

KIC 004773851

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})
004773851-01	OBS	No	0.692908	131.727029	25.4	1.176	11.9	7.0	2.27	8009	1.33	53956.01
004773851-02	OBS	No	0.674363	131.686404	70.0	8.092	8.1	16.5	2.27	8009	2.56	55943.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004773851-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004773851-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—LPP_ALT

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

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

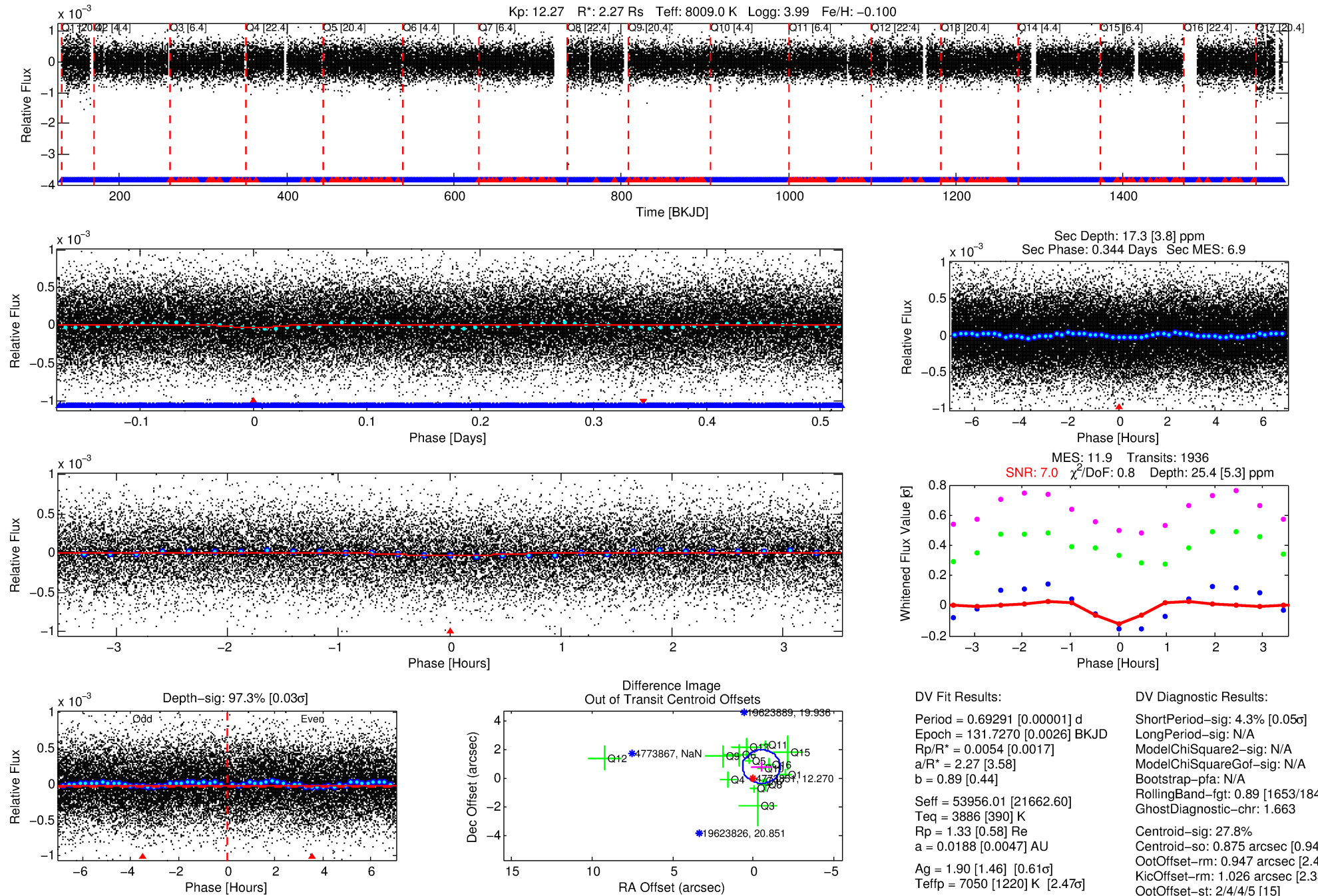
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004773851-01

No Significant Match Found

DV One-Page Summary

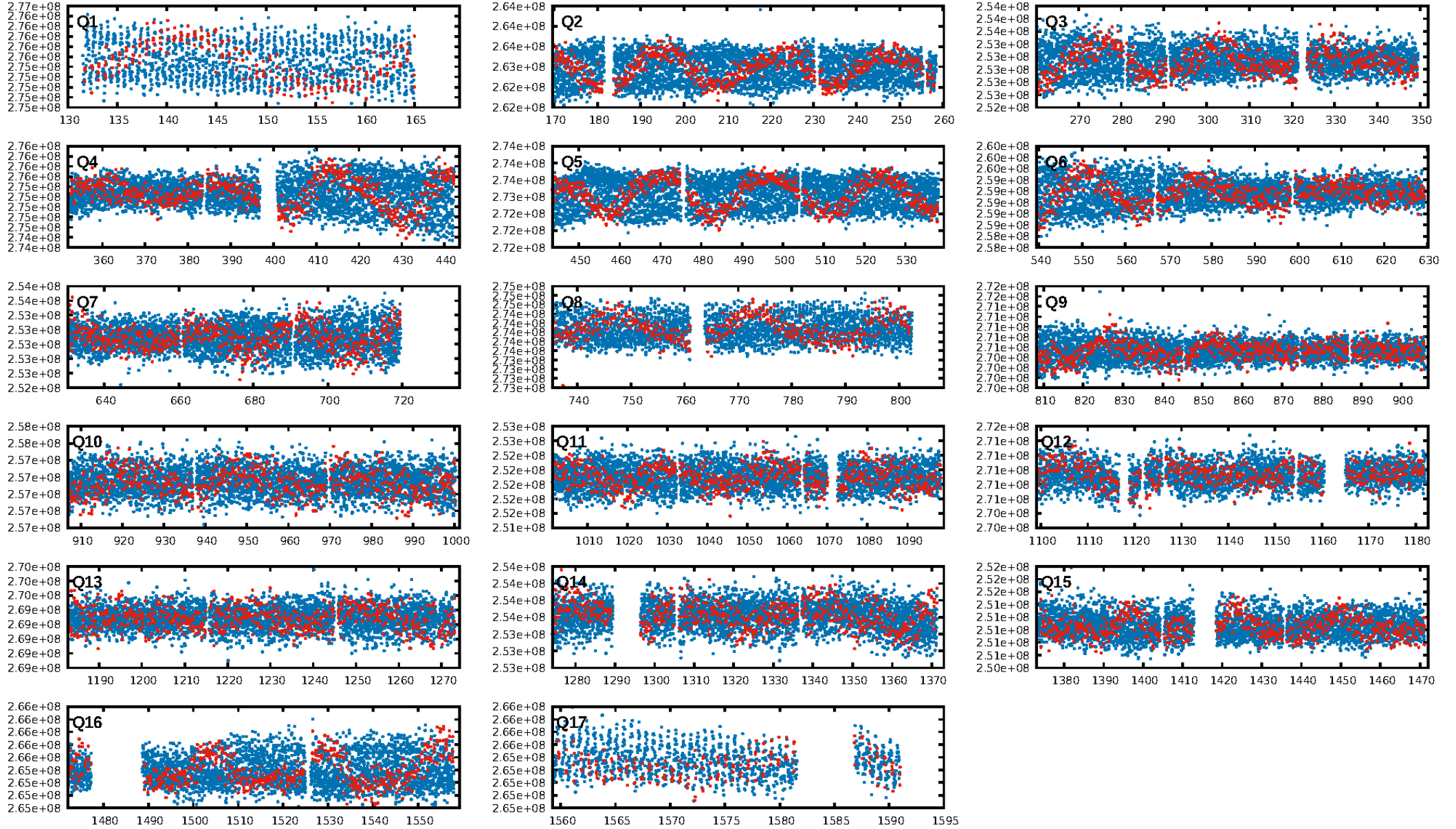
KIC: 4773851 Candidate: 1 of 2 Period: 0.693 d



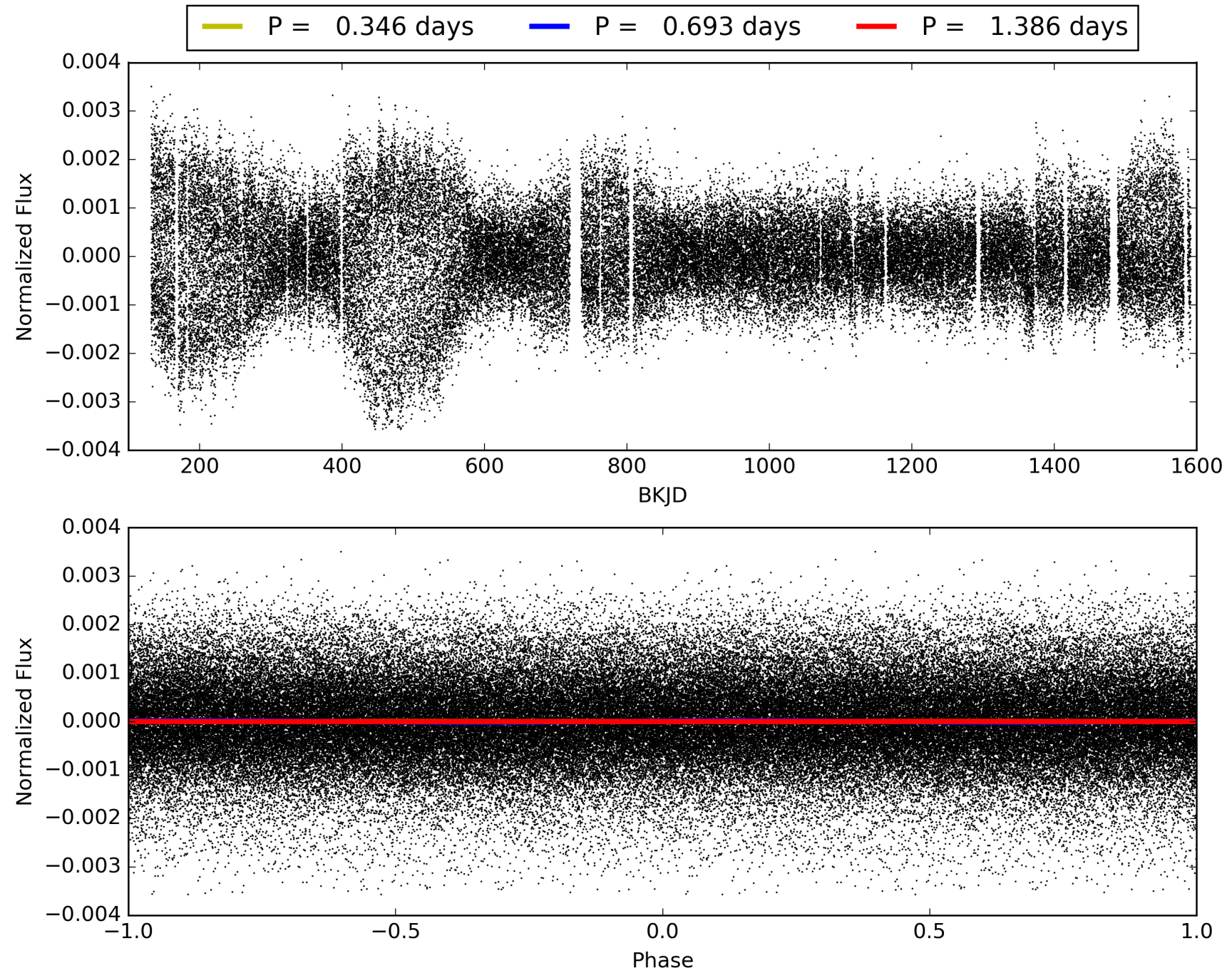
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:14:20 Z

