

# KIC 012505076

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012505076-01	OBS	2154.01	11.929703	136.675381	691.8	6.424	24.5	26.3	0.92	5831	2.65	83.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012505076-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**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.

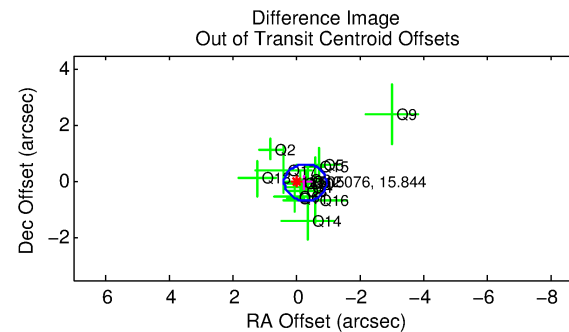
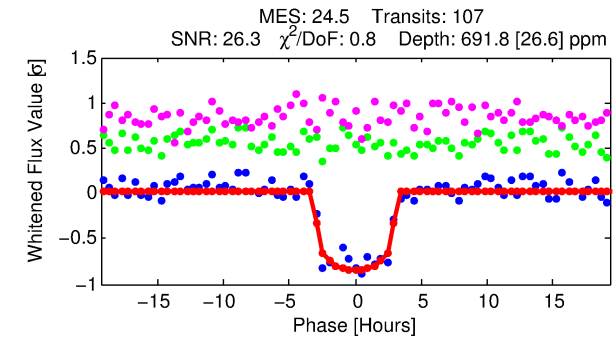
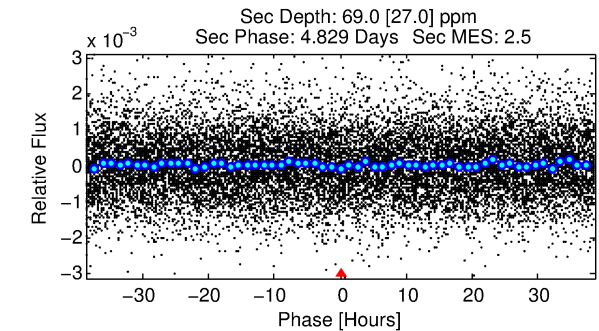
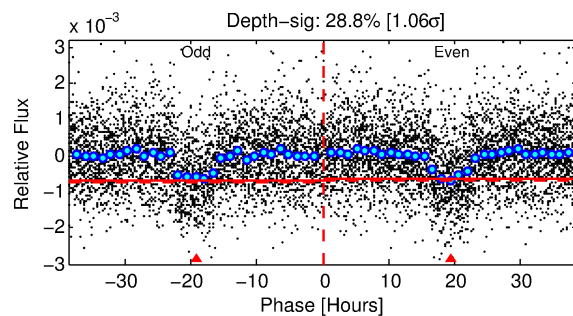
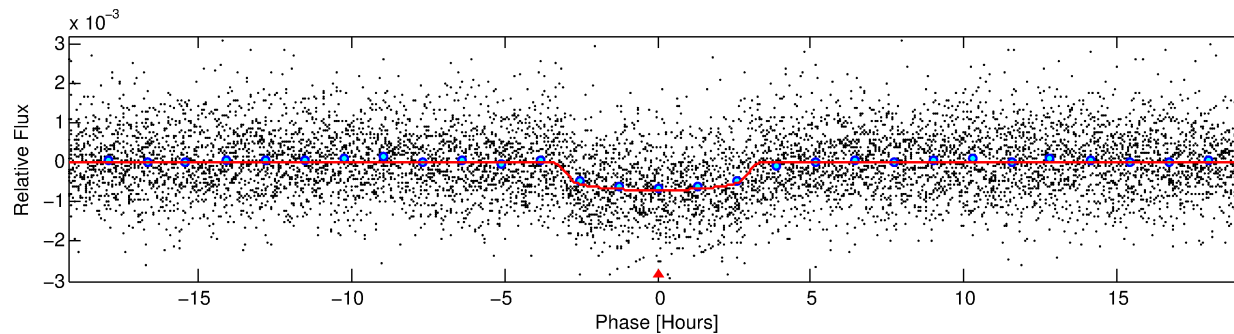
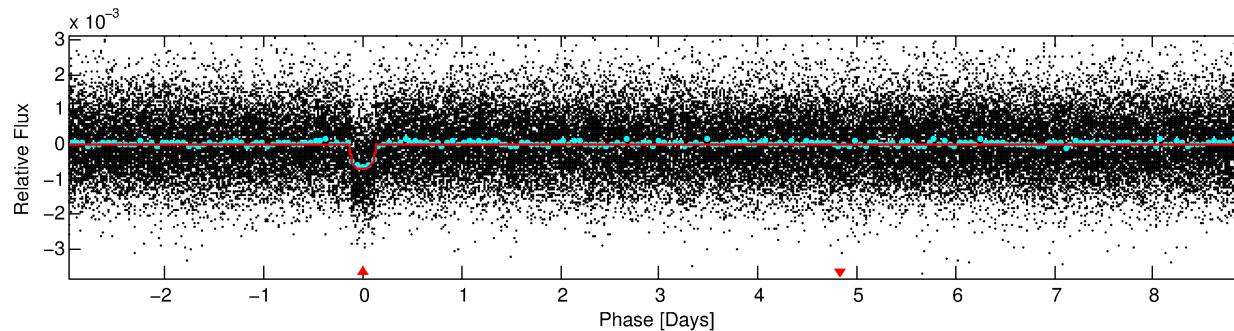
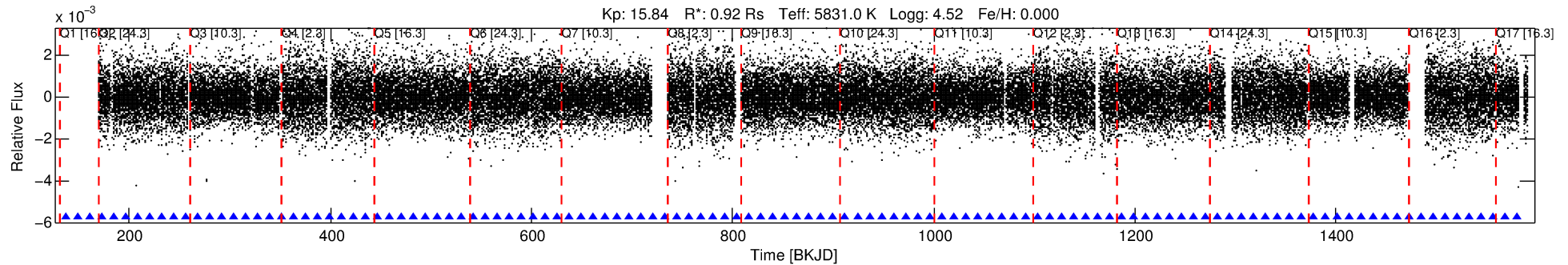
## Ephemeris Match Information For 012505076-01

No Significant Match Found

# DV One-Page Summary

KIC: 12505076 Candidate: 1 of 1 Period: 11.930 d

KOI: K02154.01 Corr: 0.992



## DV Fit Results:

Period = 11.92970 [0.00007] d  
Epoch = 136.6754 [0.0050] BKJD  
Rp/R\* = 0.0264 [0.0051]  
a/R\* = 9.72 [8.26]  
b = 0.77 [0.47]  
Seff = 83.15 [32.18]  
Teq = 770 [74] K  
Rp = 2.65 [0.89] Re  
a = 0.1028 [0.0249] AU  
Ag = 57.19 [37.63] [1.49 $\sigma$ ]  
Teffp = 3274 [462] K [5.36 $\sigma$ ]

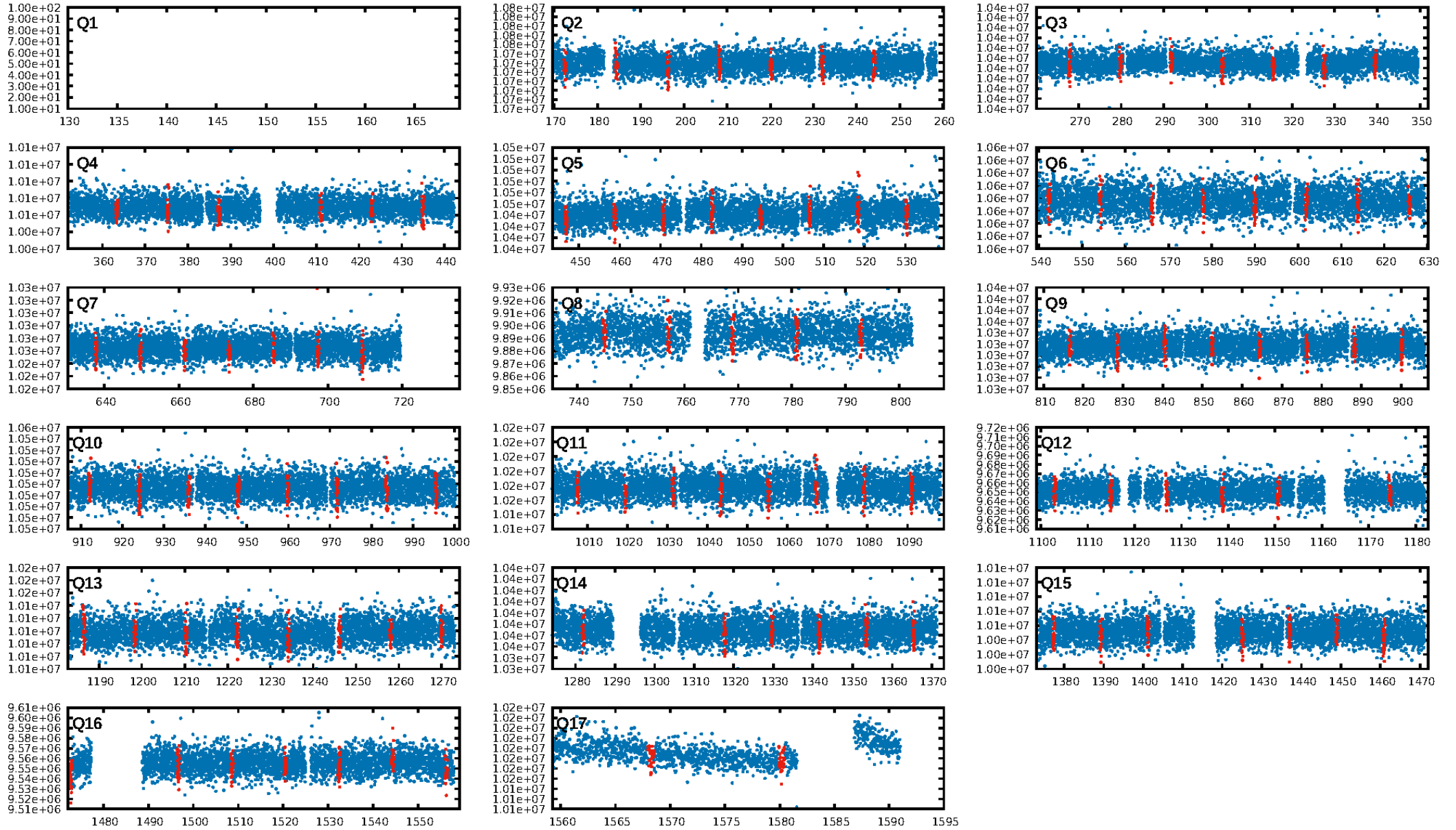
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 69.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.59e-130  
RollingBand-fgt: 1.00 [105/105]  
GhostDiagnostic-chr: 2.795  
Centroid-sig: 0.0%  
Centroid-so: 0.295 arcsec [0.51 $\sigma$ ]  
OotOffset-rm: 0.296 arcsec [1.34 $\sigma$ ]  
KicOffset-rm: 0.385 arcsec [1.51 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.88 [14/16]  
DiffImageOverlap-fno: 1.00 [16/16]

