

# KIC 009425139

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009425139-01	OBS	1411.01	305.076235	294.068050	3963.8	6.308	142.4	135.9	1.16	5716	7.91	1.54

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009425139-01	OBS	PC	0.99	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 009425139-01

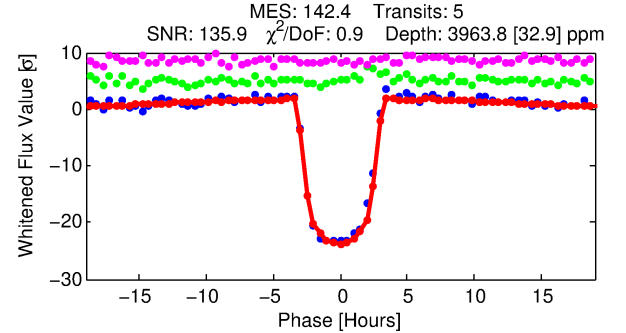
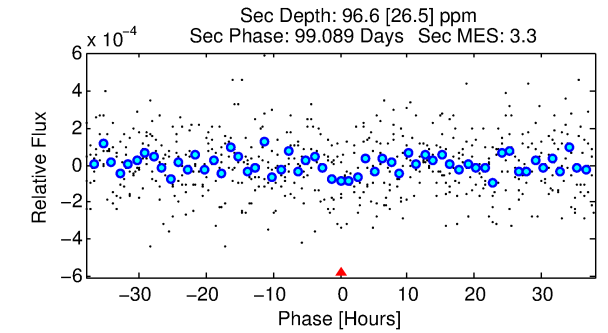
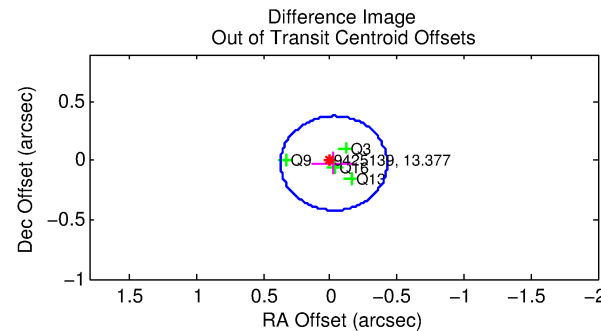
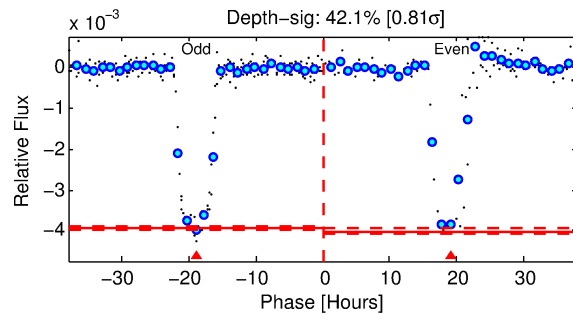
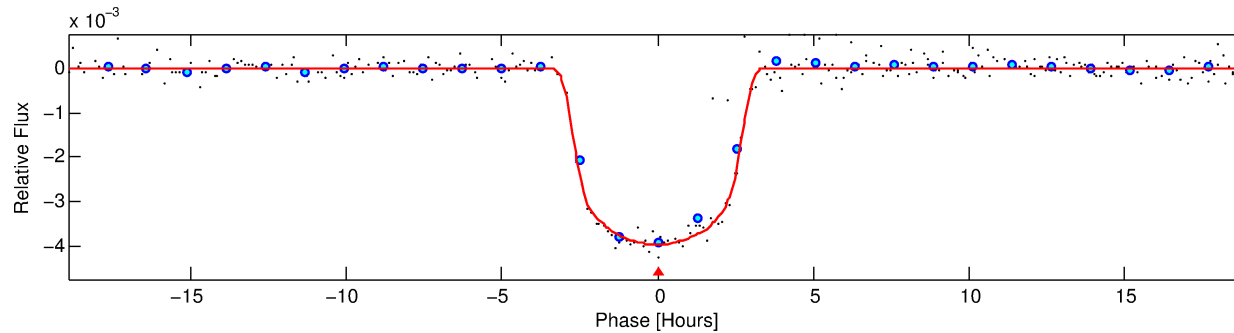
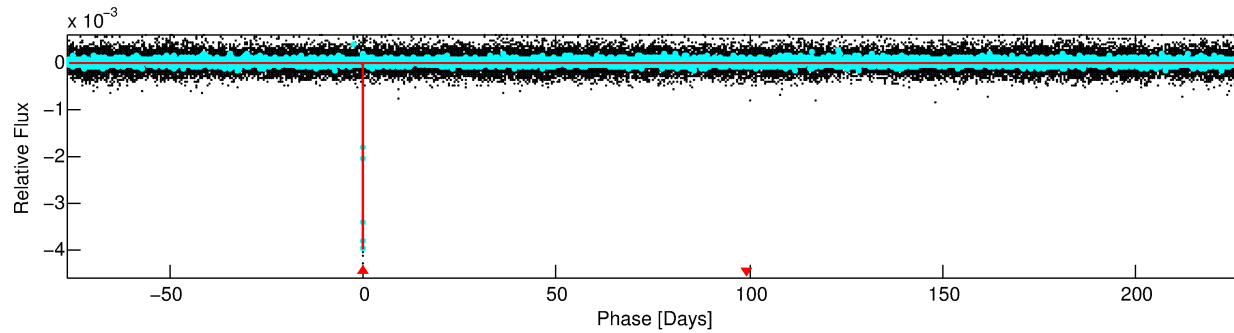
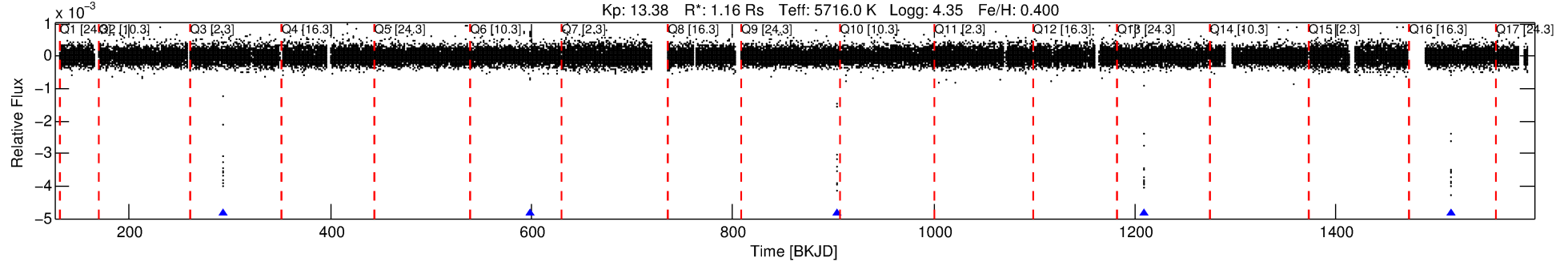
No Significant Match Found

# DV One-Page Summary

KIC: 9425139 Candidate: 1 of 1 Period: 305.076 d

KOI: K01411.01 Corr: 0.996

Kp: 13.38 R\*: 1.16 Rs Teff: 5716.0 K Logg: 4.35 Fe/H: 0.400



## DV Fit Results:

Period = 305.07624 [0.00038] d  
Epoch = 294.0680 [0.0010] BKJD  
Rp/R\* = 0.0627 [0.0010]  
a/R\* = 278.78 [17.26]  
b = 0.75 [0.04]  
Seff = 1.54 [0.34]  
Teq = 284 [16] K  
Rp = 7.91 [1.28] Re  
a = 0.9114 [0.1271] AU  
Ag = 705.87 [244.46] [2.88σ]  
Teffp = 2262 [163] K [12.08σ]

