

# KIC 006301428

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006301428-01	OBS	No	3.777074	131.821188	118.7	30.710	9.4	12.8	0.88	5968	1.95	399.93

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006301428-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET

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

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

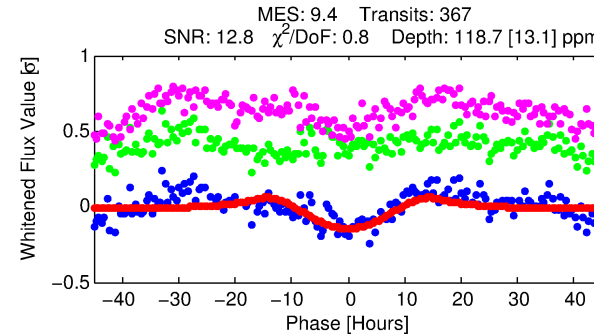
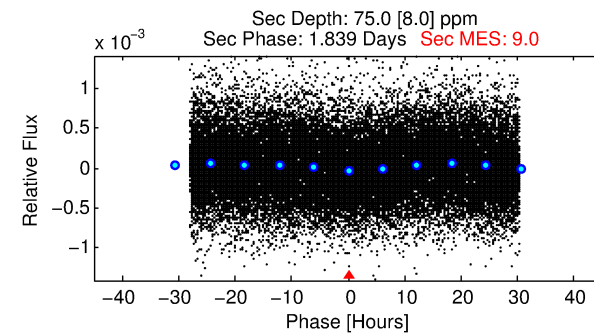
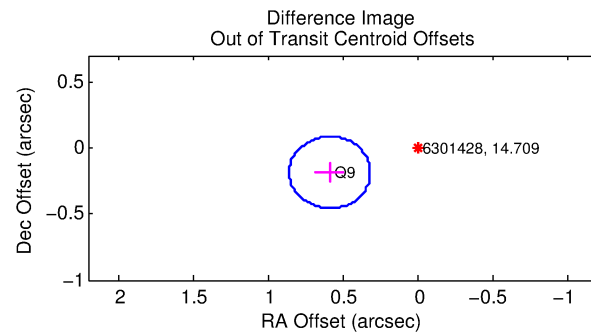
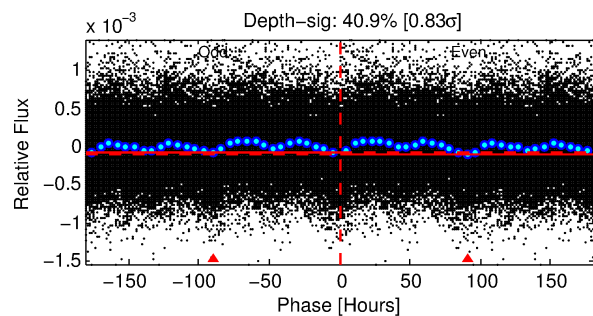
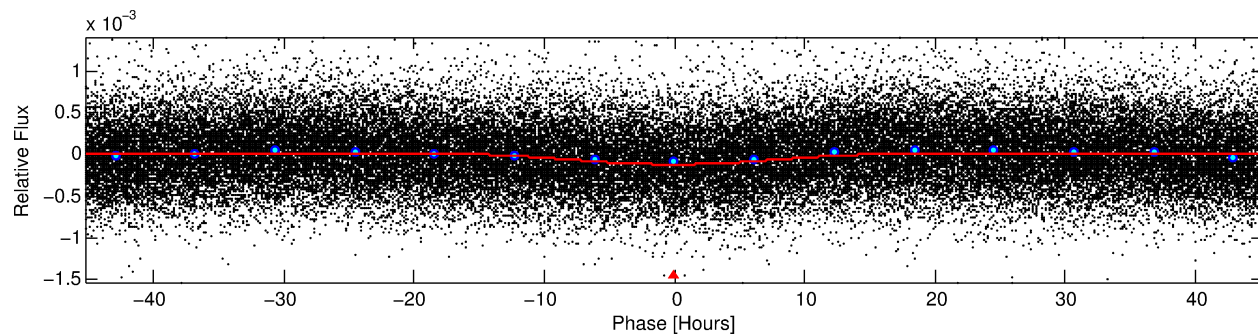
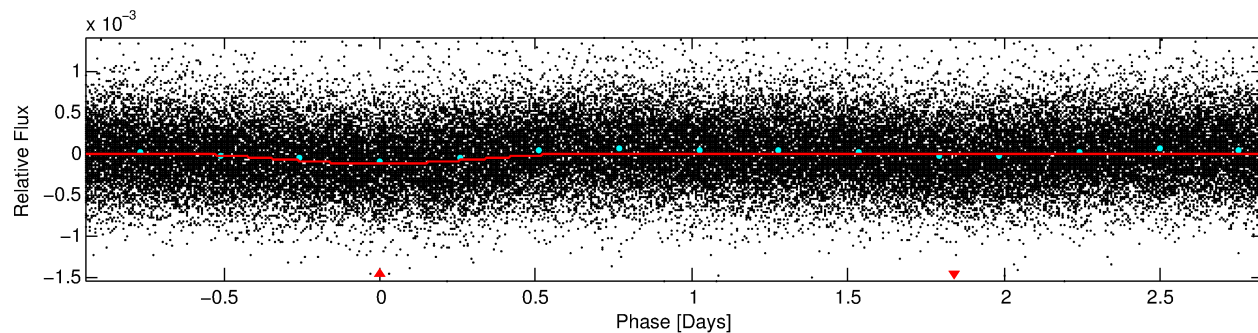
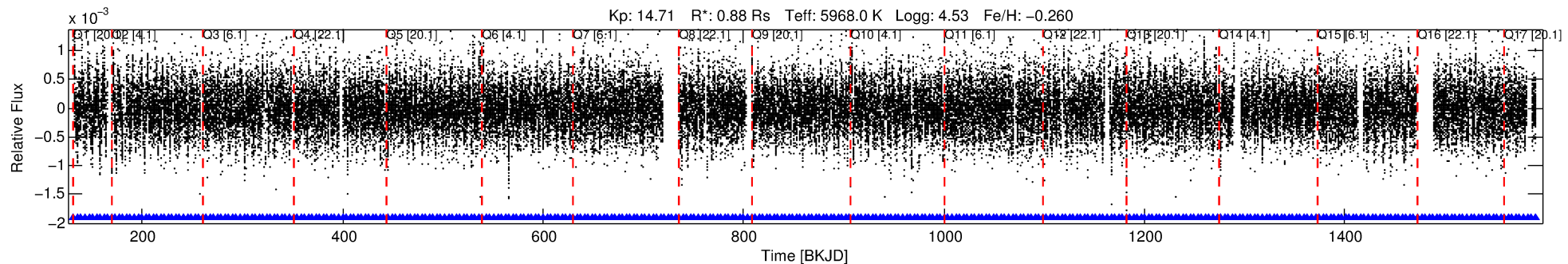
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006301428-01

No Significant Match Found

# DV One-Page Summary

KIC: 6301428 Candidate: 1 of 1 Period: 3.777 d



## DV Fit Results:

Period = 3.77707 [0.00016] d  
Epoch = 131.8212 [0.0348] BKJD  
Rp/R\* = 0.0203 [0.0220]  
a/R\* = 1.03 [0.02]  
b = 1.00 [0.03]  
Seff = 399.93 [146.53]  
Teq = 1140 [104] K  
Rp = 1.95 [2.18] Re  
a = 0.0470 [0.0110] AU  
Ag = 23.99 [52.94] [0.43 $\sigma$ ]  
Teff = 3902 [2129] K [1.30 $\sigma$ ]

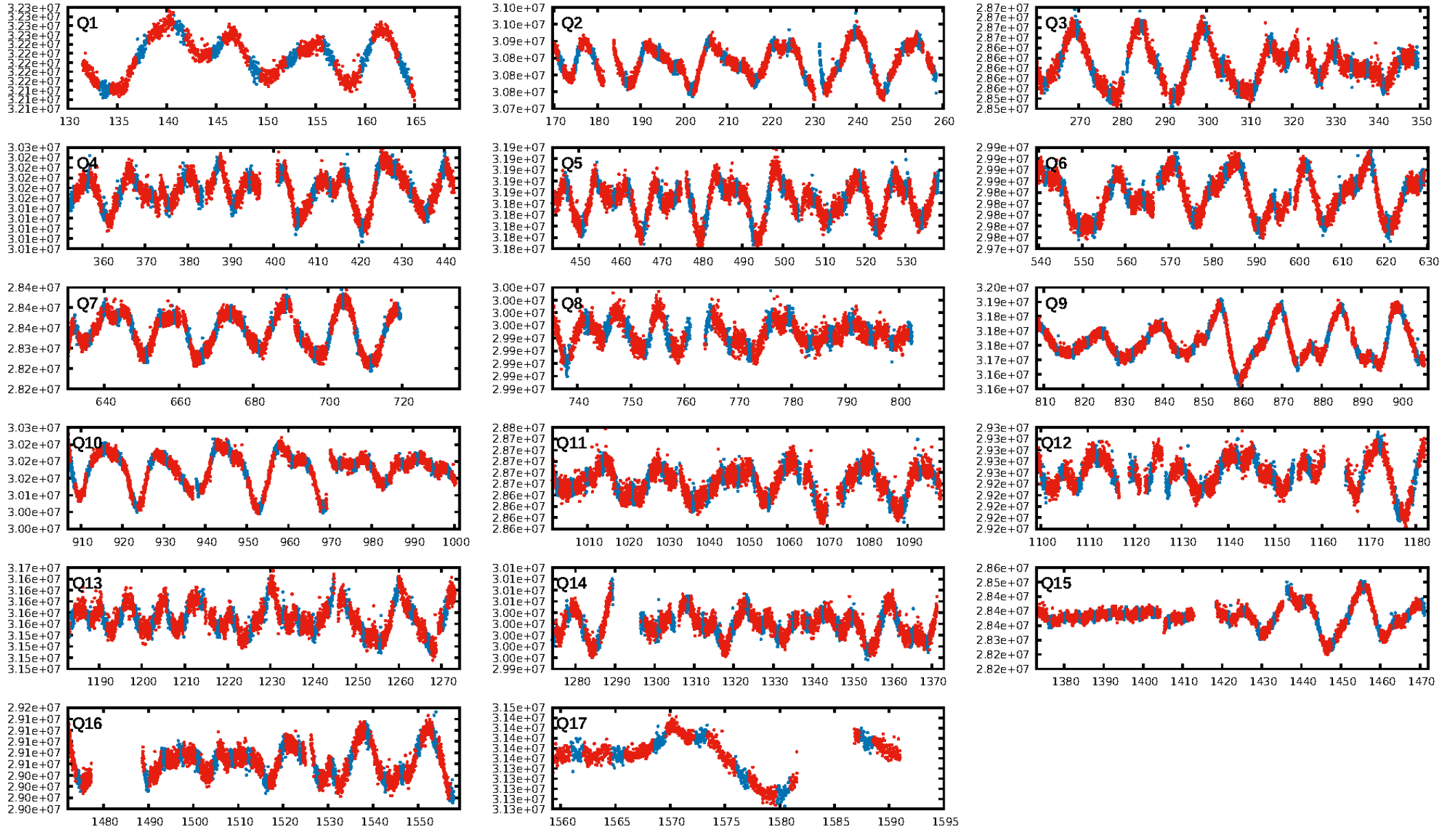
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [350/350]  
GhostDiagnostic-chr: 0.8736  
Centroid-sig: 0.0%  
Centroid-so: 0.829 arcsec [1.24 $\sigma$ ]  
OotOffset-rm: 0.613 arcsec [6.79 $\sigma$ ]  
KicOffset-rm: 10.510 arcsec [129.86 $\sigma$ ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [17/17]

