

KIC 004380307

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})
004380307-01	OBS	No	1.865634	131.575724	10.9	10.972	7.4	7.1	2.22	8137	0.86	14169.32
004380307-02	OBS	No	94.256404	179.808437	101.6	10.477	10.8	7.3	2.22	8137	2.58	75.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004380307-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004380307-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_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.

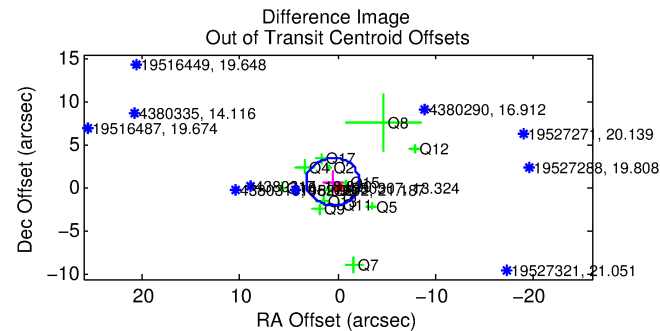
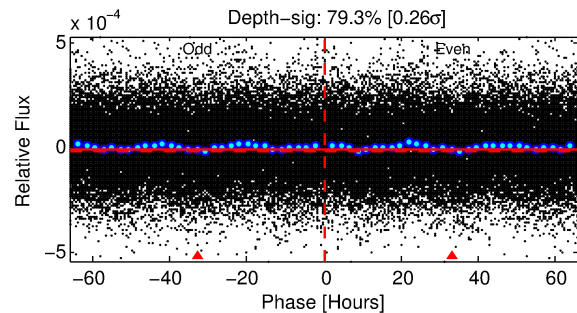
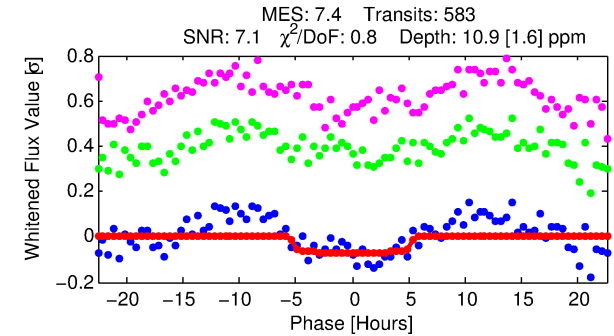
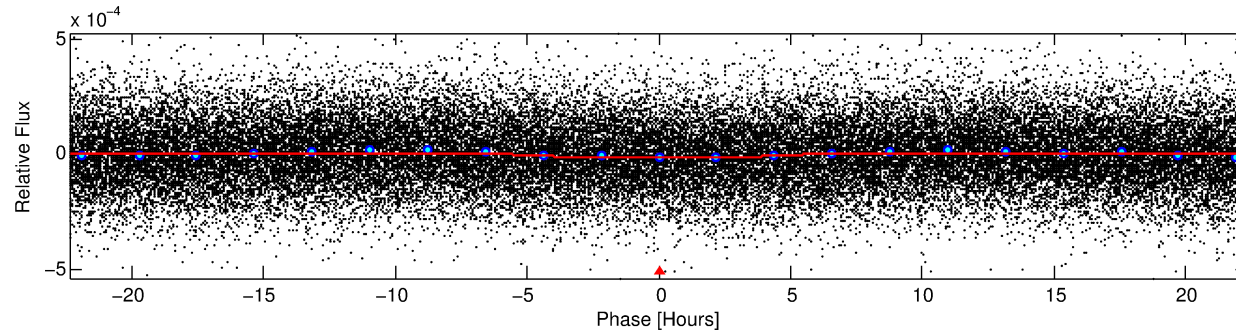
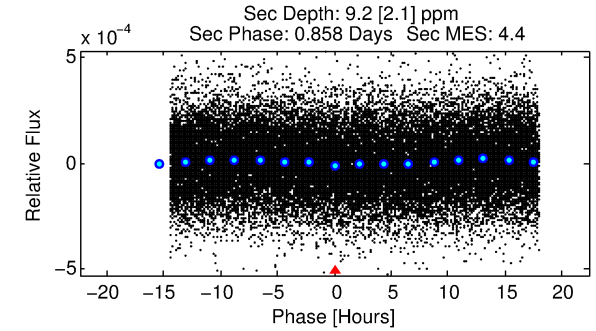
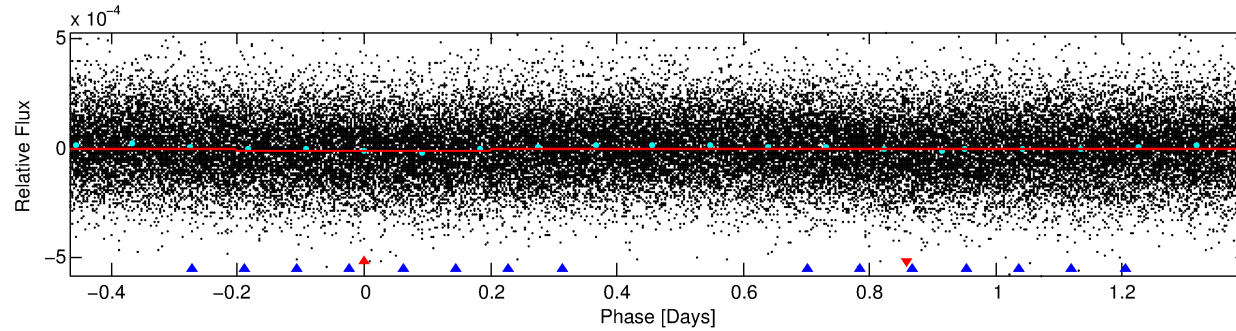
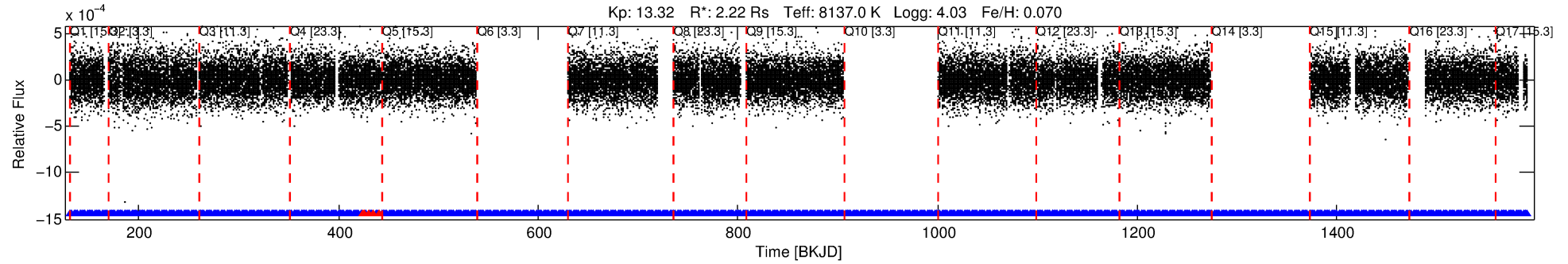
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004380307-01

No Significant Match Found

DV One-Page Summary

KIC: 4380307 Candidate: 1 of 2 Period: 1.866 d



DV Fit Results:

Period = 1.86563 [0.00005] d
Epoch = 131.5757 [0.0134] BKJD
Rp/R* = 0.0035 [0.0015]
a/R* = 1.10 [0.50]
b = 0.91 [0.53]
Seff = 14169.31 [5085.23]
Teff = 2782 [250] K
Rp = 0.86 [0.42] Re
a = 0.0370 [0.0079] AU
Ag = 9.36 [8.64] [0.97σ]
Teffp = 7523 [1671] K [2.81σ]

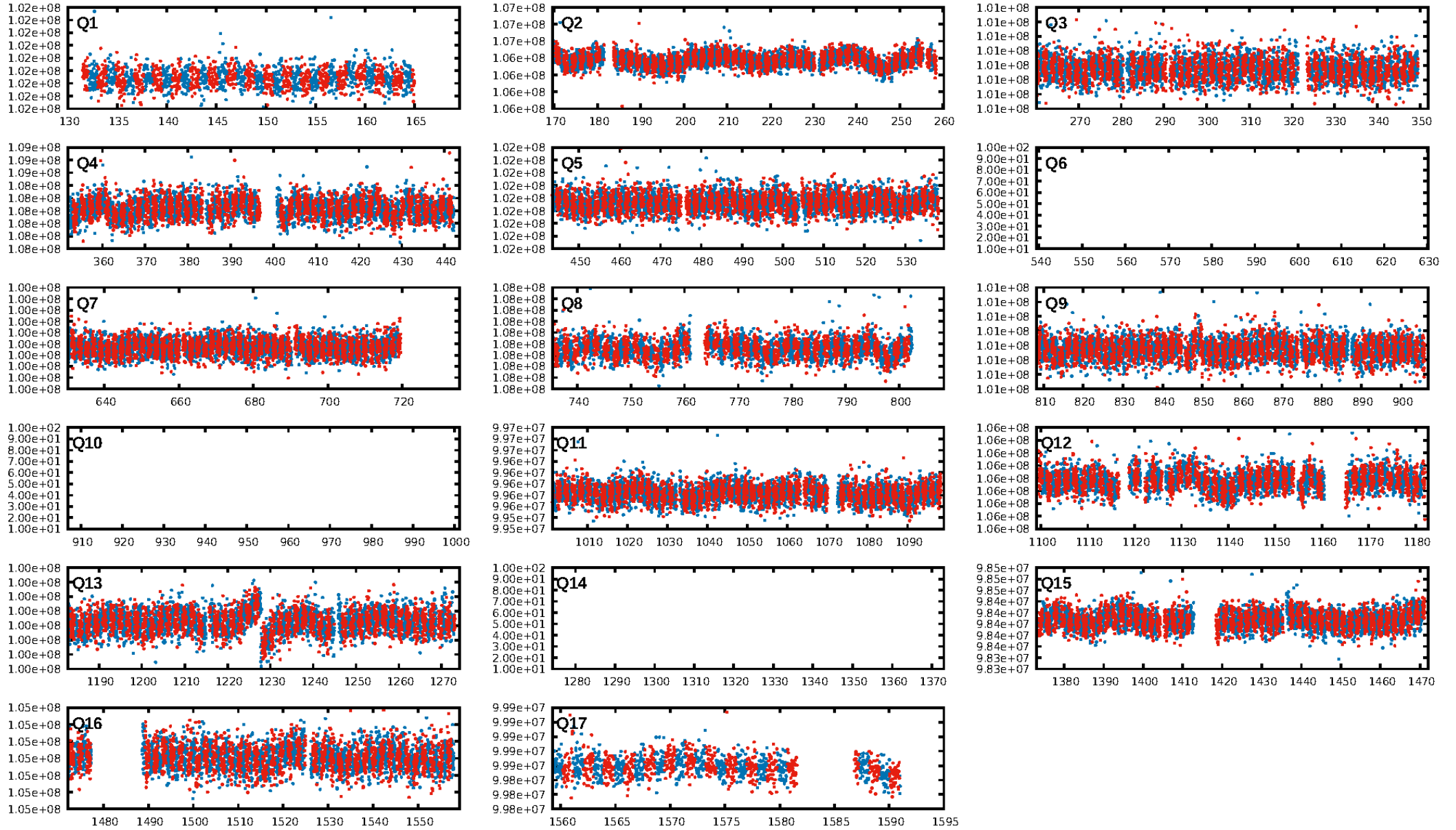
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [146.16σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.49e-08
RollingBand-fgt: 0.99 [544/549]
GhostDiagnostic-chr: 4.958
Centroid-sig: 6.3%
Centroid-so: 3.515 arcsec [1.47σ]
OotOffset-rm: 0.899 arcsec [0.98σ]
OotOffset-st: 1/4/4/4 [13]
KicOffset-rm: 0.978 arcsec [1.01σ]
KicOffset-st: 1/4/4/4 [13]
DiffImageQuality-fgm: 0.54 [7/13]
DiffImageOverlap-fno: 1.00 [14/14]

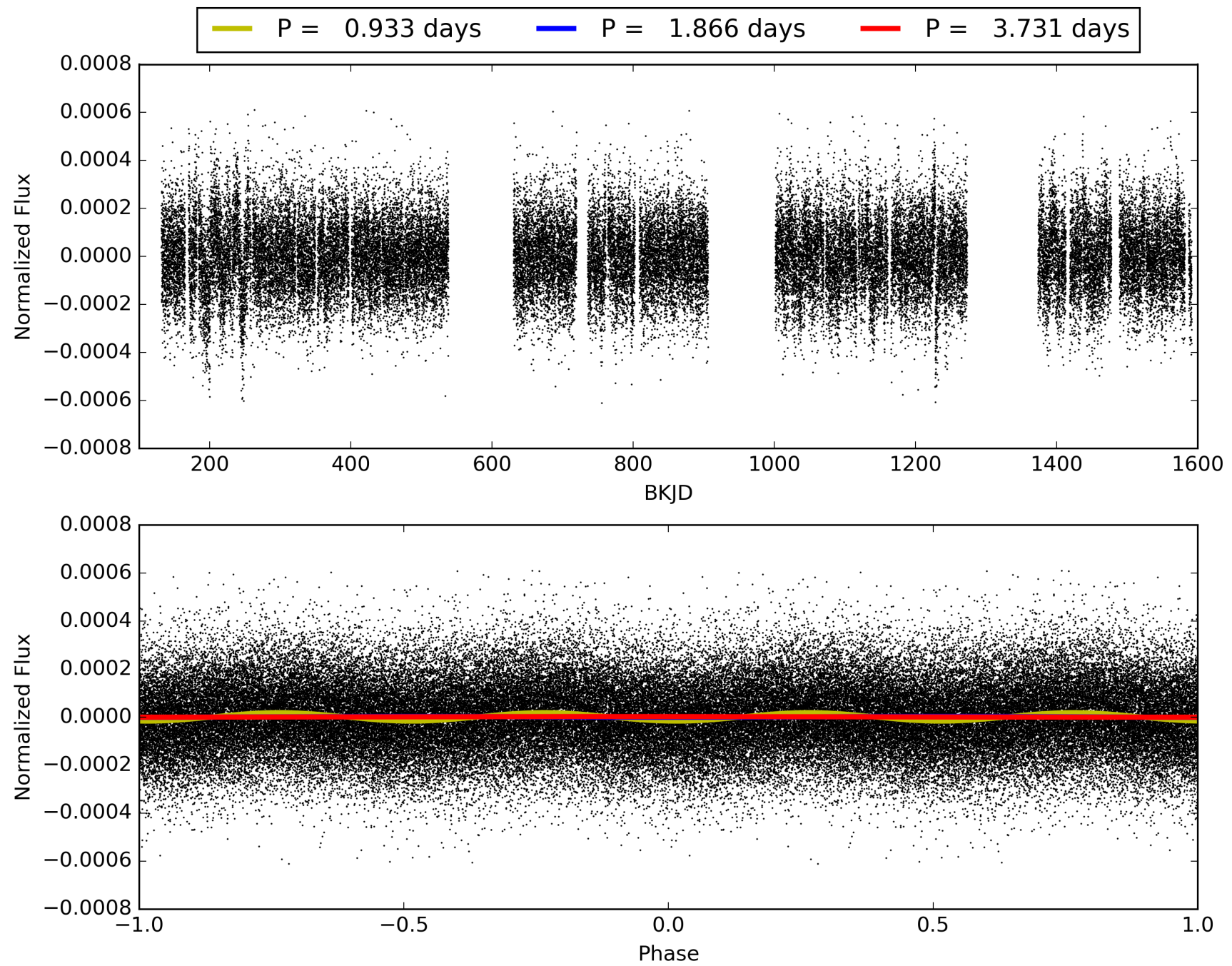
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:44:16 Z