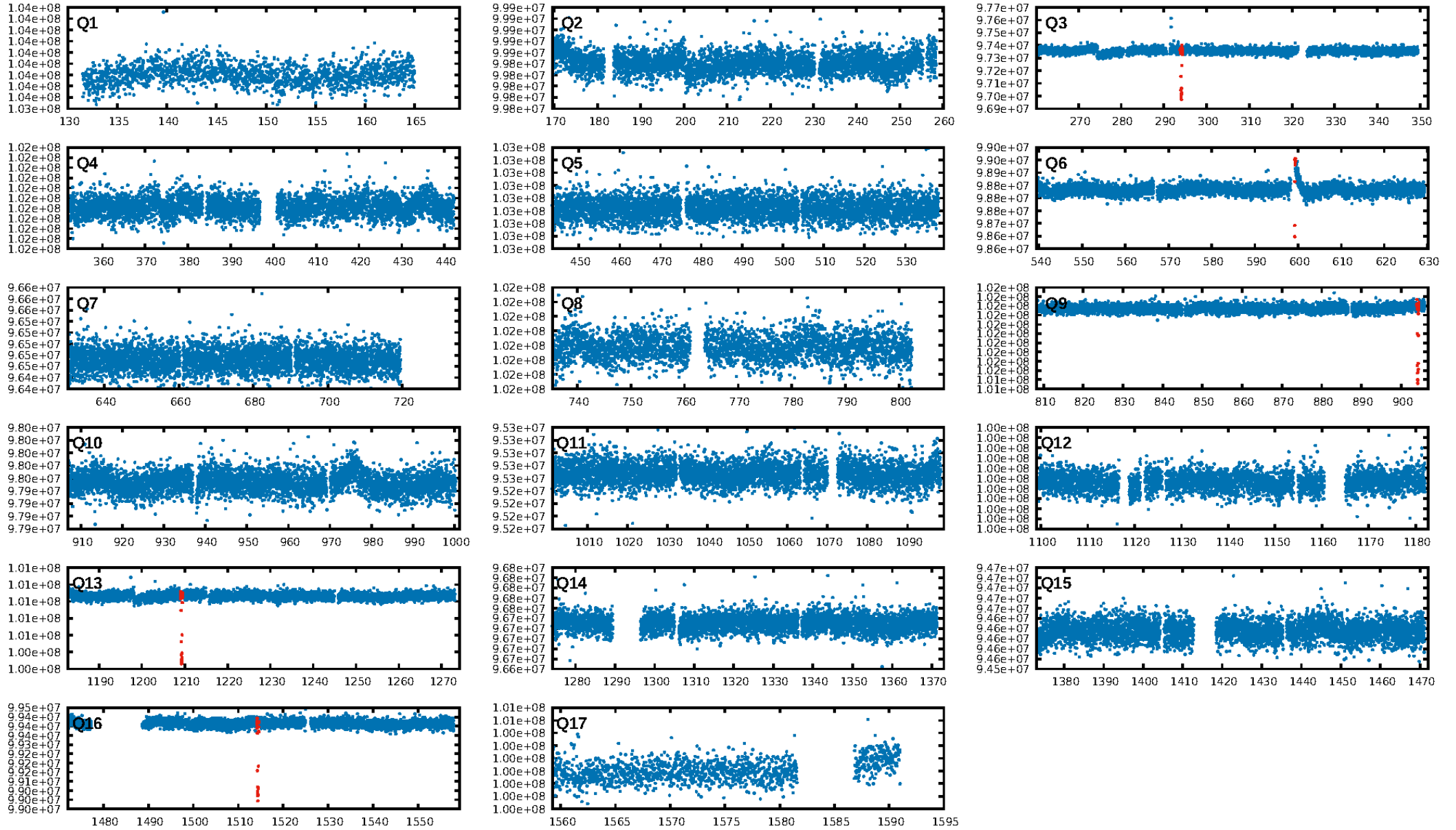
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 94.3%  
ModelChiSquareGof-sig: 98.7%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 4.059  
Centroid-sig: 7.9%  
Centroid-so: 0.181 arcsec [1.62σ]  
OotOffset-rm: 0.034 arcsec [0.26σ]  
OotOffset-st: 0/1/1/2 [4]  
KicOffset-rm: 0.345 arcsec [3.57σ]  
KicOffset-st: 0/1/1/2 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

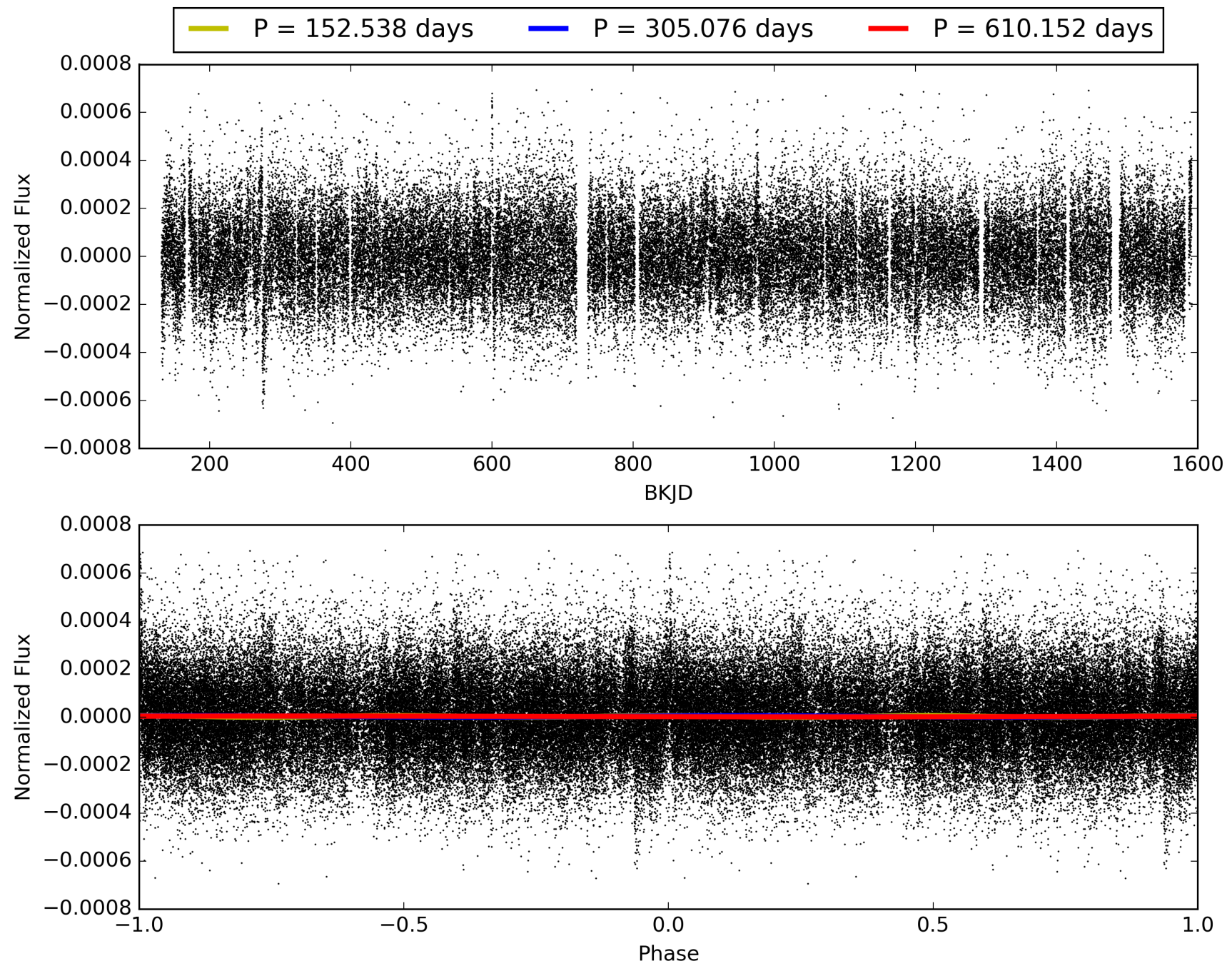
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:51:19 Z

