

# KIC 008766222

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008766222-01	OBS	1260.01	5.297257	135.568786	1486.3	5.678	16.8	20.4	14.30	4631	112.33	16007.93

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008766222-01	OBS	FP	0.00	0	1	1	1	DEEP_V_SHAPED—CENT_RESOLVED_OFFSET—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.

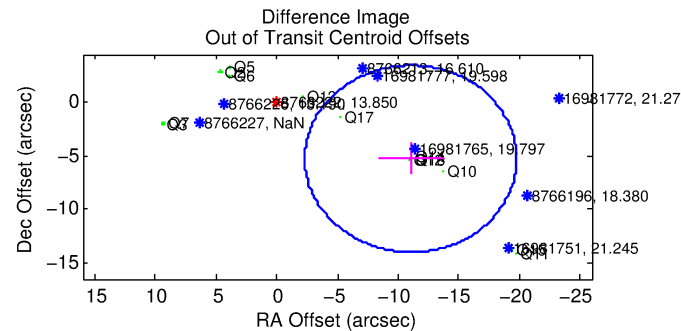
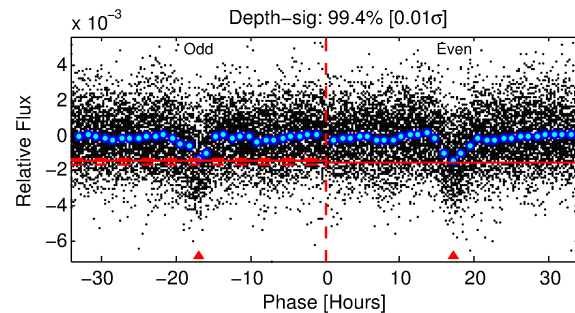
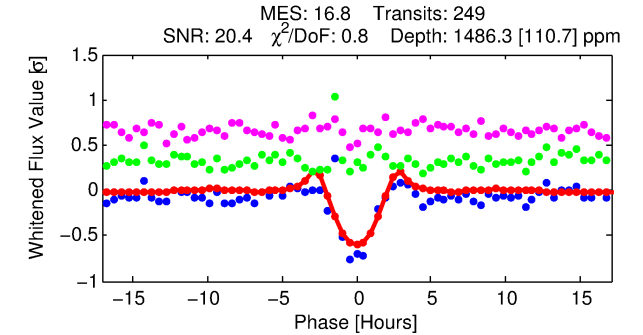
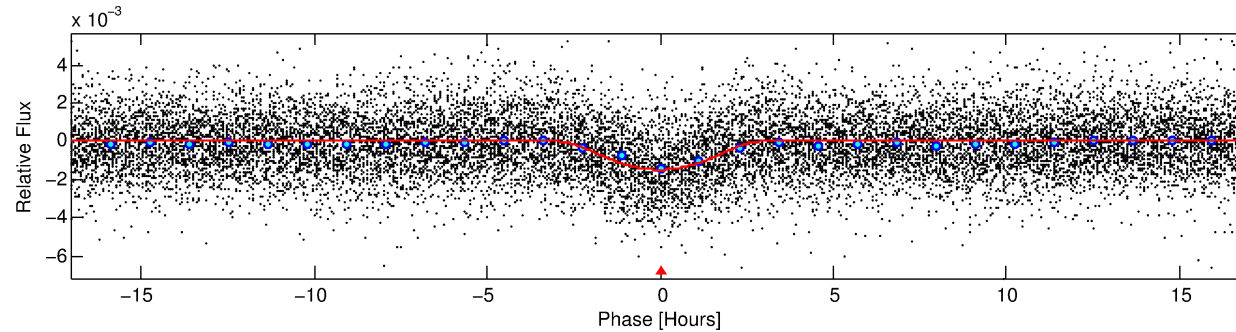
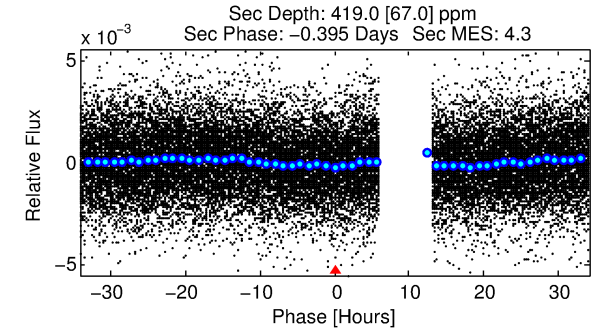
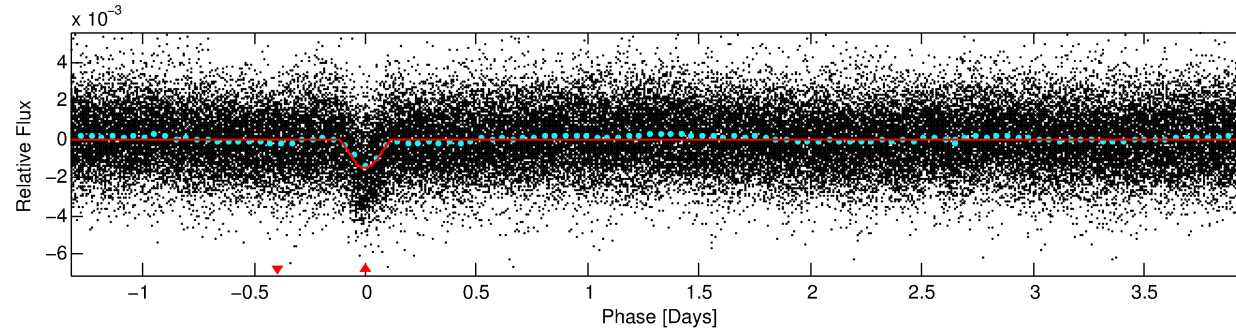
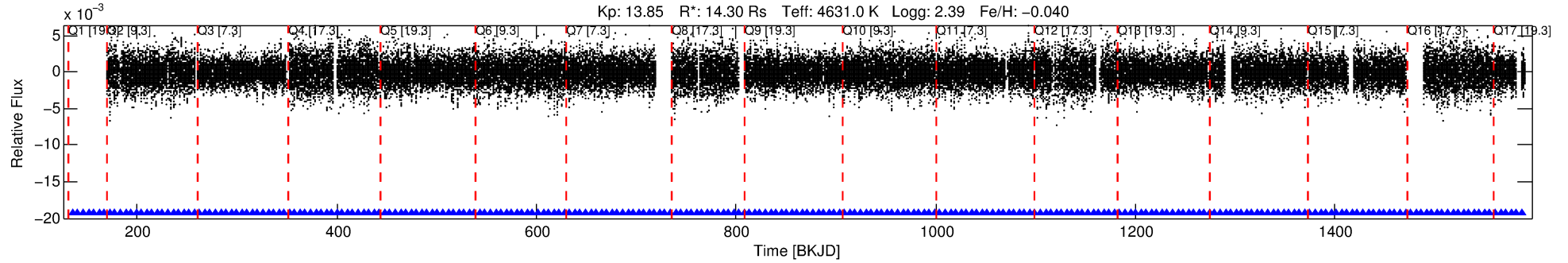
## Ephemeris Match Information For 008766222-01

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	$\sigma_P$	$\sigma_T$
008766222-01	8766222	5571.01	8766285	1:1	102.7	26	4	10.25	13.85	0.14	Direct-PRF	1	0.01	0.22

**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: 8766222 Candidate: 1 of 1 Period: 5.297 d  
KOI: K01260.01 Corr: 0.967



## DV Fit Results:

Period = 5.29726 [0.00003] d  
Epoch = 135.5688 [0.0043] BKJD  
Rp/R\* = 0.0720 [0.0661]  
a/R\* = 2.94 [0.48]  
b = 1.00 [0.09]  
Seff = 16007.93 [2942.97]  
Teq = 2868 [132] K  
Rp = 112.33 [106.12] Re  
a = 0.0725 [0.0108] AU  
Ag = 0.10 [0.18] [-5.08σ]  
Teffp = 2469 [1140] K [-0.35σ]

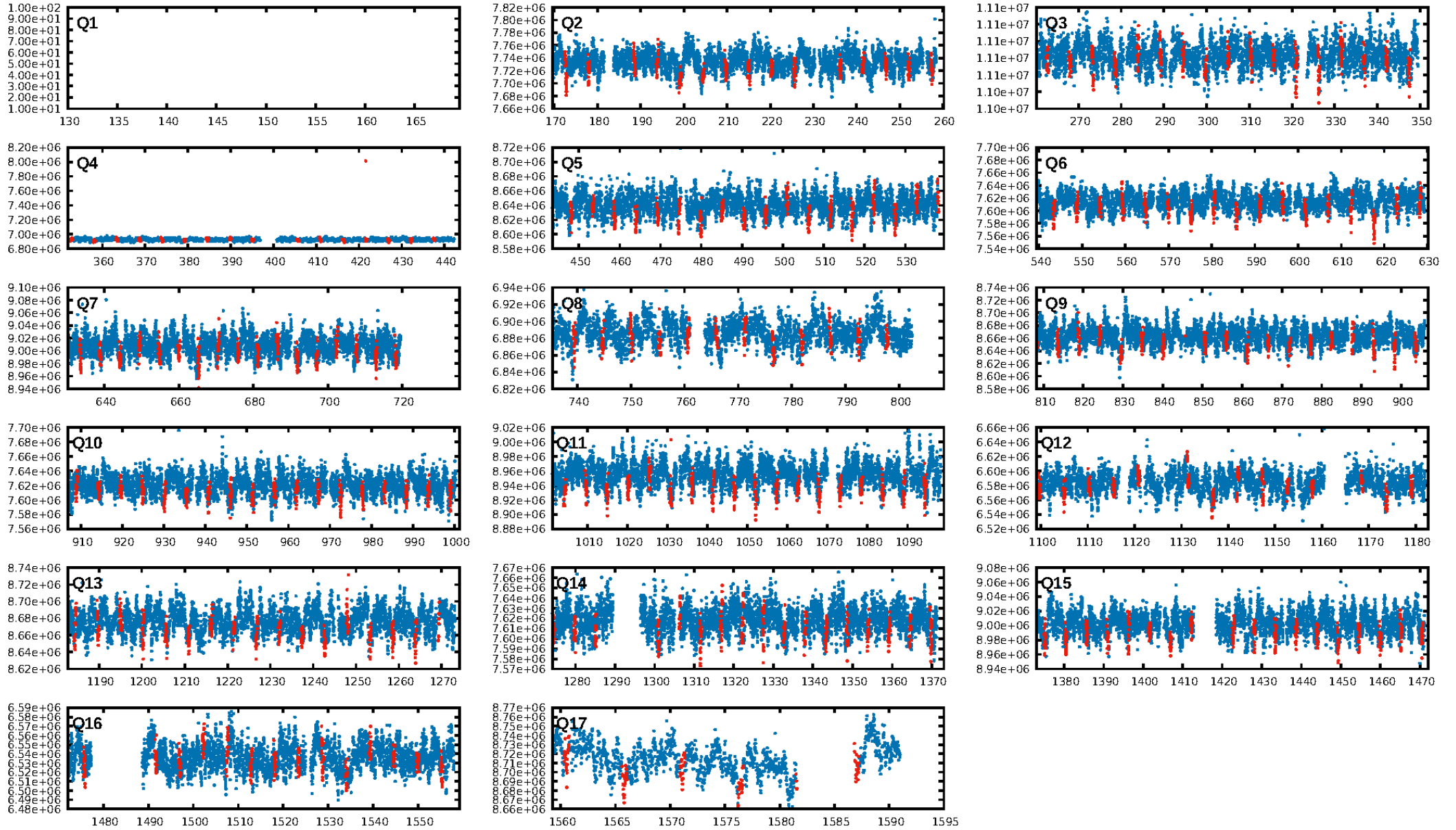
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.92e-52  
RollingBand-fgt: 1.00 [244/244]  
GhostDiagnostic-chr: -0.128  
Centroid-sig: 0.0%  
Centroid-so: 3.610 arcsec [27.61σ]  
OotOffset-rm: 12.238 arcsec [4.20σ]  
KicOffset-rm: 15.275 arcsec [4.88σ]  
OotOffset-st: 4/4/2/3 [13]  
KicOffset-st: 4/4/2/3 [13]  
DiffImageQuality-fgm: 0.62 [8/13]  
DiffImageOverlap-fno: 1.00 [16/16]

