

# KIC 009512981

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009512981-01	OBS	1466.01	281.562901	357.996480	21106.9	8.848	203.1	205.5	0.78	4810	10.83	0.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009512981-01	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.

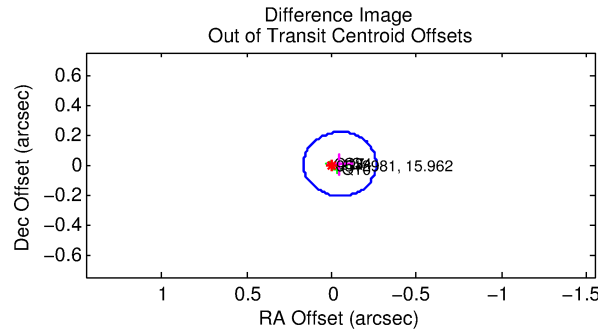
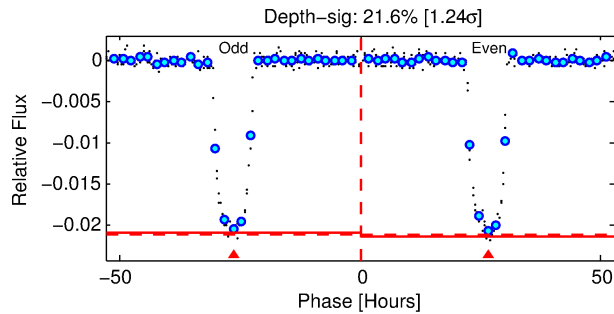
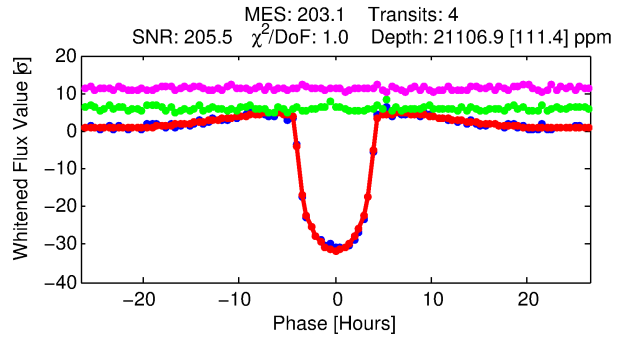
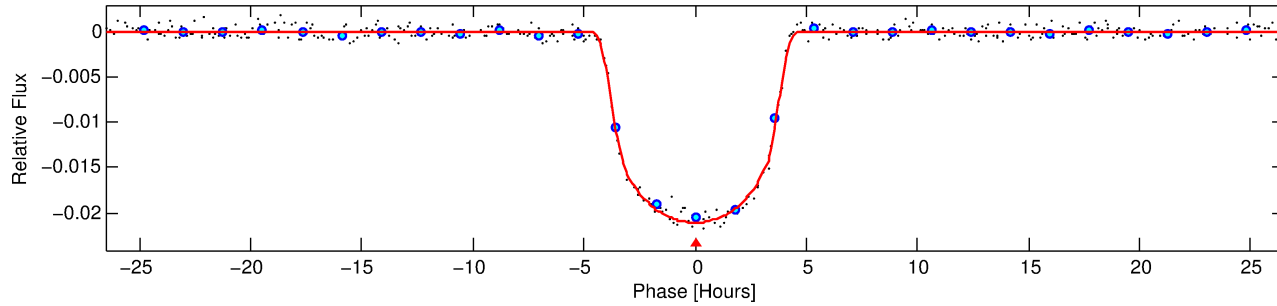
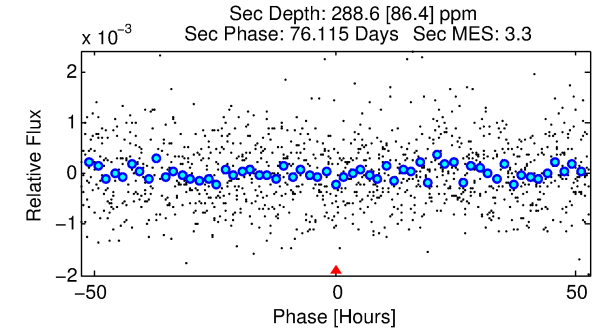
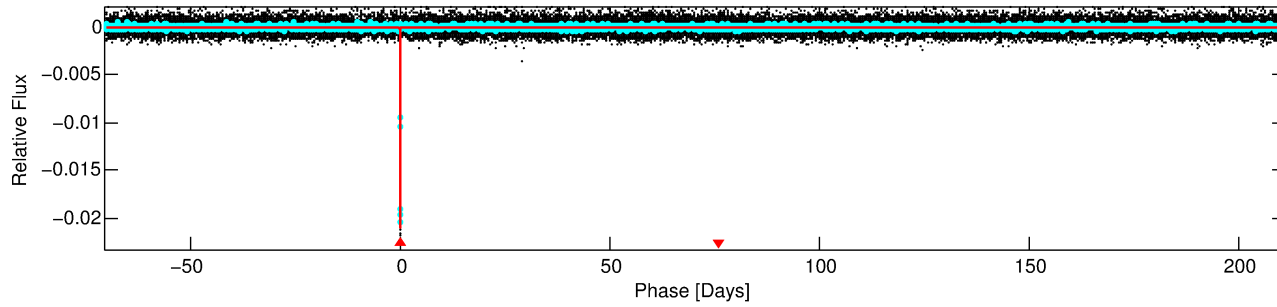
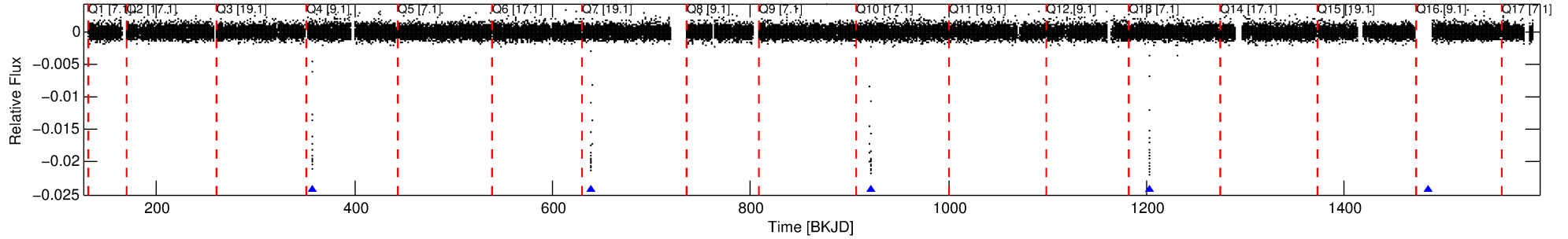
## Ephemeris Match Information For 009512981-01

No Significant Match Found

# DV One-Page Summary

KIC: 9512981 Candidate: 1 of 1 Period: 281.563 d  
KOI: K01466.01 Corr: 0.999

Kp: 15.96 R\*: 0.78 Rs Teff: 4810.0 K Logg: 4.54 Fe/H: 0.120



## DV Fit Results:

Period = 281.56290 [0.00040] d  
Epoch = 357.9965 [0.0007] BKJD  
Rp/R\* = 0.1279 [0.0016]  
a/R\* = 274.19 [10.10]  
b = 0.01 [3.35]  
Seff = 0.49 [0.06]  
Teq = 214 [7] K  
Rp = 10.83 [0.71] Re  
a = 0.7656 [0.0500] AU  
Ag = 792.74 [253.04] [3.13σ]  
Teff = 1753 [135] K [11.42σ]

