

KIC 006939203

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})
006939203-01	OBS	No	0.720203	131.743161	44.5	1.639	9.3	8.3	2.26	7677	1.64	44660.23
006939203-02	OBS	No	5.354021	133.199416	115.8	23.151	8.1	9.6	2.26	7677	2.71	3078.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006939203-01	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006939203-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV

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

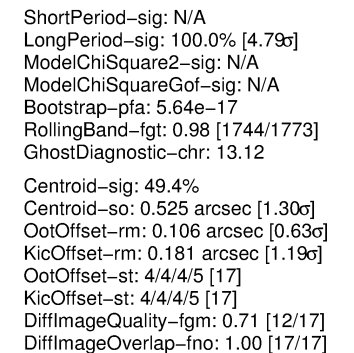
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

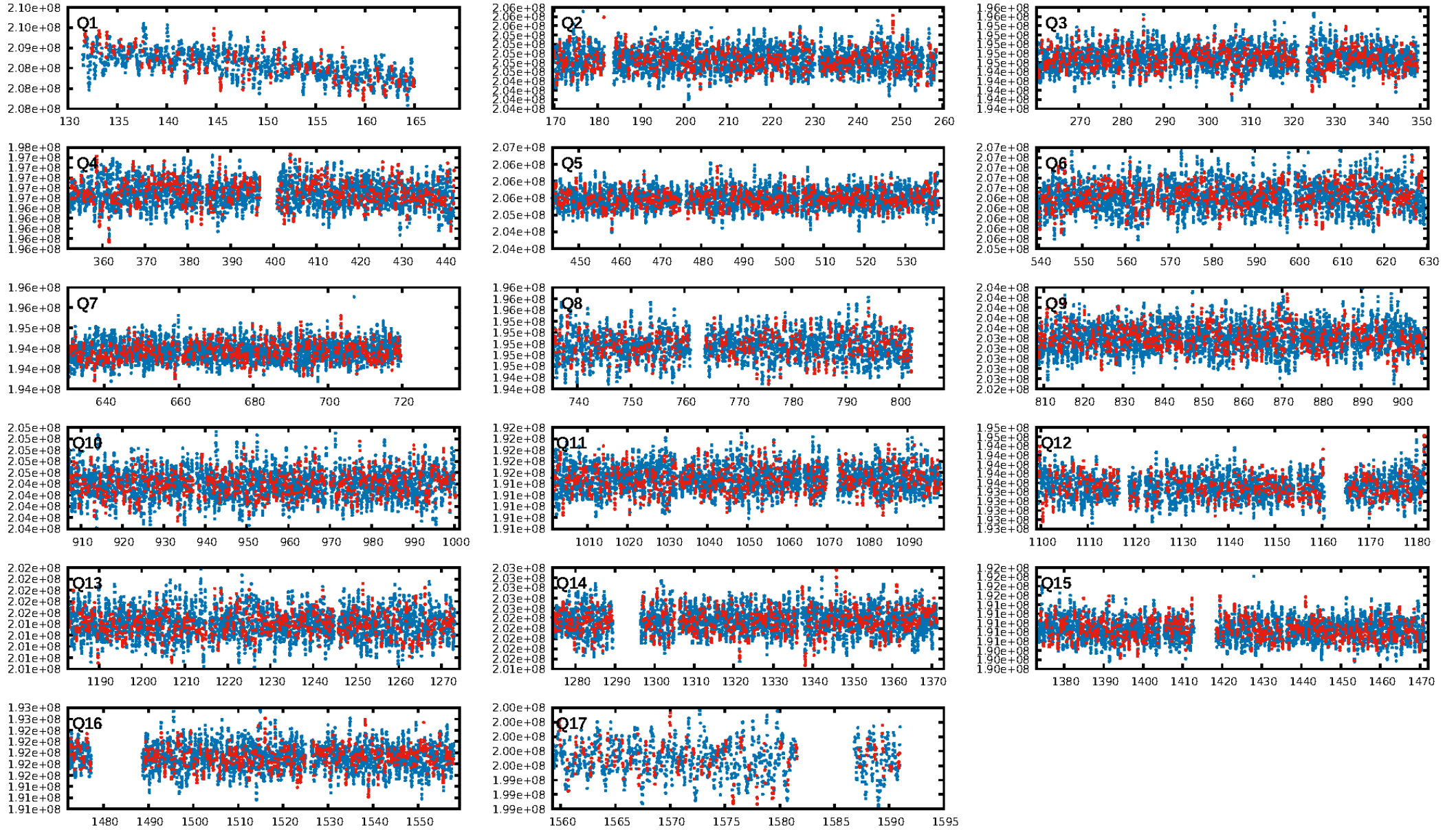
Ephemeris Match Information For 006939203-01

No Significant Match Found

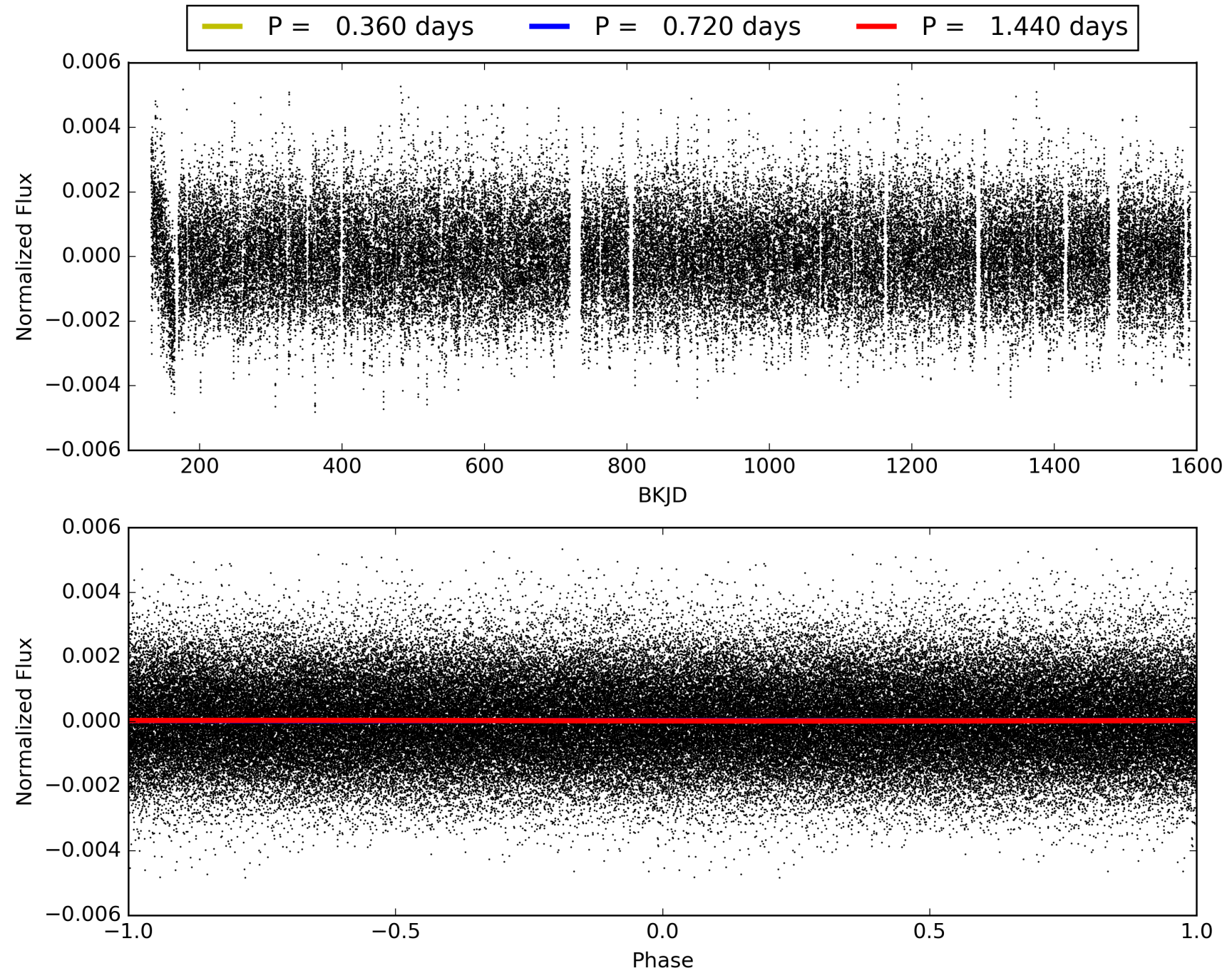
KIC: 6939203 Candidate: 1 of 2 Period: 0.720 d



