

# KIC 009570283

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009570283-01	OBS	No	421.644732	455.919481	246.2	3.694	7.2	7.5	2.58	6187	4.47	6.24

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009570283-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—MOD_NONUNIQ_ALT

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

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

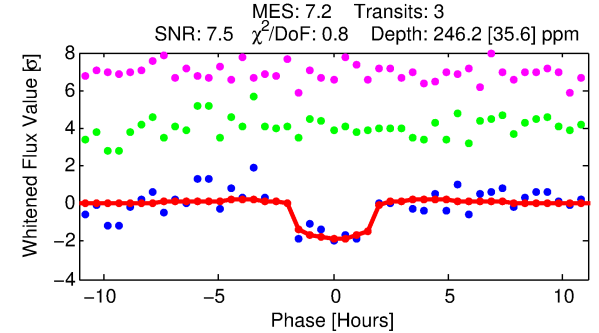
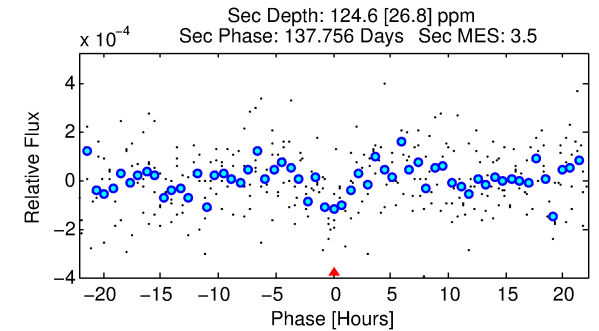
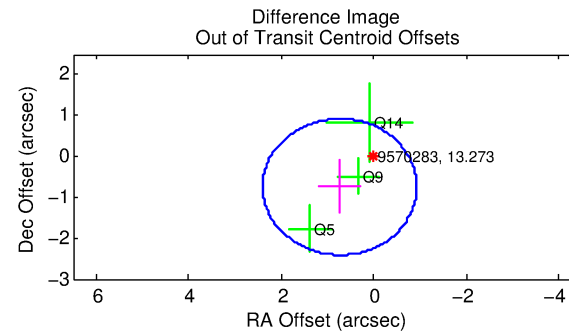
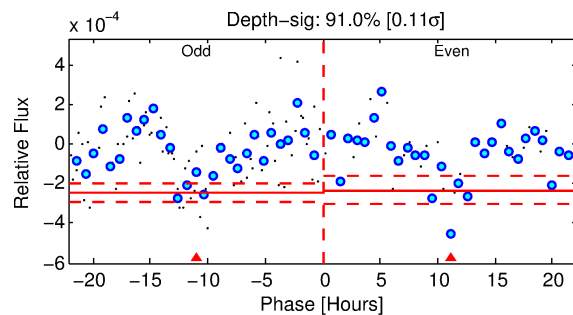
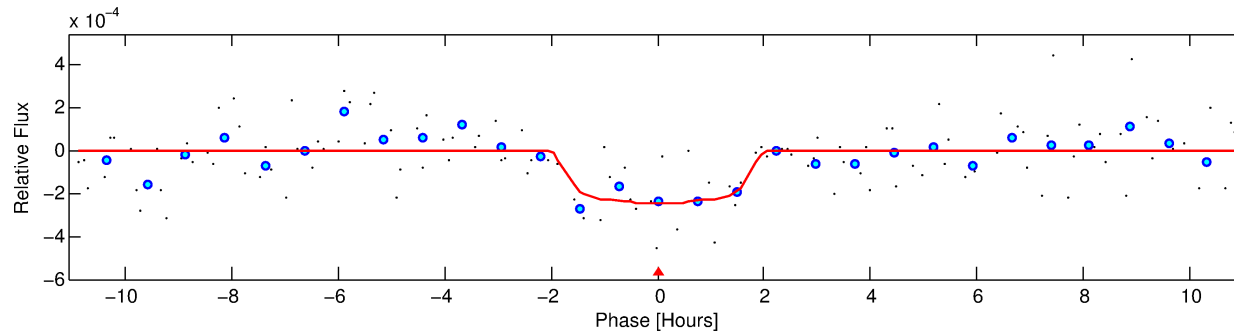
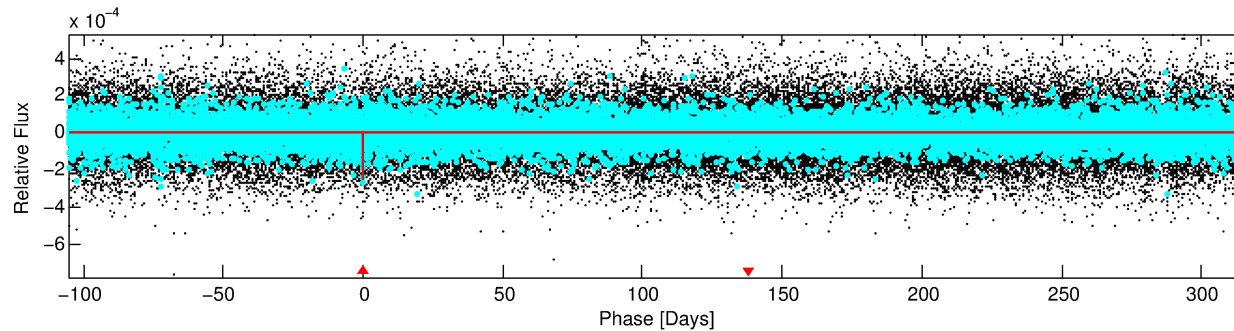
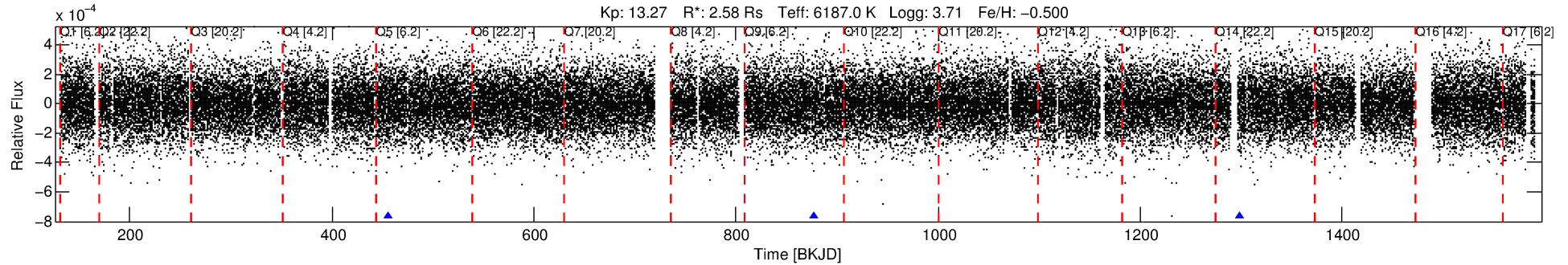
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009570283-01

No Significant Match Found

# DV One-Page Summary

KIC: 9570283 Candidate: 1 of 1 Period: 421.645 d



## DV Fit Results:

Period = 421.64473 [0.00724] d  
Epoch = 455.9195 [0.0075] BKJD  
Rp/R\* = 0.0159 [0.0138]  
a/R\* = 543.01 [2510.89]  
b = 0.80 [2.07]  
Seff = 6.24 [3.70]  
Teq = 403 [60] K  
Rp = 4.47 [4.26] Re  
a = 1.1820 [0.4344] AU  
Ag = 4784.96 [8774.71] [0.55 $\sigma$ ]  
Teffp = 5181 [2266] K [2.11 $\sigma$ ]

