

# KIC 011922678

## 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> )
011922678-01	OBS	2425.01	1.756429	132.043654	53.1	3.397	18.5	19.5	1.17	6453	1.00	2522.85

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011922678-01	OBS	FP	0.00	0	0	1	1	HALO_GHOST—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 011922678-01

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>
011922678-01	11922678	011922782-pri	11922782	1:2	106.3	20	-18	10.46	13.51	4352.80	Direct-PRF	0	3.21	0.85

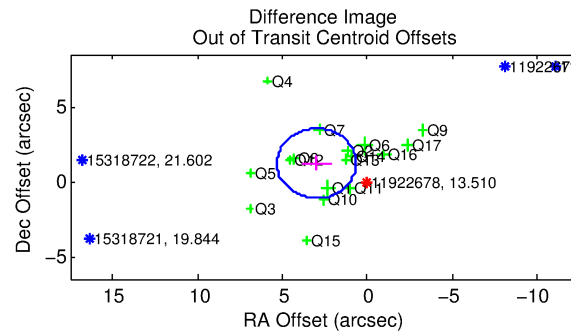
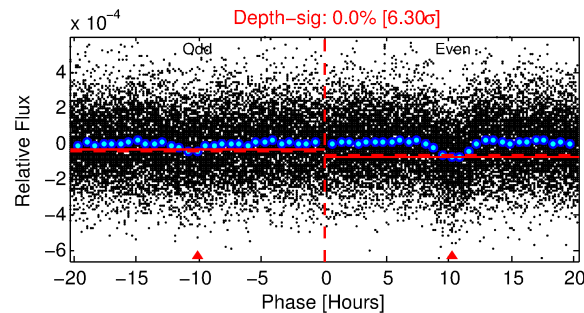
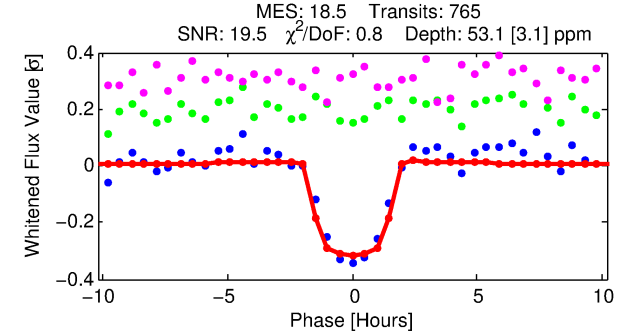
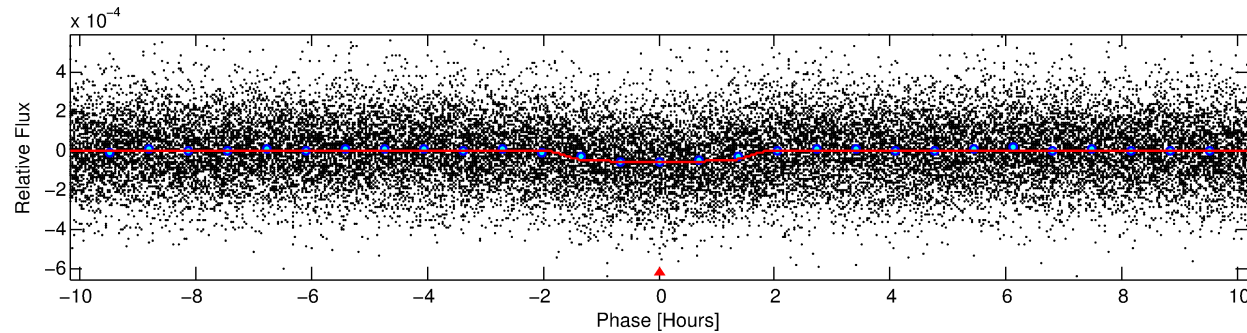
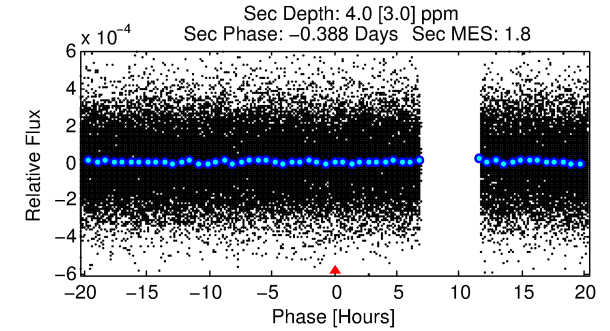
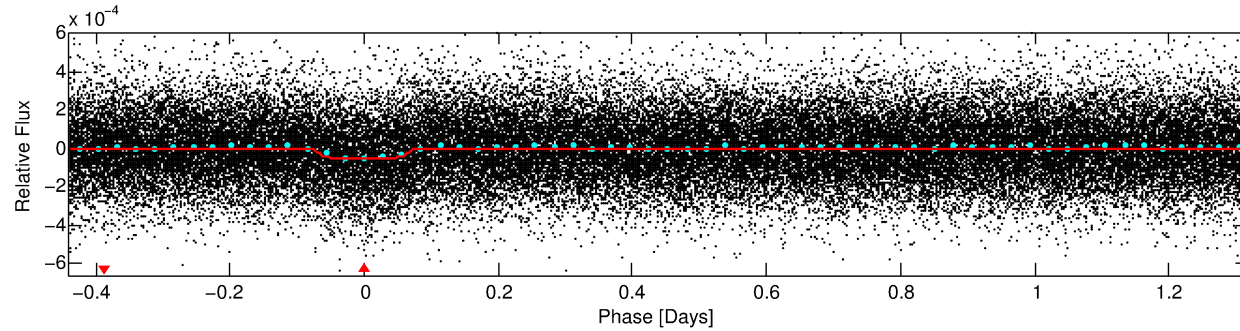
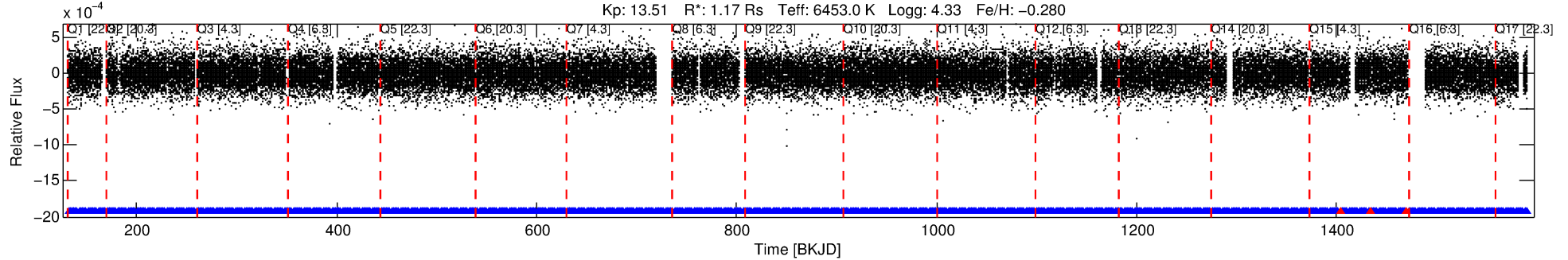
**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided 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: 11922678 Candidate: 1 of 1 Period: 1.756 d

KOI: K02425 Corr: No Ephemeris Match

Kp: 13.51 R\*: 1.17 Rs Teff: 6453.0 K Logg: 4.33 Fe/H: -0.280



## DV Fit Results:

Period = 1.75643 [0.00001] d  
Epoch = 132.0437 [0.0023] BKJD  
Rp/R\* = 0.0079 [0.0021]  
a/R\* = 1.96 [2.21]  
b = 0.91 [0.29]  
Seff = 2522.85 [962.14]  
Teq = 1807 [172] K  
Rp = 1.00 [0.40] Re  
a = 0.0290 [0.0073] AU  
Ag = 1.83 [1.82] [0.45σ]  
Teffp = 3248 [760] K [1.85σ]

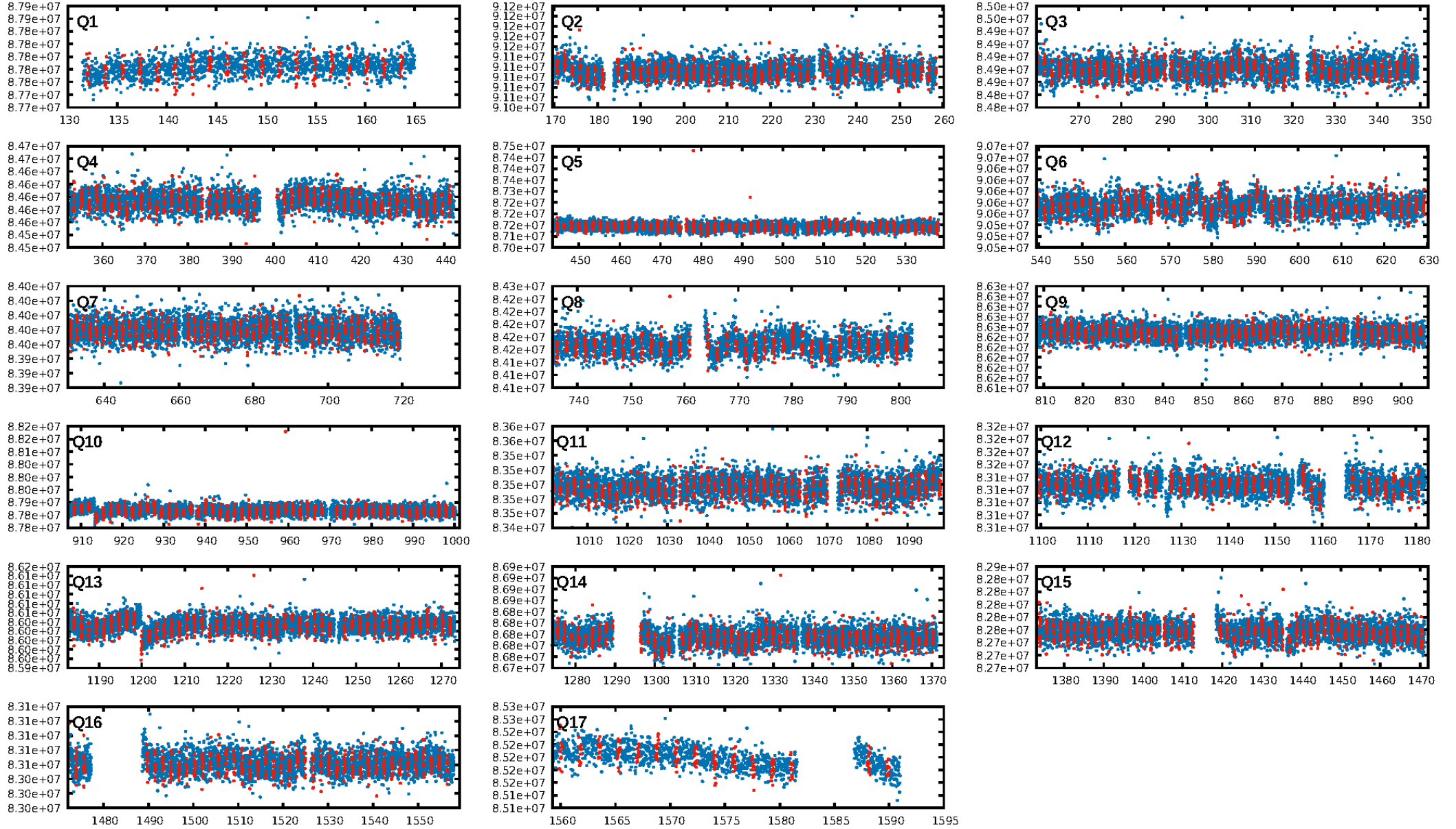
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.33e-72  
RollingBand-fgt: 1.00 [728/731]  
GhostDiagnostic-chr: 0.1957  
Centroid-sig: 0.0%  
Centroid-so: 4.474 arcsec [7.47σ]  
OotOffset-rm: 3.223 arcsec [4.15σ]  
KicOffset-rm: 3.238 arcsec [4.26σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.06 [1/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:31:50 Z

