

KIC 012070811

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})
012070811-01	OBS	0785.01	12.393529	141.569074	872.7	3.869	31.6	33.5	0.75	5557	2.60	49.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012070811-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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 012070811-01

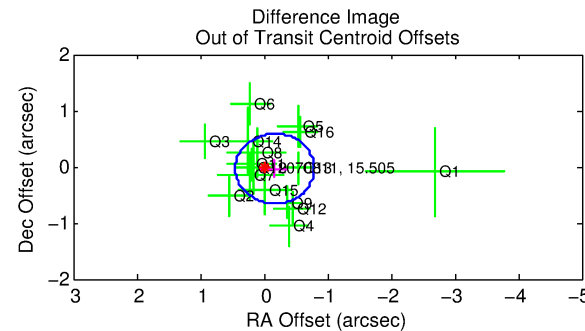
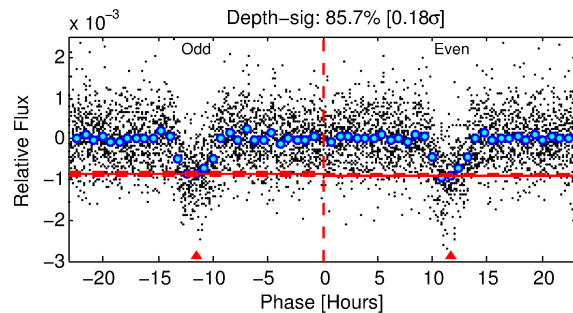
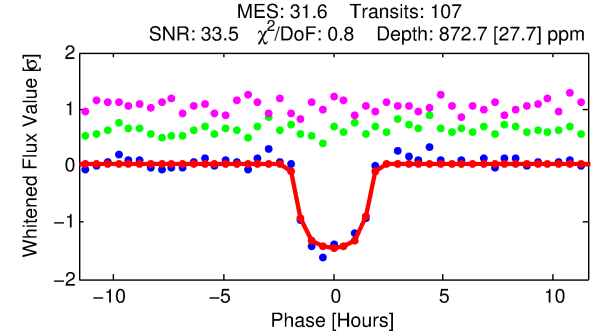
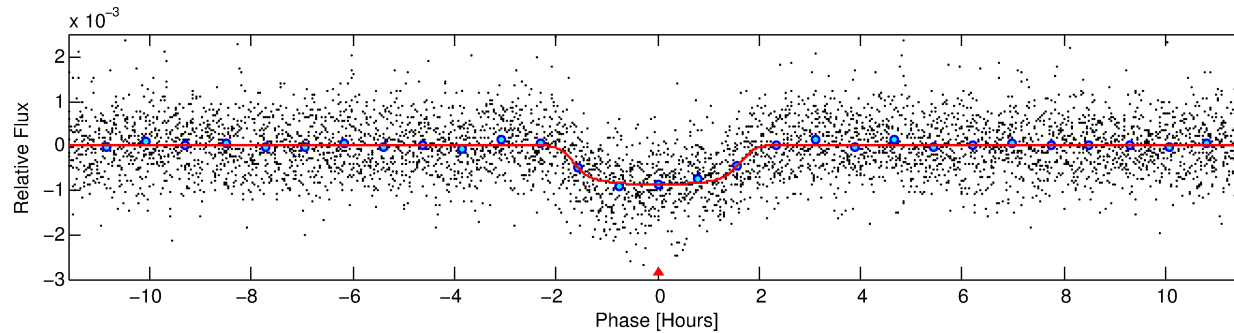
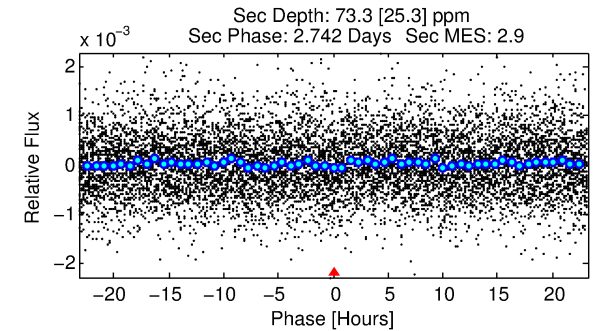
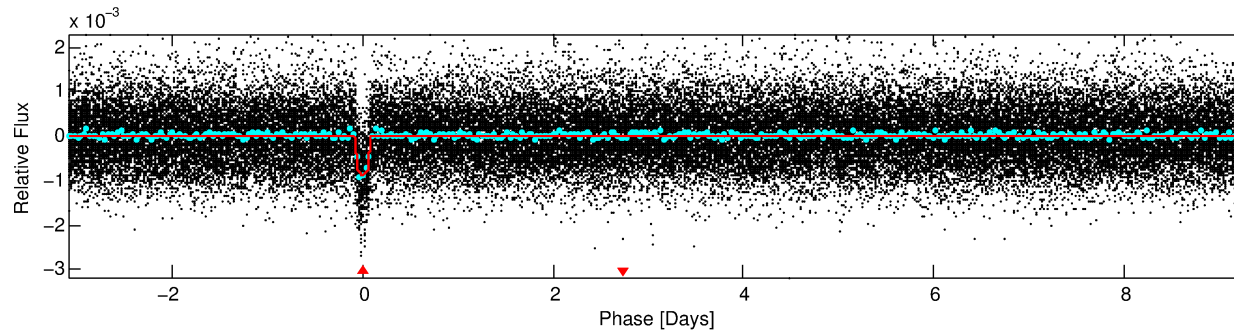
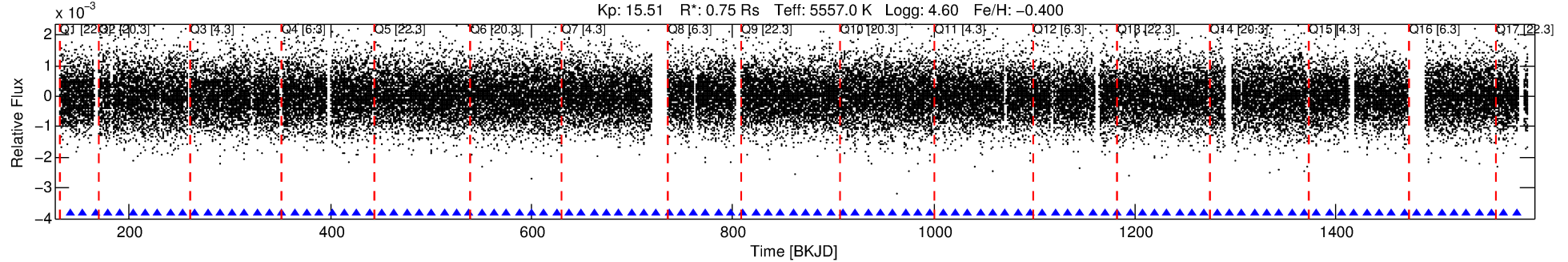
No Significant Match Found

DV One-Page Summary

KIC: 12070811 Candidate: 1 of 1 Period: 12.394 d

KOI: K00785.01 Corr: 0.980

Kp: 15.51 R*: 0.75 Rs Teff: 5557.0 K Logg: 4.60 Fe/H: -0.400



DV Fit Results:

Period = 12.39353 [0.00004] d
Epoch = 141.5691 [0.0026] BKJD
Rp/R* = 0.0318 [0.0022]
a/R* = 12.99 [3.82]
b = 0.89 [0.07]
Seff = 49.82 [13.29]
Teq = 677 [45] K
Rp = 2.60 [0.56] Re
a = 0.0982 [0.0164] AU
Ag = 57.47 [25.39] [2.22σ]
Teffp = 2884 [282] K [7.73σ]

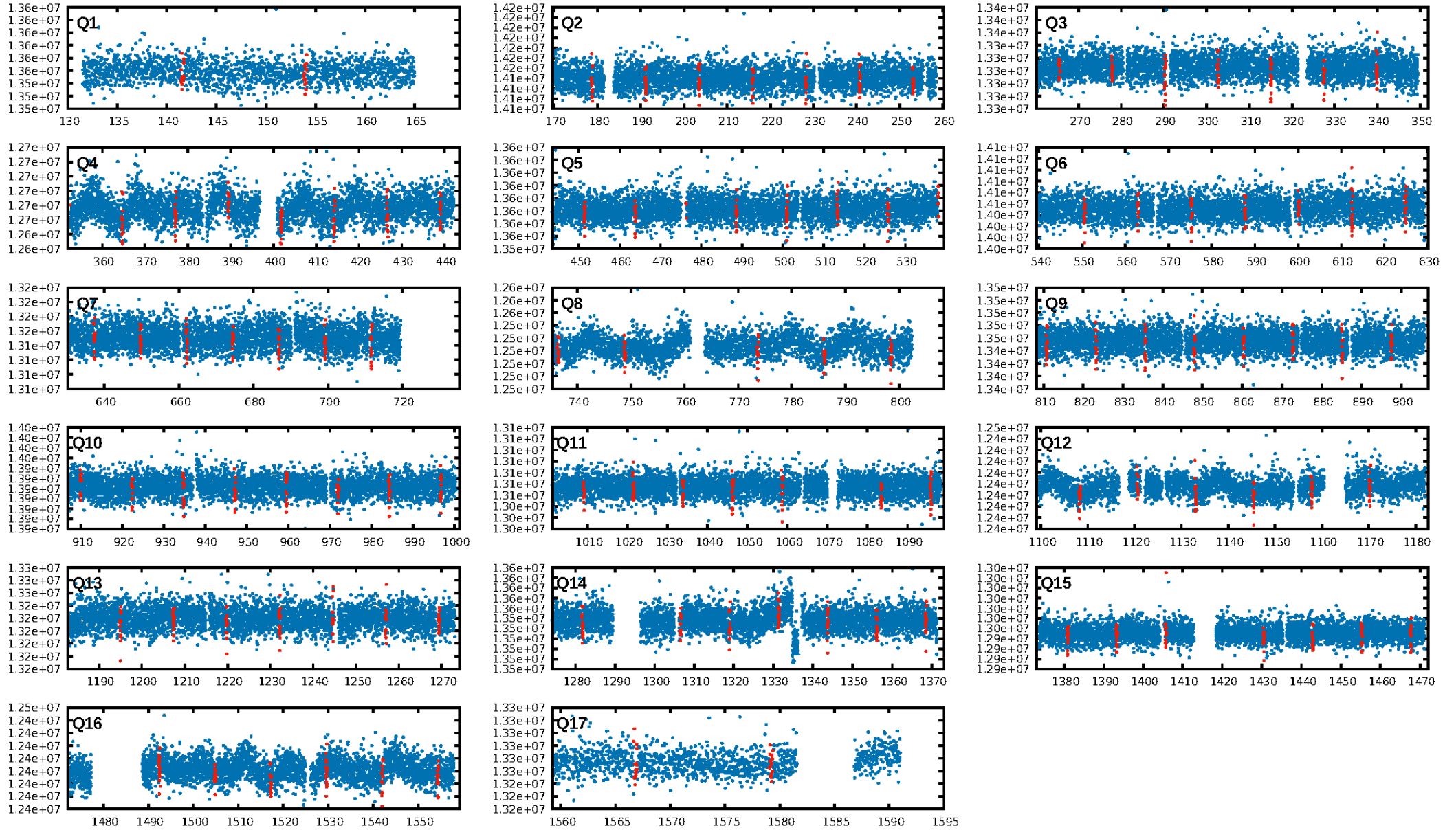
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 95.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.39e-214
RollingBand-fgt: 1.00 [103/103]
GhostDiagnostic-chr: 4.332
Centroid-sig: 75.8%
Centroid-so: 0.409 arcsec [0.85σ]
OotOffset-rm: 0.174 arcsec [0.84σ]
KicOffset-rm: 0.185 arcsec [1.00σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