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

TCE 004773851-01, PDC Light Curves

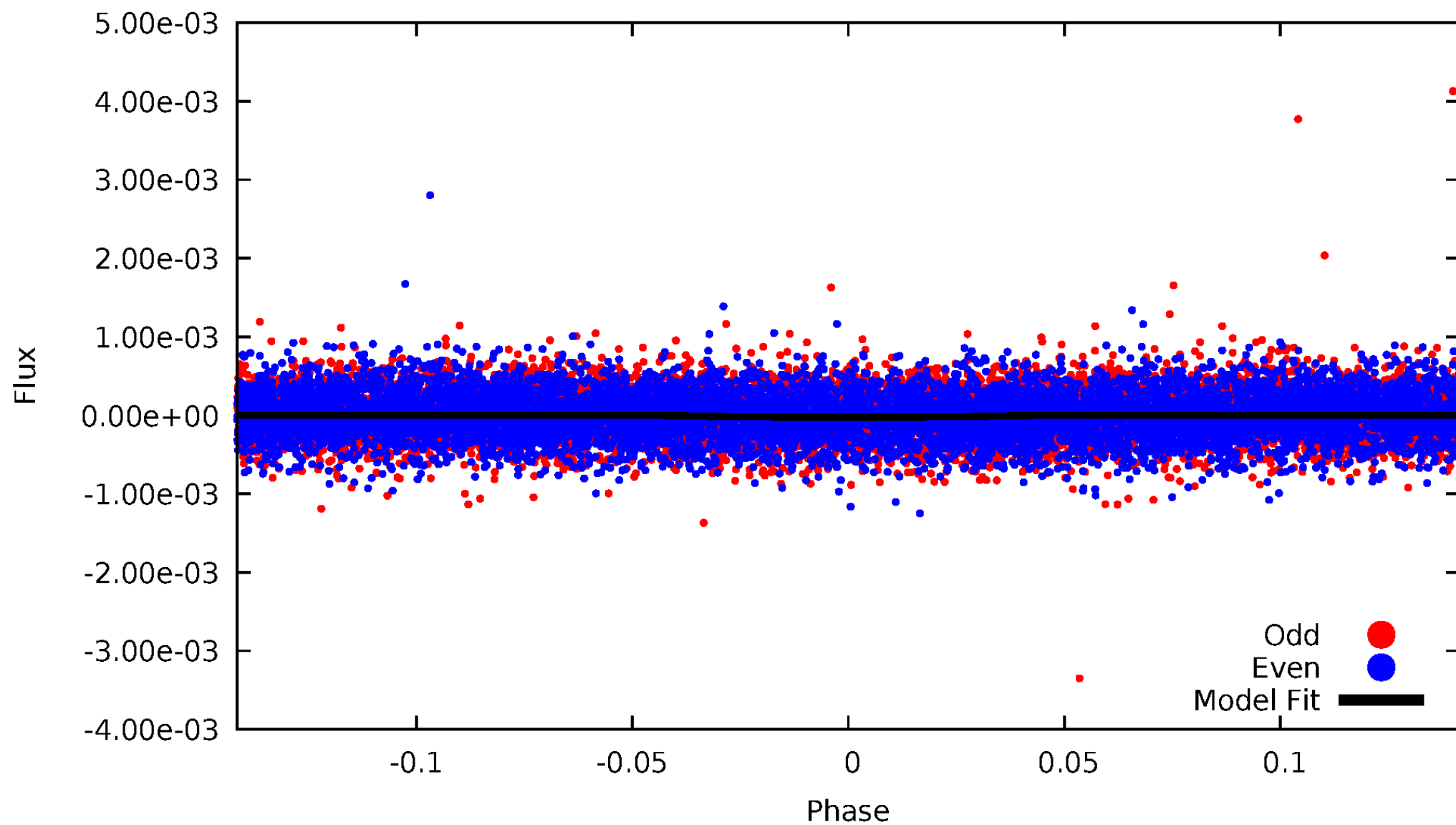


TCE 004773851-01



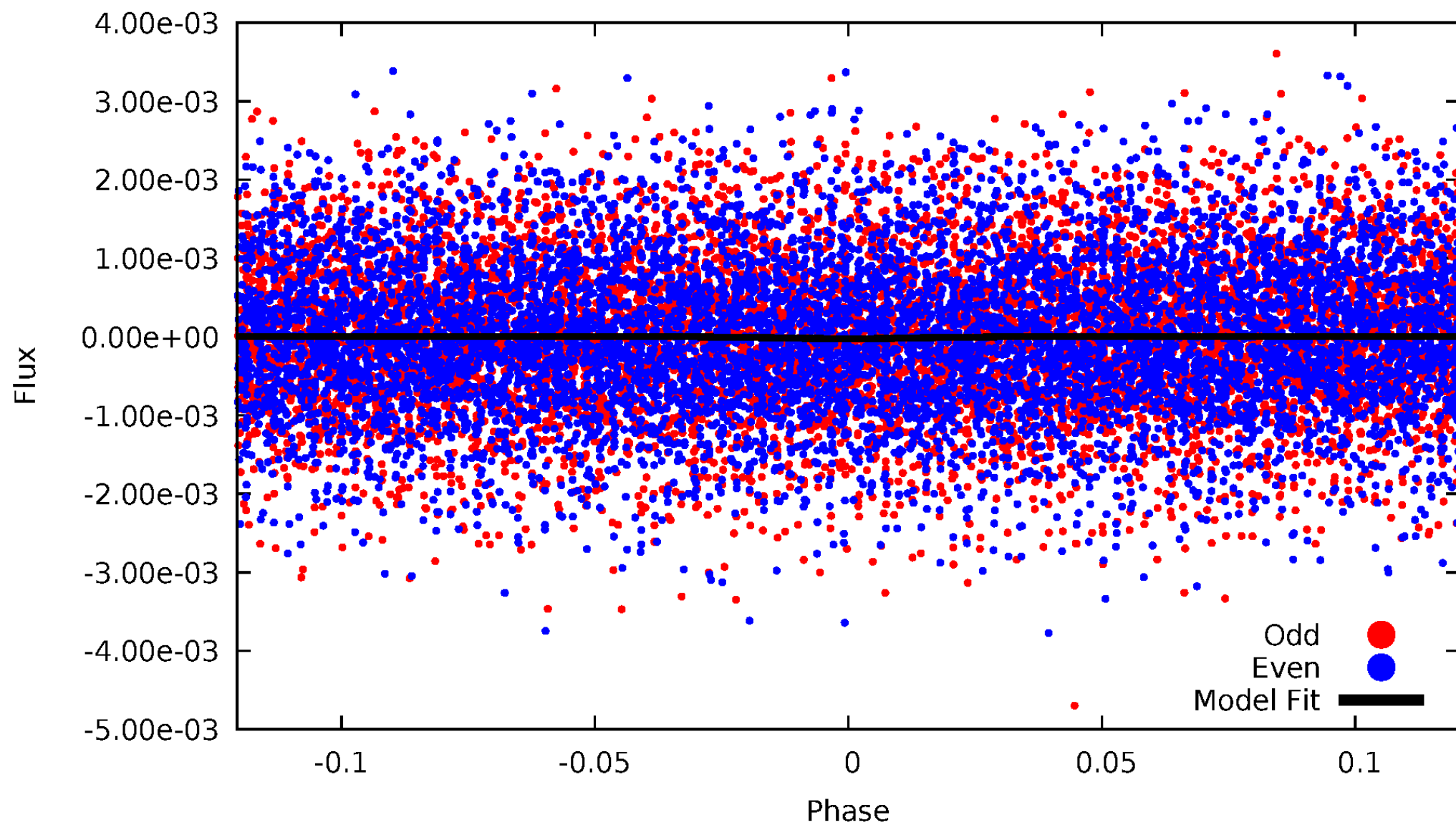
DV Odd/Even

TCE 004773851-01

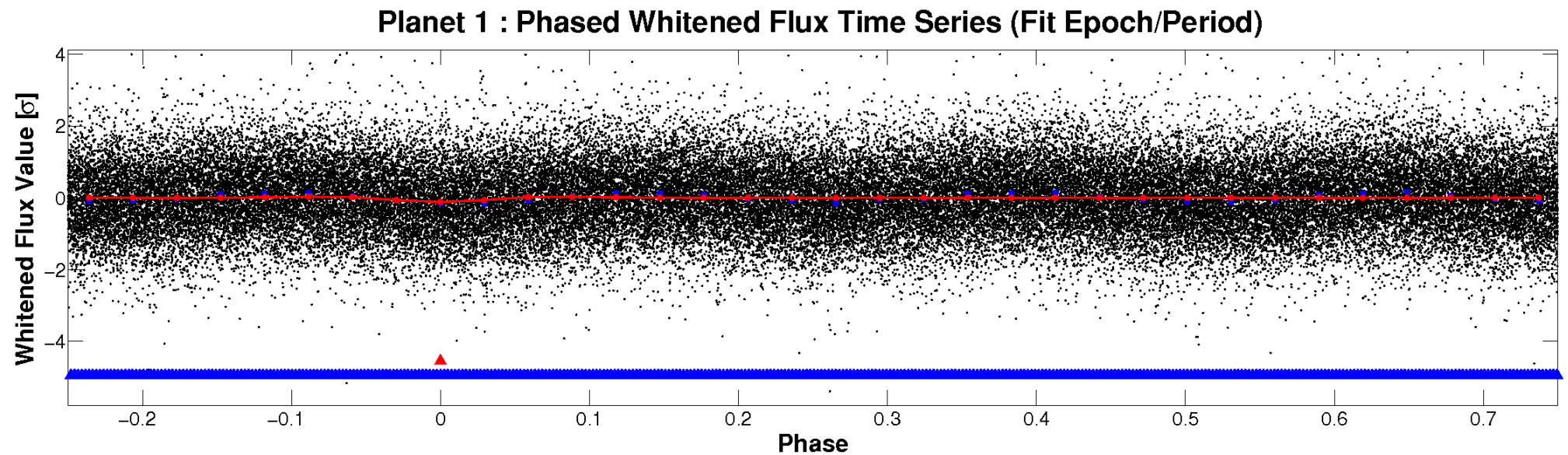
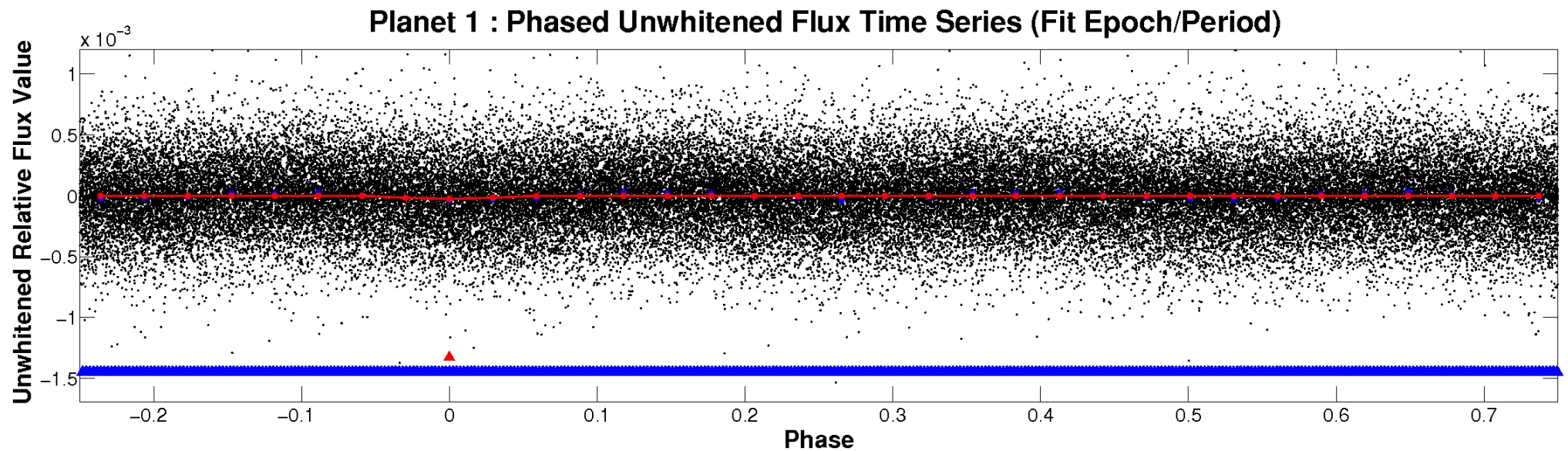


ALT Odd/Even

TCE 004773851-01

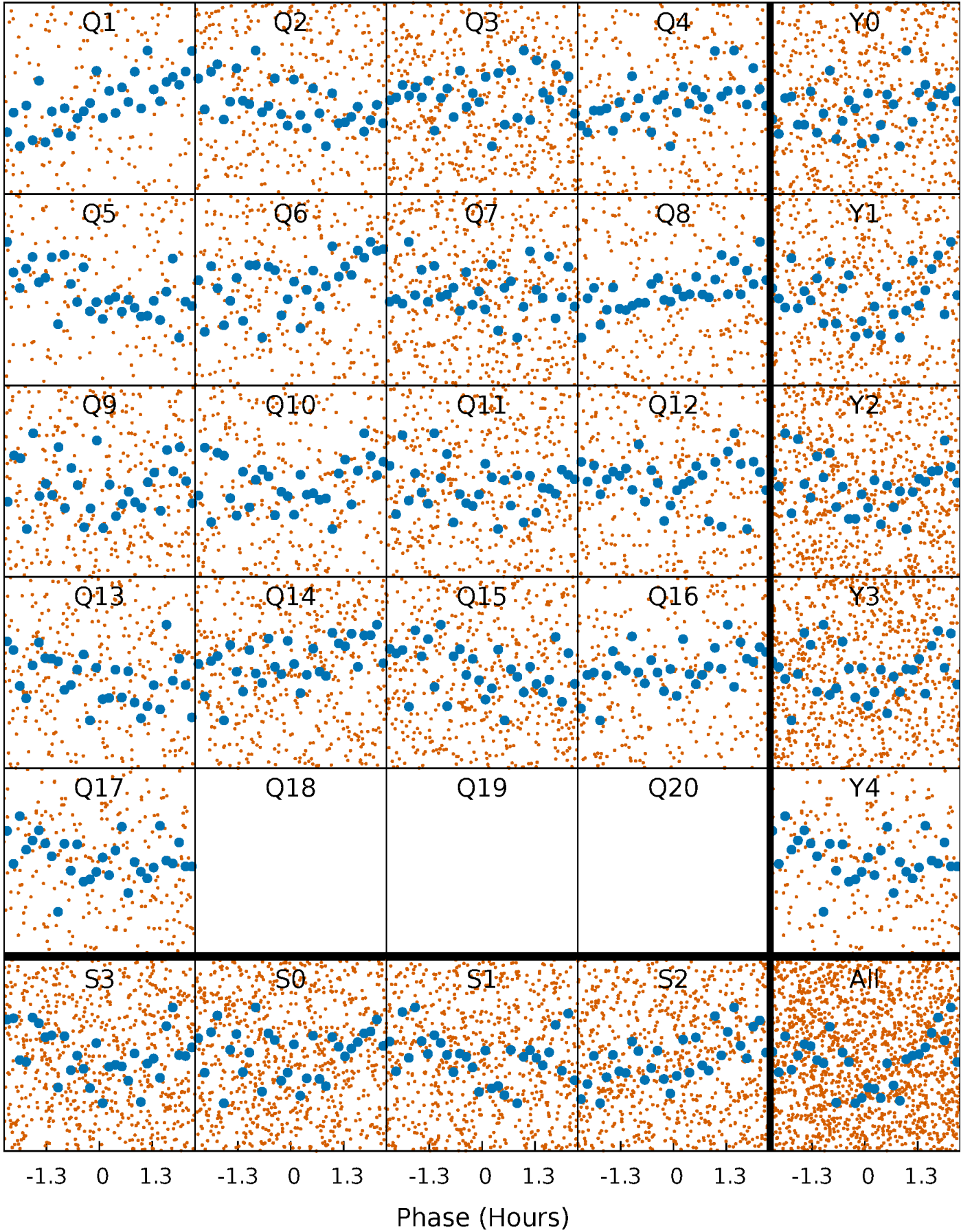


Non-Whitened Vs. Whitened Light Curve



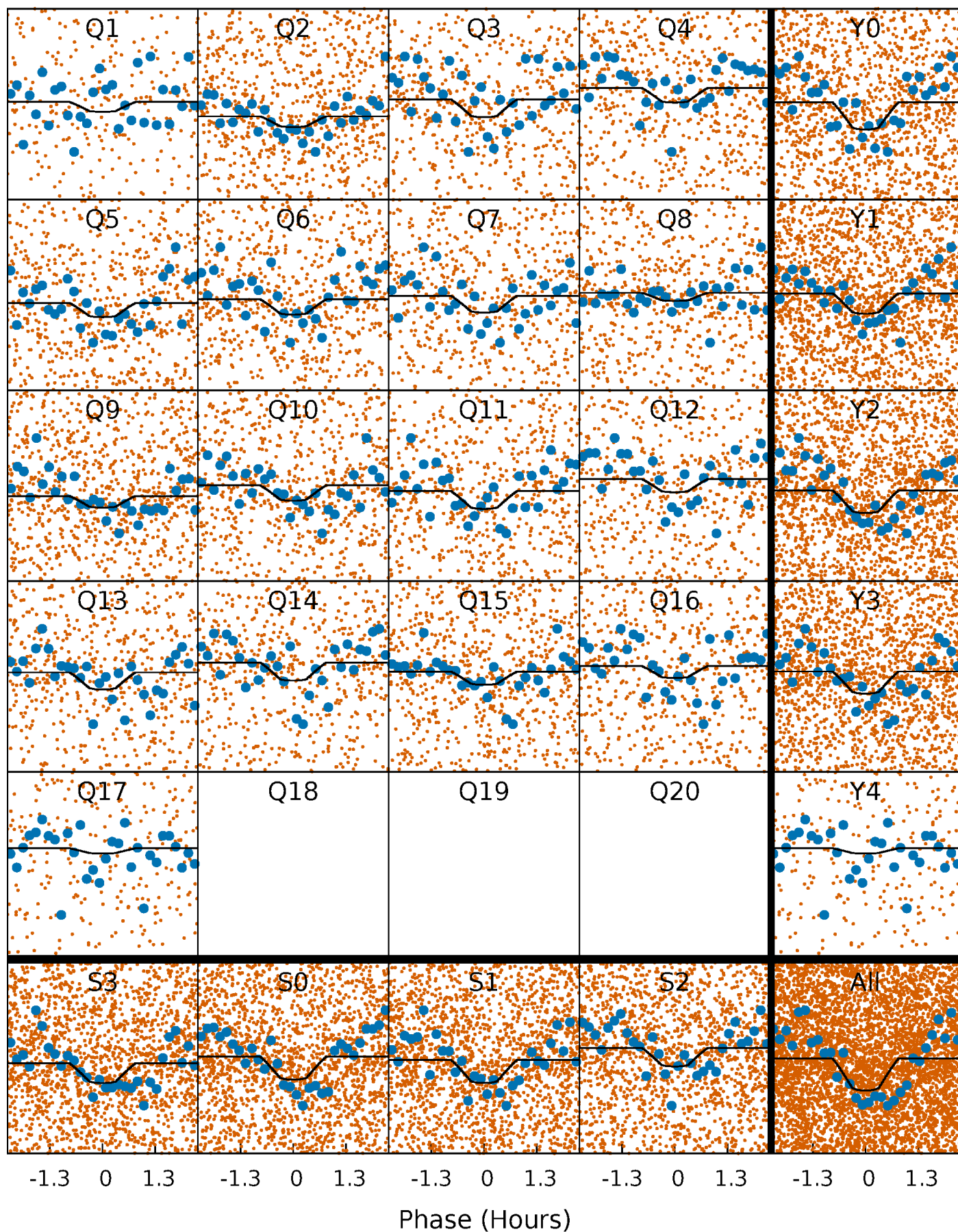
PDC Quarter-Phased Transit Curves

TCE 004773851-01 P= 0.692908 Days $T_0=131.727029$ (BKJD)



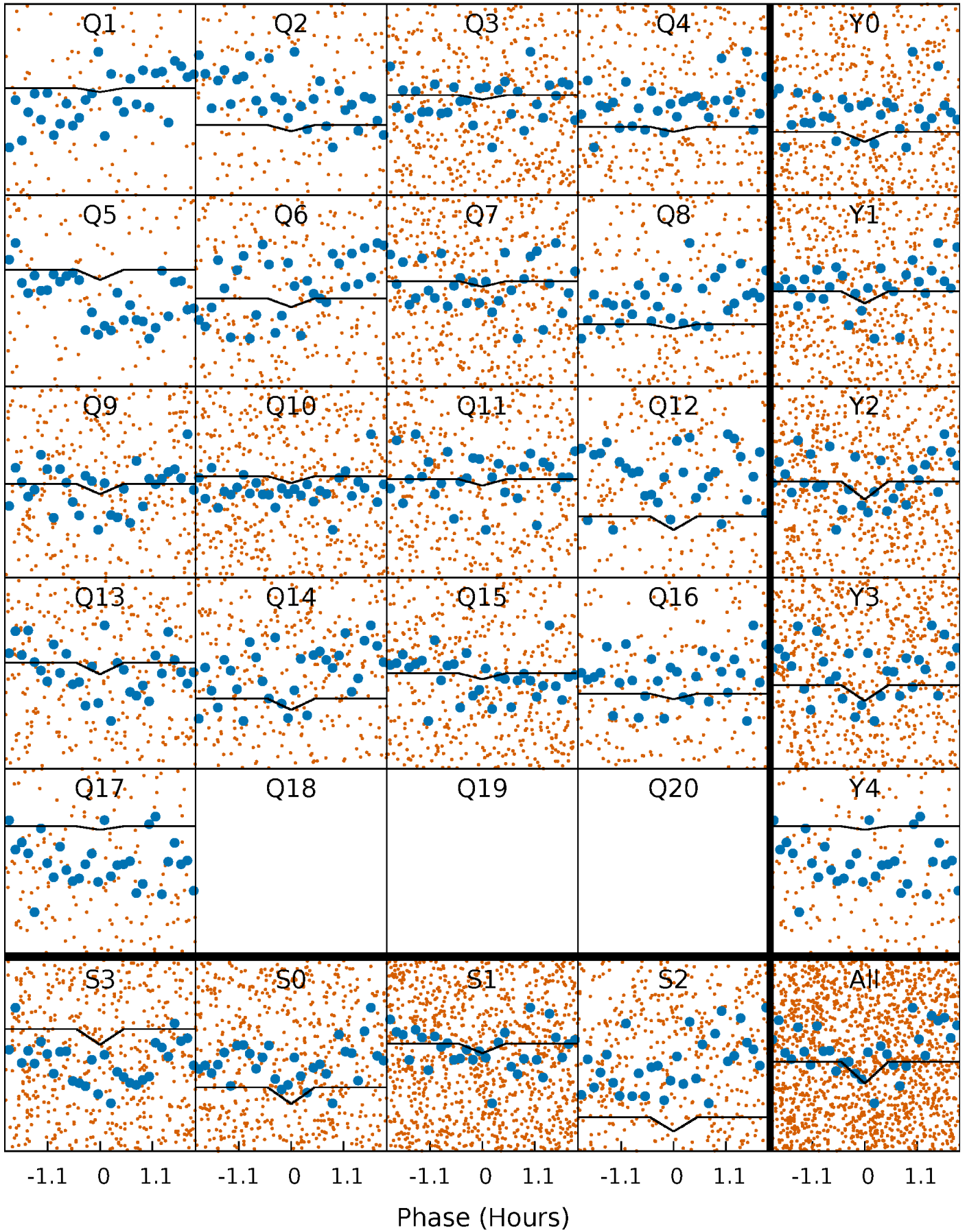
DV Quarter-Phased Transit Curves

TCE 004773851-01 P= 0.692908 Days $T_0=131.727029$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

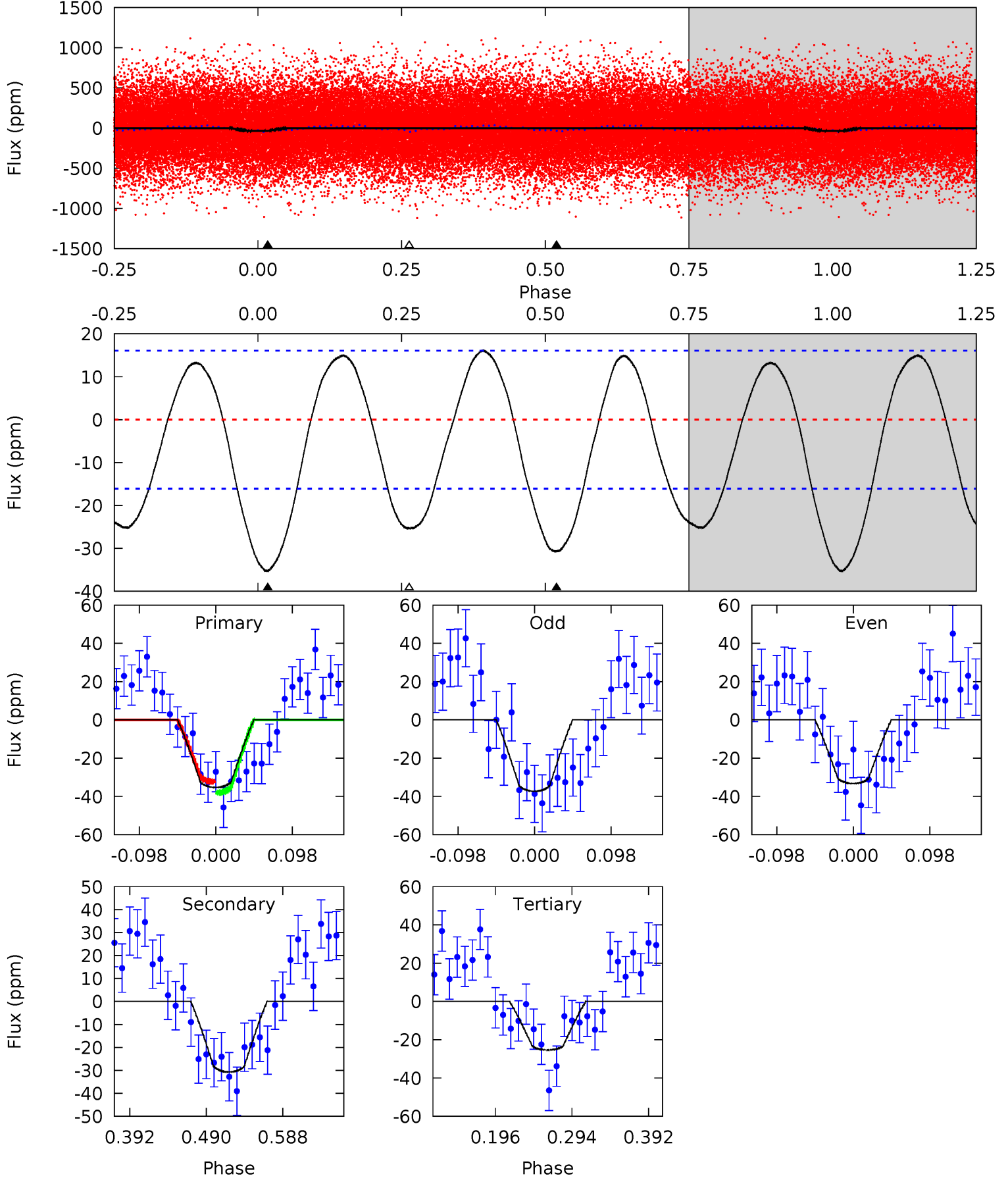
TCE 004773851-01 P= 0.692916 Days $T_0=131.726158$ (BKJD)



