

# KIC 010221153

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010221153-01	OBS	No	181.360258	141.824462	577.6	3.551	12.6	10.0	0.88	5328	2.23	1.67

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010221153-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

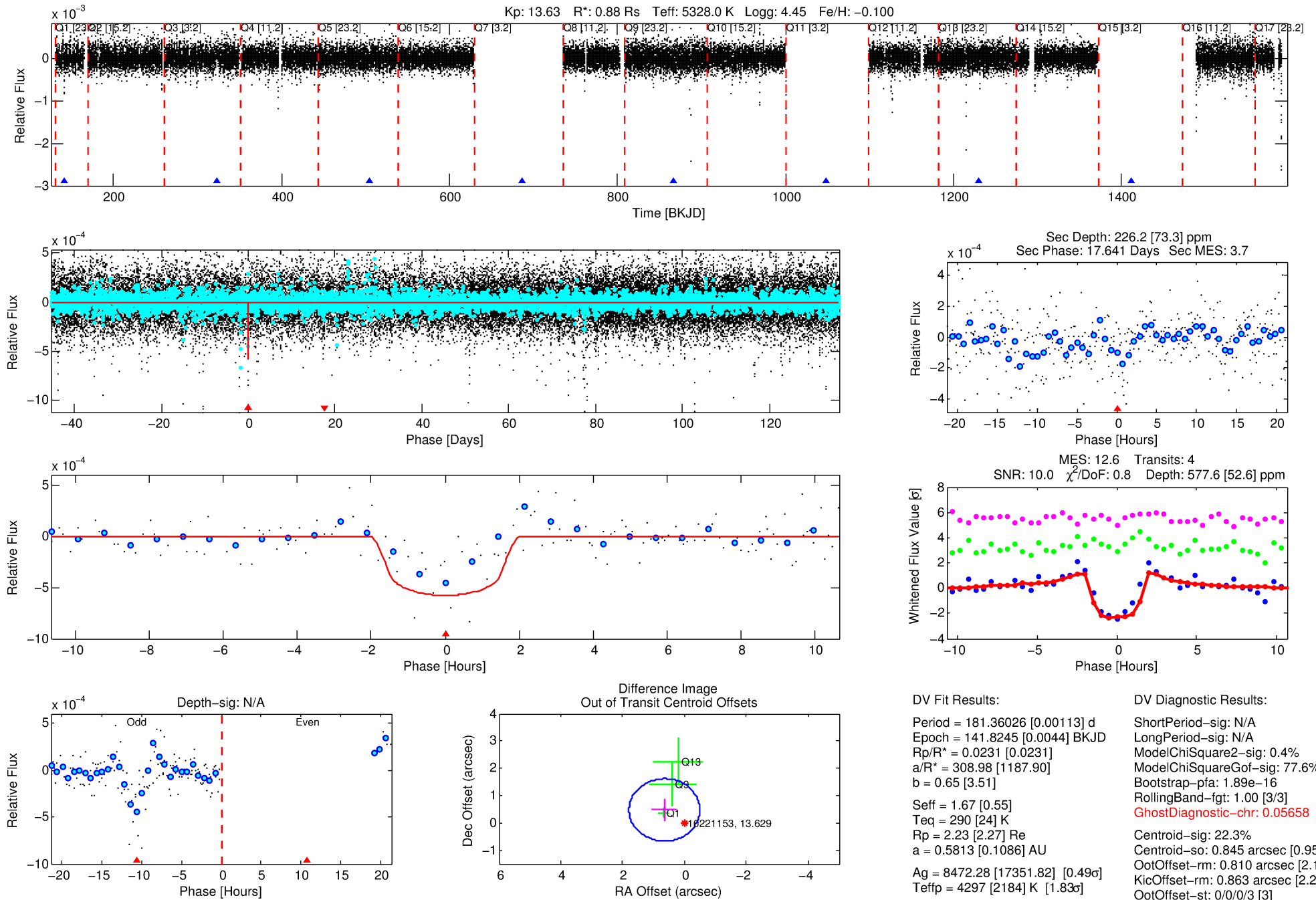
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010221153-01

No Significant Match Found

# DV One-Page Summary

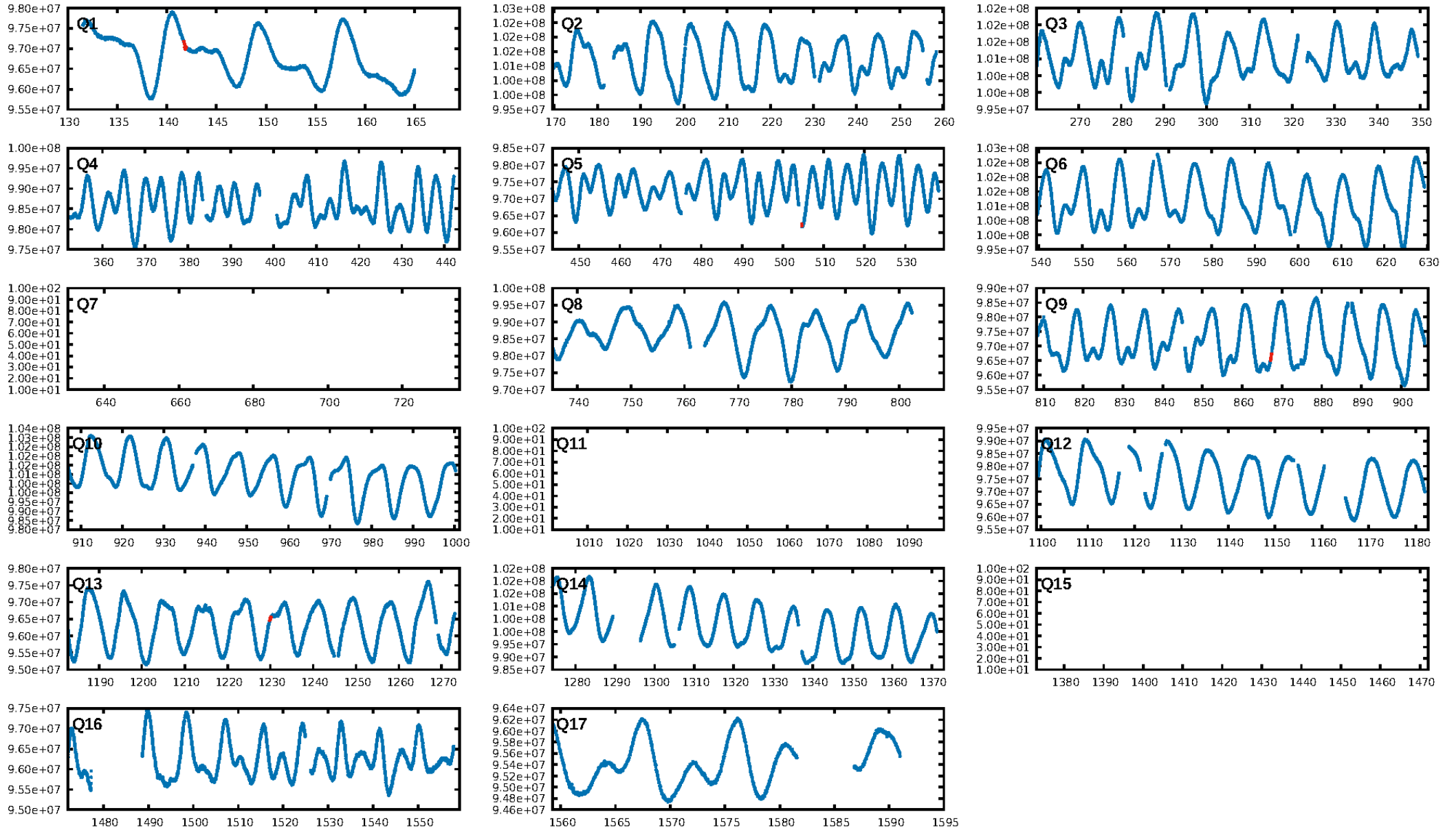
KIC: 10221153 Candidate: 1 of 1 Period: 181.360 d



