

KIC 004850809

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})
004850809-01	OBS	No	1.769442	131.608835	28.6	6.186	8.4	8.6	1.10	5964	0.73	1521.15
004850809-02	OBS	No	235.875178	272.715073	480.8	14.727	15.9	12.0	1.10	5964	2.58	2.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004850809-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
004850809-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

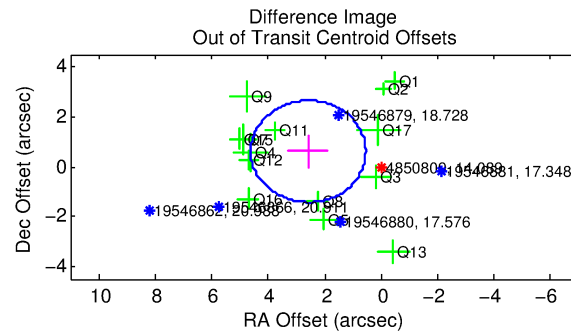
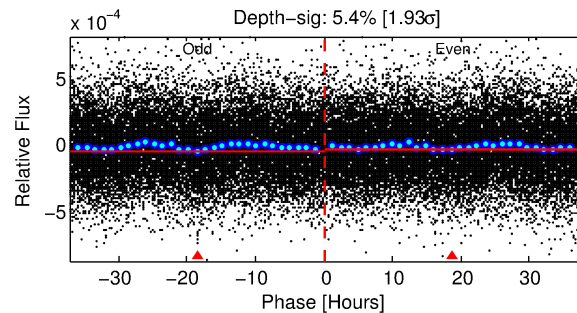
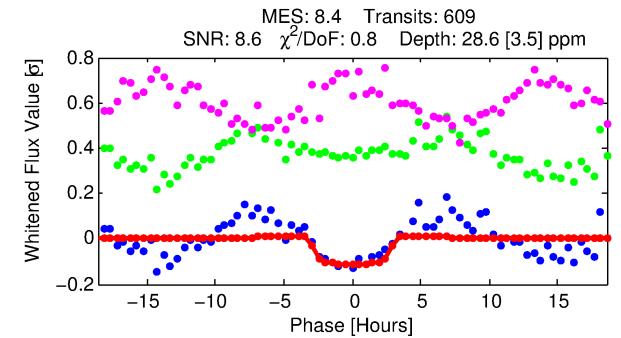
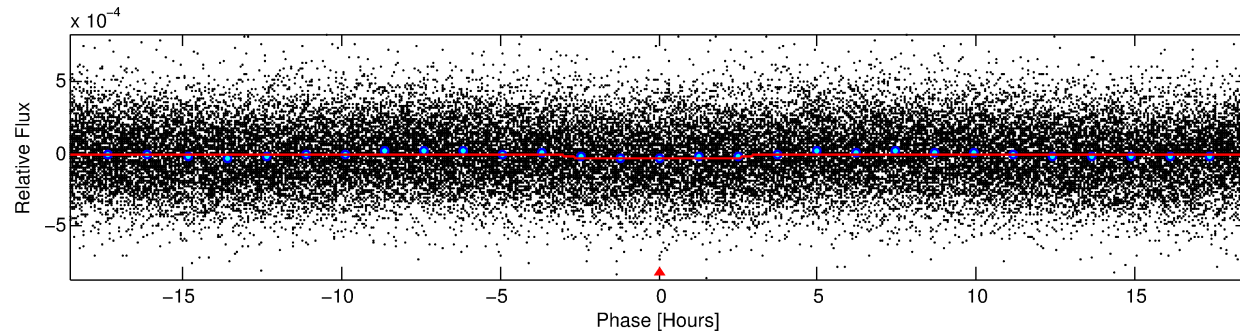
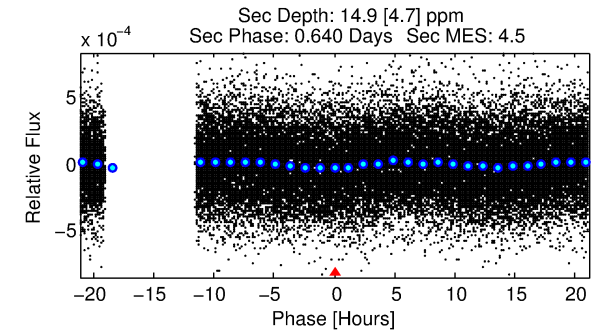
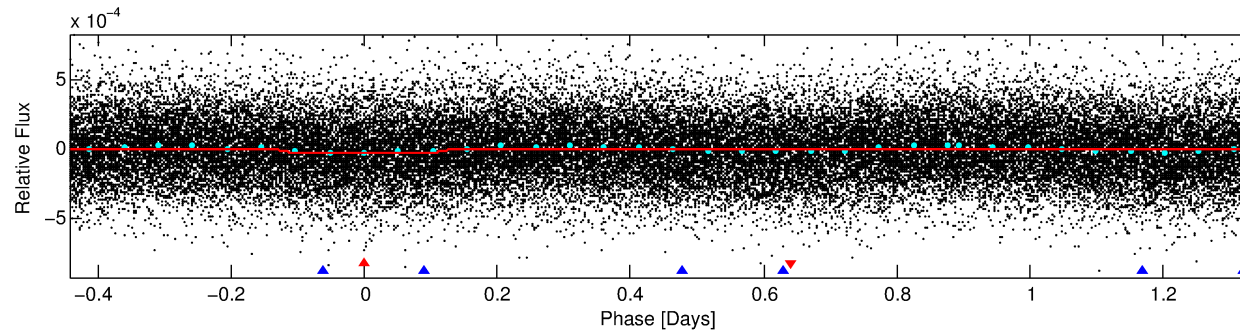
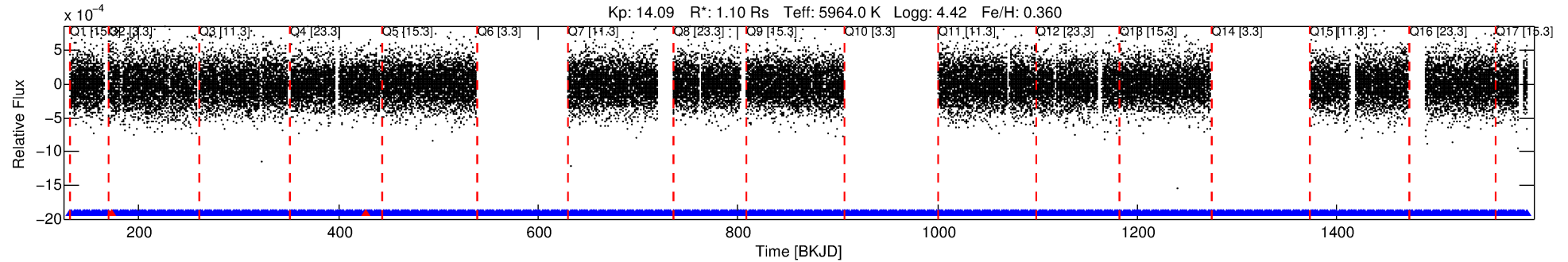
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004850809-01

No Significant Match Found

DV One-Page Summary

KIC: 4850809 Candidate: 1 of 2 Period: 1.769 d



DV Fit Results:

Period = 1.76944 [0.00003] d
Epoch = 131.6088 [0.0076] BKJD
Rp/R* = 0.0061 [0.0025]
a/R* = 1.26 [0.97]
b = 0.93 [0.29]
Seff = 1521.15 [635.53]
Teq = 1592 [166] K
Rp = 0.73 [0.38] Re
a = 0.0302 [0.0081] AU
Ag = 13.97 [13.36] [0.97σ]
Teffp = 4760 [1051] K [2.98σ]

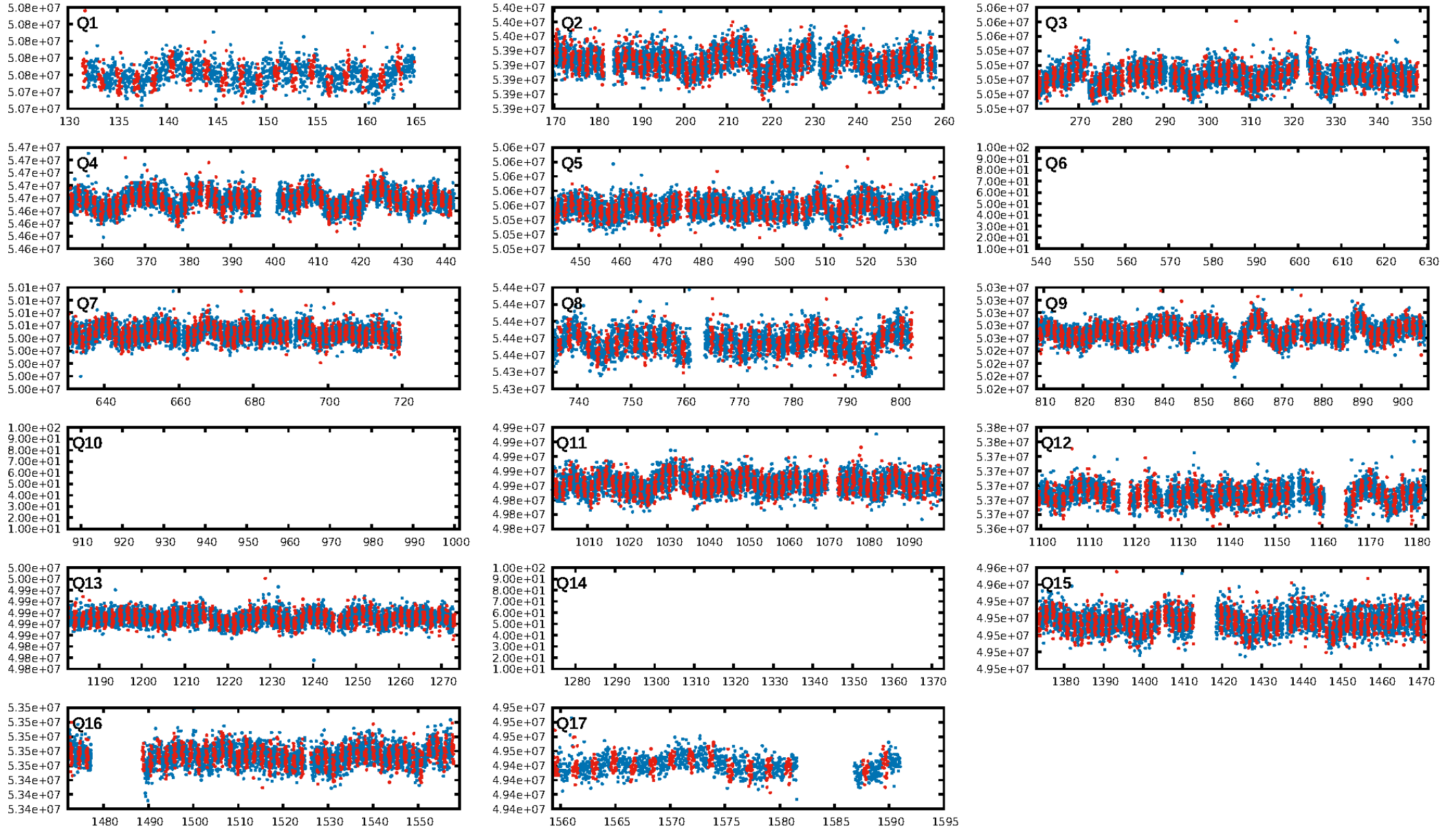
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [351.74σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.75e-14
RollingBand-fgt: 1.00 [573/575]
GhostDiagnostic-chr: 0.1331
Centroid-sig: 0.0%
Centroid-so: 4.877 arcsec [3.24σ]
OotOffset-rm: 2.651 arcsec [3.90σ]
KicOffset-rm: 2.666 arcsec [3.84σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.07 [1/14]
DiffImageOverlap-fno: 1.00 [14/14]

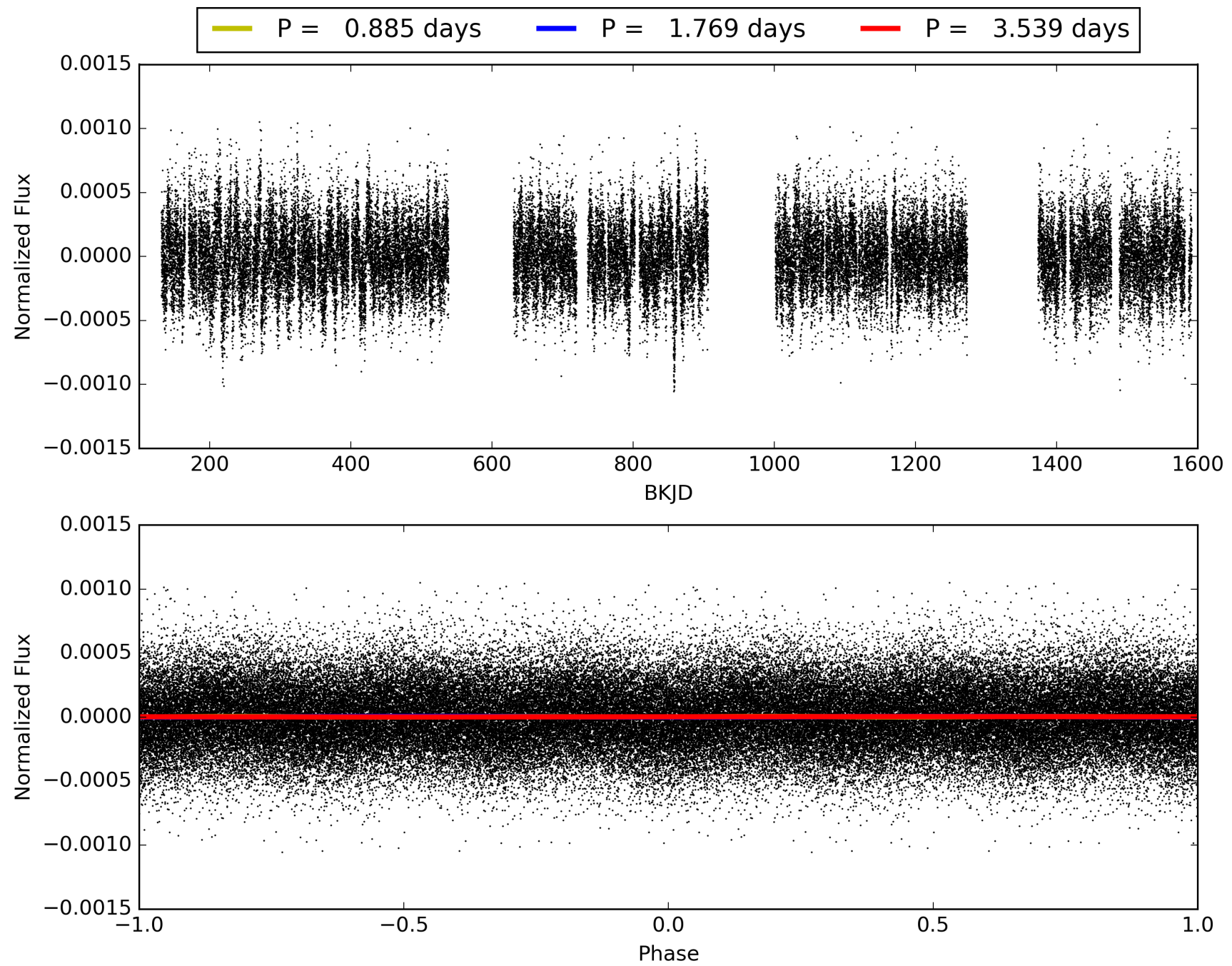
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:42:14 Z