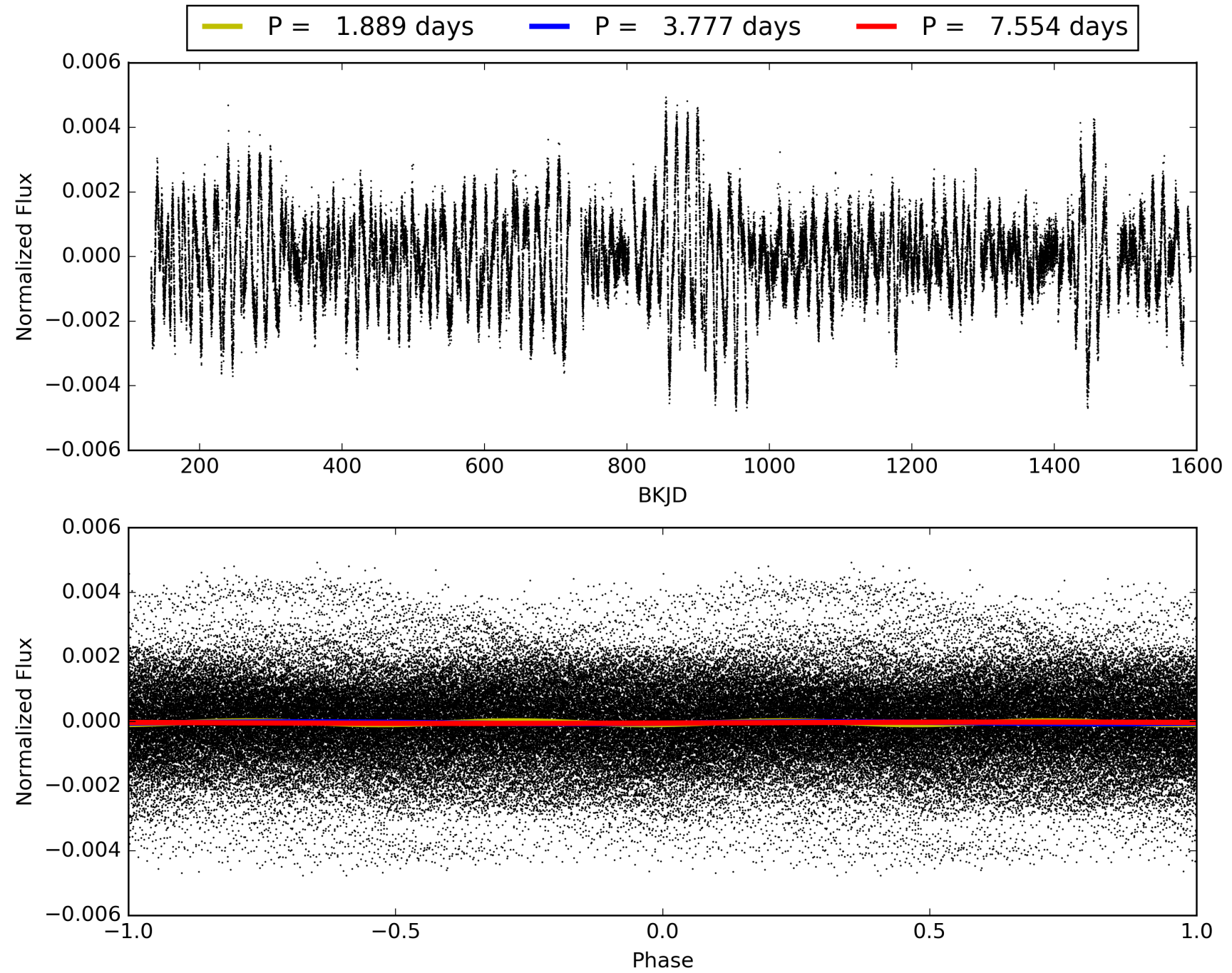
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:48:07 Z