TCE 006939203-01, PDC Light Curves

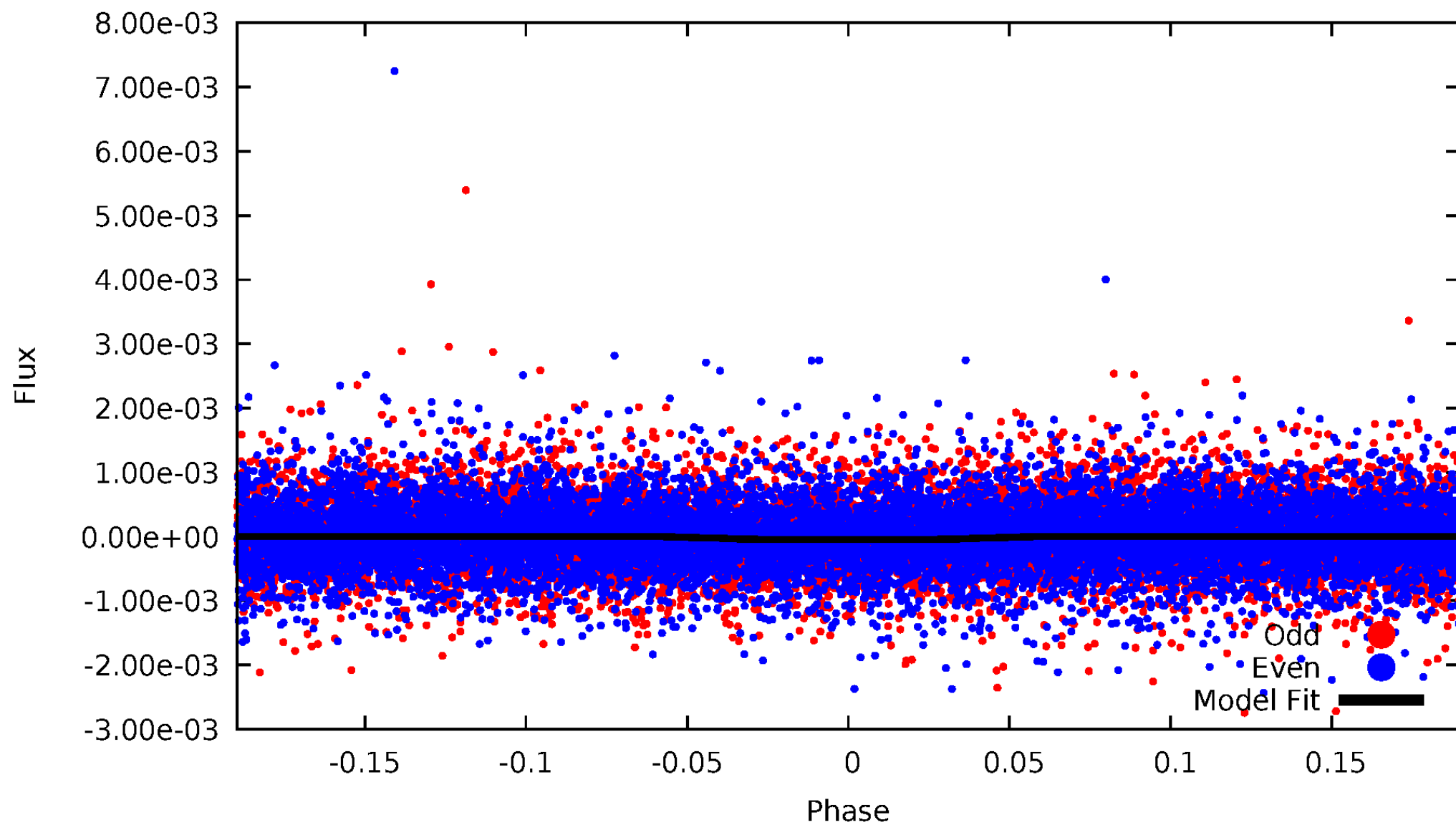


TCE 006939203-01



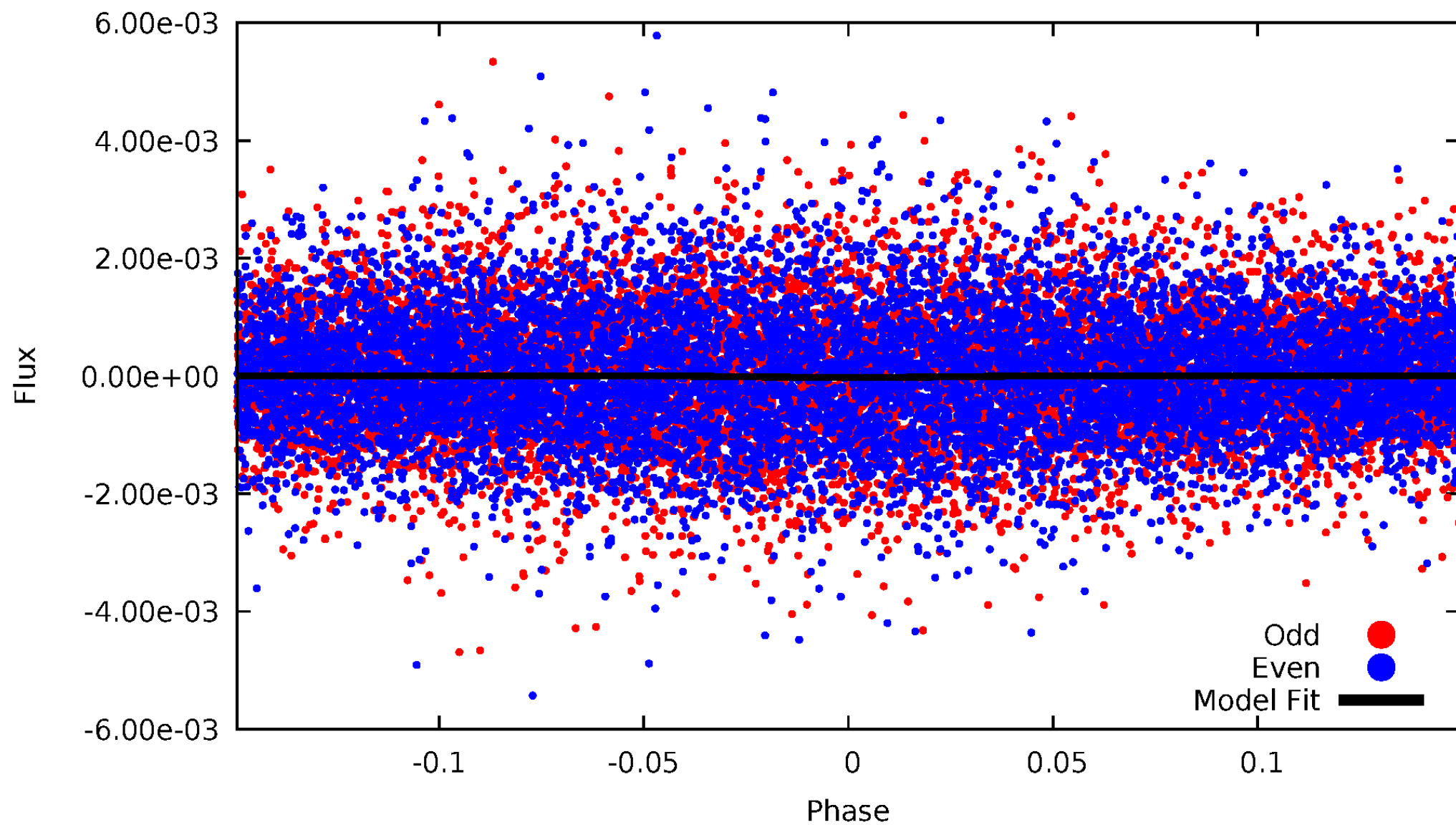
DV Odd/Even

TCE 006939203-01



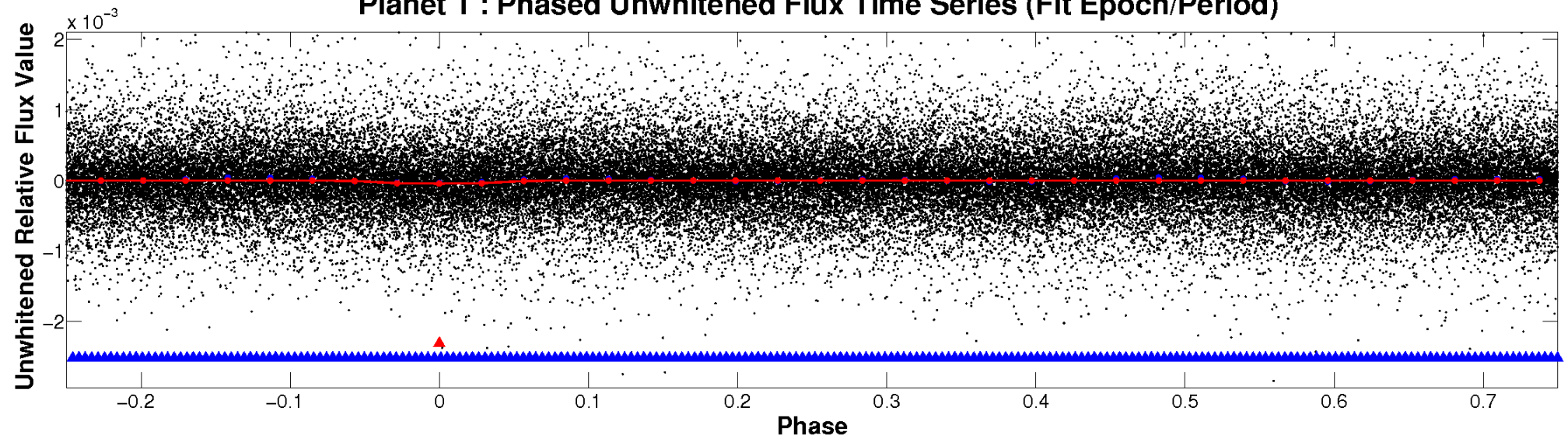
ALT Odd/Even

TCE 006939203-01

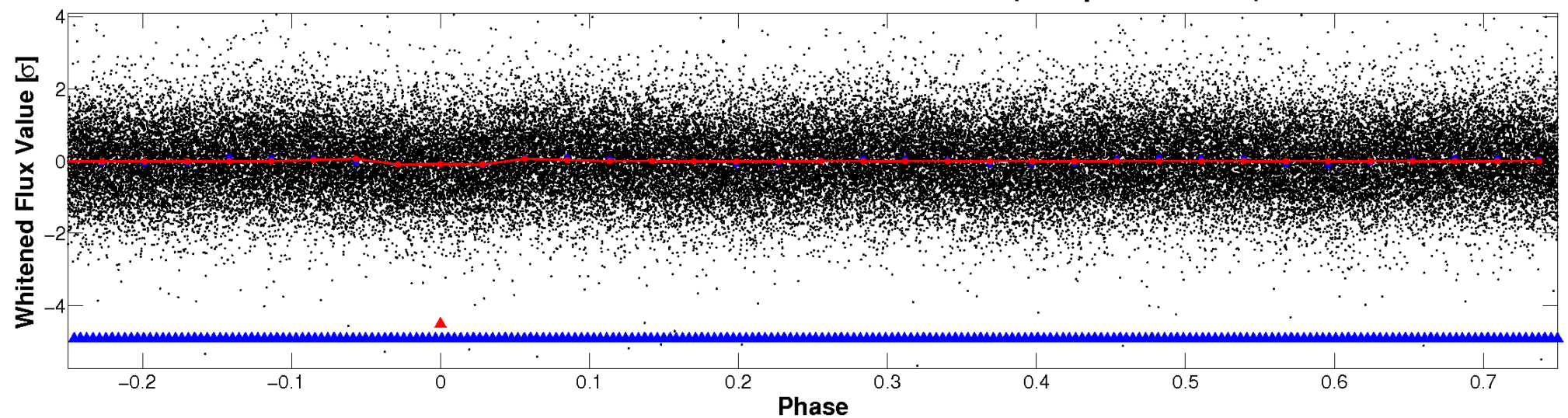


Non-Whitened Vs. Whitened Light Curve

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

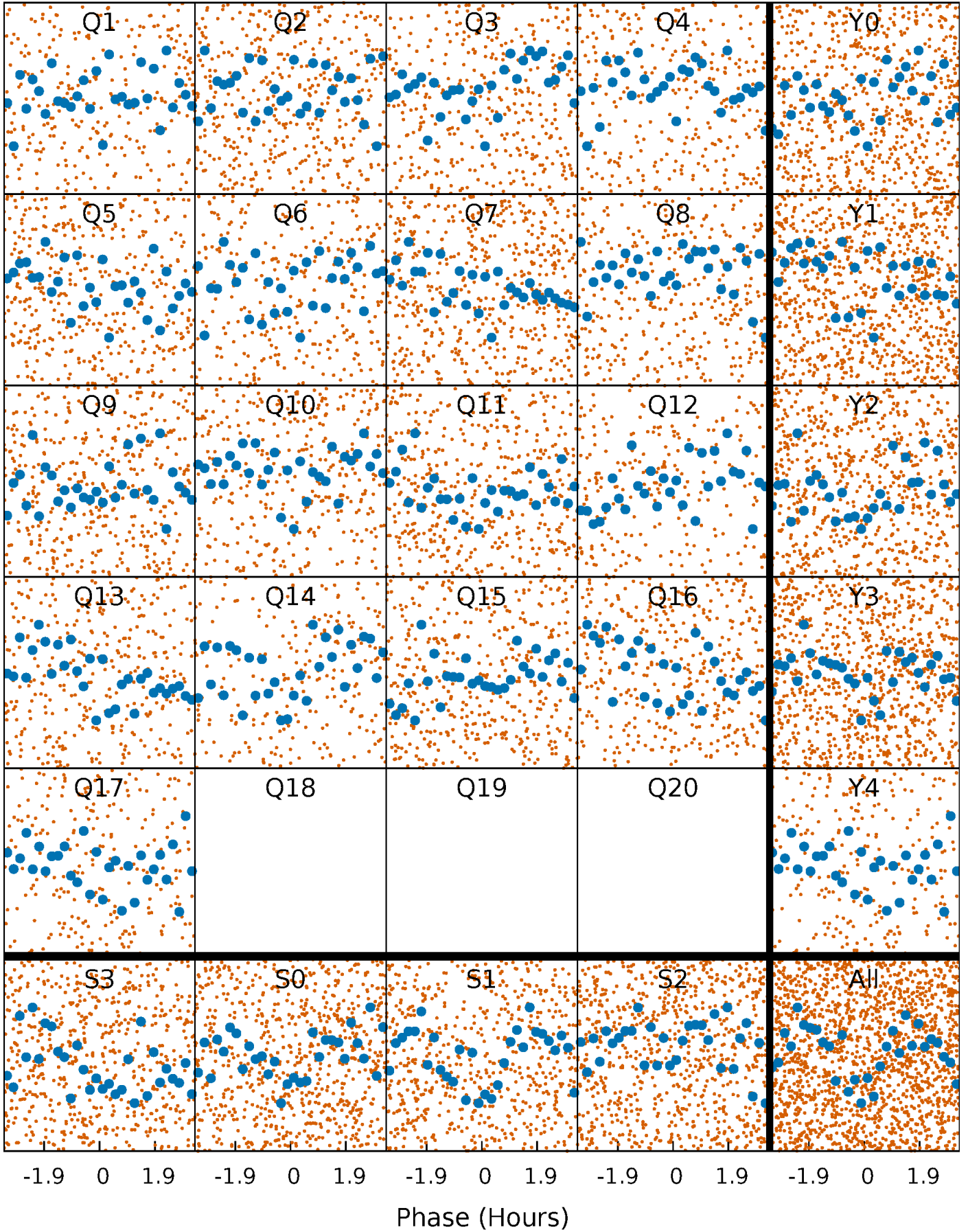


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



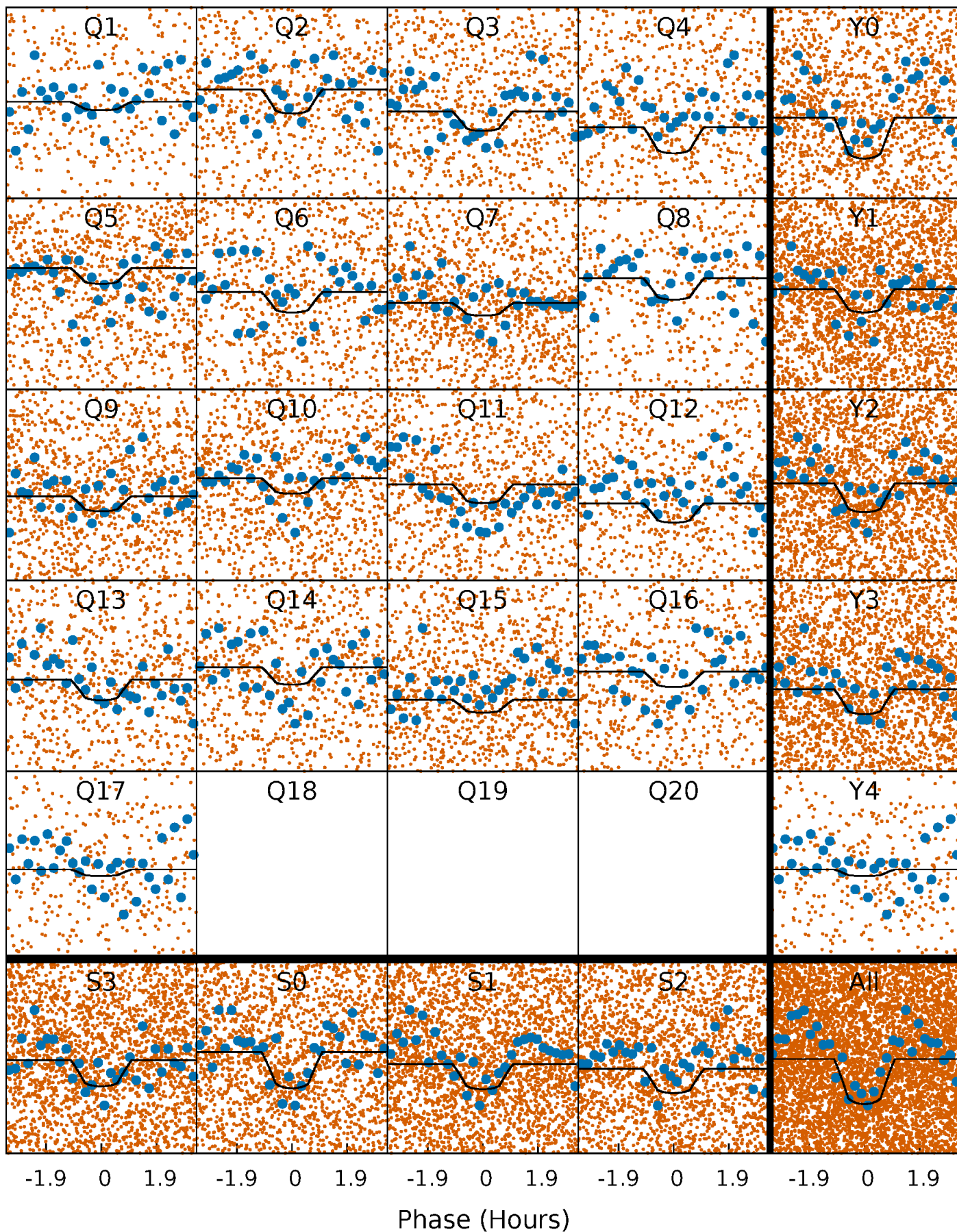
PDC Quarter-Phased Transit Curves

TCE 006939203-01 P= 0.720203 Days $T_0=131.743161$ (BKJD)



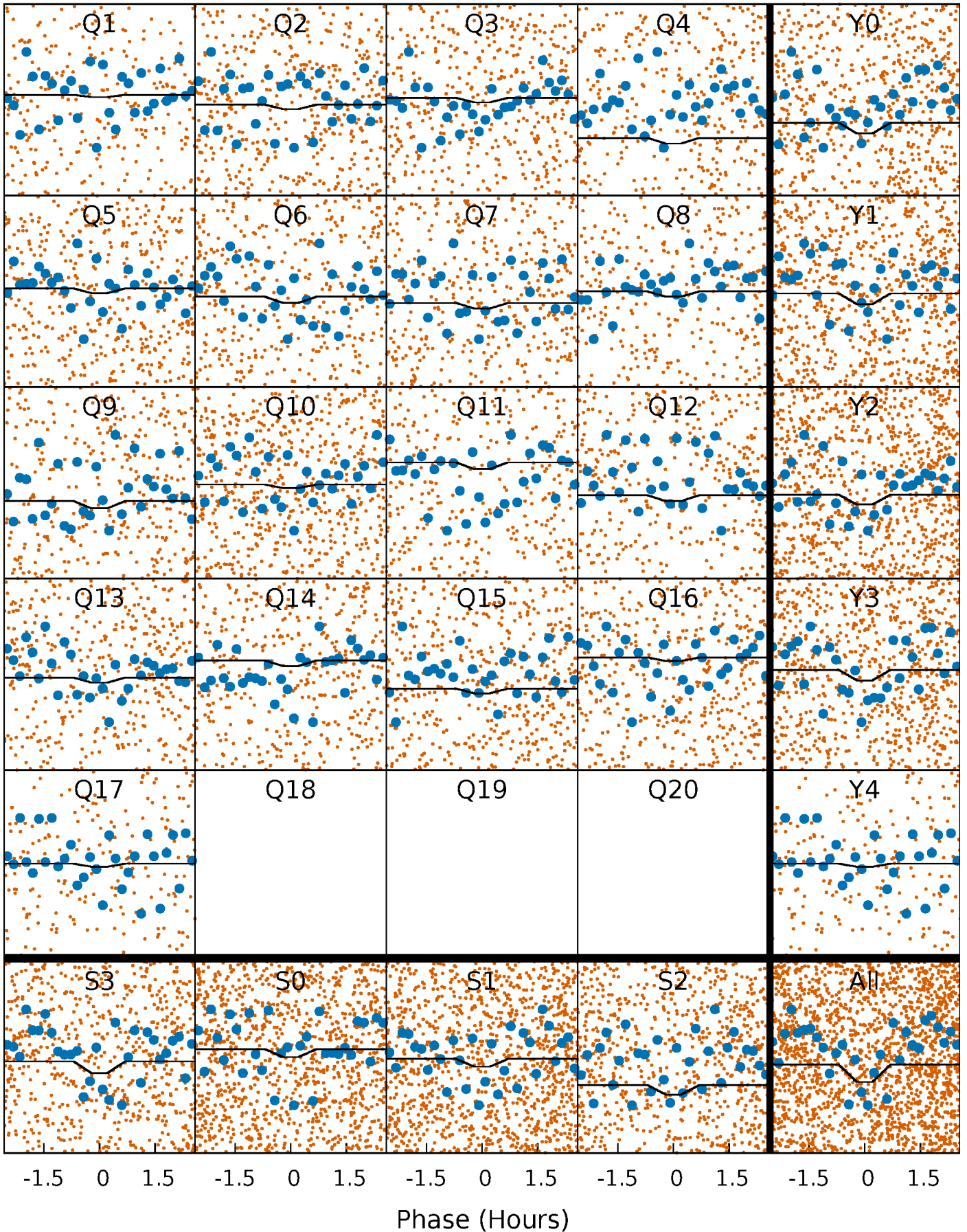
DV Quarter-Phased Transit Curves

TCE 006939203-01 P= 0.720203 Days $T_0=131.743161$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

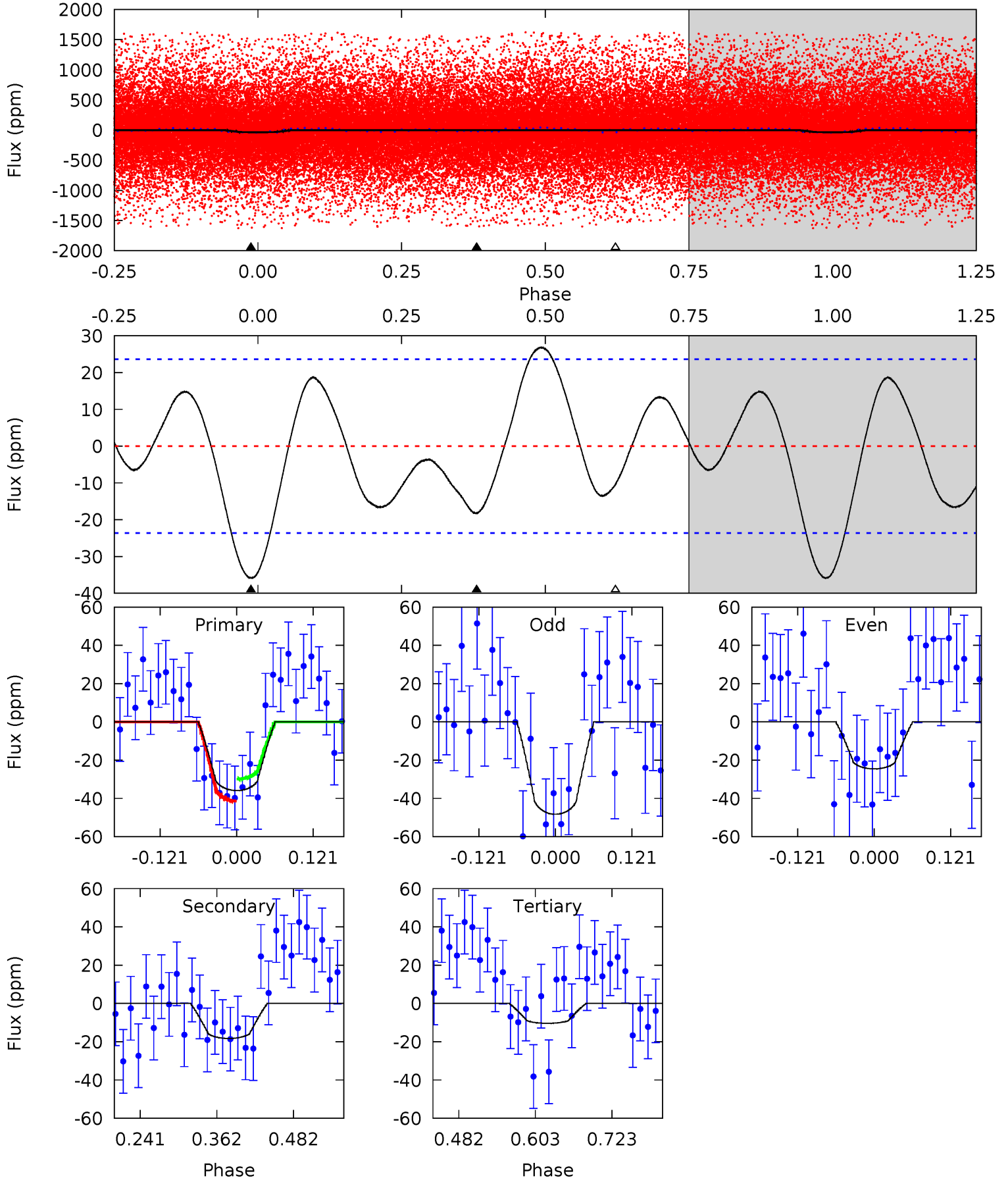
TCE 006939203-01 P= 0.720211 Days $T_0=131.730530$ (BKJD)



DV Model-Shift Uniqueness Test

006939203-01, P = 0.720203 Days, E = 131.022958 Days

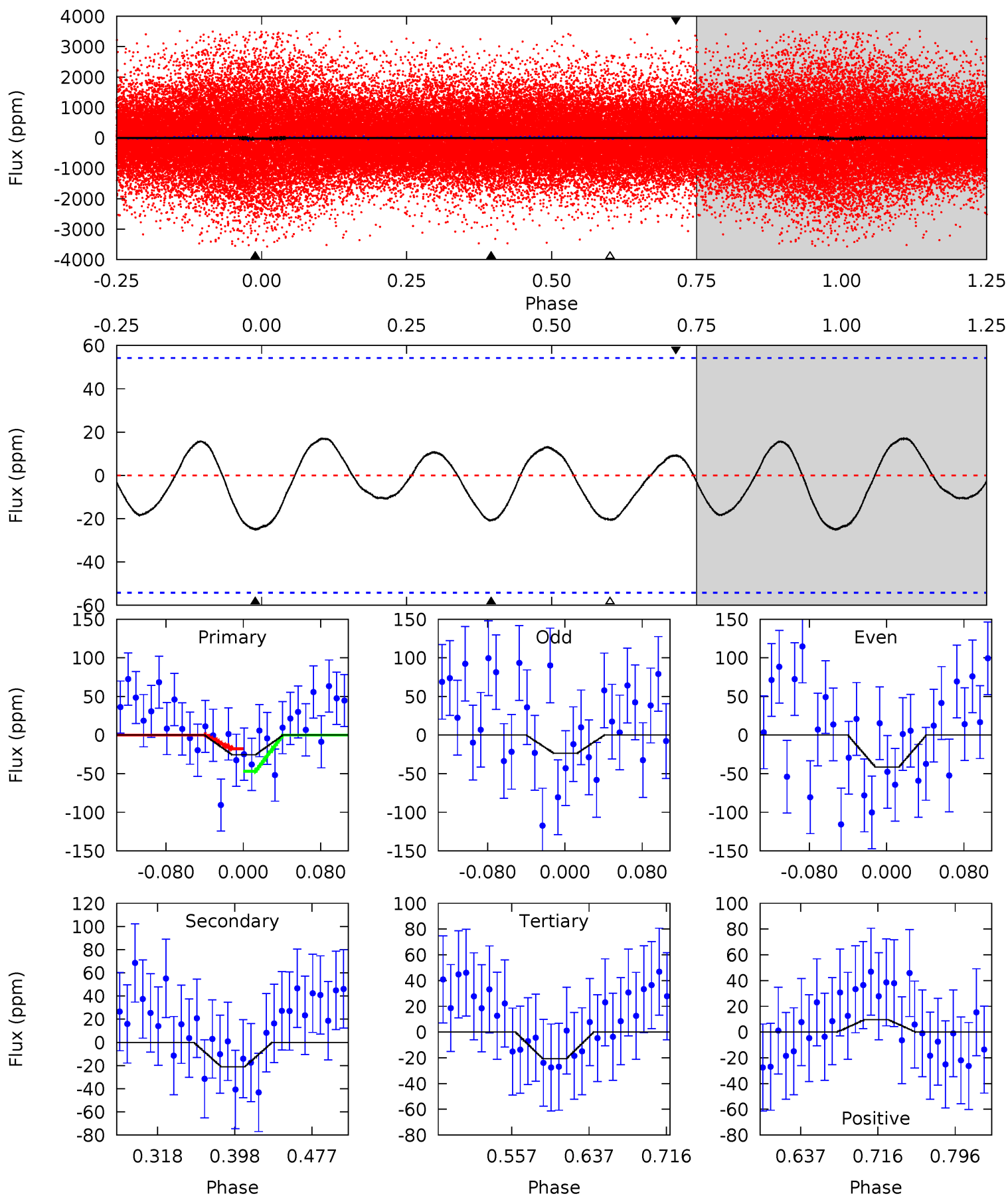
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.87	3.50	1.99	0	4.53	1.55	2.12	4.88	6.87	1.51	3.50	2.29	0.79	0.43	1.12



Alt Model-Shift Uniqueness Test

006939203-01, P = 0.720211 Days, E = 131.010319 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.17	1.79	1.77	0.82	4.61	1.75	0.95	0.40	1.35	0.02	0.97	0.76	0.67	0.41	1.24



