

KIC 012216210

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})
012216210-01	OBS	No	0.616277	131.761933	12.4	1.886	8.5	5.6	2.75	7760	1.14	86917.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012216210-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

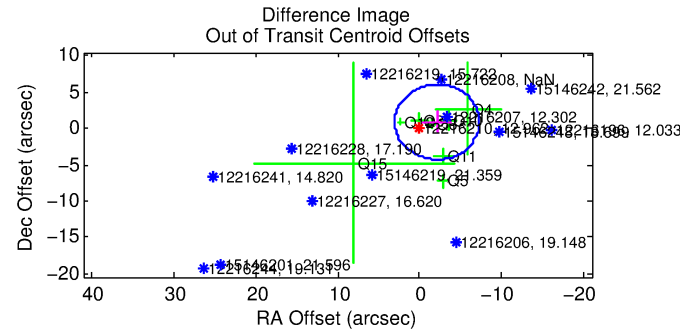
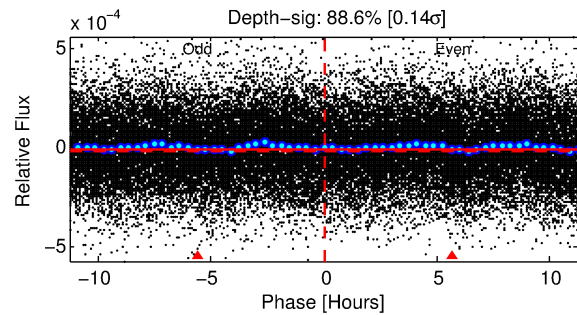
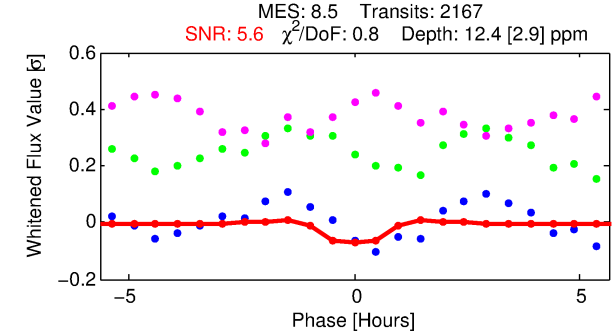
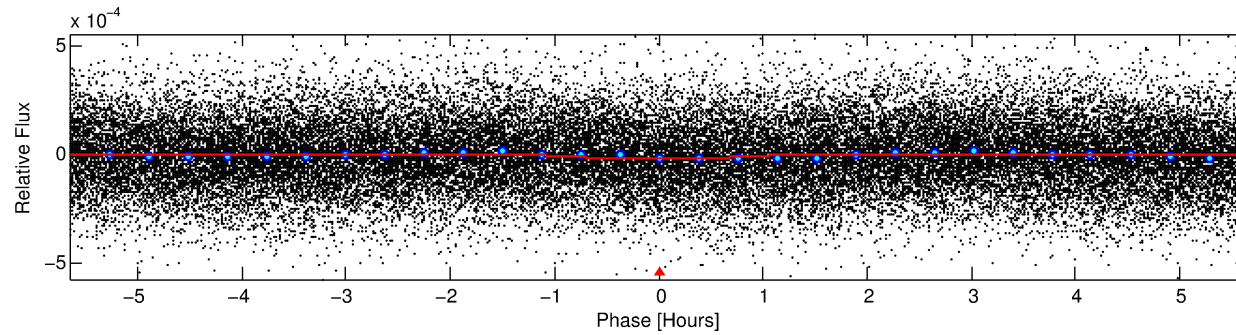
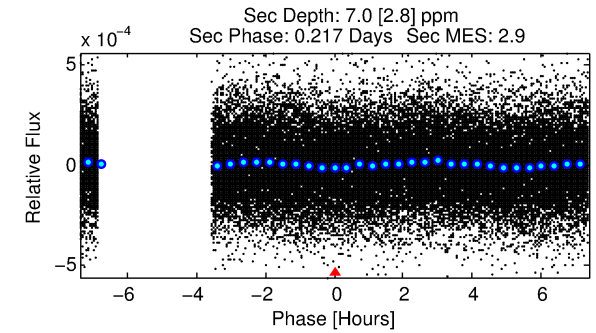
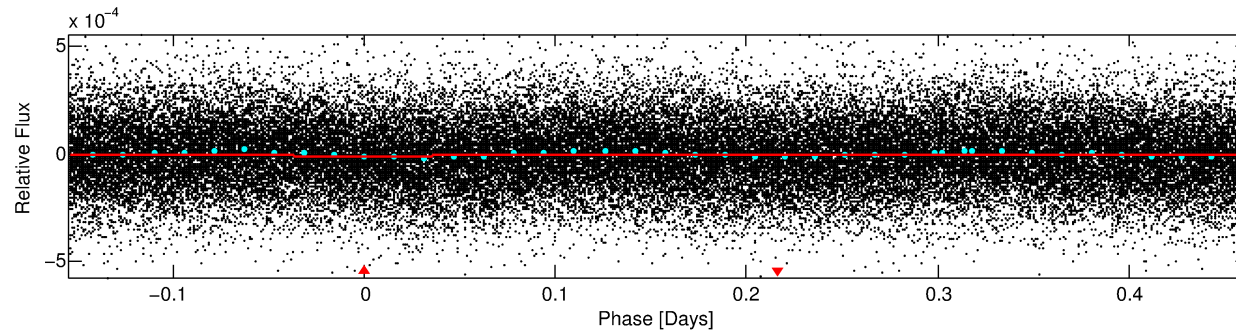
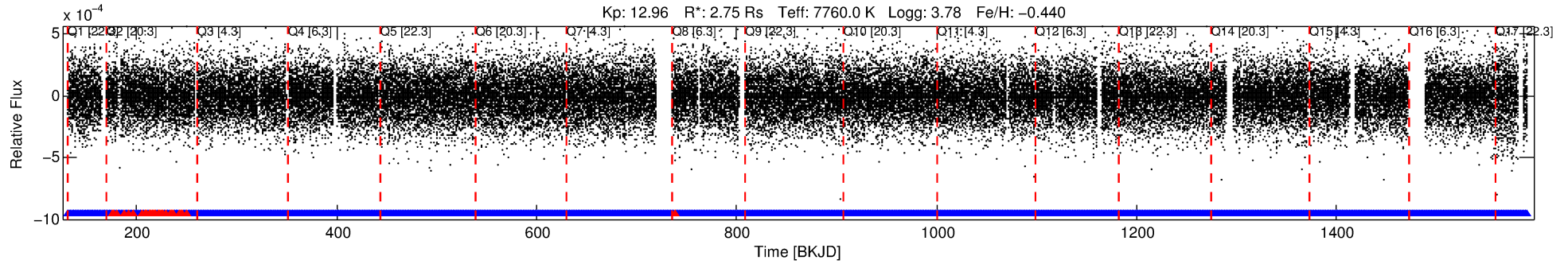
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012216210-01

No Significant Match Found

DV One-Page Summary

KIC: 12216210 Candidate: 1 of 1 Period: 0.616 d



DV Fit Results:

Period = 0.61628 [0.00002] d
Epoch = 131.7619 [0.0039] BKJD
Rp/R* = 0.0038 [0.0010]
a/R* = 1.42 [1.13]
b = 0.91 [0.31]
Seff = 86917.45 [67502.28]
Teq = 4378 [850] K
Rp = 1.14 [0.62] Re
a = 0.0168 [0.0078] AU
Ag = 0.85 [0.86] [-0.18σ]
Teffp = 6493 [1133] K [1.49σ]

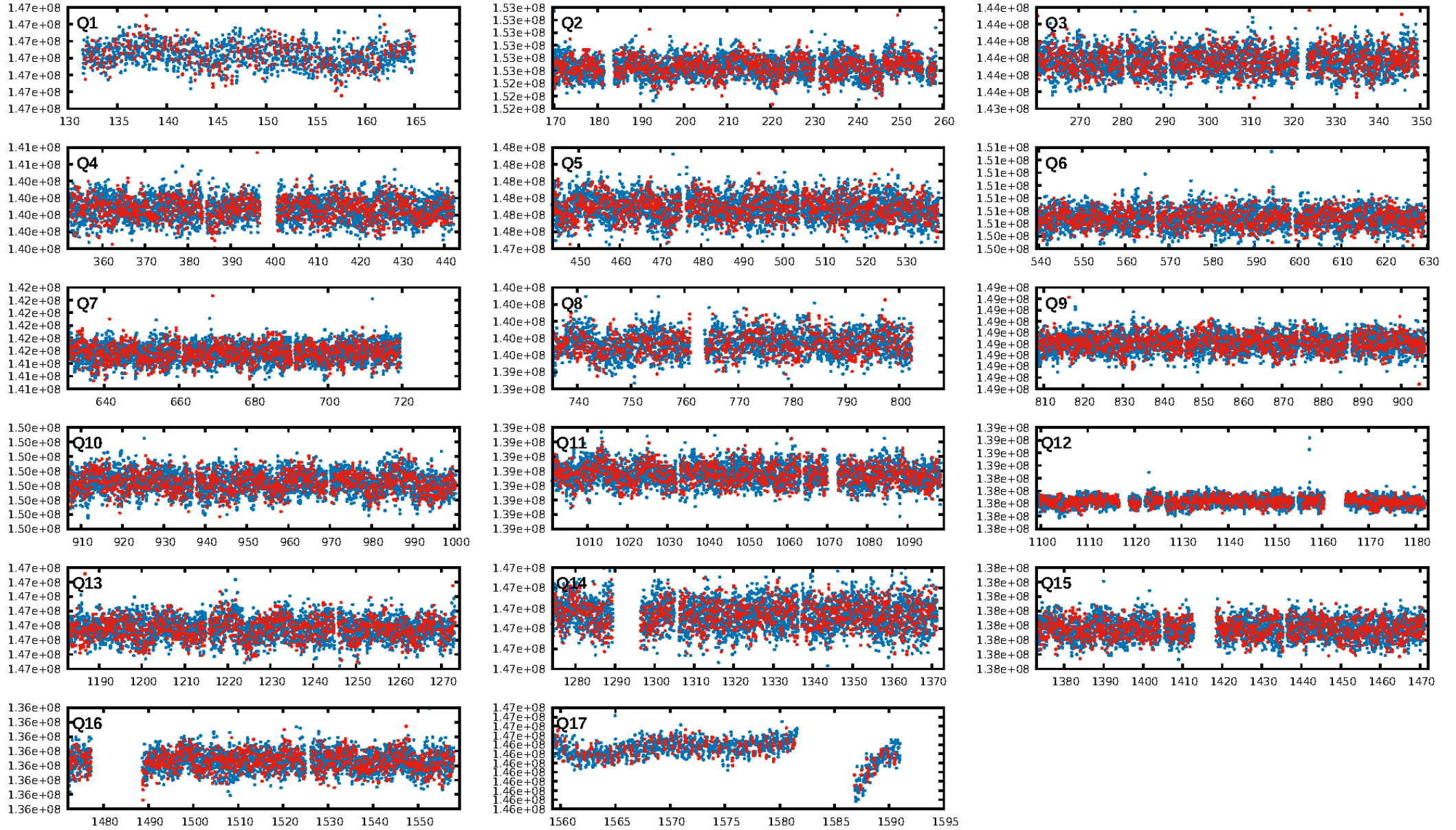
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.02e-15
RollingBand-fgt: 0.99 [2043/2071]
GhostDiagnostic-chr: 1.538
Centroid-sig: 2.9%
Centroid-so: 2.910 arcsec [1.45σ]
OotOffset-rm: 2.287 arcsec [1.33σ]
KicOffset-rm: 2.010 arcsec [1.50σ]
OotOffset-st: 2/2/3/1 [8]
KicOffset-st: 2/2/3/3 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 1.00 [17/17]