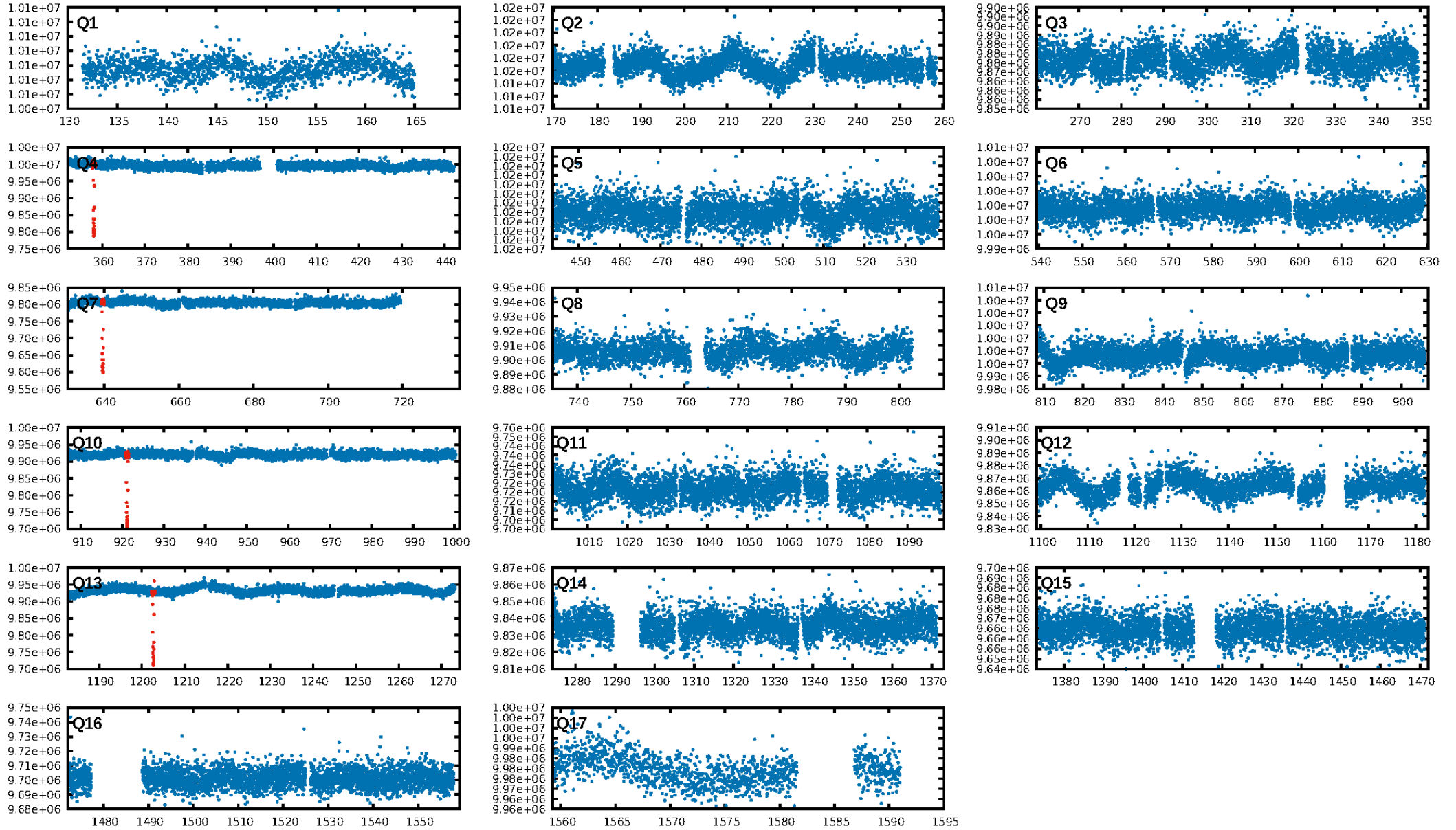
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 6.5%  
ModelChiSquareGof-sig: 96.5%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 4.711  
Centroid-sig: 16.1%  
Centroid-so: 0.061 arcsec [0.92σ]  
OotOffset-rm: 0.048 arcsec [0.68σ]  
KicOffset-rm: 0.088 arcsec [1.21σ]  
OotOffset-st: 1/1/1/1 [4]  
KicOffset-st: 1/1/1/1 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

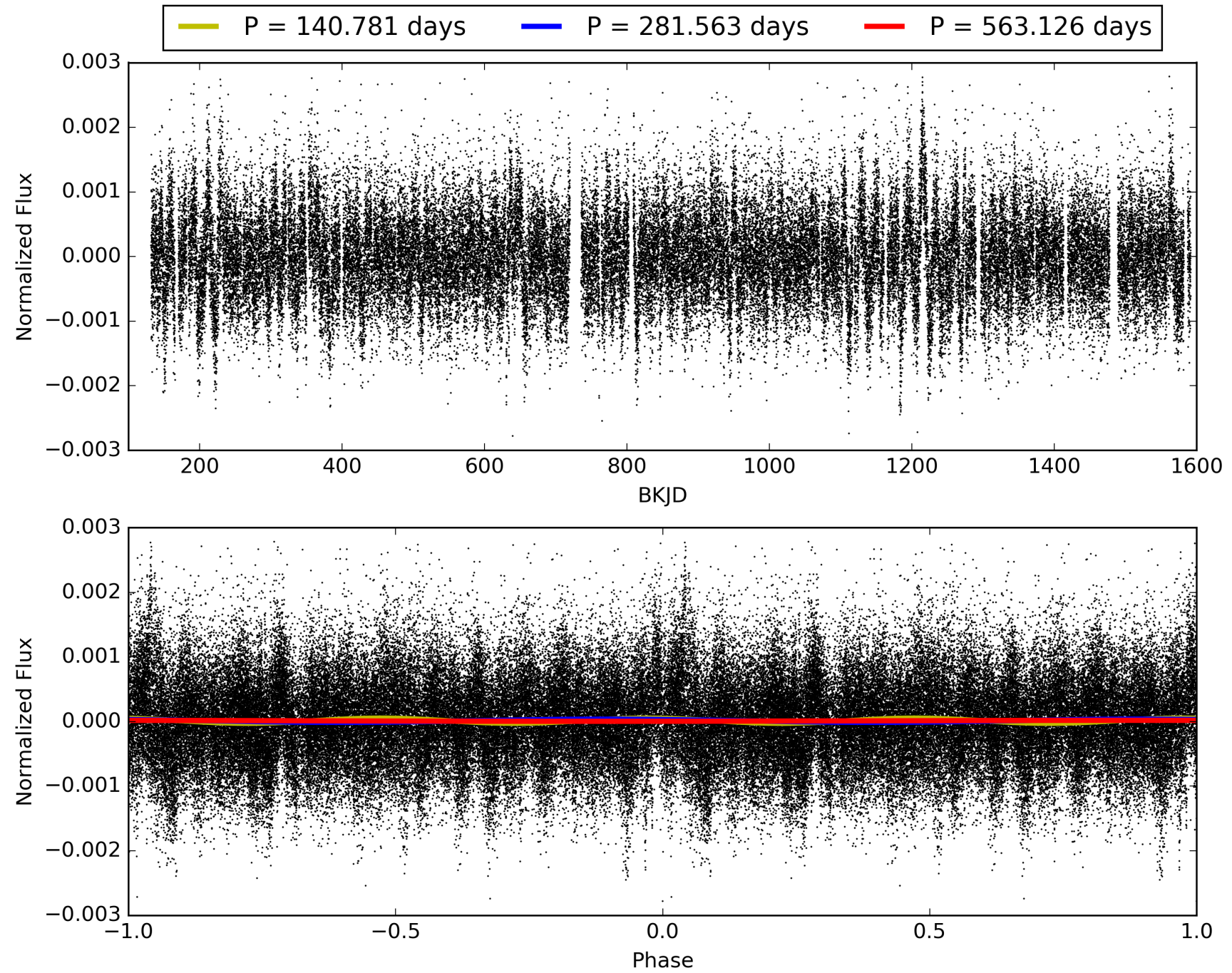
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:02:09 Z

