

# KIC 007524531

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007524531-01	OBS	No	289.994287	252.480547	139.0	1.225	8.6	1.4	0.94	5916	1.30	1.59

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007524531-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

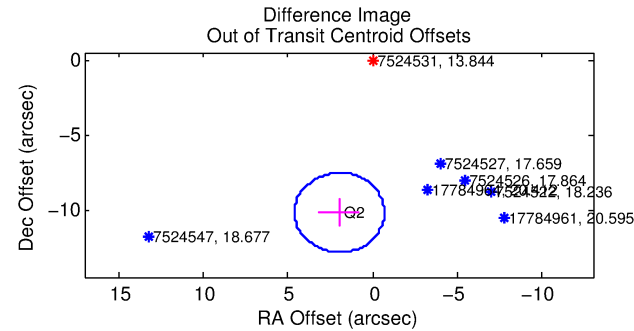
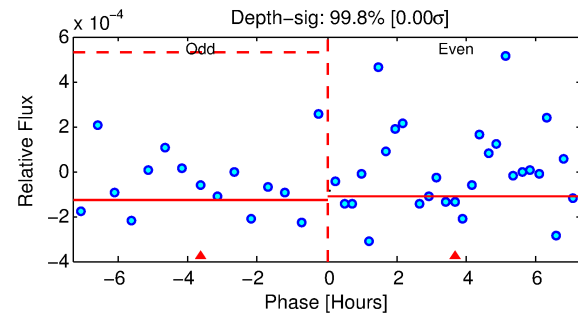
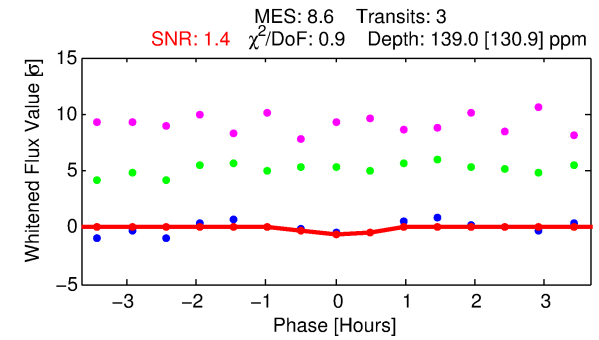
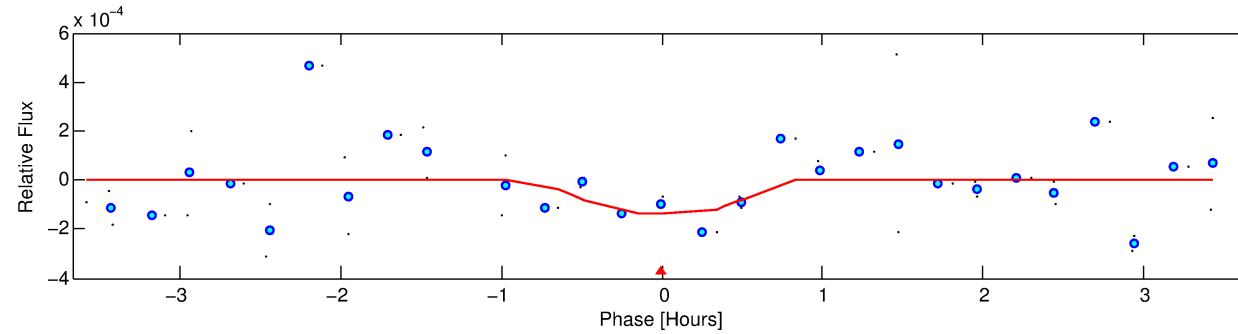
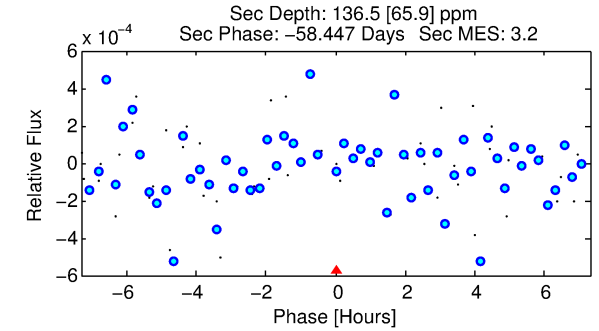
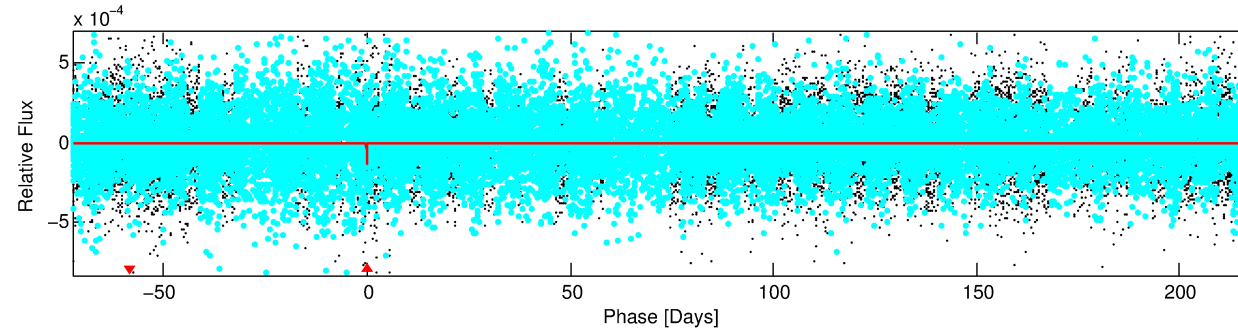
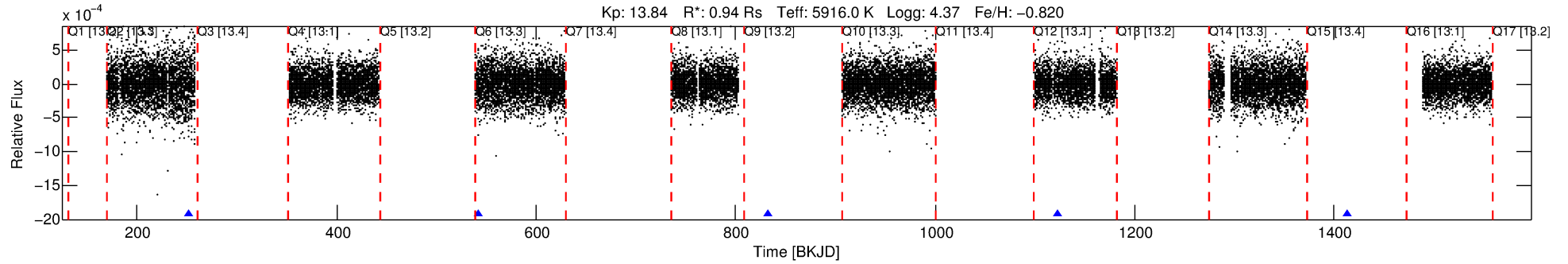
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007524531-01

No Significant Match Found

# DV One-Page Summary

KIC: 7524531 Candidate: 1 of 1 Period: 289.994 d



## DV Fit Results:

Period = 289.99429 [0.00944] d  
Epoch = 252.4805 [0.0183] BKJD  
Rp/R\* = 0.0127 [0.0558]  
a/R\* = 844.69 [20111.45]  
b = 0.90 [5.18]  
Seff = 1.59 [0.61]  
Teq = 286 [28] K  
Rp = 1.30 [5.71] Re  
a = 0.7783 [0.1858] AU  
Ag = 26976.09 [237389.06] [0.11σ]  
Teff = 5671 [12468] K [0.43σ]