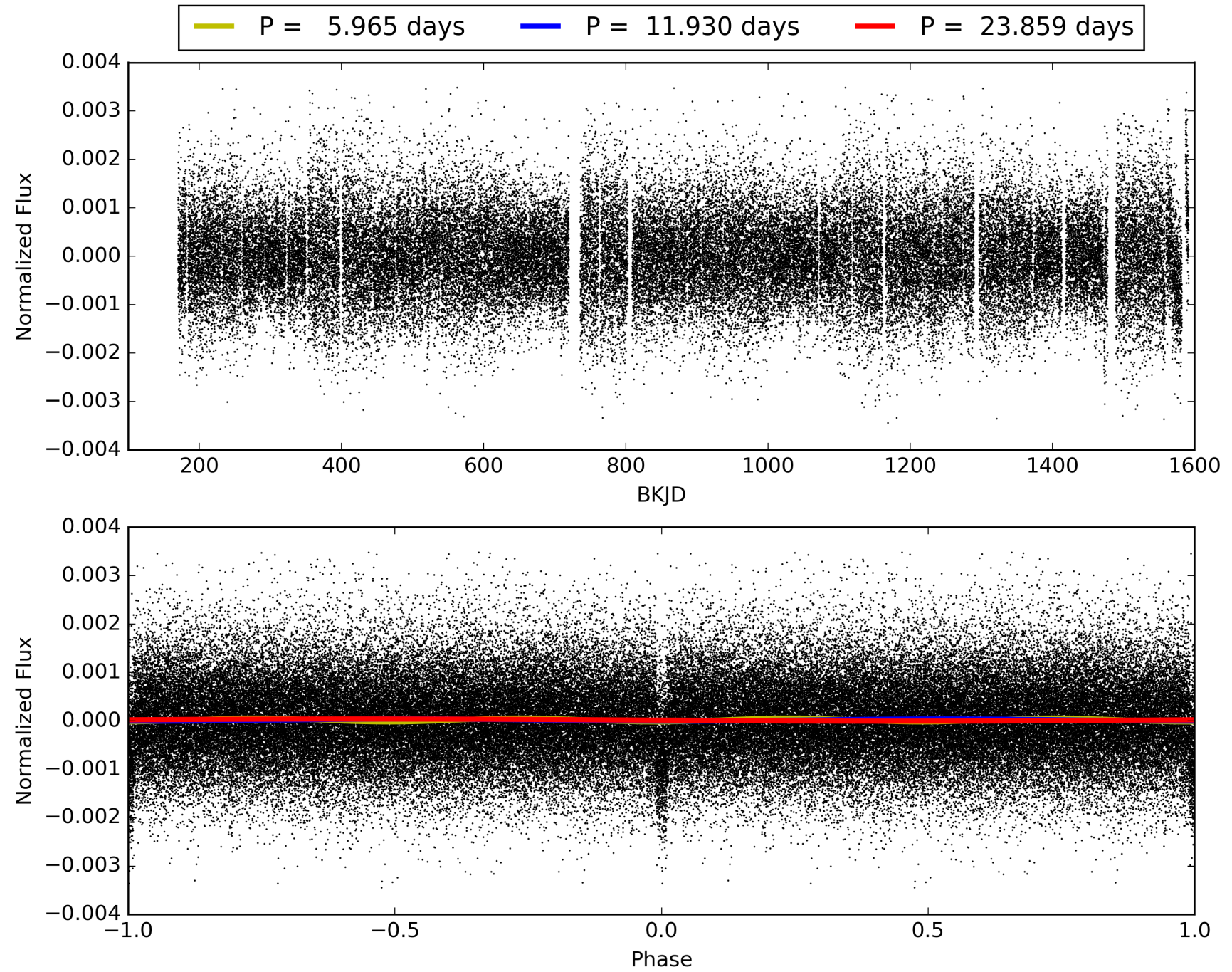
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:19:28 Z

