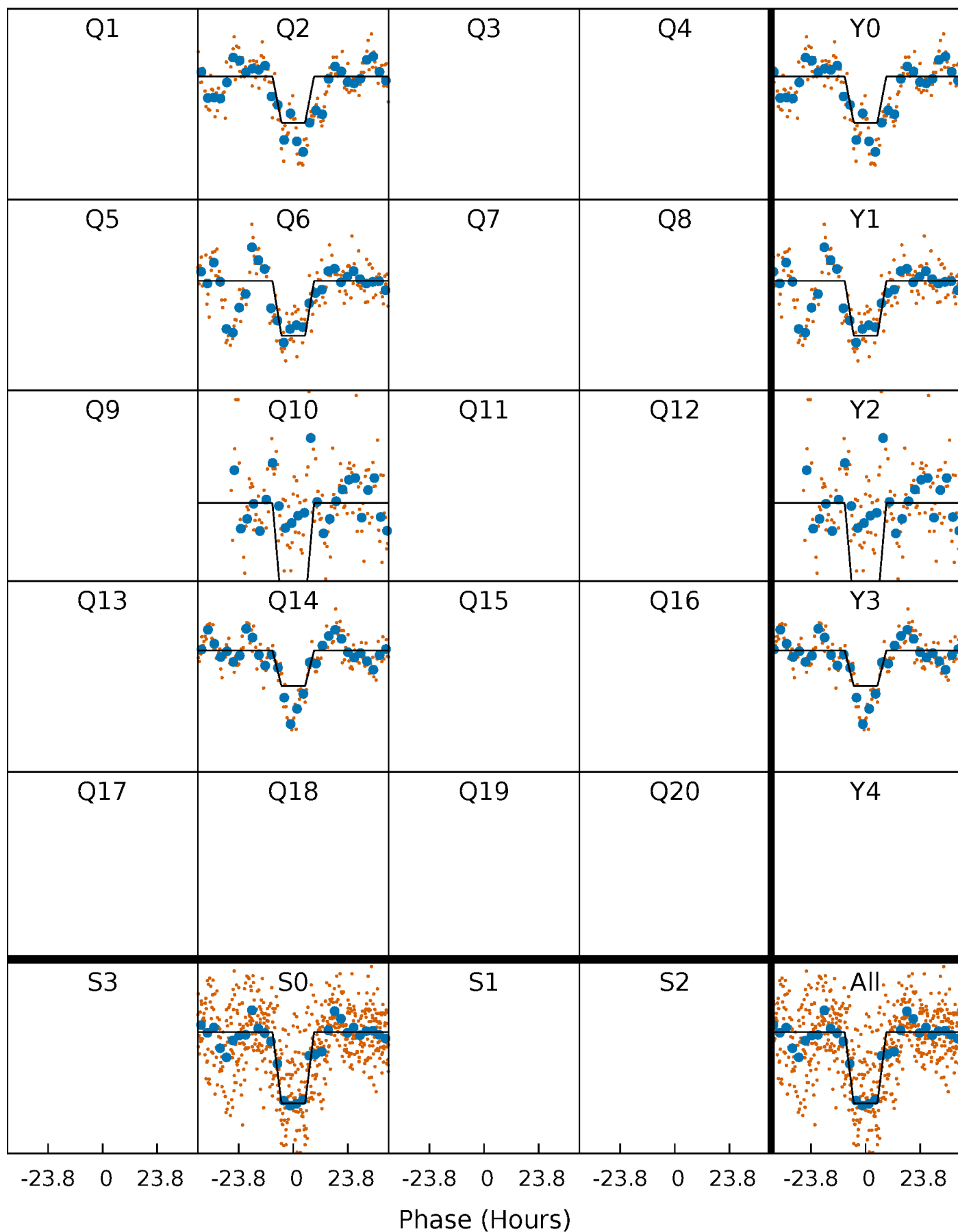
DV Quarter-Phased Transit Curves

TCE 008374582-01 P=368.812757 Days $T_0=233.579869$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

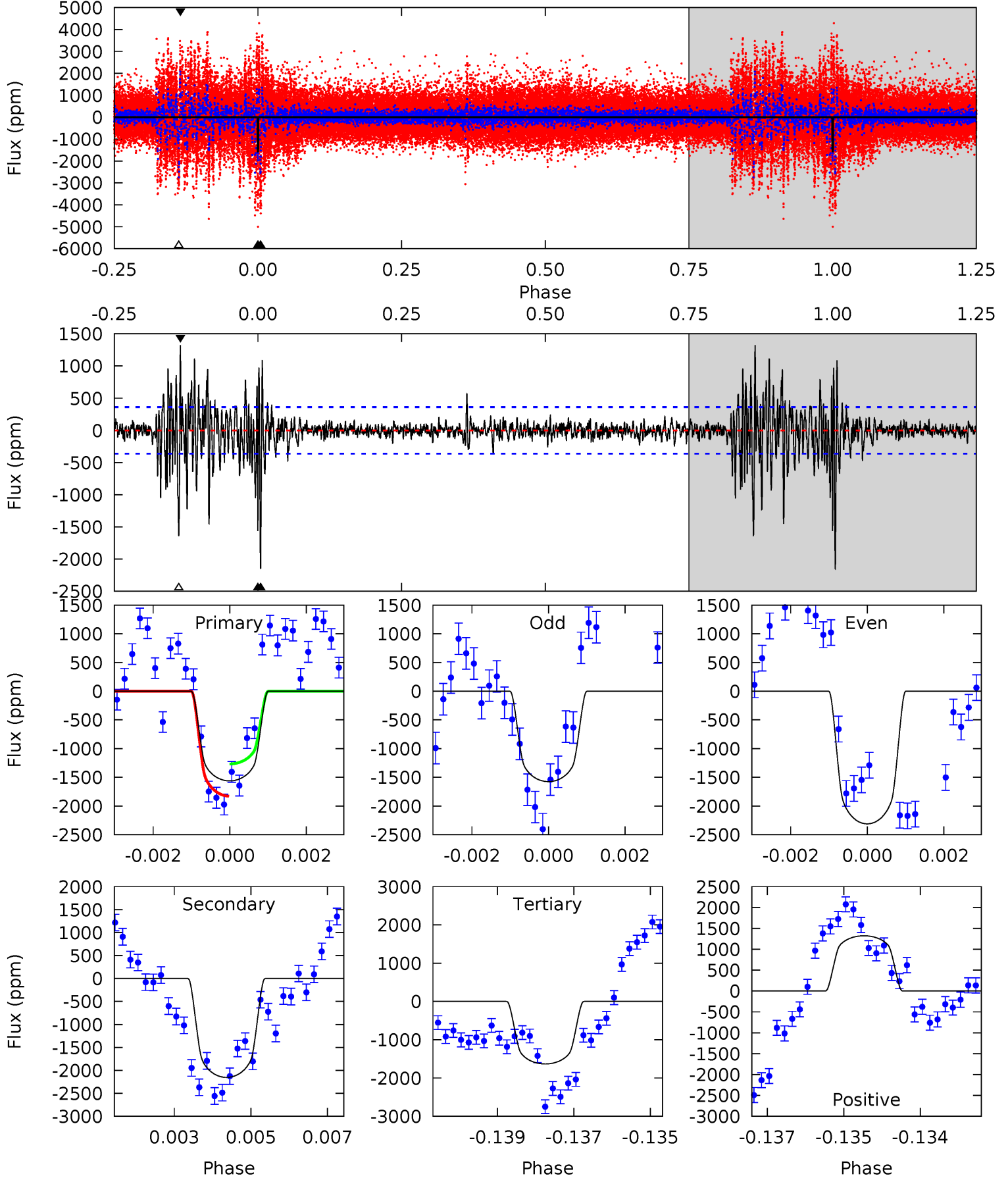
TCE 008374582-01 P=368.812136 Days $T_0=233.589737$ (BKJD)



DV Model-Shift Uniqueness Test

008374582-01, P = 368.812757 Days, E = 233.579869 Days

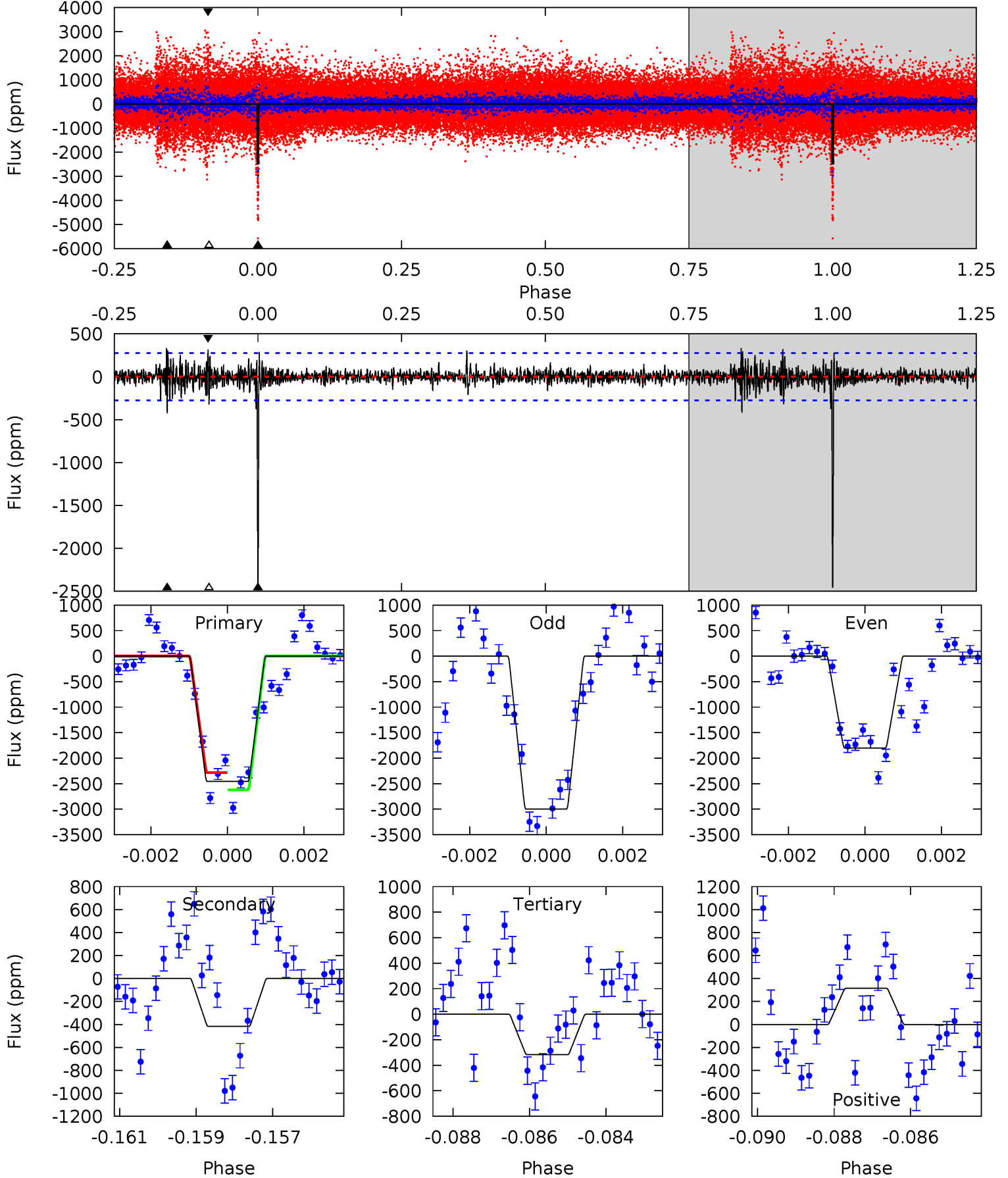
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.1	31.9	24.2	19.6	5.35	3.13	3.24	-1.03	3.55	7.71	12.3	5.54	1.14	0.38	4.21



Alt Model-Shift Uniqueness Test

008374582-01, P = 368.812136 Days, E = 233.589737 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.4	8.05	6.13	6.06	5.32	3.08	1.14	41.3	41.3	1.93	1.99	12.0	0.84	0.12	3.23



Stellar Parameters For KIC 008374582

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5750^{+156}_{-190}	$4.538^{+0.042}_{-0.178}$	$-0.040^{+0.250}_{-0.300}$	$0.882^{+0.215}_{-0.086}$	$0.980^{+0.091}_{-0.125}$	$2.011^{+0.357}_{-0.926}$
	+3%/-3%	+1%/-4%	+625%/-750%	+24%/-10%	+9%/-13%	+18%/-46%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008374582-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2153 ± 68	$5.11^{+0.77}_{-0.59}$	340^{+20}_{-17}	5472^{+306}_{-243}	44306^{+11981}_{-10017}
Alt.	-417 ± 52	$4.95^{+0.79}_{-0.57}$	339^{+21}_{-14}	3990^{+170}_{-164}	9079^{+2495}_{-2297}

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

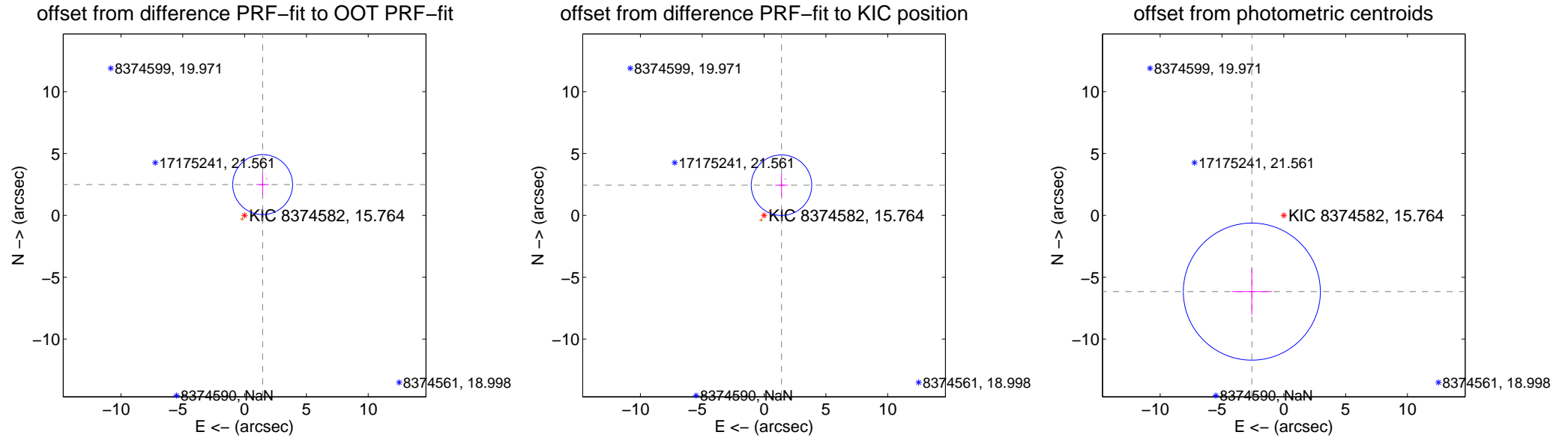
DV Centroid Data

Supplemental centroid analysis for 008374582-01. Kepler magnitude: 15.76. Transit SNR 11.69

There are 0 quarters with good PRF difference image offsets

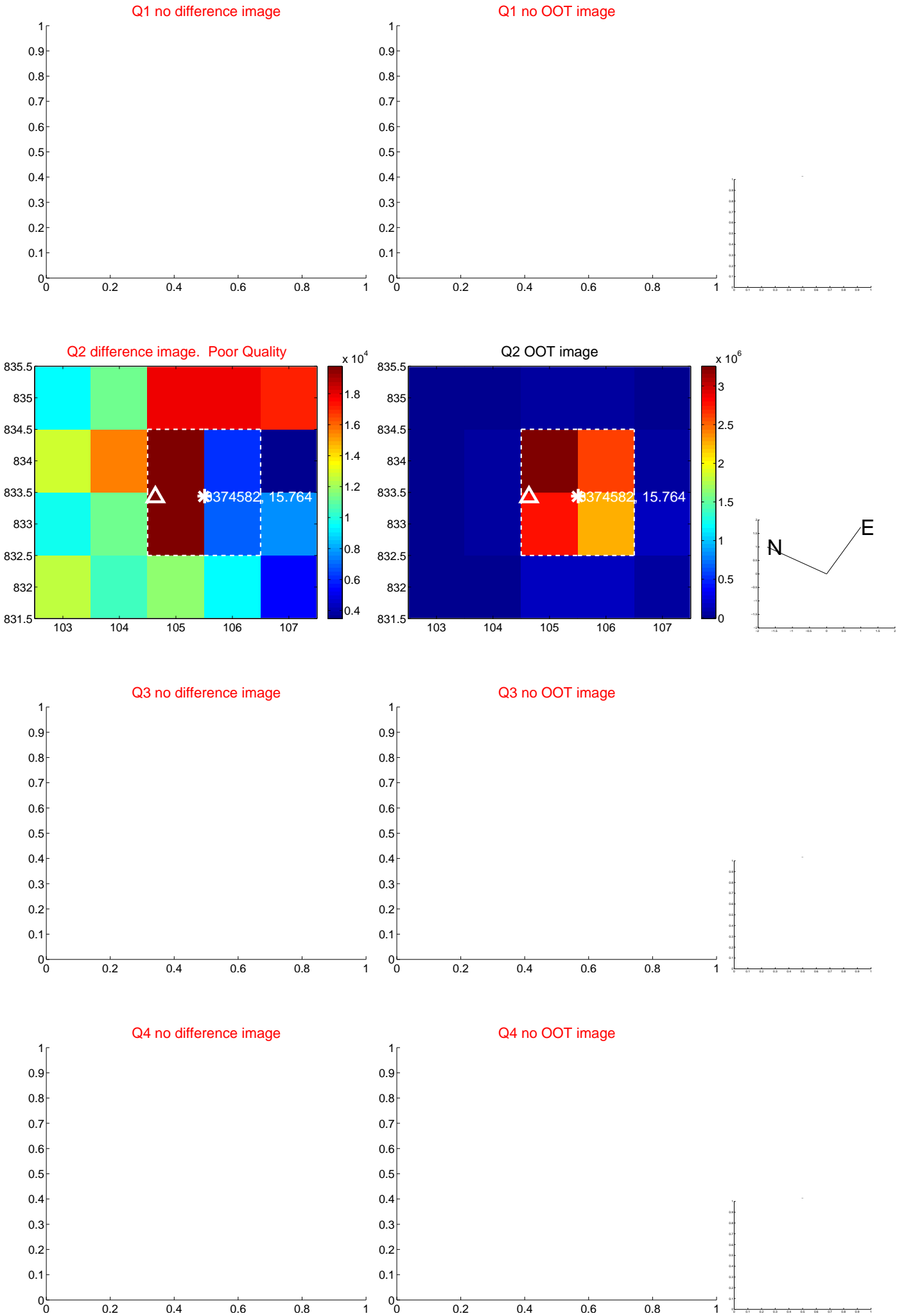
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.884 ± 0.807	3.57	-1.461 ± 0.507	2.487 ± 0.888
PRF-fit source offset from KIC position	2.818 ± 0.815	3.46	-1.411 ± 0.501	2.440 ± 0.896
photometric centroid source offset	6.68 ± 1.85	3.62	2.58 ± 1.62	-6.16 ± 1.88