DV Model-Shift Uniqueness Test

004773851-01, P = 0.692908 Days, E = 131.034121 Days

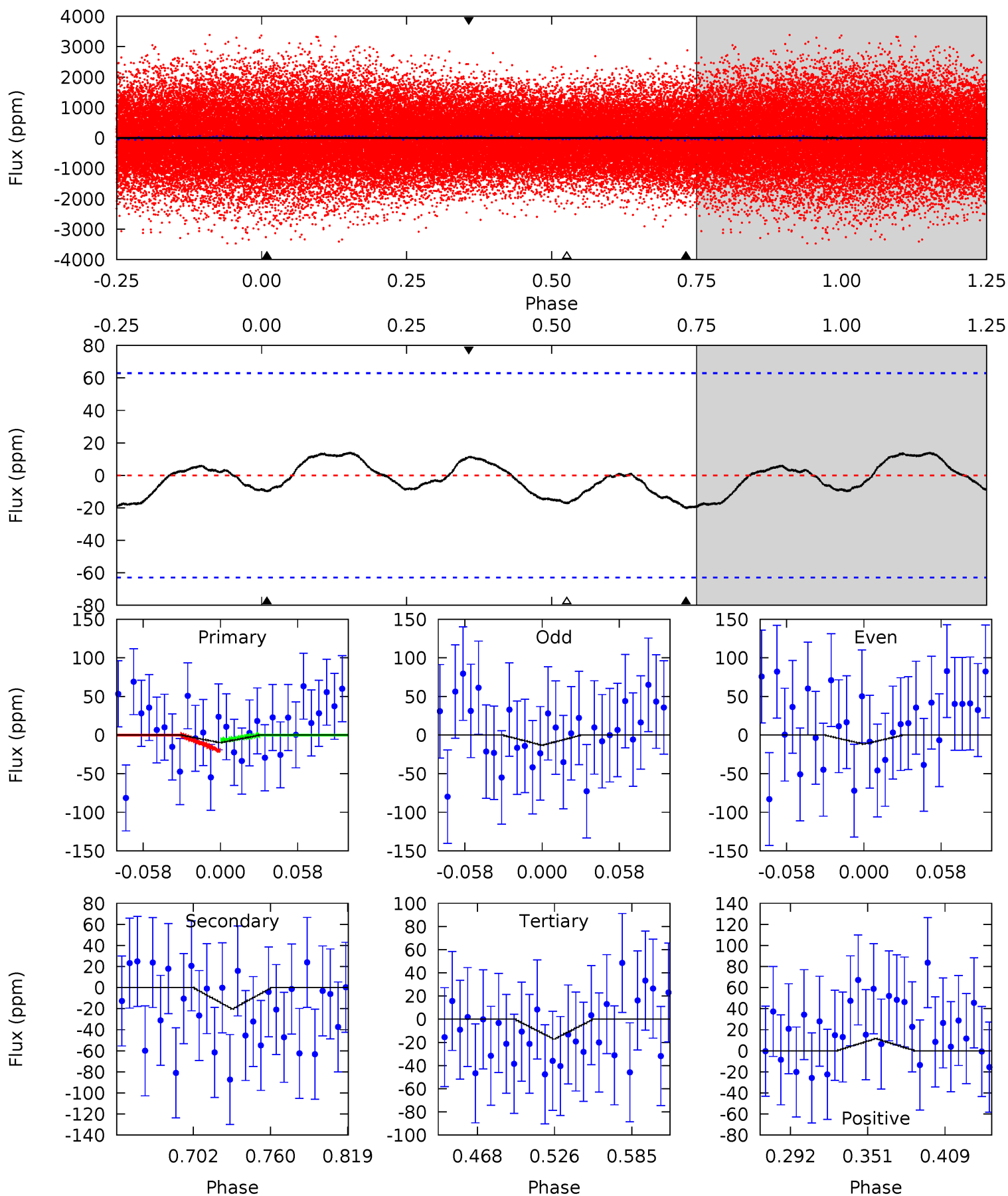
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	8.73	7.22	0	4.57	1.65	4.25	2.82	10.0	1.52	8.73	0.58	0.91	0.31	0.83



Alt Model-Shift Uniqueness Test

004773851-01, P = 0.692916 Days, E = 131.033242 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.73	1.50	1.27	0.85	4.68	1.89	0.63	-0.54	-0.12	0.23	0.65	0.05	0.46	0.41	0.51



Stellar Parameters For KIC 004773851

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8009^{+224}_{-309}	$3.990^{+0.204}_{-0.136}$	$-0.100^{+0.200}_{-0.300}$	$2.273^{+0.451}_{-0.676}$	$1.841^{+0.141}_{-0.330}$	$0.221^{+0.266}_{-0.092}$
	+3%/-4%	+5%/-3%	+200%/-300%	+20%/-30%	+8%/-18%	+120%/-42%
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 004773851-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-31 ± 4	$1.29^{+0.46}_{-0.43}$	5394^{+382}_{-399}	7961^{+2389}_{-1405}	$3.561^{+4.404}_{-1.696}$
Alt.	-20 ± 13	$1.19^{+0.52}_{-0.42}$	5388^{+372}_{-444}	6989^{+3282}_{-2413}	$2.390^{+4.997}_{-1.741}$

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 $A_{obs} \gg 1.0$

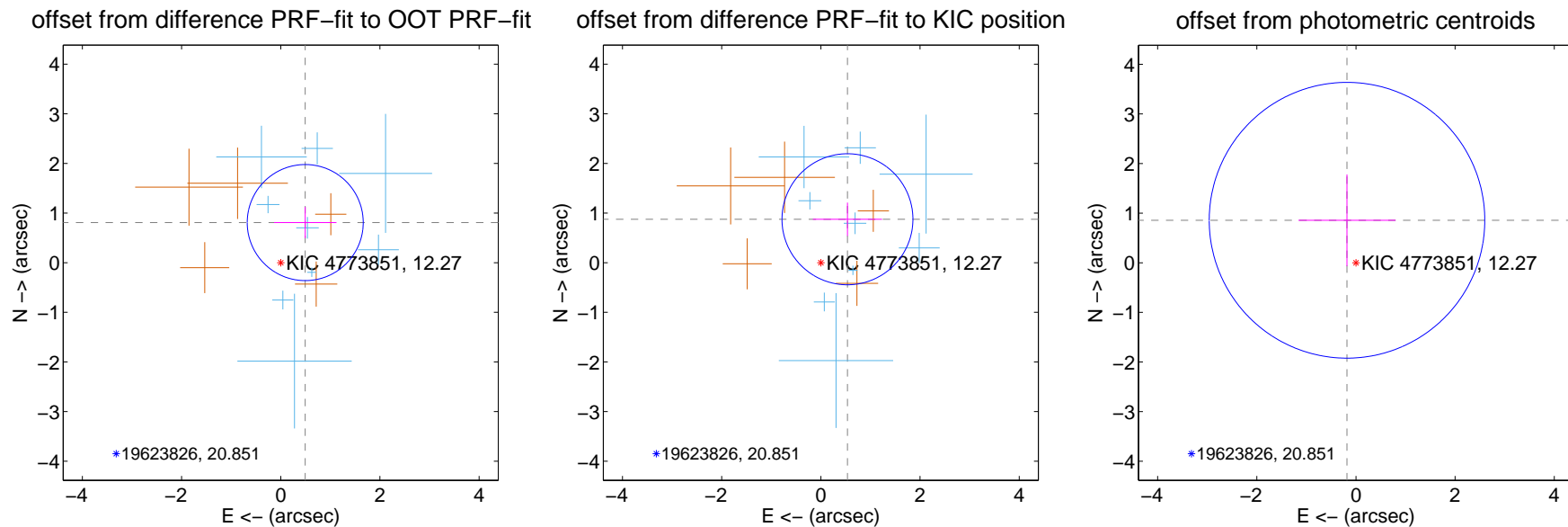
DV Centroid Data

Supplemental centroid analysis for 004773851-01. Kepler magnitude: 12.27. Transit SNR 7.04

There are 9 quarters with good PRF difference image offsets

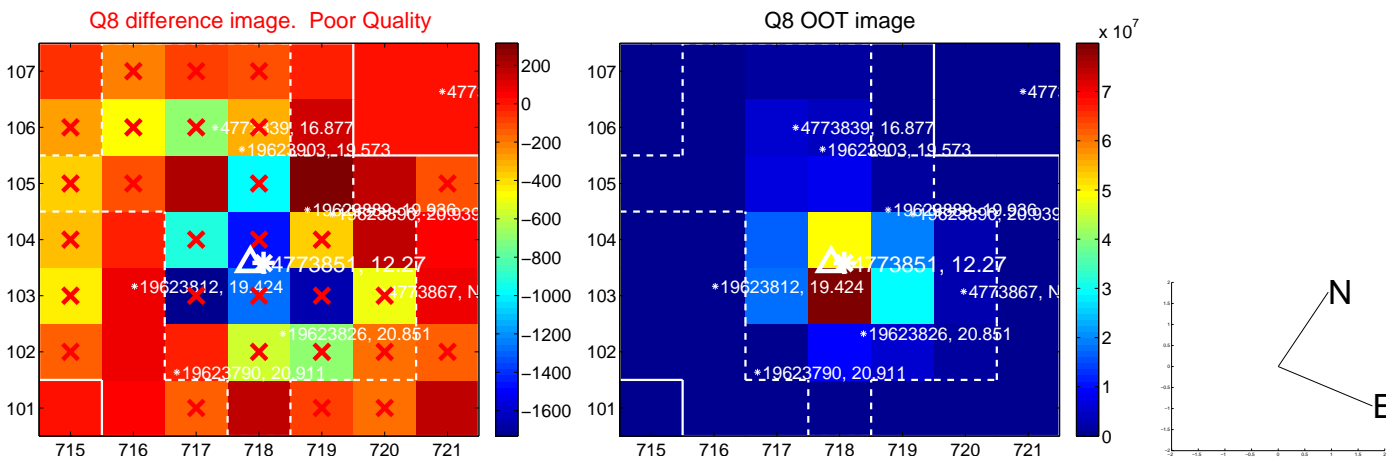
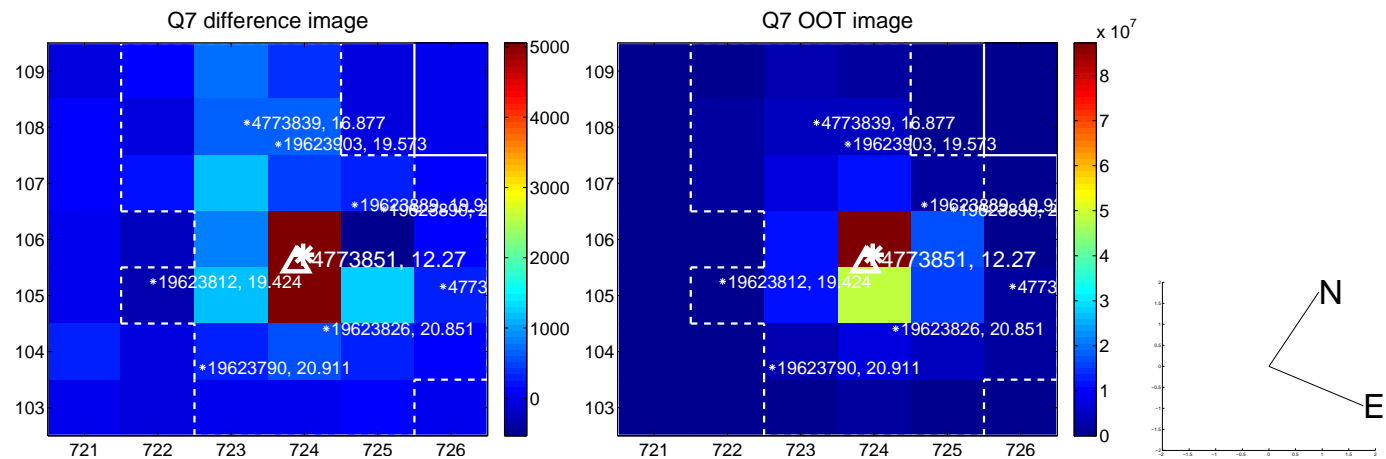
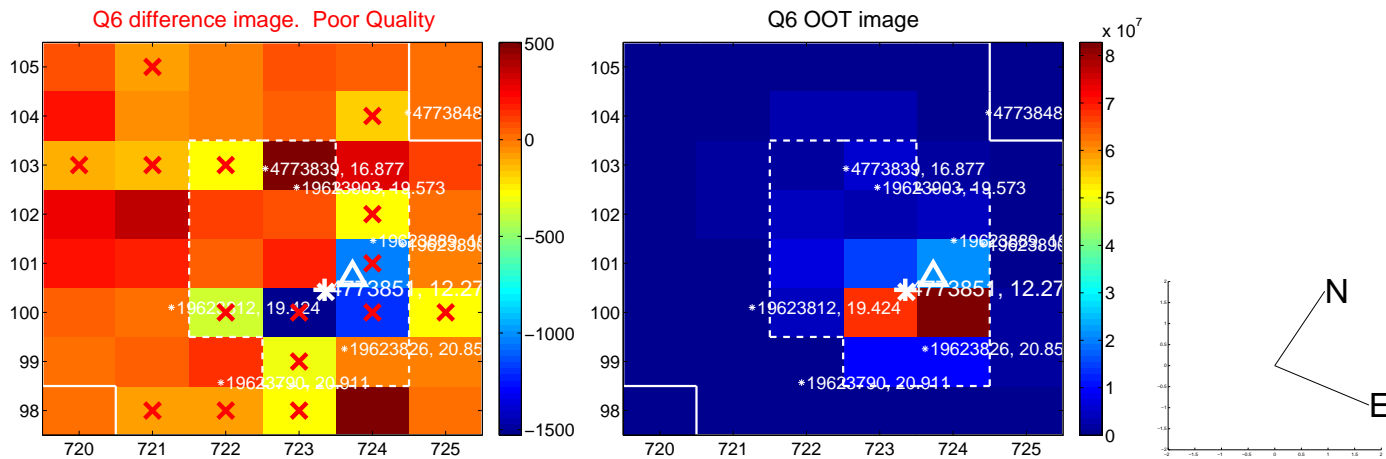
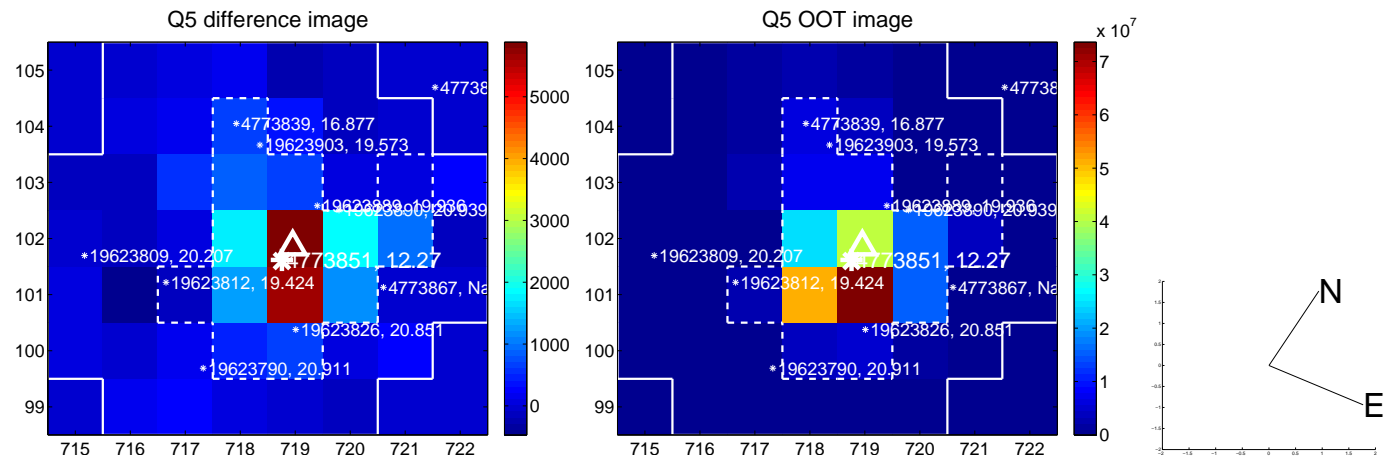
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.947 ± 0.390	2.43	-0.493 ± 0.629	0.808 ± 0.313
PRF-fit source offset from KIC position	1.026 ± 0.440	2.33	-0.536 ± 0.698	0.875 ± 0.336
photometric centroid source offset	0.88 ± 0.93	0.94	0.18 ± 0.98	0.86 ± 0.92