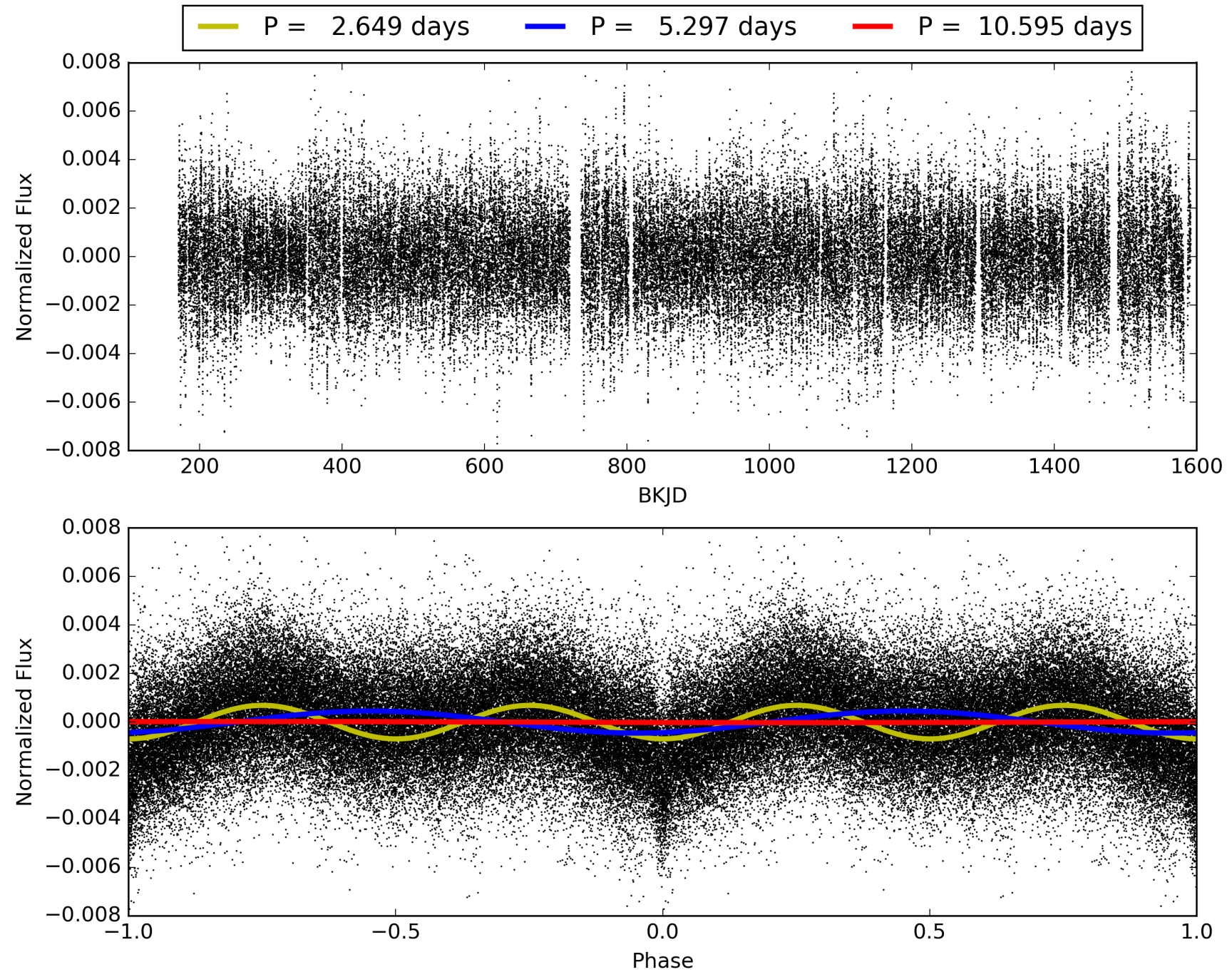
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:34:40 Z

