

KIC 007031421

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})
007031421-01	OBS	No	0.566781	131.861343	15.2	5.267	8.8	11.5	0.99	6185	0.39	7243.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007031421-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_FEW_DIFFS—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.

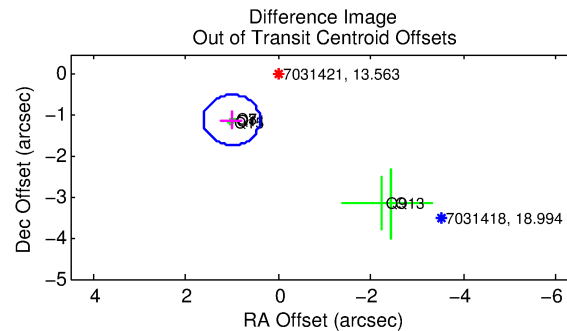
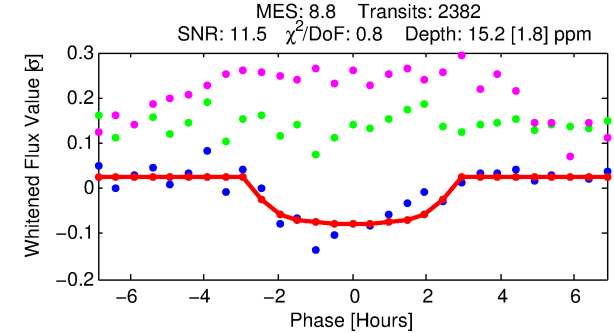
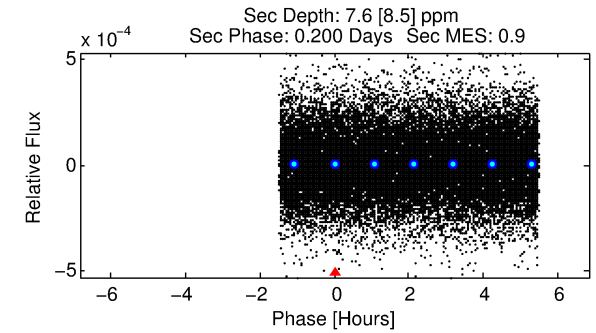
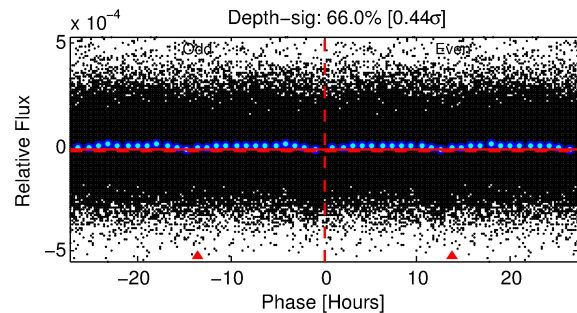
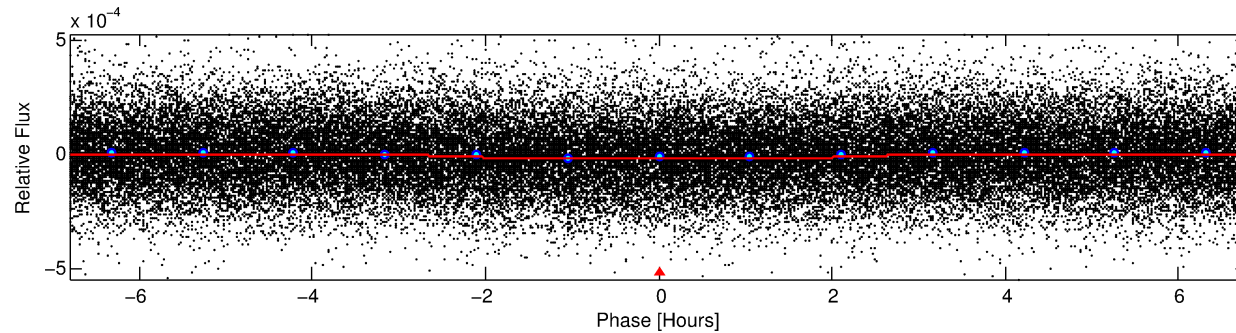
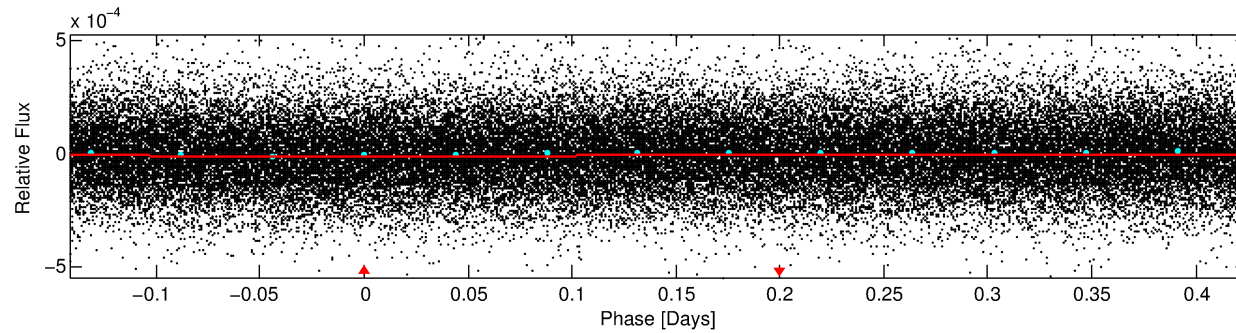
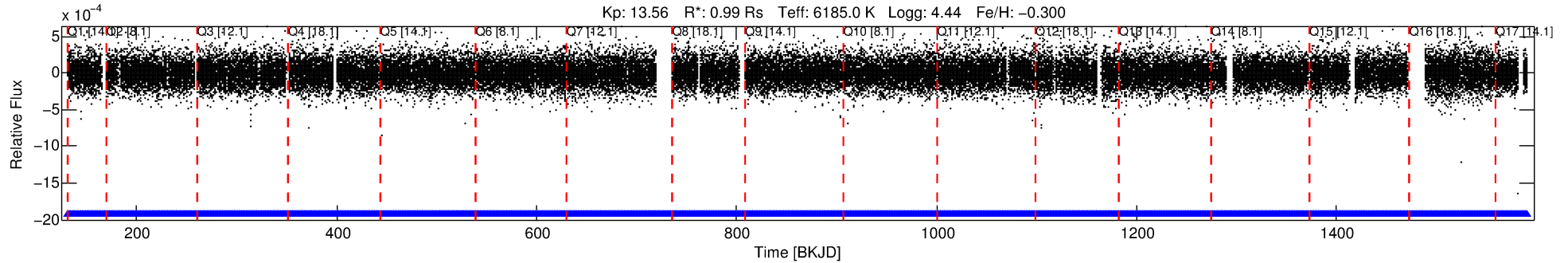
Ephemeris Match Information For 007031421-01

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
007031421-01	7031421	RR-Lyr-pri	7198959	1:1	1130.6	80	-273	7.86	13.56	41553.00	Direct-PRF	0	3.31	15.71

Notes: P₁:P₂ 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. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ 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: 7031421 Candidate: 1 of 1 Period: 0.567 d



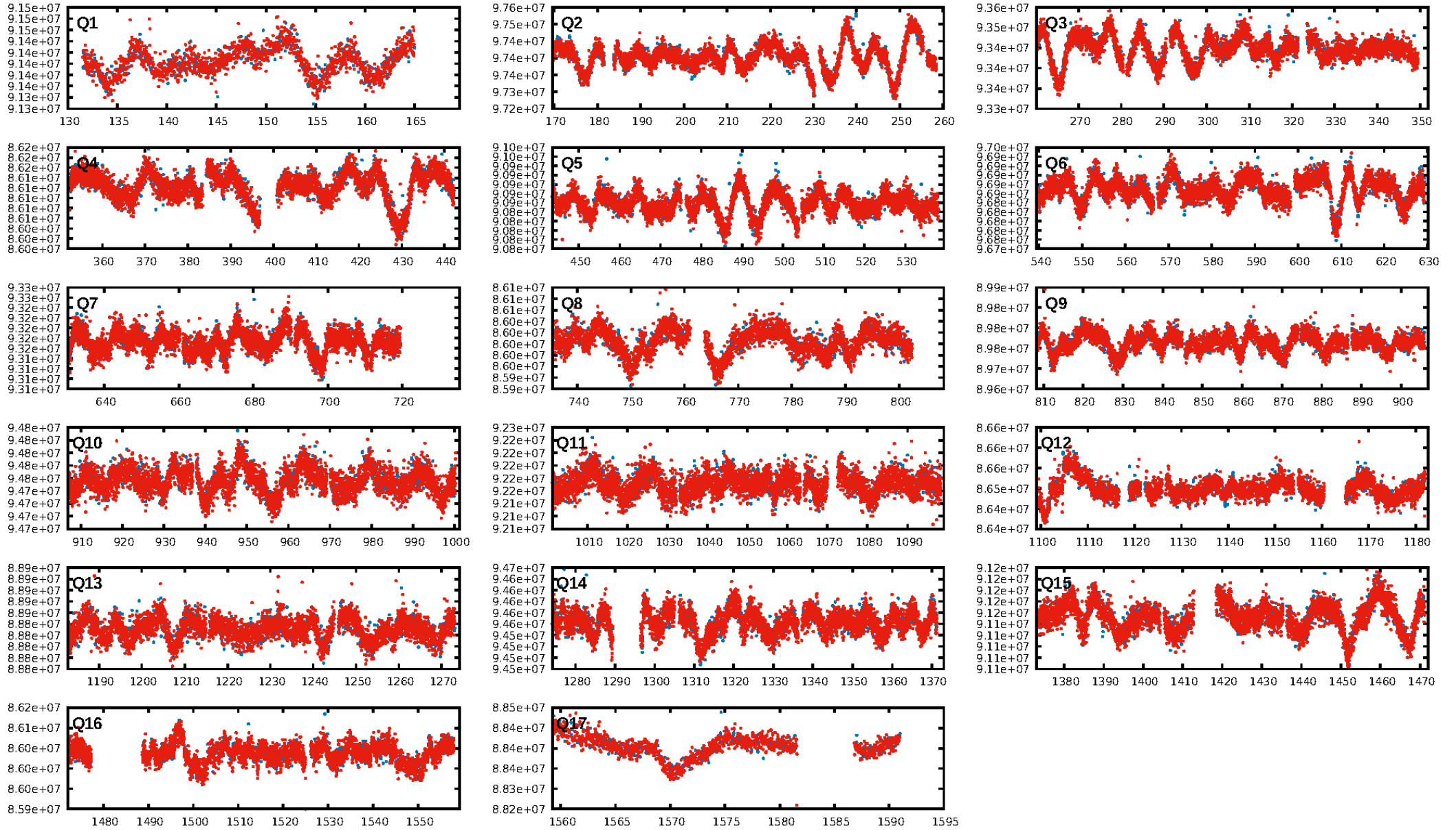
DV Fit Results:

Period = 0.56678 [0.00001] d
Epoch = 131.8613 [0.0043] BKJD
Rp/R* = 0.0036 [0.0033]
a/R* = 1.07 [0.61]
b = 0.11 [42.96]
Seff = 7243.64 [2940.26]
Teff = 2352 [239] K
Rp = 0.39 [0.37] Re
a = 0.0134 [0.0036] AU
Ag = 5.00 [10.84] [0.37 σ]
Teffp = 5439 [2906] K [1.06 σ]

