

# KIC 004283612

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004283612-01	OBS	No	1.366457	132.365092	20.4	10.713	7.5	7.2	2.79	6617	1.27	18531.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004283612-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

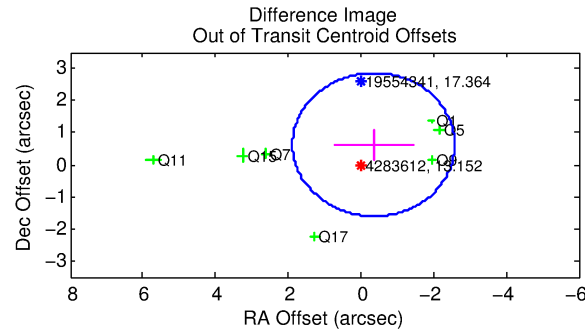
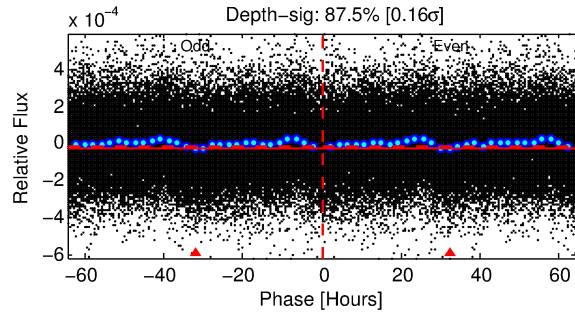
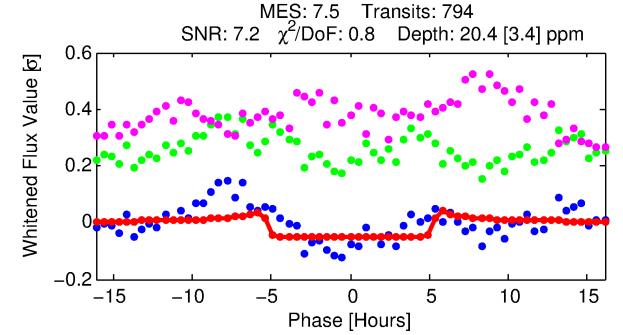
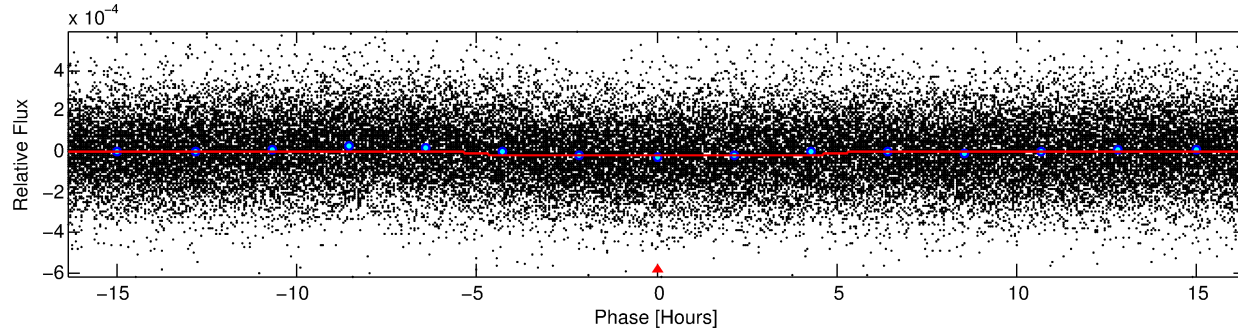
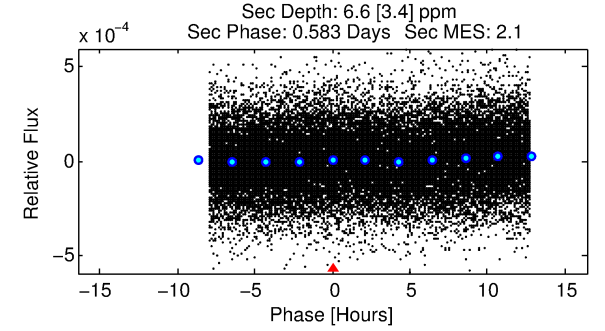
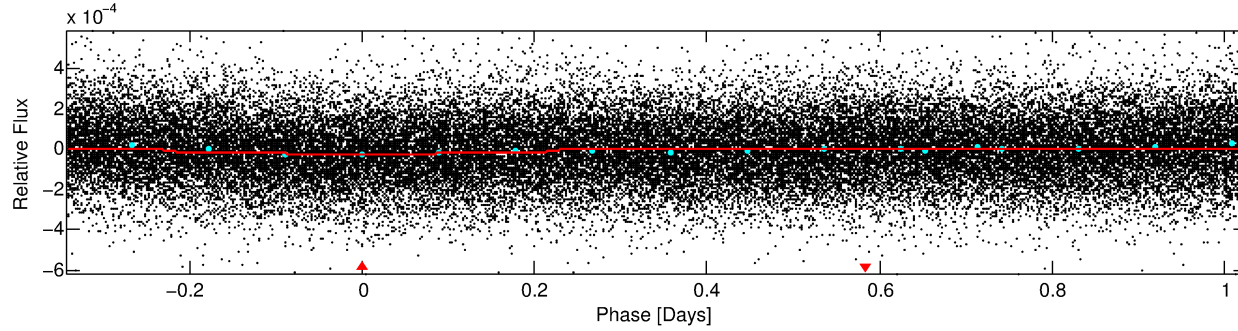
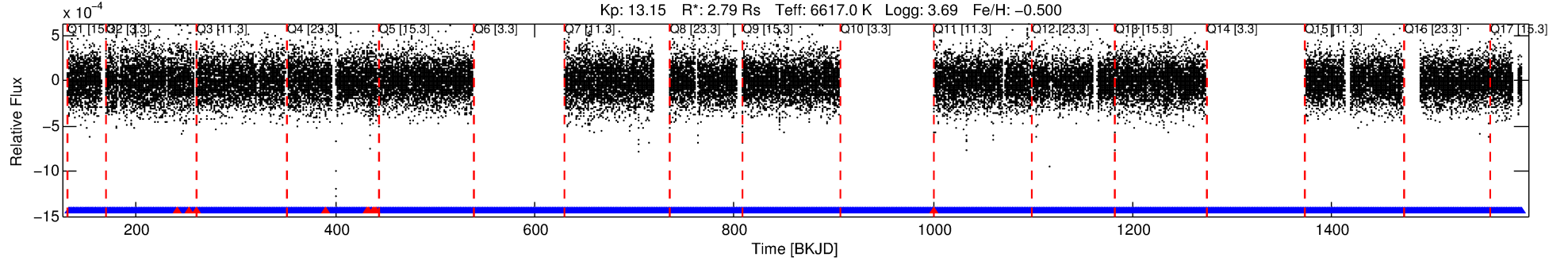
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004283612-01