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

# TCE 009425139-01, PDC Light Curves

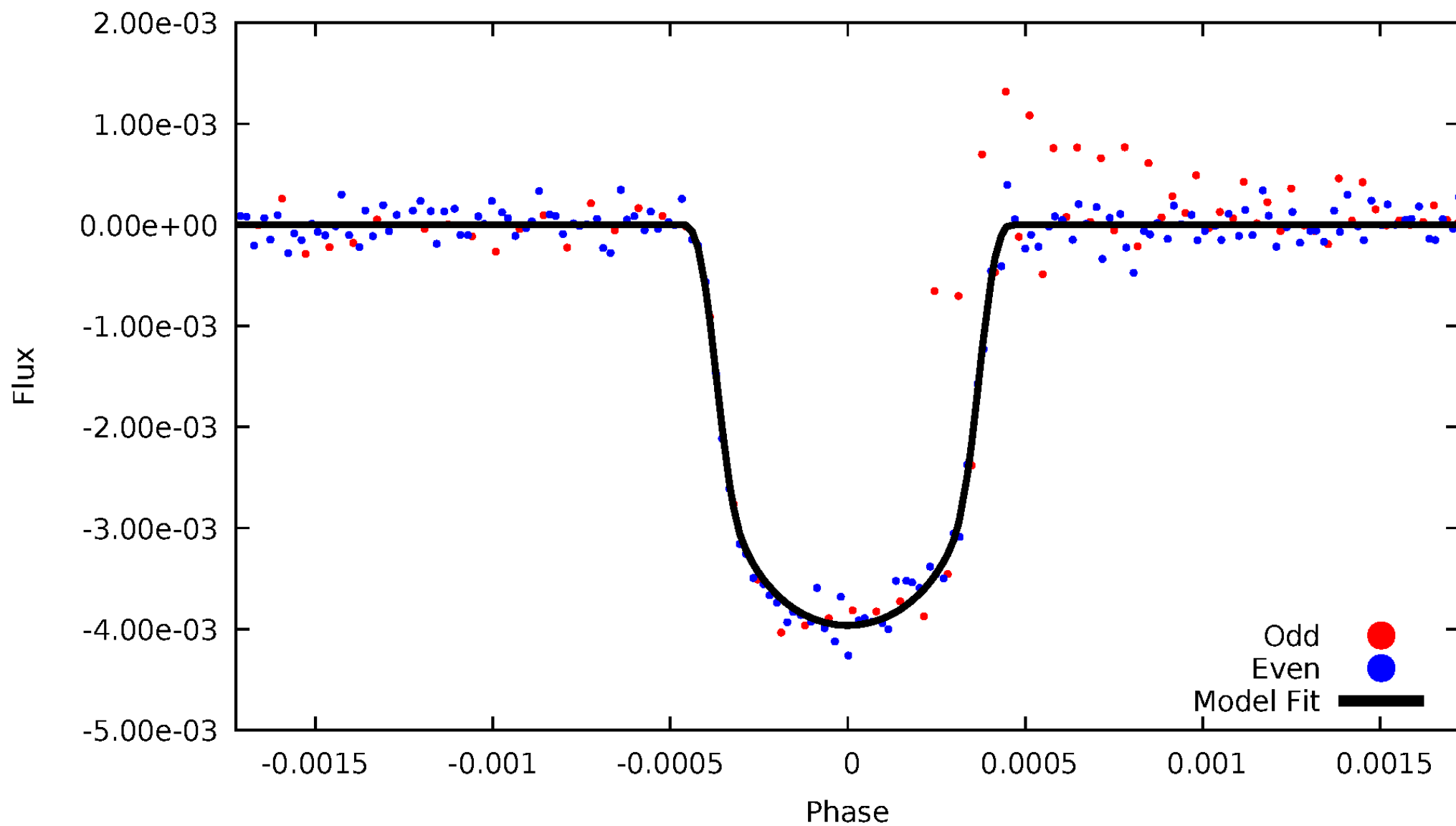


TCE 009425139-01



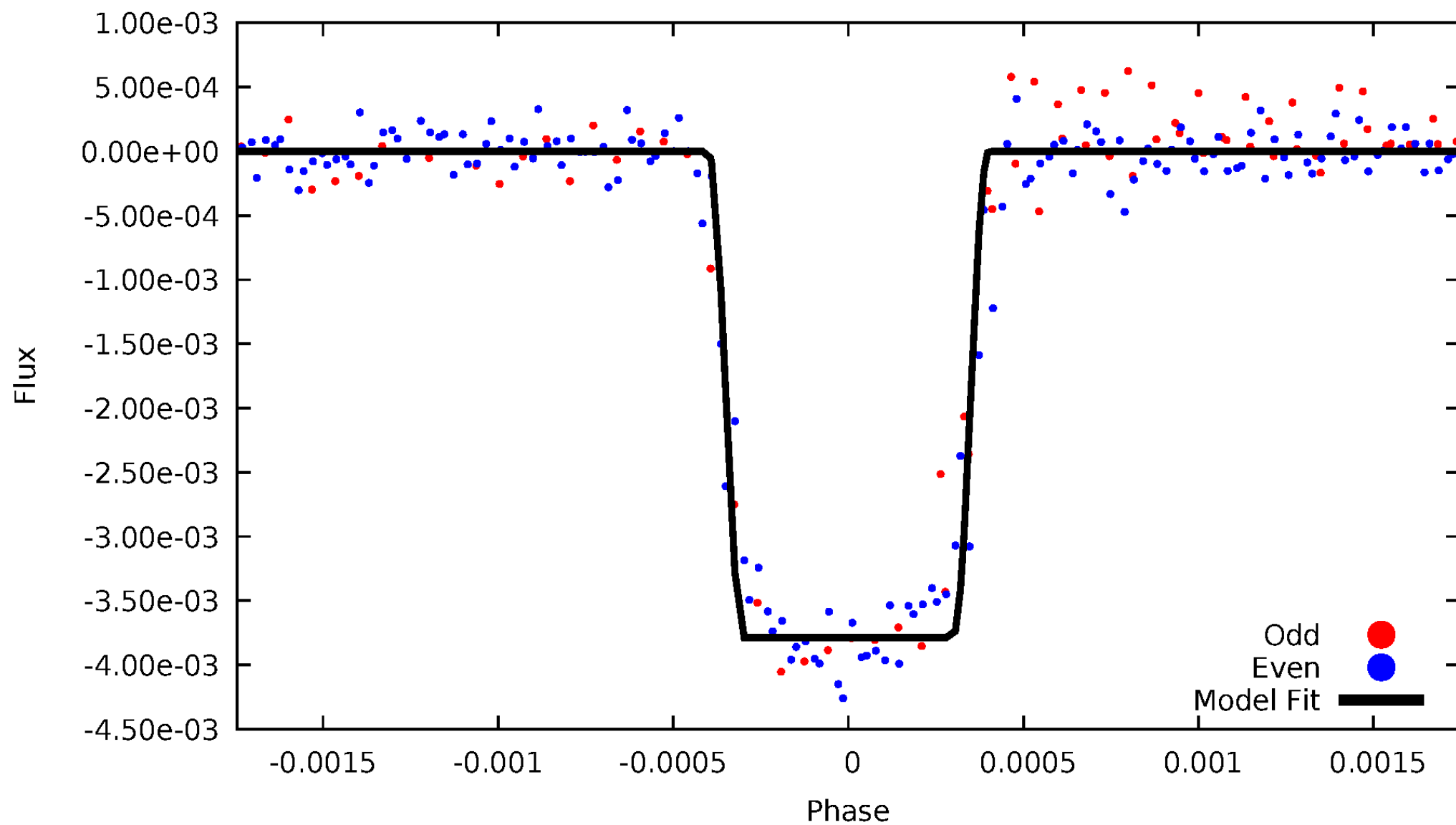
# DV Odd/Even

TCE 009425139-01



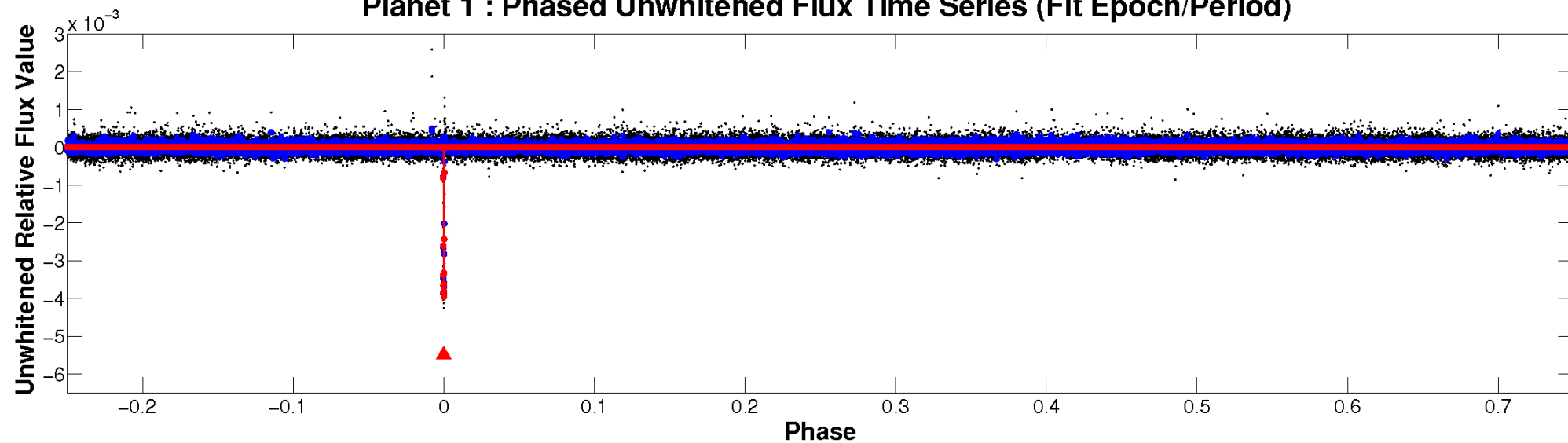
# ALT Odd/Even

TCE 009425139-01