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

# TCE 006301428-01, PDC Light Curves

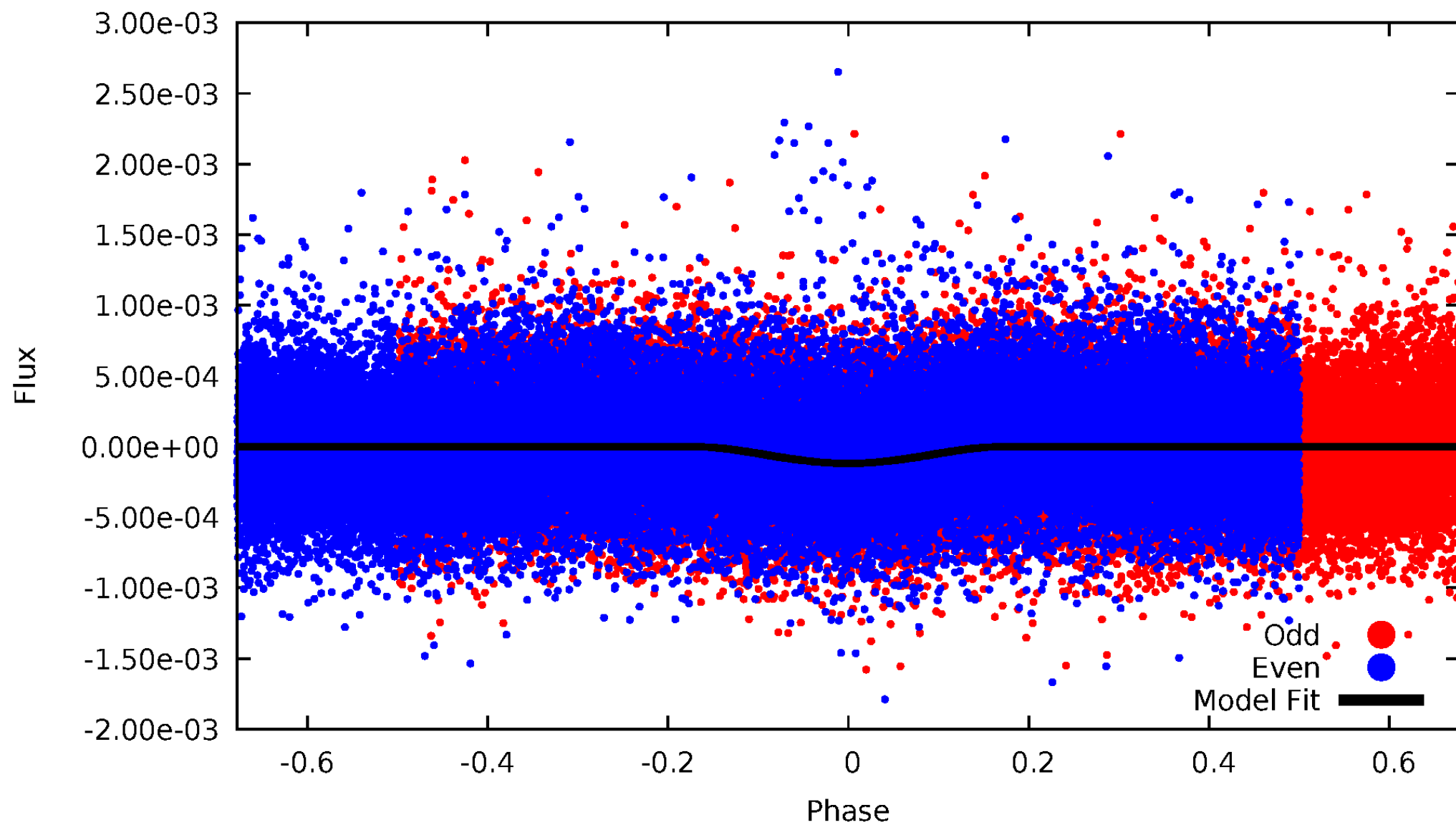


TCE 006301428-01



# DV Odd/Even

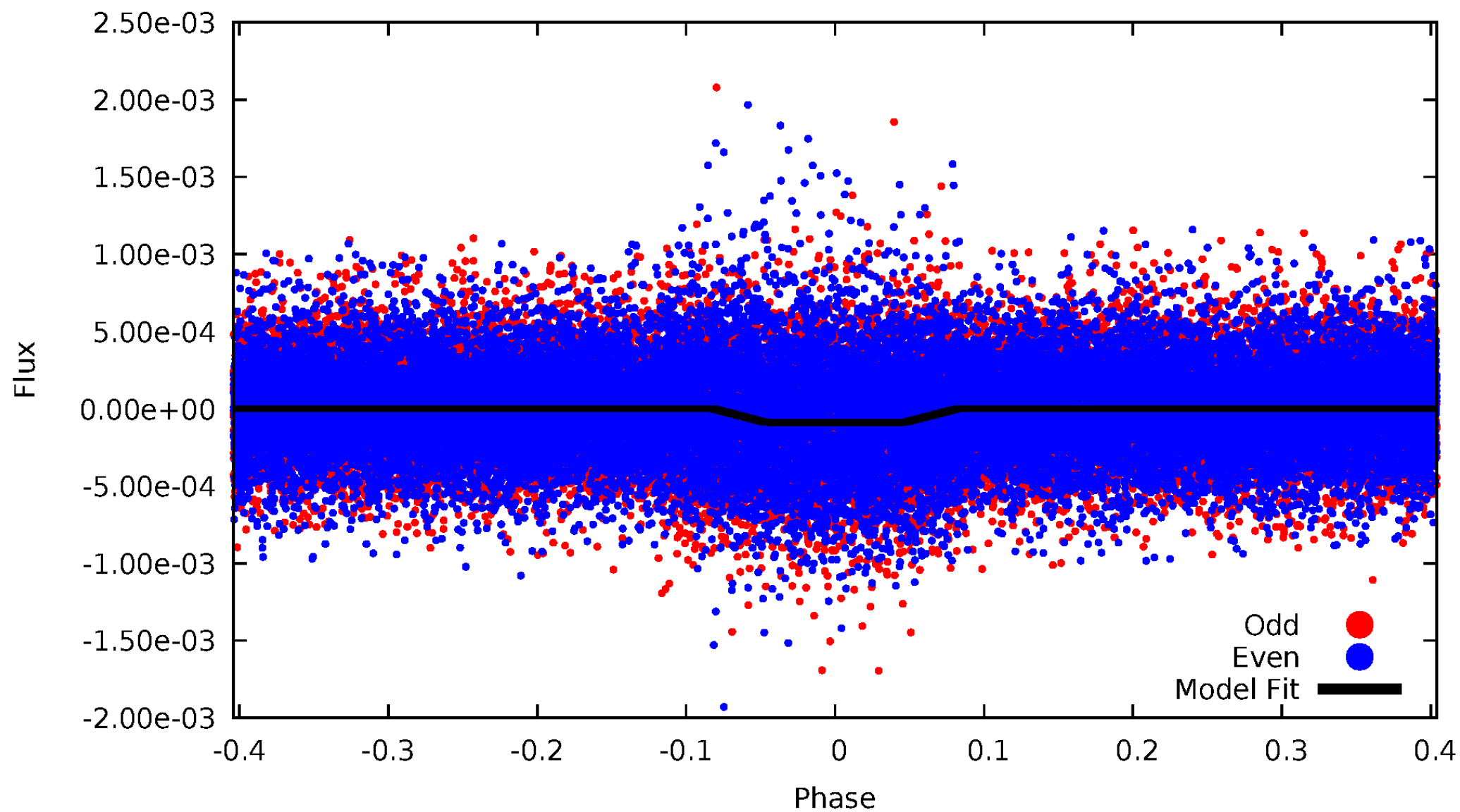
TCE 006301428-01





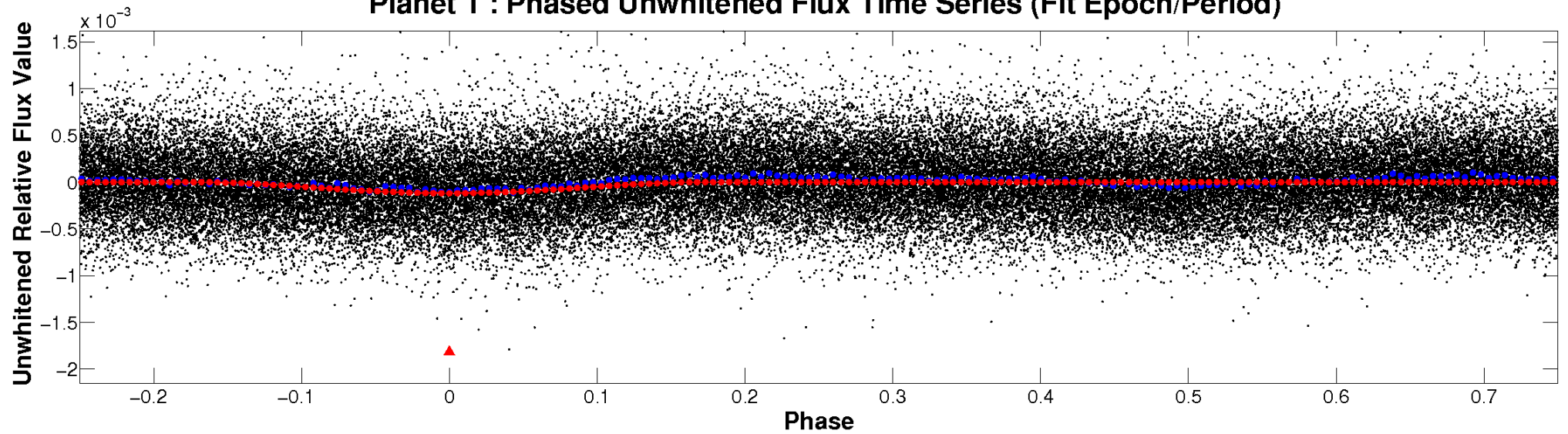
# ALT Odd/Even

TCE 006301428-01

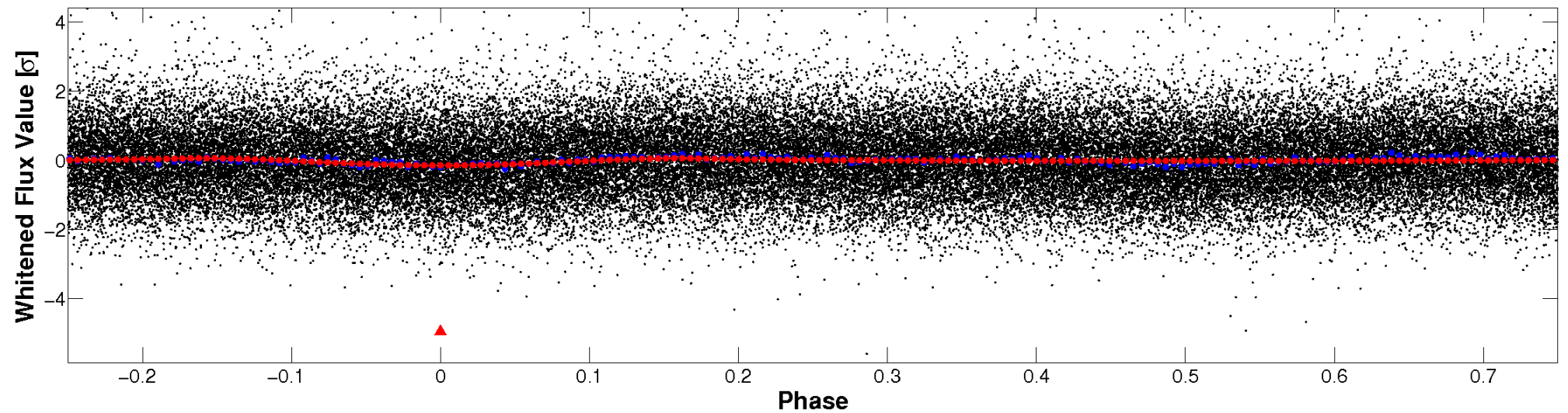


# Non-Whitened Vs. Whitened Light Curve

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

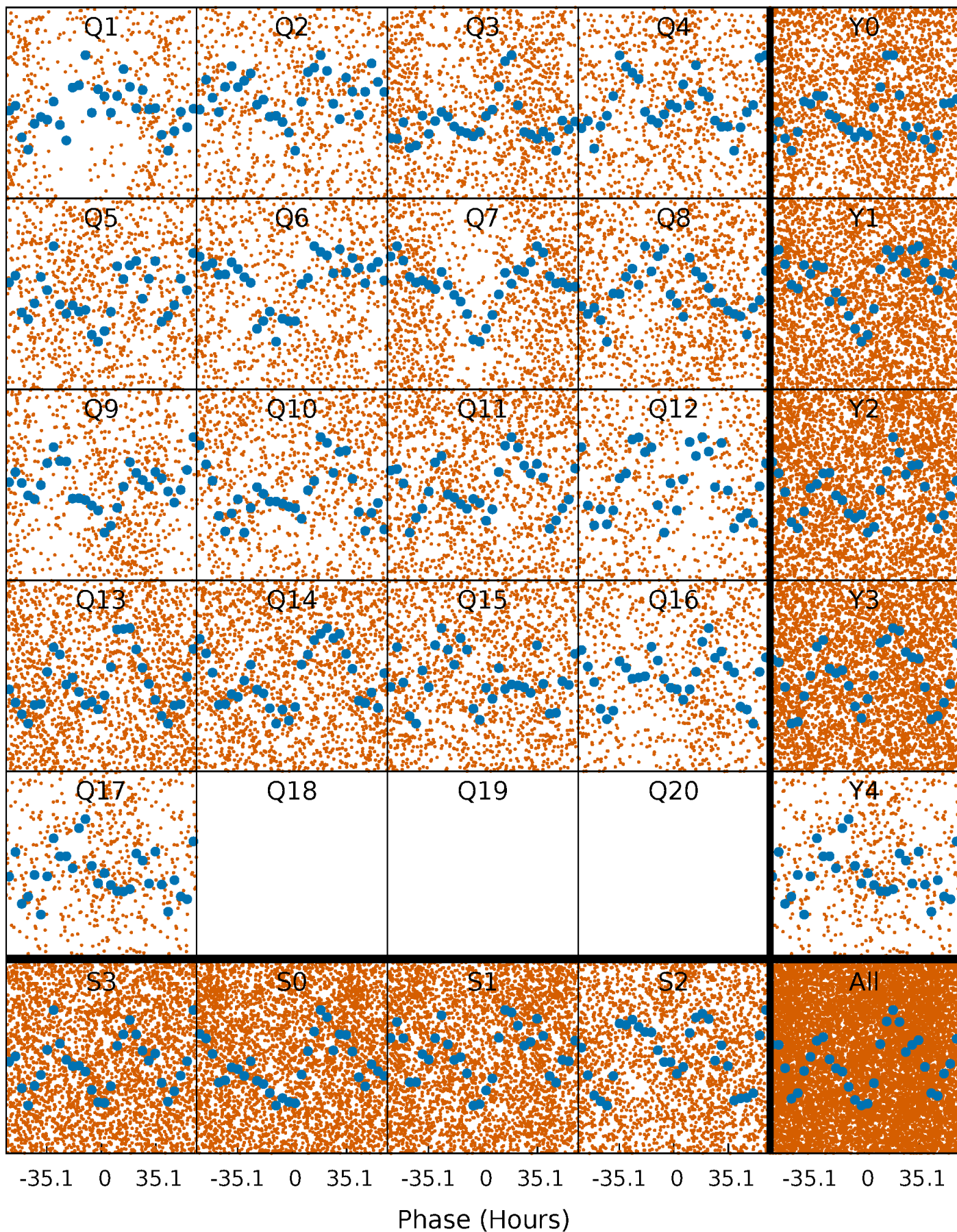


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

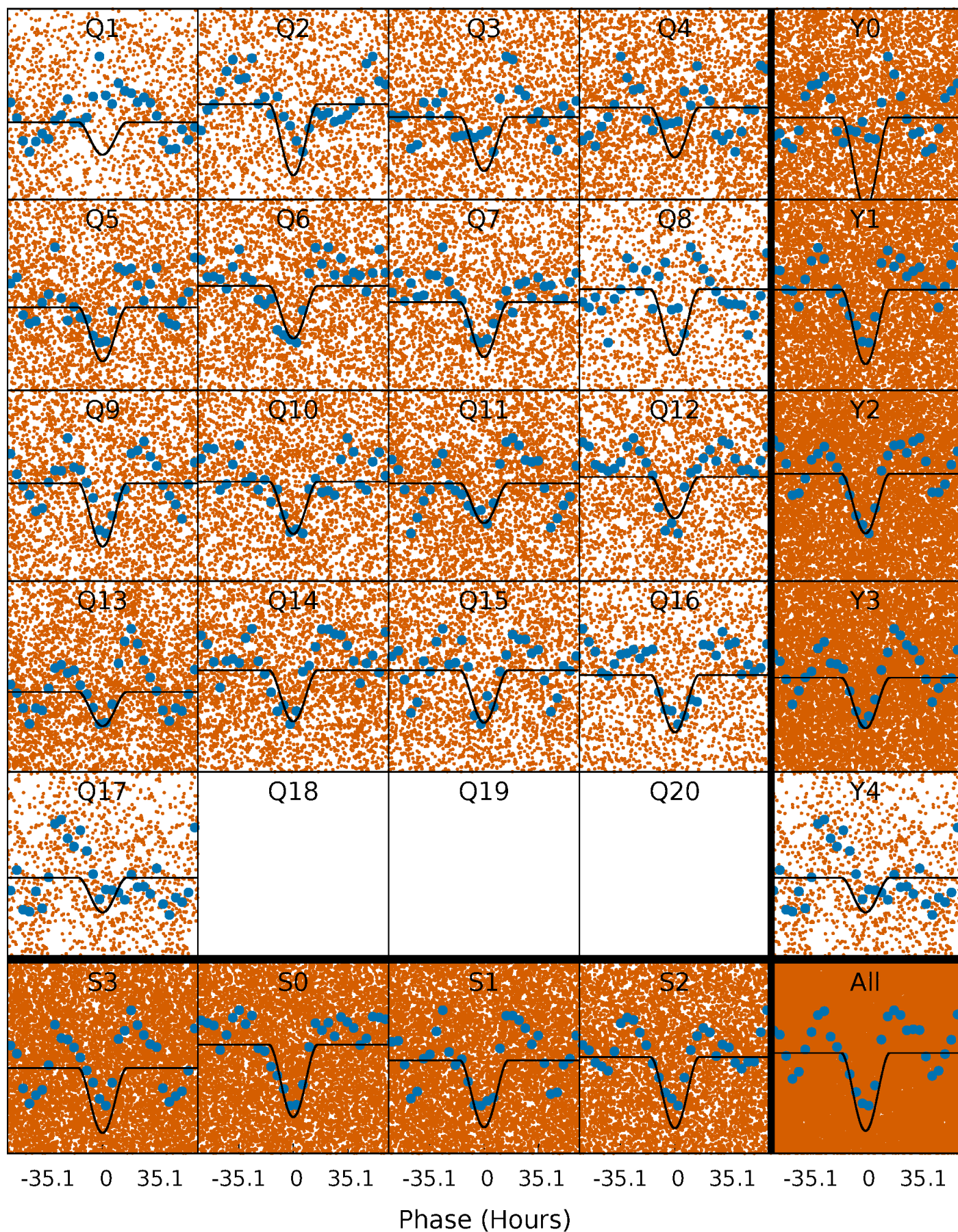
TCE 006301428-01 P= 3.777074 Days  $T_0=131.821188$  (BKJD)