Stellar Parameters For KIC 006939203

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7677^{+237}_{-316}	$3.967^{+0.241}_{-0.148}$	$-0.160^{+0.200}_{-0.300}$	$2.261^{+0.532}_{-0.650}$	$1.726^{+0.198}_{-0.322}$	$0.210^{+0.290}_{-0.084}$
	+3%/-4%	+6%/-4%	+125%/-188%	+24%/-29%	+11%/-19%	+138%/-40%
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 006939203-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-18 ± 5	$1.59^{+0.34}_{-0.32}$	5126^{+381}_{-432}	5662^{+792}_{-744}	$1.357^{+0.895}_{-0.534}$
Alt.	-21 ± 12	$1.13^{+0.33}_{-0.28}$	5126^{+368}_{-439}	7141^{+1796}_{-1745}	$2.954^{+3.204}_{-1.814}$

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

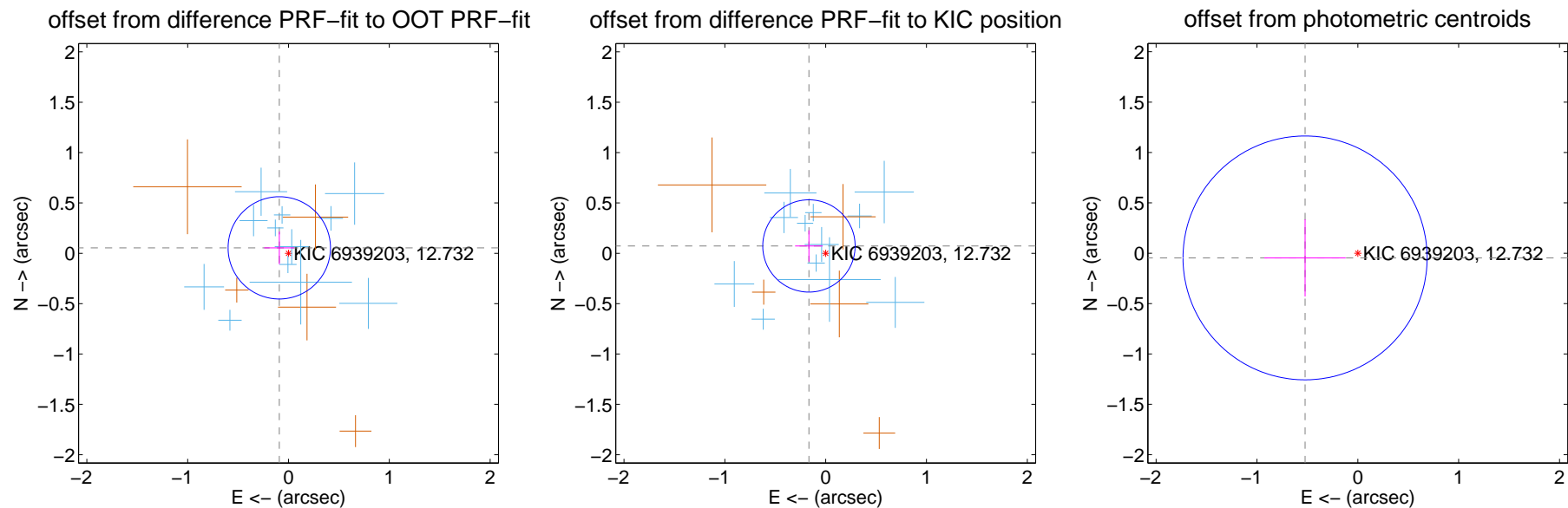
DV Centroid Data

Supplemental centroid analysis for 006939203-01. Kepler magnitude: 12.73. Transit SNR 8.25

There are 12 quarters with good PRF difference image offsets

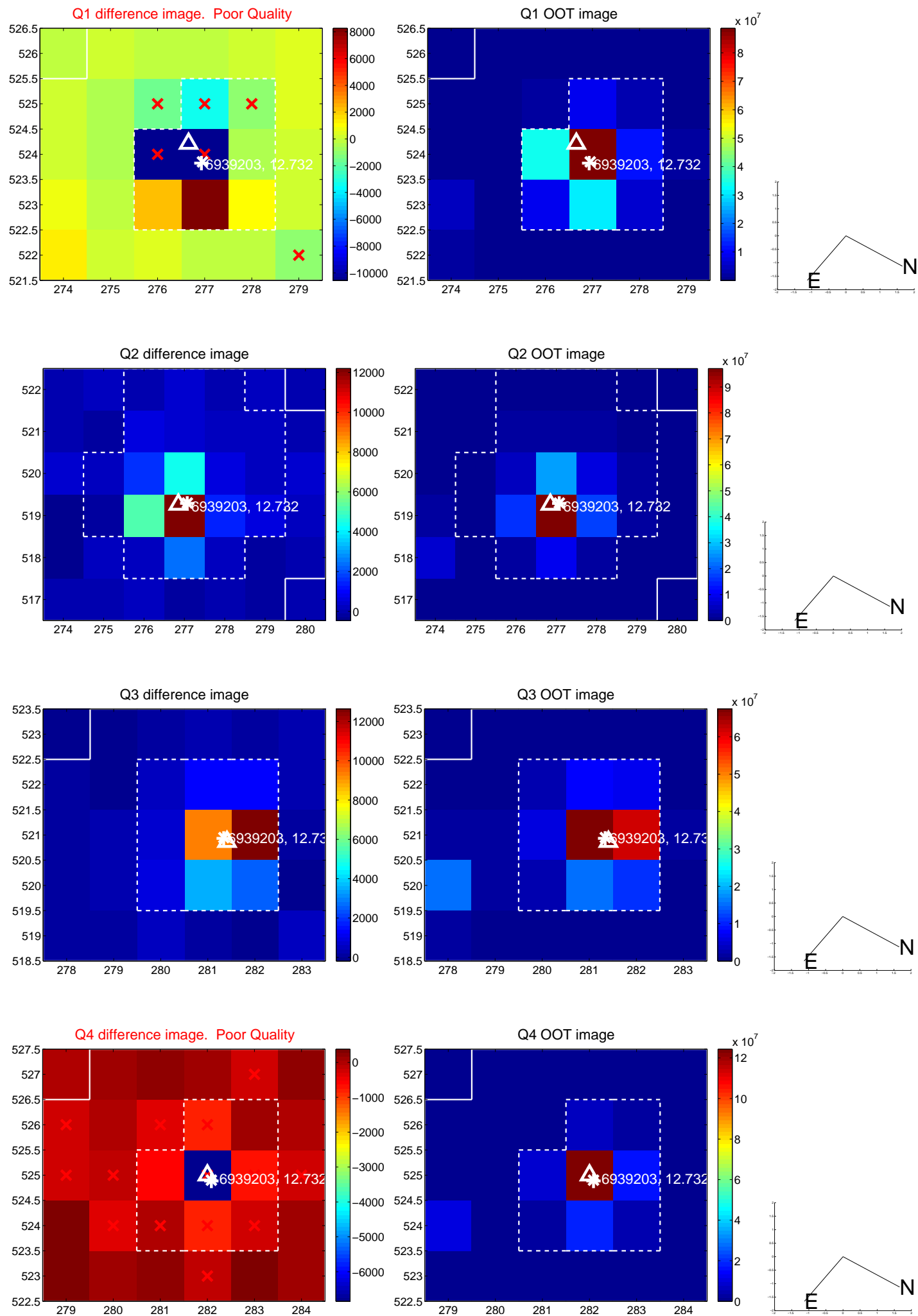
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.106 ± 0.169	0.63	0.091 ± 0.149	0.054 ± 0.162
PRF-fit source offset from KIC position	0.181 ± 0.153	1.19	0.166 ± 0.137	0.073 ± 0.155
photometric centroid source offset	0.53 ± 0.40	1.30	0.52 ± 0.40	-0.05 ± 0.38

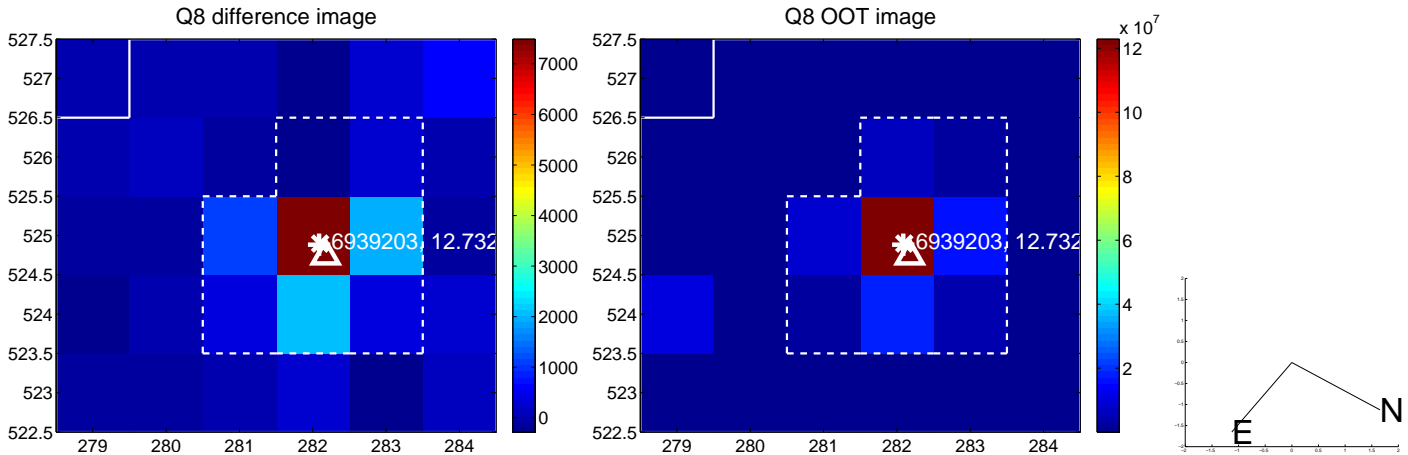
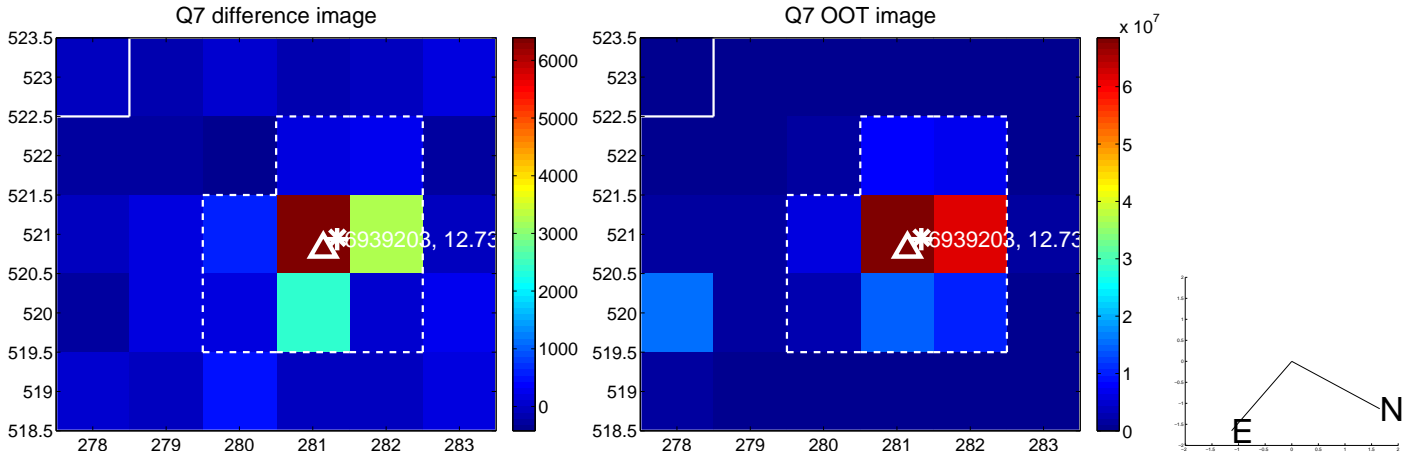
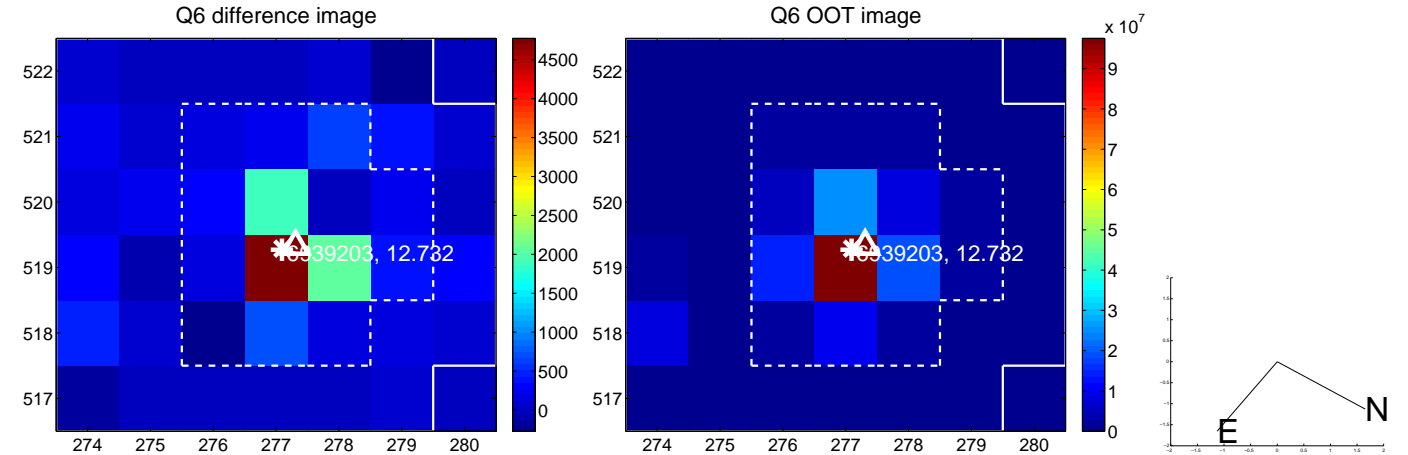
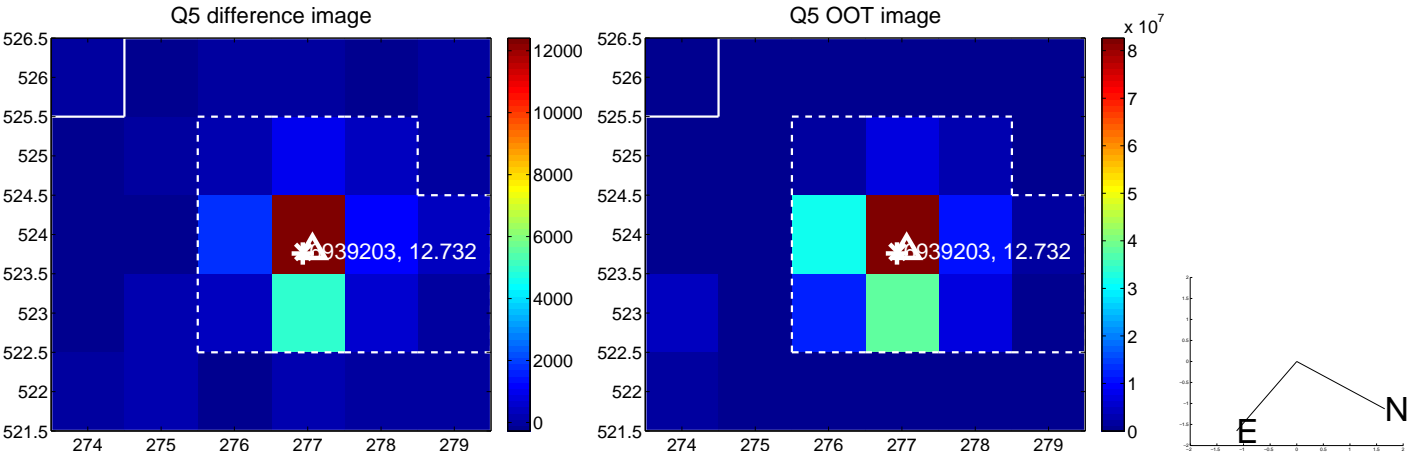