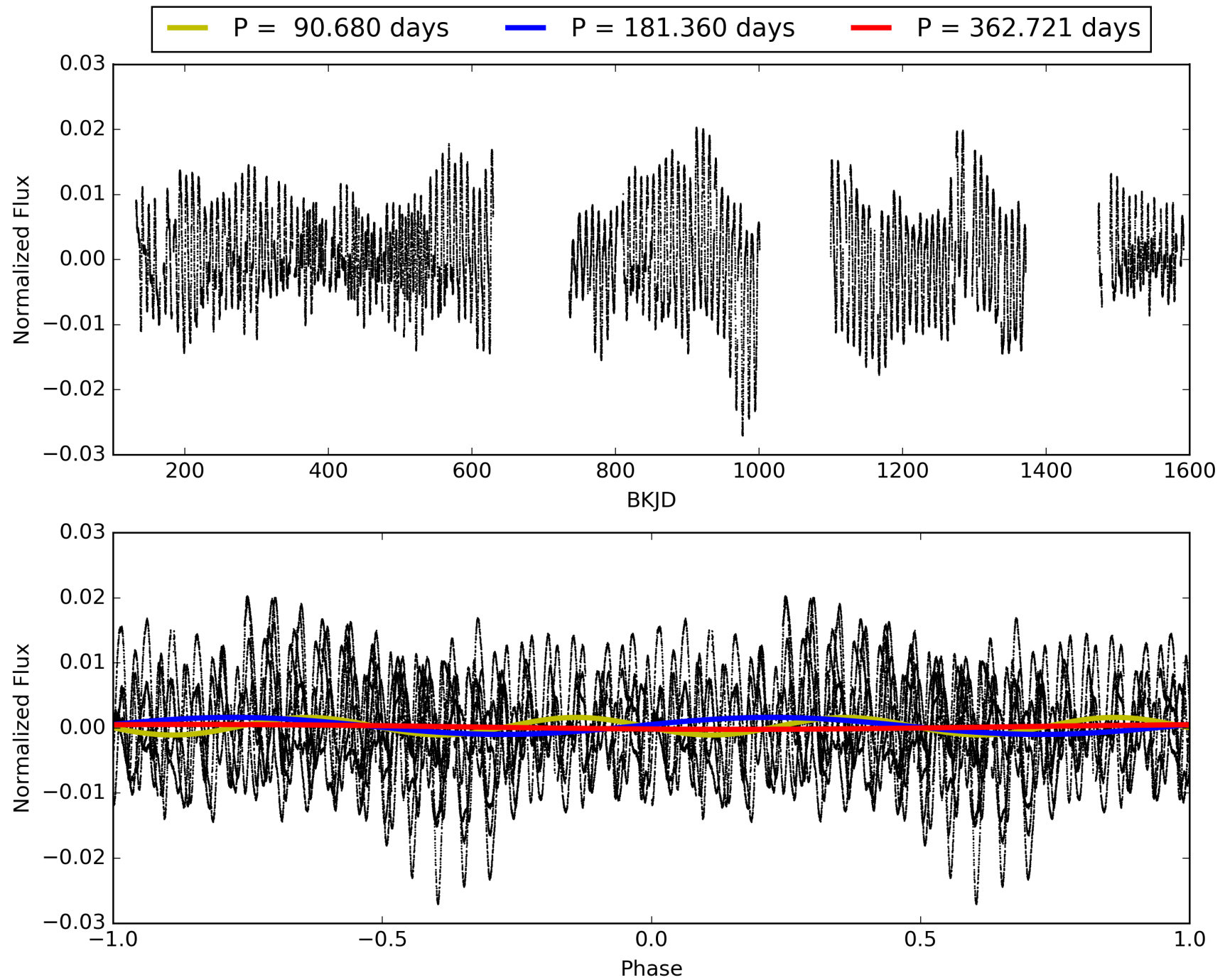
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:06:32 Z

