

# KIC 005513897

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
005513897-01	OBS	2591.01	0.755098	131.811640	70.6	3.076	20.9	19.7	0.81	5452	0.82	2134.12

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005513897-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH

**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.

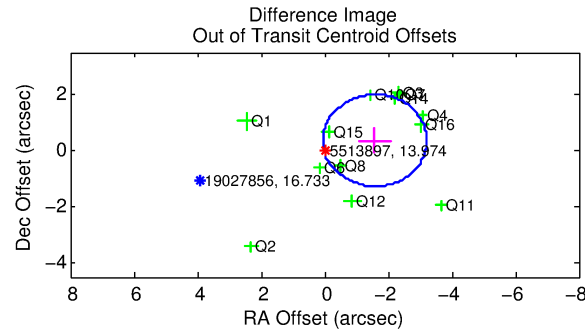
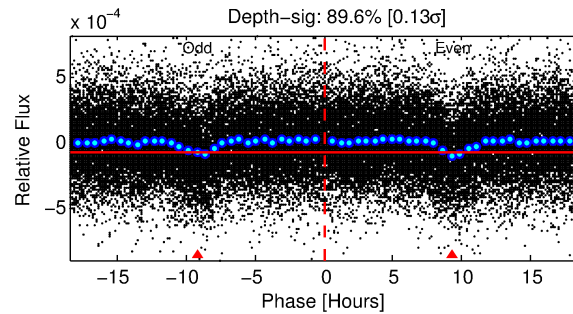
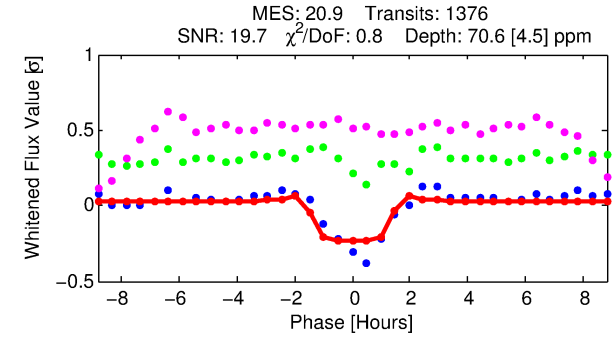
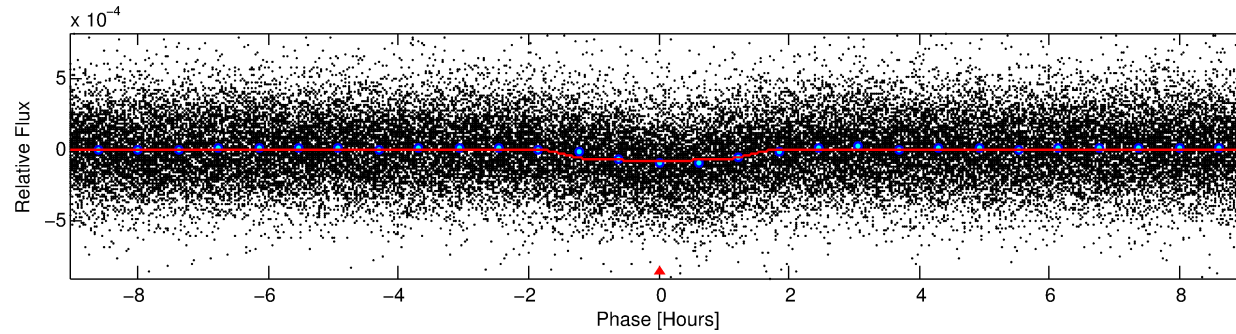
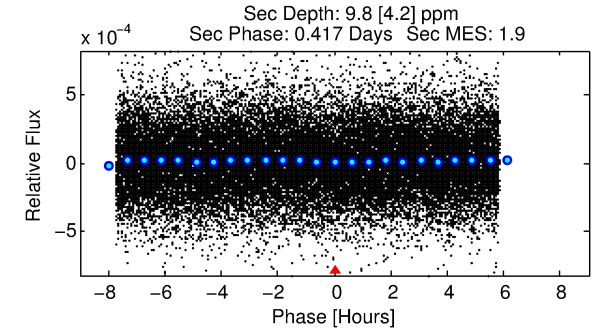
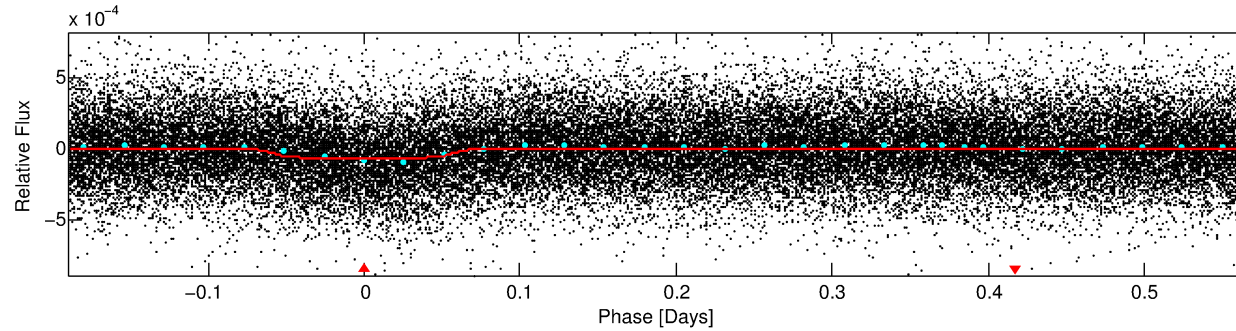
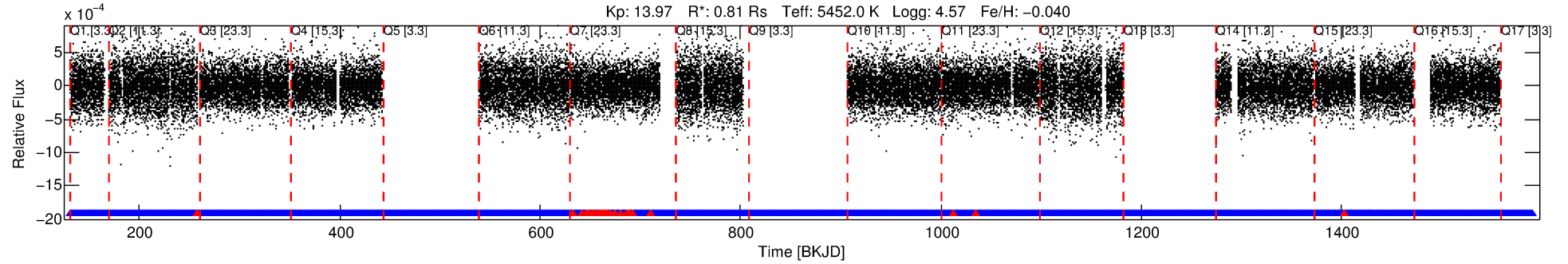
## Ephemeris Match Information For 005513897-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
005513897-01	5513897	005513861-pri	5513861	1:2	54.0	10	-9	11.64	13.98	3569.00	Direct-PRF	0	2.23	0.05

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 5513897 Candidate: 1 of 1 Period: 0.755 d  
KOI: K02591.01 Corr: 0.916



## DV Fit Results:

Period = 0.75510 [0.00001] d  
Epoch = 131.8116 [0.0015] BKJD  
Rp/R\* = 0.0093 [0.0029]  
a/R\* = 1.27 [0.66]  
b = 0.90 [0.29]  
Seff = 2134.12 [617.91]  
Teq = 1733 [125] K  
Rp = 0.82 [0.31] Re  
a = 0.0157 [0.0028] AU  
Ag = 1.95 [1.55] [0.61σ]  
Teffp = 3165 [603] K [2.33σ]

