

# KIC 010665619

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010665619-01	OBS	No	435.487347	146.411243	570.3	10.791	10.1	5.6	0.12	2661	0.28	0.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010665619-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

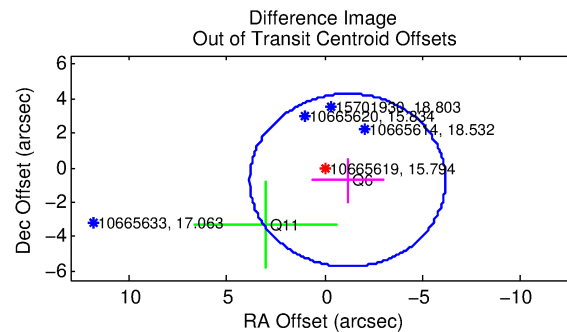
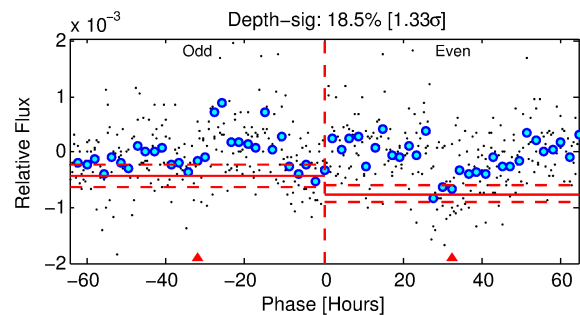
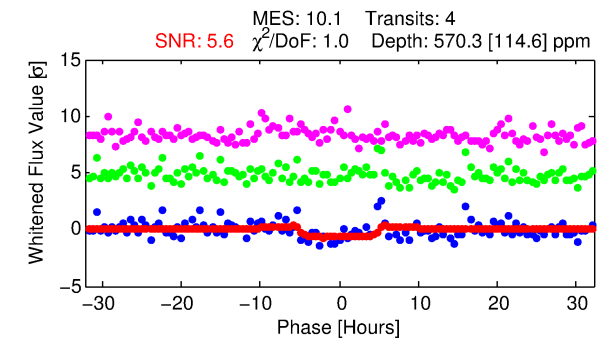
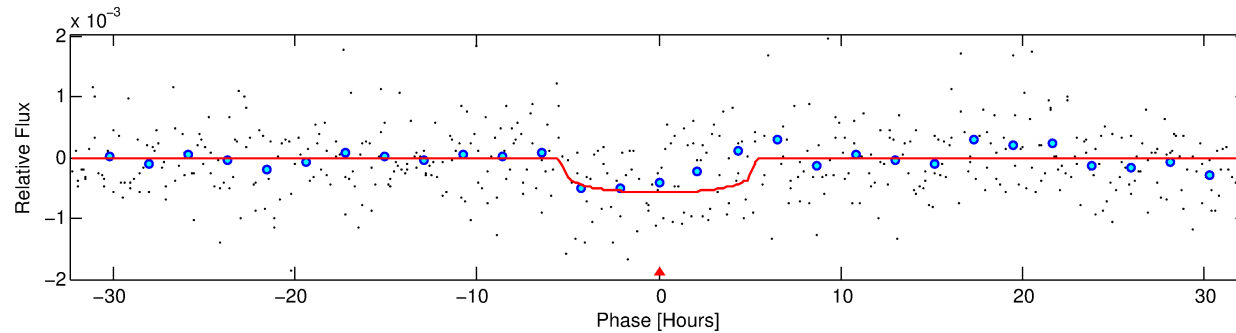
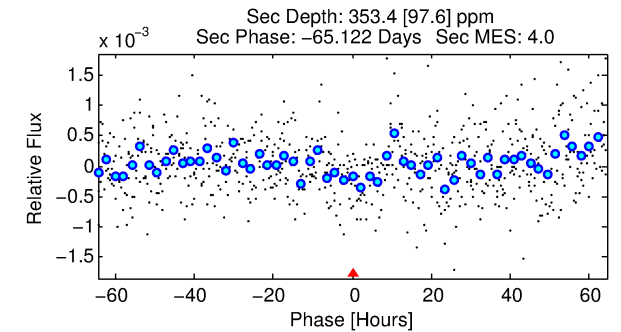
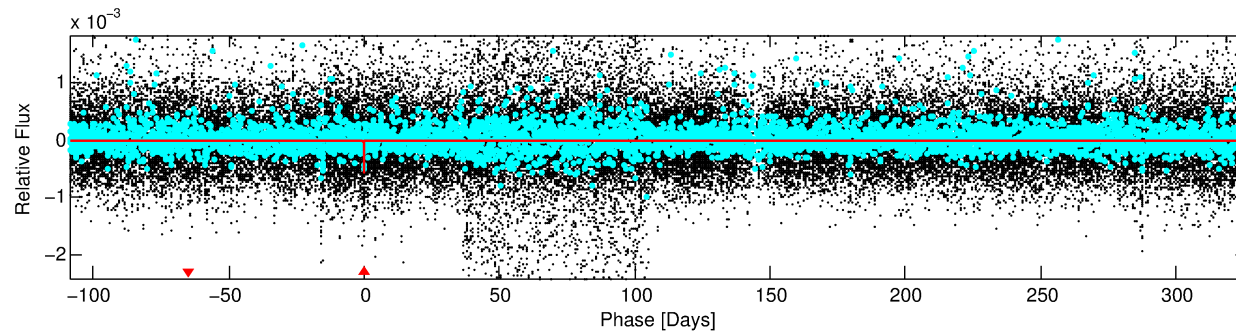
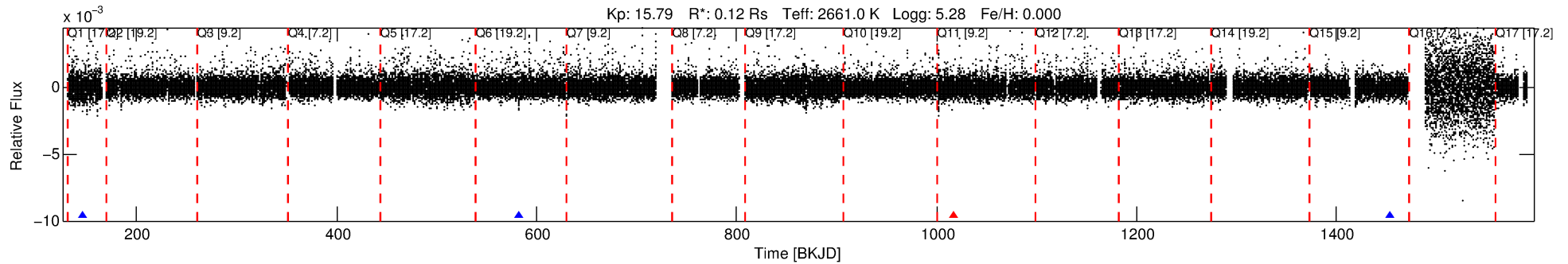
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010665619-01

No Significant Match Found

# DV One-Page Summary

KIC: 10665619 Candidate: 1 of 1 Period: 435.487 d



## DV Fit Results:

Period = 435.48735 [0.01286] d  
Epoch = 146.4112 [0.0257] BKJD  
Rp/R\* = 0.0223 [0.0275]  
a/R\* = 276.30 [1470.97]  
b = 0.49 [8.21]  
Seff = 0.00 [0.00]  
Teq = 56 [0] K  
Rp = 0.28 [0.35] Re  
a = 0.5117 [0.0000] AU  
Ag = 640607.26 [1590502.24] [0.40σ]  
Teffp = 2445 [1518] K [1.57σ]

