

# KIC 005527389

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005527389-01	OBS	No	407.833939	510.376809	232.4	22.795	7.9	7.6	1.28	6071	2.43	1.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005527389-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS

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

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

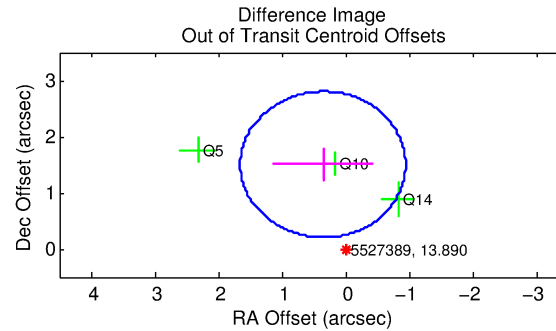
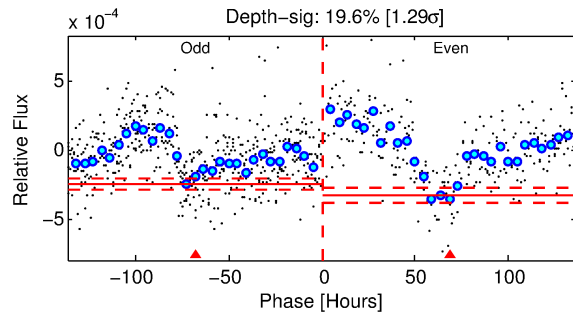
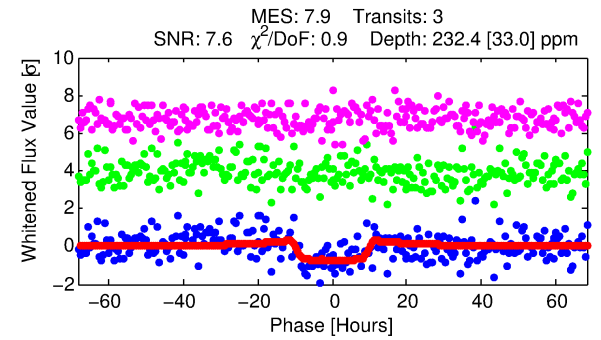
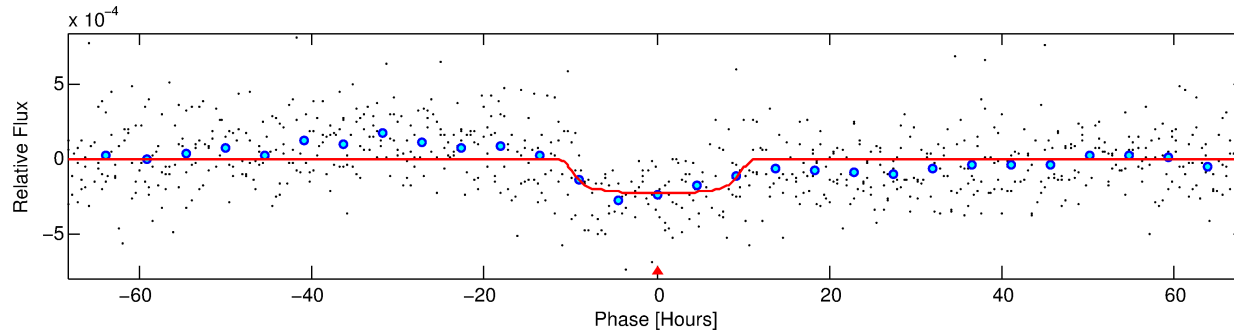
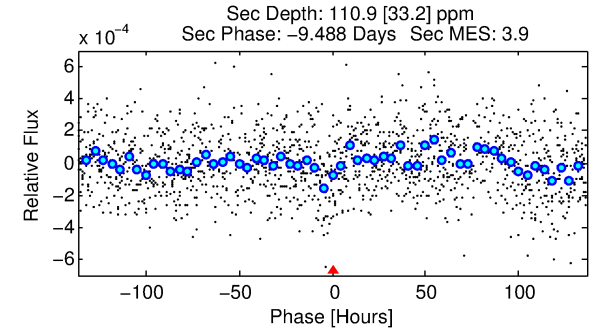
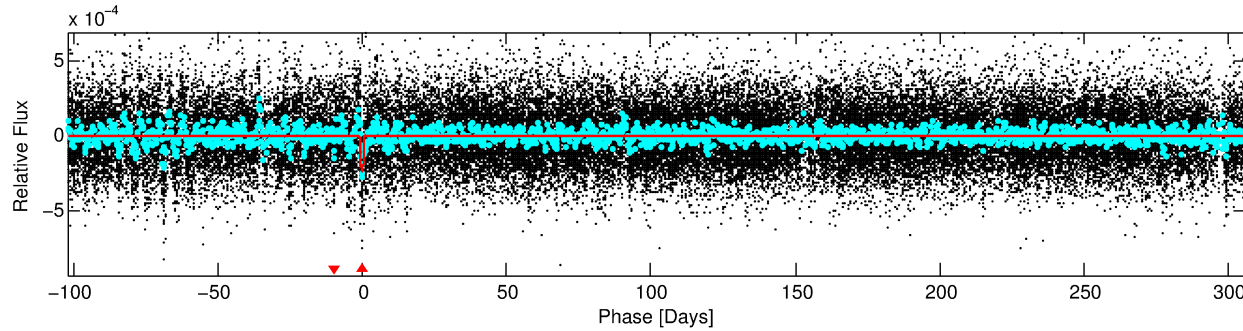
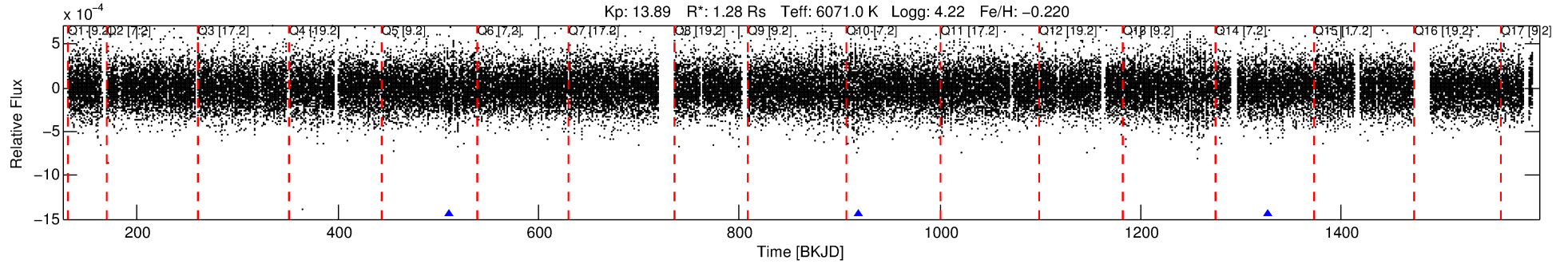
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005527389-01

No Significant Match Found

# DV One-Page Summary

KIC: 5527389 Candidate: 1 of 1 Period: 407.834 d



## DV Fit Results:

Period = 407.83394 [0.02626] d  
Epoch = 510.3768 [0.0342] BKJD  
Rp/R\* = 0.0174 [0.0018]  
a/R\* = 50.44 [17.18]  
b = 0.95 [0.04]  
Seff = 1.73 [0.53]  
Teq = 292 [22] K  
Rp = 2.43 [0.53] Re  
a = 1.0749 [0.2016] AU  
Ag = 11927.69 [5594.23] [2.13σ]  
Teffp = 4724 [431] K [10.28σ]