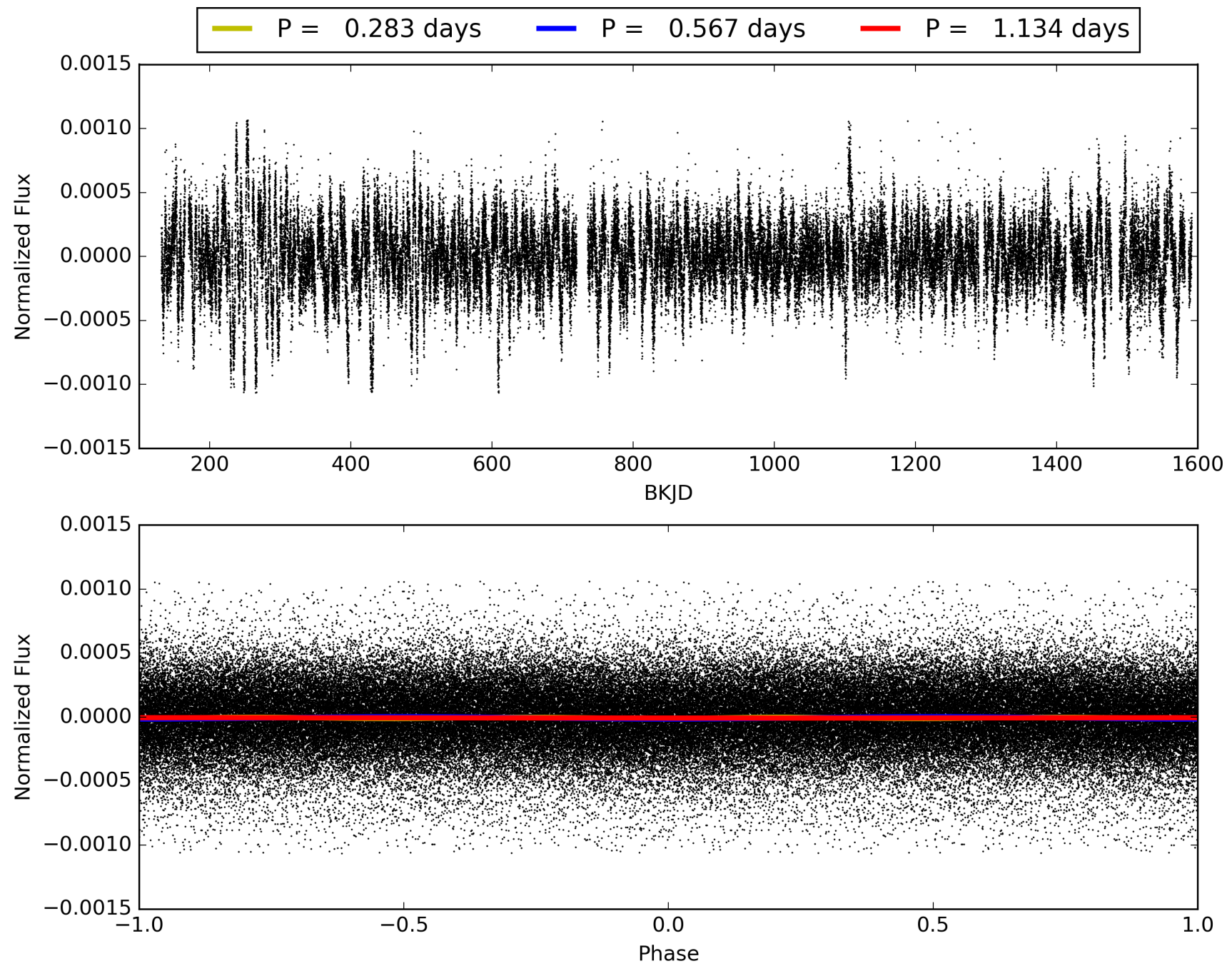
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2275/2275]
GhostDiagnostic-chr: 0.3751
Centroid-sig: 29.4%
Centroid-so: 0.929 arcsec [1.06 σ]
OotOffset-rm: 1.496 arcsec [7.31 σ]
KicOffset-rm: 1.452 arcsec [7.22 σ]
OotOffset-st: 0/4/0/2 [6]
KicOffset-st: 0/4/0/2 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007031421-01, PDC Light Curves

