

# KIC 008160751

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008160751-01	OBS	No	426.055243	182.944007	916.2	5.318	7.3	8.8	0.94	5566	3.50	0.71

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008160751-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

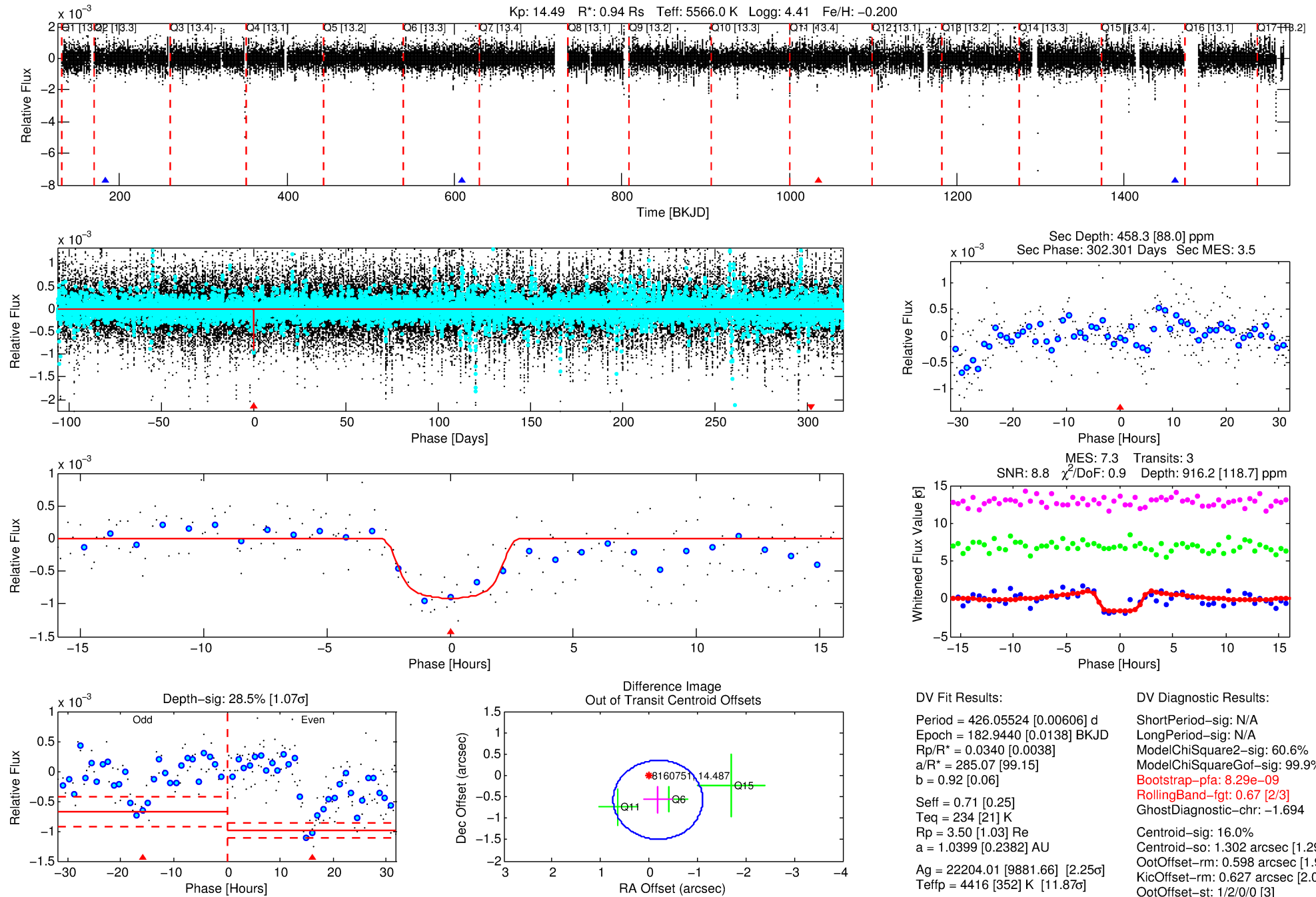
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008160751-01

No Significant Match Found

# DV One-Page Summary

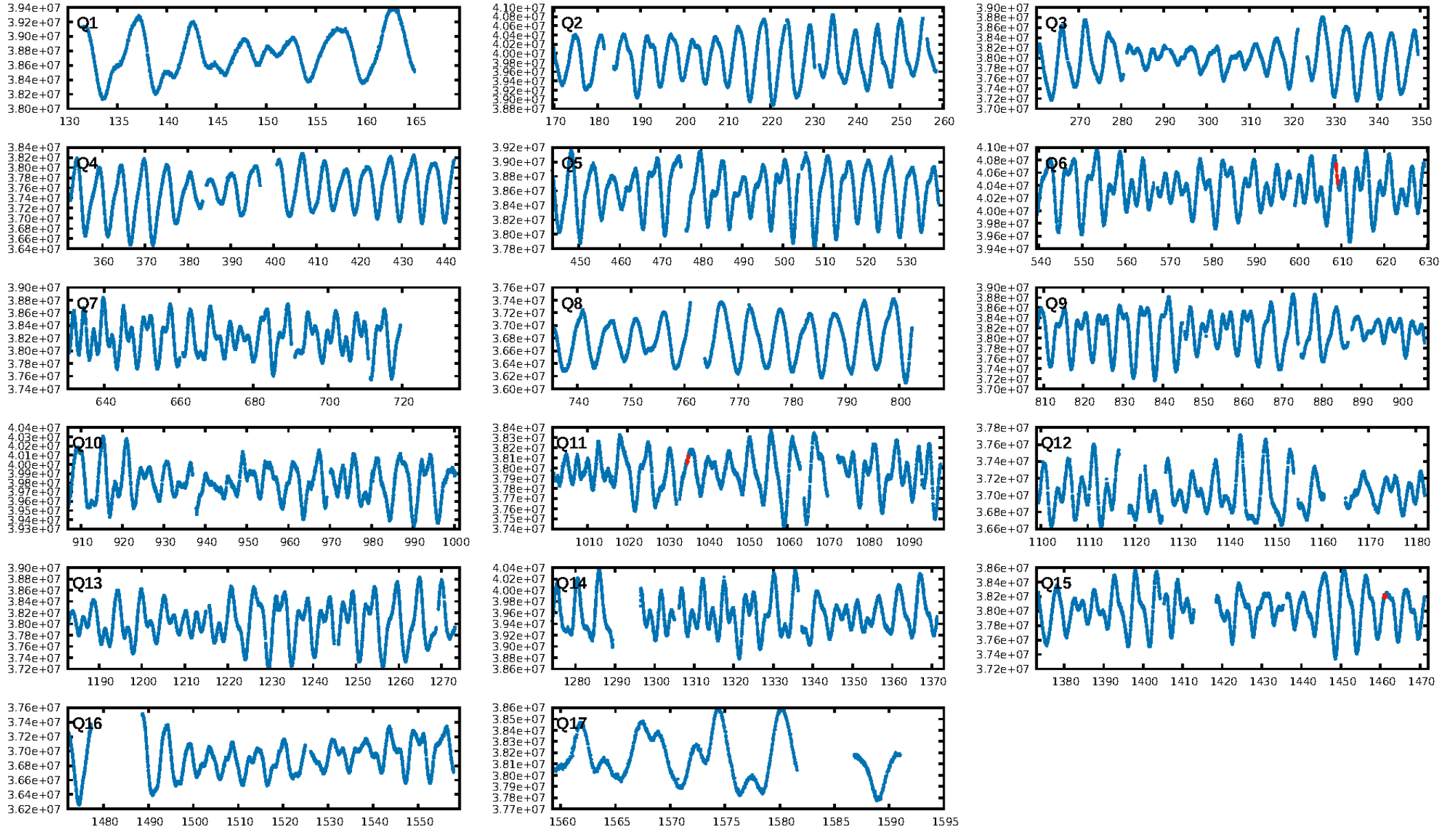
KIC: 8160751 Candidate: 1 of 1 Period: 426.055 d