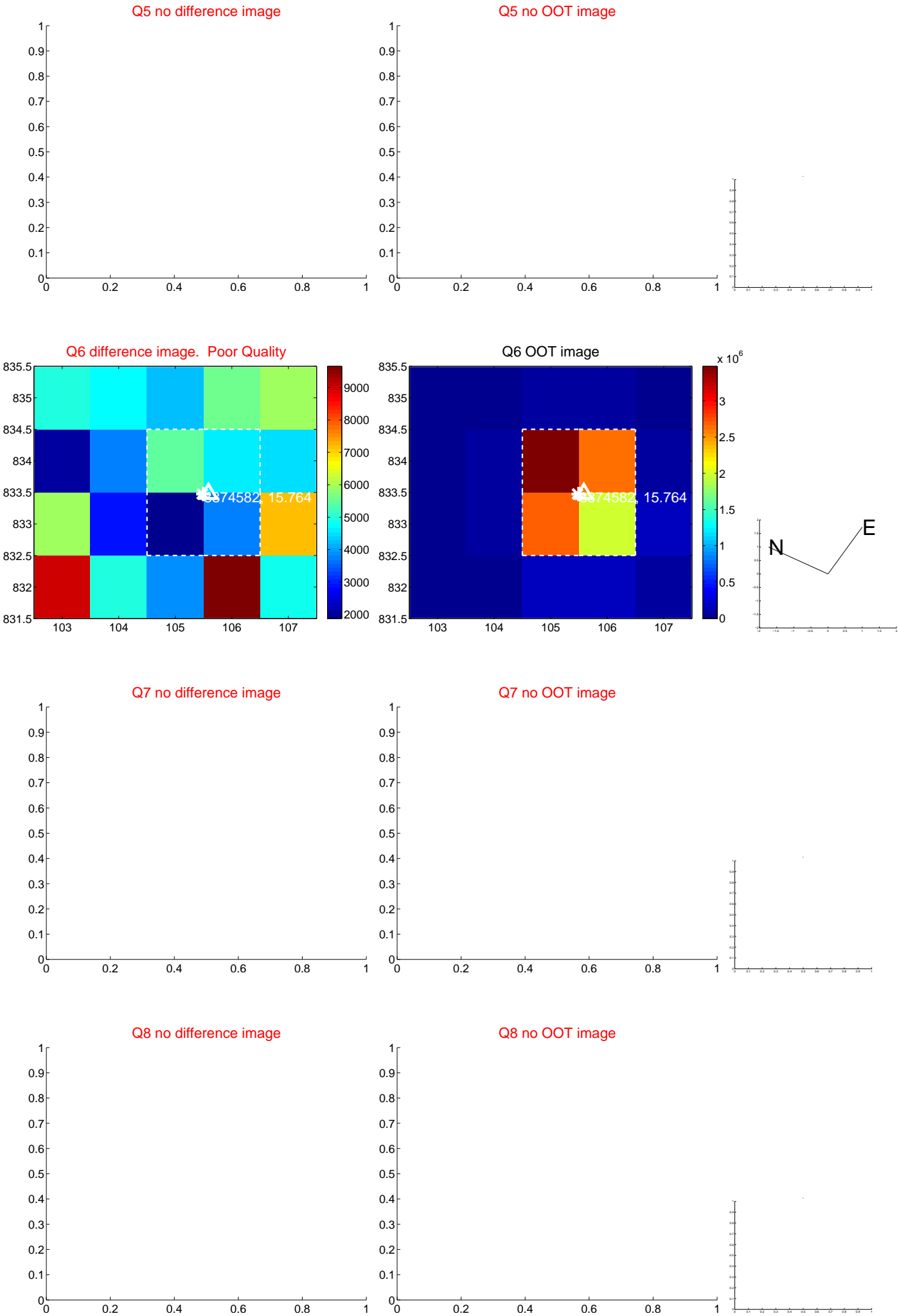


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

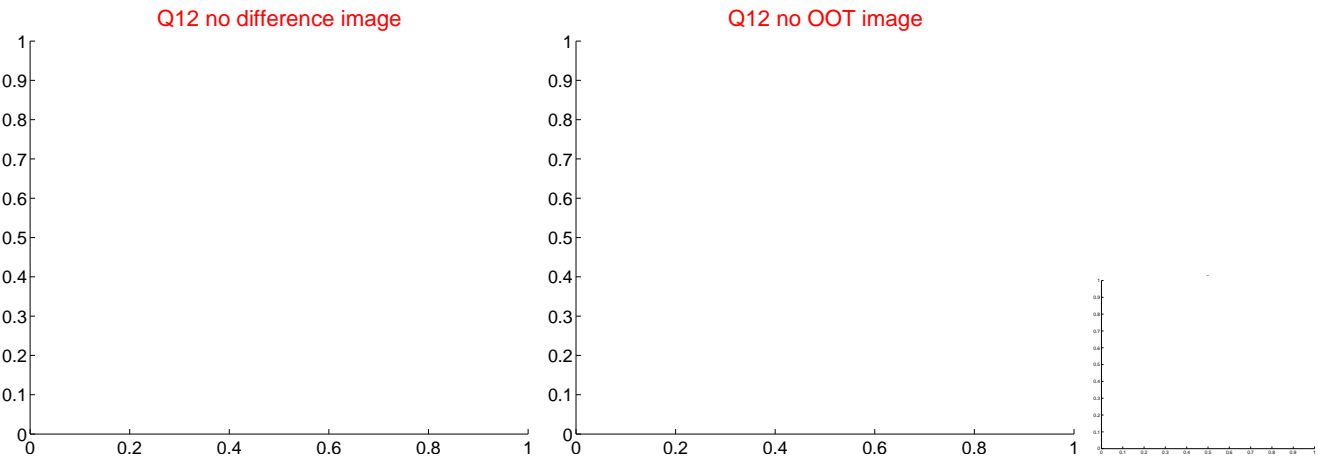
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



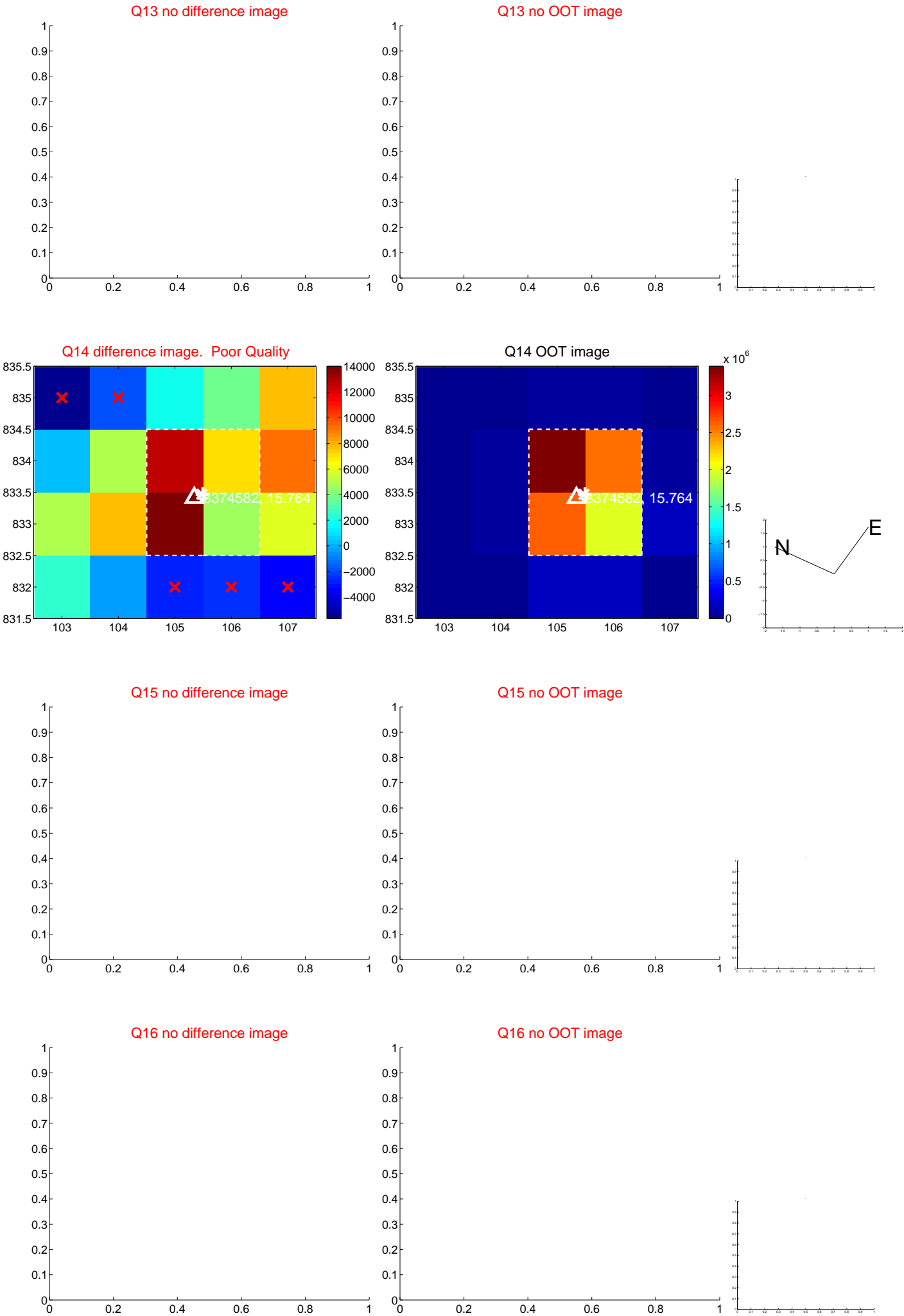
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



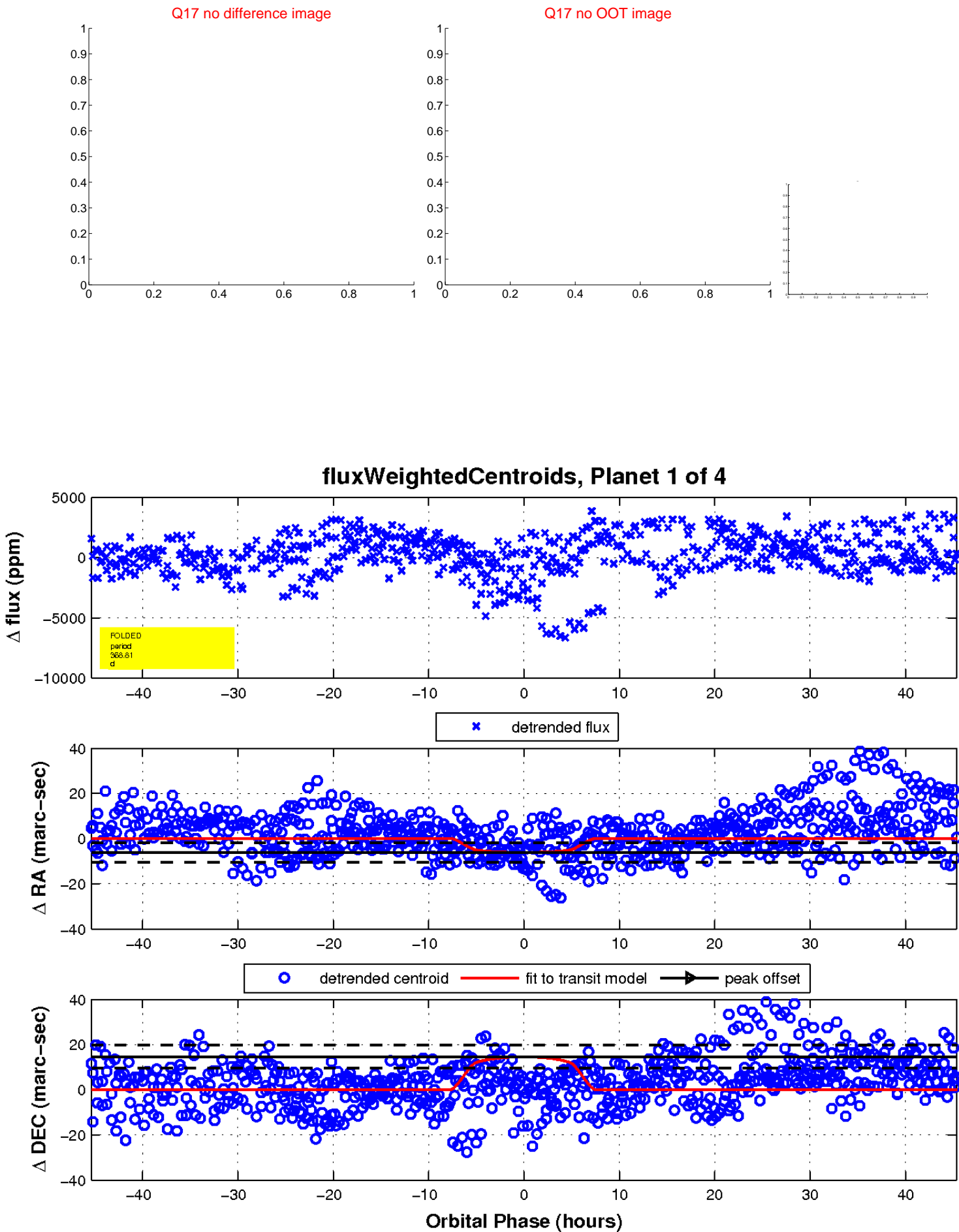
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

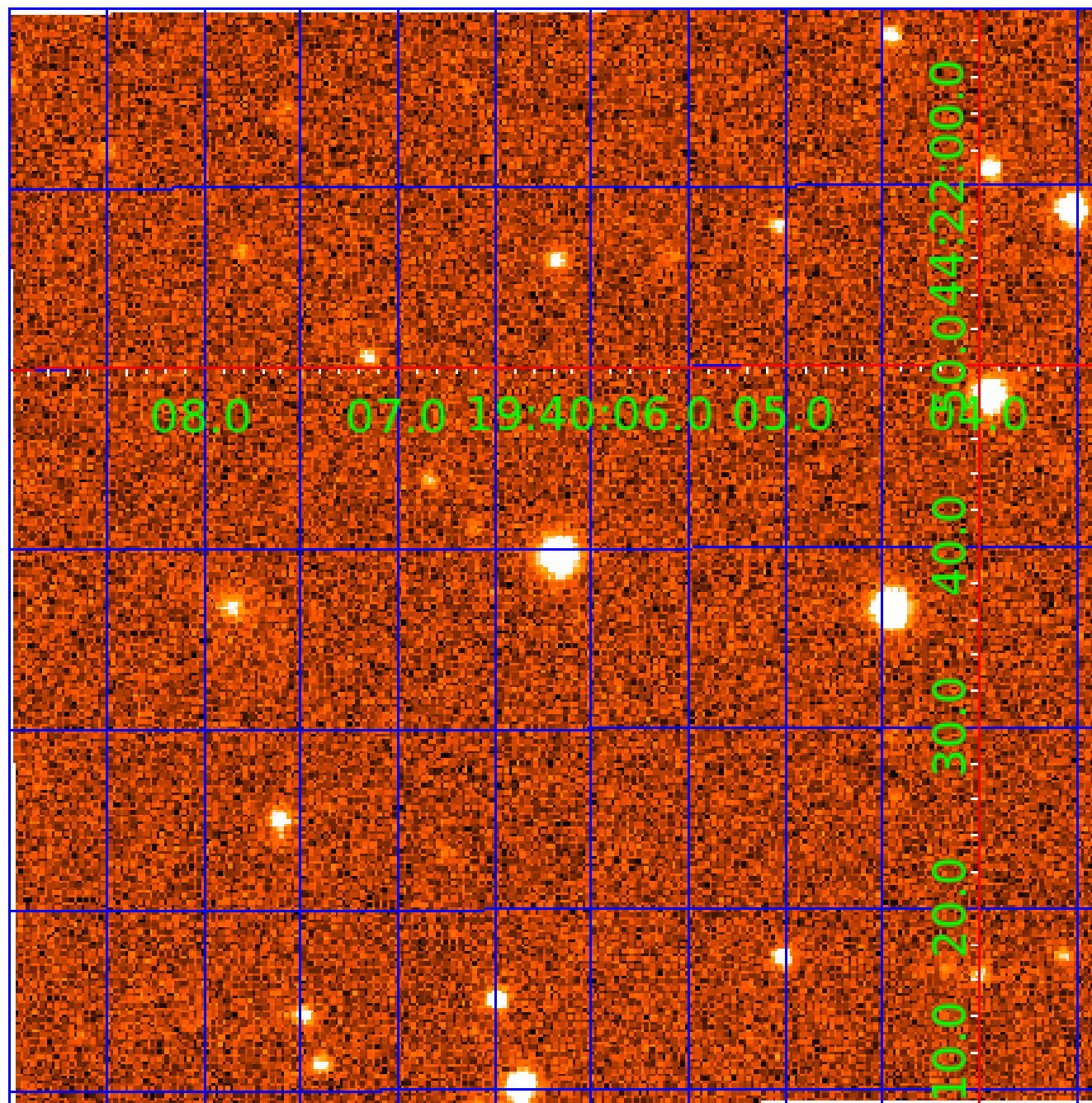


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008374582

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})
008374582-01	OBS	No	368.812757	233.579869	2363.8	15.144	11.8	11.7	0.88	5750	4.93	0.76
008374582-03	OBS	No	368.592004	235.731042	2544.8	28.275	9.1	9.2	0.88	5750	8.24	0.76
008374582-04	OBS	No	358.917937	231.955857	3025.1	23.684	8.3	11.5	0.88	5750	5.75	0.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008374582-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008374582-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008374582-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

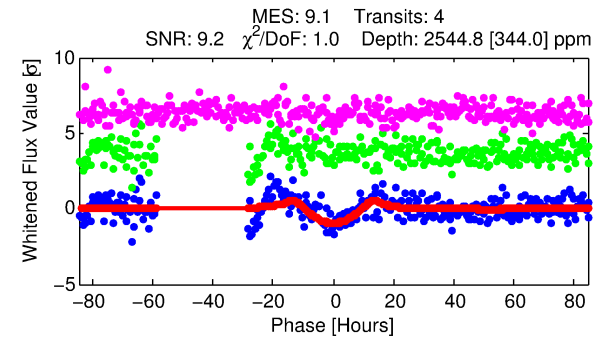
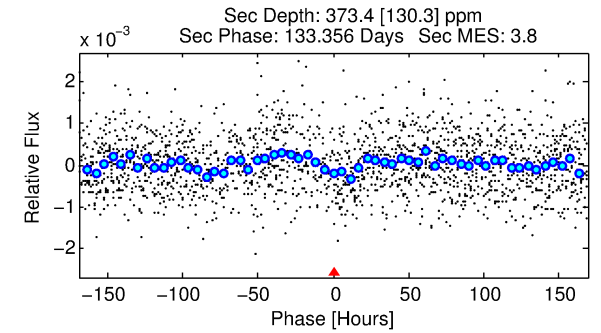
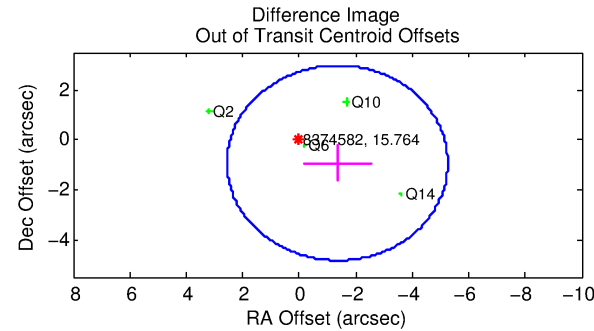
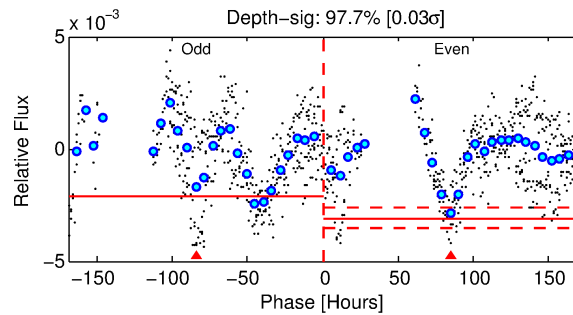
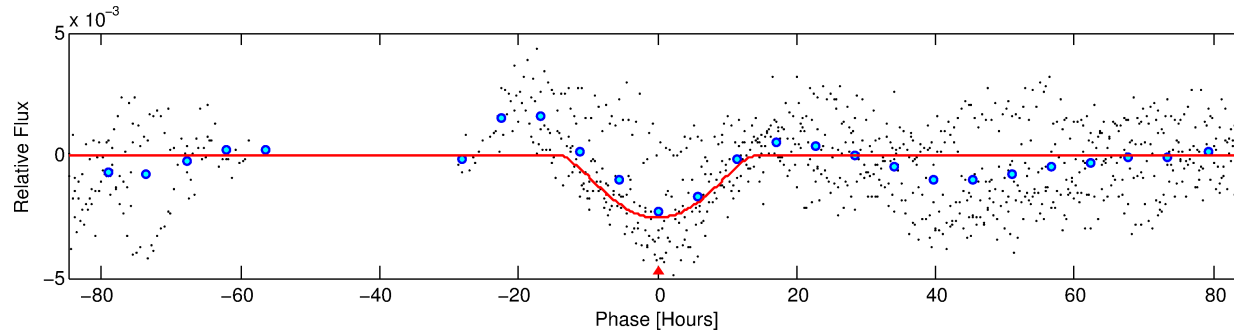
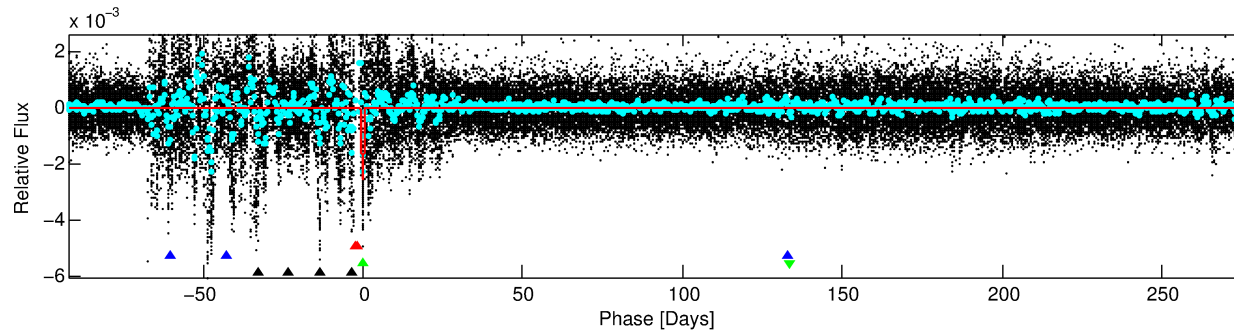
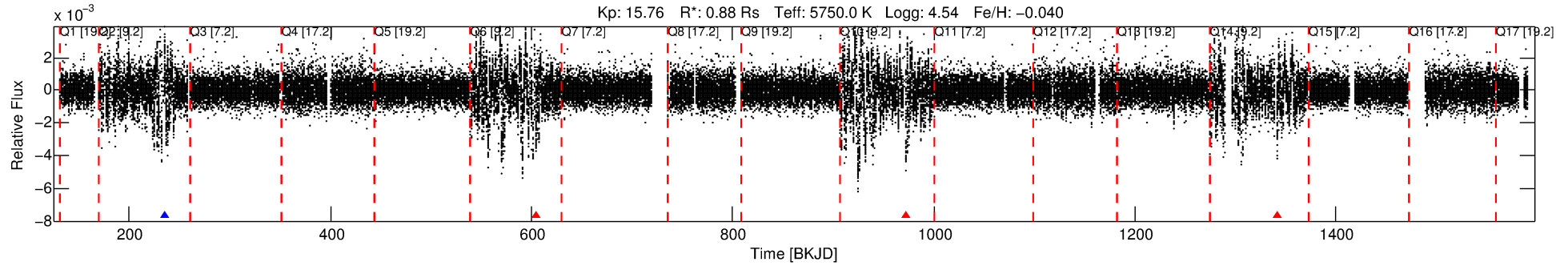
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008374582-03

No Significant Match Found

DV One-Page Summary

KIC: 8374582 Candidate: 3 of 4 Period: 368.592 d



DV Fit Results:

Period = 368.59200 [0.02099] d
Epoch = 235.7310 [0.0402] BKJD
Rp/R* = 0.0857 [0.1509]
a/R* = 42.72 [15.93]
b = 1.00 [0.22]
Seff = 0.76 [0.26]
Teq = 238 [21] K
Rp = 8.24 [14.66] Re
a = 0.9993 [0.2122] AU
Ag = 3017.51 [10723.18] [0.28σ]
Teffp = 2731 [2418] K [1.03σ]

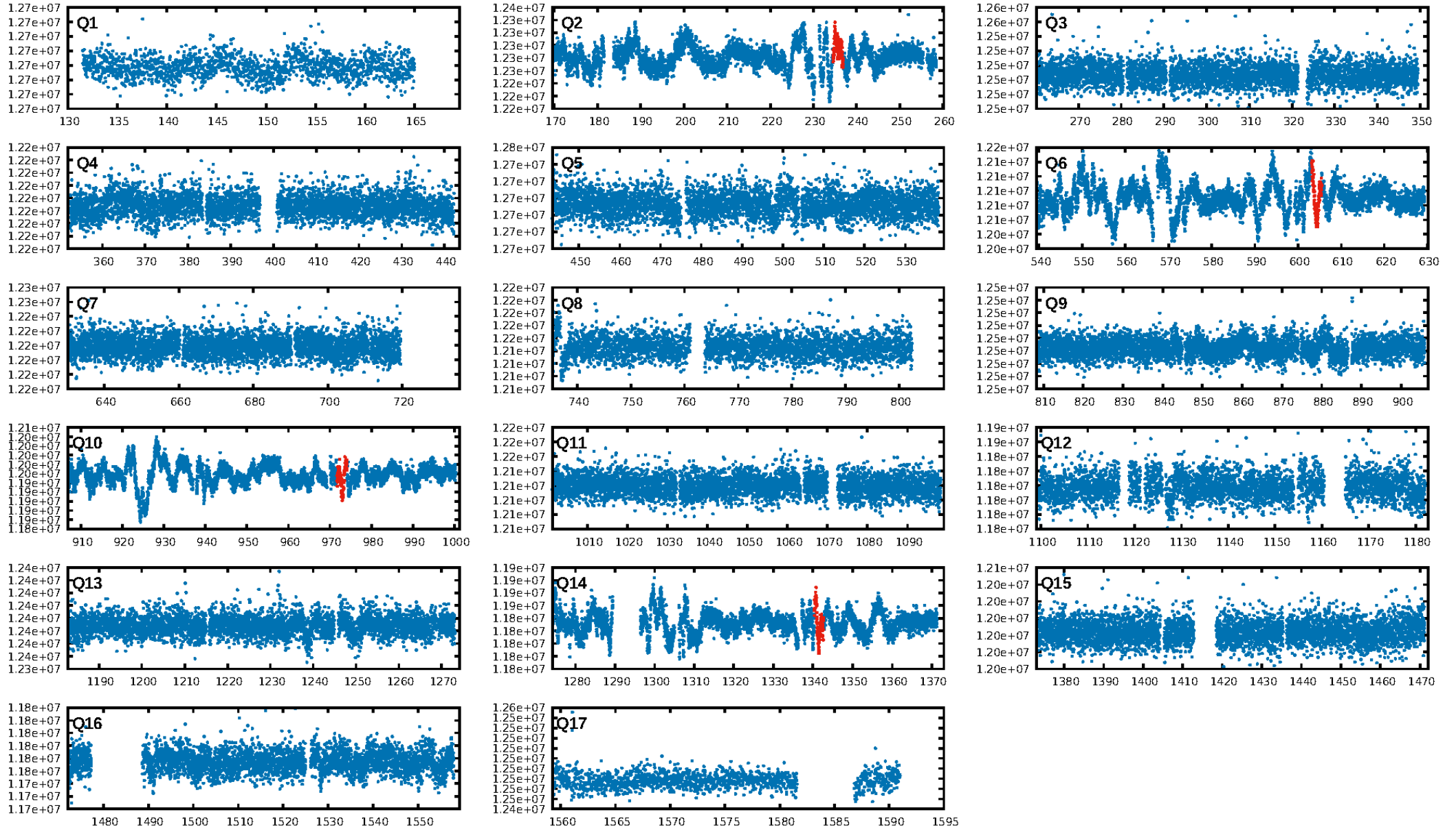
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.29σ]
LongPeriod-sig: 13.1% [0.17σ]
ModelChiSquare2-sig: 4.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.51e-13
RollingBand-fgt: 0.25 [1/4]
GhostDiagnostic-chr: -1.829
Centroid-sig: 1.6%
Centroid-so: 4.345 arcsec [2.04σ]
OotOffset-rm: 1.643 arcsec [1.26σ]
KicOffset-rm: 1.655 arcsec [1.29σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.00 [0/4]

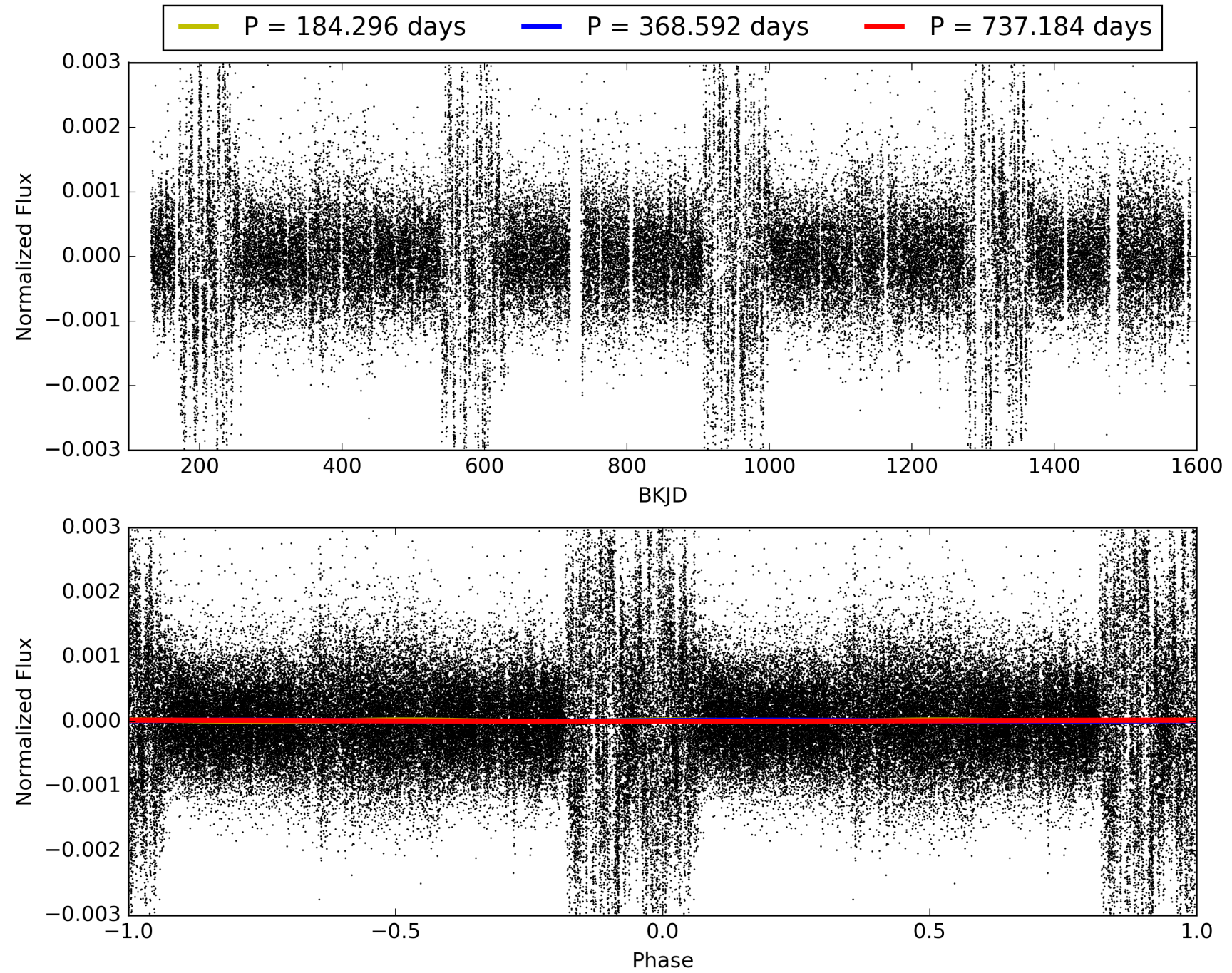
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:23:50 Z