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

# TCE 009512981-01, PDC Light Curves

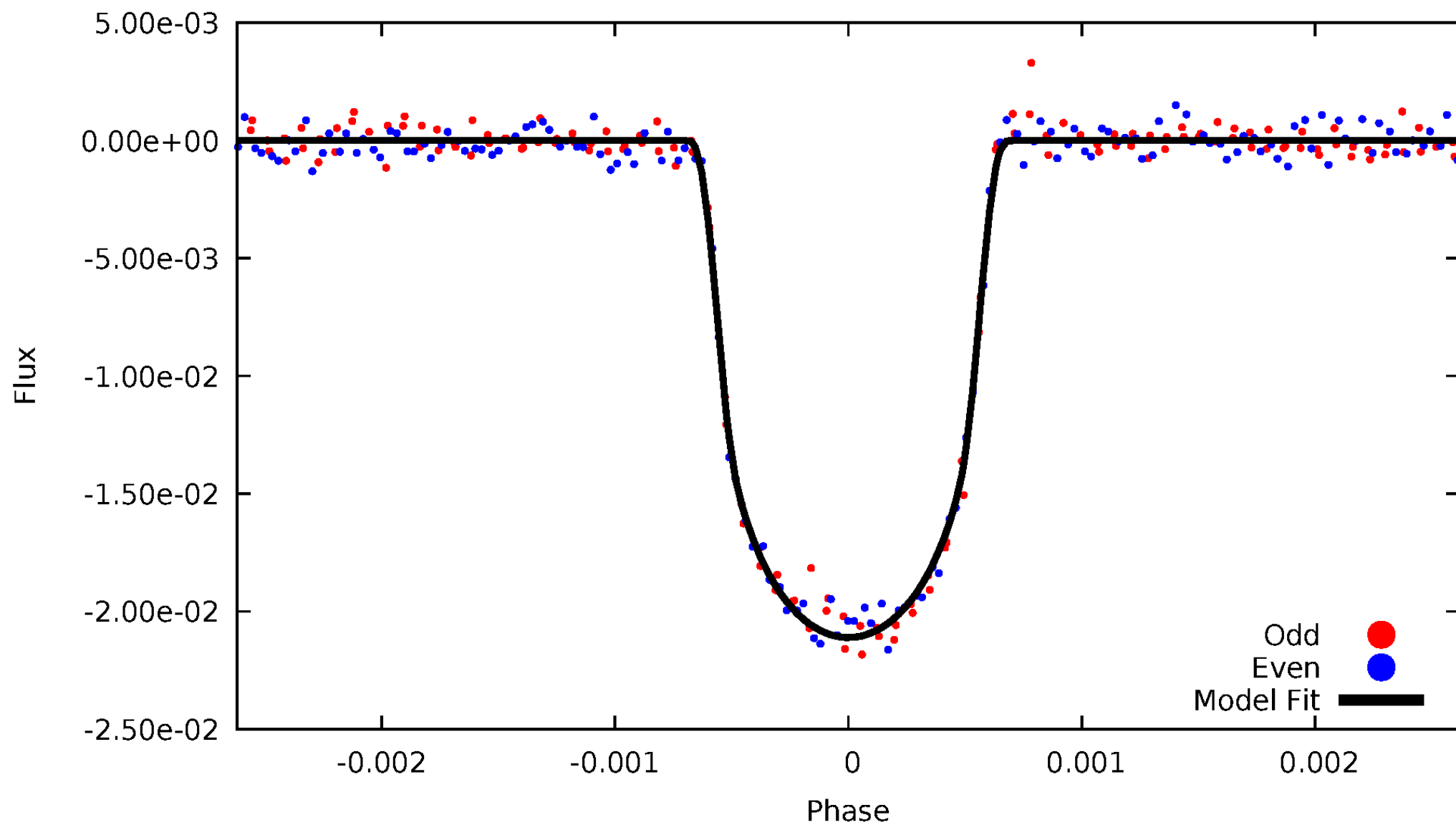


TCE 009512981-01



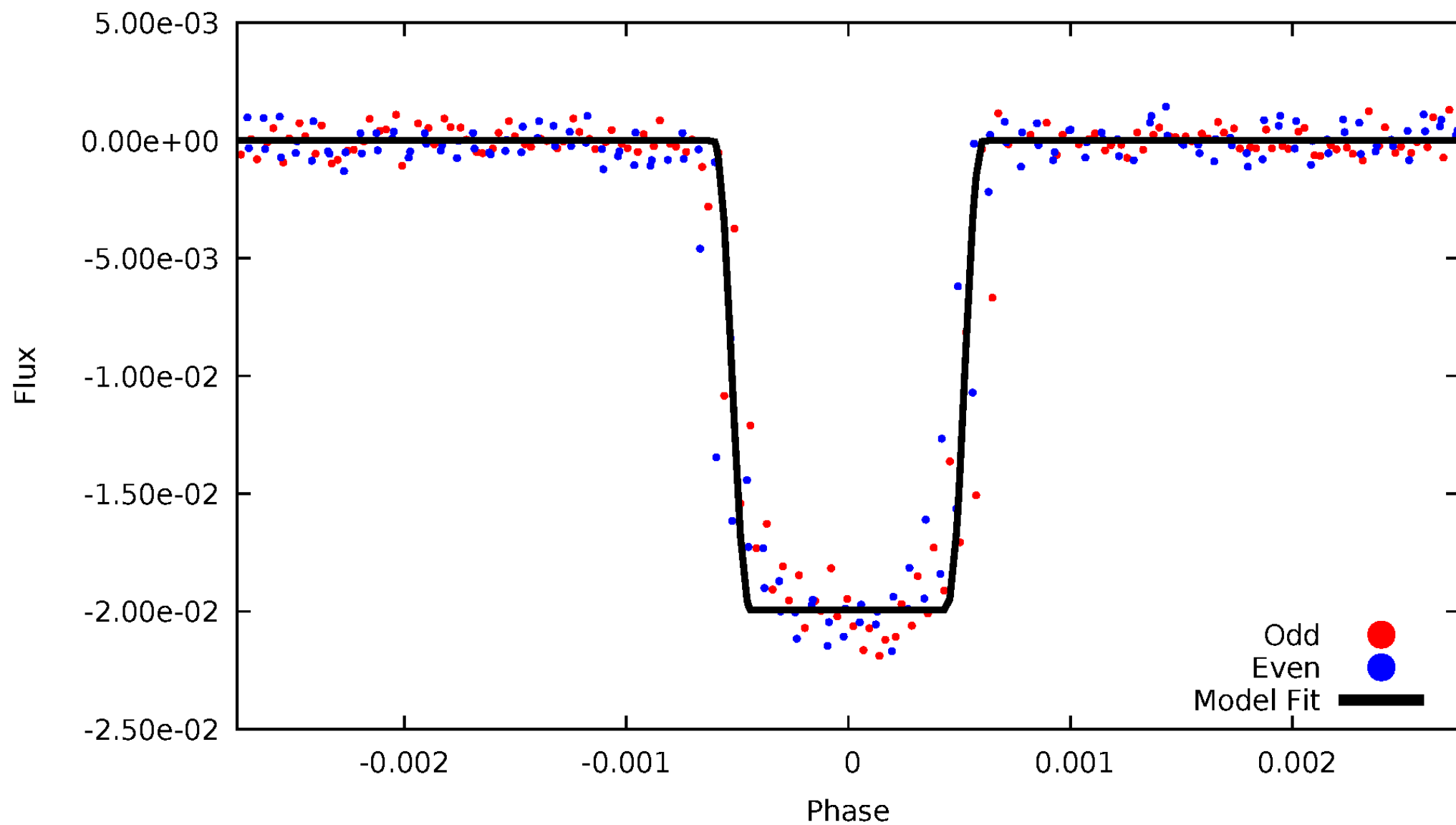
# DV Odd/Even

TCE 009512981-01



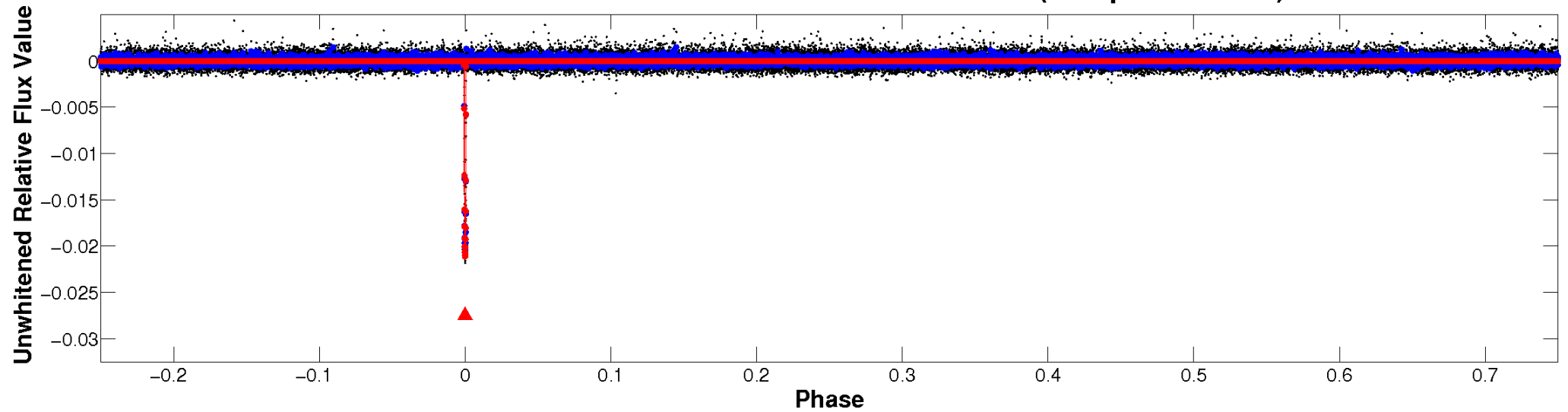
# ALT Odd/Even

TCE 009512981-01

