

# KIC 007098049

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007098049-01	OBS	No	31.065582	151.710651	464.5	1.624	7.2	7.6	0.64	4511	1.33	5.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007098049-01	OBS	FP	0.09	1	0	0	0	MOD_NONUNIQ_ALT—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.

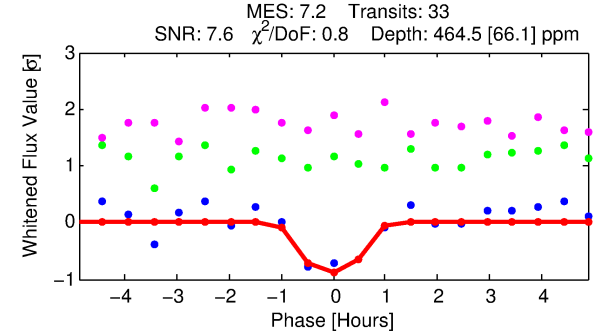
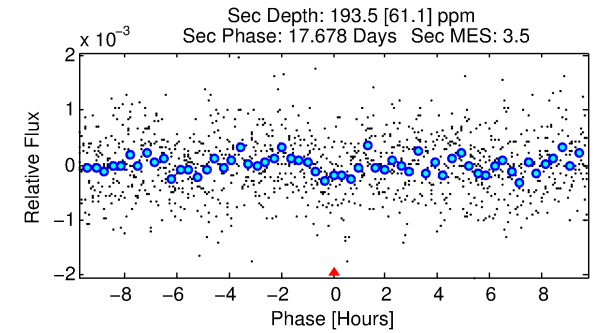
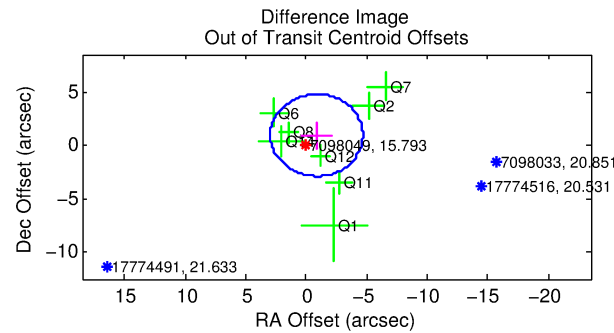
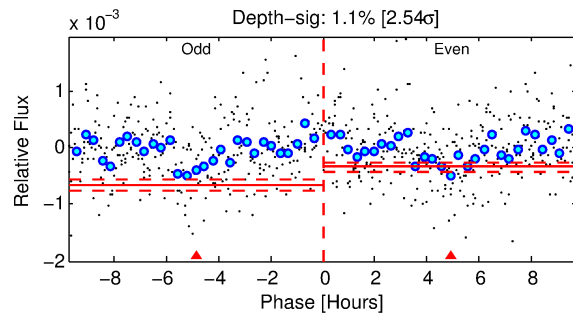
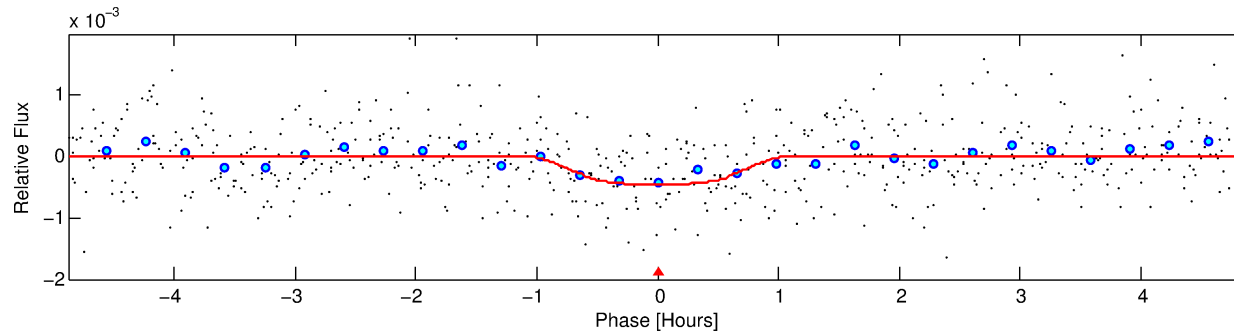
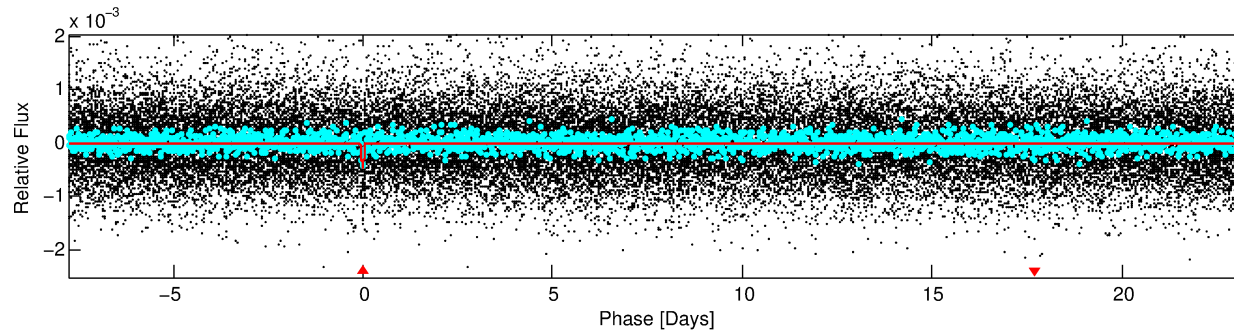
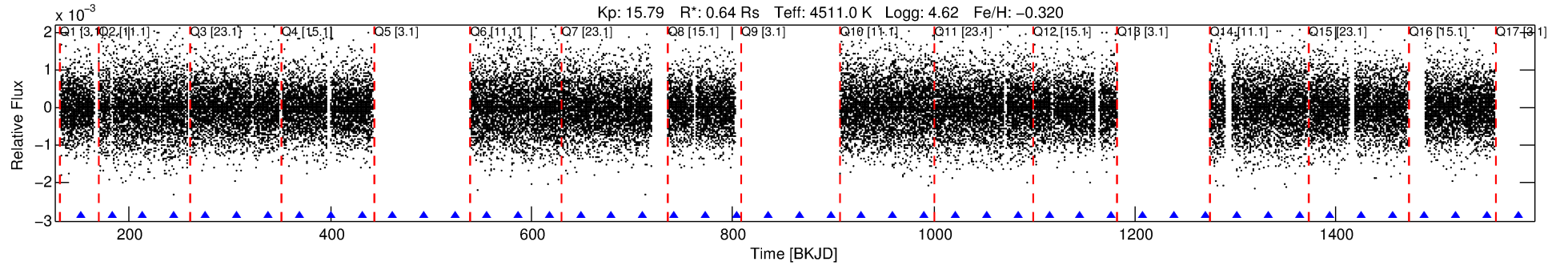
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007098049-01

No Significant Match Found

# DV One-Page Summary

KIC: 7098049 Candidate: 1 of 1 Period: 31.066 d



## DV Fit Results:

Period = 31.06558 [0.00023] d  
Epoch = 151.7107 [0.0065] BKJD  
Rp/R\* = 0.0191 [0.0442]  
a/R\* = 145.98 [1024.67]  
b = 0.20 [34.24]  
Seff = 5.53 [0.86]  
Teq = 391 [15] K  
Rp = 1.33 [3.08] Re  
a = 0.1652 [0.0118] AU  
Ag = 1636.60 [7578.82] [0.22 $\sigma$ ]  
Teffp = 3846 [4452] K [0.78 $\sigma$ ]