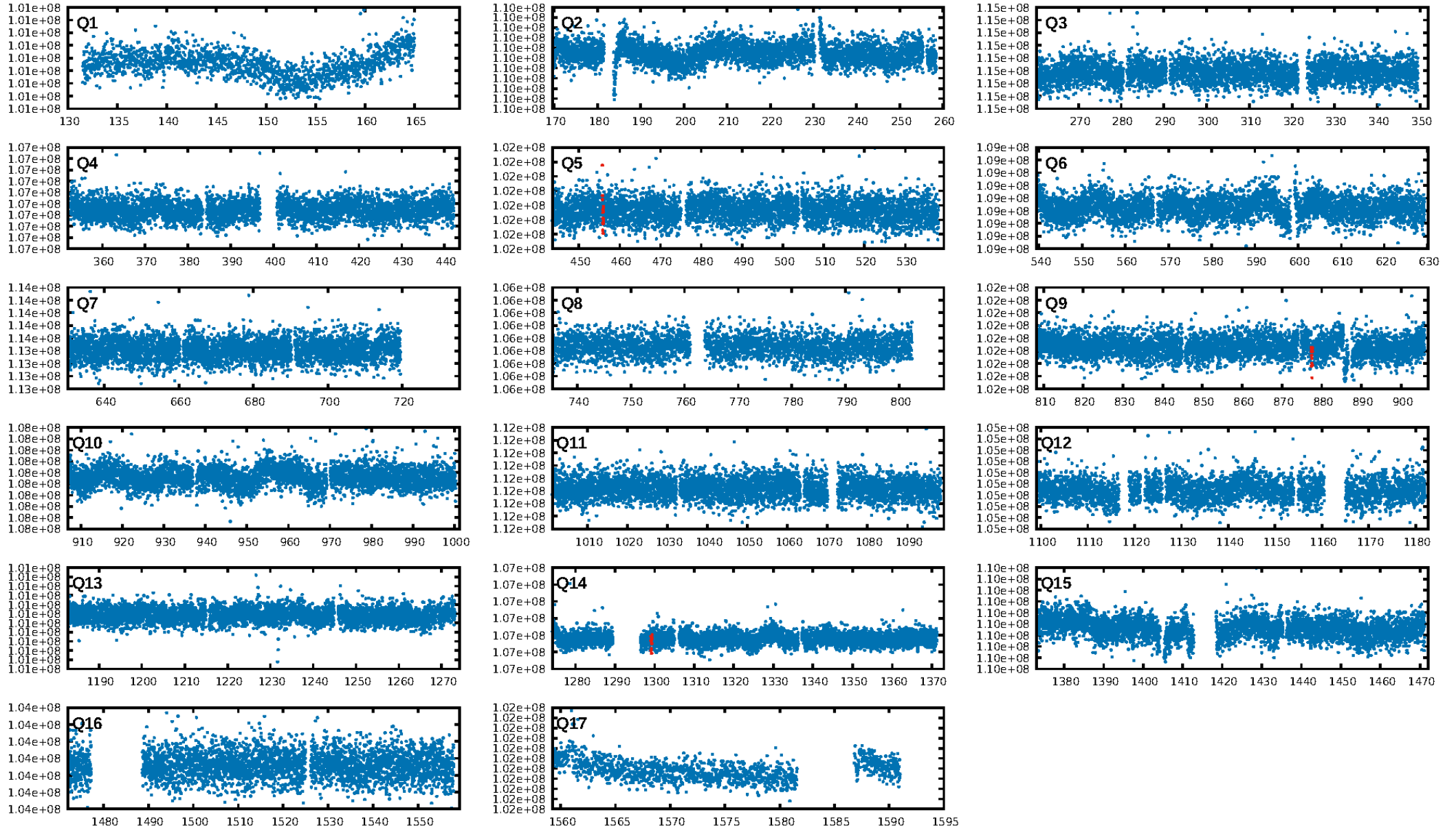
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 84.6%  
ModelChiSquareGof-sig: 97.7%  
**Bootstrap-pfa: 1.06e-08**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.711  
Centroid-sig: 18.2%  
Centroid-so: 3.497 arcsec [1.40 $\sigma$ ]  
OotOffset-rm: 1.050 arcsec [1.89 $\sigma$ ]  
KicOffset-rm: 1.122 arcsec [2.05 $\sigma$ ]  
OotOffset-st: 1/0/0/2 [3]  
KicOffset-st: 1/0/0/2 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

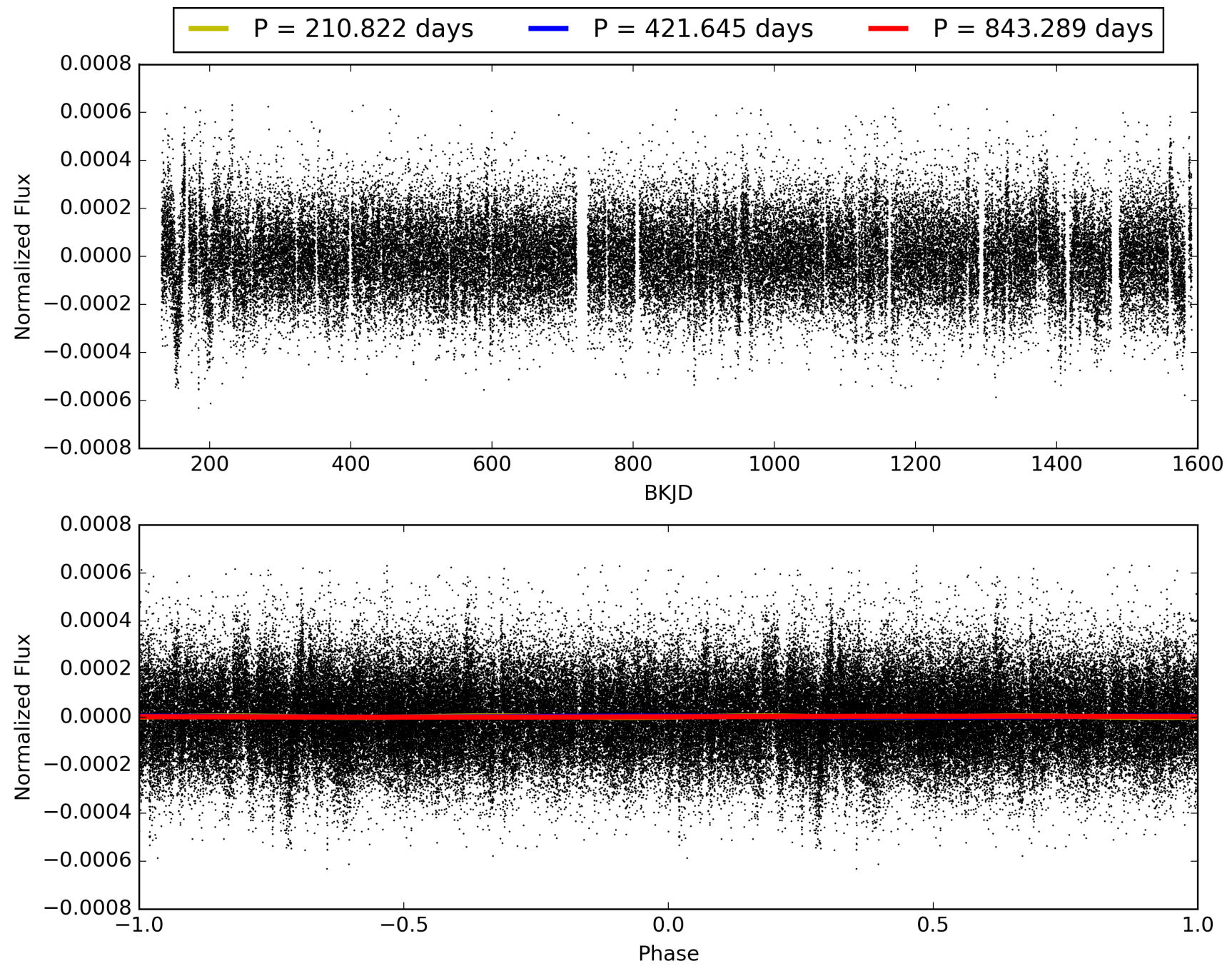
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:27:32 Z