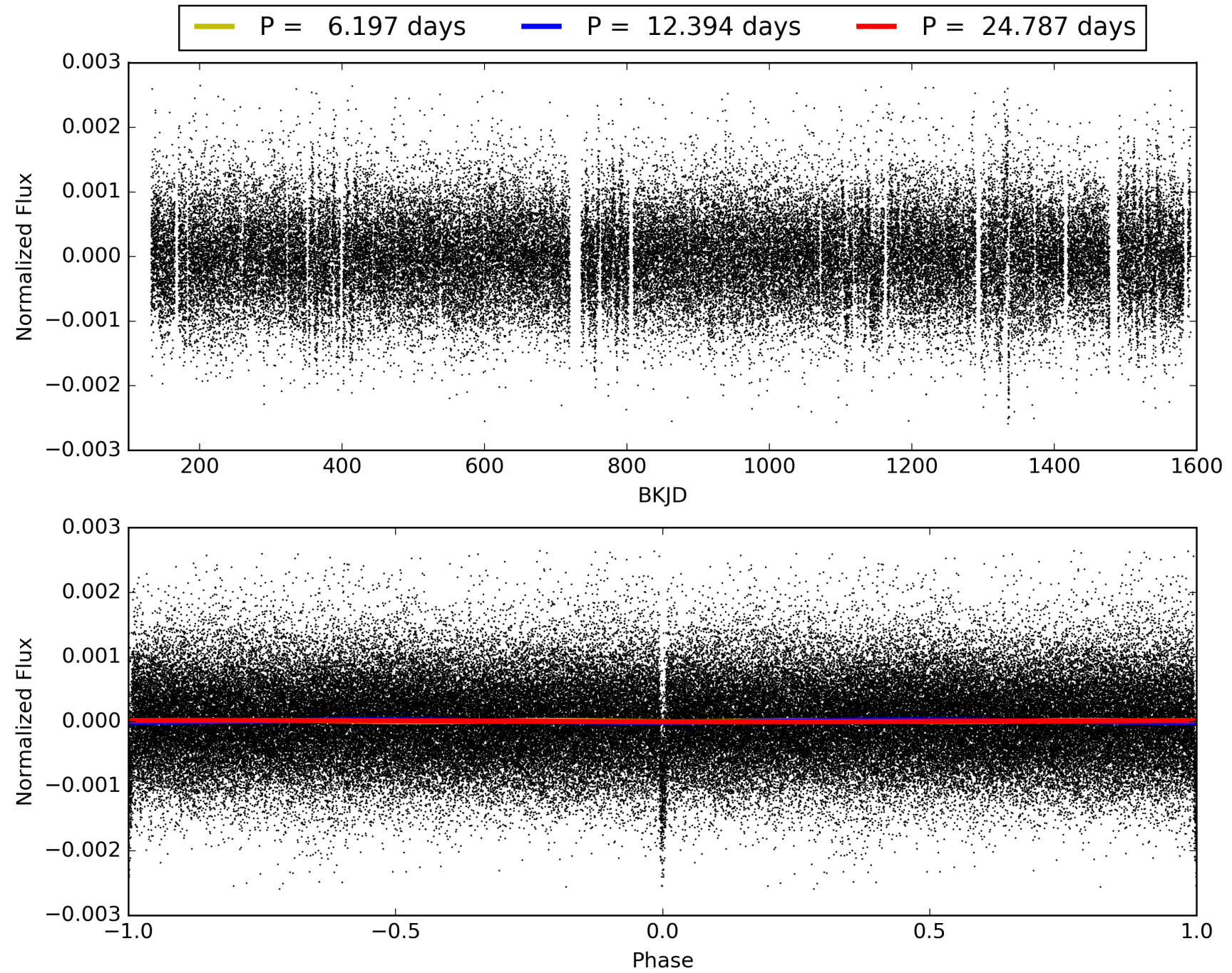
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:38:44 Z

