

# KIC 007902370

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007902370-01	OBS	No	455.515269	490.660154	371.9	11.927	7.6	6.7	0.68	5267	1.45	0.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007902370-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

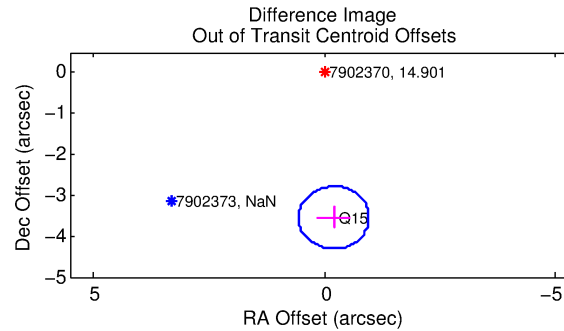
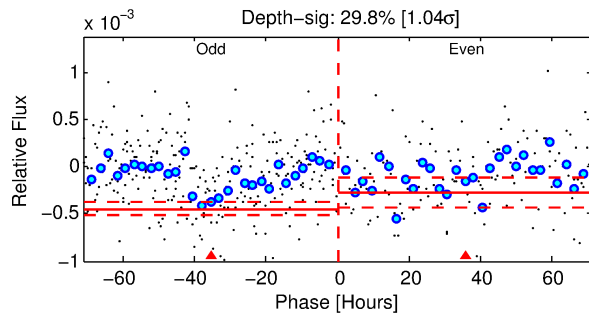
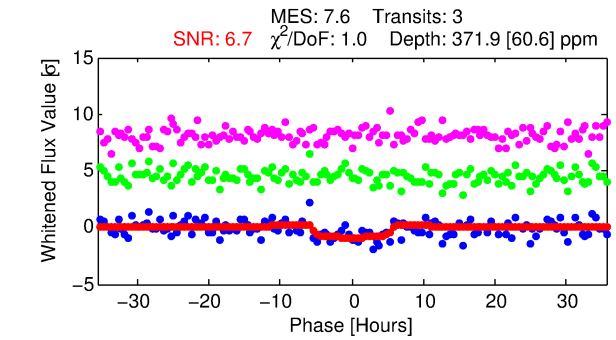
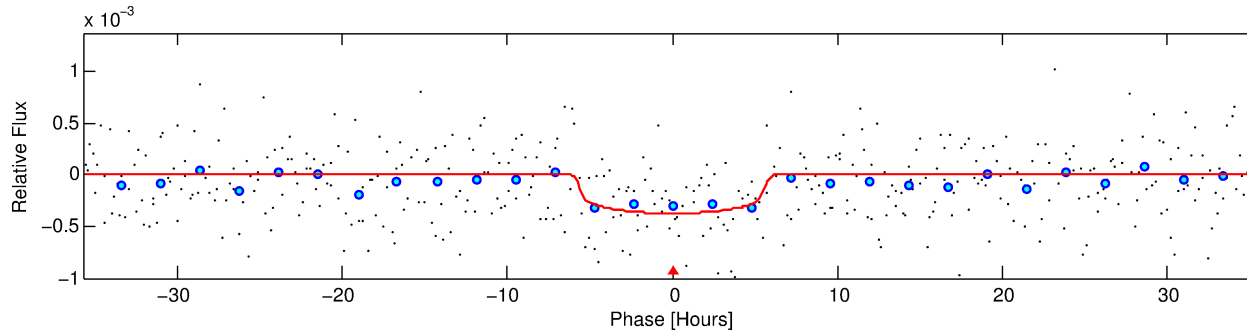
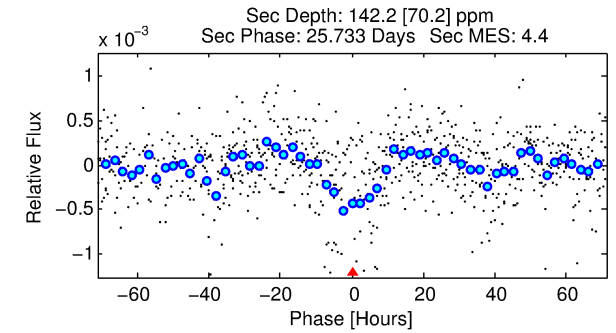
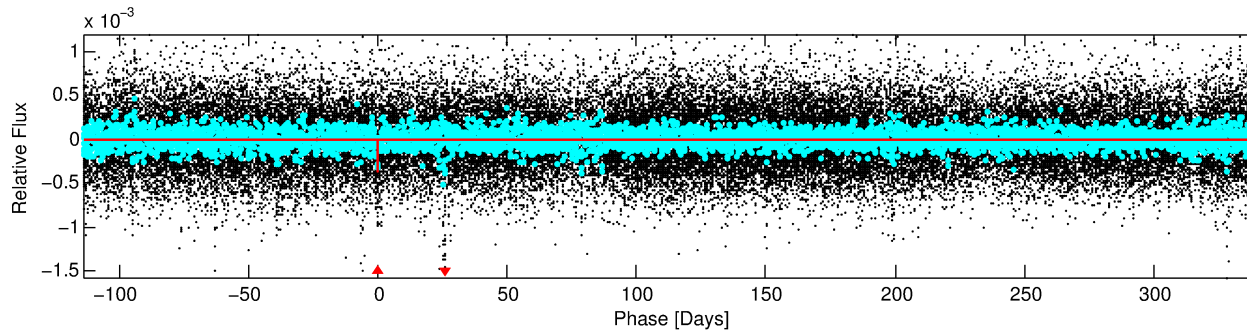
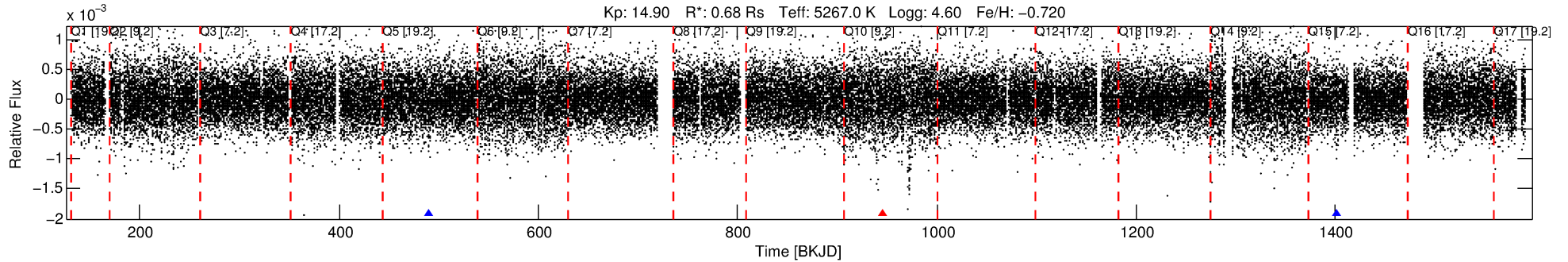
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007902370-01

No Significant Match Found

# DV One-Page Summary

KIC: 7902370 Candidate: 1 of 1 Period: 455.515 d



## DV Fit Results:

Period = 455.51527 [0.01620] d  
Epoch = 490.6602 [0.0226] BKJD  
Rp/R\* = 0.0197 [0.0100]  
a/R\* = 183.45 [399.55]  
b = 0.80 [0.97]  
Seff = 0.31 [0.05]  
Teq = 190 [8] K  
Rp = 1.45 [0.76] Re  
a = 1.0126 [0.0866] AU  
Ag = 38049.55 [43386.95] [0.88σ]  
Teffp = 4103 [1169] K [3.35σ]