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

# TCE 009570283-01, PDC Light Curves

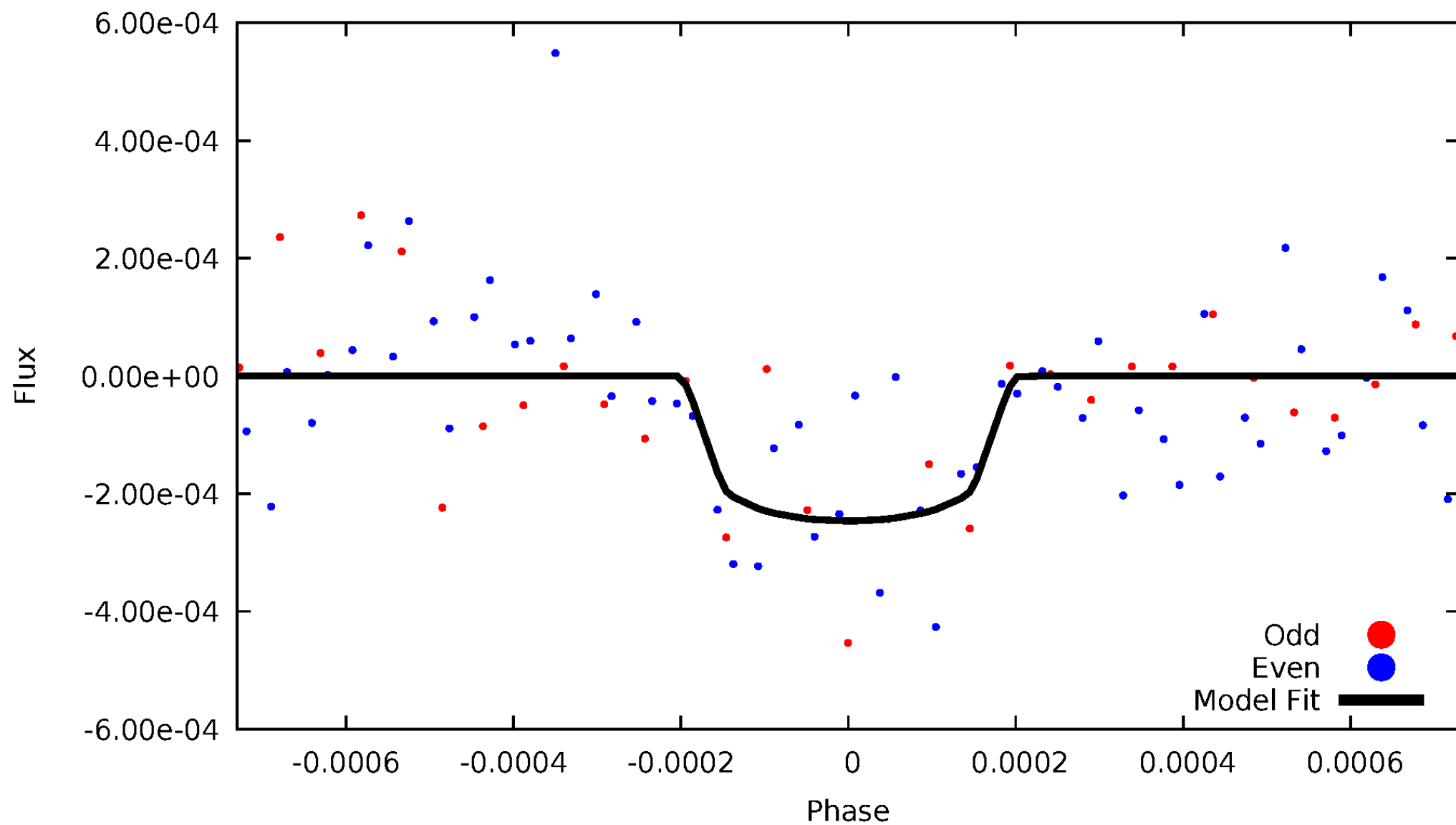


TCE 009570283-01