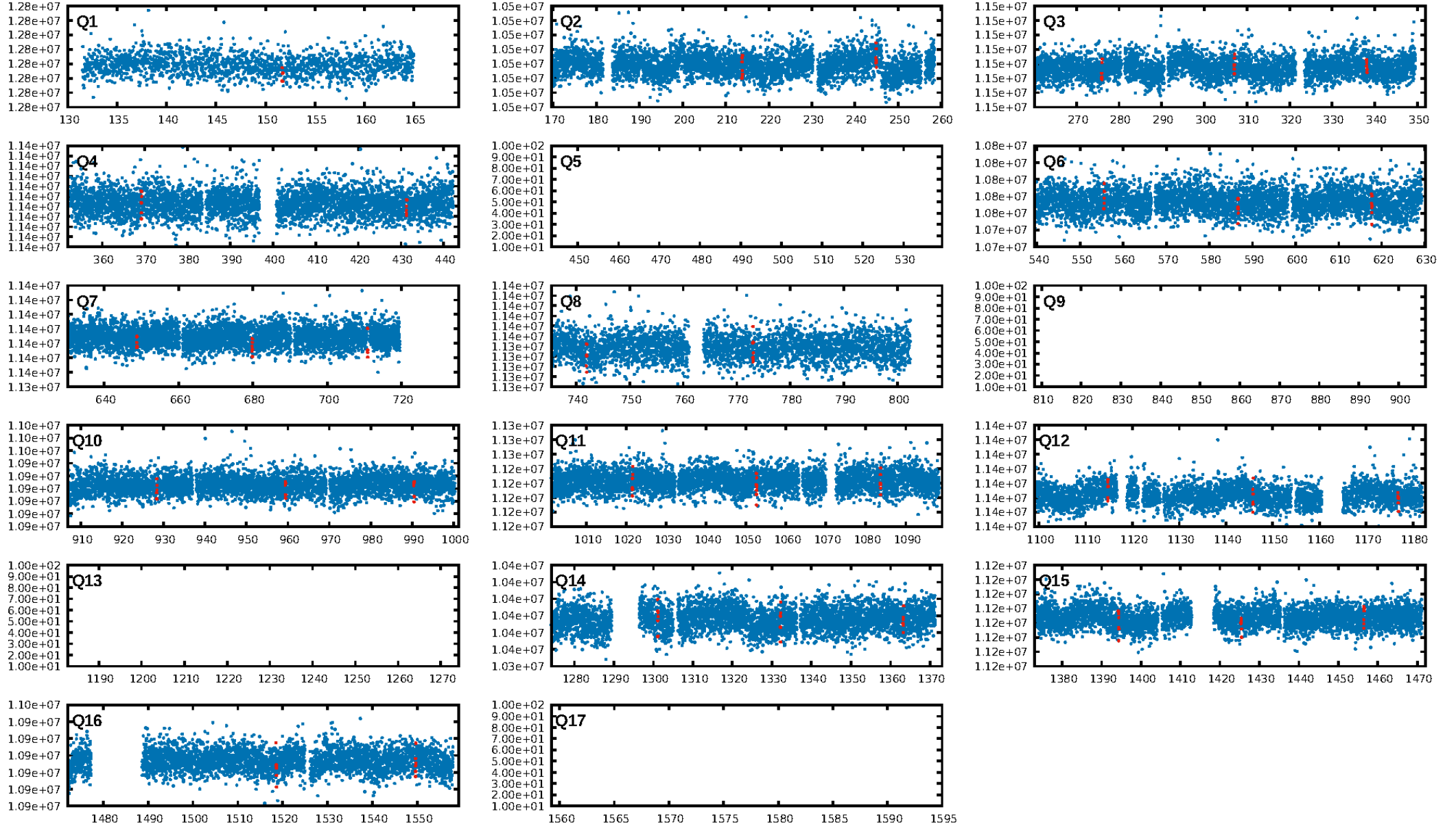
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 96.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 8.82e-13  
RollingBand-fgt: 1.00 [32/32]  
GhostDiagnostic-chr: -2.11  
Centroid-sig: 0.8%  
Centroid-so: 3.893 arcsec [2.08 $\sigma$ ]  
OotOffset-rm: 1.265 arcsec [0.99 $\sigma$ ]  
KicOffset-rm: 1.040 arcsec [0.81 $\sigma$ ]  
OotOffset-st: 3/2/2/1 [8]  
KicOffset-st: 3/2/2/1 [8]  
DiffImageQuality-fgm: 0.25 [2/8]  
DiffImageOverlap-fno: 1.00 [13/13]

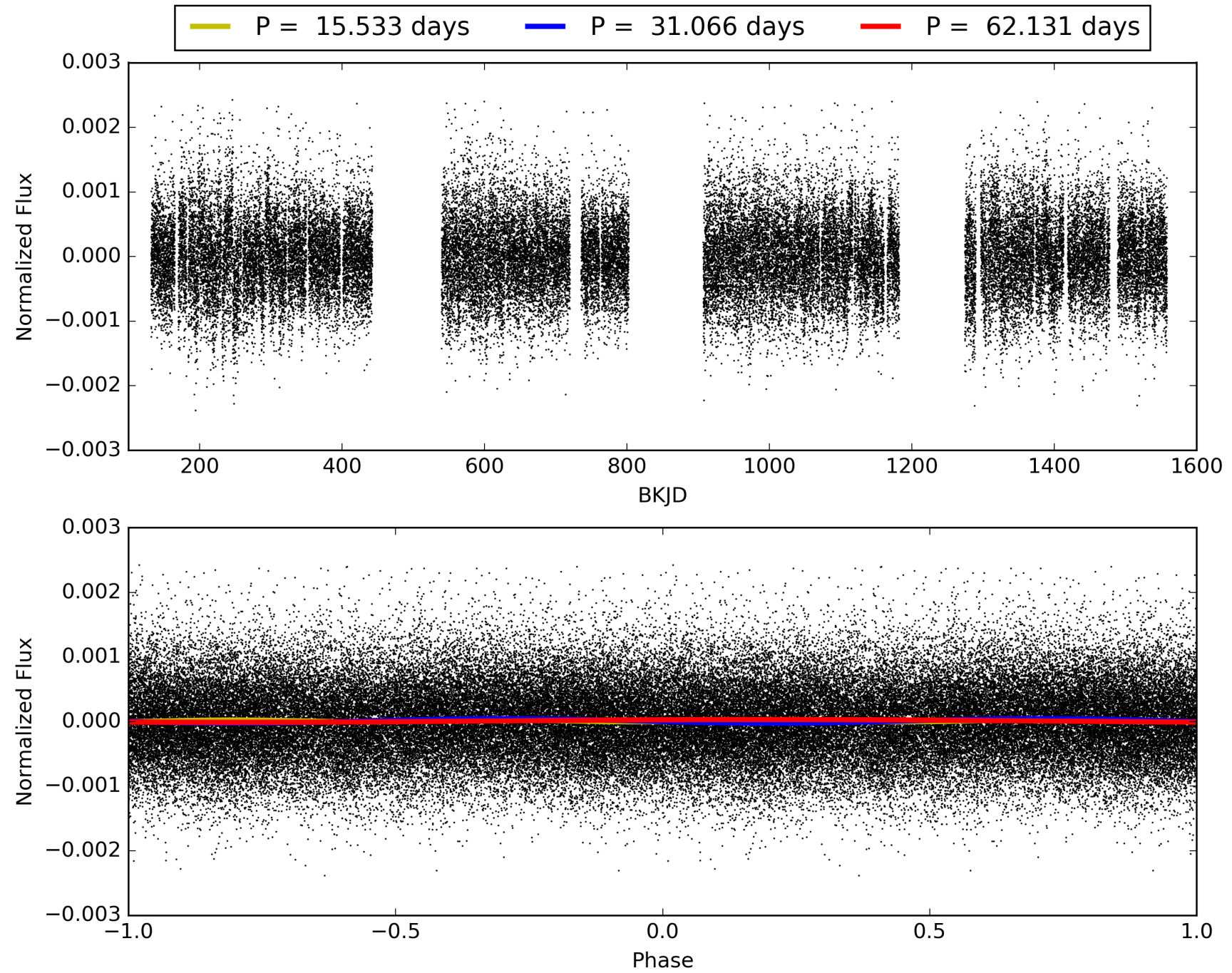
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:45:24 Z