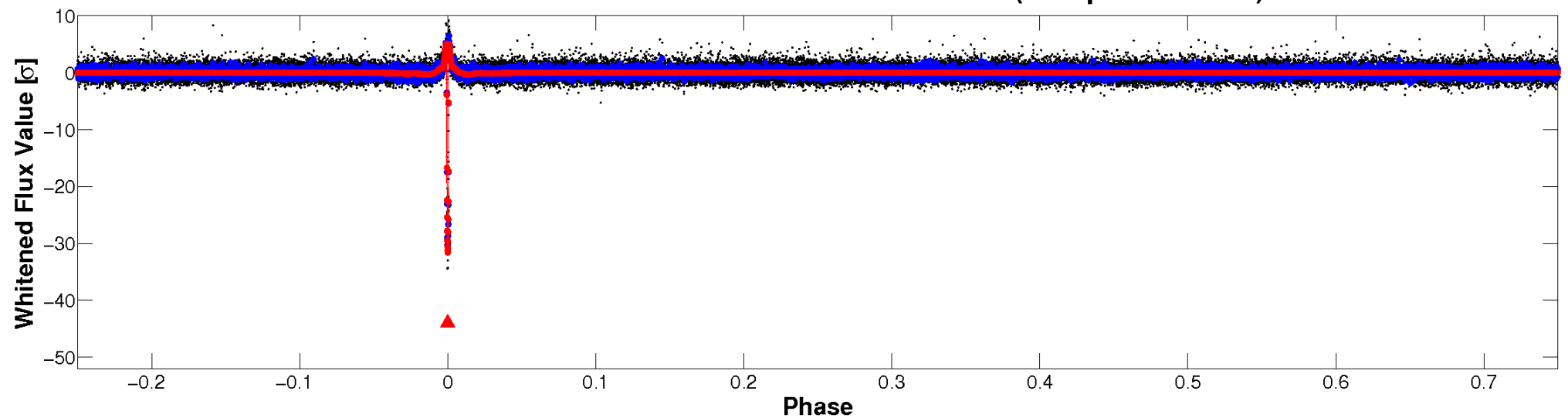


# Non-Whitened Vs. Whitened Light Curve

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

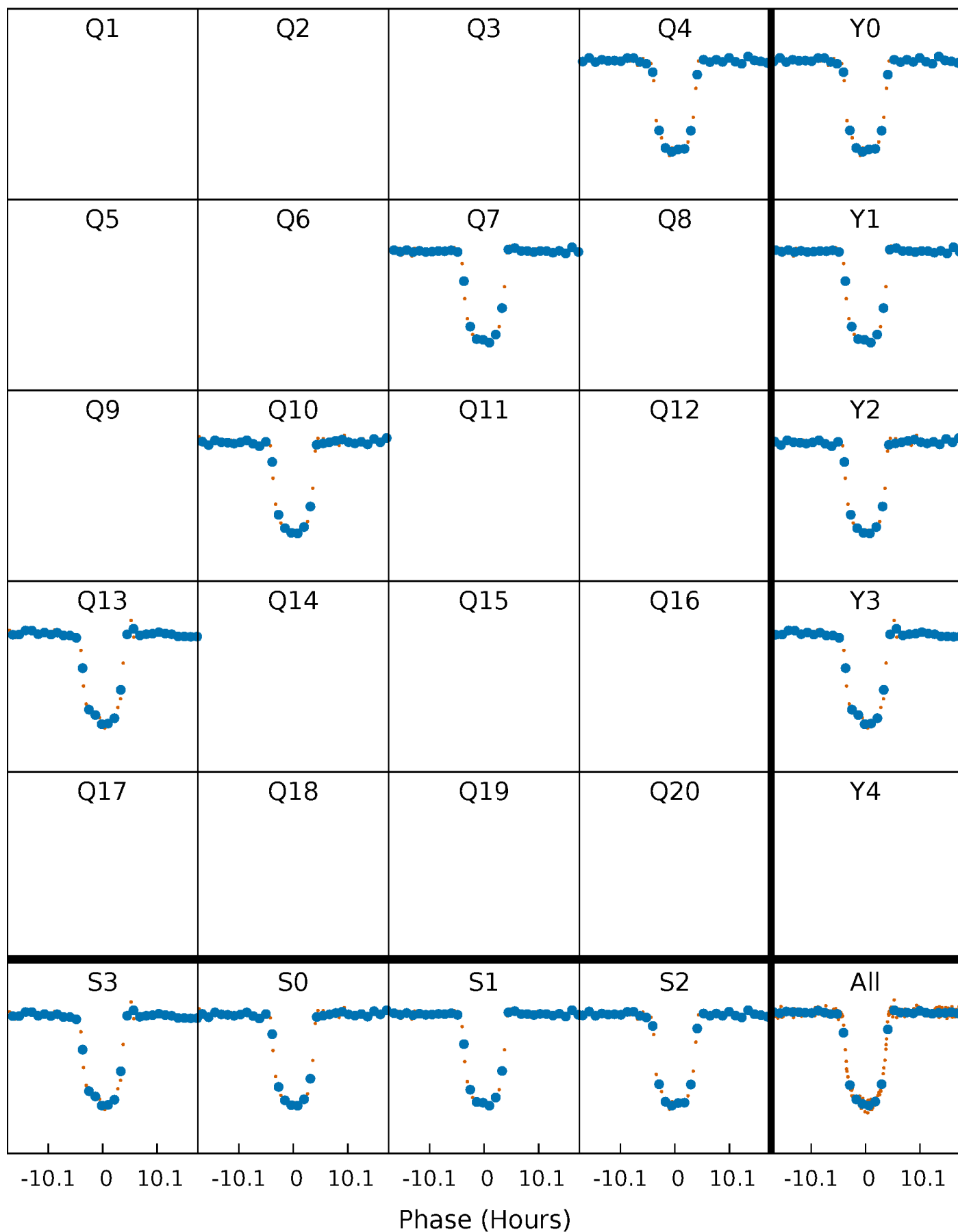


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

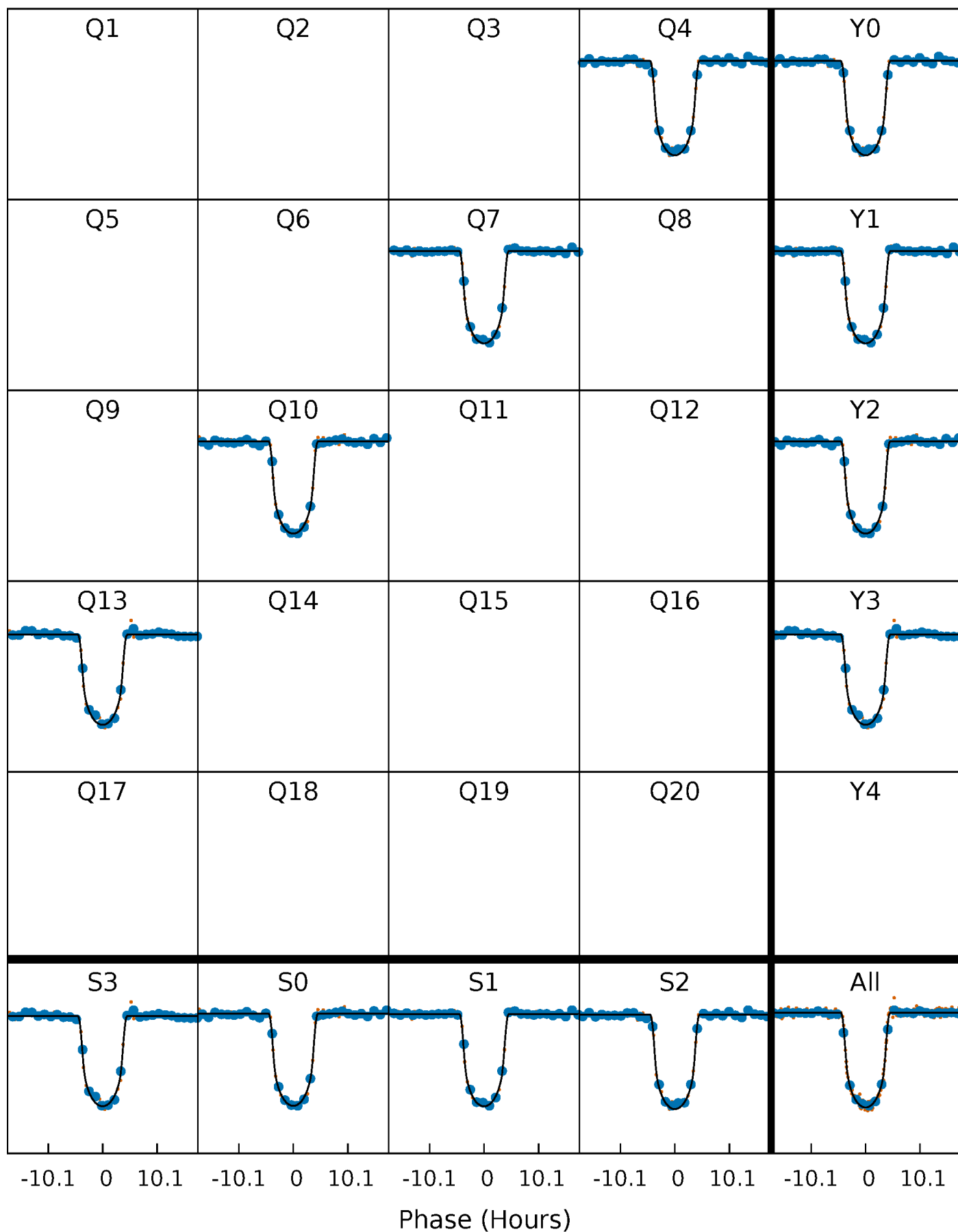
TCE 009512981-01 P=281.562901 Days  $T_0=357.996480$  (BKJD)





