

KIC 009716028

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})
009716028-01	OBS	4273.01	17.372958	138.298290	74.3	3.840	12.5	12.6	1.54	6180	1.81	156.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009716028-01	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.

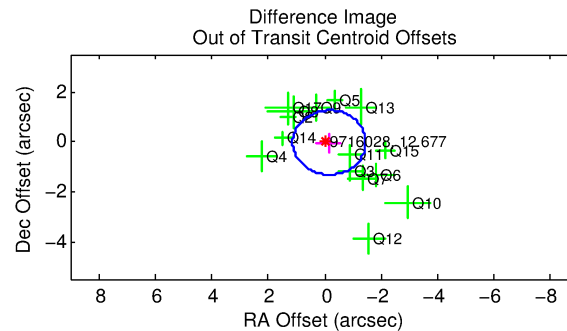
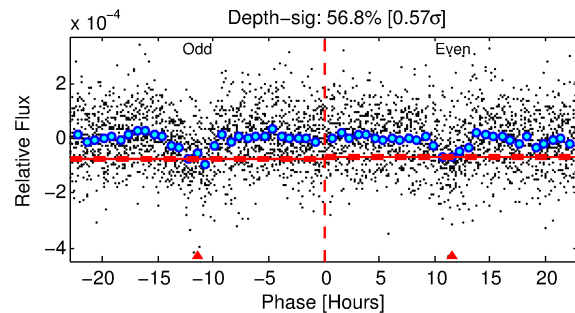
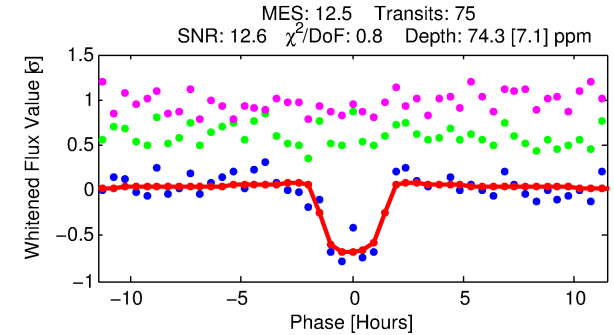
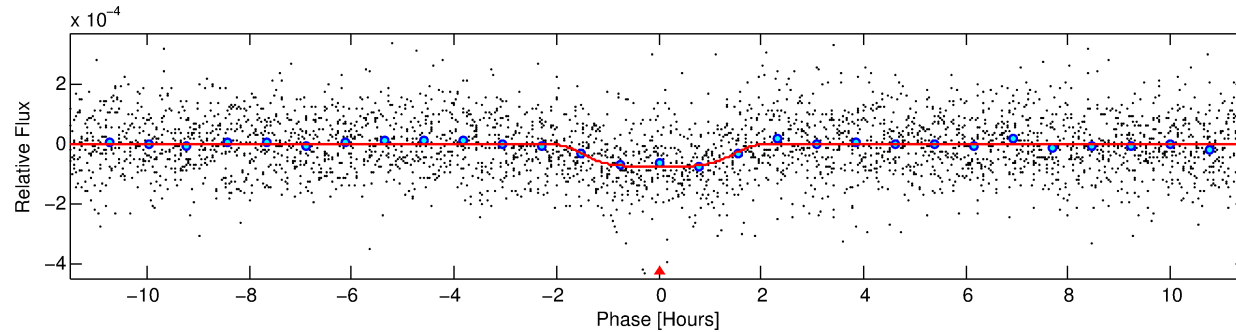
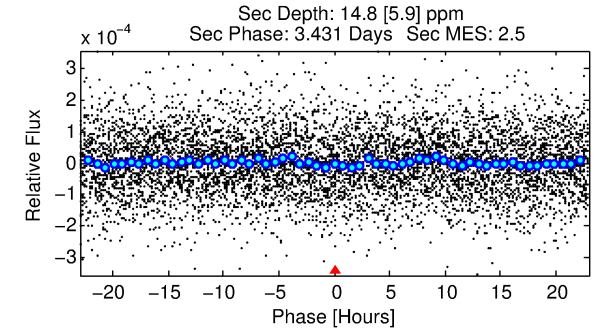
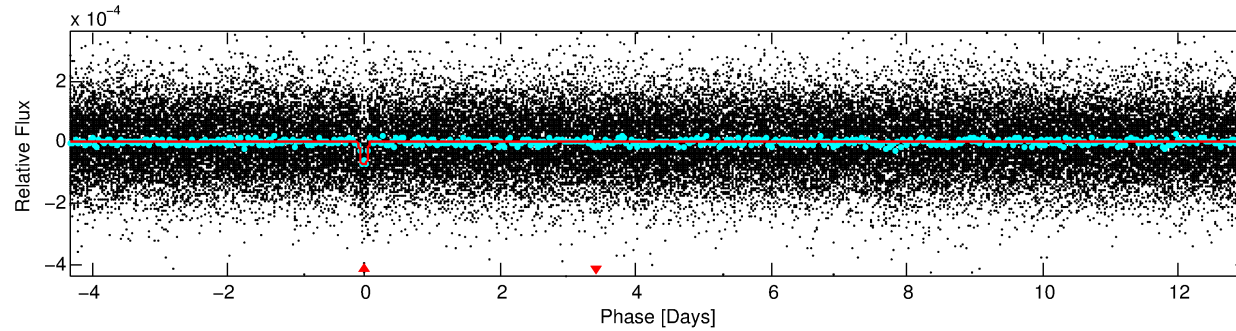
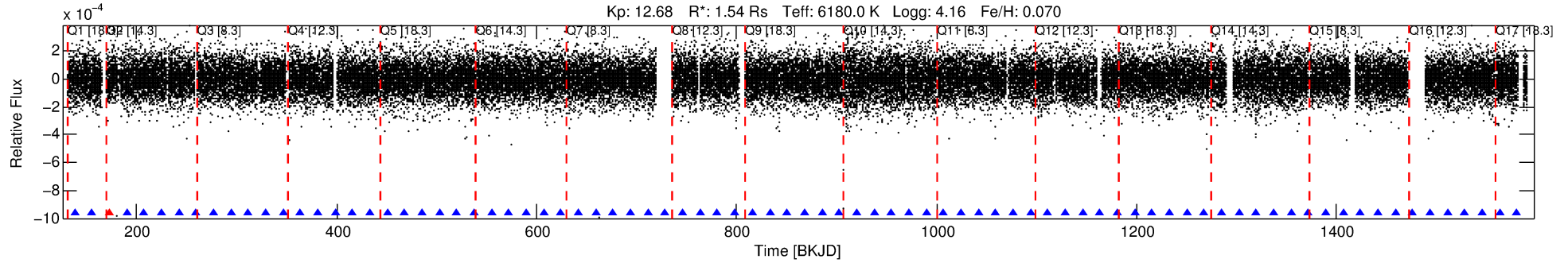
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009716028-01

No Significant Match Found

DV One-Page Summary

KIC: 9716028 Candidate: 1 of 1 Period: 17.373 d
KOI: K04273.01 Corr: 0.946



DV Fit Results:

Period = 17.37296 [0.00014] d
Epoch = 138.2983 [0.0064] BKJD
Rp/R* = 0.0108 [0.0008]
a/R* = 8.22 [1.87]
b = 0.98 [0.01]
Seff = 156.09 [45.63]
Teff = 901 [66] K
Rp = 1.81 [0.36] Re
a = 0.1409 [0.0249] AU
Ag = 49.35 [24.97] [1.94σ]
Teffp = 3693 [398] K [6.92σ]

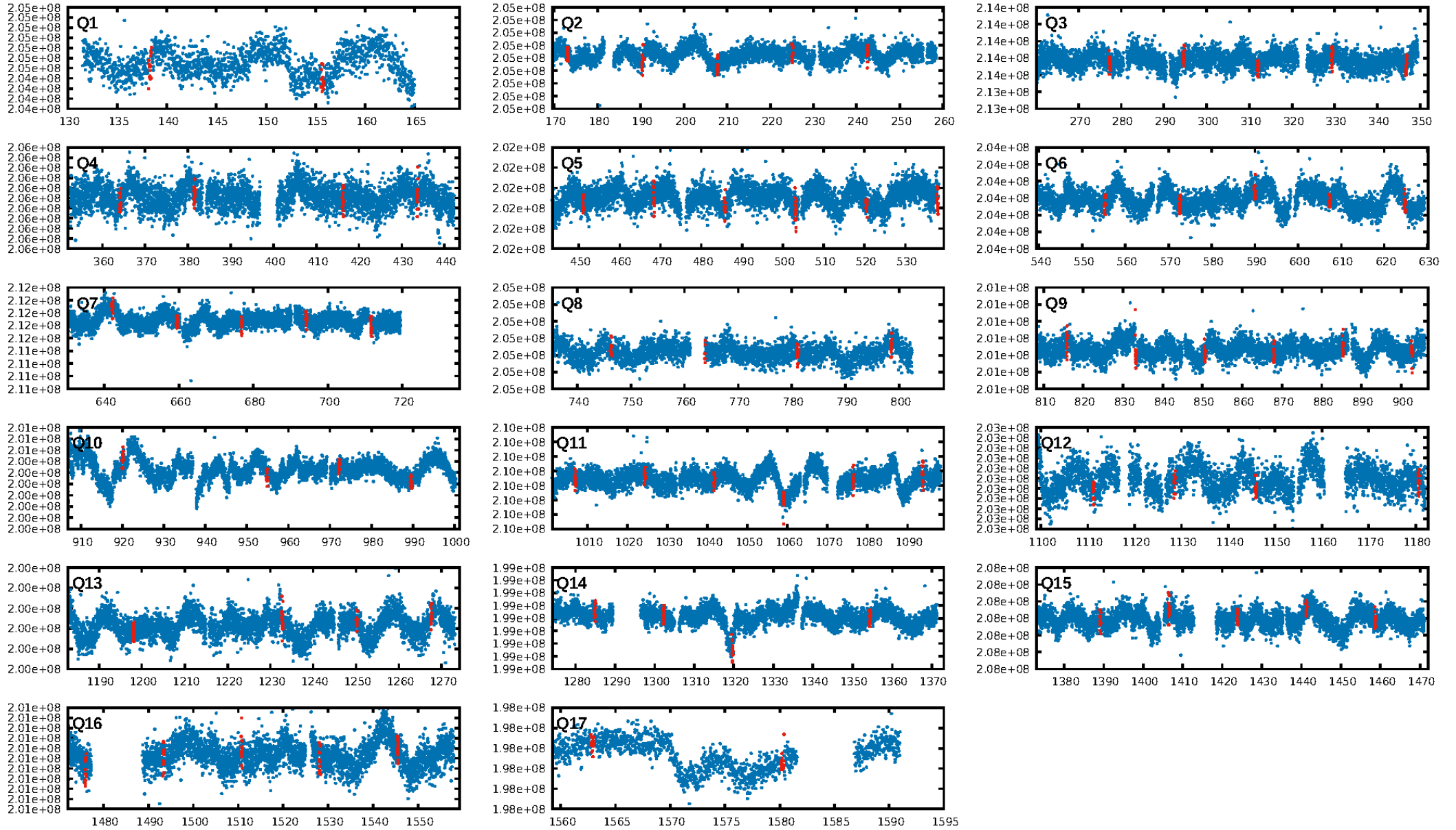
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 94.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.80e-35
RollingBand-fgt: 0.99 [70/71]
GhostDiagnostic-chr: 3.007
Centroid-sig: 62.6%
Centroid-so: 0.246 arcsec [0.30σ]
OotOffset-rm: 0.160 arcsec [0.37σ]
KicOffset-rm: 0.202 arcsec [0.42σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.87 [13/15]
DiffImageOverlap-fno: 1.00 [17/17]

