

KIC 009286728

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})
009286728-01	OBS	7154.01	3.044566	132.501213	40.5	7.415	9.5	10.0	0.75	5525	0.56	317.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009286728-01	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH

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.

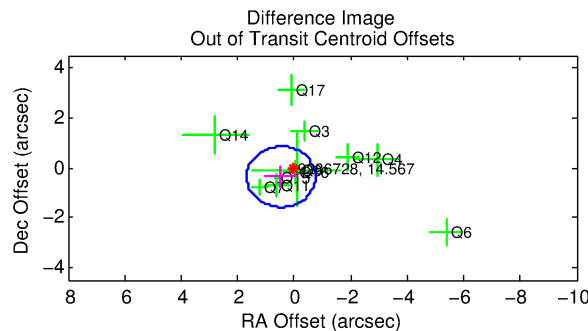
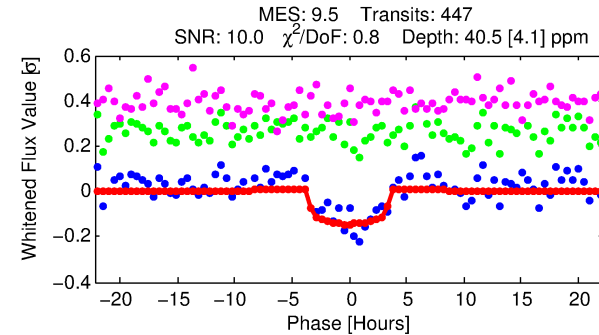
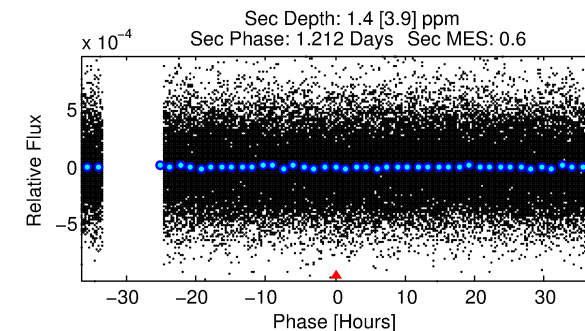
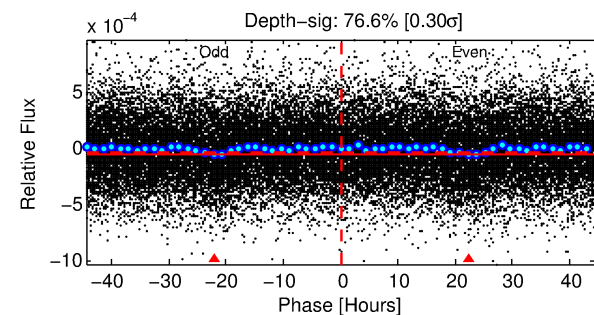
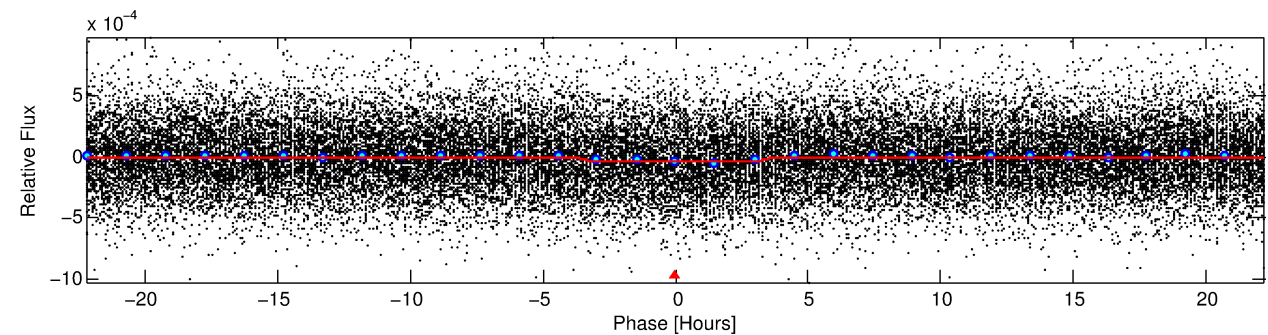
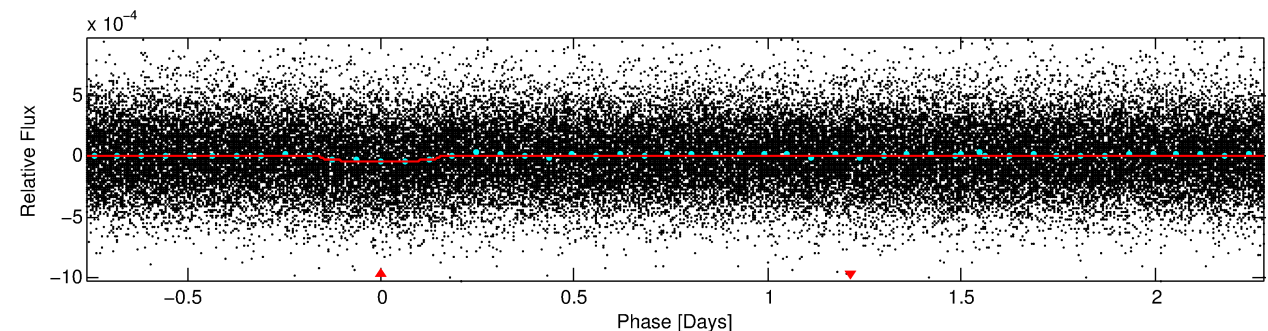
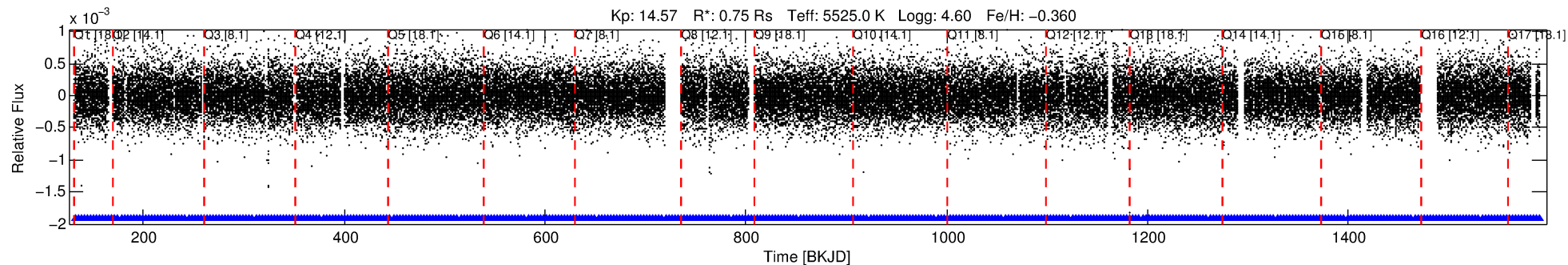
Ephemeris Match Information For 009286728-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009286728-01	9286728	009159301-pri	9159301	1:1	1349.3	339	-1	12.15	14.57	11922.00	Col-Anomaly	0	4.06	3.15

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 9286728 Candidate: 1 of 1 Period: 3.045 d
KOI: K07154.01 Corr: 0.950



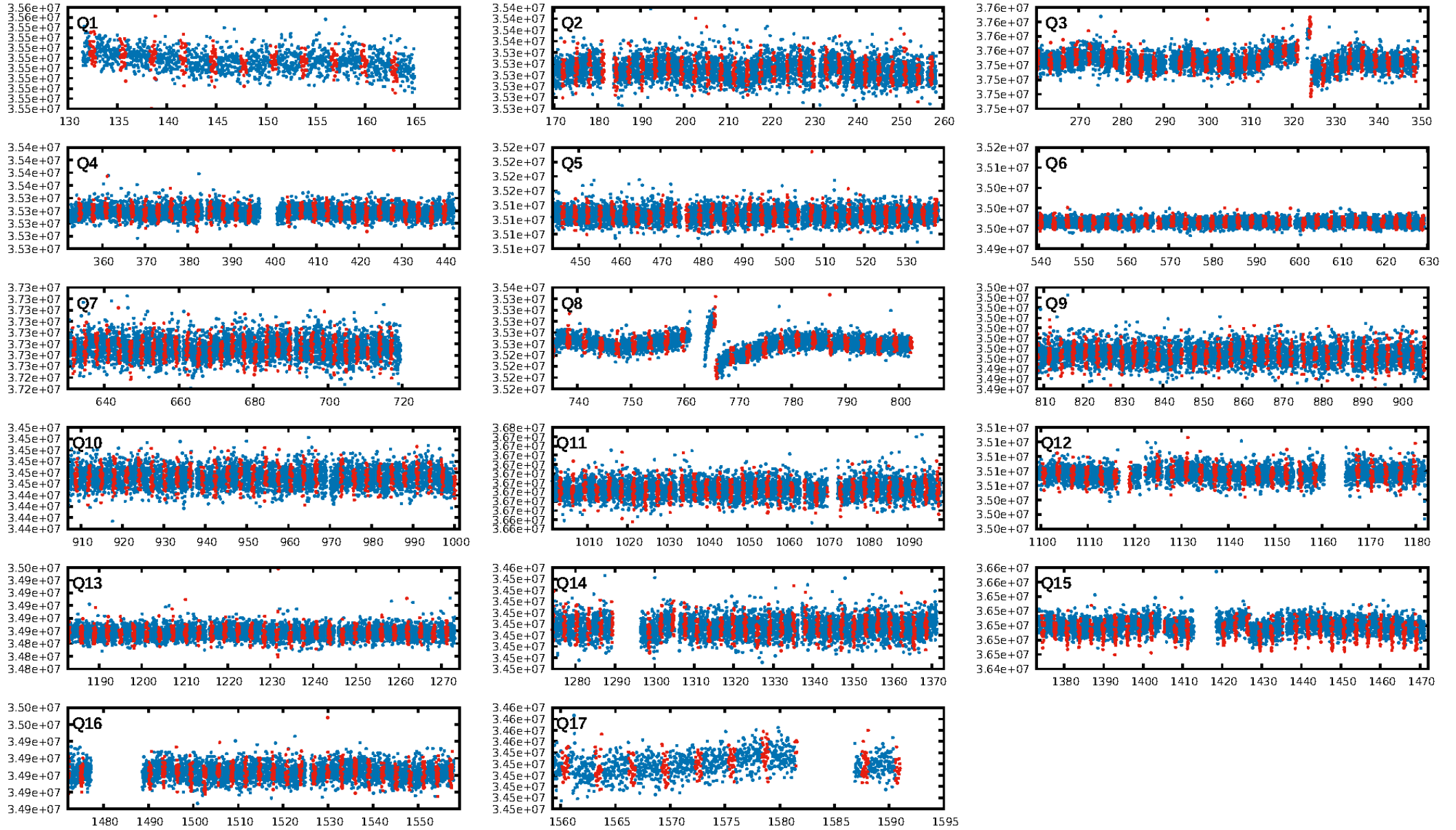
DV Fit Results:

