

# KIC 004077558

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004077558-01	OBS	No	0.588021	131.617161	0.1	5.277	9.8	0.0	1.58	7027	0.05	24698.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004077558-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED

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

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

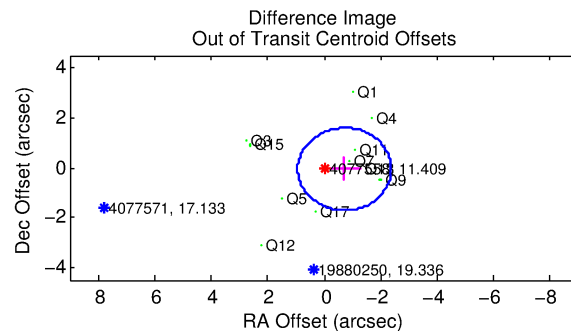
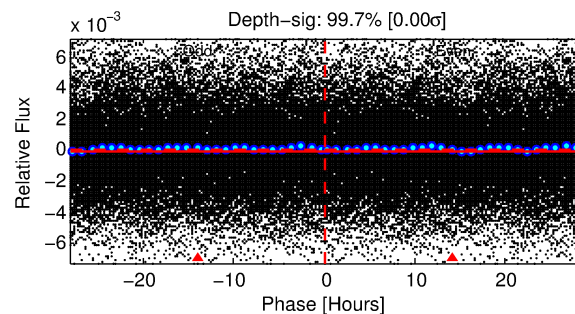
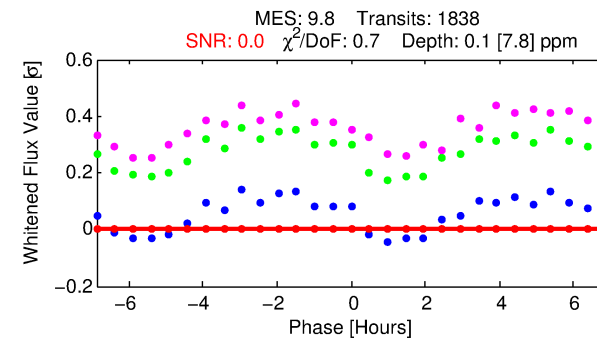
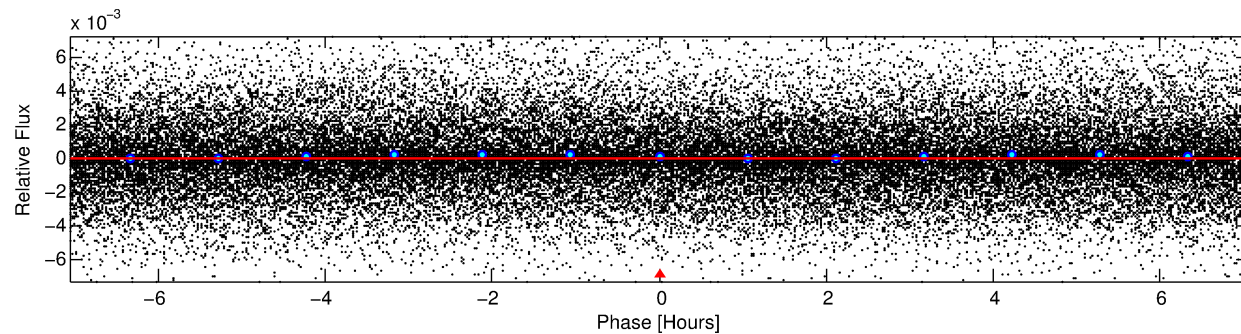
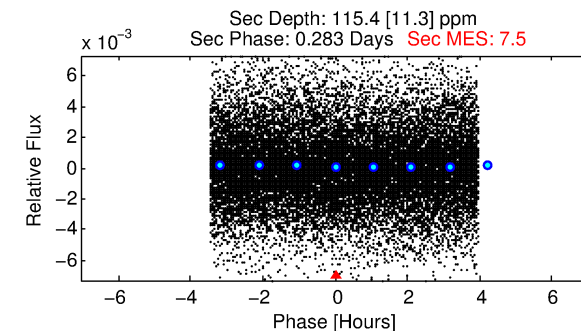
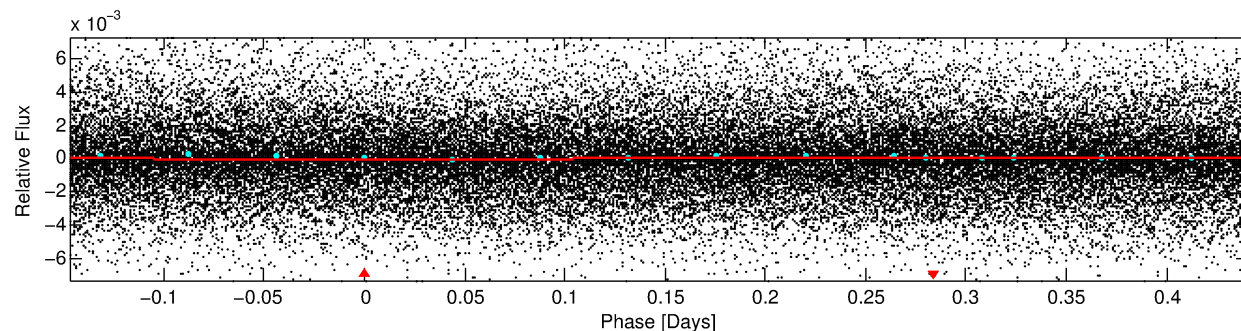
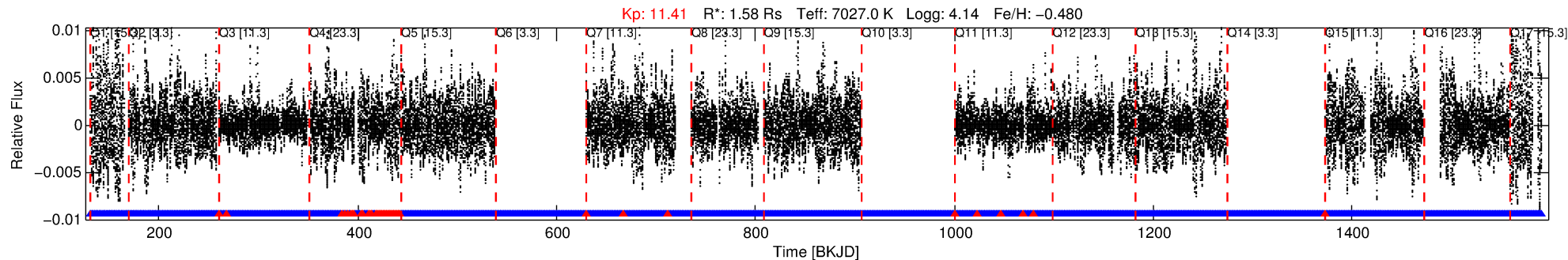
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004077558-01

No Significant Match Found

# DV One-Page Summary

KIC: 4077558 Candidate: 1 of 1 Period: 0.588 d



## DV Fit Results:

Period = 0.58802 [0.00522] d  
Epoch = 131.6172 [0.5764] BKJD  
Rp/R\* = 0.0003 [0.0291]  
a/R\* = 1.08 [97.68]  
b = 0.22 [2773.28]  
Seff = 24698.57 [9014.33]  
Teq = 3197 [292] K  
Rp = 0.05 [5.01] Re  
a = 0.0148 [0.0035] AU  
Ag = 5754.17 [1171339.73] [0.00σ]  
Teff = 43046 [2190670] K [0.02σ]

