

# KIC 007115200

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007115200-01	OBS	6821.01	0.566766	131.864277	8.9	4.669	9.1	8.4	1.35	5966	0.41	11387.55

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007115200-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_FEW_DIFFS—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 007115200-01

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	$\sigma_P$	$\sigma_T$
007115200-01	7115200	RR-Lyr-pri	7198959	1:1	1207.5	-17	-304	7.86	12.76	69255.00	Direct-PRF	0	3.67	21.99

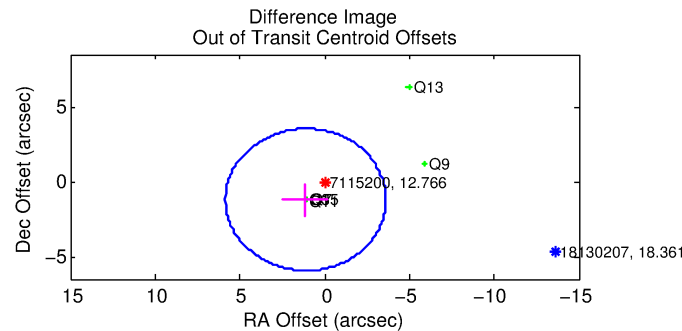
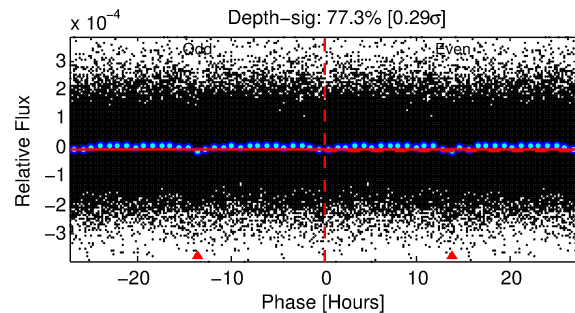
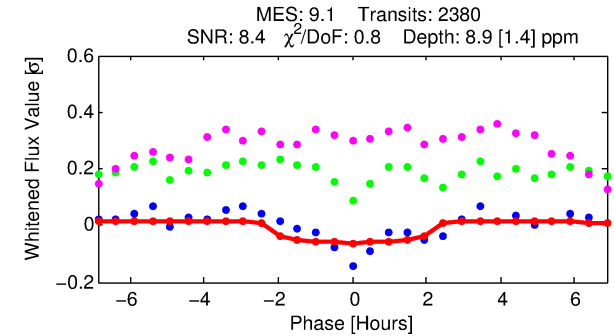
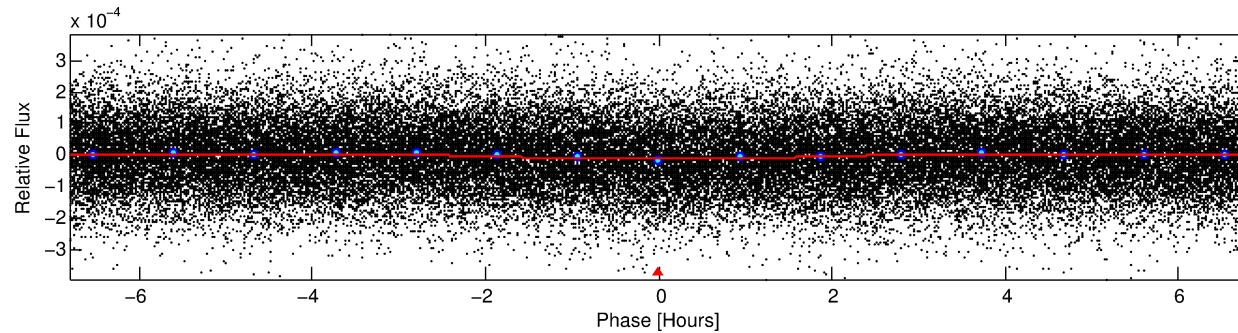
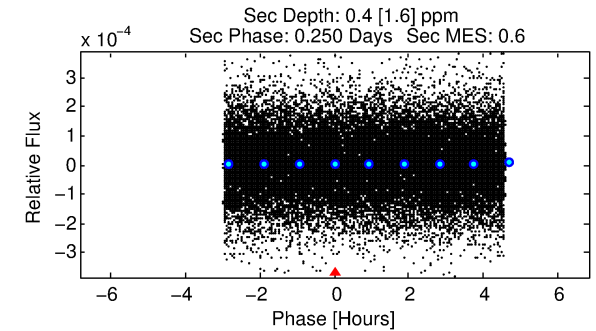
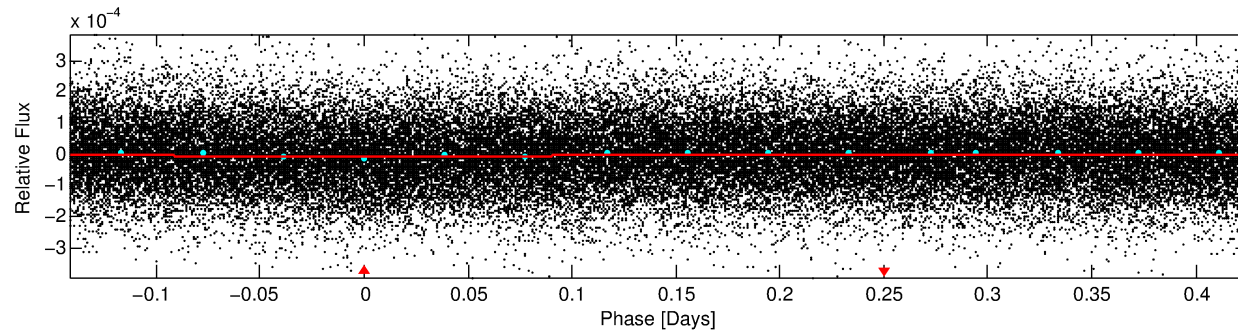
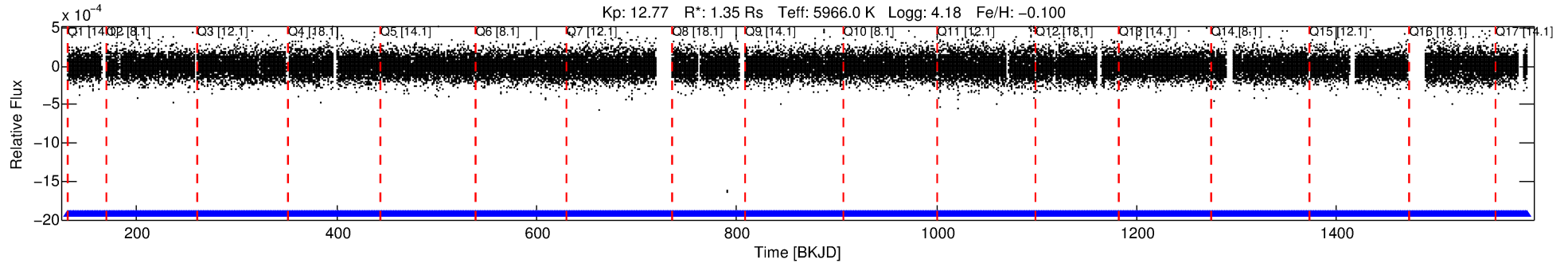
**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  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: 7115200 Candidate: 1 of 1 Period: 0.567 d

KOI: K06821 Corr: No Ephemeris Match

Kp: 12.77 R\*: 1.35 Rs Teff: 5966.0 K Logg: 4.18 Fe/H: -0.100



## DV Fit Results:

Period = 0.56677 [0.00001] d  
Epoch = 131.8643 [0.0051] BKJD  
Rp/R\* = 0.0028 [0.0027]  
a/R\* = 1.11 [1.01]  
b = 0.43 [9.14]  
Seff = 11387.55 [3456.37]  
Teq = 2634 [200] K  
Rp = 0.41 [0.41] Re  
a = 0.0135 [0.0025] AU  
Ag = 0.21 [1.03] [-0.76σ]  
Teffp = 2768 [3343] K [0.04σ]

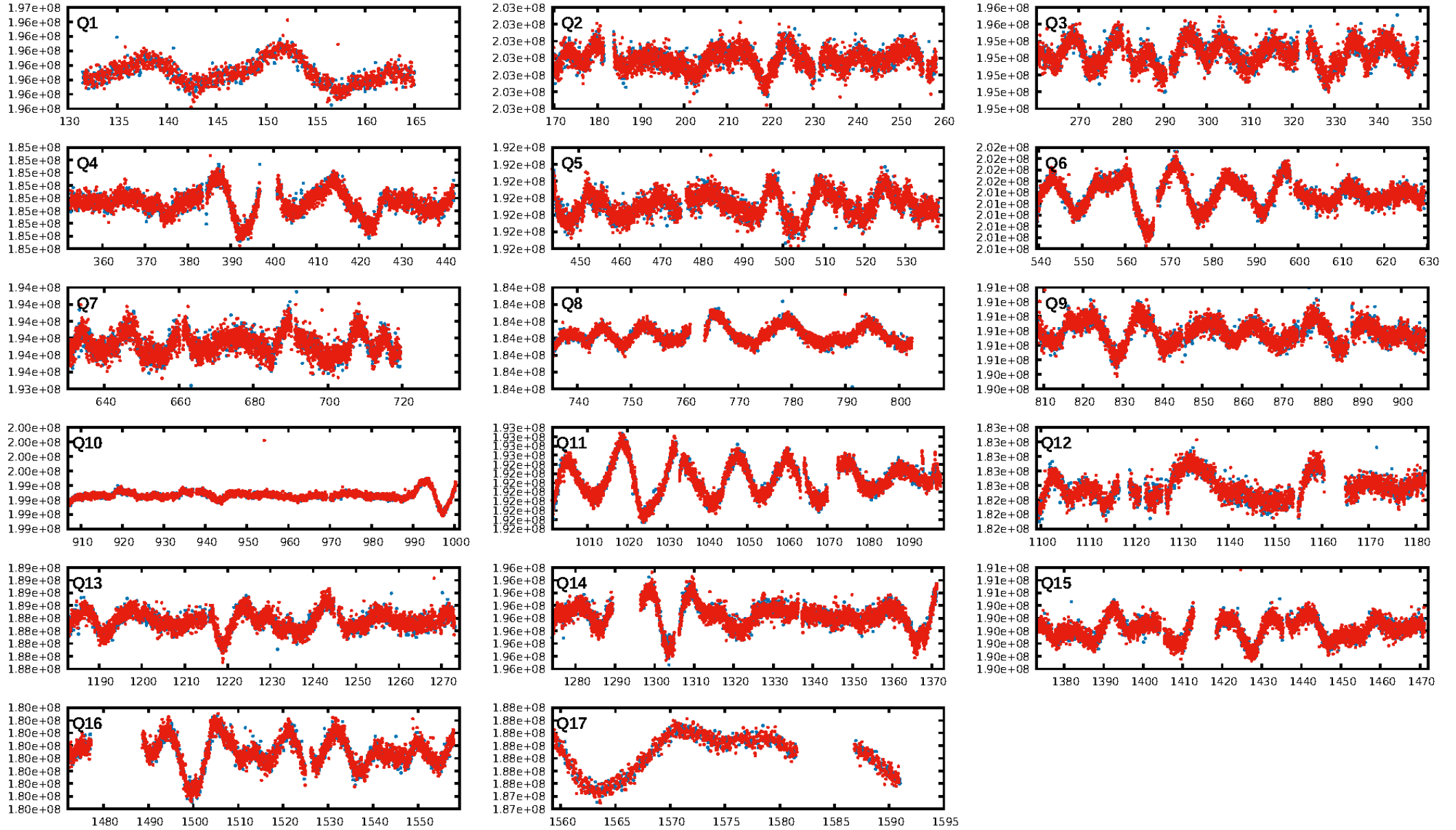
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2273/2273]  
**GhostDiagnostic-chr: 0.4157**  
Centroid-sig: 22.7%  
Centroid-so: 1.103 arcsec [1.16σ]  
OotOffset-rm: 1.643 arcsec [1.04σ]  
KicOffset-rm: 1.705 arcsec [1.04σ]  
OotOffset-st: 0/4/0/2 [6]  
KicOffset-st: 0/4/0/2 [6]  
DiffImageQuality-fgm: 0.67 [4/6]  
DiffImageOverlap-fno: 1.00 [17/17]

