

# KIC 008620443

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008620443-01	OBS	No	282.954244	351.374487	357.2	17.051	8.4	8.7	0.77	5765	1.57	0.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008620443-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—ALL_TRANS_CHASES—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.

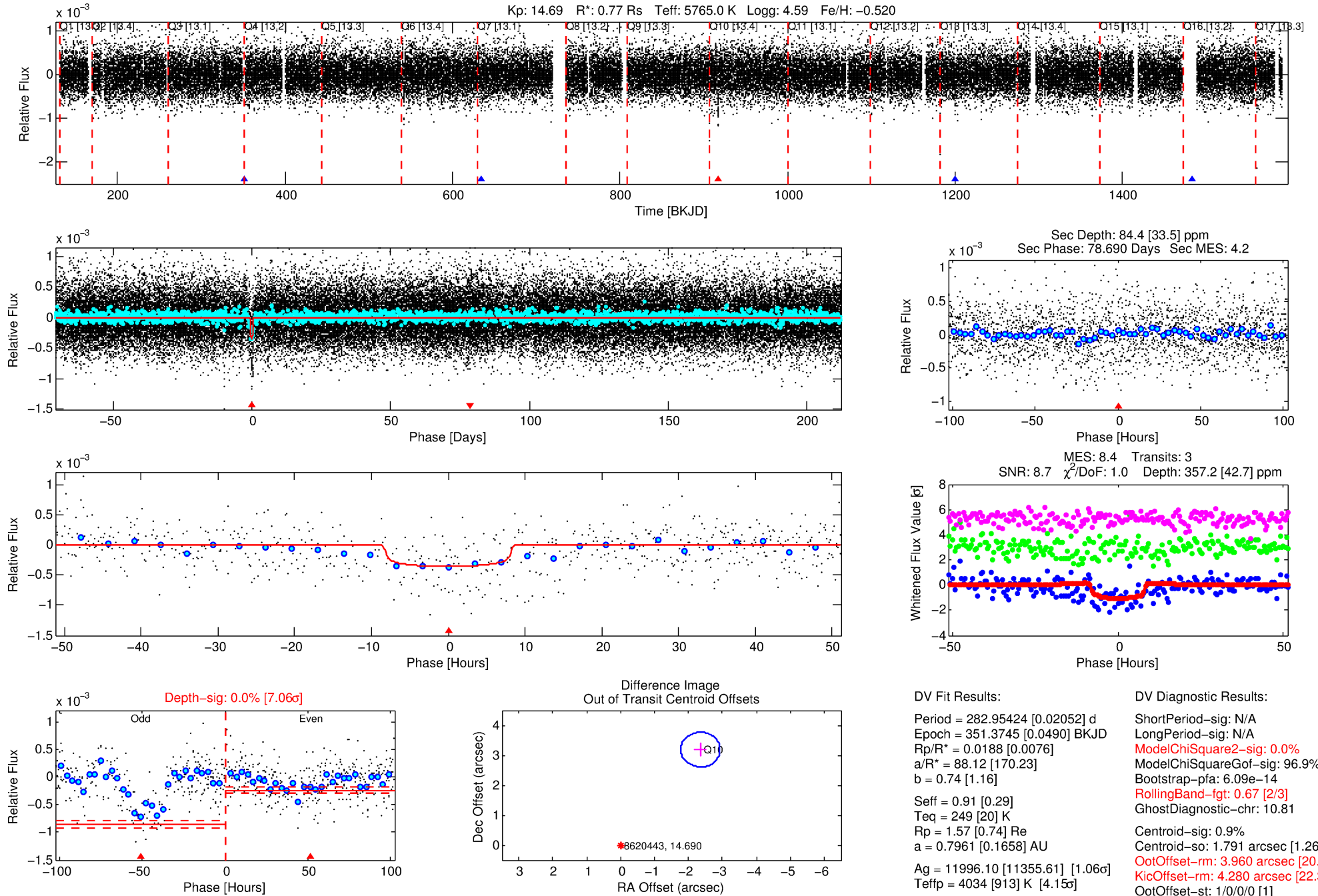
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008620443-01

No Significant Match Found

# DV One-Page Summary

KIC: 8620443 Candidate: 1 of 1 Period: 282.954 d



## DV Fit Results:

Period = 282.95424 [0.02052] d  
Epoch = 351.3745 [0.0490] BKJD  
Rp/R\* = 0.0188 [0.0076]  
a/R\* = 88.12 [170.23]  
b = 0.74 [1.16]  
Seff = 0.91 [0.29]  
Teq = 249 [20] K  
Rp = 1.57 [0.74] Re  
a = 0.7961 [0.1658] AU  
Ag = 11996.10 [11355.61] [1.06 $\sigma$ ]  
Teffp = 4034 [913] K [4.15 $\sigma$ ]