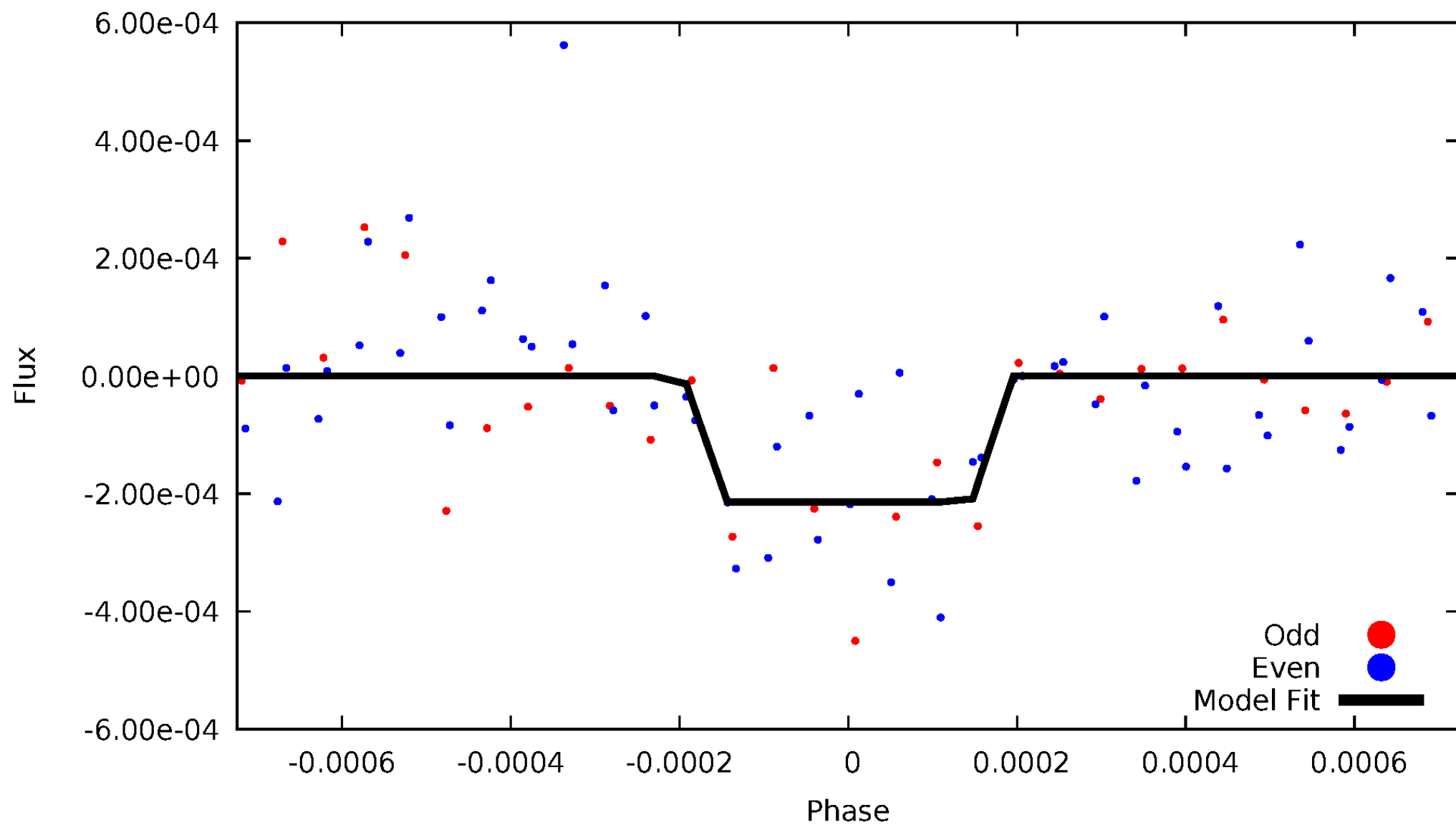
# DV Odd/Even

TCE 009570283-01



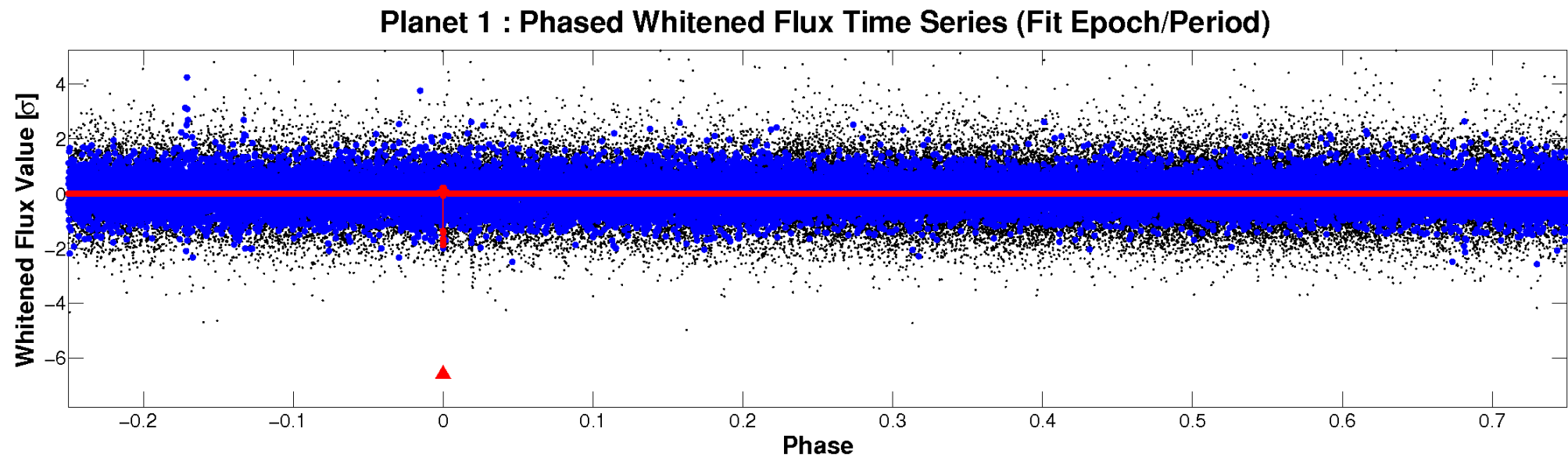
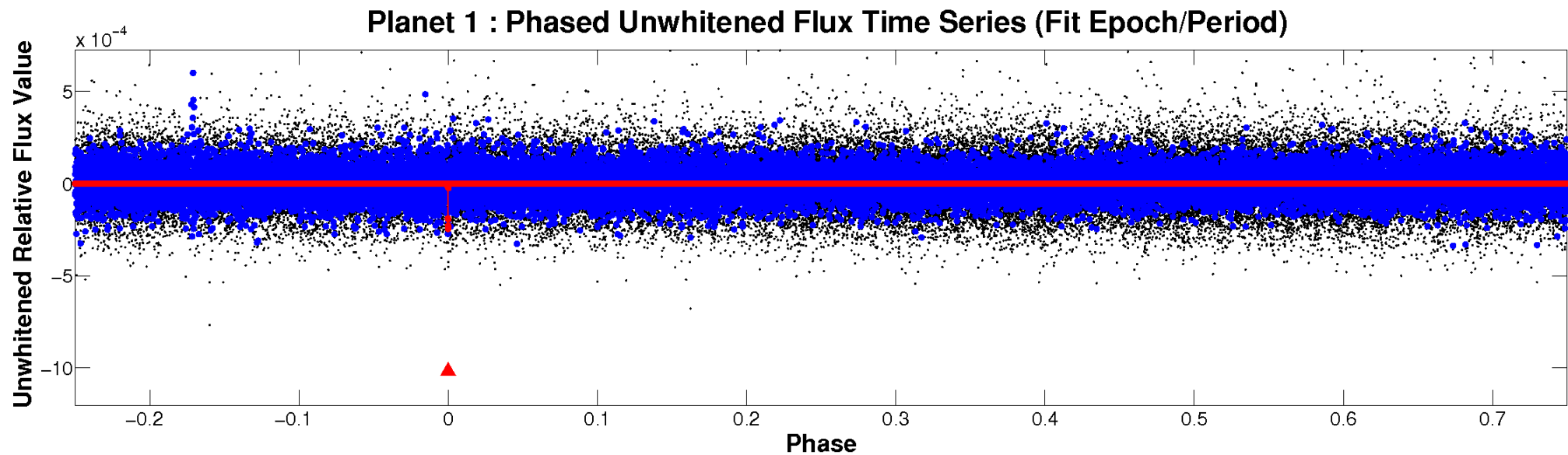
# ALT Odd/Even