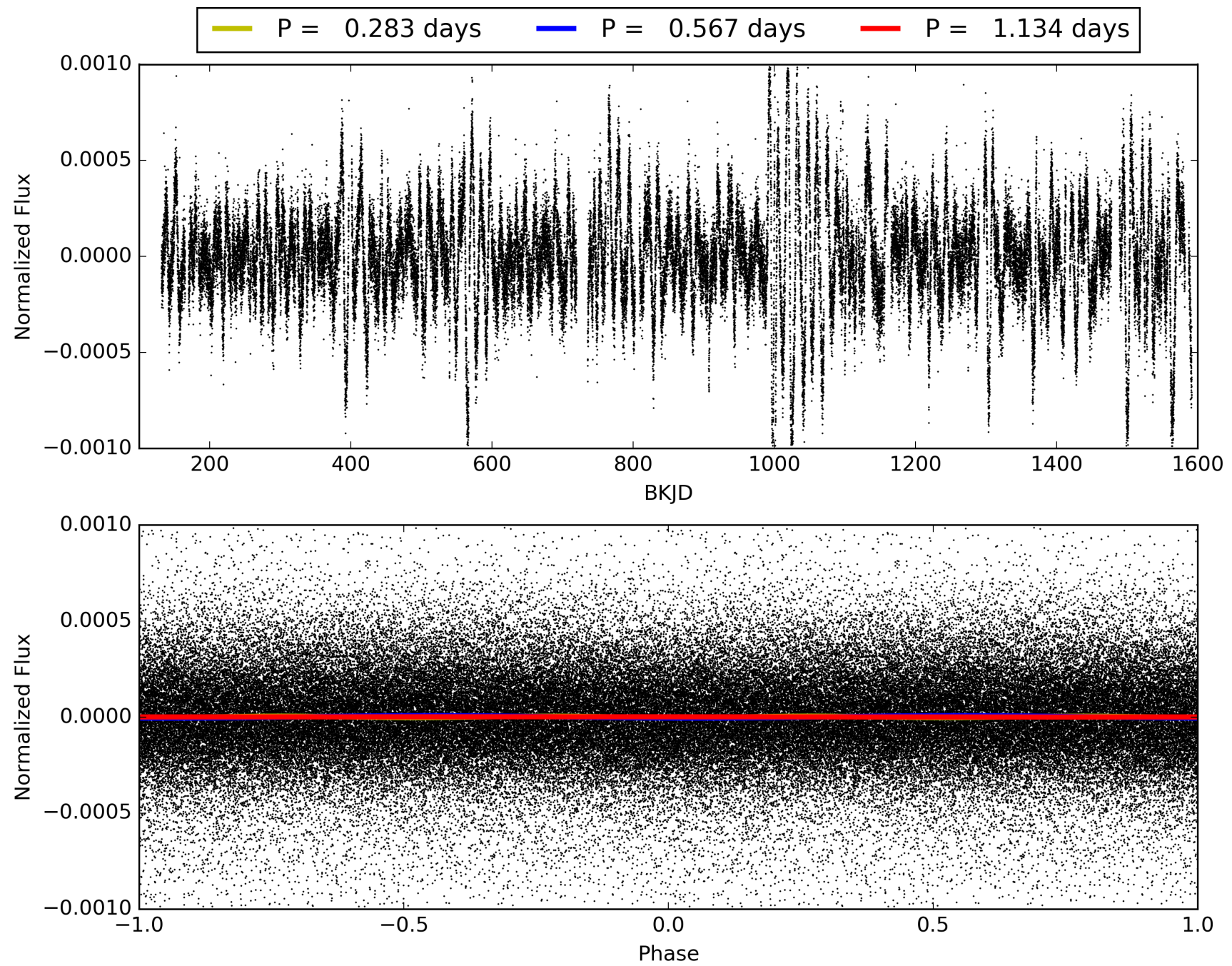
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:09:54 Z