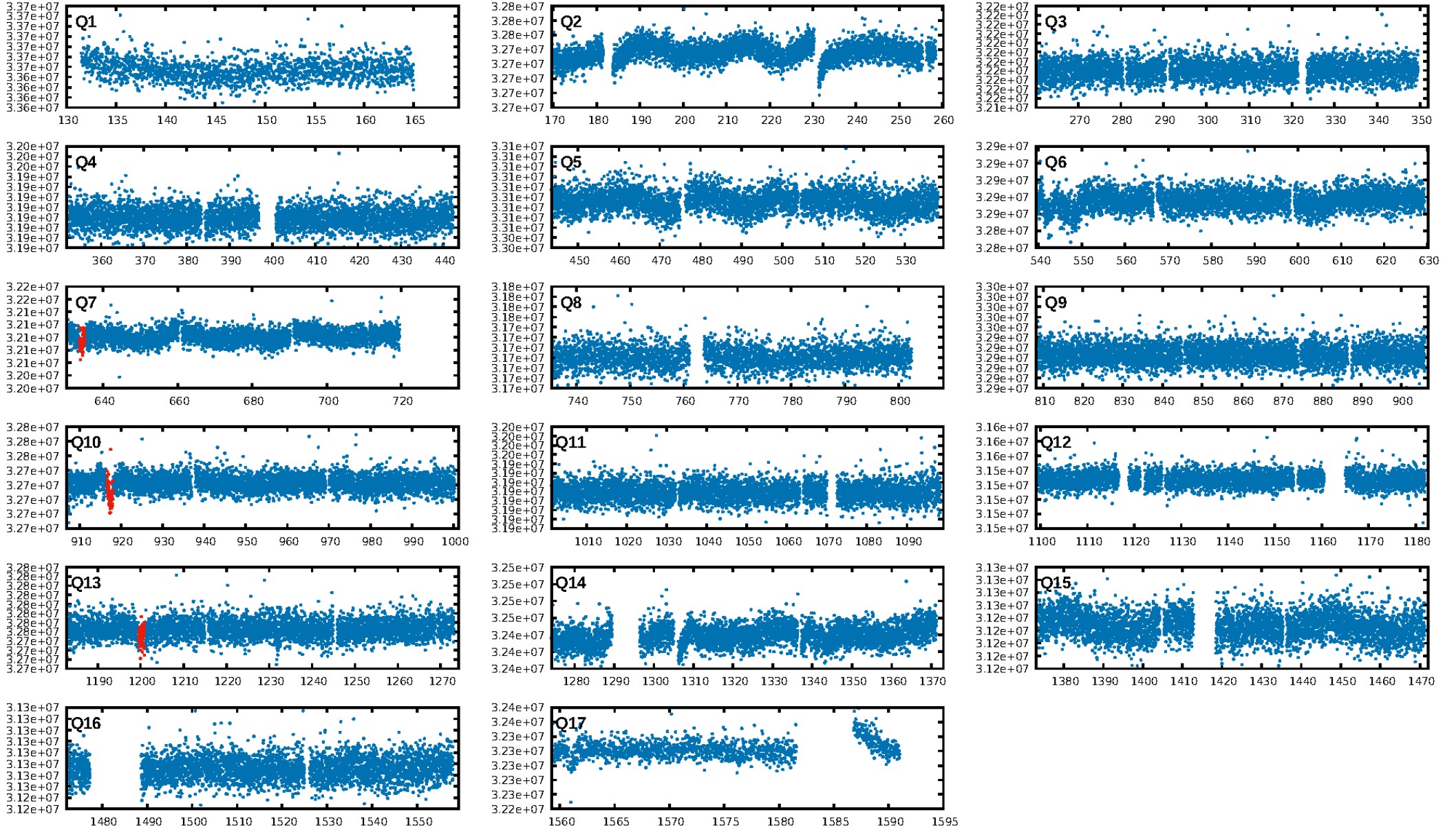
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 96.9%  
Bootstrap-pfa: 6.09e-14  
RollingBand-figt: 0.67 [2/3]  
GhostDiagnostic-chr: 10.81  
Centroid-sig: 0.9%  
Centroid-so: 1.791 arcsec [1.26 $\sigma$ ]  
OotOffset-rm: 3.960 arcsec [20.51 $\sigma$ ]  
KicOffset-rm: 4.280 arcsec [22.38 $\sigma$ ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [1/1]

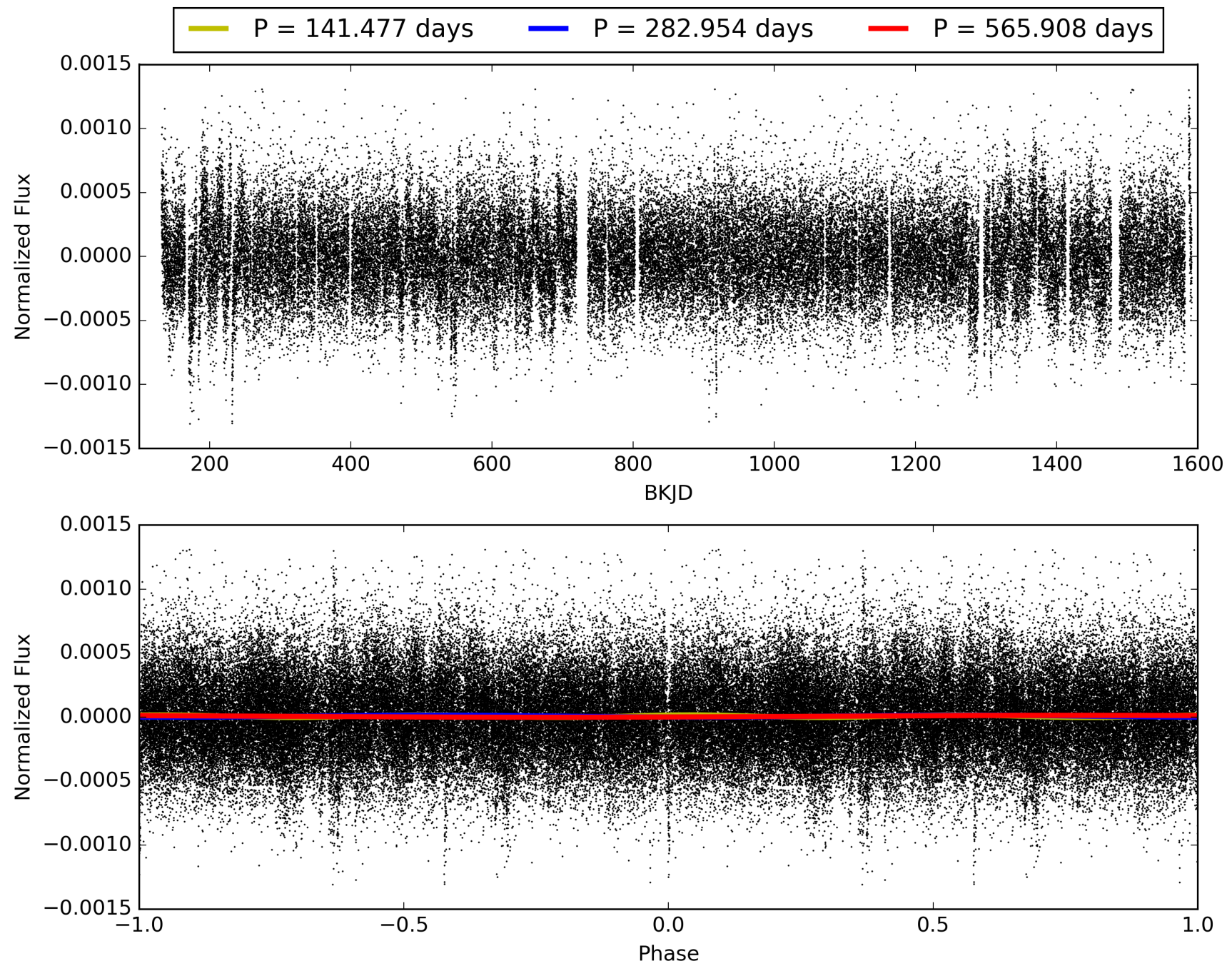
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:32:53 Z