No Significant Match Found

# DV One-Page Summary

KIC: 4283612 Candidate: 1 of 1 Period: 1.366 d



## DV Fit Results:

Period = 1.36646 [0.00002] d  
Epoch = 132.3651 [0.0067] BKJD  
Rp/R\* = 0.0042 [0.0031]  
a/R\* = 1.17 [1.30]  
b = 0.00 [5262.77]  
Seff = 18531.79 [11066.56]  
Teq = 2975 [444] K  
Rp = 1.27 [1.06] Re  
a = 0.0269 [0.0098] AU  
Ag = 1.63 [2.74] [0.23σ]  
Teffp = 5194 [2058] K [1.05σ]

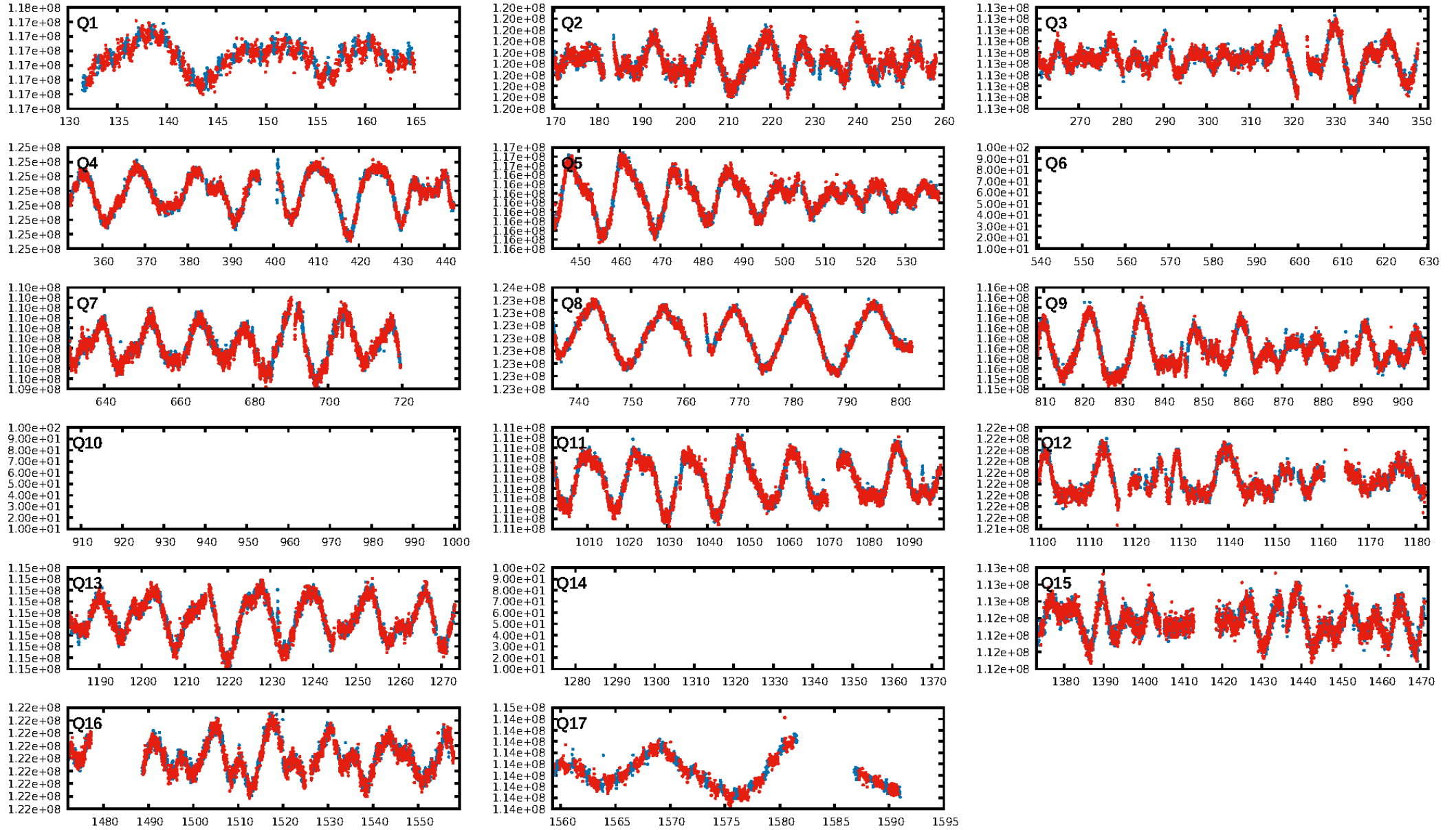
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 4.79e-08**  
RollingBand-fgt: 0.99 [740/750]  
GhostDiagnostic-chr: 1.313  
Centroid-sig: 3.7%  
Centroid-so: 1.578 arcsec [1.66σ]  
OotOffset-rm: 0.715 arcsec [0.96σ]  
KicOffset-rm: 0.725 arcsec [1.05σ]  
OotOffset-st: 0/3/0/4 [7]  
KicOffset-st: 0/3/0/4 [7]  
DiffImageQuality-fgm: 0.57 [4/7]  
DiffImageOverlap-fno: 1.00 [14/14]