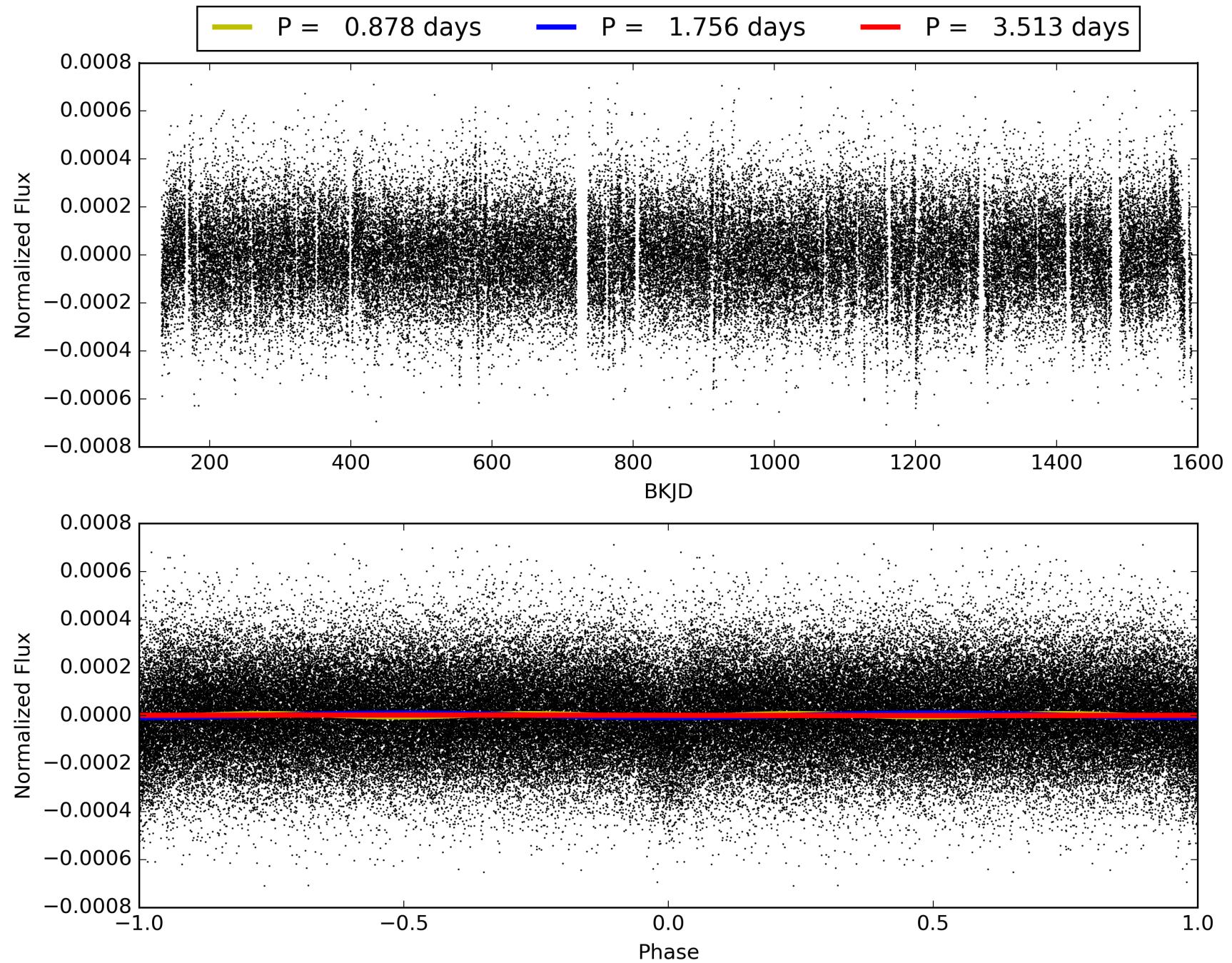
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011922678-01, PDC Light Curves