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

TCE 008374582-03, PDC Light Curves

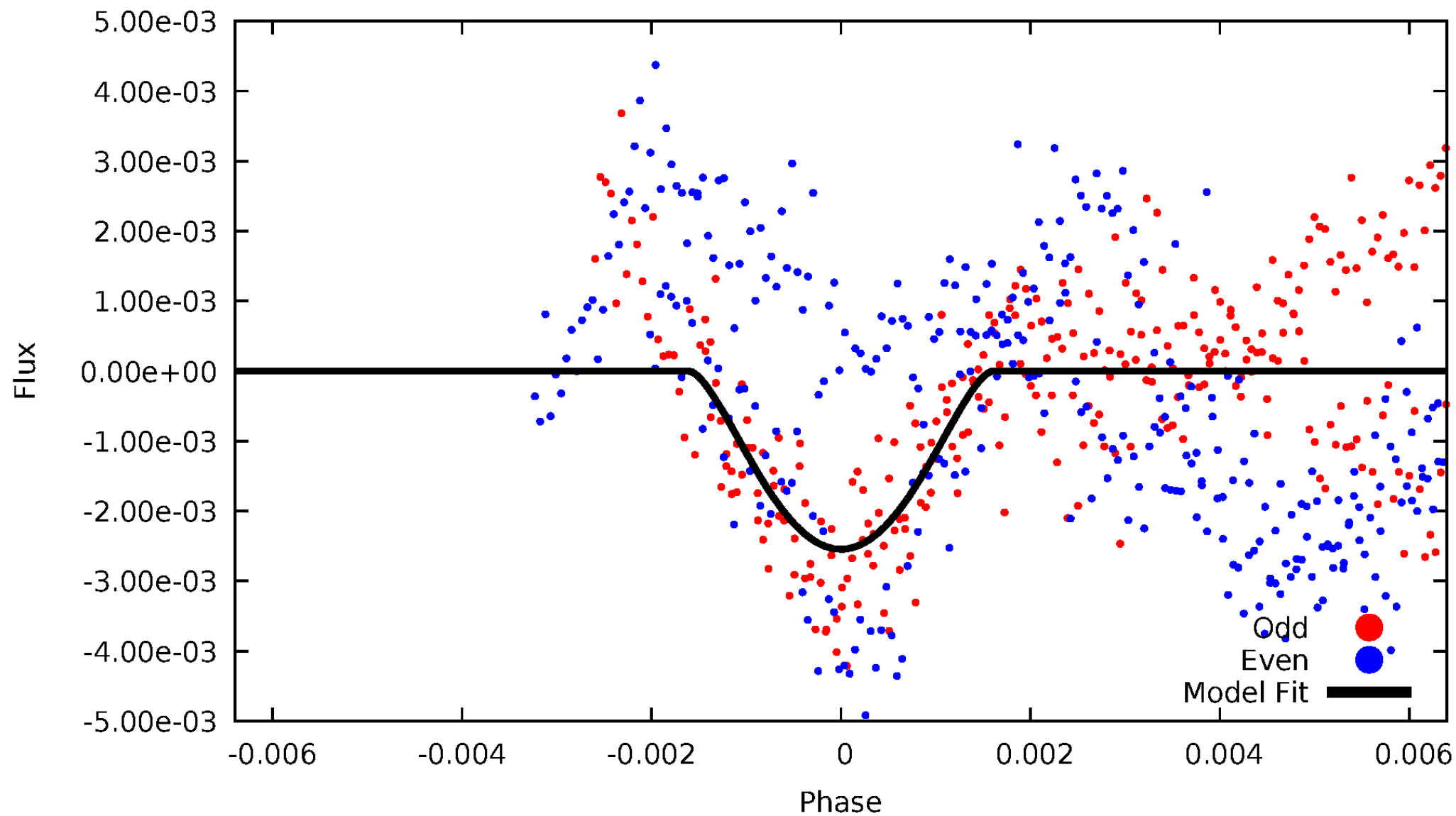


TCE 008374582-03



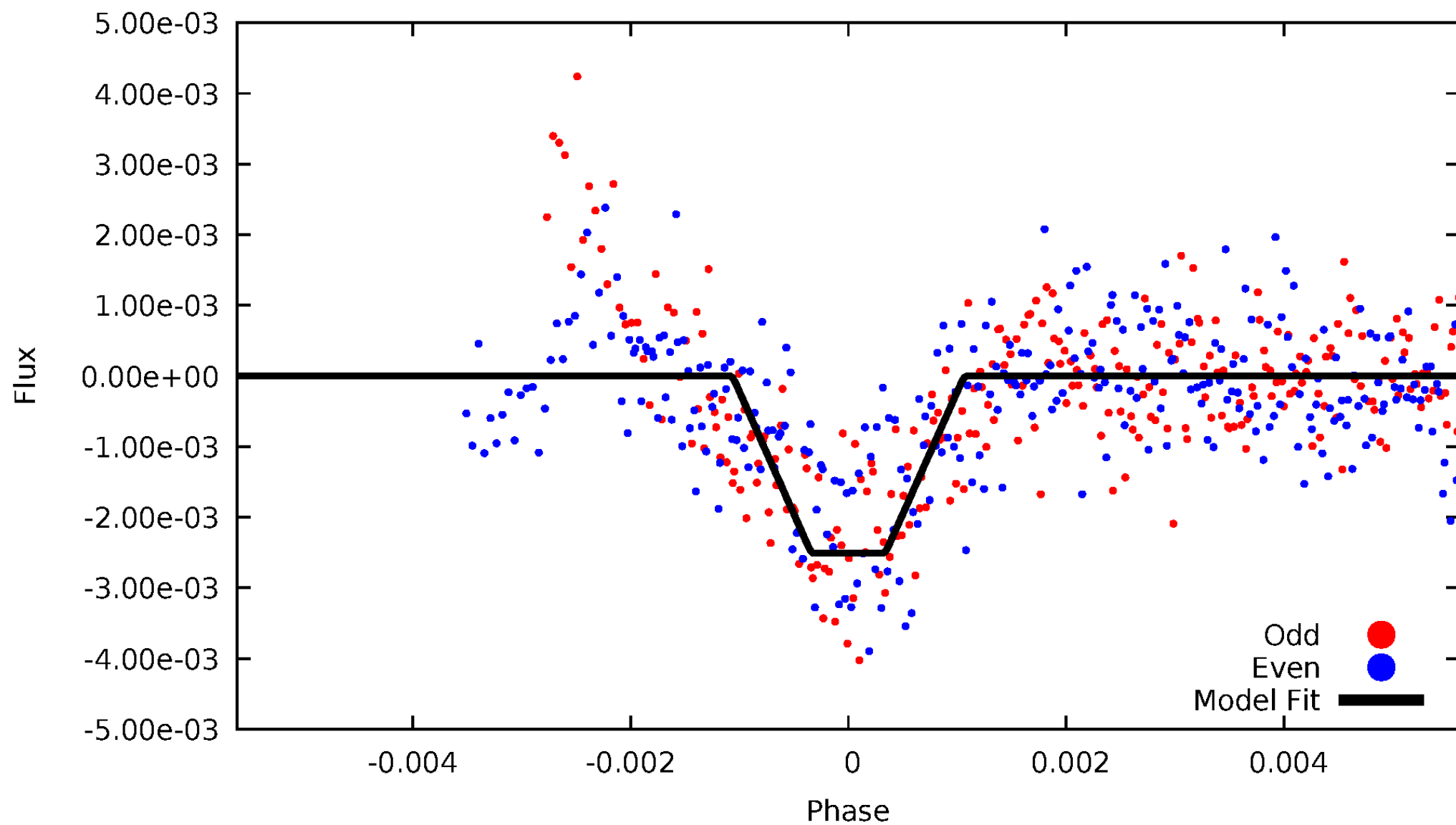
DV Odd/Even

TCE 008374582-03



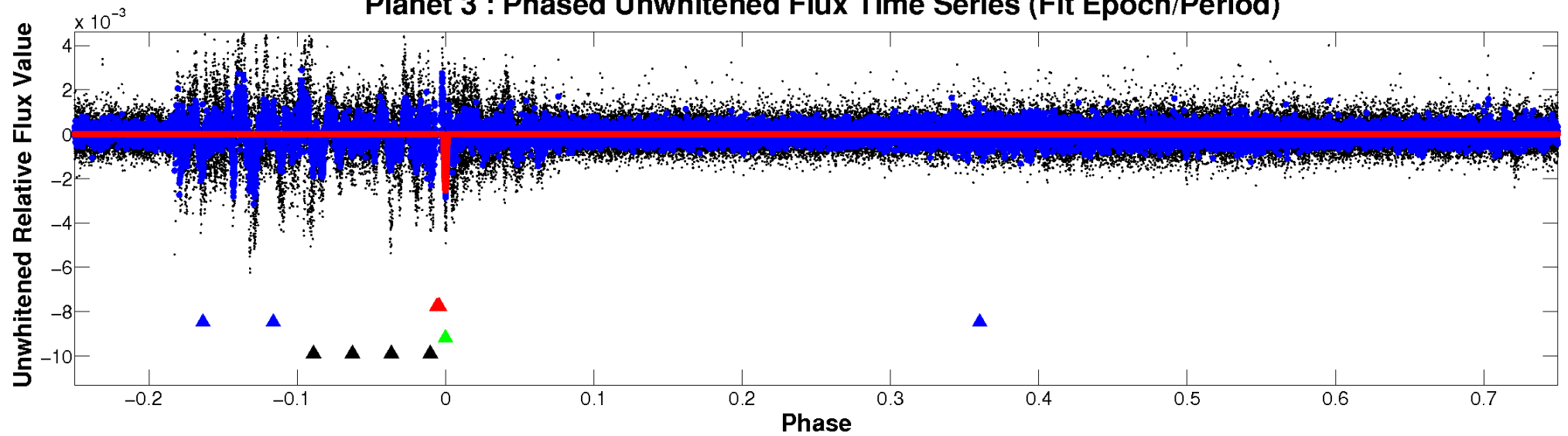
ALT Odd/Even

TCE 008374582-03

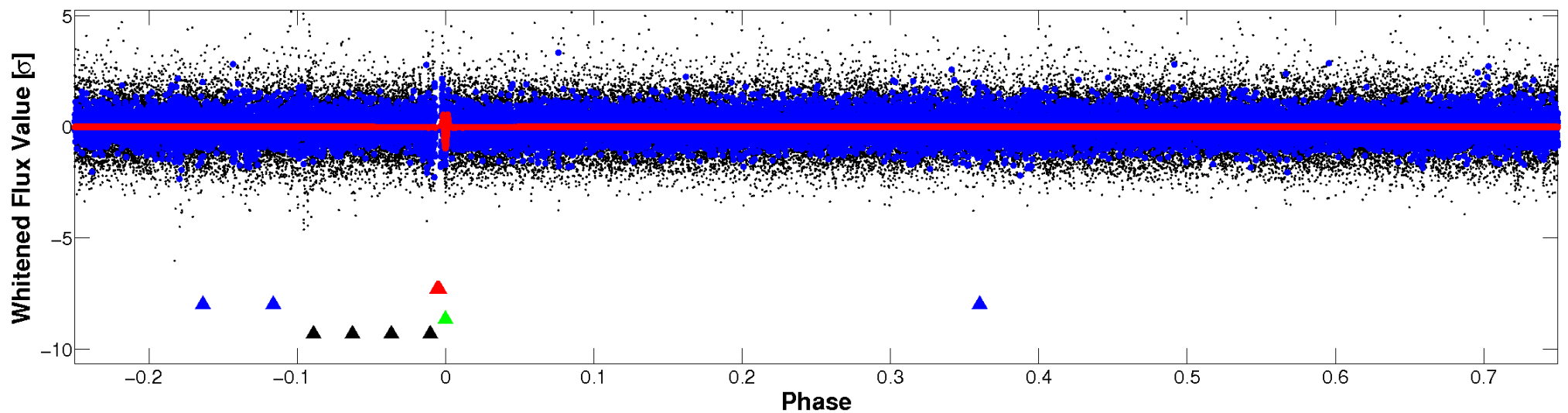


Non-Whitened Vs. Whitened Light Curve

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

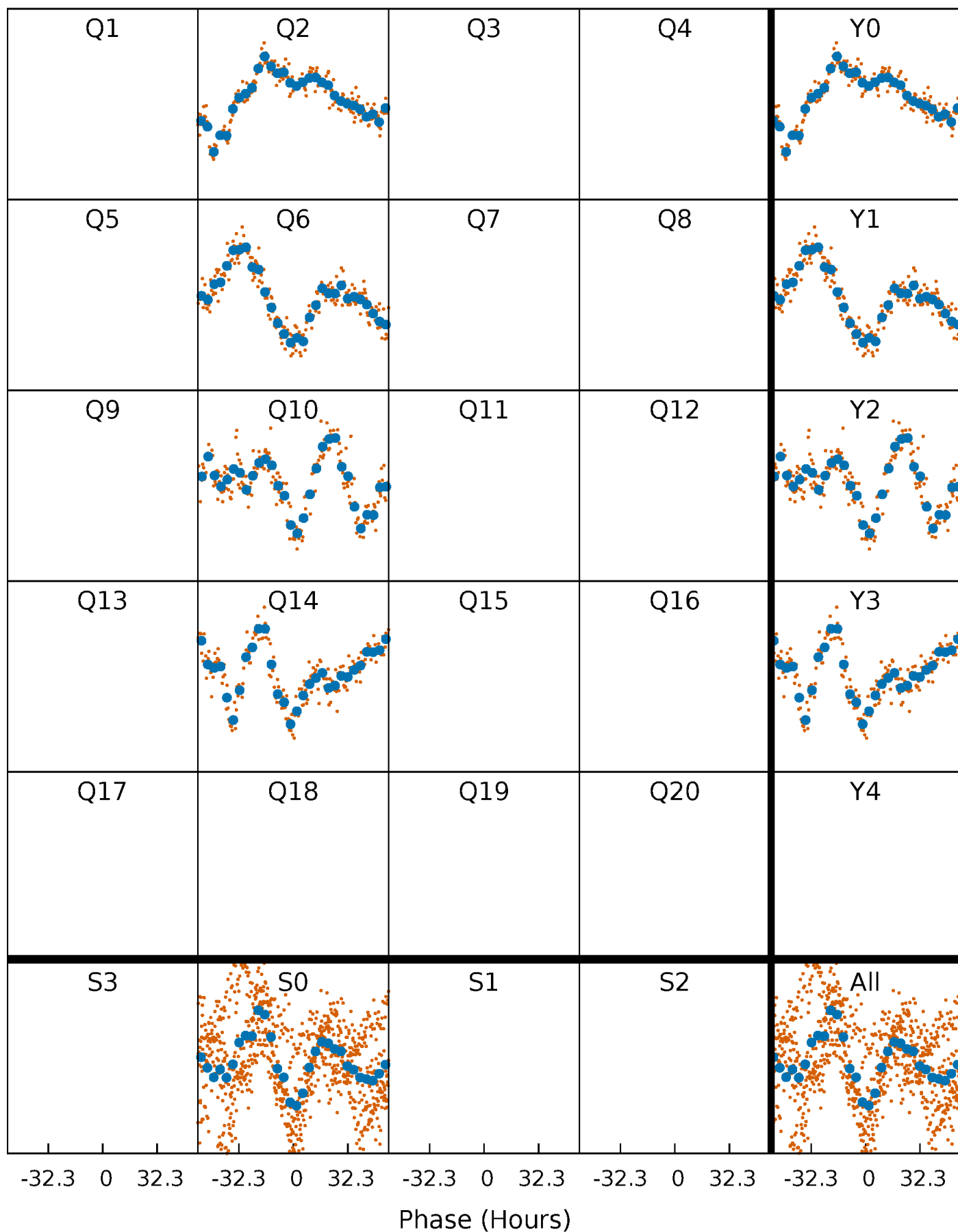


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



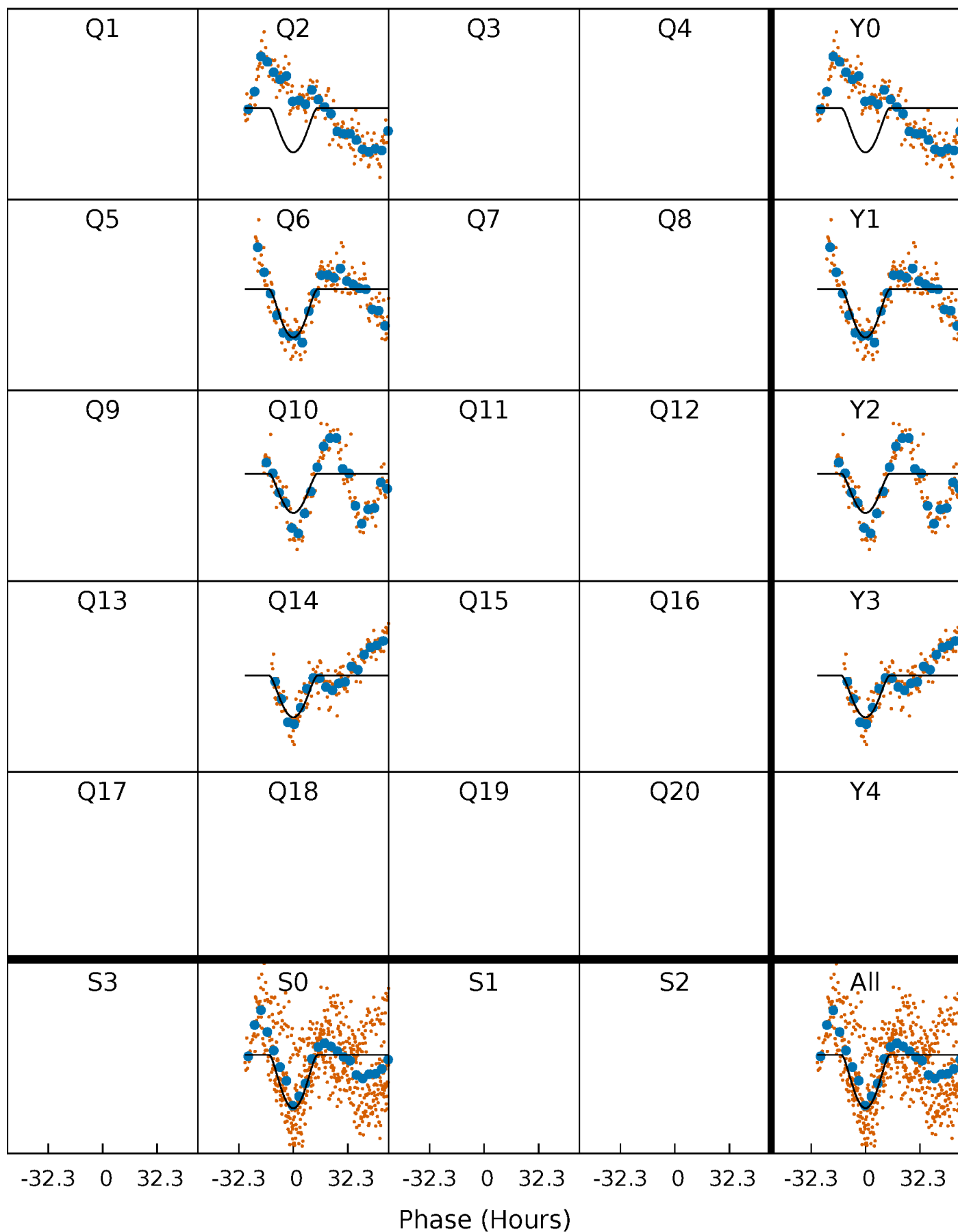
PDC Quarter-Phased Transit Curves

TCE 008374582-03 $P=368.592004$ Days $T_0=235.731042$ (BKJD)



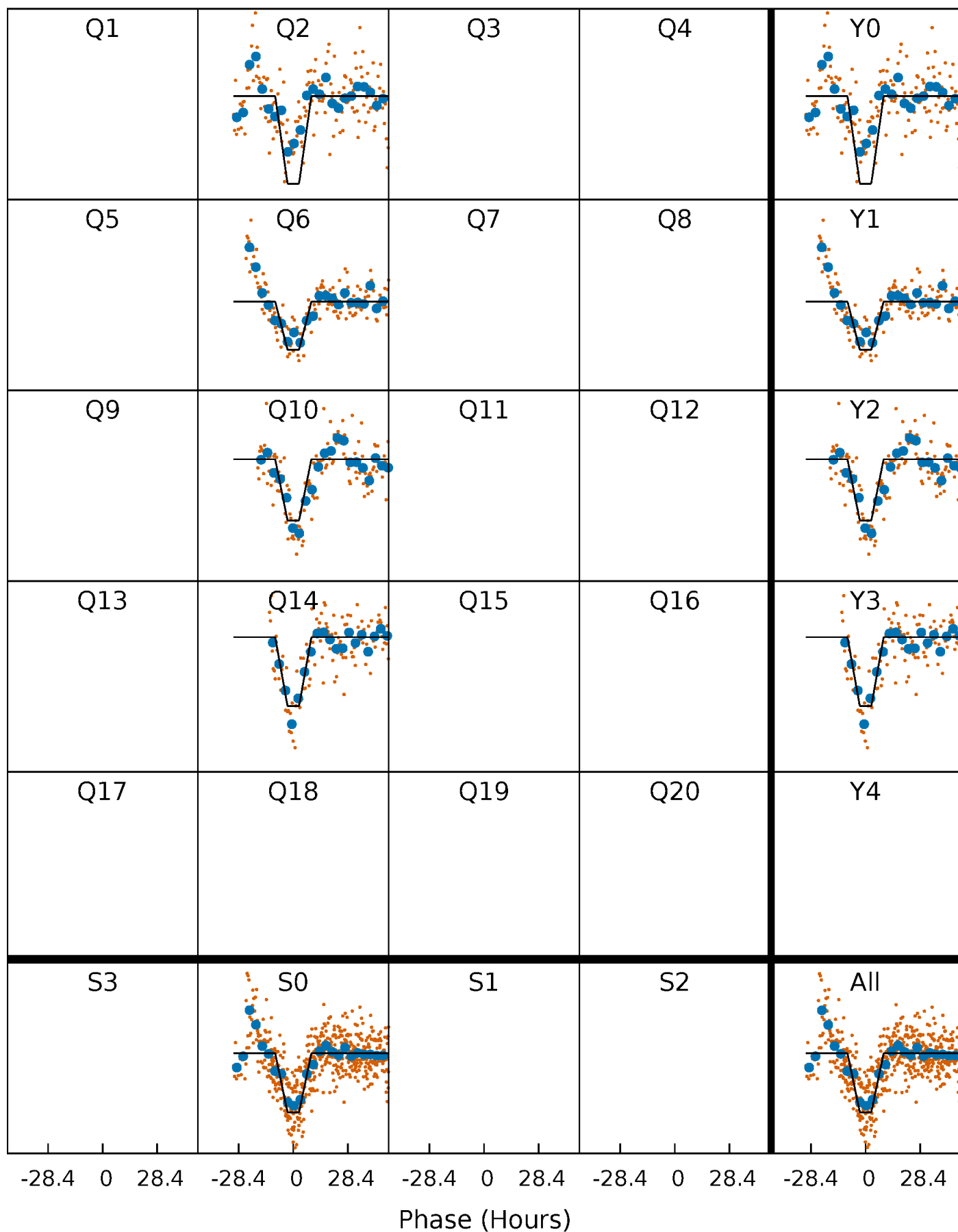
DV Quarter-Phased Transit Curves

TCE 008374582-03 P=368.592004 Days $T_0=235.731042$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

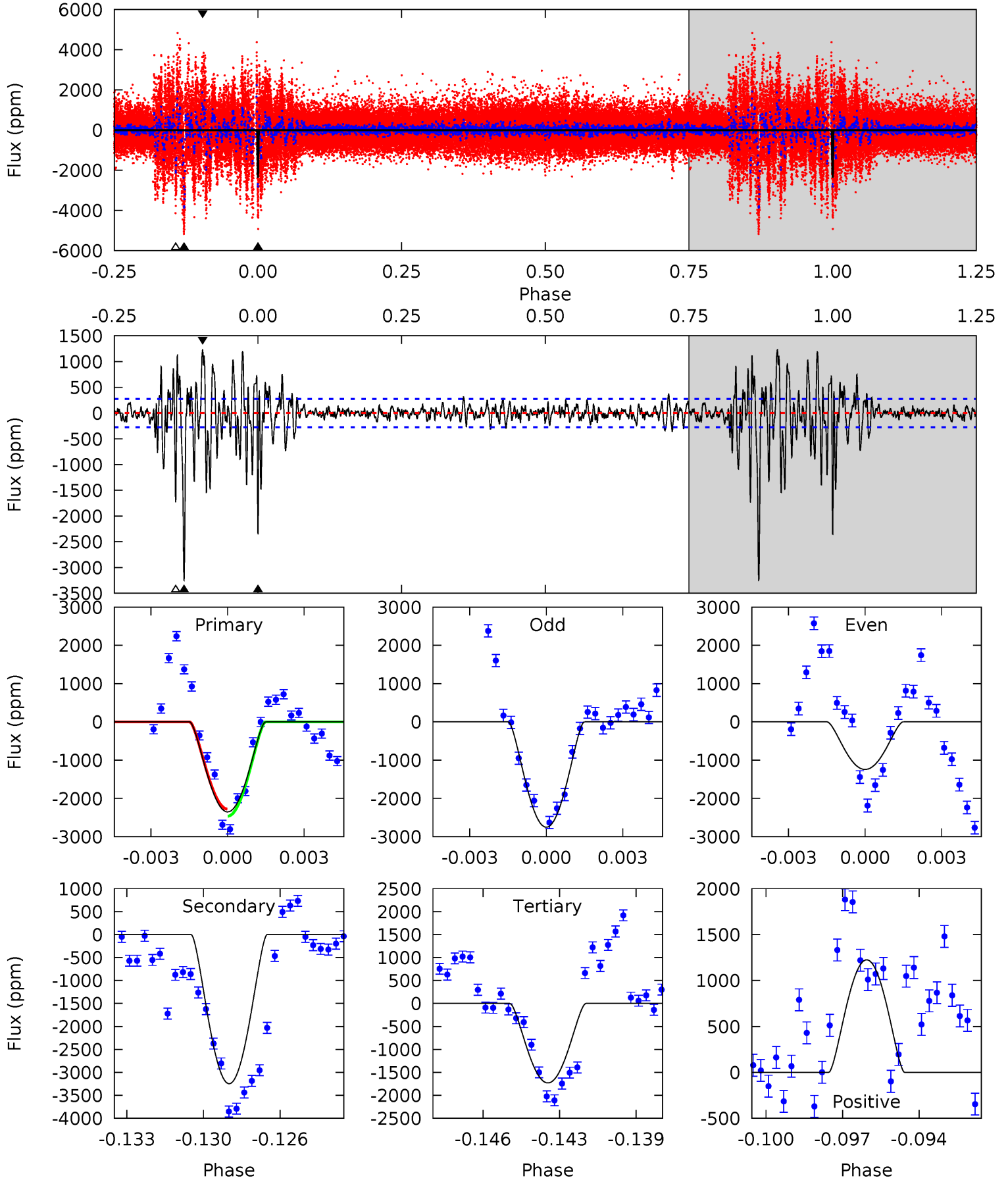
TCE 008374582-03 P=368.553311 Days $T_0=235.833152$ (BKJD)



DV Model-Shift Uniqueness Test

008374582-03, P = 368.592004 Days, E = 235.731042 Days

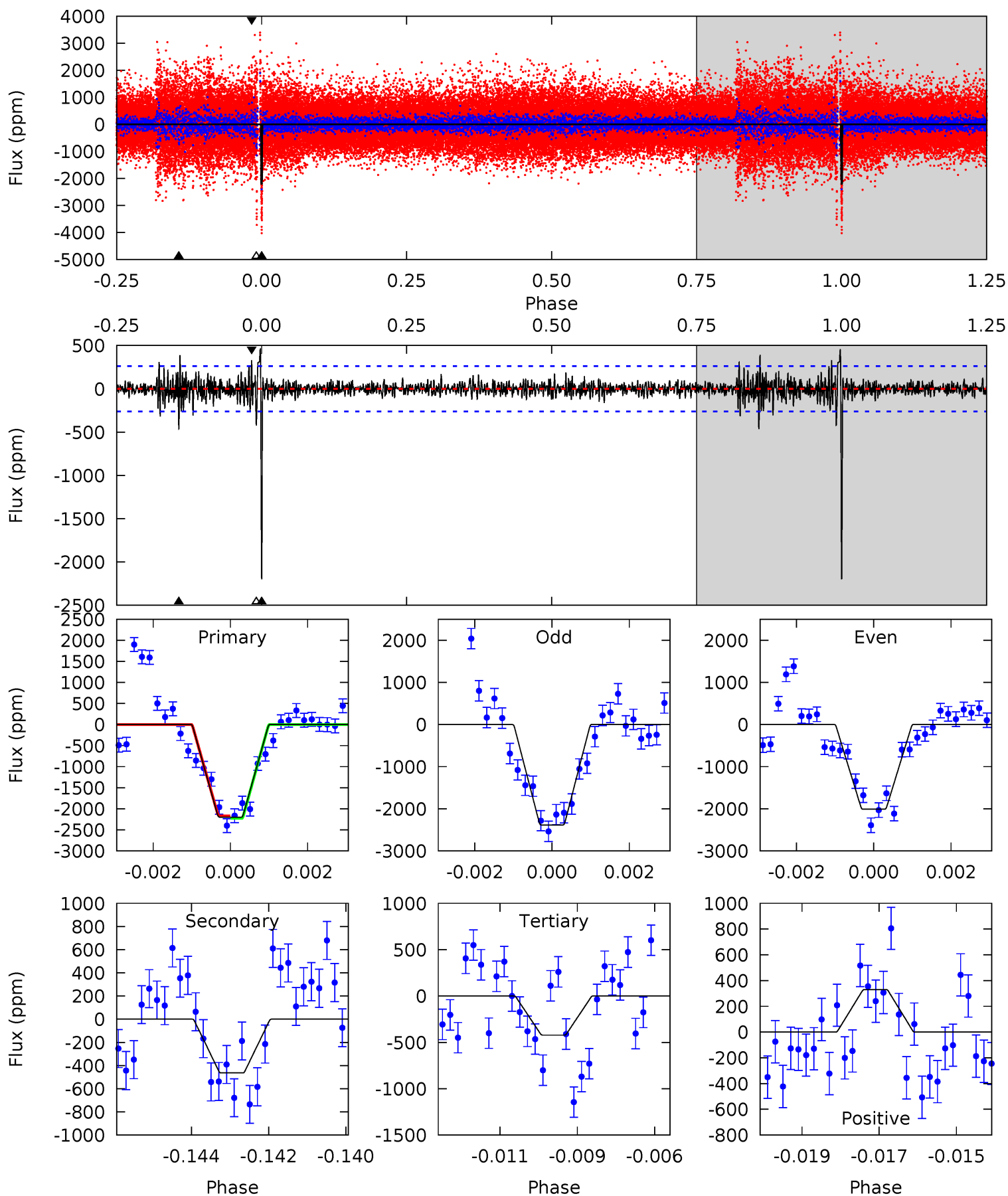
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.0	62.1	33.1	23.4	5.24	2.94	5.48	11.9	21.6	29.0	38.7	14.1	0.71	0.27	0



Alt Model-Shift Uniqueness Test

008374582-03, P = 368.553311 Days, E = 235.833152 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.5	9.39	8.54	6.68	5.31	3.07	1.26	36.0	37.8	0.85	2.72	3.77	0.92	0.17	0.62



Stellar Parameters For KIC 008374582

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5750^{+156}_{-190}	$4.538^{+0.042}_{-0.178}$	$-0.040^{+0.250}_{-0.300}$	$0.882^{+0.215}_{-0.086}$	$0.980^{+0.091}_{-0.125}$	$2.011^{+0.357}_{-0.926}$
	+3%/-3%	+1%/-4%	+625%/-750%	+24%/-10%	+9%/-13%	+18%/-46%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008374582-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3247 ± 52	$14.88^{+12.38}_{-10.09}$	340^{+21}_{-16}	3917^{+2323}_{-702}	7667^{+70639}_{-5289}
Alt.	-464 ± 49	$12.47^{+10.86}_{-9.09}$	339^{+20}_{-15}	3073^{+1607}_{-501}	1641^{+18999}_{-1188}

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 $A_{obs} \gg 1.0$

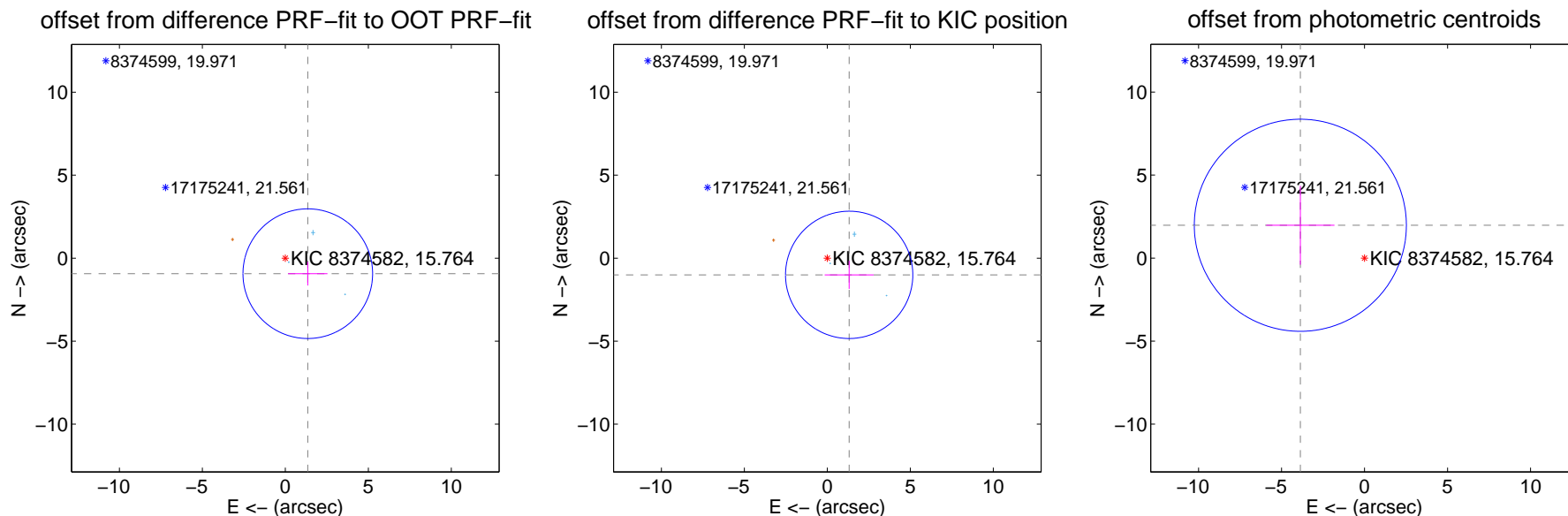
DV Centroid Data

Supplemental centroid analysis for 008374582-03. Kepler magnitude: 15.76. Transit SNR 9.23