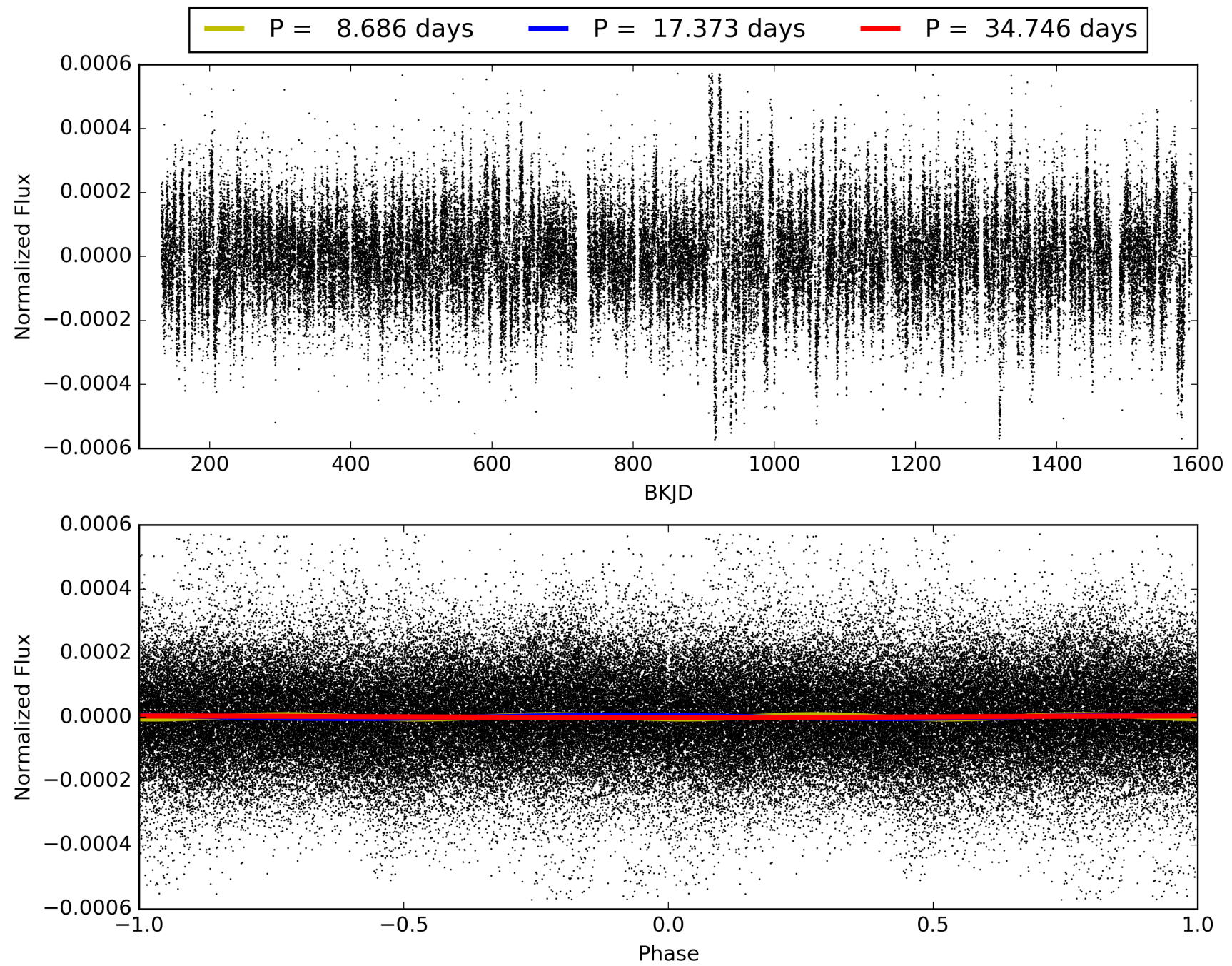
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:31:38 Z