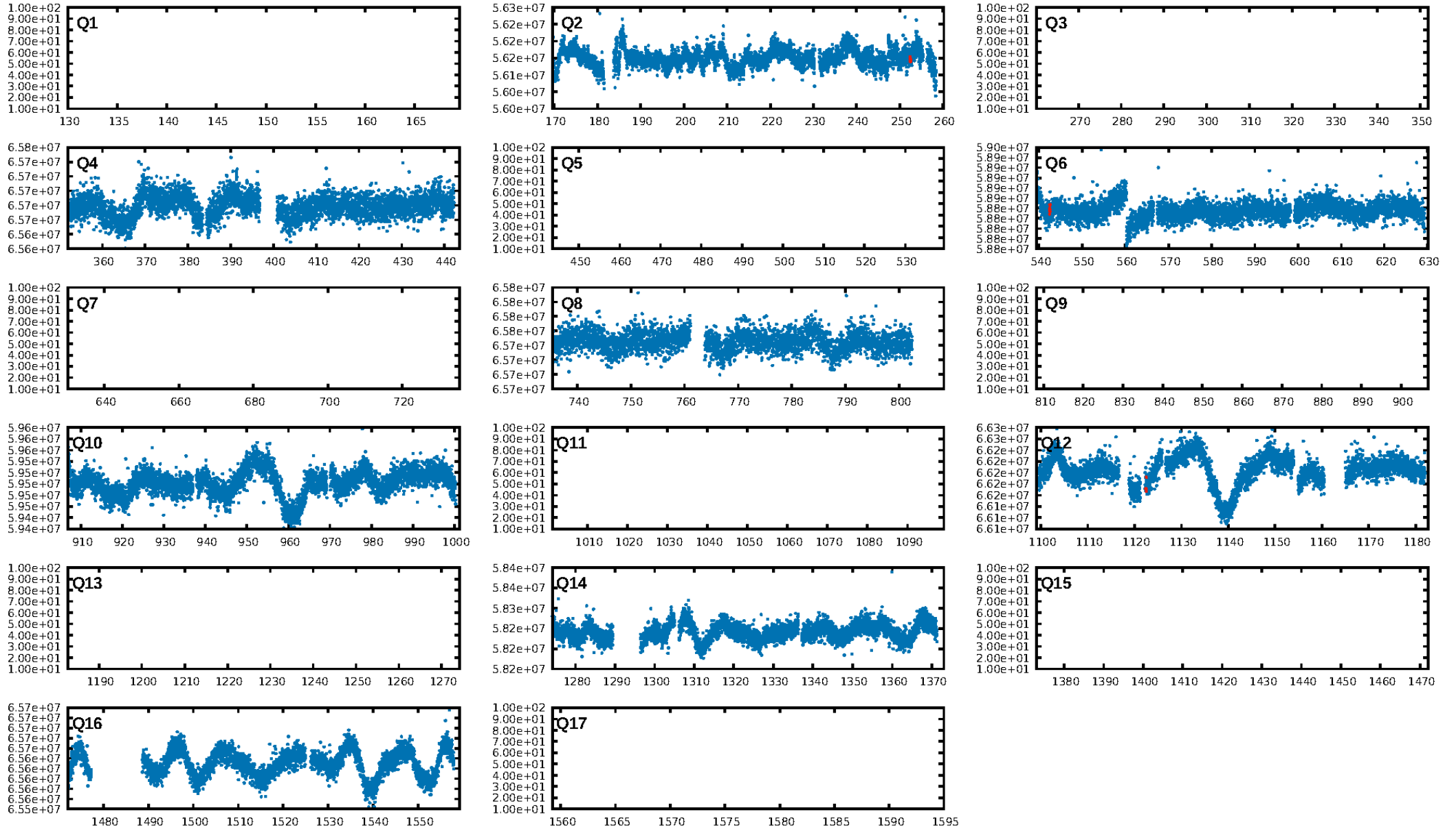
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 54.5%  
ModelChiSquareGoF-sig: 98.4%  
Bootstrap-pfa: 3.75e-13  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 4.332  
Centroid-sig: 99.7%  
Centroid-so: 0.368 arcsec [0.05σ]  
OotOffset-rm: 10.388 arcsec [11.75σ]  
KicOffset-rm: 9.514 arcsec [10.81σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [3/3]

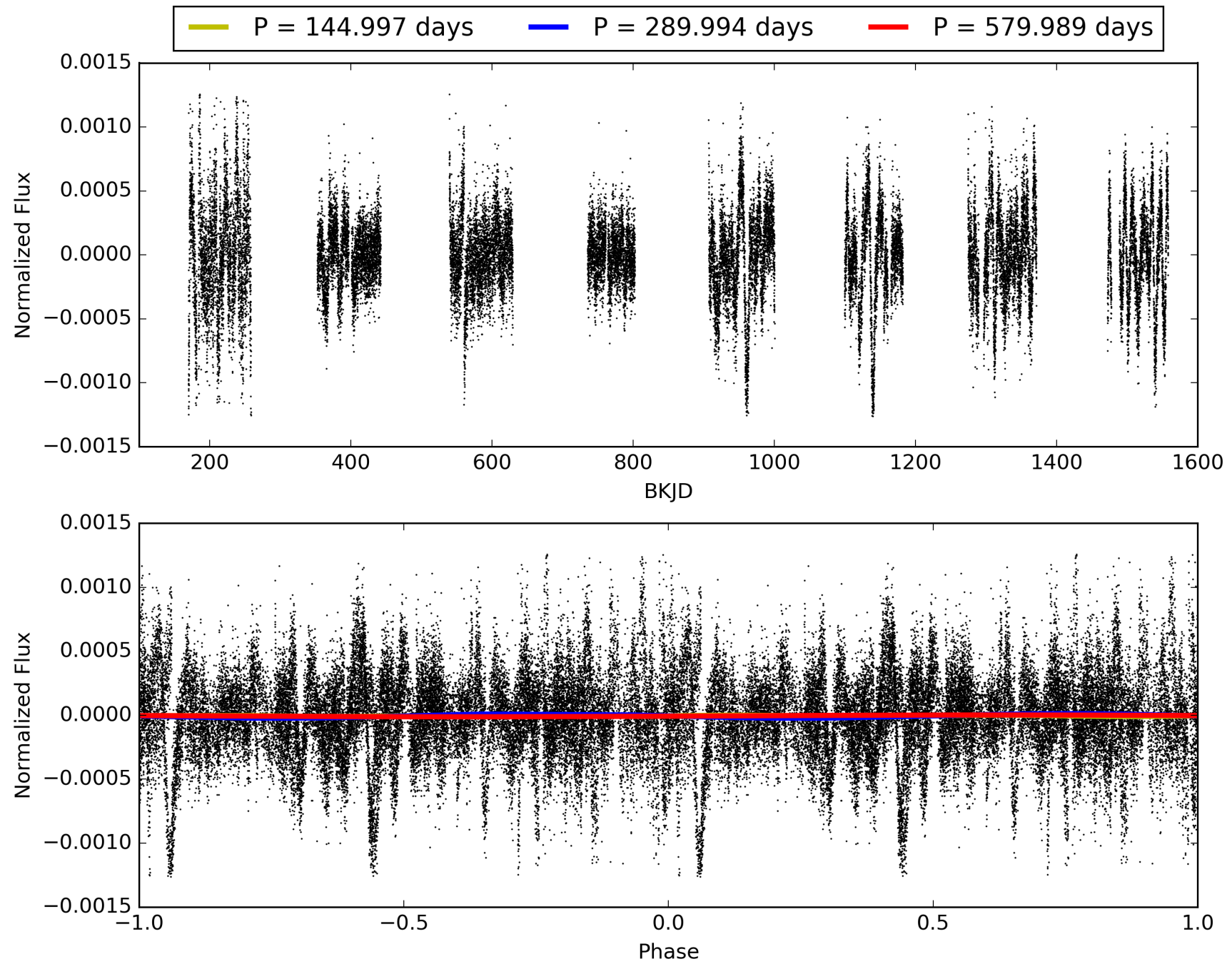
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:45:11 Z

