

# KIC 006470149

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
006470149-01	OBS	1230.01	165.740367	214.036685	7434.3	24.983	105.0	161.4	6.84	5019	58.20	54.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006470149-01	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.

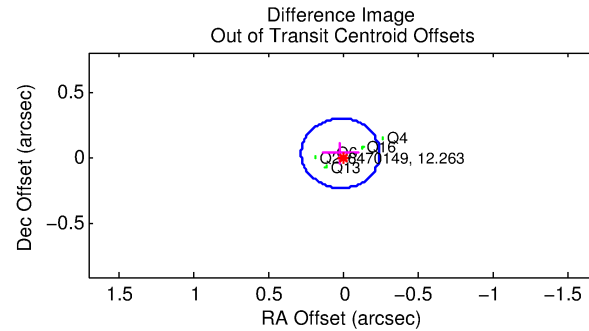
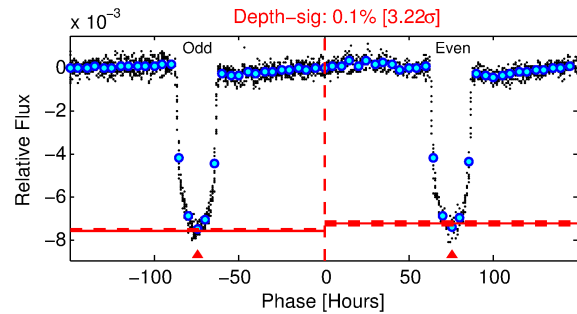
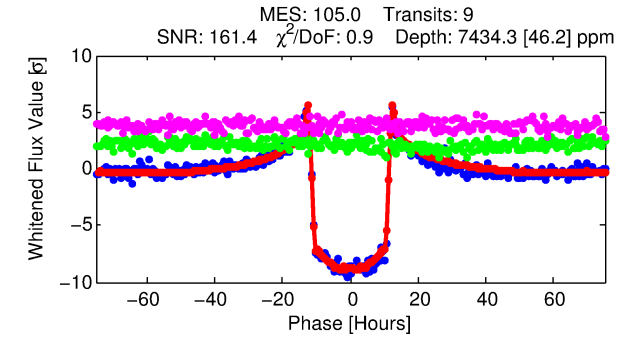
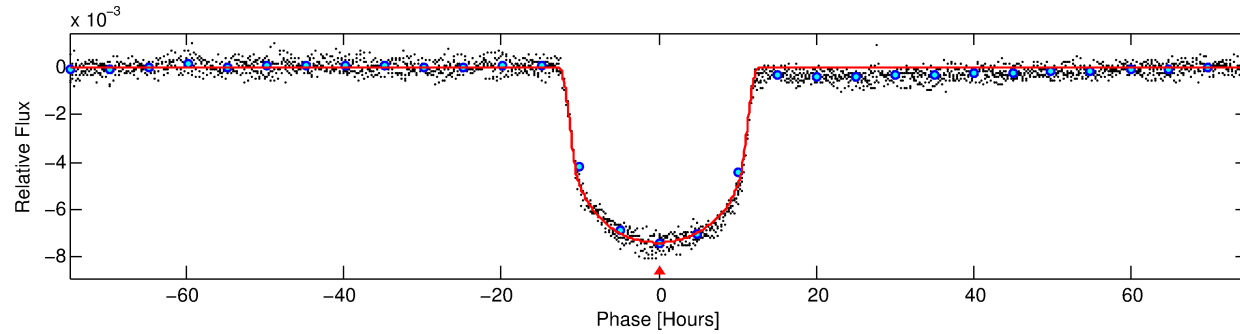
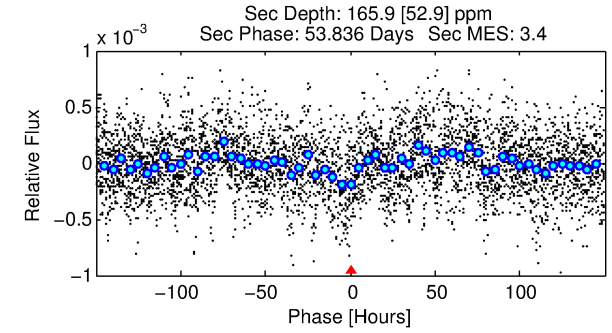
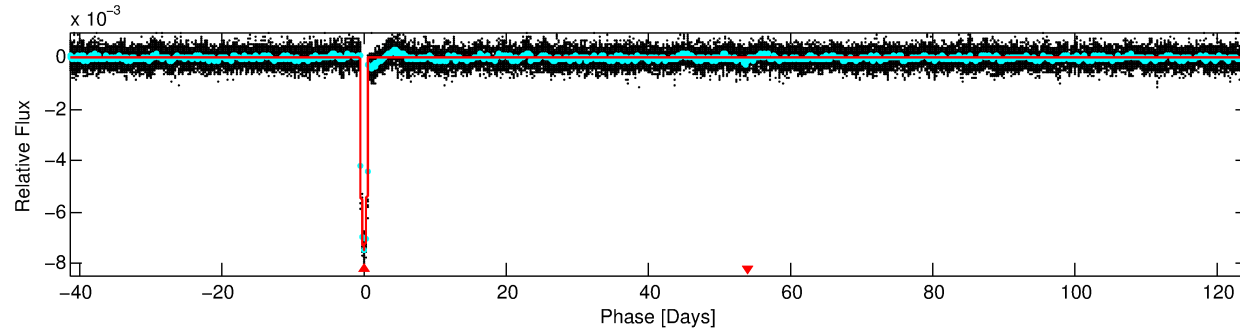
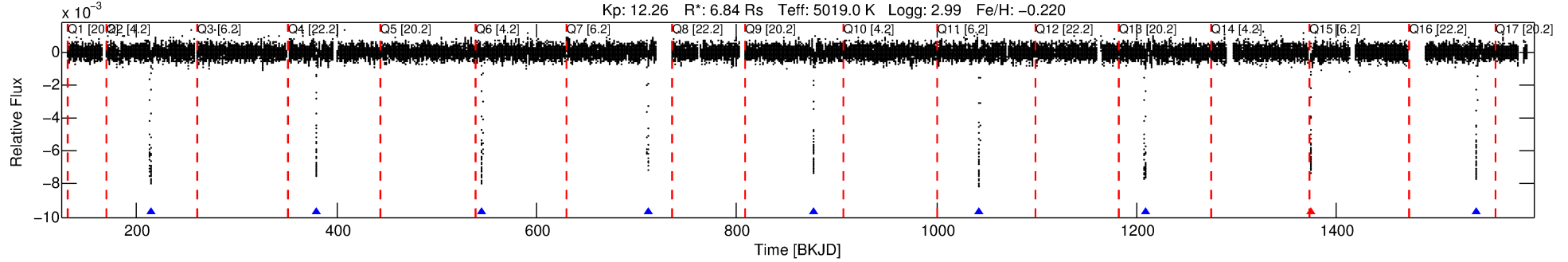
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006470149-01

No Significant Match Found

# DV One-Page Summary

KIC: 6470149 Candidate: 1 of 1 Period: 165.740 d  
KOI: K01230.01 Corr: 0.996



## DV Fit Results:

Period = 165.74037 [0.00026] d  
Epoch = 214.0367 [0.0012] BKJD  
Rp/R\* = 0.0780 [0.0004]  
a/R\* = 52.02 [0.66]  
b = 0.33 [0.03]  
Seff = 54.20 [7.86]  
Teff = 692 [25] K  
Rp = 58.20 [10.15] Re  
a = 0.7001 [0.0820] AU  
Ag = 13.21 [4.50] [2.71 $\sigma$ ]  
Teffp = 2039 [168] K [7.94 $\sigma$ ]