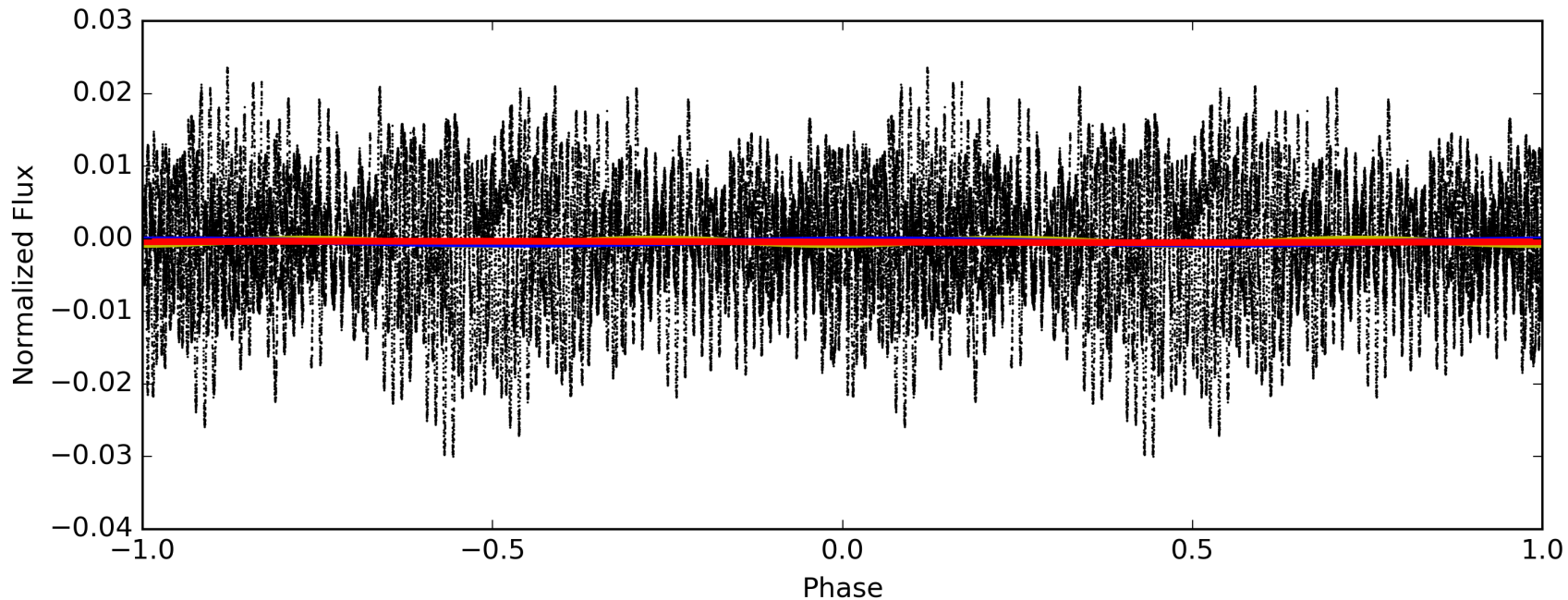
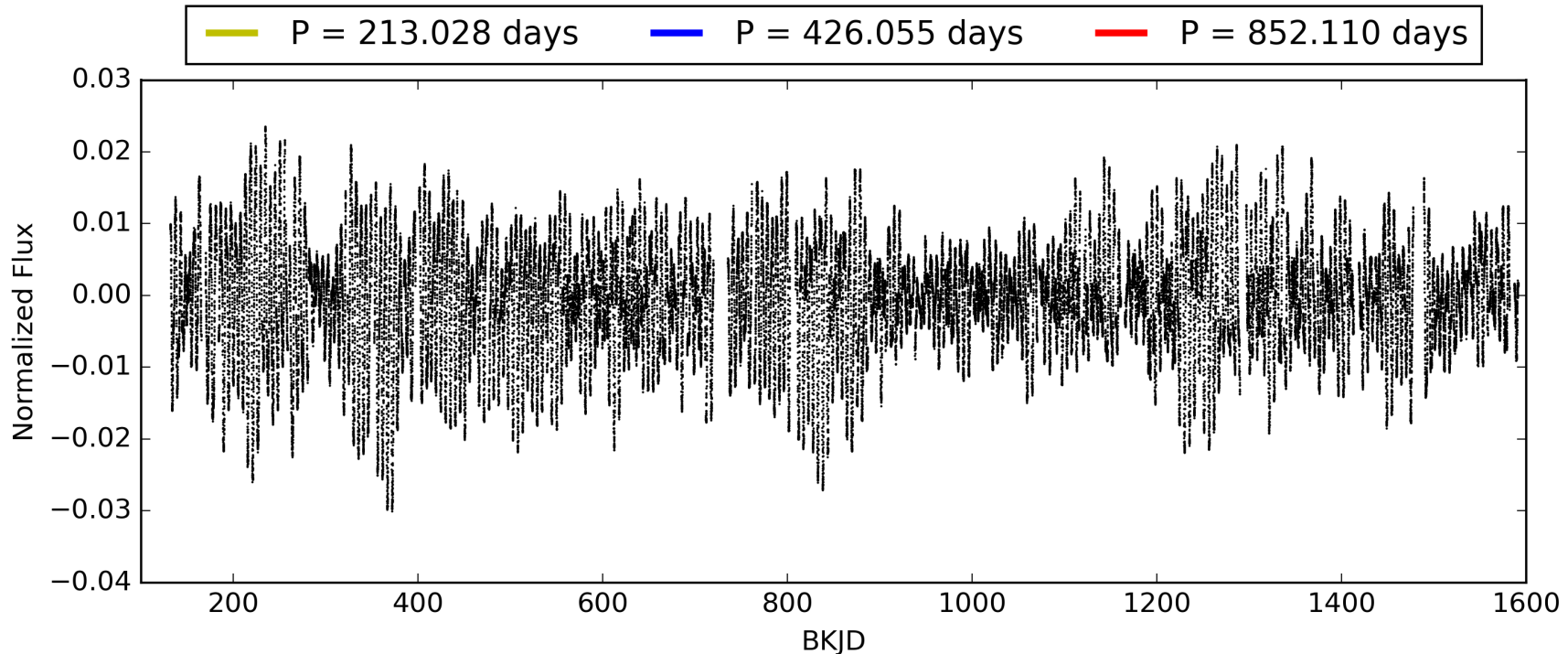
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:12:27 Z