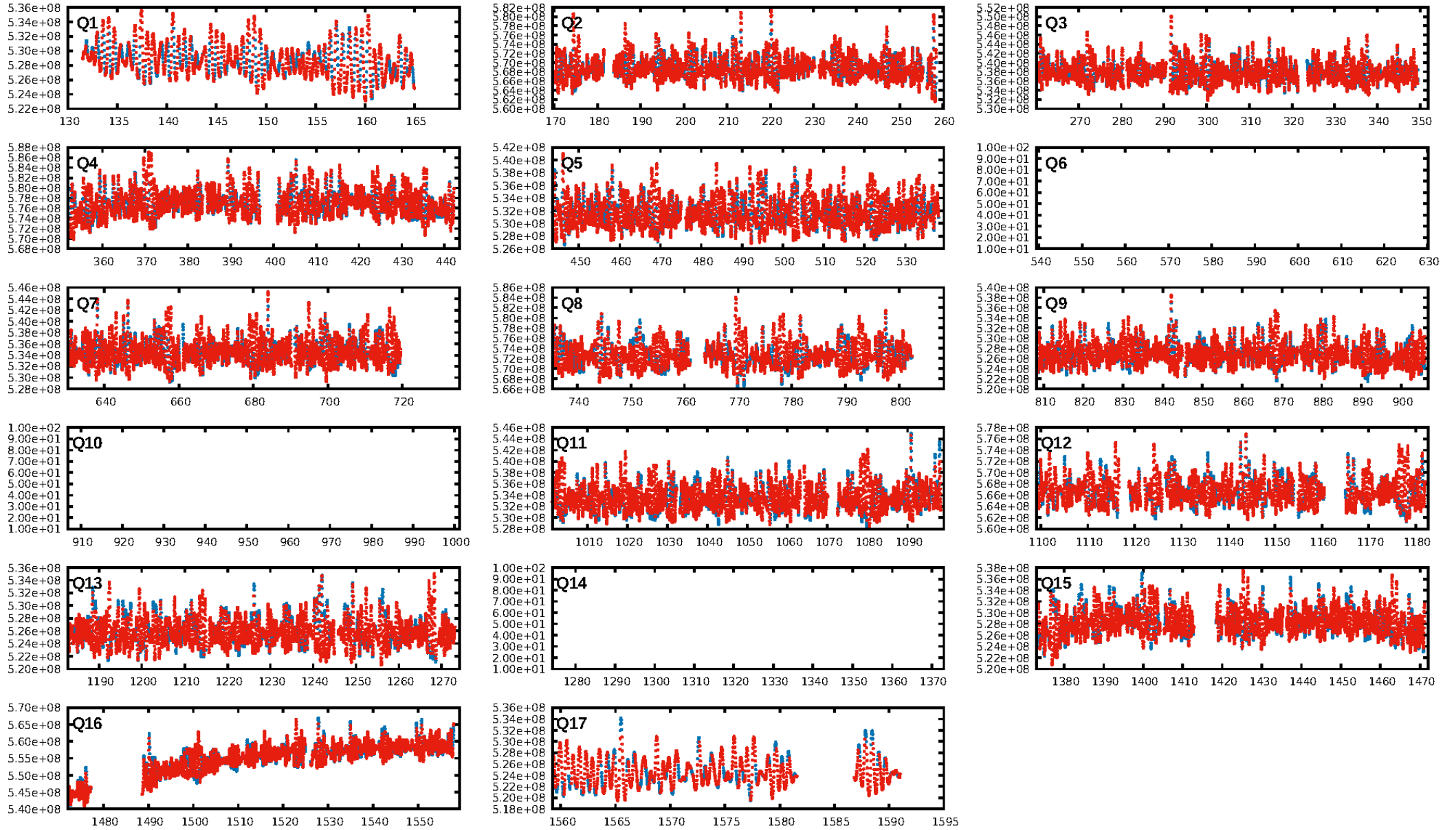
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.97 [1674/1734]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.719 arcsec [1.30σ]  
KicOffset-rm: 0.830 arcsec [1.56σ]  
OotOffset-st: 0/4/2/5 [11]  
KicOffset-st: 0/4/2/5 [11]  
DiffImageQuality-fgm: 0.18 [2/11]  
DiffImageOverlap-fno: 1.00 [14/14]

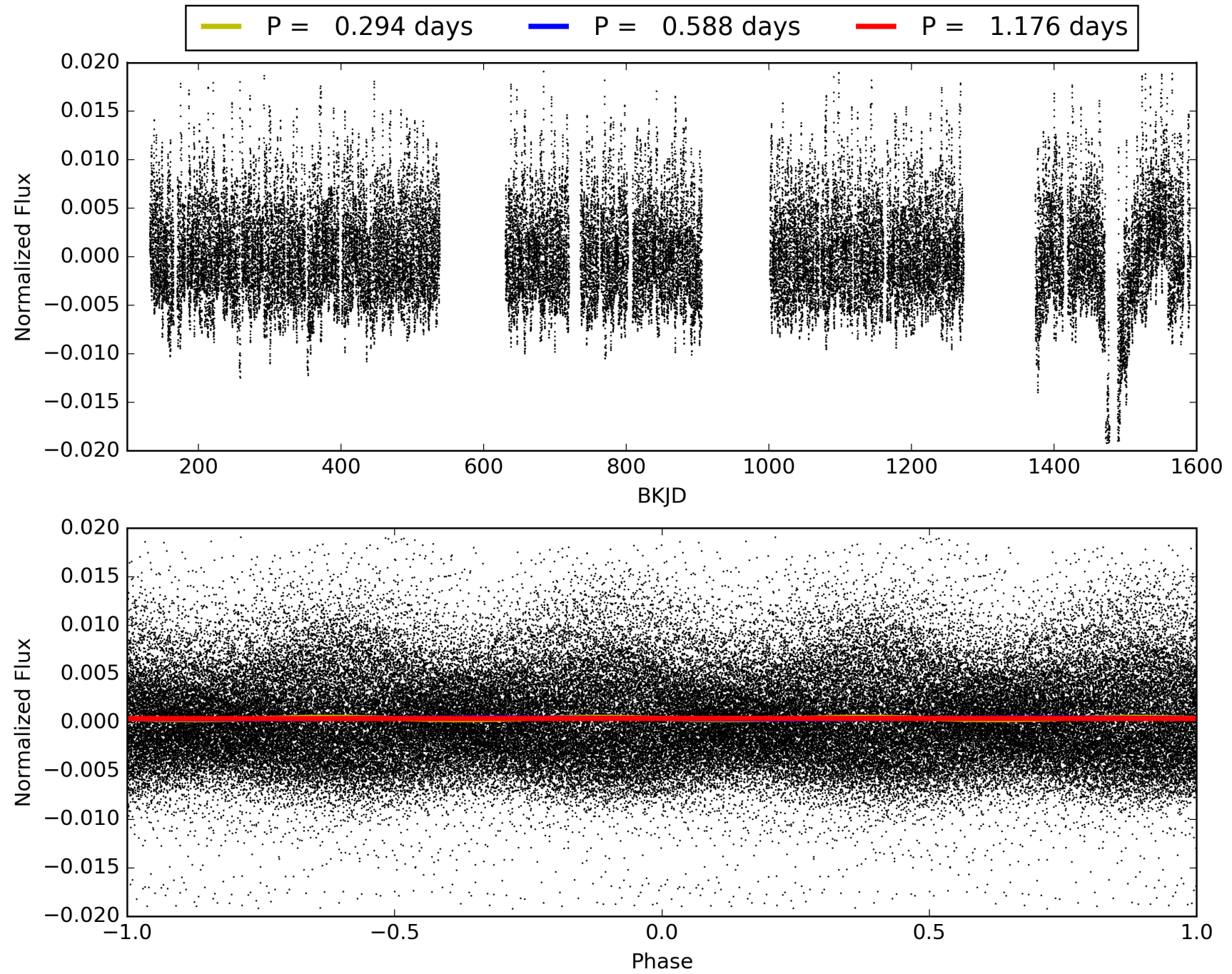
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:48:56 Z

