

KIC 008161816

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})
008161816-01	OBS	No	2.203009	133.558703	51.2	12.009	8.7	8.9	0.86	5792	0.74	704.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008161816-01	OBS	FP	0.00	1	0	0	1	LPP_DV—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.

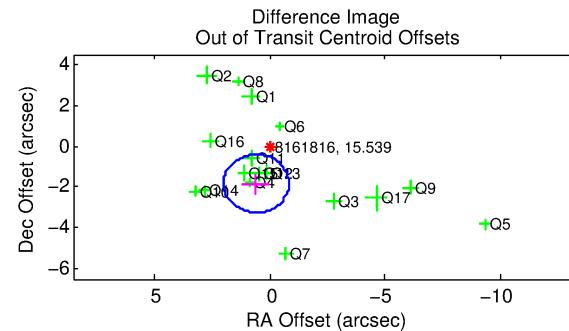
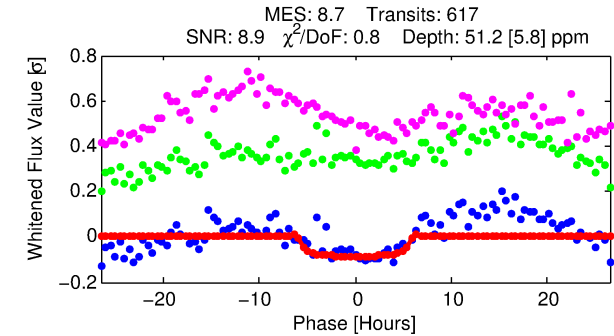
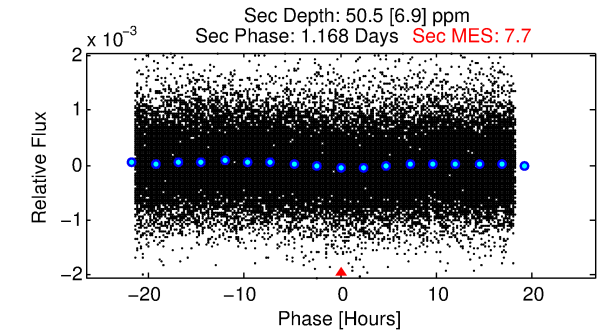
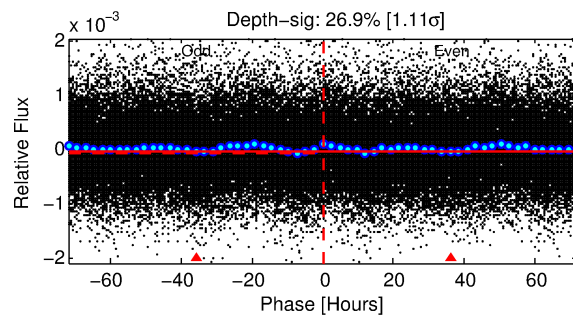
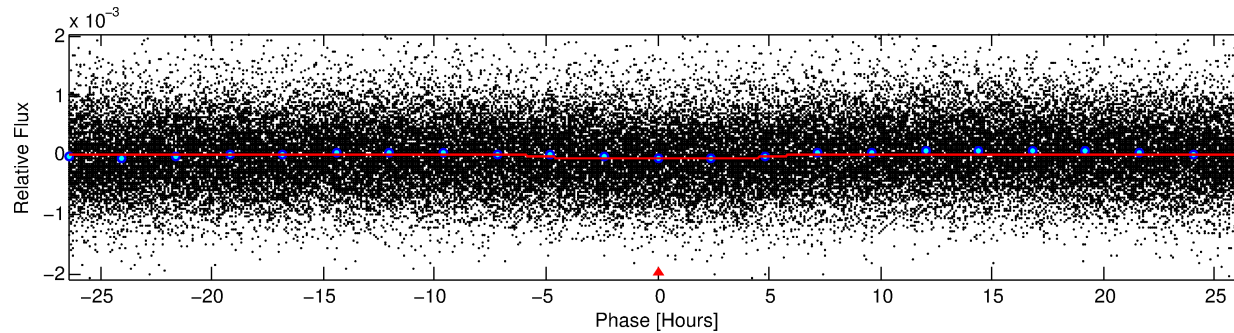
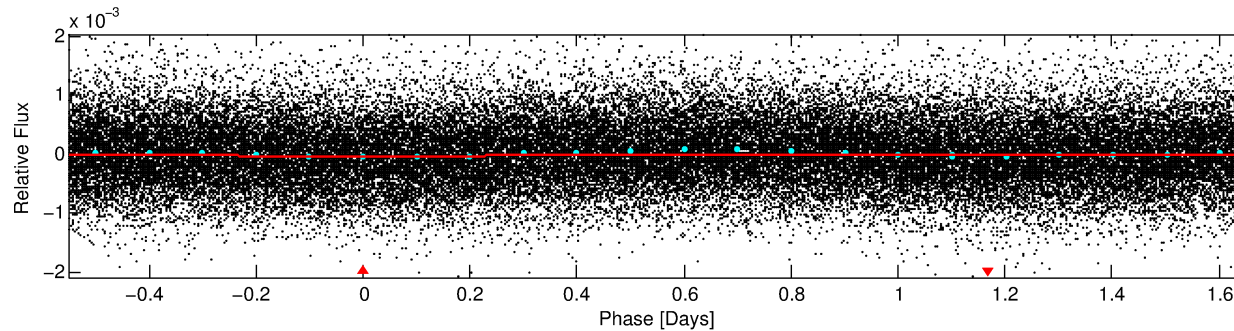
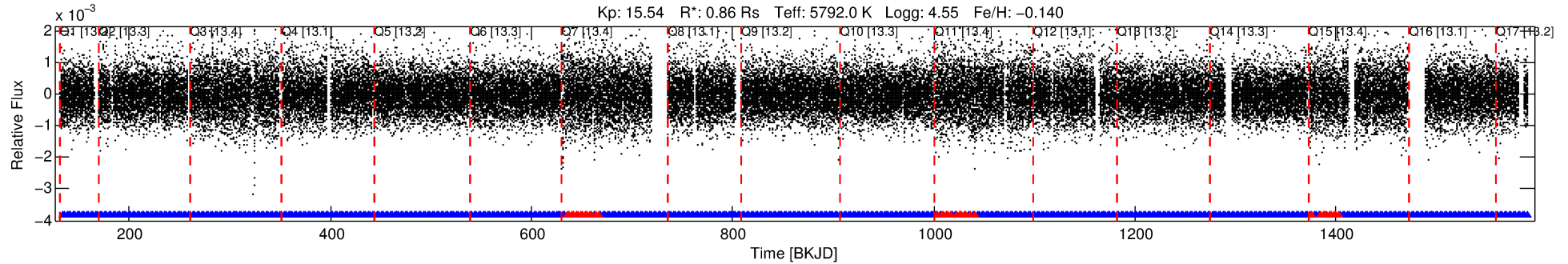
Ephemeris Match Information For 008161816-01

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
008161816-01	8161816	008161830-01	8161830	1:1	24.2	0	6	13.31	15.54	0.37	Direct-PRF	1	3.81	0.54

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: 8161816 Candidate: 1 of 1 Period: 2.203 d



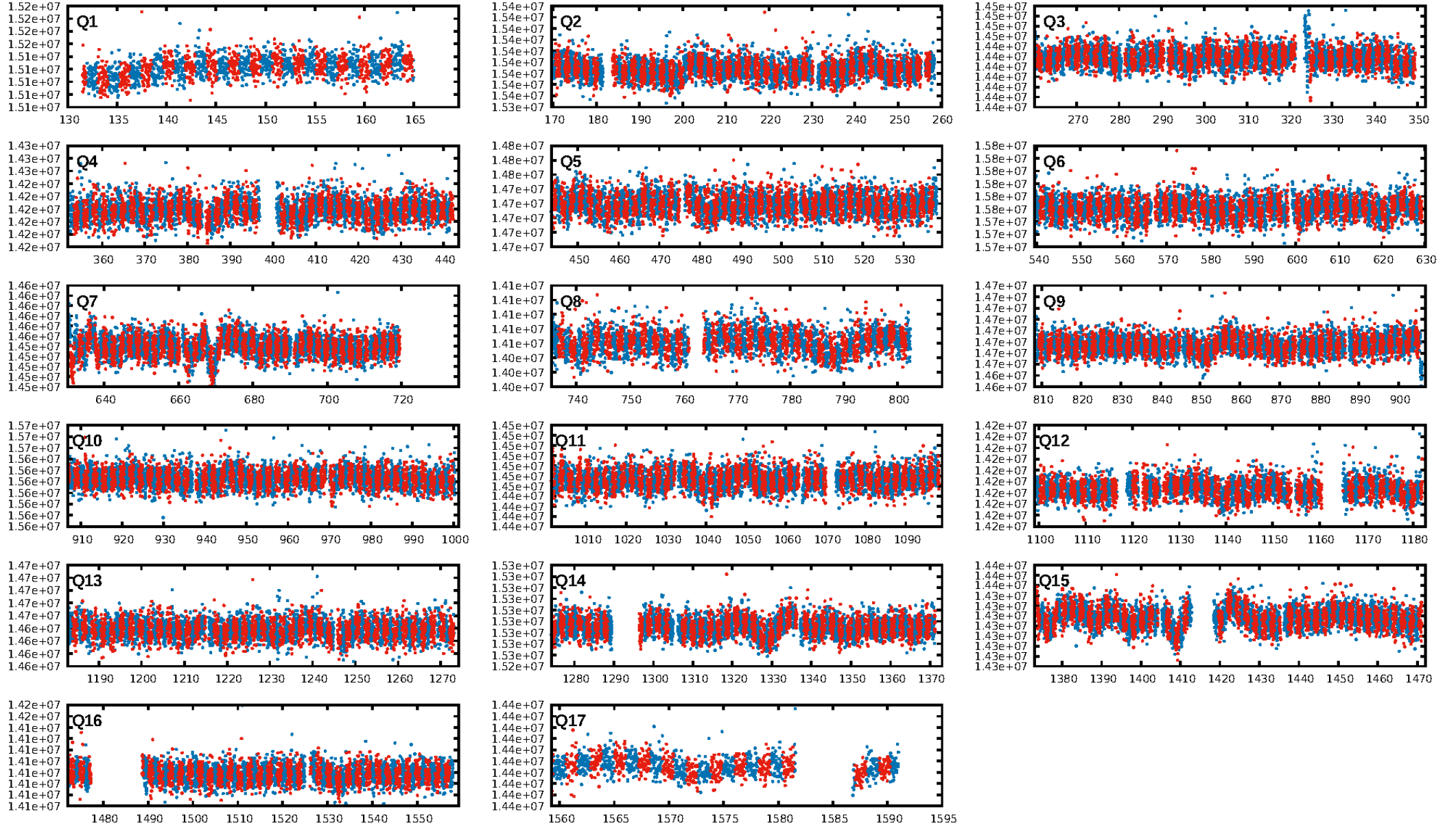
DV Fit Results:

Period = 2.20301 [0.00005] d
Epoch = 133.5587 [0.0139] BKJD
Rp/R* = 0.0079 [0.0020]
a/R* = 1.12 [0.29]
b = 0.91 [0.23]
Seff = 704.47 [230.12]
Teq = 1314 [107] K
Rp = 0.74 [0.26] Re
a = 0.0327 [0.0067] AU
Ag = 53.75 [32.74] [1.61 σ]
Teff = 5500 [744] K [5.57 σ]