TCE 009570283-01



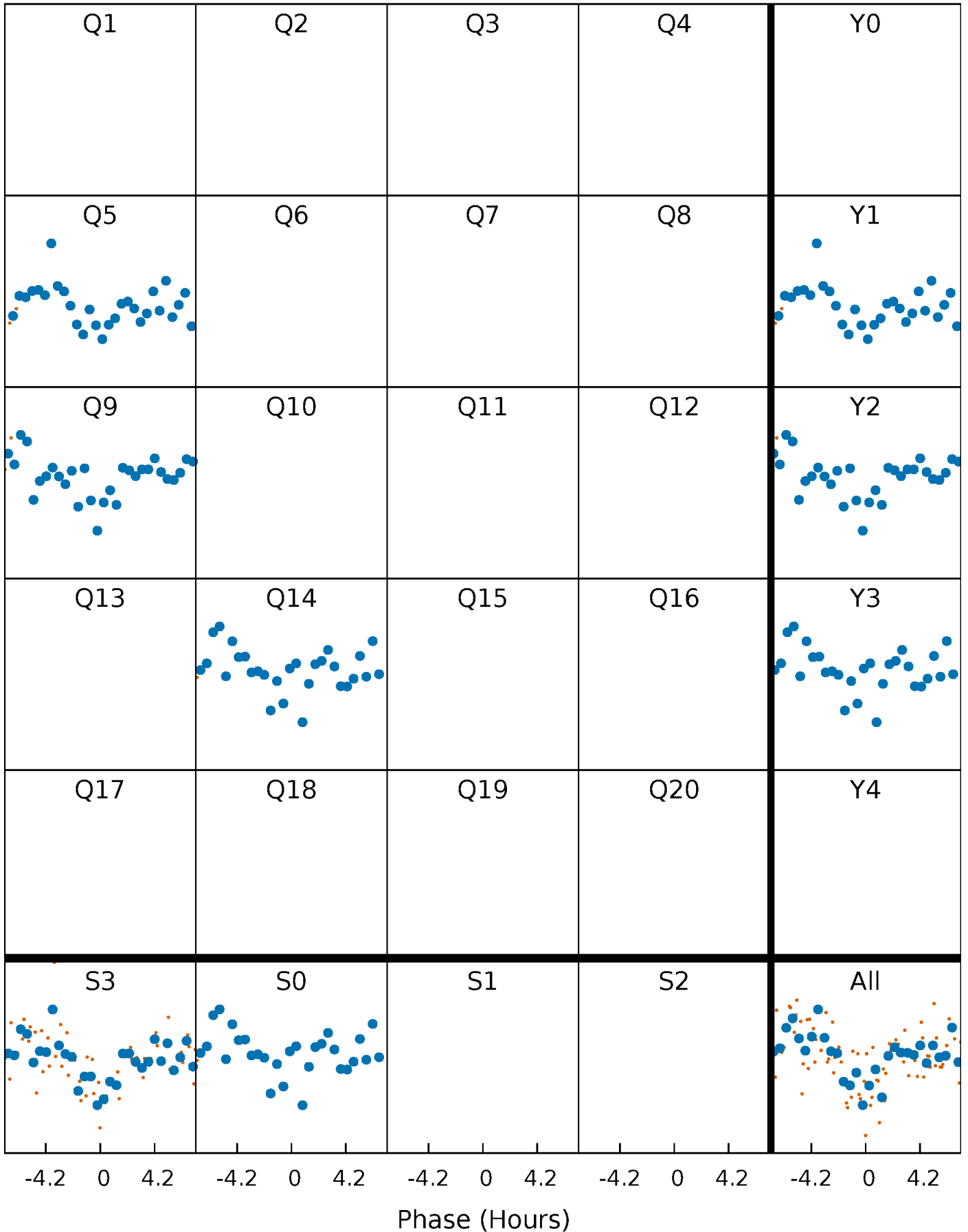


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

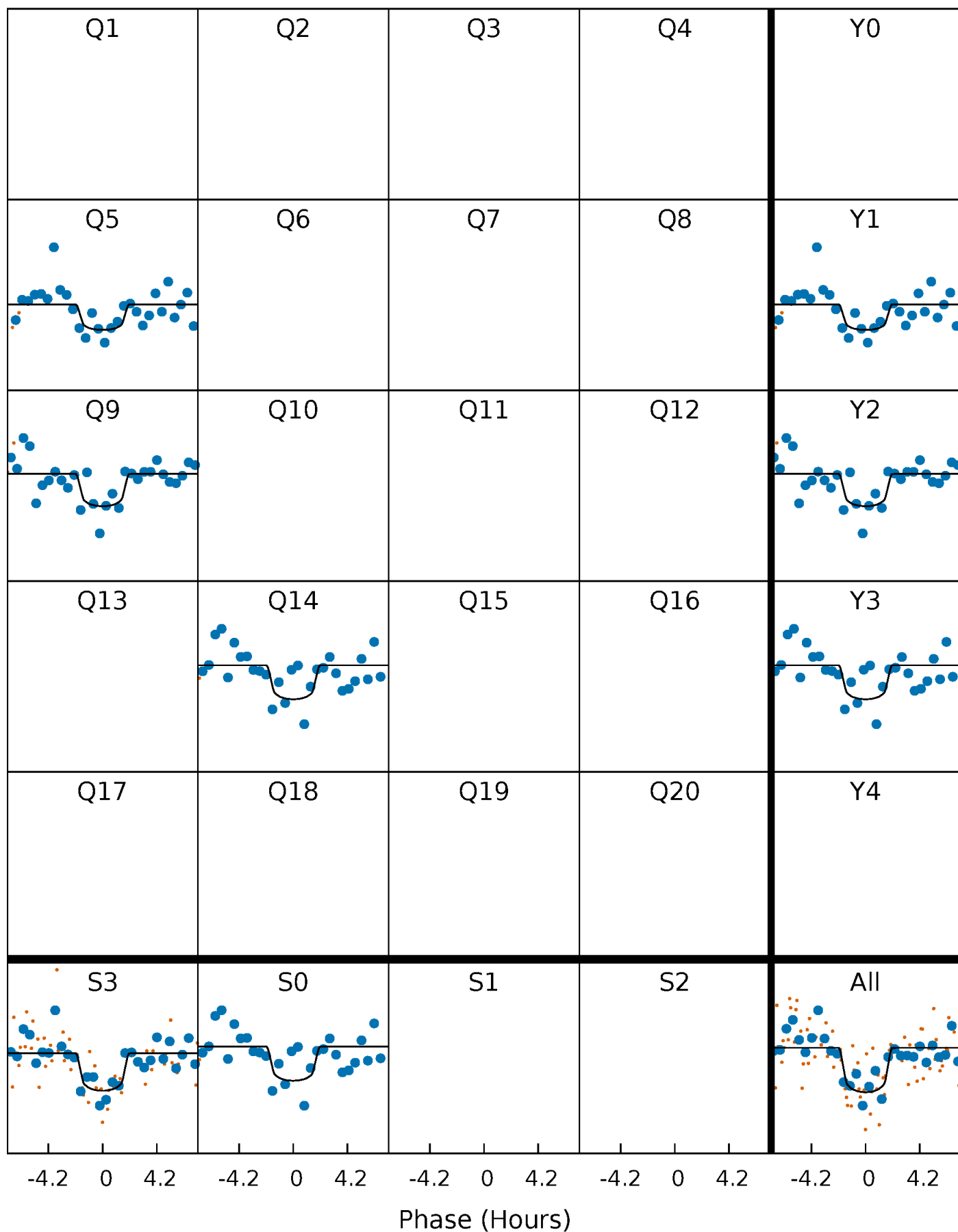
TCE 009570283-01 P=421.644732 Days  $T_0=455.919481$  (BKJD)





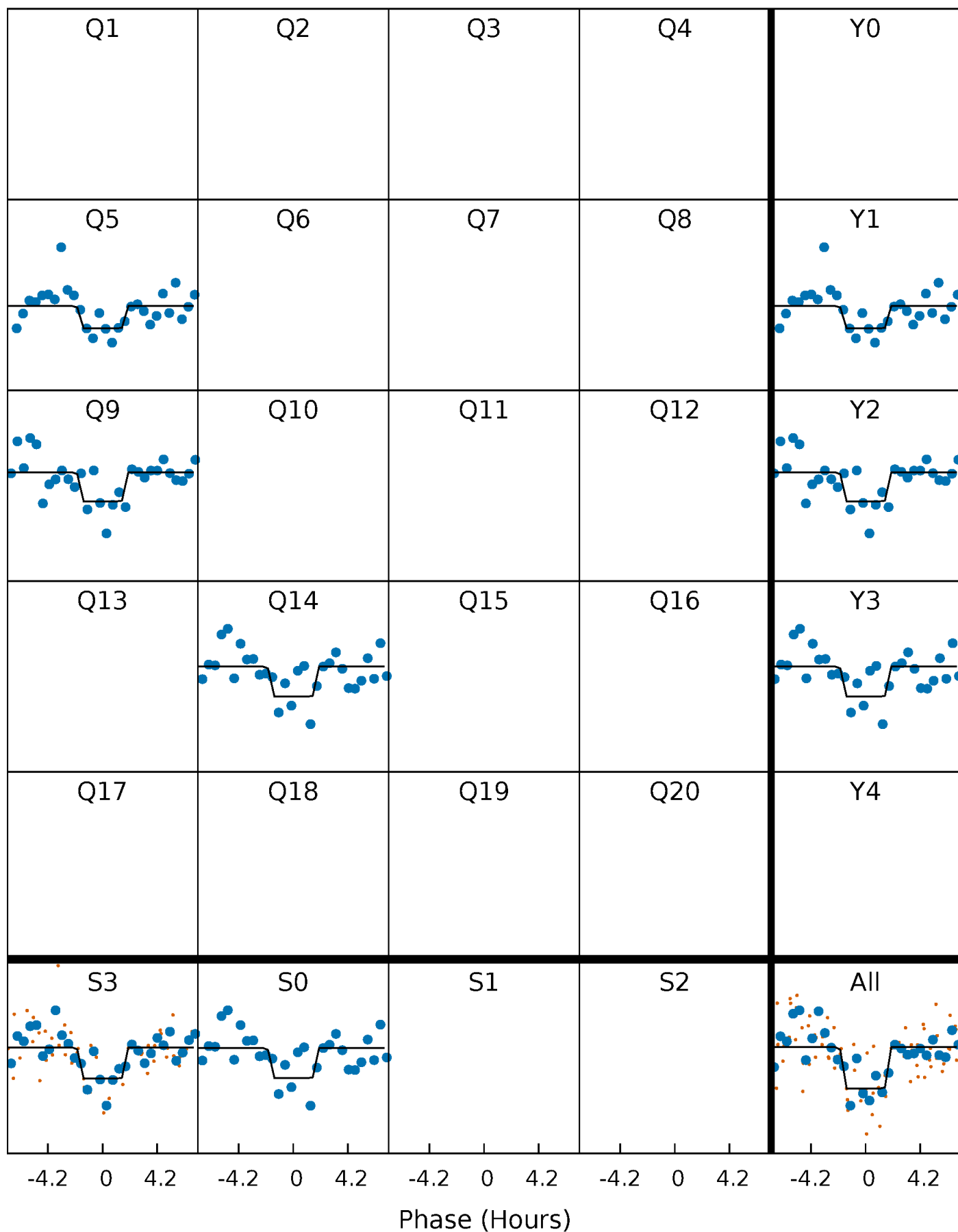
# DV Quarter-Phased Transit Curves

TCE 009570283-01 P=421.644732 Days  $T_0=455.919481$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

