

# KIC 004828341

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004828341-01	OBS	1496.01	36.128948	135.648242	3710.3	2.155	61.7	60.1	0.91	5921	8.50	21.09

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004828341-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

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

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

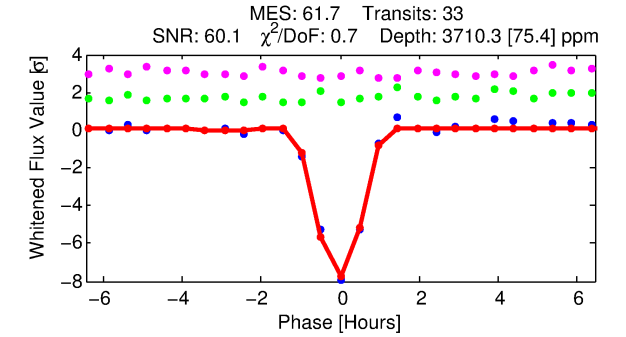
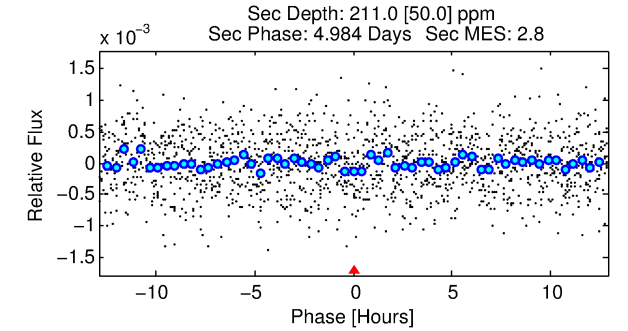
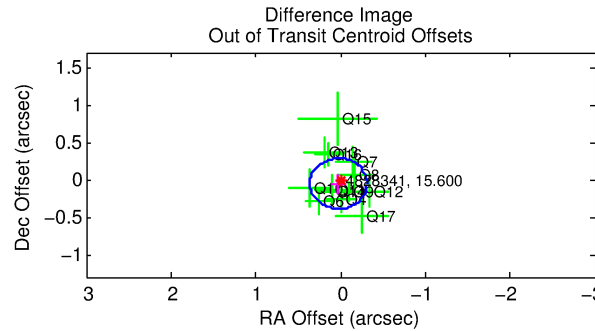
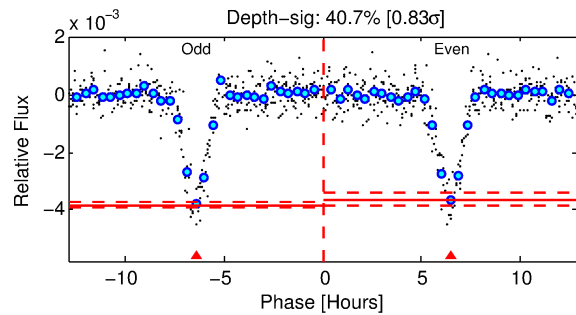
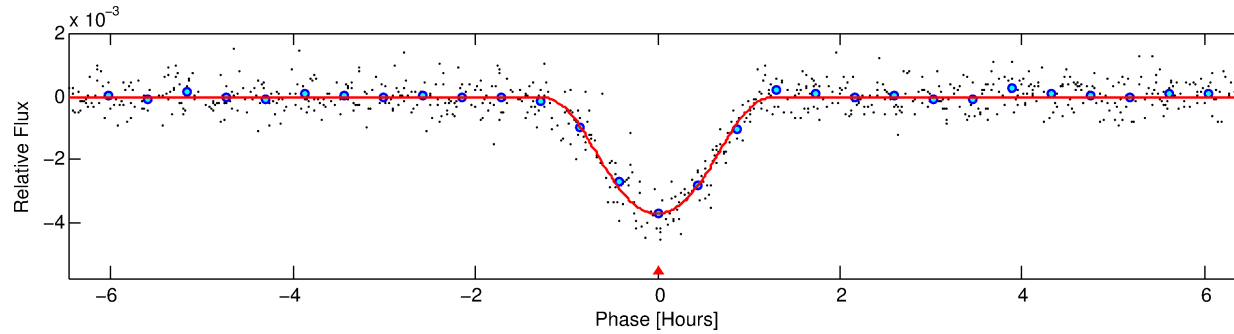
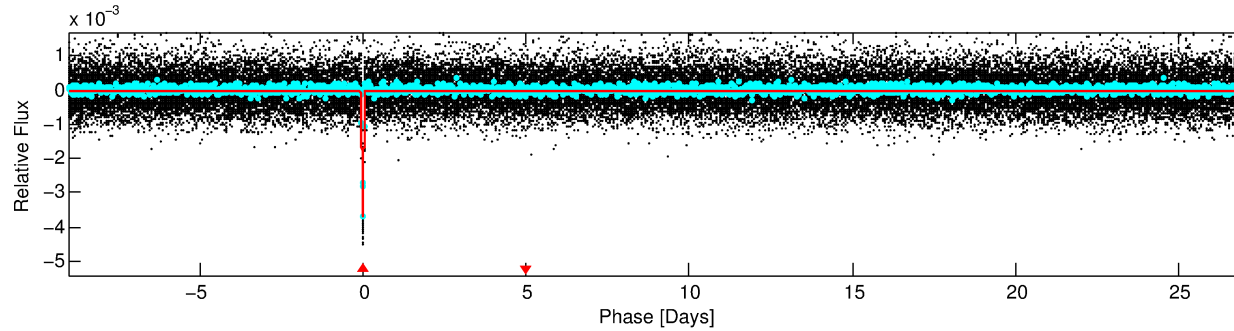
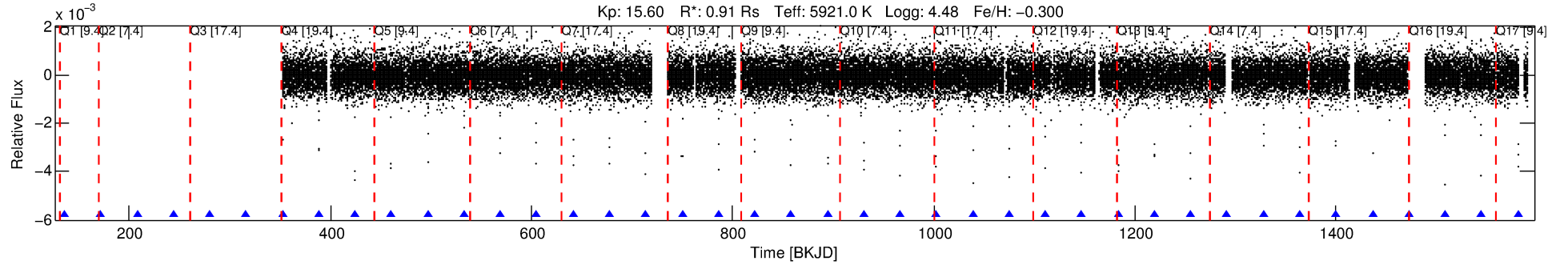
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004828341-01

No Significant Match Found

# DV One-Page Summary

KIC: 4828341 Candidate: 1 of 1 Period: 36.129 d  
KOI: K01496.01 Corr: 0.986



## DV Fit Results:

Period = 36.12895 [0.00004] d  
Epoch = 135.6482 [0.0010] BKJD  
Rp/R\* = 0.0854 [0.0360]  
a/R\* = 62.32 [8.11]  
b = 0.97 [0.06]  
Seff = 21.09 [8.10]  
Teq = 546 [53] K  
Rp = 8.50 [4.36] Re  
a = 0.2084 [0.0511] AU  
Ag = 69.77 [66.03] [1.04 $\sigma$ ]  
Teffp = 2442 [542] K [3.48 $\sigma$ ]

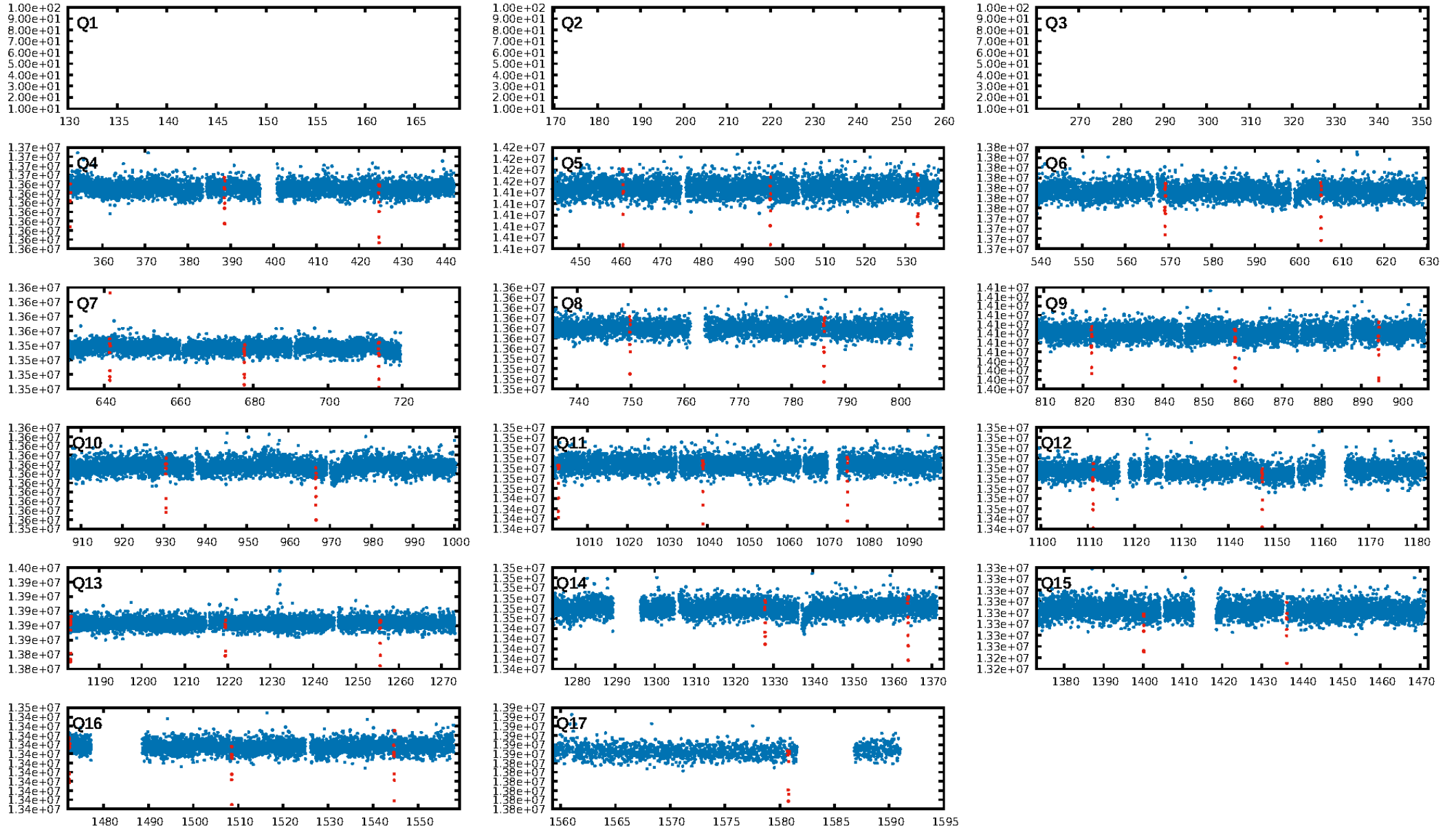
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 66.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [32/32]  
GhostDiagnostic-chr: 4.854  
Centroid-sig: 24.0%  
Centroid-so: 0.448 arcsec [1.99 $\sigma$ ]  
OotOffset-rm: 0.058 arcsec [0.52 $\sigma$ ]  
OotOffset-st: 3/3/4/3 [13]  
KicOffset-rm: 0.144 arcsec [1.32 $\sigma$ ]  
KicOffset-st: 3/3/4/3 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [14/14]

