

# KIC 009202046

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009202046-01	OBS	No	1.312150	132.857059	10.7	2.864	9.1	4.8	3.37	6832	1.32	26896.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009202046-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

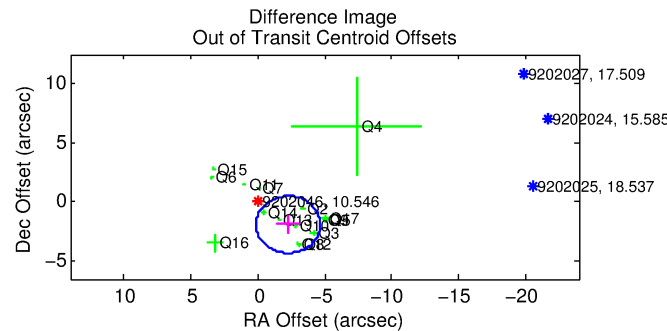
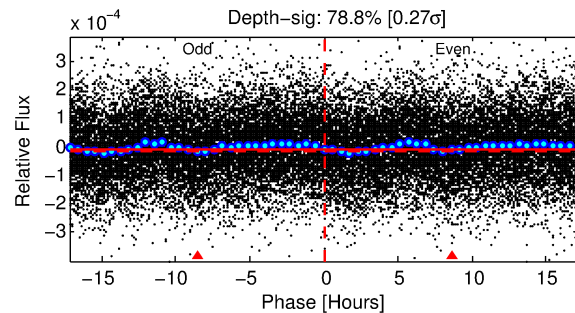
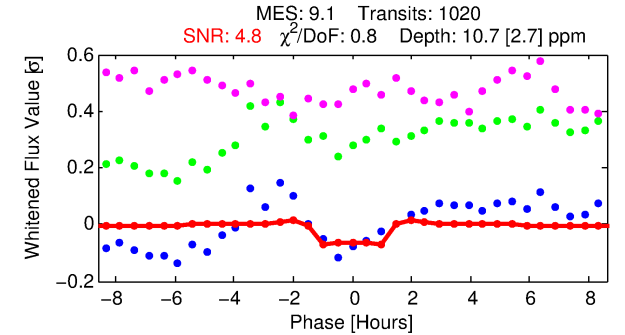
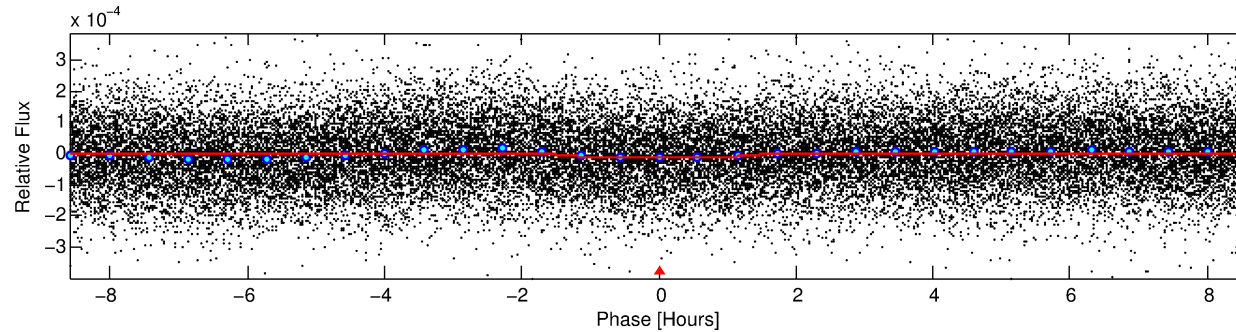
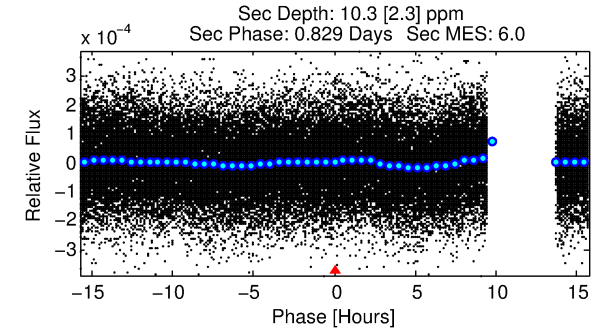
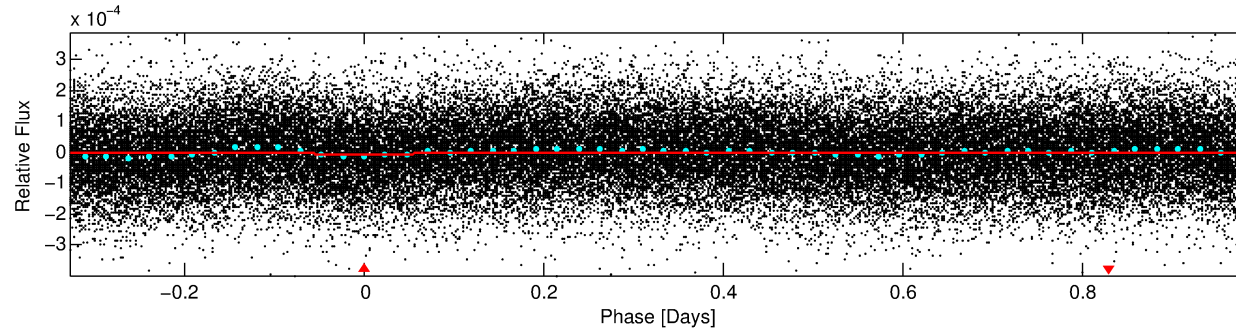
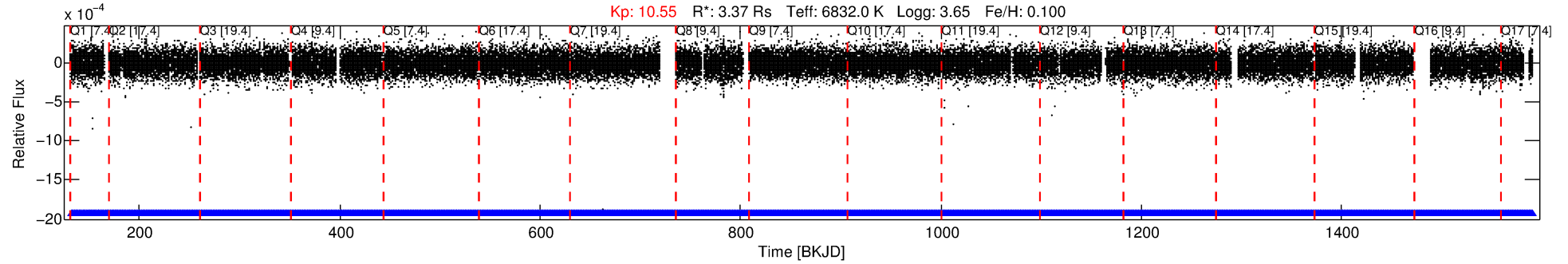
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009202046-01

No Significant Match Found

# DV One-Page Summary

KIC: 9202046 Candidate: 1 of 1 Period: 1.312 d



## DV Fit Results:

Period = 1.31215 [0.00002] d  
Epoch = 132.8571 [0.0049] BKJD  
Rp/R\* = 0.0036 [0.0012]  
a/R\* = 1.65 [1.98]  
b = 0.93 [0.29]  
Seff = 26896.73 [14168.45]  
Teff = 3266 [430] K  
Rp = 1.32 [0.63] Re  
a = 0.0287 [0.0094] AU  
Ag = 2.69 [2.33] [0.72σ]  
Teffp = 6464 [1148] K [2.61σ]

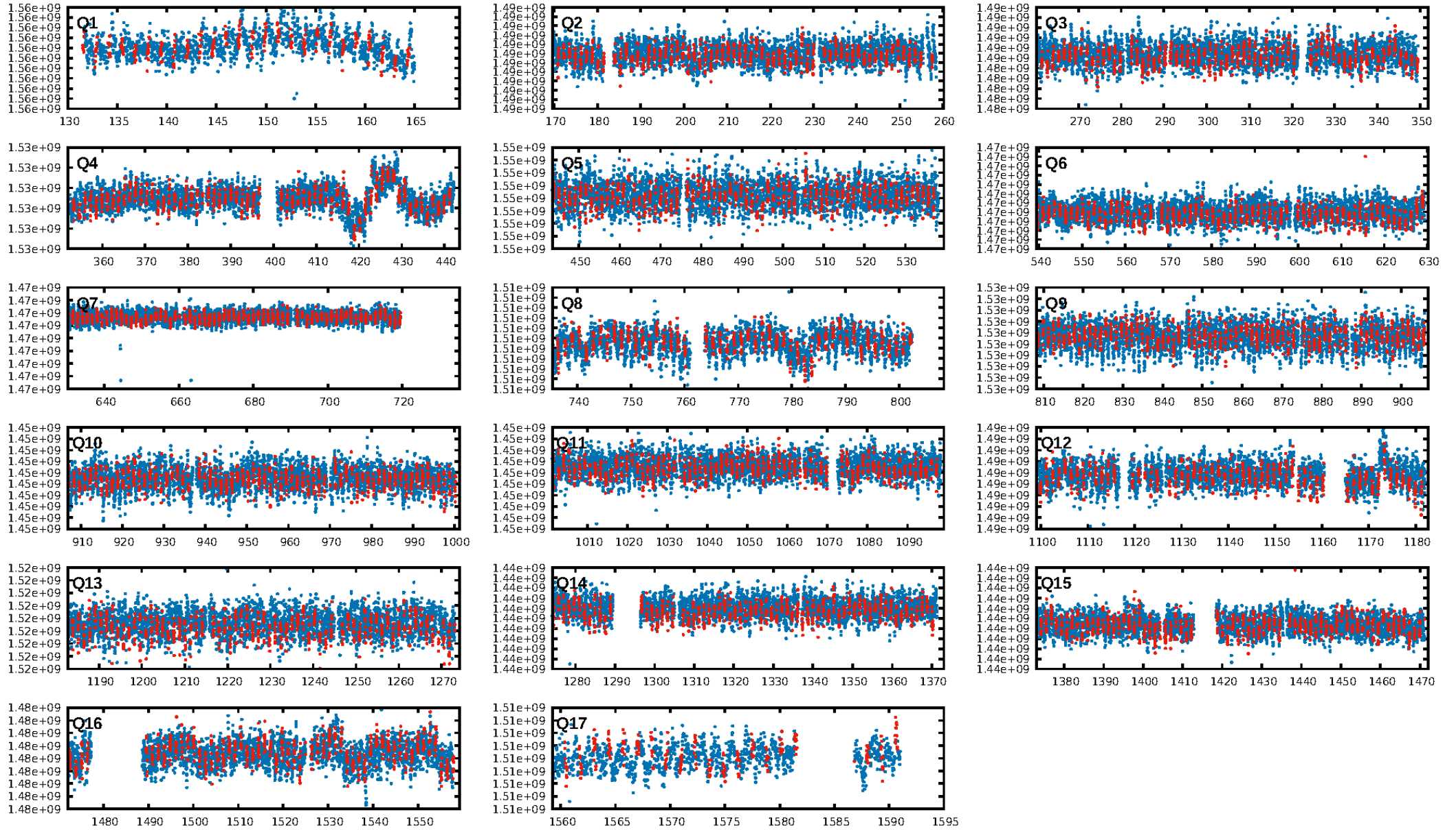
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.83e-15  
RollingBand-fgt: 1.00 [974/974]  
GhostDiagnostic-chr: 0.4683  
Centroid-sig: 1.3%  
Centroid-so: 2.487 arcsec [1.90σ]  
OotOffset-rm: 2.947 arcsec [3.68σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-rm: 2.046 arcsec [2.39σ]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.38 [6/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:53:41 Z

