

# KIC 011663487

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011663487-01	OBS	No	621.384986	154.936202	138.3	6.290	8.1	7.9	1.20	6564	1.58	1.06

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011663487-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—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.

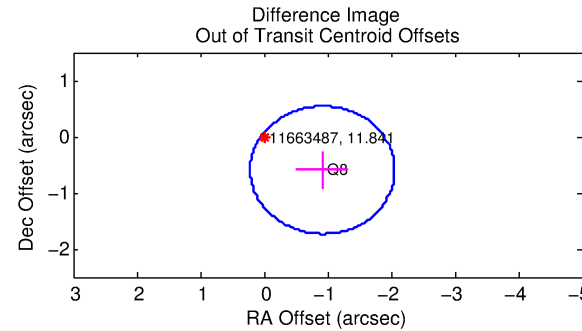
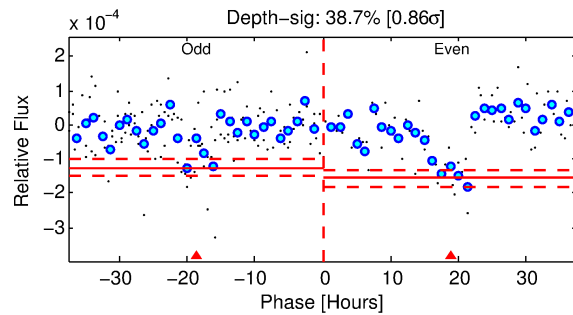
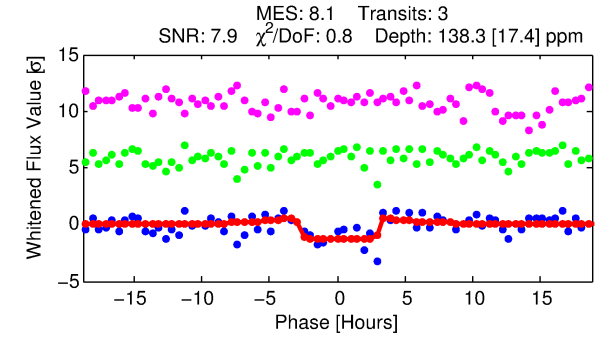
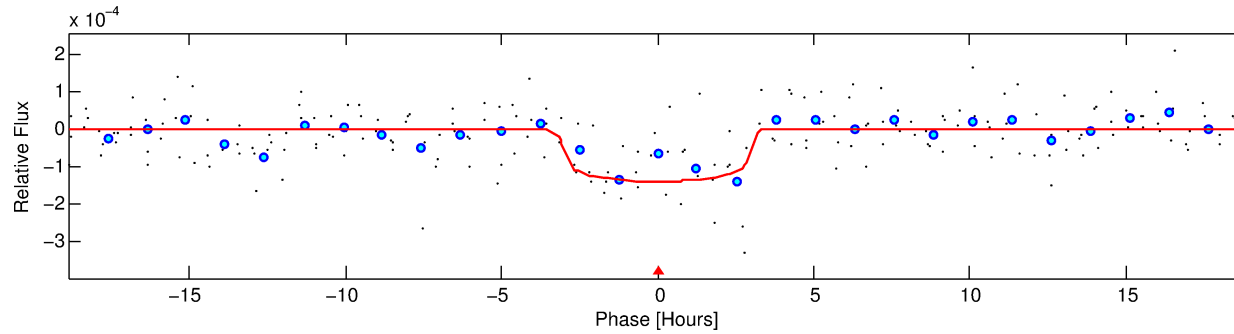
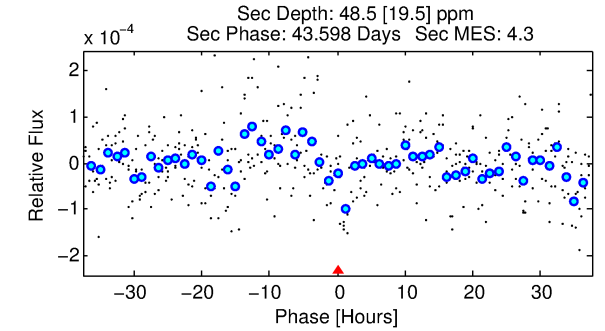
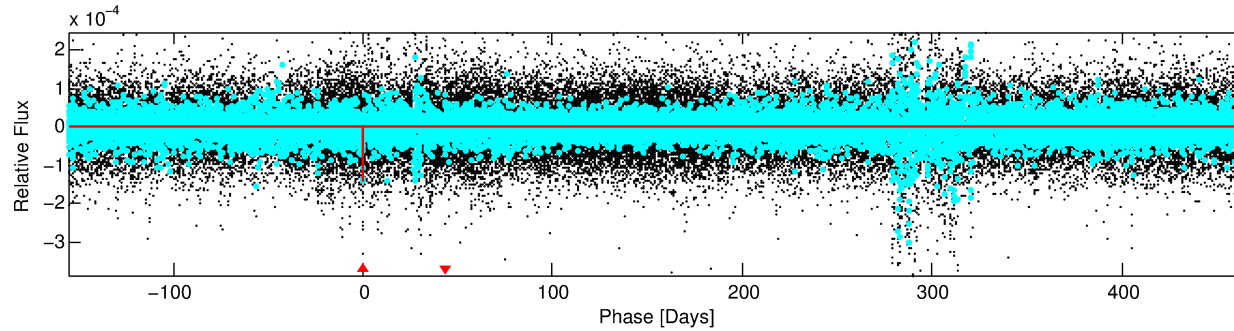
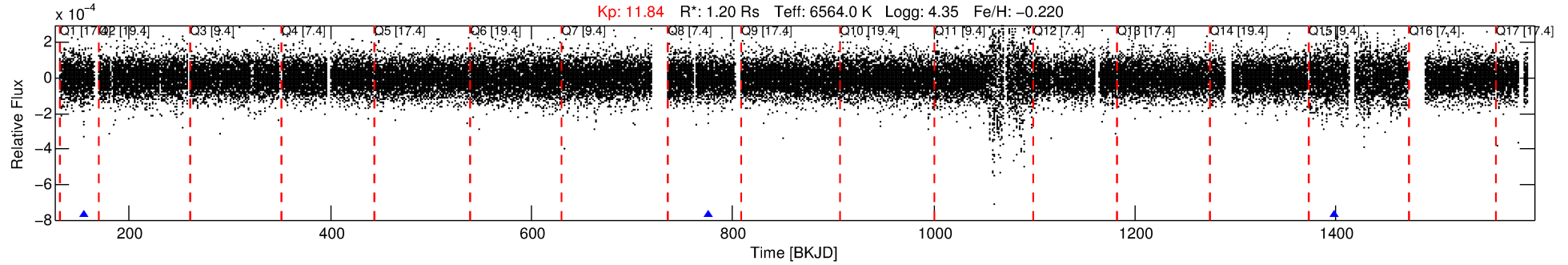
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011663487-01

No Significant Match Found

# DV One-Page Summary

KIC: 11663487 Candidate: 1 of 1 Period: 621.385 d



## DV Fit Results:

Period = 621.38499 [0.00745] d  
Epoch = 154.9362 [0.0095] BKJD  
Rp/R\* = 0.0121 [0.0038]  
a/R\* = 432.83 [752.17]  
b = 0.83 [0.64]  
Seff = 1.06 [0.31]  
Teq = 259 [19] K  
Rp = 1.58 [0.61] Re  
a = 1.4982 [0.2769] AU  
Ag = 24049.31 [19187.74] [1.25 $\sigma$ ]  
Teffp = 4986 [948] K [4.98 $\sigma$ ]