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

# TCE 008766222-01, PDC Light Curves



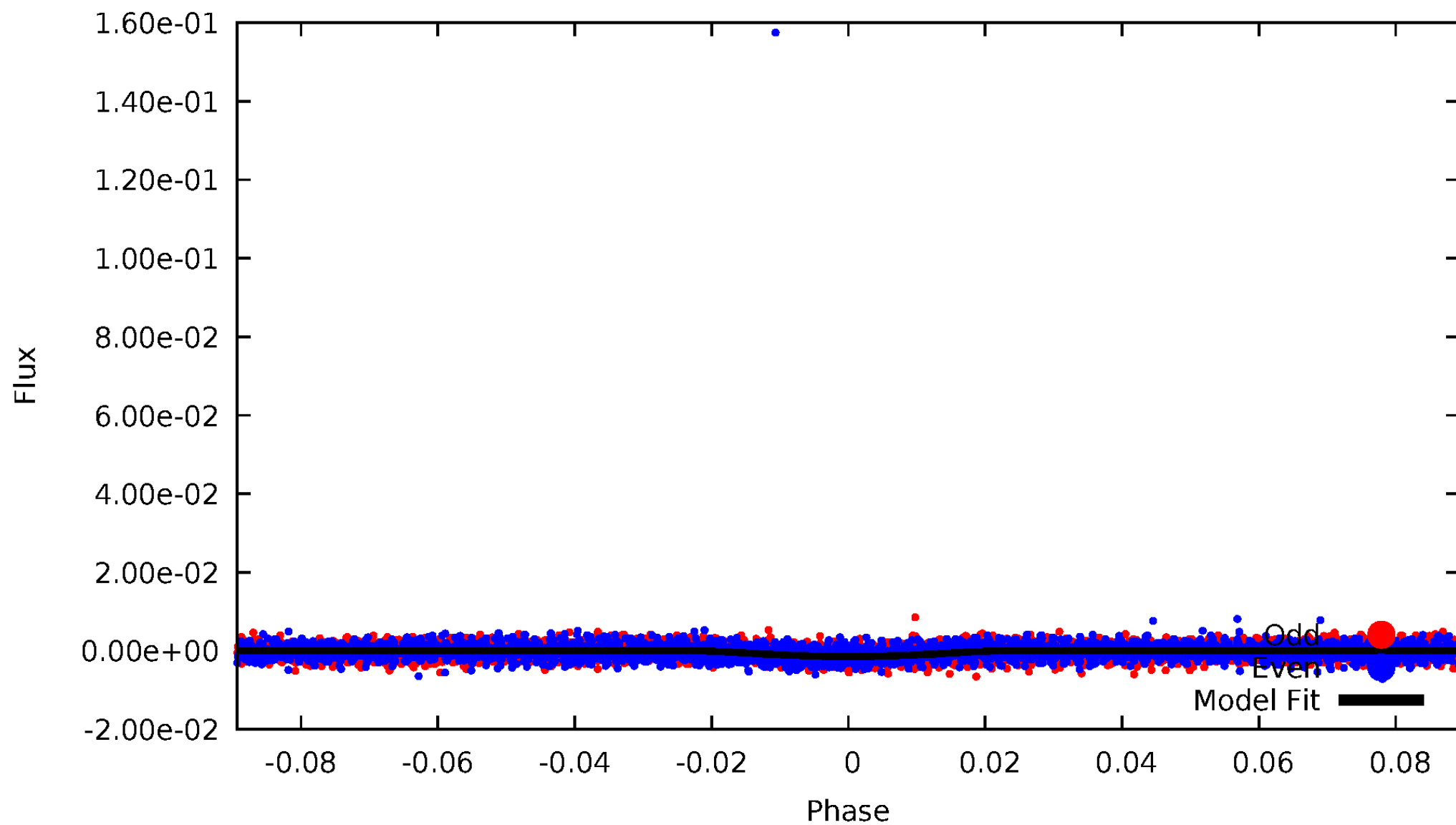
TCE 008766222-01





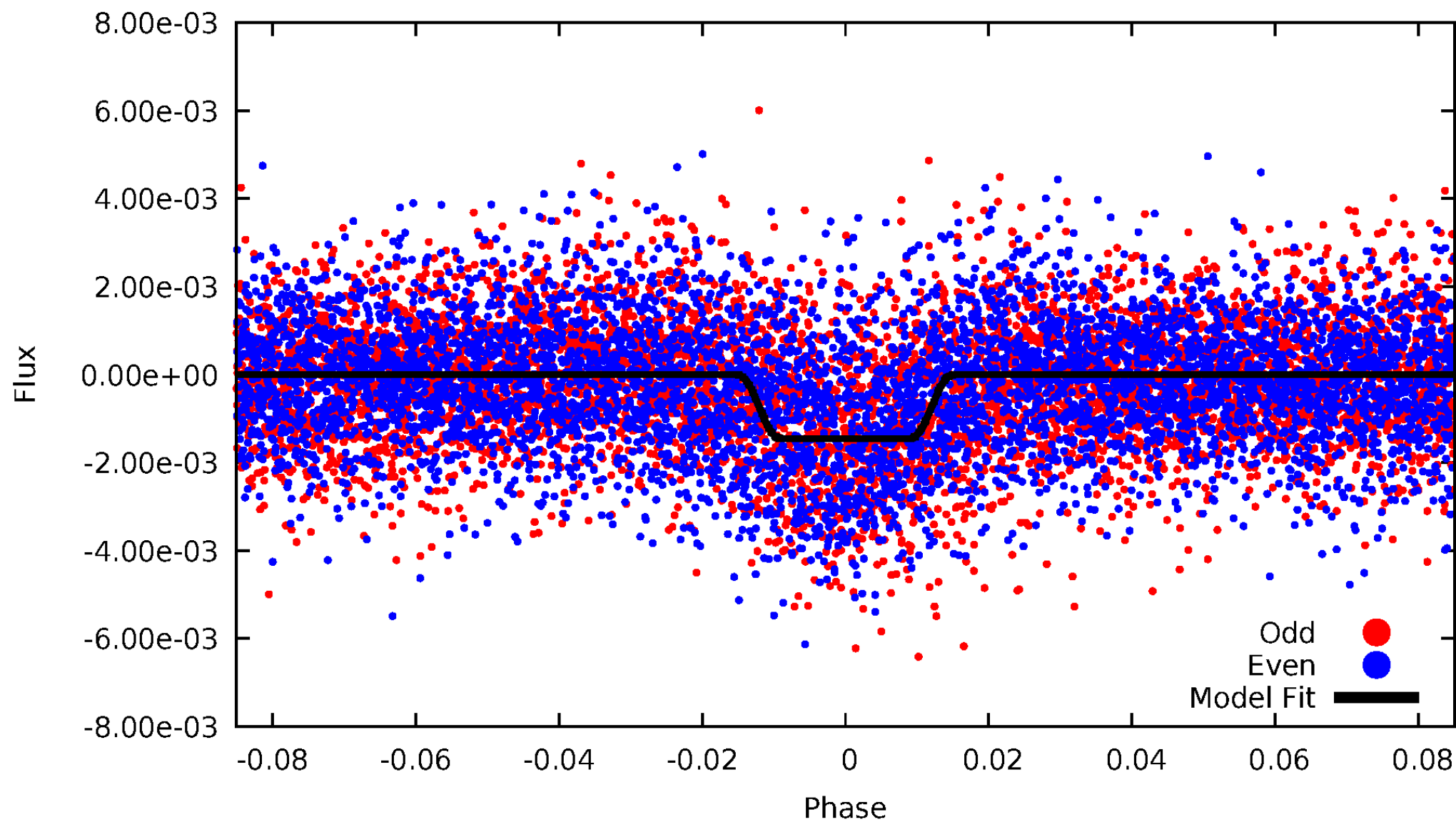
# DV Odd/Even

TCE 008766222-01

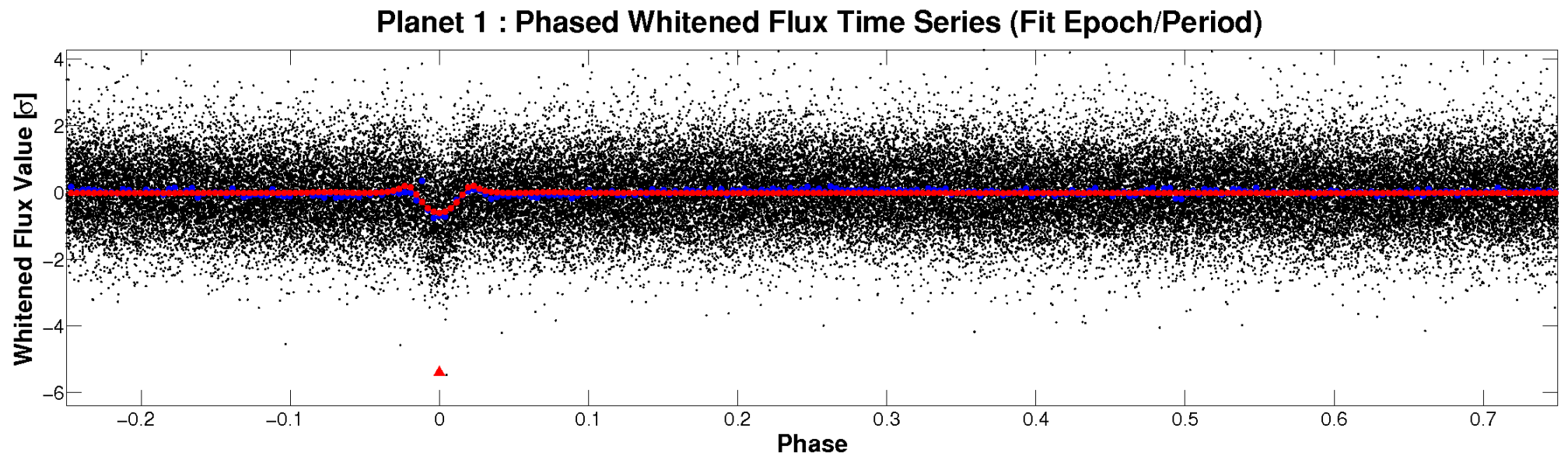
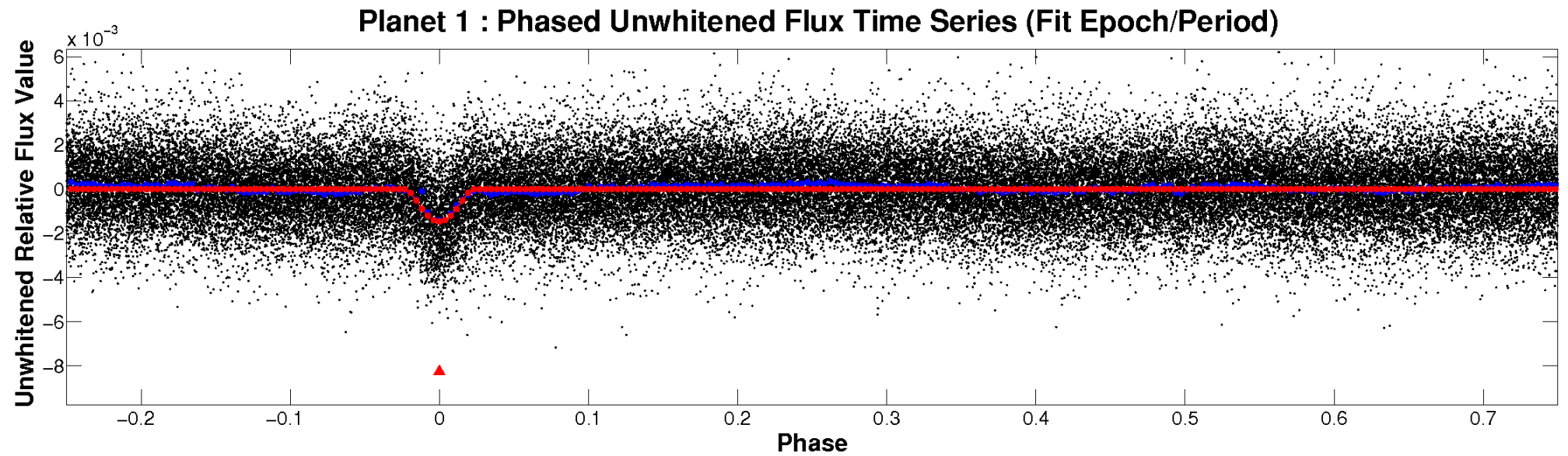