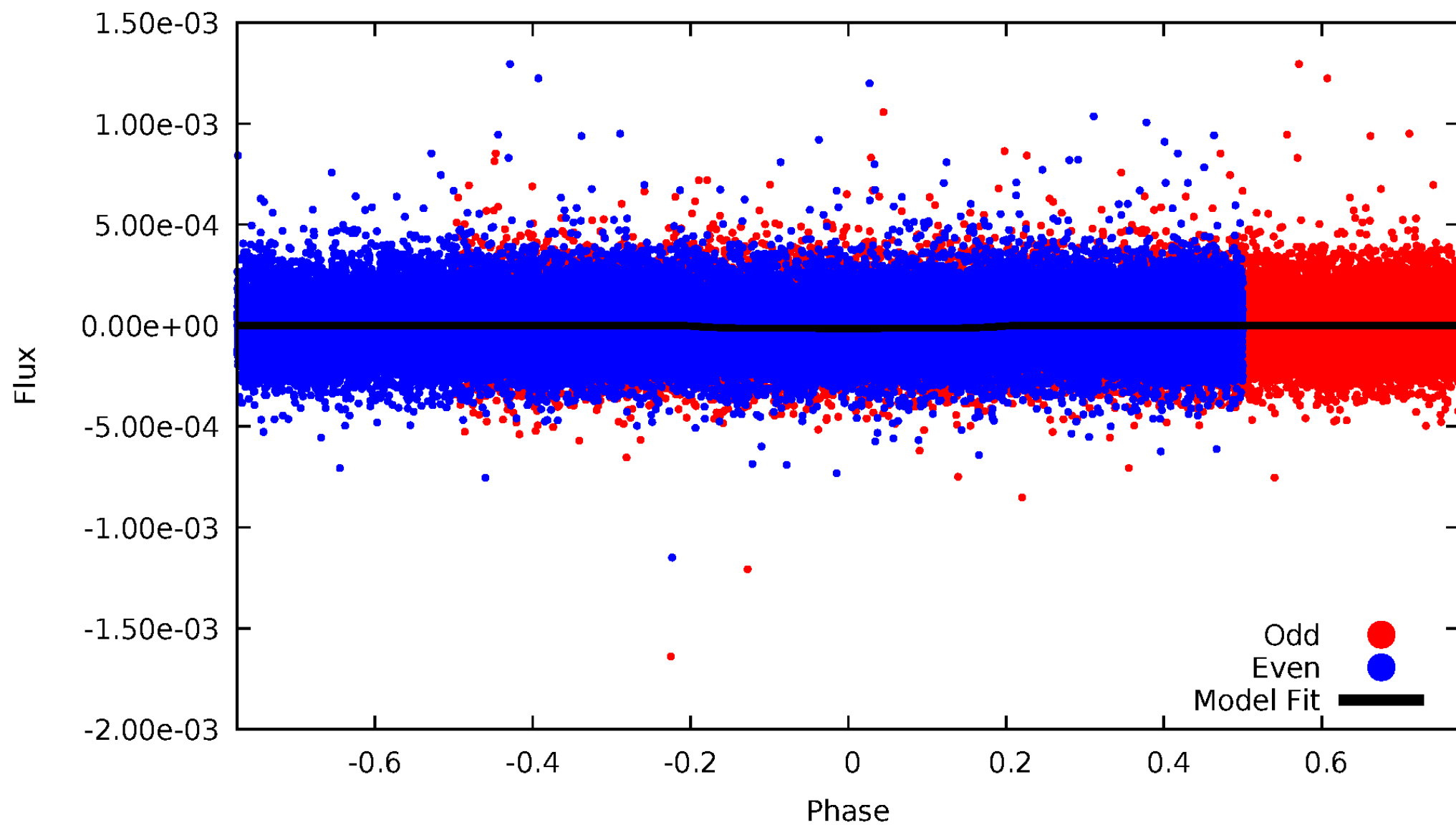


TCE 007031421-01



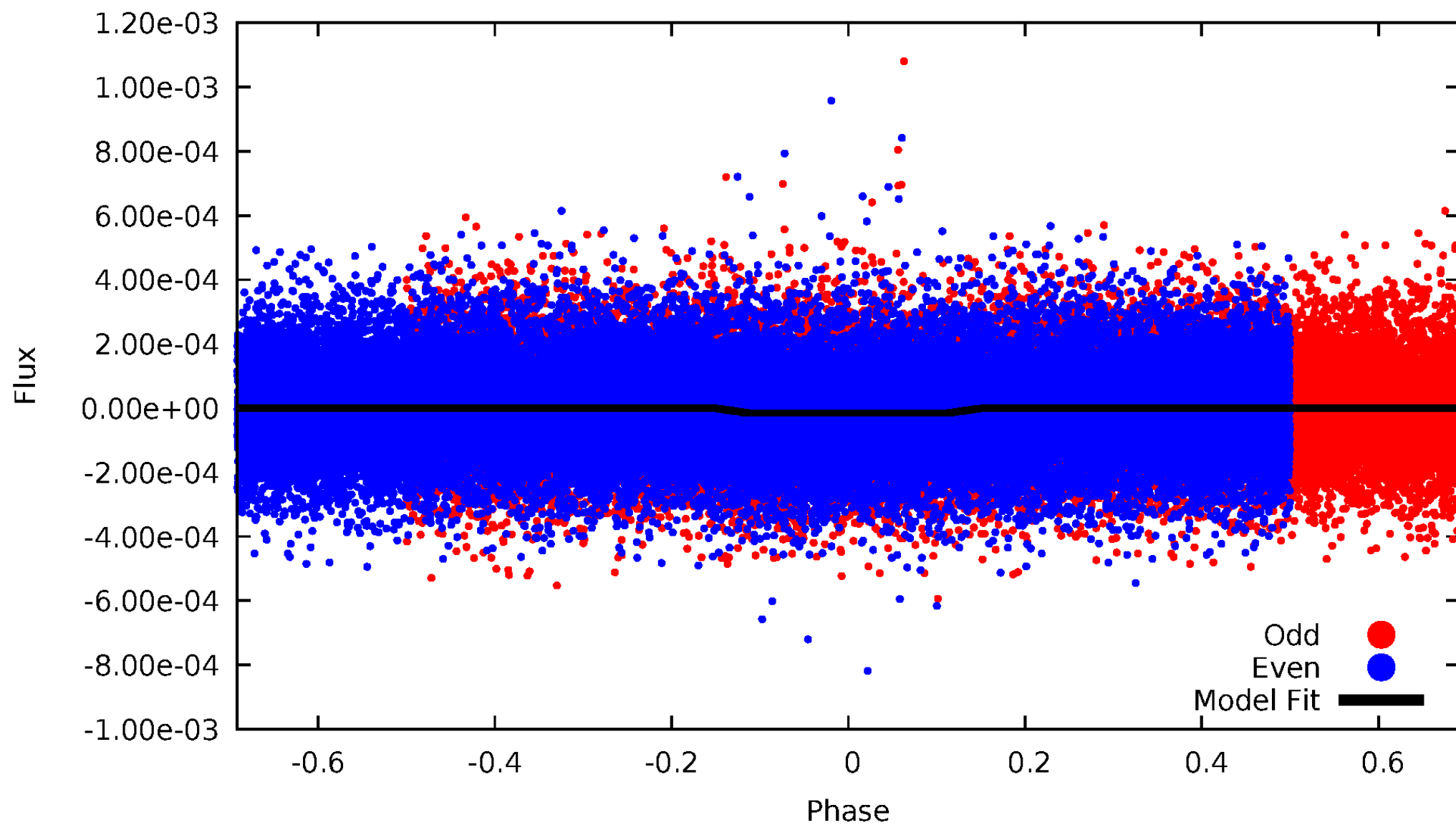
DV Odd/Even

TCE 007031421-01



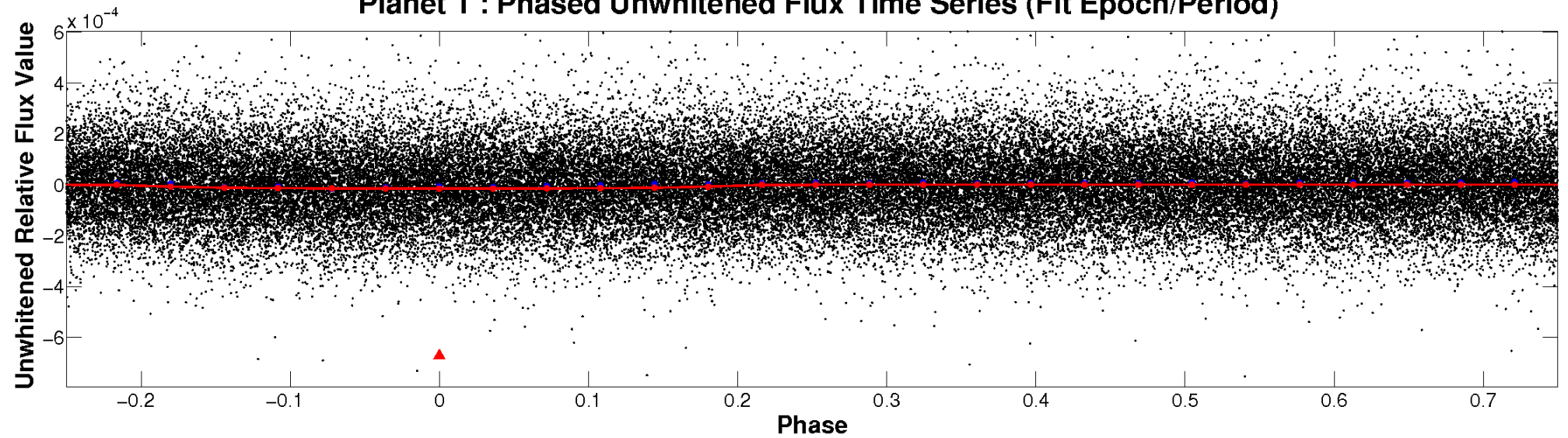
ALT Odd/Even

TCE 007031421-01

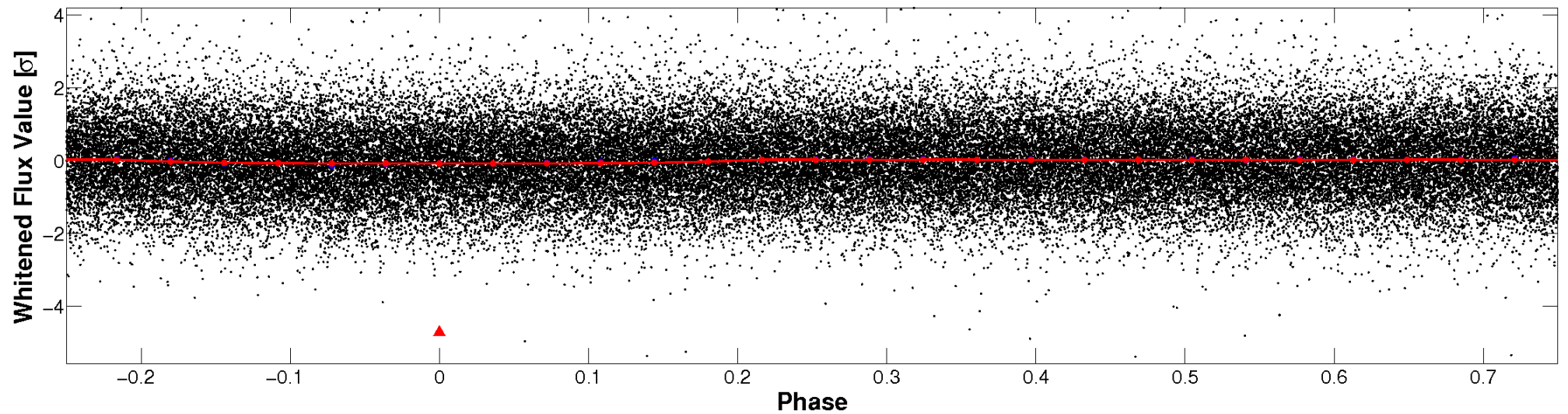


Non-Whitened Vs. Whitened Light Curve

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

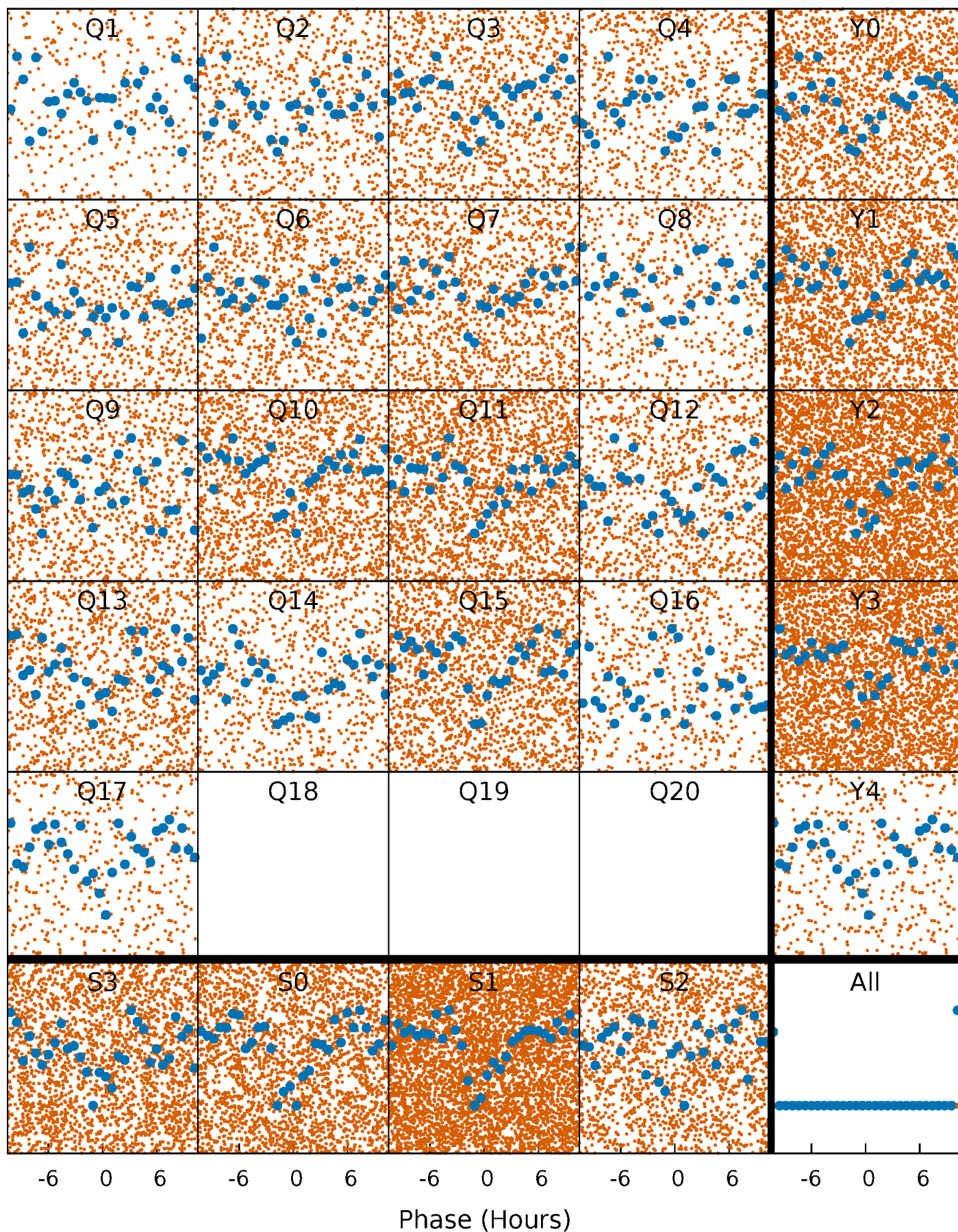


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



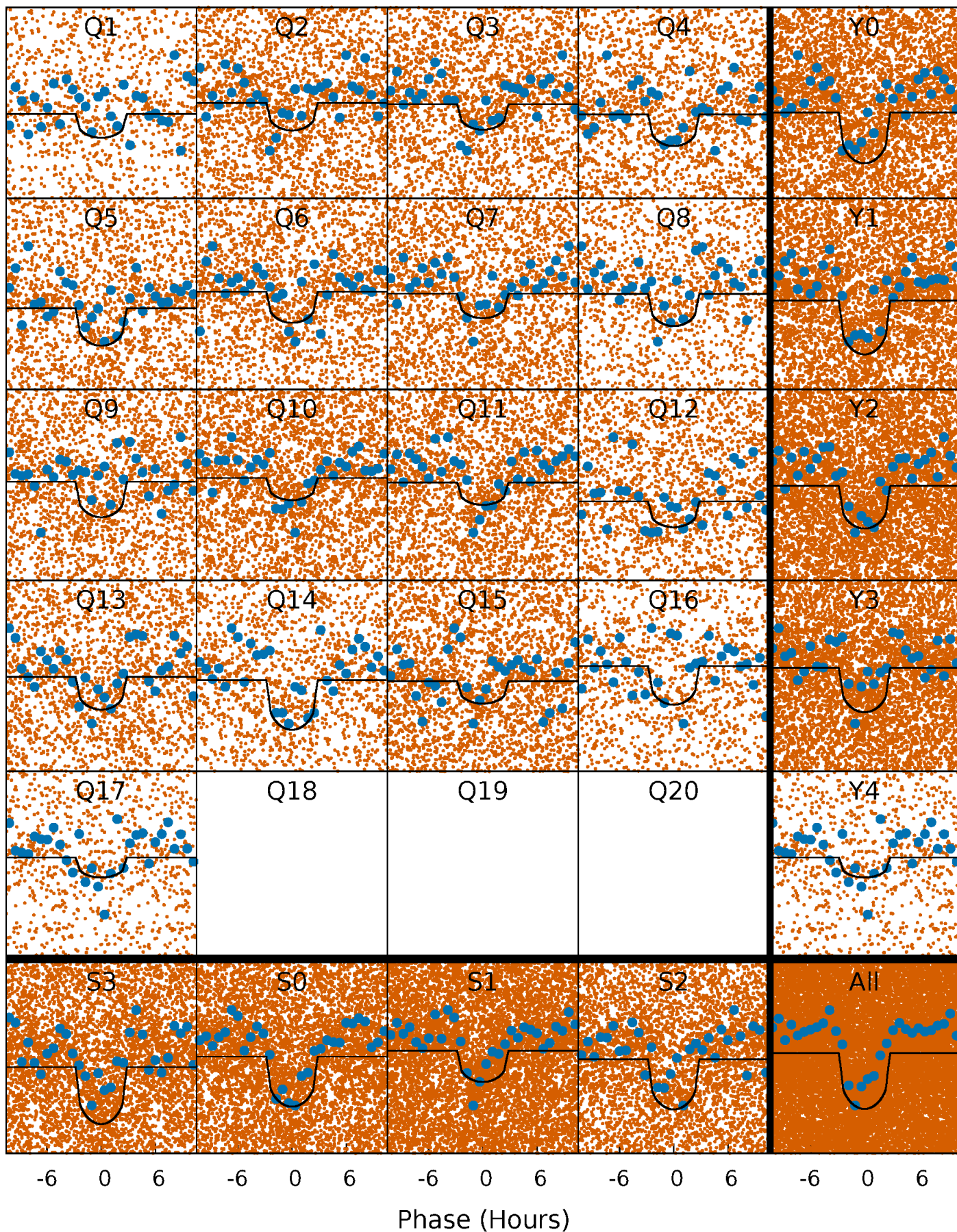
PDC Quarter-Phased Transit Curves

TCE 007031421-01 P= 0.566781 Days $T_0=131.861343$ (BKJD)