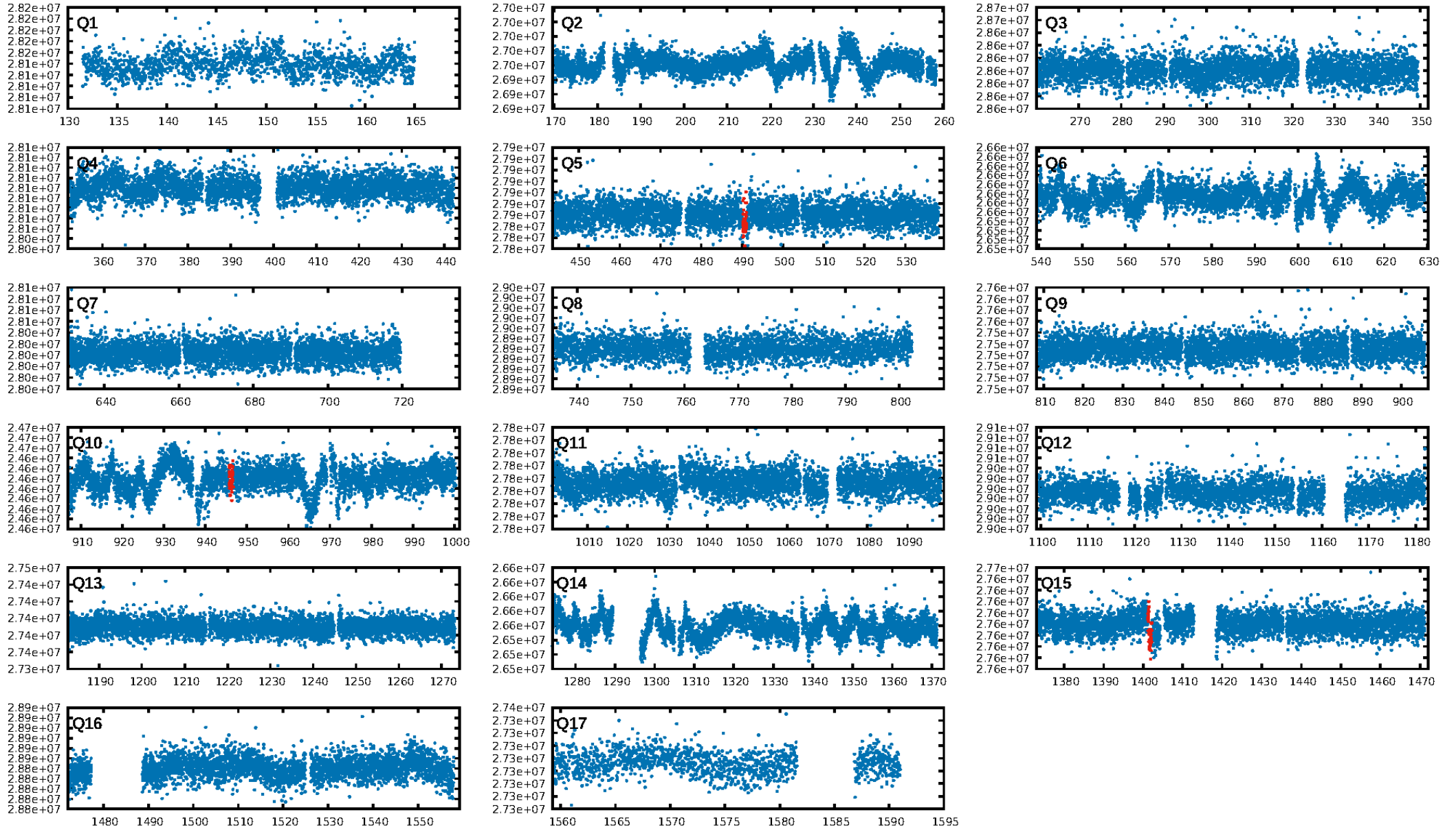
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 3.4%  
ModelChiSquareGof-sig: 99.6%  
Bootstrap-pfa: 5.07e-10  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: -86.07  
Centroid-sig: 9.1%  
Centroid-so: 2.613 arcsec [1.51σ]  
OotOffset-rm: 3.553 arcsec [13.94σ]  
KicOffset-rm: 3.703 arcsec [14.55σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

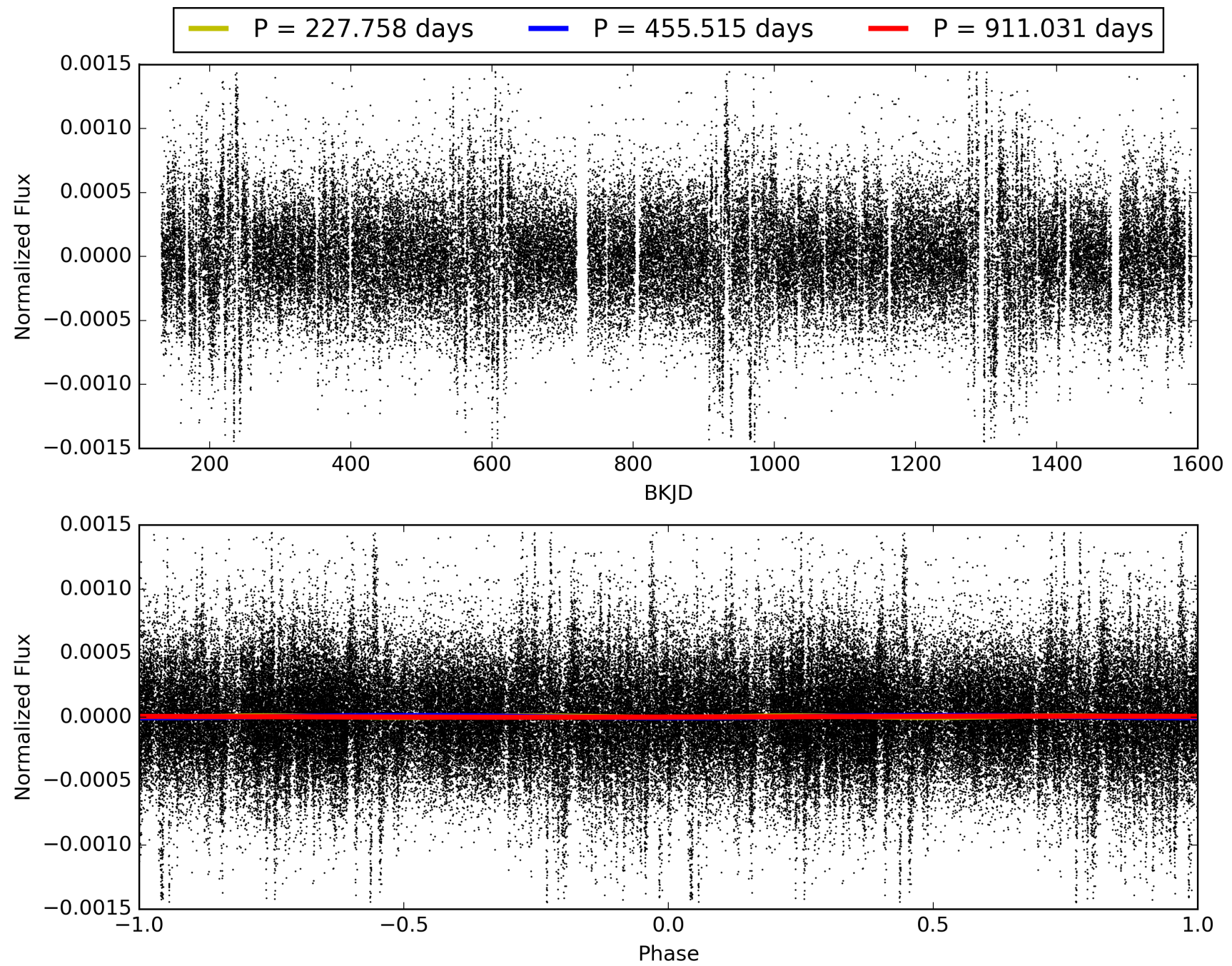
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:07:38 Z