# ALT Odd/Even

TCE 008766222-01

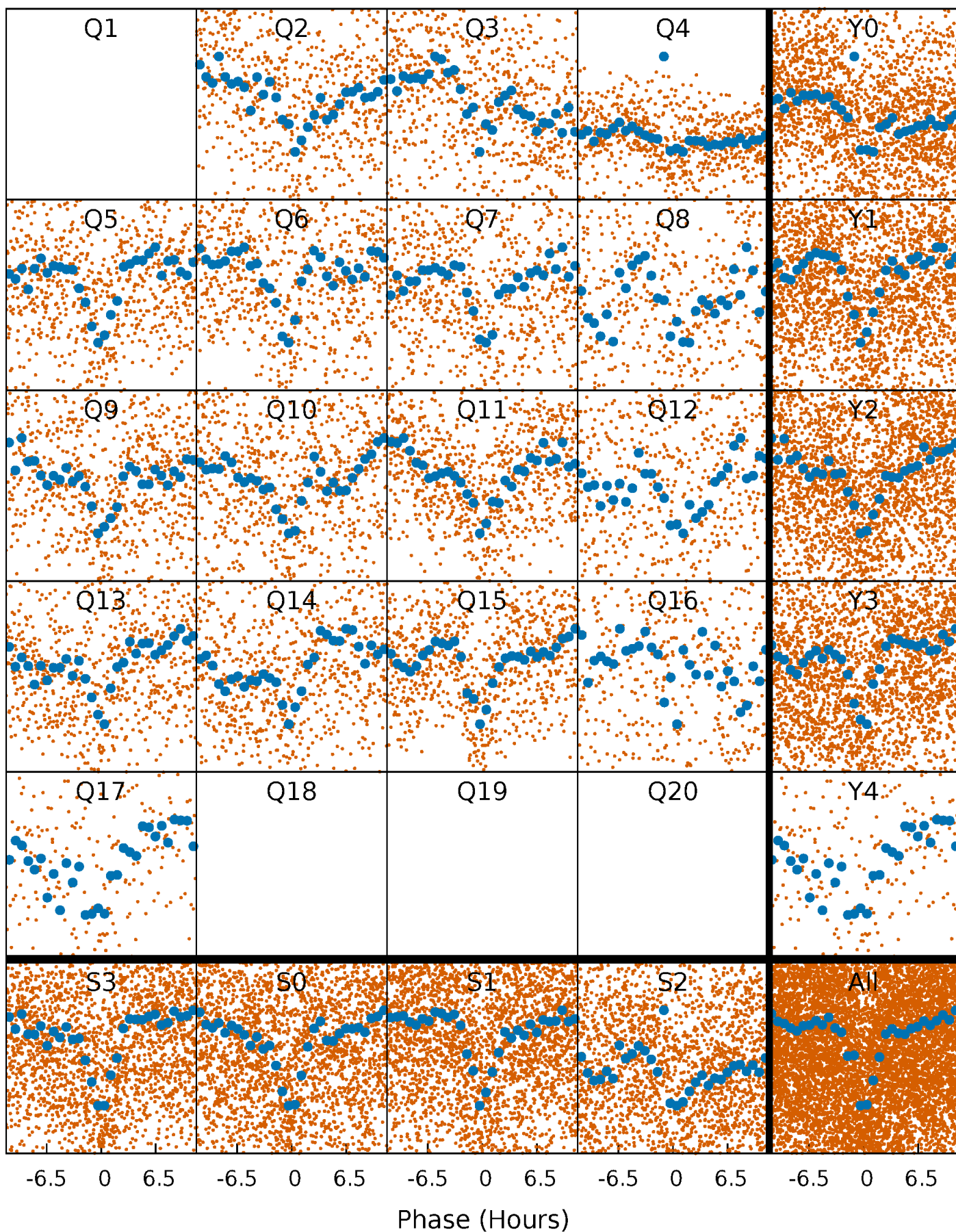


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

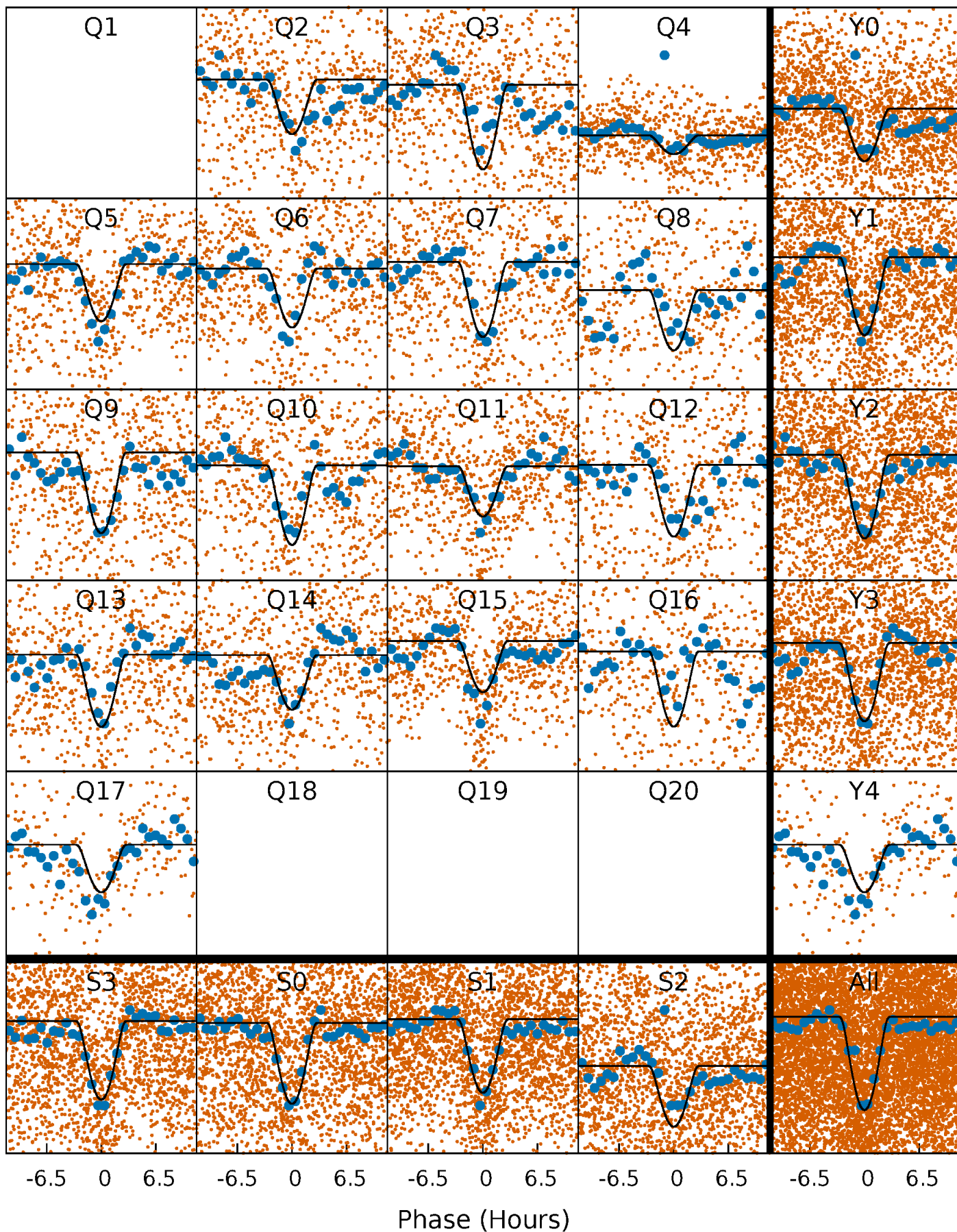
TCE 008766222-01 P= 5.297257 Days  $T_0=135.568786$  (BKJD)





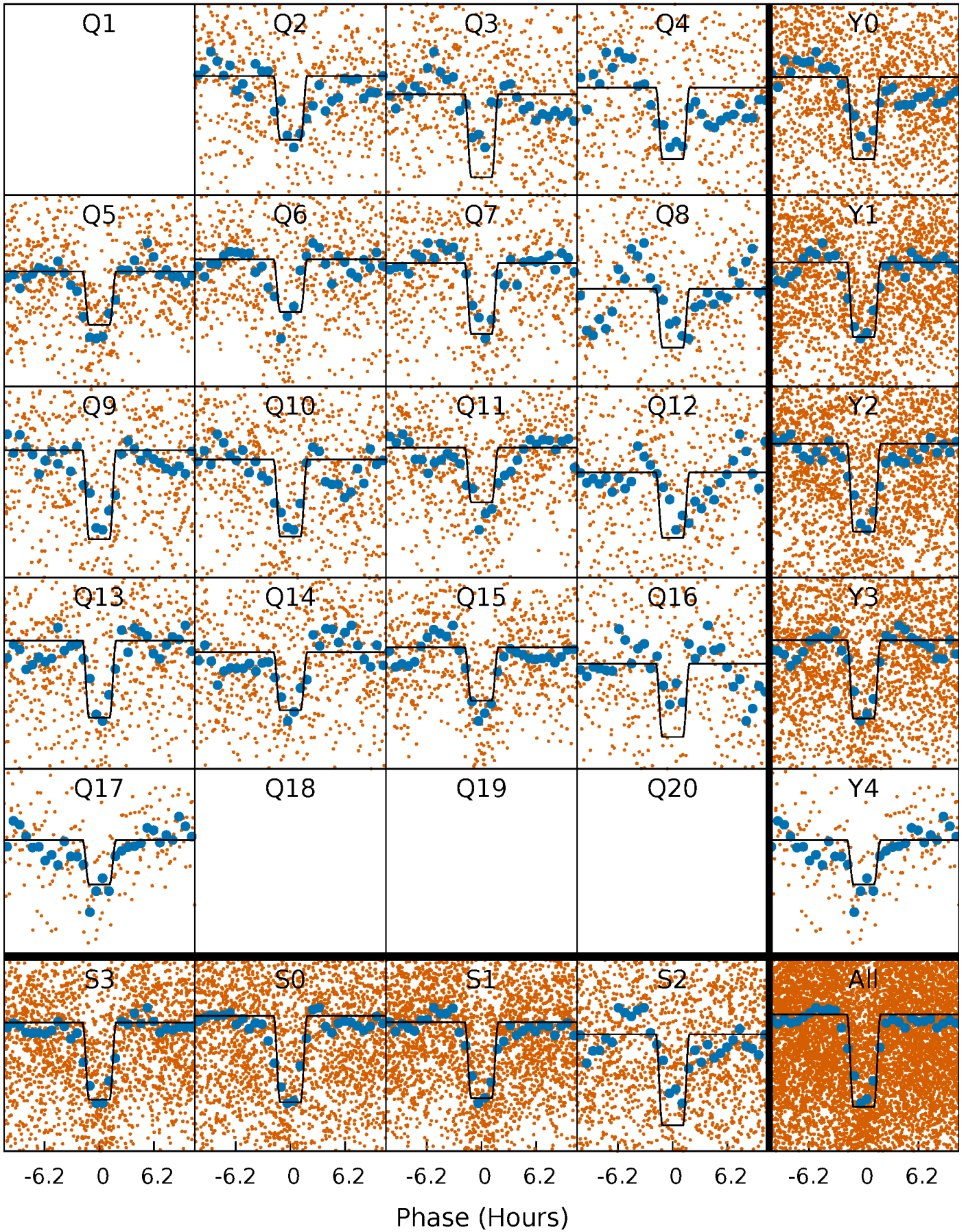
# DV Quarter-Phased Transit Curves

TCE 008766222-01 P= 5.297257 Days  $T_0=135.568786$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