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

TCE 004850809-01, PDC Light Curves

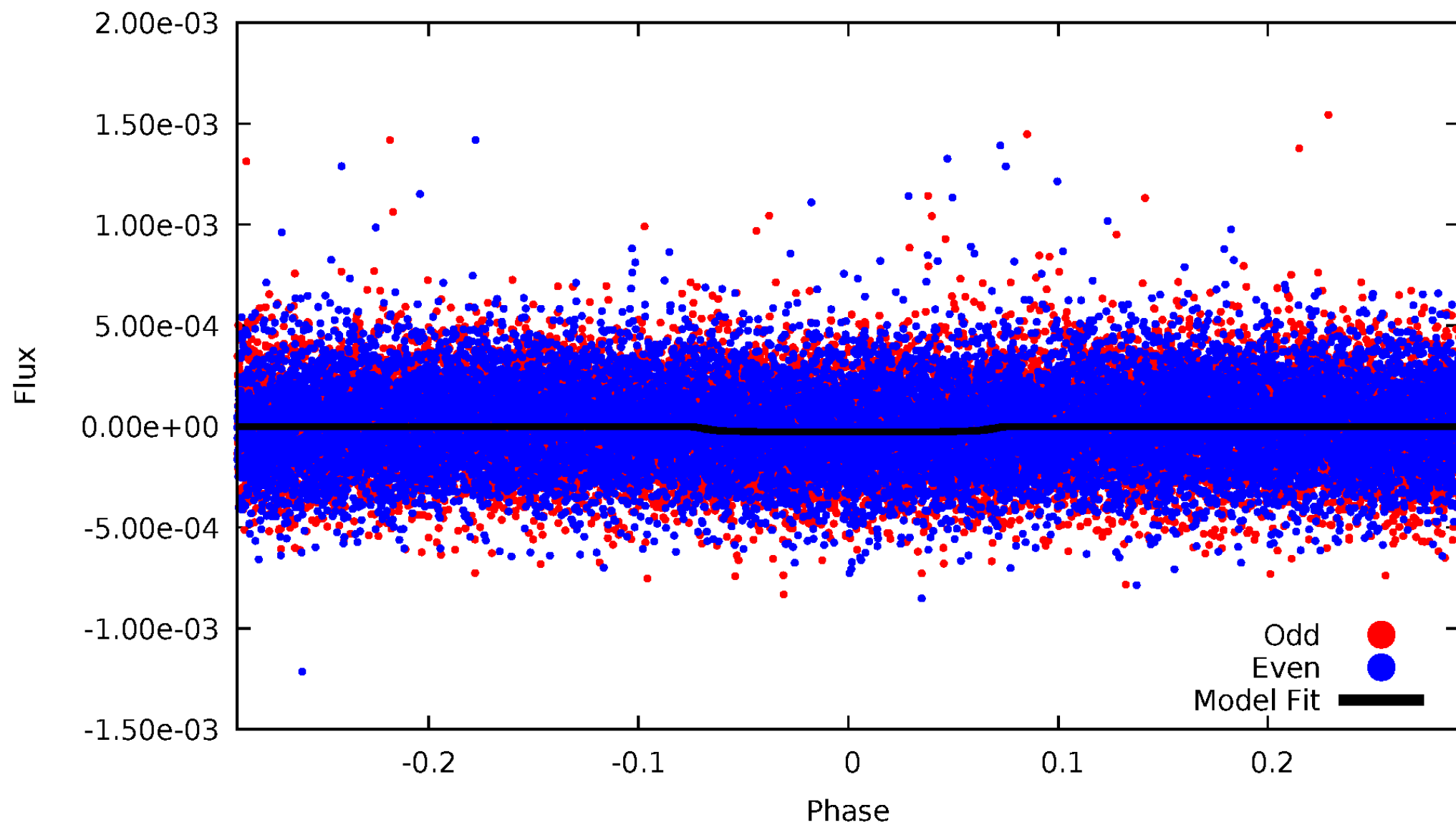


TCE 004850809-01



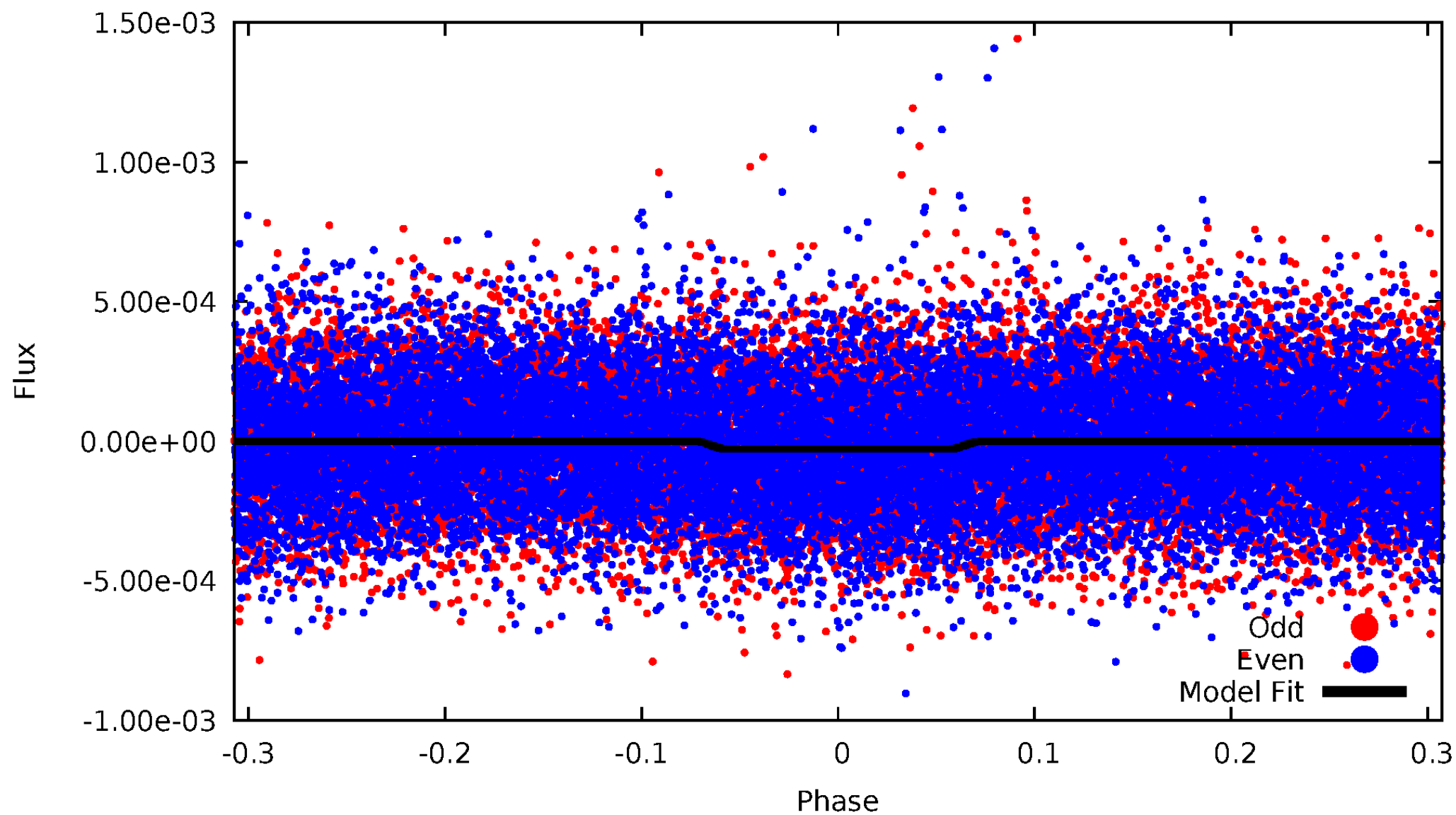
DV Odd/Even

TCE 004850809-01



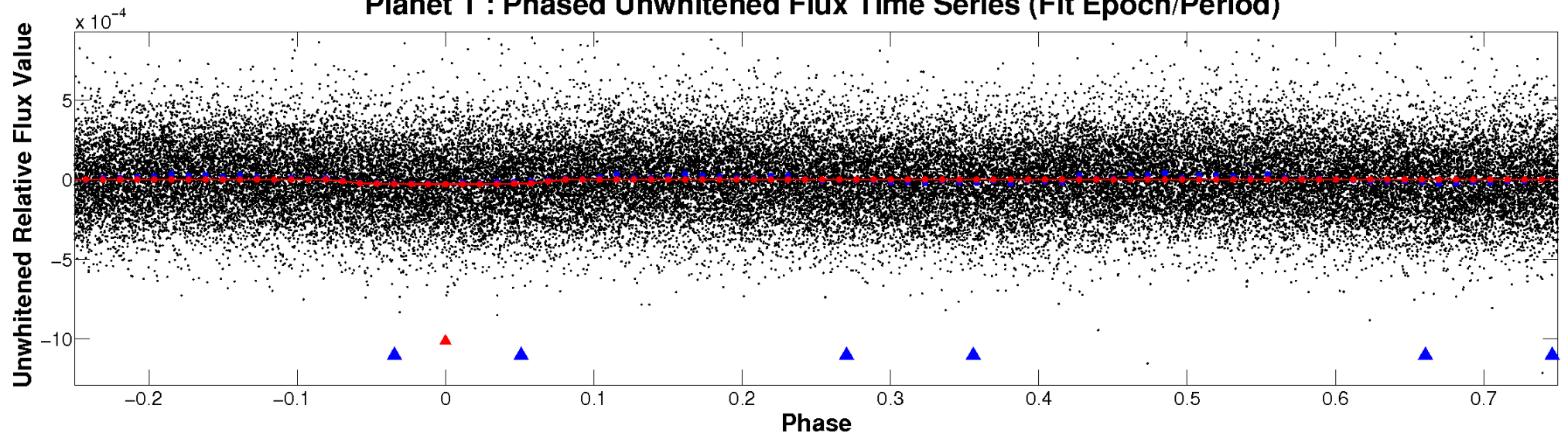
ALT Odd/Even

TCE 004850809-01

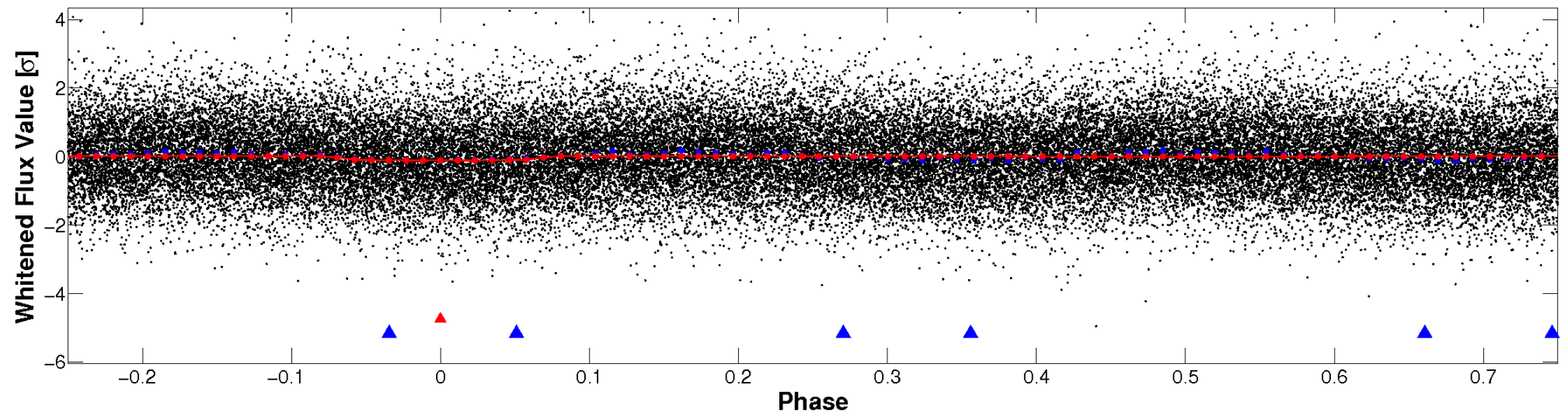


Non-Whitened Vs. Whitened Light Curve

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

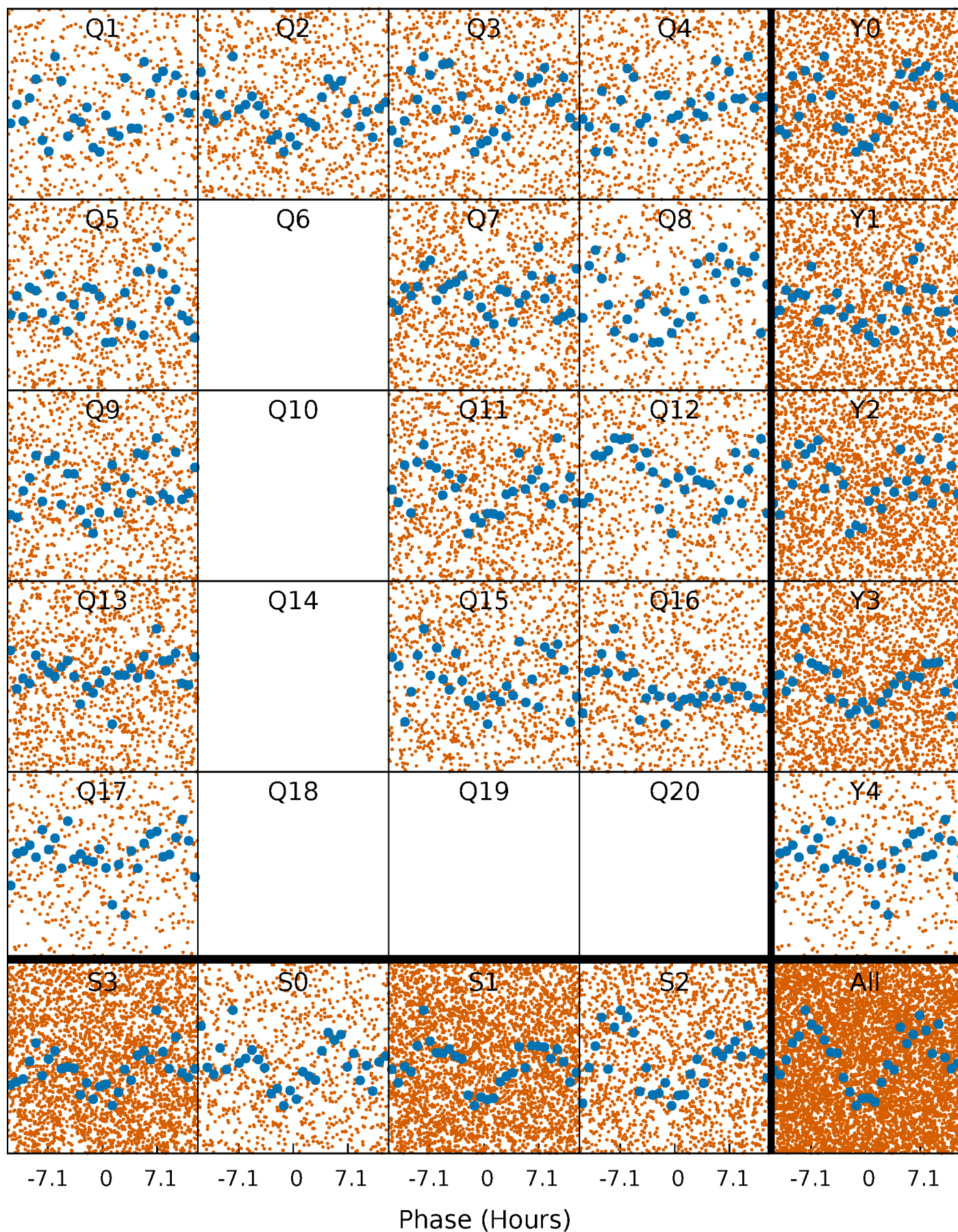


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



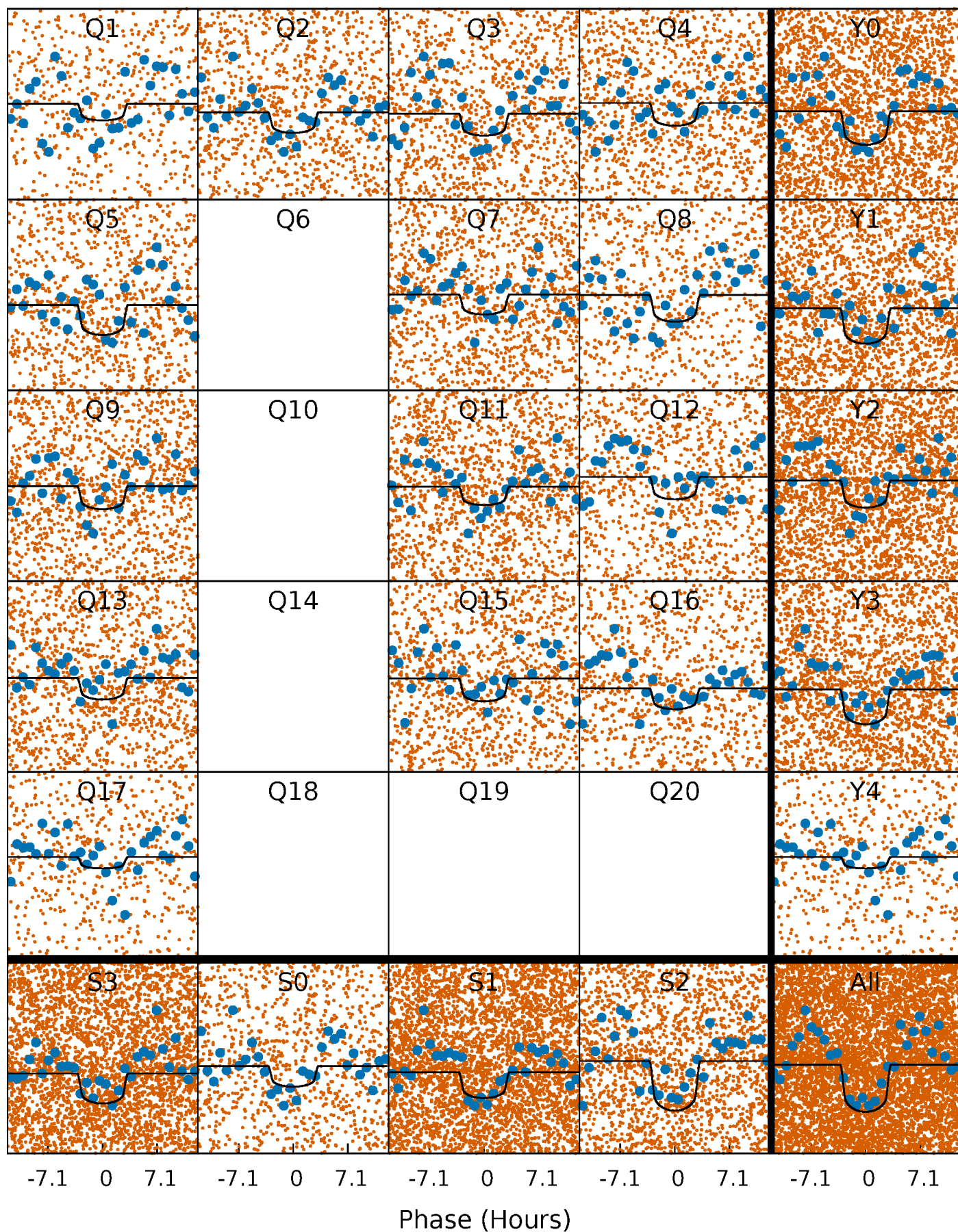
PDC Quarter-Phased Transit Curves

TCE 004850809-01 P= 1.769442 Days $T_0=131.608835$ (BKJD)



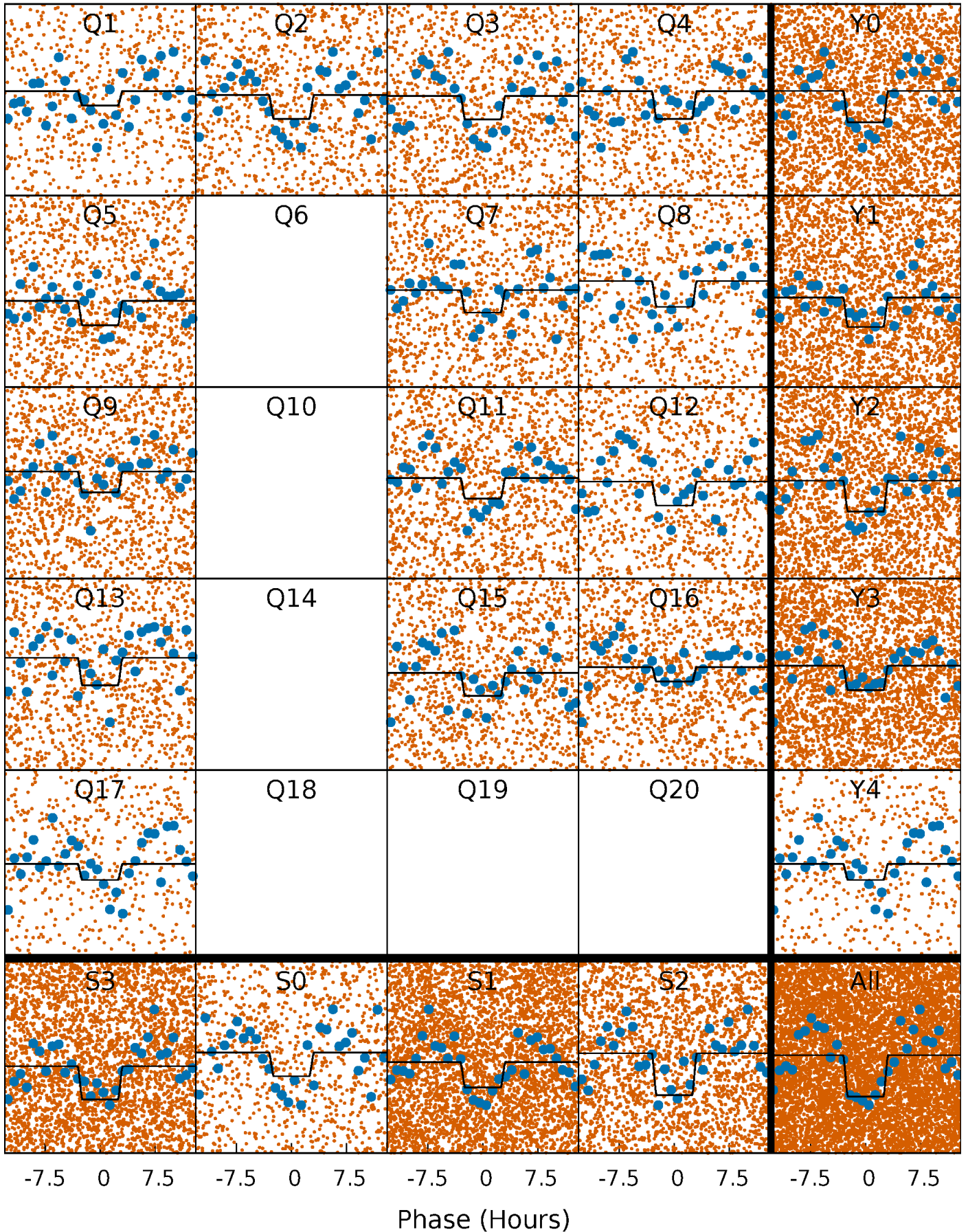
DV Quarter-Phased Transit Curves

TCE 004850809-01 P= 1.769442 Days $T_0=131.608835$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

