

# KIC 004049131

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004049131-01	OBS	0811.01	20.505849	140.423450	2121.2	4.140	70.7	71.2	0.76	4905	3.65	17.08

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004049131-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

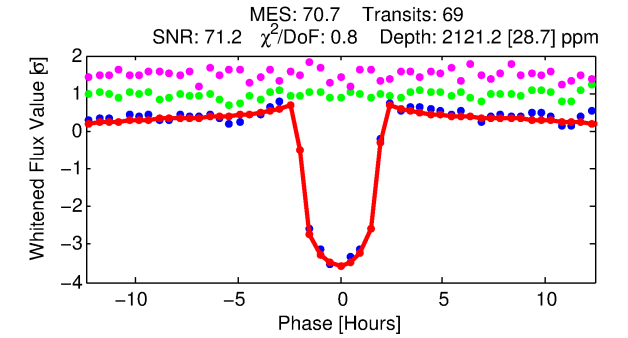
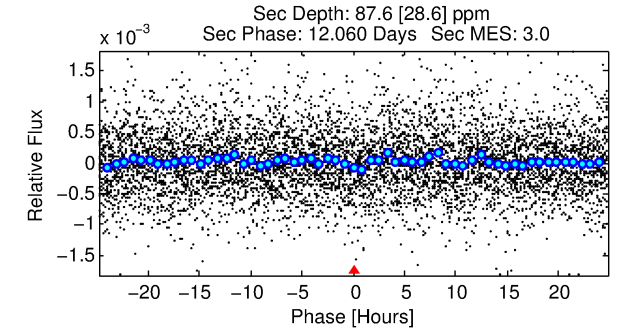
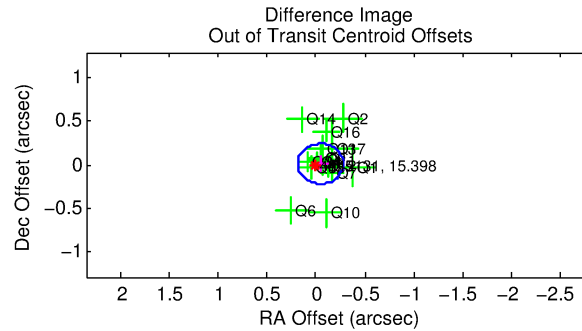
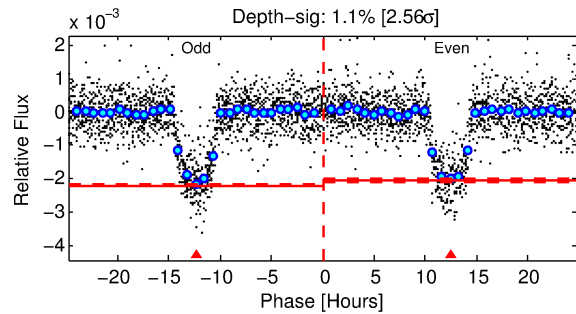
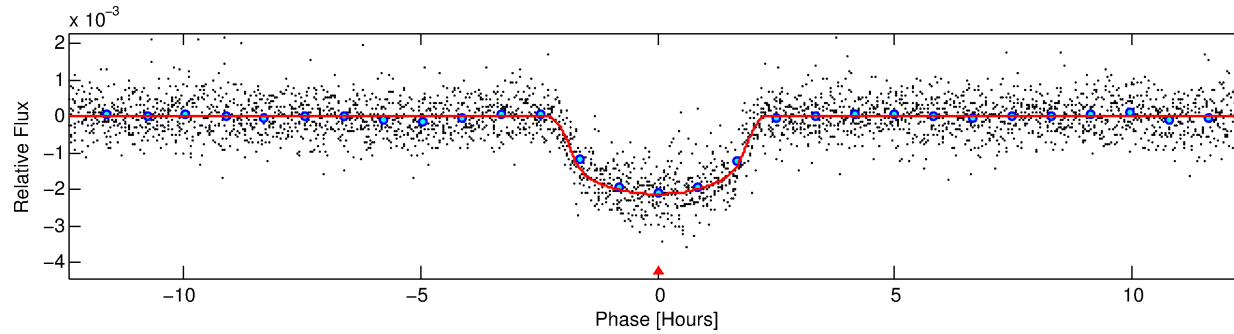
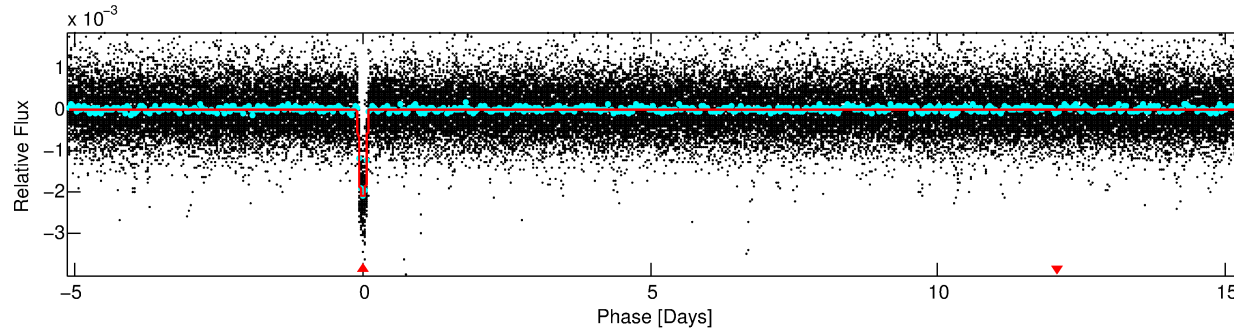
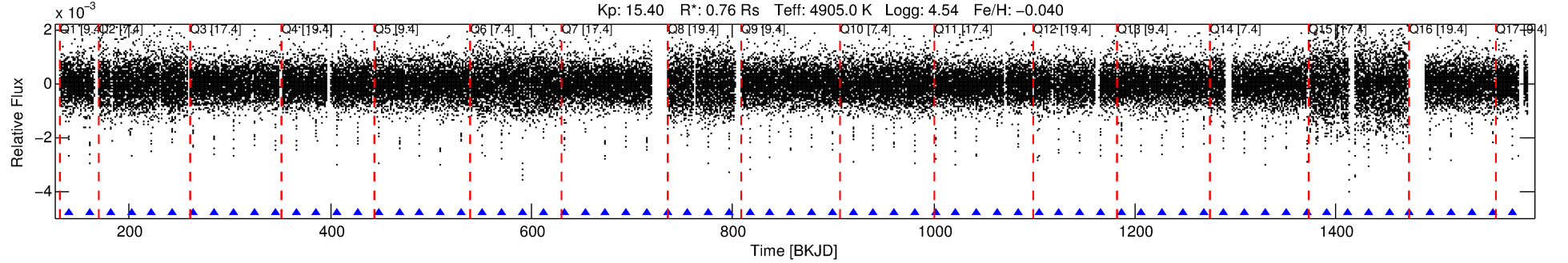
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004049131-01

No Significant Match Found

# DV One-Page Summary

KIC: 4049131 Candidate: 1 of 1 Period: 20.506 d  
KOI: K00811.01 Corr: 0.990



## DV Fit Results:

Period = 20.50585 [0.00003] d  
Epoch = 140.4235 [0.0012] BKJD  
Rp/R\* = 0.0440 [0.0054]  
a/R\* = 31.37 [12.64]  
b = 0.63 [0.39]  
Seff = 17.08 [2.99]  
Teq = 518 [23] K  
Rp = 3.65 [0.56] Re  
a = 0.1326 [0.0109] AU  
Ag = 63.48 [27.08] [2.31 $\sigma$ ]  
Teffp = 2262 [240] K [7.23 $\sigma$ ]

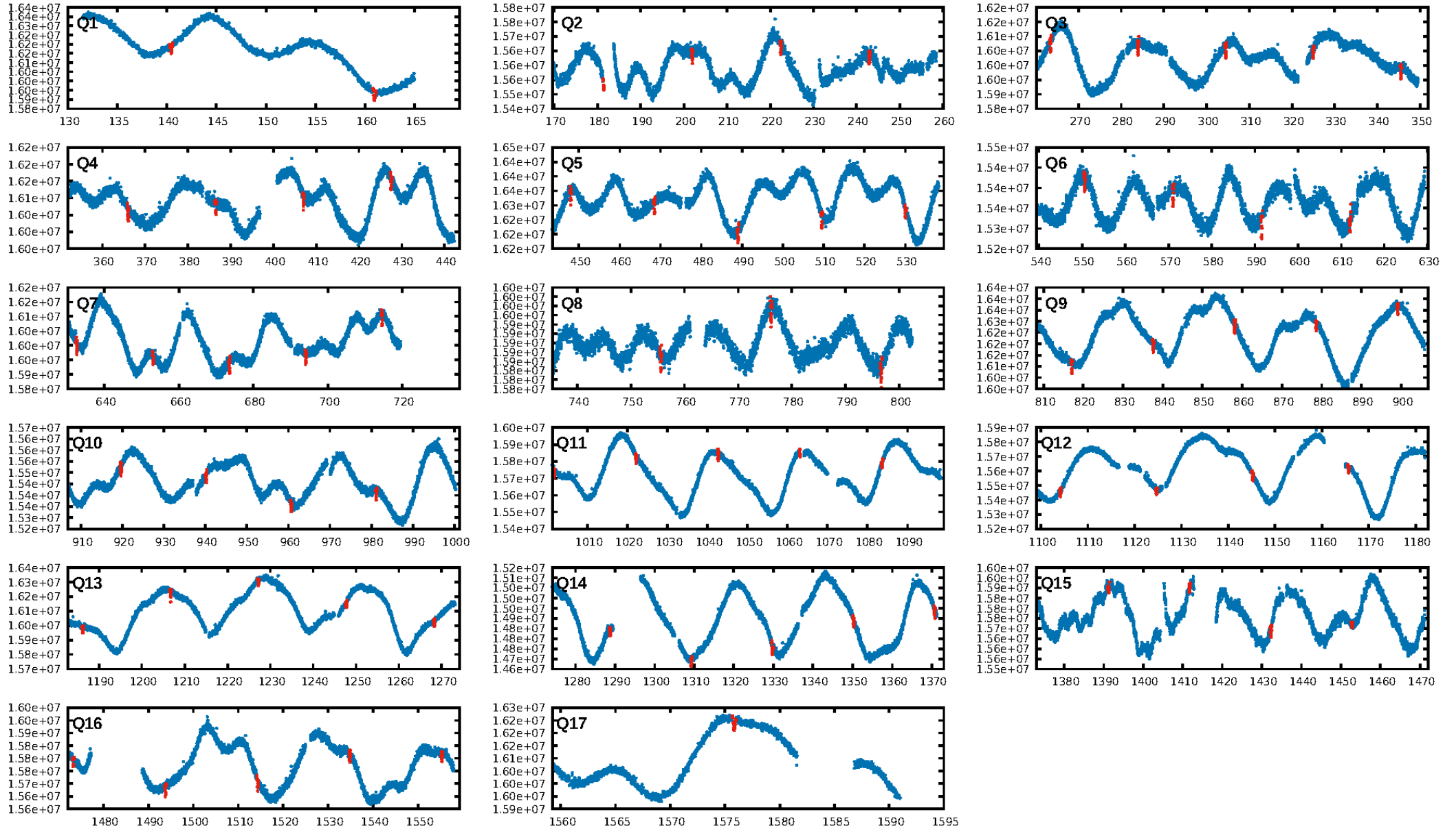
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 78.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [66/66]  
GhostDiagnostic-chr: 3.282  
Centroid-sig: 72.2%  
Centroid-so: 0.116 arcsec [0.75 $\sigma$ ]  
OotOffset-rm: 0.047 arcsec [0.60 $\sigma$ ]  
KicOffset-rm: 0.108 arcsec [1.11 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