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

# TCE 007098049-01, PDC Light Curves

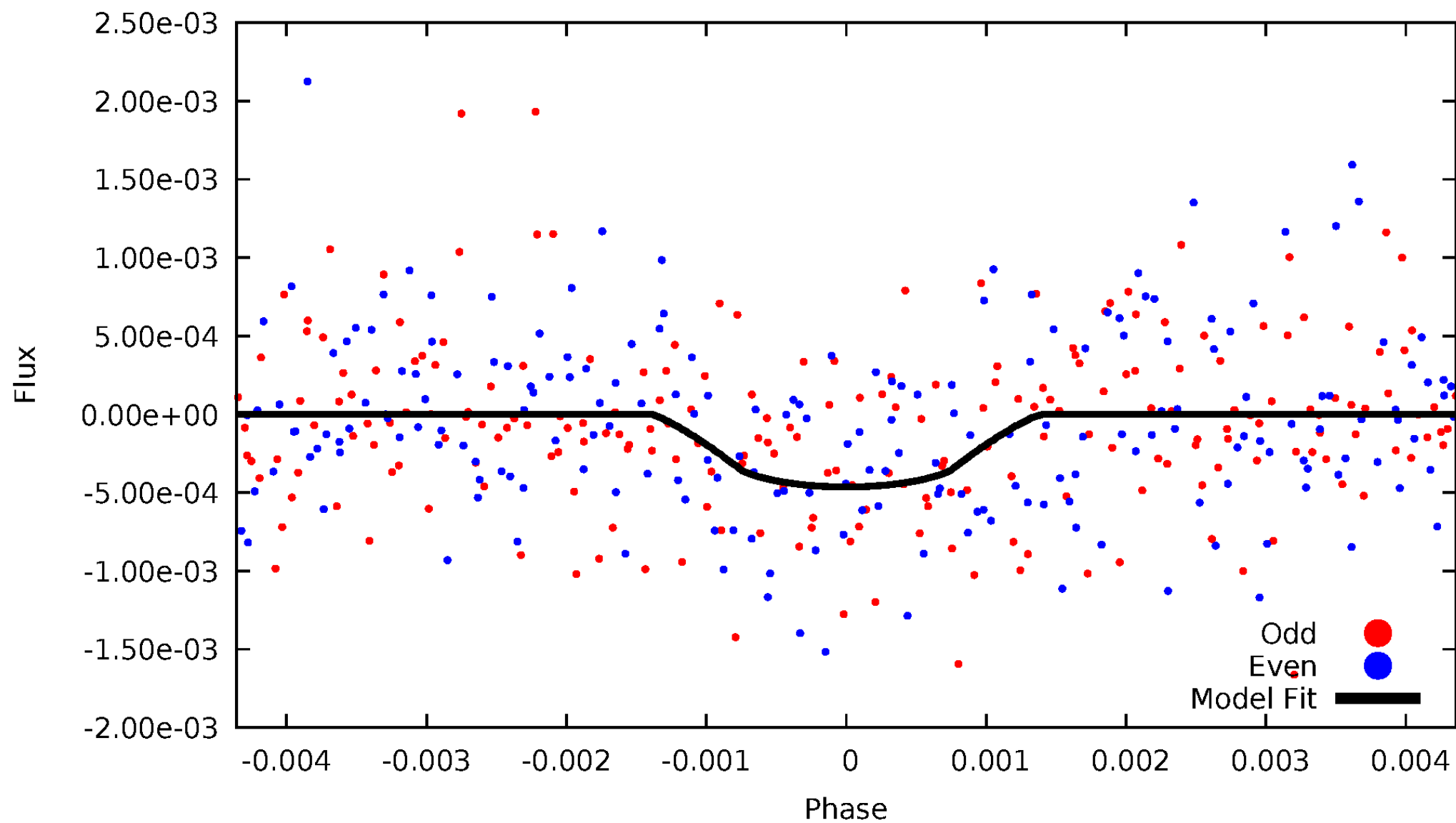


TCE 007098049-01



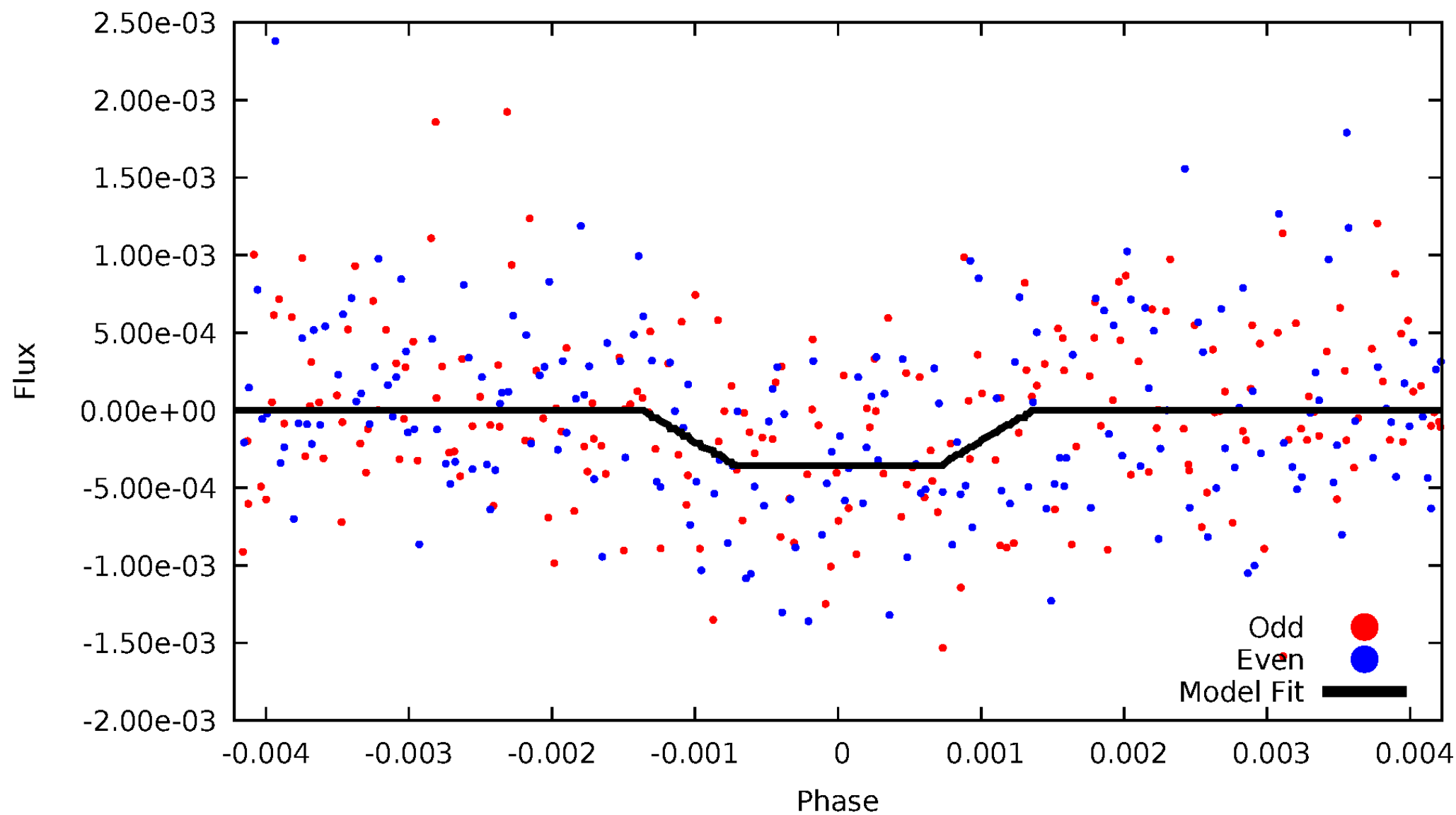
# DV Odd/Even

TCE 007098049-01



# ALT Odd/Even

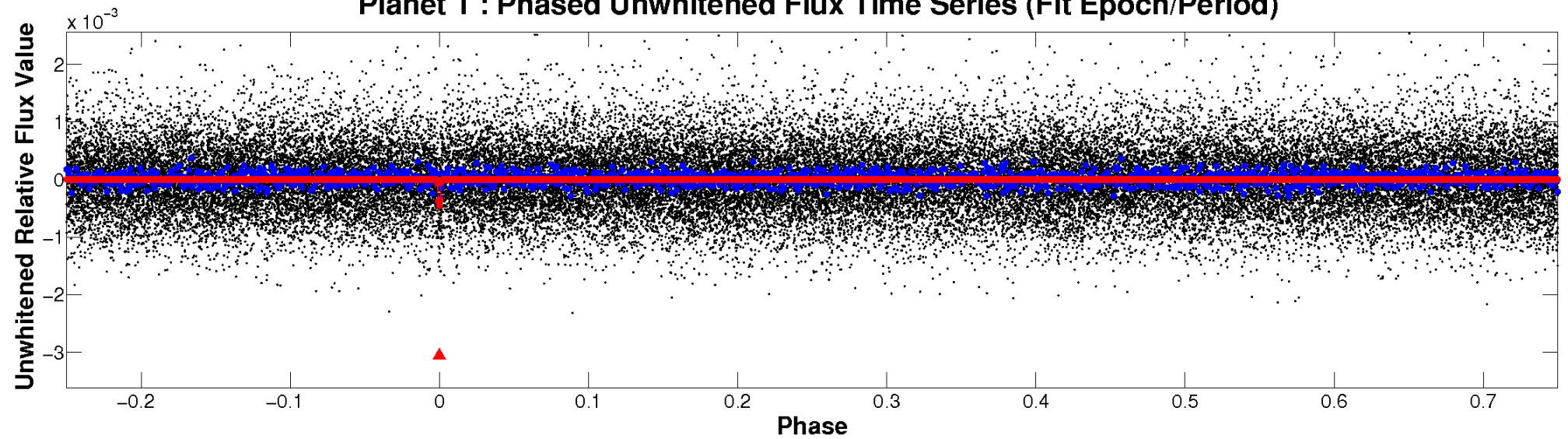
TCE 007098049-01