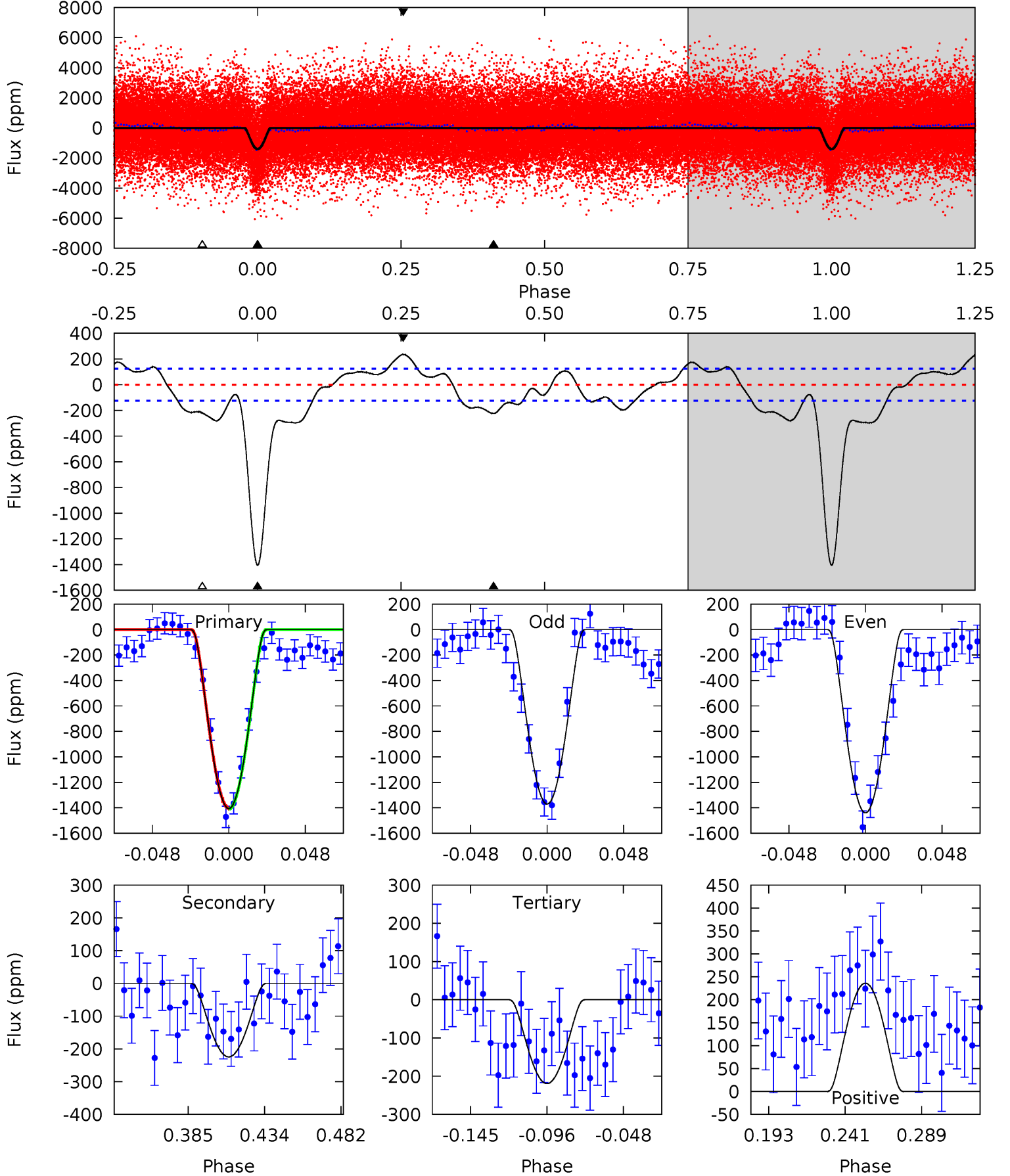
TCE 008766222-01 P= 5.297172 Days  $T_0=135.580653$  (BKJD)



# DV Model-Shift Uniqueness Test

008766222-01, P = 5.297257 Days, E = 135.568786 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
53.3	8.50	8.32	8.95	4.72	1.98	5.19	44.9	44.3	0.19	-0.44	1.32	0.88	0.14	0.14

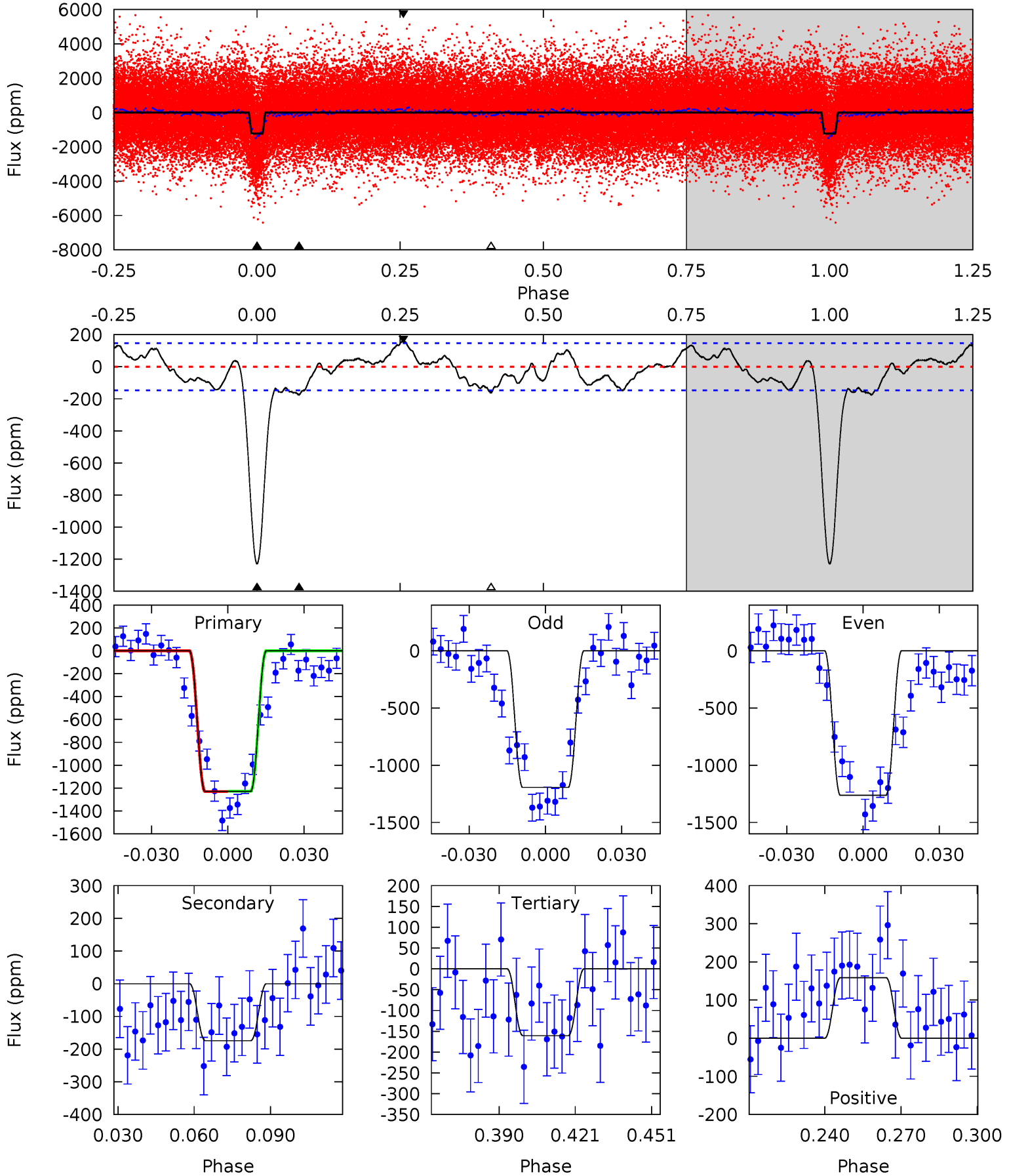




# Alt Model-Shift Uniqueness Test

008766222-01, P = 5.297172 Days, E = 135.580653 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
40.2	5.70	5.25	5.19	4.81	2.17	2.53	34.9	35.0	0.45	0.51	1.12	0.92	0.11	0.03





### Stellar Parameters For KIC 008766222

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4631^{+92}_{-115}$	$2.386^{+0.030}_{-0.030}$	$-0.040^{+0.200}_{-0.300}$	$14.296^{+3.167}_{-3.167}$	$1.812^{+1.035}_{-0.690}$	$0.001^{+0.000}_{-0.000}$
	+2%/-2%	+1%/-1%	+500%/-750%	+22%/-22%	+57%/-38%	+29%/-13%
Source	PHO54	AST54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 008766222-01 / KOI 1260.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-224 \pm 26$	$133.36^{+96.12}_{-81.64}$	$4011^{+150}_{-135}$	$-3507^{+739}_{-137}$	$0.038^{+0.210}_{-0.025}$
Alt.	$-174 \pm 31$	$95.63^{+85.65}_{-66.73}$	$4013^{+148}_{-139}$	$-3456^{+7126}_{-168}$	$0.059^{+0.559}_{-0.043}$

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

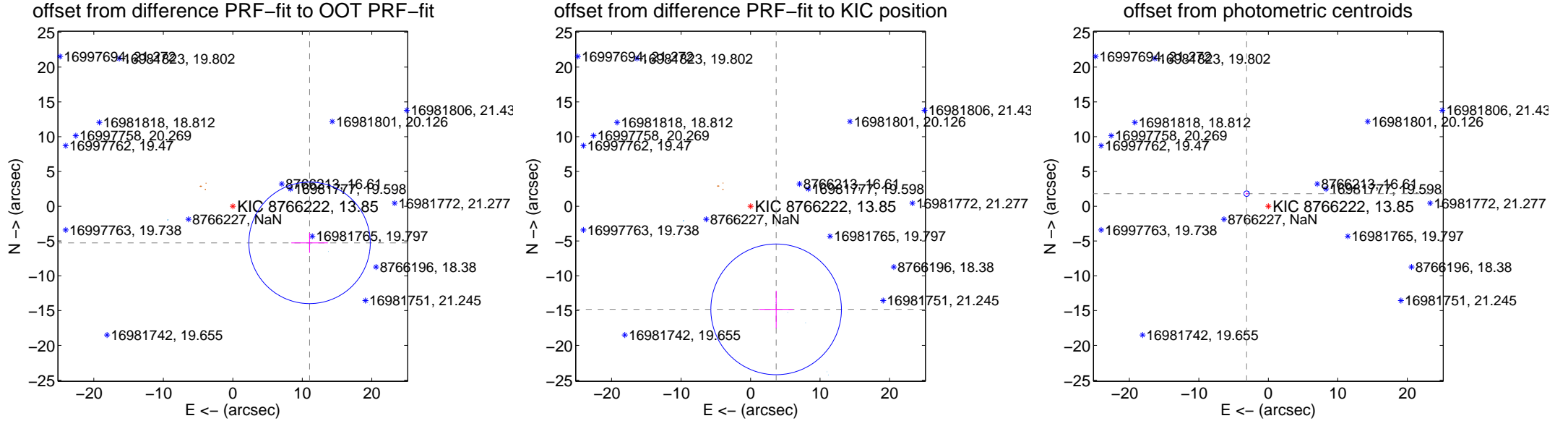
## DV Centroid Data

Supplemental centroid analysis for 008766222-01. Kepler magnitude: 13.85. Transit SNR 20.42

