

# KIC 004856549

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004856549-01	OBS	No	0.841850	132.098979	9.1	2.794	8.1	6.1	2.66	8094	0.93	54876.50

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004856549-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

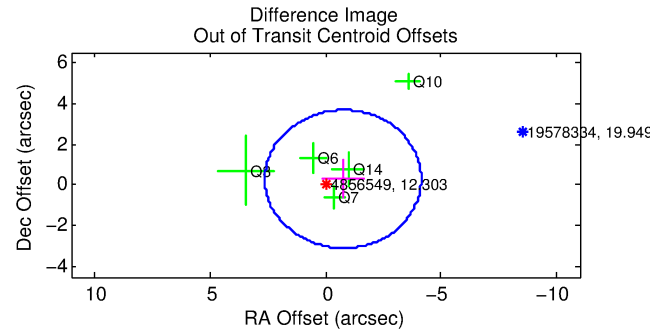
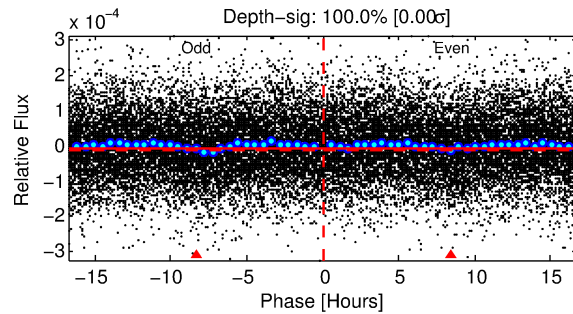
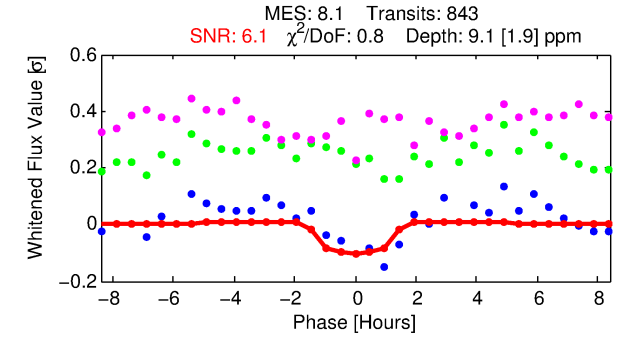
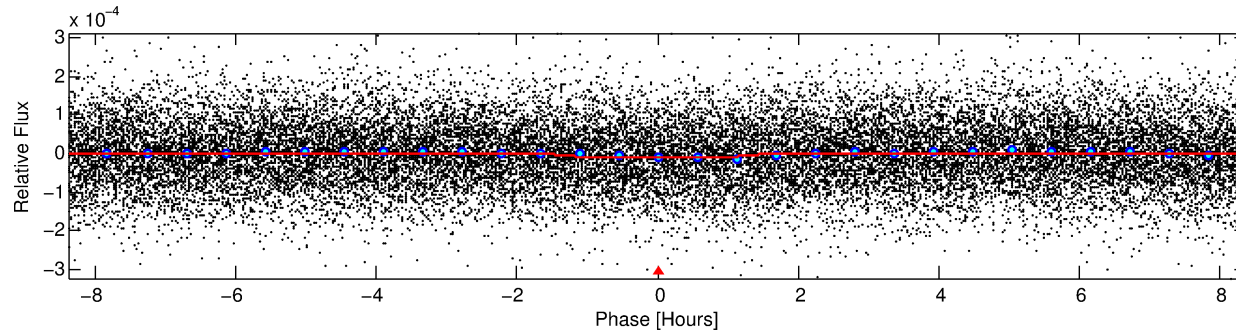
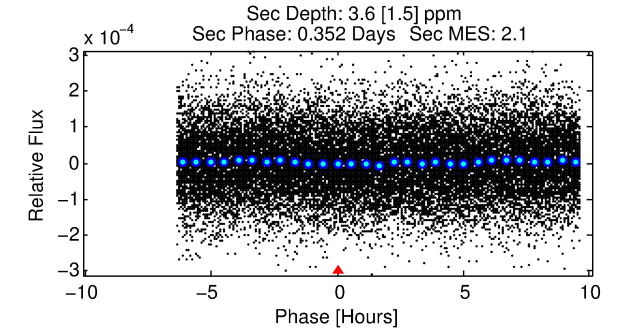
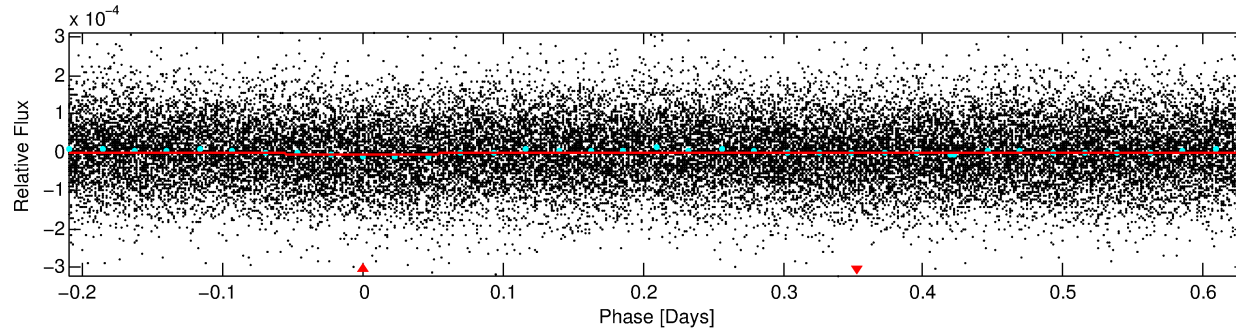
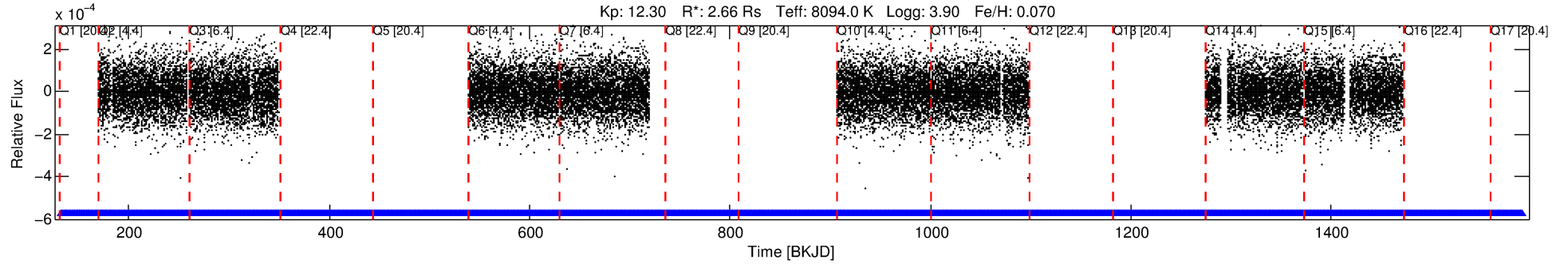
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004856549-01

No Significant Match Found

# DV One-Page Summary

KIC: 4856549 Candidate: 1 of 1 Period: 0.842 d



## DV Fit Results:

Period = 0.84185 [0.00002] d  
Epoch = 132.0990 [0.0055] BKJD  
Rp/R\* = 0.0032 [0.0012]  
a/R\* = 1.39 [1.57]  
b = 0.90 [0.51]  
Seff = 54876.50 [17143.94]  
Teq = 3903 [305] K  
Rp = 0.93 [0.43] Re  
a = 0.0222 [0.0047] AU  
Ag = 1.11 [1.04] [0.11σ]  
Teffp = 6199 [1362] K [1.64σ]