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

# TCE 008160751-01, PDC Light Curves

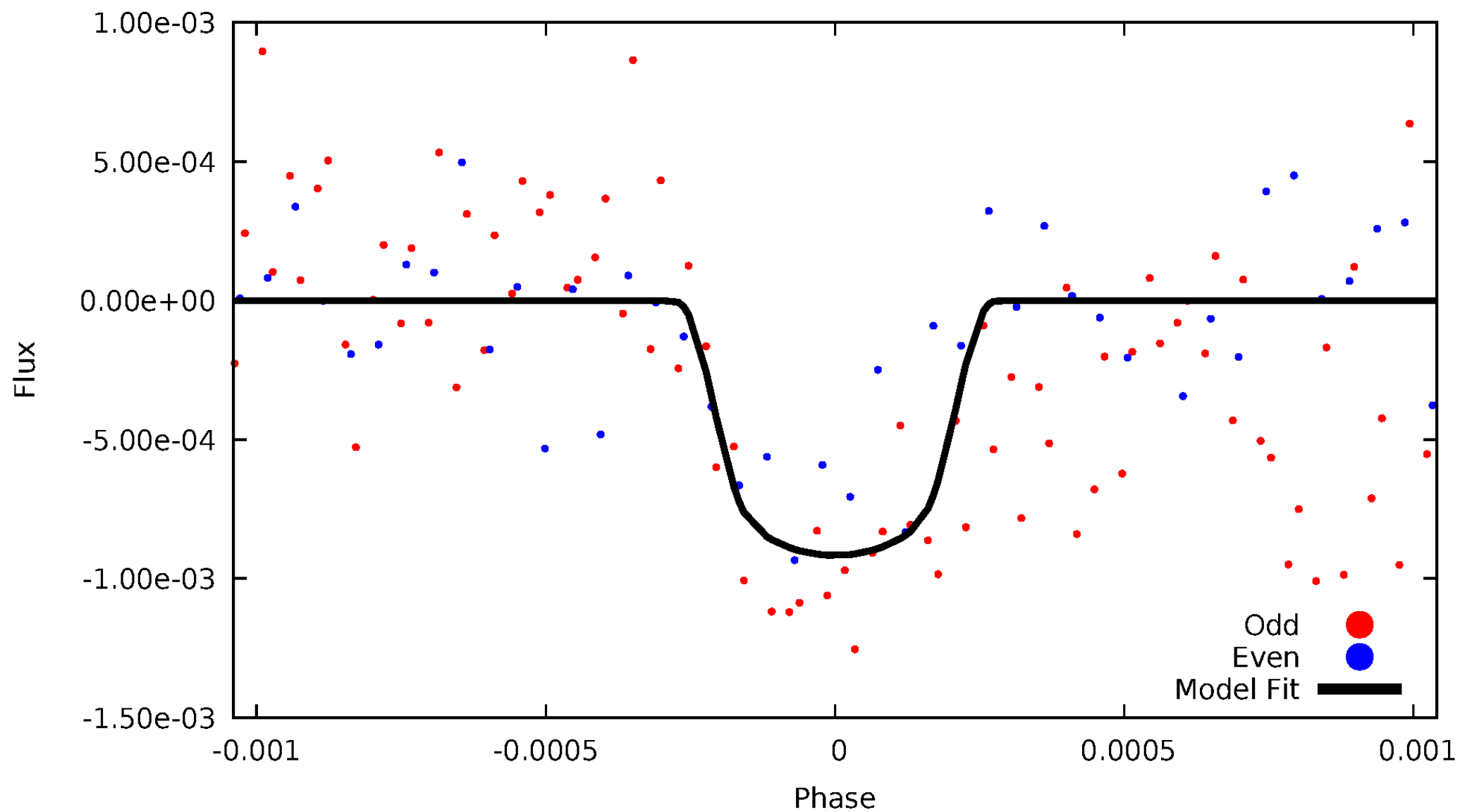


TCE 008160751-01



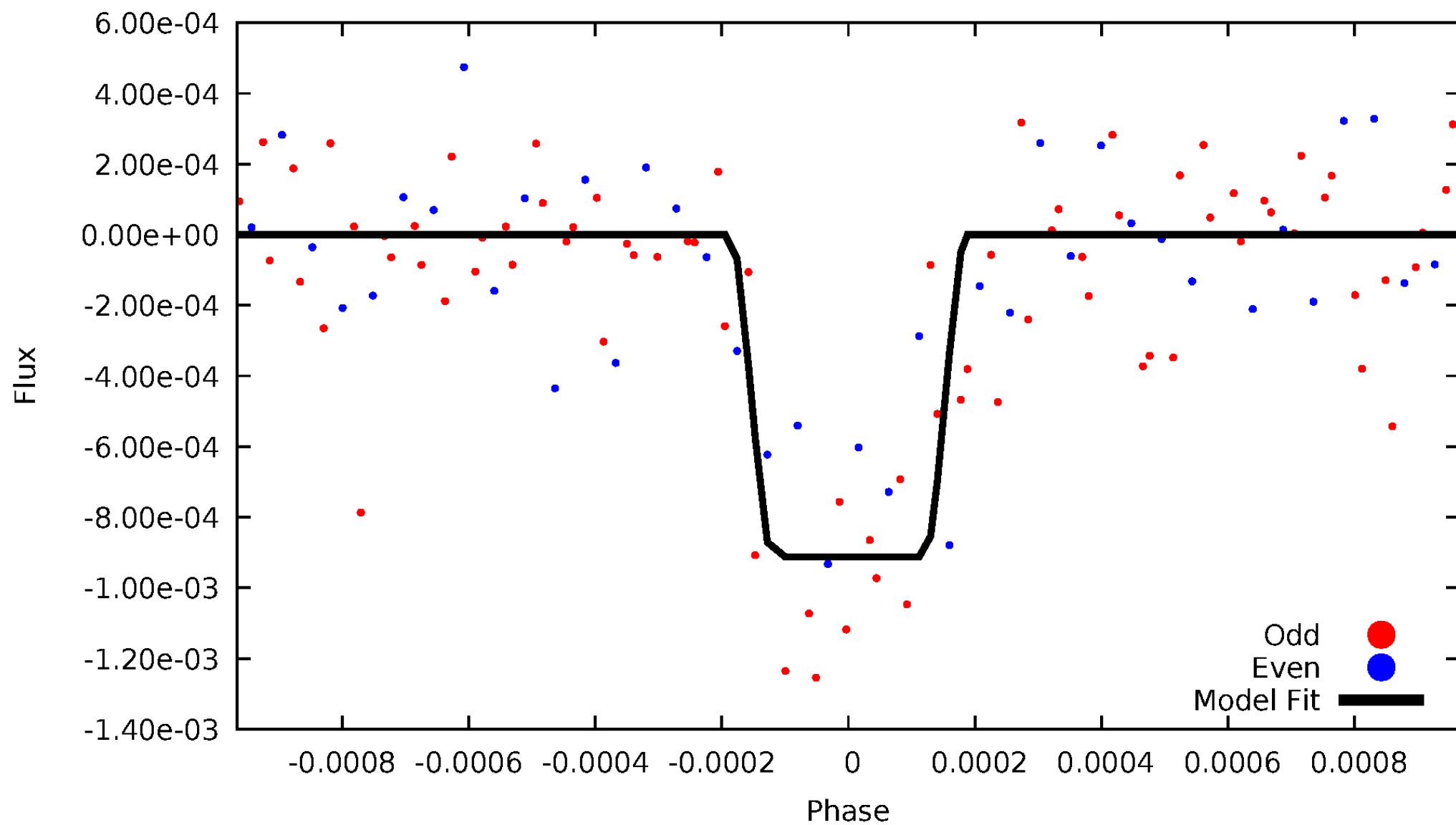
# DV Odd/Even

TCE 008160751-01



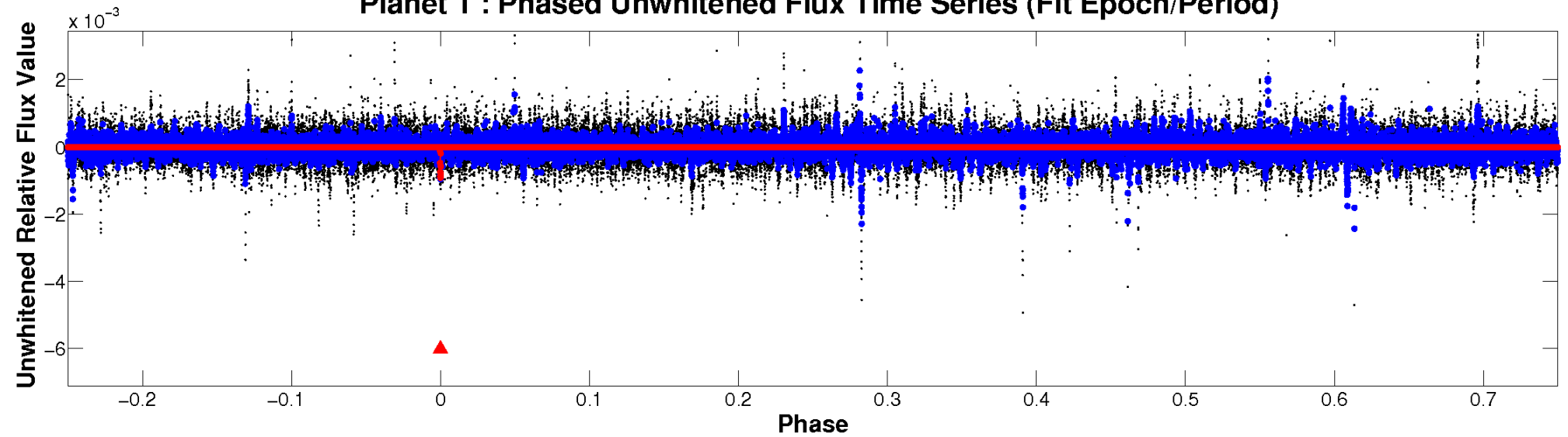