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

# TCE 004077558-01, PDC Light Curves



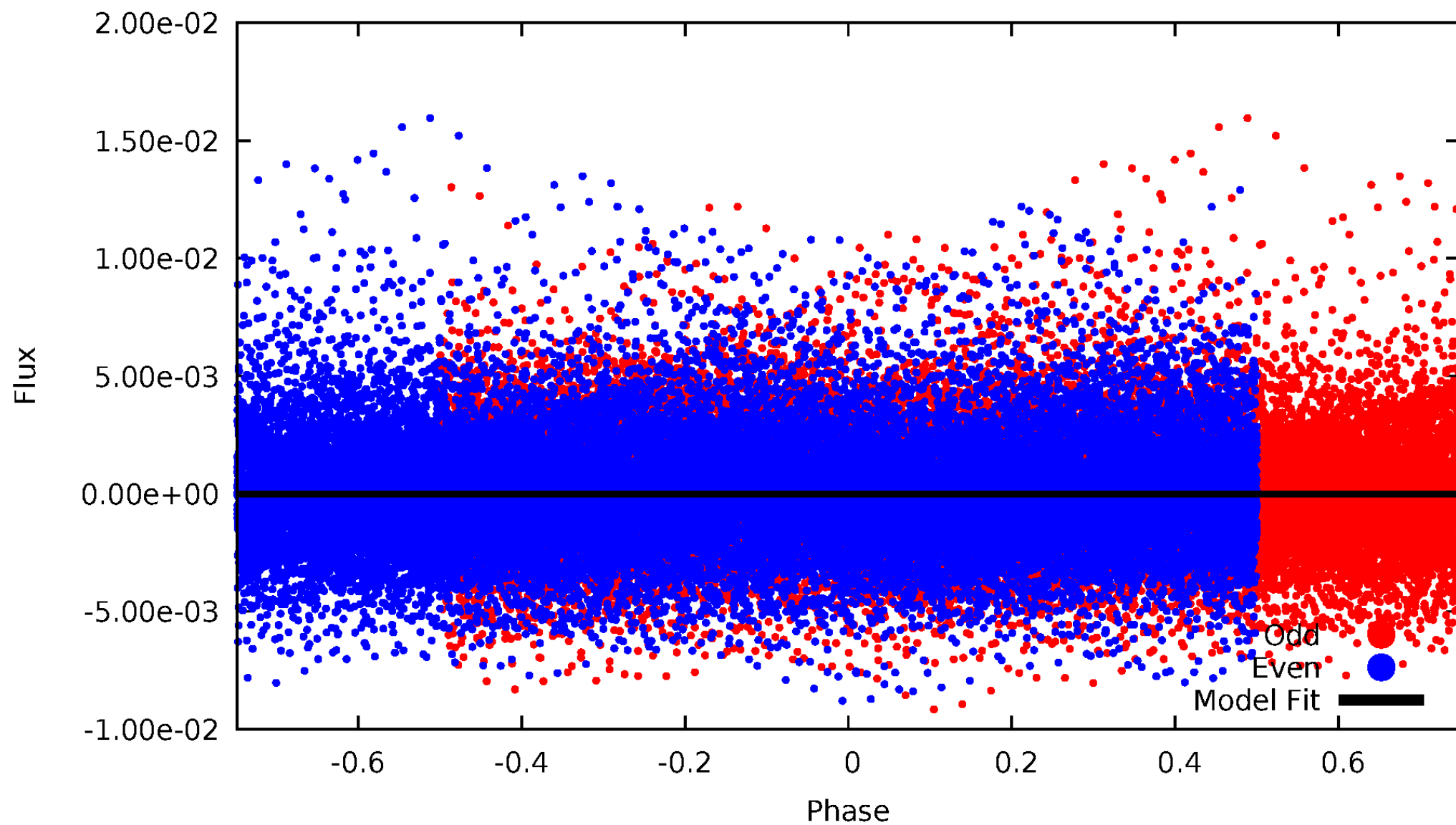
TCE 004077558-01





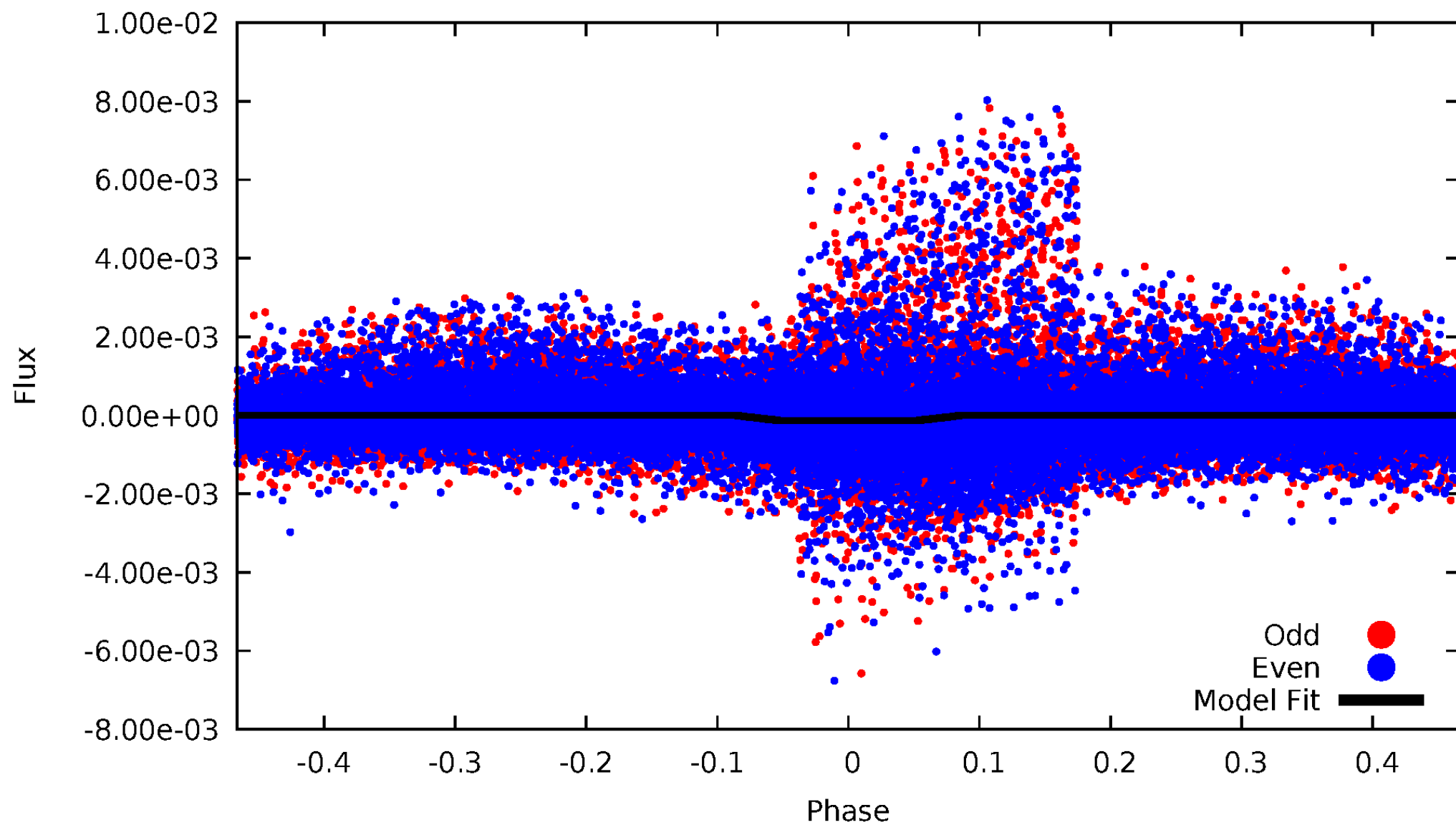
# DV Odd/Even

TCE 004077558-01



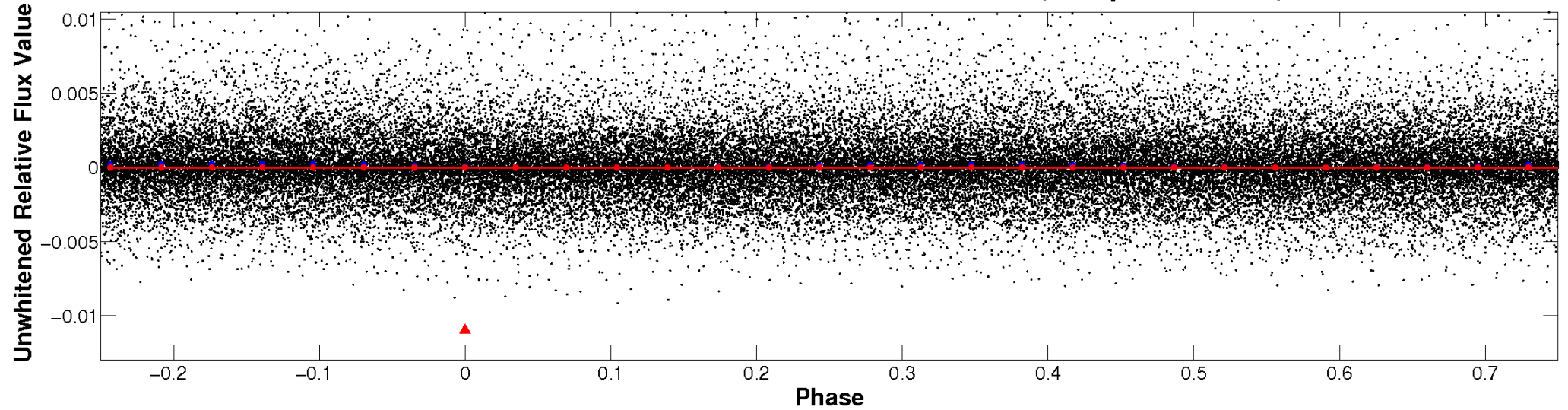
# ALT Odd/Even

TCE 004077558-01