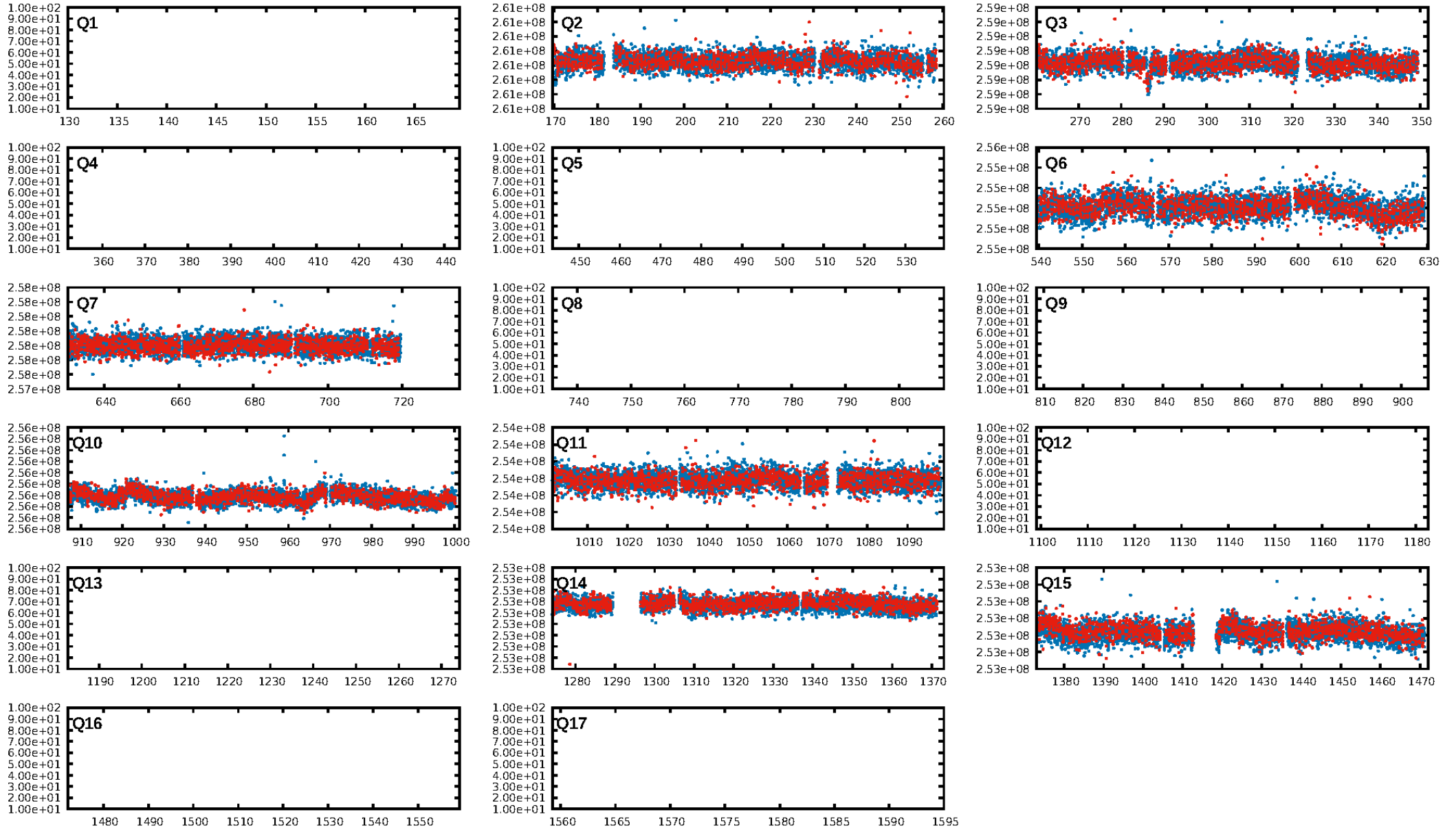
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.31e-14  
RollingBand-fgt: 1.00 [843/843]  
GhostDiagnostic-chr: -2.038  
Centroid-sig: 46.9%  
Centroid-so: 1.903 arcsec [0.82σ]  
OotOffset-rm: 0.814 arcsec [0.72σ]  
OotOffset-st: 3/2/0/0 [5]  
KicOffset-rm: 0.870 arcsec [0.75σ]  
KicOffset-st: 3/2/0/0 [5]  
DiffImageQuality-fgm: 0.40 [2/5]  
DiffImageOverlap-fno: 1.00 [8/8]

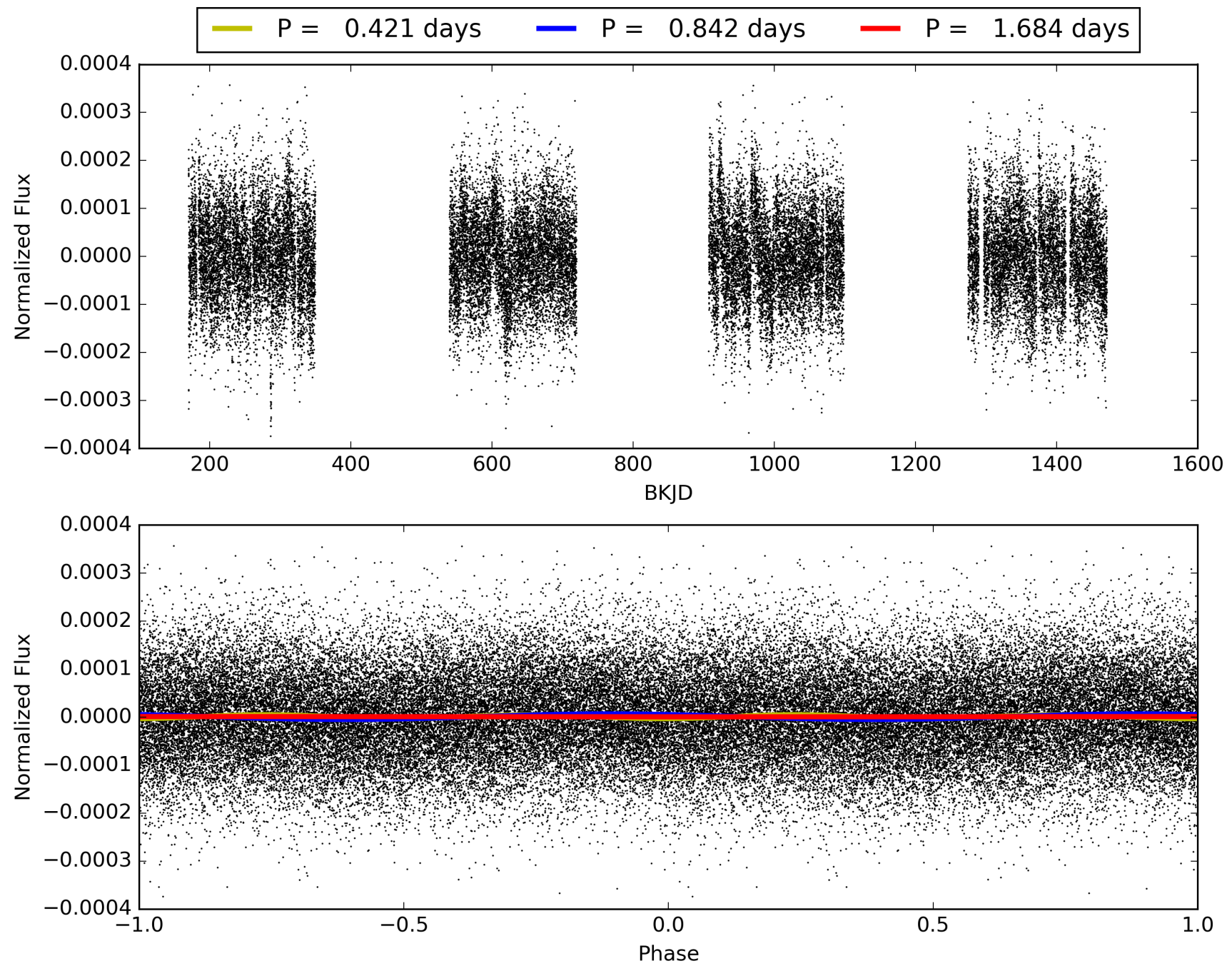
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:30:48 Z