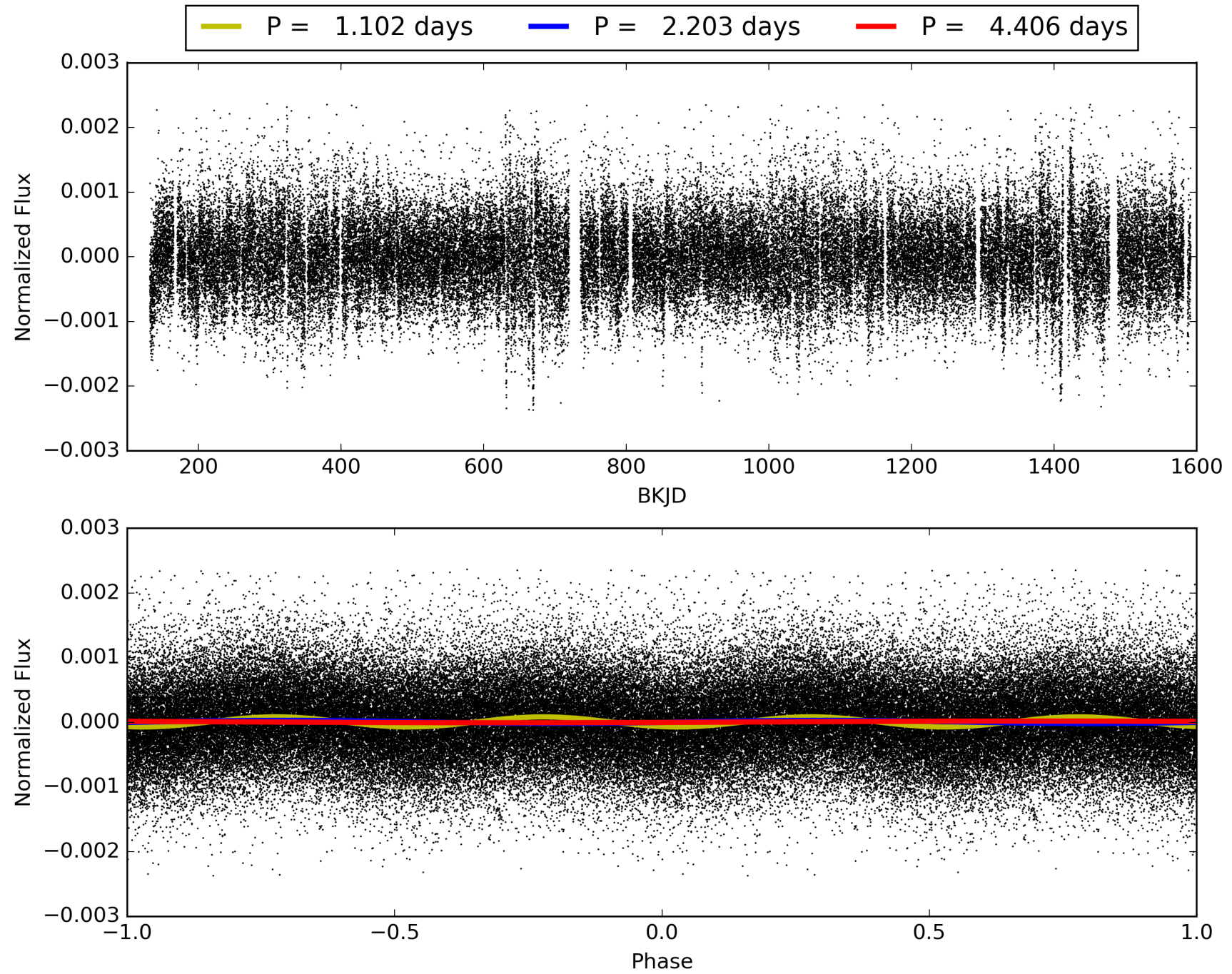
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.13e-12
RollingBand-fgt: 0.94 [552/589]
GhostDiagnostic-chr: 1.087
Centroid-sig: 0.3%
Centroid-so: 3.694 arcsec [2.20 σ]
OotOffset-rm: 1.924 arcsec [4.06 σ]
KicOffset-rm: 1.817 arcsec [3.58 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.24 [4/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008161816-01, PDC Light Curves

