

# KIC 007281301

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007281301-01	OBS	No	0.566780	131.843160	14.2	2.594	9.0	9.0	1.24	6552	0.48	11983.54

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007281301-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_ALT—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.

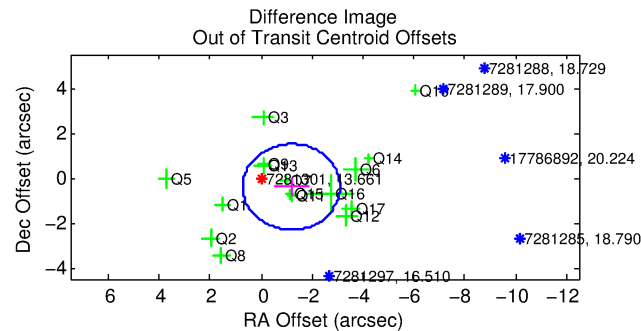
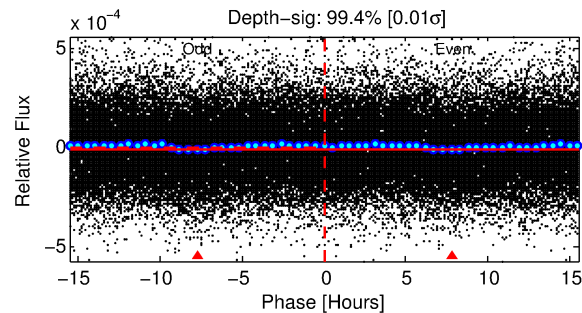
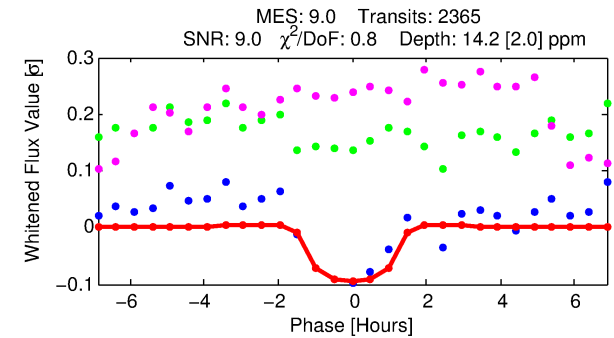
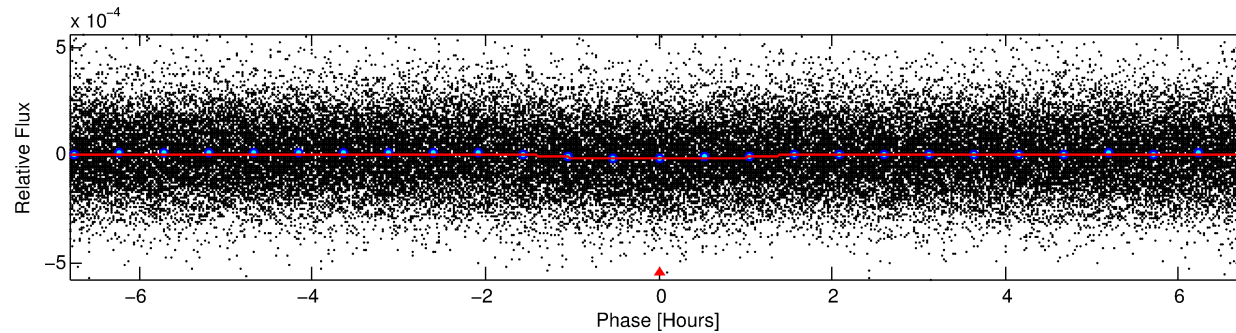
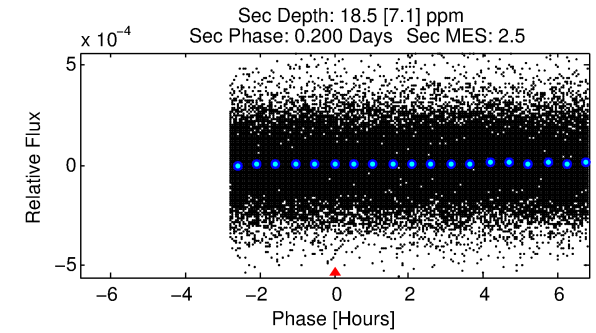
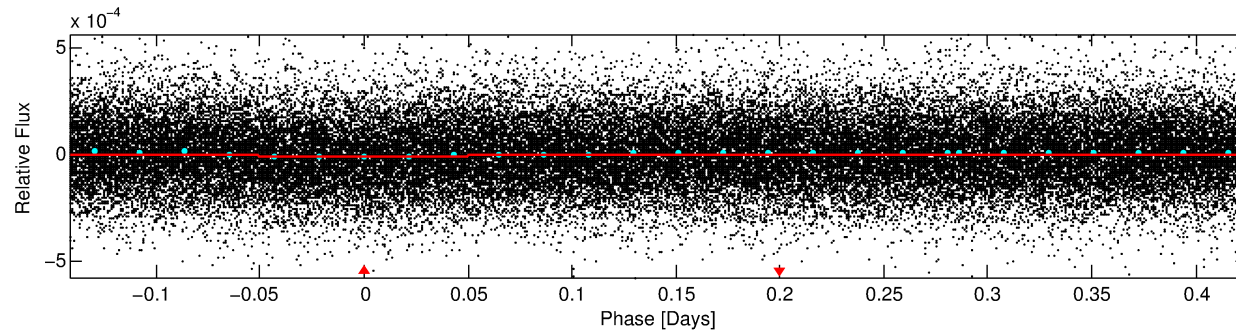
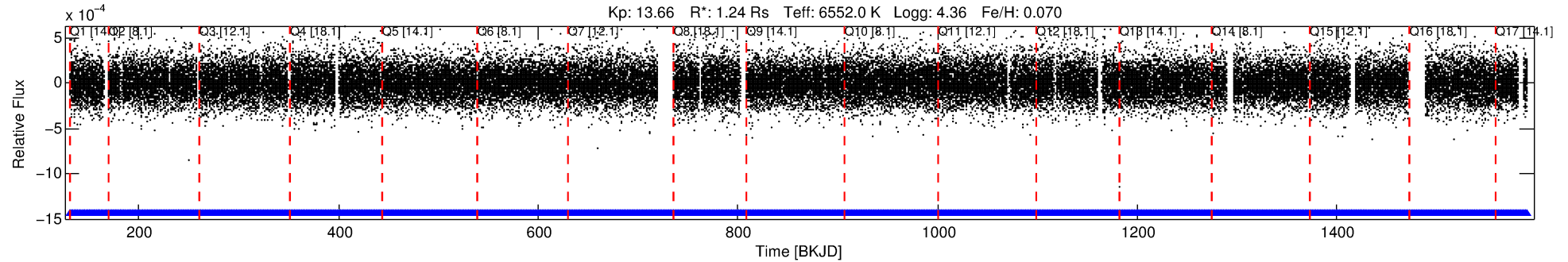
## Ephemeris Match Information For 007281301-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007281301-01	7281301	RR-Lyr-pri	7198959	1:1	505.4	50	116	7.86	13.66	44521.00	Direct-PRF	0	3.63	17.32

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 7281301 Candidate: 1 of 1 Period: 0.567 d



## DV Fit Results:

Period = 0.56678 [0.00001] d  
Epoch = 131.8432 [0.0038] BKJD  
Rp/R\* = 0.0036 [0.0014]  
a/R\* = 1.62 [2.08]  
b = 0.50 [3.10]  
Seff = 11983.54 [2994.14]  
Teq = 2668 [167] K  
Rp = 0.48 [0.21] Re  
a = 0.0146 [0.0024] AU  
Ag = 9.24 [8.45] [0.98σ]  
Teffp = 7193 [1587] K [2.84σ]

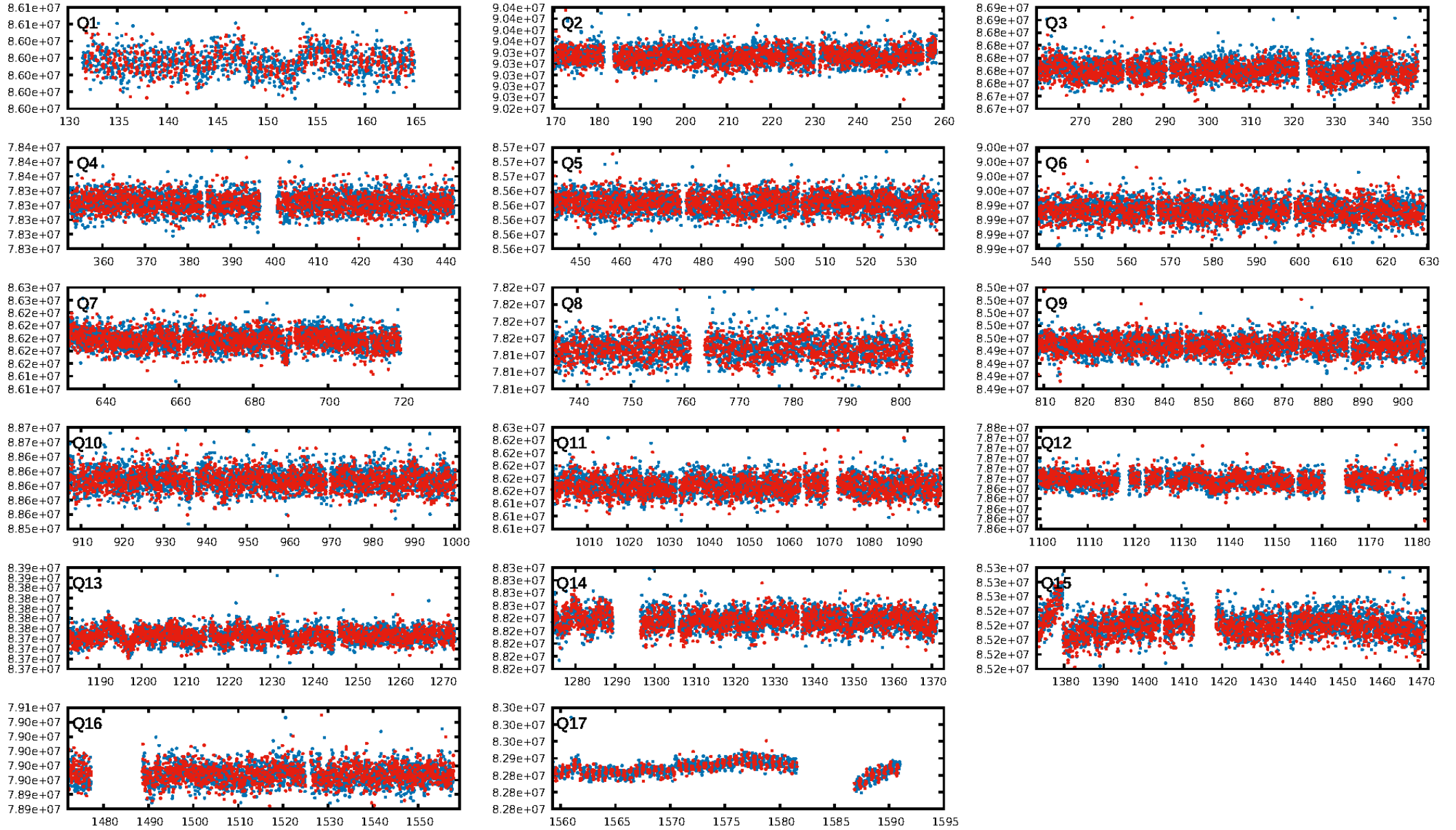
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.39e-17  
RollingBand-fgt: 1.00 [2260/2260]  
**GhostDiagnostic-chr: 0.3723**  
**Centroid-sig: 0.0%**  
Centroid-so: 3.934 arcsec [2.76σ]  
OotOffset-rm: 1.254 arcsec [1.97σ]  
KicOffset-rm: 1.372 arcsec [2.18σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.12 [2/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:36:26 Z