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

# TCE 012505076-01, PDC Light Curves



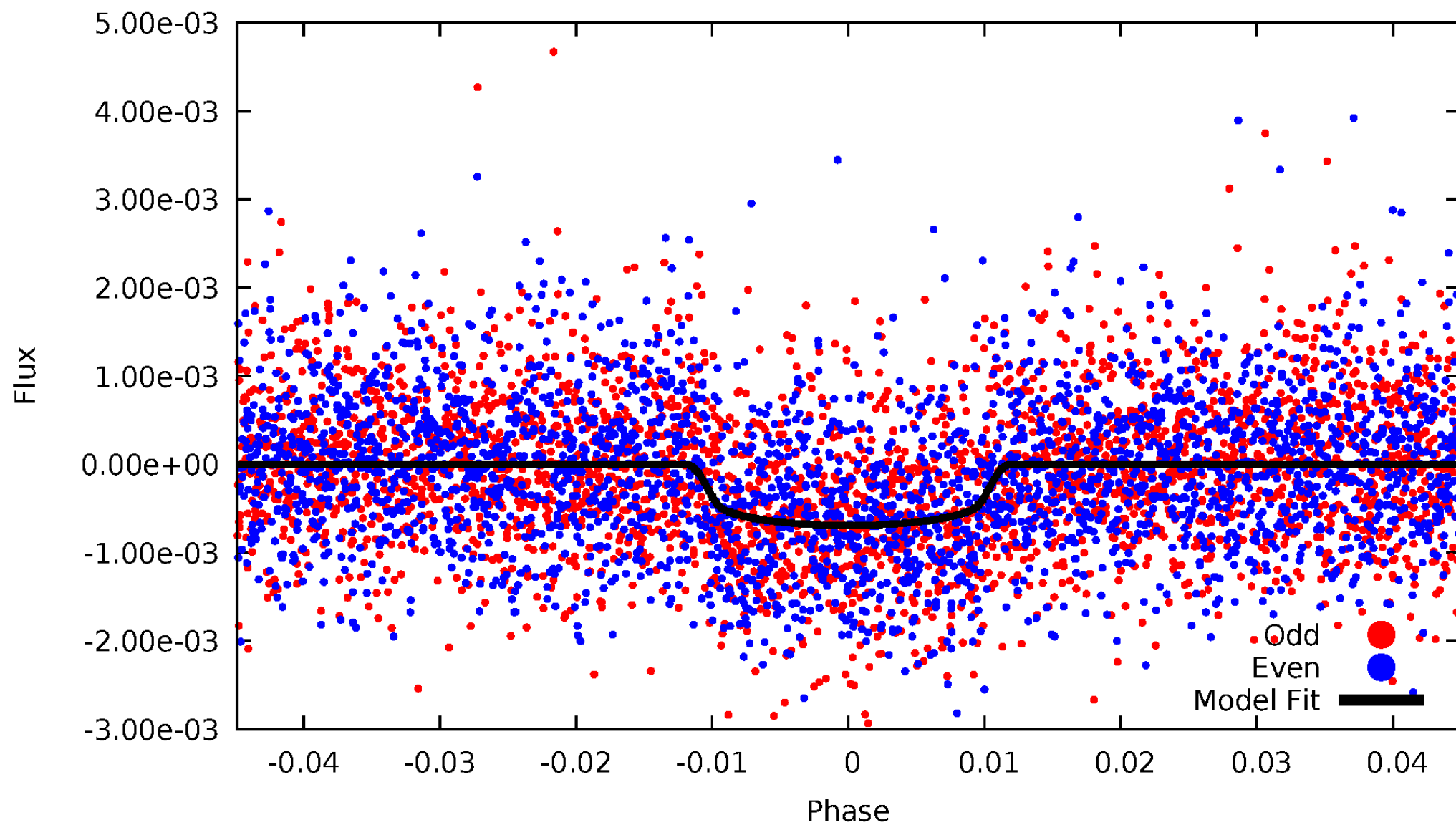
# TCE 012505076-01





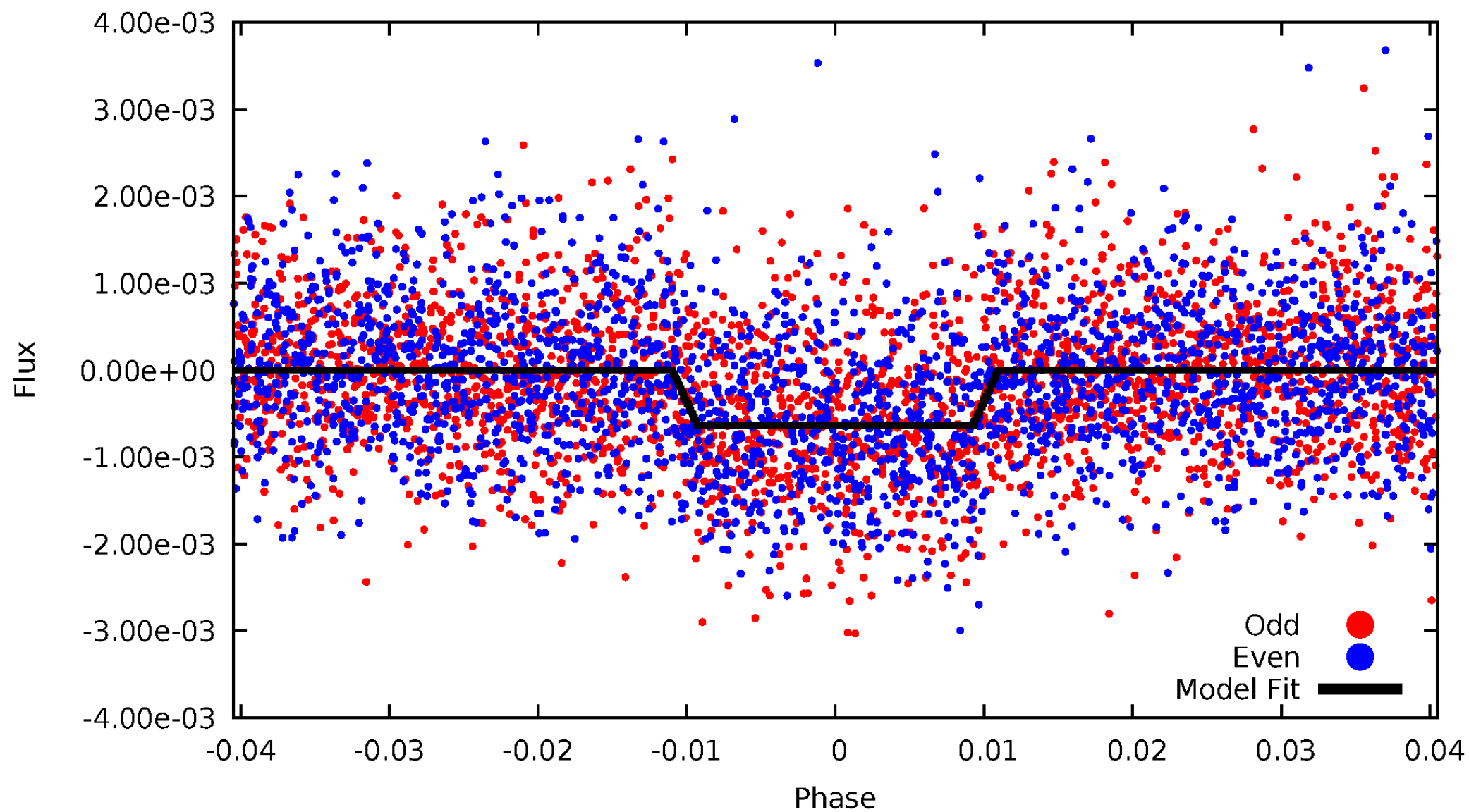
# DV Odd/Even

TCE 012505076-01



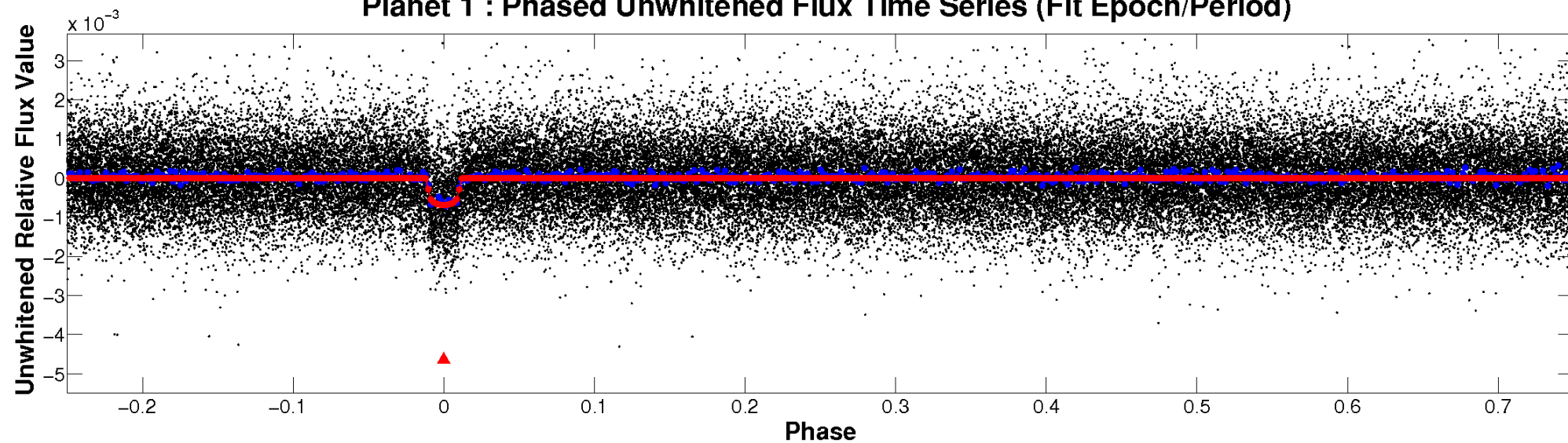
# ALT Odd/Even

TCE 012505076-01

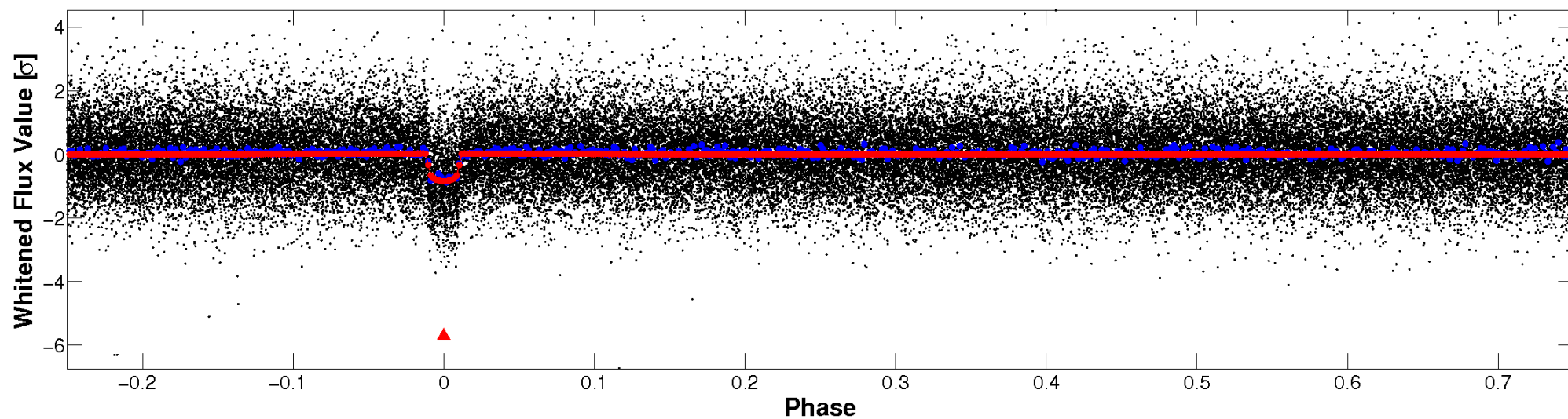


# Non-Whitened Vs. Whitened Light Curve

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

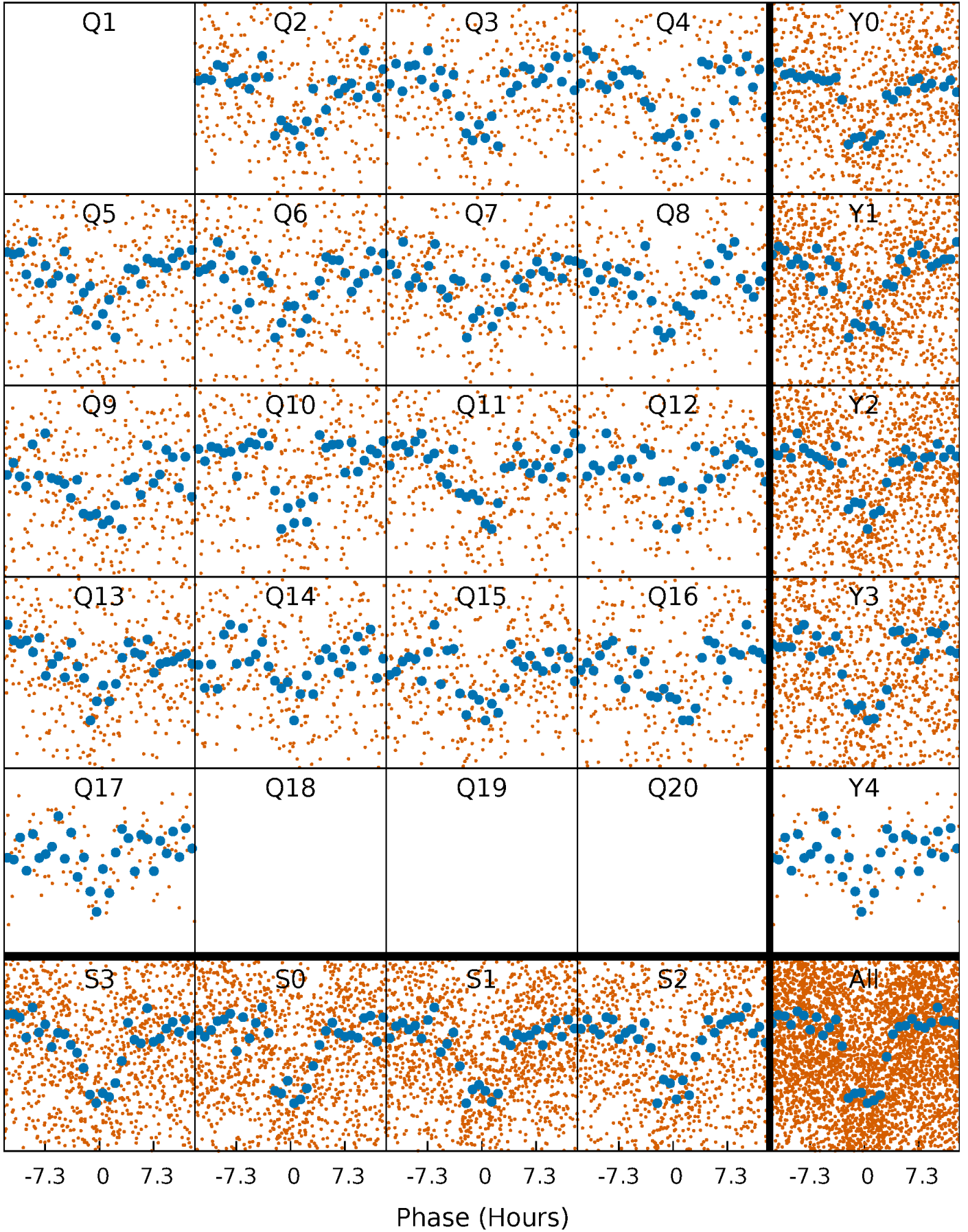