Period = 3.04457 [0.00004] d
Epoch = 132.5012 [0.0085] BKJD
Rp/R* = 0.0068 [0.0029]
a/R* = 1.79 [2.43]
b = 0.88 [0.51]
Seff = 317.24 [80.12]
Teff = 1076 [68] K
Rp = 0.56 [0.26] Re
a = 0.0386 [0.0060] AU
Ag = 3.63 [10.78] [0.24 σ]
Teffp = 2297 [1702] K [0.72 σ]

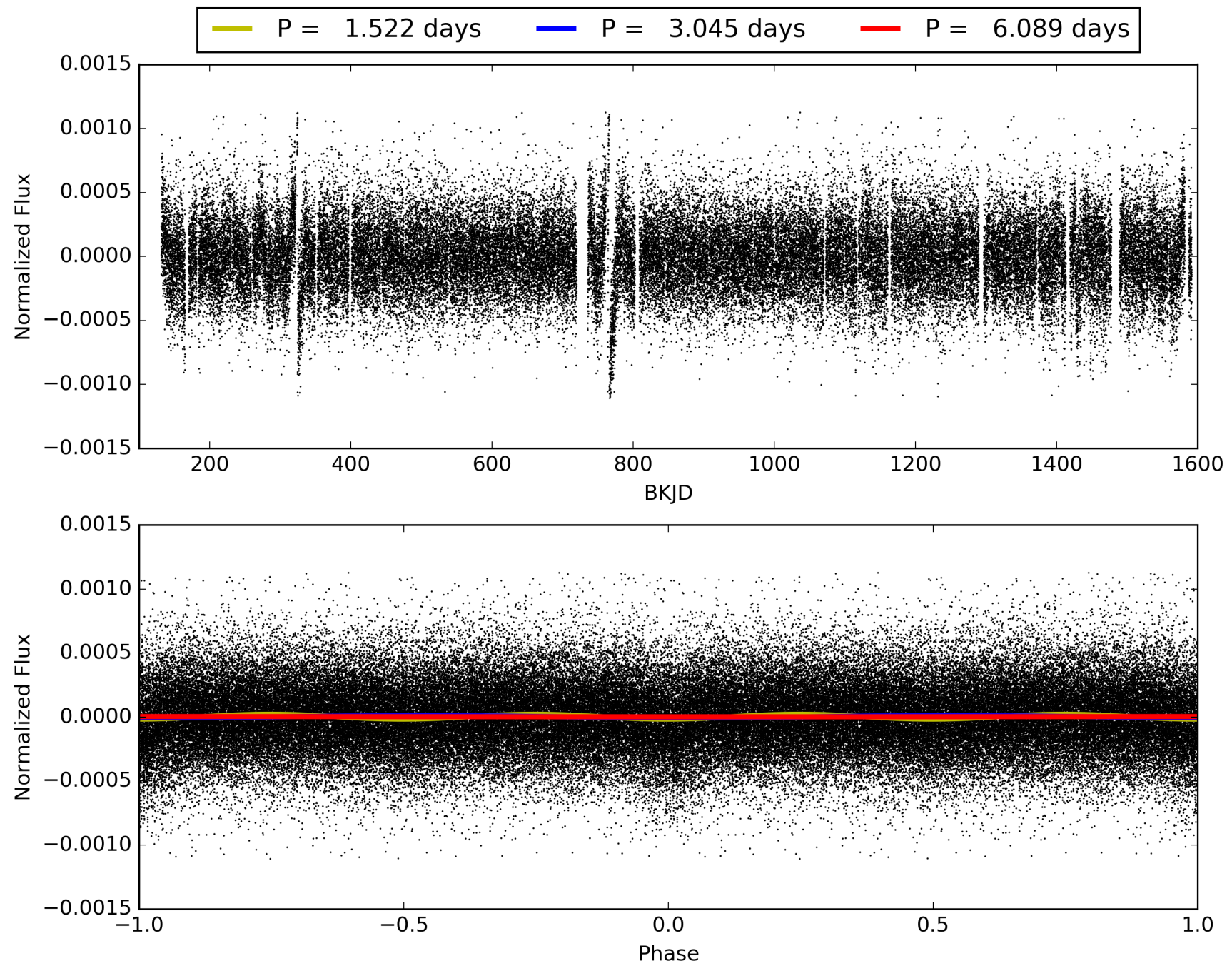
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.92e-22
RollingBand-fgt: 1.00 [426/426]
GhostDiagnostic-chr: 2.814
Centroid-sig: 11.3%
Centroid-so: 1.630 arcsec [1.18 σ]
OotOffset-rm: 0.594 arcsec [1.47 σ]
KicOffset-rm: 0.529 arcsec [1.05 σ]
OotOffset-st: 2/4/3/2 [11]
KicOffset-st: 2/4/3/2 [11]
DiffImageQuality-fgm: 0.73 [8/11]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009286728-01, PDC Light Curves

