

# KIC 007953895

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007953895-01	OBS	No	373.711551	259.792873	699.1	22.597	7.7	9.0	0.93	6092	2.49	1.05

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007953895-01	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS—EPHEM_MATCH

**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.

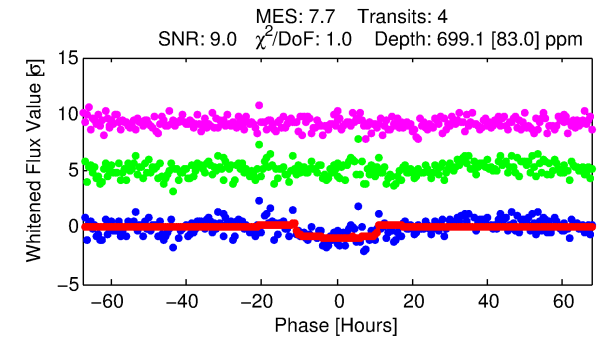
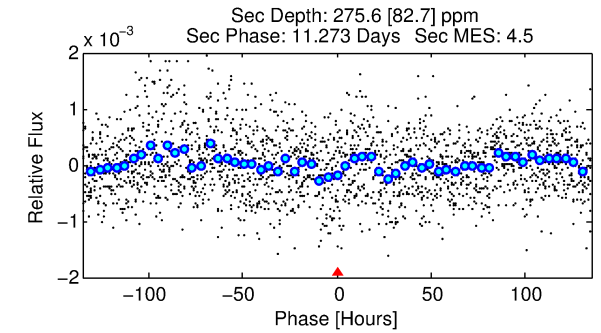
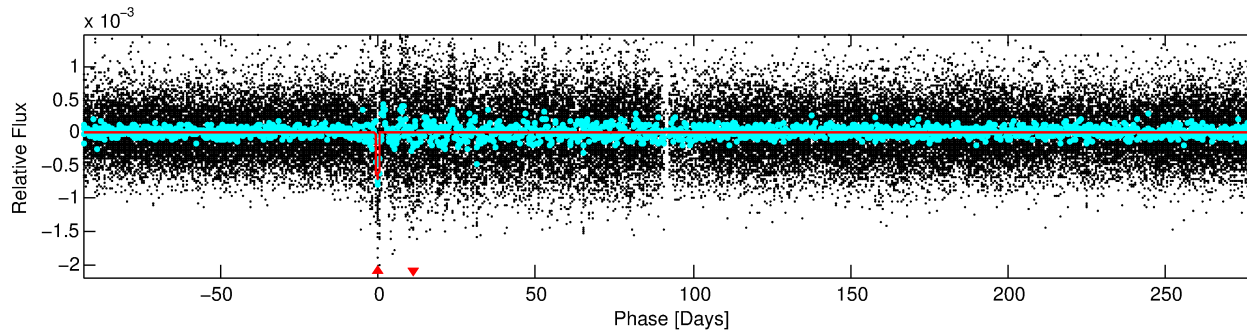
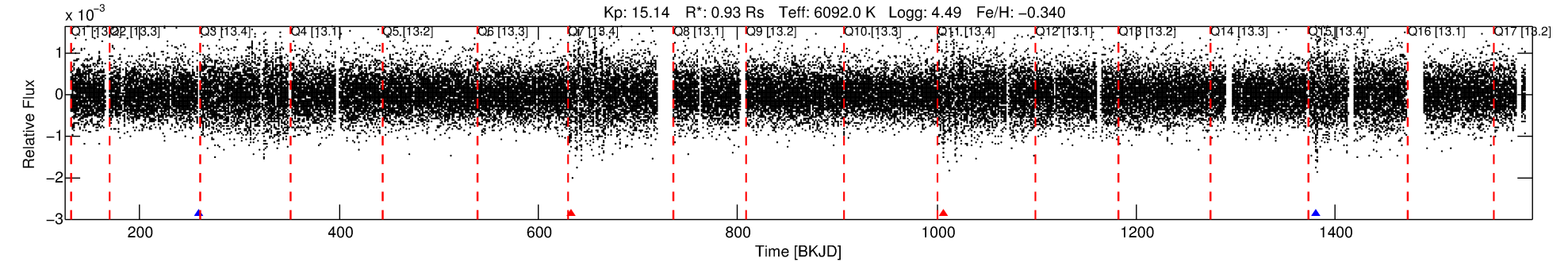
## Ephemeris Match Information For 007953895-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007953895-01	7953895	007747835-01	7747835	1:1	1640.3	6	412	15.19	15.14	0.81	Col-Anomaly	1	0.98	1.11

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 7953895 Candidate: 1 of 1 Period: 373.712 d

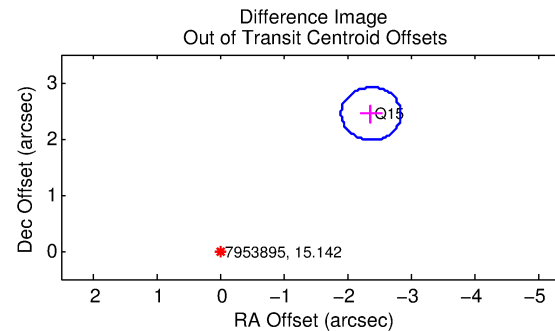
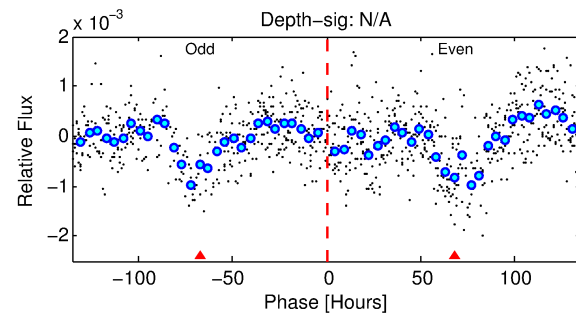
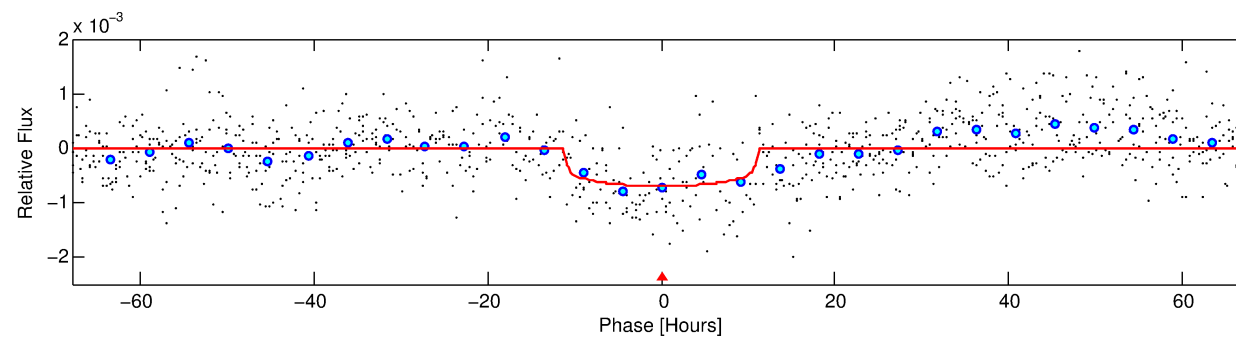