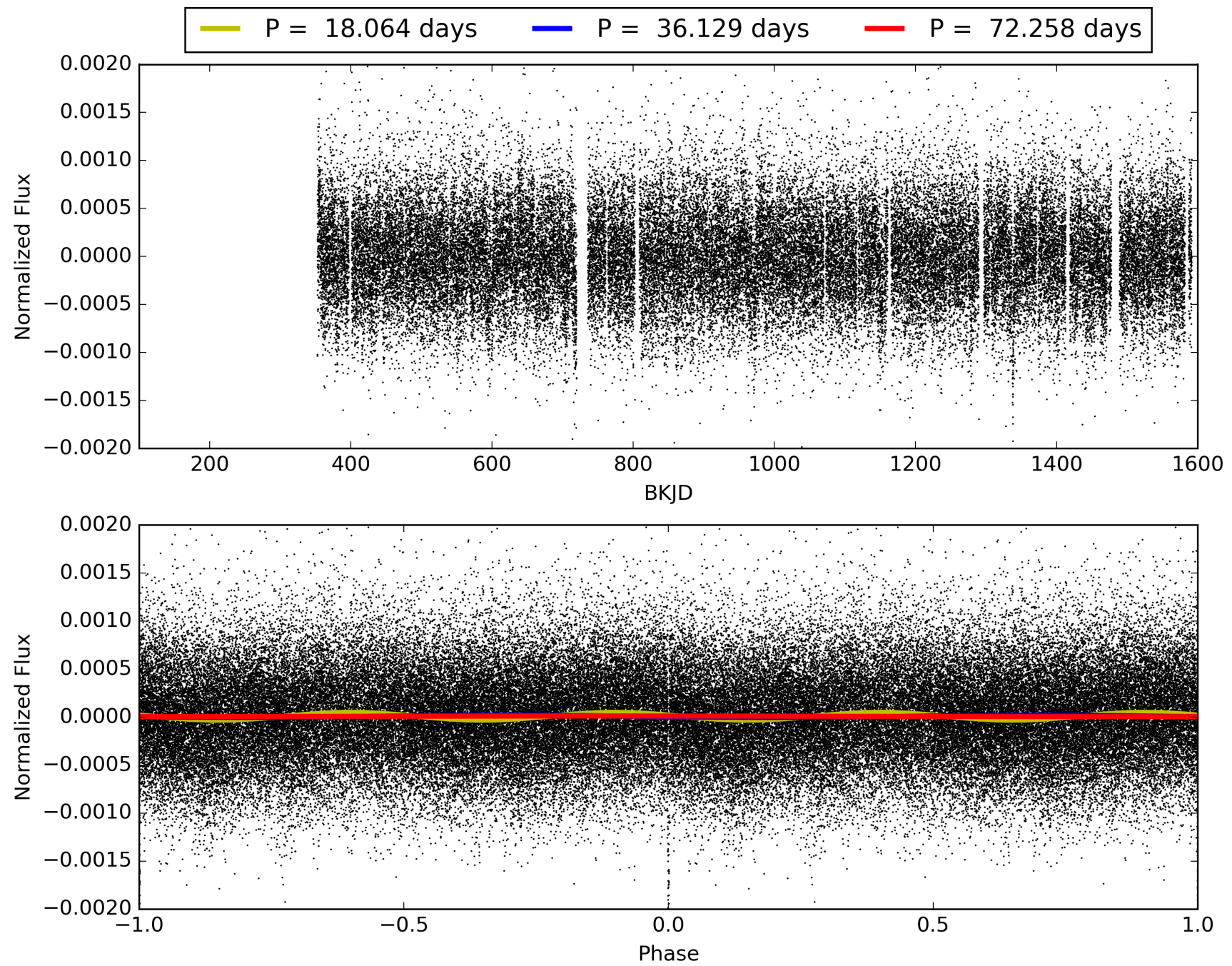
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:54:05 Z