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

TCE 012070811-01, PDC Light Curves

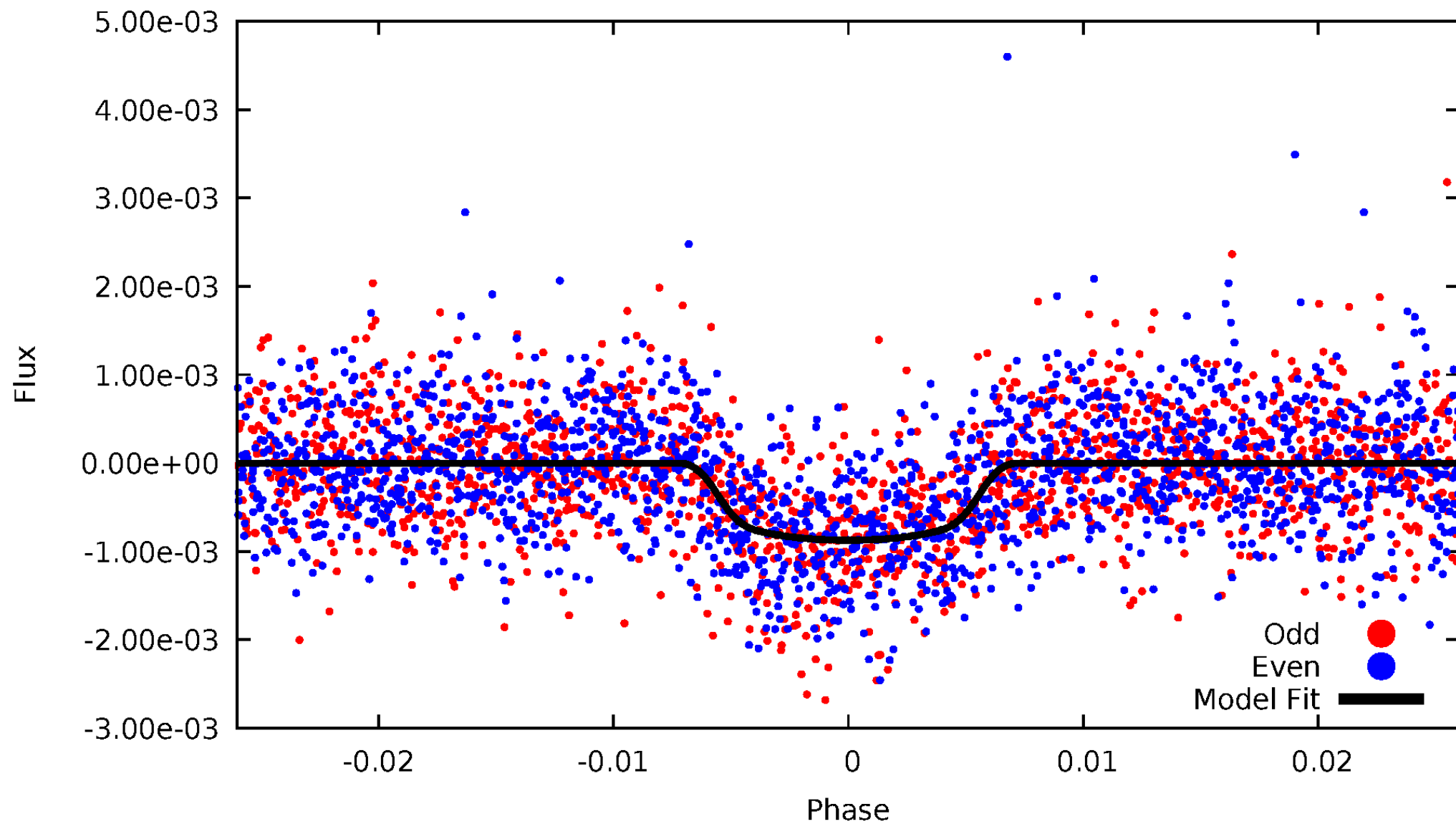


TCE 012070811-01



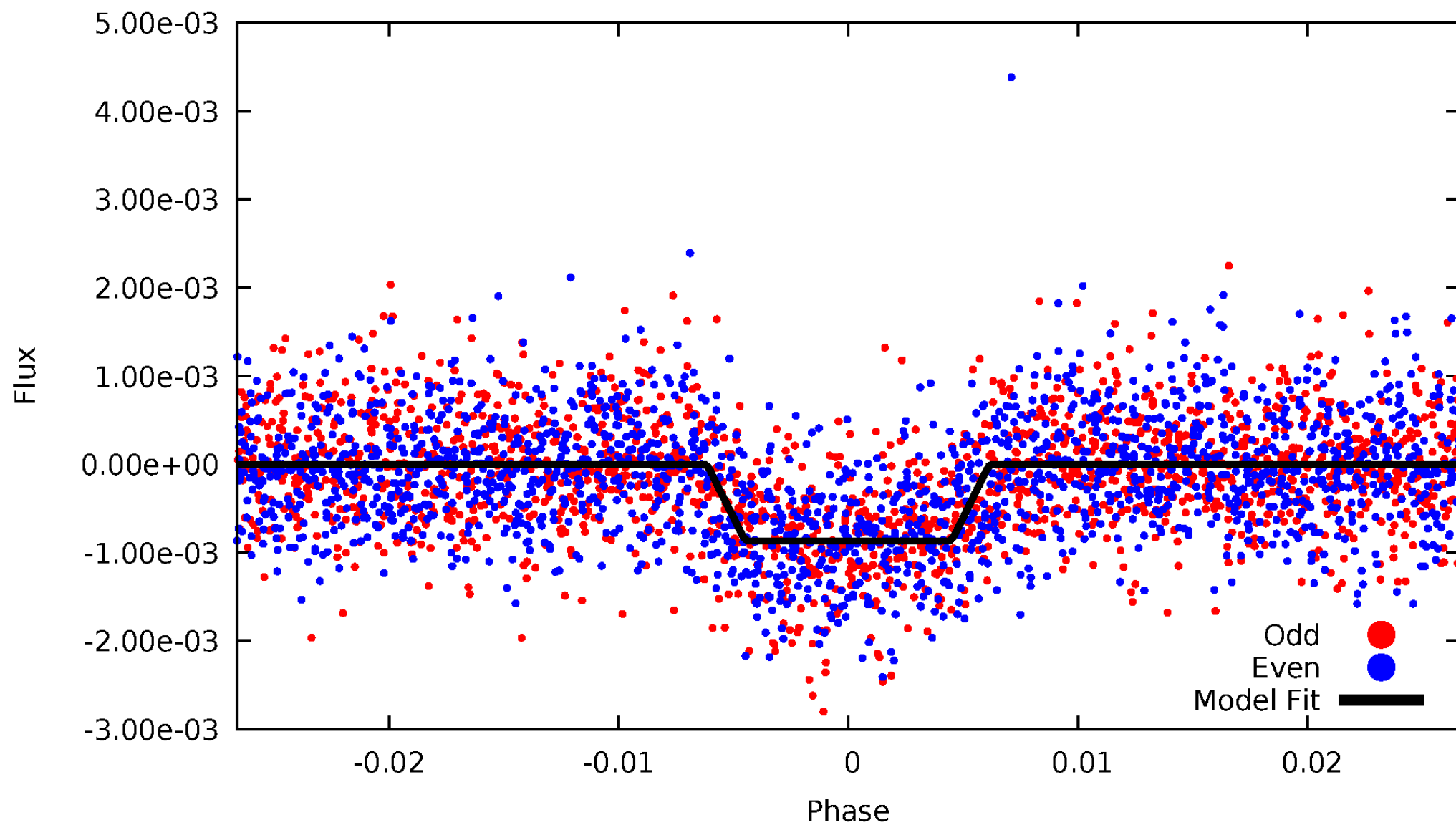
DV Odd/Even

TCE 012070811-01

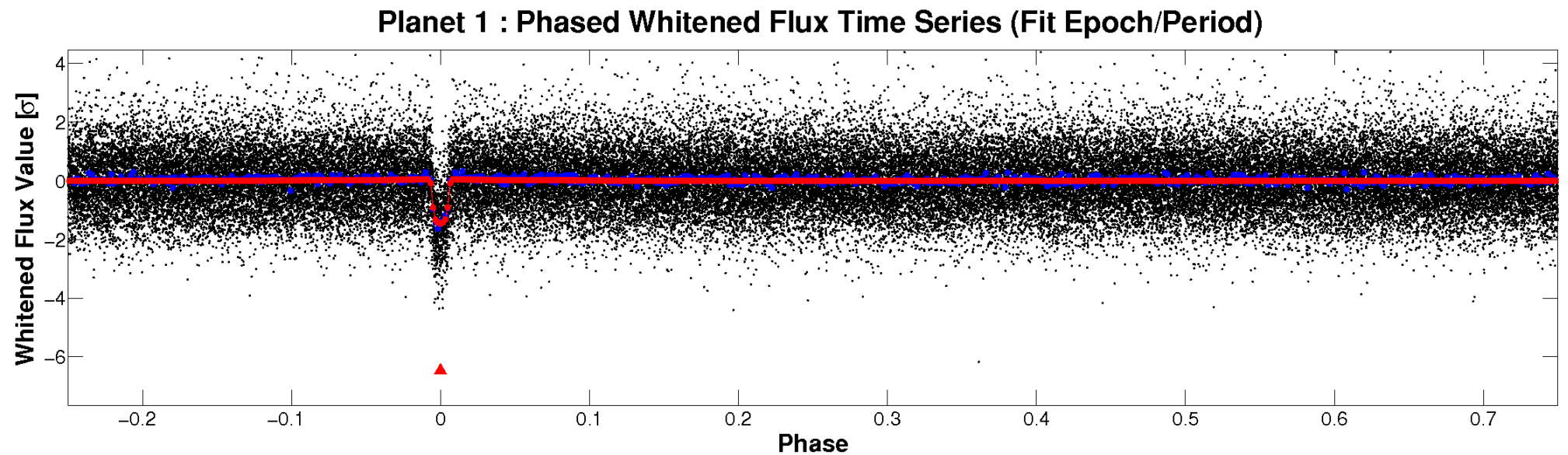
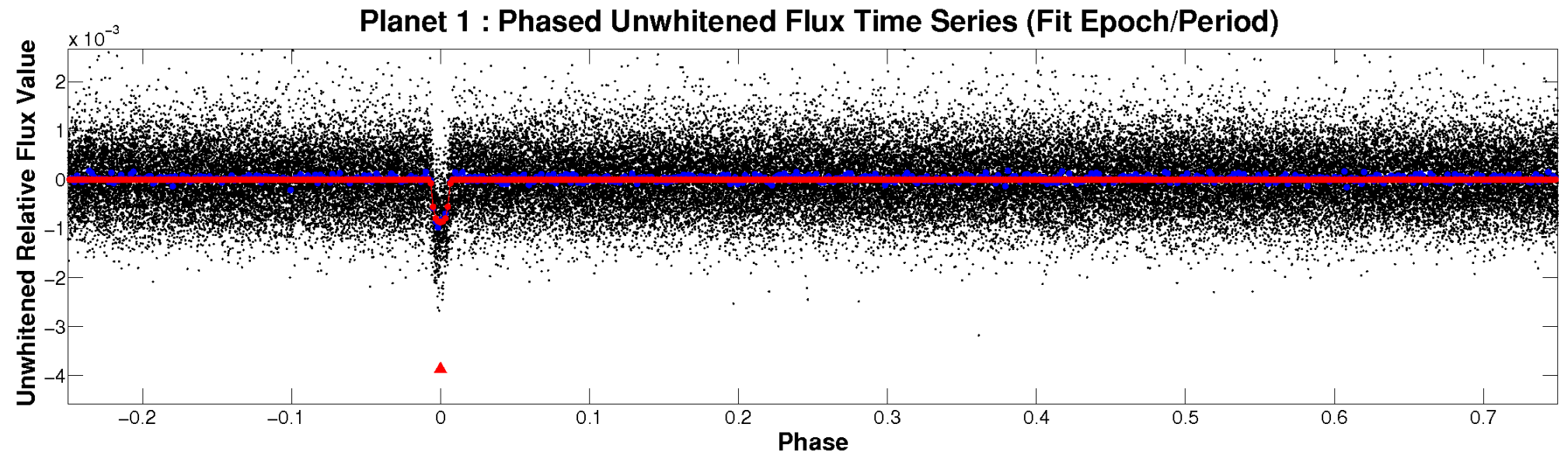


ALT Odd/Even

TCE 012070811-01

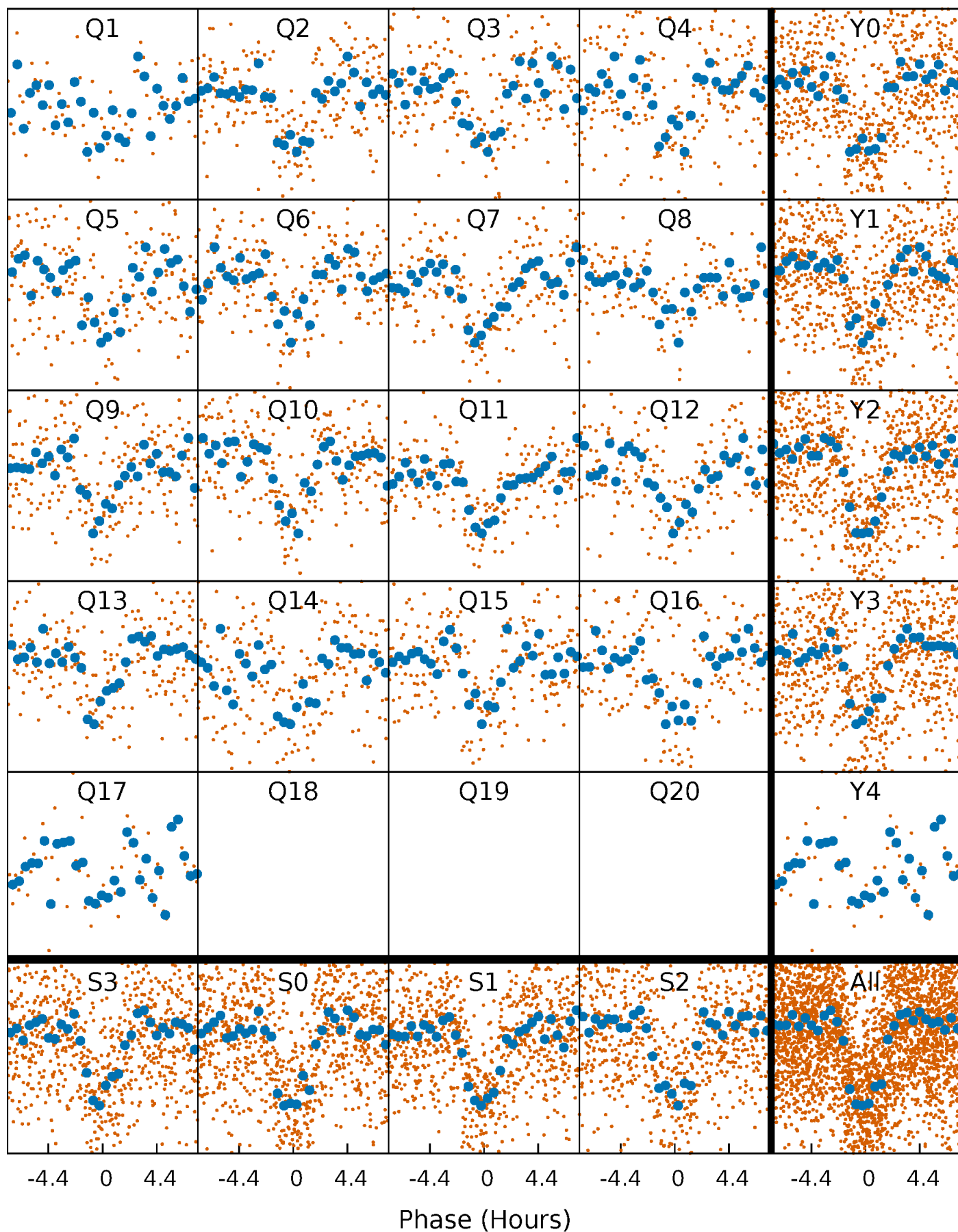


Non-Whitened Vs. Whitened Light Curve



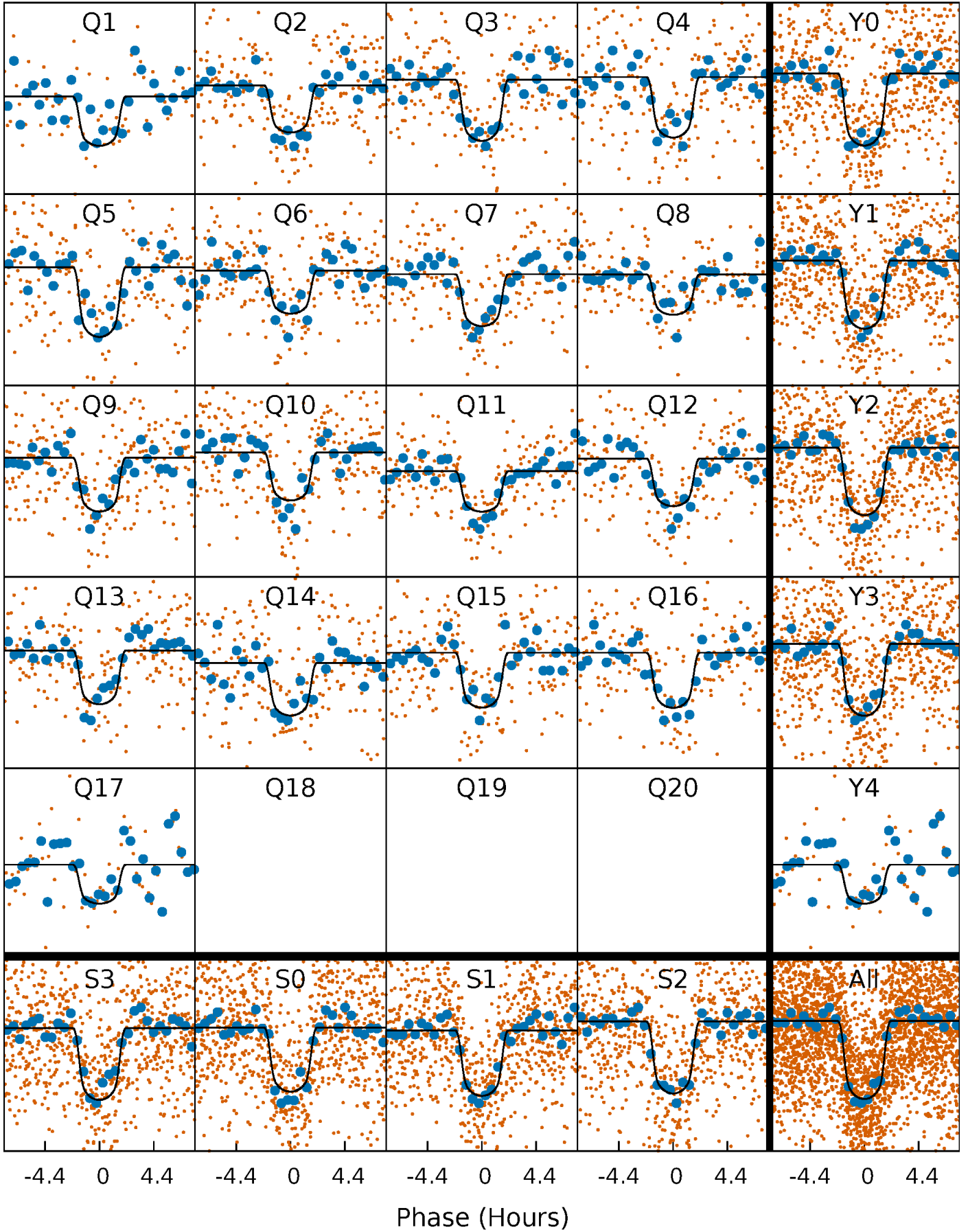
PDC Quarter-Phased Transit Curves

TCE 012070811-01 P= 12.393529 Days $T_0=141.569074$ (BKJD)