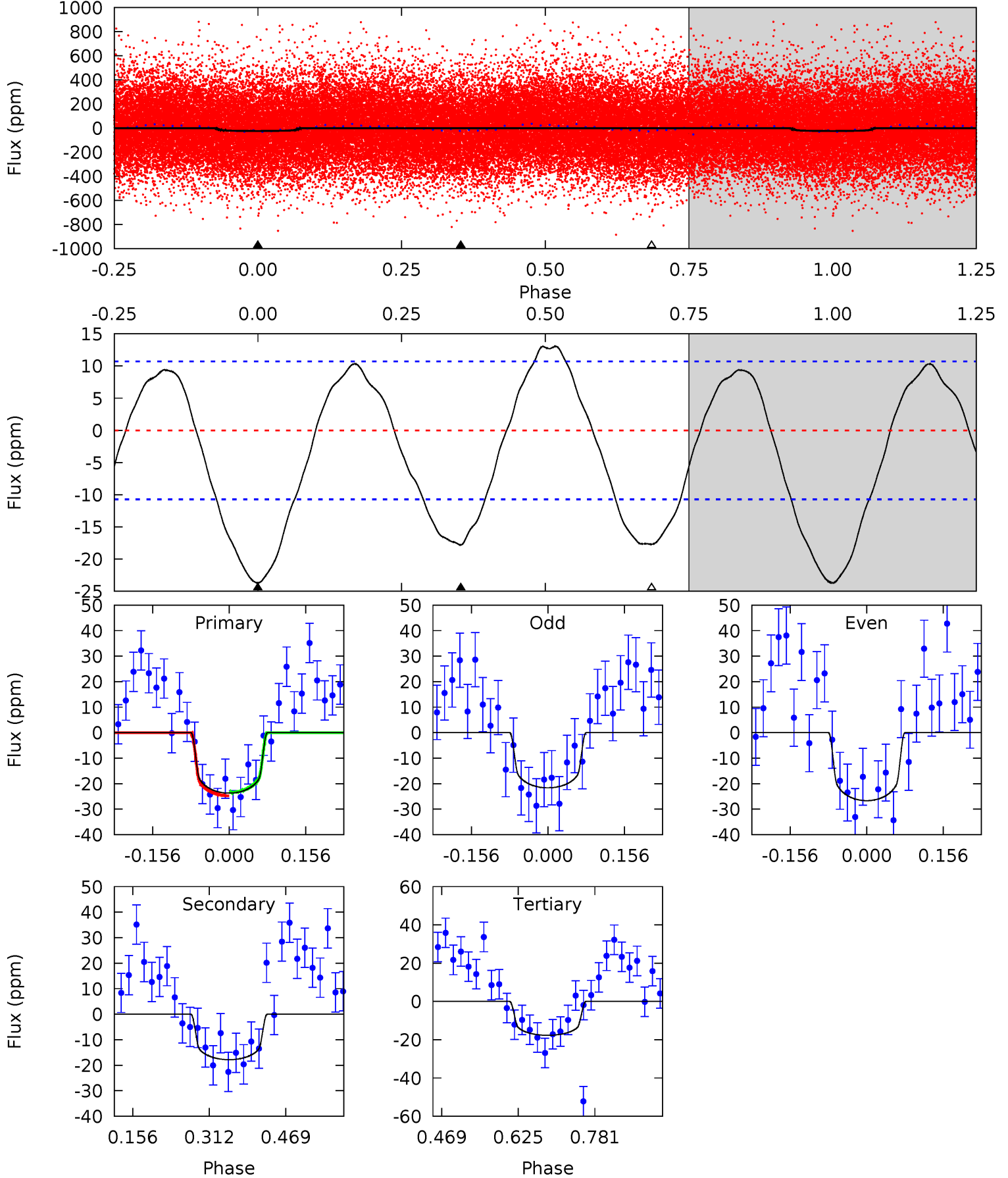
TCE 004850809-01 P= 1.769459 Days $T_0=131.596429$ (BKJD)



DV Model-Shift Uniqueness Test

004850809-01, P = 1.769442 Days, E = 129.839393 Days

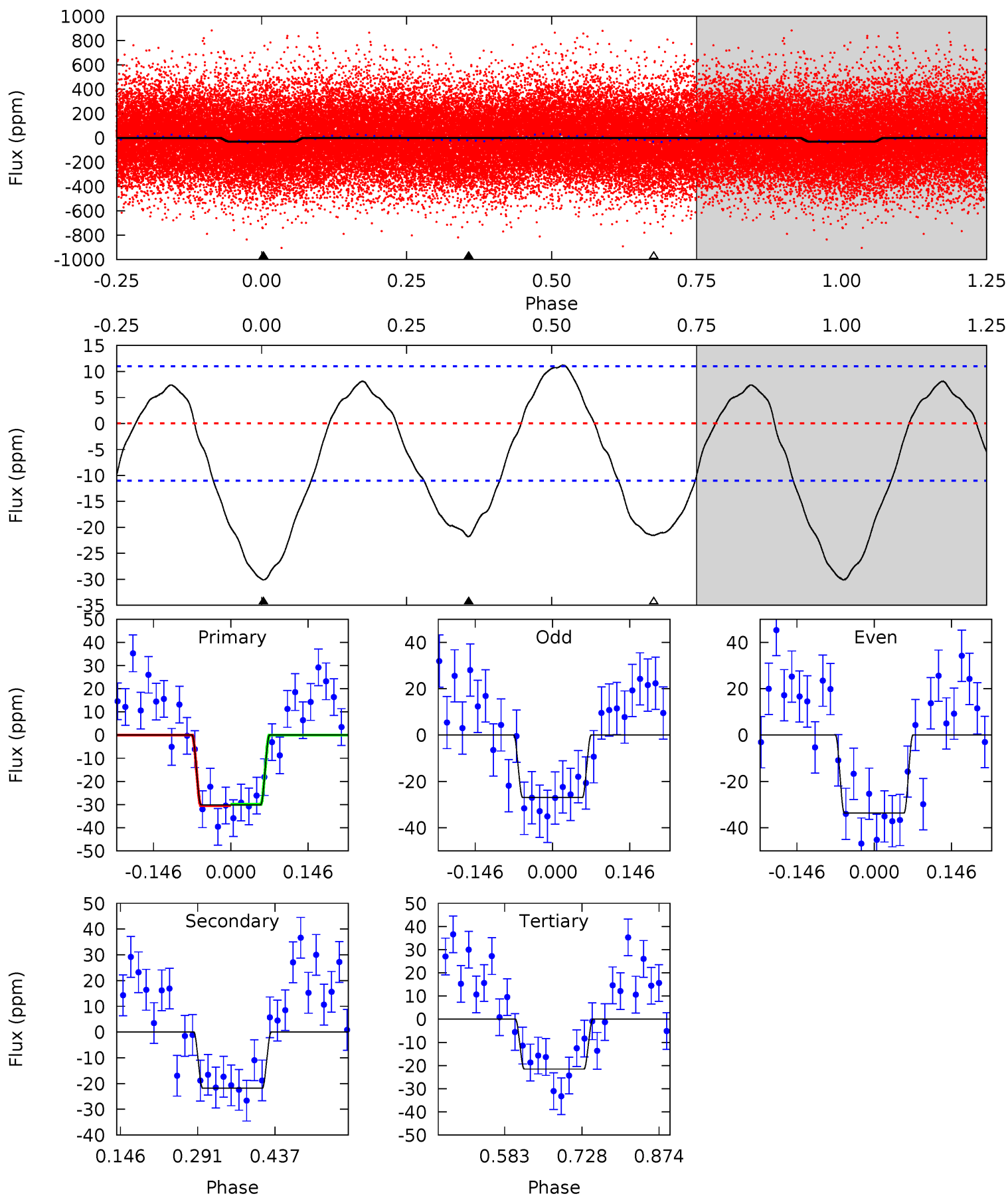
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.89	7.43	7.39	0	4.47	1.42	4.41	2.51	9.89	0.05	7.43	1.06	1.02	0.36	0.28



Alt Model-Shift Uniqueness Test

004850809-01, P = 1.769459 Days, E = 129.826970 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	8.87	8.78	0	4.49	1.45	4.56	3.49	12.3	0.10	8.87	1.36	0.94	0.27	0.11



Stellar Parameters For KIC 004850809

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5964^{+169}_{-211}	$4.419^{+0.054}_{-0.216}$	$0.360^{+0.100}_{-0.300}$	$1.105^{+0.350}_{-0.125}$	$1.173^{+0.125}_{-0.152}$	$1.223^{+0.359}_{-0.663}$
	+3%/-4%	+1%/-5%	+28%/-83%	+32%/-11%	+11%/-13%	+29%/-54%
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 004850809-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-18 ± 2	$0.78^{+0.32}_{-0.33}$	2264^{+190}_{-110}	5027^{+1403}_{-690}	14^{+28}_{-8}
Alt.	-22 ± 2	$0.70^{+0.31}_{-0.32}$	2271^{+157}_{-119}	5525^{+1924}_{-865}	22^{+53}_{-11}

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

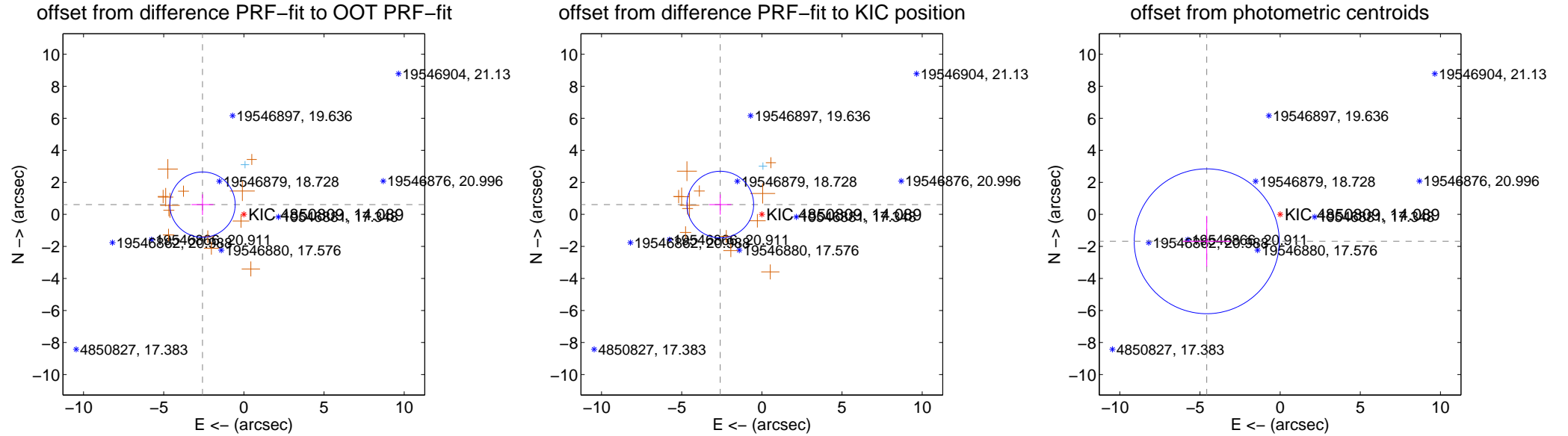
DV Centroid Data

Supplemental centroid analysis for 004850809-01. Kepler magnitude: 14.09. Transit SNR 8.56

There are 1 quarters with good PRF difference image offsets

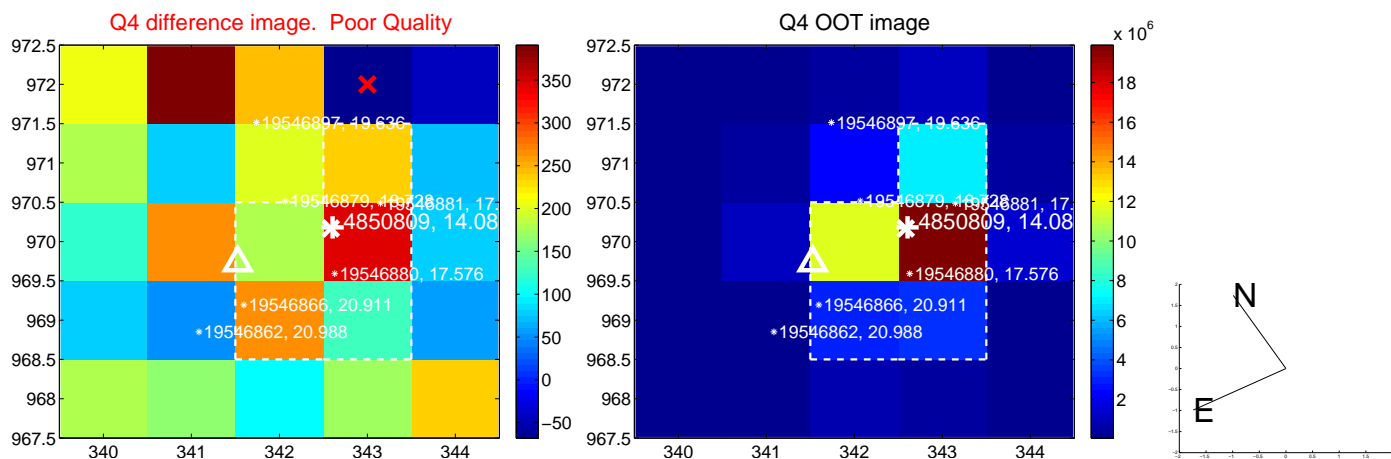
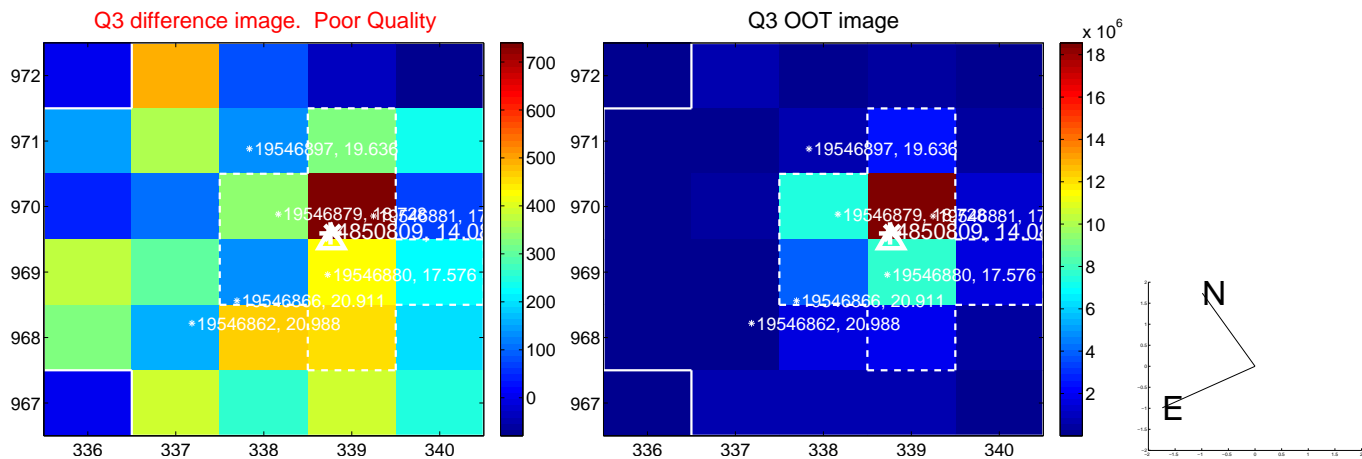
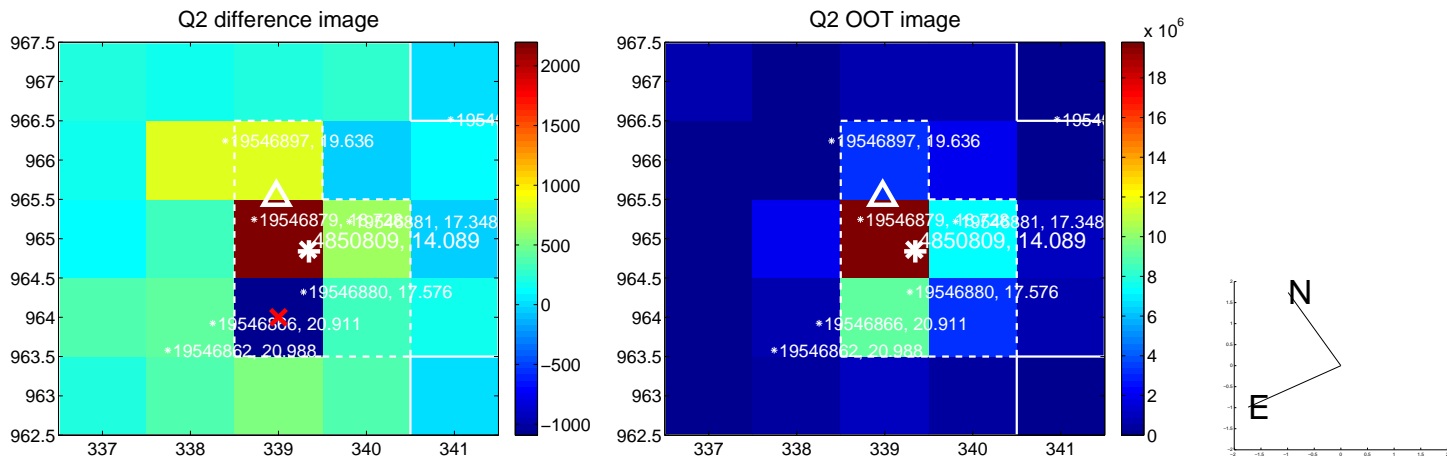
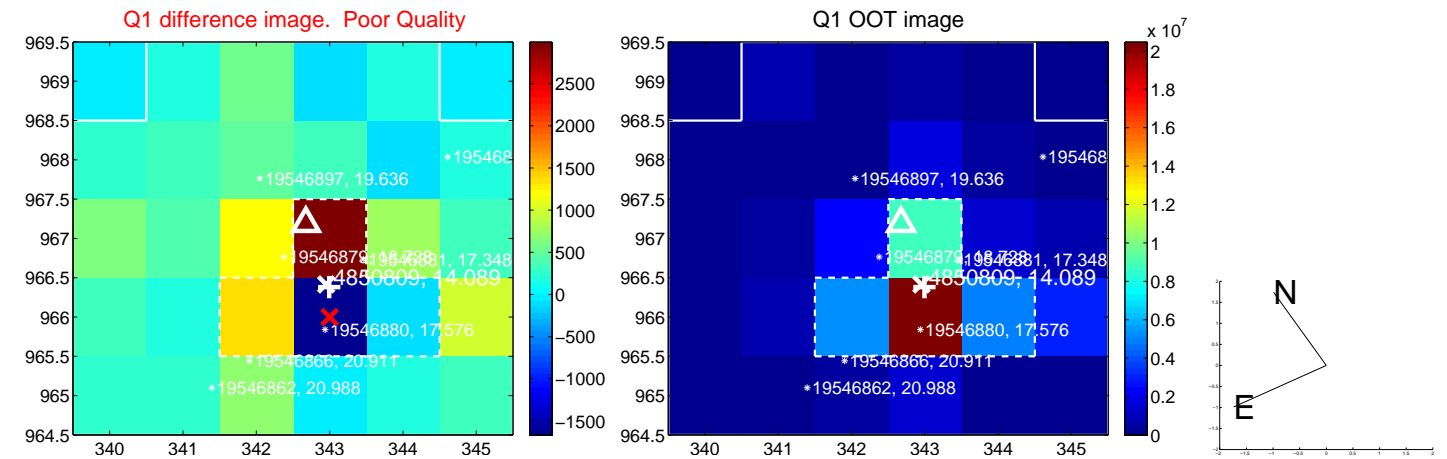
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.651 ± 0.680	3.90	2.580 ± 0.682	0.610 ± 0.644
PRF-fit source offset from KIC position	2.666 ± 0.694	3.84	2.594 ± 0.697	0.613 ± 0.634
photometric centroid source offset	4.88 ± 1.51	3.24	4.58 ± 1.50	-1.68 ± 1.59

