

# KIC 007116282

## 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> )
007116282-01	OBS	7579.01	0.566741	131.873714	14.9	4.175	8.4	3.5	0.89	5490	0.35	4193.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007116282-01	OBS	FP	0.00	1	0	1	1	LPP_DV—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.

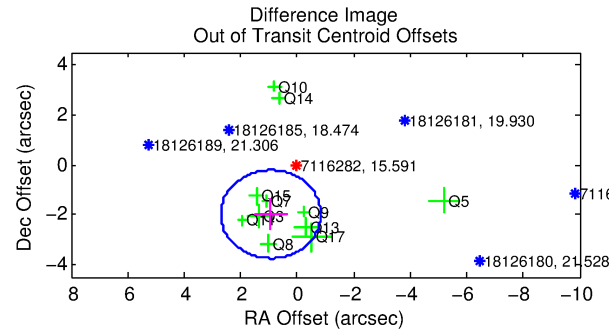
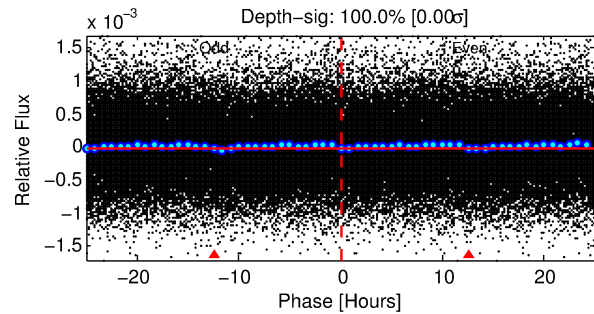
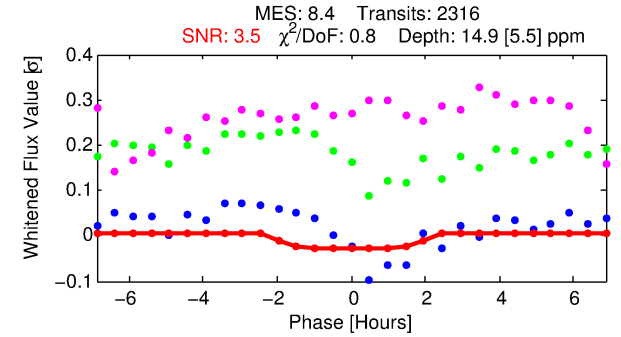
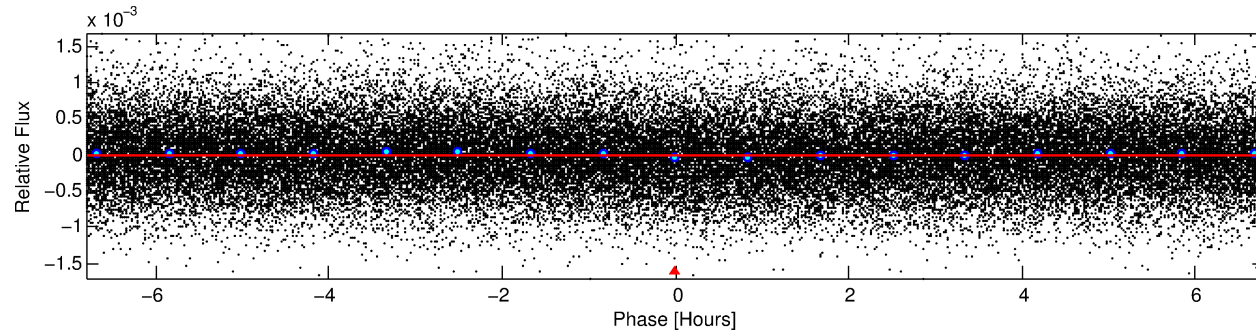
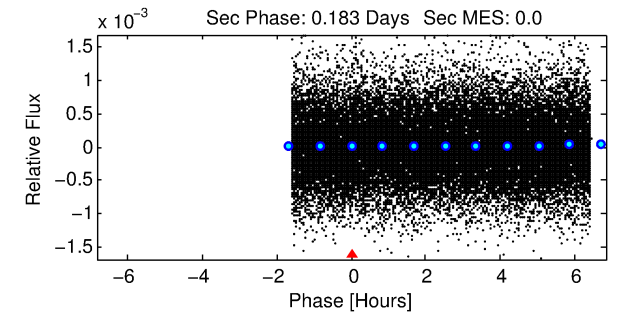
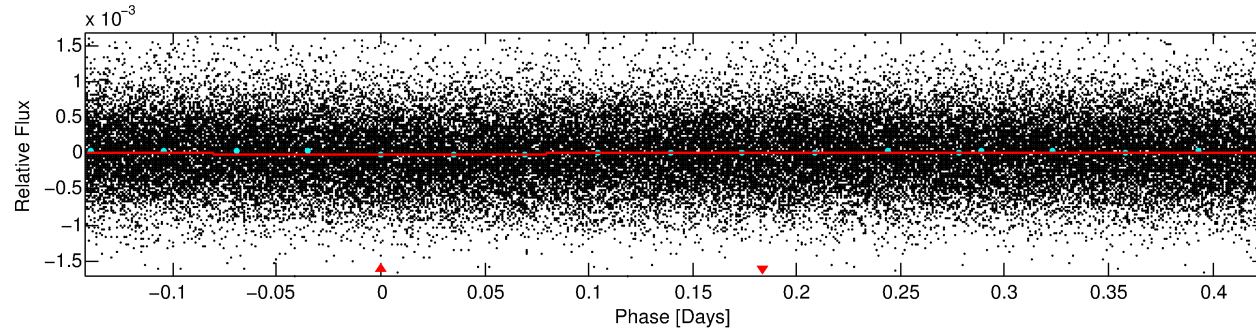
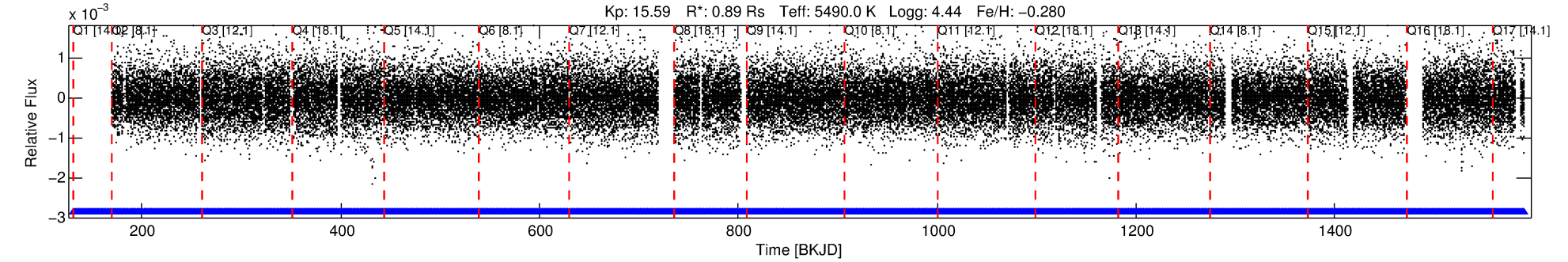
## Ephemeris Match Information For 007116282-01

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>
007116282-01	7116282	RR-Lyr-pri	7198959	1:1	518.6	94	-90	7.86	15.59	41553.00	Direct-PRF	0	1.42	21.07

**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: 7116282 Candidate: 1 of 1 Period: 0.567 d  
KOI: K07579.01 Corr: 0.778



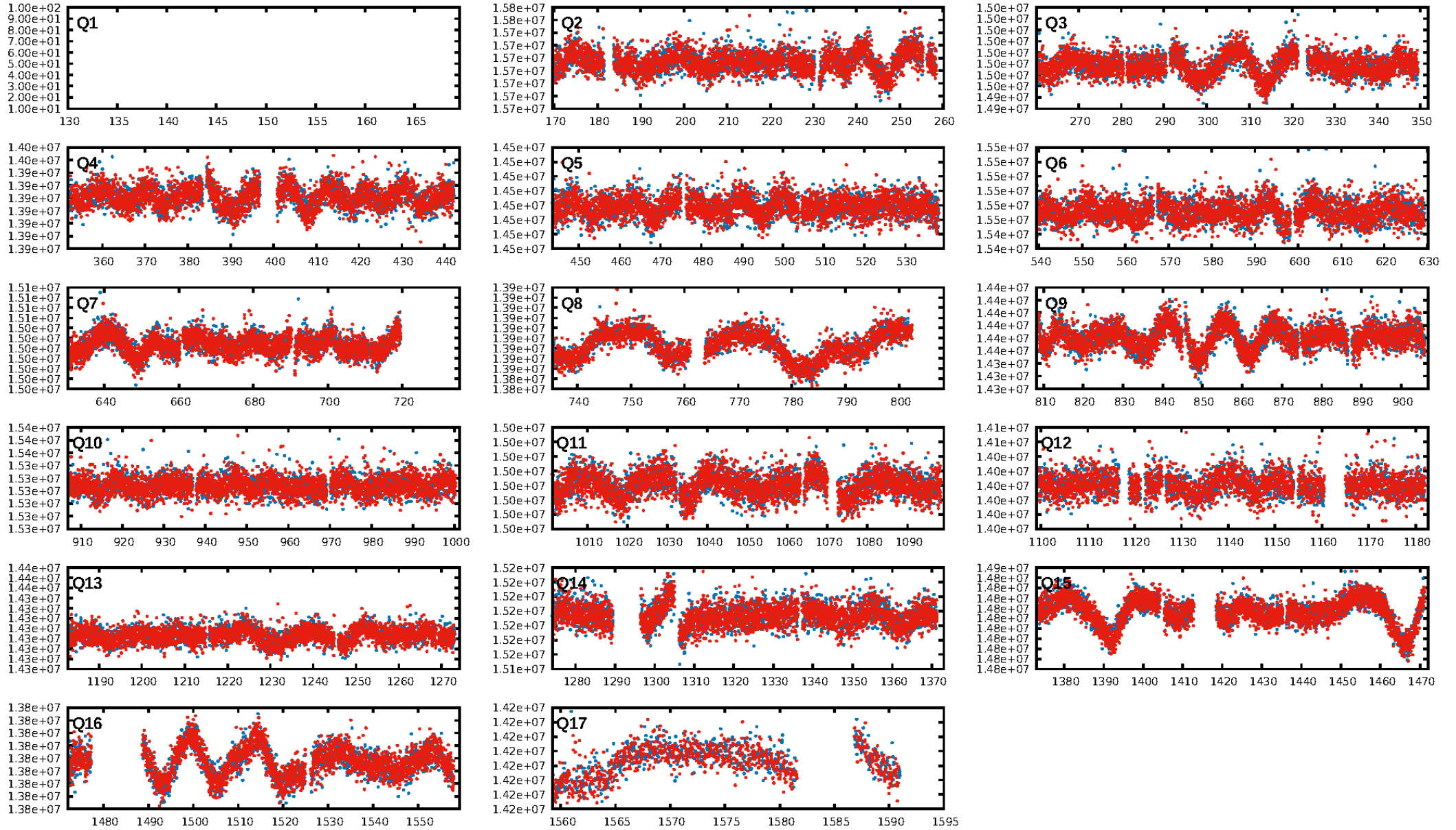
## DV Fit Results:

Period = 0.56674 [0.00003] d  
Epoch = 131.8737 [0.0132] BKJD  
Rp/R\* = 0.0036 [0.0093]  
a/R\* = 1.17 [3.43]  
b = 0.50 [16.57]  
Seff = 4193.92 [1376.58]  
Teff = 2052 [168] K  
Rp = 0.35 [0.91] Re  
a = 0.0124 [0.0025] AU  
Ag = N/A  
Teffp = N/A

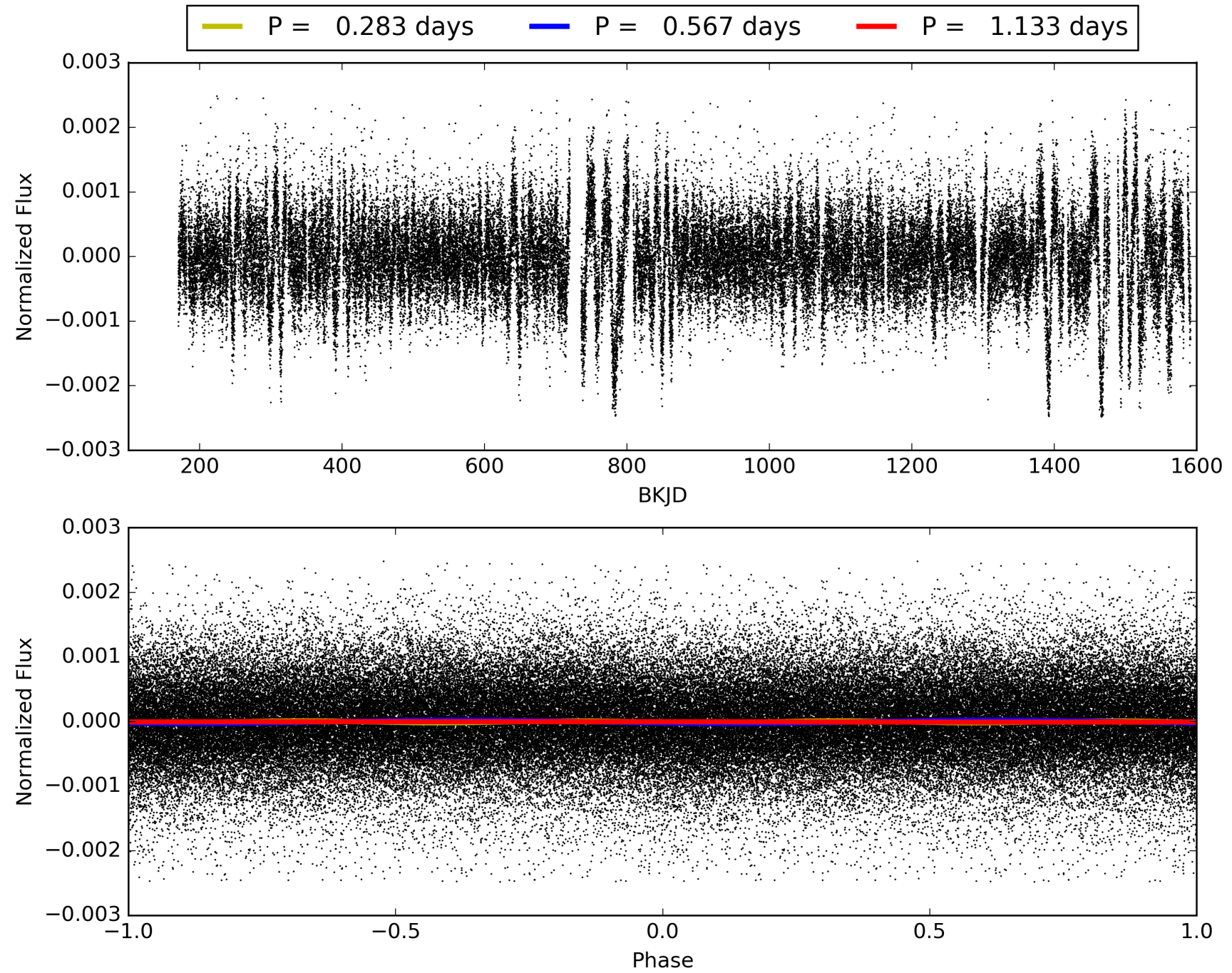
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.10e-04  
RollingBand-fgt: 1.00 [2269/2269]  
GhostDiagnostic-chr: -0.101  
Centroid-sig: 0.0%  
Centroid-so: 11.858 arcsec [2.94σ]  
OotOffset-rm: 2.195 arcsec [3.73σ]  
KicOffset-rm: 2.271 arcsec [3.59σ]  
OotOffset-st: 2/4/1/4 [11]  
KicOffset-st: 2/4/1/4 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 1.00 [16/16]