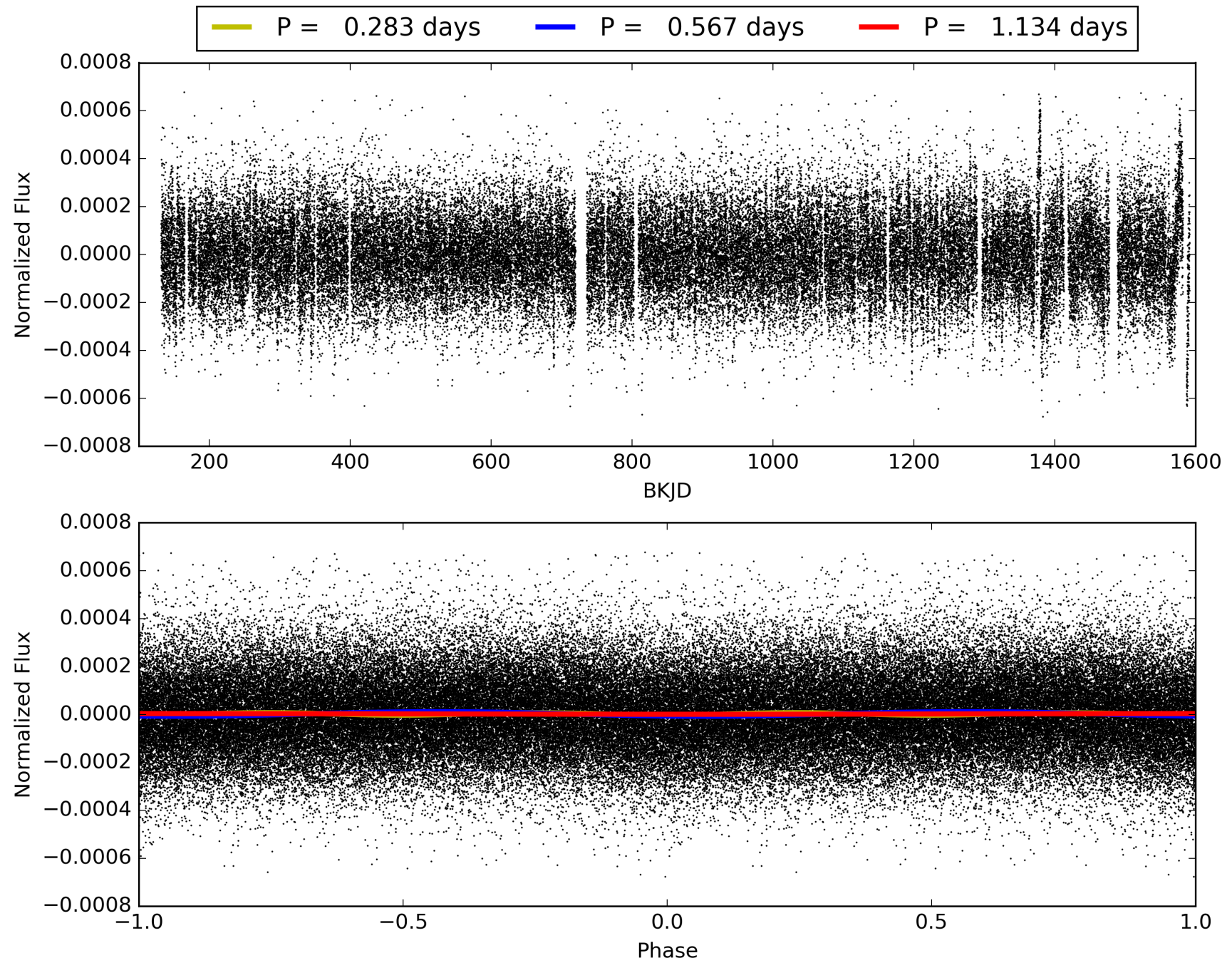
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007281301-01, PDC Light Curves