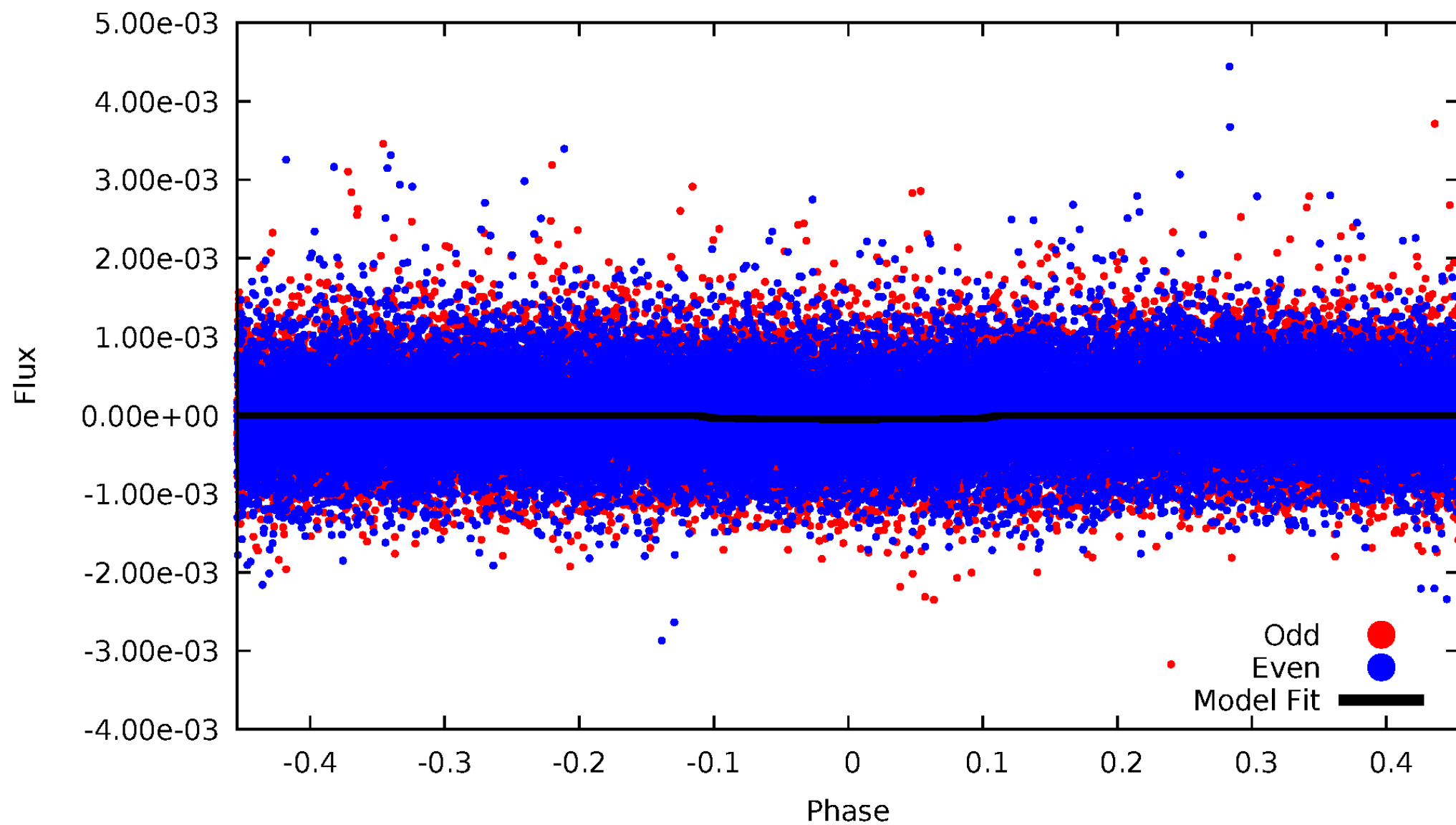


TCE 008161816-01



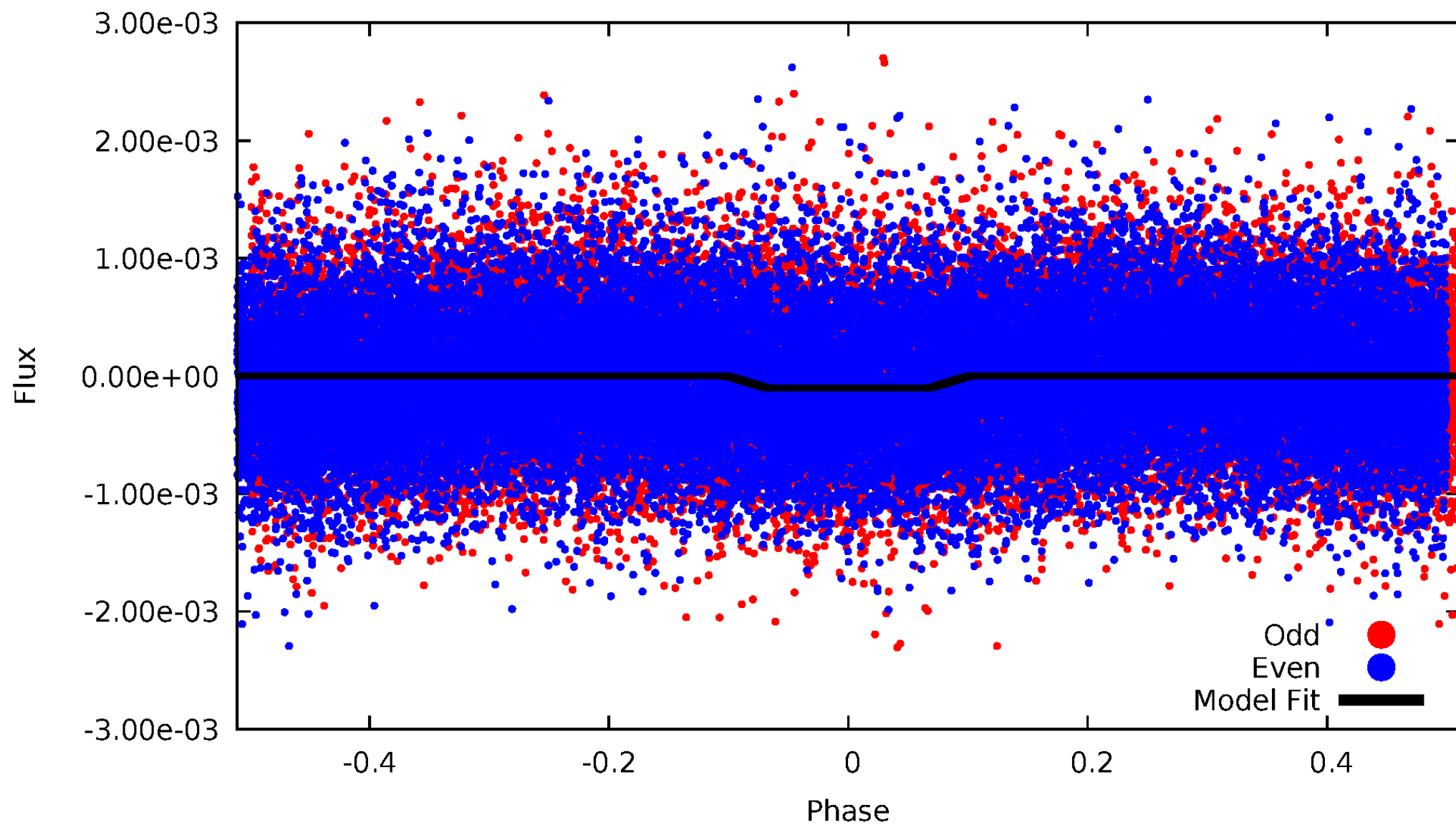
DV Odd/Even

TCE 008161816-01

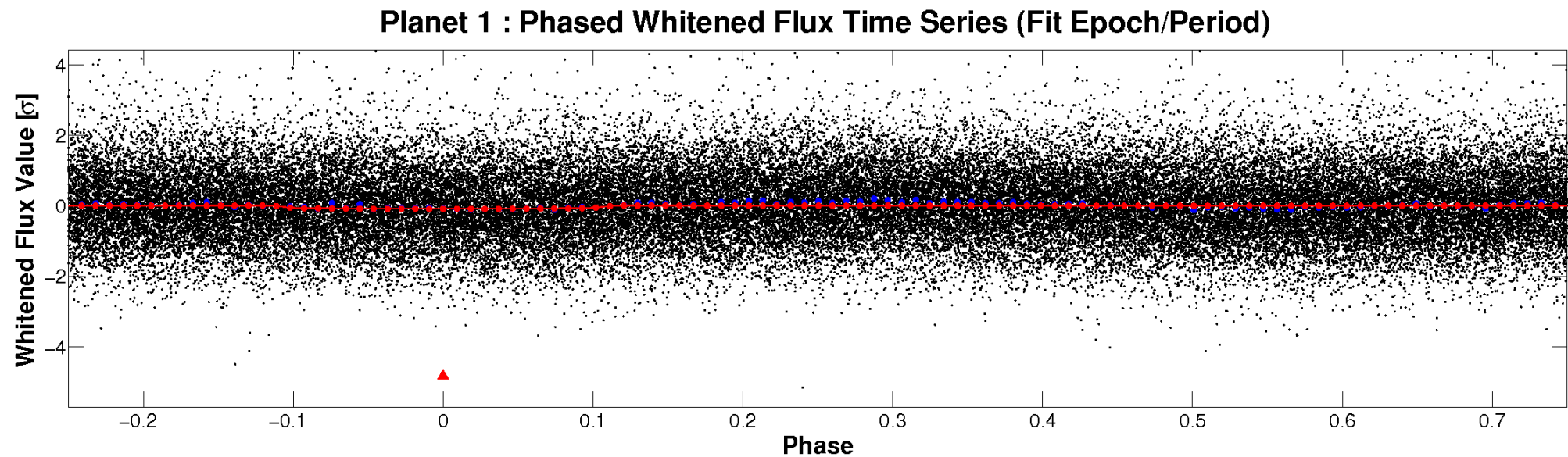
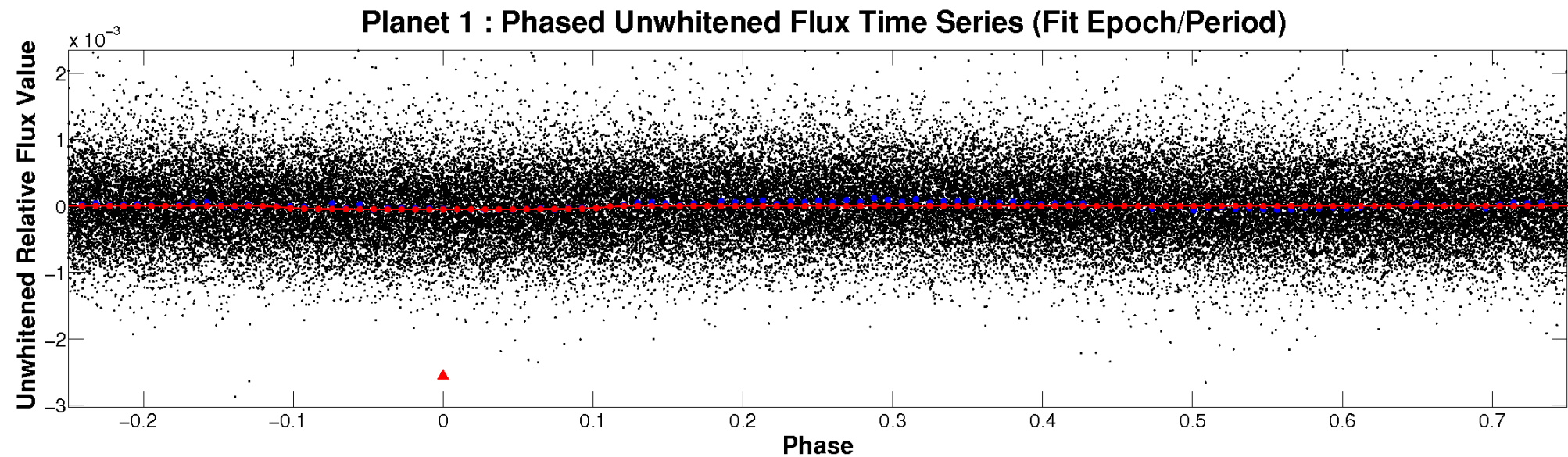


ALT Odd/Even

TCE 008161816-01

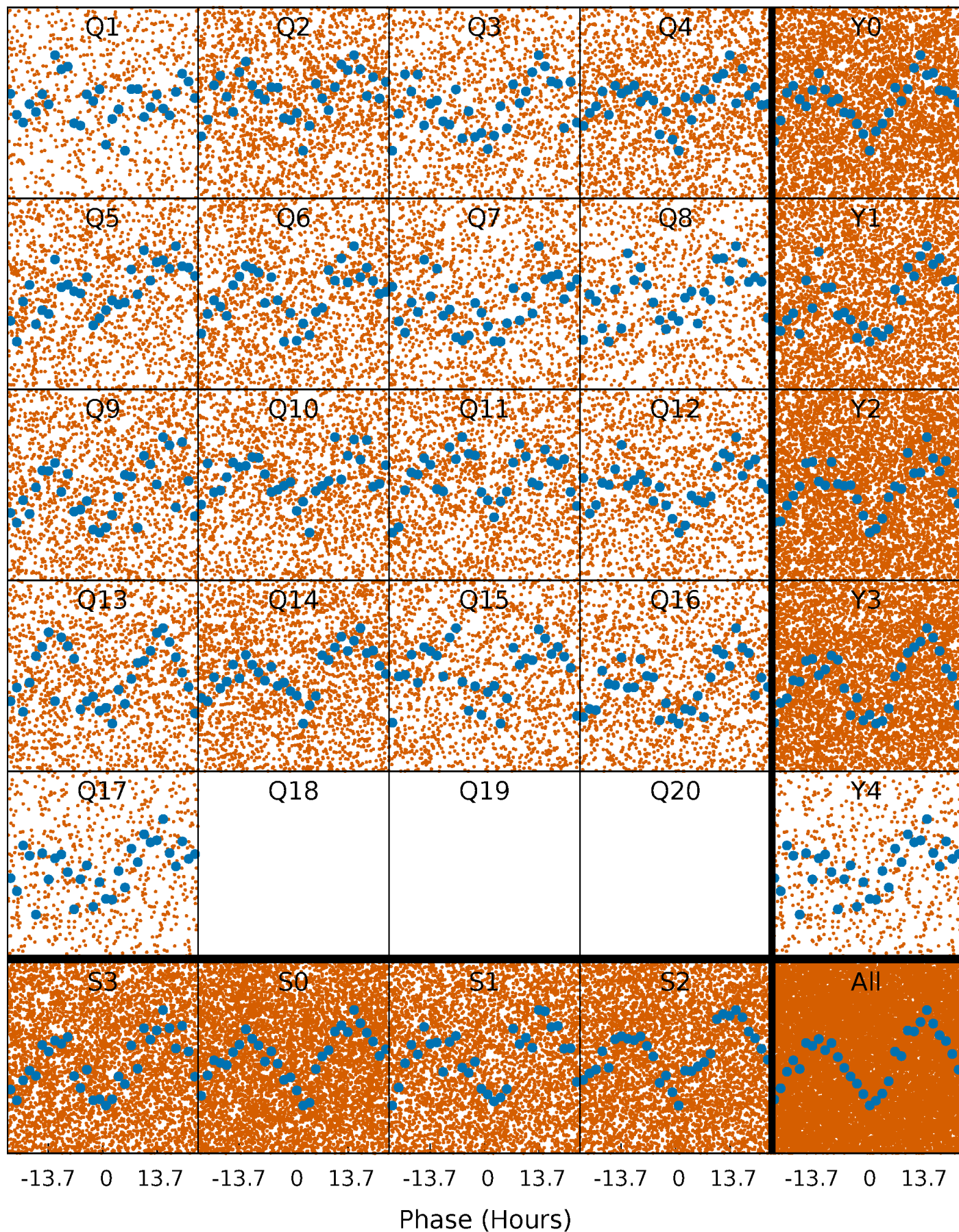


Non-Whitened Vs. Whitened Light Curve



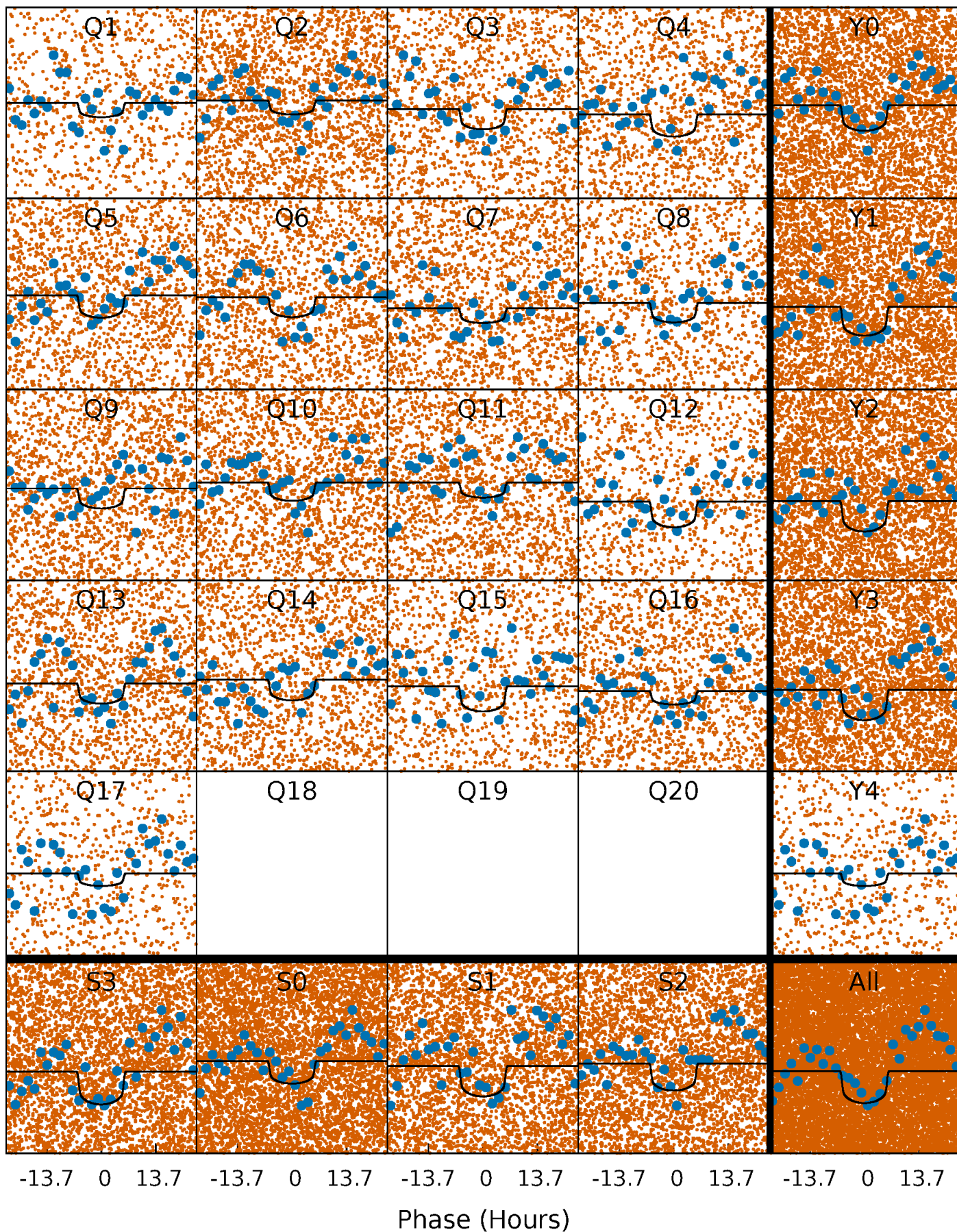
PDC Quarter-Phased Transit Curves

TCE 008161816-01 P= 2.203009 Days $T_0=133.558703$ (BKJD)