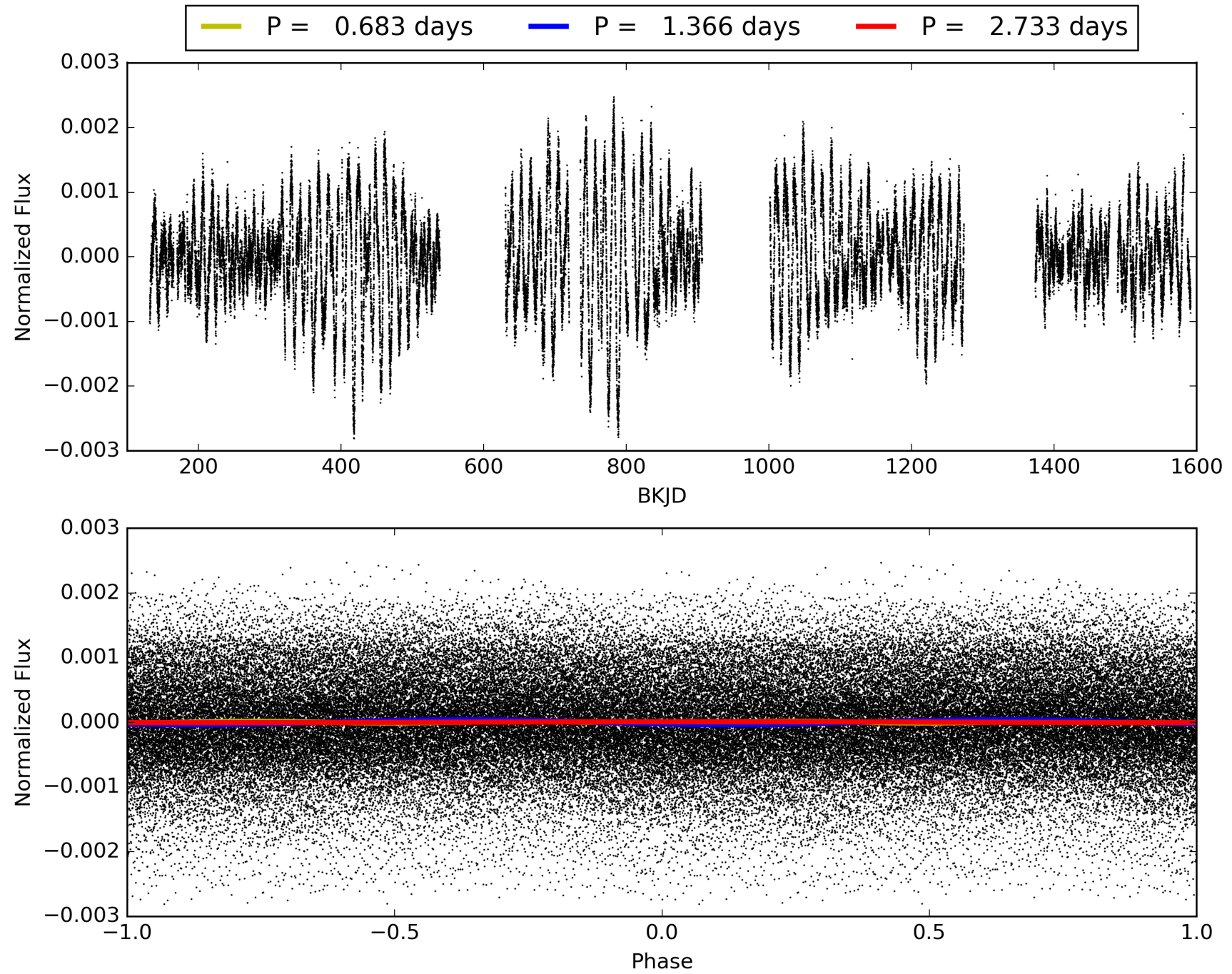
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:45:27 Z