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

TCE 004380307-01, PDC Light Curves

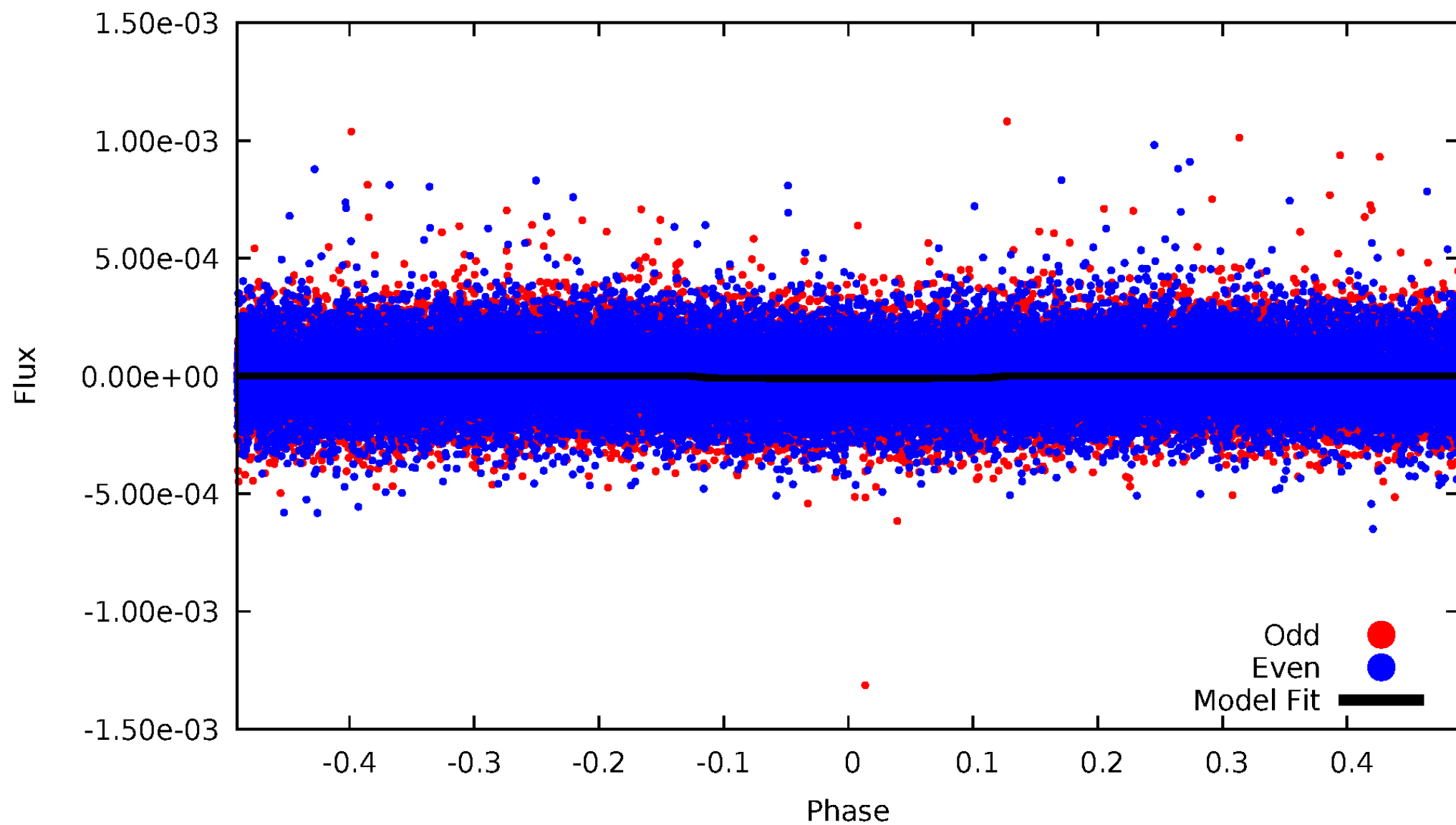


TCE 004380307-01



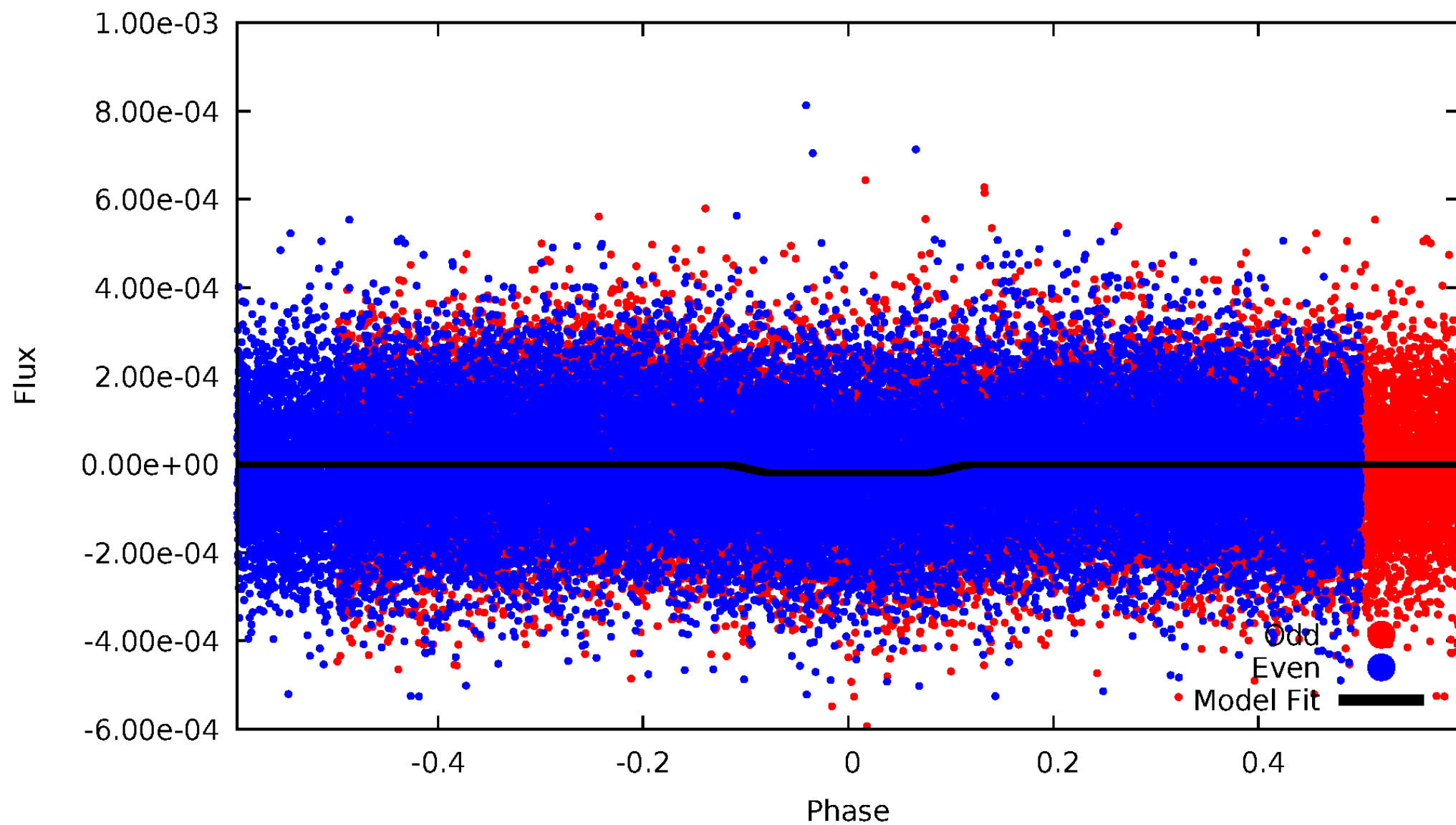
DV Odd/Even

TCE 004380307-01

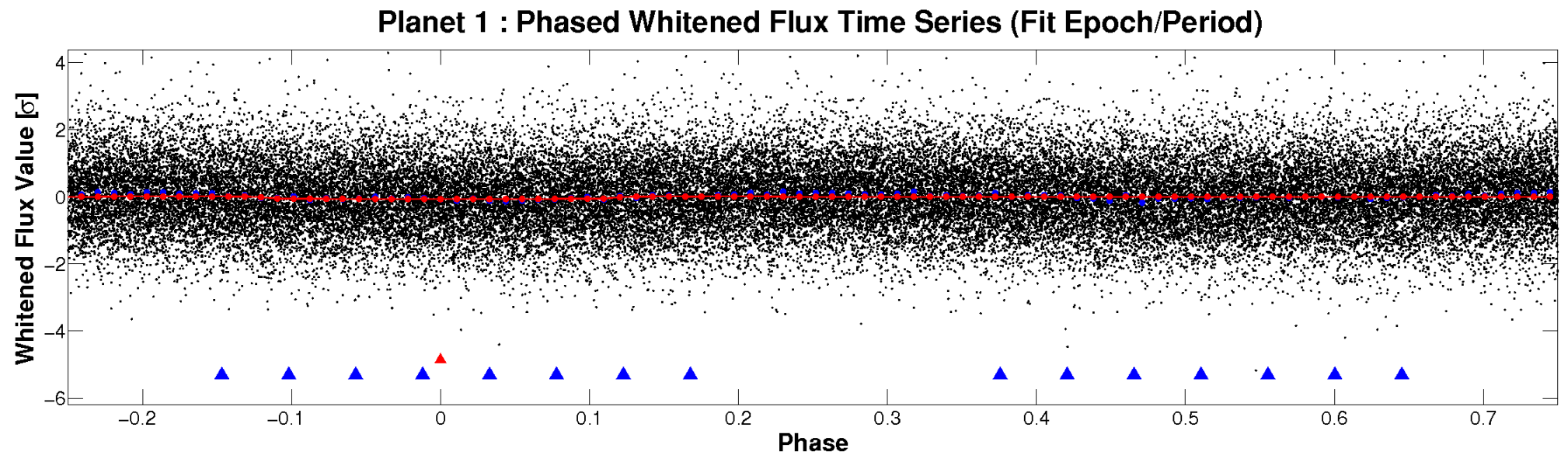
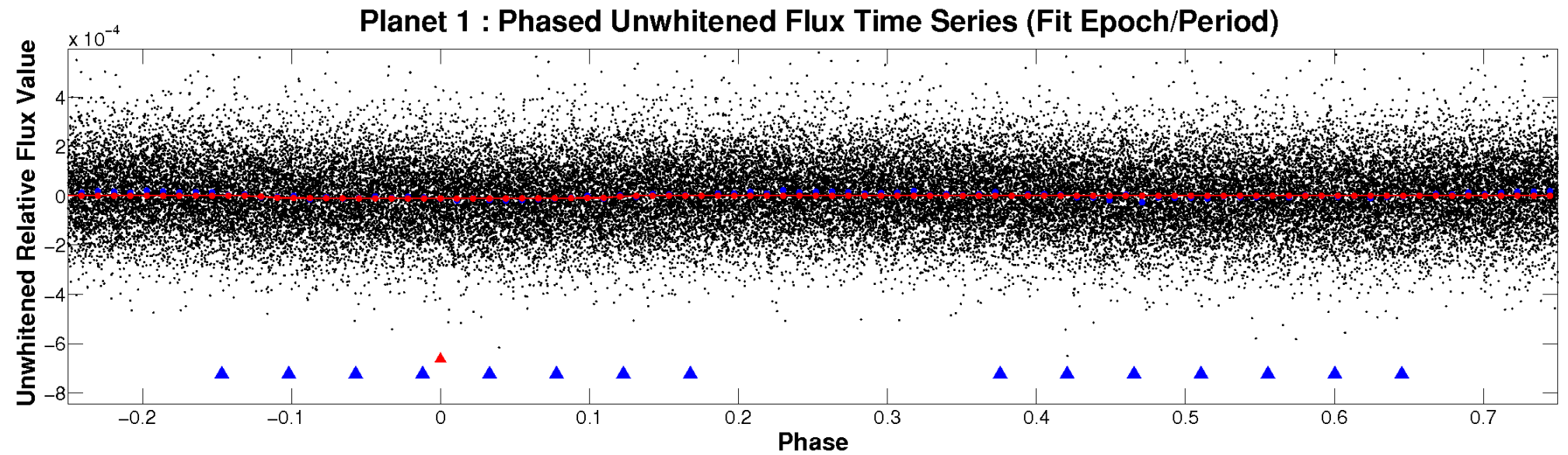


ALT Odd/Even

TCE 004380307-01

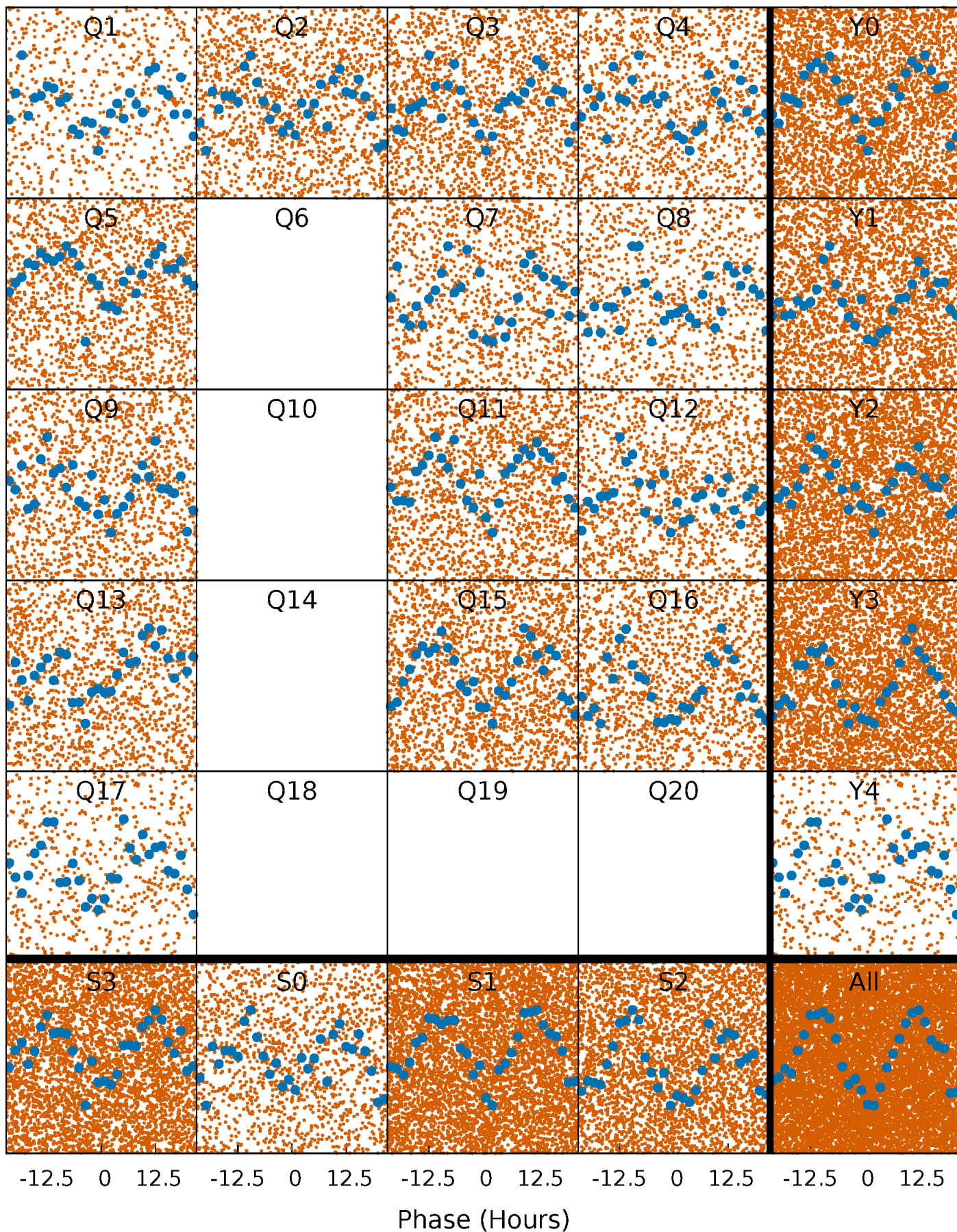


Non-Whitened Vs. Whitened Light Curve



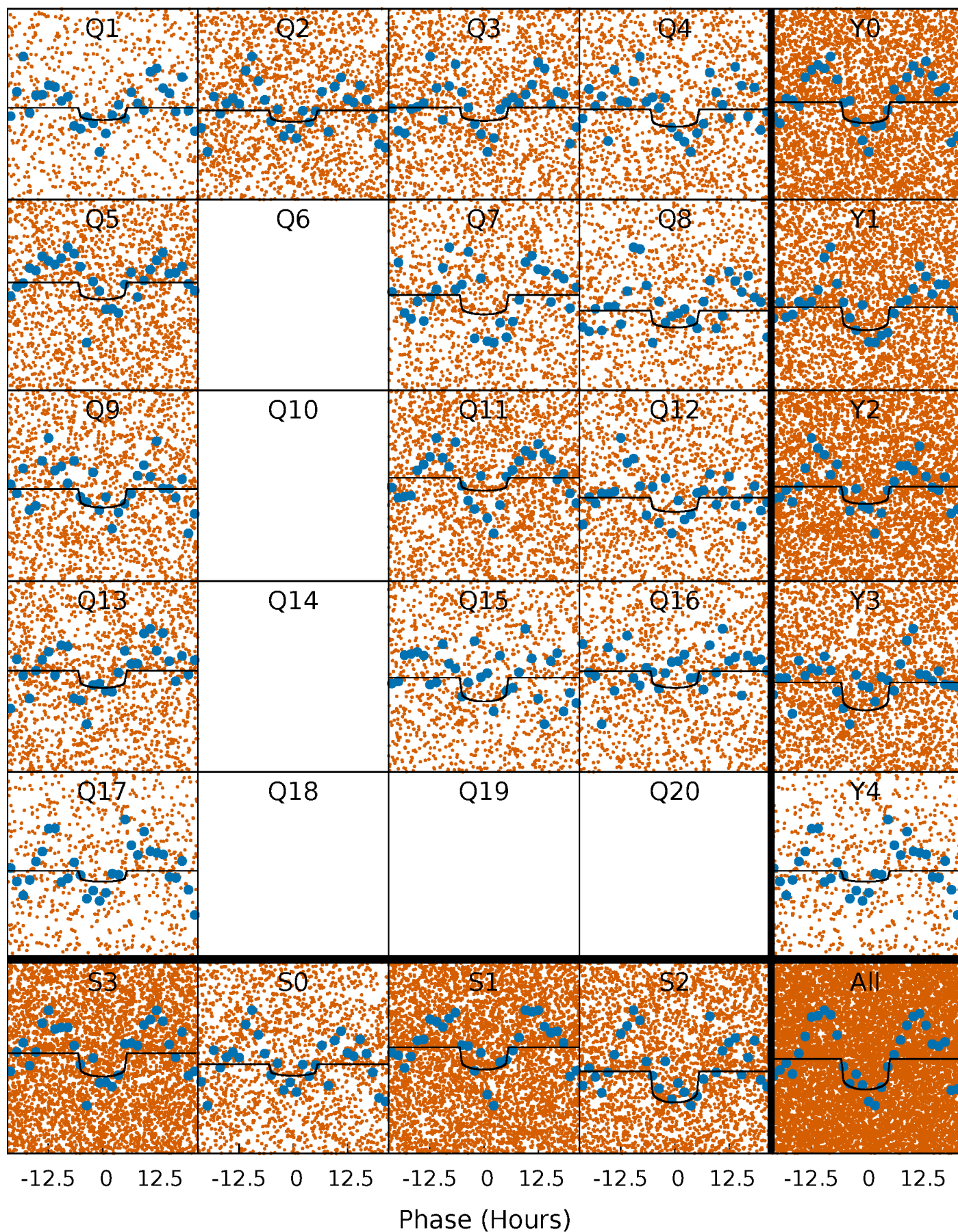
PDC Quarter-Phased Transit Curves

TCE 004380307-01 P= 1.865634 Days $T_0=131.575724$ (BKJD)



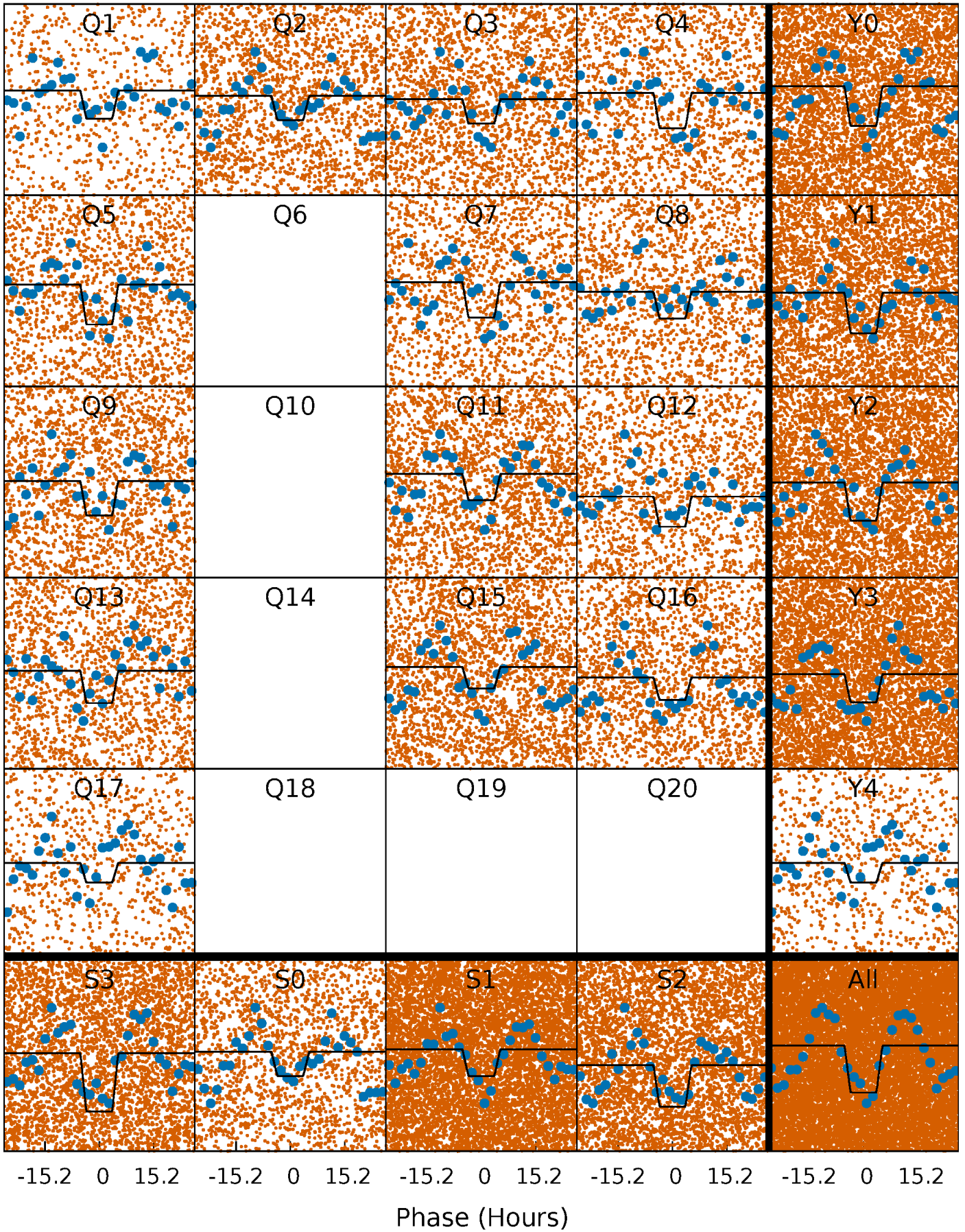
DV Quarter-Phased Transit Curves

TCE 004380307-01 P= 1.865634 Days $T_0=131.575724$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