# ALT Odd/Even

TCE 008160751-01

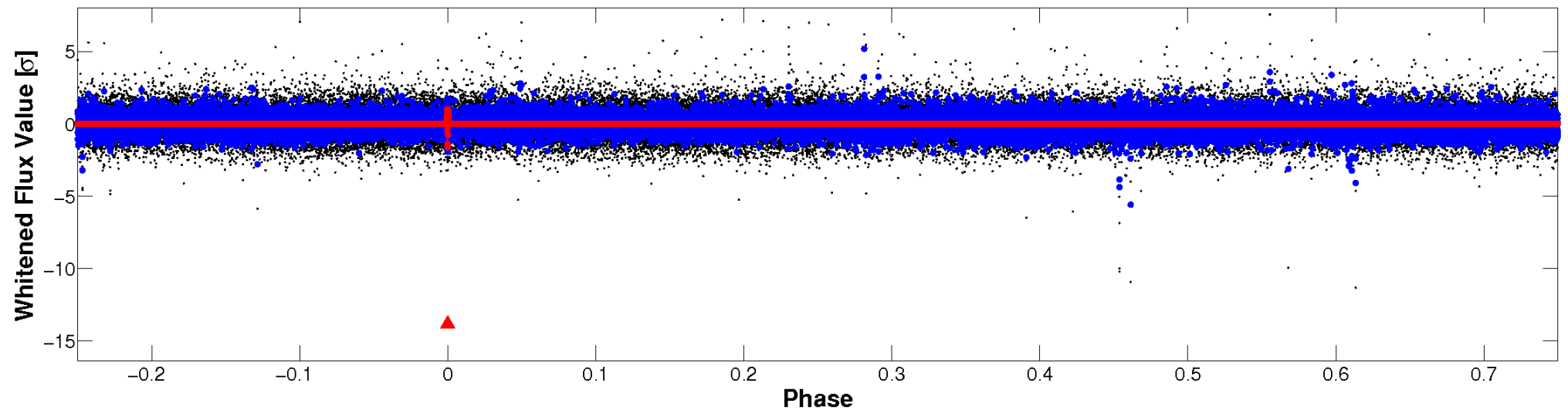


# Non-Whitened Vs. Whitened Light Curve

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

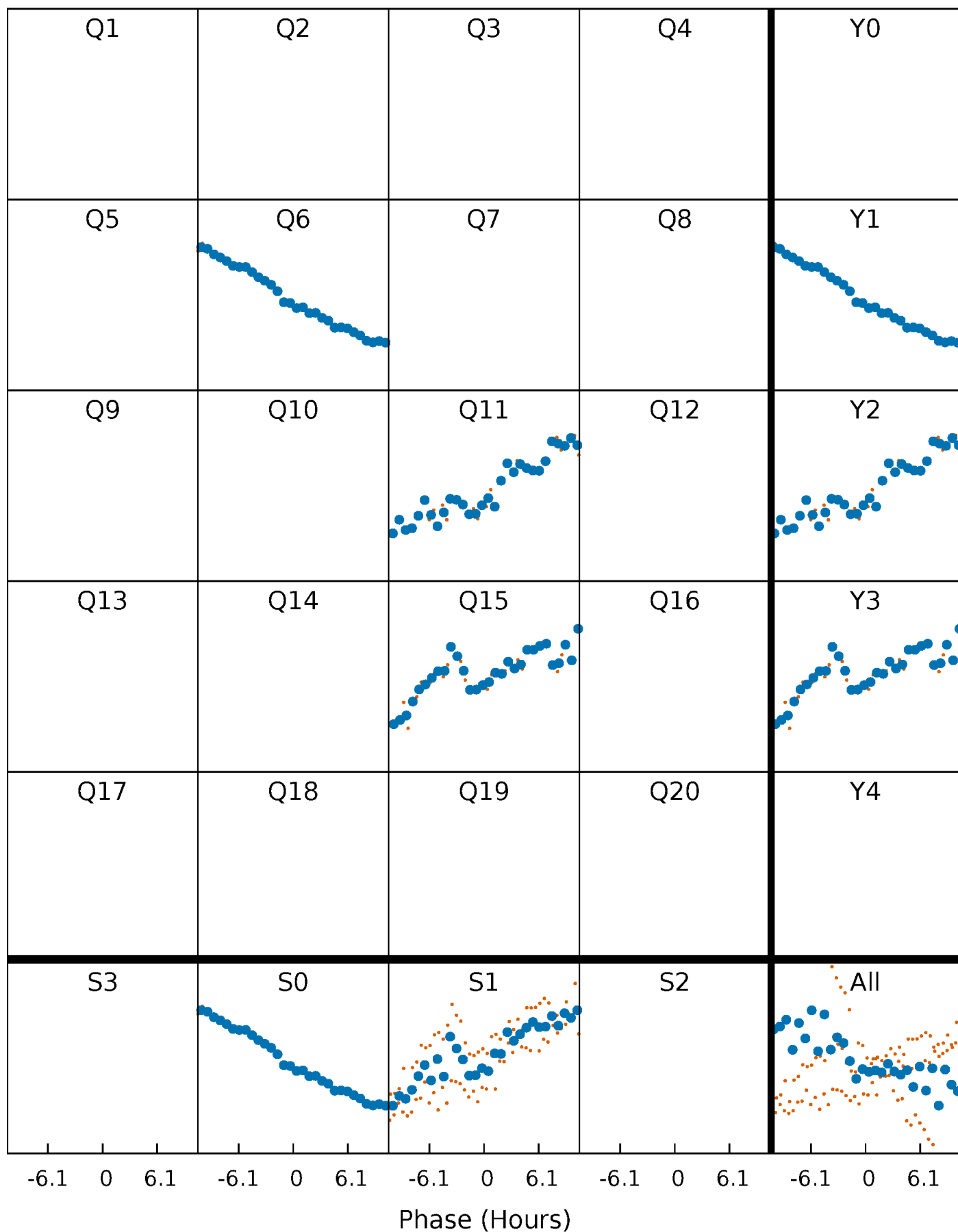


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