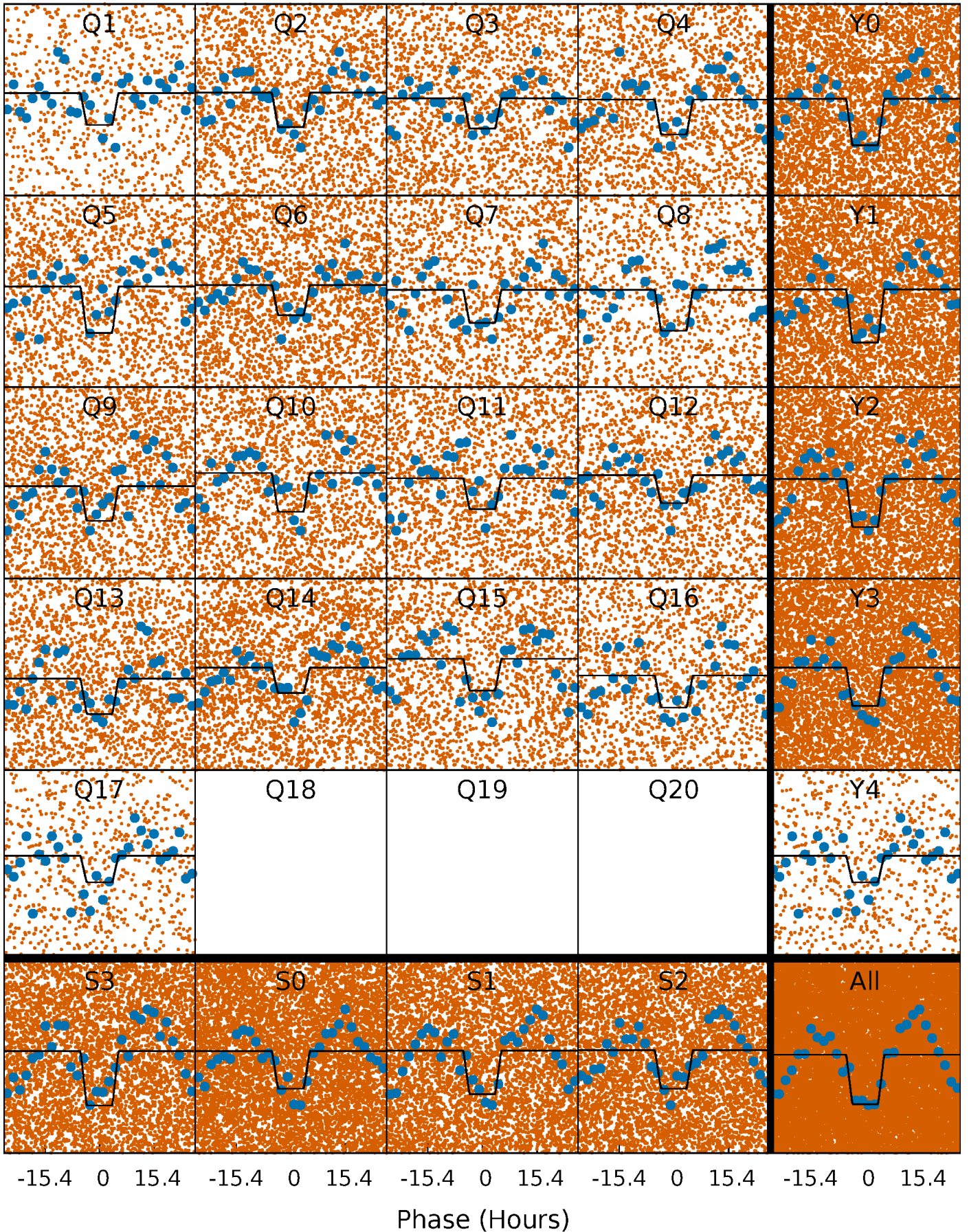
DV Quarter-Phased Transit Curves

TCE 008161816-01 P= 2.203009 Days $T_0=133.558703$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

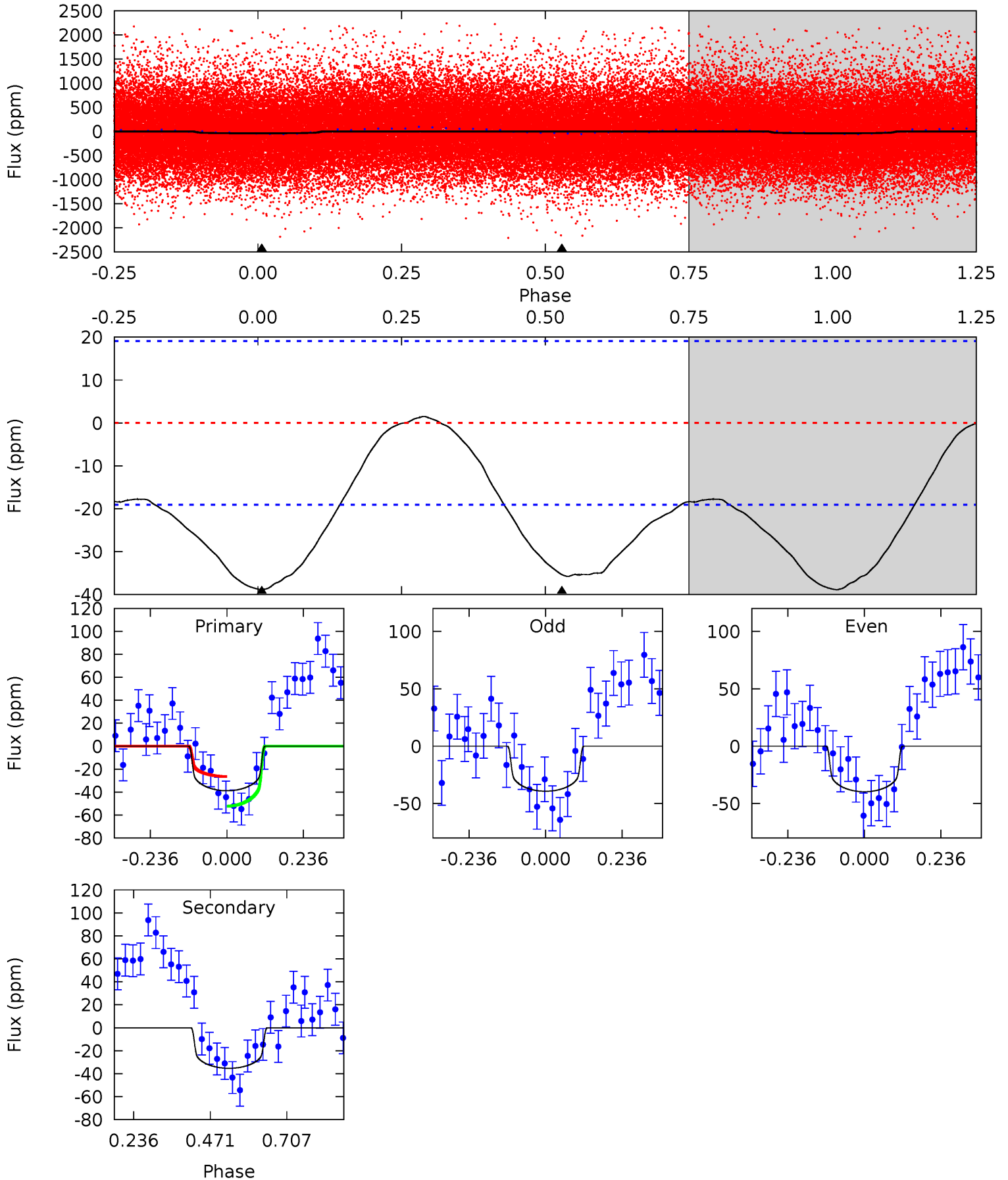
TCE 008161816-01 P= 2.203056 Days $T_0=133.583934$ (BKJD)



DV Model-Shift Uniqueness Test

008161816-01, P = 2.203009 Days, E = 131.355694 Days

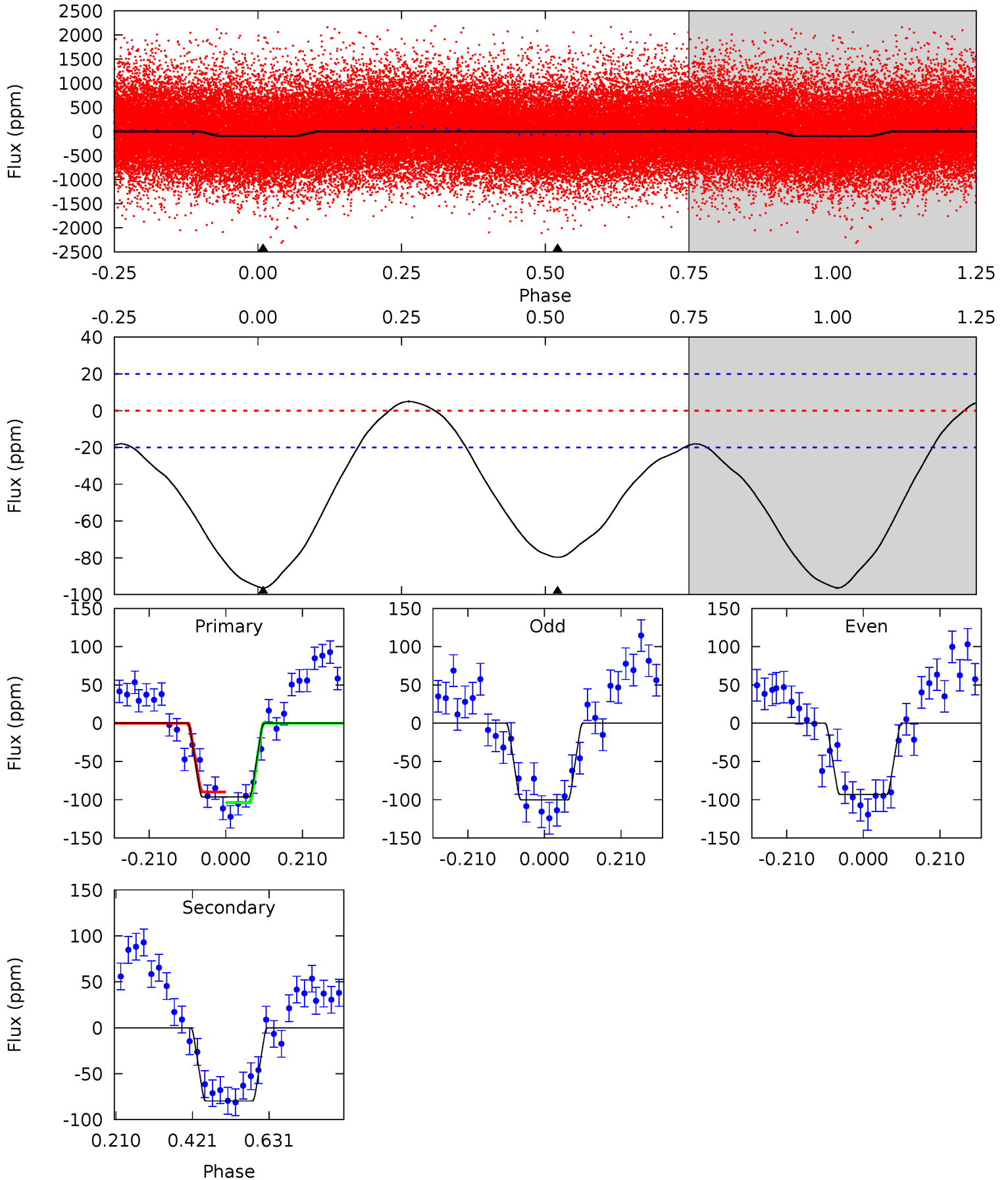
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.92	8.12	0	0	4.38	1.19	1.93	8.92	8.92	8.12	8.12	0.05	0.89	0.04	2.97