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

# TCE 004856549-01, PDC Light Curves

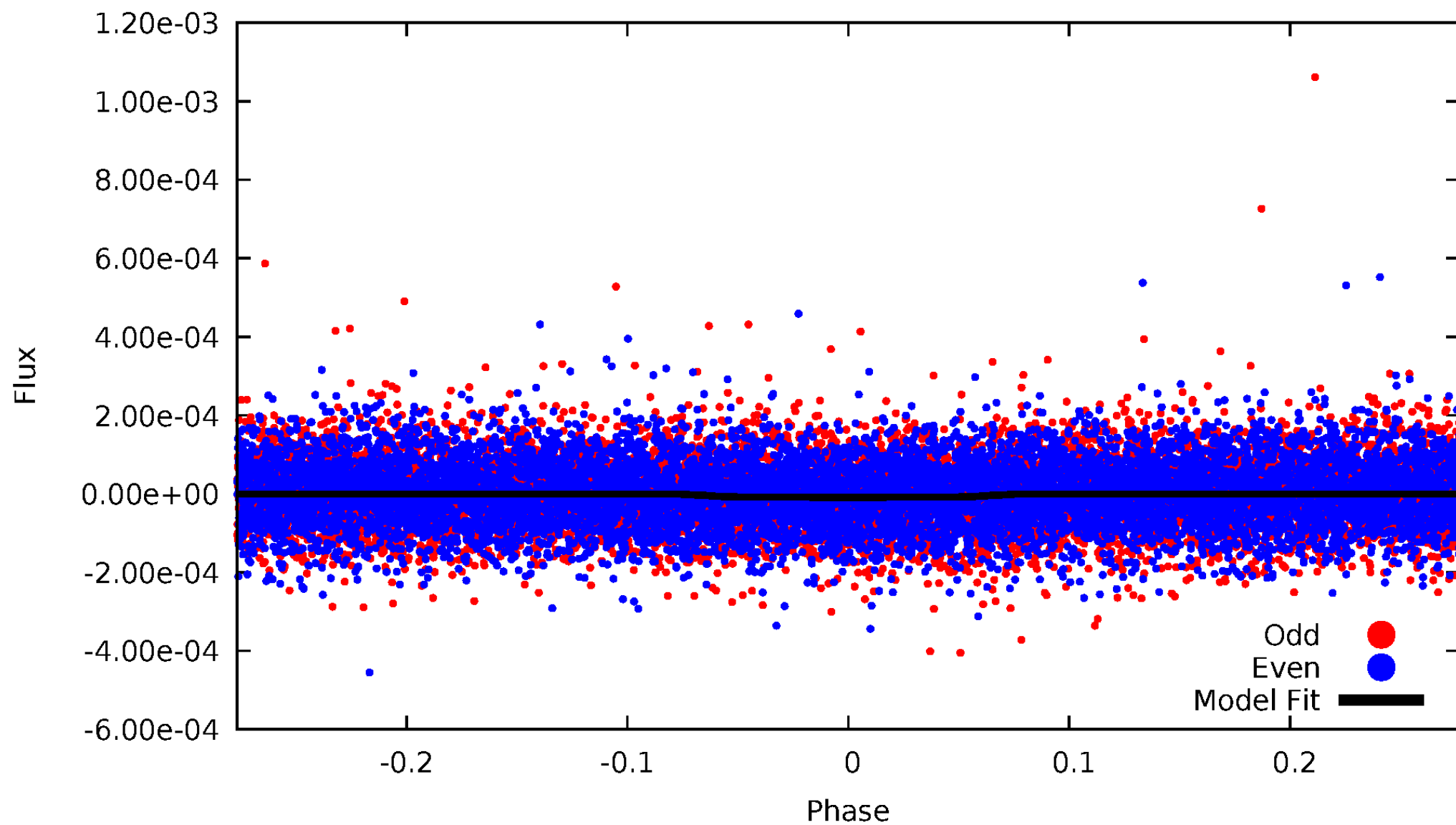


TCE 004856549-01



# DV Odd/Even

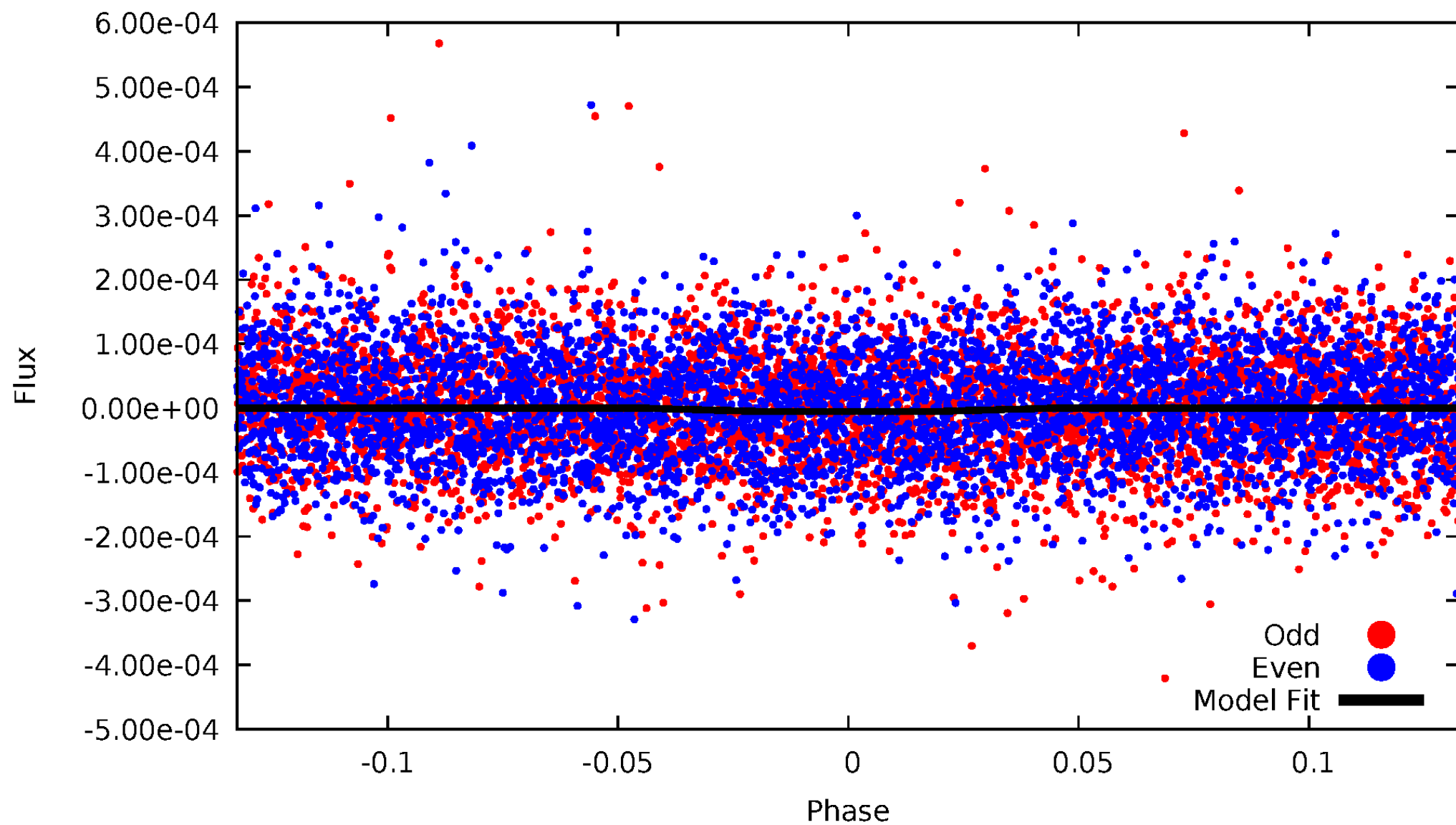
TCE 004856549-01





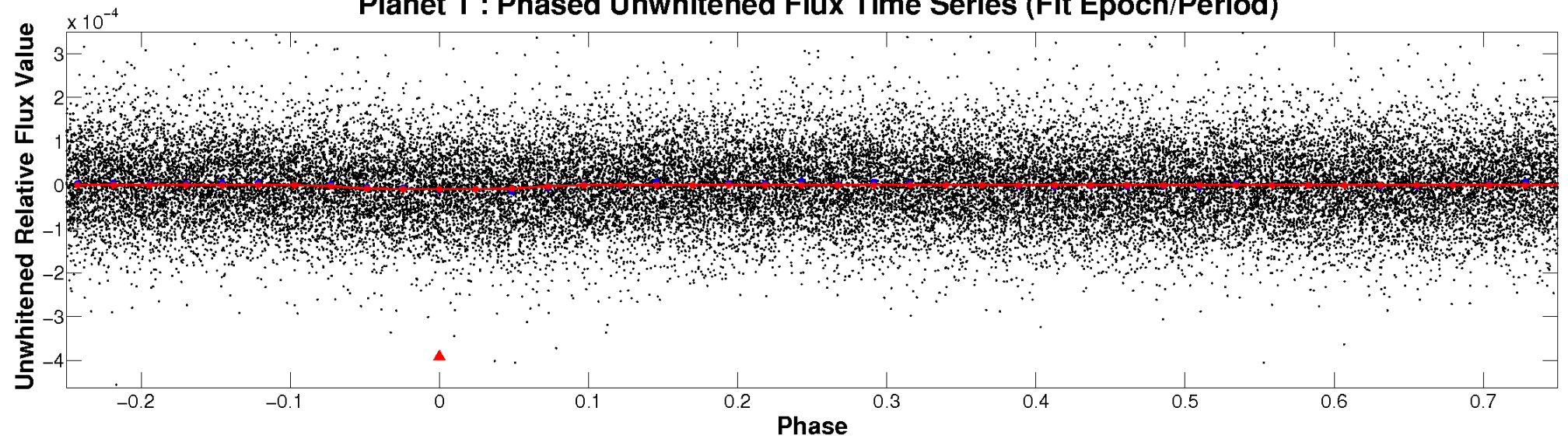
# ALT Odd/Even

TCE 004856549-01

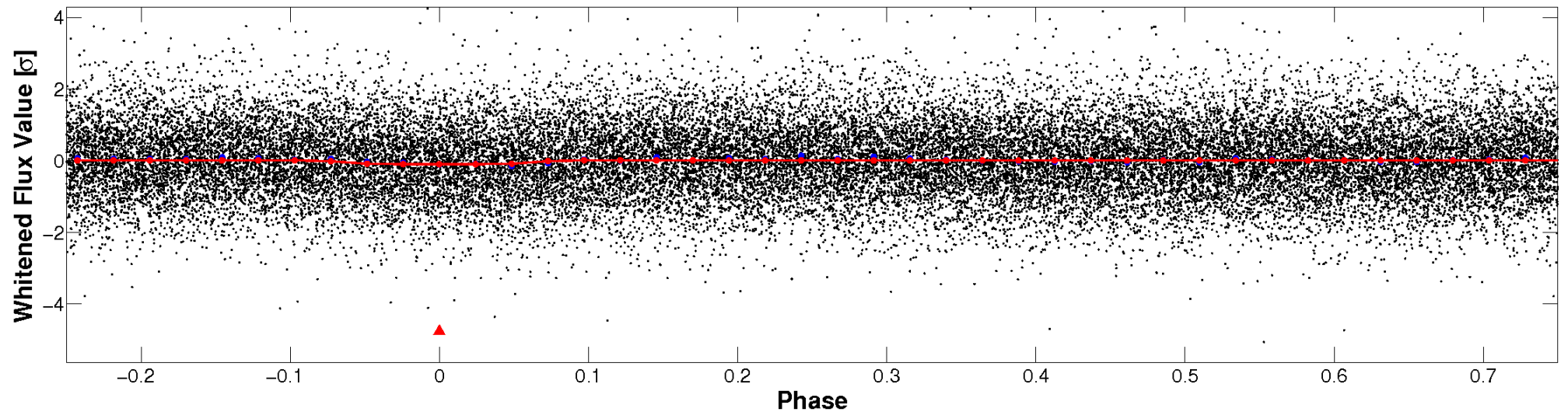


# Non-Whitened Vs. Whitened Light Curve

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