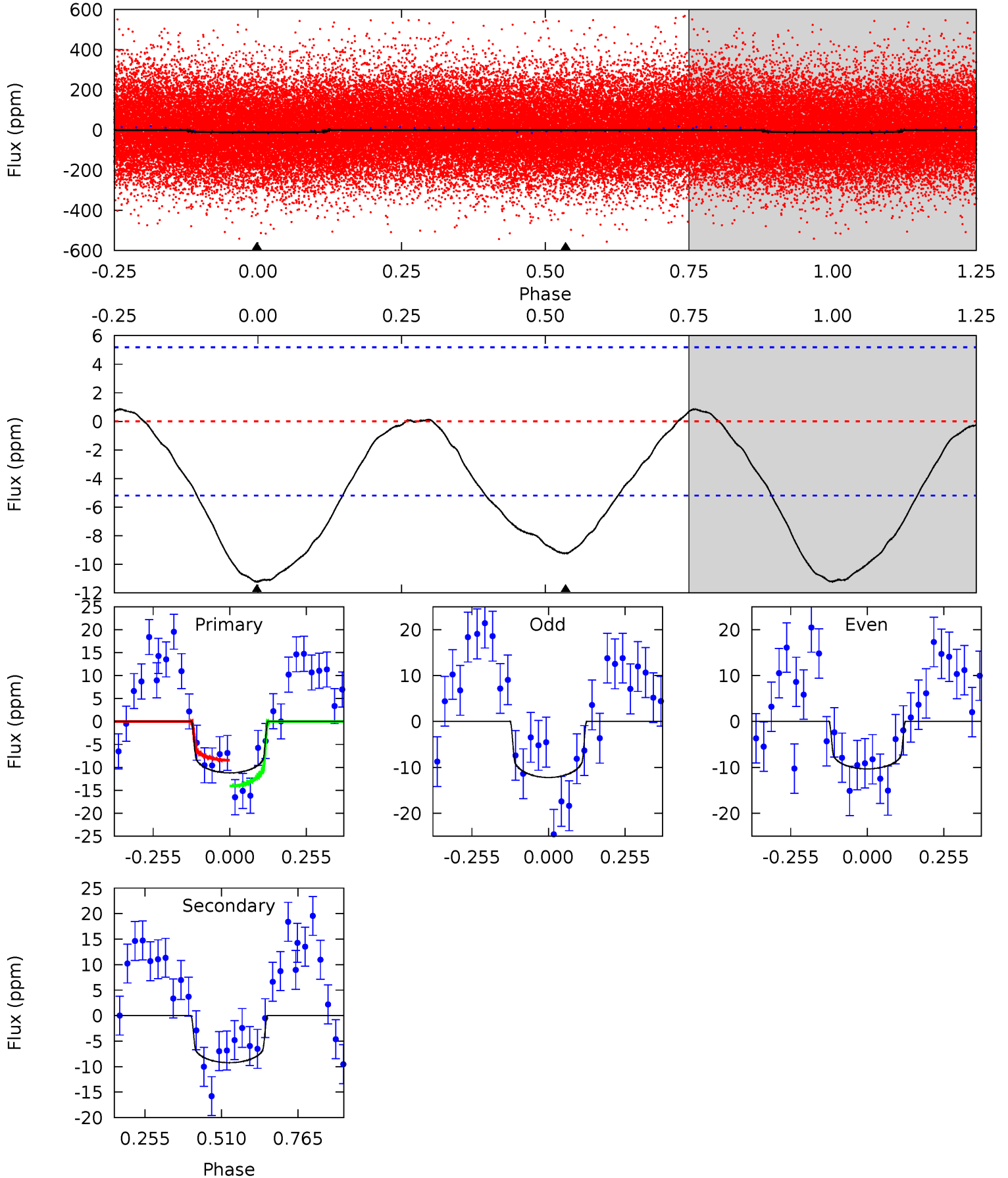
TCE 004380307-01 P= 1.865766 Days $T_0=131.540572$ (BKJD)



DV Model-Shift Uniqueness Test

004380307-01, P = 1.865634 Days, E = 129.710090 Days

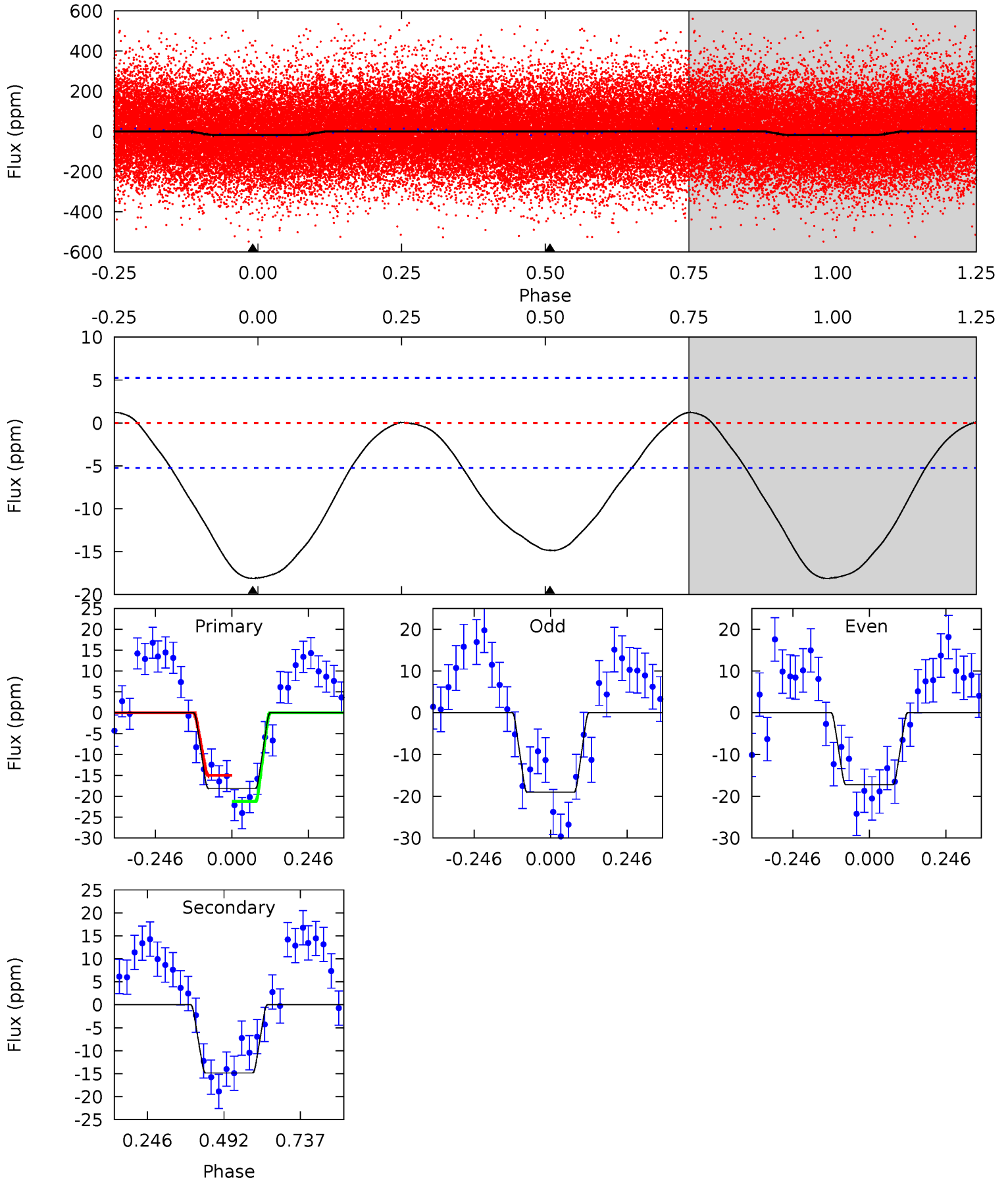
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.44	7.77	0	0	4.36	1.14	0.33	9.44	9.44	7.77	7.77	0.80	1.08	0.07	2.36



Alt Model-Shift Uniqueness Test

004380307-01, P = 1.865766 Days, E = 129.674806 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	12.4	0	0	4.37	1.16	0.56	15.1	15.1	12.4	12.4	0.75	0.90	0.06	2.56



Stellar Parameters For KIC 004380307

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8137^{+226}_{-367}	$4.032^{+0.170}_{-0.139}$	$0.070^{+0.250}_{-0.450}$	$2.221^{+0.458}_{-0.559}$	$1.937^{+0.287}_{-0.382}$	$0.249^{+0.253}_{-0.101}$
	+3%/-5%	+4%/-3%	+357%/-643%	+21%/-25%	+15%/-20%	+101%/-41%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004380307-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-9 ± 1	$0.85^{+0.40}_{-0.35}$	3863^{+265}_{-255}	7181^{+3410}_{-1251}	$9.413^{+19.621}_{-5.025}$
Alt.	-15 ± 1	$1.03^{+0.40}_{-0.37}$	3856^{+252}_{-280}	7499^{+2598}_{-1247}	11^{+16}_{-5}

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

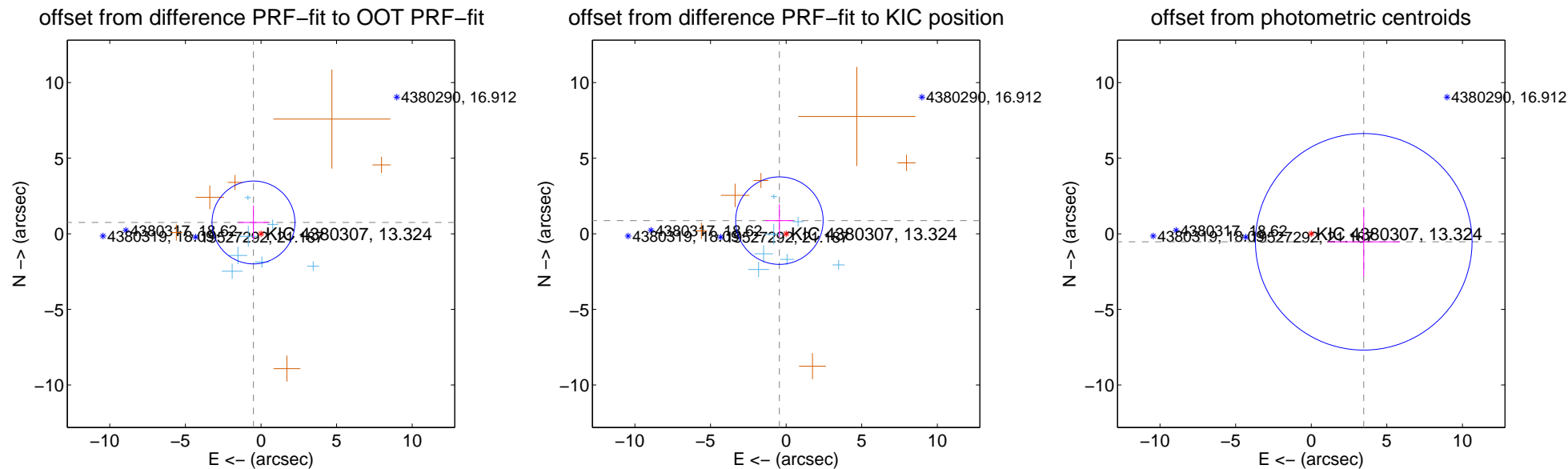
DV Centroid Data

Supplemental centroid analysis for 004380307-01. Kepler magnitude: 13.32. Transit SNR 7.10

There are 7 quarters with good PRF difference image offsets

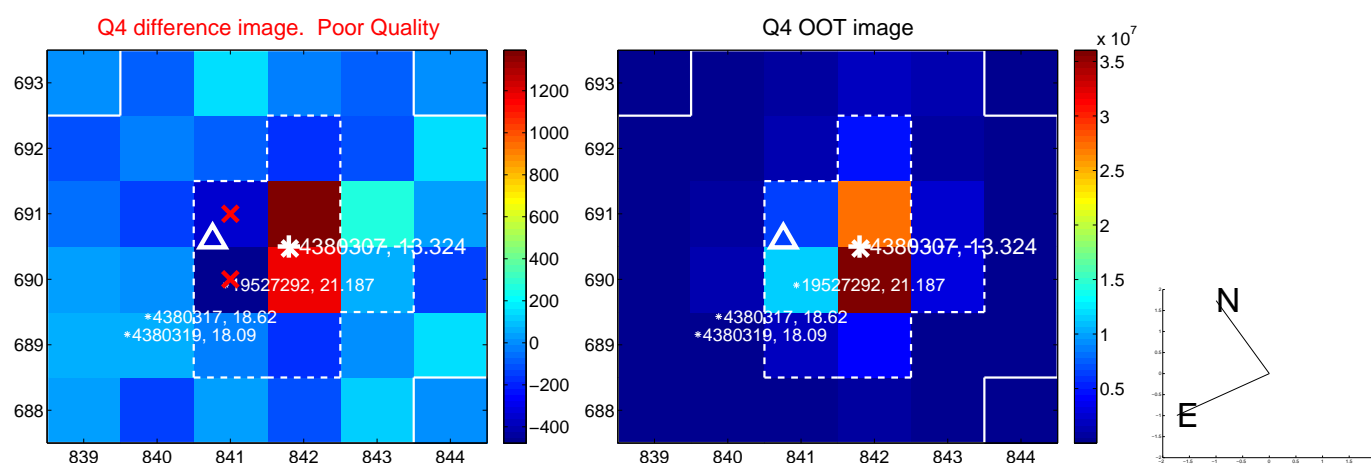
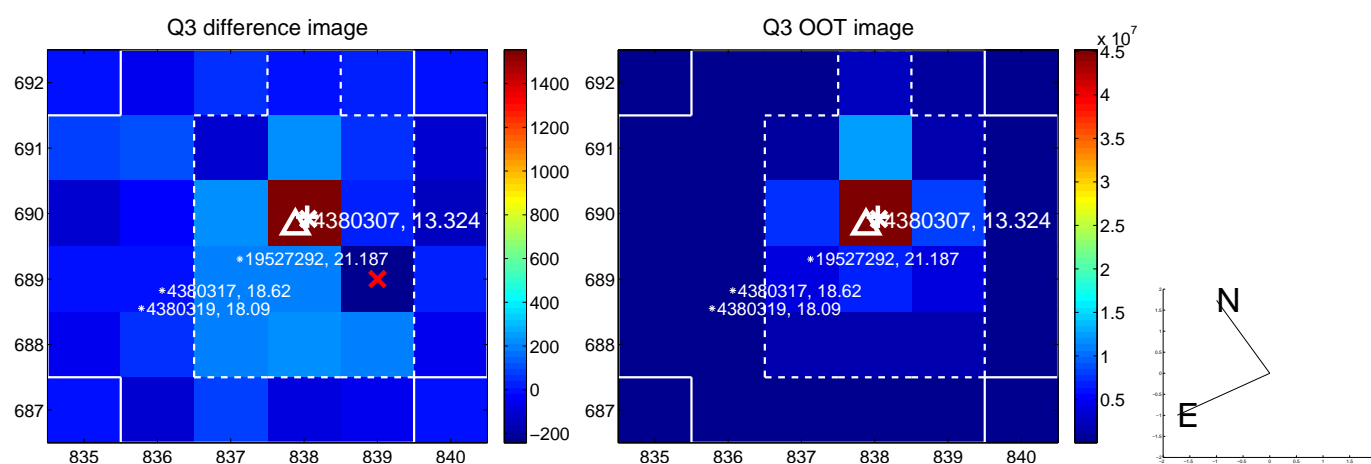
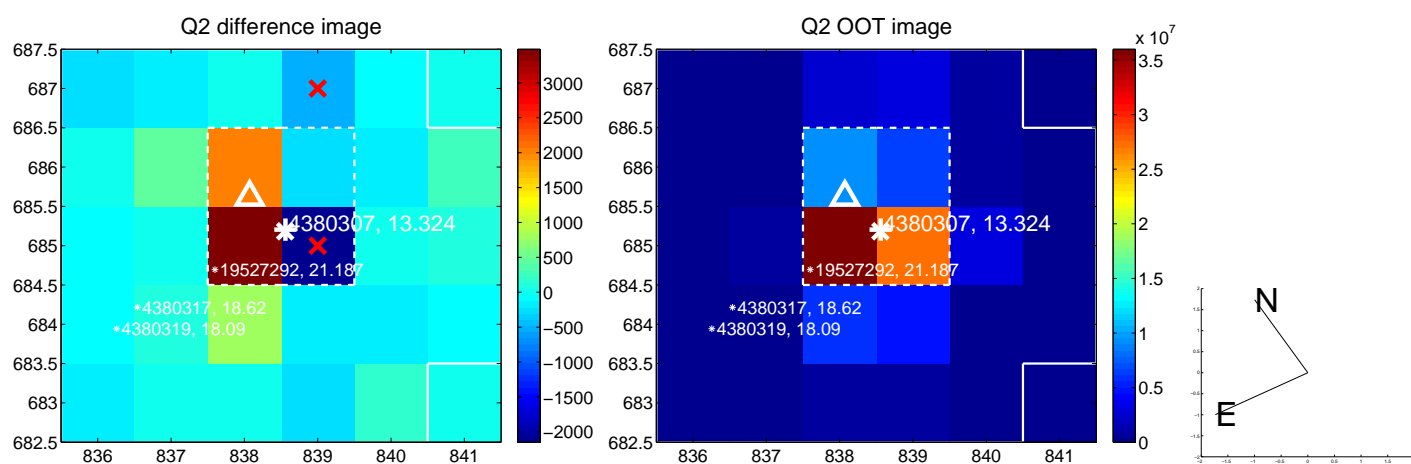
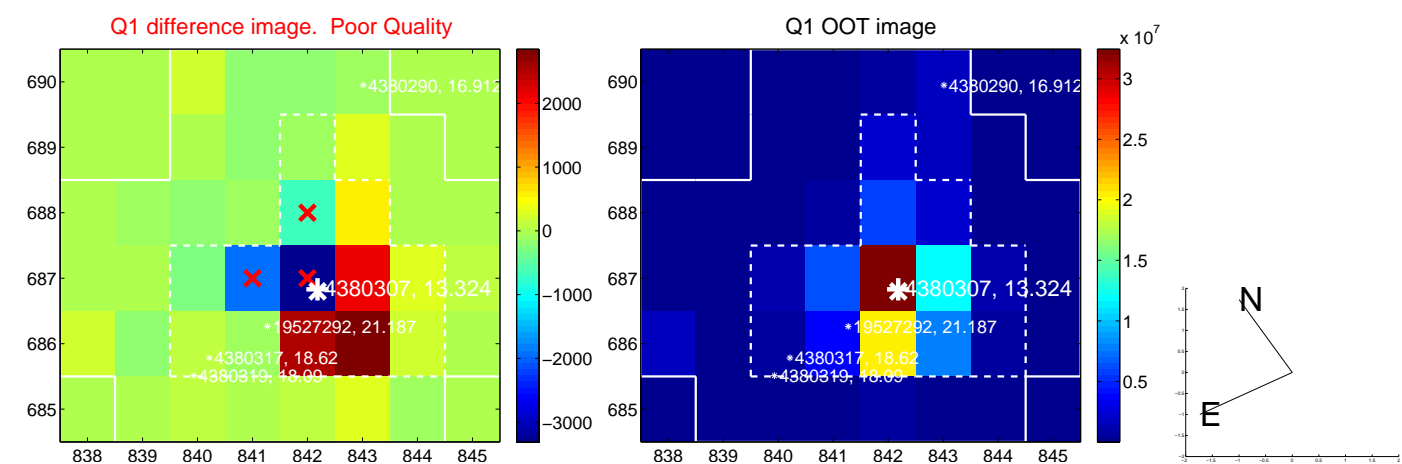
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.899 ± 0.914	0.98	0.498 ± 1.001	0.749 ± 1.120
PRF-fit source offset from KIC position	0.978 ± 0.965	1.01	0.446 ± 0.925	0.870 ± 1.088
photometric centroid source offset	3.51 ± 2.39	1.47	-3.47 ± 2.39	-0.53 ± 2.28