Alt Model-Shift Uniqueness Test

008161816-01, P = 2.203056 Days, E = 131.380878 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.2	17.5	0	0	4.41	1.25	2.49	21.2	21.2	17.5	17.5	0.76	1.13	0.05	1.50



Stellar Parameters For KIC 008161816

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5792^{+145}_{-174}	$4.547^{+0.032}_{-0.168}$	$-0.140^{+0.300}_{-0.300}$	$0.864^{+0.208}_{-0.069}$	$0.959^{+0.101}_{-0.111}$	$2.094^{+0.358}_{-0.939}$
	+3%/-3%	+1%/-4%	+214%/-214%	+24%/-8%	+11%/-12%	+17%/-45%
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 008161816-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-35 ± 4	$0.77^{+0.22}_{-0.19}$	1873^{+101}_{-79}	5087^{+777}_{-507}	34^{+29}_{-14}
Alt.	-80 ± 5	$0.98^{+0.21}_{-0.21}$	1873^{+98}_{-81}	5476^{+627}_{-450}	47^{+29}_{-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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

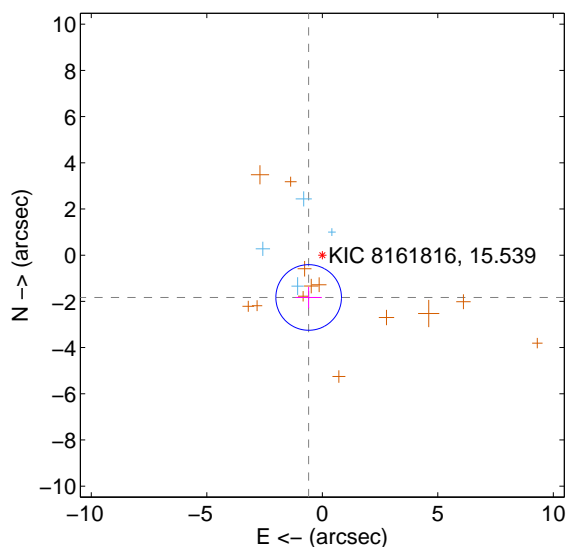
Supplemental centroid analysis for 008161816-01. Kepler magnitude: 15.54. Transit SNR 8.94

There are 4 quarters with good PRF difference image offsets

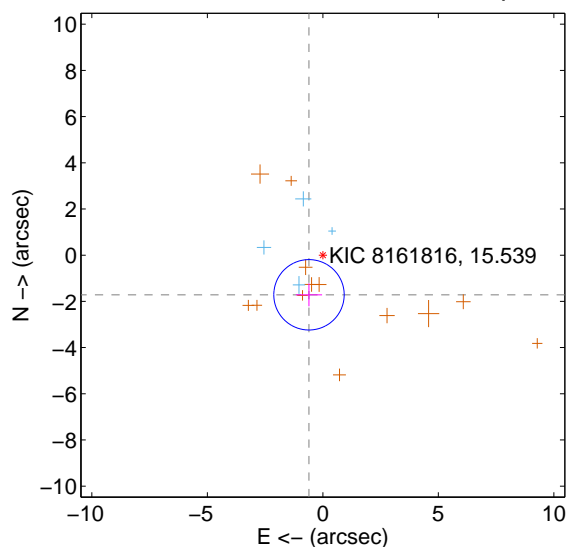
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.924 ± 0.473	4.06	0.591 ± 0.569	-1.831 ± 0.462
PRF-fit source offset from KIC position	1.817 ± 0.508	3.58	0.600 ± 0.569	-1.716 ± 0.500
photometric centroid source offset	3.69 ± 1.68	2.20	-3.27 ± 1.70	-1.72 ± 1.59

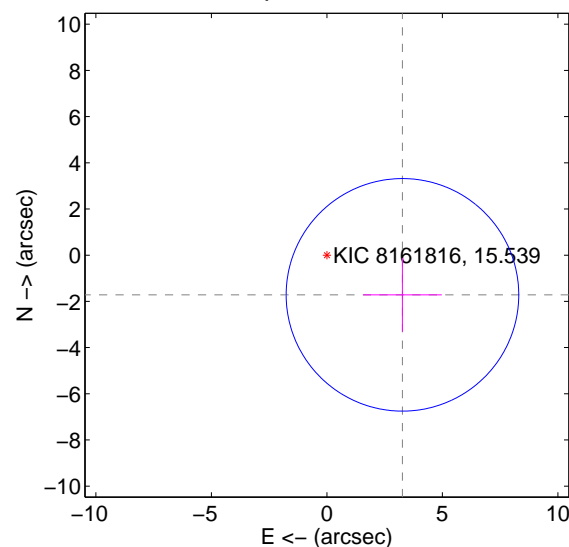
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

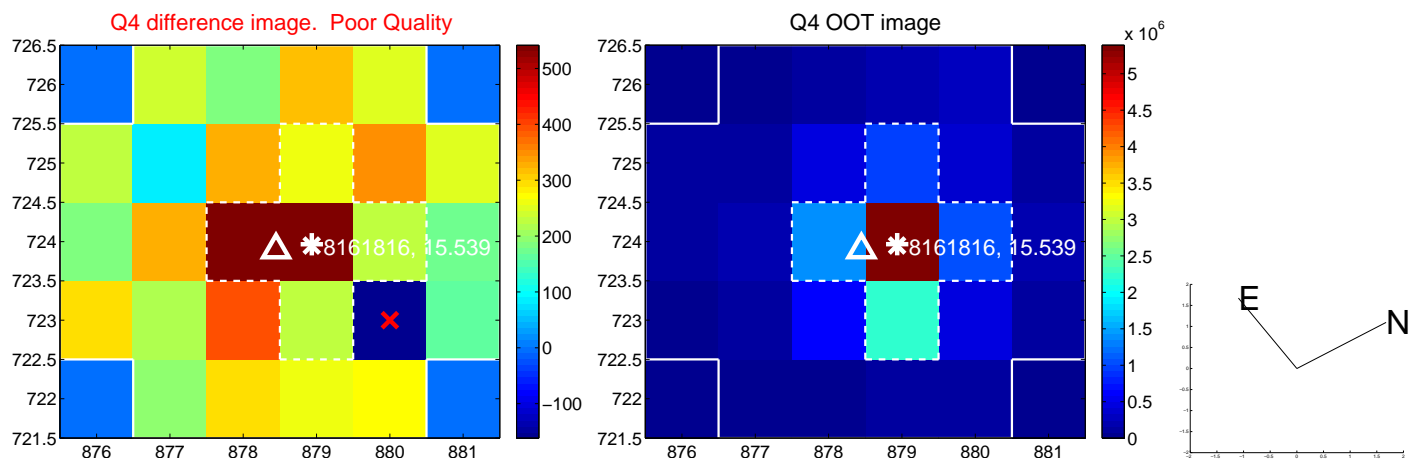
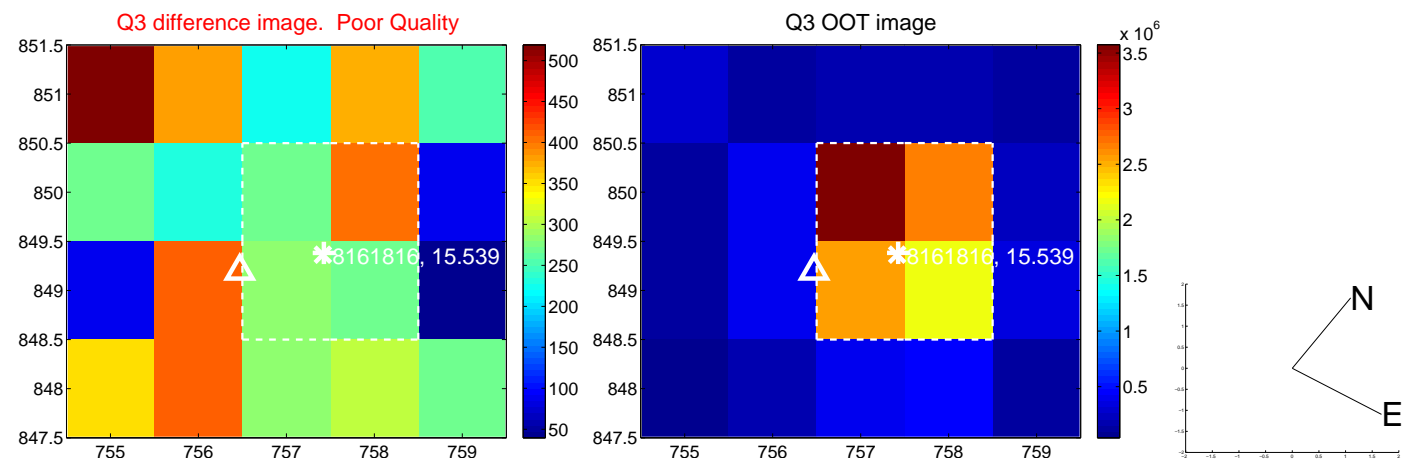
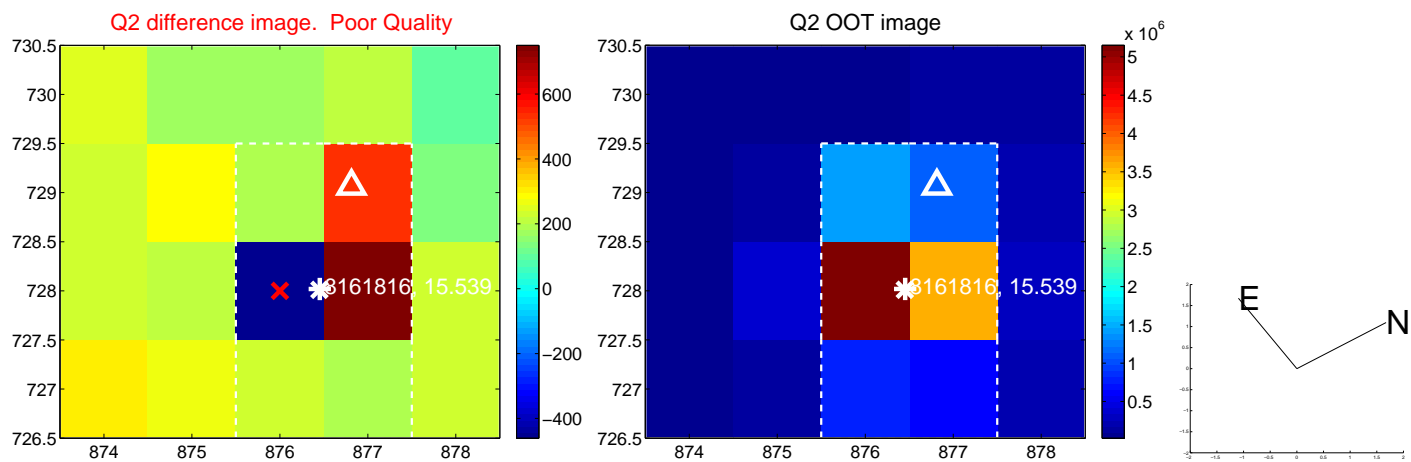
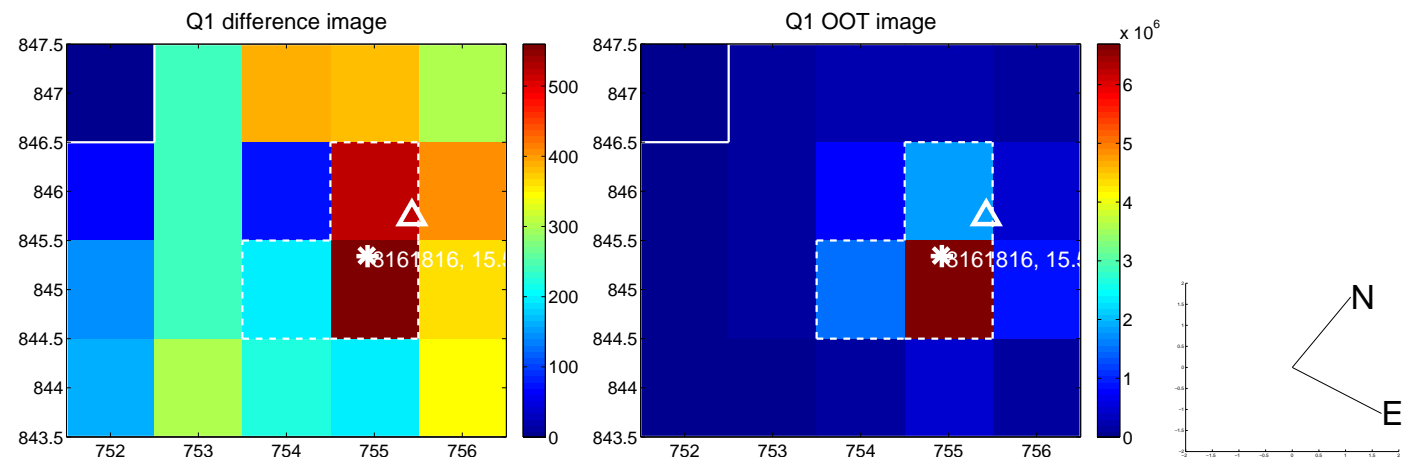