There are 3 quarters with good PRF difference image offsets

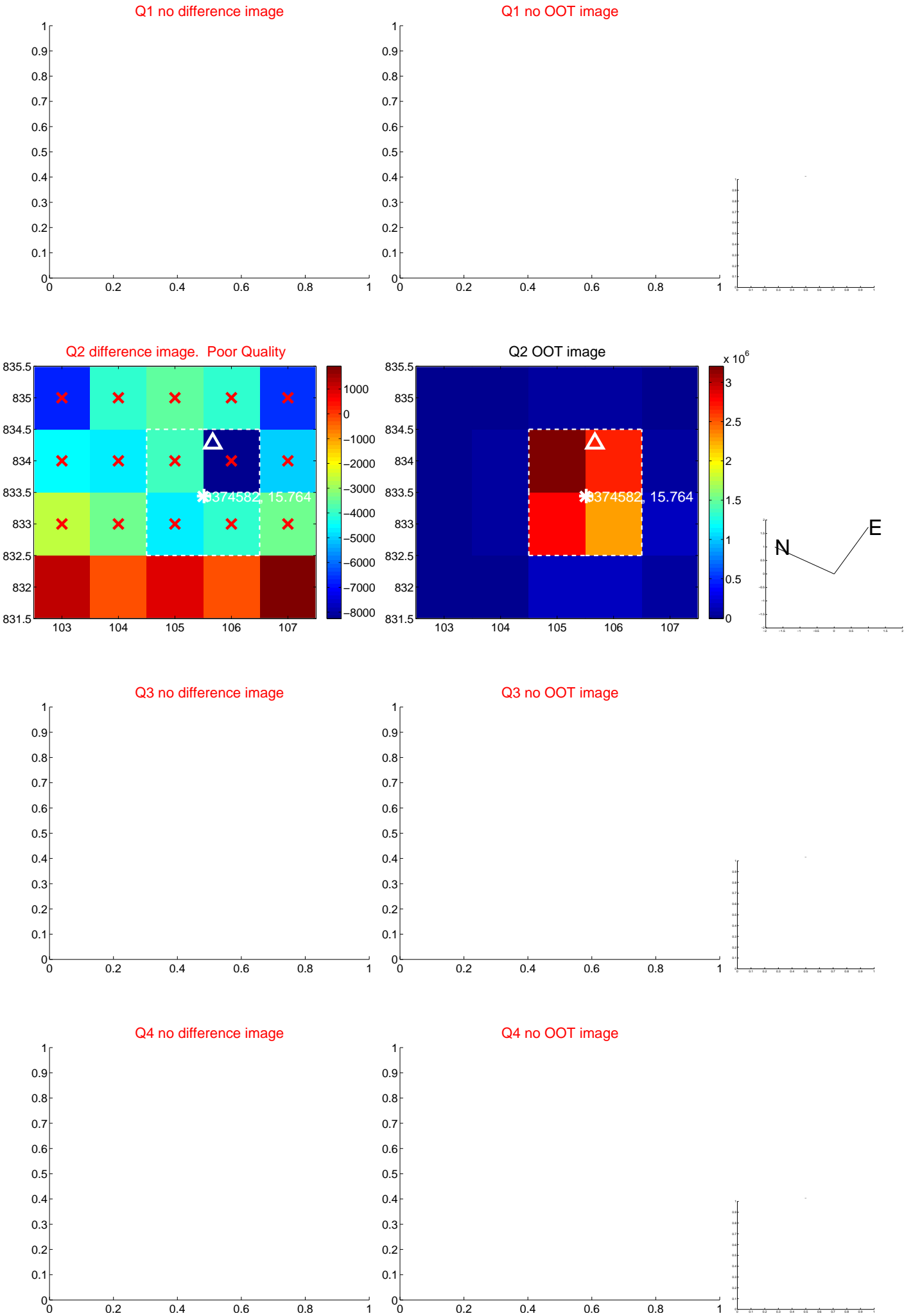
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.643 ± 1.302	1.26	-1.351 ± 1.185	-0.935 ± 0.714
PRF-fit source offset from KIC position	1.655 ± 1.278	1.29	-1.314 ± 1.474	-1.006 ± 0.845
photometric centroid source offset	4.34 ± 2.13	2.04	3.87 ± 2.06	1.98 ± 2.38

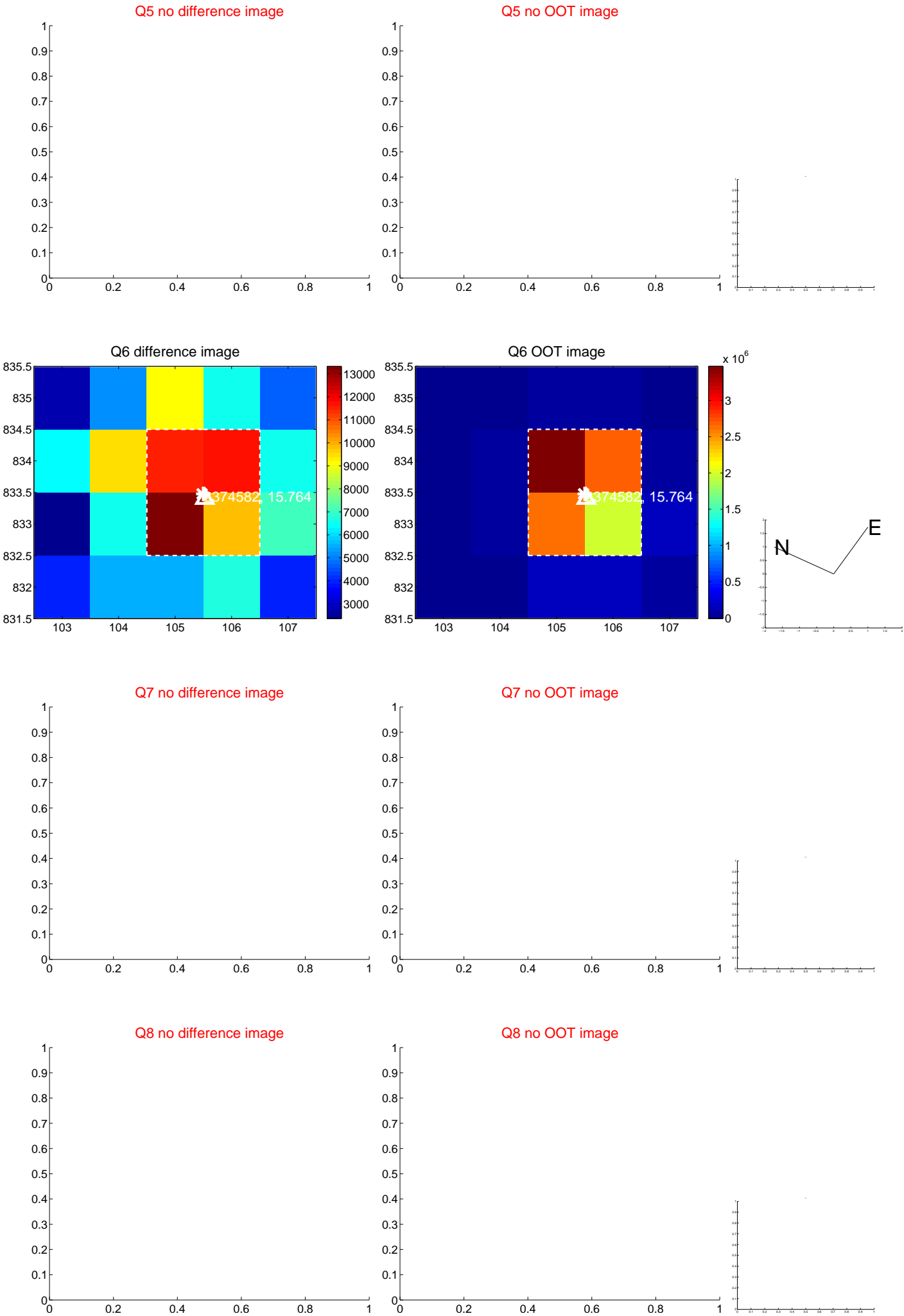


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

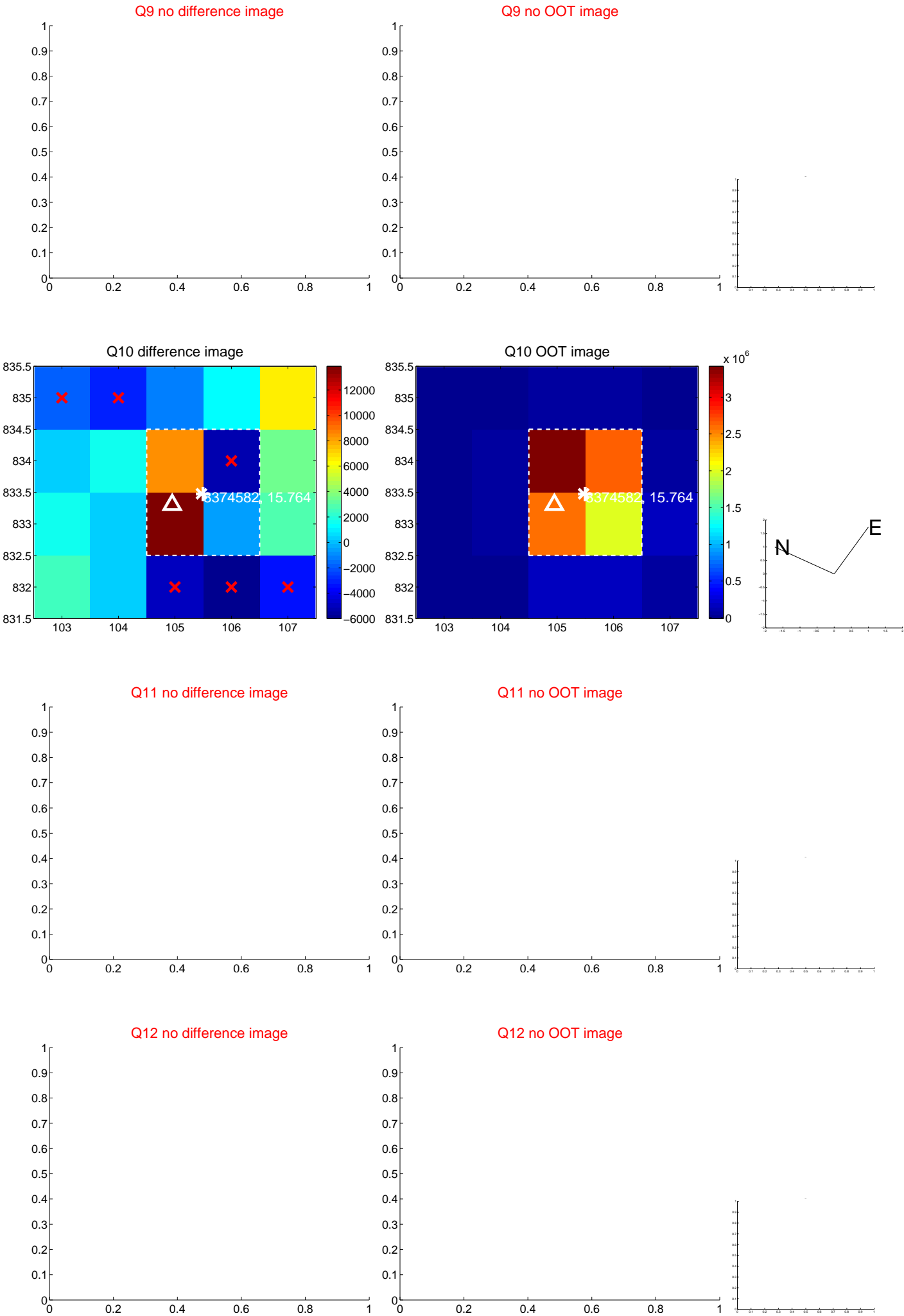
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



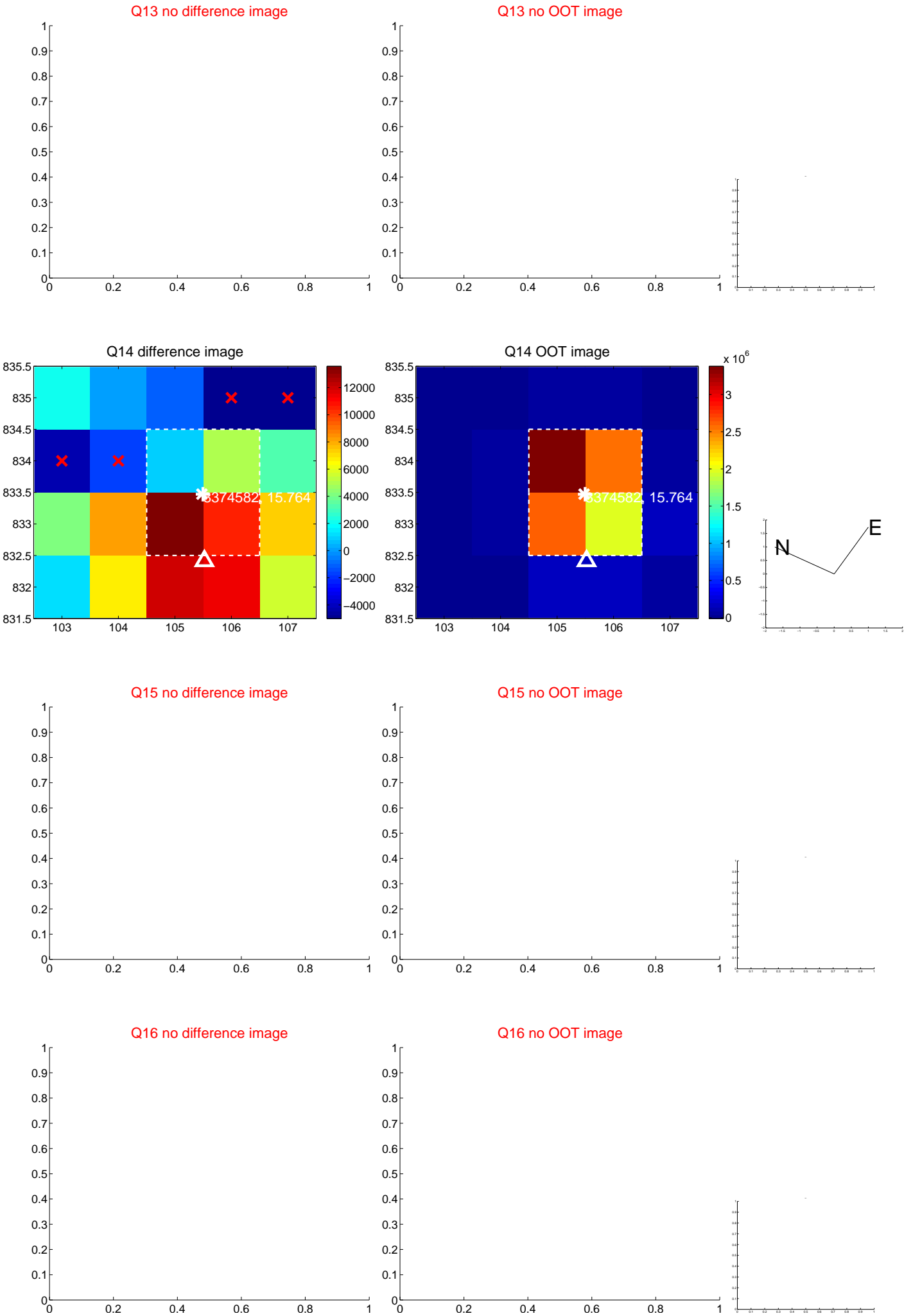
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



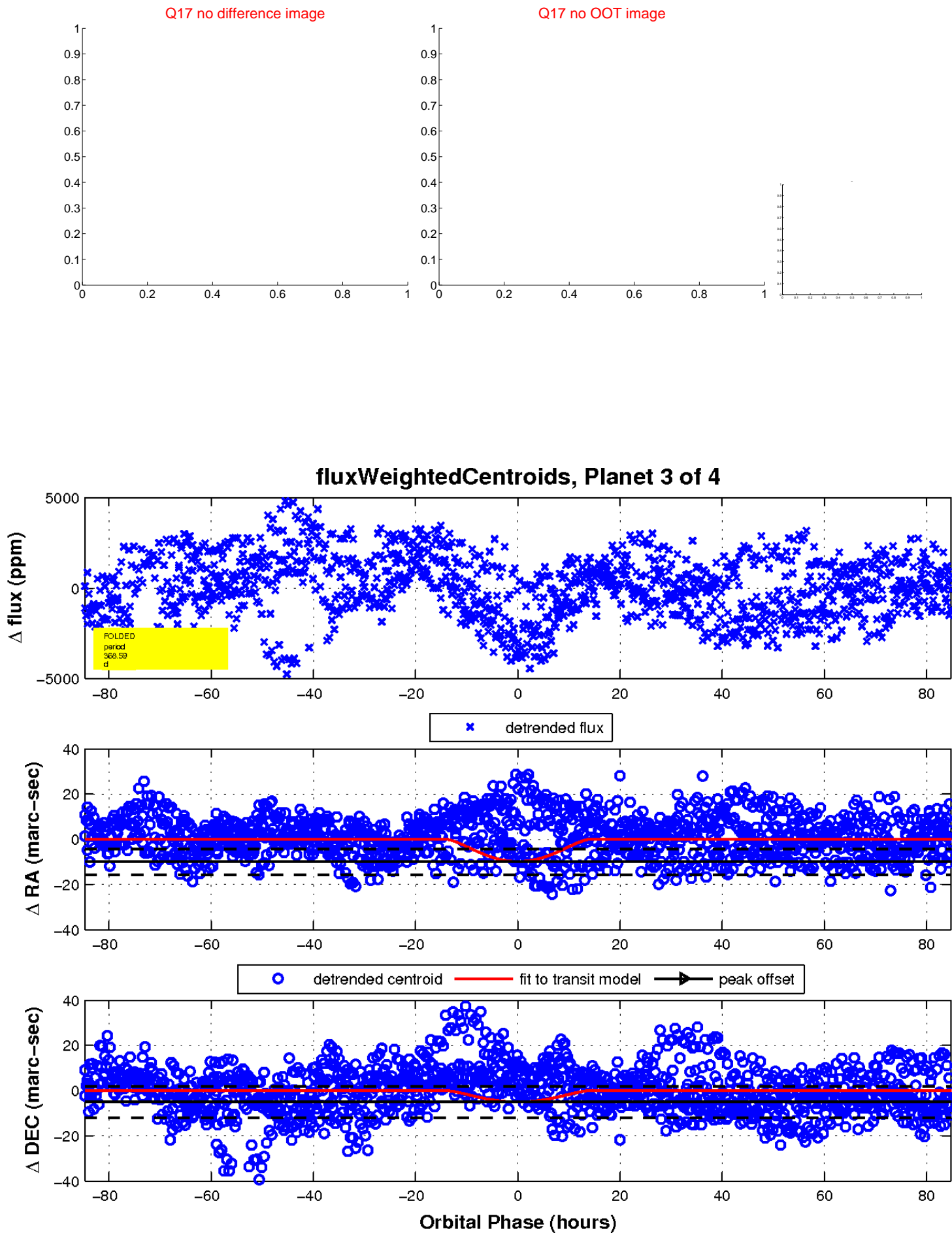
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

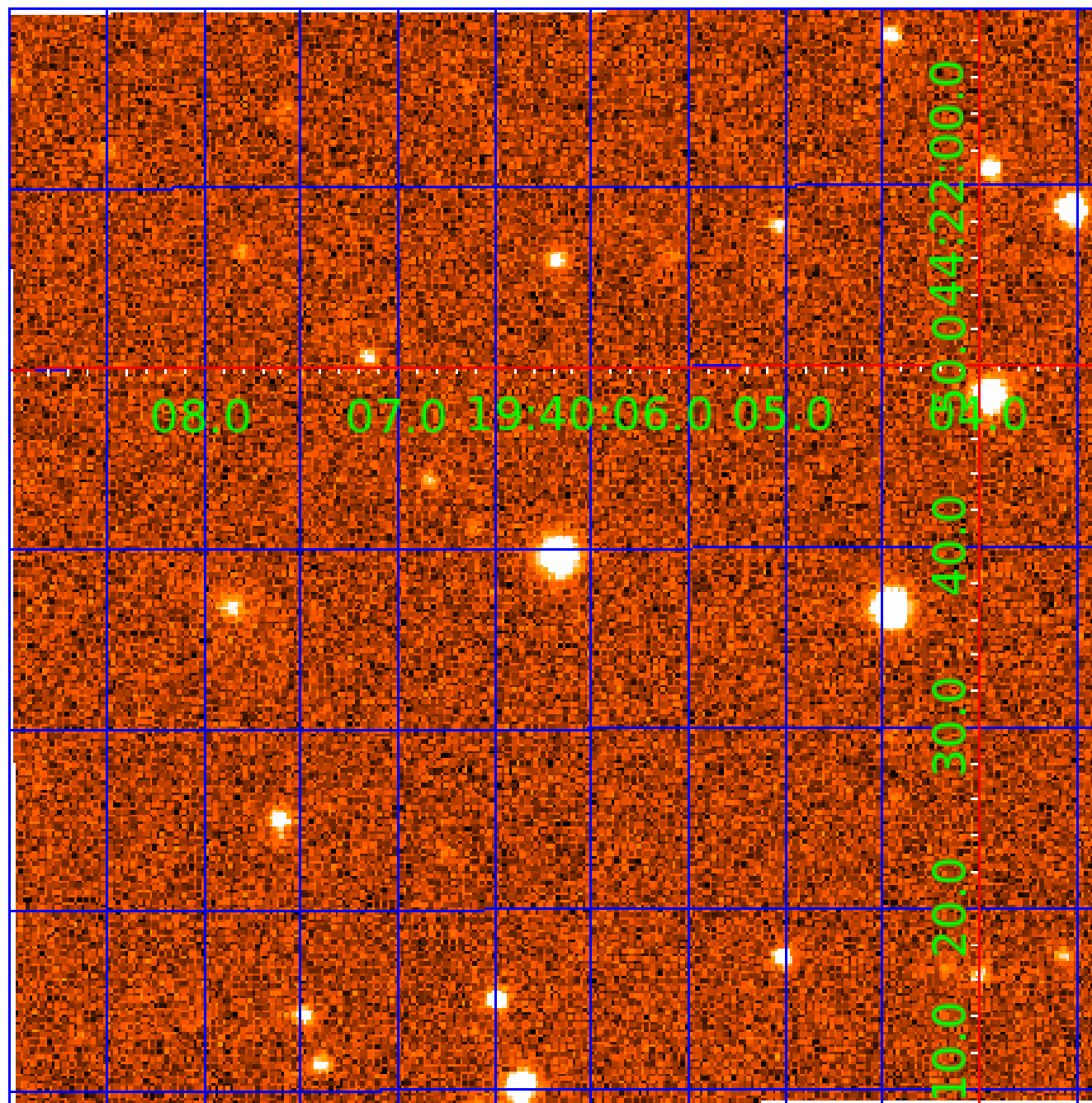


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008374582

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})
008374582-01	OBS	No	368.812757	233.579869	2363.8	15.144	11.8	11.7	0.88	5750	4.93	0.76
008374582-03	OBS	No	368.592004	235.731042	2544.8	28.275	9.1	9.2	0.88	5750	8.24	0.76
008374582-04	OBS	No	358.917937	231.955857	3025.1	23.684	8.3	11.5	0.88	5750	5.75	0.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008374582-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008374582-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008374582-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