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

# TCE 004828341-01, PDC Light Curves

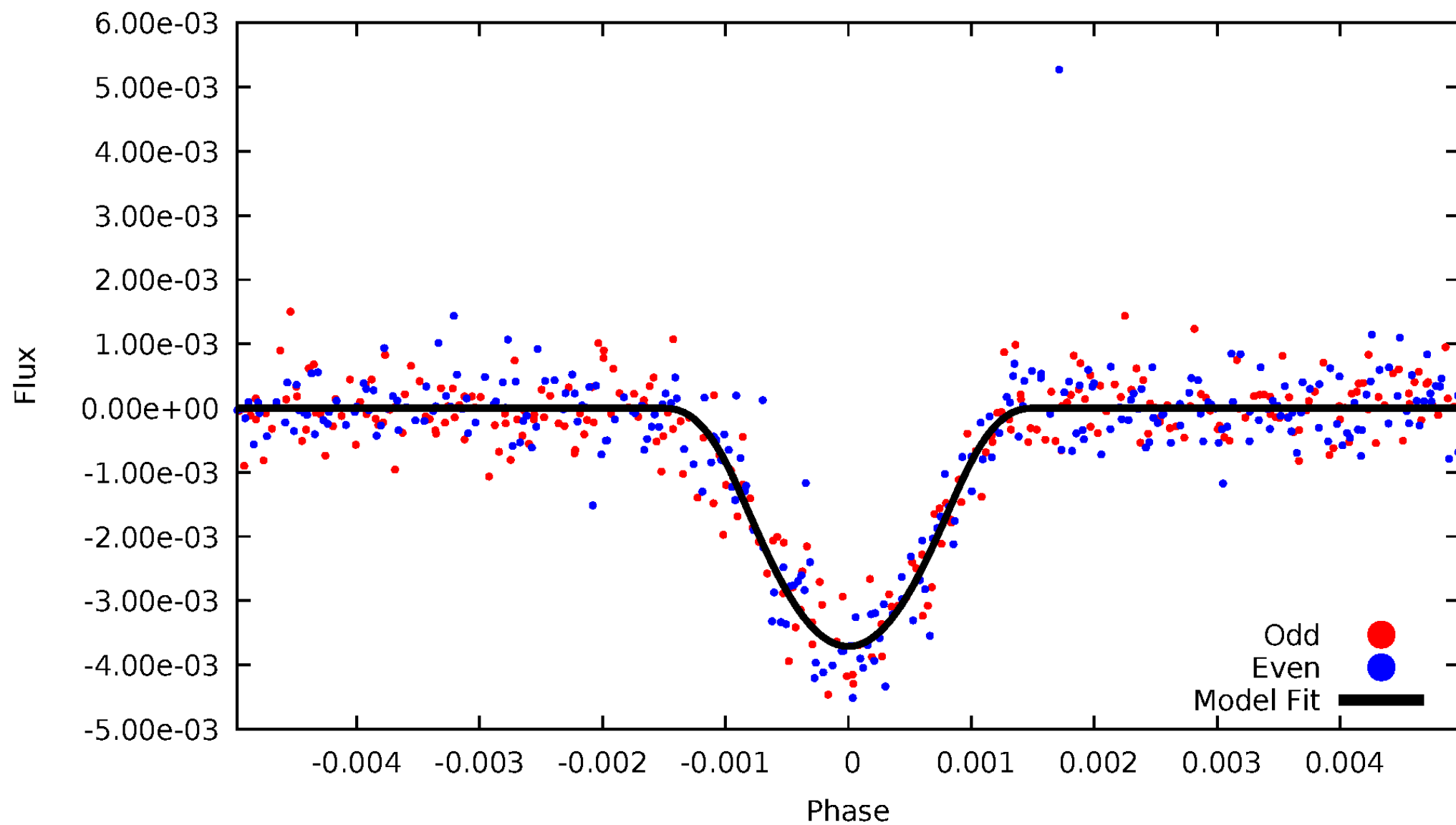


TCE 004828341-01



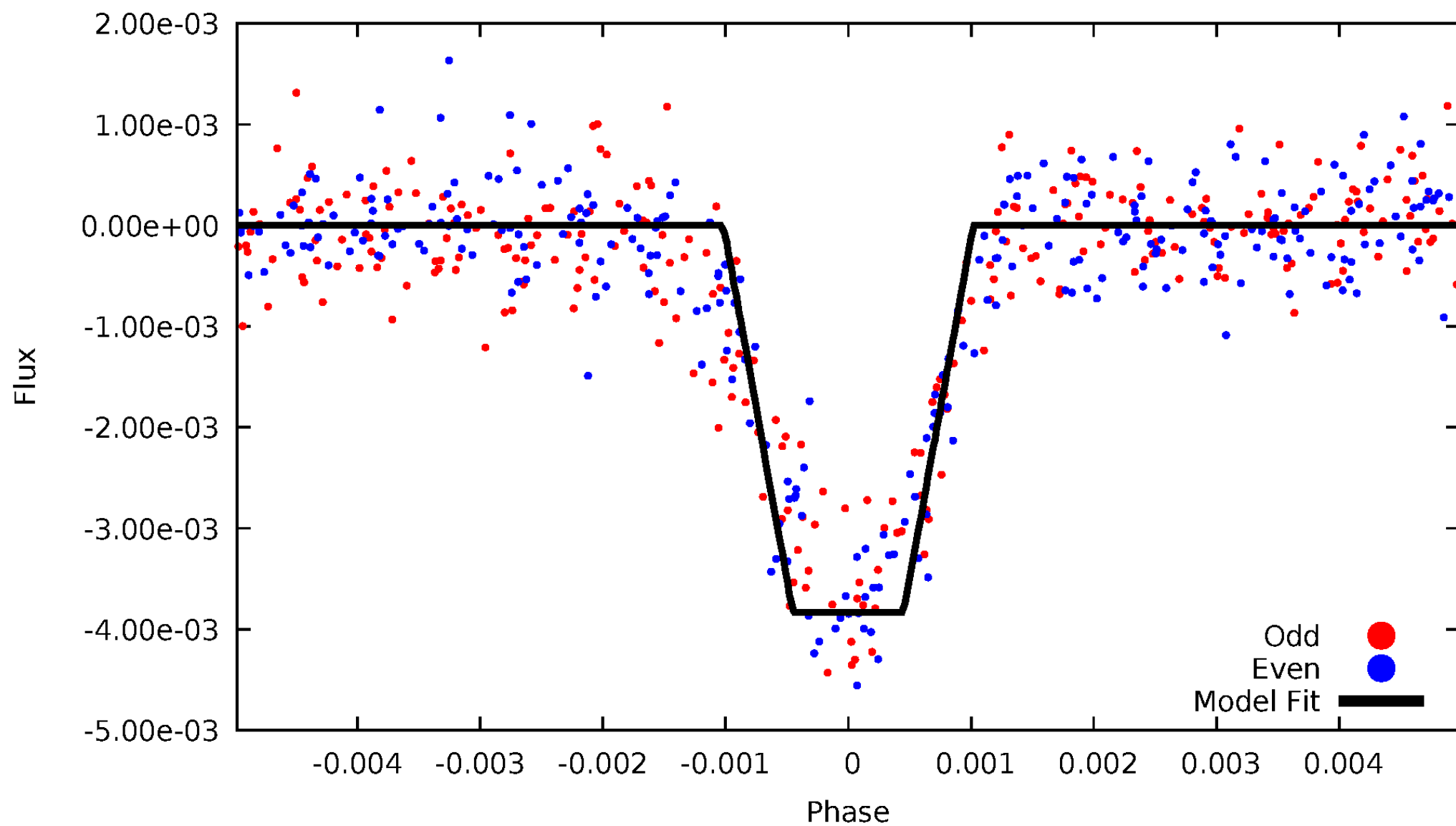
# DV Odd/Even

TCE 004828341-01



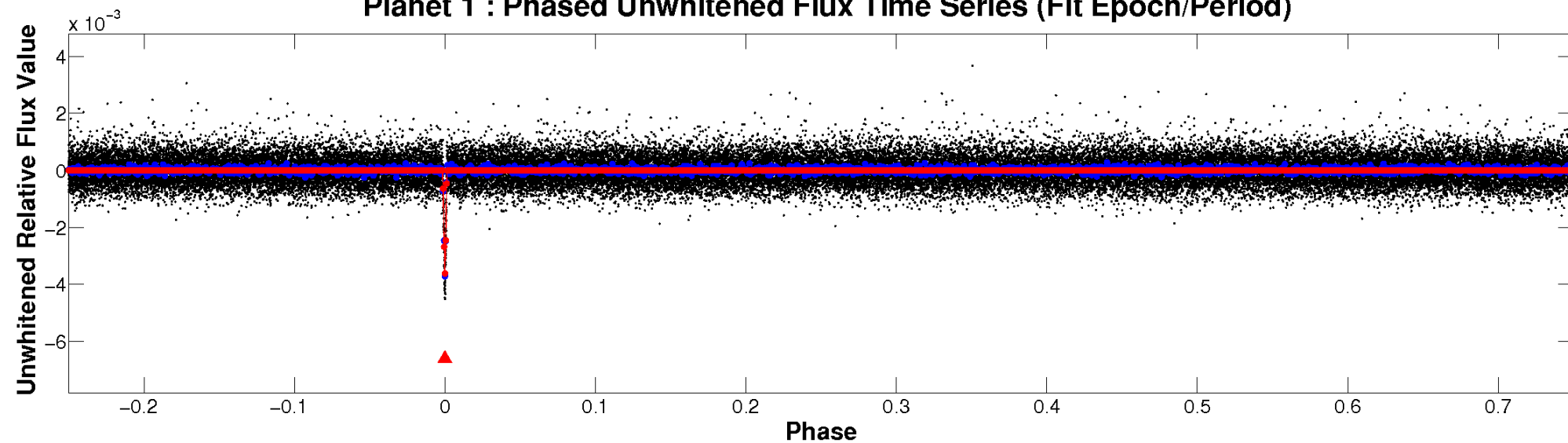
# ALT Odd/Even

TCE 004828341-01

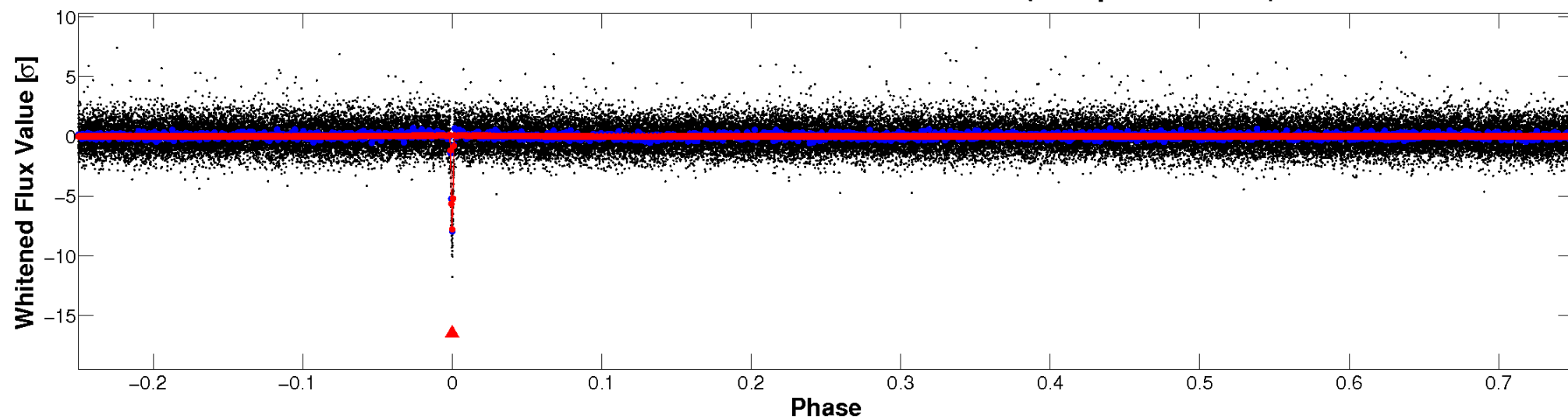


# Non-Whitened Vs. Whitened Light Curve

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



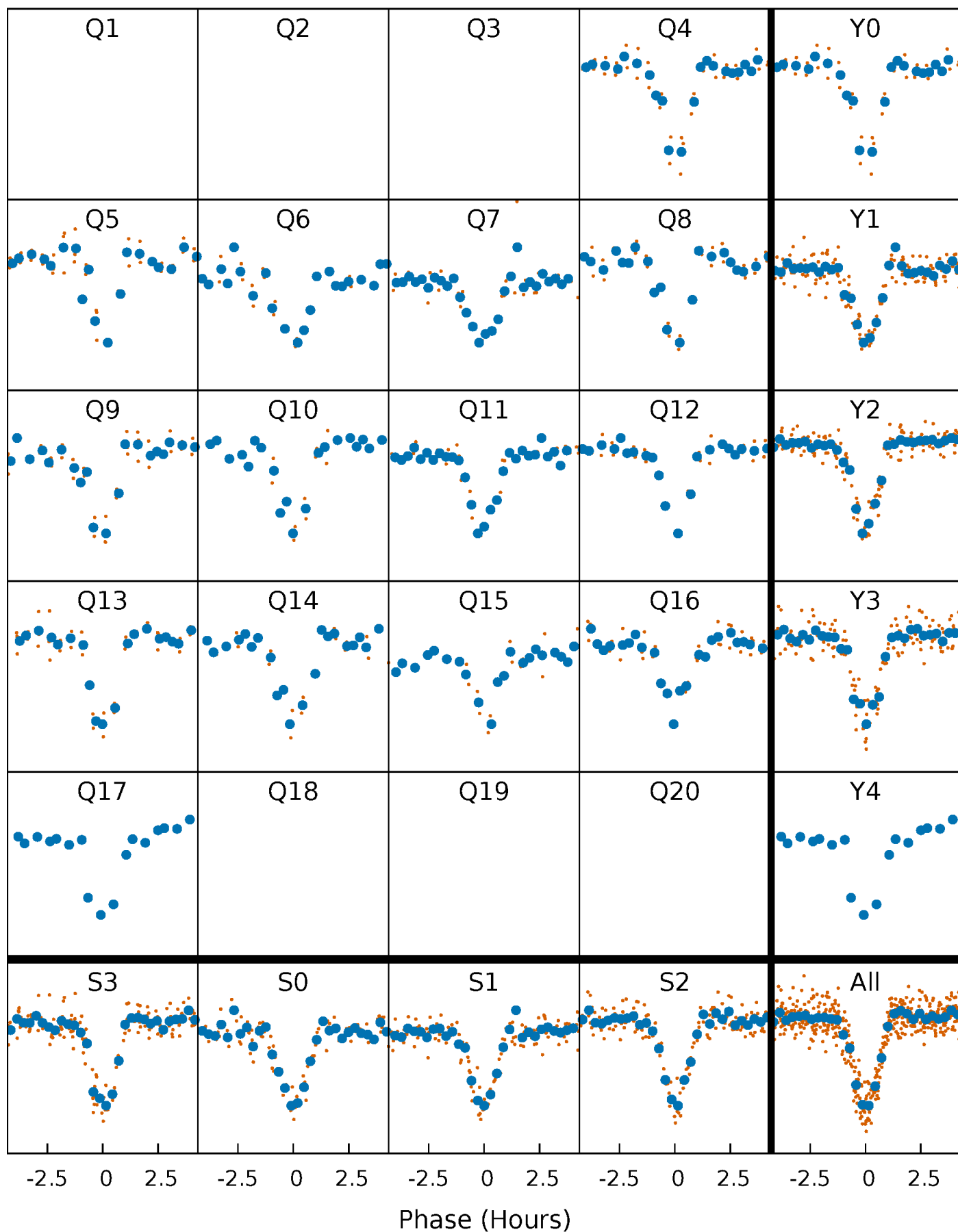
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