offset from photometric centroids

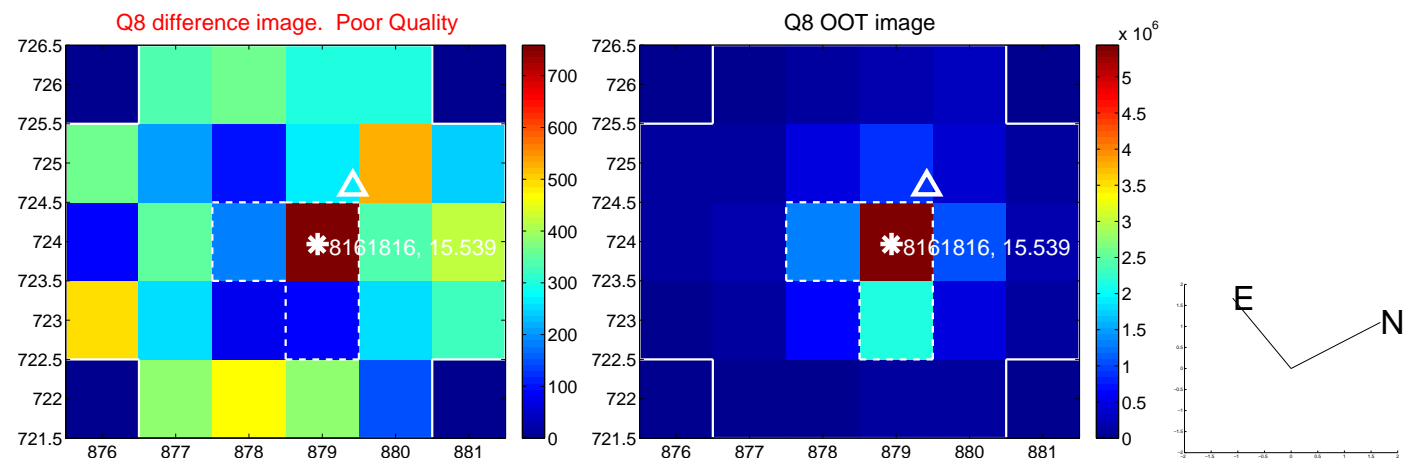
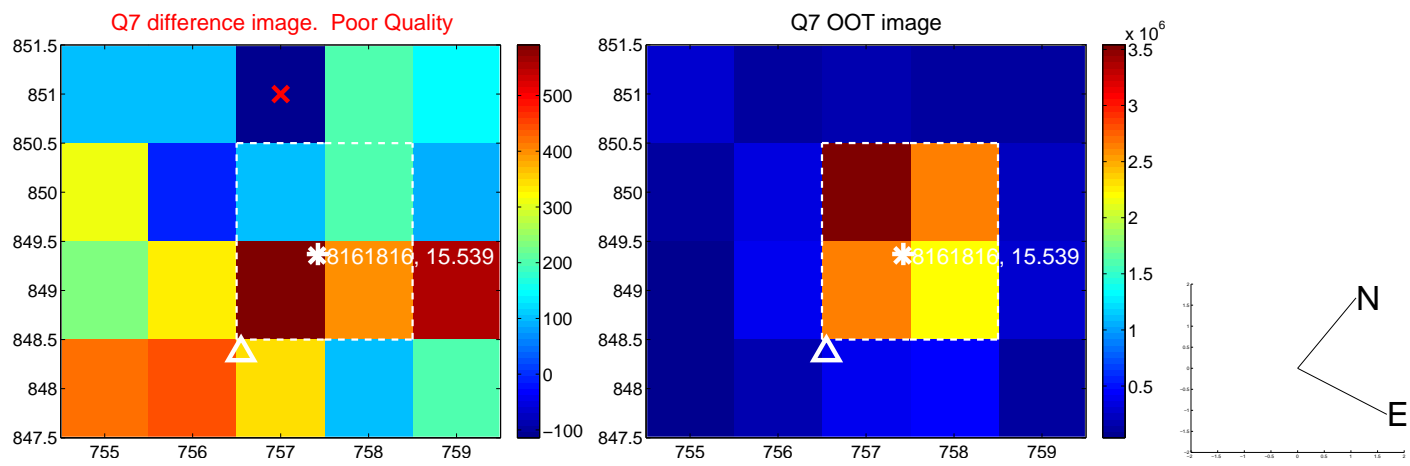
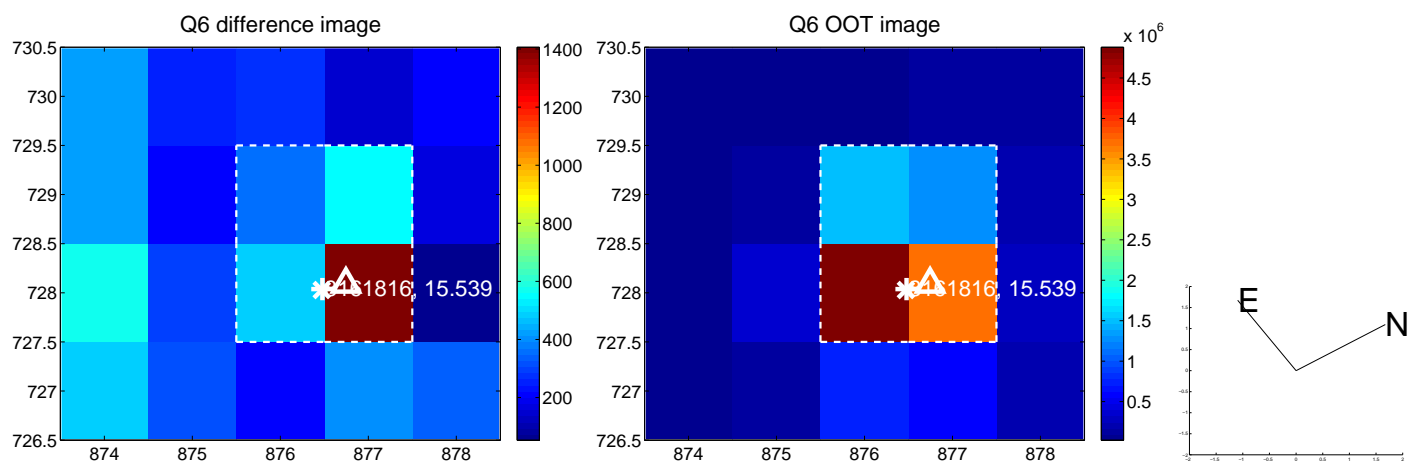
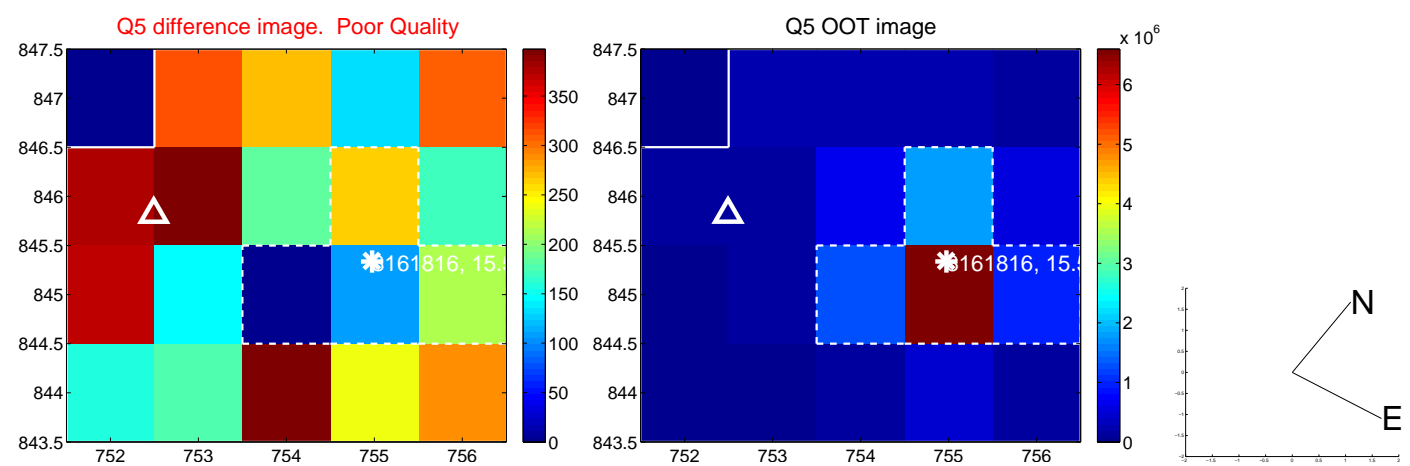