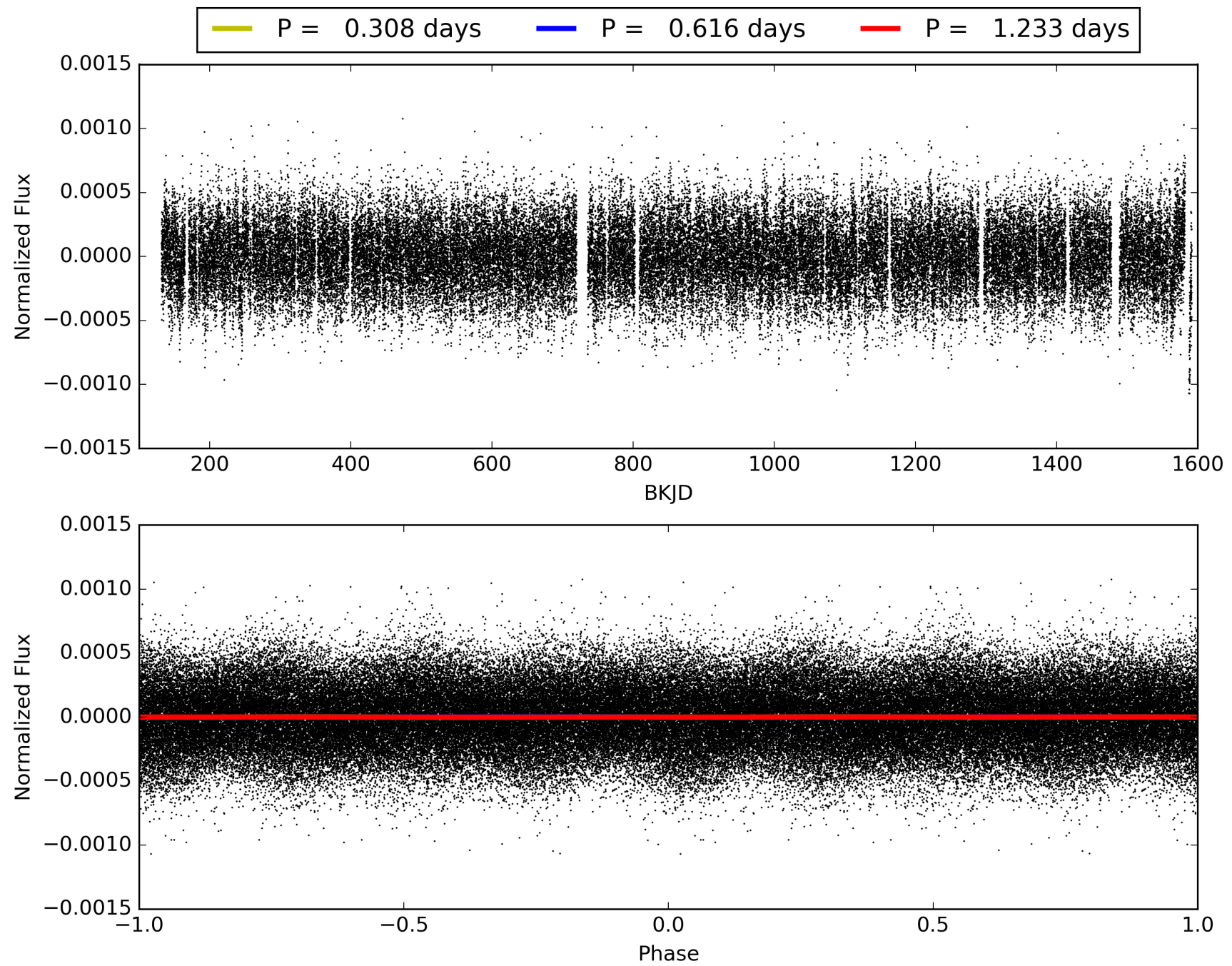
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:52:53 Z