## DV Fit Results:

Period = 373.71155 [0.01206] d  
Epoch = 259.7929 [0.0258] BKJD  
Rp/R\* = 0.0246 [0.0072]  
a/R\* = 120.43 [173.26]  
b = 0.38 [3.28]  
Seff = 1.05 [0.41]  
Teff = 258 [25] K  
Rp = 2.49 [1.05] Re  
a = 1.0040 [0.2550] AU  
Ag = 24627.11 [18607.57] [1.32σ]  
Teffp = 5004 [841] K [5.64σ]

## DV Diagnostic Results:

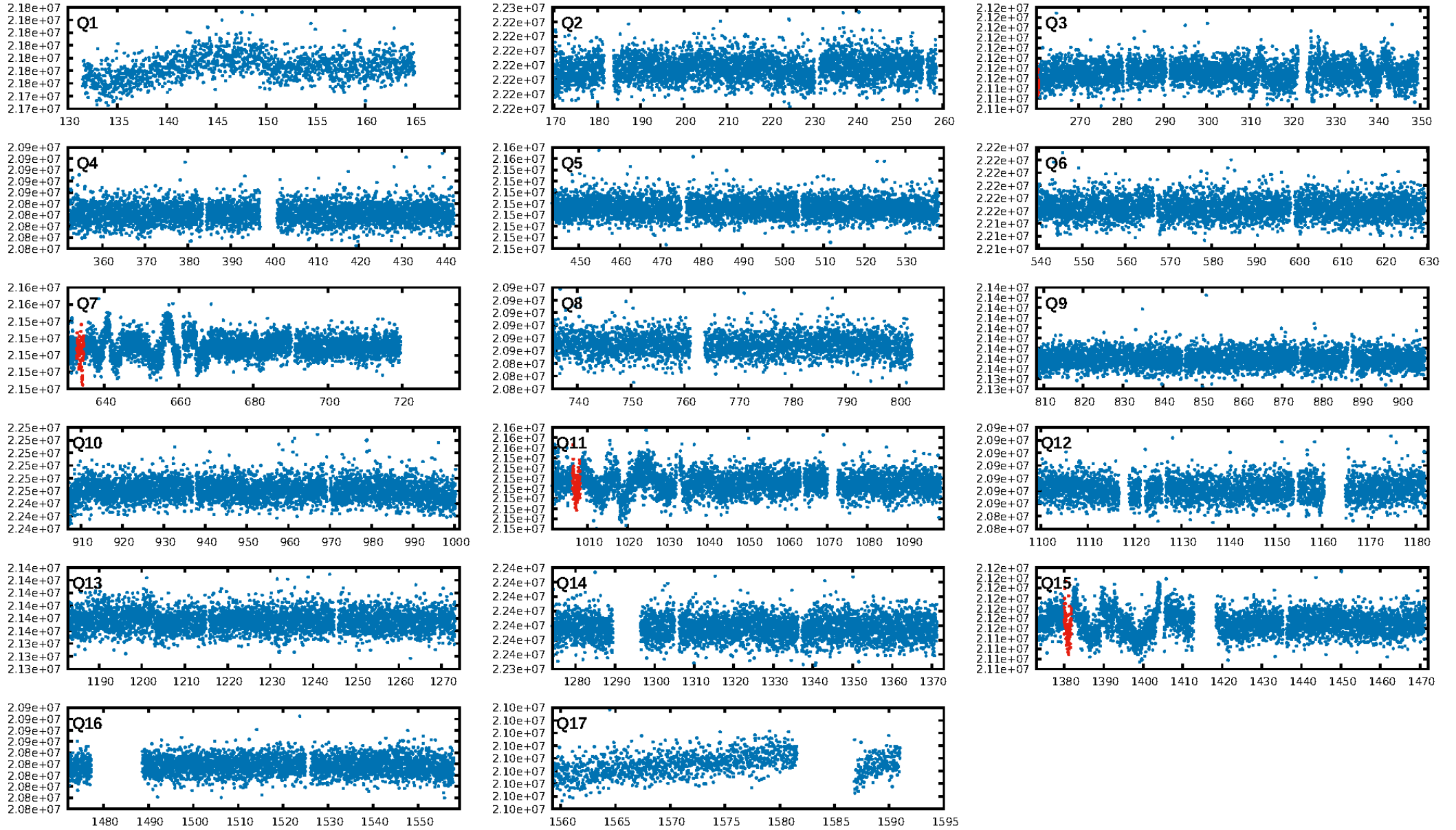
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 15.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 8.99e-13  
RollingBand-fgt: 0.50 [2/4]  
GhostDiagnostic-chr: 0.9127  
Centroid-sig: 65.0%  
Centroid-so: 1.538 arcsec [0.71σ]  
OotOffset-rm: 3.408 arcsec [21.78σ]  
KicOffset-rm: 3.460 arcsec [22.06σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [1/1]



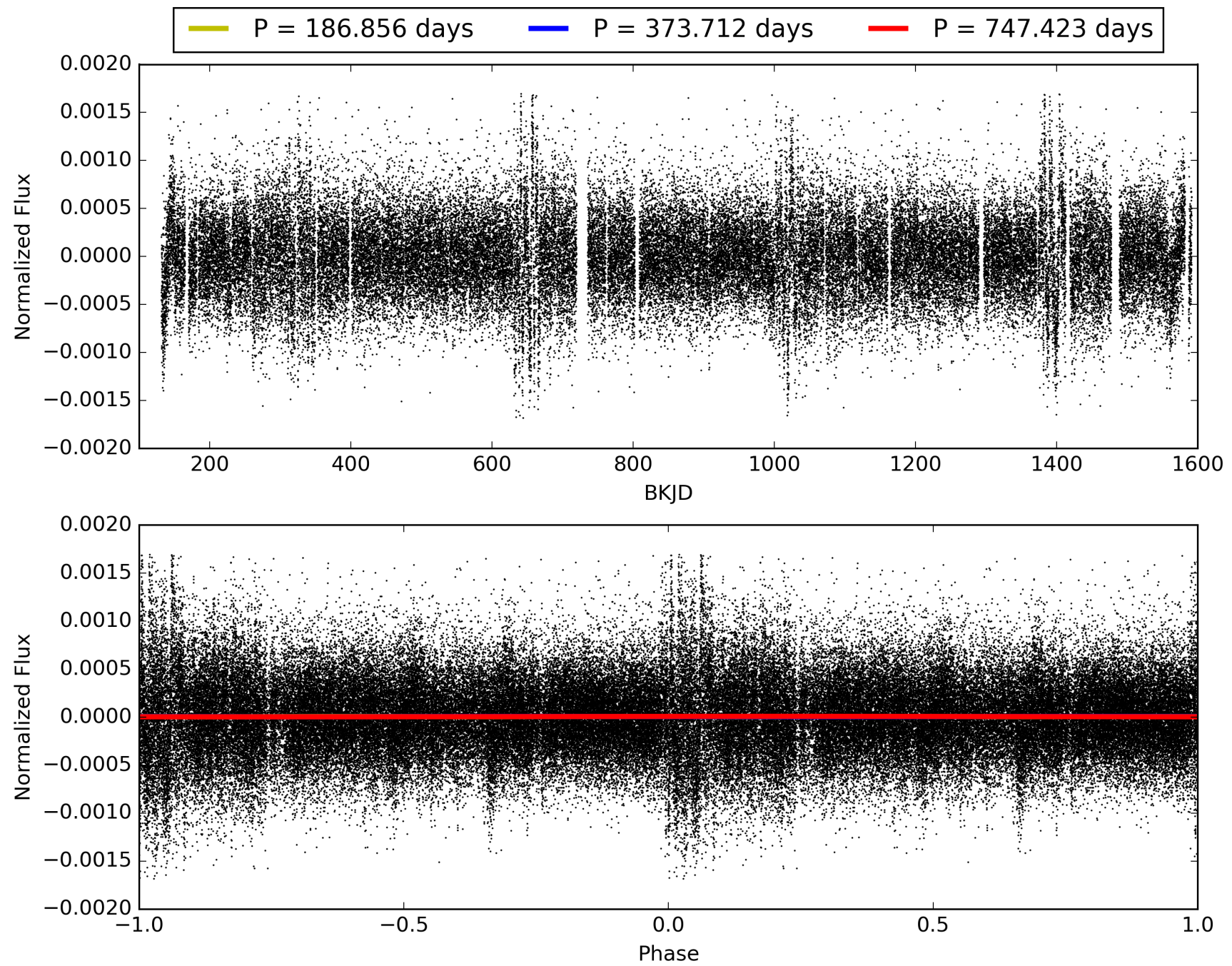
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:47:29 Z