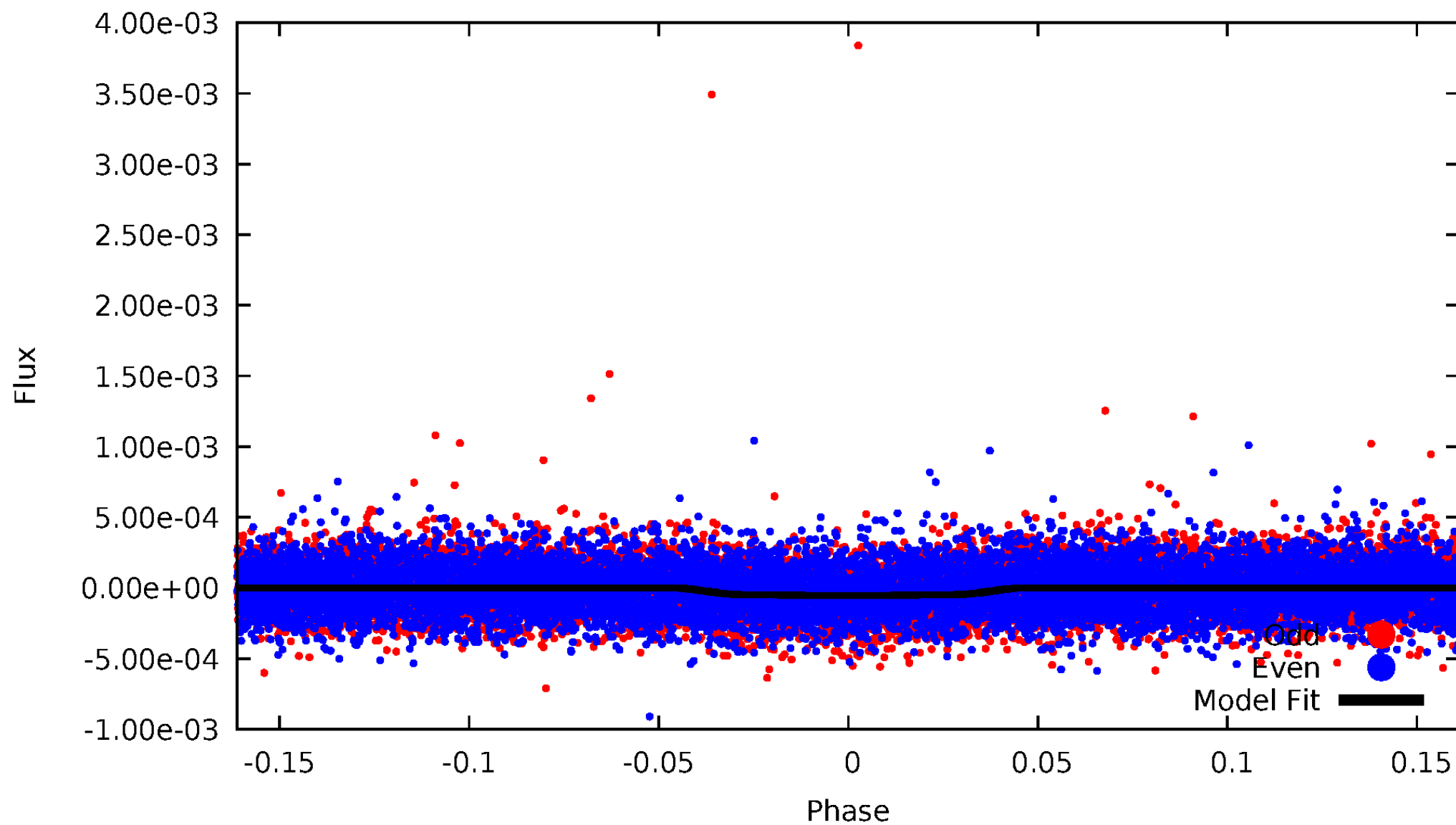


TCE 011922678-01



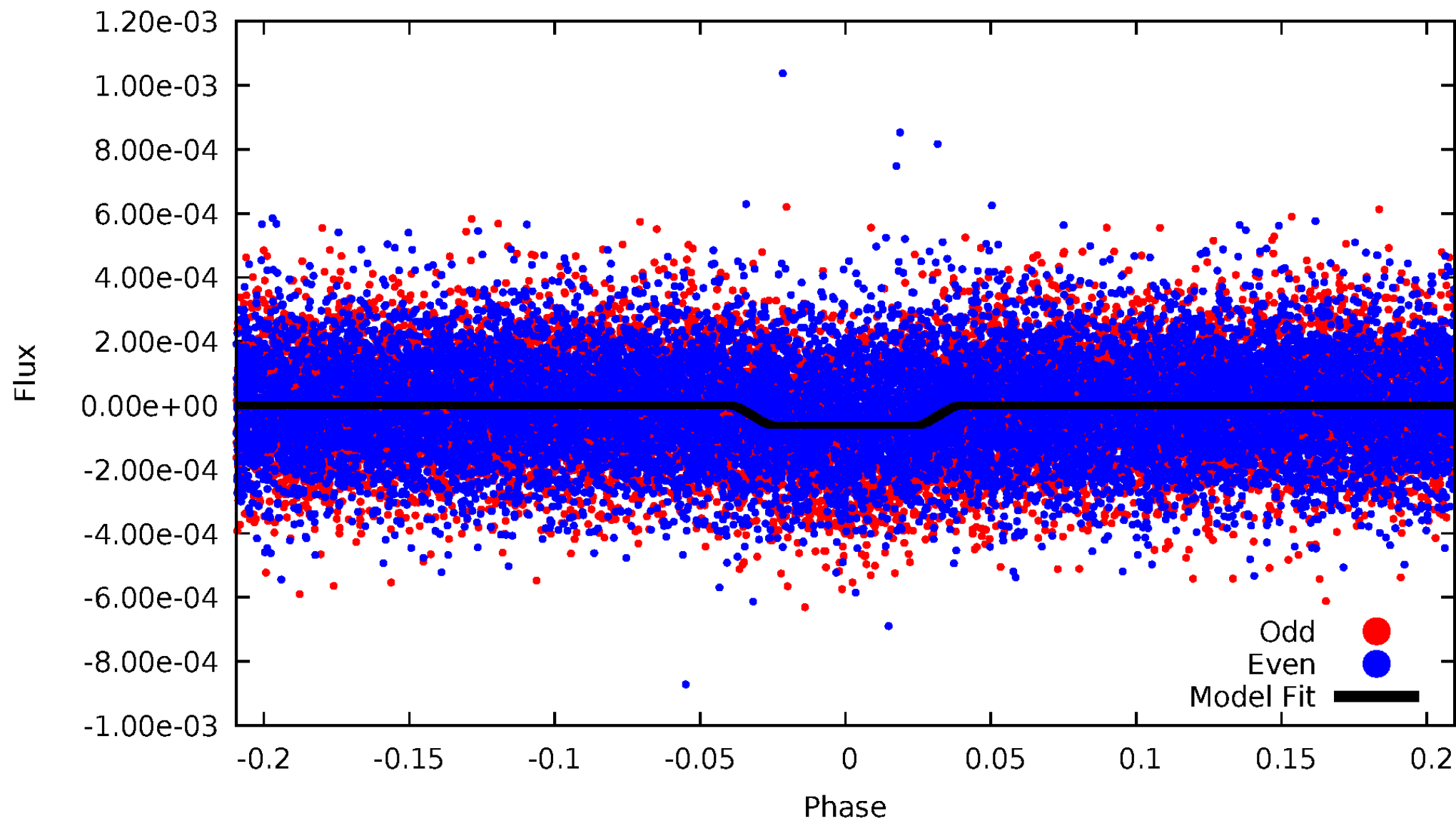
# DV Odd/Even

TCE 011922678-01



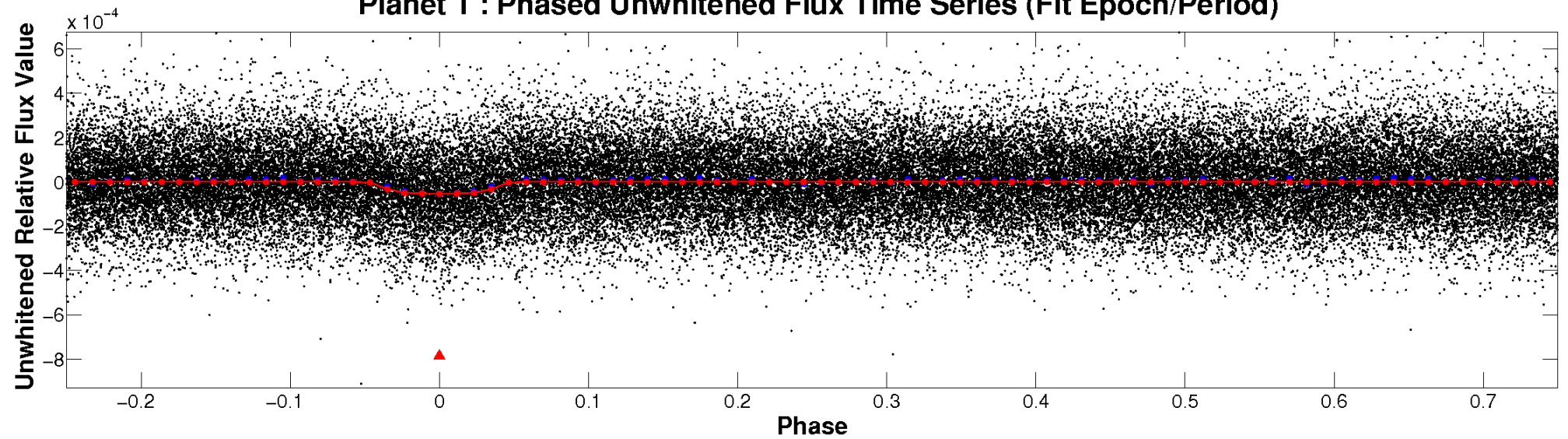
# ALT Odd/Even

TCE 011922678-01

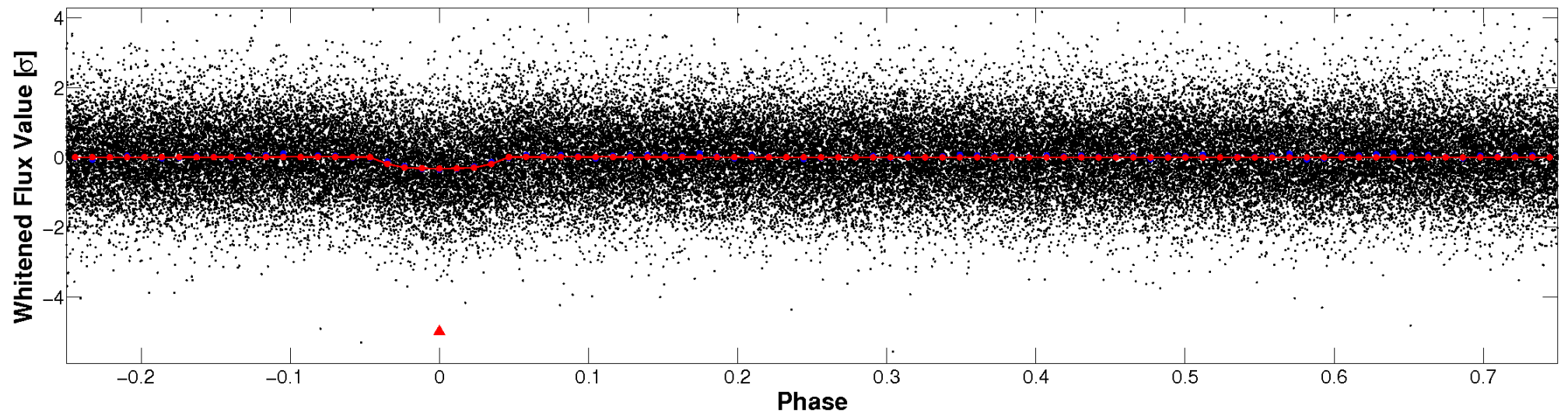


# Non-Whitened Vs. Whitened Light Curve

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



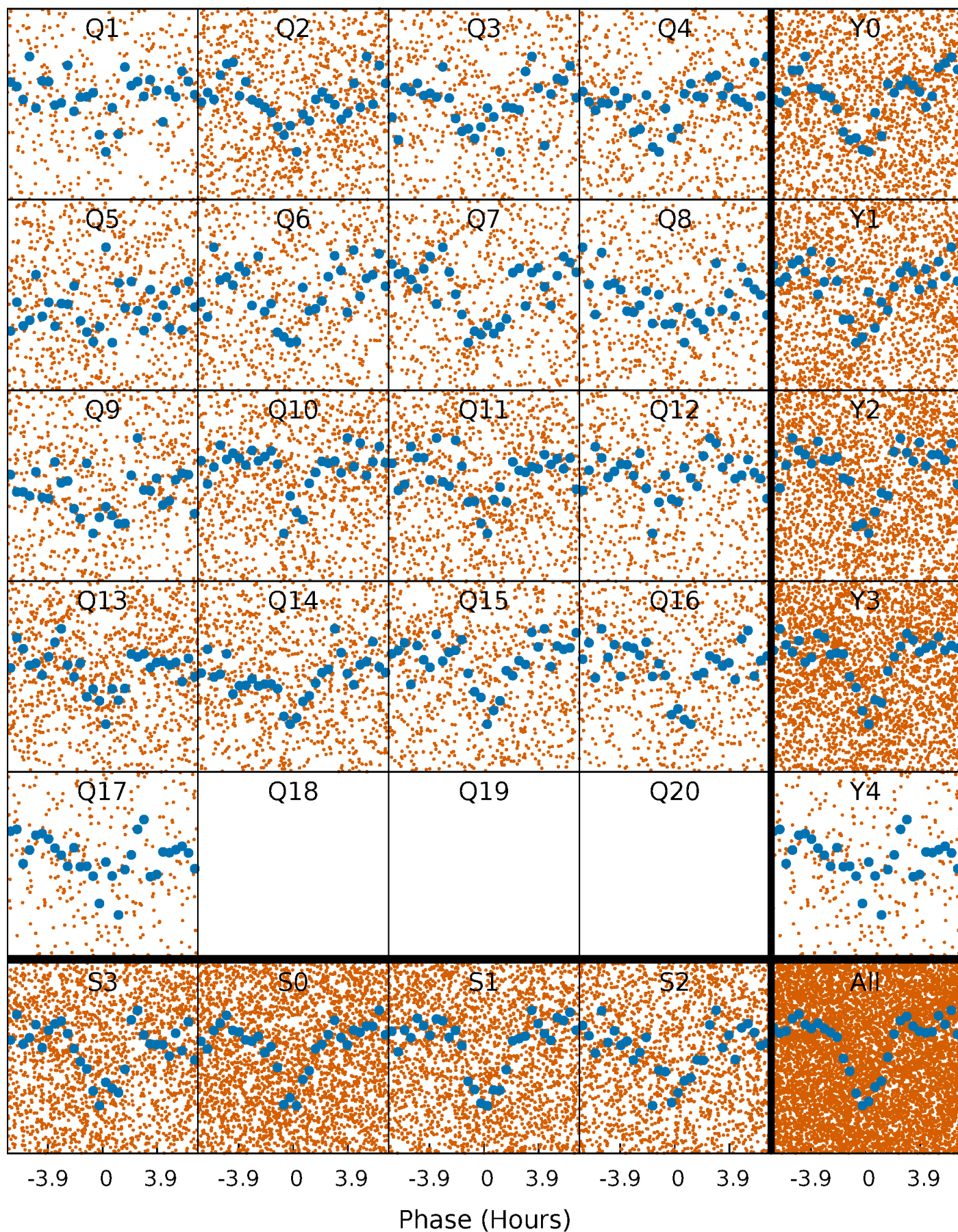
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

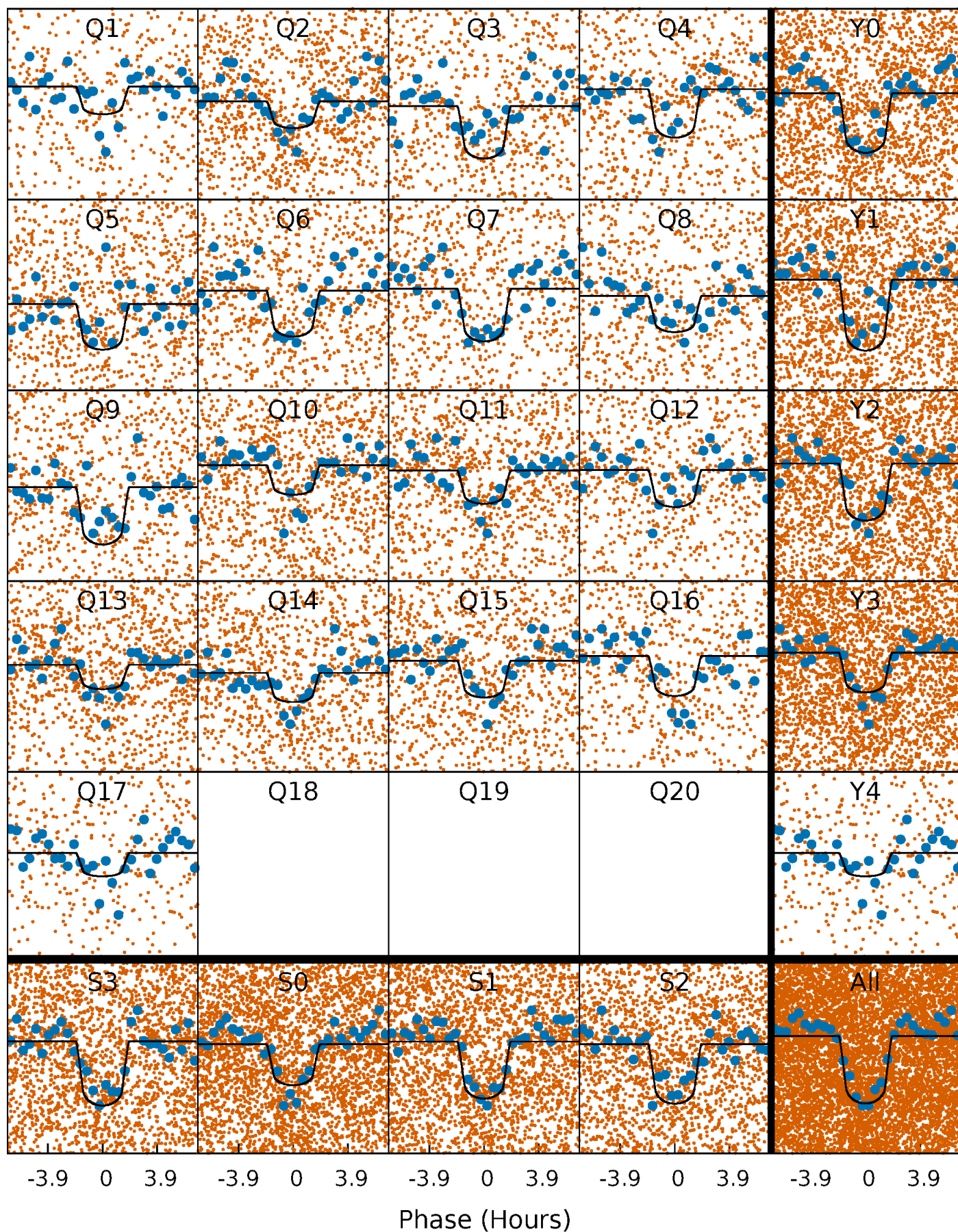
TCE 011922678-01 P= 1.756429 Days  $T_0=132.043654$  (BKJD)