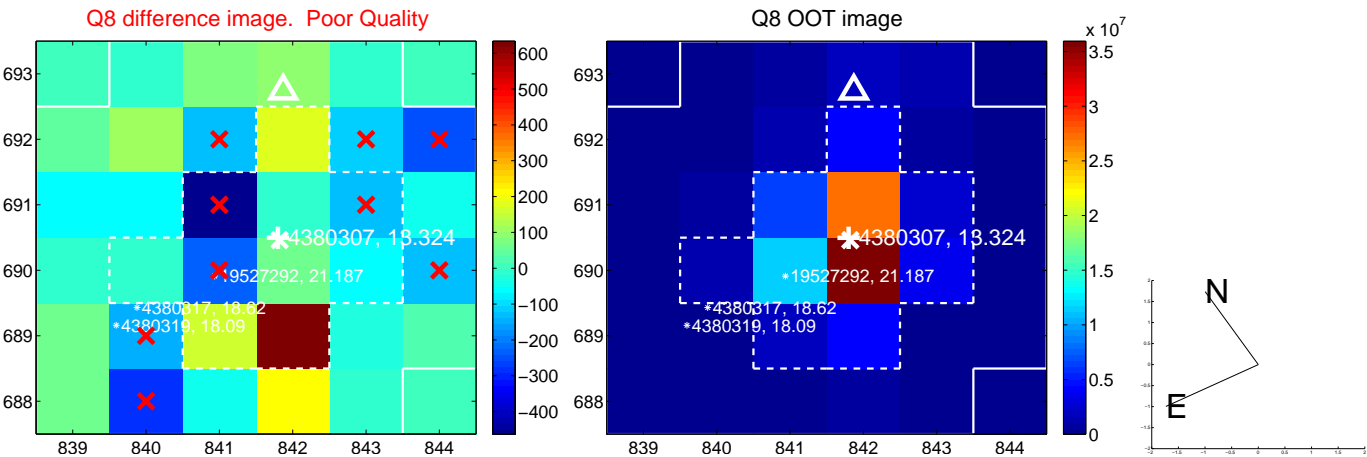
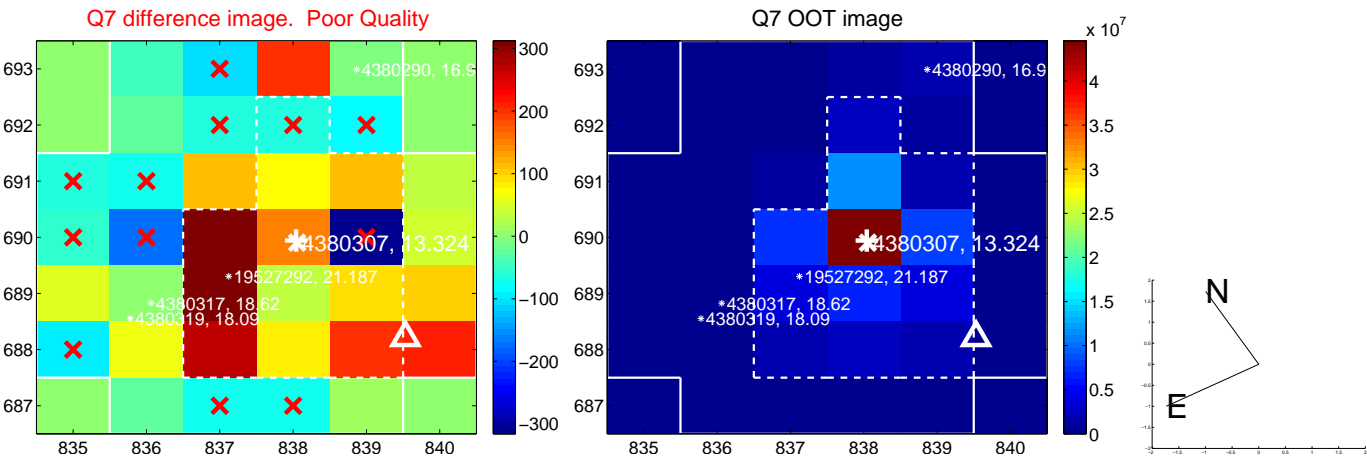
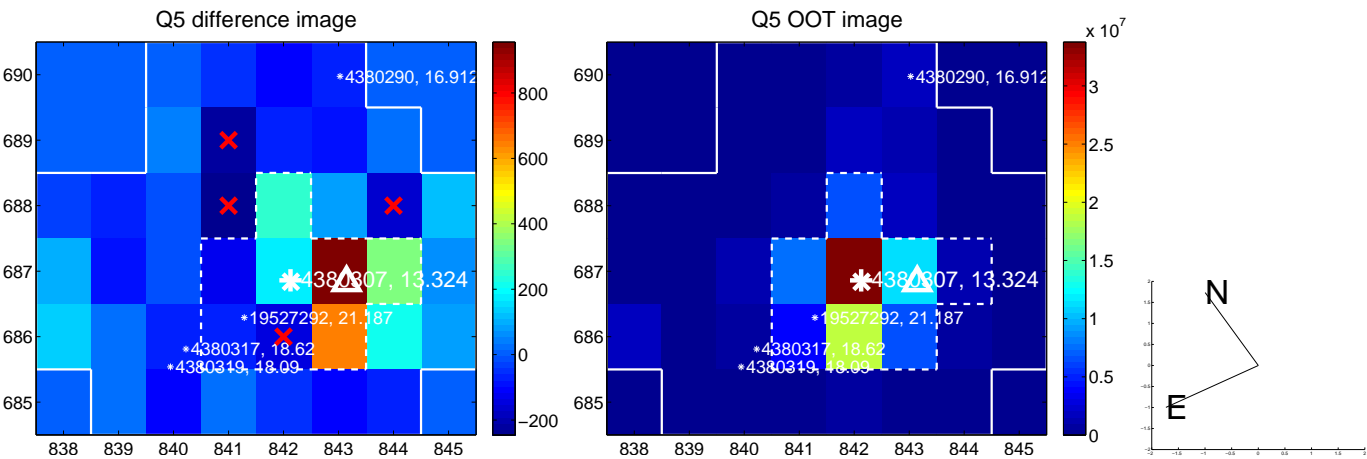


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

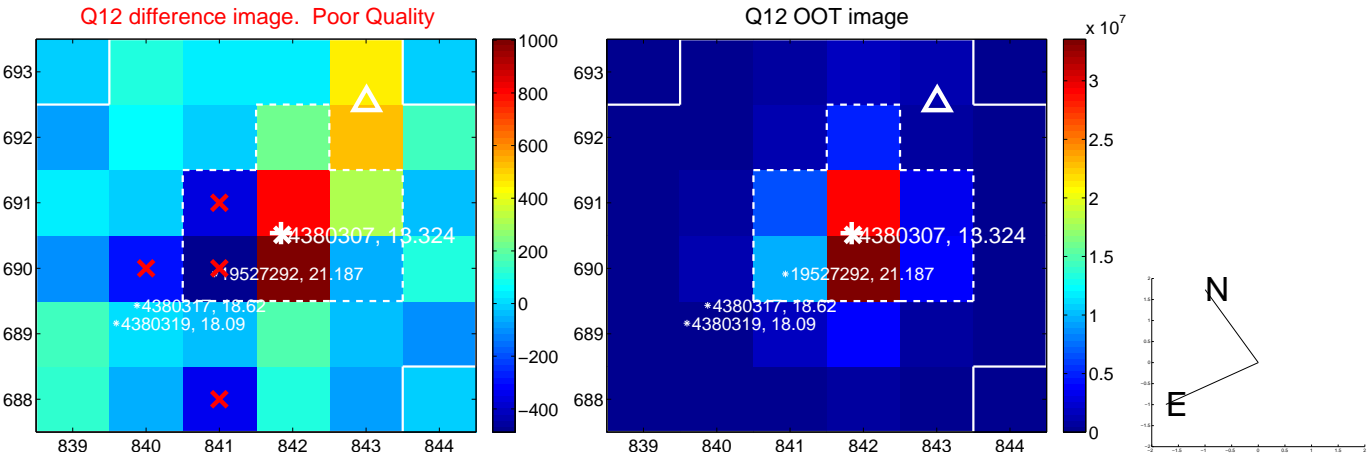
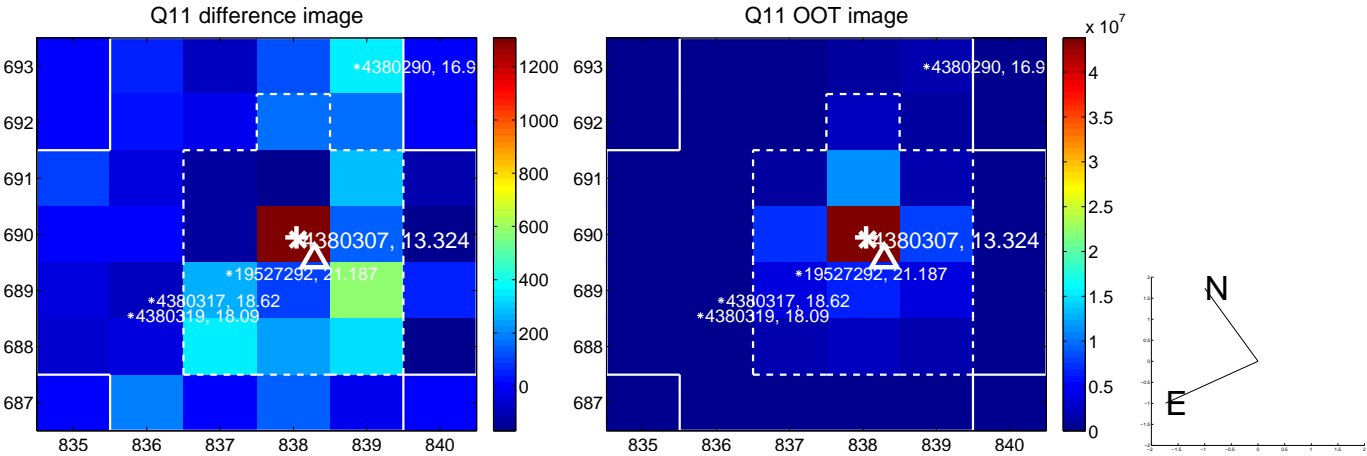
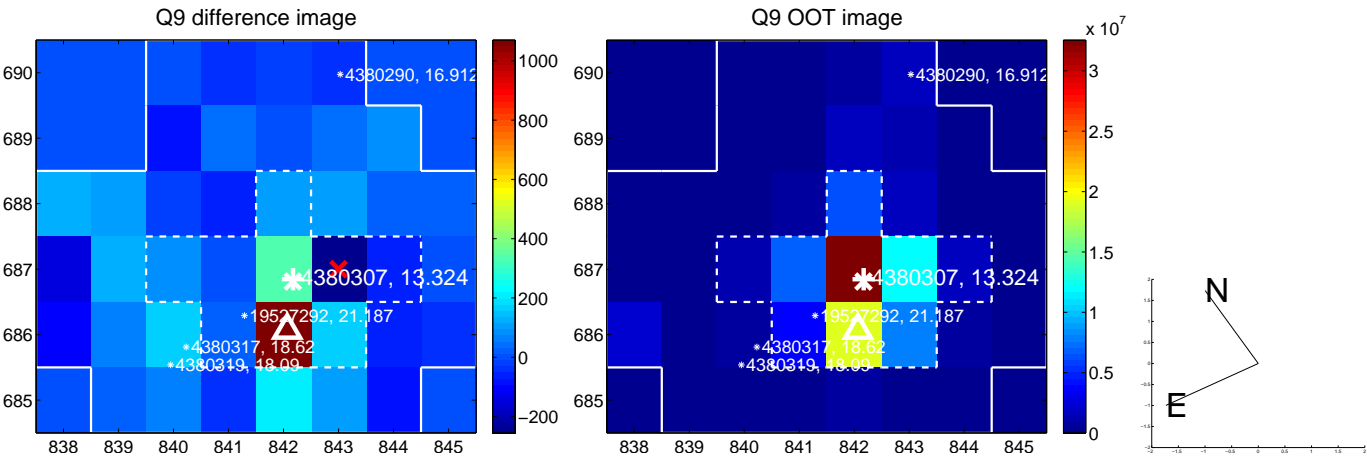
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



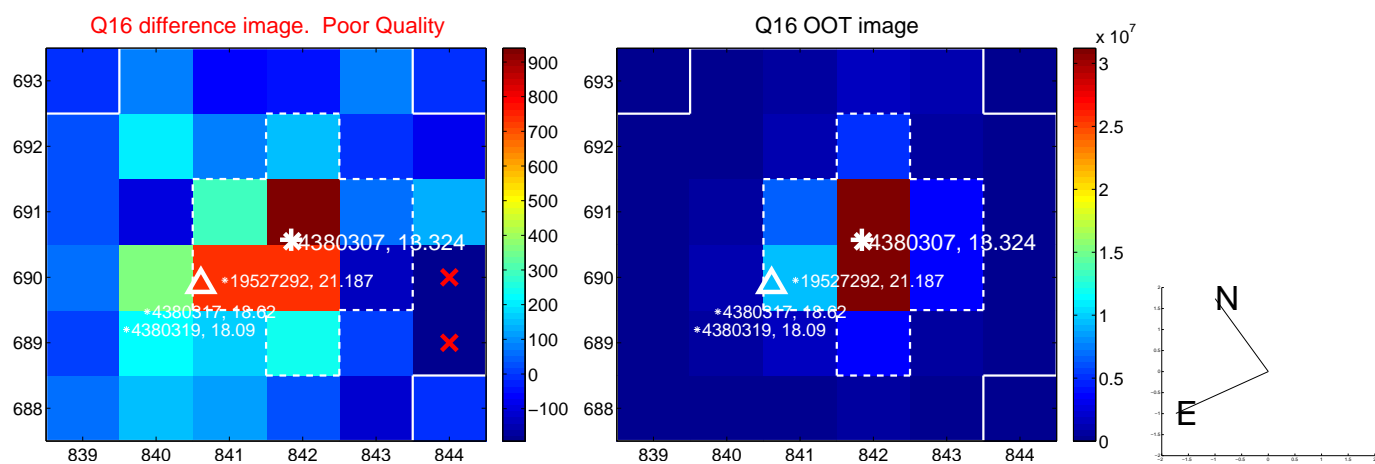
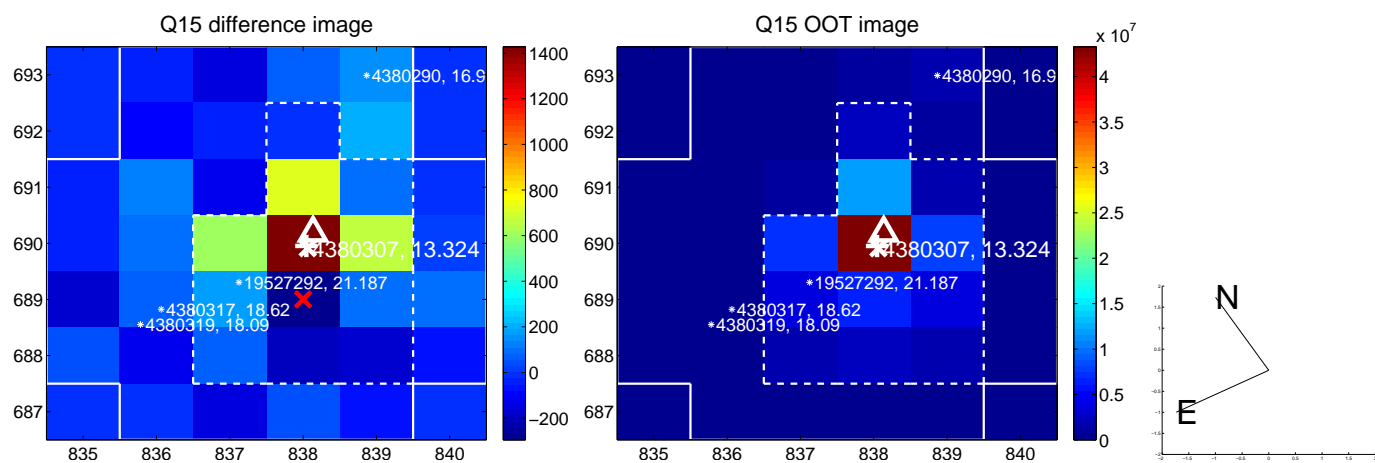
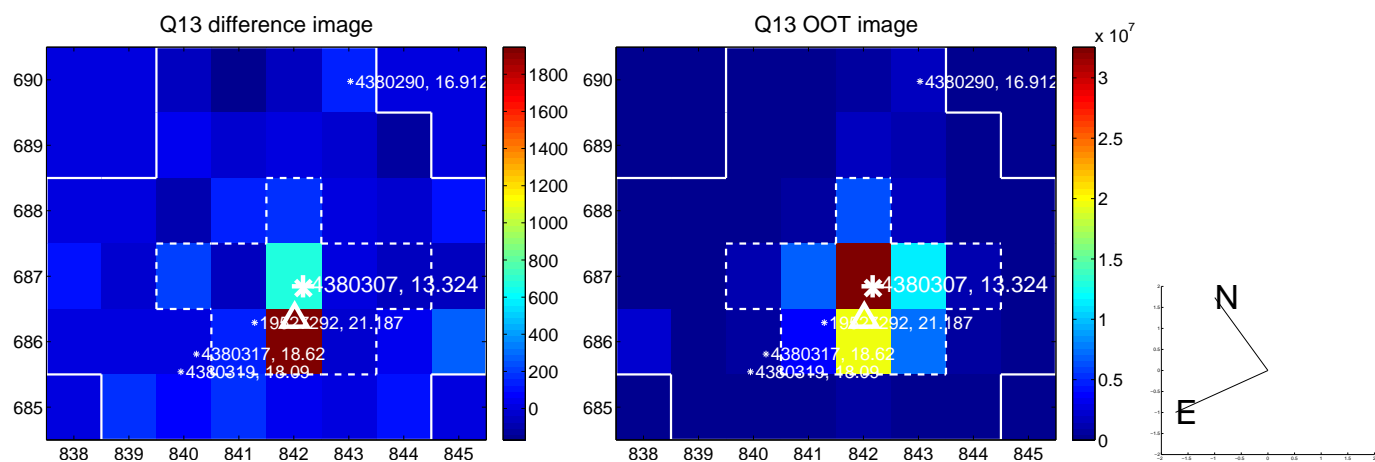
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