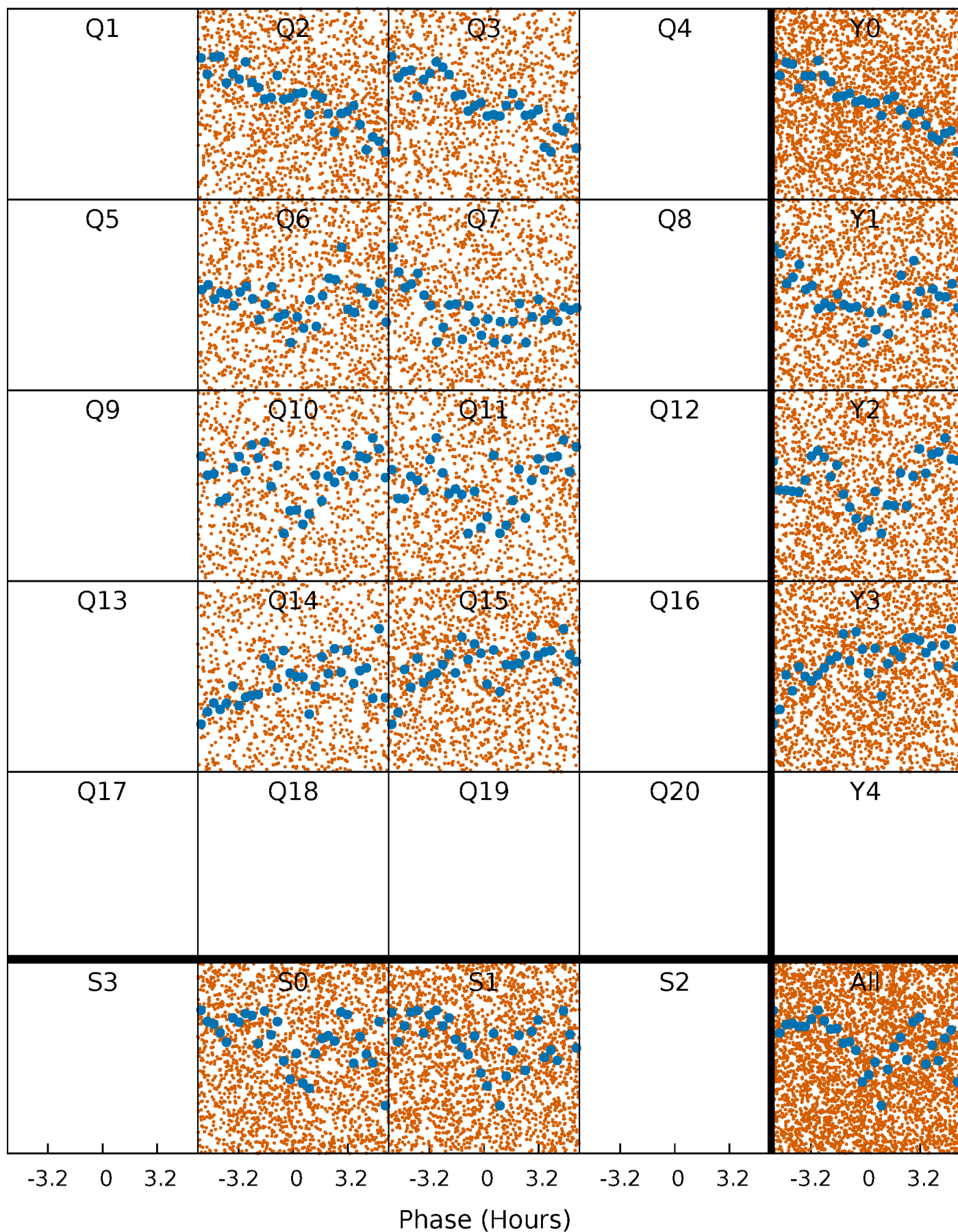


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

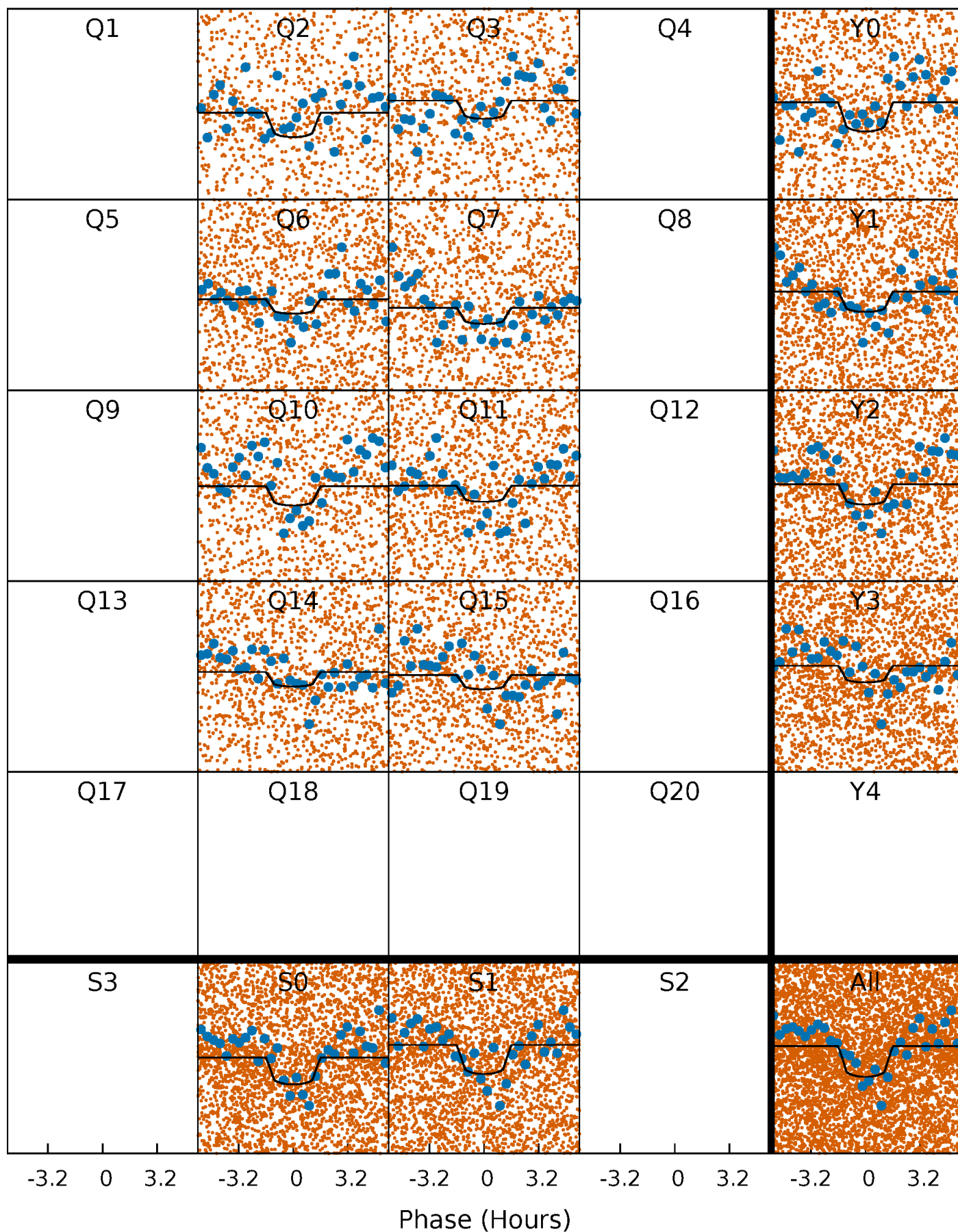
TCE 004856549-01 P= 0.841850 Days  $T_0=132.098979$  (BKJD)





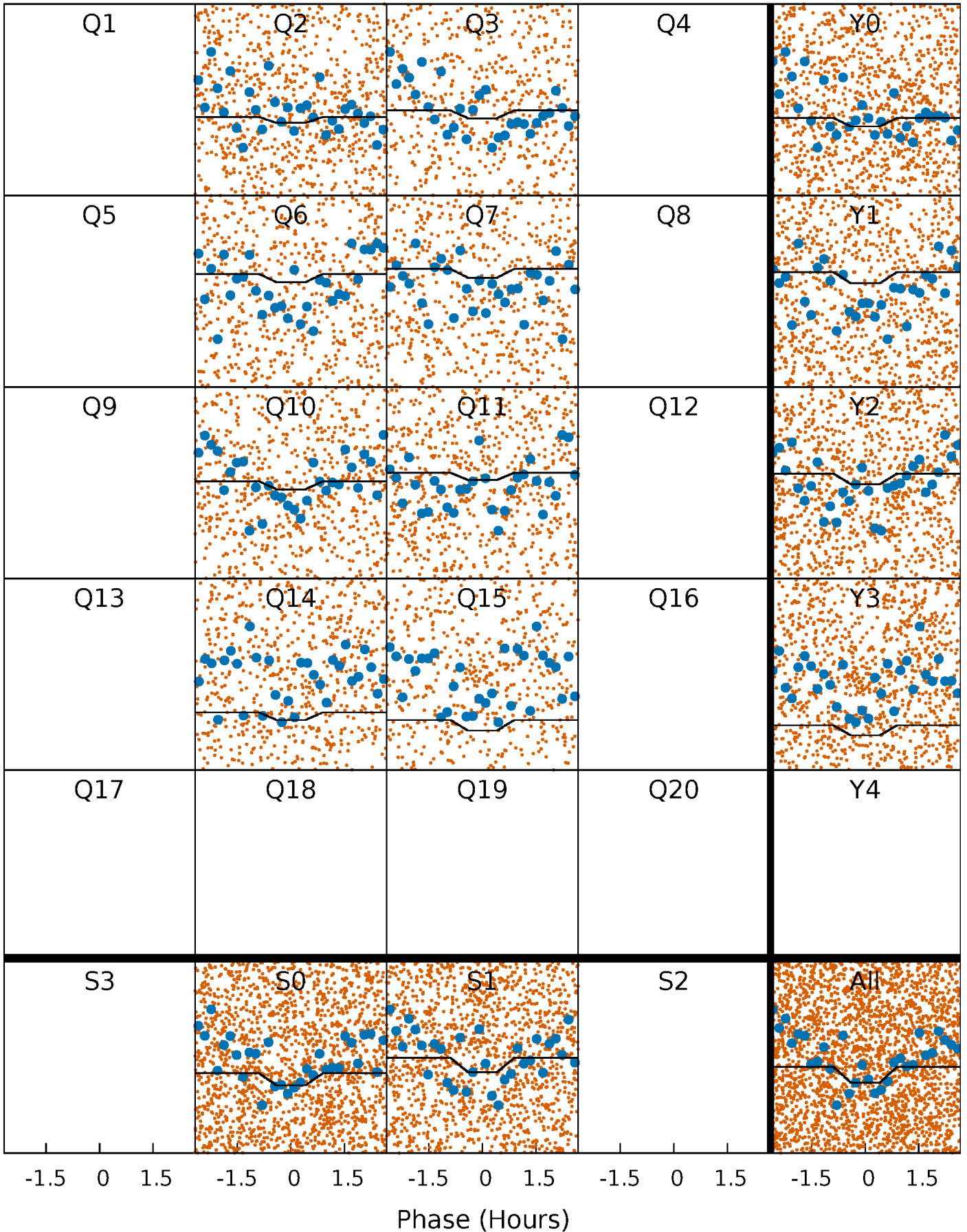
# DV Quarter-Phased Transit Curves

TCE 004856549-01 P= 0.841850 Days  $T_0=132.098979$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

