

# KIC 006503561

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006503561-01	OBS	No	389.781562	298.334811	278.7	17.465	7.8	7.1	0.90	5806	1.66	0.76

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006503561-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—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.

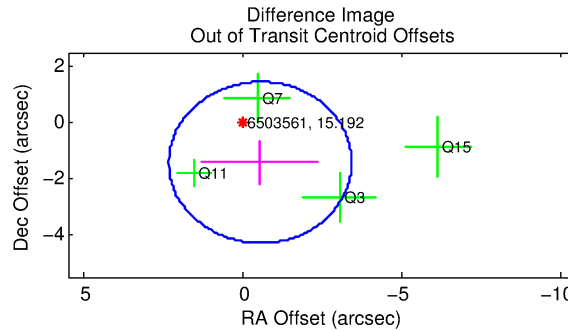
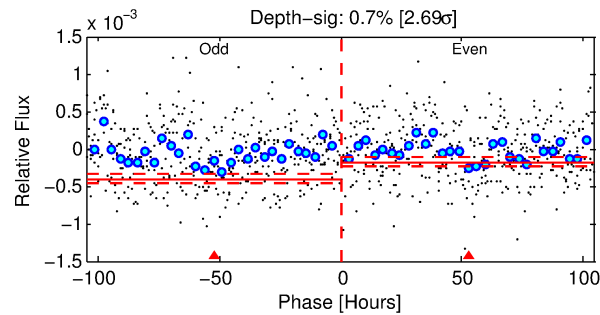
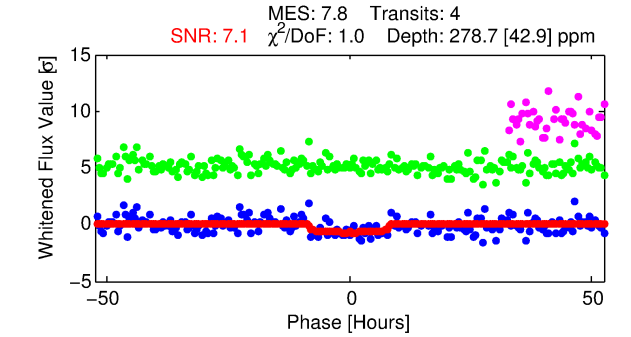
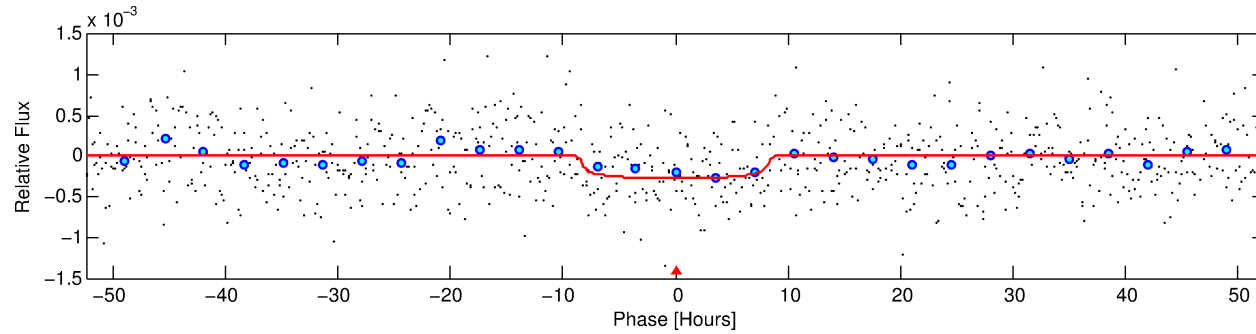
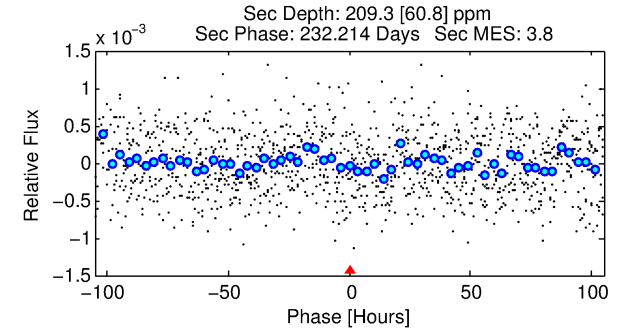
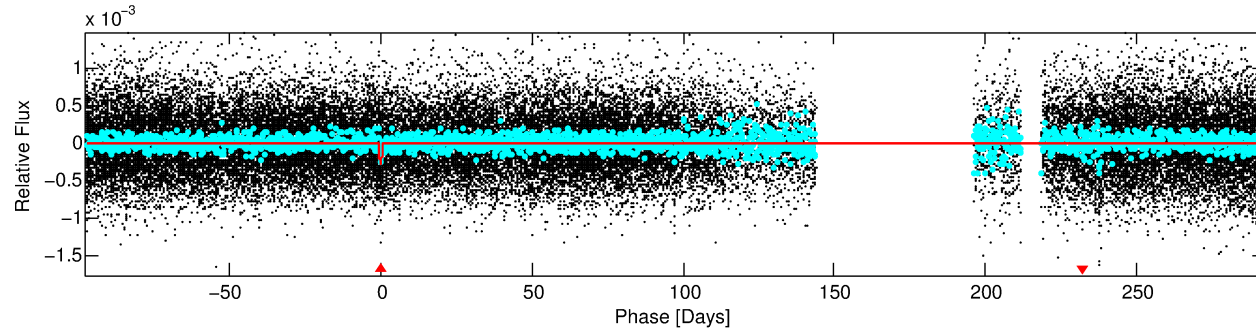
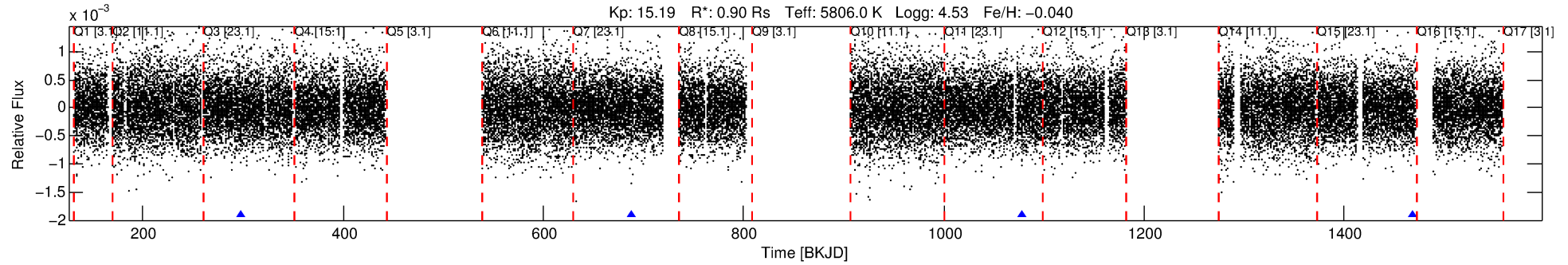
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006503561-01

No Significant Match Found

# DV One-Page Summary

KIC: 6503561 Candidate: 1 of 1 Period: 389.782 d



## DV Fit Results:

Period = 389.78156 [0.01908] d  
Epoch = 298.3348 [0.0356] BKJD  
Rp/R\* = 0.0169 [0.0068]  
a/R\* = 107.88 [195.53]  
b = 0.80 [0.84]  
Seff = 0.76 [0.27]  
Teff = 238 [21] K  
Rp = 1.66 [0.79] Re  
a = 1.0425 [0.2330] AU  
Ag = 45334.09 [41607.19] [1.09 $\sigma$ ]  
Teffp = 5366 [1158] K [4.43 $\sigma$ ]

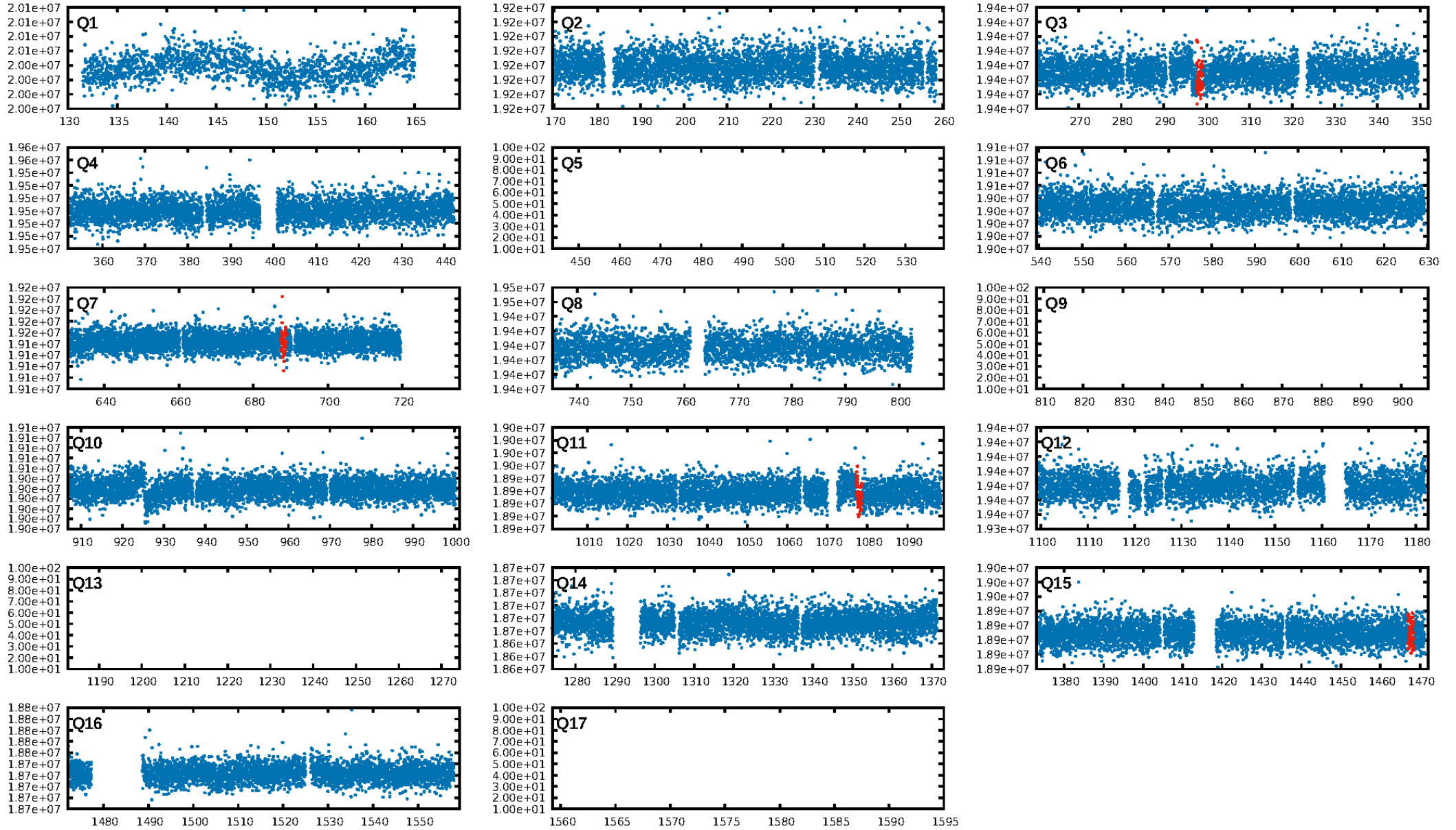
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 4.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.88e-17  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 4.115  
Centroid-sig: 15.9%  
Centroid-so: 2.090 arcsec [1.14 $\sigma$ ]  
OotOffset-rm: 1.526 arcsec [1.59 $\sigma$ ]  
KicOffset-rm: 1.621 arcsec [1.64 $\sigma$ ]  
OotOffset-st: 0/4/0/0 [4]  
KicOffset-st: 0/4/0/0 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 1.00 [4/4]