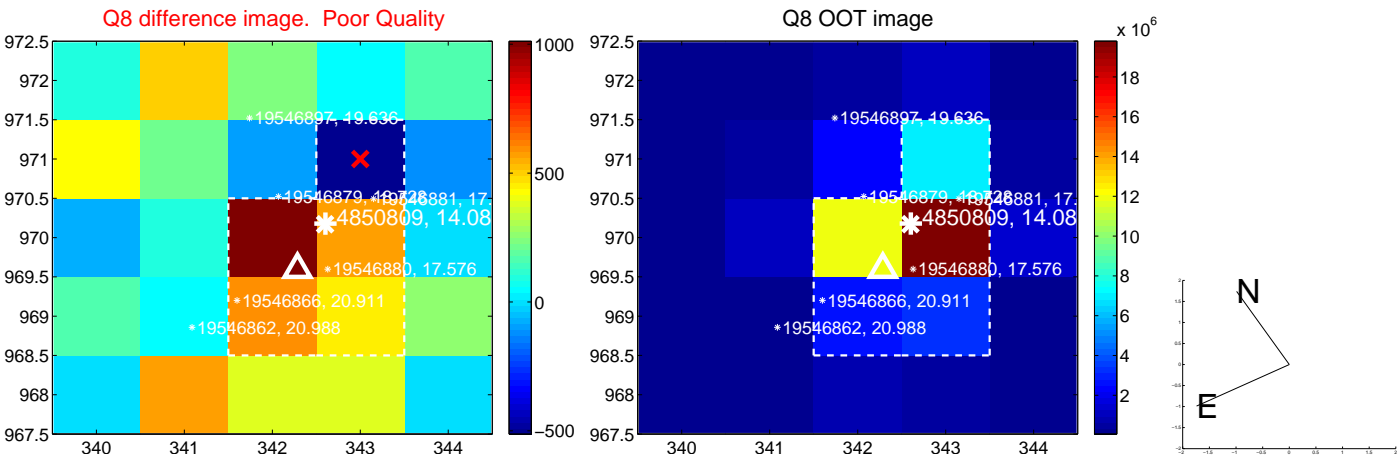
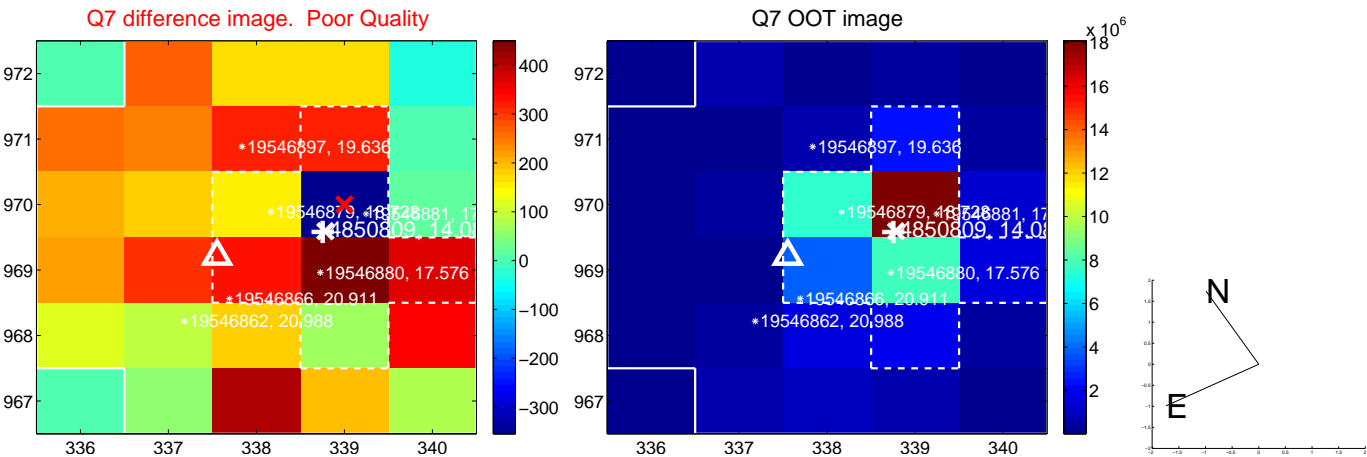
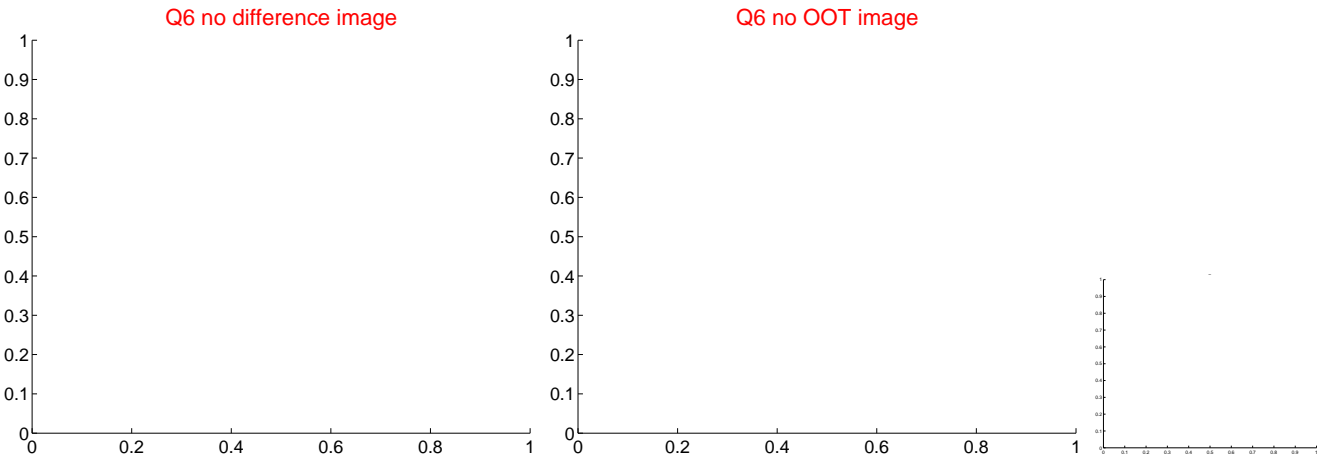
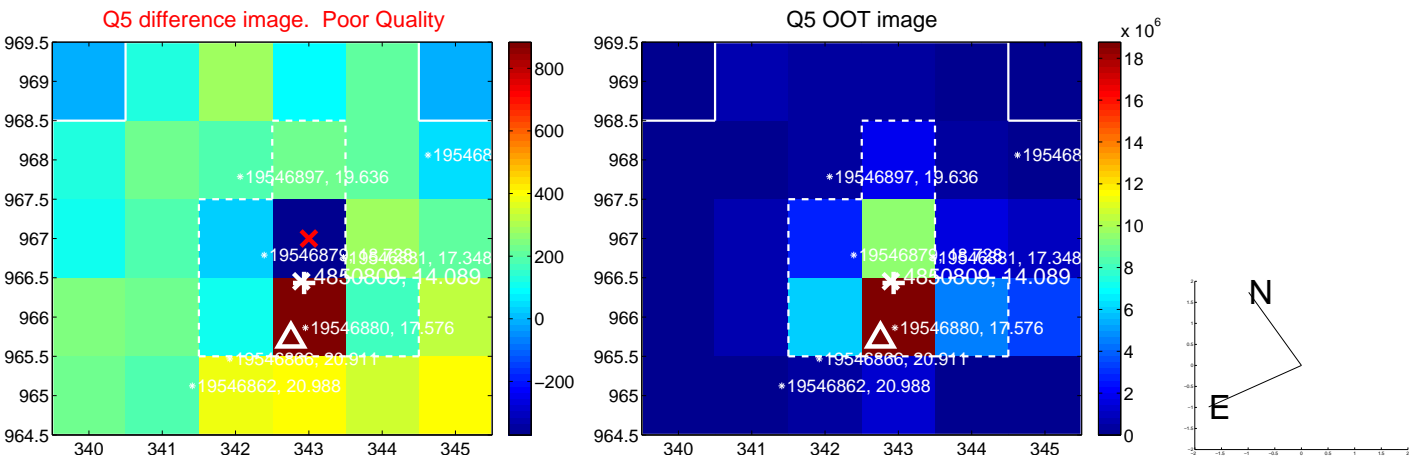


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

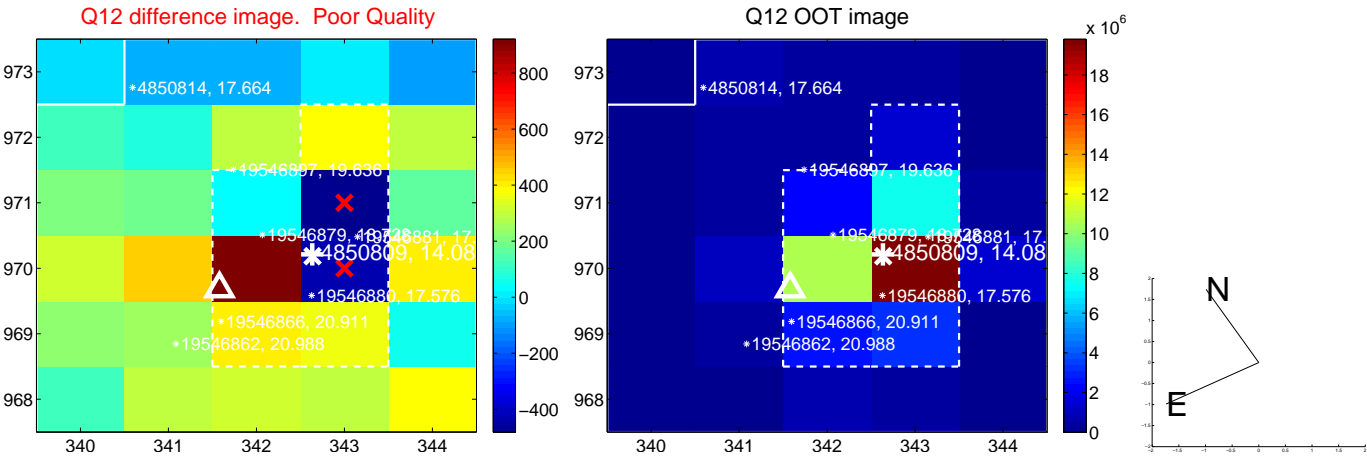
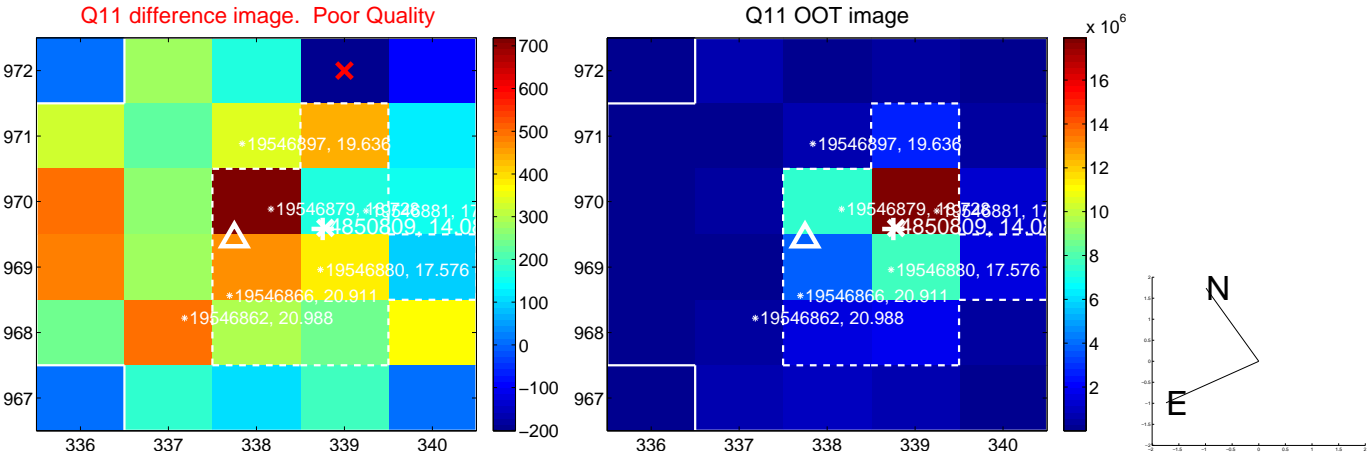
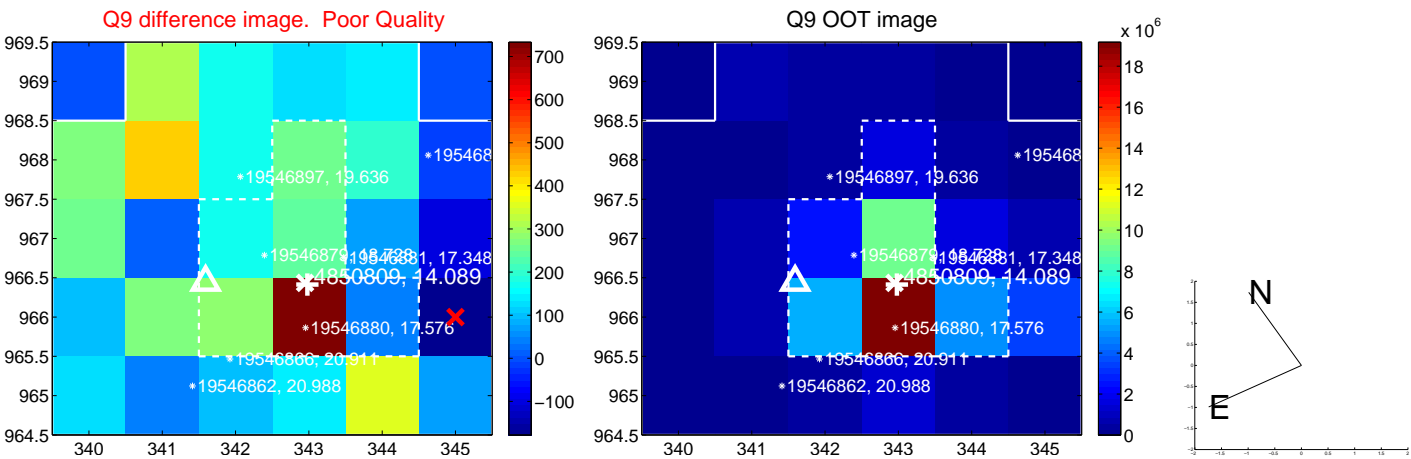
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