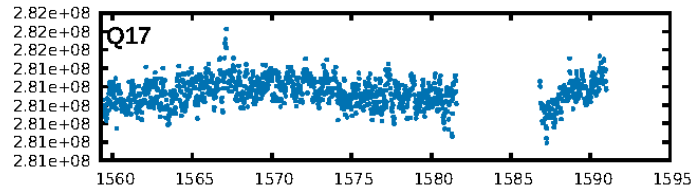
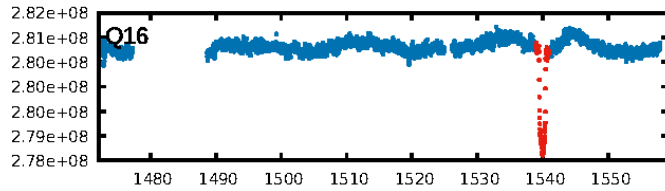
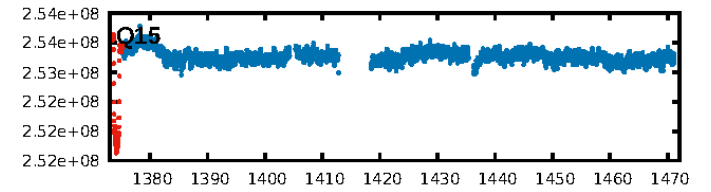
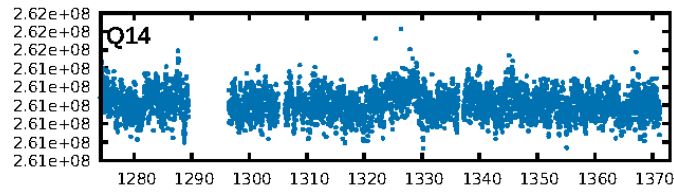
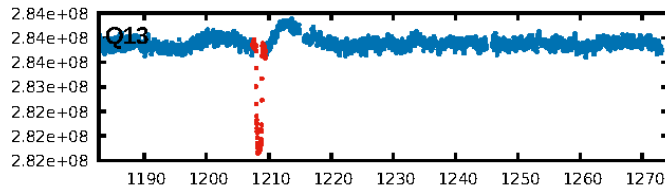
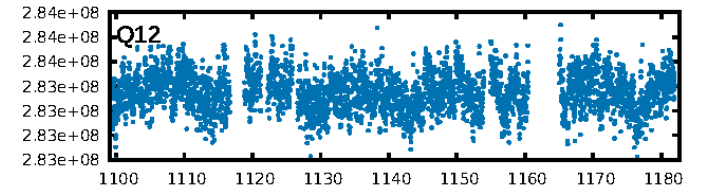
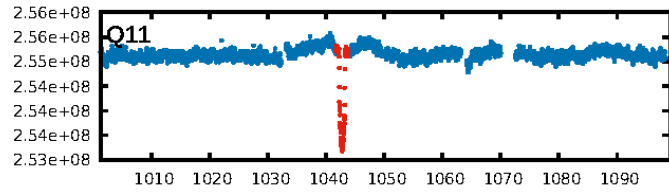
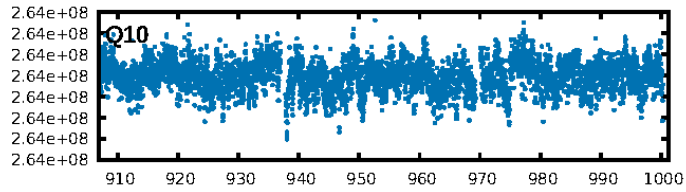
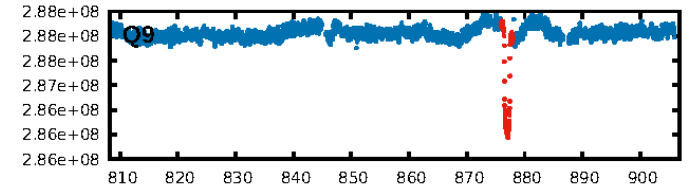
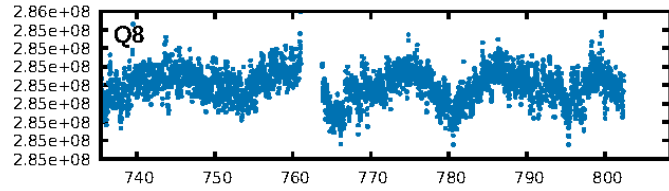
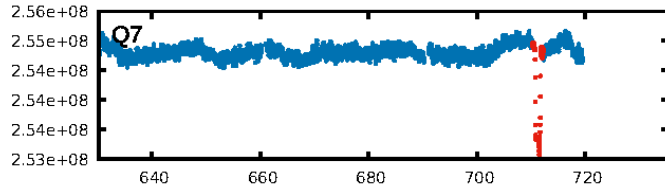
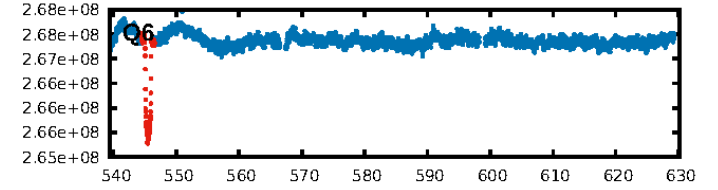
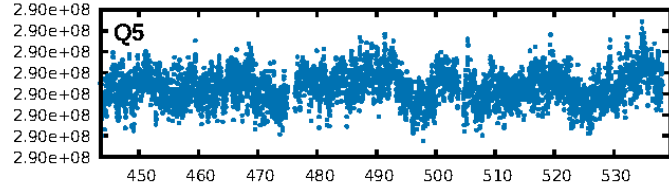
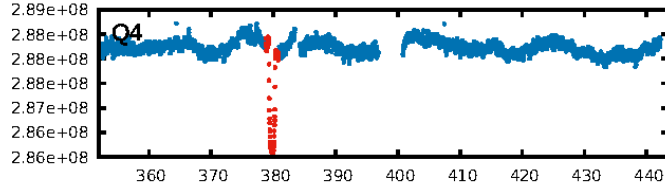
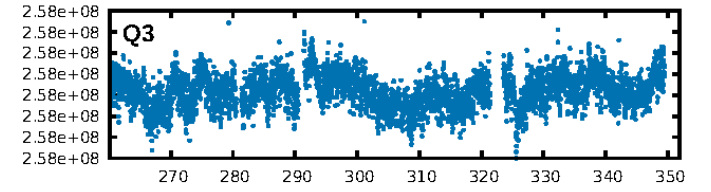
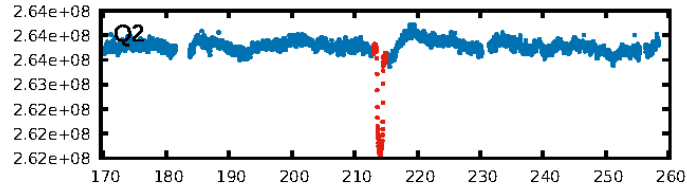
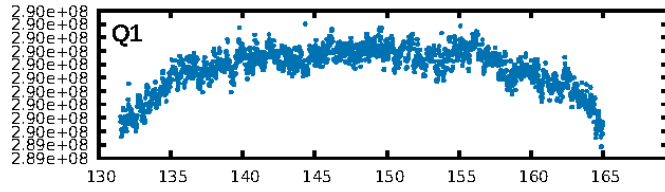
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.89 [8/9]  
GhostDiagnostic-chr: 4.857  
Centroid-sig: 0.0%  
Centroid-so: 0.126 arcsec [4.46 $\sigma$ ]  
OotOffset-rm: 0.038 arcsec [0.43 $\sigma$ ]  
KicOffset-rm: 0.129 arcsec [1.27 $\sigma$ ]  
OotOffset-st: 2/0/2/1 [5]  
KicOffset-st: 2/0/2/1 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 1.00 [5/5]

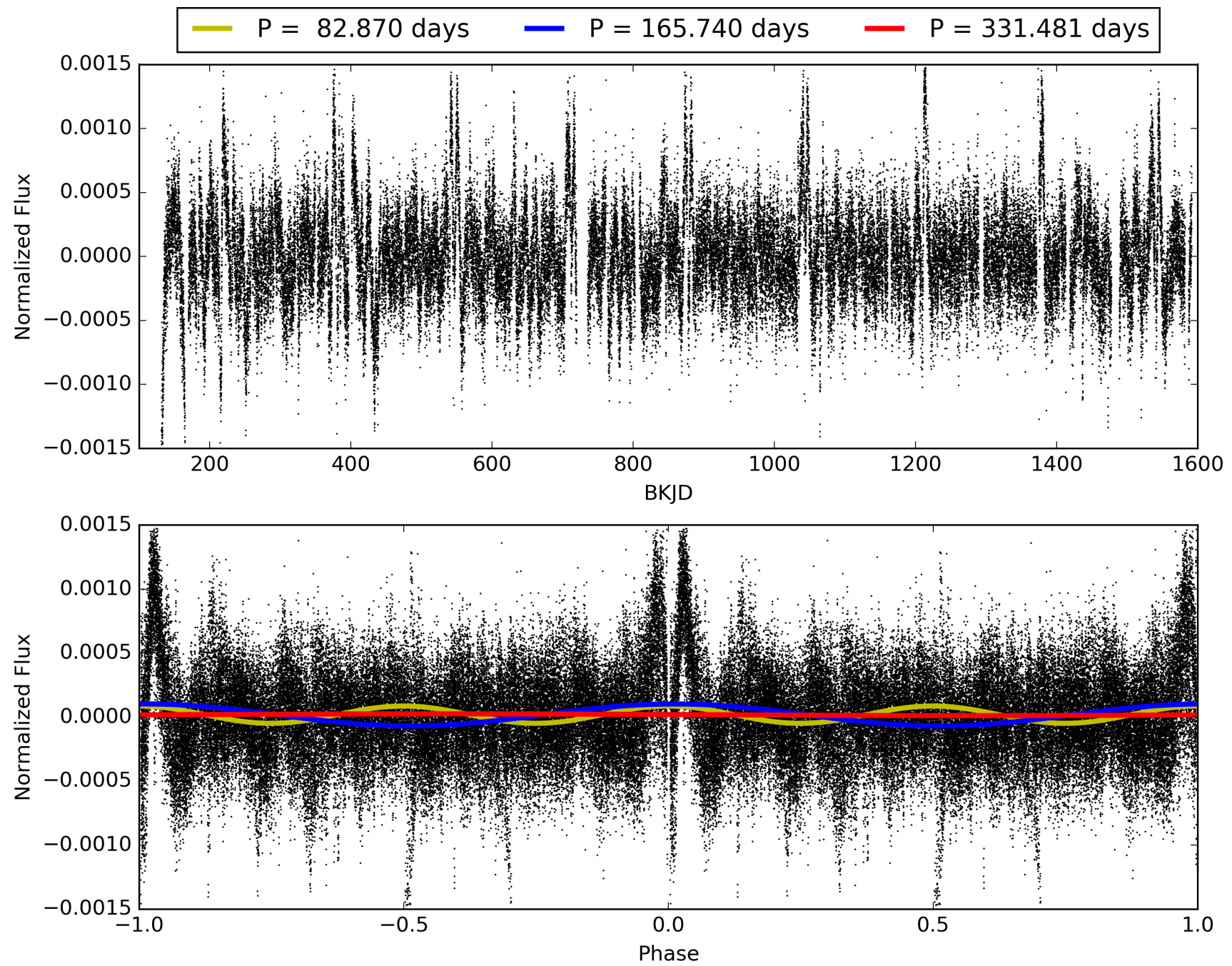
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:39:50 Z