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

# TCE 007902370-01, PDC Light Curves

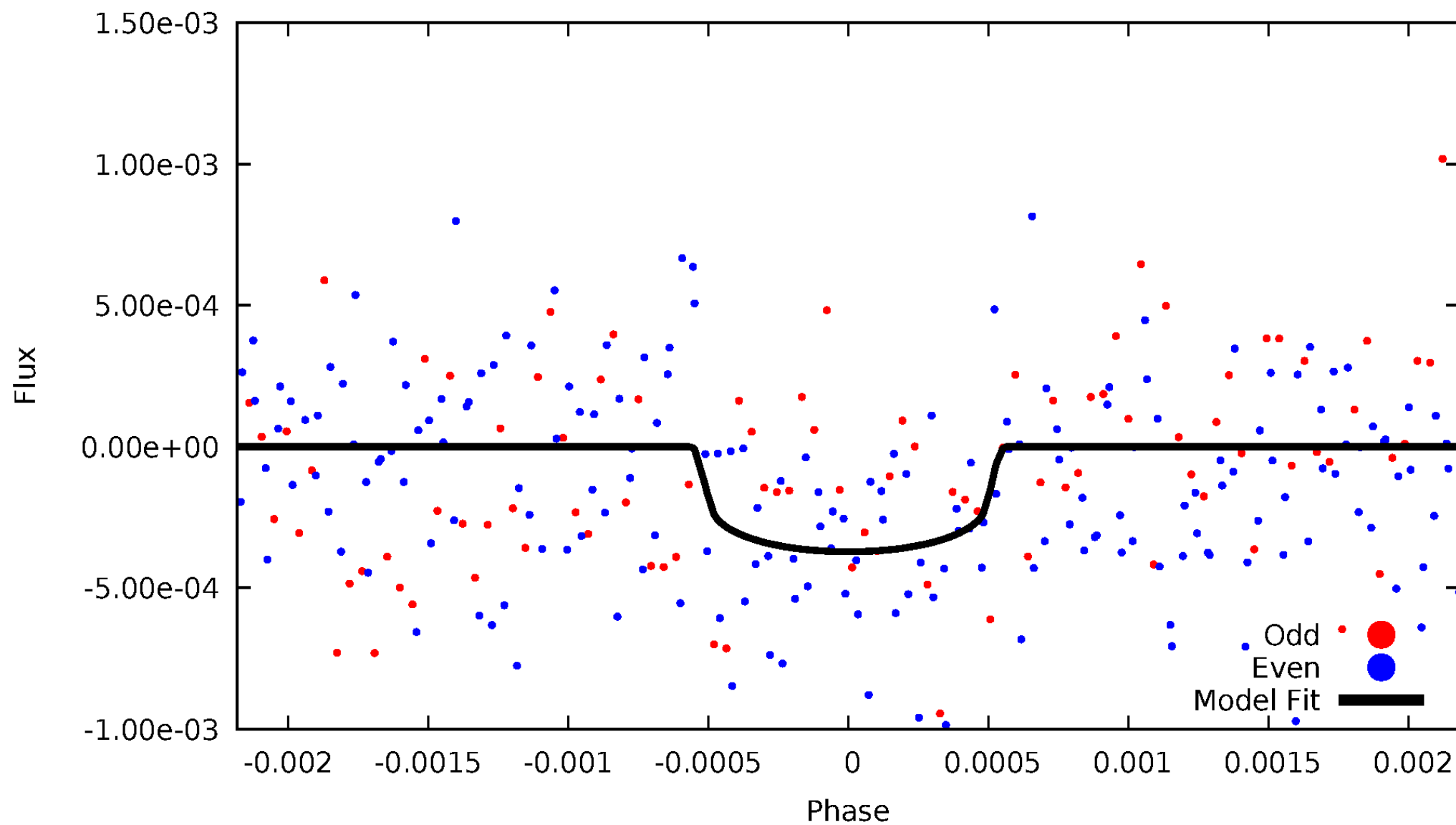


# TCE 007902370-01



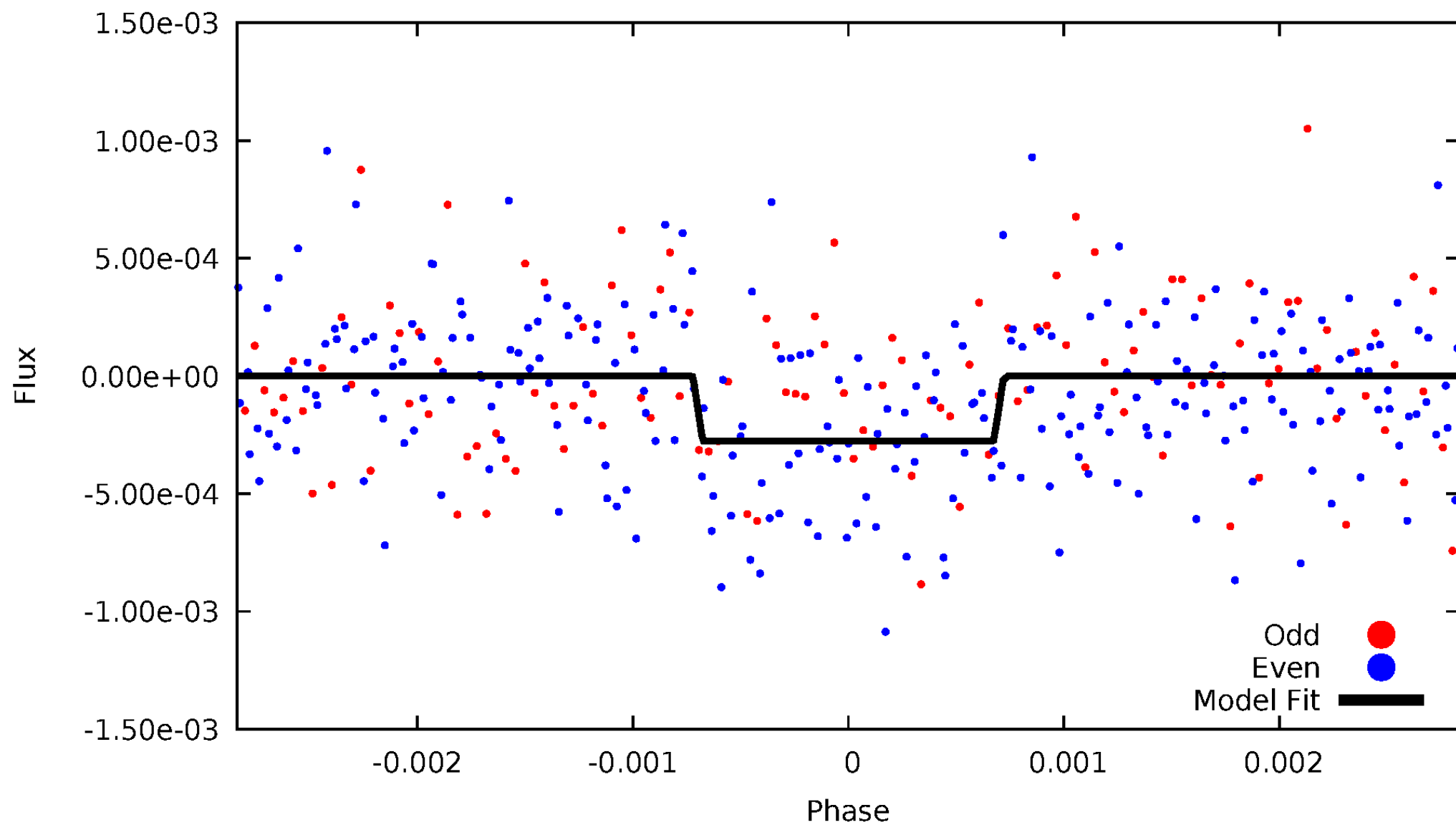
# DV Odd/Even

TCE 007902370-01