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

# TCE 004283612-01, PDC Light Curves

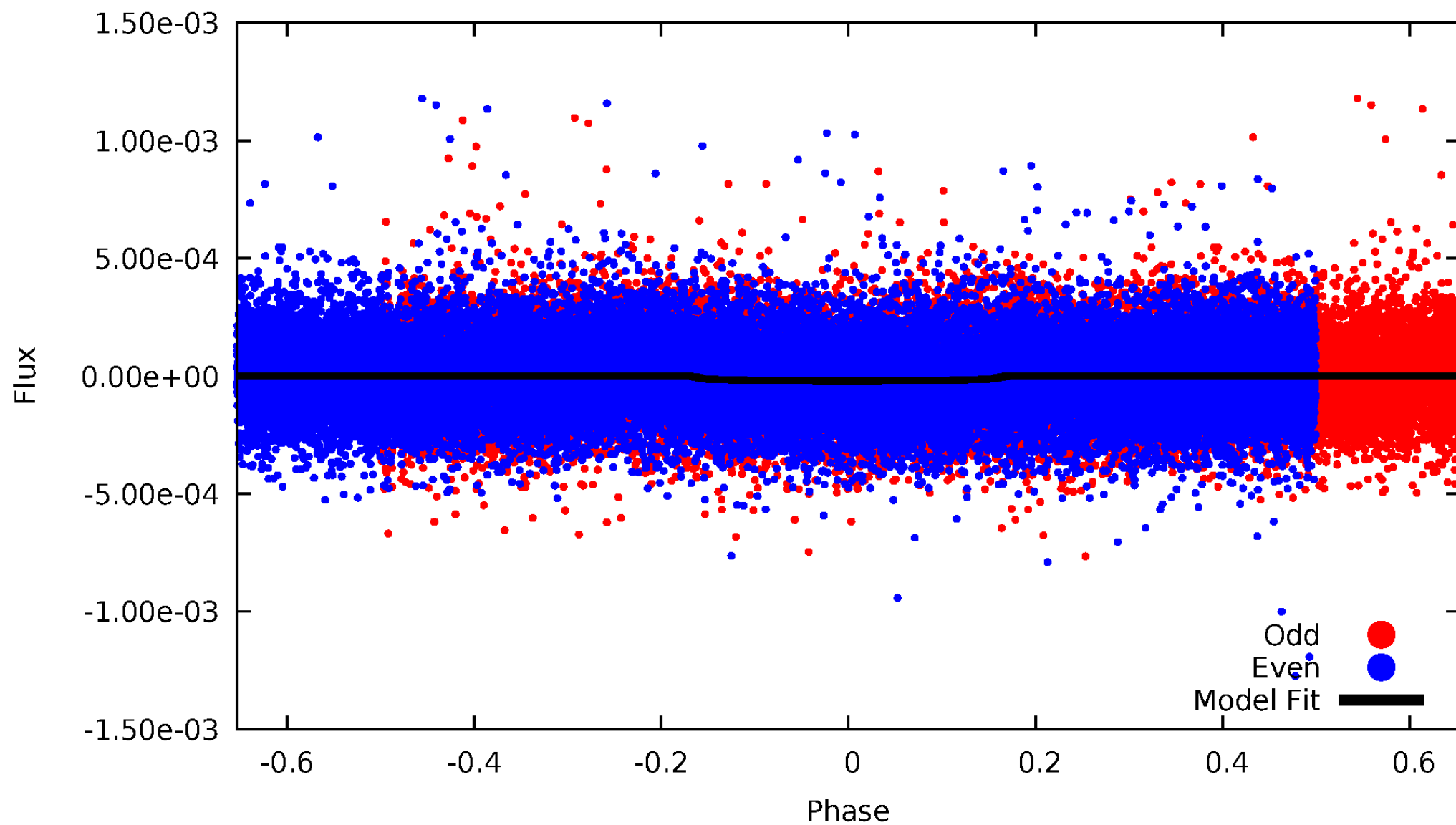