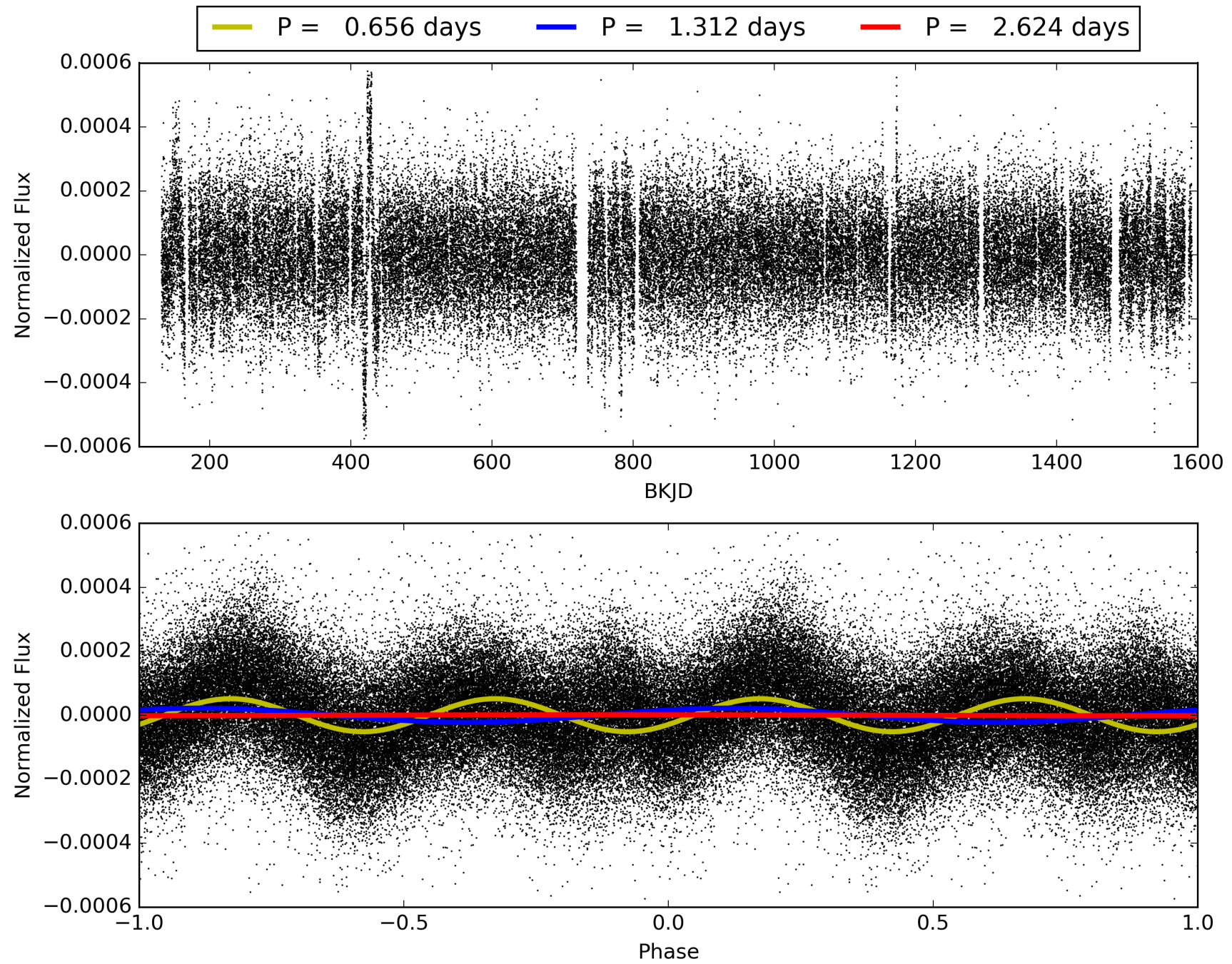
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009202046-01, PDC Light Curves