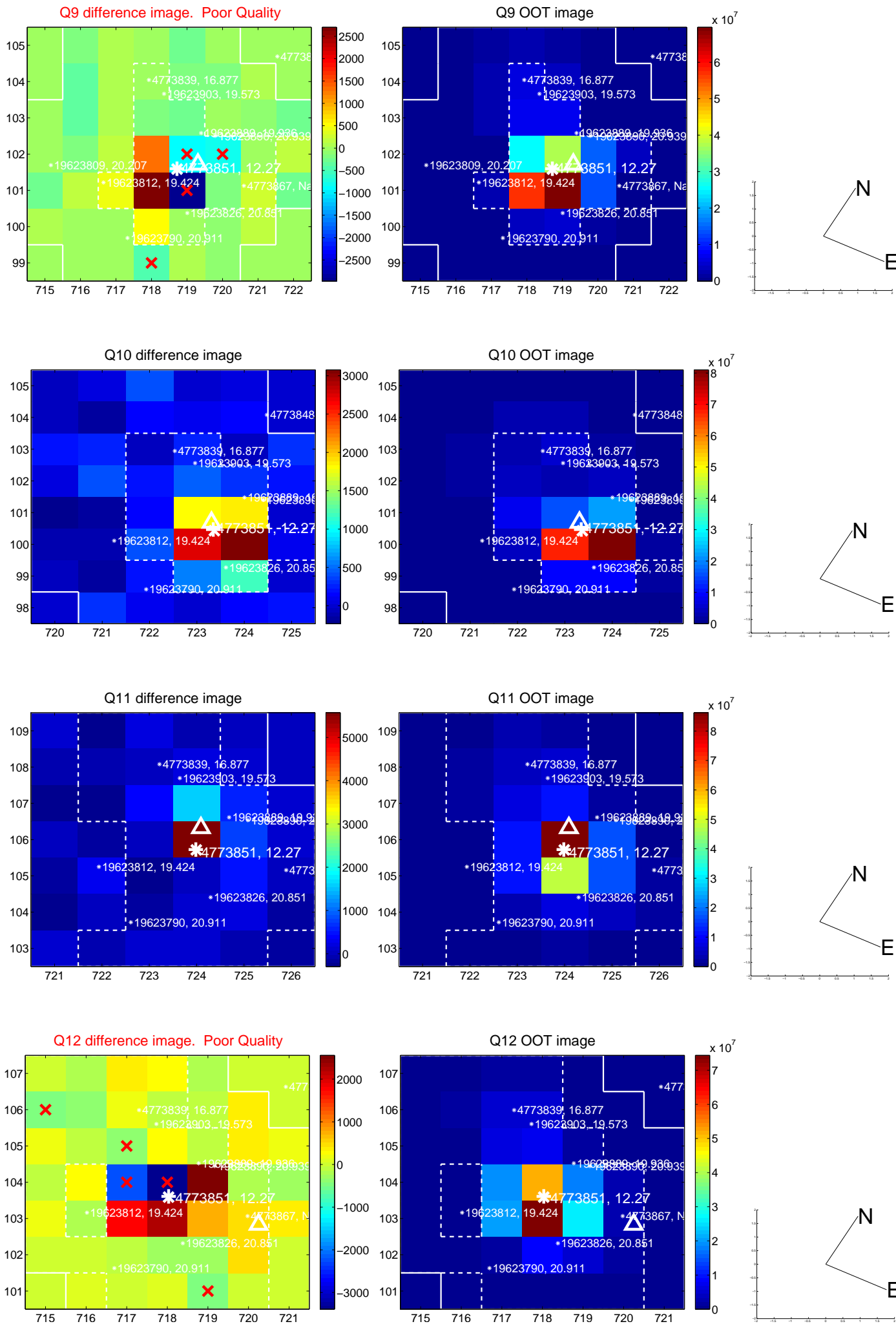


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

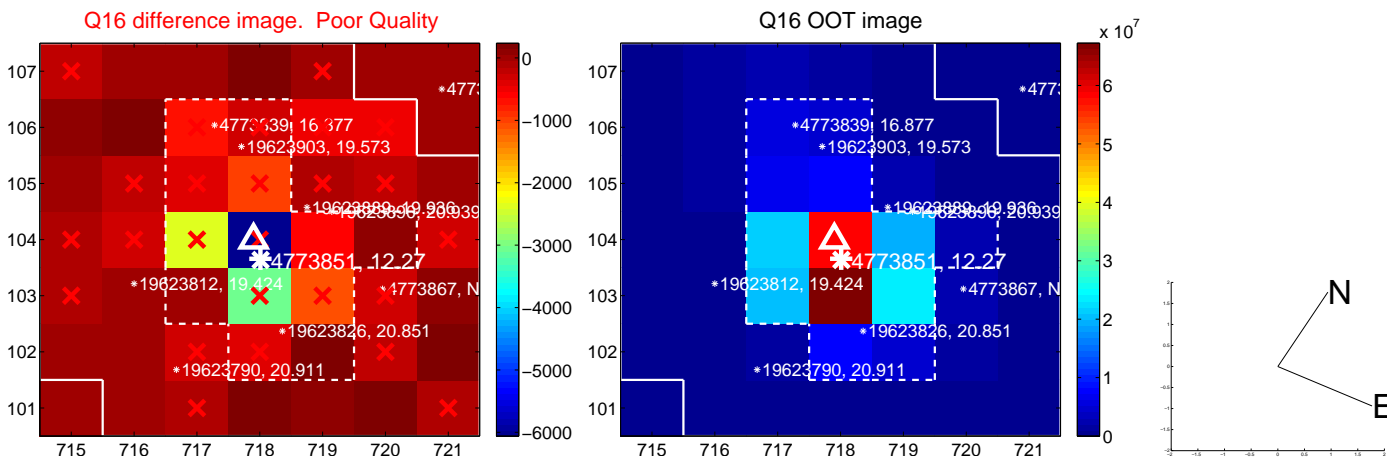
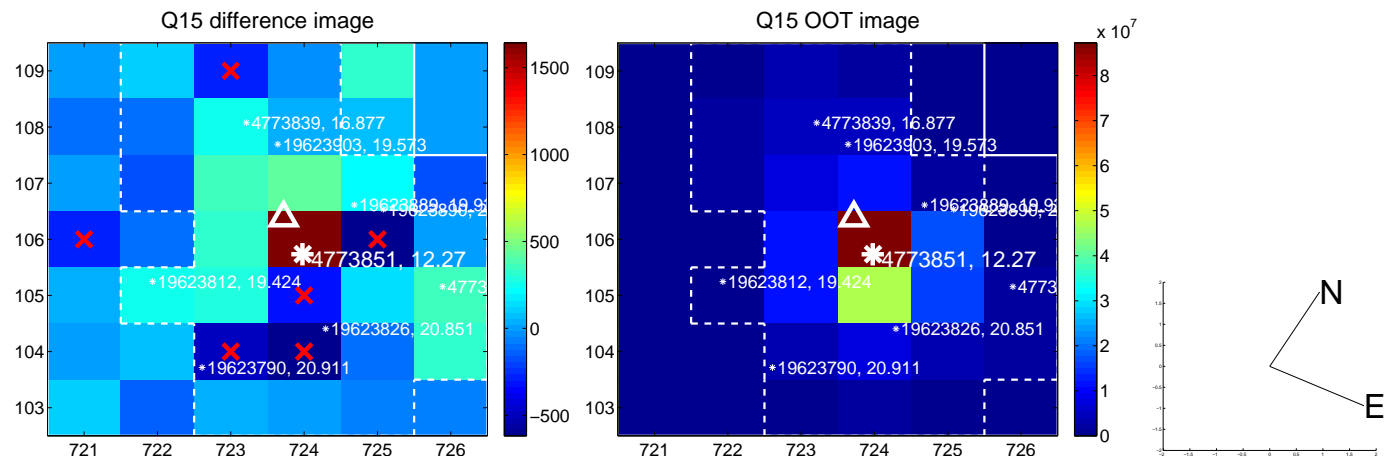
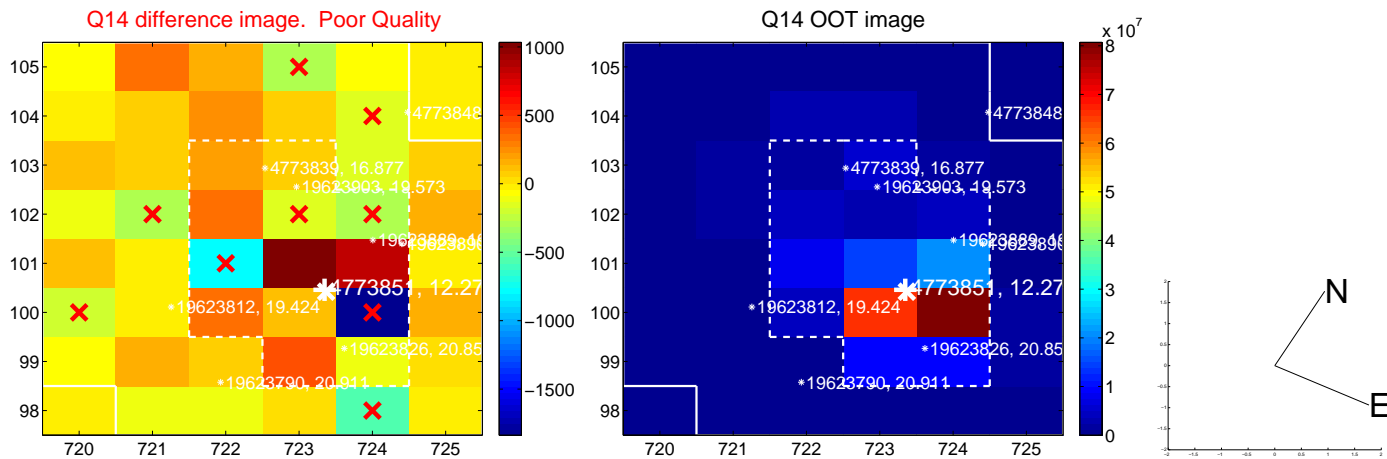
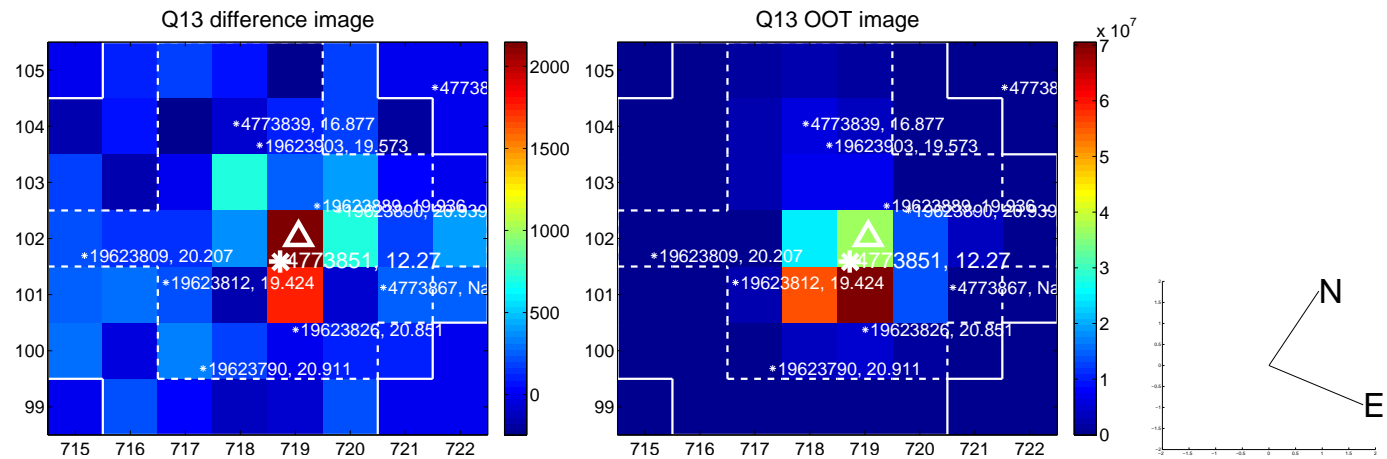
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



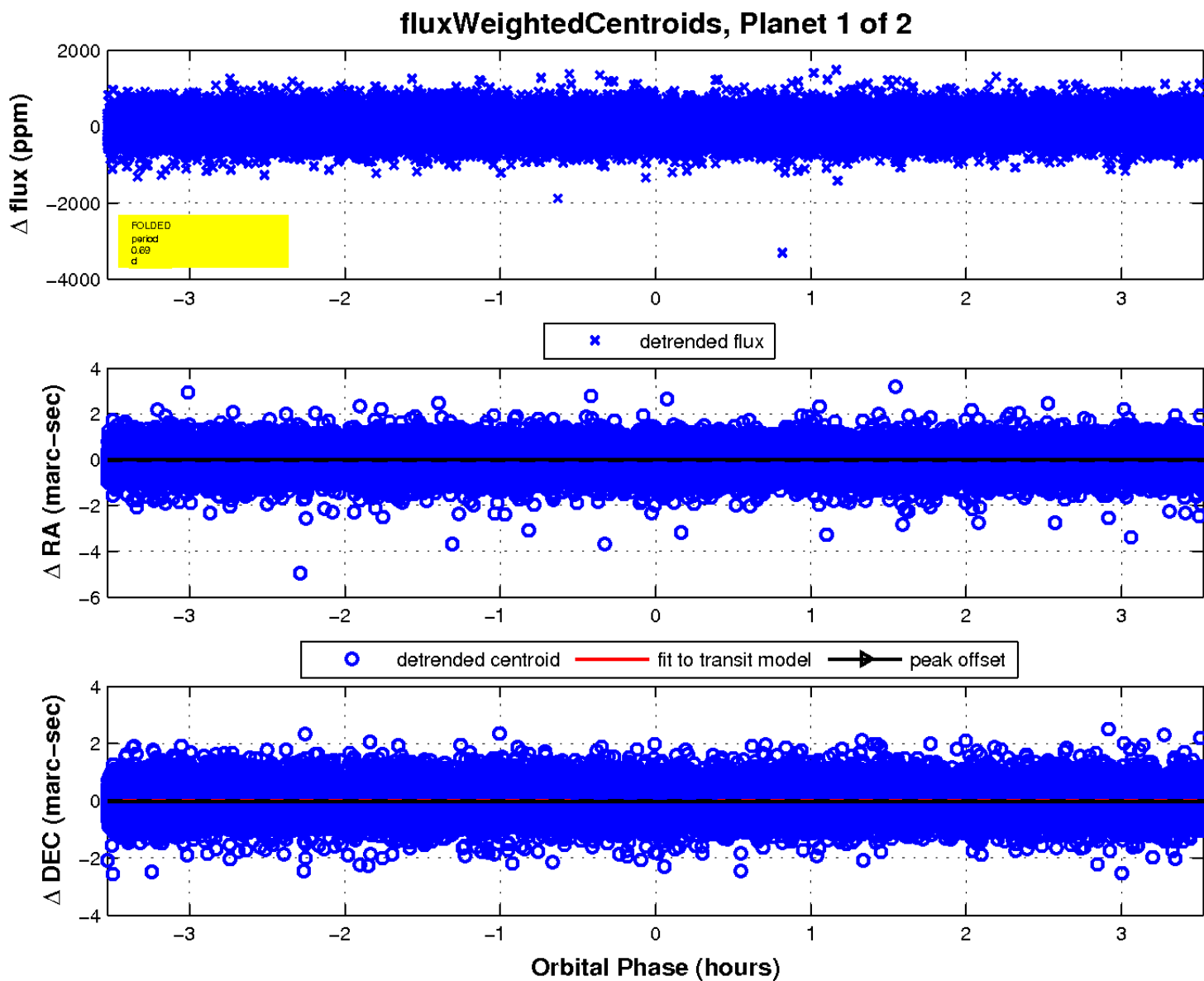
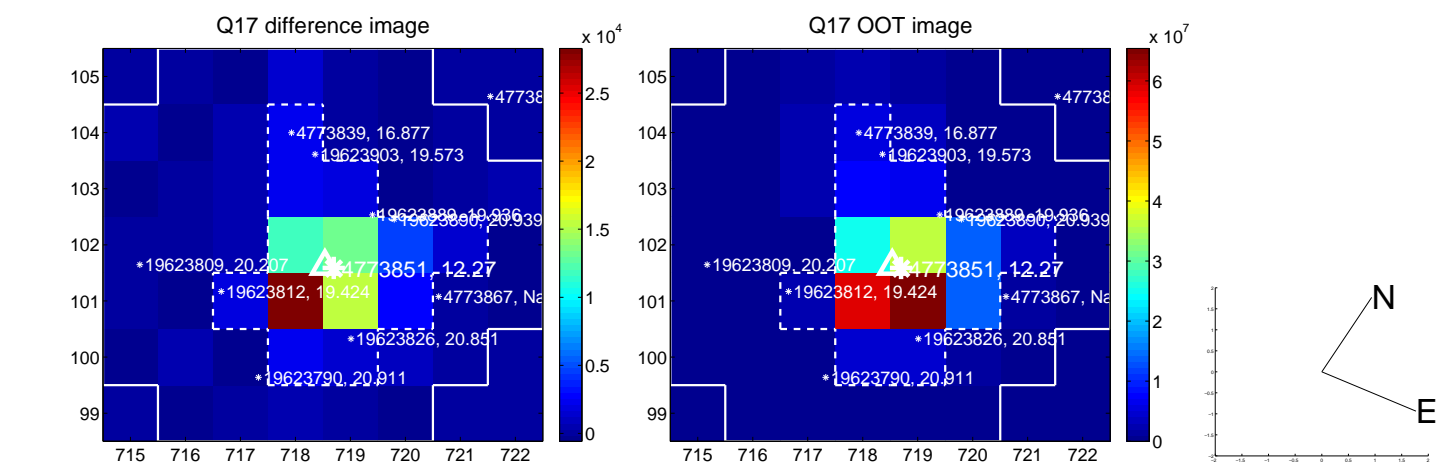
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

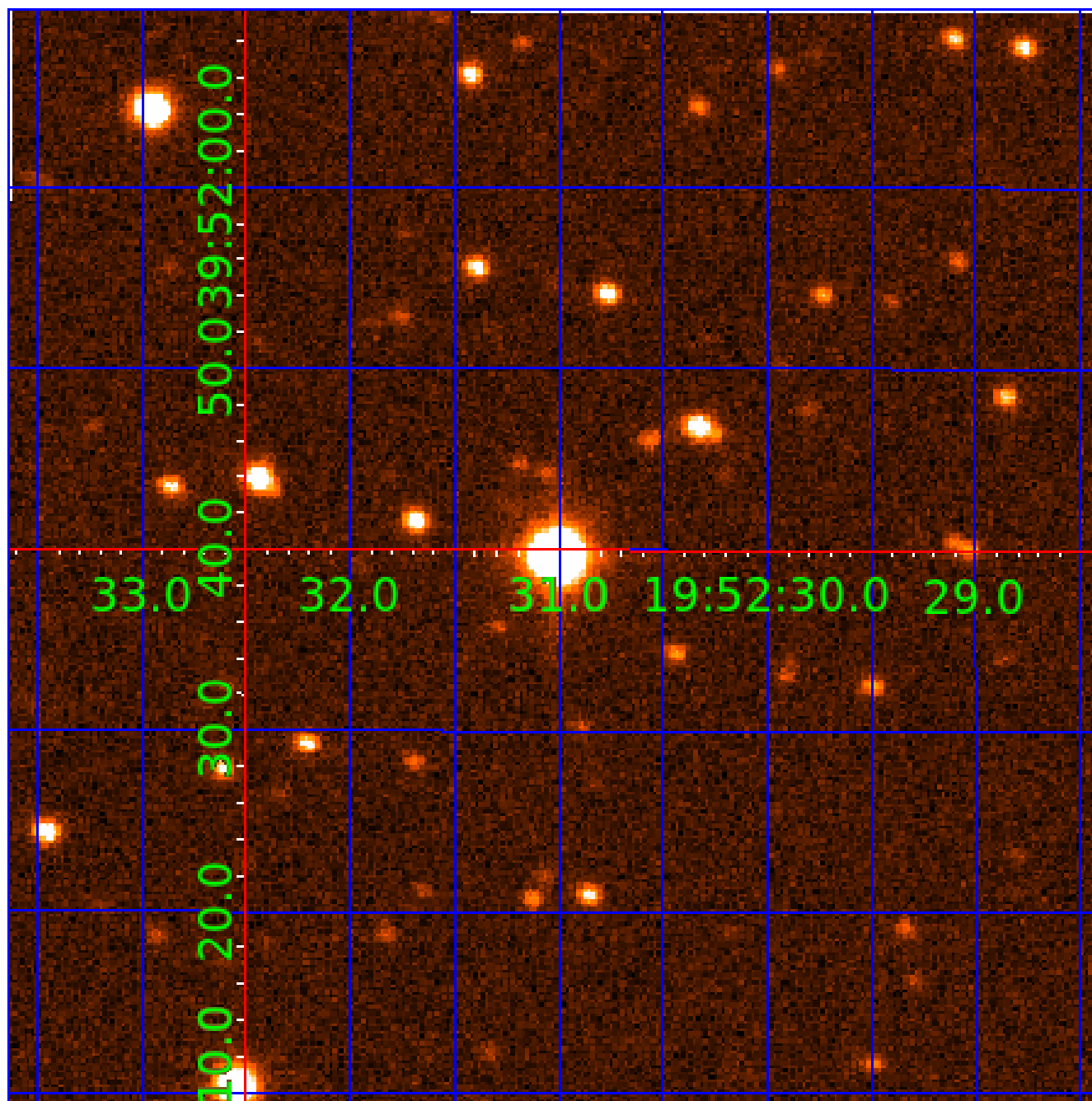


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004773851

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})
004773851-01	OBS	No	0.692908	131.727029	25.4	1.176	11.9	7.0	2.27	8009	1.33	53956.01
004773851-02	OBS	No	0.674363	131.686404	70.0	8.092	8.1	16.5	2.27	8009	2.56	55943.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004773851-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004773851-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—LPP_ALT