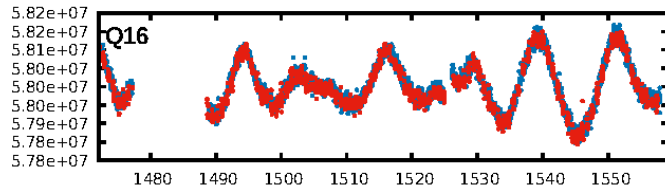
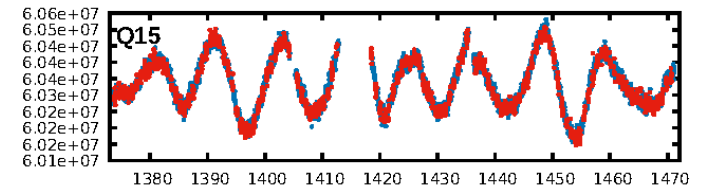
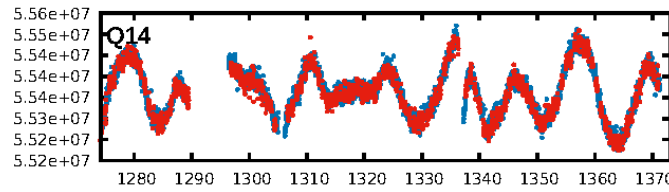
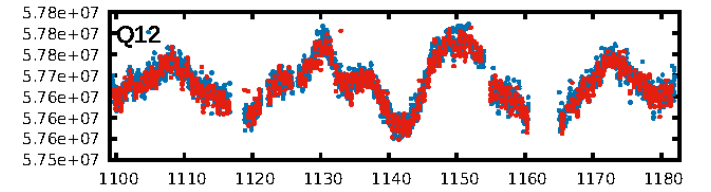
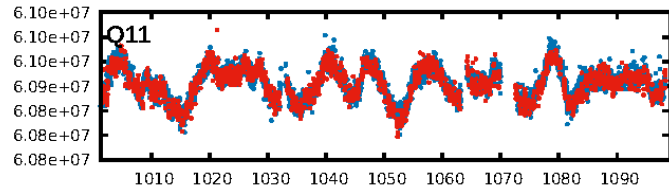
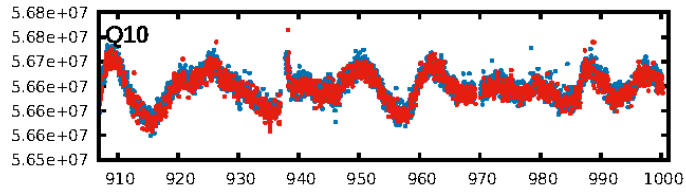
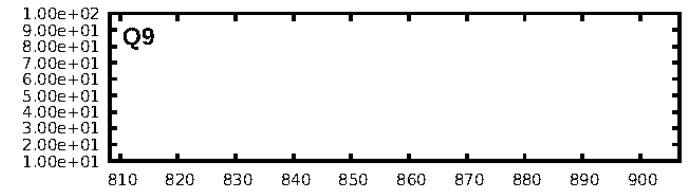
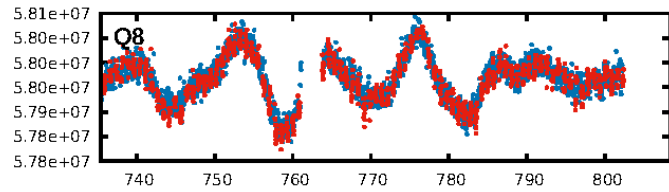
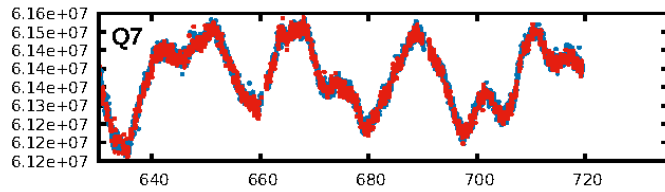
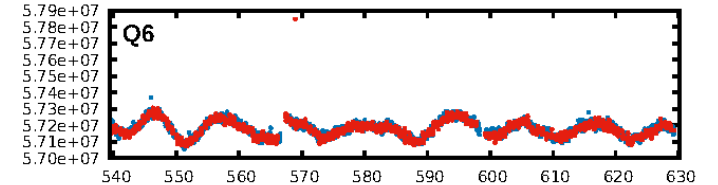
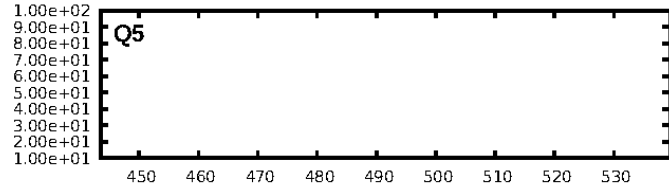
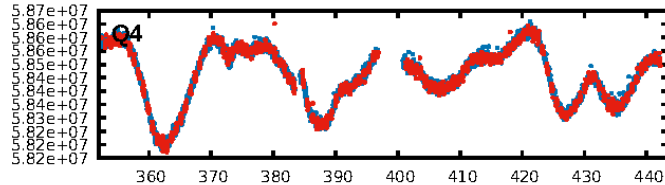
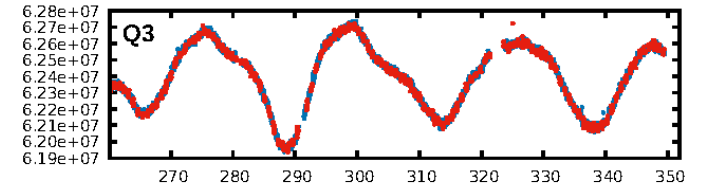
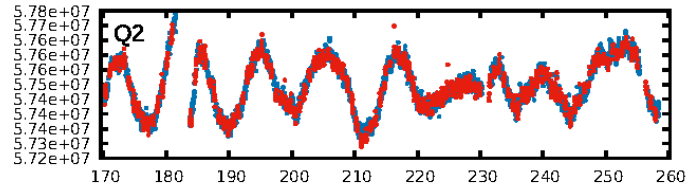
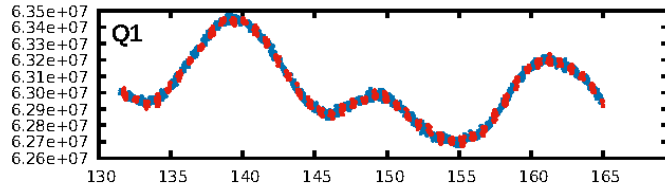
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.28e-77  
RollingBand-fgt: 0.98 [1301/1331]  
**GhostDiagnostic-chr: 0.4659**  
Centroid-sig: 0.0%  
Centroid-so: 2.866 arcsec [5.28σ]  
OotOffset-rm: 1.620 arcsec [2.97σ]  
KicOffset-rm: 1.395 arcsec [2.33σ]  
OotOffset-st: 4/4/4/1 [13]  
KicOffset-st: 4/4/4/1 [13]  
DiffImageQuality-fgm: 0.15 [2/13]  
DiffImageOverlap-fno: 1.00 [13/13]

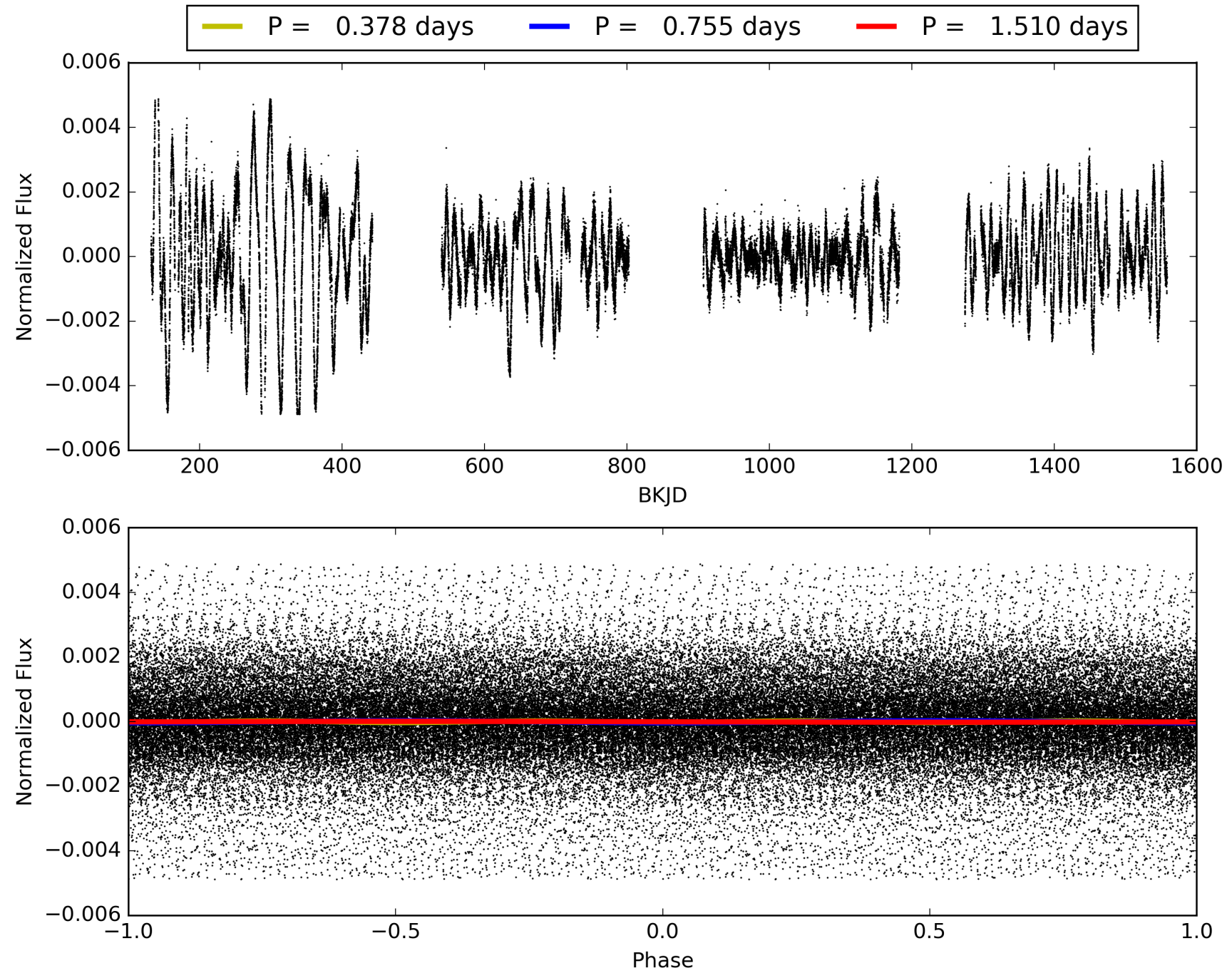
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:15:05 Z