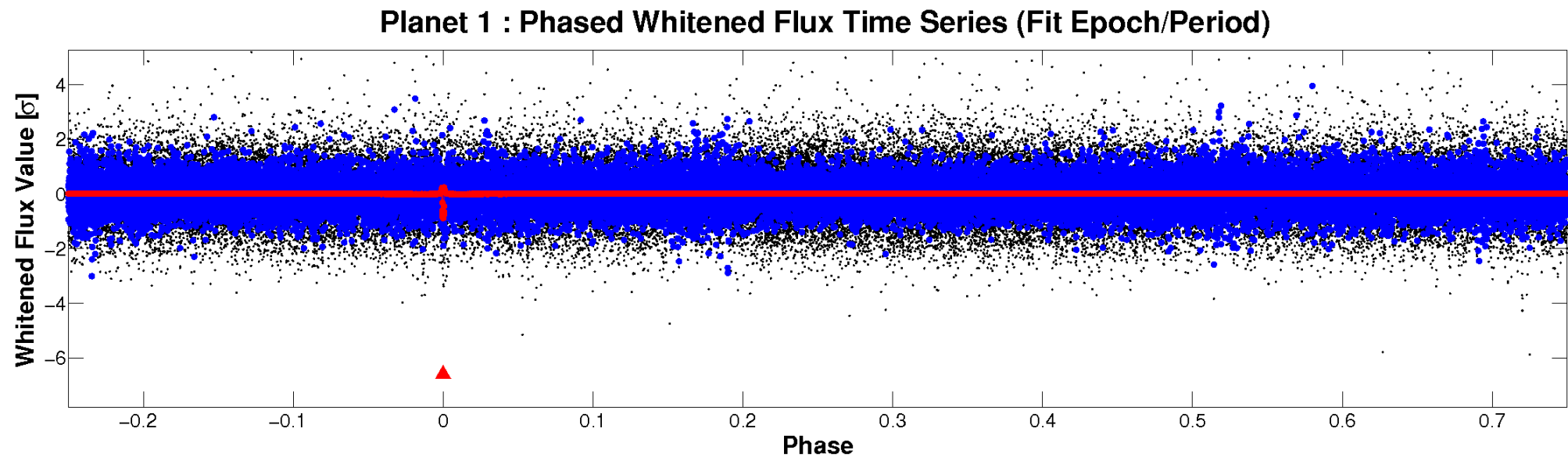
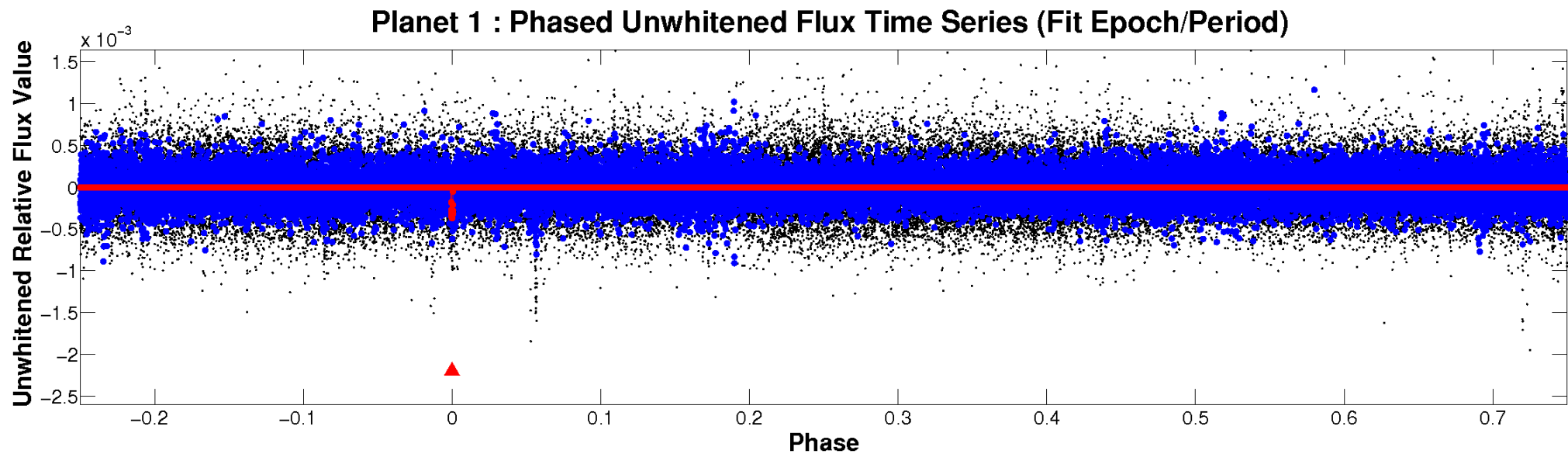
# ALT Odd/Even

TCE 007902370-01





# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

TCE 007902370-01 P=455.515269 Days  $T_0=490.660154$  (BKJD)