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

# TCE 007524531-01, PDC Light Curves

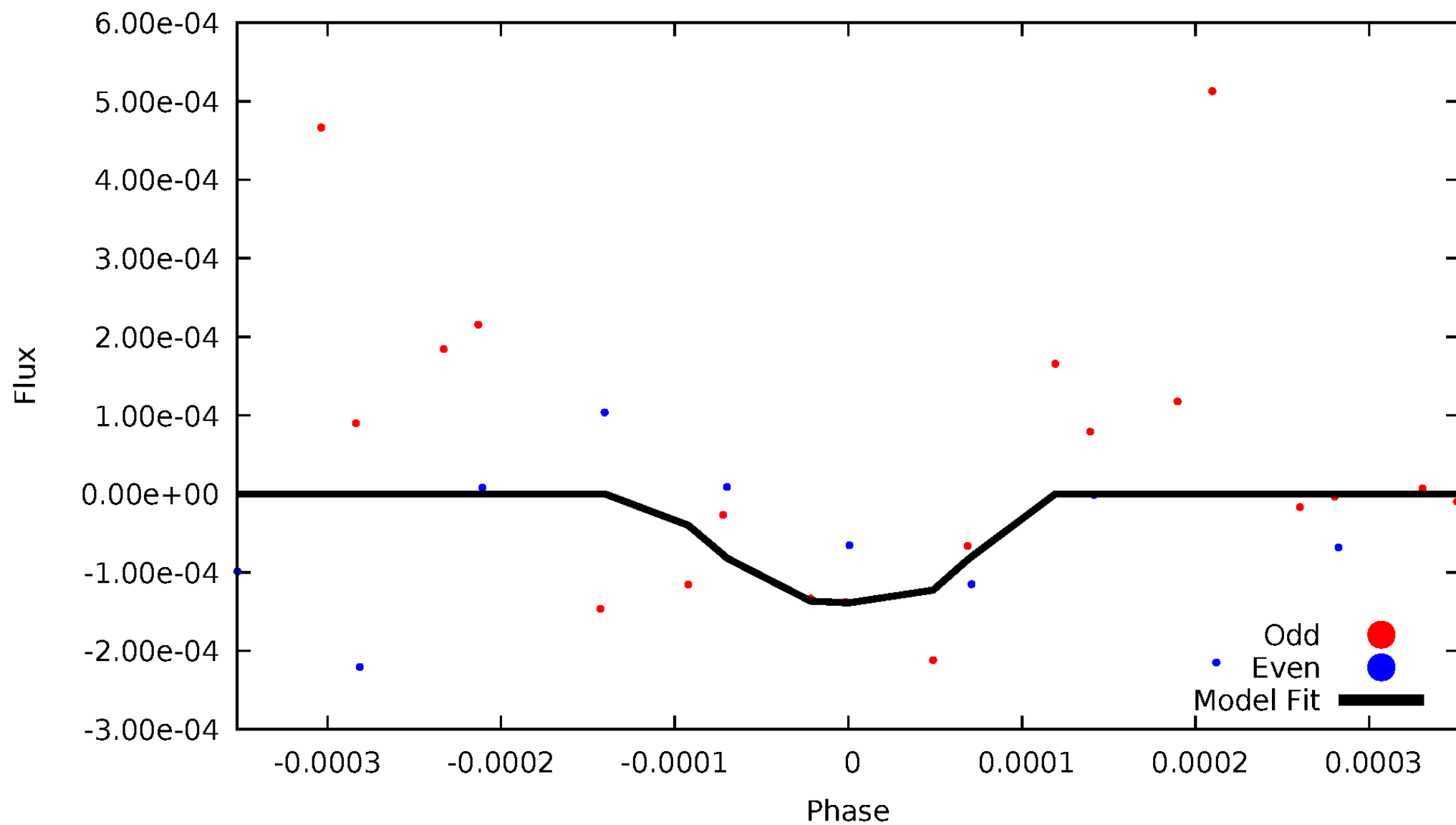


TCE 007524531-01



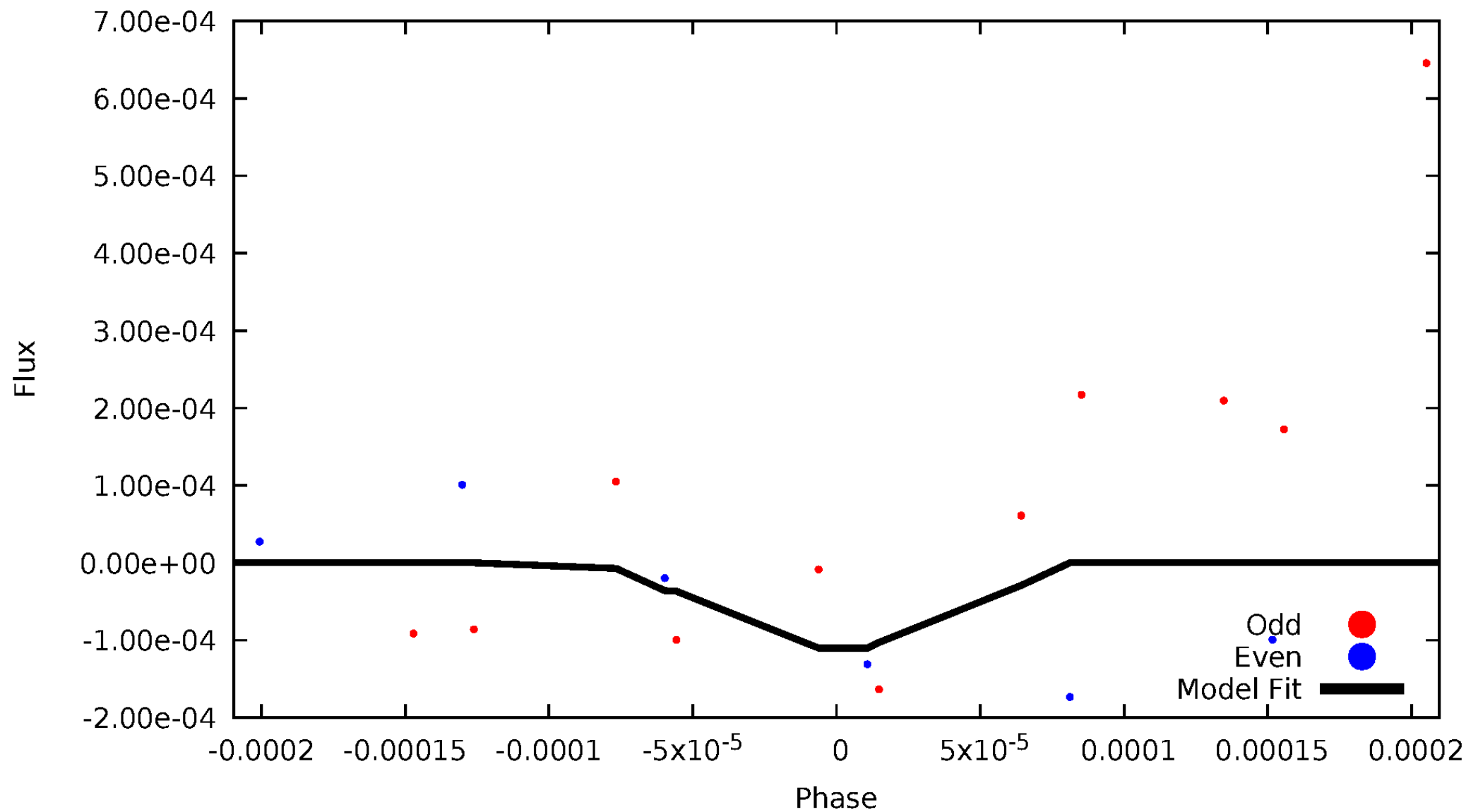
# DV Odd/Even

TCE 007524531-01

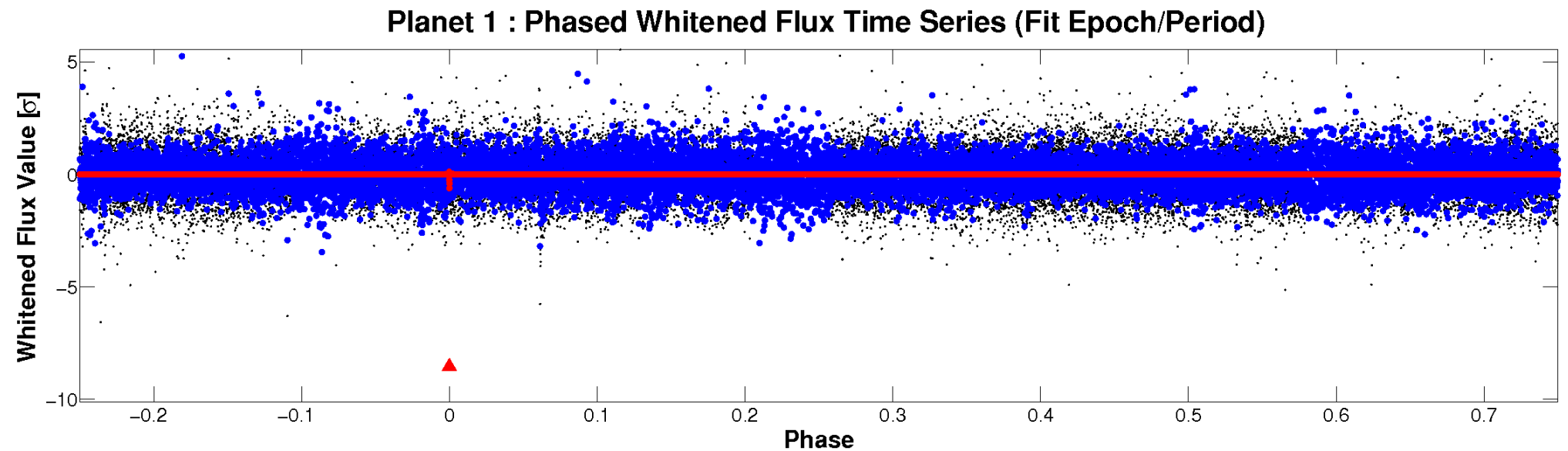