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

TCE 012216210-01, PDC Light Curves

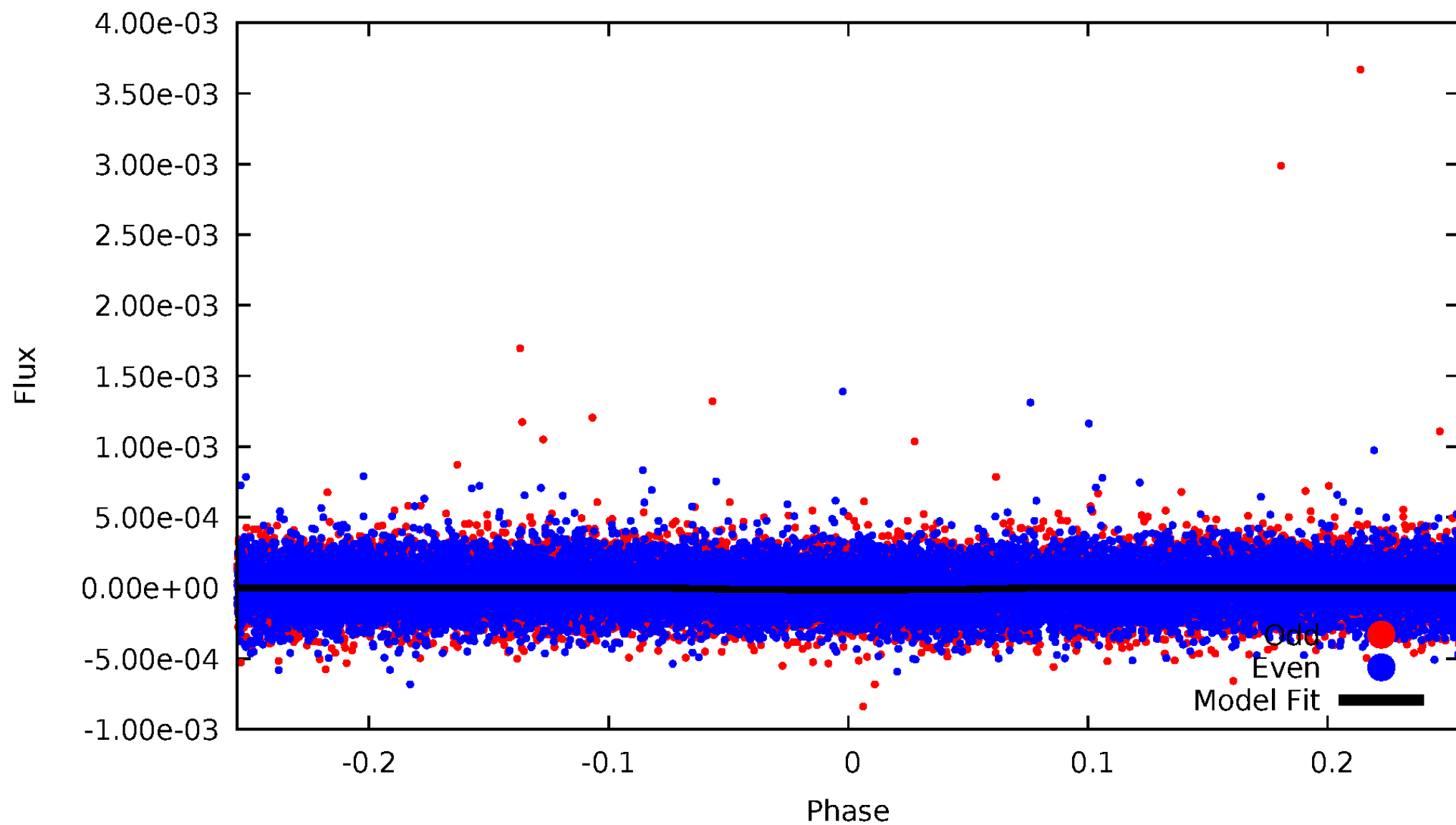


TCE 012216210-01



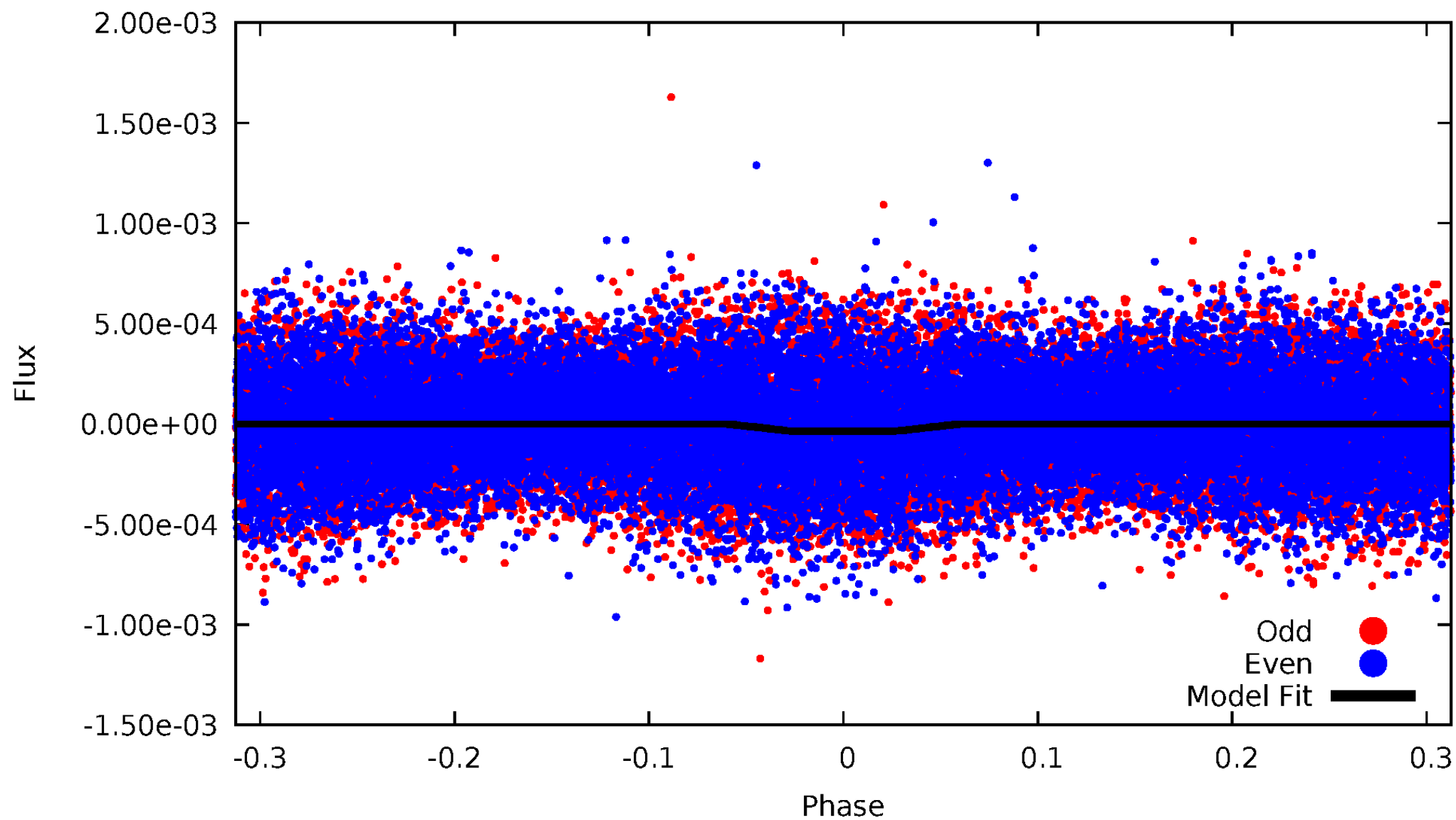
DV Odd/Even

TCE 012216210-01



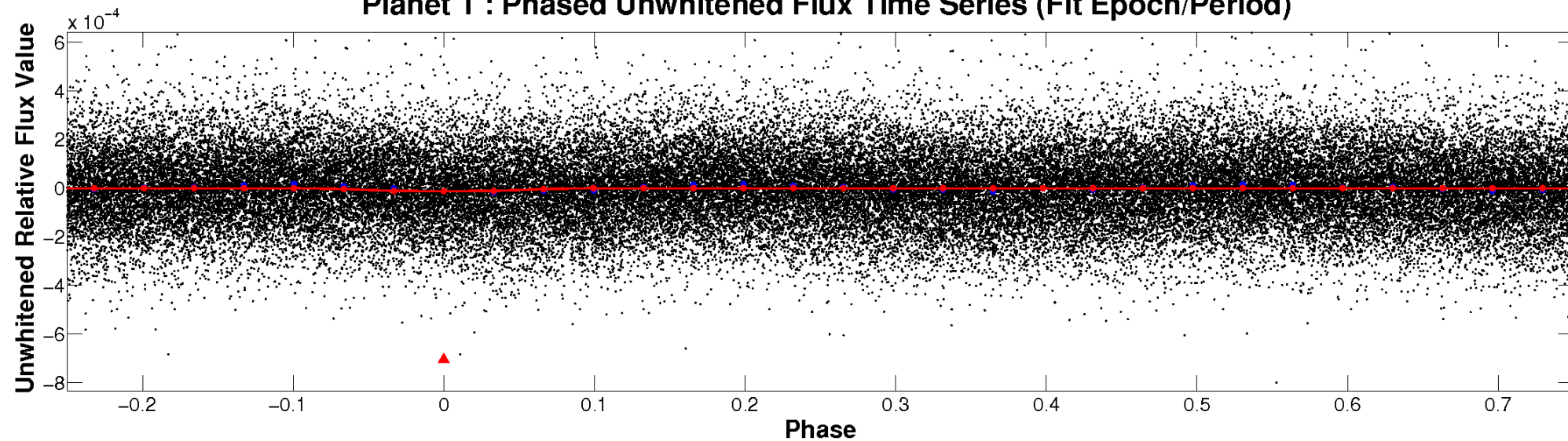
ALT Odd/Even

TCE 012216210-01

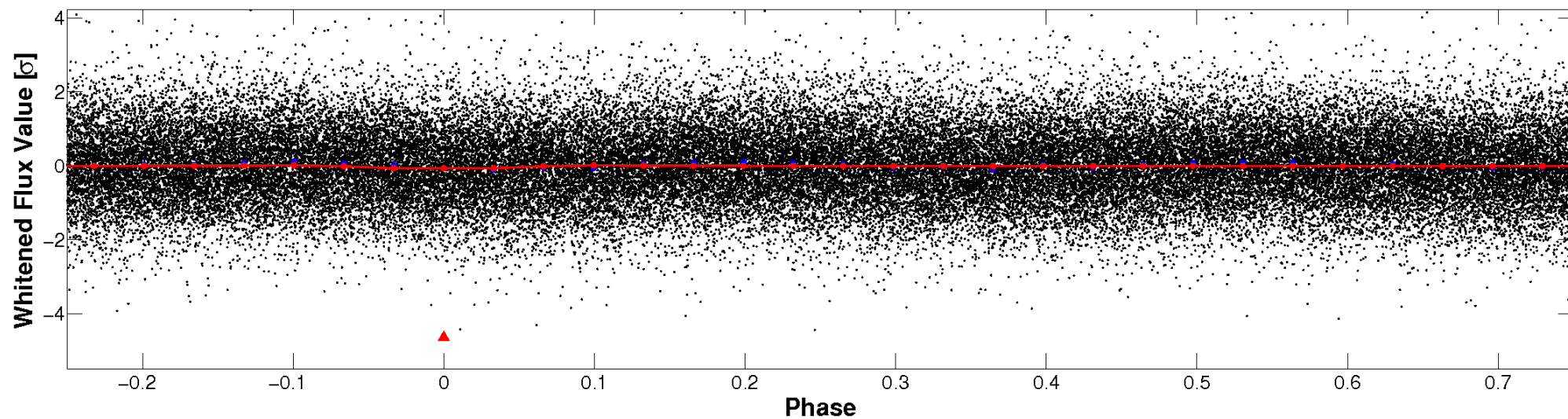


Non-Whitened Vs. Whitened Light Curve

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

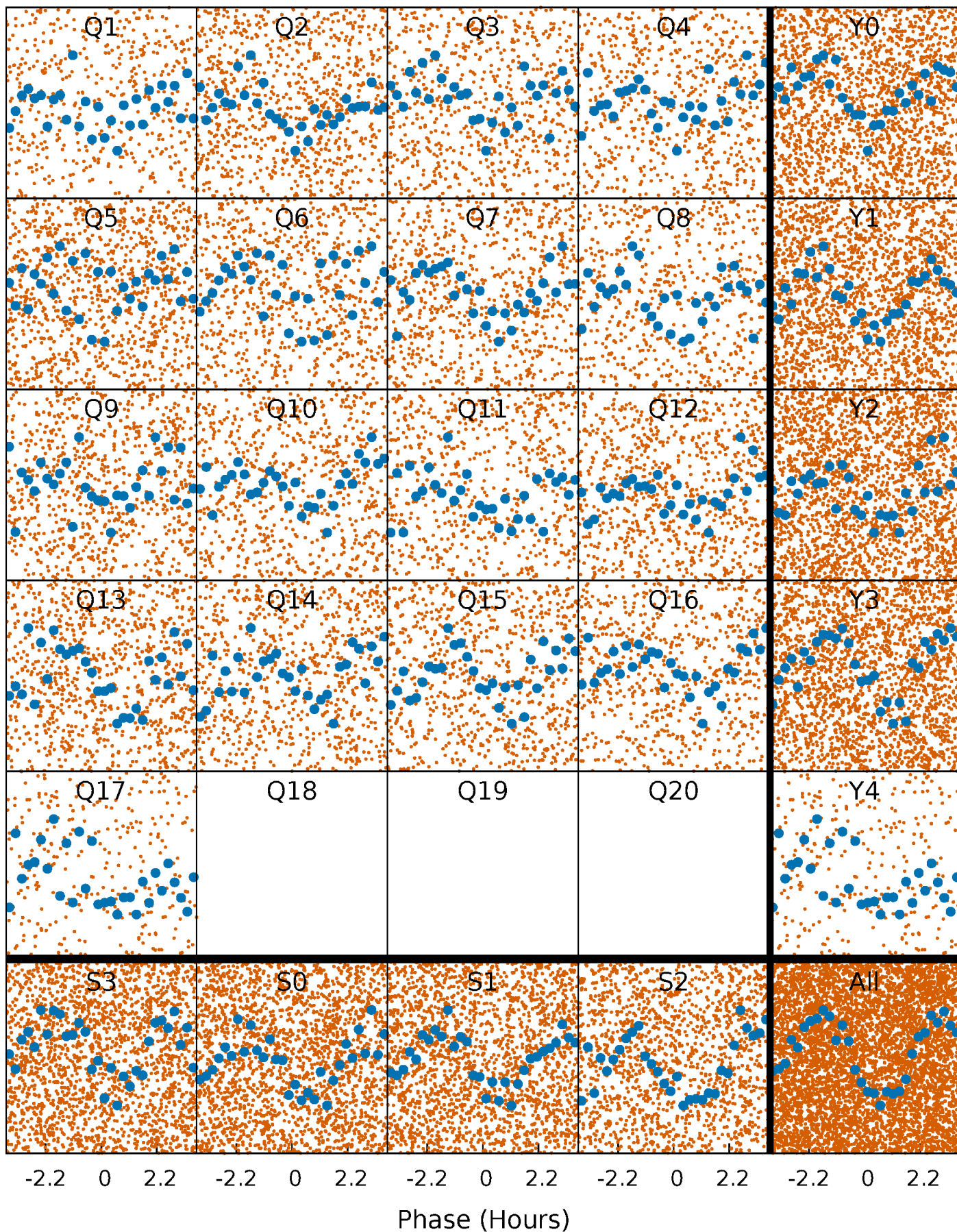


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



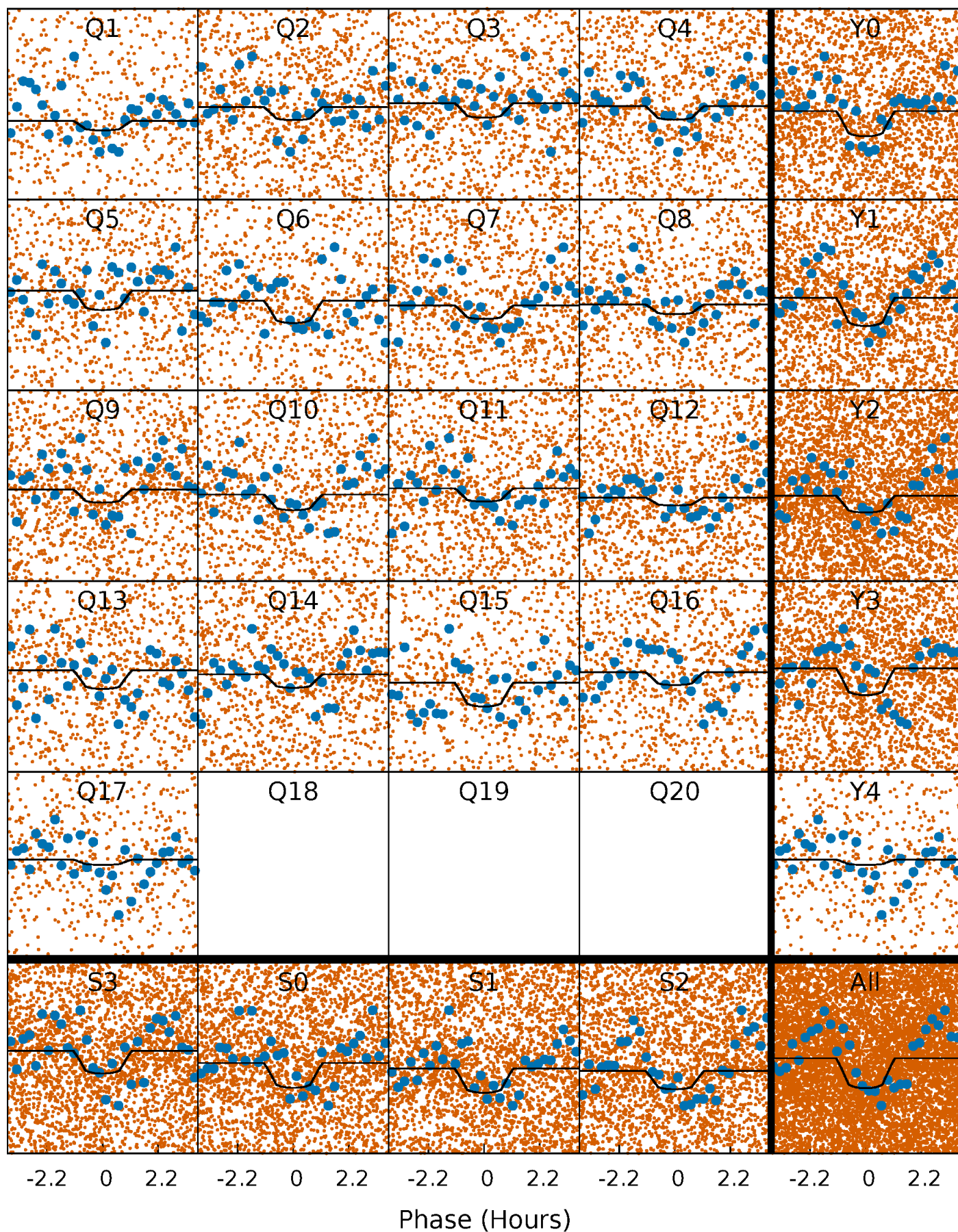
PDC Quarter-Phased Transit Curves

TCE 012216210-01 P= 0.616277 Days $T_0=131.761933$ (BKJD)