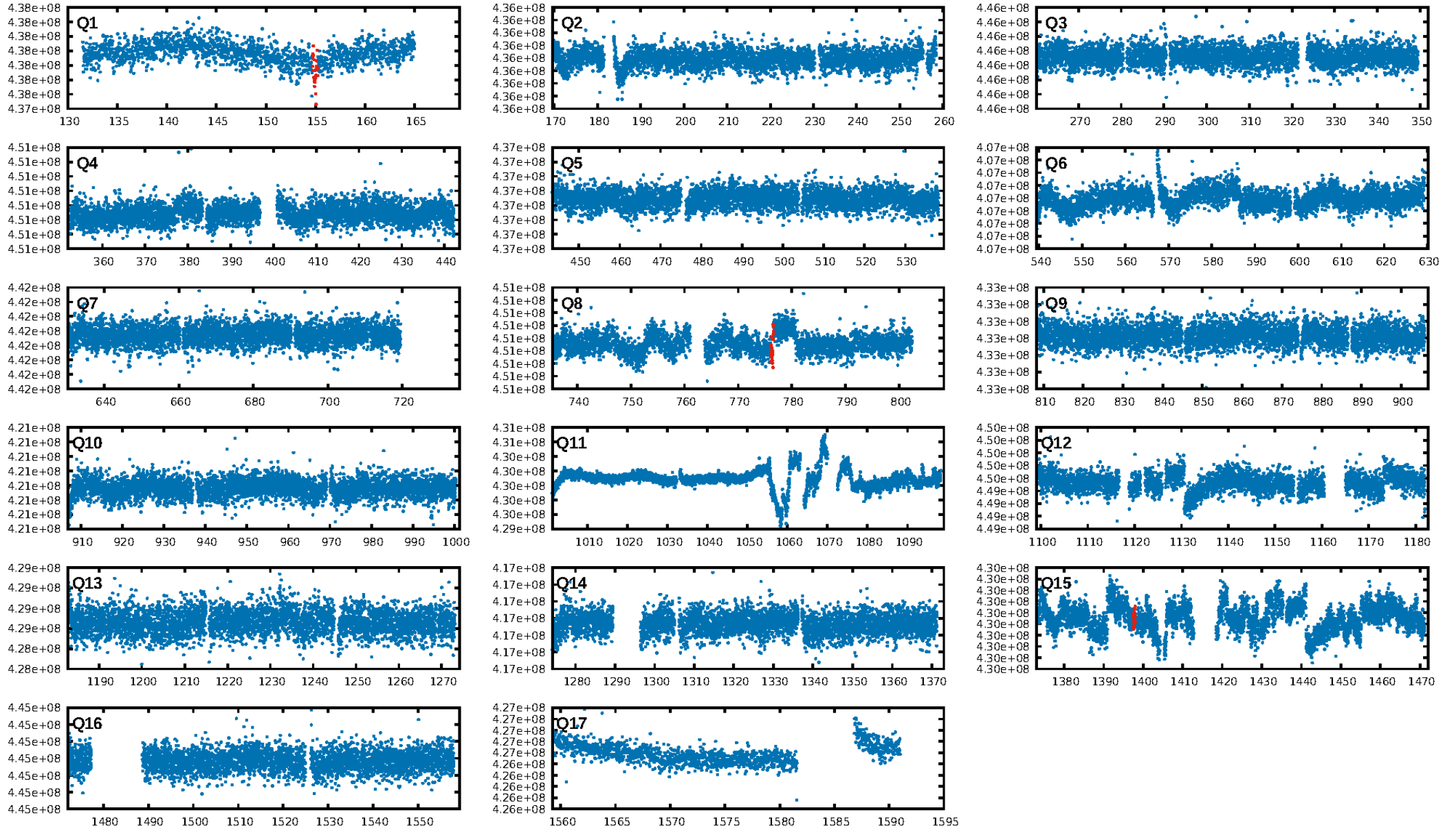
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 42.2%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 3.19e-09  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 2.332  
Centroid-sig: 8.2%  
Centroid-so: 1.764 arcsec [1.74 $\sigma$ ]  
OotOffset-rm: 1.097 arcsec [2.89 $\sigma$ ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-rm: 1.353 arcsec [3.66 $\sigma$ ]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

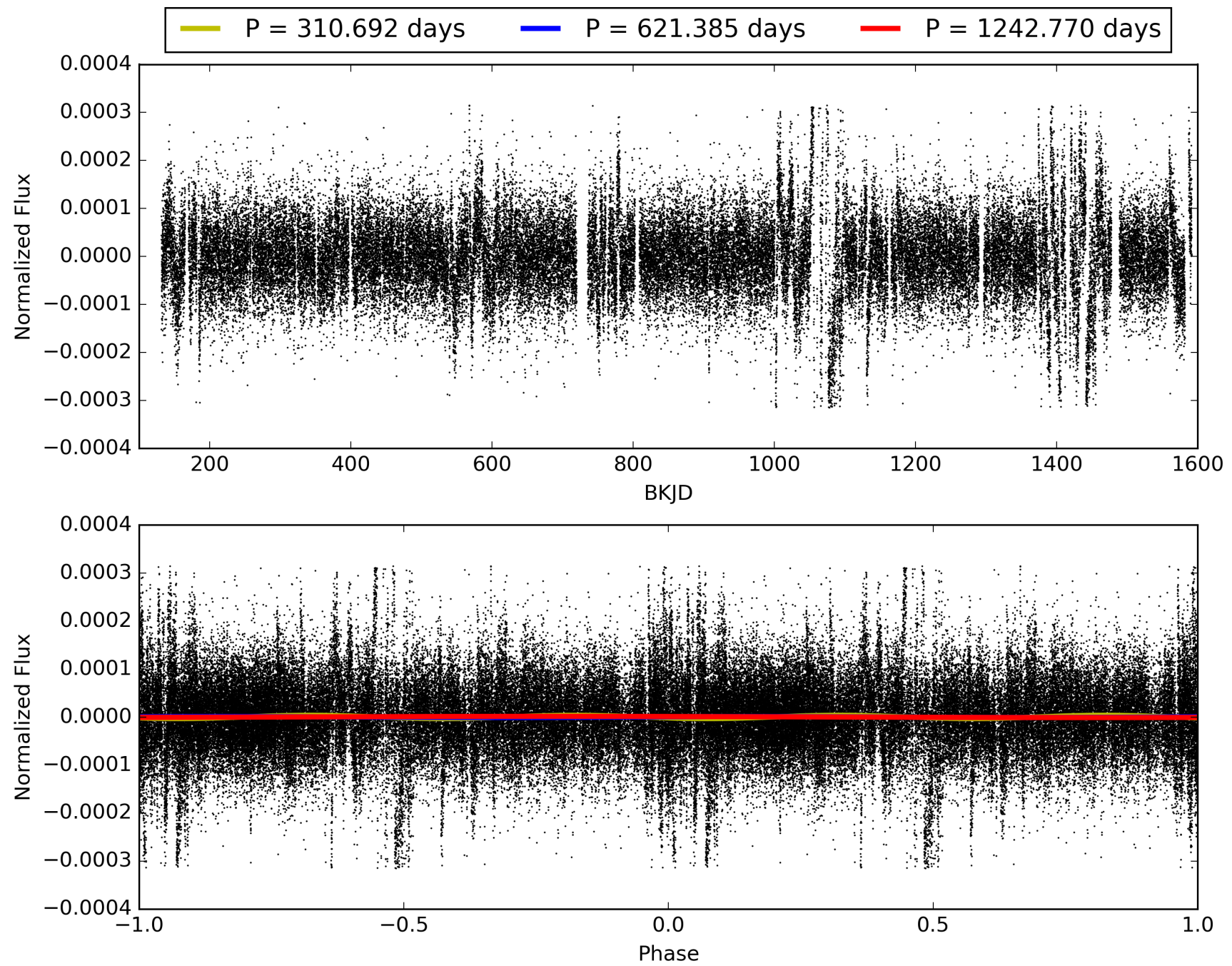
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:05:57 Z

