

# KIC 009453075

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009453075-01	OBS	No	0.520821	132.029047	14.6	2.663	9.0	10.6	2.35	8287	1.04	90927.96

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009453075-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV

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

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

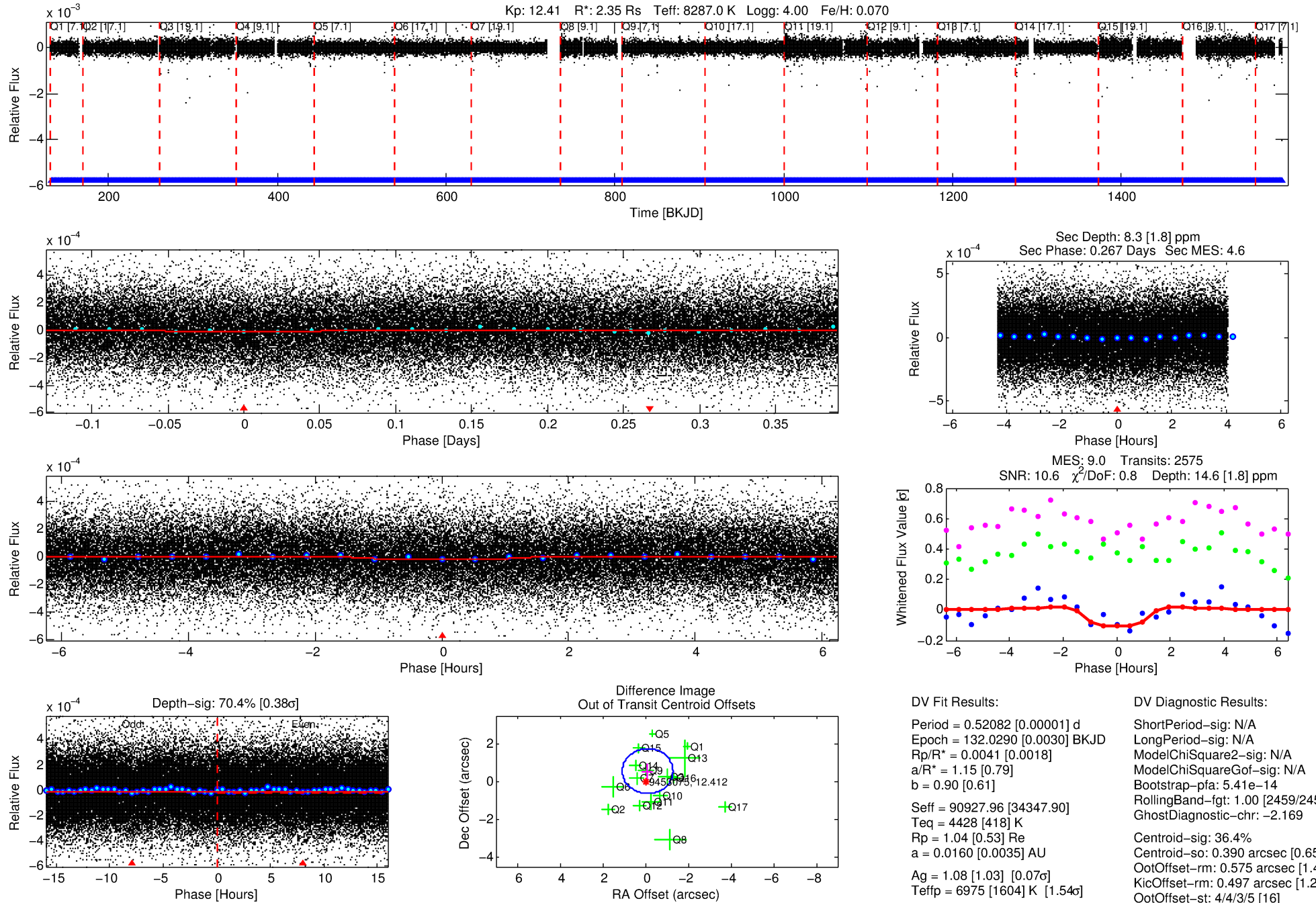
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009453075-01

No Significant Match Found

# DV One-Page Summary

KIC: 9453075 Candidate: 1 of 1 Period: 0.521 d



## DV Fit Results:

Period = 0.52082 [0.00001] d  
Epoch = 132.0290 [0.0030] BKJD  
Rp/R\* = 0.0041 [0.0018]  
a/R\* = 1.15 [0.79]  
b = 0.90 [0.61]  
Seff = 90927.96 [34347.90]  
Teq = 4428 [418] K  
Rp = 1.04 [0.53] Re  
a = 0.0160 [0.0035] AU  
Ag = 1.08 [1.03] [0.07 $\sigma$ ]  
Teffp = 6975 [1604] K [1.54 $\sigma$ ]

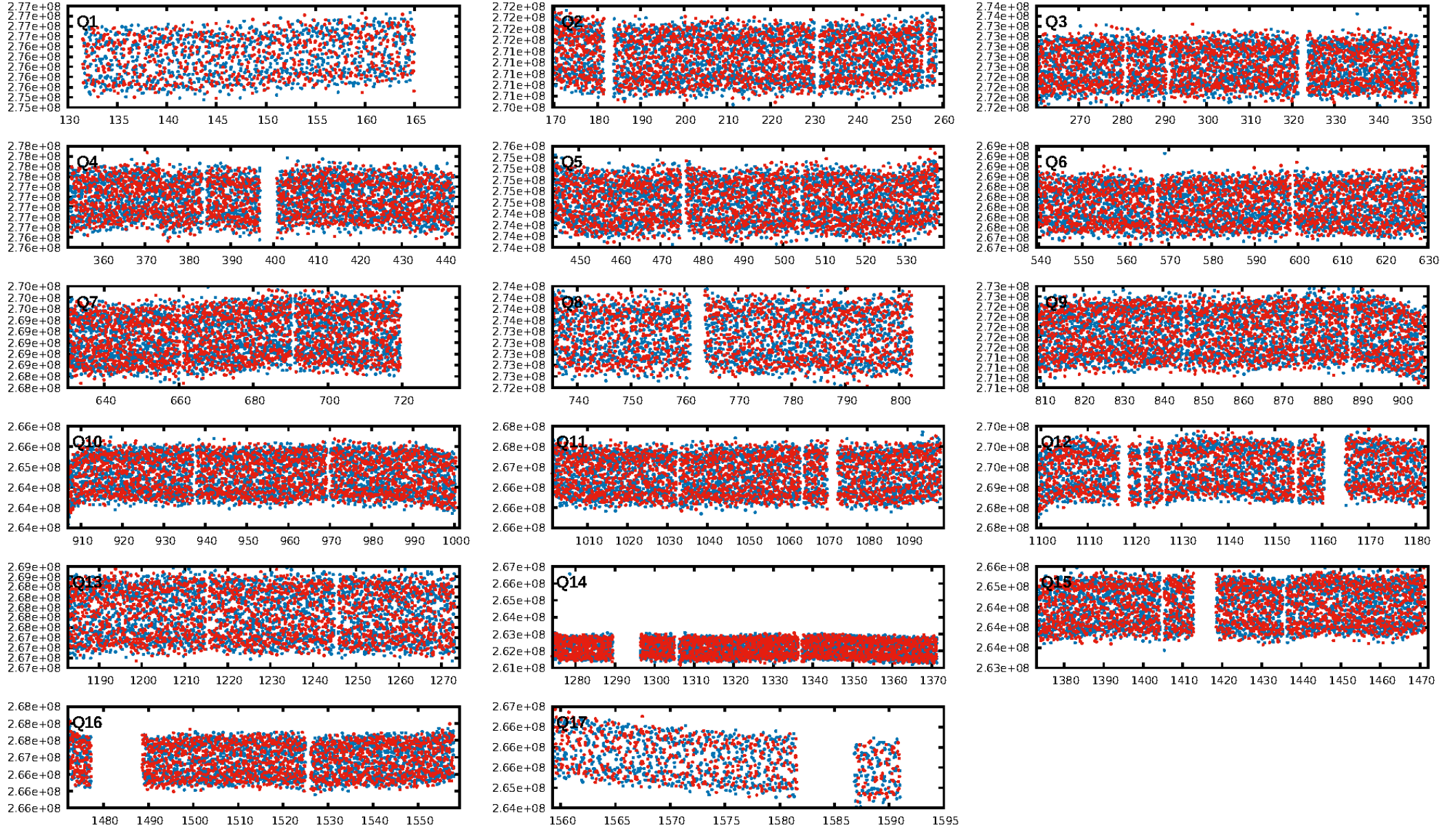
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.41e-14  
RollingBand-fgt: 1.00 [2459/2459]  
GhostDiagnostic-chr: -2.169  
Centroid-sig: 36.4%  
Centroid-so: 0.390 arcsec [0.65 $\sigma$ ]  
OotOffset-rm: 0.575 arcsec [1.45 $\sigma$ ]  
KicOffset-rm: 0.497 arcsec [1.23 $\sigma$ ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.94 [15/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:00:10 Z