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

# TCE 005513897-01, PDC Light Curves

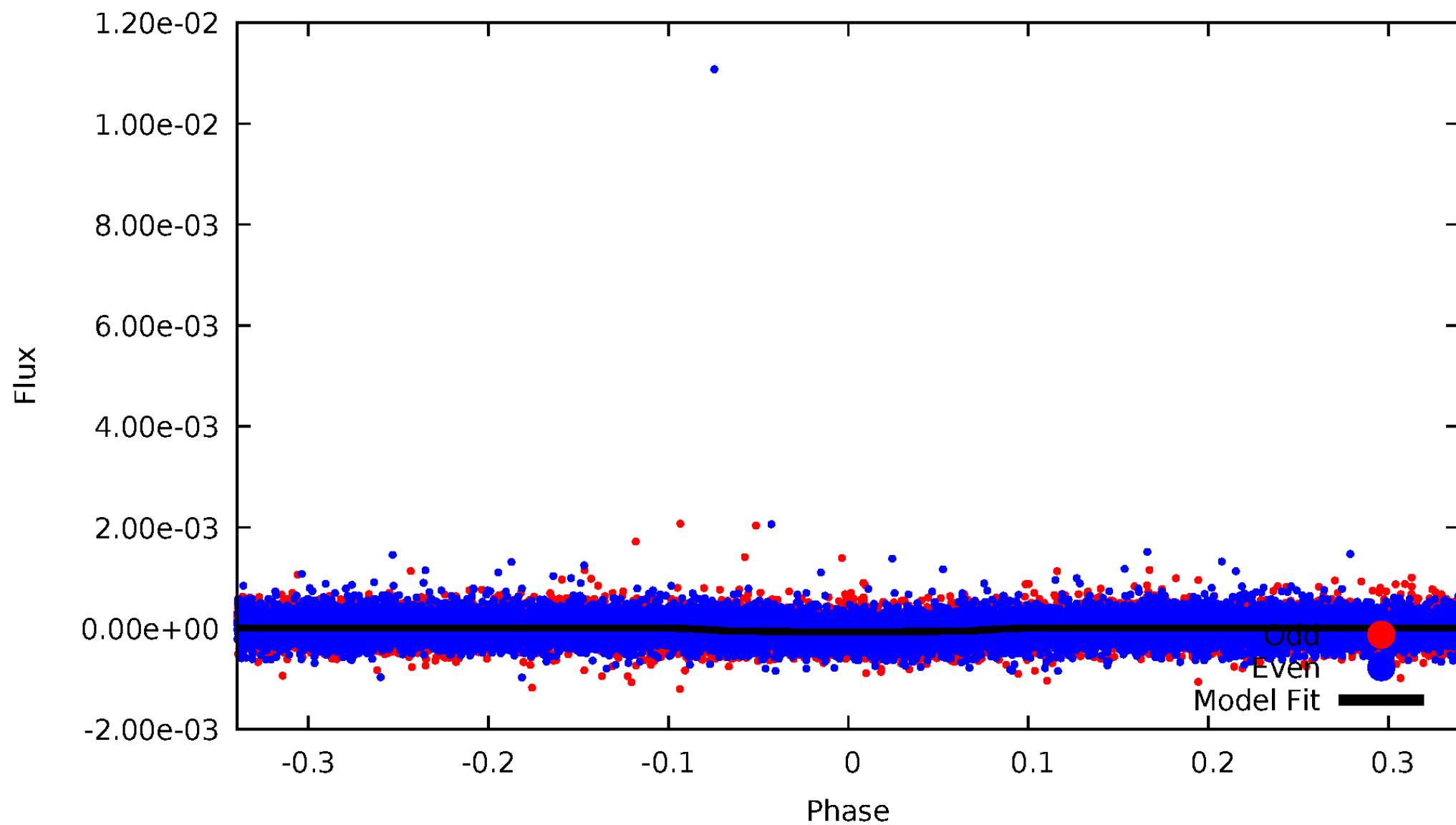


TCE 005513897-01



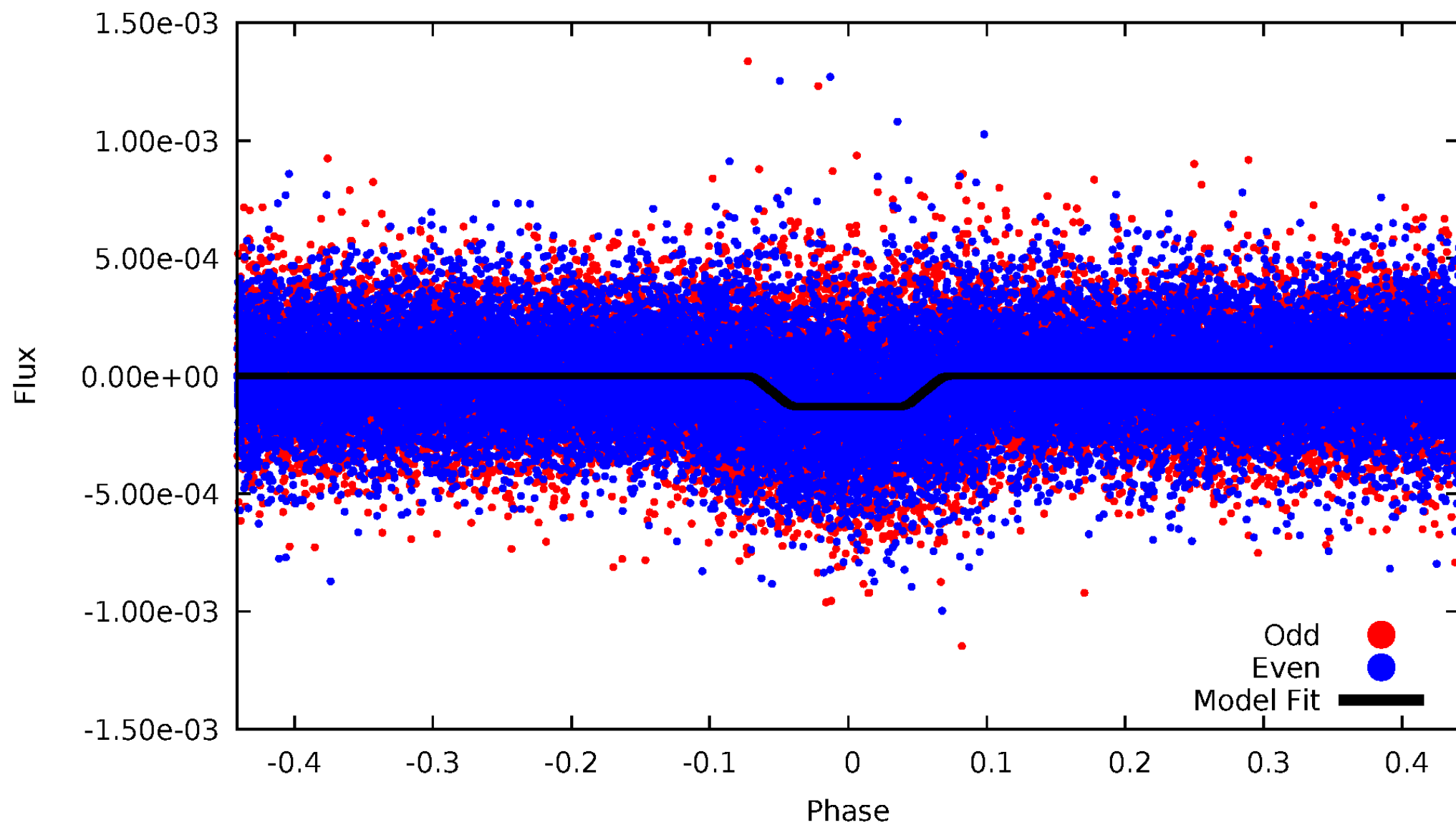
# DV Odd/Even

TCE 005513897-01



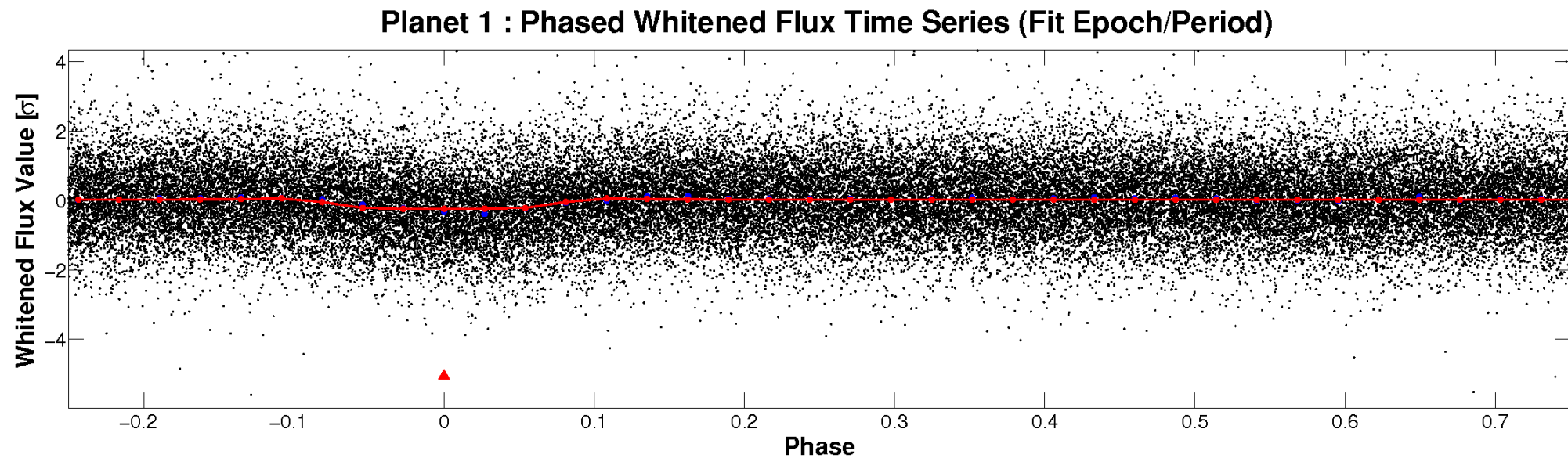
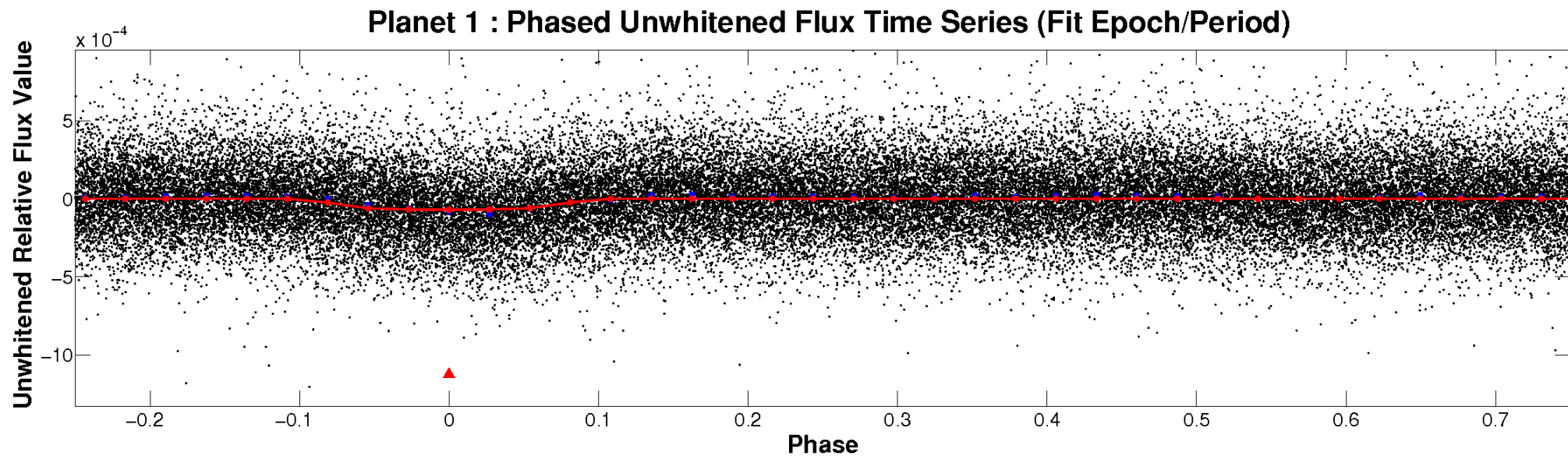
# ALT Odd/Even