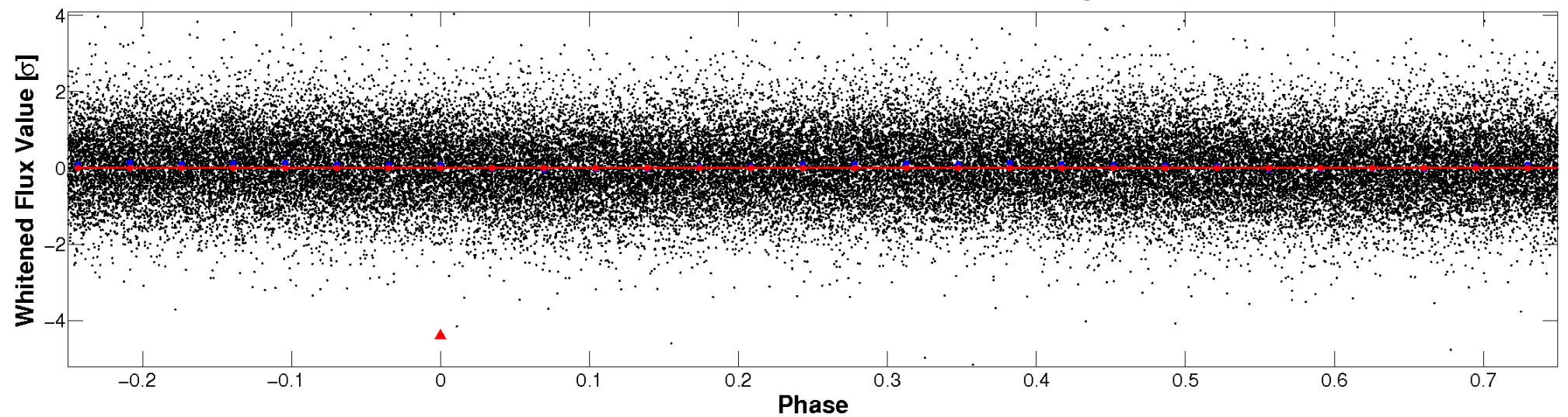


# Non-Whitened Vs. Whitened Light Curve

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

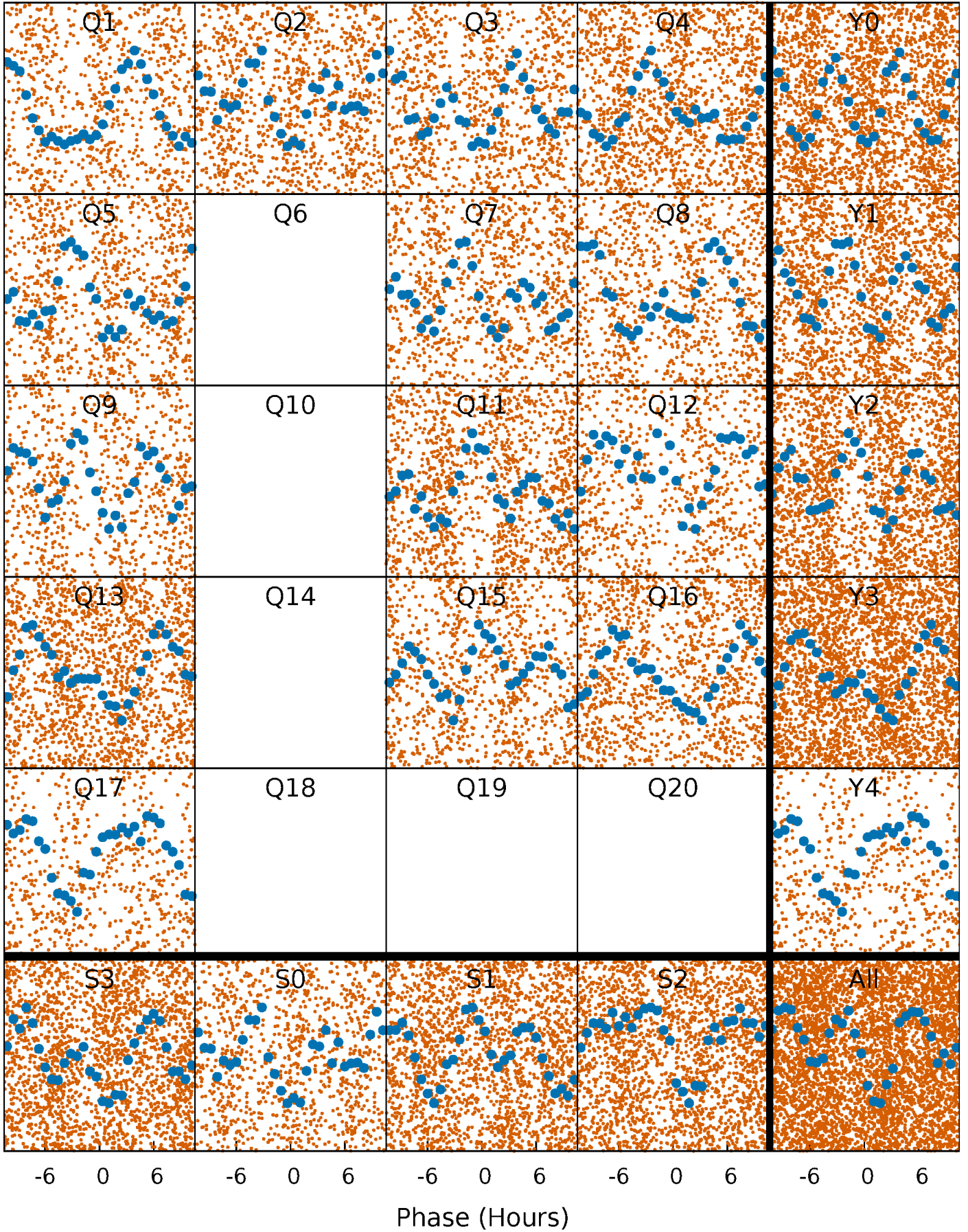


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

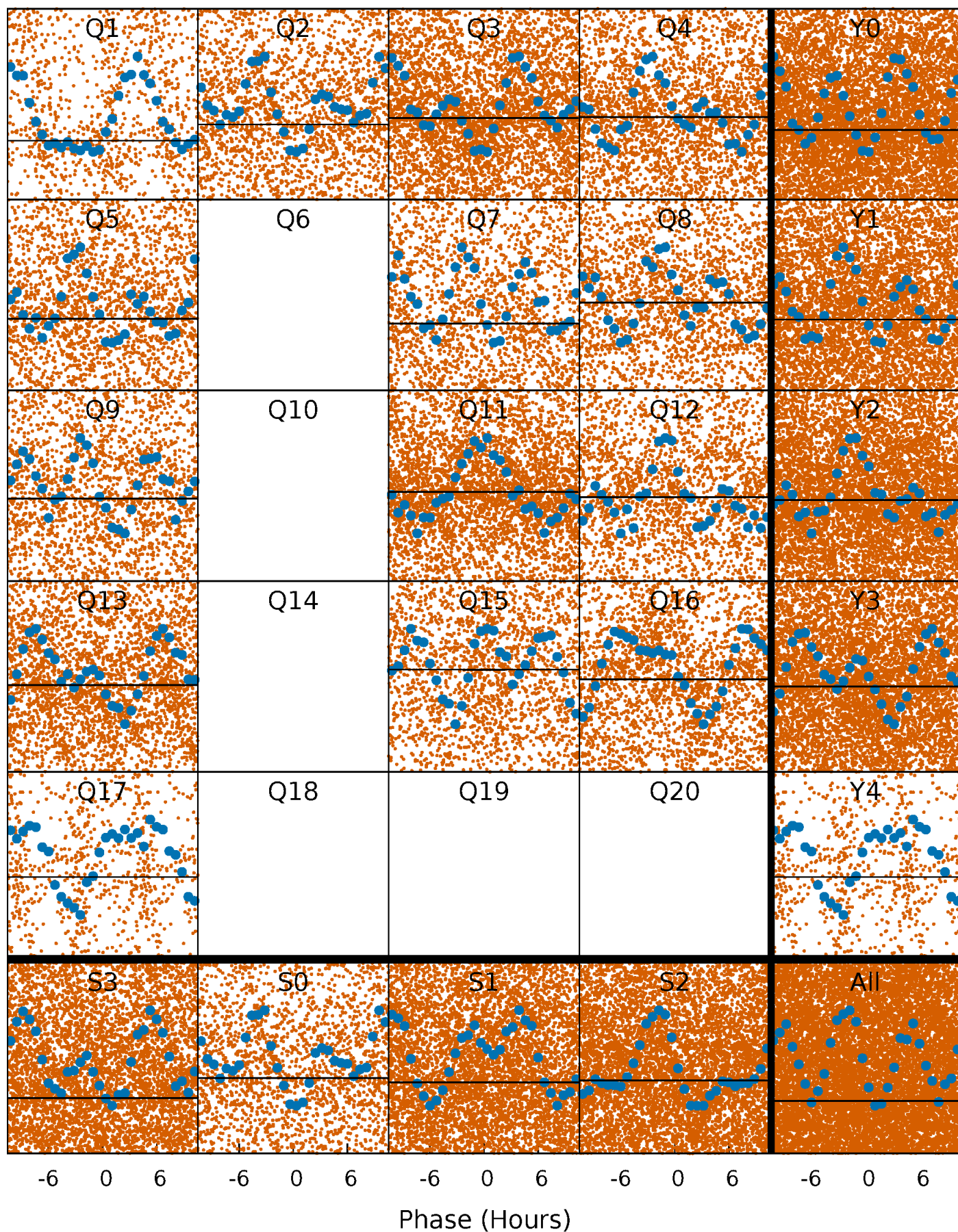
TCE 004077558-01   P= 0.588021 Days    $T_0=131.617161$  (BKJD)