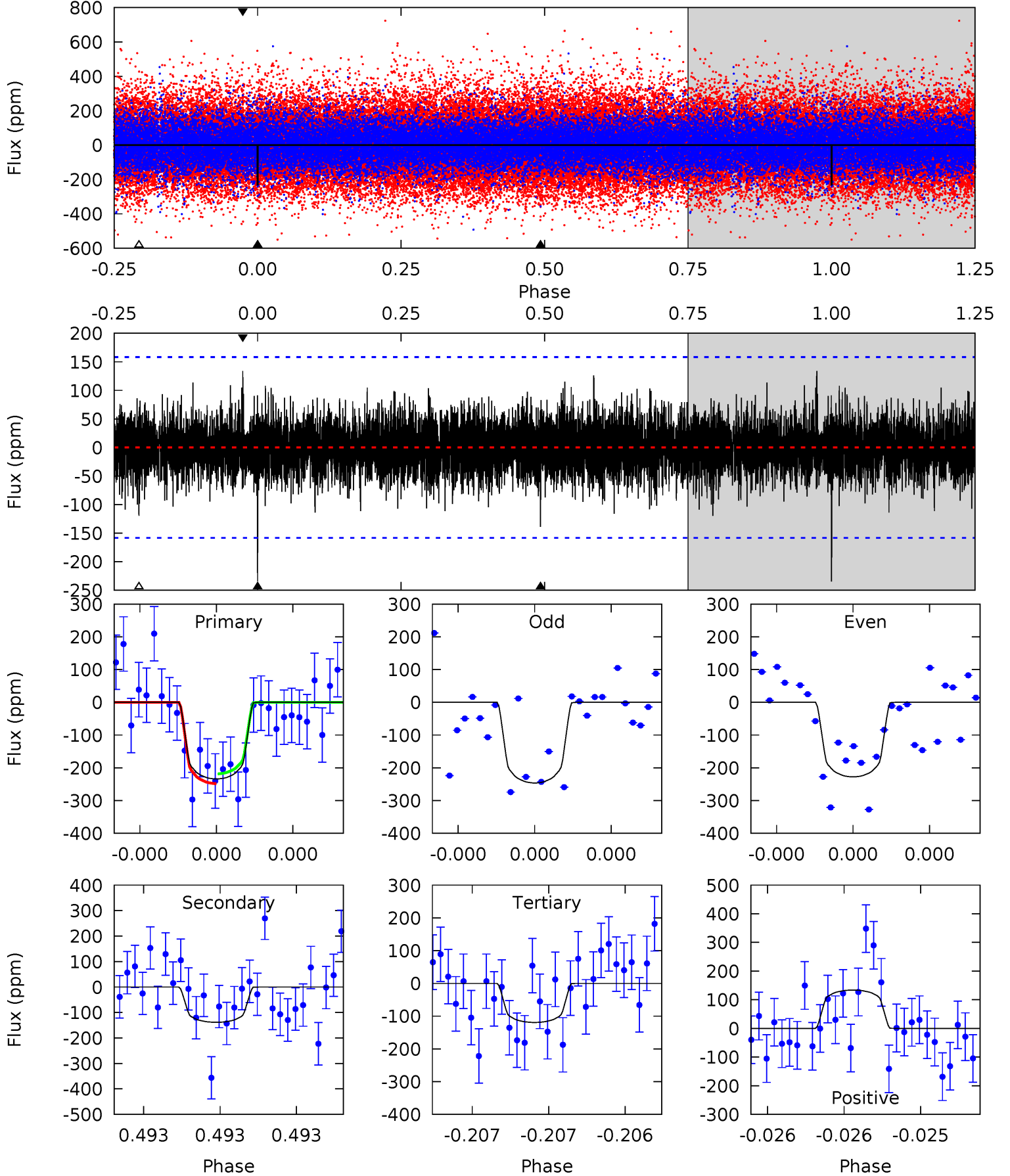
TCE 009570283-01 P=421.646511 Days  $T_0=455.914046$  (BKJD)



# DV Model-Shift Uniqueness Test

009570283-01, P = 421.644732 Days, E = 34.274749 Days

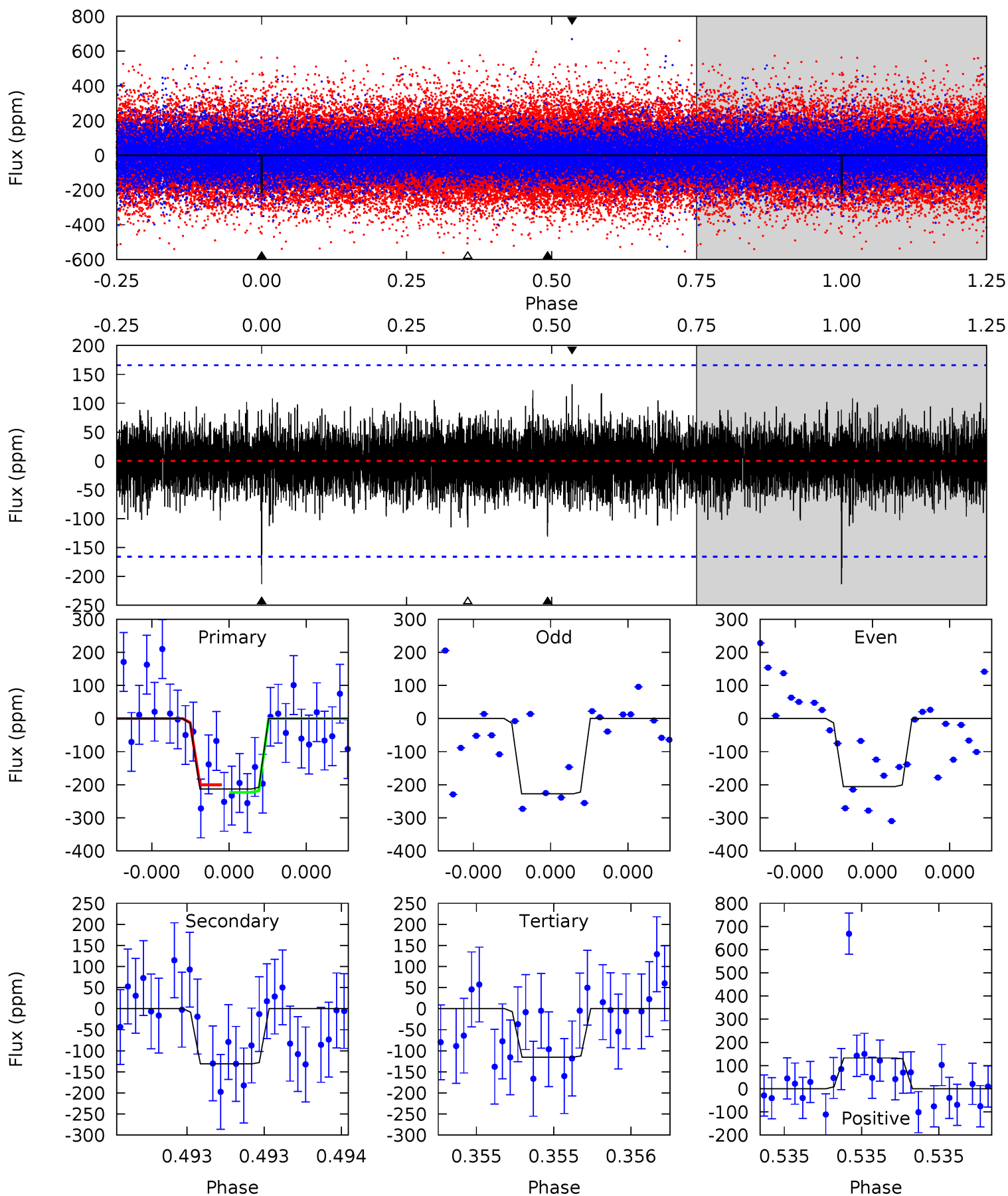
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.29	4.90	4.22	4.74	5.60	3.53	1.14	4.06	3.55	0.68	0.16	0.31	0.95	0.36	0.52