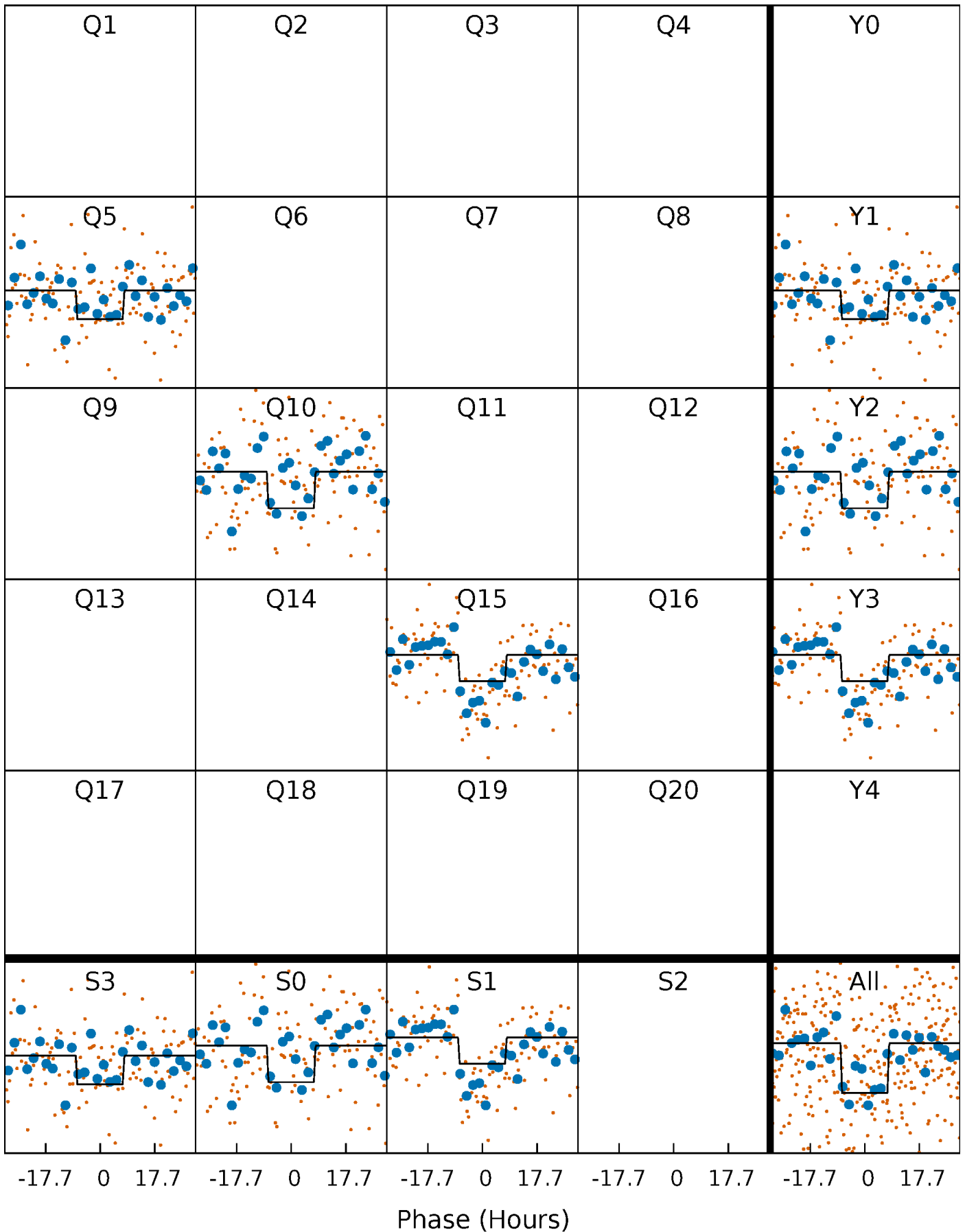
# DV Quarter-Phased Transit Curves

TCE 007902370-01 P=455.515269 Days  $T_0=490.660154$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

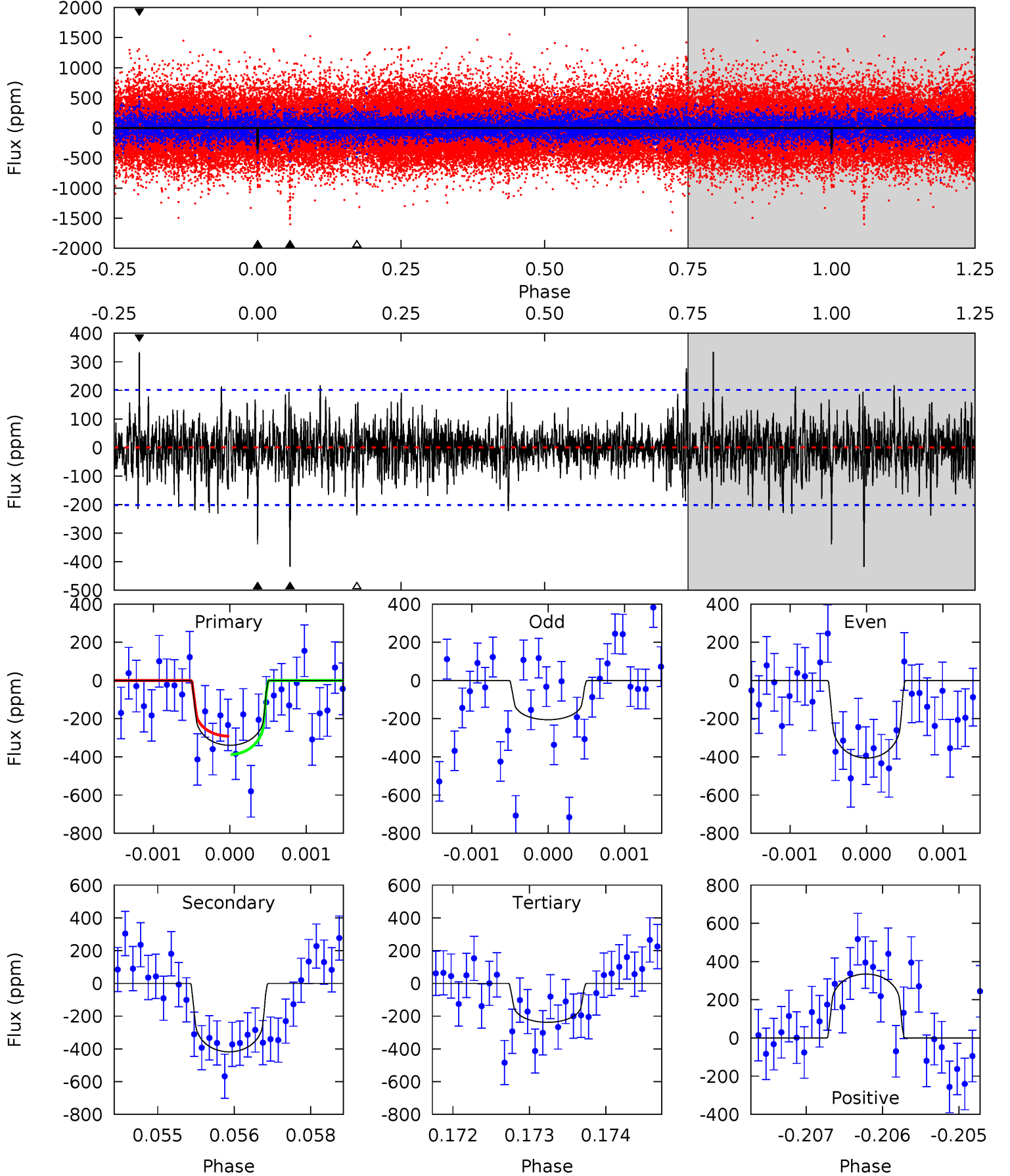
TCE 007902370-01 P=455.600276 Days  $T_0=490.570128$  (BKJD)