# DV Quarter-Phased Transit Curves

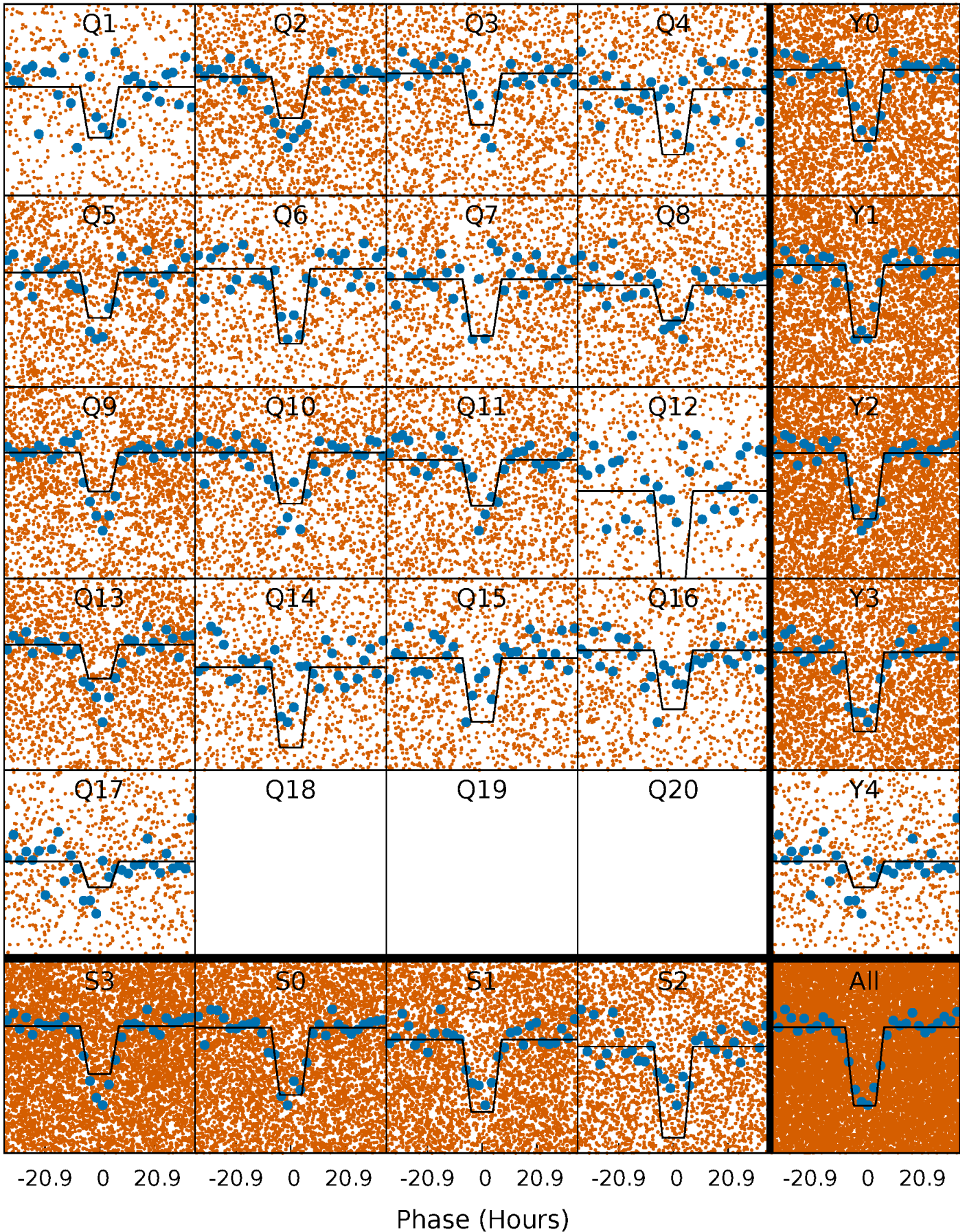
TCE 006301428-01 P= 3.777074 Days  $T_0=131.821188$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

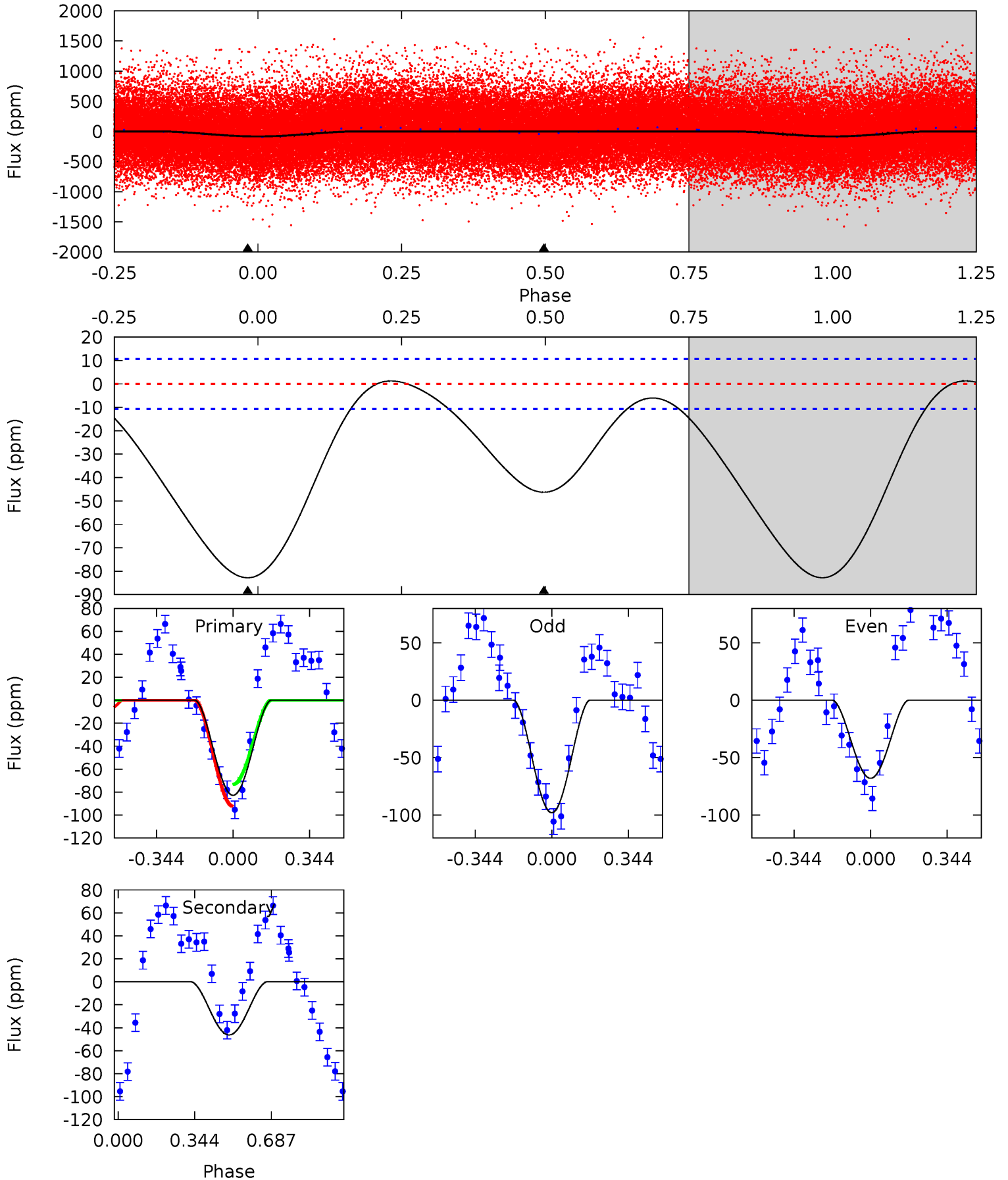
TCE 006301428-01 P= 3.776815 Days  $T_0=131.958749$  (BKJD)



# DV Model-Shift Uniqueness Test

006301428-01, P = 3.777074 Days, E = 128.044114 Days

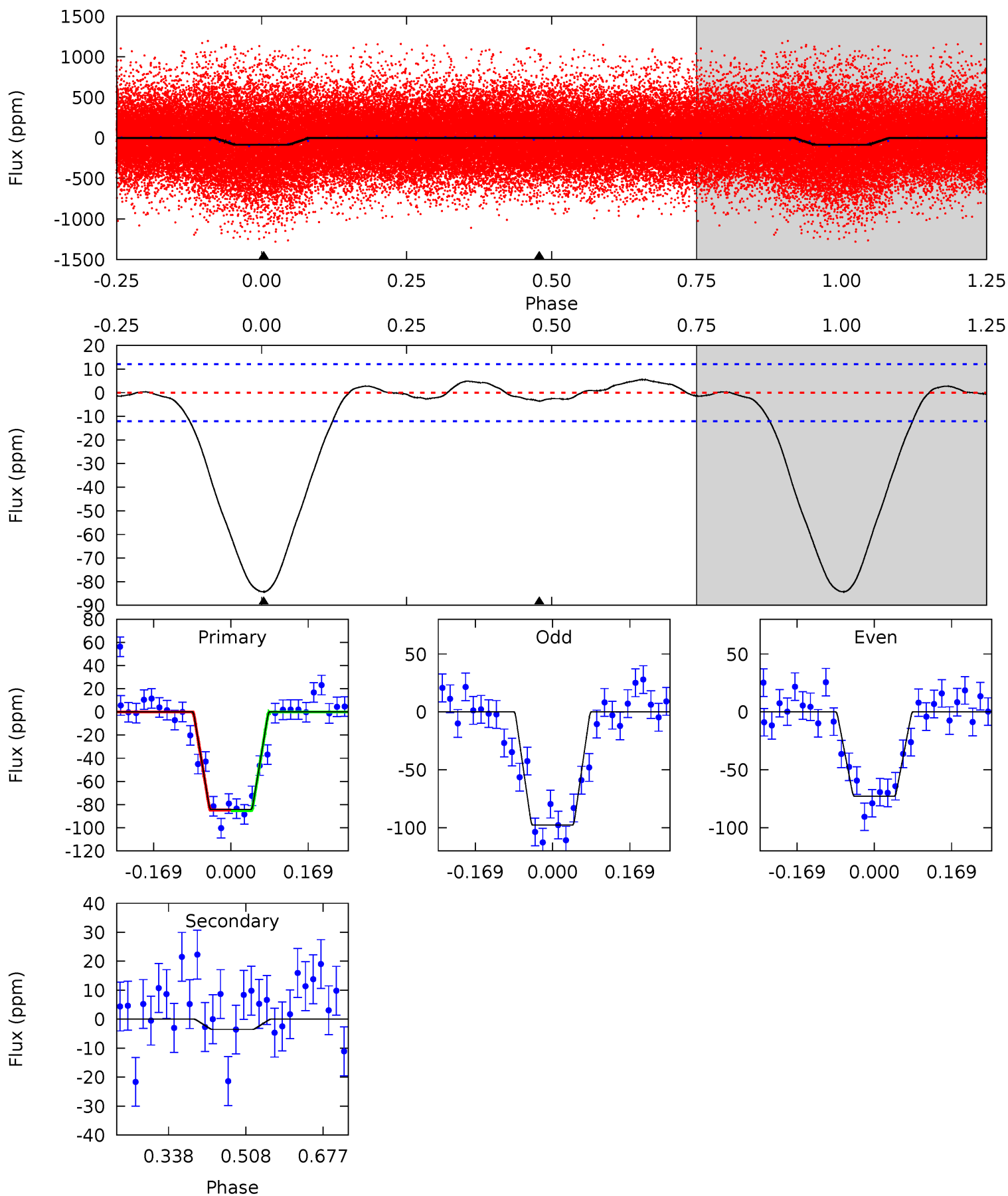
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.3	18.6	0	0	4.30	0.95	2.55	33.3	33.3	18.6	18.6	6.06	-2.90	0.02	3.87