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

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

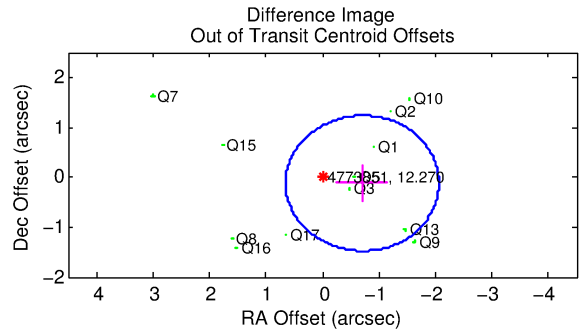
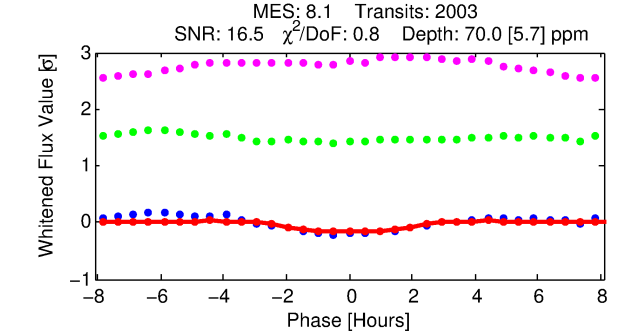
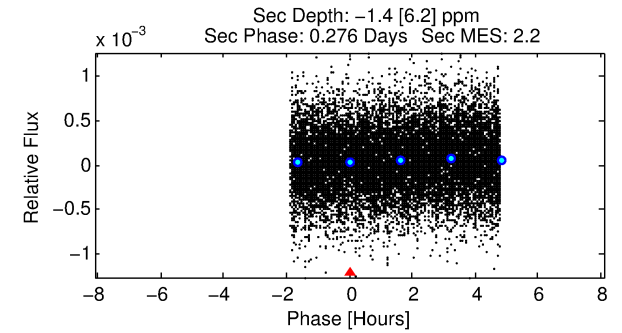
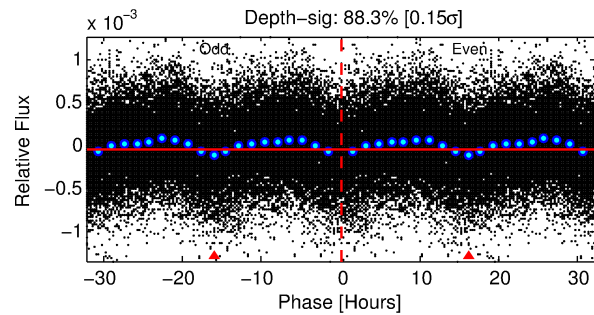
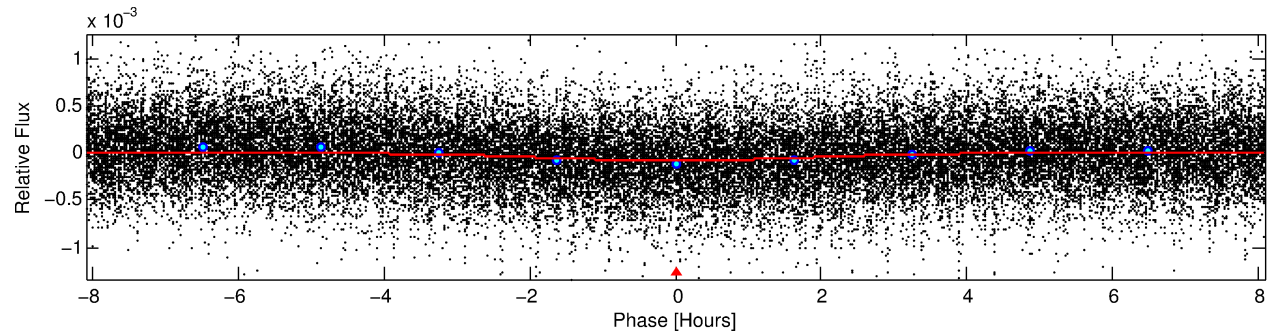
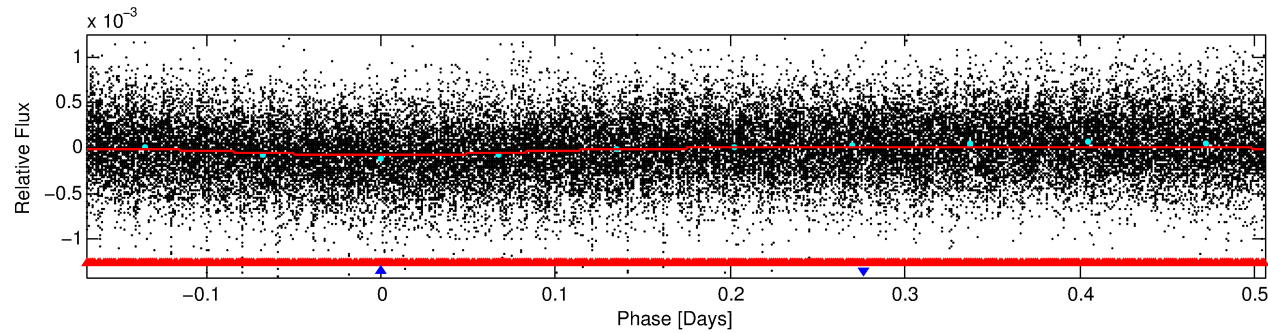
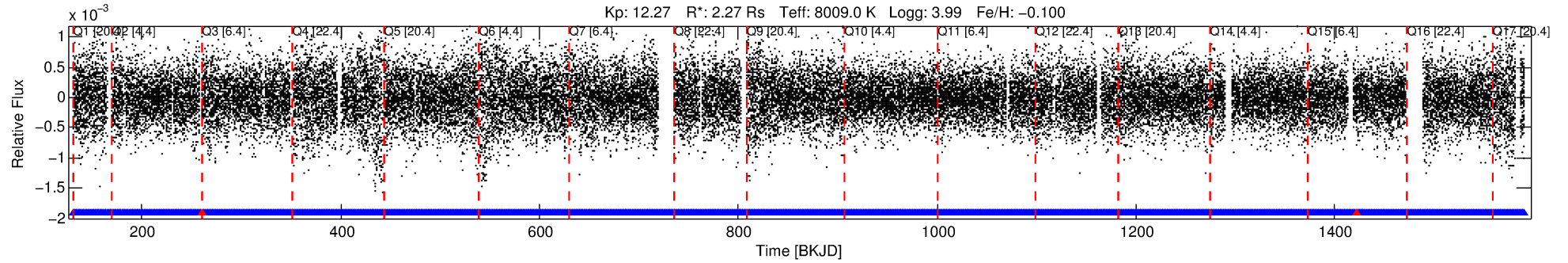
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004773851-02

No Significant Match Found

DV One-Page Summary

KIC: 4773851 Candidate: 2 of 2 Period: 0.674 d



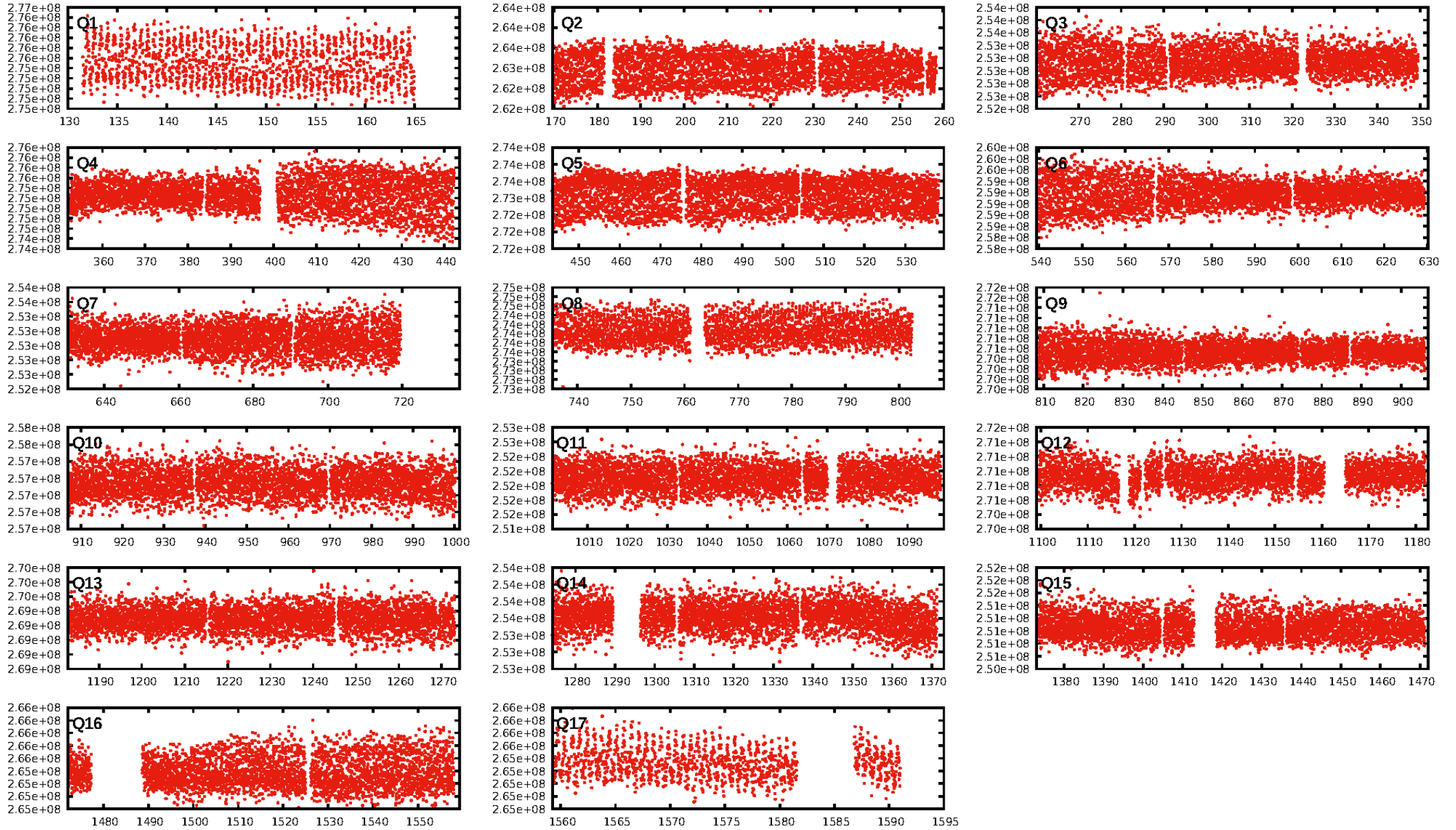
DV Fit Results:

Period = 0.67436 [0.00001] d
Epoch = 131.6864 [0.0049] BKJD
Rp/R* = 0.0103 [0.0004]
a/R* = 1.01 [0.00]
b = 0.99 [0.00]
Seff = 55943.38 [22460.51]
Teff = 3922 [394] K
Rp = 2.56 [0.77] Re
a = 0.0185 [0.0047] AU
Ag = N/A
Teffp = N/A

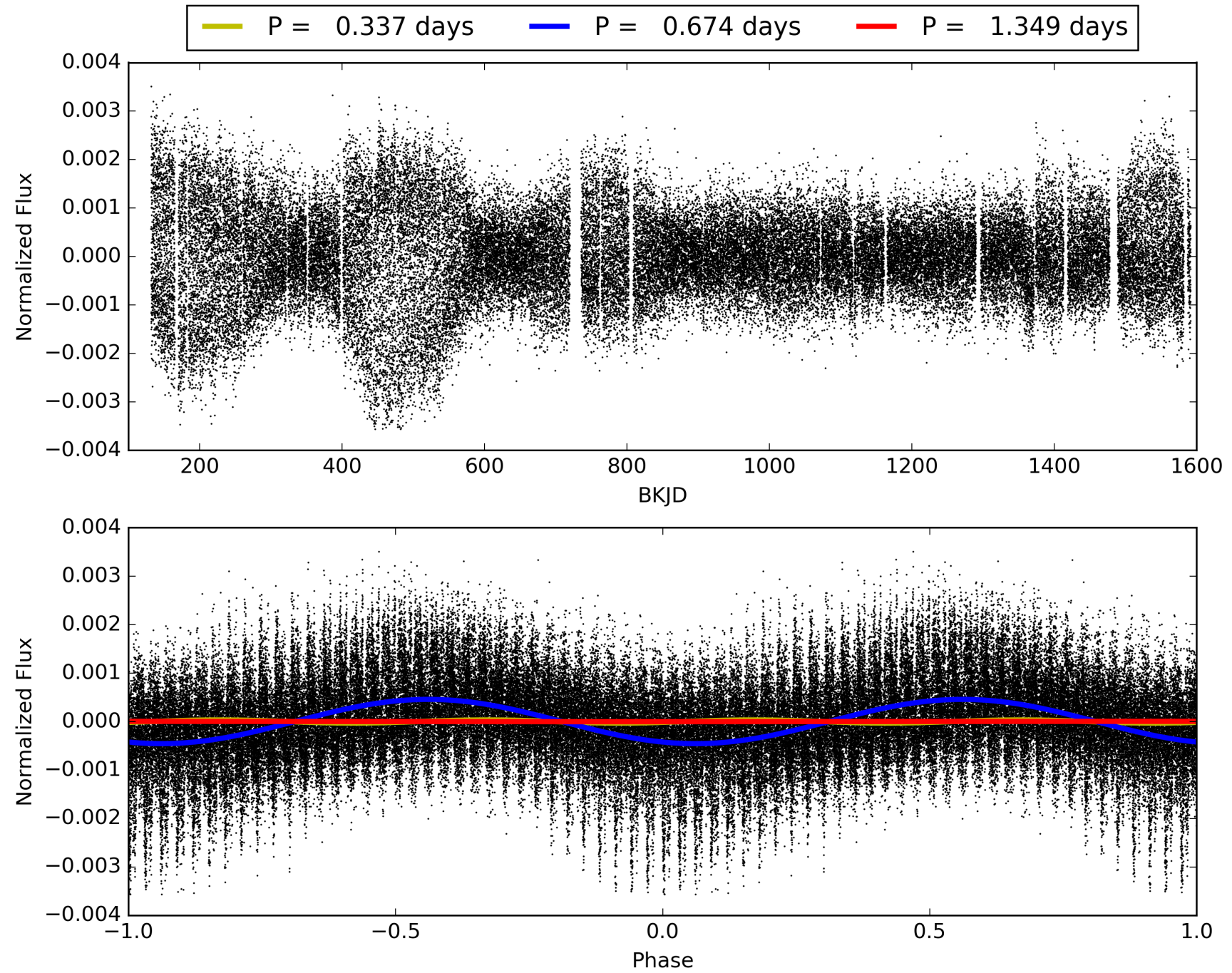
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 4.3% [0.05 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1910/1912]
GhostDiagnostic-chr: 10.27
Centroid-sig: 0.0%
Centroid-so: 0.729 arcsec [3.99 σ]
OotOffset-rm: 0.715 arcsec [1.58 σ]
KicOffset-rm: 0.766 arcsec [1.70 σ]
OotOffset-st: 2/3/2/5 [12]
KicOffset-st: 2/3/2/5 [12]
DiffImageQuality-fgm: 0.83 [10/12]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 004773851-02, PDC Light Curves