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

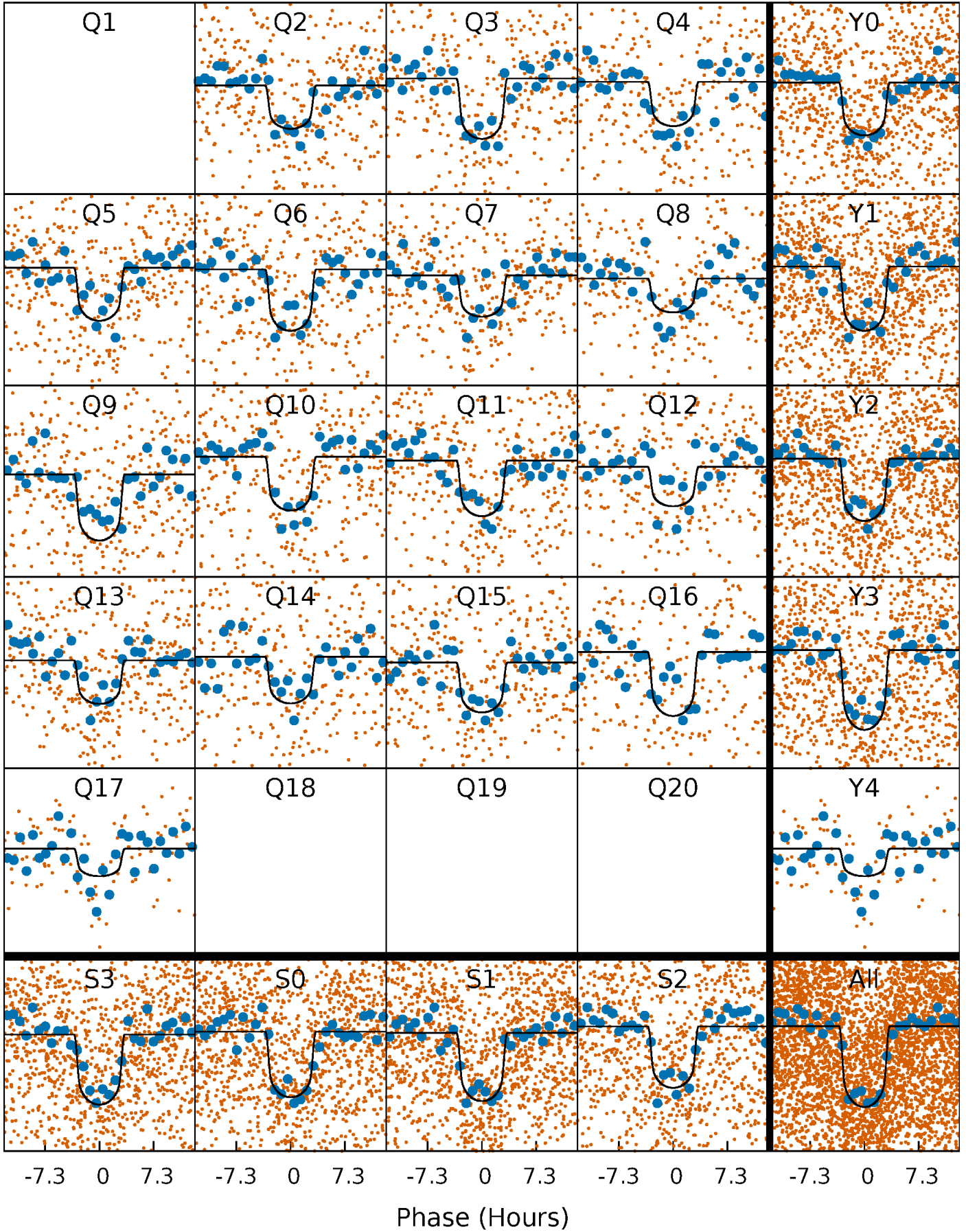
TCE 012505076-01   P= 11.929703 Days    $T_0=136.675381$  (BKJD)





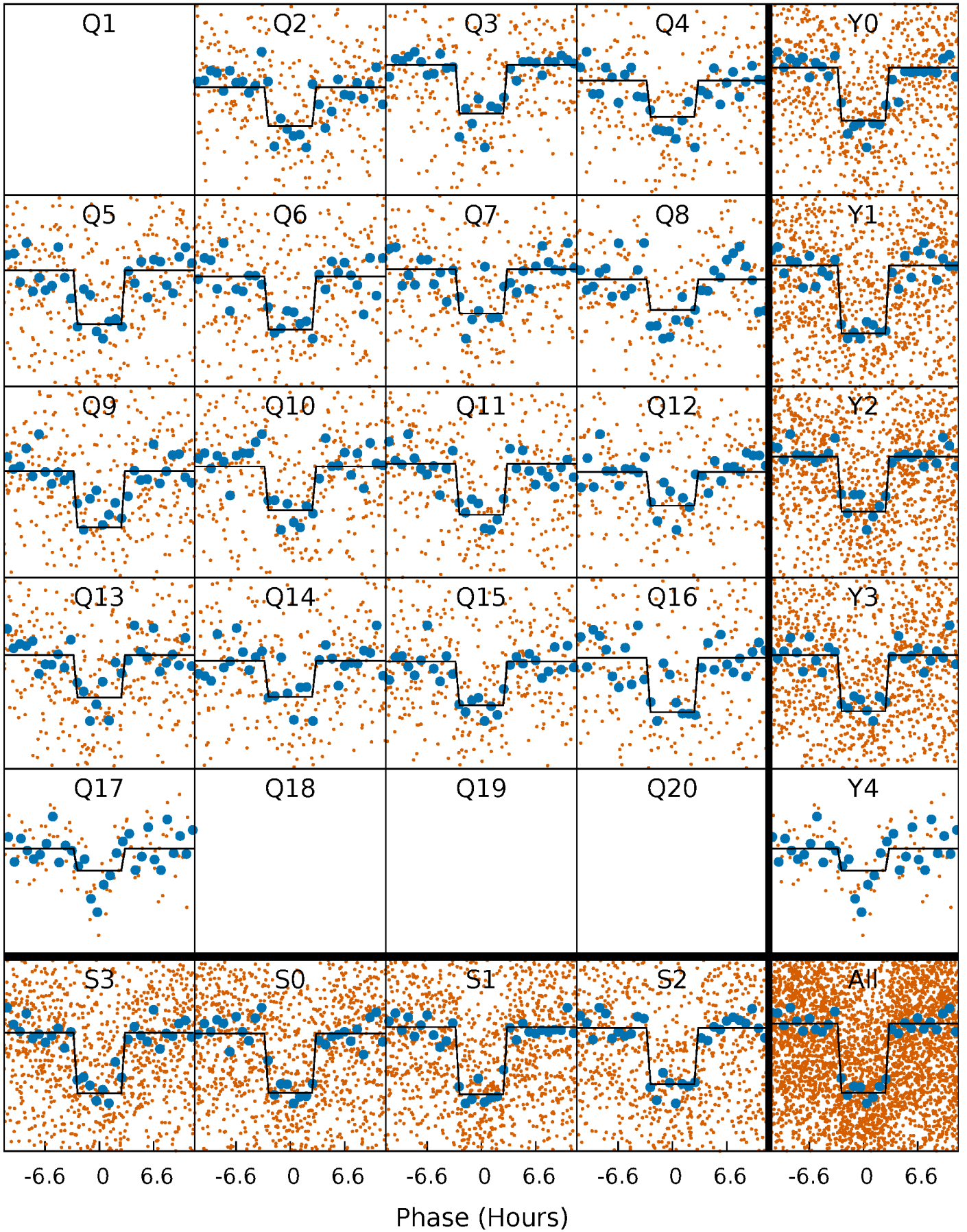
# DV Quarter-Phased Transit Curves

TCE 012505076-01 P= 11.929703 Days  $T_0=136.675381$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

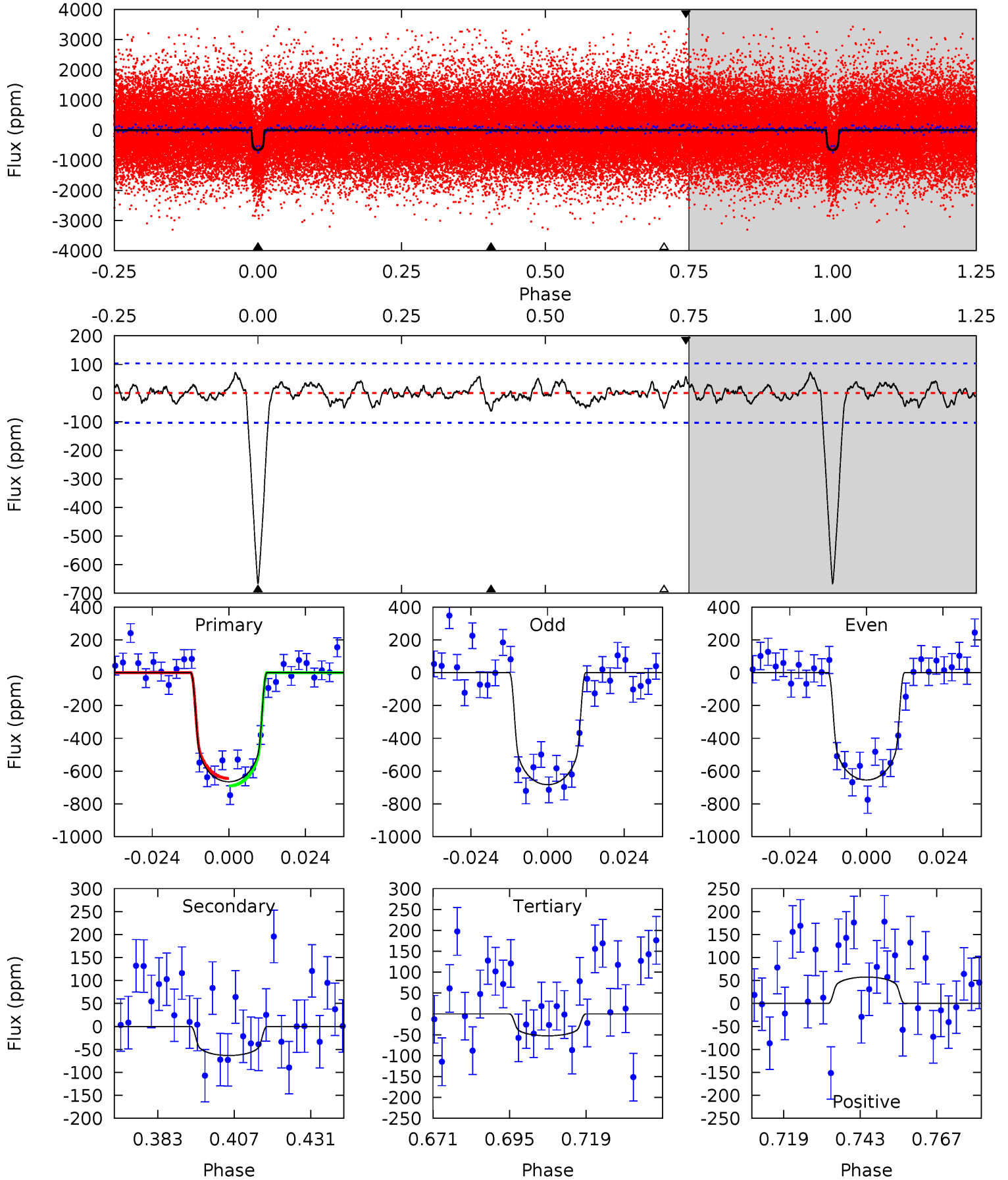
TCE 012505076-01 P= 11.929802 Days  $T_0=136.668422$  (BKJD)