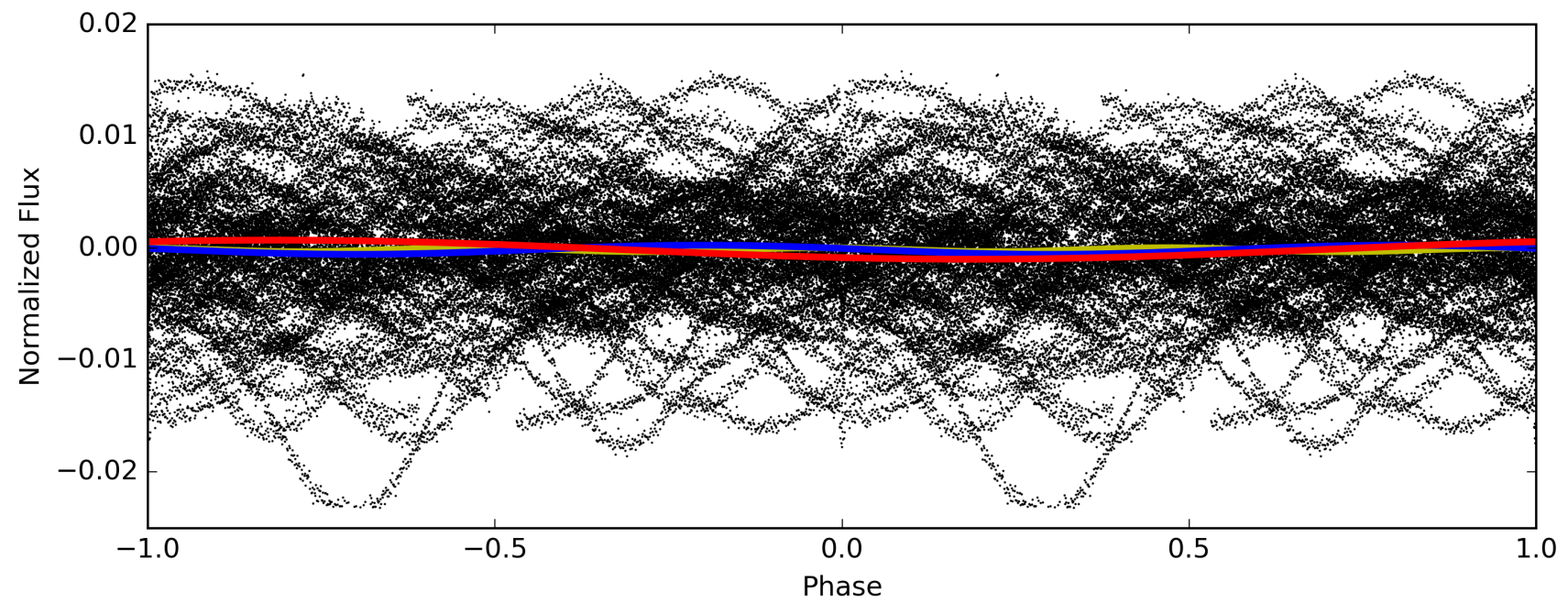
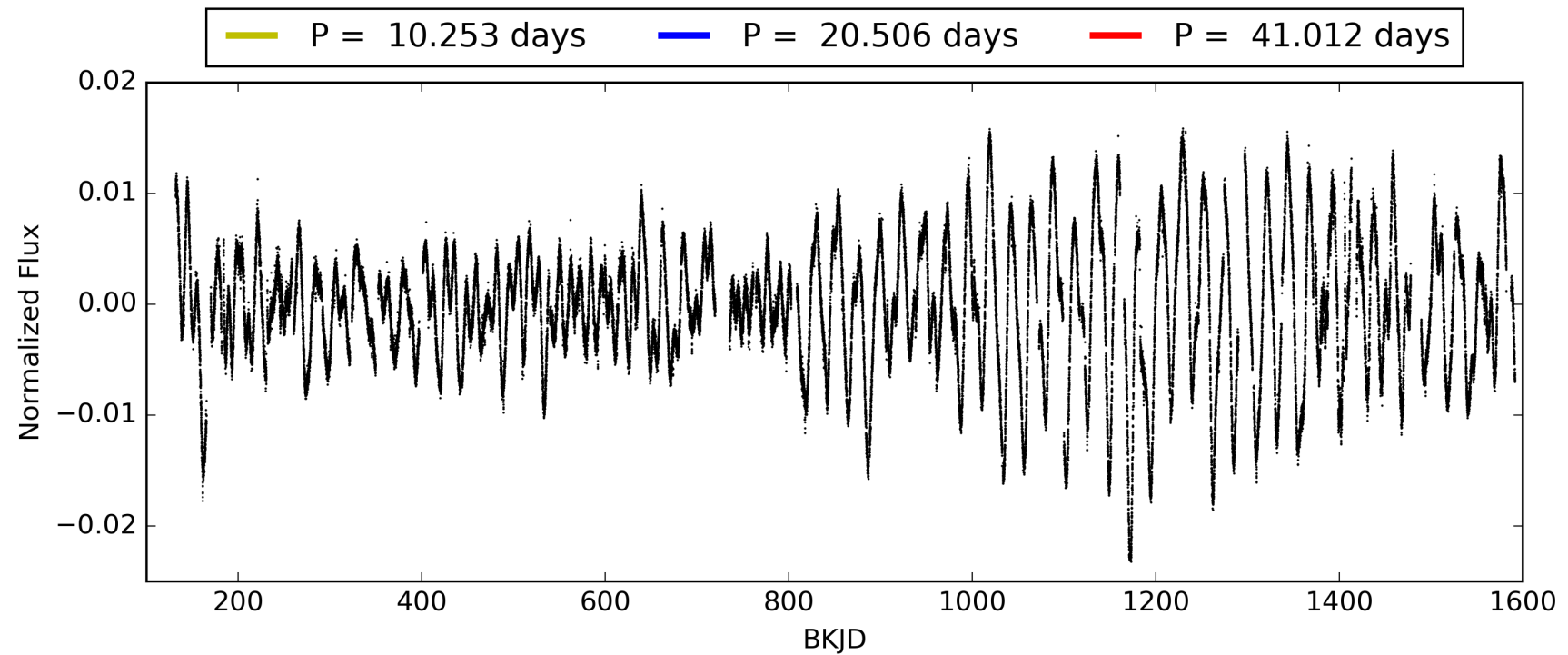
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:23:44 Z