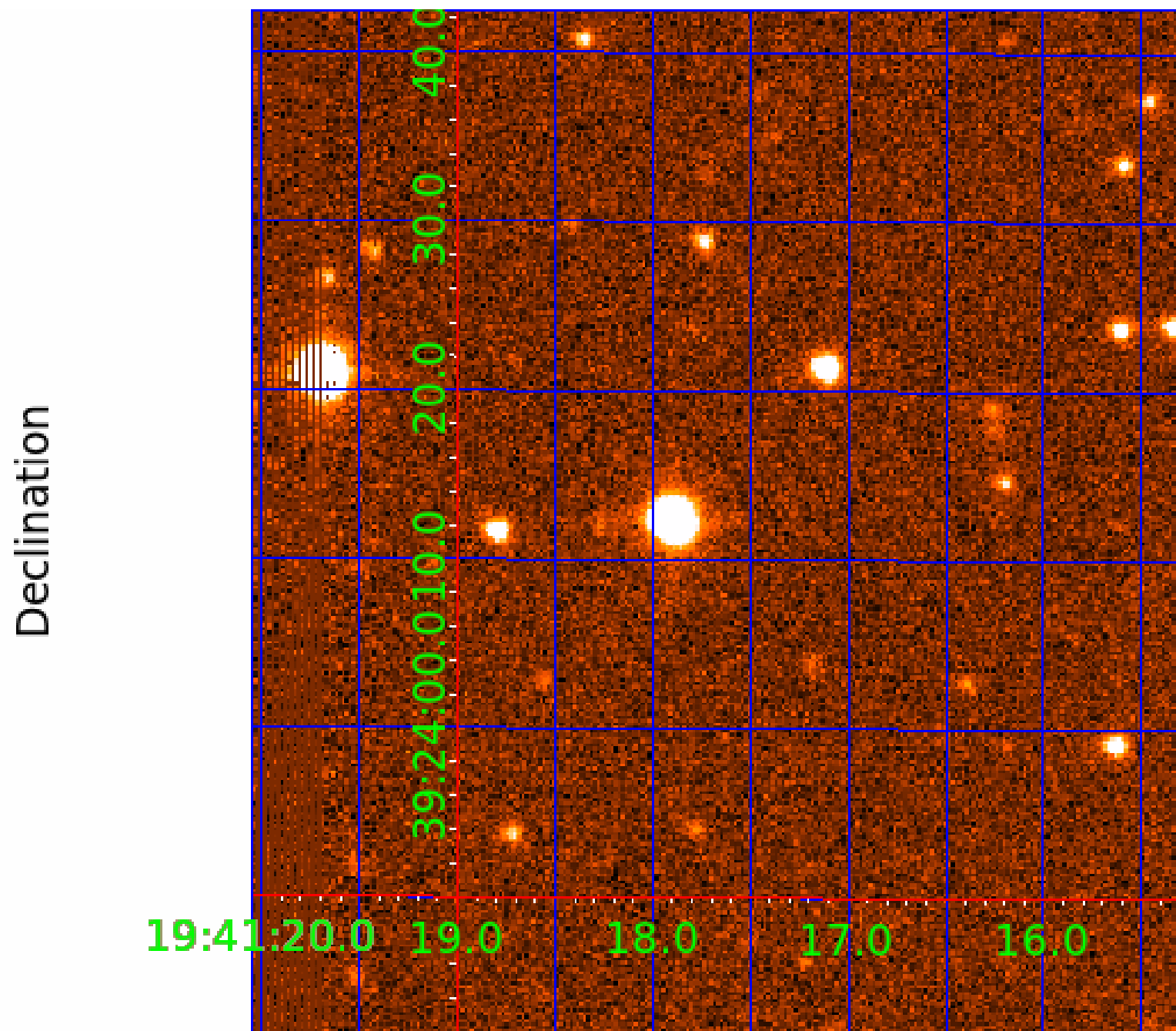
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004380307

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})
004380307-01	OBS	No	1.865634	131.575724	10.9	10.972	7.4	7.1	2.22	8137	0.86	14169.32
004380307-02	OBS	No	94.256404	179.808437	101.6	10.477	10.8	7.3	2.22	8137	2.58	75.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004380307-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004380307-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_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.

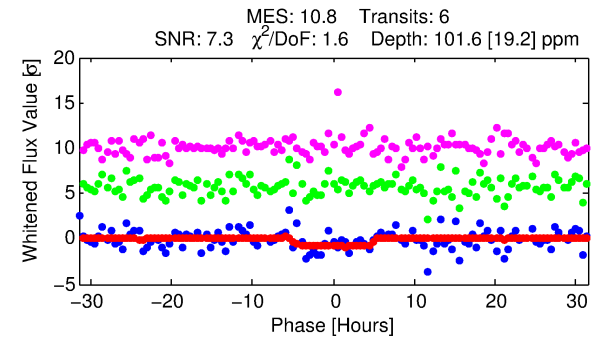
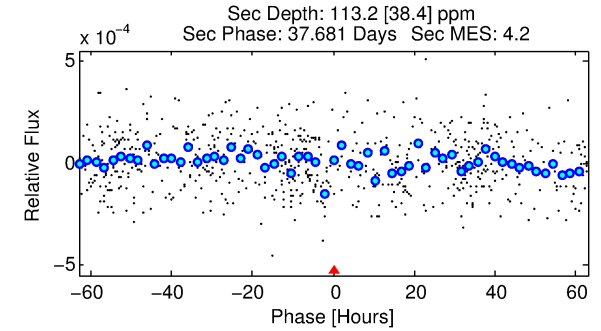
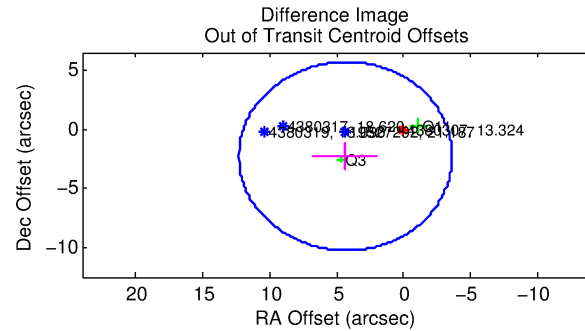
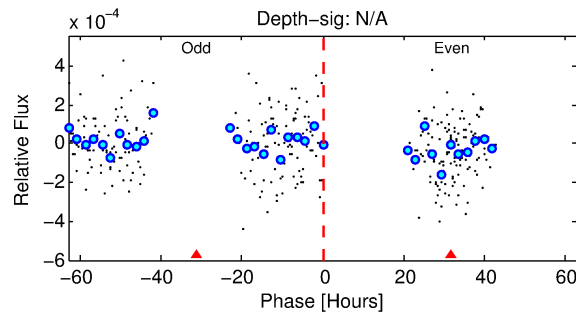
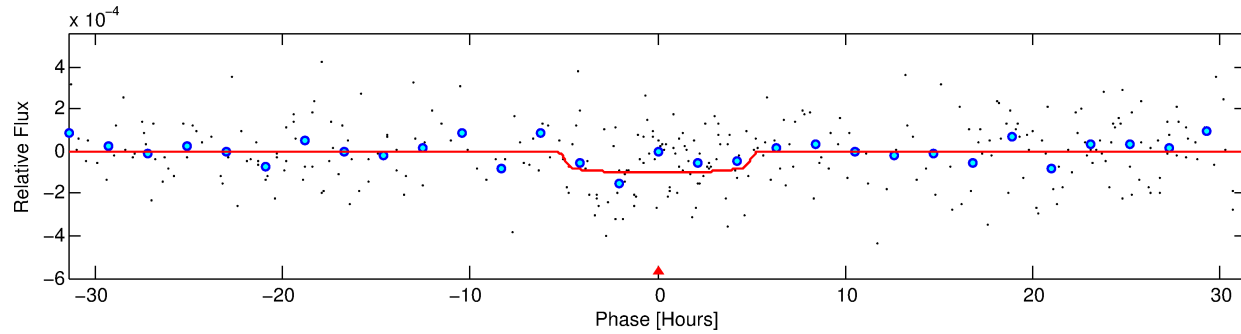
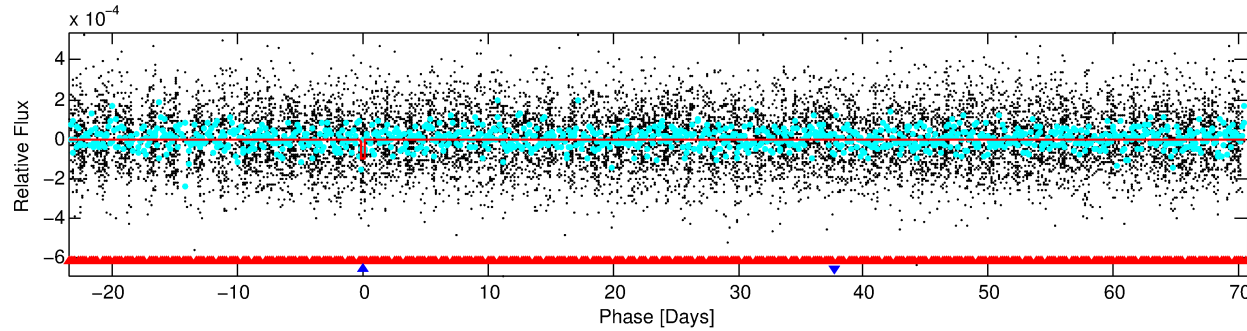
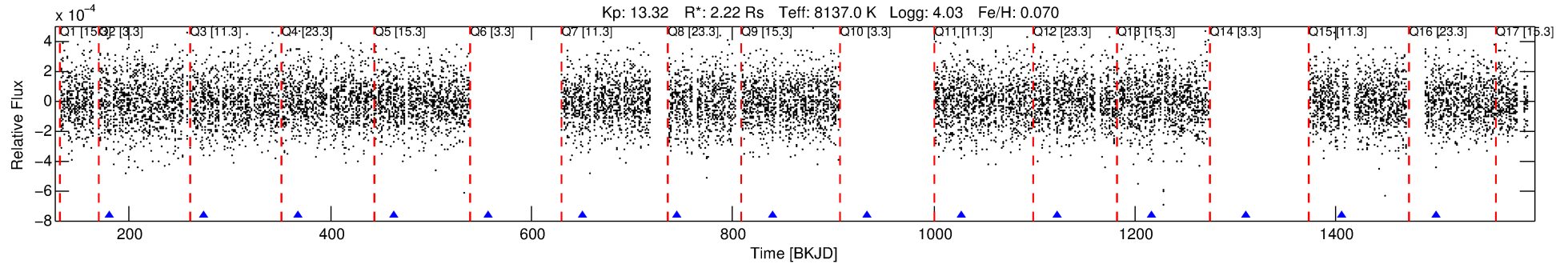
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004380307-02

No Significant Match Found

DV One-Page Summary

KIC: 4380307 Candidate: 2 of 2 Period: 94.256 d



DV Fit Results:

Period = 94.25640 [0.01050] d
Epoch = 179.8084 [0.0679] BKJD
Rp/R* = 0.0107 [0.0045]
a/R* = 32.95 [84.98]
b = 0.89 [0.60]
Seff = 75.86 [27.23]
Teq = 753 [68] K
Rp = 2.58 [1.26] Re
a = 0.5054 [0.1074] AU
Ag = 2385.63 [2279.29] [1.05σ]
Teffp = 8132 [1873] K [3.94σ]

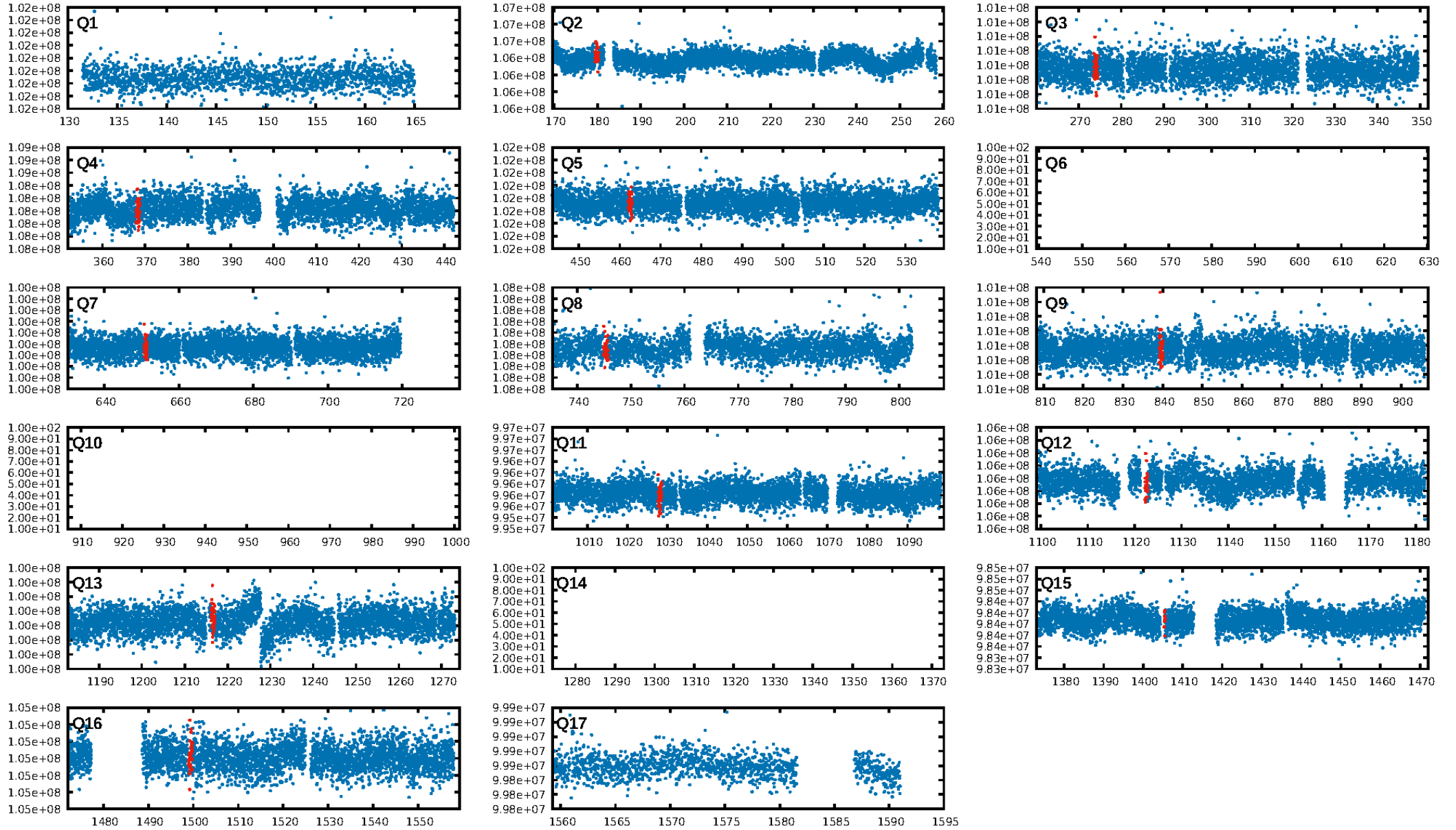
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [146.16σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 91.4%
Bootstrap-pfa: 1.03e-15
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 7.121
Centroid-sig: 94.1%
Centroid-so: 0.458 arcsec [0.22σ]
OotOffset-rm: 4.885 arcsec [1.84σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-rm: 4.804 arcsec [3.00σ]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/8]

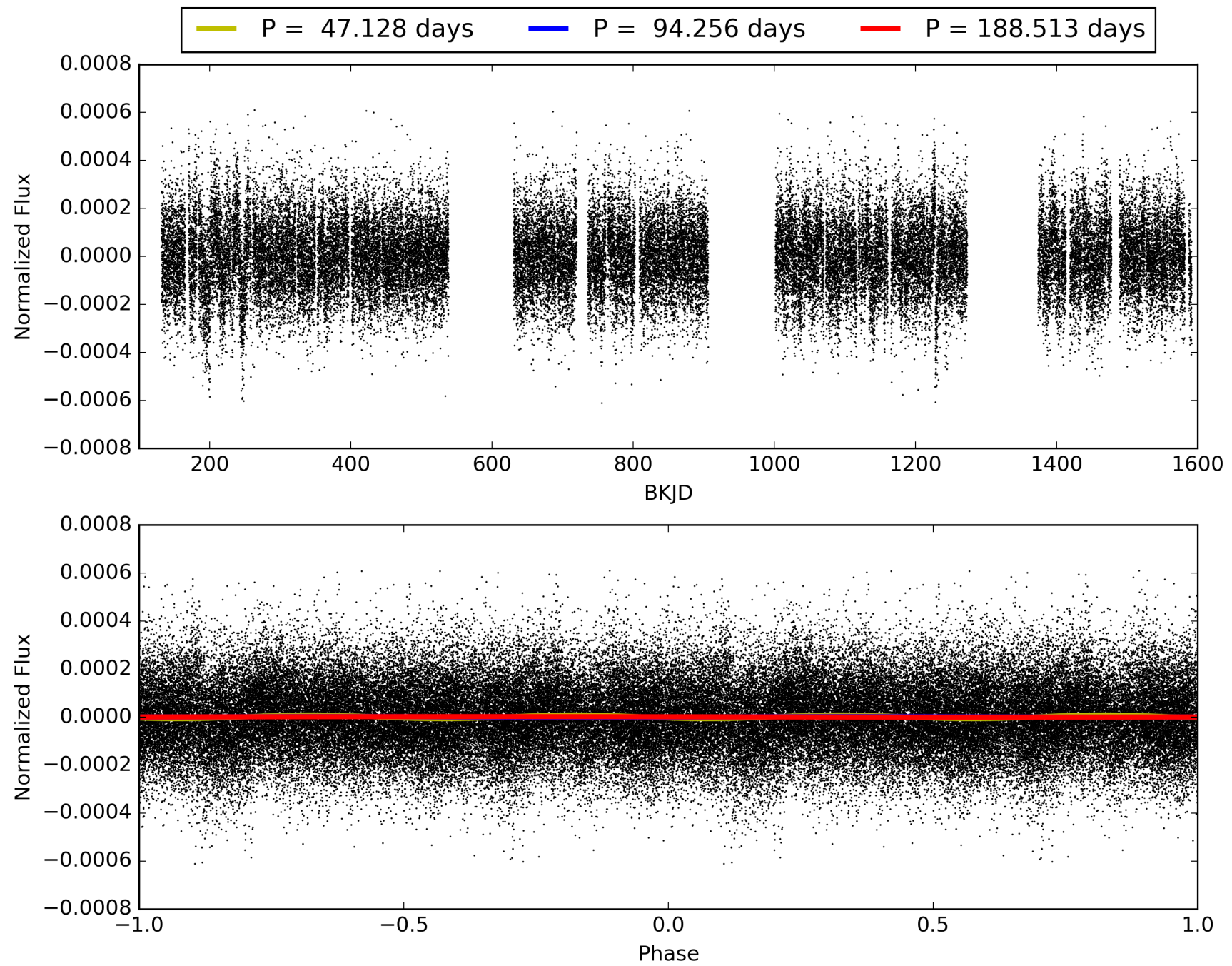
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004380307-02, PDC Light Curves