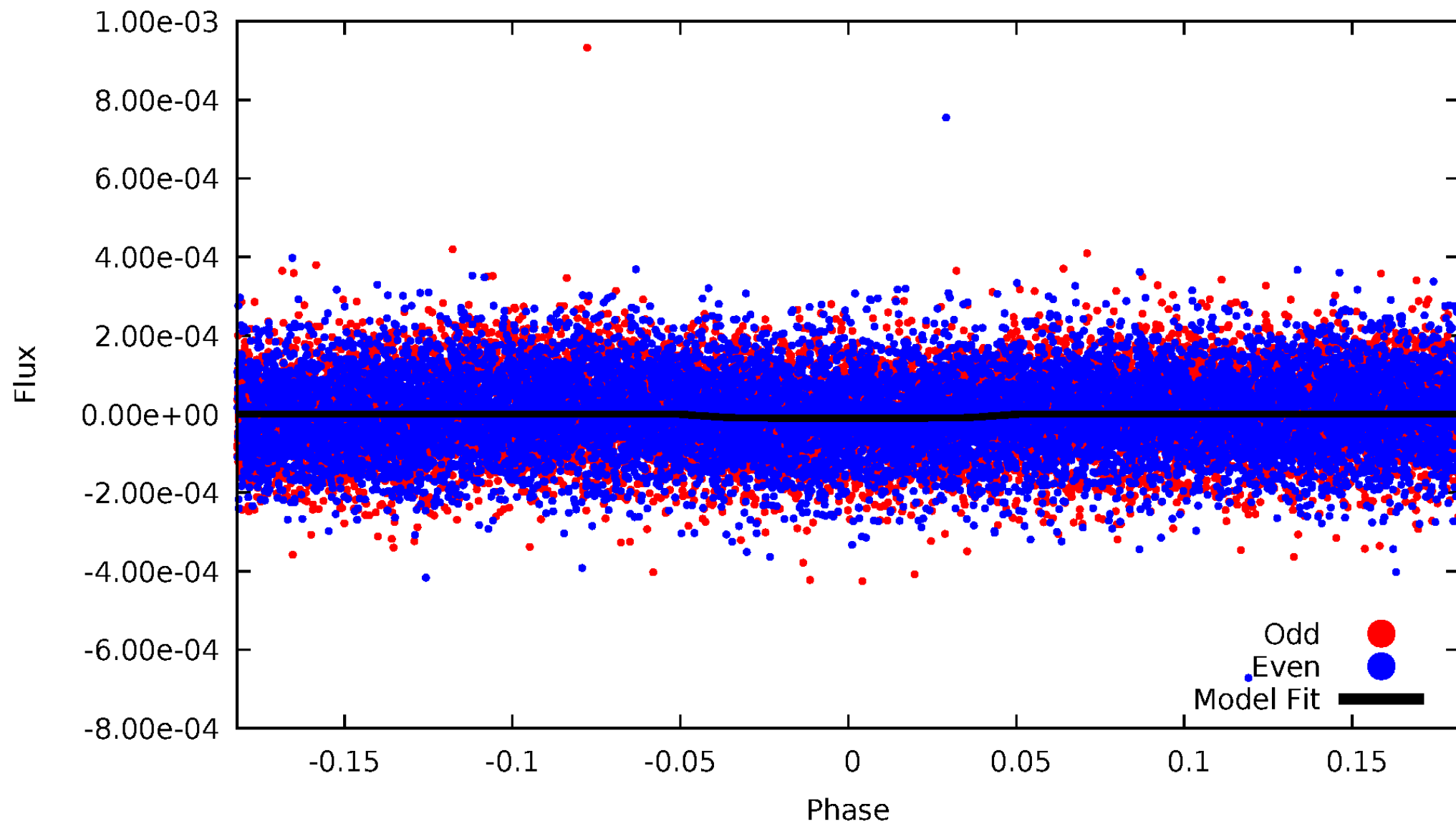


TCE 009202046-01



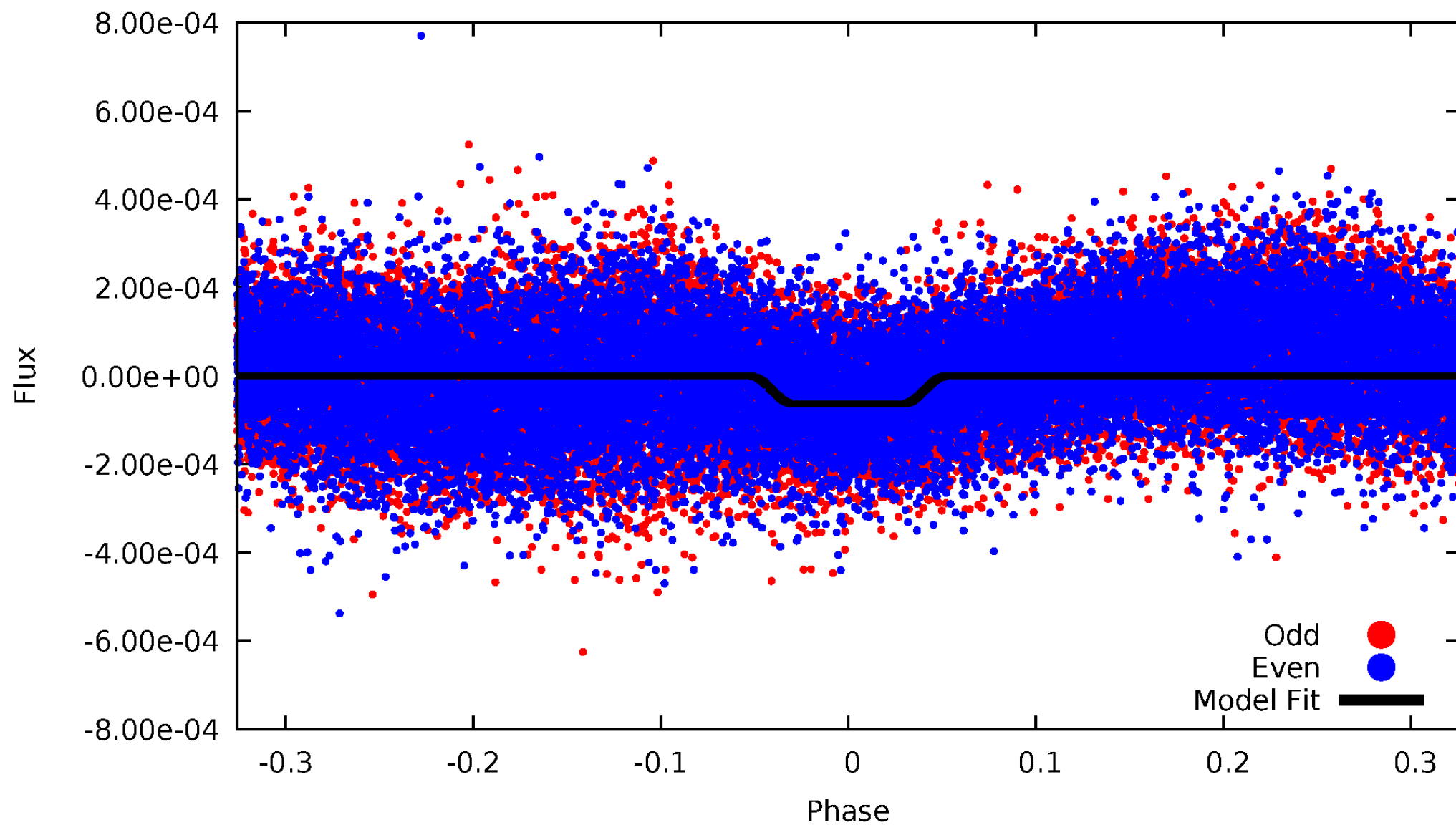
# DV Odd/Even

TCE 009202046-01



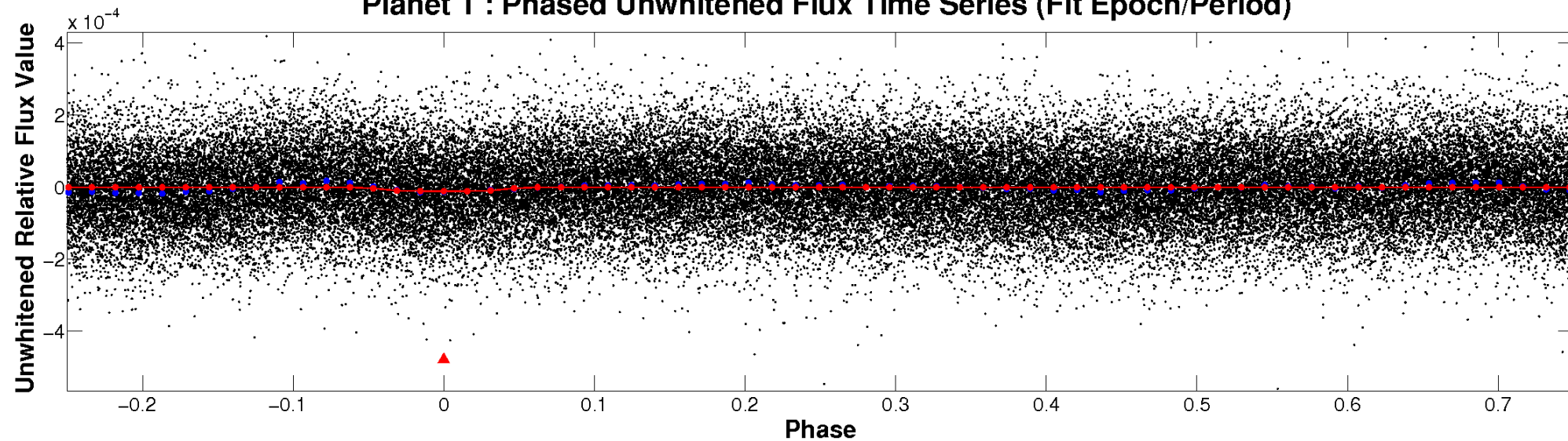
# ALT Odd/Even

TCE 009202046-01

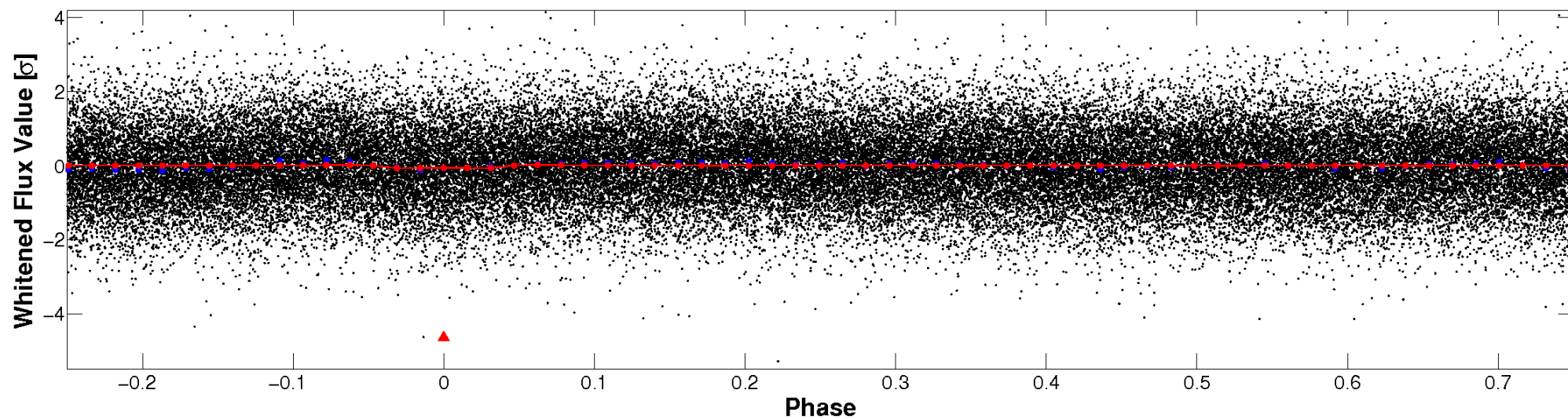


# Non-Whitened Vs. Whitened Light Curve

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



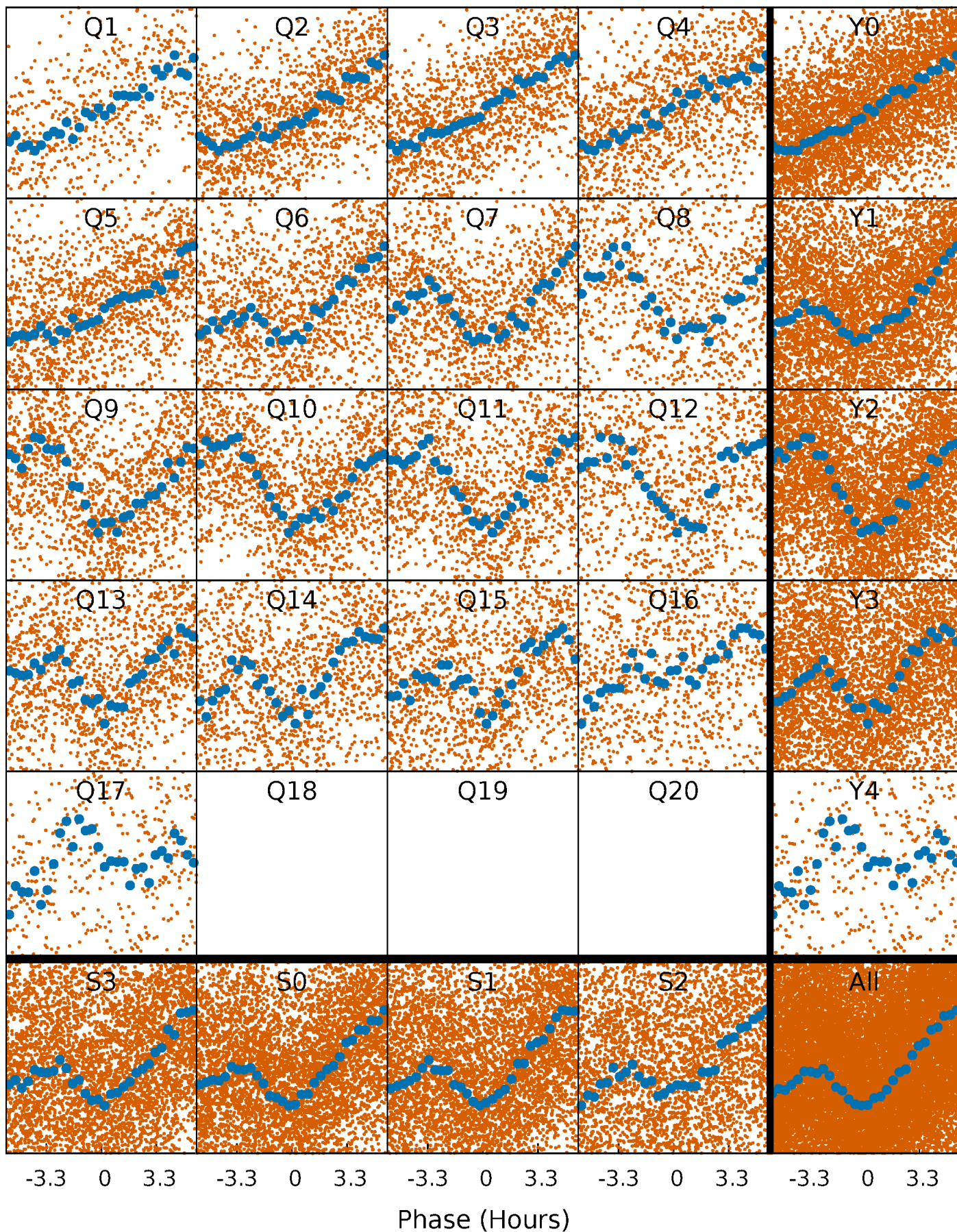
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