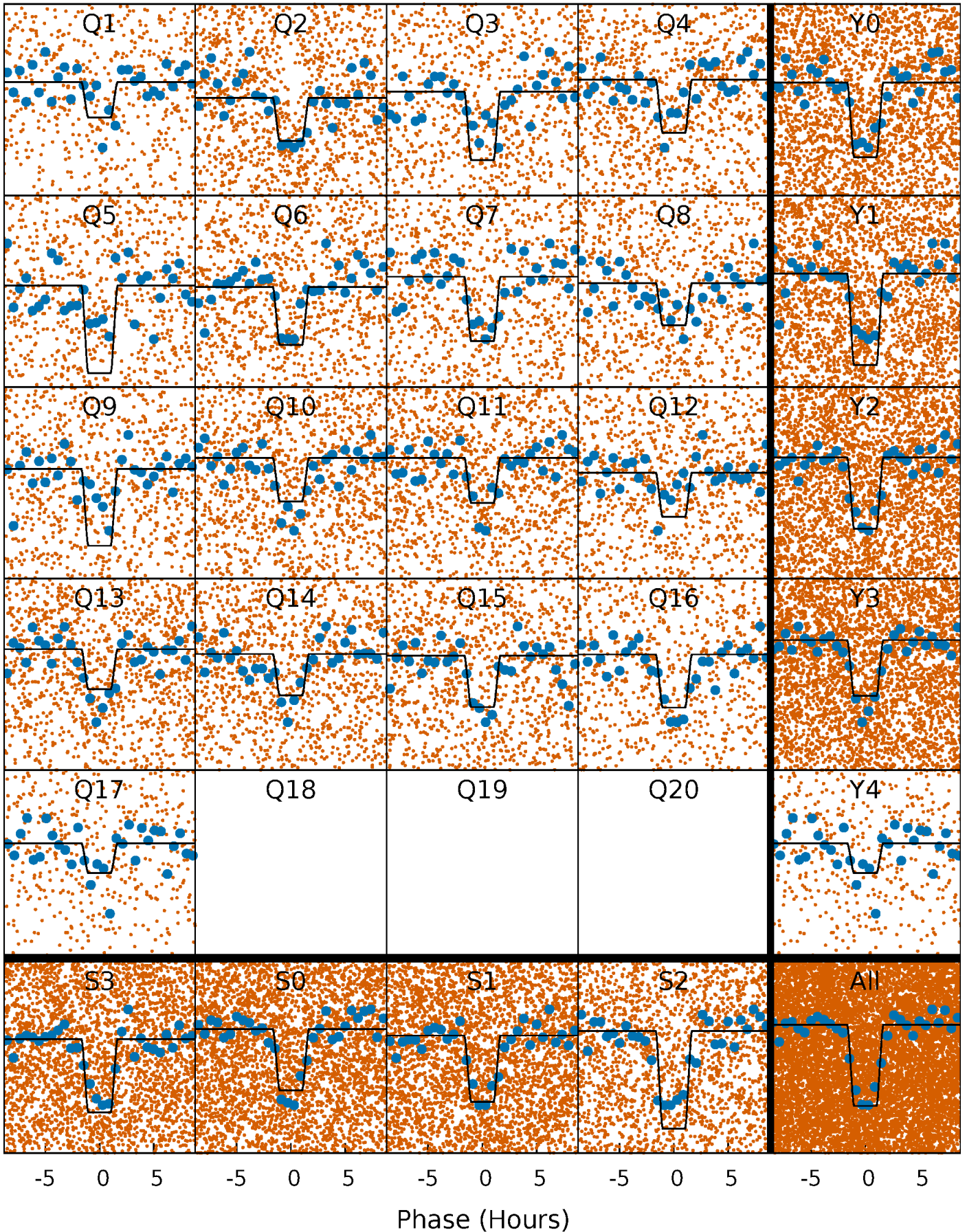
# DV Quarter-Phased Transit Curves

TCE 011922678-01 P= 1.756429 Days  $T_0=132.043654$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 011922678-01 P= 1.756470 Days  $T_0=132.023534$  (BKJD)