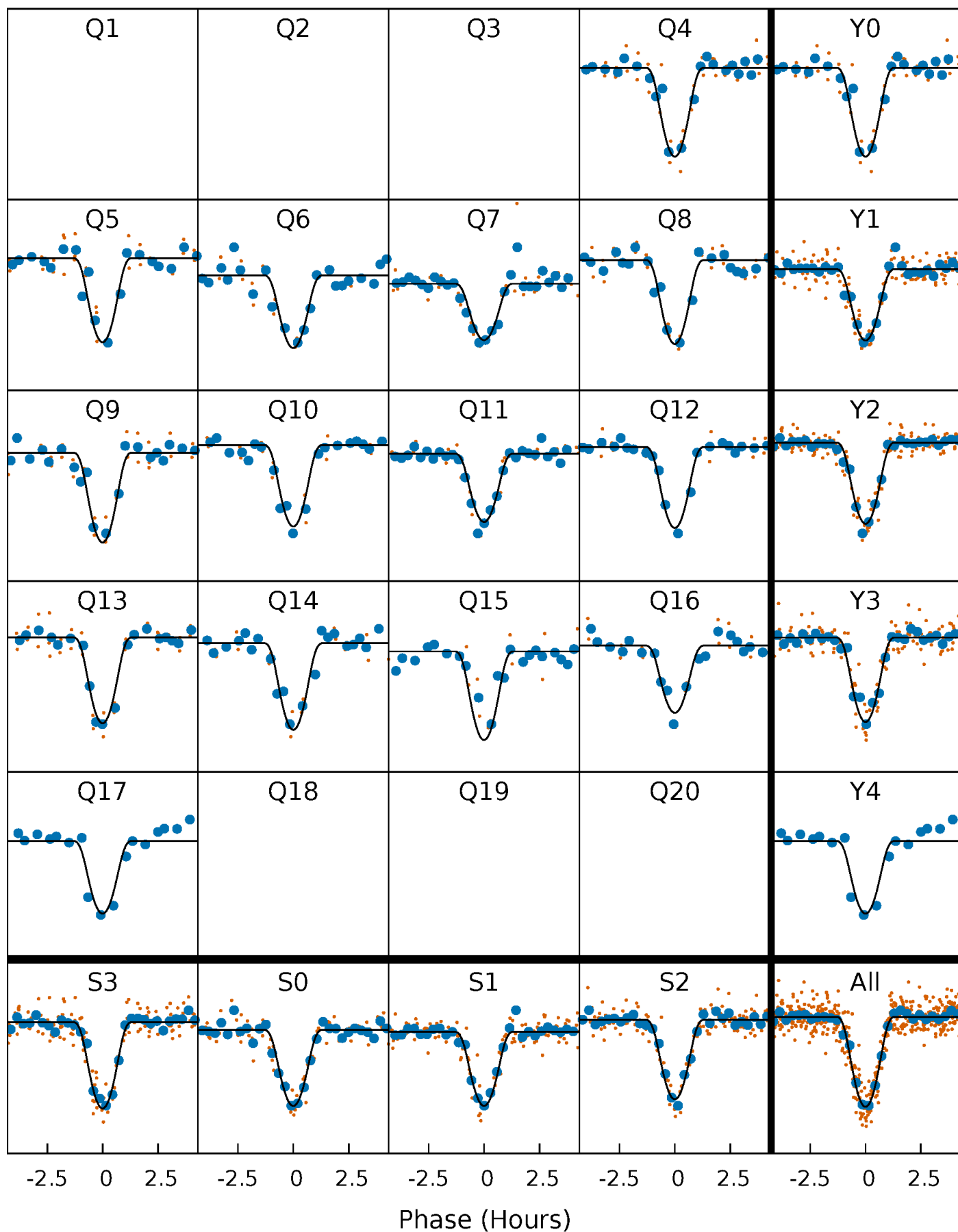
TCE 004828341-01   P= 36.128948 Days    $T_0=135.648242$  (BKJD)





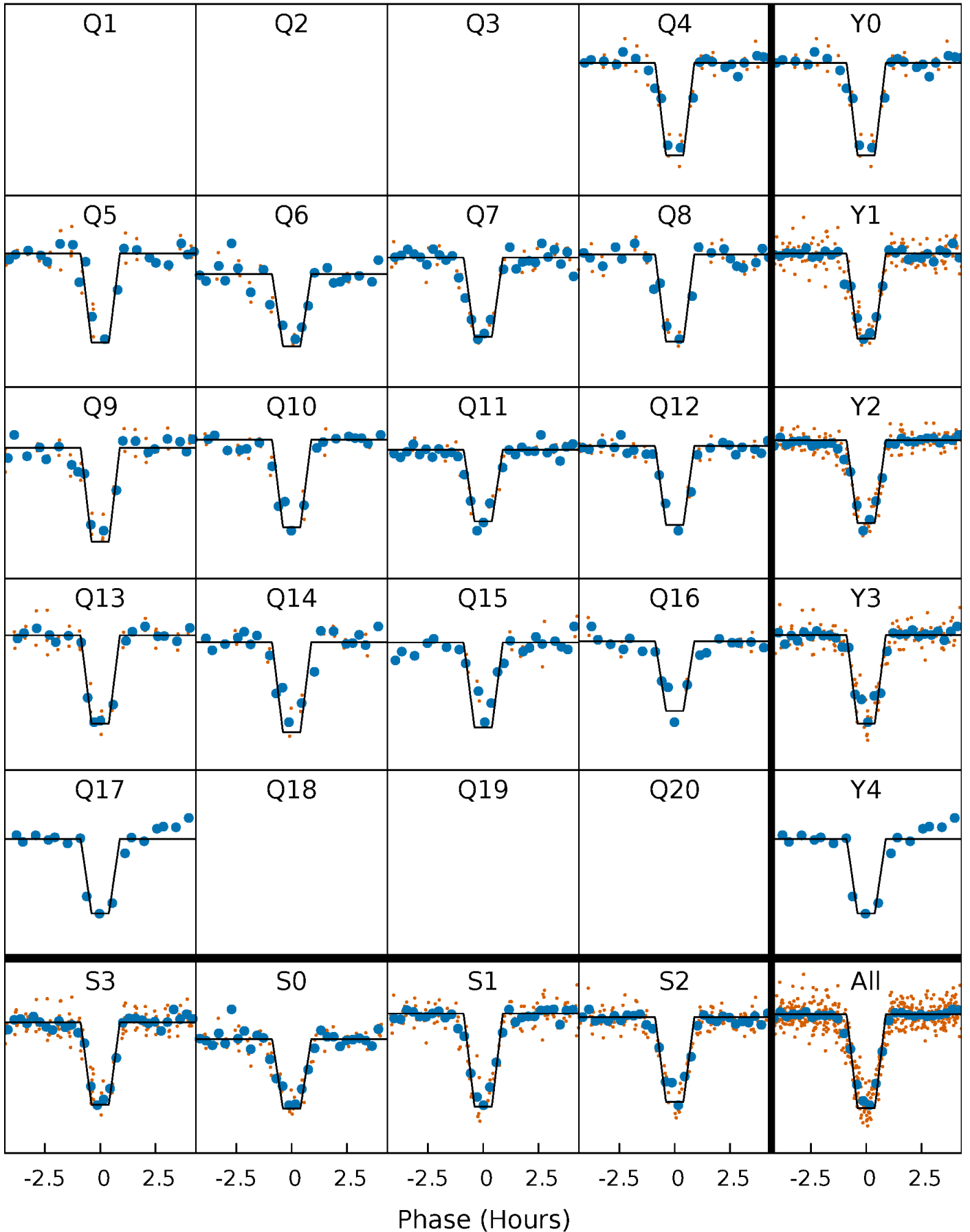
# DV Quarter-Phased Transit Curves

TCE 004828341-01   P= 36.128948 Days    $T_0=135.648242$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

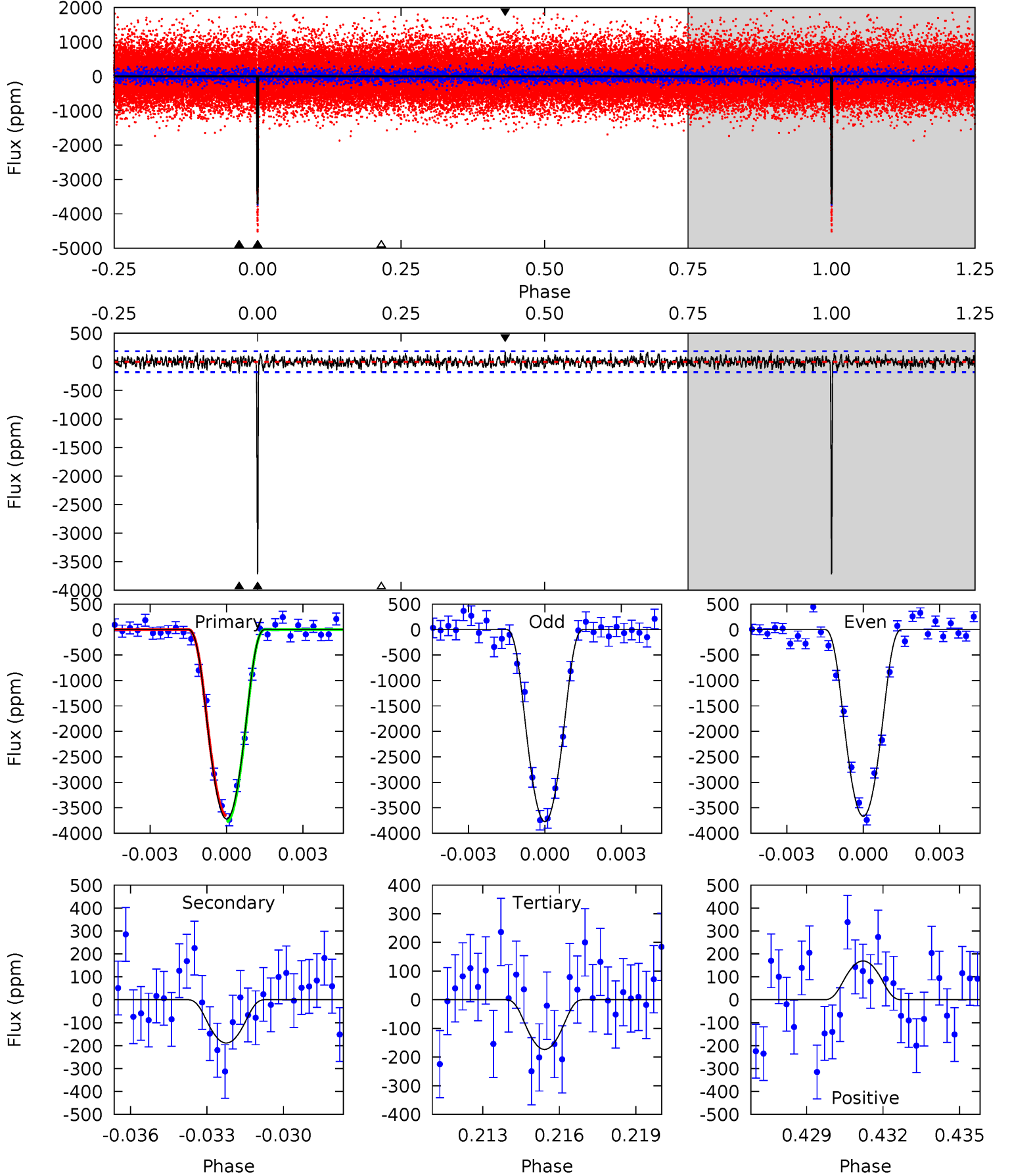
TCE 004828341-01 P= 36.128836 Days  $T_0=135.651205$  (BKJD)