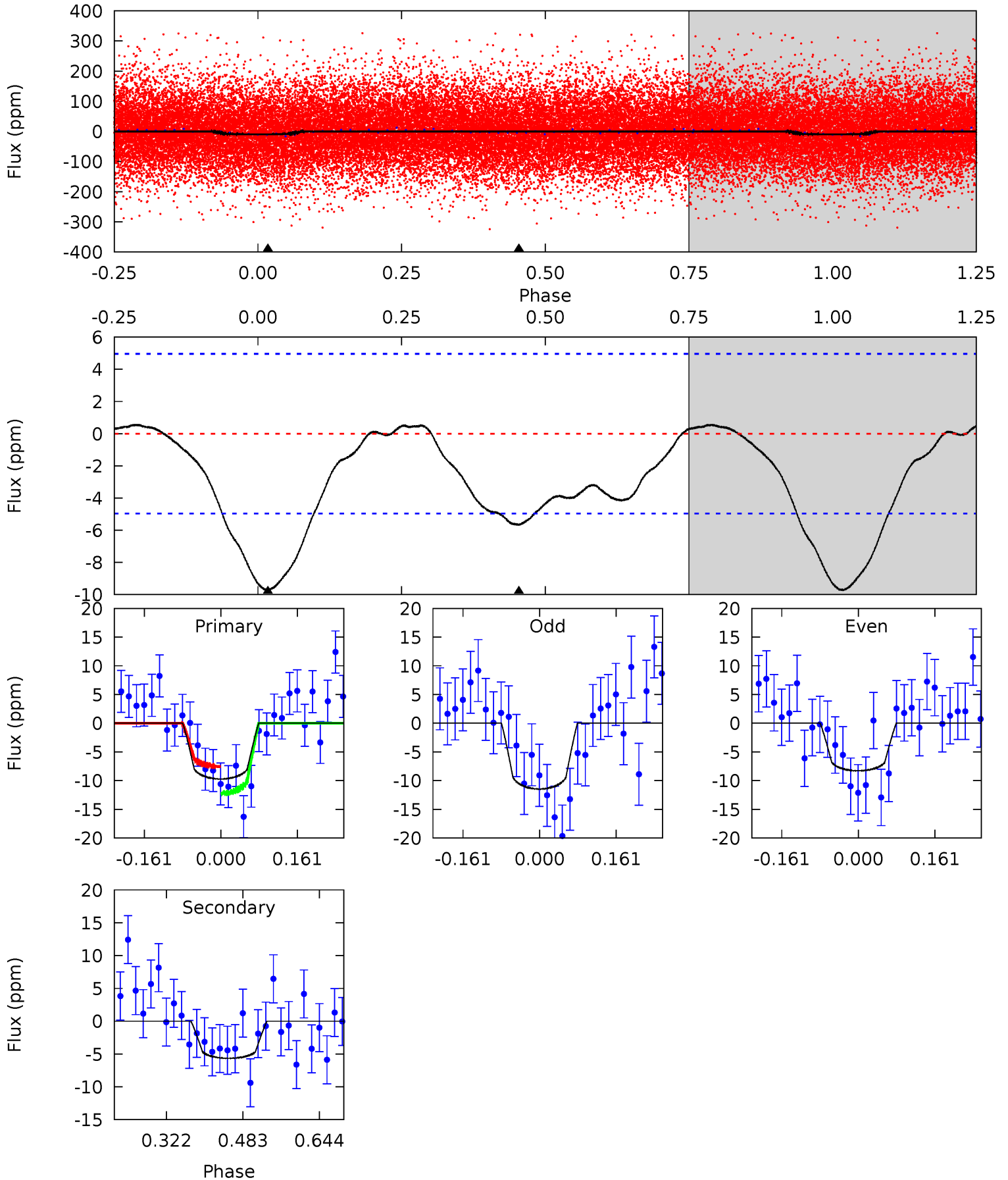
TCE 004856549-01    P= 0.841896 Days     $T_0=132.077189$  (BKJD)



# DV Model-Shift Uniqueness Test

004856549-01, P = 0.841850 Days, E = 132.098979 Days

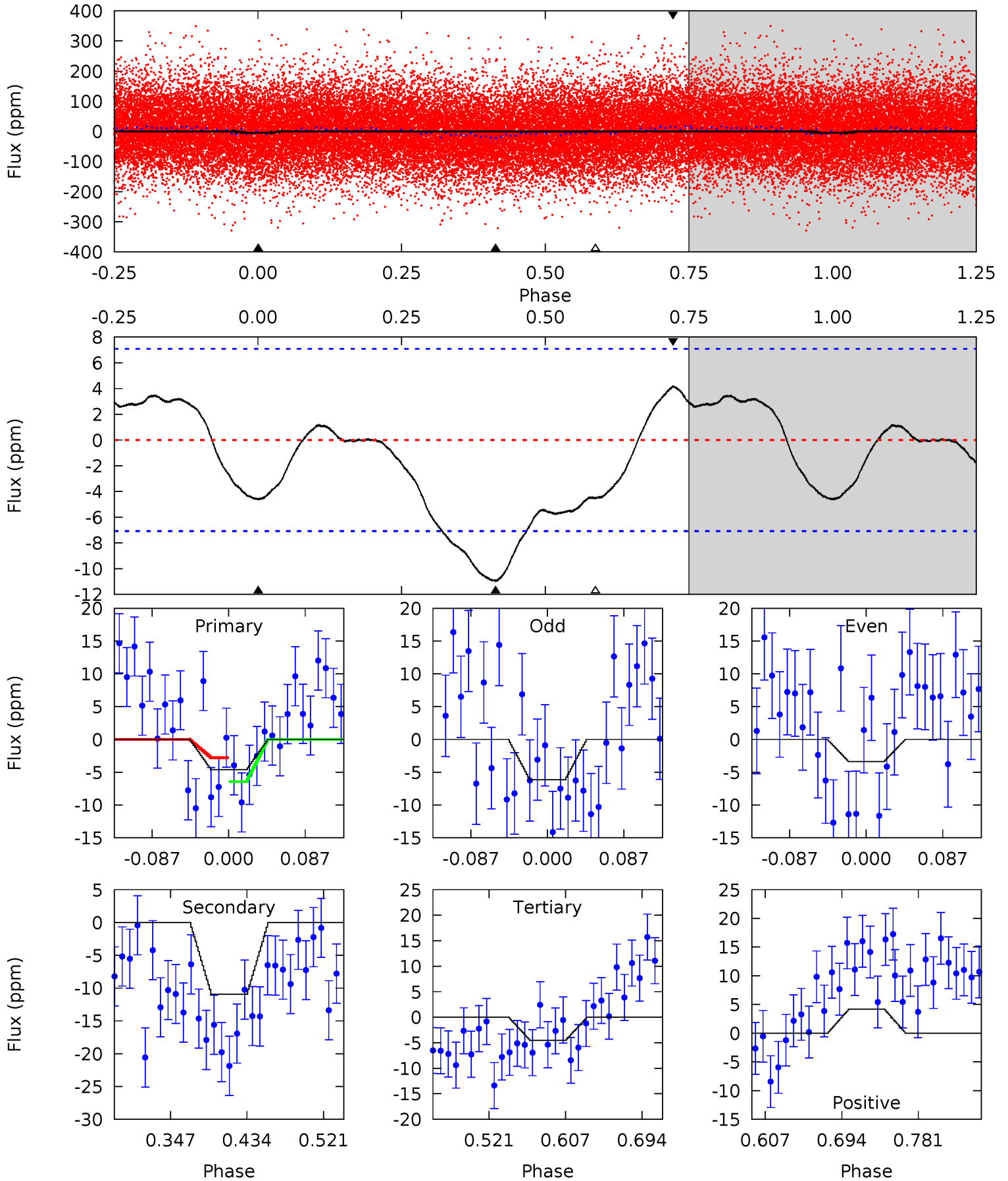
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.75	5.09	0	0	4.46	1.40	1.38	8.75	8.75	5.09	5.09	1.44	0.96	0.05	2.12



# Alt Model-Shift Uniqueness Test

004856549-01, P = 0.841896 Days, E = 132.077189 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
3.00	7.11	2.95	2.71	4.59	1.71	2.15	0.05	0.28	4.16	4.39	0.90	1.00	0.28	1.19