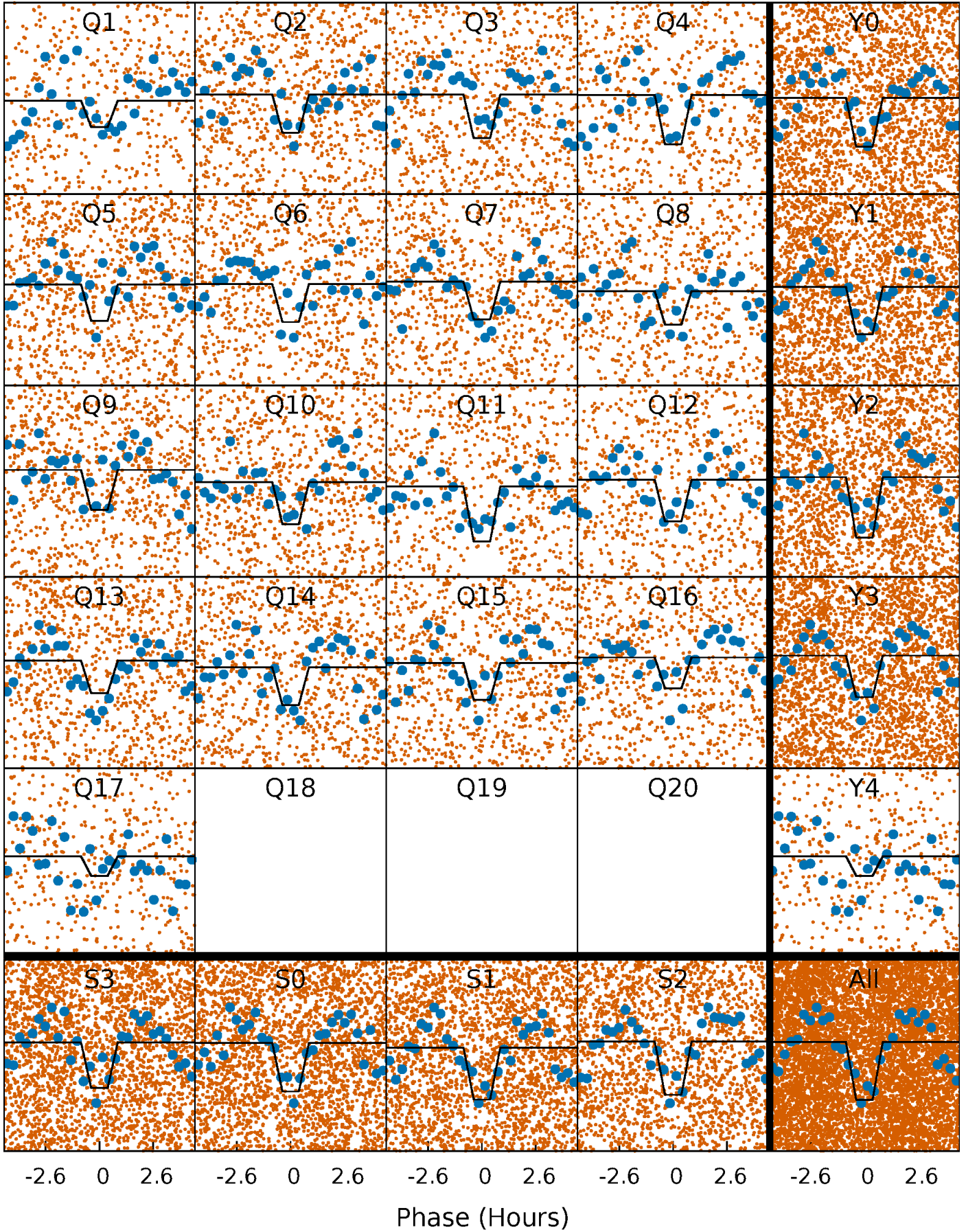
DV Quarter-Phased Transit Curves

TCE 012216210-01 P= 0.616277 Days $T_0=131.761933$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

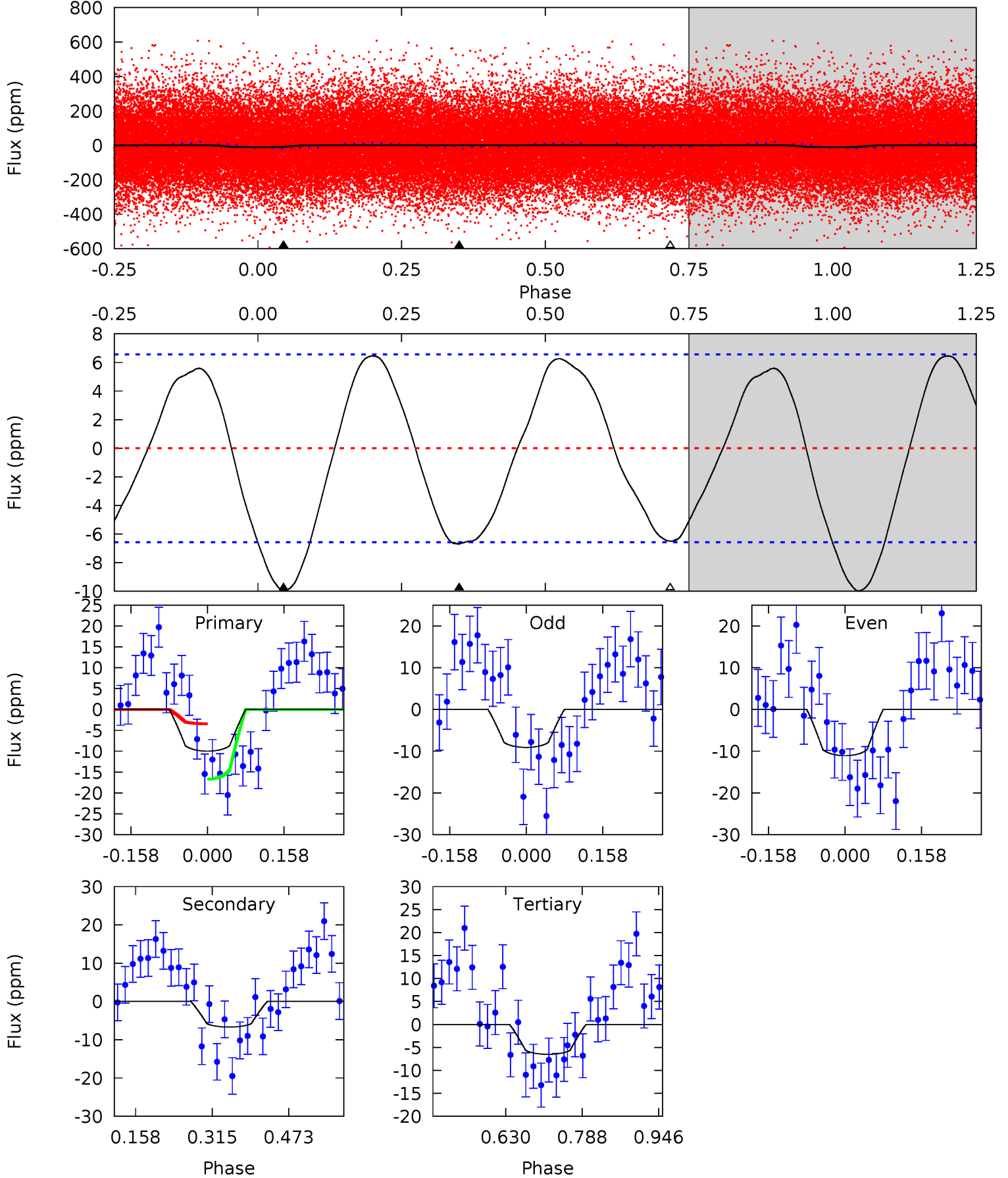
TCE 012216210-01 P= 0.616304 Days $T_0=131.757758$ (BKJD)



DV Model-Shift Uniqueness Test

012216210-01, P = 0.616277 Days, E = 131.145656 Days

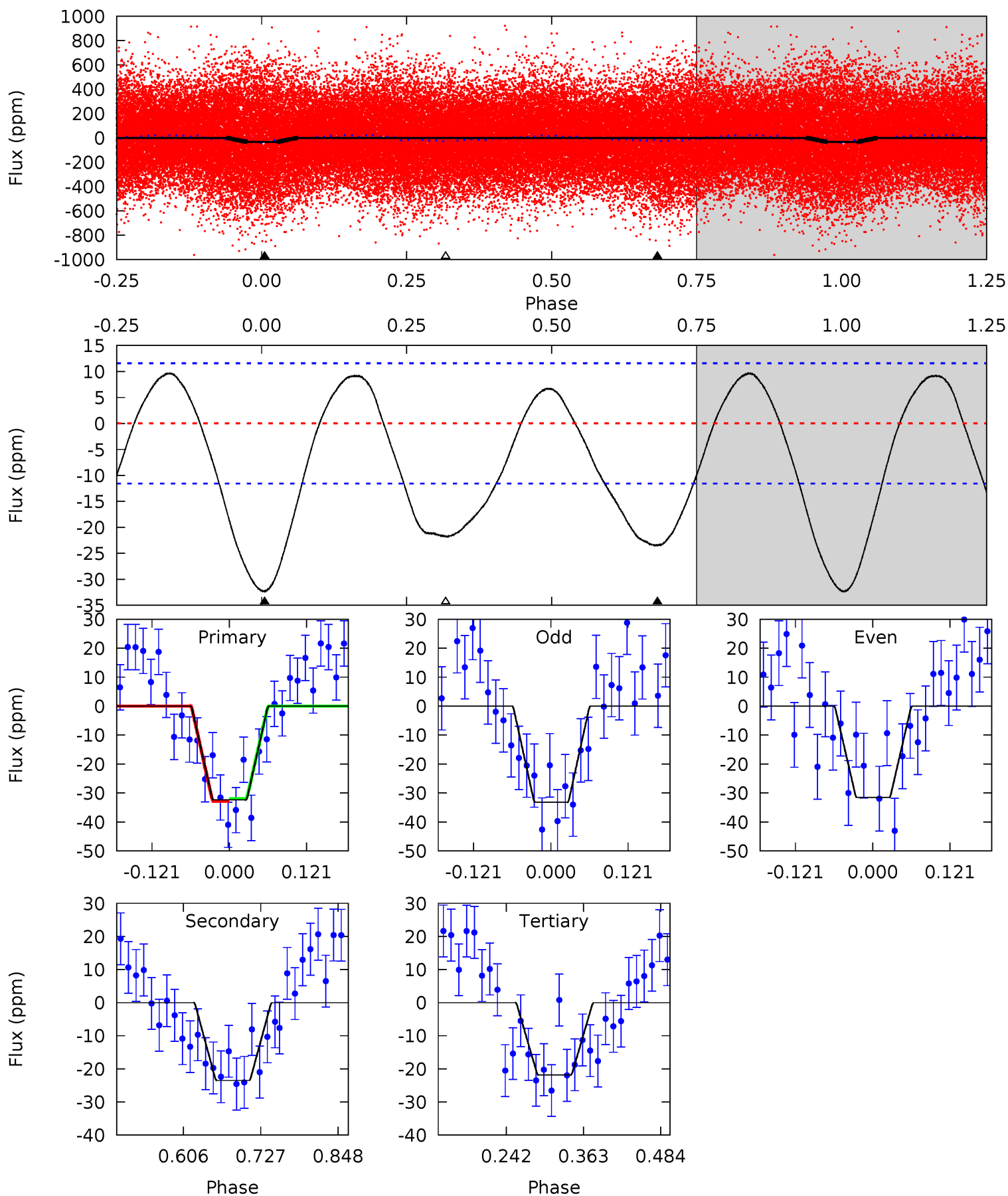
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.80	4.55	4.43	0	4.47	1.41	3.02	2.37	6.80	0.12	4.55	0.67	1.41	0.39	4.51