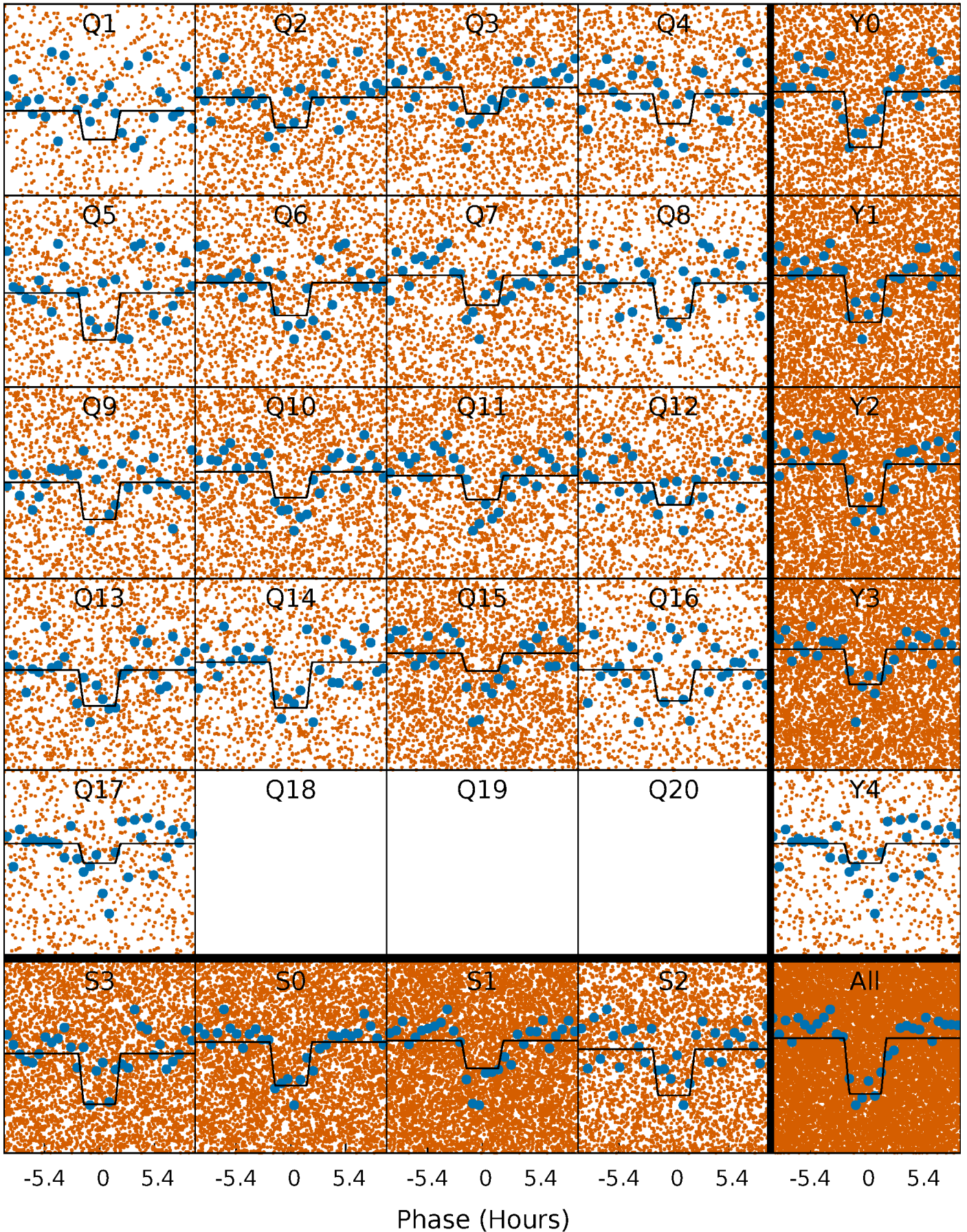
DV Quarter-Phased Transit Curves

TCE 007031421-01 P= 0.566781 Days $T_0=131.861343$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

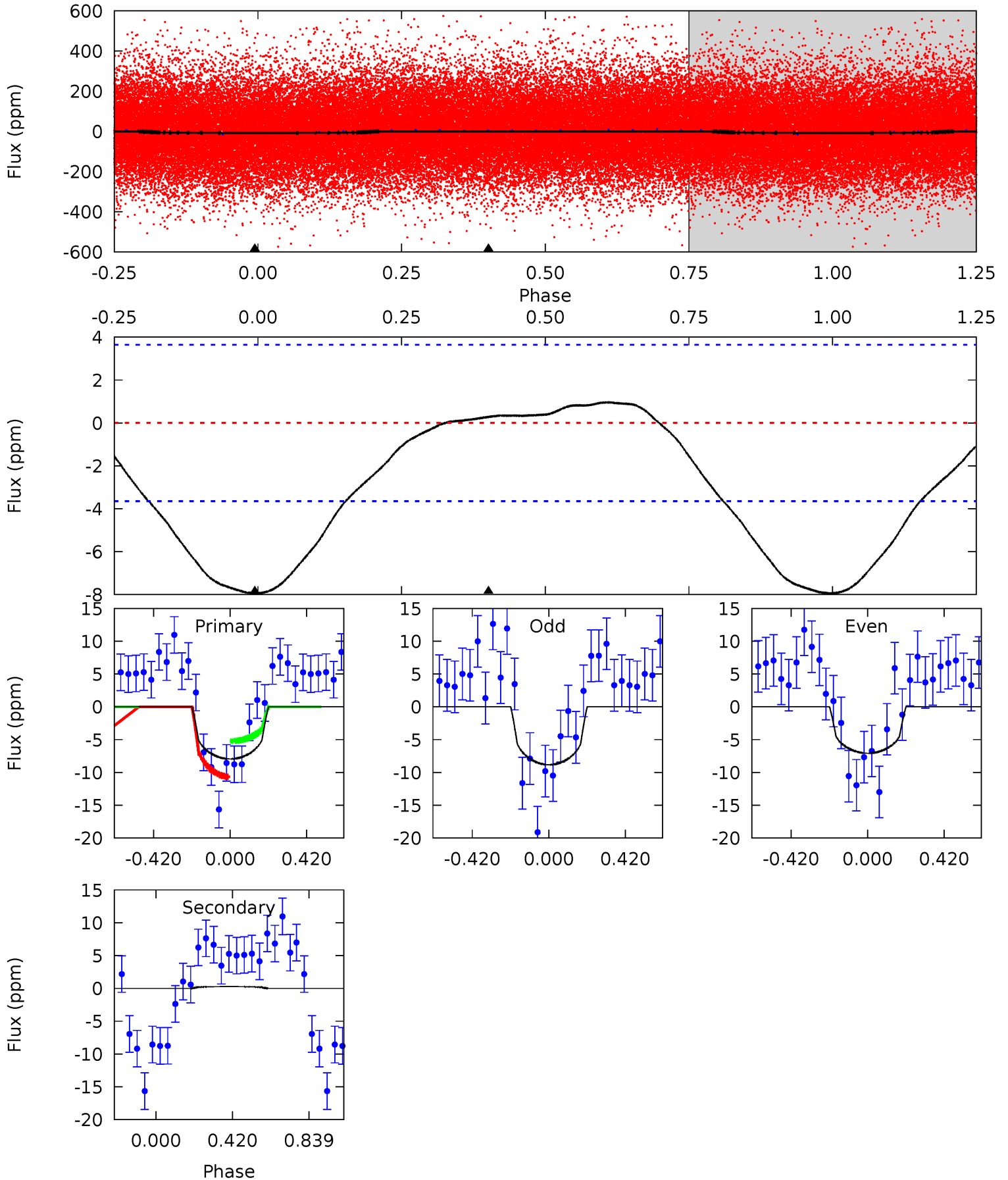
TCE 007031421-01 P= 0.566788 Days $T_0=131.838259$ (BKJD)



DV Model-Shift Uniqueness Test

007031421-01, P = 0.566781 Days, E = 131.294562 Days

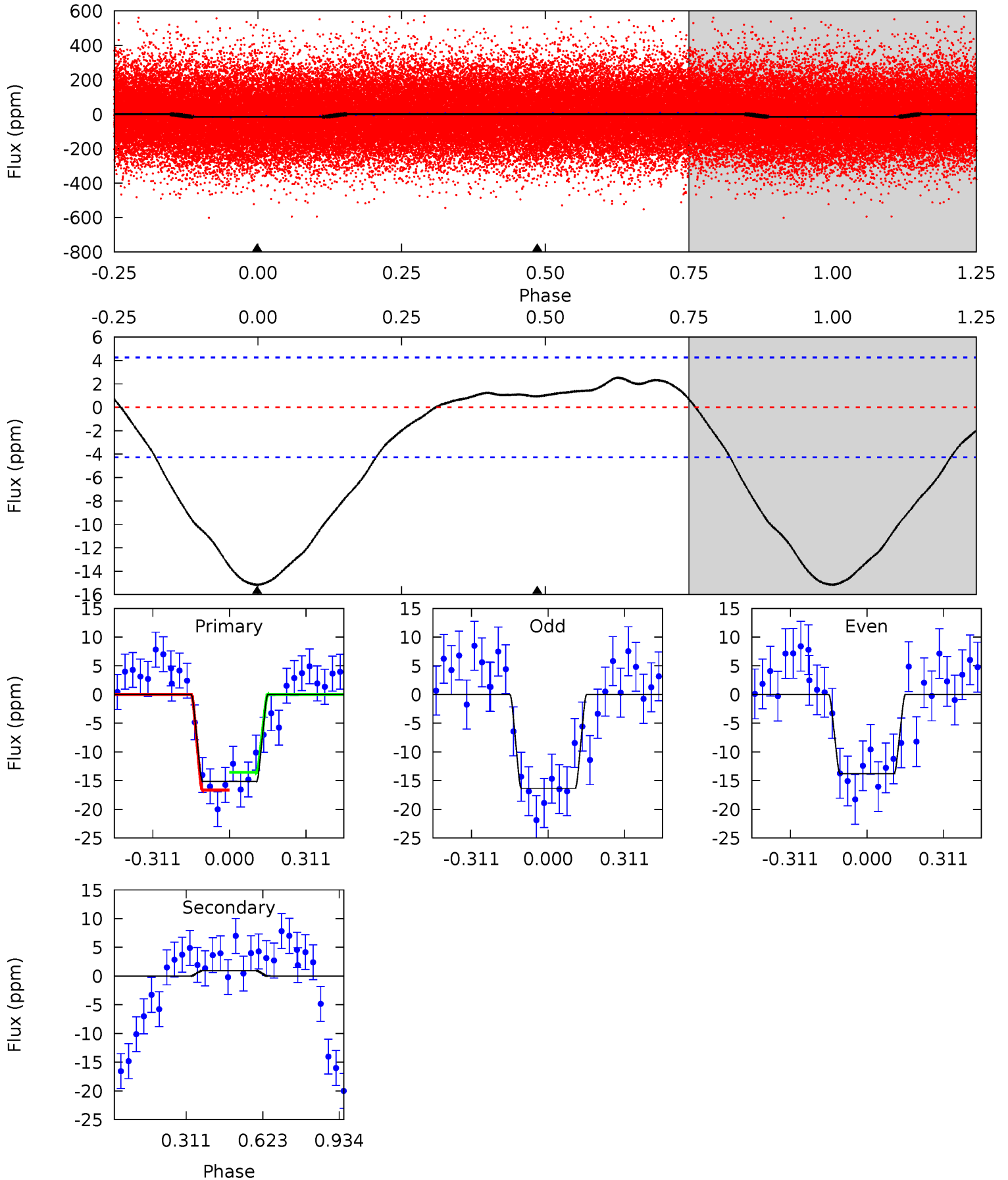
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.28	-0.32	0	0	4.25	0.81	0.82	9.28	9.28	-0.32	-0.32	1.03	1.04	0.11	3.20