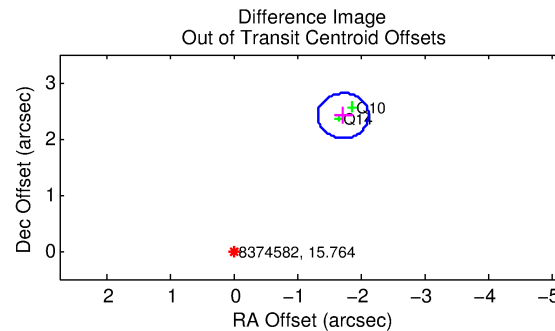
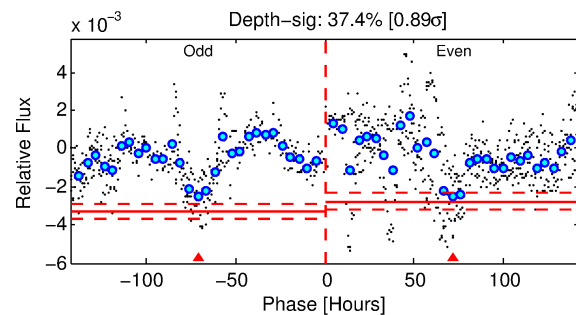
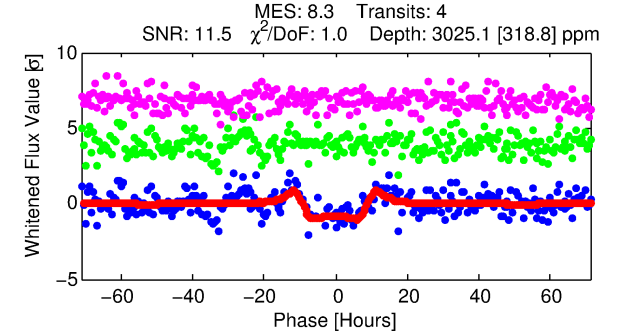
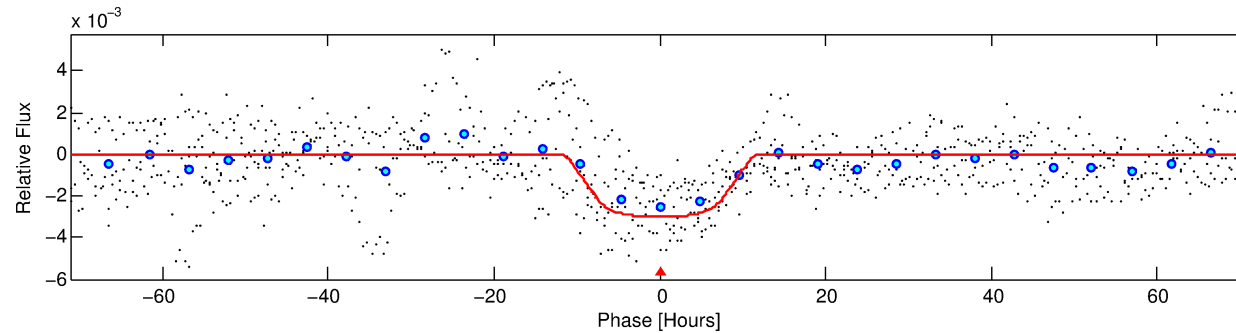
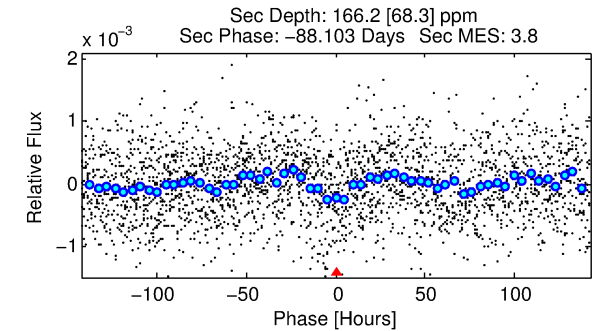
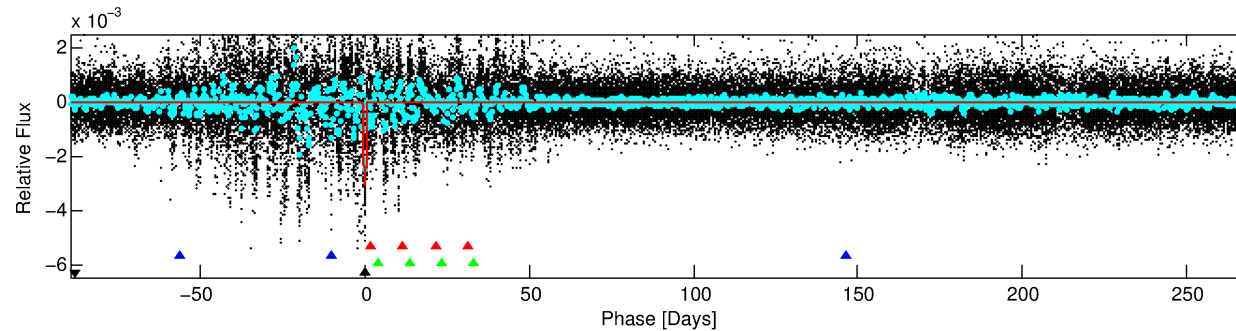
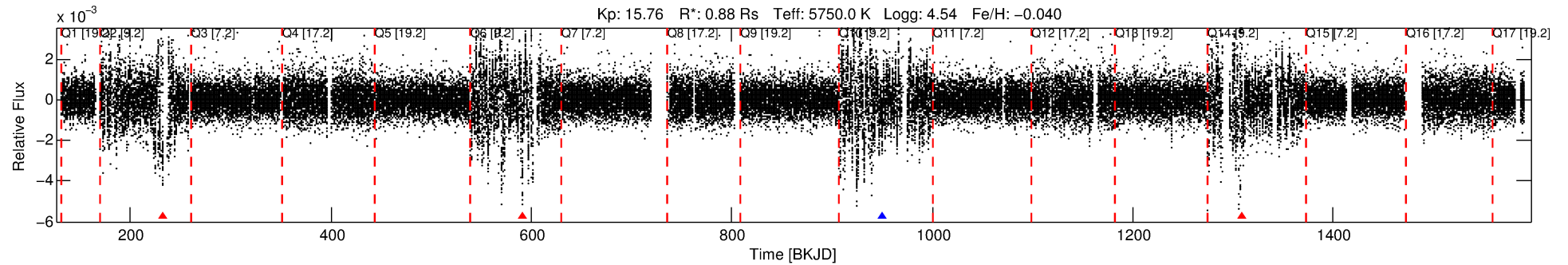
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008374582-04

No Significant Match Found

DV One-Page Summary

KIC: 8374582 Candidate: 4 of 4 Period: 358.918 d



DV Fit Results:

Period = 358.91794 [0.01145] d
Epoch = 231.9559 [0.0218] BKJD
Rp/R* = 0.0598 [0.0036]
a/R* = 65.83 [6.06]
b = 0.89 [0.02]
Seff = 0.79 [0.27]
Teq = 240 [21] K
Rp = 5.75 [1.45] Re
a = 0.9818 [0.2084] AU
Ag = 2661.58 [1420.65] [1.87σ]
Teff = 2670 [299] K [8.09σ]

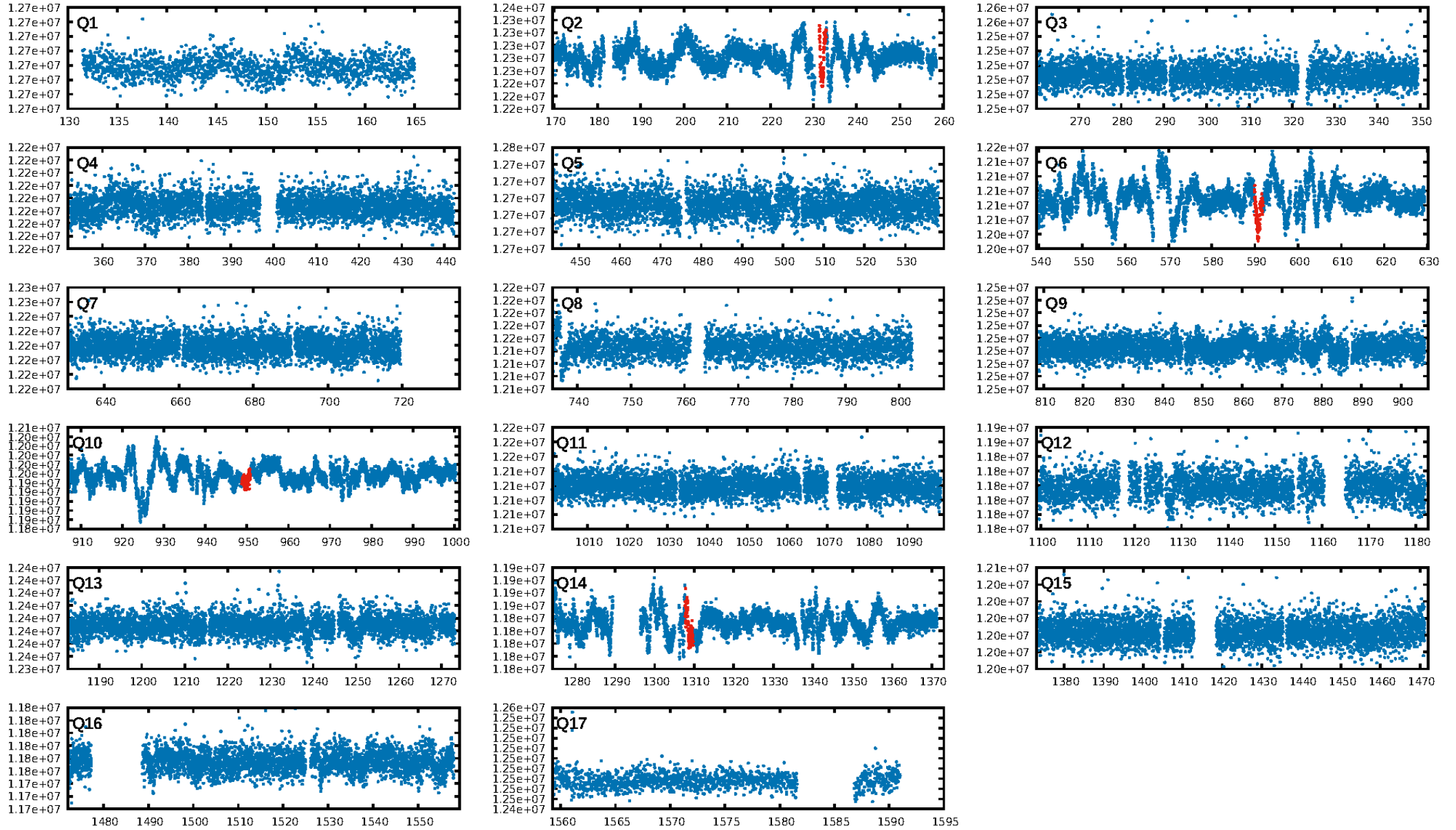
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.29σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 2.27e-10
RollingBand-fgt: 0.25 [1/4]
GhostDiagnostic-chr: -0.3775
Centroid-sig: 0.1%
Centroid-so: 3.568 arcsec [2.31σ]
OotOffset-rm: 2.953 arcsec [22.19σ]
KicOffset-rm: 2.862 arcsec [23.39σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

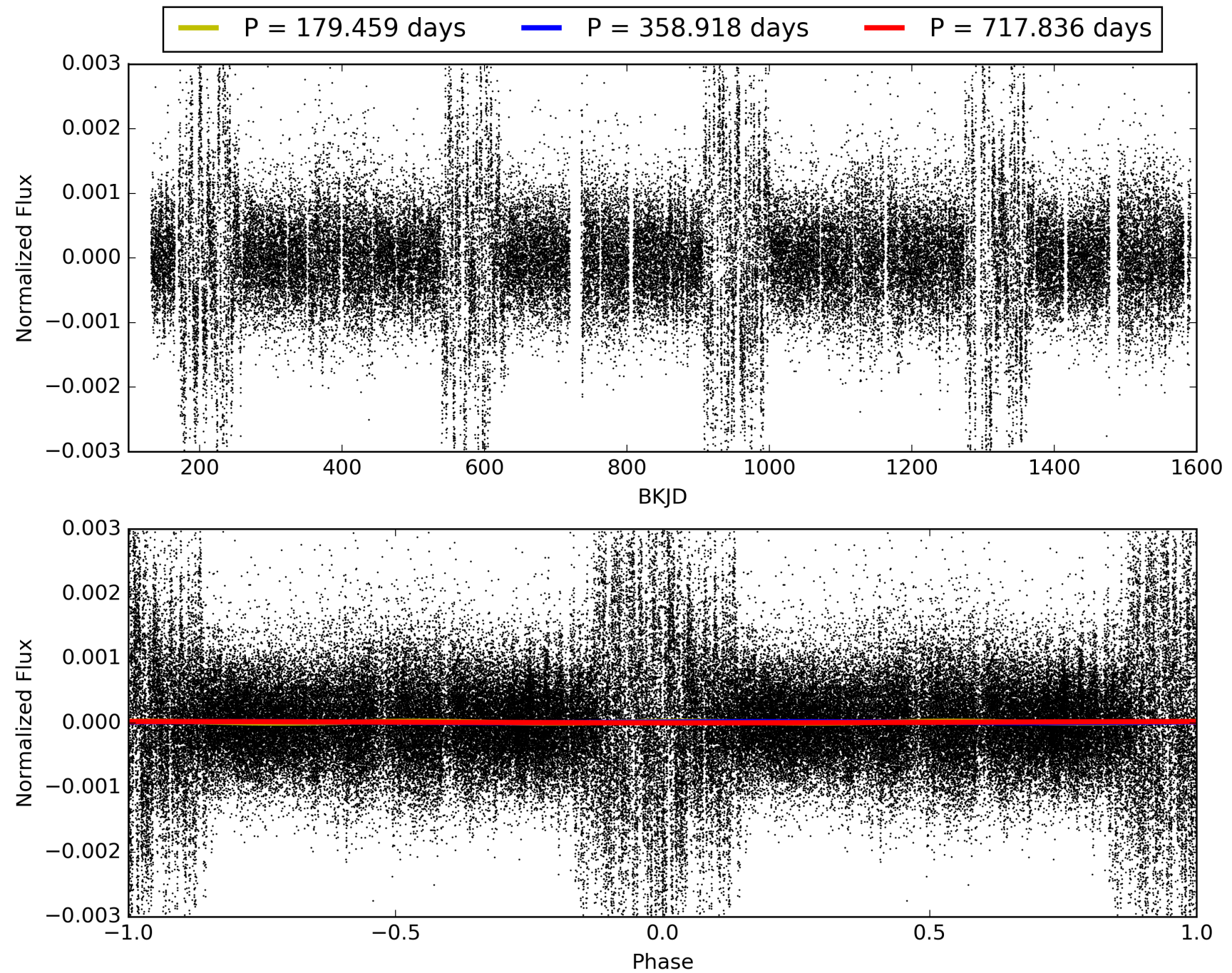
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:23:57 Z