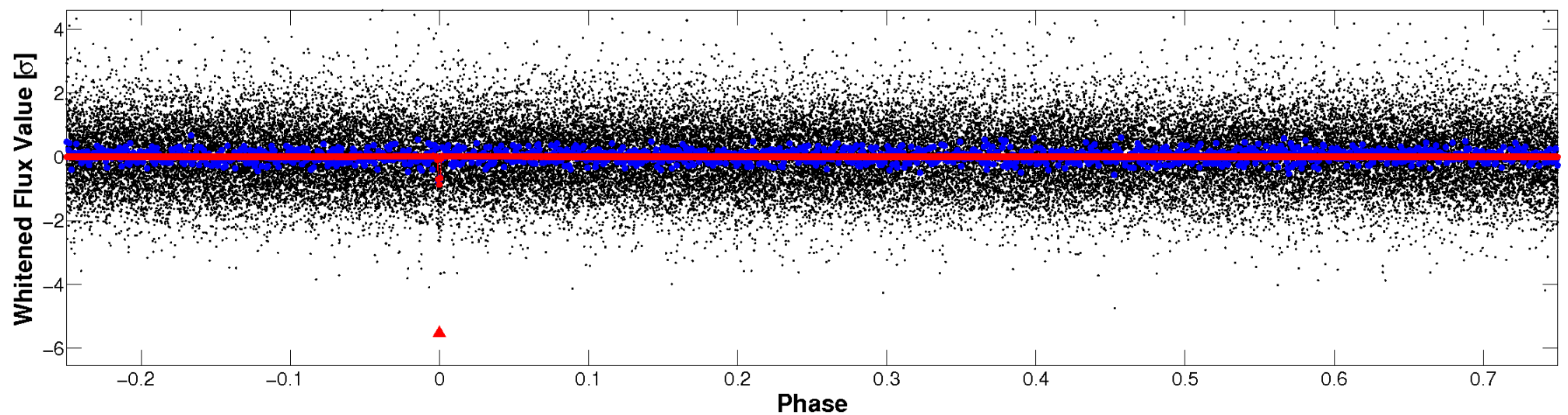


# Non-Whitened Vs. Whitened Light Curve

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

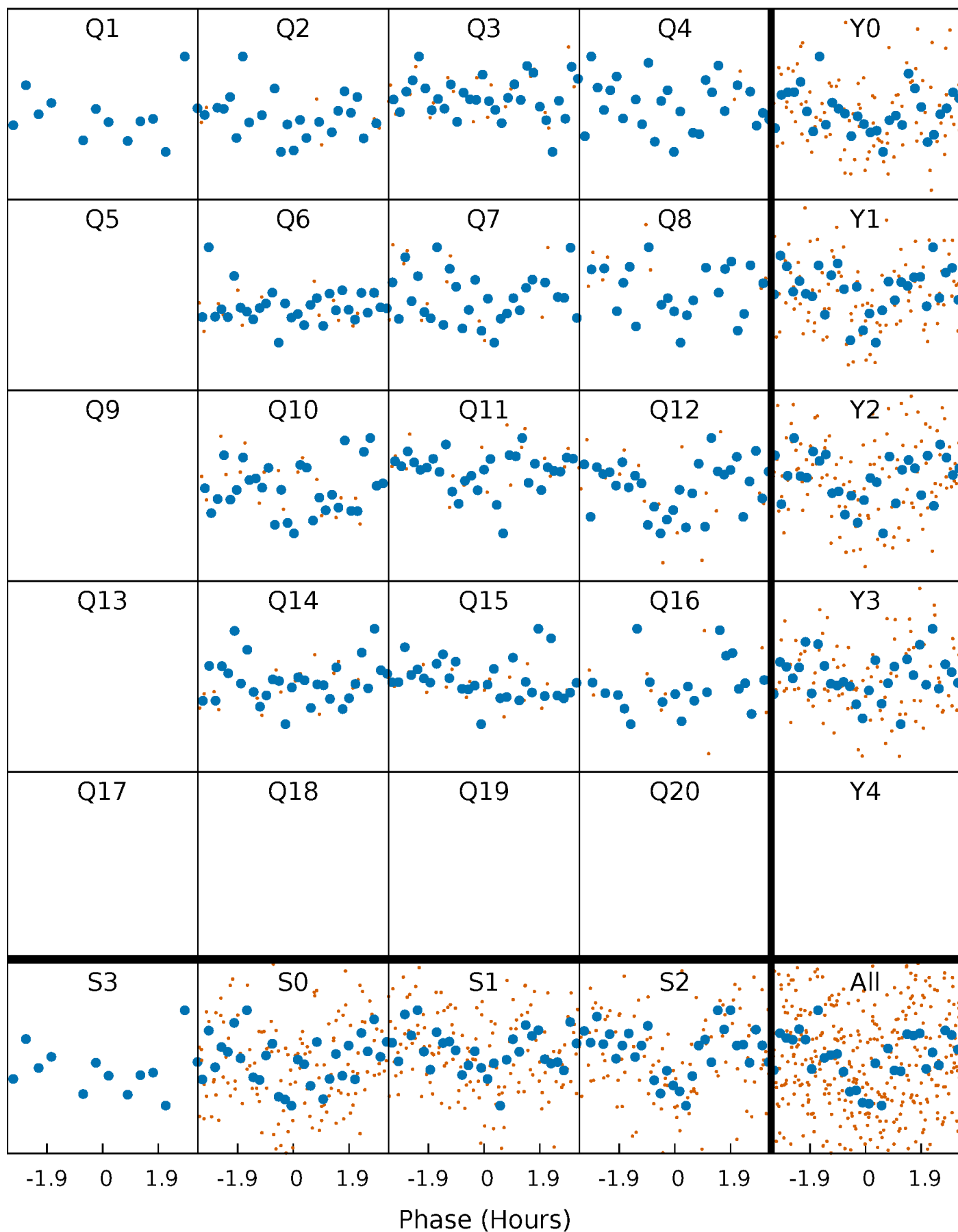


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

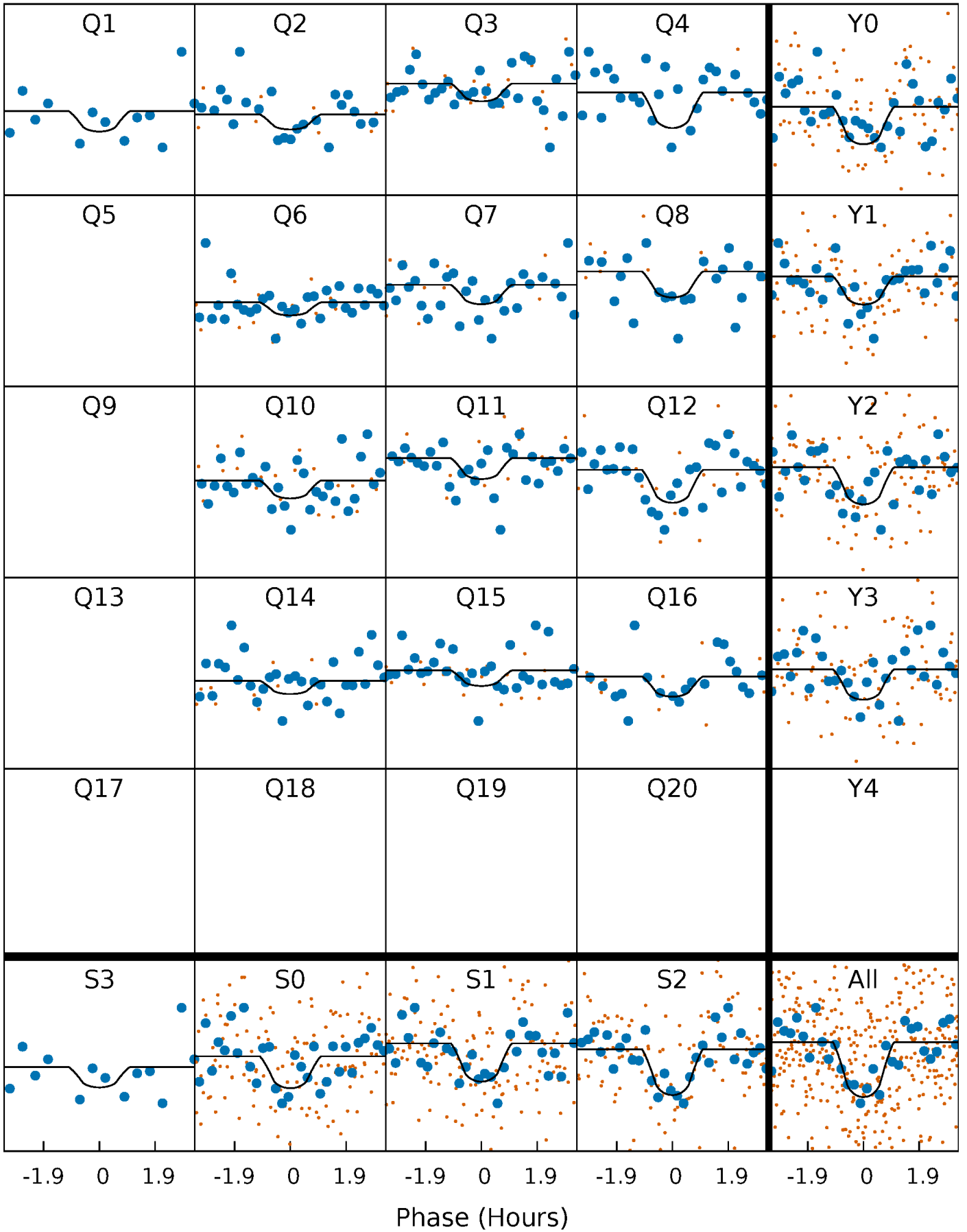
TCE 007098049-01 P= 31.065582 Days  $T_0=151.710651$  (BKJD)