# DV Model-Shift Uniqueness Test

007902370-01,  $P = 455.515269$  Days,  $E = 35.144885$  Days

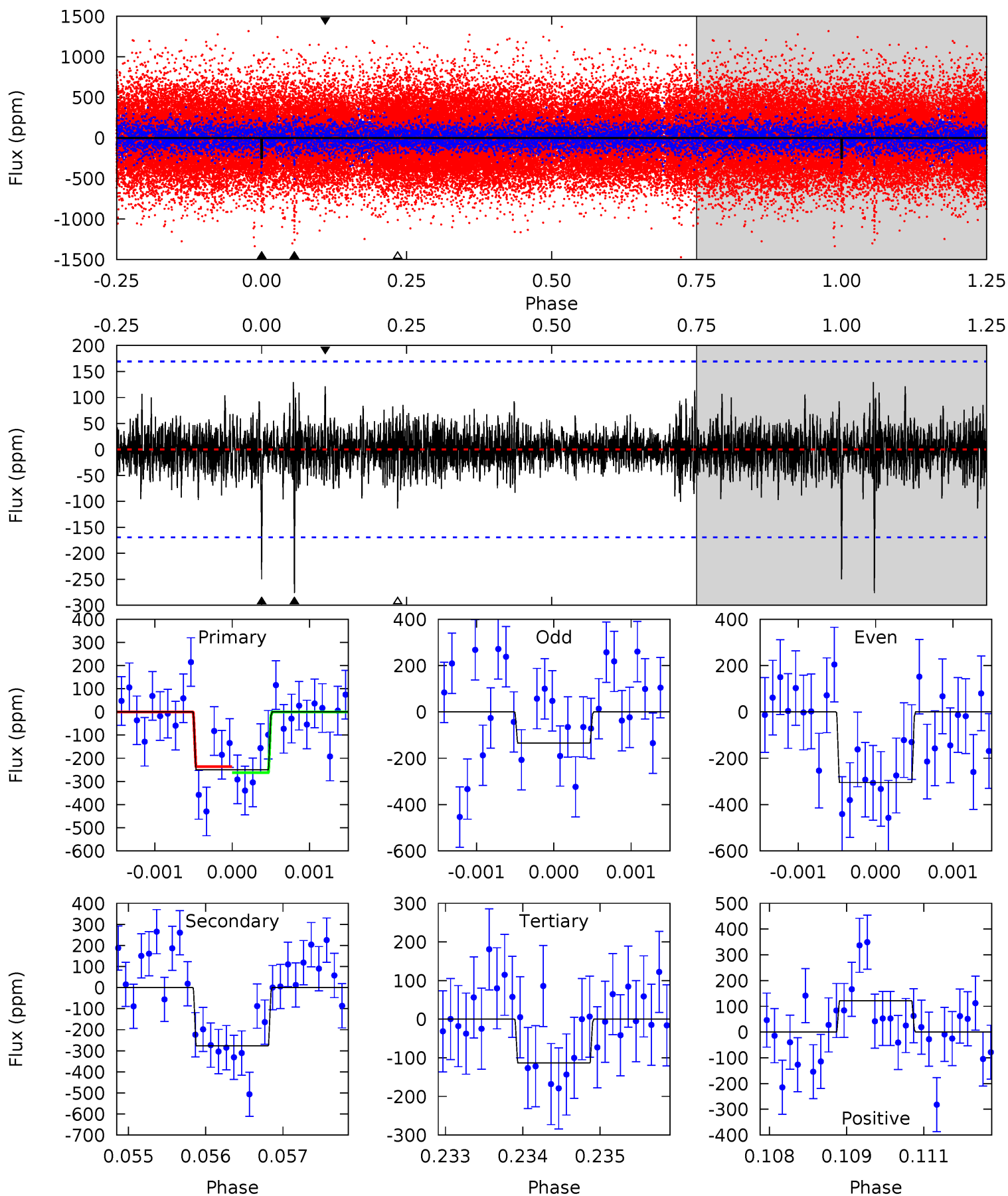
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.15	11.3	6.41	9.02	5.43	3.26	1.58	2.74	0.13	4.85	2.25	2.52	1.17	0.44	1.29



# Alt Model-Shift Uniqueness Test

007902370-01, P = 455.600276 Days, E = 34.969852 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
7.95	8.80	3.61	3.86	5.39	3.19	0.89	4.34	4.09	5.19	4.94	2.56	1.85	0.32	0.41



### Stellar Parameters For KIC 007902370

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5267^{+156}_{-156}$	$4.601^{+0.066}_{-0.054}$	$-0.720^{+0.300}_{-0.300}$	$0.677^{+0.070}_{-0.056}$	$0.668^{+0.072}_{-0.036}$	$3.030^{+0.790}_{-0.628}$
	+3%/-3%	+1%/-1%	+42%/-42%	+10%/-8%	+11%/-5%	+26%/-21%
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 007902370-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-418 \pm 37$	$1.42^{+0.75}_{-0.69}$	$265^{+10}_{-10}$	$5432^{+2111}_{-929}$	$118827^{+309828}_{-68407}$
Alt.	$-277 \pm 31$	$1.22^{+0.74}_{-0.63}$	$266^{+9}_{-10}$	$5274^{+2322}_{-946}$	$106369^{+341552}_{-65342}$

$T_{\text{max}}$  = 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

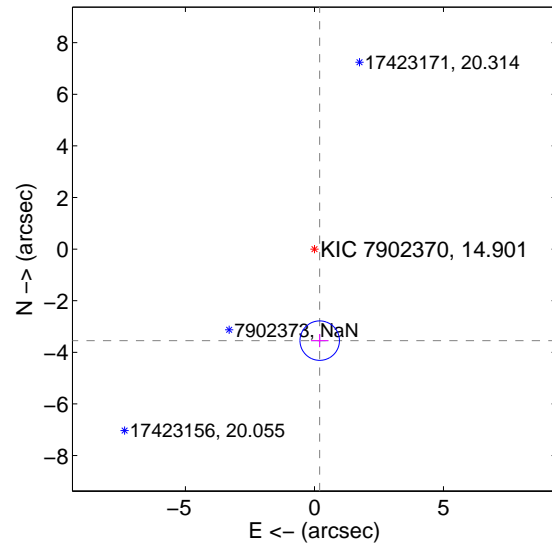
Supplemental centroid analysis for 007902370-01. Kepler magnitude: 14.90. Transit SNR 6.68

There are 1 quarters with good PRF difference image offsets

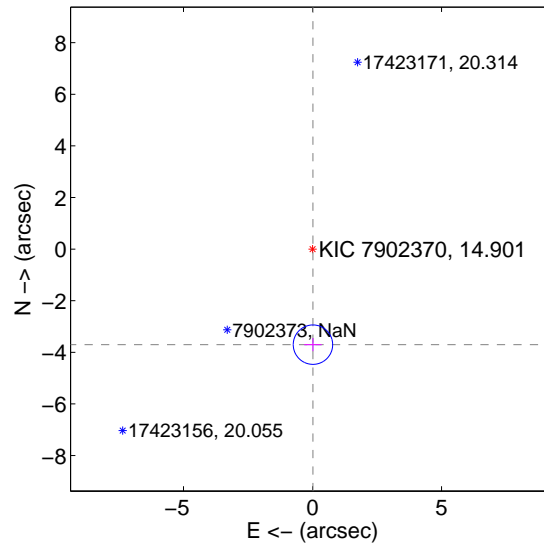
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.553 \pm 0.255$	13.94	$-0.204 \pm 0.338$	$-3.547 \pm 0.254$
PRF-fit source offset from KIC position	$3.703 \pm 0.254$	14.55	$-0.017 \pm 0.338$	$-3.703 \pm 0.254$
photometric centroid source offset	$2.61 \pm 1.73$	1.51	$-2.24 \pm 1.70$	$-1.35 \pm 1.82$