# TCE 007116282-01, PDC Light Curves



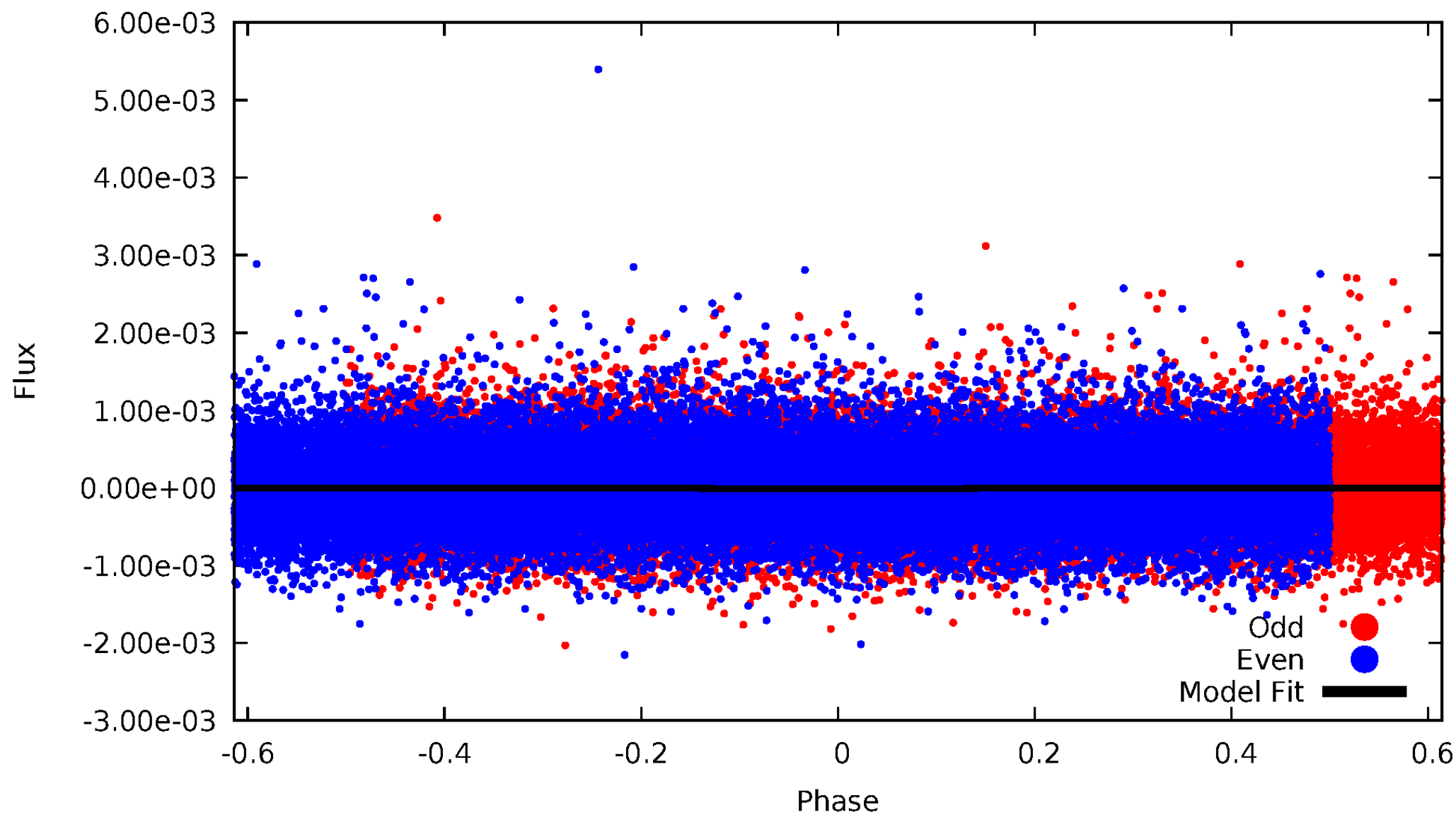
TCE 007116282-01





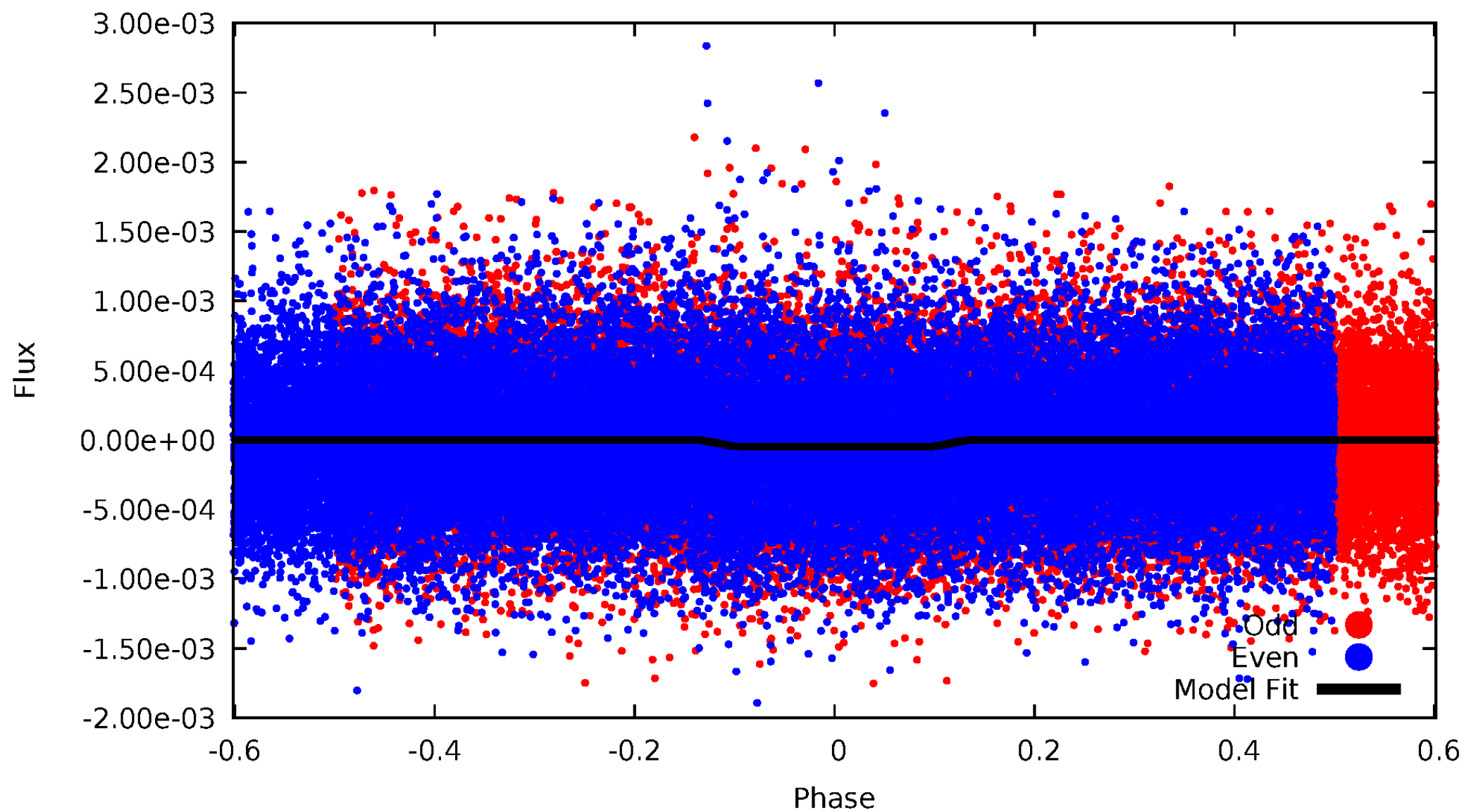
# DV Odd/Even

TCE 007116282-01



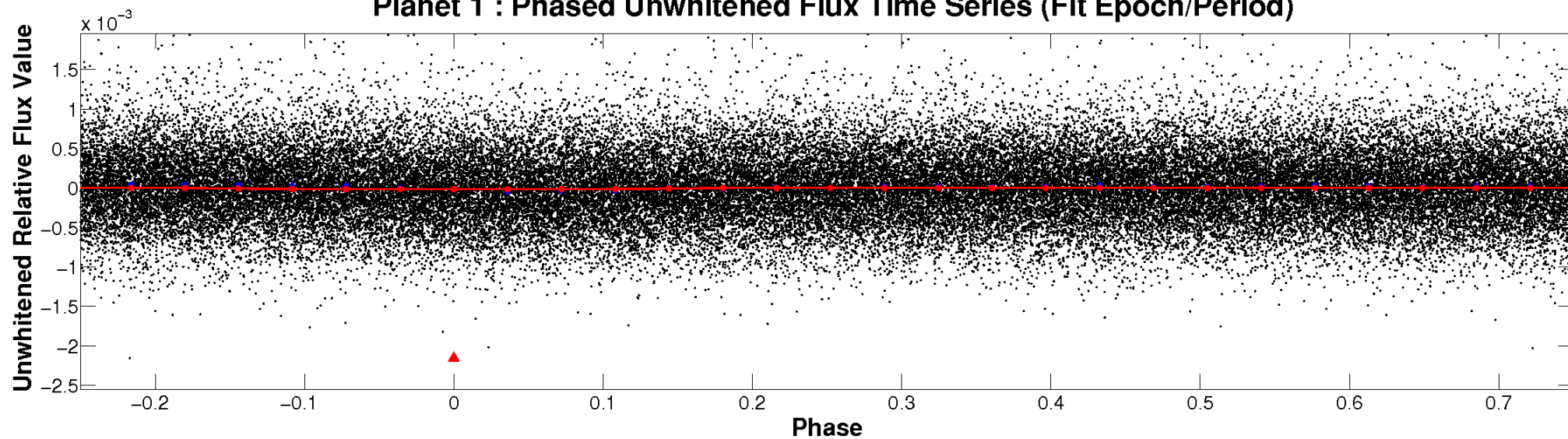
# ALT Odd/Even

TCE 007116282-01

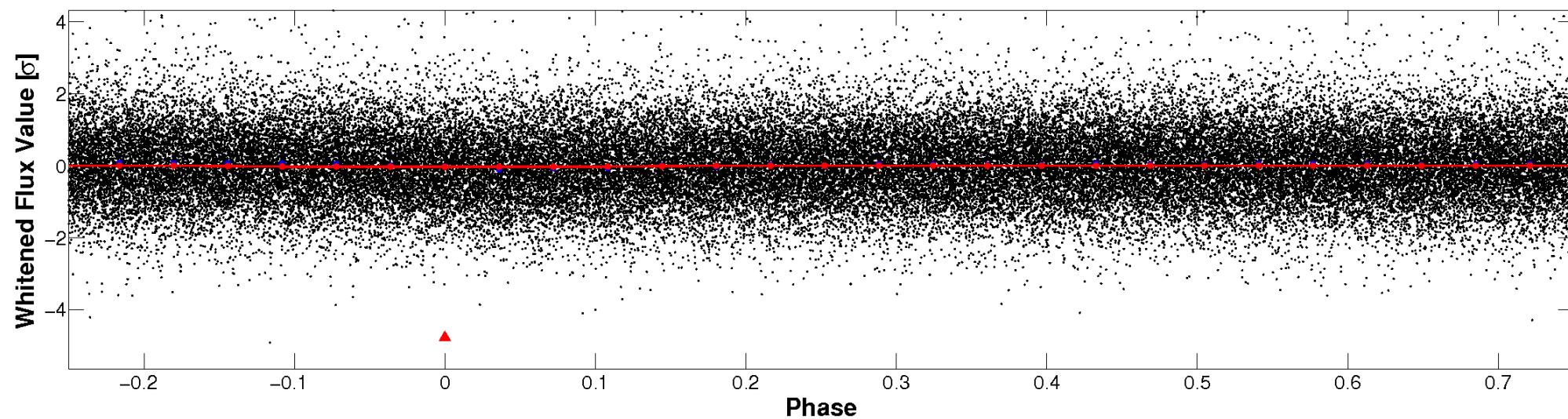


# Non-Whitened Vs. Whitened Light Curve

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

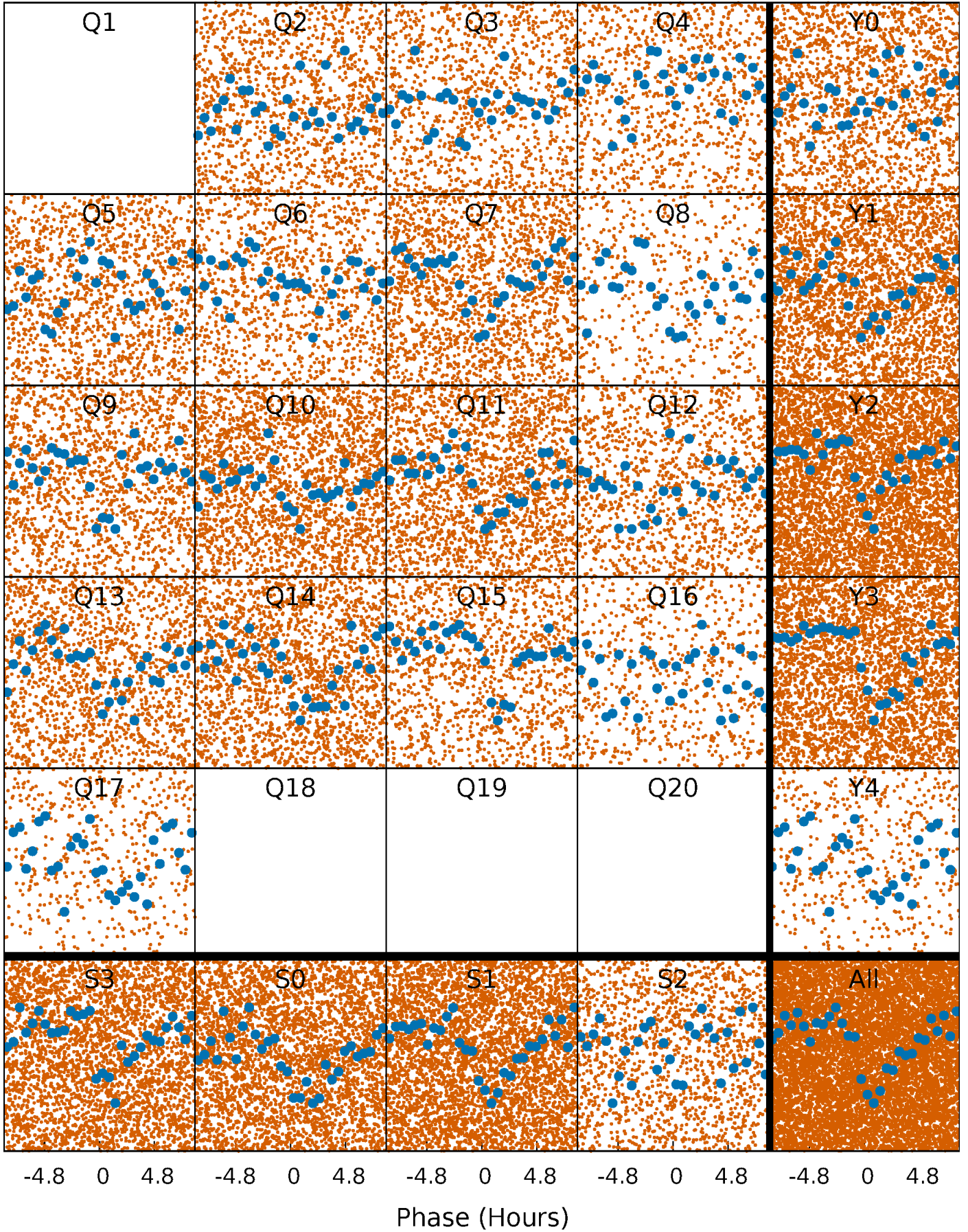