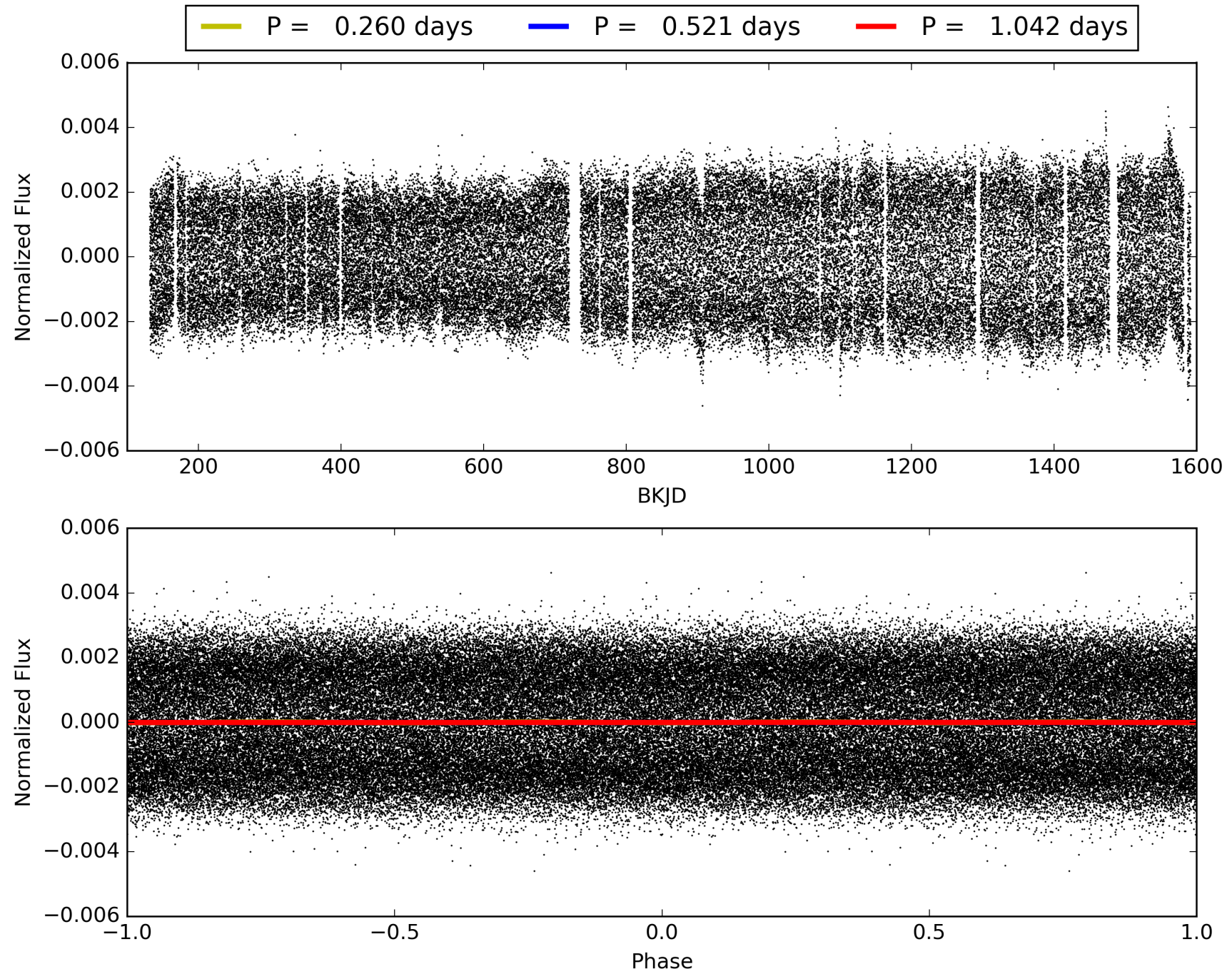
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009453075-01, PDC Light Curves