# Alt Model-Shift Uniqueness Test

006301428-01, P = 3.776815 Days, E = 128.181934 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.1	1.31	0	0	4.45	1.37	0.88	31.1	31.1	1.31	1.31	4.58	1.19	0.06	0.08





### Stellar Parameters For KIC 006301428

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5968^{+161}_{-179}$	$4.534^{+0.048}_{-0.192}$	$-0.260^{+0.300}_{-0.300}$	$0.881^{+0.240}_{-0.086}$	$0.970^{+0.106}_{-0.118}$	$1.995^{+0.485}_{-0.999}$
	+3%/-3%	+1%/-4%	+115%/-115%	+27%/-10%	+11%/-12%	+24%/-50%
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 006301428-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-46 \pm 2$	$2.45^{+2.10}_{-1.54}$	$1625^{+107}_{-71}$	$3593^{+1590}_{-661}$	$8.881^{+55.565}_{-6.225}$
Alt.	$-4 \pm 3$	$1.89^{+1.98}_{-1.30}$	$1630^{+96}_{-81}$	$2495^{+1196}_{-4632}$	$0.972^{+10.644}_{-0.835}$

$T_{max}$  = 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

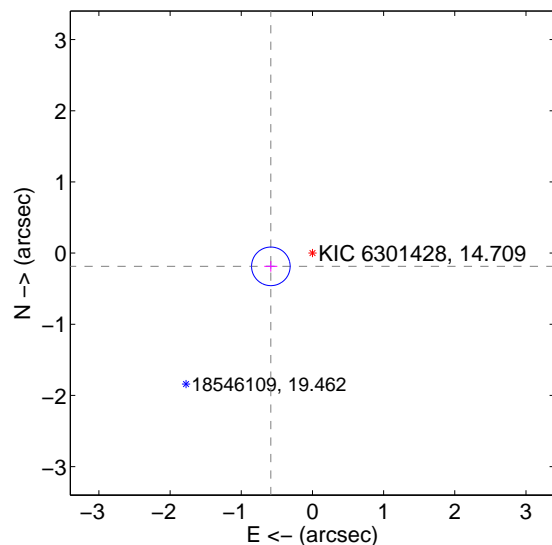
Supplemental centroid analysis for 006301428-01. Kepler magnitude: 14.71. Transit SNR 12.77

There are 1 quarters with good PRF difference image offsets

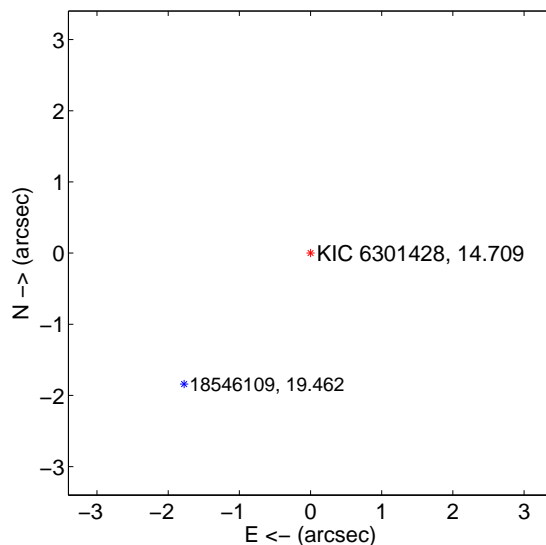
The OOT PRF centroid is offset from the target star catalog position by about 10.72 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.613 \pm 0.090$	6.79	$0.584 \pm 0.092$	$-0.186 \pm 0.075$
PRF-fit source offset from KIC position	$10.510 \pm 0.081$	129.86	$-6.178 \pm 0.092$	$-8.502 \pm 0.075$
photometric centroid source offset	$0.83 \pm 0.67$	1.24	$0.60 \pm 0.56$	$-0.57 \pm 0.76$

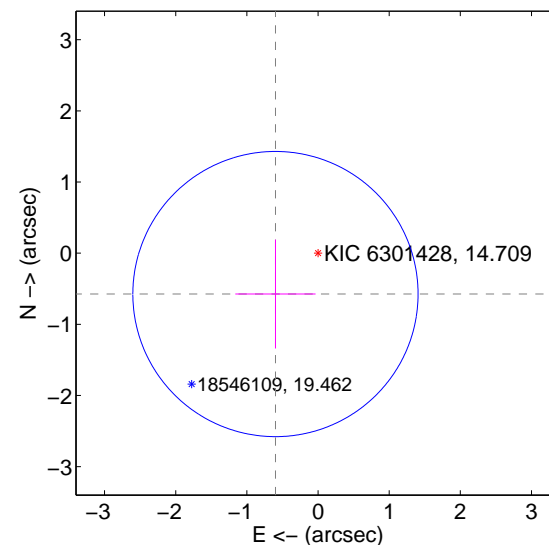
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

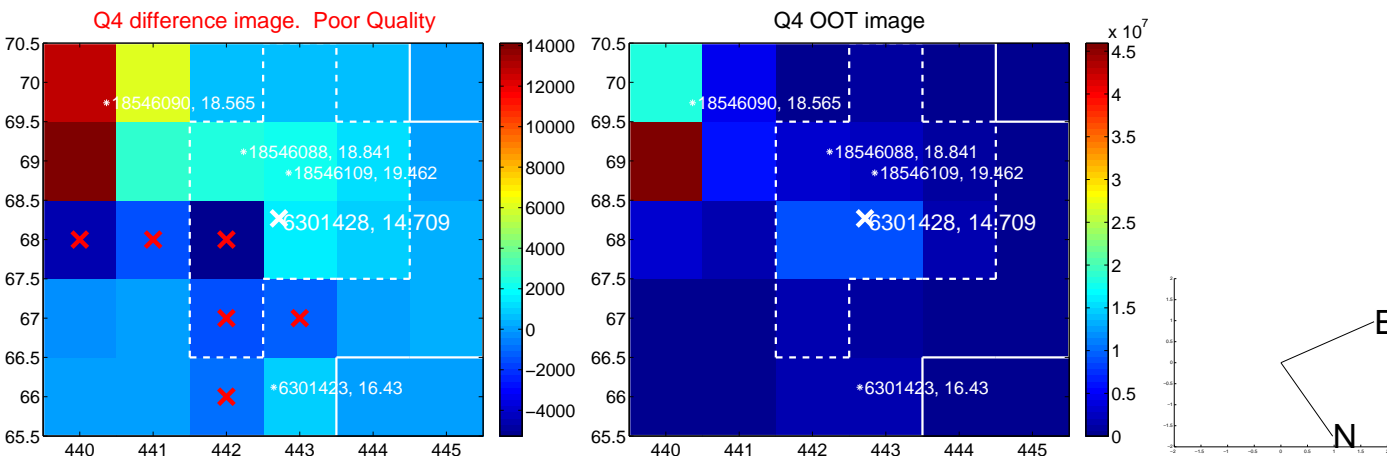
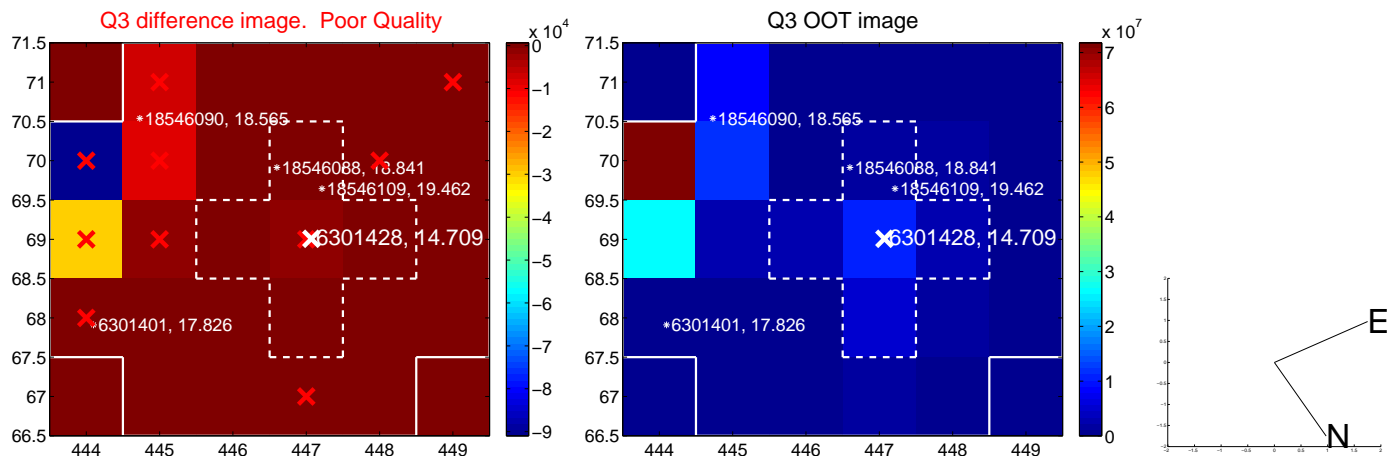
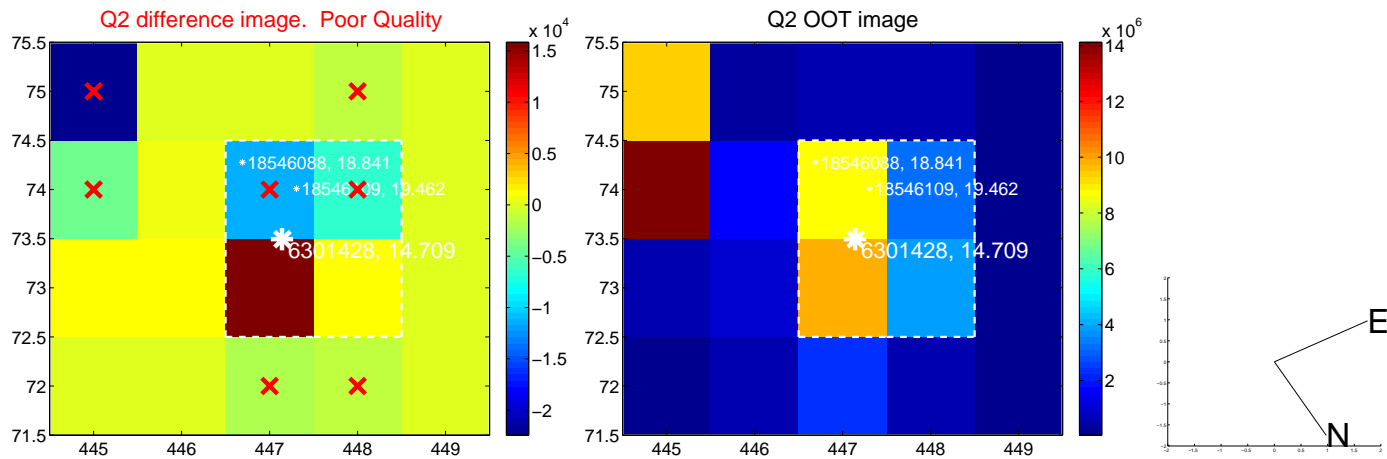
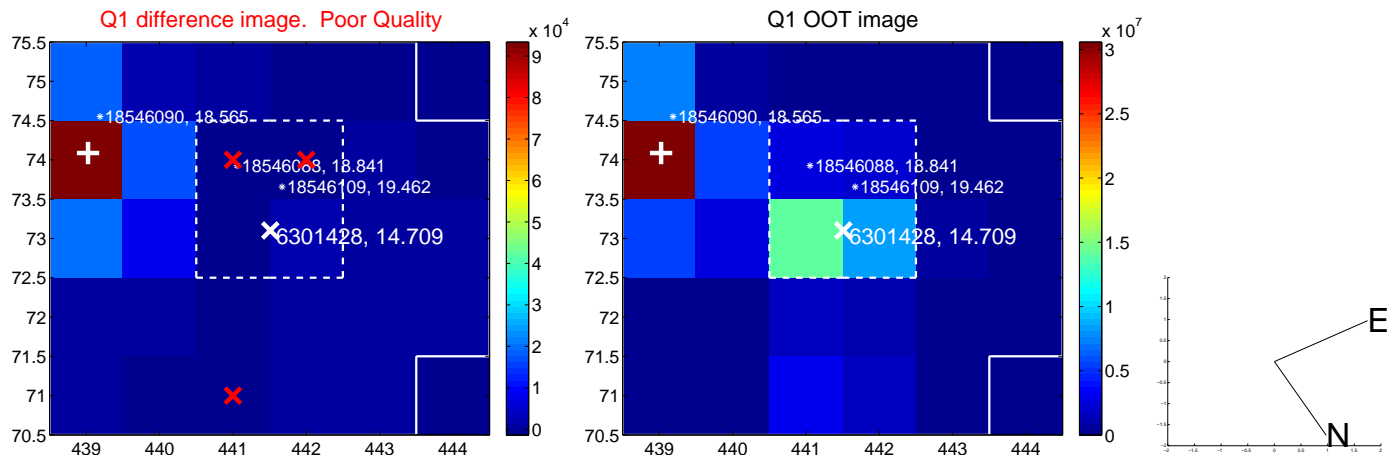