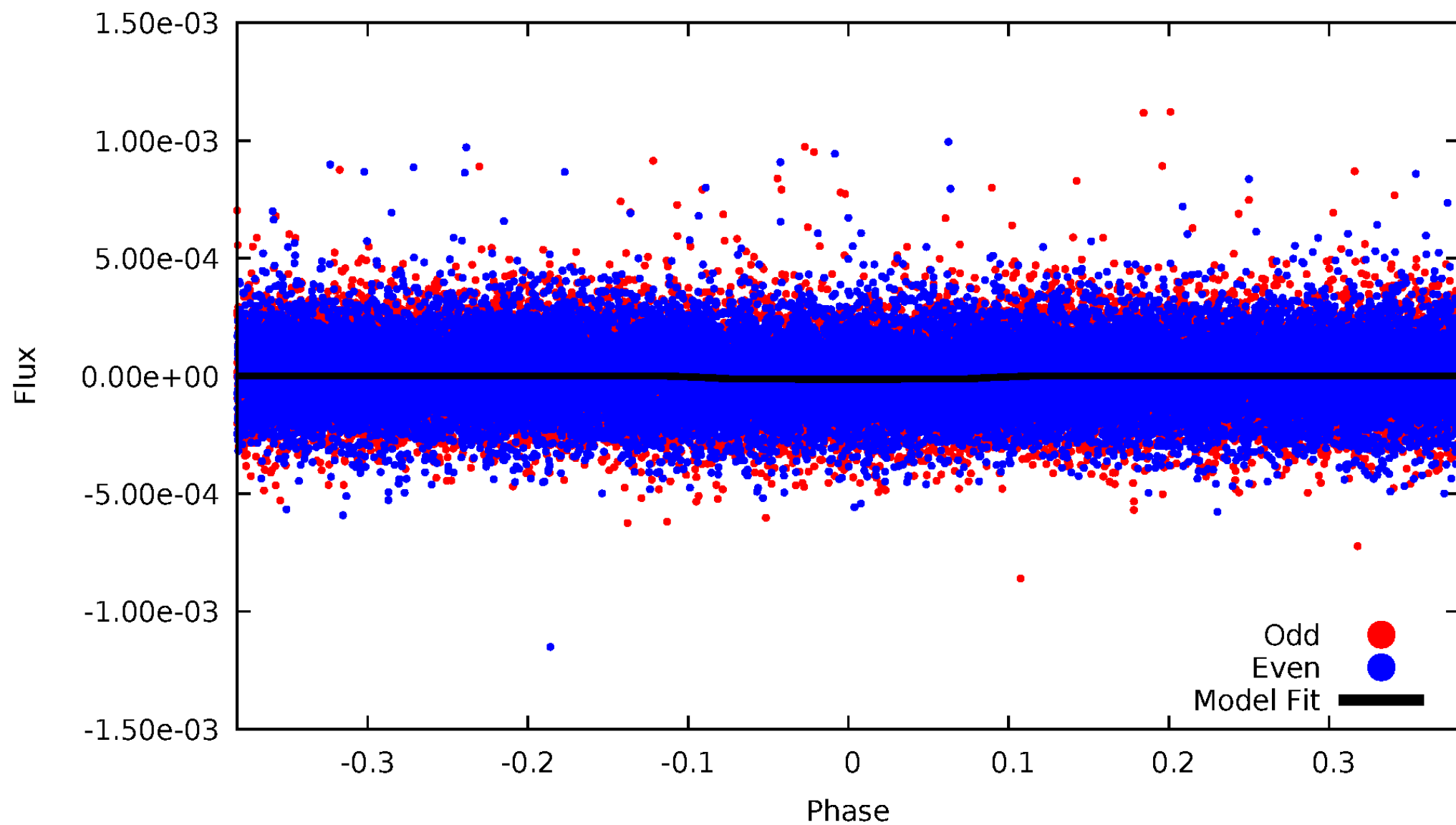


TCE 007281301-01



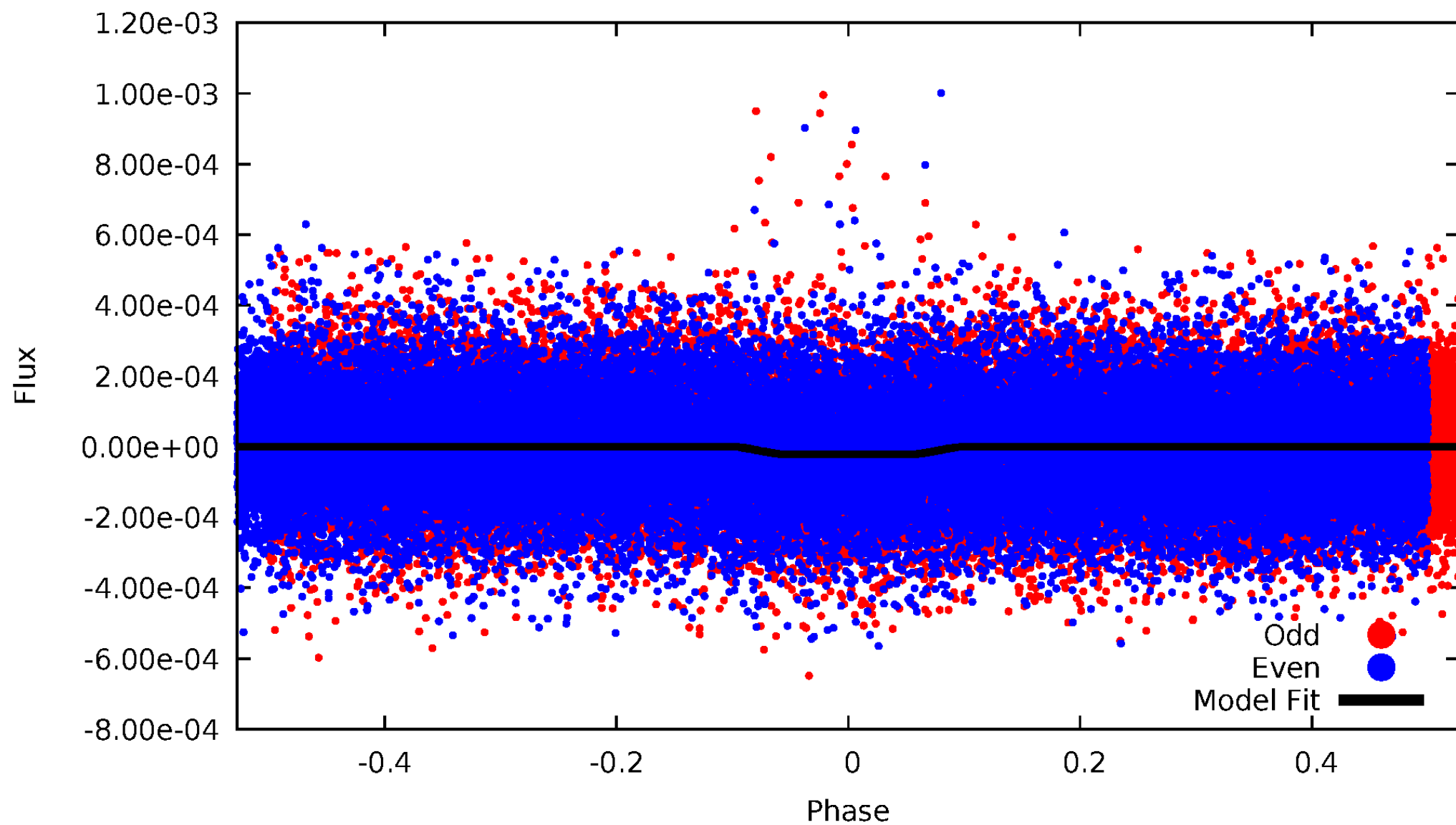
DV Odd/Even

TCE 007281301-01



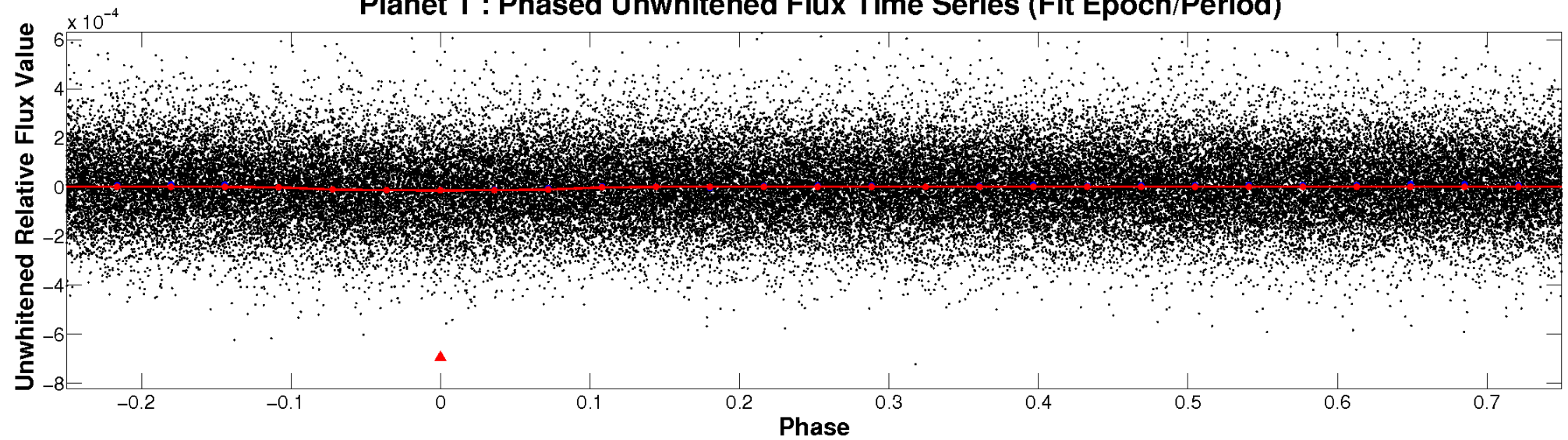
# ALT Odd/Even

TCE 007281301-01

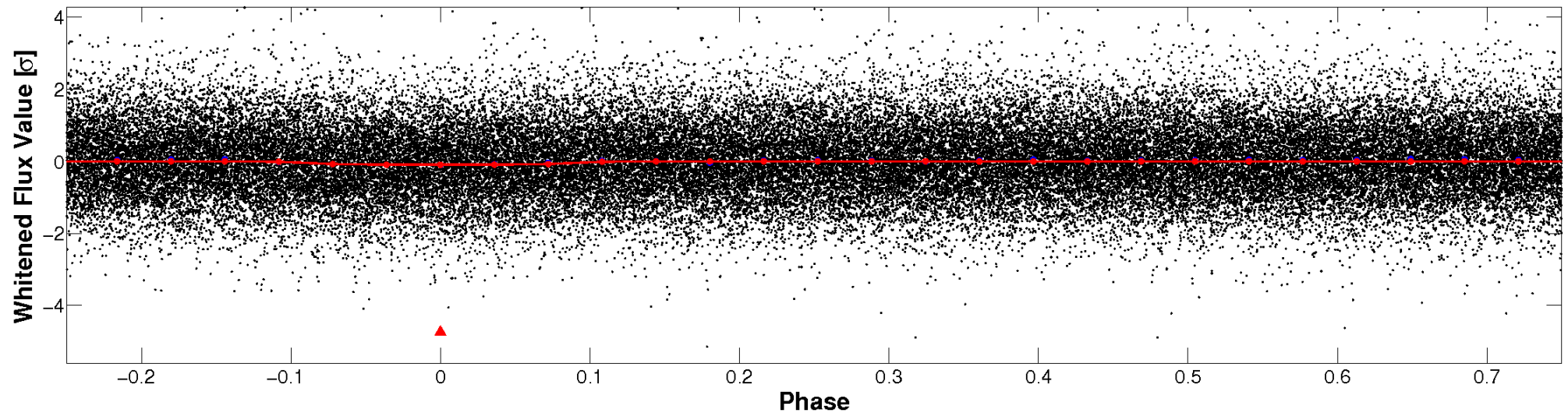


# Non-Whitened Vs. Whitened Light Curve

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



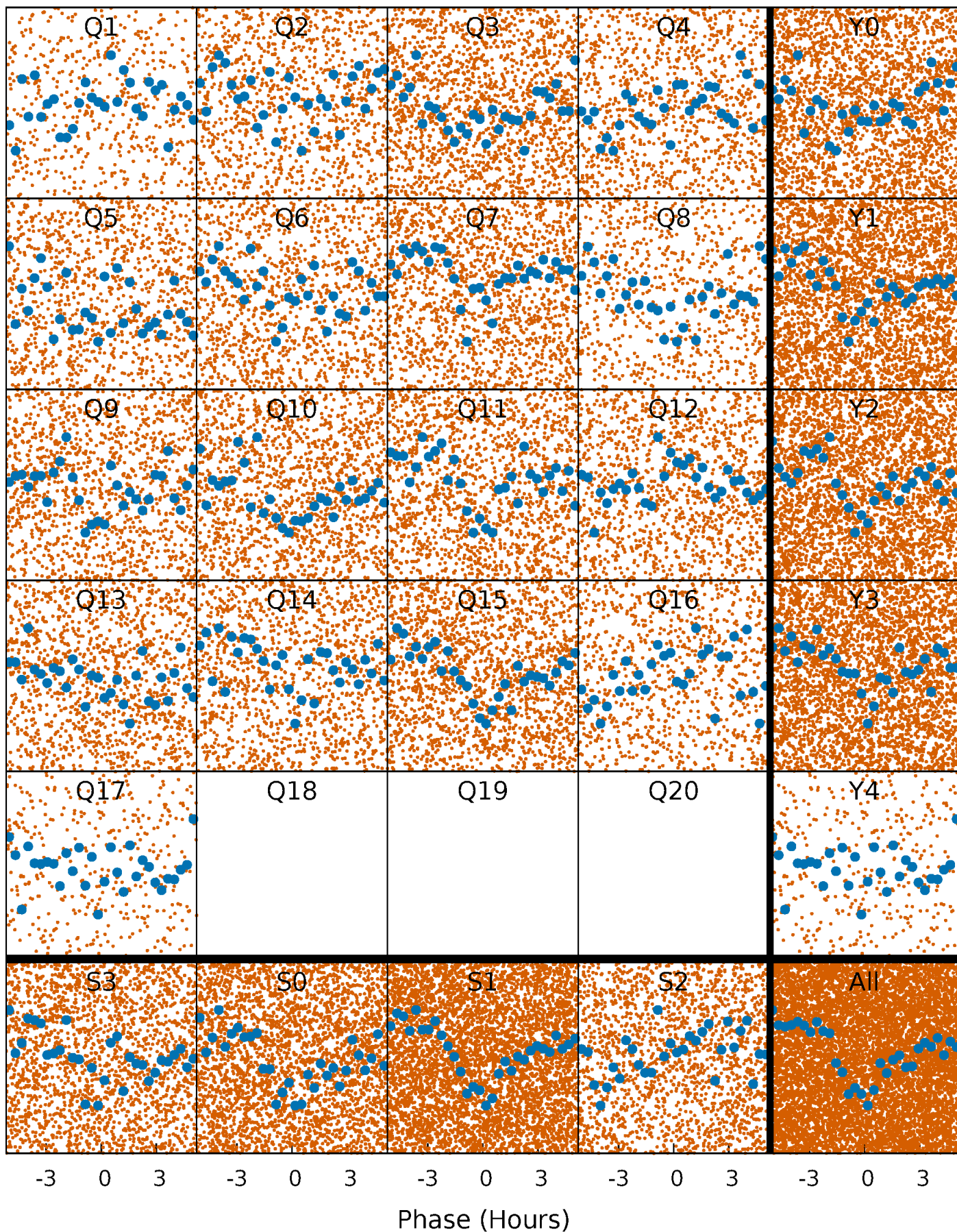
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