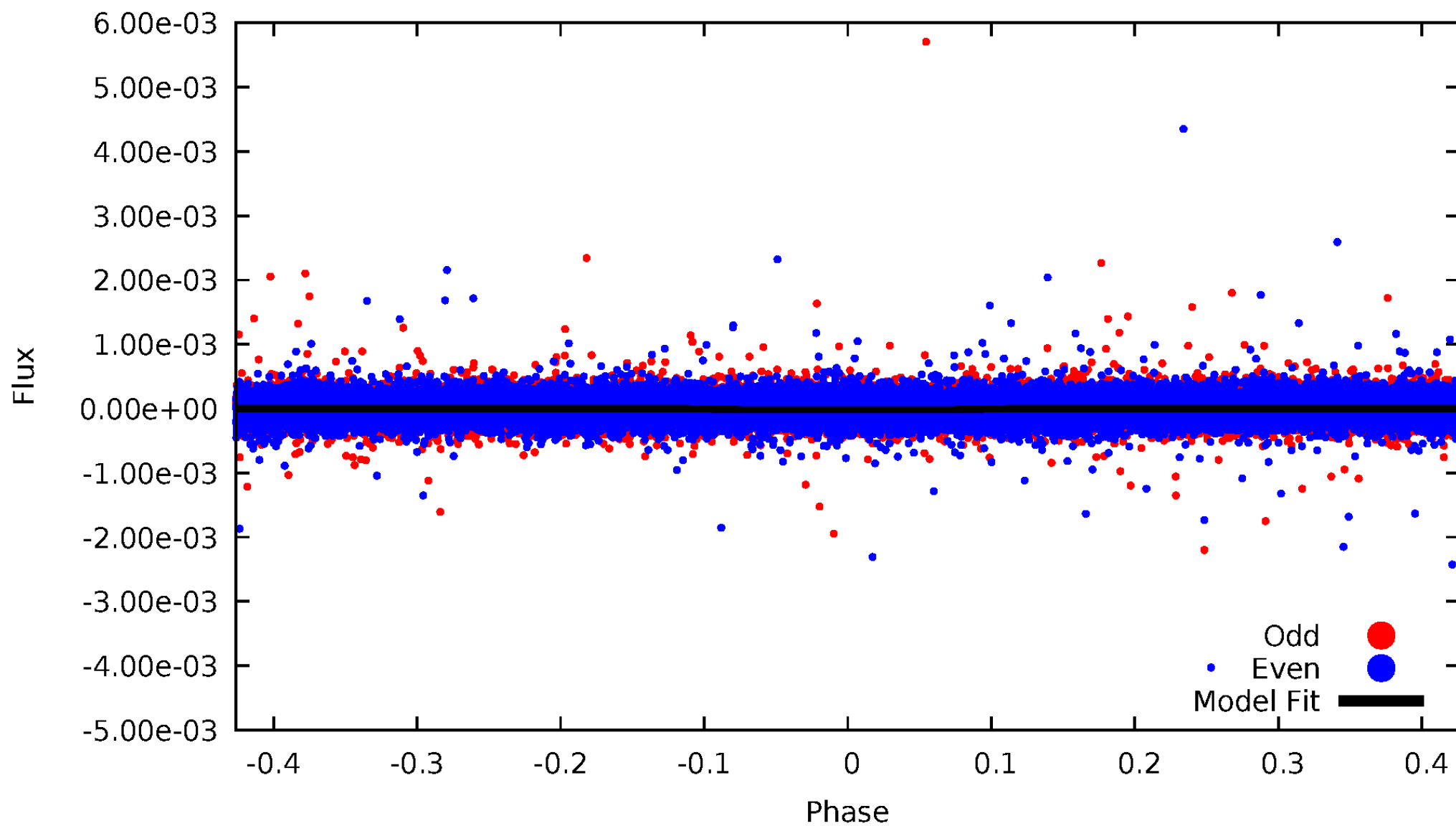


TCE 009453075-01



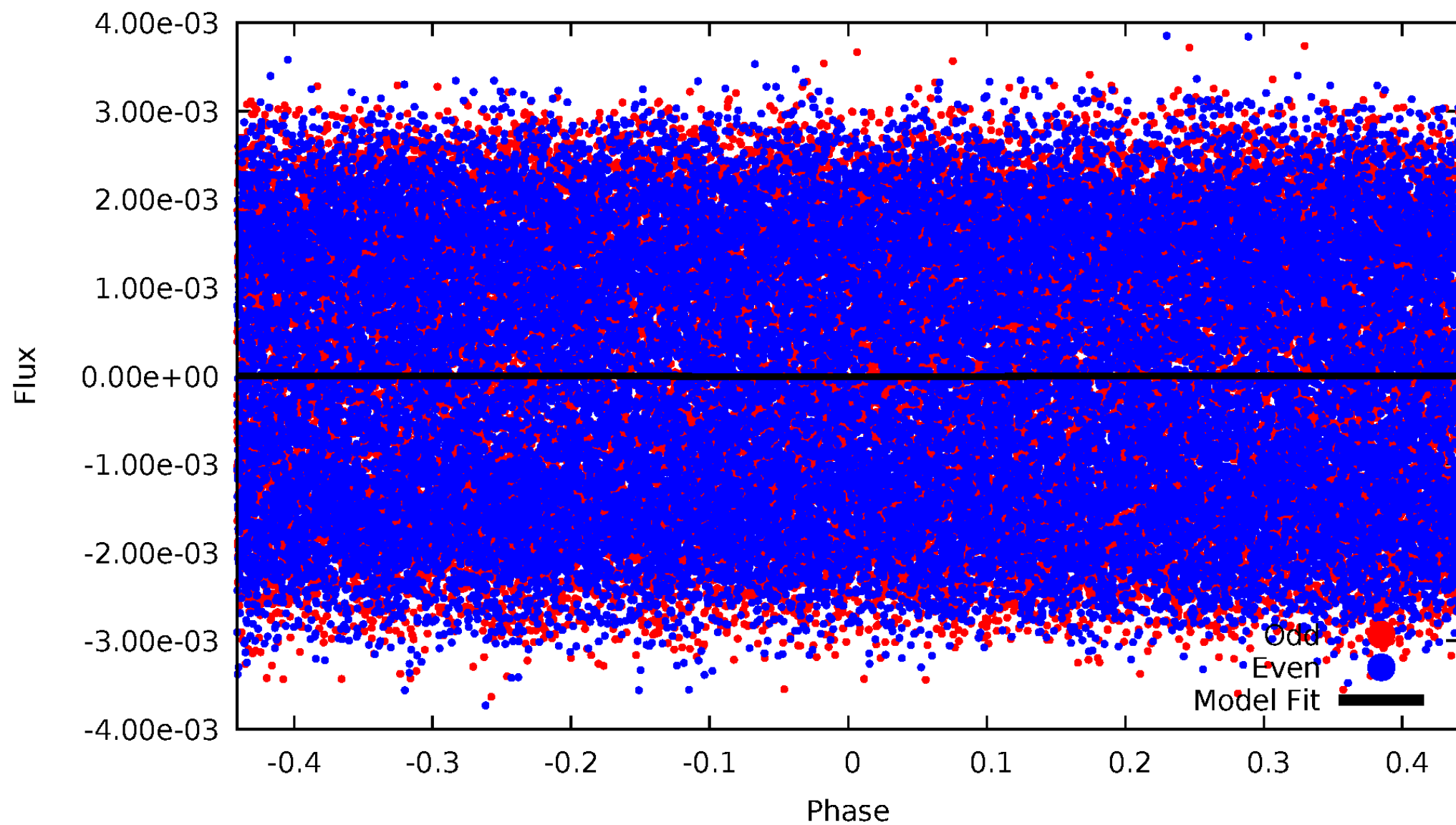
# DV Odd/Even

TCE 009453075-01



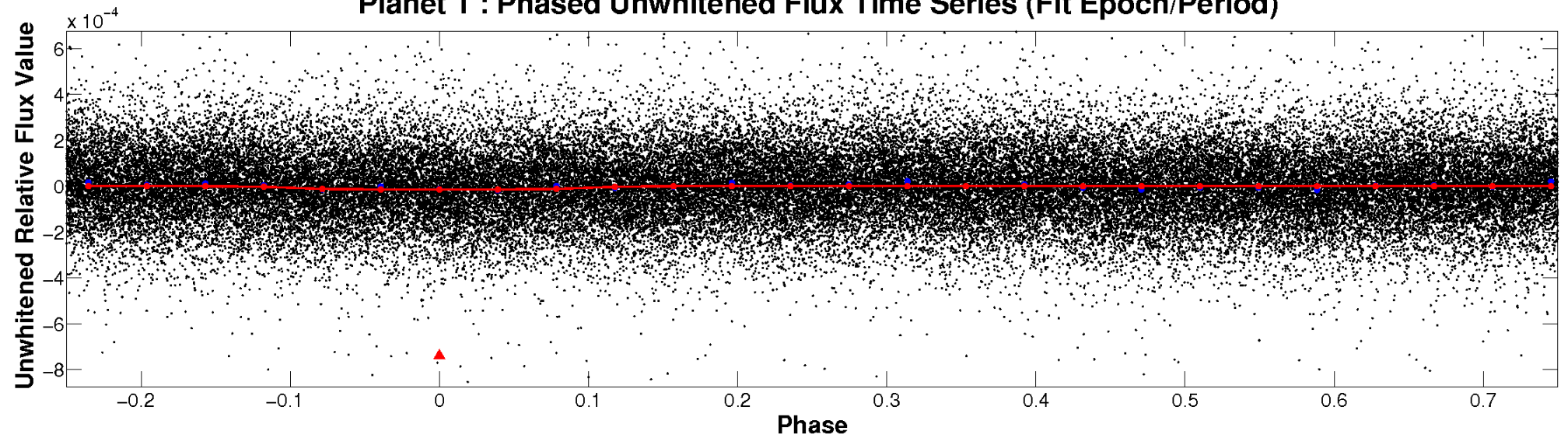
# ALT Odd/Even

TCE 009453075-01

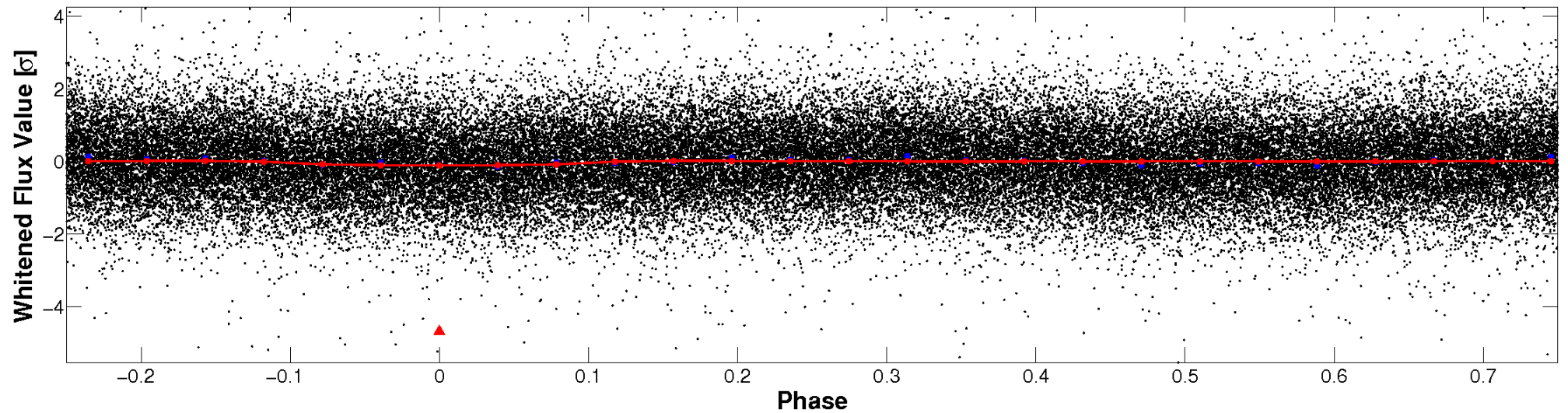


# Non-Whitened Vs. Whitened Light Curve

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



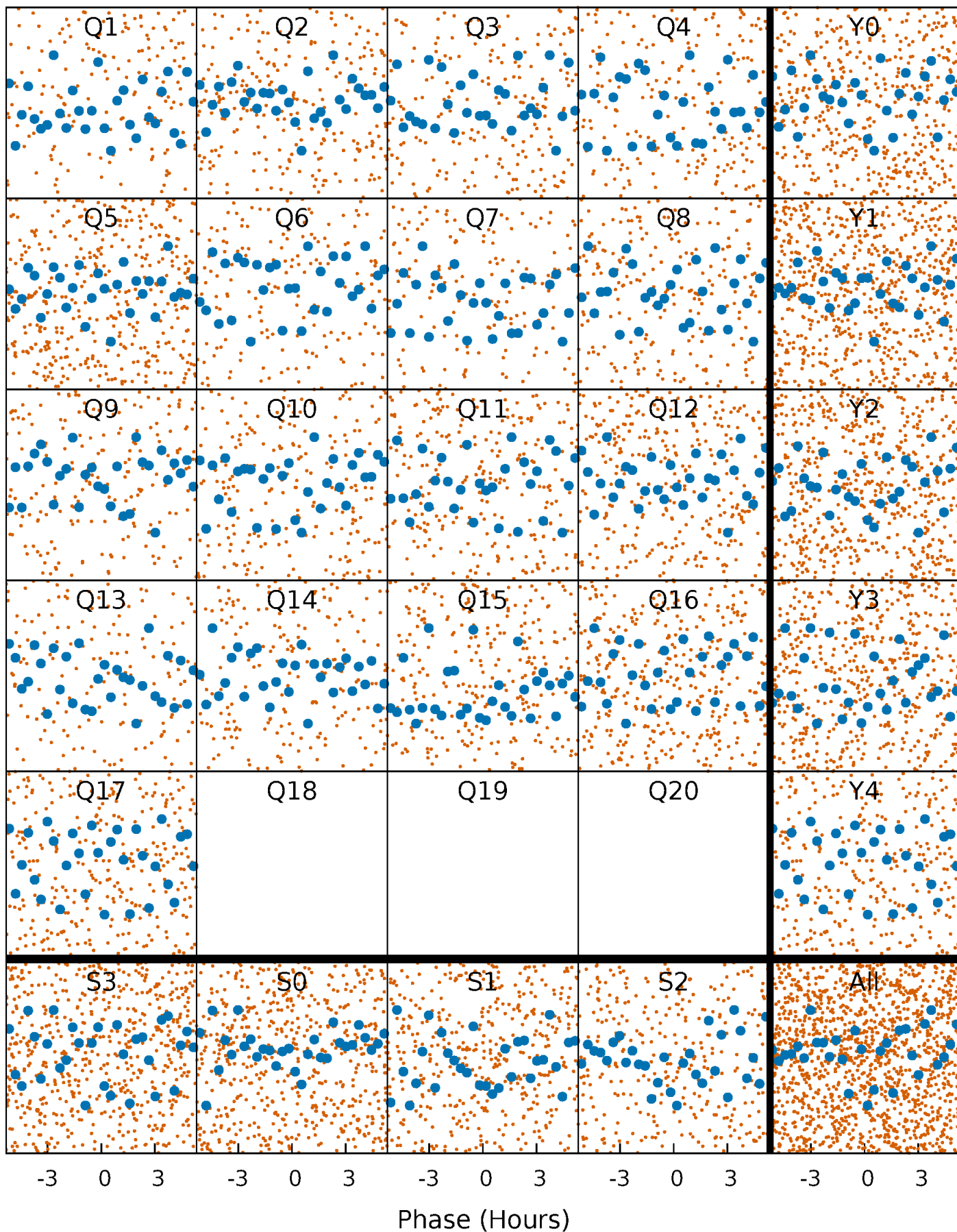
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

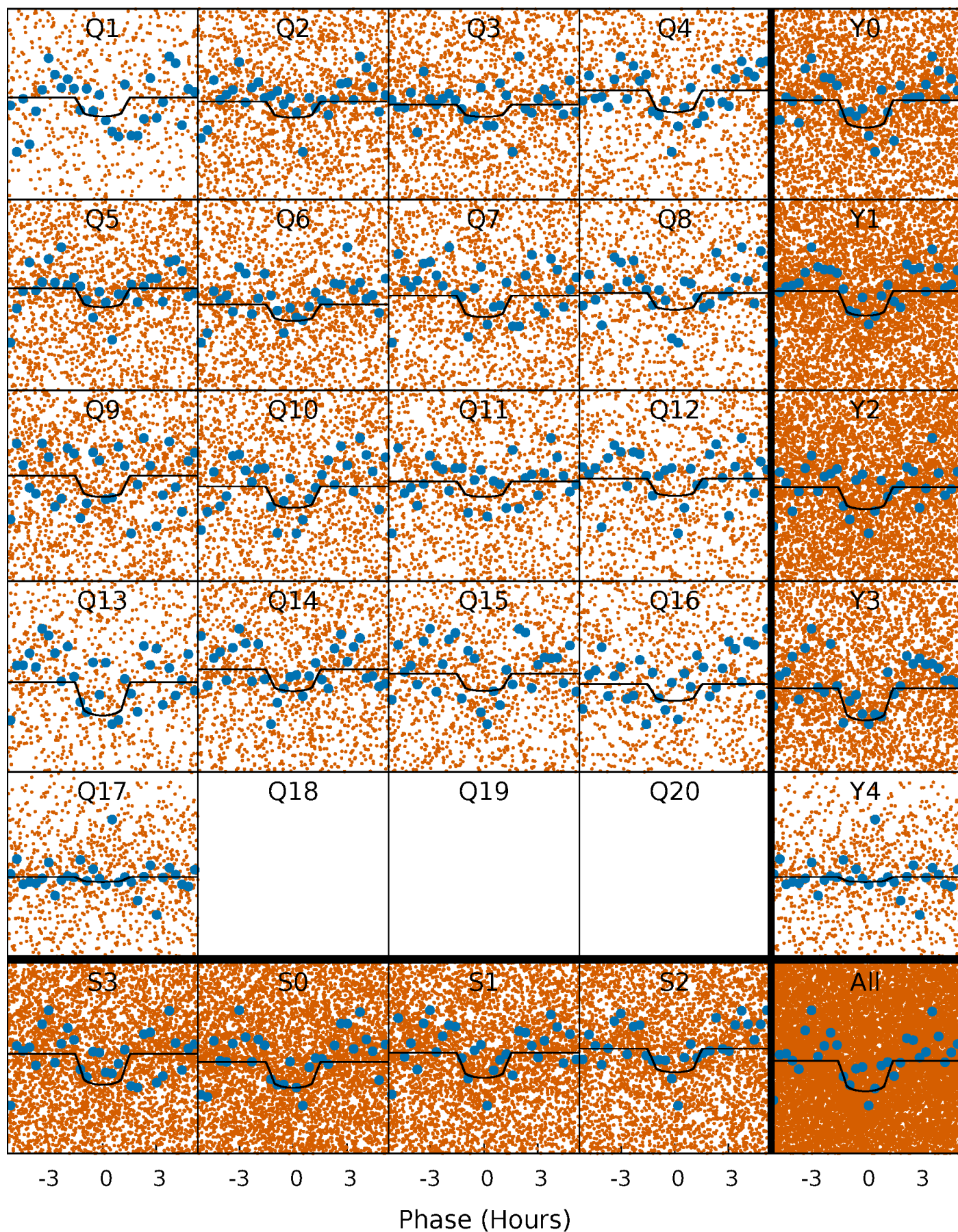
TCE 009453075-01   P= 0.520821 Days    $T_0=132.029047$  (BKJD)