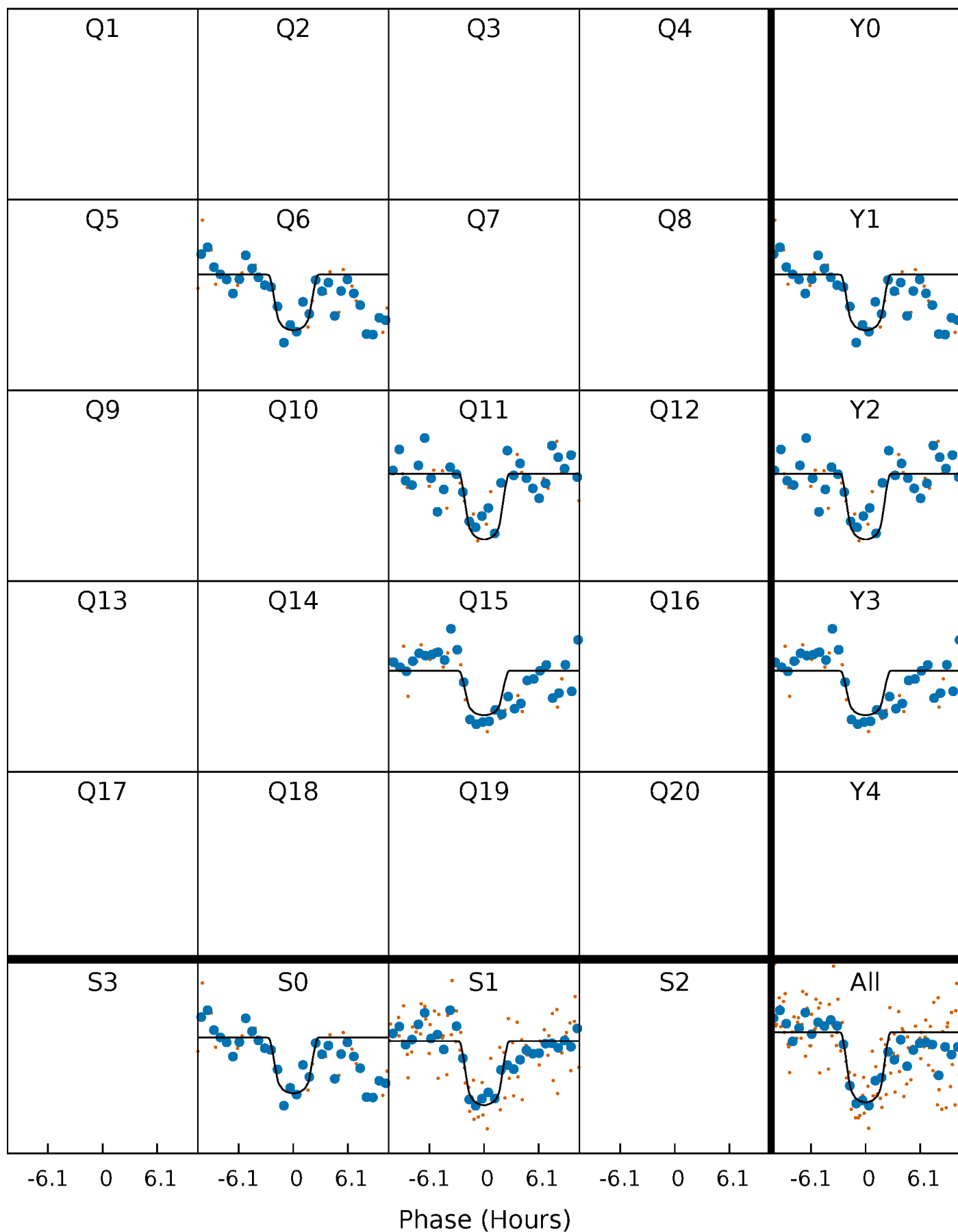
TCE 008160751-01 P=426.055243 Days  $T_0=182.944007$  (BKJD)





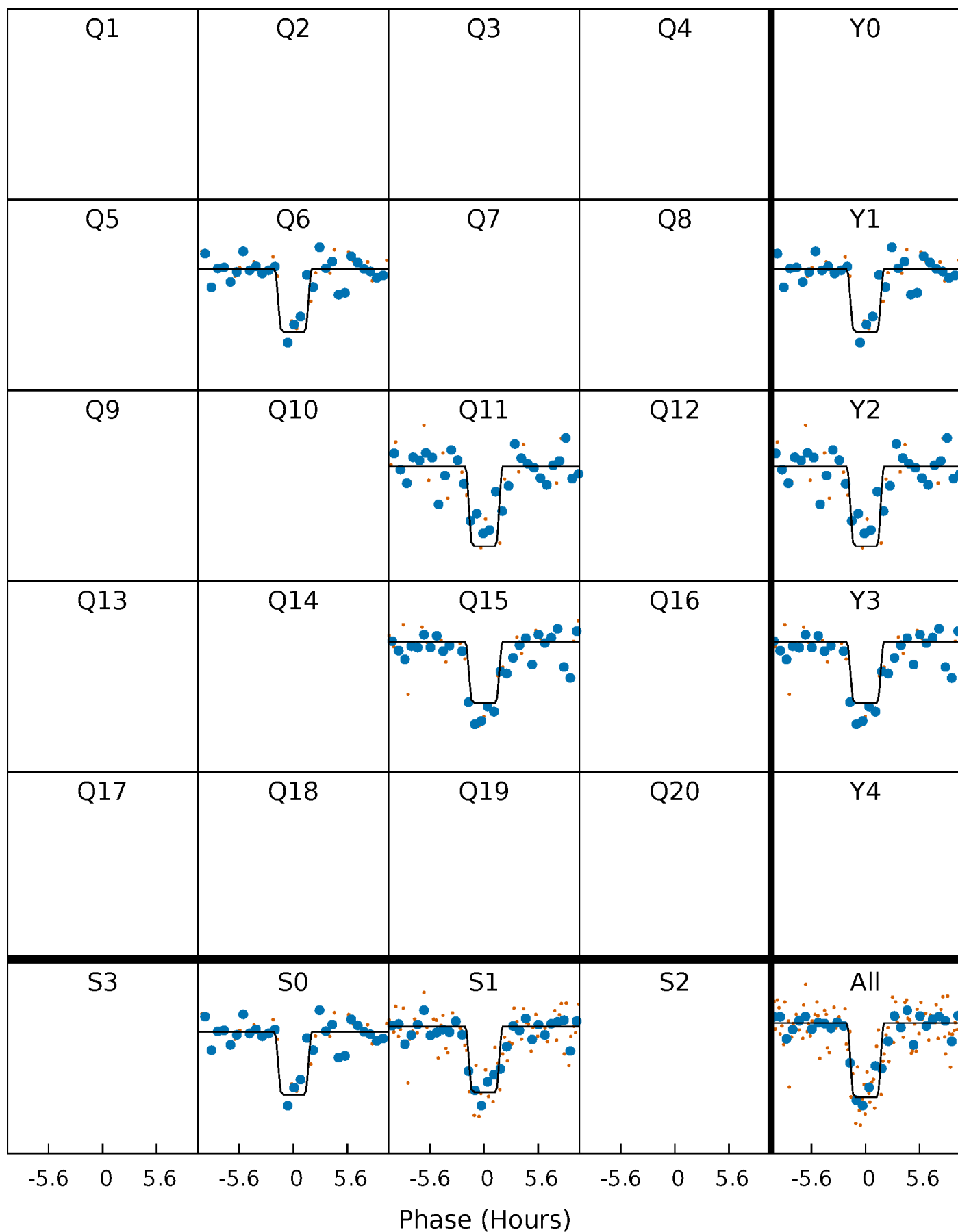
# DV Quarter-Phased Transit Curves

TCE 008160751-01 P=426.055243 Days  $T_0=182.944007$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