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

# TCE 007953895-01, PDC Light Curves

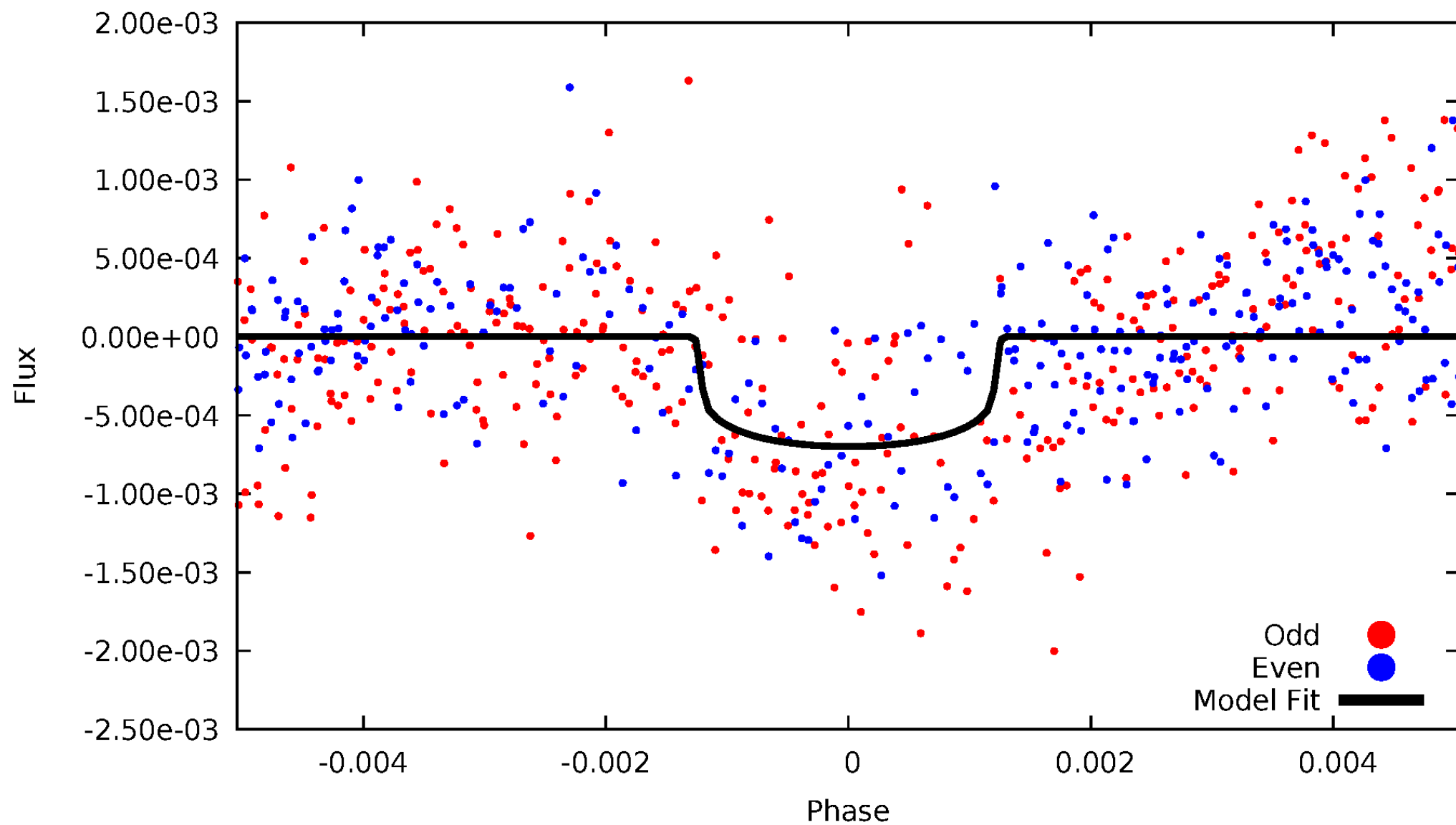


TCE 007953895-01



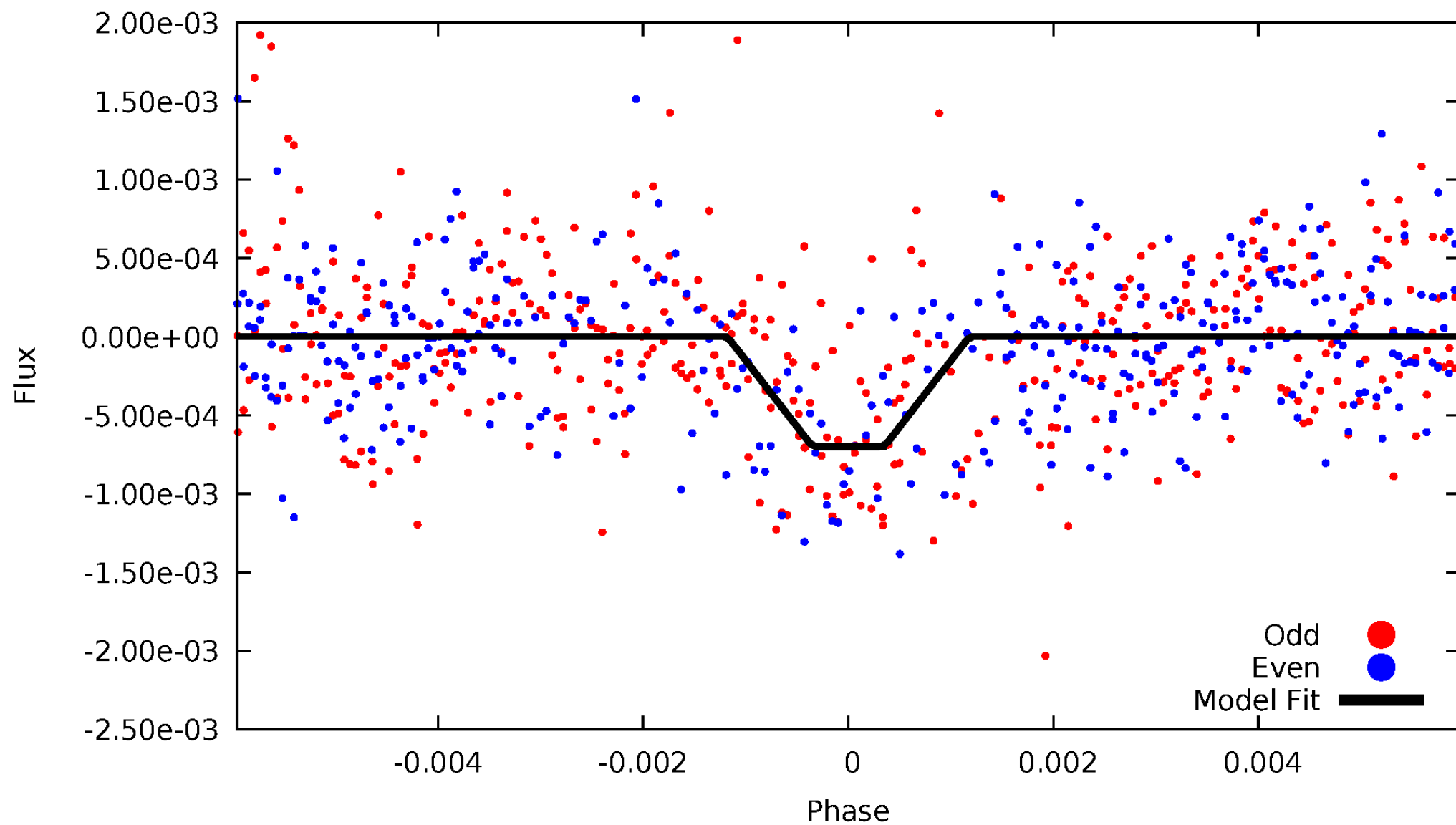
# DV Odd/Even

TCE 007953895-01