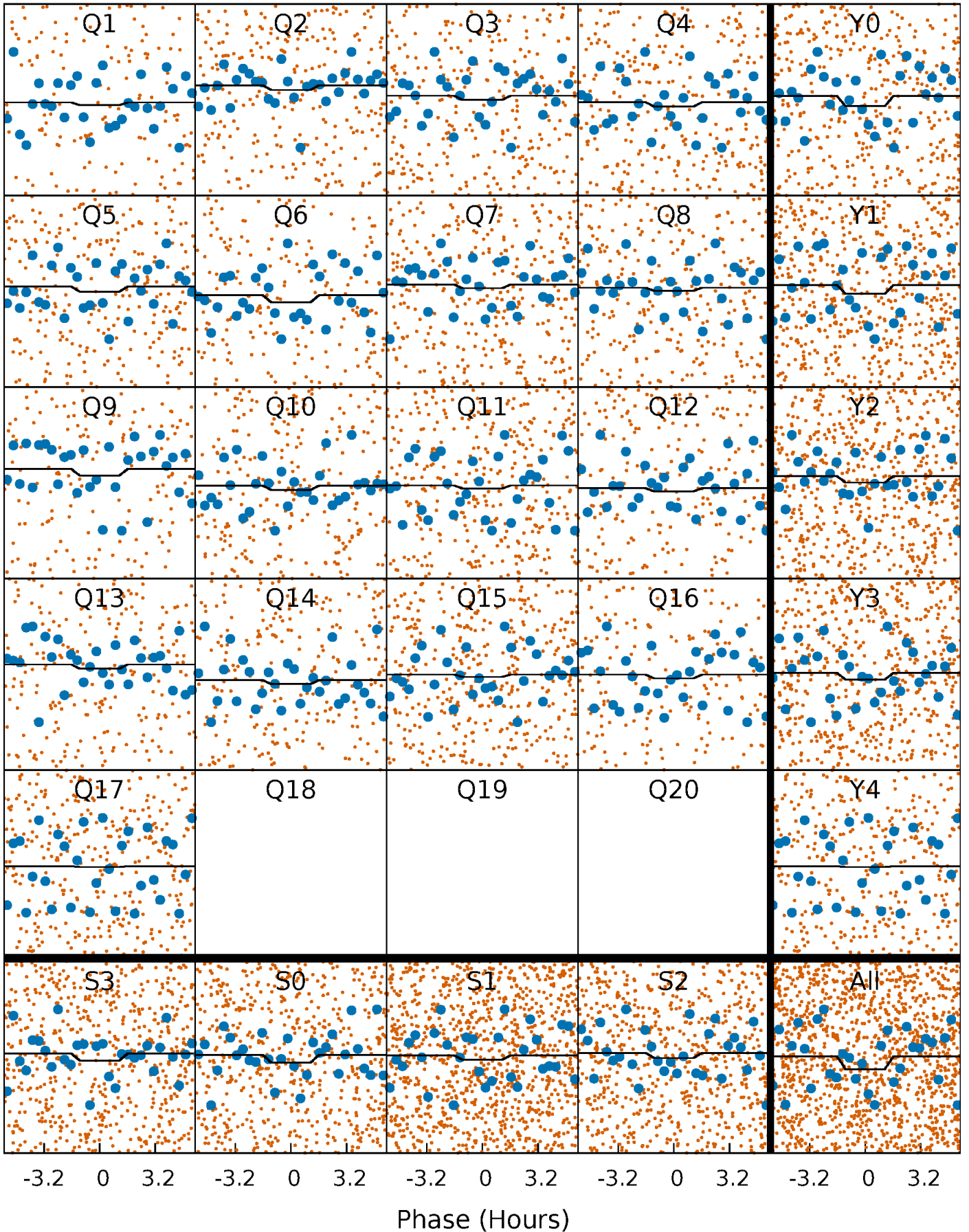
# DV Quarter-Phased Transit Curves

TCE 009453075-01 P= 0.520821 Days  $T_0=132.029047$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

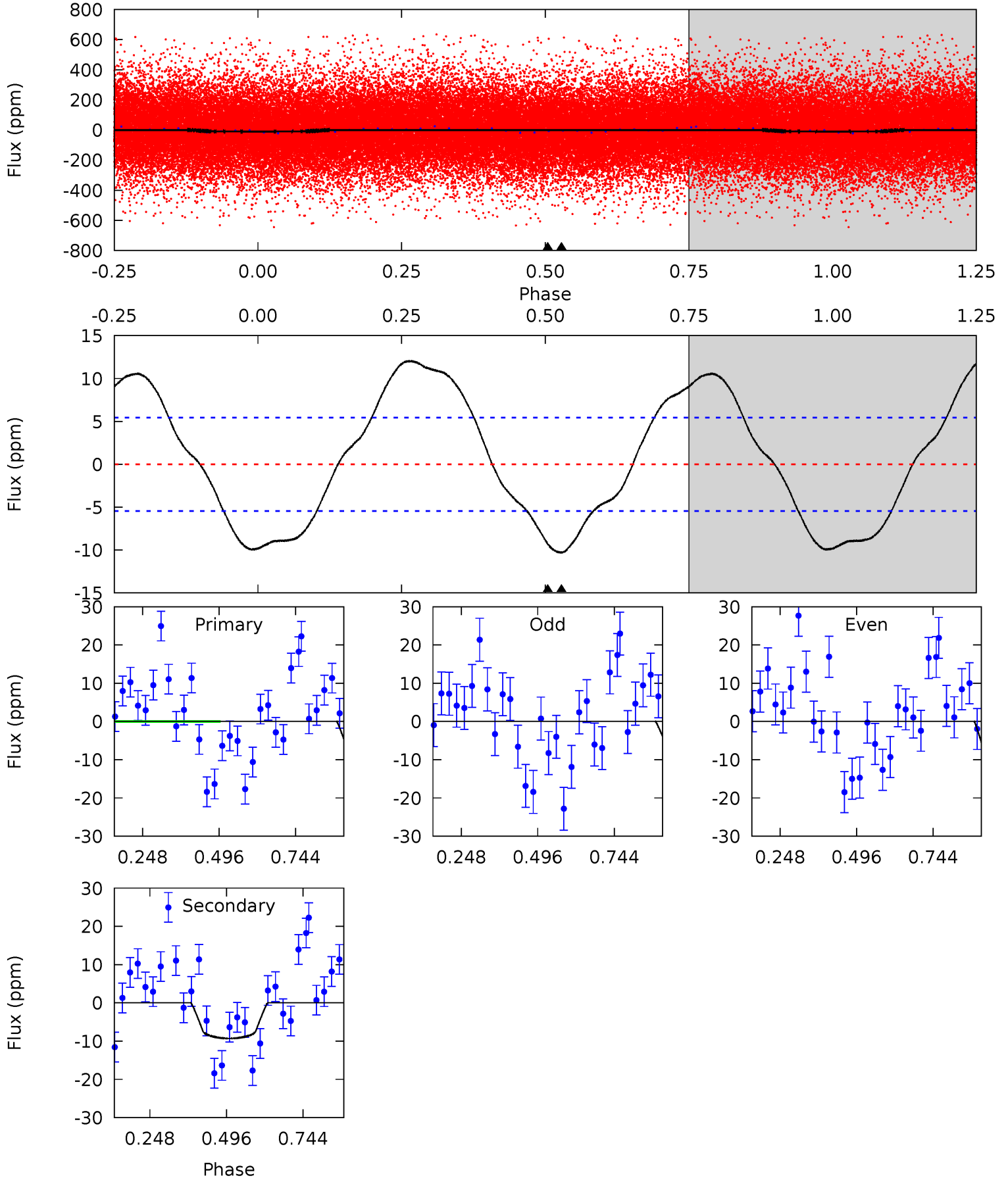
TCE 009453075-01 P= 0.520833 Days  $T_0=132.021076$  (BKJD)



# DV Model-Shift Uniqueness Test

009453075-01, P = 0.520821 Days, E = 131.508226 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
8.27	7.45	0	0	4.37	1.16	5.76	8.27	8.27	7.45	7.45	1.45	0.84	0.54	2.39