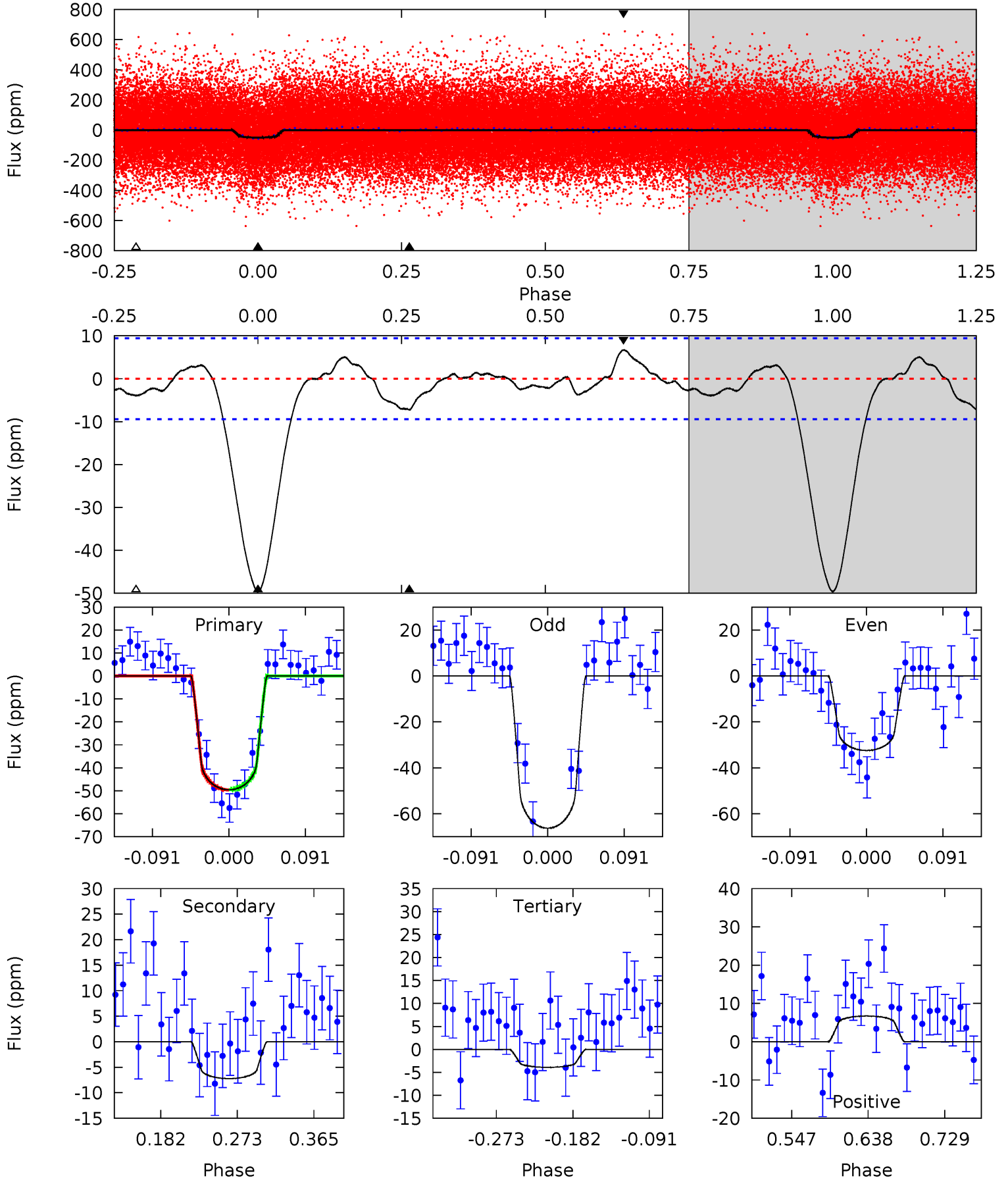




# DV Model-Shift Uniqueness Test

011922678-01, P = 1.756429 Days, E = 130.287225 Days

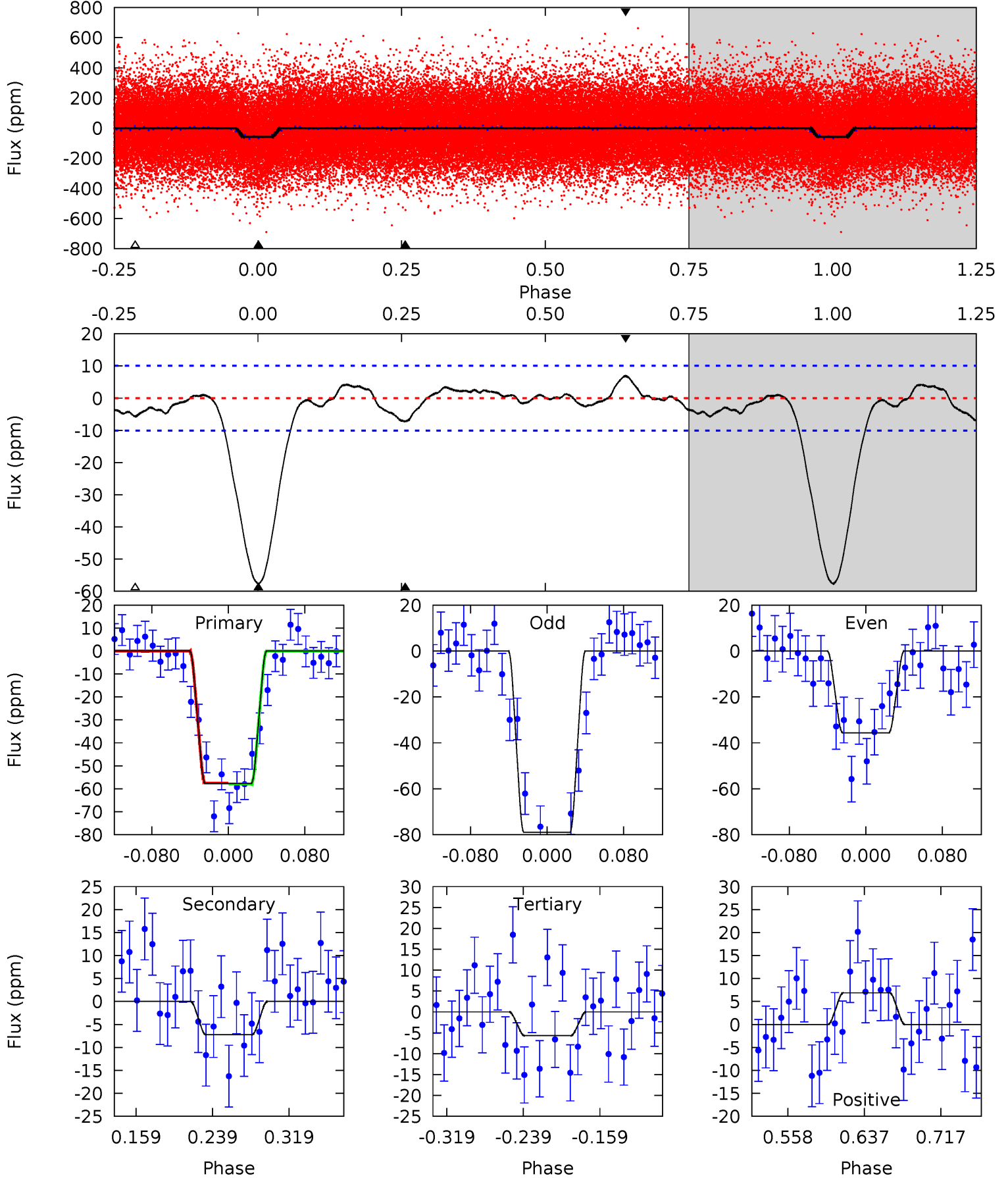
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.1	3.51	1.90	3.27	4.58	1.69	1.24	22.2	20.8	1.61	0.24	8.25	1.00	0.12	0.03



# Alt Model-Shift Uniqueness Test

011922678-01, P = 1.756470 Days, E = 130.267064 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
26.3	3.29	2.60	3.14	4.61	1.75	1.18	23.7	23.2	0.69	0.15	9.89	1.06	0.11	0.11





### Stellar Parameters For KIC 011922678

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6453^{+146}_{-194}$	$4.326^{+0.105}_{-0.195}$	$-0.280^{+0.250}_{-0.300}$	$1.170^{+0.357}_{-0.165}$	$1.053^{+0.177}_{-0.103}$	$0.926^{+0.442}_{-0.479}$
	+2%/-3%	+2%/-5%	+89%/-107%	+31%/-14%	+17%/-10%	+48%/-52%
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 011922678-01 / KOI 2425.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-7 \pm 2$	$1.03^{+0.31}_{-0.29}$	$2546^{+179}_{-130}$	$3961^{+601}_{-396}$	$3.112^{+3.292}_{-1.470}$
Alt.	$-7 \pm 2$	$1.04^{+0.33}_{-0.29}$	$2541^{+181}_{-132}$	$3946^{+585}_{-420}$	$2.998^{+3.168}_{-1.415}$

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

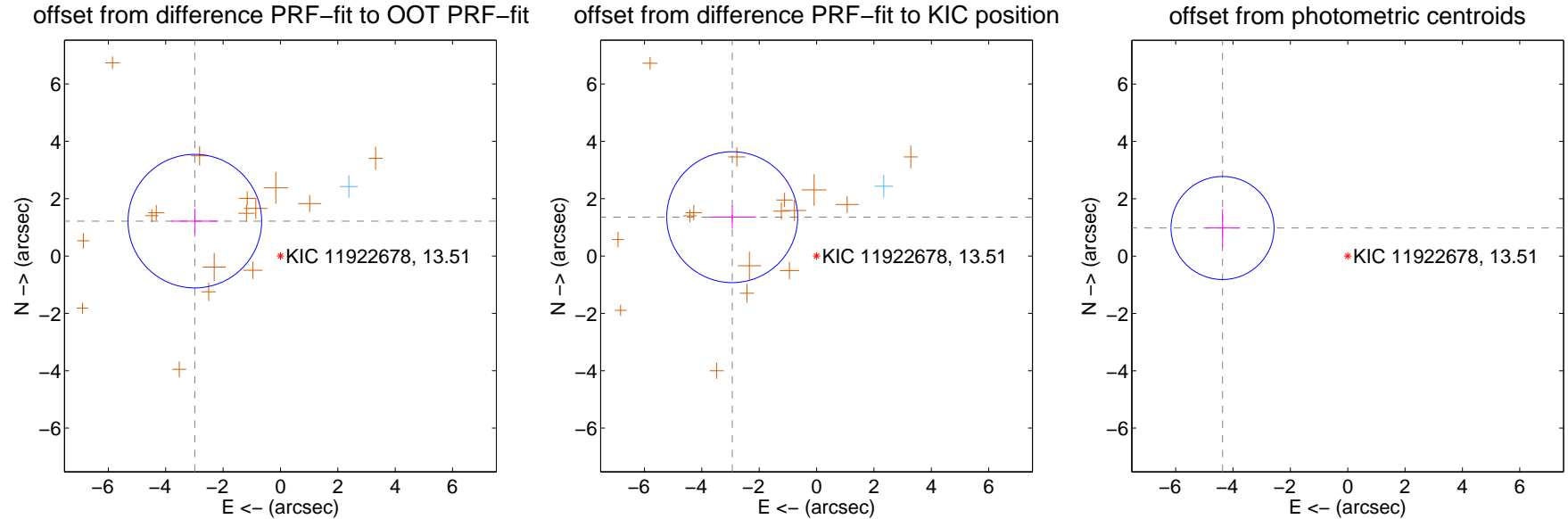
## DV Centroid Data

Supplemental centroid analysis for 011922678-01. Kepler magnitude: 13.51. Transit SNR 19.54

There are 1 quarters with good PRF difference image offsets

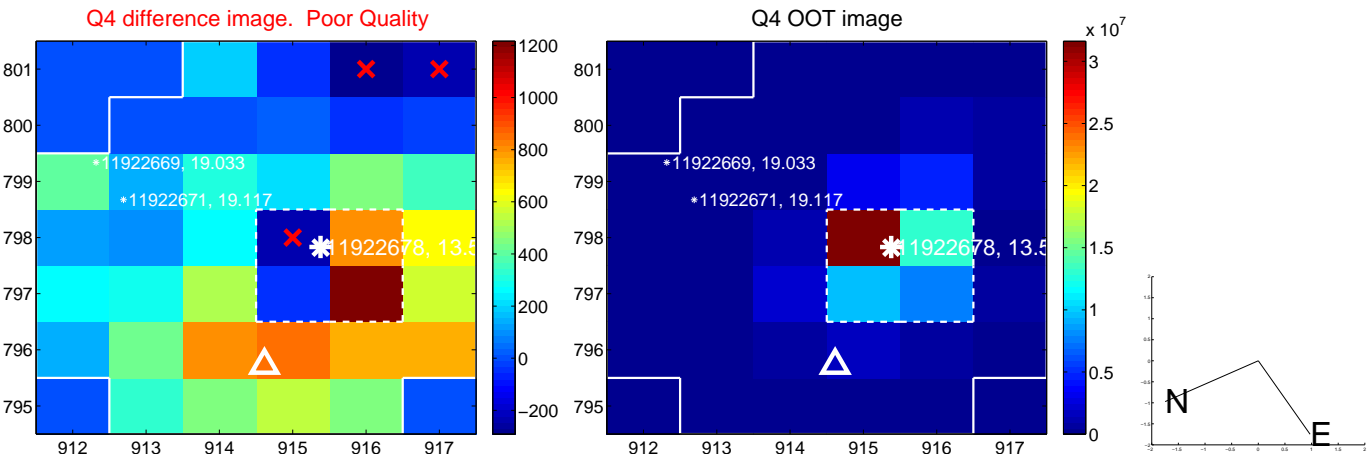
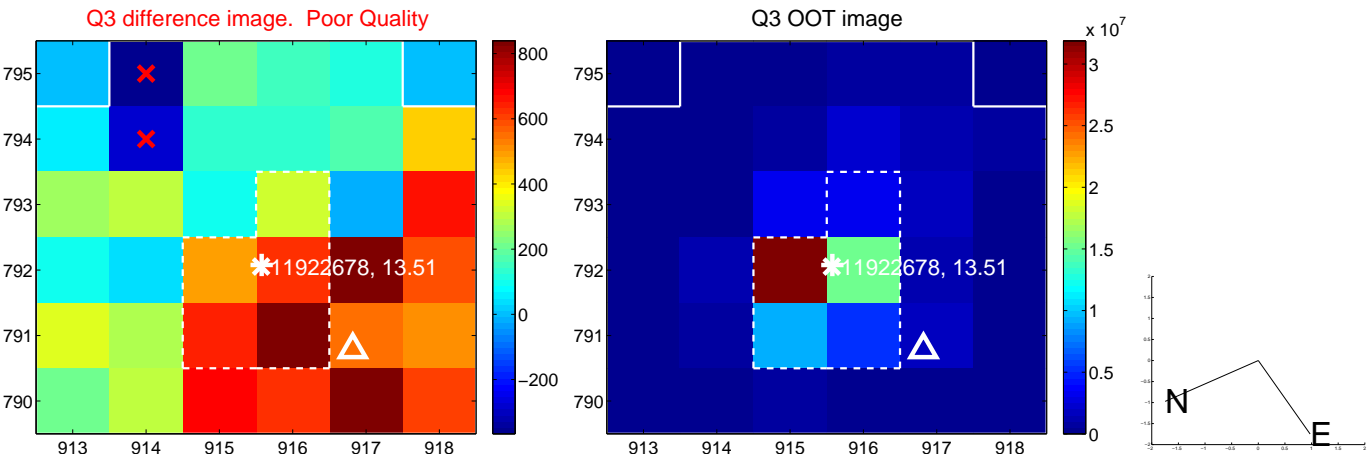
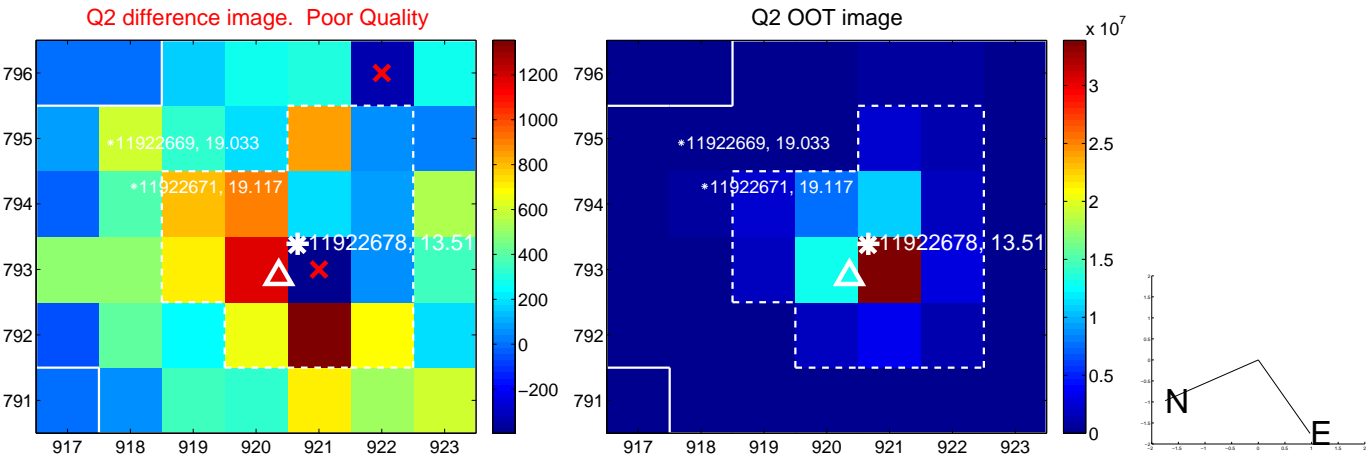
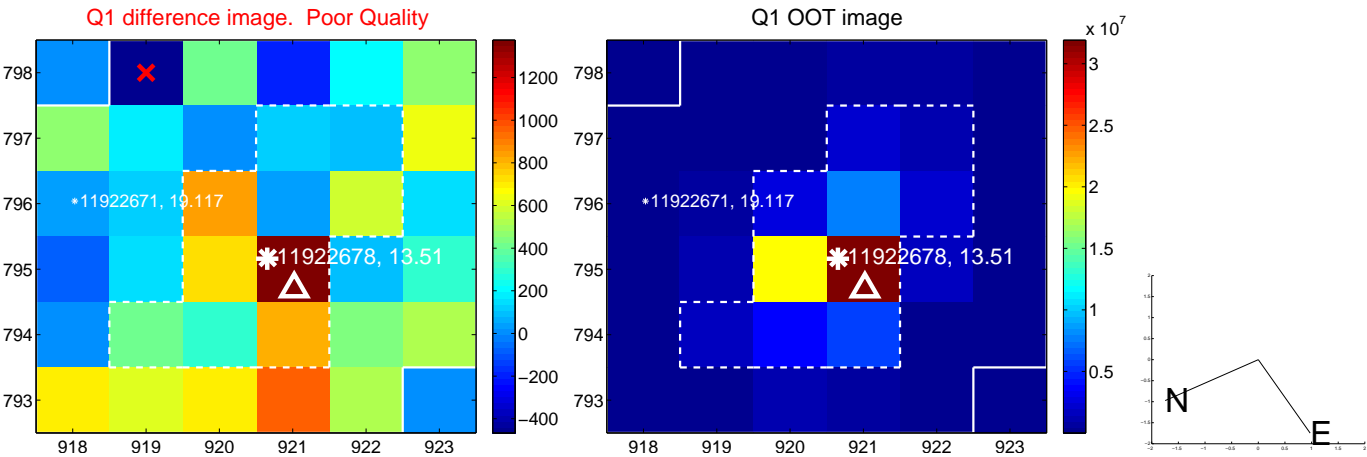
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.223 \pm 0.776$	4.15	$2.985 \pm 0.819$	$1.217 \pm 0.433$
PRF-fit source offset from KIC position	$3.238 \pm 0.761$	4.26	$2.941 \pm 0.817$	$1.355 \pm 0.397$
photometric centroid source offset	$4.47 \pm 0.60$	7.47	$4.37 \pm 0.60$	$0.98 \pm 0.66$