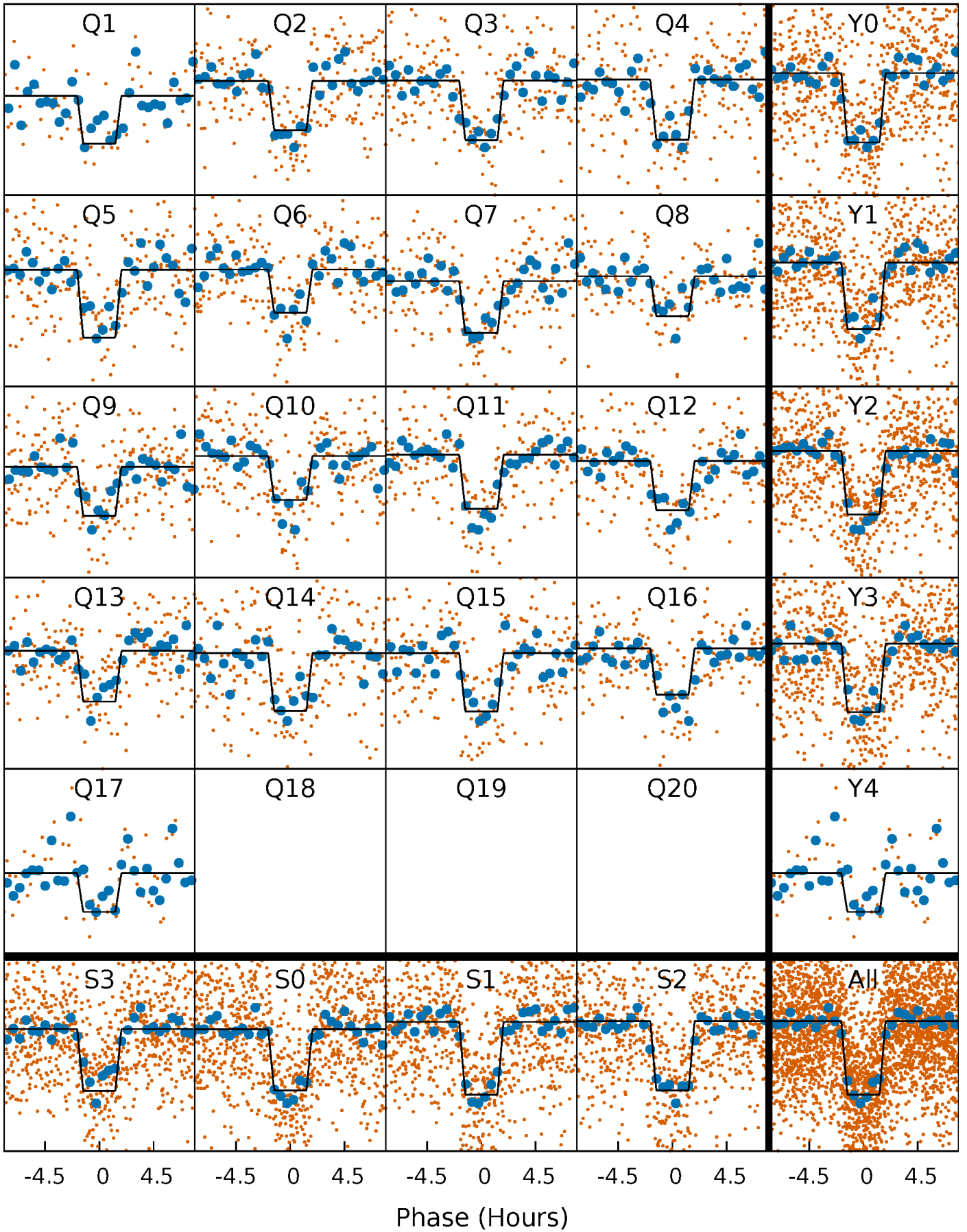
DV Quarter-Phased Transit Curves

TCE 012070811-01 $P = 12.393529$ Days $T_0 = 141.569074$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

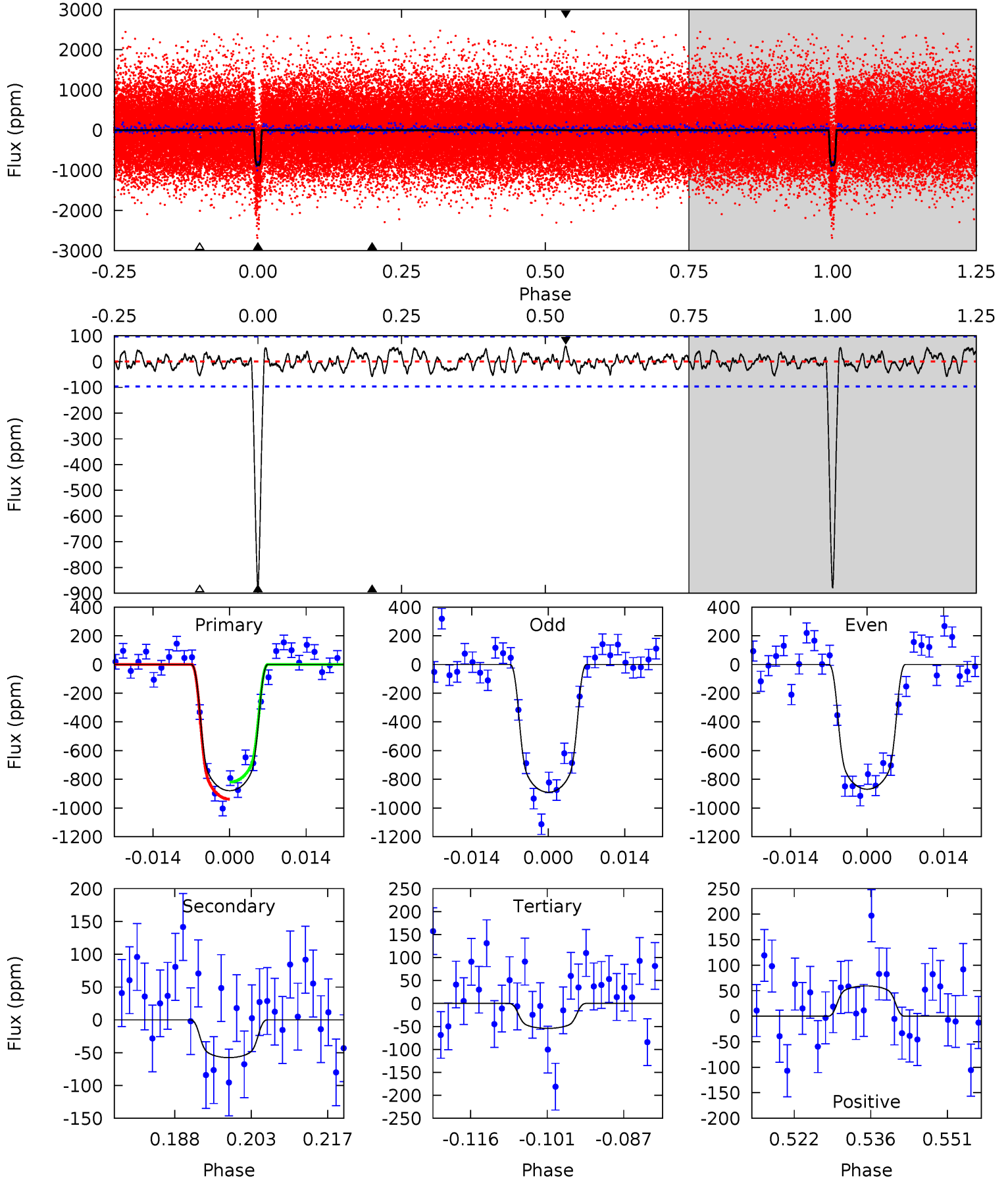
TCE 012070811-01 P= 12.393447 Days $T_0=141.573362$ (BKJD)



DV Model-Shift Uniqueness Test

012070811-01, P = 12.393529 Days, E = 129.175545 Days

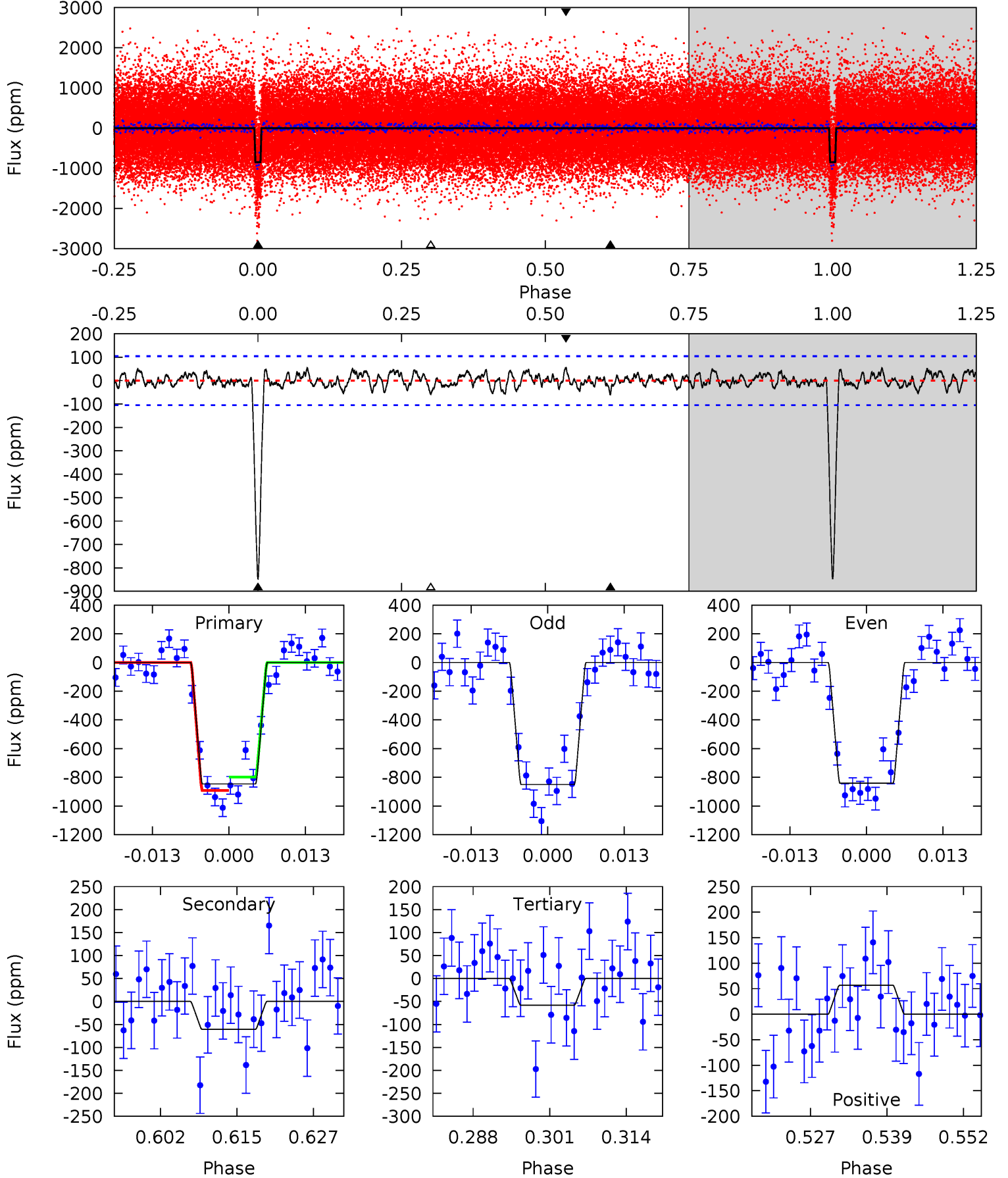
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.0	2.94	2.77	3.04	4.95	2.44	1.16	42.2	41.9	0.17	-0.09	0.54	0.98	0.06	3.04