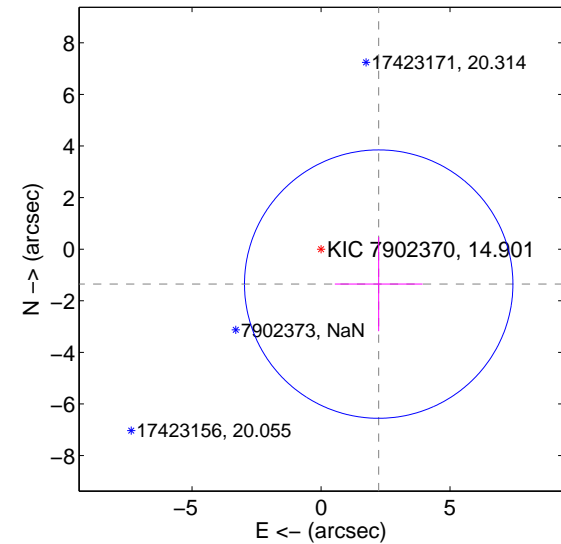
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



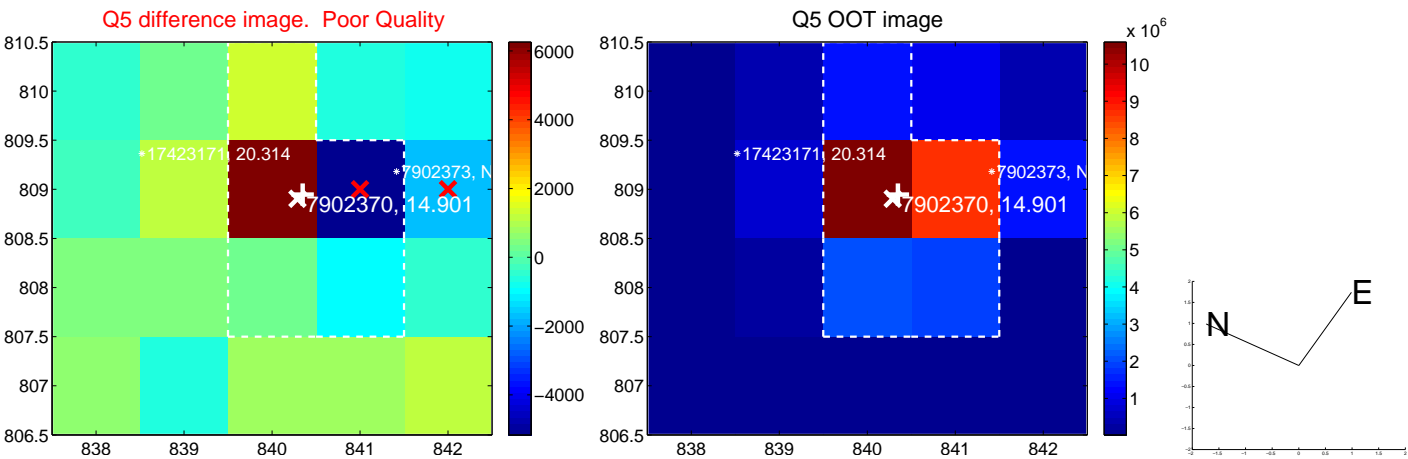
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.



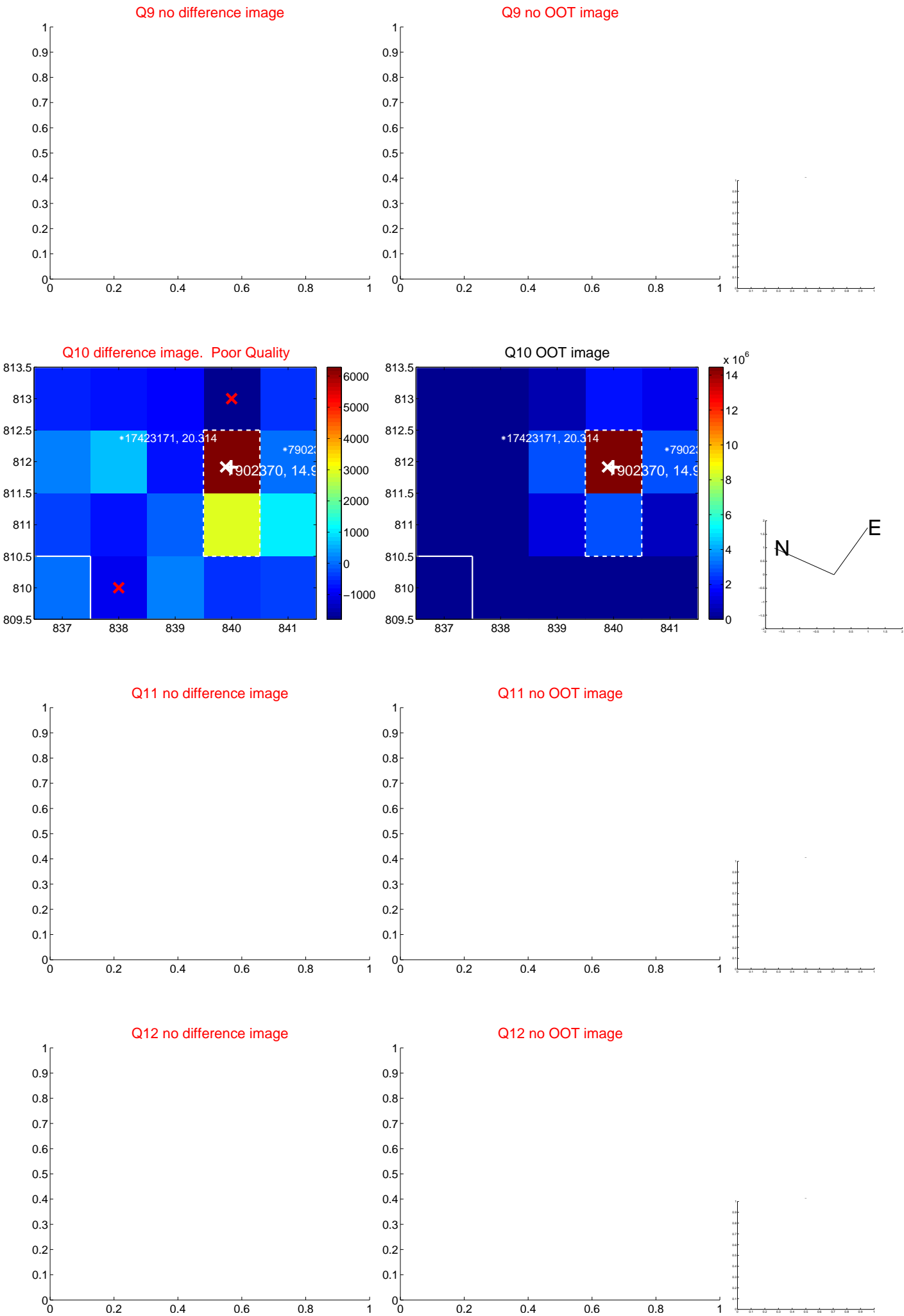
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