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

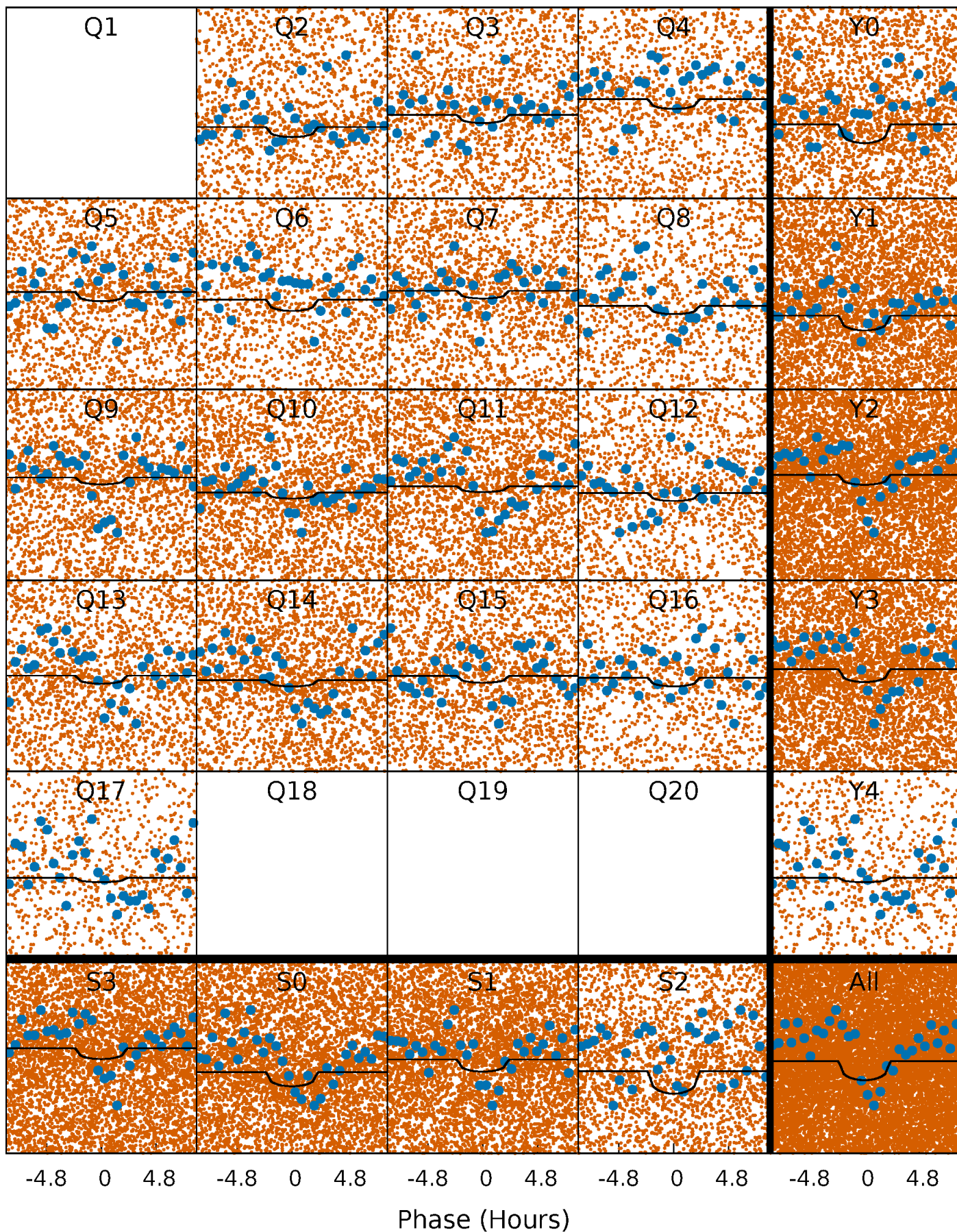
TCE 007116282-01 P= 0.566741 Days  $T_0=131.873714$  (BKJD)





# DV Quarter-Phased Transit Curves

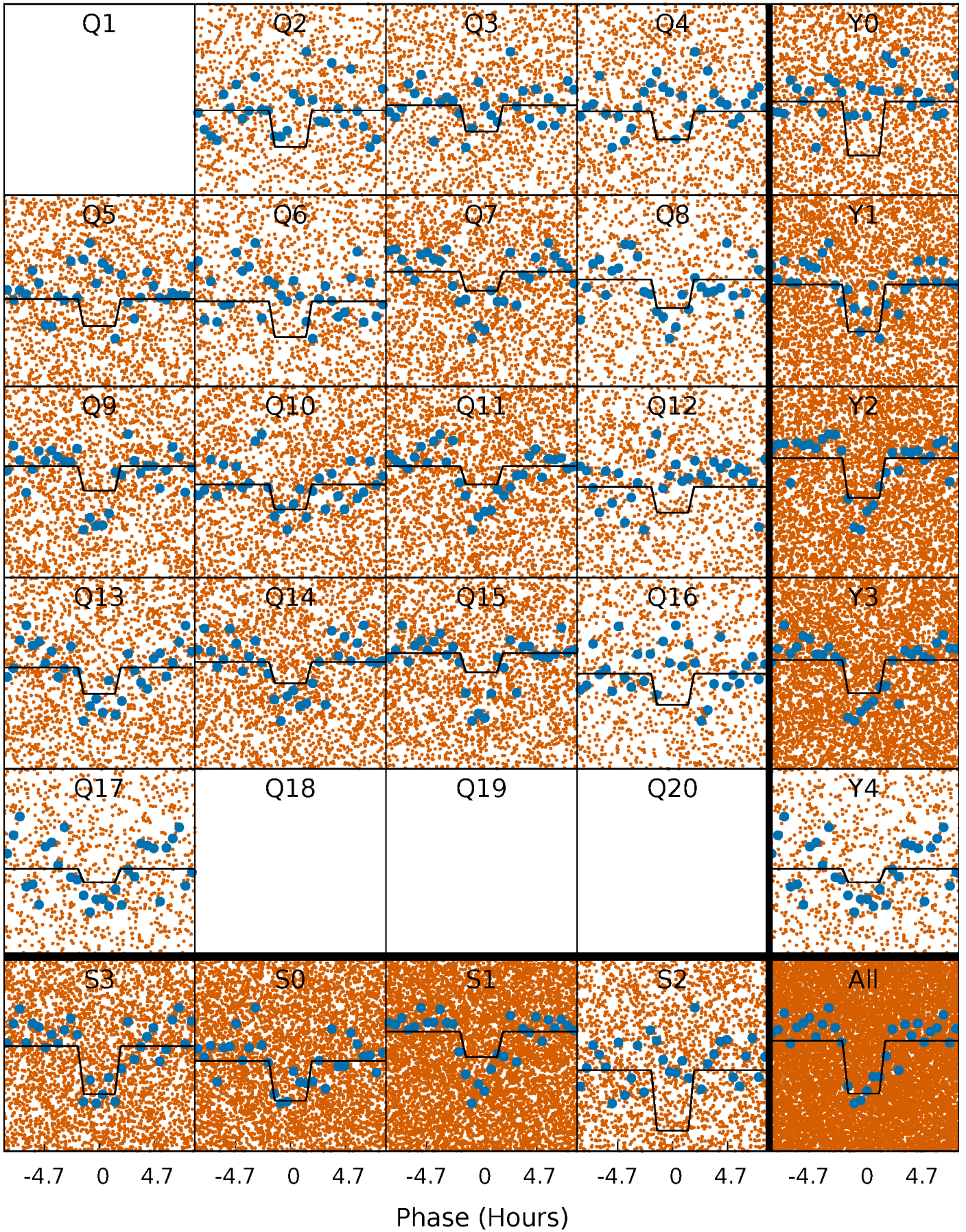
TCE 007116282-01 P= 0.566741 Days  $T_0=131.873714$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

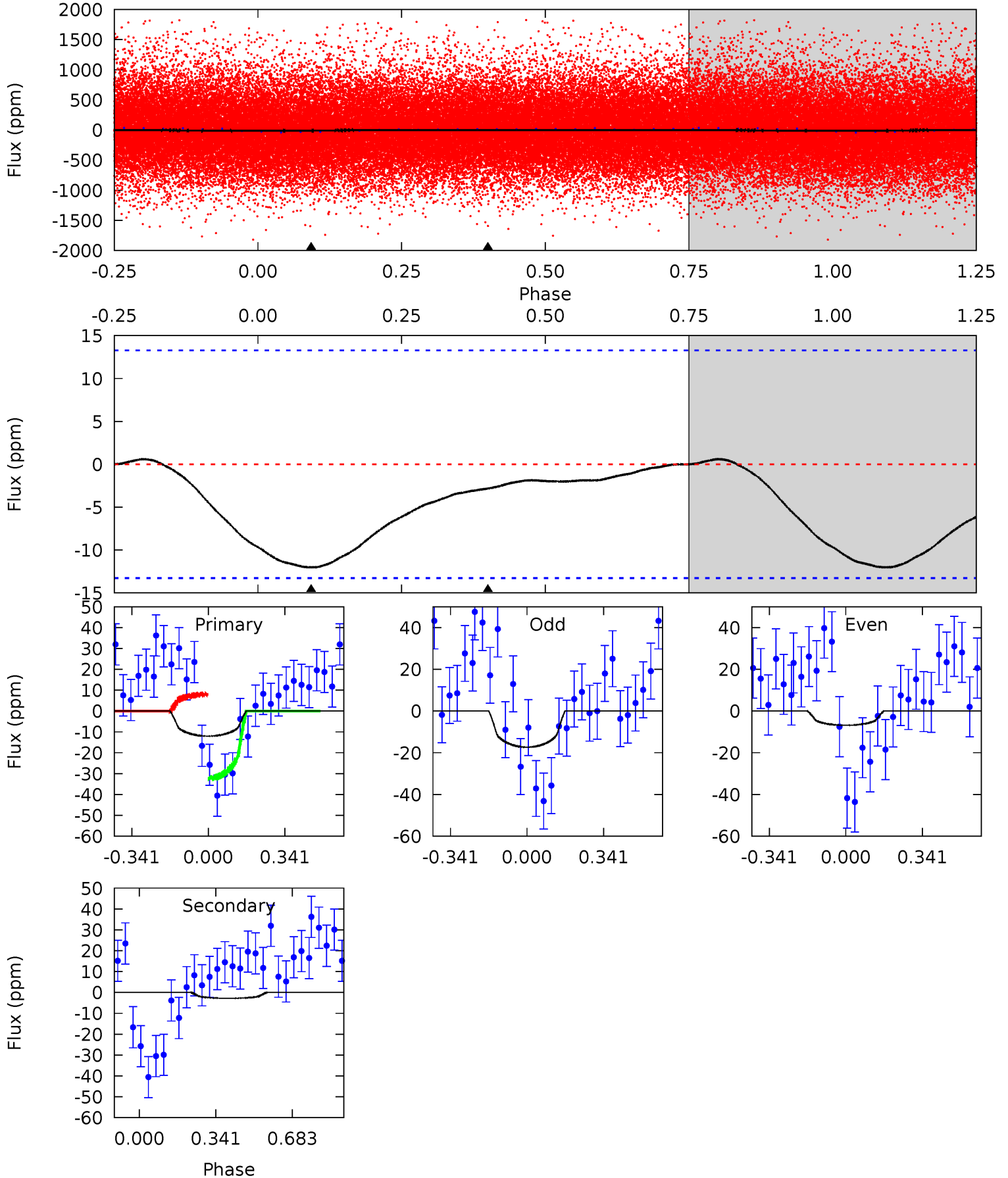
TCE 007116282-01 P= 0.566788 Days  $T_0=131.843523$  (BKJD)