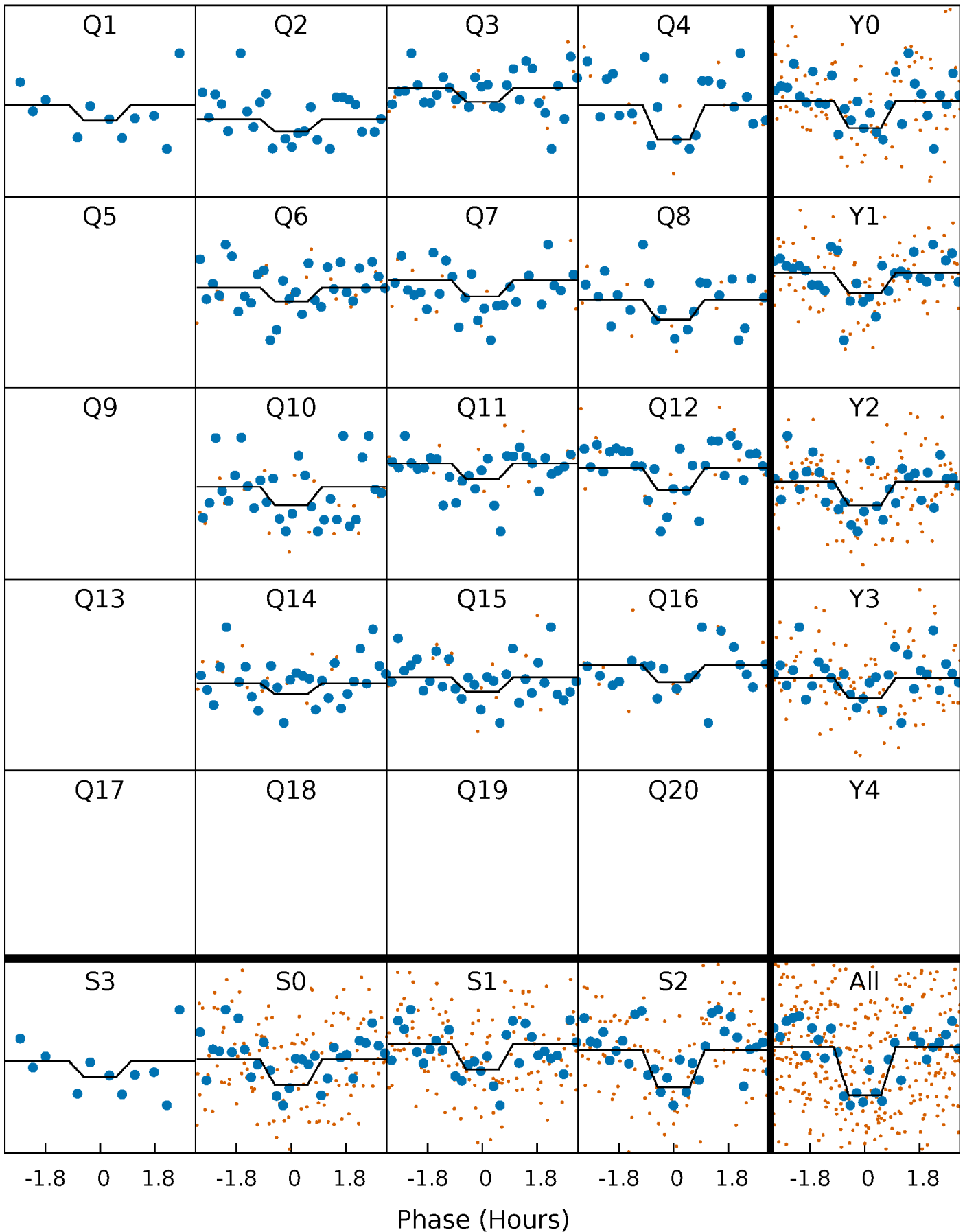
# DV Quarter-Phased Transit Curves

TCE 007098049-01 P= 31.065582 Days  $T_0=151.710651$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

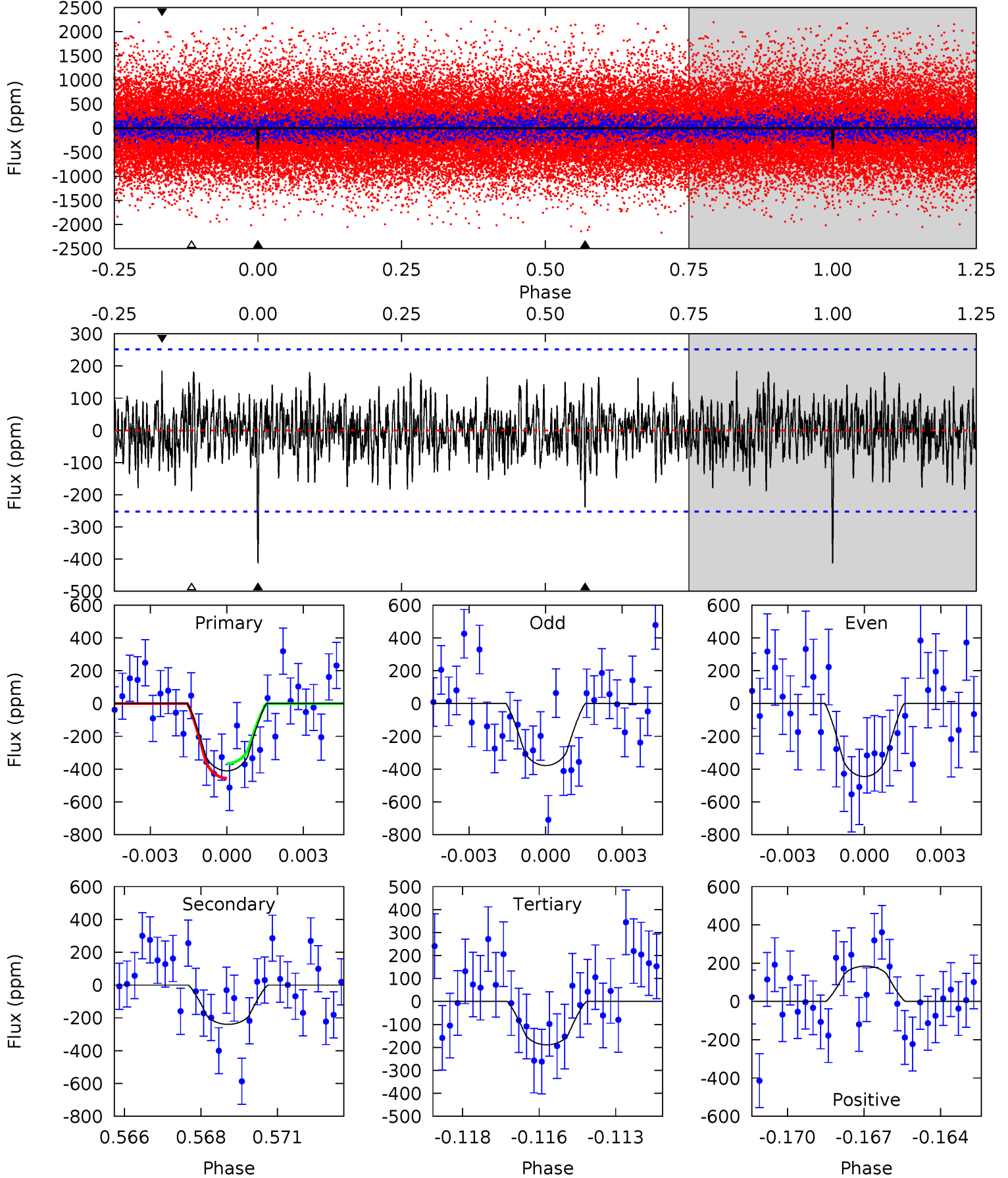
TCE 007098049-01 P= 31.065553 Days  $T_0=151.713607$  (BKJD)



# DV Model-Shift Uniqueness Test

007098049-01, P = 31.065582 Days, E = 120.645069 Days

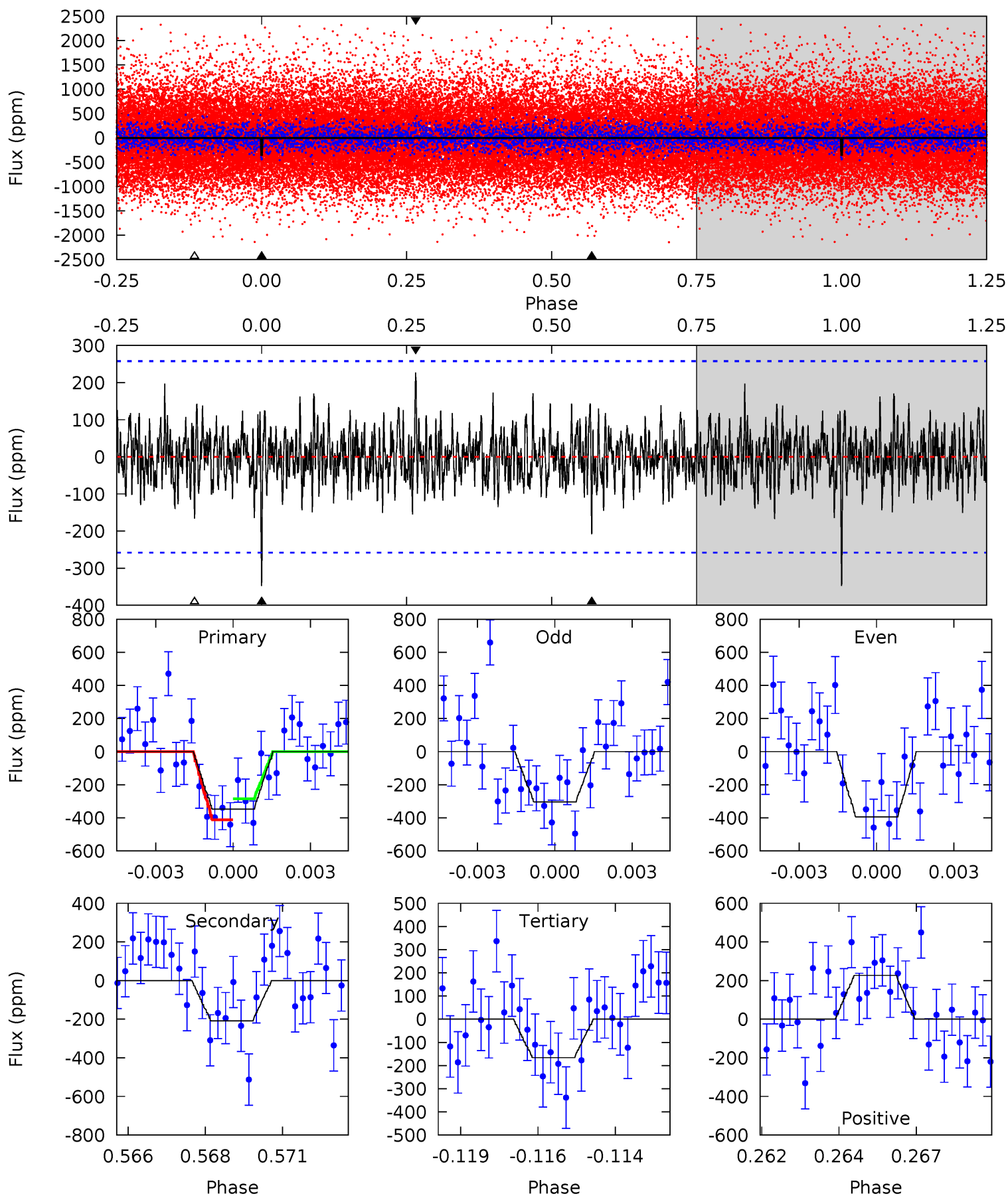
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.59	5.01	3.95	3.86	5.27	3.00	1.29	4.64	4.73	1.06	1.15	0.71	1.12	0.31	0.93