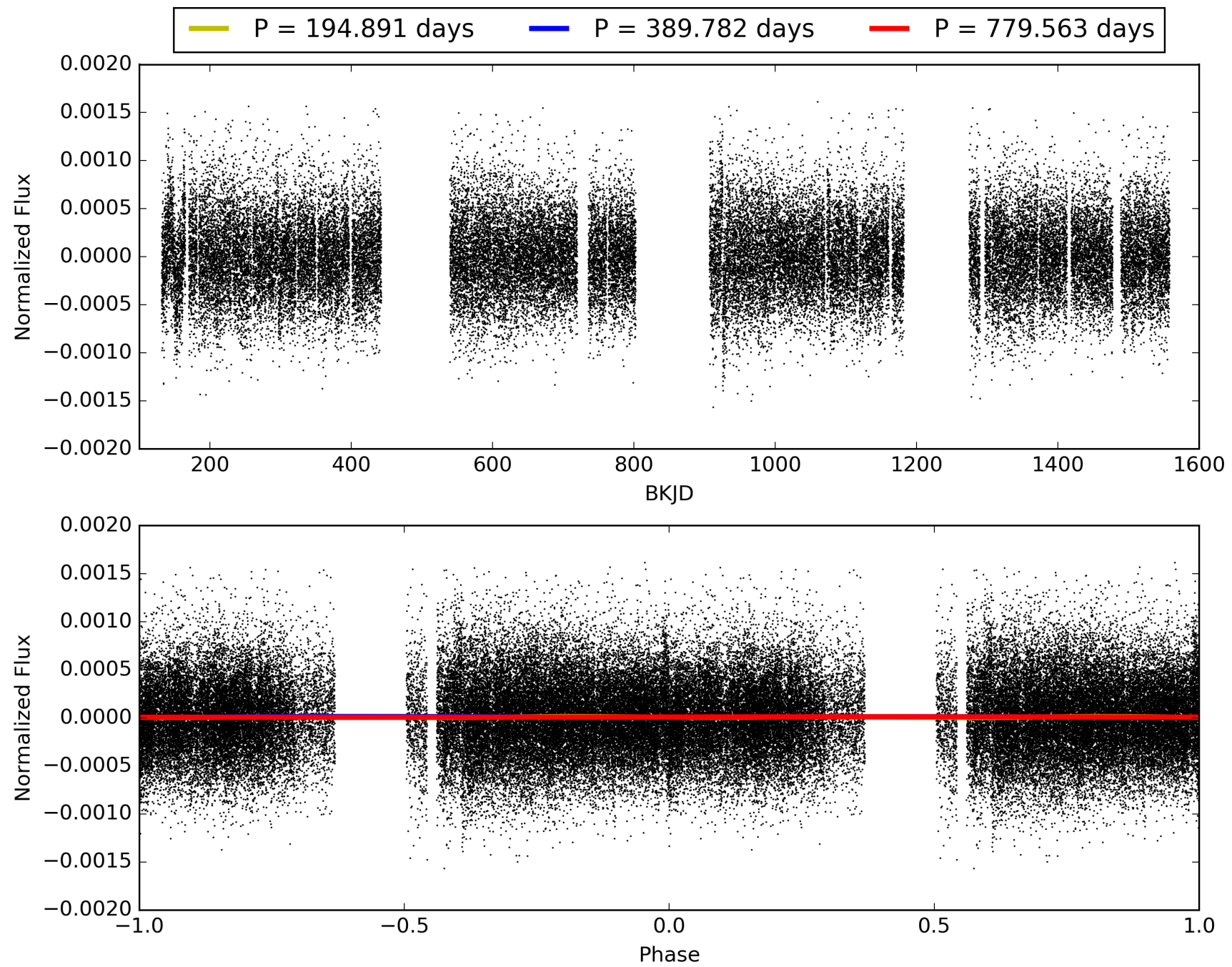
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:38:08 Z