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

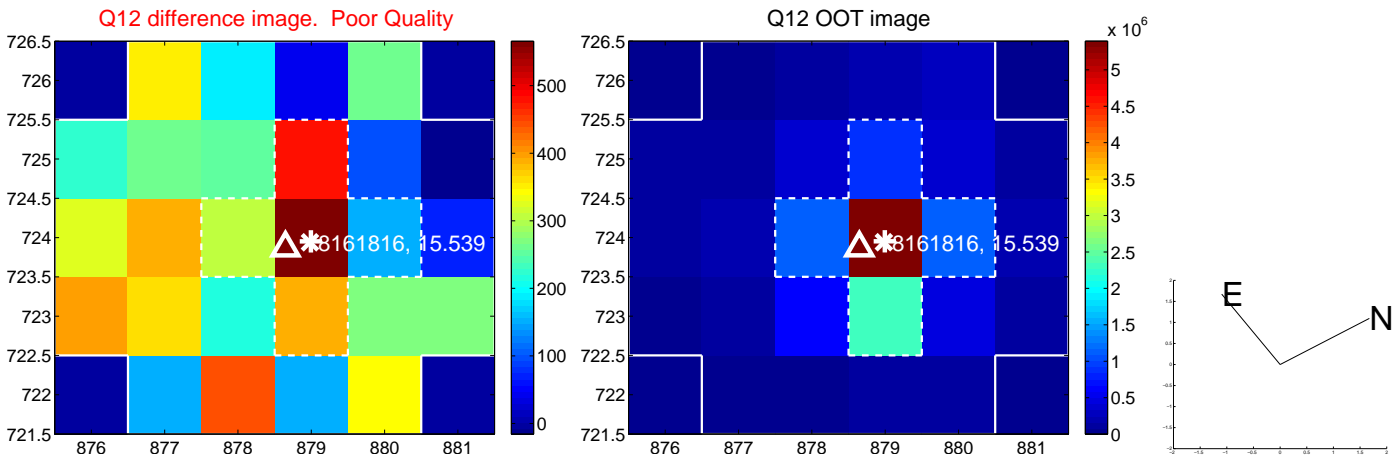
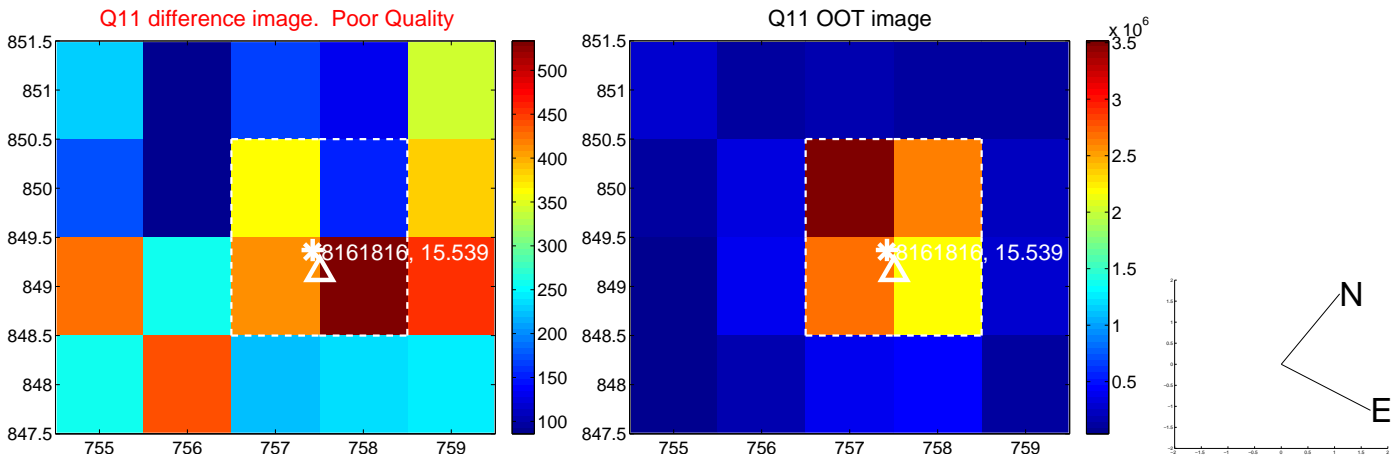
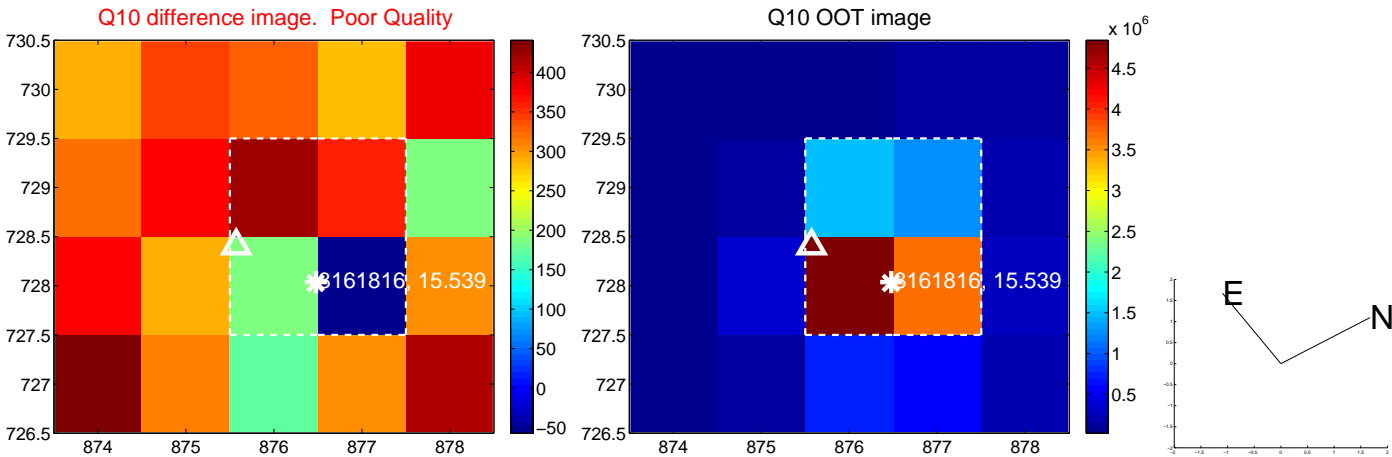
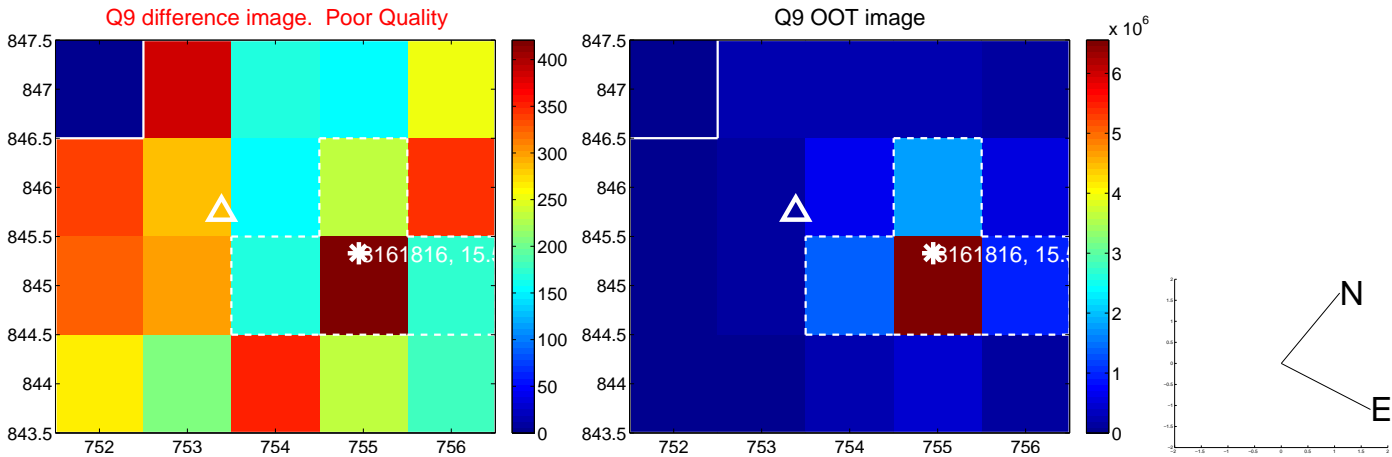
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