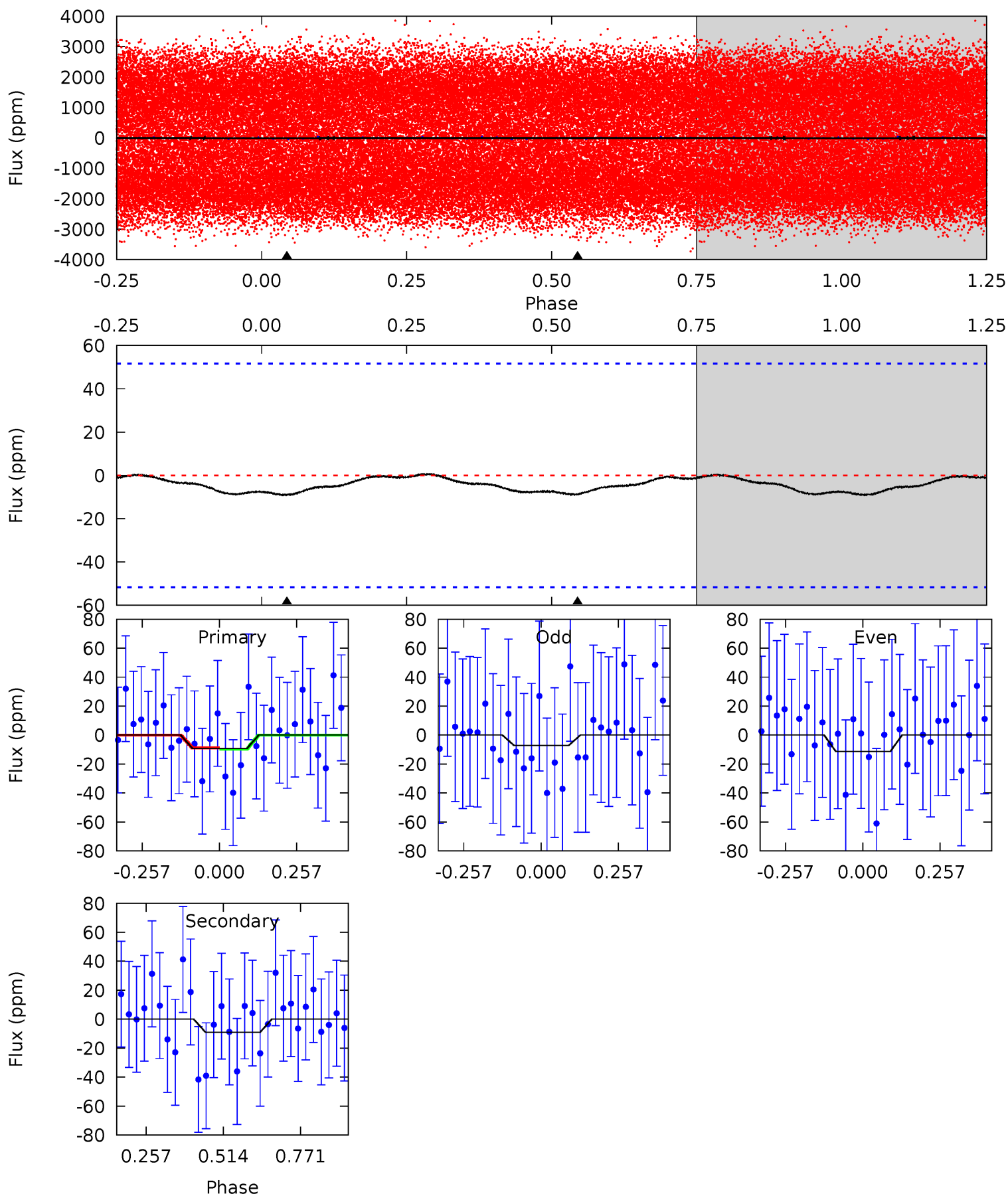




# Alt Model-Shift Uniqueness Test

009453075-01, P = 0.520833 Days, E = 131.500243 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
0.78	0.77	0	0	4.36	1.13	0.04	0.78	0.78	0.77	0.77	0.17	0.97	0.08	0.04





### Stellar Parameters For KIC 009453075

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8287^{+228}_{-391}$	$4.001^{+0.182}_{-0.149}$	$0.070^{+0.250}_{-0.450}$	$2.348^{+0.540}_{-0.600}$	$2.017^{+0.332}_{-0.443}$	$0.220^{+0.252}_{-0.087}$
	+3%/-5%	+5%/-4%	+357%/-643%	+23%/-26%	+16%/-22%	+115%/-40%
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 009453075-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-9 \pm 1$	$1.03^{+0.50}_{-0.42}$	$6107^{+437}_{-417}$	$6336^{+2723}_{-1465}$	$1.209^{+2.236}_{-0.647}$
Alt.	$-9 \pm 12$	$0.79^{+0.46}_{-0.43}$	$6141^{+438}_{-452}$	$7441^{+7230}_{-13733}$	$1.846^{+8.379}_{-2.283}$

$T_{\text{max}}$  = 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

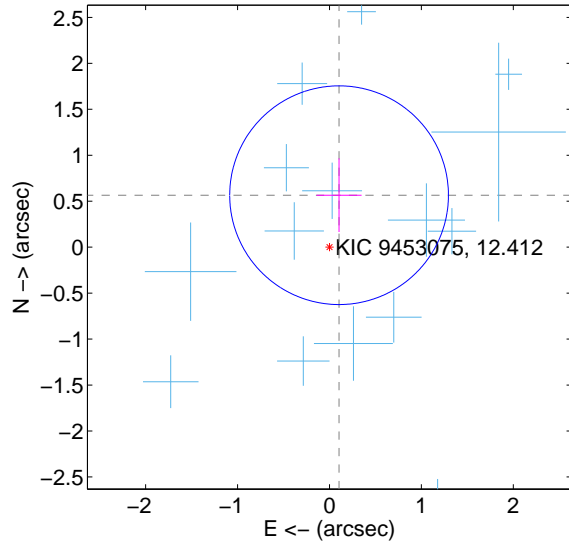
Supplemental centroid analysis for 009453075-01. Kepler magnitude: 12.41. Transit SNR 10.61

There are 15 quarters with good PRF difference image offsets

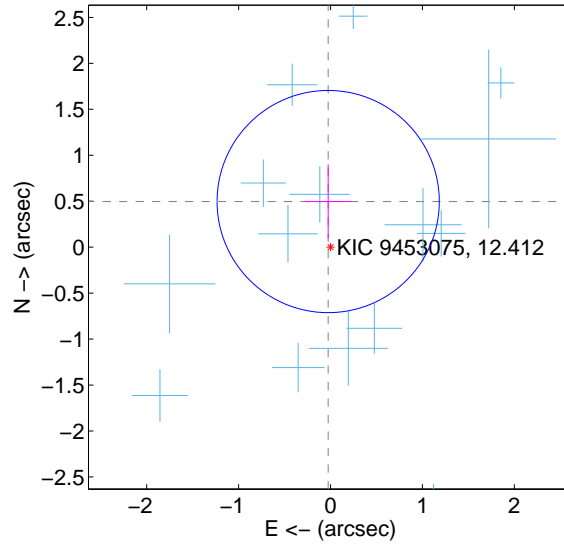
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.575 \pm 0.397$	1.45	$-0.104 \pm 0.246$	$0.565 \pm 0.401$
PRF-fit source offset from KIC position	$0.497 \pm 0.403$	1.23	$0.025 \pm 0.251$	$0.496 \pm 0.403$
photometric centroid source offset	$0.39 \pm 0.60$	0.65	$0.09 \pm 0.56$	$0.38 \pm 0.60$

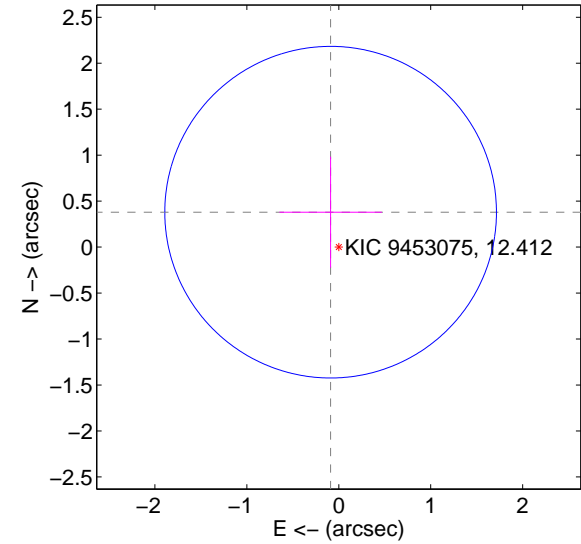
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