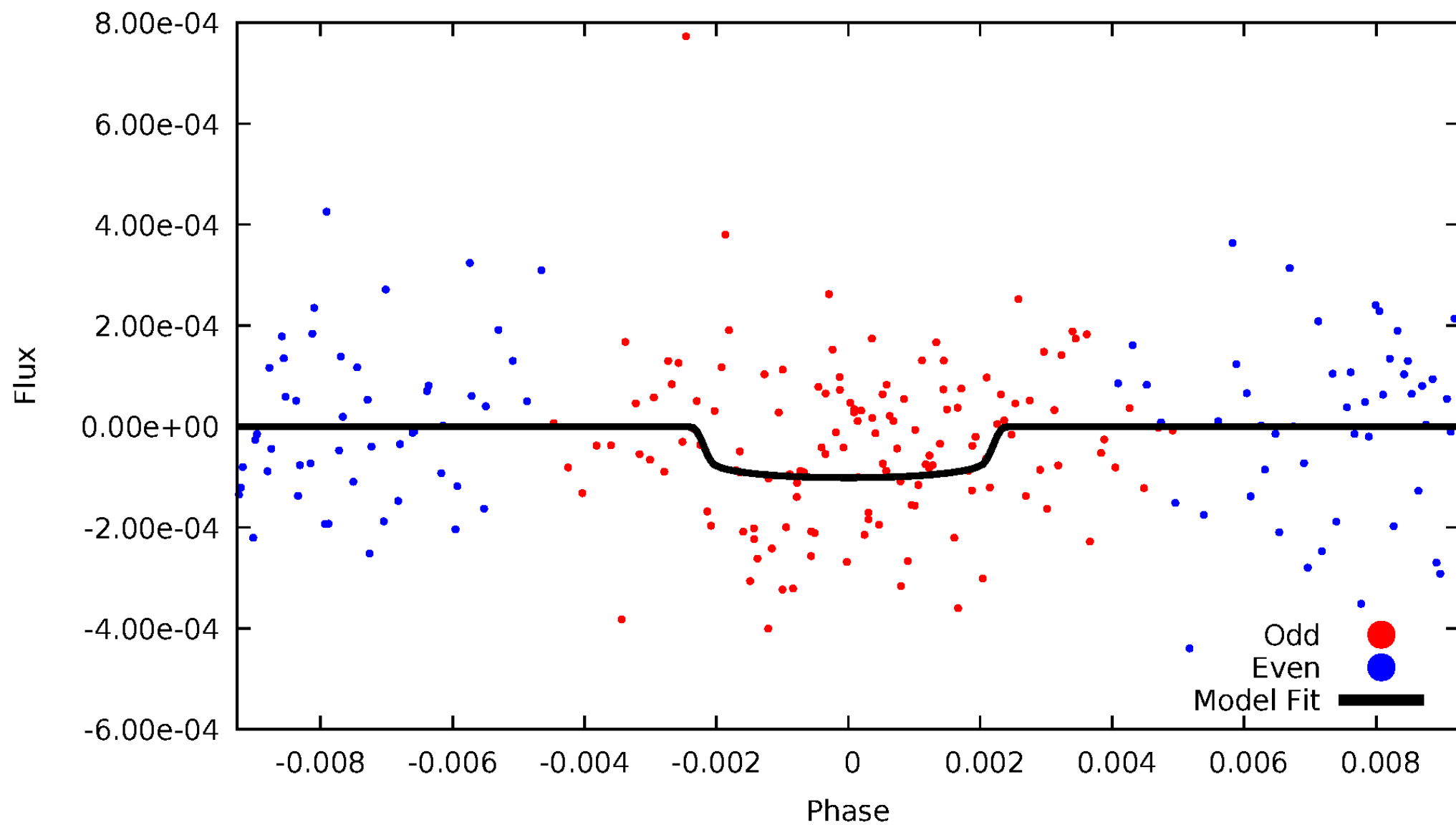


TCE 004380307-02



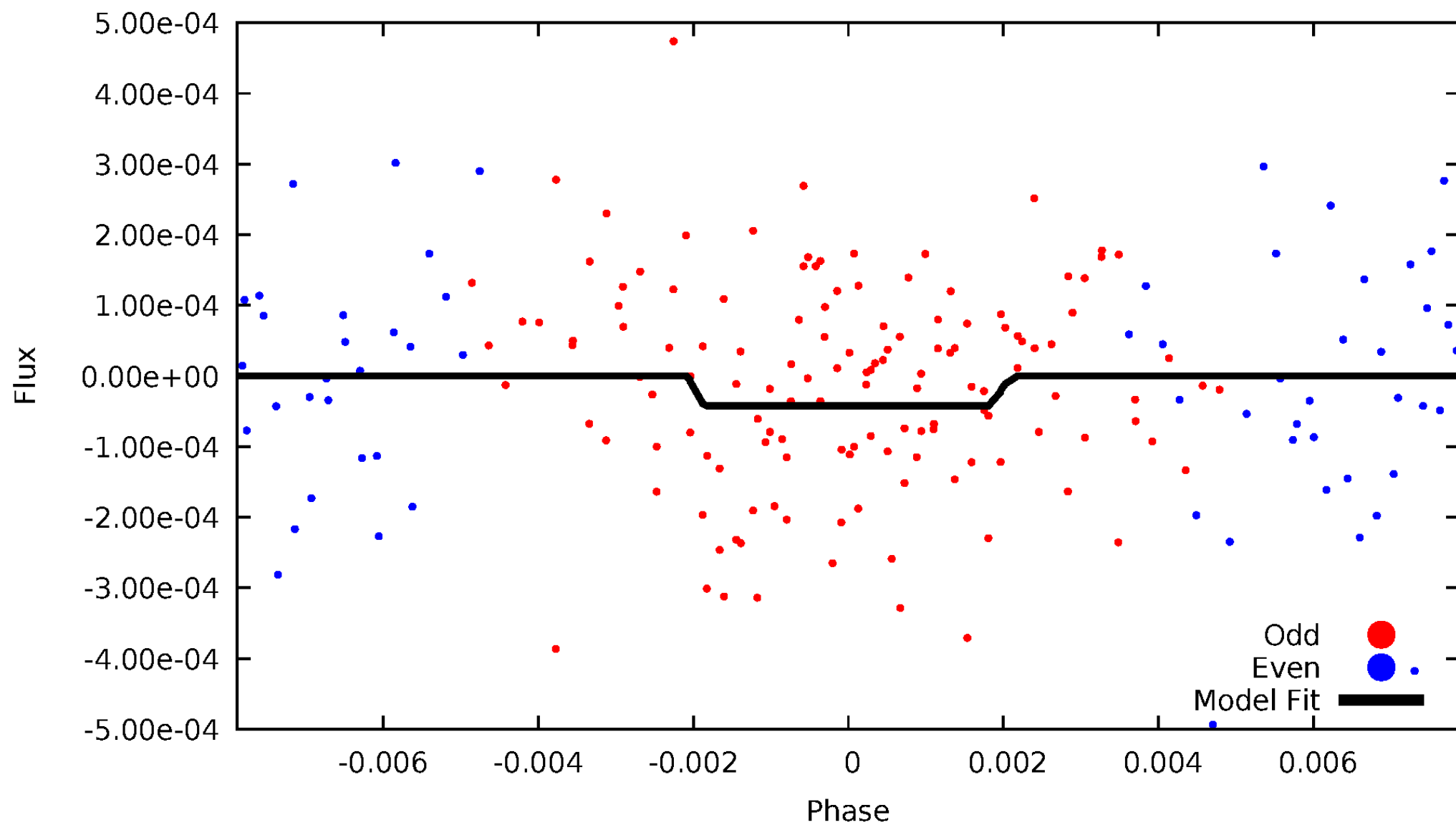
DV Odd/Even

TCE 004380307-02



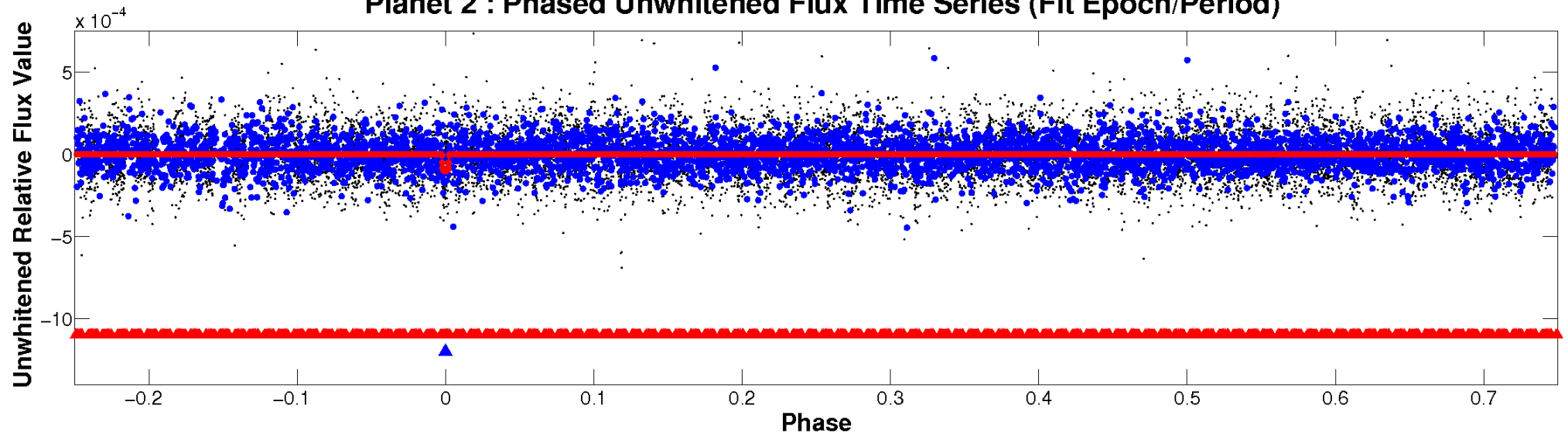
ALT Odd/Even

TCE 004380307-02

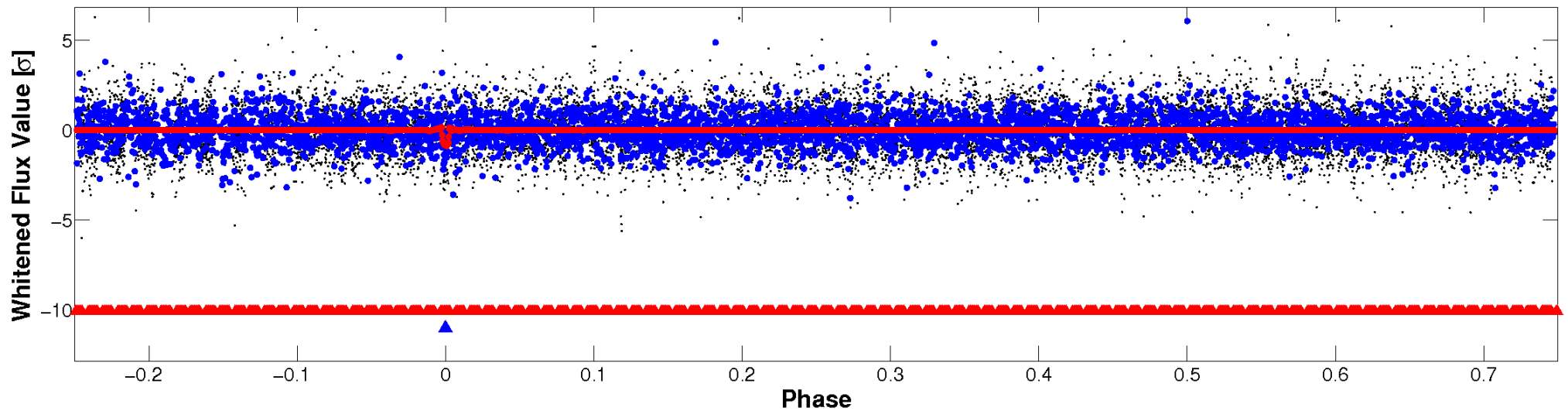


Non-Whitened Vs. Whitened Light Curve

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

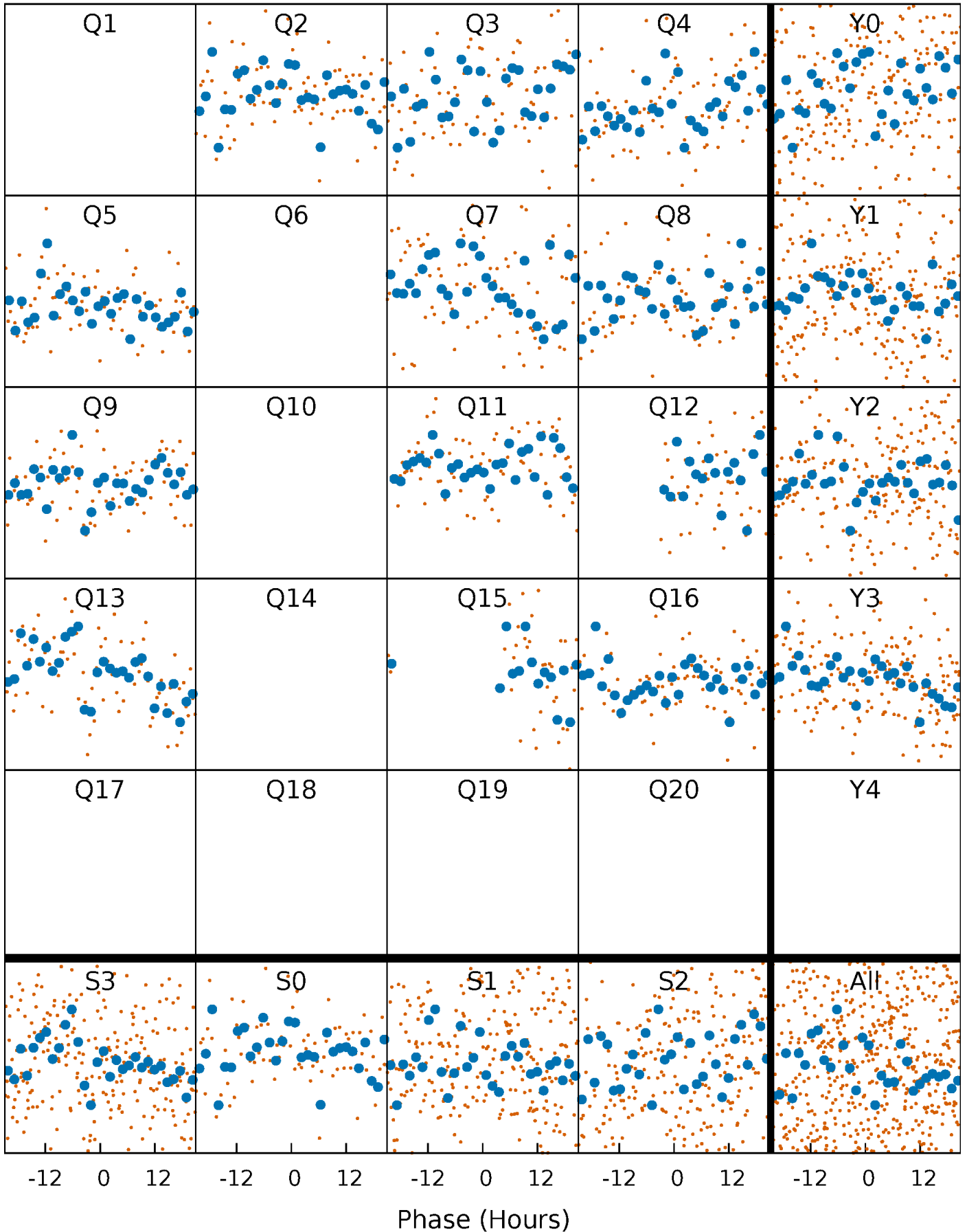


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



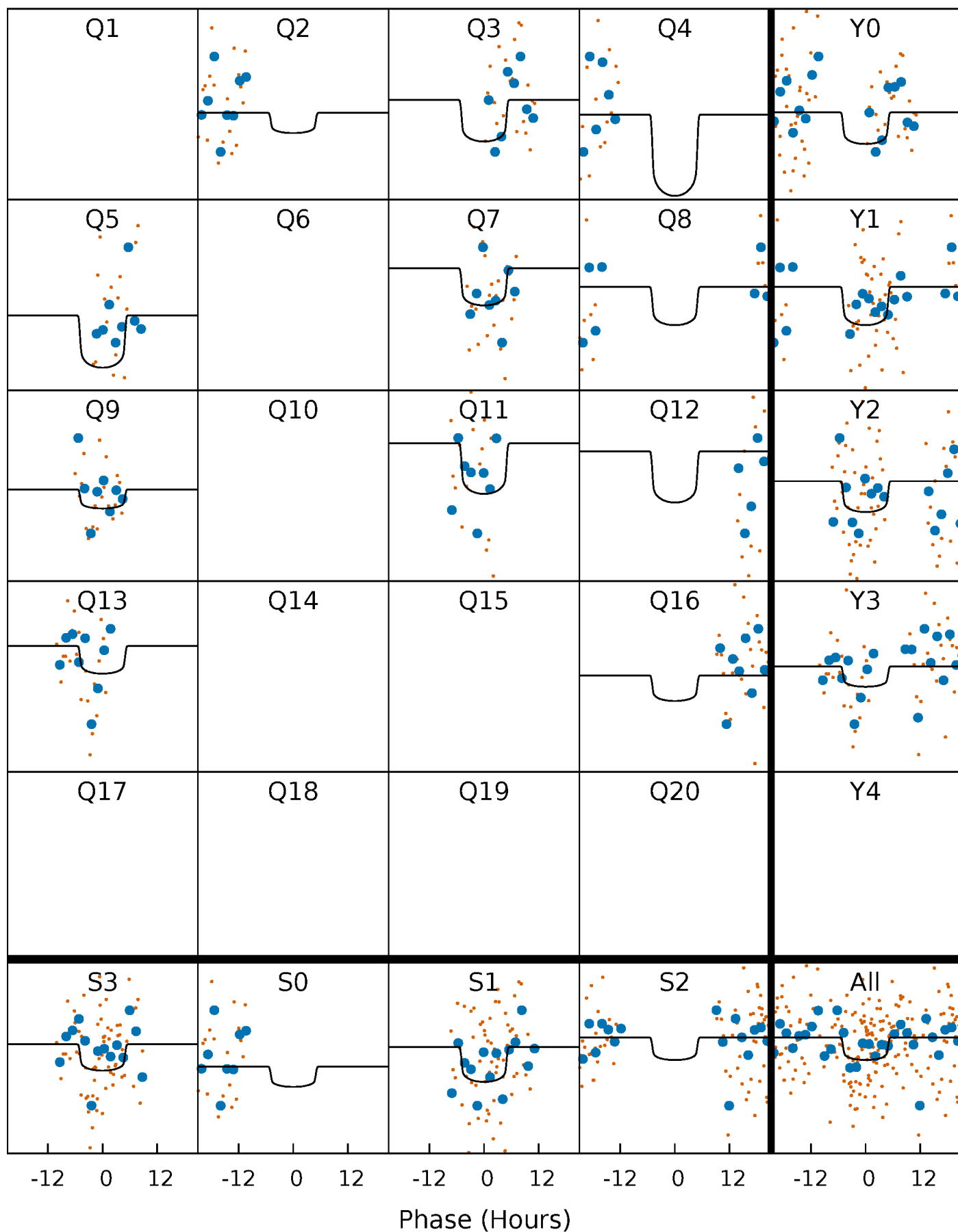
PDC Quarter-Phased Transit Curves

TCE 004380307-02 P= 94.256404 Days $T_0=179.808437$ (BKJD)