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

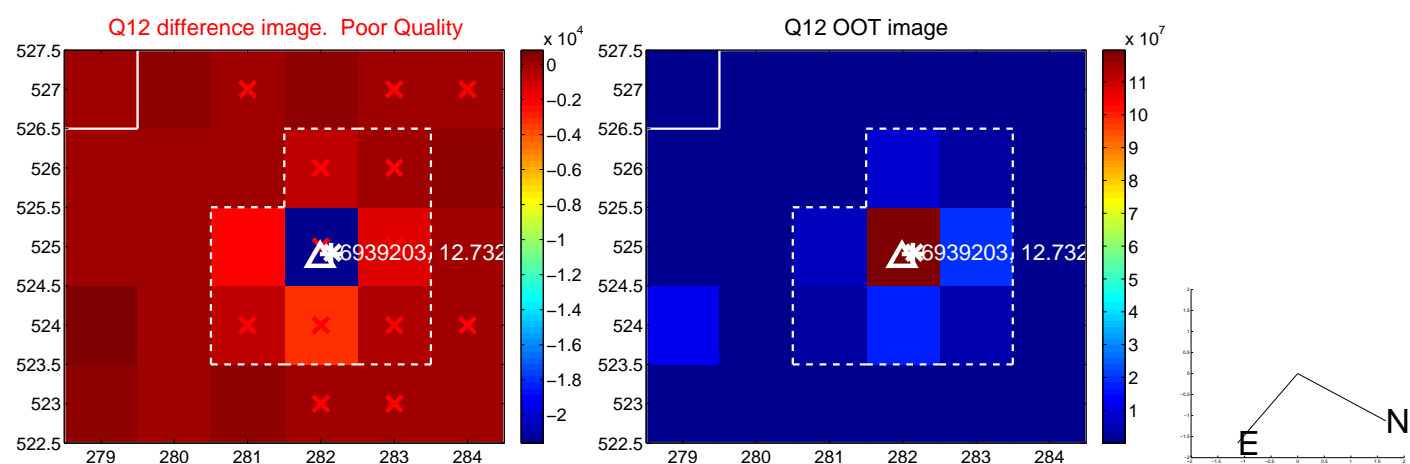
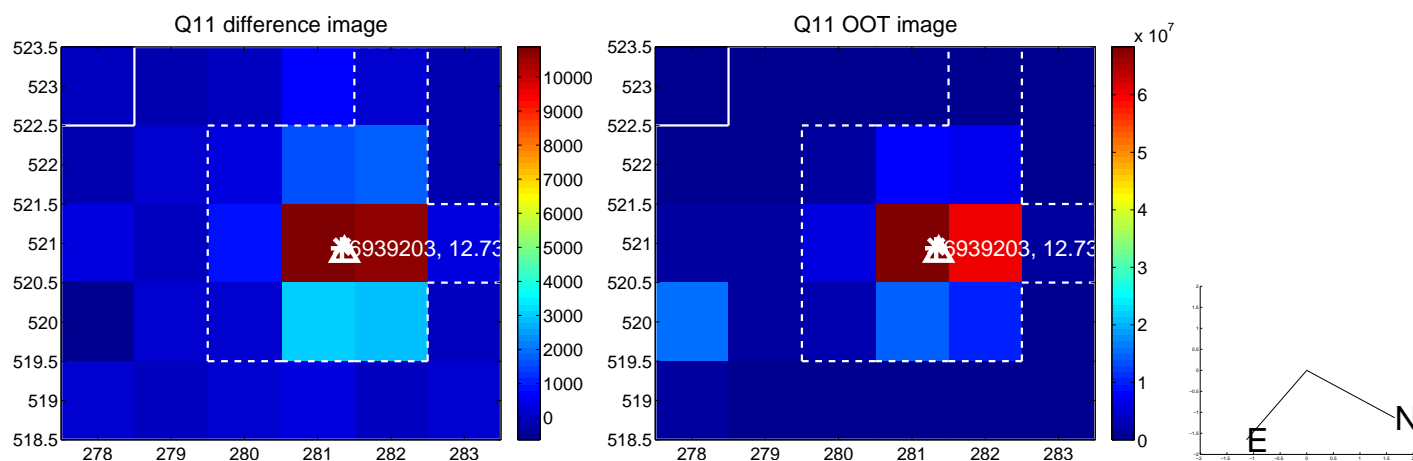
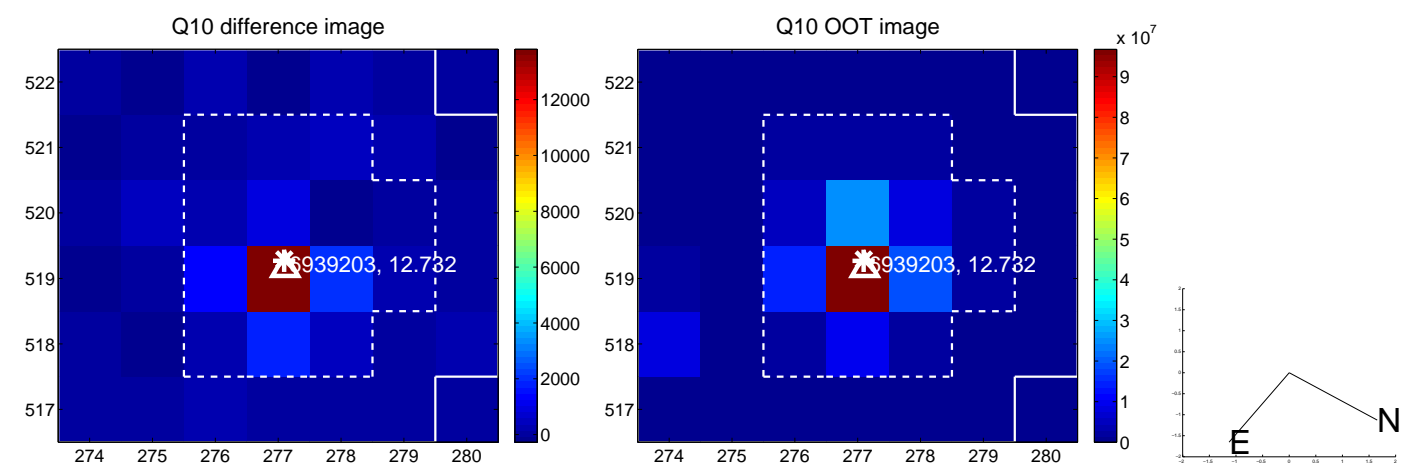
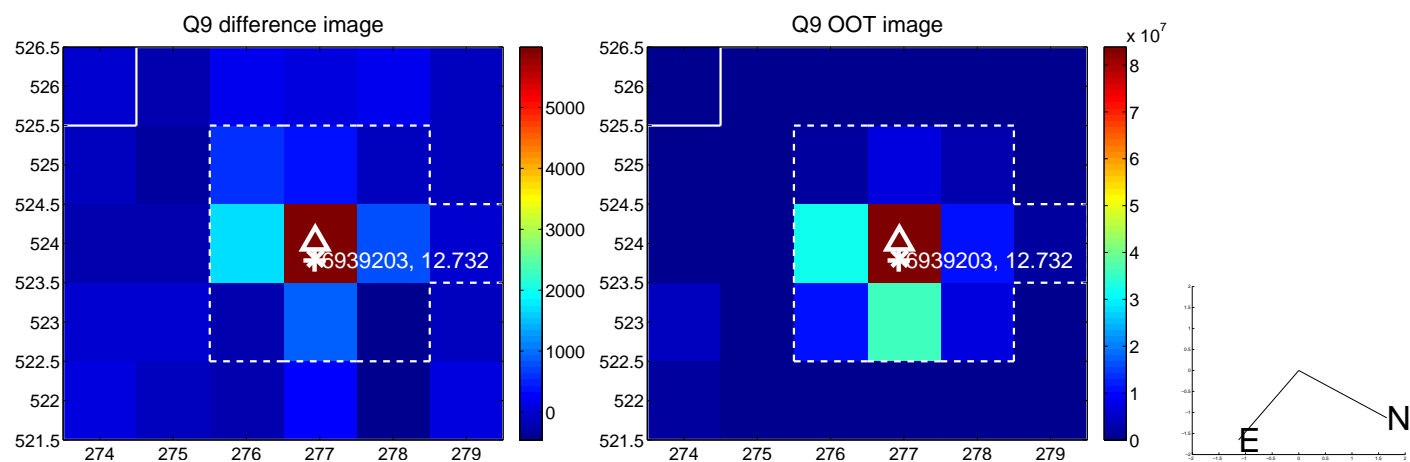
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



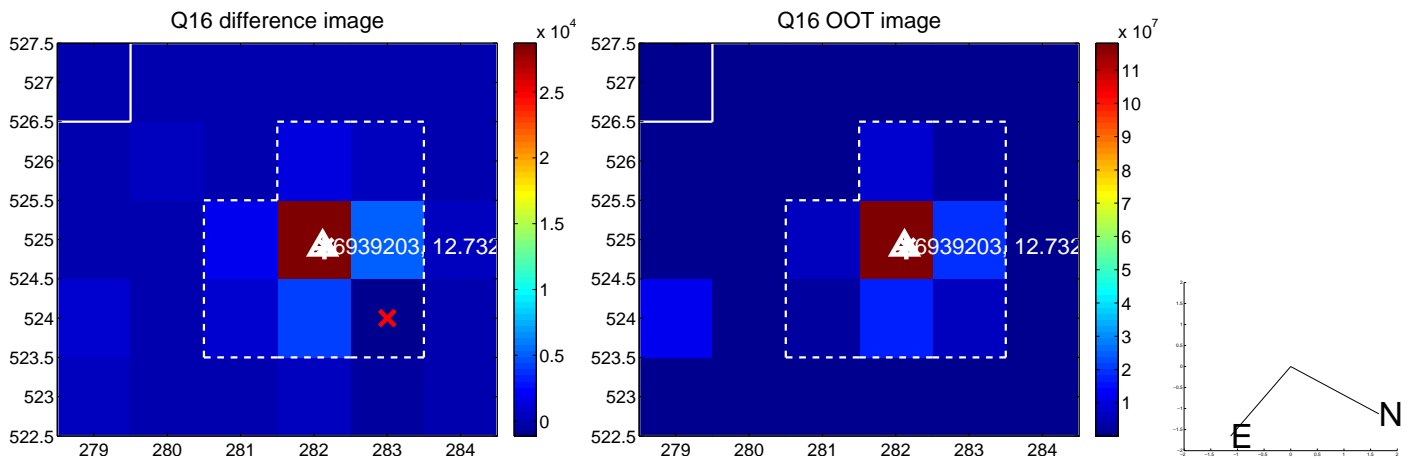
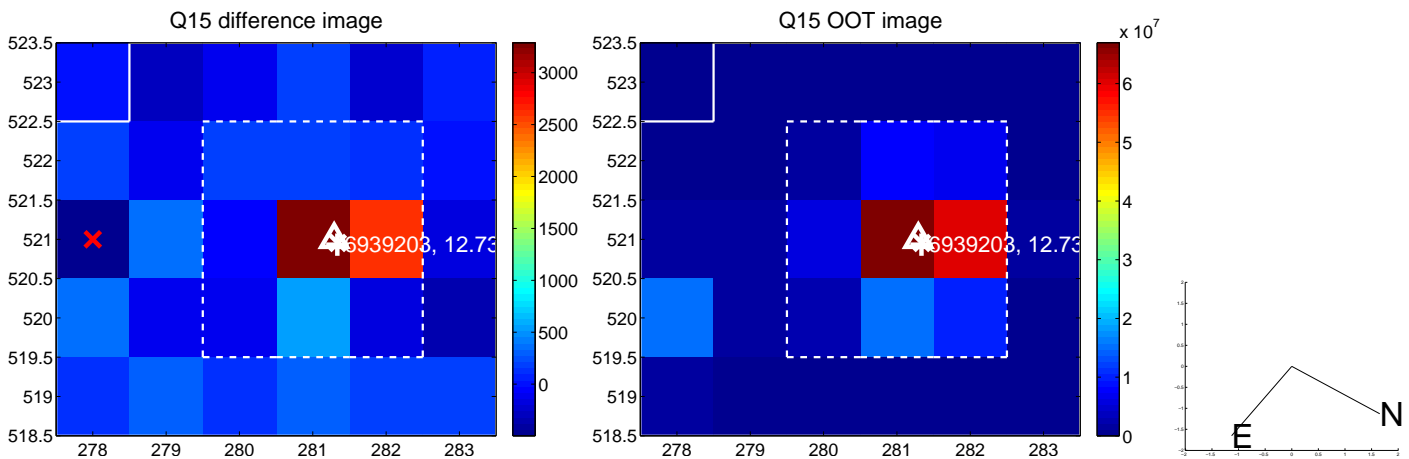
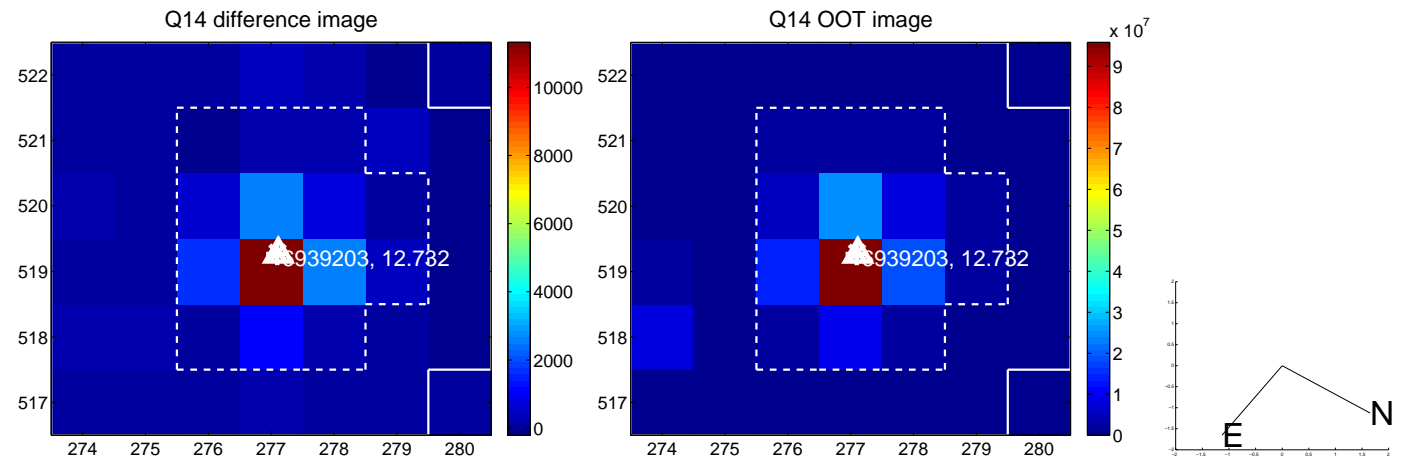
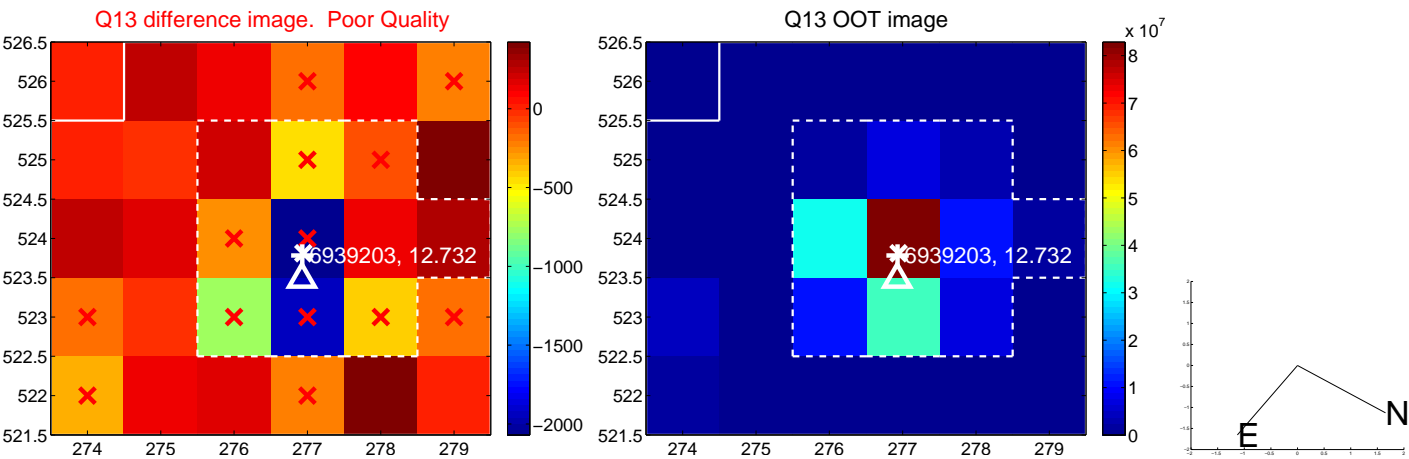
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



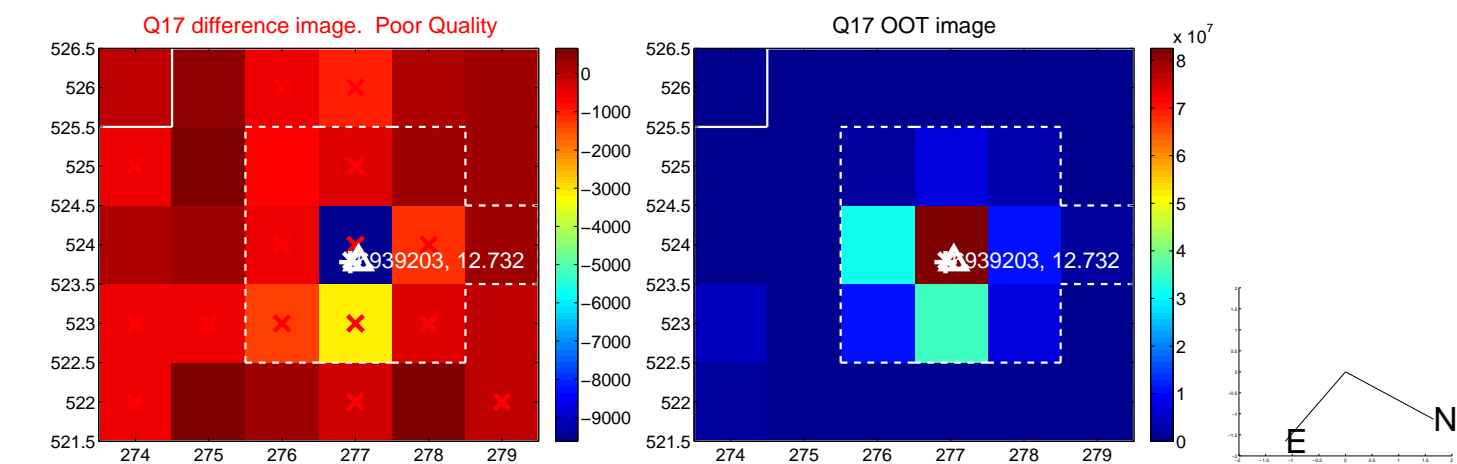
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



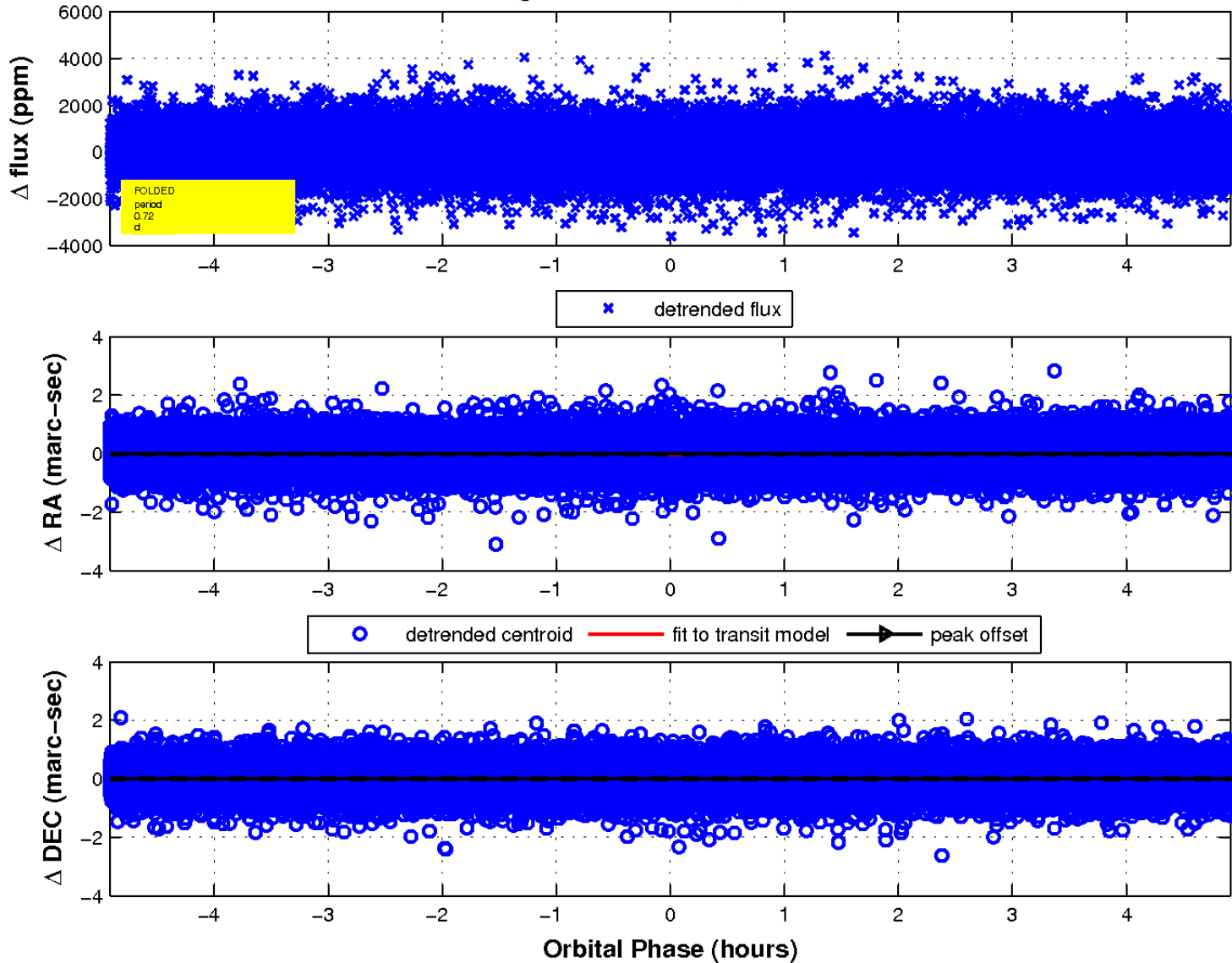
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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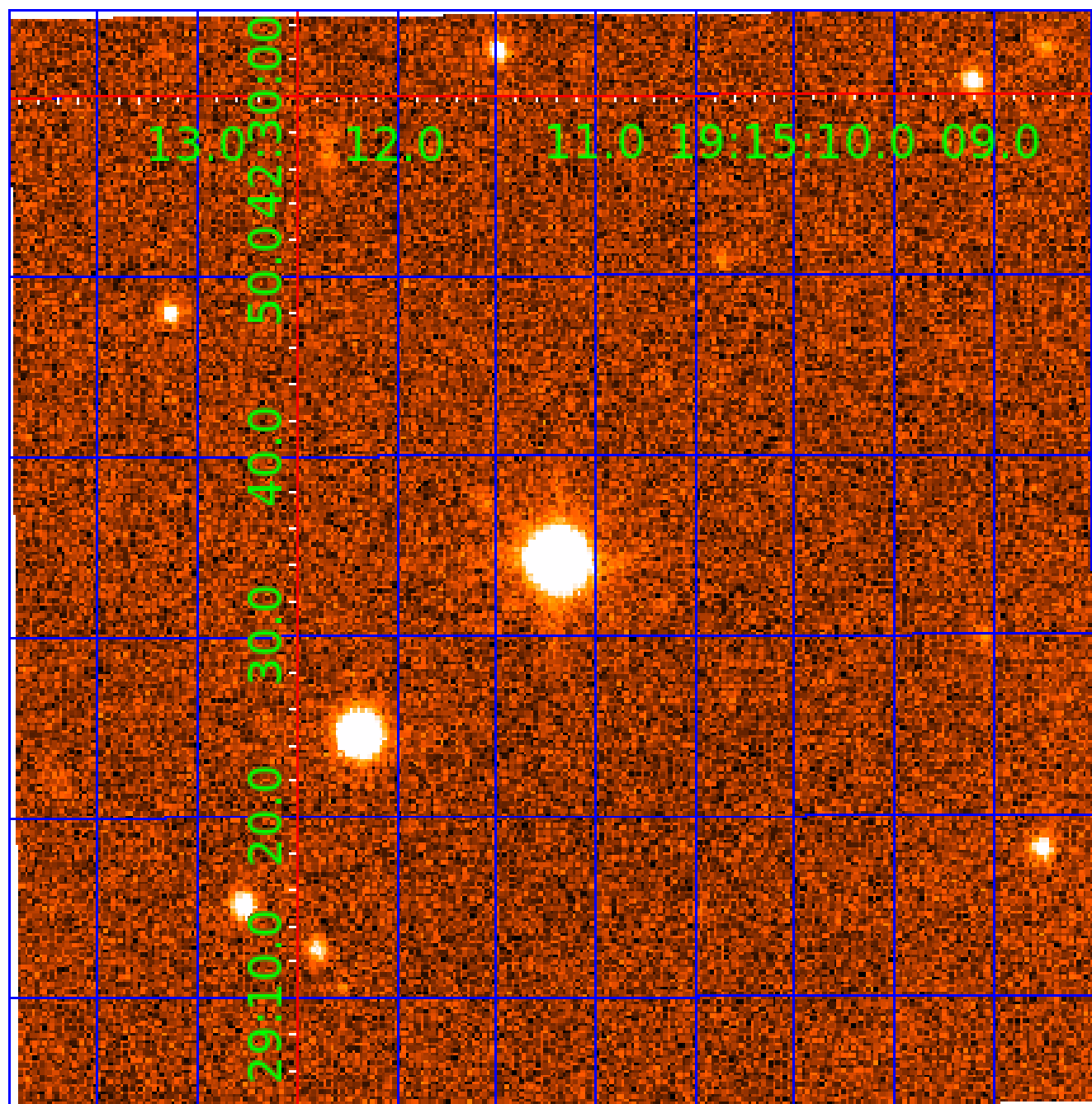