# Alt Model-Shift Uniqueness Test

007098049-01,  $P = 31.065553$  Days,  $E = 120.648054$  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
7.11	4.26	3.40	4.64	5.28	3.01	1.15	3.72	2.47	0.86	-0.39	0.92	0.95	0.39	1.30



### Stellar Parameters For KIC 007098049

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4511^{+121}_{-135}$	$4.623^{+0.052}_{-0.024}$	$-0.320^{+0.300}_{-0.300}$	$0.638^{+0.051}_{-0.057}$	$0.623^{+0.076}_{-0.044}$	$3.386^{+0.788}_{-0.409}$
	+3%/-3%	+1%/-1%	+94%/-94%	+8%/-9%	+12%/-7%	+23%/-12%
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 007098049-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-240 \pm 48$	$2.61^{+2.43}_{-1.80}$	$543^{+17}_{-17}$	$3309^{+1712}_{-561}$	$522^{+4609}_{-383}$
Alt.	$-208 \pm 49$	$2.78^{+2.50}_{-1.97}$	$541^{+19}_{-18}$	$3163^{+1718}_{-529}$	$401^{+4224}_{-292}$

$T_{\text{max}}$  = 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

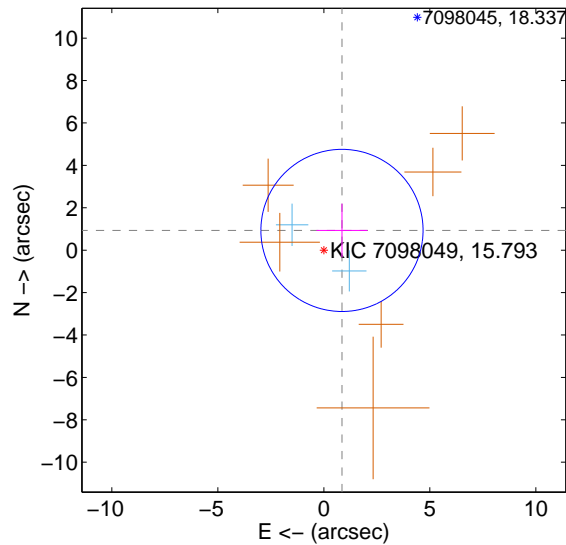
Supplemental centroid analysis for 007098049-01. Kepler magnitude: 15.79. Transit SNR 7.60

There are 2 quarters with good PRF difference image offsets

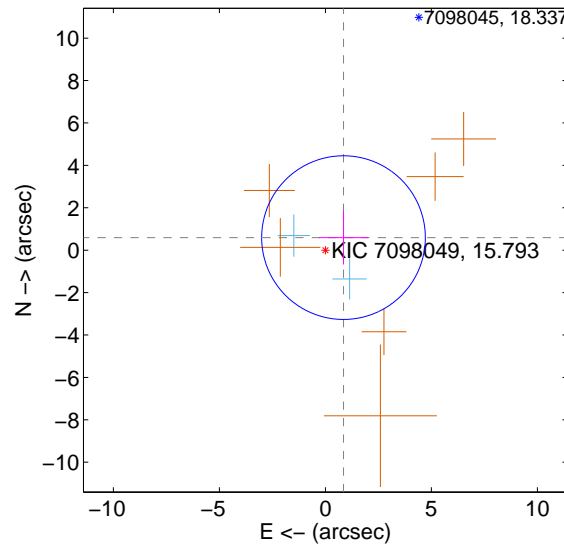
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.265 \pm 1.275$	0.99	$-0.855 \pm 1.202$	$0.932 \pm 1.263$
PRF-fit source offset from KIC position	$1.040 \pm 1.286$	0.81	$-0.854 \pm 1.159$	$0.592 \pm 1.268$
photometric centroid source offset	$3.89 \pm 1.87$	2.08	$3.54 \pm 1.87$	$1.61 \pm 1.87$

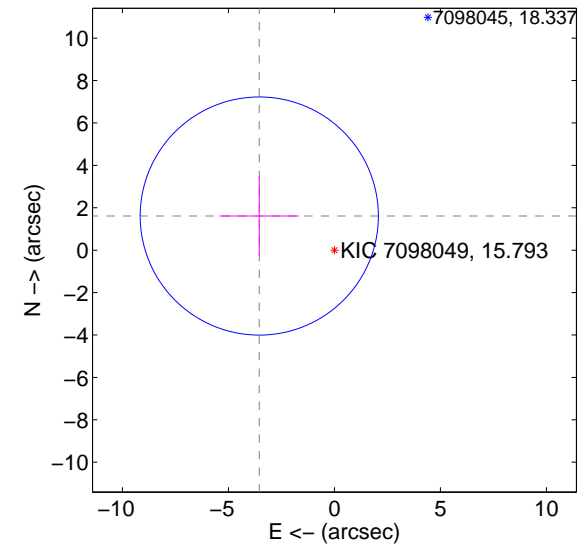
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



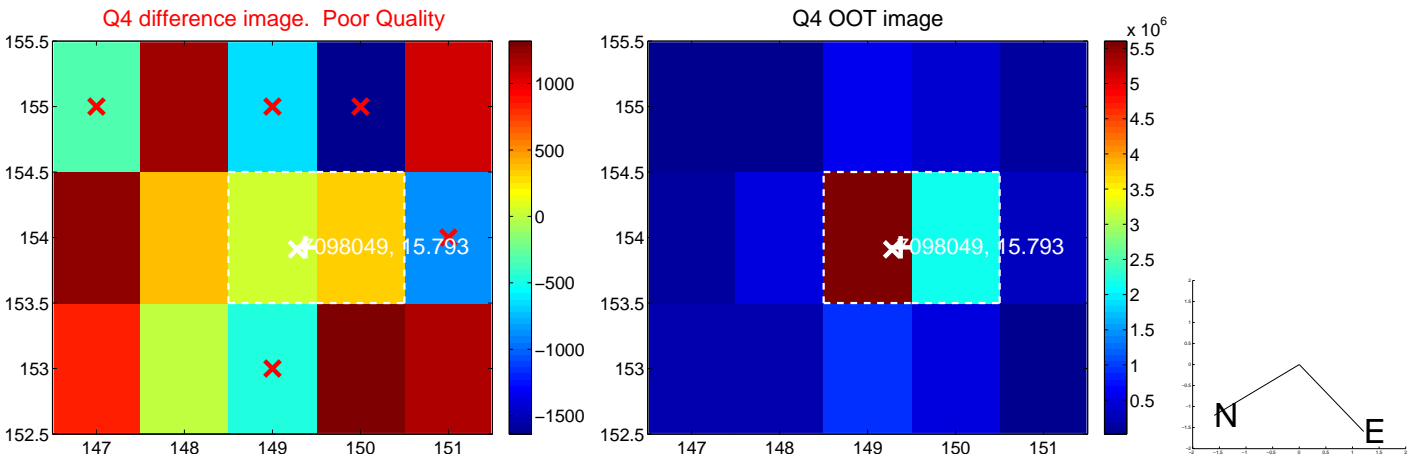
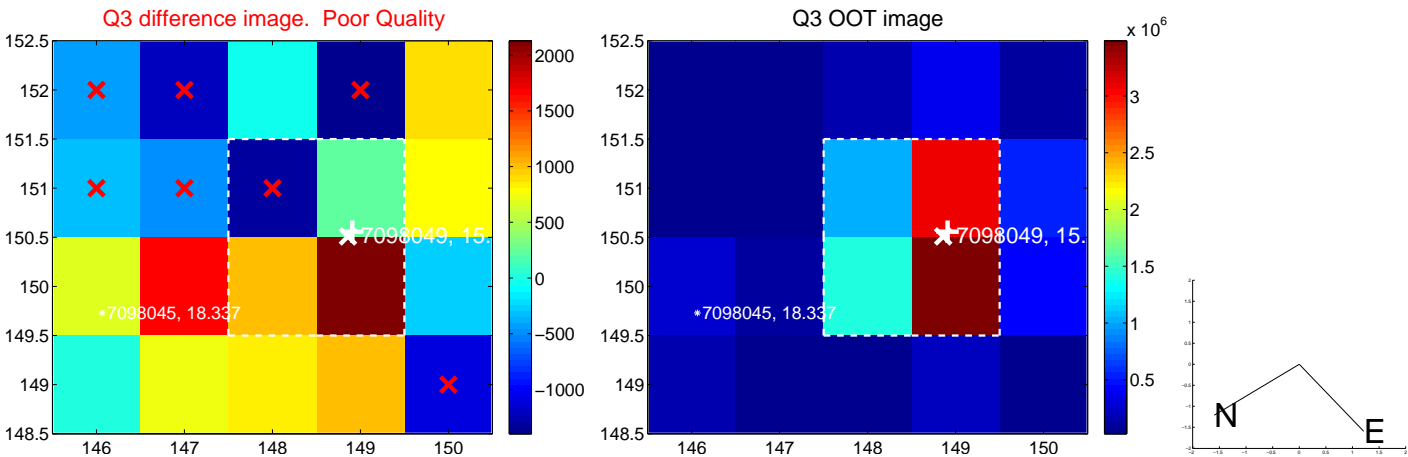
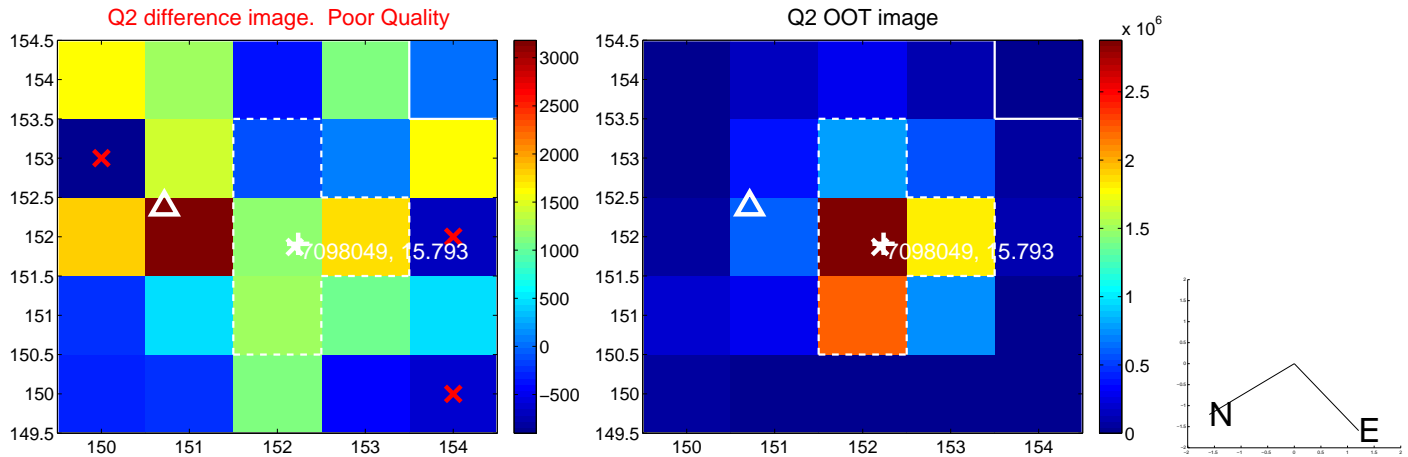
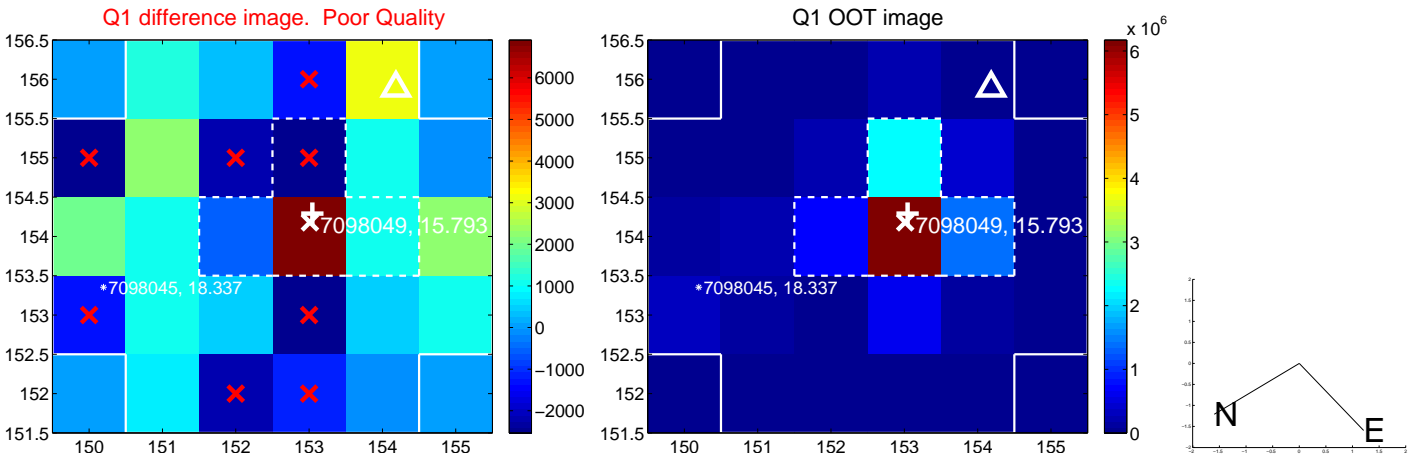
offset from photometric centroids