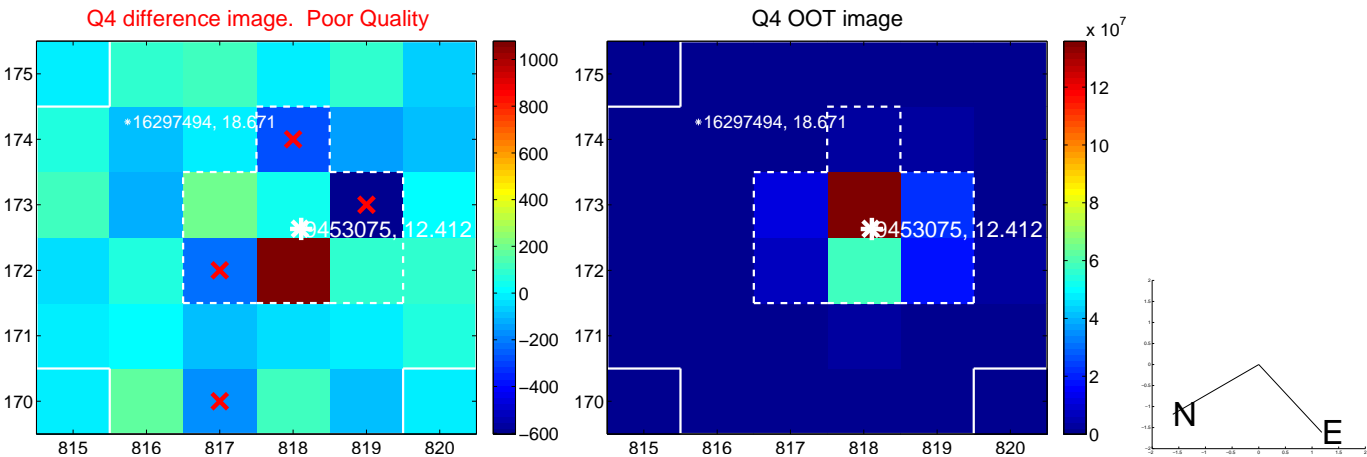
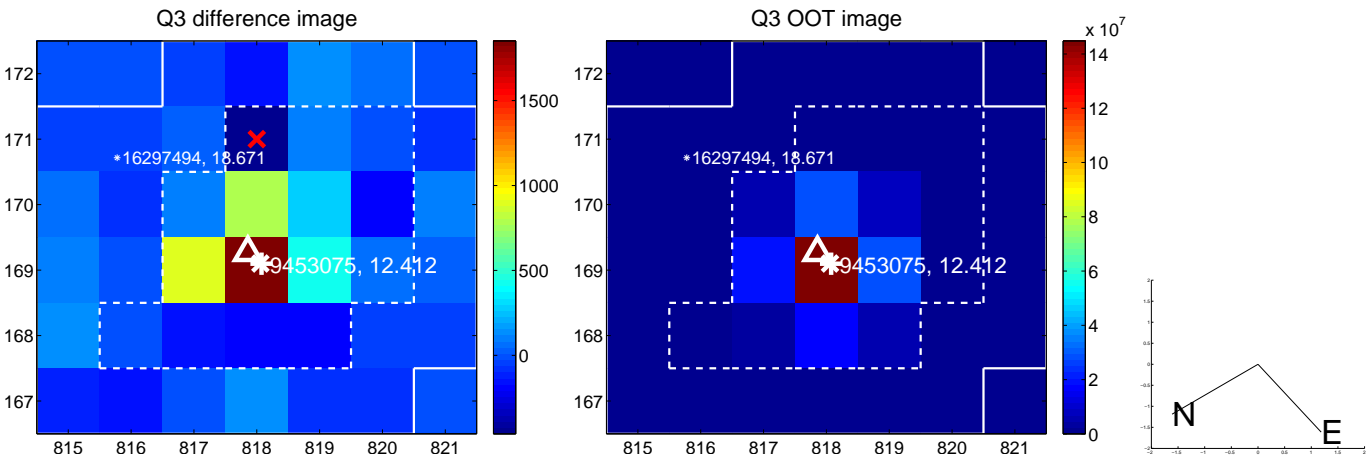
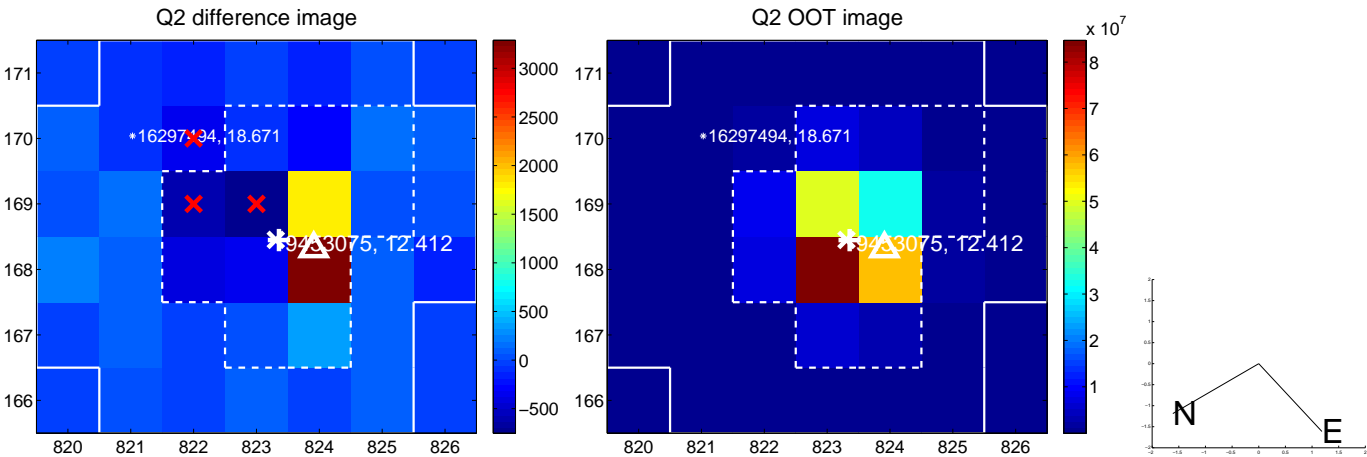
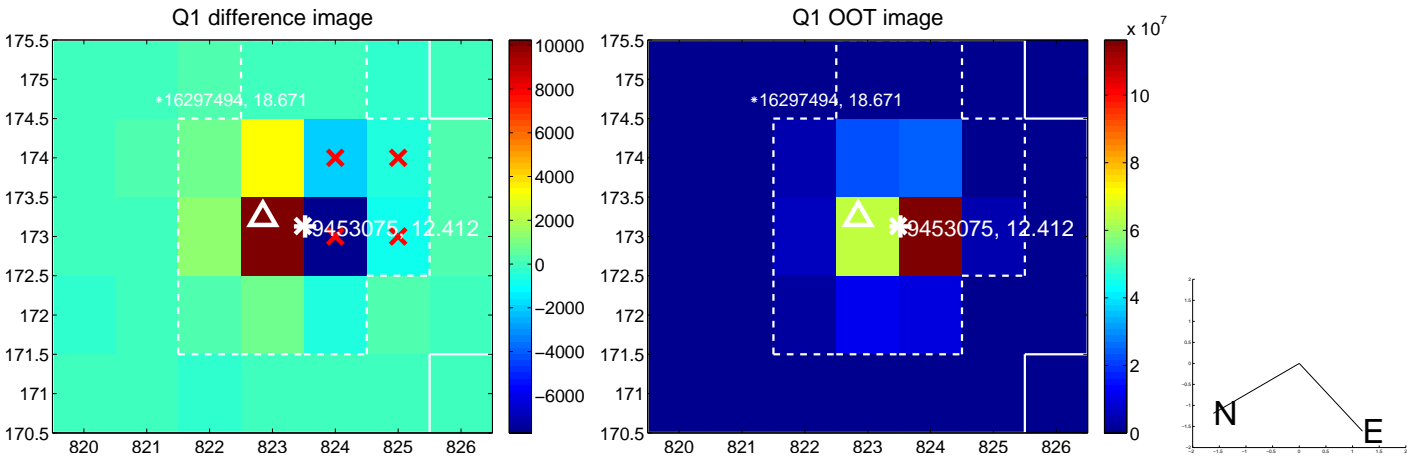