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

# TCE 007115200-01, PDC Light Curves

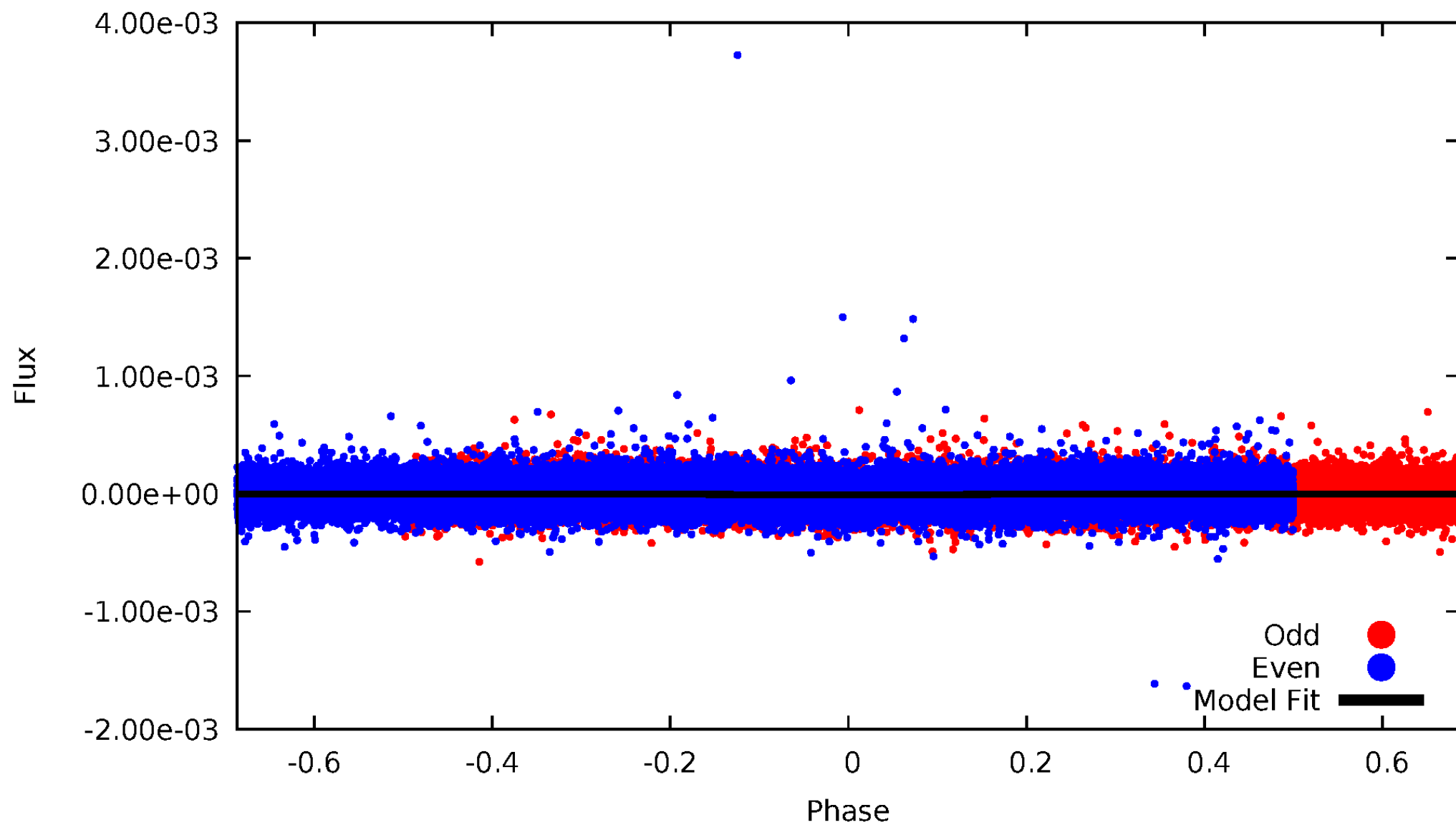


# TCE 007115200-01



# DV Odd/Even

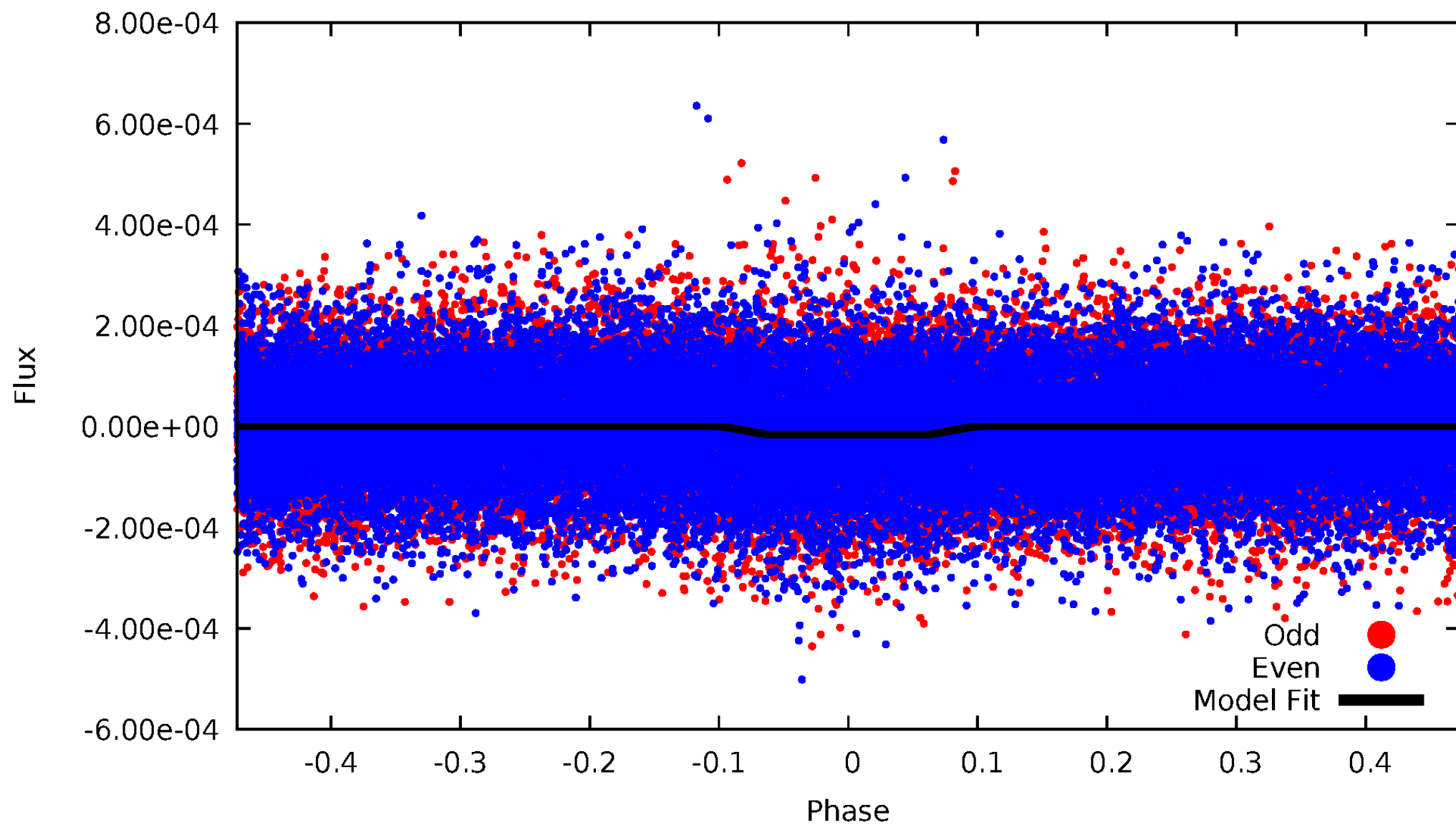
TCE 007115200-01





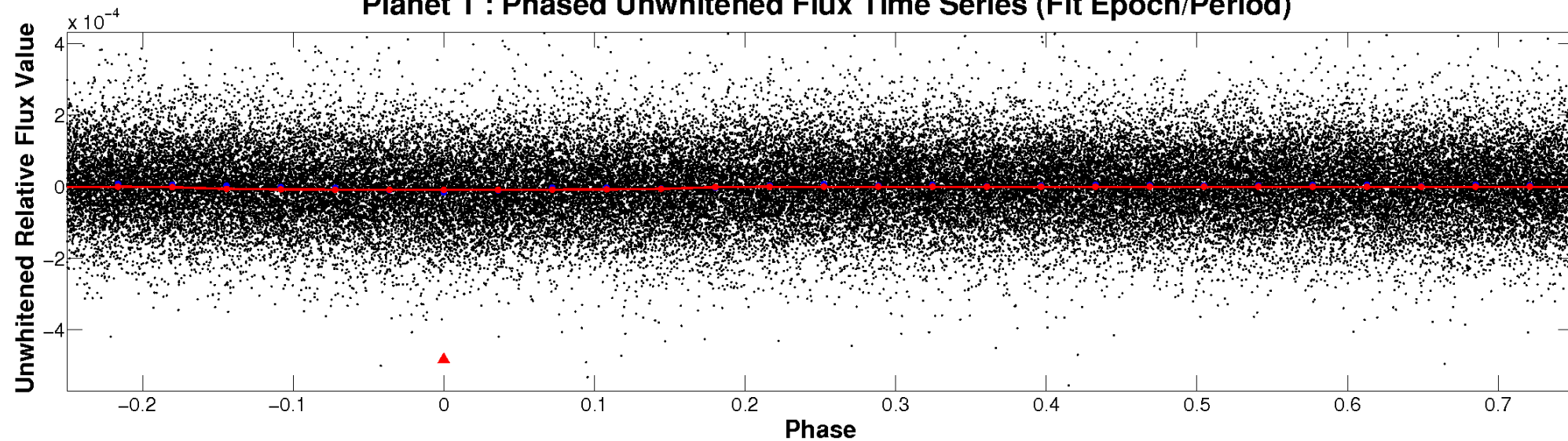
# ALT Odd/Even

TCE 007115200-01

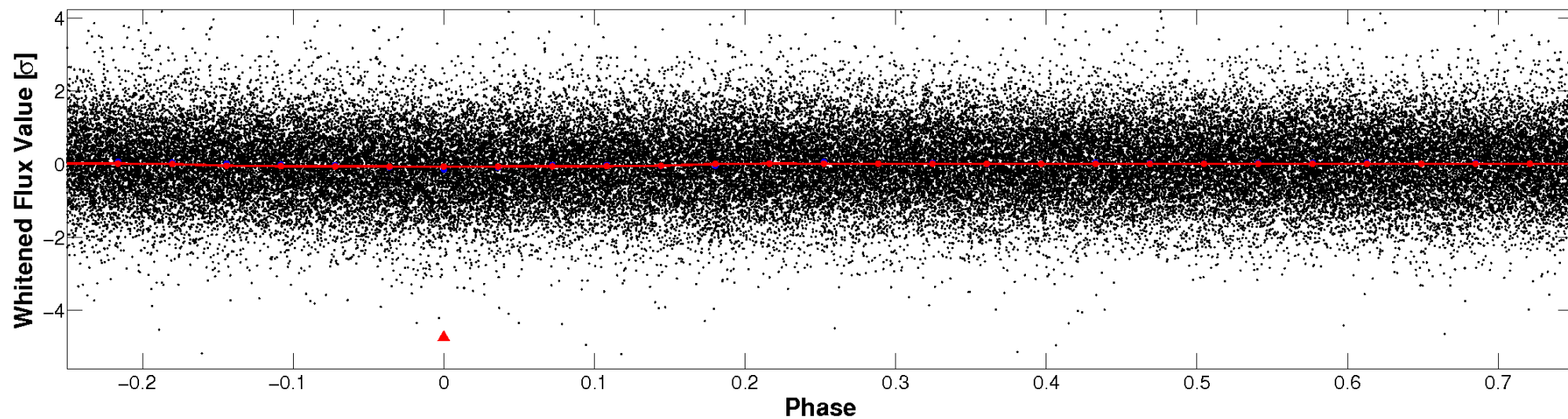


# Non-Whitened Vs. Whitened Light Curve

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

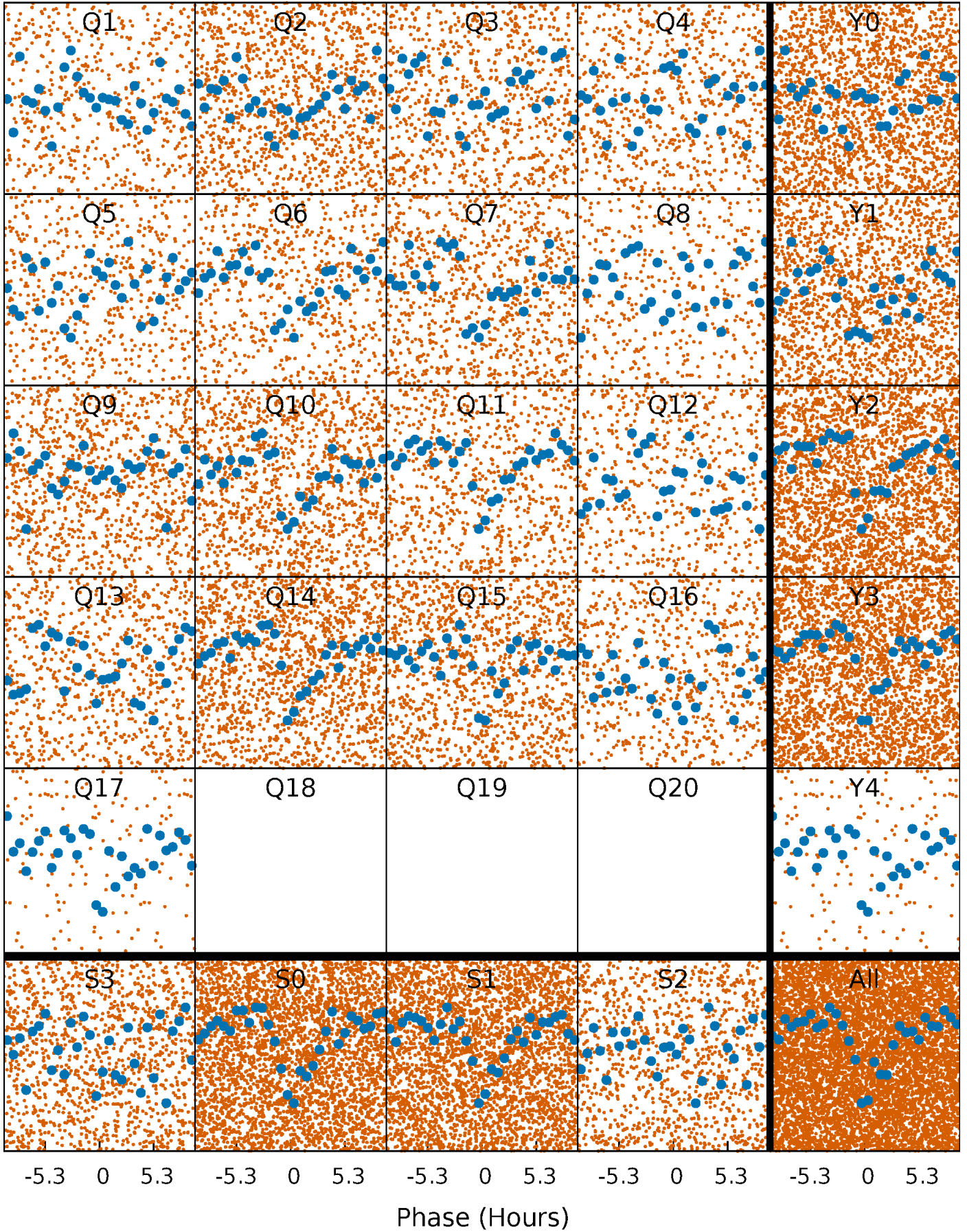


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

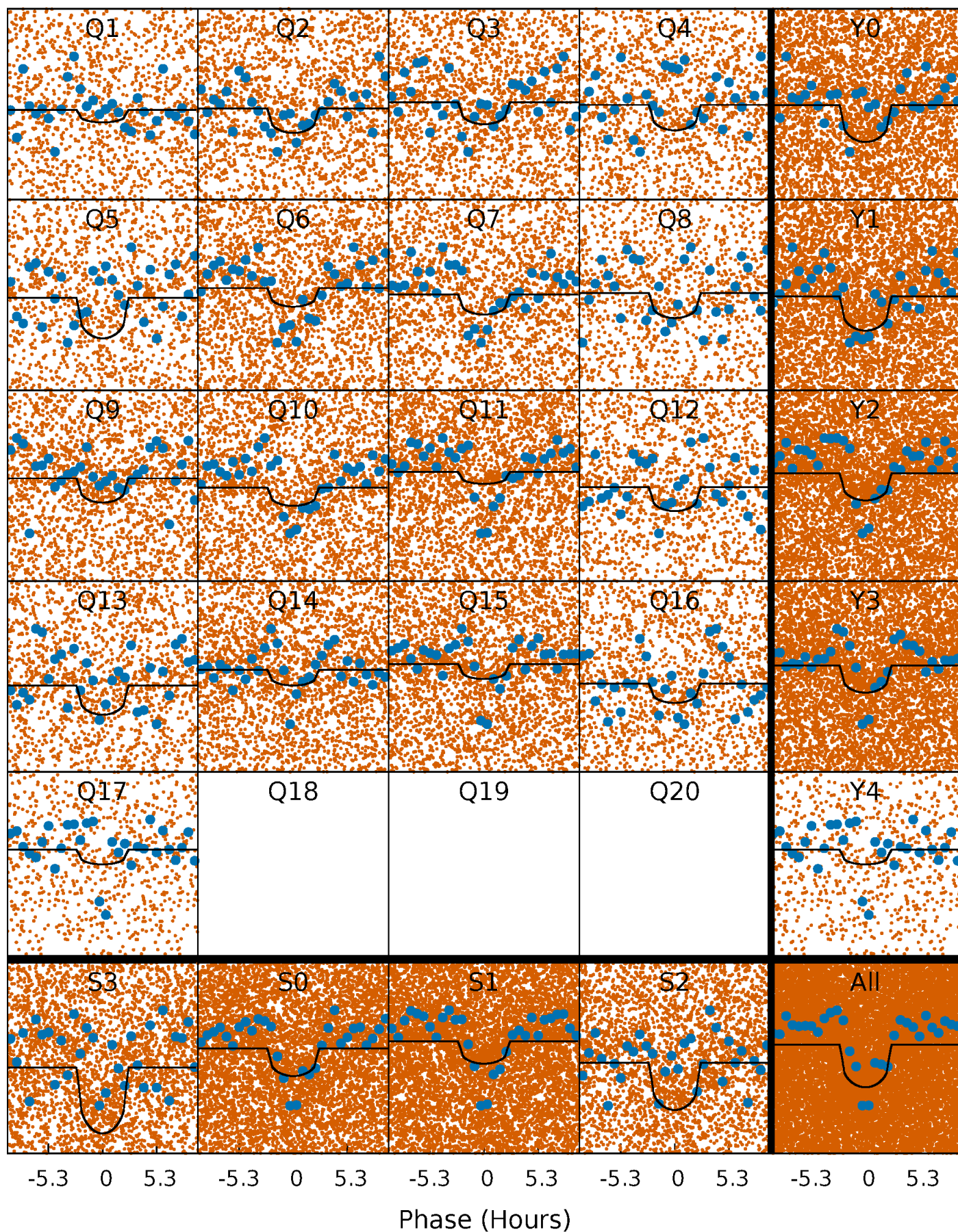
TCE 007115200-01 P= 0.566766 Days  $T_0=131.864277$  (BKJD)