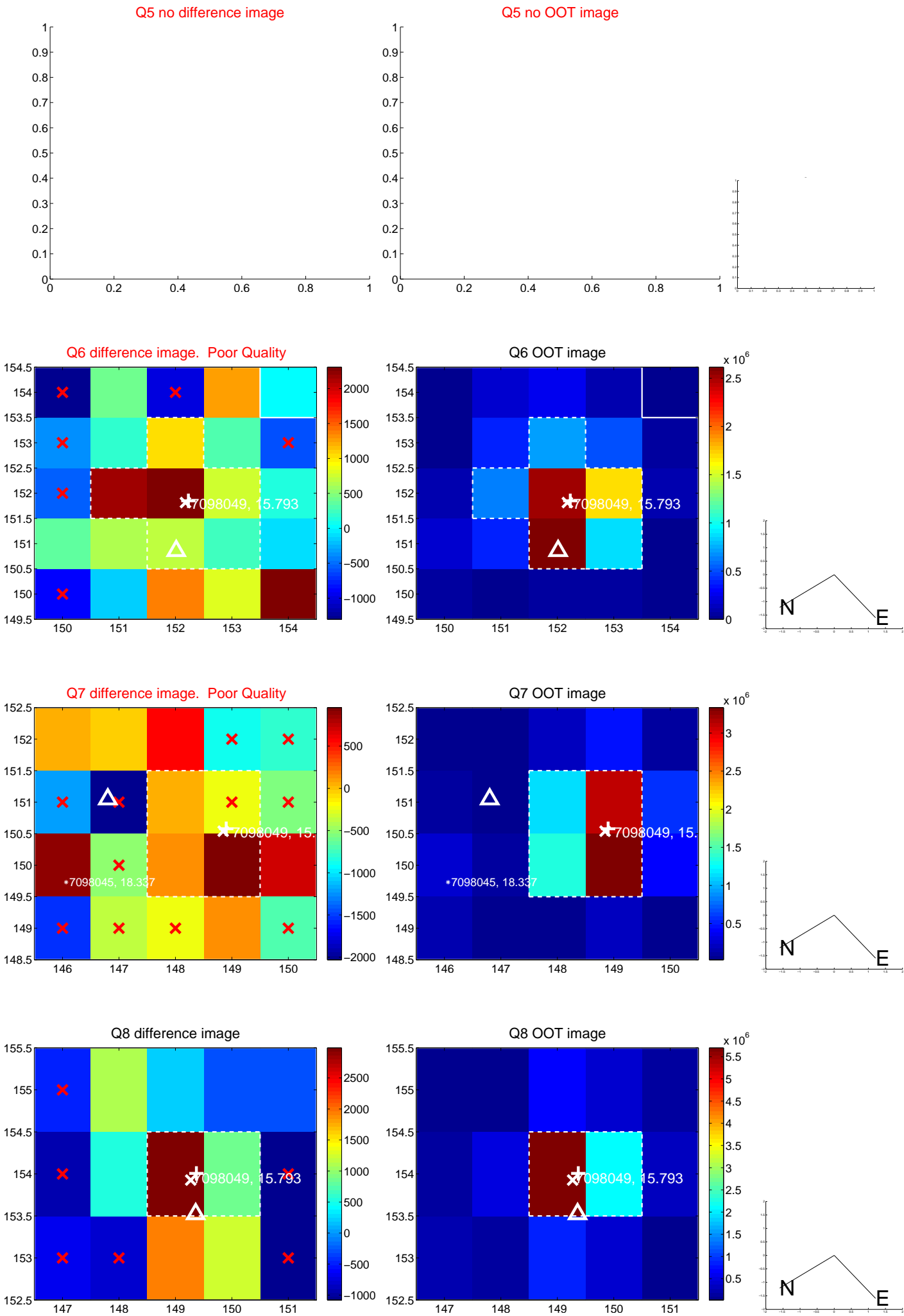
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