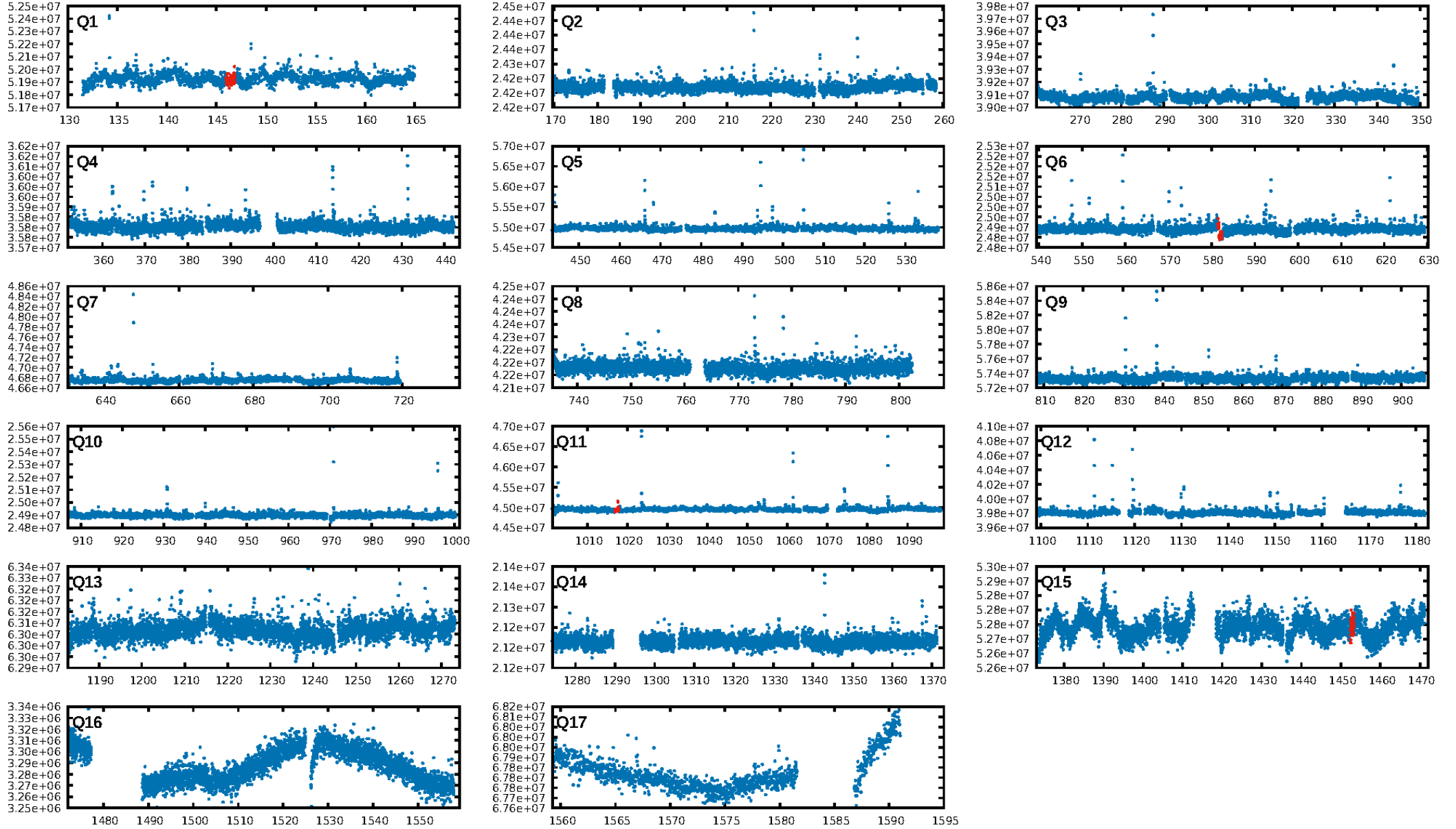
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 98.3%  
Bootstrap-pfa: 1.51e-12  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: -3.458  
Centroid-sig: 0.3%  
Centroid-so: 7.204 arcsec [3.74σ]  
OotOffset-rm: 1.380 arcsec [0.83σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-rm: 4.531 arcsec [3.30σ]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [4/4]

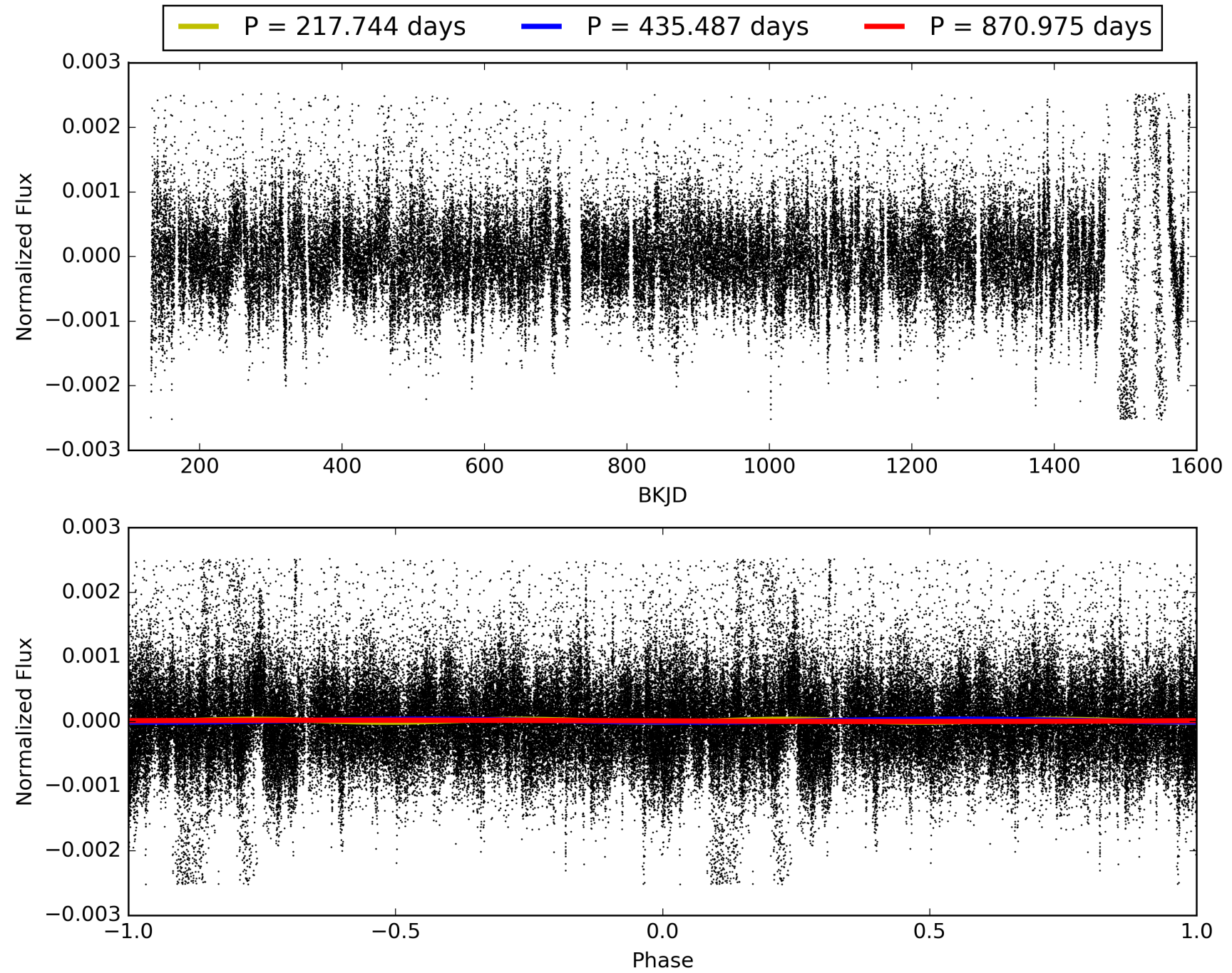
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:55:57 Z