# DV Quarter-Phased Transit Curves

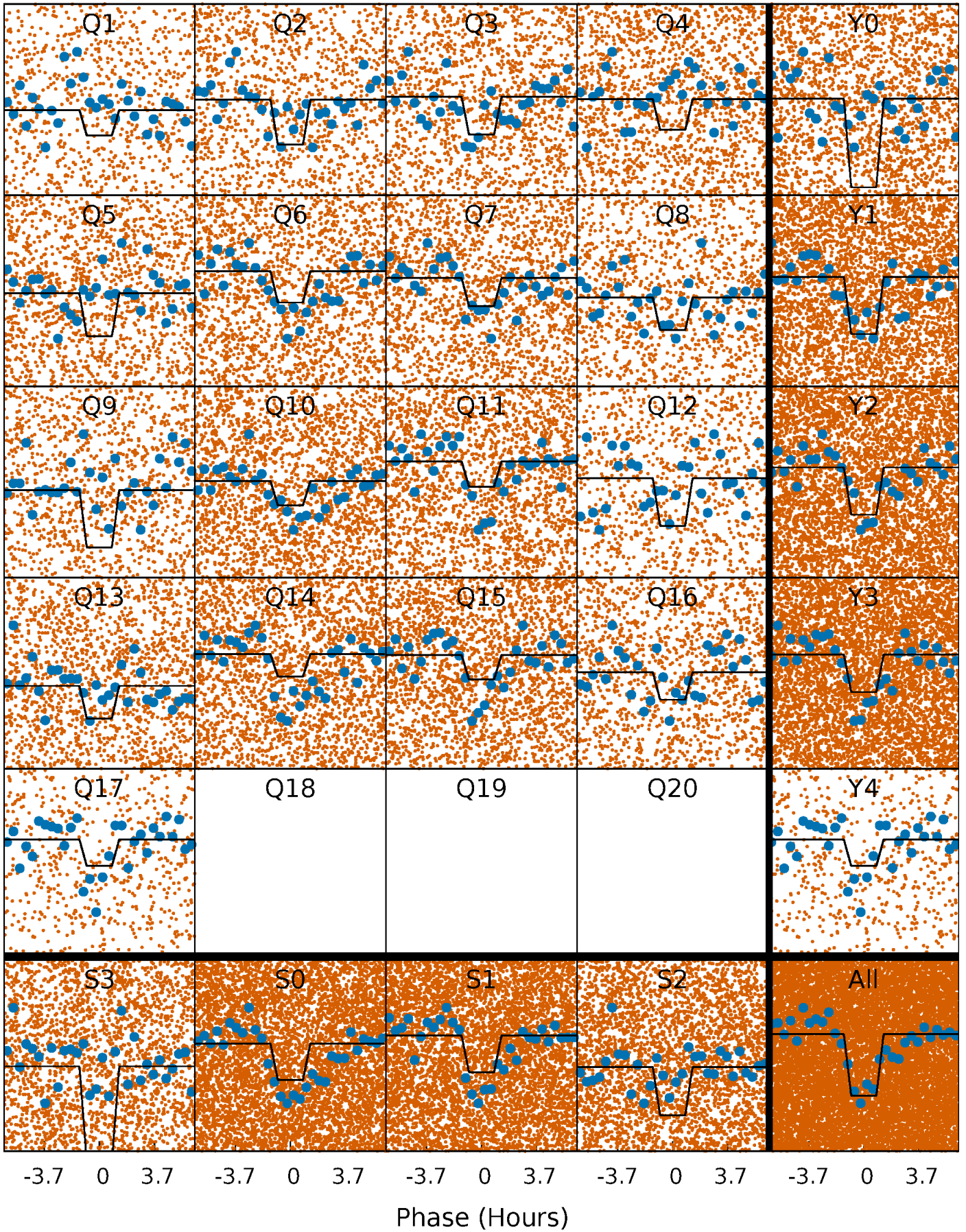
TCE 007115200-01 P= 0.566766 Days  $T_0=131.864277$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

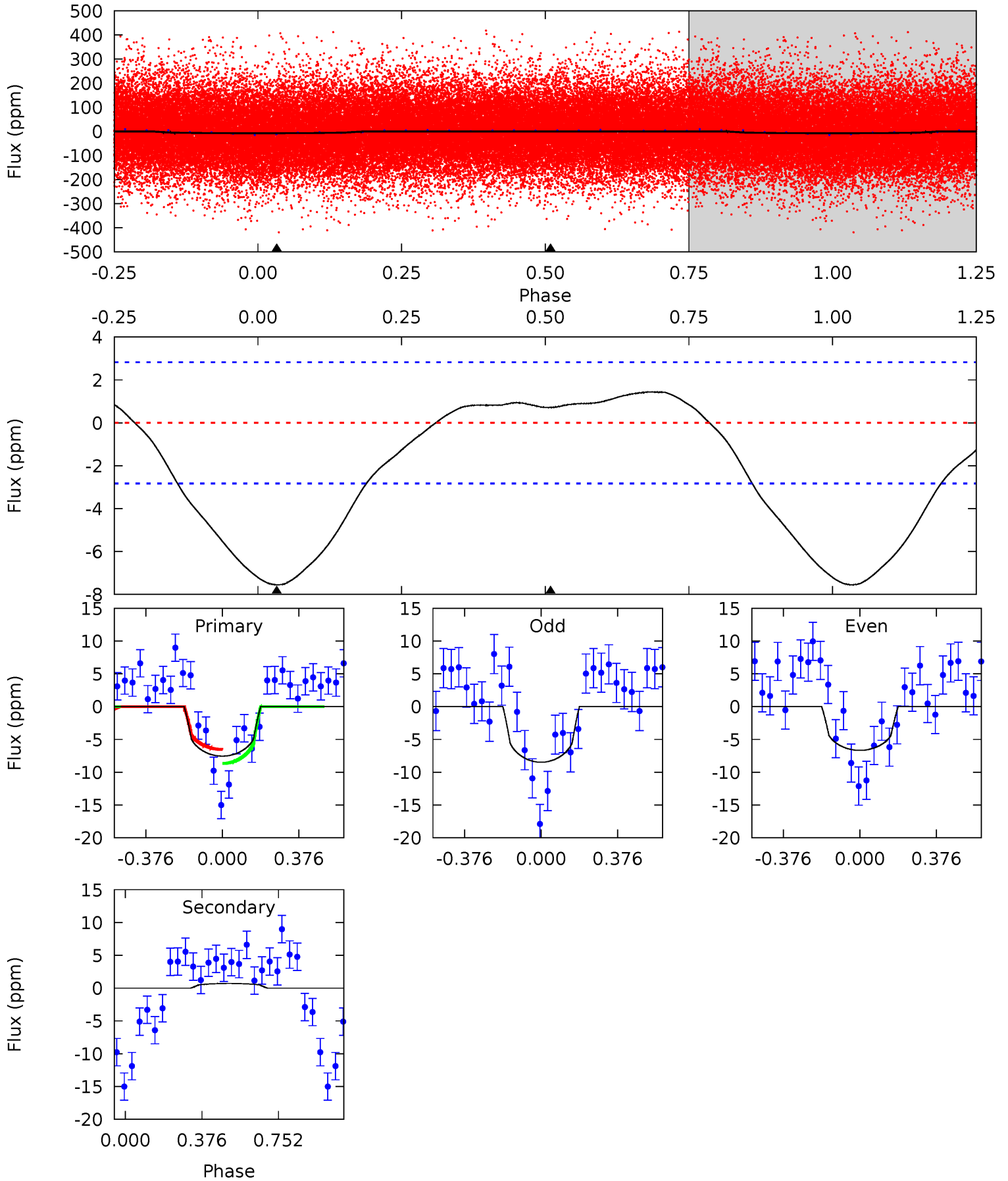
TCE 007115200-01 P= 0.566795 Days  $T_0=131.813843$  (BKJD)