### Stellar Parameters For KIC 004856549

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8094^{+56}_{-104}$	$3.905^{+0.168}_{-0.060}$	$0.070^{+0.150}_{-0.250}$	$2.656^{+0.336}_{-0.672}$	$2.067^{+0.165}_{-0.307}$	$0.155^{+0.154}_{-0.034}$
	+1%/-1%	+4%/-2%	+214%/-357%	+13%/-25%	+8%/-15%	+99%/-22%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 004856549-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-6 \pm 1$	$0.87^{+0.36}_{-0.35}$	$5397^{+174}_{-285}$	$6568^{+2473}_{-1226}$	$2.004^{+3.372}_{-1.020}$
Alt.	$-11 \pm 2$	$0.62^{+0.35}_{-0.32}$	$5385^{+174}_{-298}$	$10506^{+10147}_{-2950}$	$7.991^{+24.988}_{-4.904}$

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



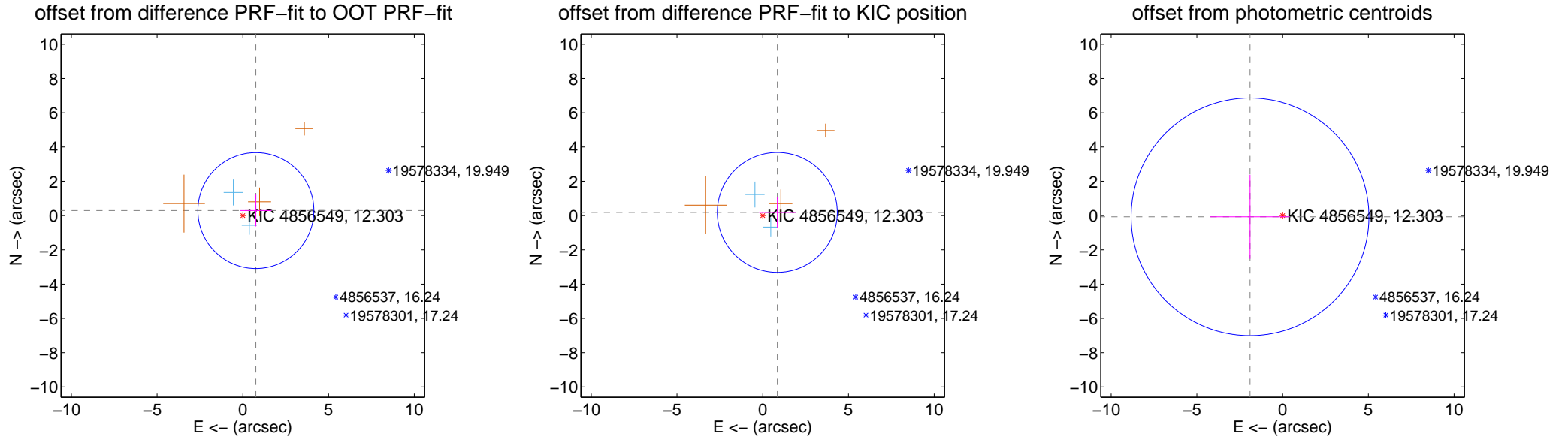
## DV Centroid Data

Supplemental centroid analysis for 004856549-01. Kepler magnitude: 12.30. Transit SNR 6.06

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.814 \pm 1.127$	0.72	$-0.760 \pm 0.911$	$0.291 \pm 0.923$
PRF-fit source offset from KIC position	$0.870 \pm 1.166$	0.75	$-0.850 \pm 1.063$	$0.184 \pm 0.879$
photometric centroid source offset	$1.90 \pm 2.31$	0.82	$1.90 \pm 2.31$	$-0.07 \pm 2.45$



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.

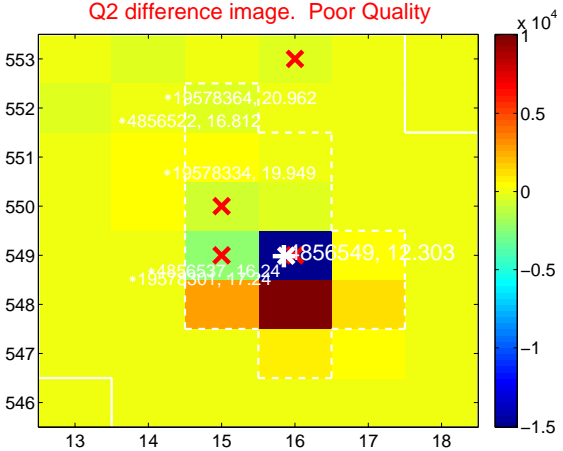
Q1 no difference image



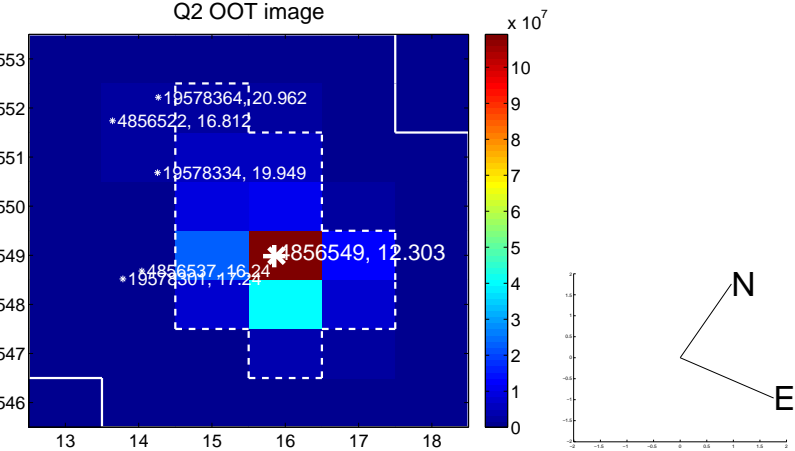
Q1 no OOT image



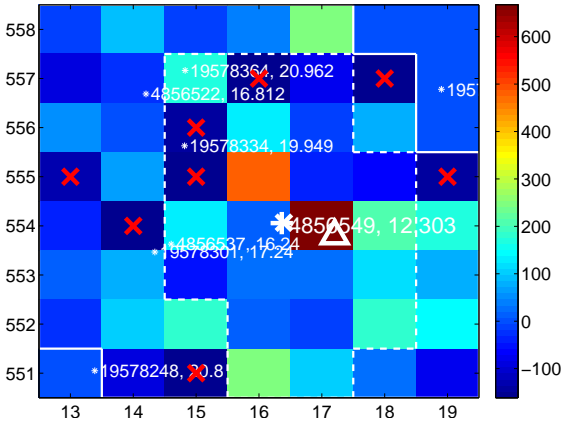
Q2 difference image. Poor Quality



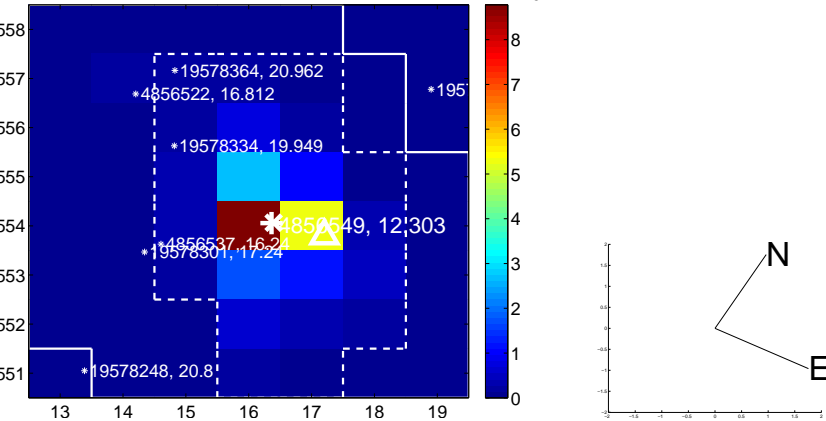
Q2 OOT image



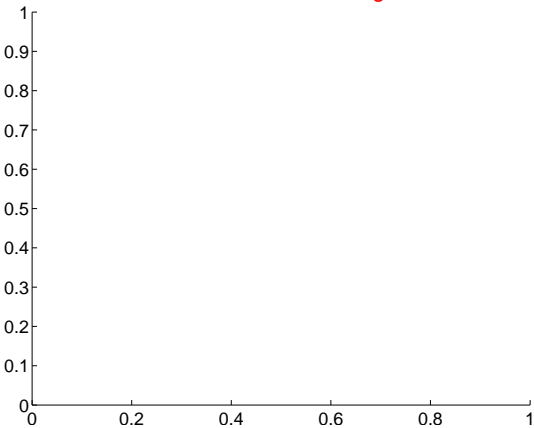
Q3 difference image. Poor Quality



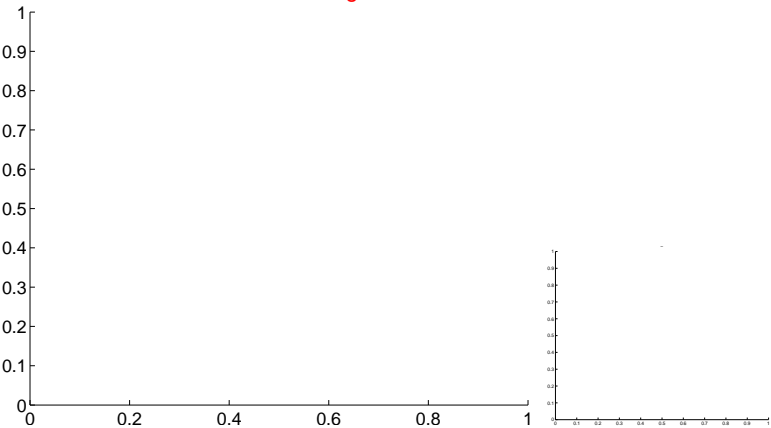
Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