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

# TCE 010221153-01, PDC Light Curves

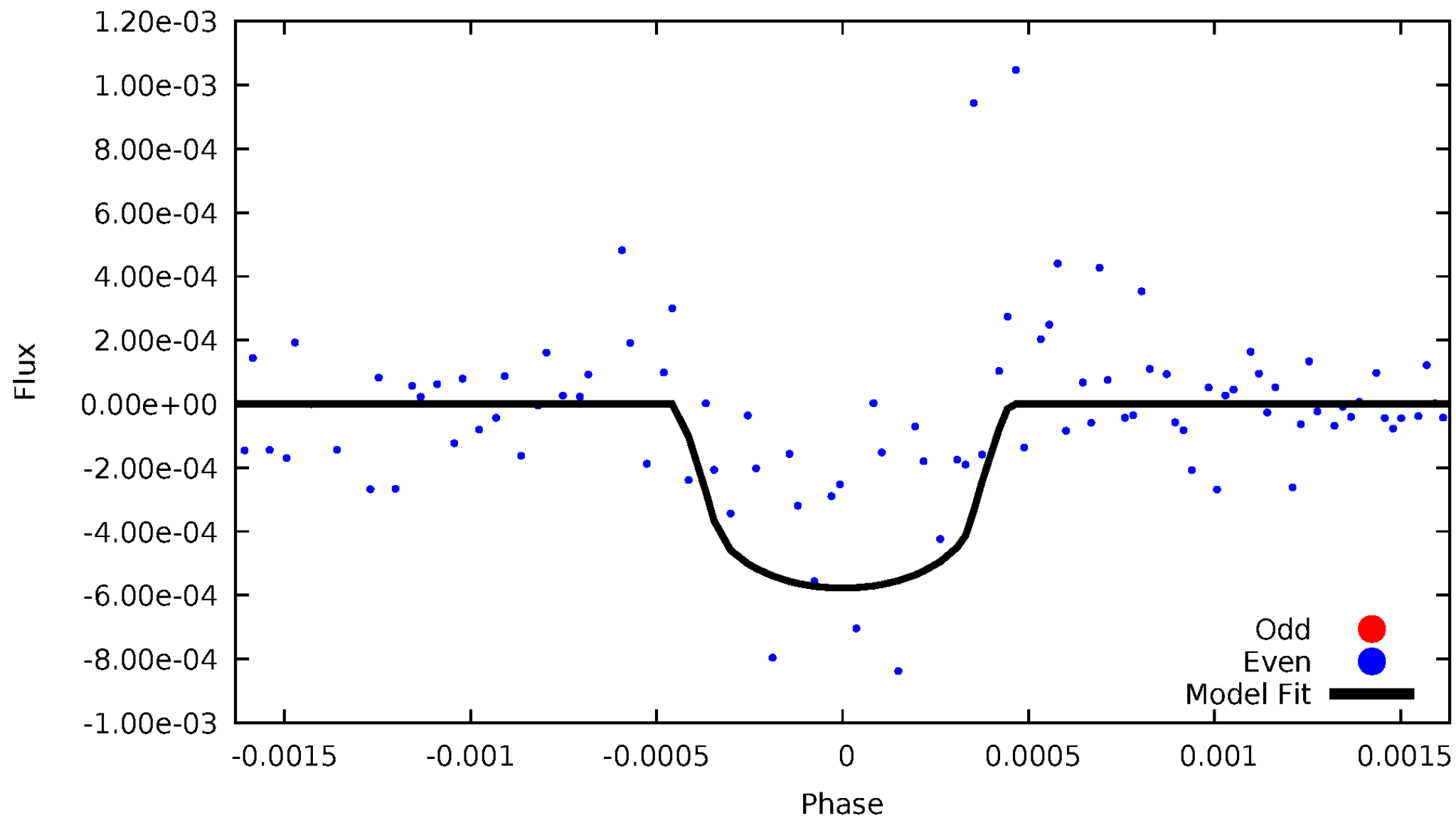


# TCE 010221153-01



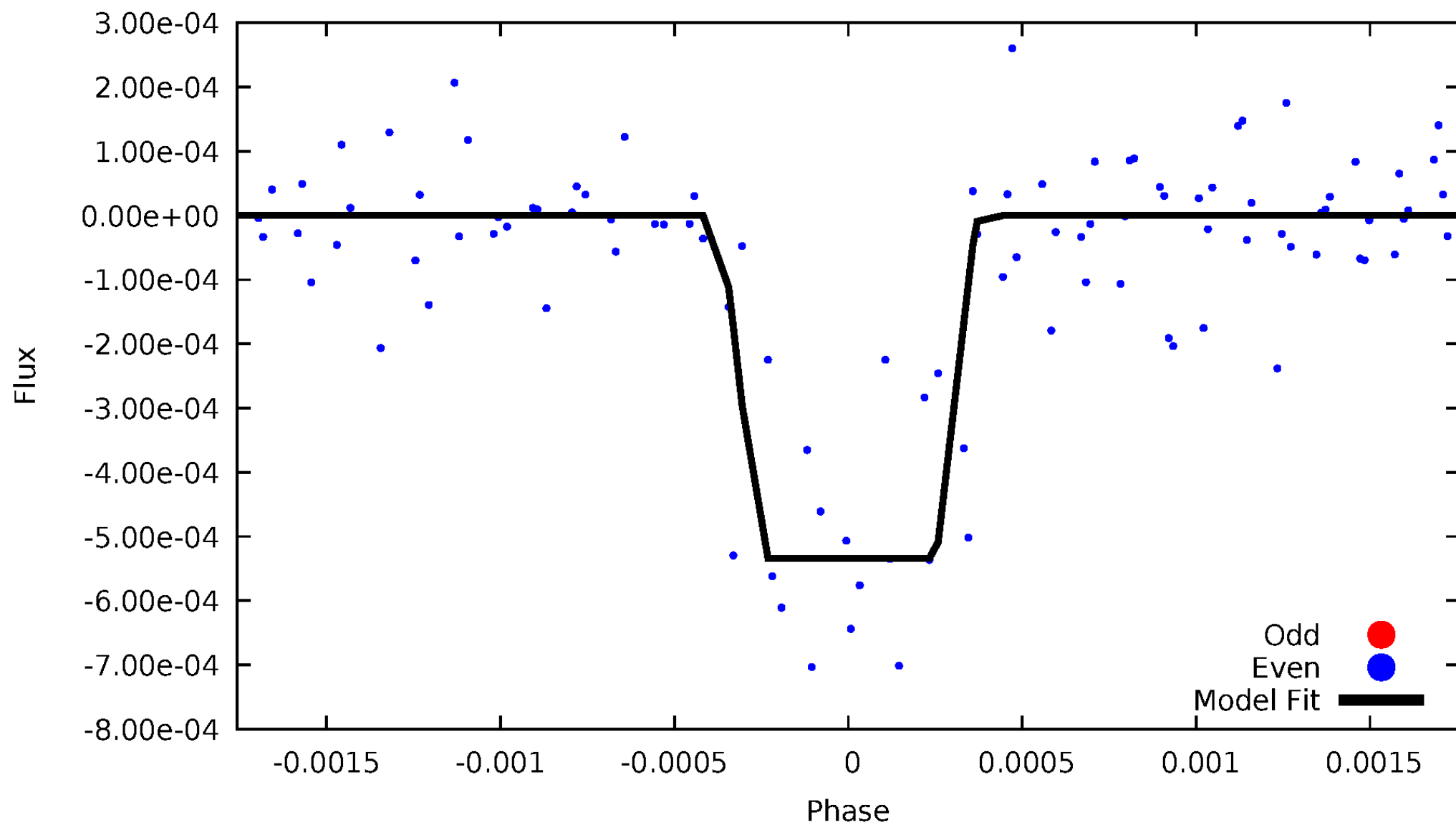
# DV Odd/Even

TCE 010221153-01



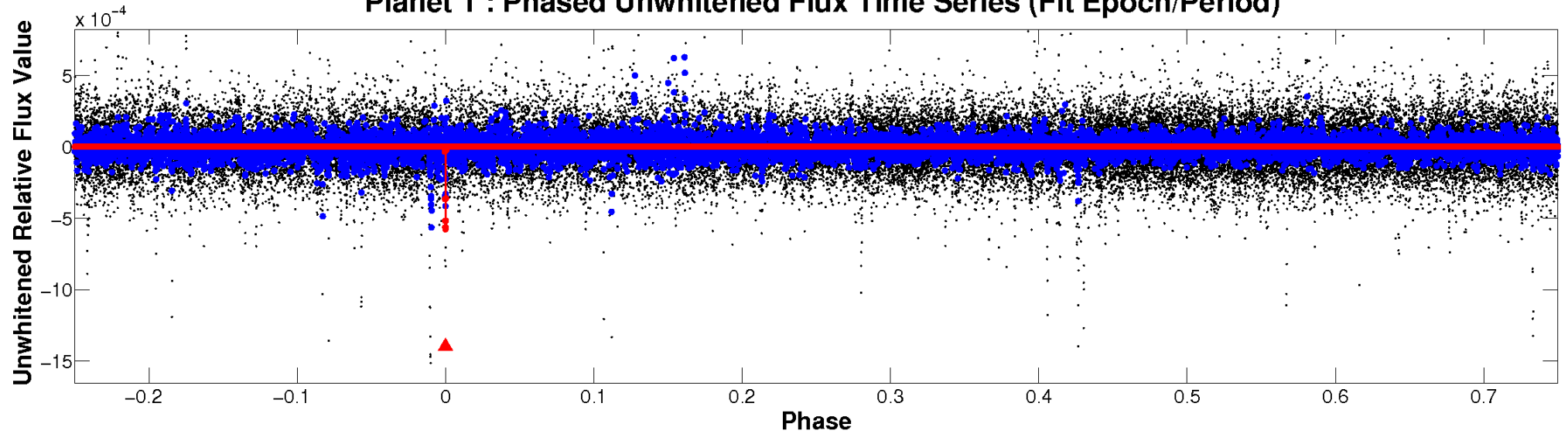
# ALT Odd/Even

TCE 010221153-01