# DV Model-Shift Uniqueness Test

007115200-01, P = 0.566766 Days, E = 131.297511 Days

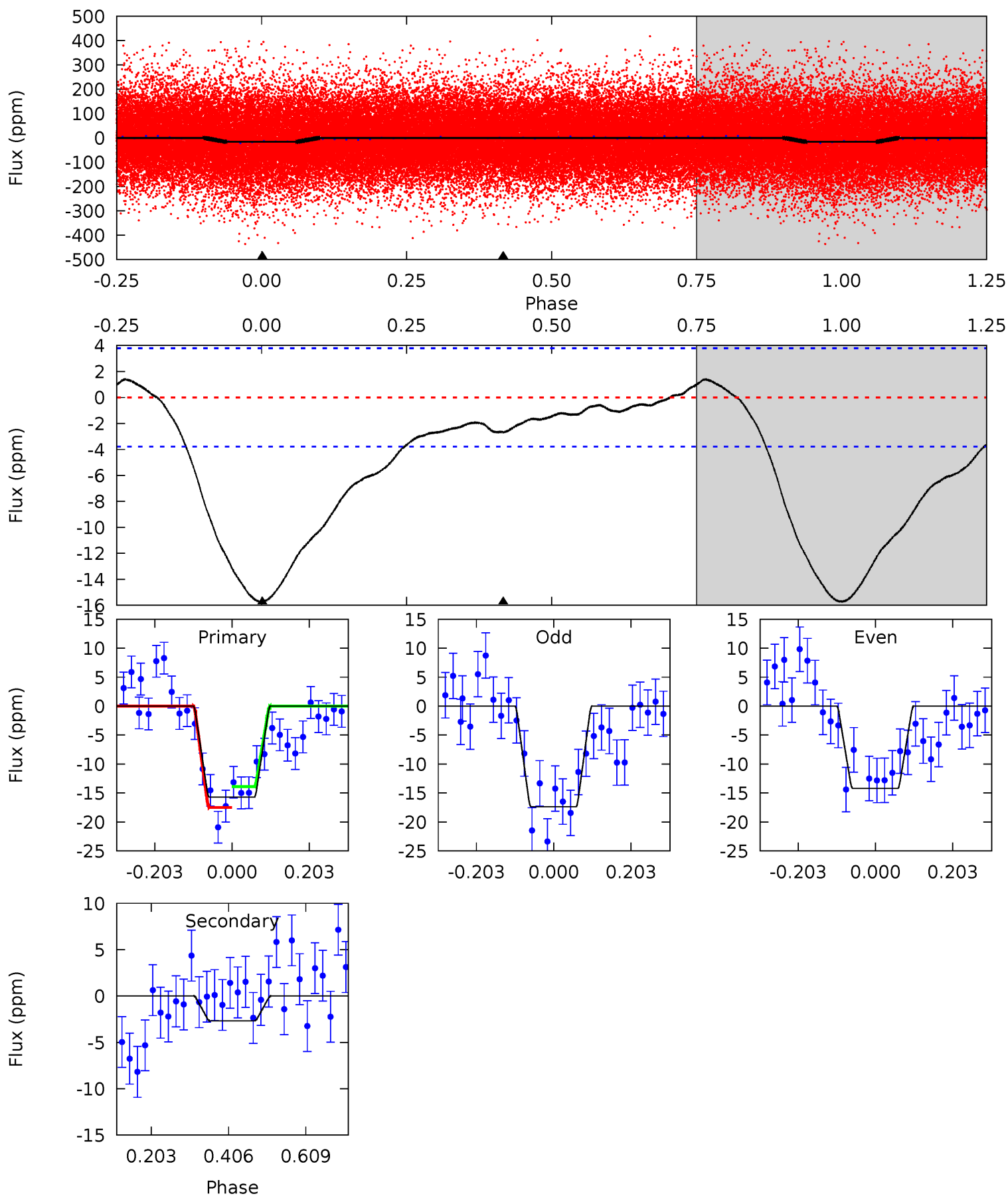
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	-1.07	0	0	4.28	0.89	1.03	11.4	11.4	-1.07	-1.07	1.39	0.91	0.16	1.64



# Alt Model-Shift Uniqueness Test

007115200-01, P = 0.566795 Days, E = 131.247048 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
18.3	3.12	0	0	4.41	1.27	1.66	18.3	18.3	3.12	3.12	1.84	0.97	0.08	2.11





### Stellar Parameters For KIC 007115200

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5966^{+80}_{-80}$	$4.184^{+0.176}_{-0.108}$	$-0.100^{+0.150}_{-0.150}$	$1.349^{+0.211}_{-0.258}$	$1.014^{+0.087}_{-0.071}$	$0.582^{+0.490}_{-0.195}$
	+1%/-1%	+4%/-3%	+150%/-150%	+16%/-19%	+9%/-7%	+84%/-34%
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 007115200-01 / KOI 6821.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$1 \pm 1$	$0.45^{+0.38}_{-0.29}$	$3667^{+166}_{-191}$	$-3889^{+351}_{-1429}$	$-0.267^{+0.243}_{-2.309}$
Alt.	$-3 \pm 1$	$0.62^{+0.37}_{-0.35}$	$3661^{+176}_{-223}$	$3608^{+1902}_{-6450}$	$0.696^{+3.089}_{-0.466}$

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

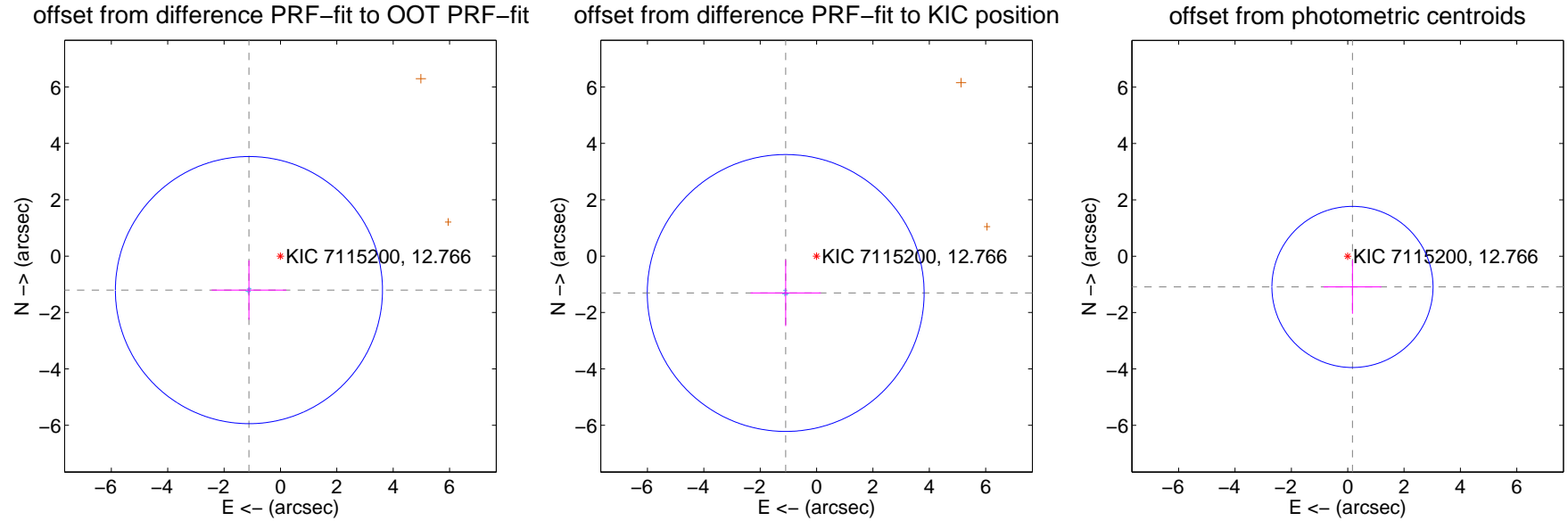
## DV Centroid Data

Supplemental centroid analysis for 007115200-01. Kepler magnitude: 12.77. Transit SNR 8.40

There are 4 quarters with good PRF difference image offsets

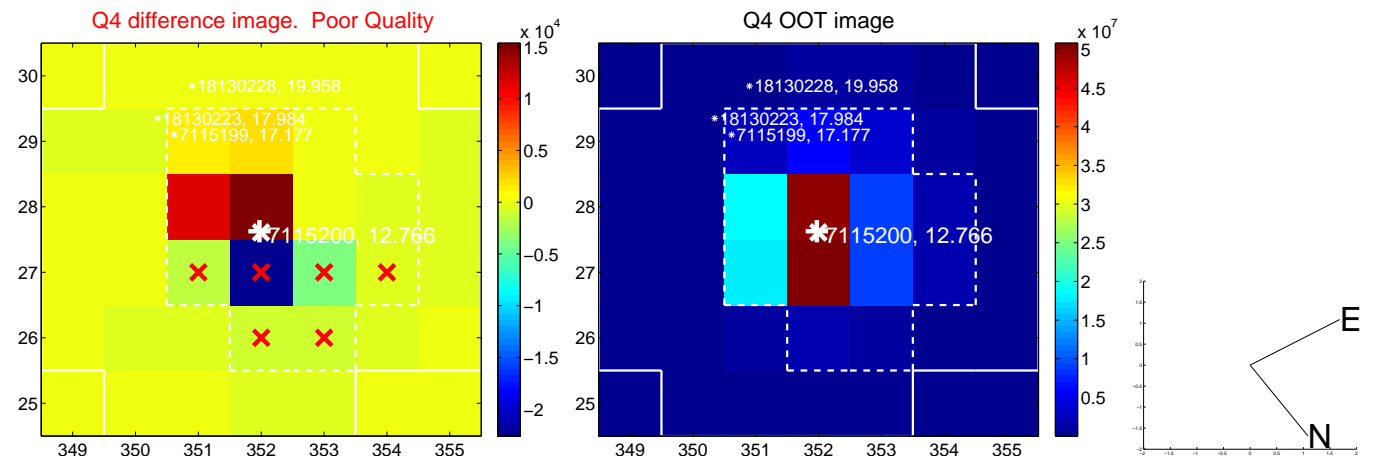
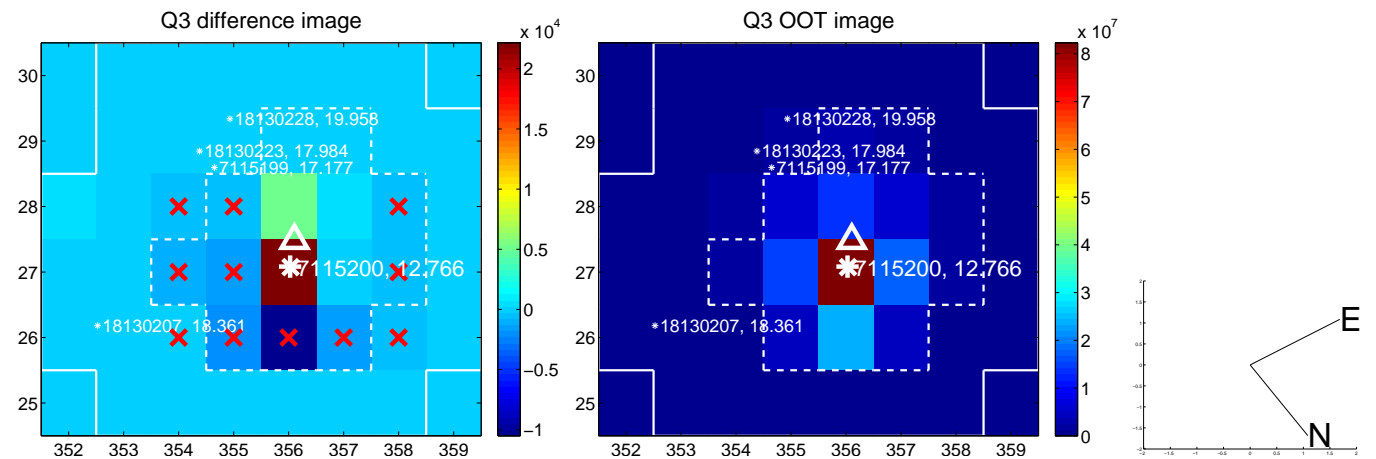
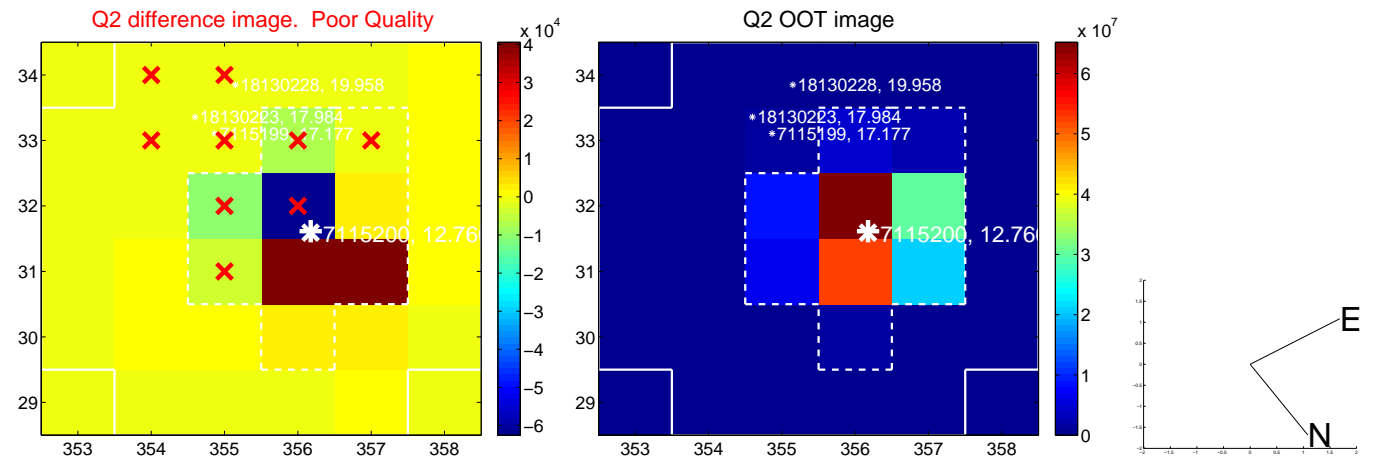
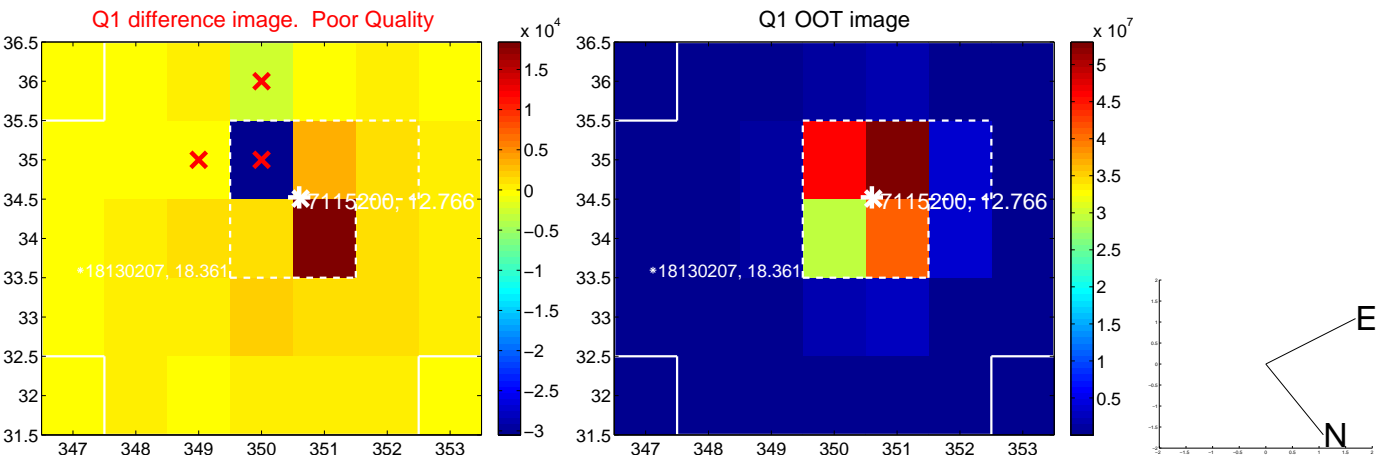
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.643 \pm 1.579$	1.04	$1.117 \pm 1.326$	$-1.205 \pm 1.050$
PRF-fit source offset from KIC position	$1.705 \pm 1.637$	1.04	$1.095 \pm 1.247$	$-1.307 \pm 1.173$
photometric centroid source offset	$1.10 \pm 0.95$	1.16	$-0.17 \pm 1.03$	$-1.09 \pm 0.95$