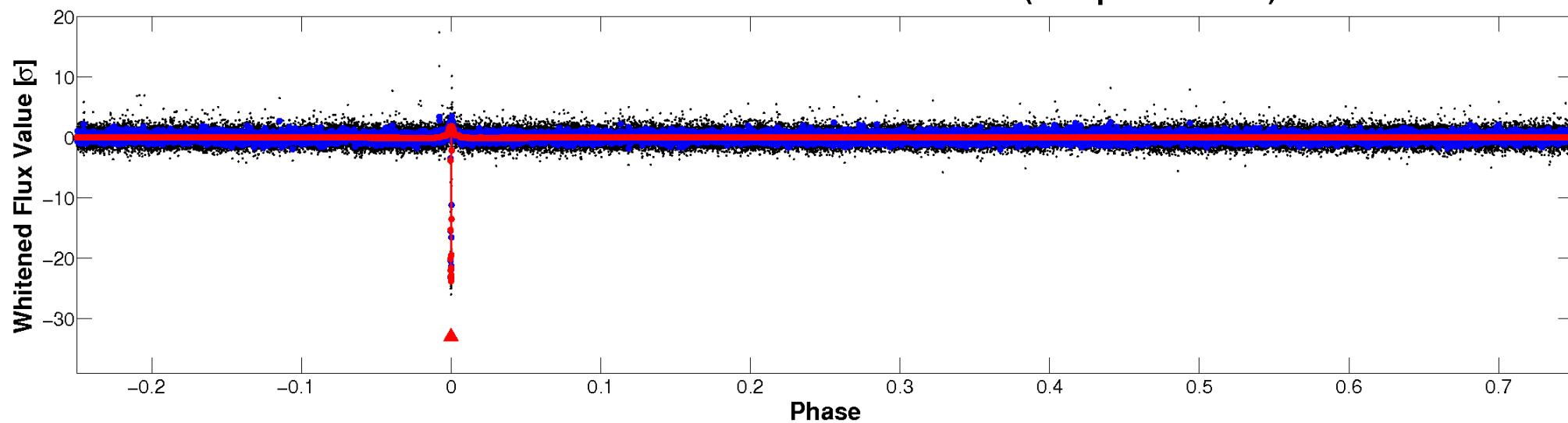


# Non-Whitened Vs. Whitened Light Curve

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

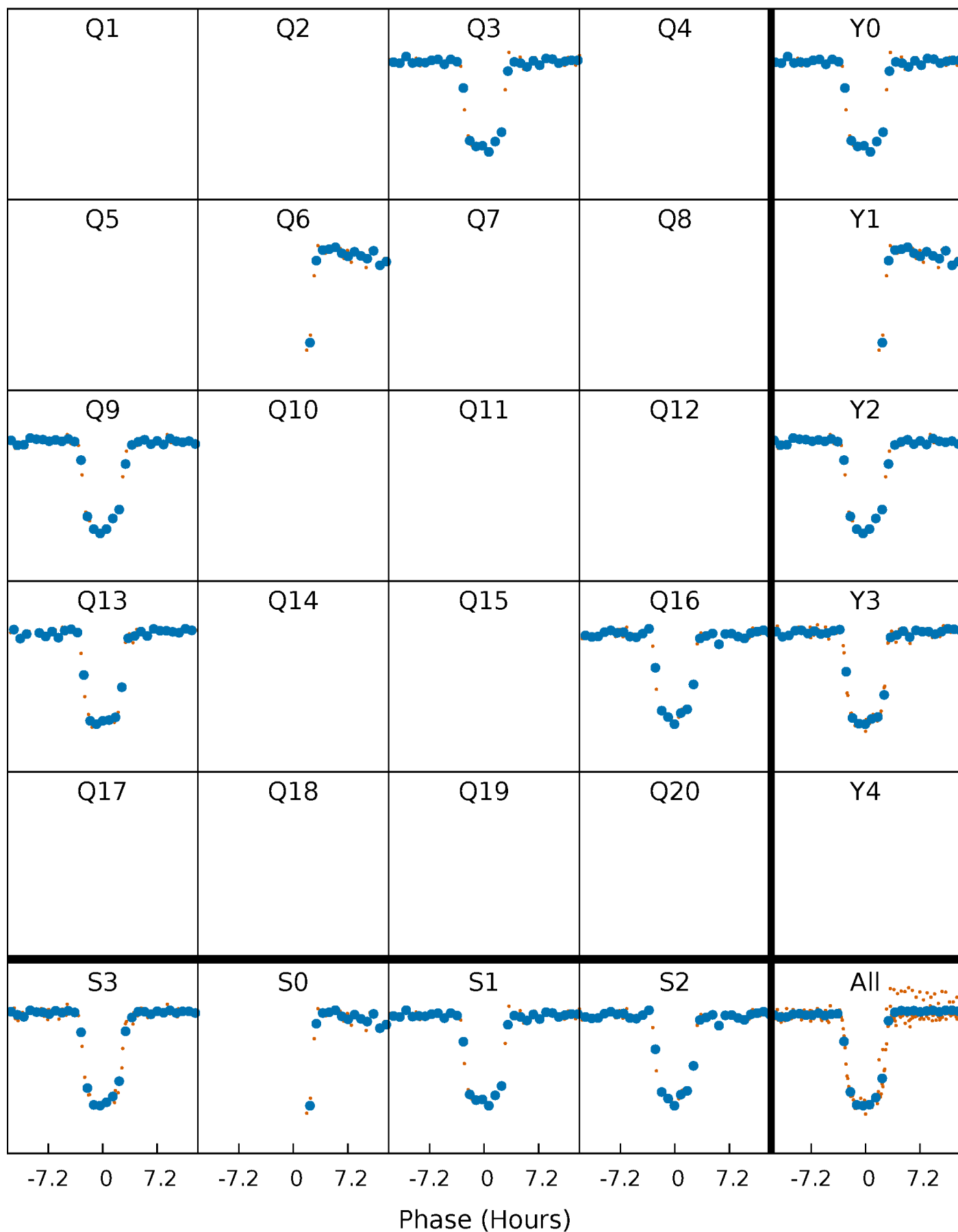


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

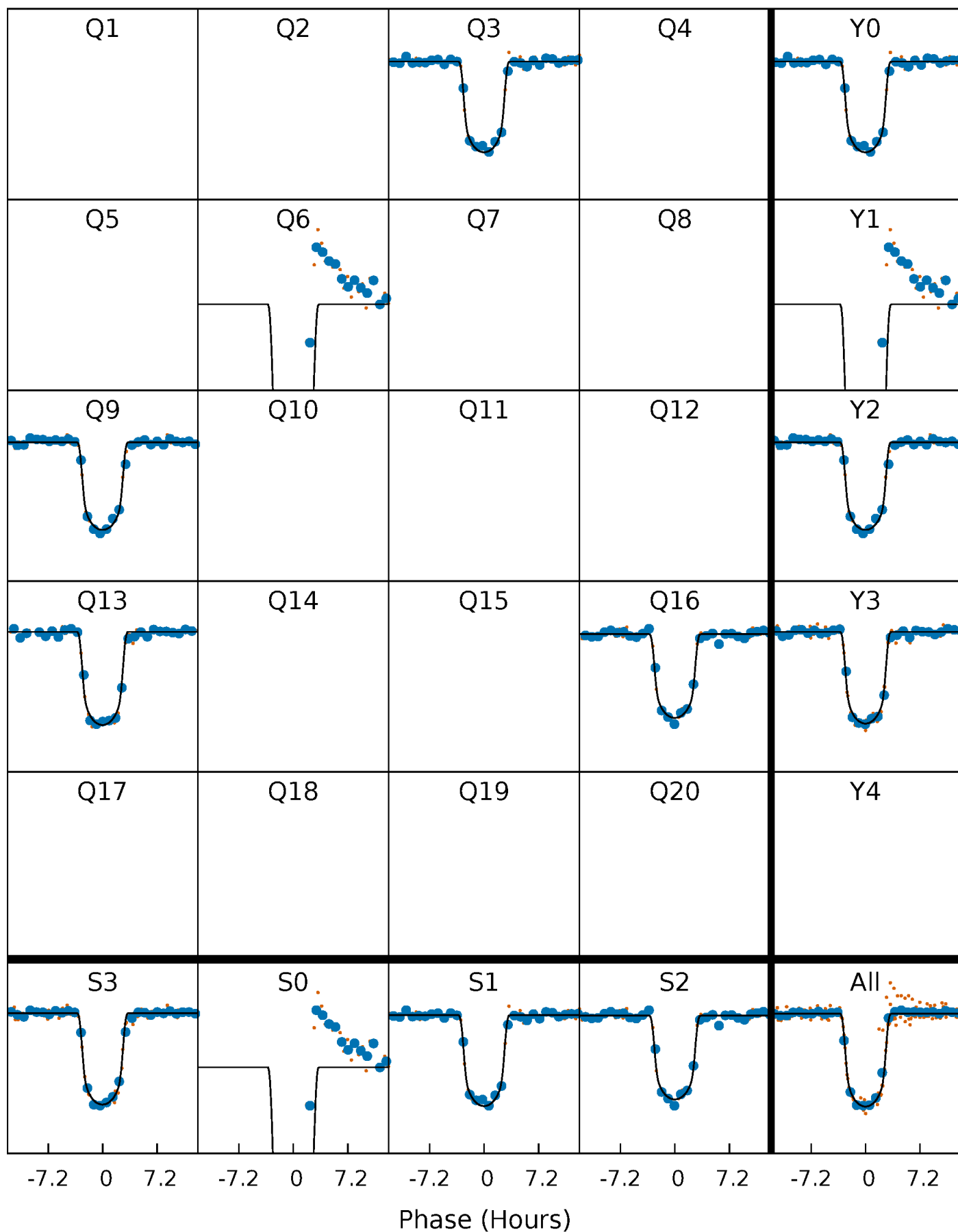
TCE 009425139-01 P=305.076235 Days  $T_0=294.068050$  (BKJD)