TCE 005513897-01



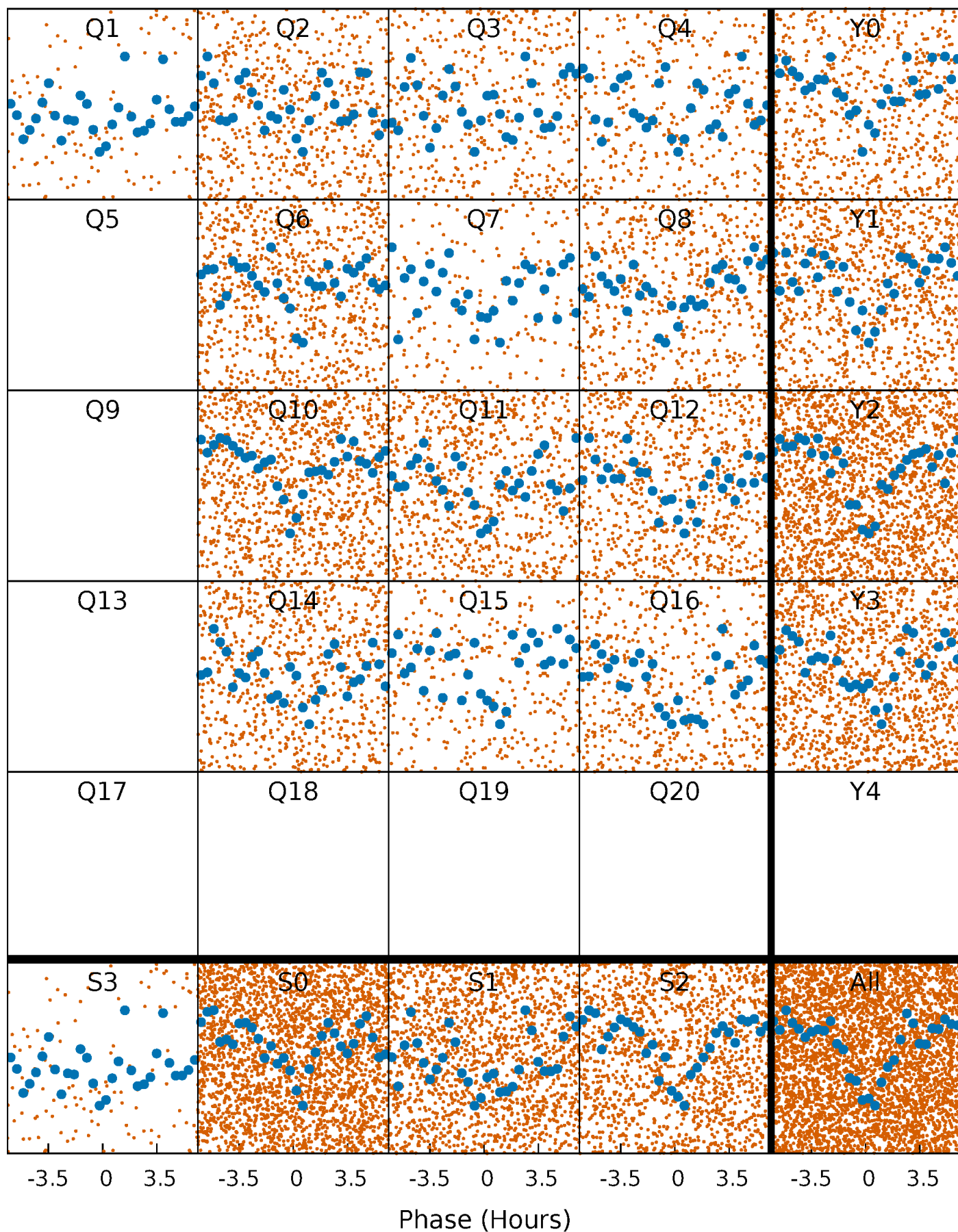


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

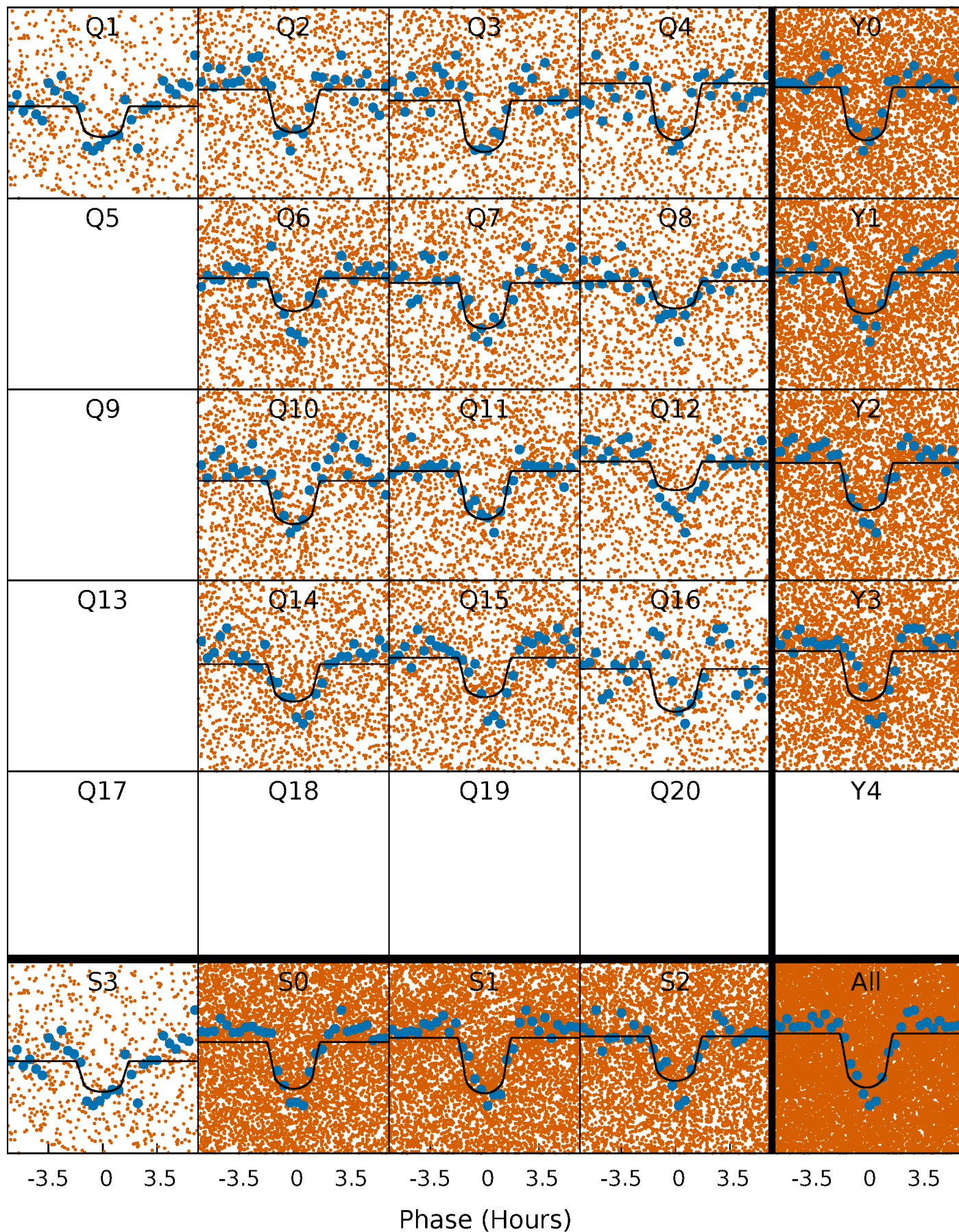
TCE 005513897-01 P= 0.755098 Days  $T_0=131.811640$  (BKJD)





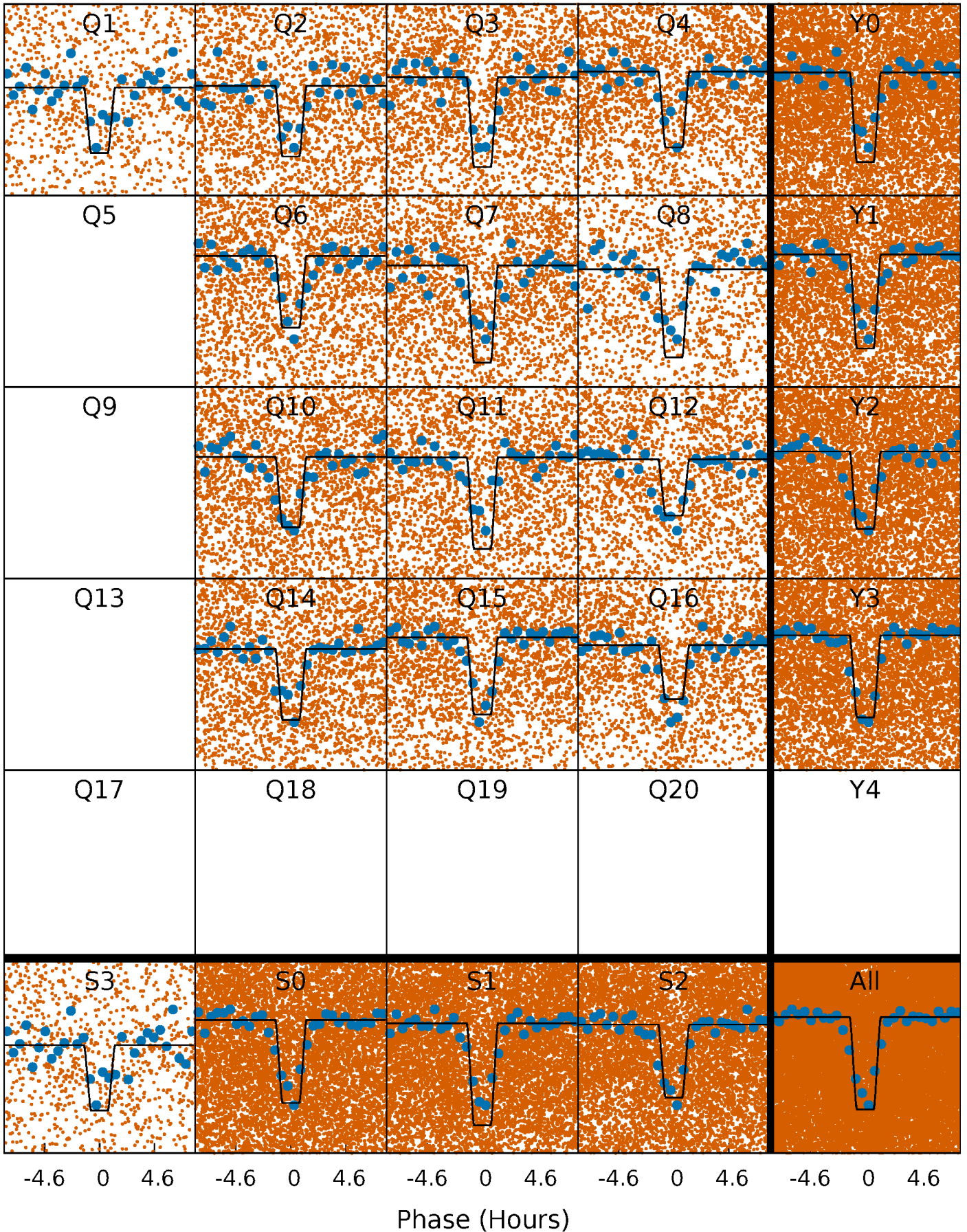
# DV Quarter-Phased Transit Curves

TCE 005513897-01   P= 0.755098 Days    $T_0=131.811640$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005513897-01 P= 0.755119 Days  $T_0=131.800821$  (BKJD)