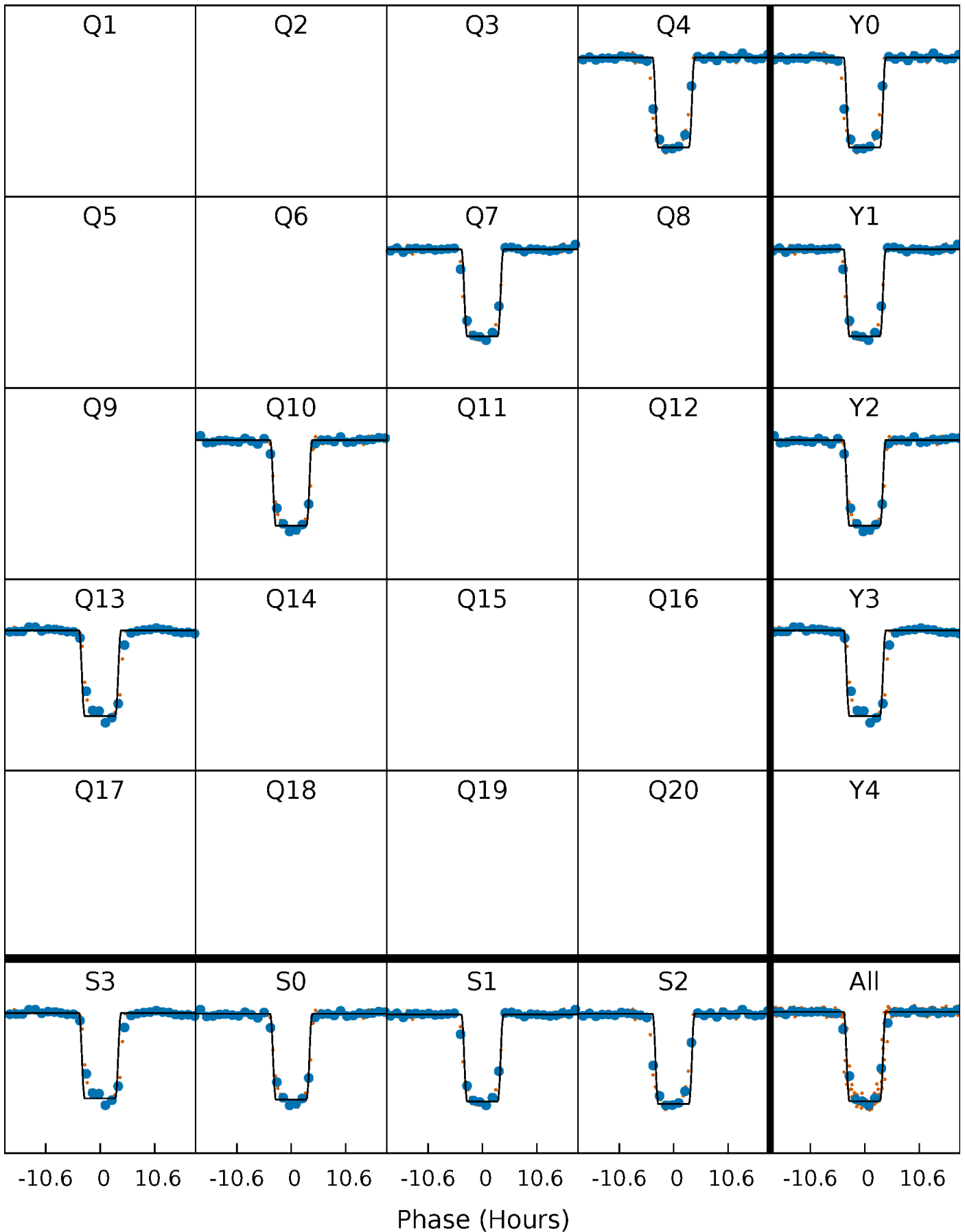
# DV Quarter-Phased Transit Curves

TCE 009512981-01 P=281.562901 Days  $T_0=357.996480$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

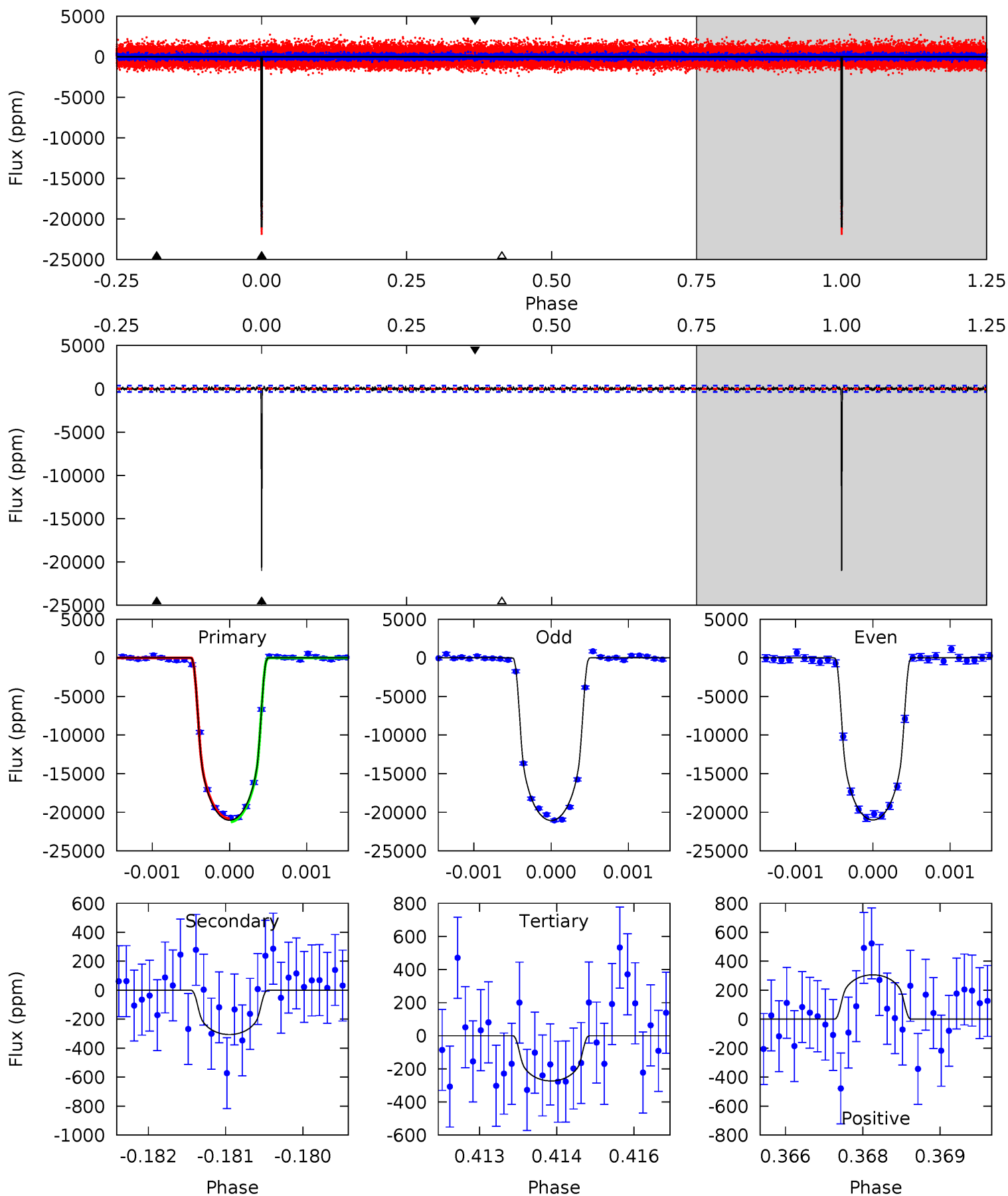
TCE 009512981-01 P=281.547212 Days  $T_0=358.020413$  (BKJD)