offset from photometric centroids

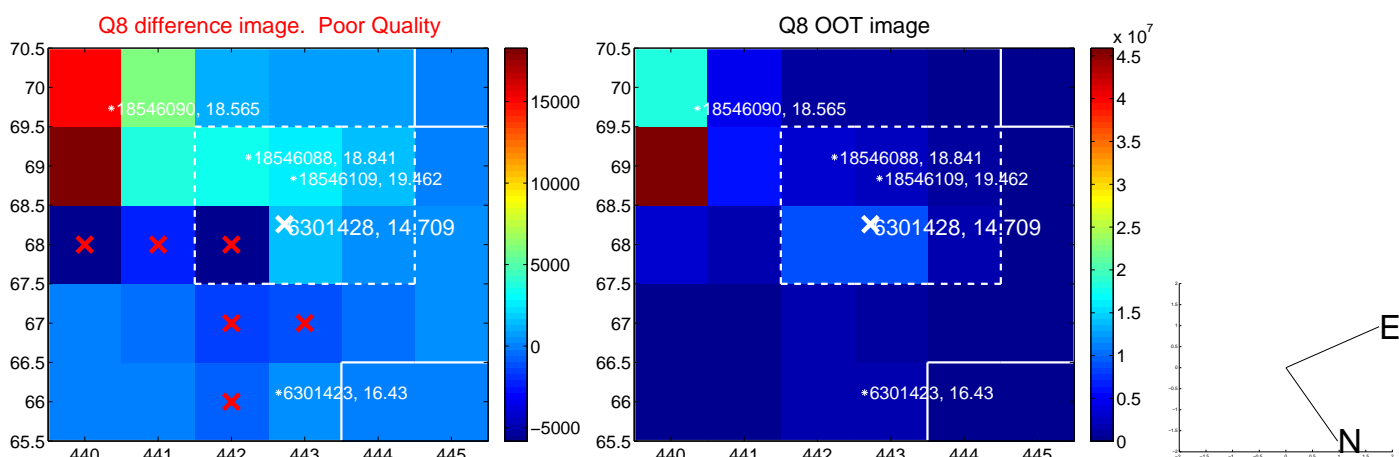
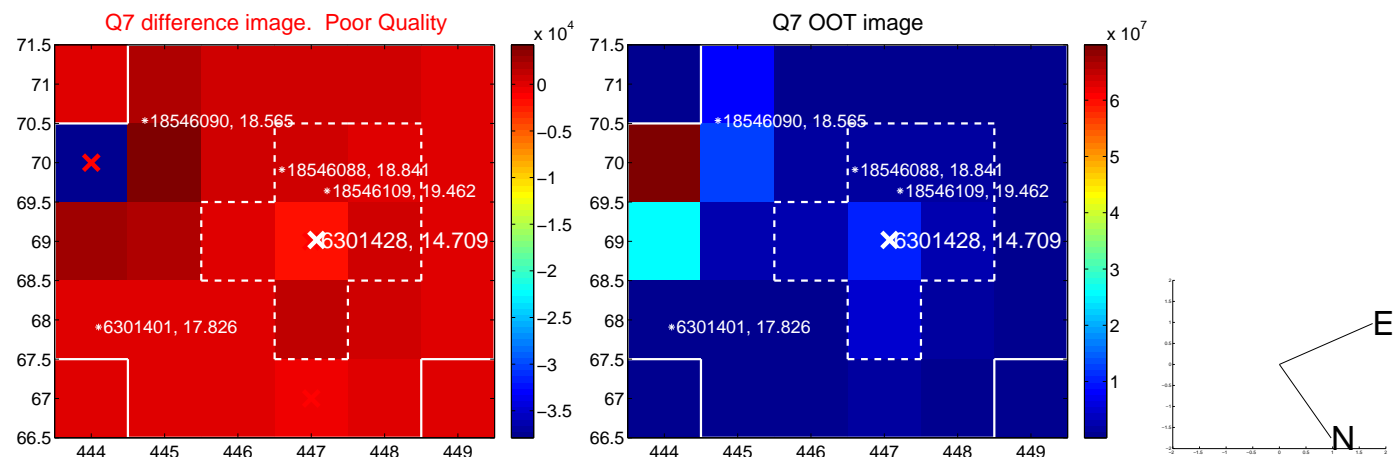
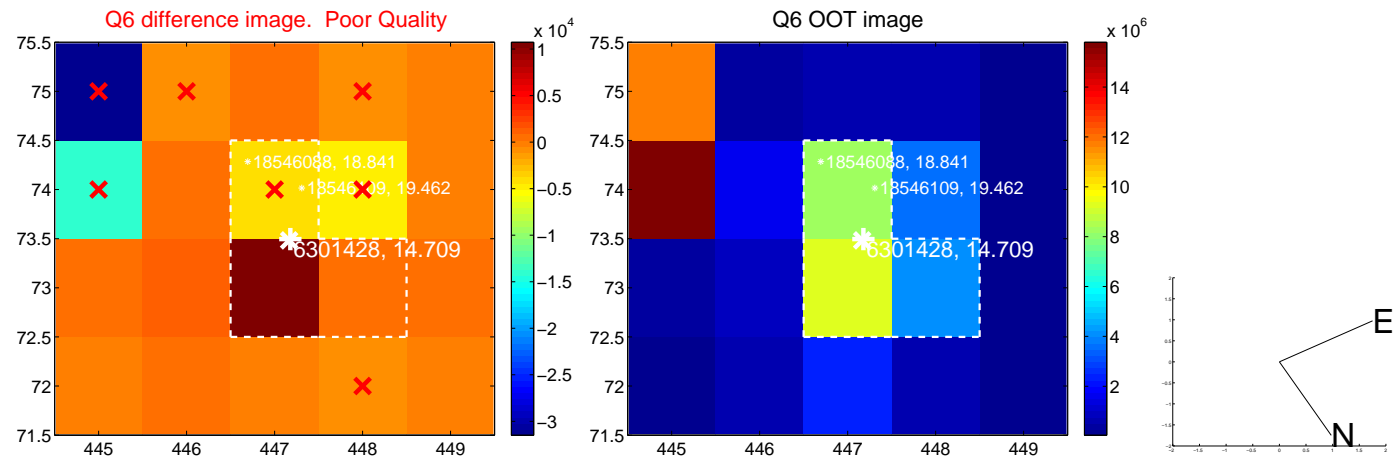
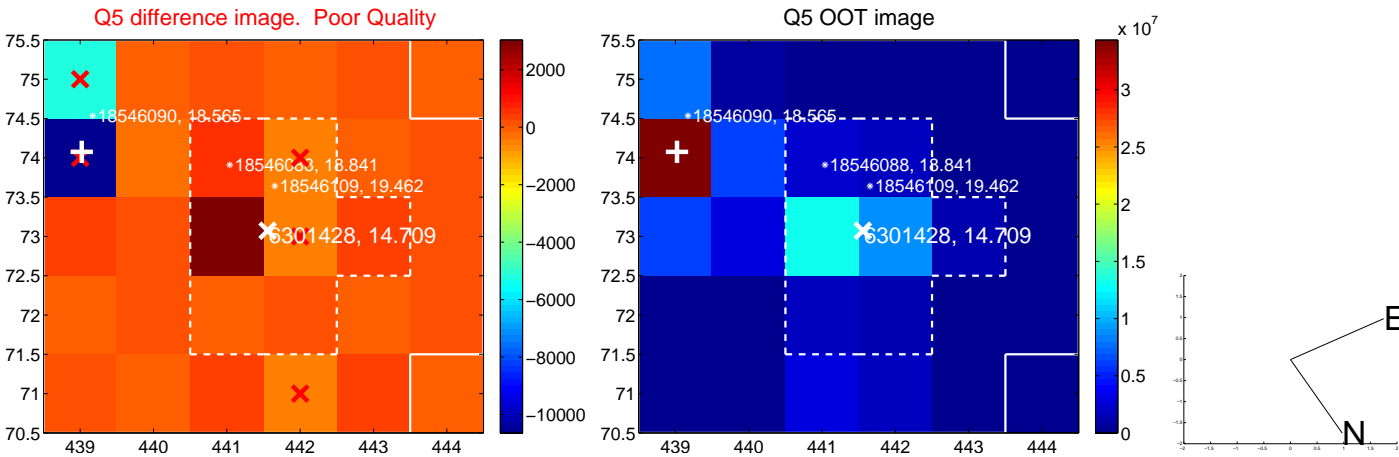