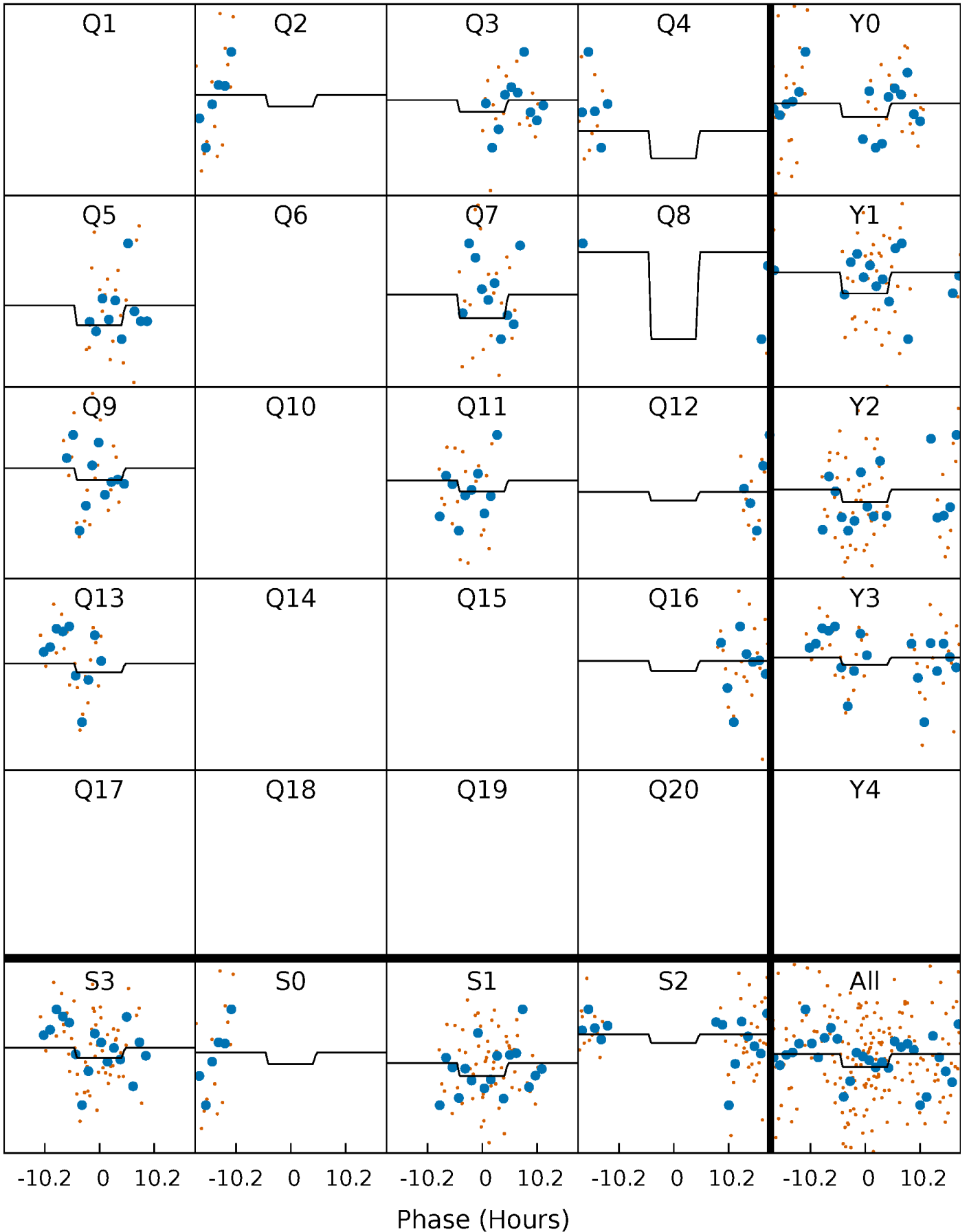
DV Quarter-Phased Transit Curves

TCE 004380307-02 P= 94.256404 Days $T_0=179.808437$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

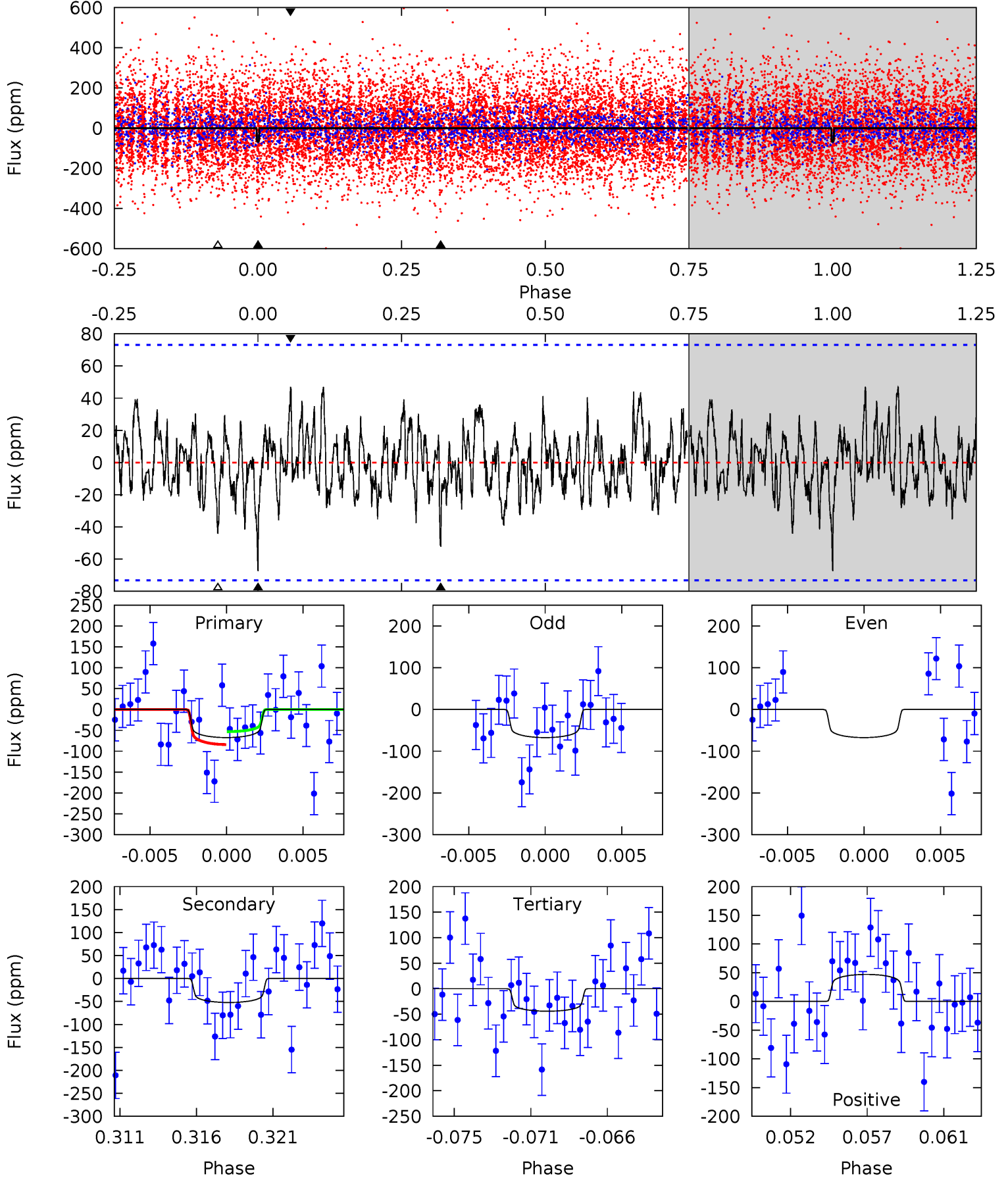
TCE 004380307-02 P= 94.258869 Days $T_0=179.818035$ (BKJD)



DV Model-Shift Uniqueness Test

004380307-02, P = 94.256404 Days, E = 85.552033 Days

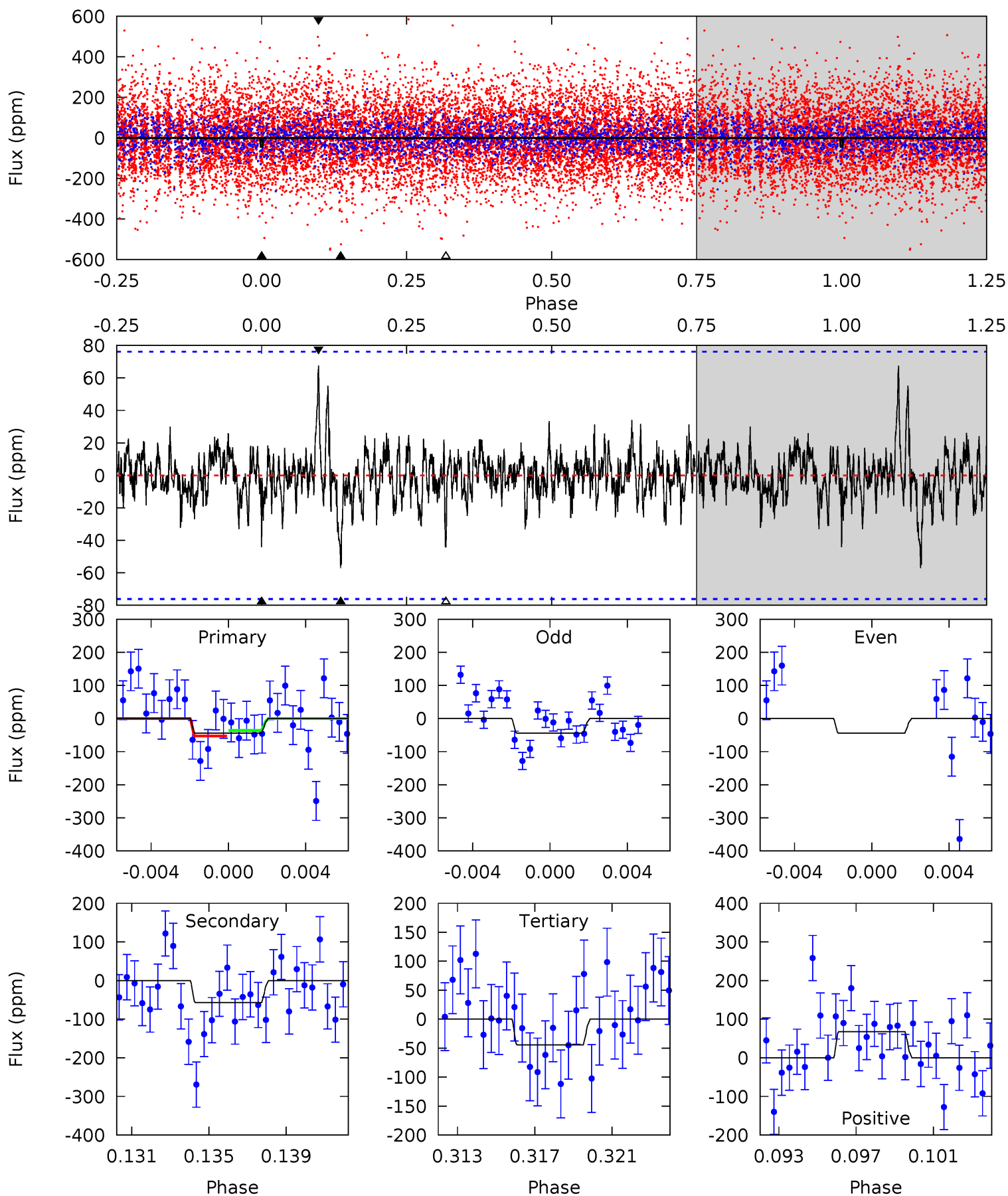
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.76	3.69	3.12	3.33	5.17	2.83	1.14	1.64	1.43	0.58	0.36	0	1.04	0.41	1.09



Alt Model-Shift Uniqueness Test

004380307-02, P = 94.258869 Days, E = 85.559166 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.00	3.88	3.01	4.61	5.19	2.86	0.86	-0.01	-1.60	0.87	-0.72	0	0.79	0.54	0.57



Stellar Parameters For KIC 004380307

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8137^{+226}_{-367}	$4.032^{+0.170}_{-0.139}$	$0.070^{+0.250}_{-0.450}$	$2.221^{+0.458}_{-0.559}$	$1.937^{+0.287}_{-0.382}$	$0.249^{+0.253}_{-0.101}$
	+3%/-5%	+4%/-3%	+357%/-643%	+21%/-25%	+15%/-20%	+101%/-41%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004380307-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-52 ± 14	$2.59^{+1.16}_{-1.03}$	1045^{+70}_{-74}	6474^{+2302}_{-1209}	1102^{+1998}_{-640}
Alt.	-57 ± 15	$1.67^{+1.11}_{-0.98}$	1047^{+66}_{-74}	8455^{+9350}_{-2007}	2943^{+13985}_{-1923}

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 $A_{obs} \gg 1.0$

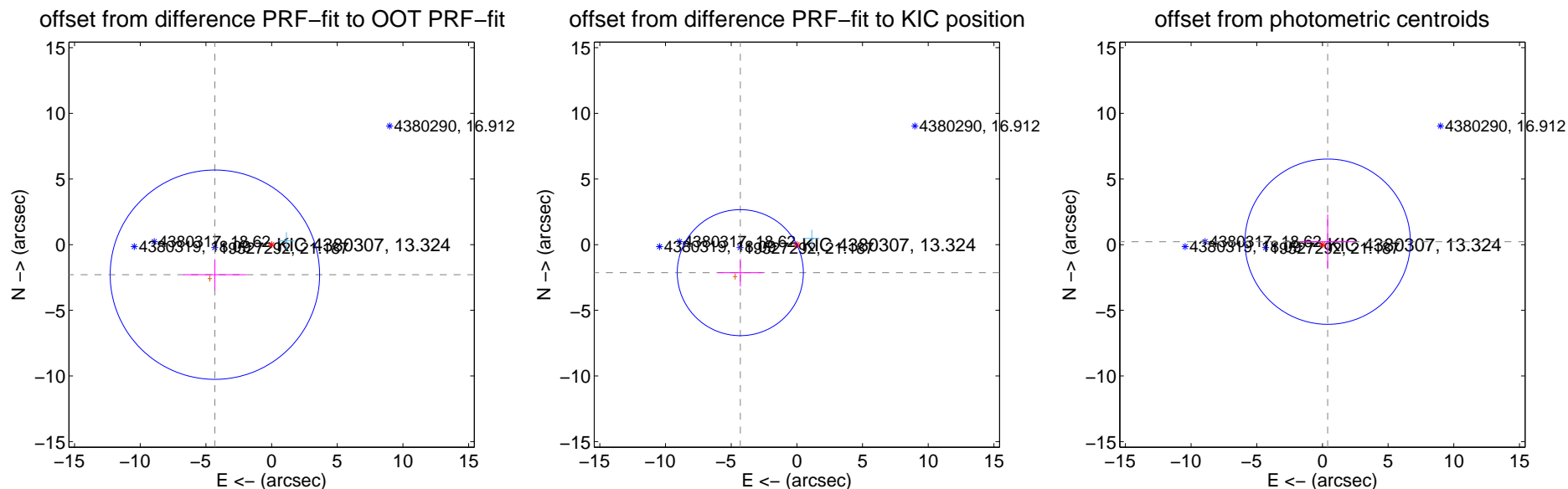
DV Centroid Data

Supplemental centroid analysis for 004380307-02. Kepler magnitude: 13.32. Transit SNR 7.27

There are 1 quarters with good PRF difference image offsets

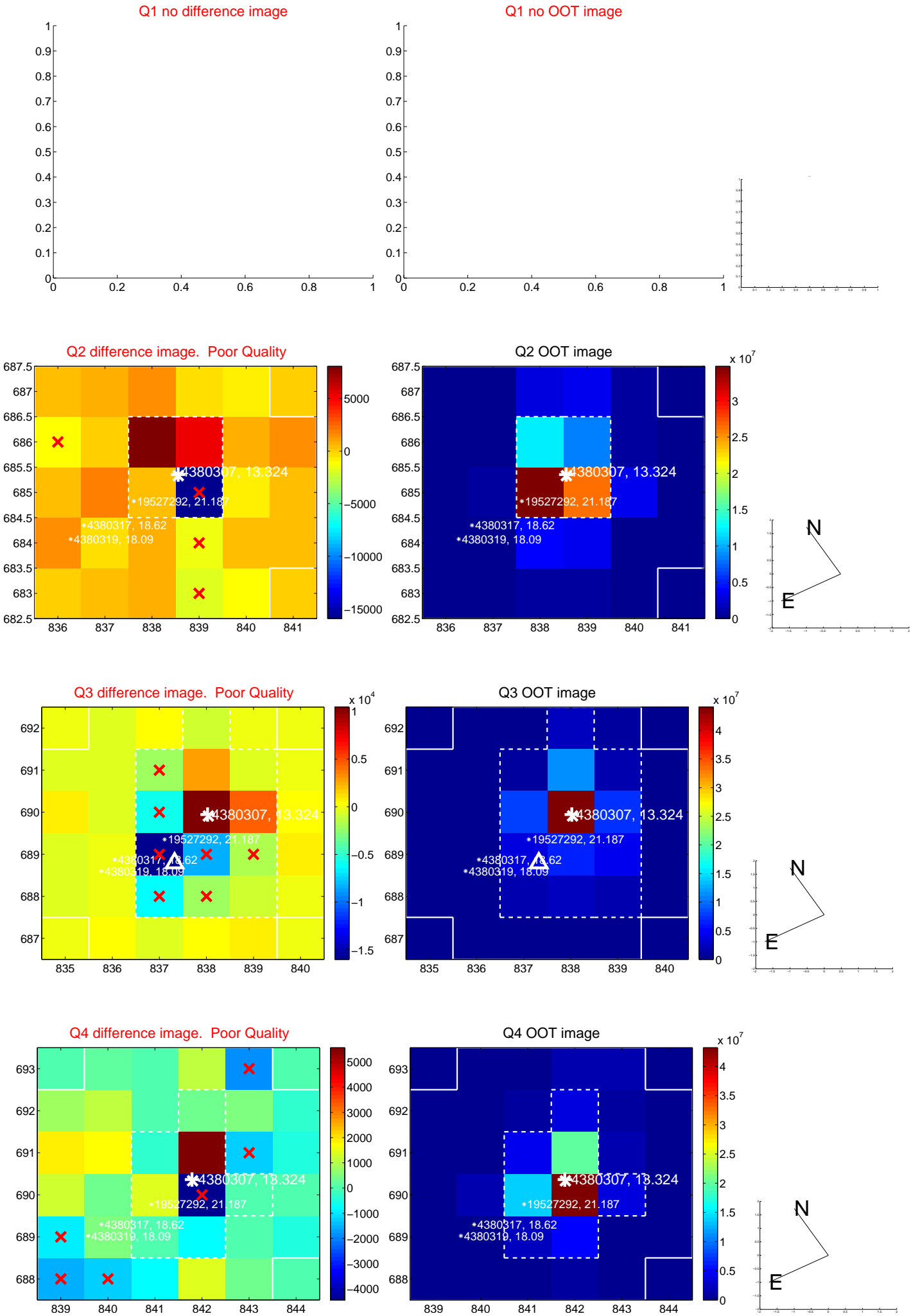
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.885 ± 2.656	1.84	4.316 ± 2.384	-2.287 ± 1.176
PRF-fit source offset from KIC position	4.804 ± 1.599	3.00	4.304 ± 1.708	-2.132 ± 1.043
photometric centroid source offset	0.46 ± 2.10	0.22	-0.40 ± 2.11	0.23 ± 2.07