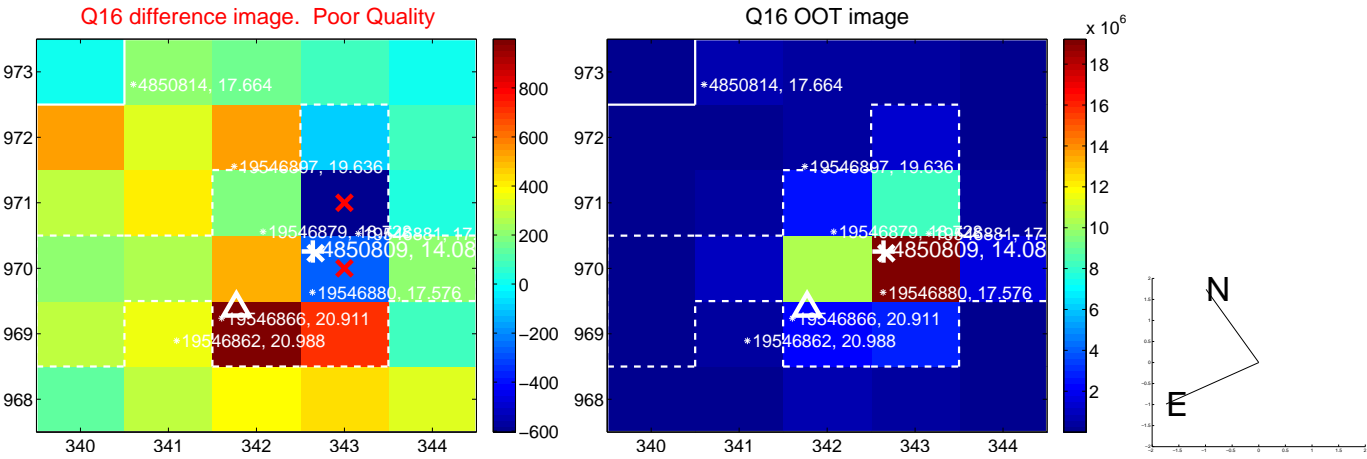
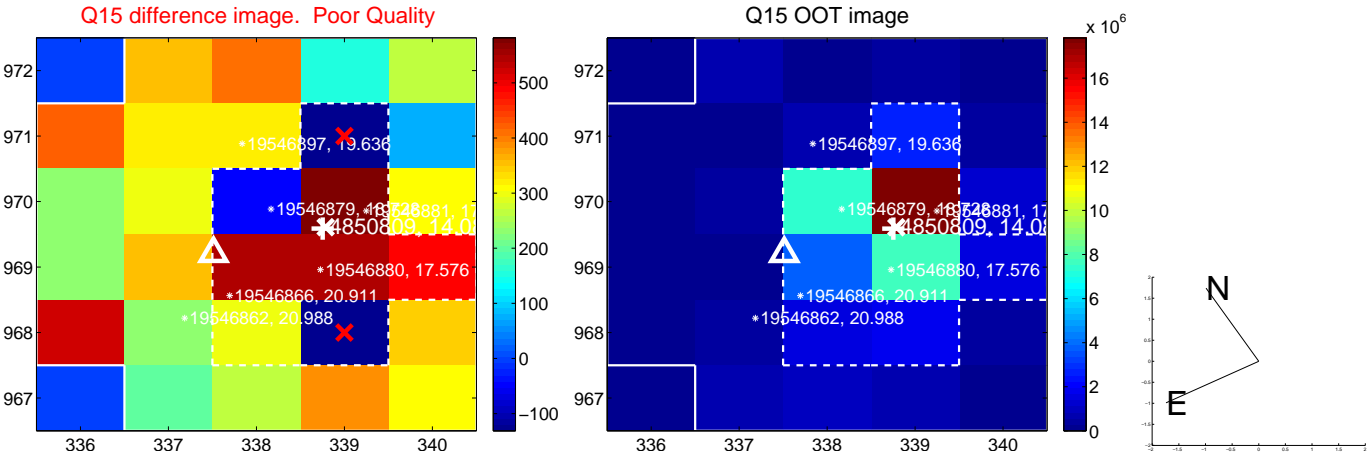
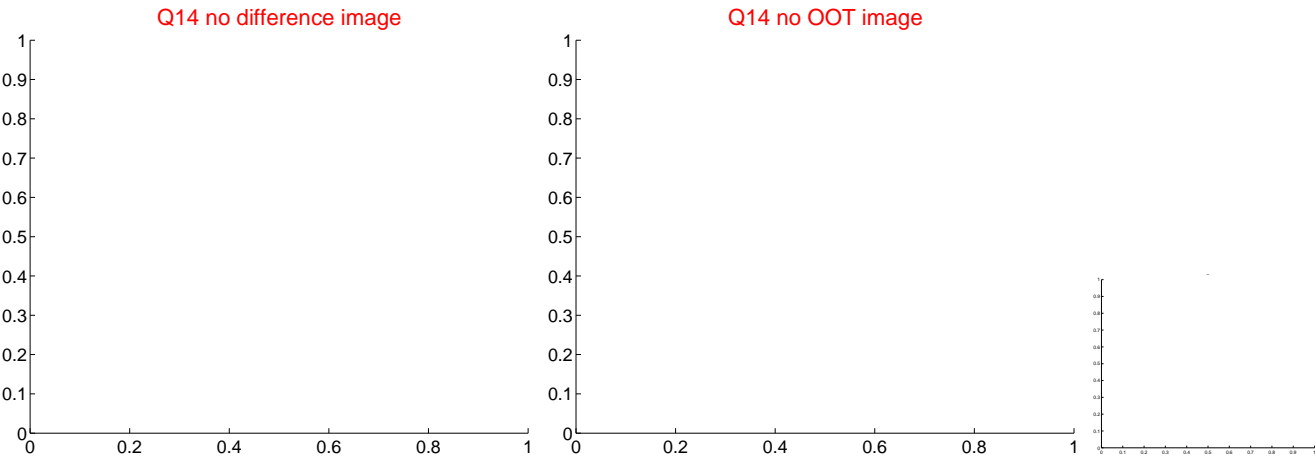
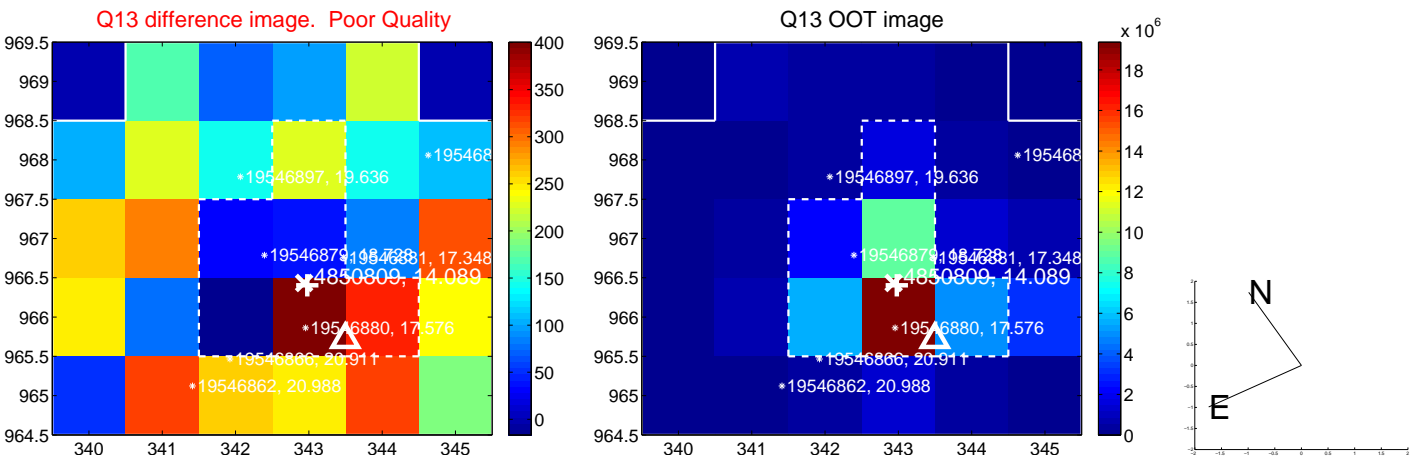
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



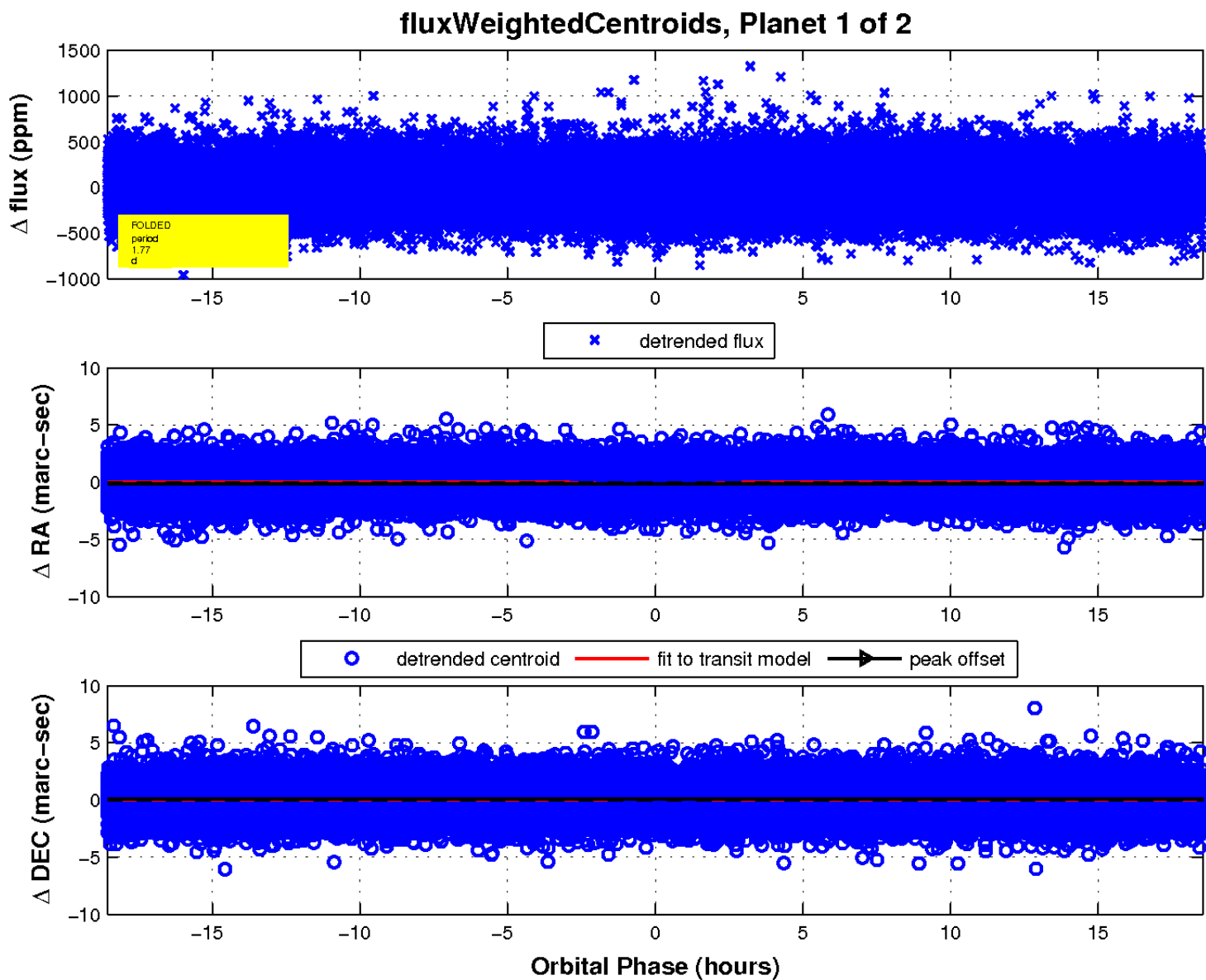
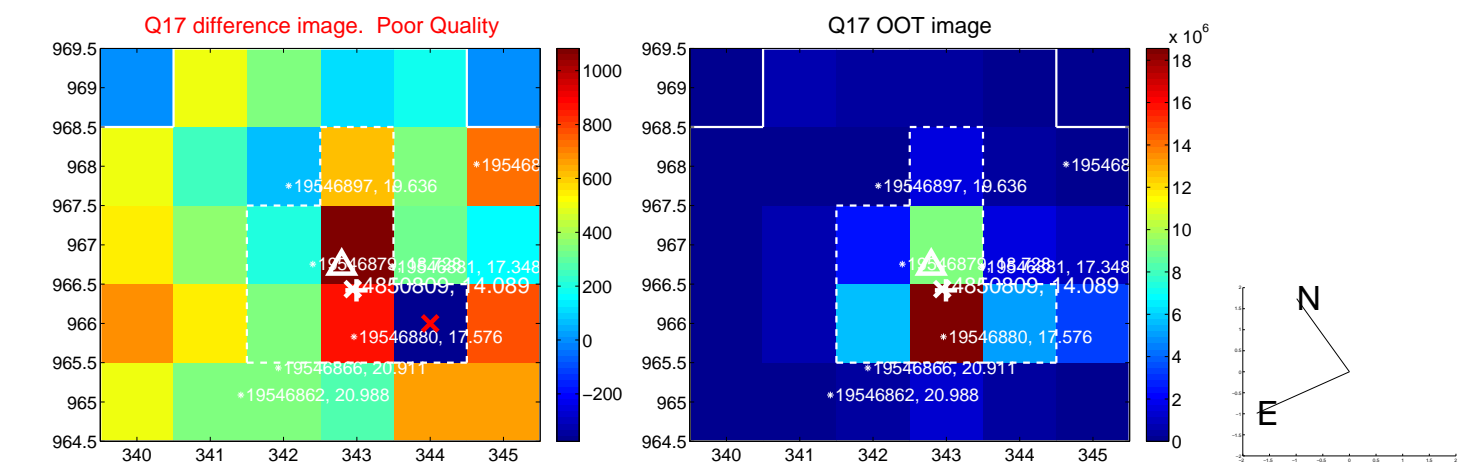
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



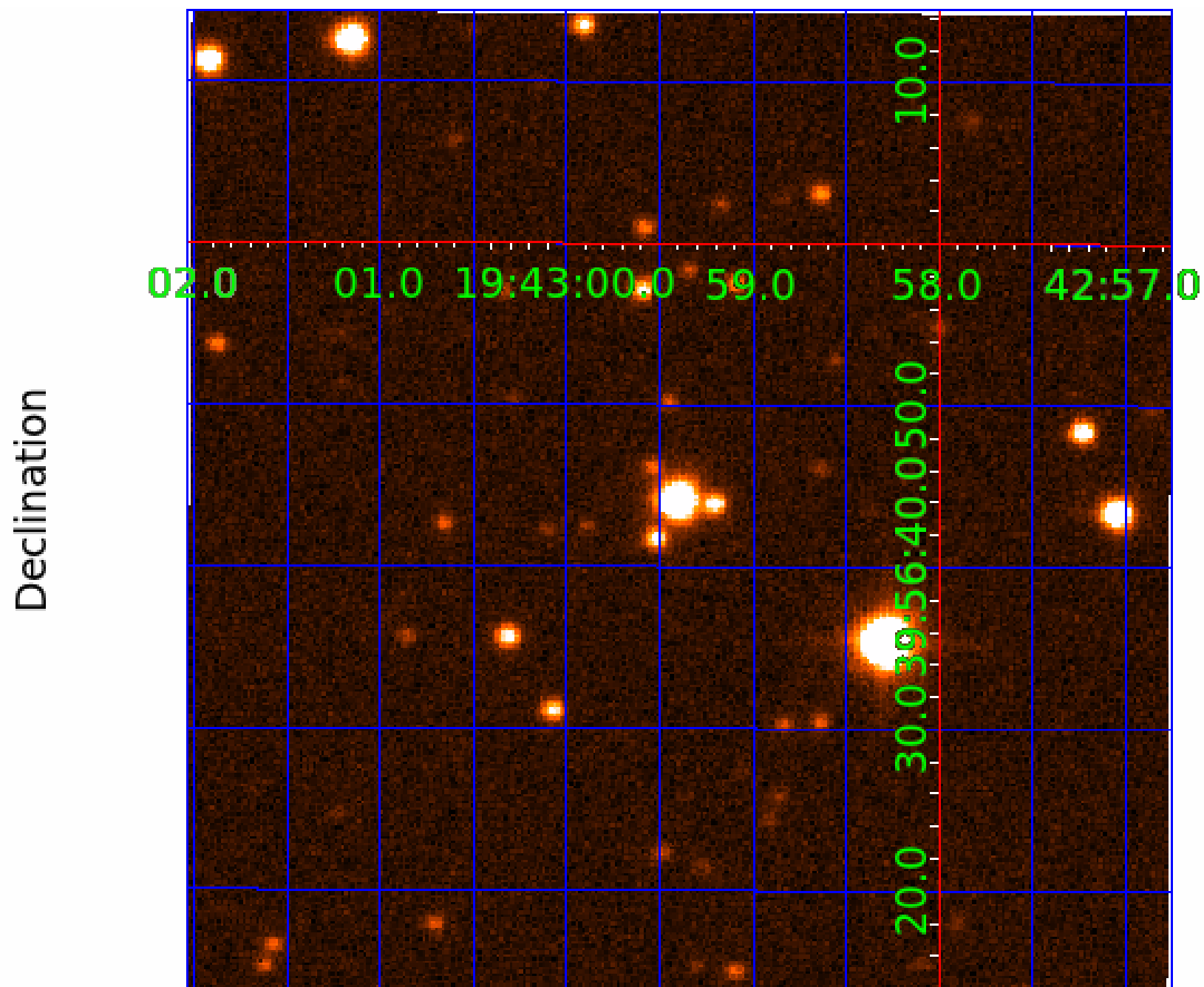
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004850809

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})
004850809-01	OBS	No	1.769442	131.608835	28.6	6.186	8.4	8.6	1.10	5964	0.73	1521.15
004850809-02	OBS	No	235.875178	272.715073	480.8	14.727	15.9	12.0	1.10	5964	2.58	2.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004850809-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
004850809-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