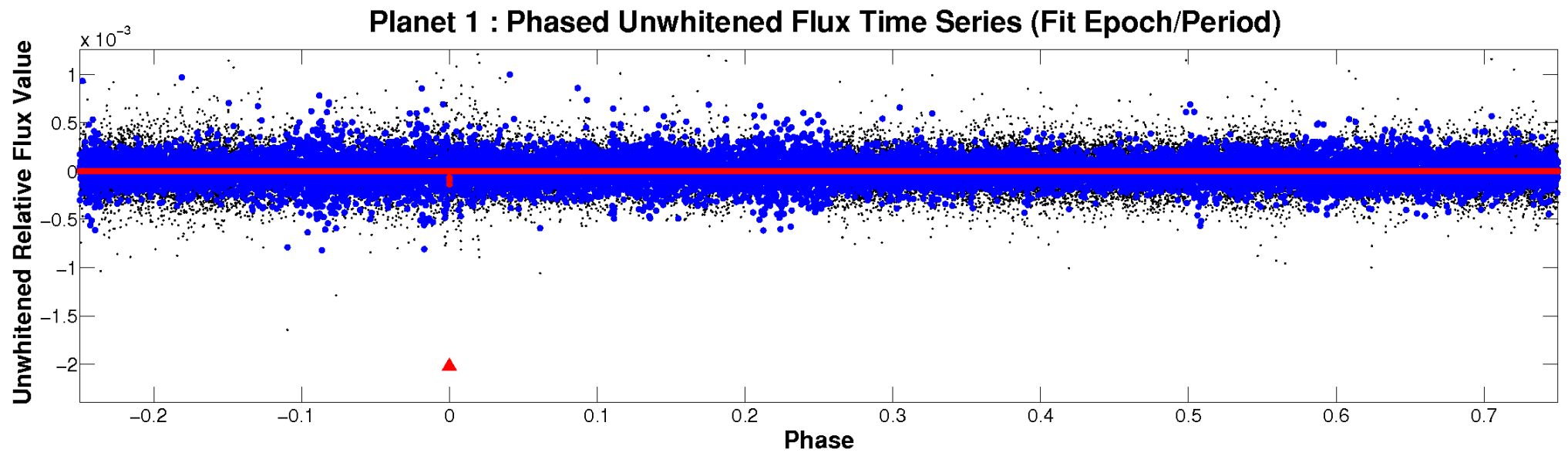


# ALT Odd/Even

TCE 007524531-01

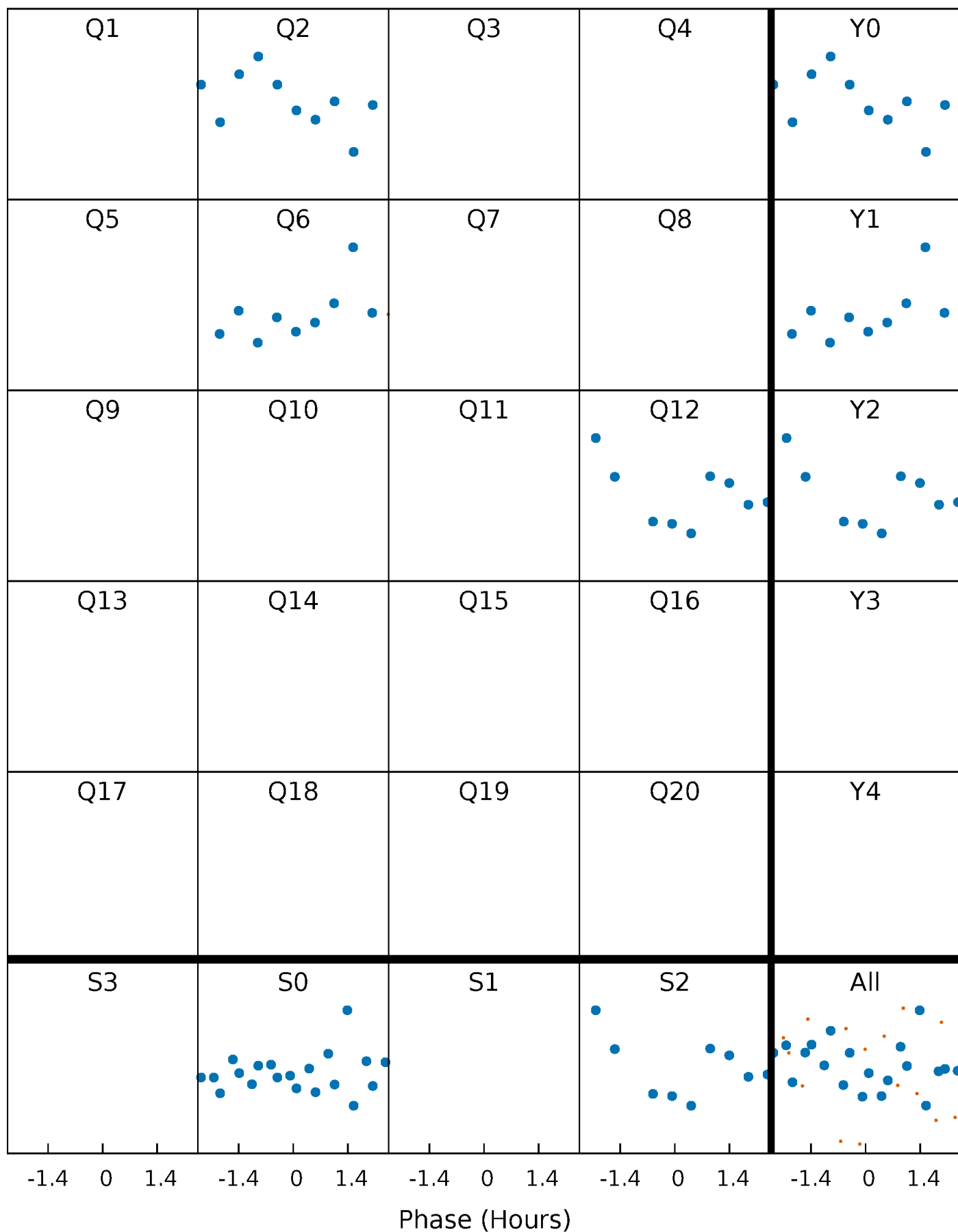


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

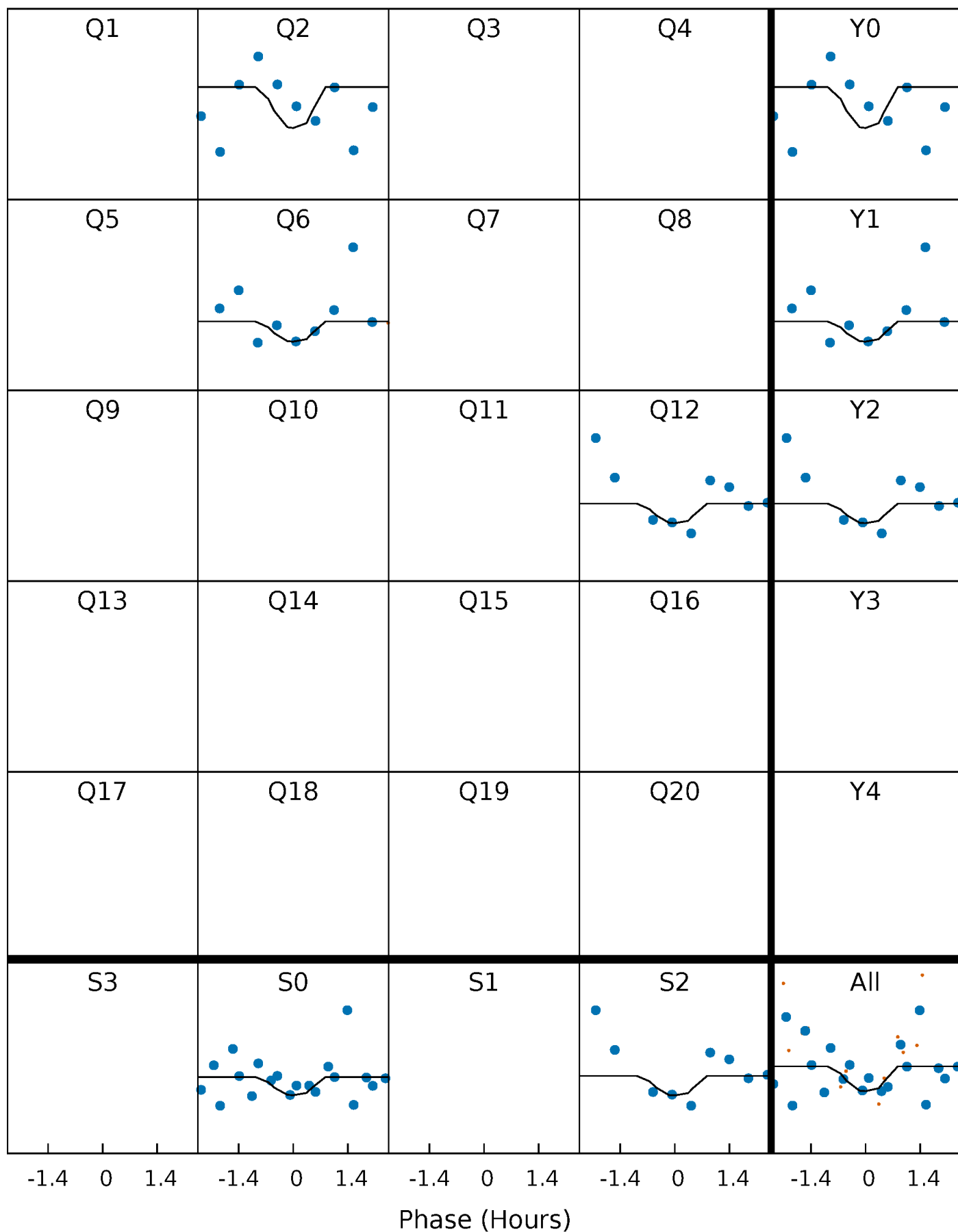
TCE 007524531-01 P=289.994287 Days  $T_0=252.480547$  (BKJD)