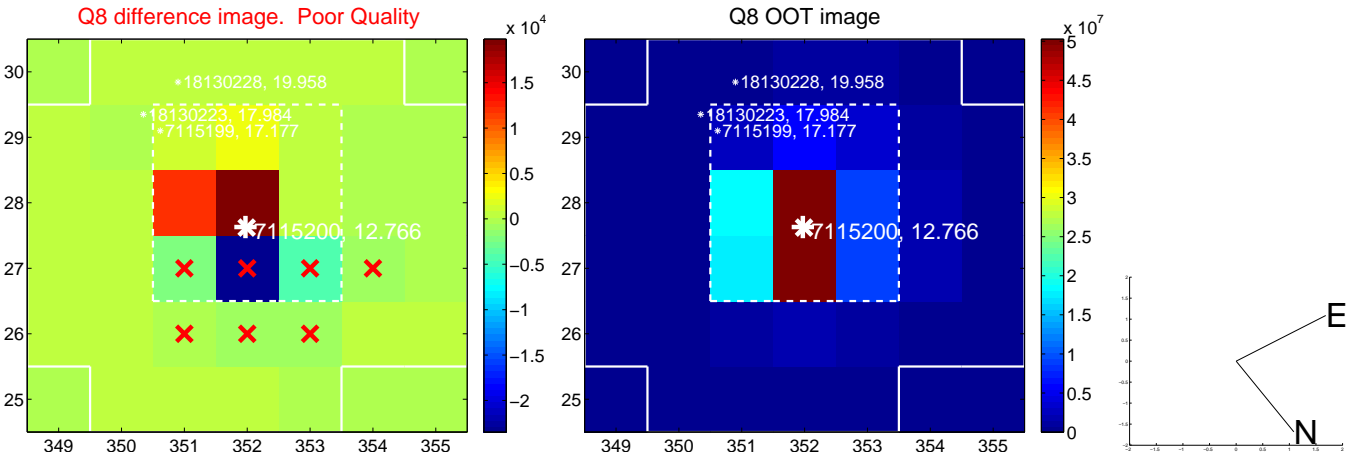
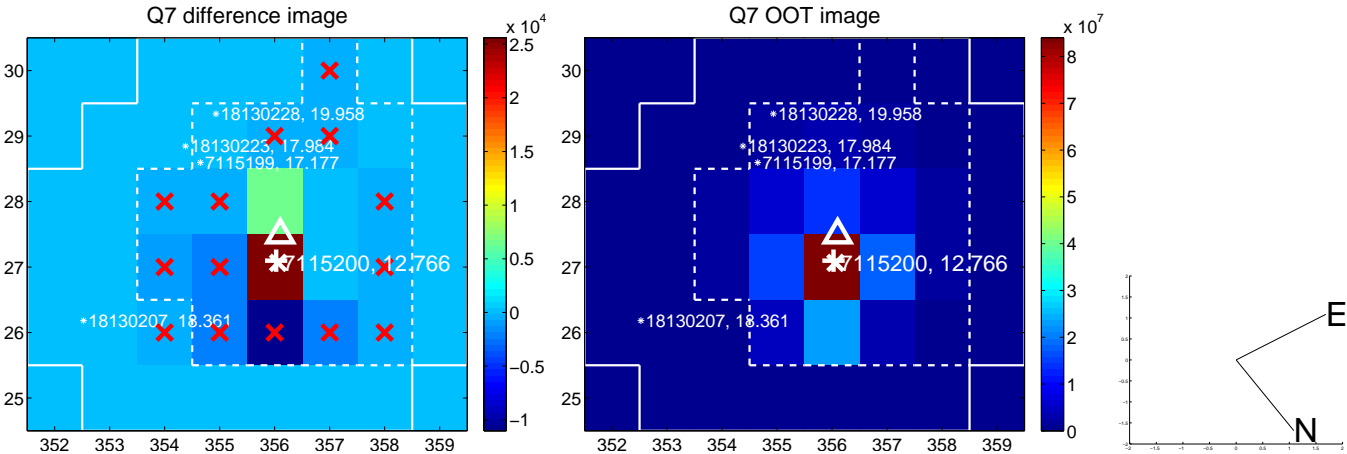
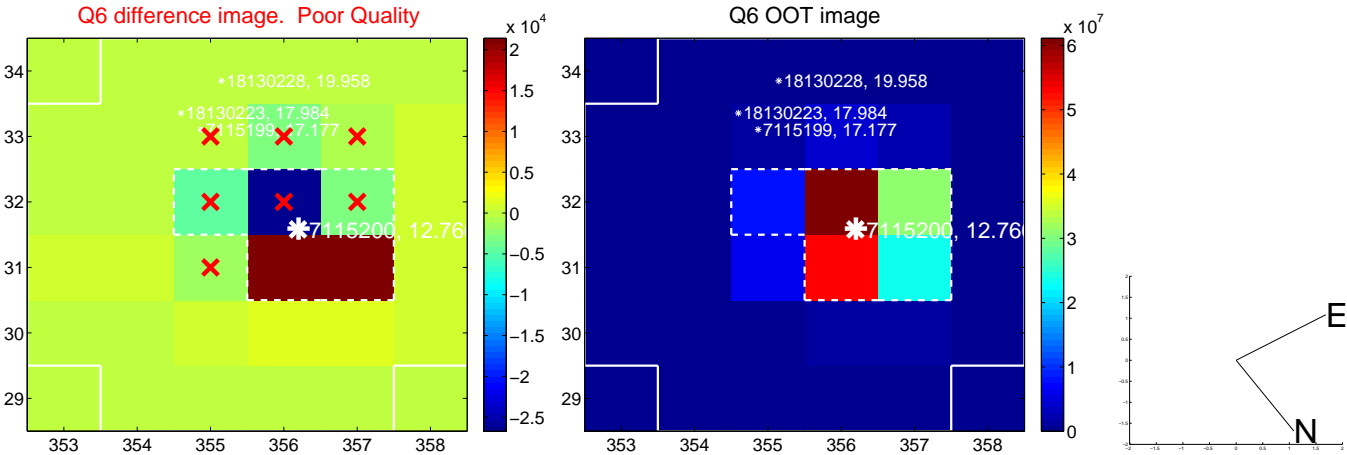
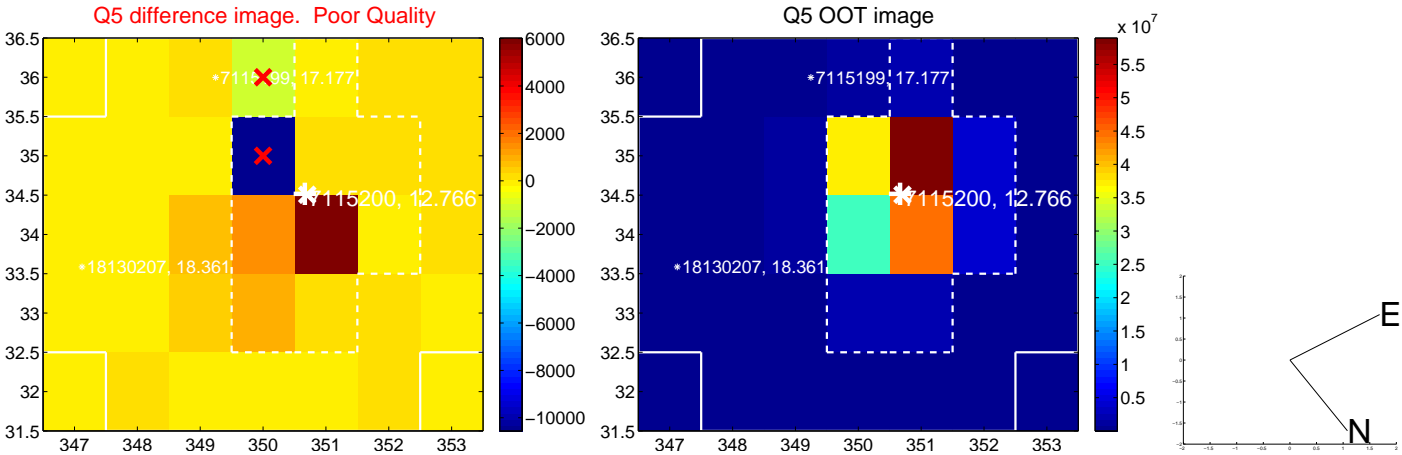