# DV Model-Shift Uniqueness Test

007116282-01,  $P = 0.566741$  Days,  $E = 131.873714$  Days

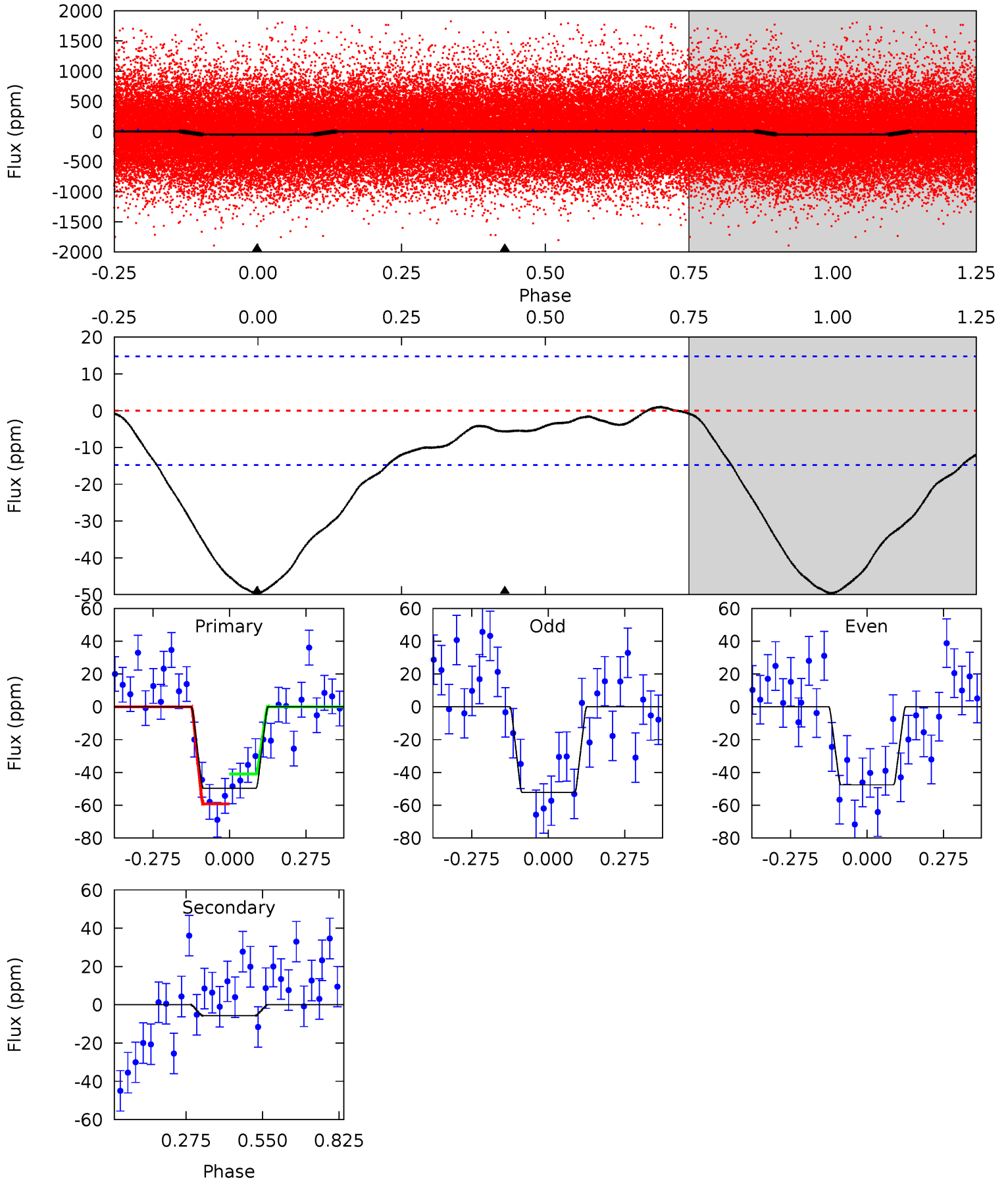
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.89	0.92	0	0	4.30	0.95	0.08	3.89	3.89	0.92	0.92	1.68	0.75	0.05	3.98



# Alt Model-Shift Uniqueness Test

007116282-01, P = 0.566788 Days, E = 131.843523 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
14.6	1.67	0	0	4.35	1.09	0.23	14.6	14.6	1.67	1.67	0.68	0.89	0.02	2.68





### Stellar Parameters For KIC 007116282

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5490^{+166}_{-166}$	$4.436^{+0.140}_{-0.171}$	$-0.280^{+0.300}_{-0.300}$	$0.887^{+0.207}_{-0.143}$	$0.783^{+0.125}_{-0.058}$	$1.579^{+0.987}_{-0.705}$
	+3%/-3%	+3%/-4%	+107%/-107%	+23%/-16%	+16%/-7%	+62%/-45%
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 007116282-01 / KOI 7579.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-3\pm3$	$0.76^{+0.72}_{-0.51}$	$2875^{+193}_{-163}$	$-2259^{+6561}_{-840}$	$0.271^{+2.696}_{-0.308}$
Alt.	$-6\pm3$	$0.97^{+0.83}_{-0.67}$	$2872^{+186}_{-166}$	$2745^{+1999}_{-5607}$	$0.470^{+4.335}_{-0.372}$

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

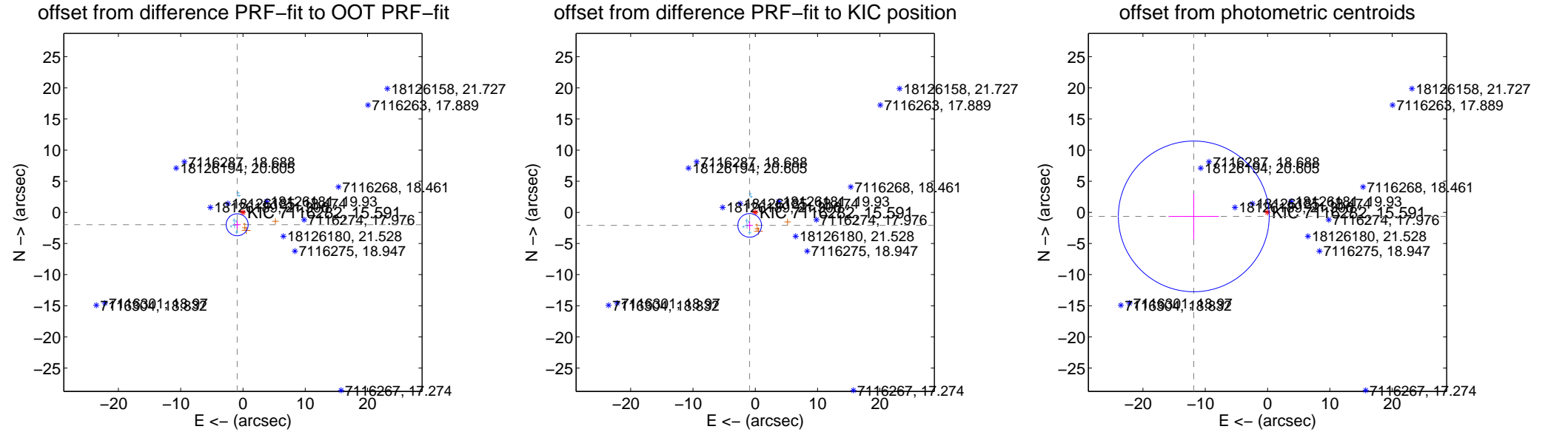
## DV Centroid Data

Supplemental centroid analysis for 007116282-01. Kepler magnitude: 15.59. Transit SNR 3.50

There are 7 quarters with good PRF difference image offsets

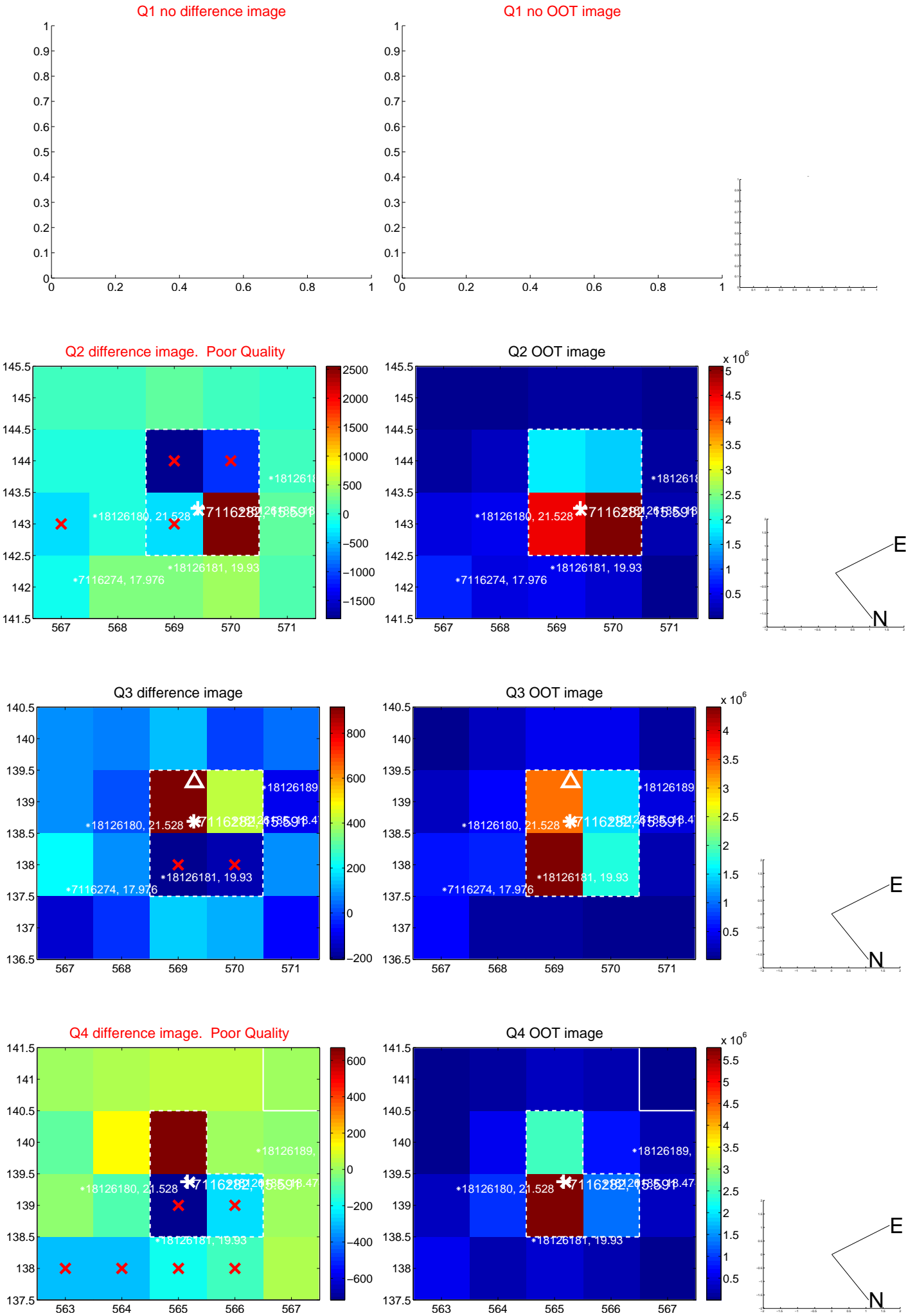
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>2.195 <math>\pm</math> 0.589</b>	<b>3.73</b>	0.933 $\pm$ 0.574	-1.987 $\pm$ 0.630
PRF-fit source offset from KIC position	<b>2.271 <math>\pm</math> 0.633</b>	<b>3.59</b>	0.900 $\pm$ 0.508	-2.085 $\pm$ 0.647
photometric centroid source offset	11.86 $\pm$ 4.03	2.94	11.84 $\pm$ 4.04	-0.65 $\pm$ 3.67