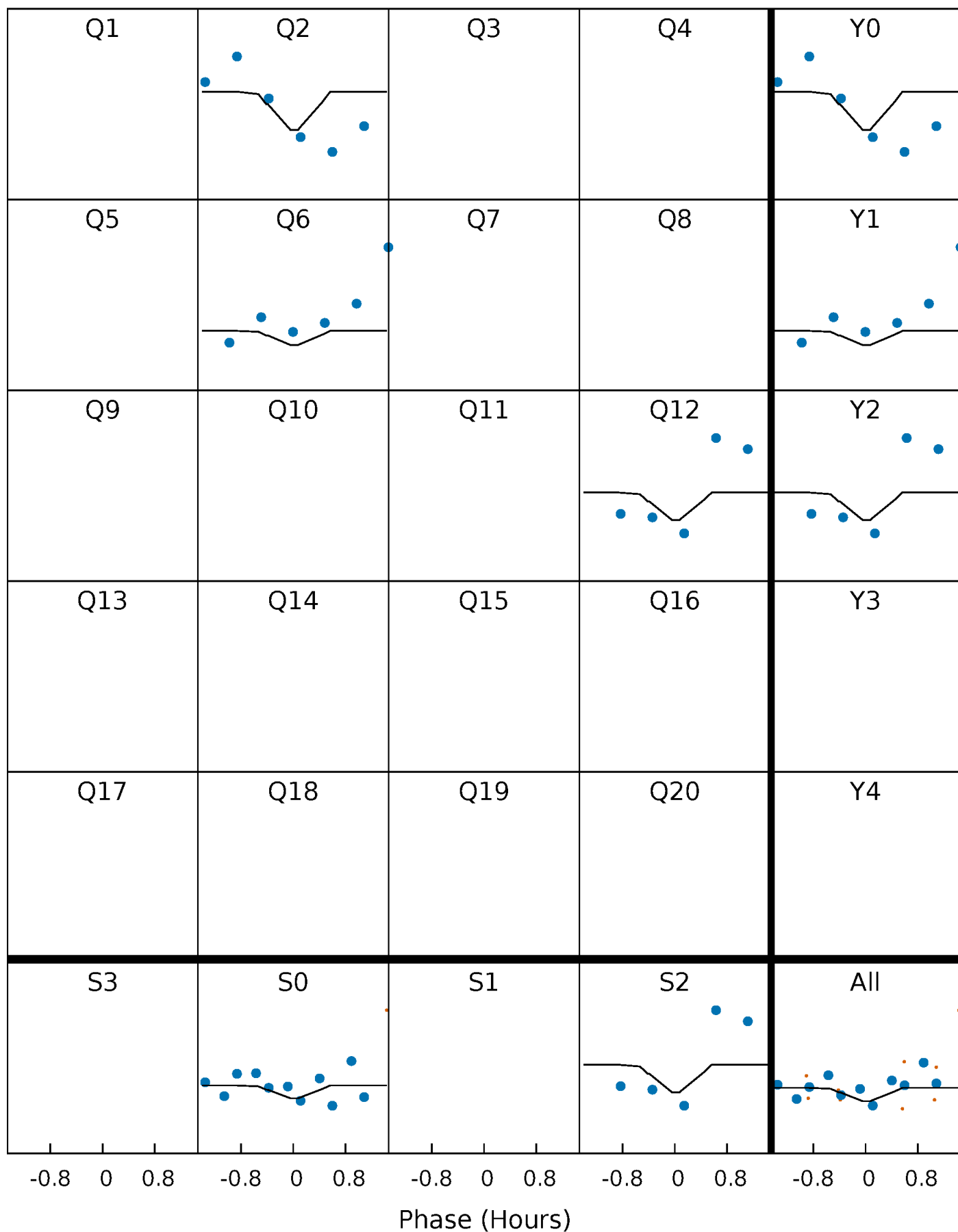
# DV Quarter-Phased Transit Curves

TCE 007524531-01 P=289.994287 Days  $T_0=252.480547$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

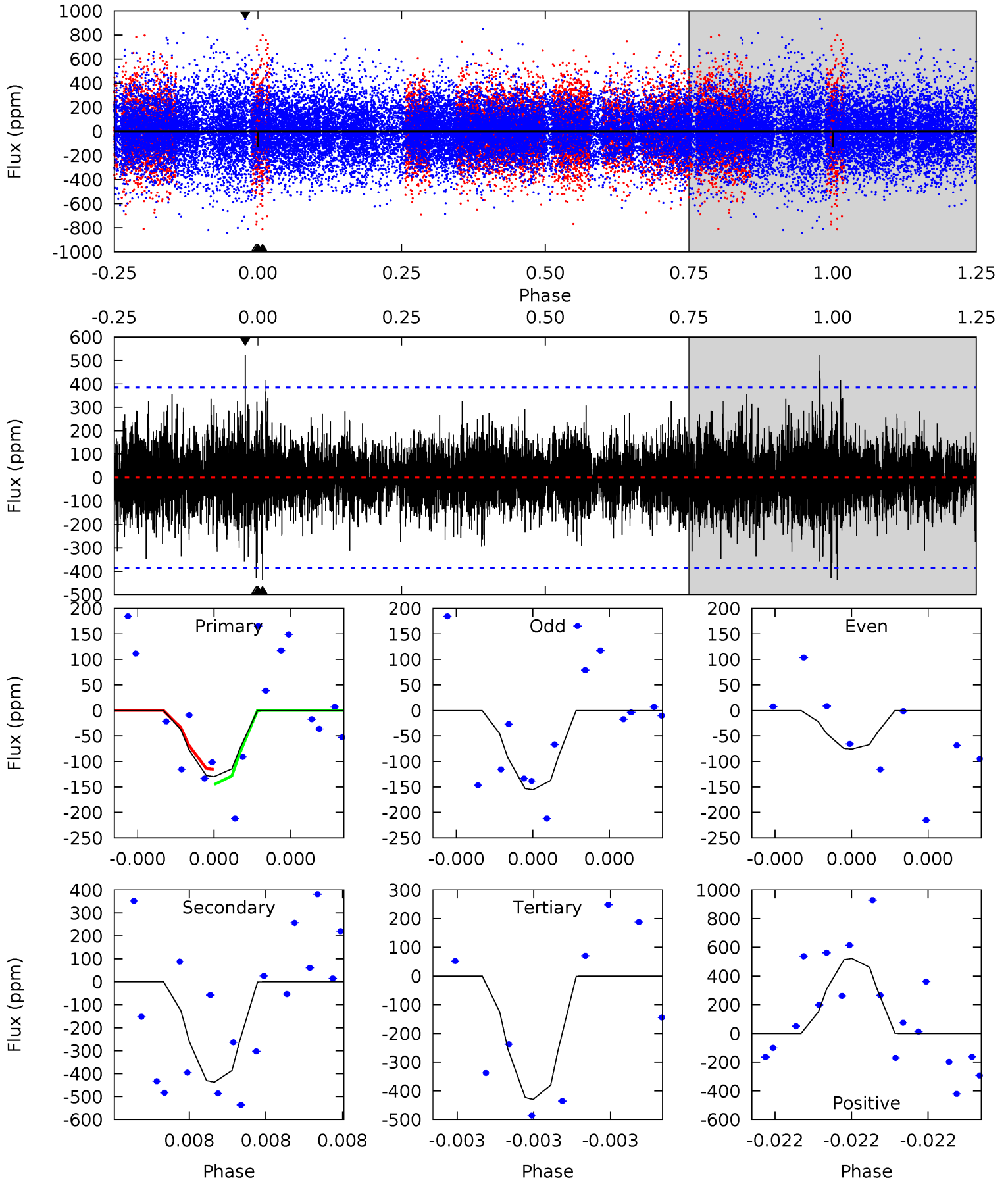
TCE 007524531-01 P=289.998555 Days  $T_0=252.477583$  (BKJD)