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

# TCE 006470149-01, PDC Light Curves

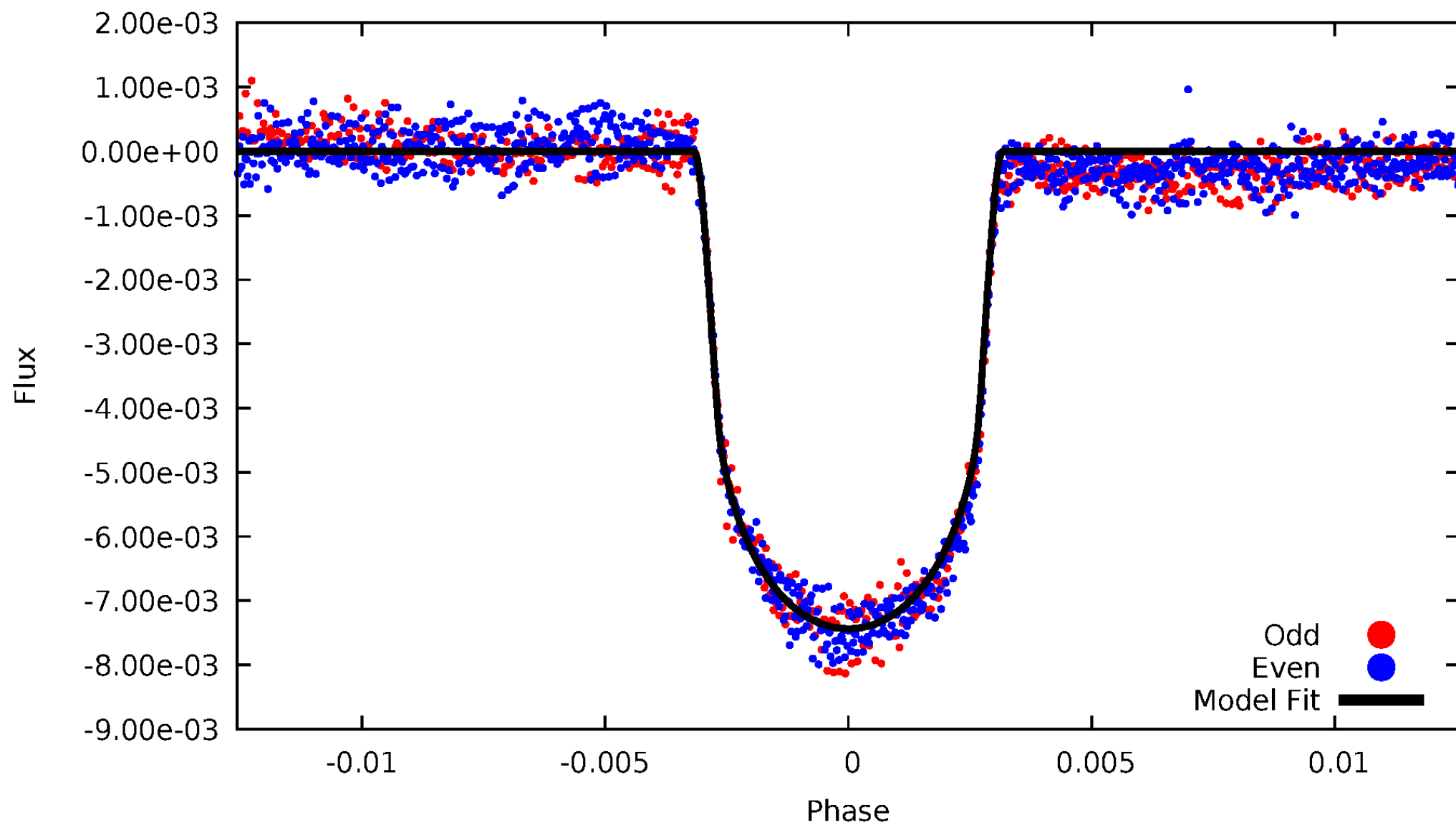


TCE 006470149-01