Alt Model-Shift Uniqueness Test

012070811-01, $P = 12.393447$ Days, $E = 129.179915$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.2	2.90	2.78	2.70	4.98	2.50	1.07	37.5	37.5	0.12	0.19	0.20	0.96	0.06	2.22



Stellar Parameters For KIC 012070811

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5557^{+166}_{-166}	$4.603^{+0.034}_{-0.128}$	$-0.400^{+0.300}_{-0.300}$	$0.750^{+0.152}_{-0.065}$	$0.832^{+0.080}_{-0.089}$	$2.777^{+0.490}_{-1.075}$
	+3%/-3%	+1%/-3%	+75%/-75%	+20%/-9%	+10%/-11%	+18%/-39%
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 012070811-01 / KOI 0785.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-58 ± 20	$2.69^{+0.31}_{-0.25}$	965^{+43}_{-39}	3259^{+184}_{-220}	41^{+17}_{-16}
Alt.	-61 ± 21	$2.49^{+0.31}_{-0.24}$	963^{+48}_{-38}	3360^{+203}_{-214}	50^{+21}_{-18}

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 $A_{obs} \gg 1.0$

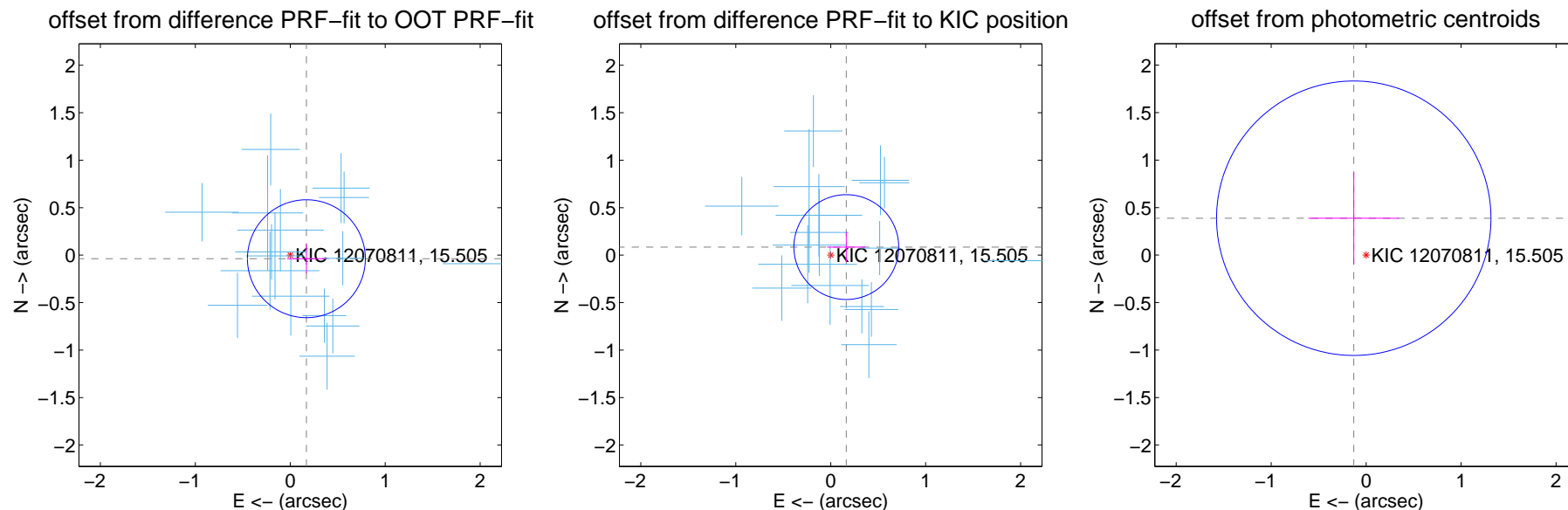
DV Centroid Data

Supplemental centroid analysis for 012070811-01. Kepler magnitude: 15.51. Transit SNR 33.47

There are 16 quarters with good PRF difference image offsets

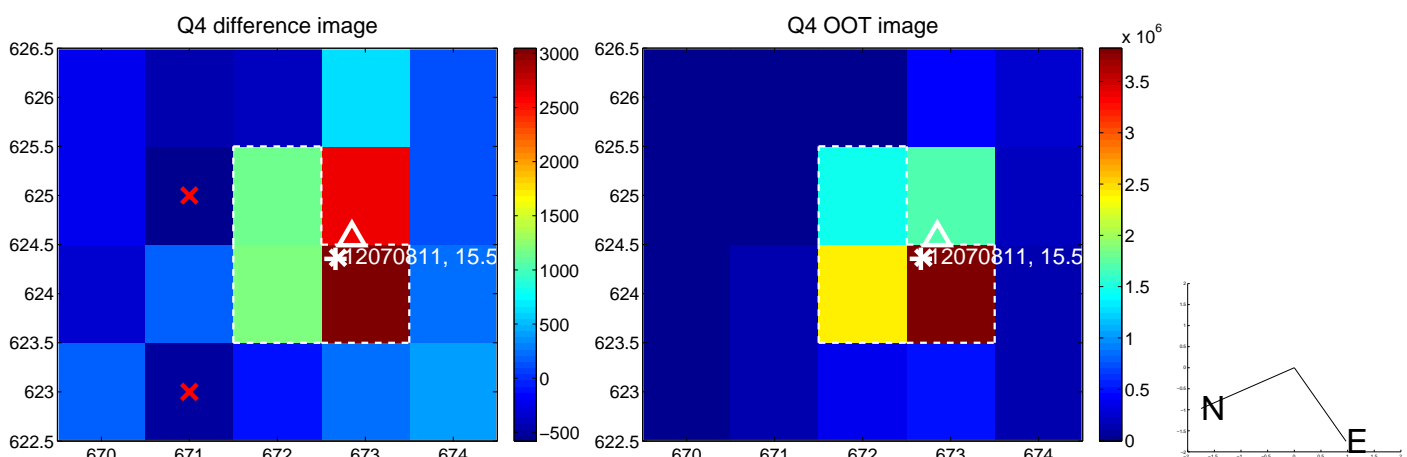
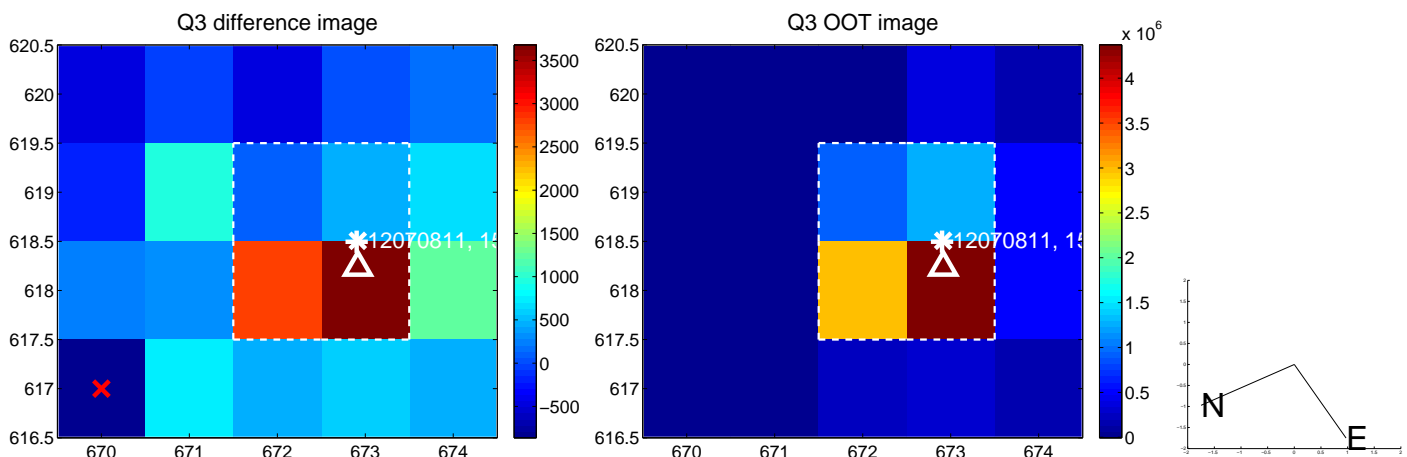
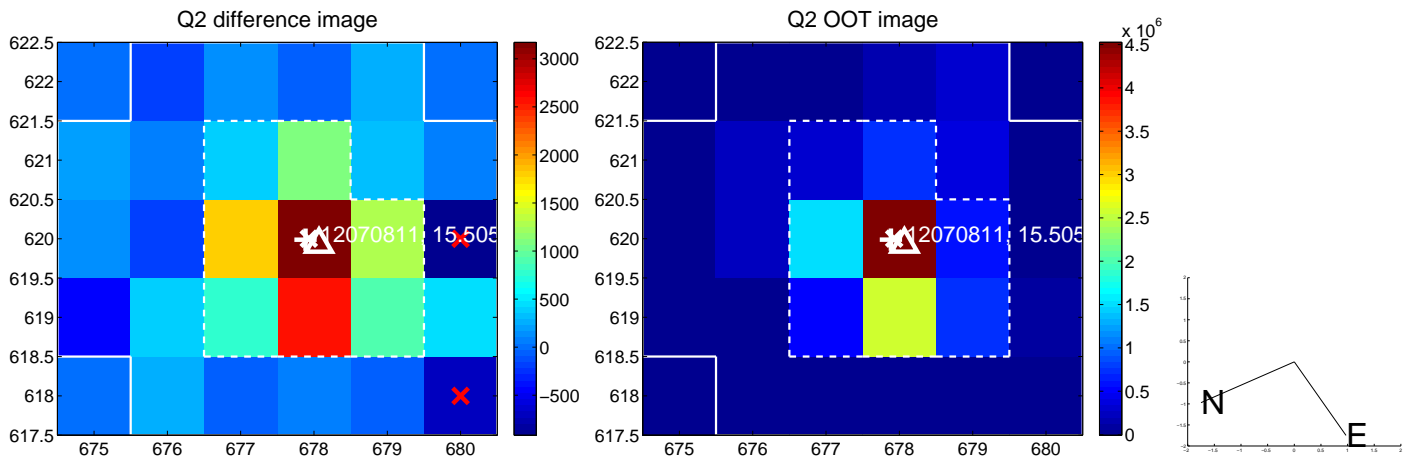
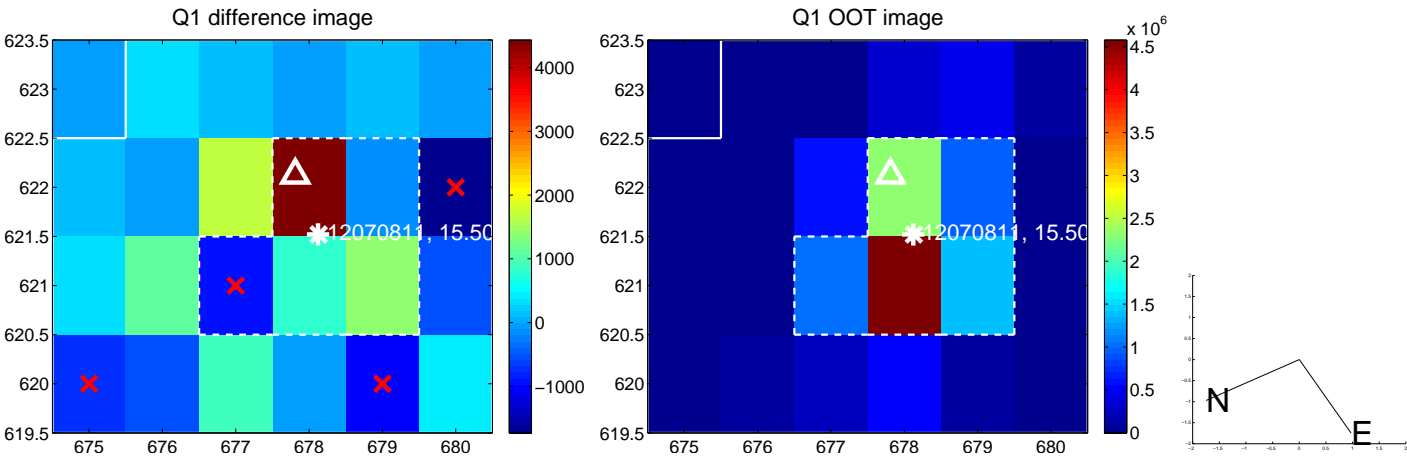
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.174 ± 0.207	0.84	-0.170 ± 0.203	-0.038 ± 0.155
PRF-fit source offset from KIC position	0.185 ± 0.184	1.00	-0.164 ± 0.202	0.085 ± 0.157
photometric centroid source offset	0.41 ± 0.48	0.85	0.13 ± 0.48	0.39 ± 0.48