# ALT Odd/Even

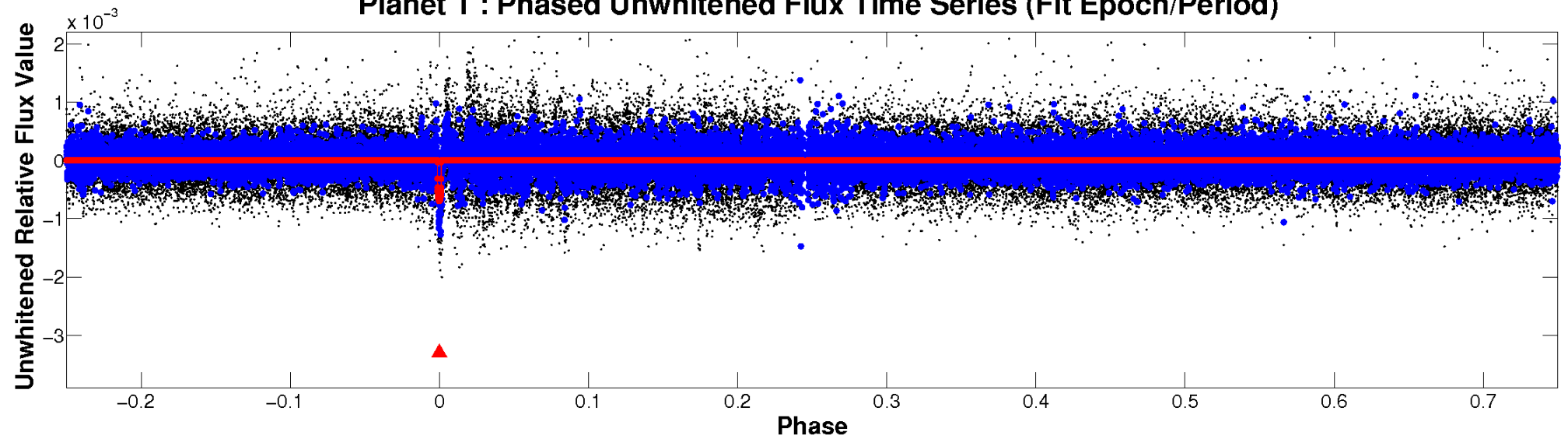
TCE 007953895-01



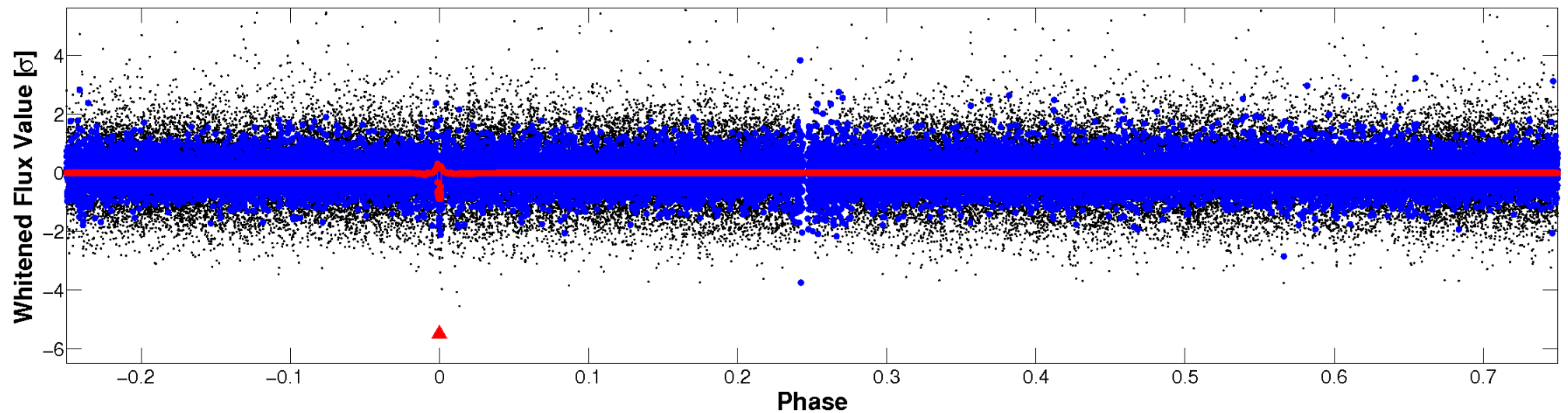


# Non-Whitened Vs. Whitened Light Curve

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

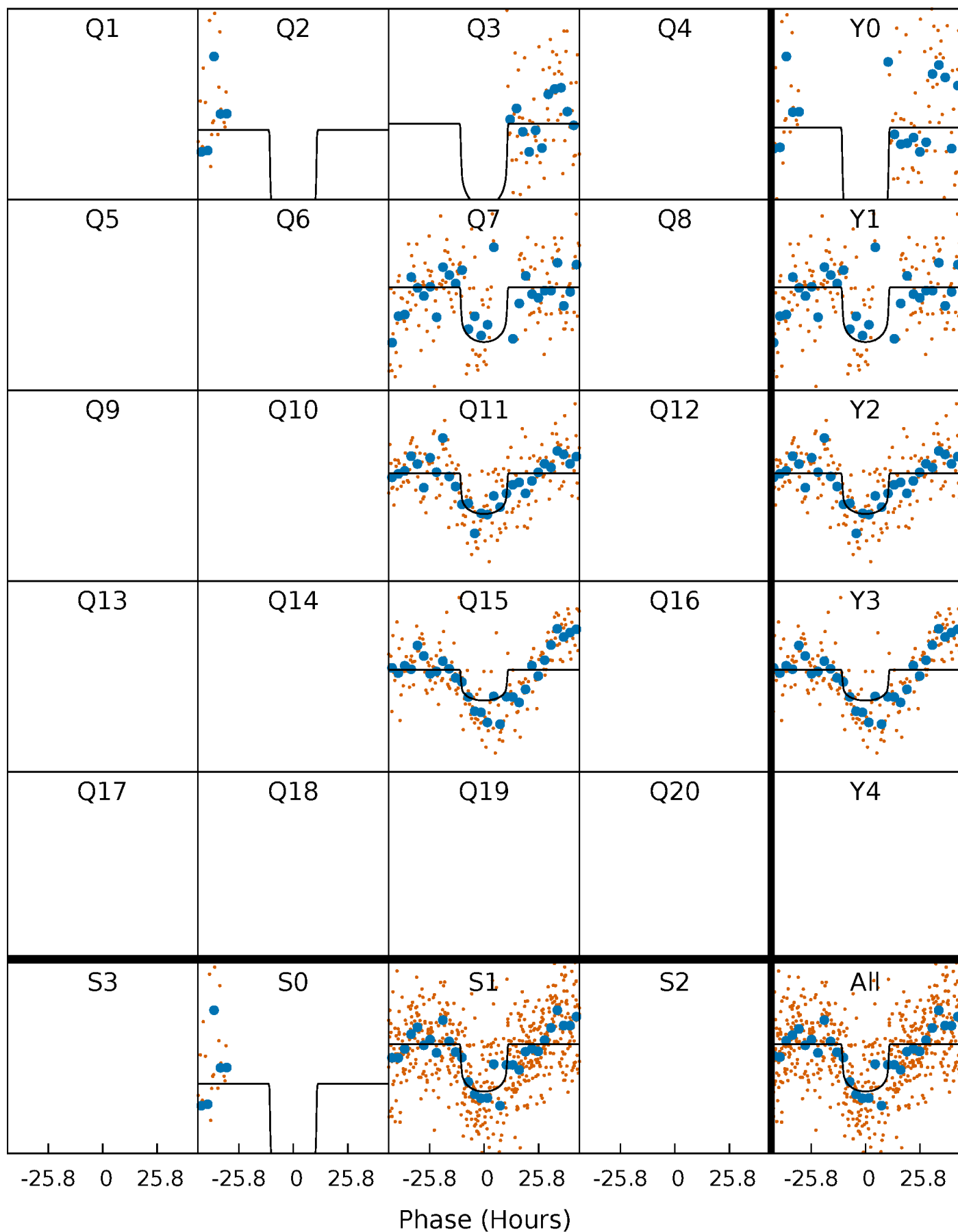
