

# KIC 004386091

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004386091-01	OBS	No	0.794829	132.124329	27.2	6.226	12.3	8.0	2.75	7701	1.49	54220.98

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004386091-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

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

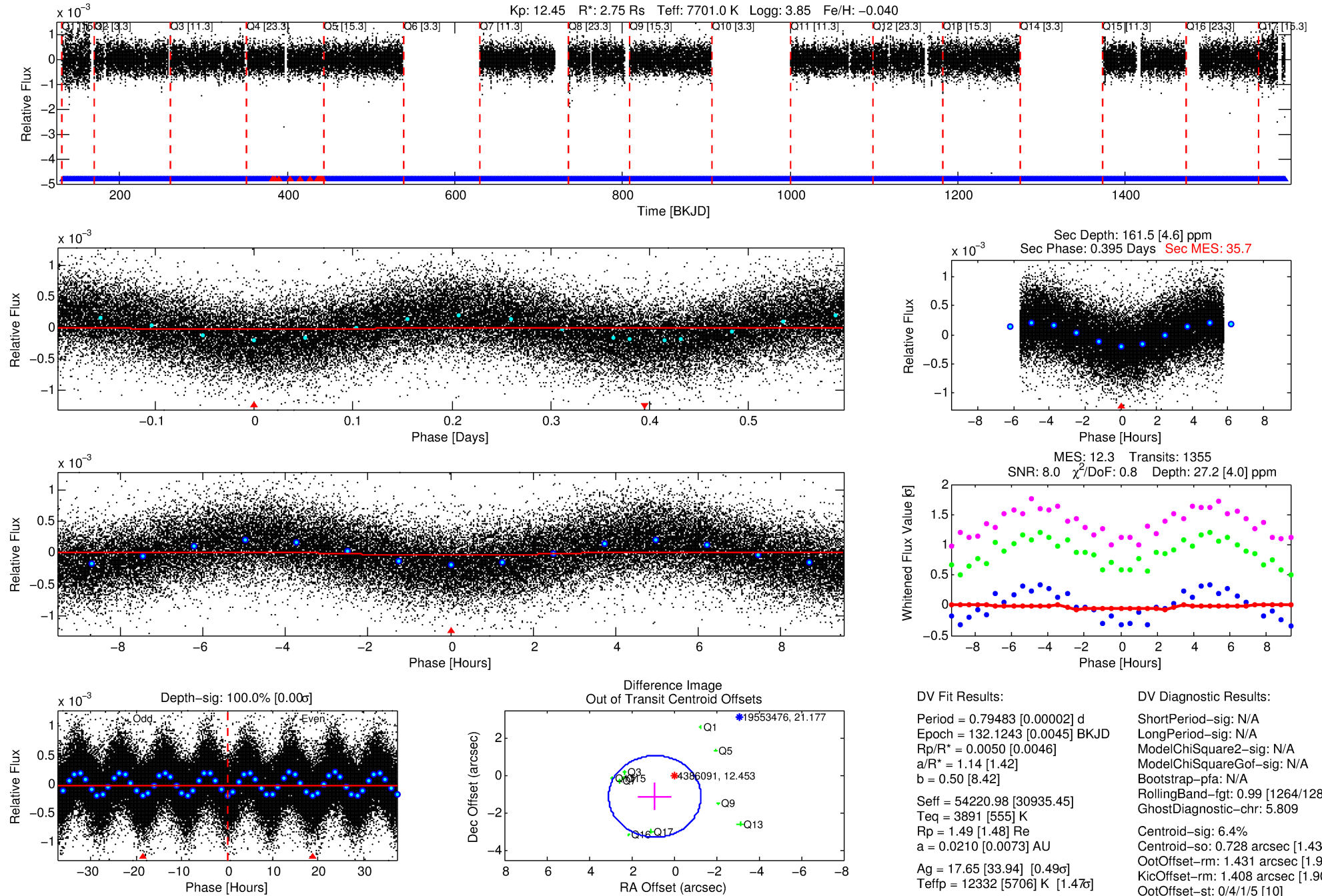
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004386091-01

No Significant Match Found

# DV One-Page Summary

KIC: 4386091 Candidate: 1 of 1 Period: 0.795 d



## DV Fit Results:

Period = 0.79483 [0.00002] d  
Epoch = 132.1243 [0.0045] BKJD  
Rp/R\* = 0.0050 [0.0046]  
a/R\* = 1.14 [1.42]  
b = 0.50 [8.42]  
Seff = 54220.98 [30935.45]  
Teff = 3891 [555] K  
Rp = 1.49 [1.48] Re  
a = 0.0210 [0.0073] AU  
Ag = 17.65 [33.94] [0.49 $\sigma$ ]  
Teffp = 12332 [5706] K [1.47 $\sigma$ ]

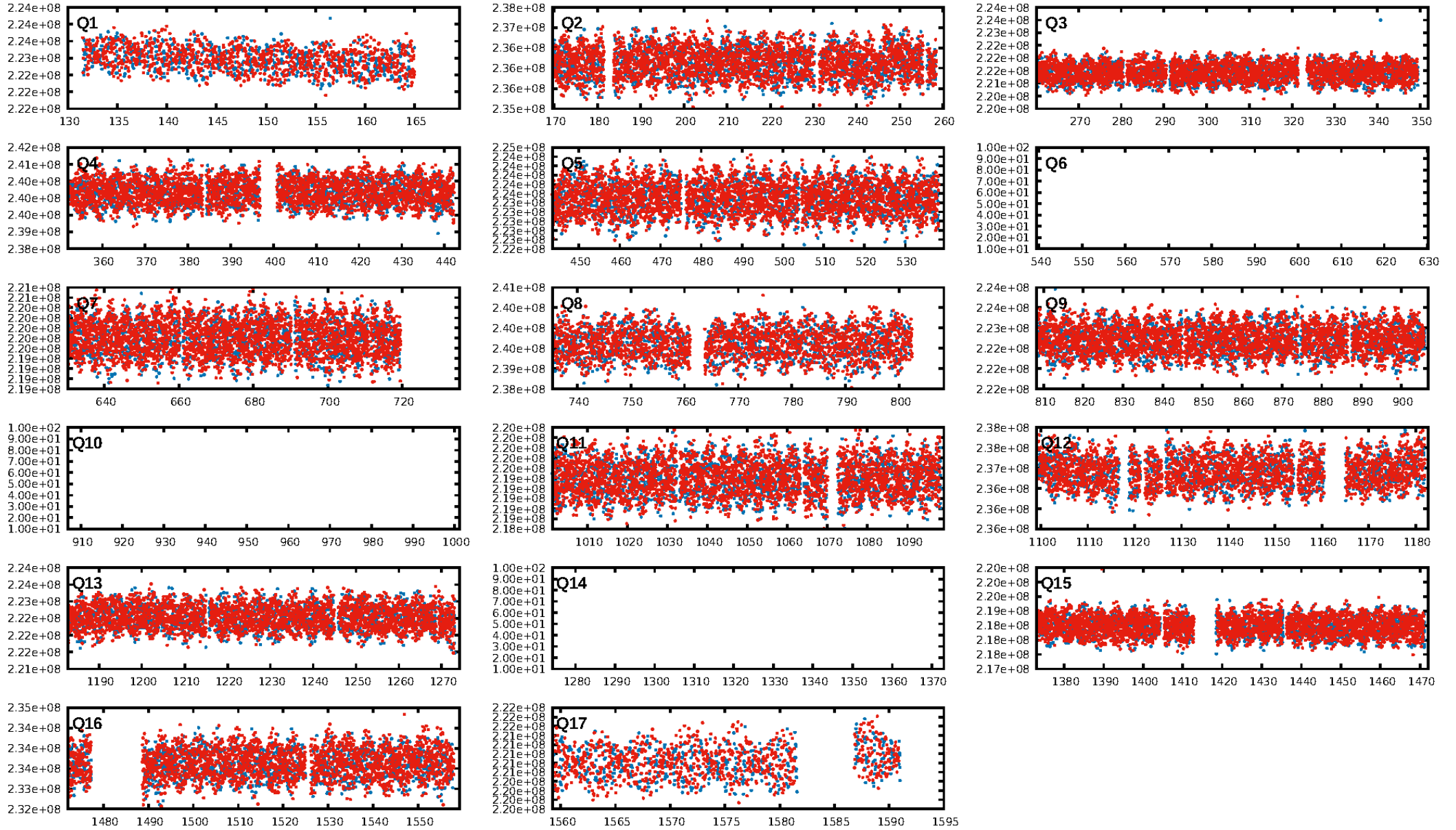
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [1264/1280]  
GhostDiagnostic-chr: 5.809  
Centroid-sig: 6.4%  
Centroid-so: 0.728 arcsec [1.43 $\sigma$ ]  
OotOffset-rm: 1.431 arcsec [1.97 $\sigma$ ]  
KicOffset-rm: 1.408 arcsec [1.90 $\sigma$ ]  
OotOffset-st: 0/4/1/5 [10]  
KicOffset-st: 0/4/1/5 [10]  
DiffImageQuality-fgm: 0.70 [7/10]  
DiffImageOverlap-fno: 1.00 [14/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:59:13 Z