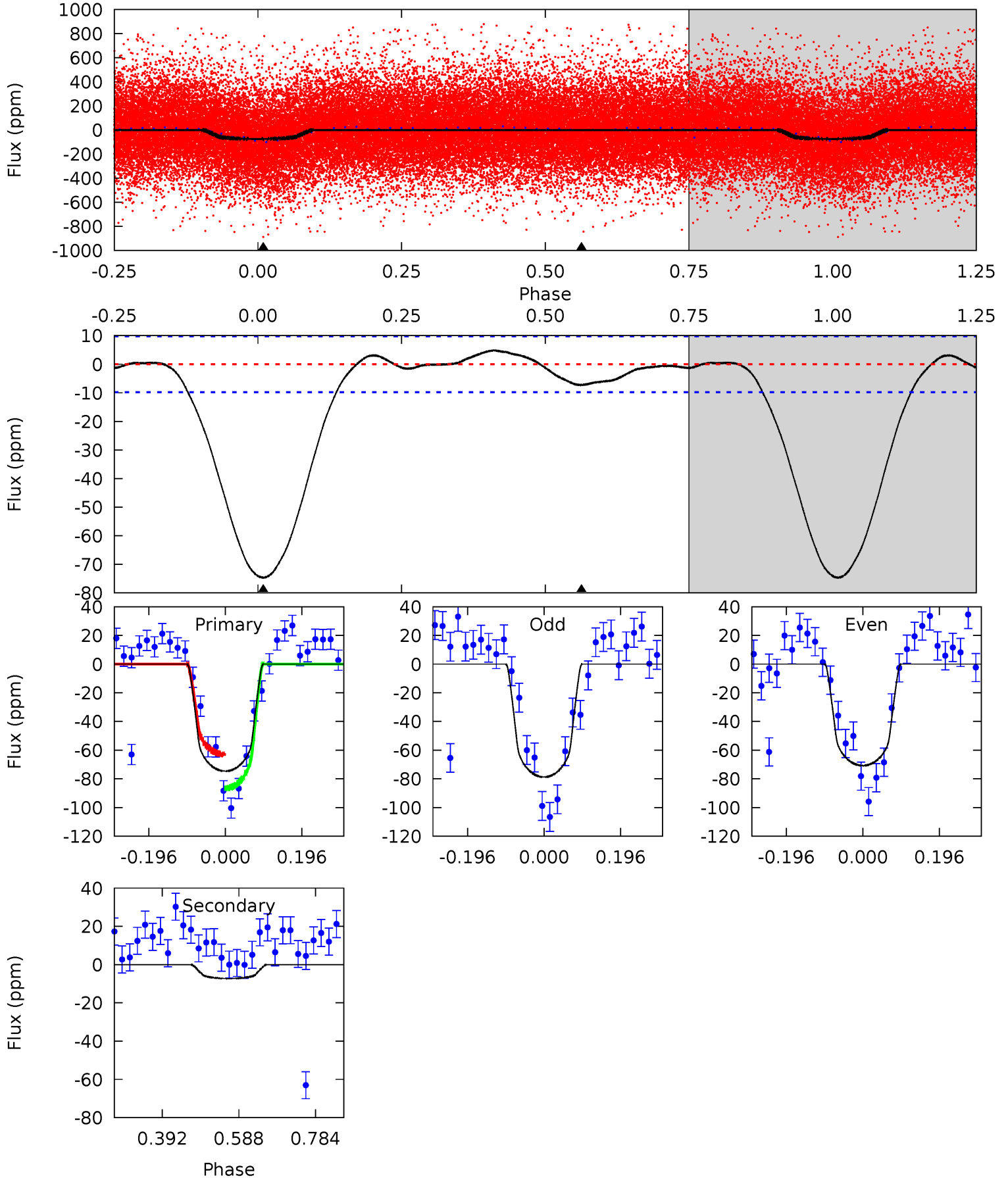




# DV Model-Shift Uniqueness Test

005513897-01, P = 0.755098 Days, E = 131.056542 Days

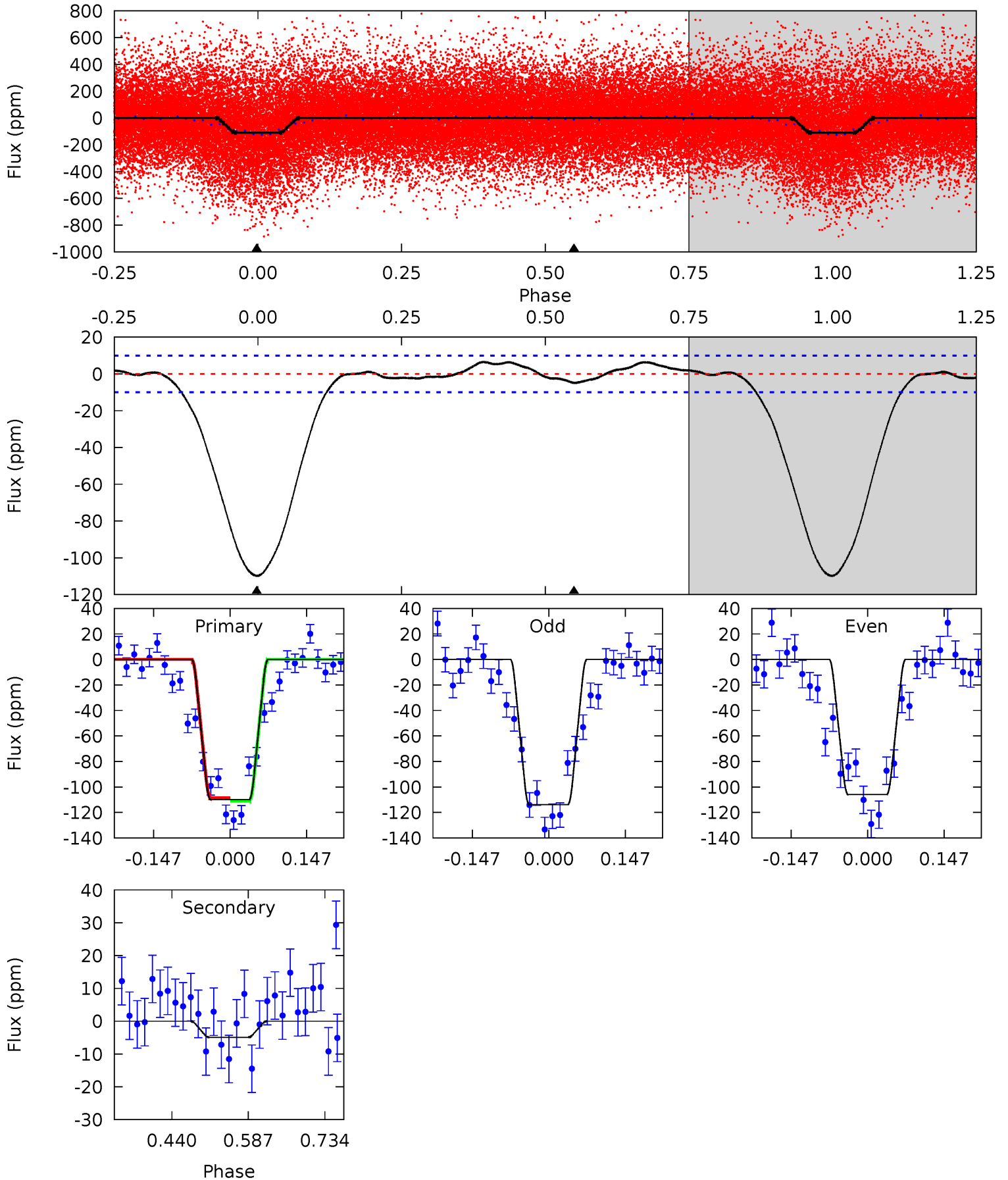
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.8	3.30	0	0	4.42	1.29	0.47	33.8	33.8	3.30	3.30	1.82	1.02	0.06	5.35



# Alt Model-Shift Uniqueness Test

005513897-01, P = 0.755119 Days, E = 131.045702 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
49.3	2.21	0	0	4.48	1.45	1.04	49.3	49.3	2.21	2.21	1.77	0.98	0.06	0.57



### Stellar Parameters For KIC 005513897

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5452^{+164}_{-147}$	$4.572^{+0.036}_{-0.144}$	$-0.040^{+0.300}_{-0.300}$	$0.815^{+0.175}_{-0.063}$	$0.910^{+0.074}_{-0.099}$	$2.366^{+0.459}_{-0.973}$
	+3%/-3%	+1%/-3%	+750%/-750%	+21%/-8%	+8%/-11%	+19%/-41%
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 005513897-01 / KOI 2591.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-7 \pm 2$	$0.87^{+0.28}_{-0.26}$	$2460^{+130}_{-90}$	$3277^{+504}_{-404}$	$1.265^{+1.487}_{-0.588}$
Alt.	$-5 \pm 2$	$1.06^{+0.27}_{-0.29}$	$2464^{+136}_{-89}$	$2731^{+454}_{-4847}$	$0.572^{+0.514}_{-0.299}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