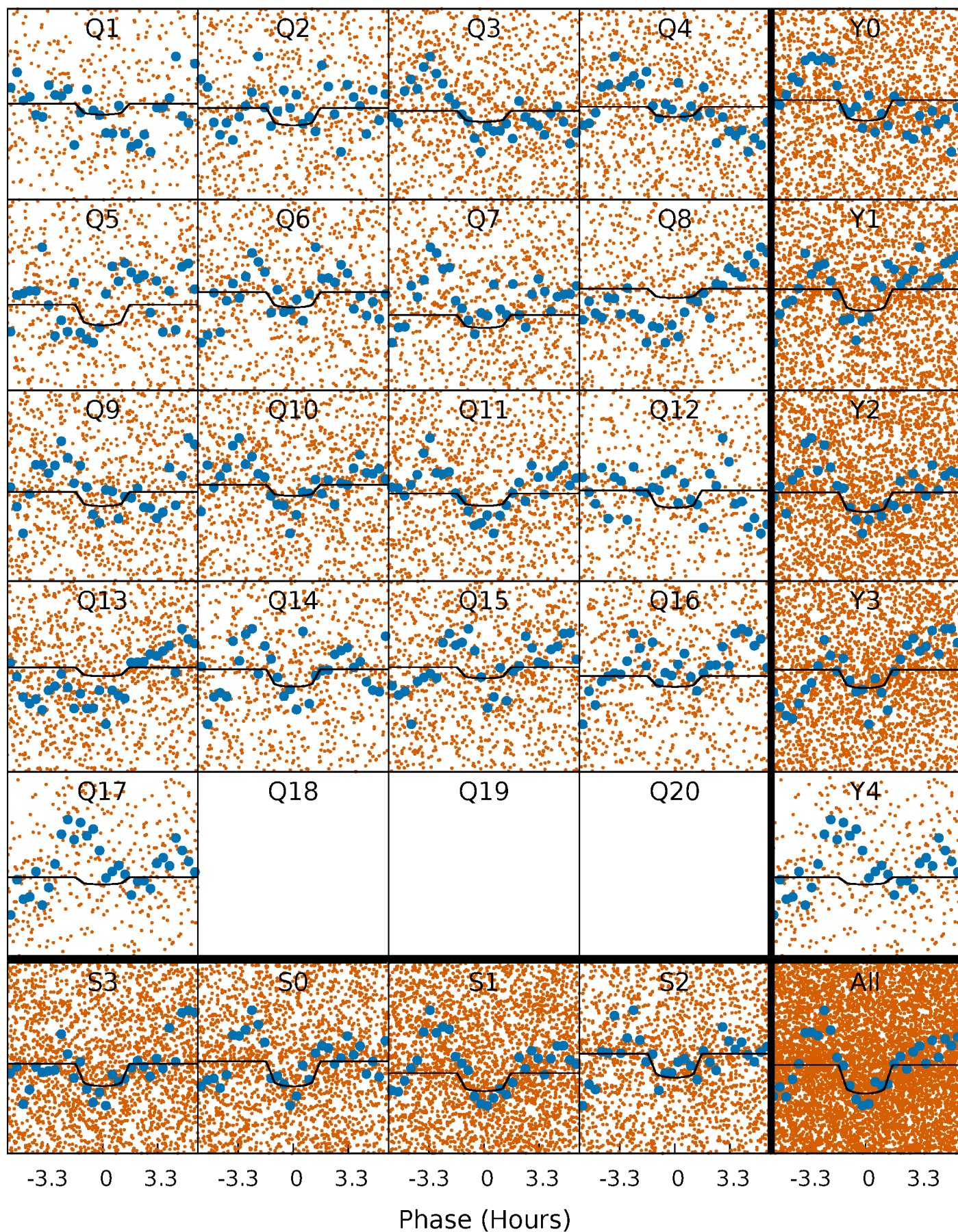
TCE 009202046-01 P= 1.312150 Days  $T_0=132.857059$  (BKJD)





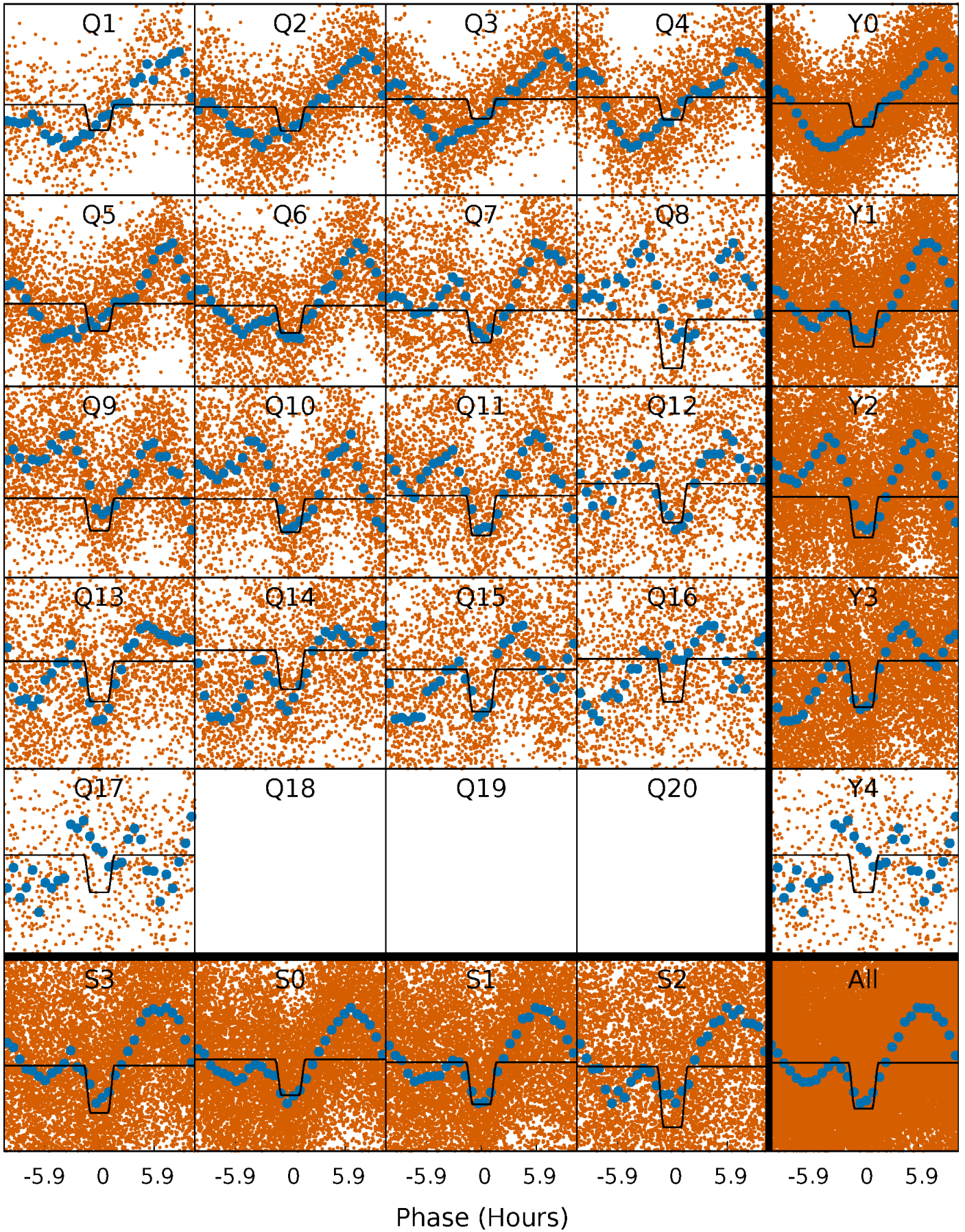
# DV Quarter-Phased Transit Curves

TCE 009202046-01 P= 1.312150 Days  $T_0=132.857059$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 009202046-01 P= 1.312207 Days  $T_0=132.819802$  (BKJD)