# DV Model-Shift Uniqueness Test

007524531-01, P = 289.994287 Days, E = 252.480547 Days

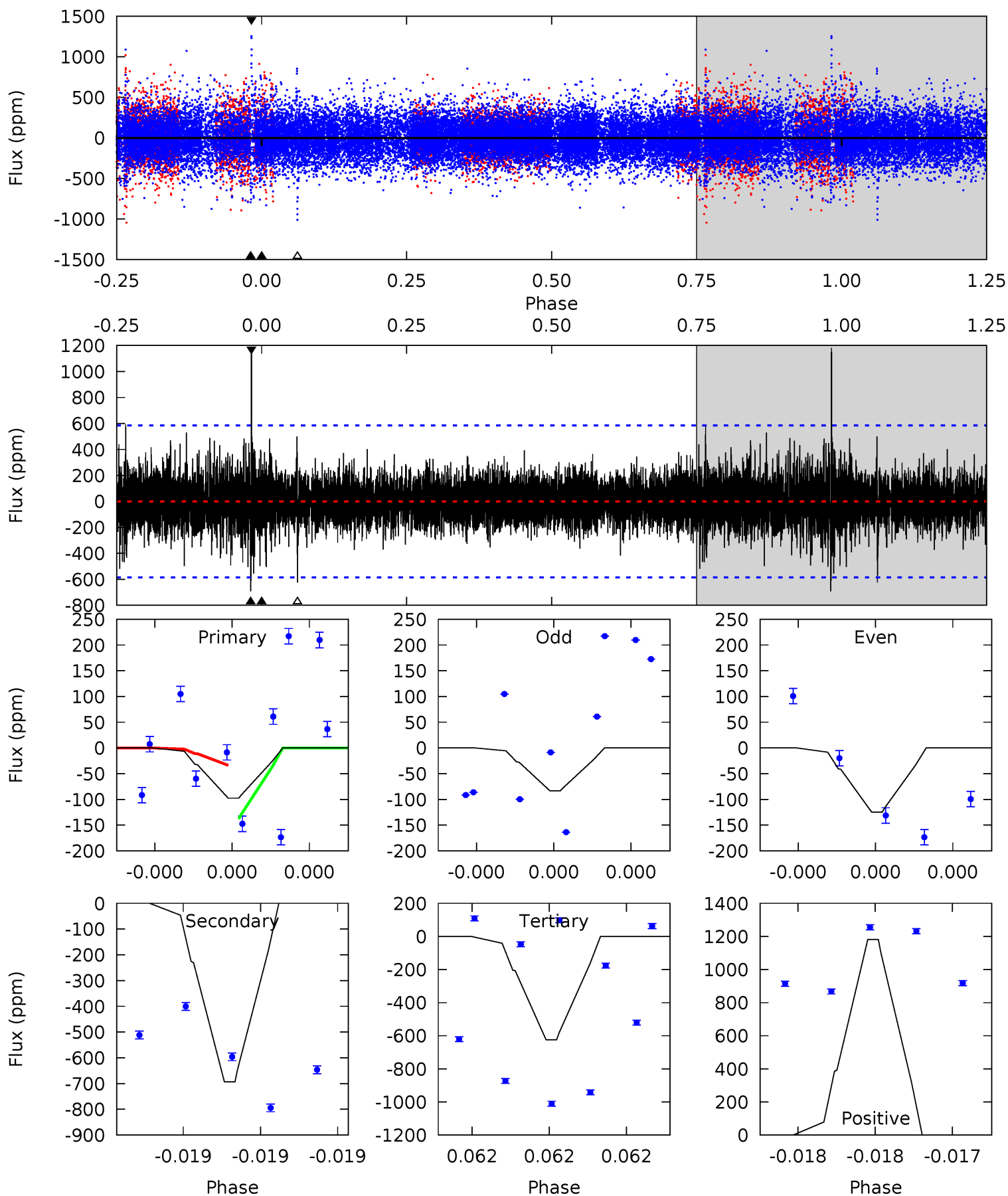
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.92	6.49	6.38	7.75	5.72	3.71	1.25	-4.45	-5.83	0.11	-1.27	0.57	1.11	0.54	0.22



# Alt Model-Shift Uniqueness Test

007524531-01, P = 289.998555 Days, E = 252.477583 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
0.97	6.89	6.20	11.7	5.81	3.84	1.14	-5.23	-10.8	0.69	-4.85	0.18	0.80	0.63	0.52



### Stellar Parameters For KIC 007524531

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5916^{+196}_{-178}$	$4.369^{+0.205}_{-0.205}$	$-0.820^{+0.300}_{-0.300}$	$0.936^{+0.252}_{-0.183}$	$0.746^{+0.099}_{-0.035}$	$1.284^{+1.318}_{-0.653}$
	+3%/-3%	+5%/-5%	+37%/-37%	+27%/-20%	+13%/-5%	+103%/-51%
Source	KIC0	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 007524531-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-437 \pm 67$	$4.25^{+4.51}_{-2.81}$	$401^{+28}_{-30}$	$4359^{+2995}_{-920}$	$7753^{+65835}_{-5844}$
Alt.	$-693 \pm 101$	$4.22^{+4.50}_{-2.91}$	$400^{+33}_{-28}$	$4885^{+3736}_{-1173}$	$13460^{+119799}_{-10497}$

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

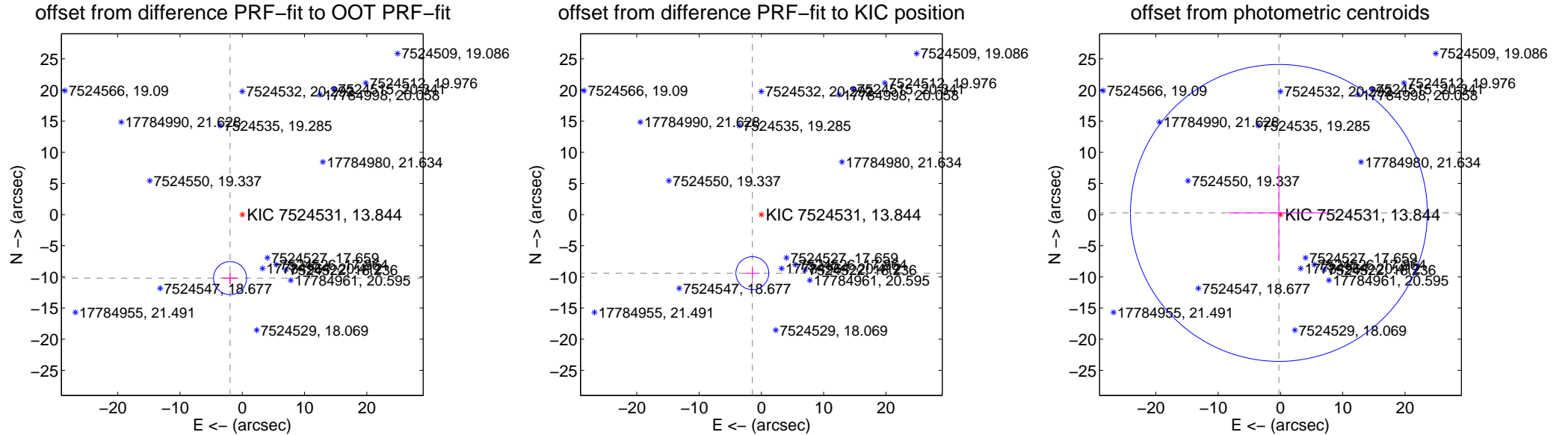
## DV Centroid Data

Supplemental centroid analysis for 007524531-01. Kepler magnitude: 13.84. Transit SNR 1.41

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.95 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$10.388 \pm 0.884$	11.75	$1.964 \pm 1.163$	$-10.201 \pm 0.872$
PRF-fit source offset from KIC position	$9.514 \pm 0.880$	10.81	$1.449 \pm 1.163$	$-9.403 \pm 0.872$
photometric centroid source offset	$0.37 \pm 7.94$	0.05	$0.25 \pm 8.17$	$0.27 \pm 7.74$



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.