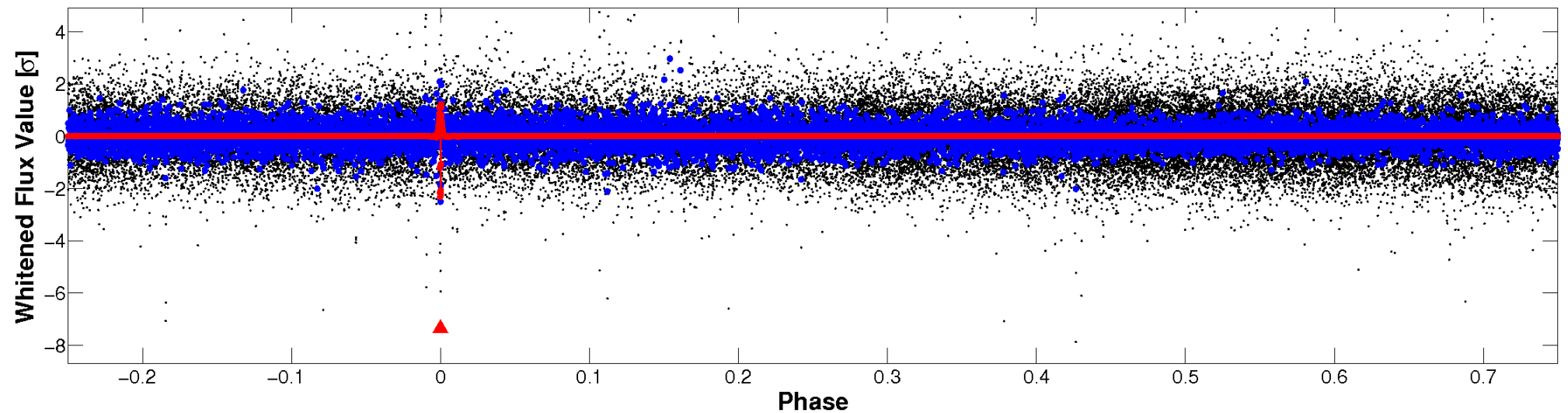


# Non-Whitened Vs. Whitened Light Curve

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

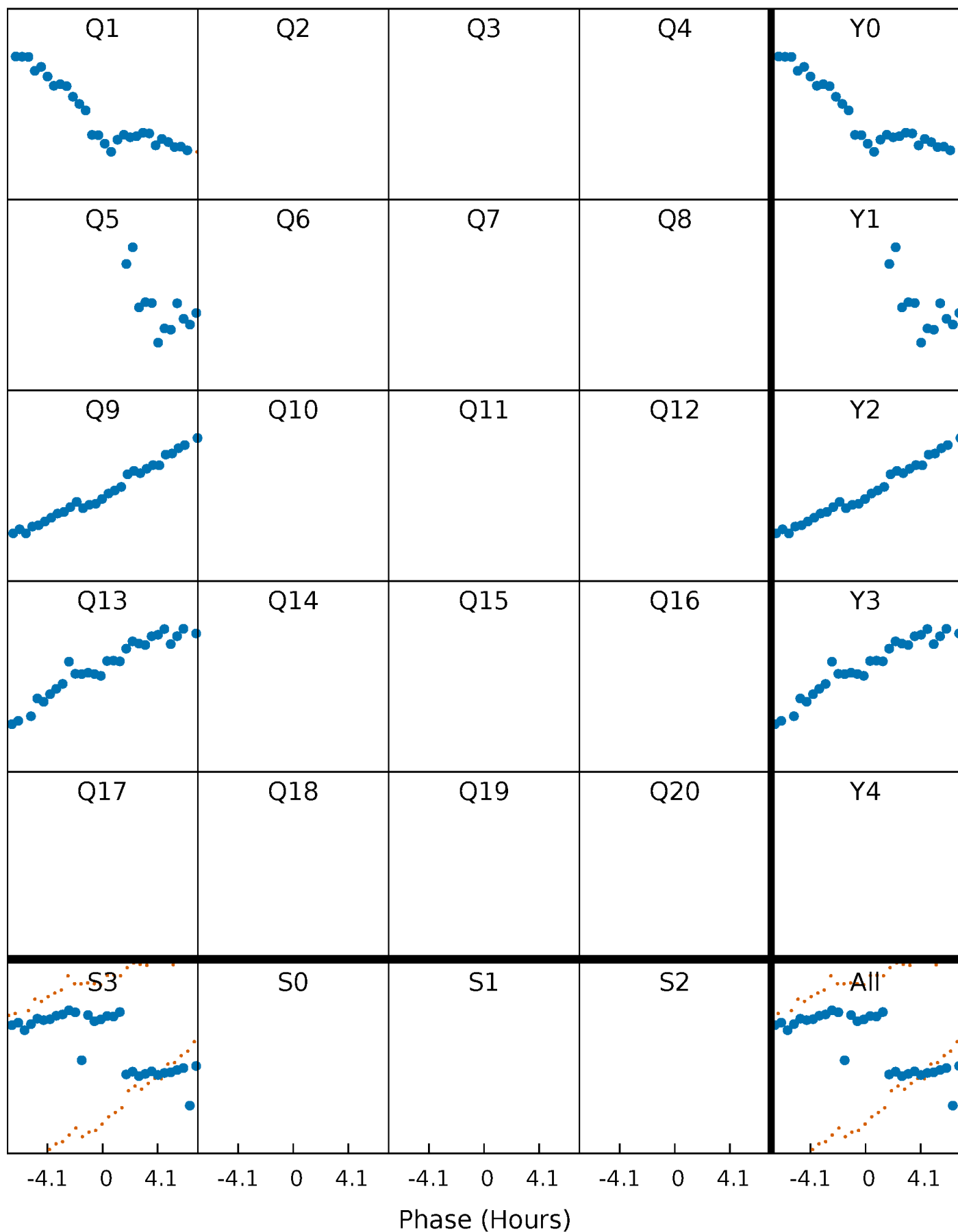


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

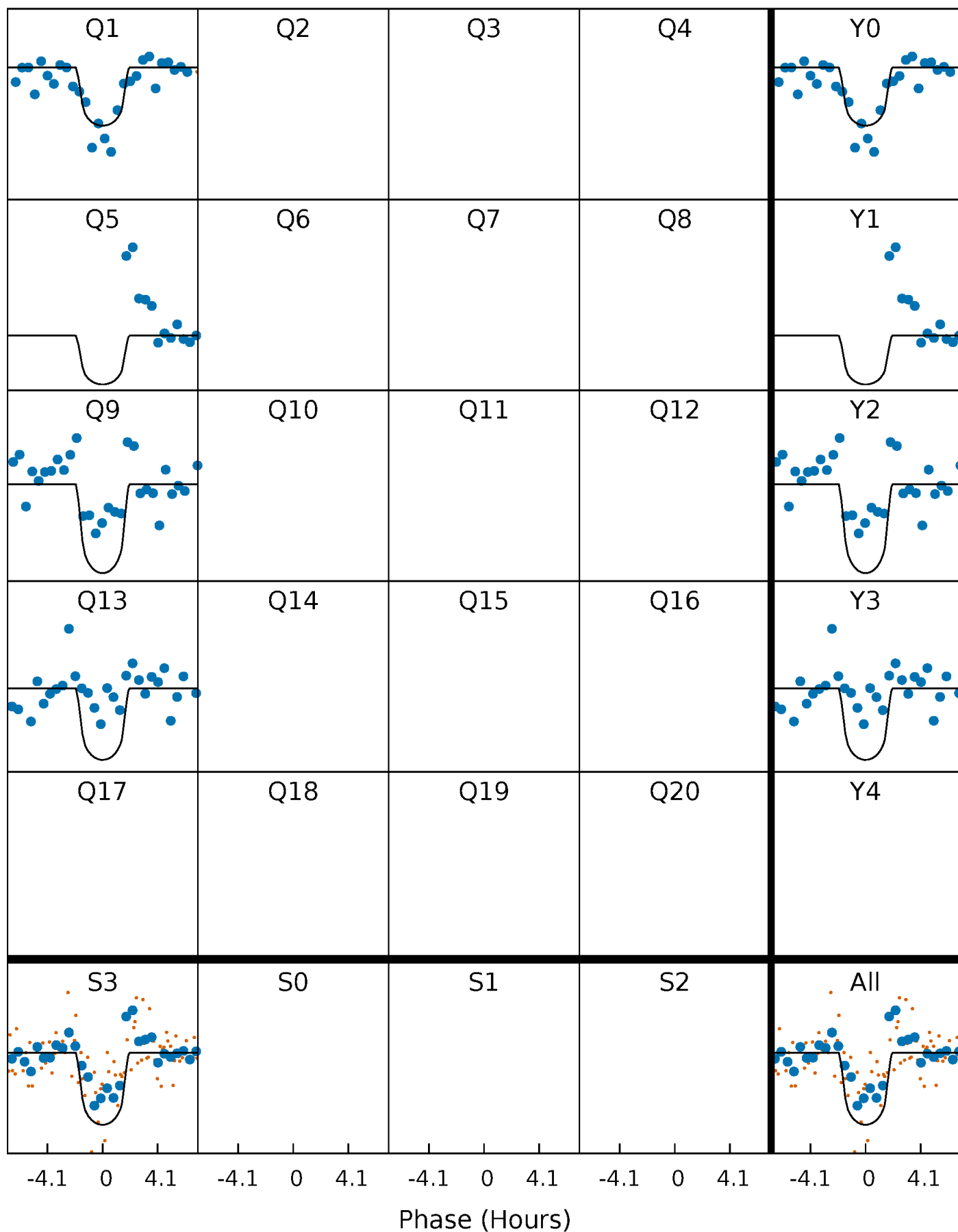
TCE 010221153-01 P=181.360258 Days  $T_0=141.824462$  (BKJD)