TCE 007953895-01     $P=373.711551$  Days     $T_0=259.792873$  (BKJD)





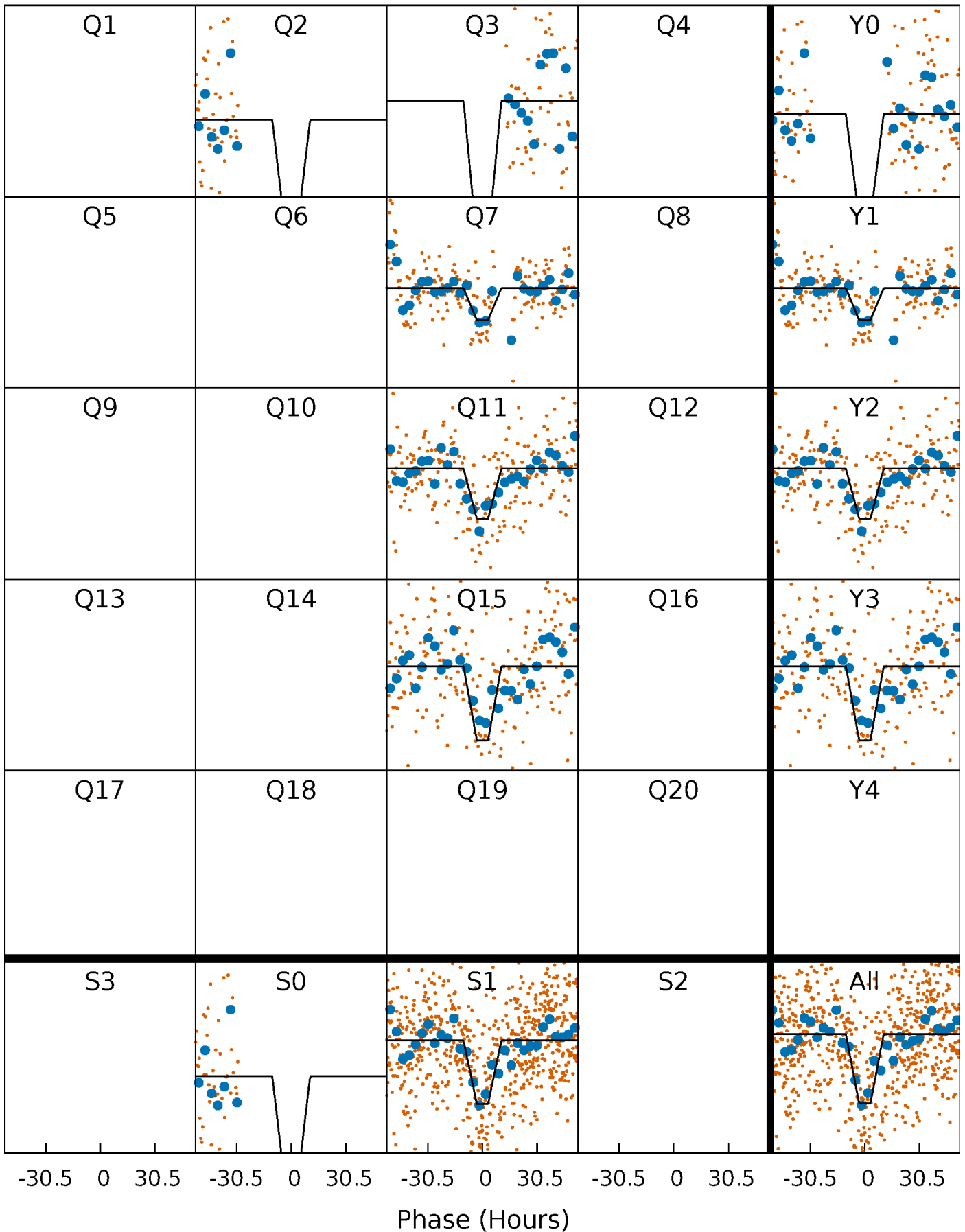
# DV Quarter-Phased Transit Curves

TCE 007953895-01 P=373.711551 Days  $T_0=259.792873$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