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

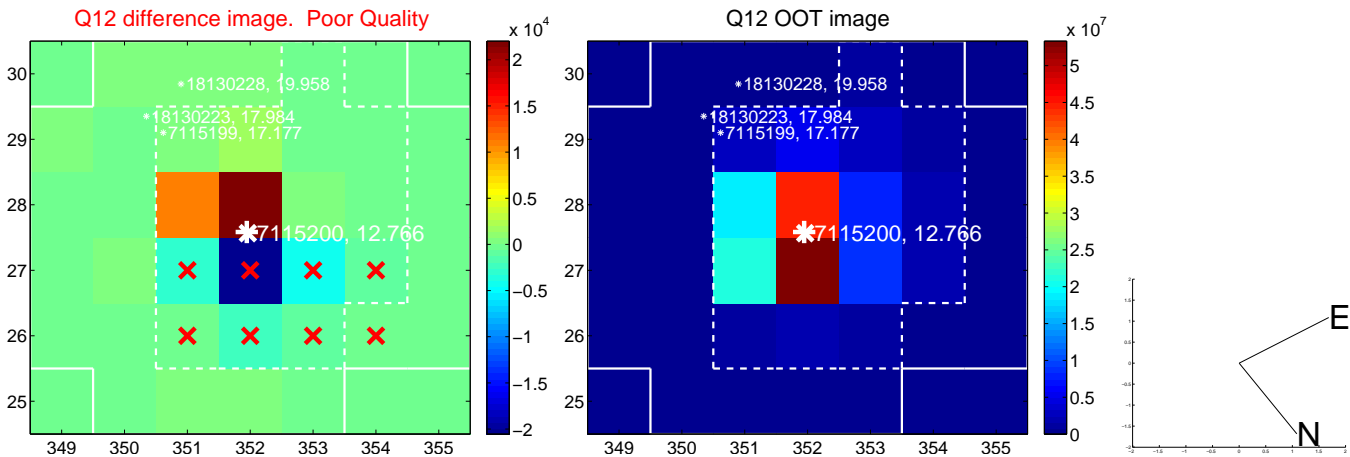
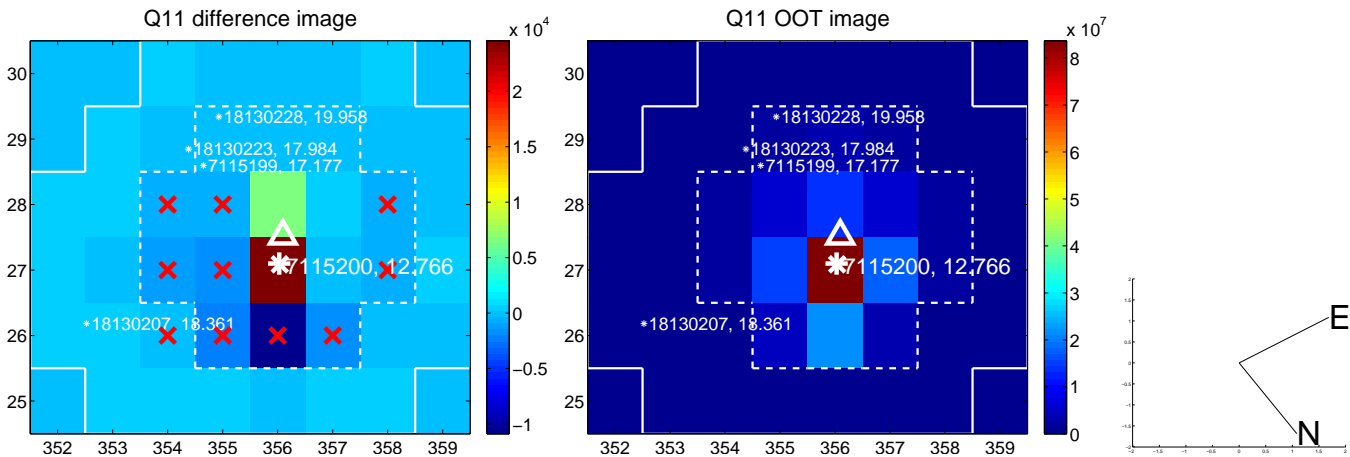
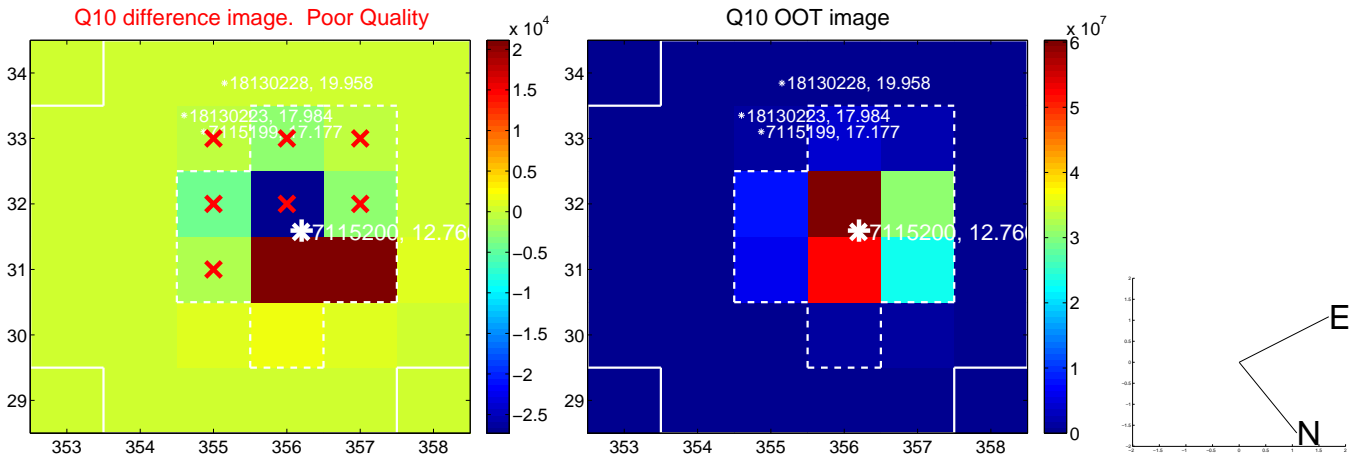
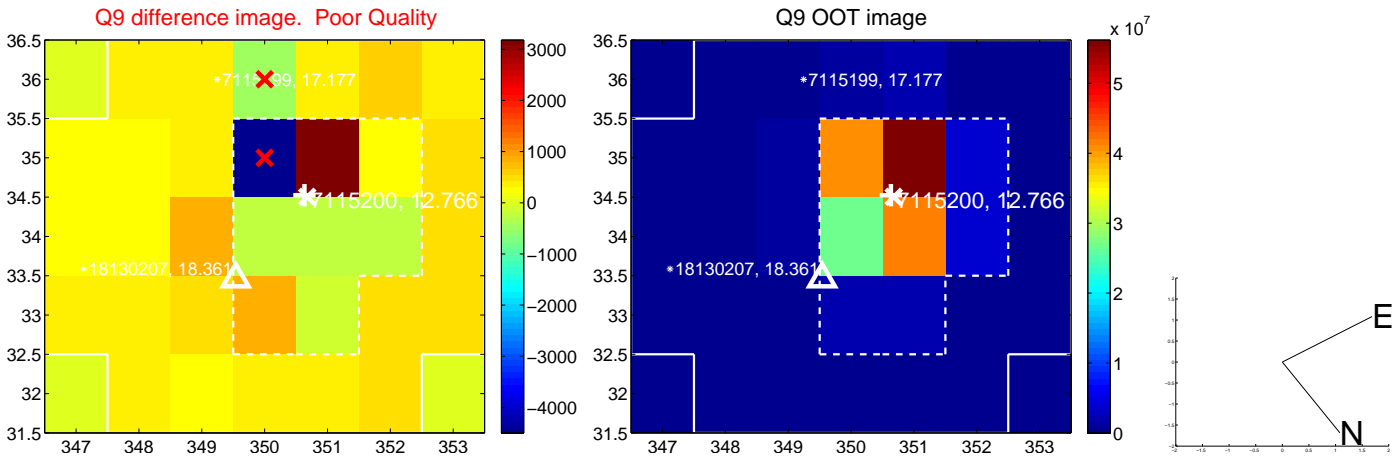