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

TCE 009716028-01, PDC Light Curves

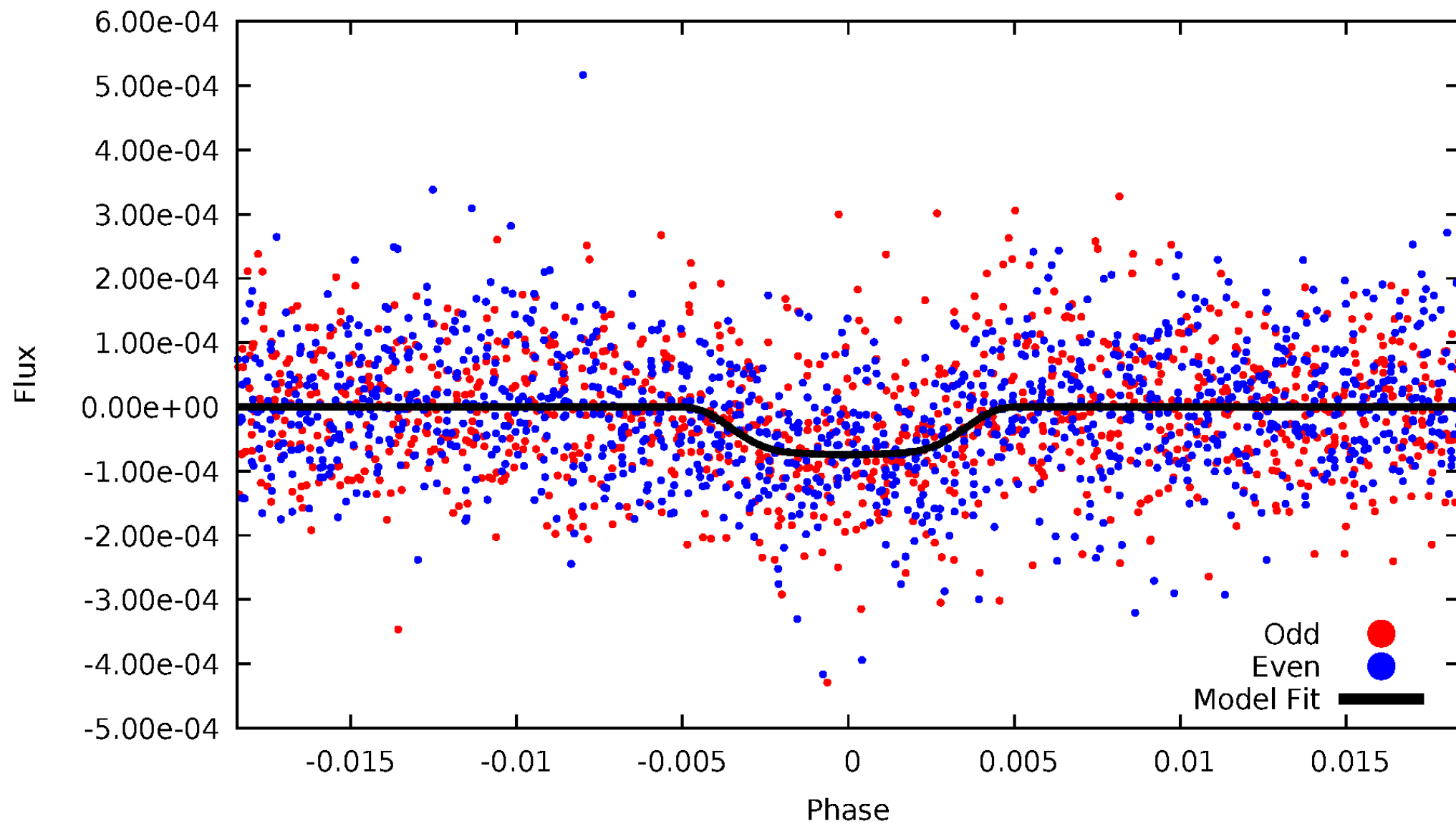


TCE 009716028-01



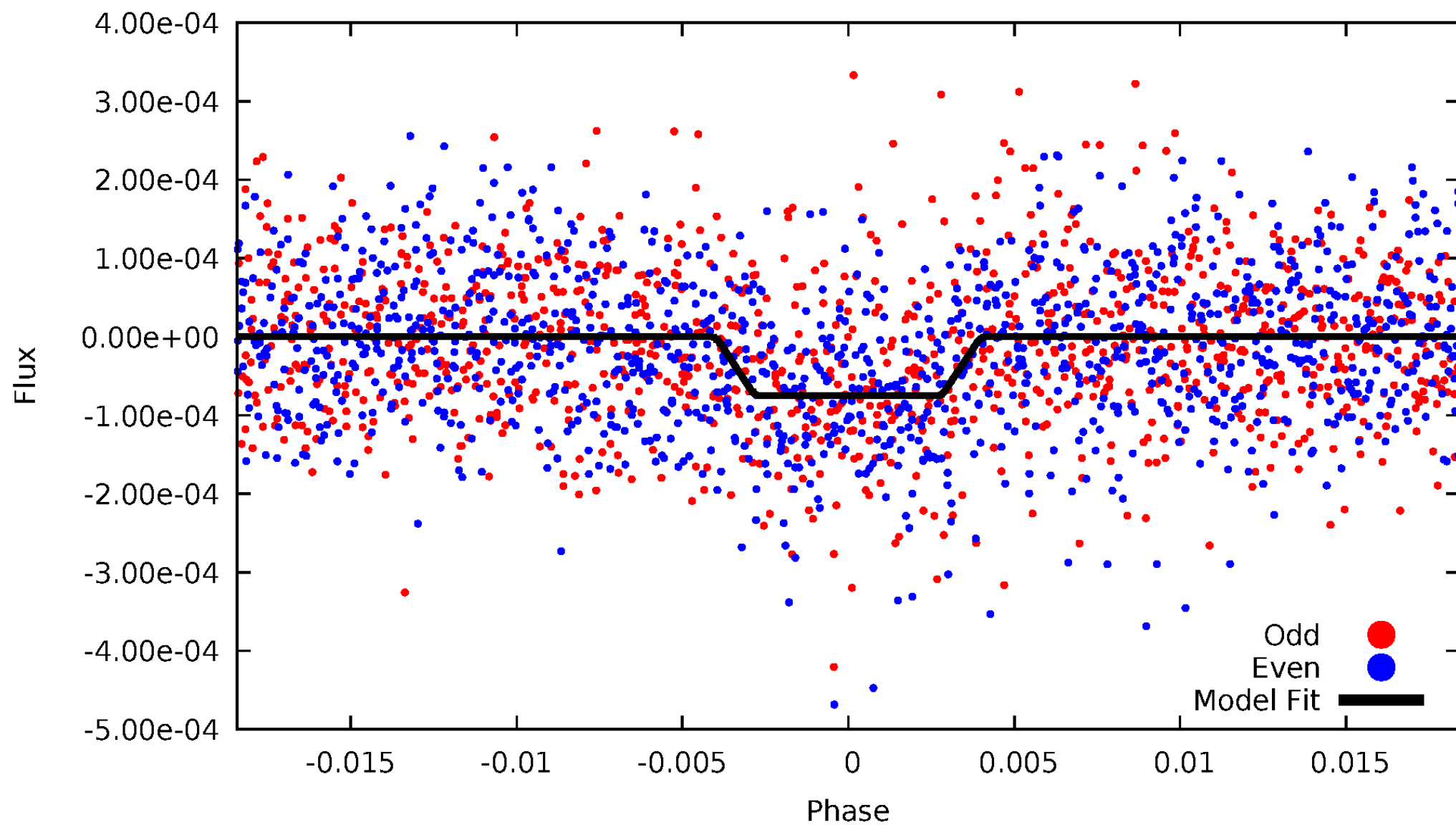
DV Odd/Even

TCE 009716028-01



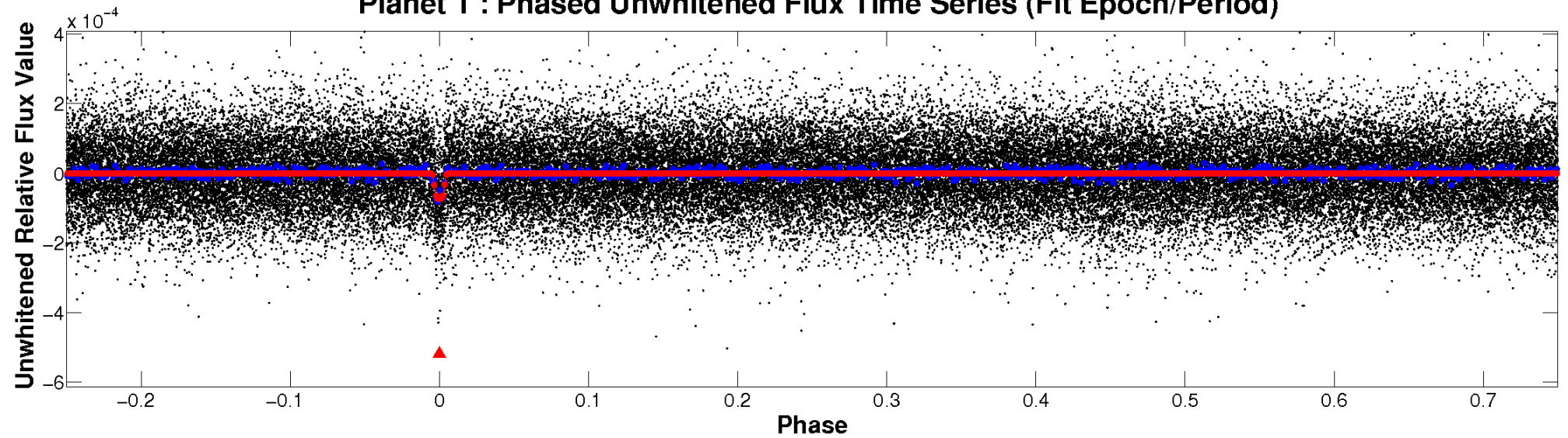
ALT Odd/Even

TCE 009716028-01

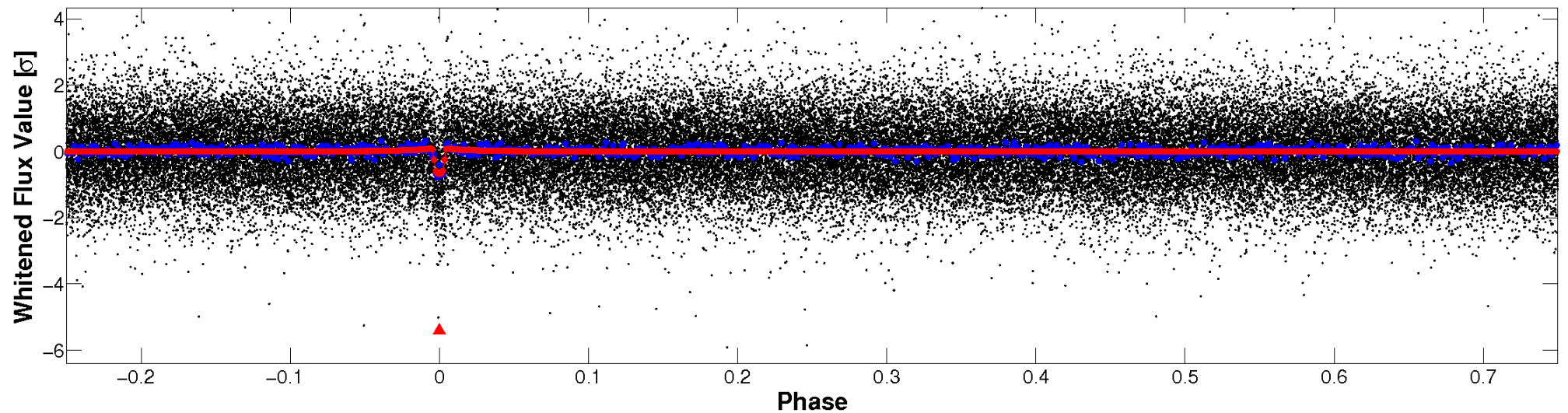


Non-Whitened Vs. Whitened Light Curve

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