# DV Model-Shift Uniqueness Test

012505076-01, P = 11.929703 Days, E = 136.675381 Days

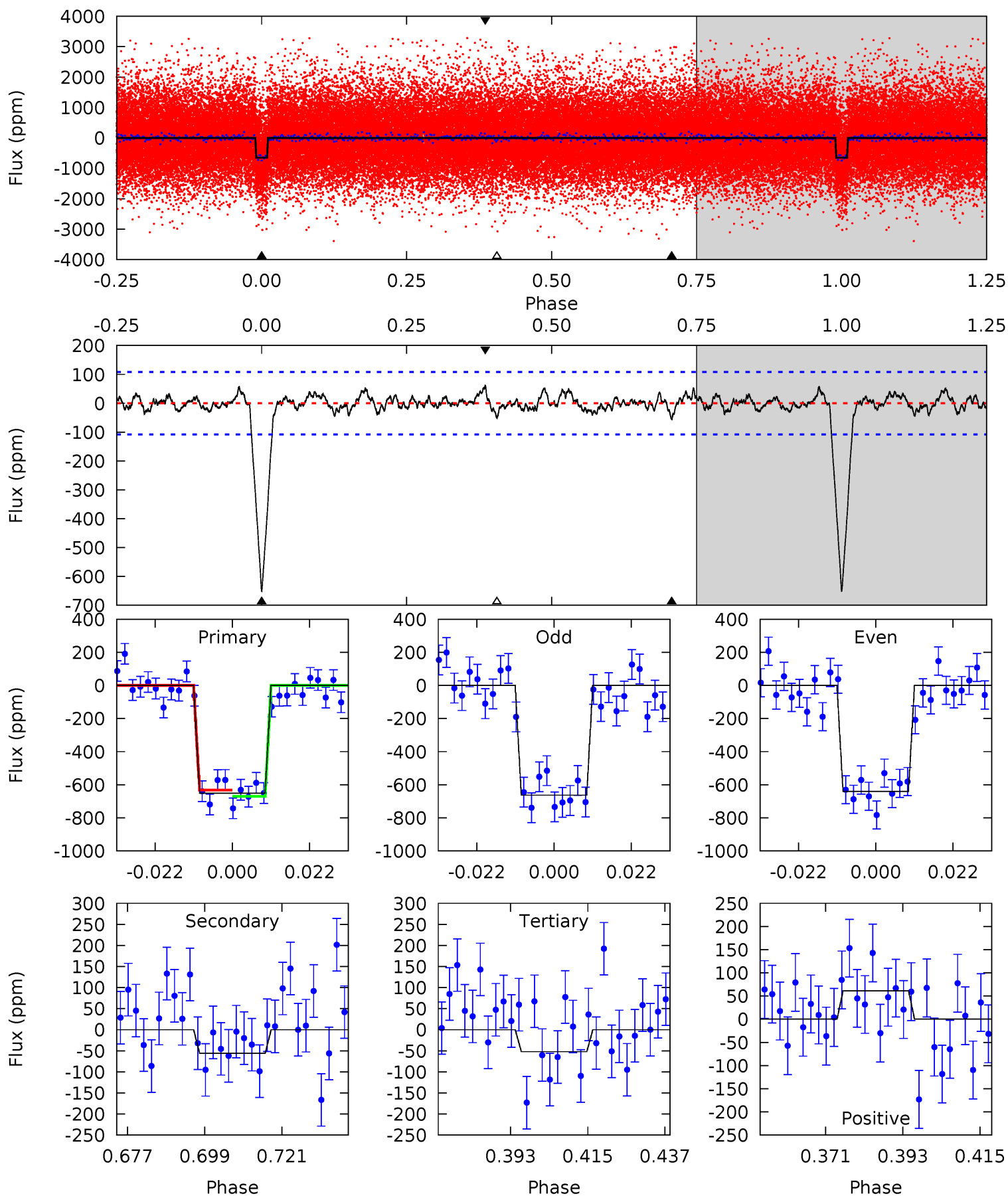
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.1	2.96	2.46	2.69	4.86	2.26	1.05	28.7	28.4	0.51	0.27	0.67	0.92	0.10	1.08



# Alt Model-Shift Uniqueness Test

012505076-01, P = 11.929802 Days, E = 136.668422 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
29.3	2.53	2.34	2.74	4.87	2.29	0.89	26.9	26.5	0.19	-0.22	0.51	0.99	0.09	0.84





### Stellar Parameters For KIC 012505076

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5831^{+157}_{-192}$	$4.517^{+0.048}_{-0.204}$	$0.000^{+0.250}_{-0.300}$	$0.921^{+0.256}_{-0.092}$	$1.016^{+0.116}_{-0.127}$	$1.834^{+0.465}_{-0.895}$
	+3%/-3%	+1%/-5%	+inf%/-inf%	+28%/-10%	+11%/-12%	+25%/-49%
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 012505076-01 / KOI 2154.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-63 \pm 21$	$2.77^{+0.60}_{-0.56}$	$1102^{+66}_{-56}$	$3620^{+347}_{-345}$	$46^{+35}_{-22}$
Alt.	$-56 \pm 22$	$2.62^{+0.69}_{-0.55}$	$1101^{+64}_{-53}$	$3612^{+373}_{-348}$	$46^{+36}_{-21}$

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

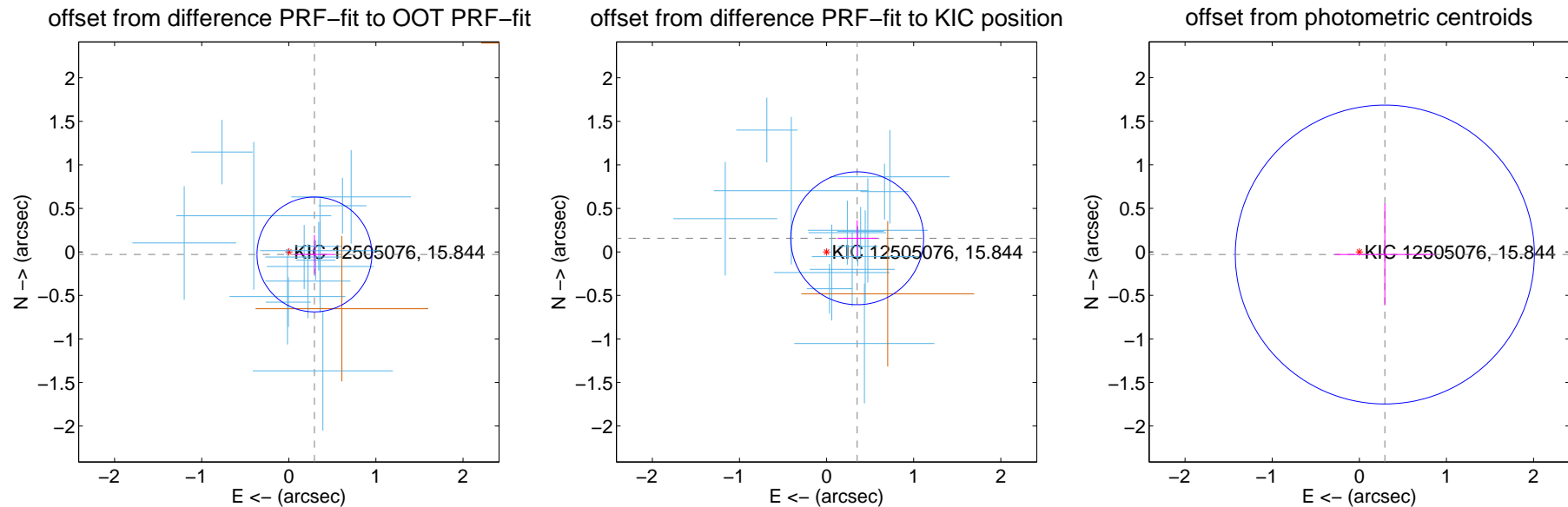
## DV Centroid Data

Supplemental centroid analysis for 012505076-01. Kepler magnitude: 15.84. Transit SNR 26.31

There are 14 quarters with good PRF difference image offsets

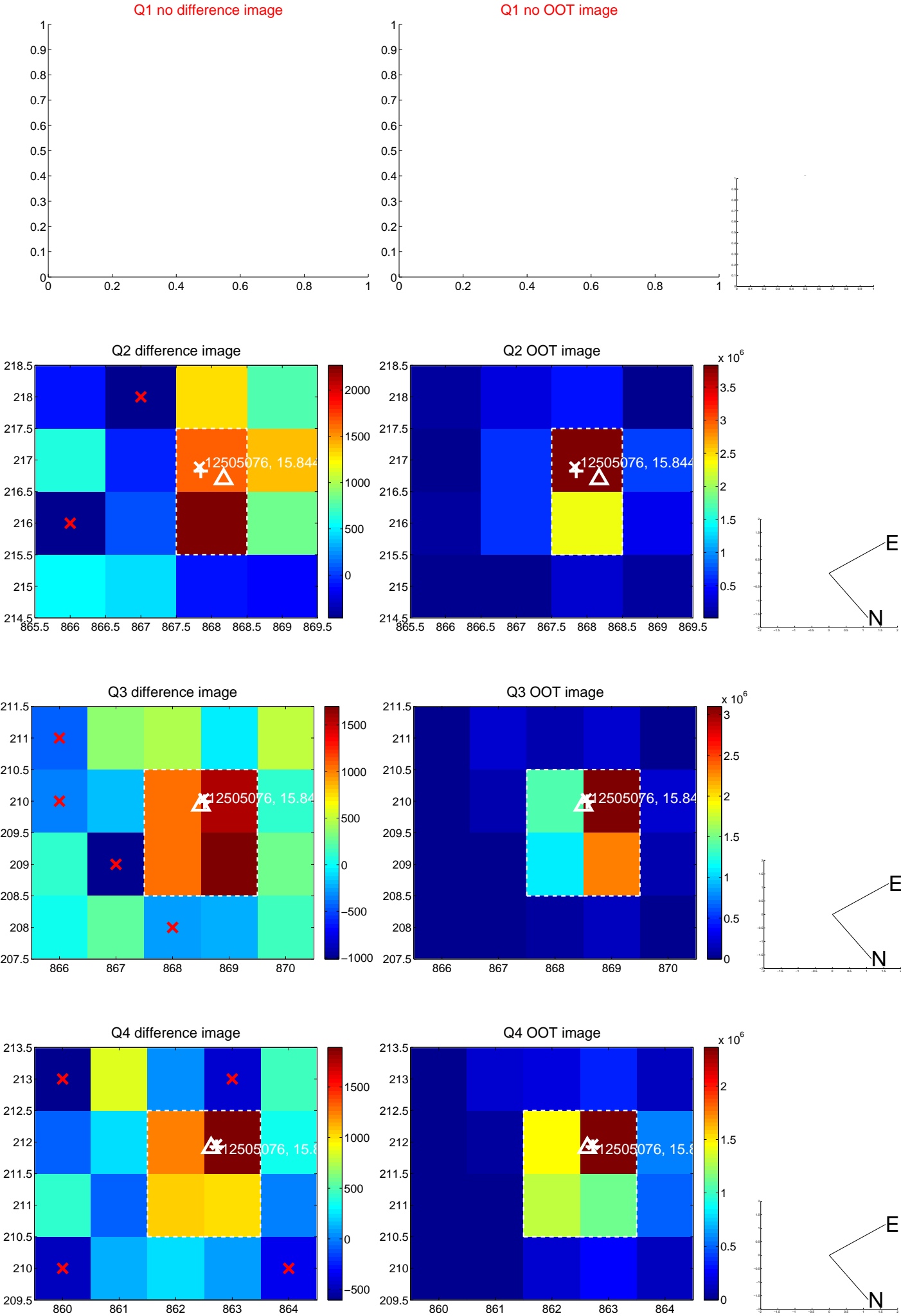
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.296 \pm 0.220$	1.34	$-0.294 \pm 0.230$	$-0.029 \pm 0.223$
PRF-fit source offset from KIC position	$0.385 \pm 0.254$	1.51	$-0.351 \pm 0.228$	$0.157 \pm 0.207$
photometric centroid source offset	$0.29 \pm 0.57$	0.51	$-0.29 \pm 0.57$	$-0.03 \pm 0.58$