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

# TCE 008620443-01, PDC Light Curves

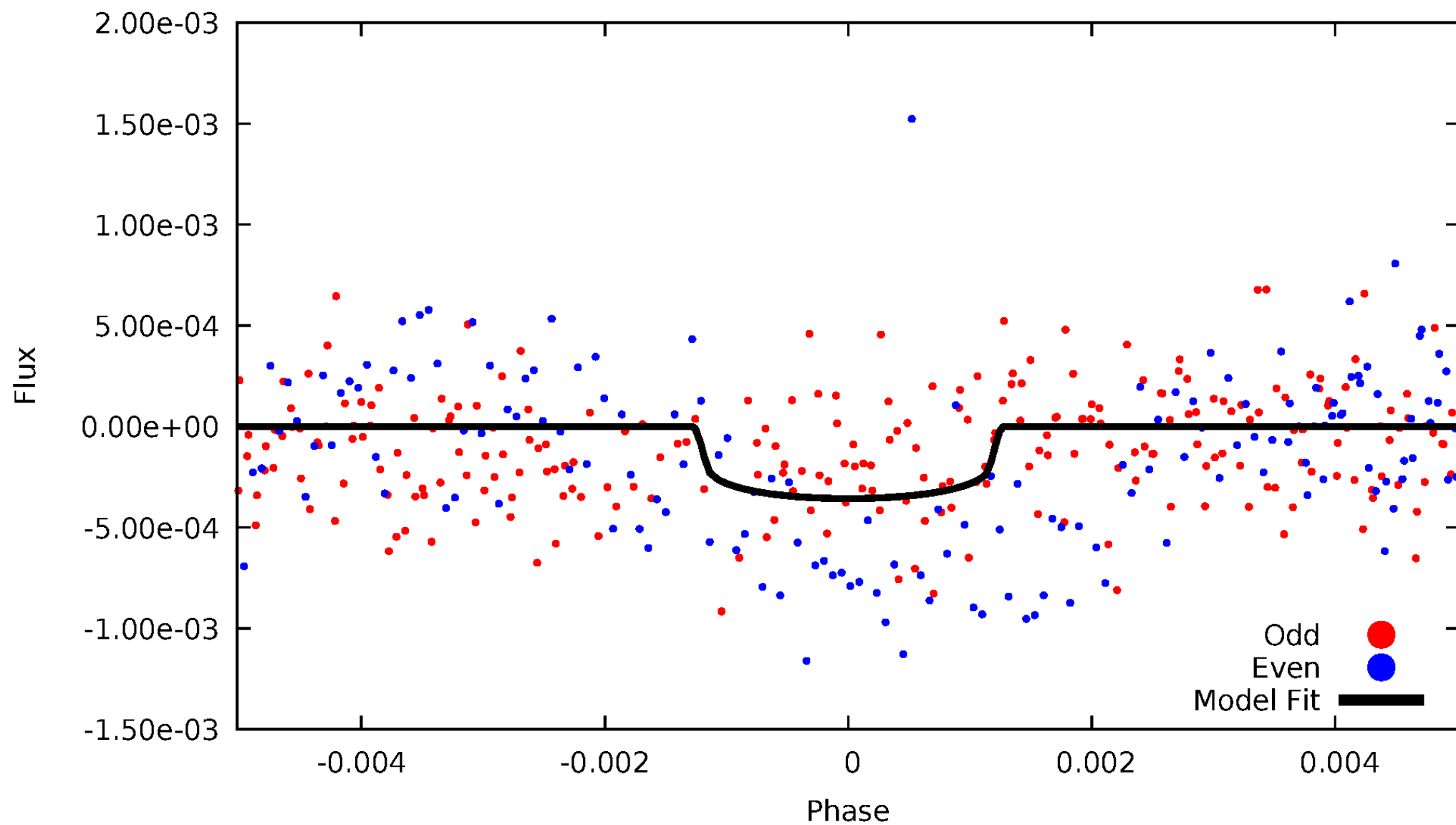


TCE 008620443-01



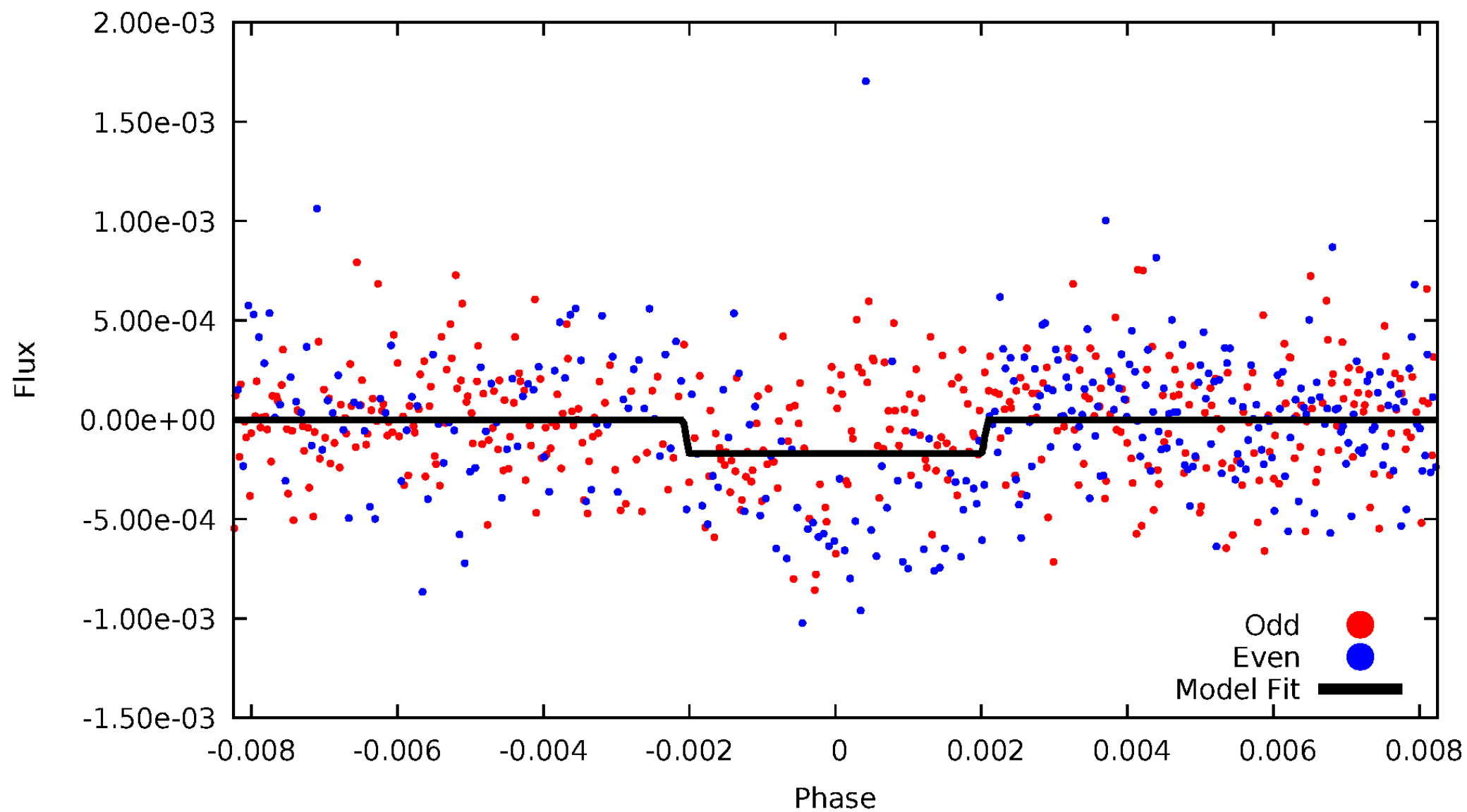
# DV Odd/Even

TCE 008620443-01