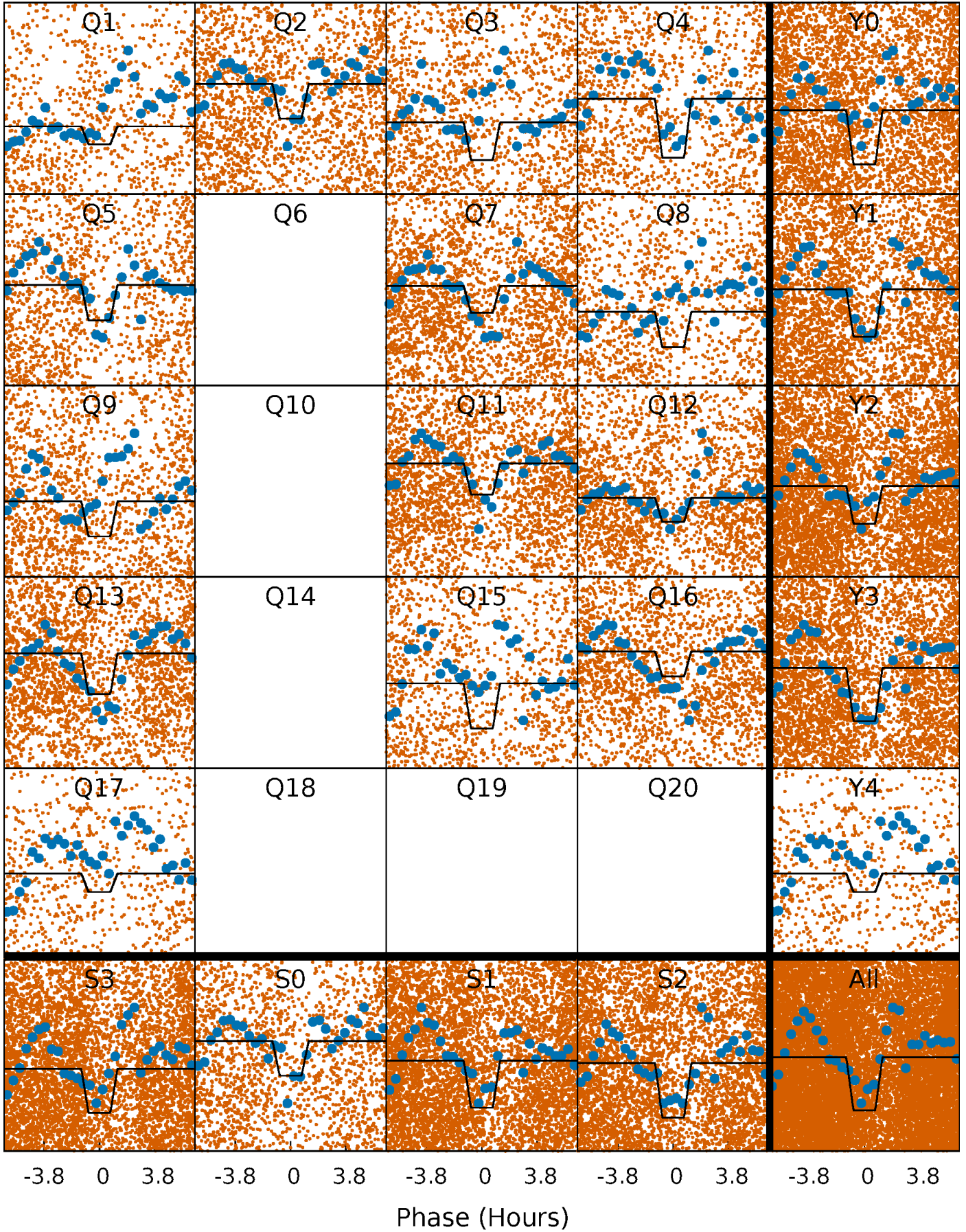
# DV Quarter-Phased Transit Curves

TCE 004077558-01 P= 0.588021 Days  $T_0=131.617161$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004077558-01 P= 0.588087 Days  $T_0=131.614907$  (BKJD)

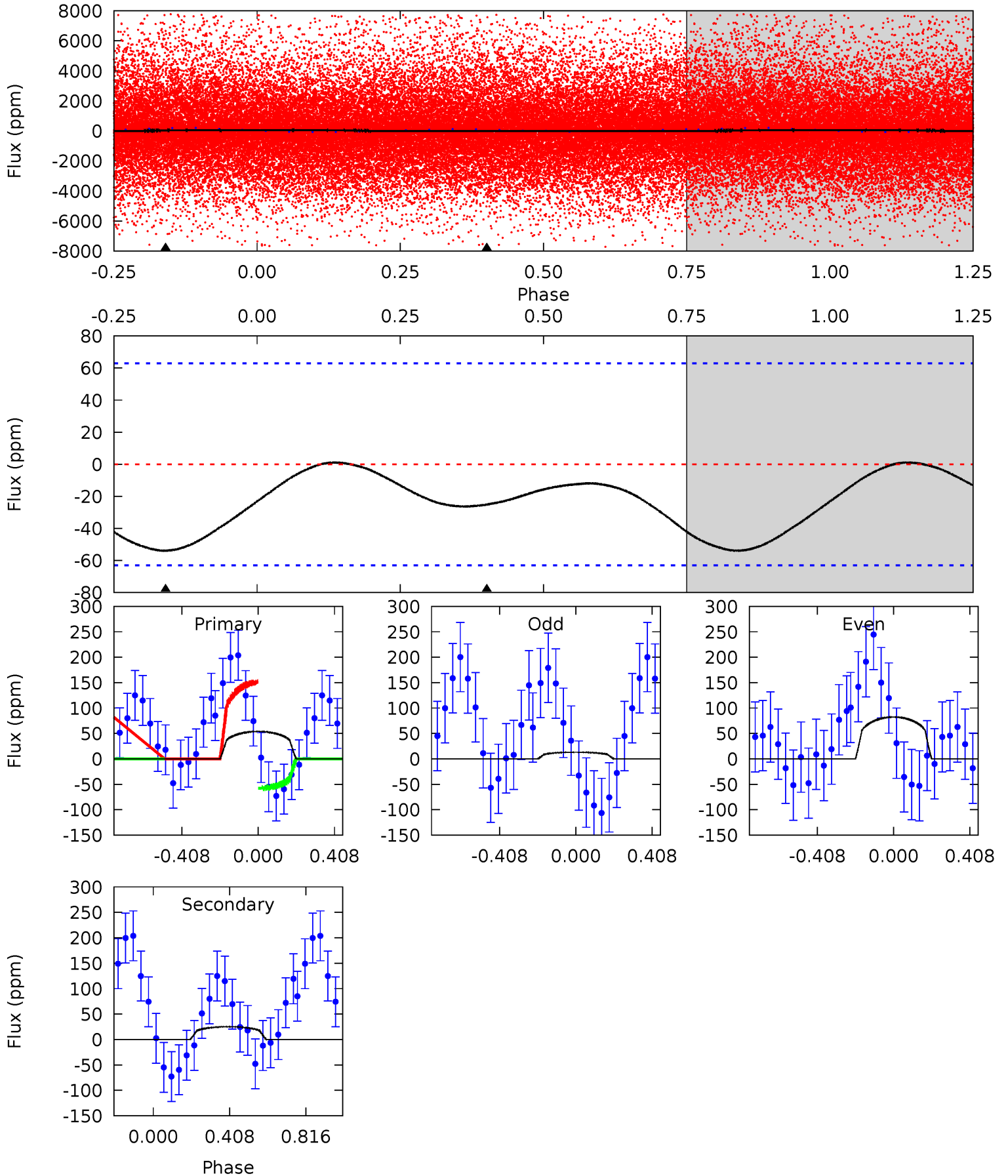




# DV Model-Shift Uniqueness Test

004077558-01, P = 0.588021 Days, E = 131.029140 Days

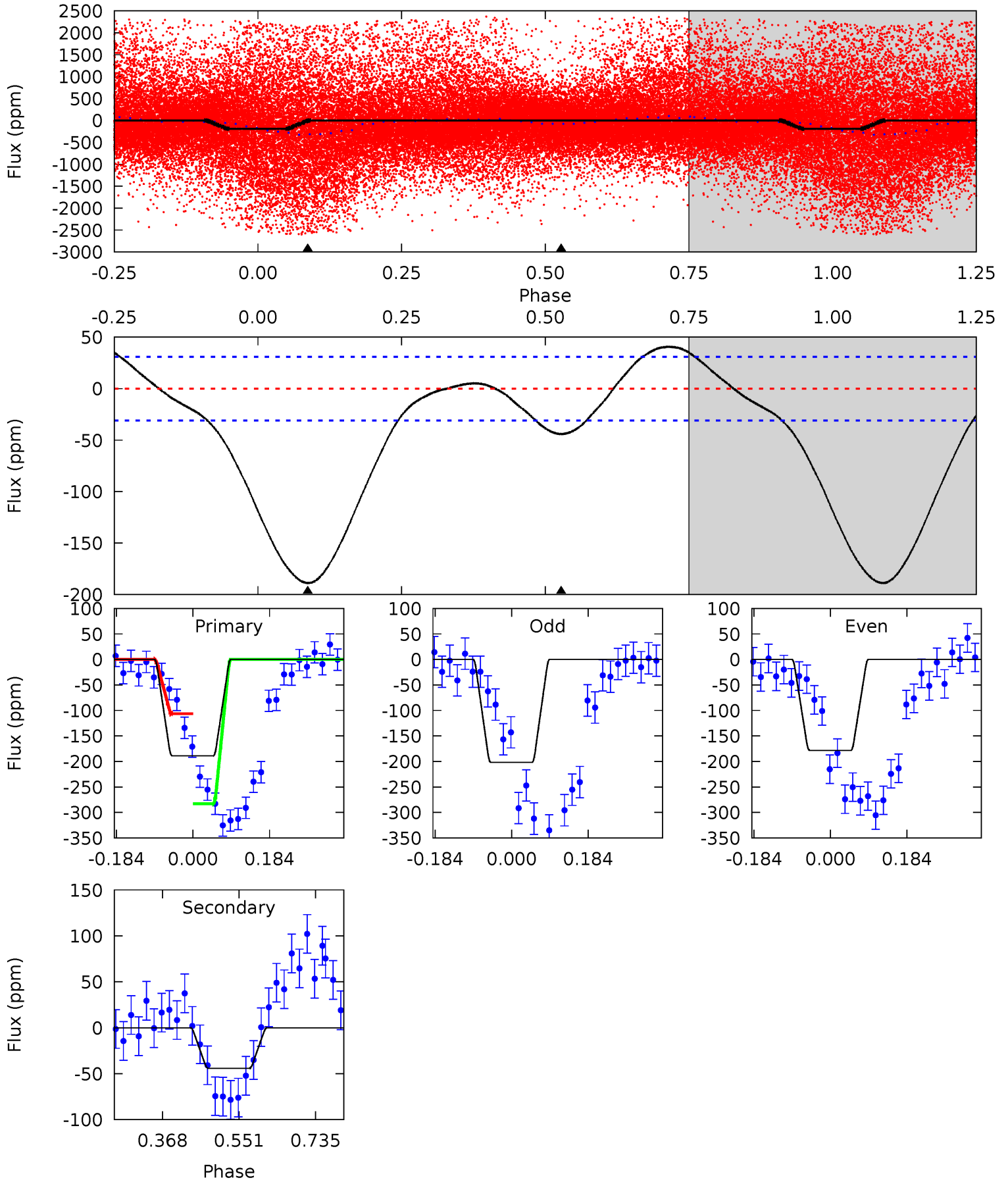
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.65	1.70	0	0	4.26	0.83	0.14	3.65	3.65	1.70	1.70	2.34	7.87	0.02	3.11