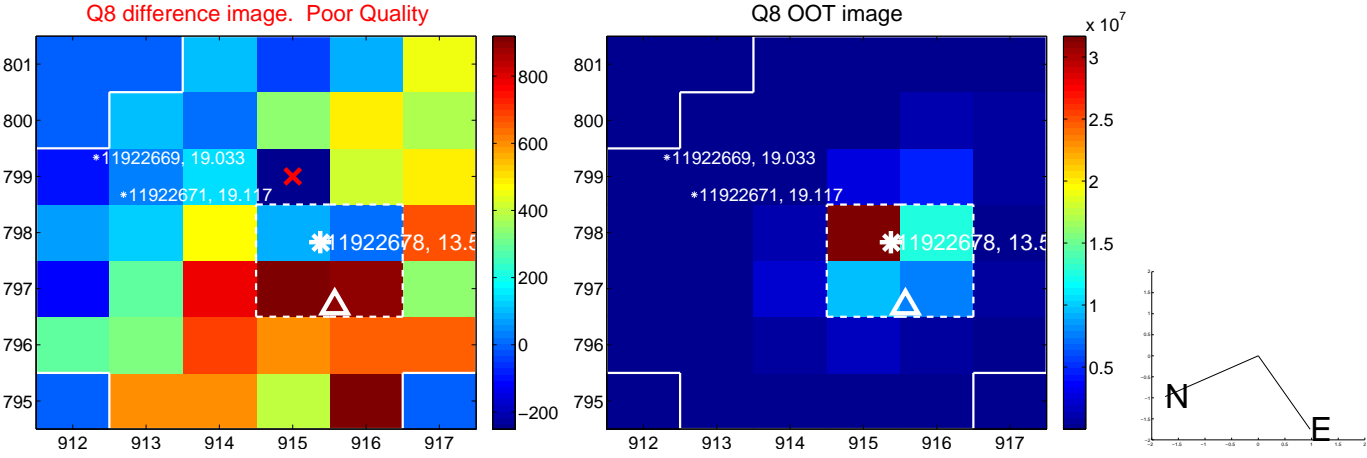
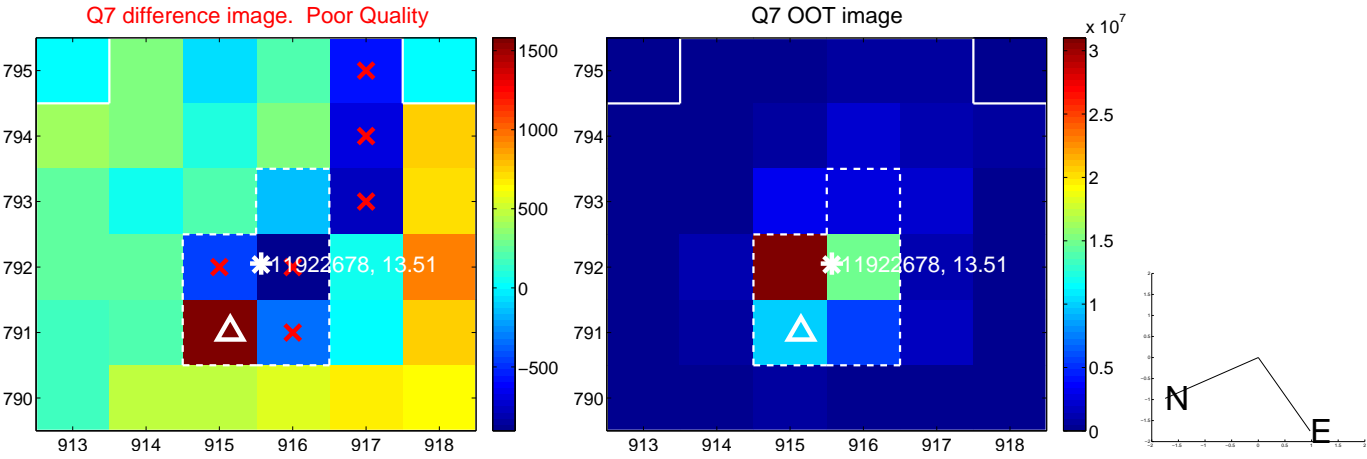
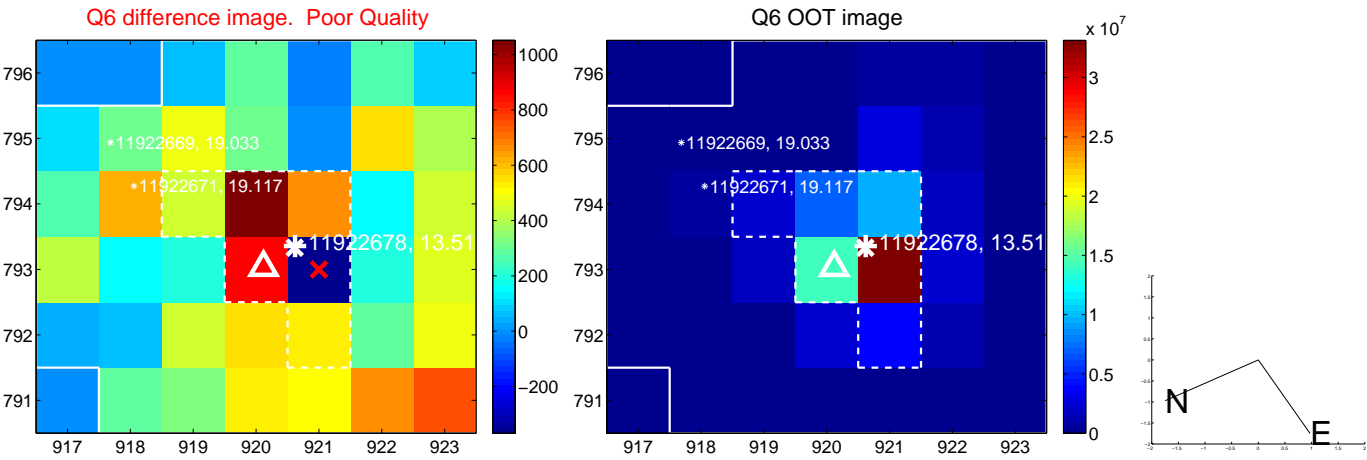
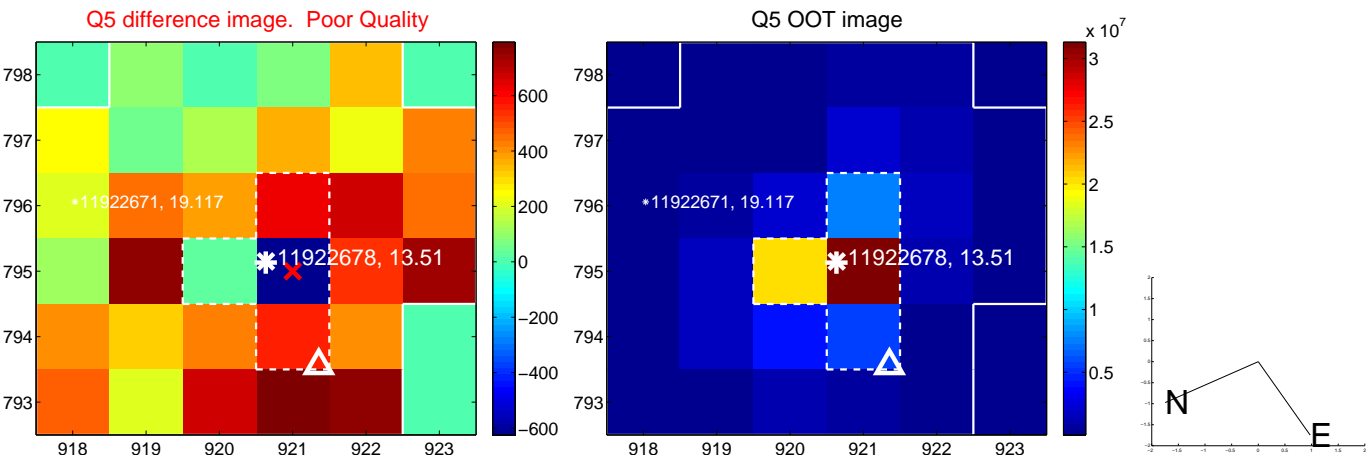