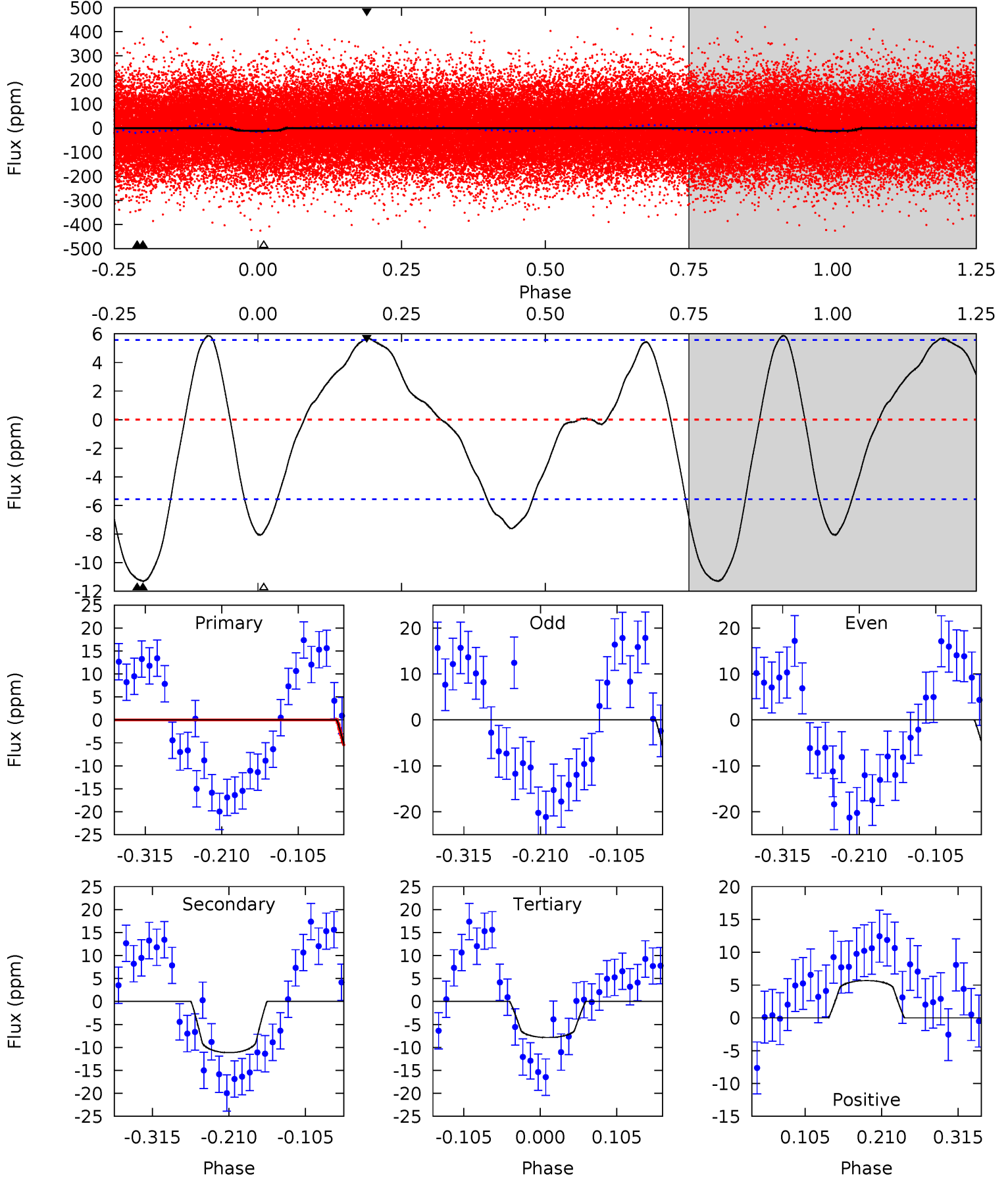




# DV Model-Shift Uniqueness Test

009202046-01, P = 1.312150 Days, E = 130.232759 Days

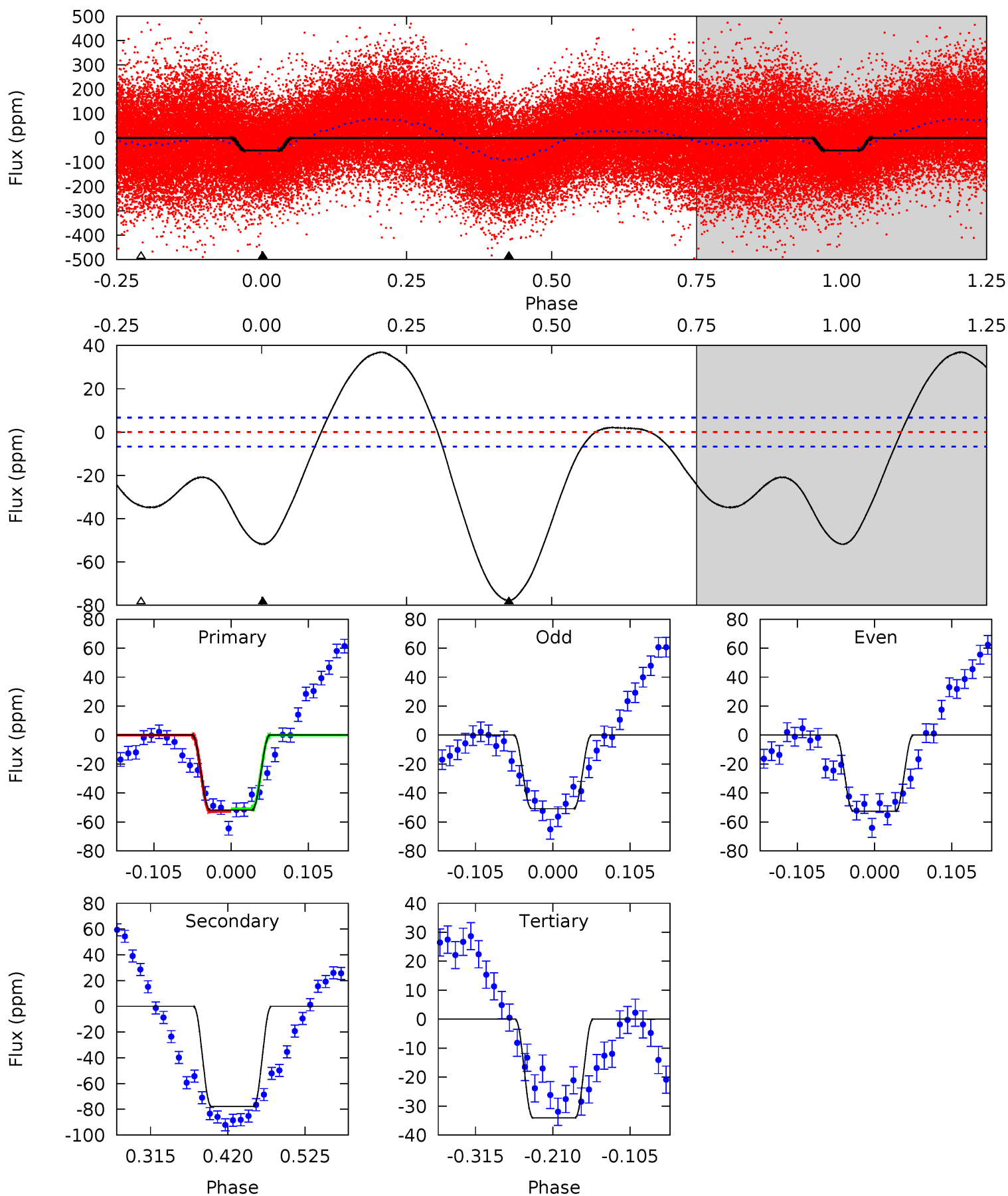
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.24	9.12	6.43	4.65	4.55	1.62	3.40	2.81	4.59	2.69	4.47	0.84	0.94	0.34	0.55



# Alt Model-Shift Uniqueness Test

009202046-01, P = 1.312207 Days, E = 131.507595 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
35.2	52.9	23.2	0	4.55	1.62	15.2	12.0	35.2	29.7	52.9	0.61	1.01	0.32	0.66





### Stellar Parameters For KIC 009202046

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6832^{+153}_{-204}$	$3.646^{+0.298}_{-0.070}$	$0.100^{+0.250}_{-0.250}$	$3.372^{+0.392}_{-1.175}$	$1.835^{+0.207}_{-0.311}$	$0.067^{+0.126}_{-0.015}$
	+2%/-3%	+8%/-2%	+250%/-250%	+12%/-35%	+11%/-17%	+187%/-23%
Source	PHO1	FLK73	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 009202046-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-11 \pm 1$	$1.21^{+0.49}_{-0.43}$	$4474^{+209}_{-378}$	$6419^{+1917}_{-1021}$	$3.437^{+5.084}_{-1.722}$
Alt.	$-78 \pm 1$	$2.81^{+0.60}_{-0.63}$	$4464^{+239}_{-348}$	$7040^{+743}_{-599}$	$4.572^{+2.758}_{-1.496}$

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

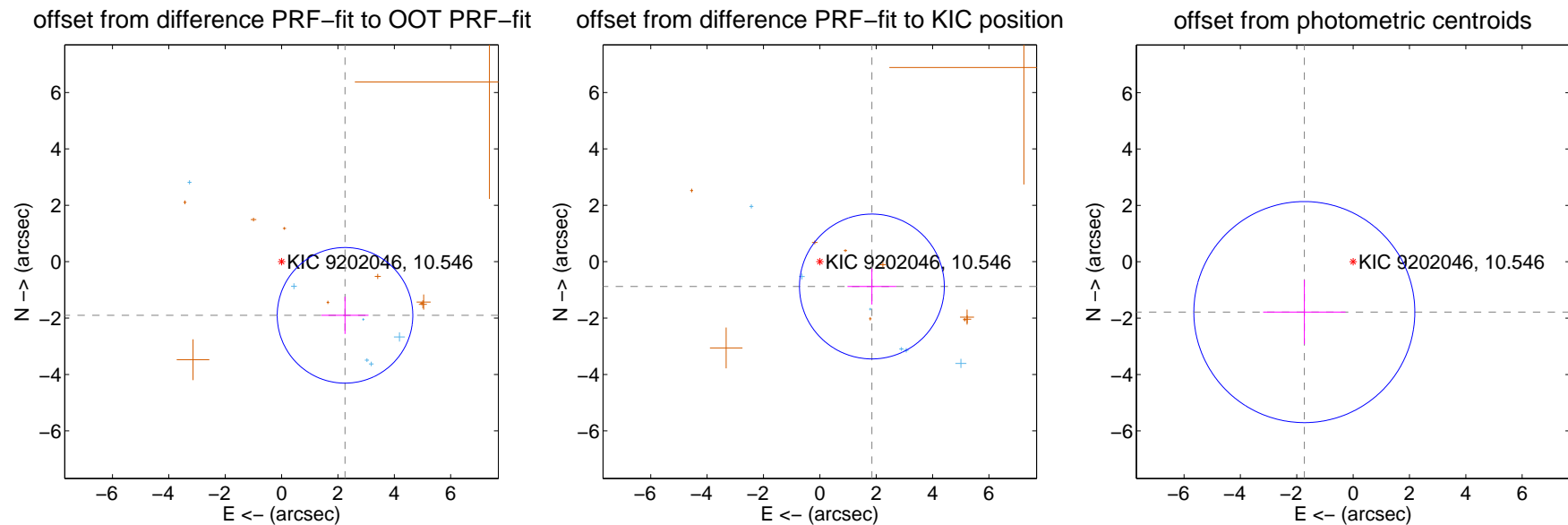
## DV Centroid Data

Supplemental centroid analysis for 009202046-01. **Kepler magnitude: 10.55.** Transit SNR 4.79