# Alt Model-Shift Uniqueness Test

004077558-01, P = 0.588087 Days, E = 131.026820 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
27.1	6.34	0	0	4.44	1.33	2.86	27.1	27.1	6.34	6.34	1.69	0.45	0.18	12.2





### Stellar Parameters For KIC 004077558

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7027^{+185}_{-226}$	$4.142^{+0.185}_{-0.167}$	$-0.480^{+0.250}_{-0.300}$	$1.577^{+0.448}_{-0.407}$	$1.257^{+0.185}_{-0.203}$	$0.452^{+0.459}_{-0.213}$
	+3%/-3%	+4%/-4%	+52%/-62%	+28%/-26%	+15%/-16%	+102%/-47%
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 004077558-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-25 \pm 15$	$3.30^{+3.40}_{-2.36}$	$4462^{+303}_{-337}$	$-3097^{+9197}_{-807}$	$0.234^{+2.635}_{-0.193}$
Alt.	$-44 \pm 7$	$3.96^{+4.36}_{-2.64}$	$4474^{+314}_{-339}$	$2724^{+3607}_{-6493}$	$0.330^{+2.703}_{-0.250}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

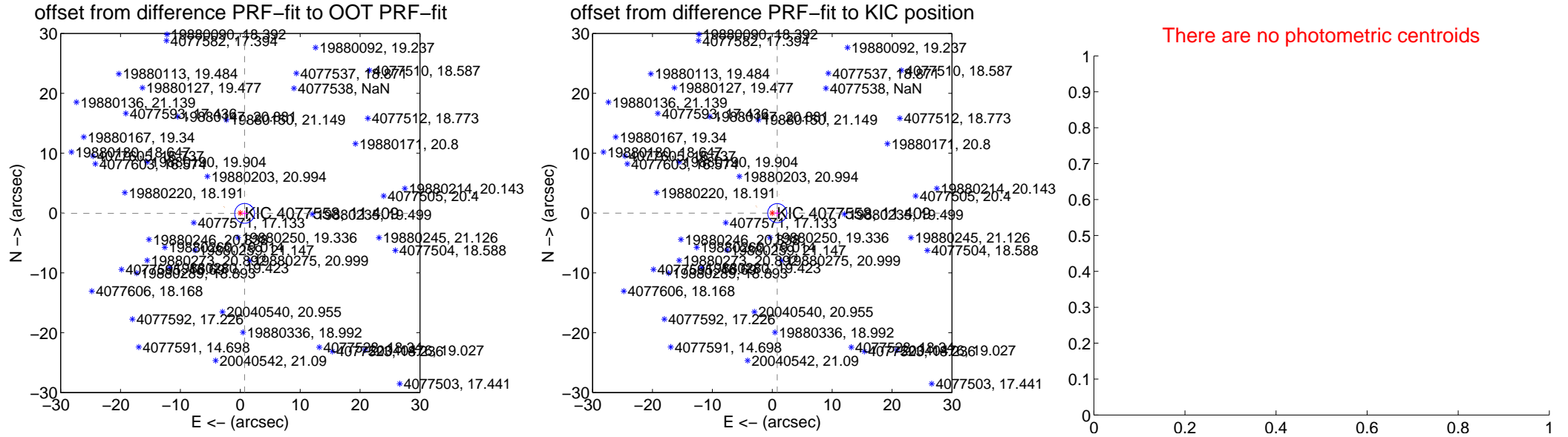
## DV Centroid Data

Supplemental centroid analysis for 004077558-01. **Kepler magnitude: 11.41.** Transit SNR 0.02

**There are 2 quarters with good PRF difference image offsets**

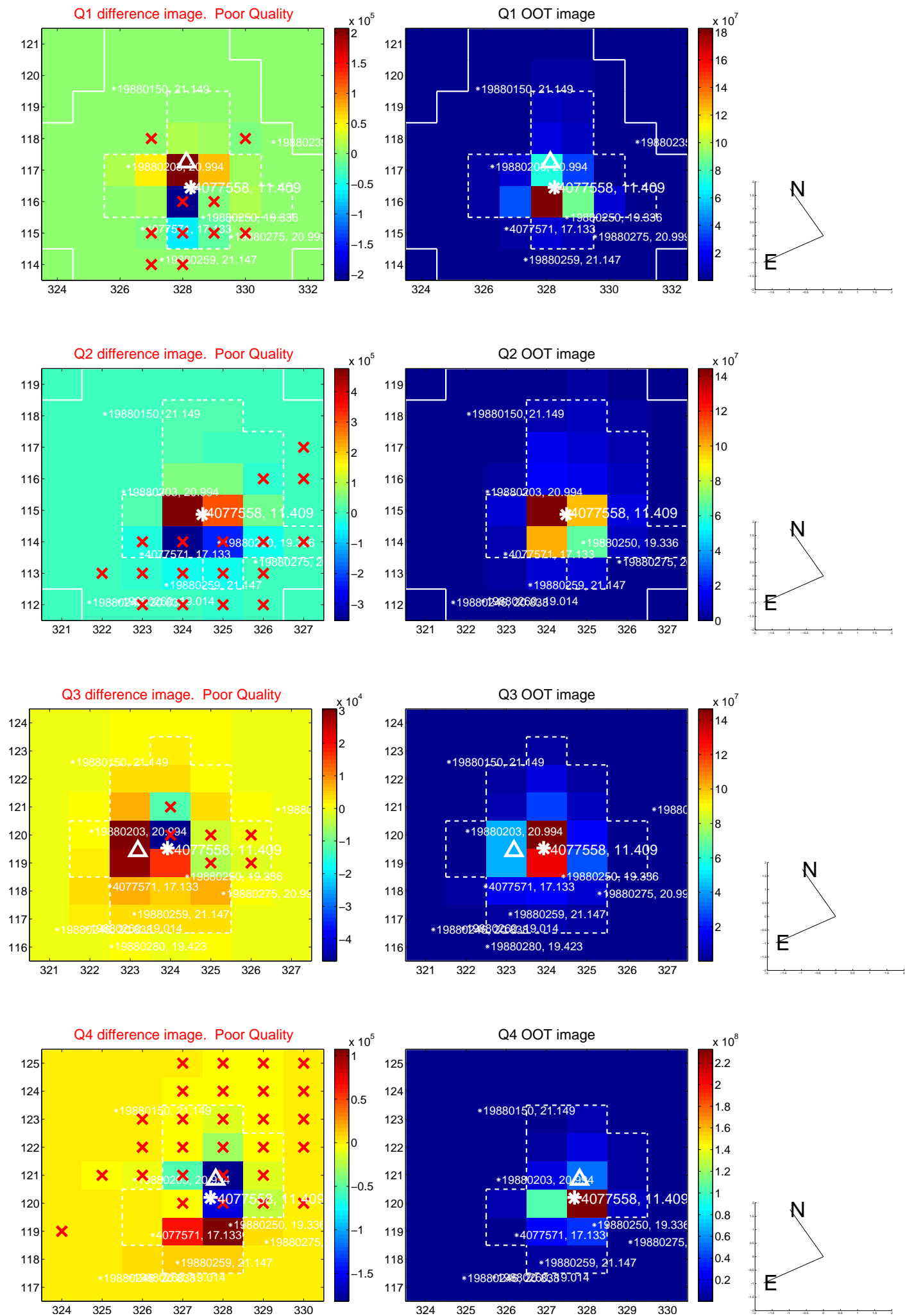
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.719 \pm 0.551$	1.30	$-0.716 \pm 0.565$	$-0.061 \pm 0.462$
PRF-fit source offset from KIC position	$0.830 \pm 0.531$	1.56	$-0.830 \pm 0.533$	$-0.019 \pm 0.544$
photometric centroid source offset	—	—	—	—