# Alt Model-Shift Uniqueness Test

009570283-01, P = 421.646511 Days, E = 34.267535 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
7.22	4.44	3.90	4.50	5.62	3.55	1.03	3.32	2.73	0.54	-0.05	0.35	0.98	0.38	0.39



### Stellar Parameters For KIC 009570283

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6187^{+246}_{-246}$	$3.709^{+0.330}_{-0.110}$	$-0.500^{+0.350}_{-0.250}$	$2.576^{+0.441}_{-1.029}$	$1.238^{+0.225}_{-0.275}$	$0.102^{+0.266}_{-0.033}$
	+4%/-4%	+9%/-3%	+70%/-50%	+17%/-40%	+18%/-22%	+260%/-32%
Source	PHO1	FLK73	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 009570283-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-139 \pm 28$	$4.66^{+3.61}_{-2.89}$	$553^{+39}_{-50}$	$5156^{+3136}_{-1072}$	$4954^{+28790}_{-3449}$
Alt.	$-131 \pm 30$	$4.69^{+3.65}_{-2.89}$	$551^{+39}_{-45}$	$4989^{+2955}_{-973}$	$4440^{+24754}_{-3051}$

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

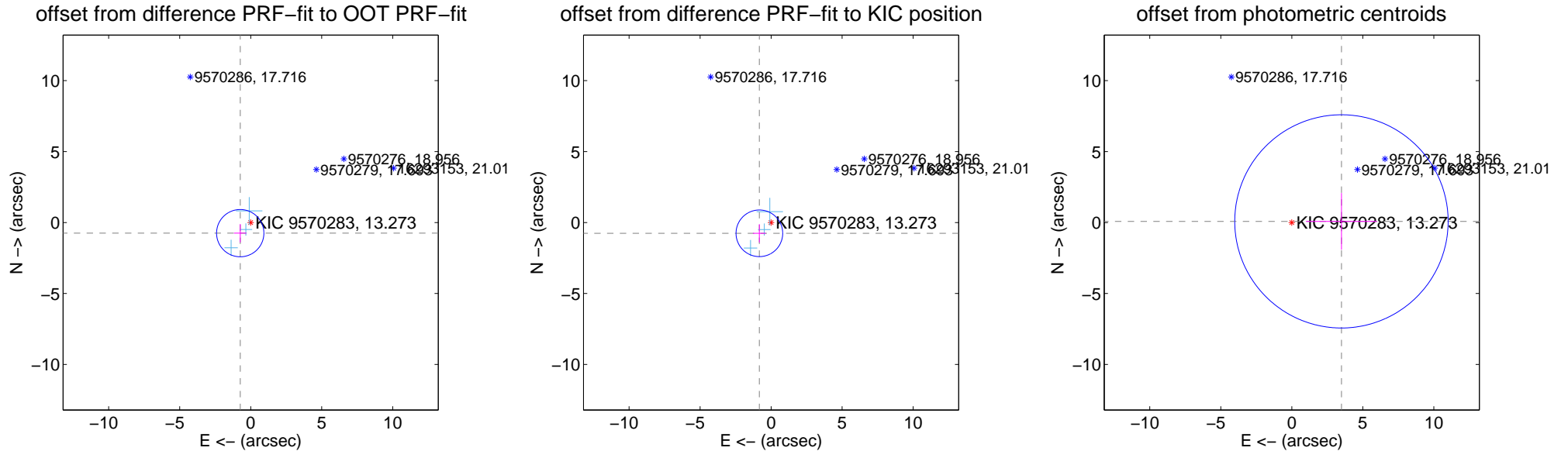
## DV Centroid Data

Supplemental centroid analysis for 009570283-01. Kepler magnitude: 13.27. Transit SNR 7.50

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.050 \pm 0.555$	1.89	$0.737 \pm 0.442$	$-0.748 \pm 0.647$
PRF-fit source offset from KIC position	$1.122 \pm 0.548$	2.05	$0.827 \pm 0.449$	$-0.759 \pm 0.646$
photometric centroid source offset	$3.50 \pm 2.50$	1.40	$-3.50 \pm 2.50$	$0.08 \pm 2.00$



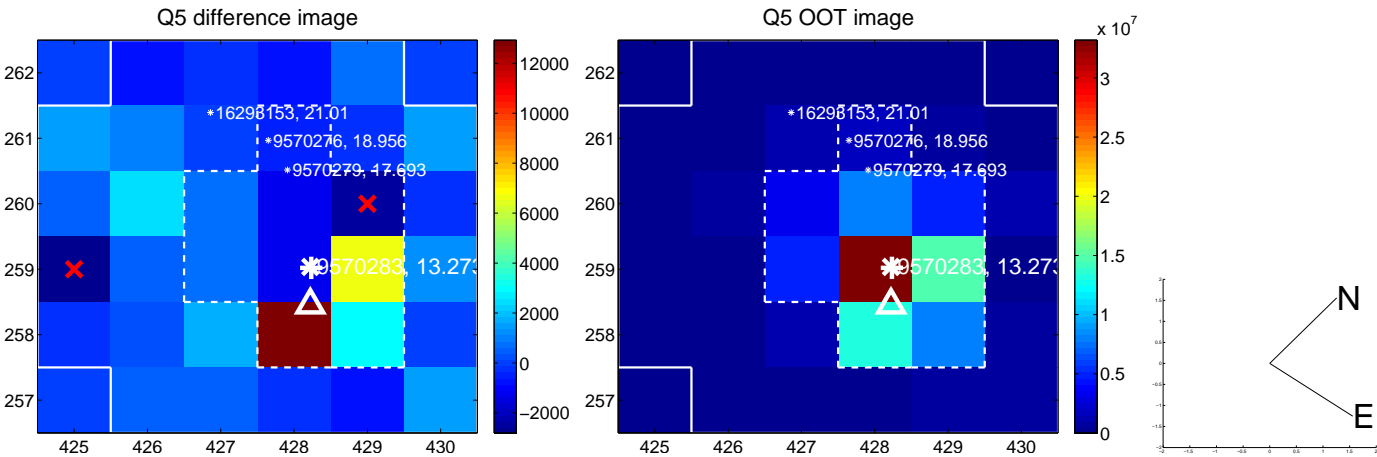
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