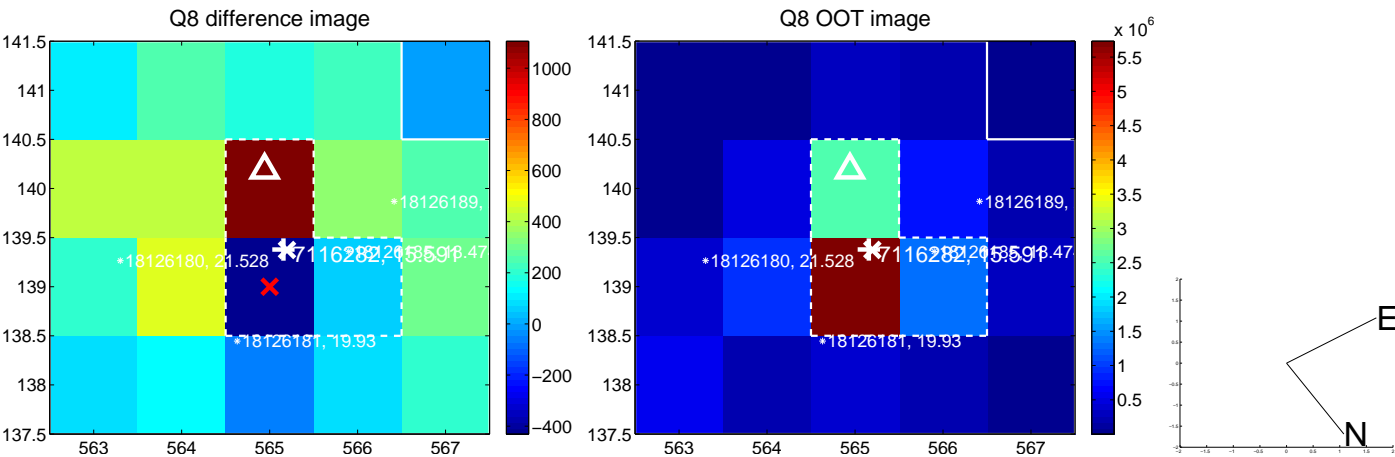
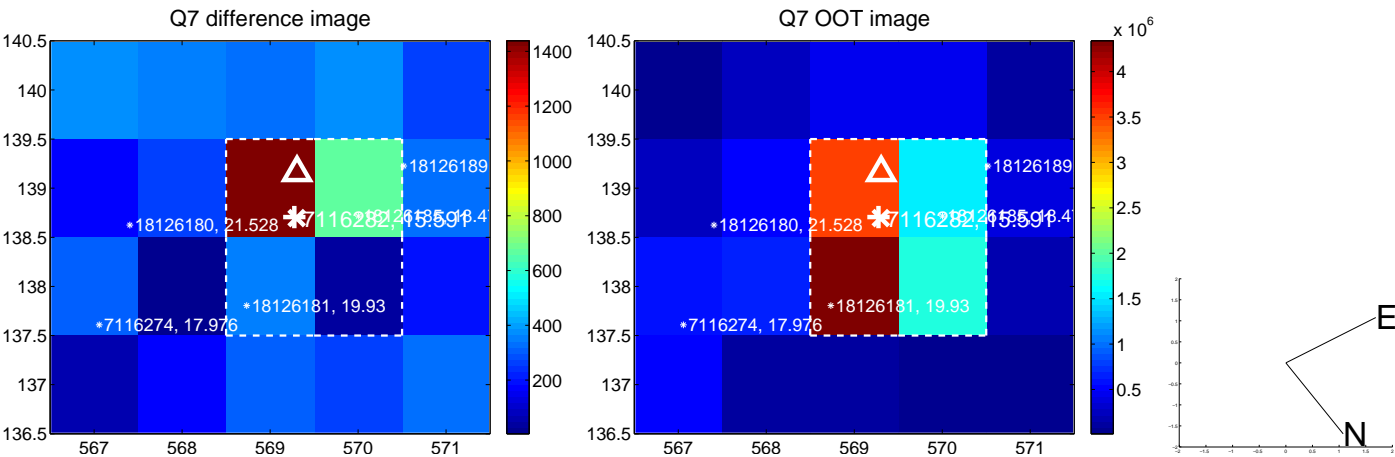
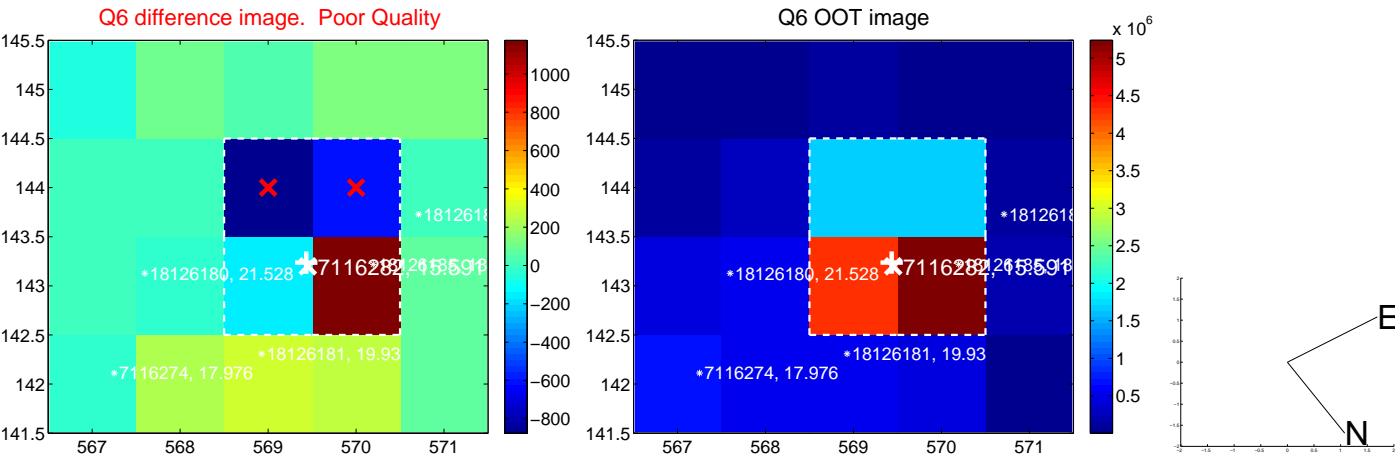
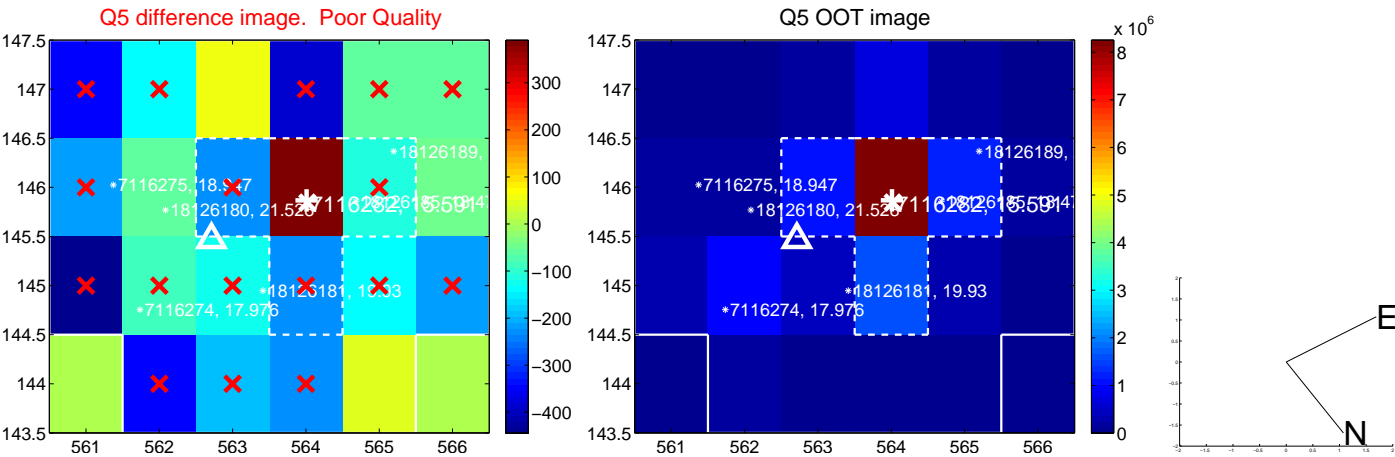