# DV Model-Shift Uniqueness Test

004828341-01,  $P = 36.128948$  Days,  $E = 135.648242$  Days

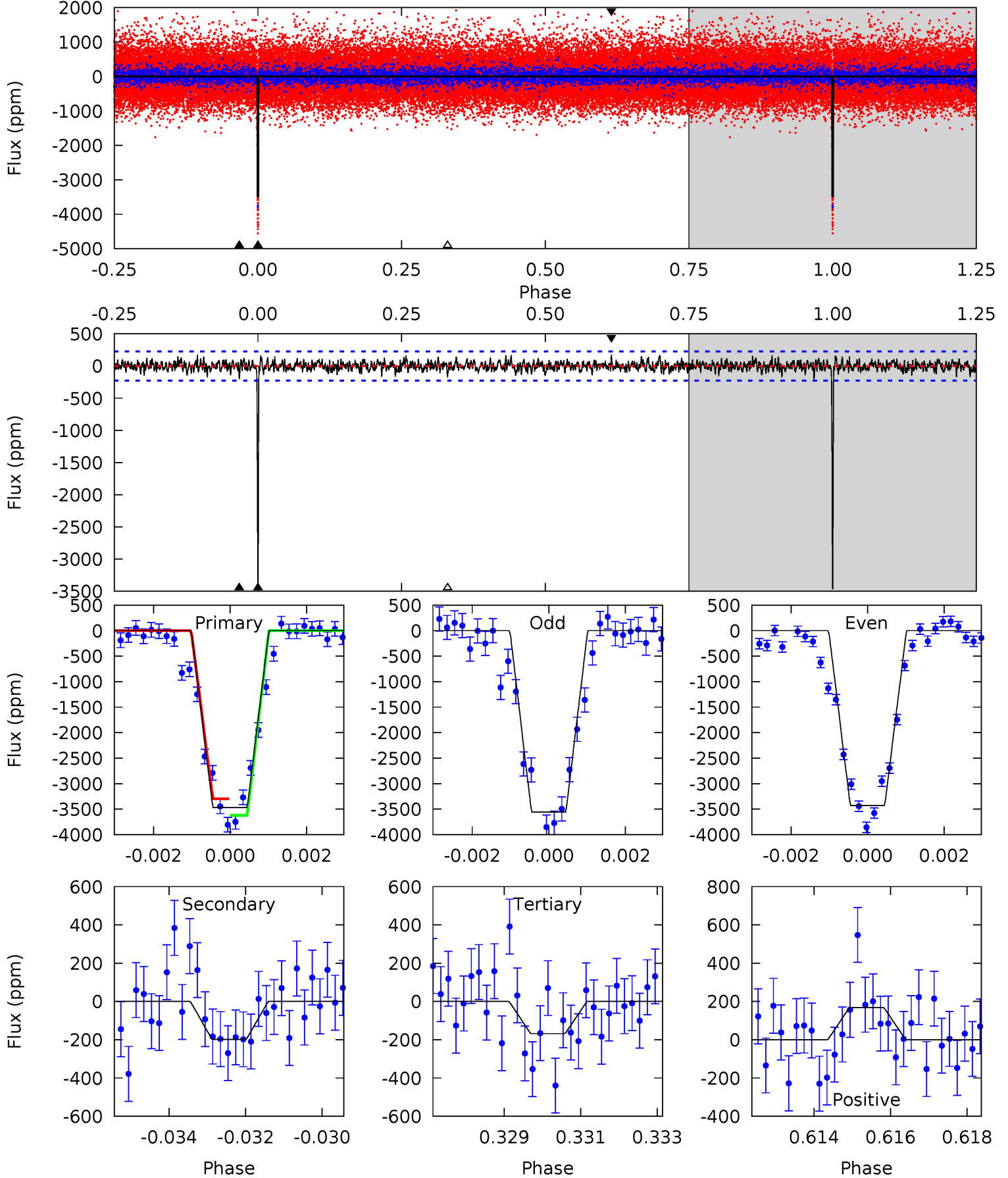
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
106.8	5.42	4.98	4.86	5.25	2.97	1.55	101.9	102.0	0.44	0.56	1.49	0.95	0.04	1.67



# Alt Model-Shift Uniqueness Test

004828341-01,  $P = 36.128836$  Days,  $E = 135.651205$  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
81.3	4.63	3.94	3.94	5.33	3.09	1.23	77.4	77.4	0.70	0.69	1.50	0.96	0.05	3.79



### Stellar Parameters For KIC 004828341

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5921^{+175}_{-211}$	$4.484^{+0.065}_{-0.195}$	$-0.300^{+0.300}_{-0.300}$	$0.912^{+0.266}_{-0.114}$	$0.923^{+0.117}_{-0.105}$	$1.716^{+0.595}_{-0.860}$
	+3%/-4%	+1%/-4%	+100%/-100%	+29%/-12%	+13%/-11%	+35%/-50%
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 004828341-01 / KOI 1496.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-189 \pm 35$	$9.11^{+4.24}_{-3.78}$	$778^{+55}_{-40}$	$3007^{+538}_{-292}$	$53^{+112}_{-28}$
Alt.	$-198 \pm 43$	$6.71^{+3.81}_{-3.62}$	$775^{+55}_{-40}$	$3294^{+1009}_{-427}$	$103^{+393}_{-62}$

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

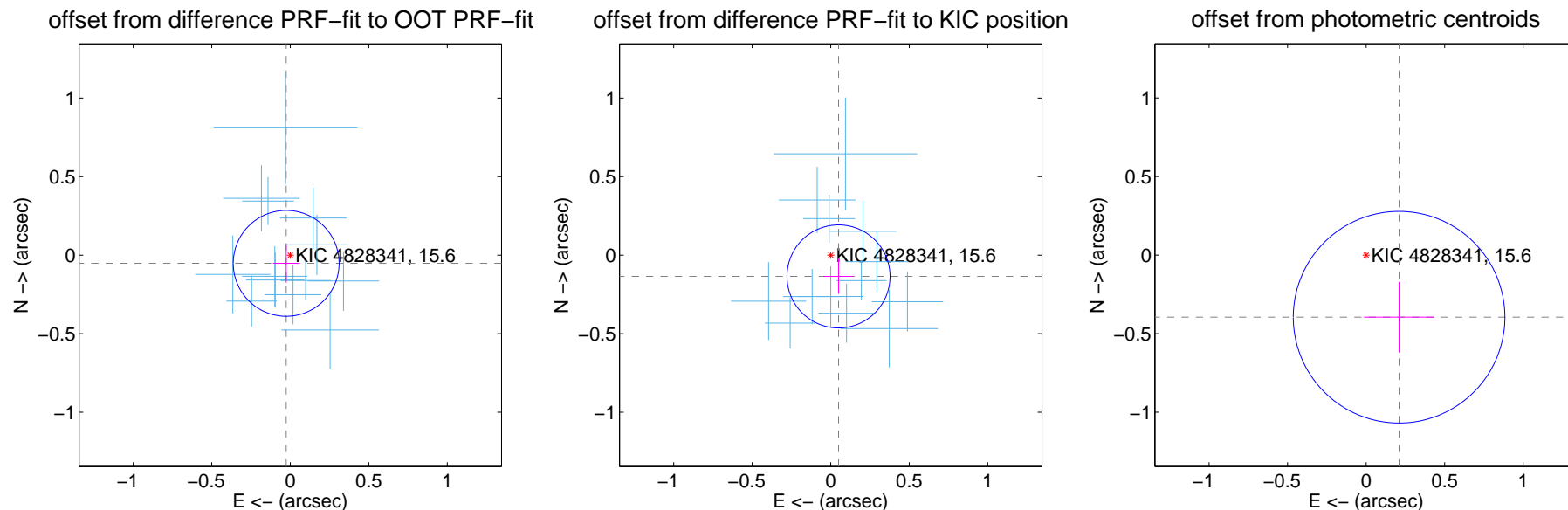
## DV Centroid Data

Supplemental centroid analysis for 004828341-01. Kepler magnitude: 15.60. Transit SNR 60.09

There are 13 quarters with good PRF difference image offsets

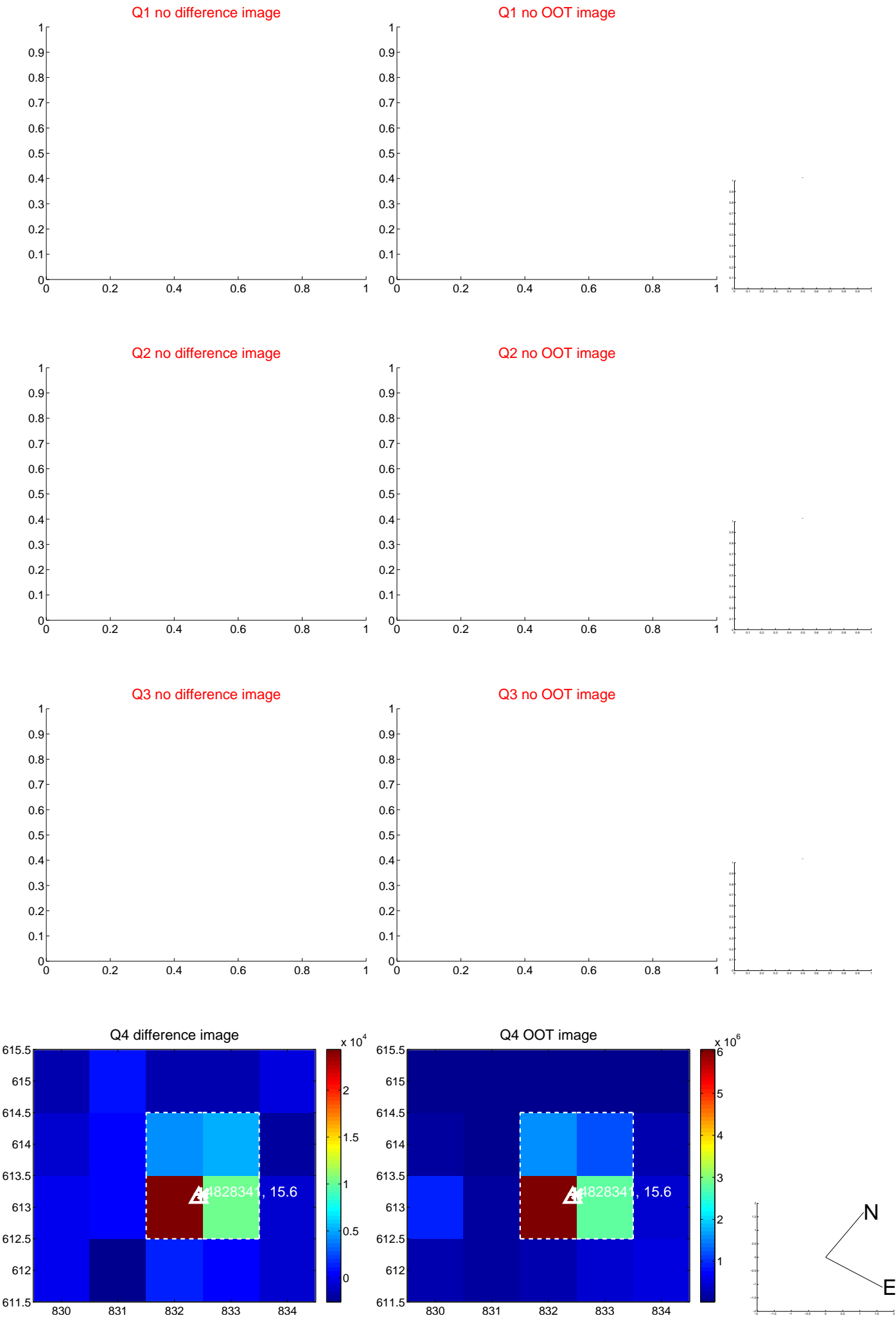
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.058 \pm 0.112$	0.52	$0.026 \pm 0.084$	$-0.052 \pm 0.123$
PRF-fit source offset from KIC position	$0.144 \pm 0.109$	1.32	$-0.050 \pm 0.097$	$-0.135 \pm 0.110$
photometric centroid source offset	$0.45 \pm 0.22$	1.99	$-0.21 \pm 0.22$	$-0.40 \pm 0.22$