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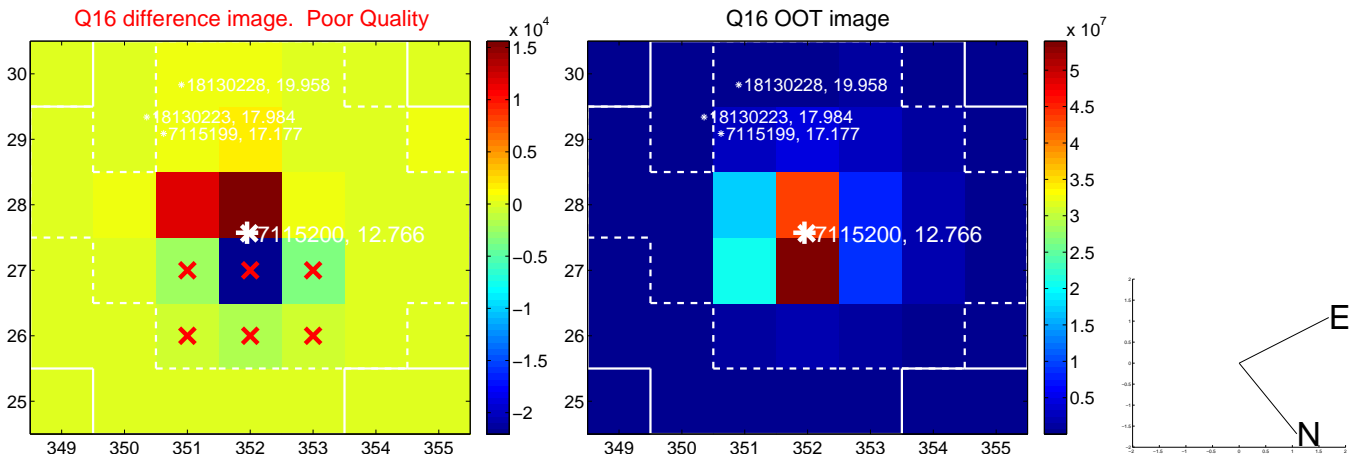
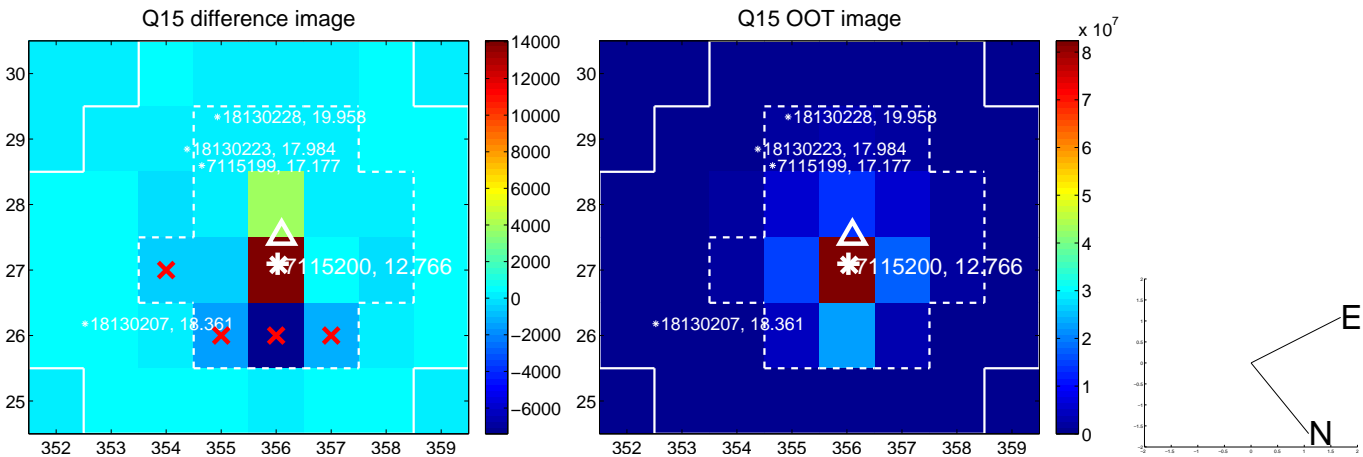
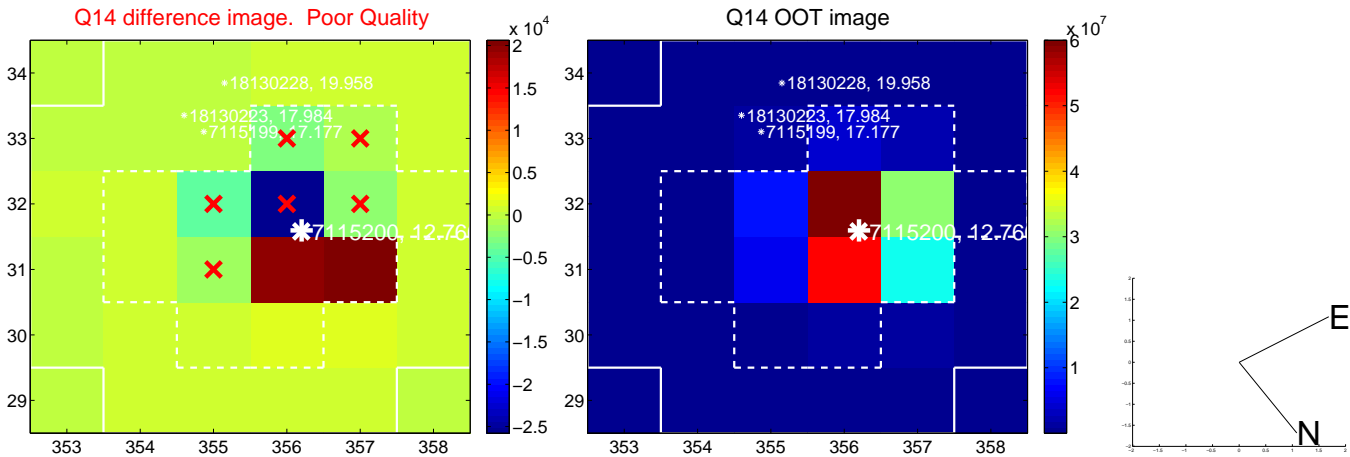
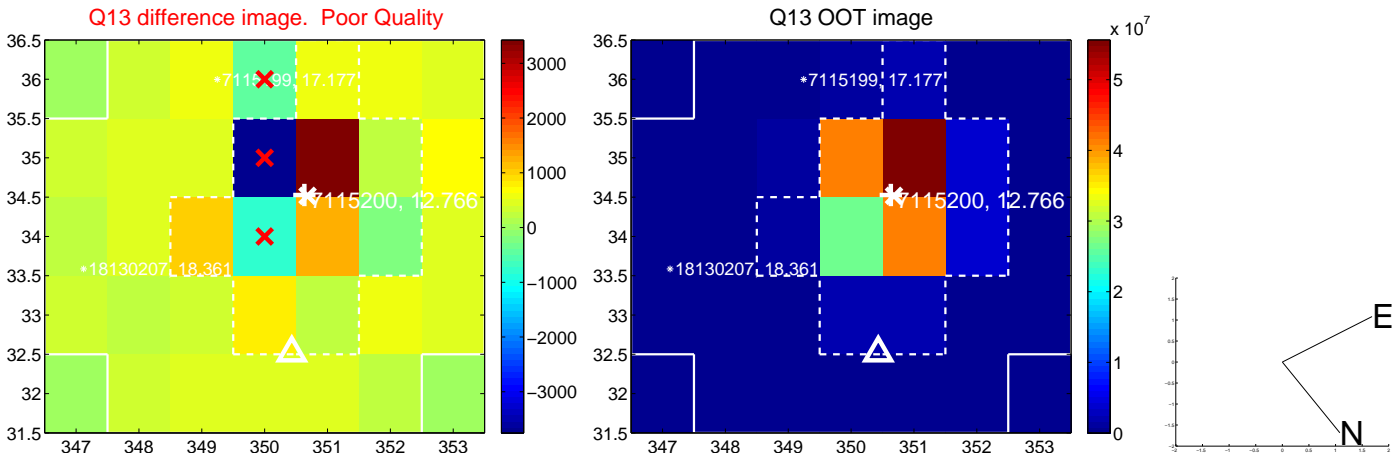




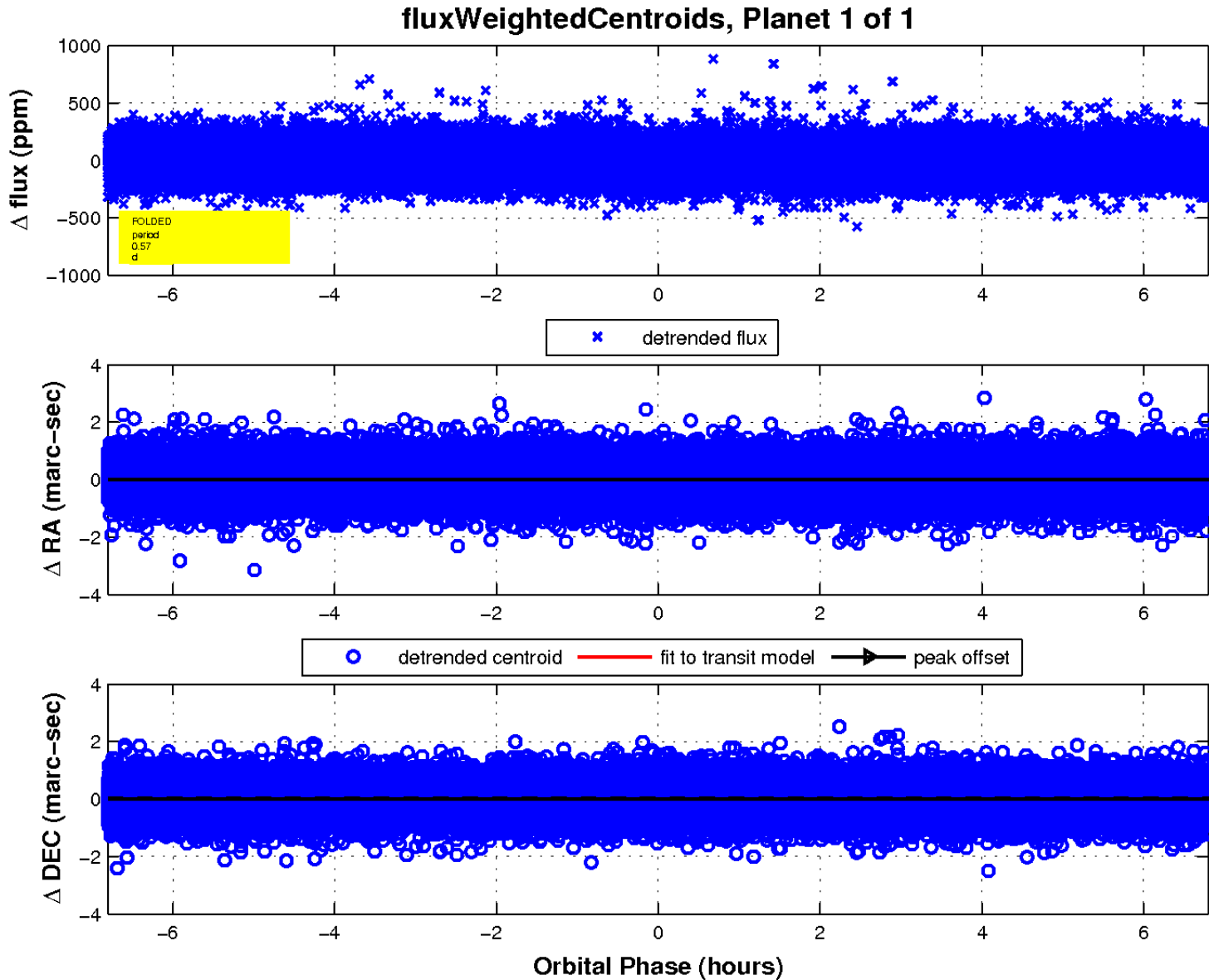
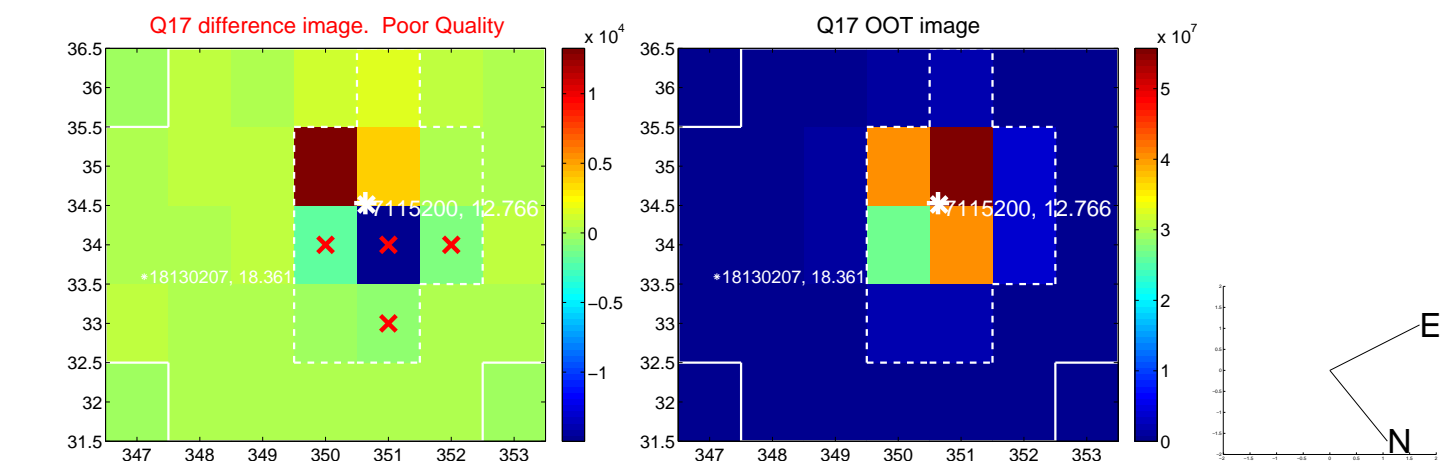
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