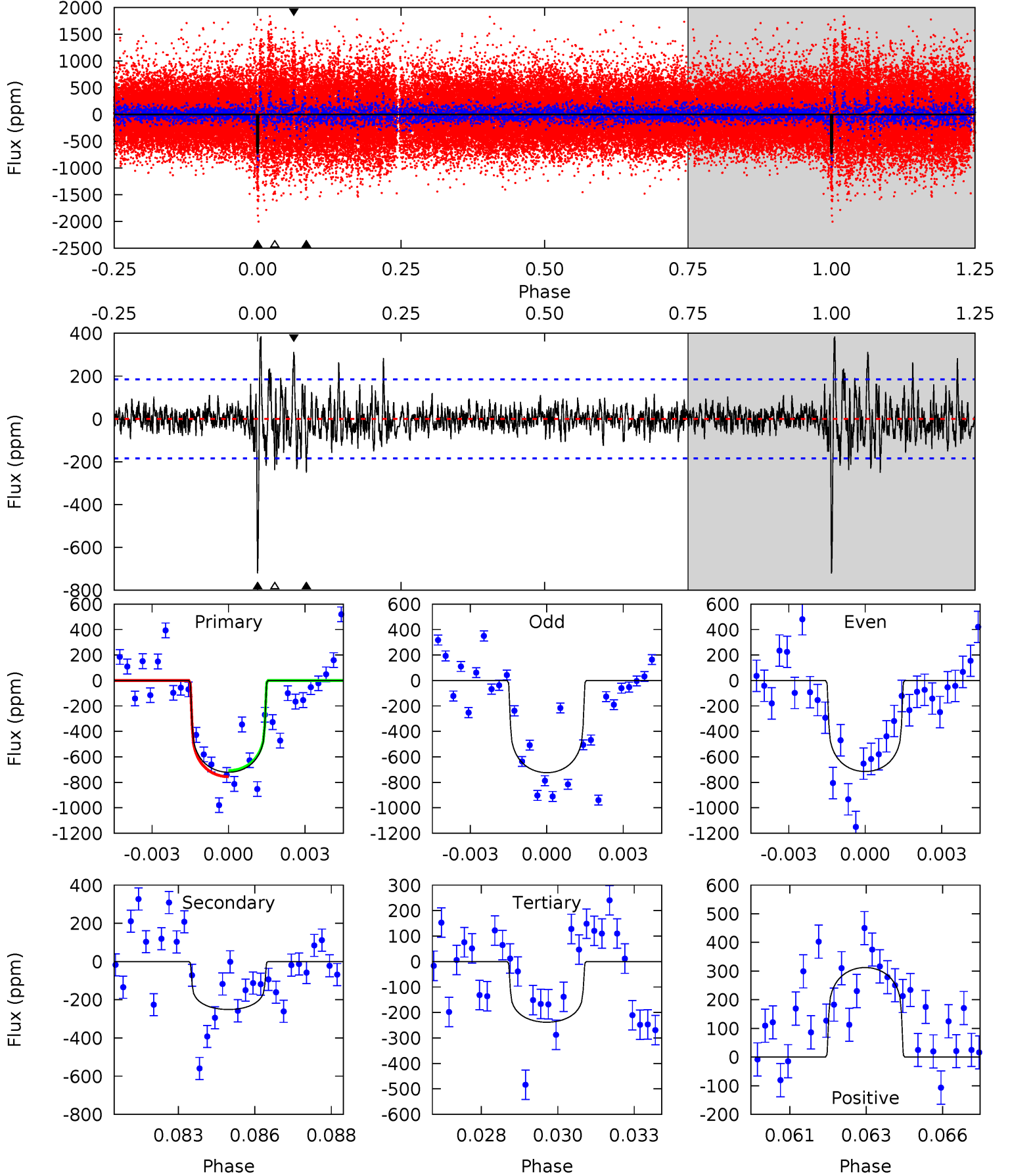
TCE 007953895-01 P=373.709379 Days  $T_0=259.711733$  (BKJD)



# DV Model-Shift Uniqueness Test

007953895-01,  $P = 373.711551$  Days,  $E = 259.792873$  Days

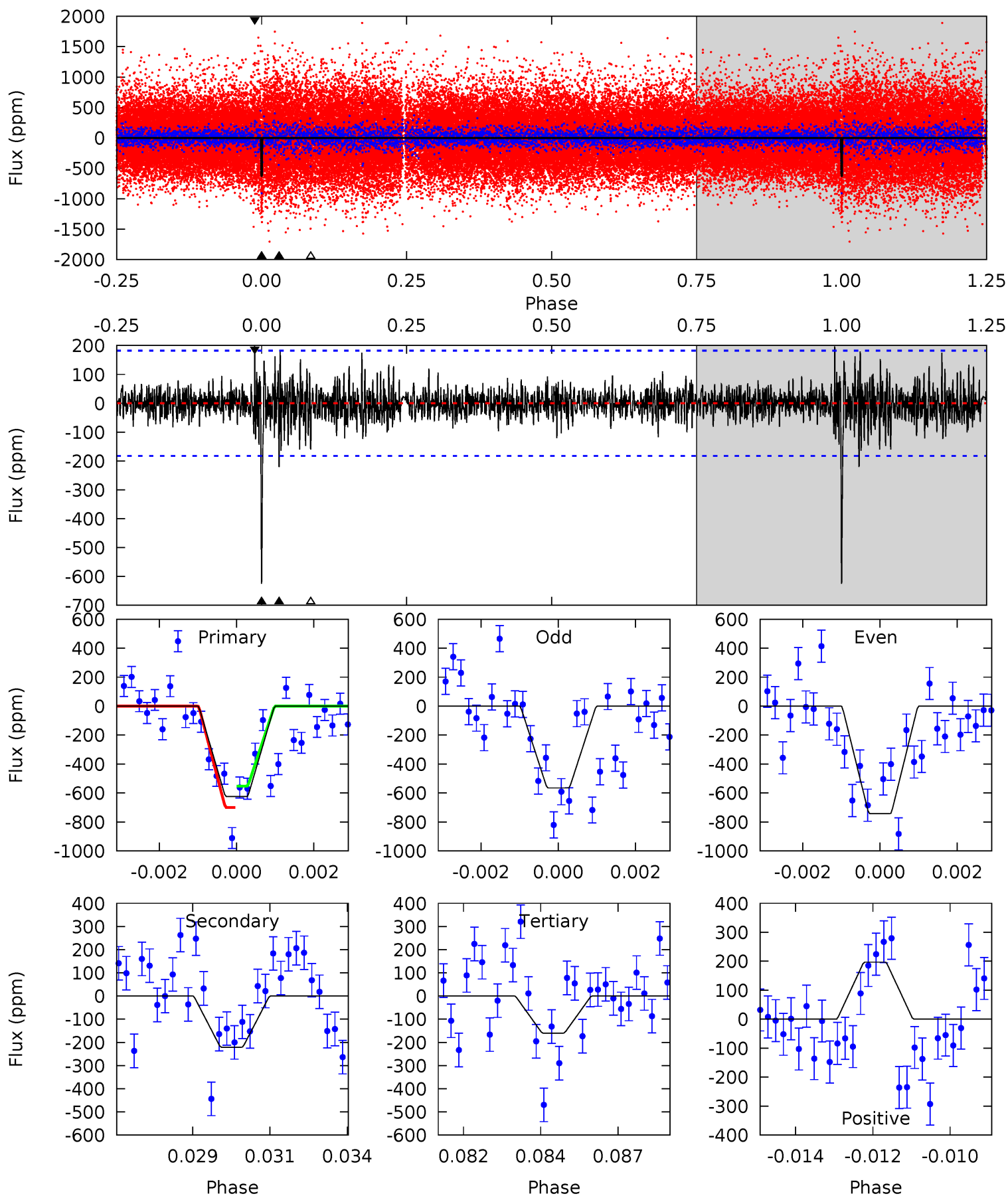
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	7.19	6.82	8.94	5.28	3.02	1.67	13.8	11.7	0.37	-1.76	0.13	-0.17	0.35	0.68