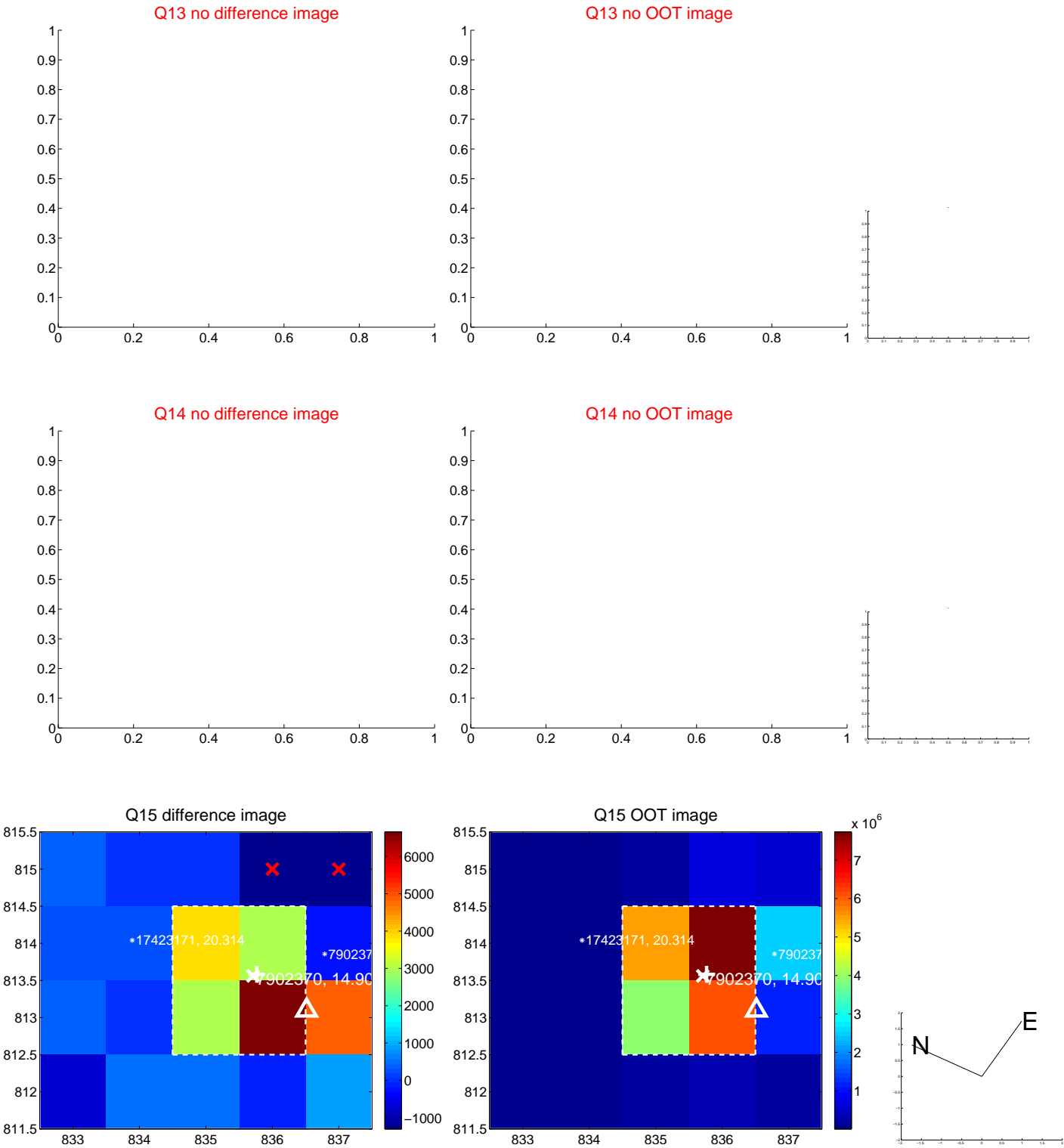
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



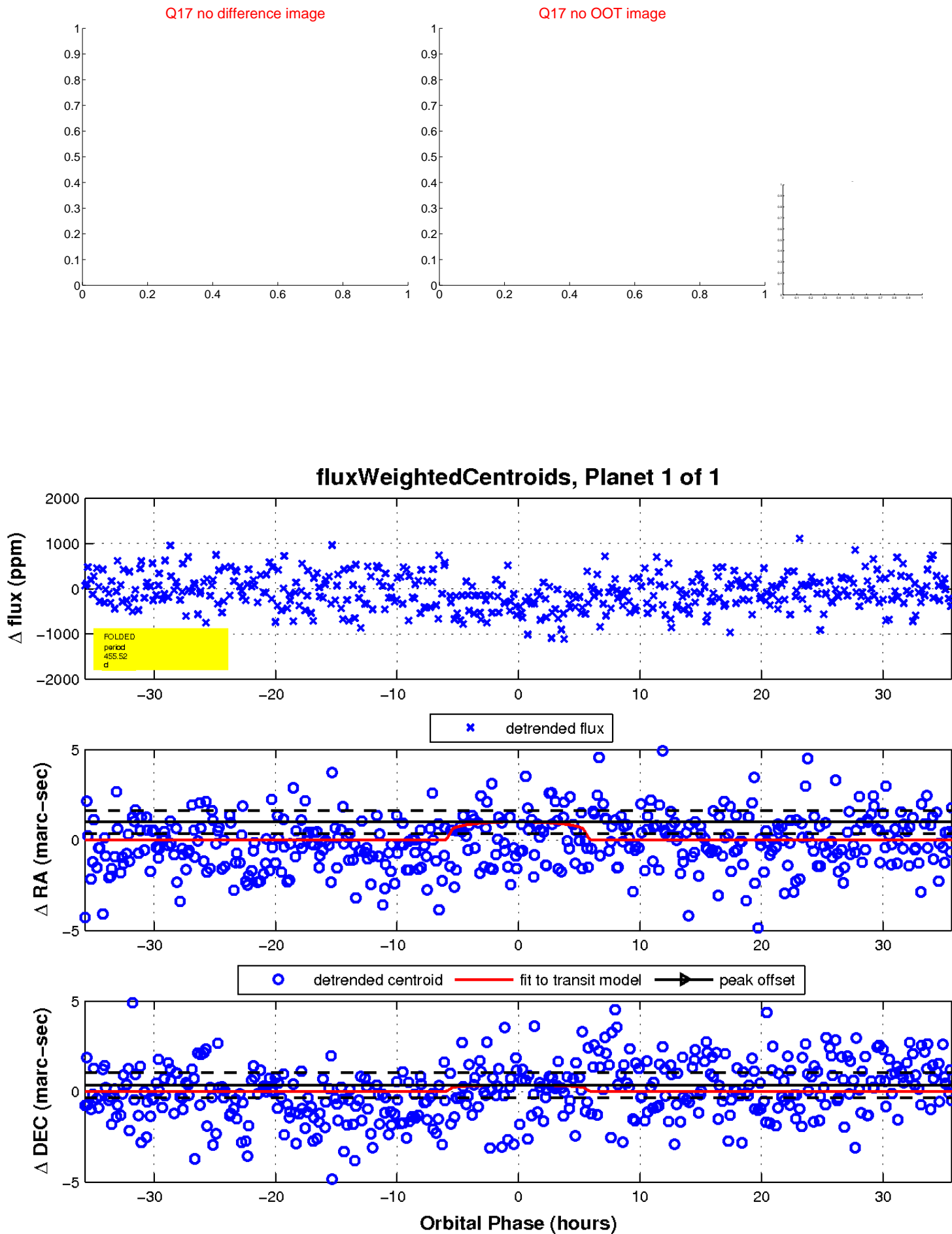
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



# UKIRT Image

Declination