There are 6 quarters with good PRF difference image offsets

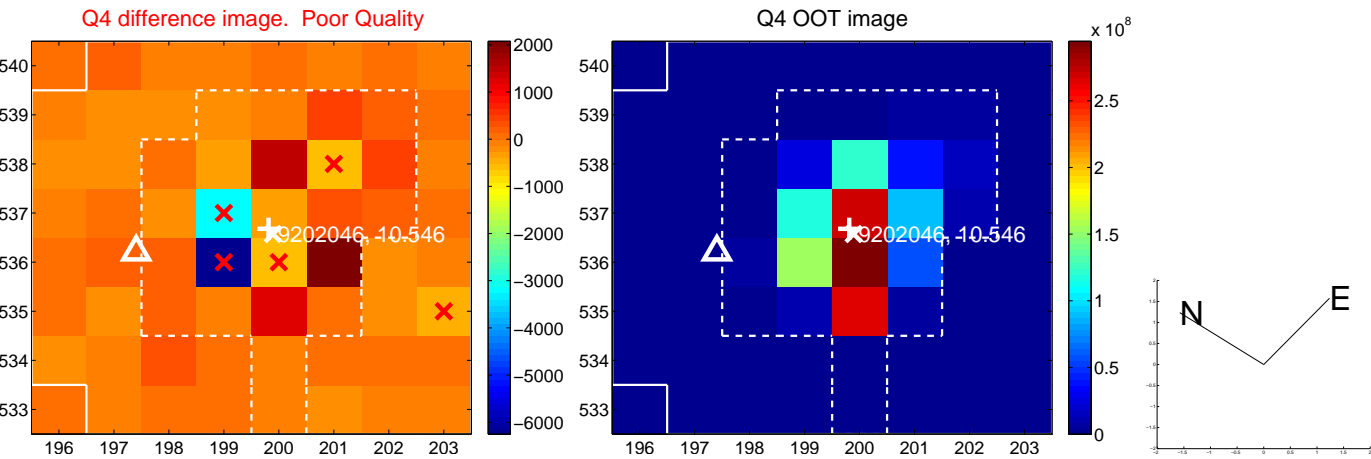
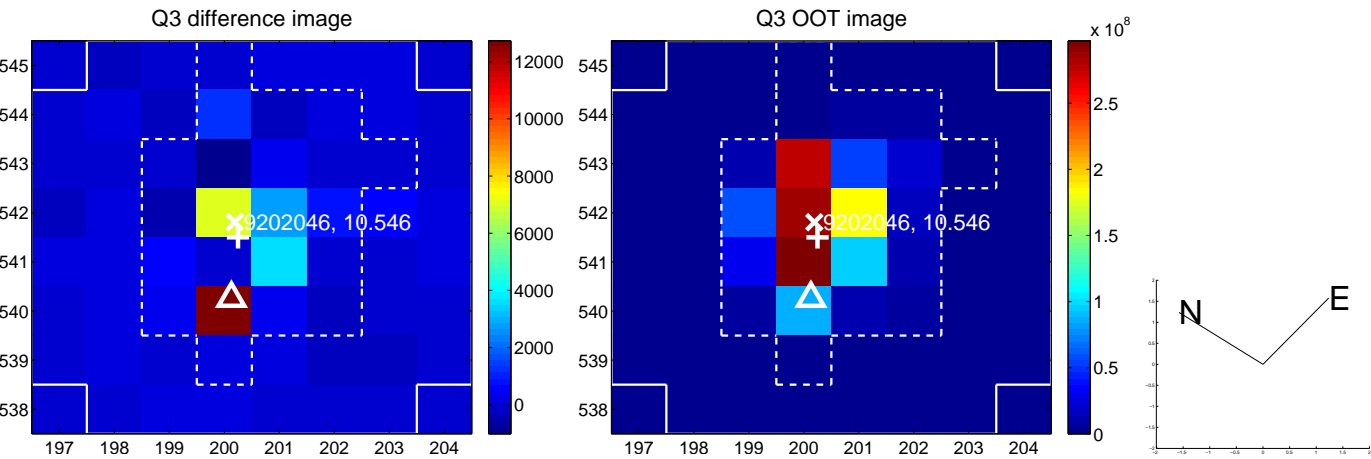
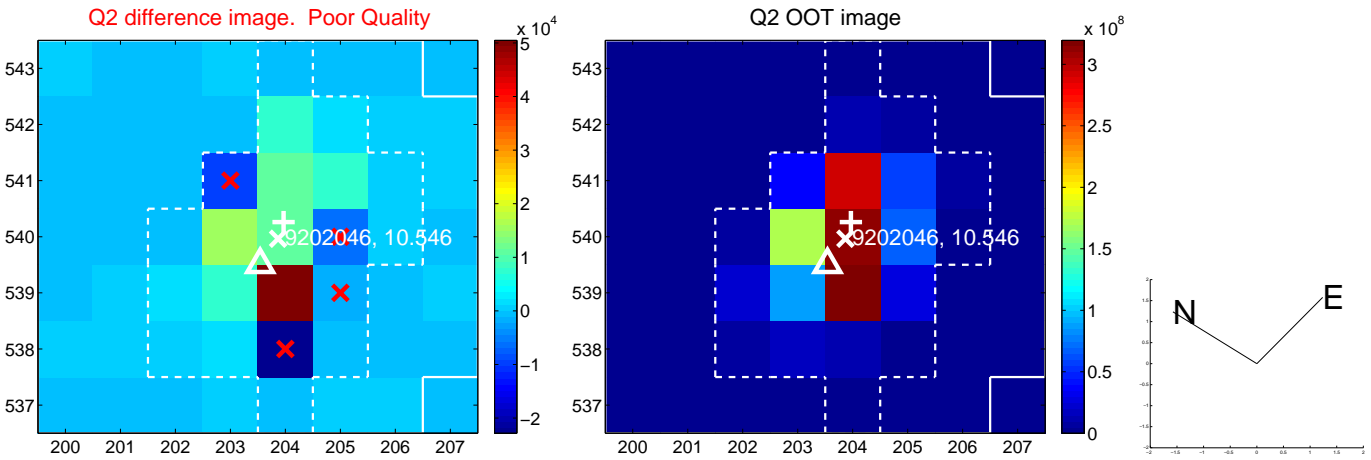
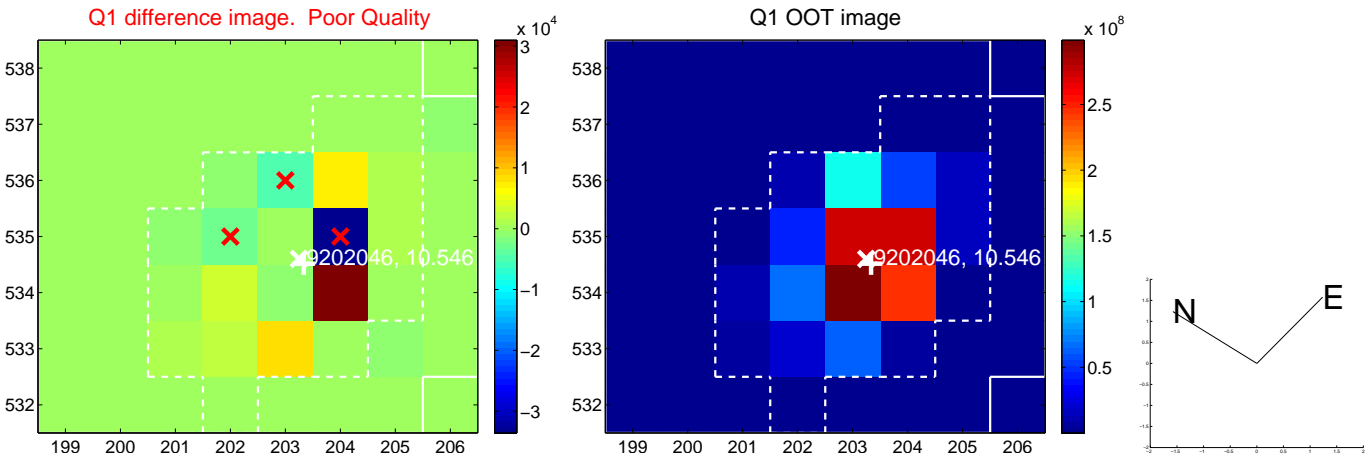
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>2.947 \pm 0.802</math></b>	<b>3.68</b>	$-2.251 \pm 0.835$	$-1.903 \pm 0.661$
PRF-fit source offset from KIC position	$2.046 \pm 0.856$	2.39	$-1.847 \pm 0.865$	$-0.880 \pm 0.640$
photometric centroid source offset	$2.49 \pm 1.31$	1.90	$1.73 \pm 1.46$	$-1.79 \pm 1.14$