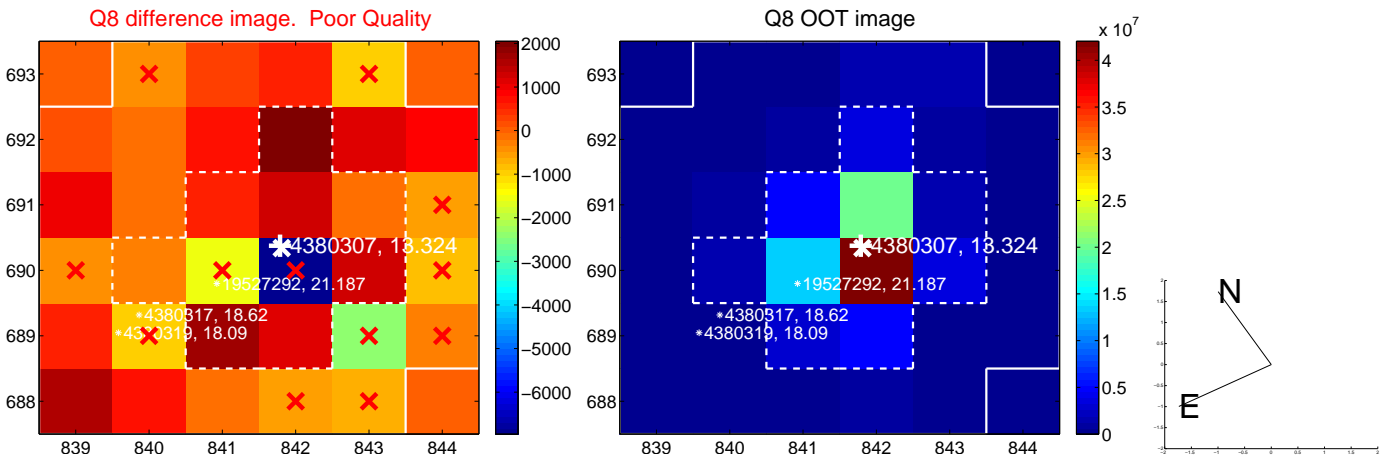
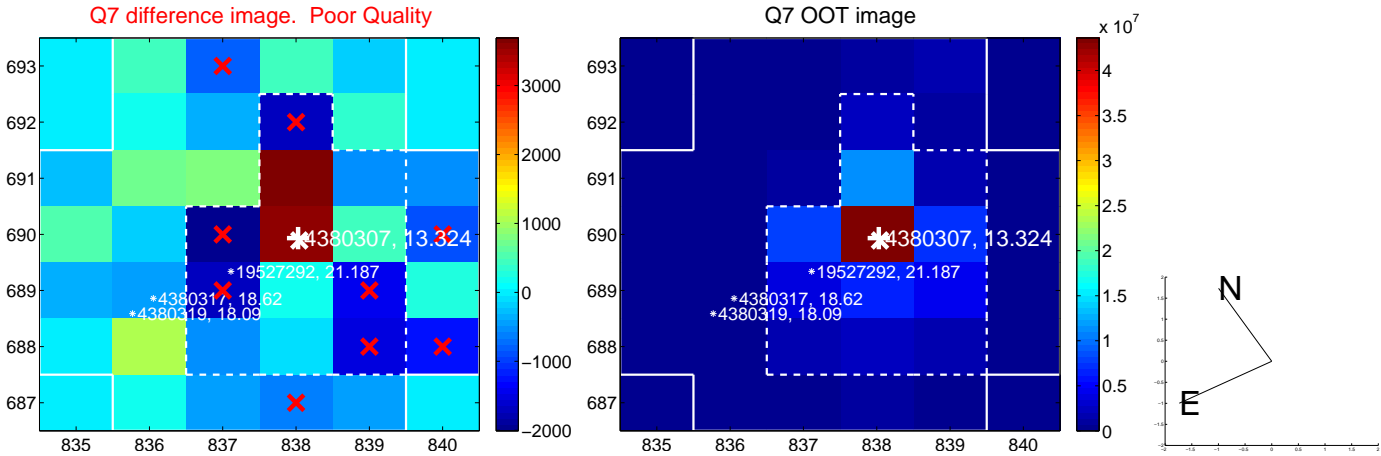
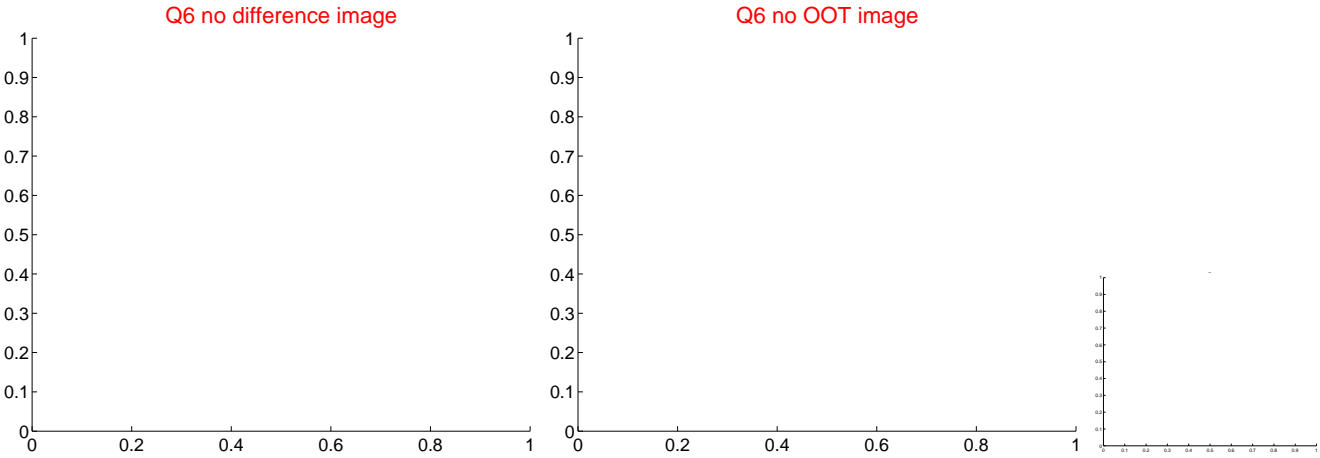
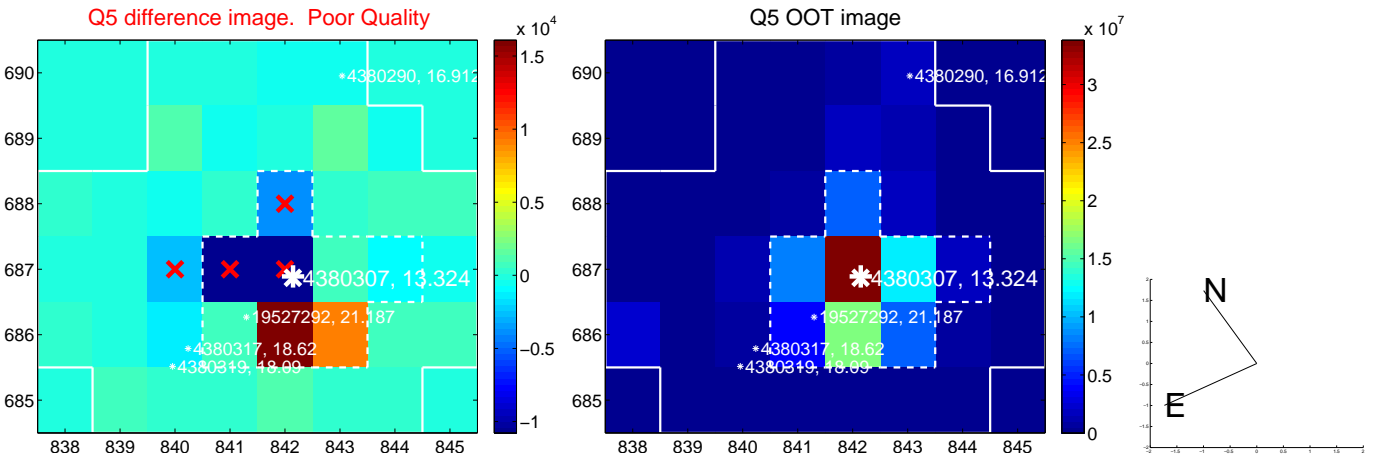


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

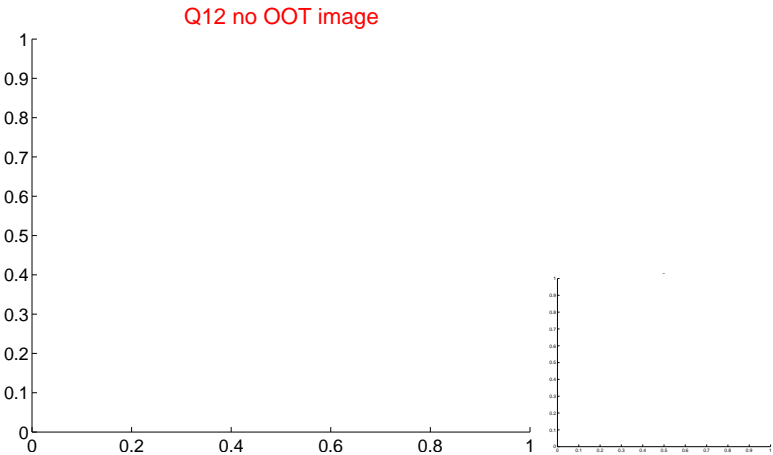
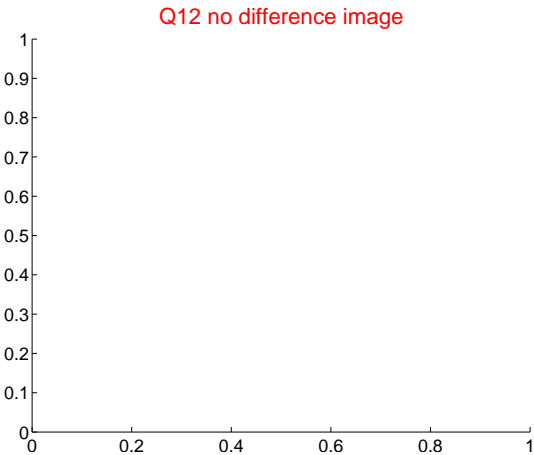
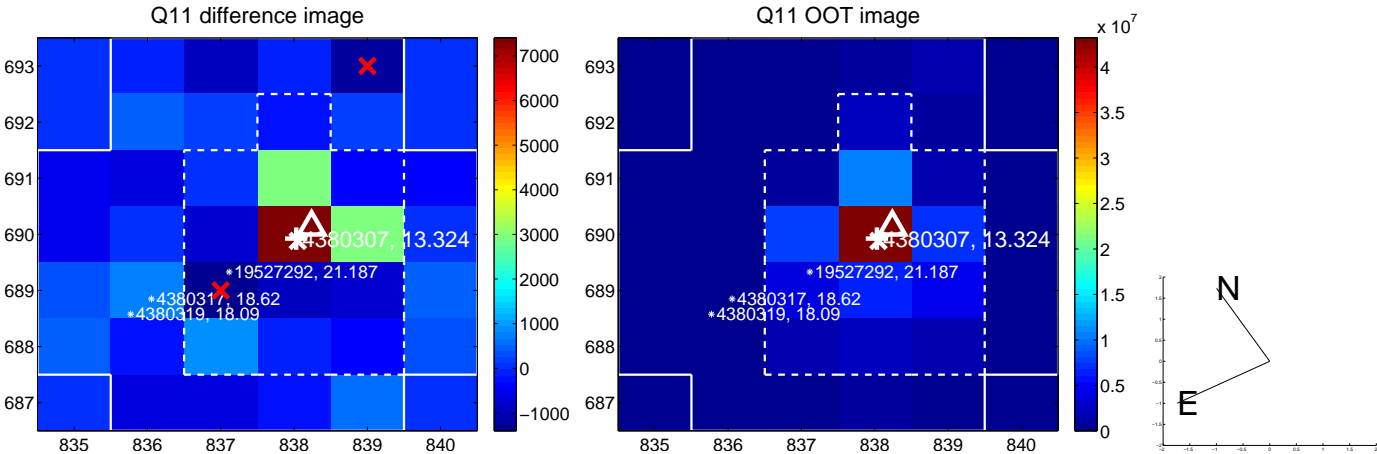
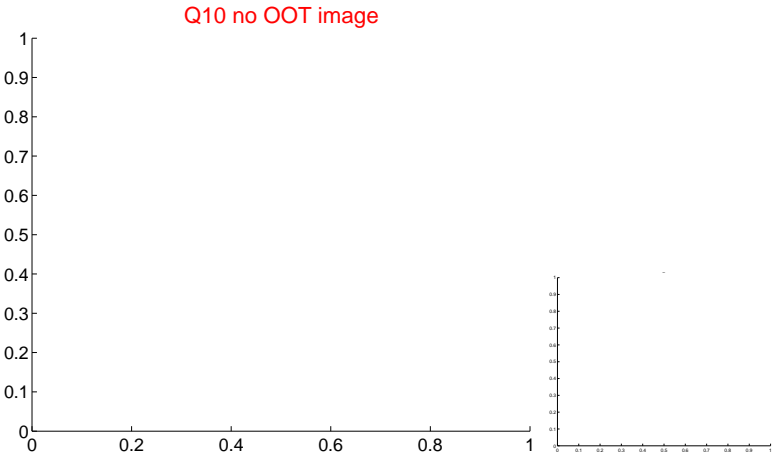
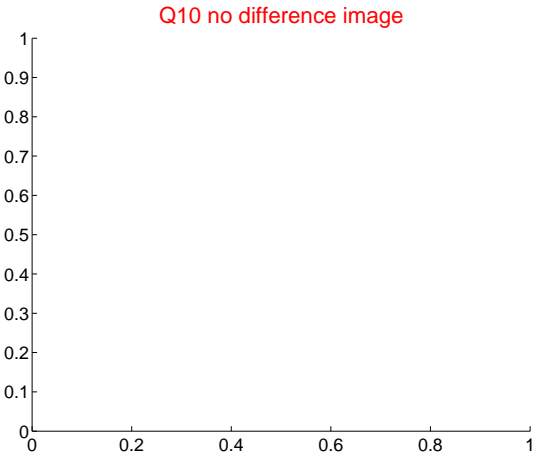
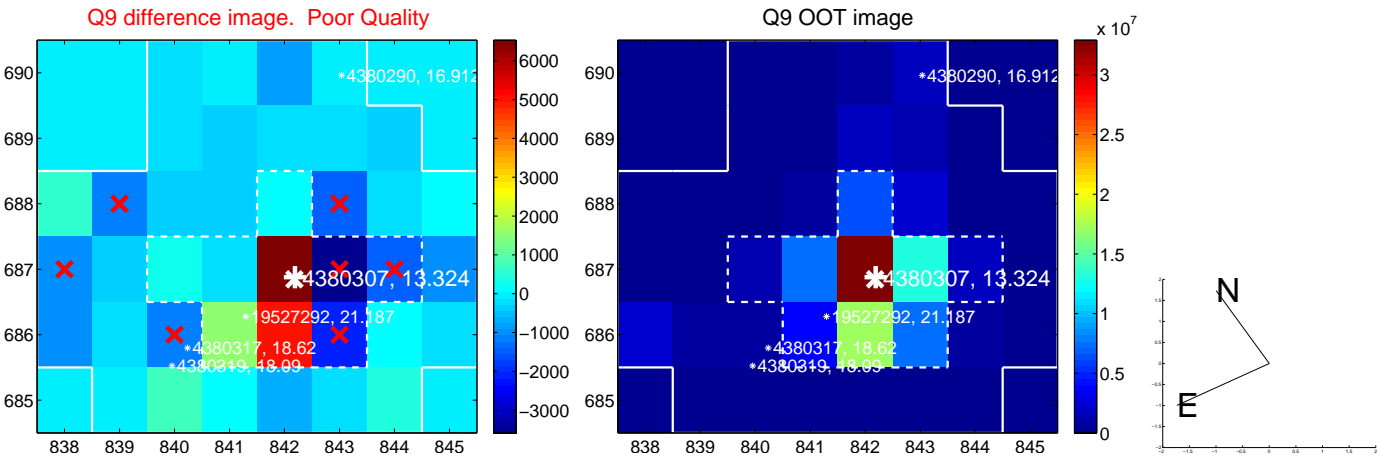
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



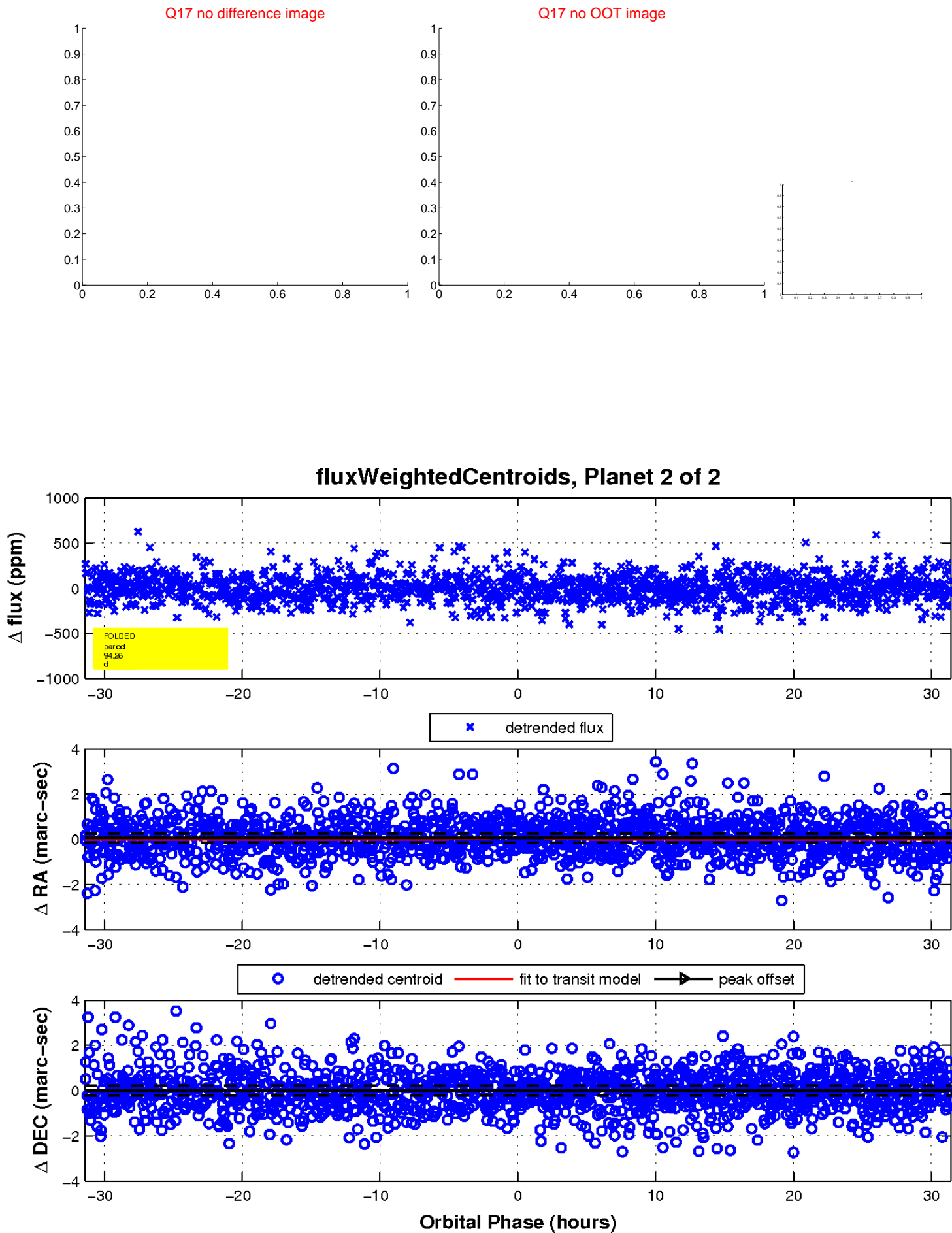
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