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

# TCE 004049131-01, PDC Light Curves

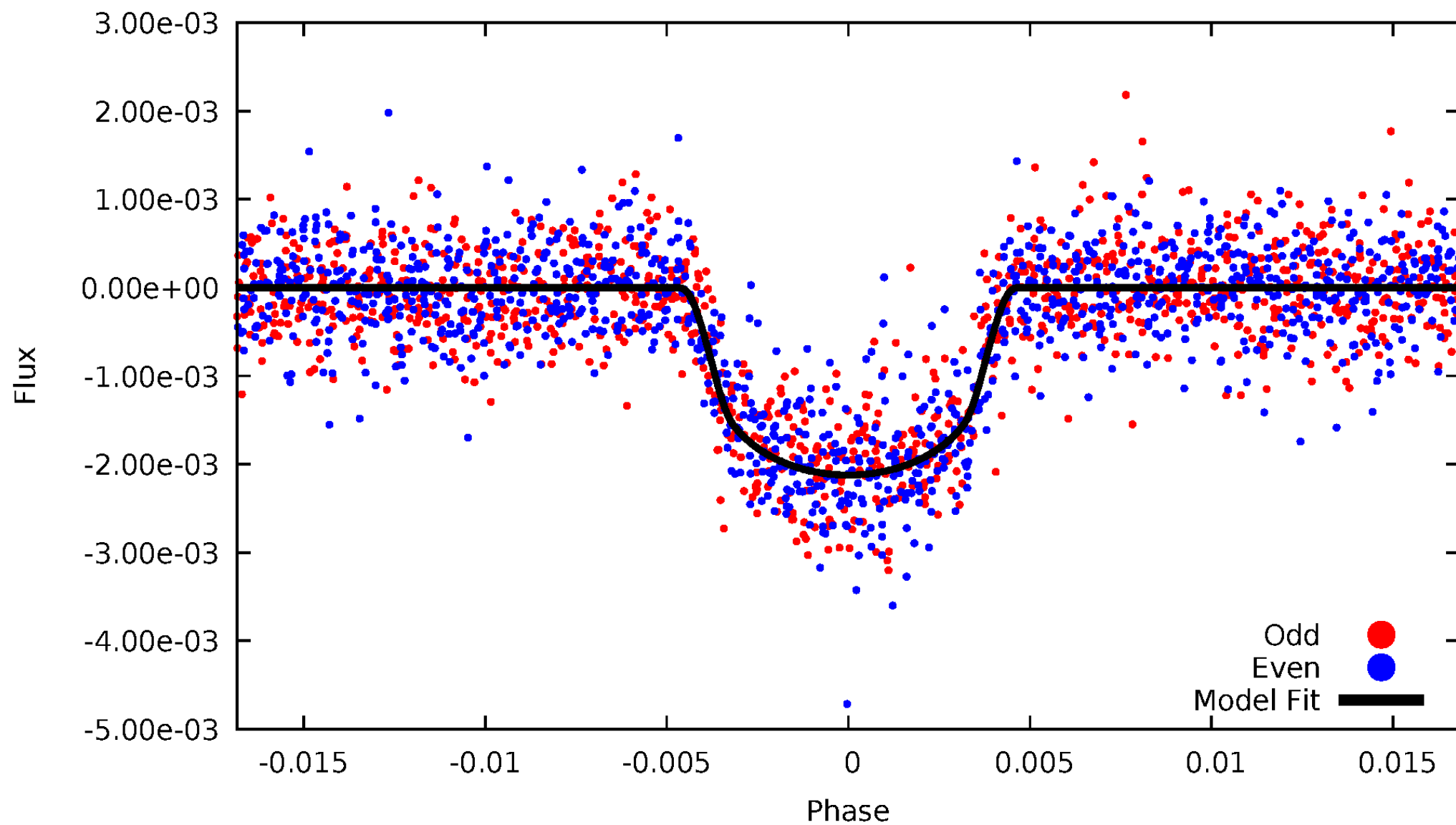


TCE 004049131-01



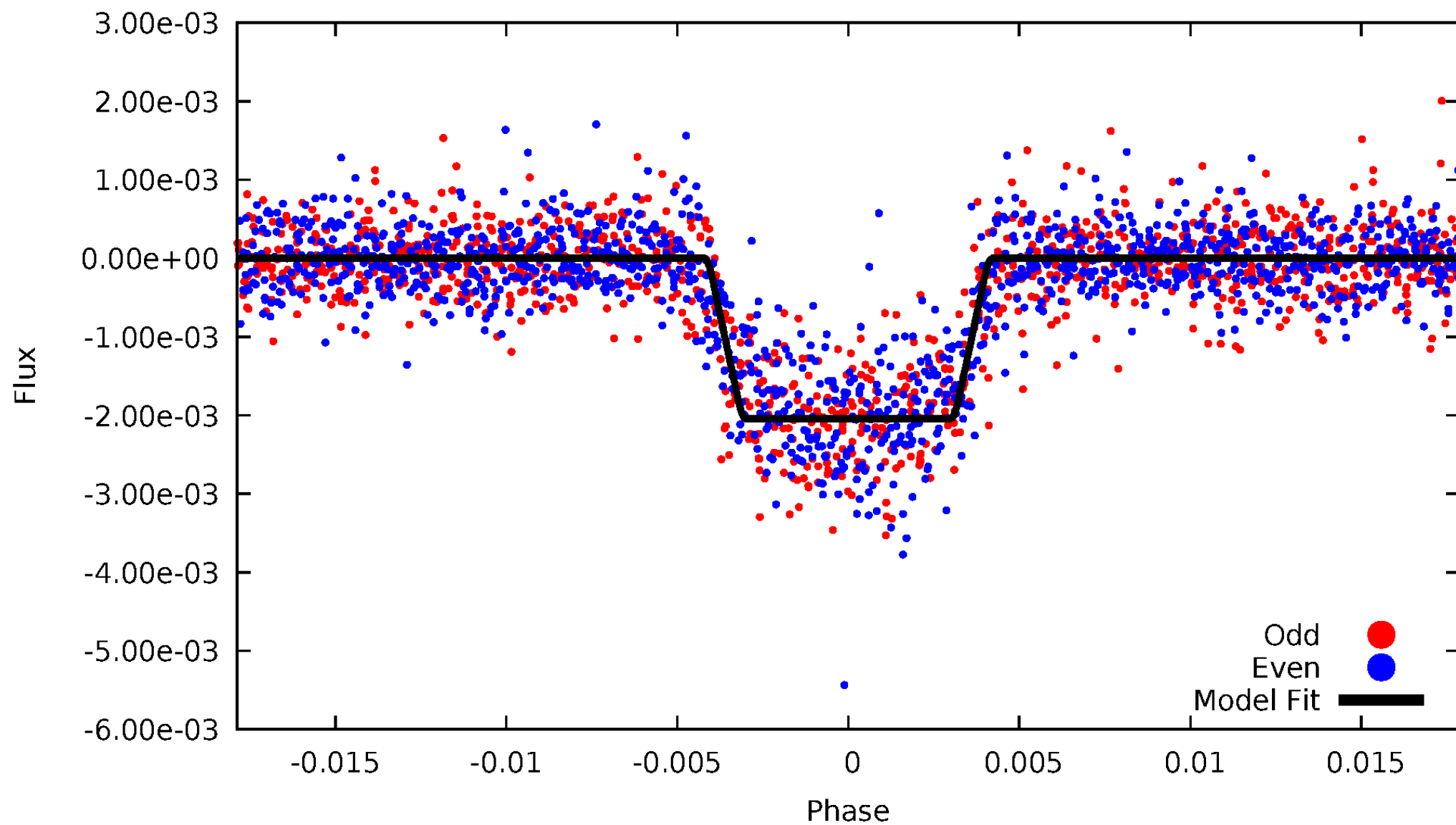
# DV Odd/Even

TCE 004049131-01



# ALT Odd/Even

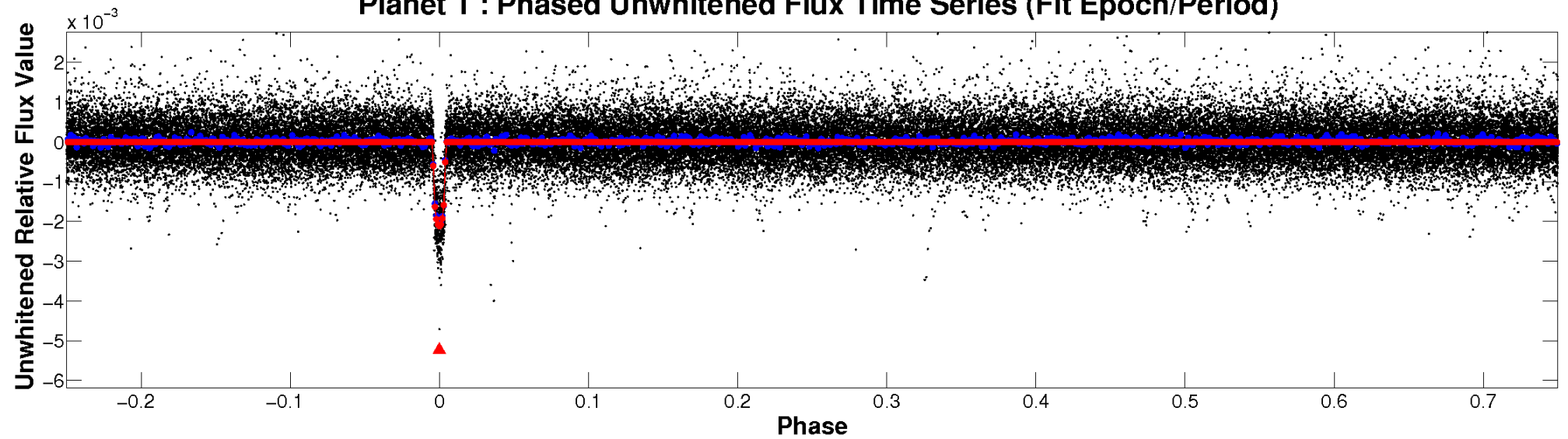
TCE 004049131-01



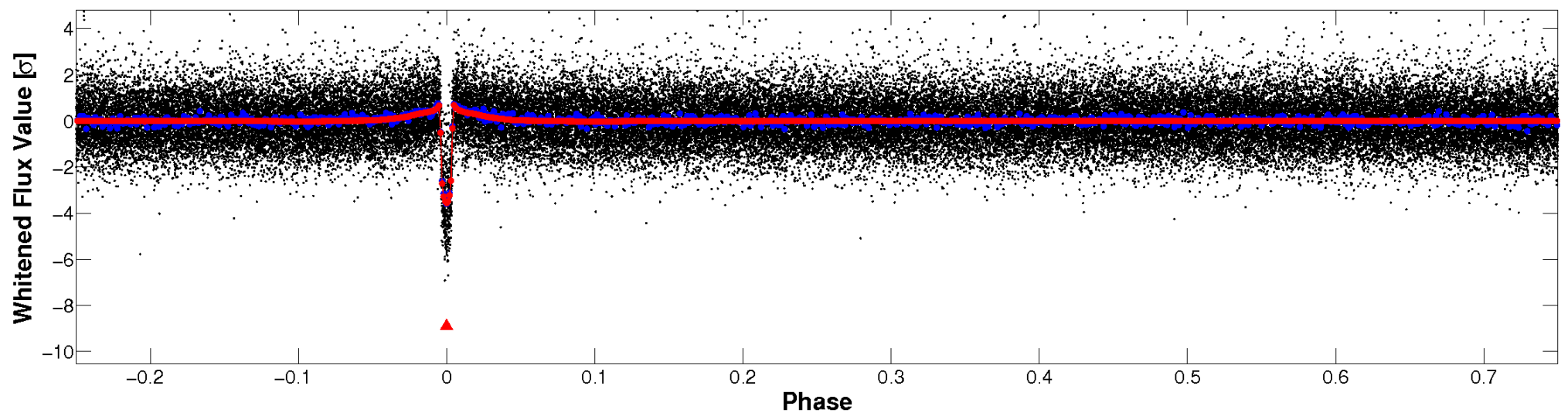


# Non-Whitened Vs. Whitened Light Curve

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

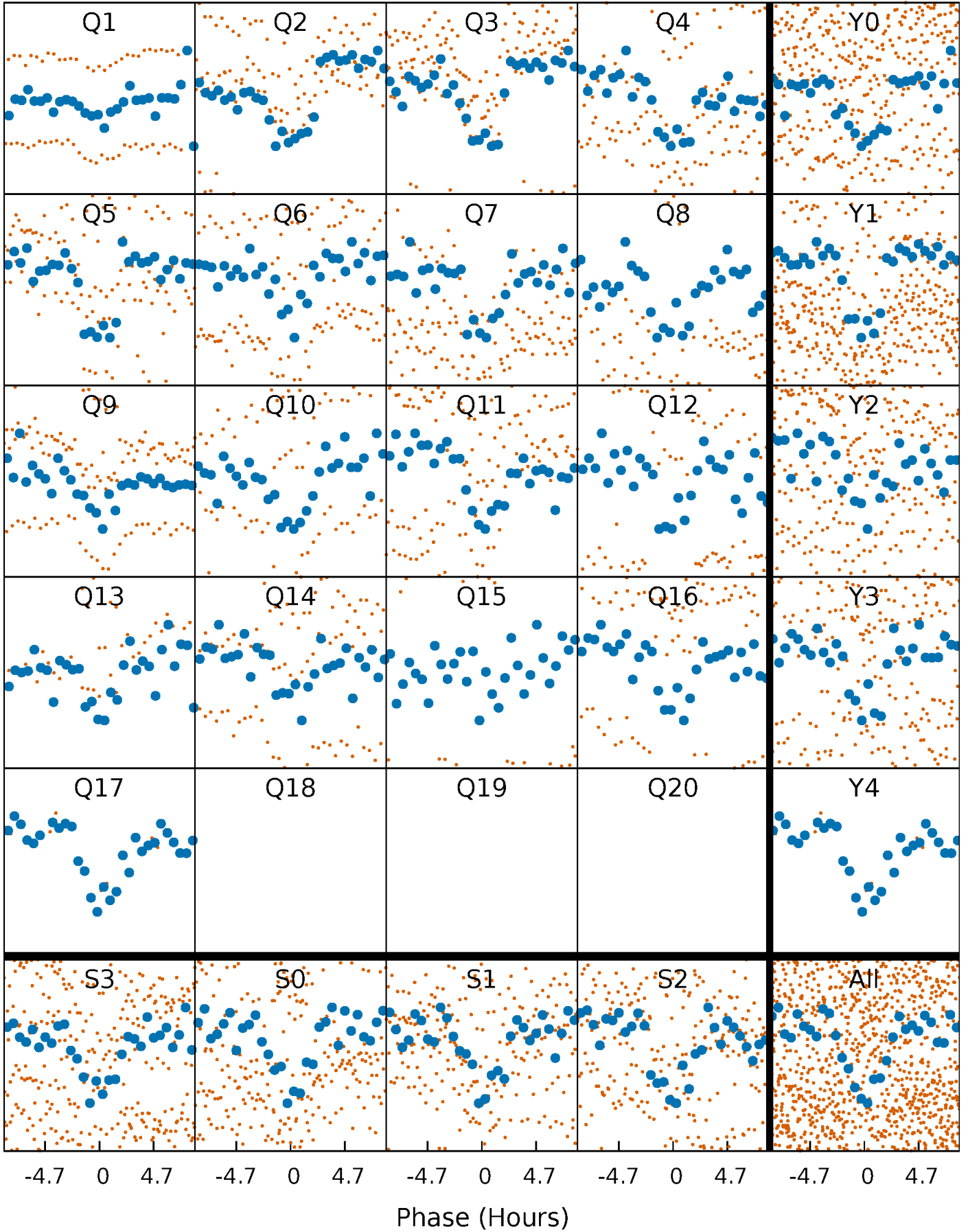