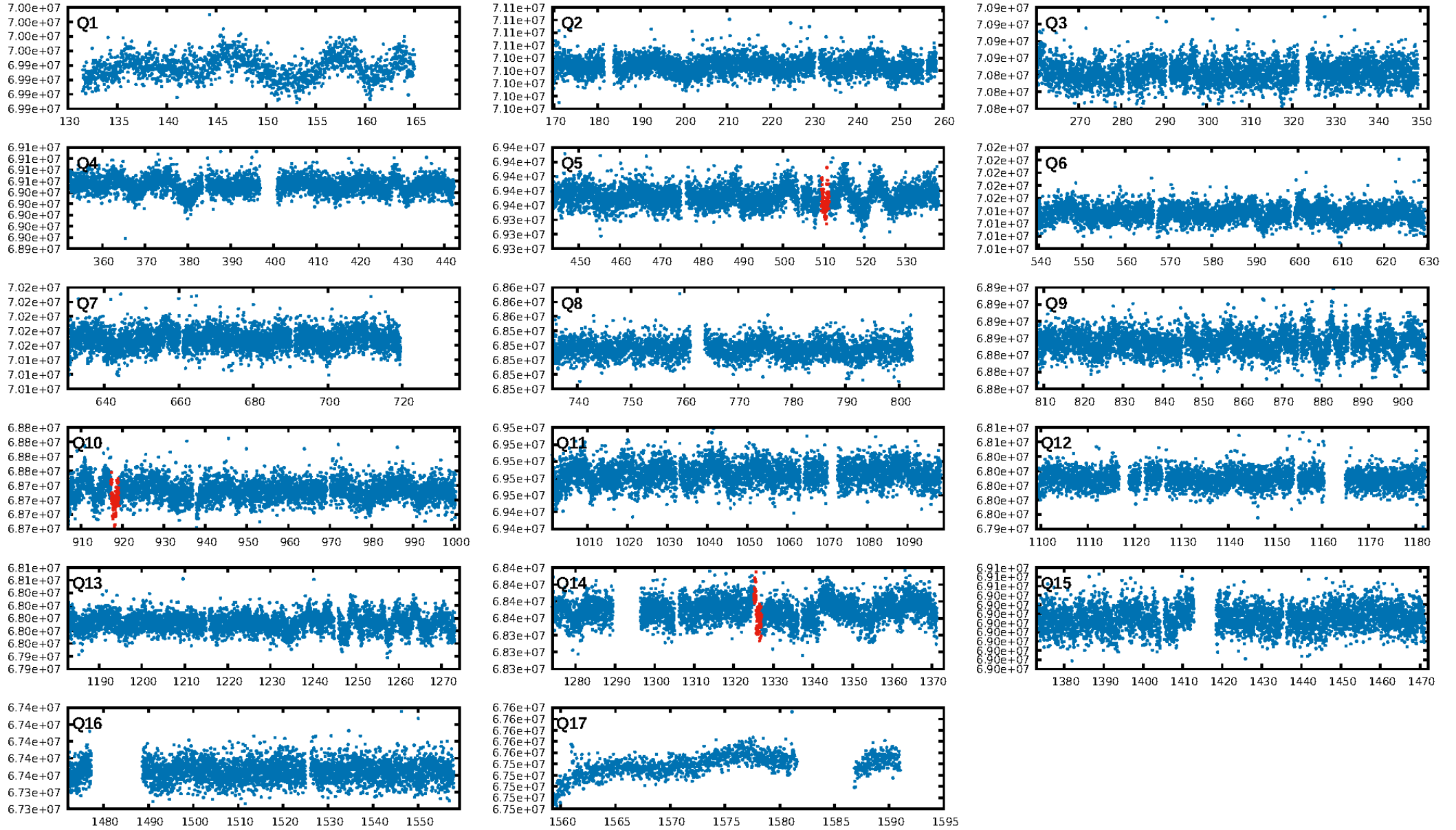
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 87.7%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 5.12e-11**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.951  
Centroid-sig: 1.5%  
Centroid-so: 2.905 arcsec [1.99σ]  
**OotOffset-rm: 1.543 arcsec [3.56σ]**  
**KicOffset-rm: 1.637 arcsec [3.58σ]**  
OotOffset-st: 2/0/0/1 [3]  
KicOffset-st: 2/0/0/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

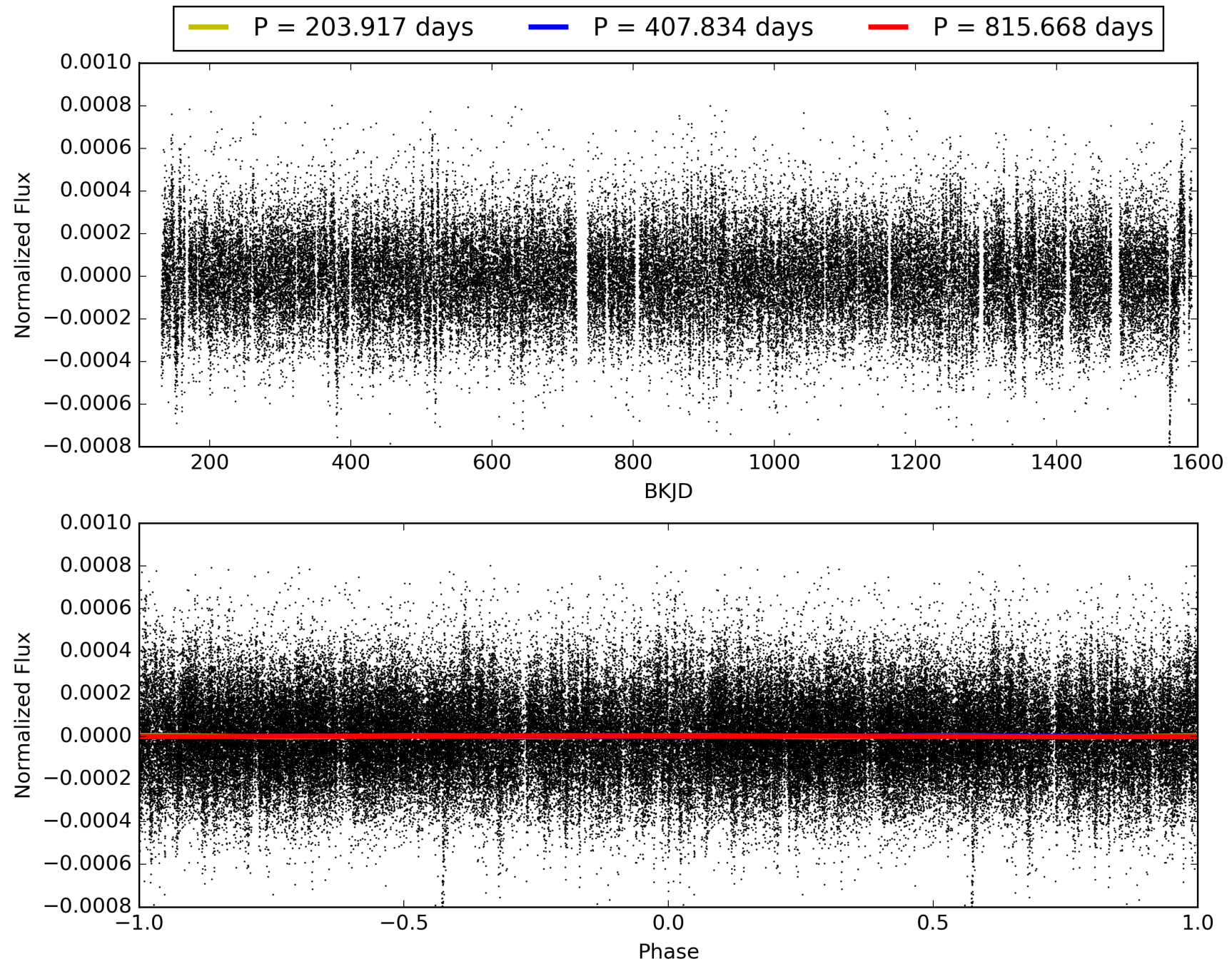
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:29:18 Z