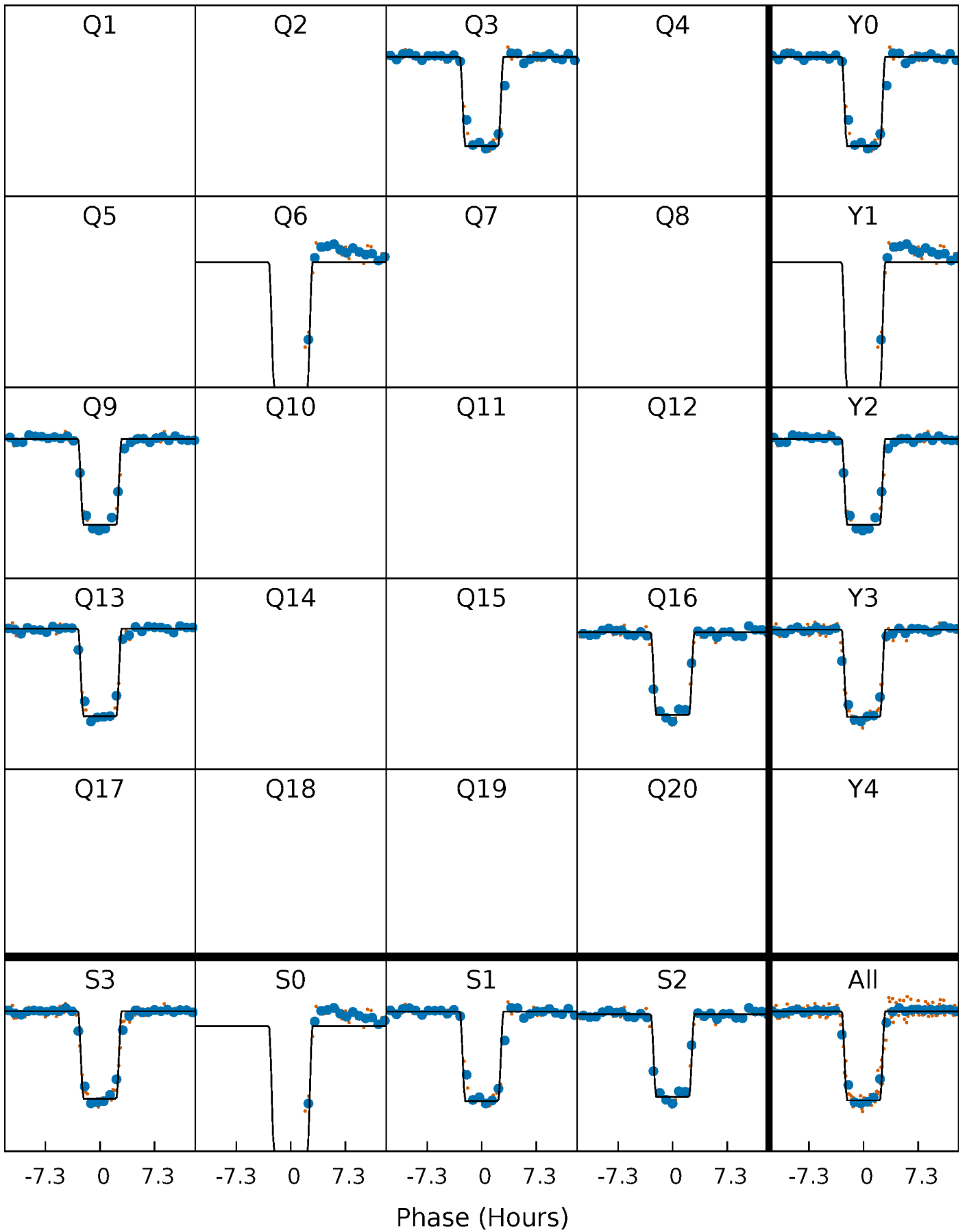
# DV Quarter-Phased Transit Curves

TCE 009425139-01 P=305.076235 Days  $T_0=294.068050$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

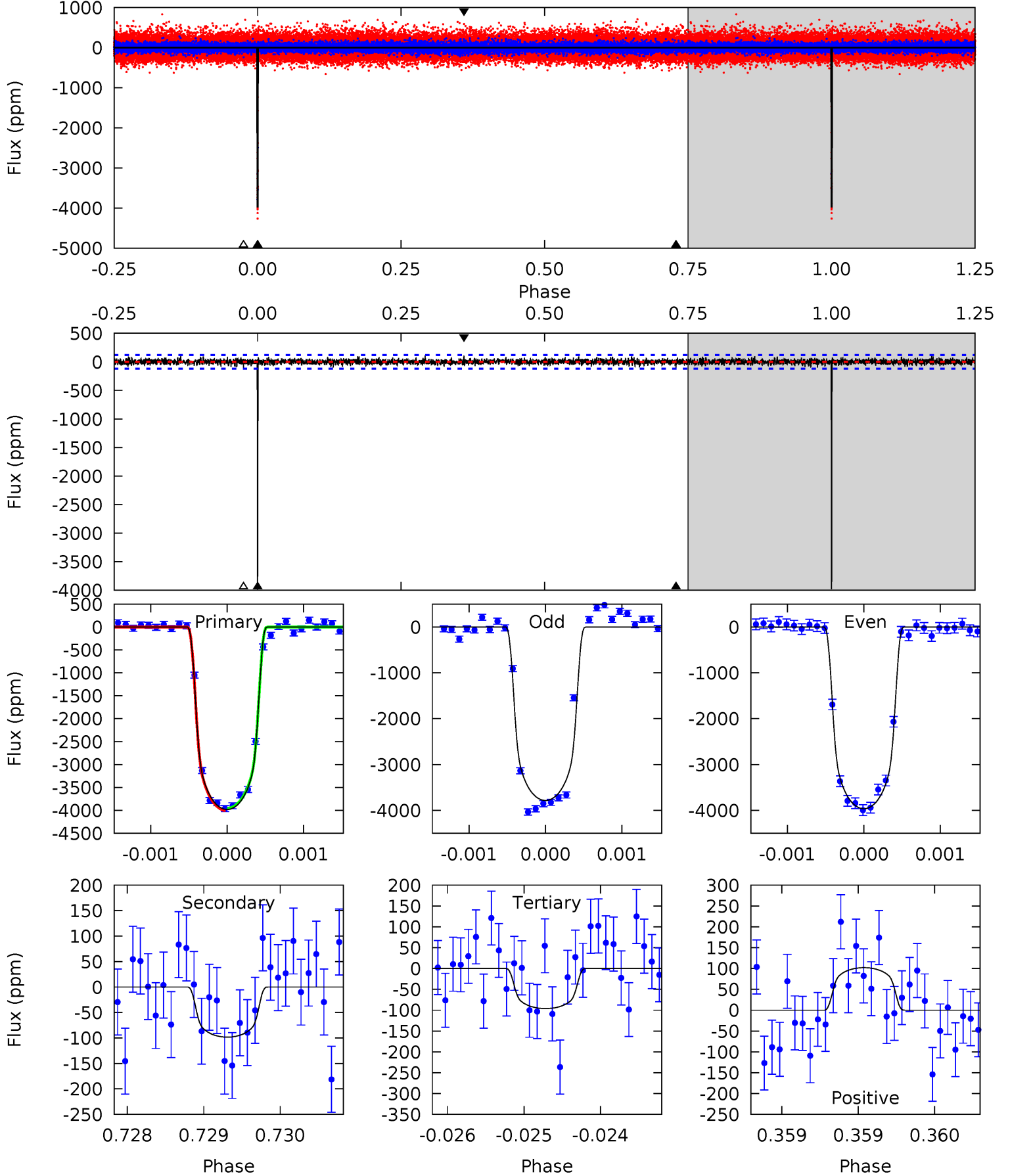
TCE 009425139-01 P=305.079862 Days  $T_0=294.058640$  (BKJD)