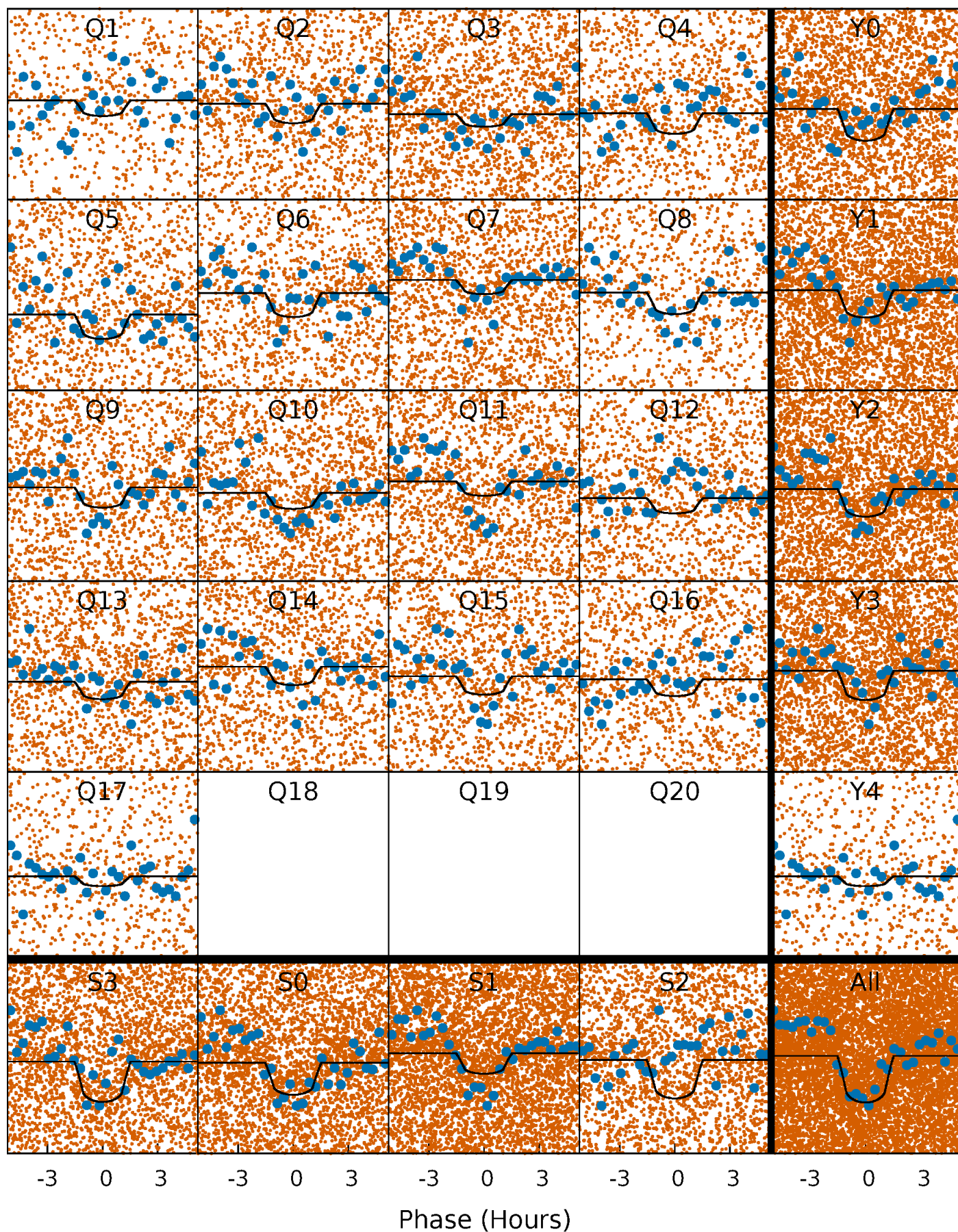
TCE 007281301-01   P= 0.566780 Days    $T_0=131.843160$  (BKJD)





# DV Quarter-Phased Transit Curves

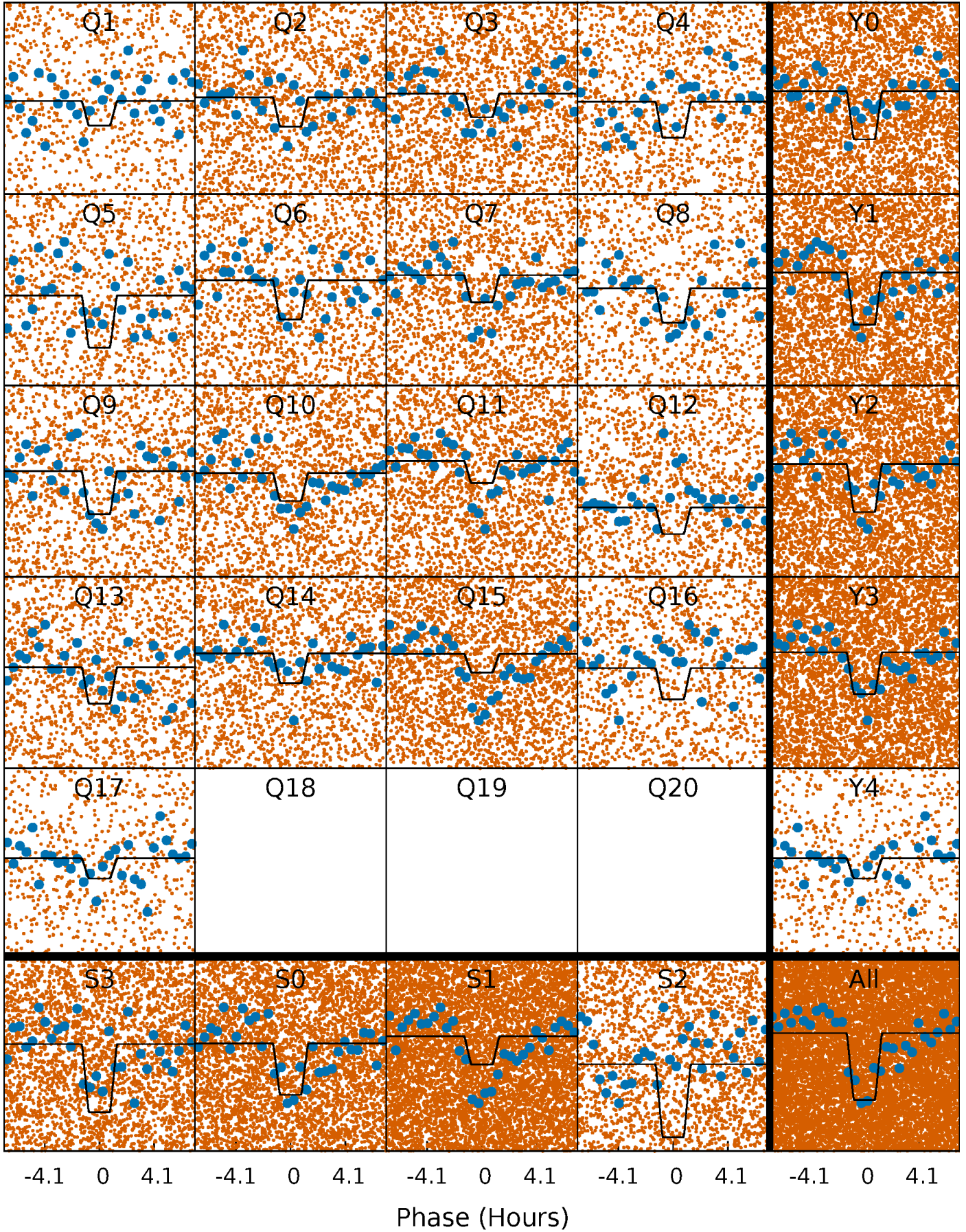
TCE 007281301-01 P= 0.566780 Days  $T_0=131.843160$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

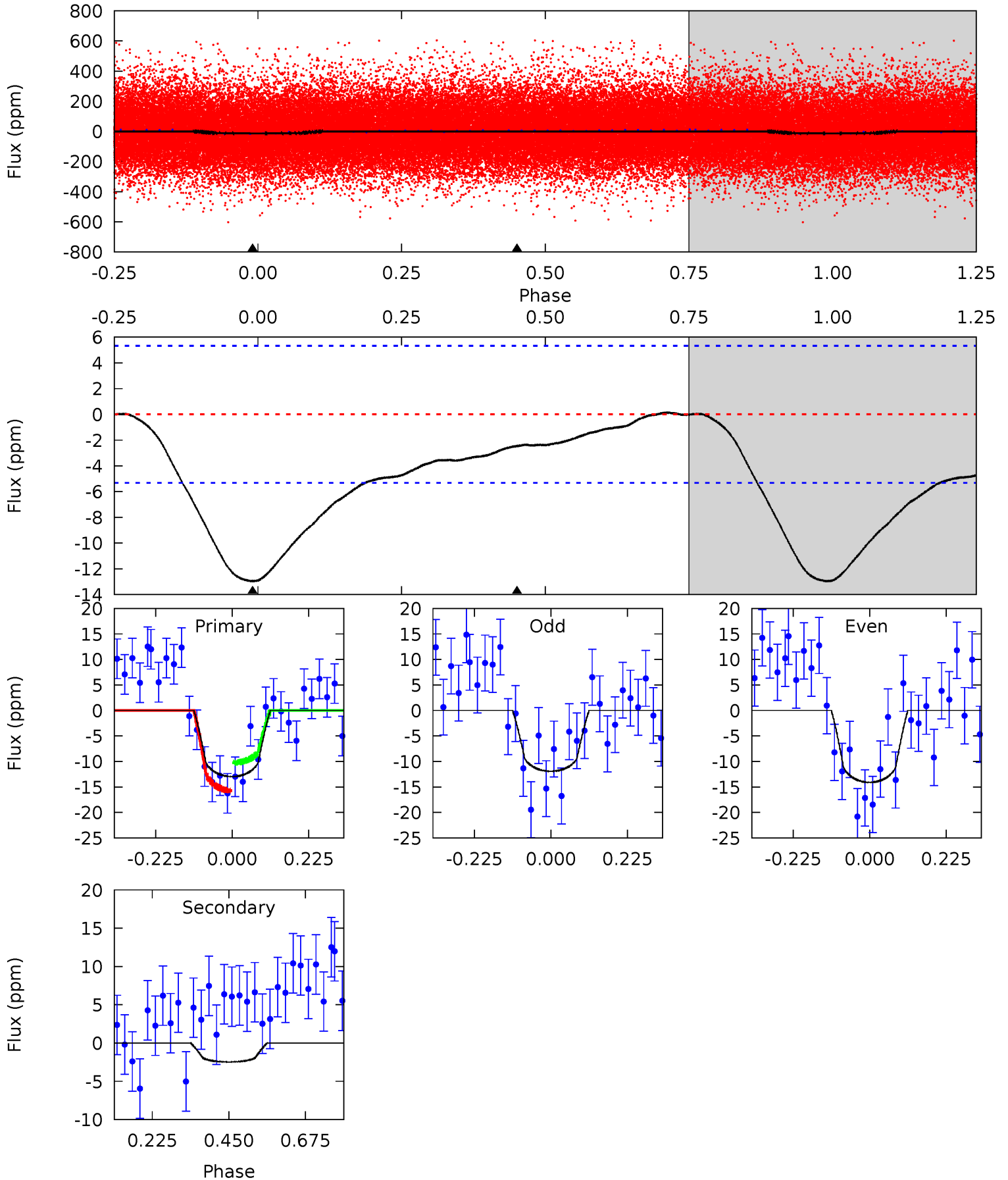
TCE 007281301-01 P= 0.566795 Days  $T_0=131.815281$  (BKJD)