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

# TCE 005527389-01, PDC Light Curves

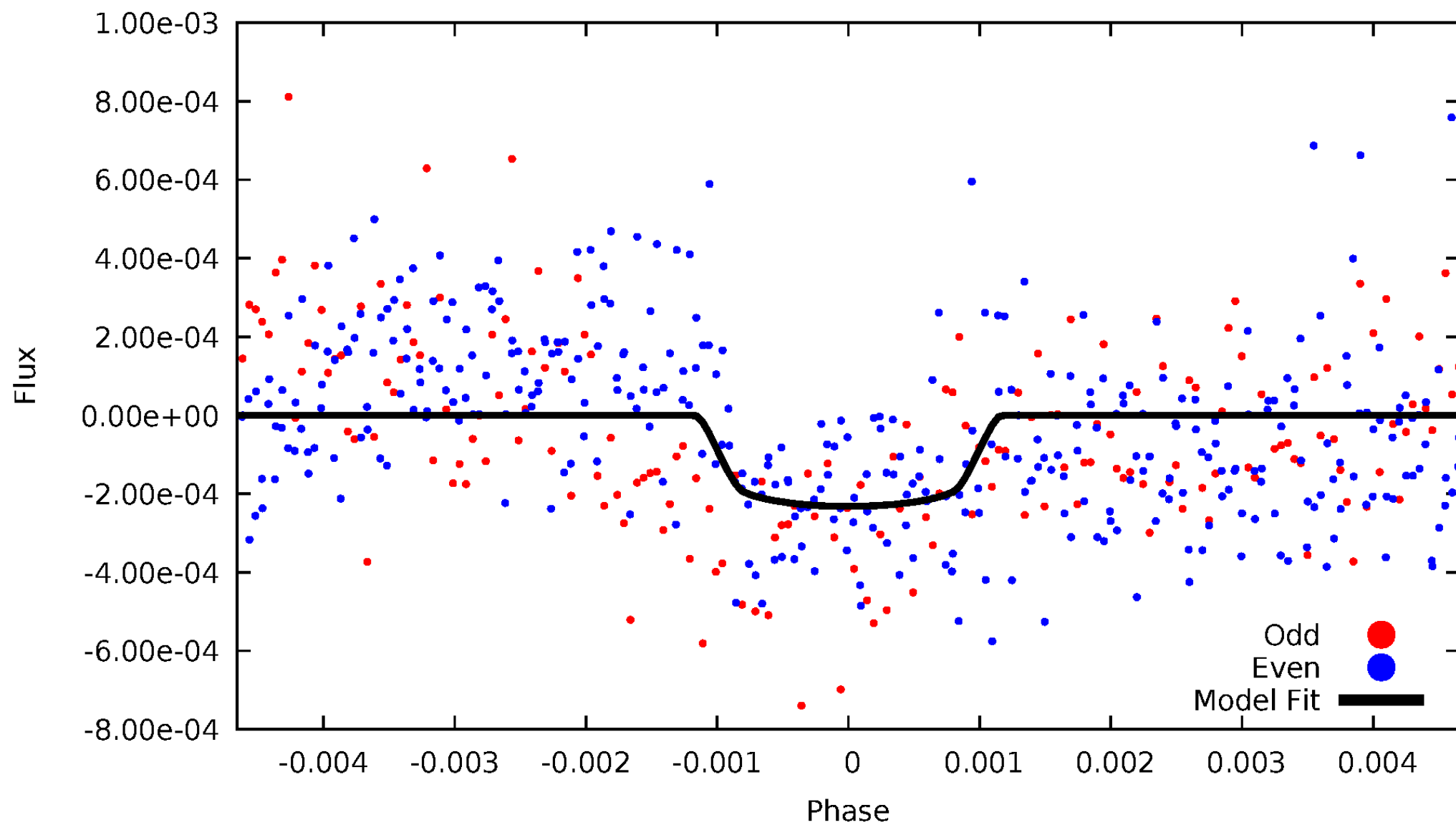


TCE 005527389-01



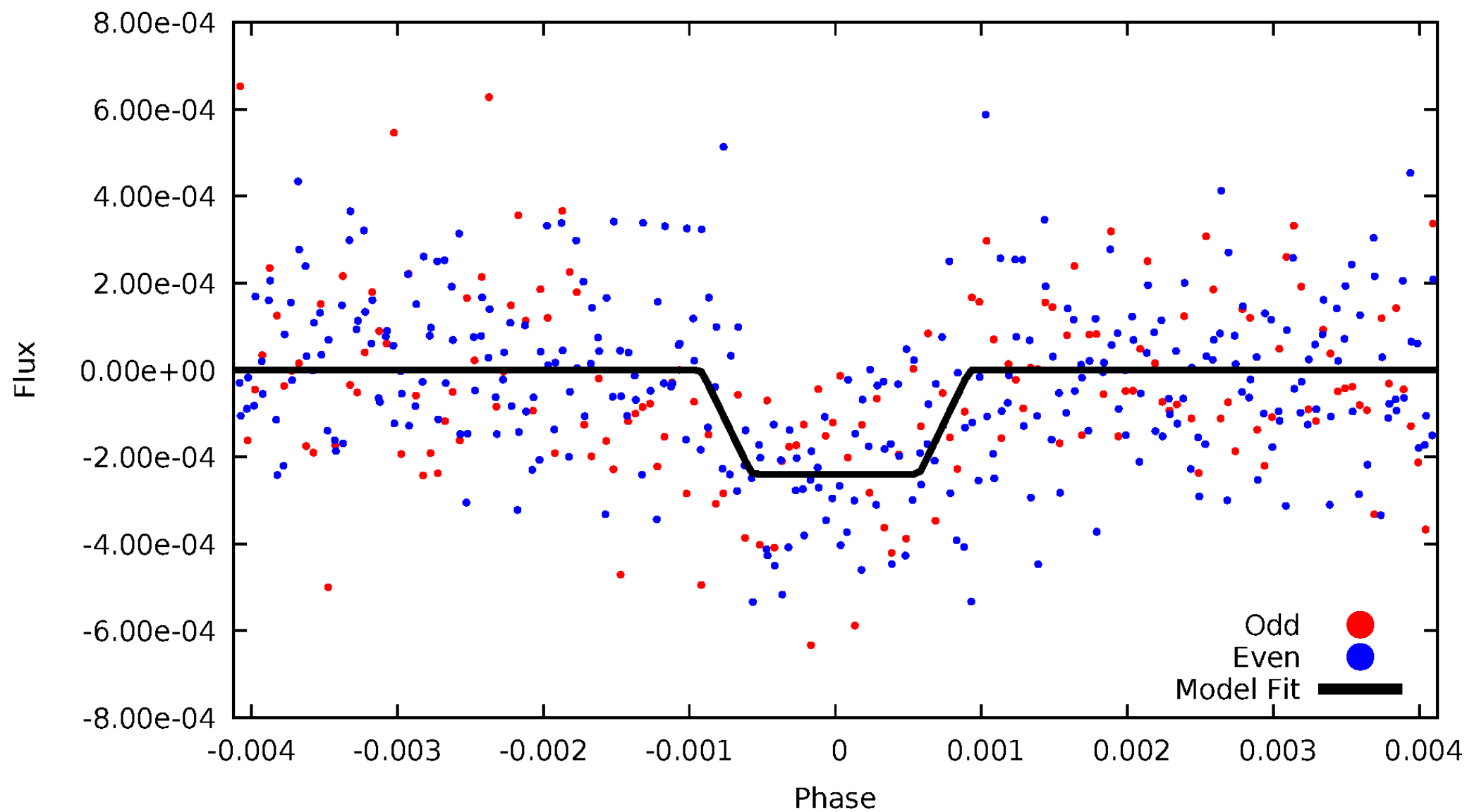
# DV Odd/Even

TCE 005527389-01



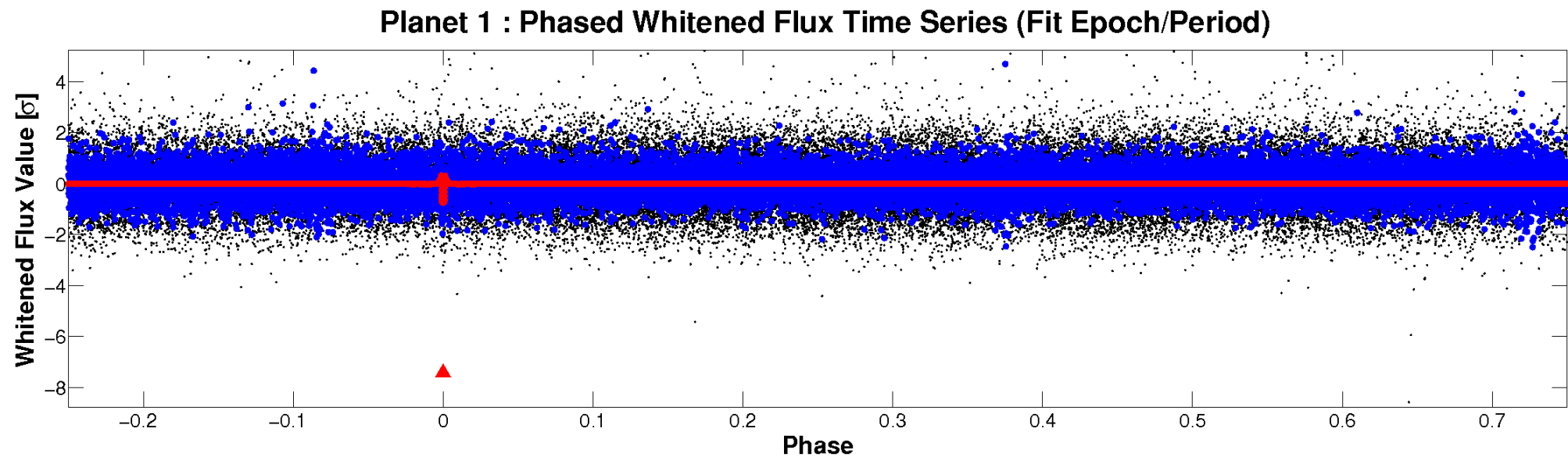
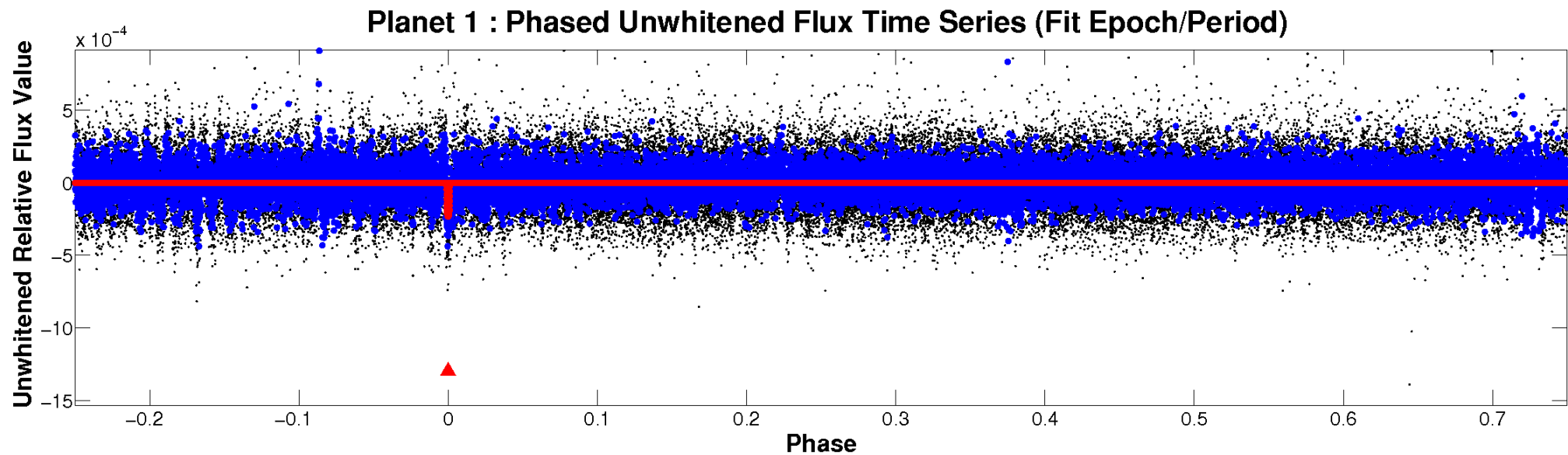
# ALT Odd/Even

TCE 005527389-01





# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

TCE 005527389-01     $P=407.833939$  Days     $T_0=510.376809$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 005527389-01 P=407.833939 Days  $T_0=510.376809$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