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

# TCE 011663487-01, PDC Light Curves

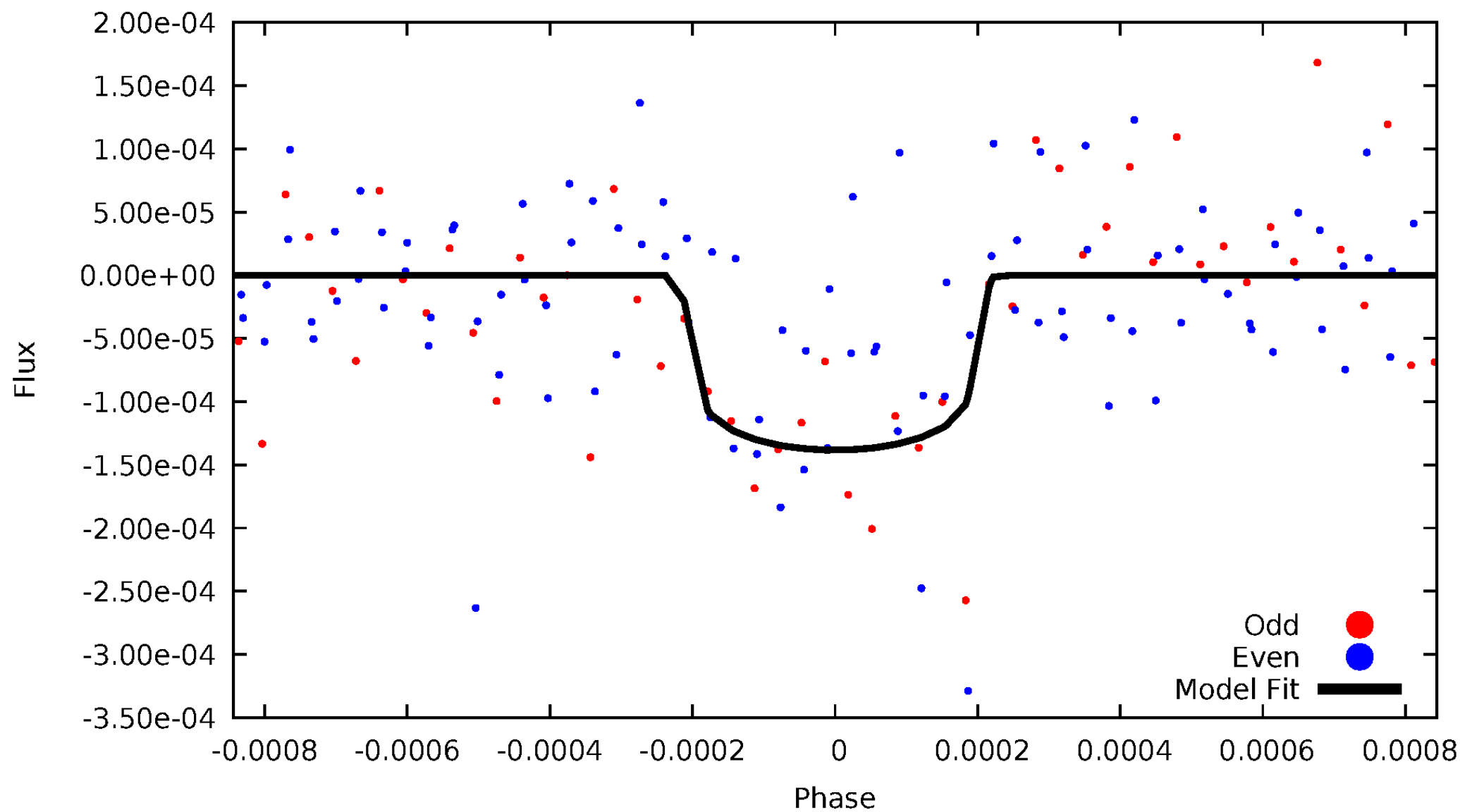


# TCE 011663487-01



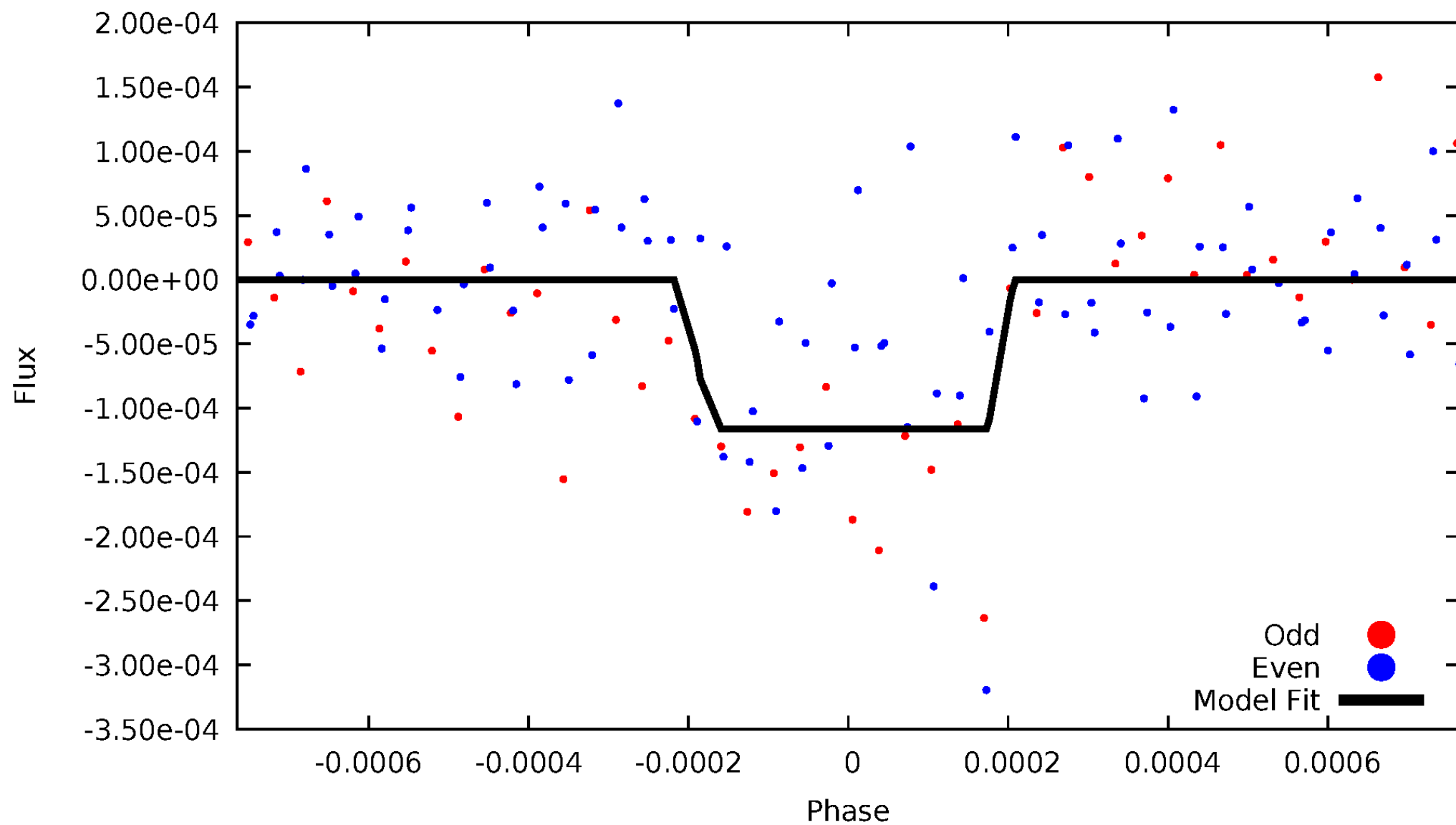
# DV Odd/Even

TCE 011663487-01



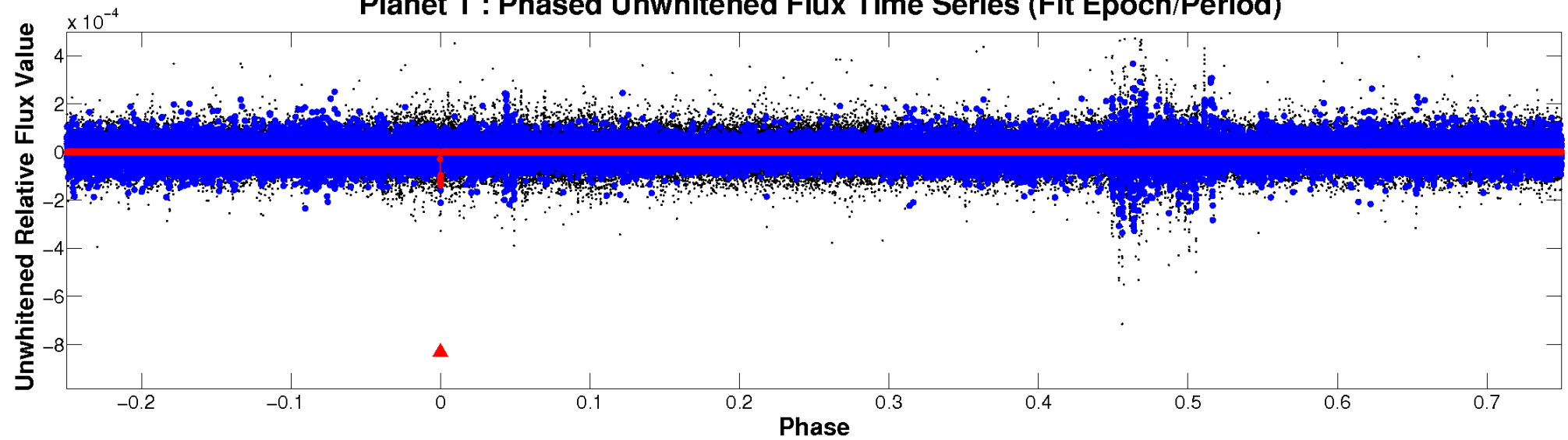
# ALT Odd/Even

TCE 011663487-01