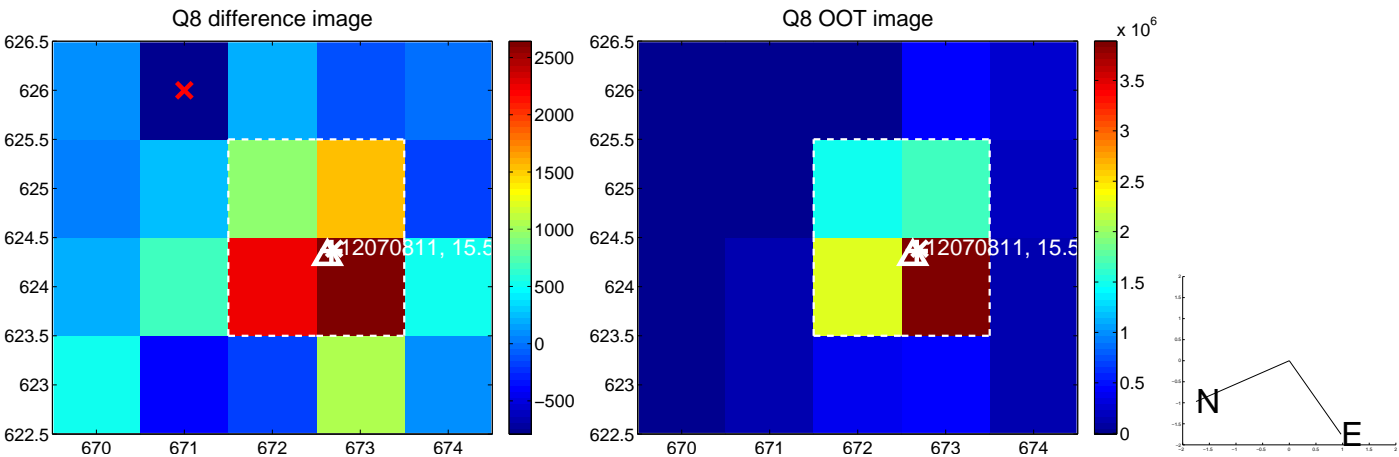
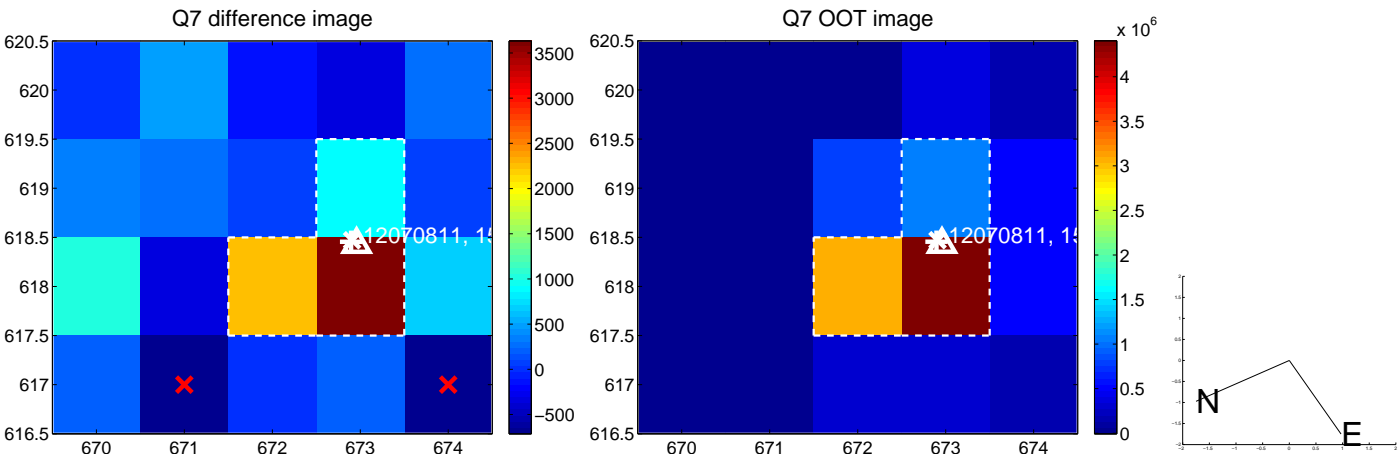
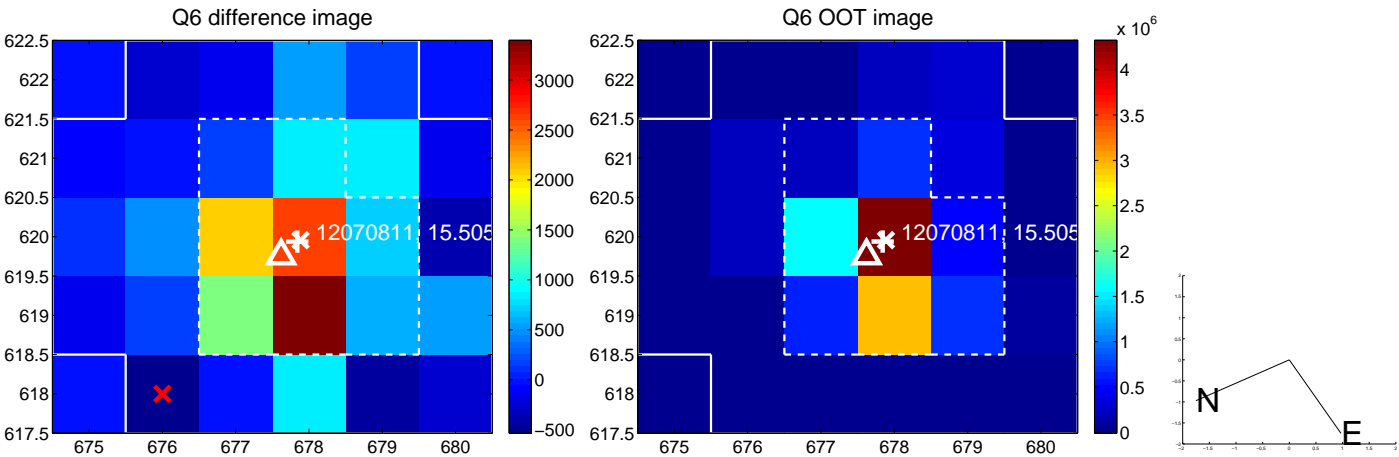
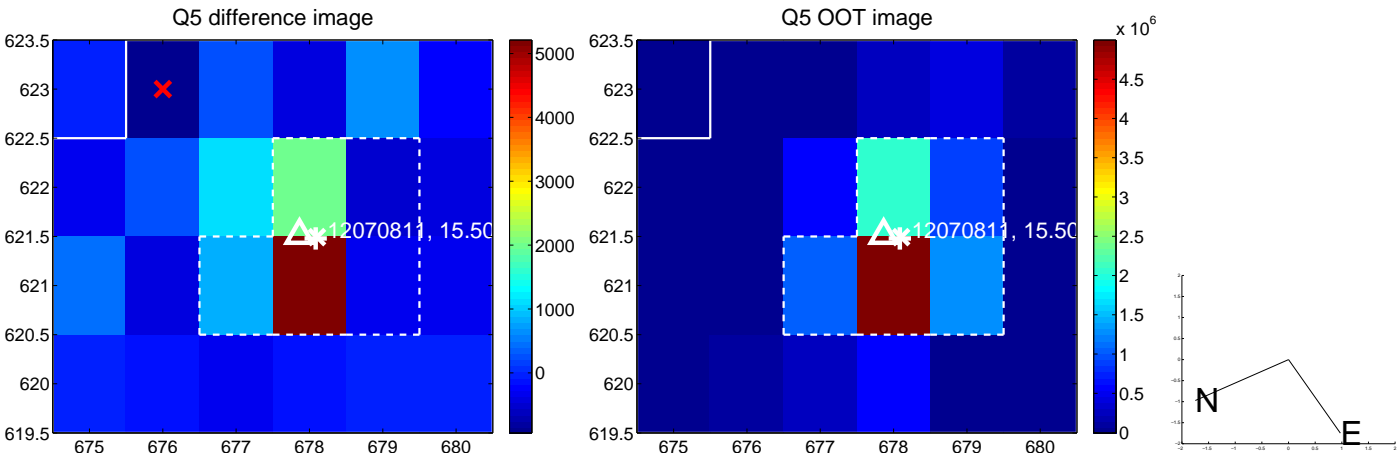