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

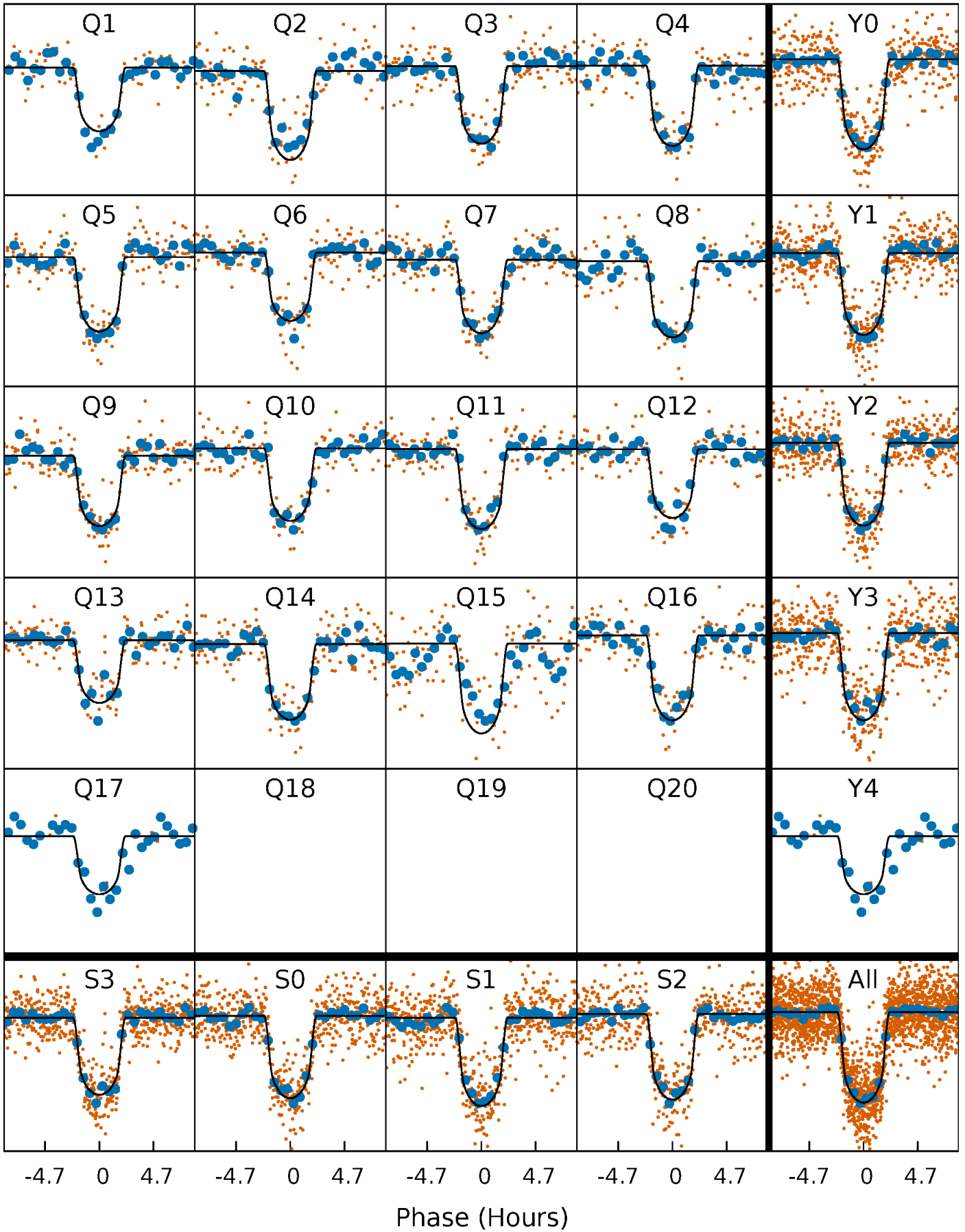
TCE 004049131-01 P= 20.505849 Days  $T_0=140.423450$  (BKJD)





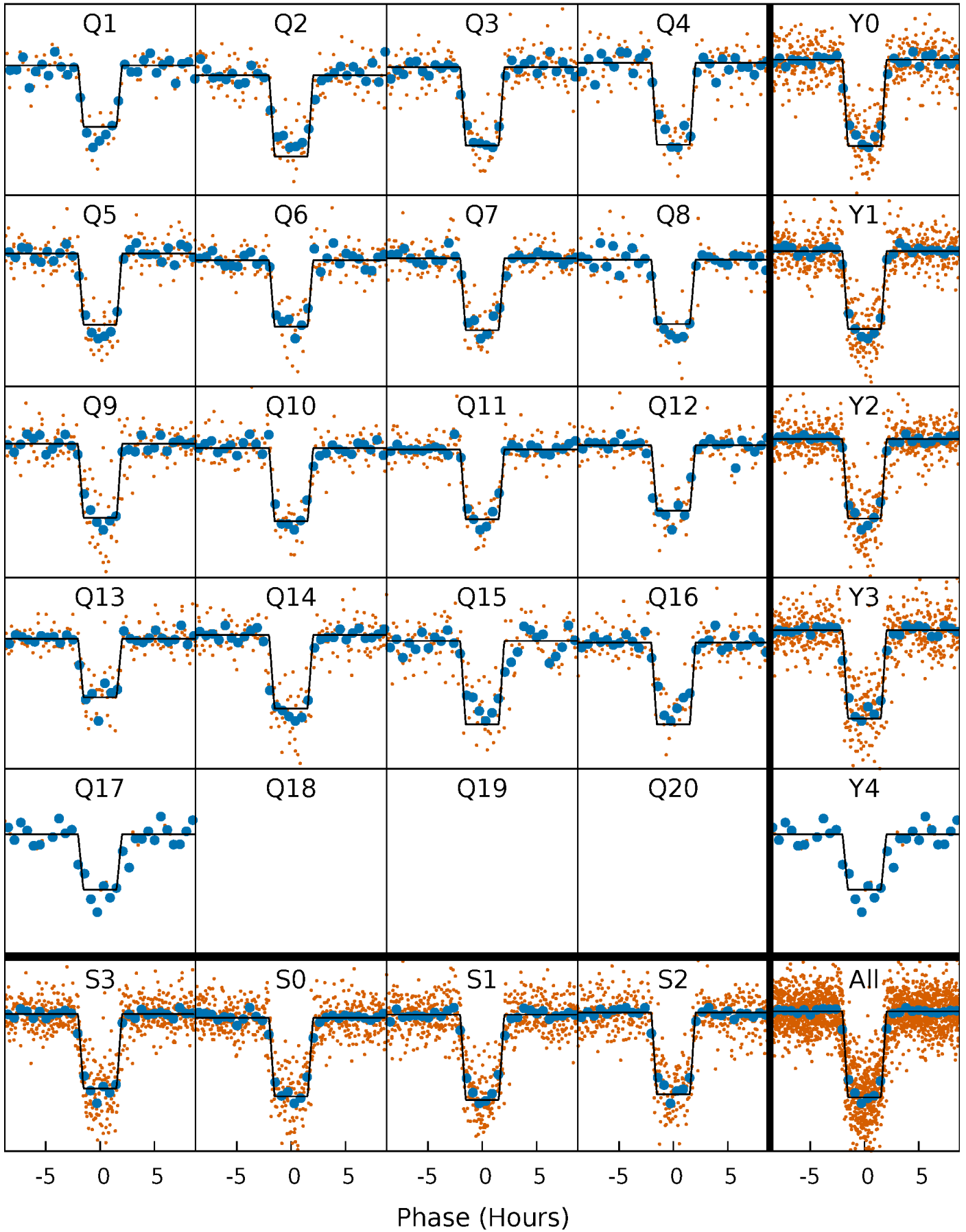
# DV Quarter-Phased Transit Curves

TCE 004049131-01 P= 20.505849 Days  $T_0=140.423450$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

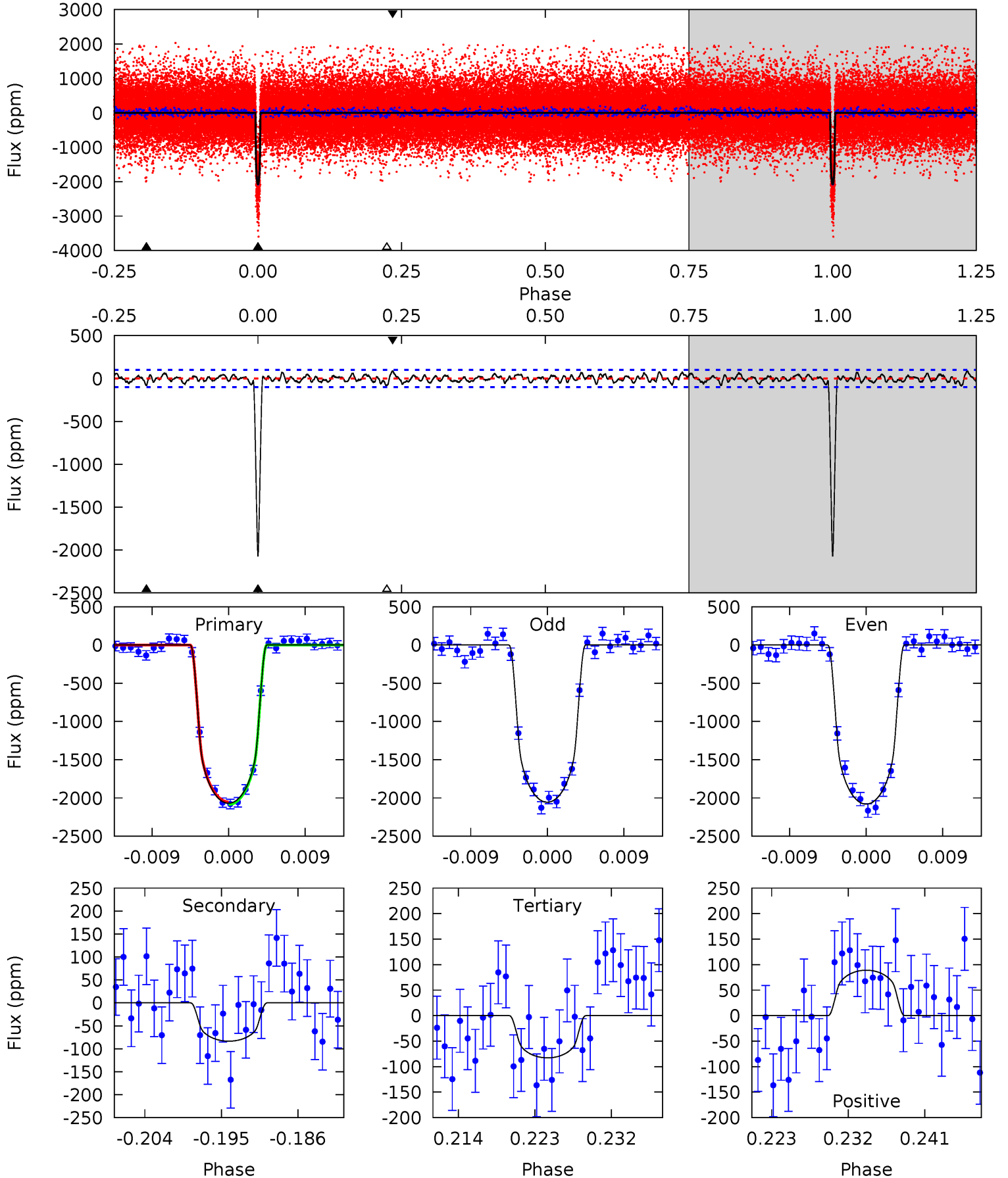
TCE 004049131-01 P= 20.505927 Days  $T_0=140.421101$  (BKJD)