# DV Model-Shift Uniqueness Test

009425139-01,  $P = 305.076235$  Days,  $E = 294.068050$  Days

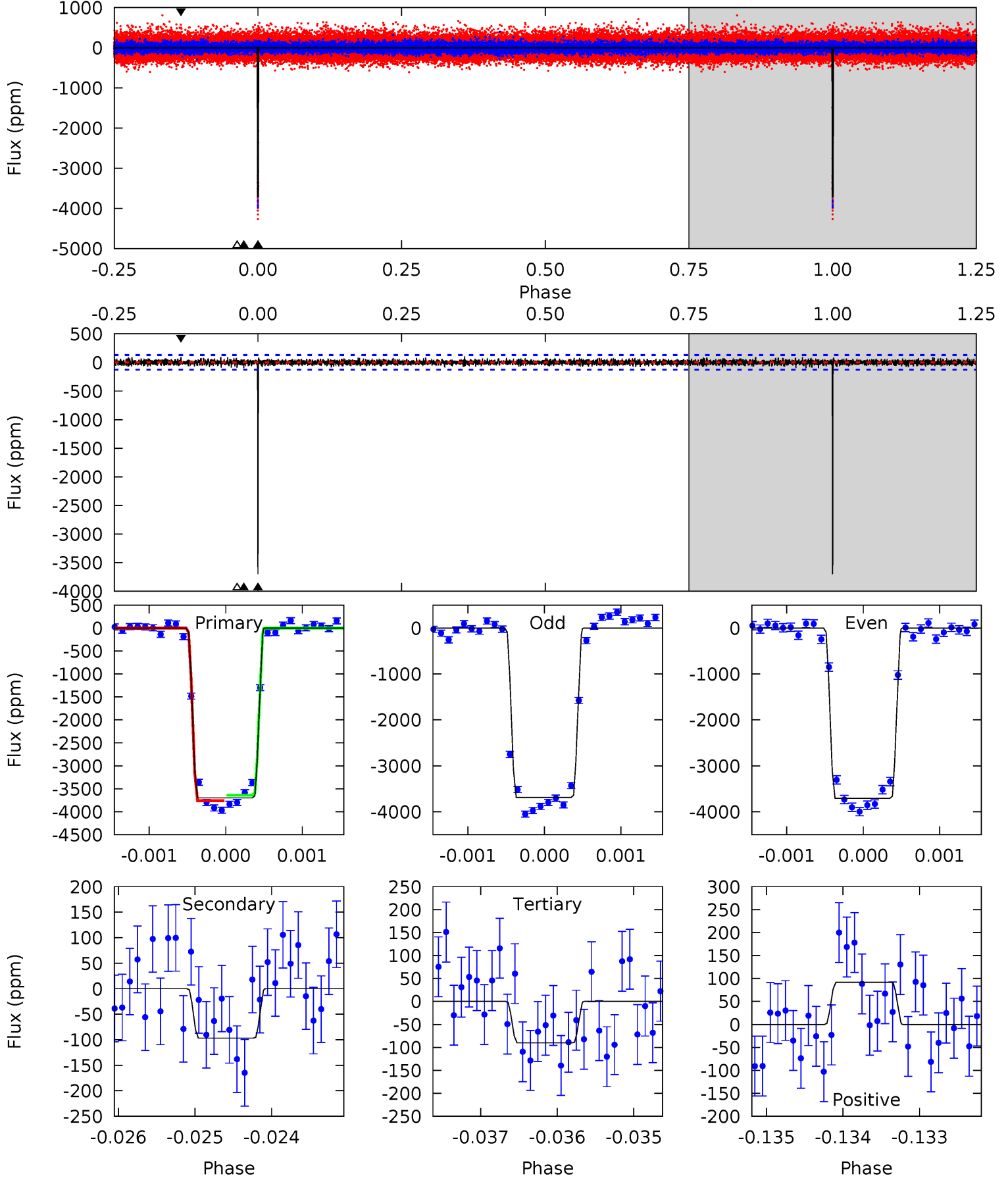
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
184.5	4.56	4.46	4.73	5.47	3.32	1.22	180.0	179.8	0.10	-0.17	3.90	0.83	0.02	1.19



# Alt Model-Shift Uniqueness Test

009425139-01,  $P = 305.079862$  Days,  $E = 294.058640$  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
158.7	4.15	3.87	3.93	5.49	3.35	1.03	154.8	154.7	0.28	0.22	0.40	0.94	0.02	2.56



### Stellar Parameters For KIC 009425139

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5716^{+103}_{-114}$	$4.348^{+0.095}_{-0.116}$	$0.400^{+0.050}_{-0.150}$	$1.155^{+0.186}_{-0.124}$	$1.083^{+0.066}_{-0.066}$	$0.991^{+0.395}_{-0.359}$
	+2%/-2%	+2%/-3%	+12%/-37%	+16%/-11%	+6%/-6%	+40%/-36%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 009425139-01 / KOI 1411.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-98 \pm 22$	$7.91^{+0.75}_{-0.51}$	$397^{+18}_{-15}$	$2955^{+86}_{-105}$	$705^{+195}_{-174}$
Alt.	$-97 \pm 23$	$7.79^{+0.72}_{-0.56}$	$397^{+19}_{-14}$	$2961^{+107}_{-116}$	$703^{+248}_{-176}$

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

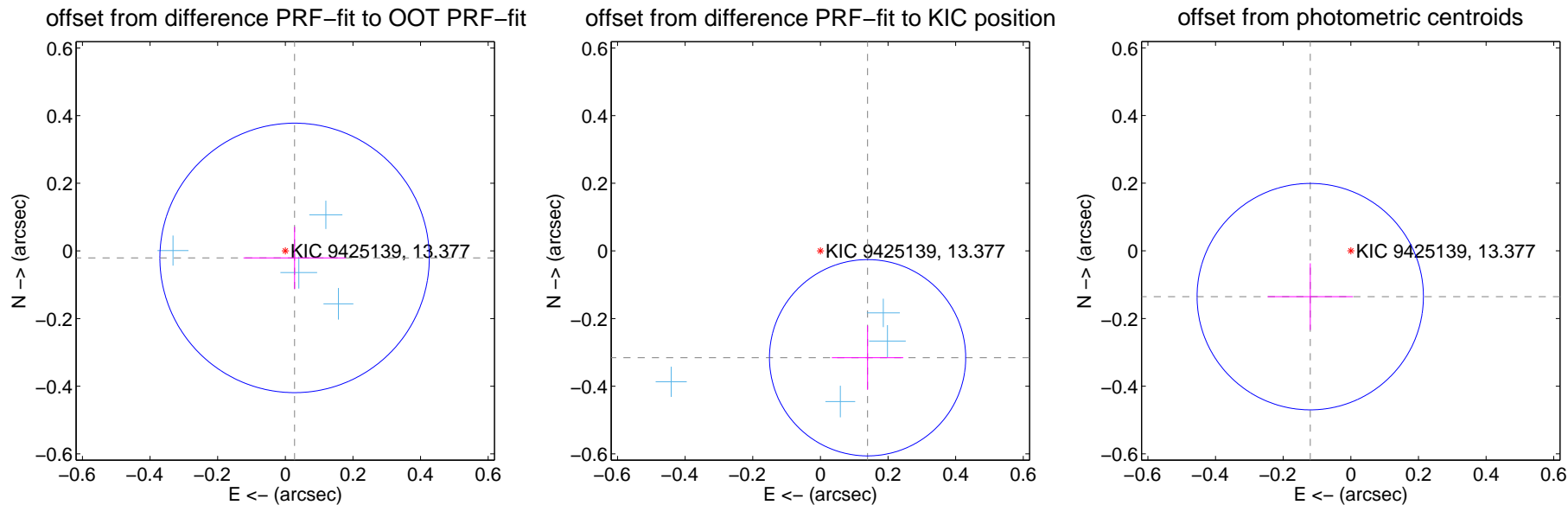
## DV Centroid Data

Supplemental centroid analysis for 009425139-01. Kepler magnitude: 13.38. Transit SNR 135.85