# DV Model-Shift Uniqueness Test

009512981-01, P = 281.562901 Days, E = 76.433579 Days

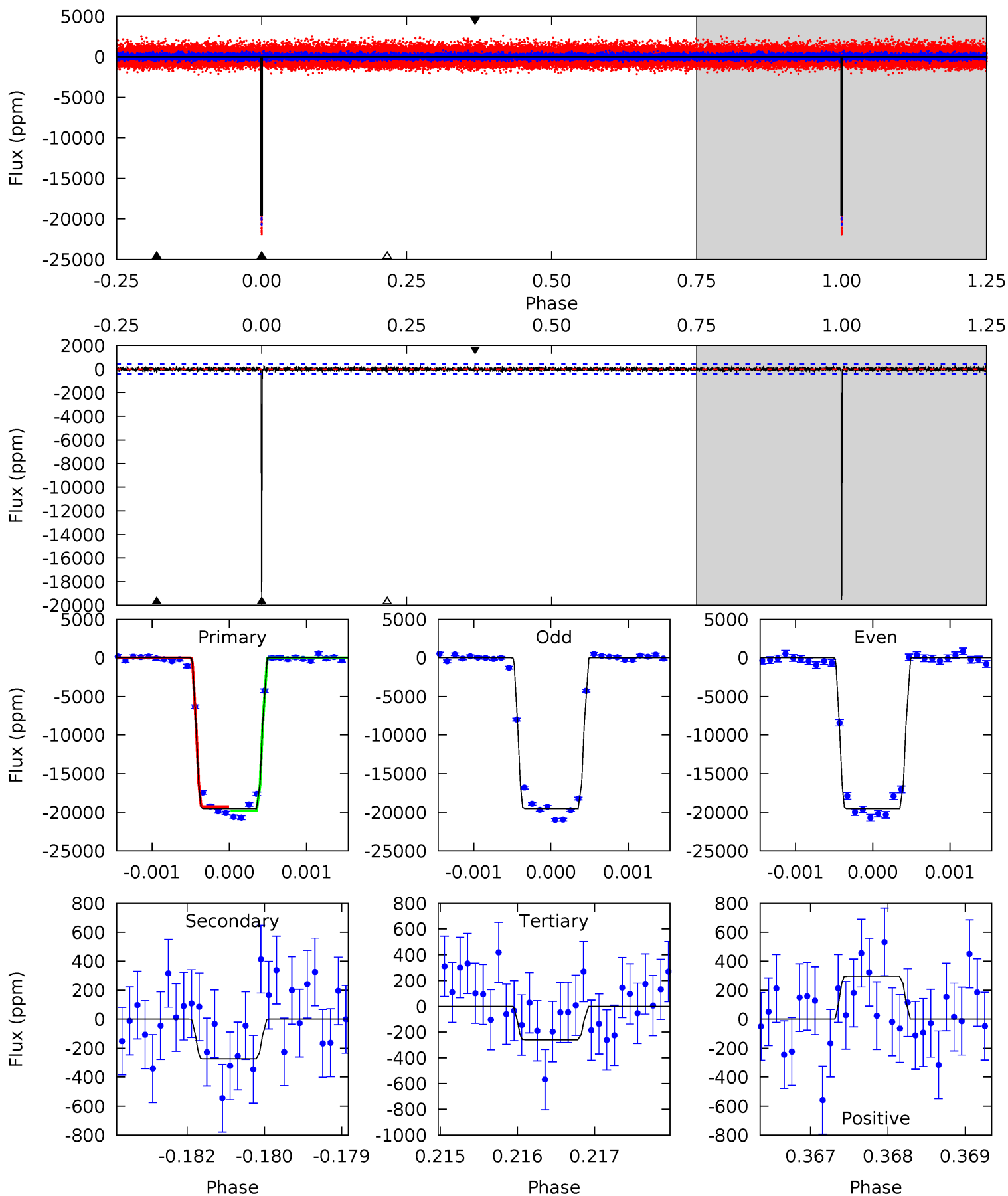
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
312.5	4.55	4.06	4.55	5.39	3.20	1.25	308.5	308.0	0.49	-0.00	0.49	1.00	0.01	3.15



# Alt Model-Shift Uniqueness Test

009512981-01, P = 281.547212 Days, E = 76.473201 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
250.1	3.50	3.32	3.80	5.41	3.23	0.95	246.8	246.3	0.18	-0.30	0.10	1.00	0.01	3.32



### Stellar Parameters For KIC 009512981

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4810^{+76}_{-76}$	$4.536^{+0.064}_{-0.016}$	$0.120^{+0.150}_{-0.150}$	$0.776^{+0.027}_{-0.050}$	$0.755^{+0.046}_{-0.027}$	$2.272^{+0.523}_{-0.151}$
	+2%/-2%	+1%/-0%	+125%/-125%	+3%/-6%	+6%/-4%	+23%/-7%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 009512981-01 / KOI 1466.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-306 \pm 67$	$10.76^{+0.37}_{-0.45}$	$296^{+6}_{-7}$	$2564^{+71}_{-82}$	$866^{+209}_{-192}$
Alt.	$-273 \pm 78$	$11.88^{+0.34}_{-0.49}$	$296^{+6}_{-7}$	$2473^{+79}_{-98}$	$638^{+200}_{-185}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming A=0.3)

$A_{obs}$  = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

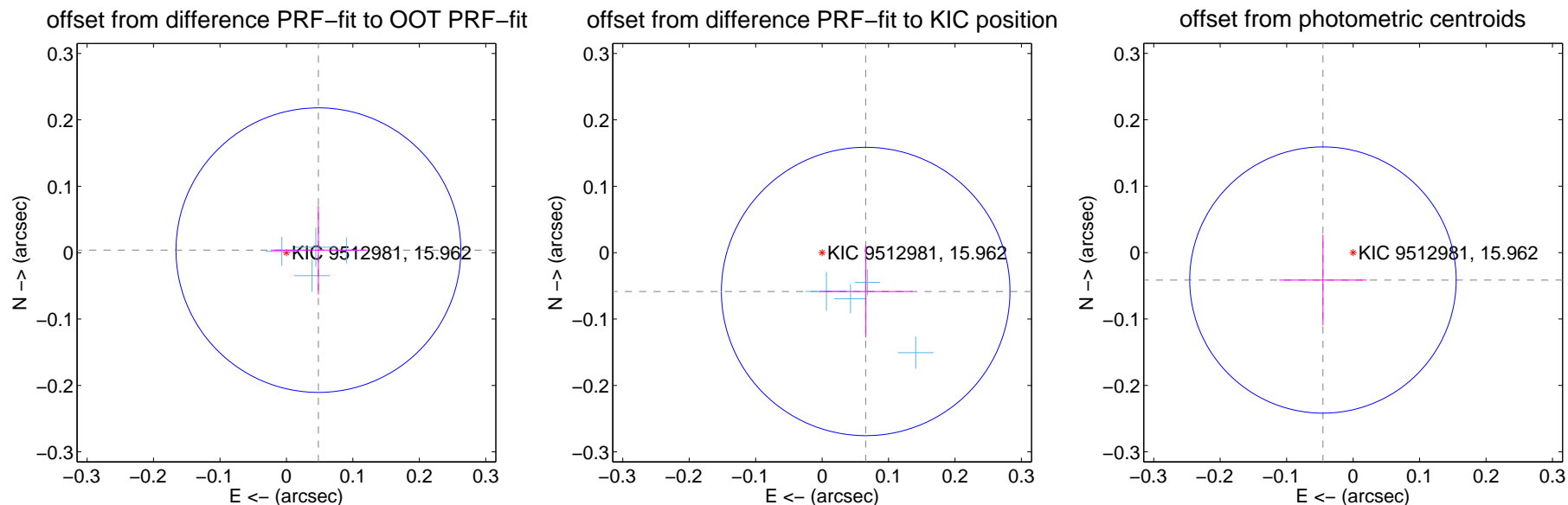
## DV Centroid Data

Supplemental centroid analysis for 009512981-01. Kepler magnitude: 15.96. Transit SNR 205.52