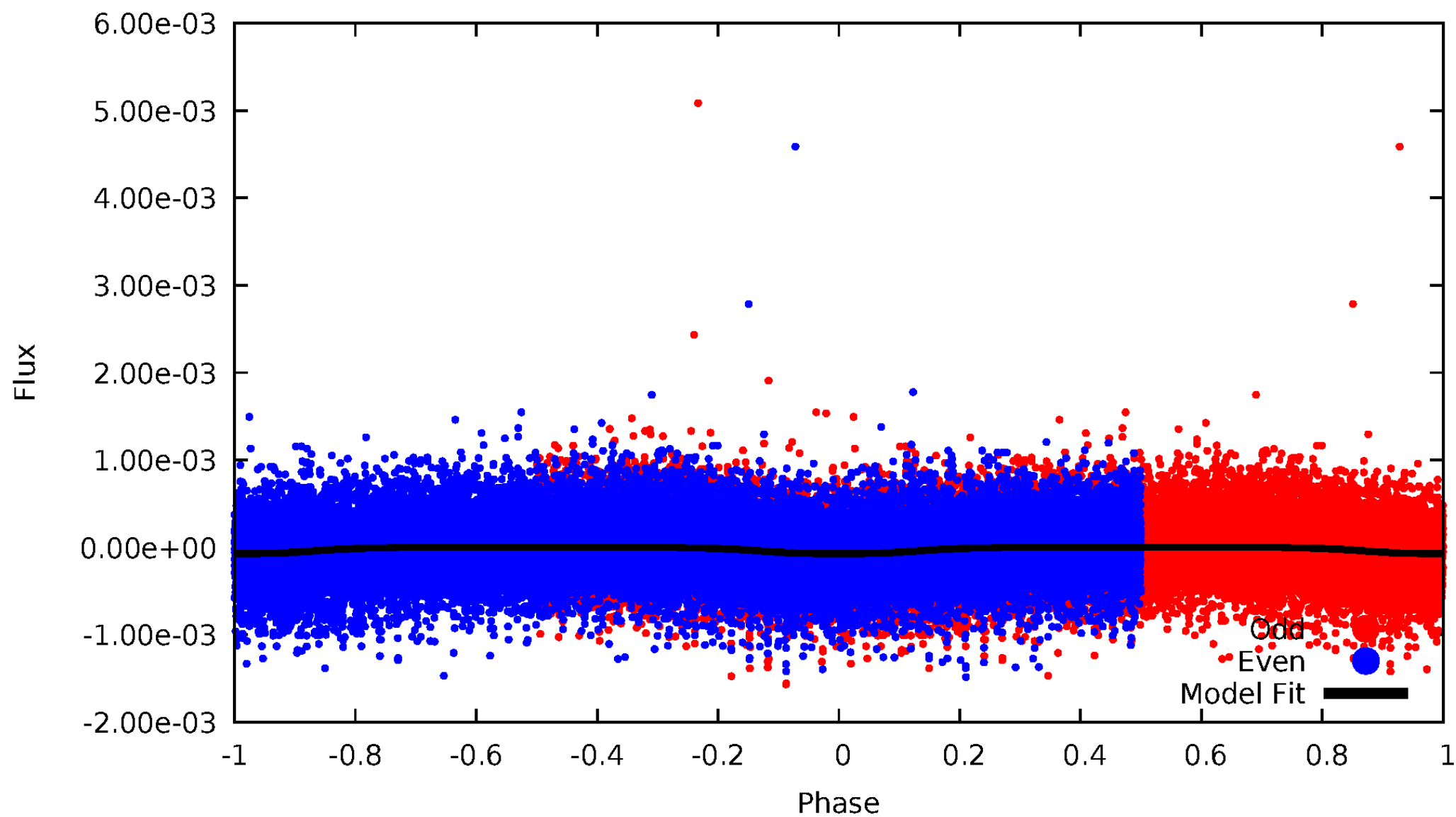


TCE 004773851-02



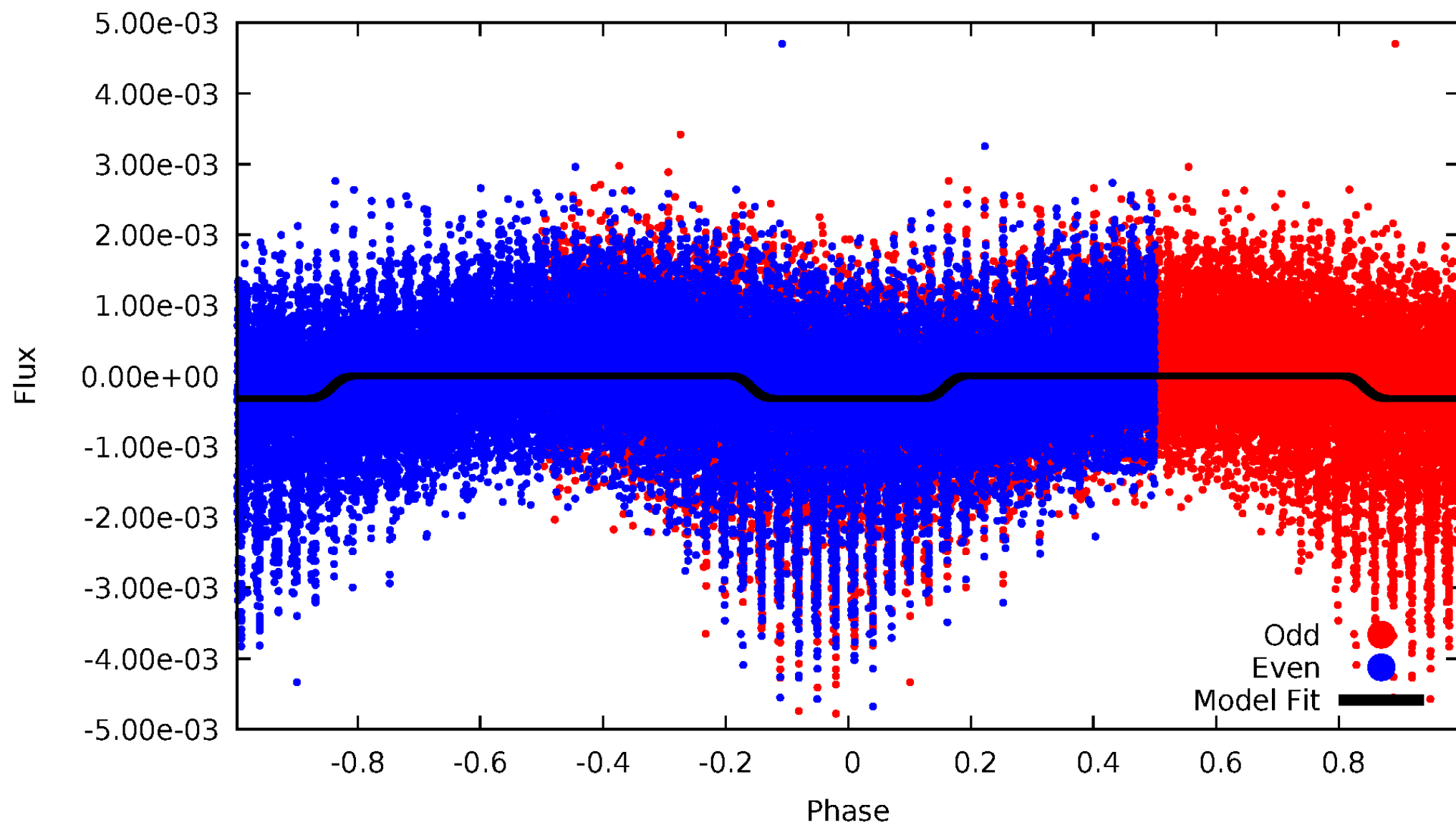
DV Odd/Even

TCE 004773851-02



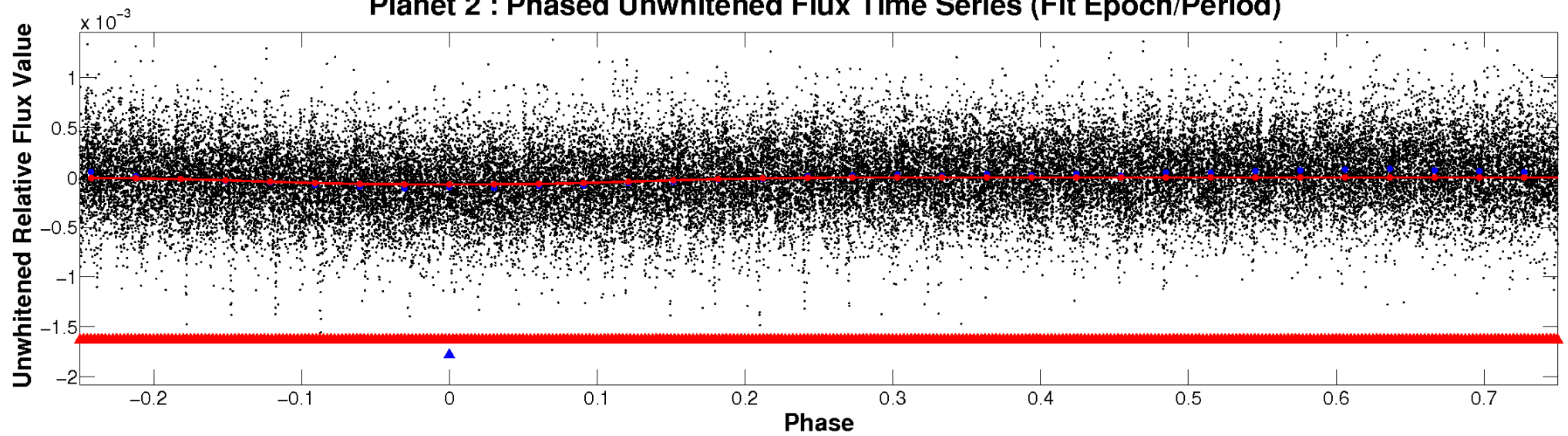
ALT Odd/Even

TCE 004773851-02

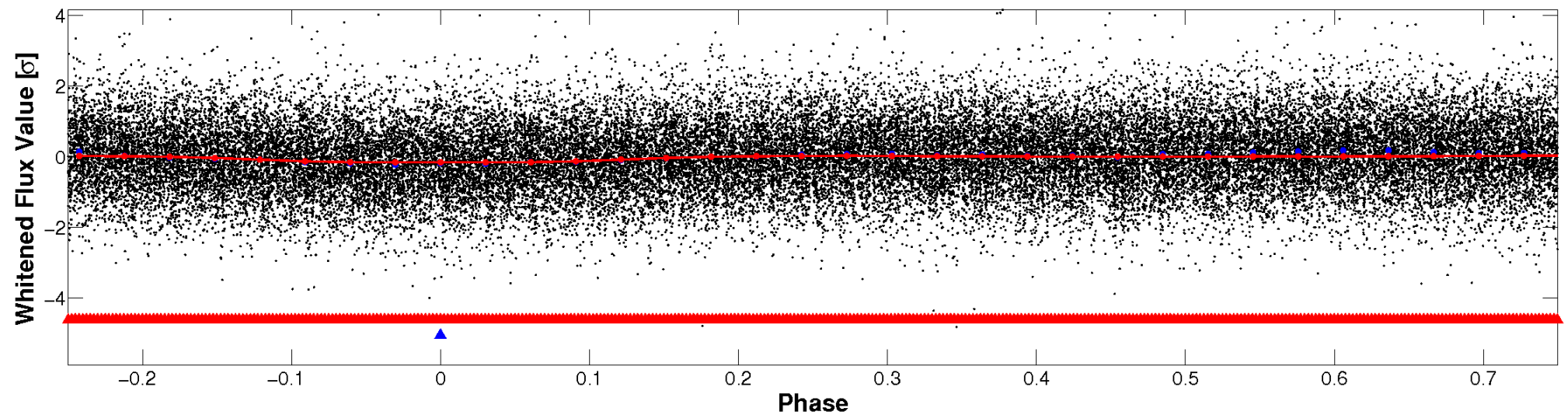


Non-Whitened Vs. Whitened Light Curve

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

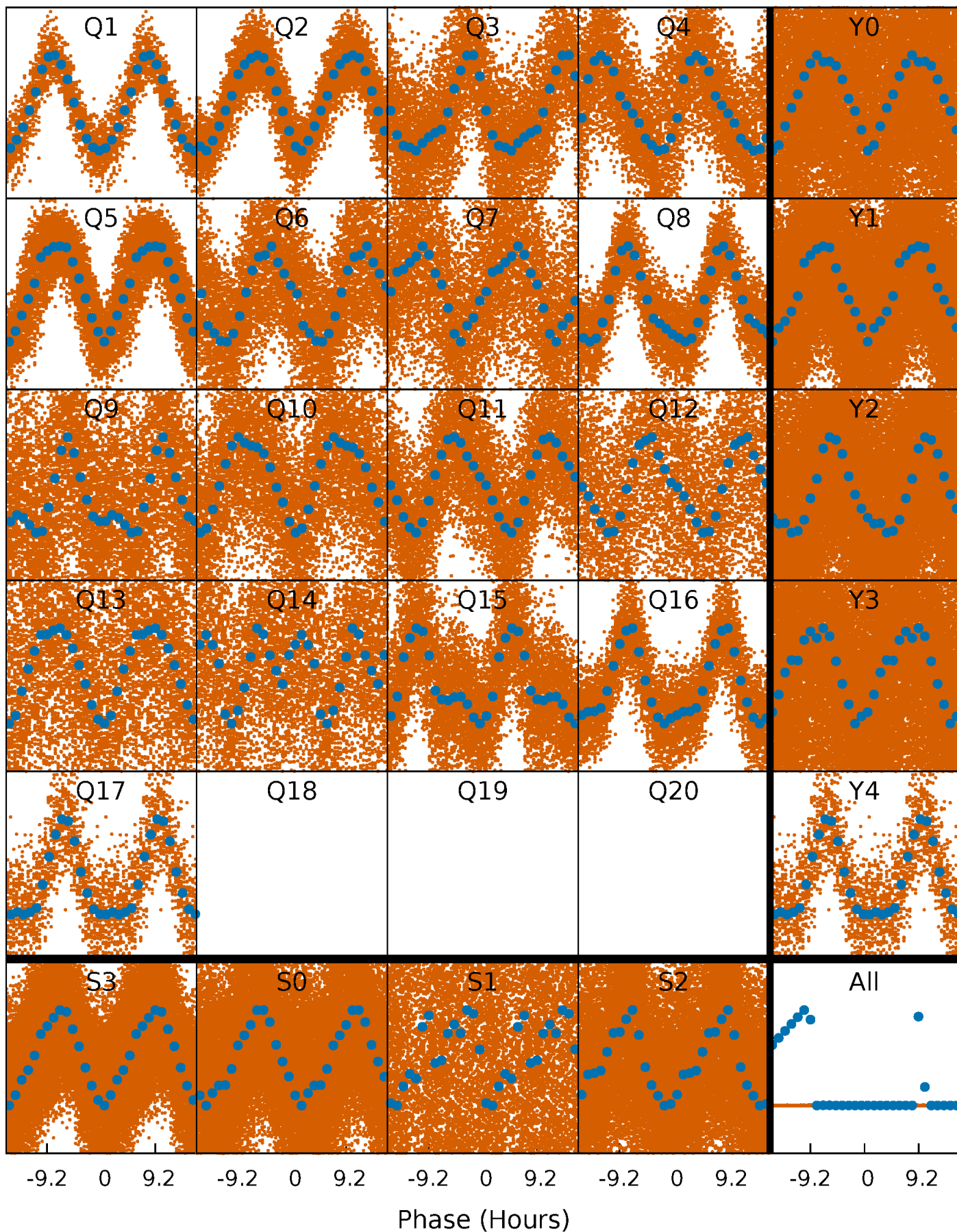


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



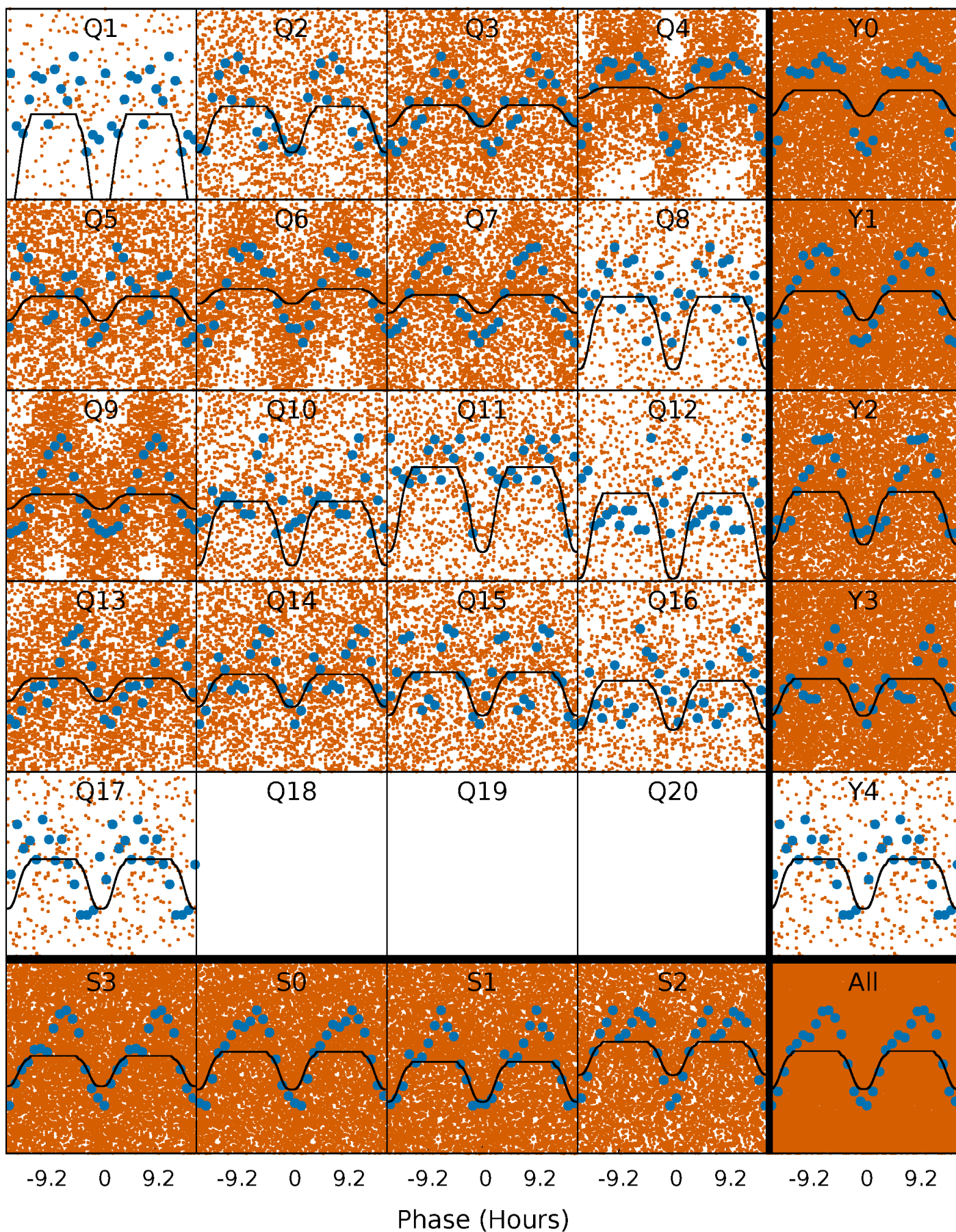
PDC Quarter-Phased Transit Curves

TCE 004773851-02 $P = 0.674363$ Days $T_0 = 131.686404$ (BKJD)



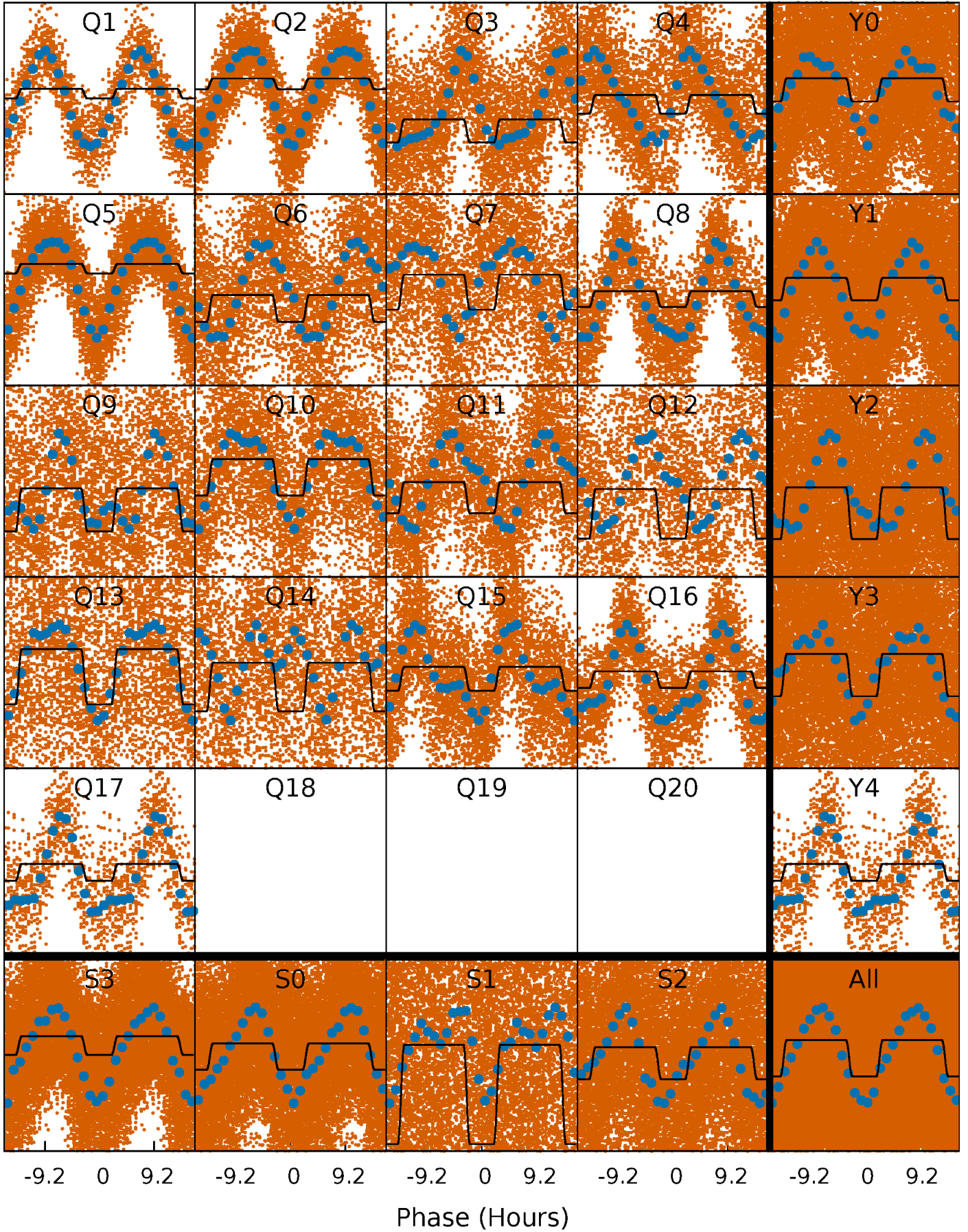
DV Quarter-Phased Transit Curves

TCE 004773851-02 $P = 0.674363$ Days $T_0 = 131.686404$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