There are 8 quarters with good PRF difference image offsets

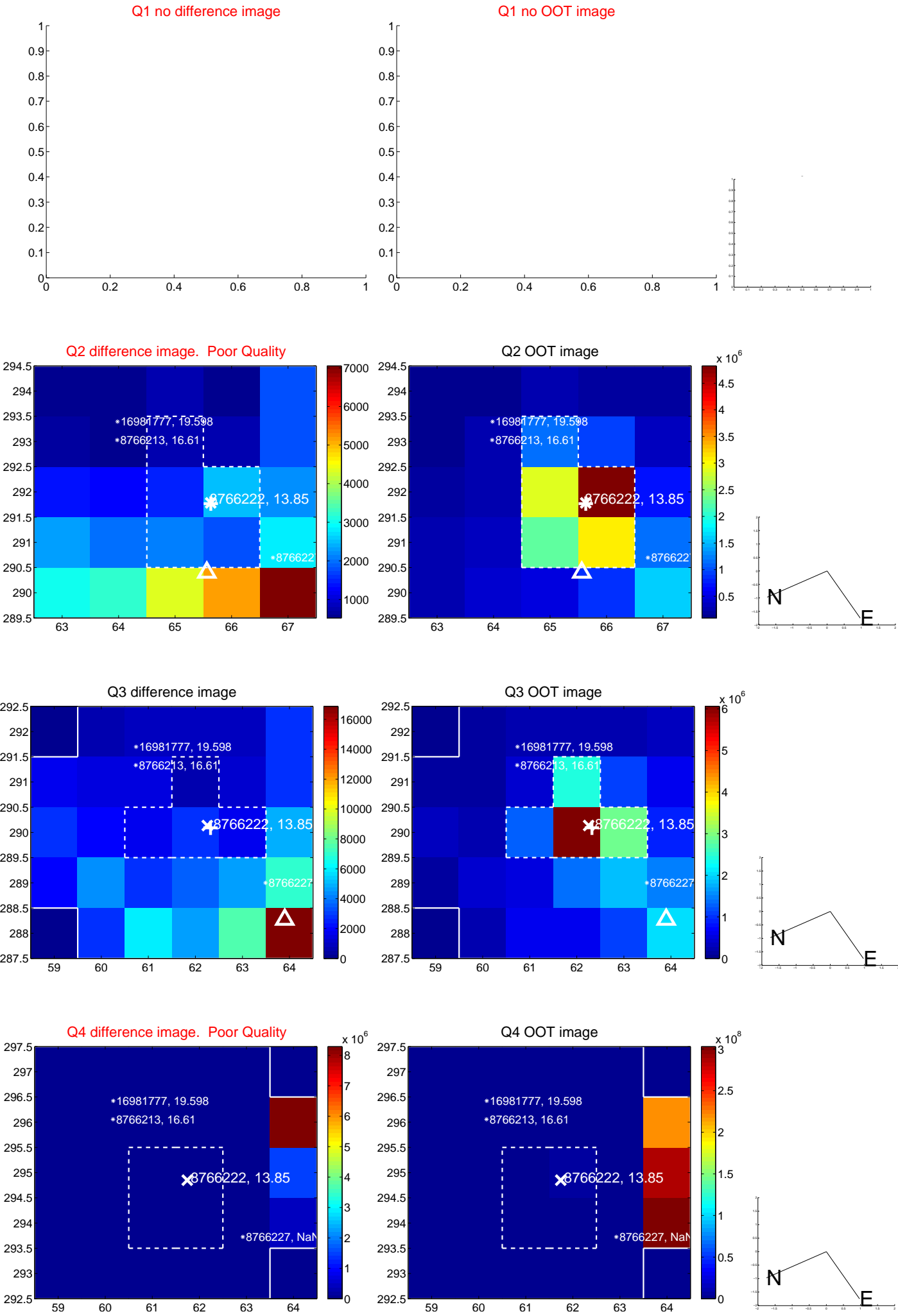
The OOT PRF centroid is offset from the target star catalog position by about 16.64 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$12.238 \pm 2.911$	4.20	$-11.048 \pm 2.635$	$-5.264 \pm 1.429$
PRF-fit source offset from KIC position	$15.275 \pm 3.132$	4.88	$-3.681 \pm 2.450$	$-14.825 \pm 2.684$
photometric centroid source offset	$3.61 \pm 0.13$	27.61	$3.12 \pm 0.14$	$1.81 \pm 0.11$

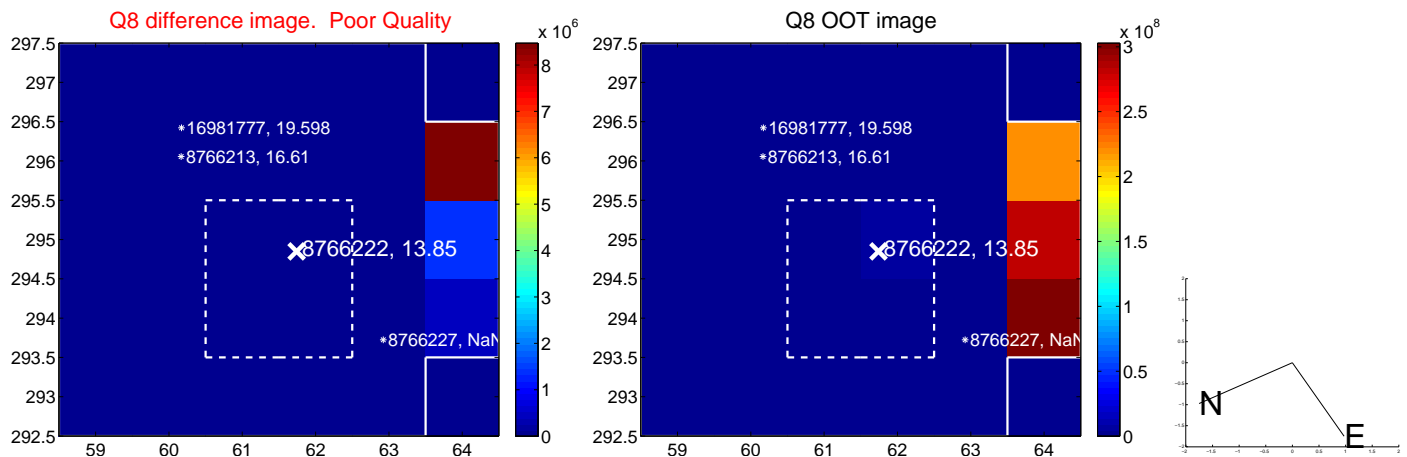
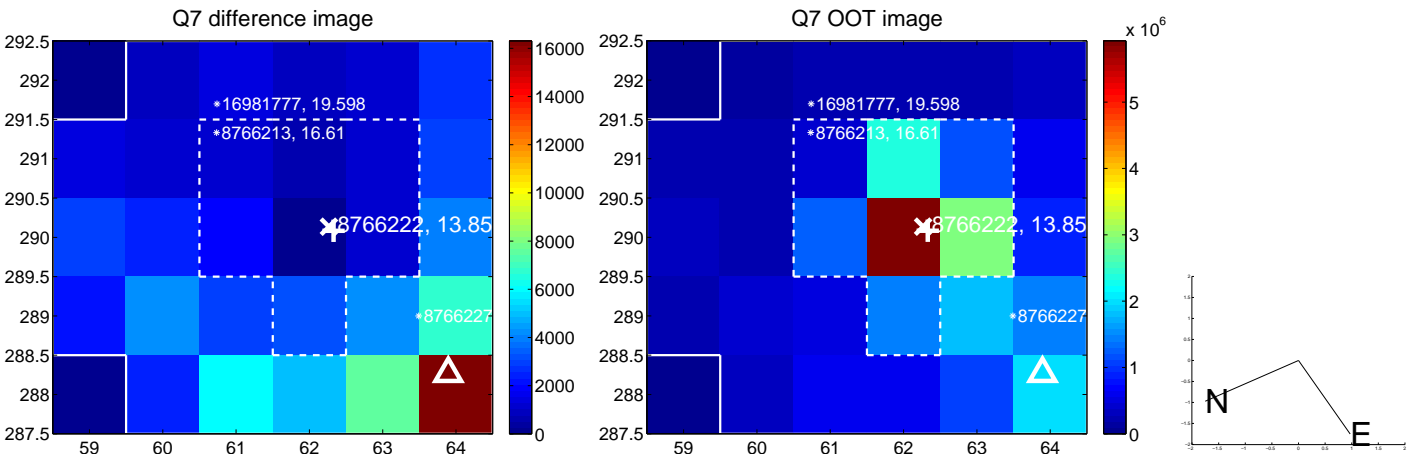
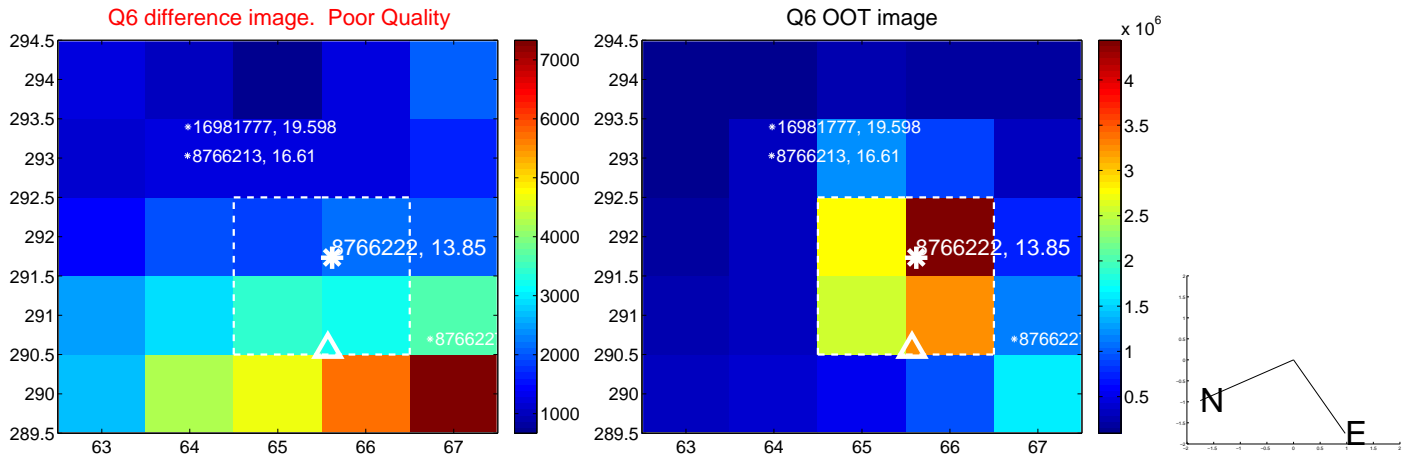
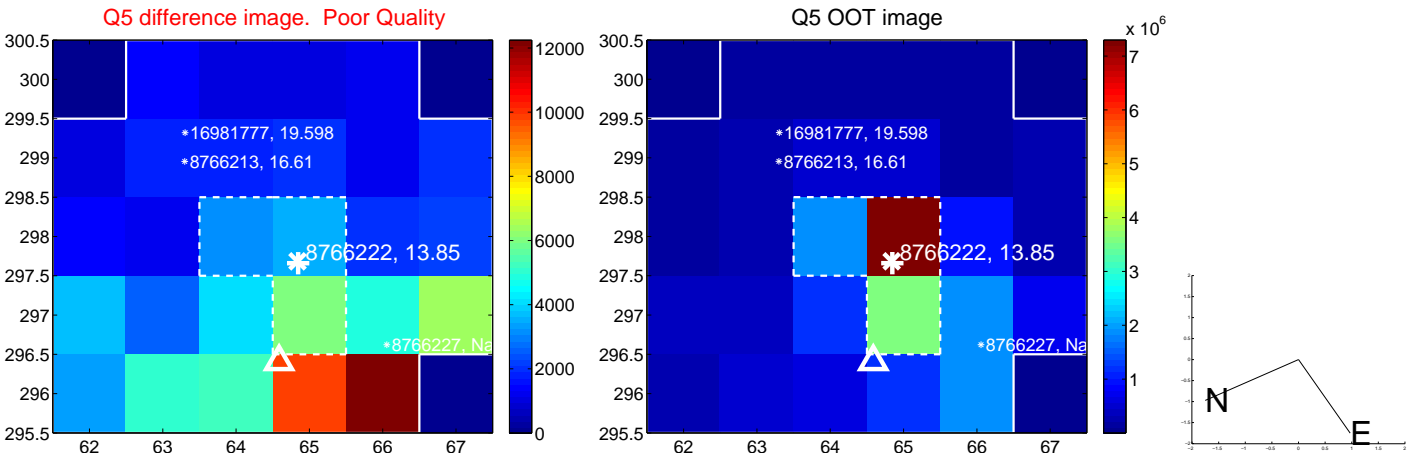