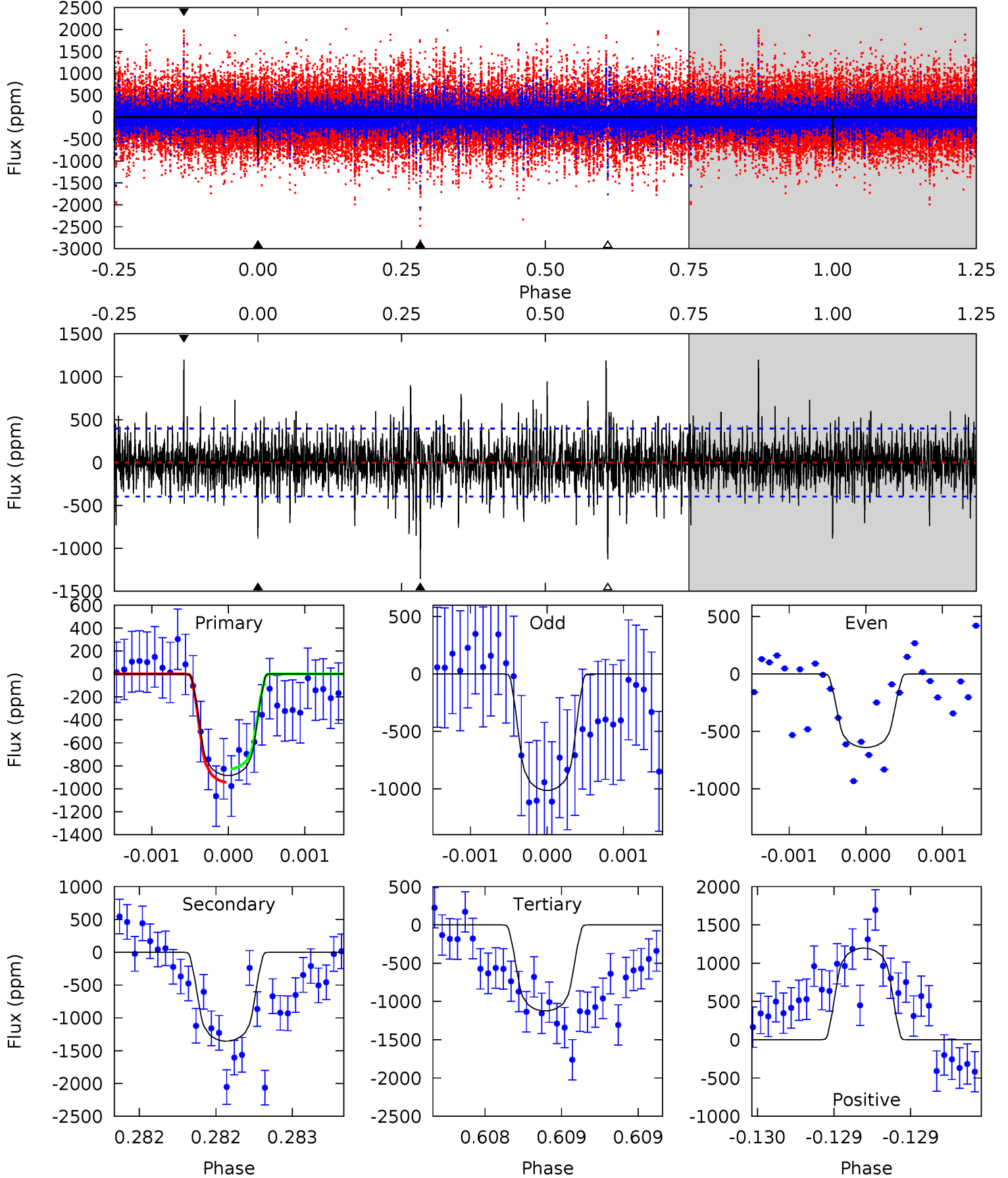
TCE 008160751-01 P=426.046537 Days  $T_0=182.945373$  (BKJD)



# DV Model-Shift Uniqueness Test

008160751-01, P = 426.055243 Days, E = 182.944007 Days

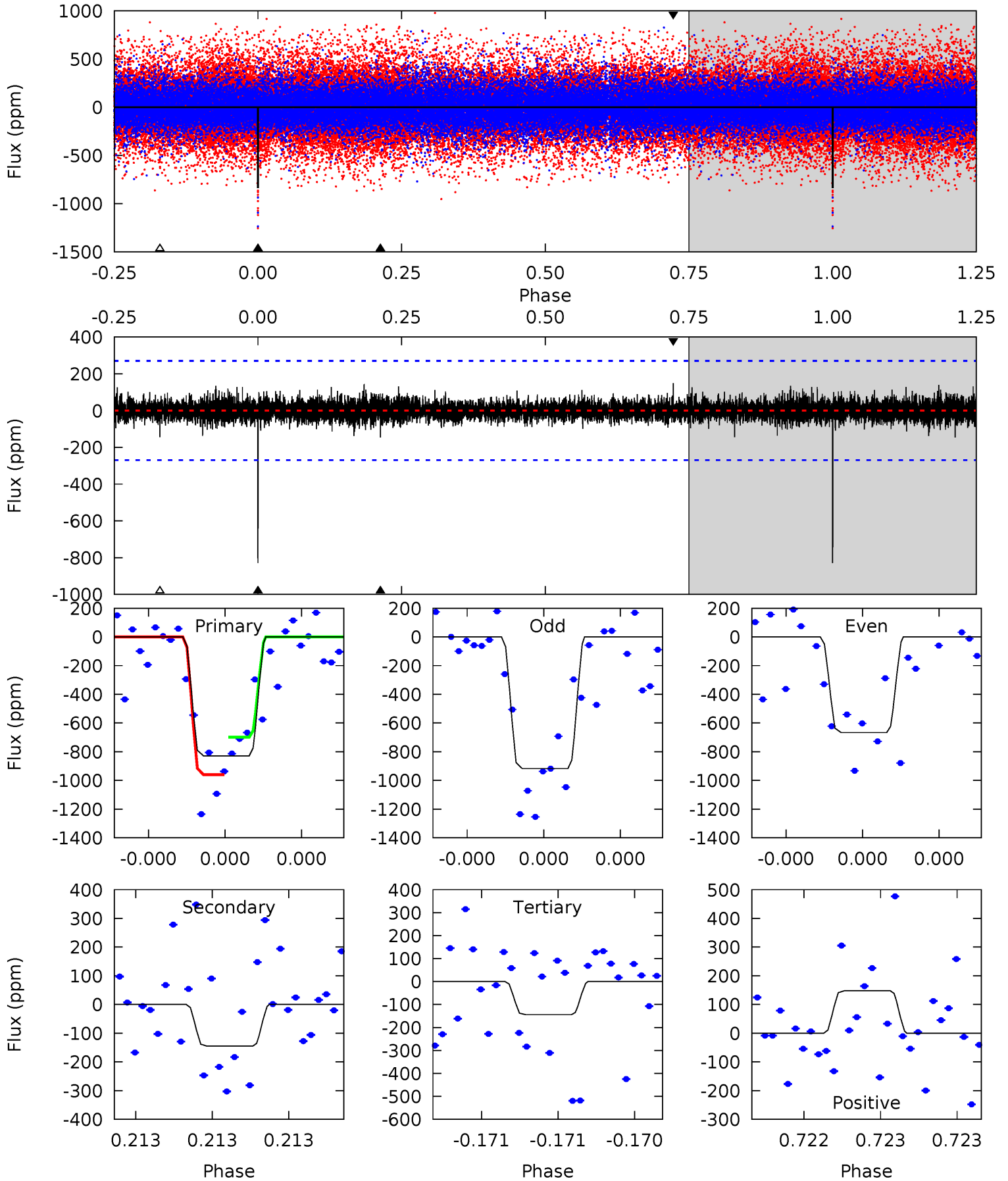
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	19.0	15.8	16.8	5.56	3.46	2.77	-3.37	-4.38	3.23	2.22	2.39	1.00	0.47	0.81



# Alt Model-Shift Uniqueness Test

008160751-01, P = 426.046537 Days, E = 182.945373 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
17.3	3.03	3.01	3.09	5.63	3.57	0.61	14.3	14.2	0.01	-0.07	2.62	1.17	0.15	2.74



### Stellar Parameters For KIC 008160751

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5566^{+167}_{-150}$	$4.405^{+0.149}_{-0.182}$	$-0.200^{+0.300}_{-0.300}$	$0.944^{+0.257}_{-0.158}$	$0.826^{+0.118}_{-0.063}$	$1.385^{+0.853}_{-0.677}$
	+3%/-3%	+3%/-4%	+150%/-150%	+27%/-17%	+14%/-8%	+62%/-49%
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 008160751-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1355 \pm 71$	$3.56^{+0.65}_{-0.53}$	$329^{+24}_{-19}$	$5791^{+387}_{-336}$	$64785^{+24579}_{-18669}$
Alt.	$-145 \pm 48$	$3.13^{+0.67}_{-0.50}$	$328^{+22}_{-20}$	$3874^{+281}_{-307}$	$8928^{+4923}_{-3869}$