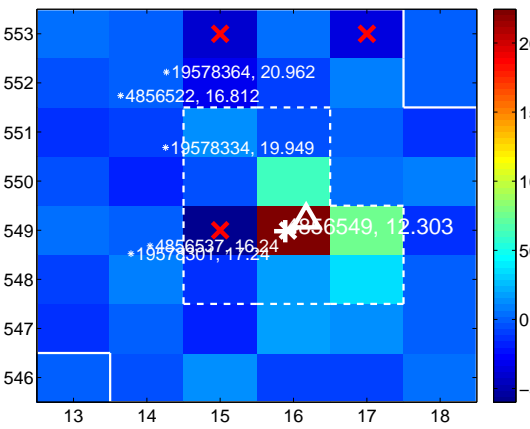
Q5 no difference image



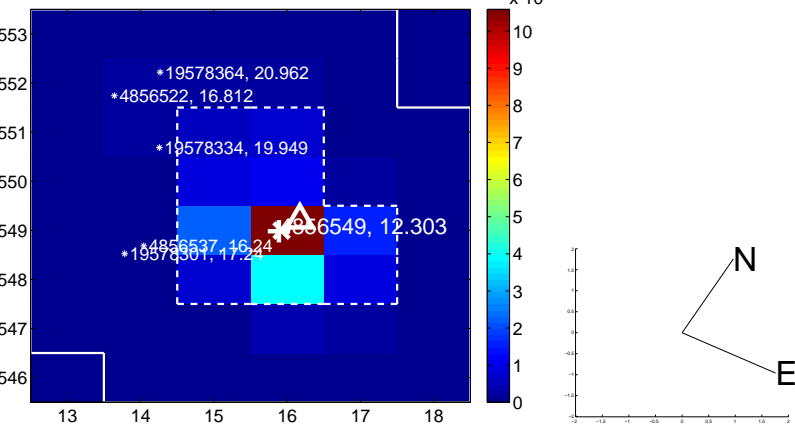
Q5 no OOT image



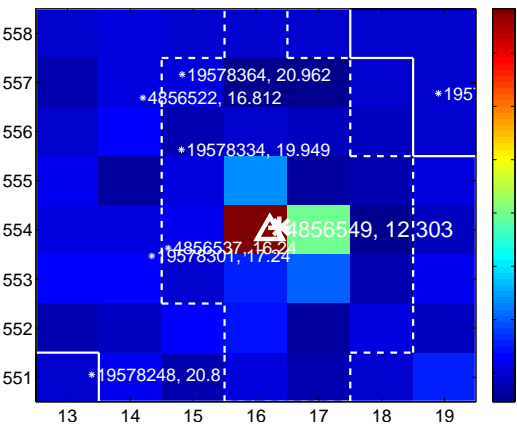
Q6 difference image



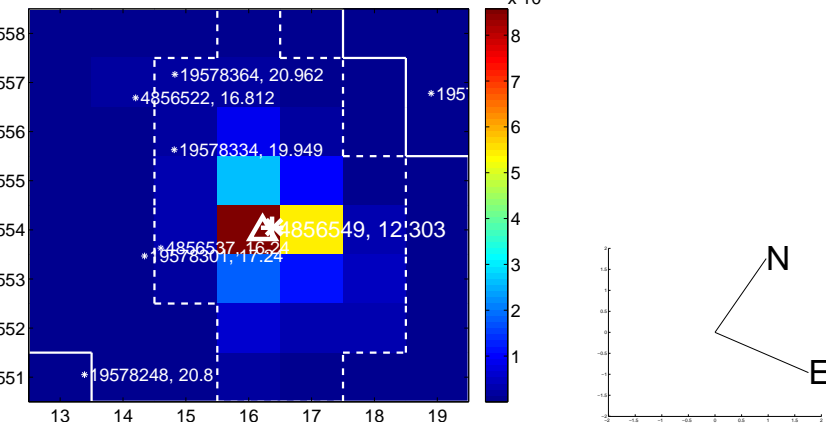
Q6 OOT image



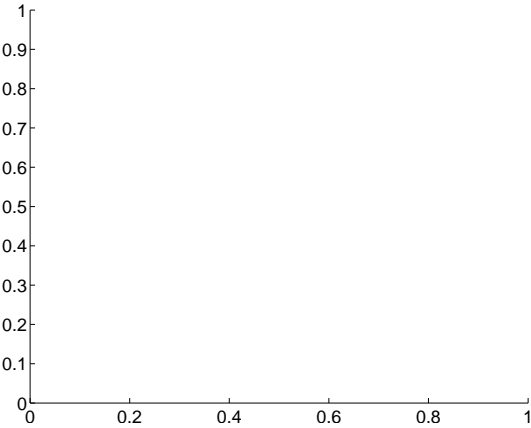
Q7 difference image



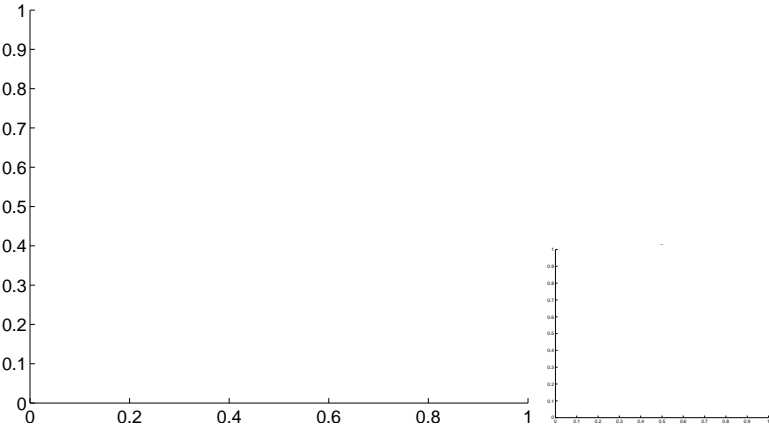
Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

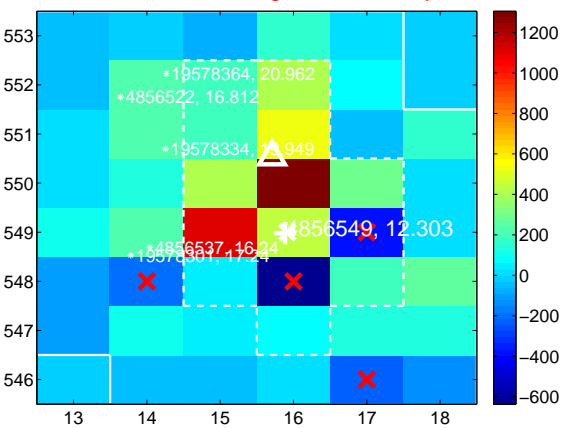
Q9 no difference image



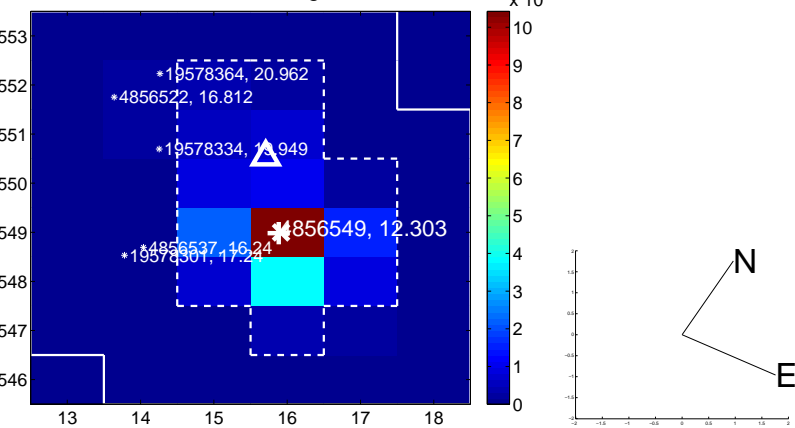
Q9 no OOT image



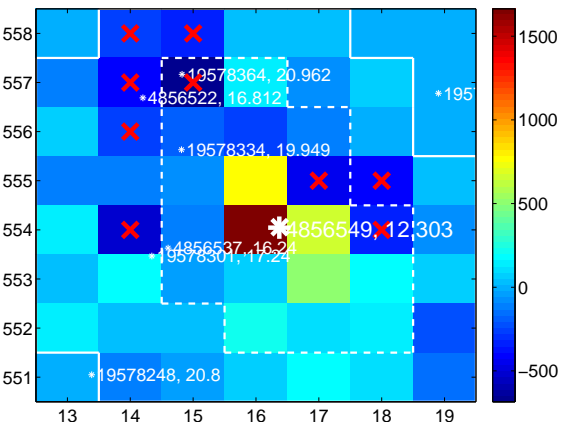
Q10 difference image. Poor Quality



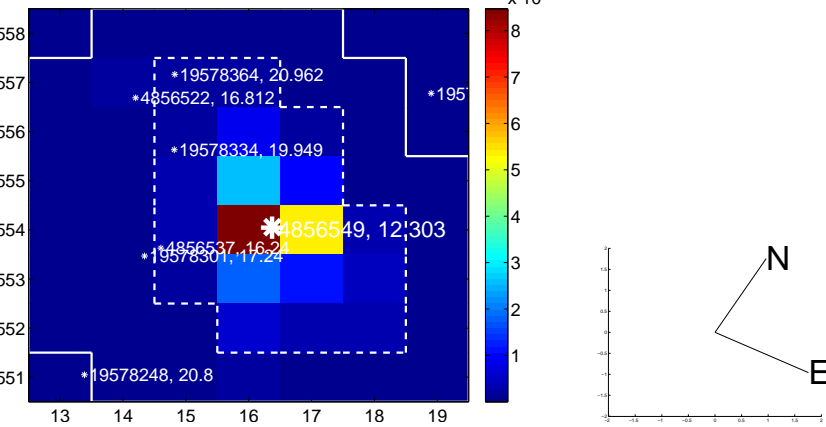
Q10 OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