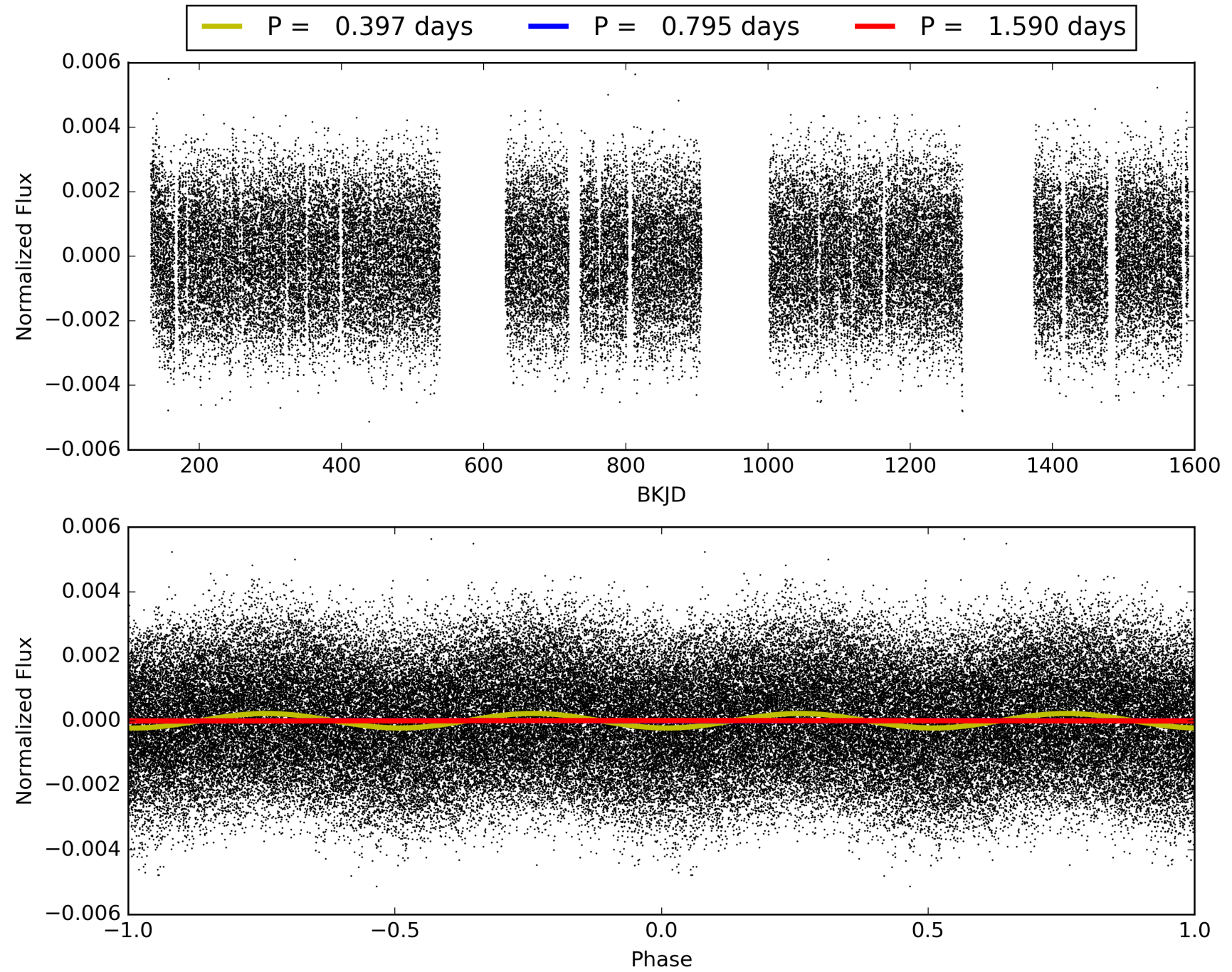
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004386091-01, PDC Light Curves