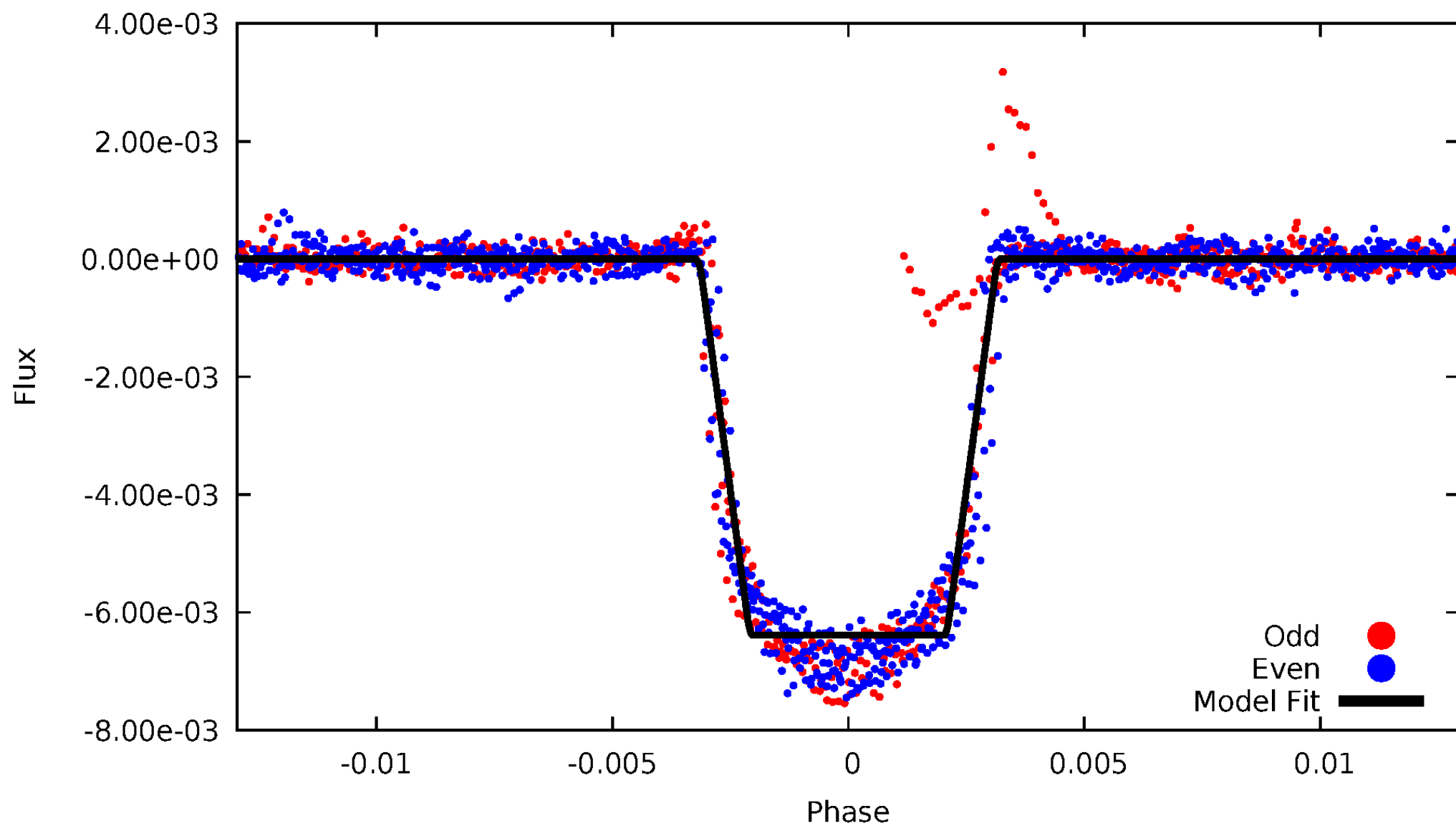
# DV Odd/Even

TCE 006470149-01

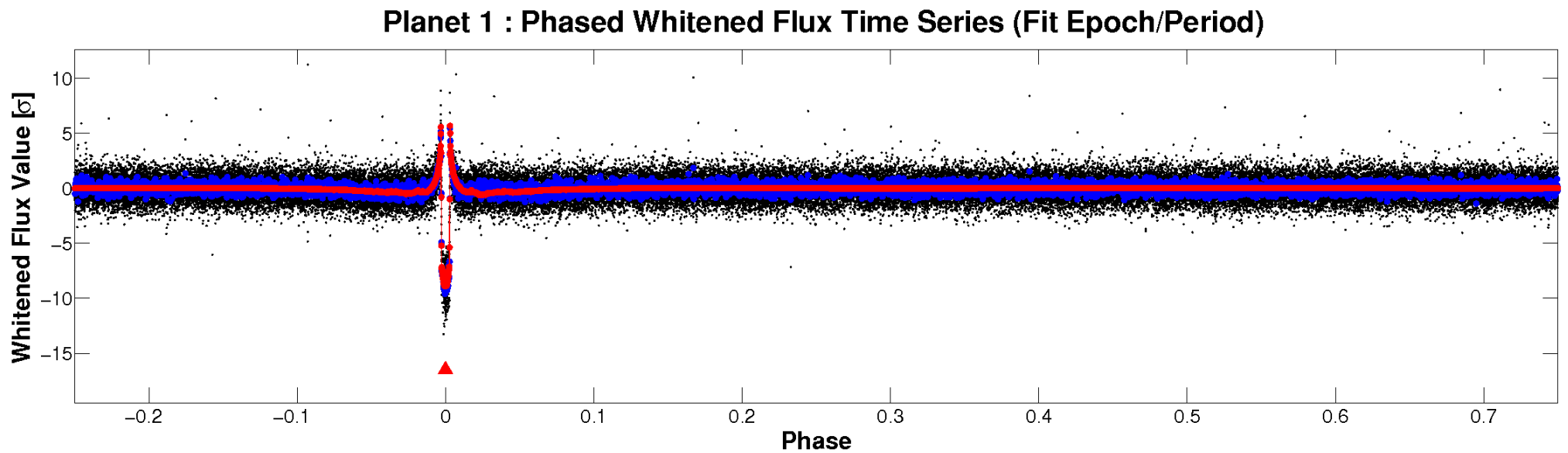
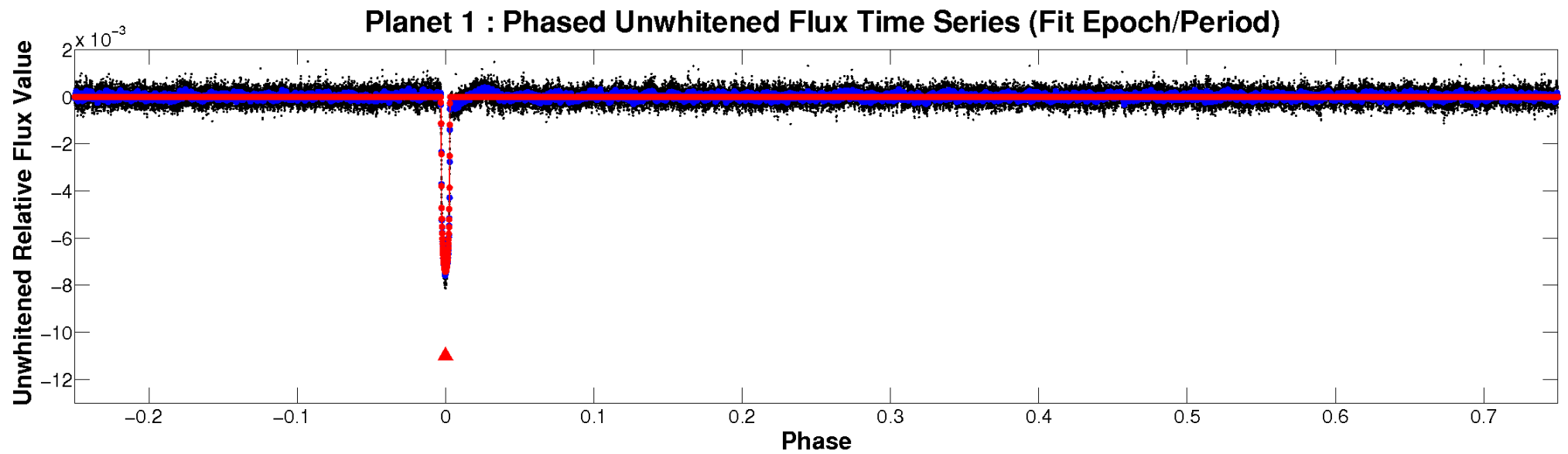