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

# TCE 006503561-01, PDC Light Curves

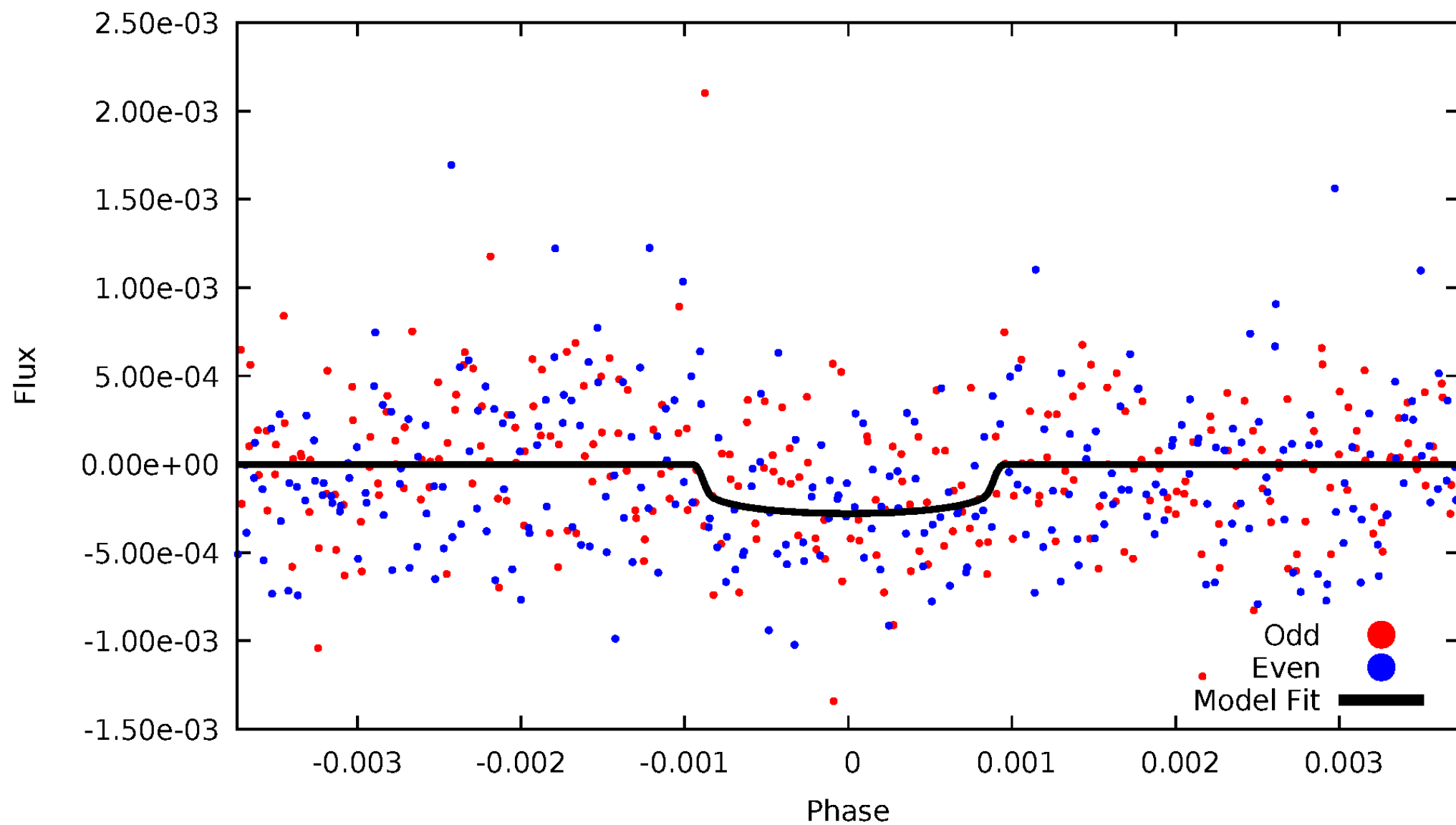


TCE 006503561-01



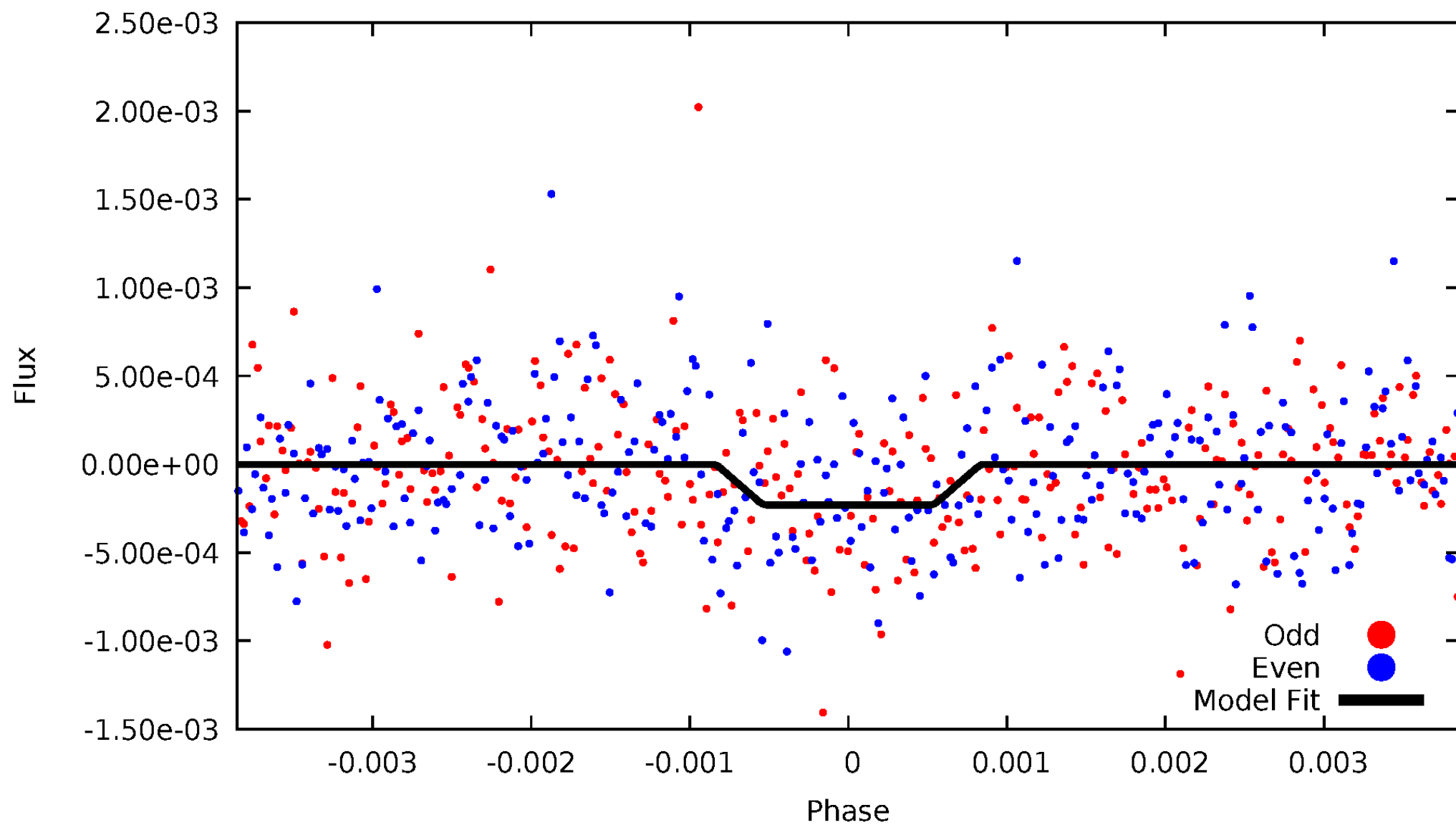
# DV Odd/Even

TCE 006503561-01



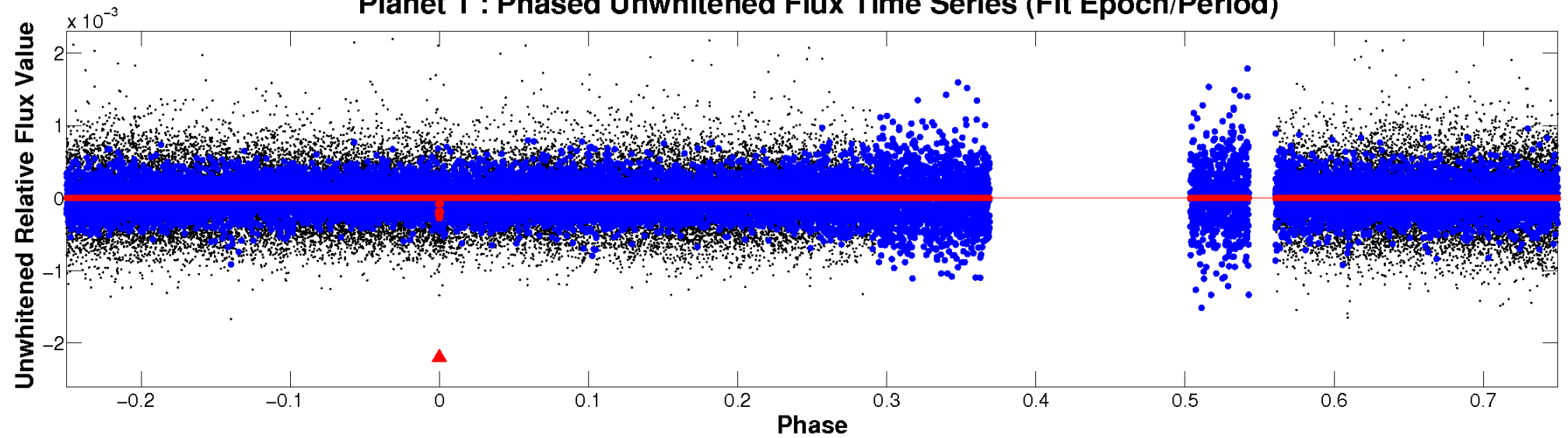
# ALT Odd/Even

TCE 006503561-01

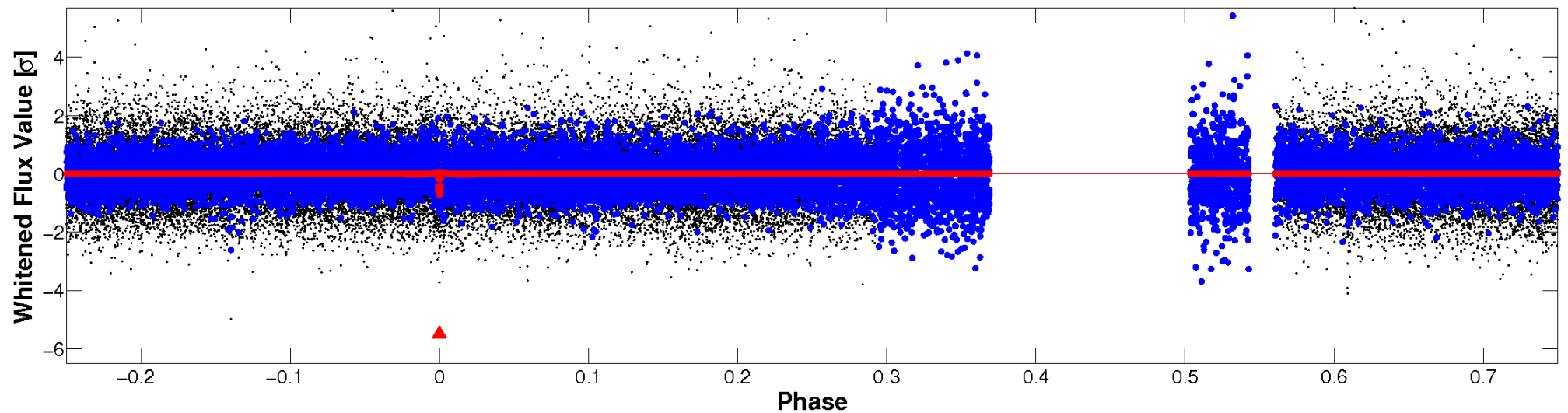


# Non-Whitened Vs. Whitened Light Curve

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