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 006939203

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})
006939203-01	OBS	No	0.720203	131.743161	44.5	1.639	9.3	8.3	2.26	7677	1.64	44660.23
006939203-02	OBS	No	5.354021	133.199416	115.8	23.151	8.1	9.6	2.26	7677	2.71	3078.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006939203-01	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006939203-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV

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

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

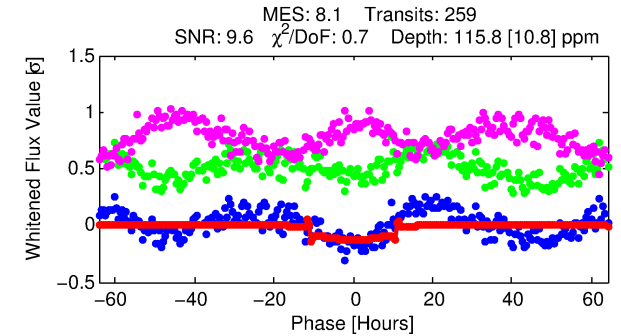
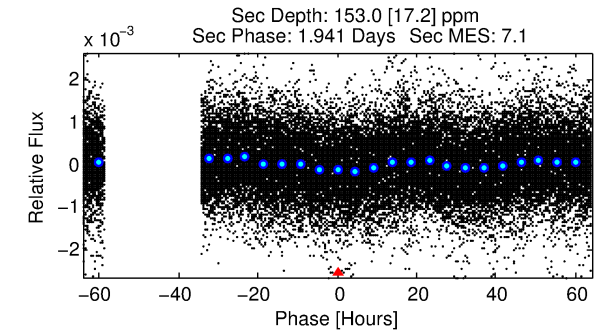
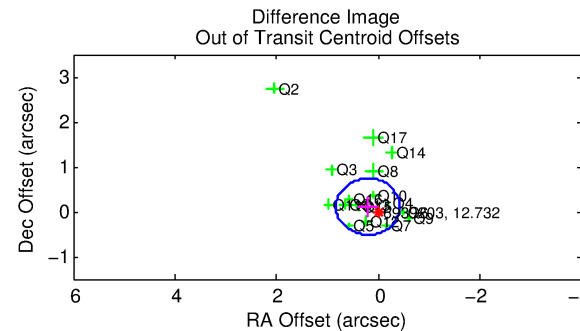
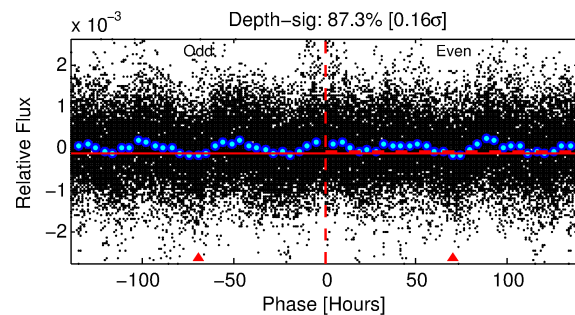
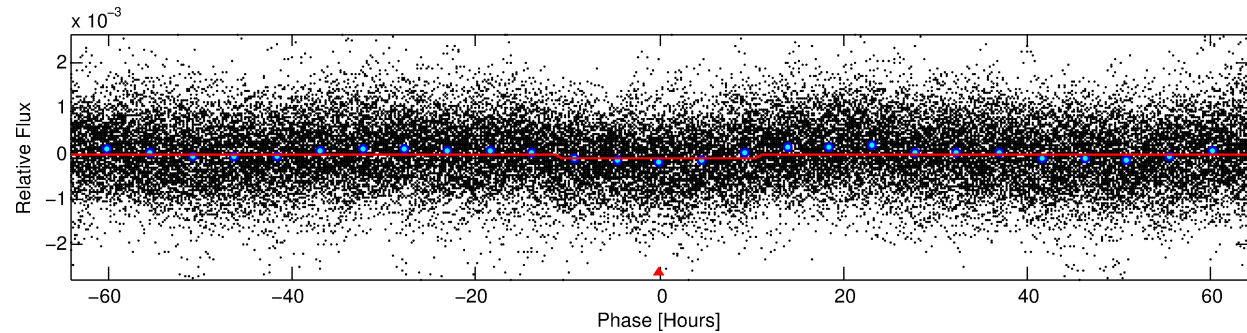
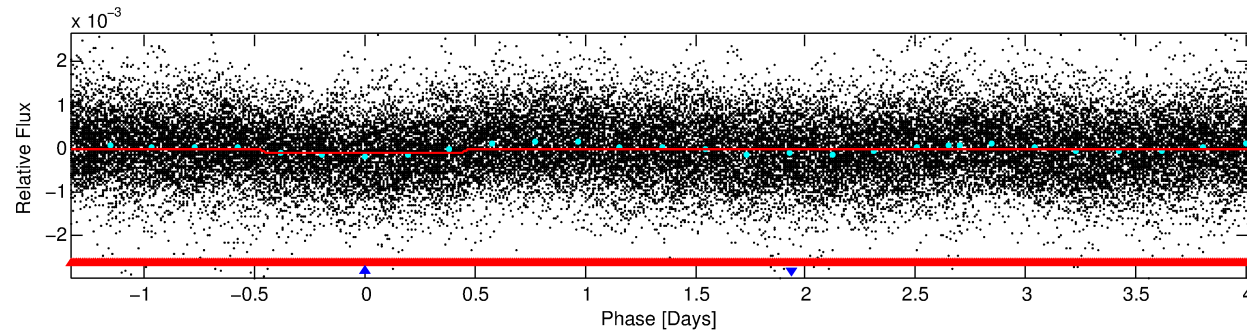
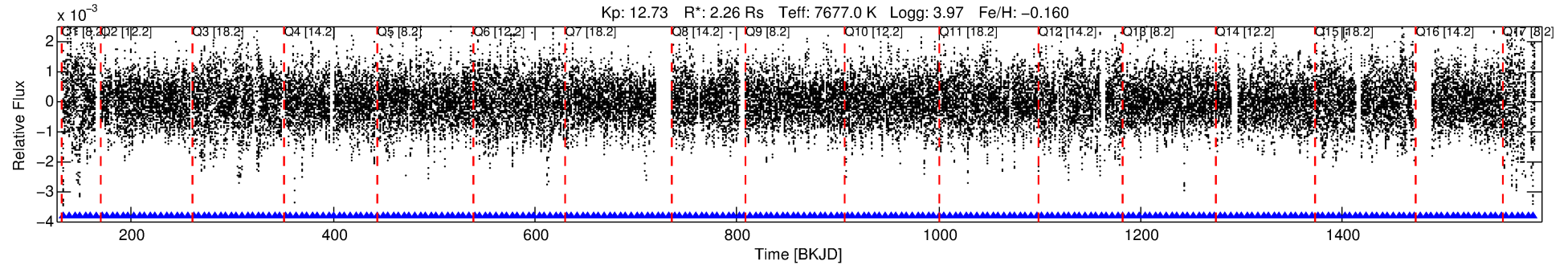
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006939203-02

No Significant Match Found

DV One-Page Summary

KIC: 6939203 Candidate: 2 of 2 Period: 5.354 d



DV Fit Results:

Period = 5.35402 [0.00006] d
Epoch = 133.1994 [0.0073] BKJD
Rp/R* = 0.0110 [0.0007]
a/R* = 1.38 [0.14]
b = 0.82 [0.09]
Seff = 3078.13 [1379.00]
Teq = 1899 [213] K
Rp = 2.71 [0.80] Re
a = 0.0719 [0.0191] AU
Ag = 59.40 [26.65] [2.19 σ]
Teffp = 8152 [477] K [11.98 σ]

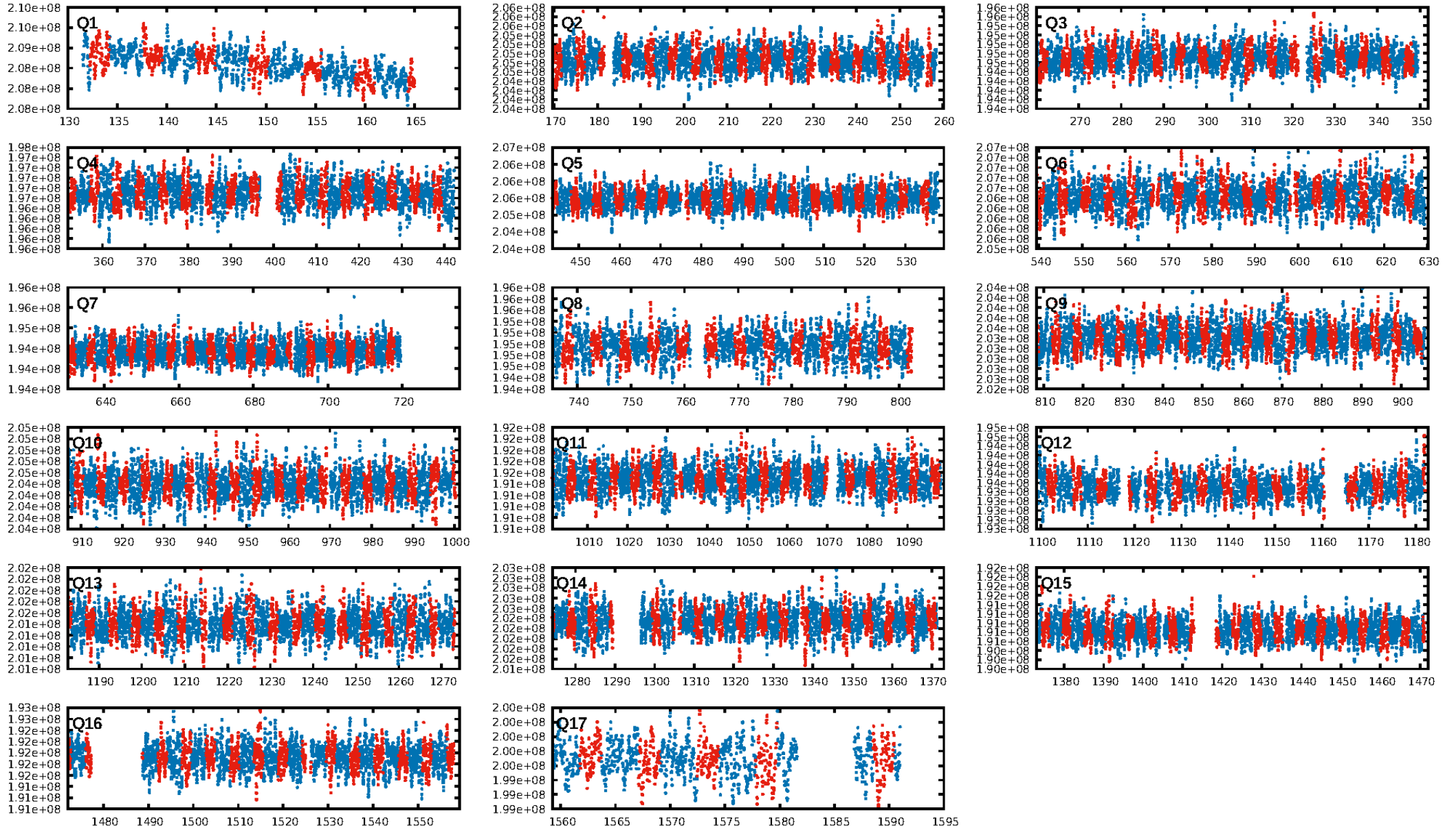
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.79 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.01e-13
RollingBand-fgt: 1.00 [248/248]
GhostDiagnostic-chr: 4.506
Centroid-sig: 69.3%
Centroid-so: 0.108 arcsec [0.79 σ]
OotOffset-rm: 0.236 arcsec [1.13 σ]
KicOffset-rm: 0.325 arcsec [1.63 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 0.00 [0/17]

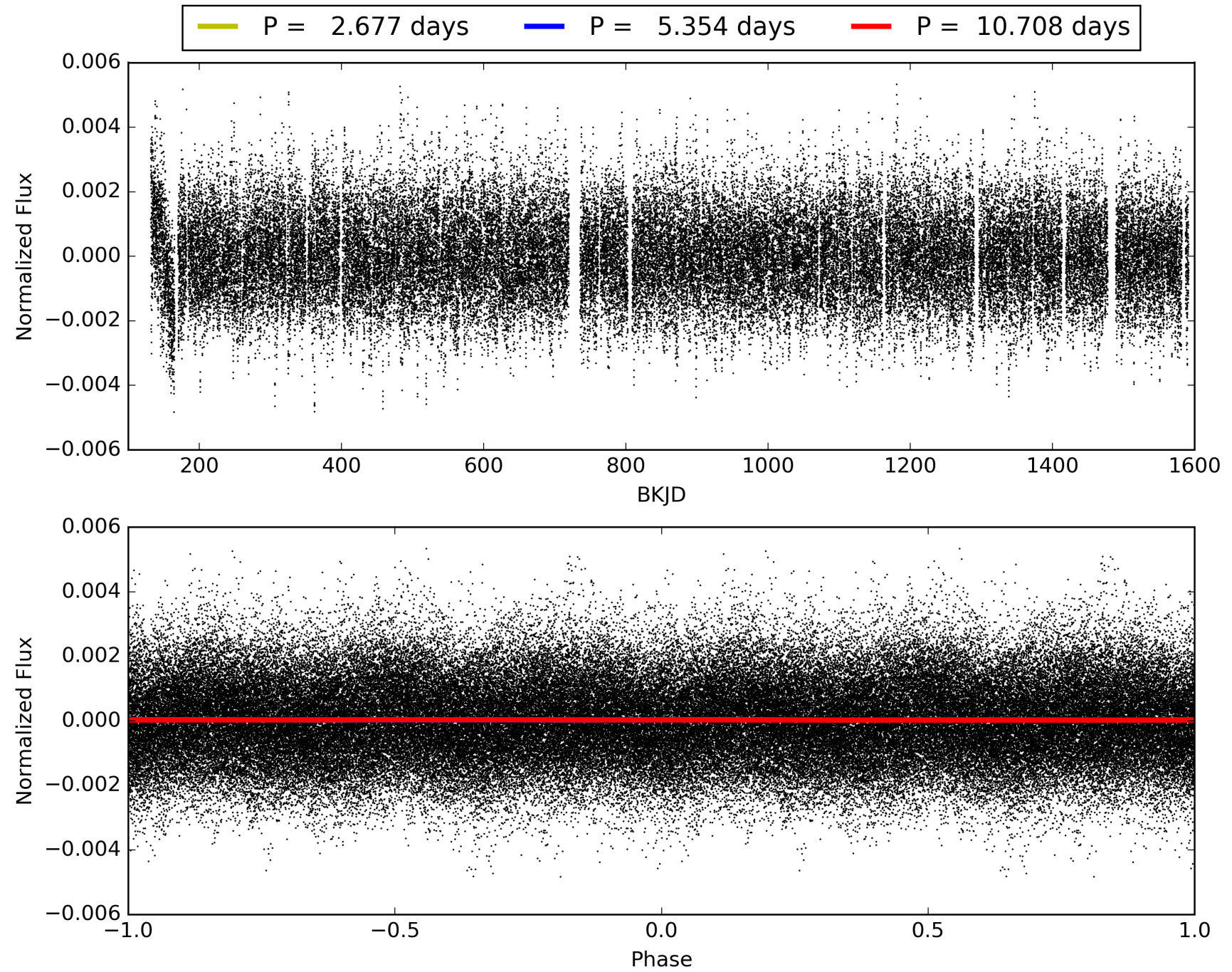
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:16:42 Z