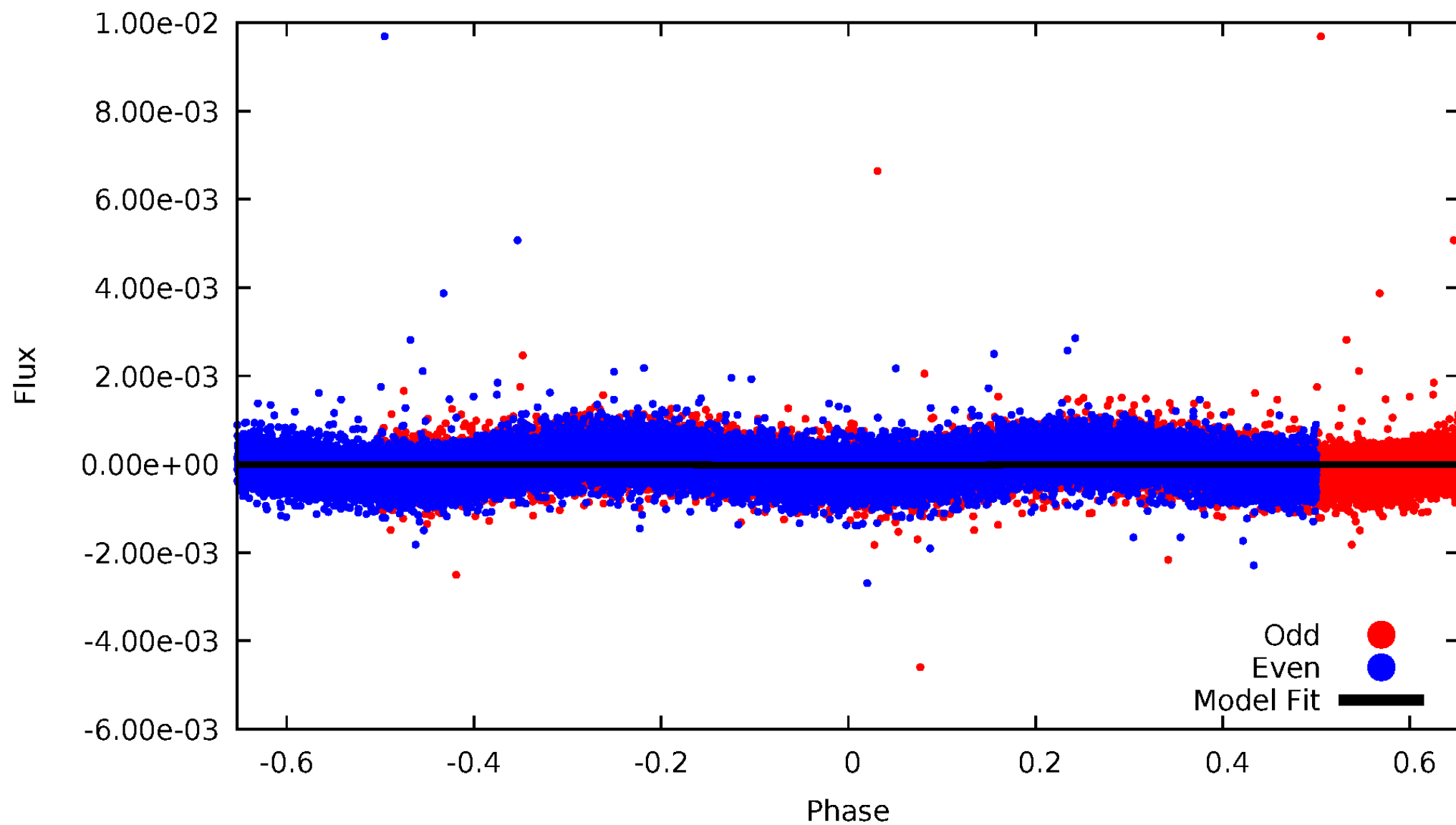


# TCE 004386091-01



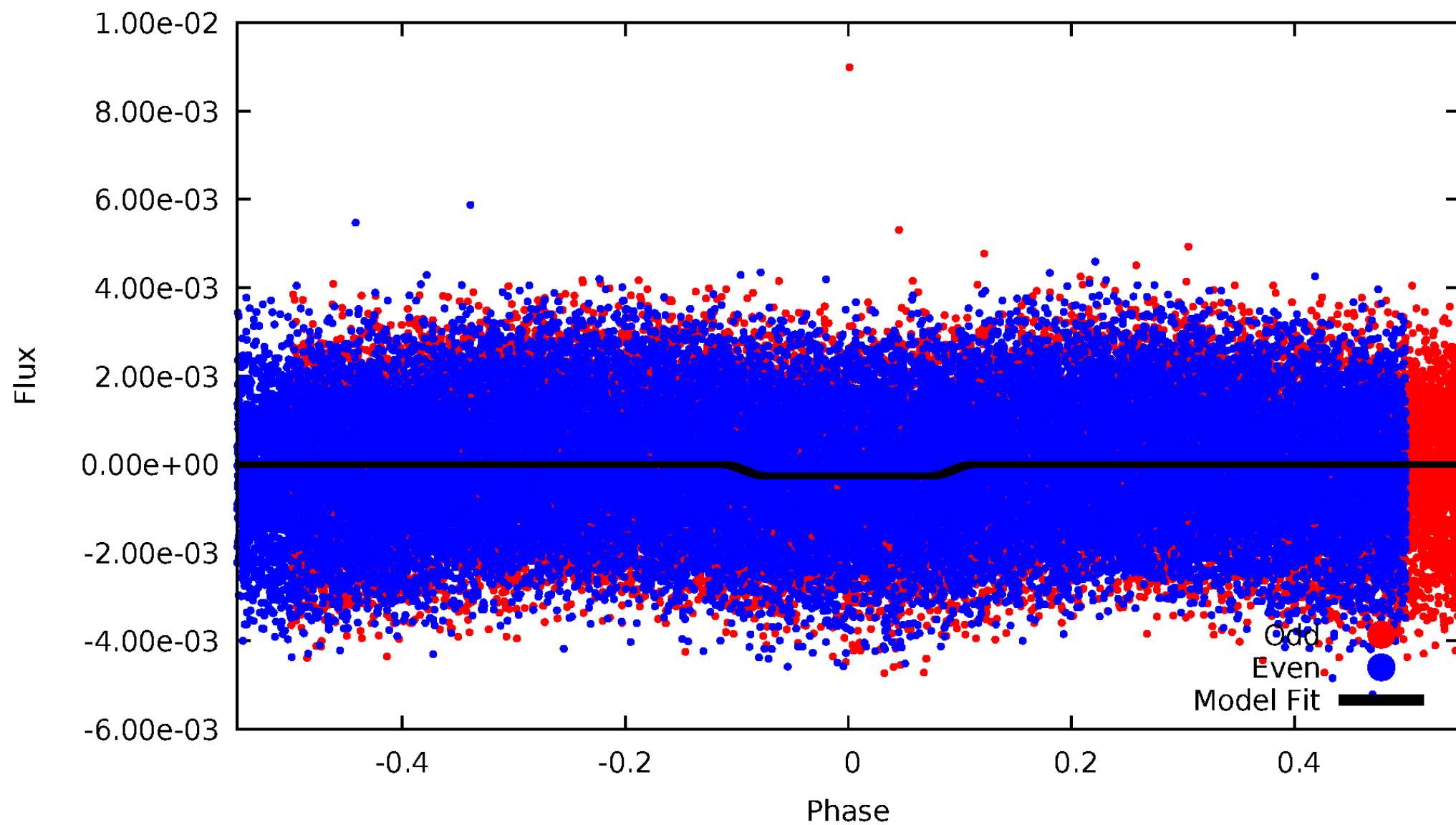
# DV Odd/Even

TCE 004386091-01



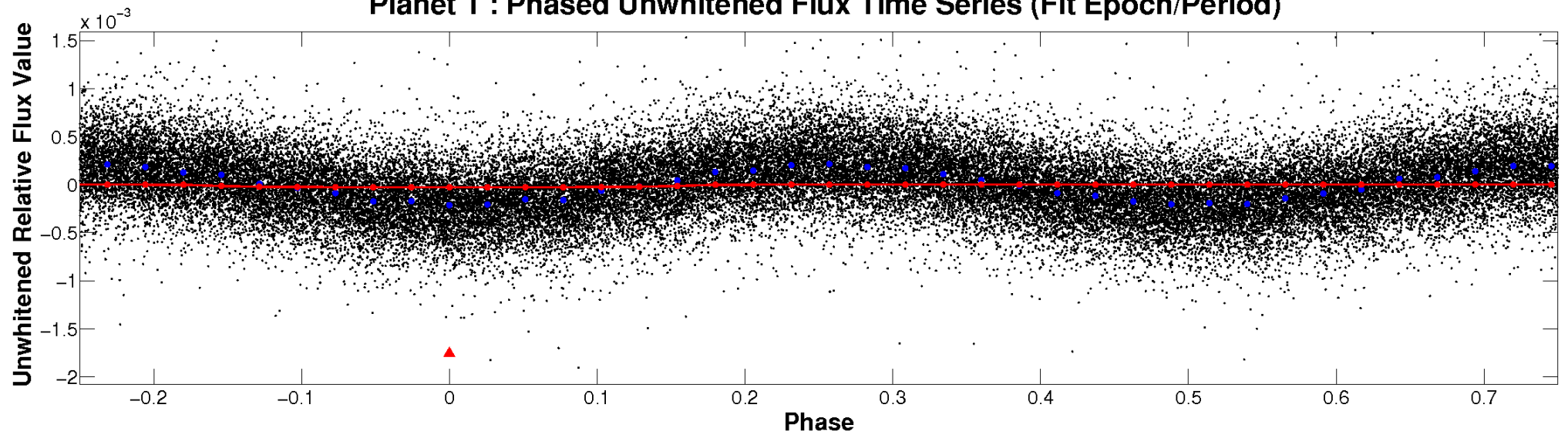
# ALT Odd/Even

TCE 004386091-01

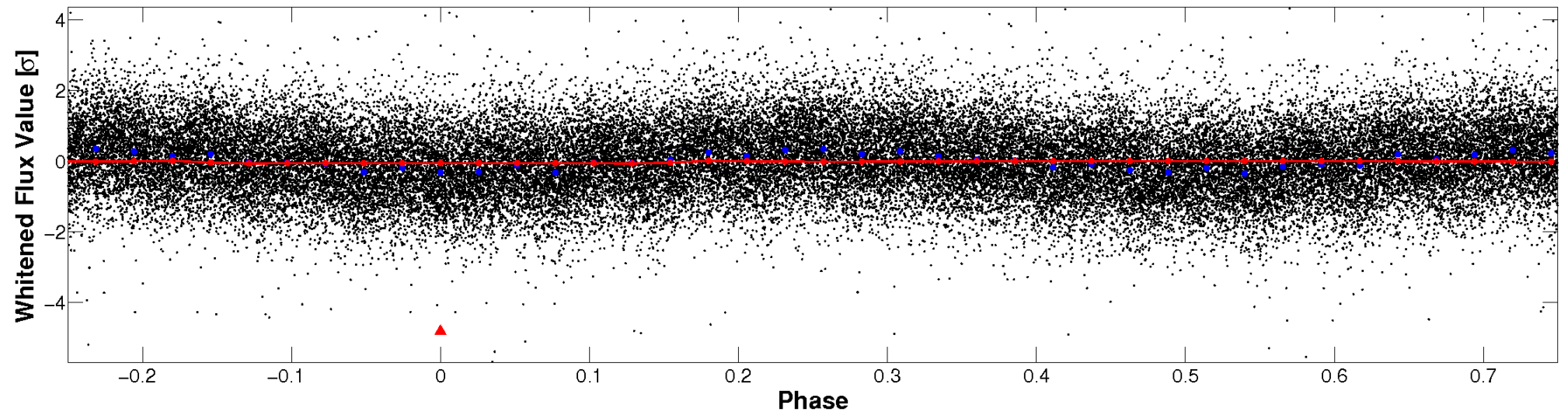


# Non-Whitened Vs. Whitened Light Curve

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



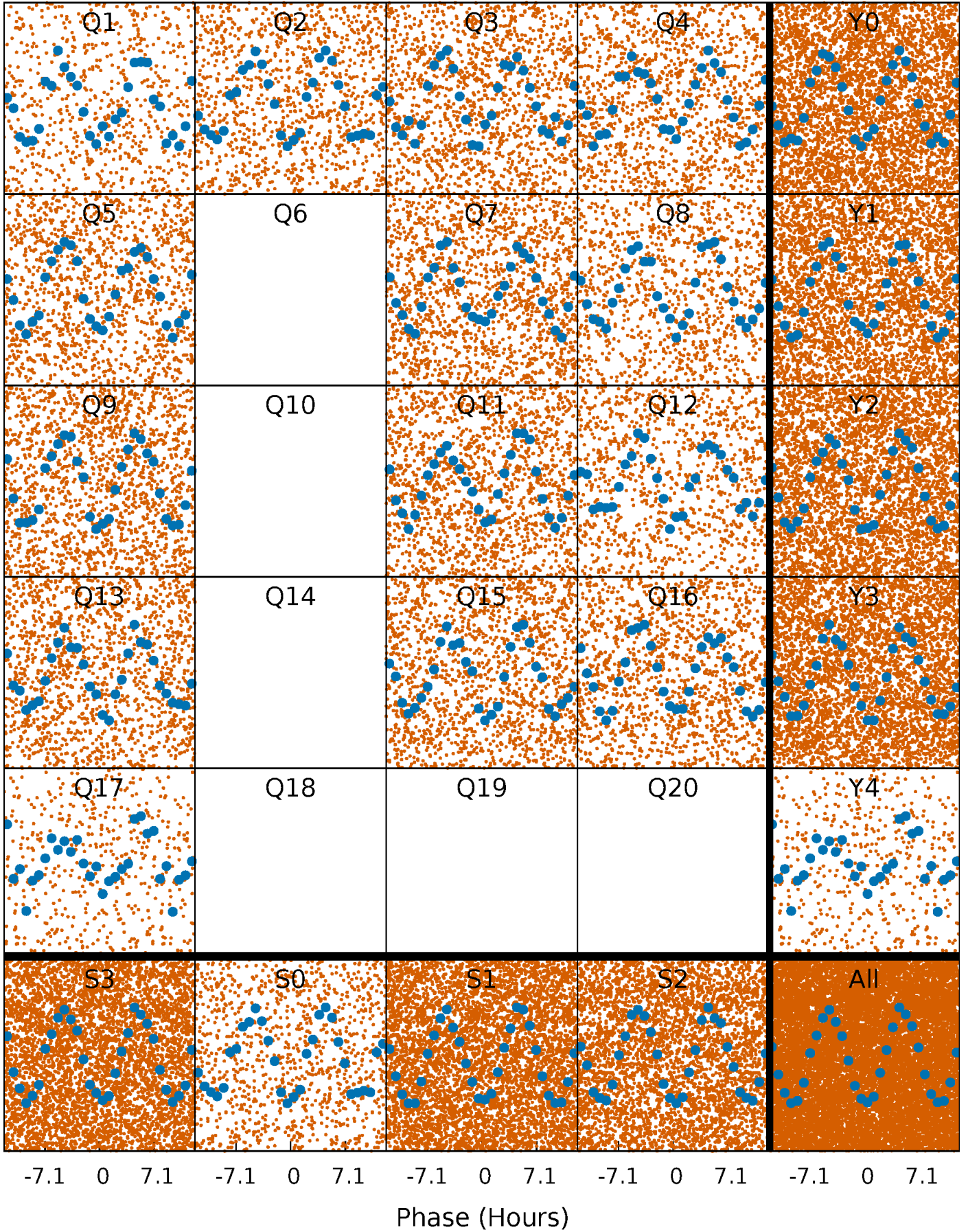
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