# ALT Odd/Even

TCE 006470149-01

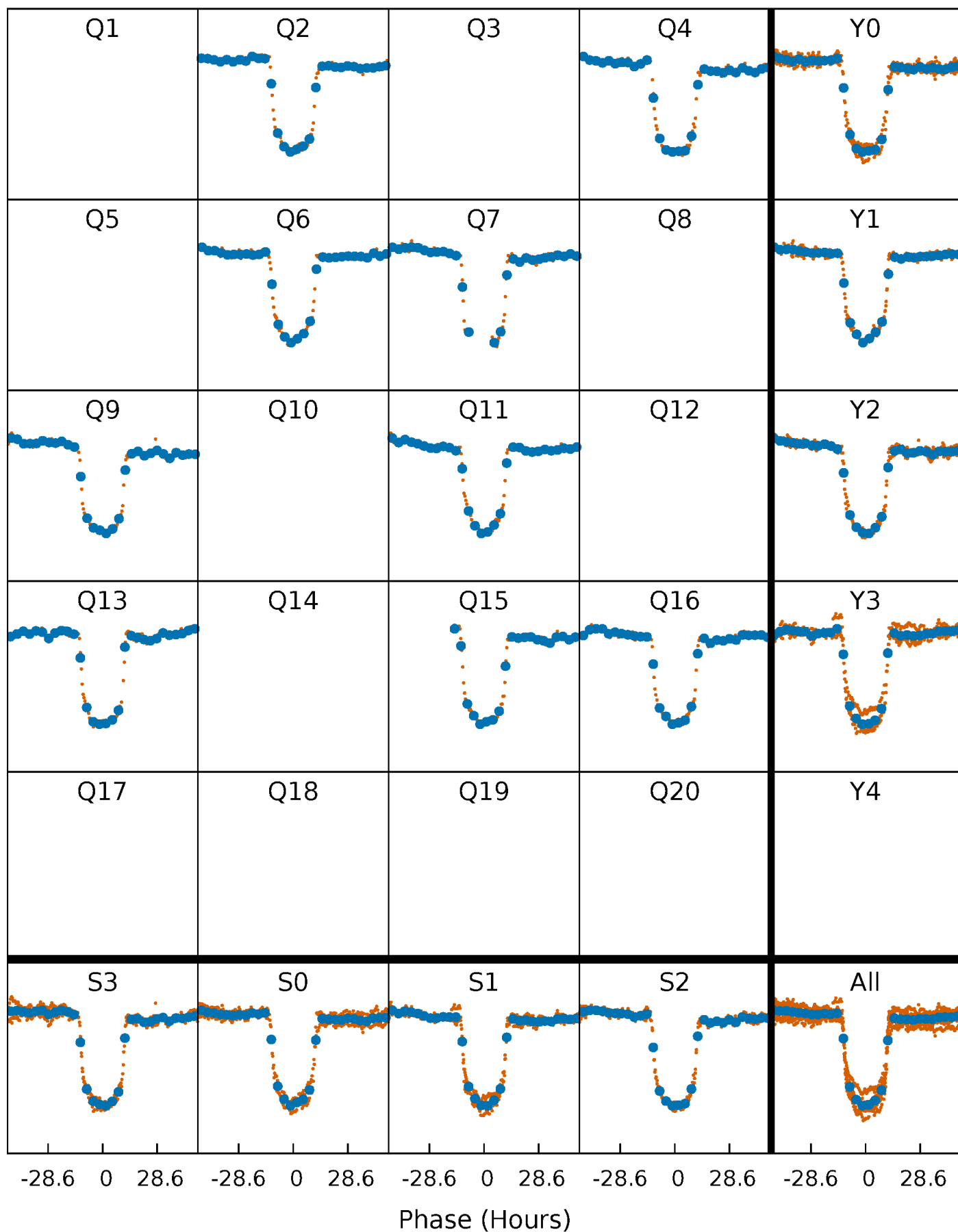


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

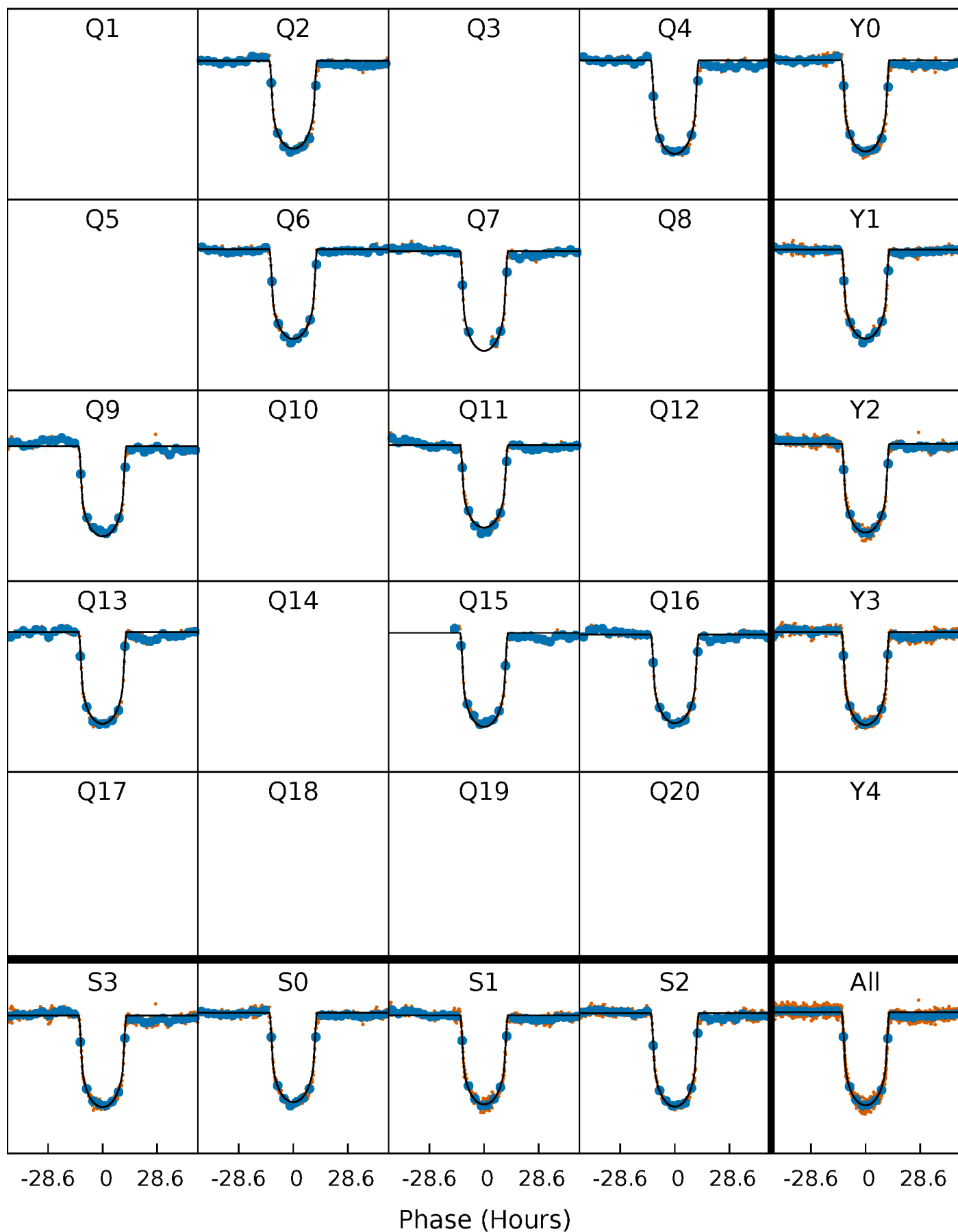
TCE 006470149-01 P=165.740367 Days  $T_0=214.036685$  (BKJD)





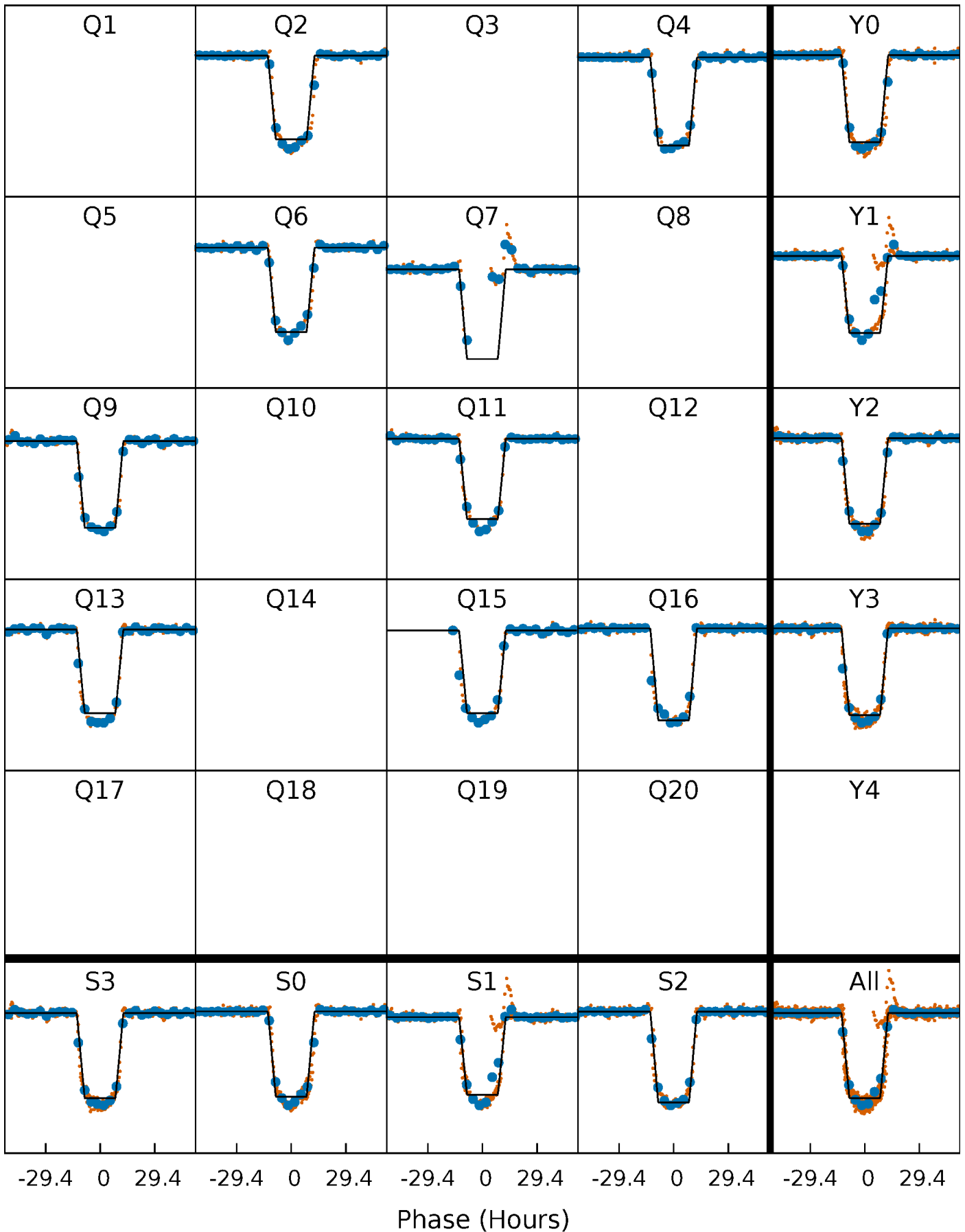
# DV Quarter-Phased Transit Curves

TCE 006470149-01 P=165.740367 Days  $T_0=214.036685$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