# DV Model-Shift Uniqueness Test

004049131-01,  $P = 20.505849$  Days,  $E = 119.917601$  Days

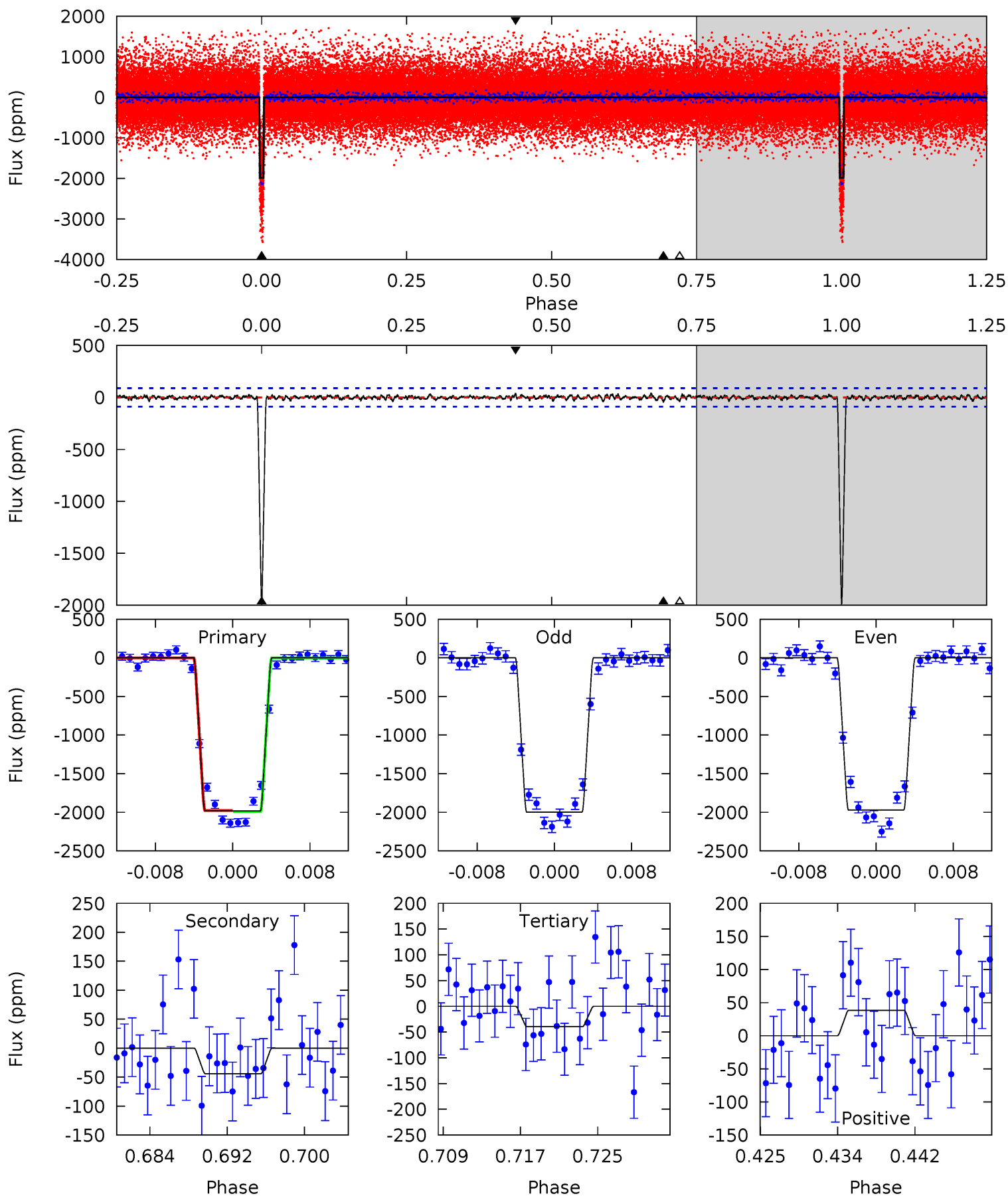
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
103.8	4.19	4.15	4.47	5.04	2.60	1.52	99.7	99.3	0.03	-0.28	0.62	0.98	0.04	0.80



# Alt Model-Shift Uniqueness Test

004049131-01,  $P = 20.505927$  Days,  $E = 119.915174$  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
112.9	2.52	2.26	2.19	5.06	2.64	0.69	110.6	110.7	0.26	0.33	0.80	1.01	0.02	0.40



### Stellar Parameters For KIC 004049131

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4905^{+148}_{-148}$	$4.544^{+0.072}_{-0.044}$	$-0.040^{+0.300}_{-0.300}$	$0.761^{+0.063}_{-0.070}$	$0.739^{+0.085}_{-0.054}$	$2.361^{+0.730}_{-0.360}$
	+3%/-3%	+2%/-1%	+750%/-750%	+8%/-9%	+12%/-7%	+31%/-15%
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 004049131-01 / KOI 0811.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-83 \pm 20$	$3.64^{+0.46}_{-0.48}$	$722^{+27}_{-27}$	$2897^{+145}_{-152}$	$62^{+25}_{-20}$
Alt.	$-44 \pm 18$	$3.71^{+0.49}_{-0.50}$	$721^{+24}_{-27}$	$2640^{+160}_{-172}$	$31^{+16}_{-13}$

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

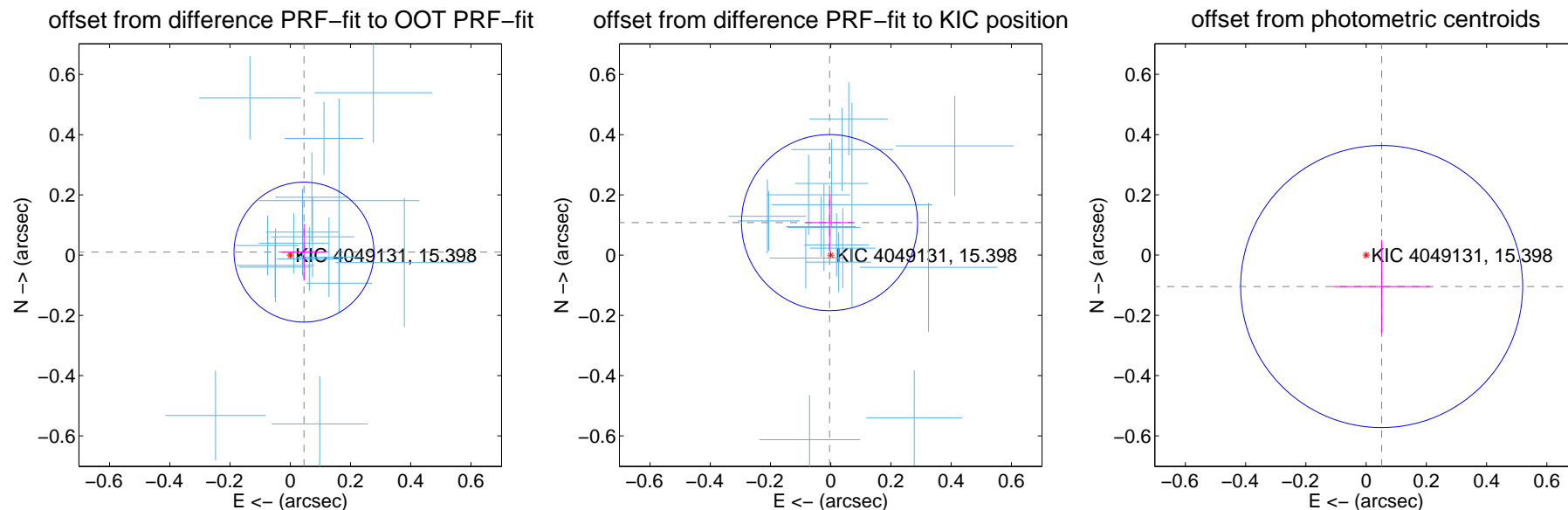
## DV Centroid Data

Supplemental centroid analysis for 004049131-01. Kepler magnitude: 15.40. Transit SNR 71.24

There are 17 quarters with good PRF difference image offsets

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

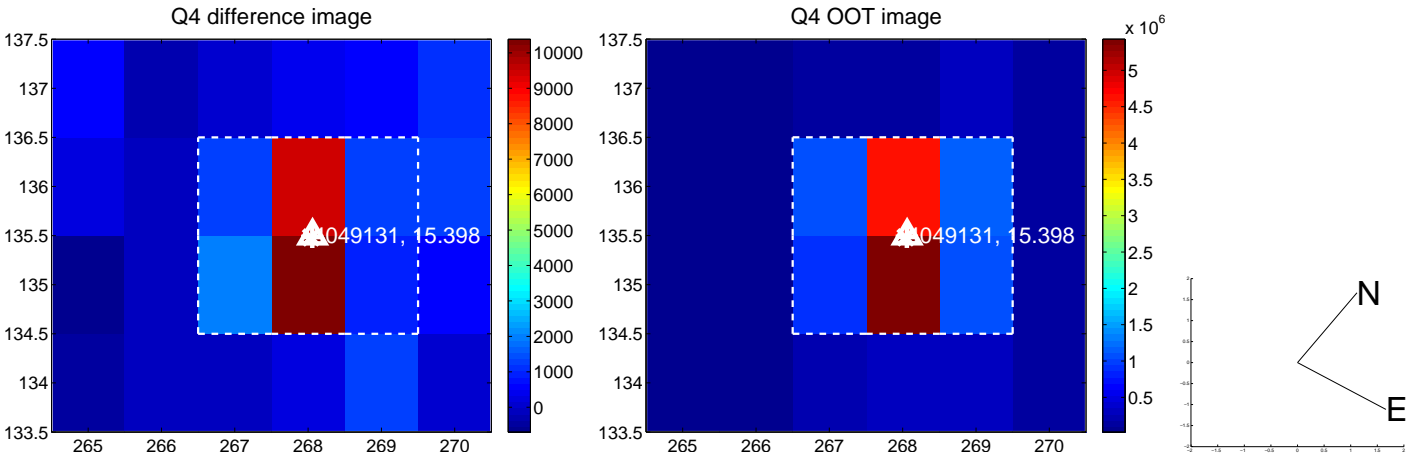
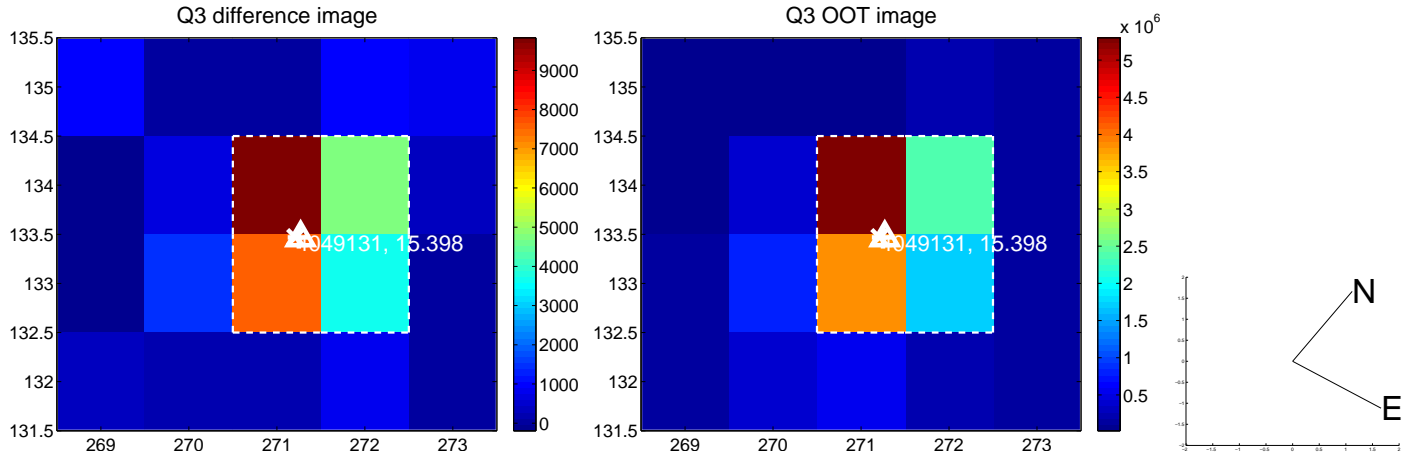
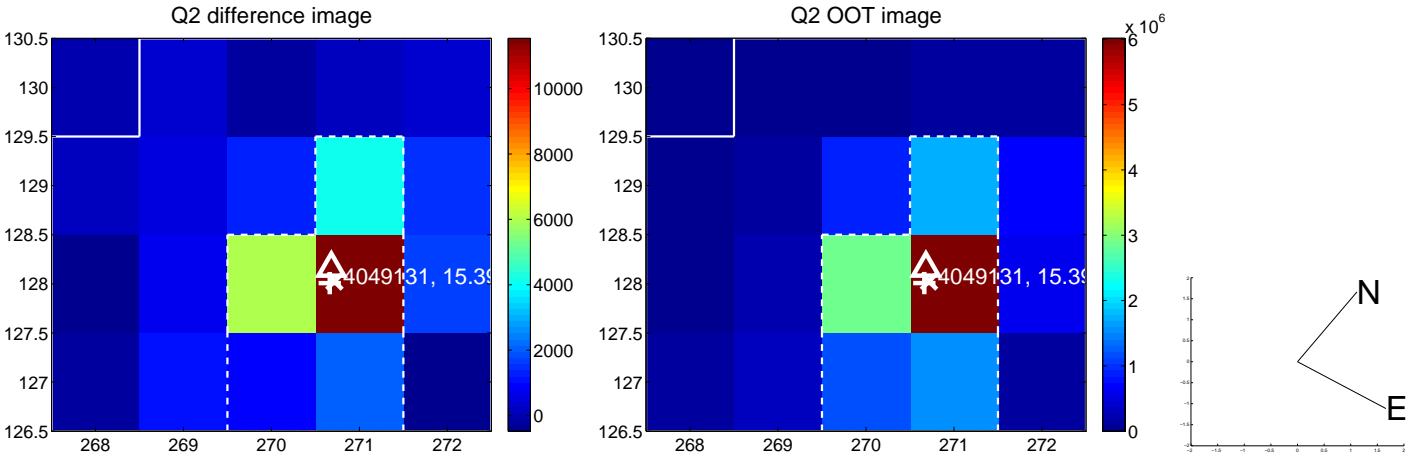
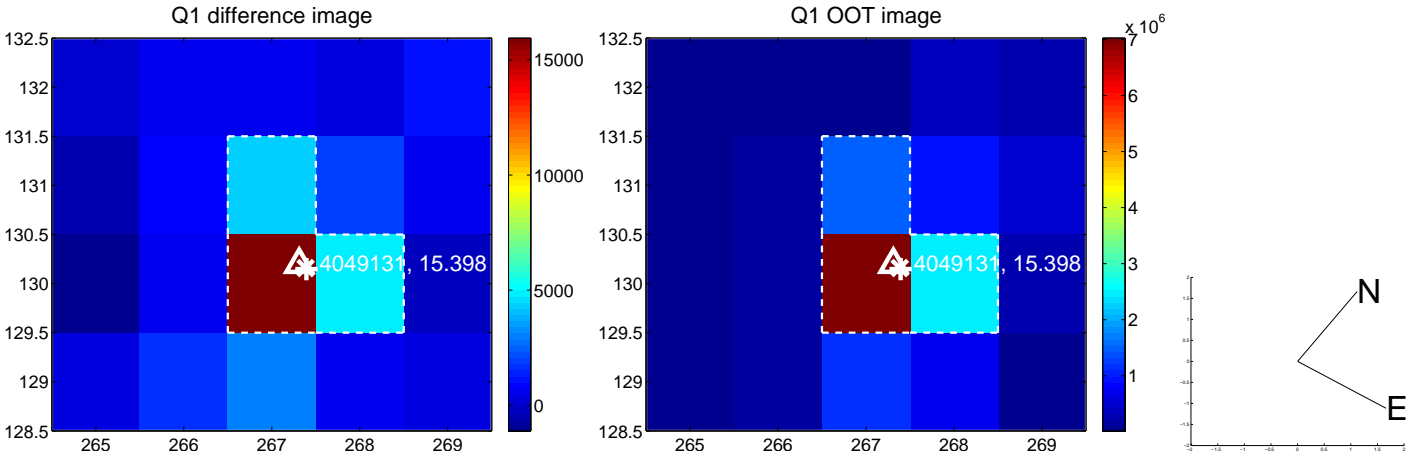
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.047 \pm 0.077$	0.60	$-0.046 \pm 0.075$	$0.010 \pm 0.094$
PRF-fit source offset from KIC position	$0.108 \pm 0.097$	1.11	$0.004 \pm 0.079$	$0.108 \pm 0.097$
photometric centroid source offset	$0.12 \pm 0.16$	0.75	$-0.05 \pm 0.16$	$-0.10 \pm 0.15$