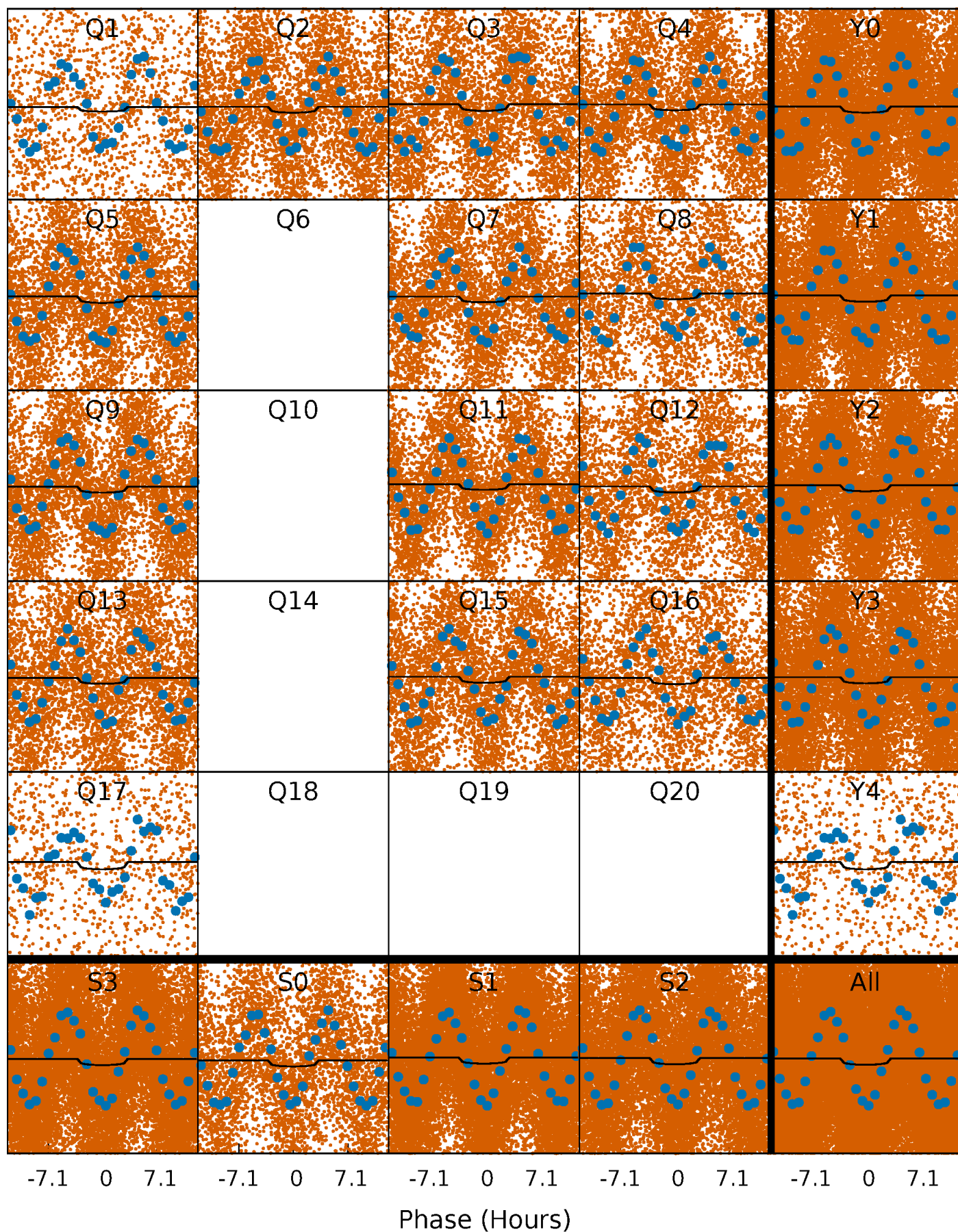
TCE 004386091-01   P= 0.794829 Days    $T_0=132.124329$  (BKJD)





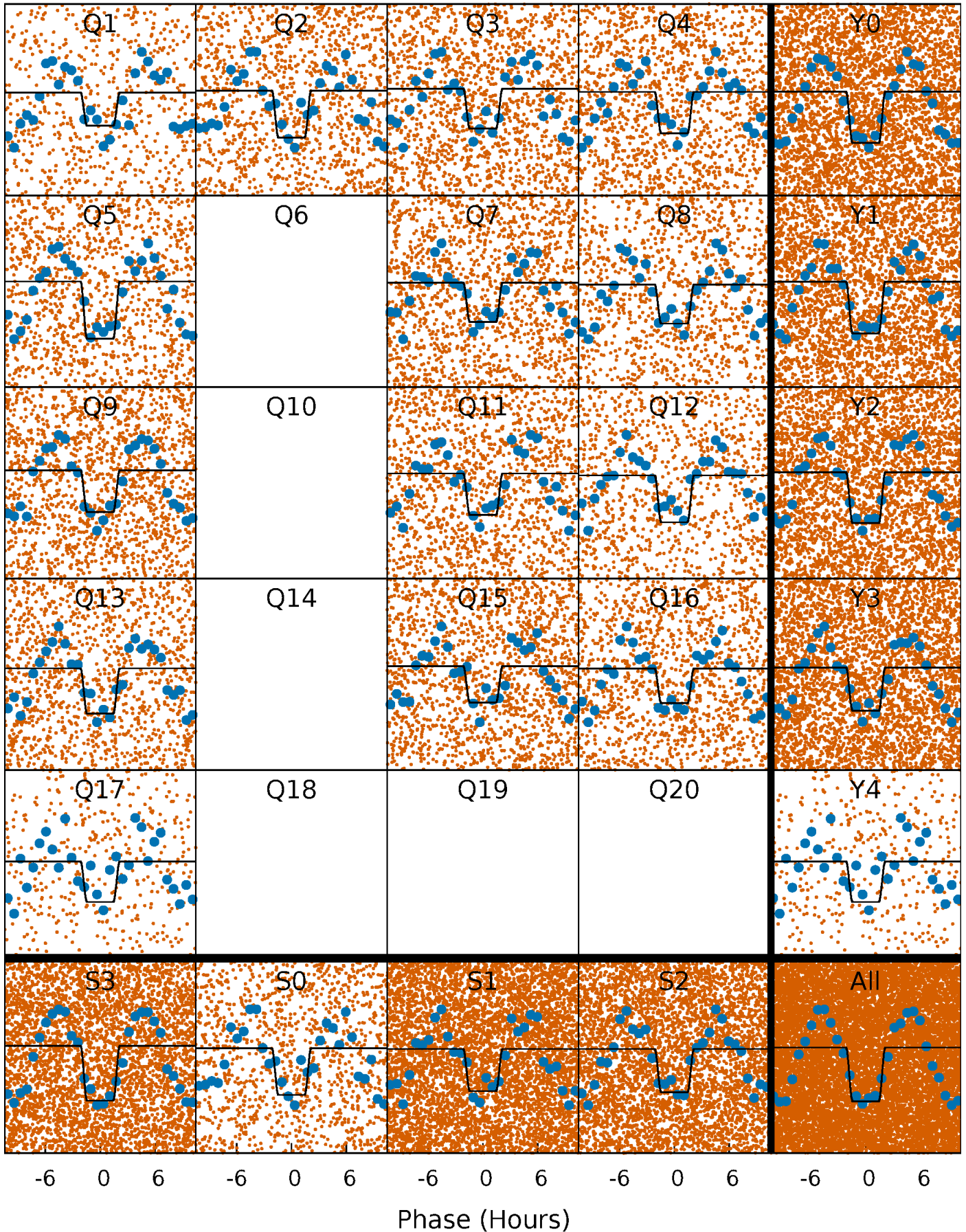
# DV Quarter-Phased Transit Curves

TCE 004386091-01   P= 0.794829 Days    $T_0=132.124329$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