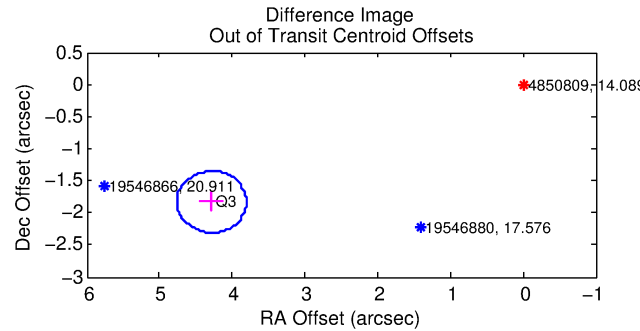
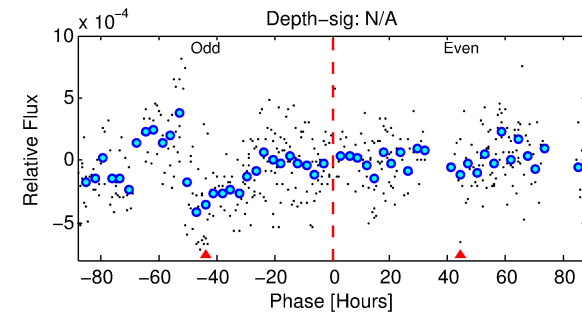
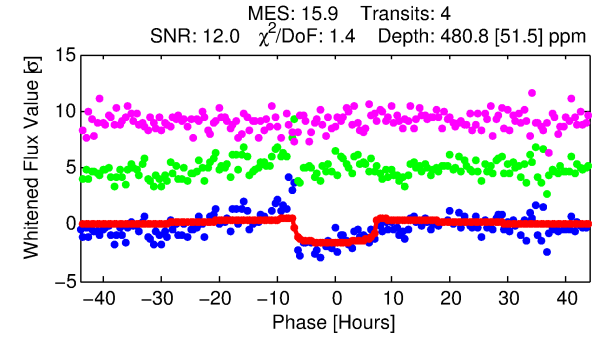
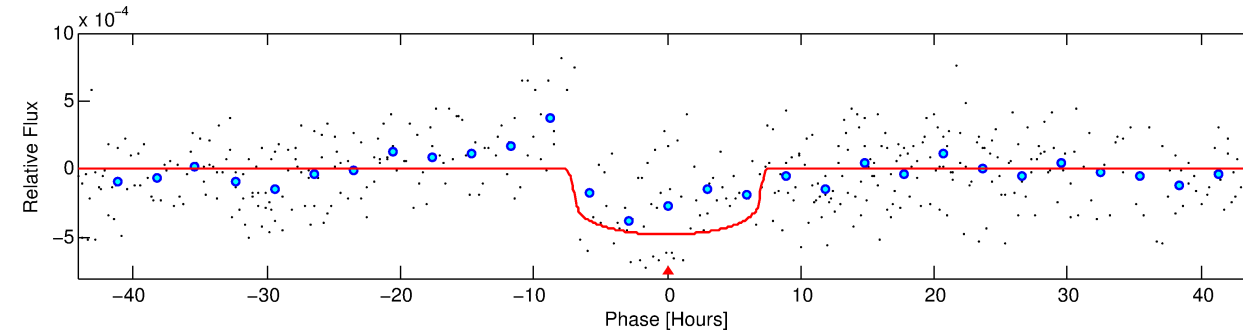
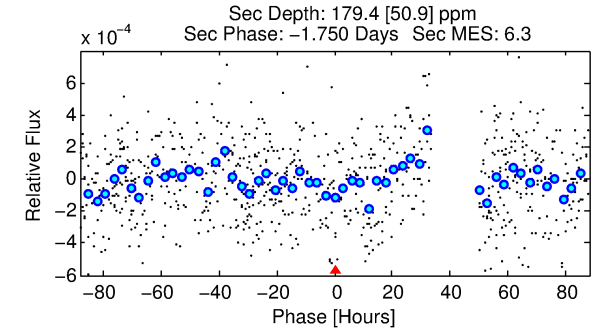
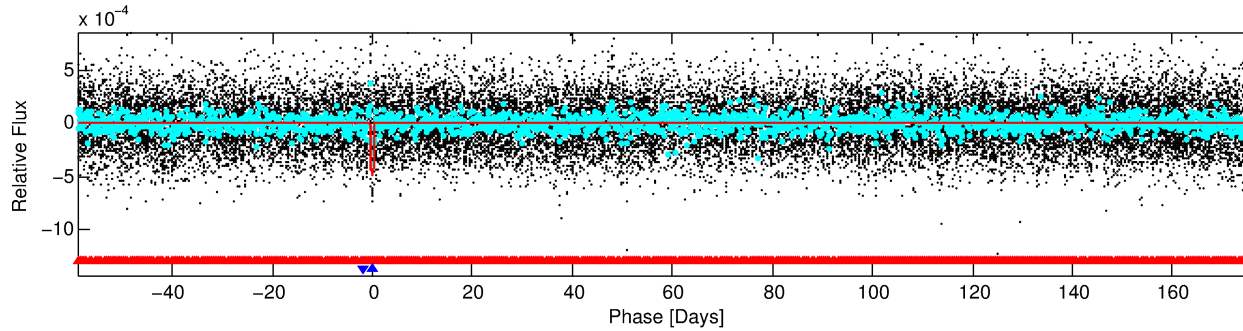
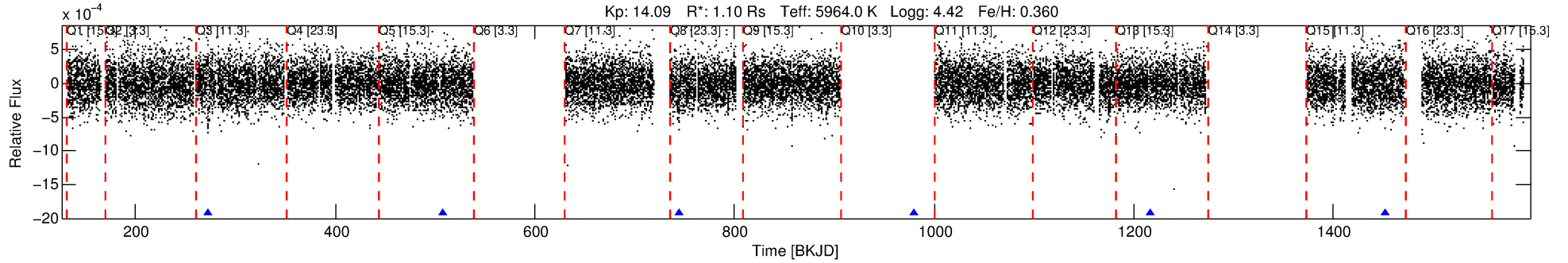
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004850809-02

No Significant Match Found

DV One-Page Summary

KIC: 4850809 Candidate: 2 of 2 Period: 235.875 d



DV Fit Results:

Period = 235.87518 [0.01130] d
Epoch = 272.7151 [0.0243] BKJD
Rp/R* = 0.0214 [0.0103]
a/R* = 92.25 [194.11]
b = 0.69 [1.64]
Seff = 2.23 [0.93]
Teq = 312 [33] K
Rp = 2.58 [1.49] Re
a = 0.7872 [0.2113] AU
Ag = 9205.65 [9956.97] [0.92σ]
Teffp = 4721 [1201] K [3.67σ]

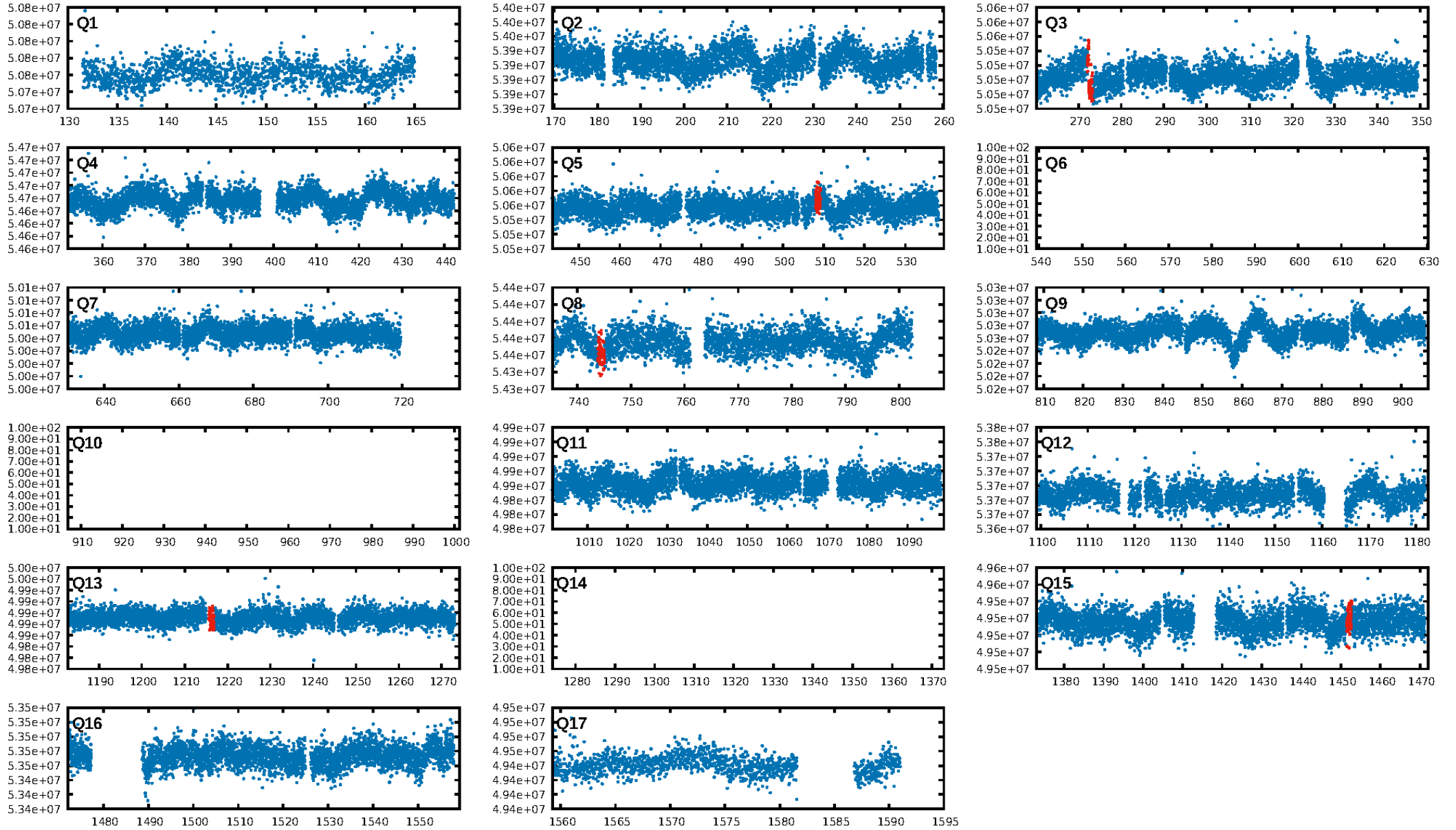
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [351.74σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.08e-22
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.4344
Centroid-sig: 0.0%
Centroid-so: 2.228 arcsec [2.98σ]
OotOffset-rm: 4.659 arcsec [29.21σ]
KicOffset-rm: 4.779 arcsec [29.94σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/4]

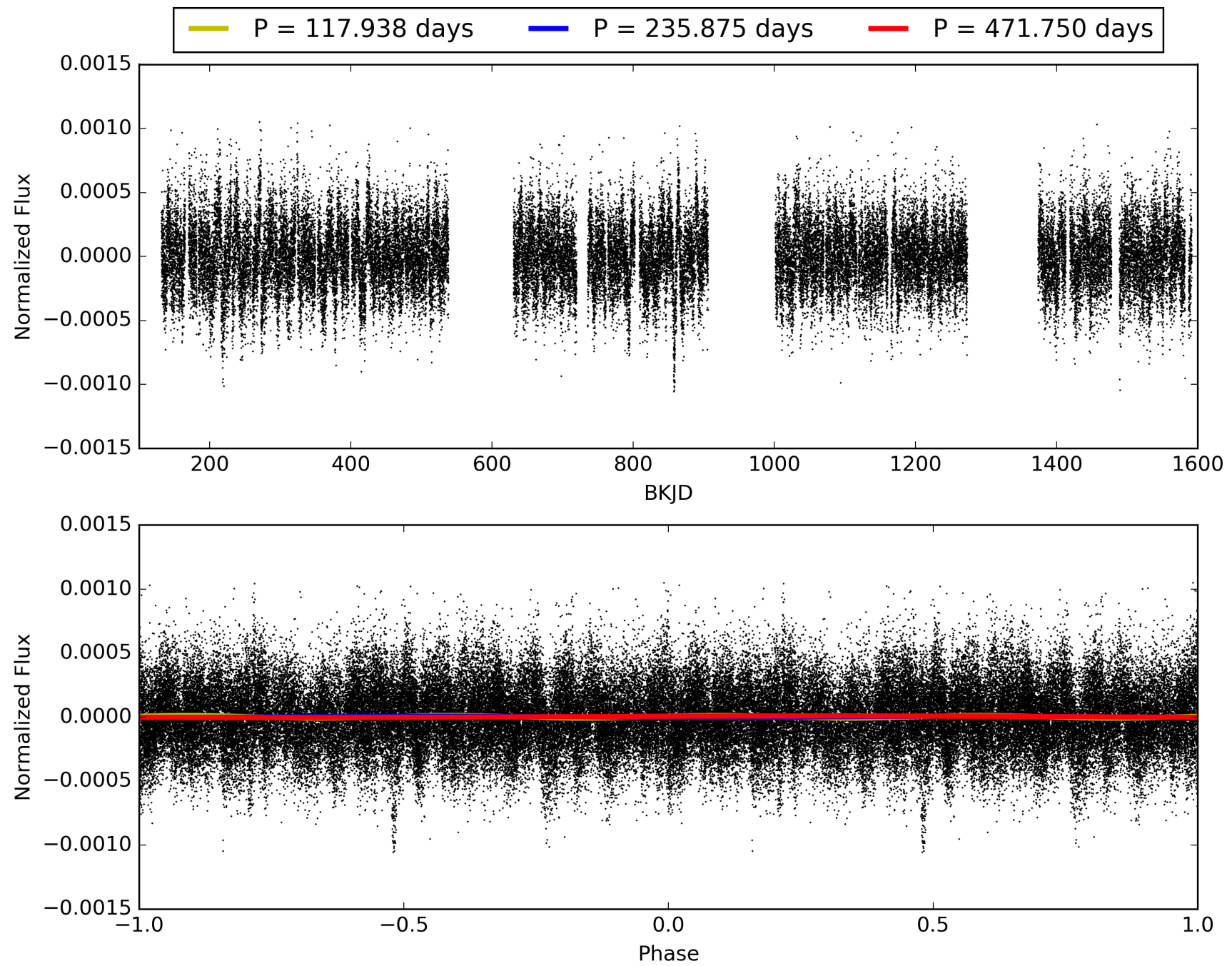
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:42:23 Z