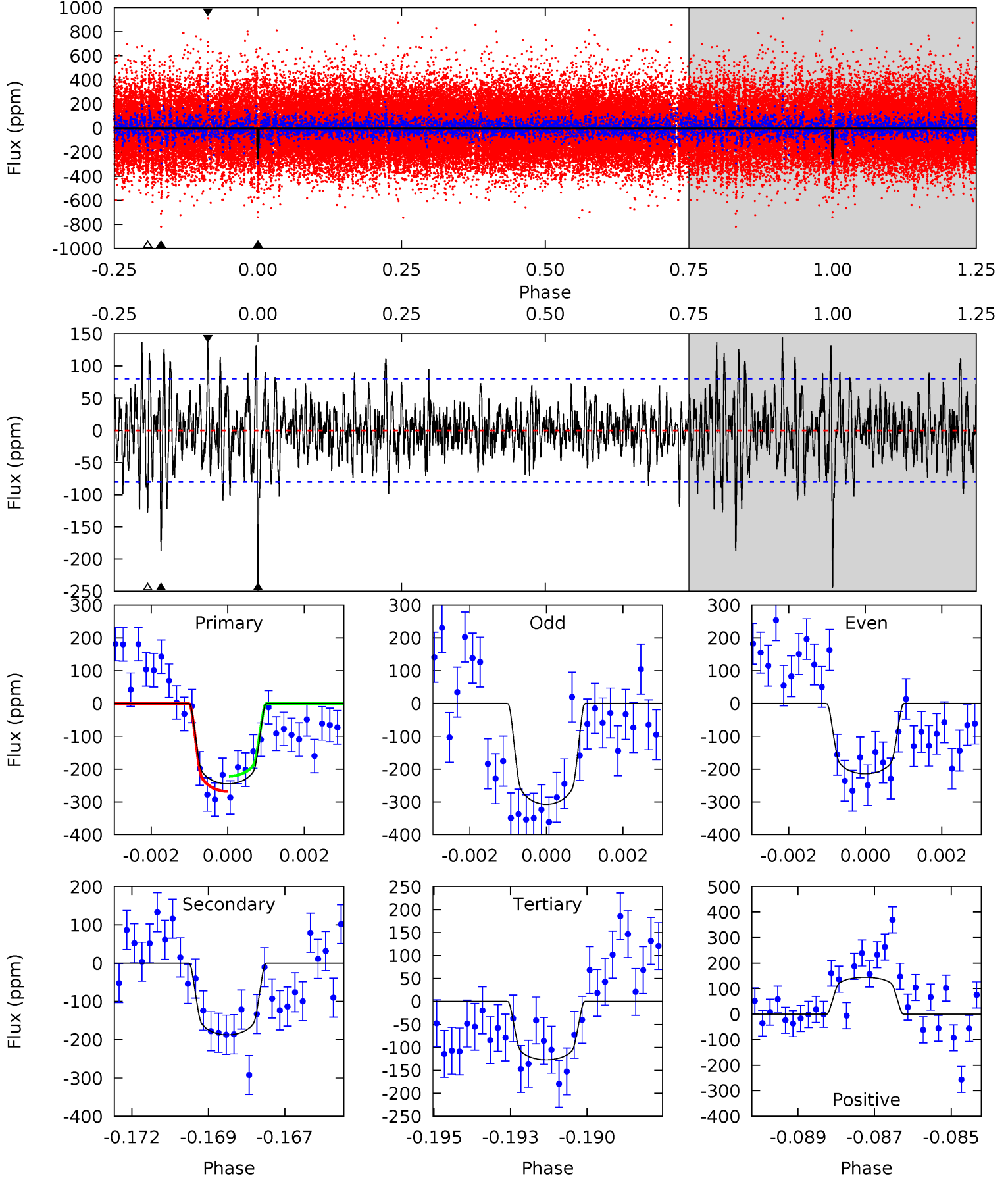
TCE 005527389-01 P=407.792557 Days  $T_0=510.340379$  (BKJD)



# DV Model-Shift Uniqueness Test

005527389-01, P = 407.833939 Days, E = 102.542870 Days

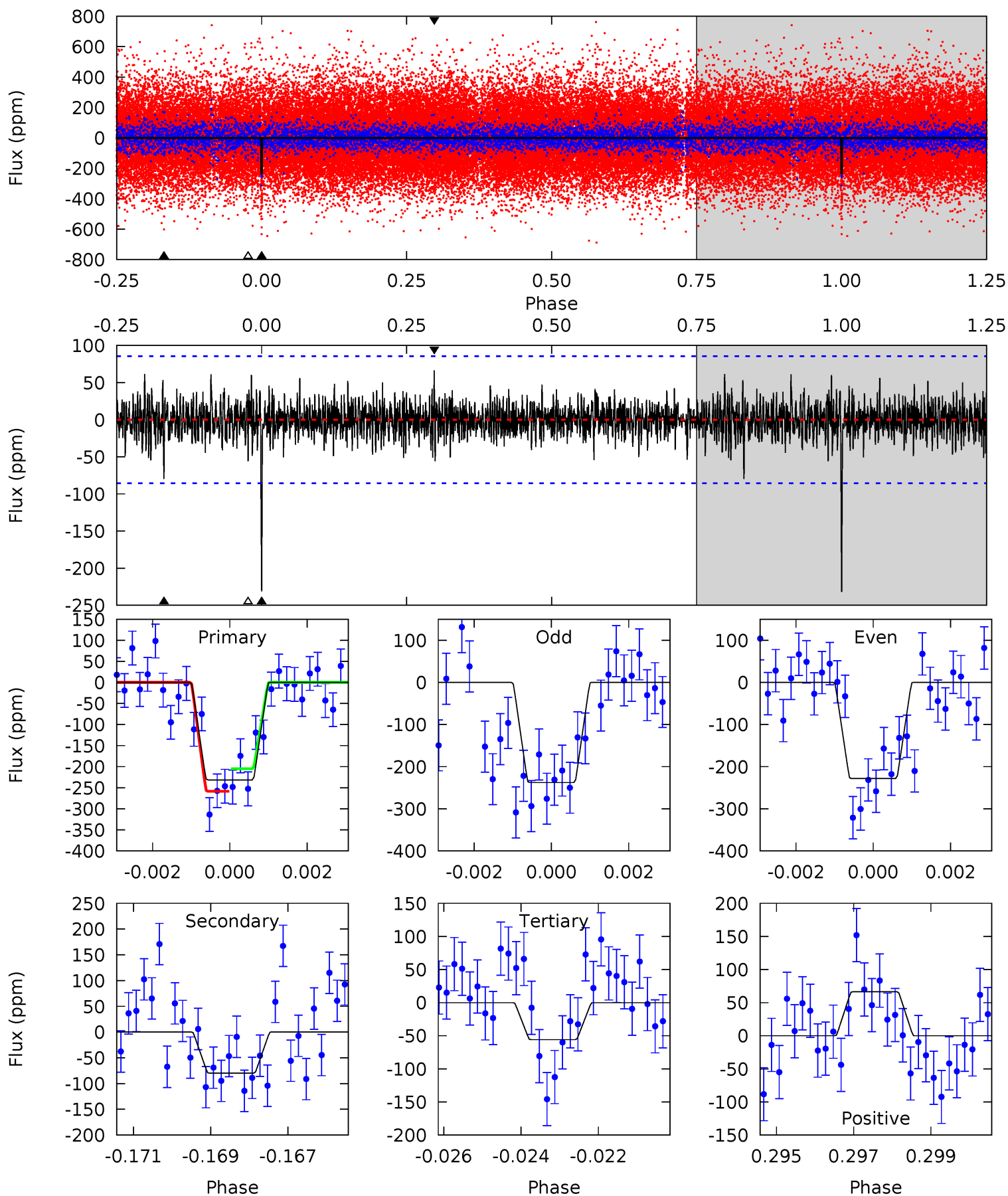
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	12.4	8.39	9.56	5.30	3.04	2.33	7.79	6.62	3.97	2.81	2.87	1.10	0.37	1.51



# Alt Model-Shift Uniqueness Test

005527389-01, P = 407.792557 Days, E = 102.547822 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
14.4	4.98	3.49	4.15	5.34	3.11	1.06	10.9	10.3	1.49	0.83	0.28	0.97	0.22	1.67



### Stellar Parameters For KIC 005527389

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6071^{+82}_{-82}$	$4.221^{+0.176}_{-0.108}$	$-0.220^{+0.150}_{-0.150}$	$1.281^{+0.188}_{-0.250}$	$0.995^{+0.069}_{-0.062}$	$0.667^{+0.533}_{-0.215}$
	+1%/-1%	+4%/-3%	+68%/-68%	+15%/-20%	+7%/-6%	+80%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005527389-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-187 \pm 15$	$2.39^{+0.36}_{-0.33}$	$408^{+19}_{-22}$	$5430^{+316}_{-256}$	$20859^{+7697}_{-5263}$
Alt.	$-80 \pm 16$	$2.13^{+0.34}_{-0.31}$	$407^{+19}_{-23}$	$4743^{+313}_{-278}$	$11115^{+4882}_{-3434}$