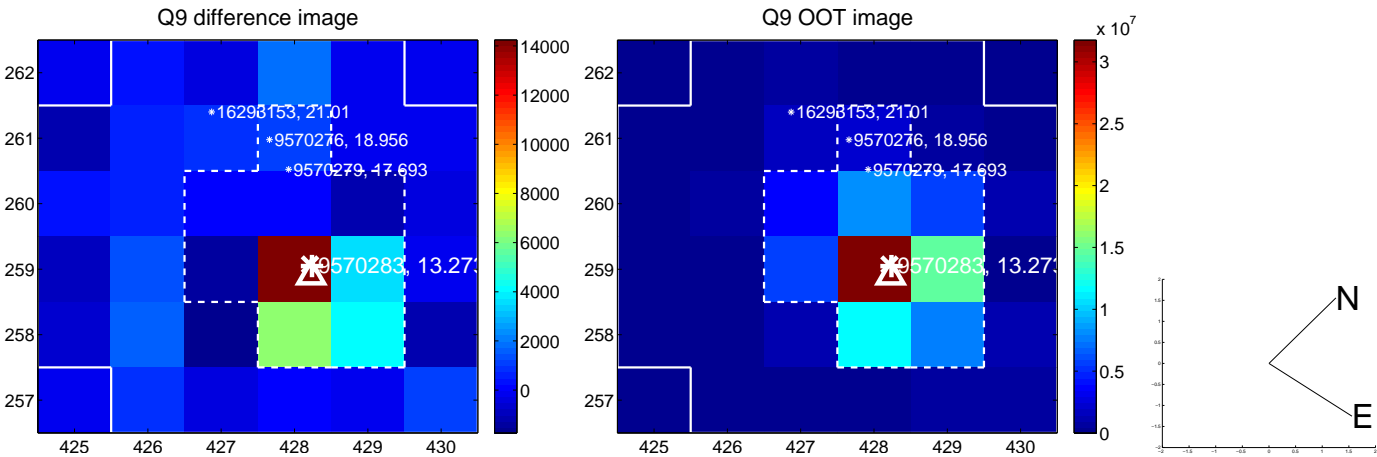




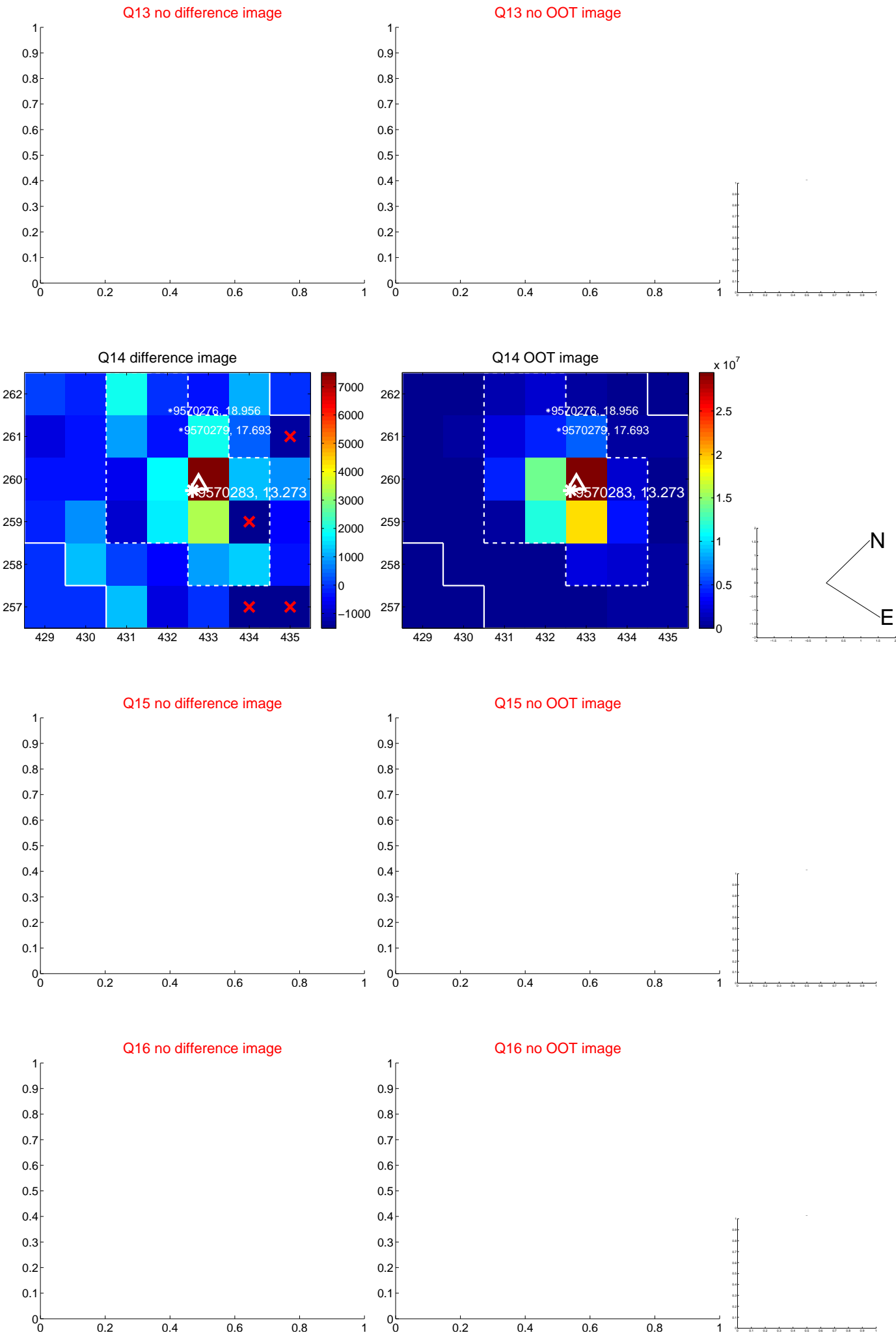
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



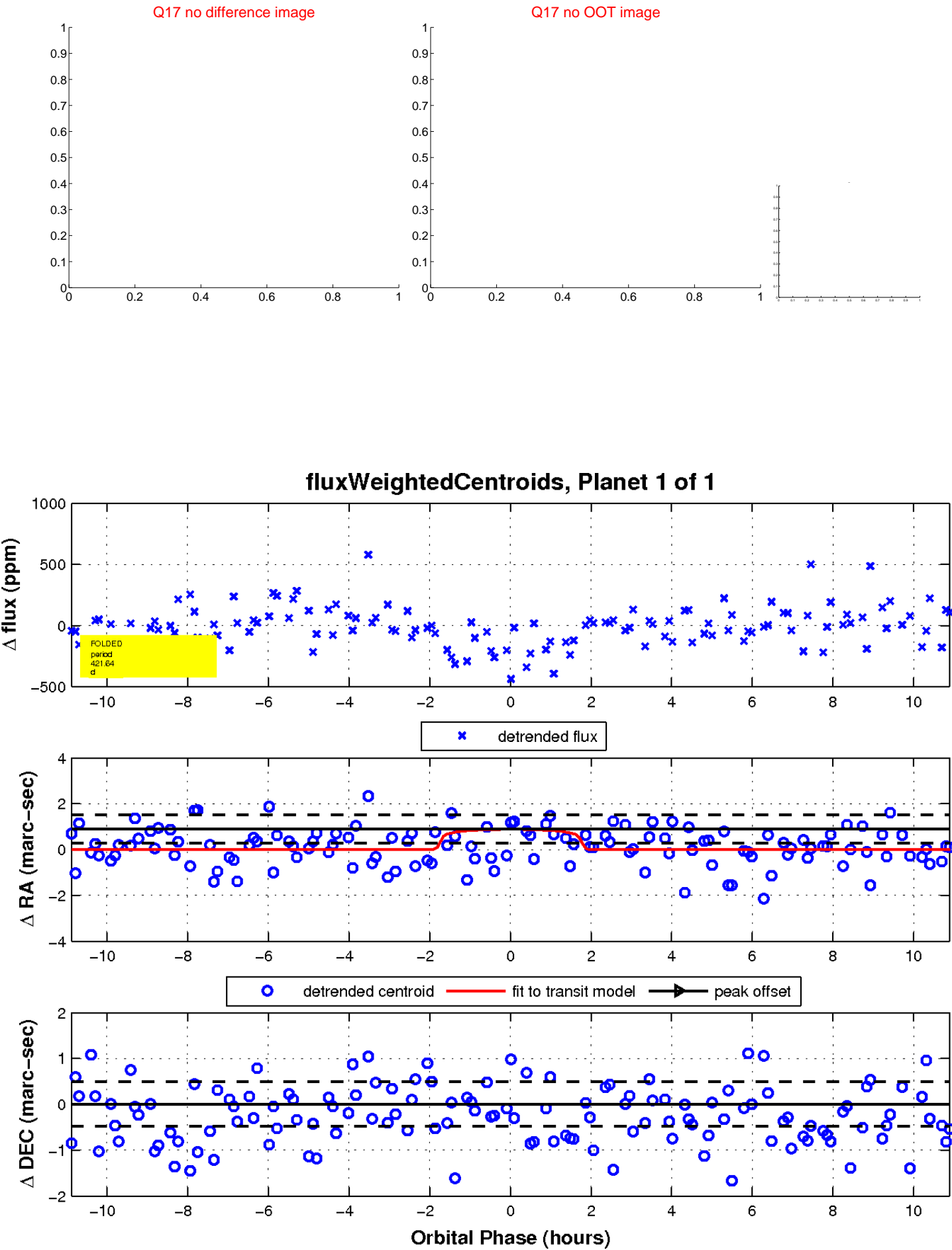
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