# DV Model-Shift Uniqueness Test

007281301-01, P = 0.566780 Days, E = 131.276380 Days

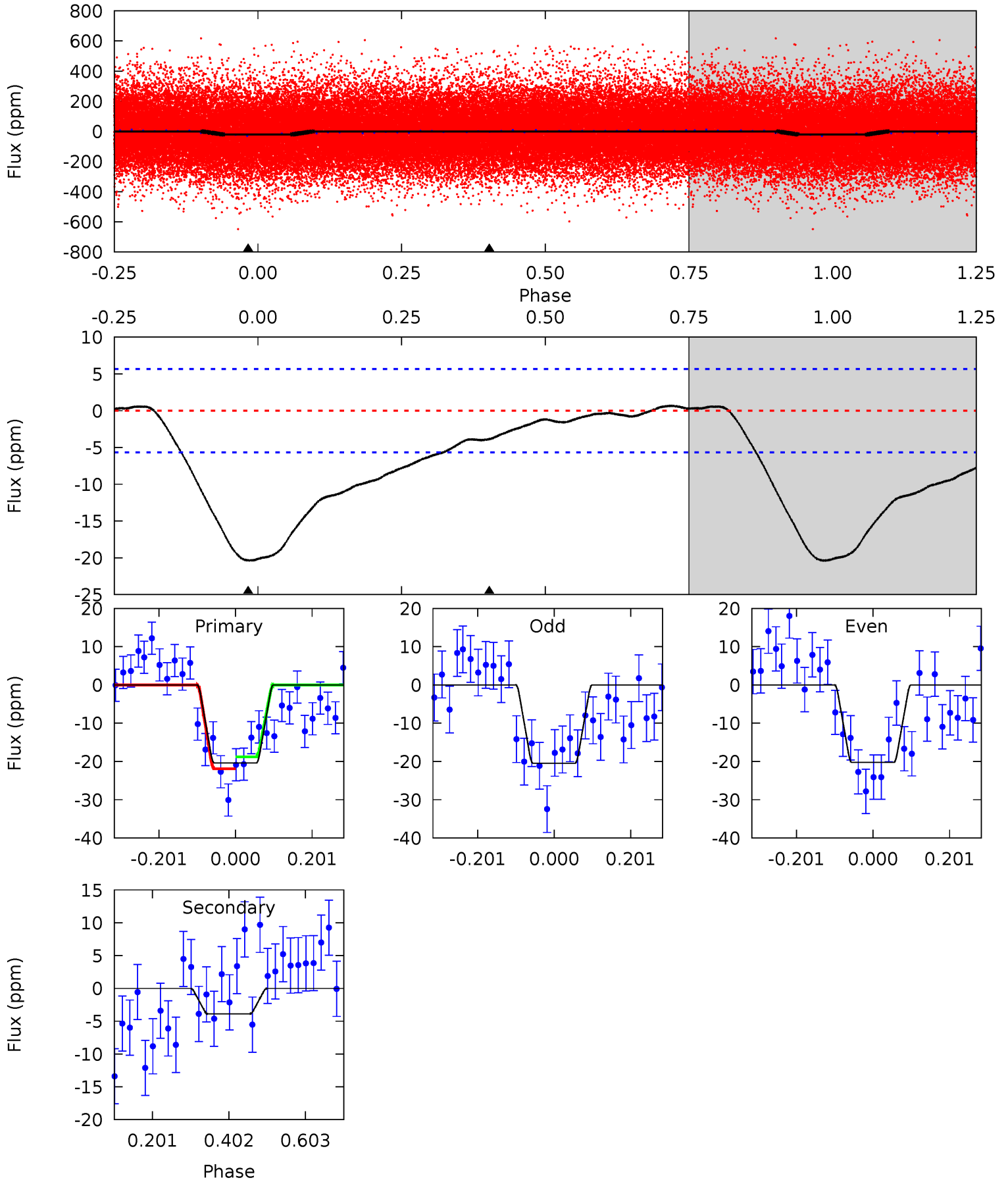
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	2.04	0	0	4.39	1.21	1.30	10.7	10.7	2.04	2.04	0.90	0.78	0.01	2.28



# Alt Model-Shift Uniqueness Test

007281301-01, P = 0.566795 Days, E = 131.248486 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
15.9	3.03	0	0	4.42	1.28	2.18	15.9	15.9	3.03	3.03	0.08	1.05	0.03	1.22





### Stellar Parameters For KIC 007281301

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$6552^{+78}_{-88}$	$4.359^{+0.022}_{-0.135}$	$0.070^{+0.150}_{-0.150}$	$1.242^{+0.240}_{-0.060}$	$1.288^{+0.093}_{-0.074}$	$0.947^{+0.086}_{-0.371}$
	+1%/-1%	+1%/-3%	+214%/-214%	+19%/-5%	+7%/-6%	+9%/-39%
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 007281301-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2 \pm 1$	$0.49^{+0.23}_{-0.20}$	$3773^{+167}_{-85}$	$4286^{+1288}_{-1143}$	$1.138^{+2.242}_{-0.713}$
Alt.	$-4 \pm 1$	$0.66^{+0.21}_{-0.20}$	$3775^{+182}_{-91}$	$4127^{+876}_{-757}$	$0.994^{+1.157}_{-0.501}$

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

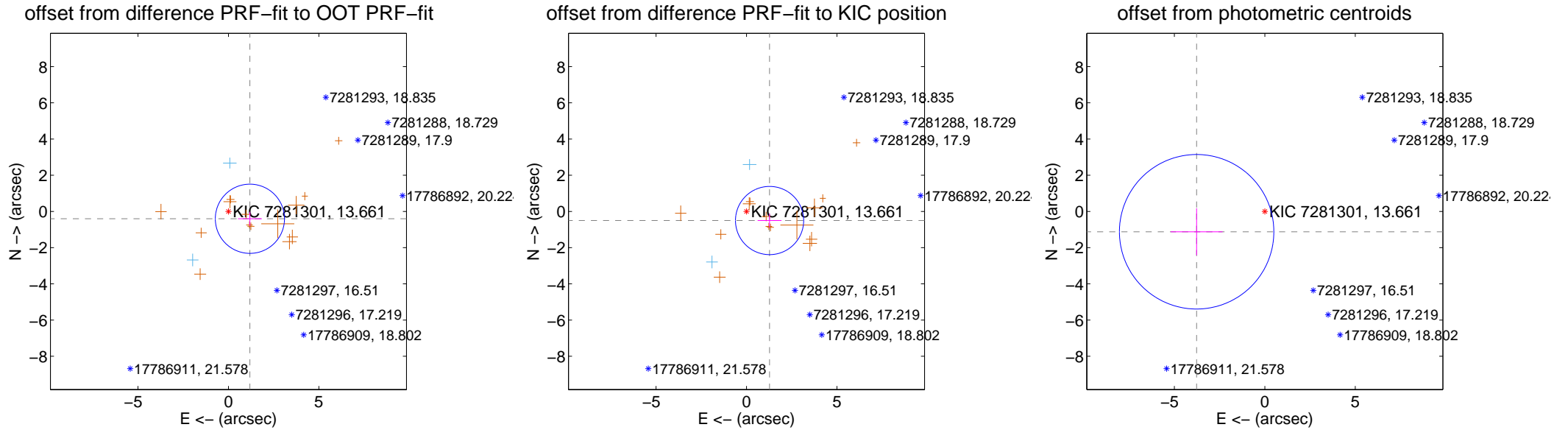
## DV Centroid Data

Supplemental centroid analysis for 007281301-01. Kepler magnitude: 13.66. Transit SNR 9.00