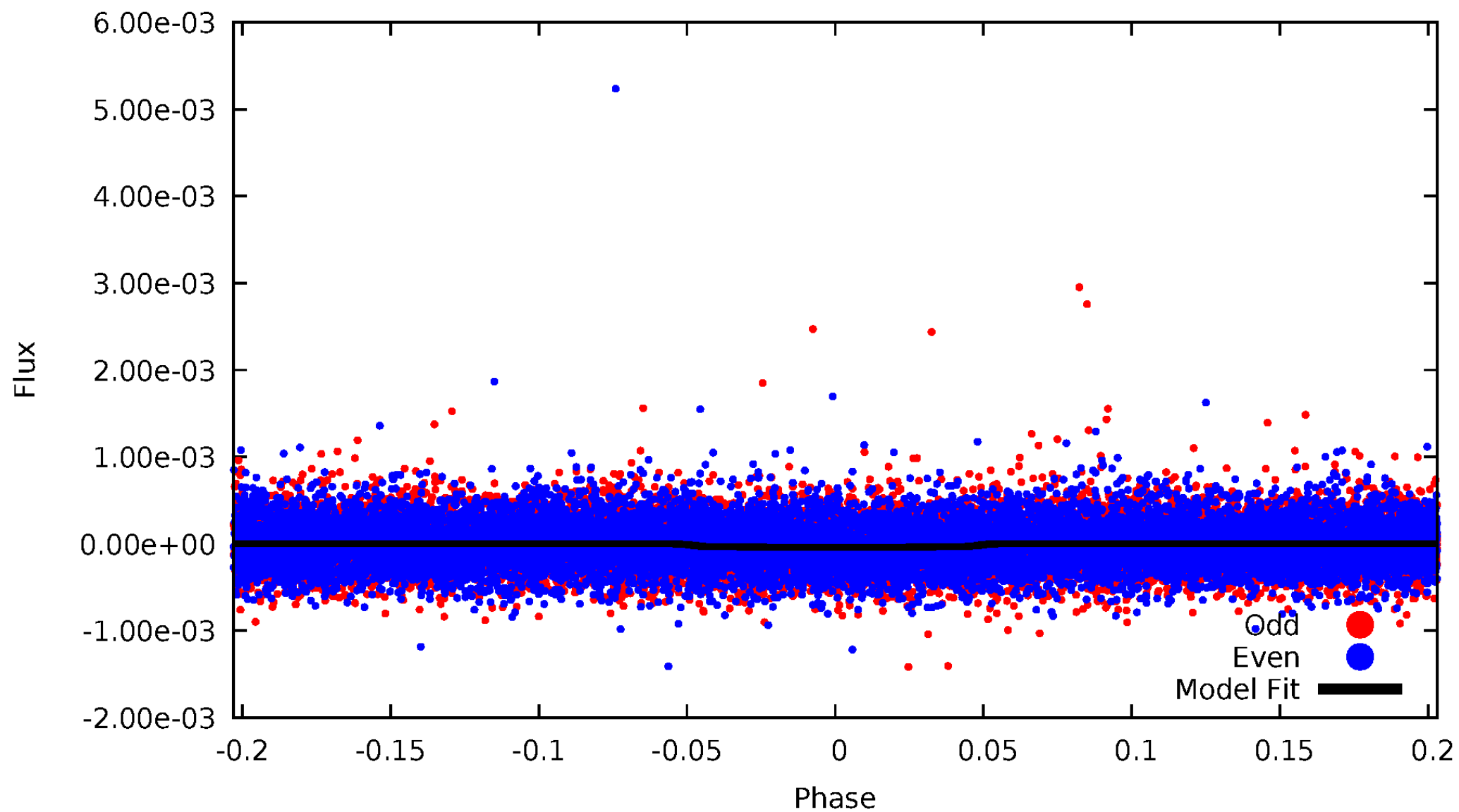


TCE 009286728-01



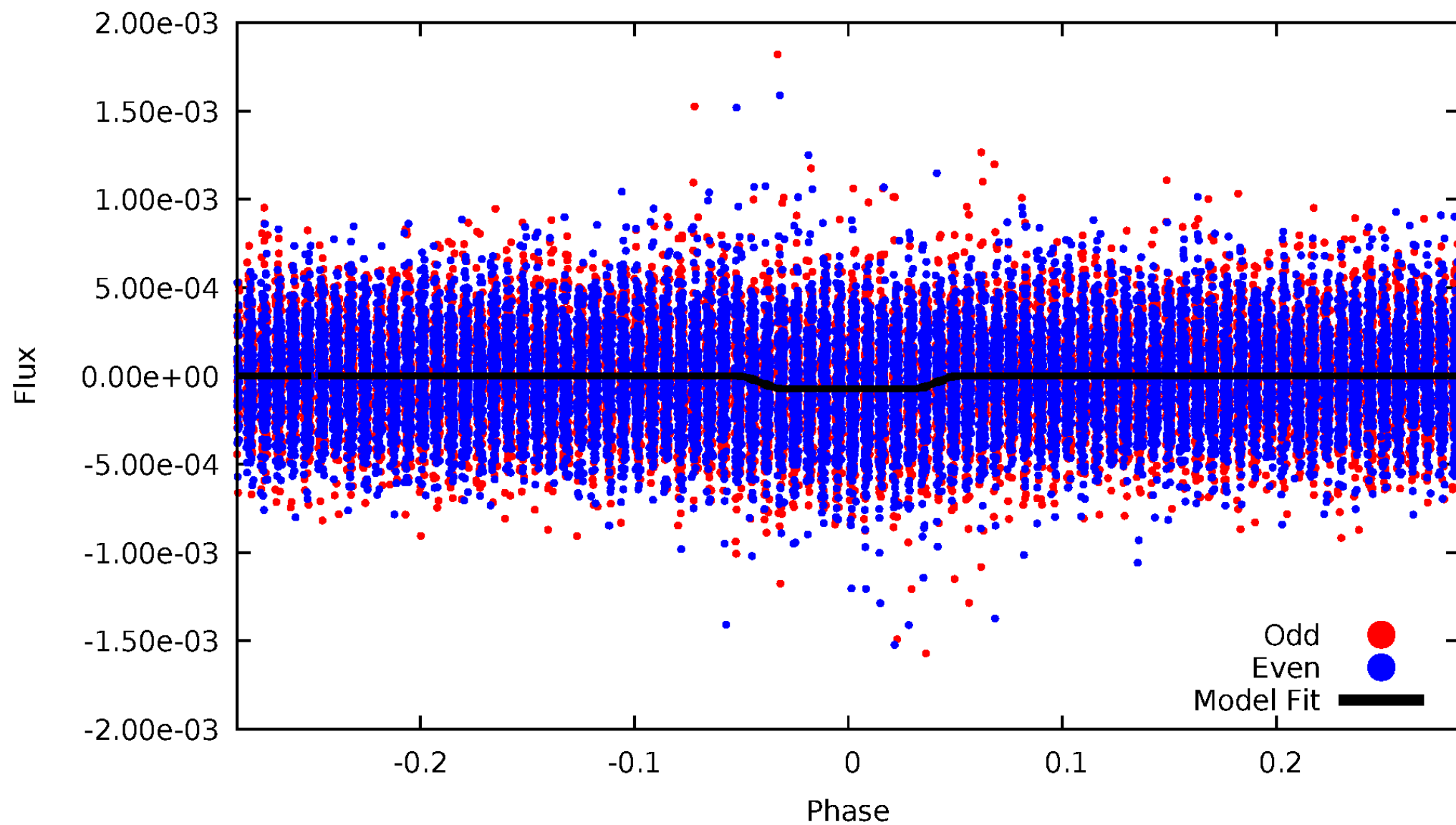
DV Odd/Even

TCE 009286728-01



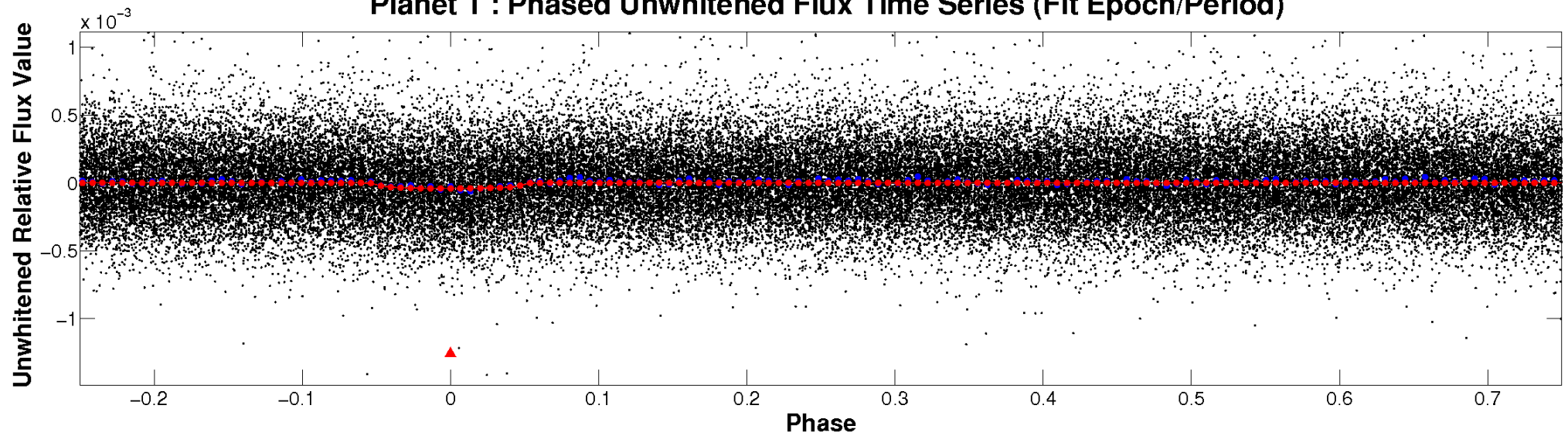
ALT Odd/Even

TCE 009286728-01

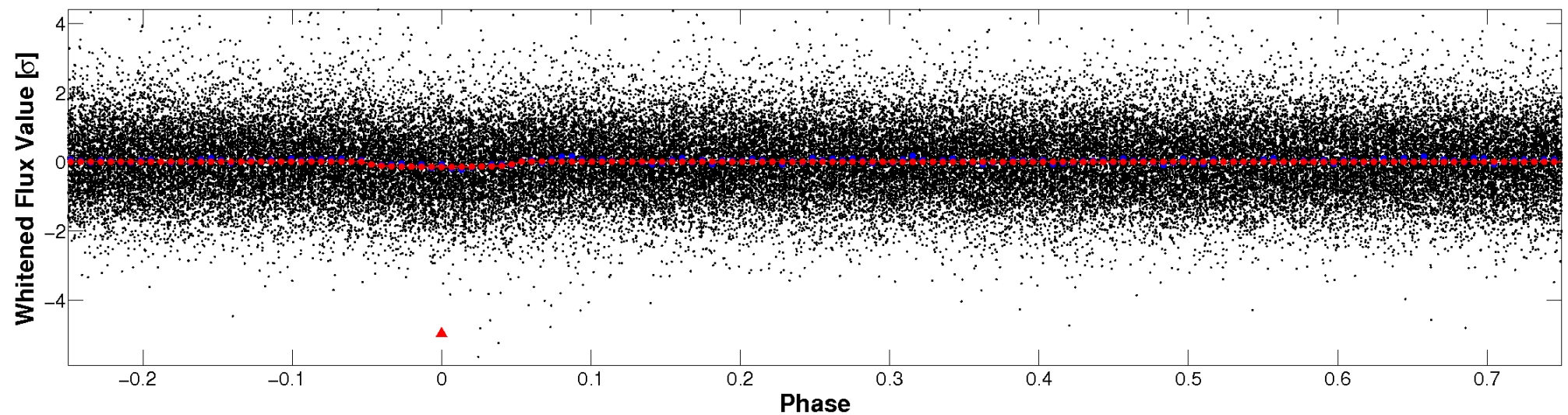


Non-Whitened Vs. Whitened Light Curve

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

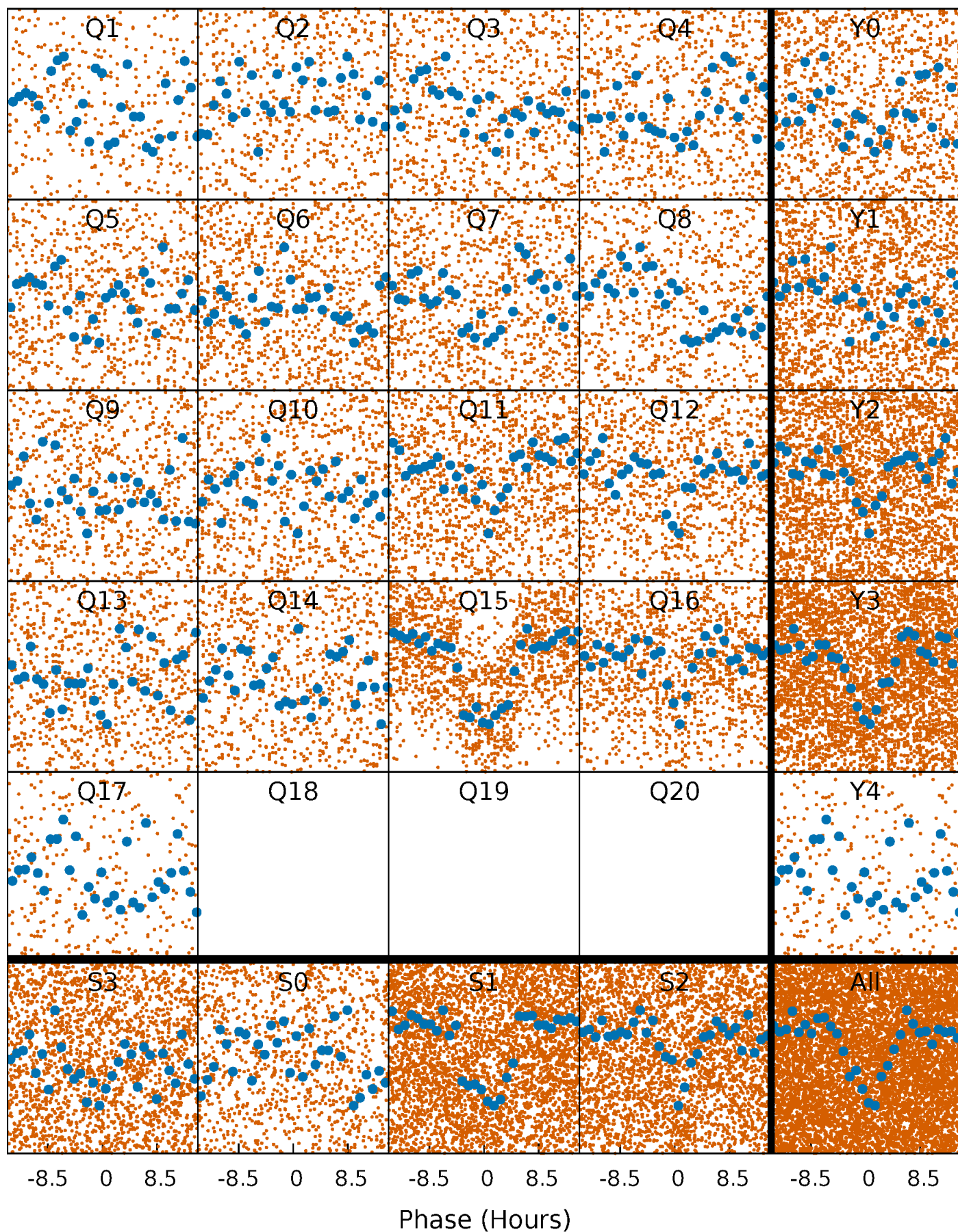


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