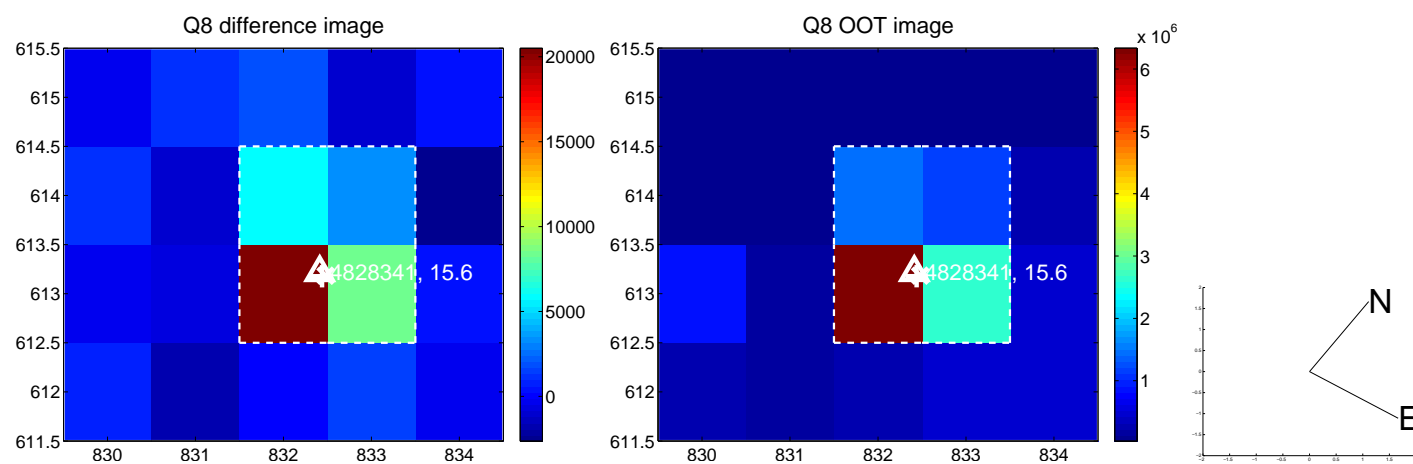
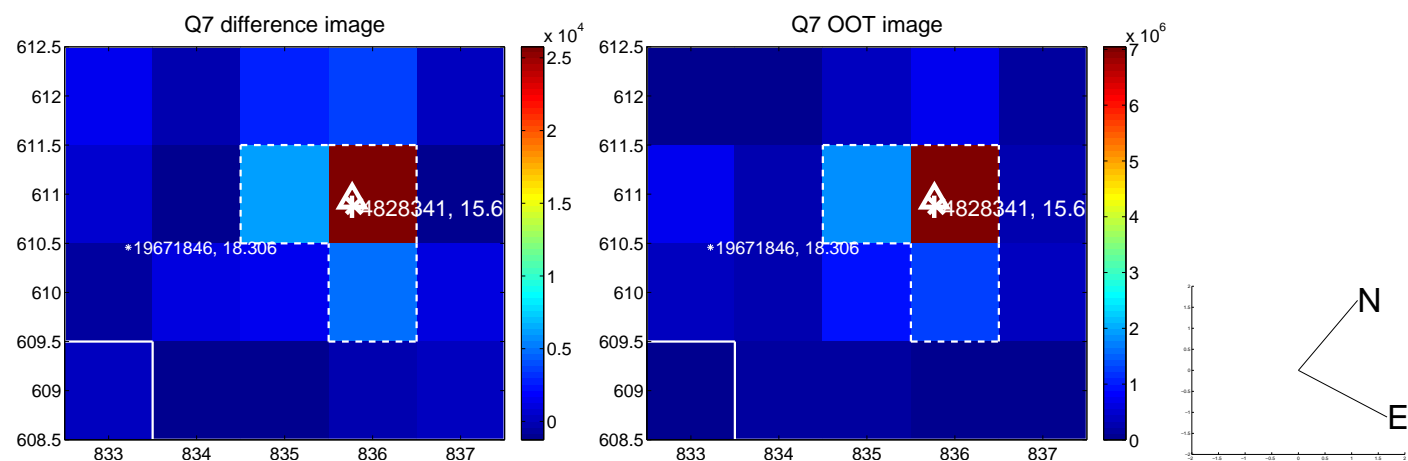
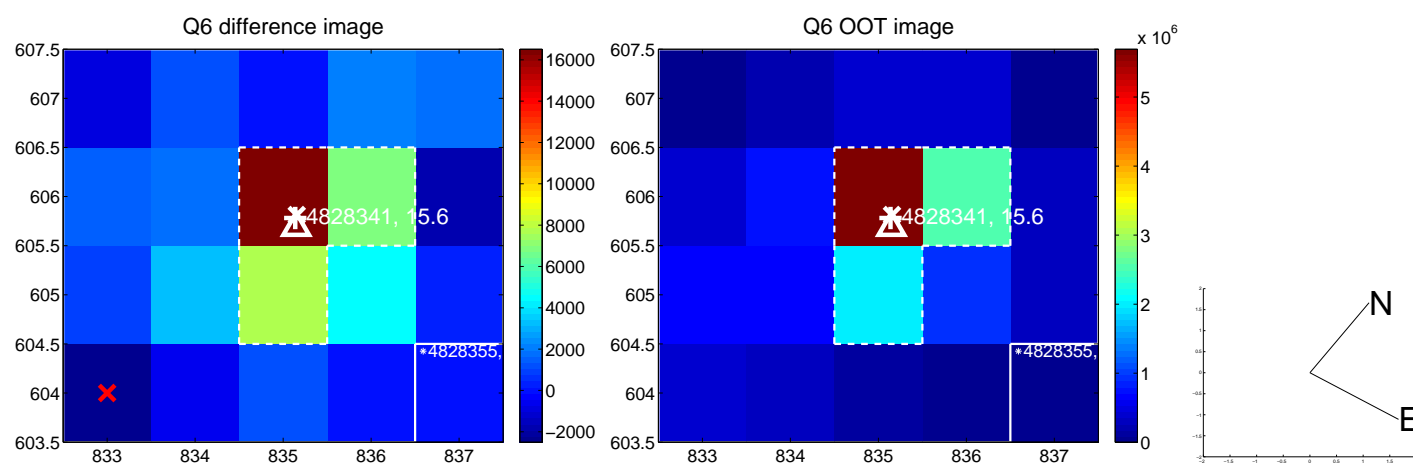
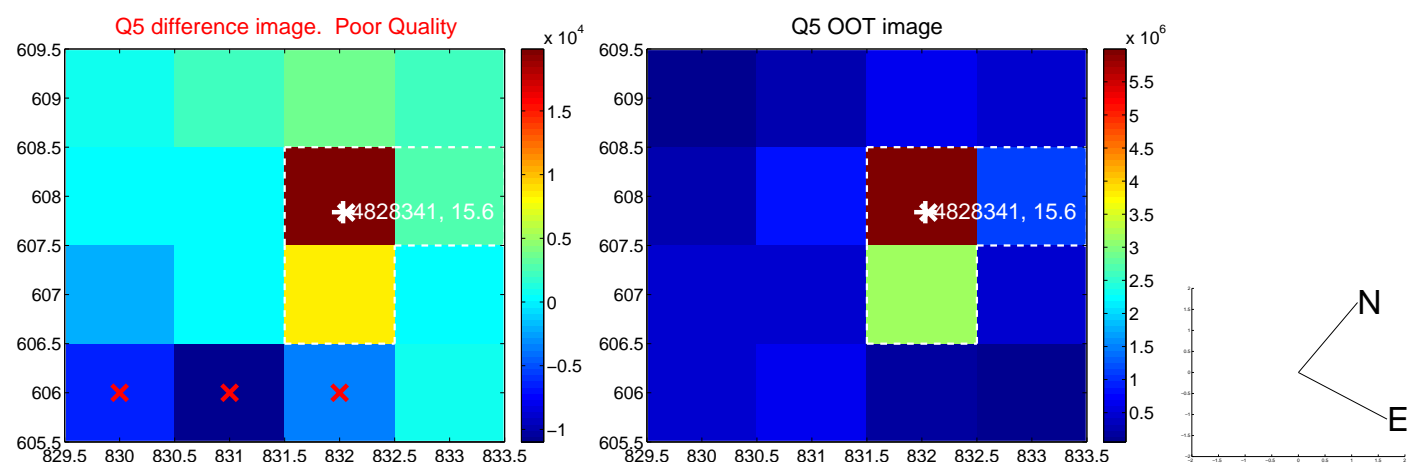
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