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

TCE 006939203-02, PDC Light Curves

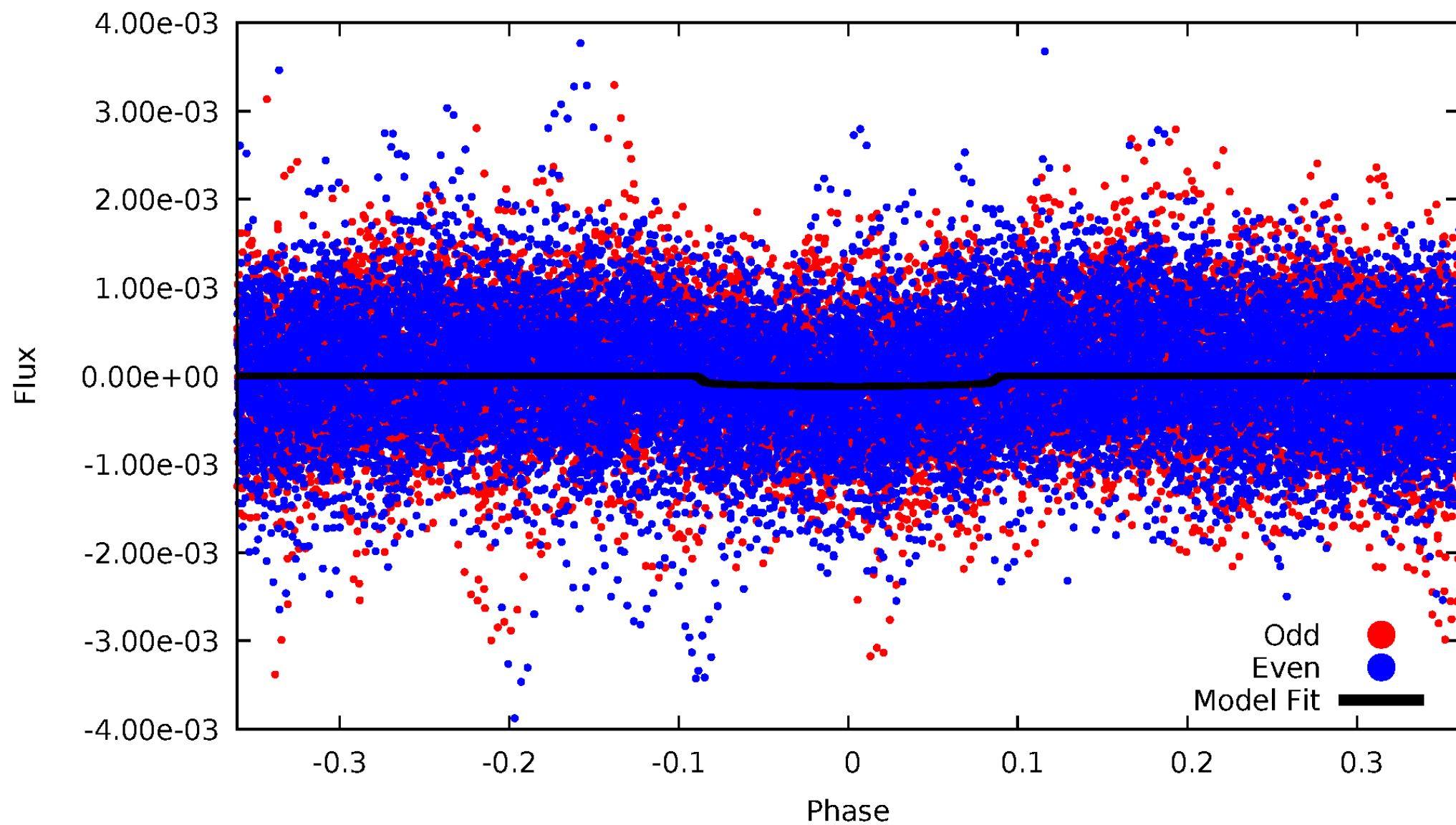


TCE 006939203-02



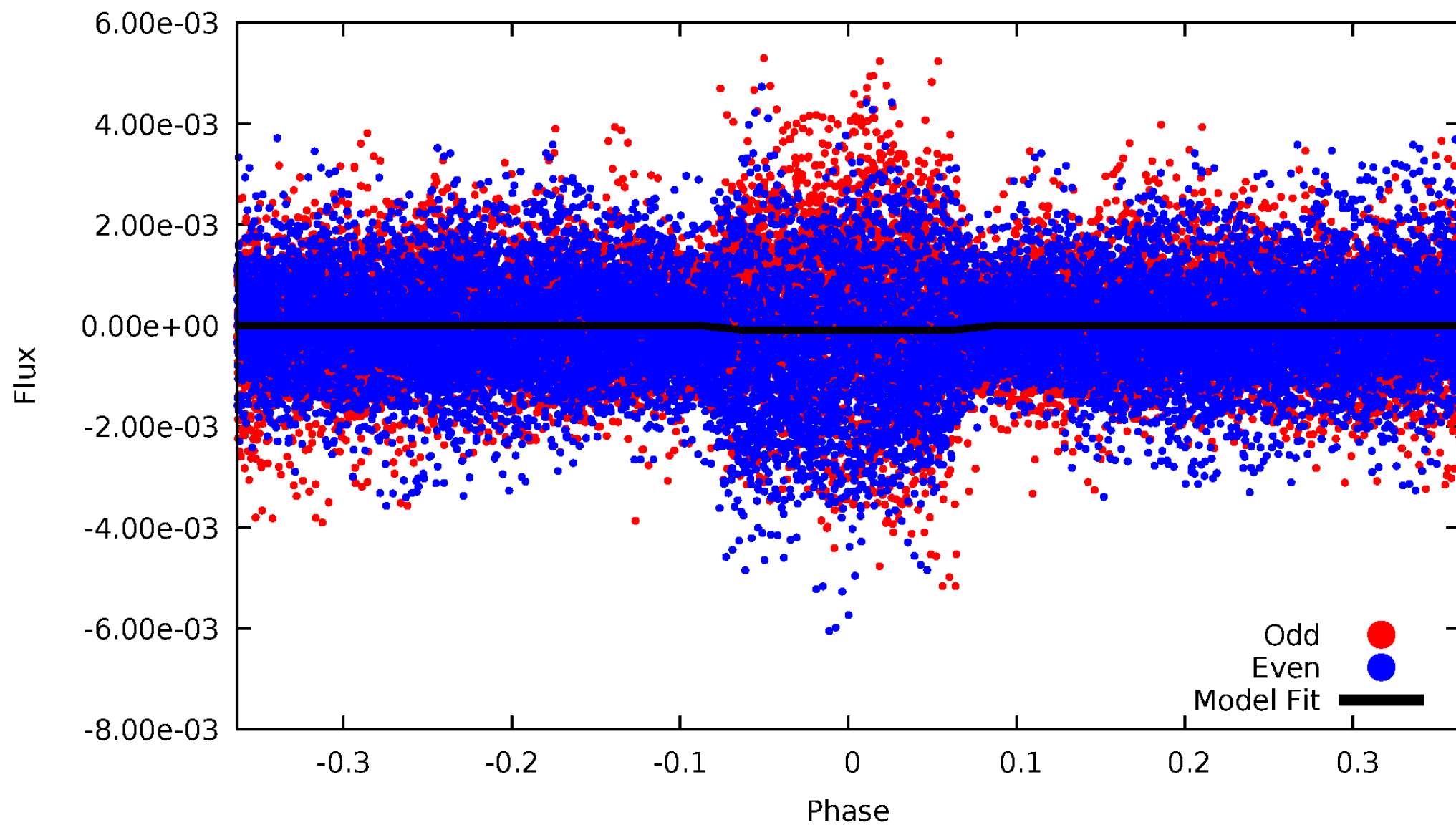
DV Odd/Even

TCE 006939203-02



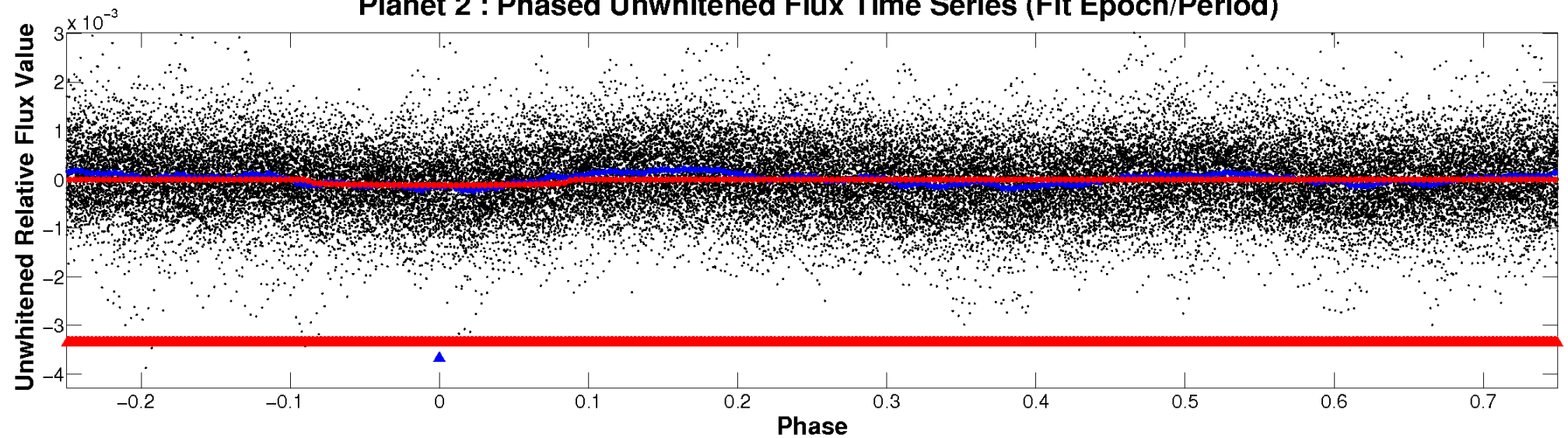
ALT Odd/Even

TCE 006939203-02

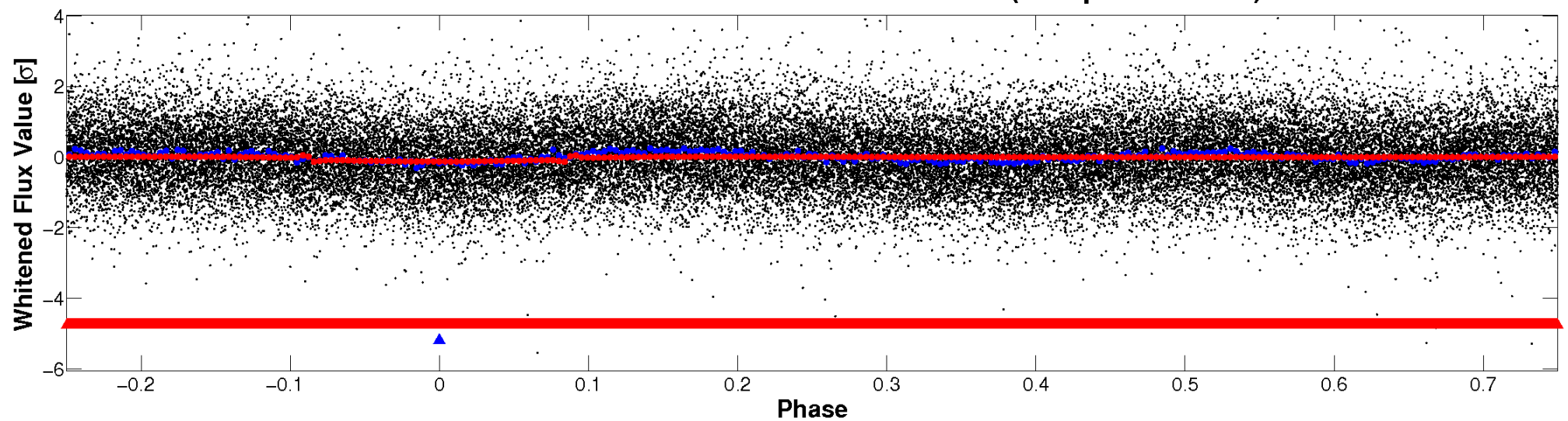


Non-Whitened Vs. Whitened Light Curve

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

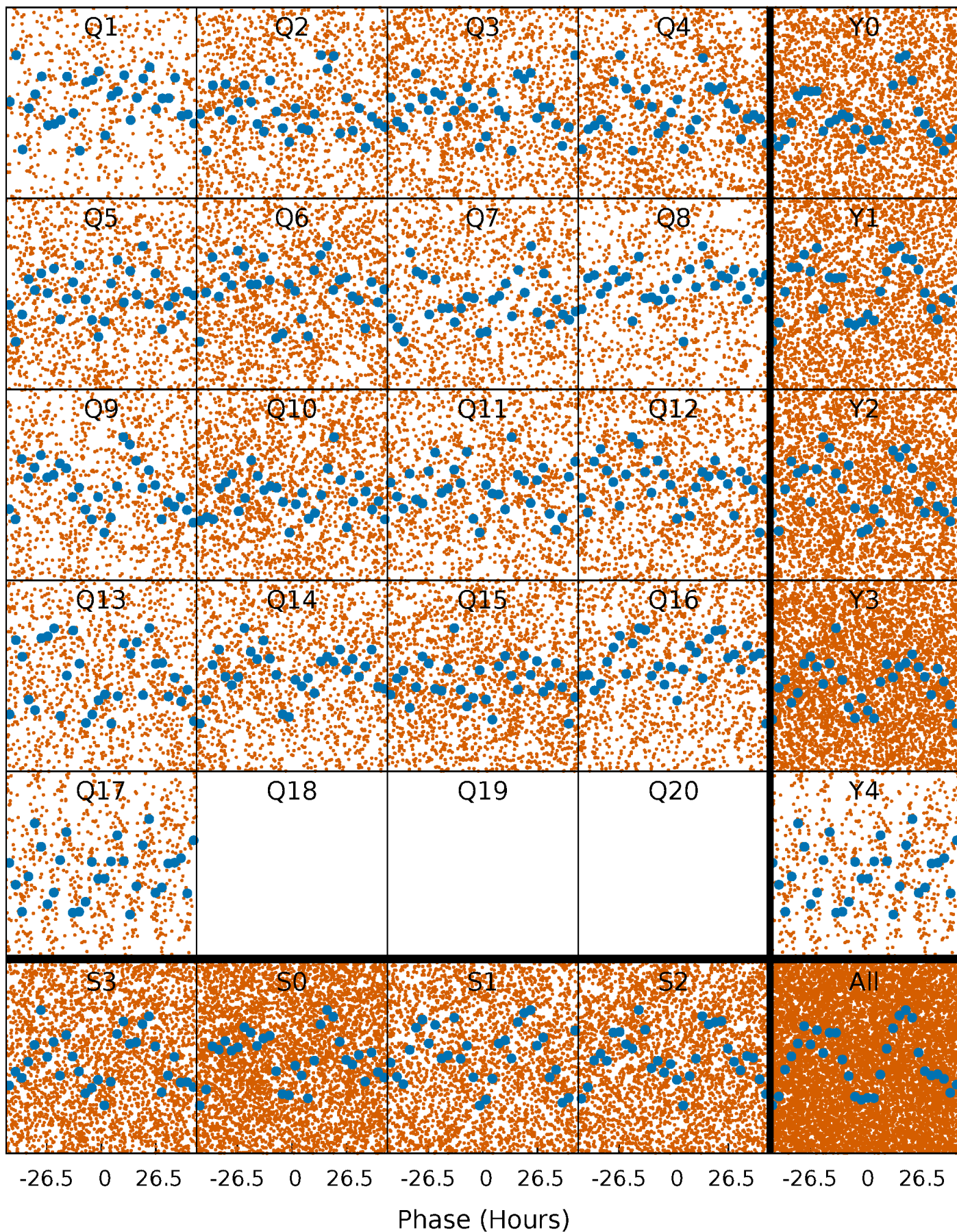


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



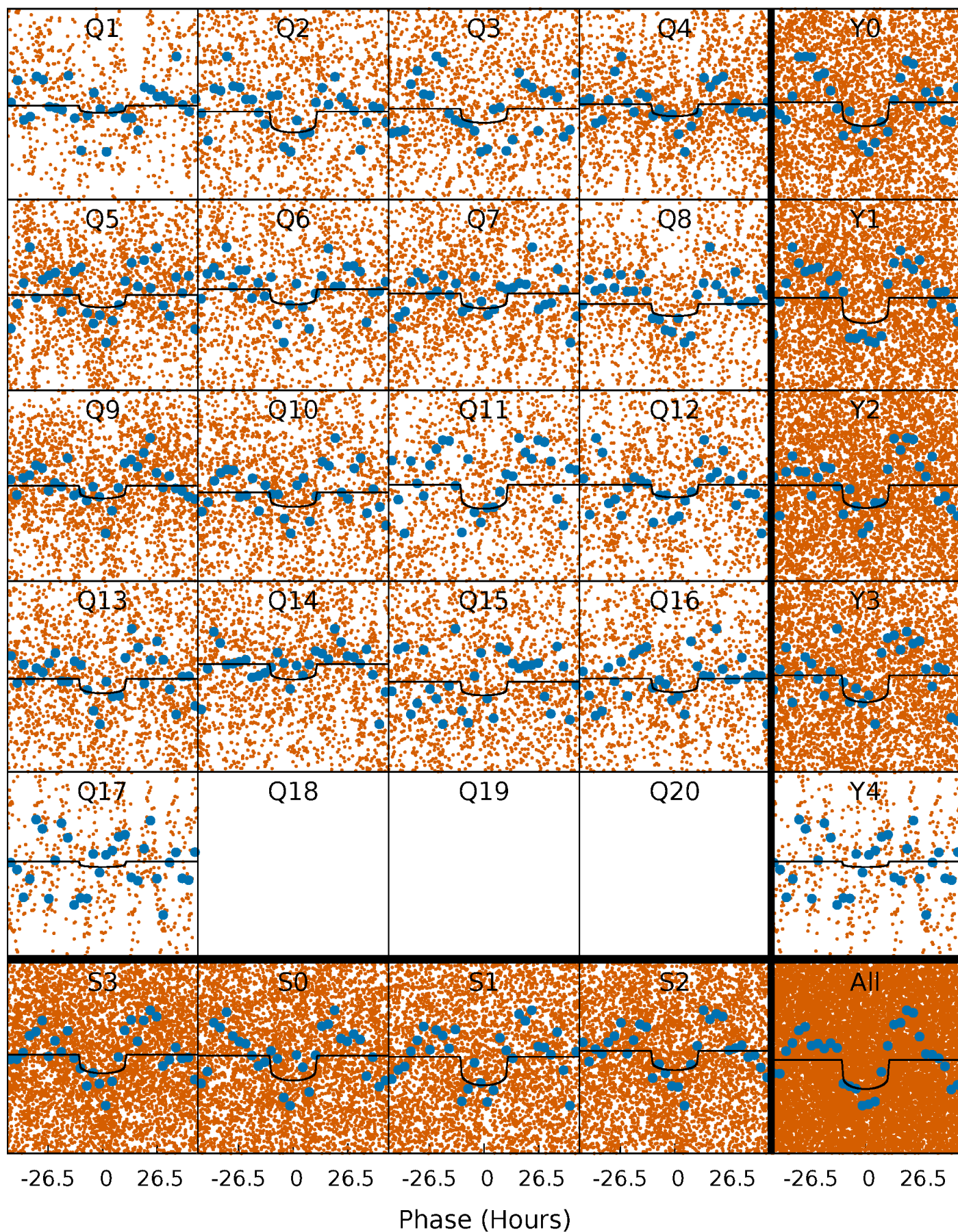
PDC Quarter-Phased Transit Curves

TCE 006939203-02 P= 5.354021 Days $T_0=133.199416$ (BKJD)



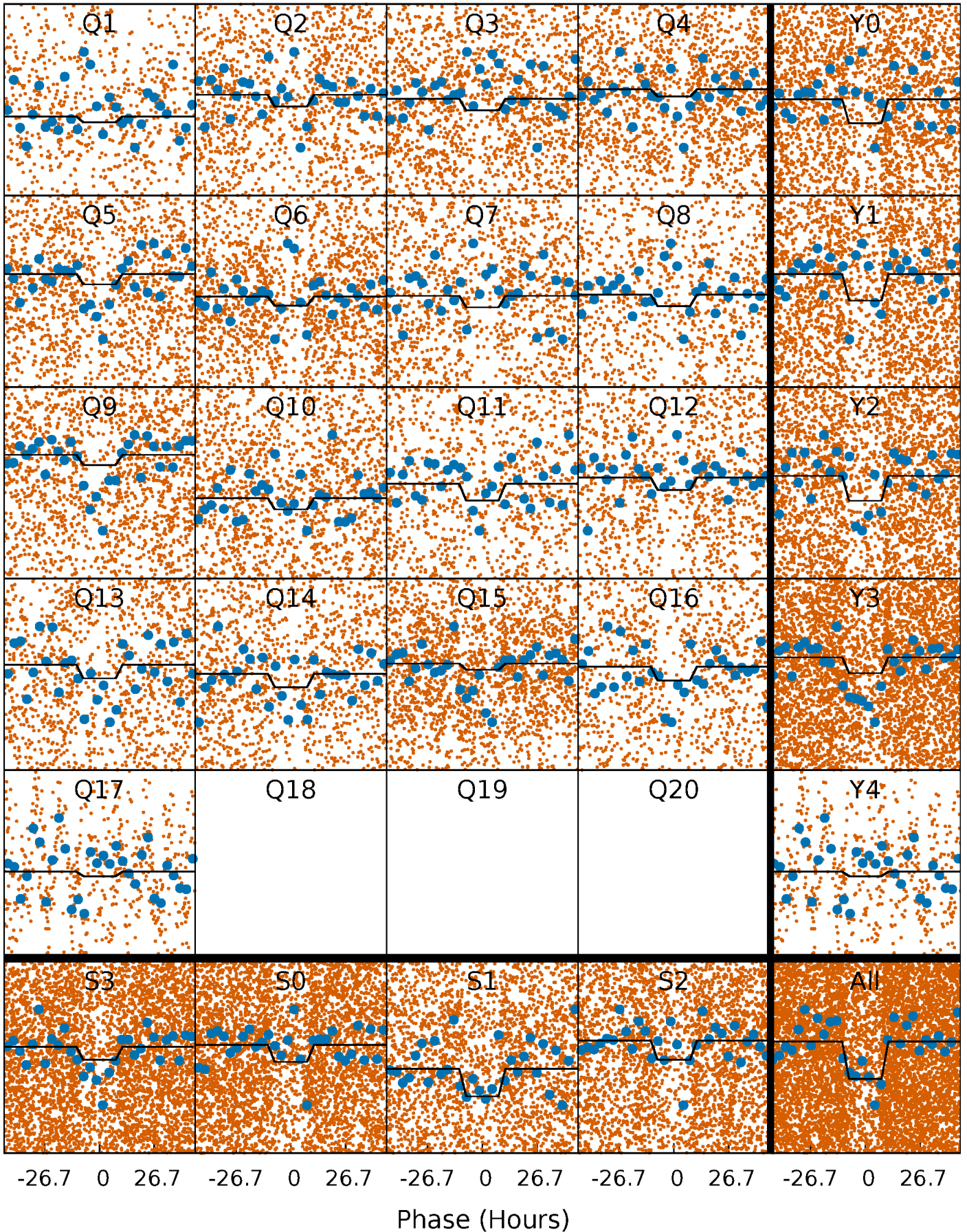
DV Quarter-Phased Transit Curves

TCE 006939203-02 P= 5.354021 Days $T_0=133.199416$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