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

# TCE 010665619-01, PDC Light Curves

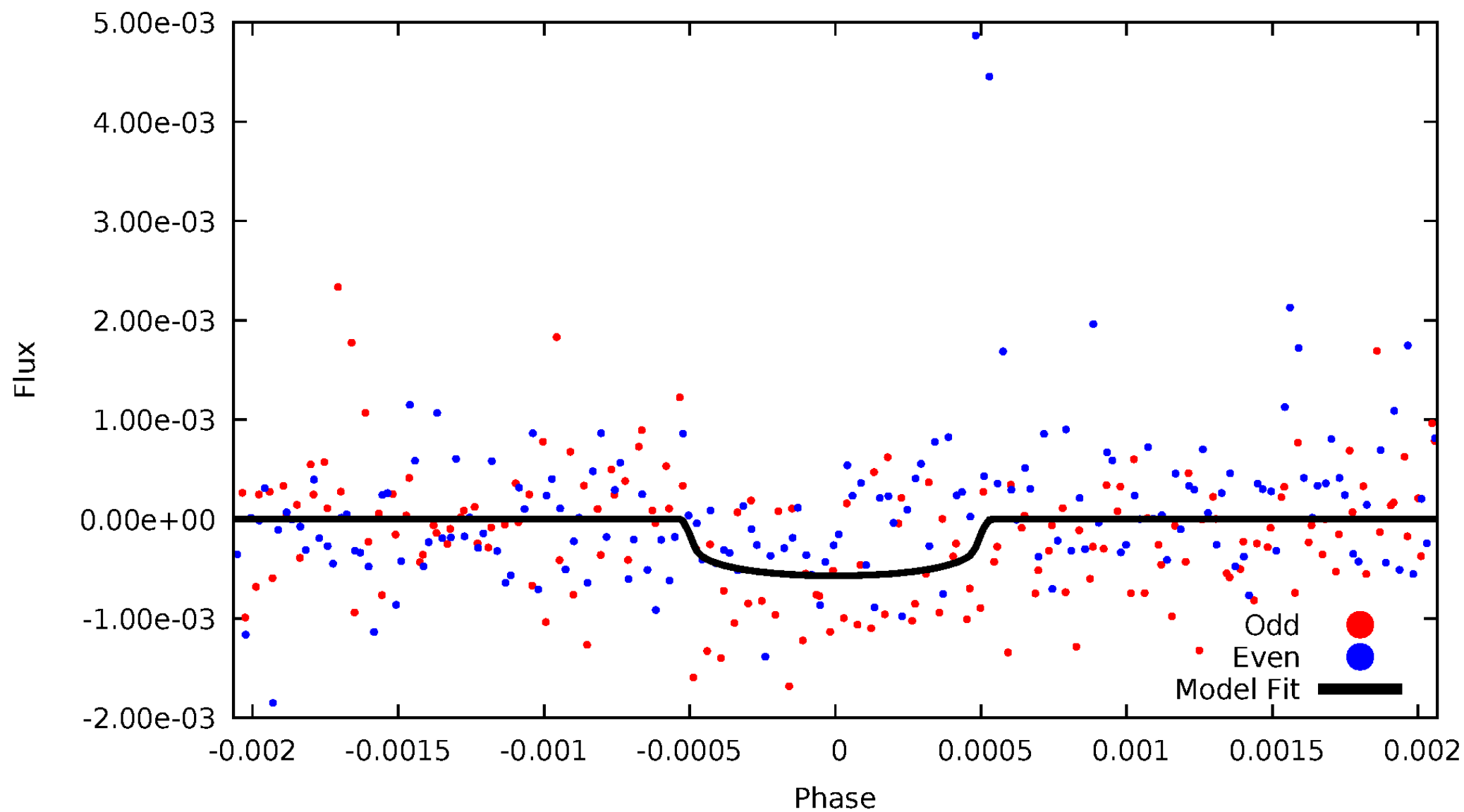


TCE 010665619-01



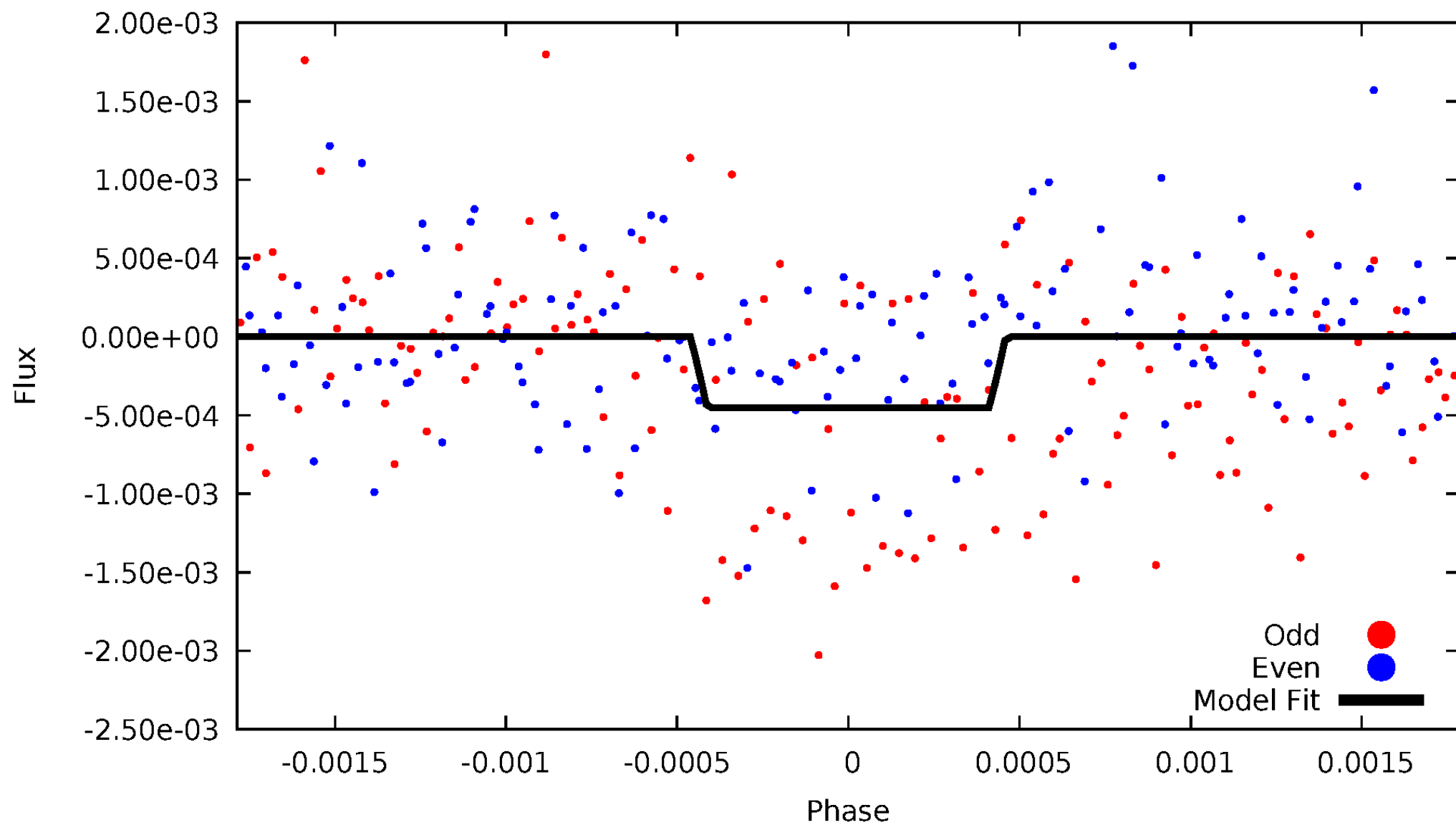
# DV Odd/Even

TCE 010665619-01



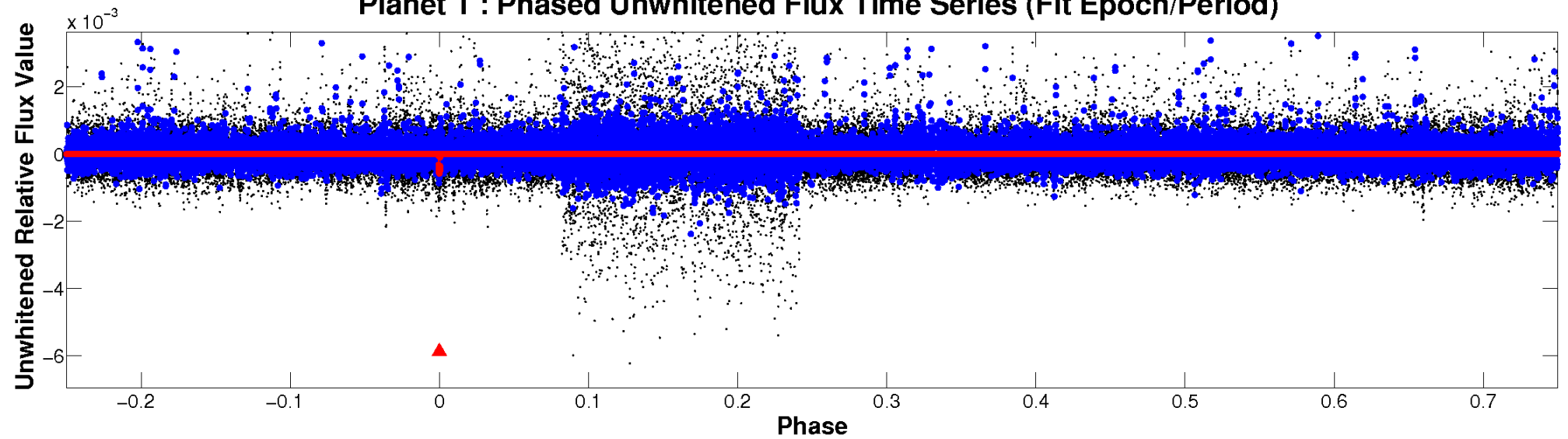
# ALT Odd/Even

TCE 010665619-01