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

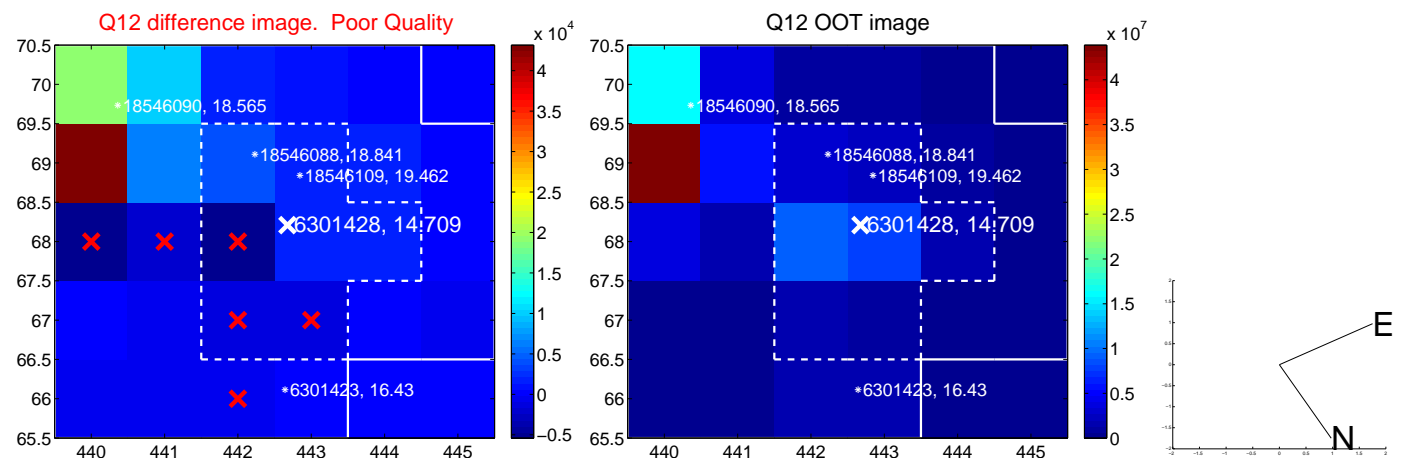
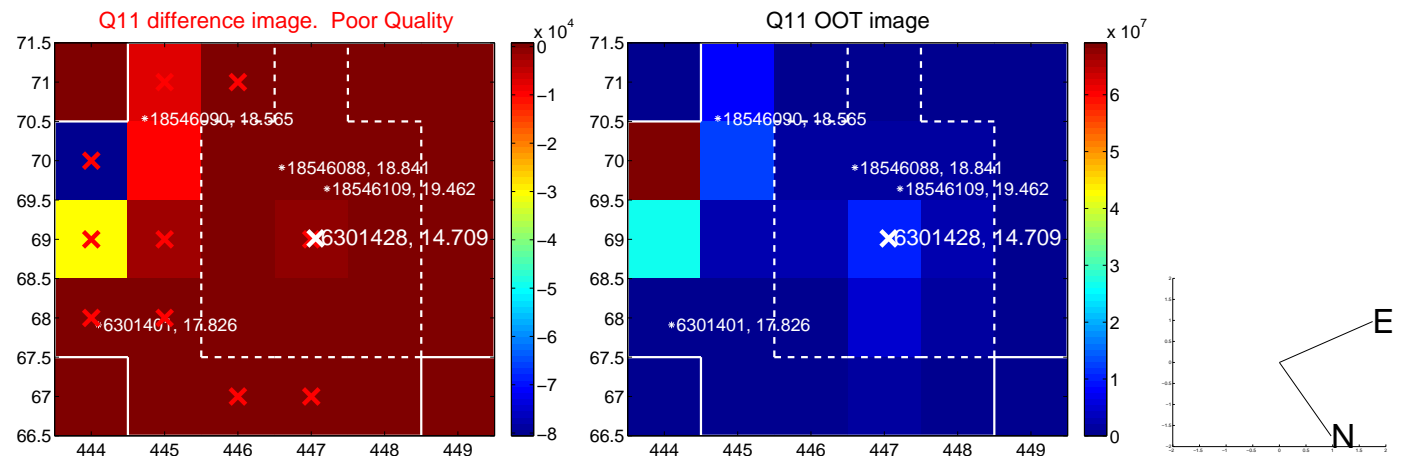
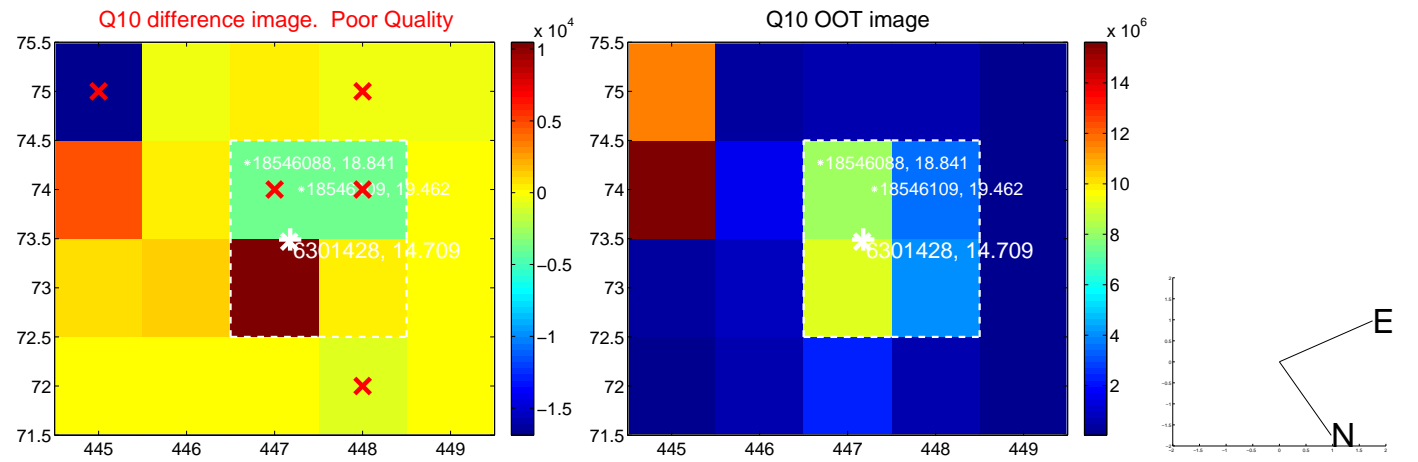
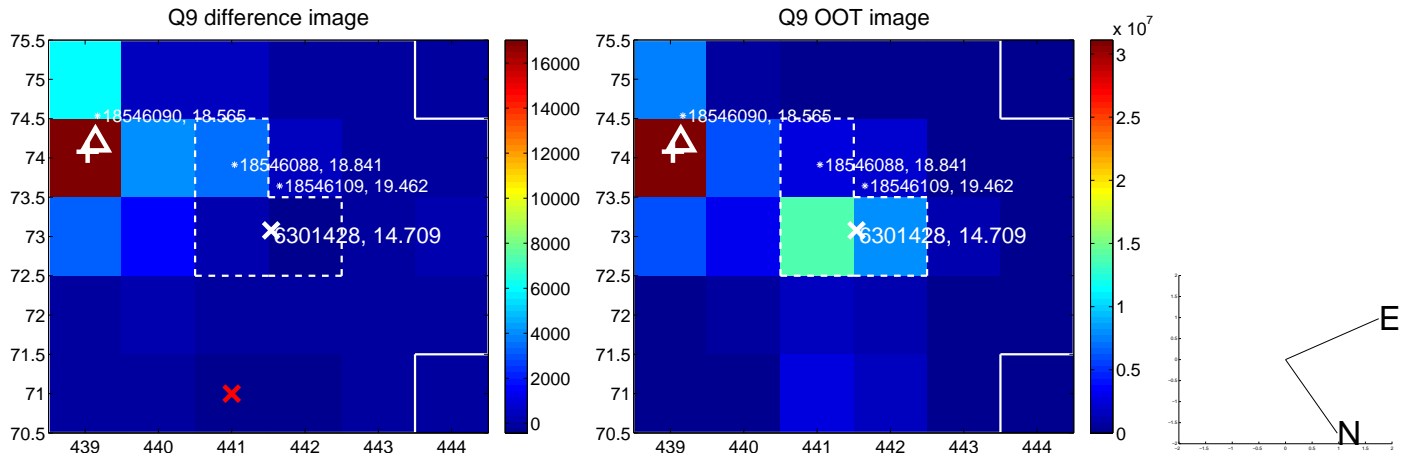