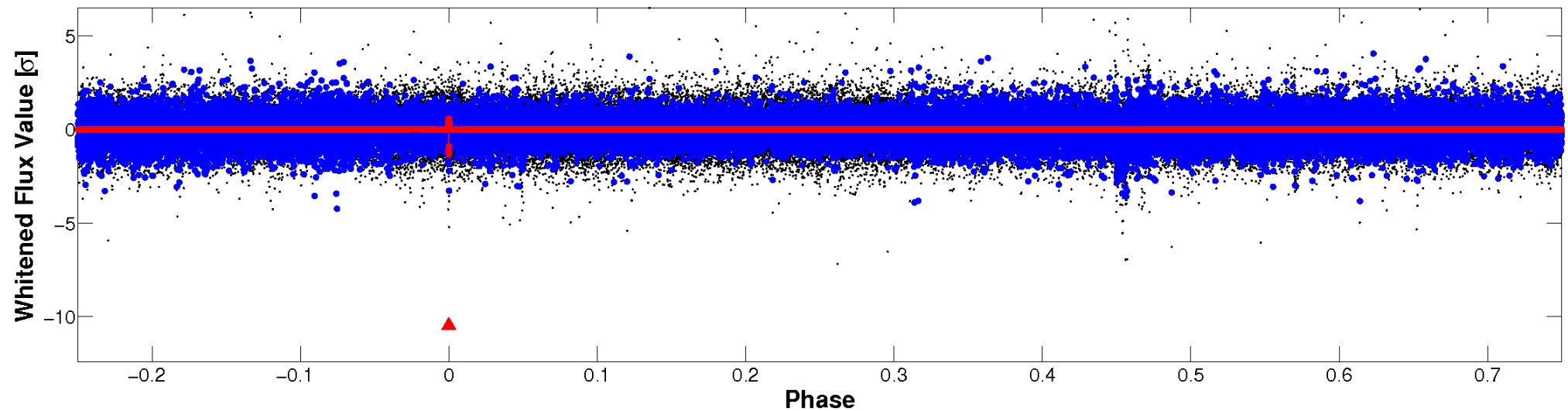


# Non-Whitened Vs. Whitened Light Curve

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

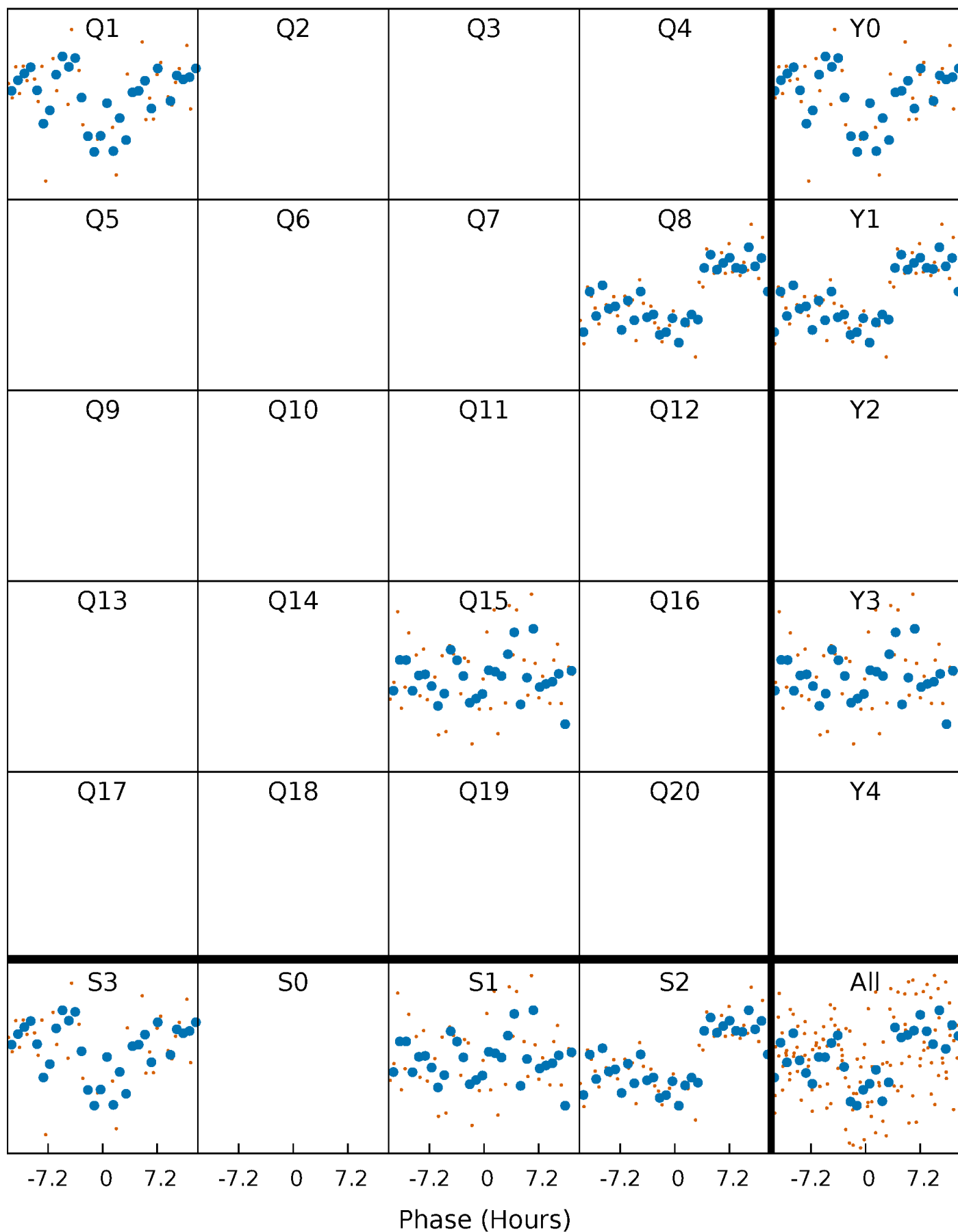


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

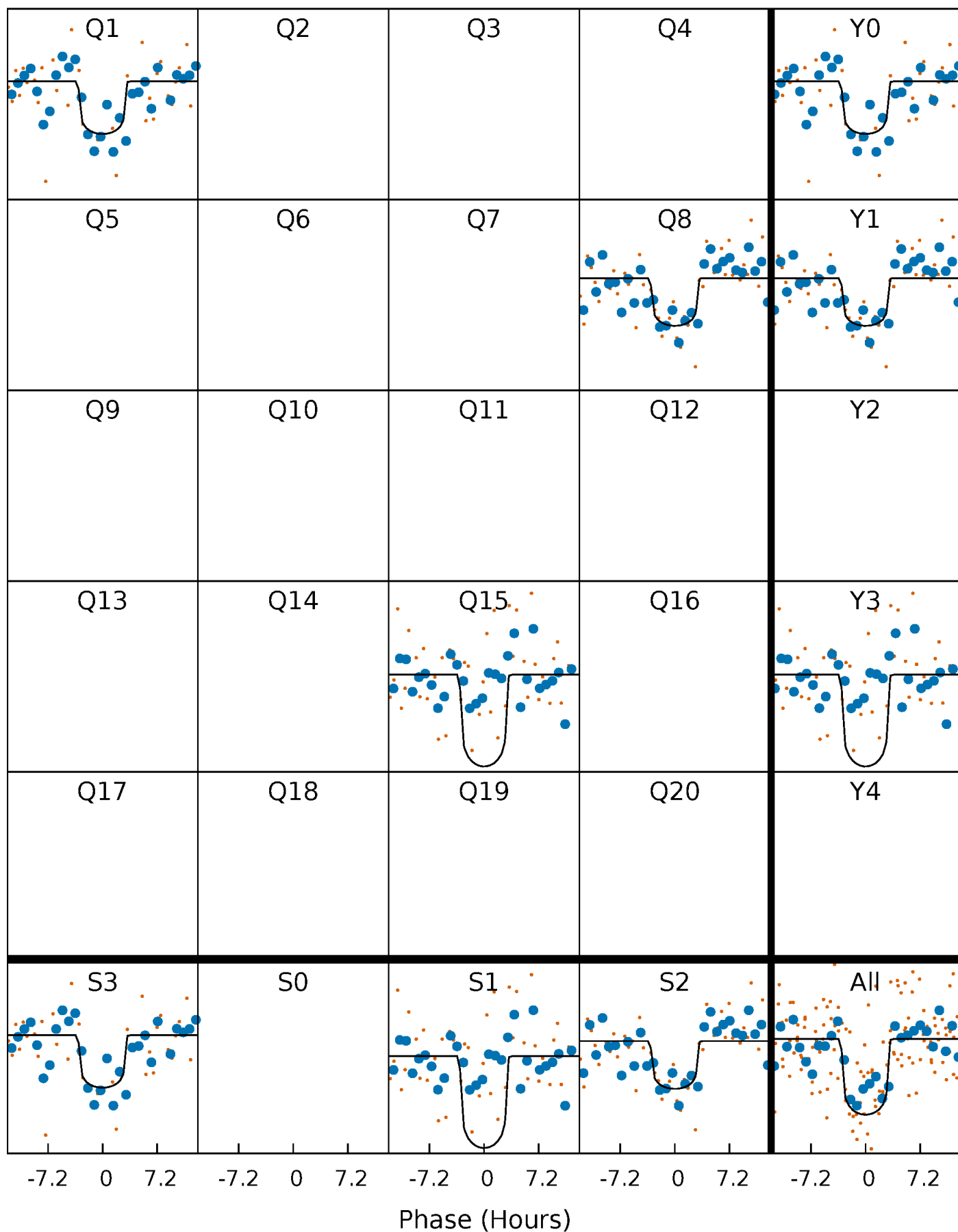
TCE 011663487-01 P=621.384986 Days  $T_0=154.936202$  (BKJD)