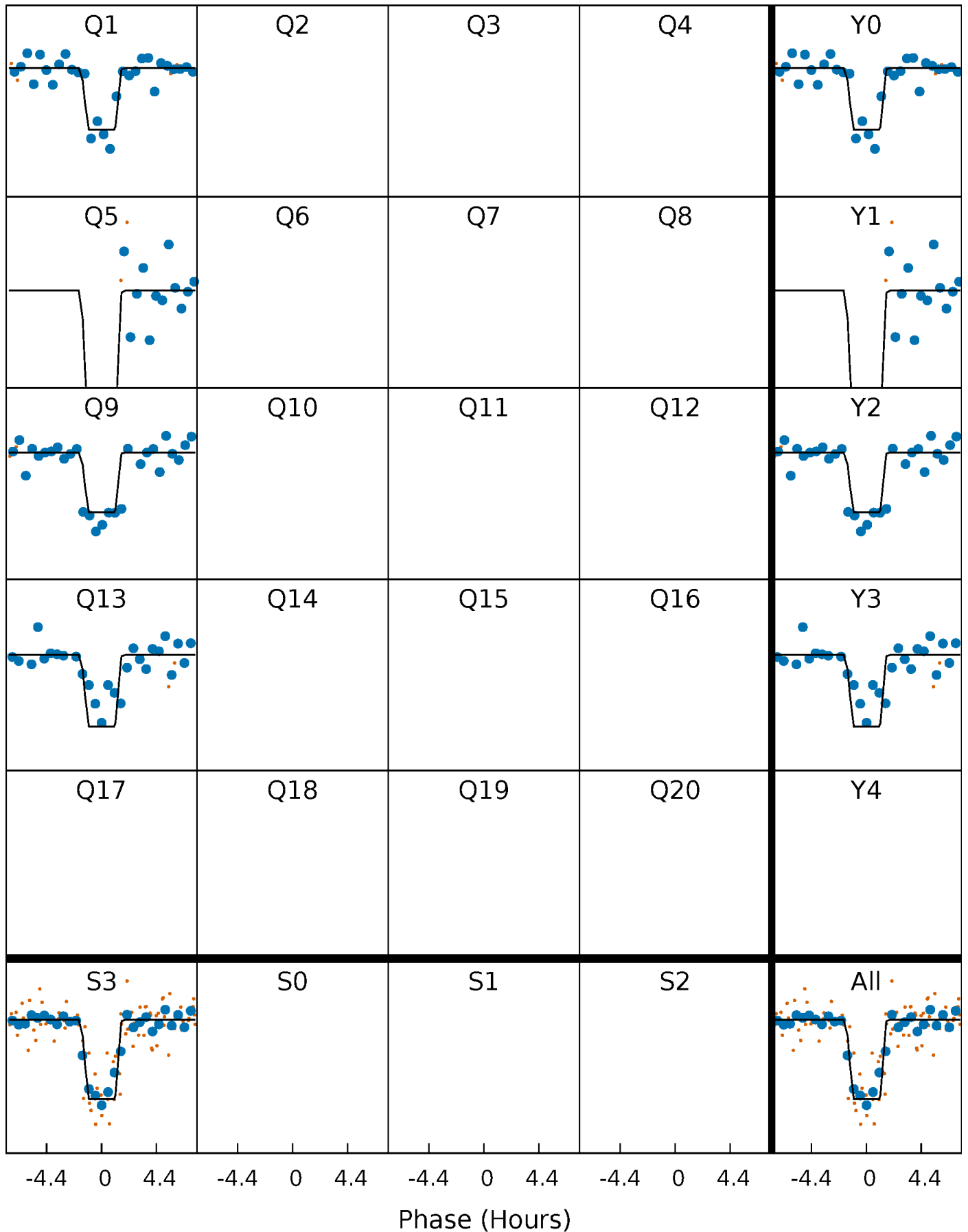
# DV Quarter-Phased Transit Curves

TCE 010221153-01 P=181.360258 Days  $T_0=141.824462$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

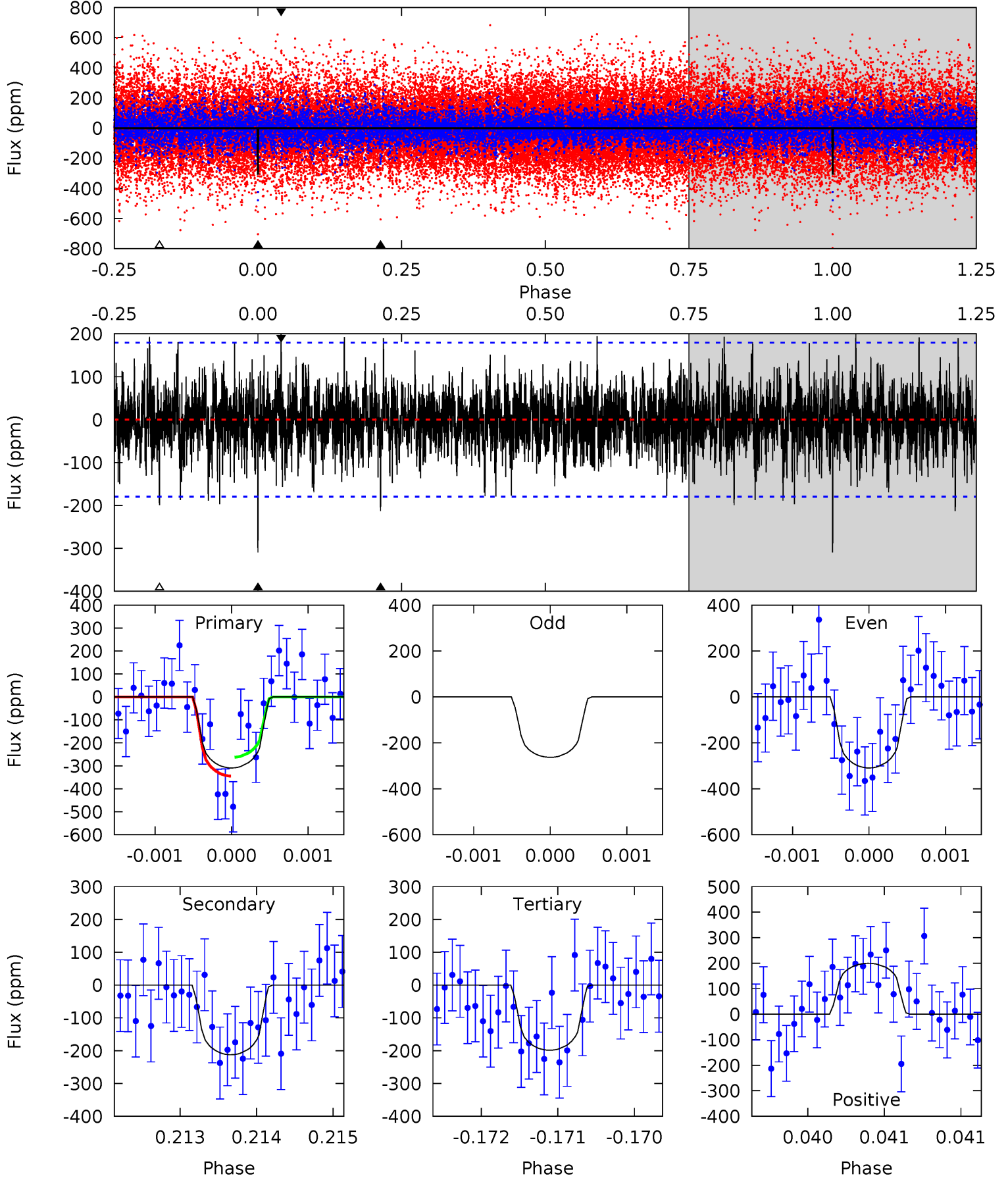
TCE 010221153-01 P=181.359406 Days  $T_0=141.825247$  (BKJD)