Alt Model-Shift Uniqueness Test

007031421-01, P = 0.566788 Days, E = 131.271471 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	-0.94	0	0	4.32	1.01	1.77	15.4	15.4	-0.94	-0.94	1.29	0.86	0.14	1.55



Stellar Parameters For KIC 007031421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6185^{+169}_{-188}	$4.440^{+0.070}_{-0.210}$	$-0.300^{+0.300}_{-0.300}$	$0.994^{+0.320}_{-0.107}$	$0.991^{+0.147}_{-0.120}$	$1.420^{+0.521}_{-0.737}$
	+3%/-3%	+2%/-5%	+100%/-100%	+32%/-11%	+15%/-12%	+37%/-52%
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 007031421-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1	$0.44^{+0.38}_{-0.28}$	3329^{+262}_{-159}	-3465^{+5435}_{-932}	$-0.085^{+0.388}_{-1.141}$
Alt.	1 ± 1	$0.50^{+0.34}_{-0.29}$	3352^{+240}_{-174}	-3733^{+472}_{-978}	$-0.298^{+0.306}_{-1.582}$

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

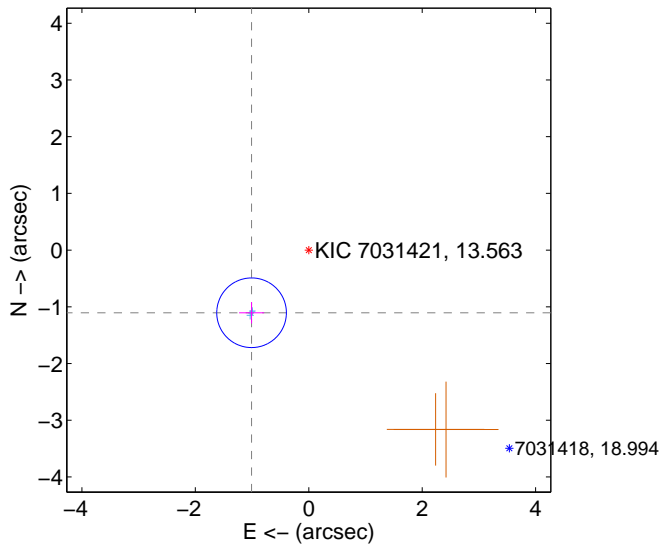
Supplemental centroid analysis for 007031421-01. Kepler magnitude: 13.56. Transit SNR 11.55

There are 4 quarters with good PRF difference image offsets

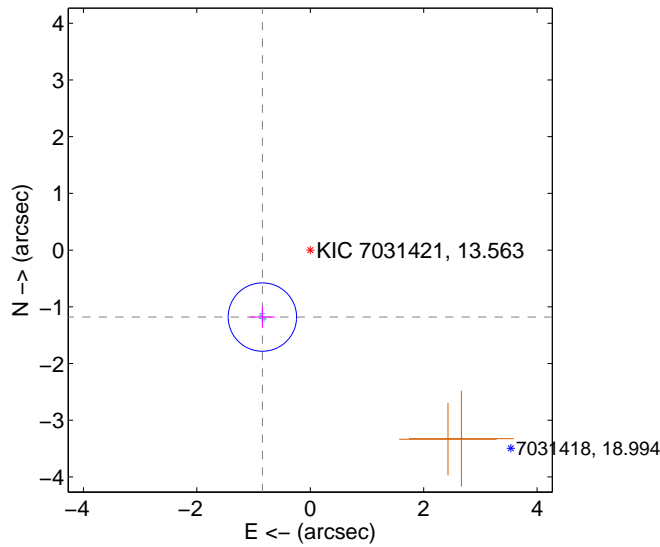
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.496 ± 0.205	7.31	1.009 ± 0.221	-1.105 ± 0.190
PRF-fit source offset from KIC position	1.452 ± 0.201	7.22	0.844 ± 0.221	-1.181 ± 0.190
photometric centroid source offset	0.93 ± 0.88	1.06	-0.48 ± 0.91	-0.80 ± 0.86

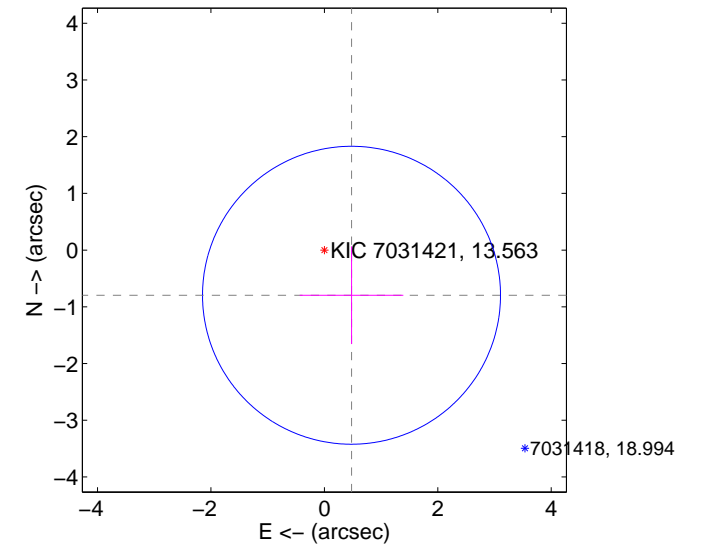
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

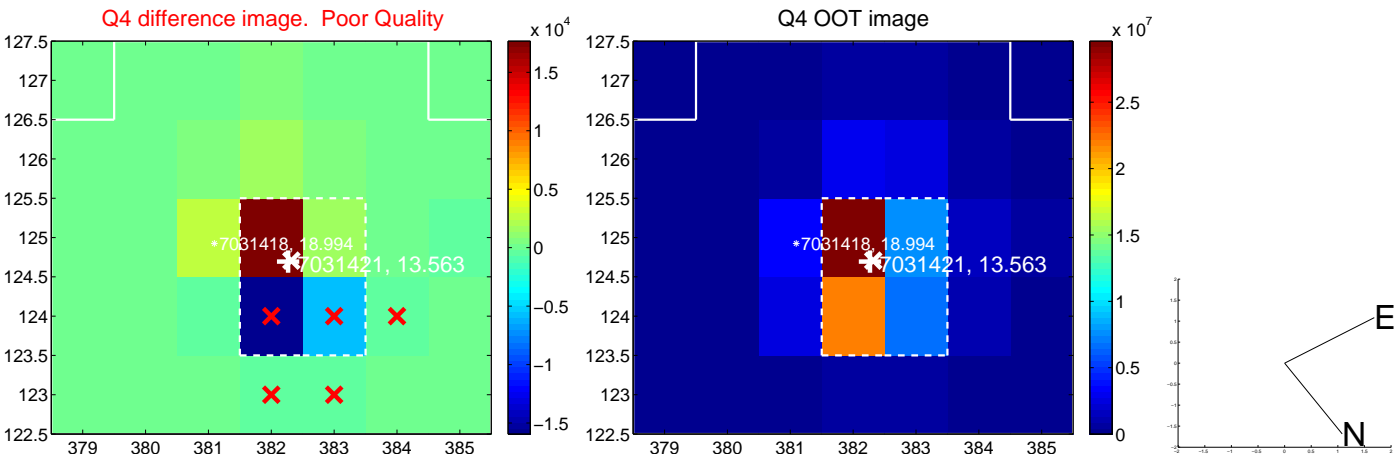
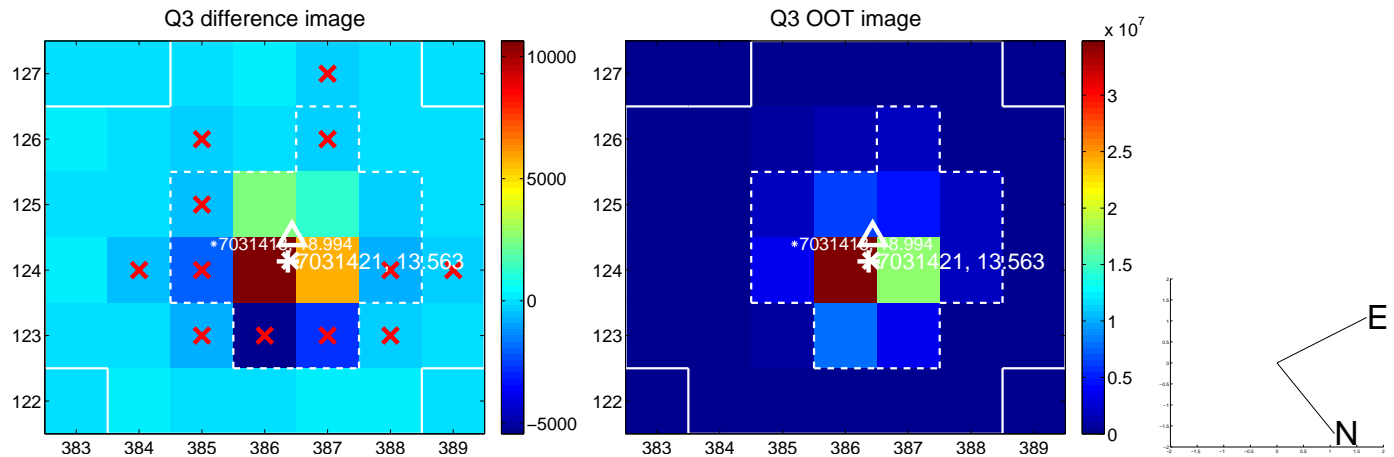
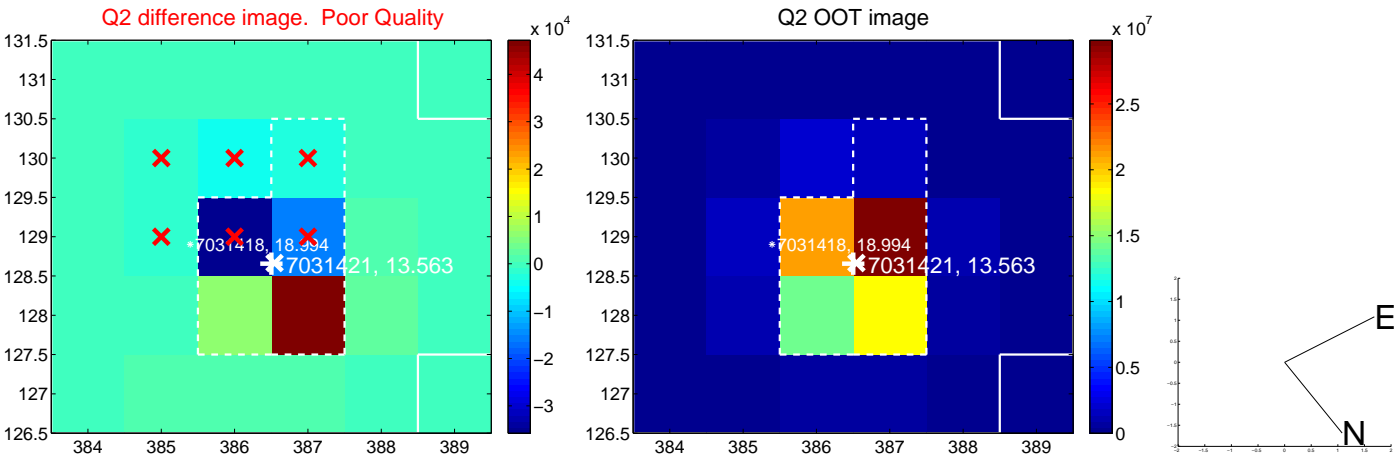
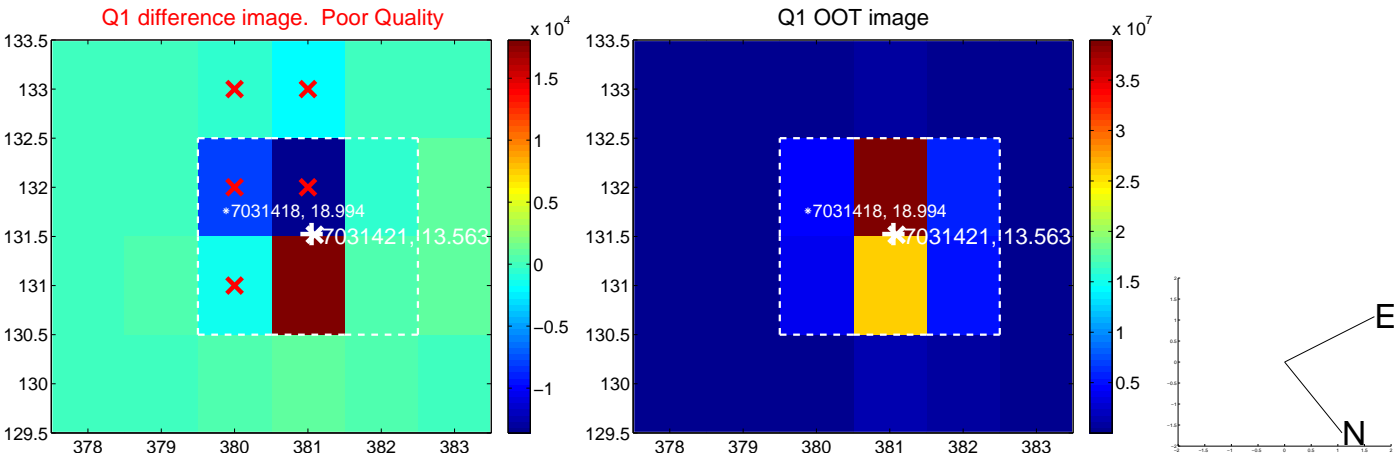