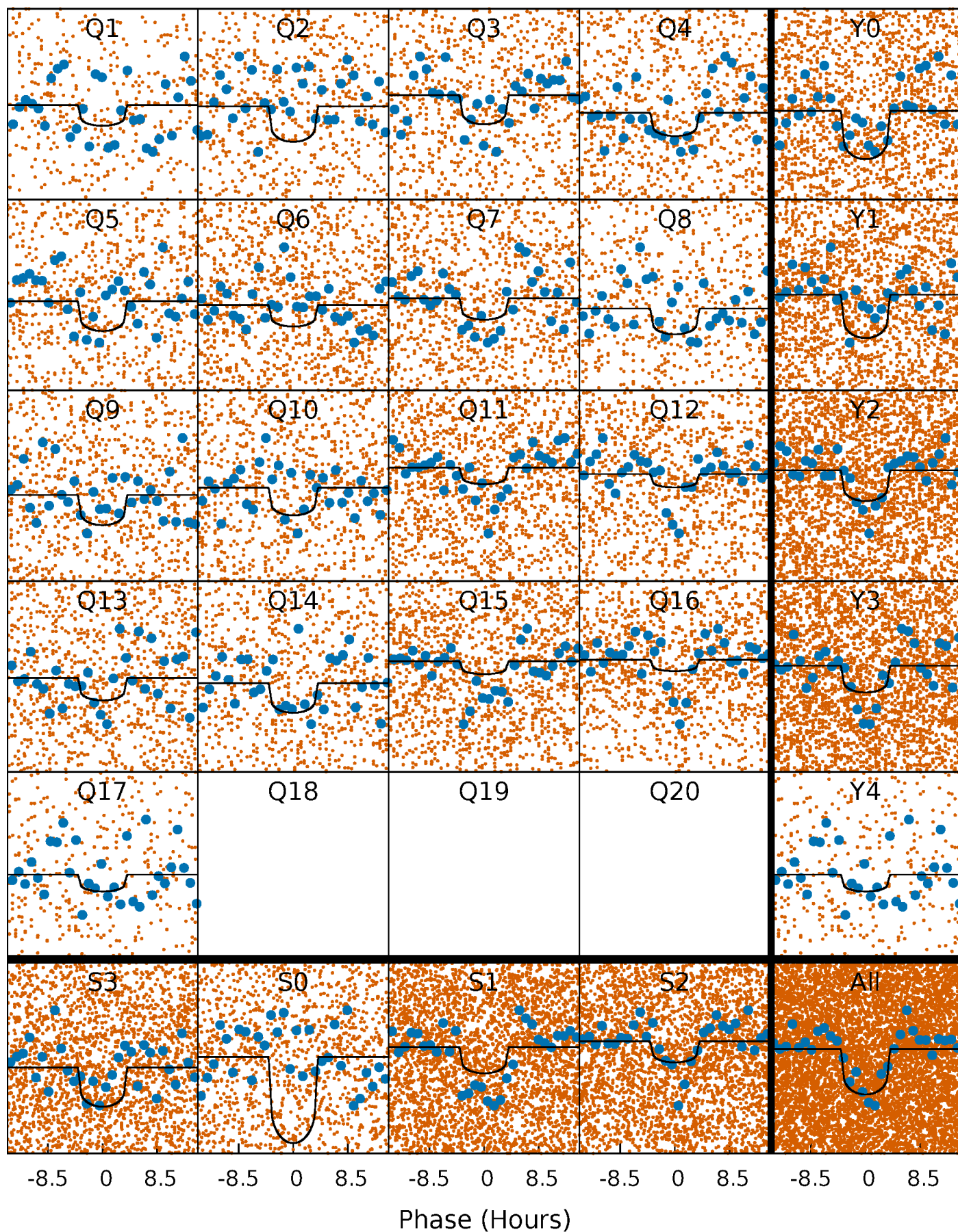
PDC Quarter-Phased Transit Curves

TCE 009286728-01 P= 3.044566 Days $T_0=132.501213$ (BKJD)



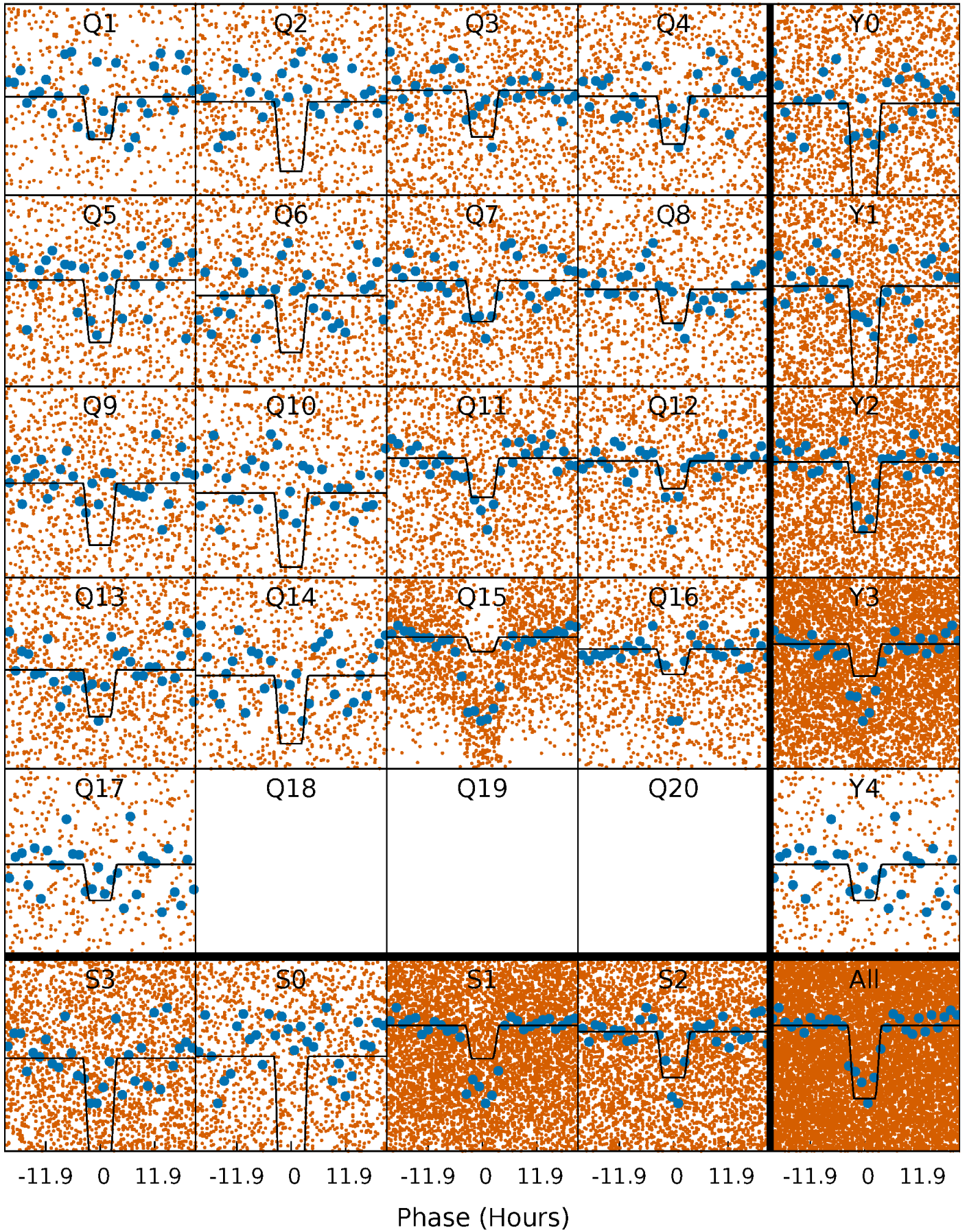
DV Quarter-Phased Transit Curves

TCE 009286728-01 P= 3.044566 Days $T_0=132.501213$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

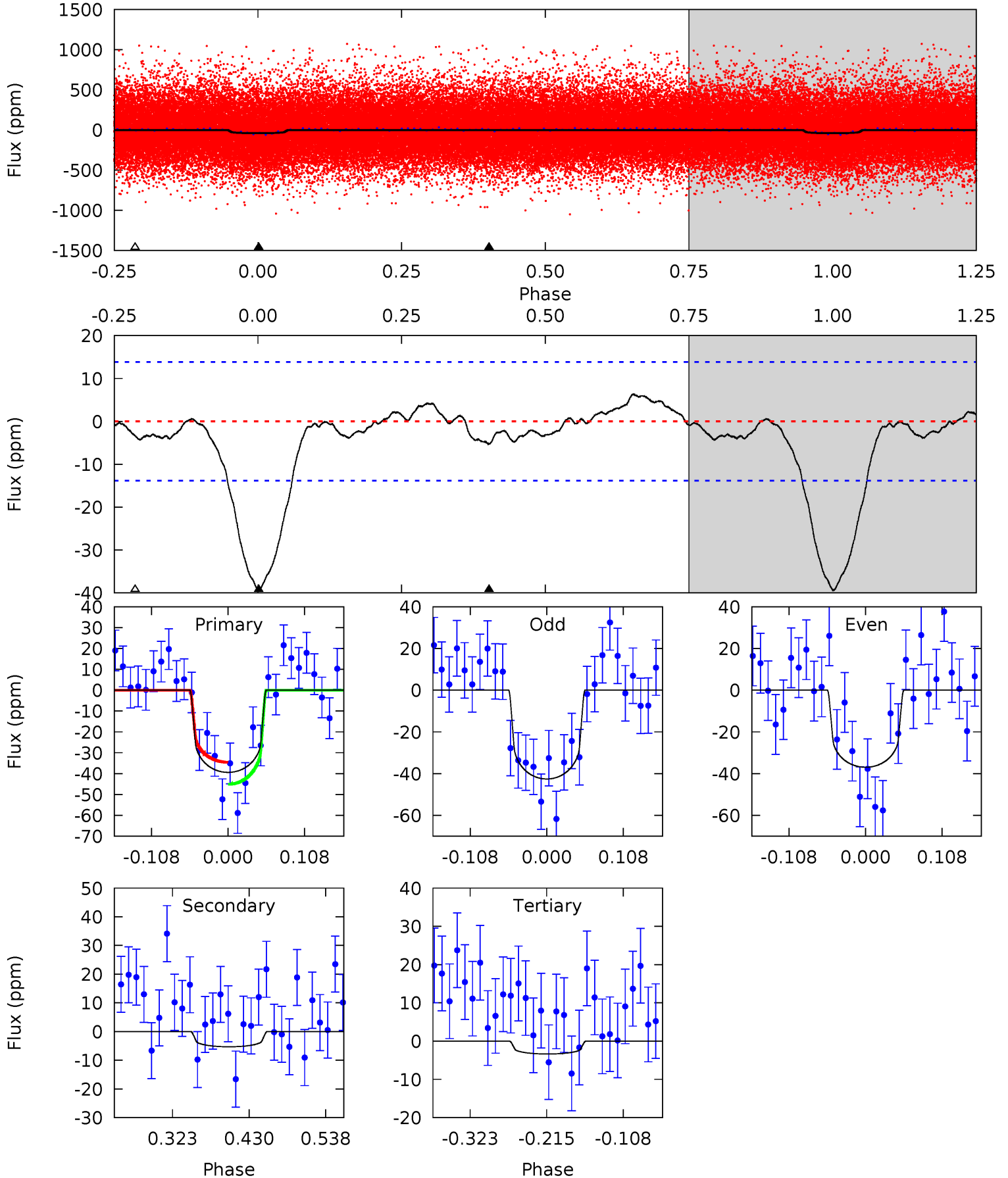
TCE 009286728-01 P= 3.044618 Days $T_0=132.503572$ (BKJD)