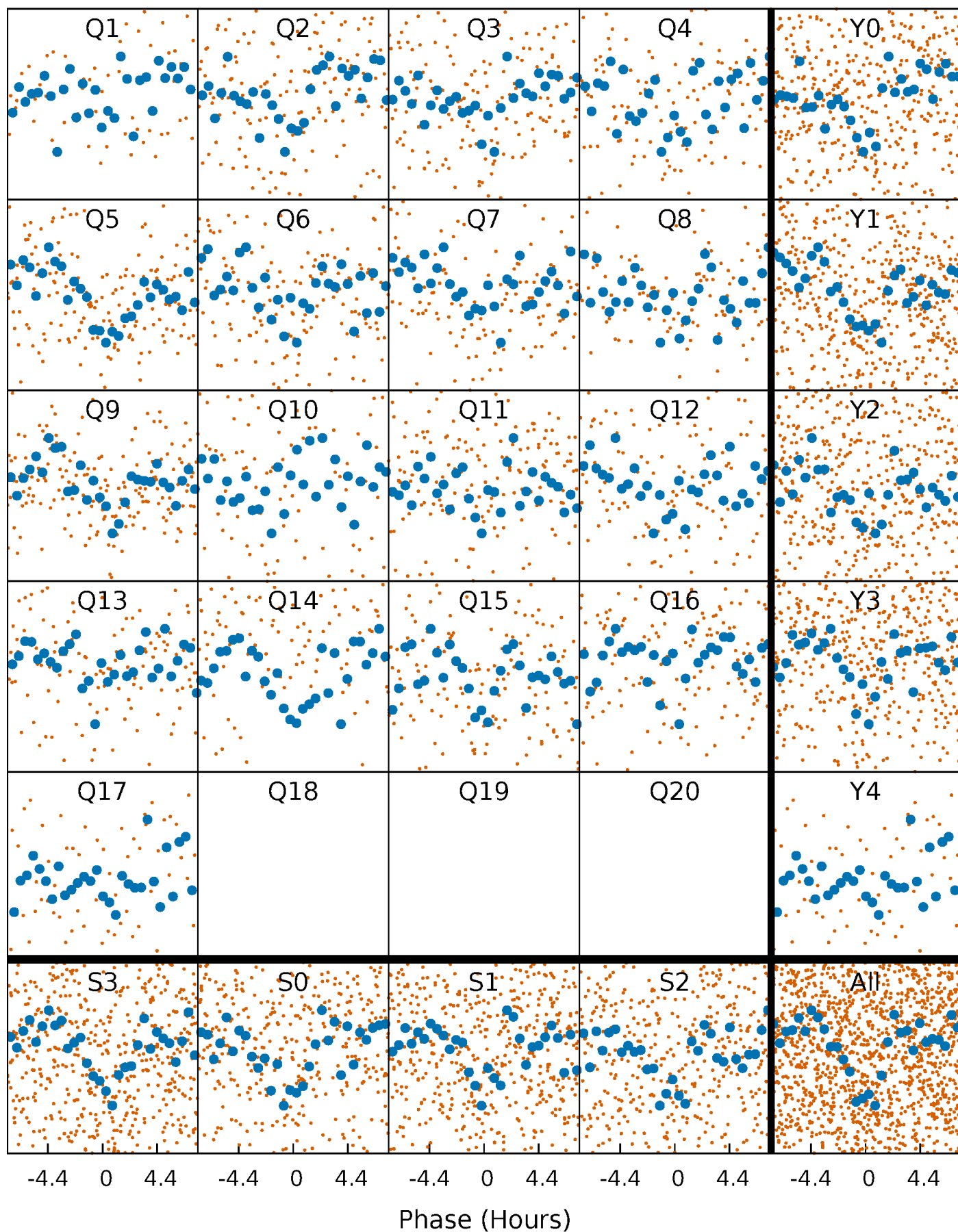


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



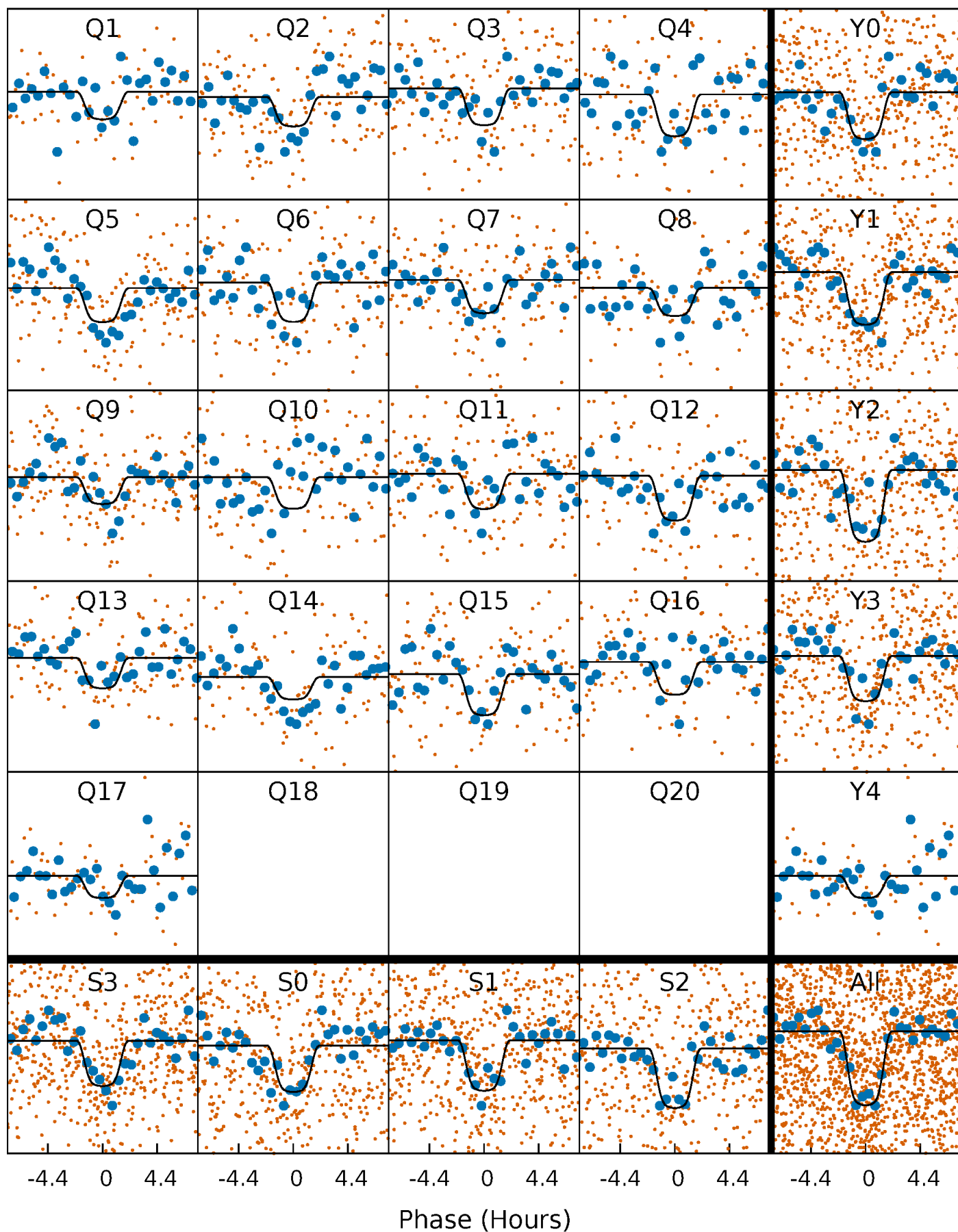
PDC Quarter-Phased Transit Curves

TCE 009716028-01 P= 17.372958 Days $T_0=138.298290$ (BKJD)



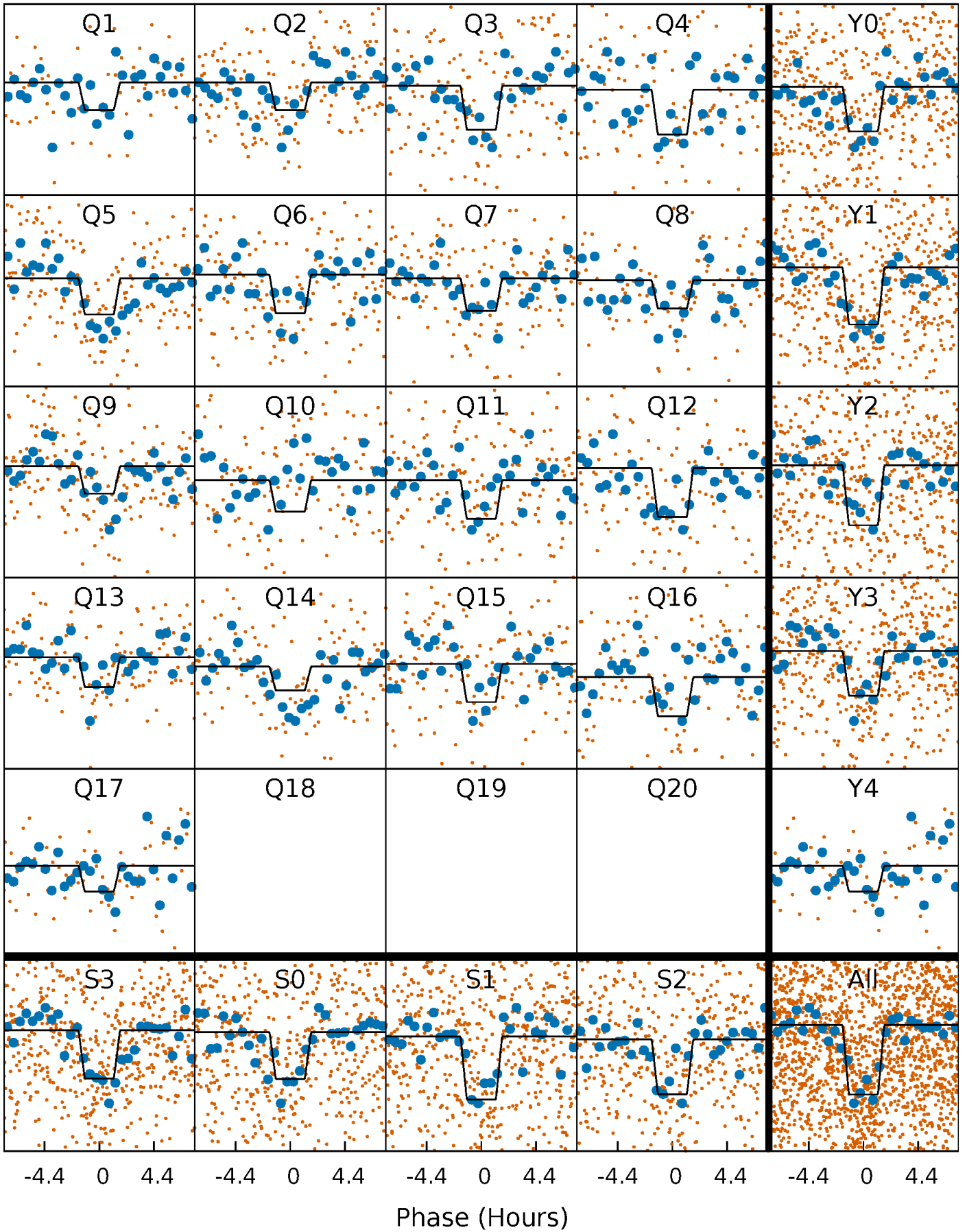
DV Quarter-Phased Transit Curves

TCE 009716028-01 P= 17.372958 Days $T_0=138.298290$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