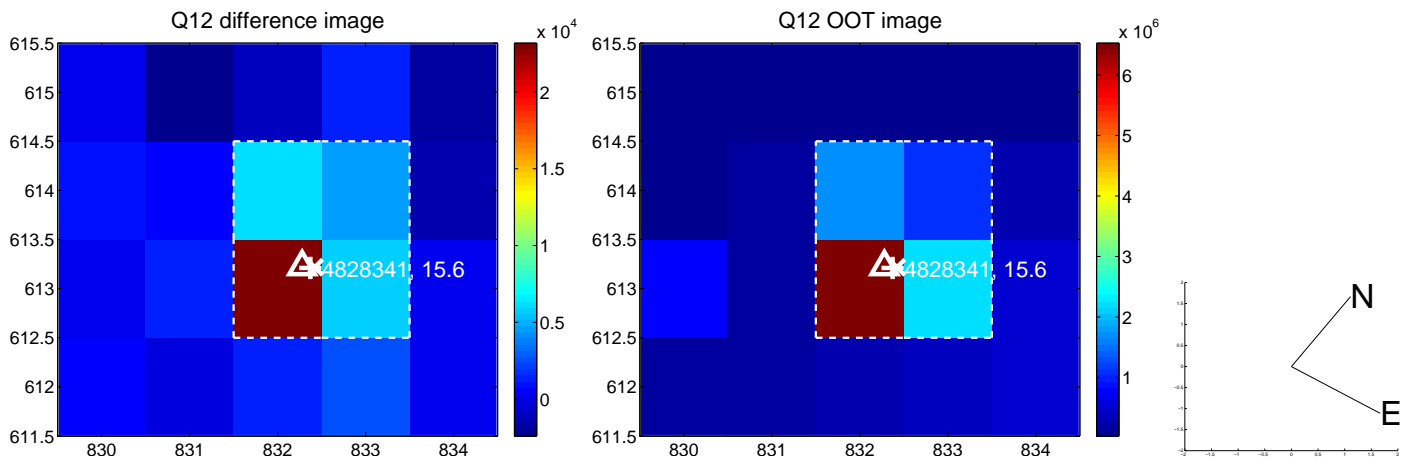
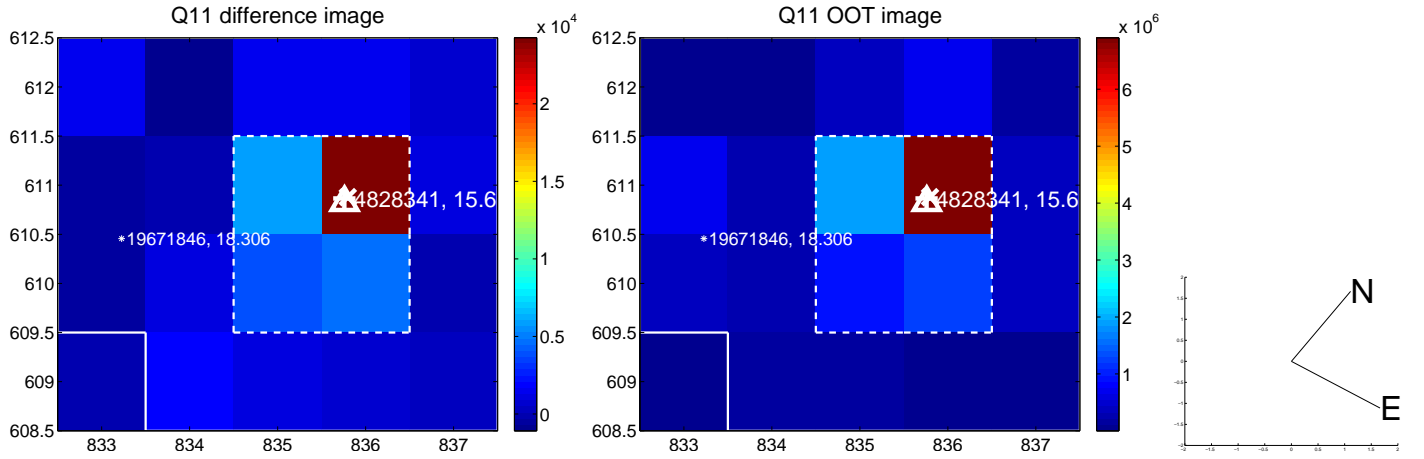
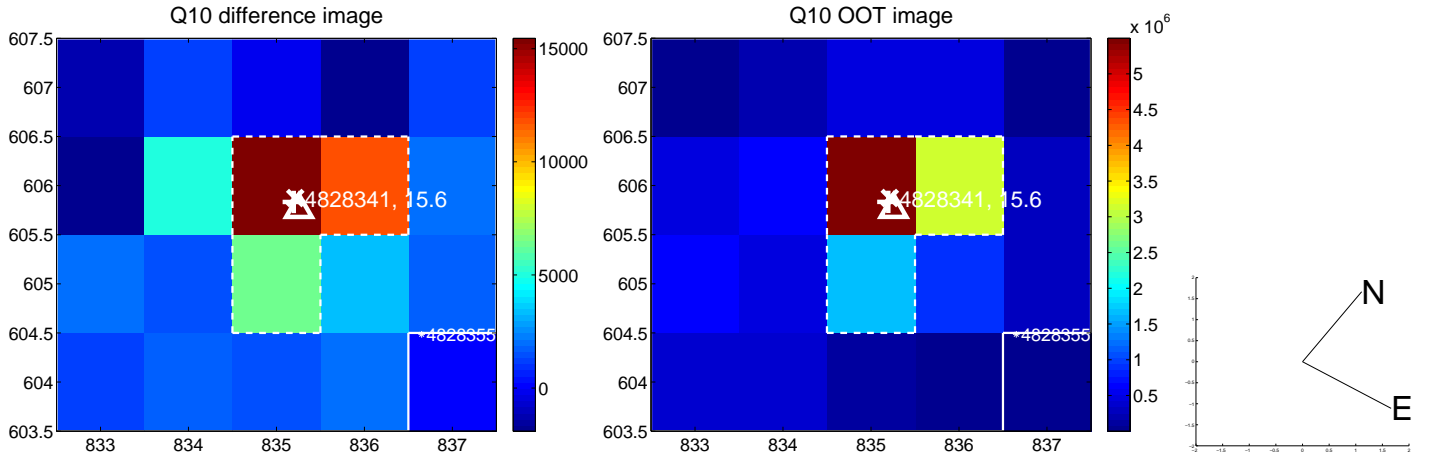
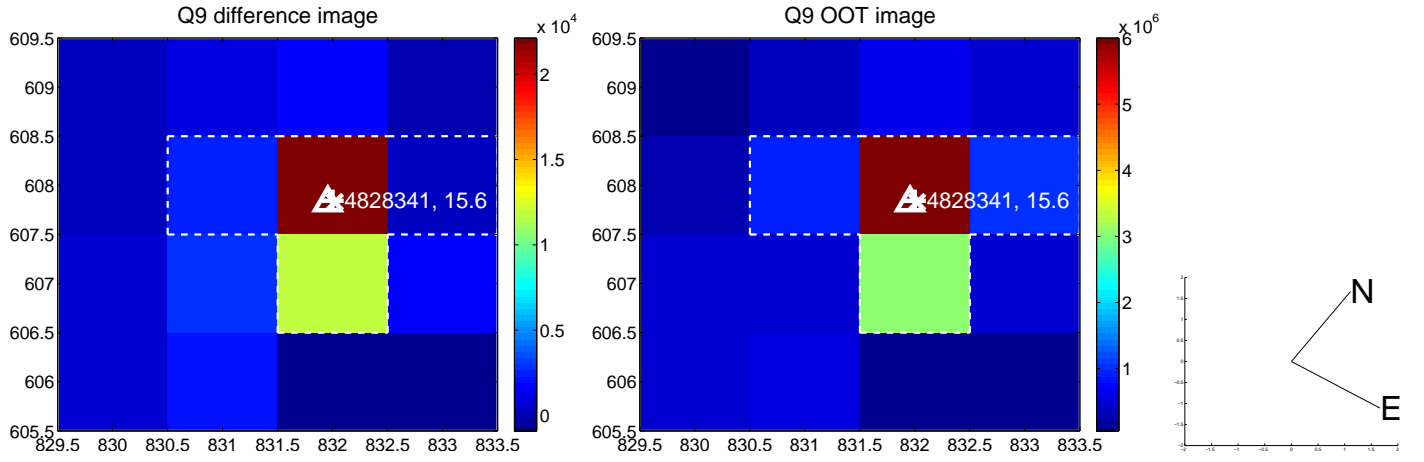