Alt Model-Shift Uniqueness Test

012216210-01, P = 0.616304 Days, E = 131.141454 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	9.20	8.54	0	4.52	1.55	4.40	4.12	12.7	0.66	9.20	0.32	0.89	0.23	0.18



Stellar Parameters For KIC 012216210

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7760^{+243}_{-324}	$3.781^{+0.450}_{-0.075}$	$-0.440^{+0.250}_{-0.300}$	$2.746^{+0.323}_{-1.290}$	$1.662^{+0.184}_{-0.368}$	$0.113^{+0.460}_{-0.029}$
	+3%/-4%	+12%/-2%	+57%/-68%	+12%/-47%	+11%/-22%	+407%/-25%
Source	KIC0	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 012216210-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 1	$1.01^{+0.39}_{-0.34}$	5942^{+375}_{-714}	5700^{+1654}_{-1098}	$1.022^{+1.354}_{-0.506}$
Alt.	-24 ± 3	$1.65^{+0.41}_{-0.41}$	5934^{+387}_{-633}	6406^{+948}_{-748}	$1.328^{+1.069}_{-0.470}$

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 $A_{obs} \gg 1.0$

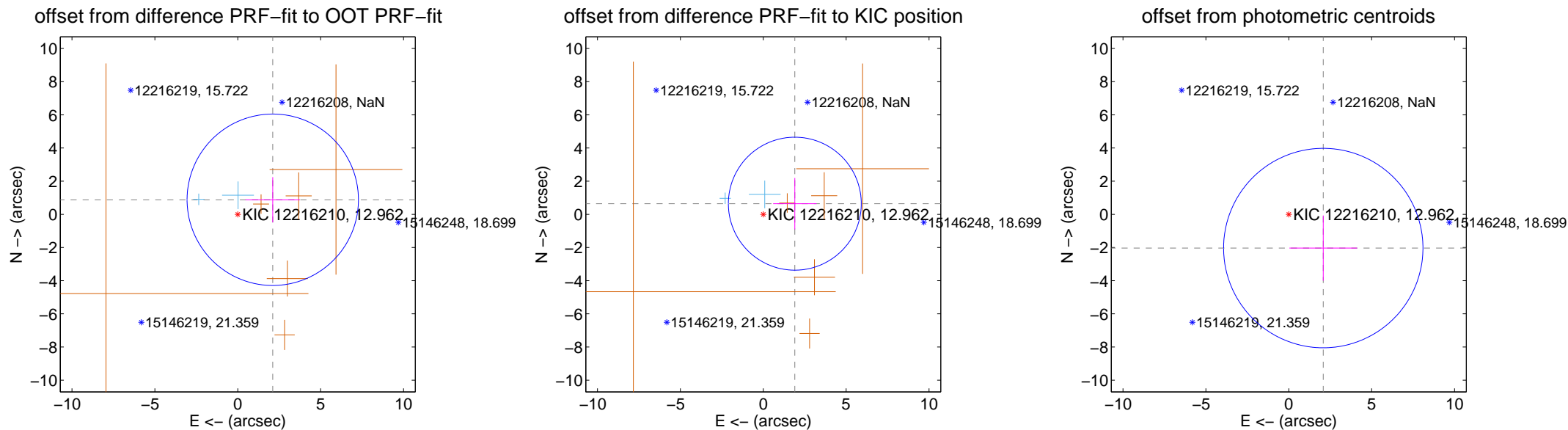
DV Centroid Data

Supplemental centroid analysis for 012216210-01. Kepler magnitude: 12.96. Transit SNR 5.58

There are 3 quarters with good PRF difference image offsets

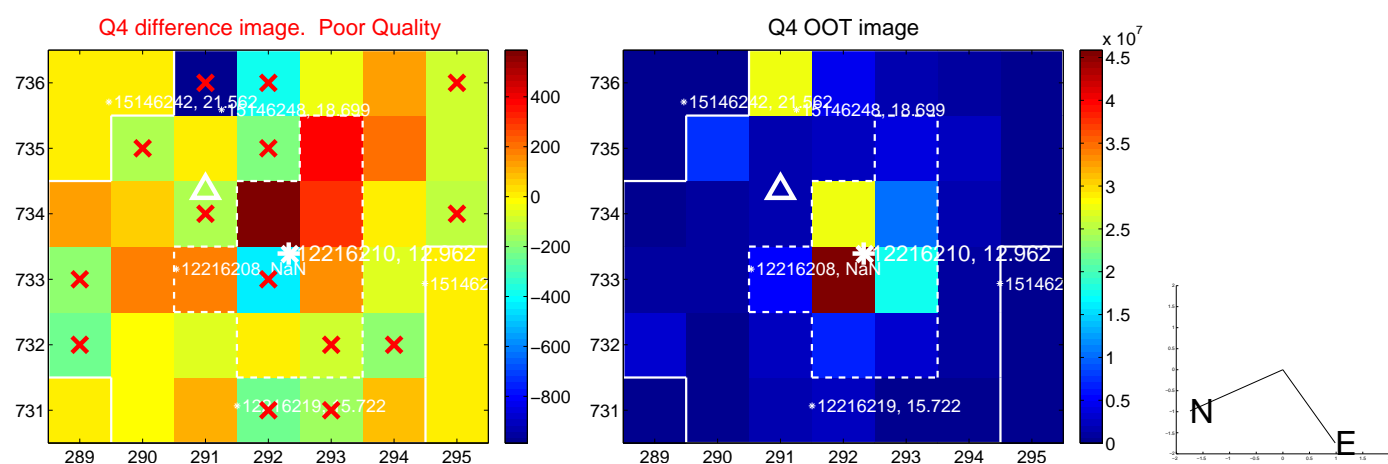
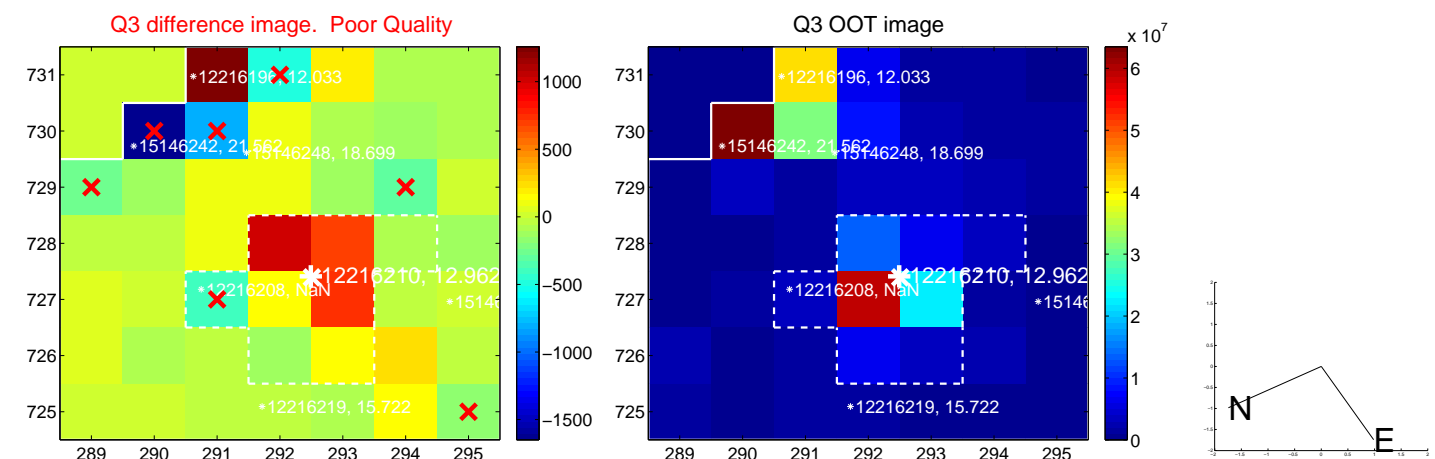
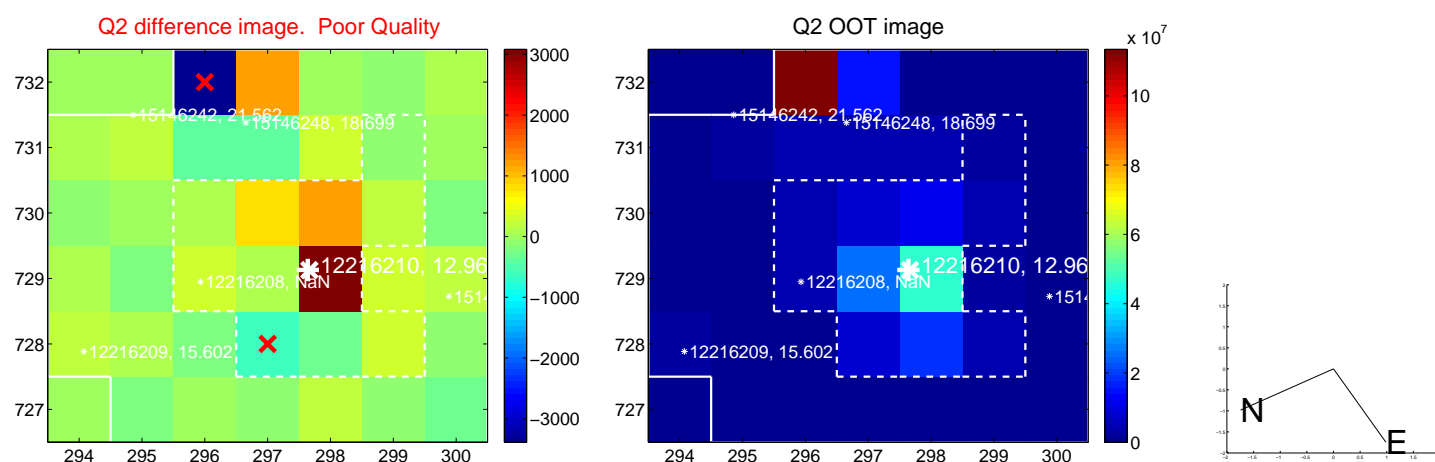
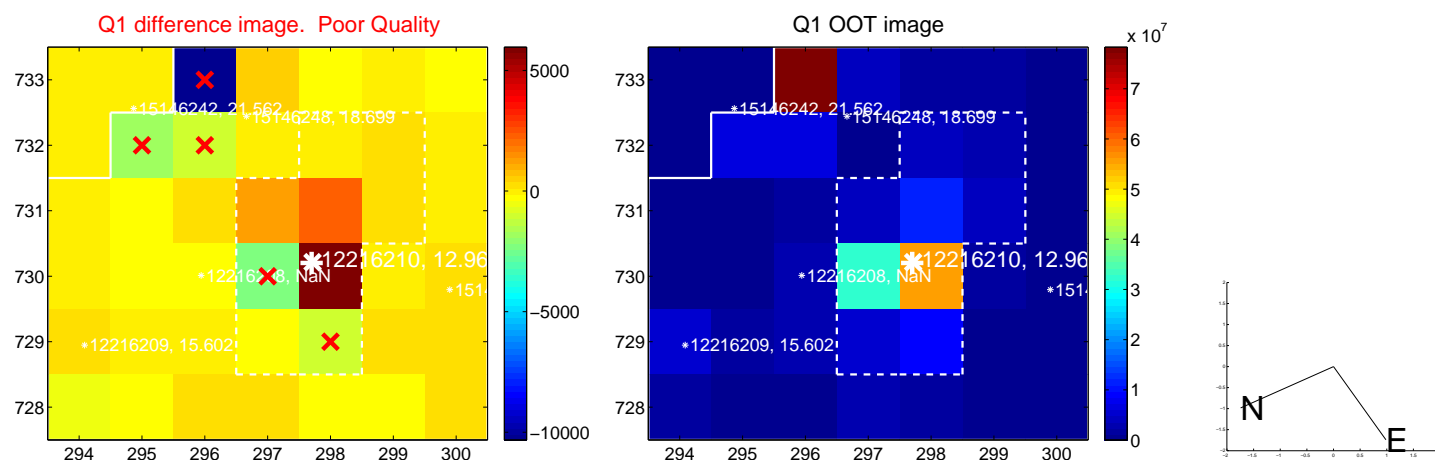
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.287 ± 1.723	1.33	-2.111 ± 1.644	0.880 ± 1.363
PRF-fit source offset from KIC position	2.010 ± 1.336	1.50	-1.904 ± 1.310	0.642 ± 1.547
photometric centroid source offset	2.91 ± 2.00	1.45	-2.08 ± 2.04	-2.03 ± 1.97