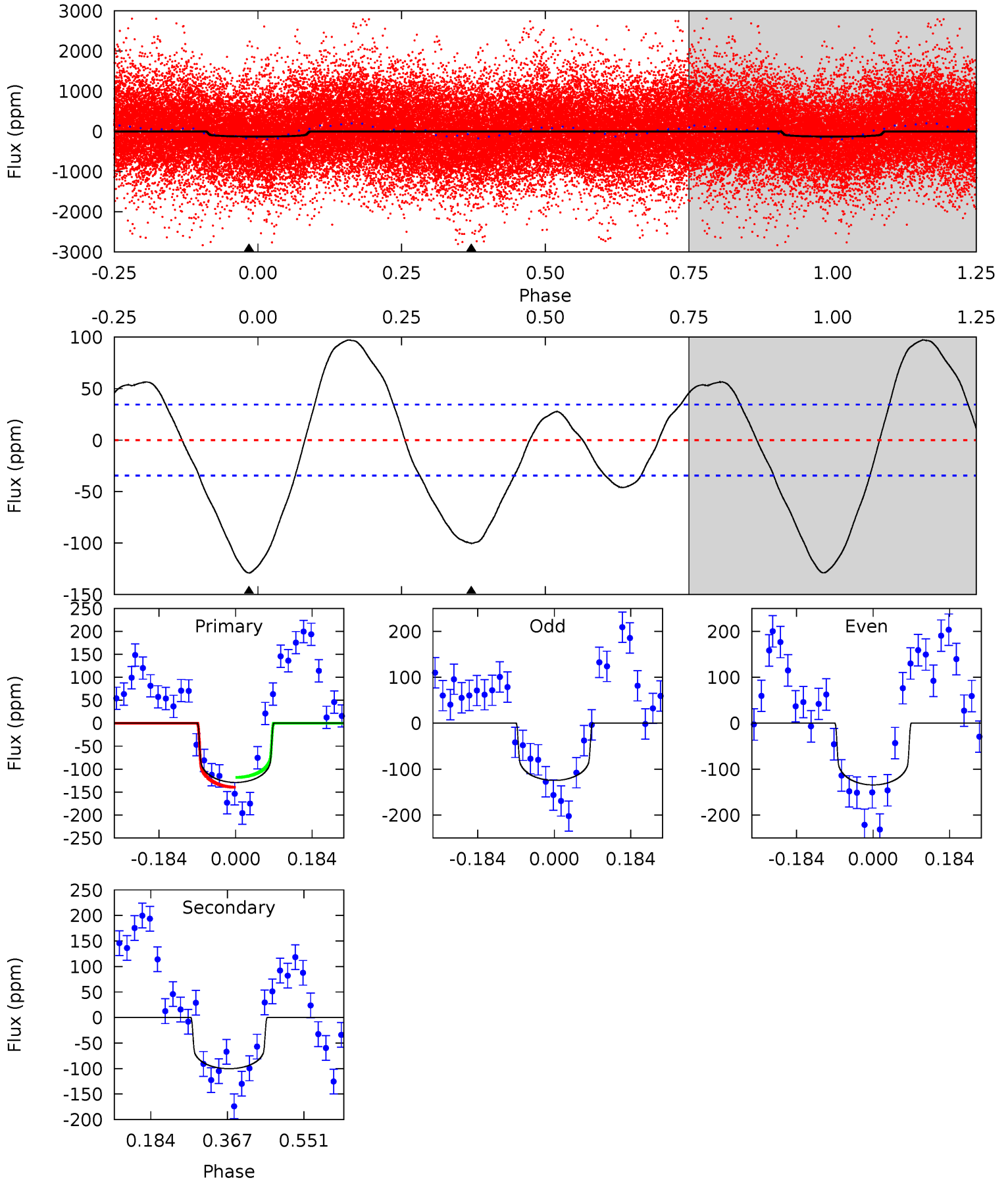
TCE 006939203-02 P= 5.353941 Days $T_0=133.224995$ (BKJD)



DV Model-Shift Uniqueness Test

006939203-02, P = 5.354021 Days, E = 127.845395 Days

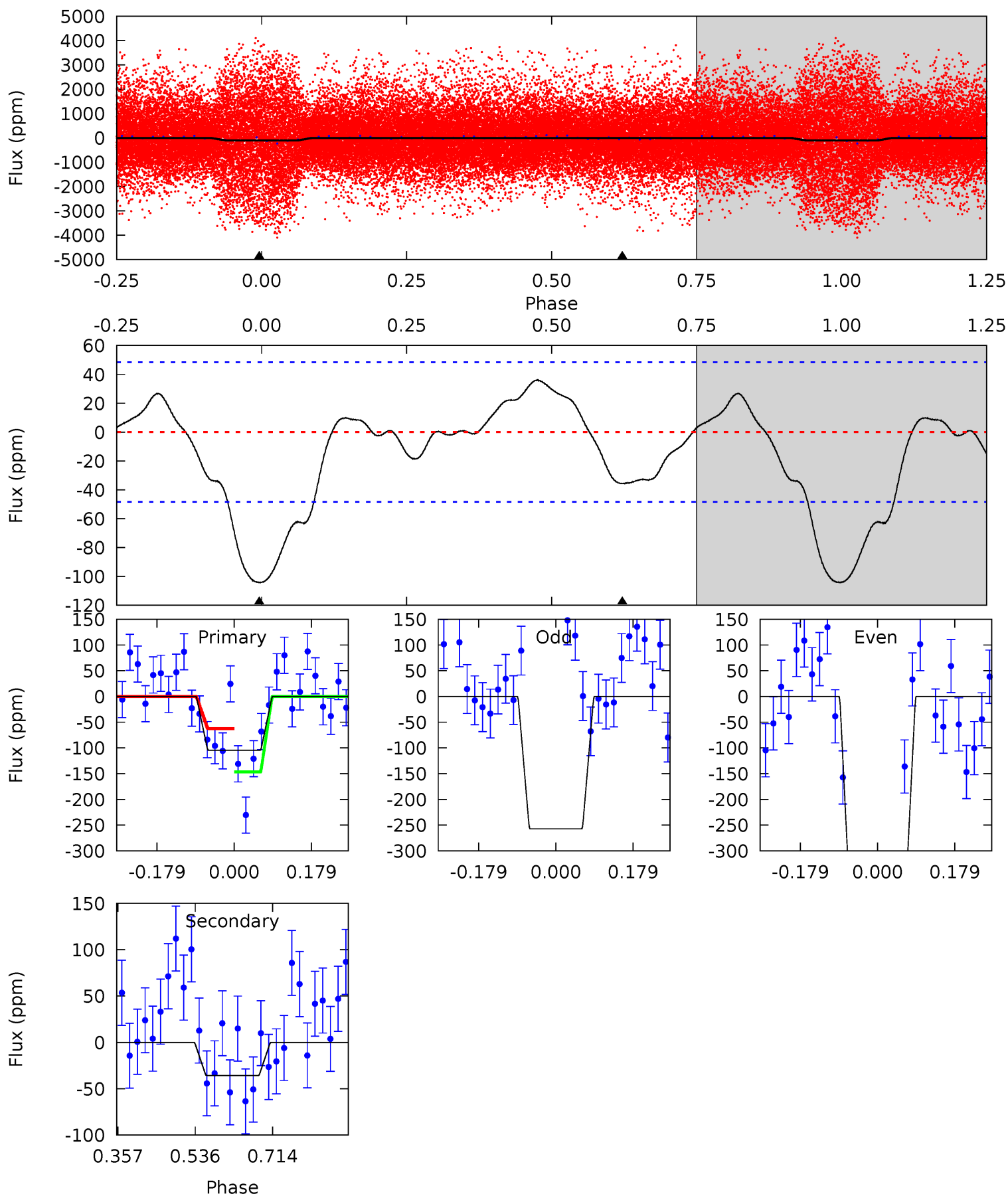
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	12.9	0	0	4.44	1.33	5.46	16.6	16.6	12.9	12.9	0.64	1.26	0.43	1.41



Alt Model-Shift Uniqueness Test

006939203-02, P = 5.353941 Days, E = 127.871054 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.58	3.28	0	0	4.44	1.35	1.06	9.58	9.58	3.28	3.28	8.43	3.51	0.26	3.79



Stellar Parameters For KIC 006939203

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7677^{+237}_{-316}	$3.967^{+0.241}_{-0.148}$	$-0.160^{+0.200}_{-0.300}$	$2.261^{+0.532}_{-0.650}$	$1.726^{+0.198}_{-0.322}$	$0.210^{+0.290}_{-0.084}$
	+3%/-4%	+6%/-4%	+125%/-188%	+24%/-29%	+11%/-19%	+138%/-40%
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 006939203-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-100 ± 8	$2.65^{+0.41}_{-0.44}$	2624^{+194}_{-230}	7242^{+382}_{-404}	40^{+16}_{-10}
Alt.	-36 ± 11	$2.32^{+0.40}_{-0.38}$	2622^{+197}_{-216}	5891^{+536}_{-550}	19^{+10}_{-7}

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 $A_{obs} \gg 1.0$

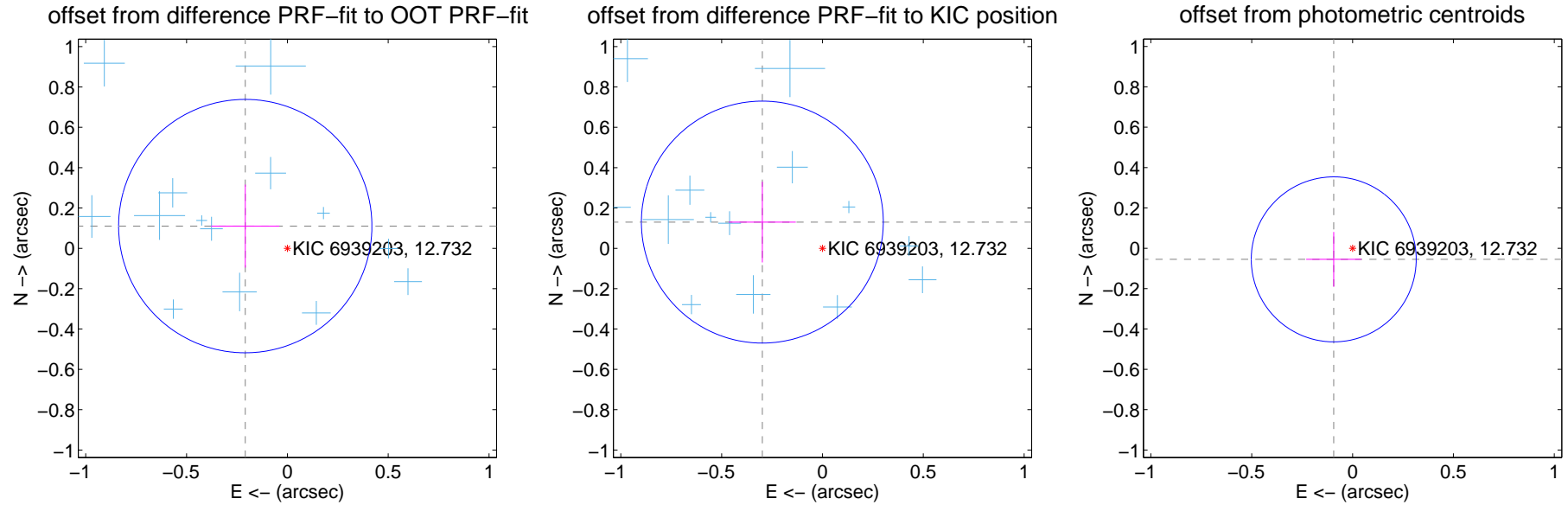
DV Centroid Data

Supplemental centroid analysis for 006939203-02. Kepler magnitude: 12.73. Transit SNR 9.57

There are 15 quarters with good PRF difference image offsets

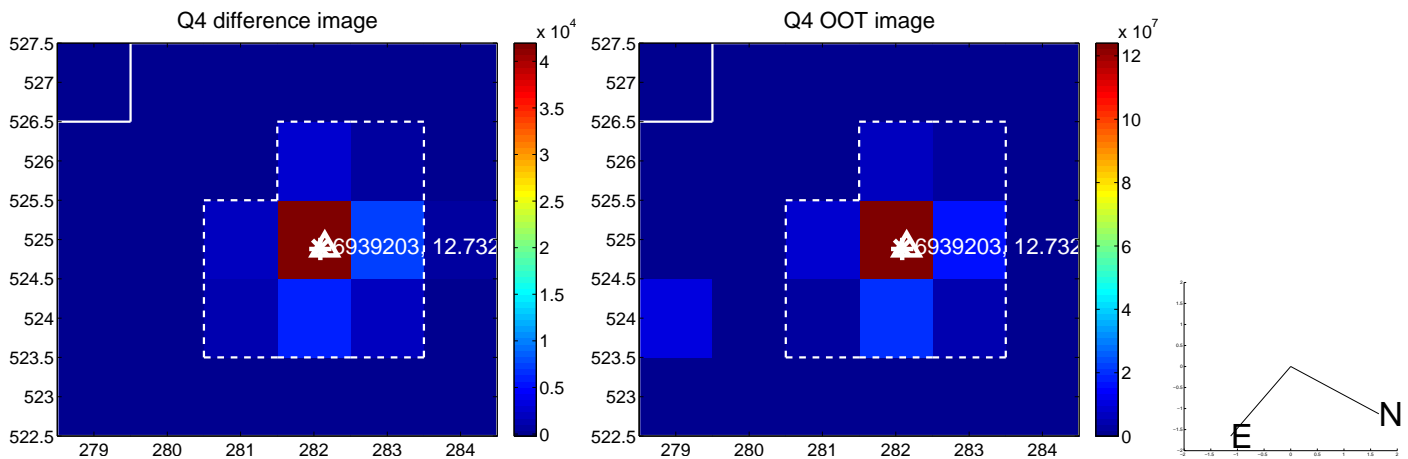
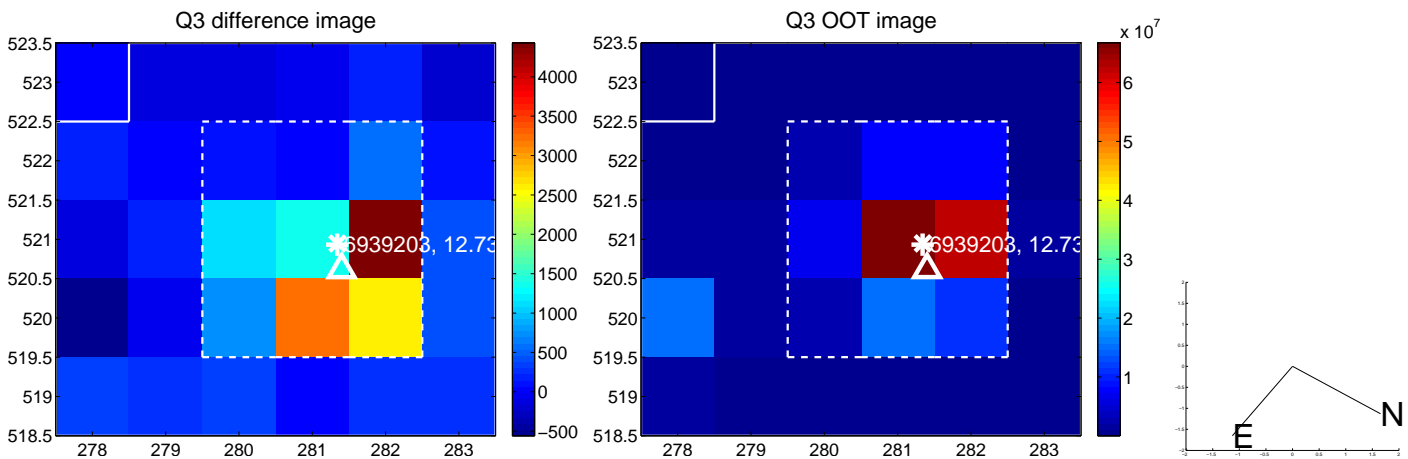
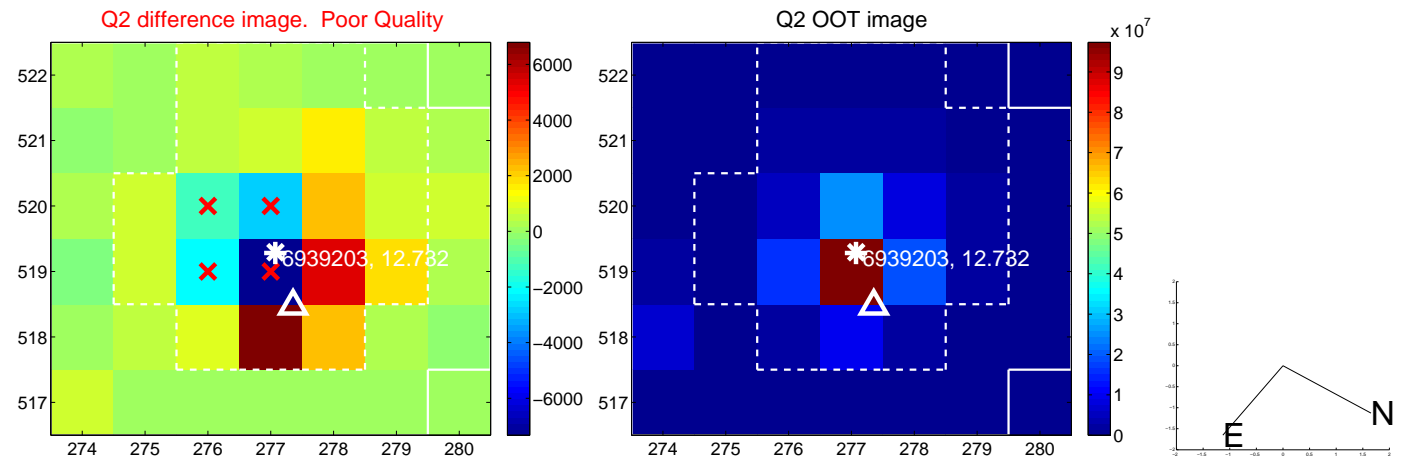
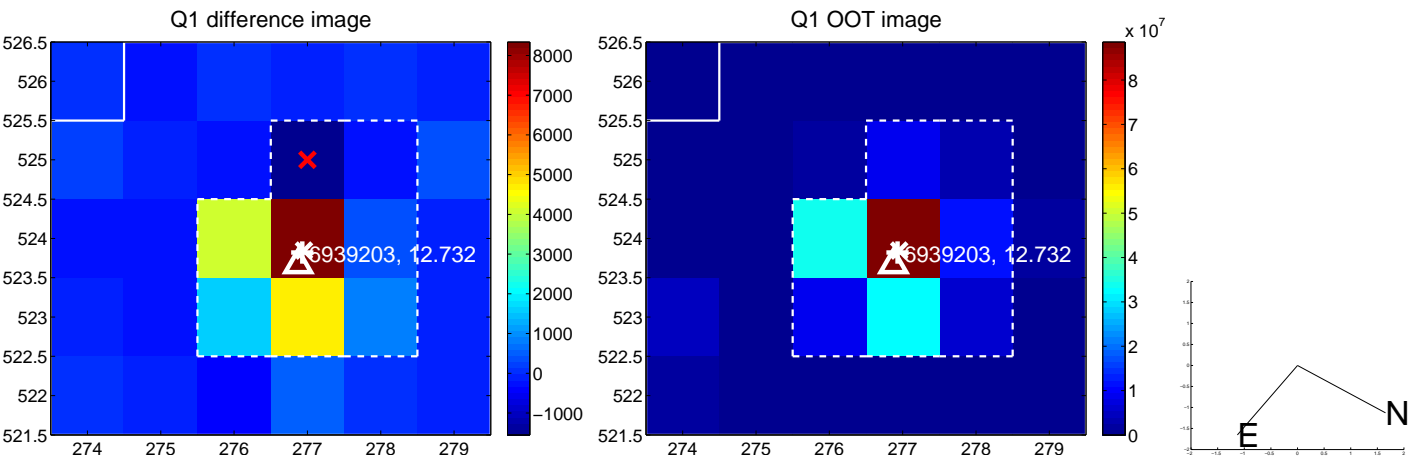
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.236 ± 0.209	1.13	0.209 ± 0.169	0.110 ± 0.206
PRF-fit source offset from KIC position	0.325 ± 0.200	1.63	0.298 ± 0.166	0.130 ± 0.200
photometric centroid source offset	0.11 ± 0.14	0.79	0.09 ± 0.14	-0.05 ± 0.14