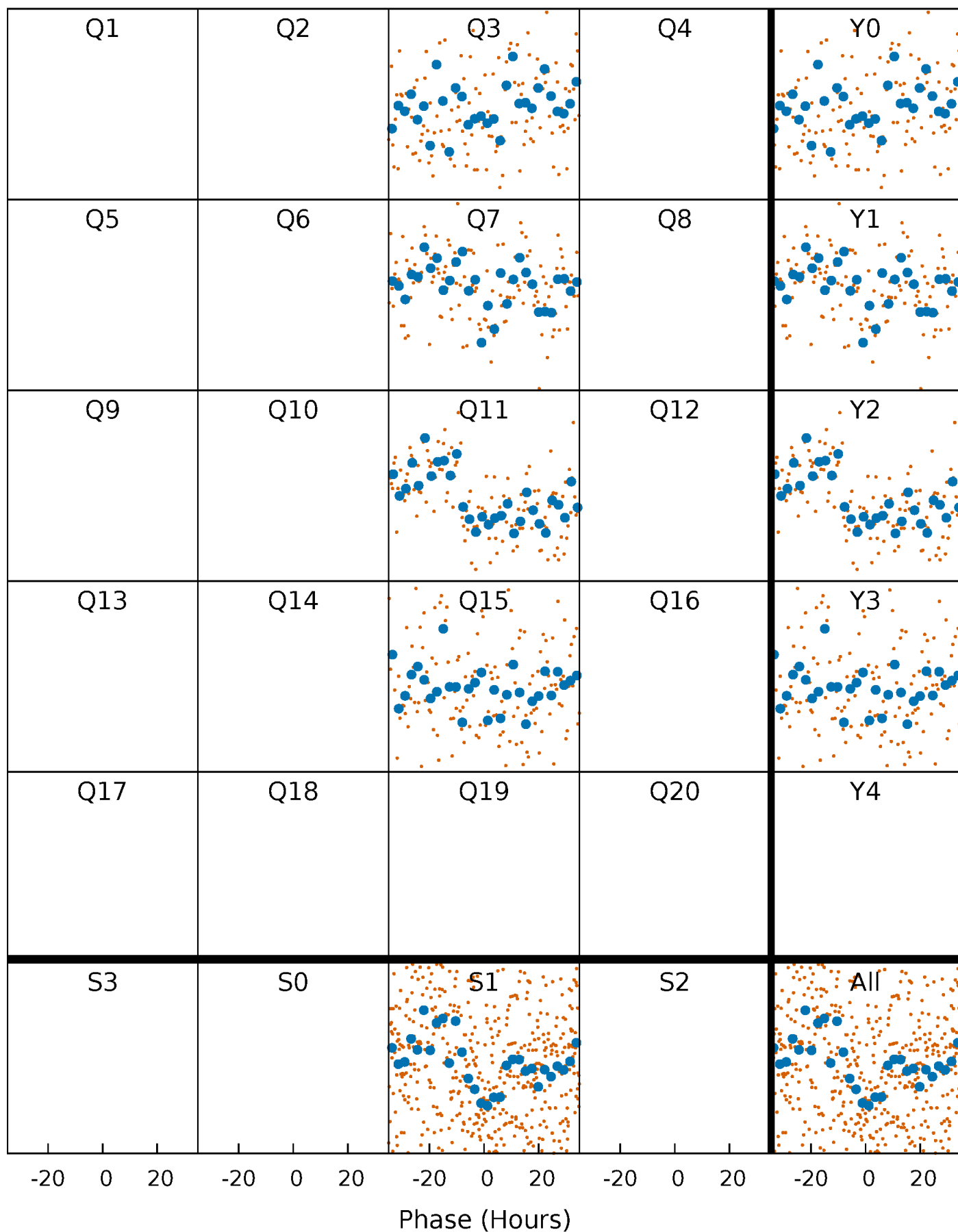


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



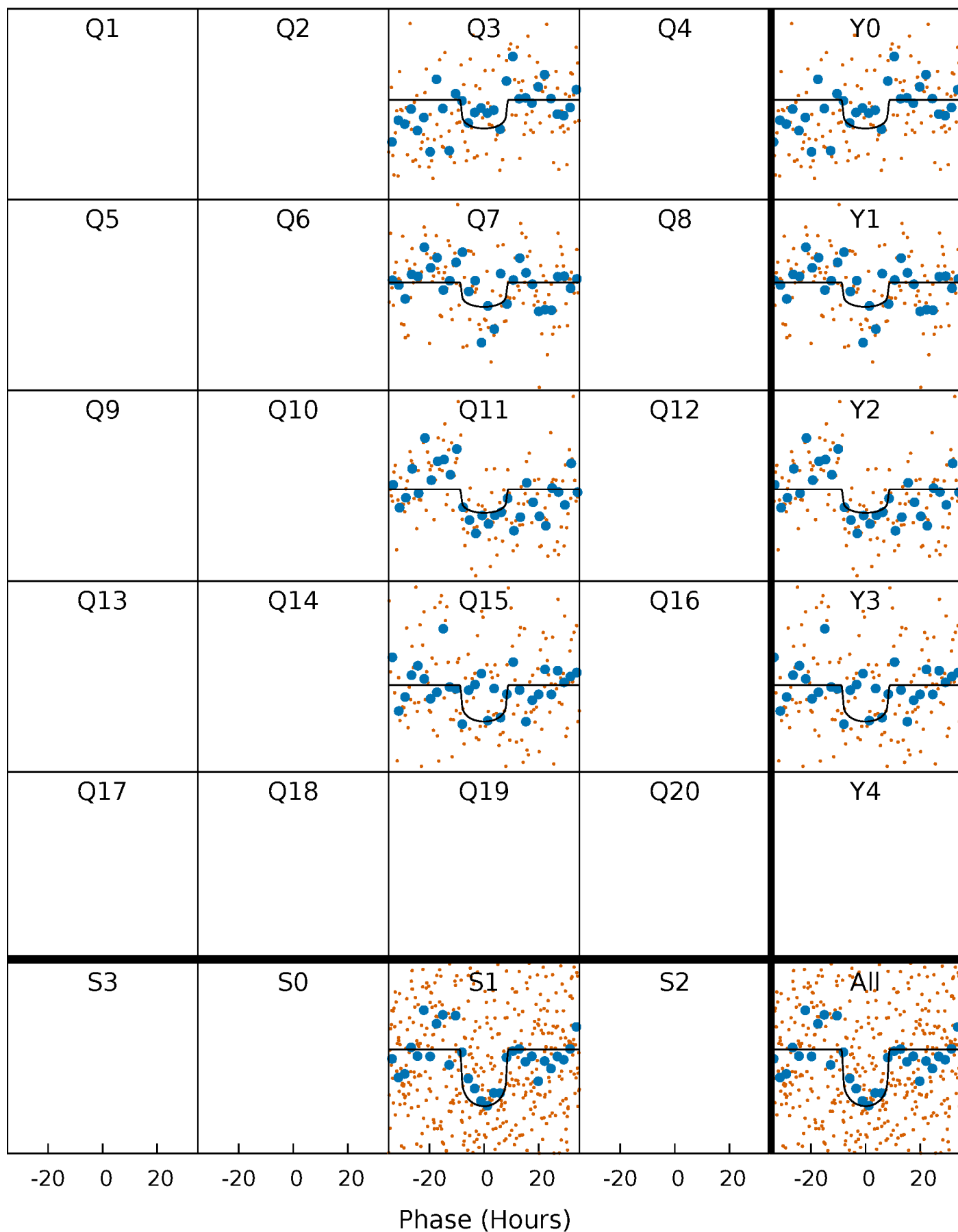
# PDC Quarter-Phased Transit Curves

TCE 006503561-01 P=389.781562 Days  $T_0=298.334811$  (BKJD)



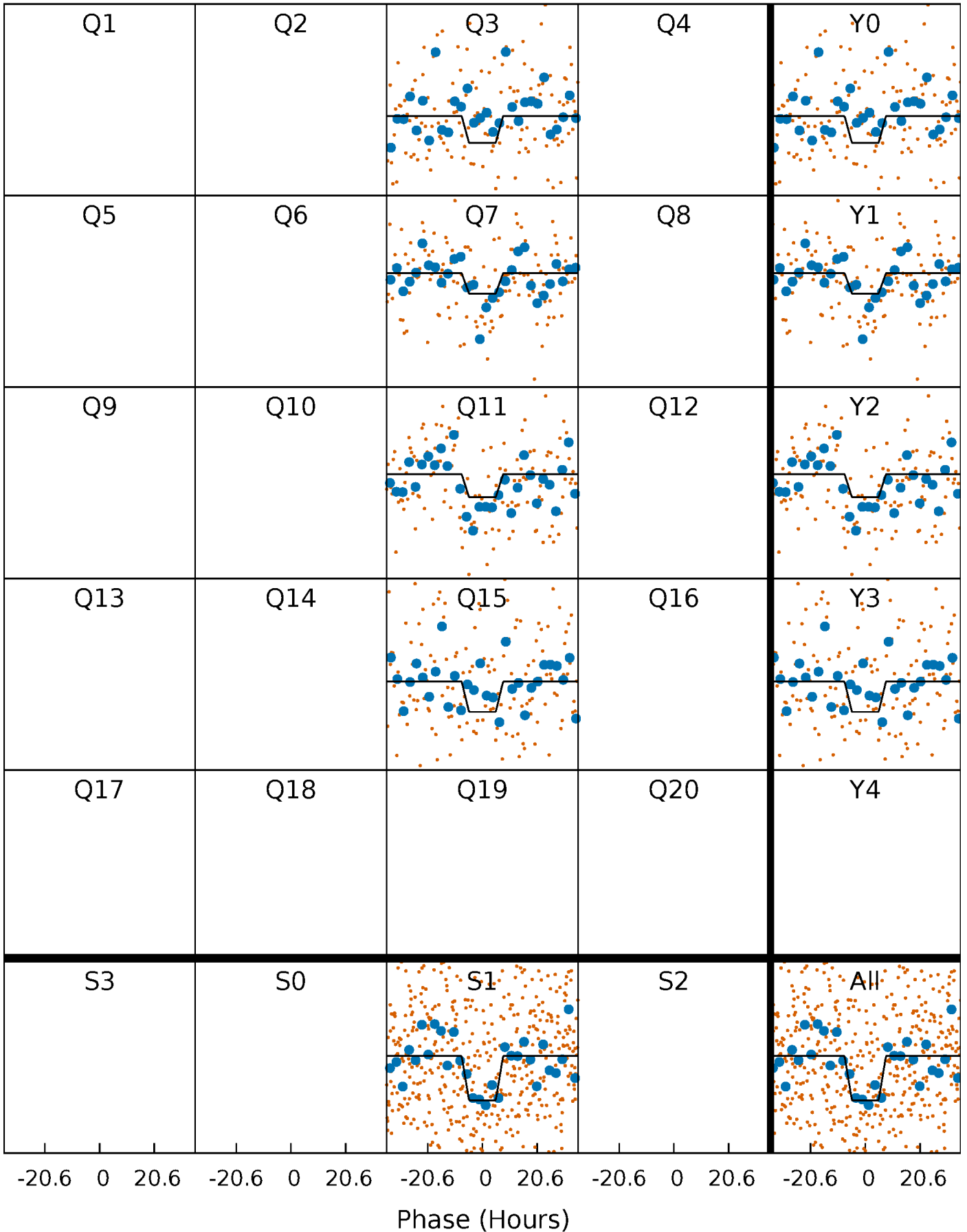
# DV Quarter-Phased Transit Curves

TCE 006503561-01 P=389.781562 Days  $T_0=298.334811$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