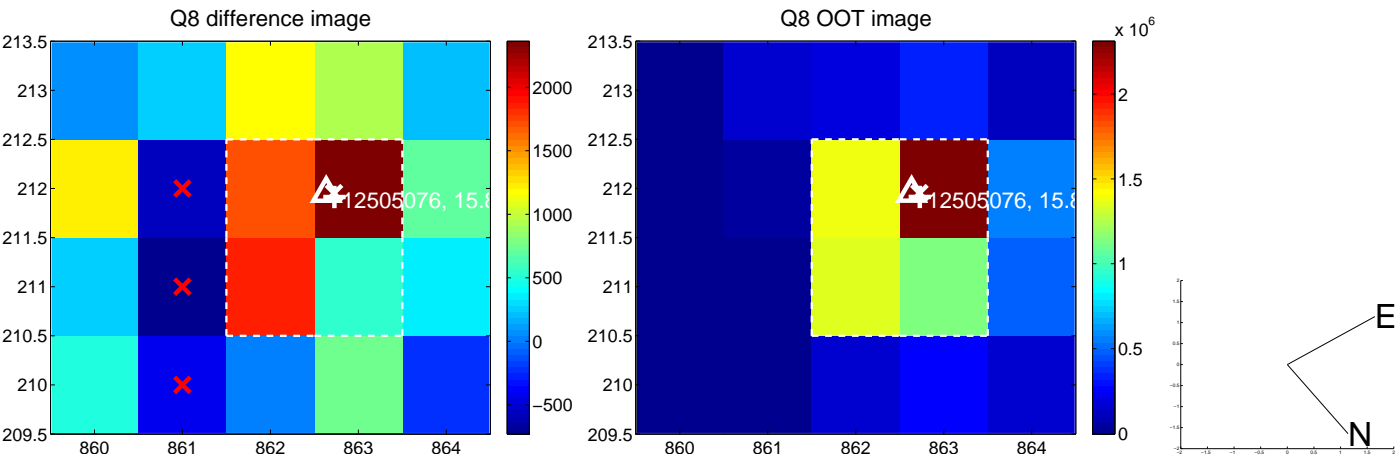
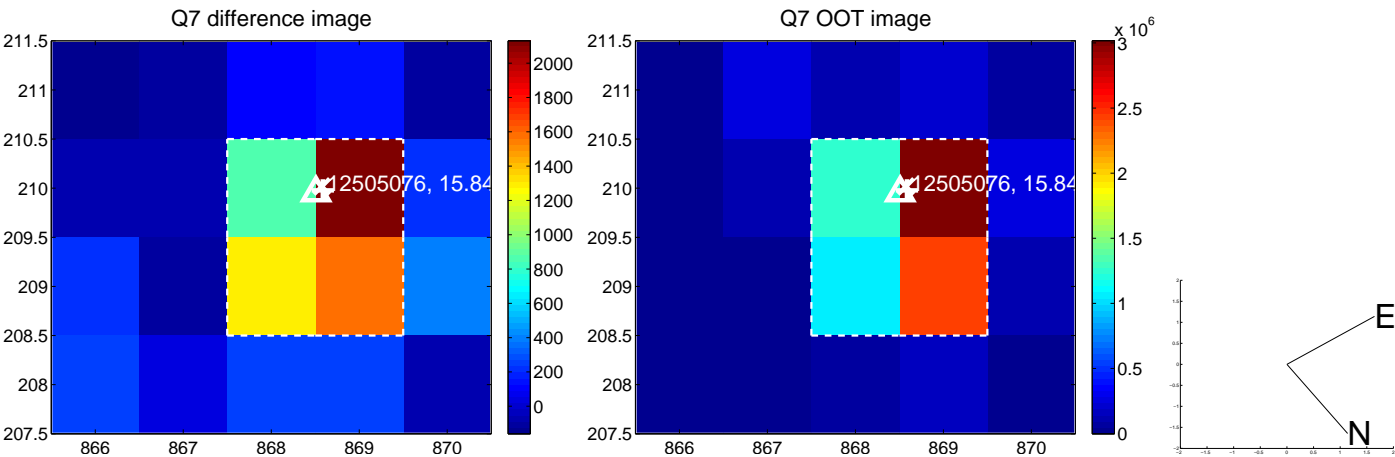
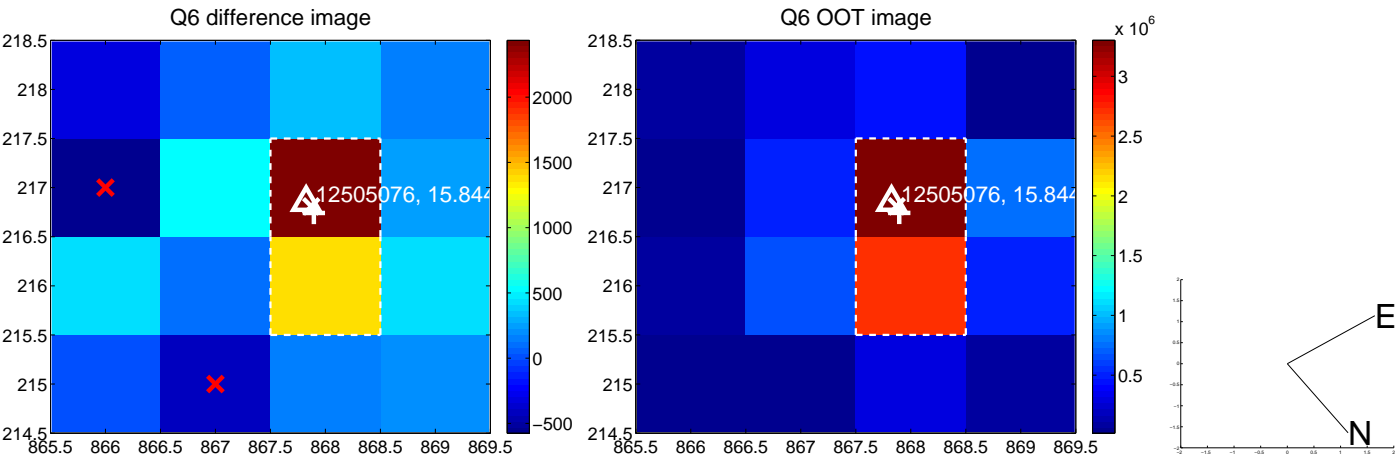
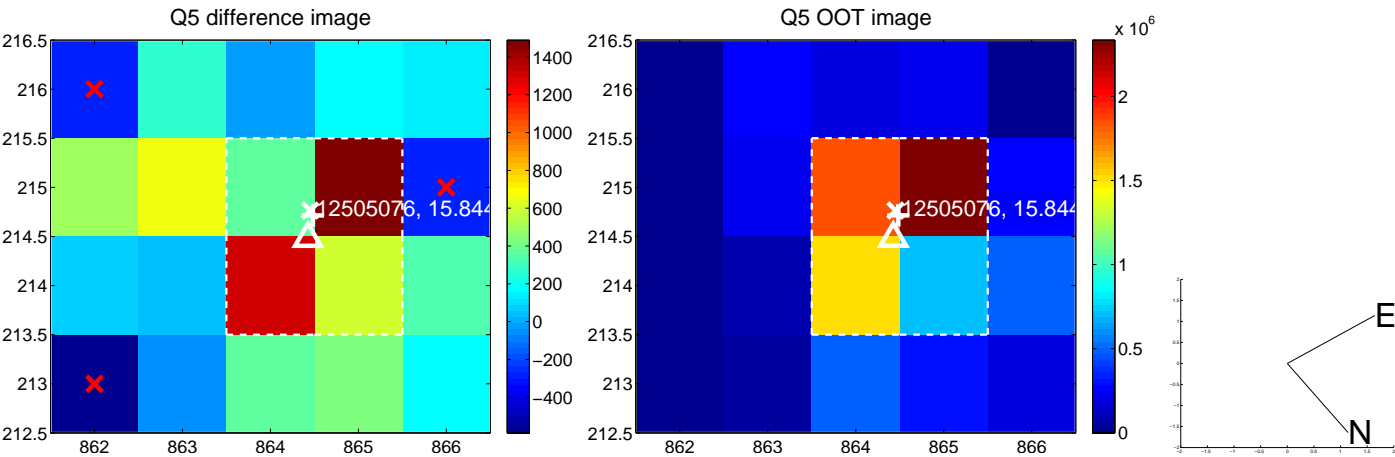