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

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

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



## DV Centroid Data

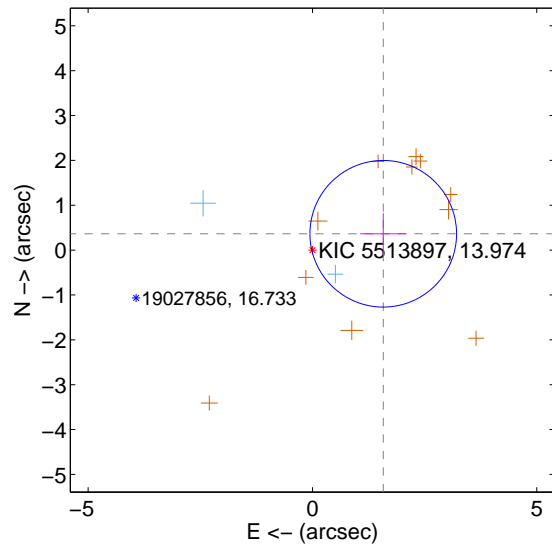
Supplemental centroid analysis for 005513897-01. Kepler magnitude: 13.97. Transit SNR 19.67

There are 2 quarters with good PRF difference image offsets

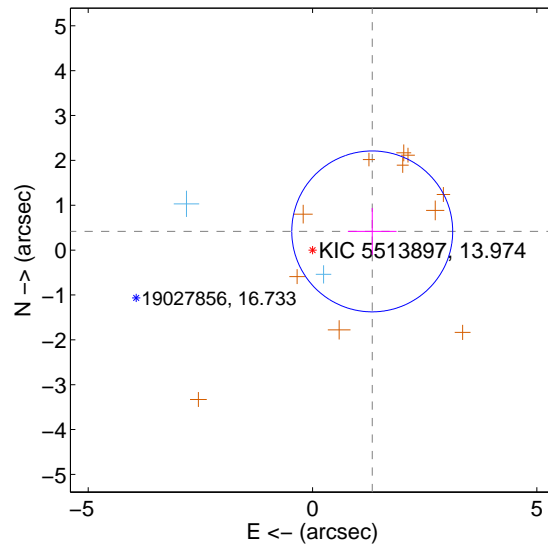
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.620 \pm 0.545$	2.97	$-1.579 \pm 0.517$	$0.364 \pm 0.460$
PRF-fit source offset from KIC position	$1.395 \pm 0.598$	2.33	$-1.331 \pm 0.543$	$0.417 \pm 0.522$
photometric centroid source offset	$2.87 \pm 0.54$	5.28	$-2.83 \pm 0.54$	$0.43 \pm 0.57$

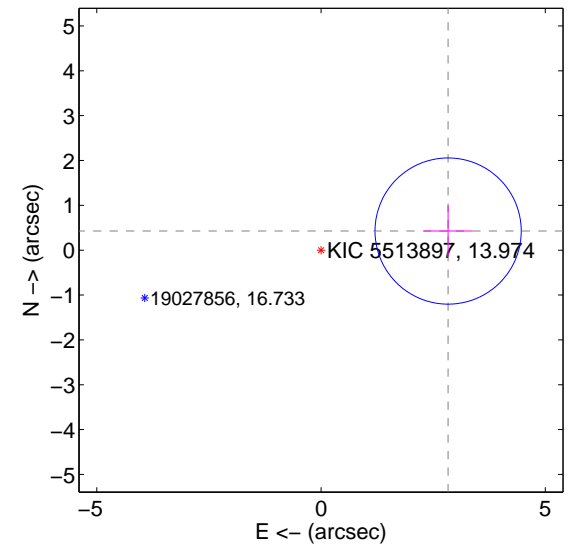
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

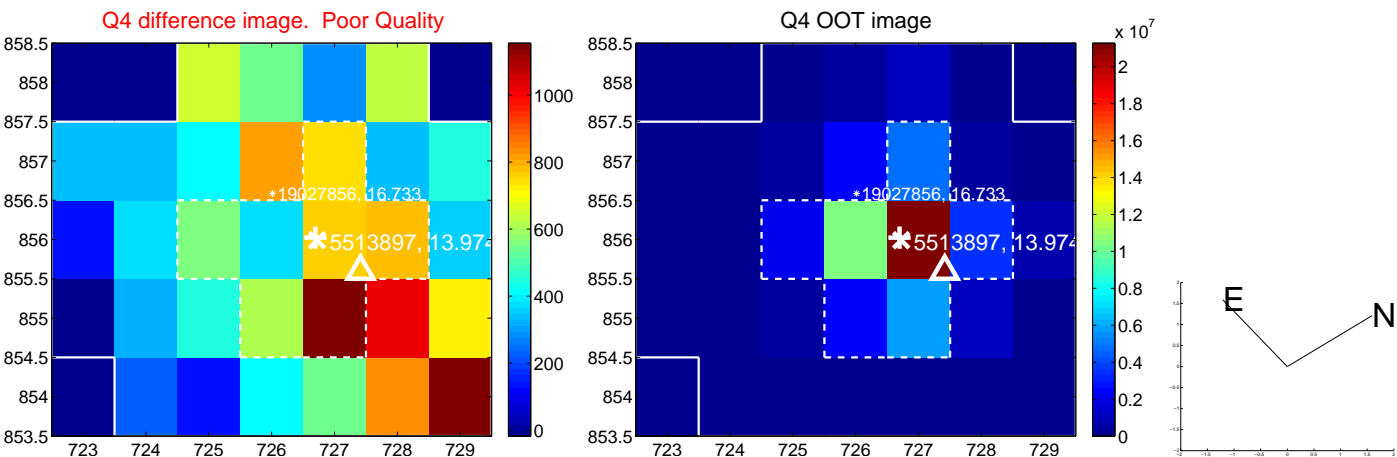
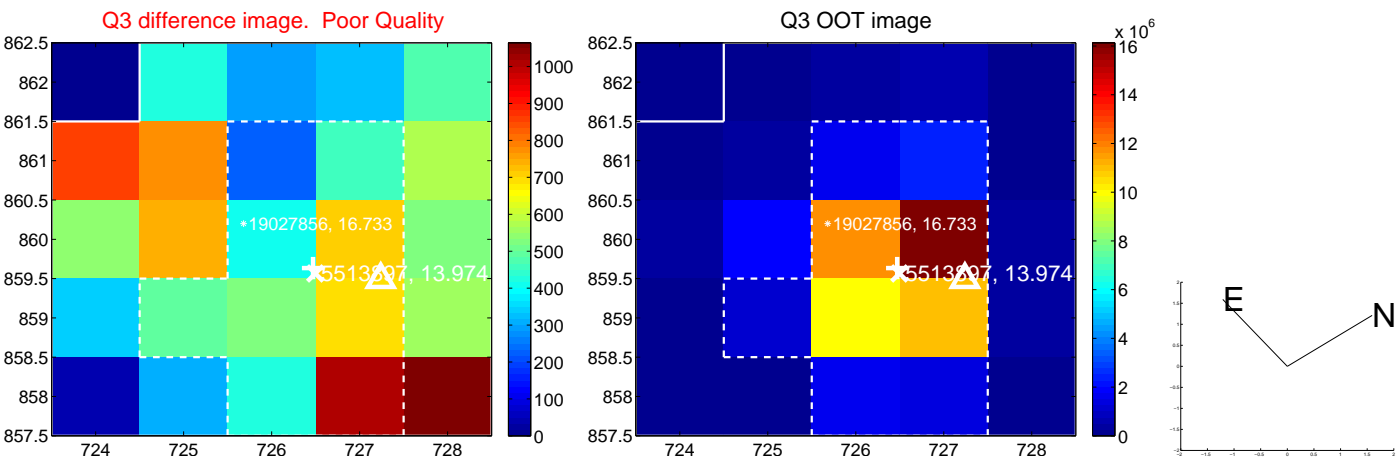
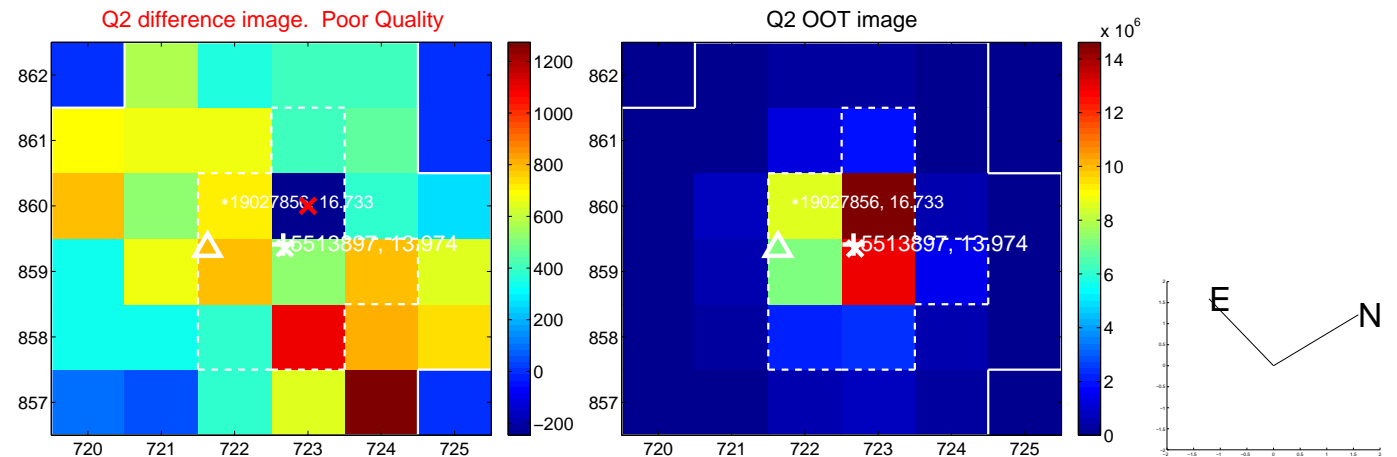
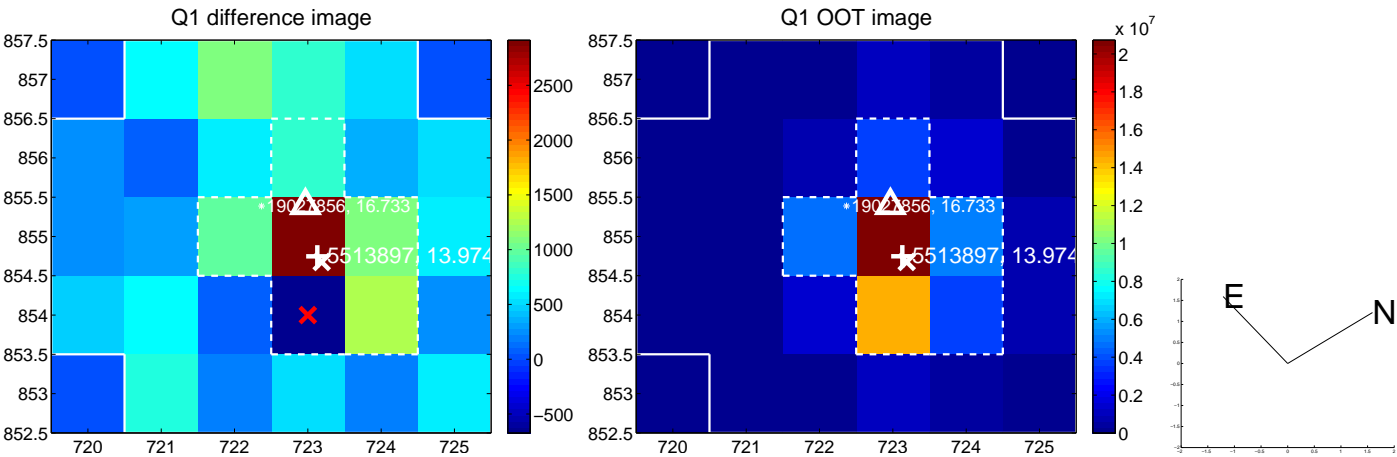