TCE 004283612-01



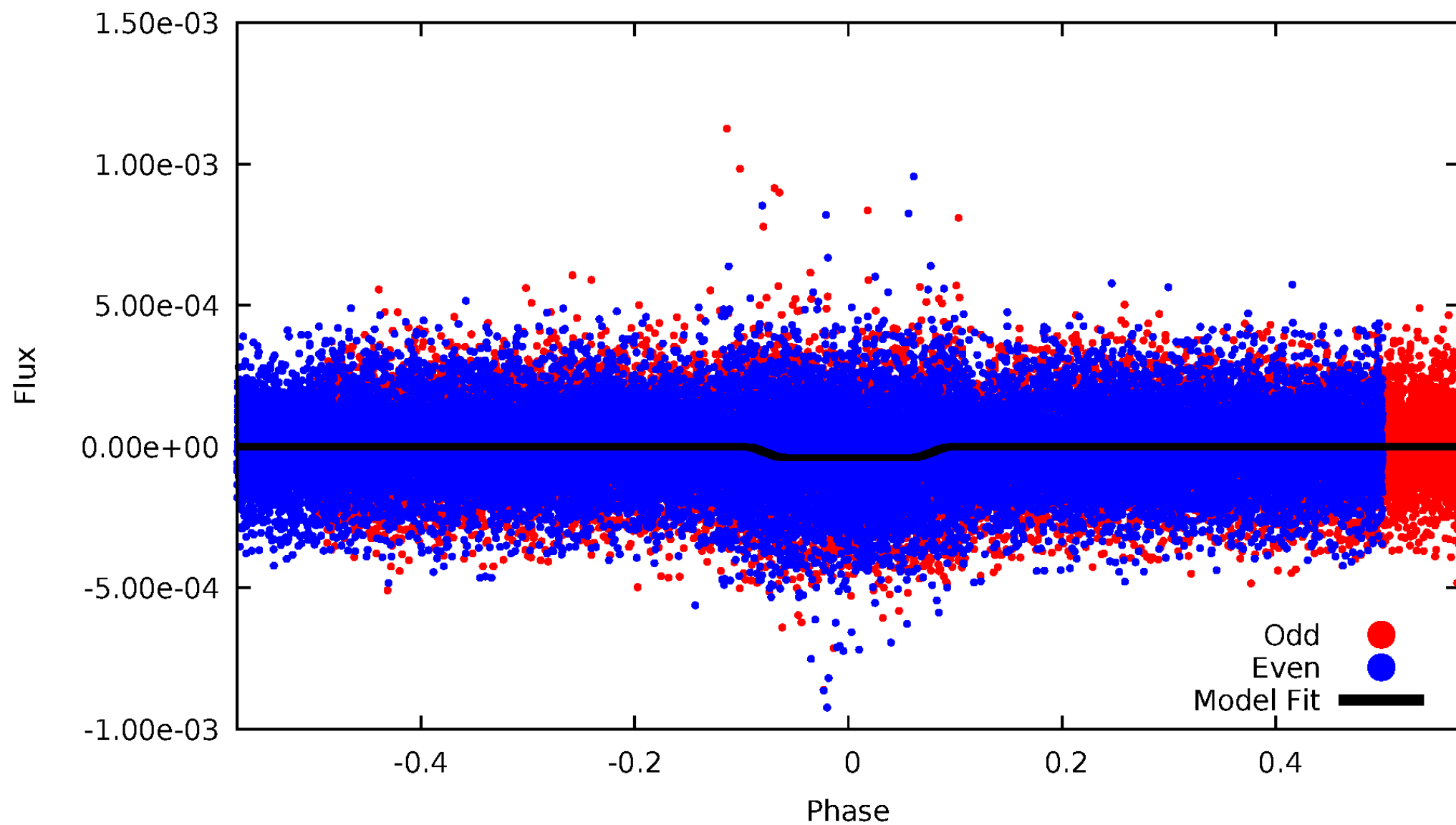
DV Odd/Even

TCE 004283612-01



# ALT Odd/Even