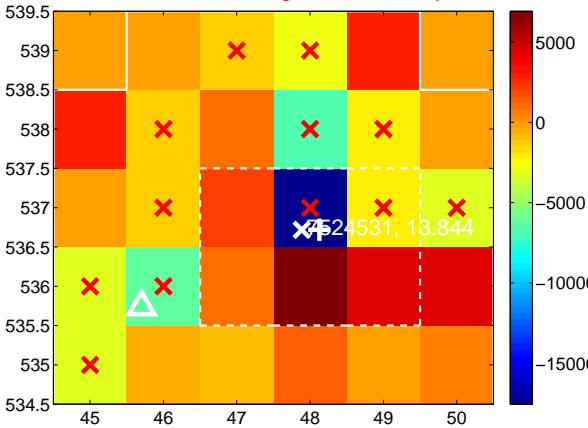
Q1 no difference image



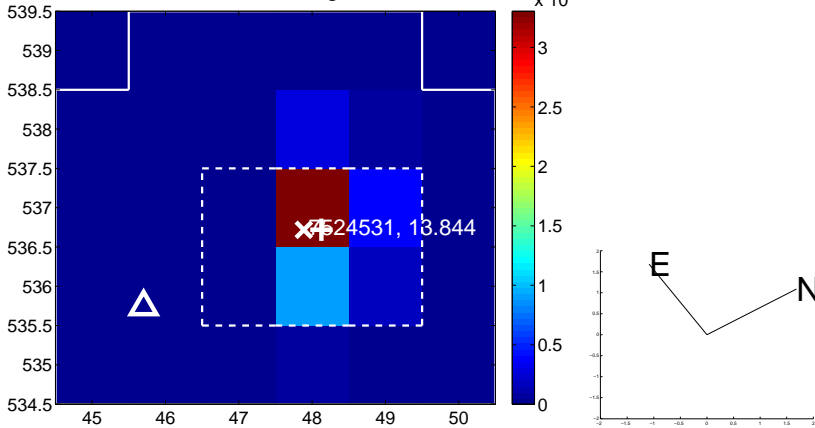
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



Q3 no difference image



Q3 no OOT image



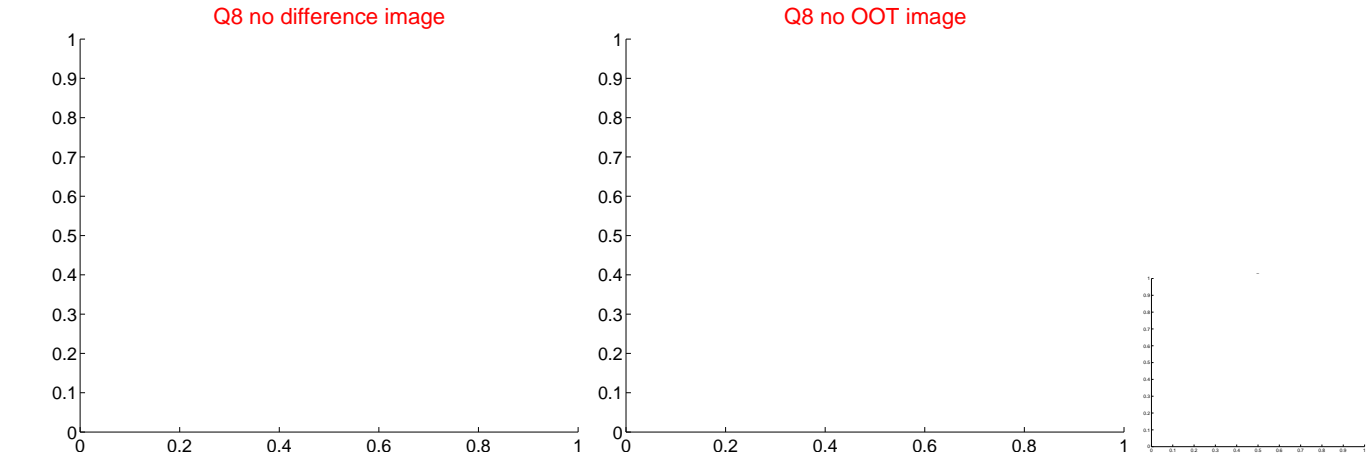
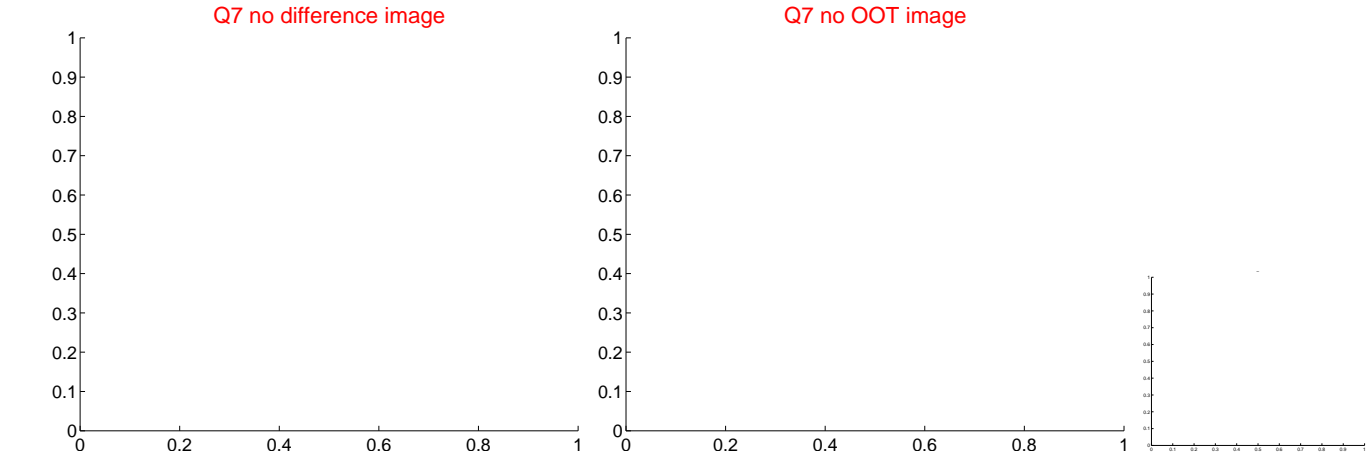
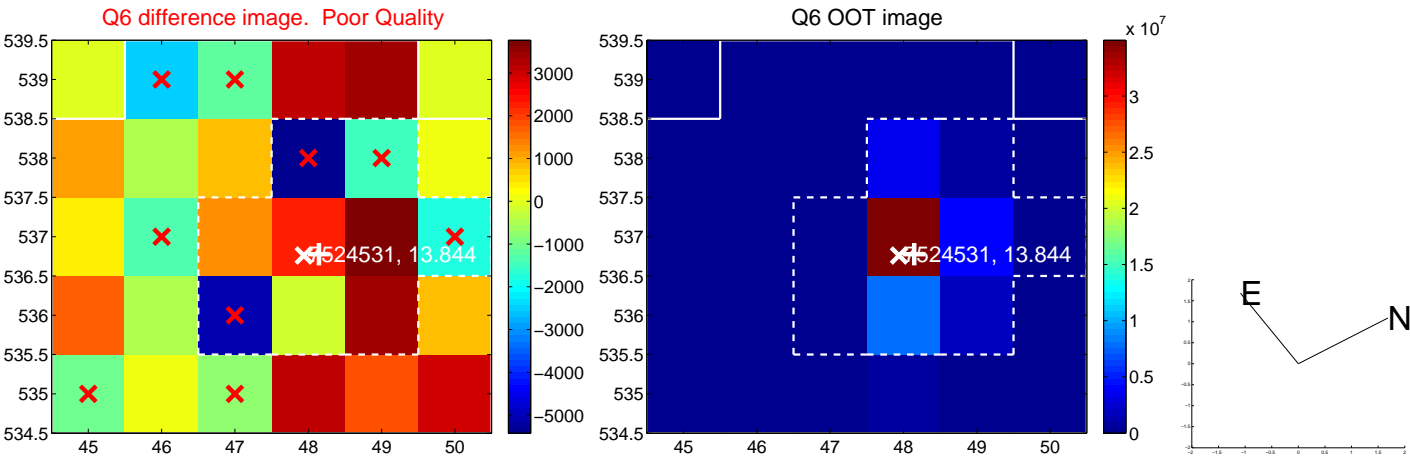
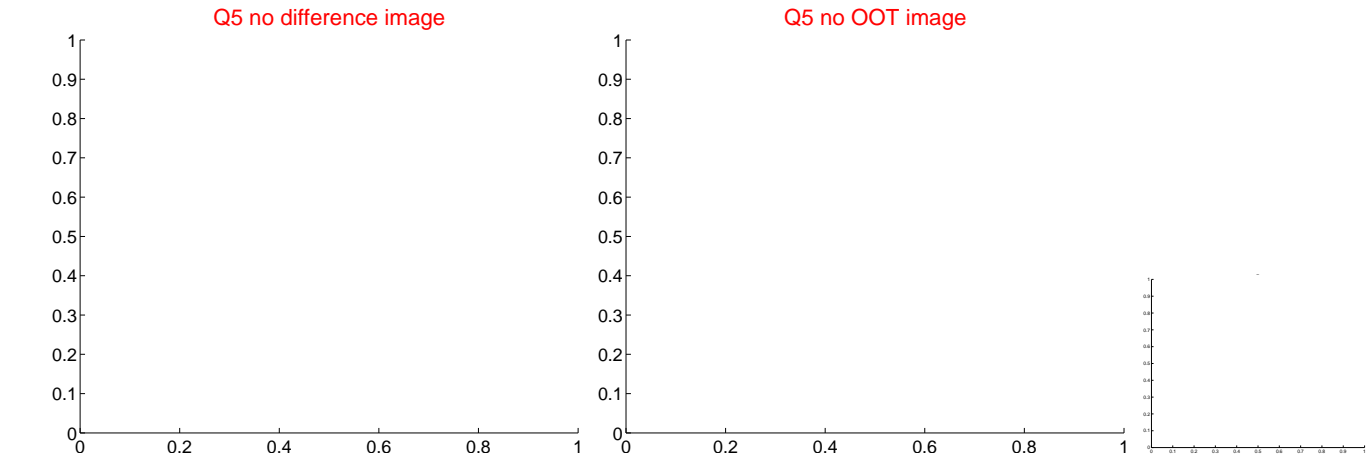
Q4 no difference image