$T_{max}$  = 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

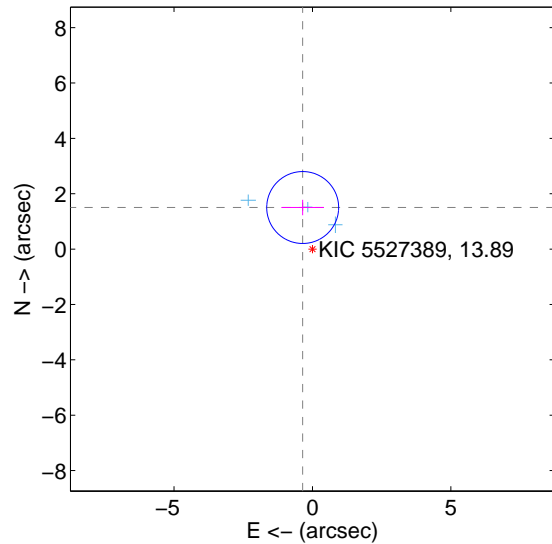
Supplemental centroid analysis for 005527389-01. Kepler magnitude: 13.89. Transit SNR 7.57

There are 3 quarters with good PRF difference image offsets

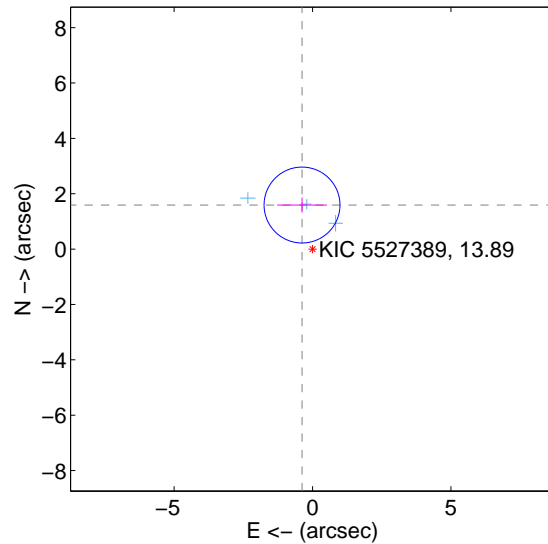
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.543 \pm 0.433$	3.56	$0.353 \pm 0.770$	$1.502 \pm 0.278$
PRF-fit source offset from KIC position	$1.637 \pm 0.457$	3.58	$0.380 \pm 0.902$	$1.592 \pm 0.273$
photometric centroid source offset	$2.90 \pm 1.46$	1.99	$-2.78 \pm 1.44$	$0.83 \pm 1.71$

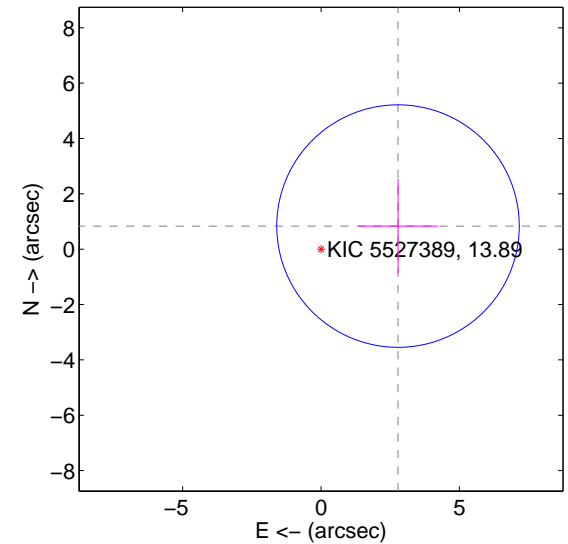
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



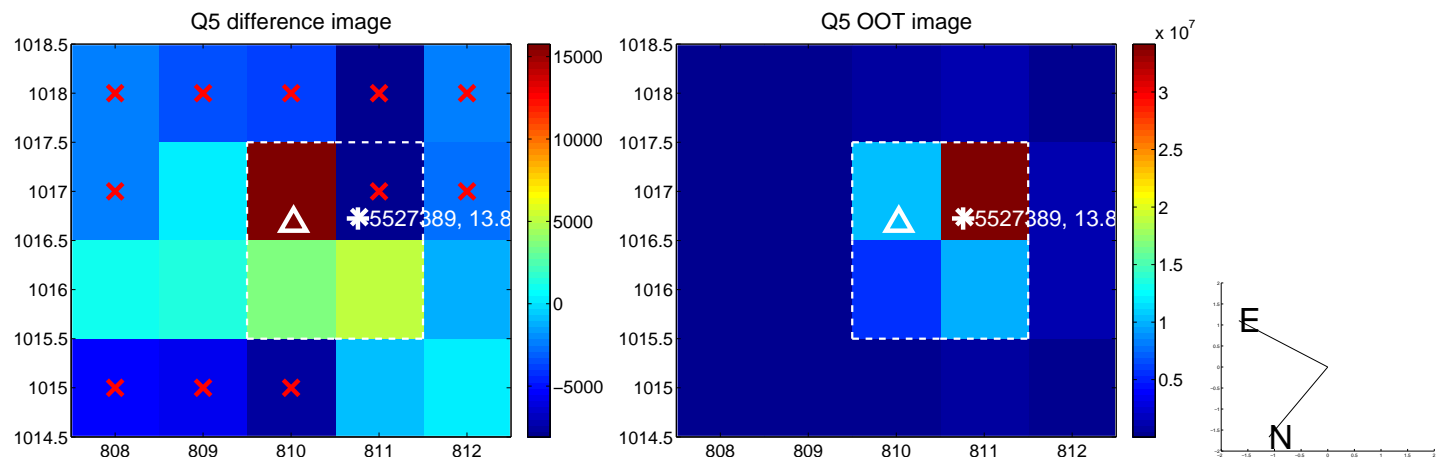
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



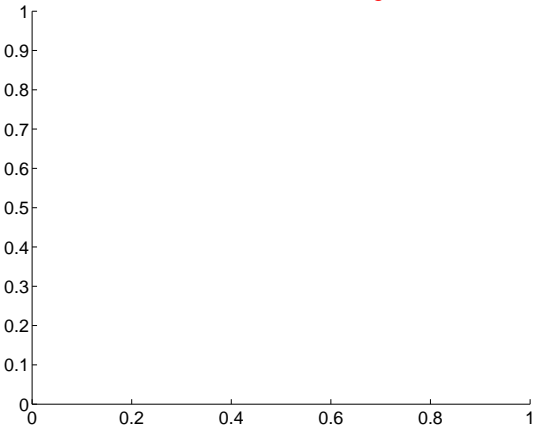
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