There are 4 quarters with good PRF difference image offsets

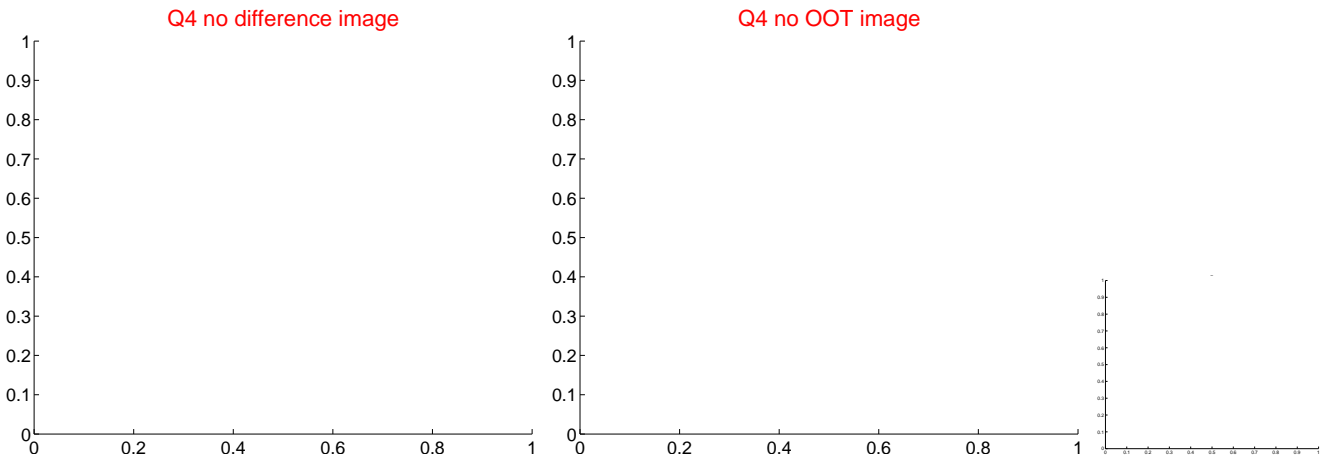
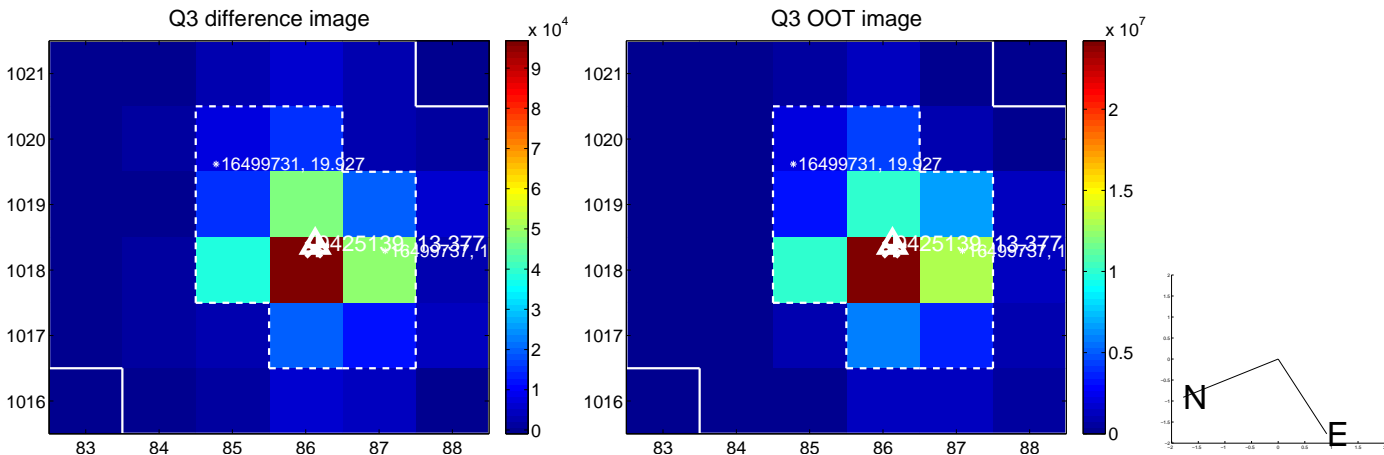
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.034 \pm 0.133$	0.26	$-0.027 \pm 0.151$	$-0.021 \pm 0.092$
PRF-fit source offset from KIC position	<b><math>0.345 \pm 0.097</math></b>	<b>3.57</b>	$-0.140 \pm 0.106$	$-0.316 \pm 0.095$
photometric centroid source offset	$0.18 \pm 0.11$	1.62	$0.12 \pm 0.13$	$-0.14 \pm 0.10$