# DV Model-Shift Uniqueness Test

010221153-01, P = 181.360258 Days, E = 141.824462 Days

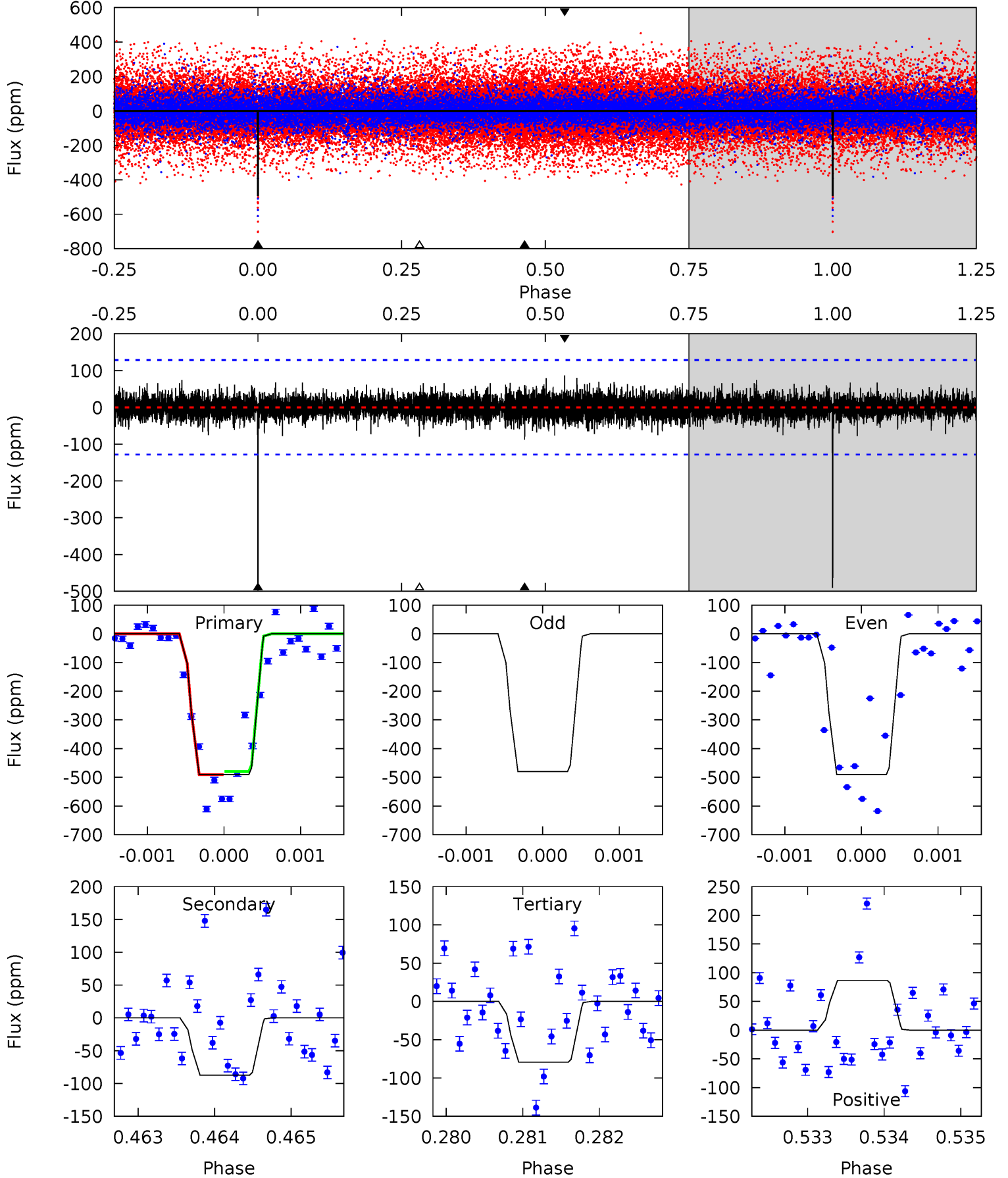
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.42	6.47	6.05	6.07	5.47	3.32	1.50	3.37	3.35	0.42	0.40	0.79	1.42	0.39	1.25



# Alt Model-Shift Uniqueness Test

010221153-01, P = 181.359406 Days, E = 141.825247 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
21.0	3.74	3.41	3.72	5.51	3.38	0.83	17.6	17.3	0.34	0.03	0.27	0.98	0.15	0.24



### Stellar Parameters For KIC 010221153

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5328^{+204}_{-185}$	$4.447^{+0.126}_{-0.168}$	$-0.100^{+0.300}_{-0.300}$	$0.883^{+0.179}_{-0.134}$	$0.796^{+0.124}_{-0.057}$	$1.627^{+0.917}_{-0.686}$
	+4%/-3%	+3%/-4%	+300%/-300%	+20%/-15%	+16%/-7%	+56%/-42%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 010221153-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-213 \pm 33$	$2.72^{+2.12}_{-1.63}$	$408^{+26}_{-24}$	$4121^{+1953}_{-722}$	$5353^{+28475}_{-3632}$
Alt.	$-87 \pm 23$	$2.74^{+2.14}_{-1.77}$	$407^{+28}_{-24}$	$3540^{+1644}_{-580}$	$2116^{+14146}_{-1441}$

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

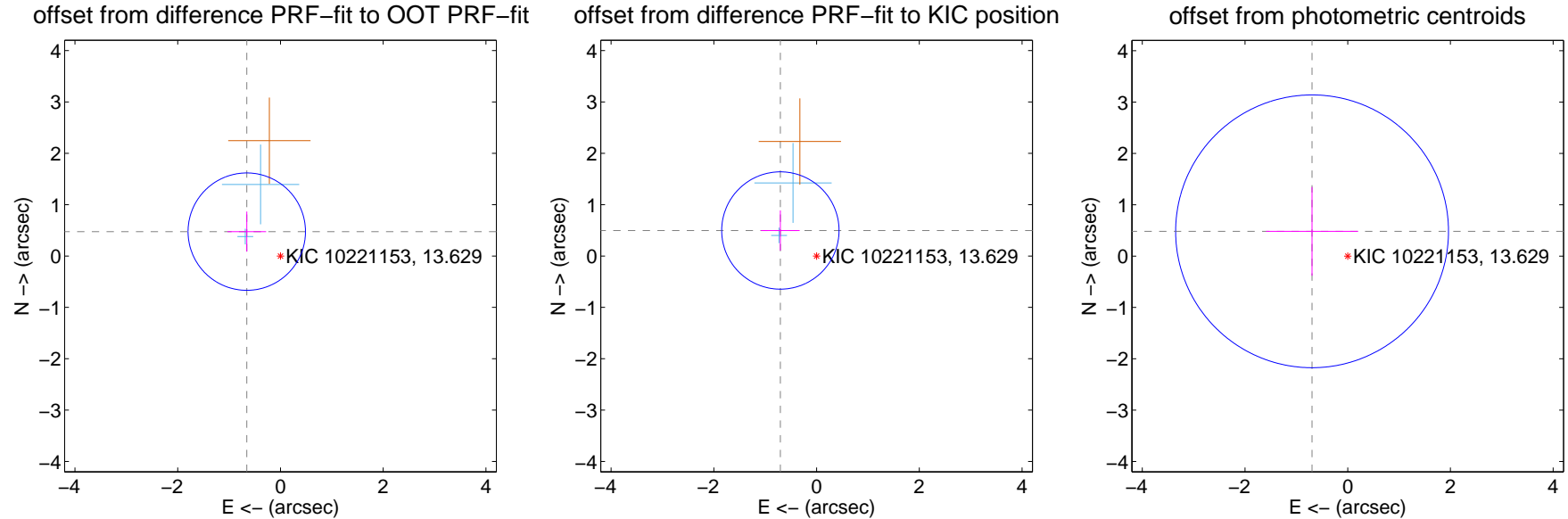
## DV Centroid Data

Supplemental centroid analysis for 010221153-01. Kepler magnitude: 13.63. Transit SNR 10.01