There are 2 quarters with good PRF difference image offsets

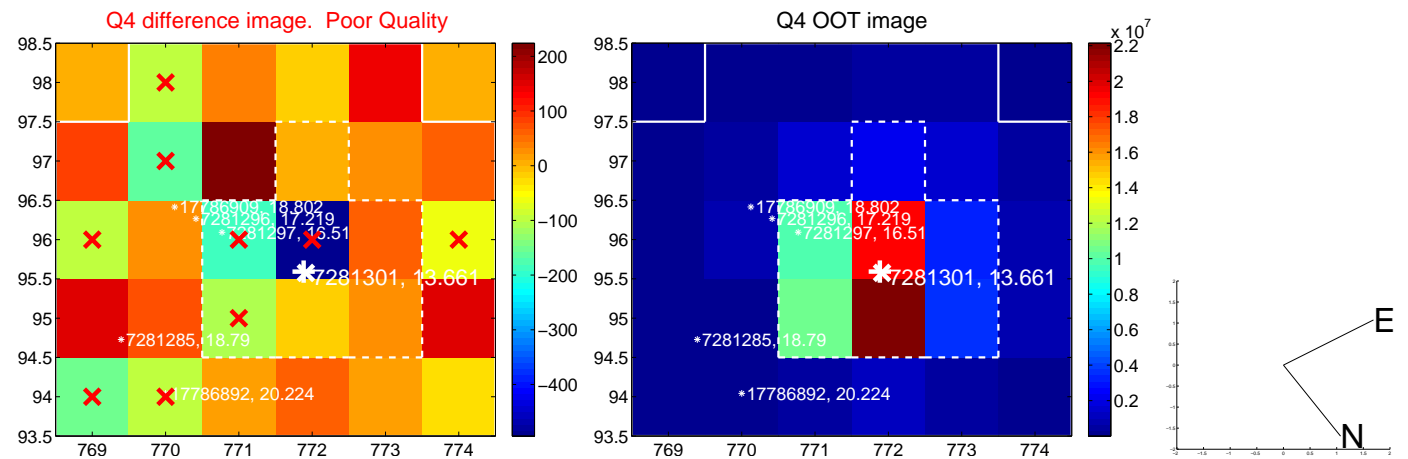
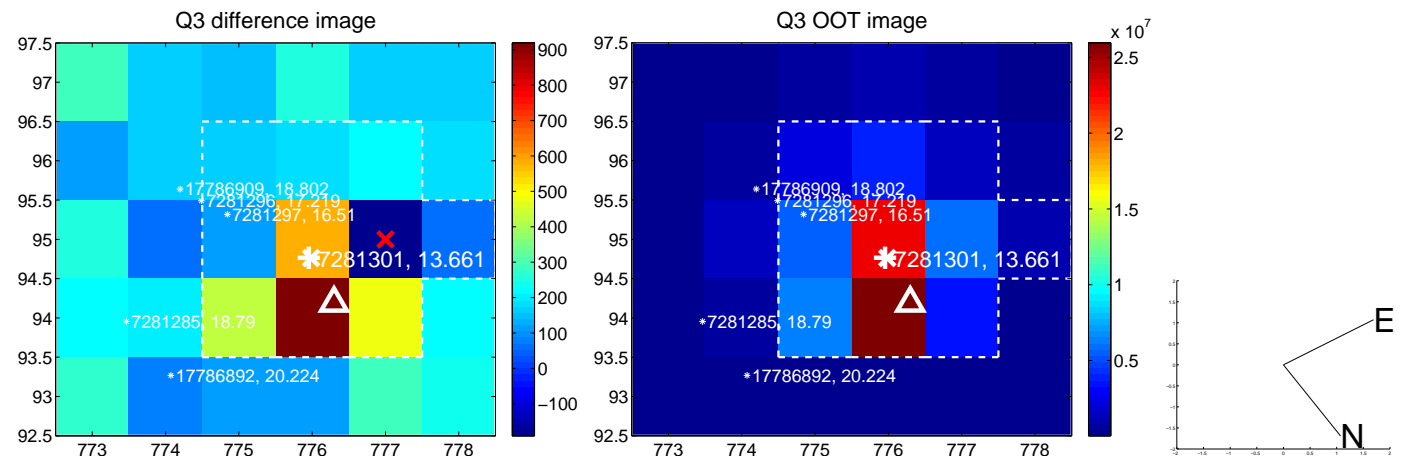
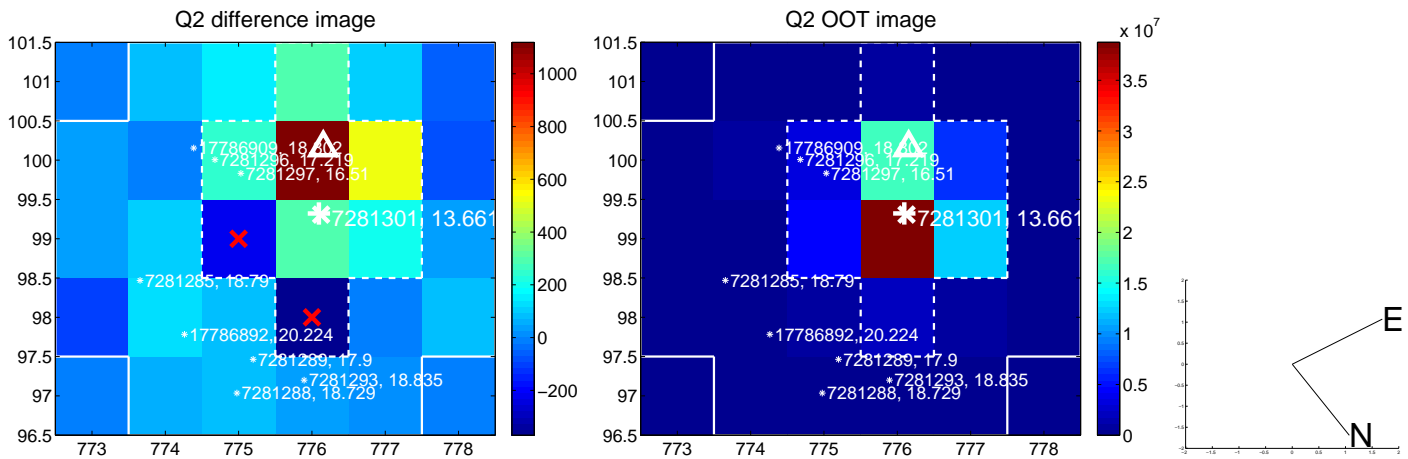
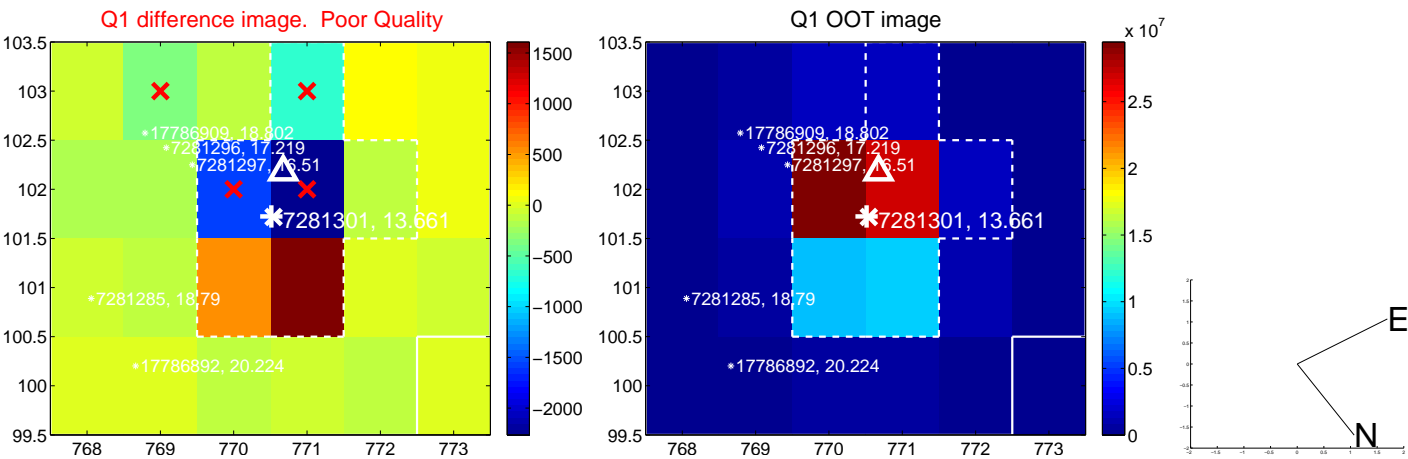
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.254 \pm 0.637$	1.97	$-1.187 \pm 0.661$	$-0.405 \pm 0.383$
PRF-fit source offset from KIC position	$1.372 \pm 0.628$	2.18	$-1.276 \pm 0.658$	$-0.502 \pm 0.380$
photometric centroid source offset	$3.93 \pm 1.42$	2.76	$3.77 \pm 1.43$	$-1.12 \pm 1.30$

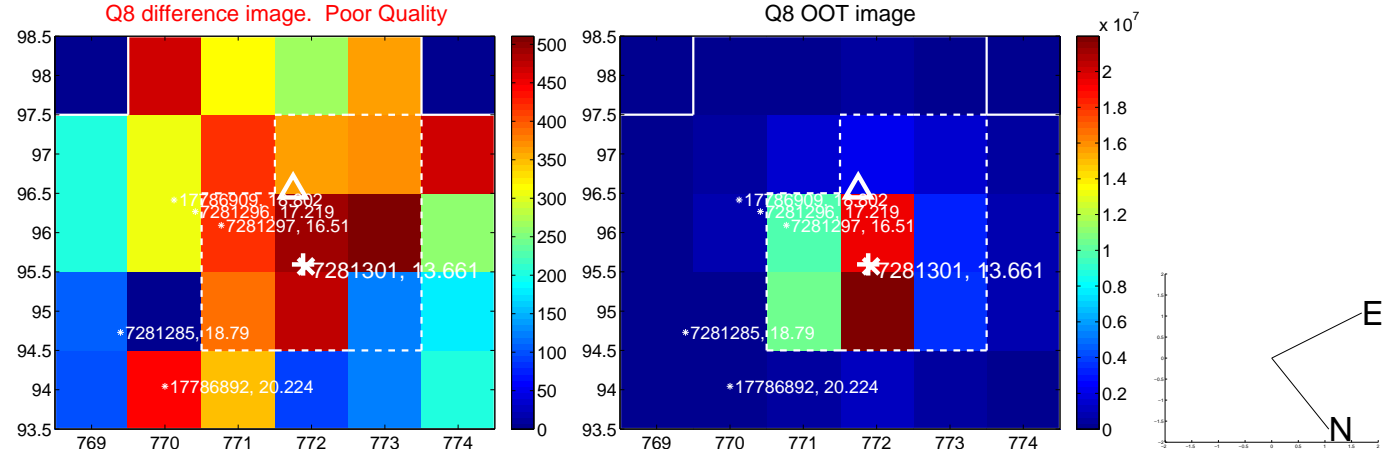
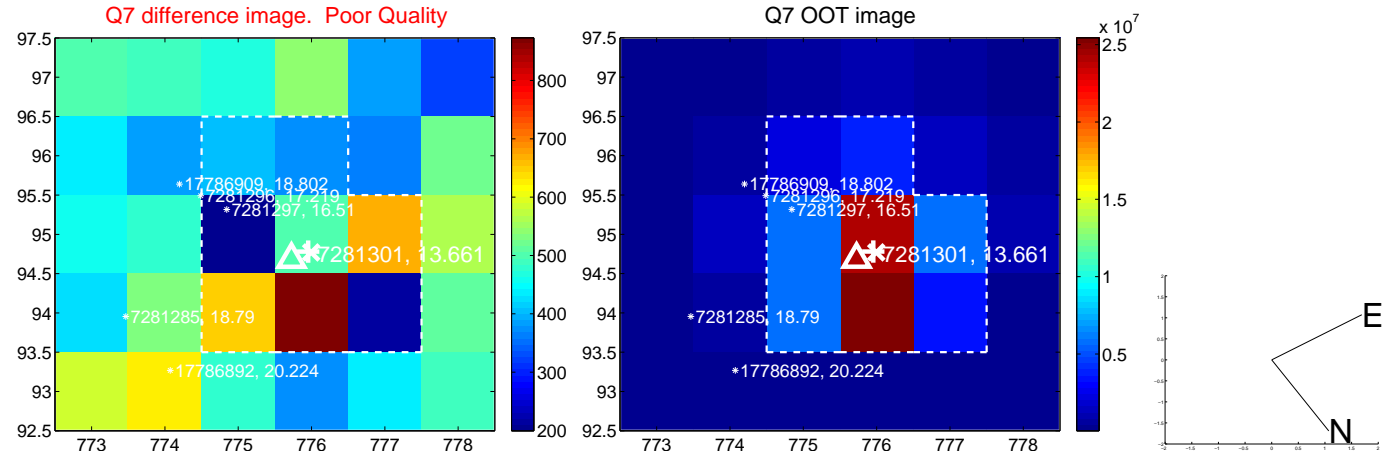
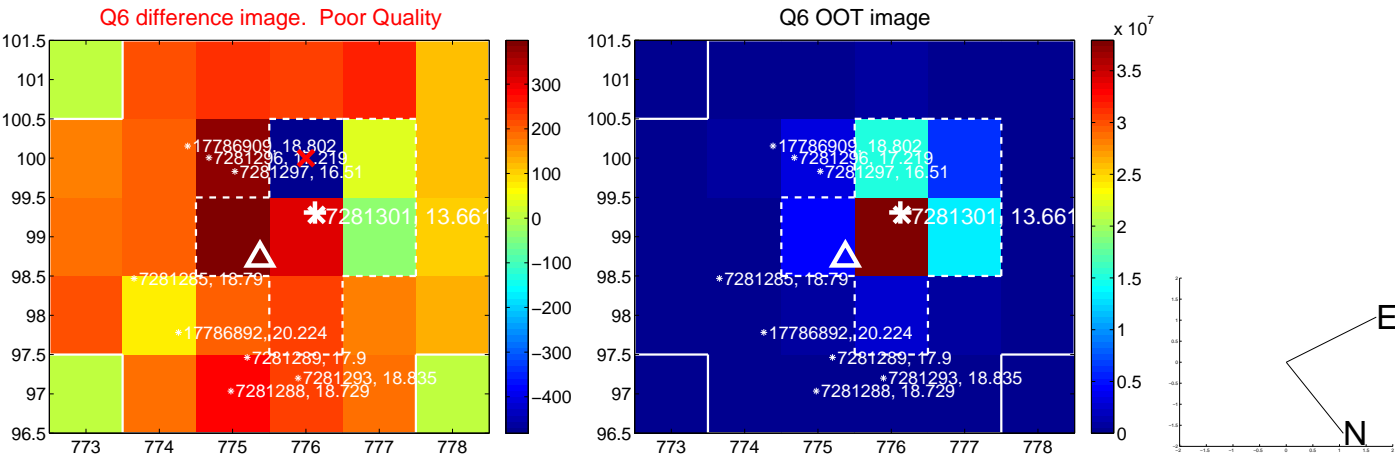
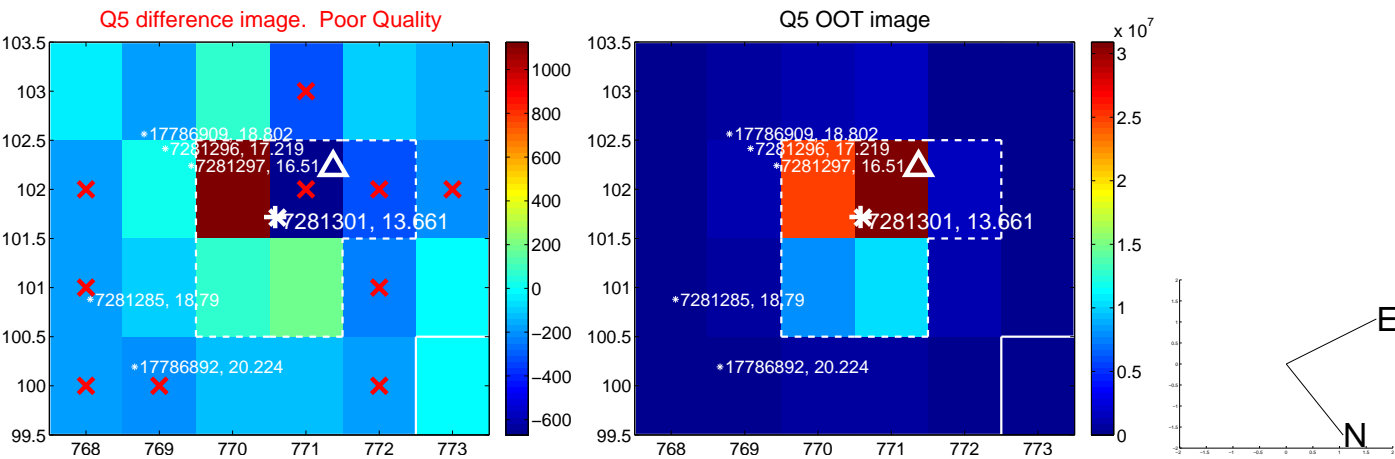