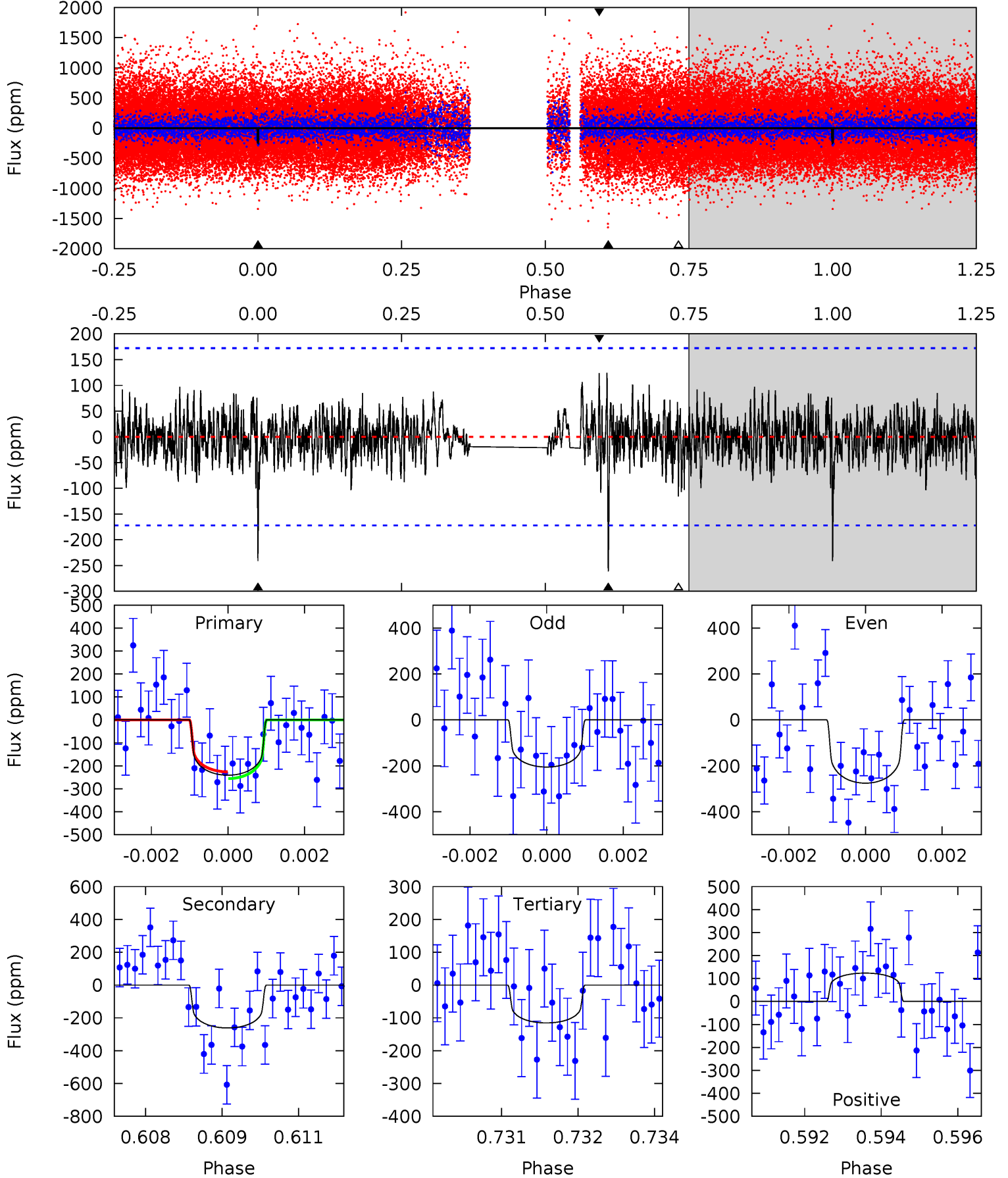
TCE 006503561-01     $P=389.776968$  Days     $T_0=298.366479$  (BKJD)



# DV Model-Shift Uniqueness Test

006503561-01, P = 389.781562 Days, E = 298.334811 Days

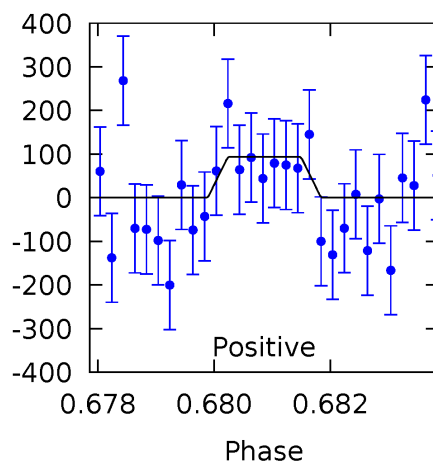
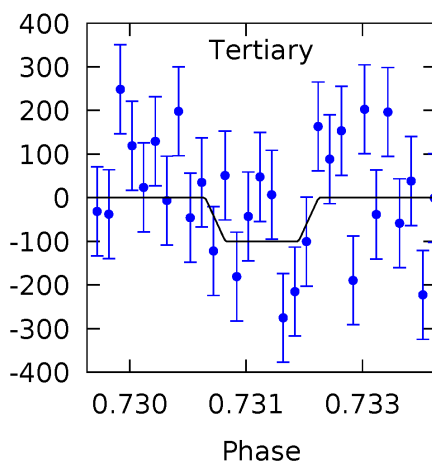
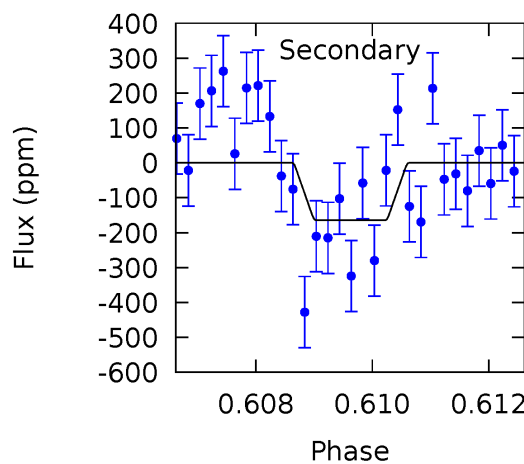
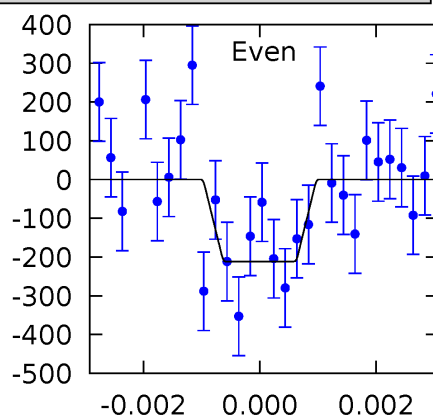
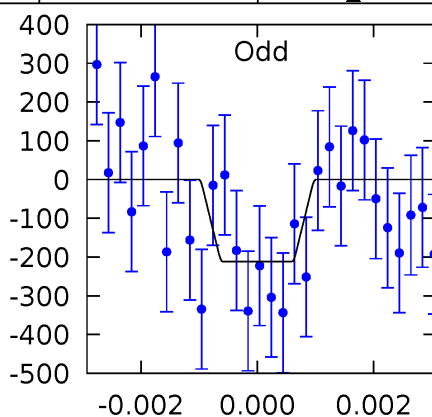
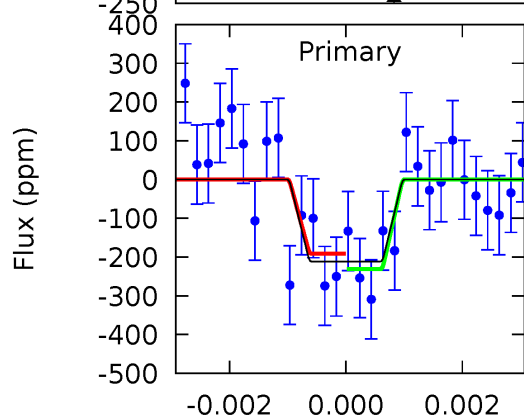
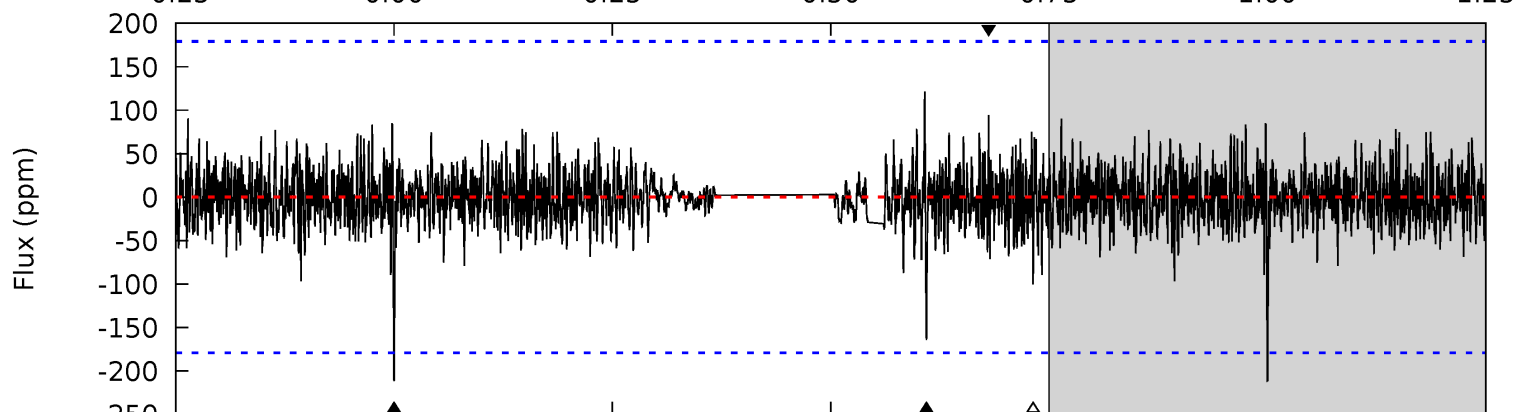
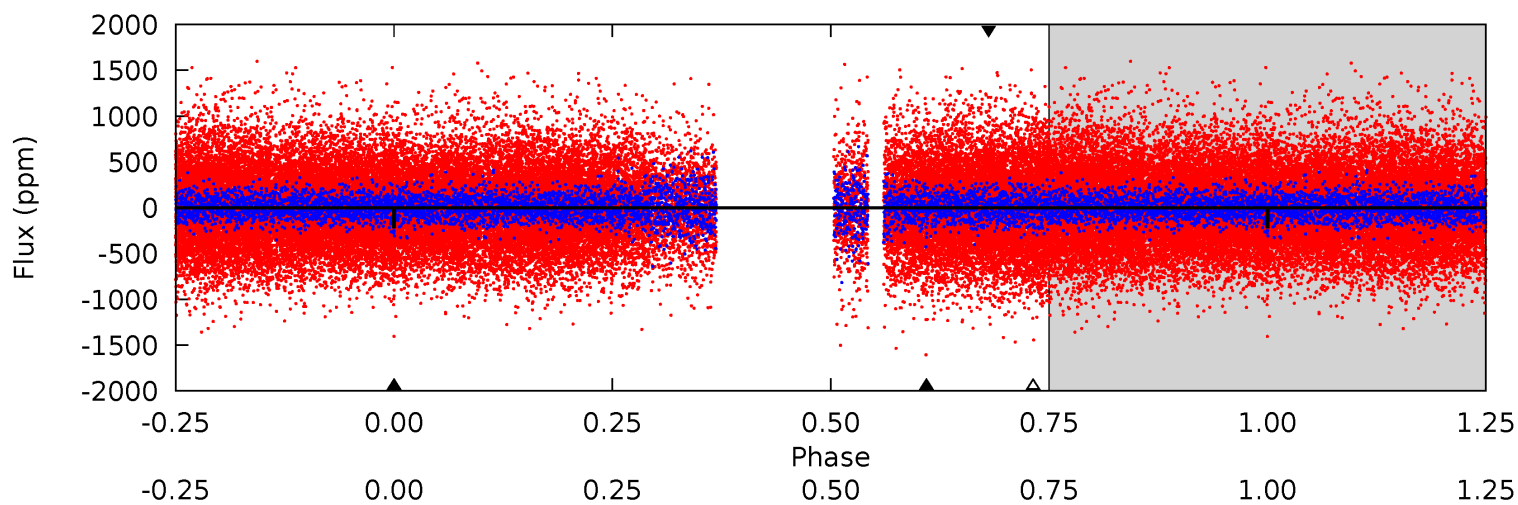
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.47	8.11	3.59	3.83	5.34	3.11	1.07	3.89	3.64	4.53	4.28	1.09	1.15	0.32	0.46