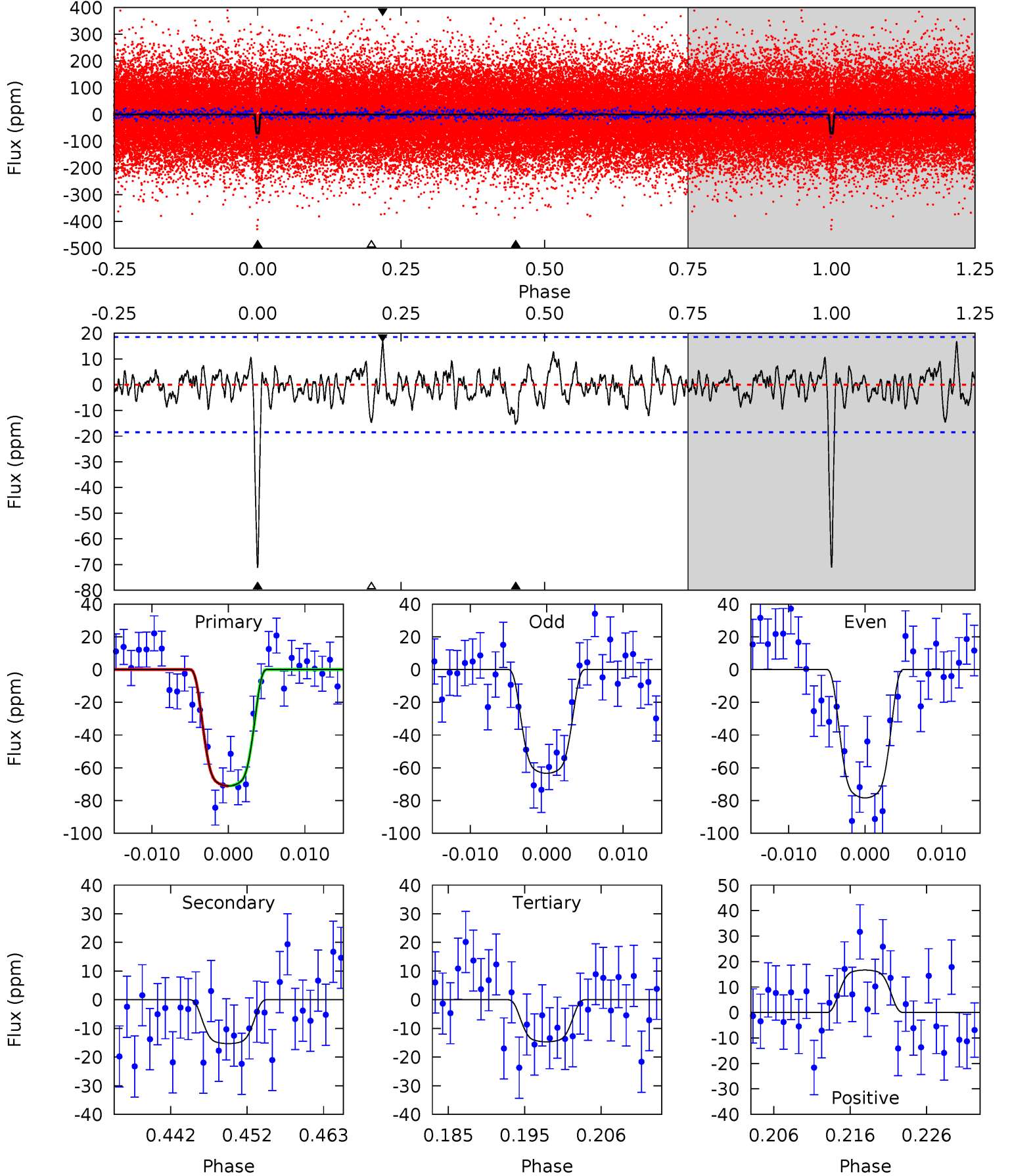
TCE 009716028-01 P= 17.372791 Days $T_0=138.303653$ (BKJD)



DV Model-Shift Uniqueness Test

009716028-01, P = 17.372958 Days, E = 120.925332 Days

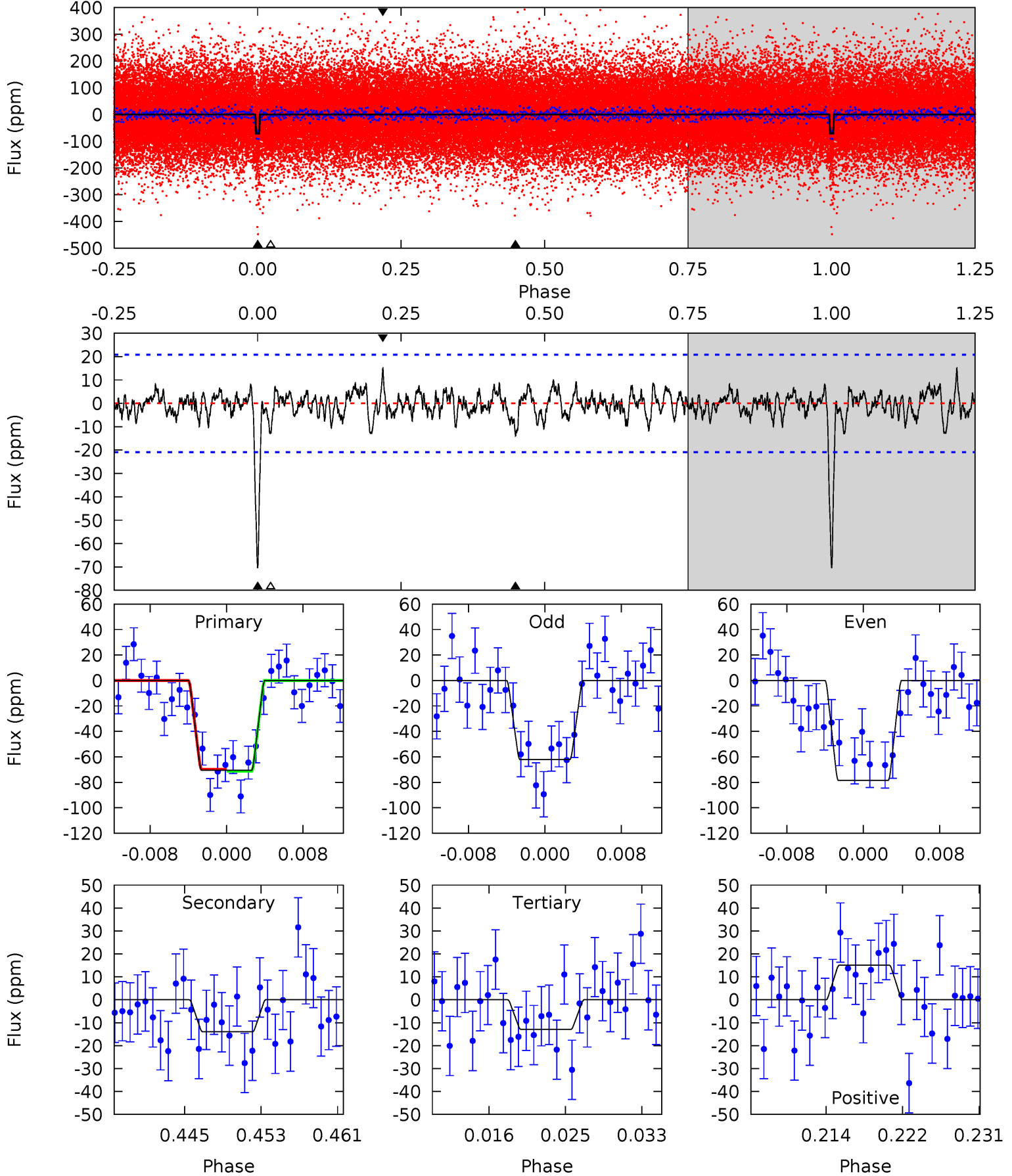
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	4.15	3.98	4.52	5.02	2.57	1.21	15.3	14.8	0.17	-0.37	2.04	1.00	0.19	0.01



Alt Model-Shift Uniqueness Test

009716028-01, $P = 17.372791$ Days, $E = 120.930862$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	3.39	3.14	3.66	5.06	2.64	1.03	14.0	13.4	0.25	-0.27	1.98	0.98	0.18	0.18



Stellar Parameters For KIC 009716028

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6180^{+111}_{-136}	$4.155^{+0.162}_{-0.122}$	$0.070^{+0.150}_{-0.150}$	$1.540^{+0.291}_{-0.291}$	$1.237^{+0.107}_{-0.131}$	$0.477^{+0.357}_{-0.175}$
	+2%/-2%	+4%/-3%	+214%/-214%	+19%/-19%	+9%/-11%	+75%/-37%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 009716028-01 / KOI 4273.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-15 ± 4	$1.80^{+0.22}_{-0.22}$	1255^{+60}_{-70}	4004^{+230}_{-201}	51^{+21}_{-15}
Alt.	-14 ± 4	$1.44^{+0.24}_{-0.20}$	1255^{+70}_{-67}	4272^{+265}_{-273}	72^{+31}_{-25}

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 $A_{obs} \gg 1.0$

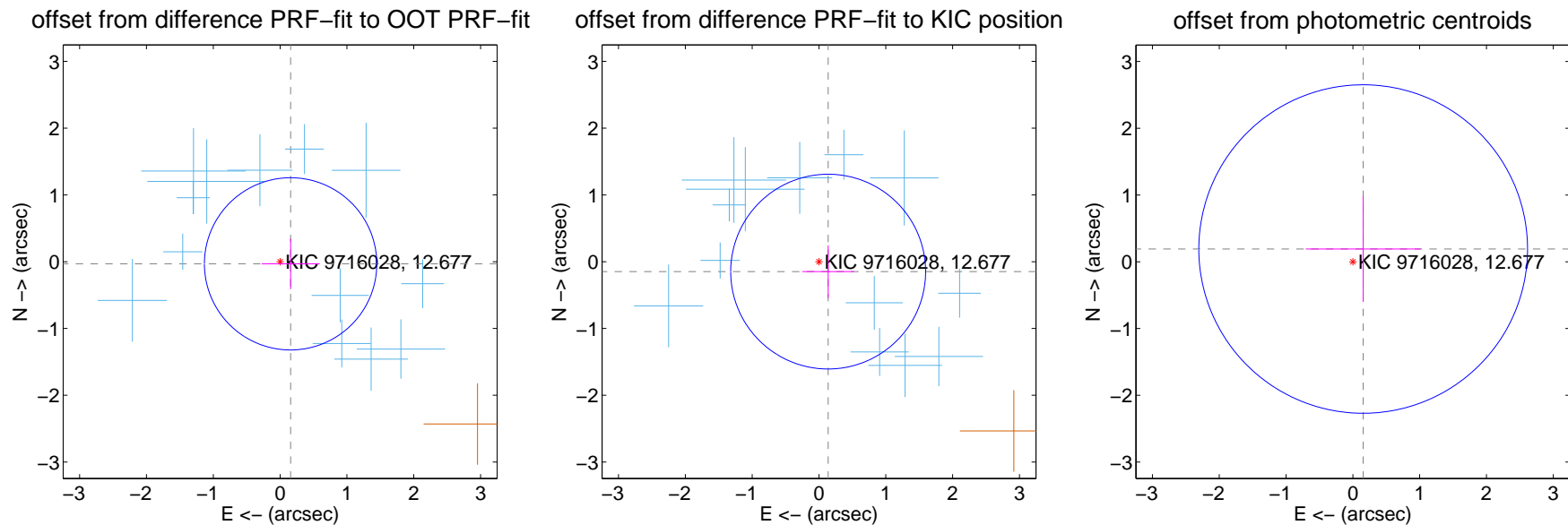
DV Centroid Data

Supplemental centroid analysis for 009716028-01. Kepler magnitude: 12.68. Transit SNR 12.56