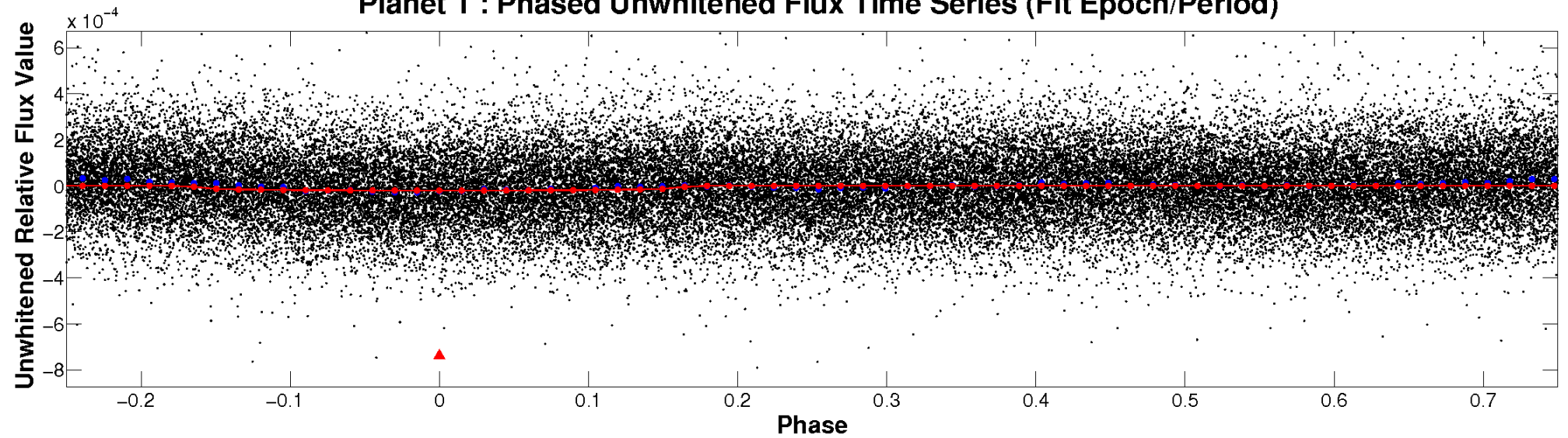
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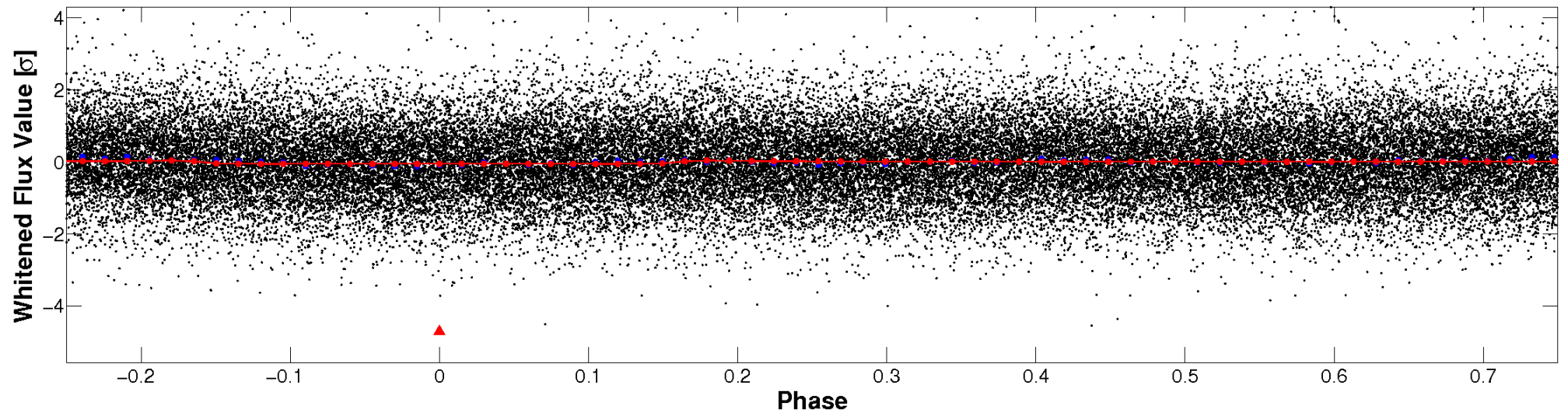