DV Model-Shift Uniqueness Test

009286728-01, P = 3.044566 Days, E = 129.456647 Days

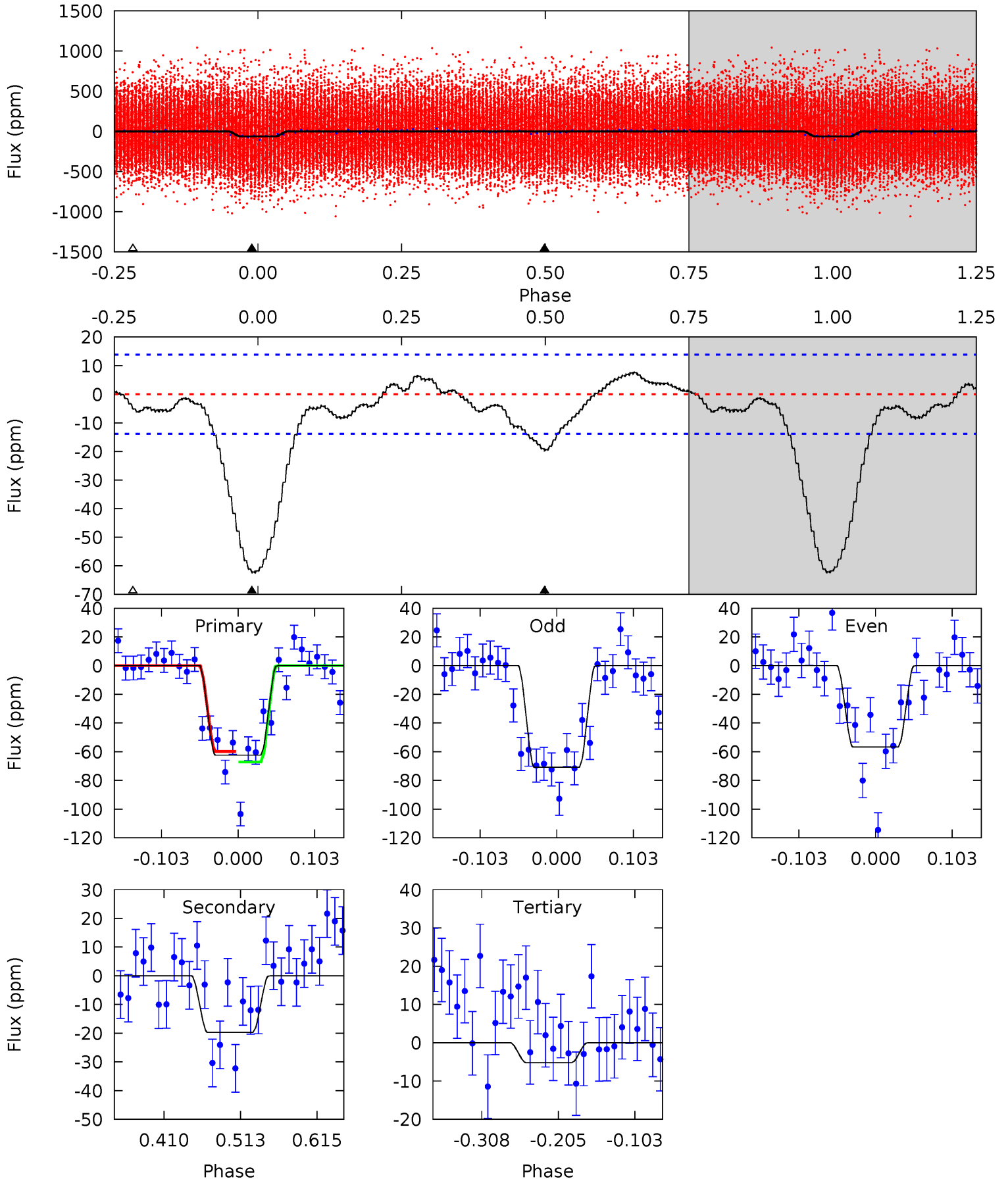
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	1.75	1.11	0	4.55	1.61	0.92	11.9	13.0	0.64	1.75	0.93	0.87	0.14	1.75



Alt Model-Shift Uniqueness Test

009286728-01, P = 3.044618 Days, E = 129.458954 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	6.51	1.72	0	4.56	1.63	1.48	18.9	20.6	4.79	6.51	2.31	1.31	0.11	1.22



Stellar Parameters For KIC 009286728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5525^{+148}_{-165}	$4.603^{+0.037}_{-0.120}$	$-0.360^{+0.300}_{-0.300}$	$0.753^{+0.141}_{-0.060}$	$0.843^{+0.080}_{-0.098}$	$2.778^{+0.466}_{-0.979}$
	+3%/-3%	+1%/-3%	+83%/-83%	+19%/-8%	+9%/-12%	+17%/-35%
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 009286728-01 / KOI 7154.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-5 ± 3	$0.60^{+0.25}_{-0.27}$	1529^{+69}_{-57}	3569^{+870}_{-582}	11^{+29}_{-8}
Alt.	-20 ± 3	$0.72^{+0.27}_{-0.23}$	1524^{+68}_{-58}	4240^{+660}_{-493}	32^{+35}_{-15}

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

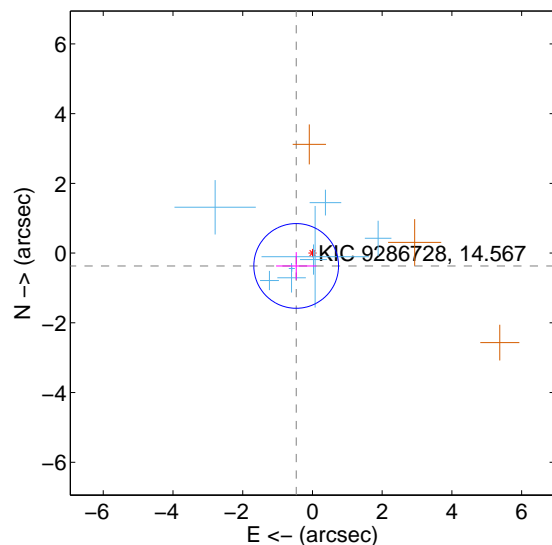
Supplemental centroid analysis for 009286728-01. Kepler magnitude: 14.57. Transit SNR 9.96

There are 8 quarters with good PRF difference image offsets

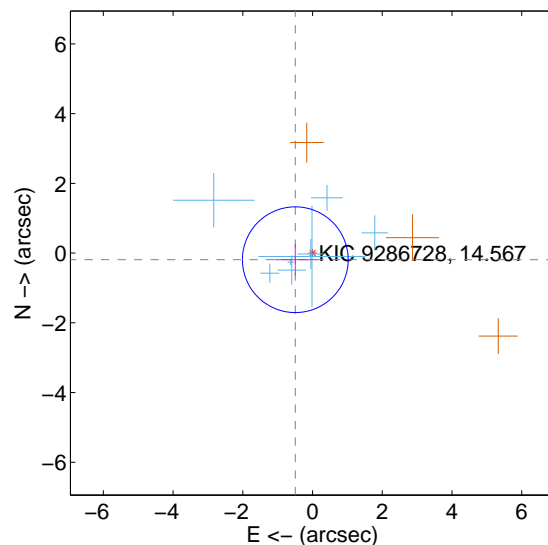
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.594 ± 0.405	1.47	0.466 ± 0.577	-0.368 ± 0.395
PRF-fit source offset from KIC position	0.529 ± 0.505	1.05	0.494 ± 0.596	-0.190 ± 0.449
photometric centroid source offset	1.63 ± 1.38	1.18	-0.87 ± 1.31	-1.38 ± 1.41

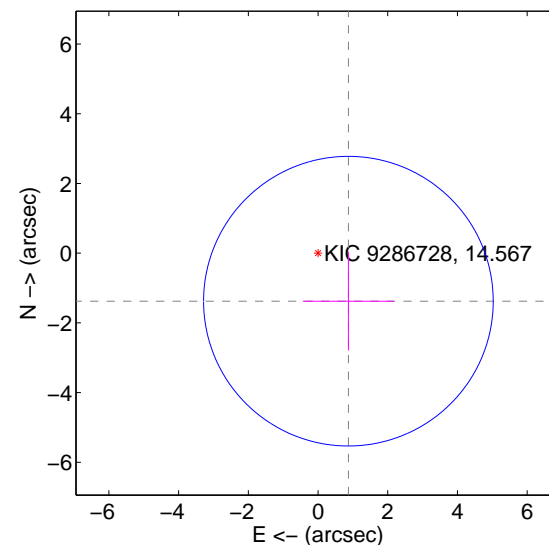
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