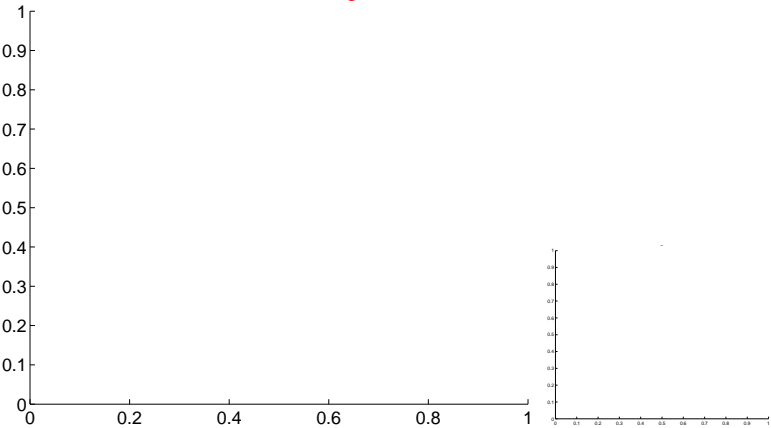
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



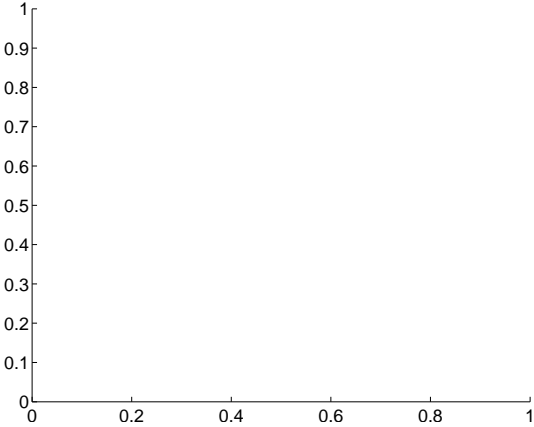
Q6 no difference image



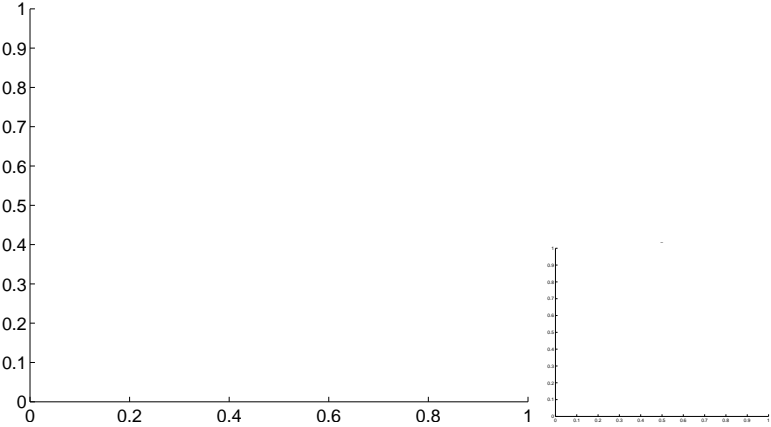
Q6 no OOT image



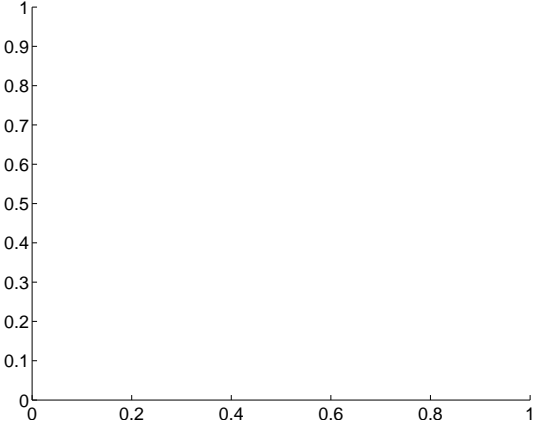
Q7 no difference image



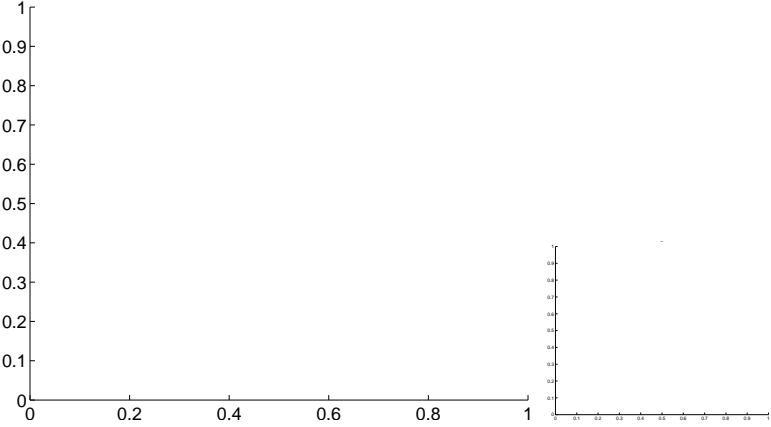
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

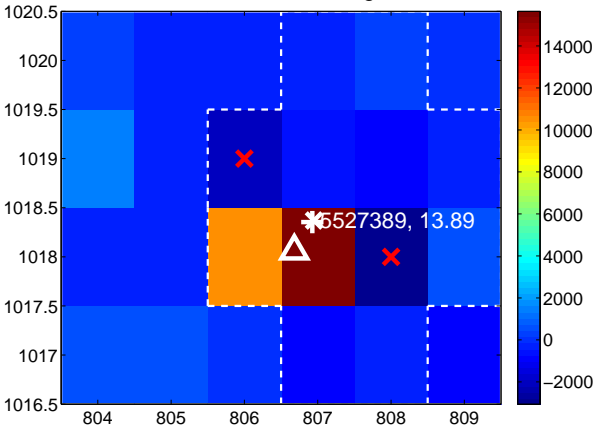
Q9 no difference image



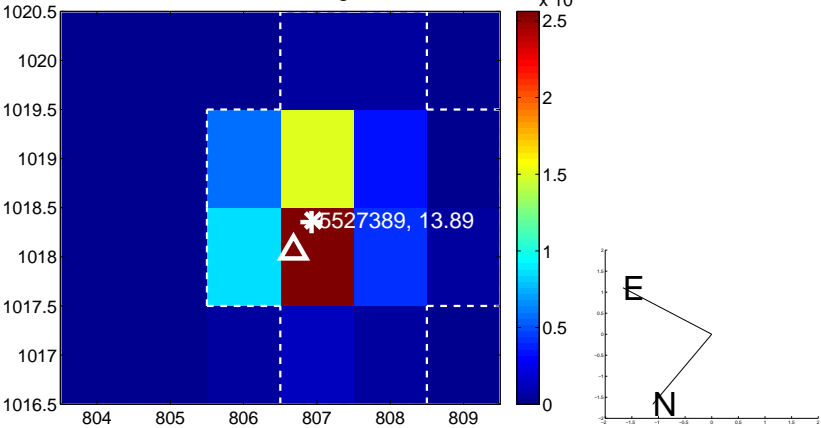
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