There are 2 quarters with good PRF difference image offsets

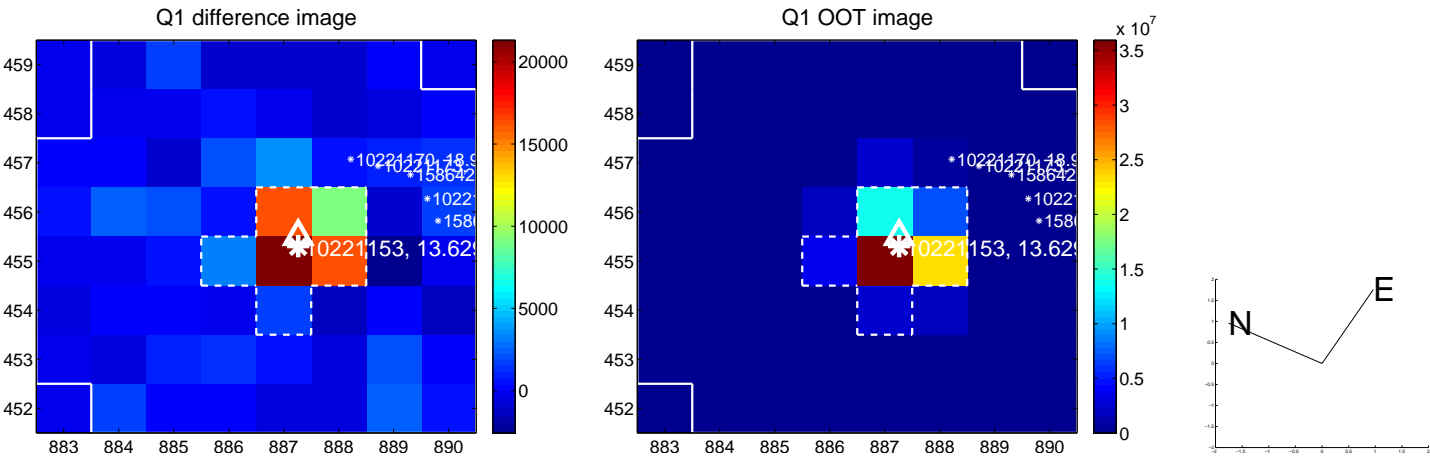
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.810 \pm 0.381$	2.13	$0.656 \pm 0.376$	$0.475 \pm 0.391$
PRF-fit source offset from KIC position	$0.863 \pm 0.381$	2.27	$0.705 \pm 0.376$	$0.497 \pm 0.391$
photometric centroid source offset	$0.85 \pm 0.89$	0.95	$0.69 \pm 0.90$	$0.48 \pm 0.86$



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.