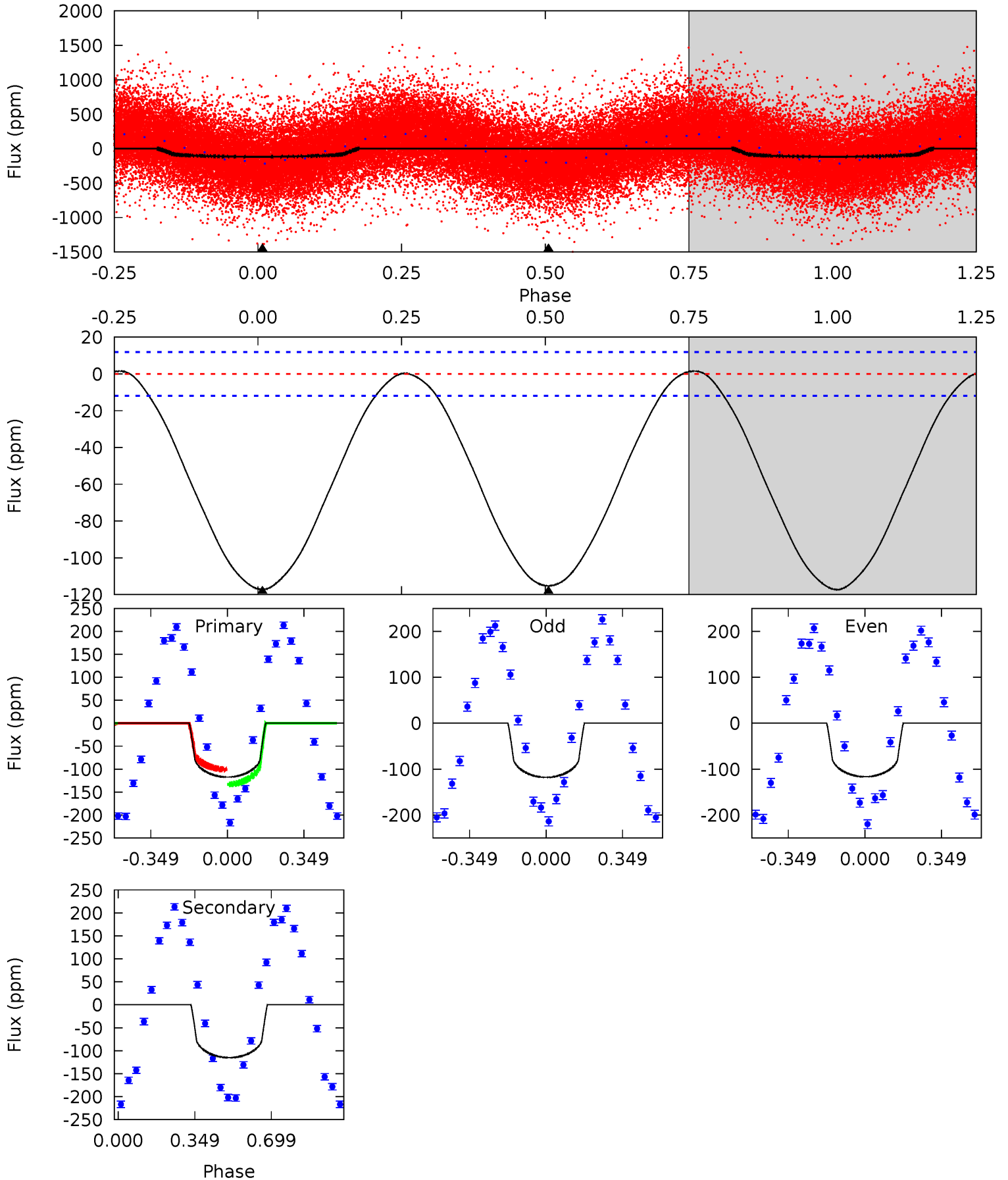
TCE 004386091-01 P= 0.794852 Days  $T_0=132.111994$  (BKJD)



# DV Model-Shift Uniqueness Test

004386091-01, P = 0.794829 Days, E = 131.329500 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
42.4	41.6	0	0	4.30	0.94	0.42	42.4	42.4	41.6	41.6	0.25	1.04	0.01	6.90

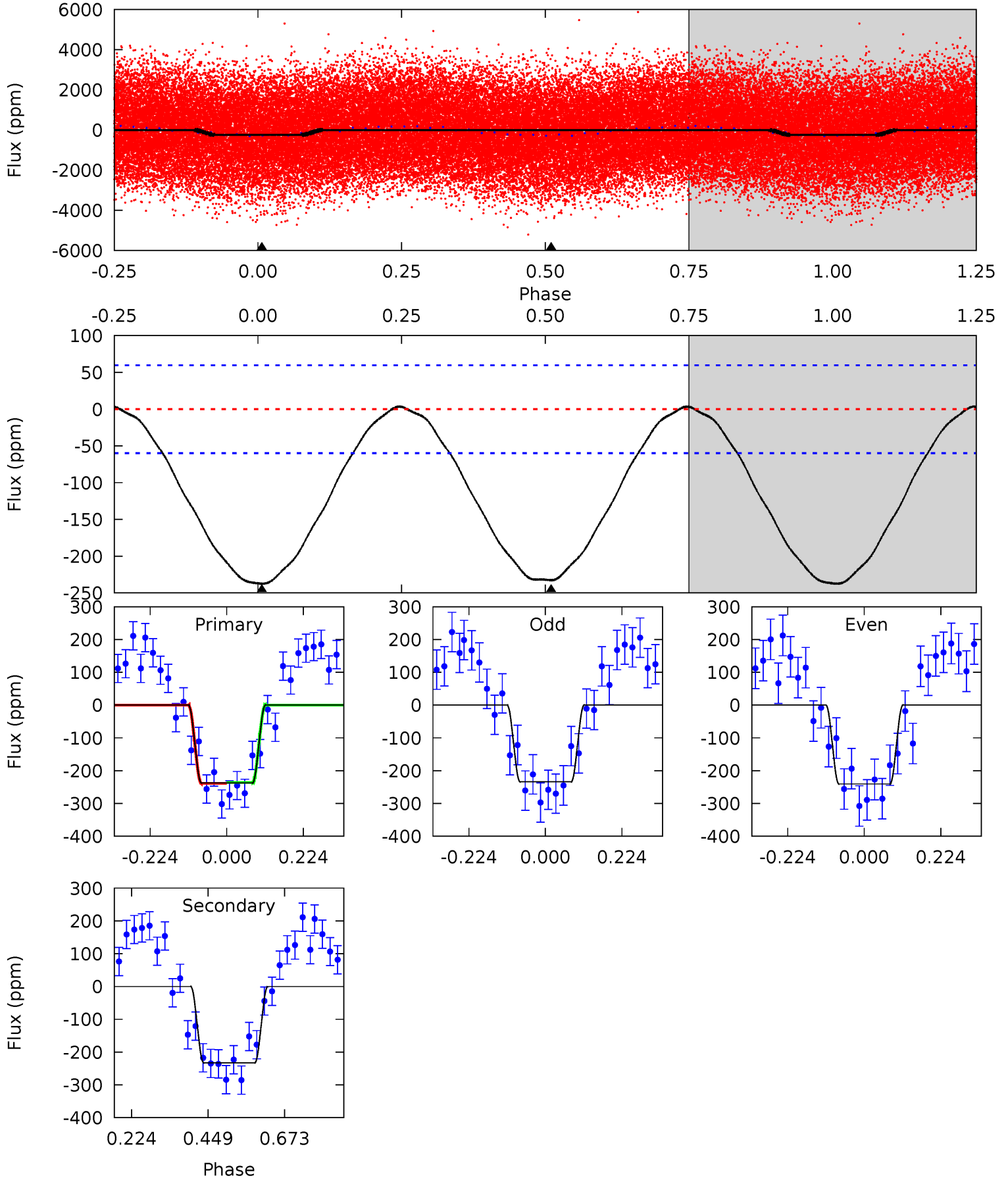




# Alt Model-Shift Uniqueness Test

004386091-01, P = 0.794852 Days, E = 131.317142 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
17.4	17.1	0	0	4.39	1.22	0.30	17.4	17.4	17.1	17.1	0.24	0.95	0.02	0.09





### Stellar Parameters For KIC 004386091

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7701^{+214}_{-322}$	$3.848^{+0.315}_{-0.105}$	$-0.040^{+0.200}_{-0.350}$	$2.749^{+0.446}_{-1.041}$	$1.944^{+0.110}_{-0.467}$	$0.132^{+0.300}_{-0.043}$
	$+3\%/-4\%$	$+8\%/-3\%$	$+500\%/-875\%$	$+16\%/-38\%$	$+6\%/-24\%$	$+228\%/-33\%$
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 004386091-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-115 \pm 3$	$1.49^{+1.31}_{-0.89}$	$5282^{+389}_{-522}$	$11957^{+22574}_{-3964}$	$12^{+65}_{-8}$
Alt.	$-233 \pm 14$	$4.41^{+1.61}_{-1.42}$	$5303^{+383}_{-473}$	$7228^{+1750}_{-1149}$	$2.819^{+3.186}_{-1.294}$

$T_{\text{max}}$  = 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

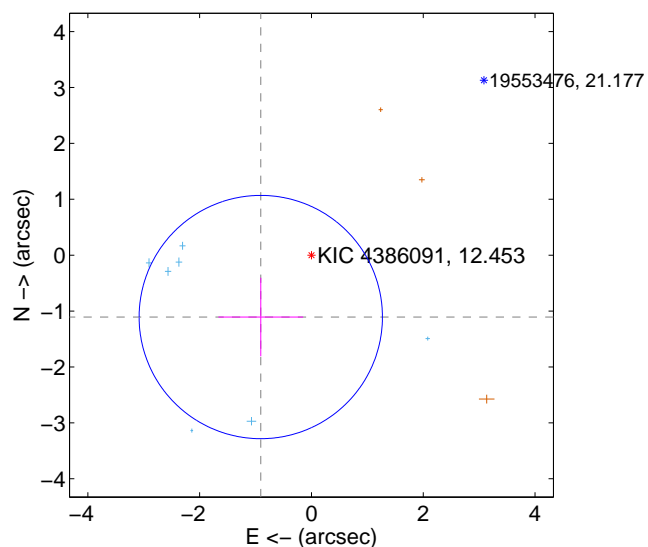
Supplemental centroid analysis for 004386091-01. Kepler magnitude: 12.45. Transit SNR 7.97