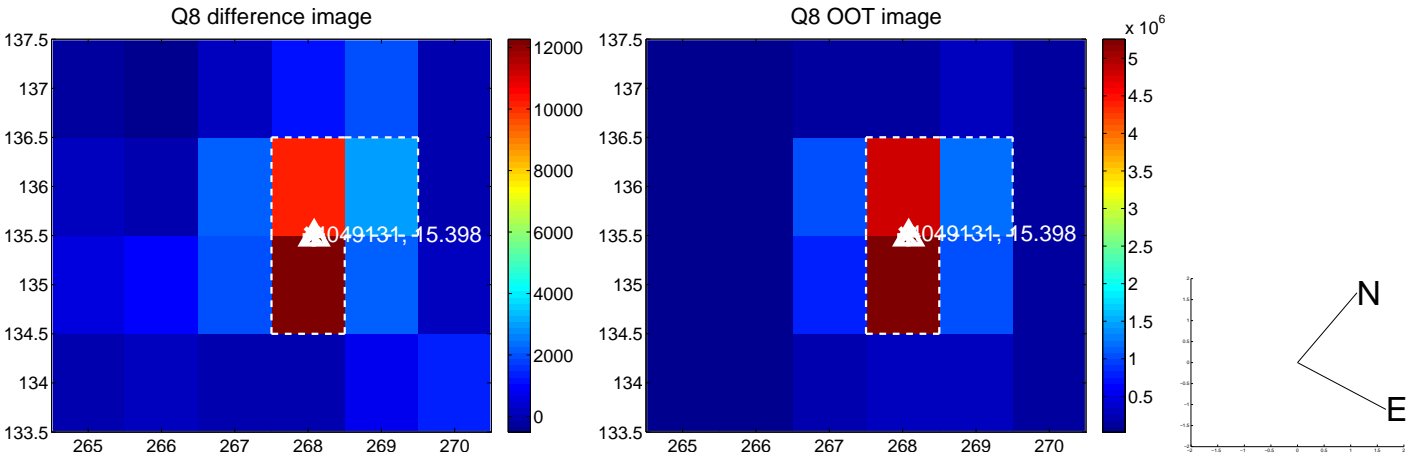
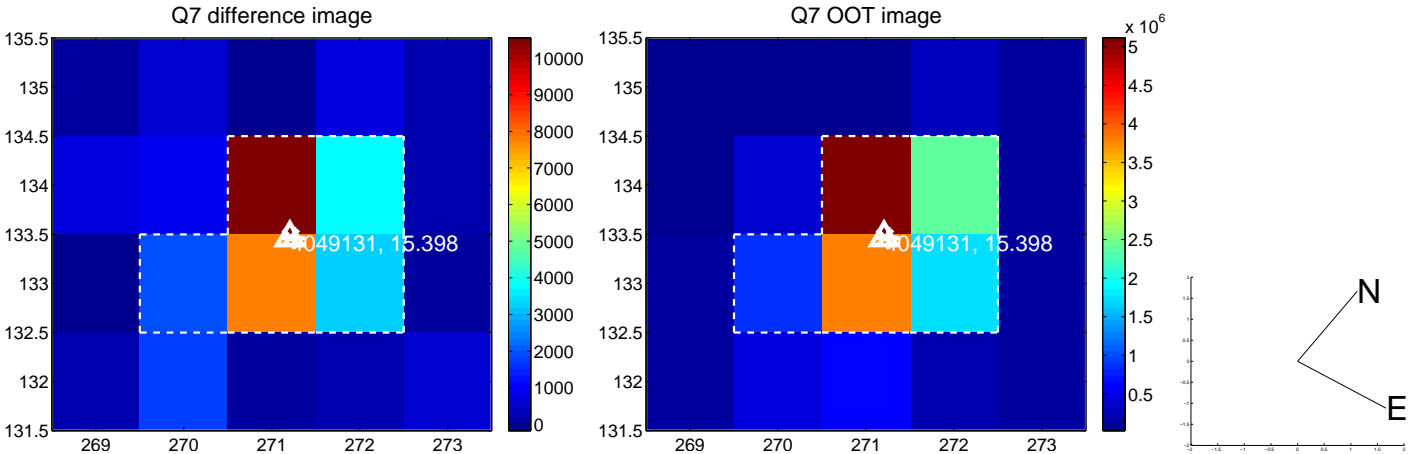
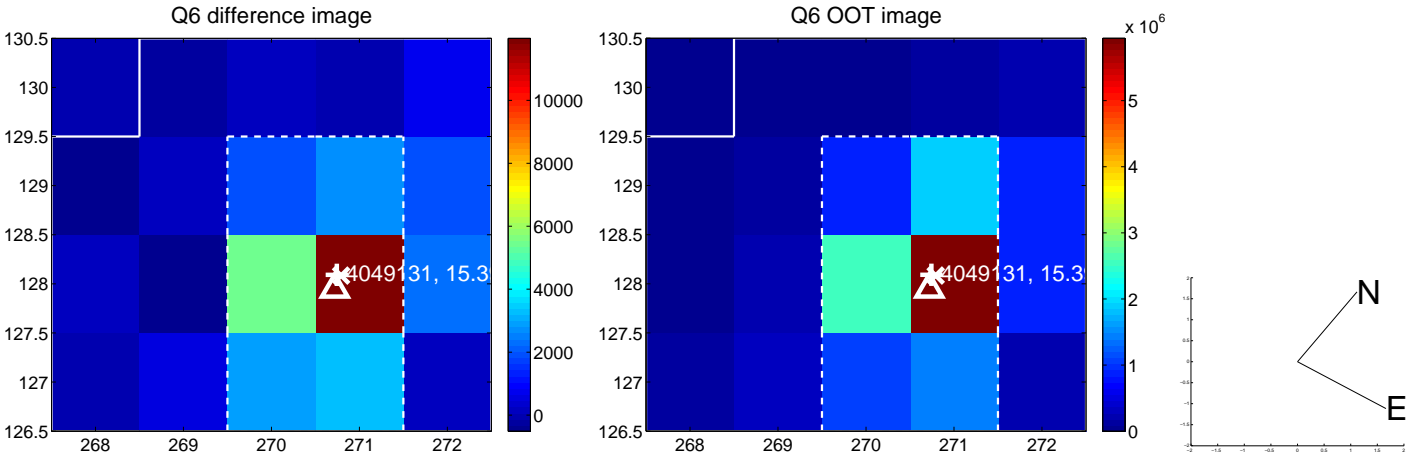
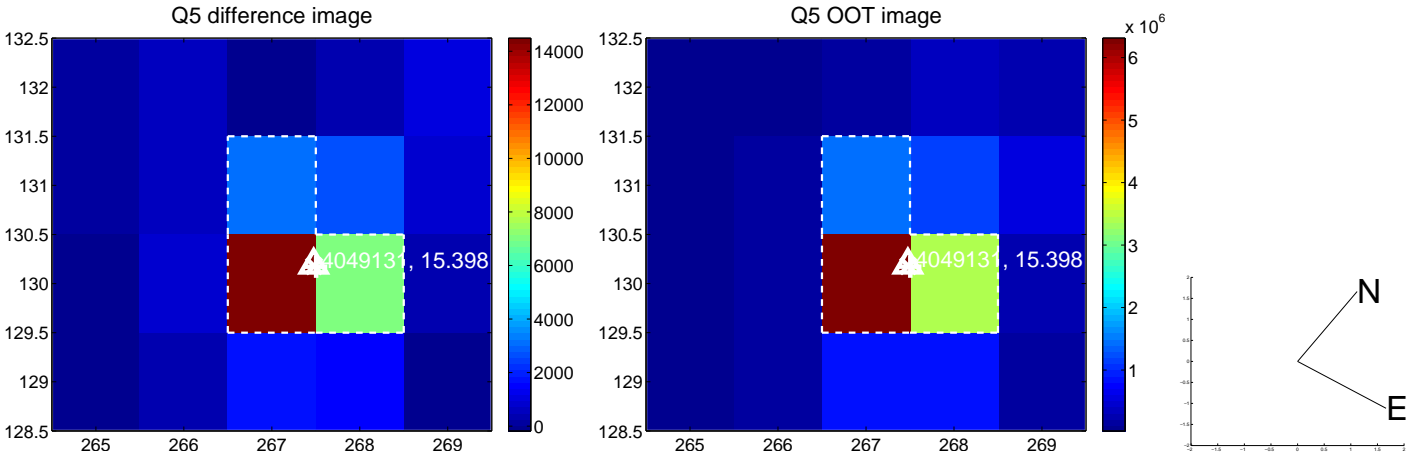
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