# Alt Model-Shift Uniqueness Test

007953895-01,  $P = 373.709379$  Days,  $E = 259.711733$  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
18.1	6.41	4.64	5.72	5.29	3.03	1.16	13.5	12.4	1.76	0.69	2.49	1.01	0.24	2.14



### Stellar Parameters For KIC 007953895

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6092^{+183}_{-201}$	$4.488^{+0.054}_{-0.202}$	$-0.340^{+0.300}_{-0.300}$	$0.928^{+0.280}_{-0.100}$	$0.966^{+0.130}_{-0.118}$	$1.701^{+0.474}_{-0.884}$
	+3%/-3%	+1%/-5%	+88%/-88%	+30%/-11%	+13%/-12%	+28%/-52%
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 007953895-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-251 \pm 35$	$2.60^{+0.92}_{-0.79}$	$368^{+27}_{-19}$	$4965^{+886}_{-542}$	$19982^{+20977}_{-9327}$
Alt.	$-221 \pm 34$	$2.84^{+0.82}_{-0.86}$	$369^{+26}_{-19}$	$4684^{+802}_{-439}$	$14633^{+17144}_{-5742}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

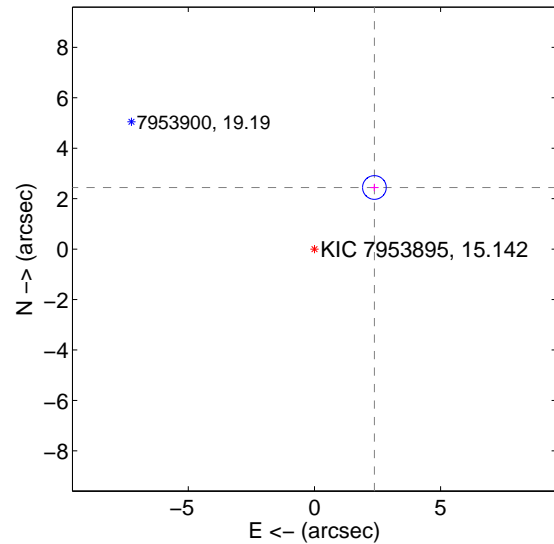
Supplemental centroid analysis for 007953895-01. Kepler magnitude: 15.14. Transit SNR 8.95

There are 0 quarters with good PRF difference image offsets

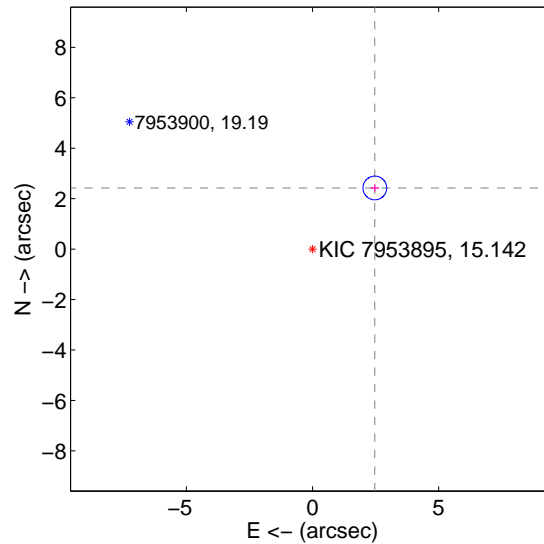
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.408 \pm 0.157$	21.78	$-2.377 \pm 0.164$	$2.442 \pm 0.149$
PRF-fit source offset from KIC position	$3.460 \pm 0.157$	22.06	$-2.470 \pm 0.164$	$2.424 \pm 0.149$
photometric centroid source offset	$1.54 \pm 2.15$	0.71	$-1.40 \pm 2.13$	$-0.63 \pm 2.27$

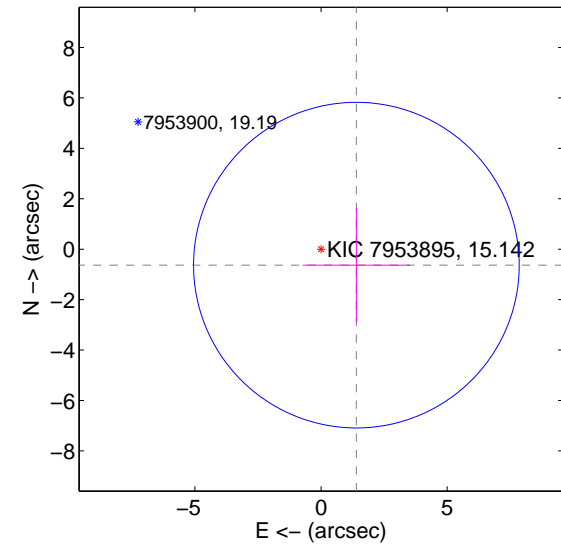
offset from difference PRF-fit to OOT PRF-fit



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.