There are 4 quarters with good PRF difference image offsets

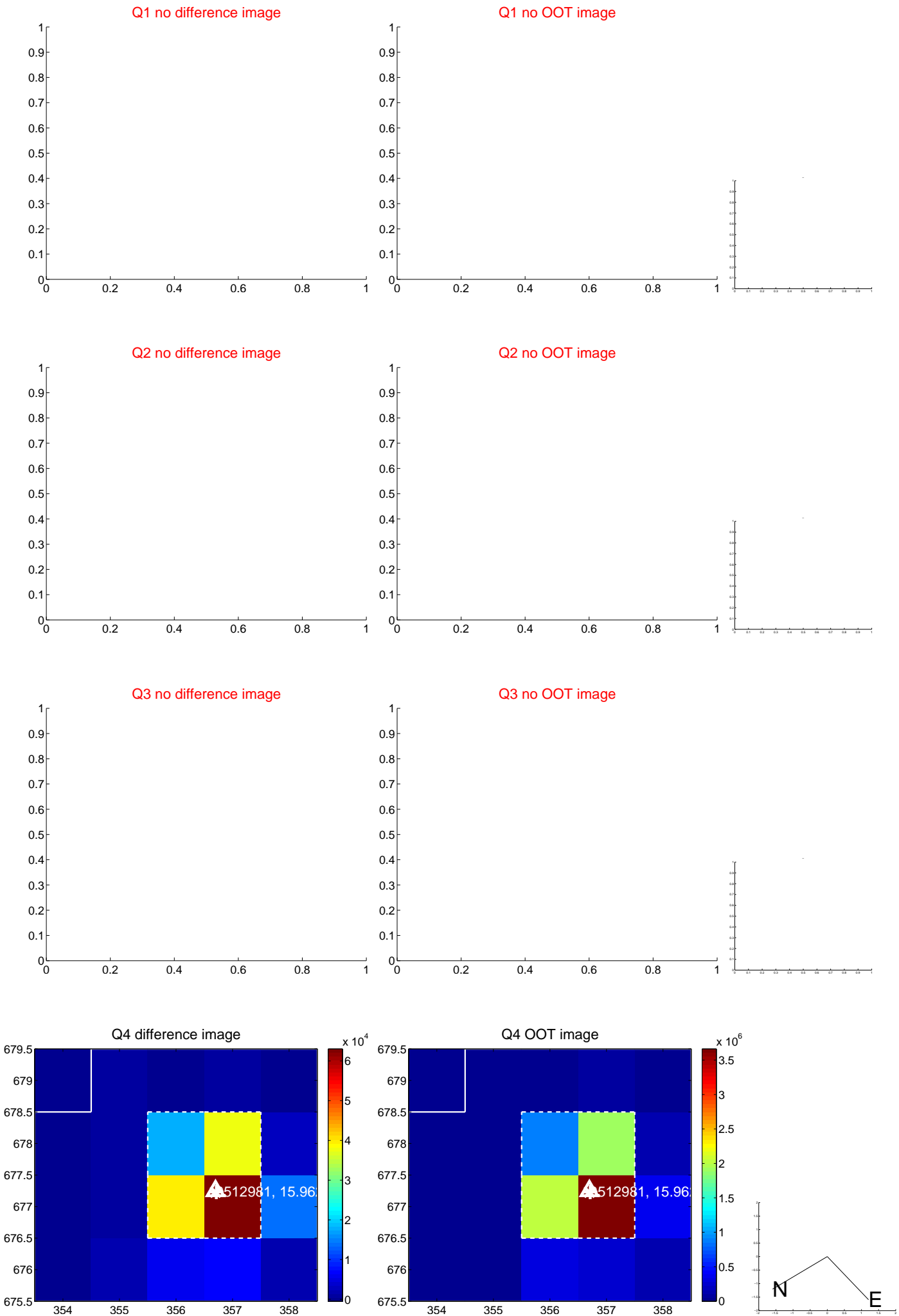
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.048 \pm 0.071$	0.68	$-0.048 \pm 0.071$	$0.004 \pm 0.067$
PRF-fit source offset from KIC position	$0.088 \pm 0.072$	1.21	$-0.066 \pm 0.071$	$-0.058 \pm 0.069$
photometric centroid source offset	$0.06 \pm 0.07$	0.92	$0.05 \pm 0.07$	$-0.04 \pm 0.07$