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

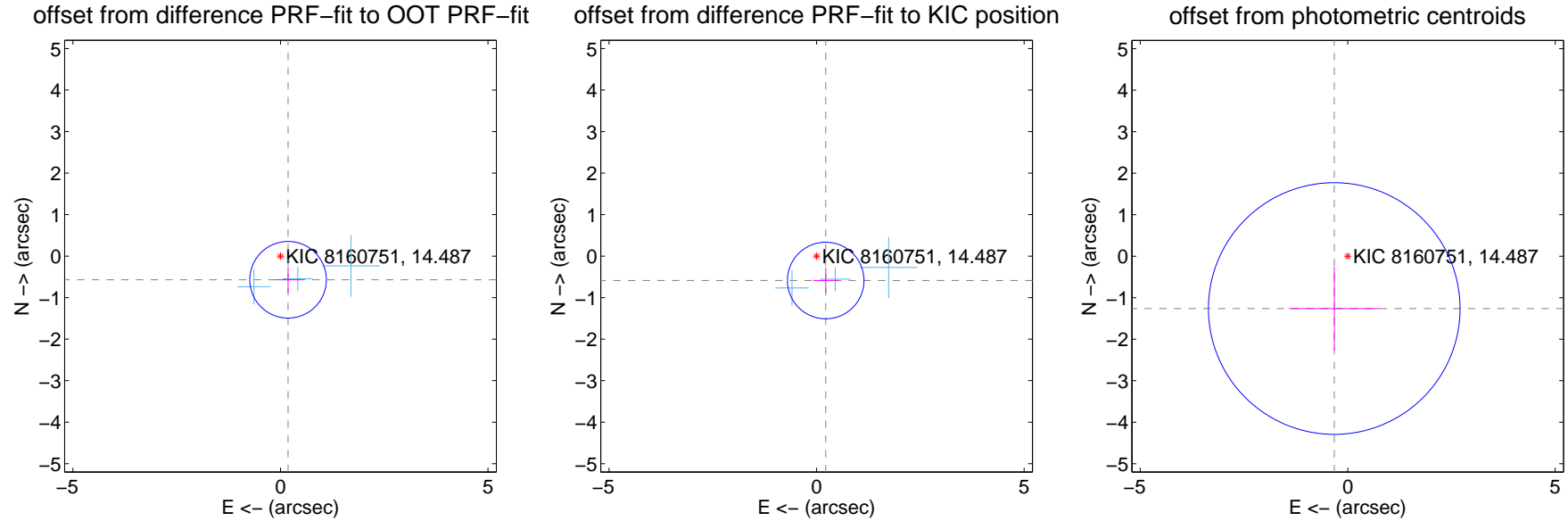
## DV Centroid Data

Supplemental centroid analysis for 008160751-01. Kepler magnitude: 14.49. Transit SNR 8.82

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.598 \pm 0.308$	1.95	$-0.183 \pm 0.301$	$-0.569 \pm 0.308$
PRF-fit source offset from KIC position	$0.627 \pm 0.307$	2.04	$-0.220 \pm 0.301$	$-0.587 \pm 0.308$
photometric centroid source offset	$1.30 \pm 1.01$	1.29	$0.32 \pm 1.09$	$-1.26 \pm 1.00$



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.

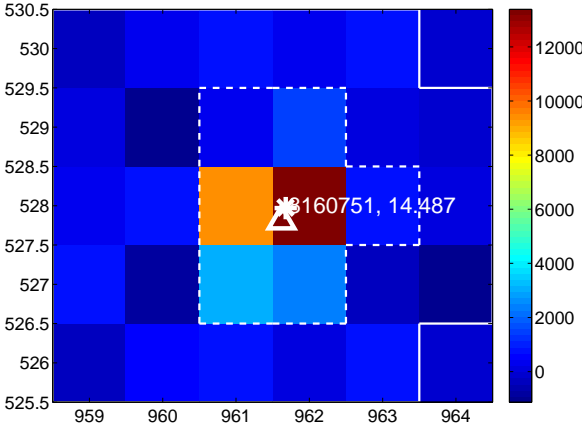
Q5 no difference image



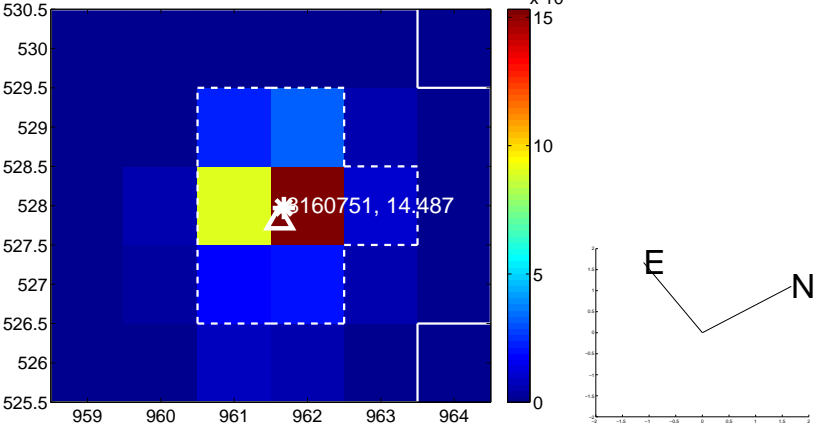
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