# Alt Model-Shift Uniqueness Test

006503561-01, P = 389.776968 Days, E = 298.366479 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
6.32	4.92	3.01	2.81	5.35	3.14	0.82	3.32	3.52	1.91	2.11	0.00	1.01	0.36	0.60



### Stellar Parameters For KIC 006503561

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5806^{+157}_{-175}$	$4.528^{+0.044}_{-0.187}$	$-0.040^{+0.300}_{-0.300}$	$0.899^{+0.231}_{-0.077}$	$0.996^{+0.104}_{-0.127}$	$1.928^{+0.437}_{-0.879}$
	+3%/-3%	+1%/-4%	+750%/-750%	+26%/-9%	+10%/-13%	+23%/-46%
Source	PHO1	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 006503561-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-261 \pm 32$	$1.69^{+0.77}_{-0.64}$	$337^{+22}_{-13}$	$5694^{+1786}_{-825}$	$52658^{+88889}_{-27427}$
Alt.	$-164 \pm 33$	$1.56^{+0.73}_{-0.67}$	$339^{+20}_{-13}$	$5370^{+1712}_{-828}$	$40605^{+85344}_{-22405}$

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

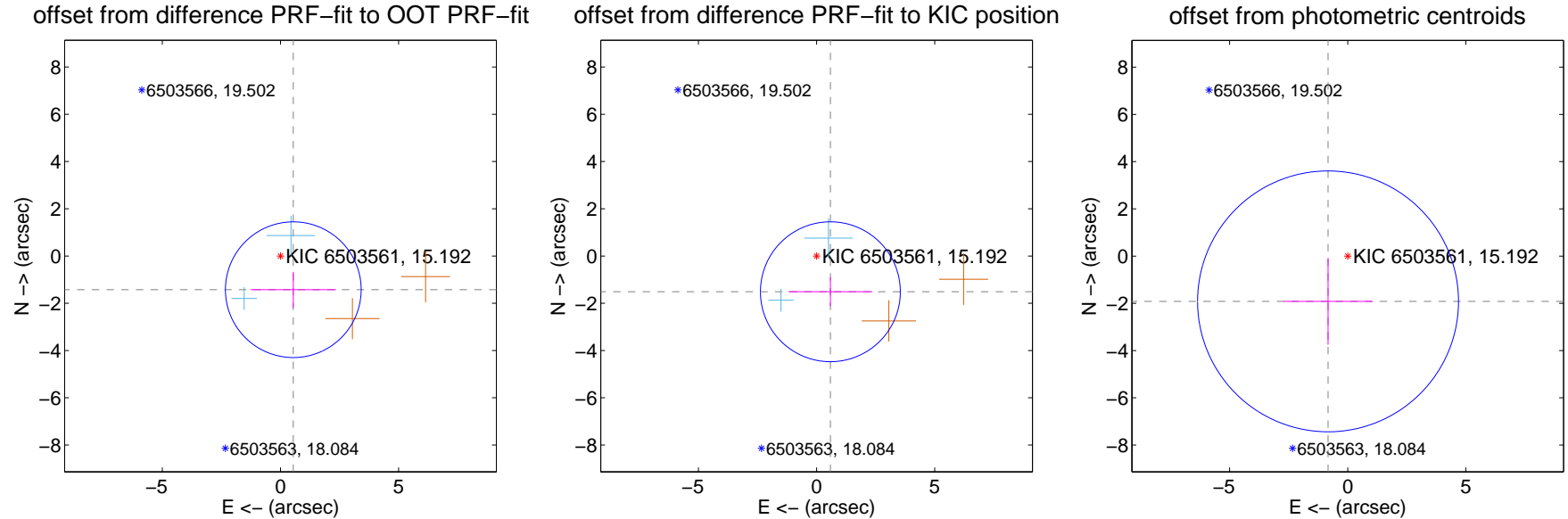
## DV Centroid Data

Supplemental centroid analysis for 006503561-01. Kepler magnitude: 15.19. Transit SNR 7.09

There are 2 quarters with good PRF difference image offsets

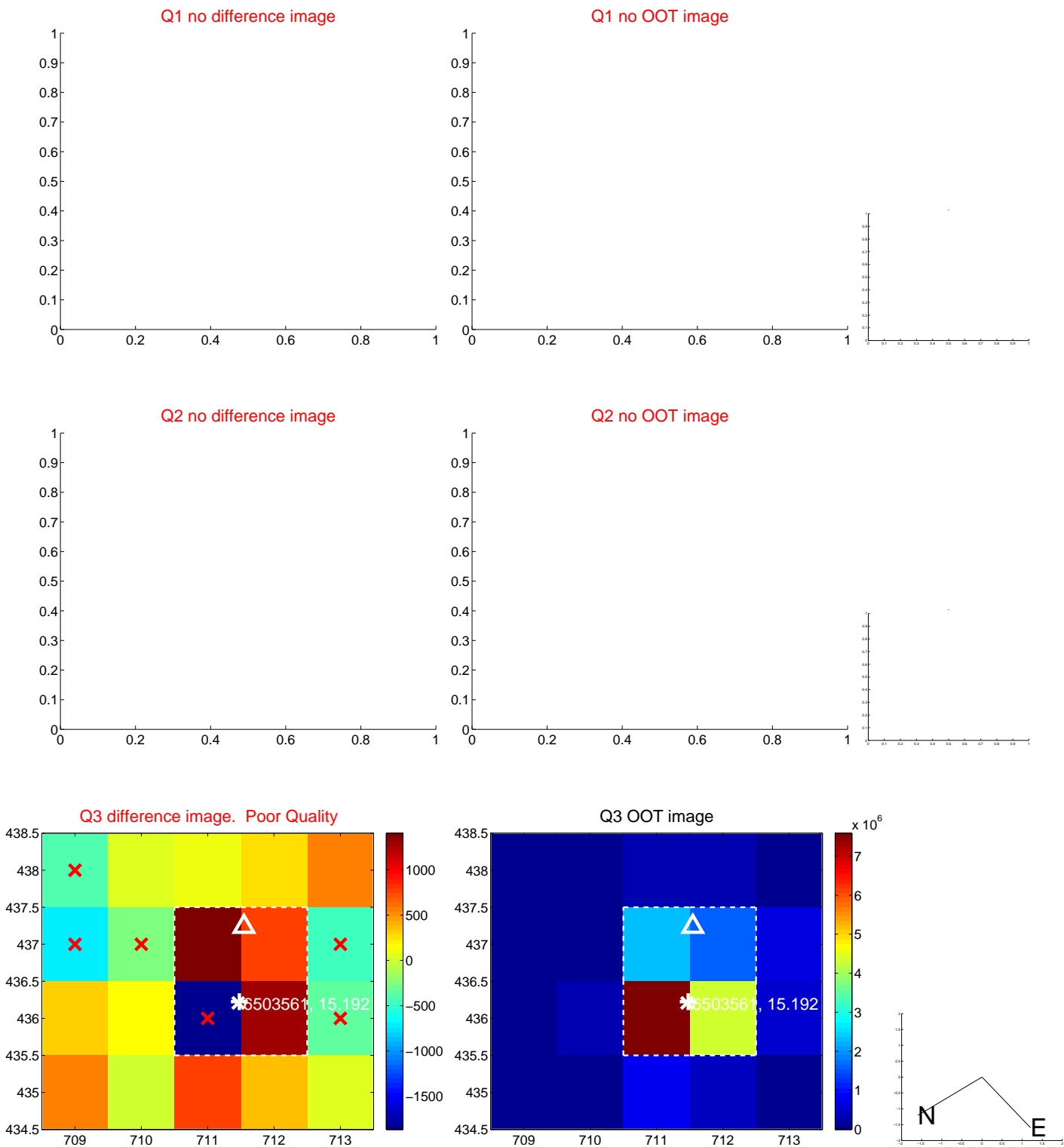
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.526 \pm 0.957$	1.59	$-0.544 \pm 1.812$	$-1.426 \pm 0.757$
PRF-fit source offset from KIC position	$1.621 \pm 0.987$	1.64	$-0.584 \pm 1.781$	$-1.512 \pm 0.615$
photometric centroid source offset	$2.09 \pm 1.84$	1.14	$0.83 \pm 1.89$	$-1.92 \pm 1.83$