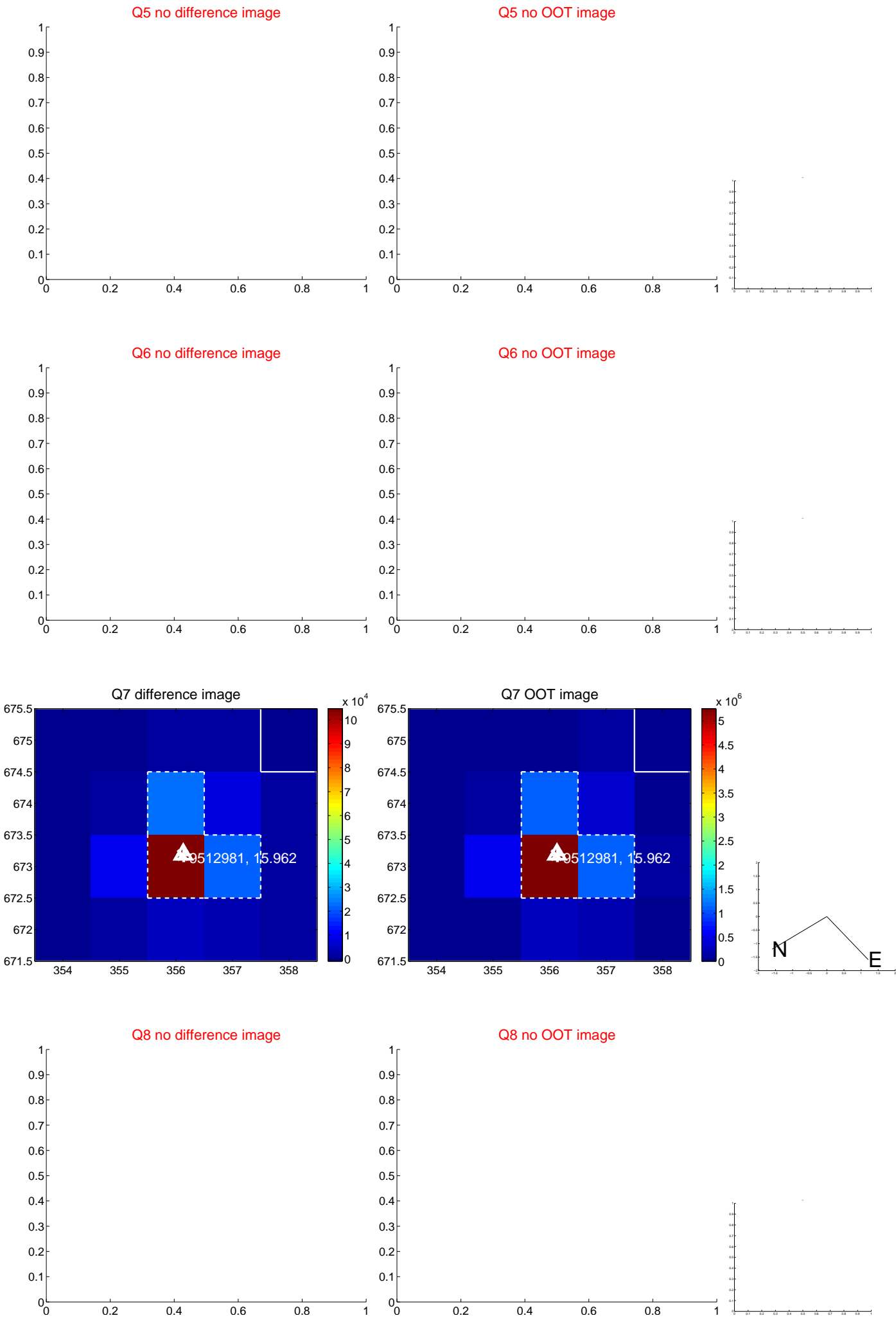


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

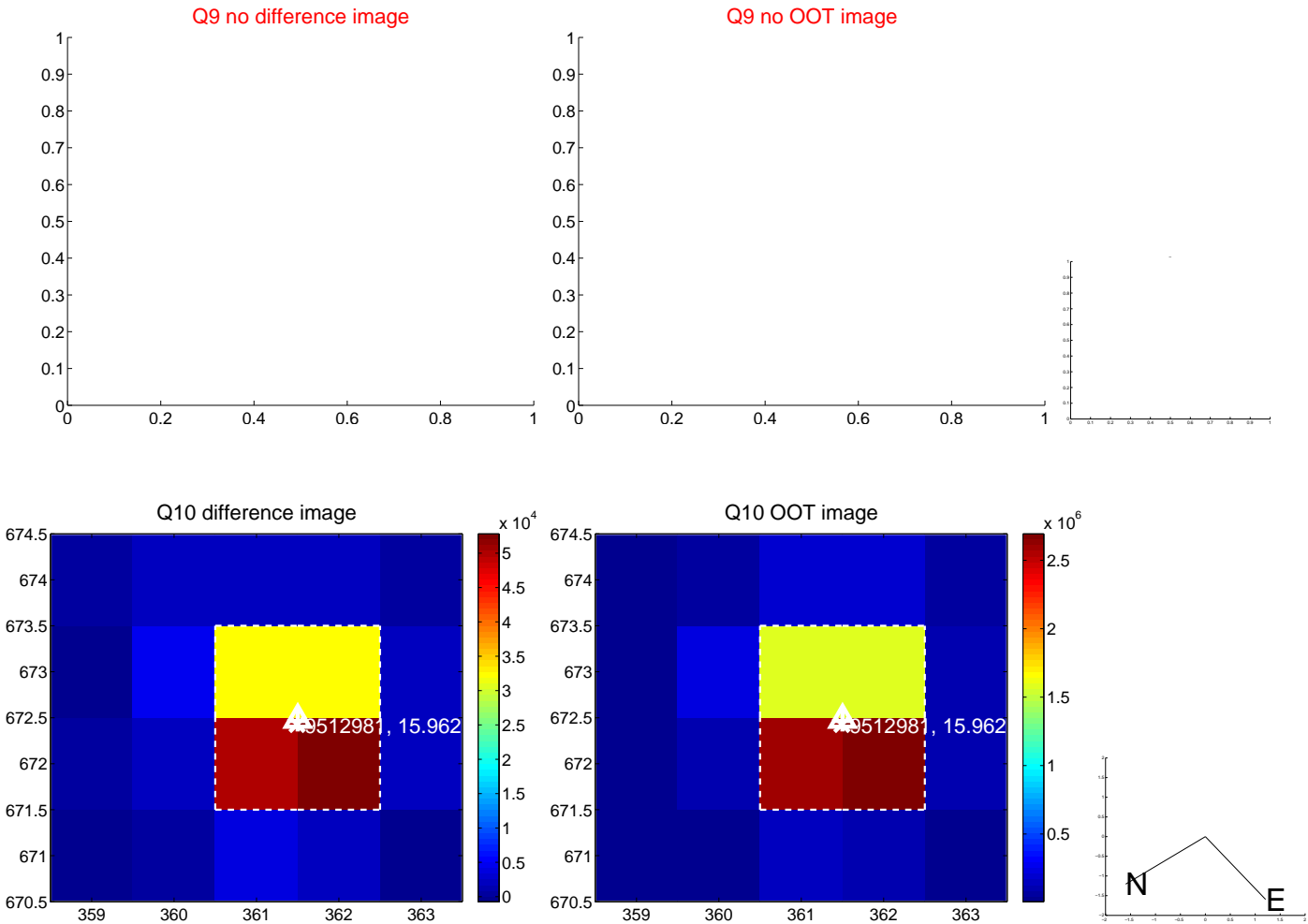


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

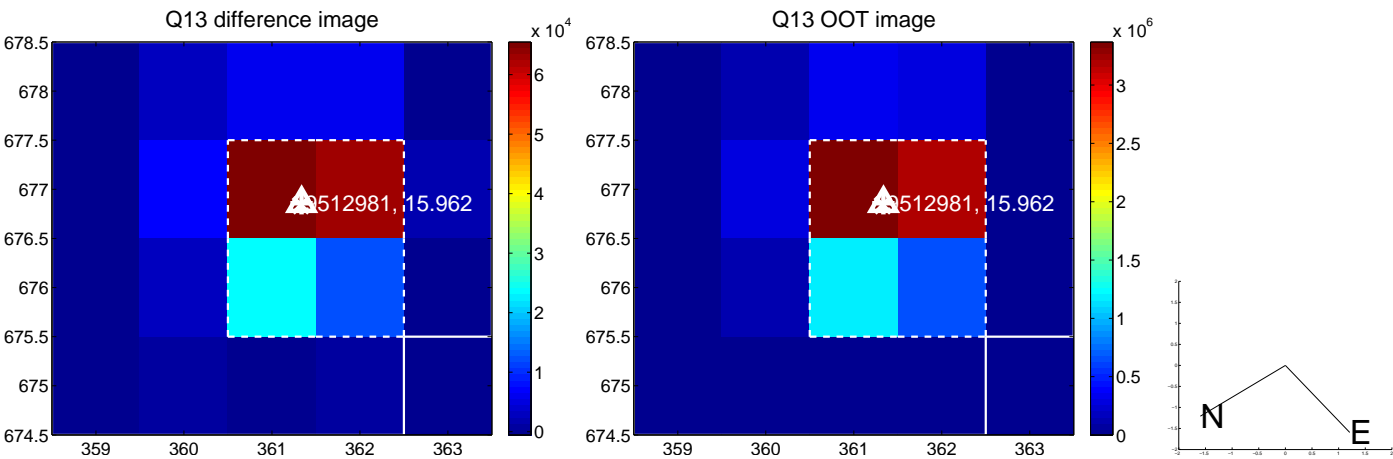




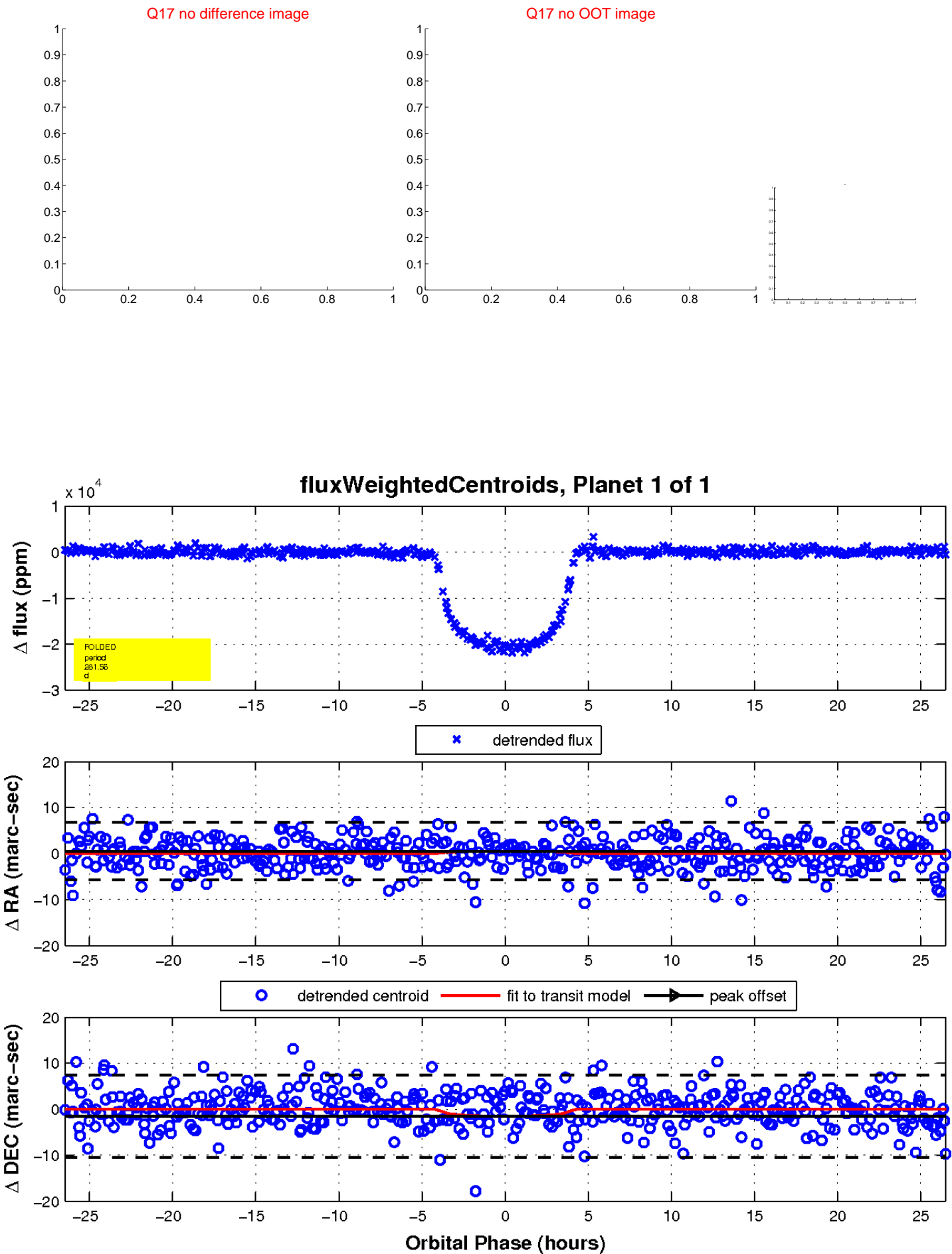
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