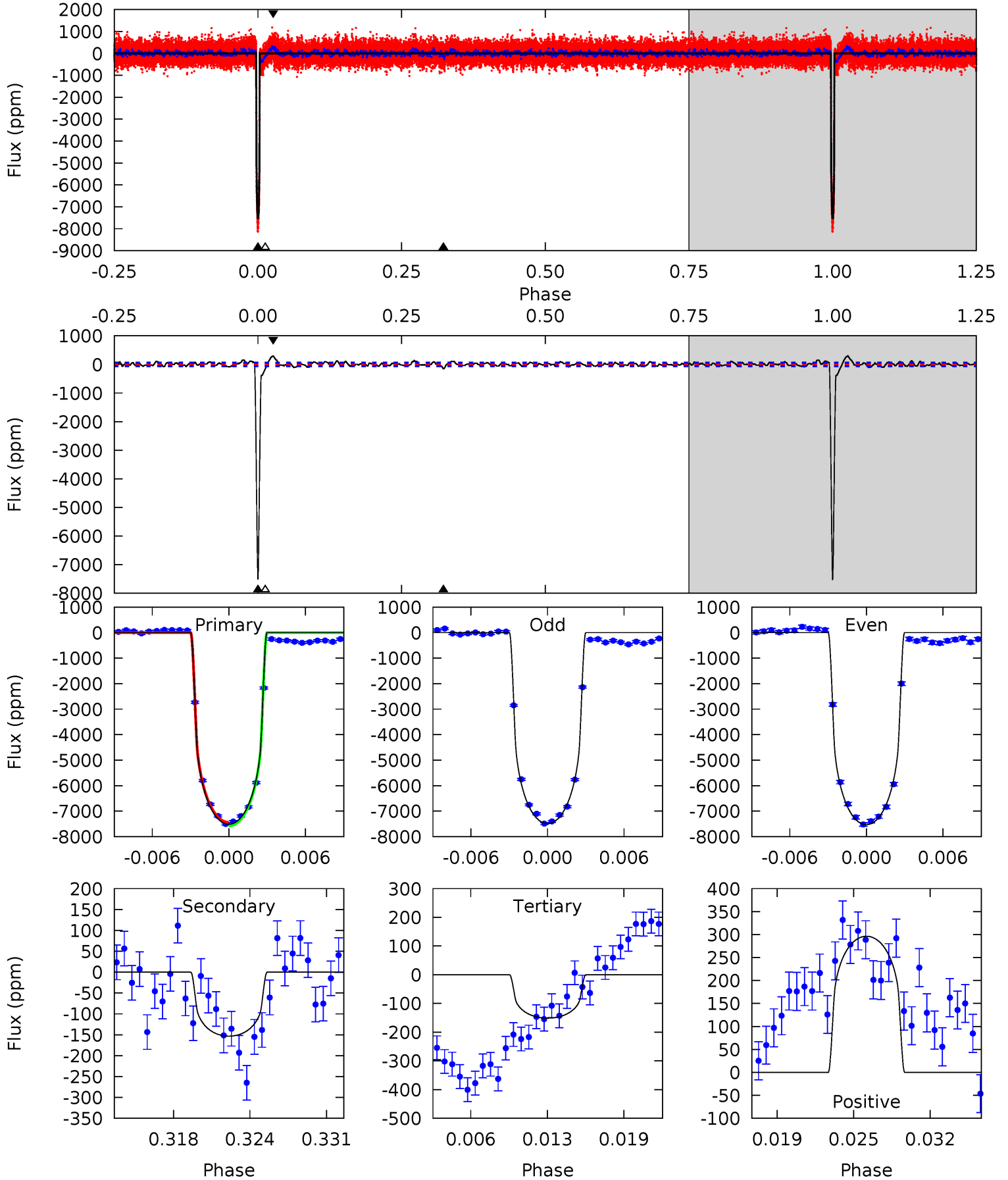
TCE 006470149-01 P=165.750227 Days  $T_0=213.990912$  (BKJD)



# DV Model-Shift Uniqueness Test

006470149-01,  $P = 165.740367$  Days,  $E = 48.296318$  Days

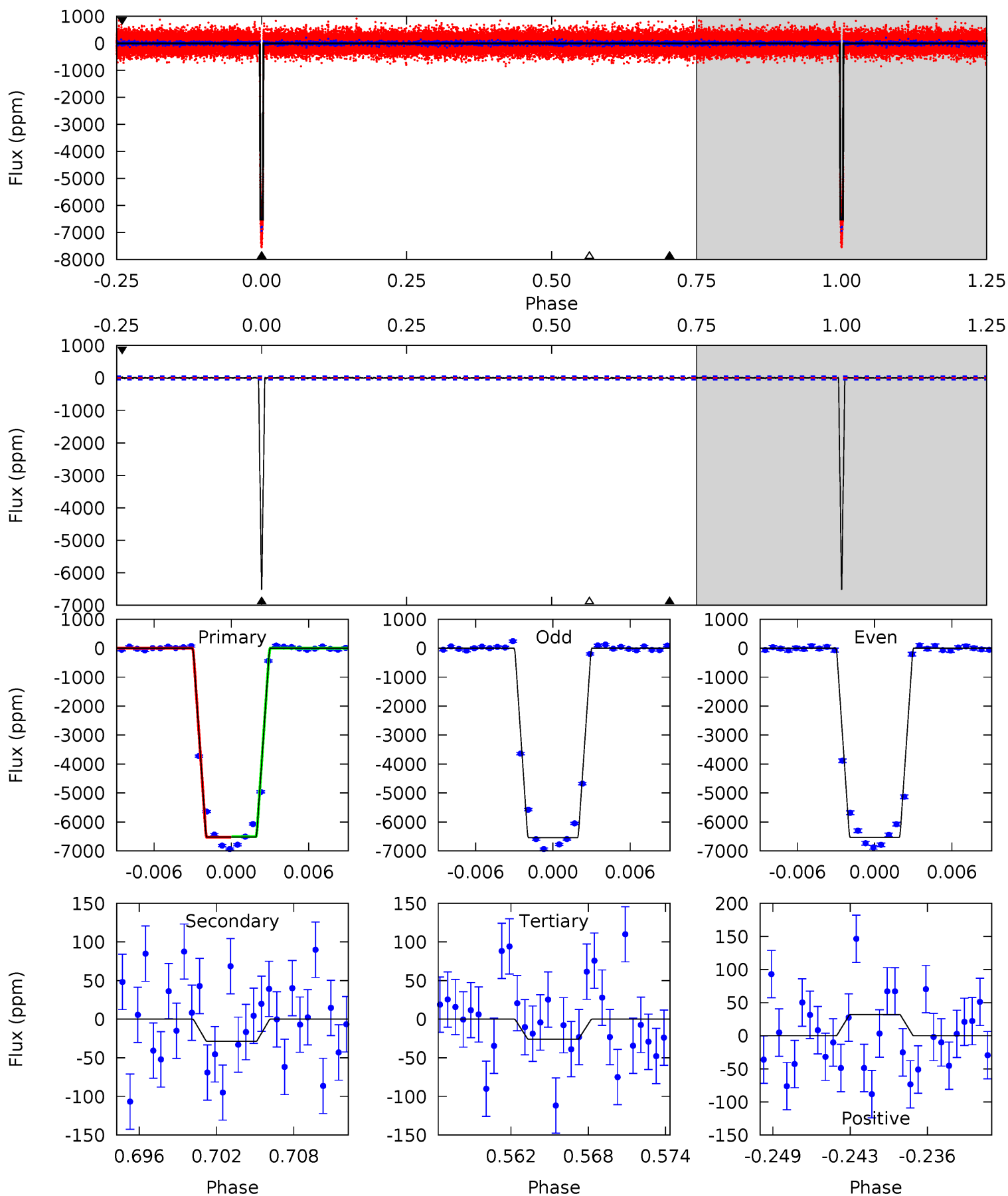
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
611.1	12.5	12.3	24.1	5.11	2.73	4.77	598.8	587.0	0.17	-11.6	1.58	0.99	0.04	5.51



# Alt Model-Shift Uniqueness Test

006470149-01, P = 165.750227 Days, E = 48.240685 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
632.7	2.78	2.53	3.12	5.11	2.73	0.77	630.2	629.6	0.25	-0.34	0.54	0.94	0.00	0.99



### Stellar Parameters For KIC 006470149

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5019^{+51}_{-103}$	$2.990^{+0.018}_{-0.016}$	$-0.220^{+0.150}_{-0.150}$	$6.836^{+0.426}_{-1.192}$	$1.663^{+0.222}_{-0.518}$	$0.007^{+0.002}_{-0.000}$
	+1%/-2%	+1%/-1%	+68%/-68%	+6%/-17%	+13%/-31%	+23%/-7%
Source	SPE8	AST8	SPE8	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 006470149-01 / KOI 1230.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-153 \pm 12$	$59.56^{+2.28}_{-3.38}$	$966^{+16}_{-23}$	$2722^{+36}_{-43}$	$12^{+1}_{-1}$
Alt.	$-29 \pm 10$	$60.84^{+2.29}_{-4.59}$	$965^{+17}_{-23}$	$2179^{+87}_{-119}$	$2.140^{+0.804}_{-0.724}$