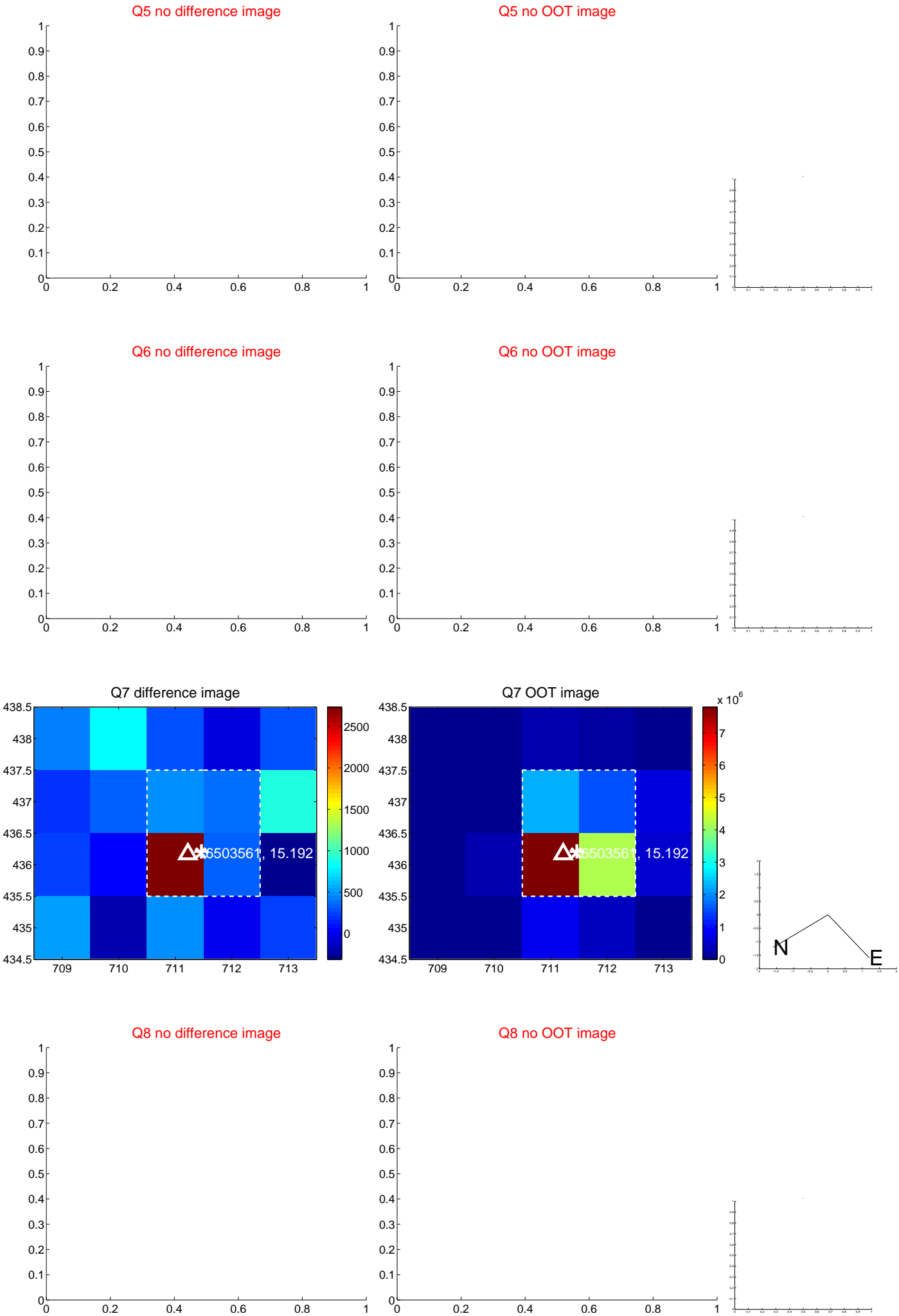


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

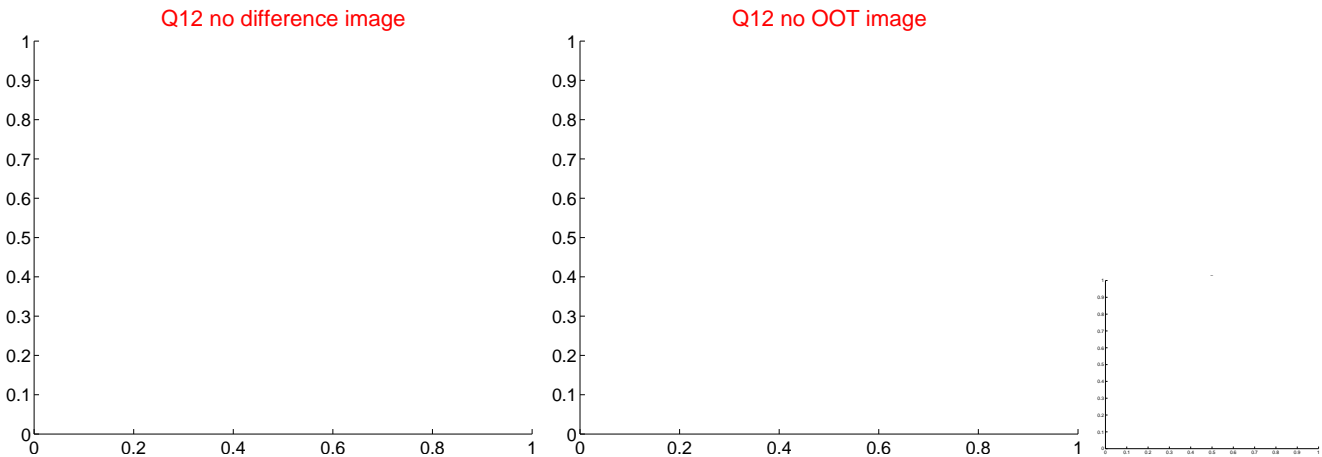
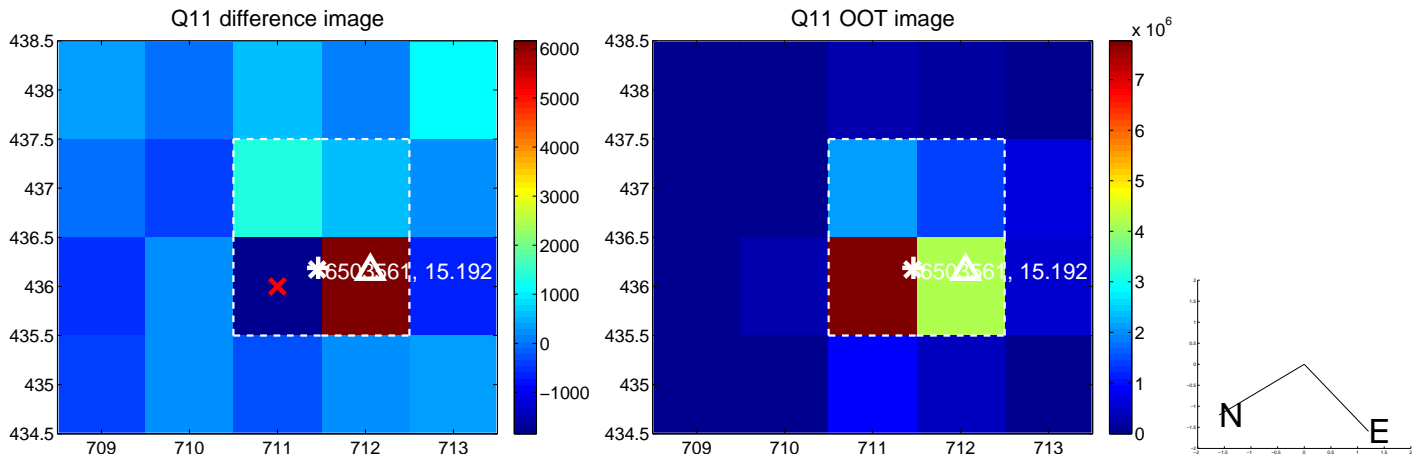
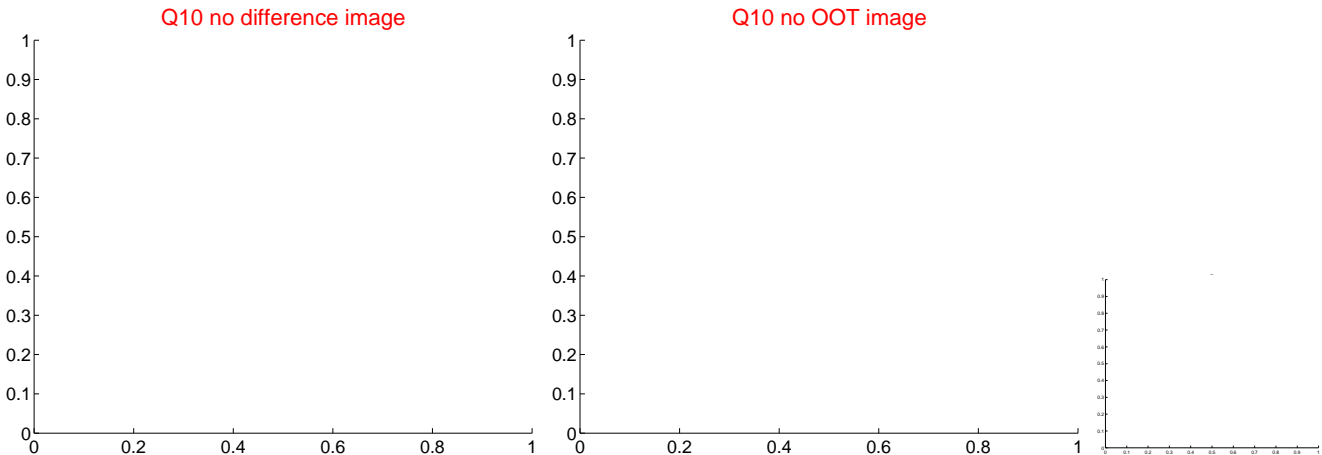
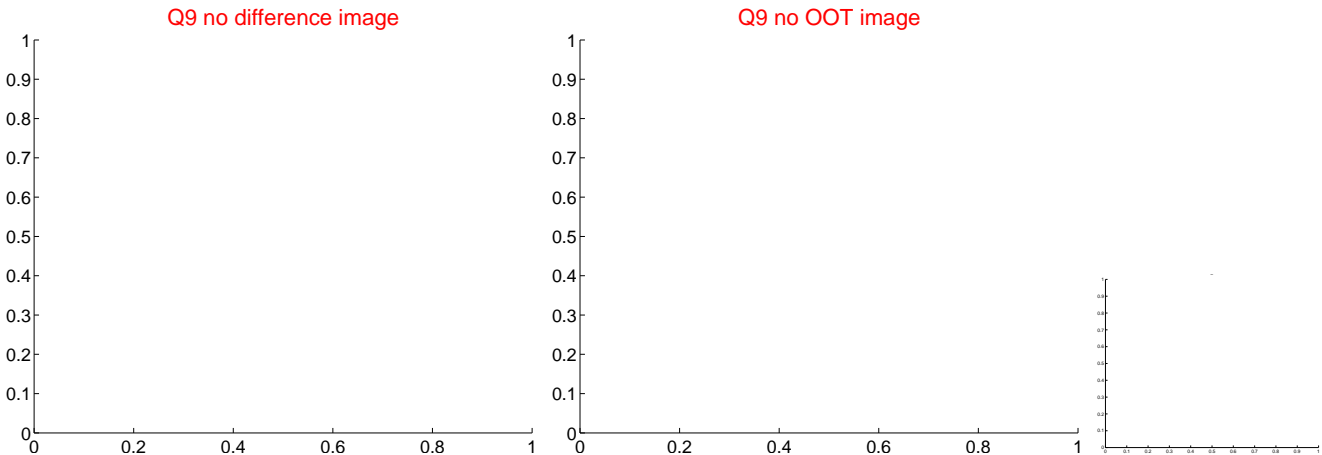
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