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

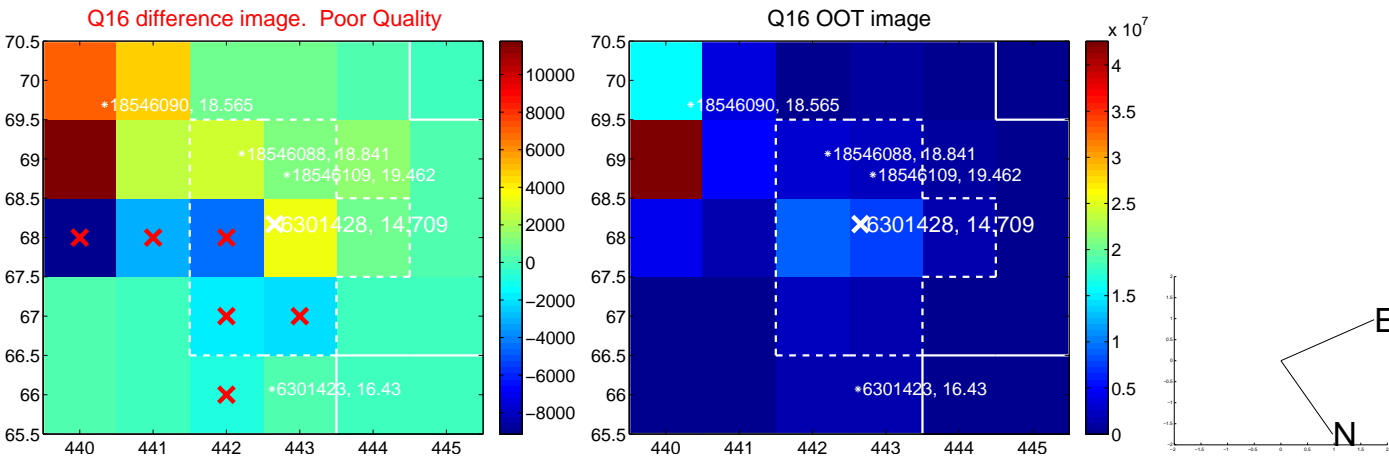
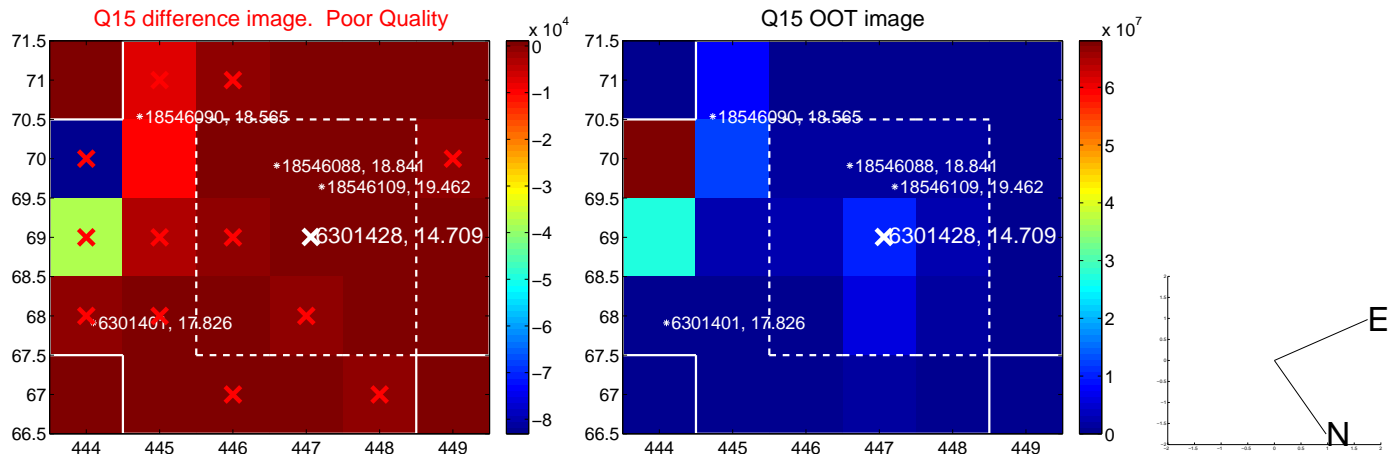
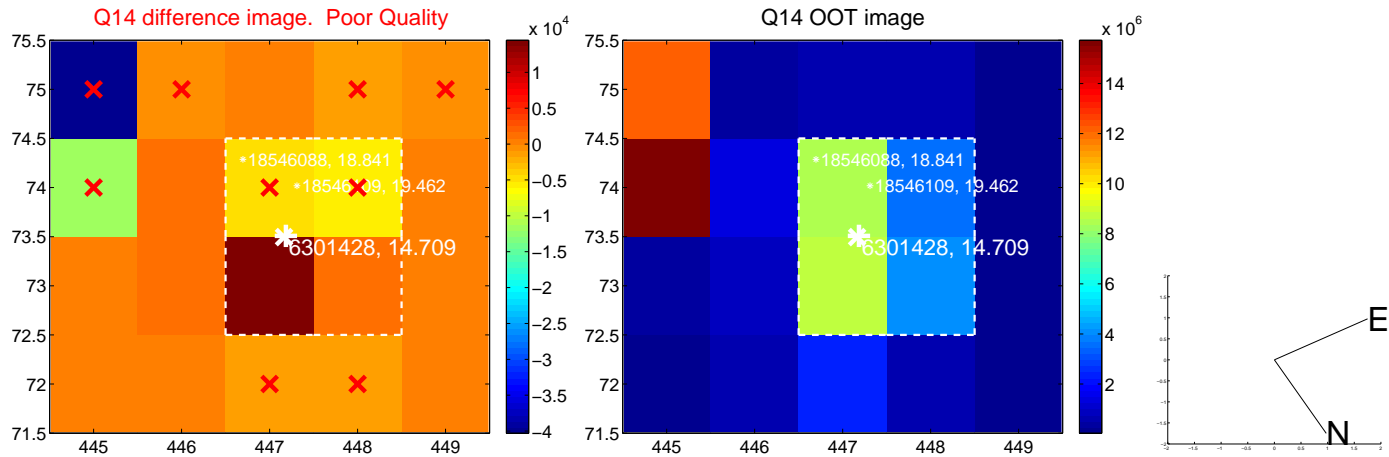
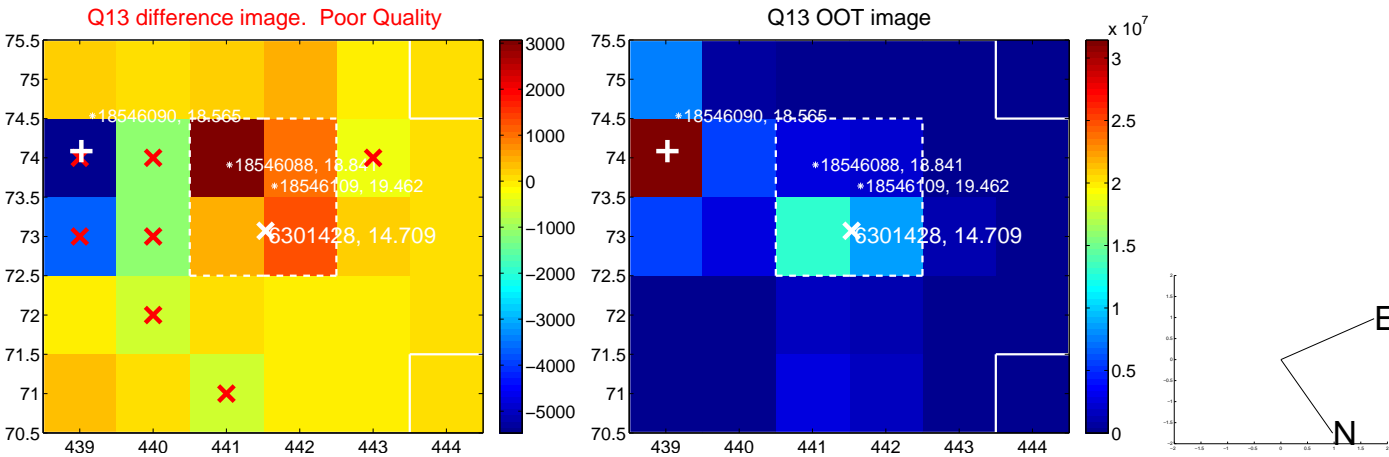




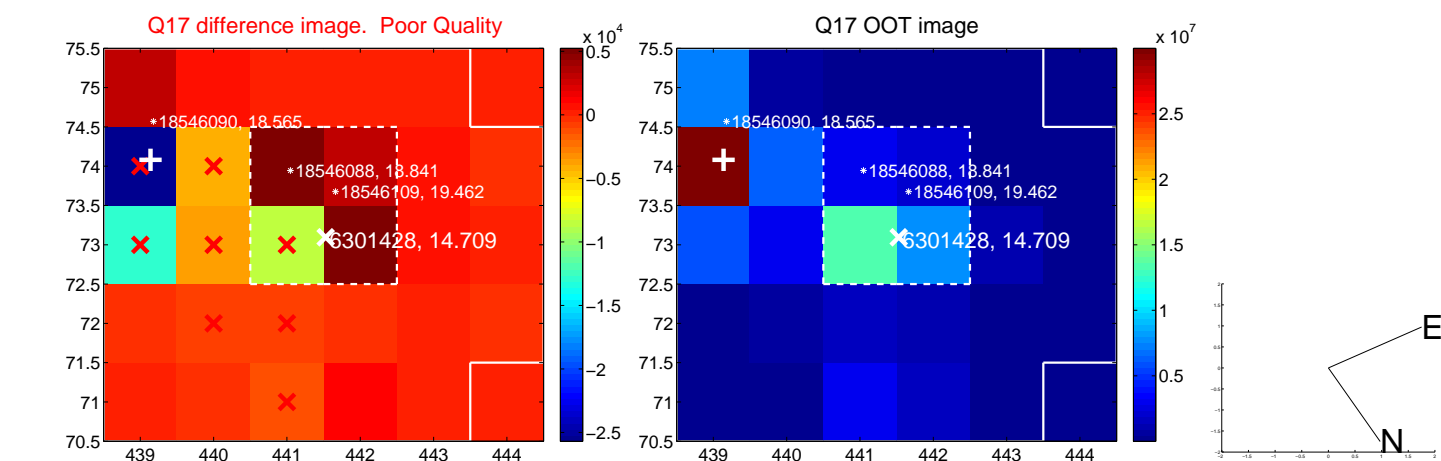
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



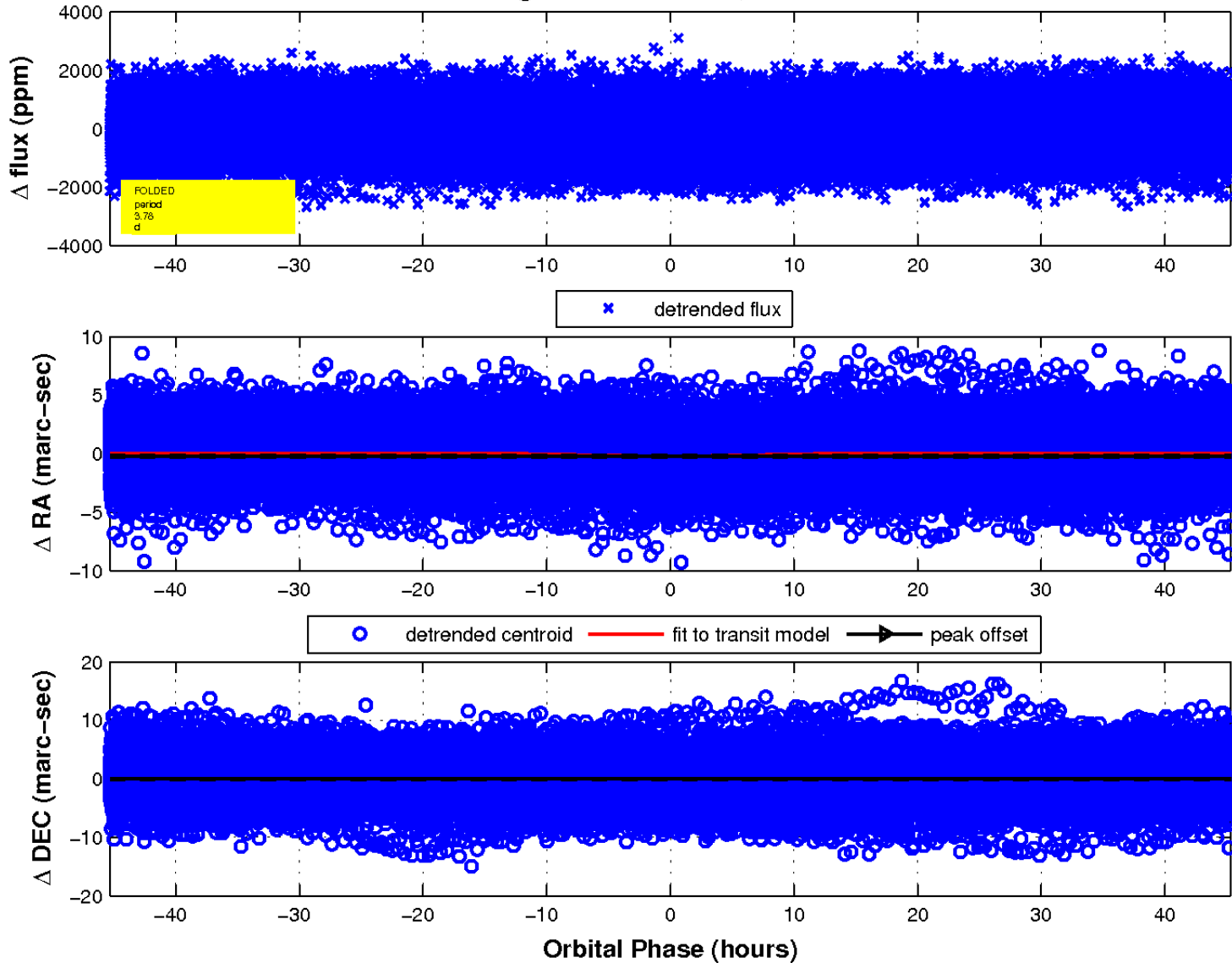
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