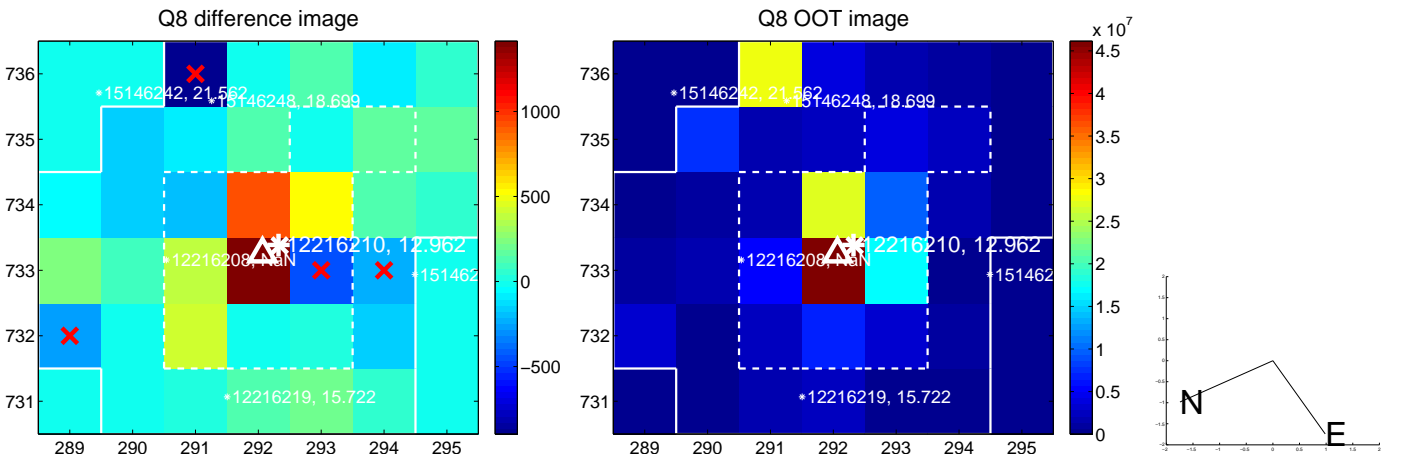
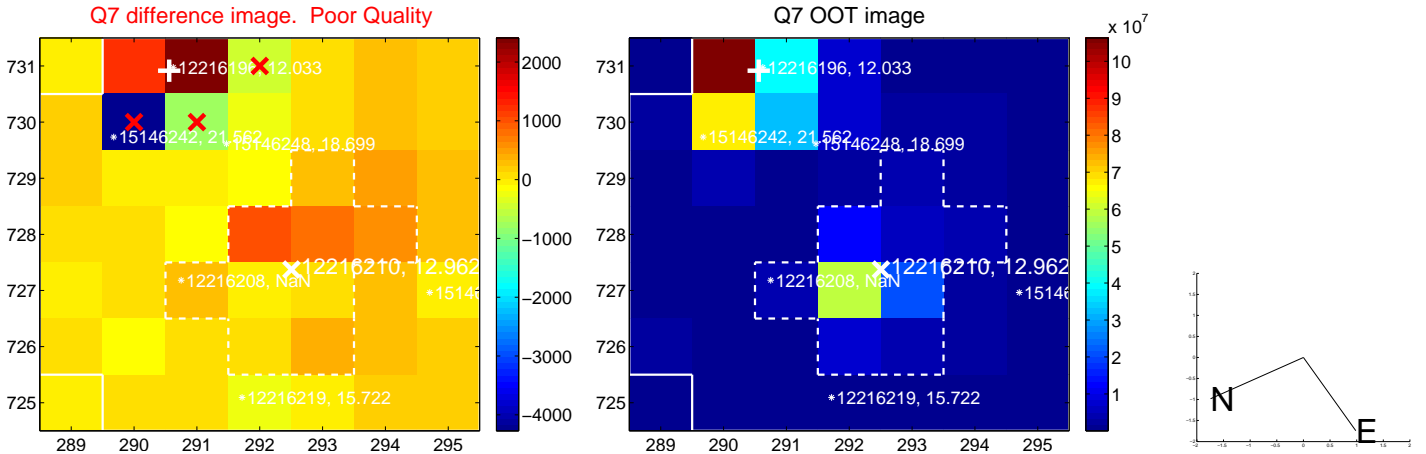
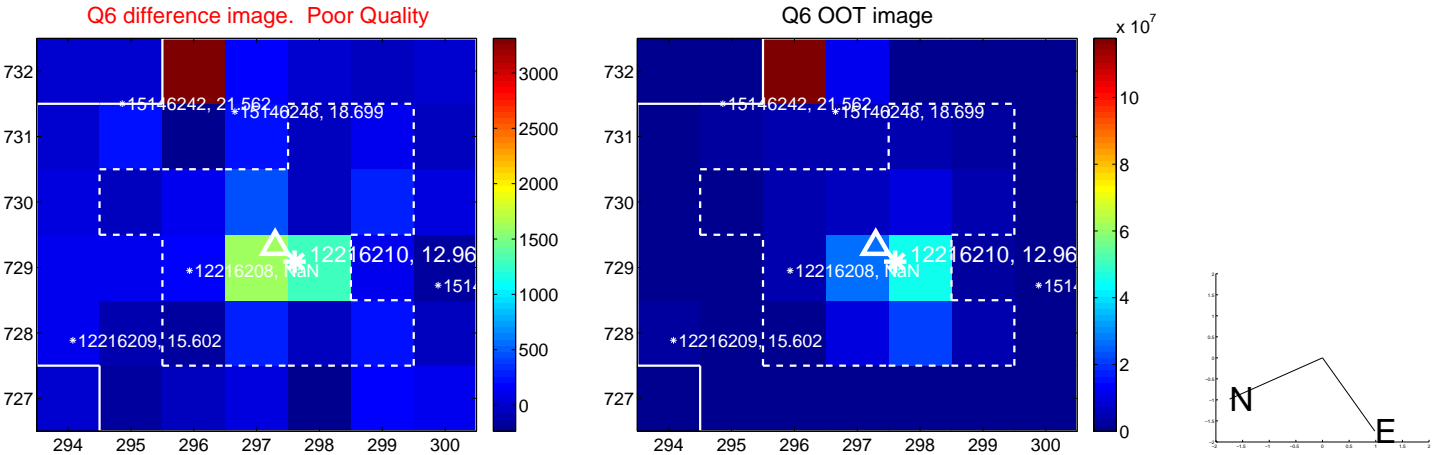
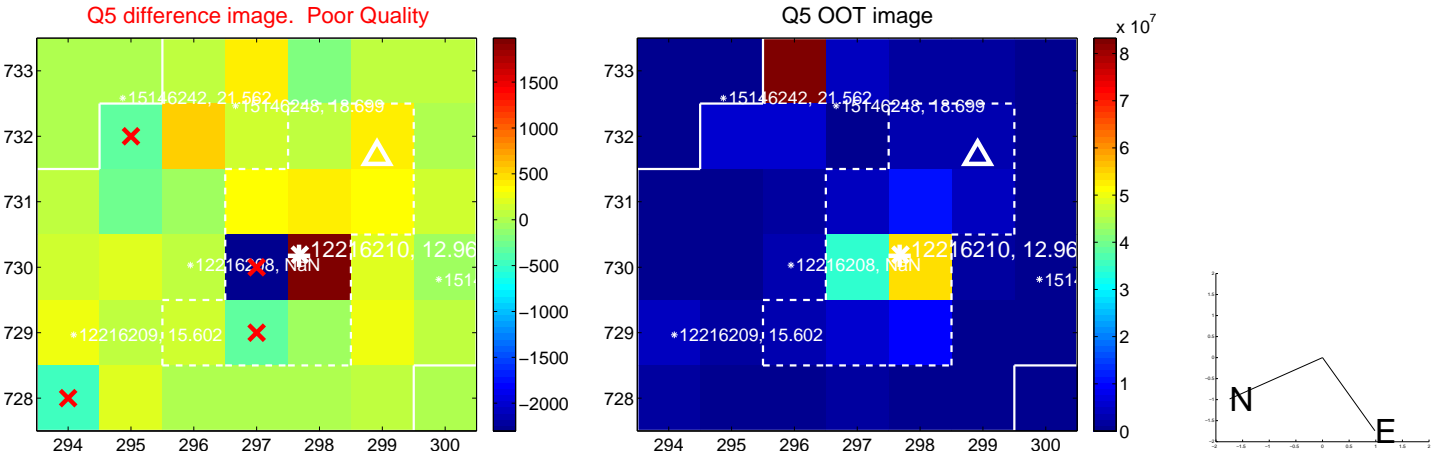