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

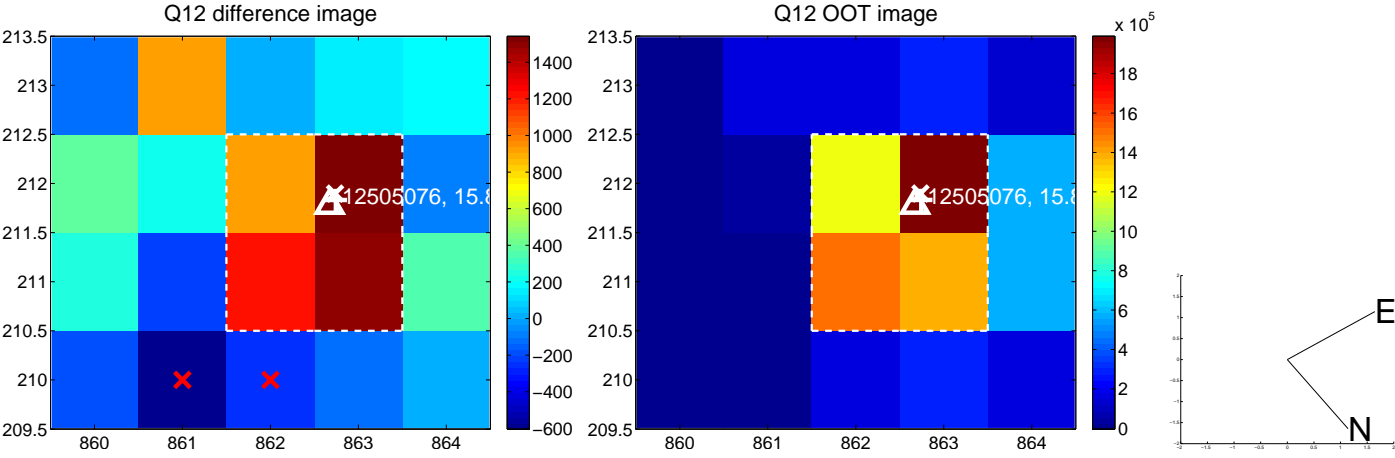
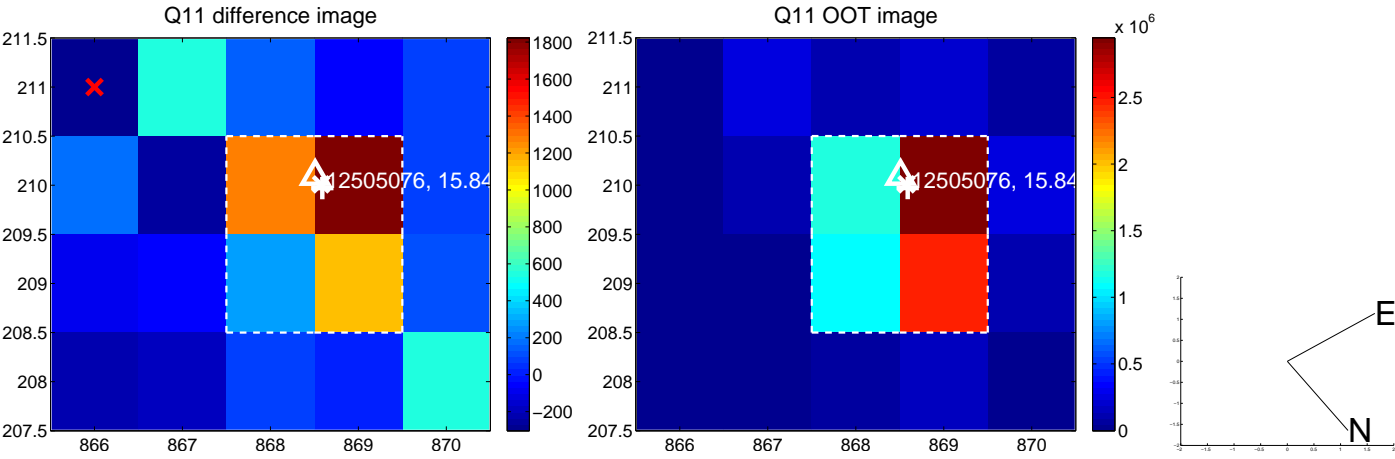
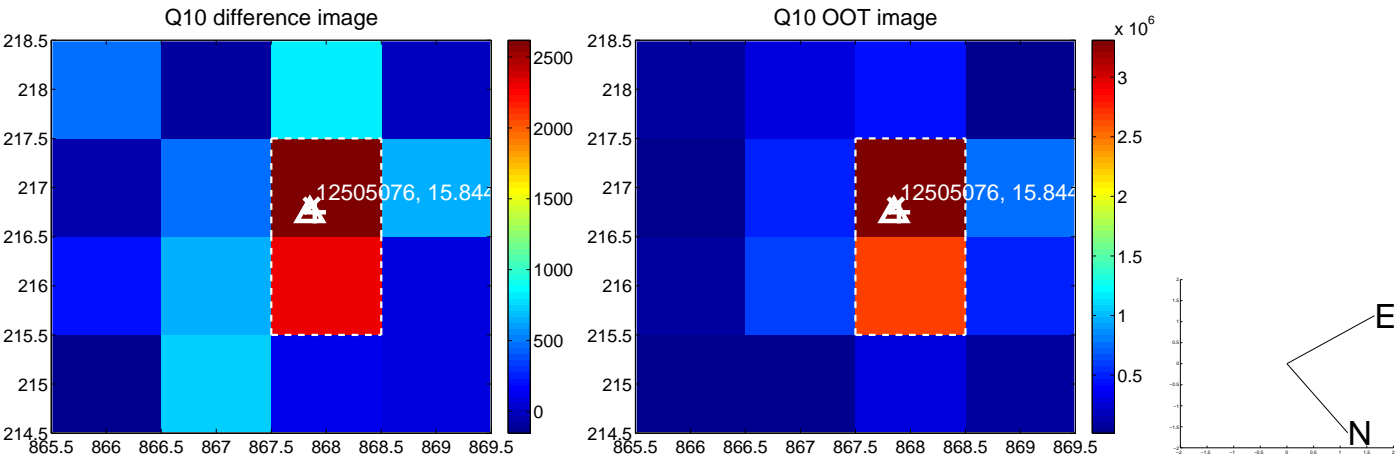
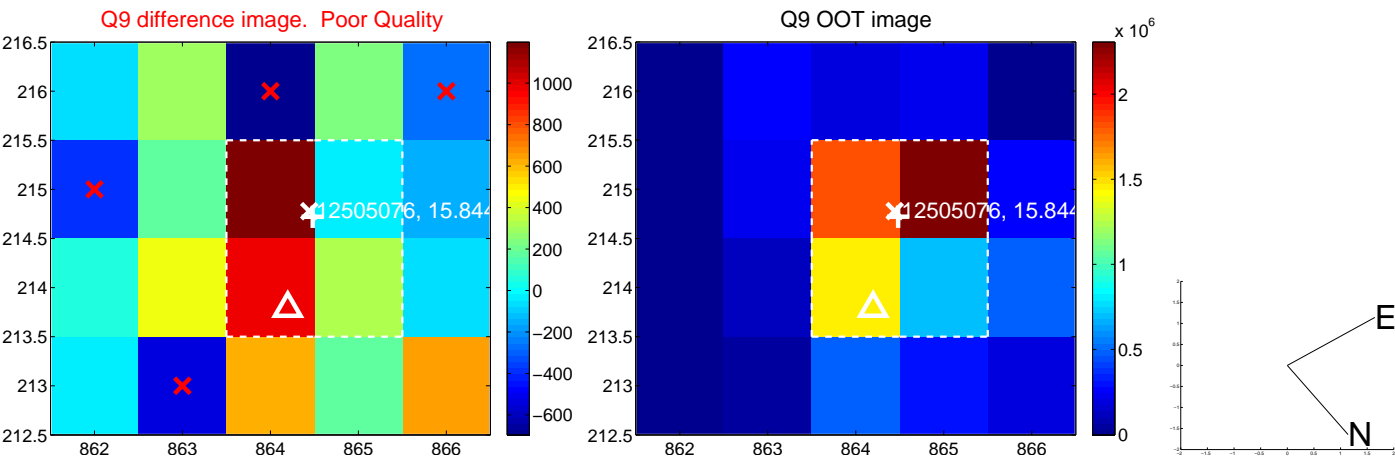