# ALT Odd/Even

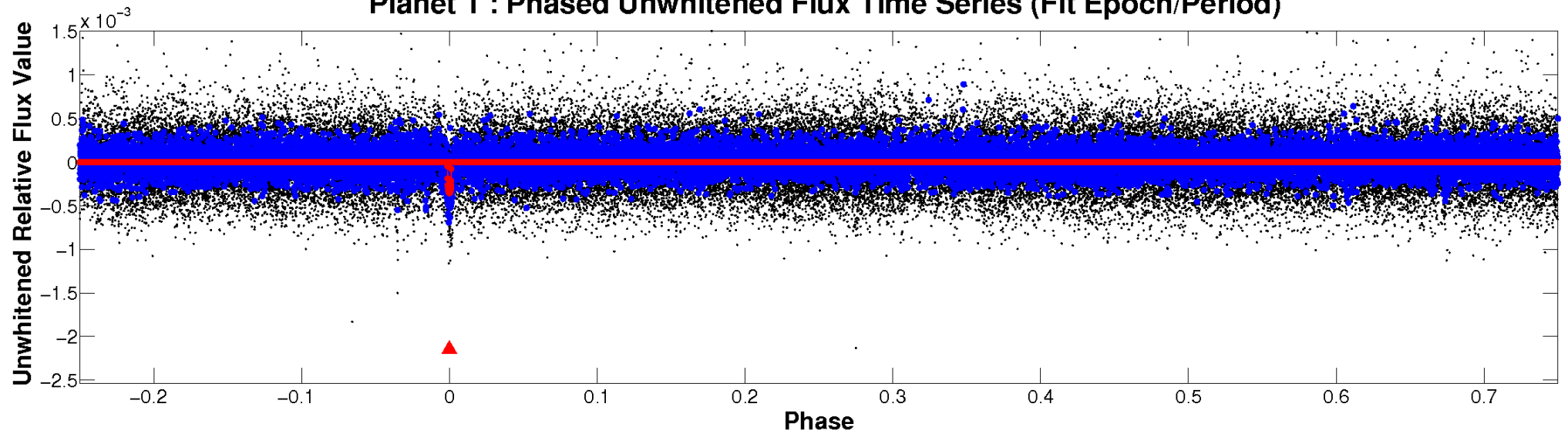
TCE 008620443-01



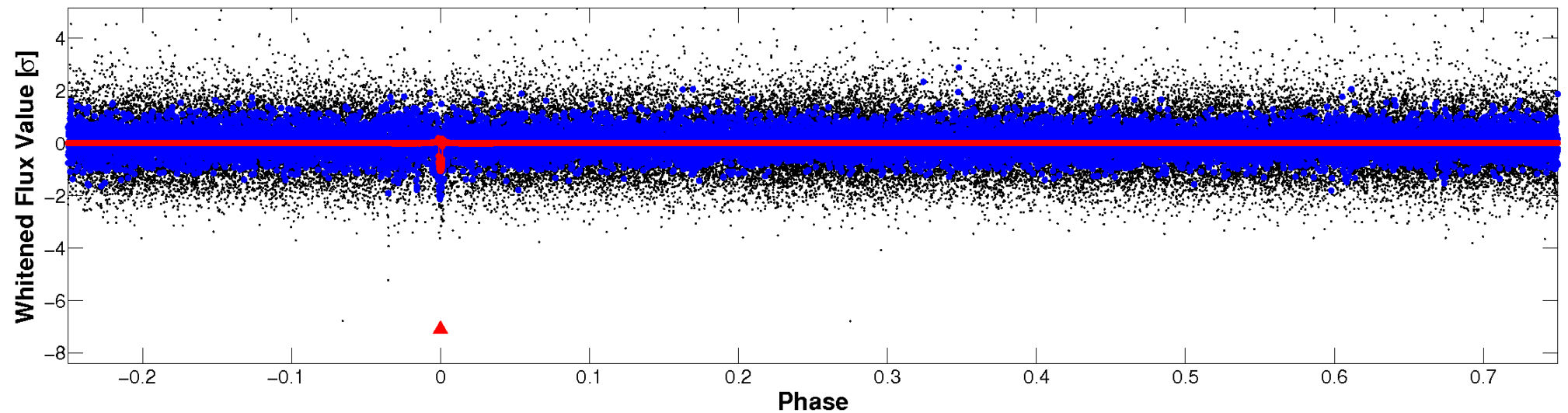


# Non-Whitened Vs. Whitened Light Curve

**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

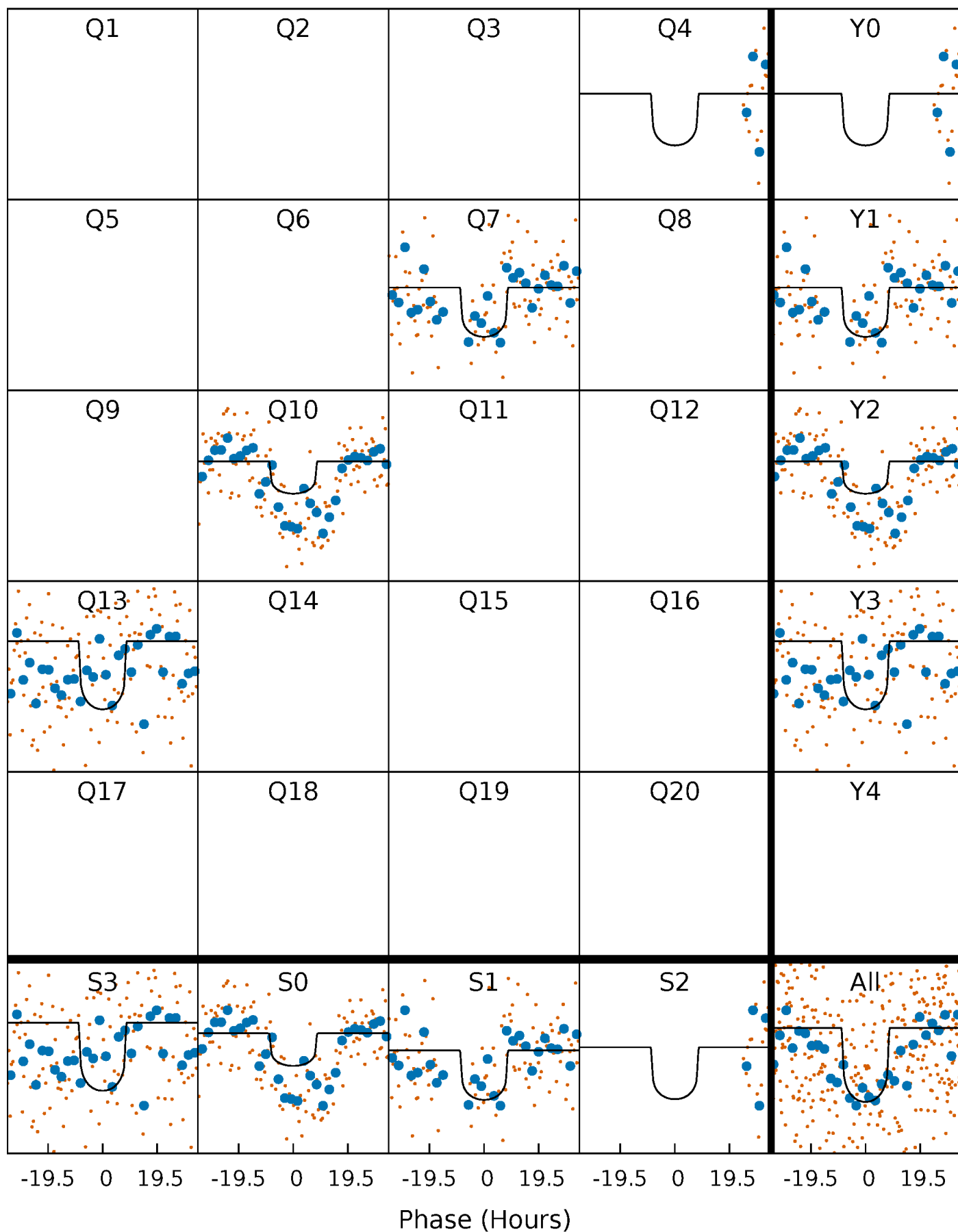
TCE 008620443-01 P=282.954244 Days  $T_0=351.374487$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008620443-01 P=282.954244 Days  $T_0=351.374487$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