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

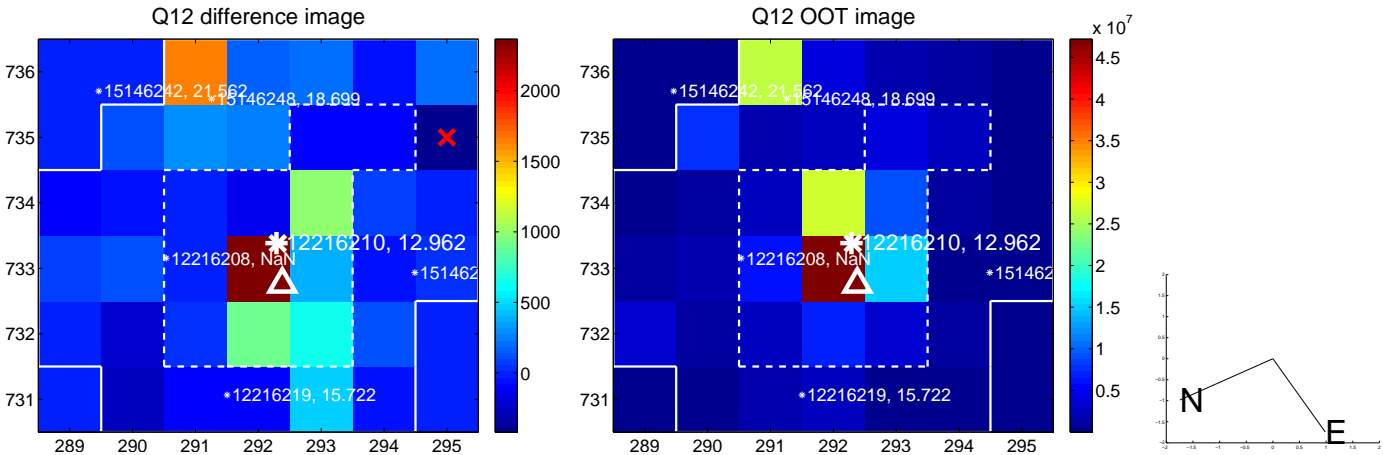
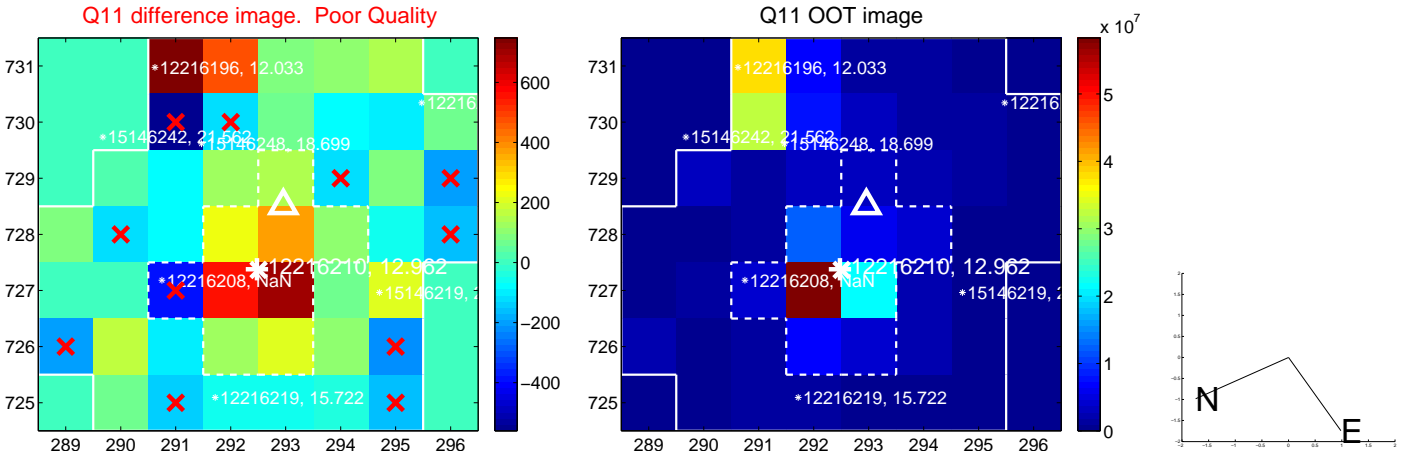
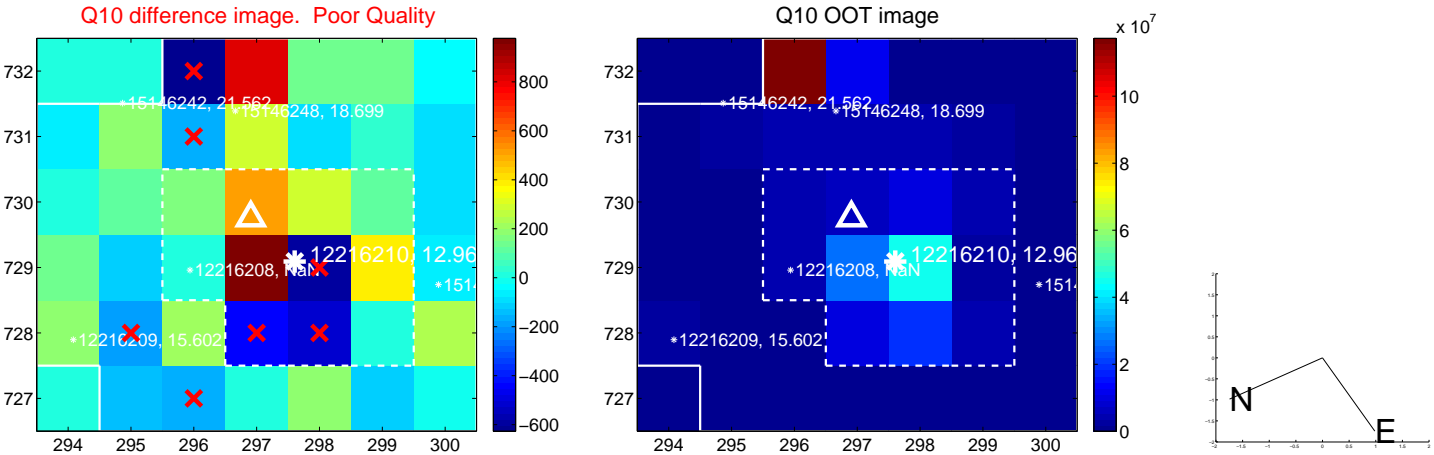
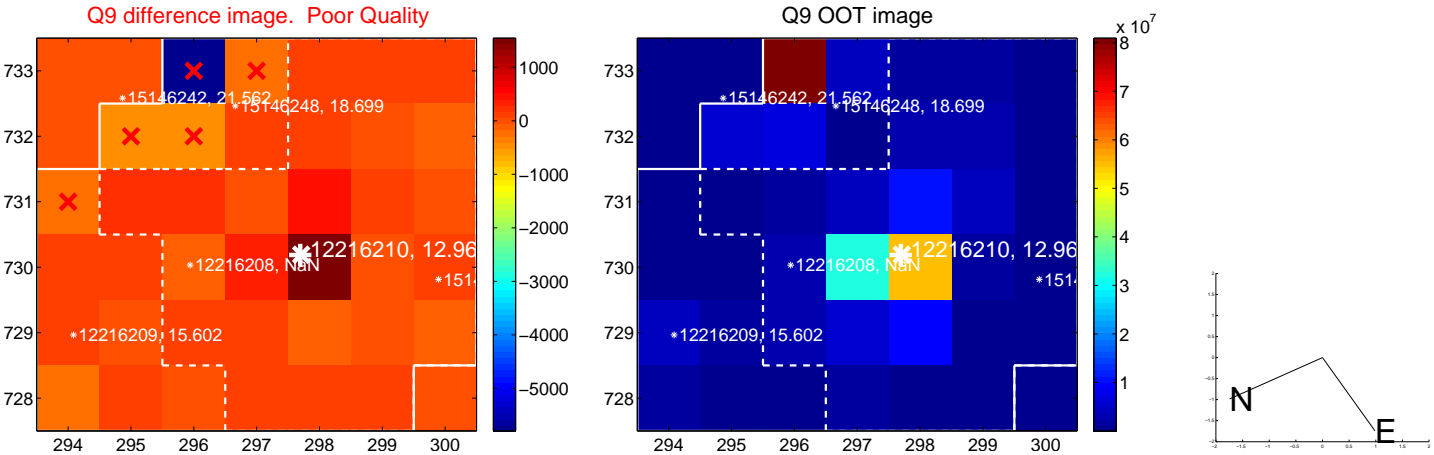
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