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

TCE 008374582-04, PDC Light Curves

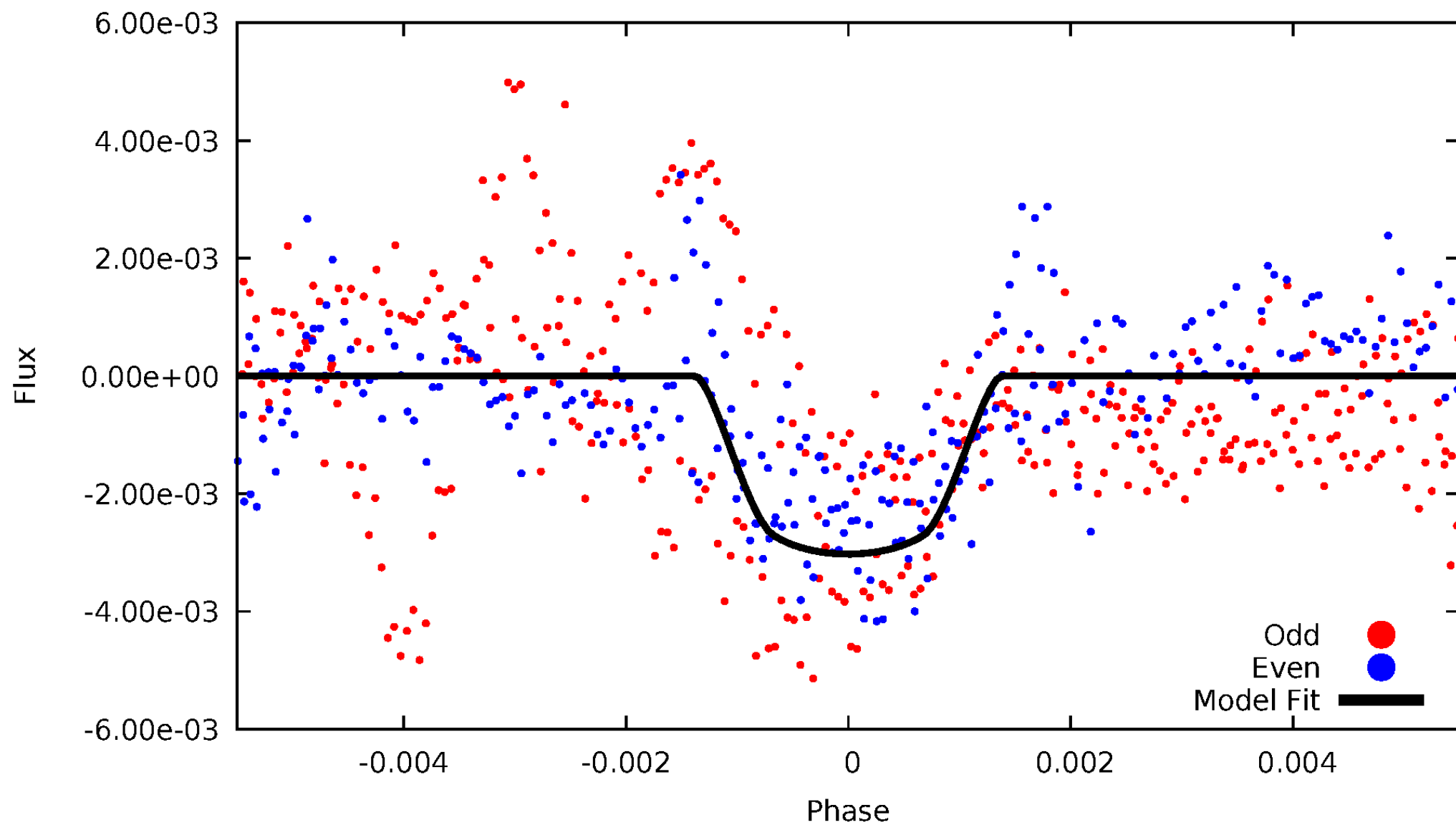


TCE 008374582-04



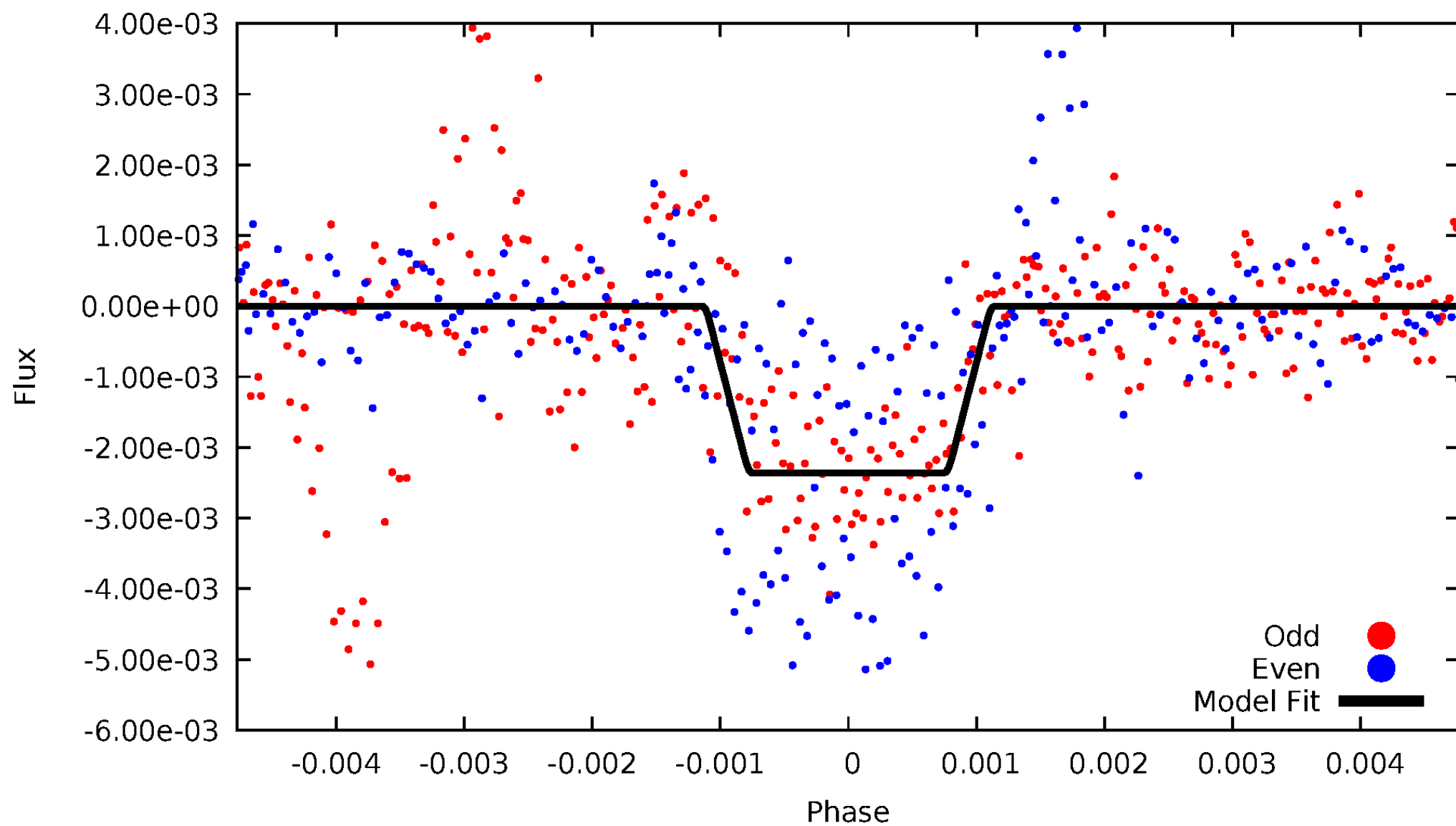
DV Odd/Even

TCE 008374582-04



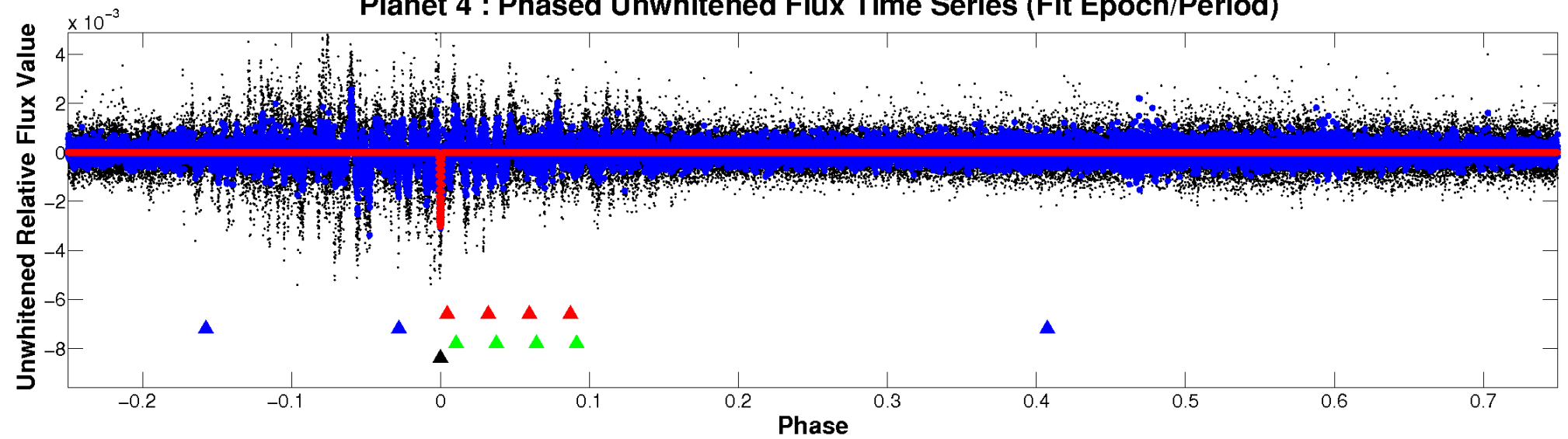
ALT Odd/Even

TCE 008374582-04

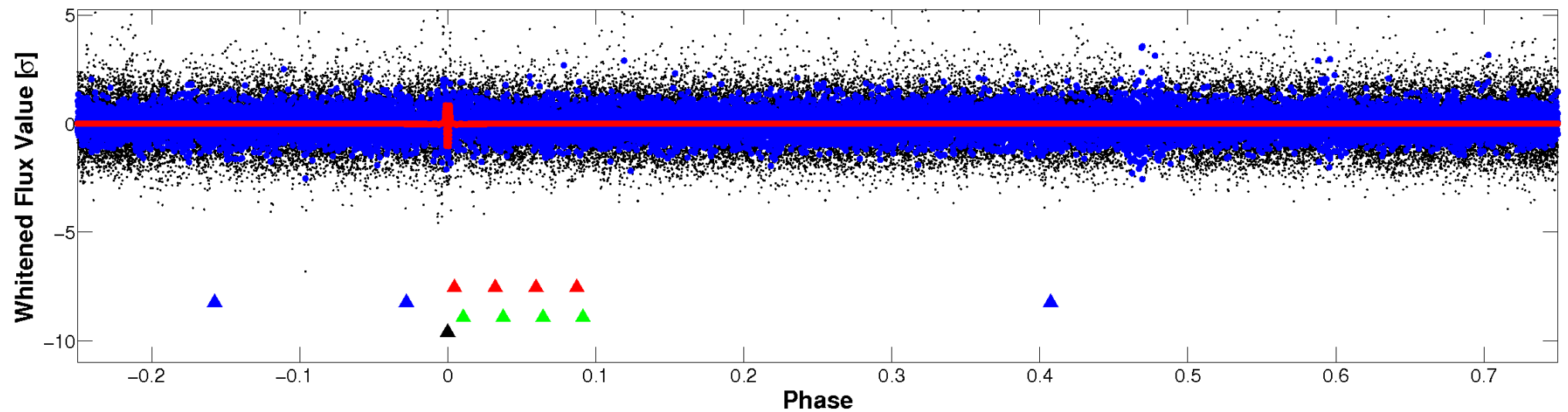


Non-Whitened Vs. Whitened Light Curve

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 008374582-04 P=358.917937 Days $T_0=231.955857$ (BKJD)



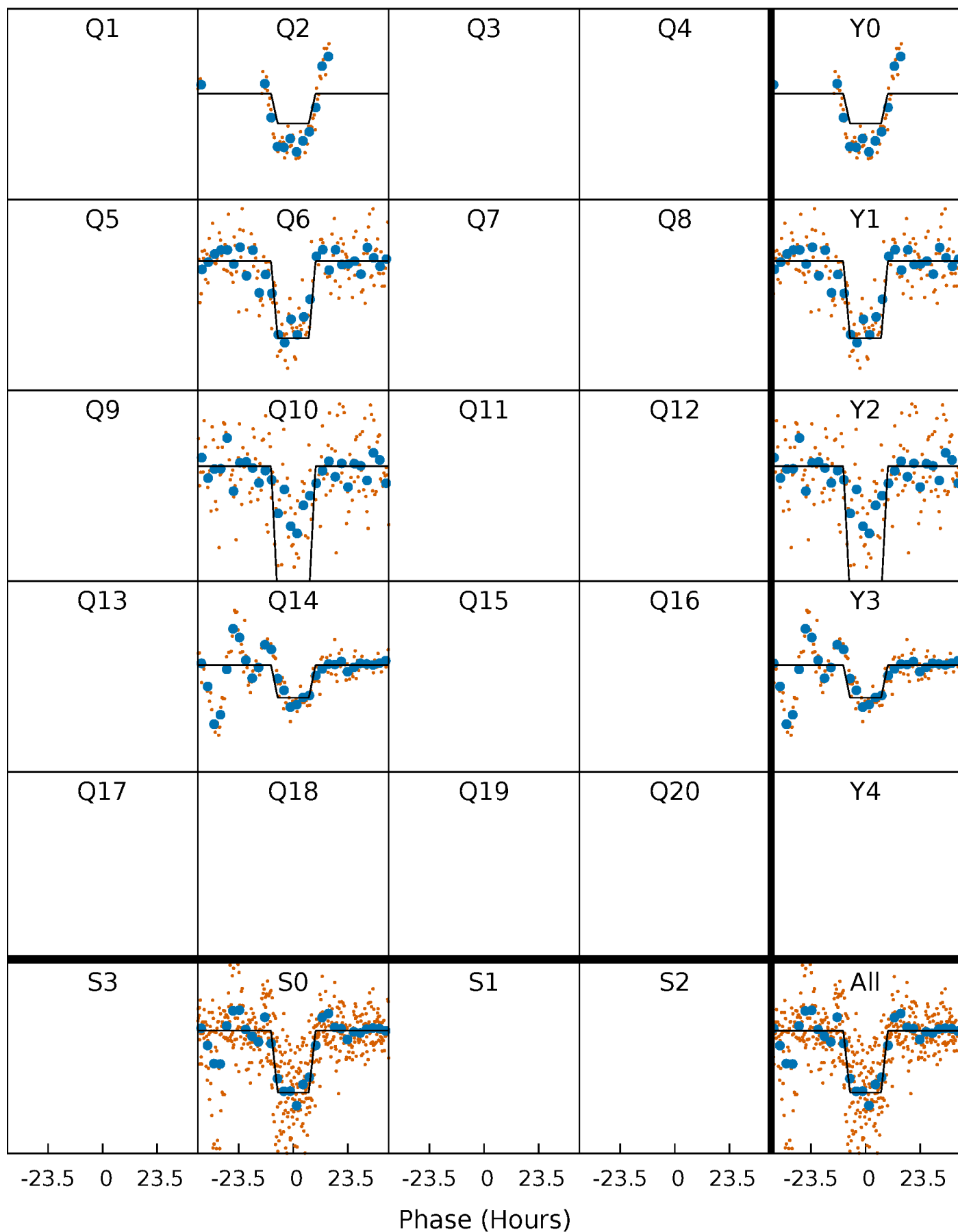
DV Quarter-Phased Transit Curves

TCE 008374582-04 P=358.917937 Days $T_0=231.955857$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

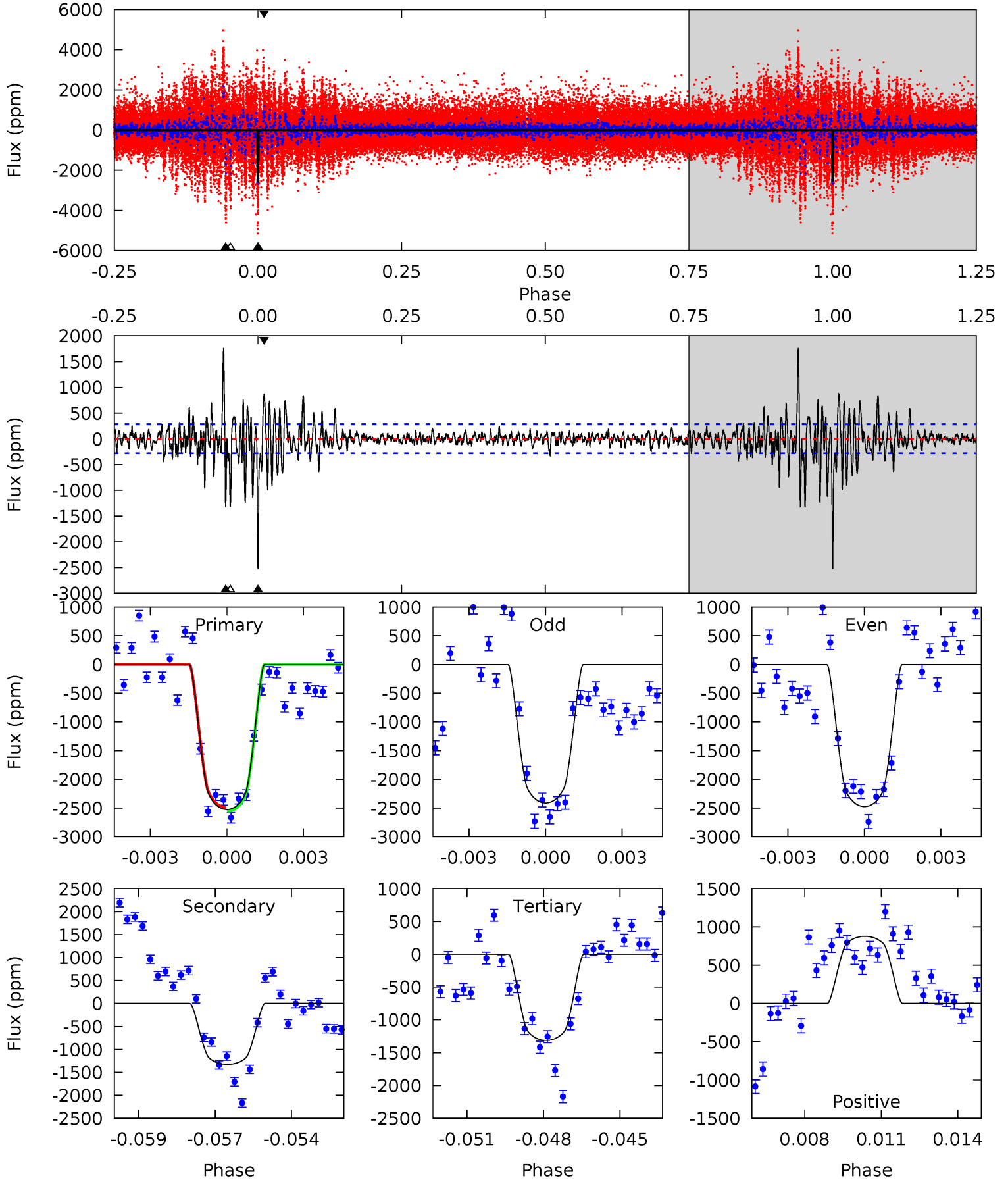
TCE 008374582-04 P=358.901859 Days $T_0=231.958580$ (BKJD)



DV Model-Shift Uniqueness Test

008374582-04, P = 358.917937 Days, E = 231.955857 Days

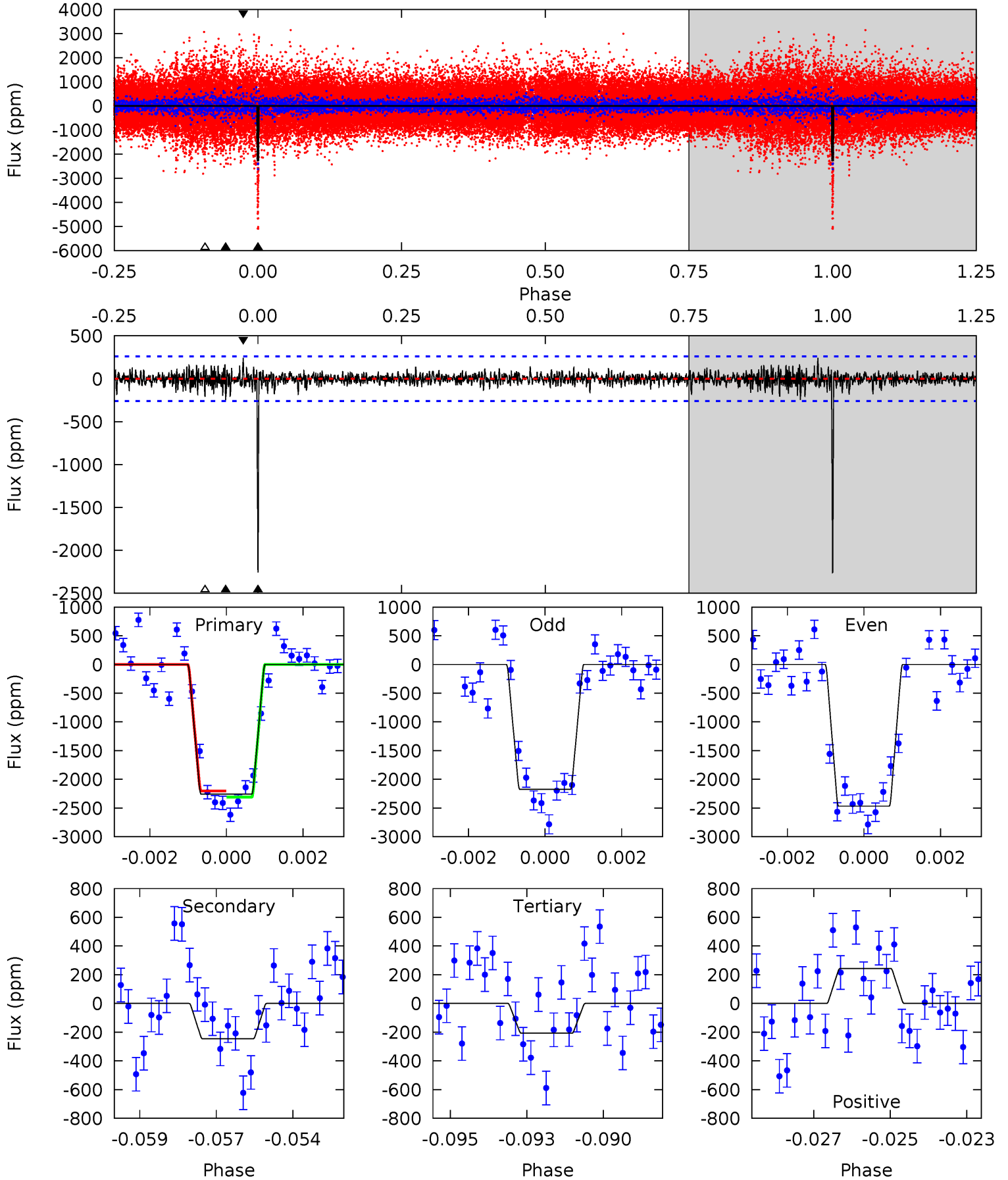
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.3	24.8	24.6	16.4	5.26	2.99	4.13	22.7	30.9	0.25	8.42	0.58	0.99	0.41	0.58



Alt Model-Shift Uniqueness Test

008374582-04, P = 358.901859 Days, E = 231.958580 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.0	5.03	4.23	4.97	5.30	3.05	0.96	41.8	41.1	0.80	0.06	3.05	1.07	0.10	1.09



Stellar Parameters For KIC 008374582

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5750^{+156}_{-190}	$4.538^{+0.042}_{-0.178}$	$-0.040^{+0.250}_{-0.300}$	$0.882^{+0.215}_{-0.086}$	$0.980^{+0.091}_{-0.125}$	$2.011^{+0.357}_{-0.926}$
	+3%/-3%	+1%/-4%	+625%/-750%	+24%/-10%	+9%/-13%	+18%/-46%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008374582-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1327 ± 53	$5.97^{+0.86}_{-0.57}$	343^{+21}_{-16}	4627^{+166}_{-155}	19296^{+3852}_{-4053}
Alt.	-247 ± 49	$4.88^{+0.69}_{-0.57}$	343^{+21}_{-15}	3677^{+174}_{-171}	5326^{+1828}_{-1529}

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

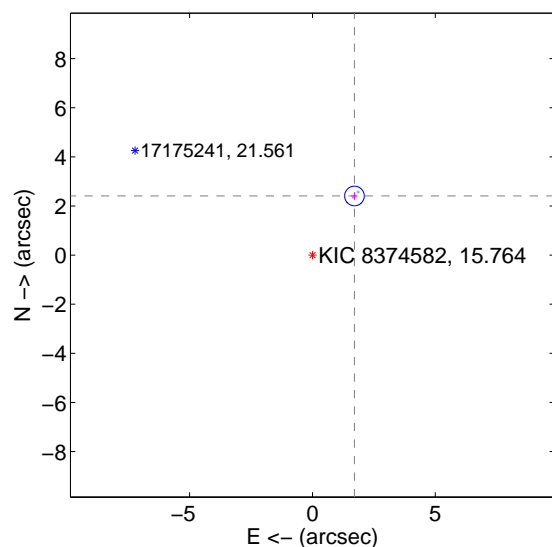
Supplemental centroid analysis for 008374582-04. Kepler magnitude: 15.76. Transit SNR 11.47

There are 2 quarters with good PRF difference image offsets

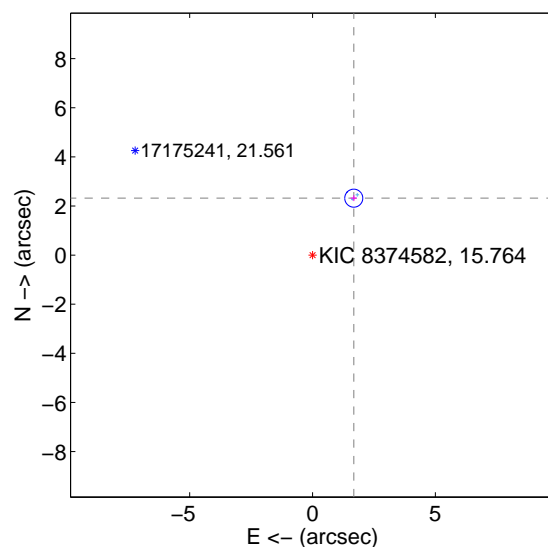
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.953 ± 0.133	22.19	-1.710 ± 0.132	2.407 ± 0.134
PRF-fit source offset from KIC position	2.862 ± 0.122	23.39	-1.679 ± 0.127	2.317 ± 0.120
photometric centroid source offset	3.57 ± 1.55	2.31	3.12 ± 1.49	-1.73 ± 1.72