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

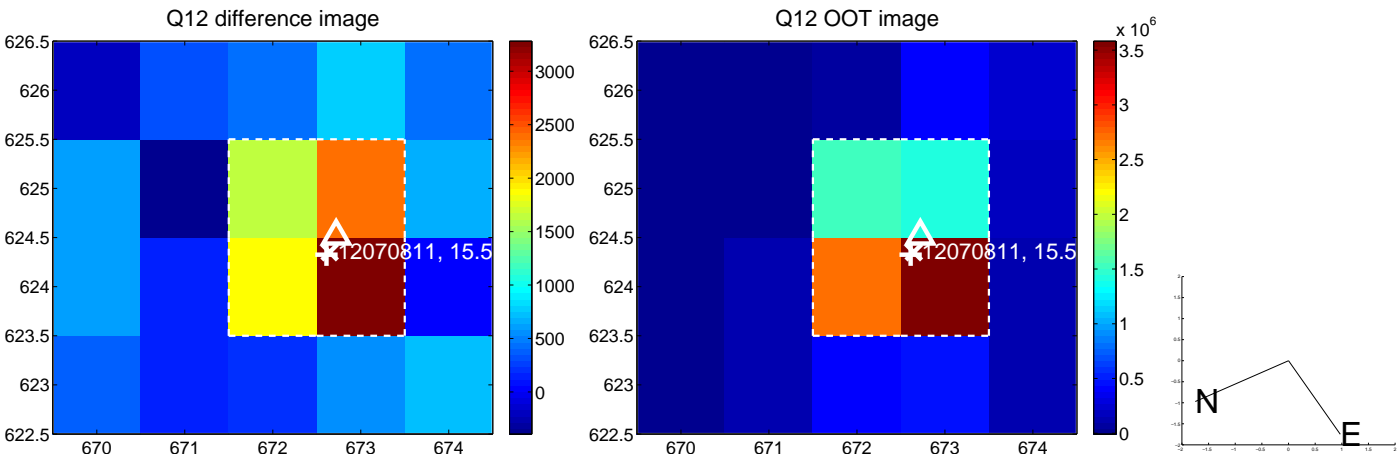
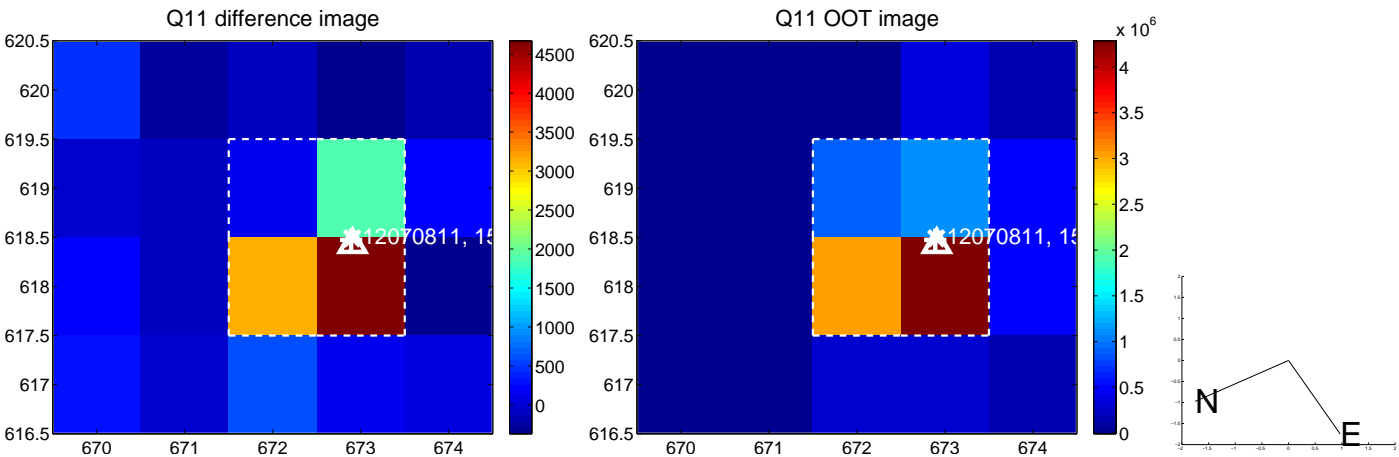
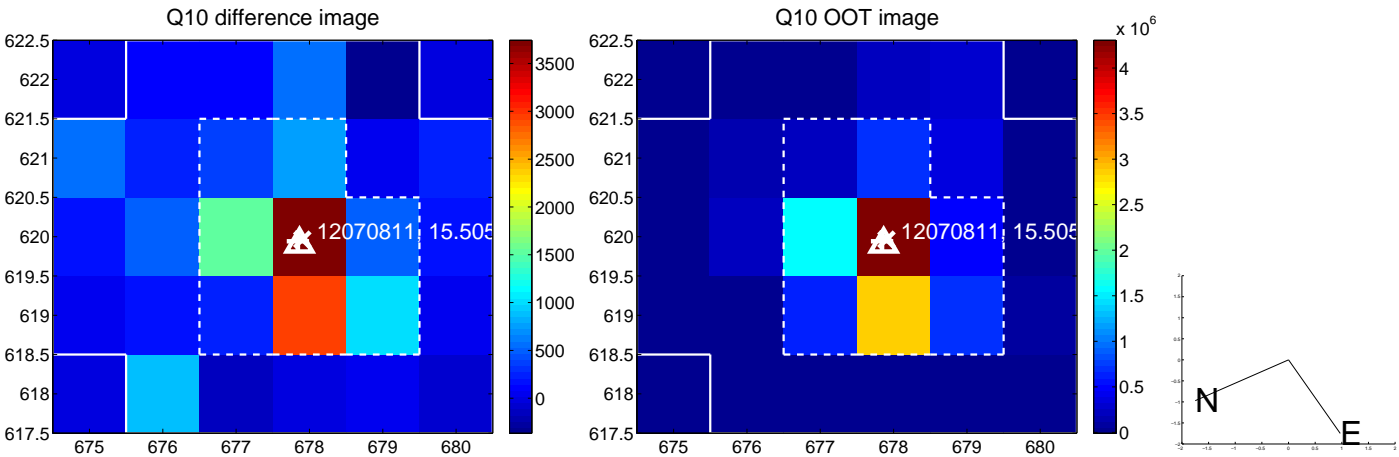
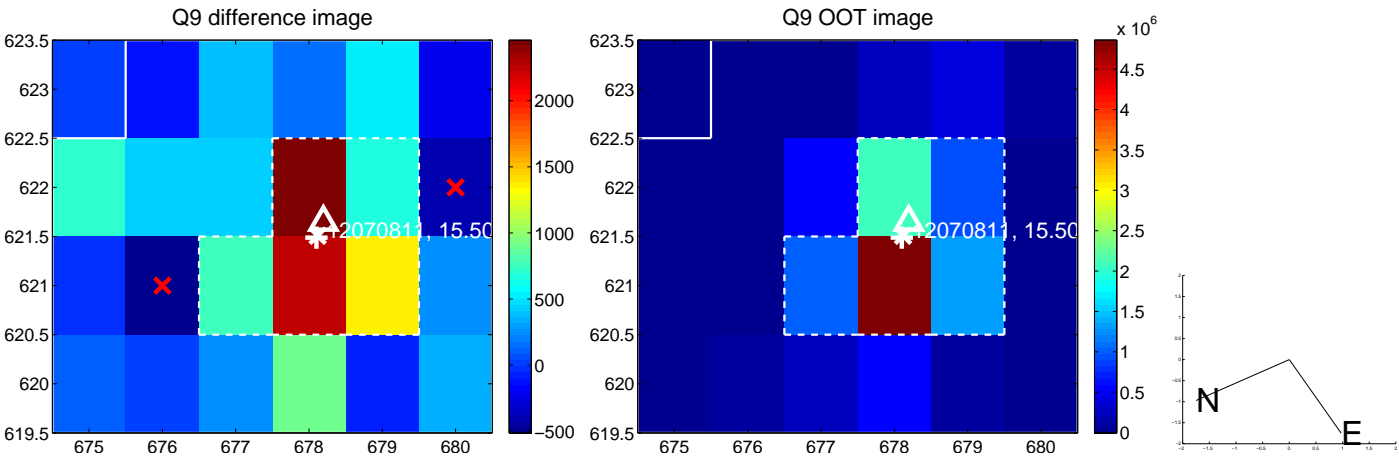
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