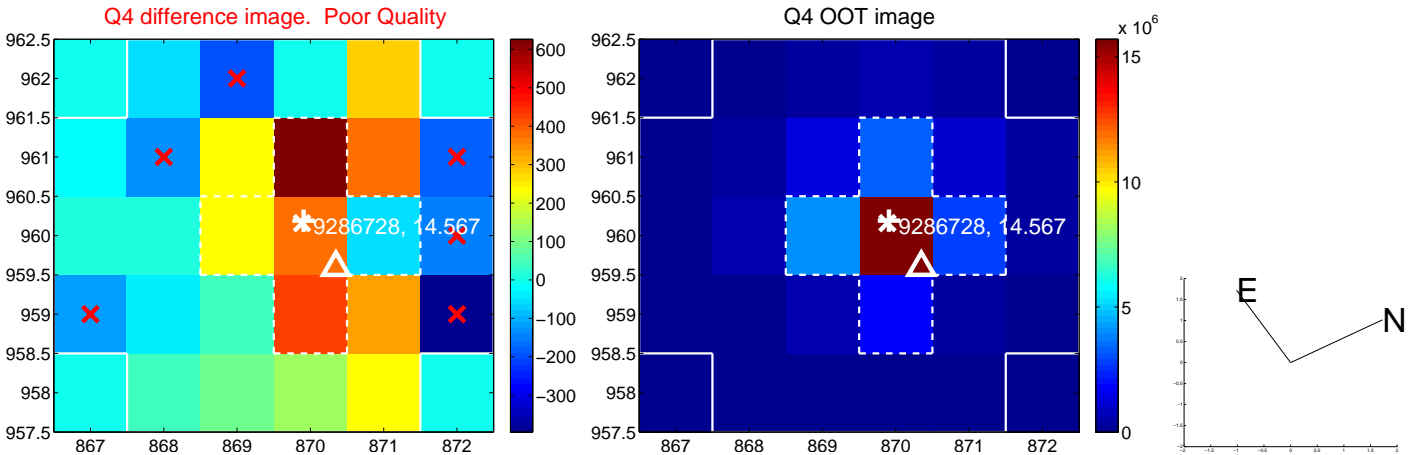
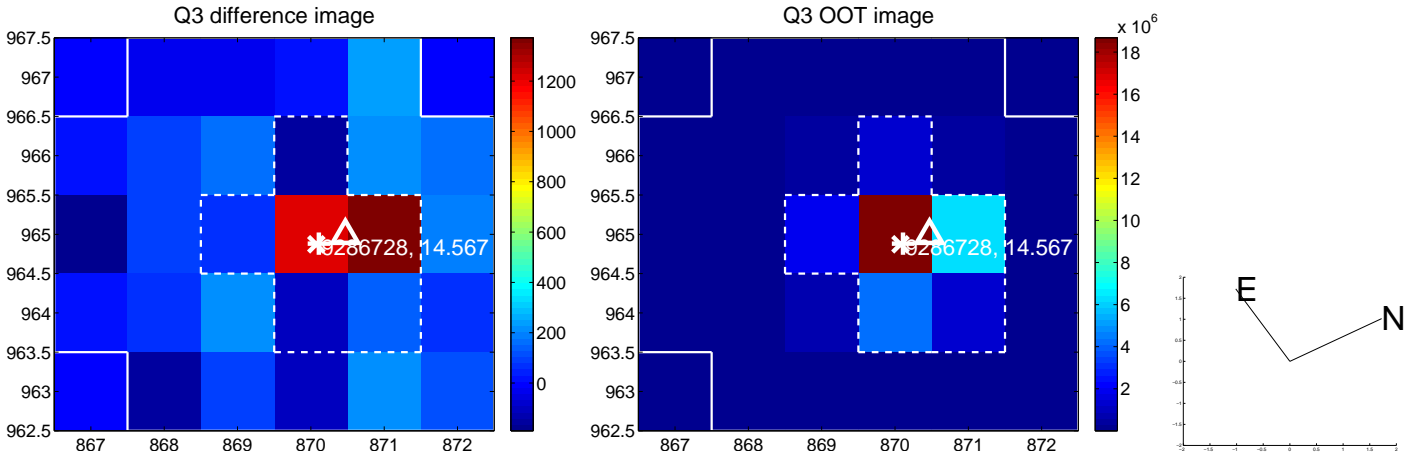
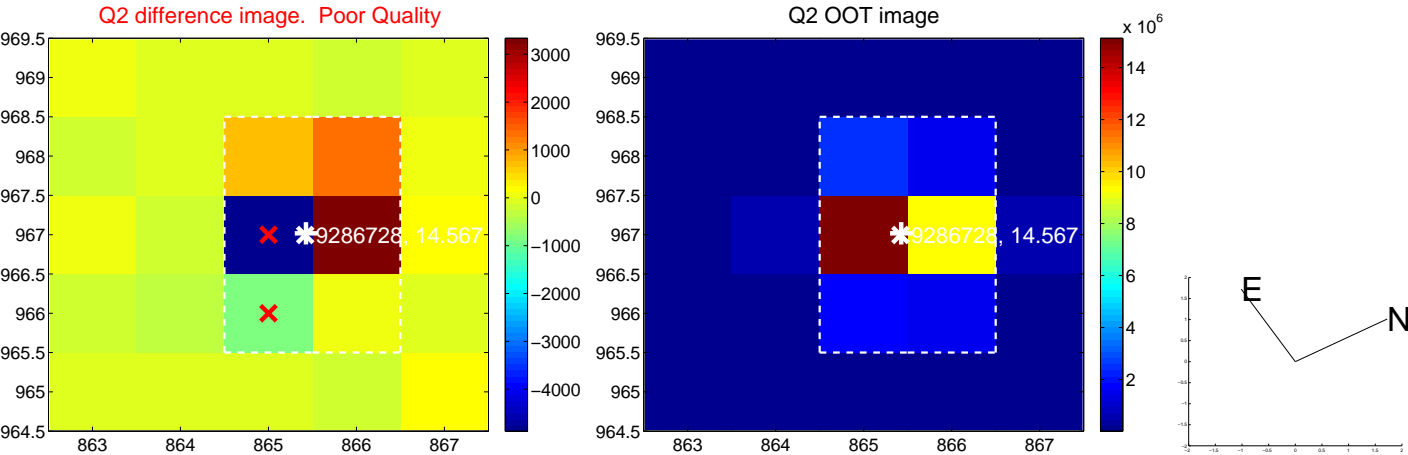
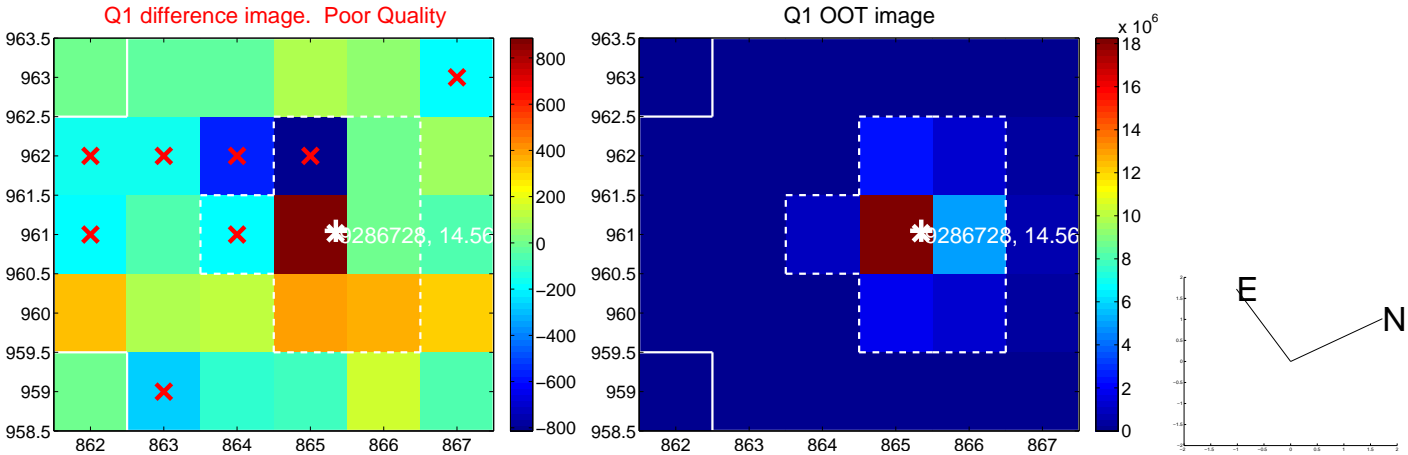