Q7 no OOT image



Q8 no difference image

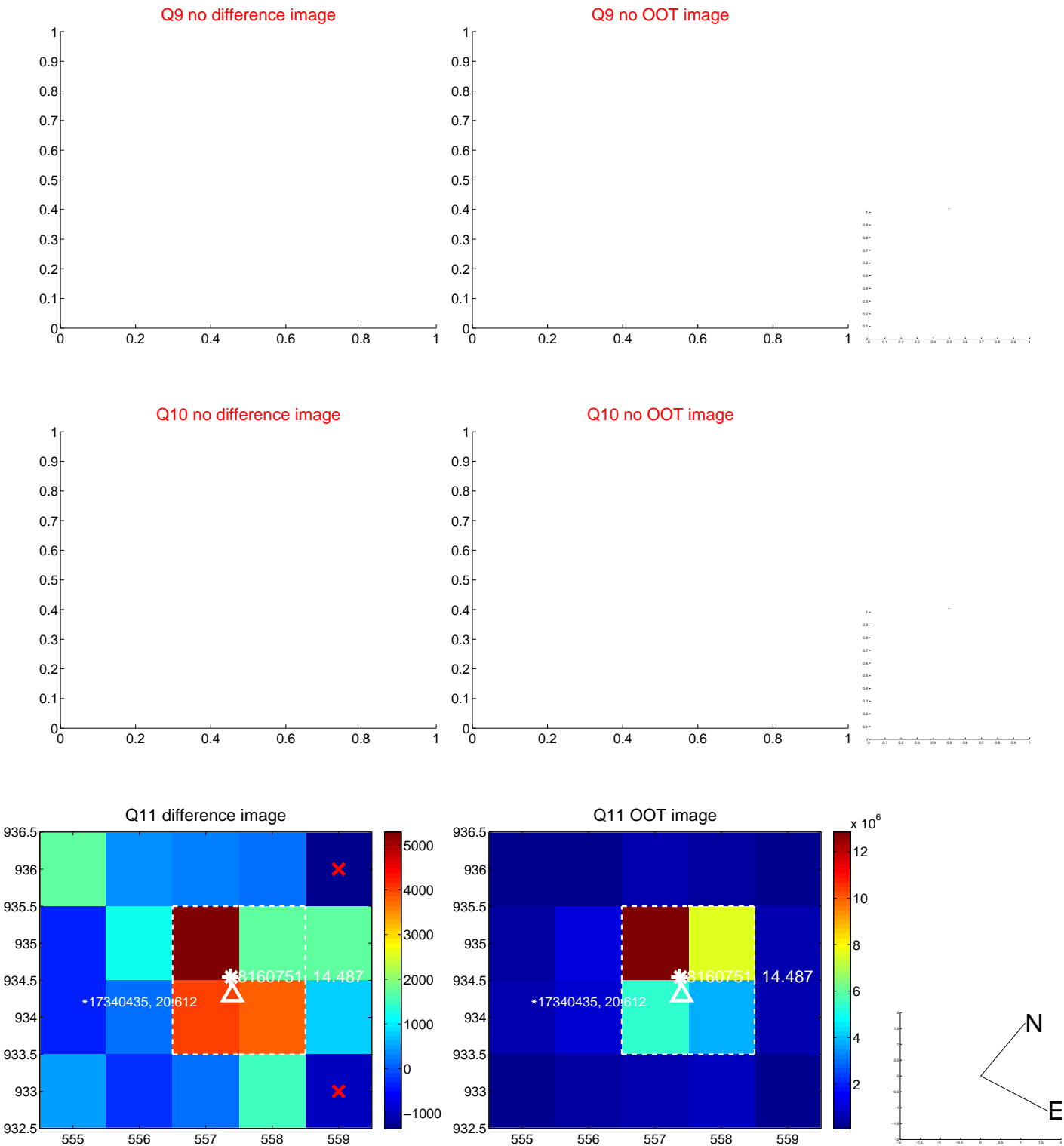


Q8 no OOT image

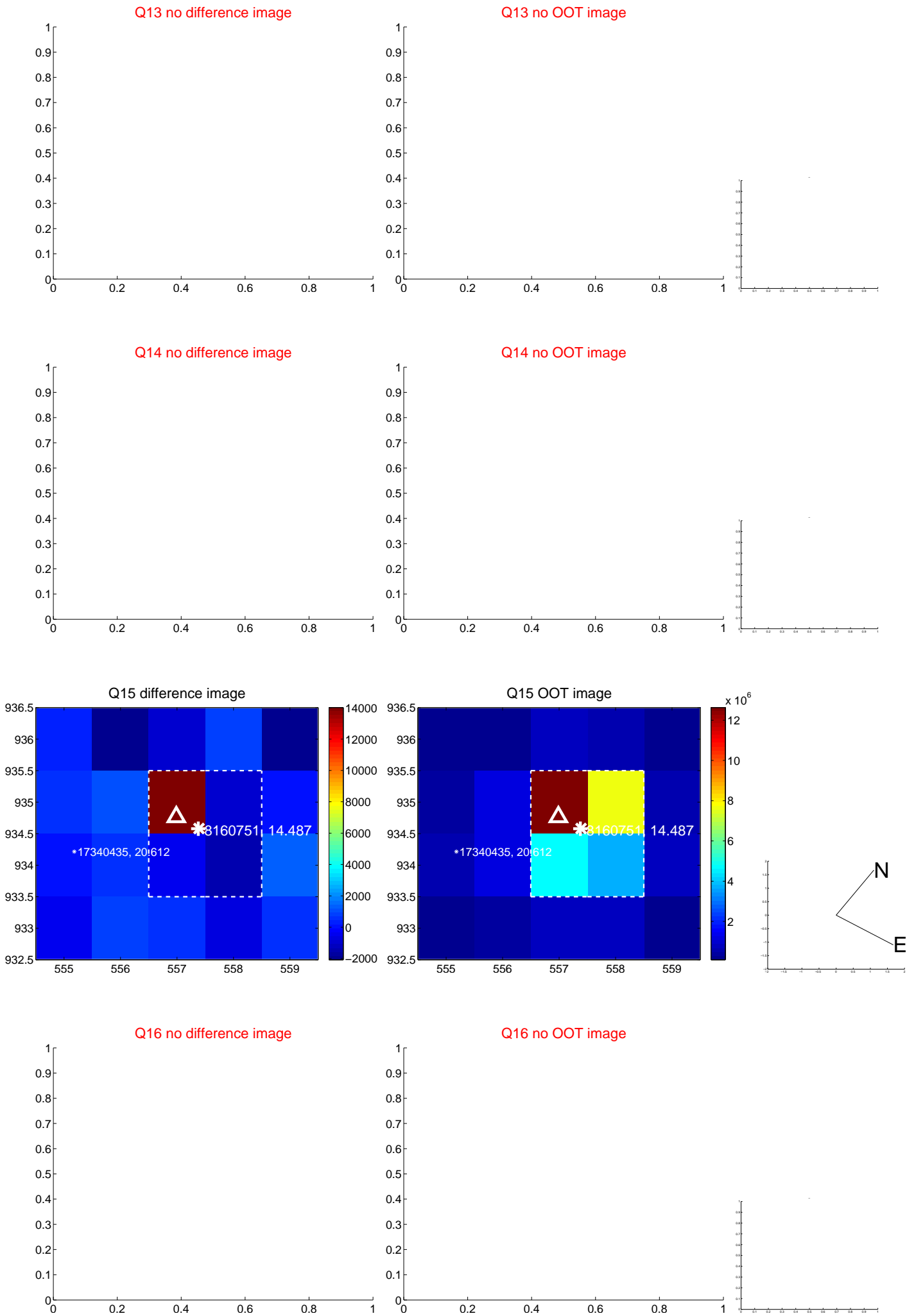




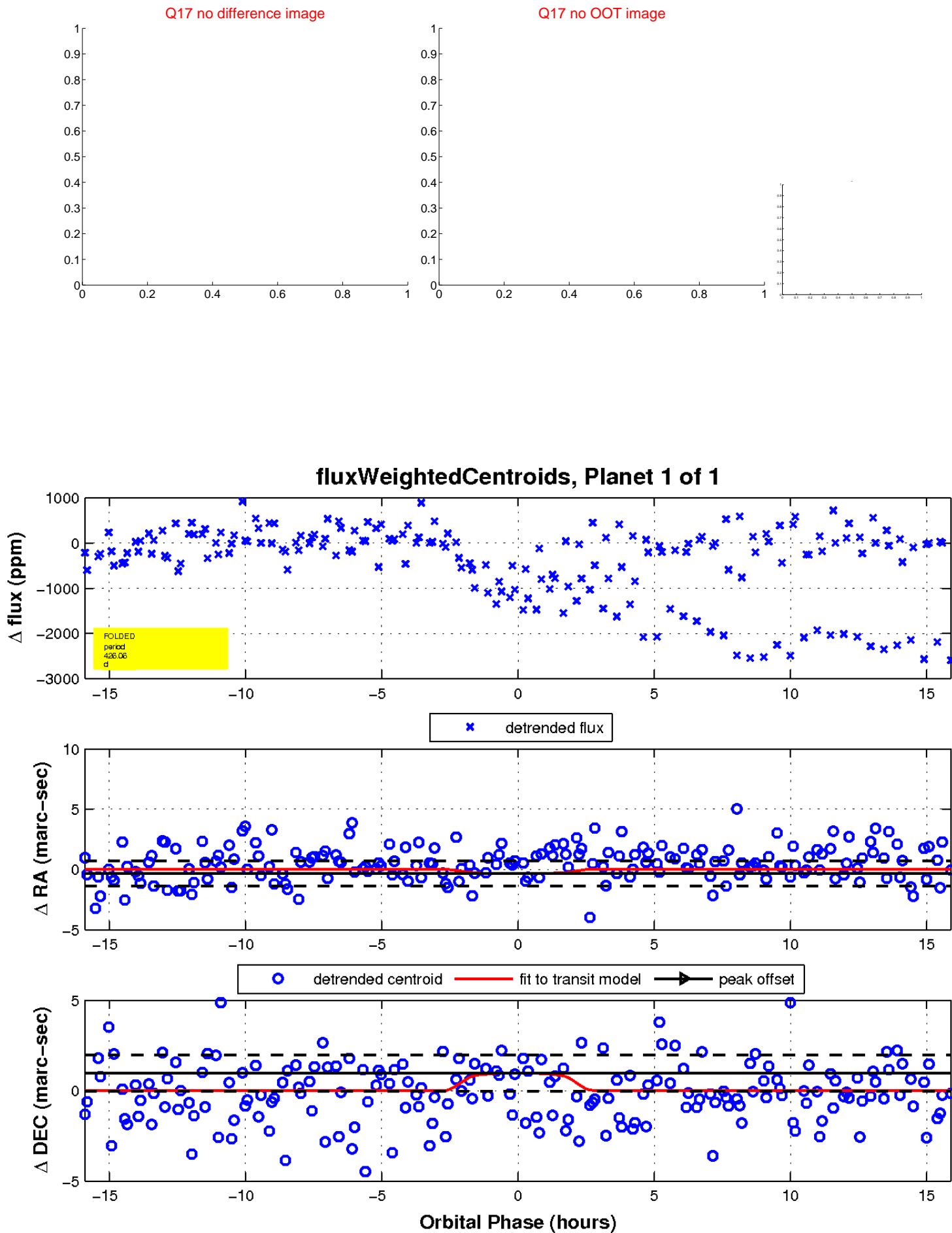
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