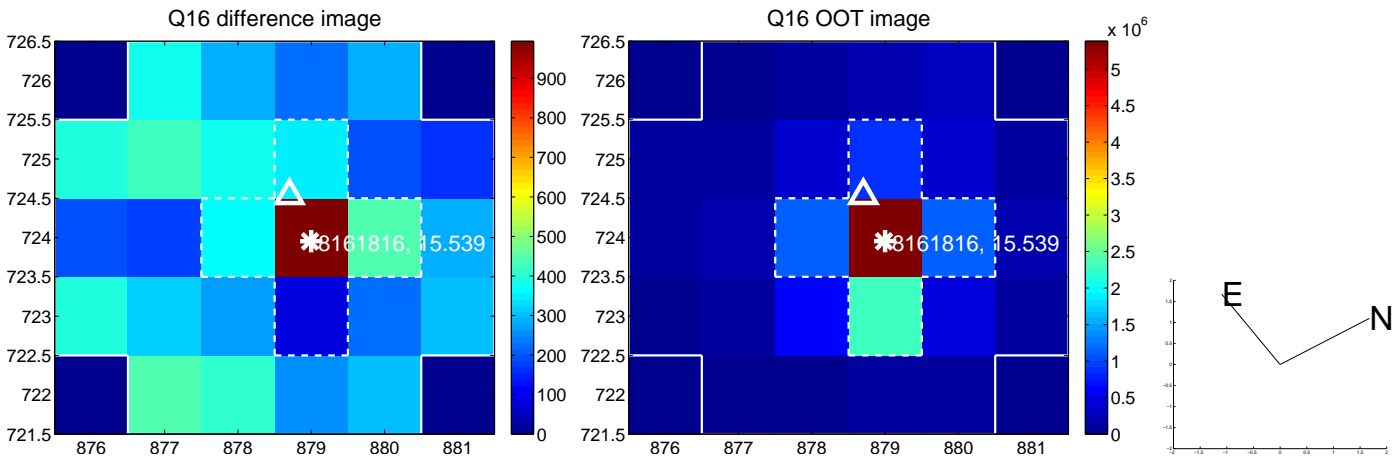
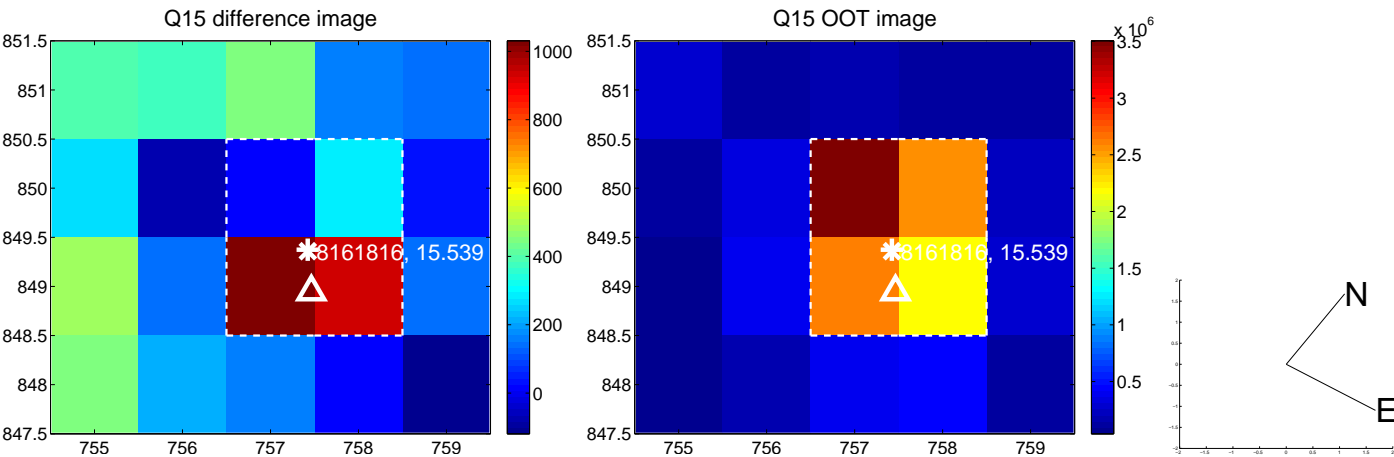
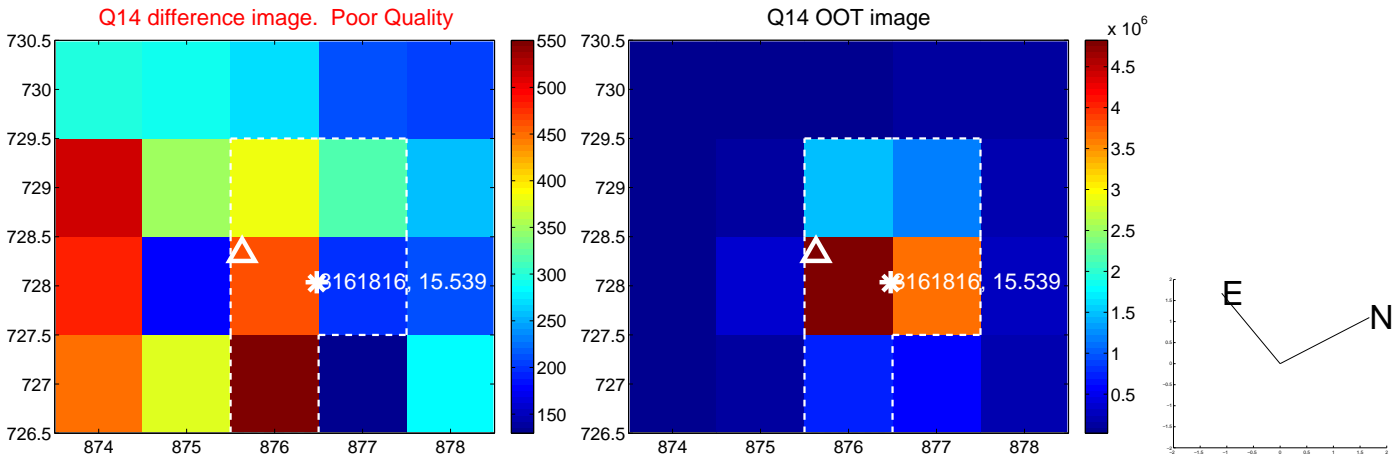
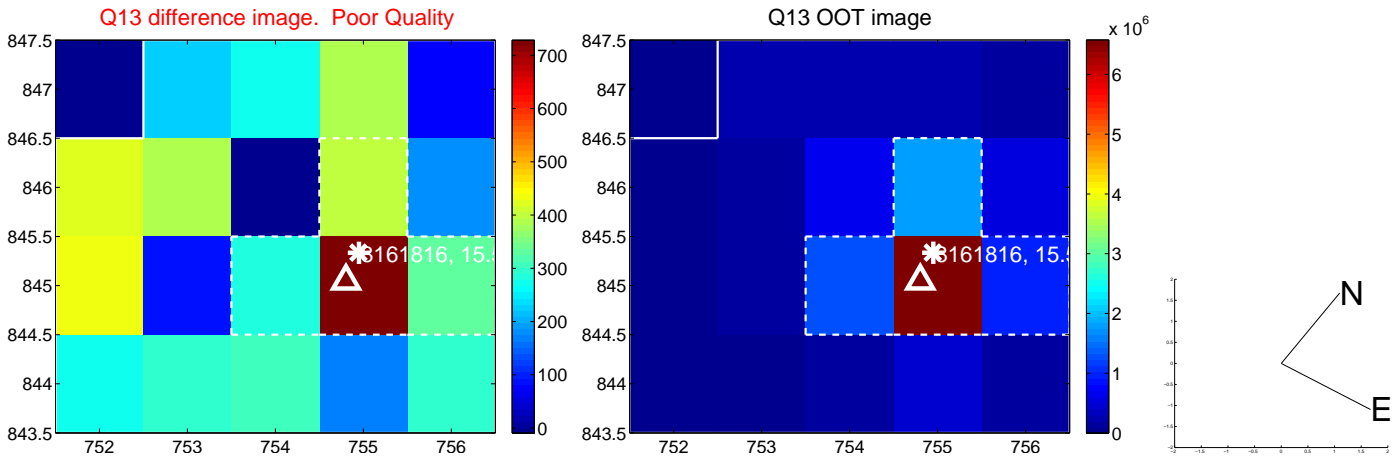
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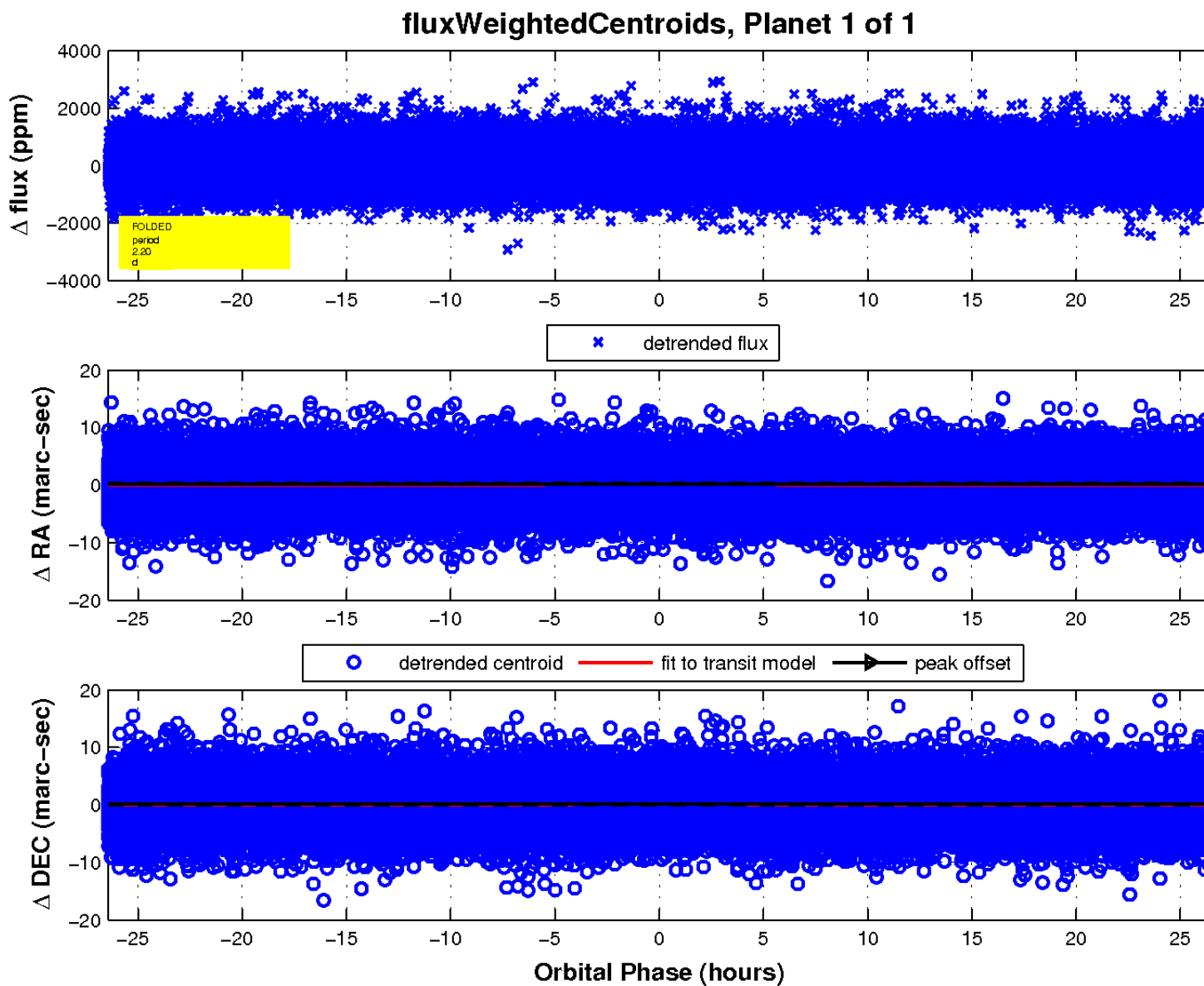
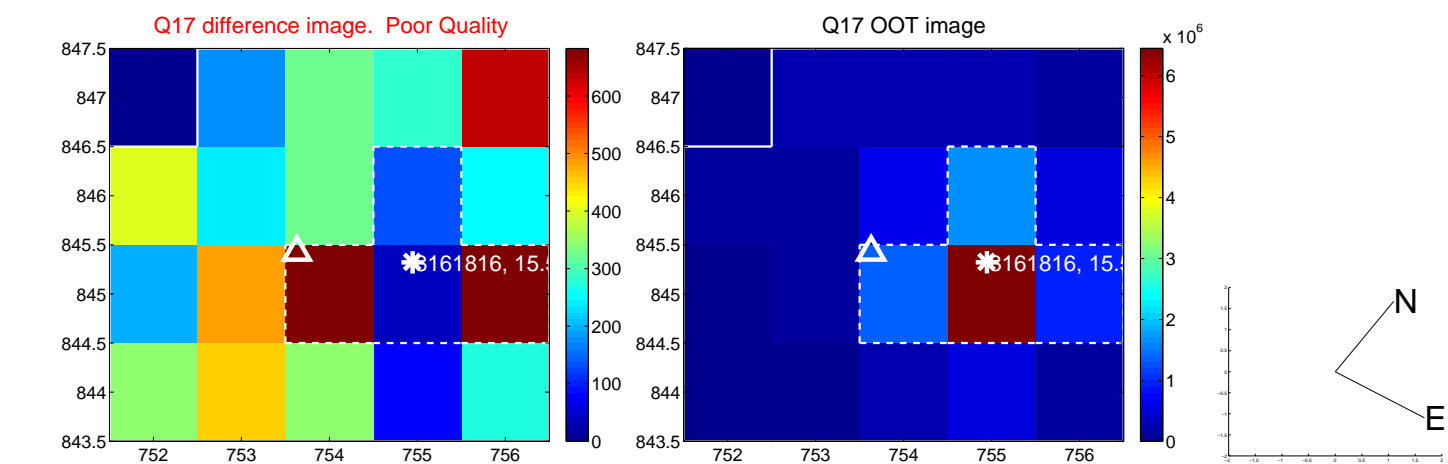
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UKIRT Image

Declination