offset from photometric centroids

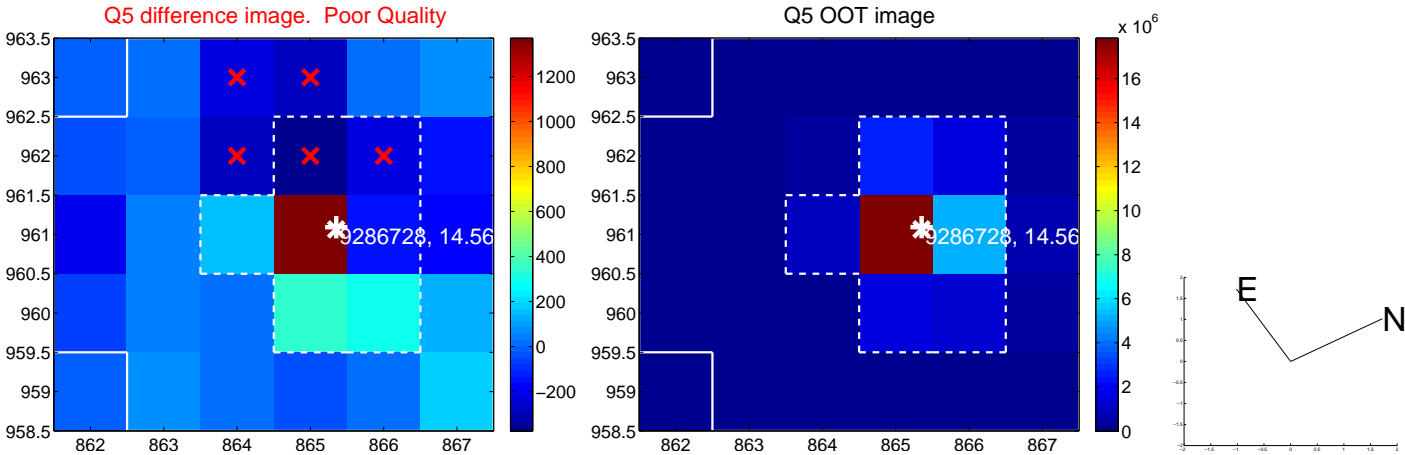


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

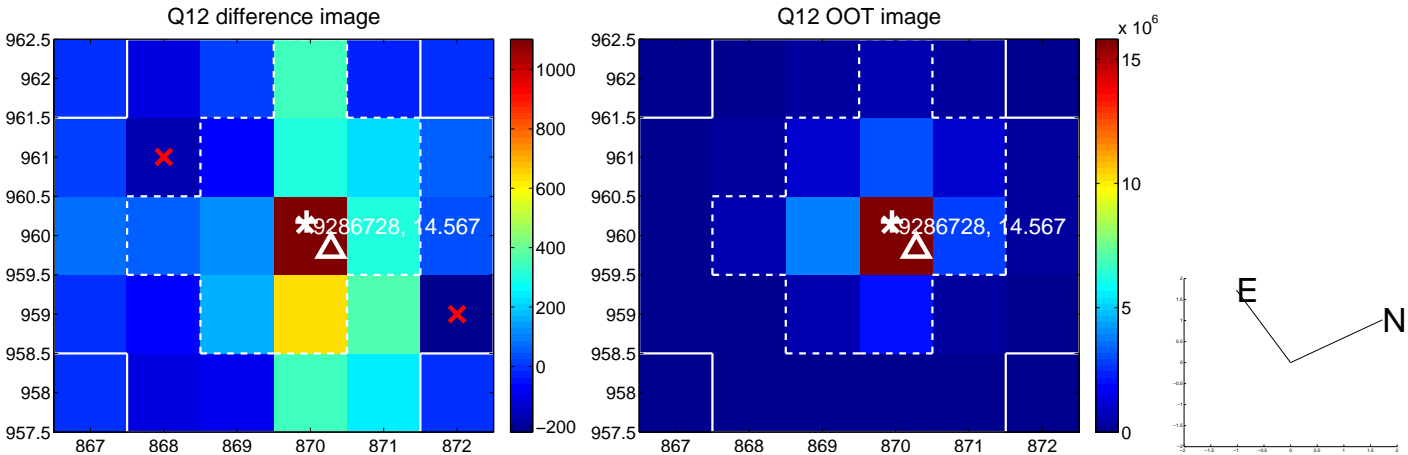
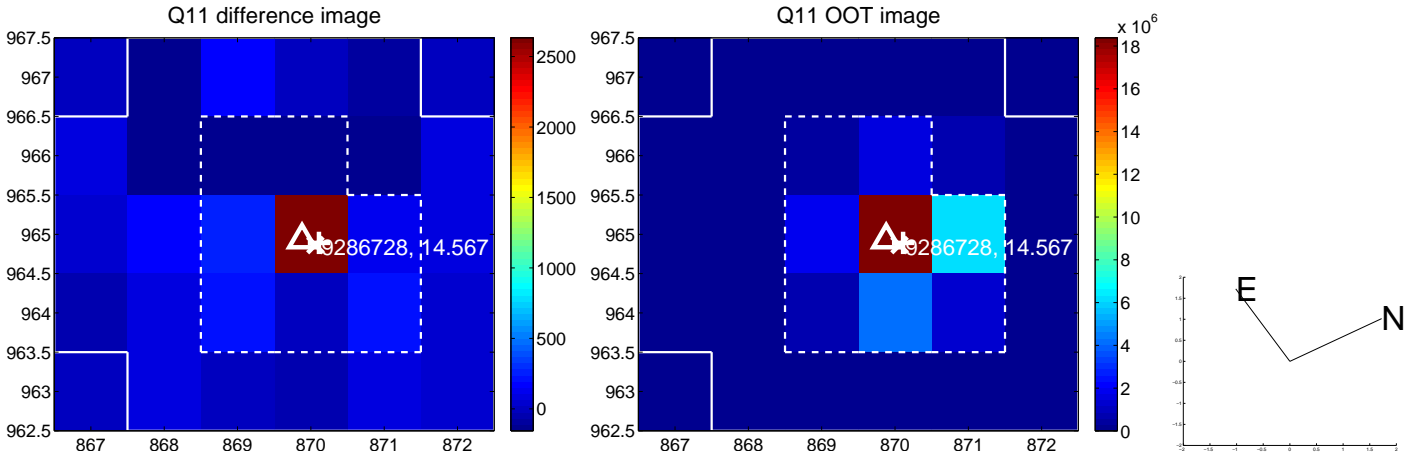
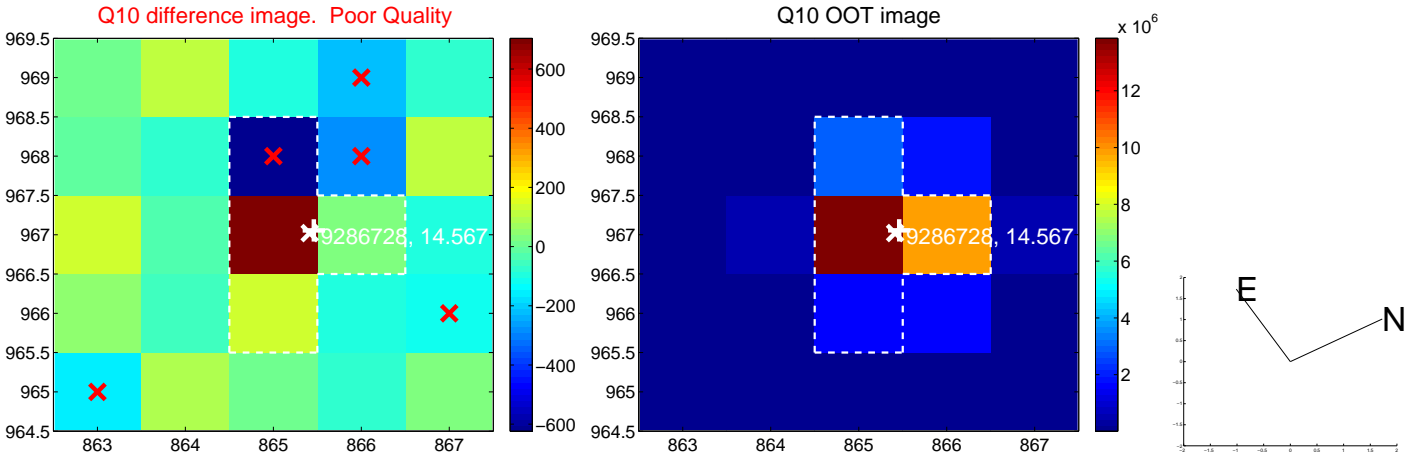
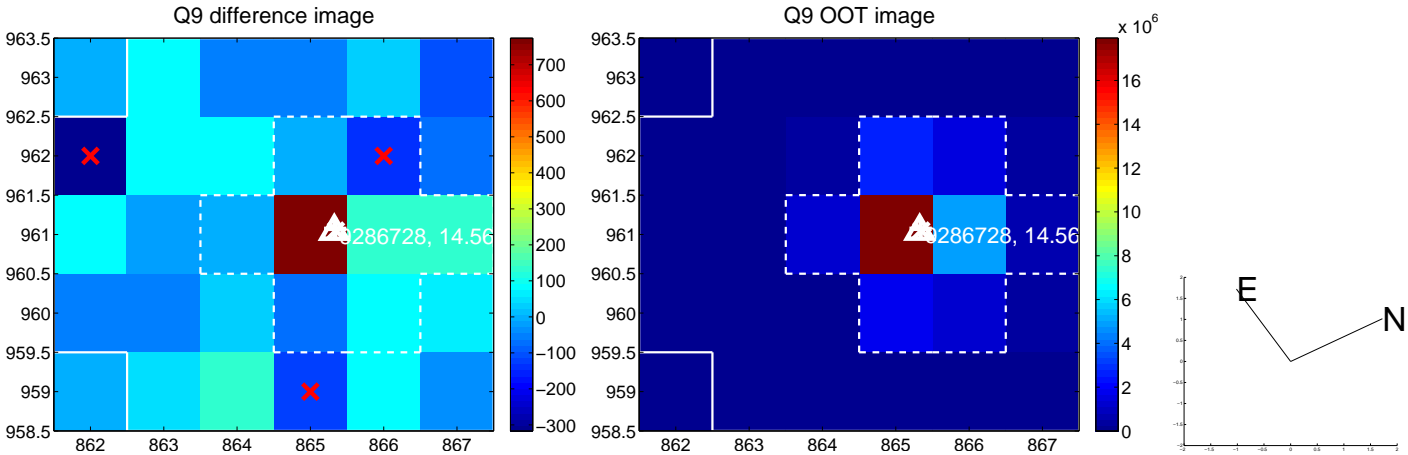
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