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

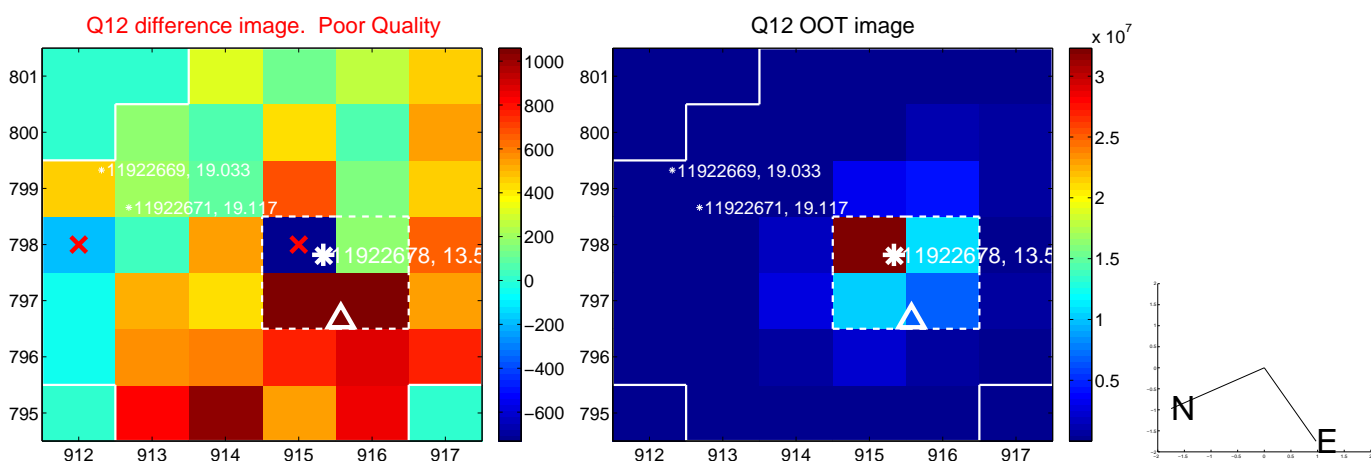
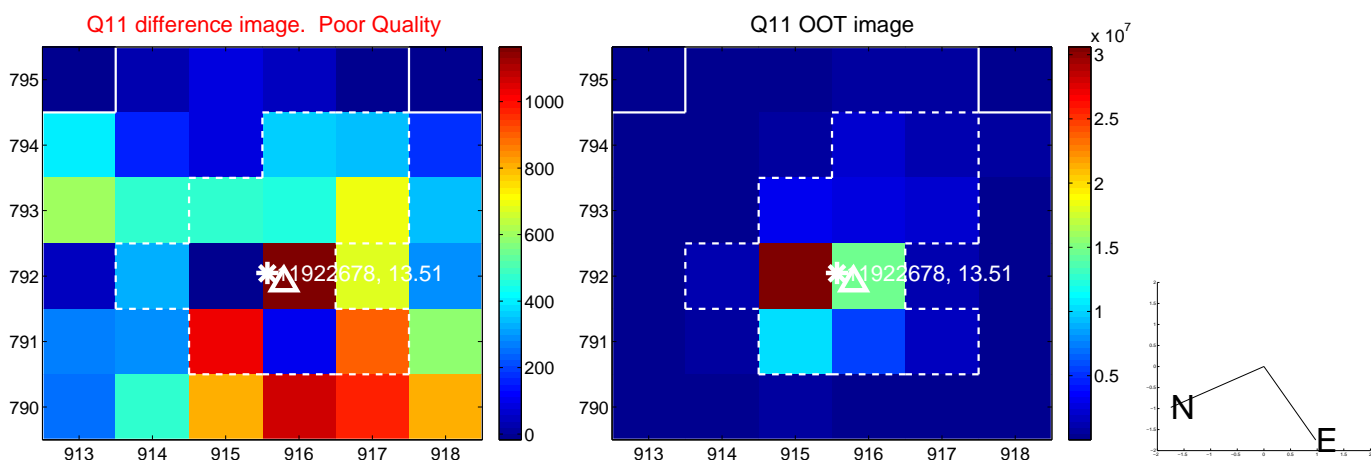
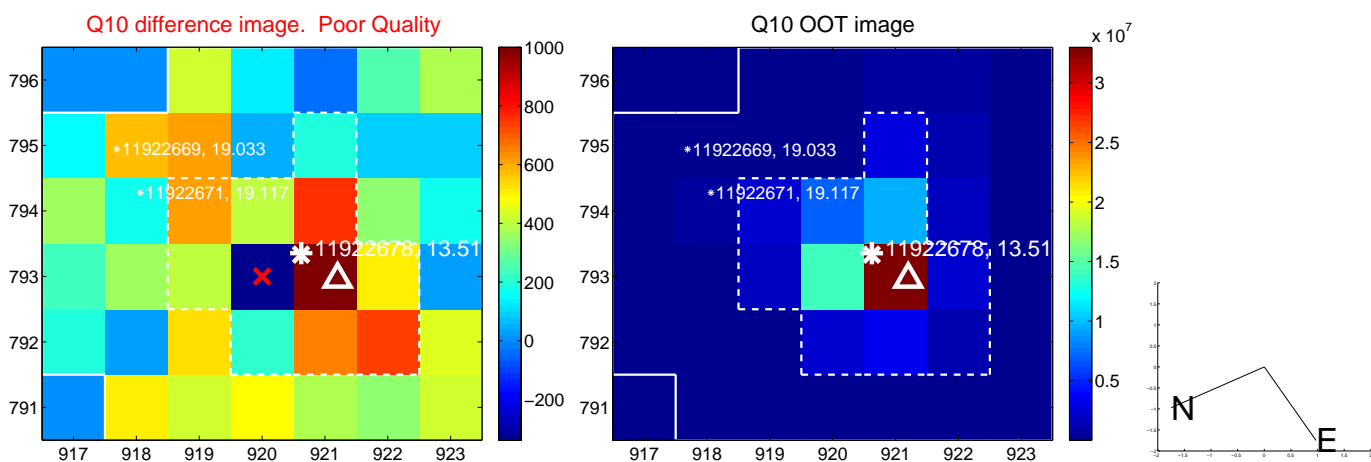
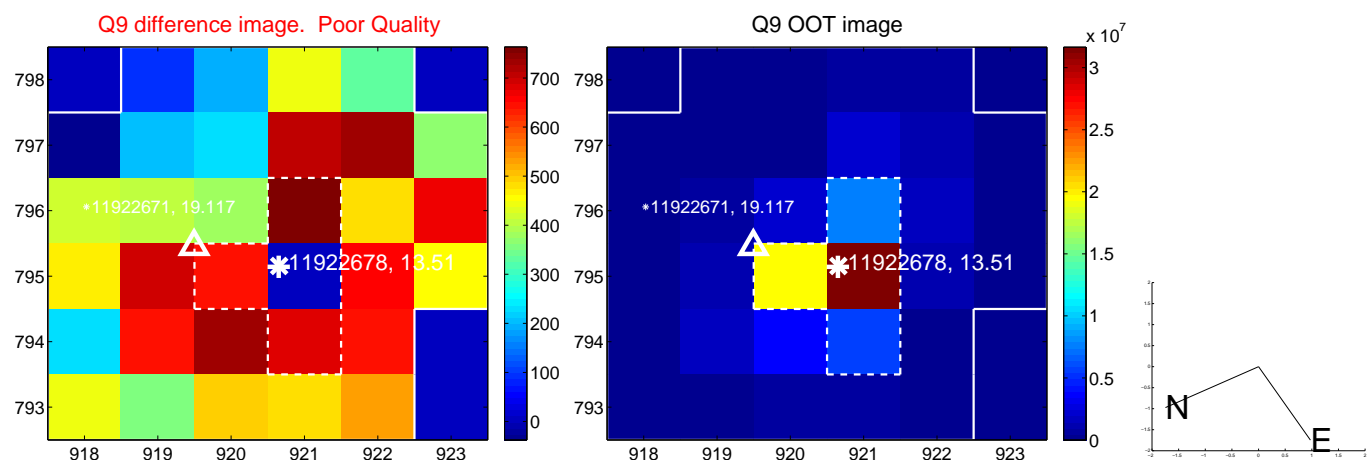