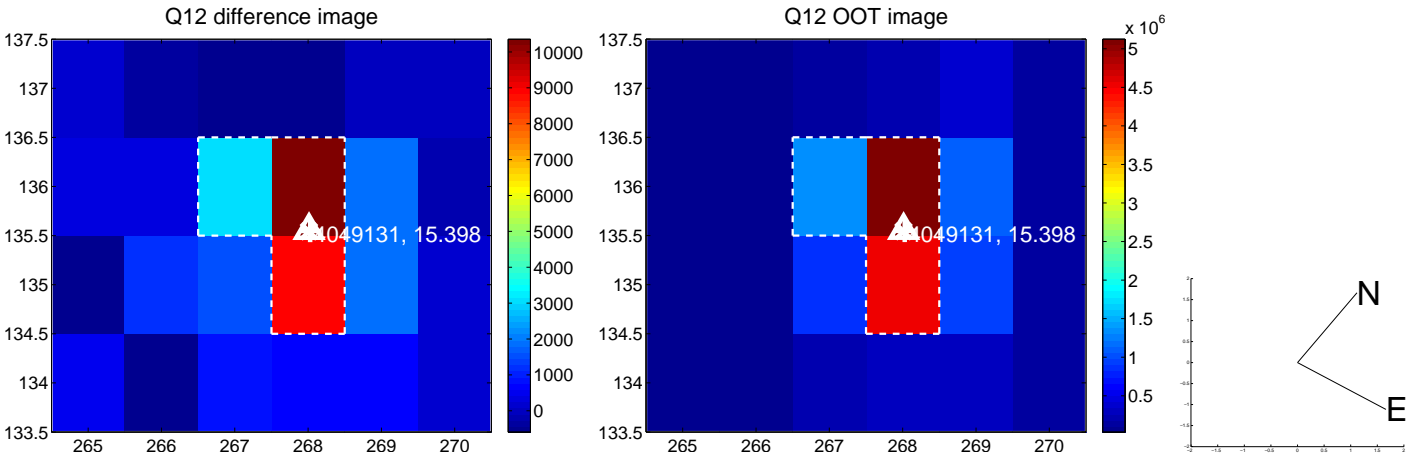
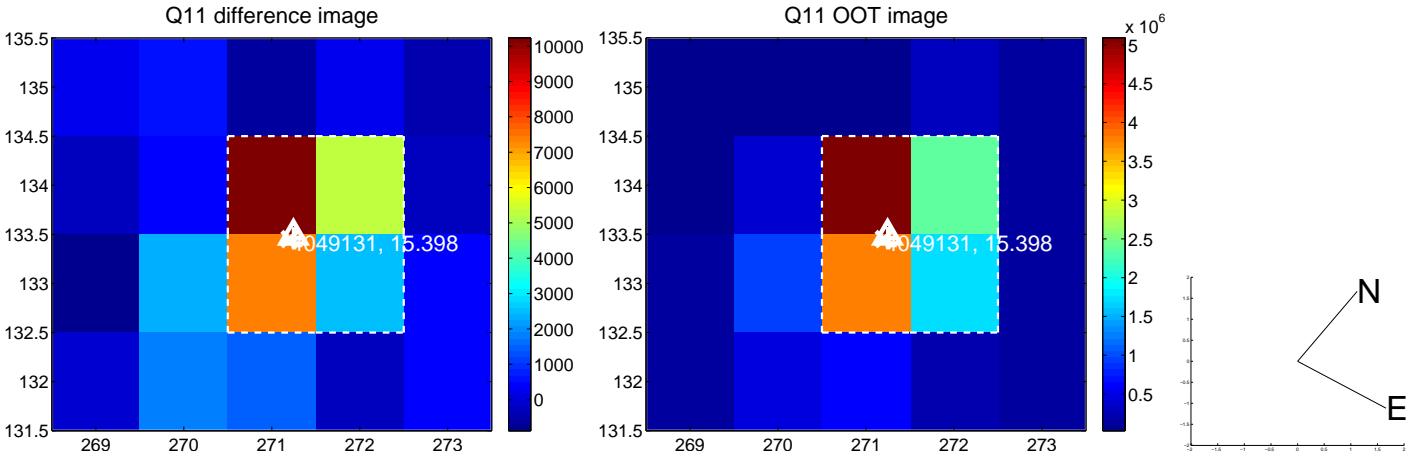
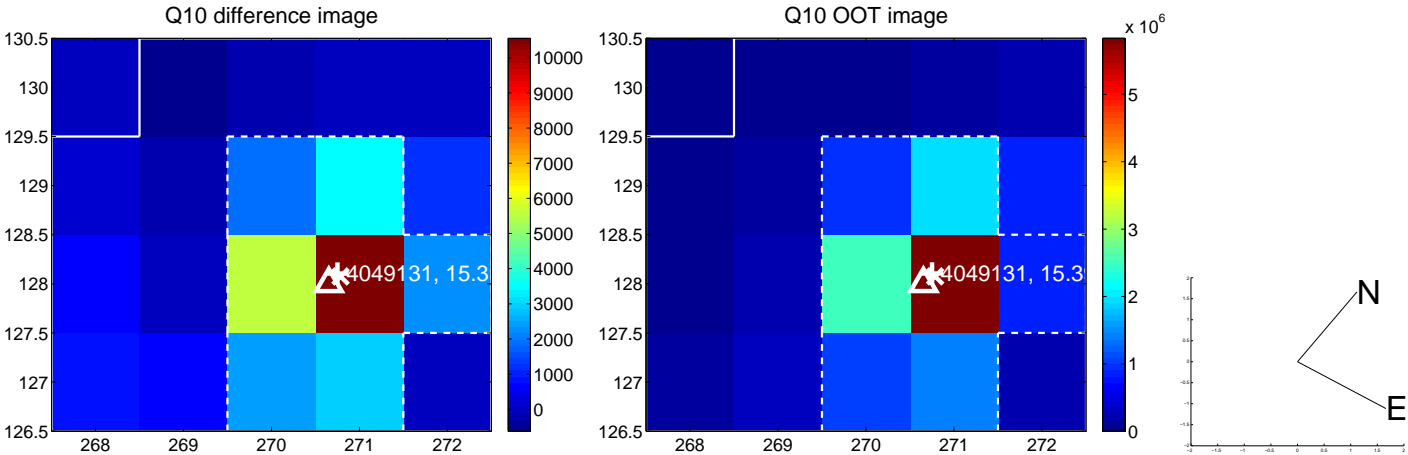
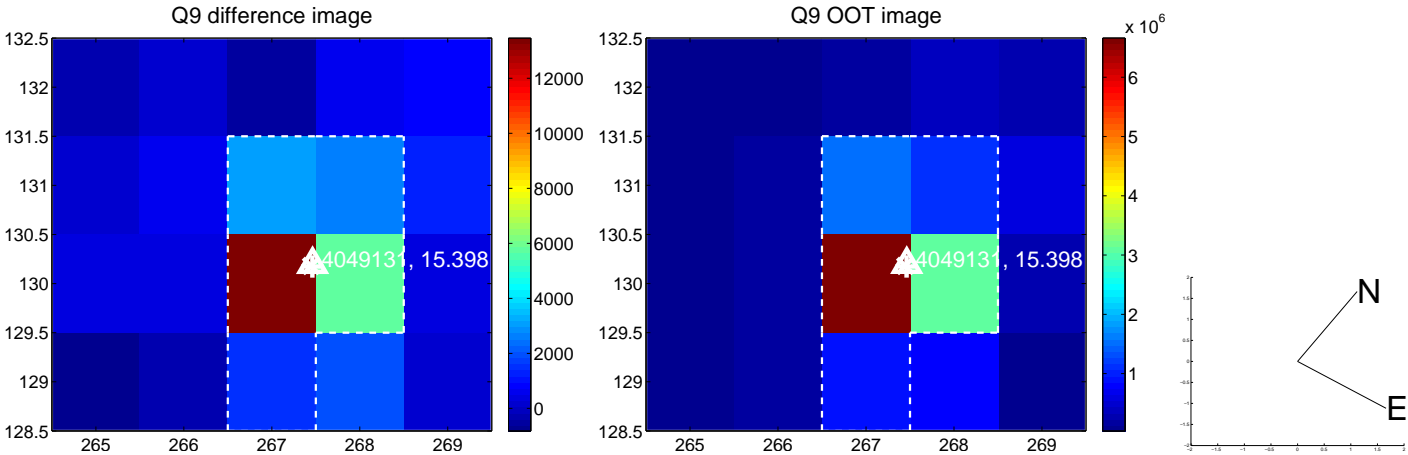
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