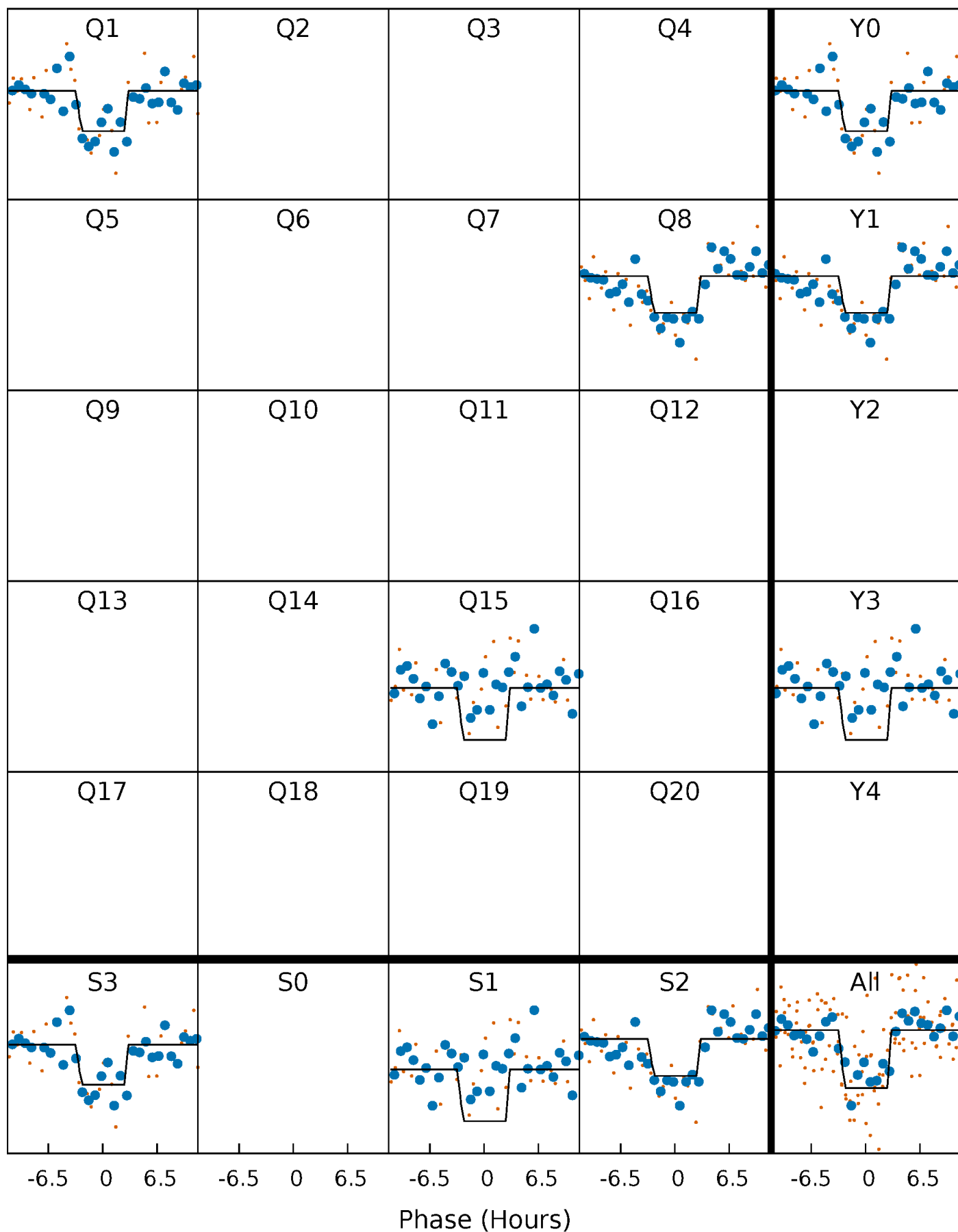
# DV Quarter-Phased Transit Curves

TCE 011663487-01 P=621.384986 Days  $T_0=154.936202$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

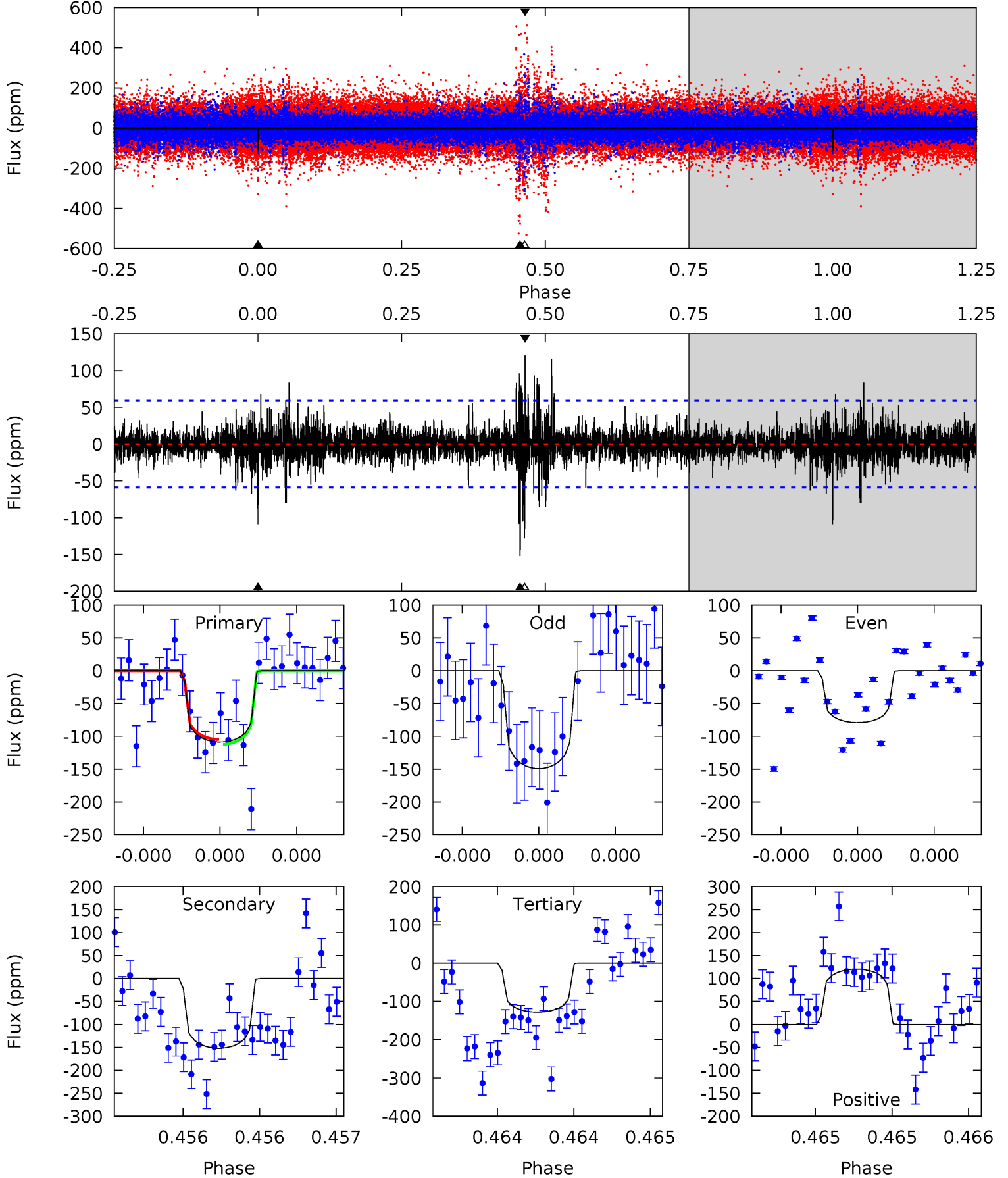
TCE 011663487-01 P=621.384560 Days  $T_0=154.945009$  (BKJD)