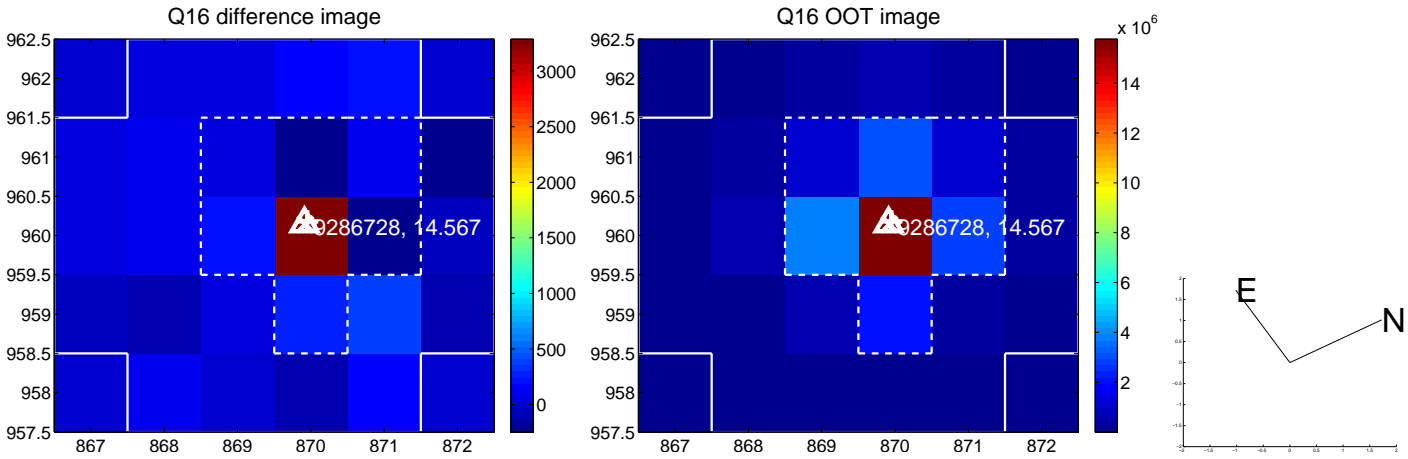
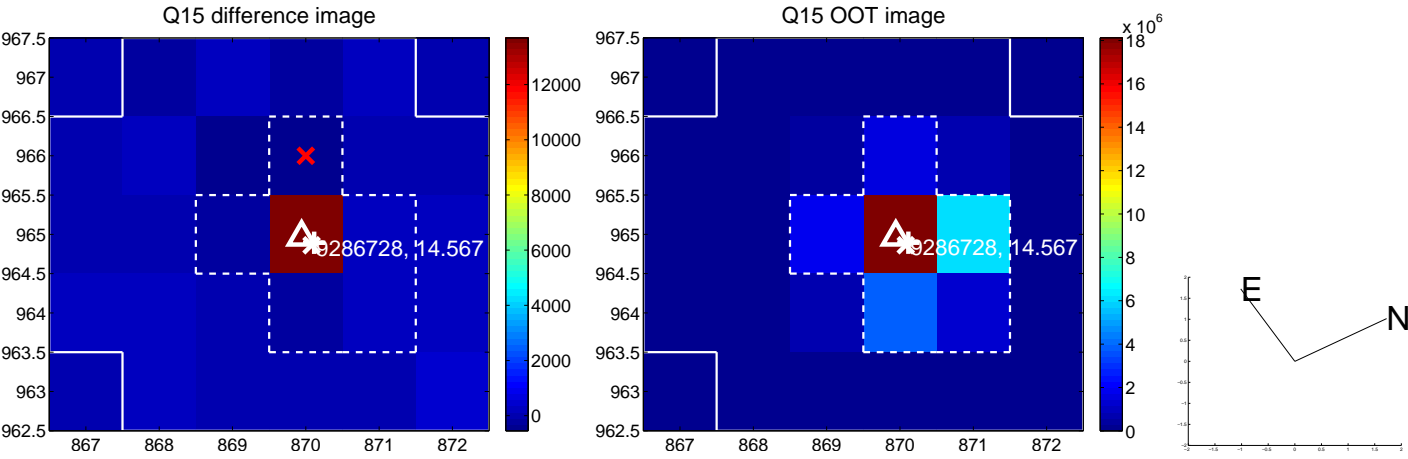
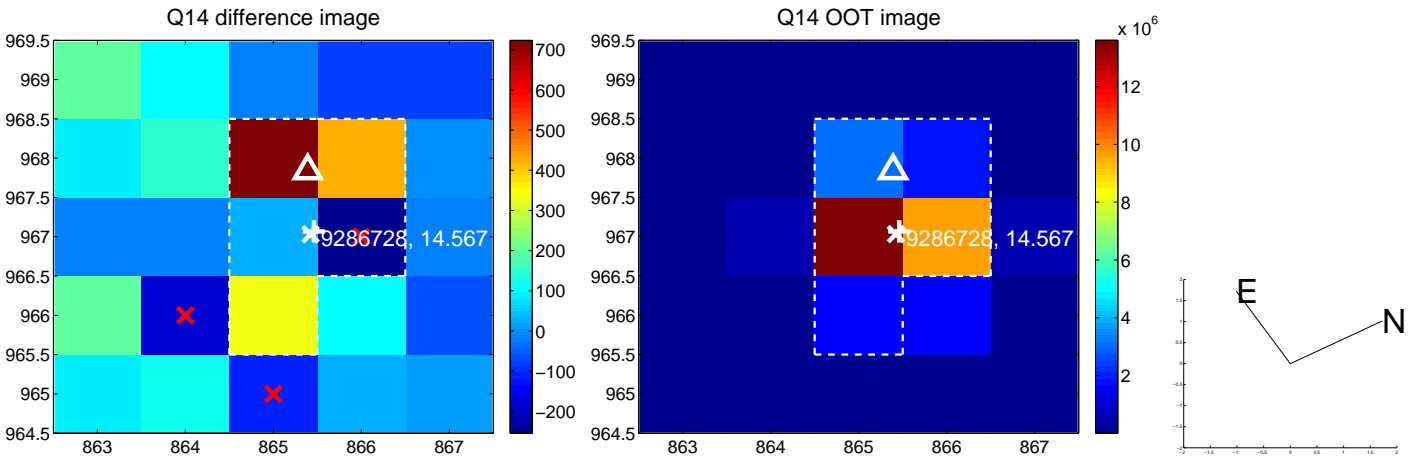
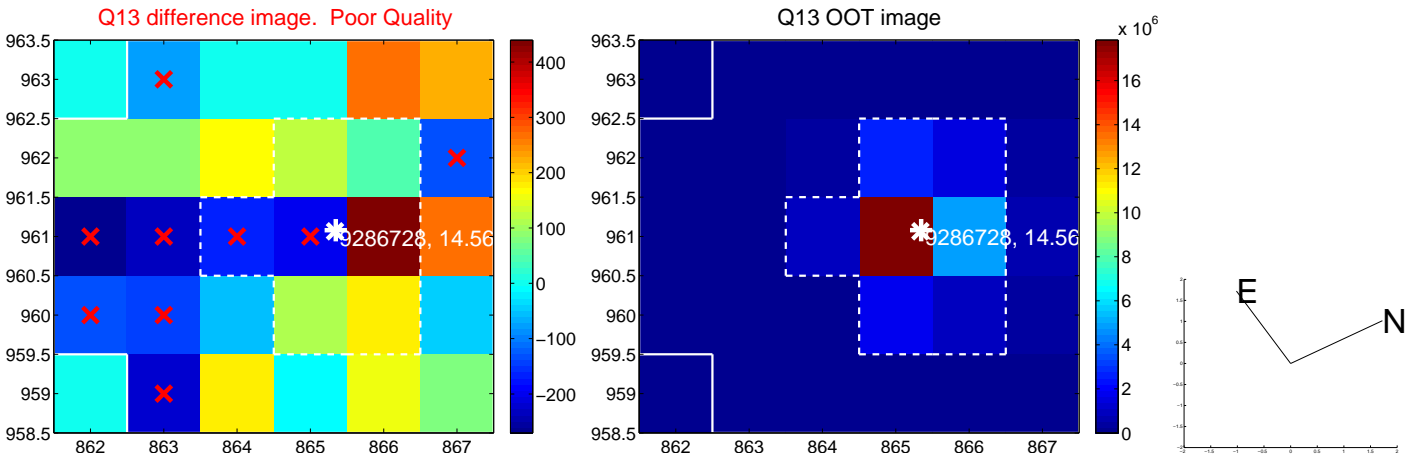
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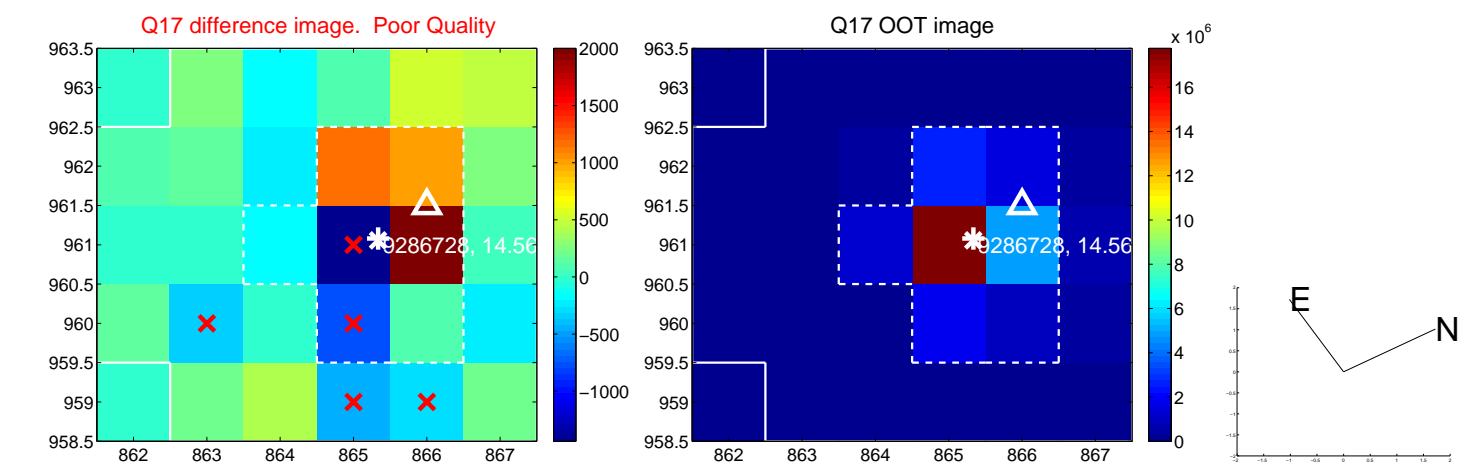
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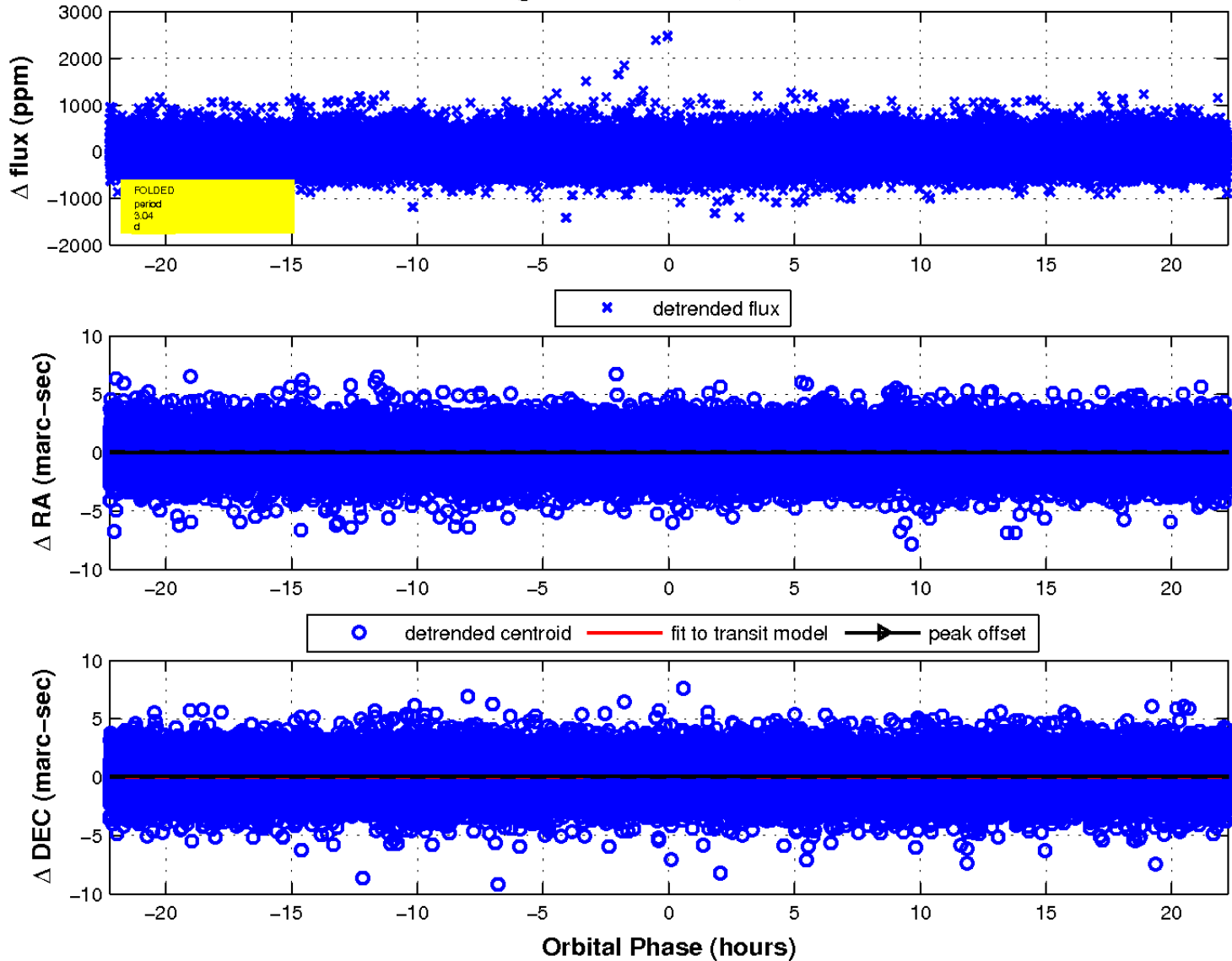
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fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