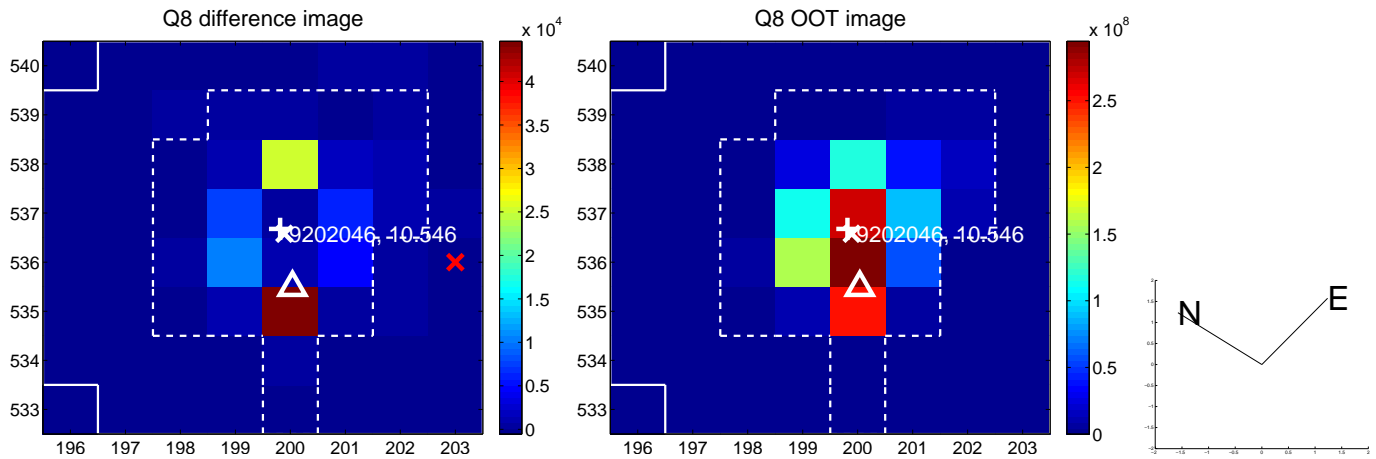
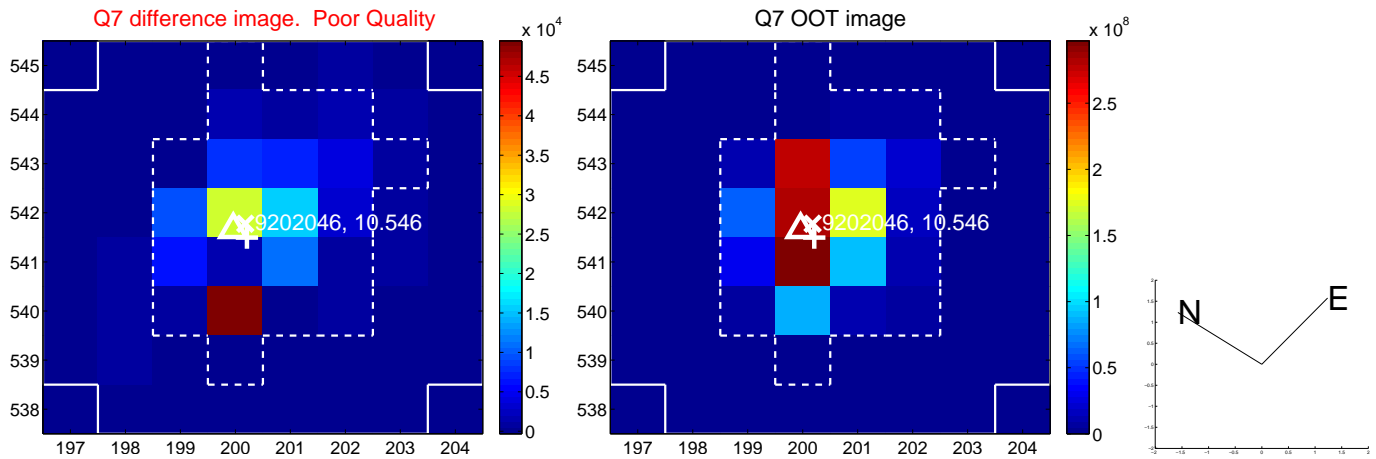
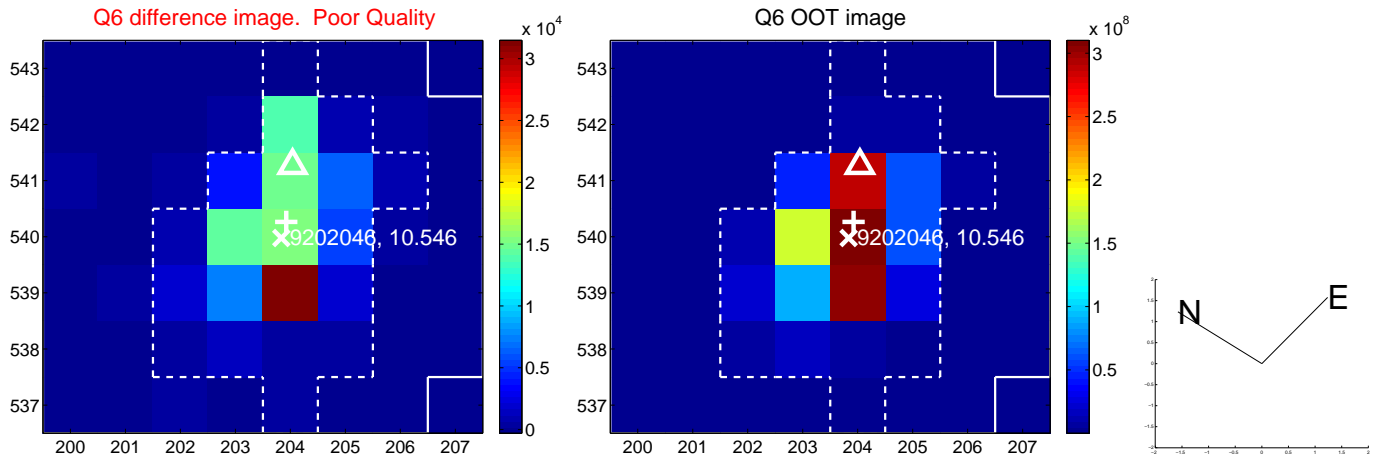
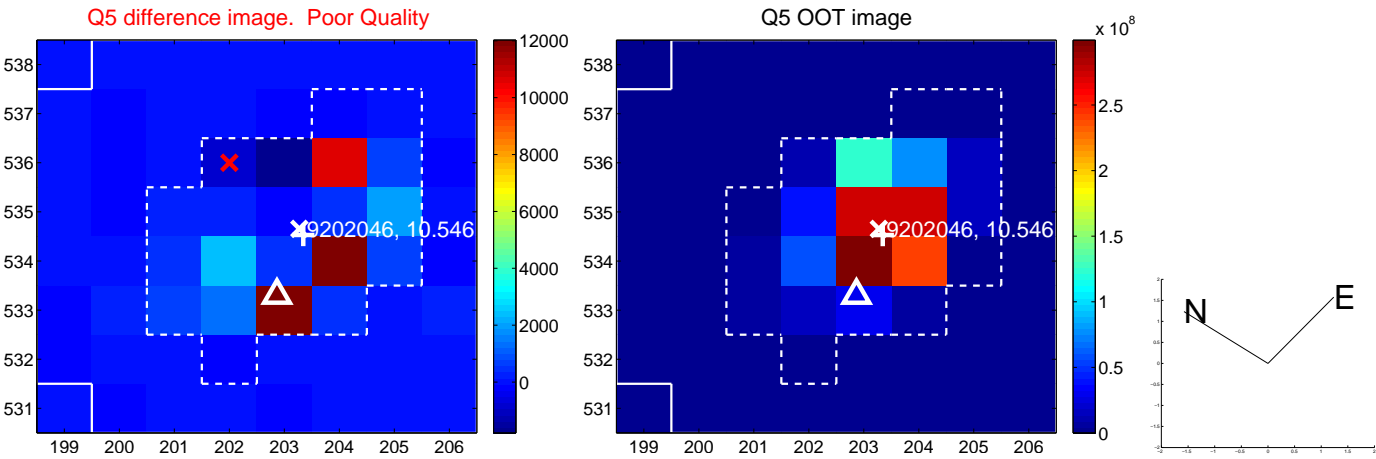