# DV Model-Shift Uniqueness Test

011663487-01, P = 621.384986 Days, E = 154.936202 Days

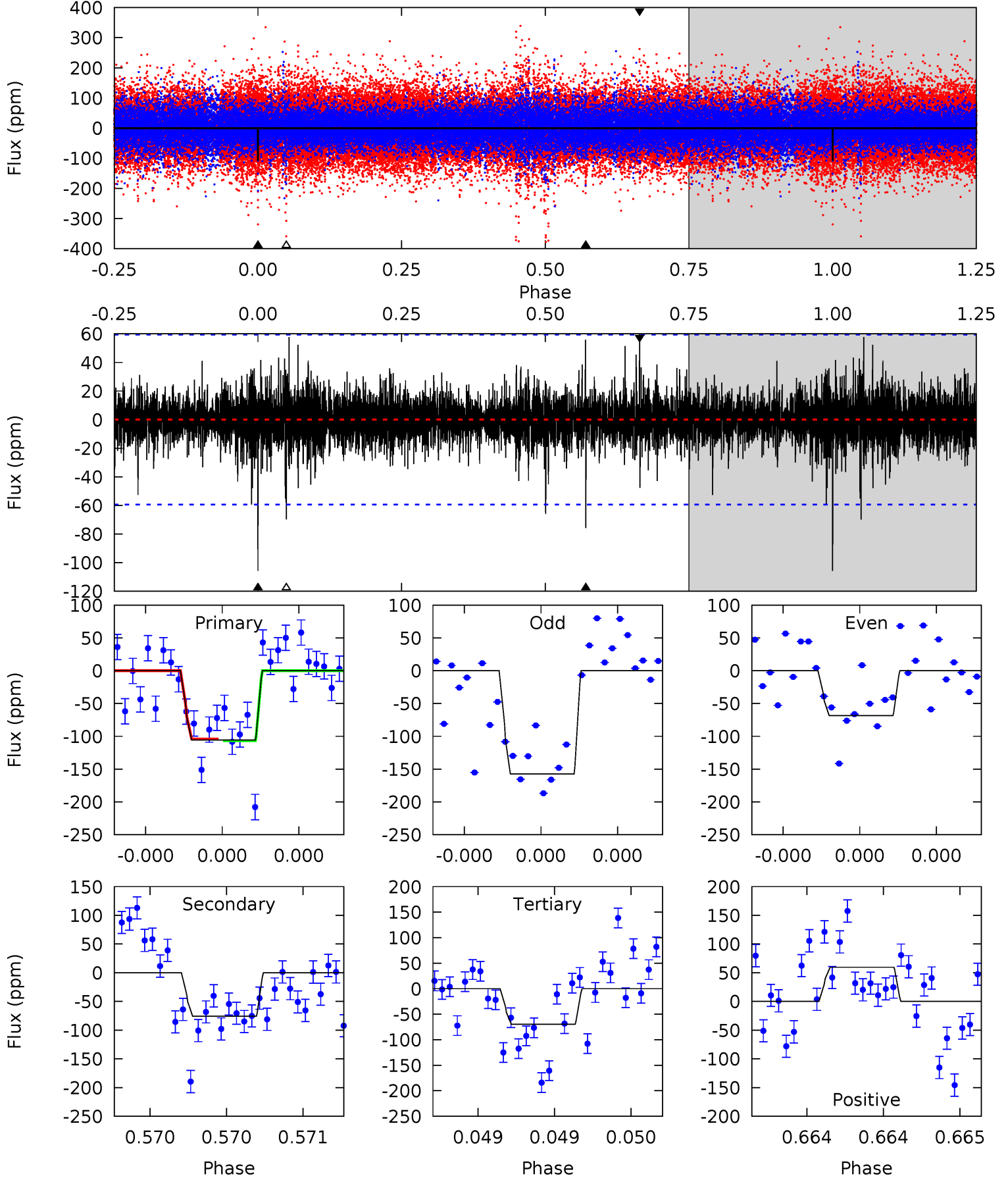
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	14.4	12.1	11.4	5.59	3.50	1.53	-1.81	-1.11	2.30	3.00	3.06	0.73	0.44	0.36



# Alt Model-Shift Uniqueness Test

011663487-01, P = 621.384560 Days, E = 154.945009 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
9.97	7.15	6.59	5.62	5.61	3.54	1.09	3.38	4.35	0.56	1.52	3.98	0.72	0.36	0.13



### Stellar Parameters For KIC 011663487

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6564^{+132}_{-198}$	$4.346^{+0.073}_{-0.147}$	$-0.220^{+0.250}_{-0.300}$	$1.198^{+0.263}_{-0.142}$	$1.166^{+0.139}_{-0.153}$	$0.956^{+0.311}_{-0.390}$
	+2%/-3%	+2%/-3%	+114%/-136%	+22%/-12%	+12%/-13%	+33%/-41%
Source	PHO1	FLK73	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 011663487-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-152 \pm 11$	$1.61^{+0.54}_{-0.48}$	$365^{+19}_{-17}$	$6527^{+1581}_{-777}$	$70086^{+76670}_{-30121}$
Alt.	$-76 \pm 11$	$1.42^{+0.55}_{-0.49}$	$365^{+20}_{-16}$	$5853^{+1548}_{-744}$	$45373^{+60968}_{-21611}$

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

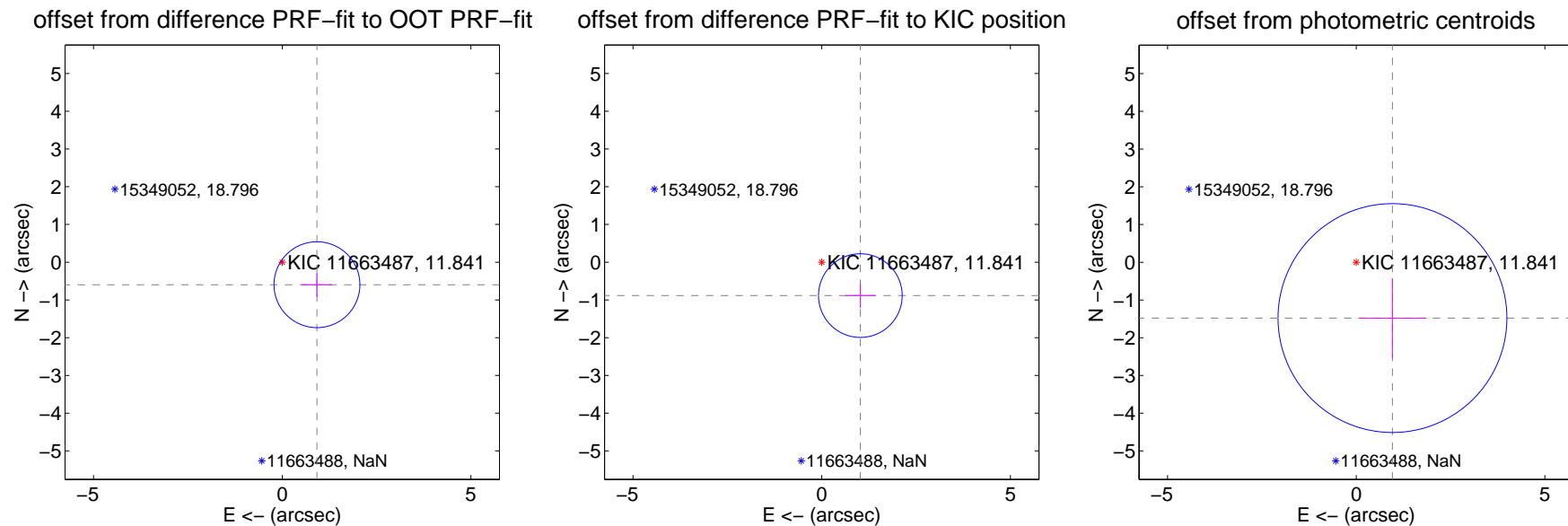
## DV Centroid Data

Supplemental centroid analysis for 011663487-01. **Kepler magnitude: 11.84.** Transit SNR 7.91