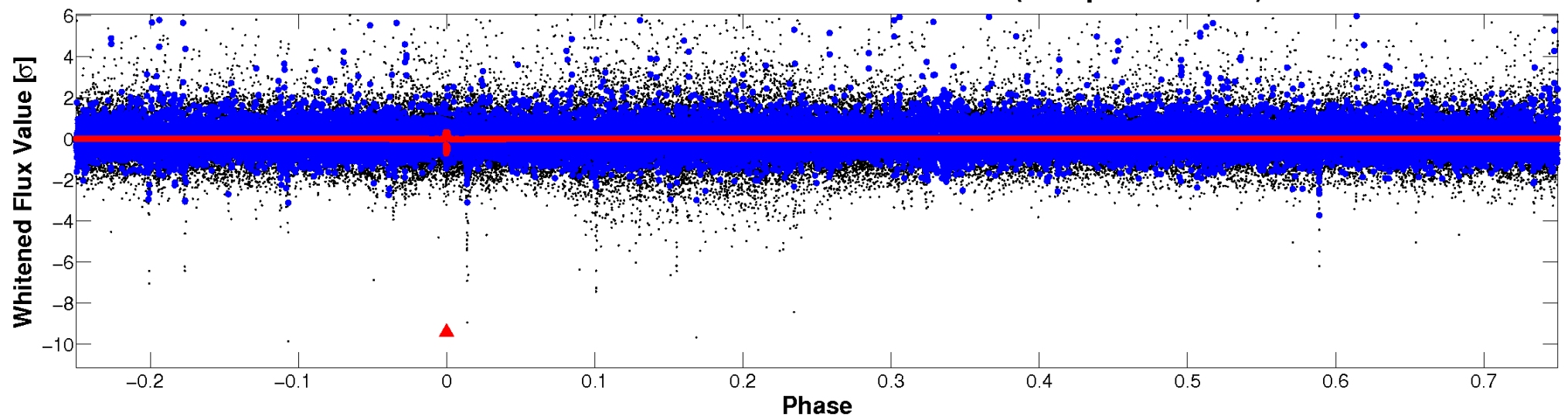


# Non-Whitened Vs. Whitened Light Curve

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



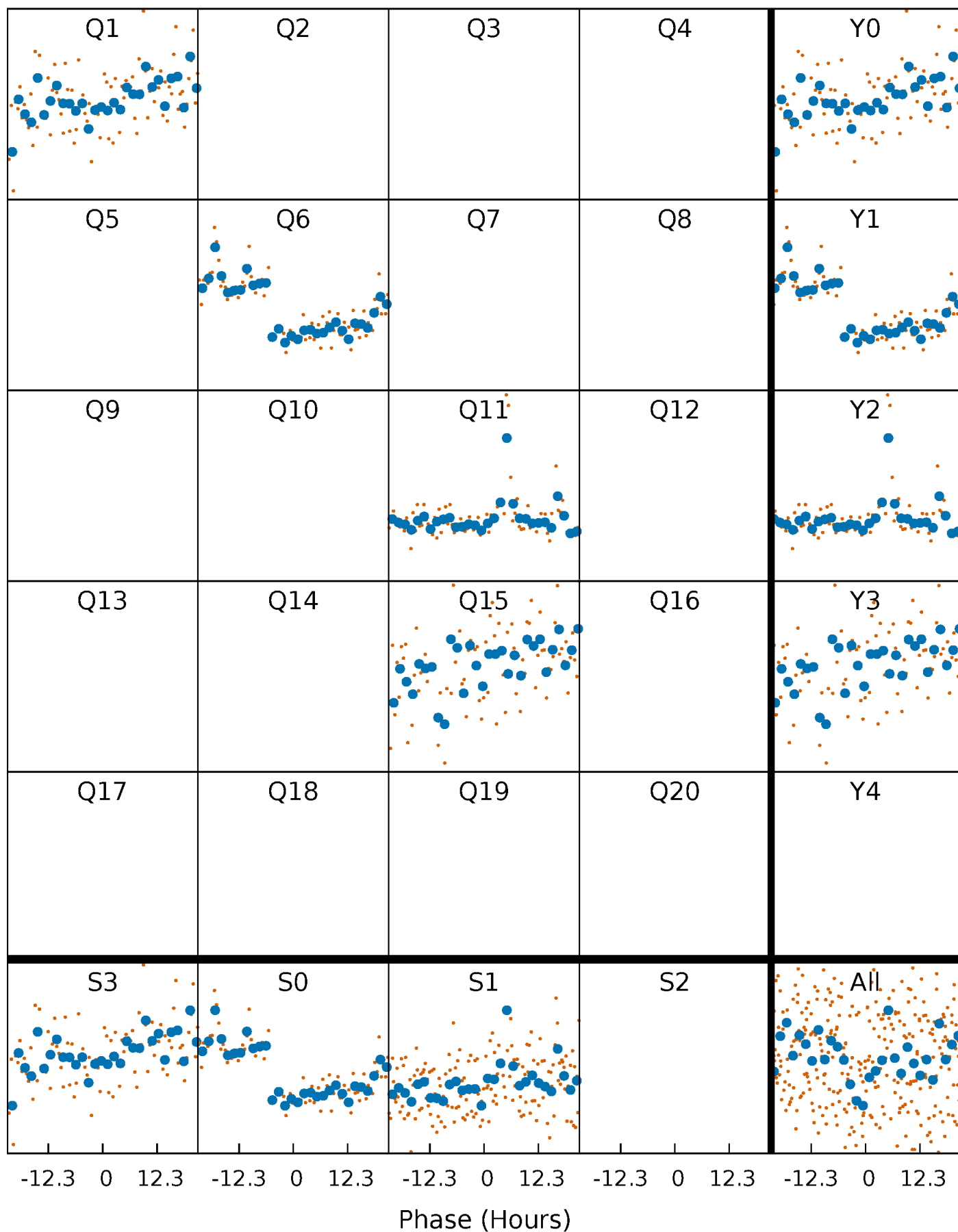
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

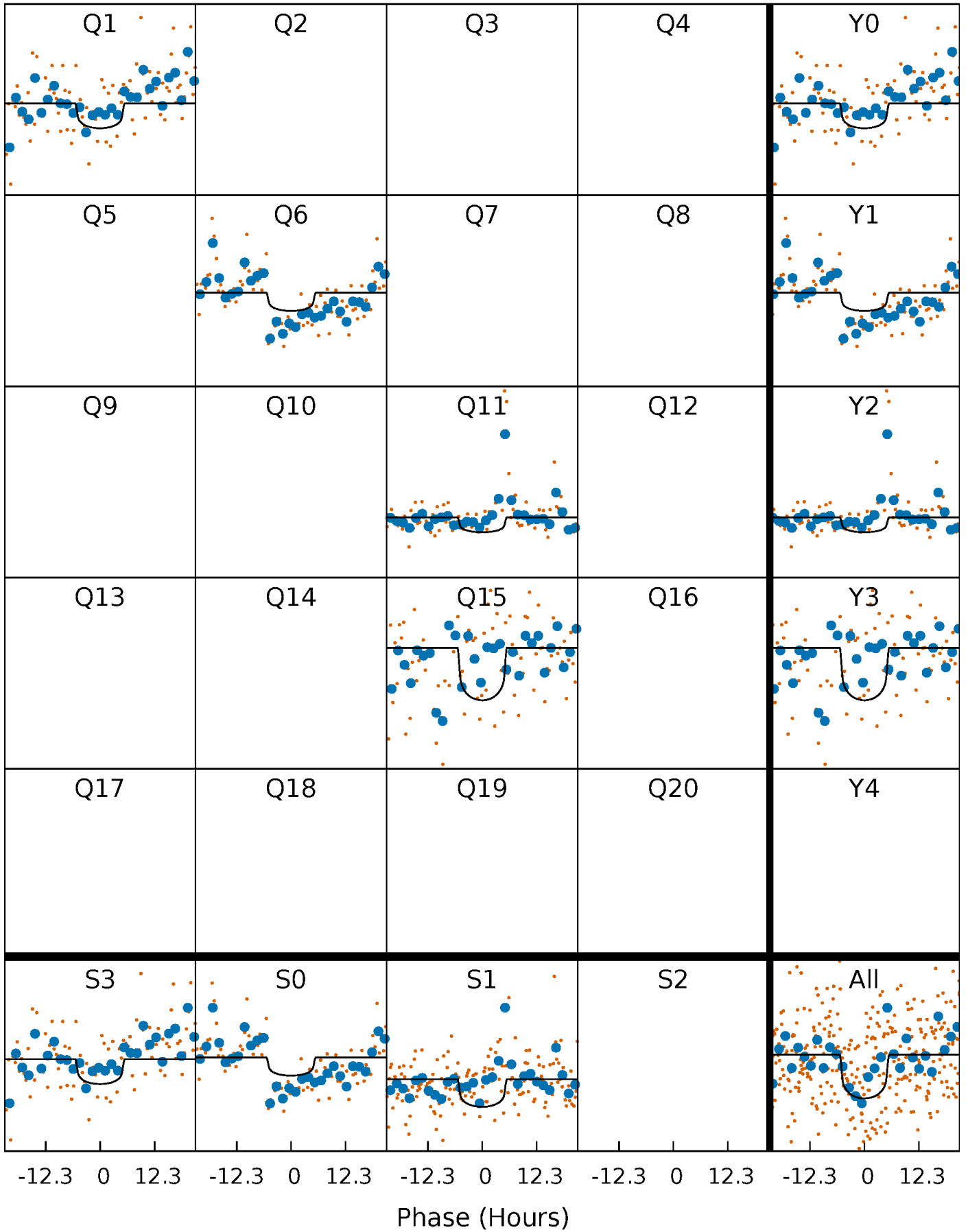
TCE 010665619-01 P=435.487347 Days  $T_0=146.411243$  (BKJD)