offset from photometric centroids

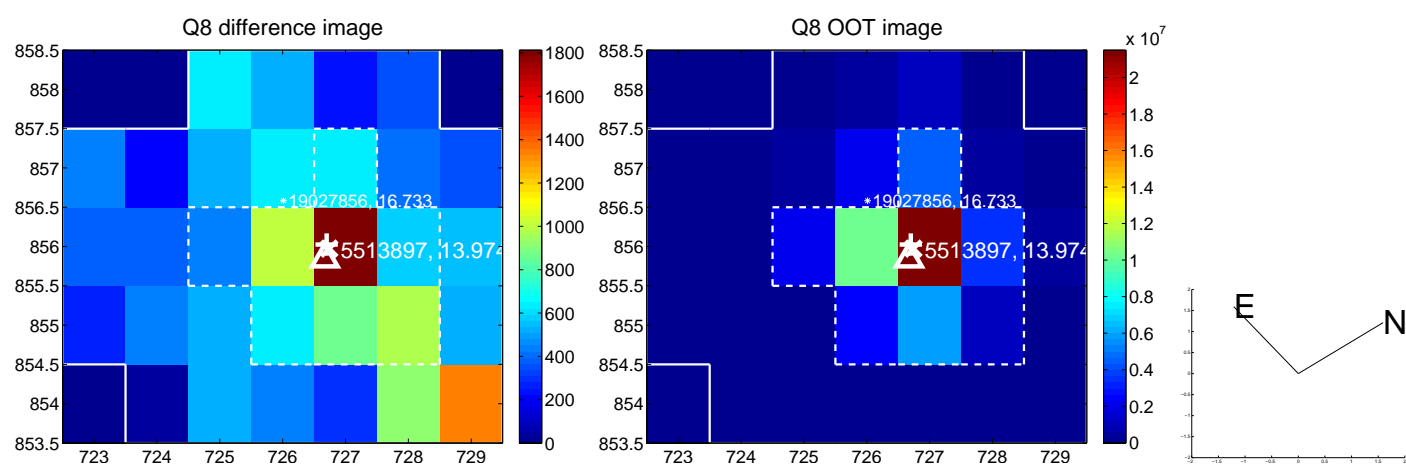
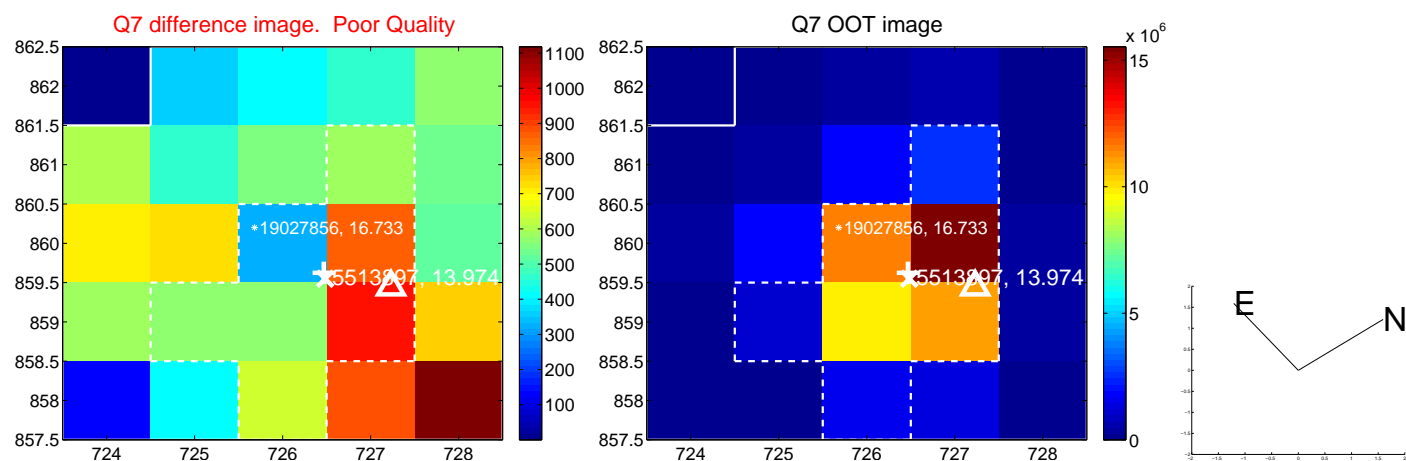
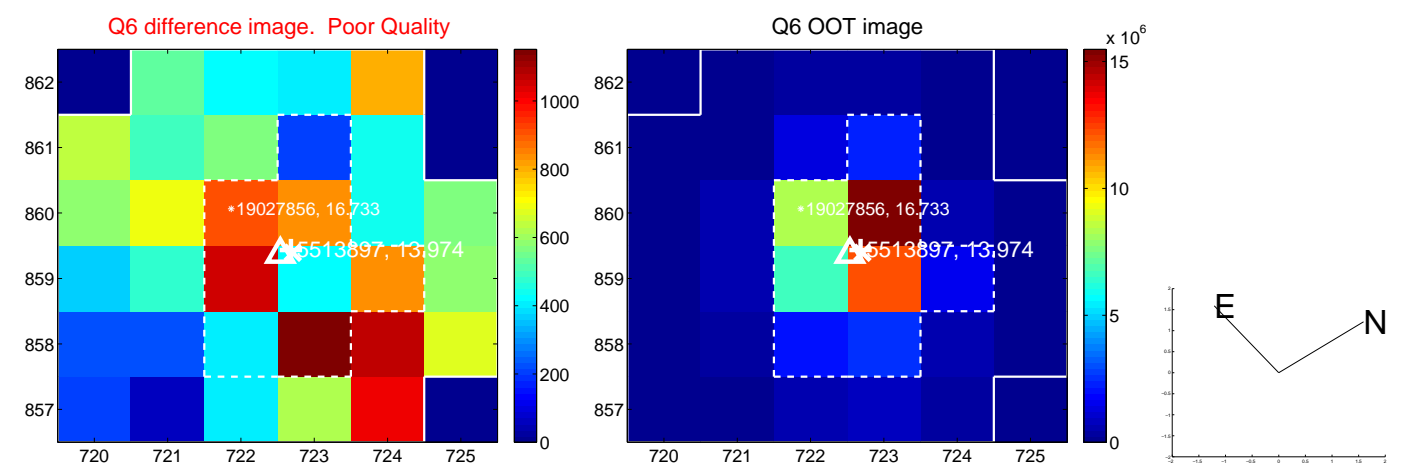
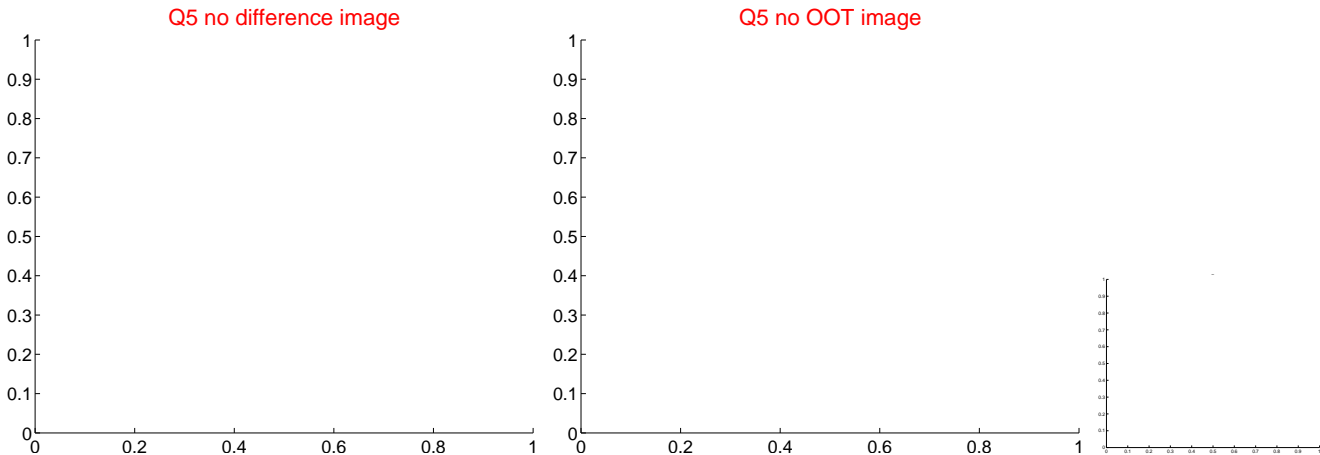