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

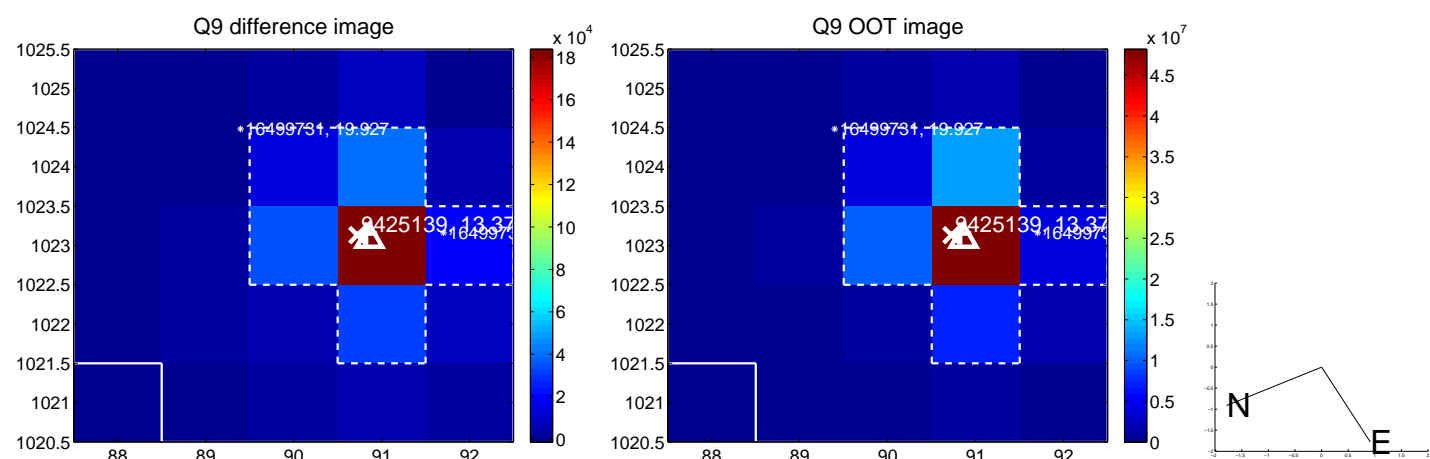


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

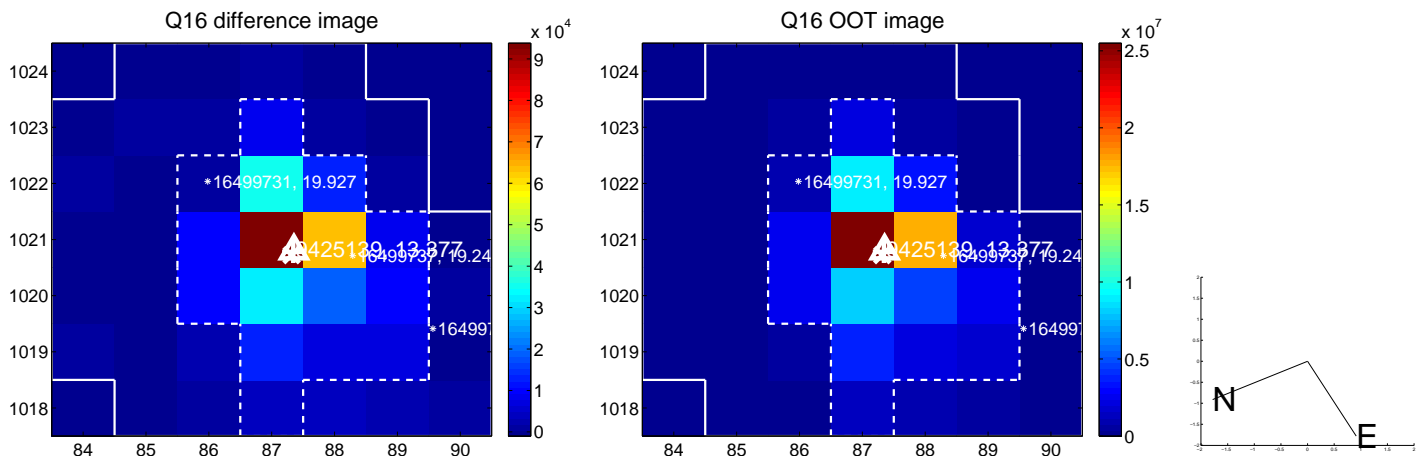
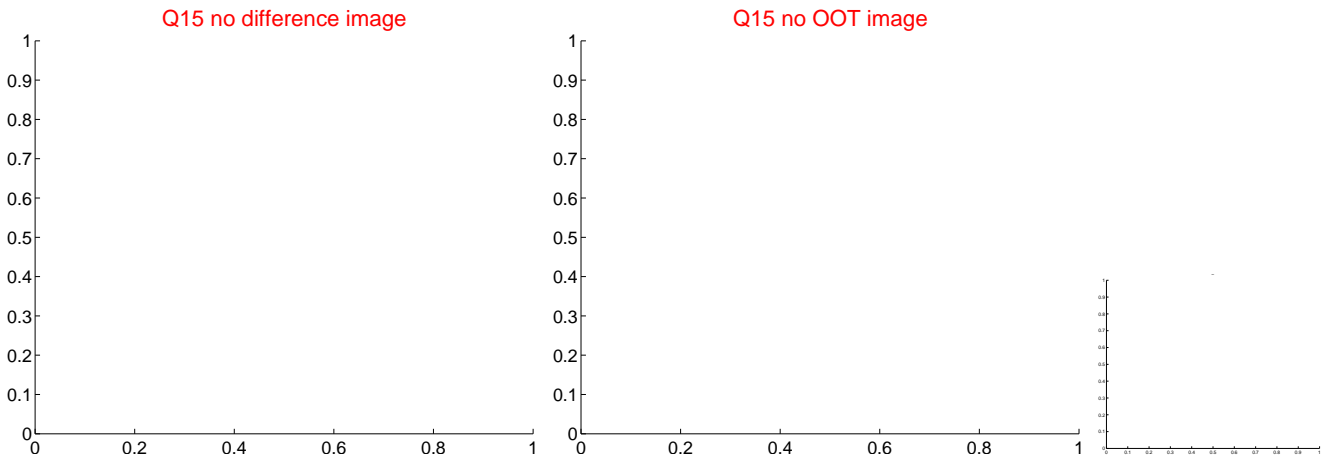
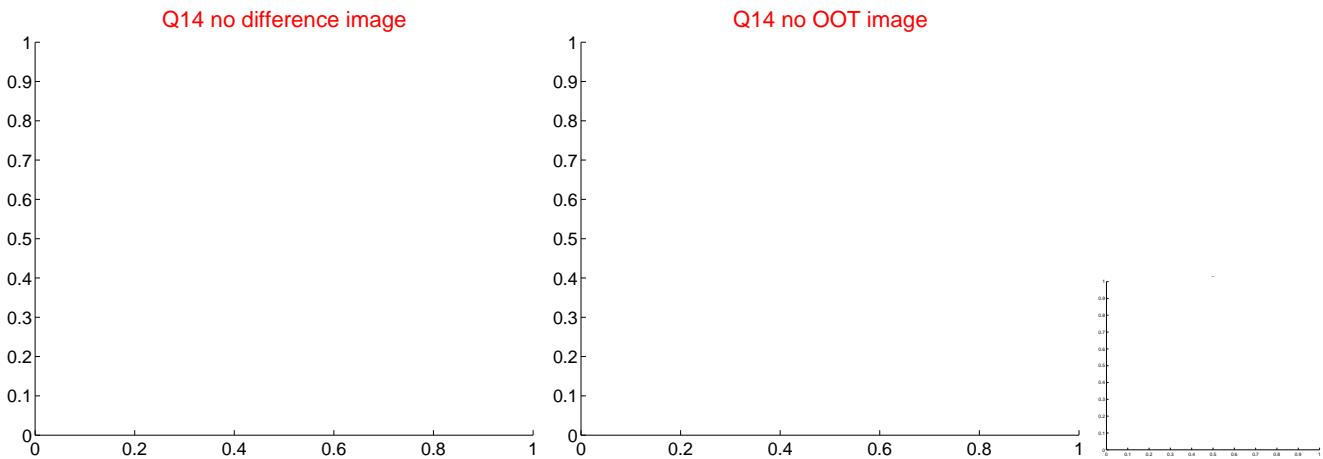
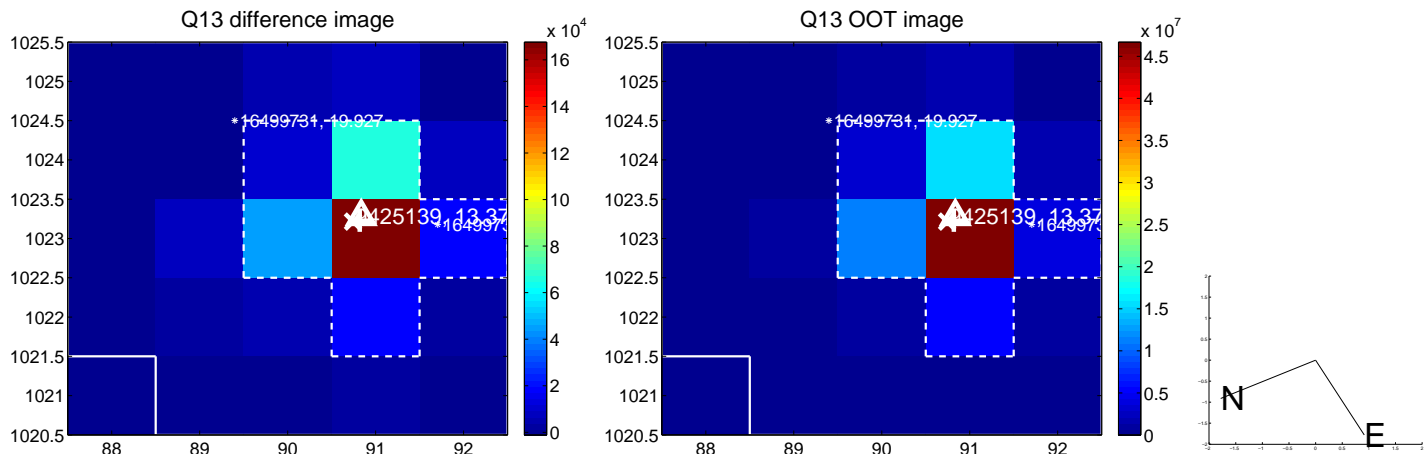




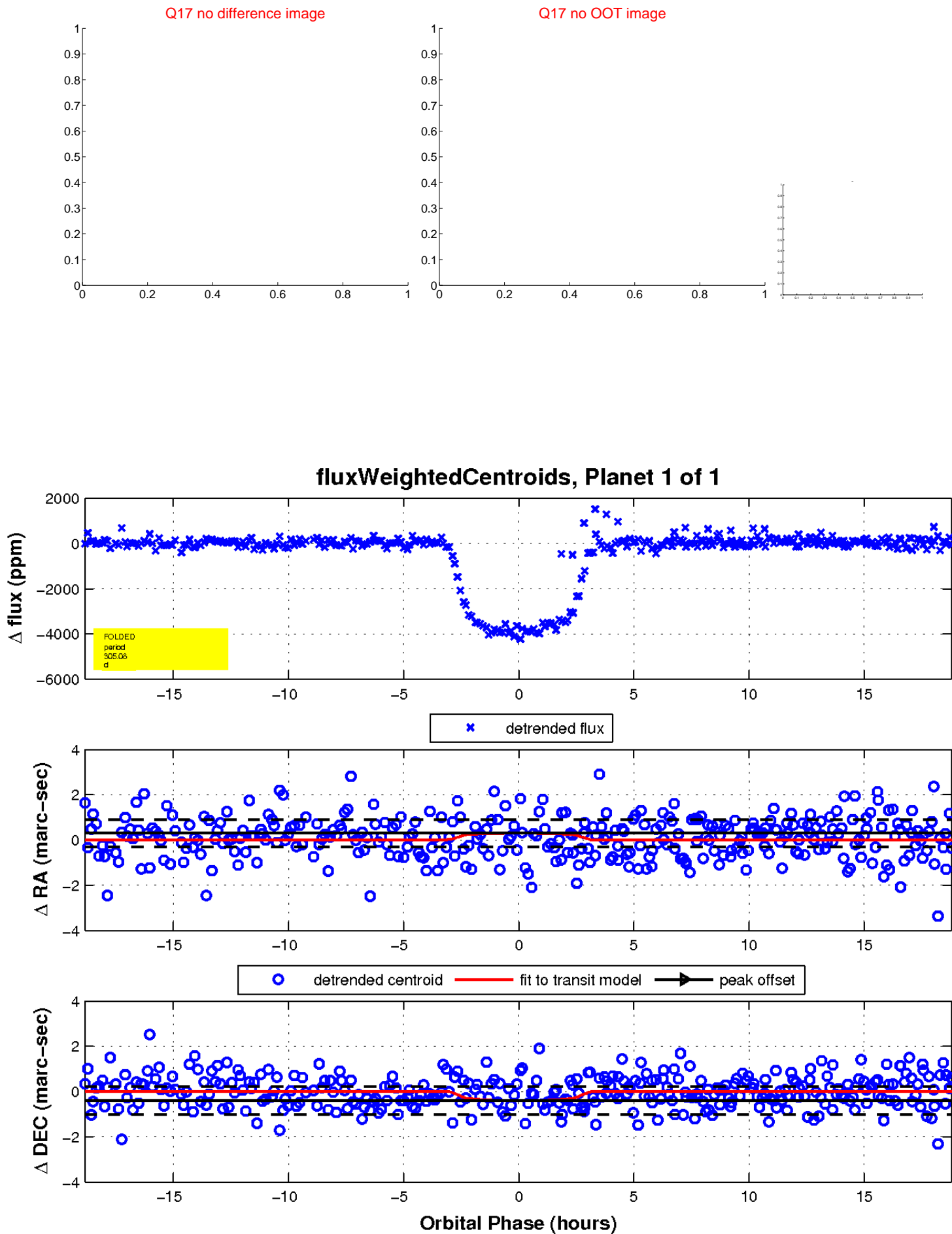
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UKIRT Image

Declination