offset from photometric centroids

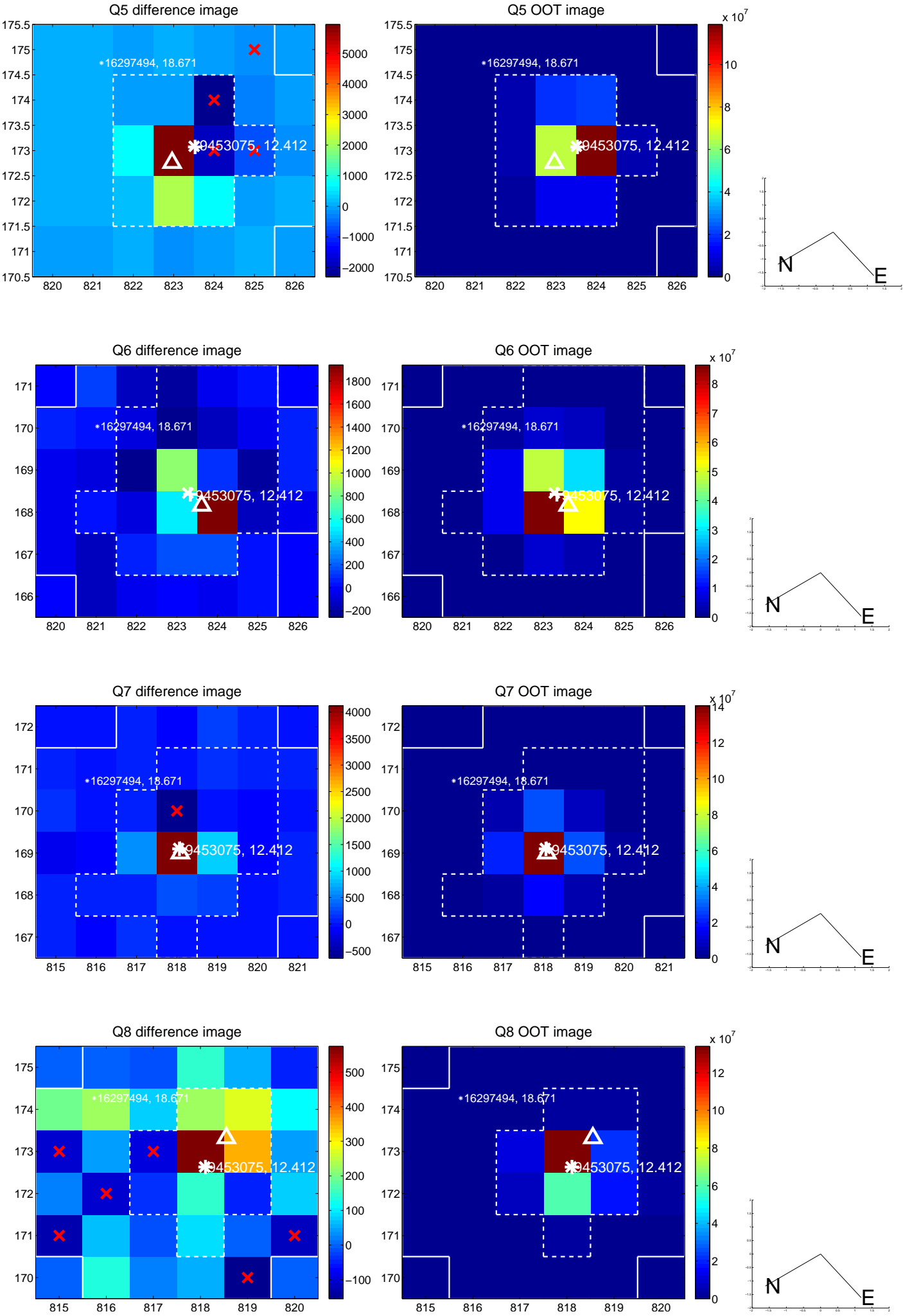


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

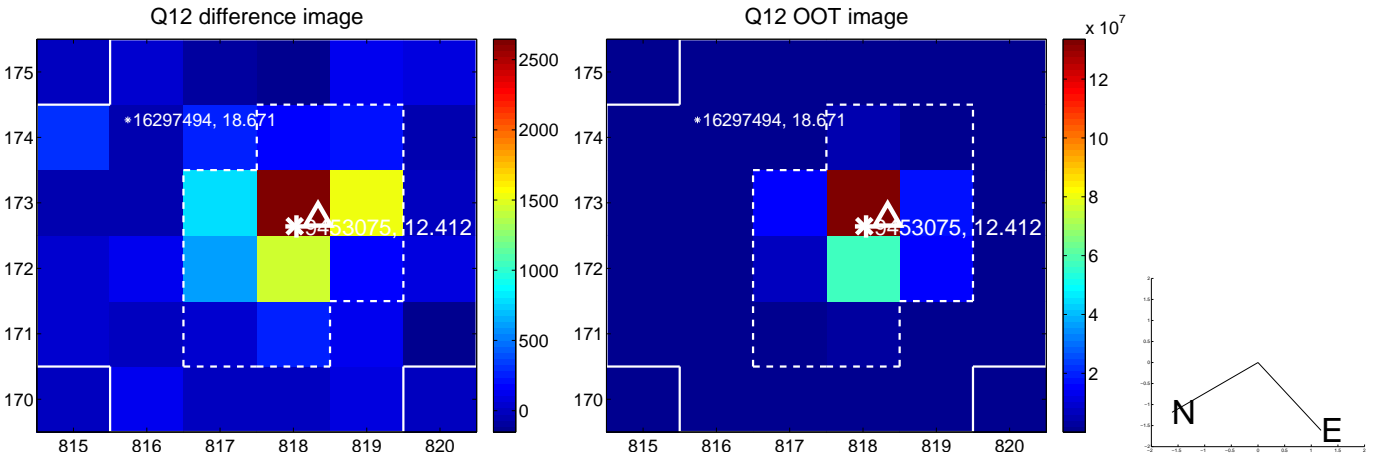
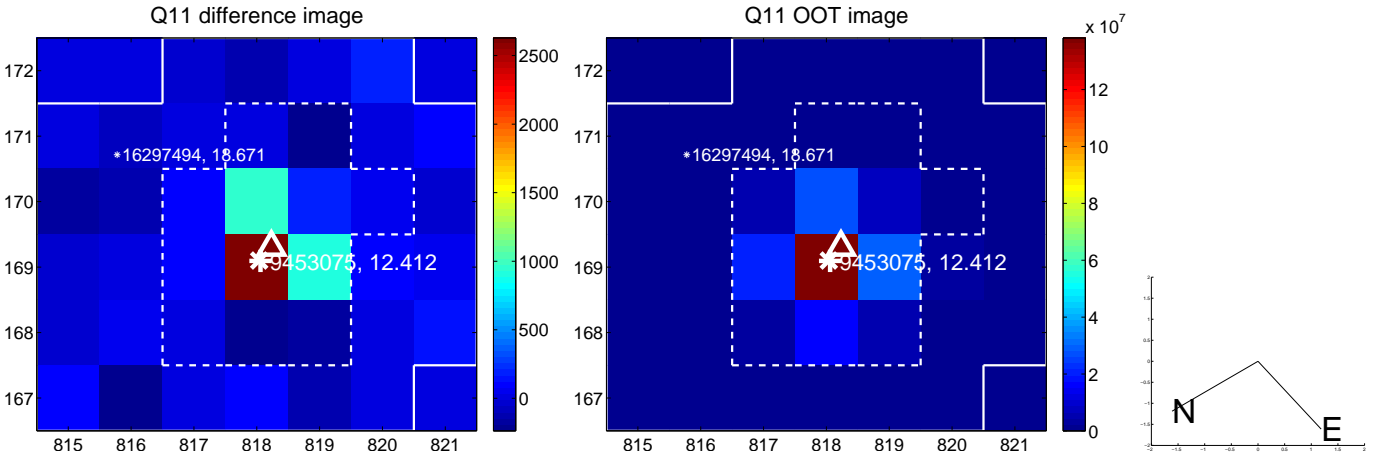
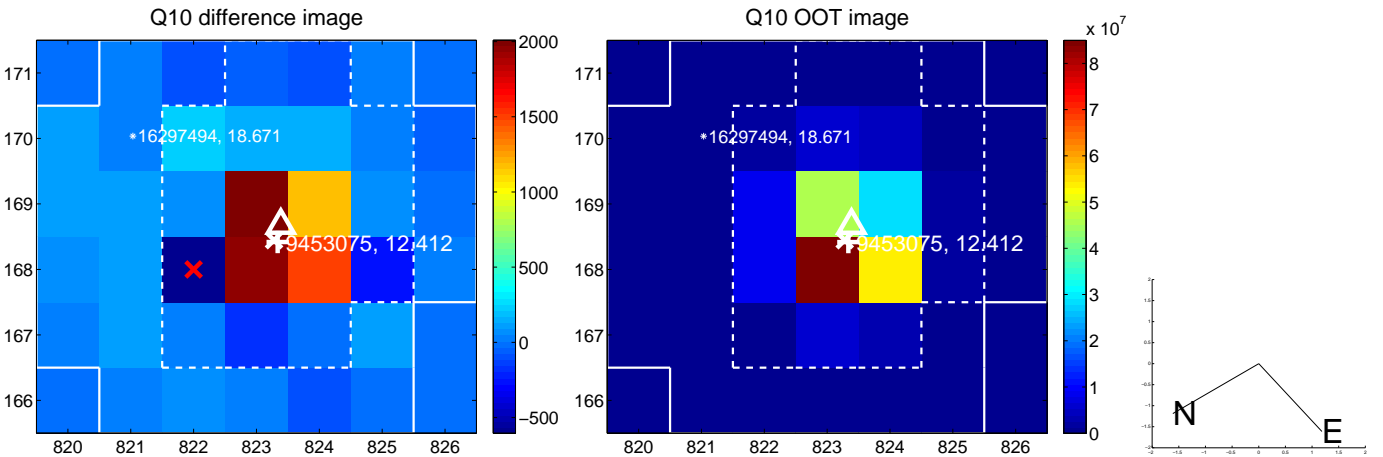
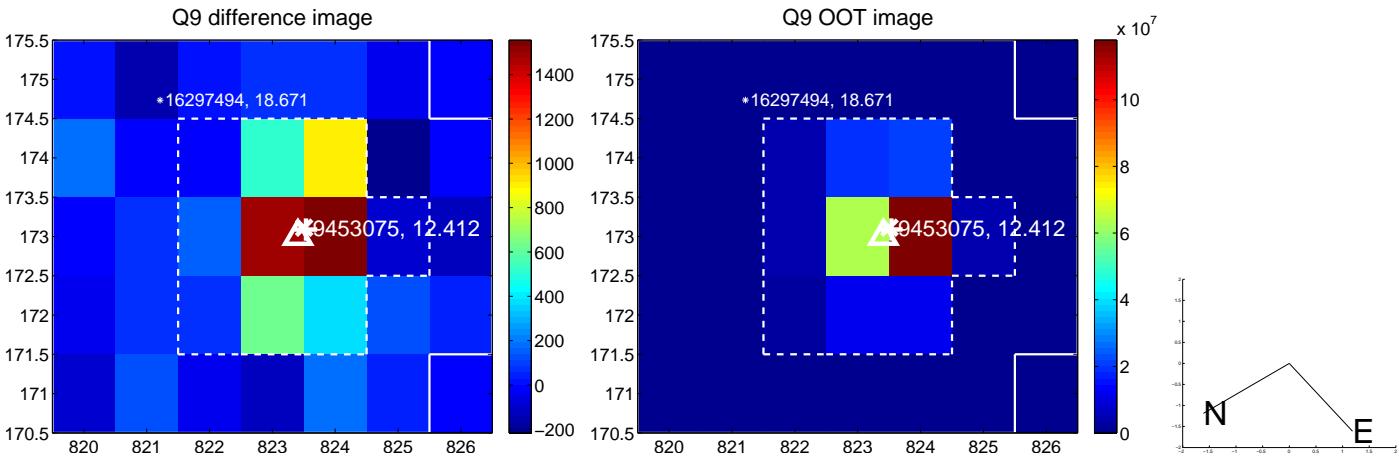