**There are 1 quarters with good PRF difference image offsets**

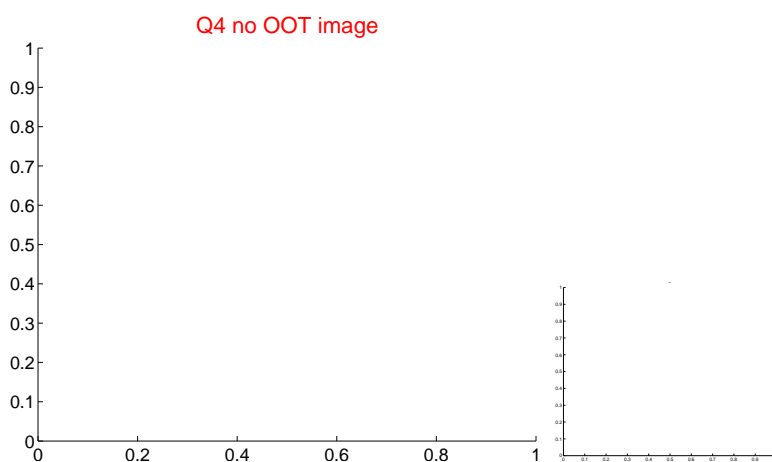
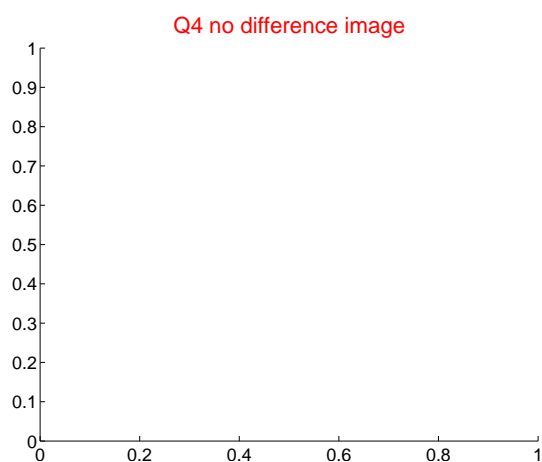
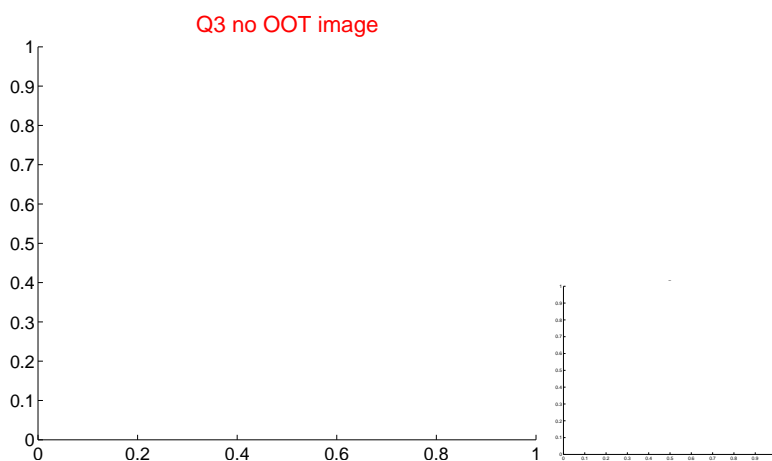
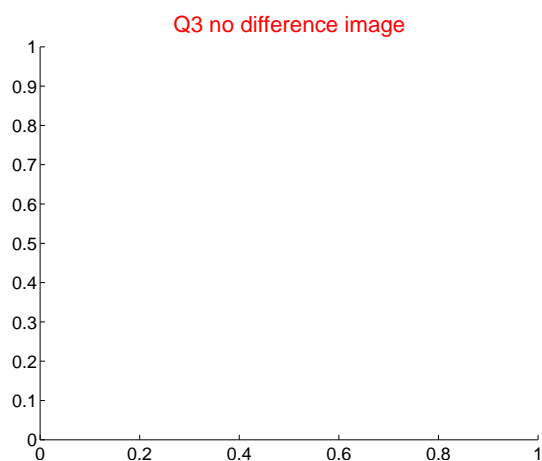
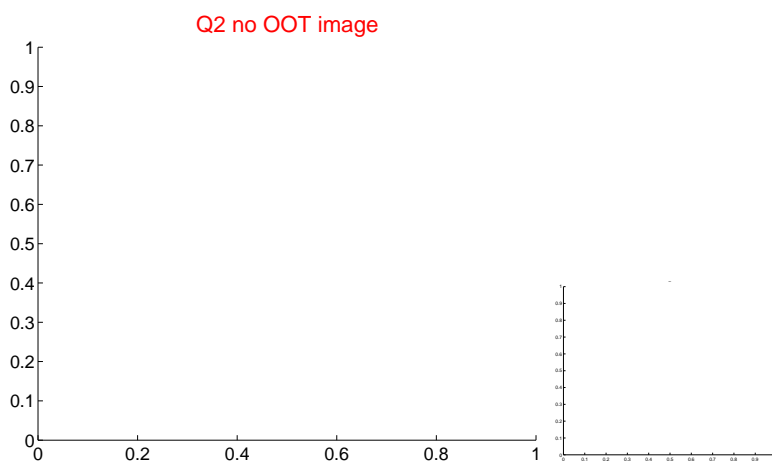
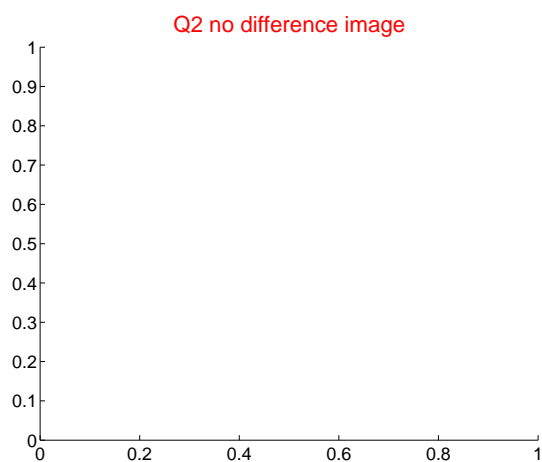
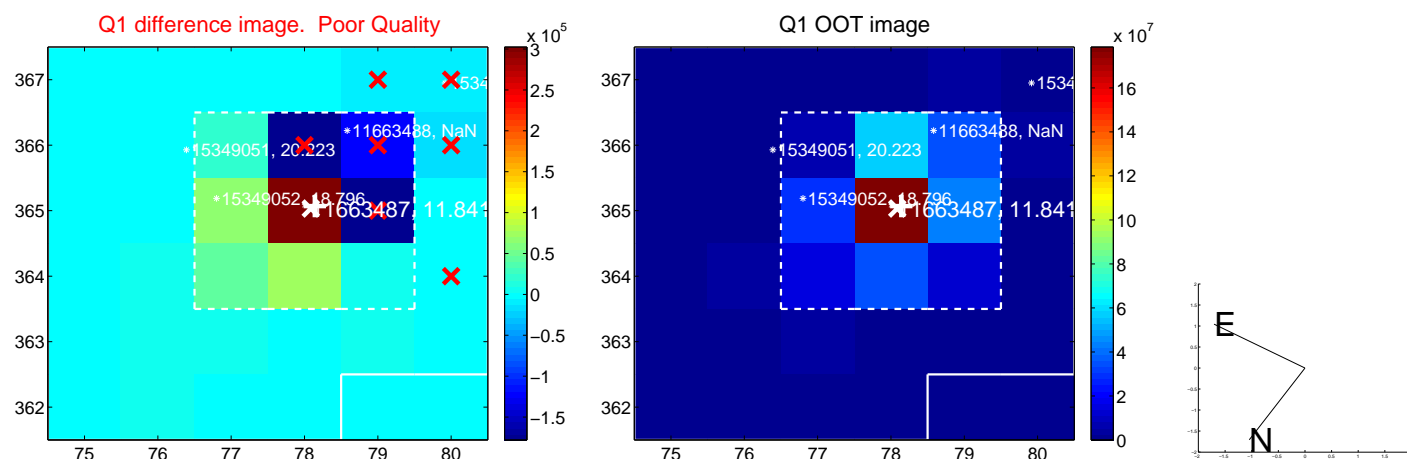
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.097 \pm 0.379$	2.89	$-0.920 \pm 0.400$	$-0.597 \pm 0.324$
PRF-fit source offset from KIC position	<b><math>1.353 \pm 0.370</math></b>	<b>3.66</b>	$-1.024 \pm 0.400$	$-0.885 \pm 0.324$
photometric centroid source offset	$1.76 \pm 1.01$	1.74	$-0.96 \pm 0.89$	$-1.48 \pm 1.06$