Q12 no OOT image



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

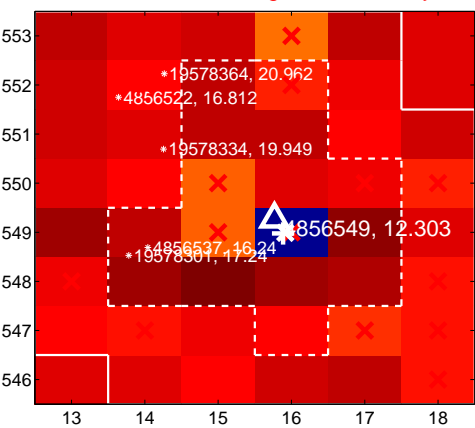
Q13 no difference image



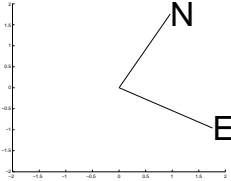
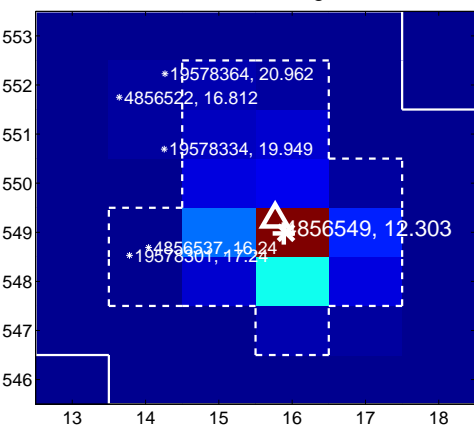
Q13 no OOT image



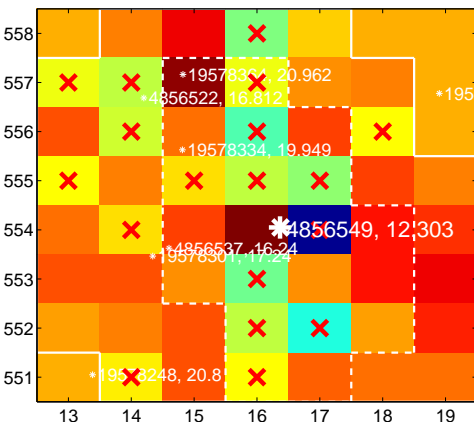
Q14 difference image. Poor Quality



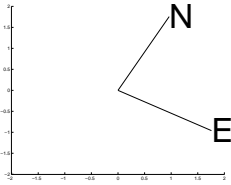
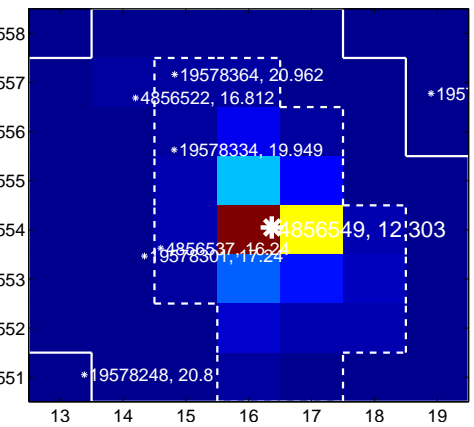
Q14 OOT image



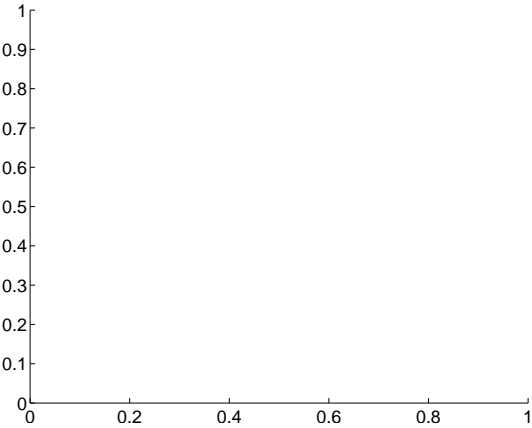
Q15 difference image. Poor Quality



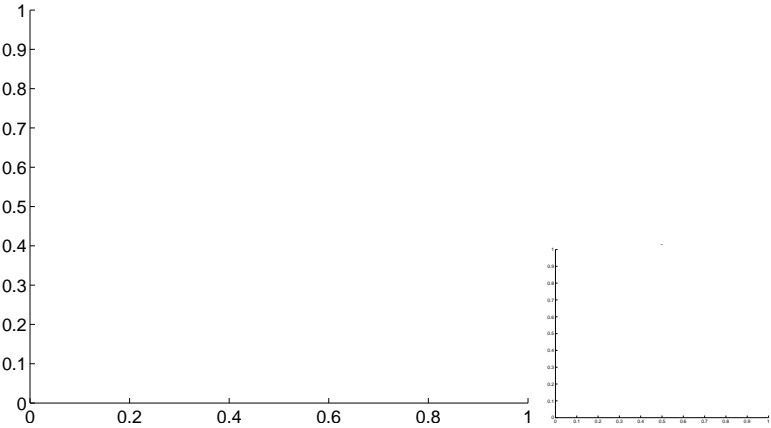
Q15 OOT image



Q16 no difference image

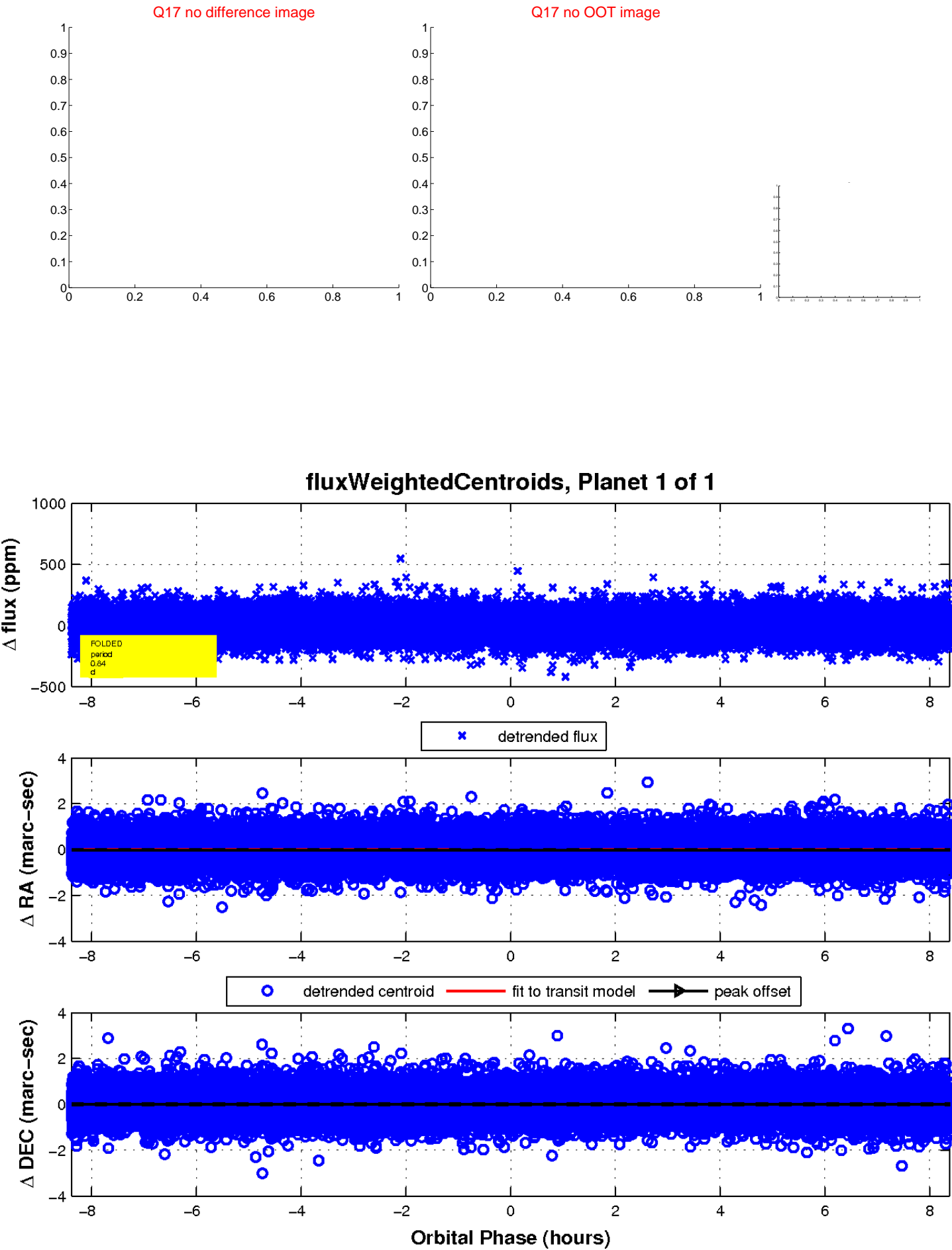


Q16 no OOT image





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



UKIRT Image

Declination