There are 13 quarters with good PRF difference image offsets

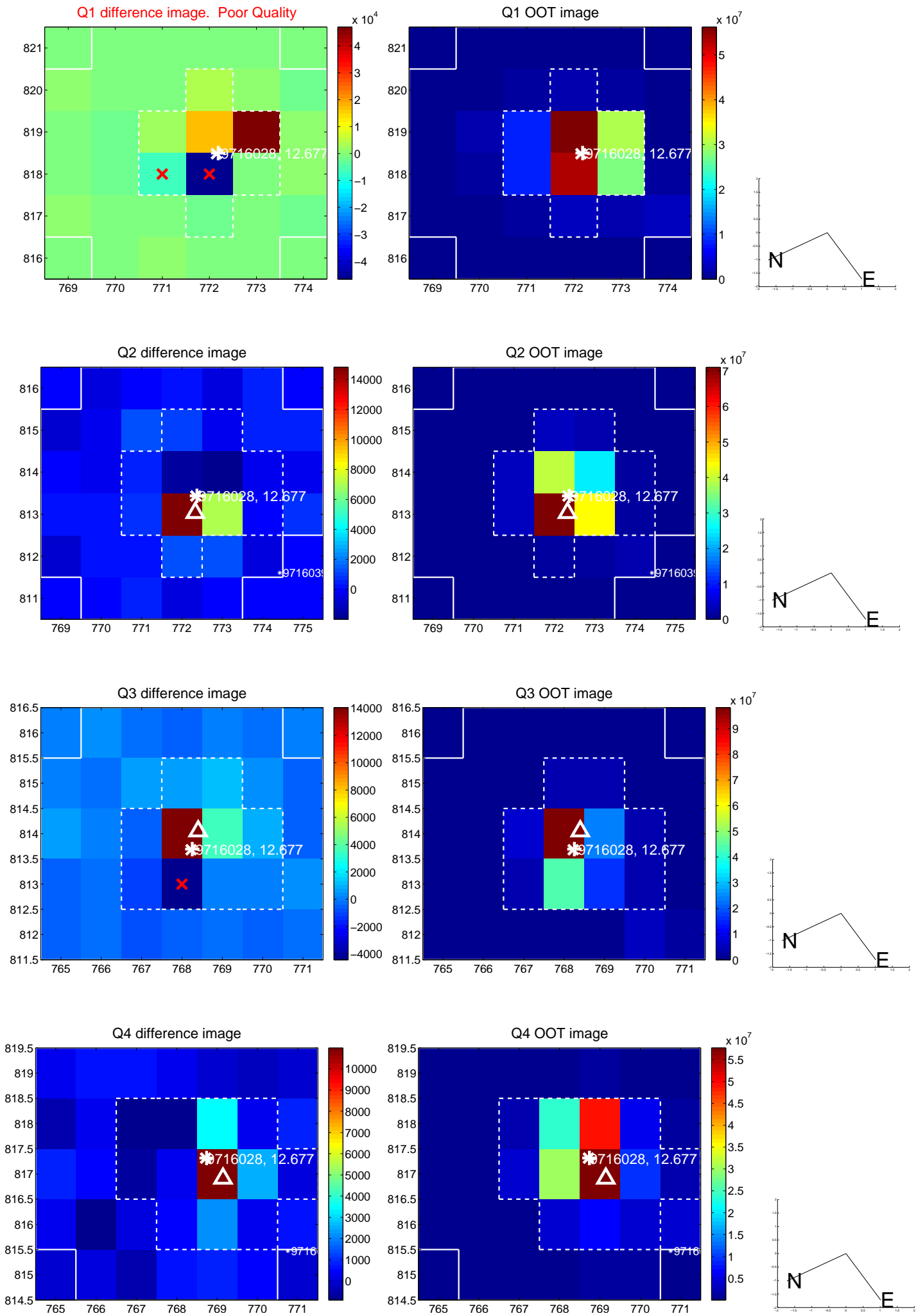
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.160 ± 0.430	0.37	-0.157 ± 0.432	-0.032 ± 0.379
PRF-fit source offset from KIC position	0.202 ± 0.486	0.42	-0.137 ± 0.387	-0.149 ± 0.393
photometric centroid source offset	0.25 ± 0.82	0.30	-0.15 ± 0.86	0.19 ± 0.79