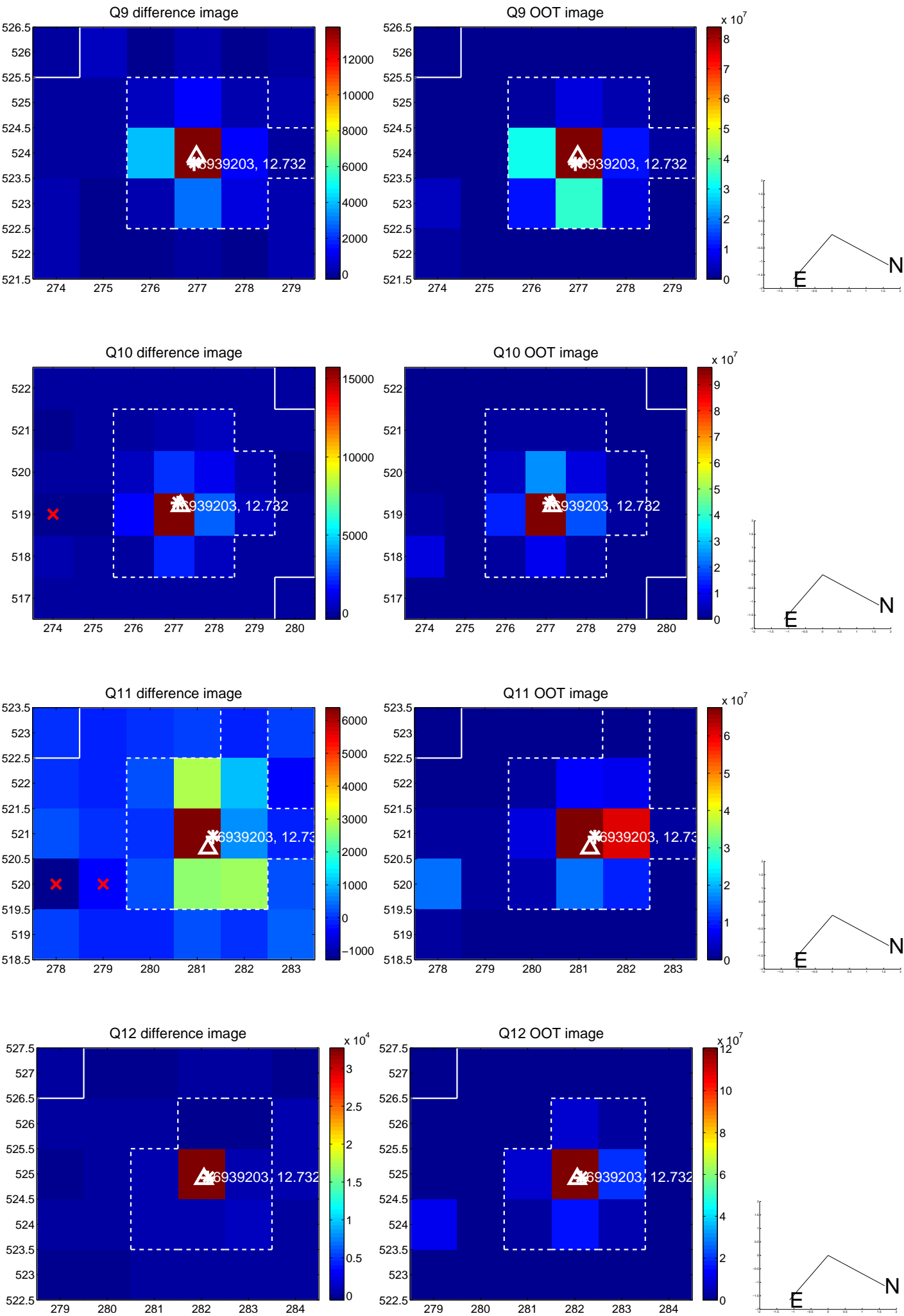


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

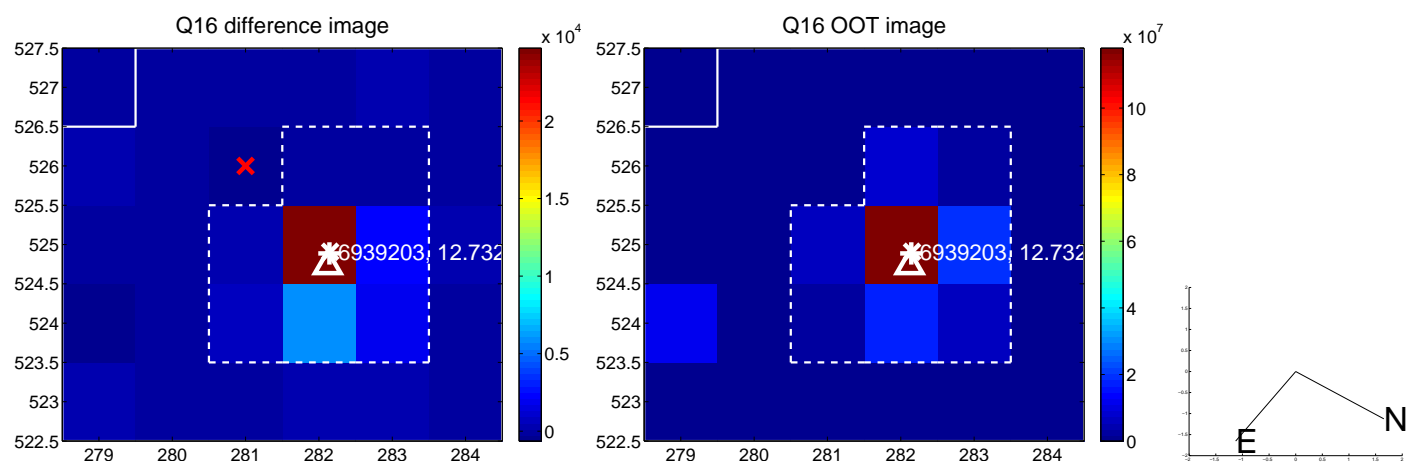
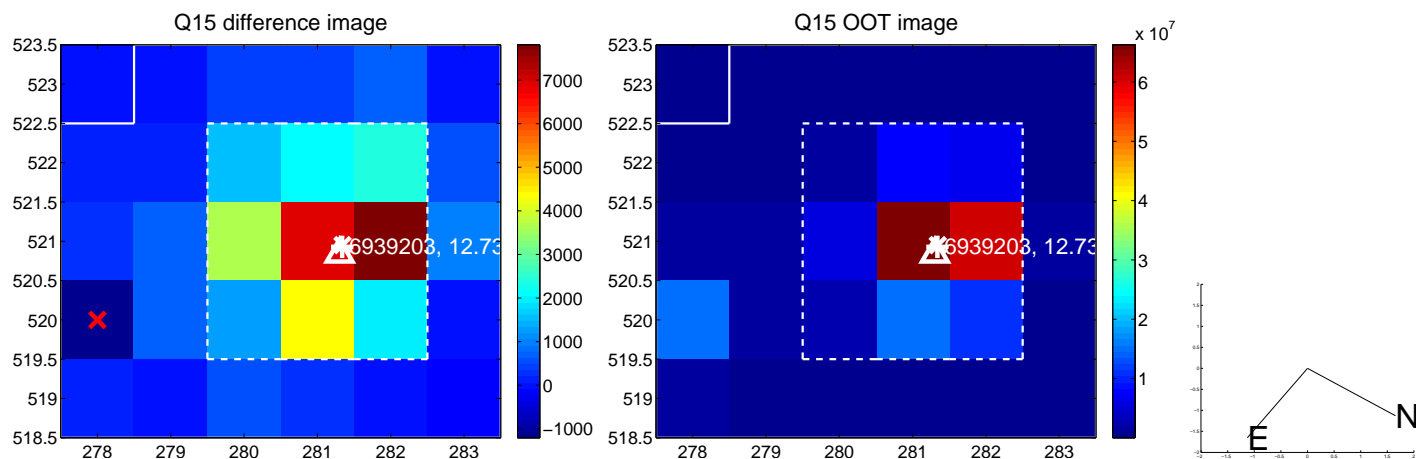
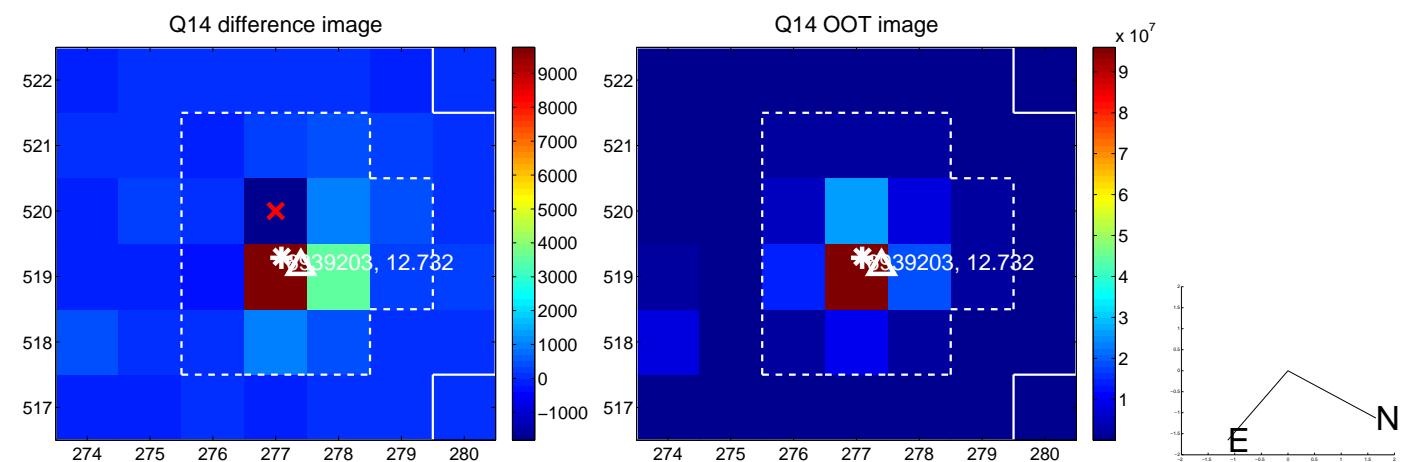
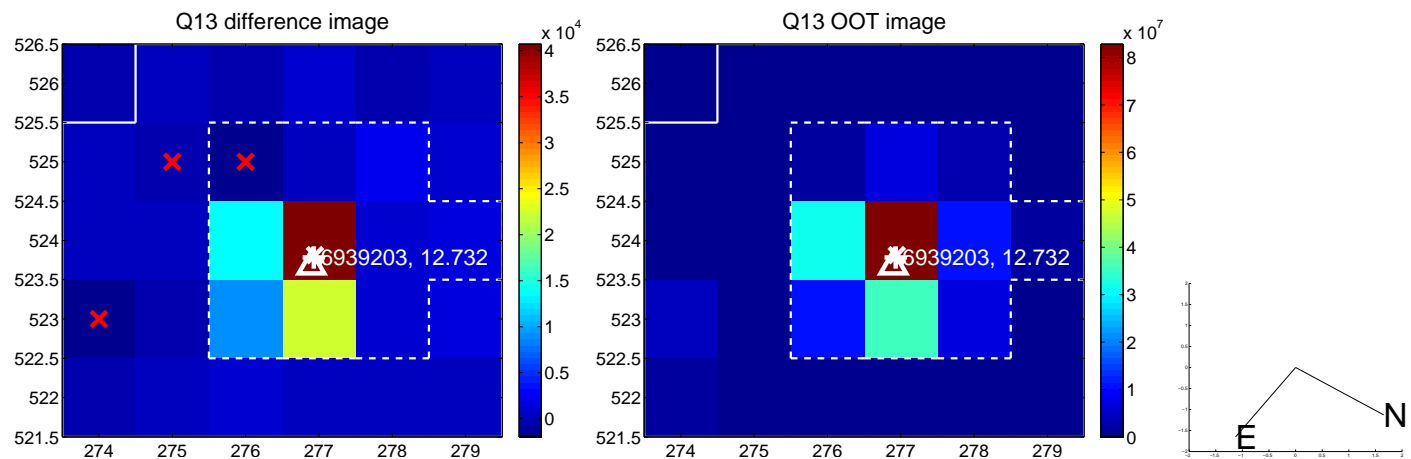
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



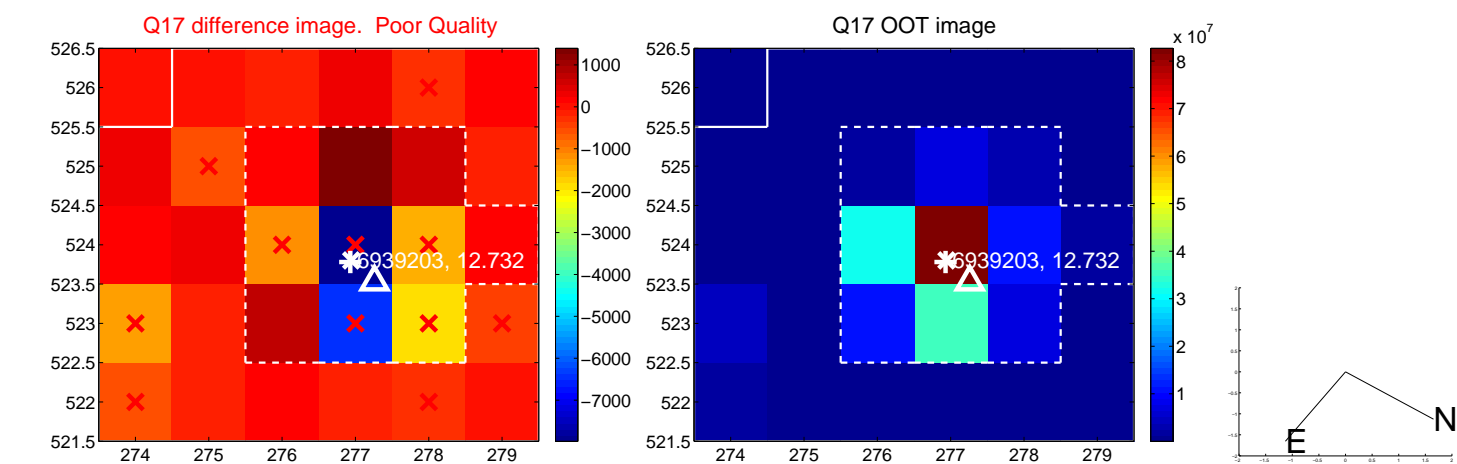
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



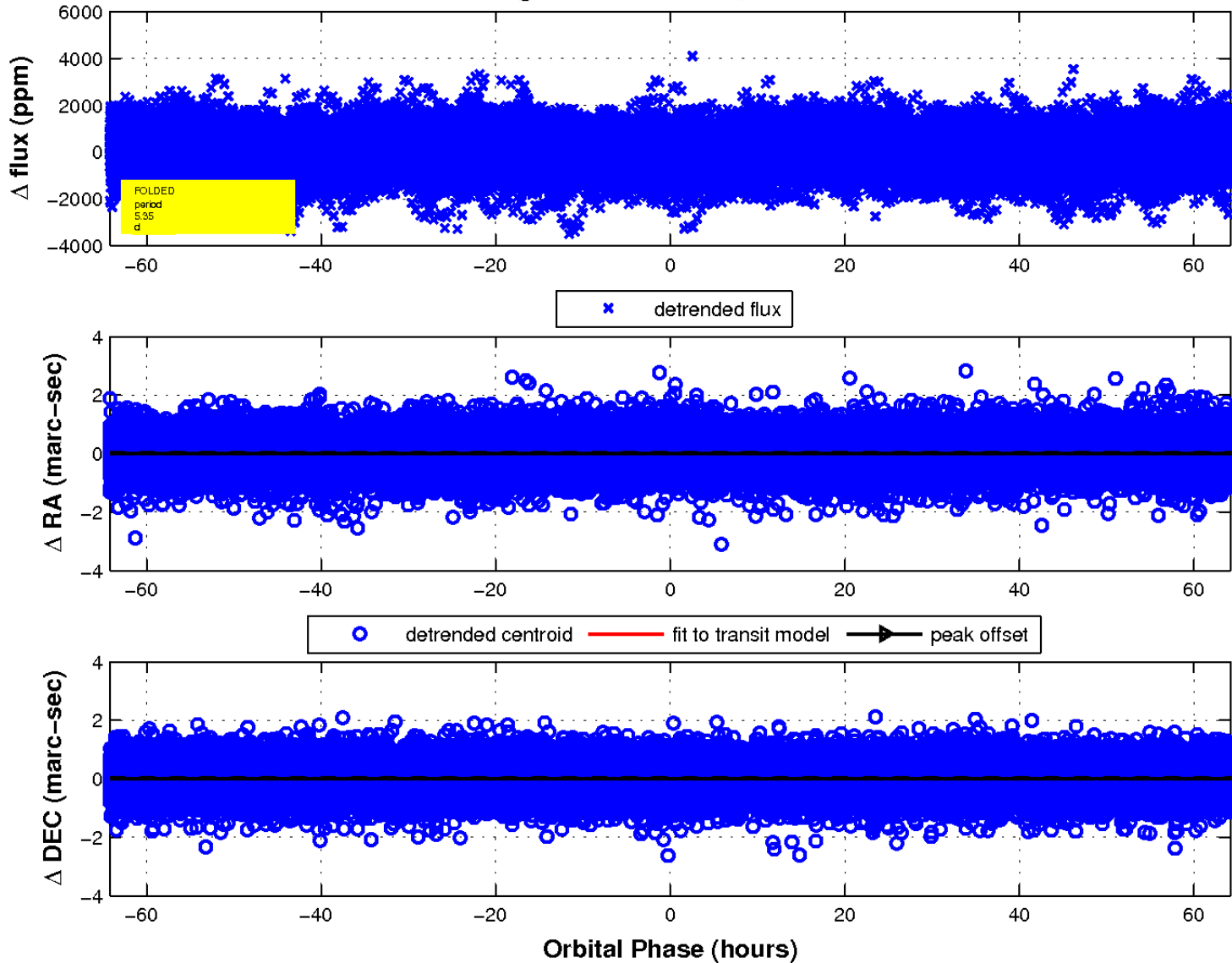
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