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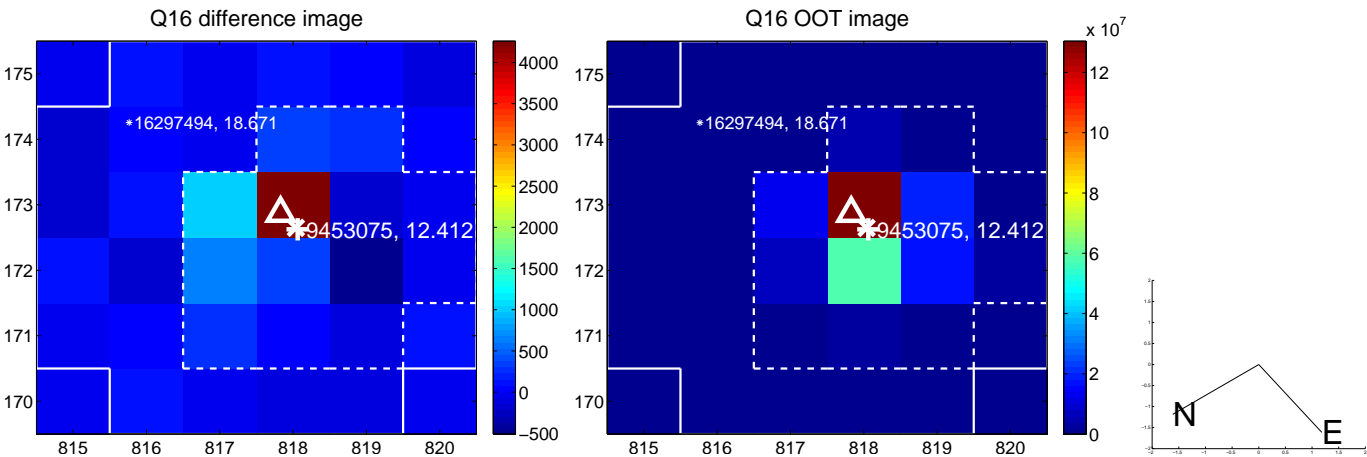
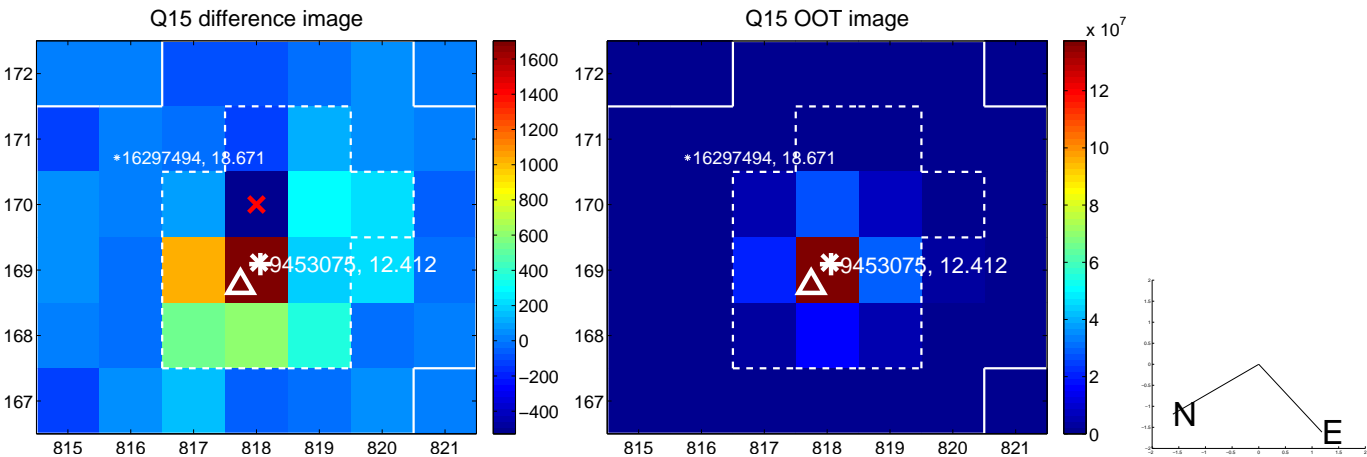
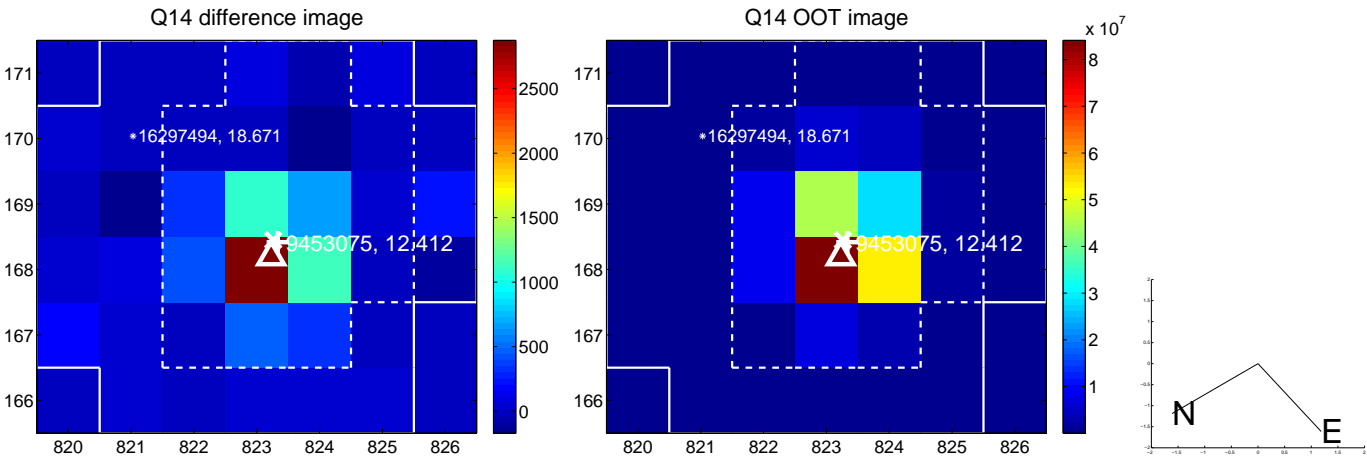
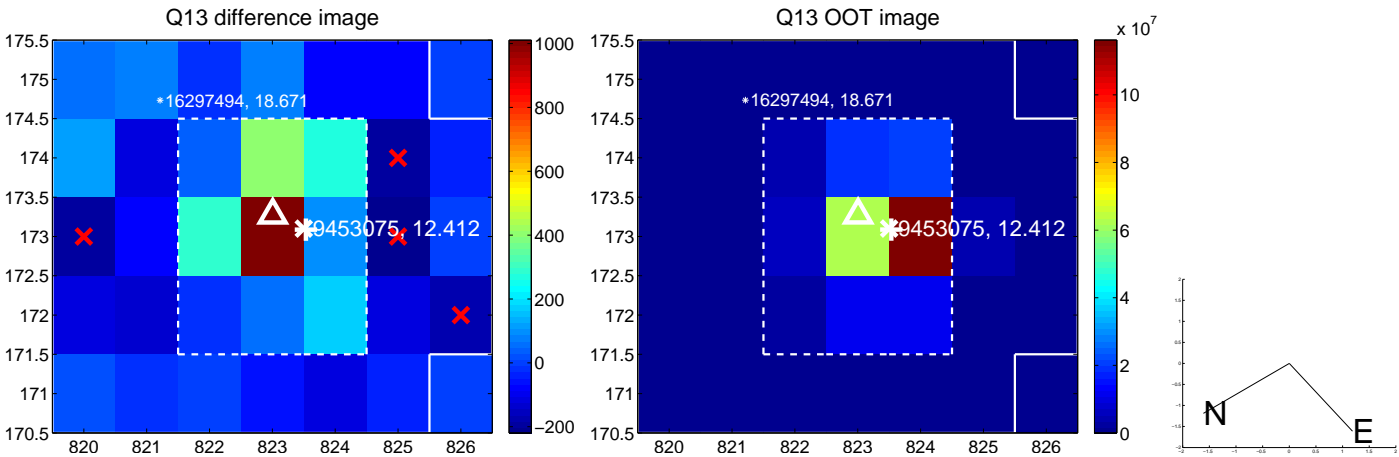




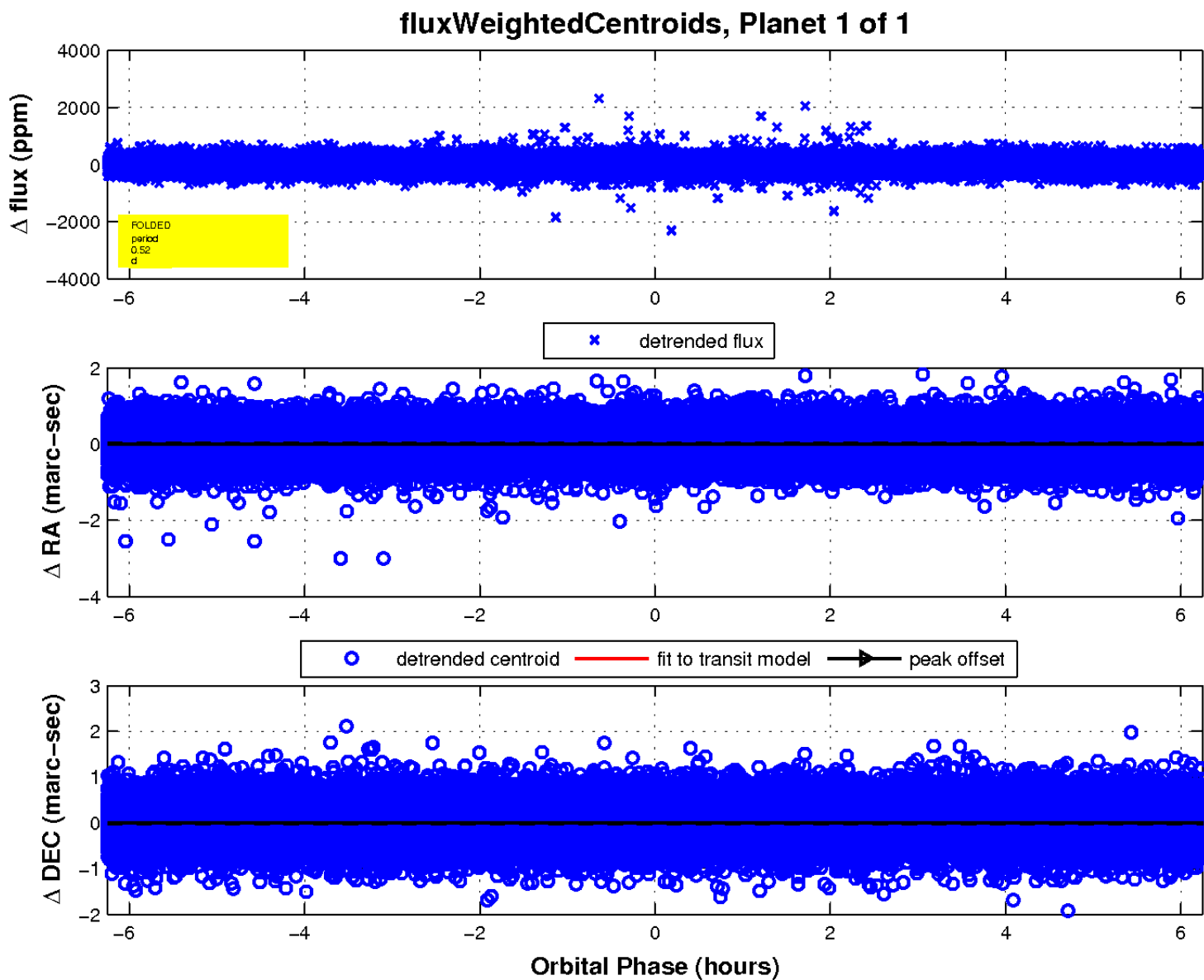
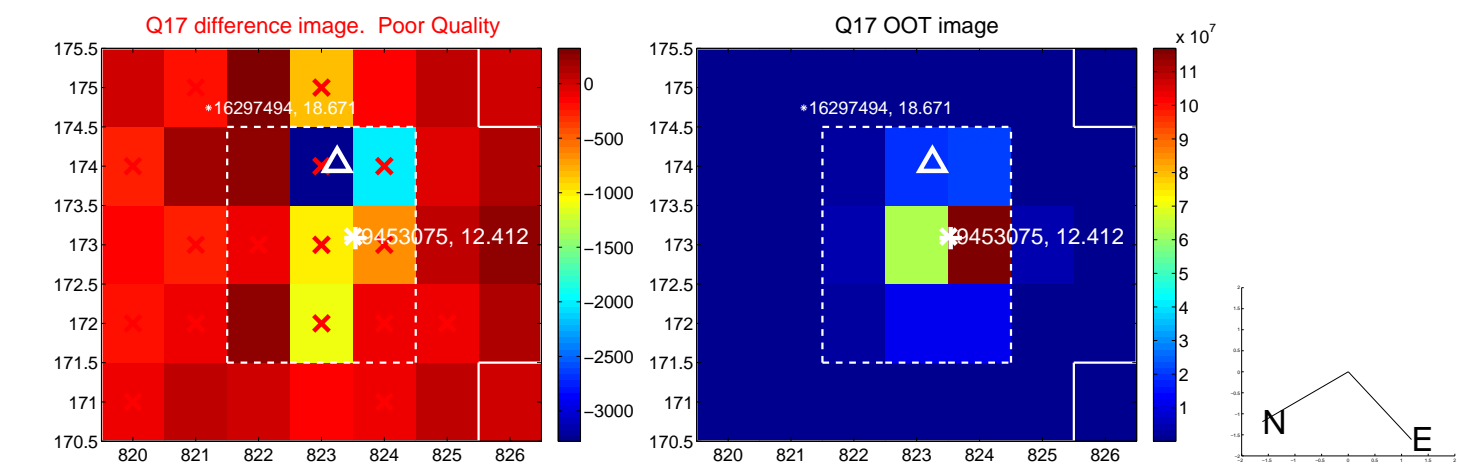
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