Q12 no OOT image

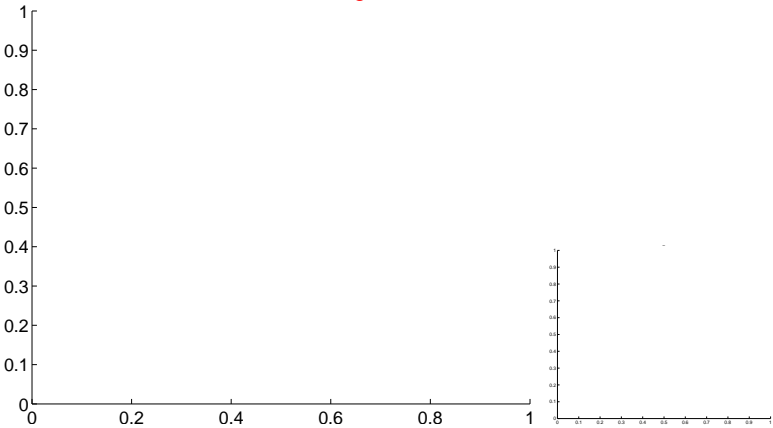


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

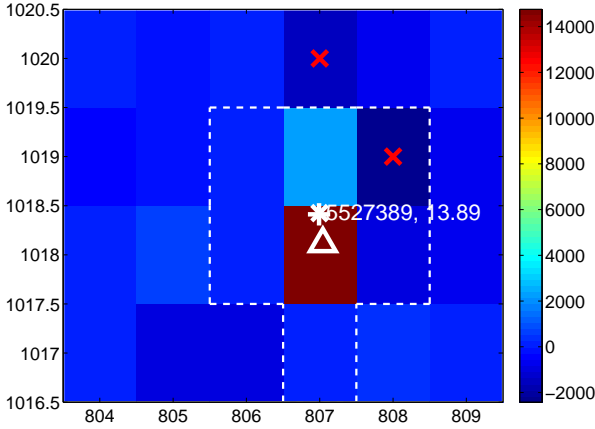
Q13 no difference image



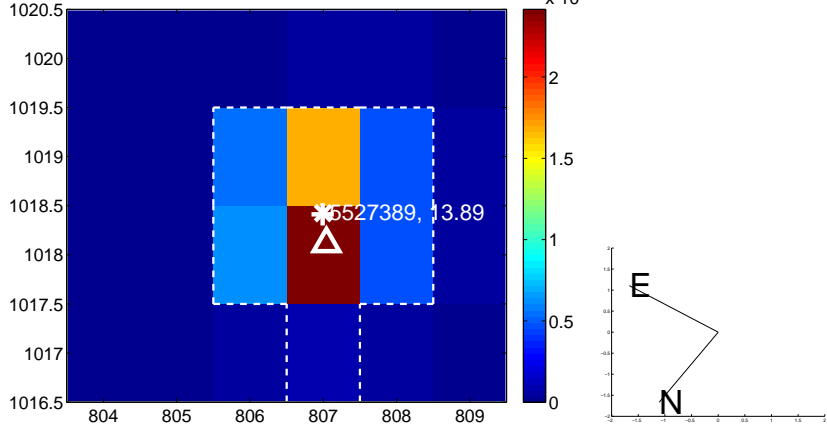
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



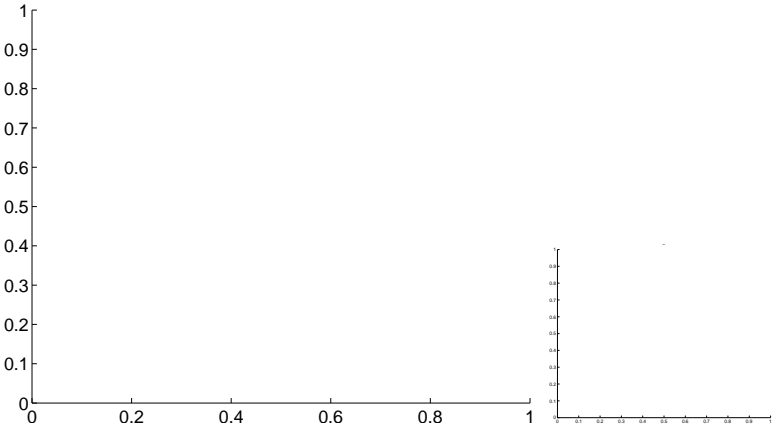
Q15 no OOT image



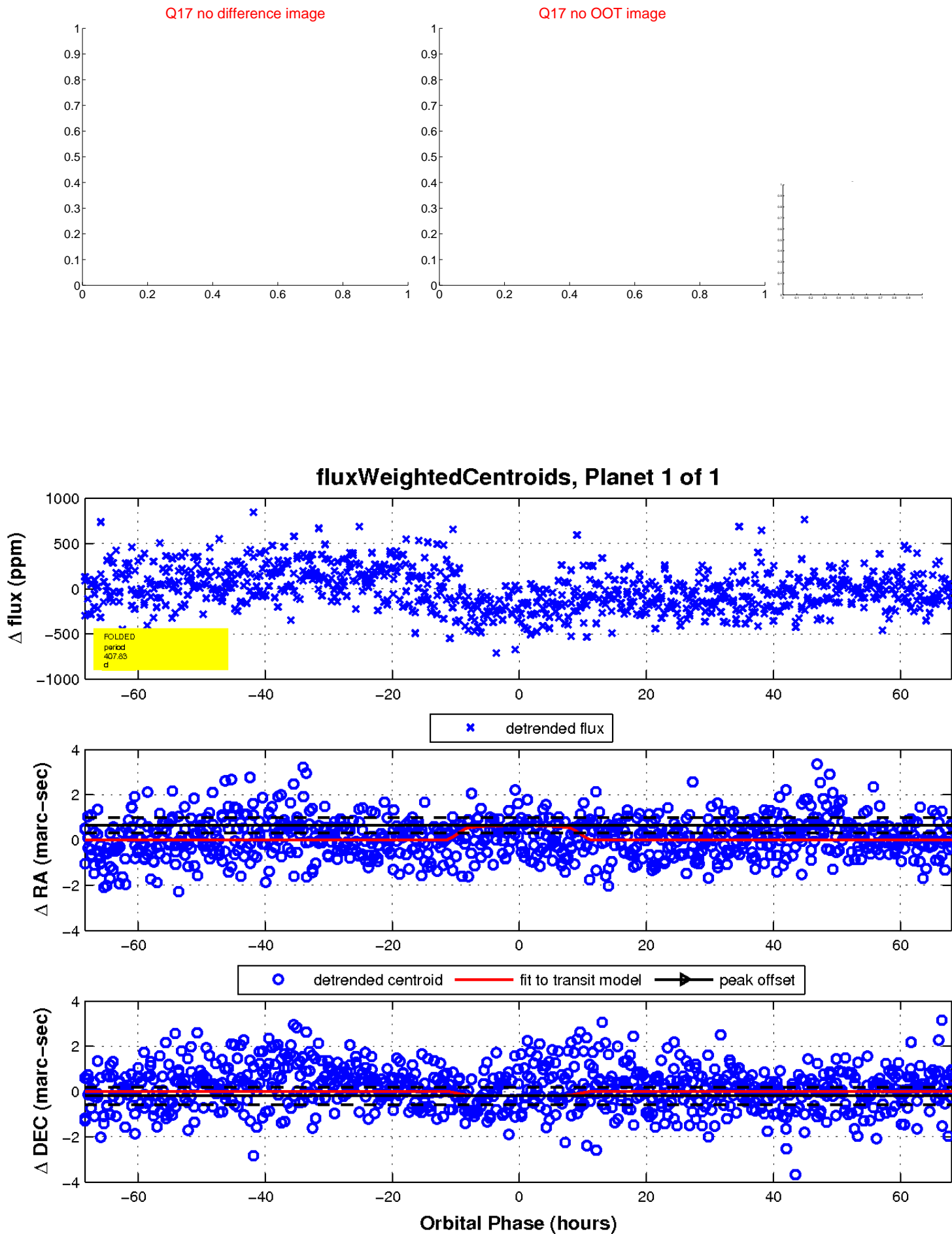
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