offset from photometric centroids

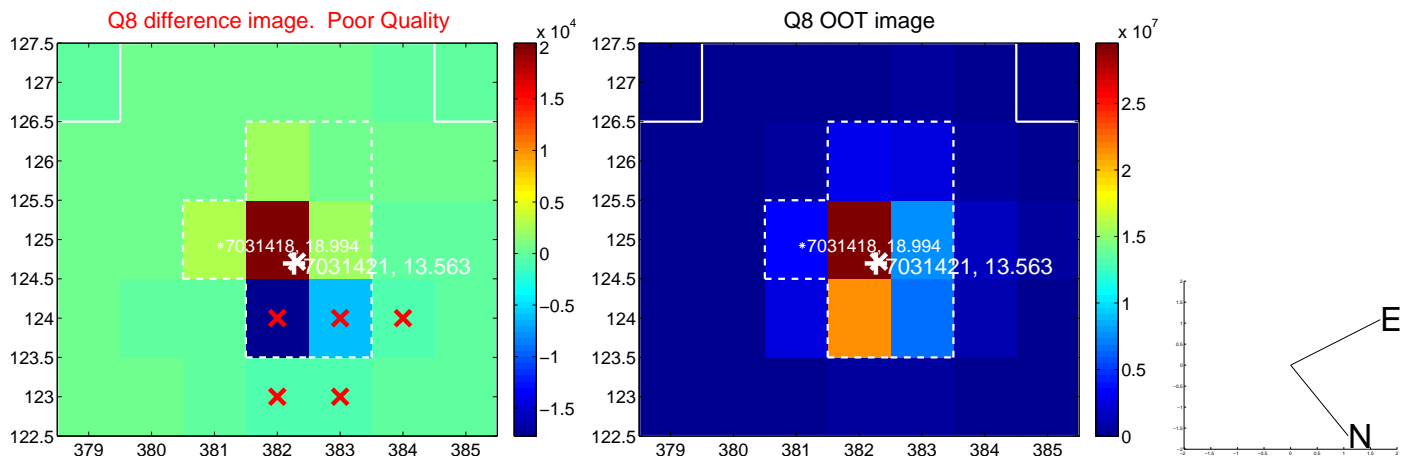
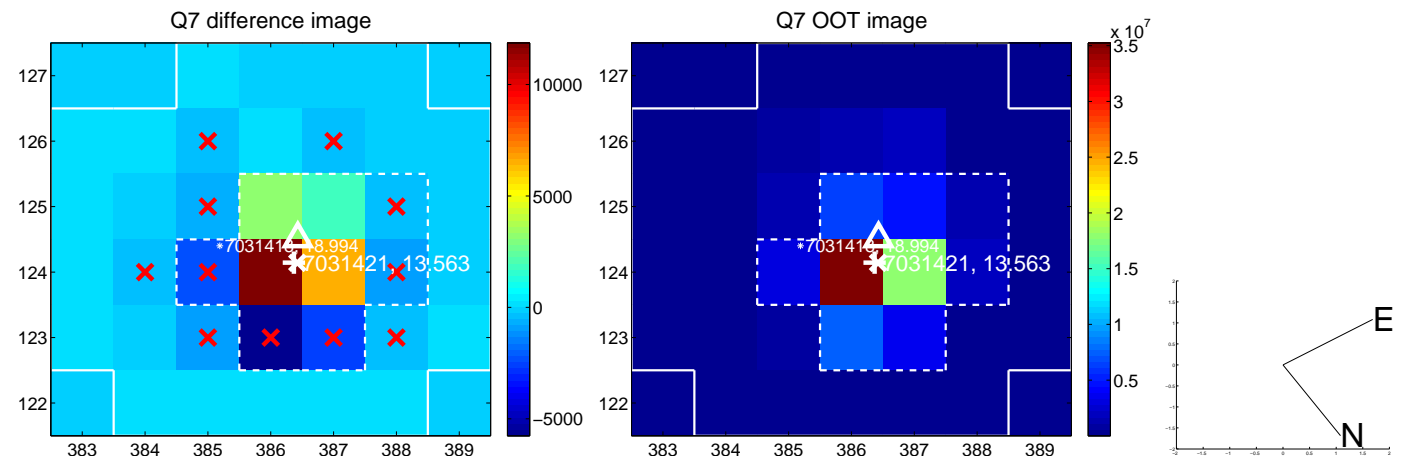
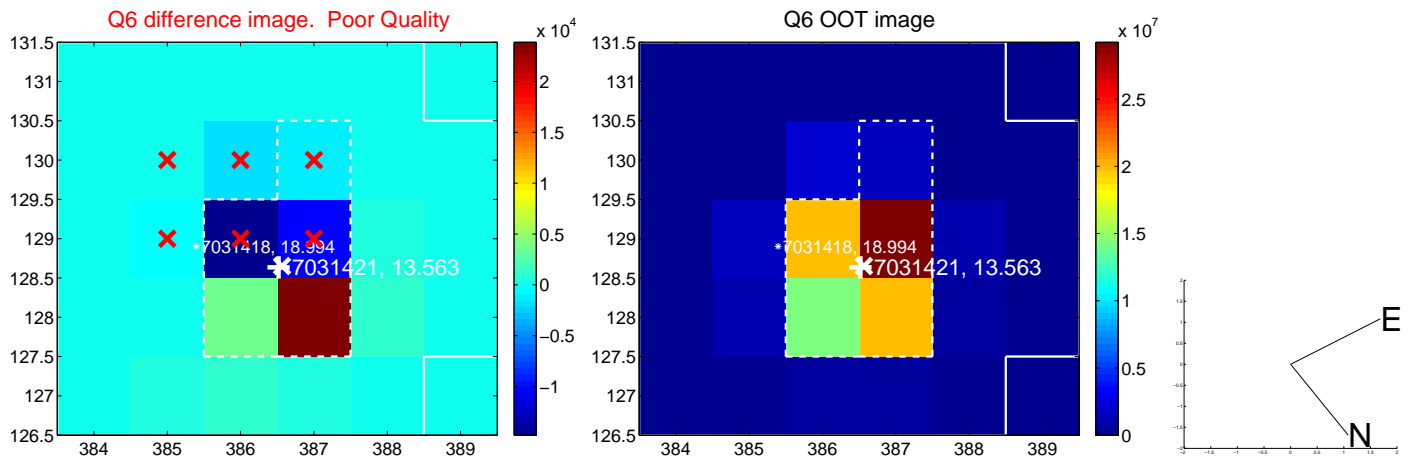
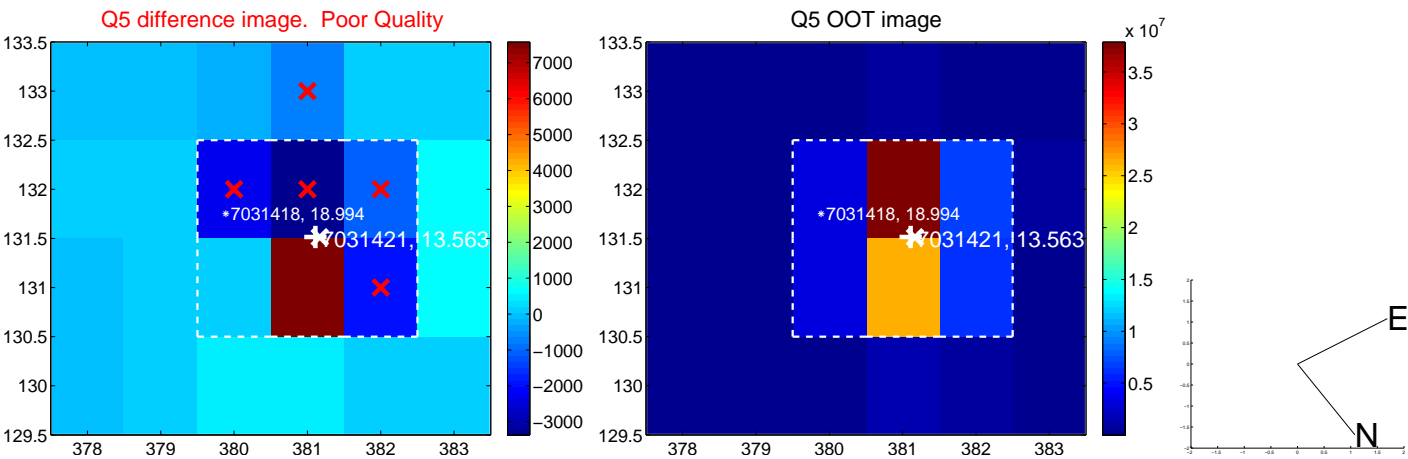