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

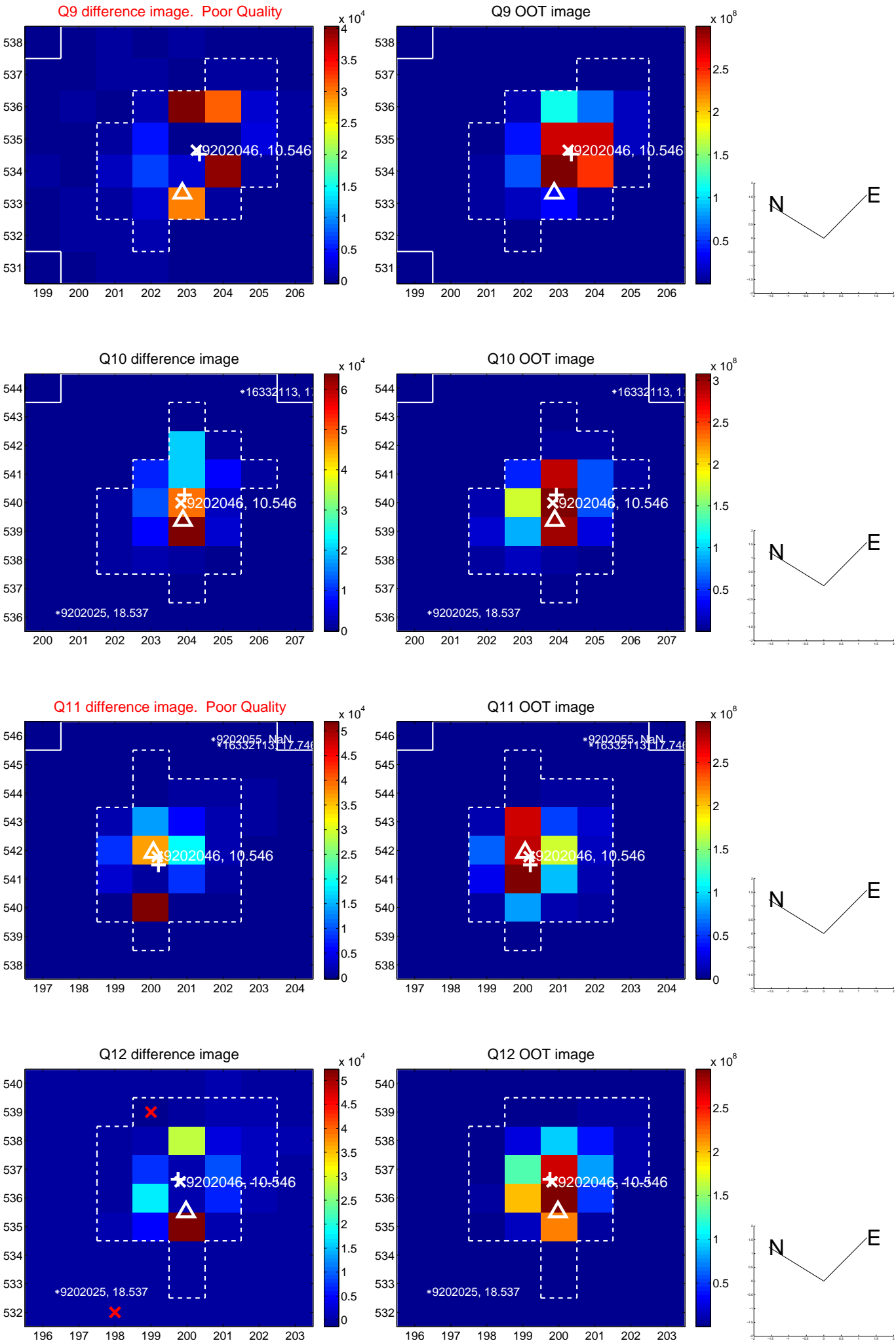


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

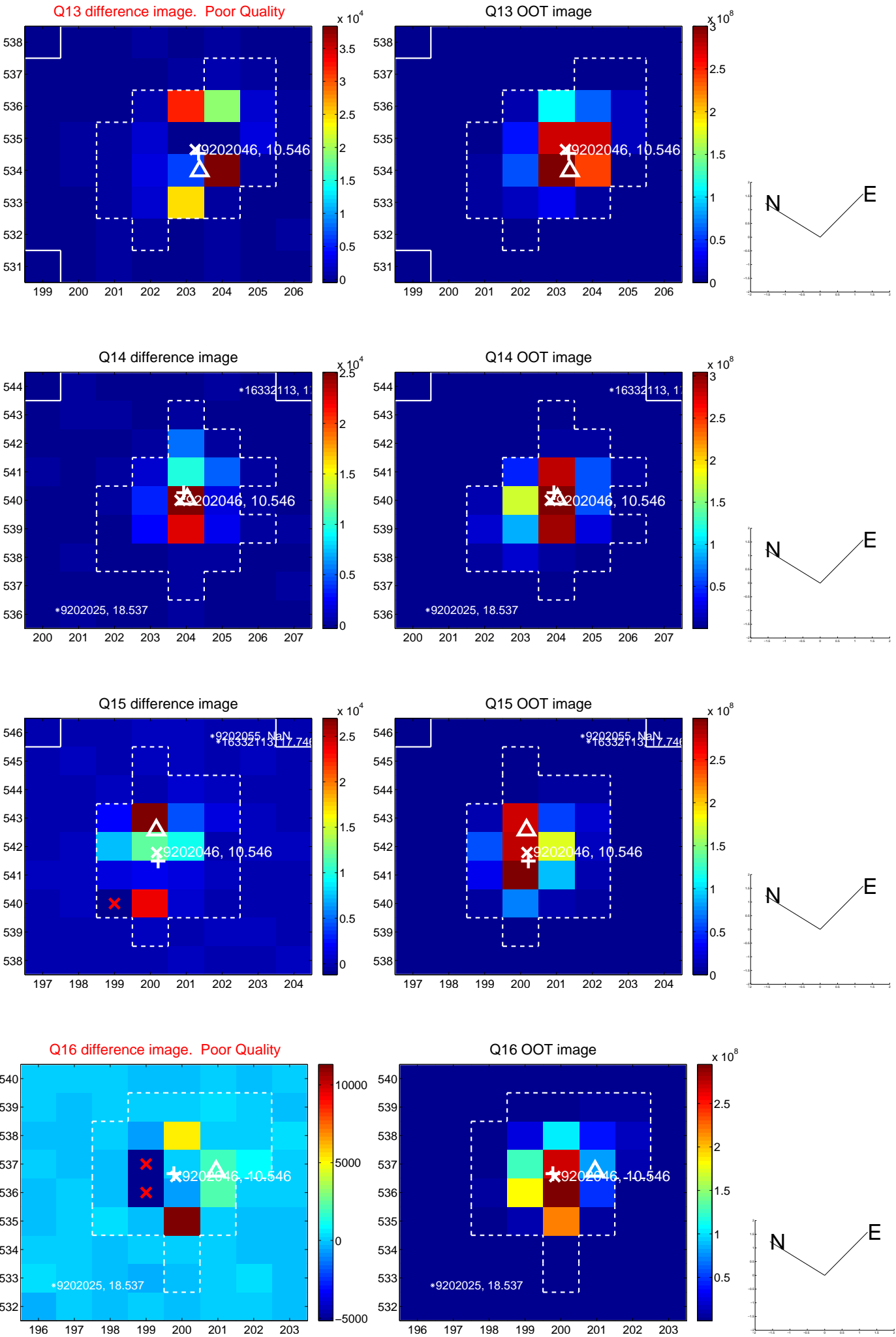




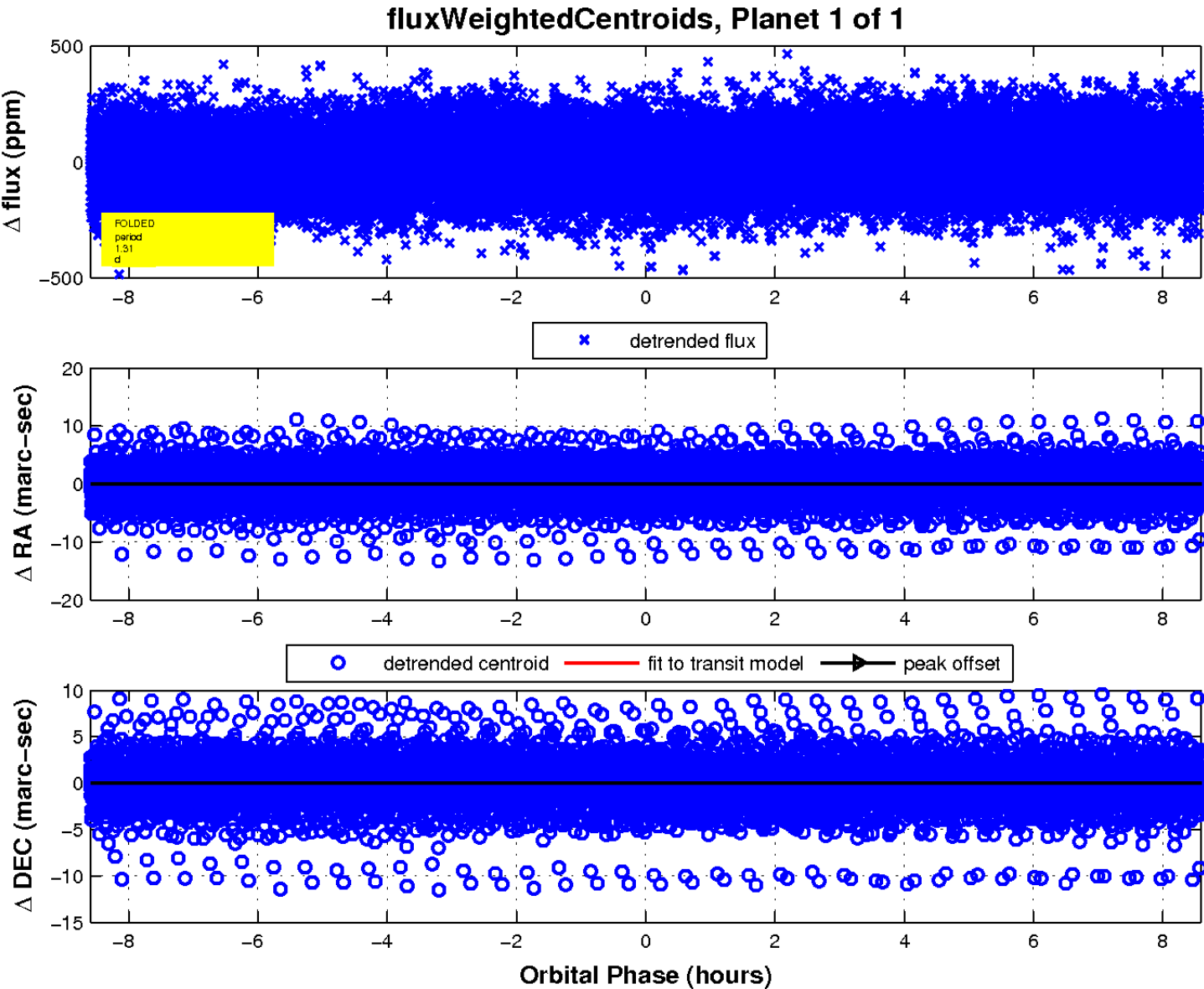
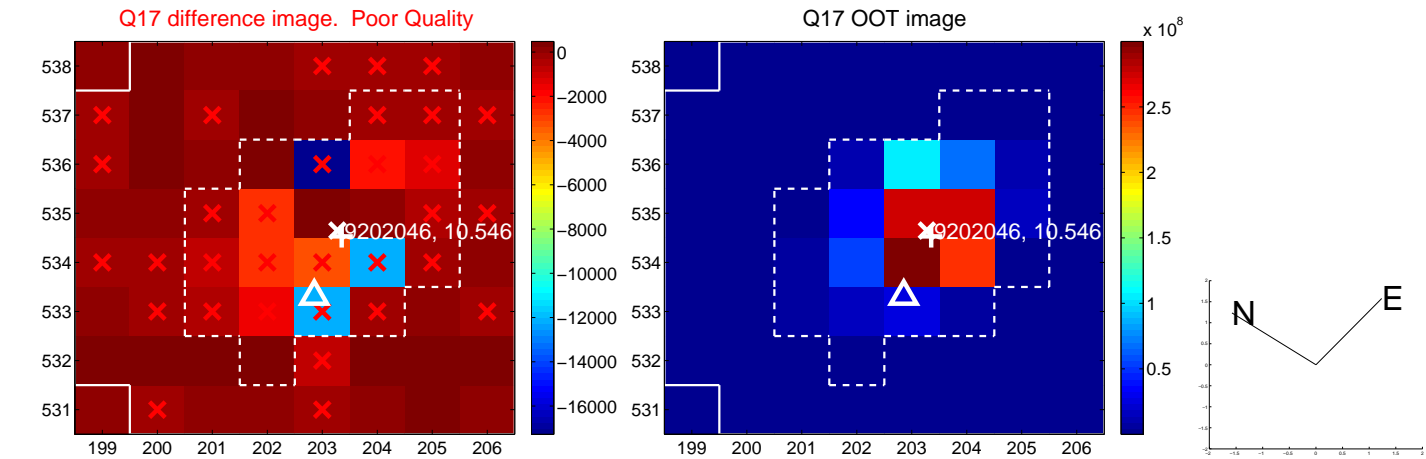
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