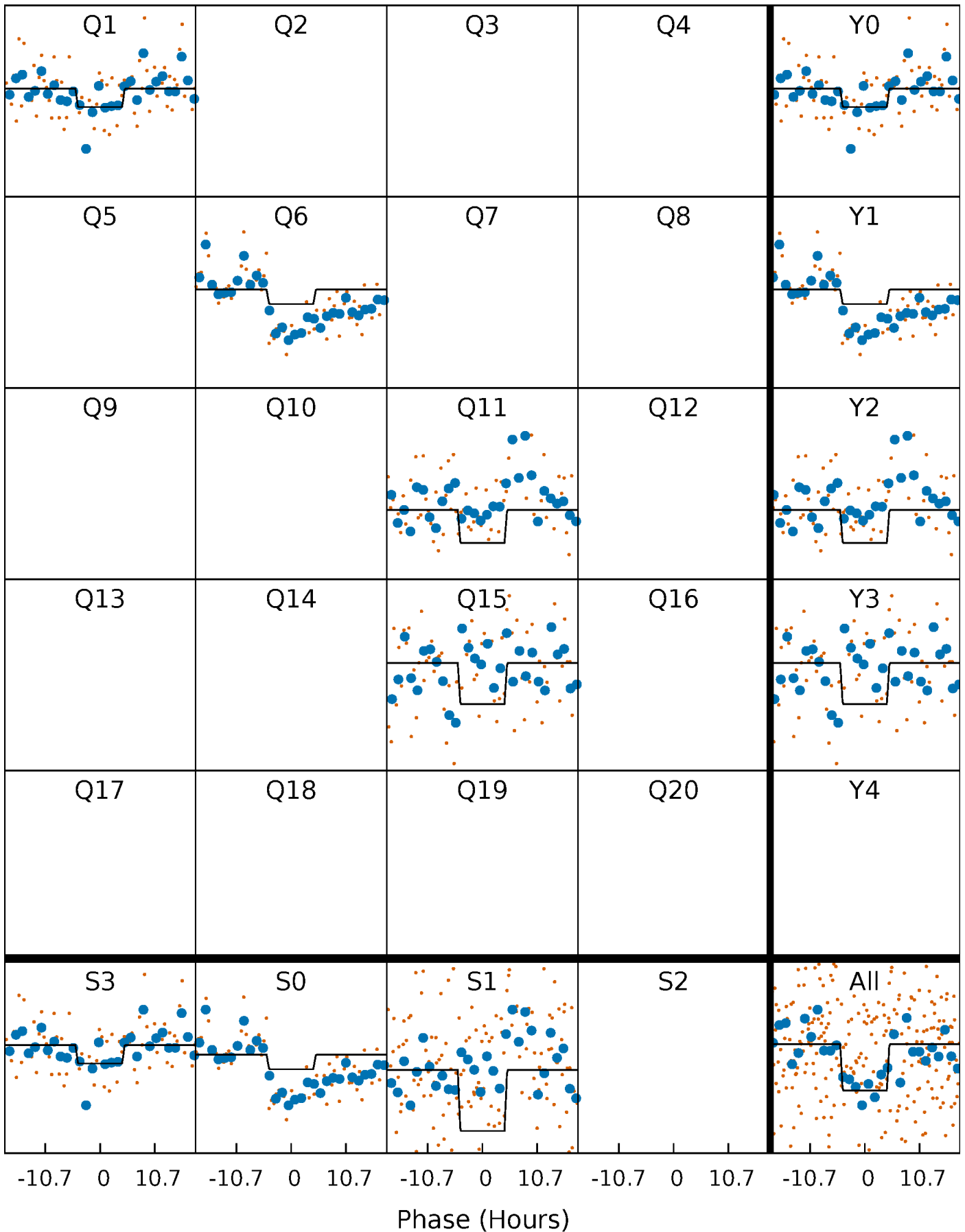
# DV Quarter-Phased Transit Curves

TCE 010665619-01 P=435.487347 Days  $T_0=146.411243$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

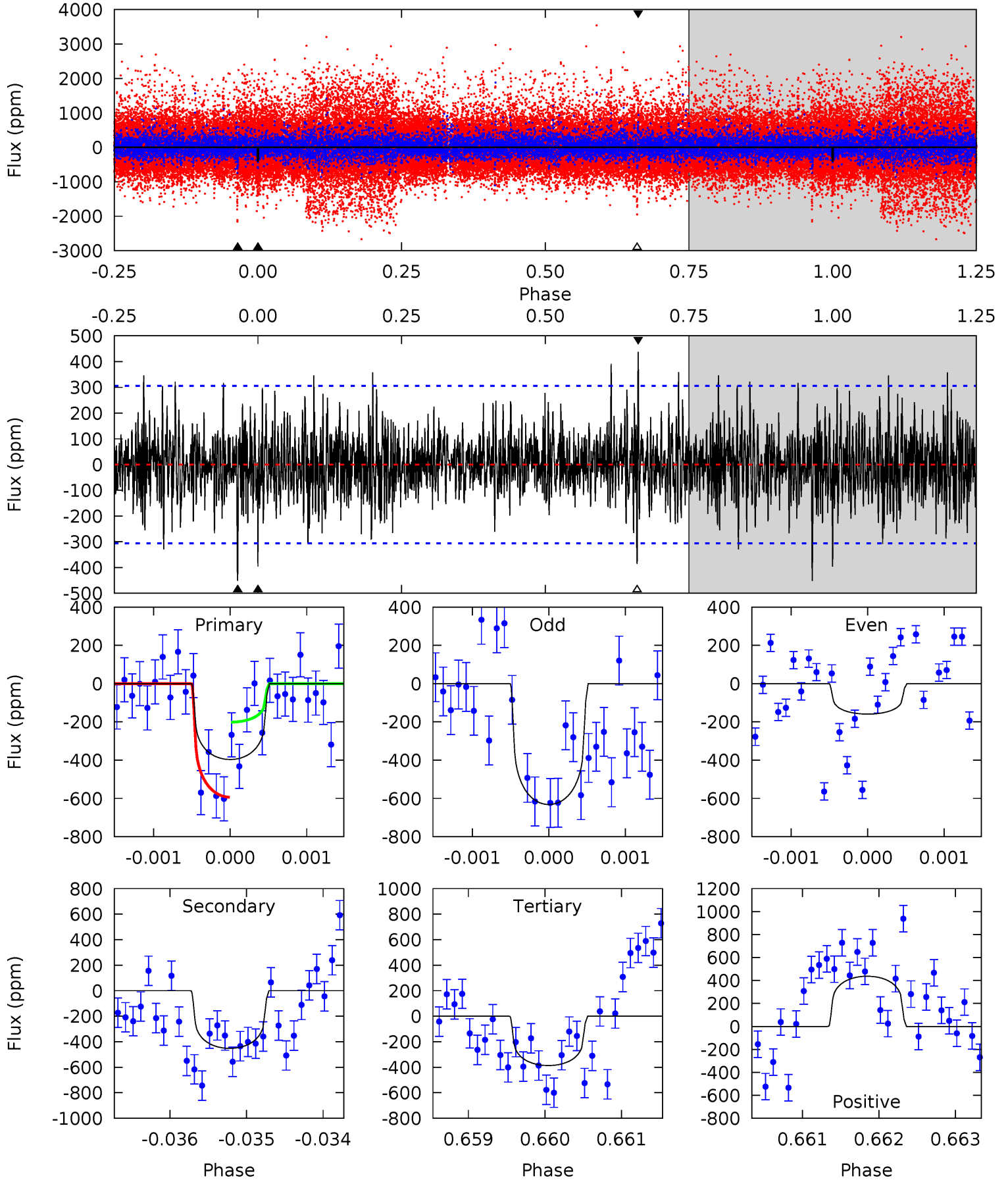
TCE 010665619-01 P=435.432352 Days  $T_0=146.434922$  (BKJD)