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

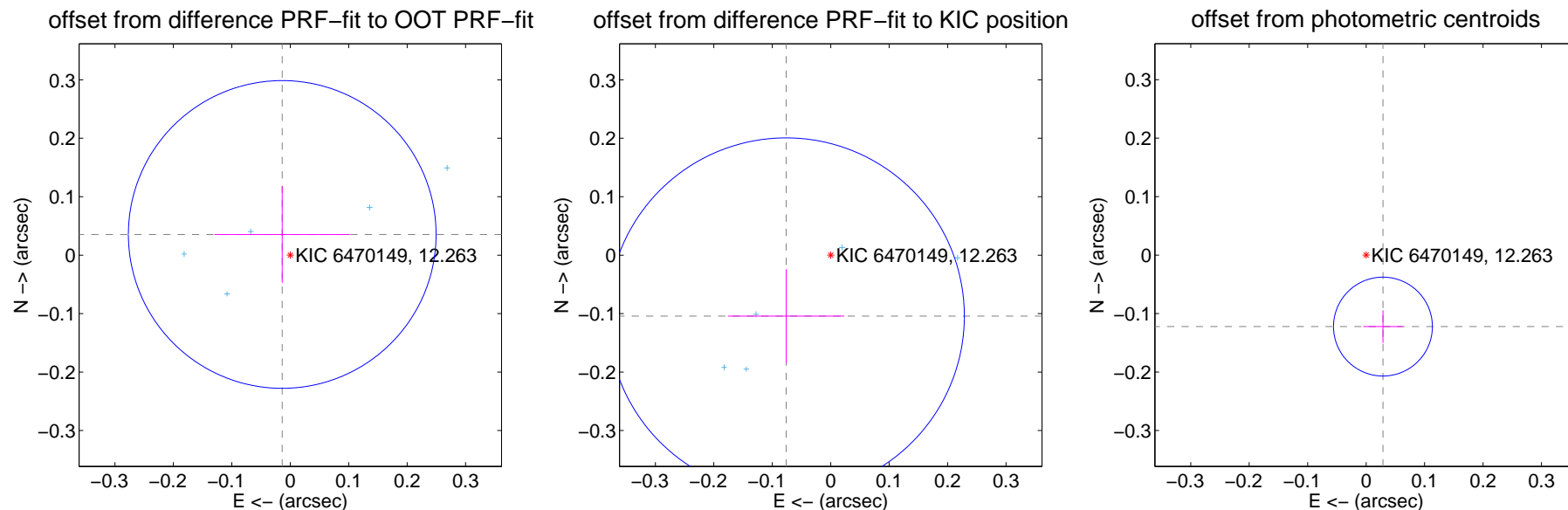
## DV Centroid Data

Supplemental centroid analysis for 006470149-01. Kepler magnitude: 12.26. Transit SNR 161.36

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.038 \pm 0.088$	0.43	$0.014 \pm 0.116$	$0.035 \pm 0.083$
PRF-fit source offset from KIC position	$0.129 \pm 0.102$	1.27	$0.076 \pm 0.099$	$-0.104 \pm 0.080$
photometric centroid source offset	$0.13 \pm 0.03$	4.46	$-0.03 \pm 0.03$	$-0.12 \pm 0.03$



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.

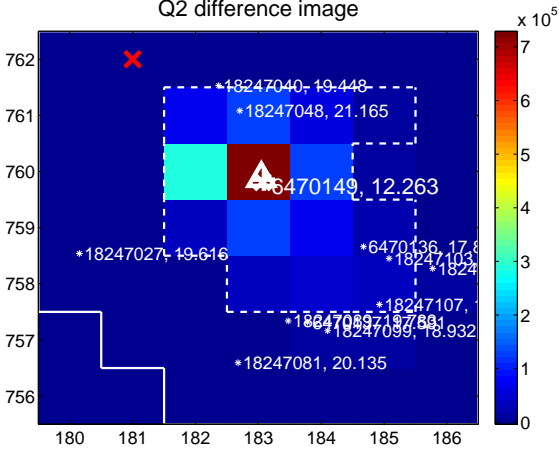
Q1 no difference image



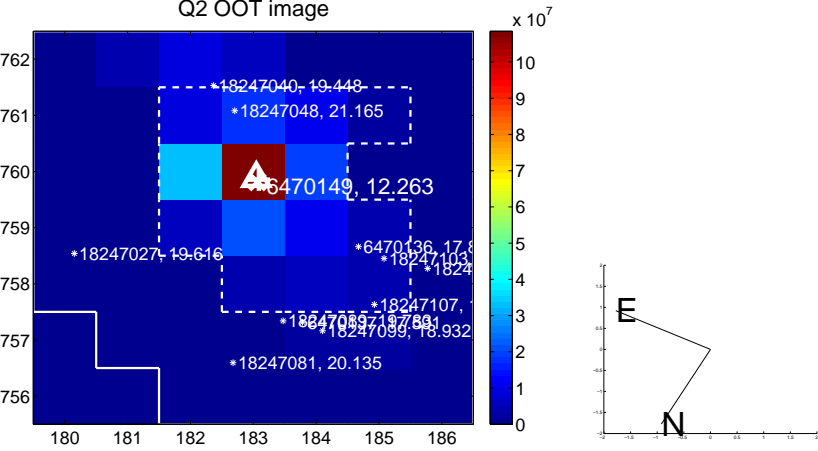
Q1 no OOT image



Q2 difference image



Q2 OOT image



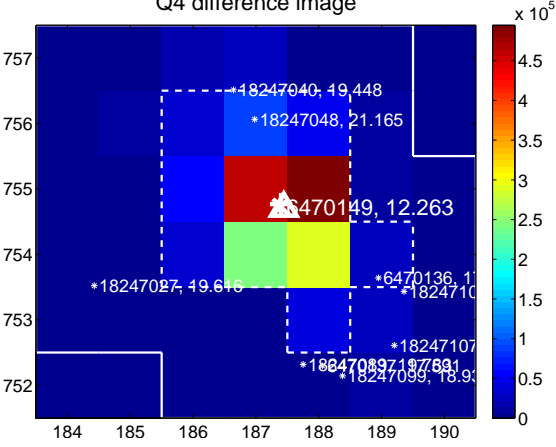
Q3 no difference image



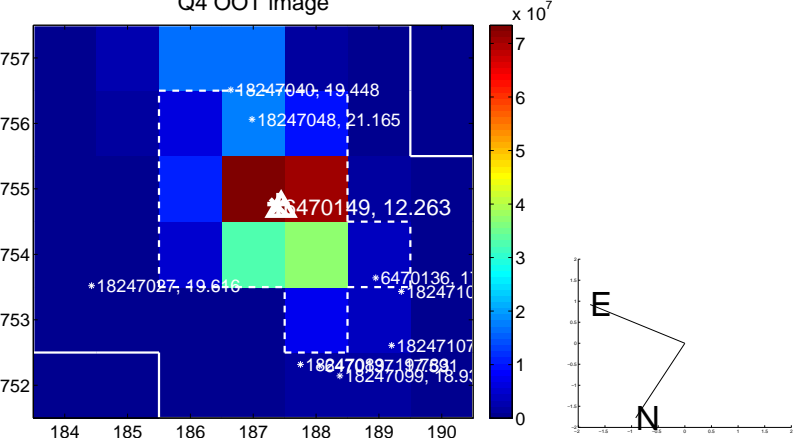
Q3 no OOT image



Q4 difference image



Q4 OOT image



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

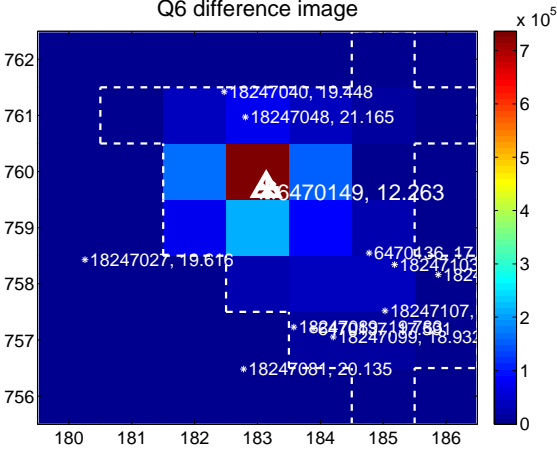
Q5 no difference image



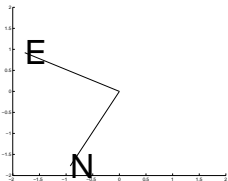
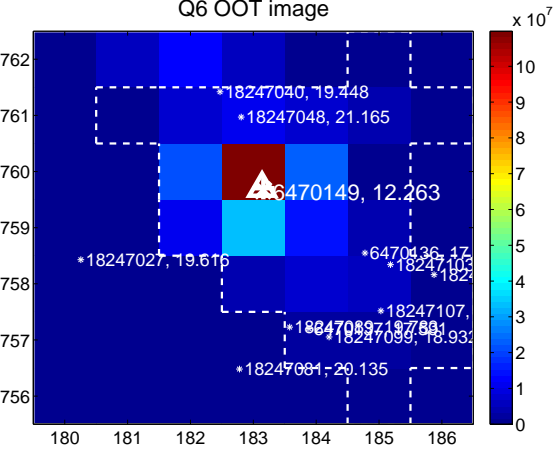
Q5 no OOT image