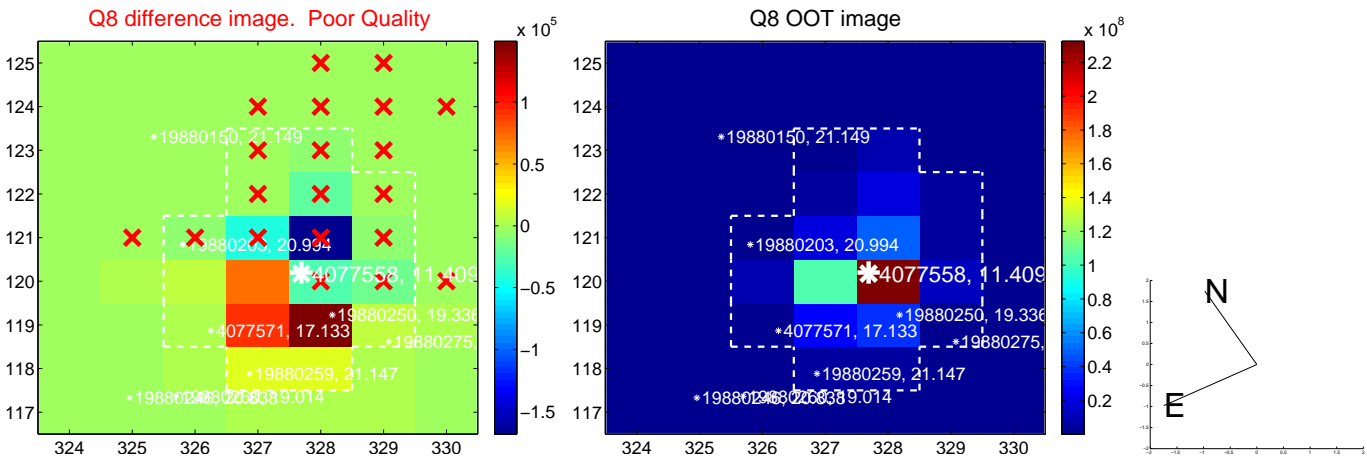
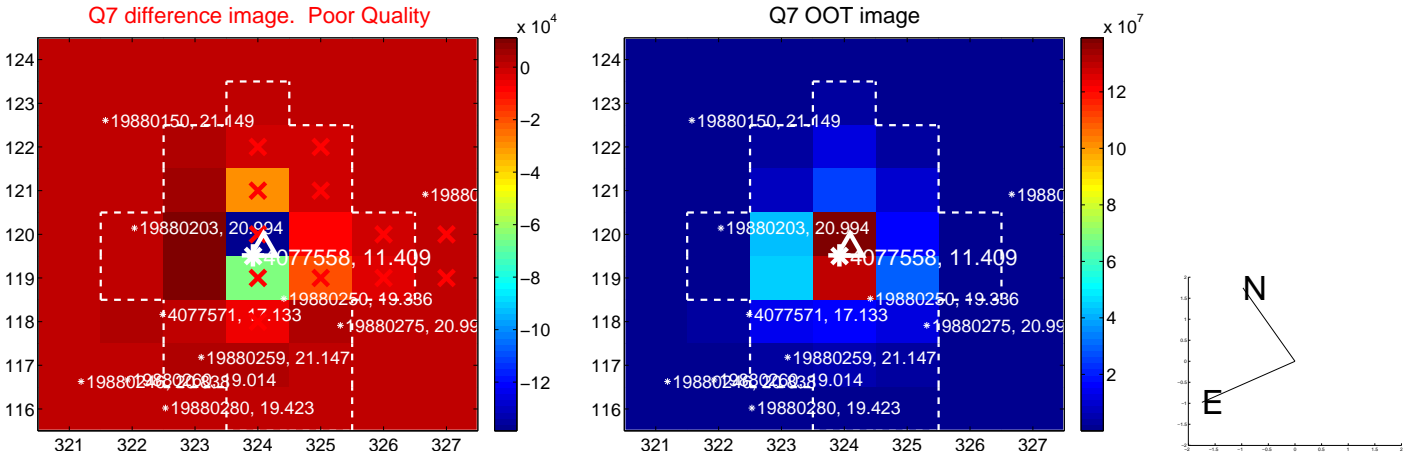
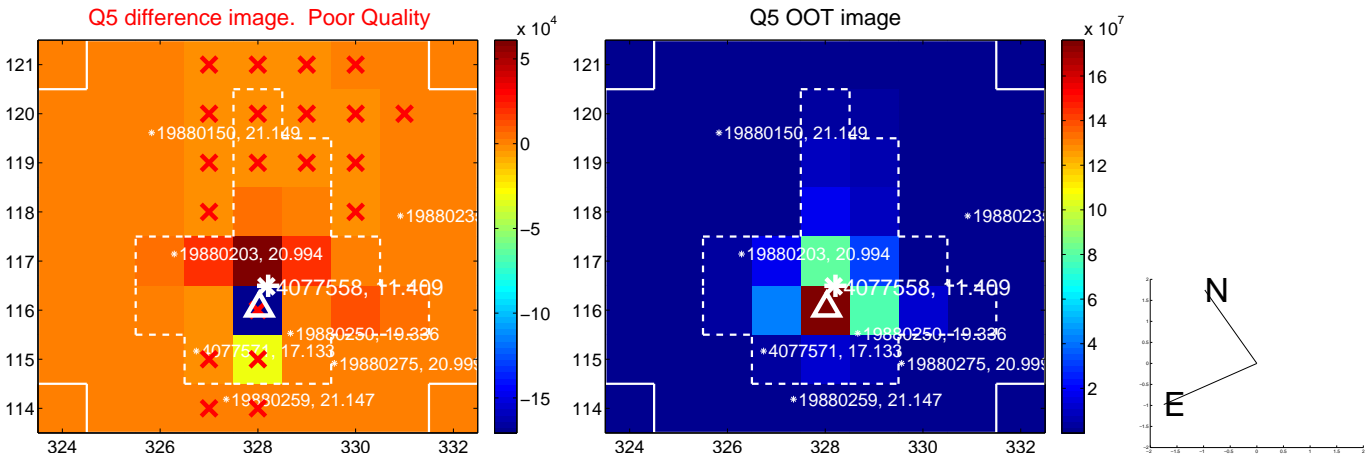