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

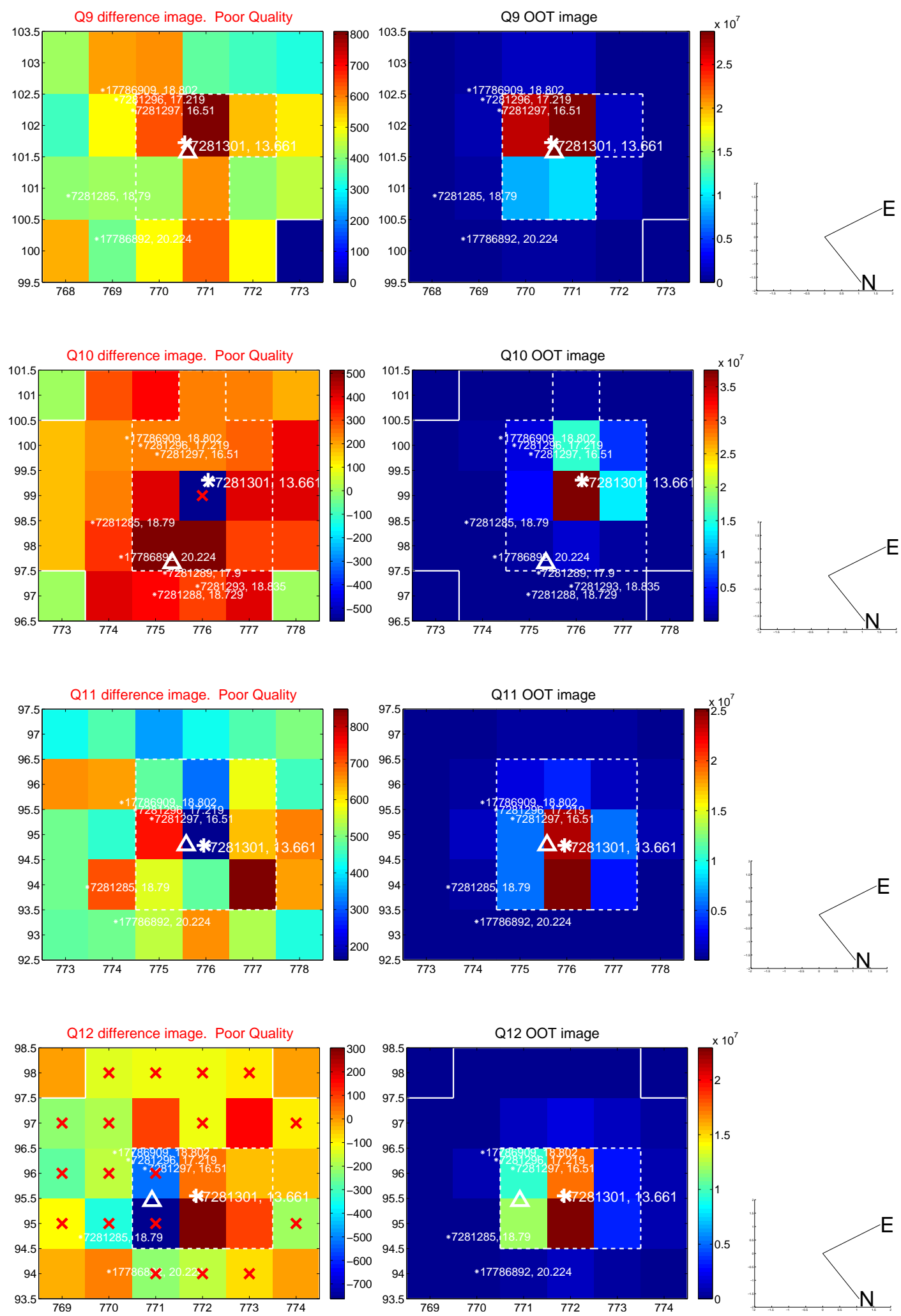


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

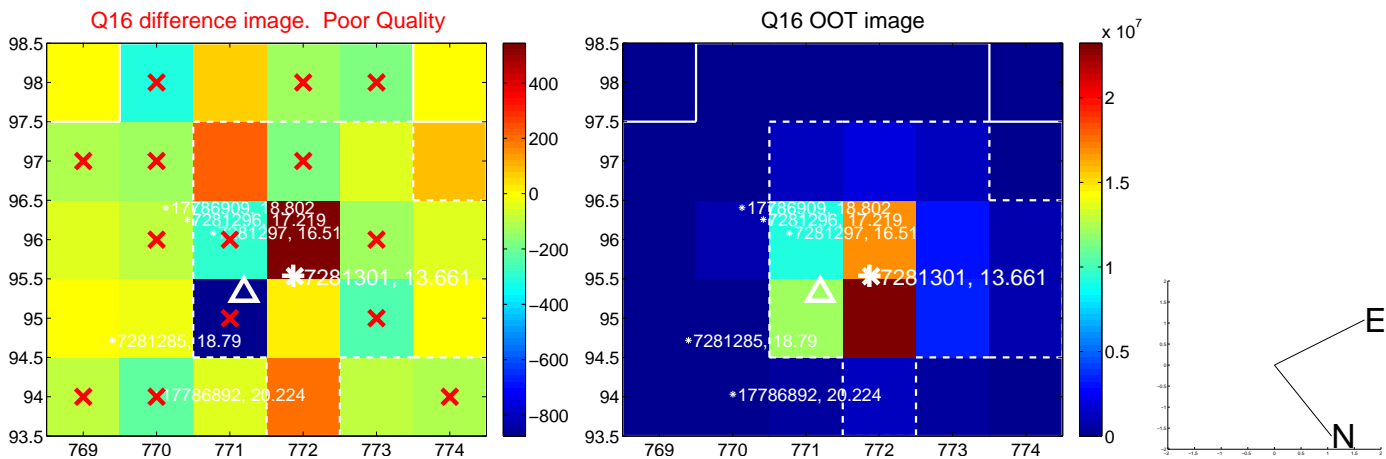
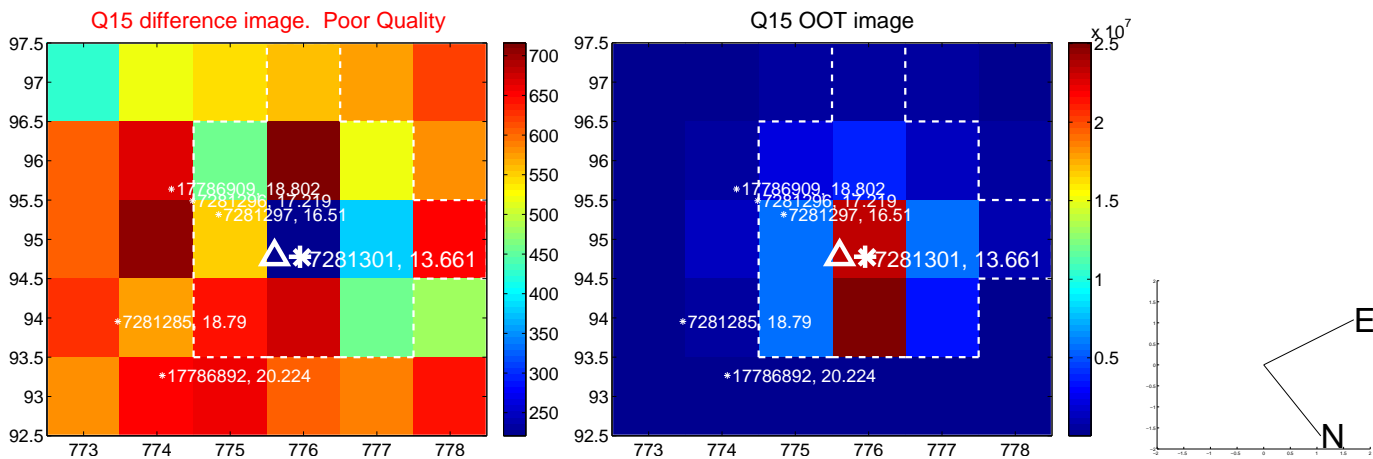