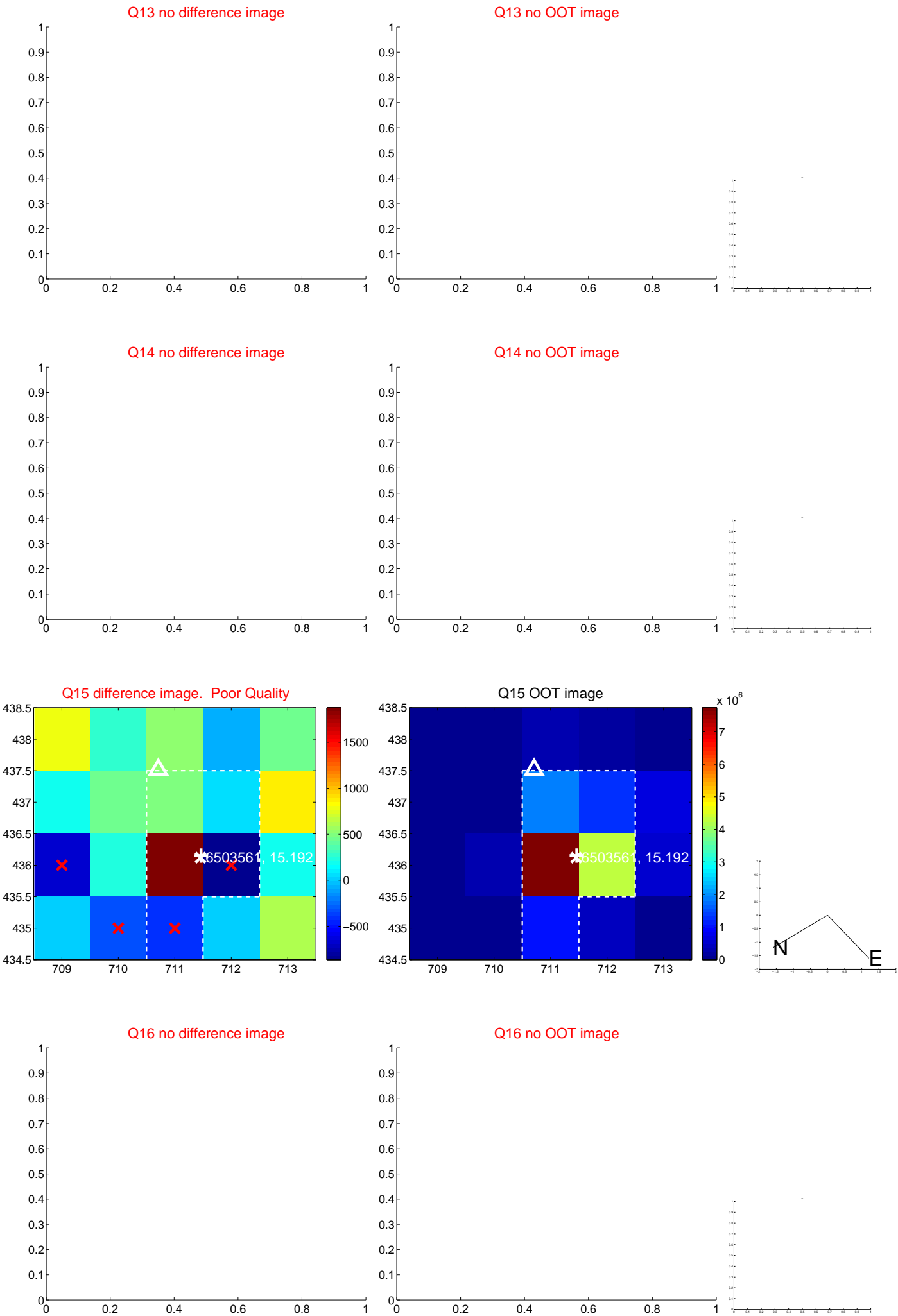
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



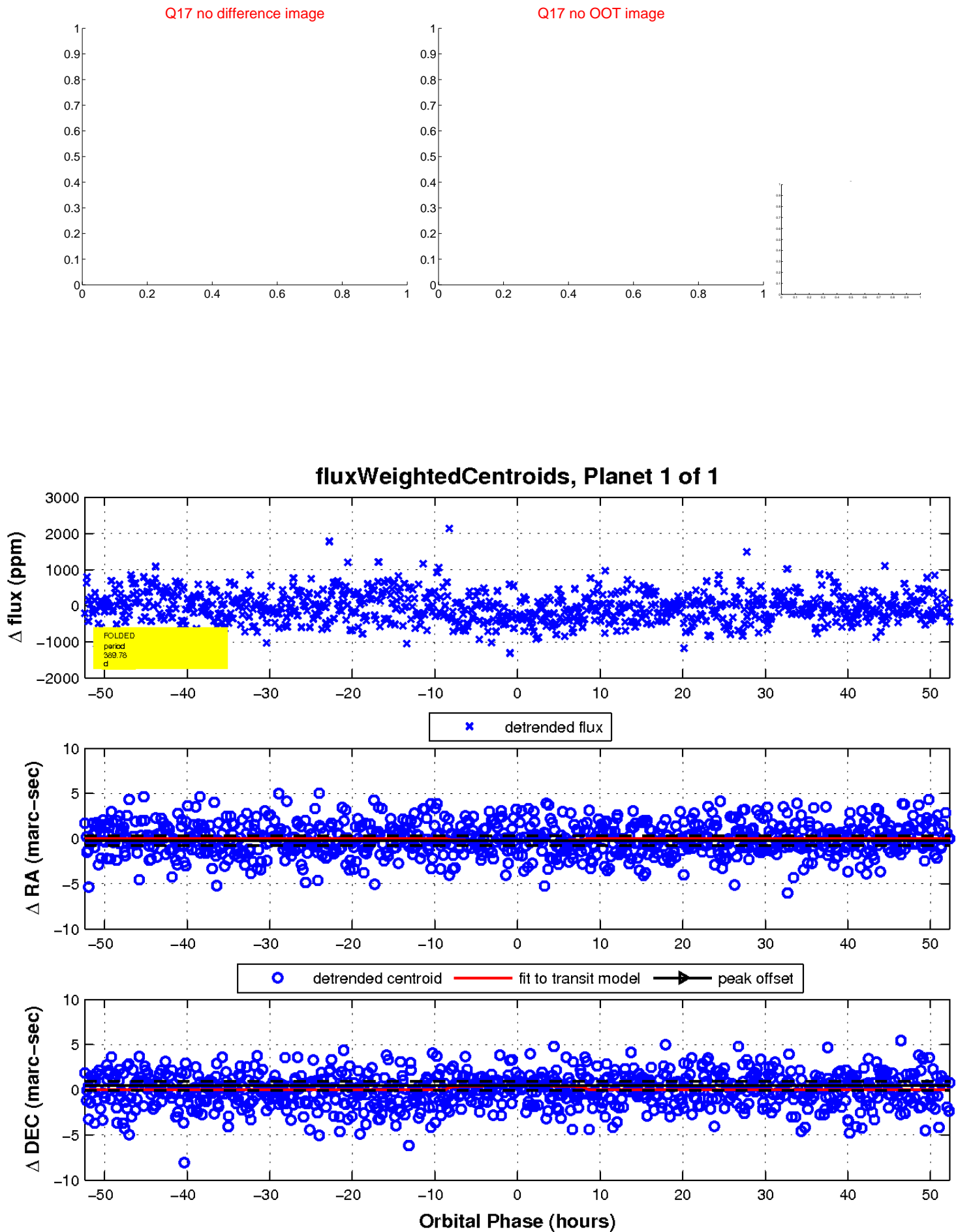
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



white ×: 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.



# UKIRT Image

Declination