# Non-Whitened Vs. Whitened Light Curve

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

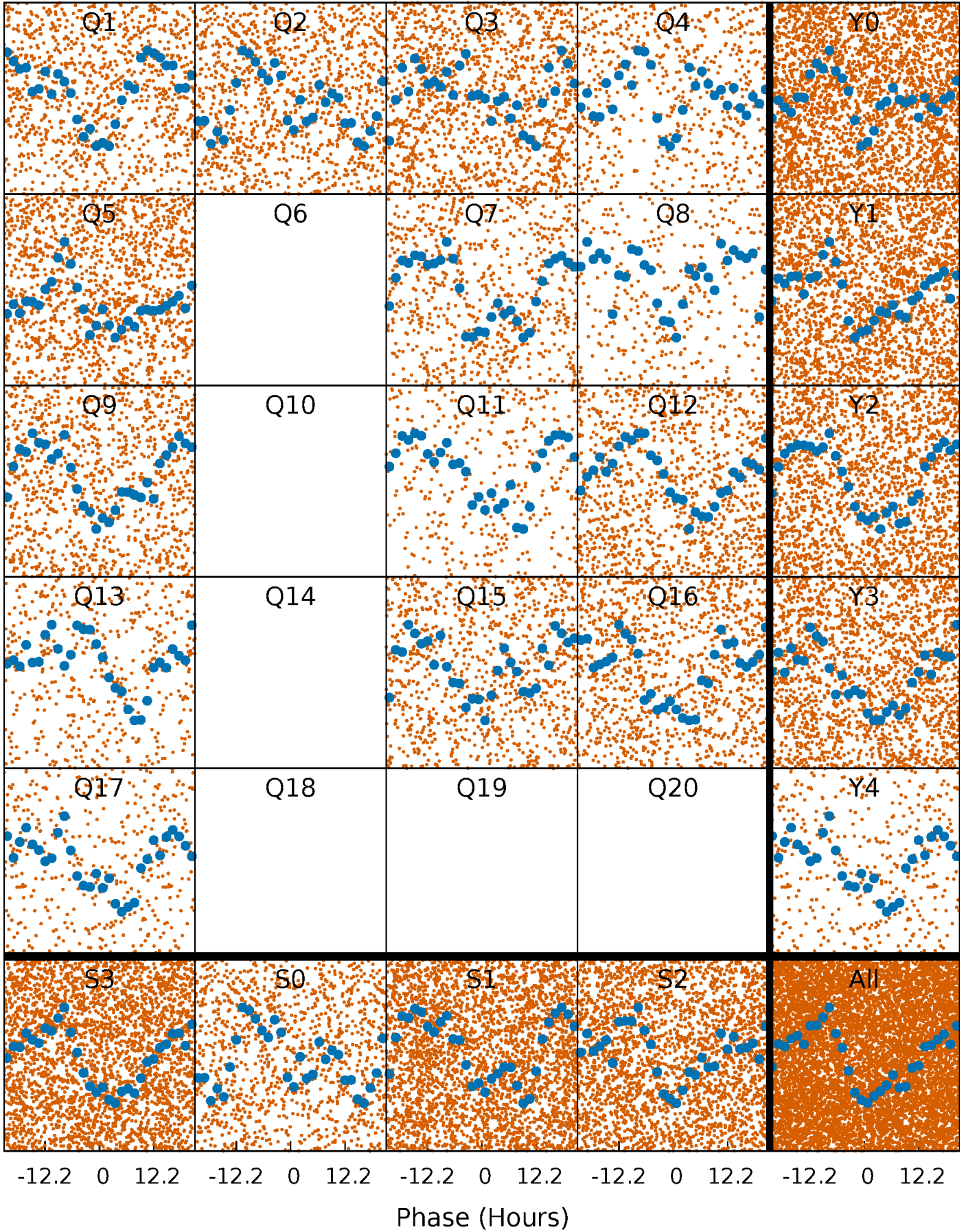