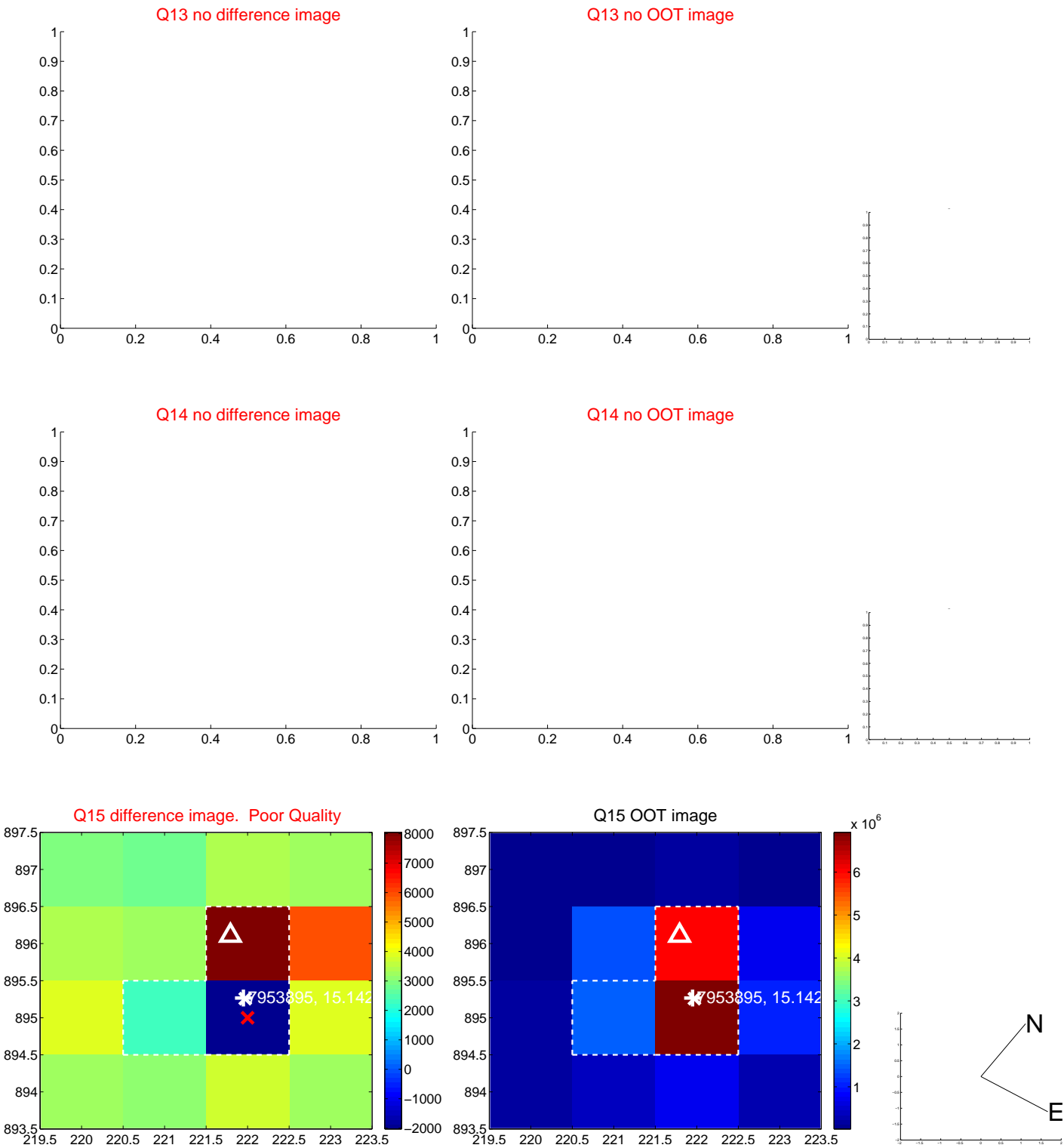
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



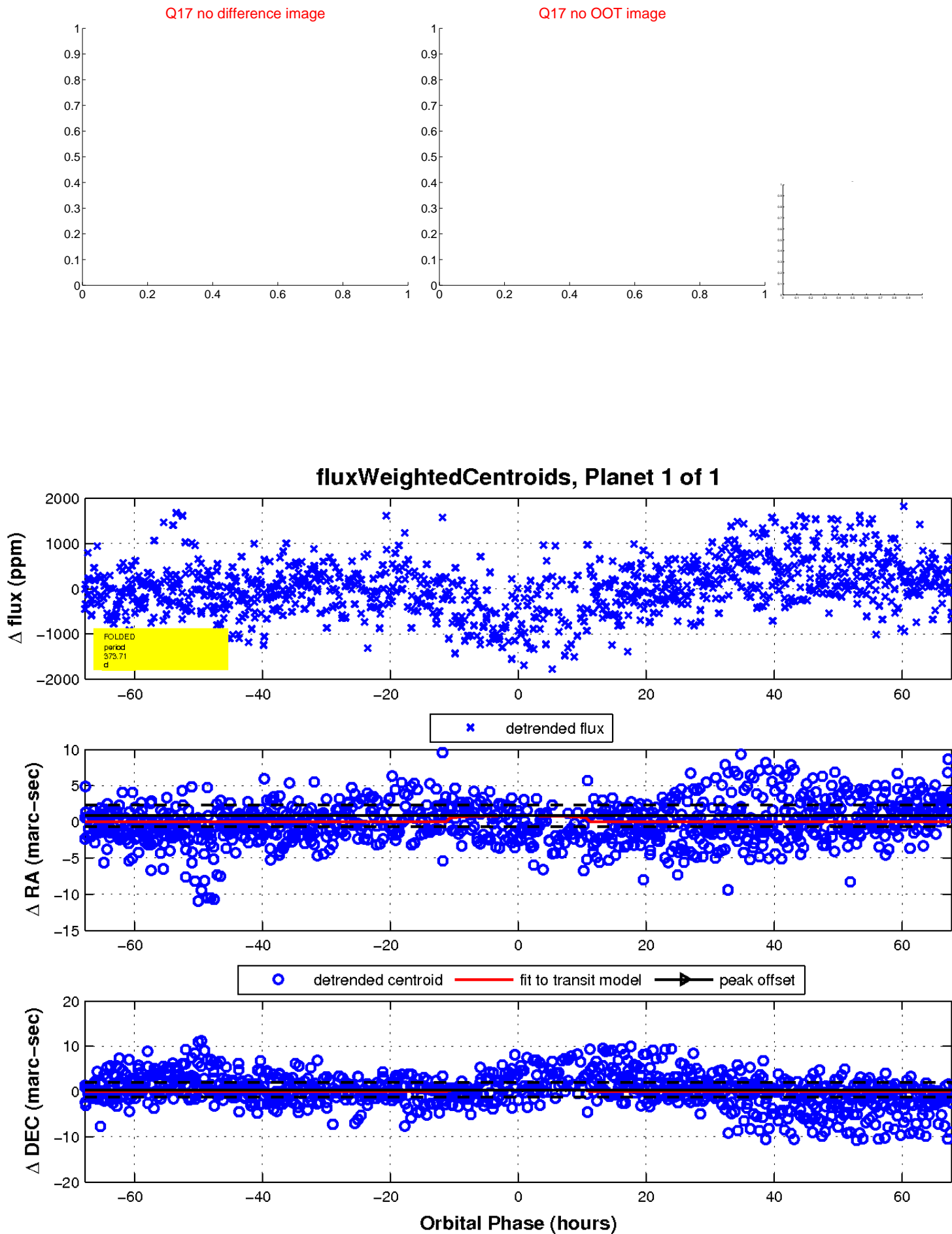
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



# UKIRT Image

Declination