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

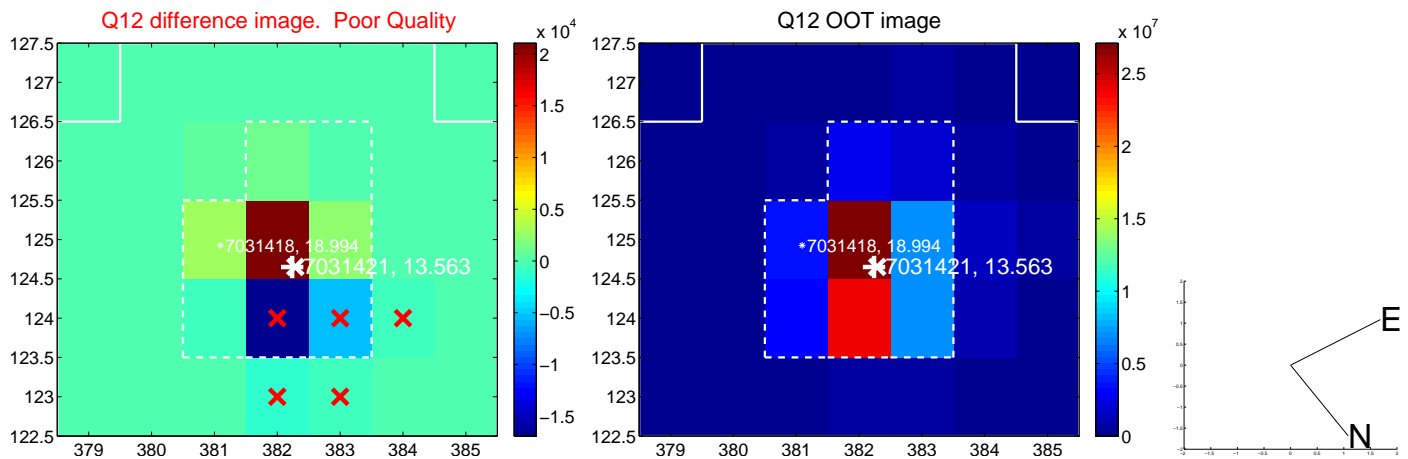
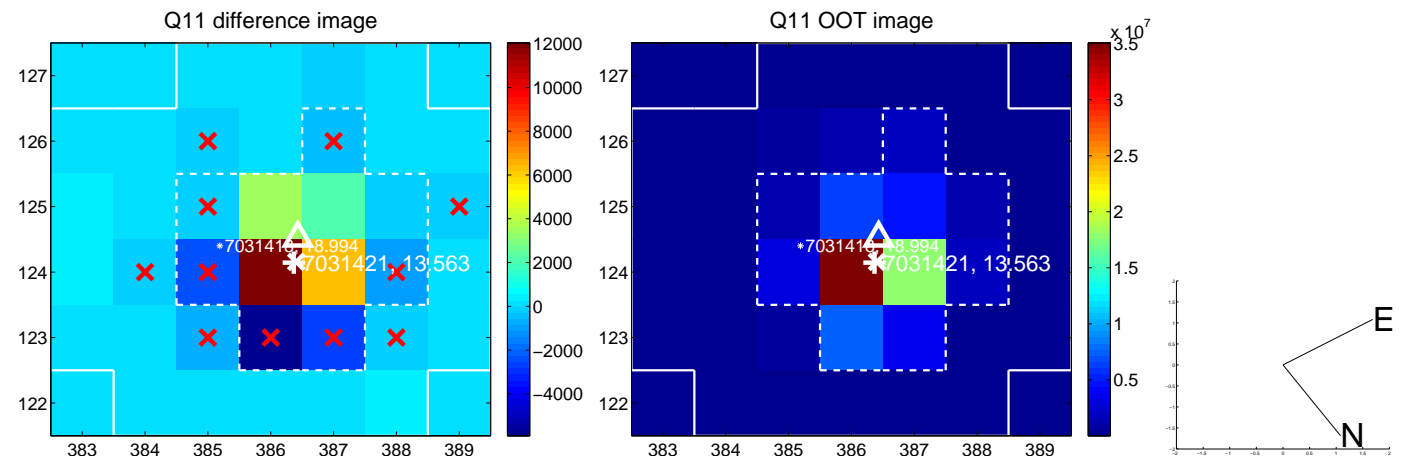
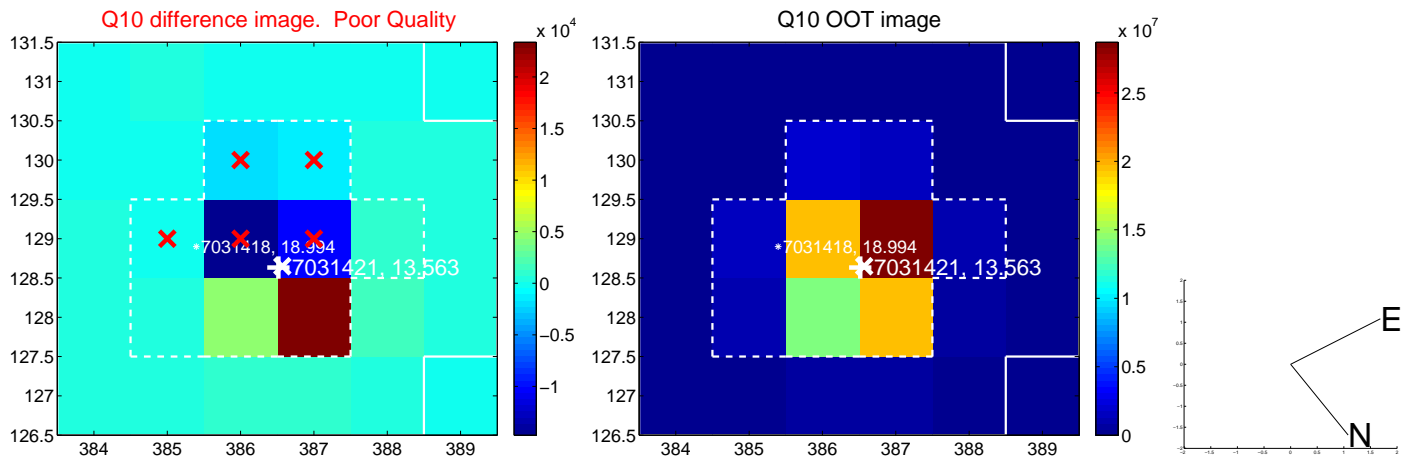
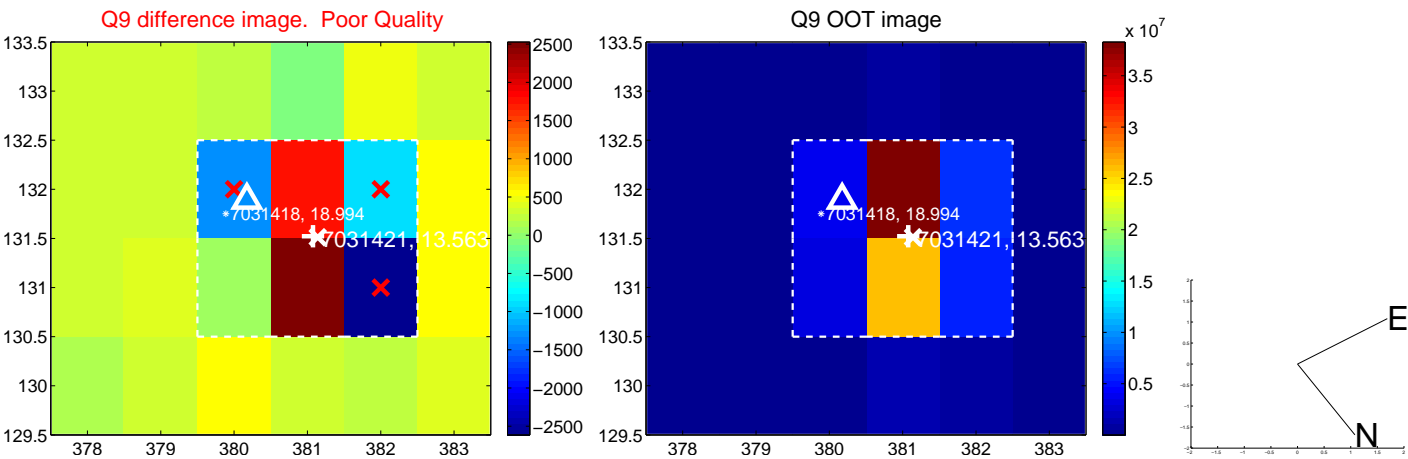
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