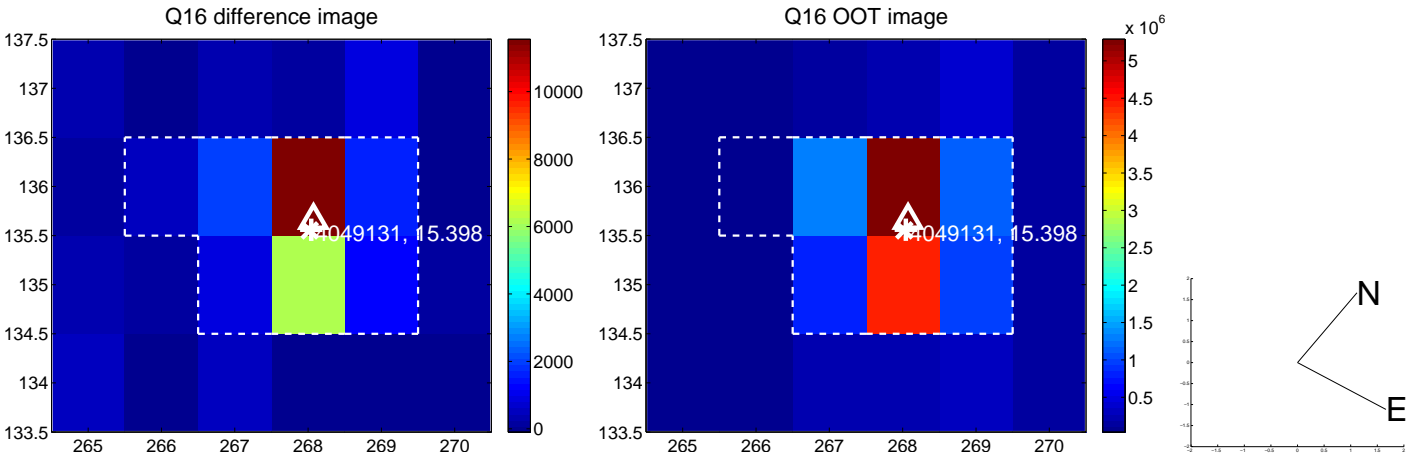
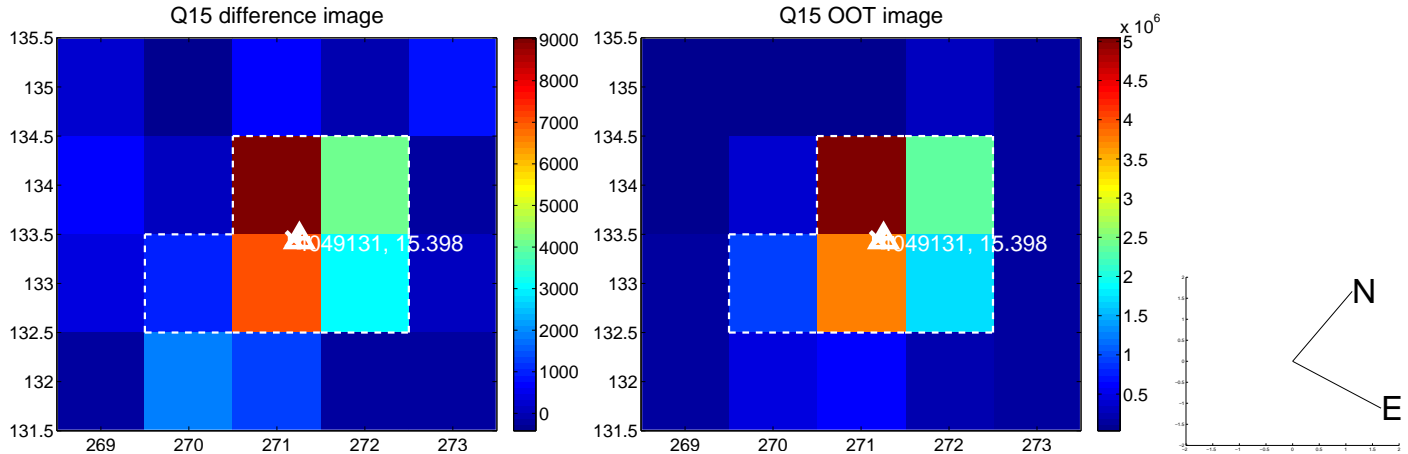
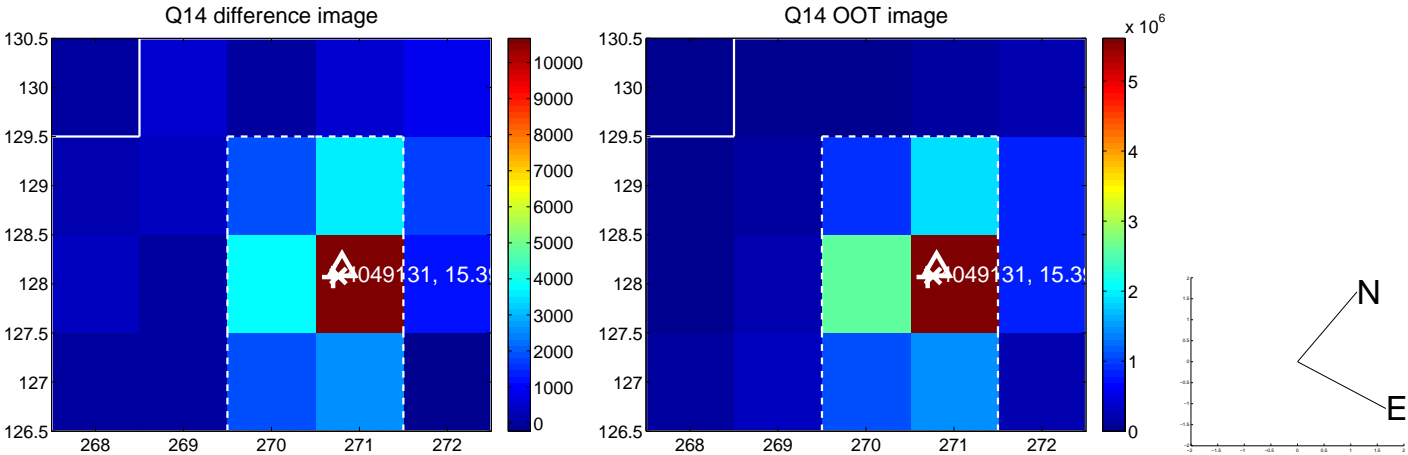
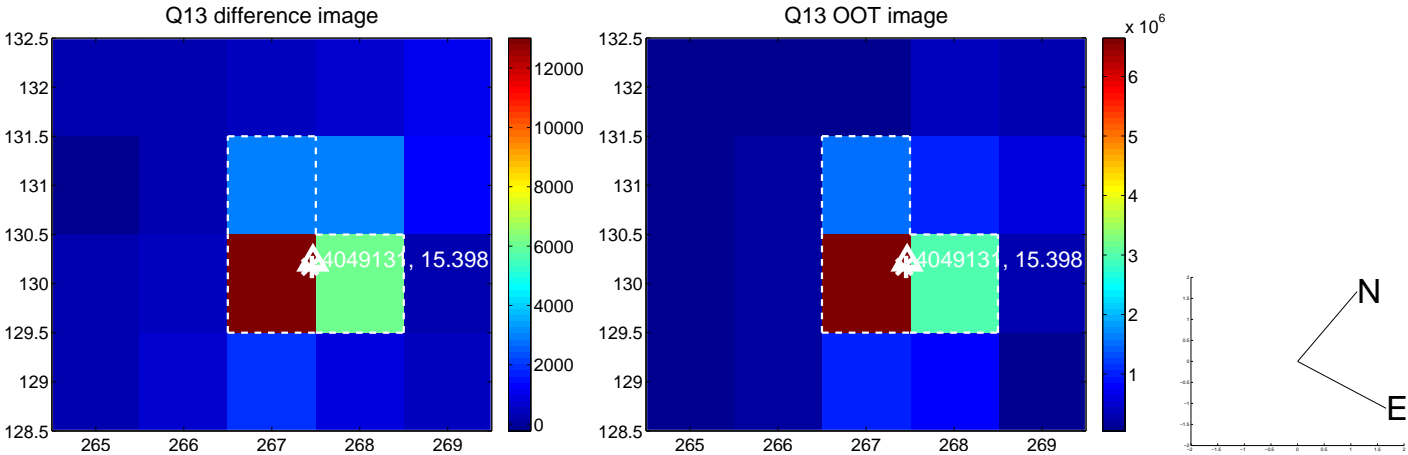
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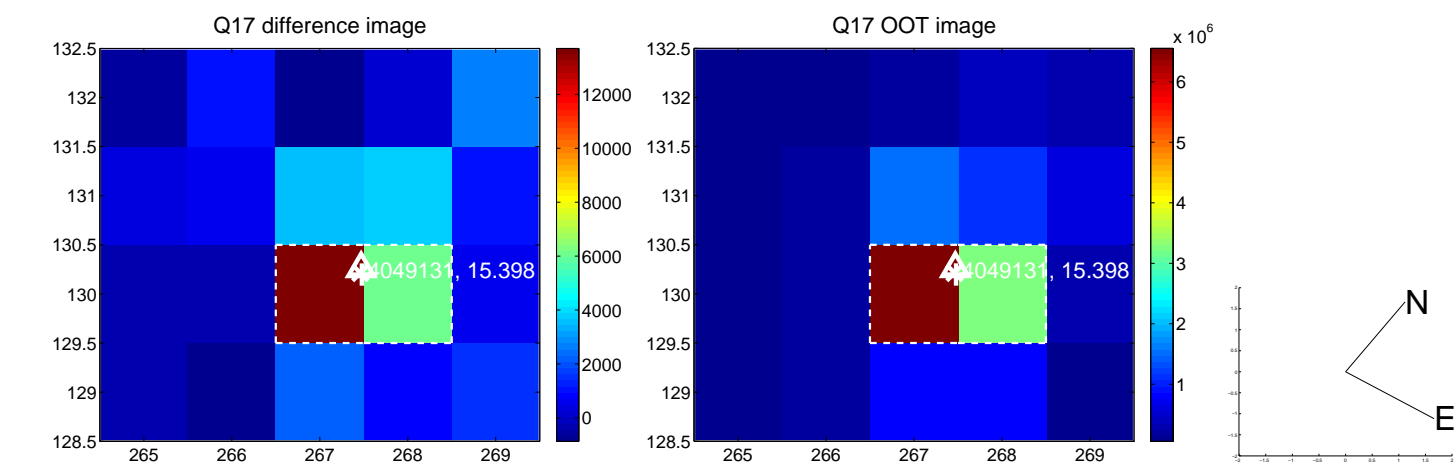
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



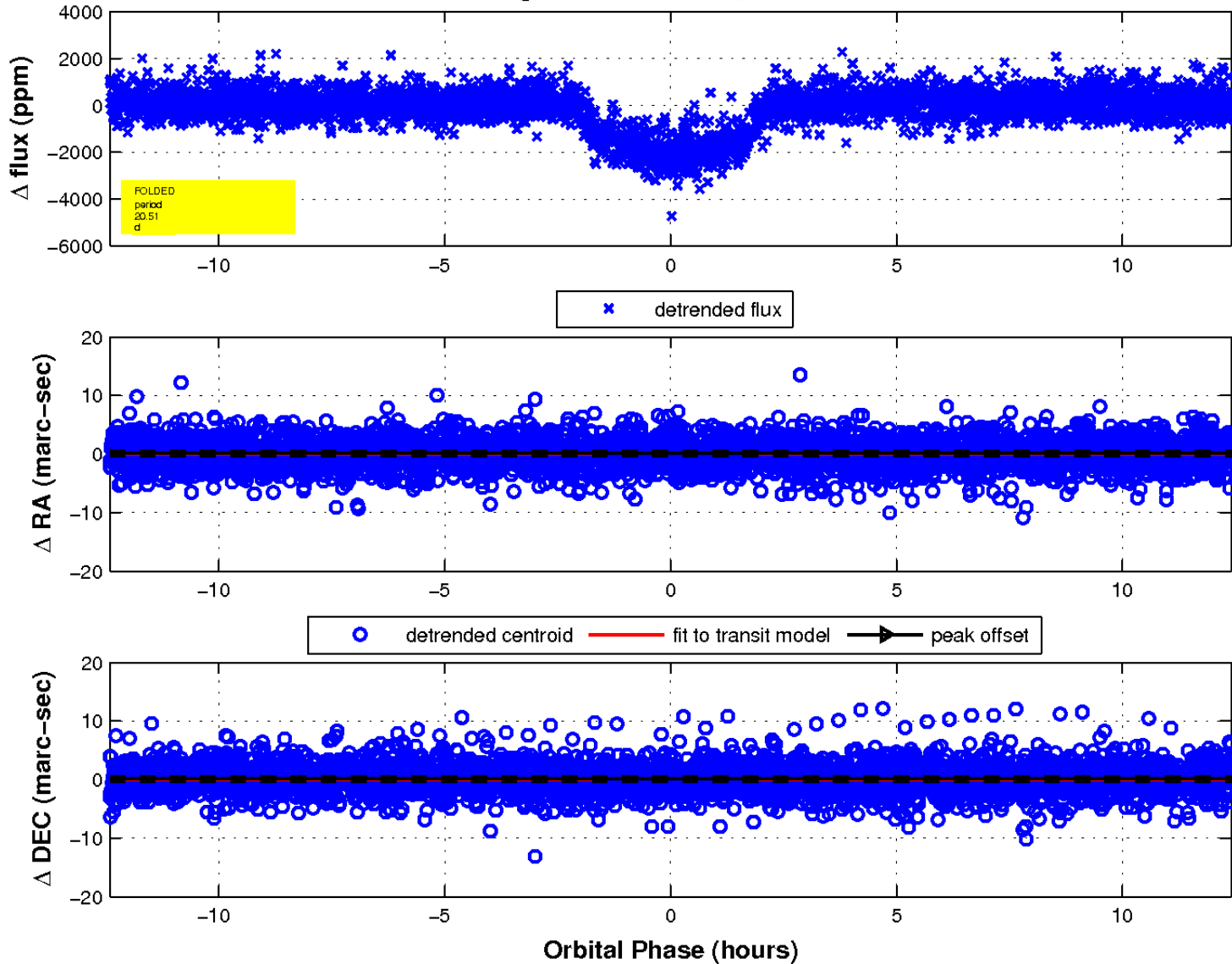
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