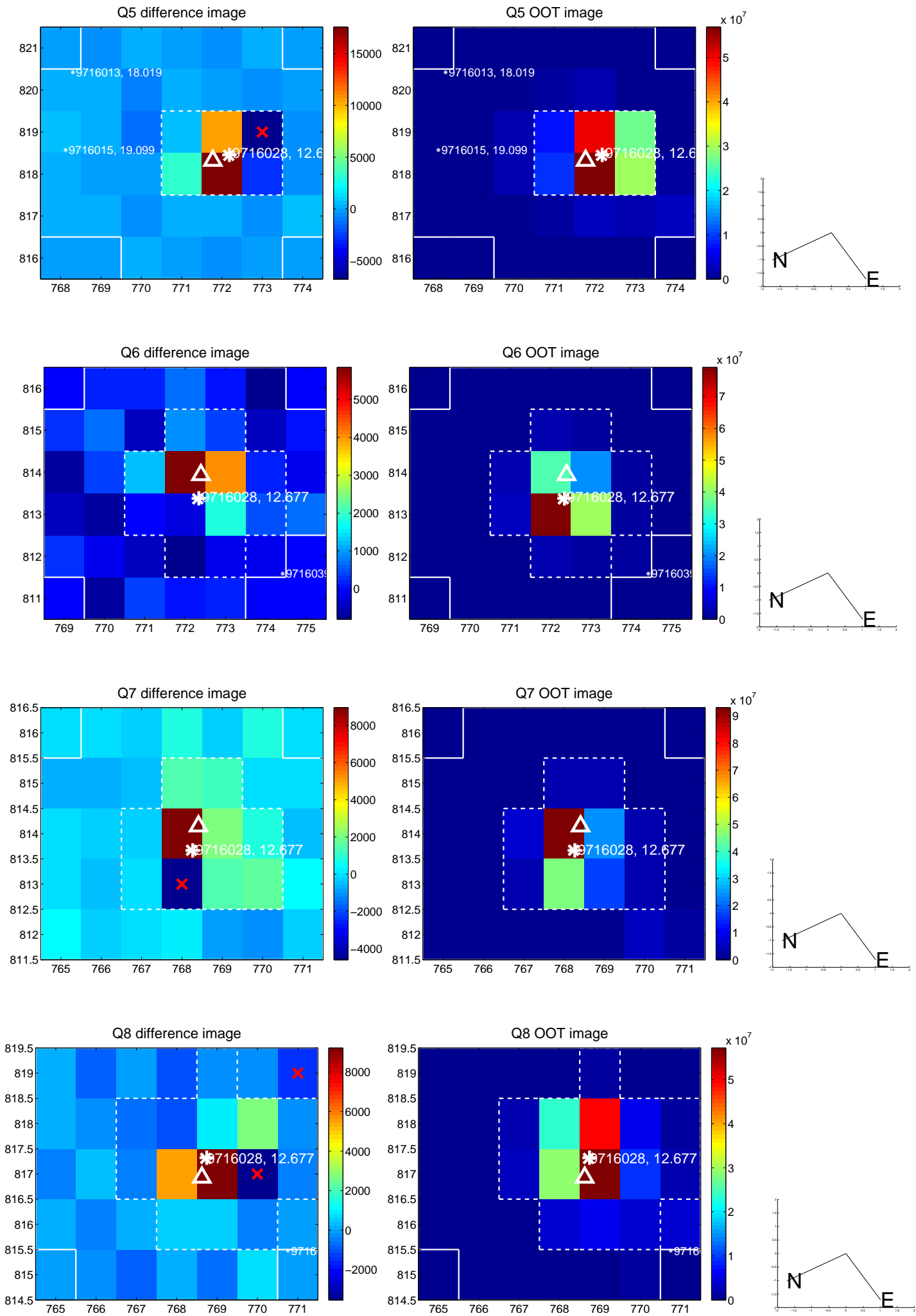


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

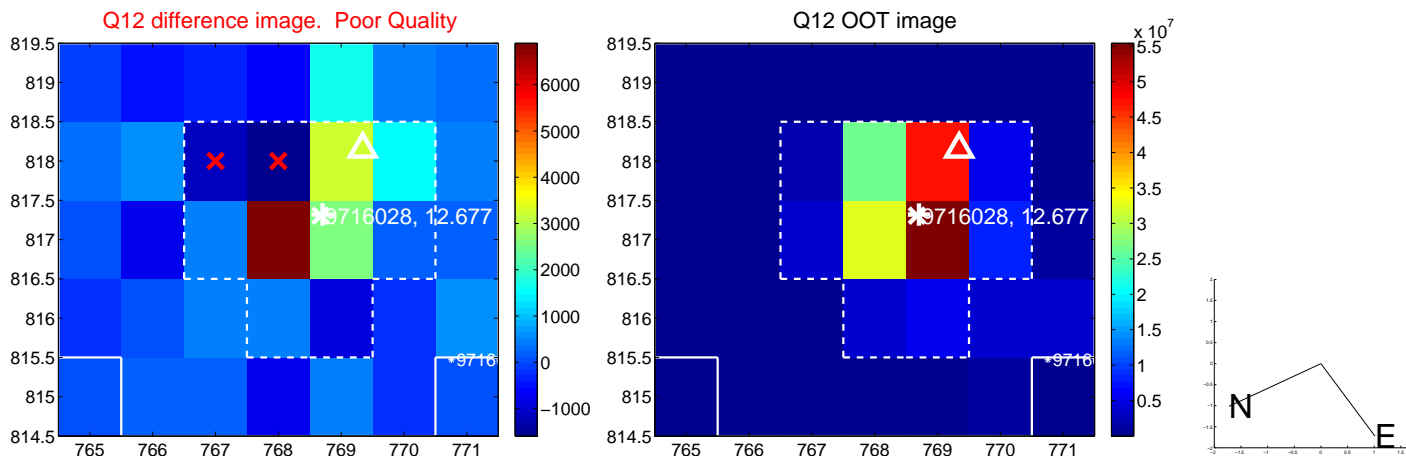
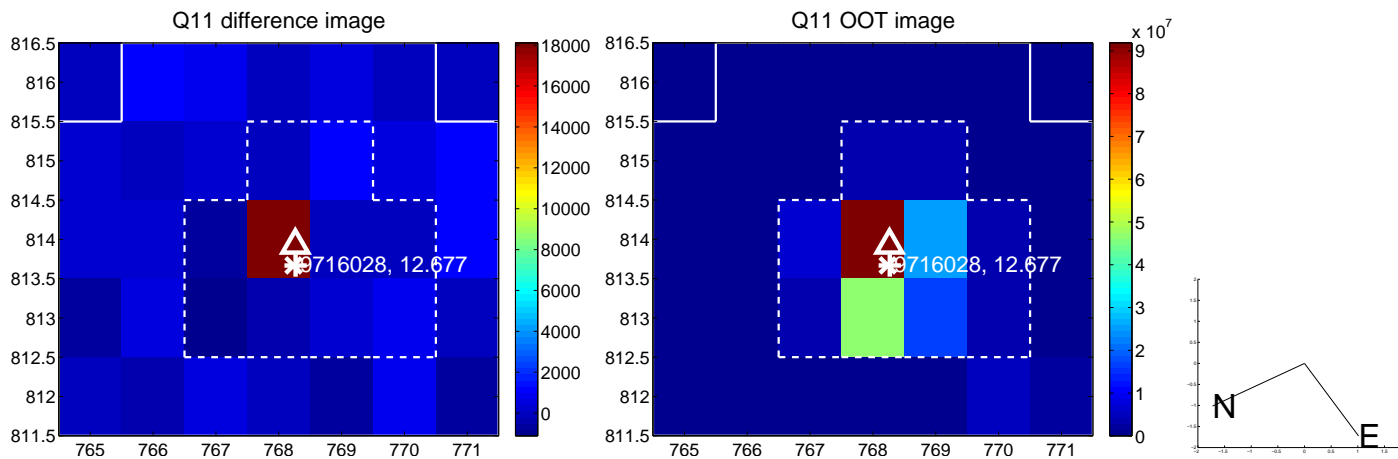
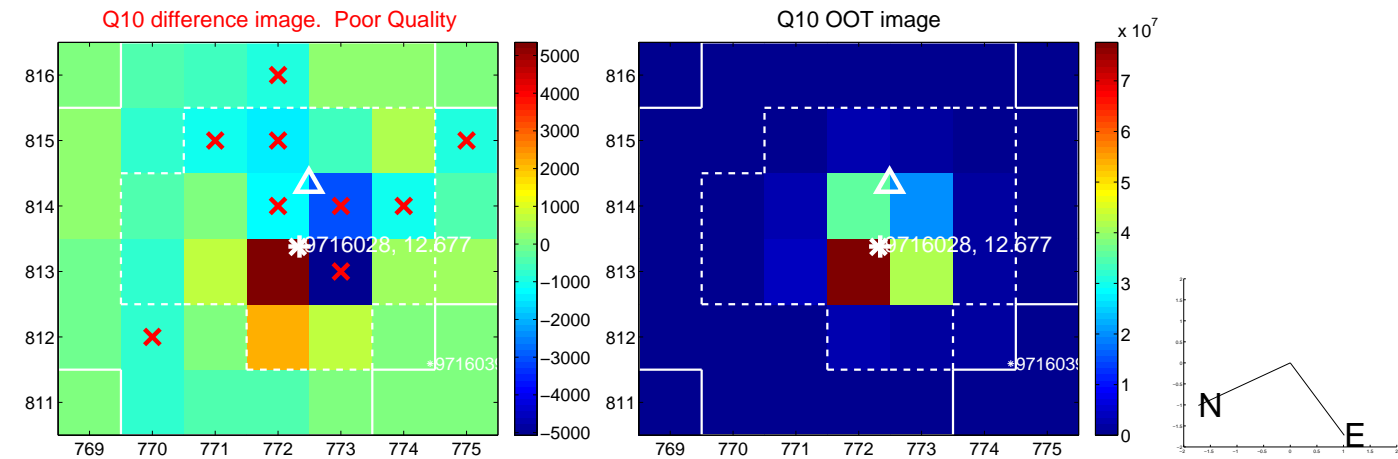
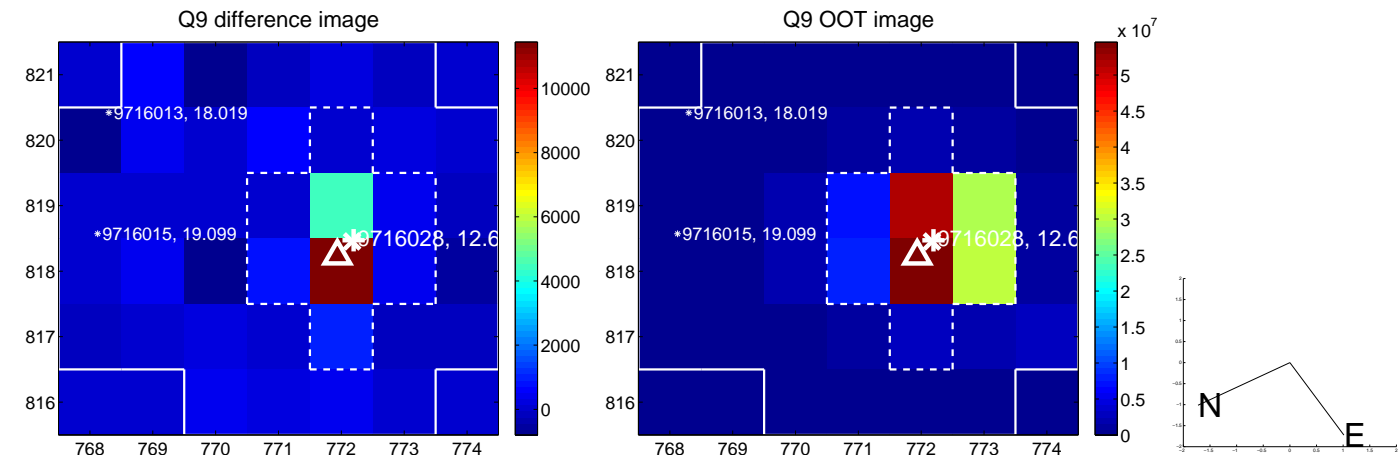
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