There are 7 quarters with good PRF difference image offsets

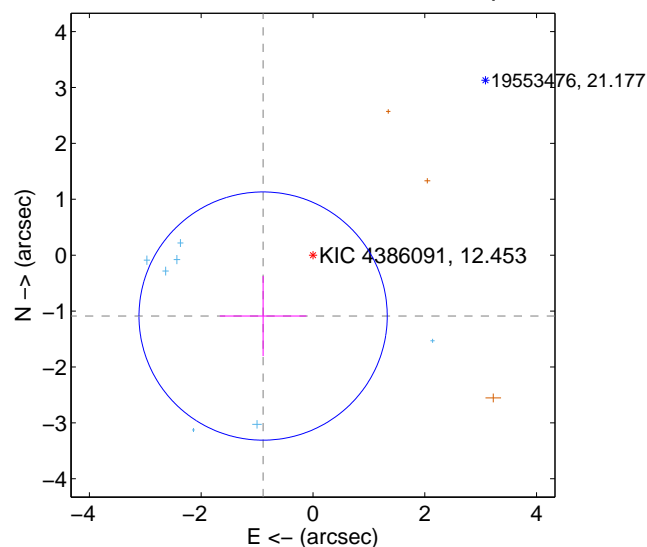
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.431 \pm 0.725$	1.97	$0.906 \pm 0.758$	$-1.107 \pm 0.703$
PRF-fit source offset from KIC position	$1.408 \pm 0.740$	1.90	$0.892 \pm 0.774$	$-1.089 \pm 0.716$
photometric centroid source offset	$0.73 \pm 0.51$	1.43	$-0.34 \pm 0.50$	$0.64 \pm 0.51$

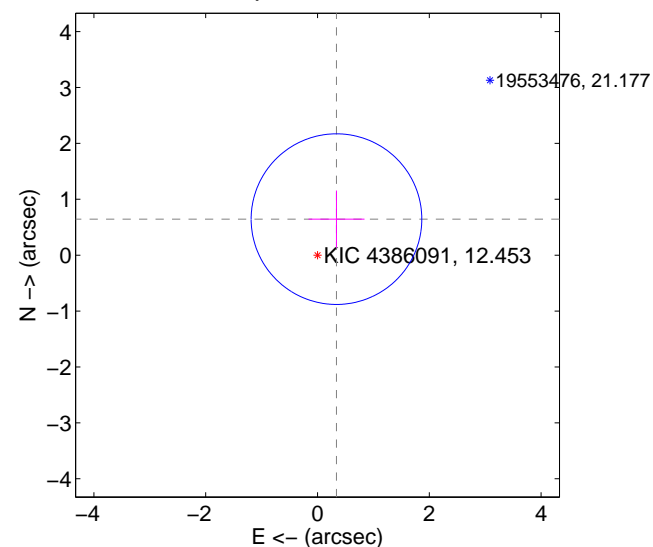
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