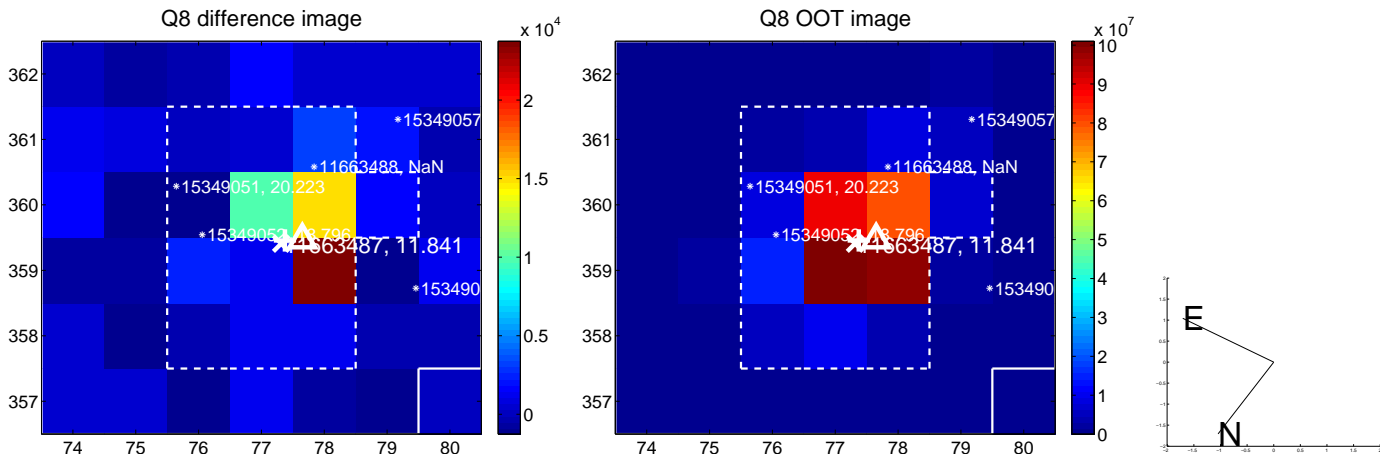


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

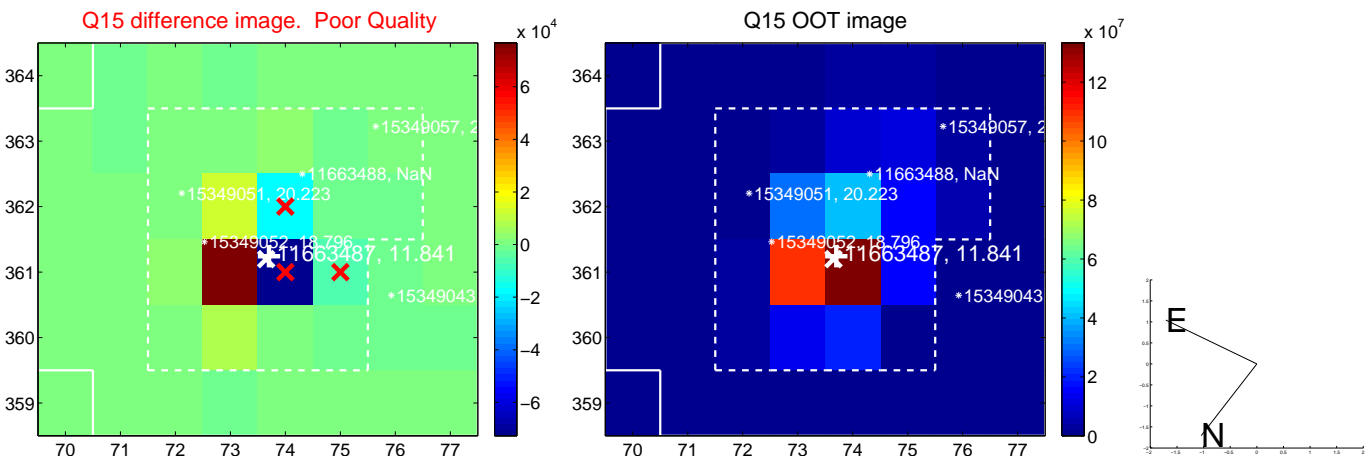




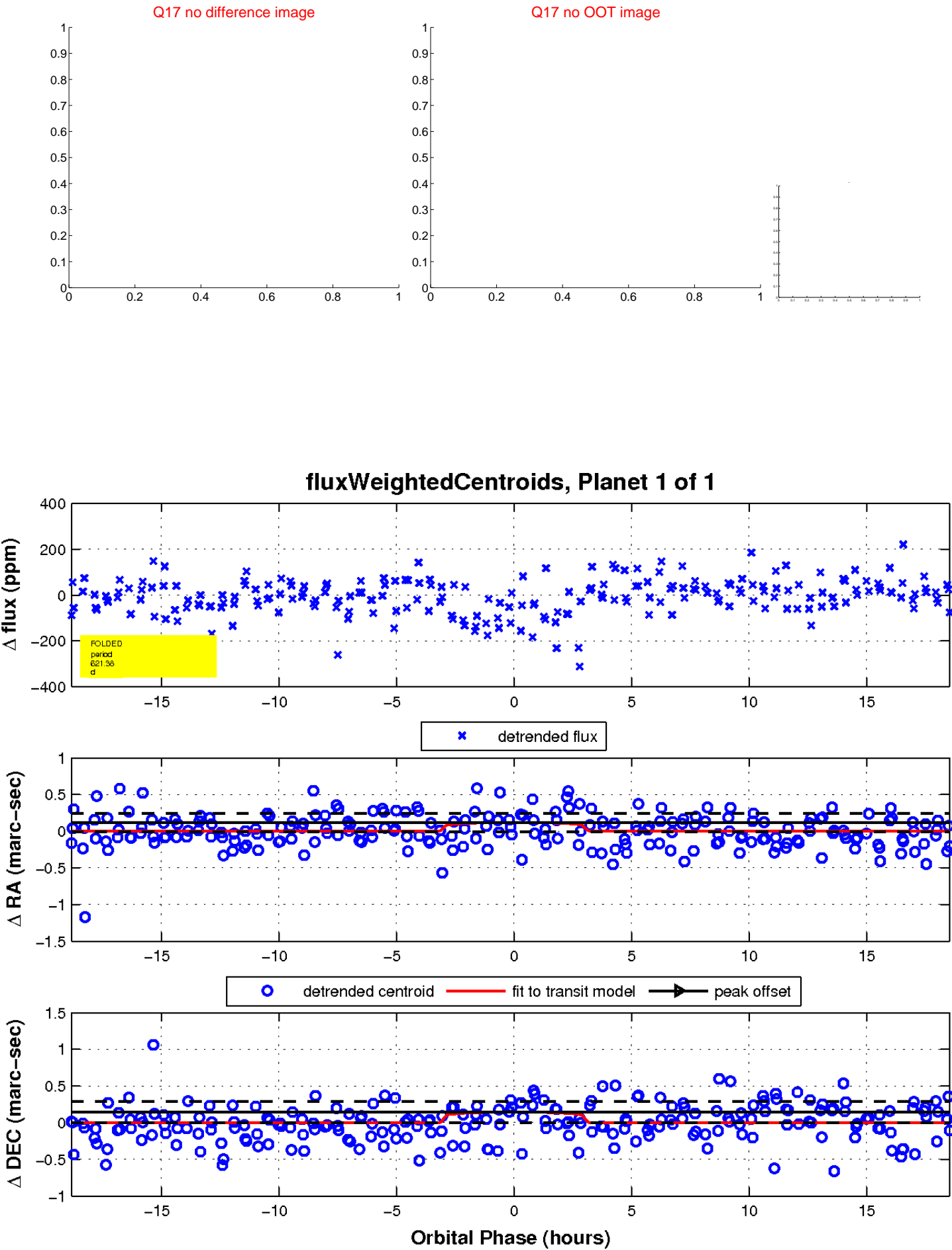
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