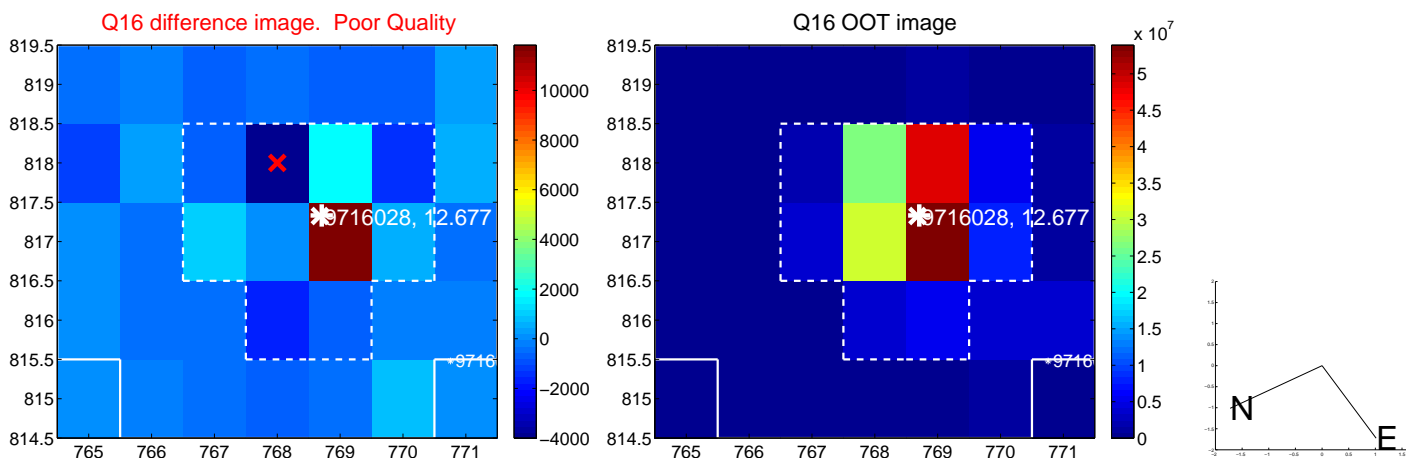
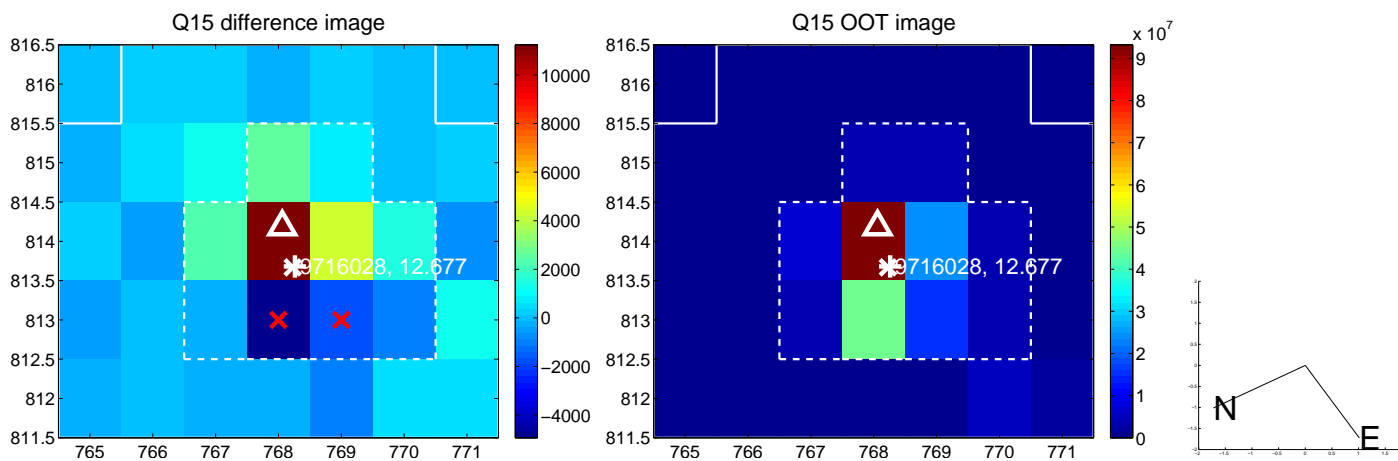
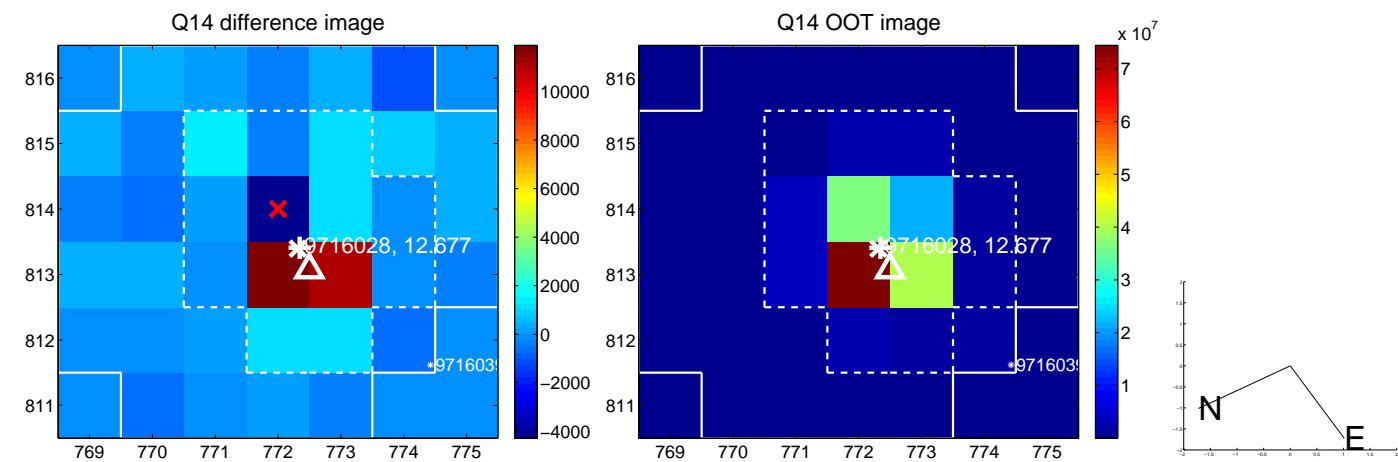
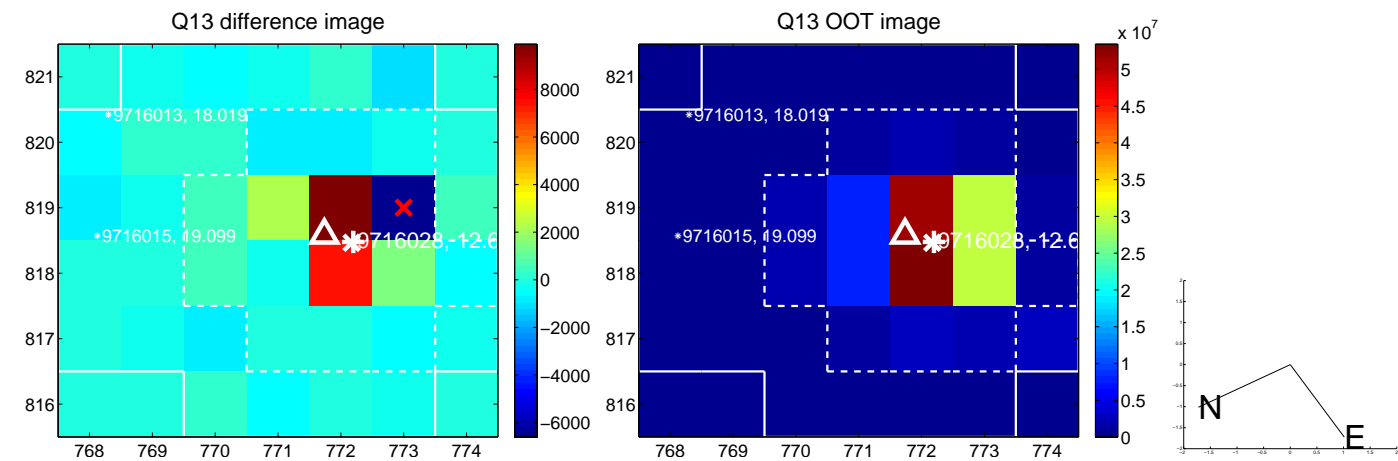
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



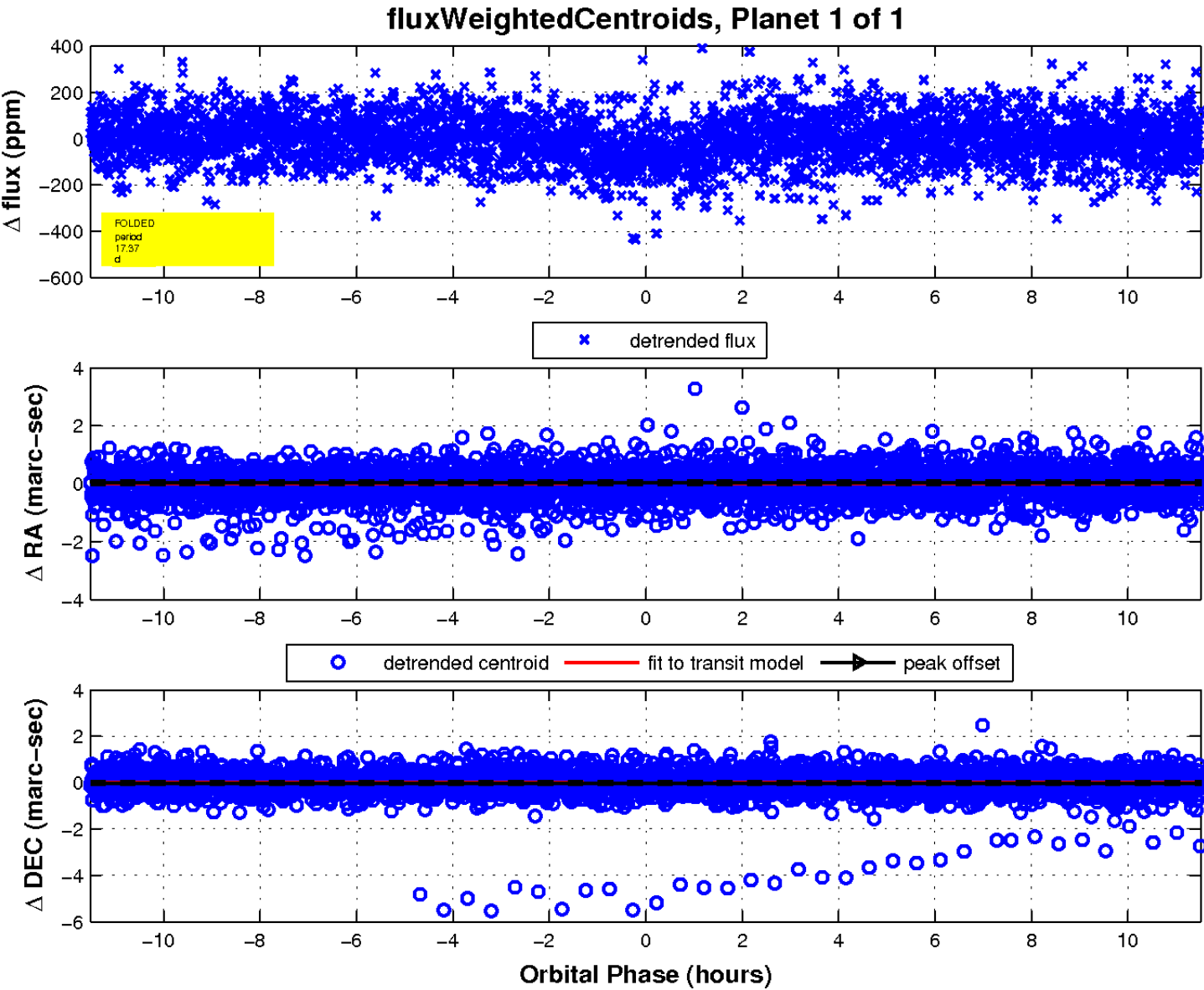
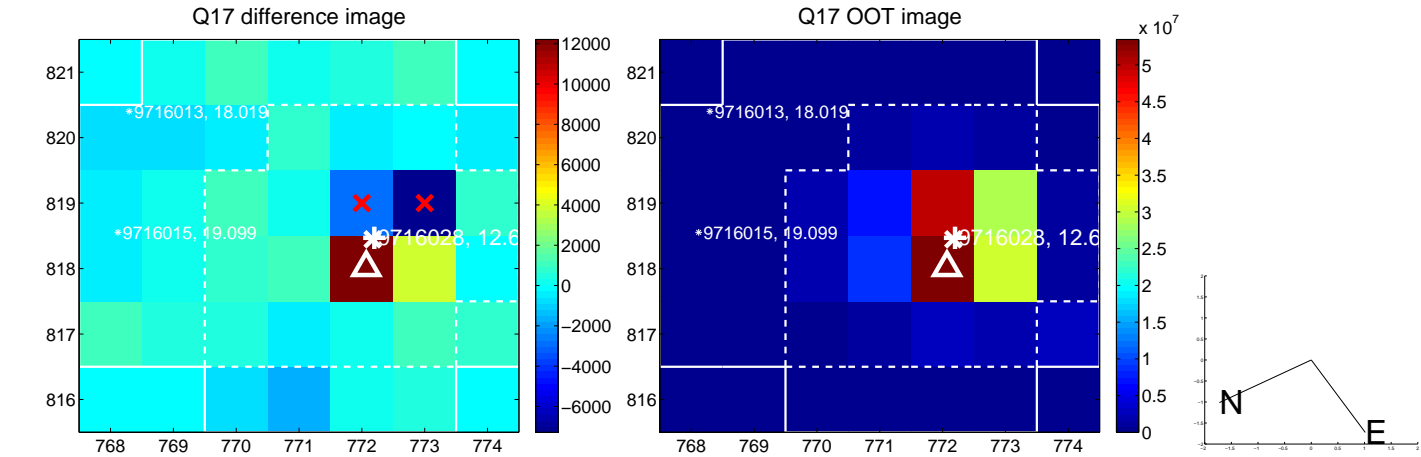
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UKIRT Image

Declination