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

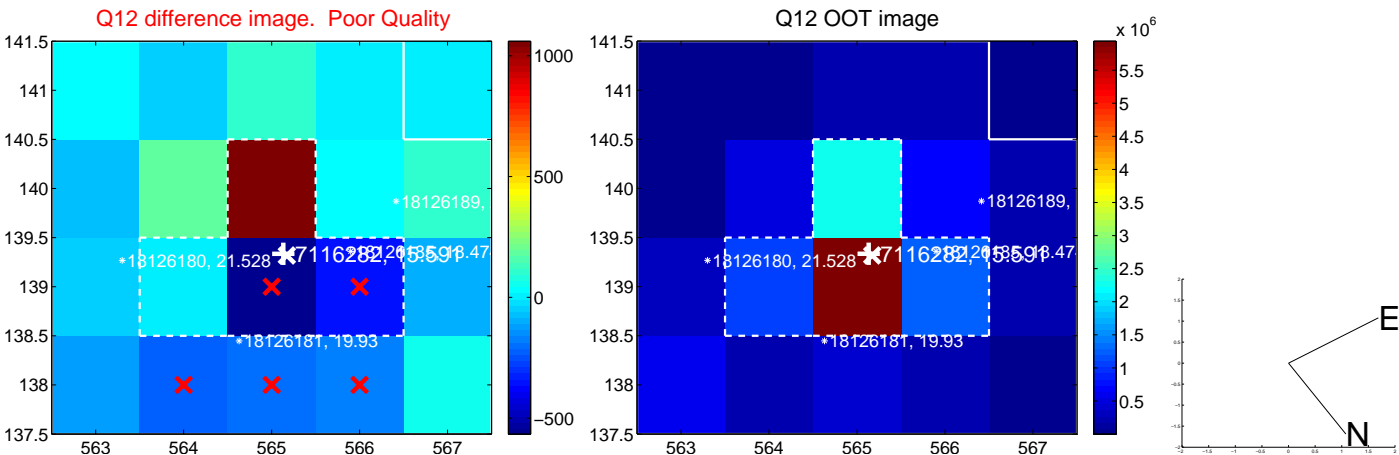
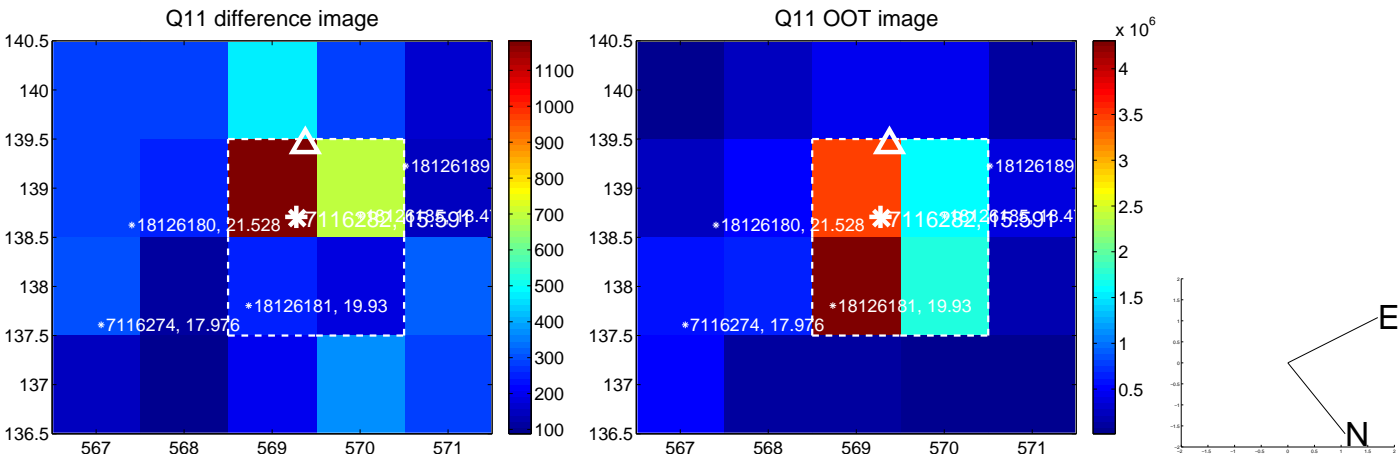
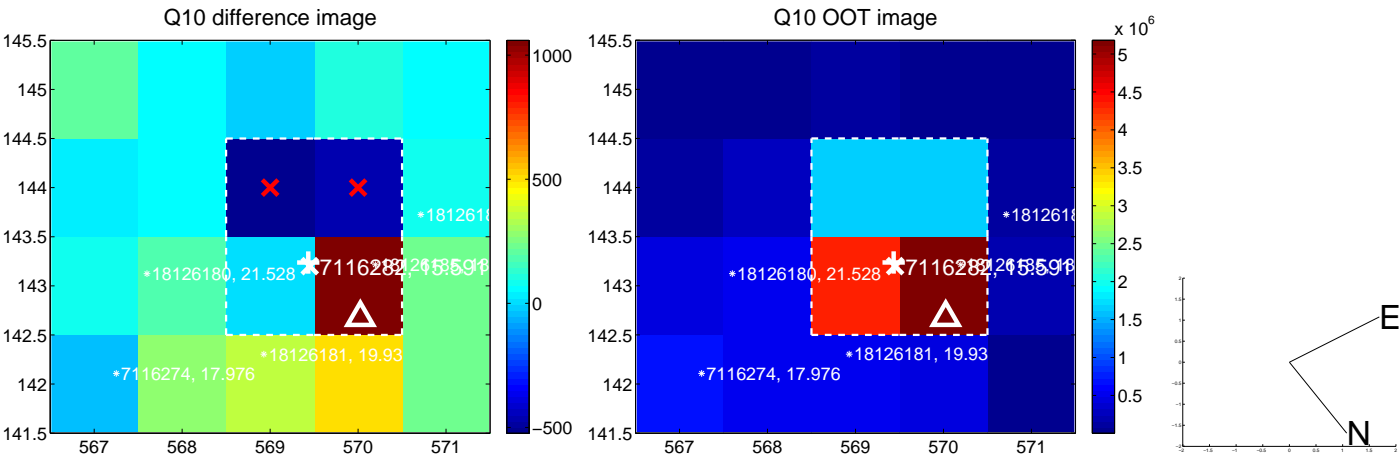
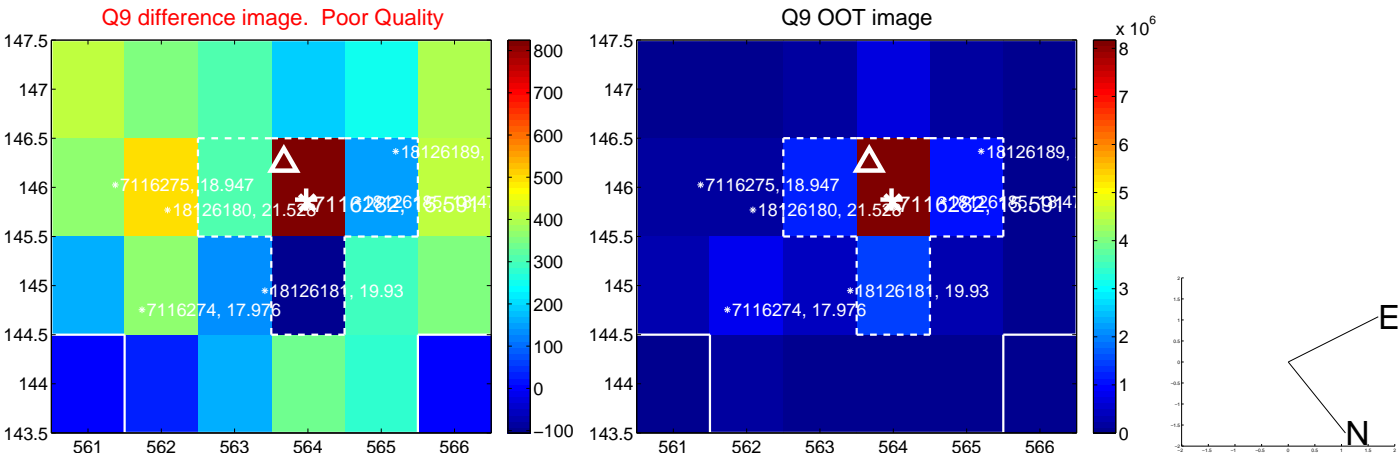