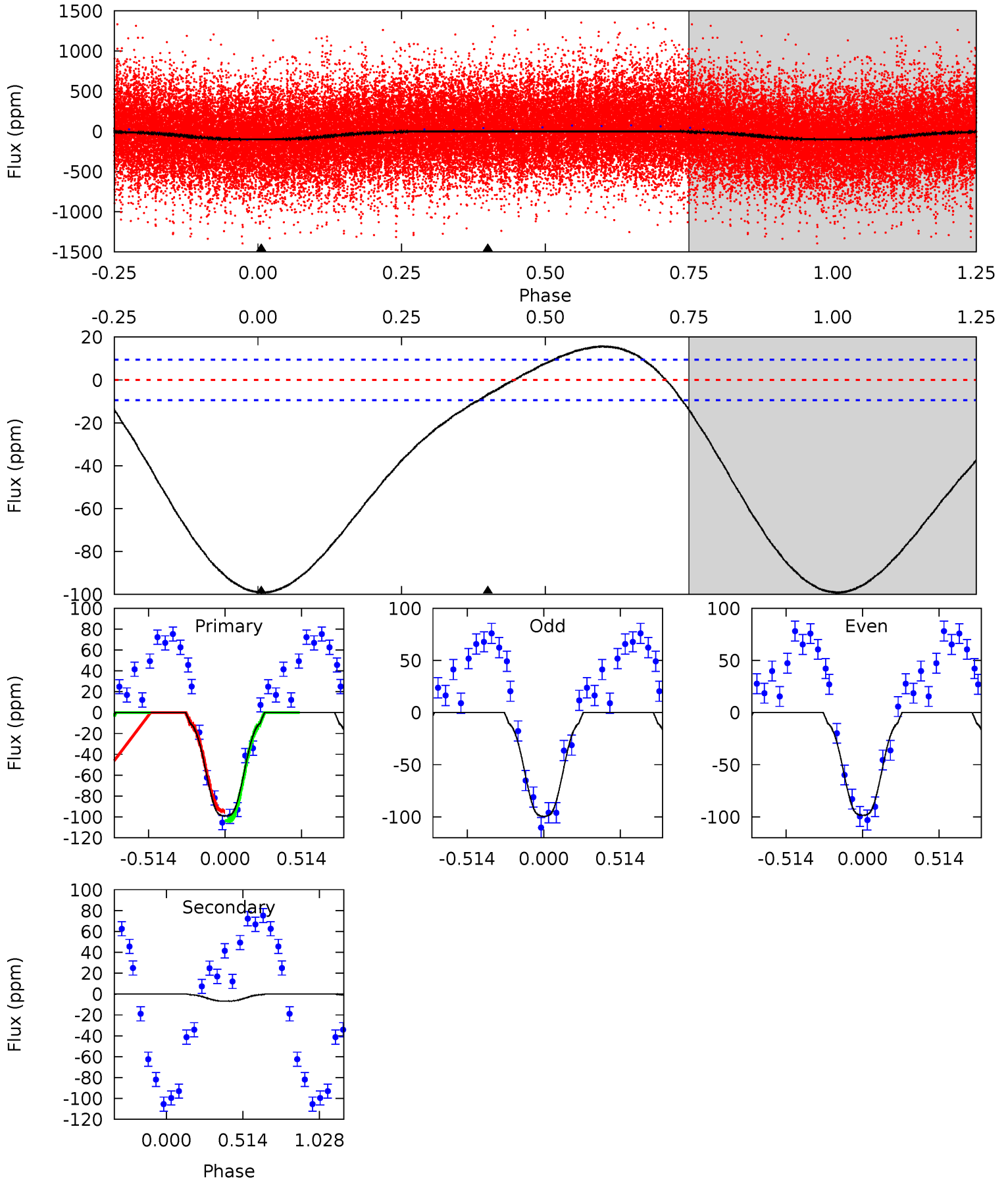
TCE 004773851-02 P= 0.674342 Days $T_0=131.732388$ (BKJD)



DV Model-Shift Uniqueness Test

004773851-02, P = 0.674363 Days, E = 131.012041 Days

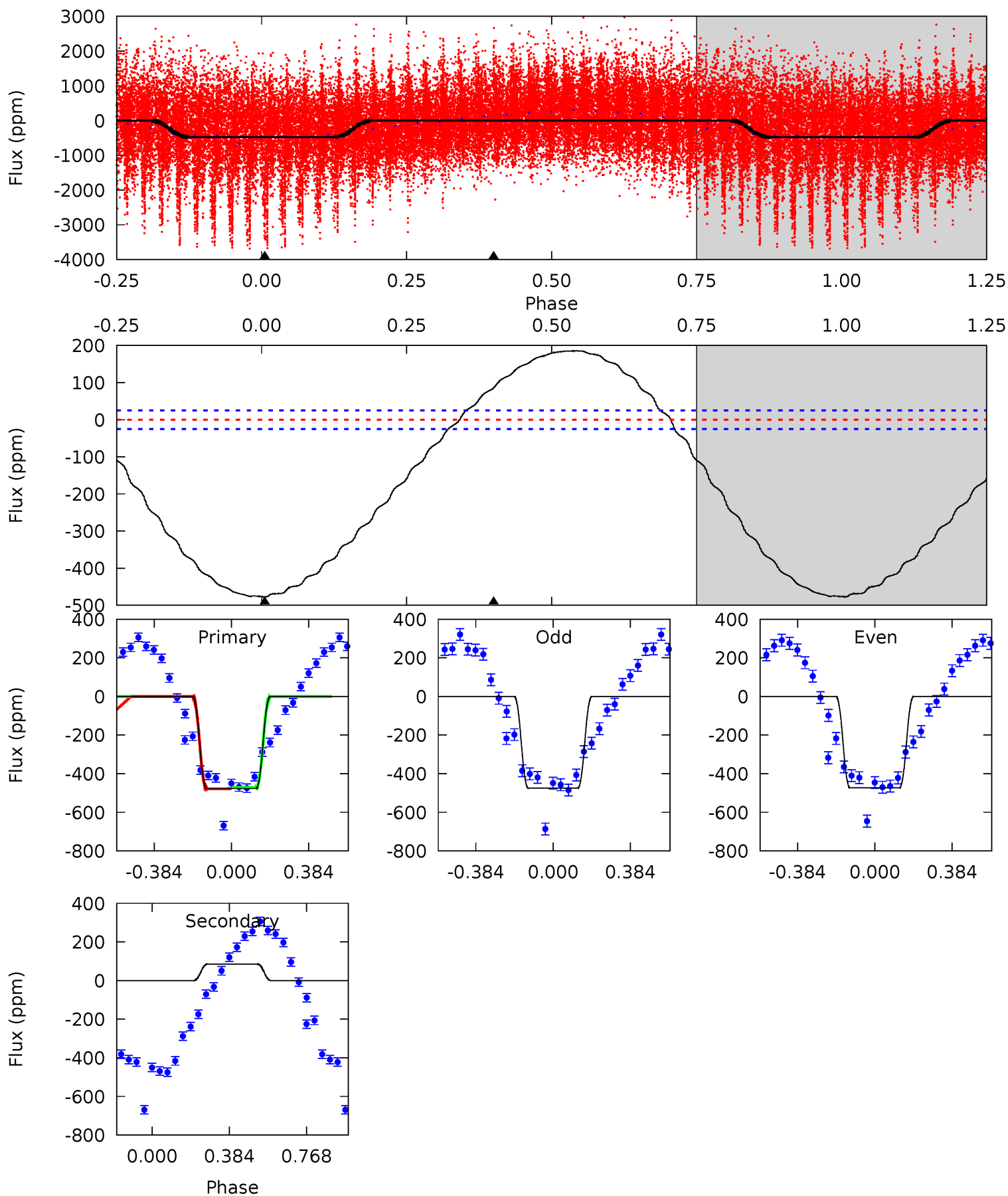
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.1	3.00	0	0	4.21	0.65	3.91	44.1	44.1	3.00	3.00	0.22	1.09	0.14	2.11



Alt Model-Shift Uniqueness Test

004773851-02, P = 0.674342 Days, E = 131.058046 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
81.8	-14.7	0	0	4.27	0.87	10.2	81.8	81.8	-14.7	-14.7	0.13	1.53	0.28	0.57



Stellar Parameters For KIC 004773851

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8009^{+224}_{-309}	$3.990^{+0.204}_{-0.136}$	$-0.100^{+0.200}_{-0.300}$	$2.273^{+0.451}_{-0.676}$	$1.841^{+0.141}_{-0.330}$	$0.221^{+0.266}_{-0.092}$
	+3%/-4%	+5%/-3%	+200%/-300%	+20%/-30%	+8%/-18%	+120%/-42%
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 004773851-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 2	$2.56^{+0.33}_{-0.36}$	5445^{+378}_{-384}	-3770^{+900}_{-495}	$0.192^{+0.087}_{-0.076}$
Alt.	86 ± 6	$4.42^{+0.54}_{-0.68}$	5451^{+352}_{-392}	-6067^{+227}_{-208}	$-0.818^{+0.174}_{-0.260}$

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

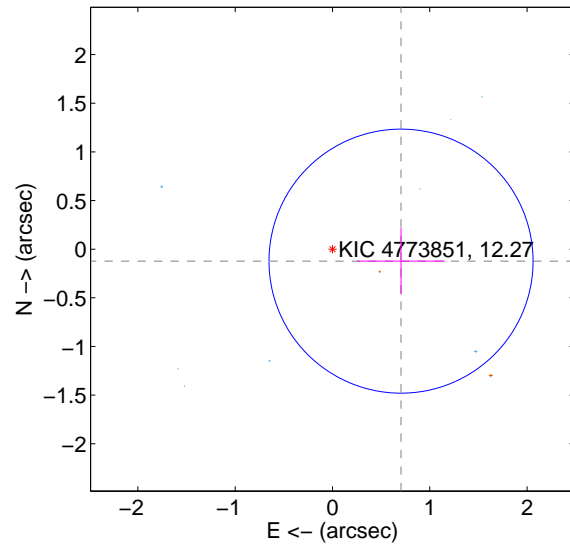
Supplemental centroid analysis for 004773851-02. Kepler magnitude: 12.27. Transit SNR 16.46

There are 10 quarters with good PRF difference image offsets

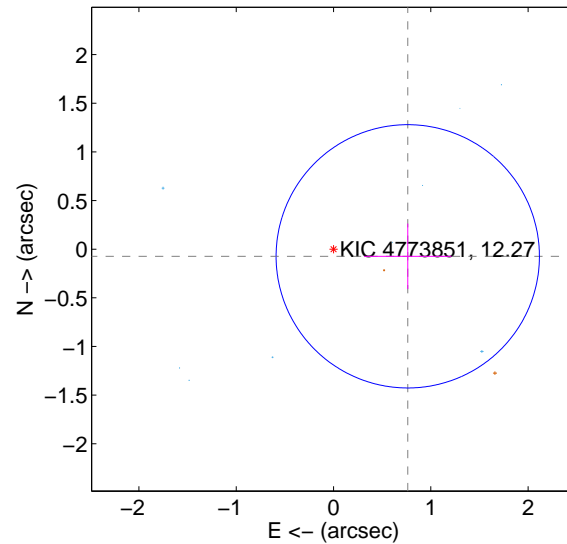
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.715 ± 0.452	1.58	-0.705 ± 0.453	-0.123 ± 0.344
PRF-fit source offset from KIC position	0.766 ± 0.451	1.70	-0.763 ± 0.449	-0.073 ± 0.336
photometric centroid source offset	0.73 ± 0.18	3.99	0.47 ± 0.19	-0.56 ± 0.18

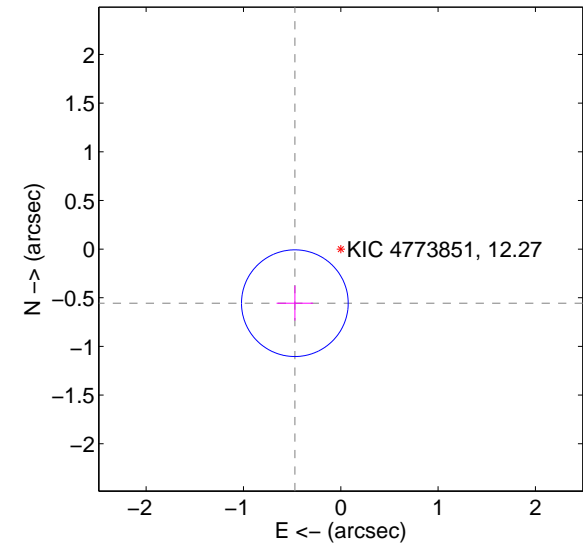
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