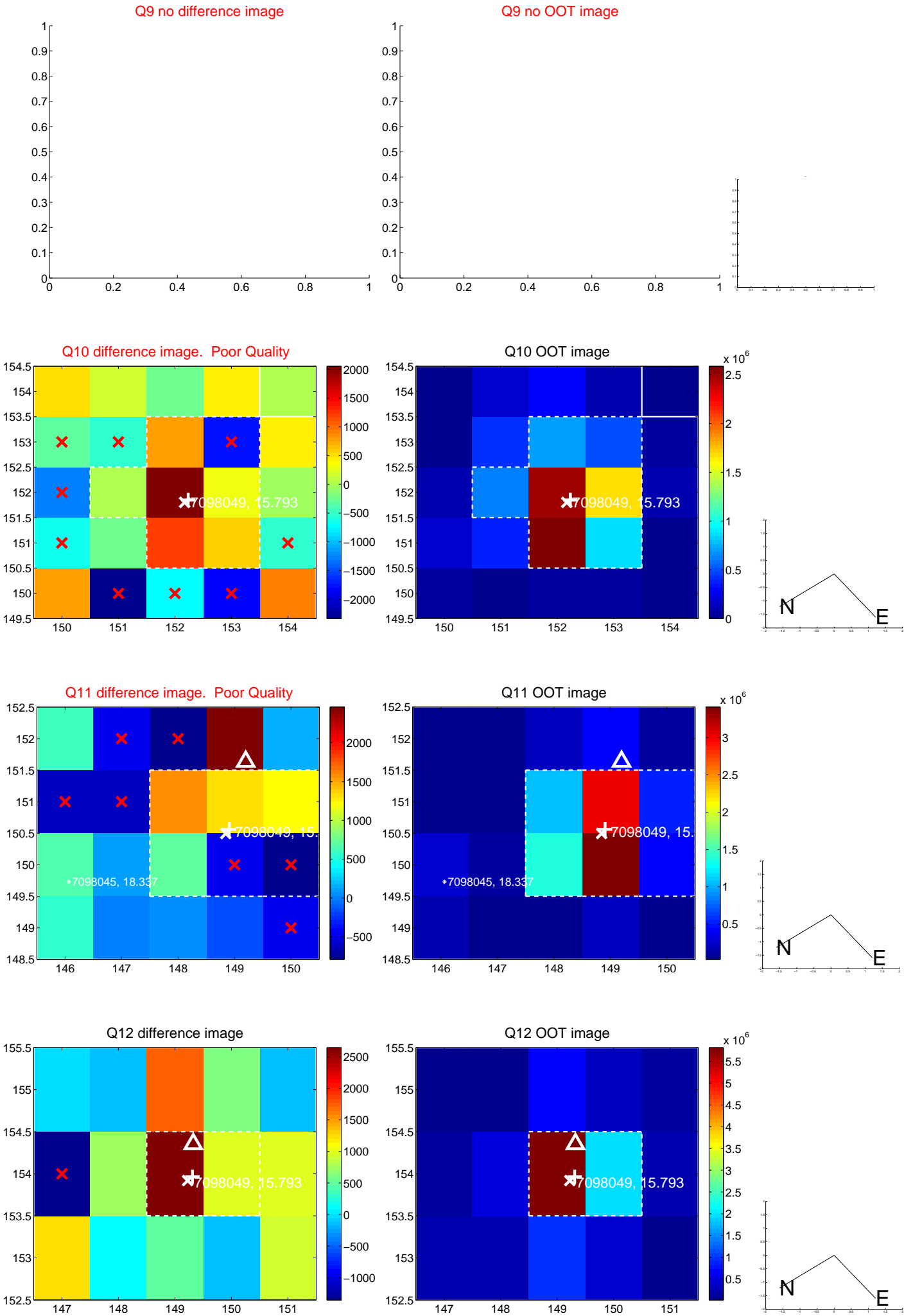
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



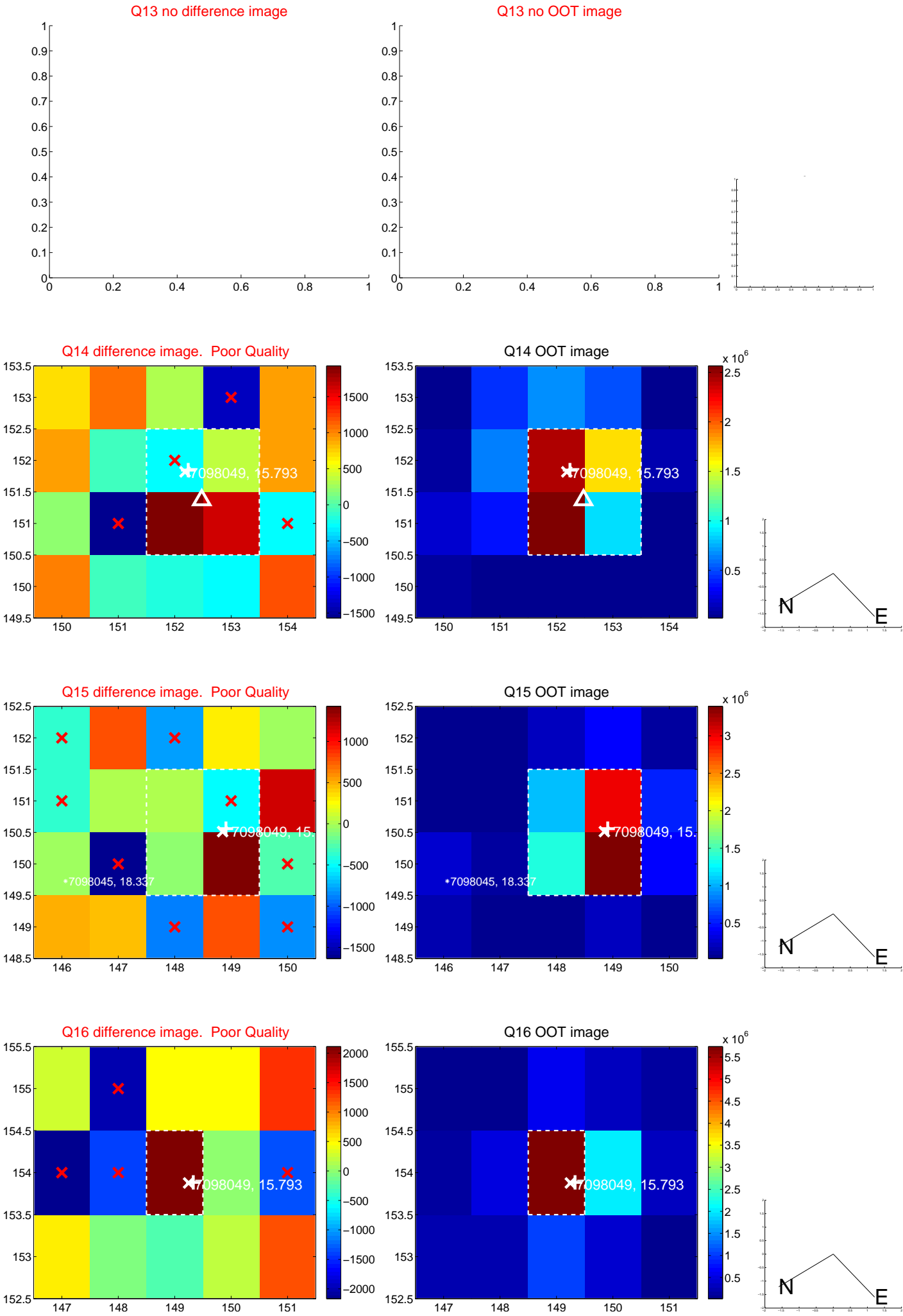
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



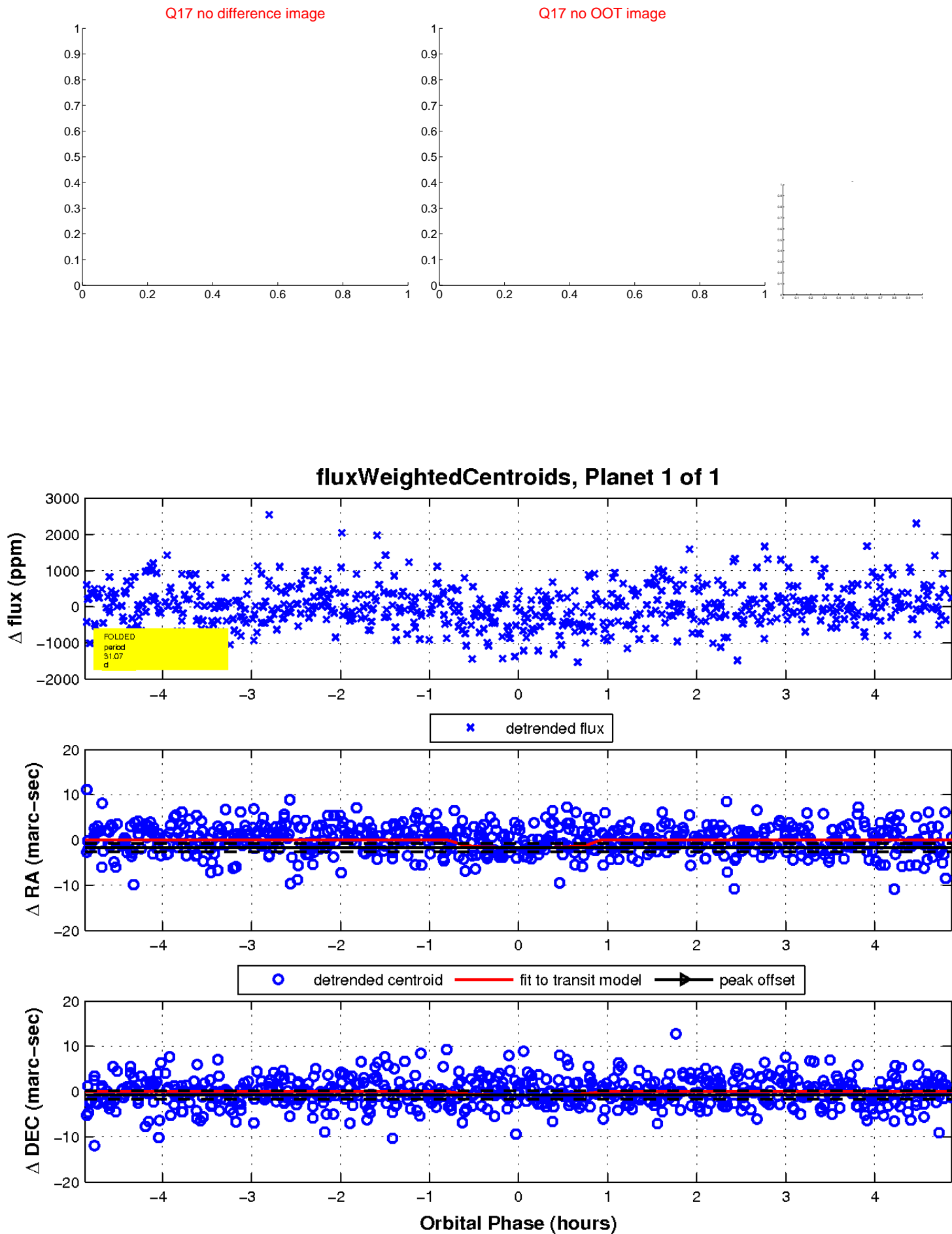
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