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

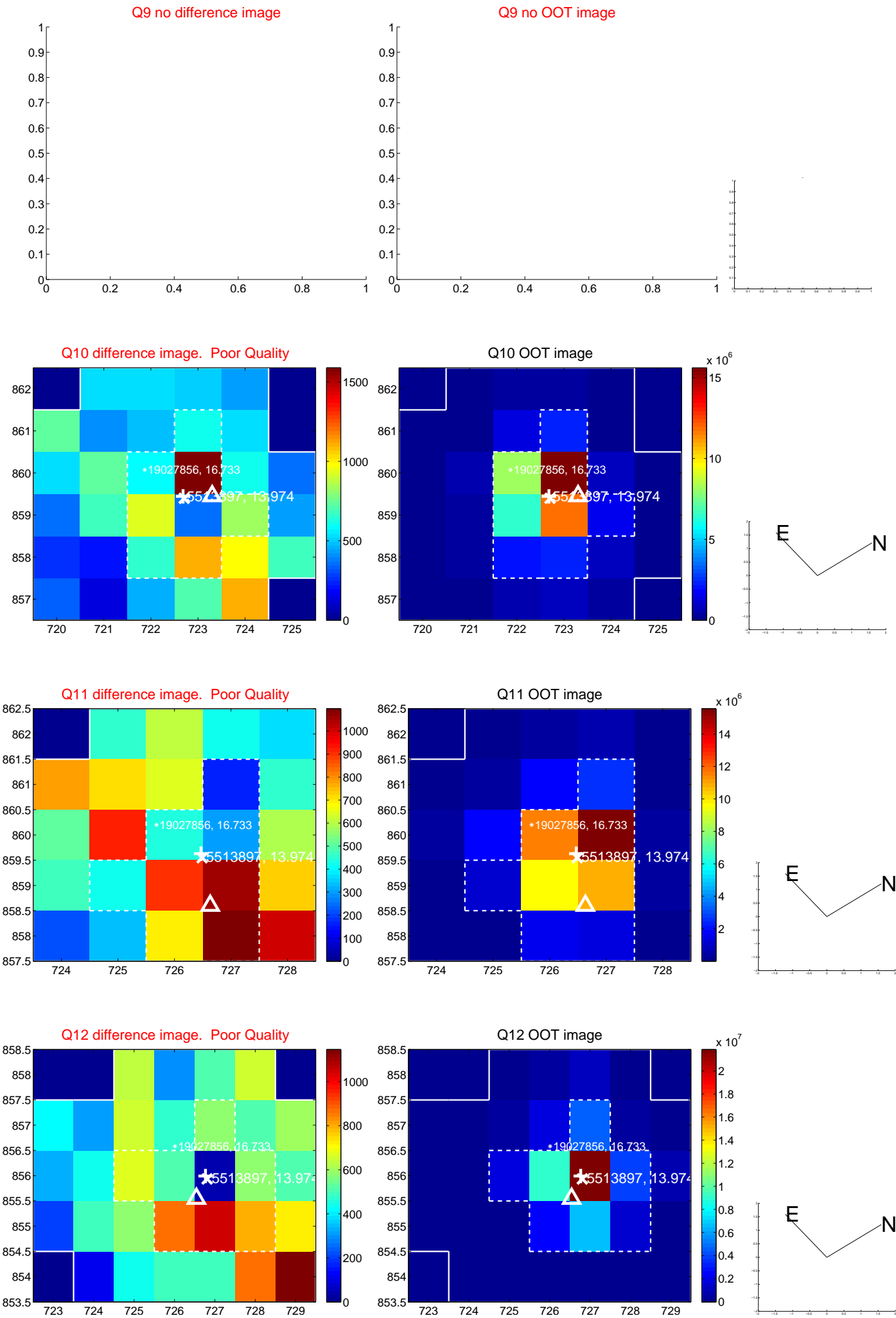
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



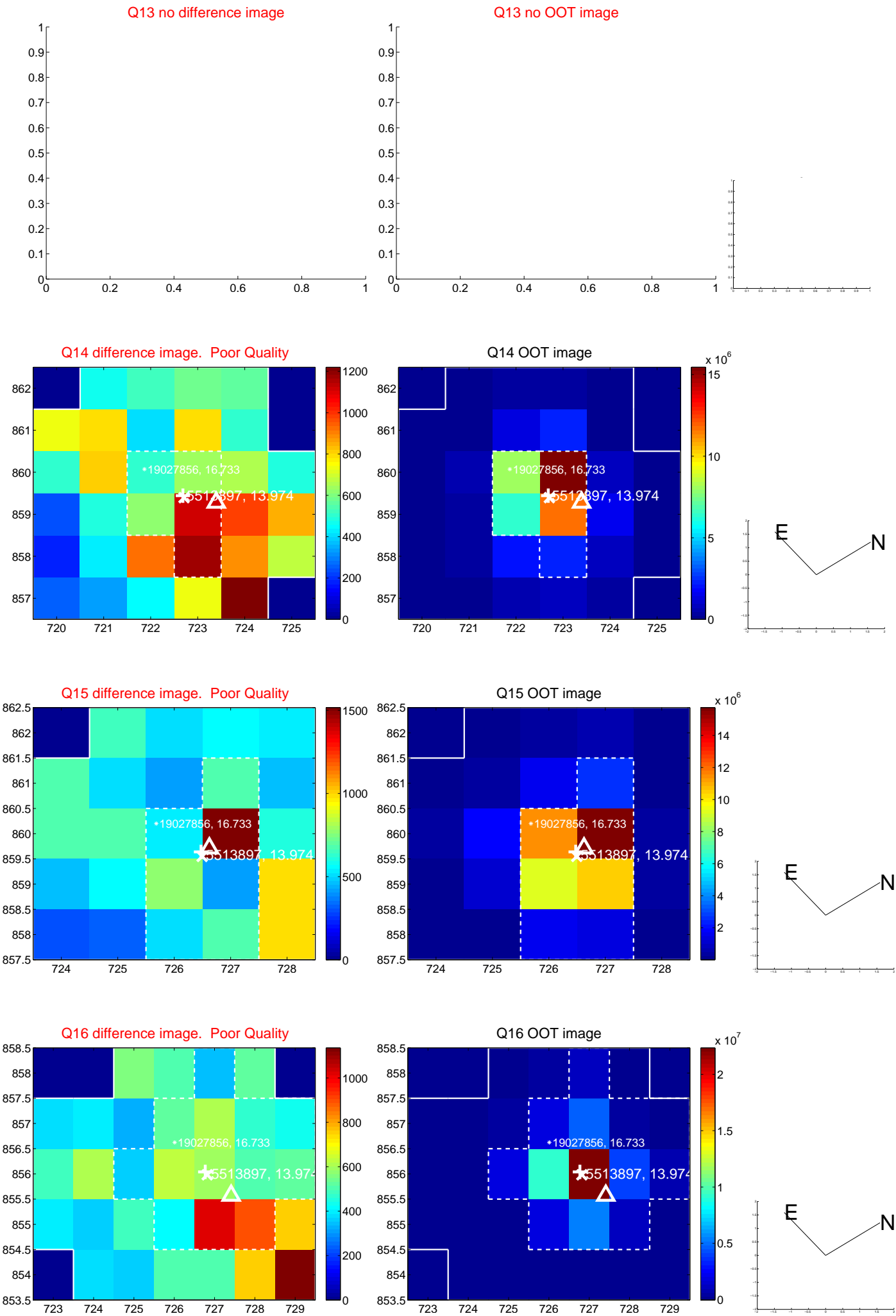
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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

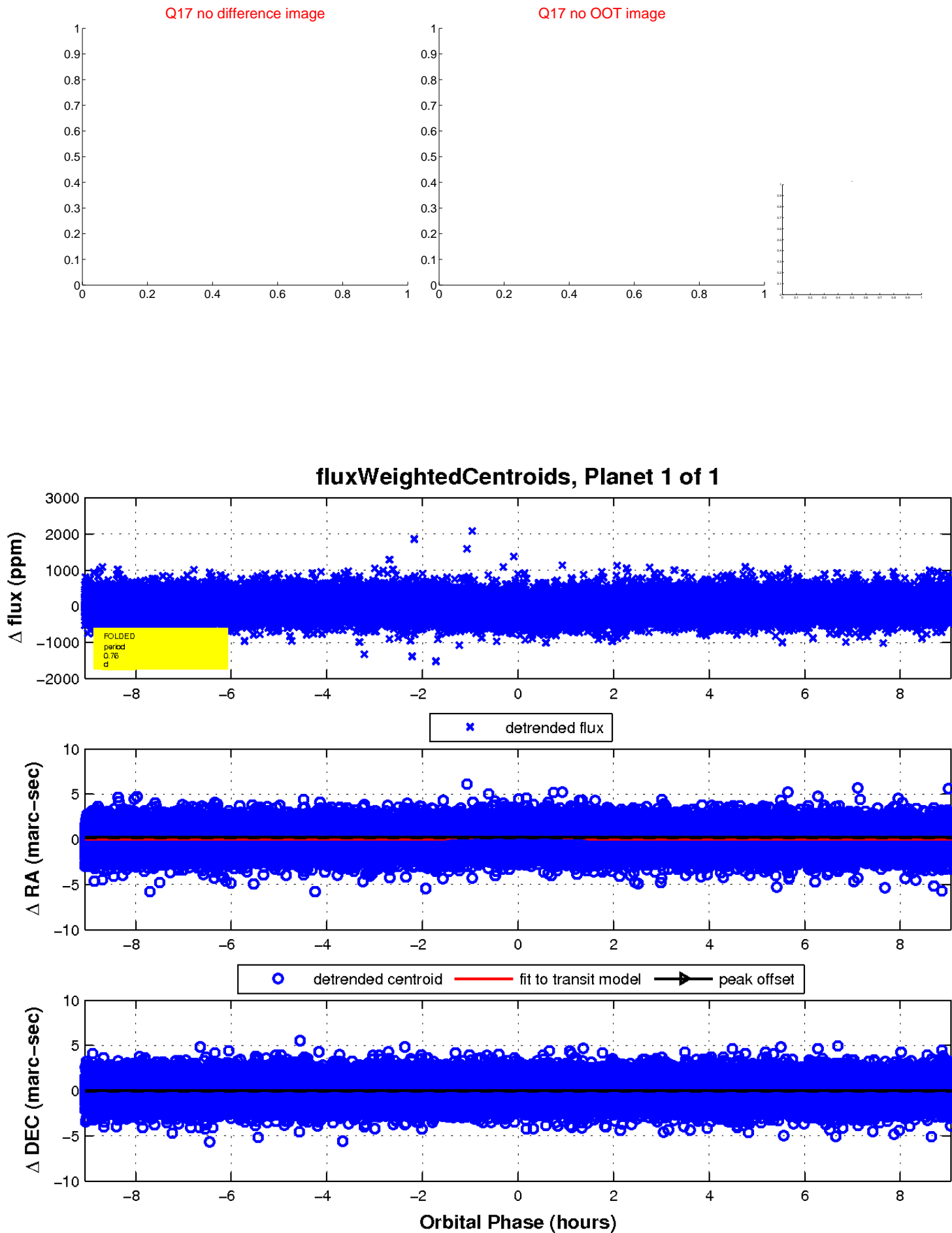


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