# DV Model-Shift Uniqueness Test

010665619-01,  $P = 435.487347$  Days,  $E = 146.411243$  Days

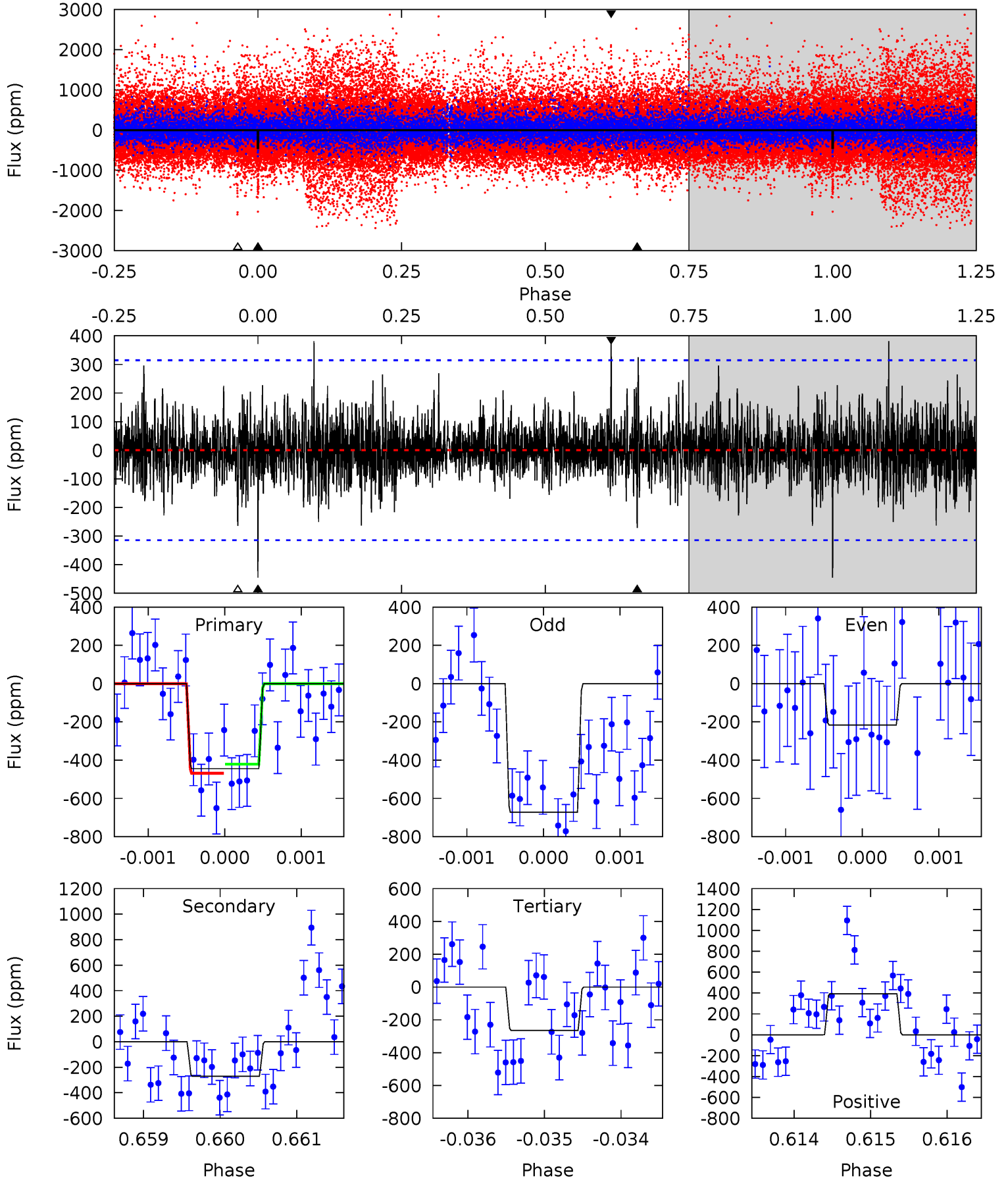
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.06	8.04	6.88	7.78	5.44	3.27	1.70	0.18	-0.72	1.17	0.26	3.78	1.61	0.49	3.52



# Alt Model-Shift Uniqueness Test

010665619-01, P = 435.432352 Days, E = 146.434922 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
7.72	4.70	4.59	6.84	5.47	3.31	1.23	3.14	0.89	0.12	-2.14	3.88	1.98	0.47	0.42



### Stellar Parameters For KIC 010665619

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$2661^{+1}_{-1}$	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

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

### Secondary Eclipse Parameters for KIC 010665619-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-452 \pm 56$	$0.40^{+0.39}_{-0.29}$	$80^{+8}_{-9}$	$2496^{+982}_{-370}$	$462507^{+4917276}_{-336669}$
Alt.	$-271 \pm 58$	$0.40^{+0.45}_{-0.27}$	$81^{+8}_{-9}$	$2350^{+720}_{-349}$	$297424^{+1823618}_{-220082}$

$T_{max}$  = 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

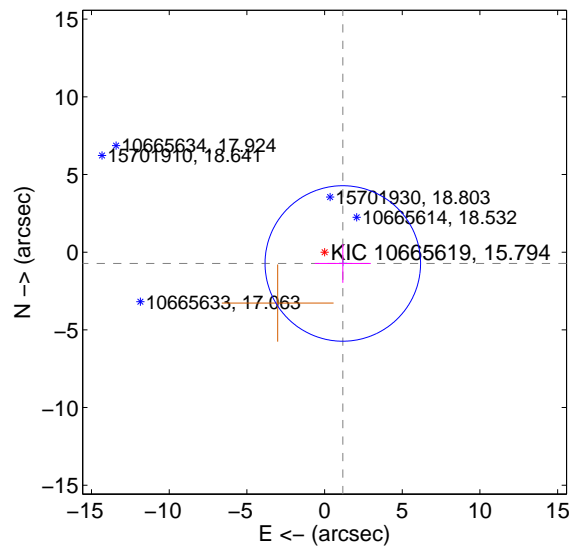
Supplemental centroid analysis for 010665619-01. Kepler magnitude: 15.79. Transit SNR 5.64

There are 1 quarters with good PRF difference image offsets

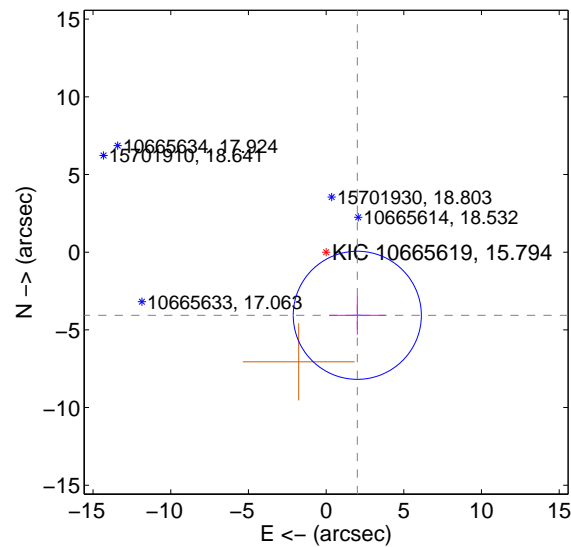
The OOT PRF centroid is offset from the target star catalog position by about 3.98 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.380 \pm 1.668$	0.83	$-1.173 \pm 1.804$	$-0.726 \pm 1.247$
PRF-fit source offset from KIC position	$4.531 \pm 1.374$	3.30	$-2.007 \pm 1.804$	$-4.063 \pm 1.247$
photometric centroid source offset	$7.20 \pm 1.92$	3.74	$-2.83 \pm 2.00$	$-6.63 \pm 1.91$

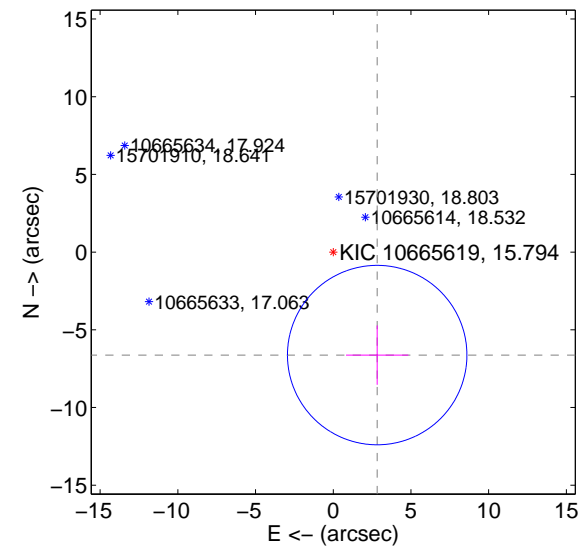
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



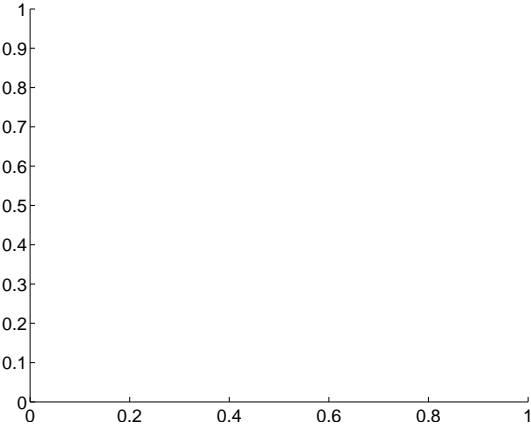
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