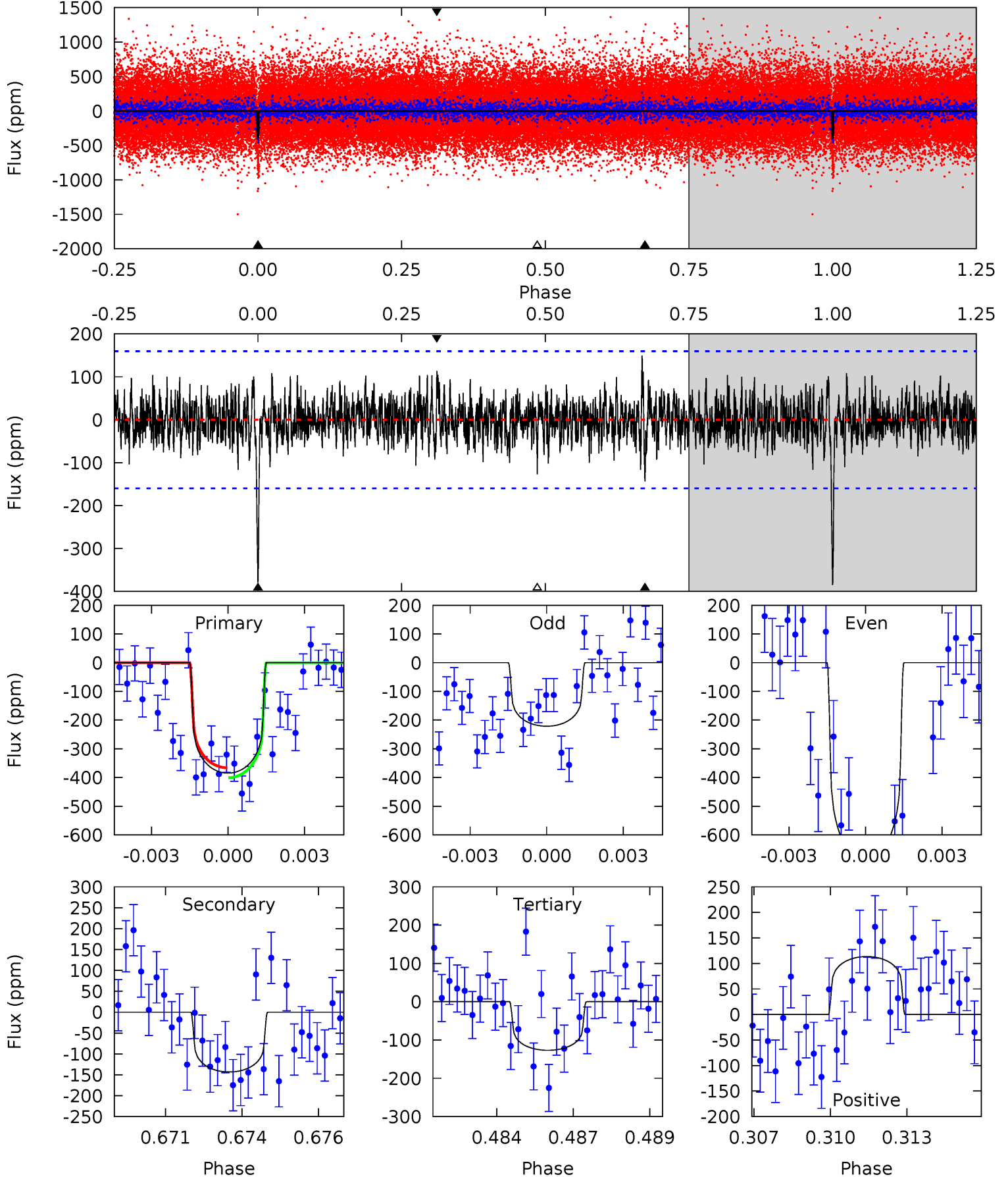
TCE 008620443-01 P=282.705114 Days  $T_0=351.902683$  (BKJD)



# DV Model-Shift Uniqueness Test

008620443-01, P = 282.954244 Days, E = 68.420243 Days

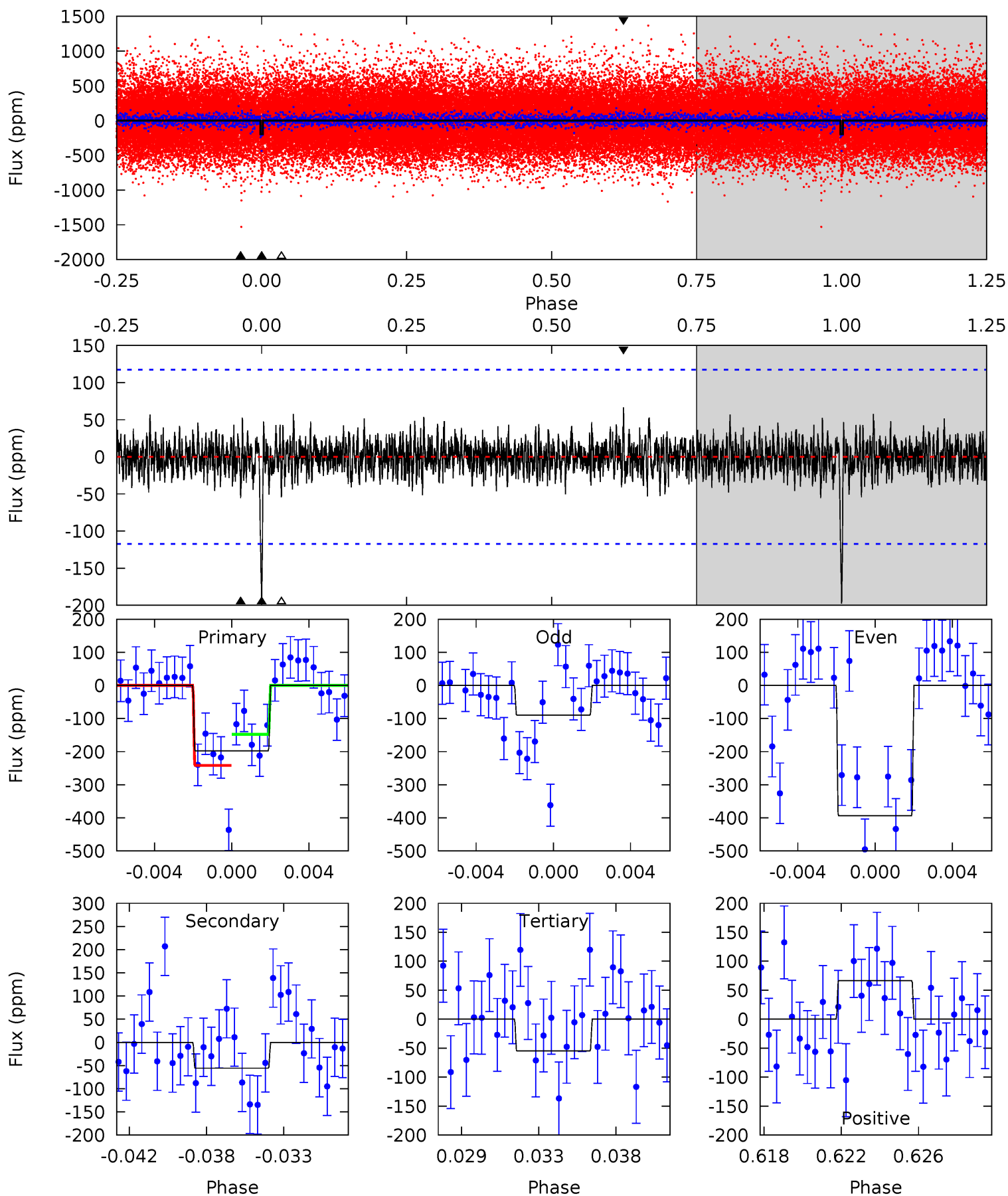
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	4.74	4.20	3.75	5.28	3.02	1.19	8.53	8.97	0.54	0.98	7.40	1.36	0.28	0.57