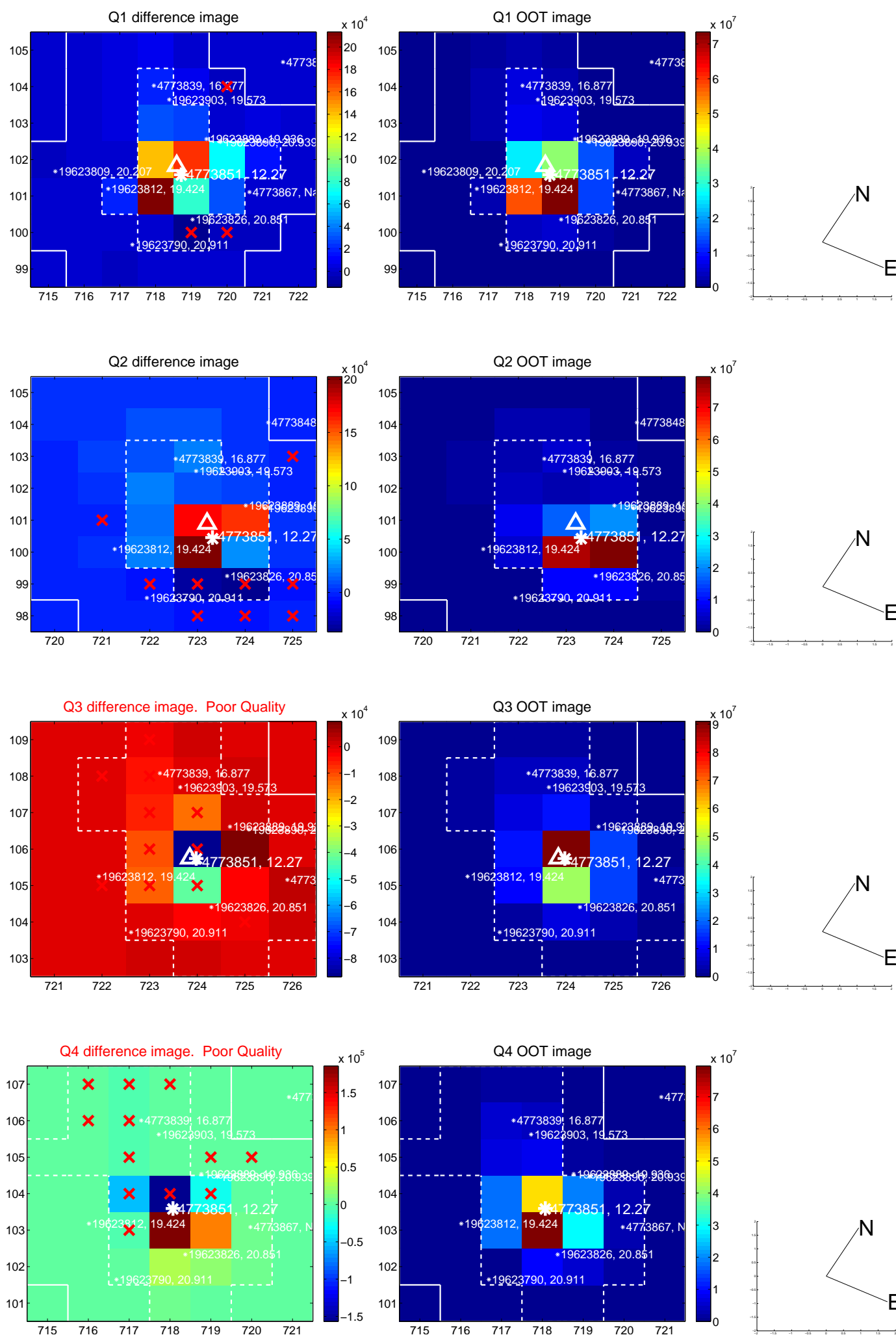


offset from photometric centroids

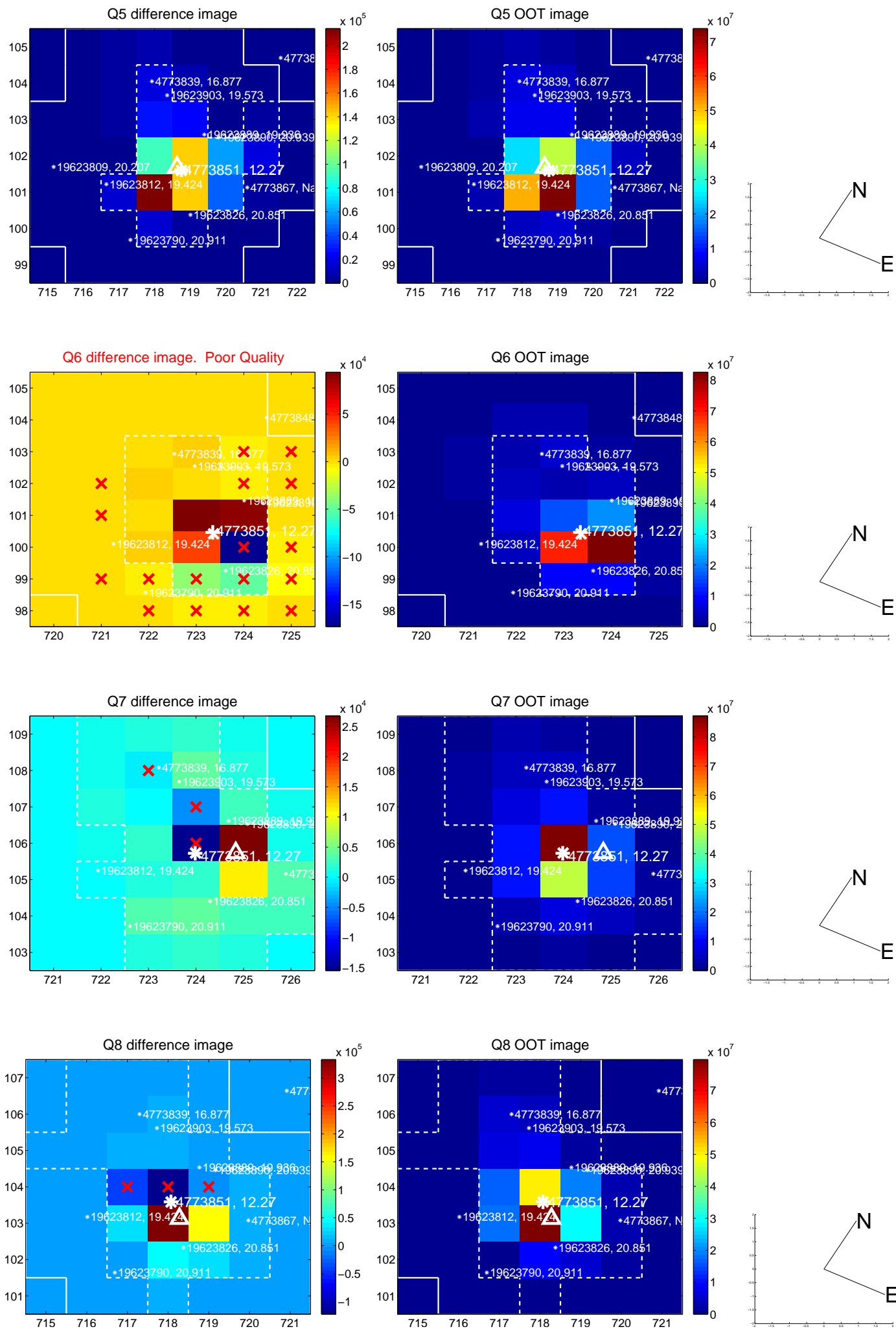


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

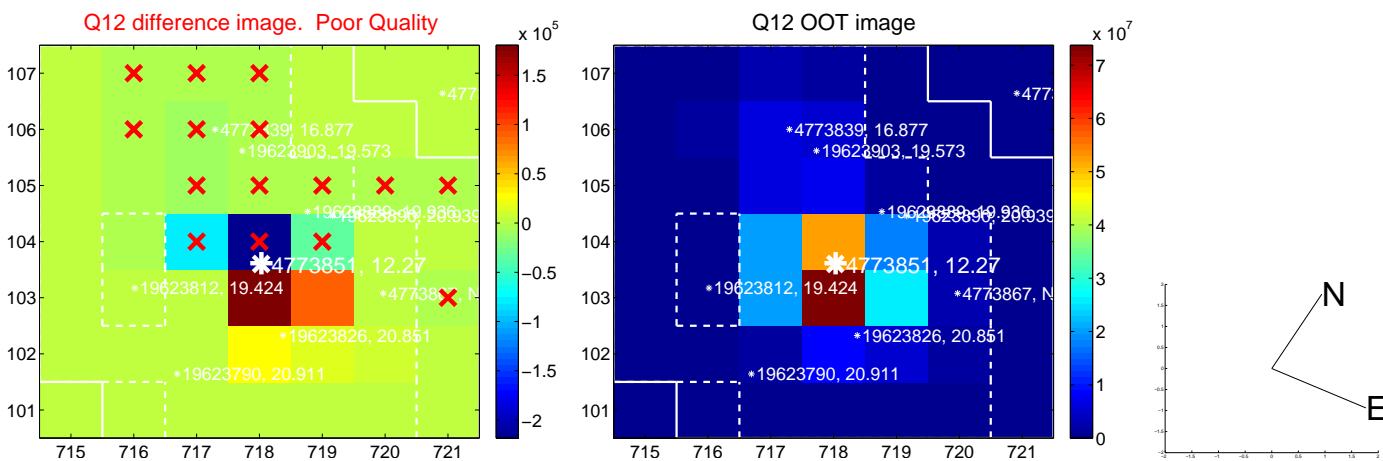
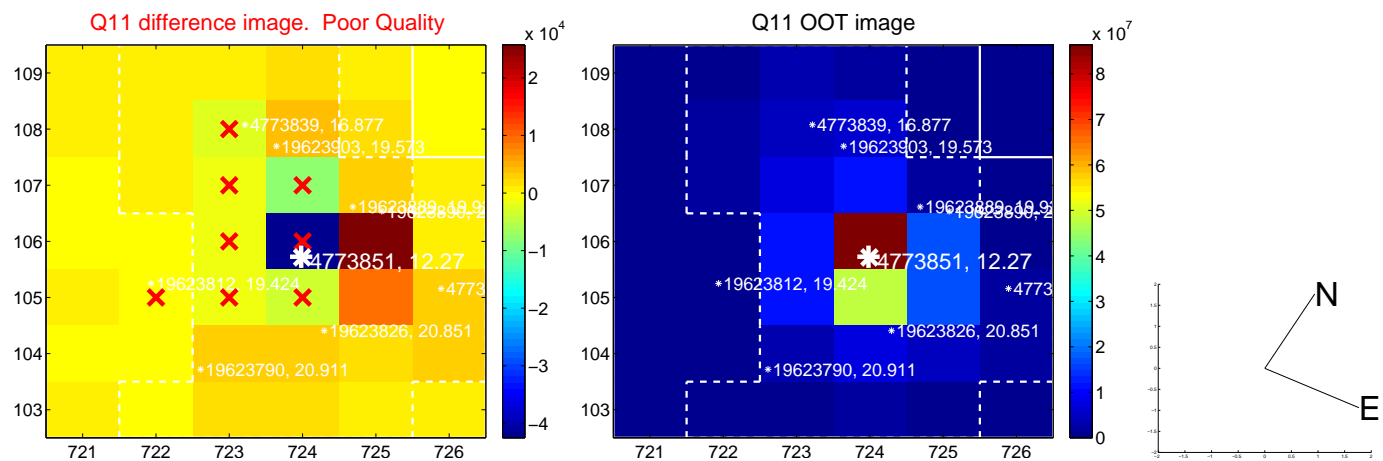
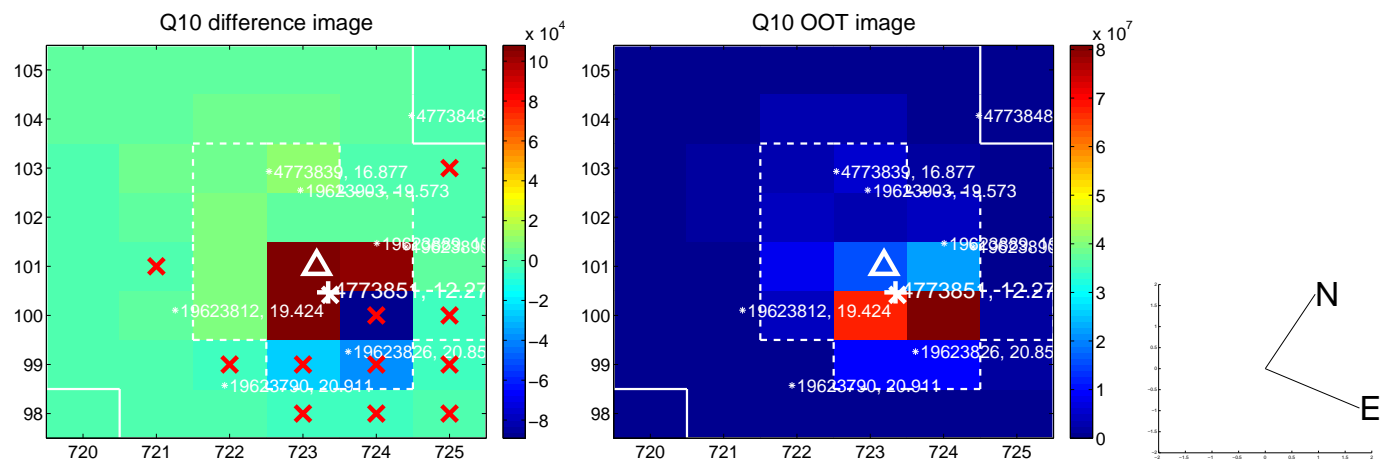
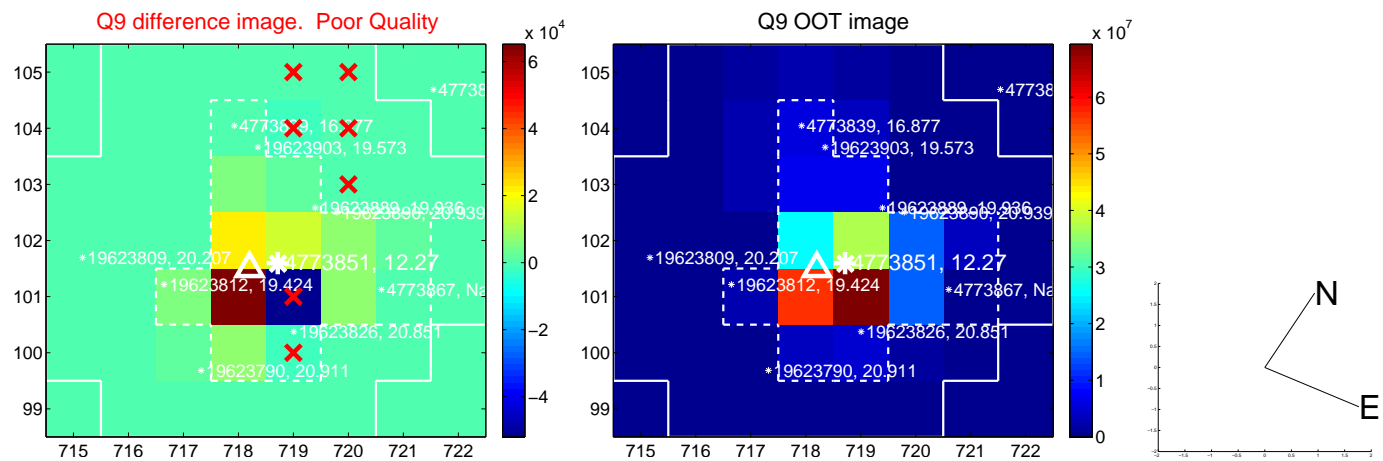
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



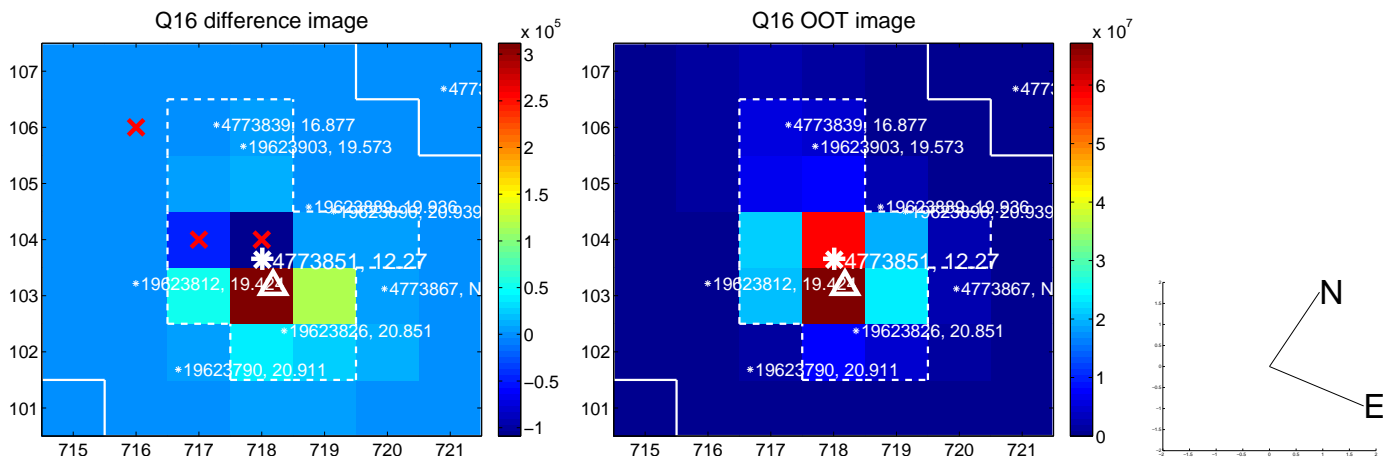
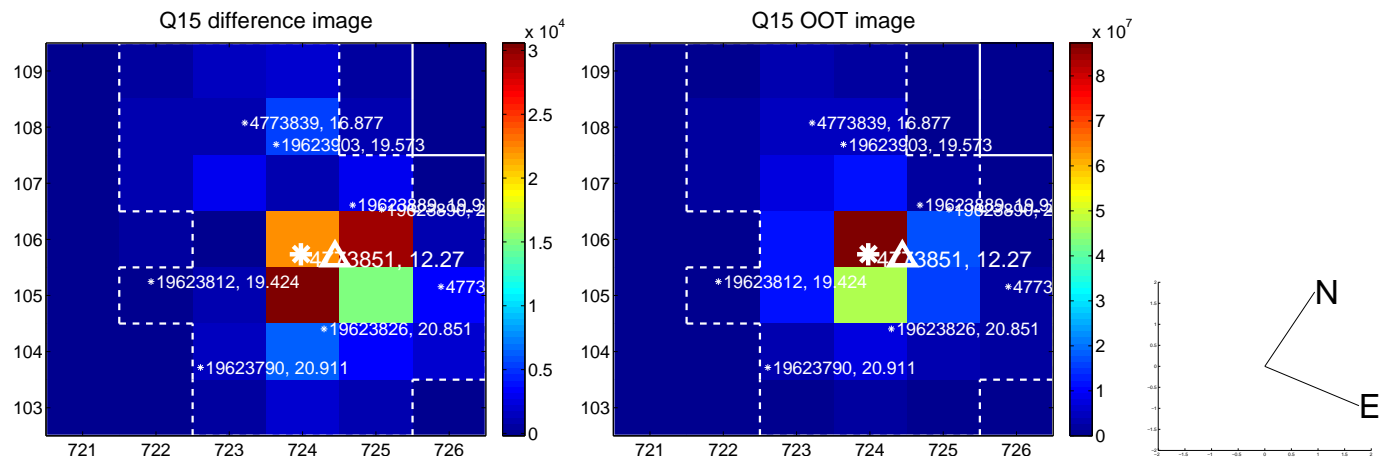
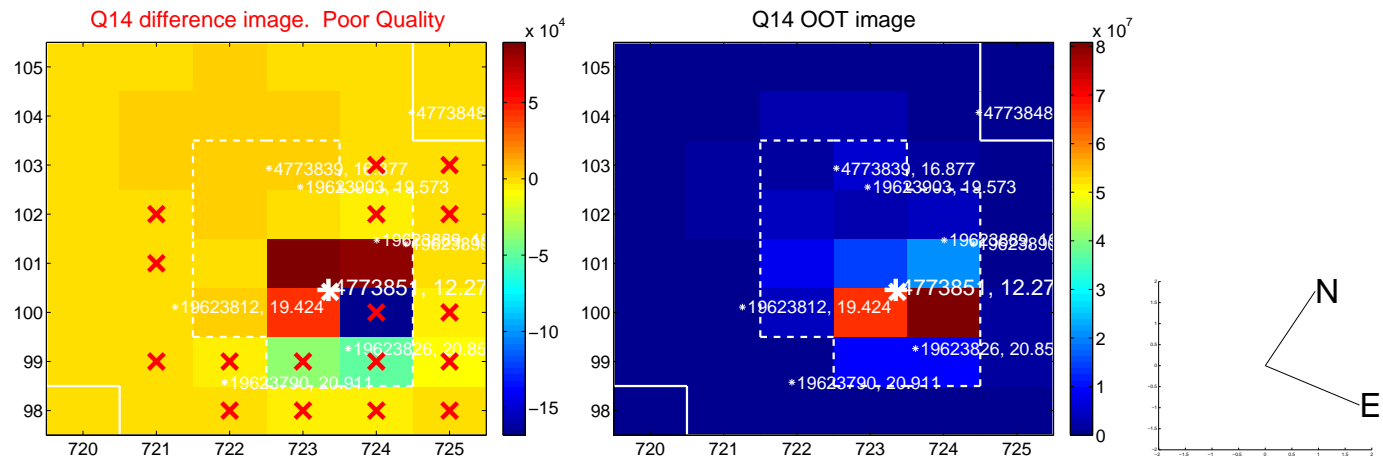
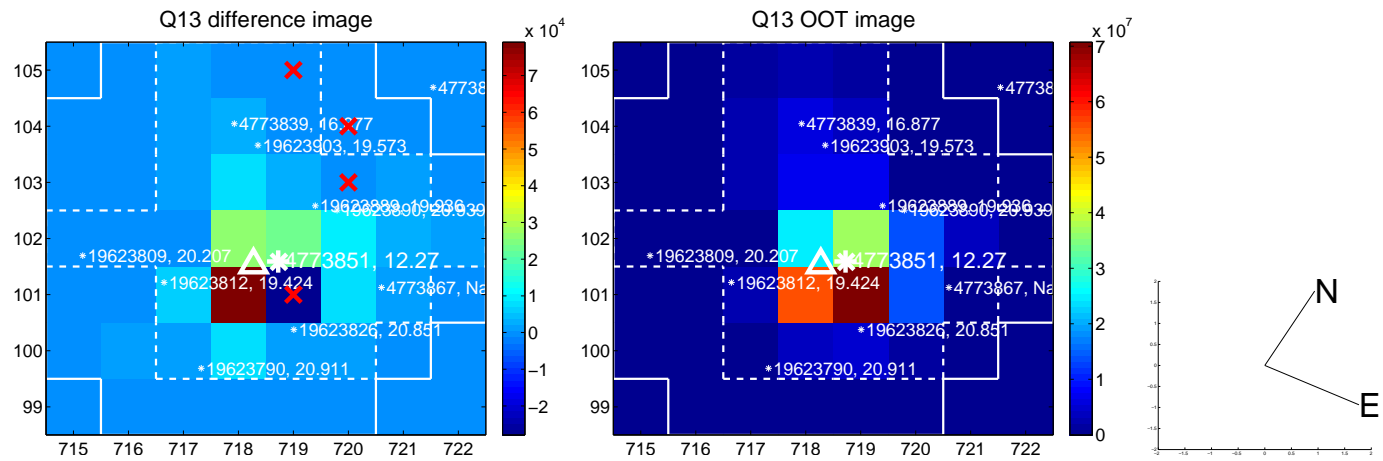
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



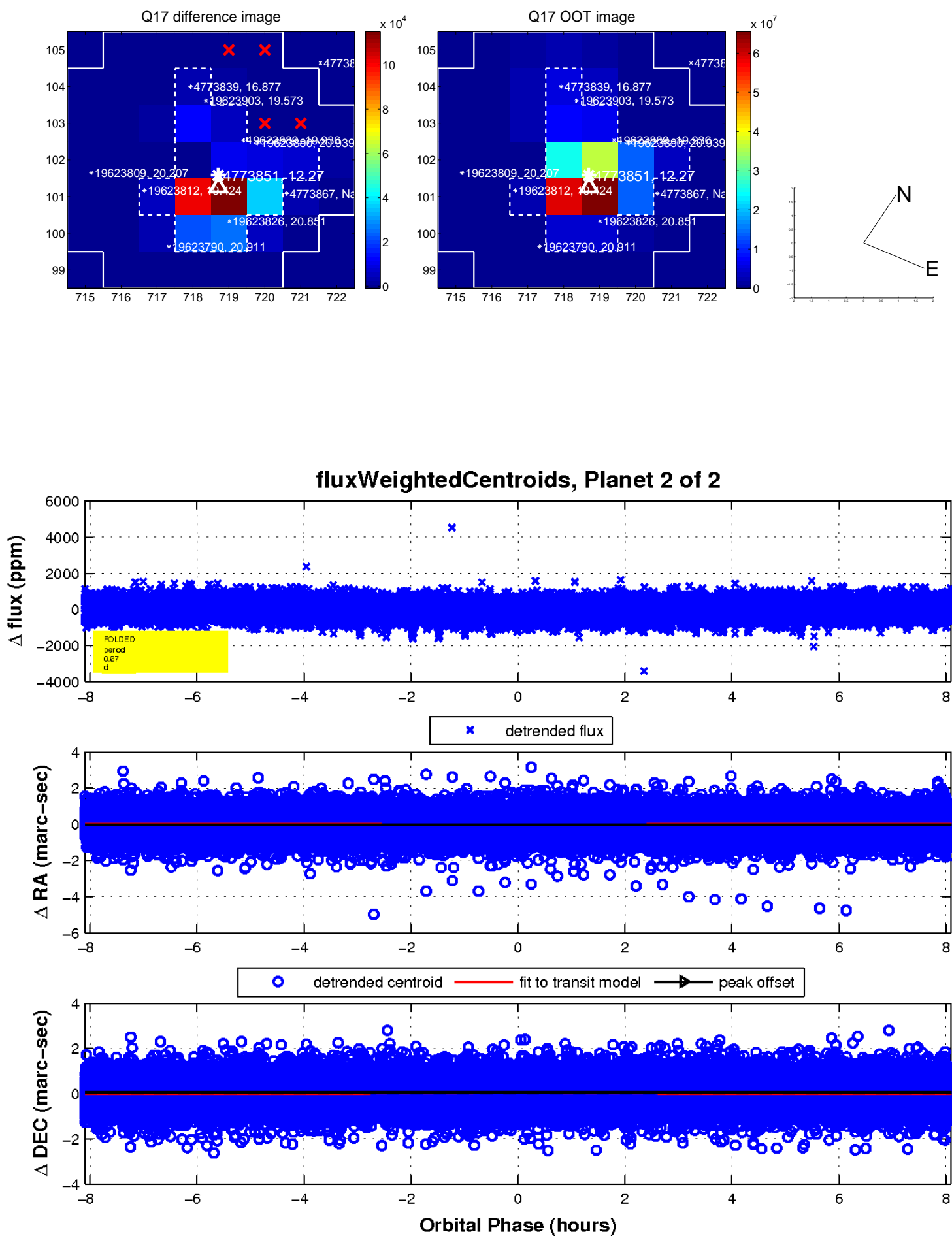
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