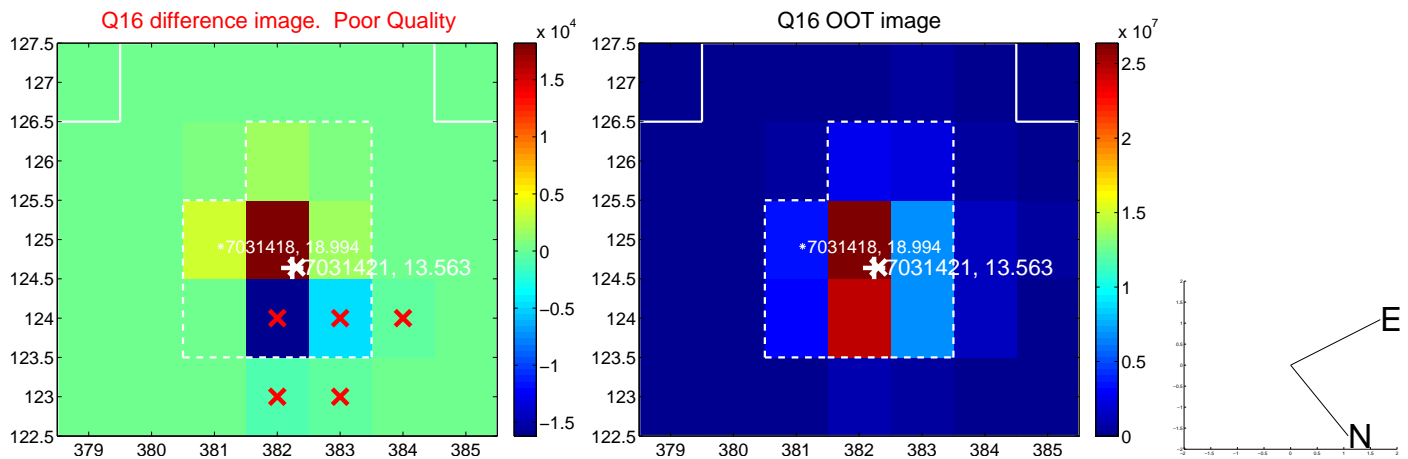
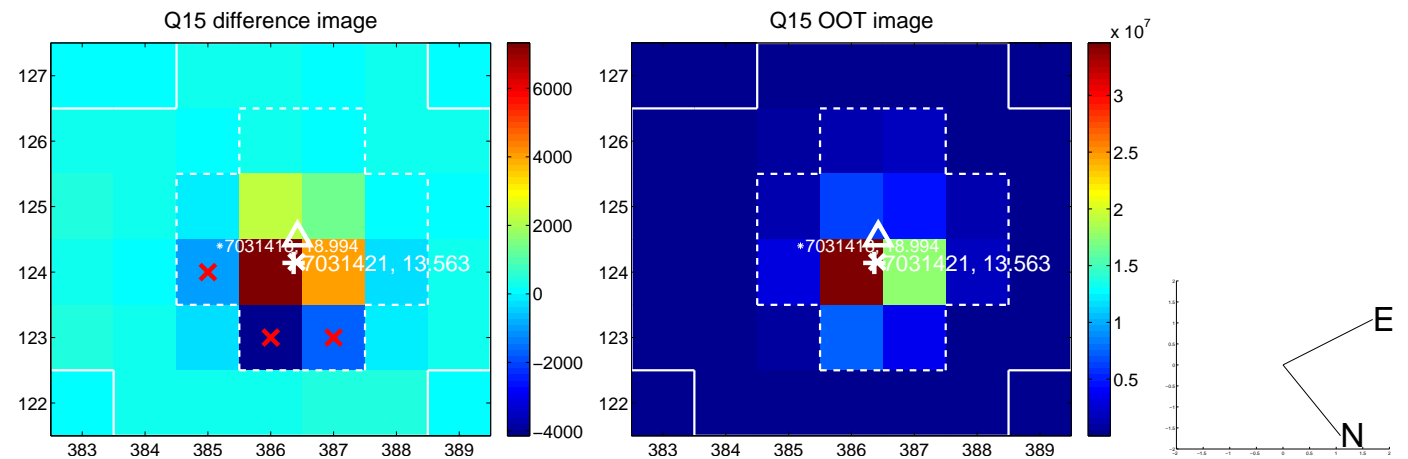
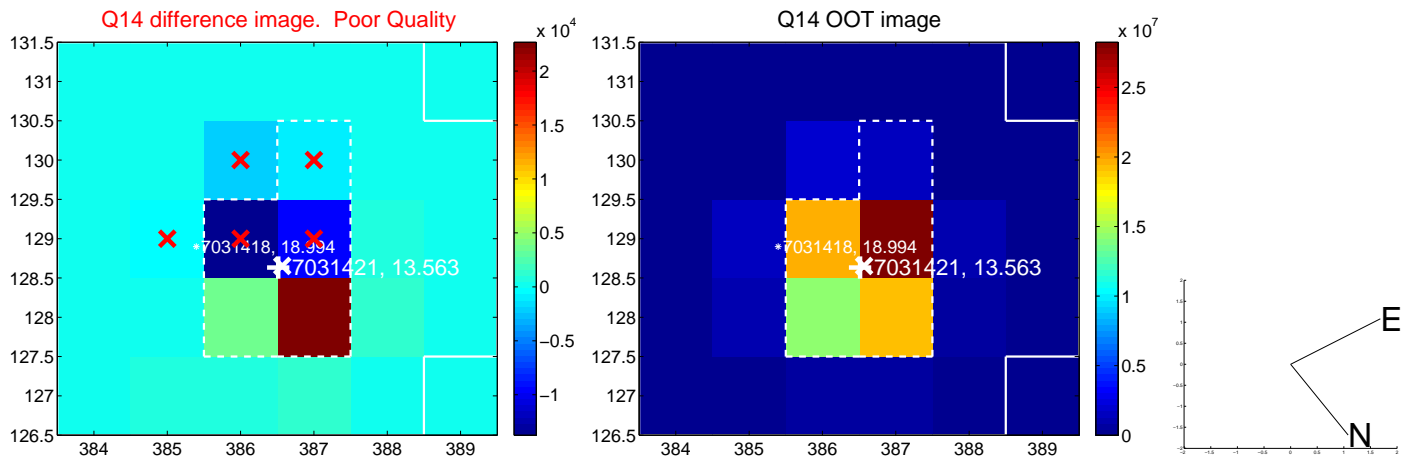
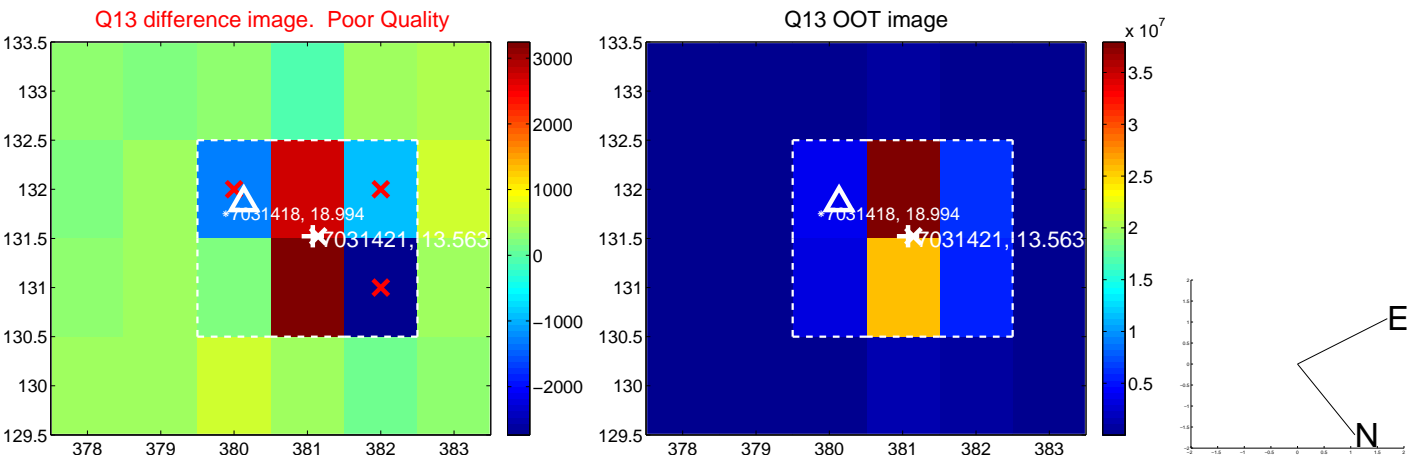
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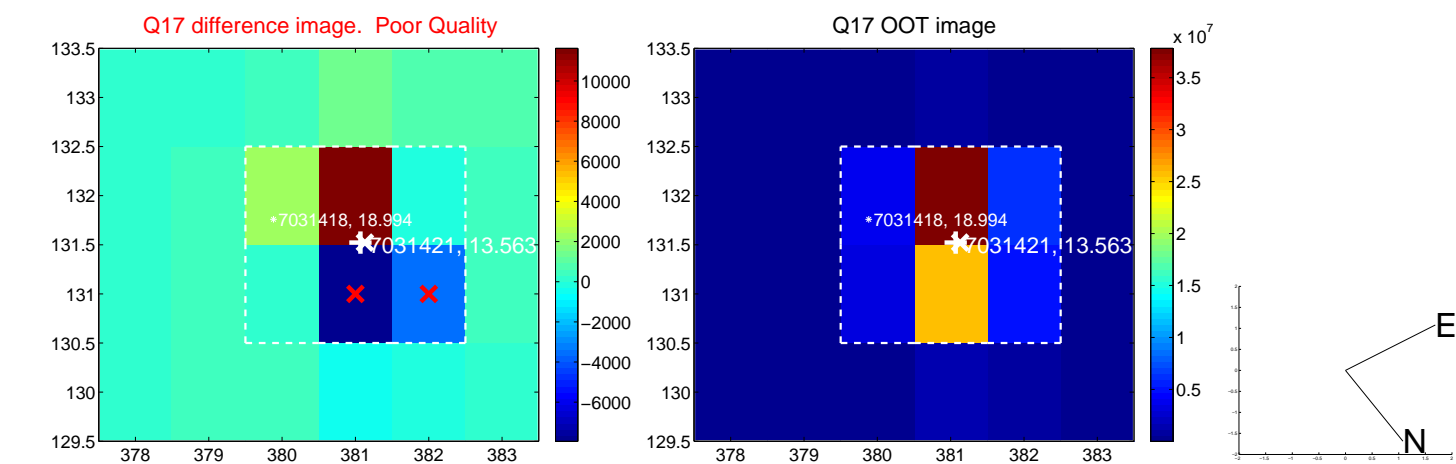
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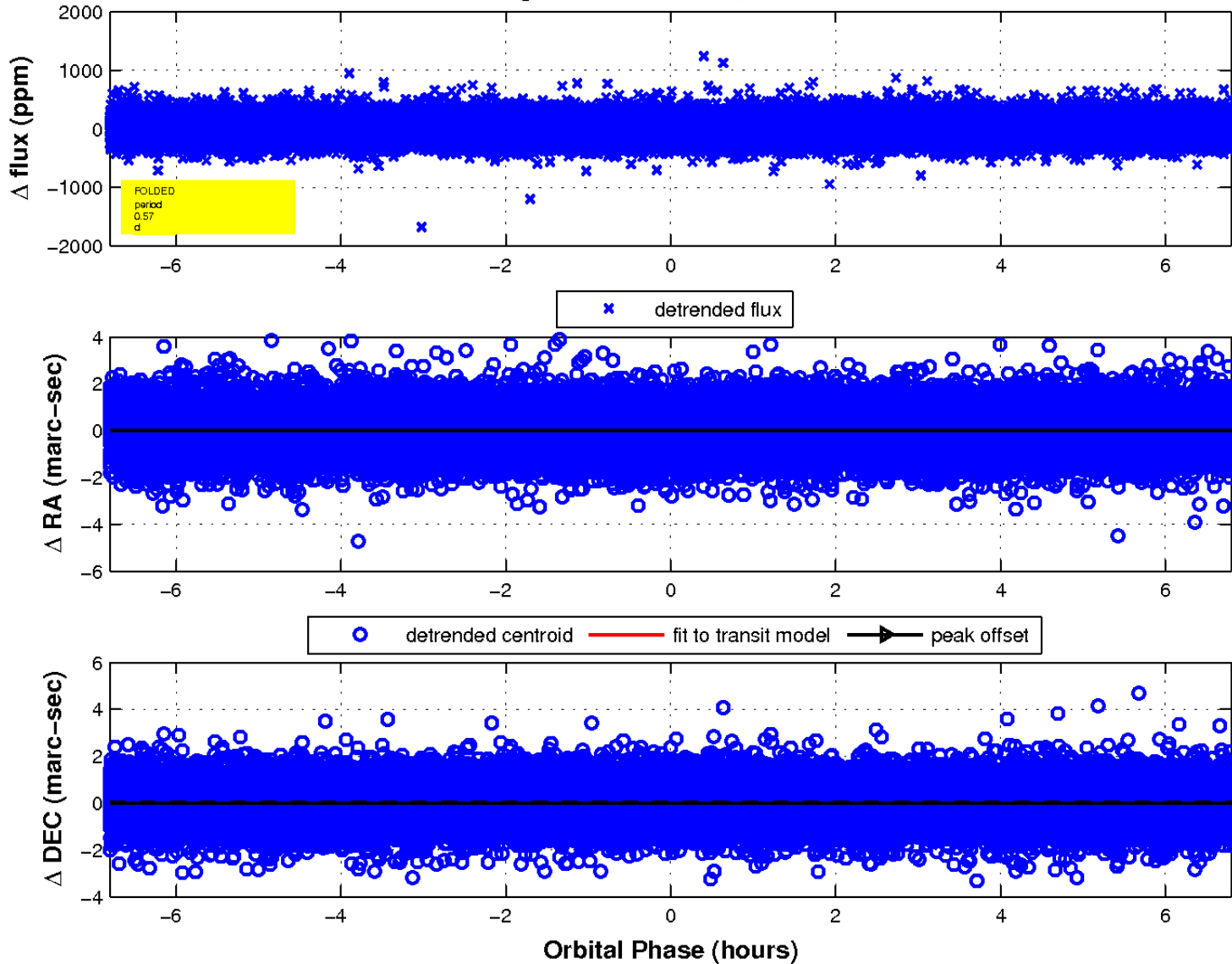
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