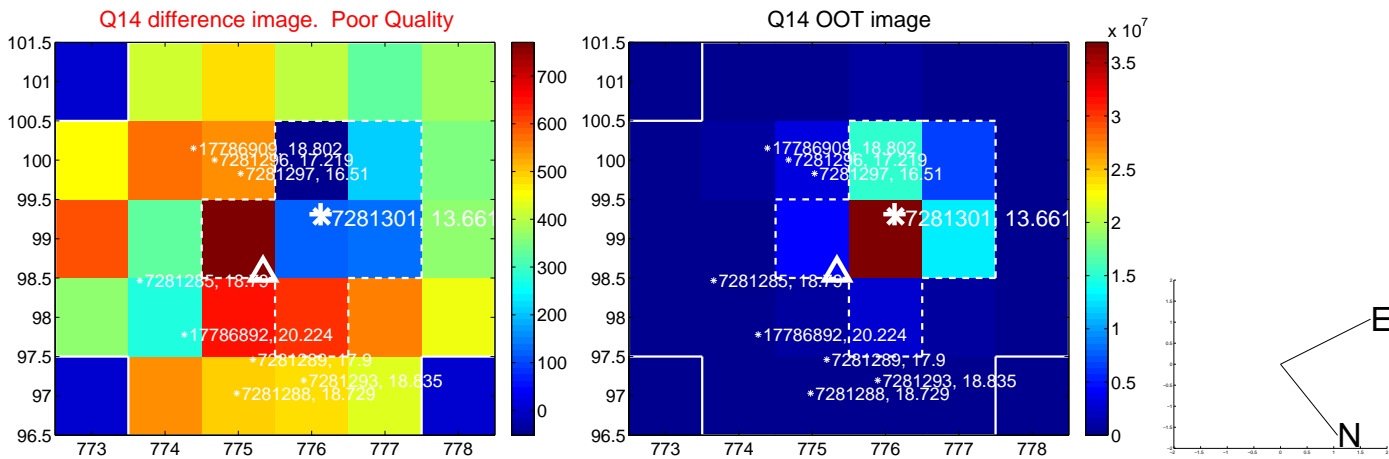
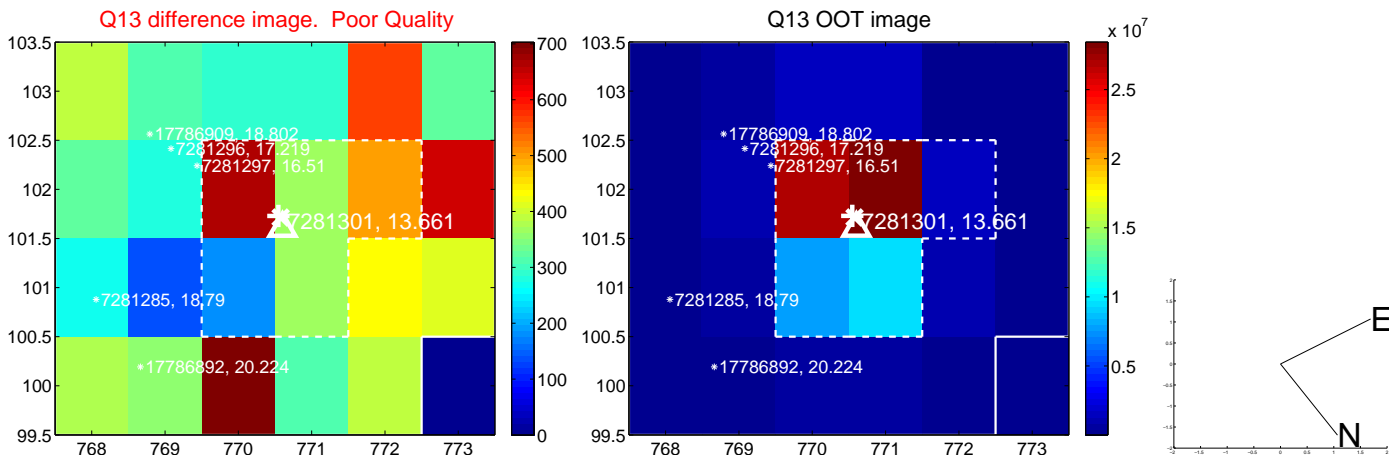




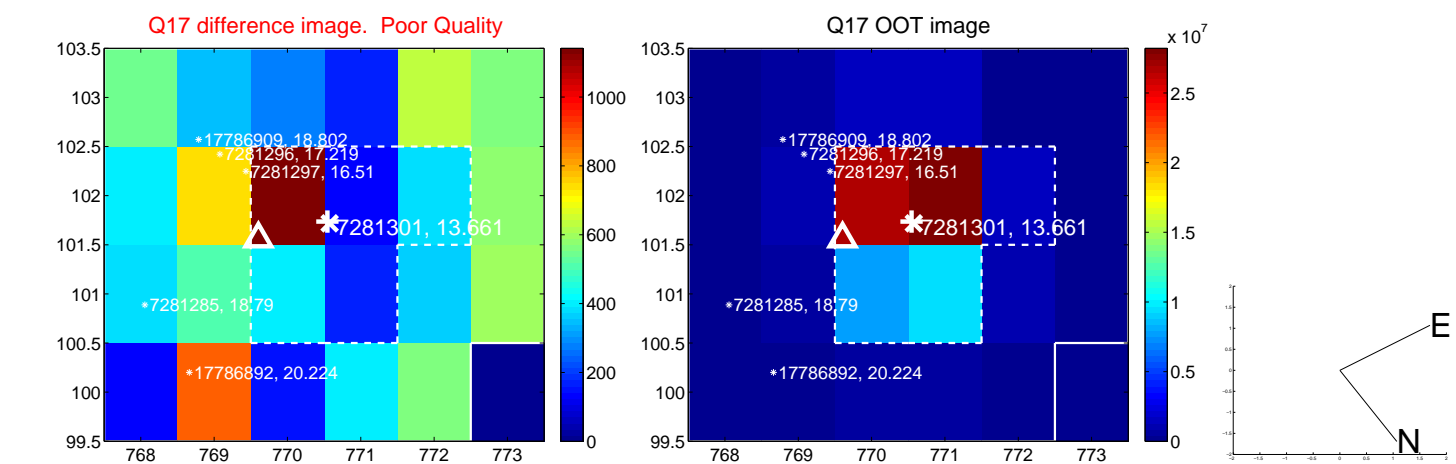
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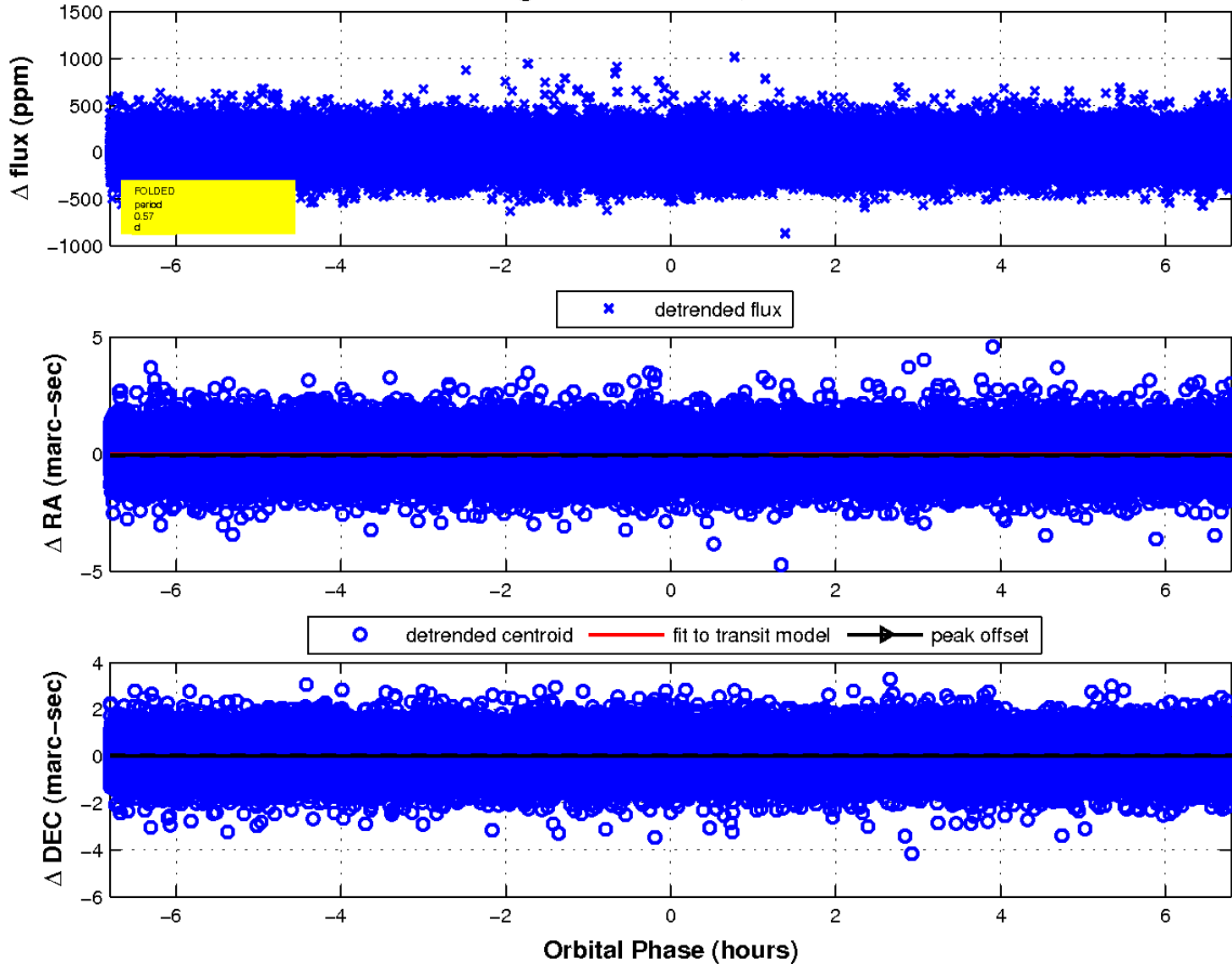
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