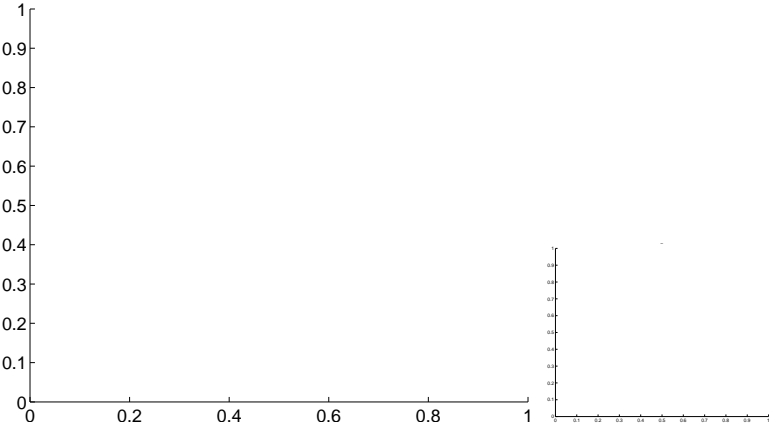


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

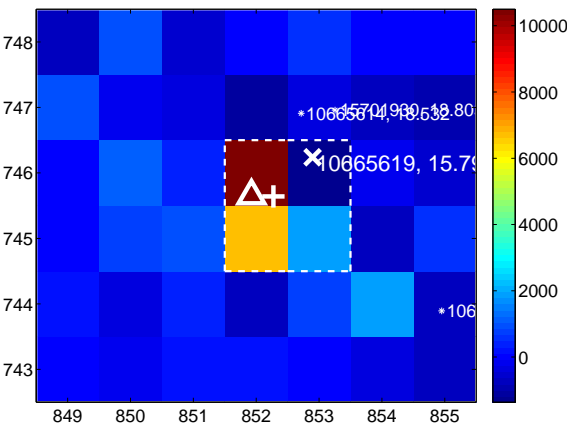
Q5 no difference image



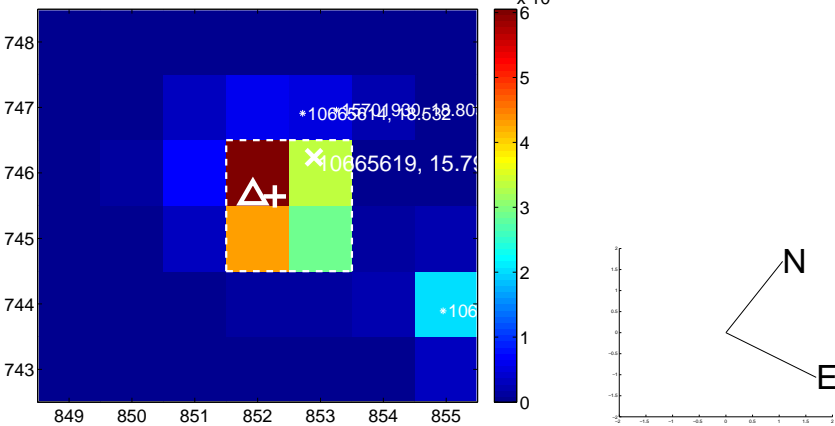
Q5 no OOT image



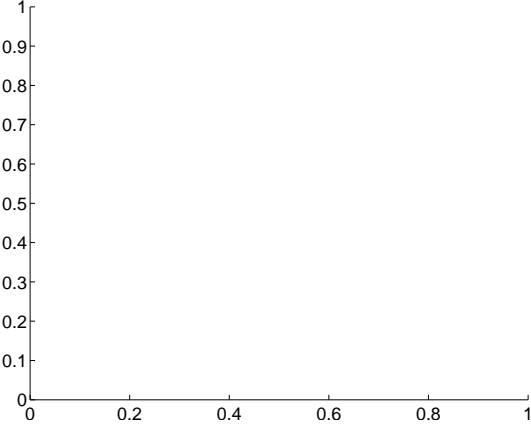
Q6 difference image



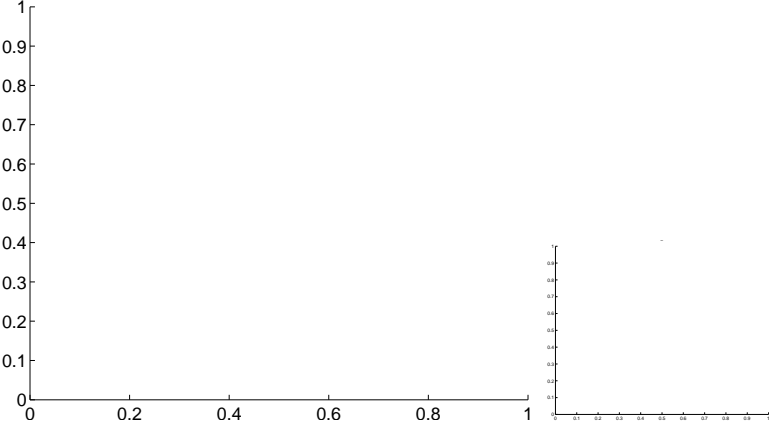
Q6 OOT image