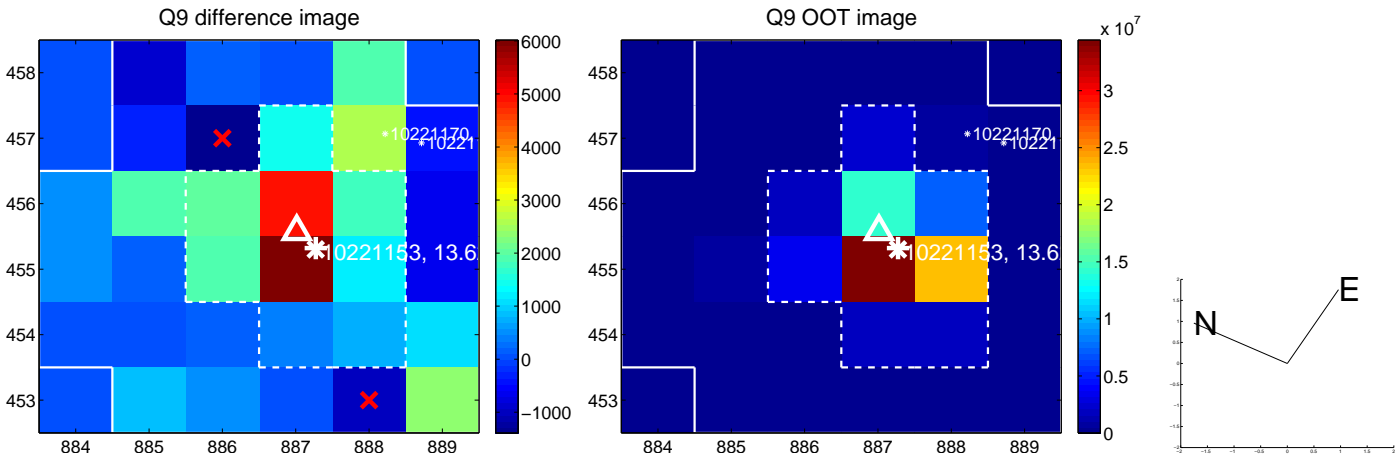


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

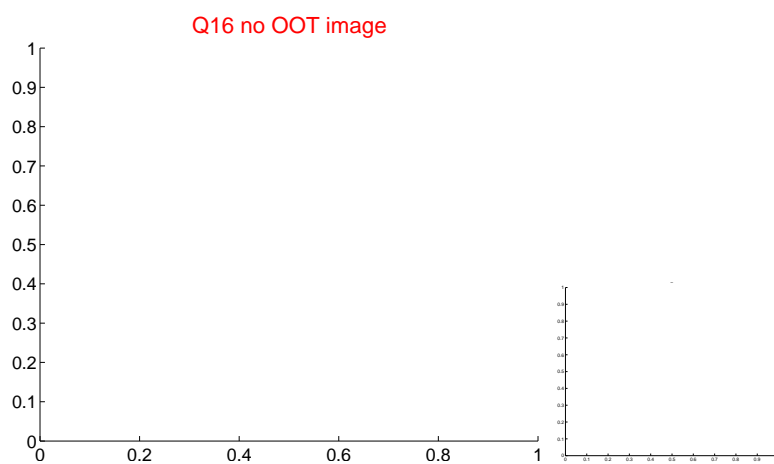
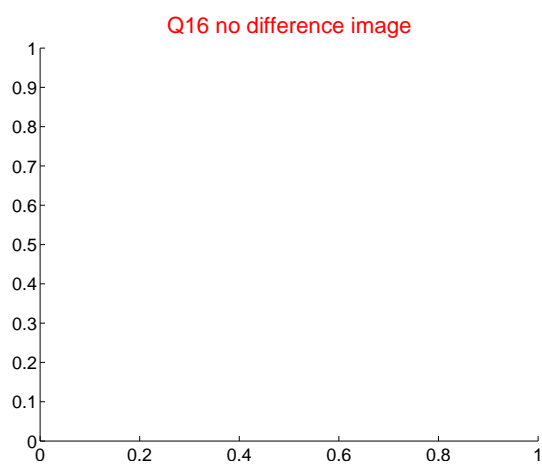
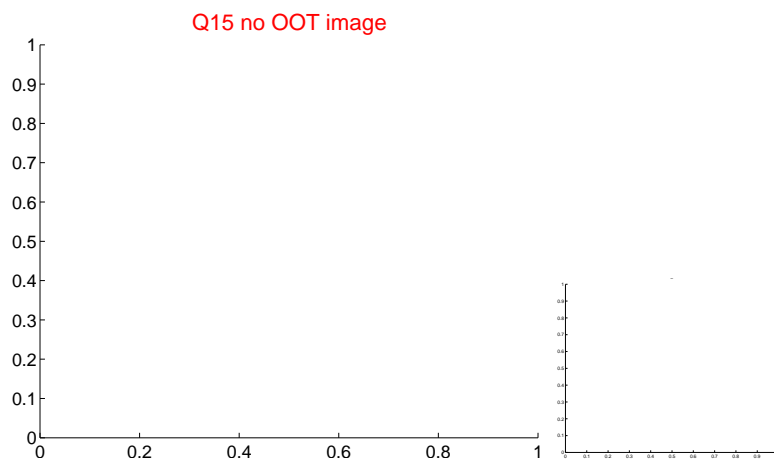
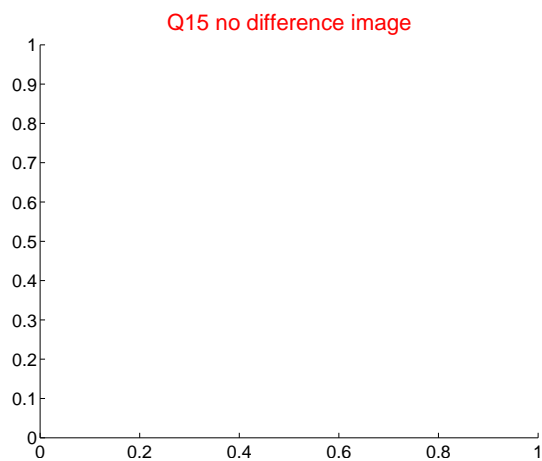
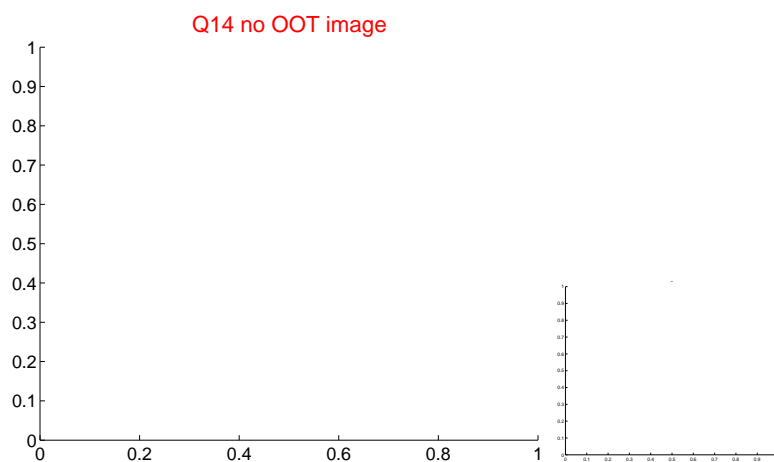
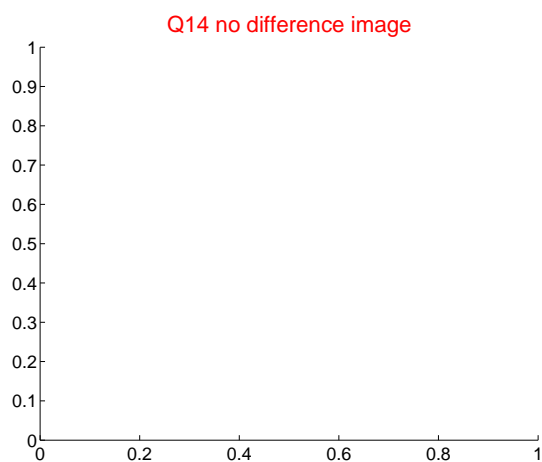
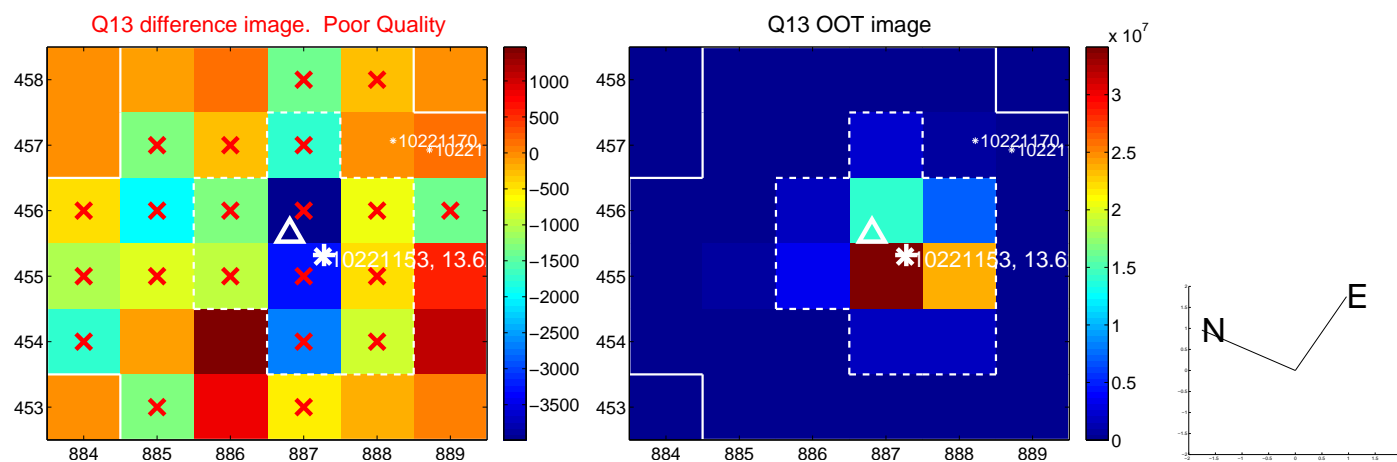




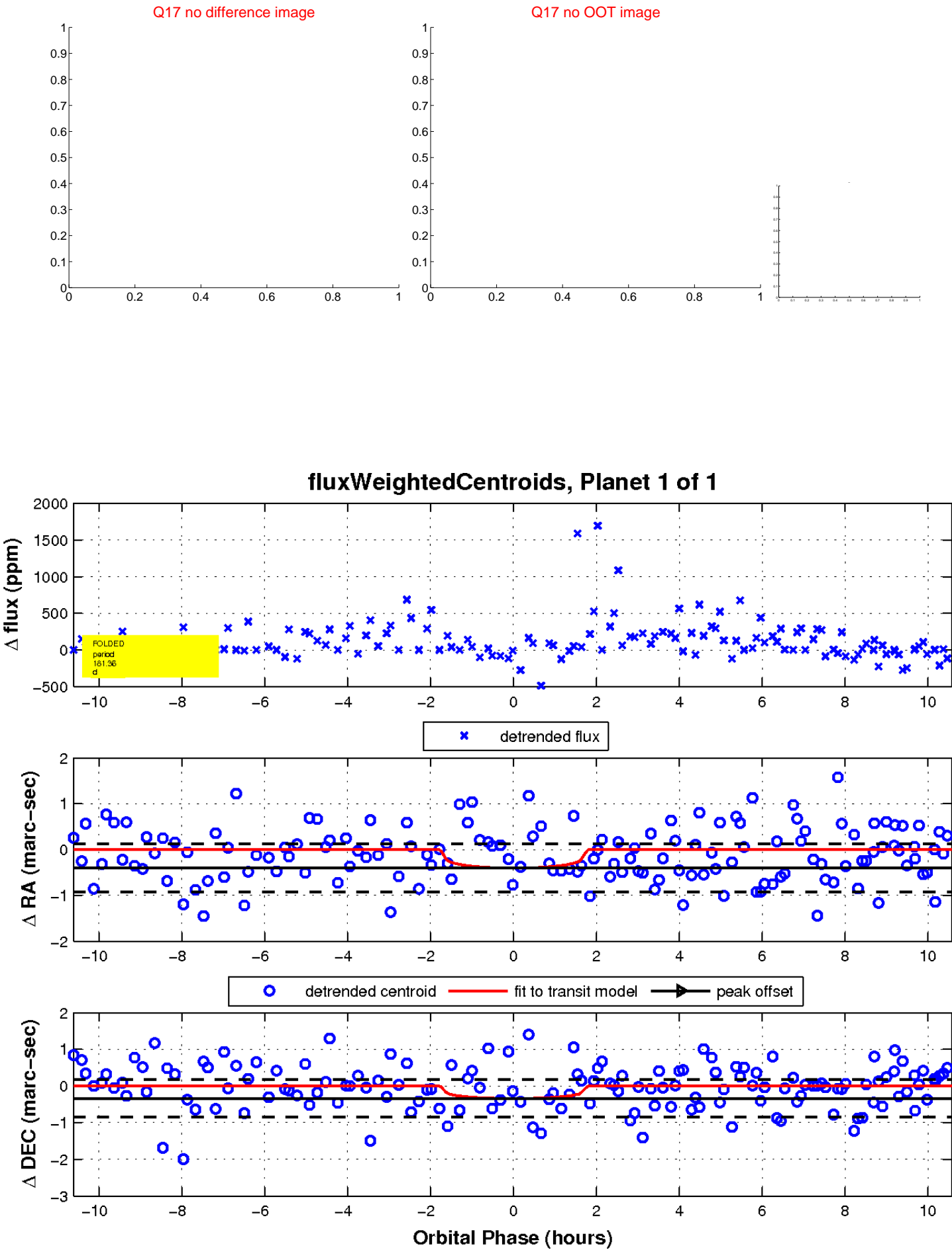
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