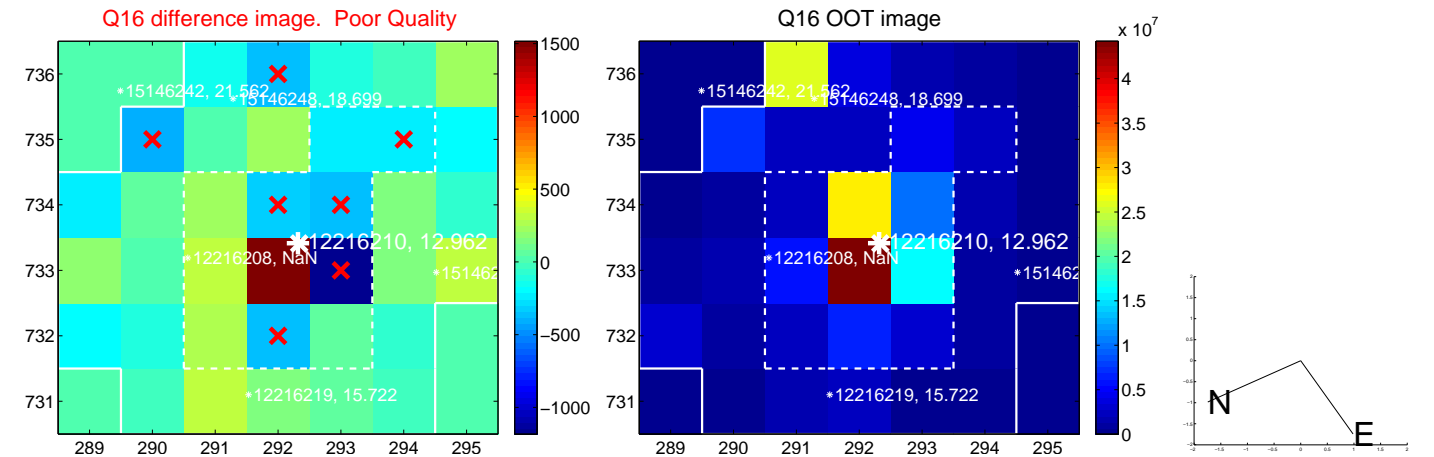
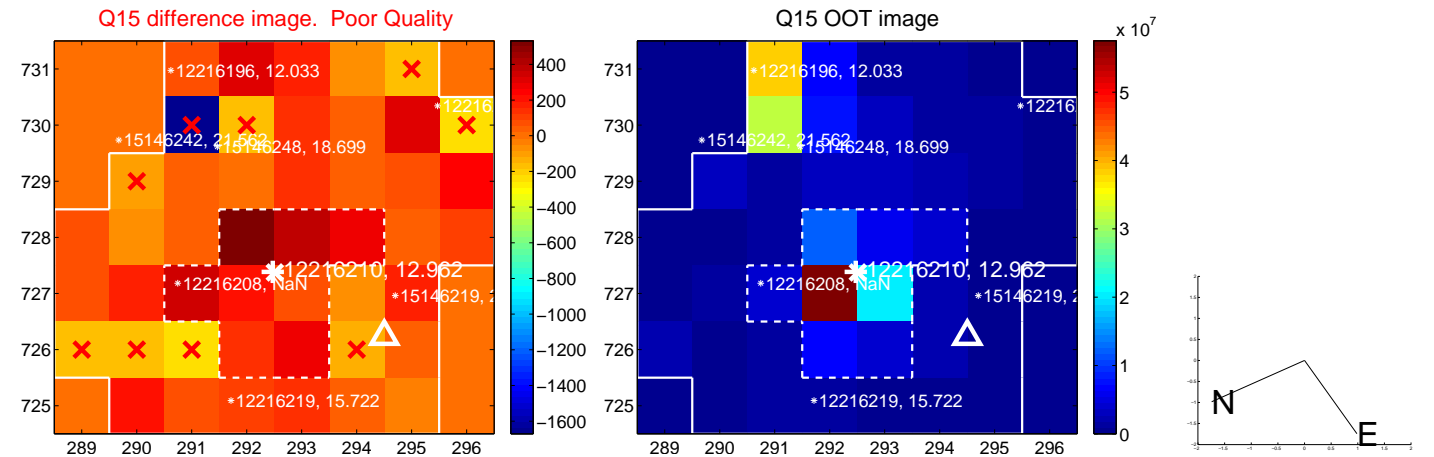
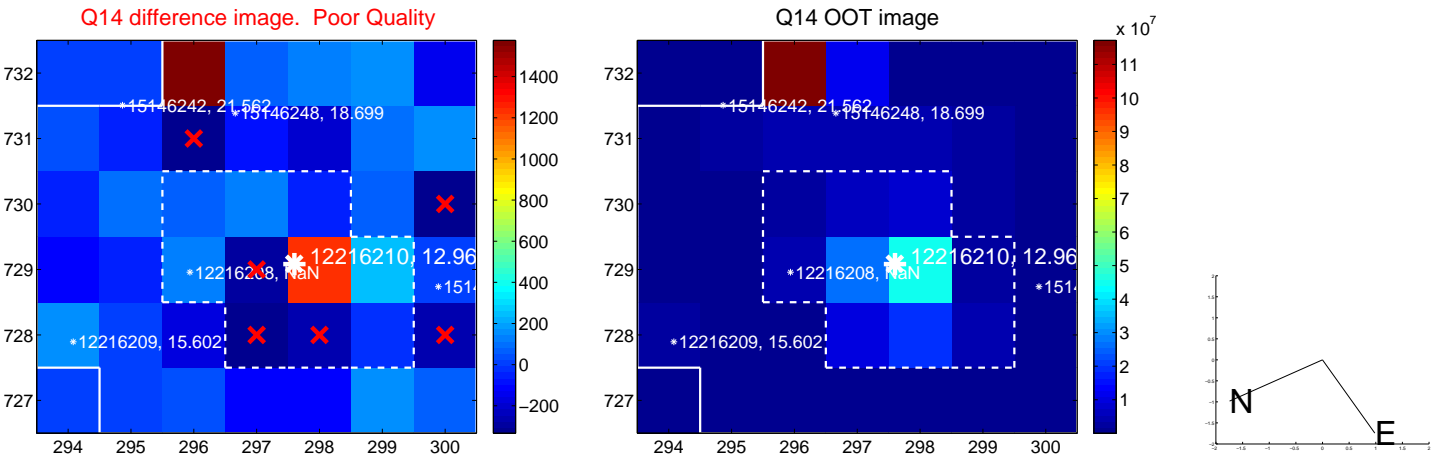
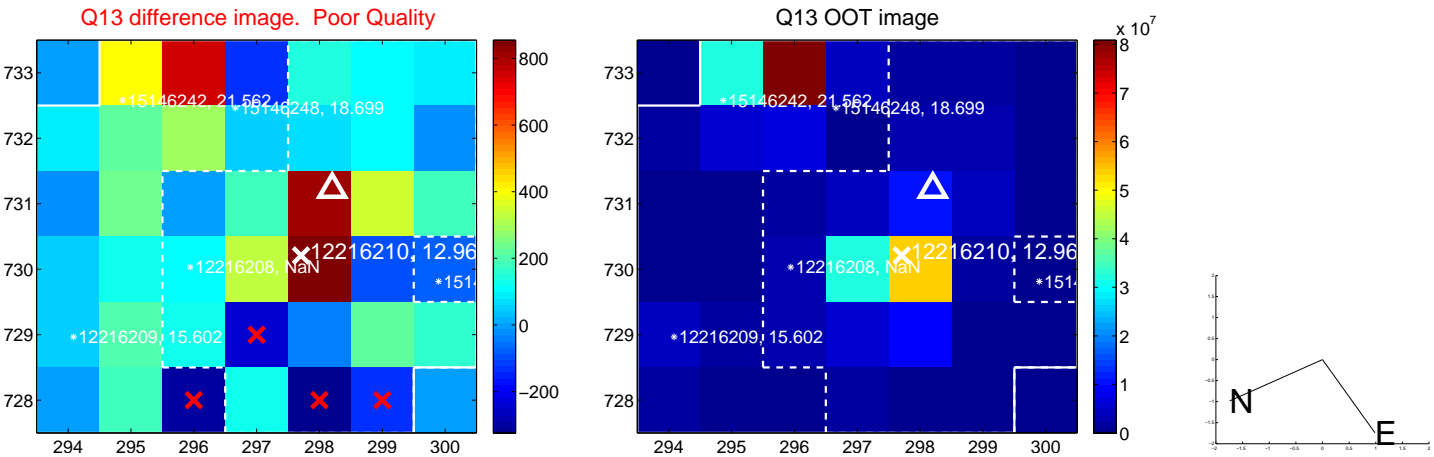
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



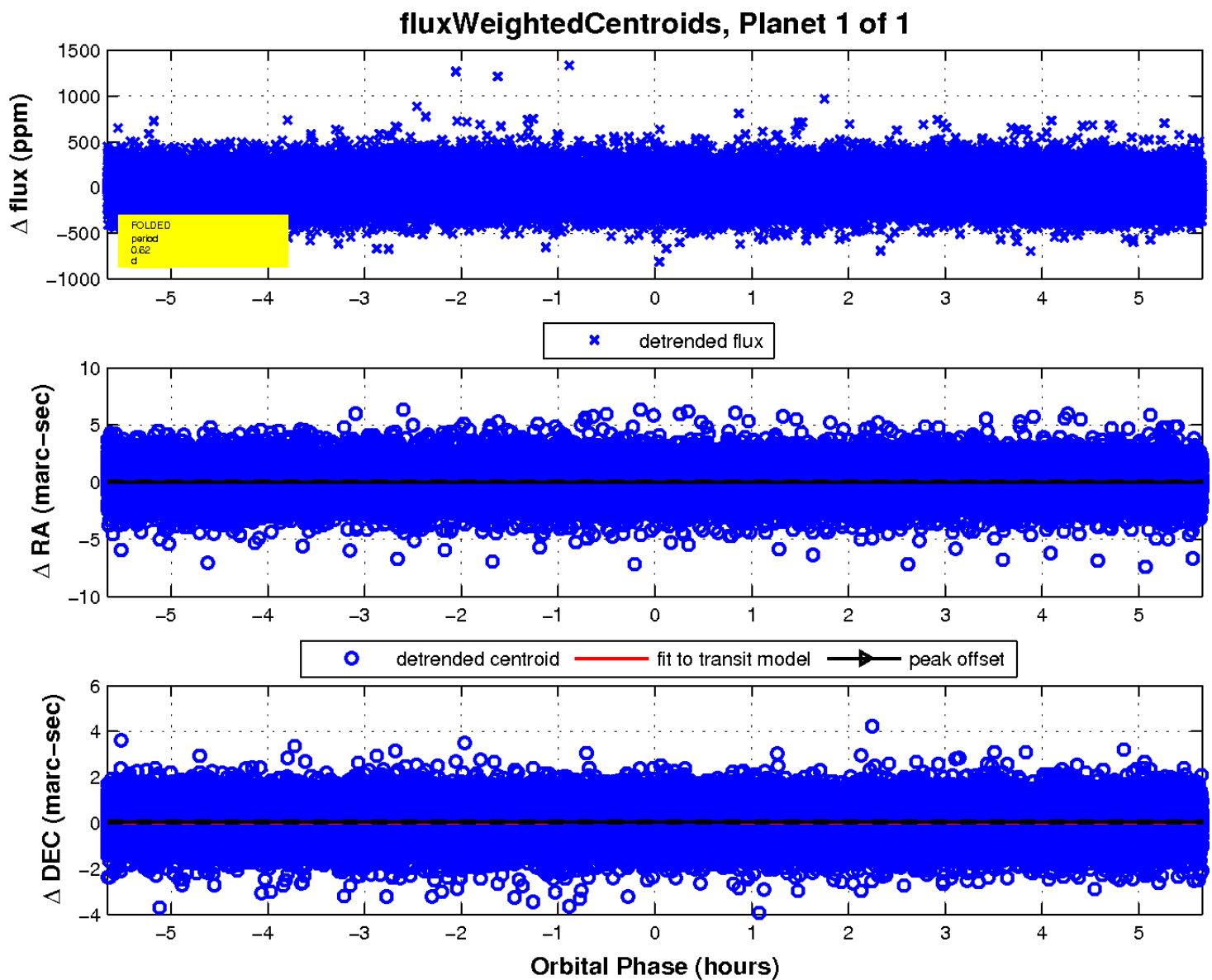
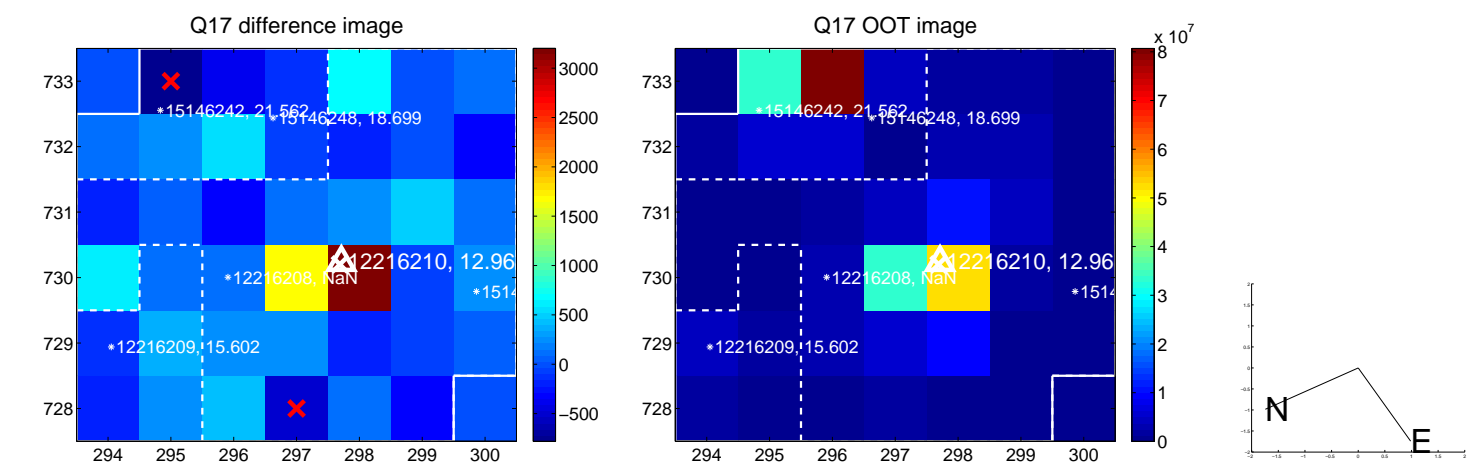
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UKIRT Image

Declination