Q4 no OOT image

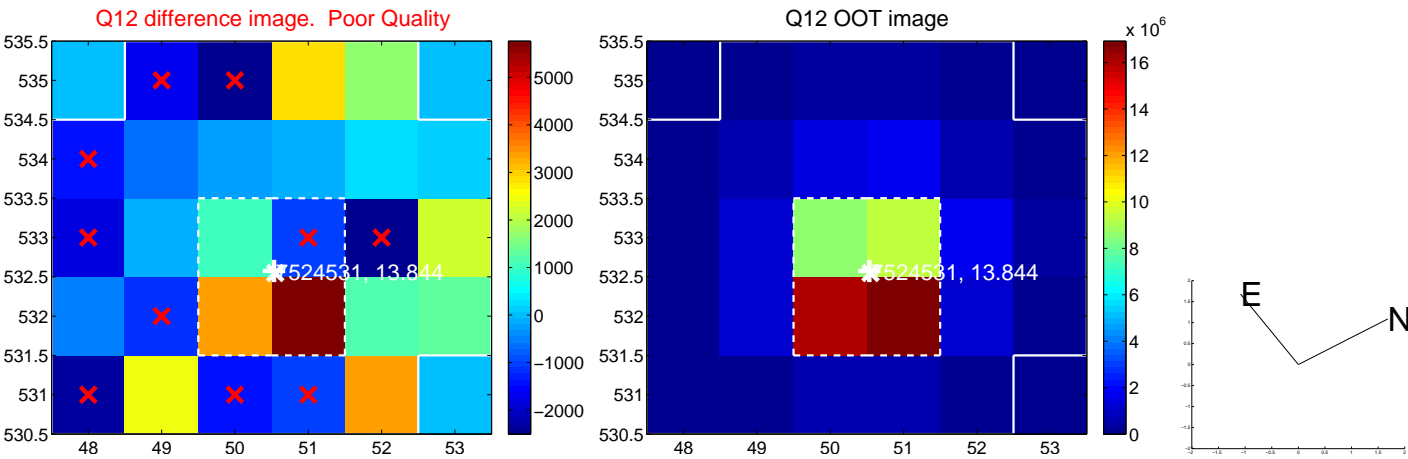


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





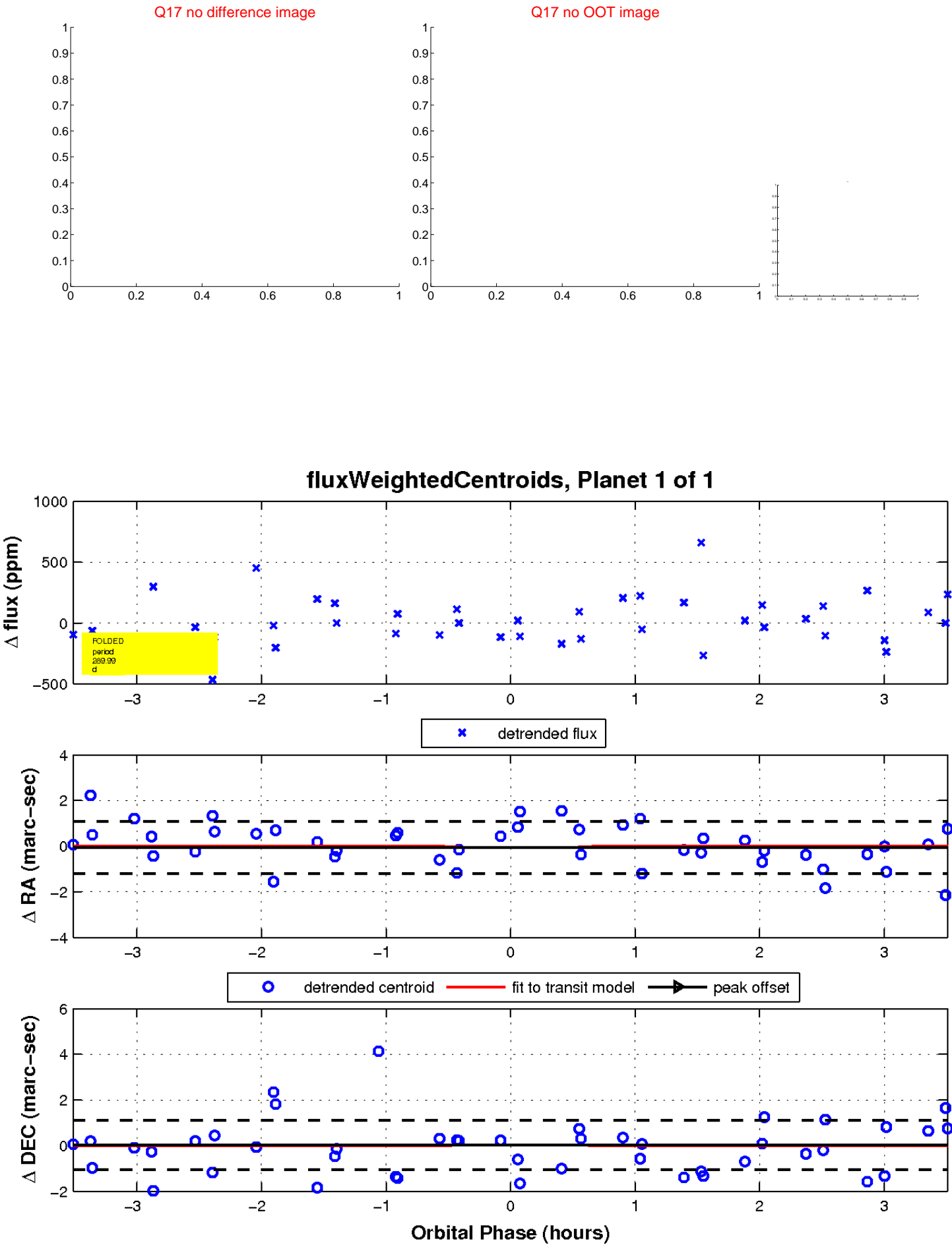
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