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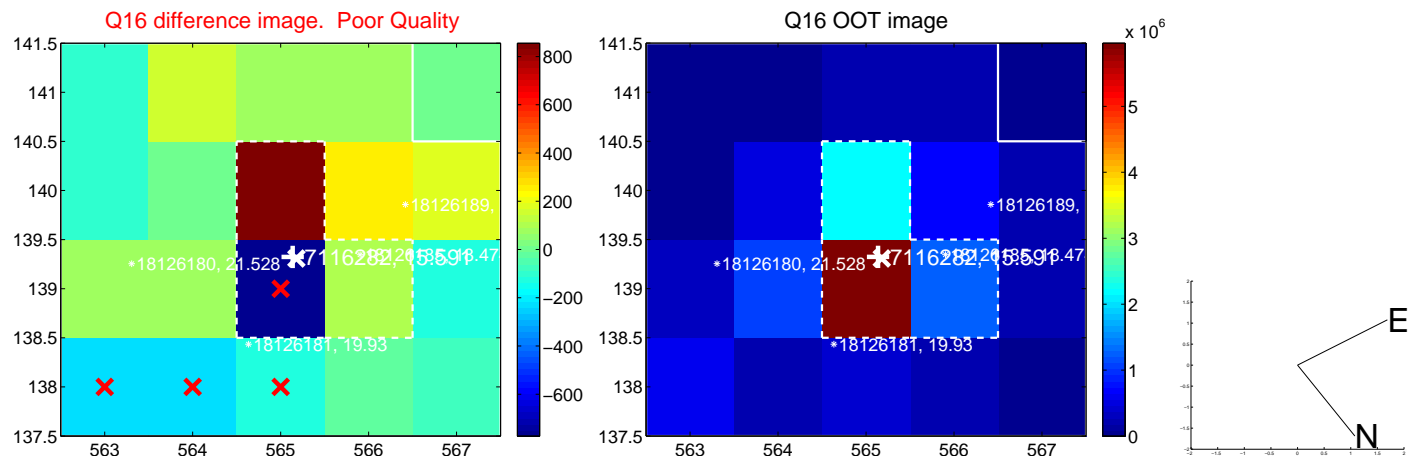
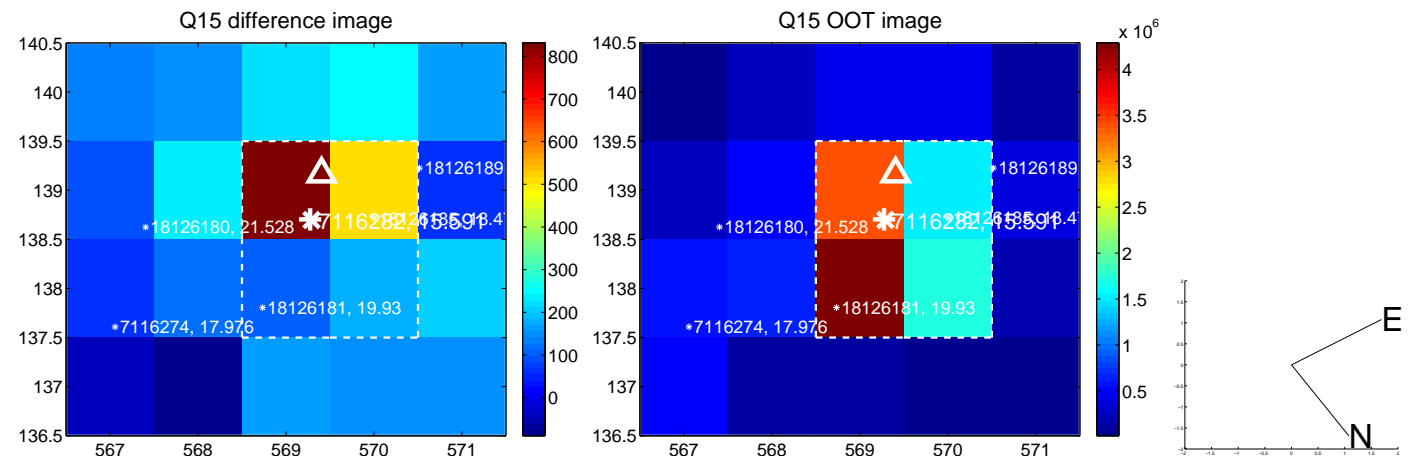
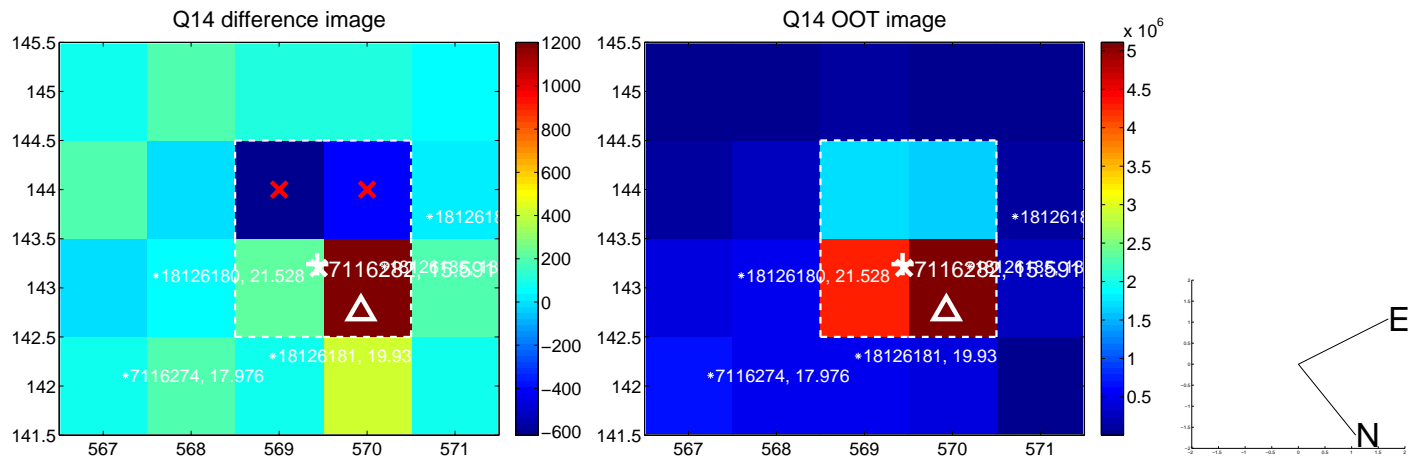
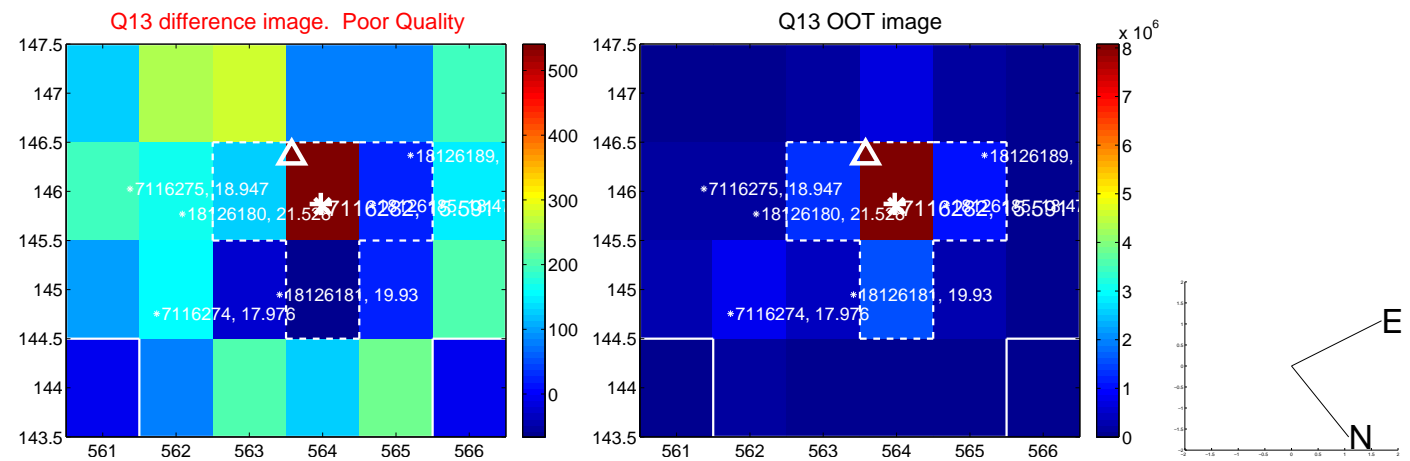




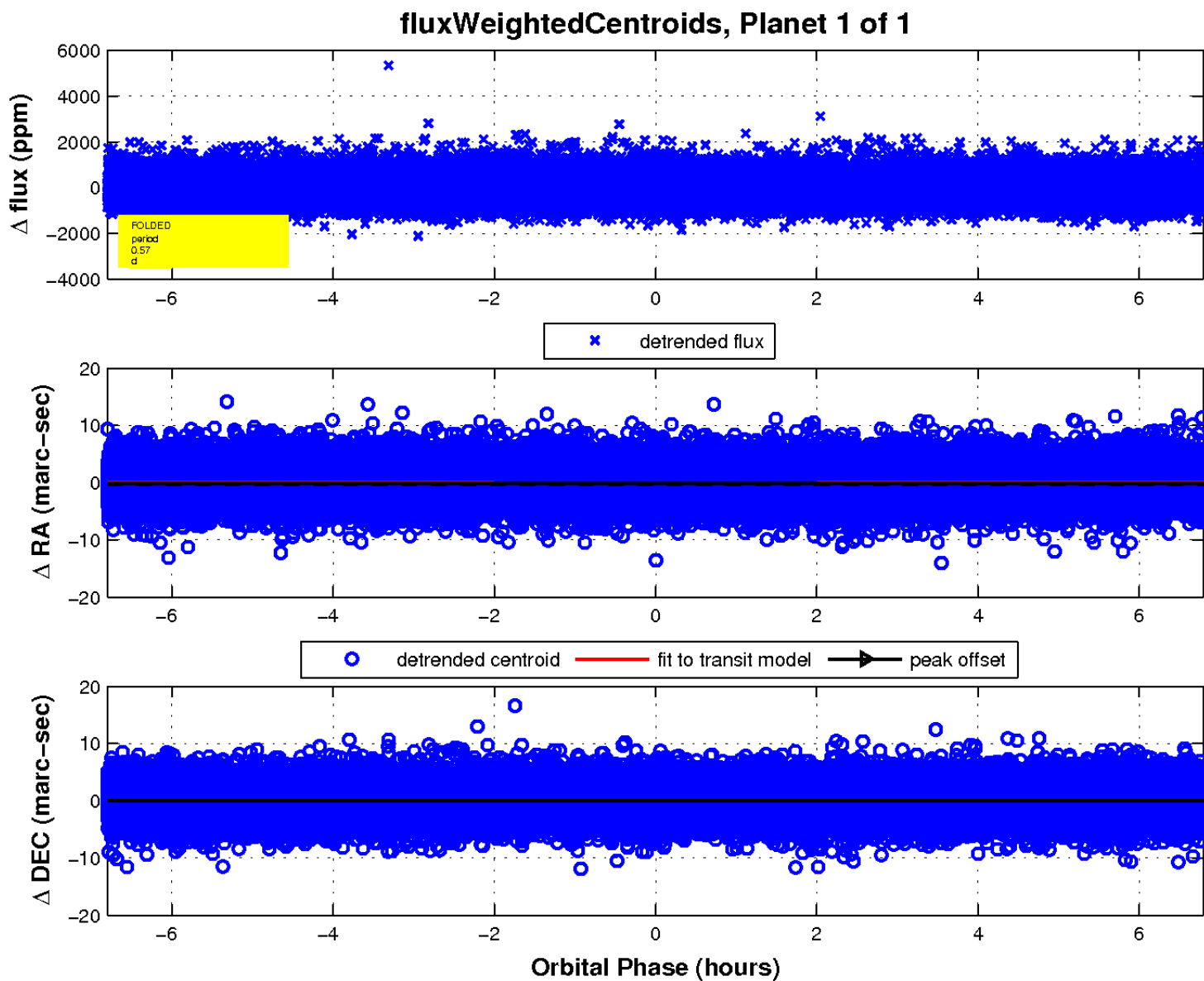
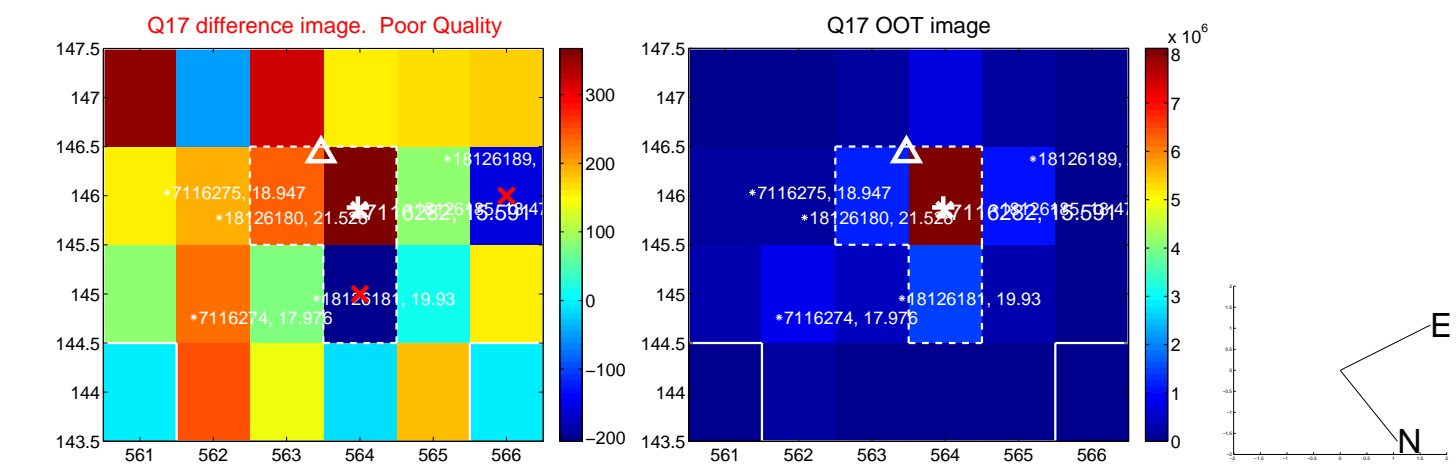
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