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

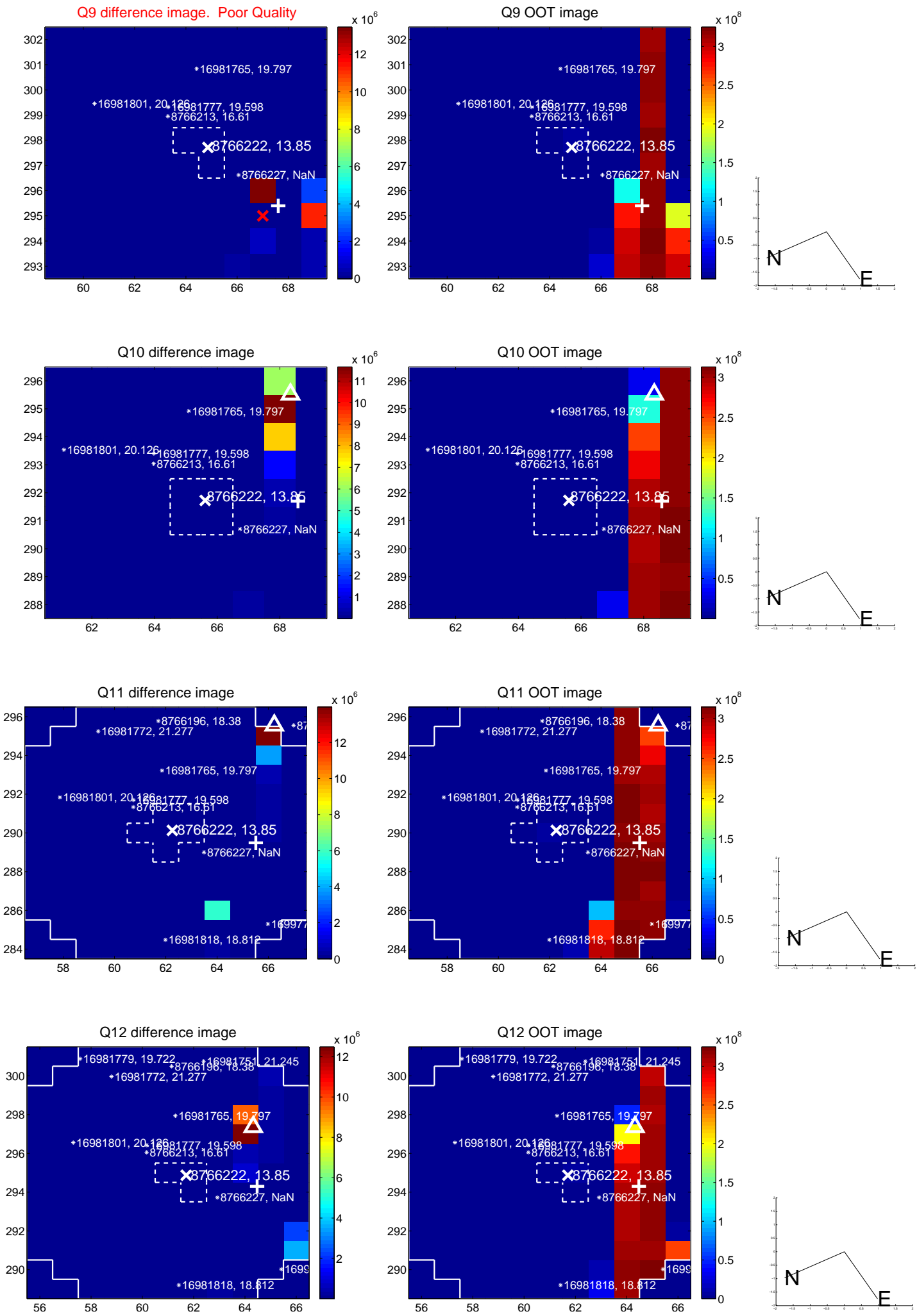


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

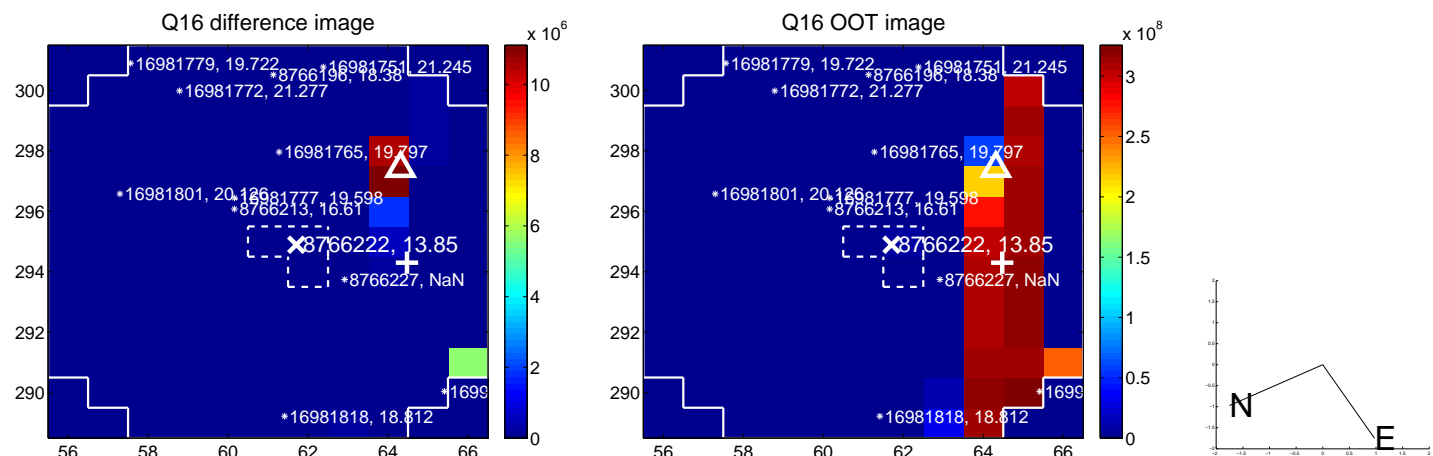
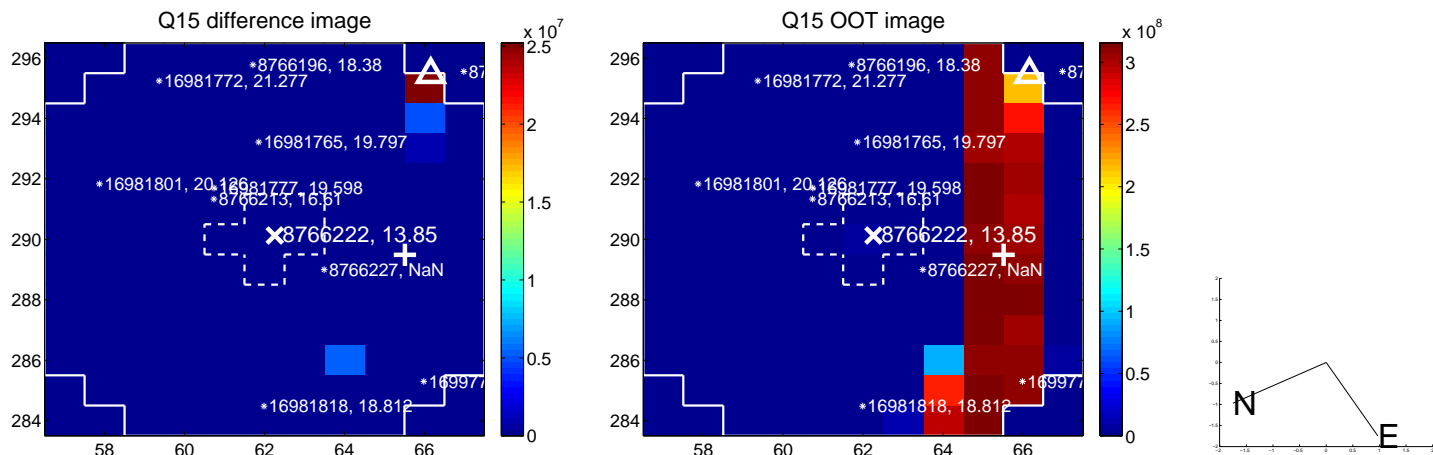