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

TCE 004850809-02, PDC Light Curves

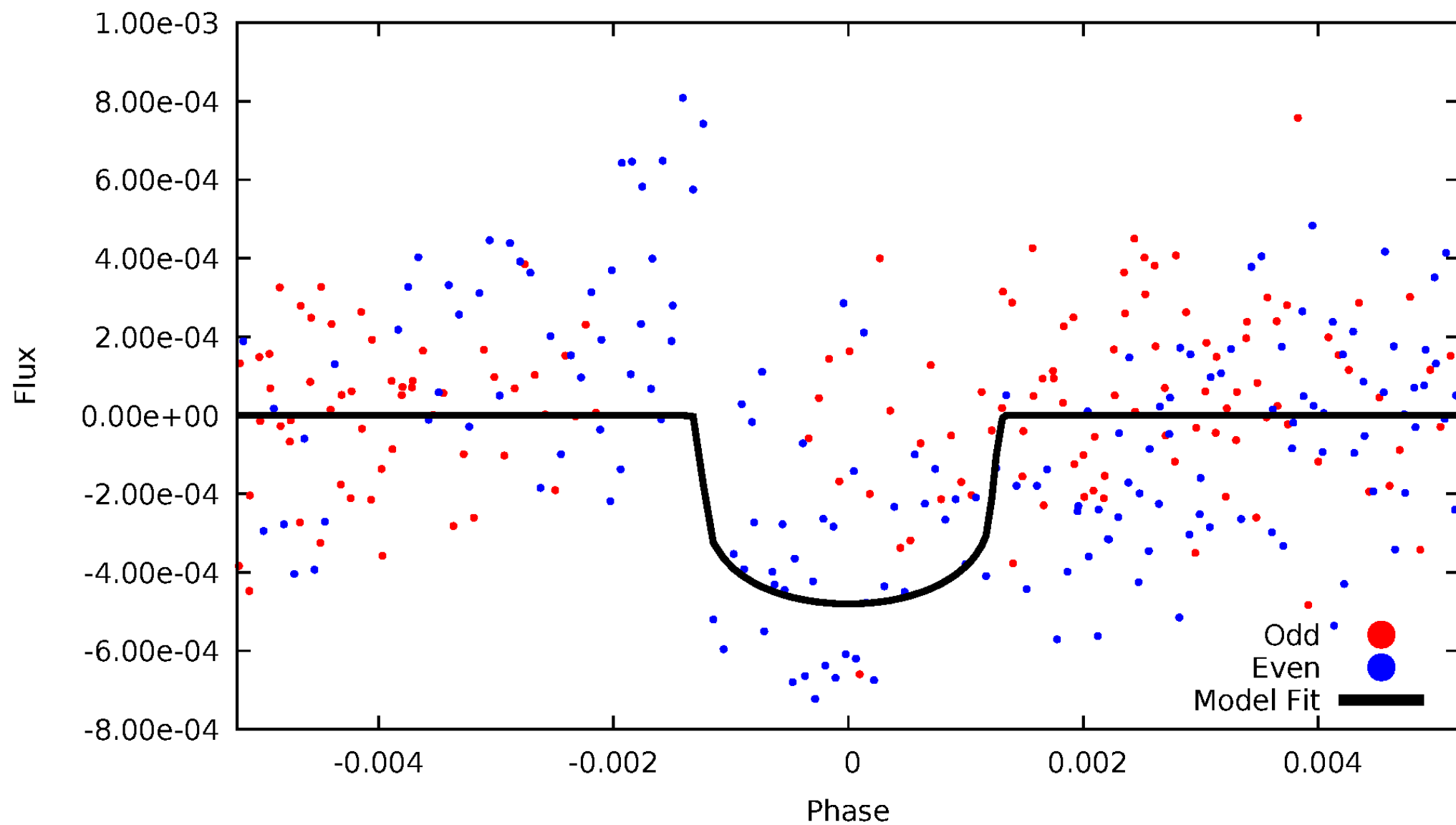


TCE 004850809-02



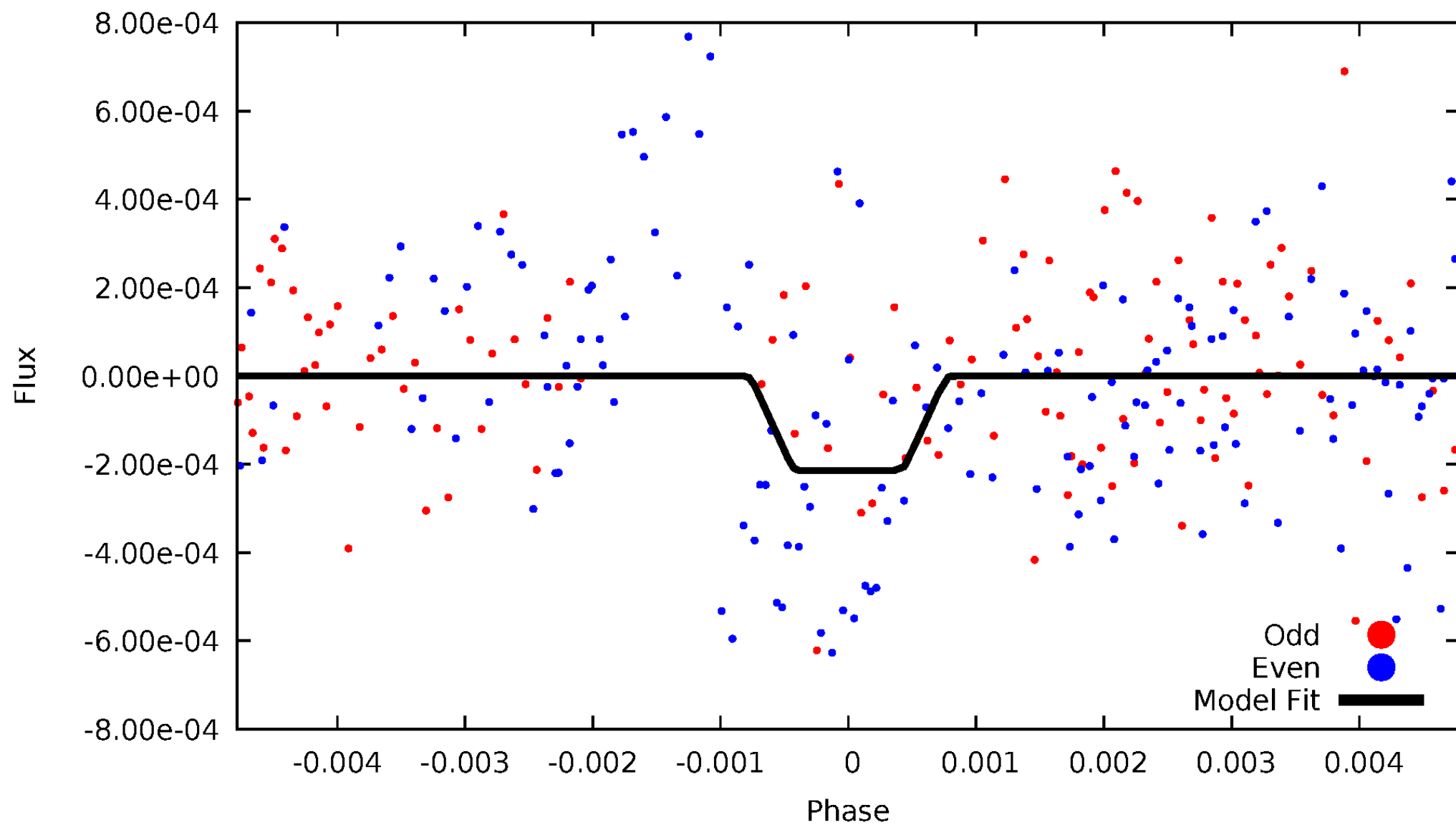
DV Odd/Even

TCE 004850809-02



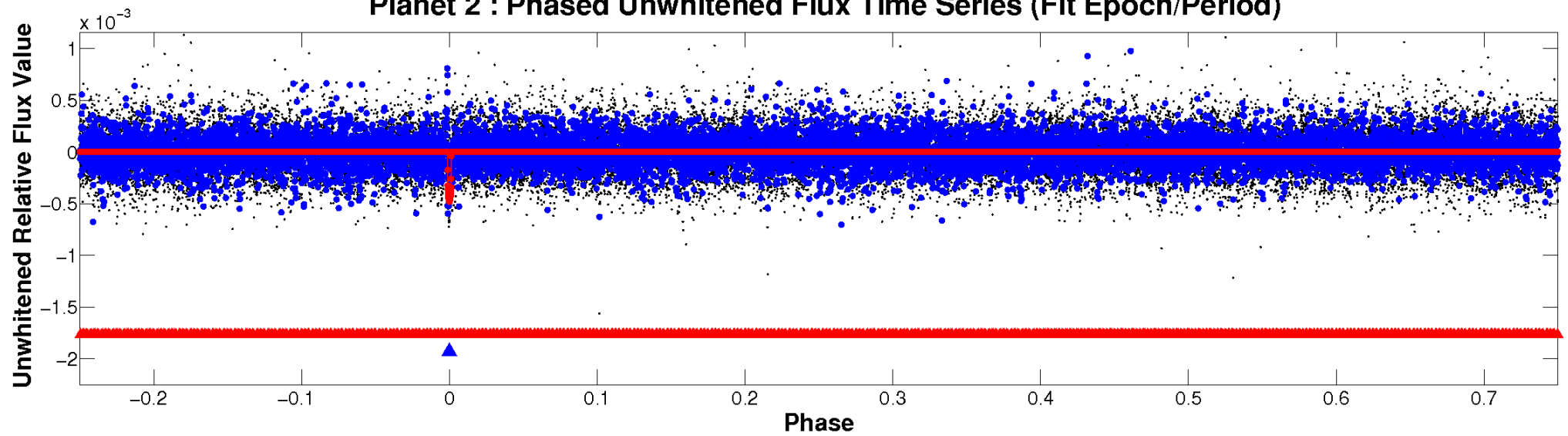
ALT Odd/Even

TCE 004850809-02

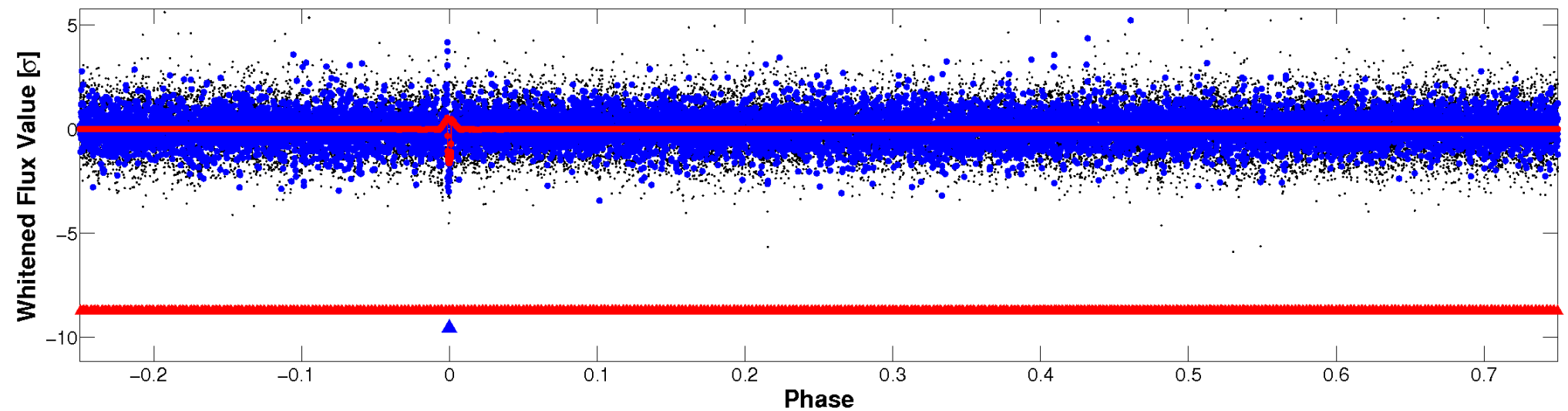


Non-Whitened Vs. Whitened Light Curve

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 004850809-02 P=235.875178 Days $T_0=272.715073$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004850809-02 $P=235.875178$ Days $T_0=272.715073$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

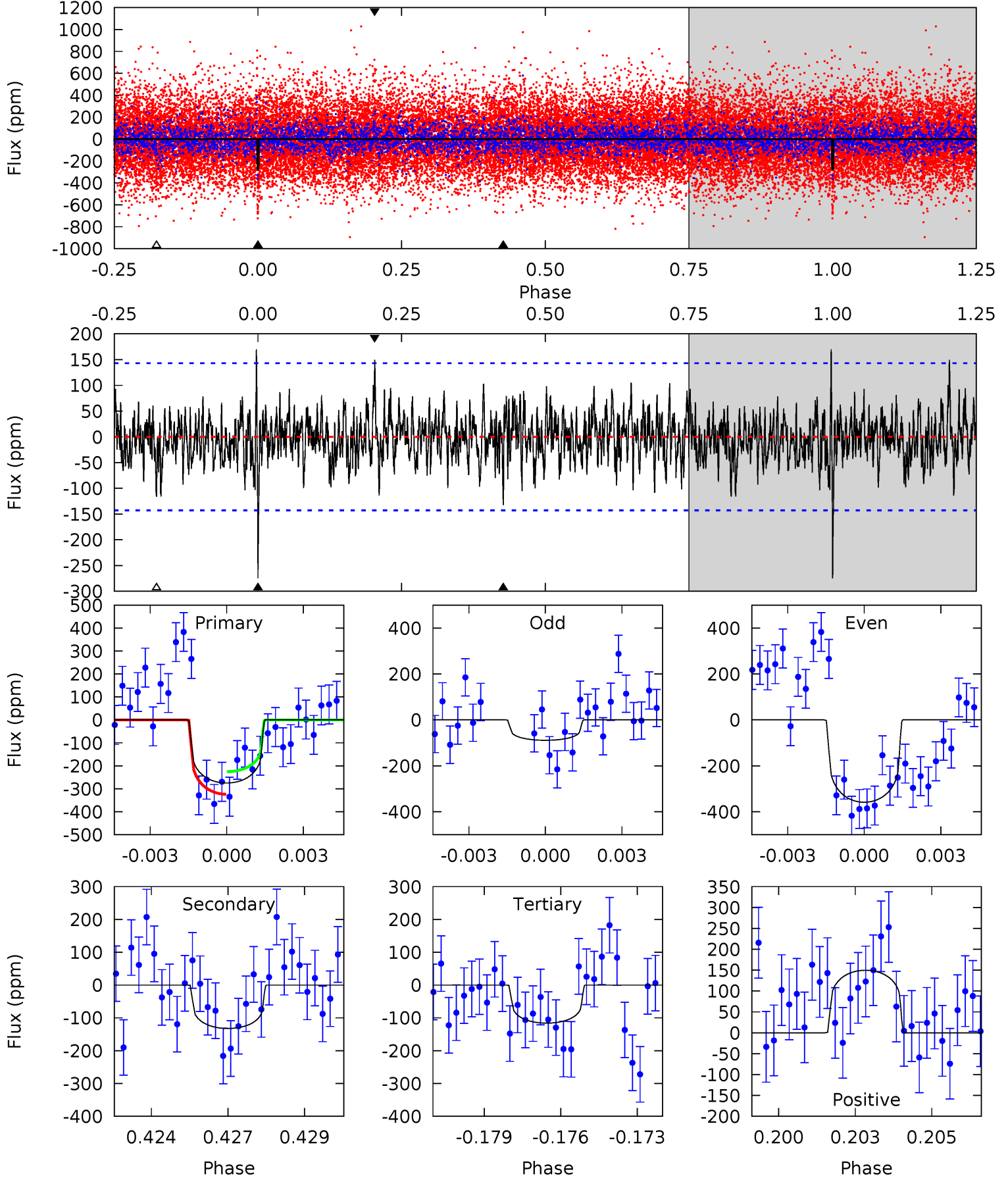
TCE 004850809-02 $P=235.898639$ Days $T_0=272.678447$ (BKJD)



DV Model-Shift Uniqueness Test

004850809-02, P = 235.875178 Days, E = 36.839895 Days

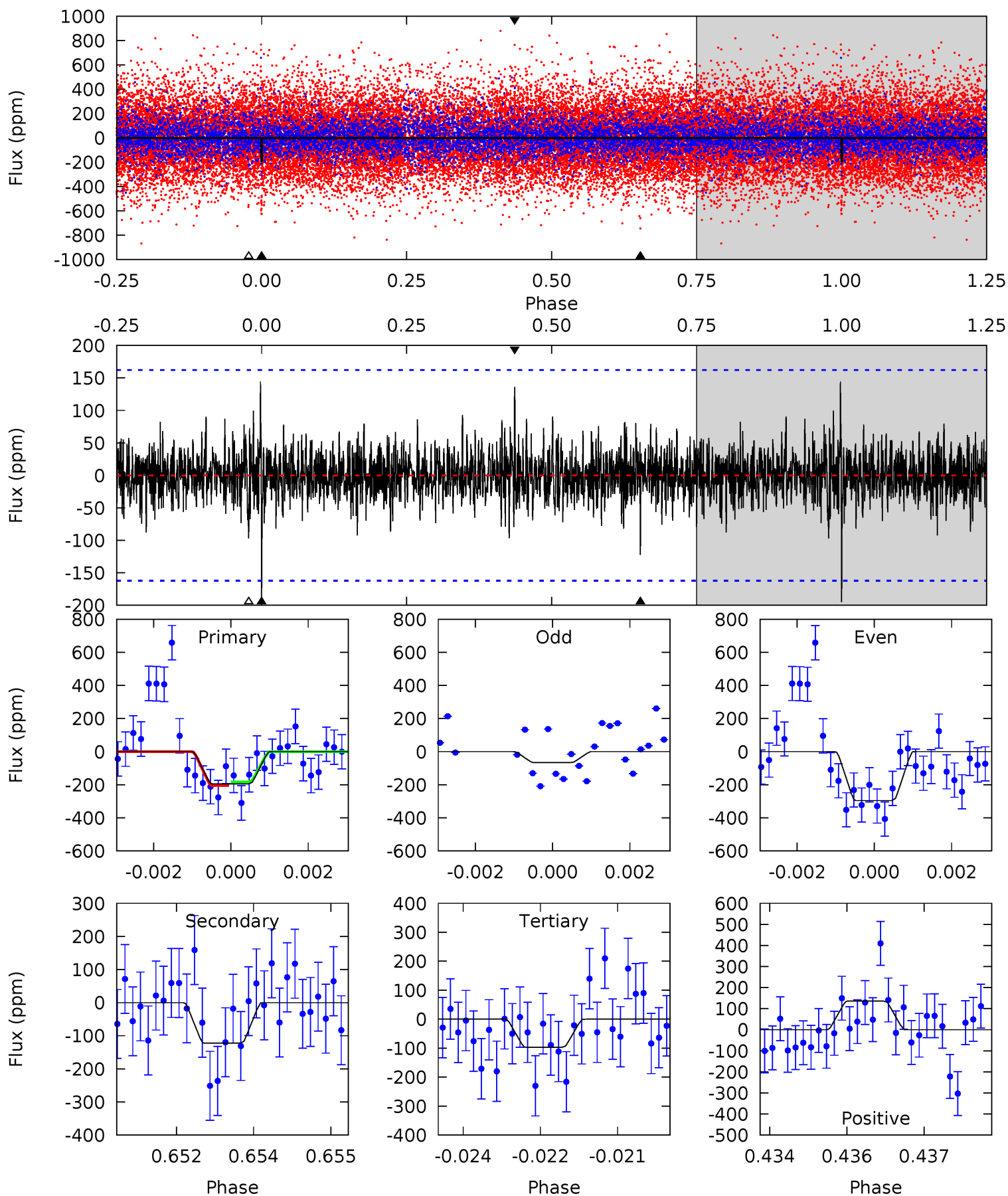
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	4.88	4.28	5.53	5.27	3.00	1.41	5.86	4.62	0.60	-0.64	4.68	1.20	0.38	1.82



Alt Model-Shift Uniqueness Test

004850809-02, P = 235.898639 Days, E = 36.779808 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.45	4.04	3.21	4.50	5.37	3.16	0.96	3.24	1.95	0.83	-0.45	3.64	2.62	0.43	0.35



Stellar Parameters For KIC 004850809

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5964^{+169}_{-211}	$4.419^{+0.054}_{-0.216}$	$0.360^{+0.100}_{-0.300}$	$1.105^{+0.350}_{-0.125}$	$1.173^{+0.125}_{-0.152}$	$1.223^{+0.359}_{-0.663}$
	+3%/-4%	+1%/-5%	+28%/-83%	+32%/-11%	+11%/-13%	+29%/-54%
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 004850809-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-132 ± 27	$2.70^{+1.42}_{-1.20}$	444^{+37}_{-22}	4533^{+1301}_{-655}	5975^{+13619}_{-3455}
Alt.	-122 ± 30	$1.94^{+1.30}_{-1.04}$	446^{+36}_{-25}	5115^{+2509}_{-975}	10695^{+38618}_{-7031}

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

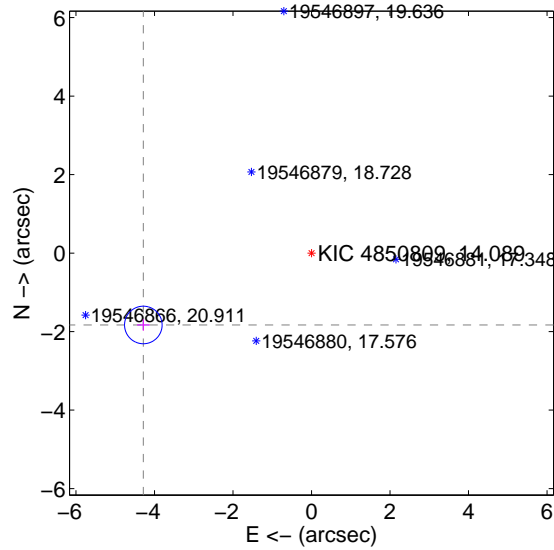
Supplemental centroid analysis for 004850809-02. Kepler magnitude: 14.09. Transit SNR 12.03

There are 1 quarters with good PRF difference image offsets

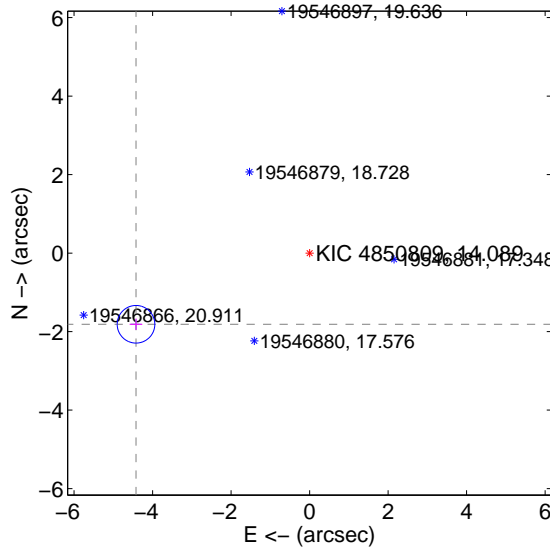
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.659 ± 0.160	29.21	4.284 ± 0.162	-1.831 ± 0.146
PRF-fit source offset from KIC position	4.779 ± 0.160	29.94	4.422 ± 0.162	-1.813 ± 0.146
photometric centroid source offset	2.23 ± 0.75	2.98	-0.41 ± 0.70	-2.19 ± 0.75

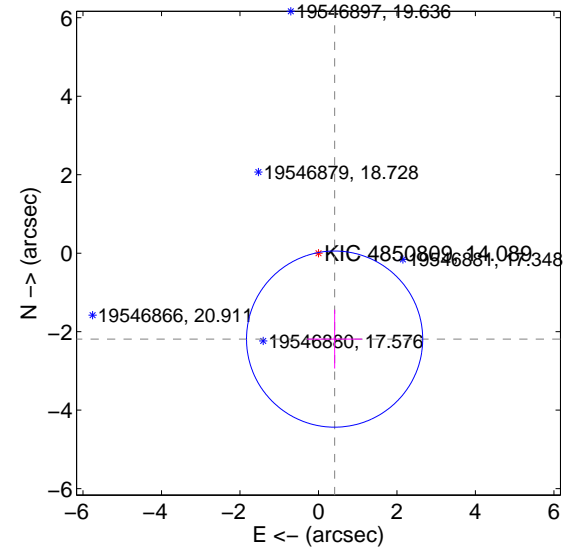
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