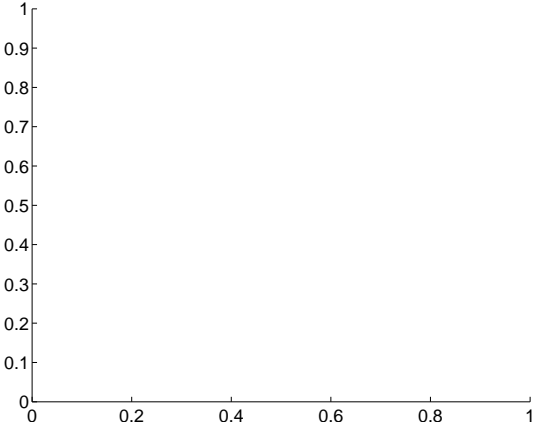
Q6 difference image



Q6 OOT image



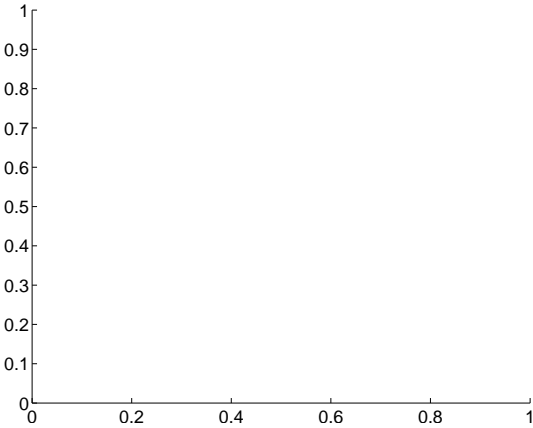
Q7 no difference image



Q7 no OOT image



Q8 no difference image



Q8 no OOT image

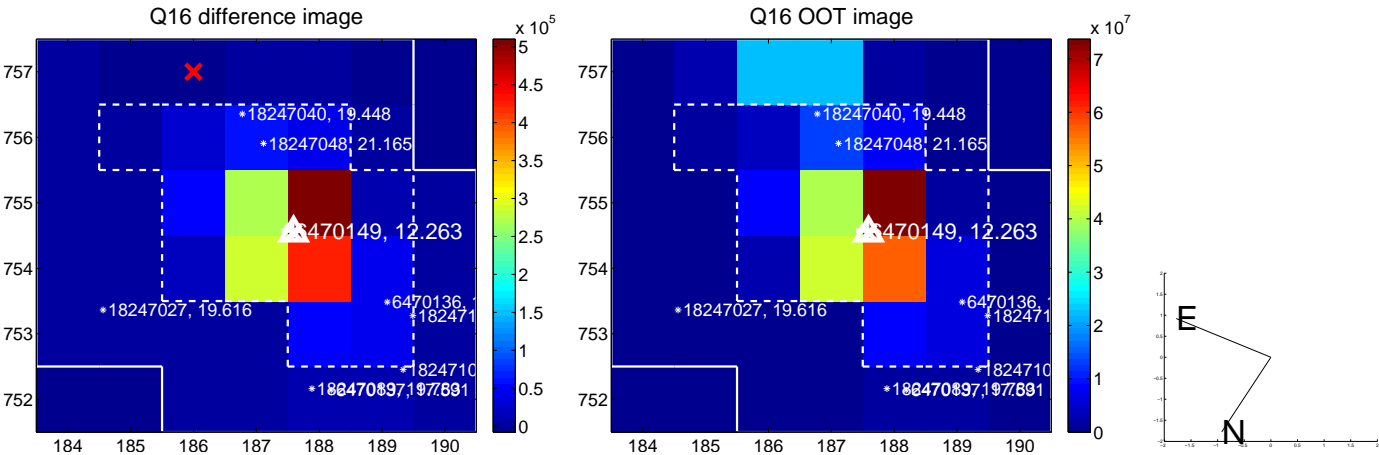
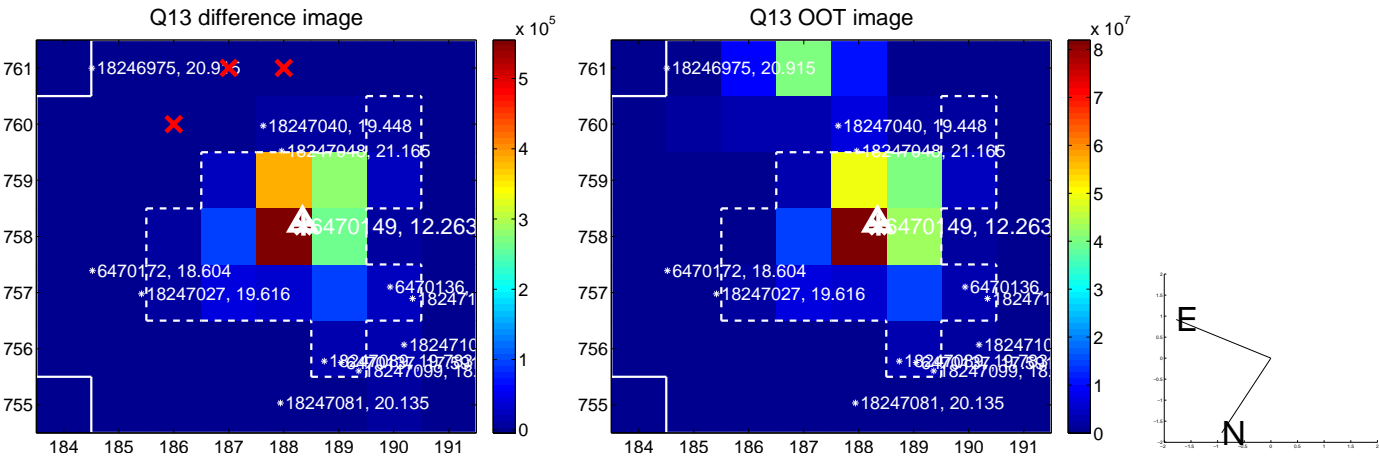




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



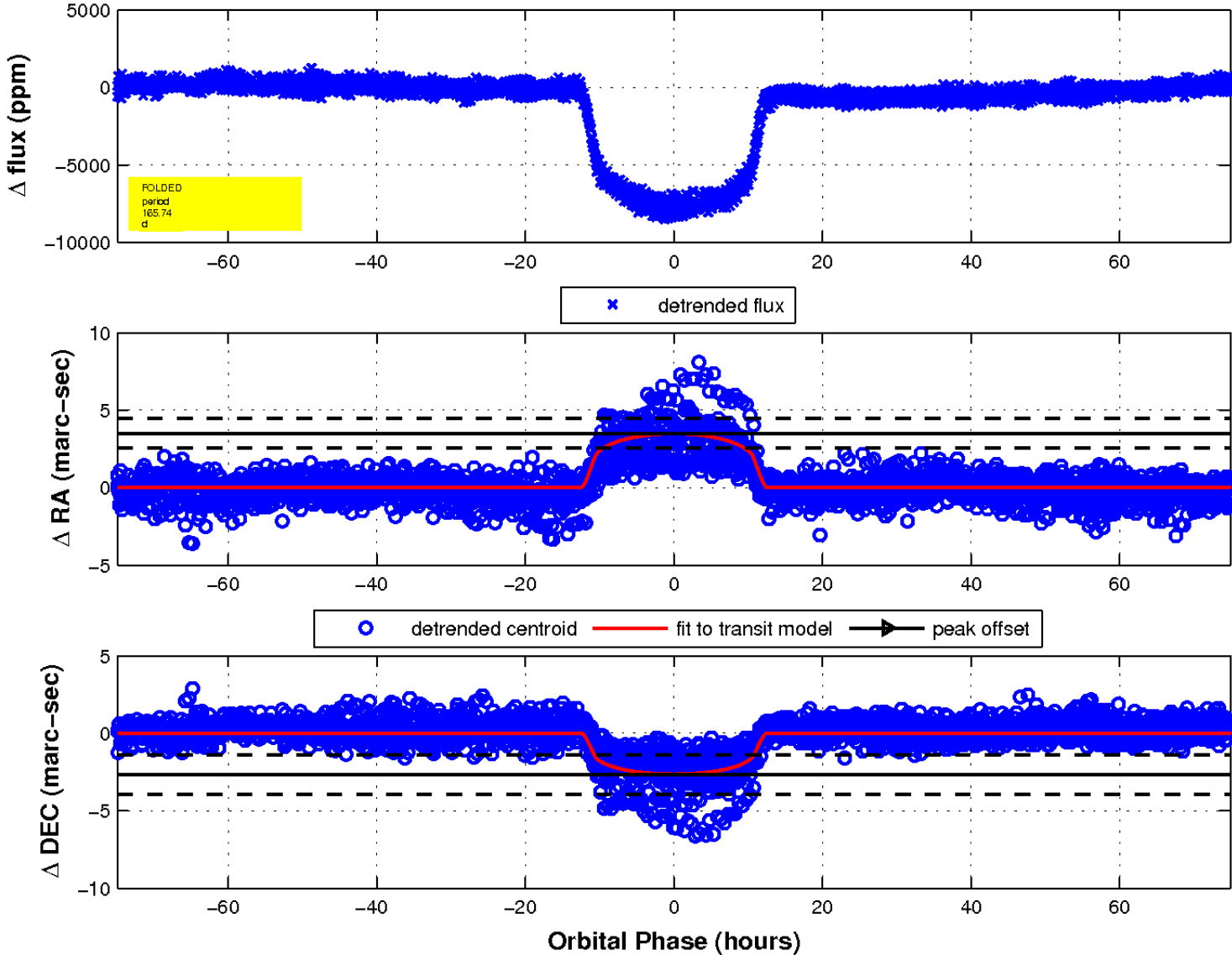
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q17 no difference image

Q17 no OOT image



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