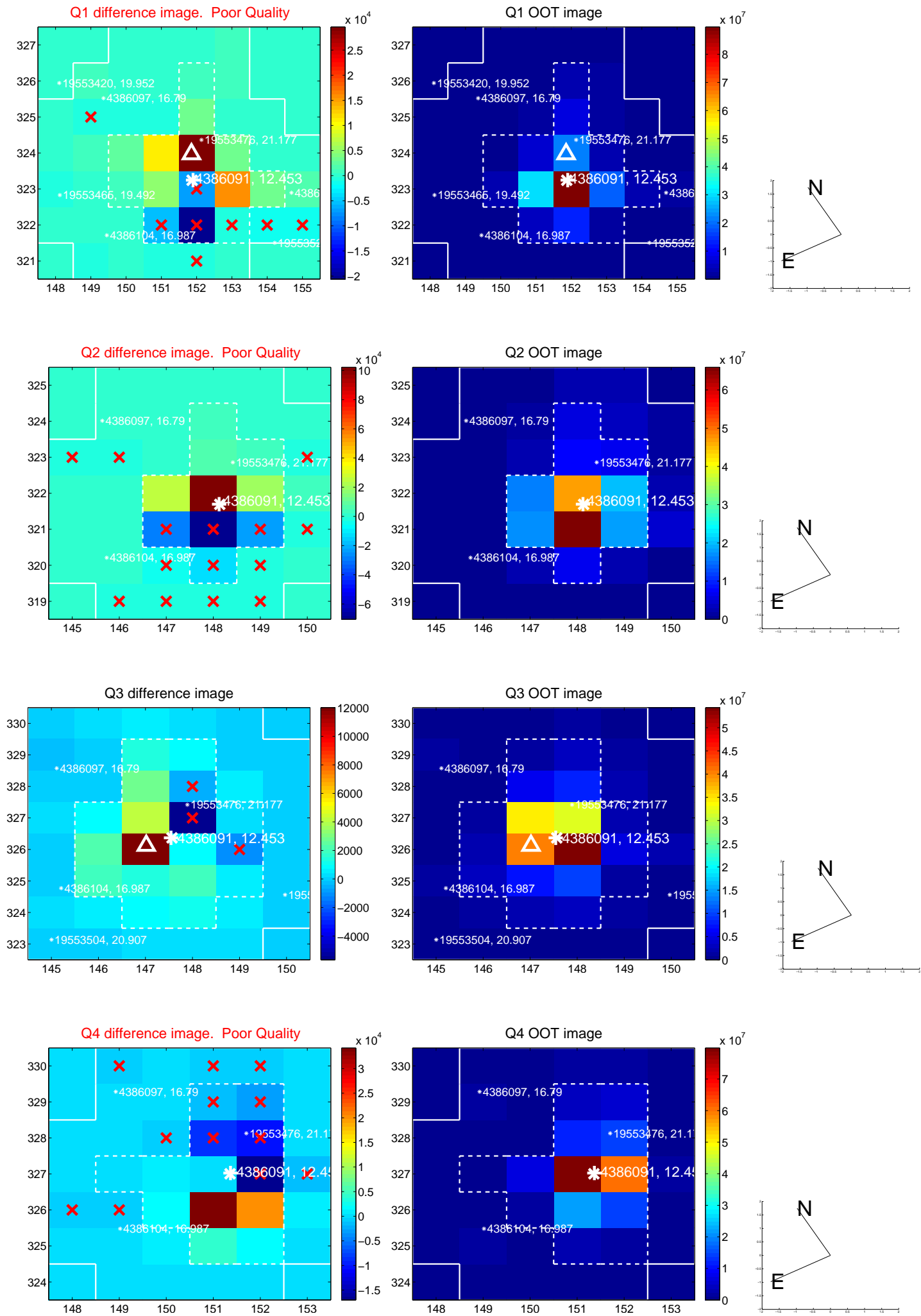


offset from photometric centroids

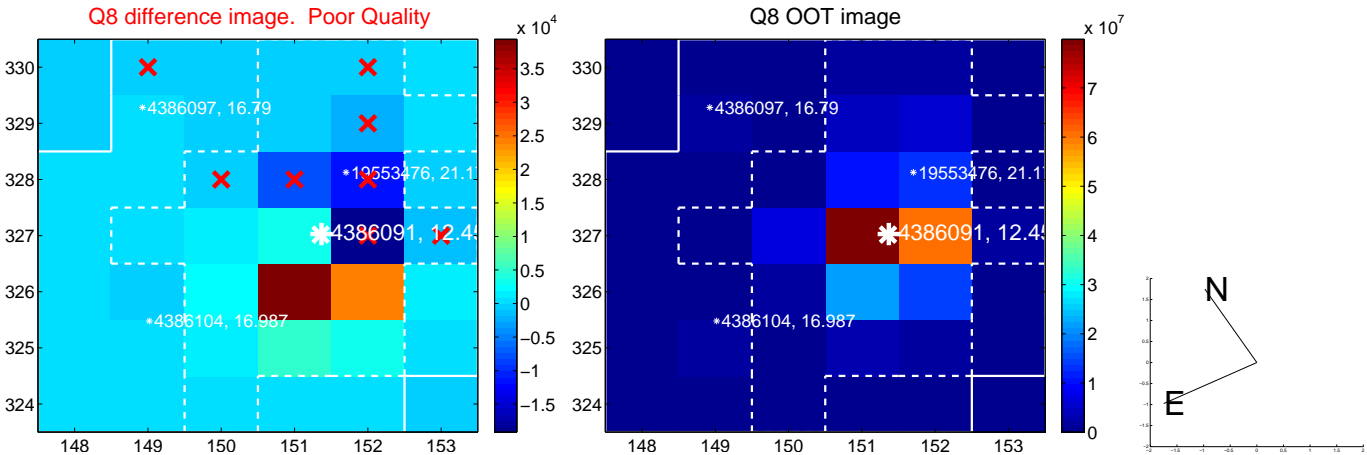
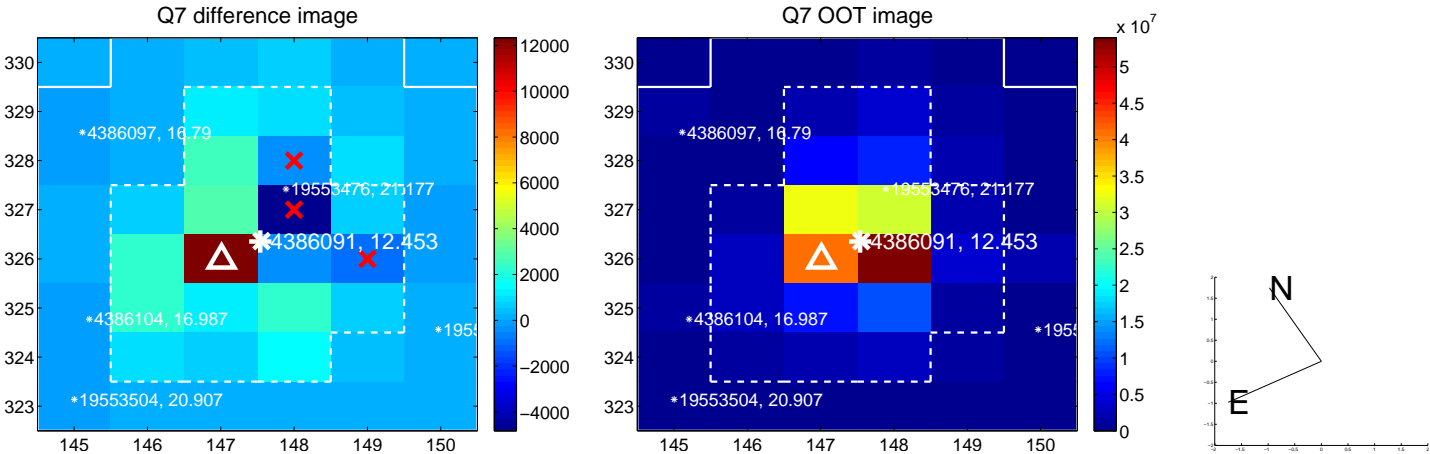
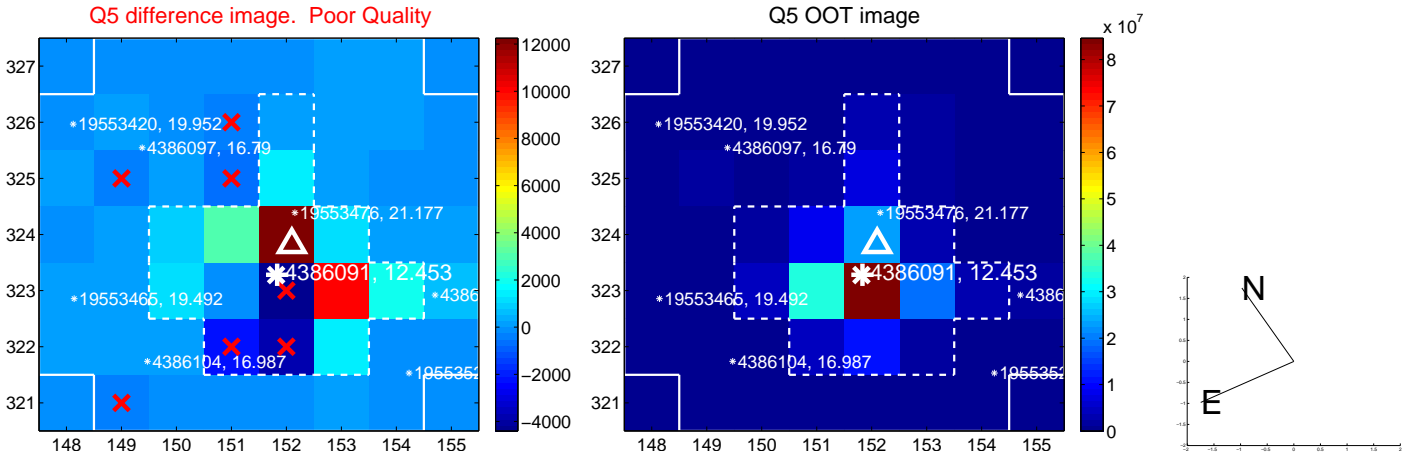


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

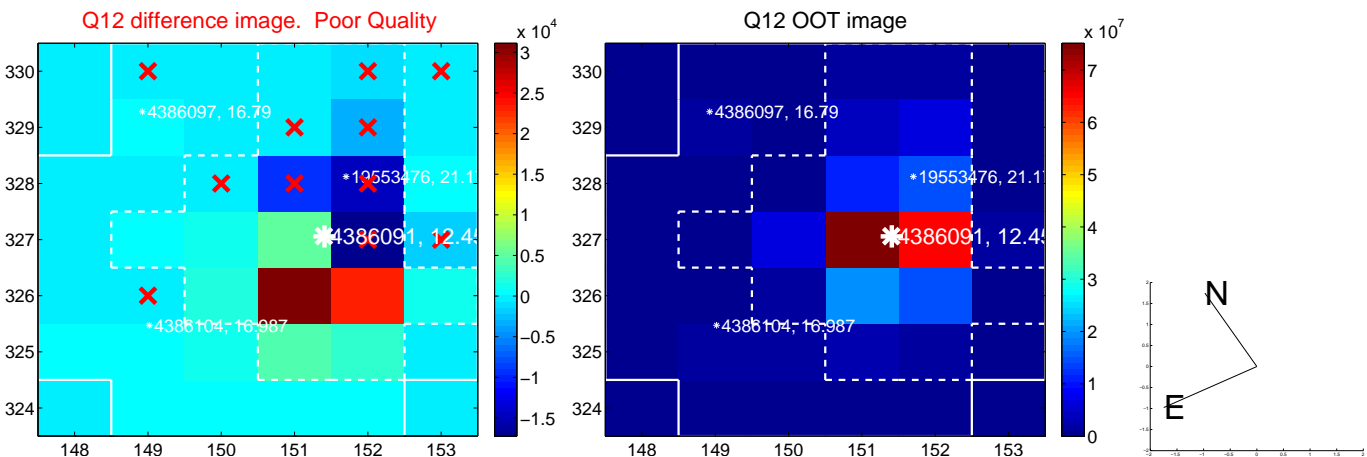
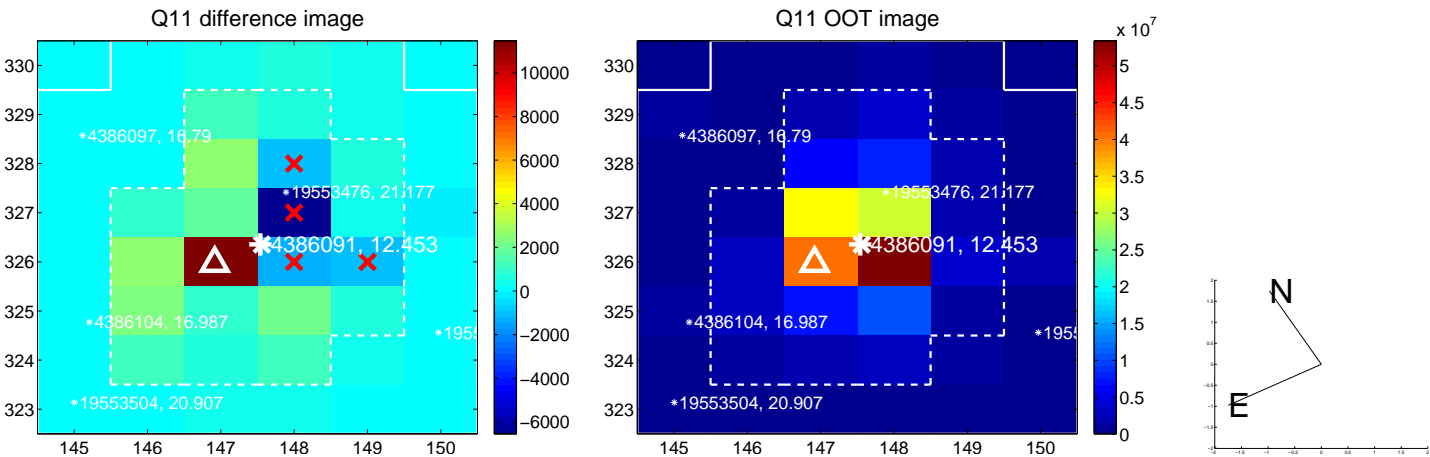
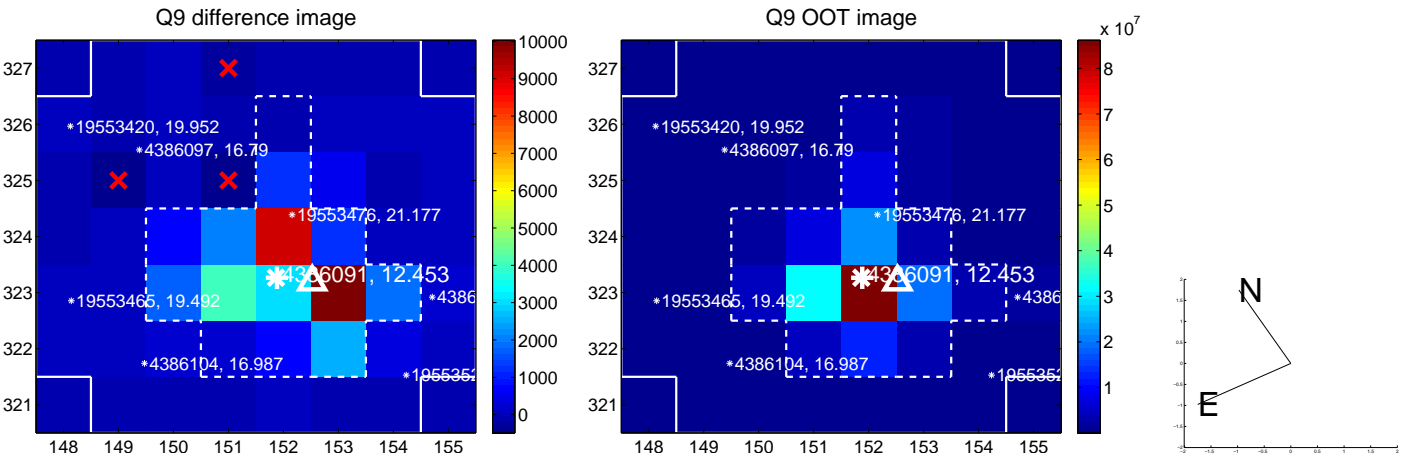