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

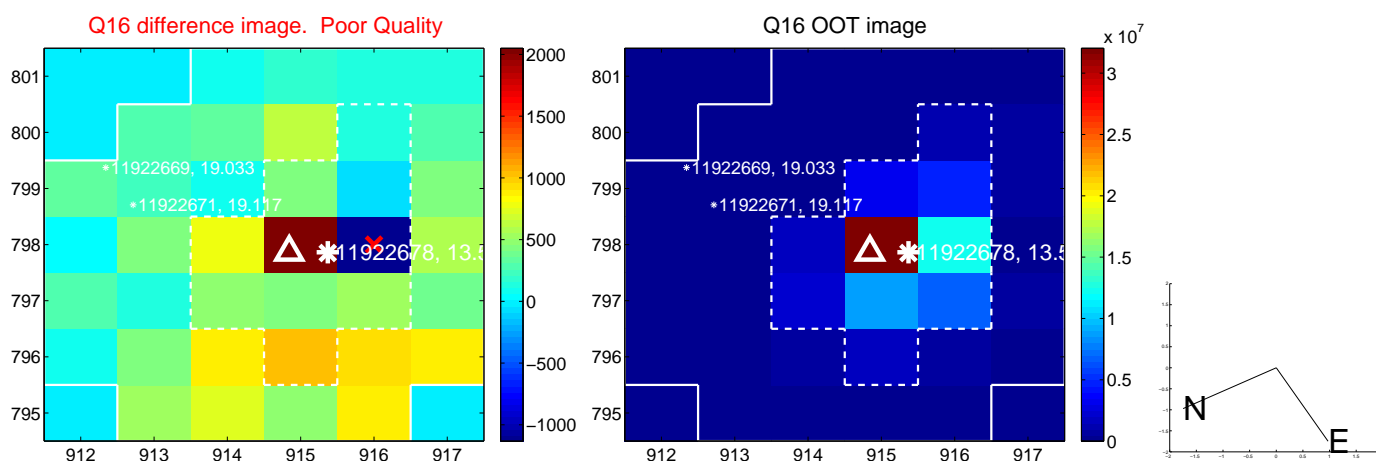
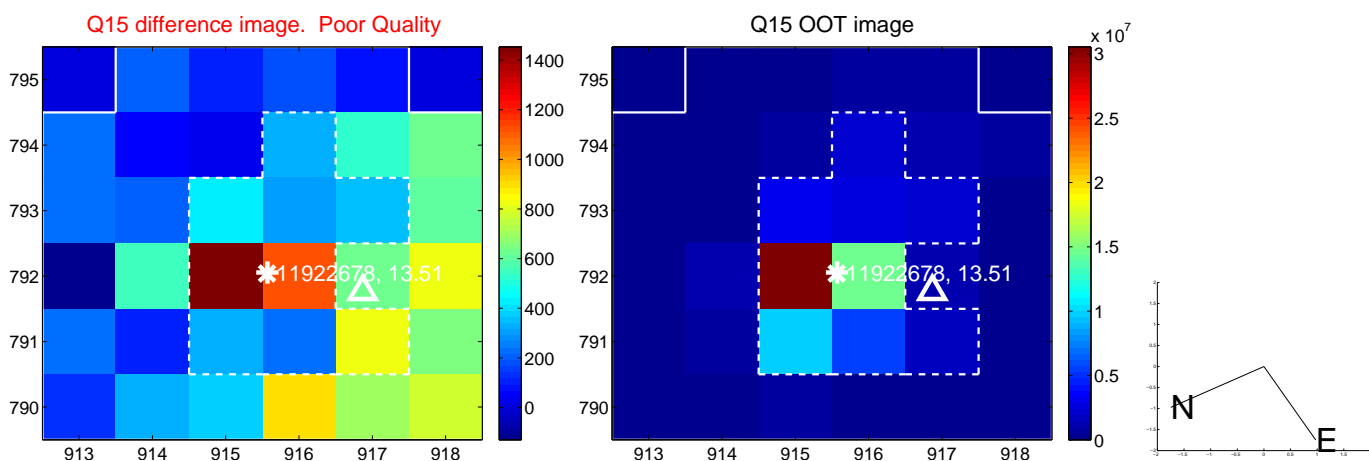
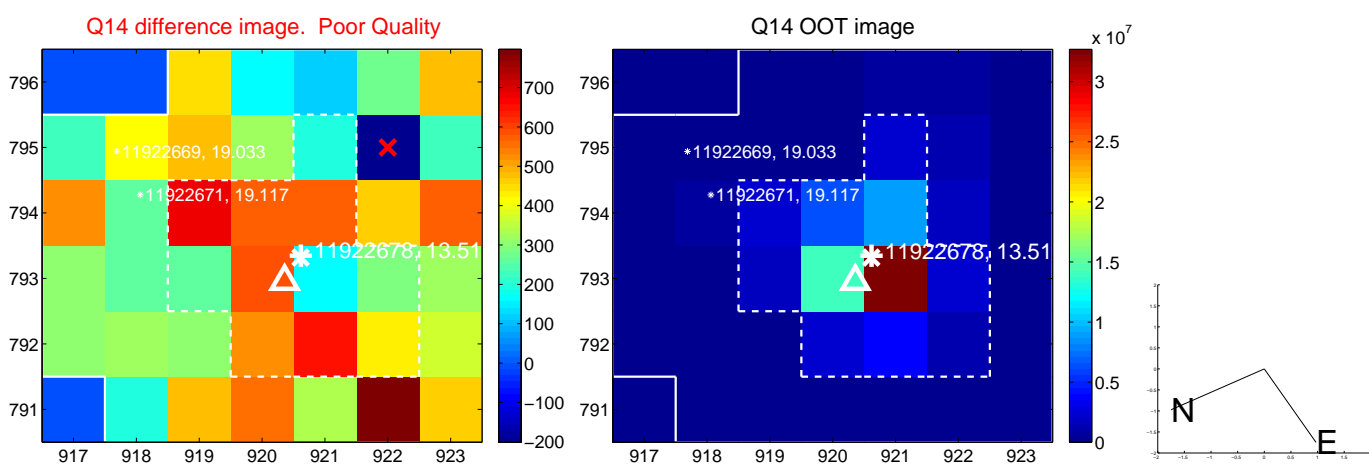
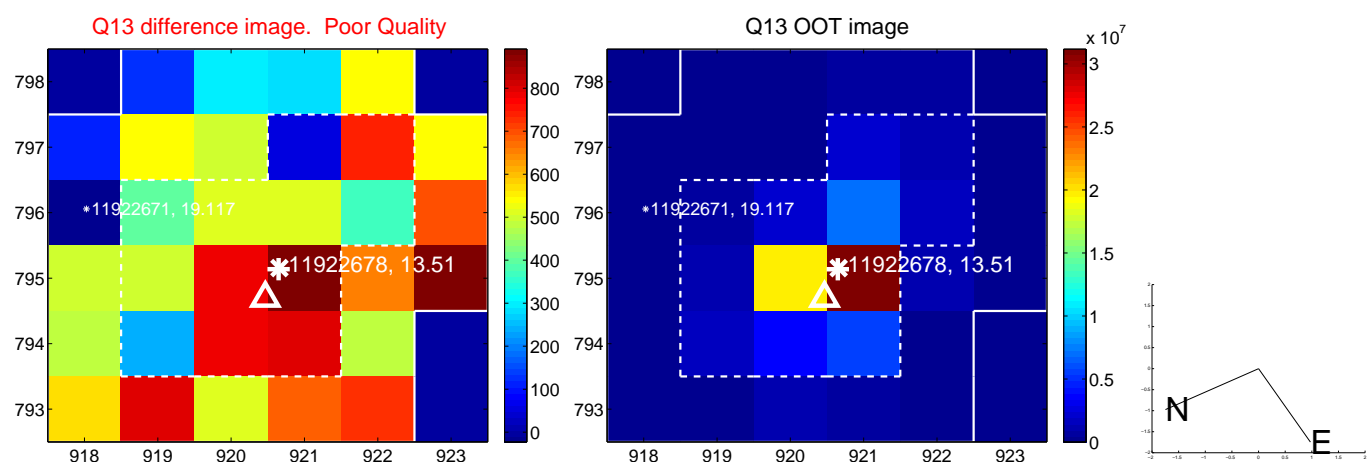




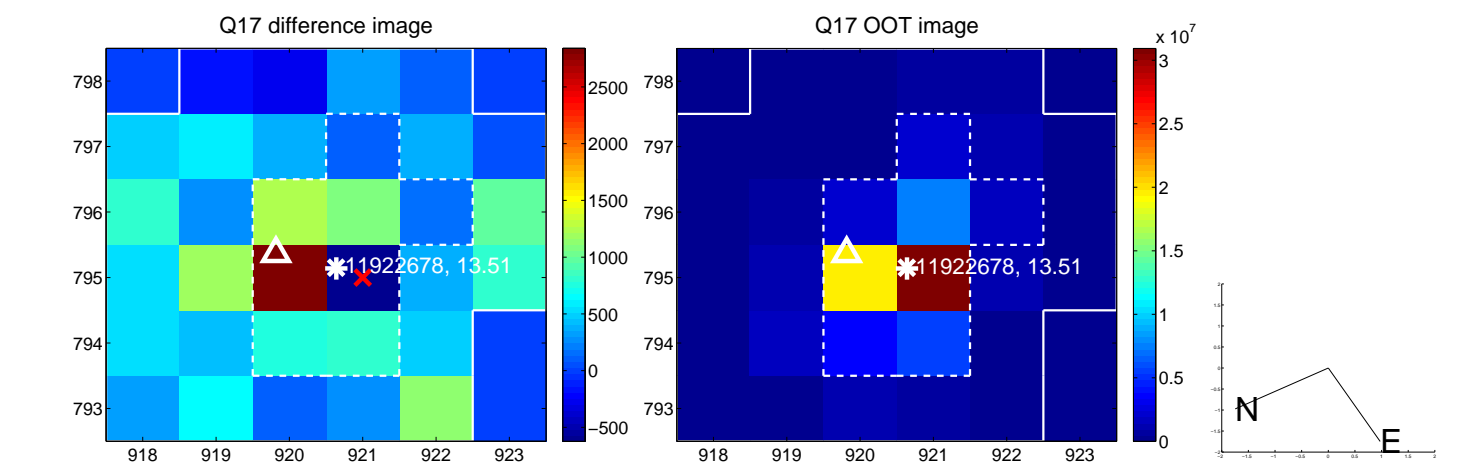
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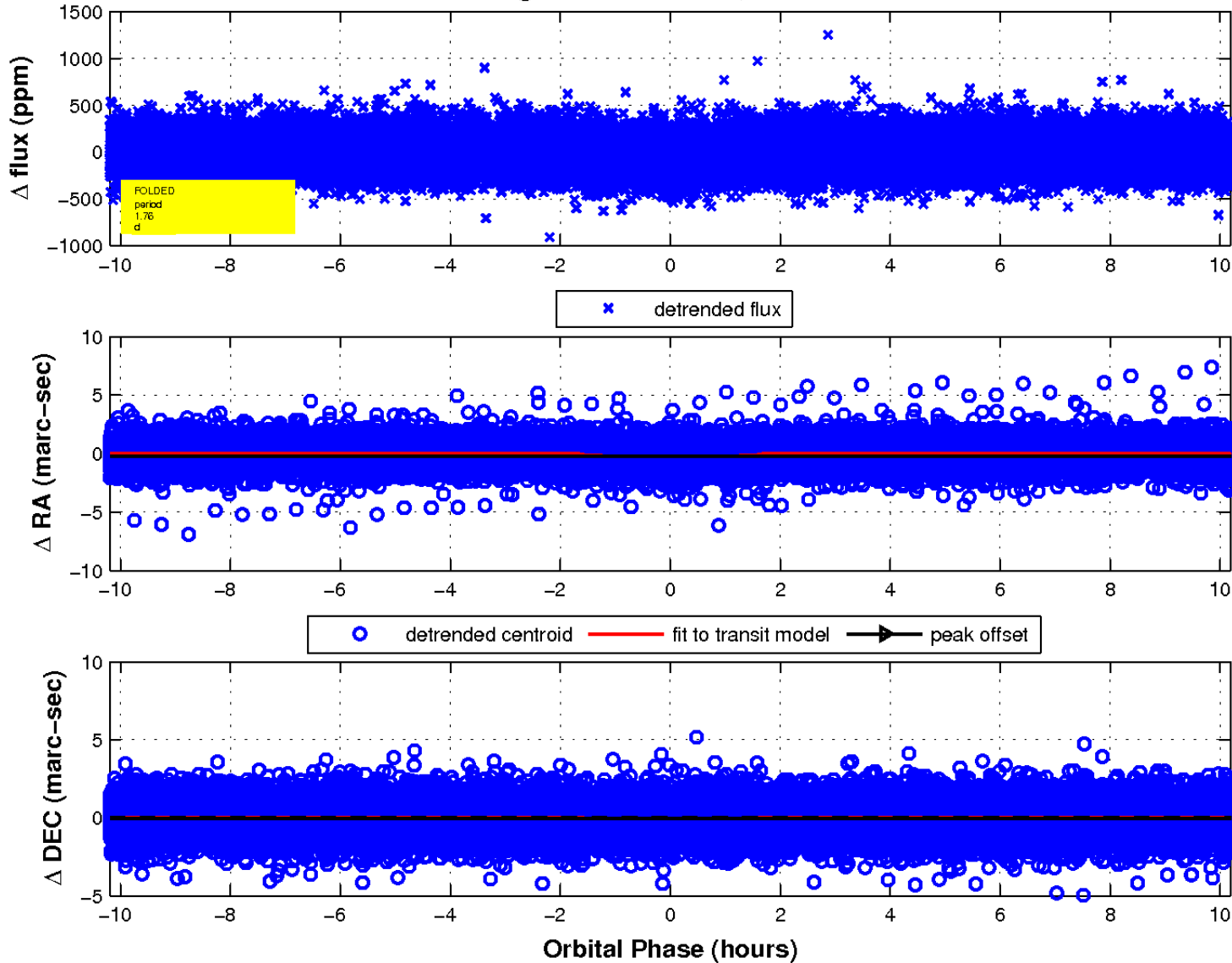
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