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

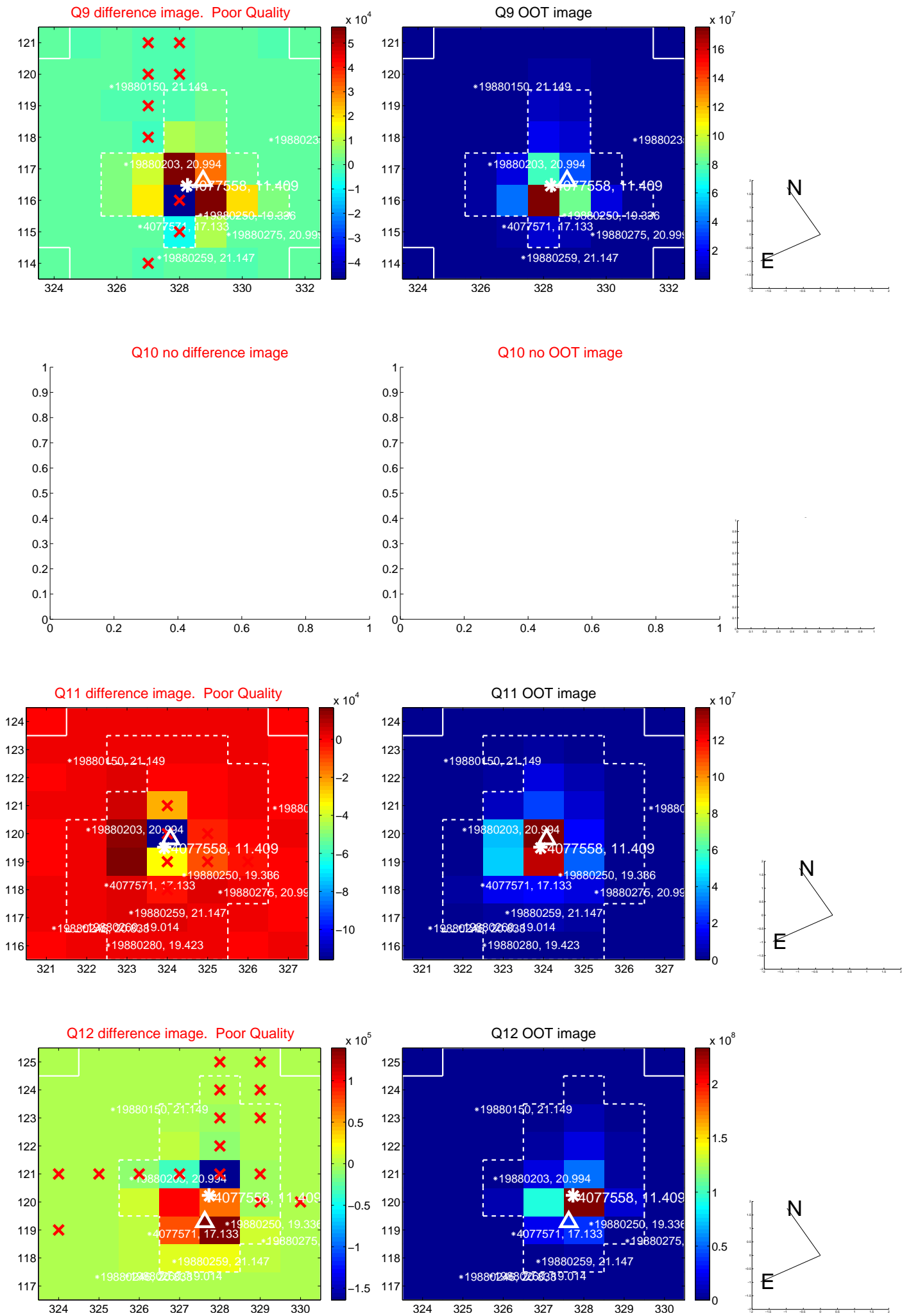


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

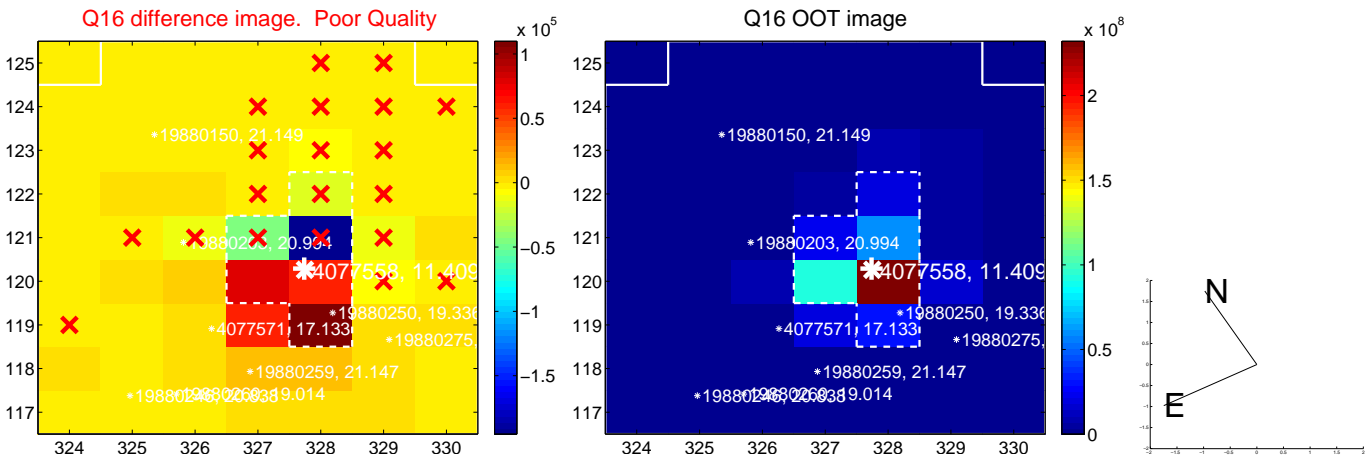
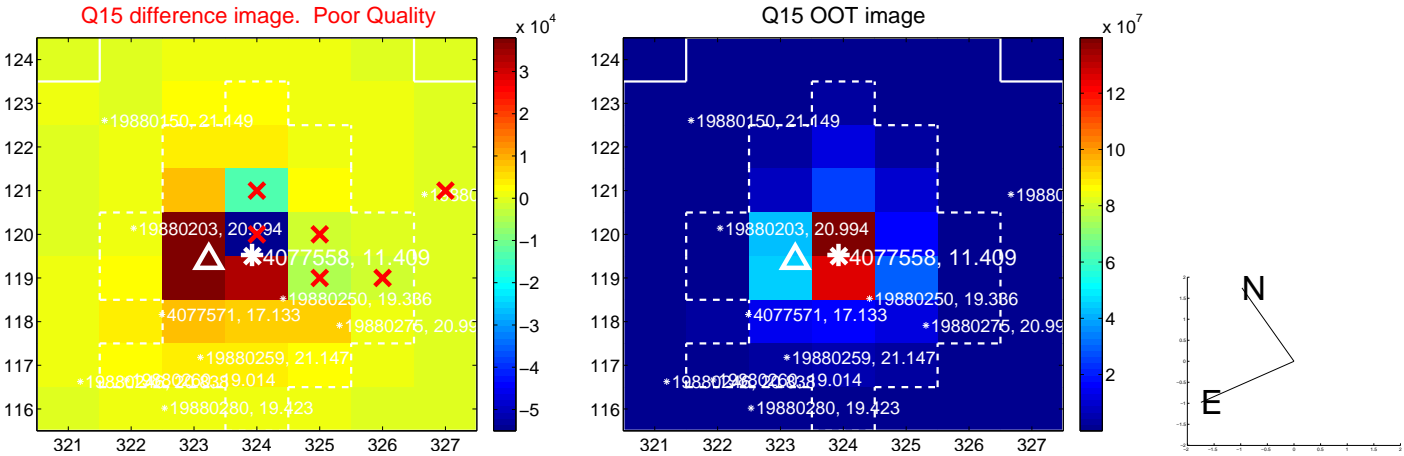
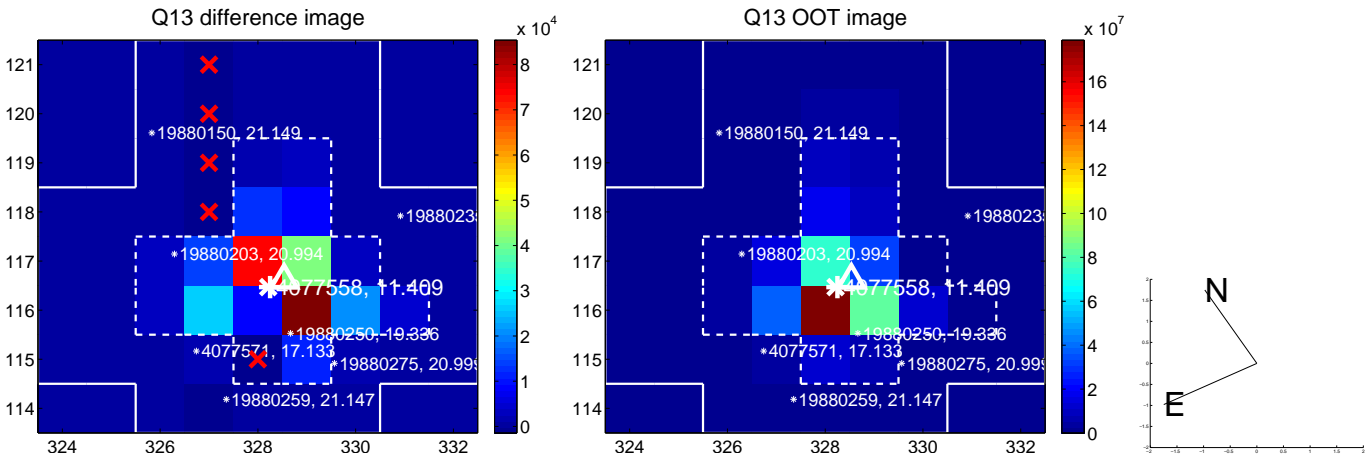




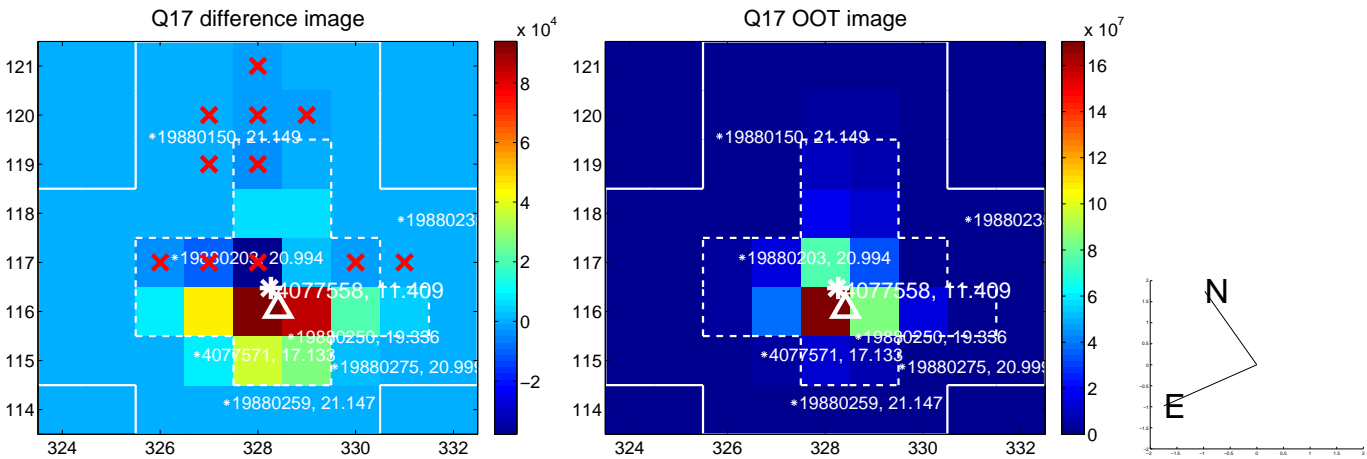
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