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

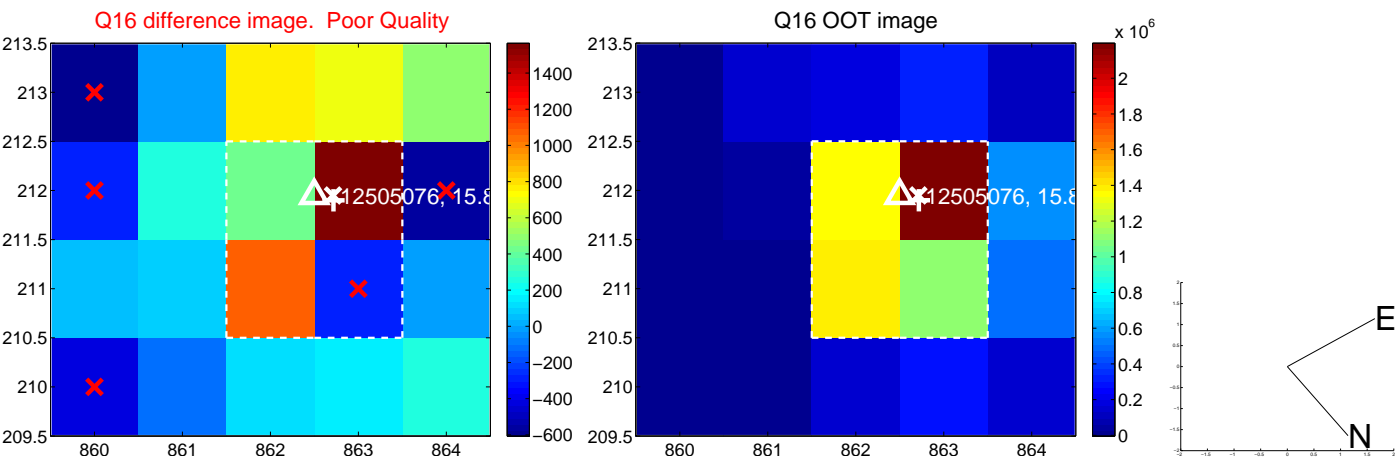
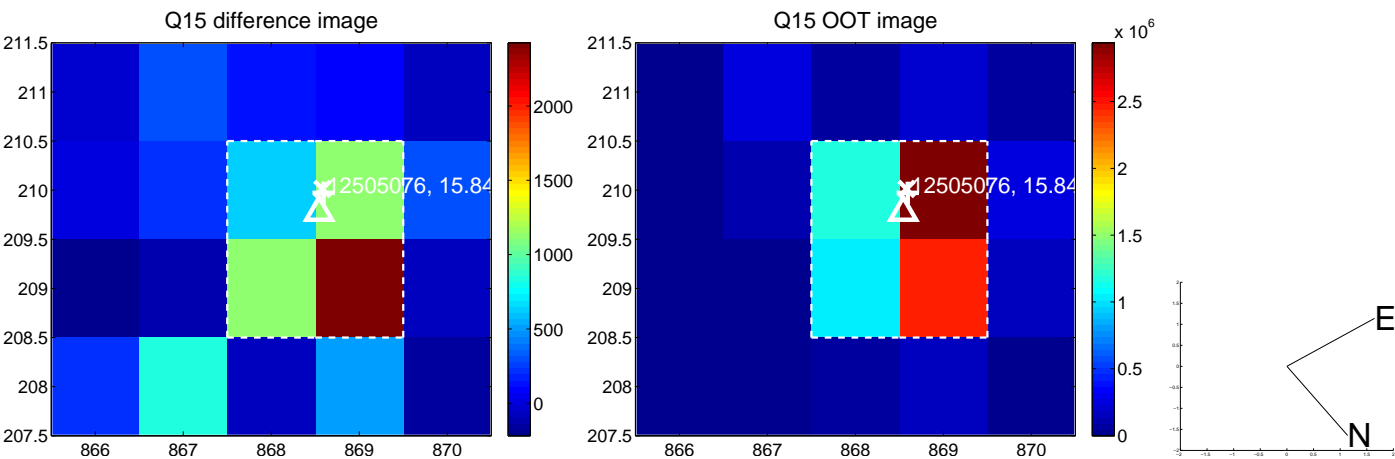
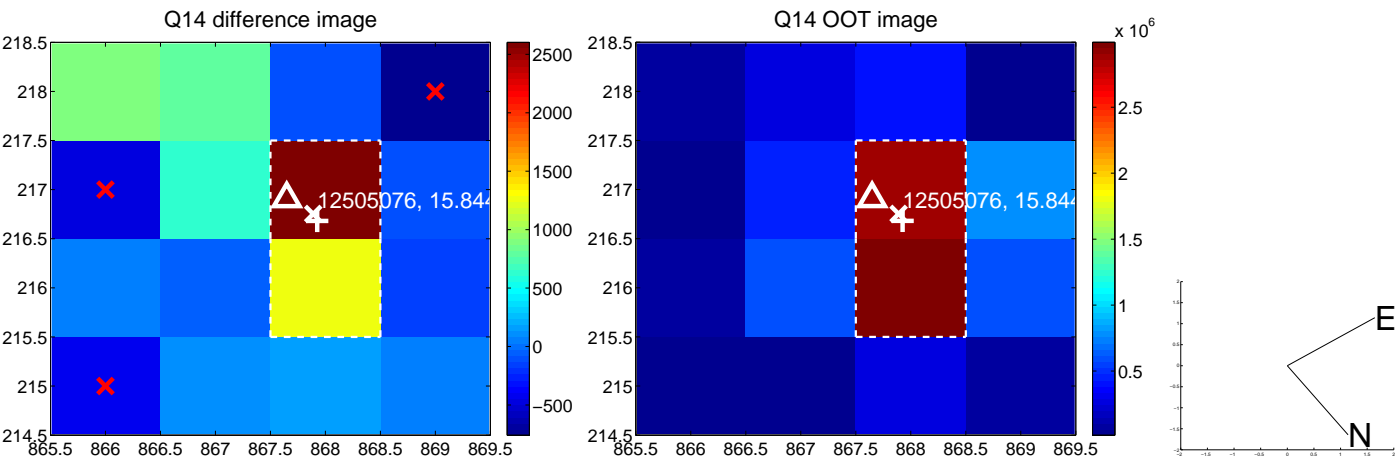
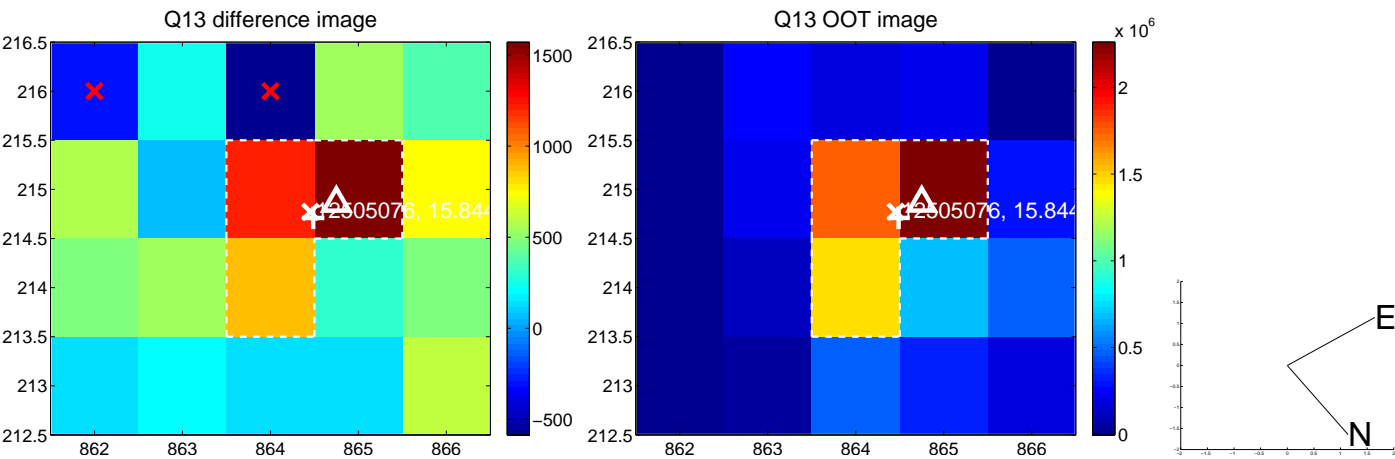




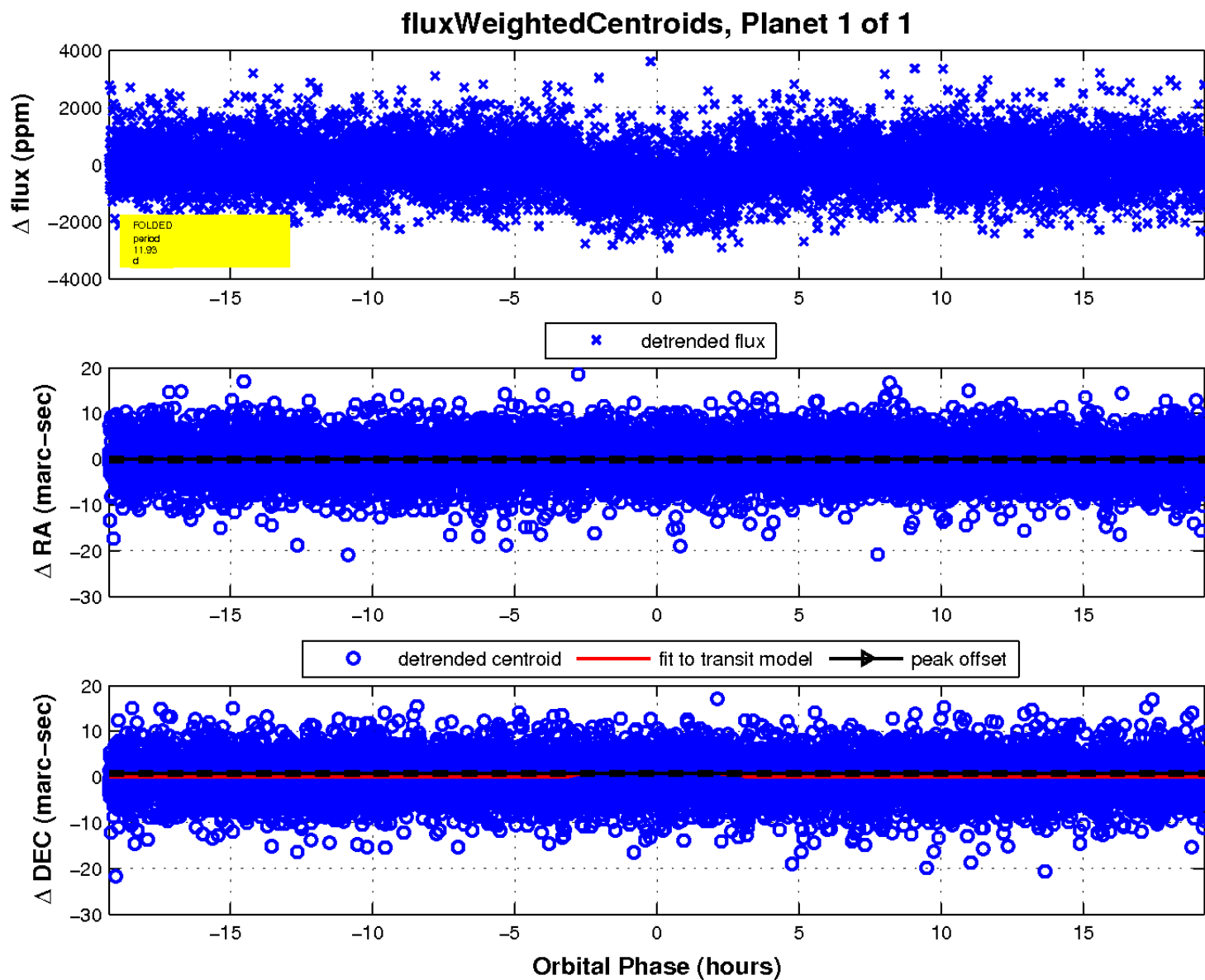
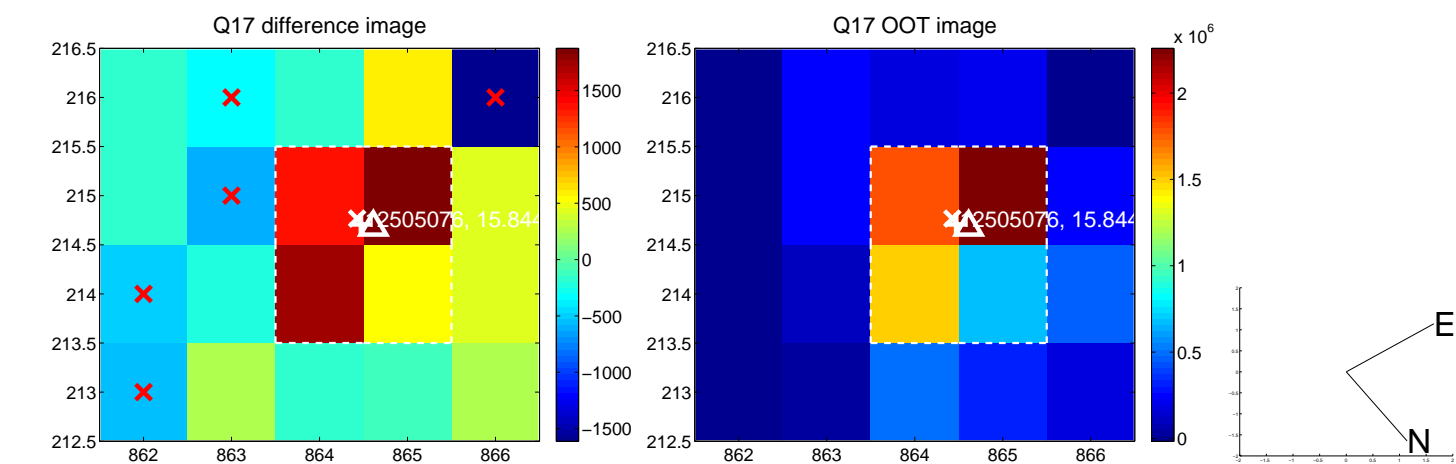
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