# Alt Model-Shift Uniqueness Test

008620443-01, P = 282.705114 Days, E = 69.197569 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
8.74	2.46	2.41	2.93	5.19	2.86	0.73	6.33	5.81	0.05	-0.47	6.45	0.96	0.25	2.07



### Stellar Parameters For KIC 008620443

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5765^{+155}_{-155}$	$4.595^{+0.040}_{-0.160}$	$-0.520^{+0.300}_{-0.300}$	$0.765^{+0.193}_{-0.051}$	$0.845^{+0.088}_{-0.088}$	$2.664^{+0.435}_{-1.207}$
	+3%/-3%	+1%/-3%	+58%/-58%	+25%/-7%	+10%/-10%	+16%/-45%
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 008620443-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-143 \pm 30$	$1.63^{+0.67}_{-0.64}$	$353^{+20}_{-14}$	$4708^{+1192}_{-620}$	$18370^{+32643}_{-9710}$
Alt.	$-56 \pm 23$	$1.13^{+0.67}_{-0.57}$	$353^{+20}_{-13}$	$4493^{+1606}_{-768}$	$14239^{+46527}_{-9261}$

$T_{max}$  = 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

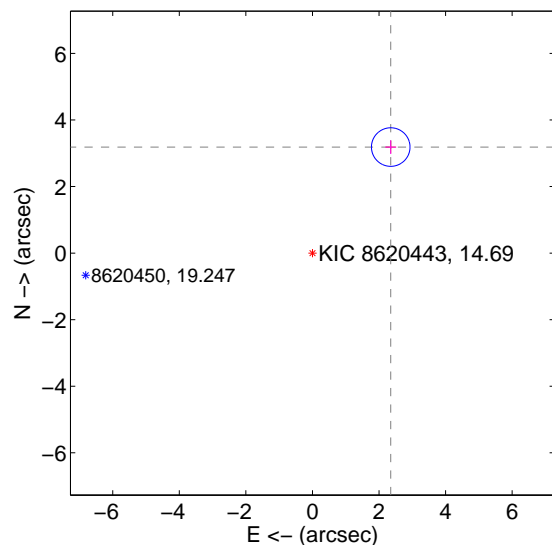
Supplemental centroid analysis for 008620443-01. Kepler magnitude: 14.69. Transit SNR 8.73

There are 0 quarters with good PRF difference image offsets

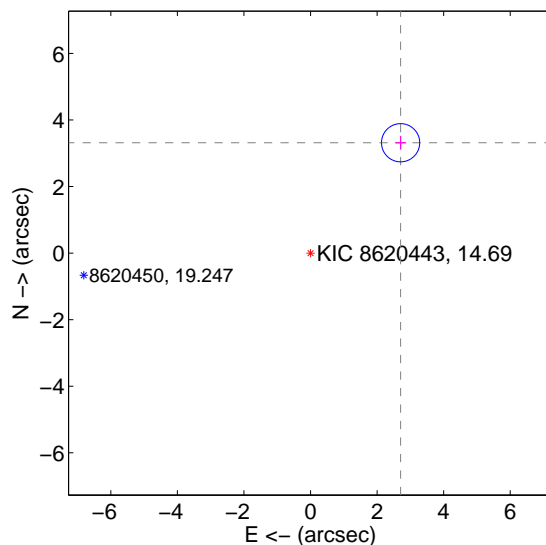
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.960 \pm 0.193$	20.51	$-2.352 \pm 0.165$	$3.186 \pm 0.207$
PRF-fit source offset from KIC position	$4.280 \pm 0.191$	22.38	$-2.706 \pm 0.165$	$3.316 \pm 0.207$
photometric centroid source offset	$1.79 \pm 1.42$	1.26	$-1.48 \pm 1.37$	$-1.01 \pm 1.53$

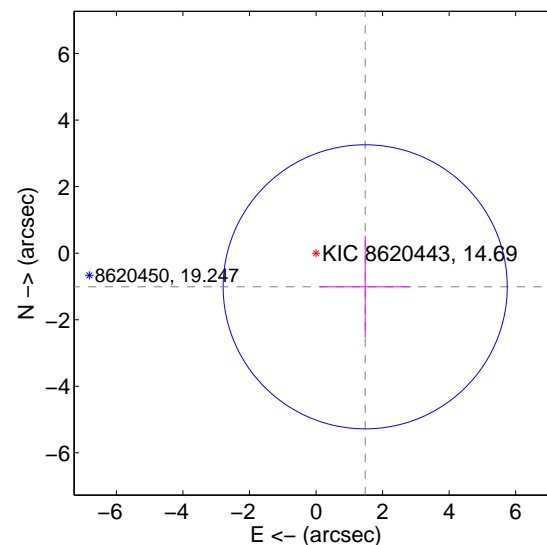
offset from difference PRF-fit to OOT PRF-fit



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.