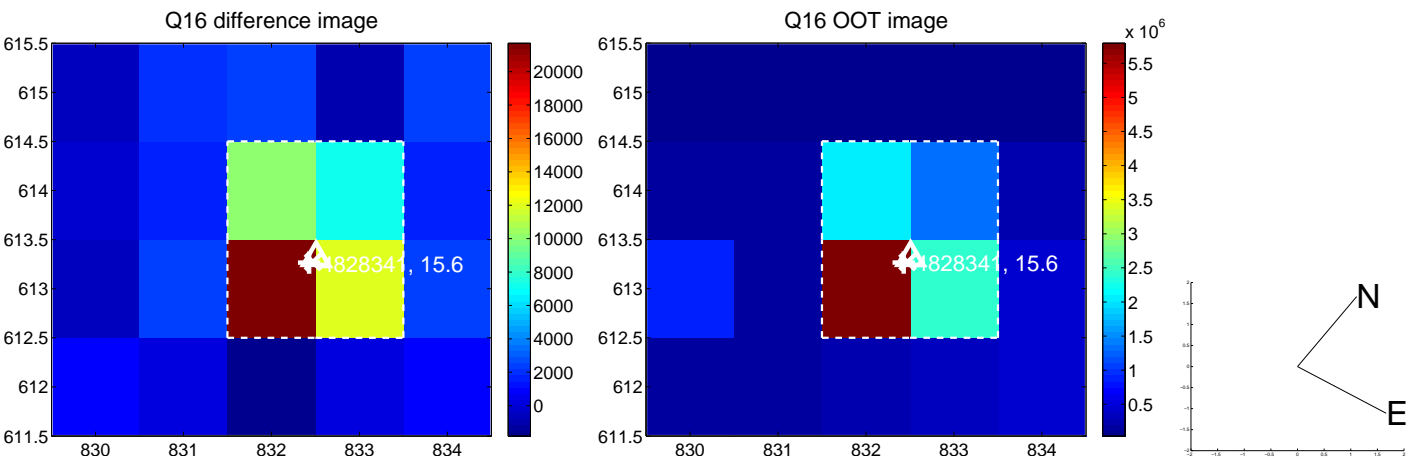
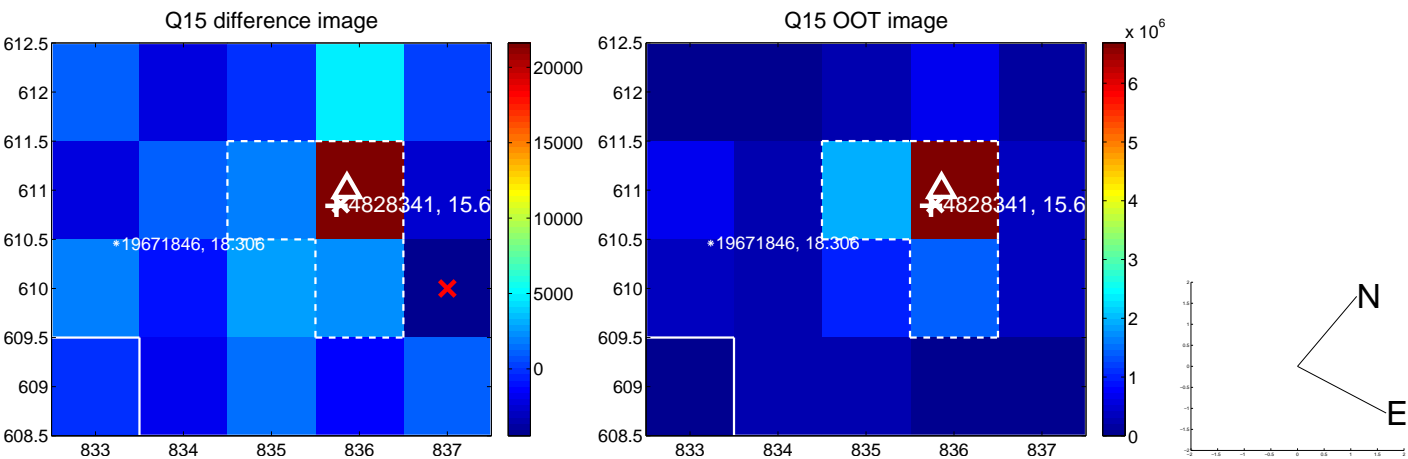
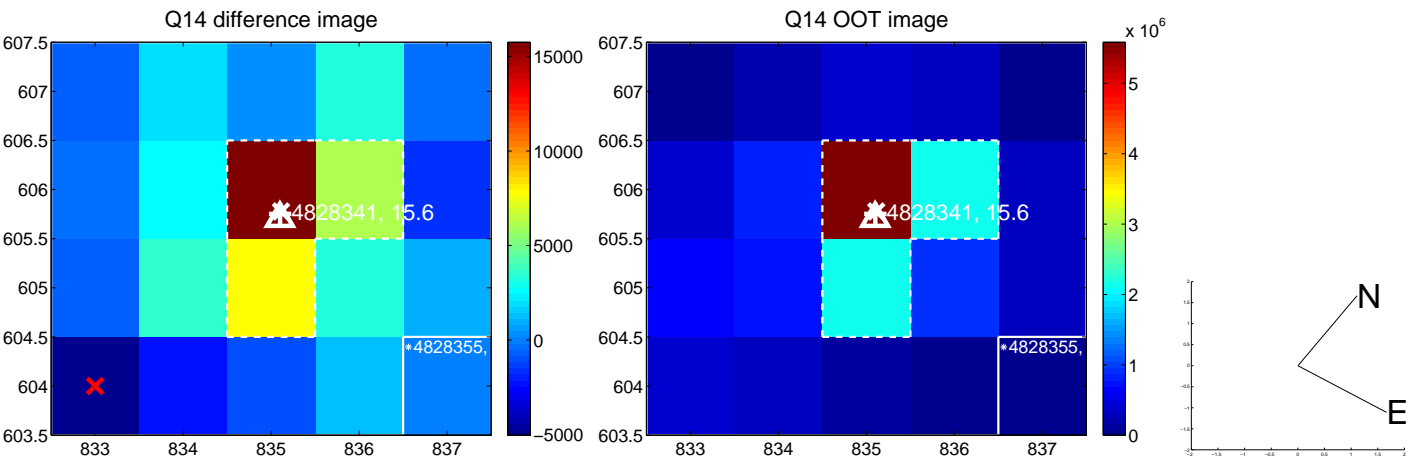
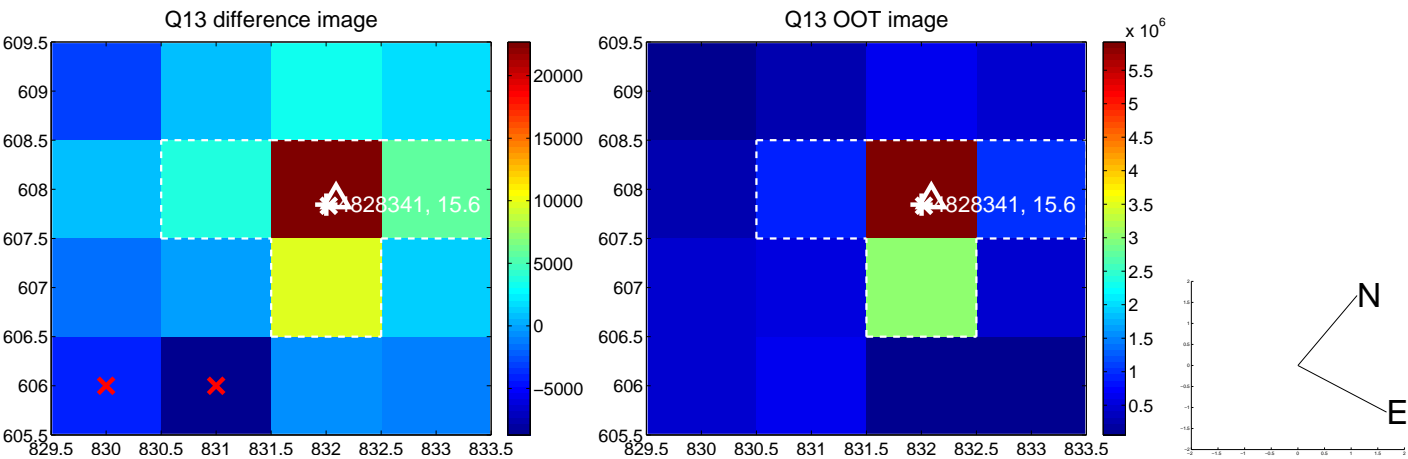
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



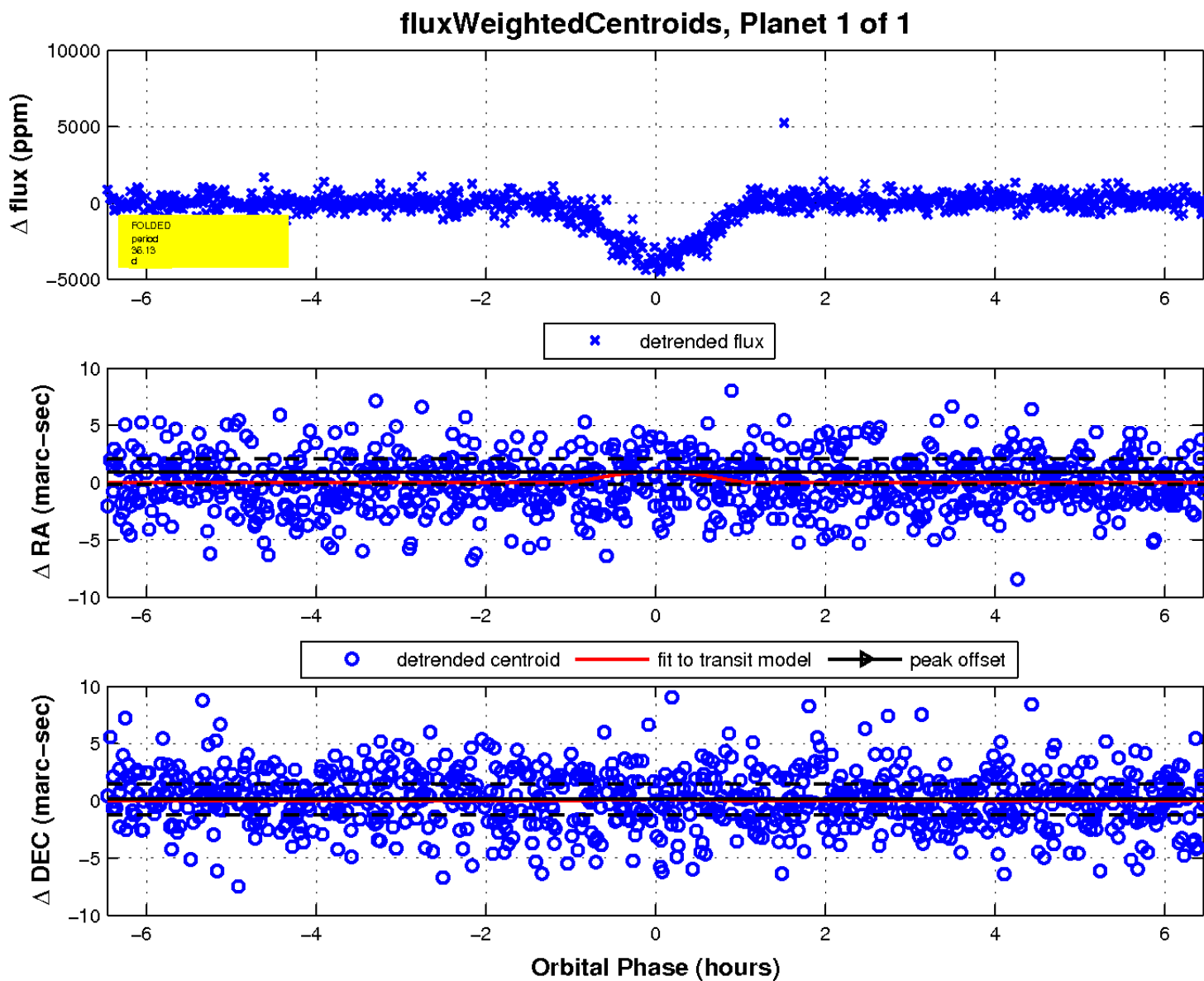
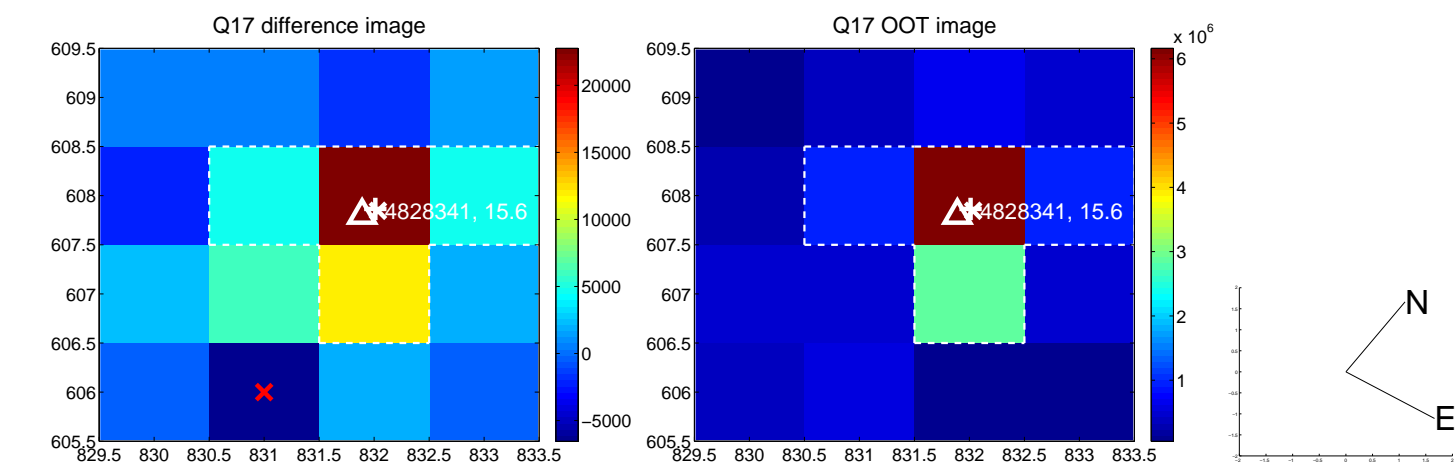
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