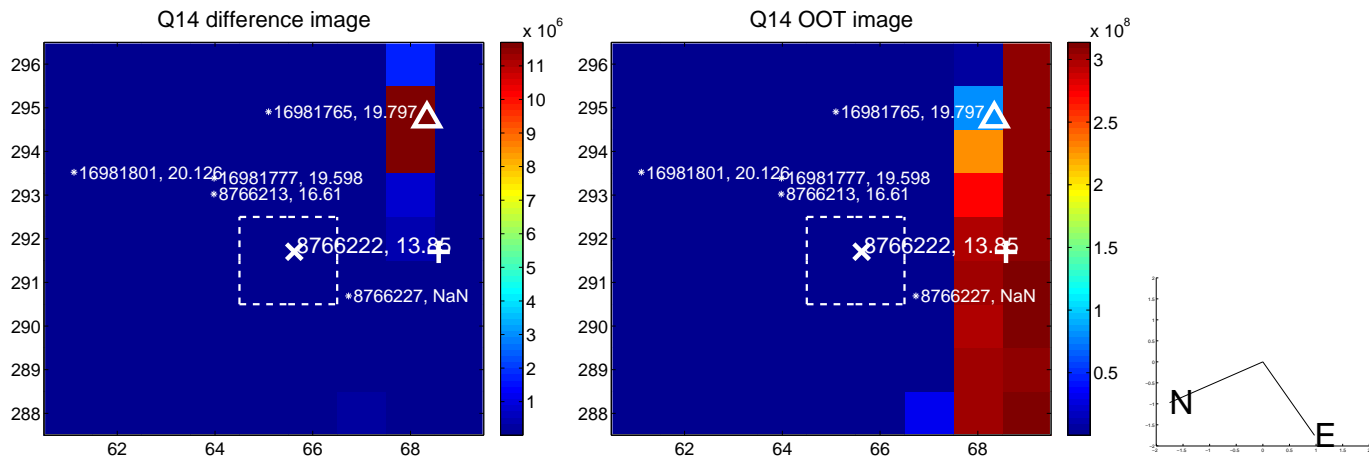
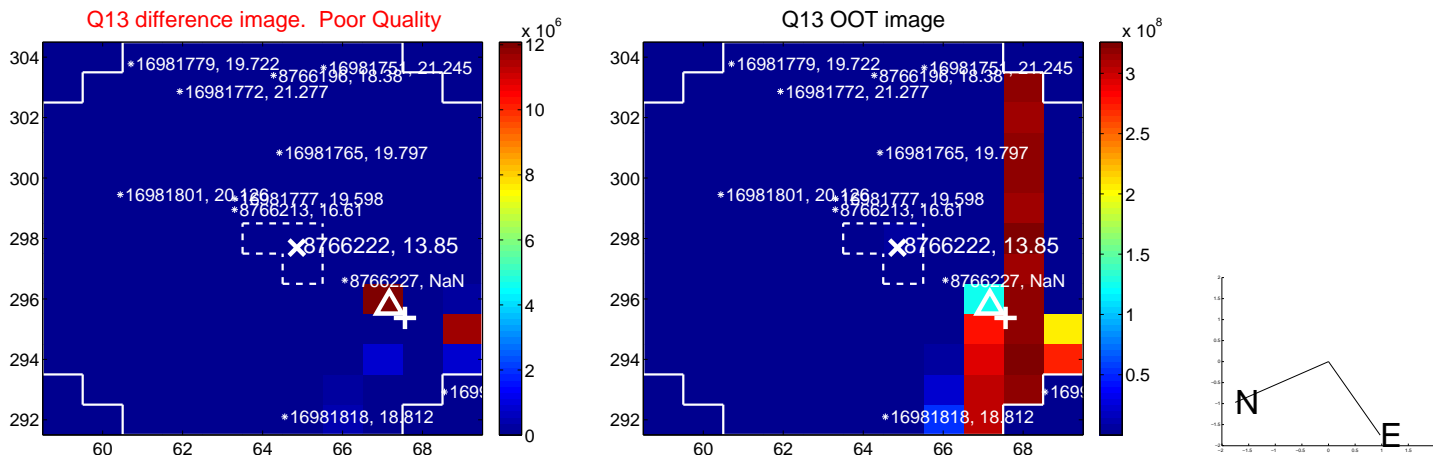




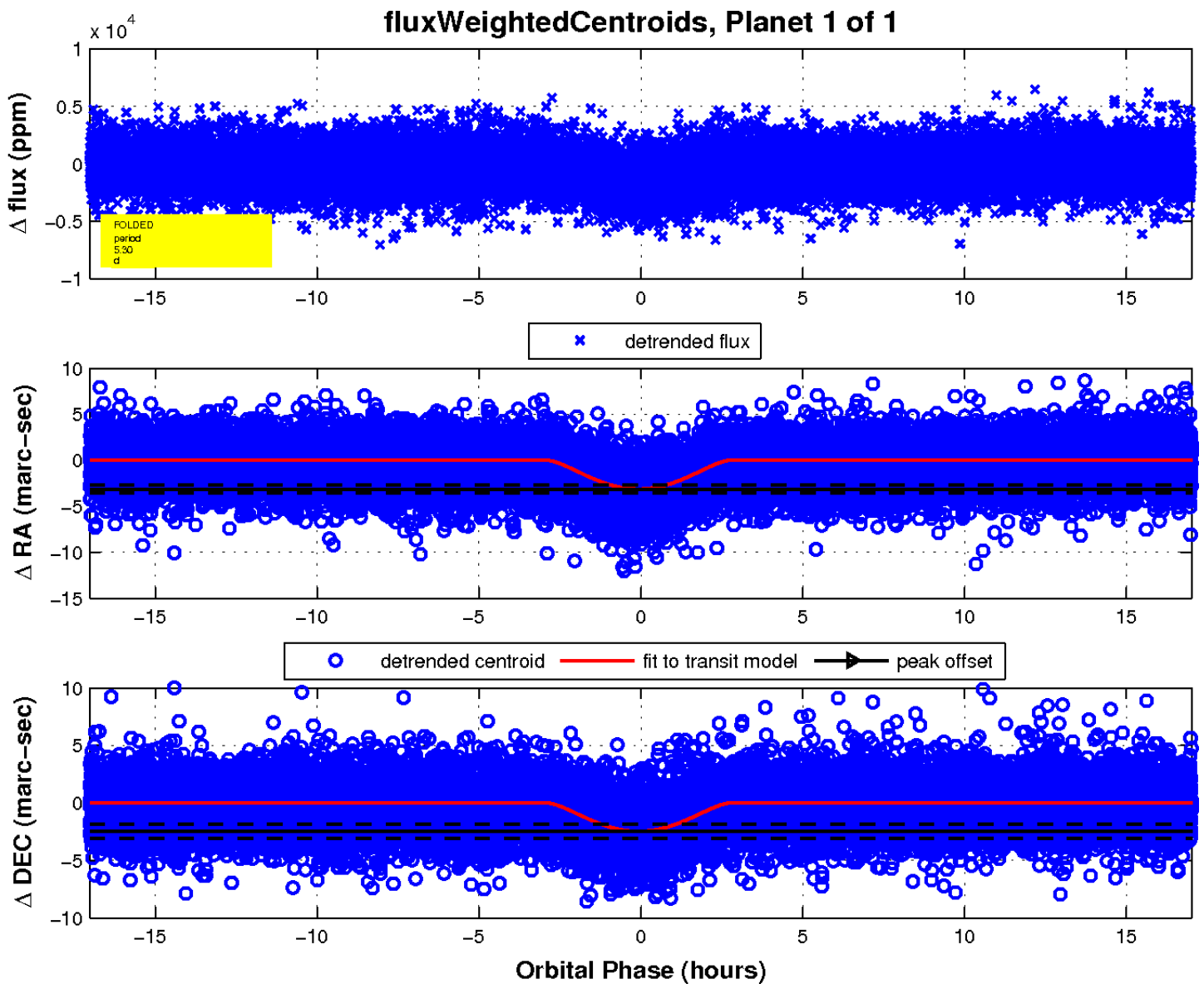
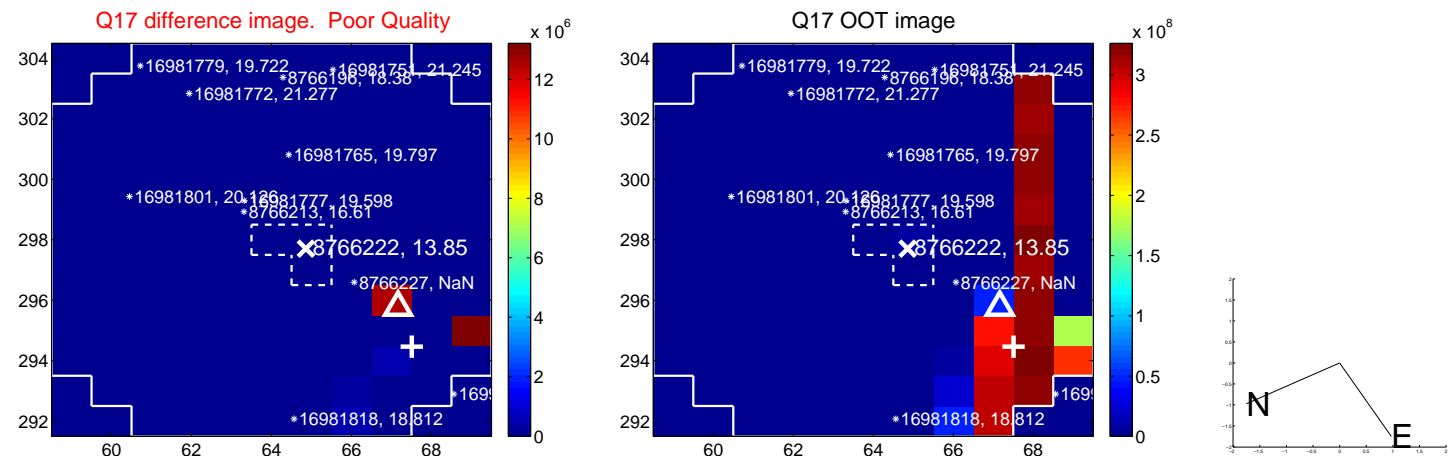
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