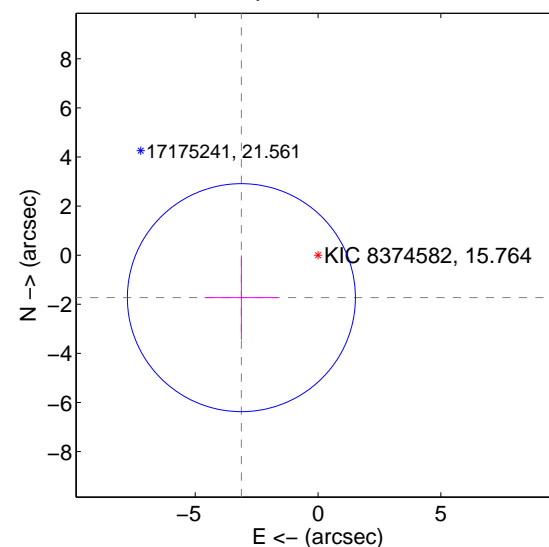
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

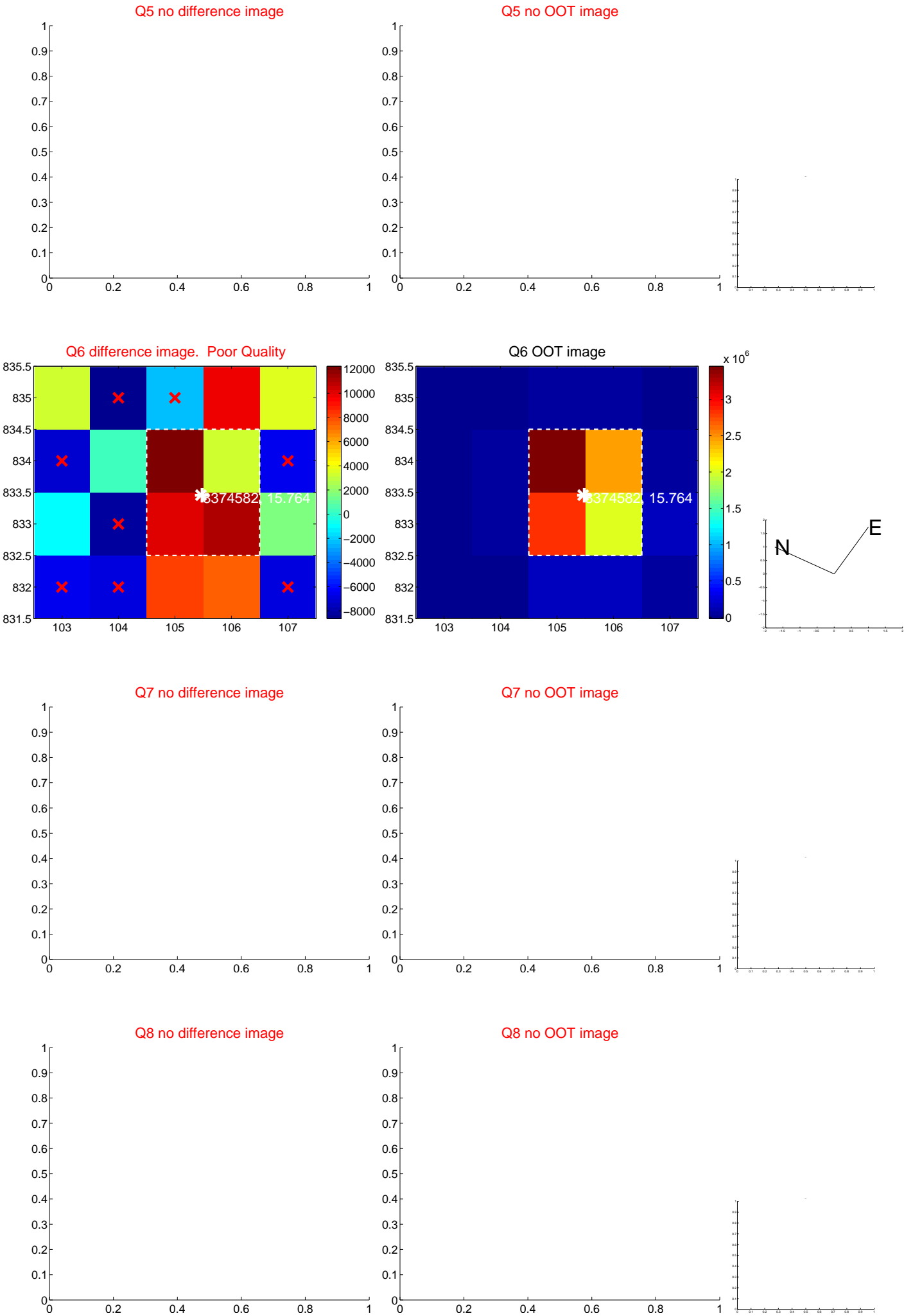


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

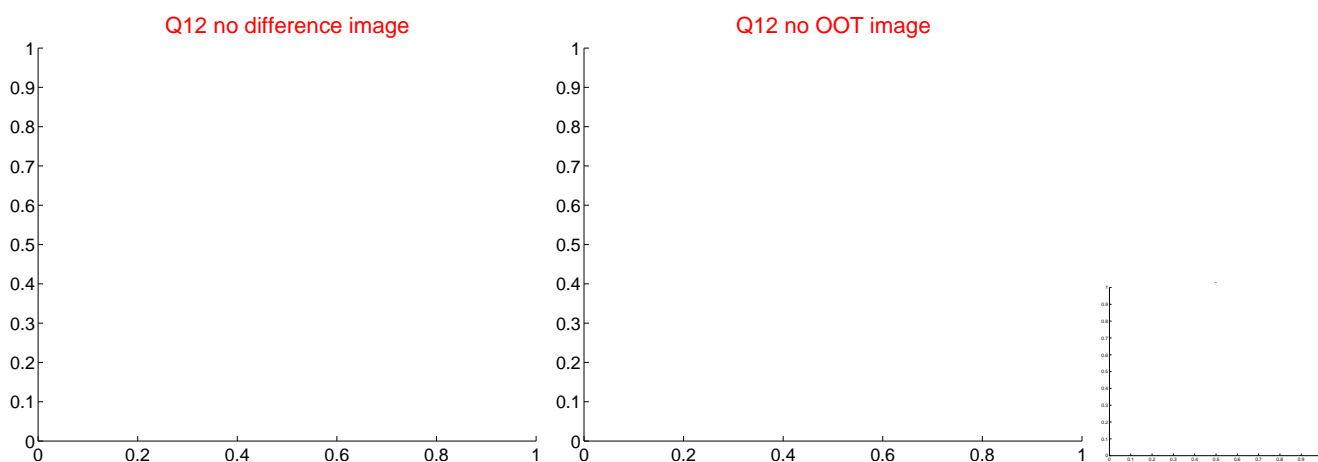
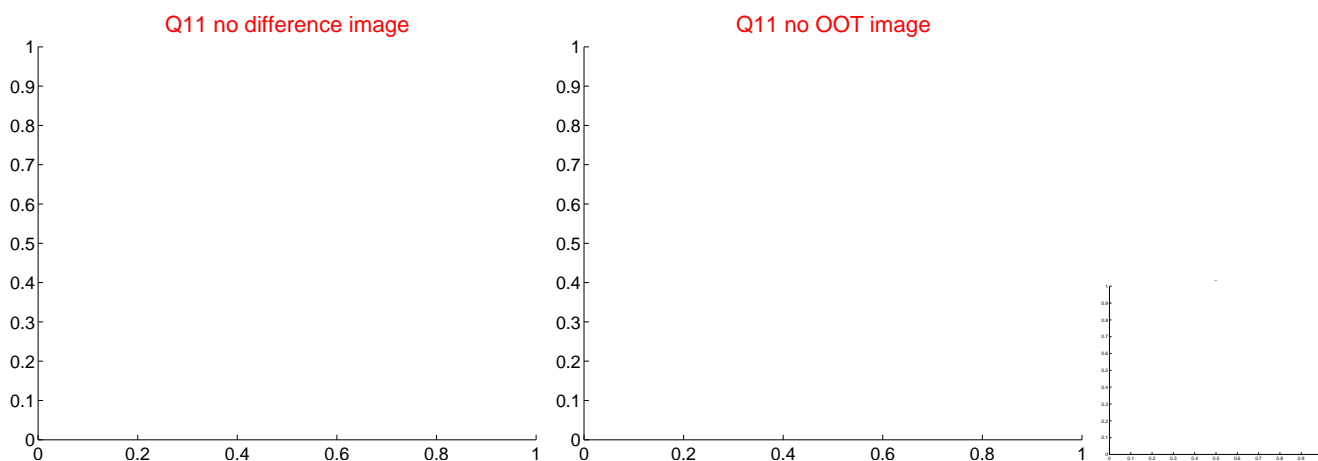
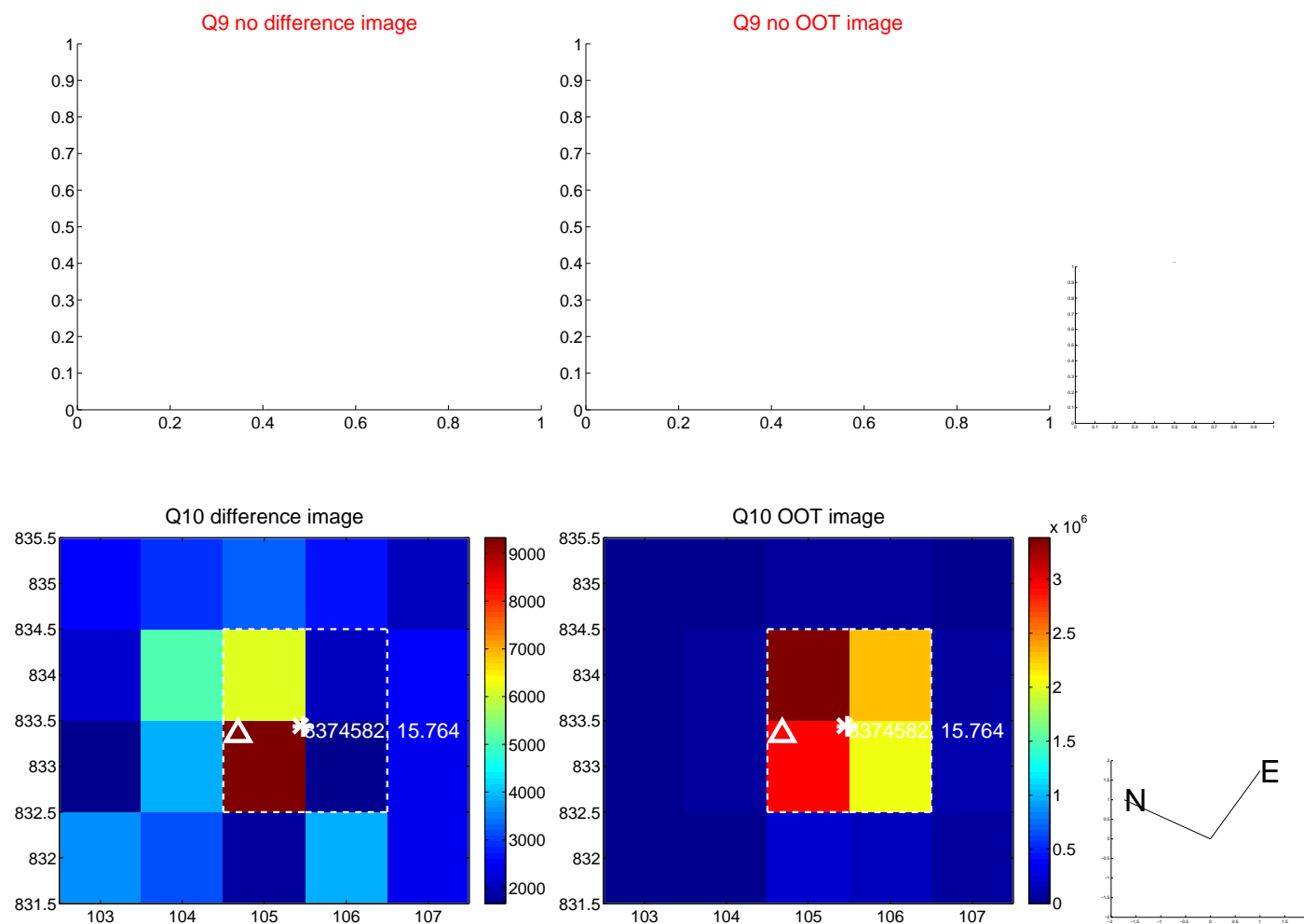
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



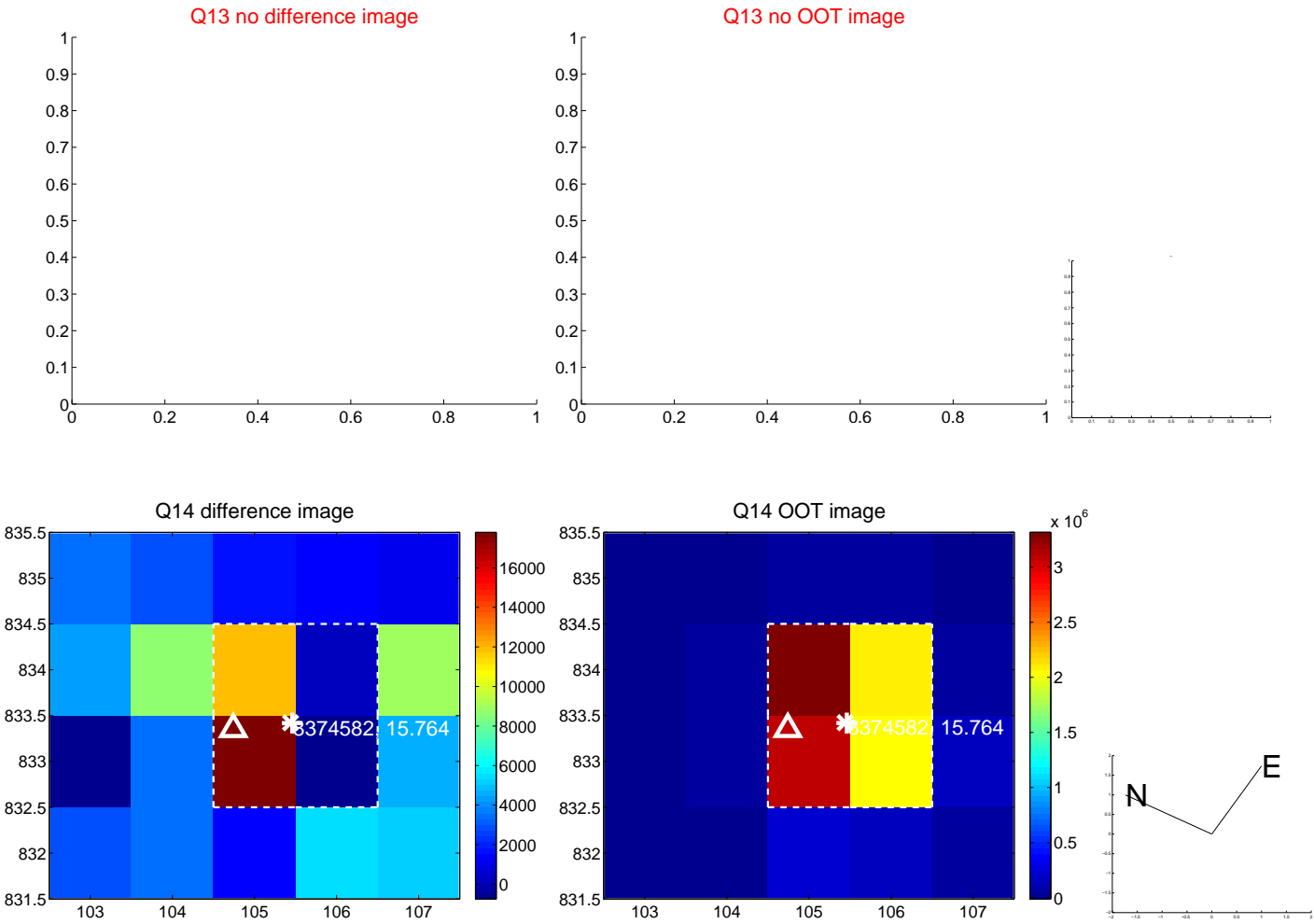
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

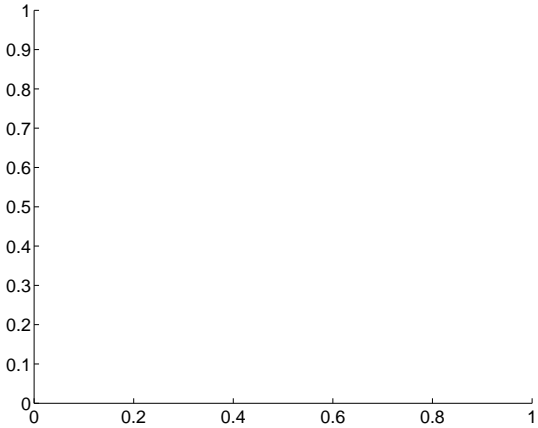


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

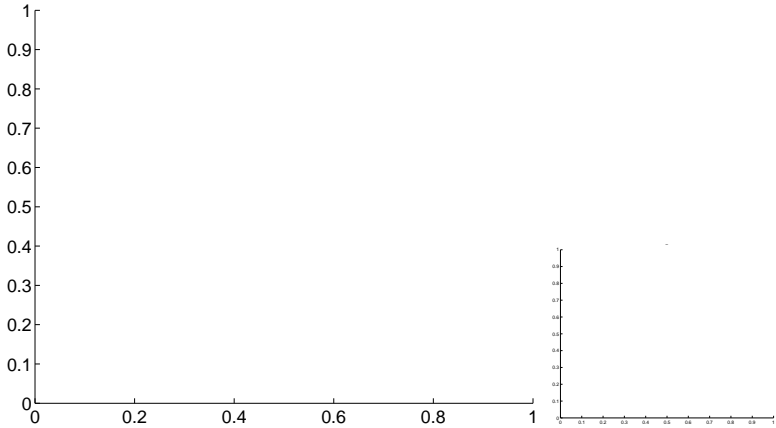


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

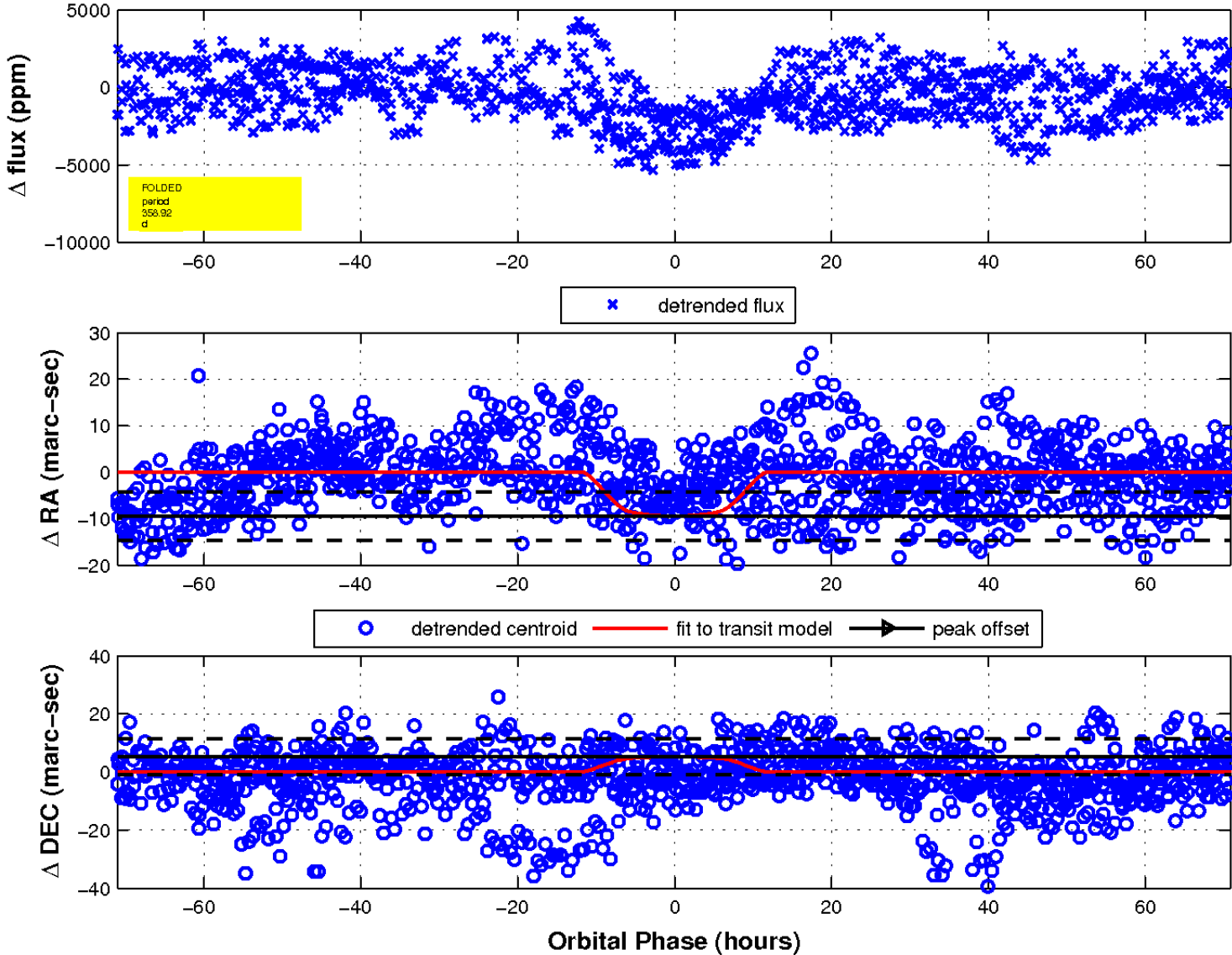
Q17 no difference image



Q17 no OOT image



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