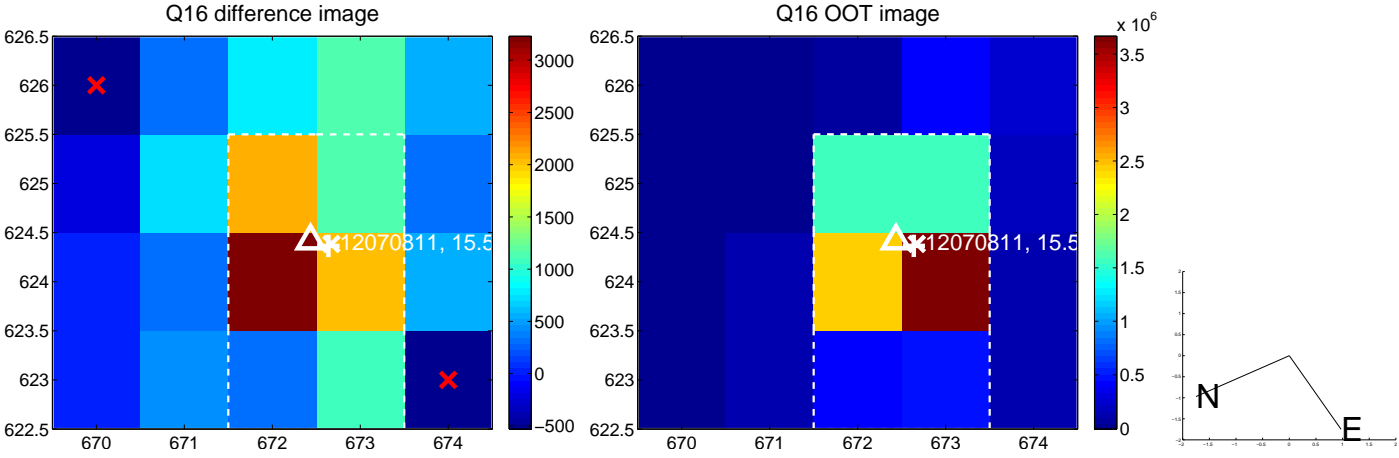
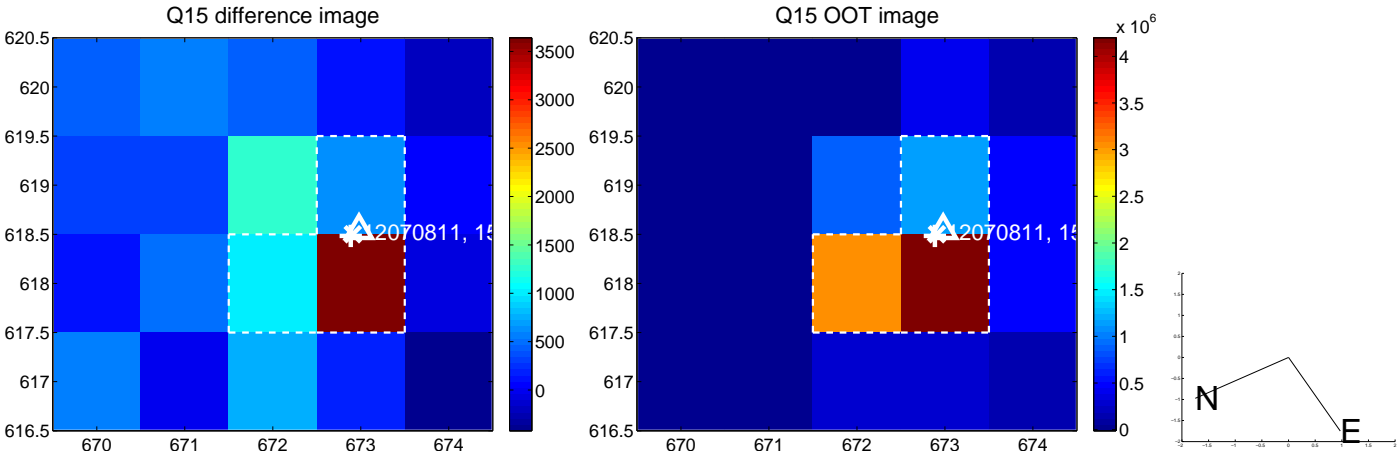
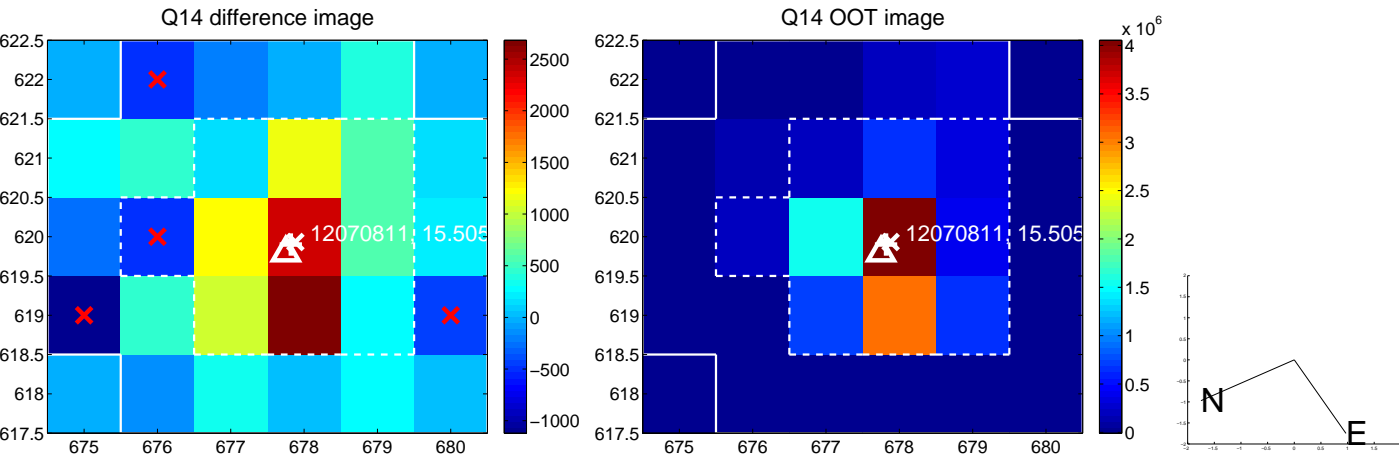
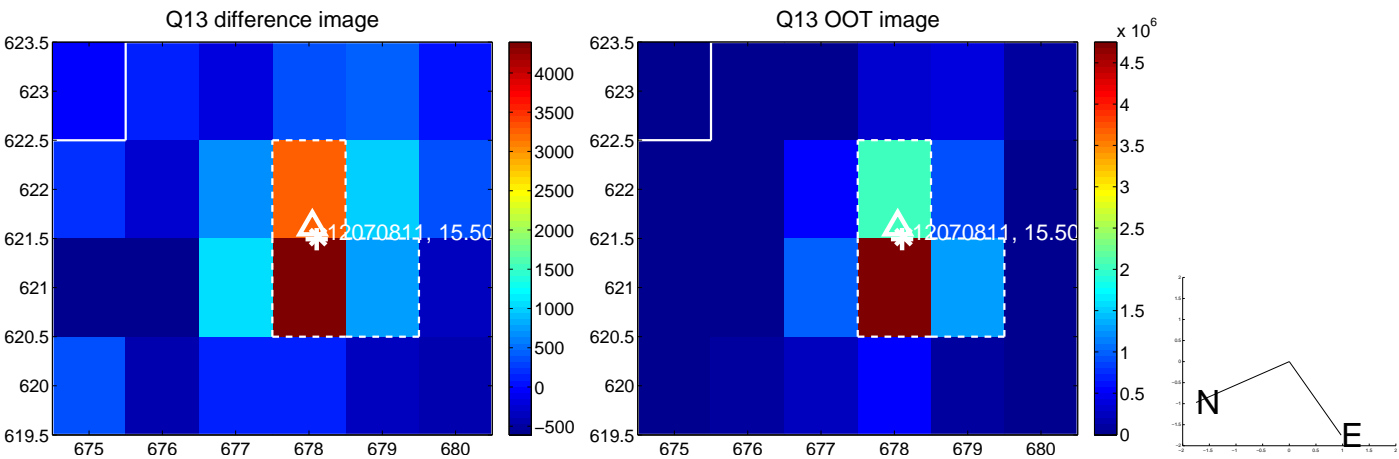
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



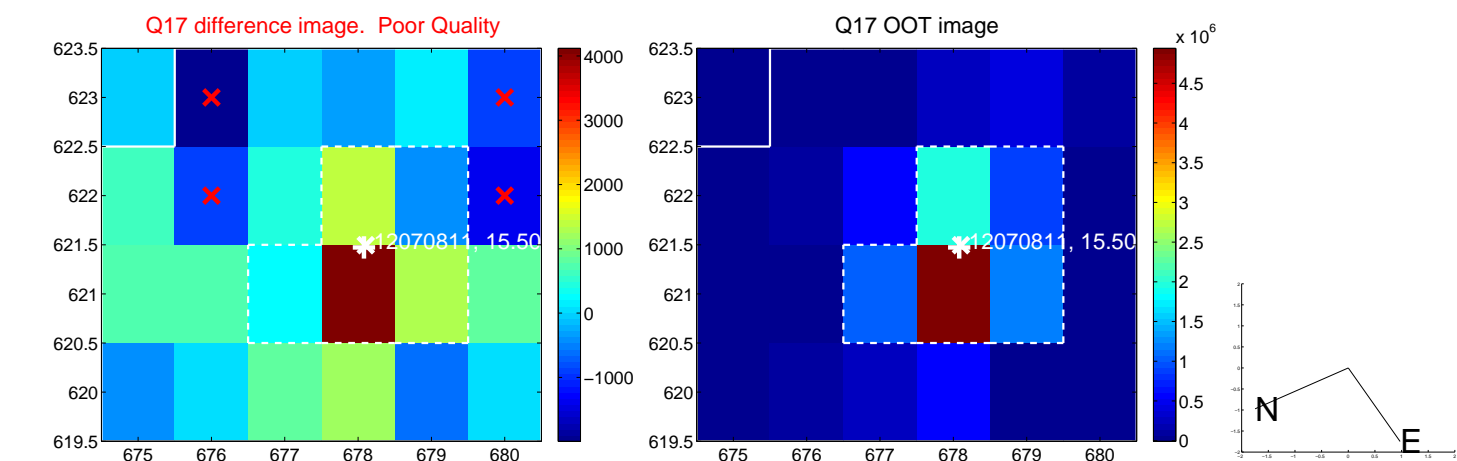
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



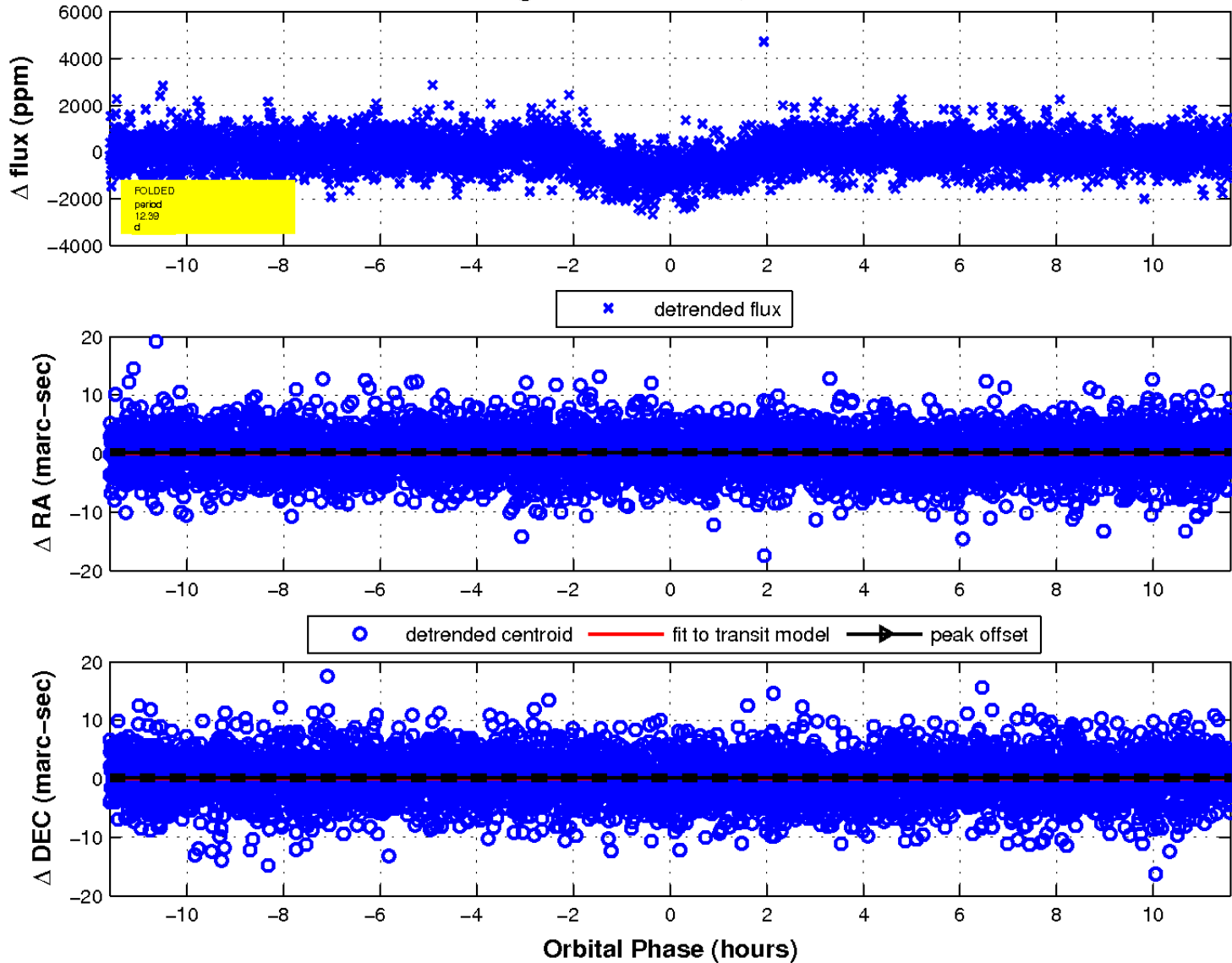
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