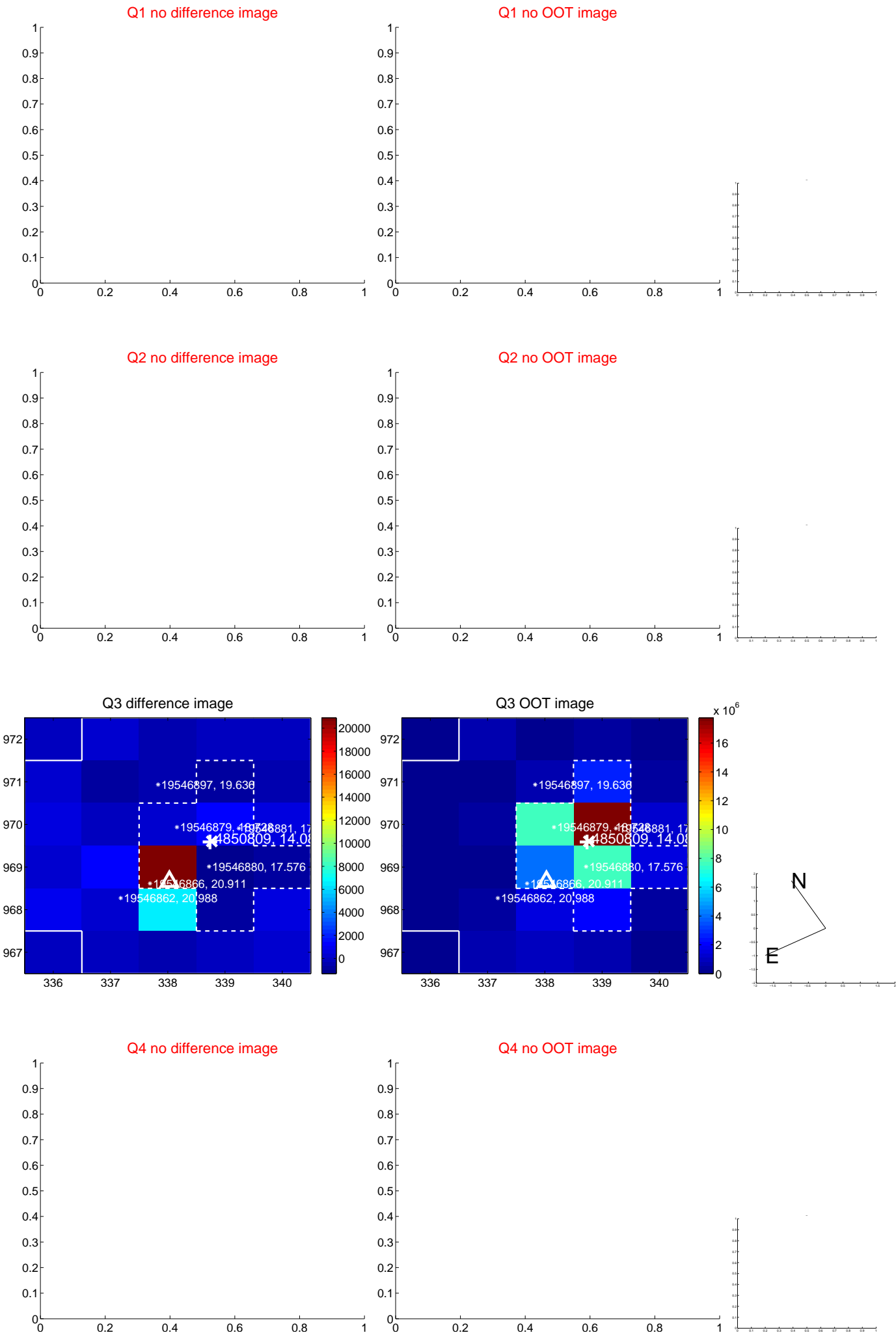


offset from photometric centroids

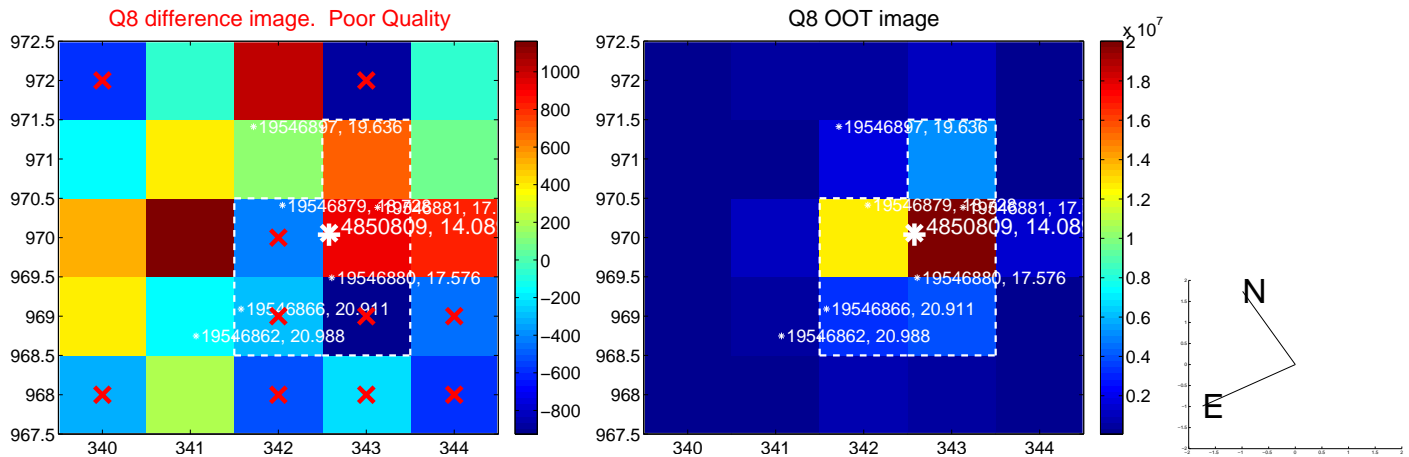
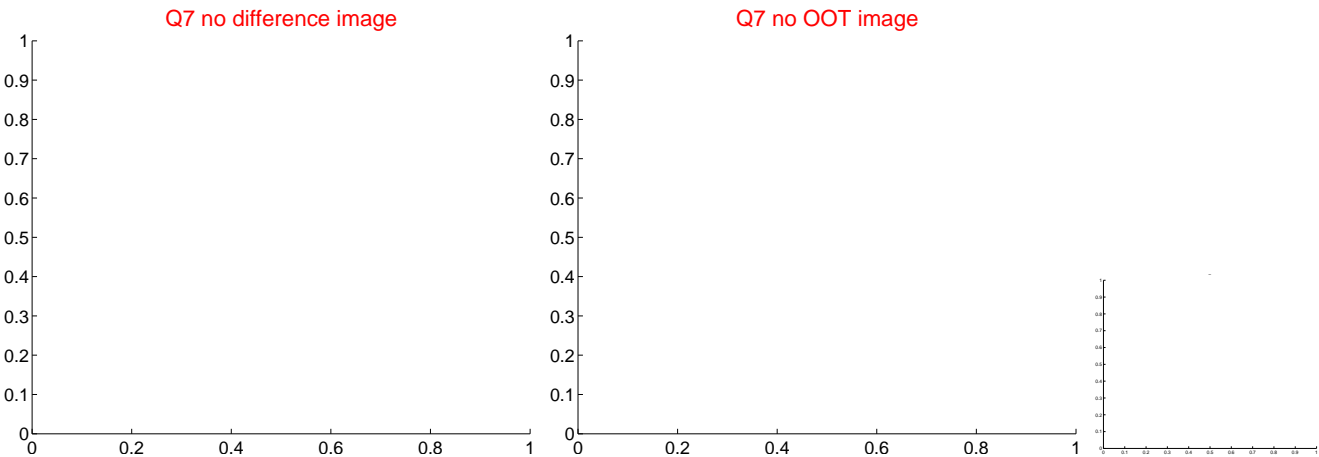
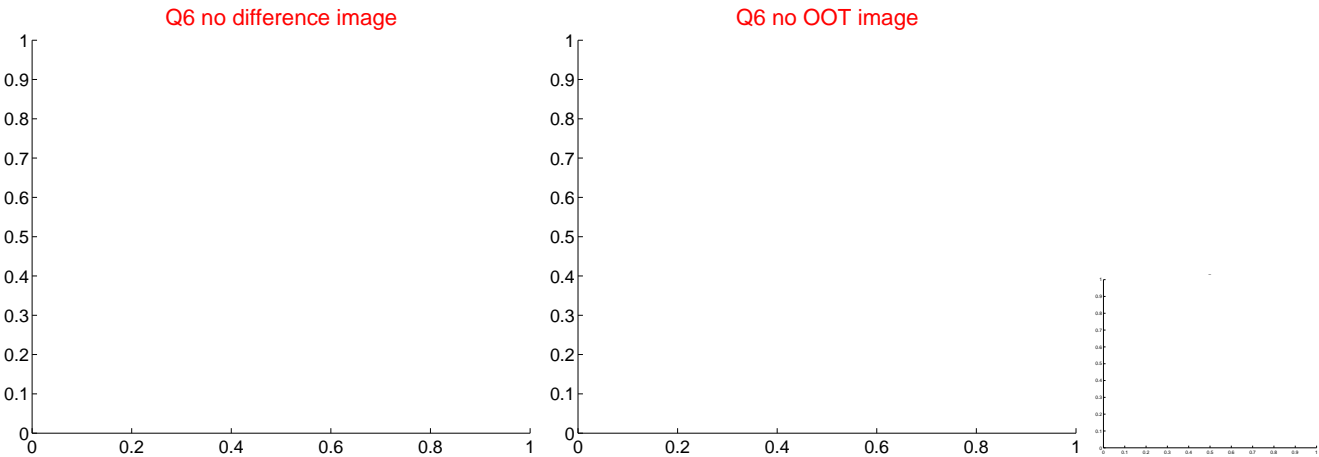
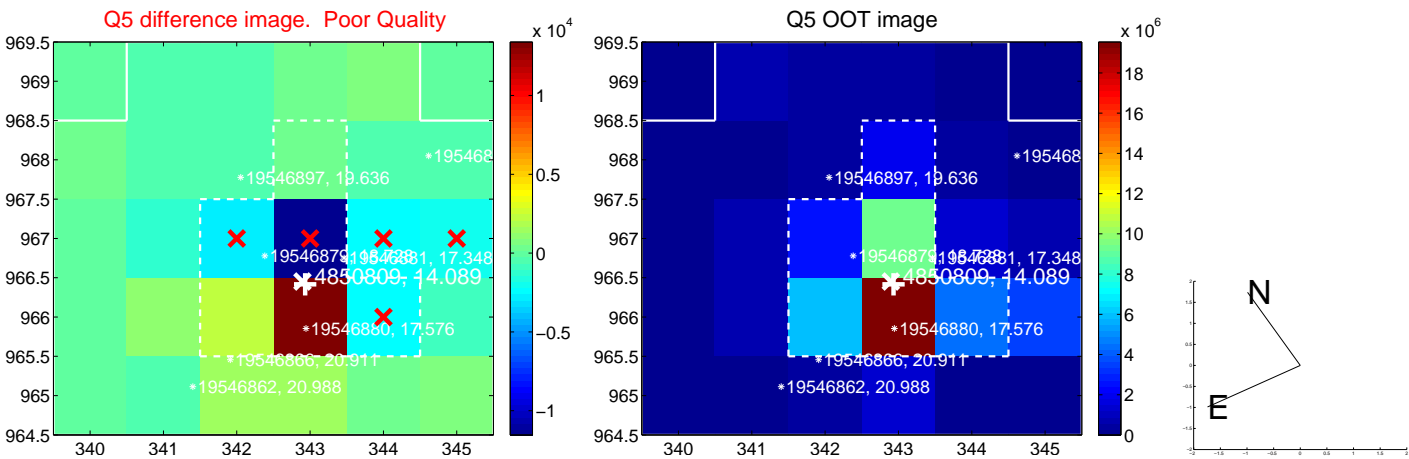


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



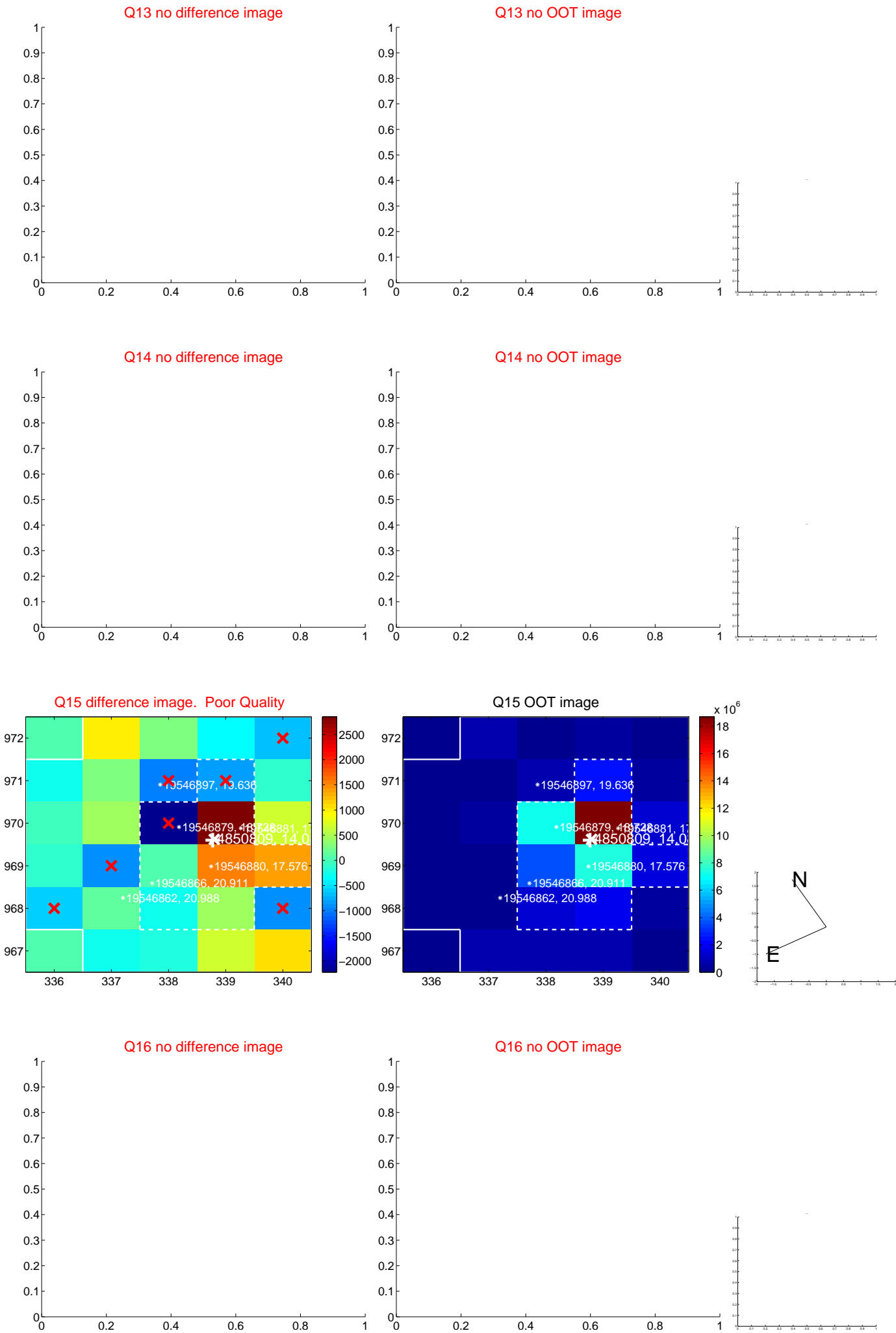
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



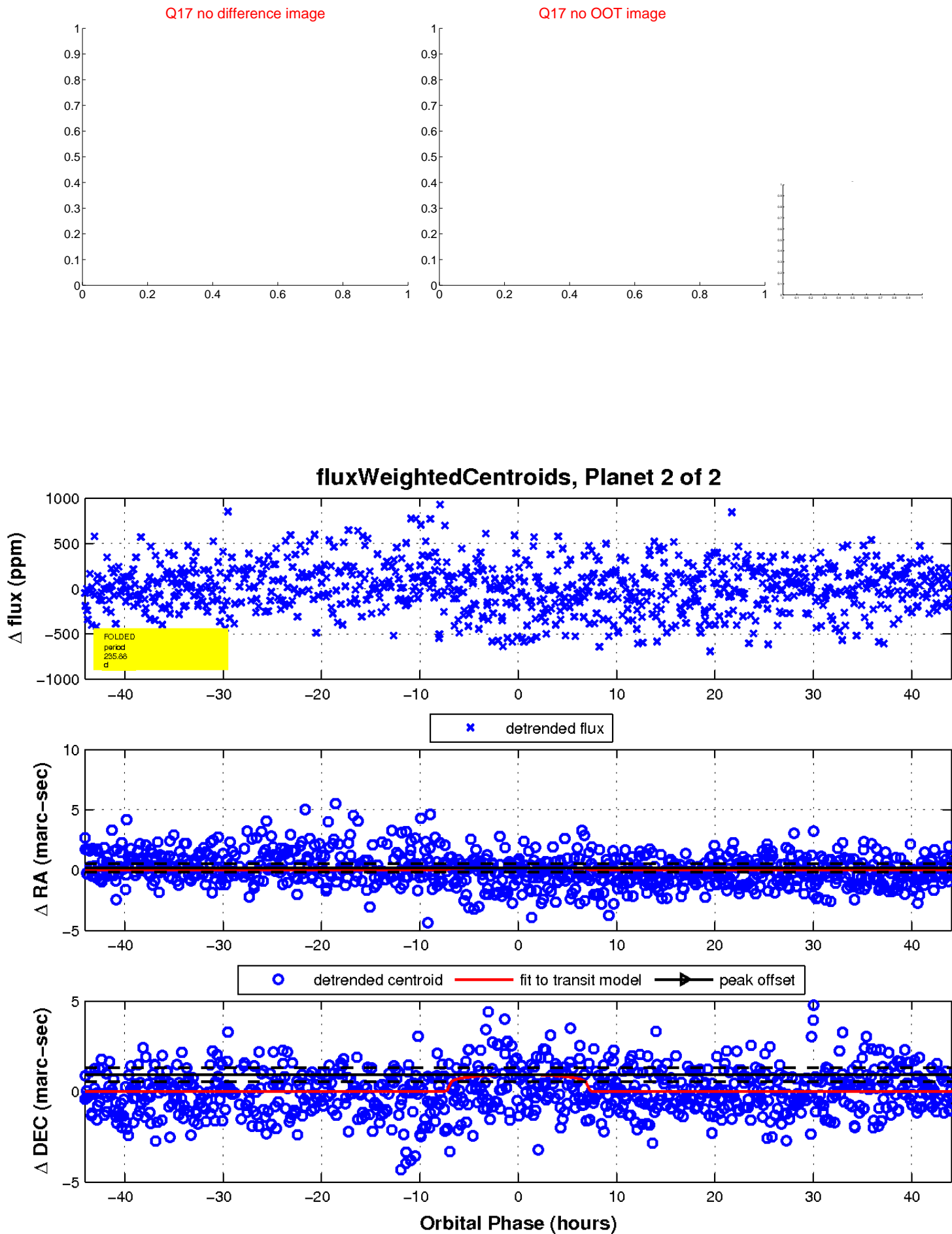
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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