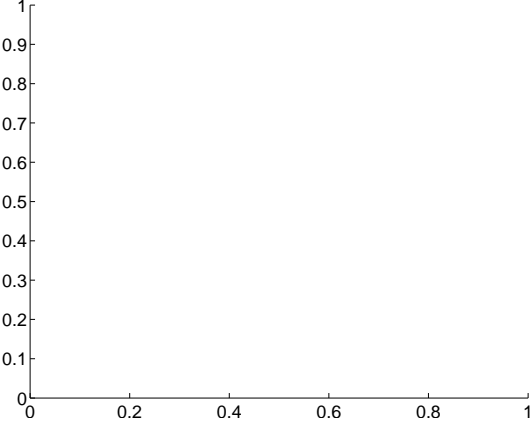
Q7 no difference image



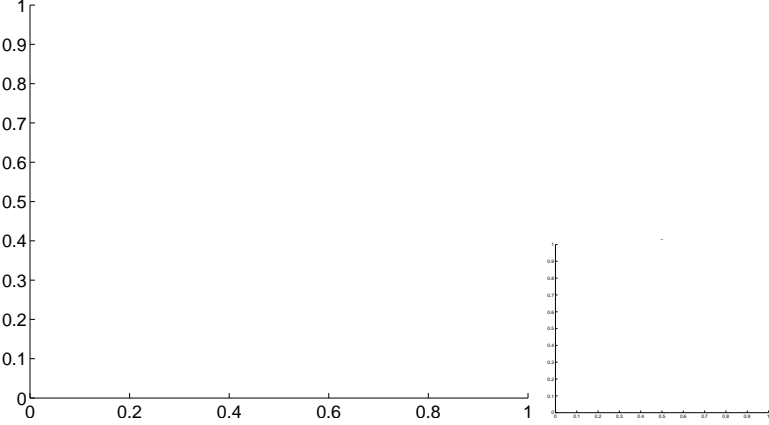
Q7 no OOT image



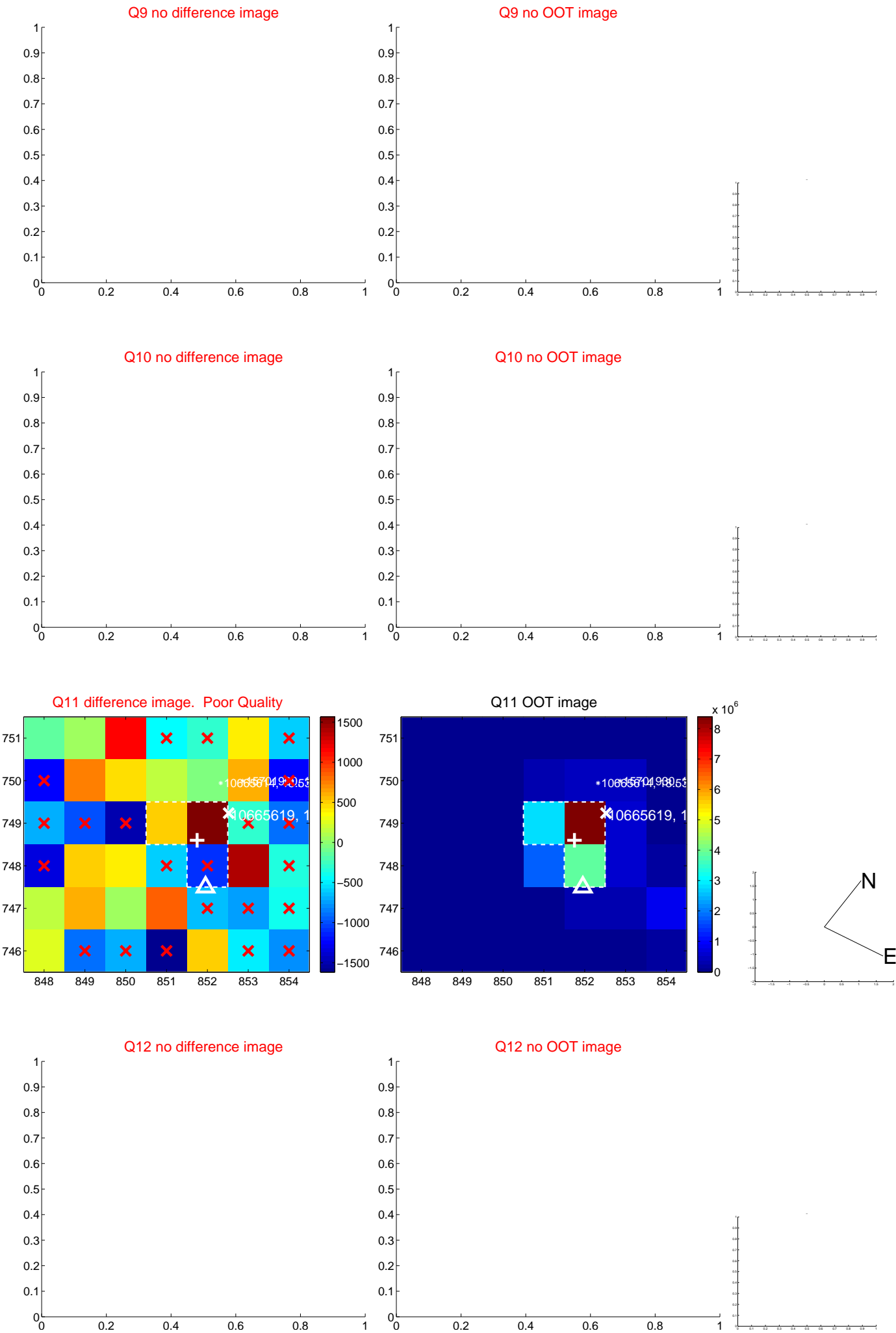
Q8 no difference image



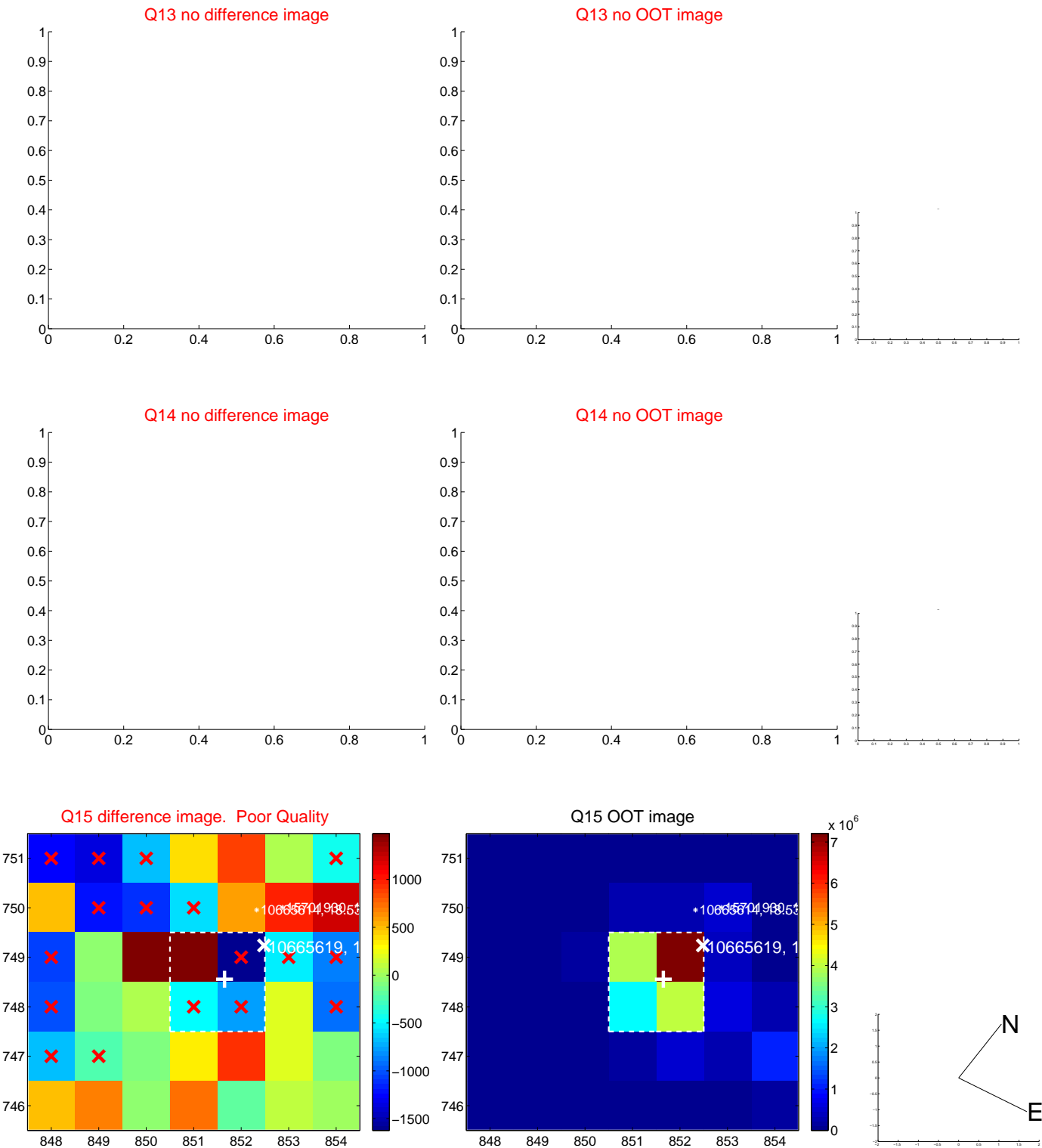
Q8 no OOT image



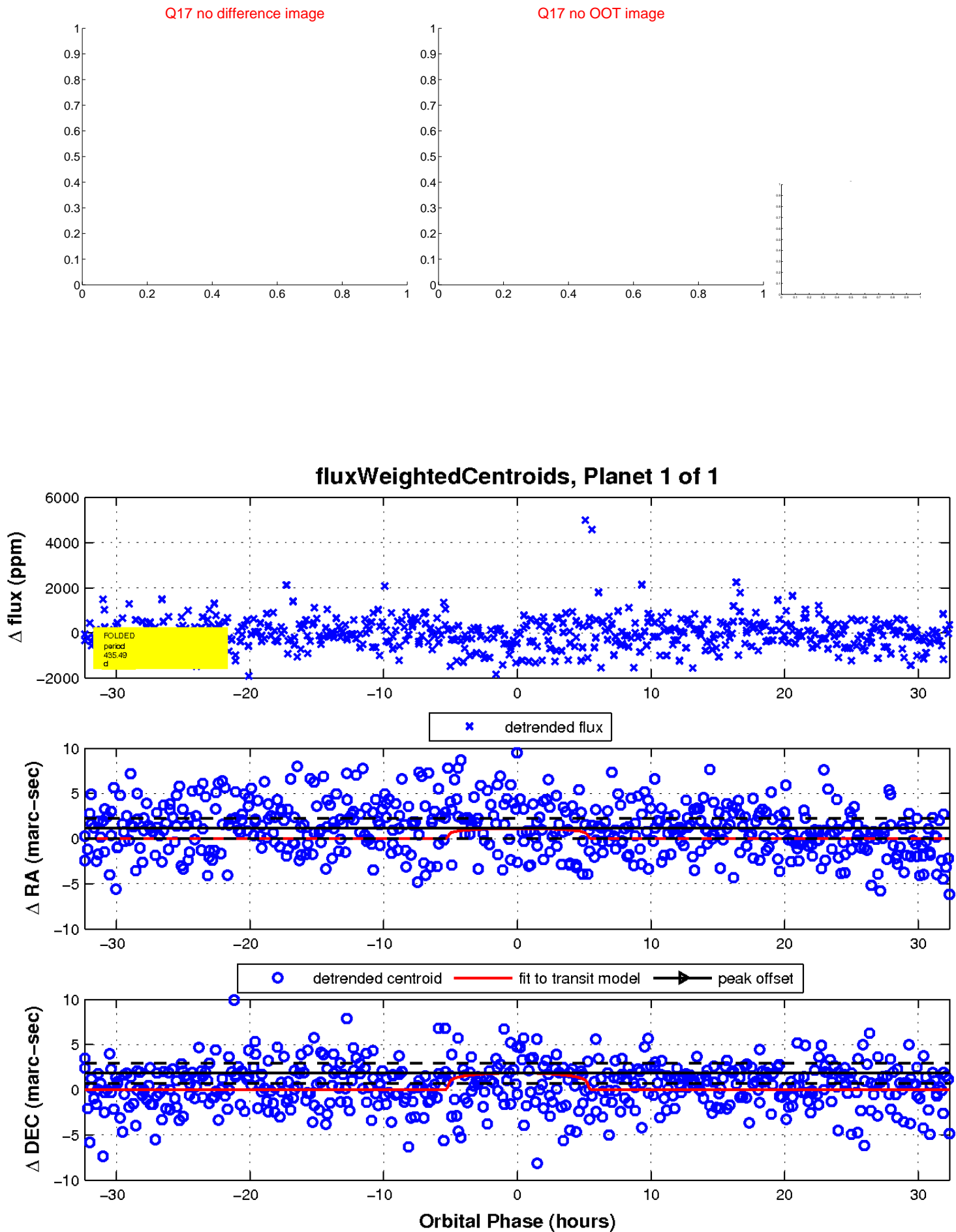
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image

Declination