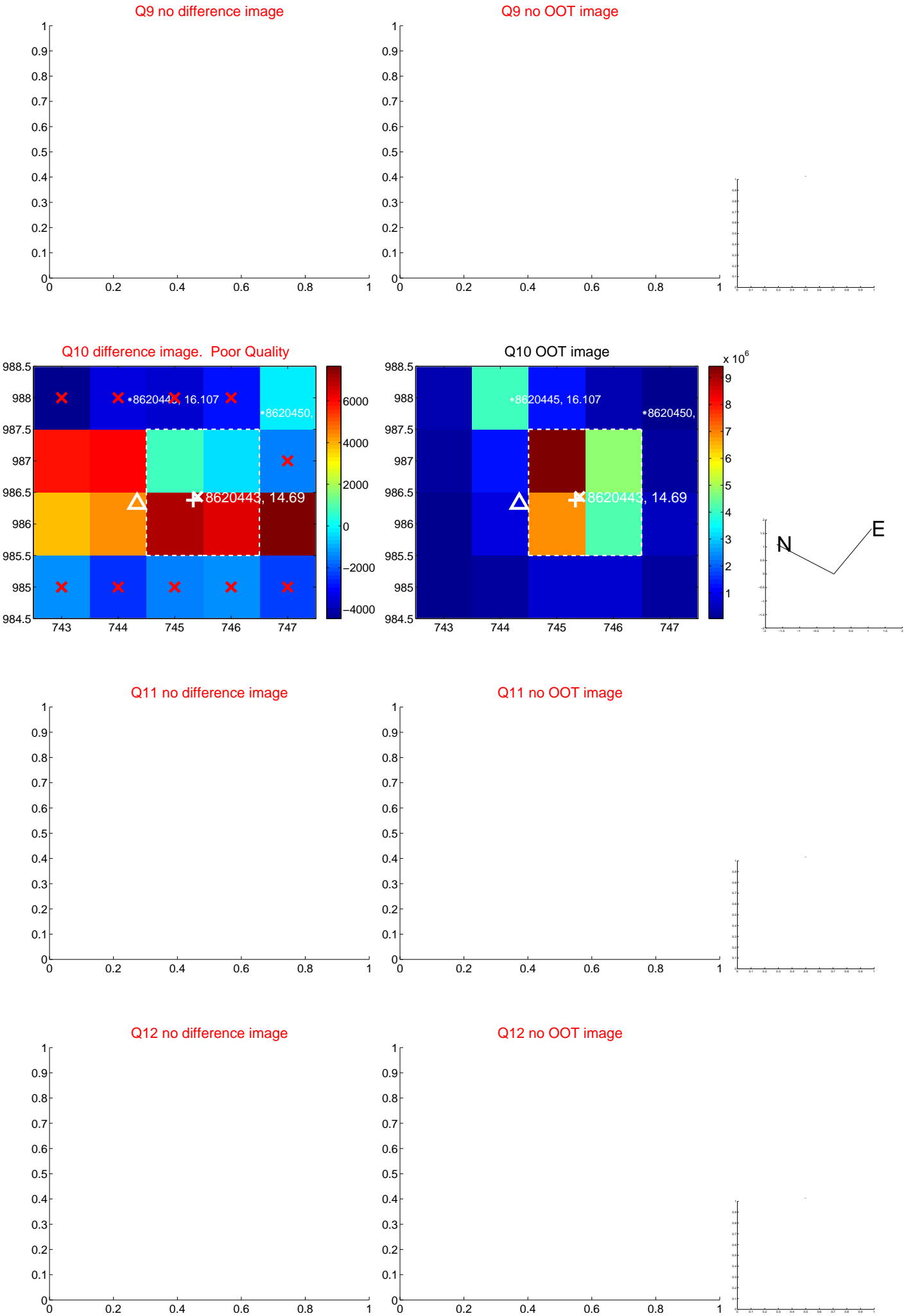
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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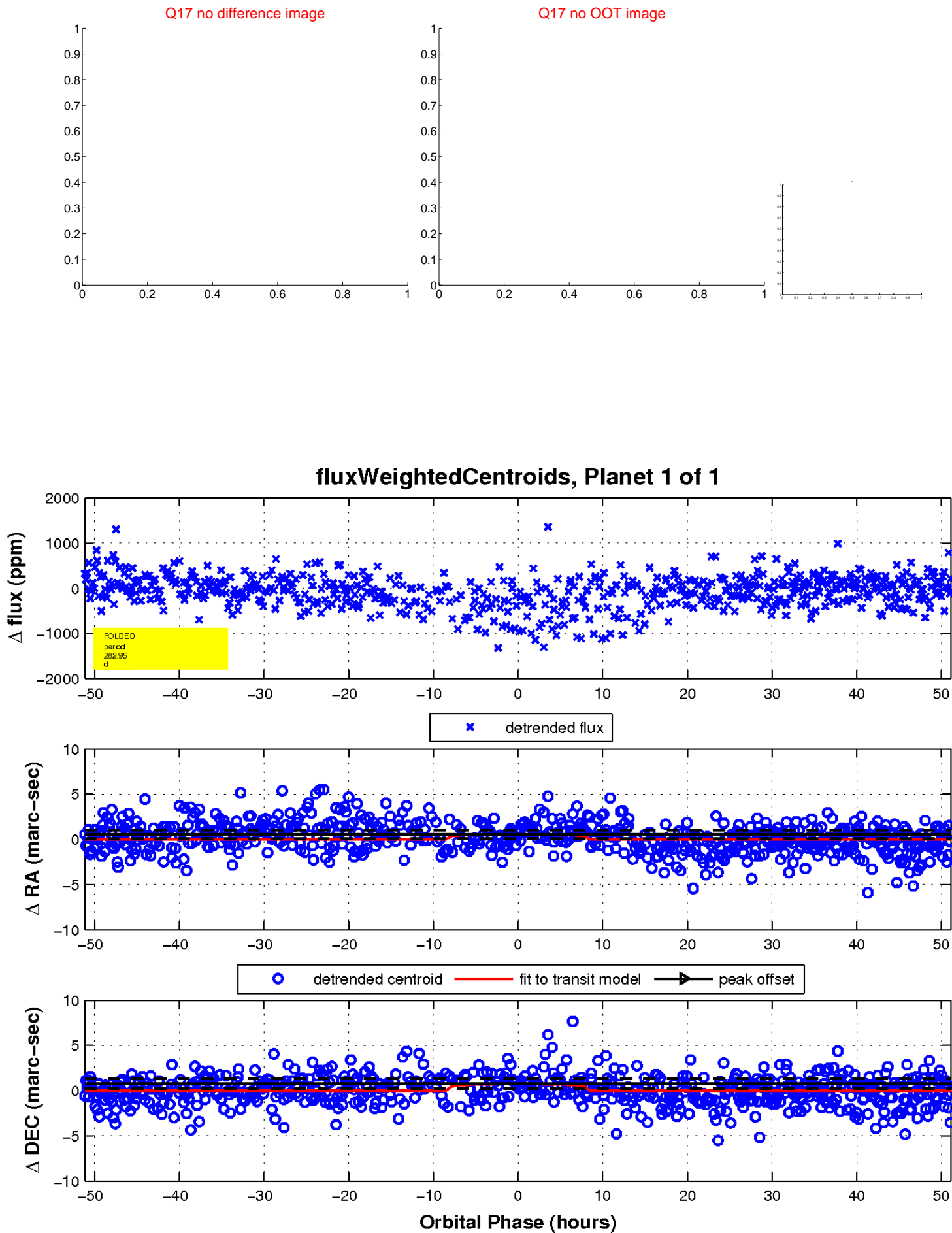
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