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

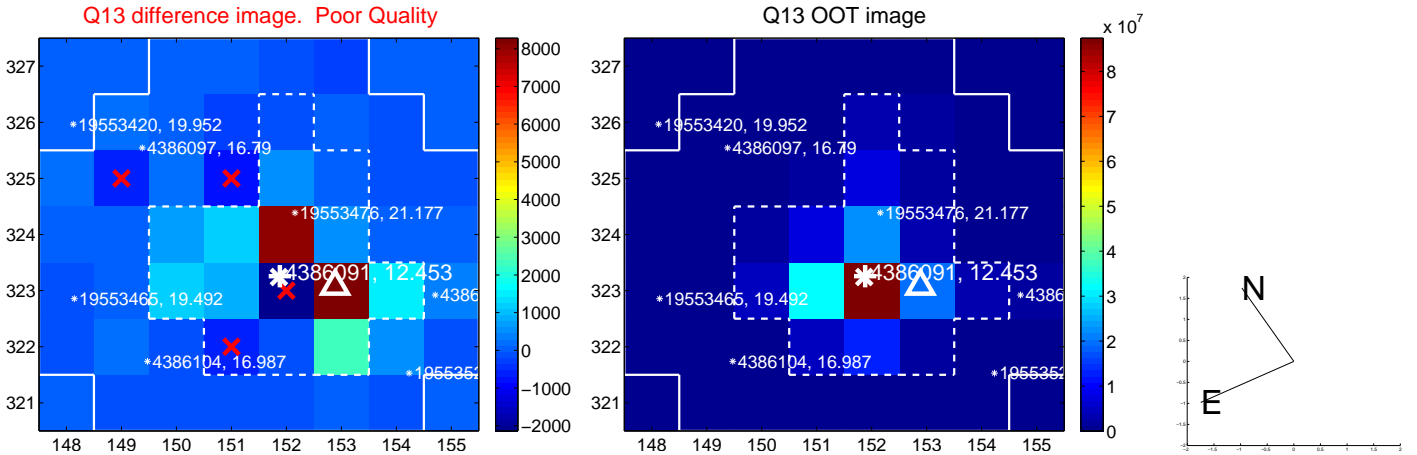




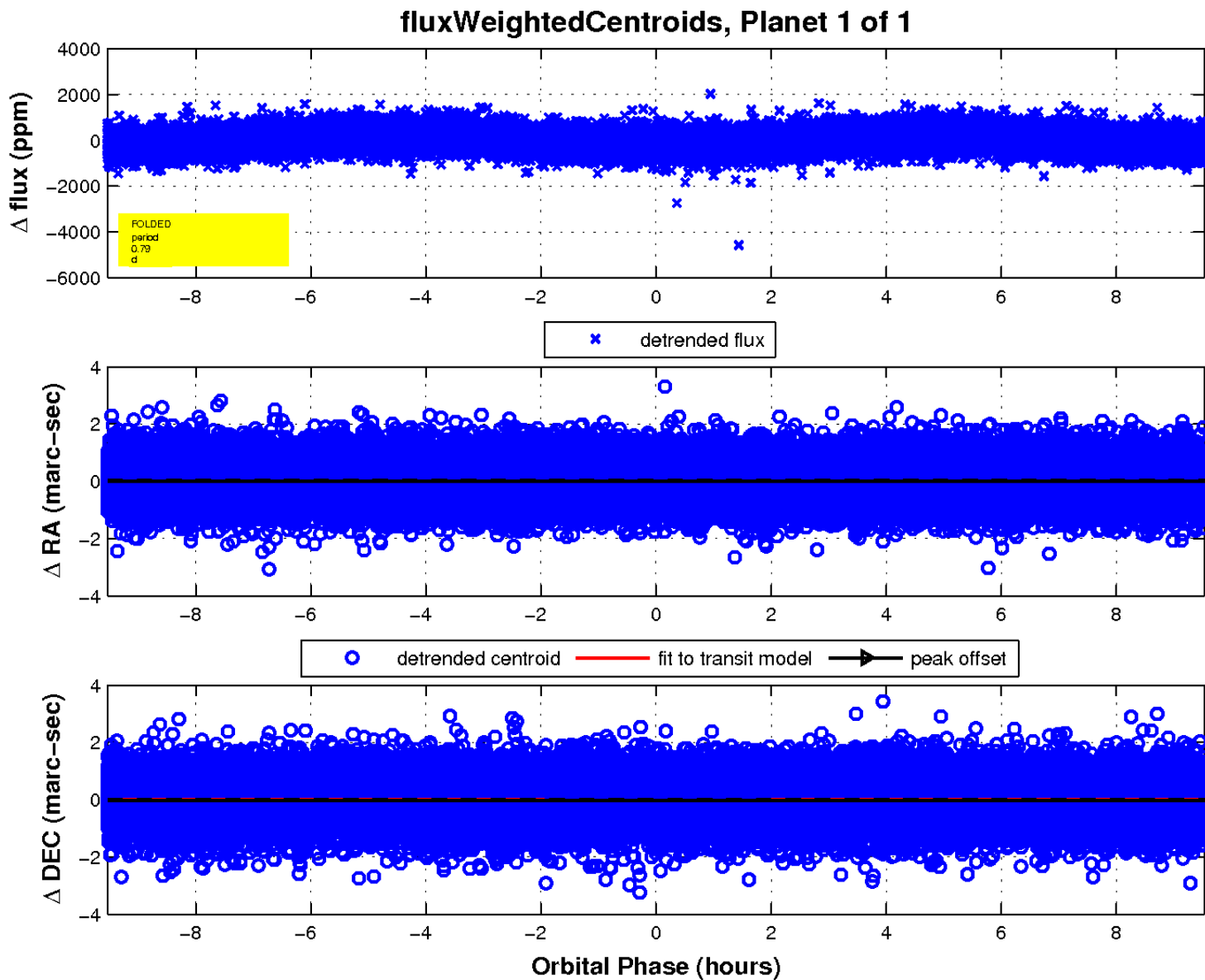
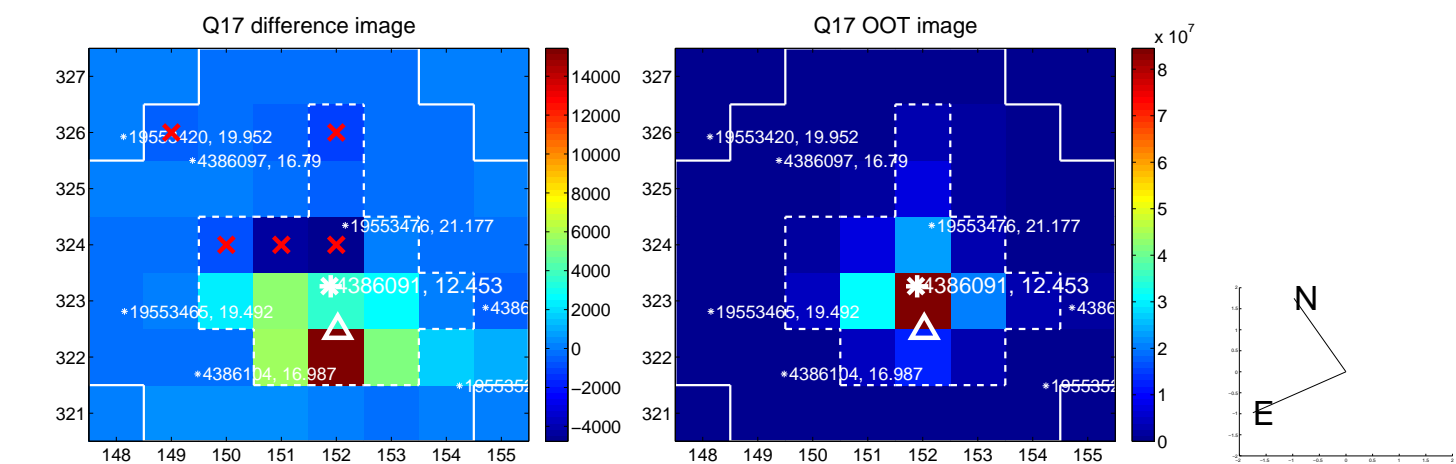
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UKIRT Image