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

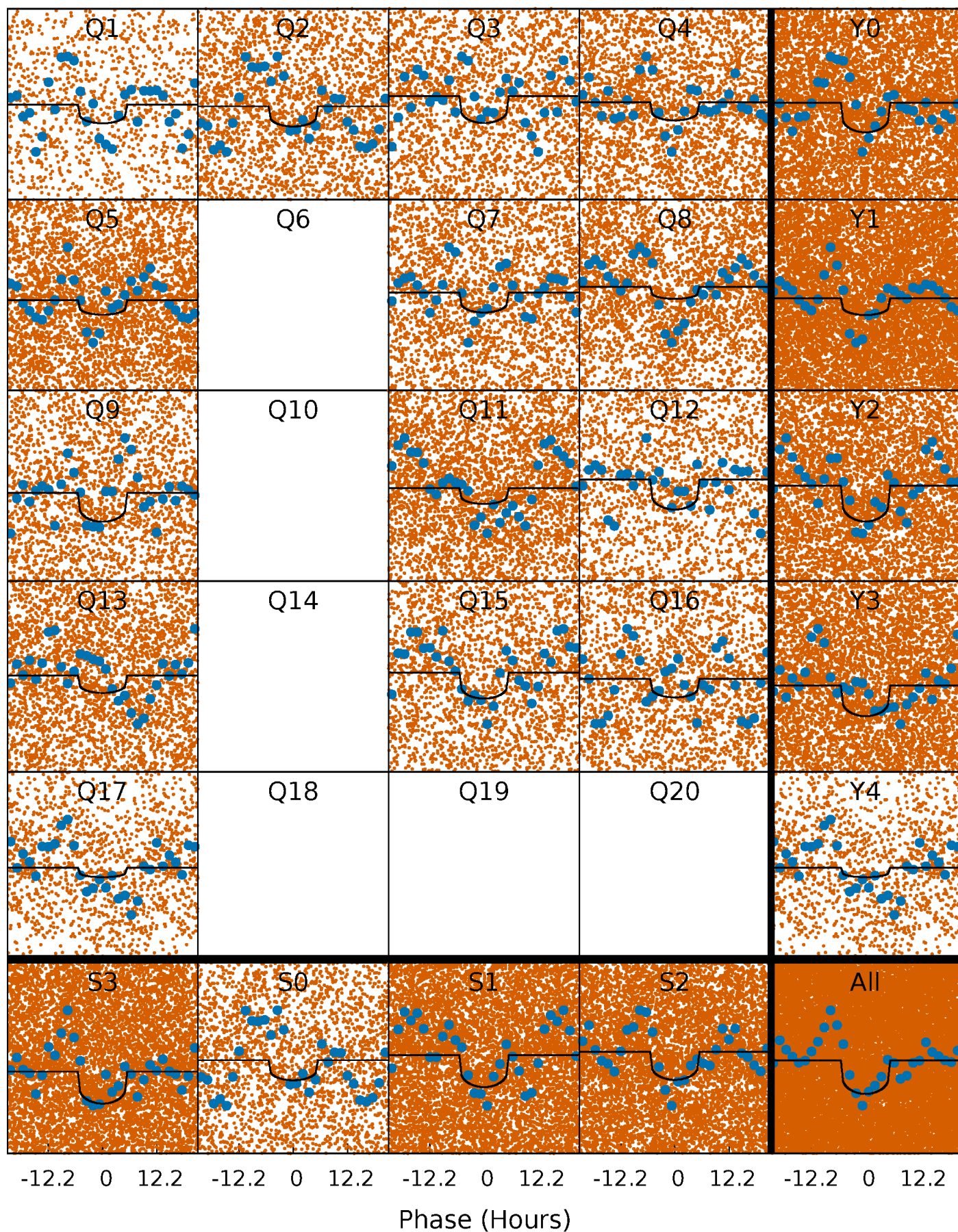
TCE 004283612-01 P= 1.366457 Days  $T_0=132.365092$  (BKJD)





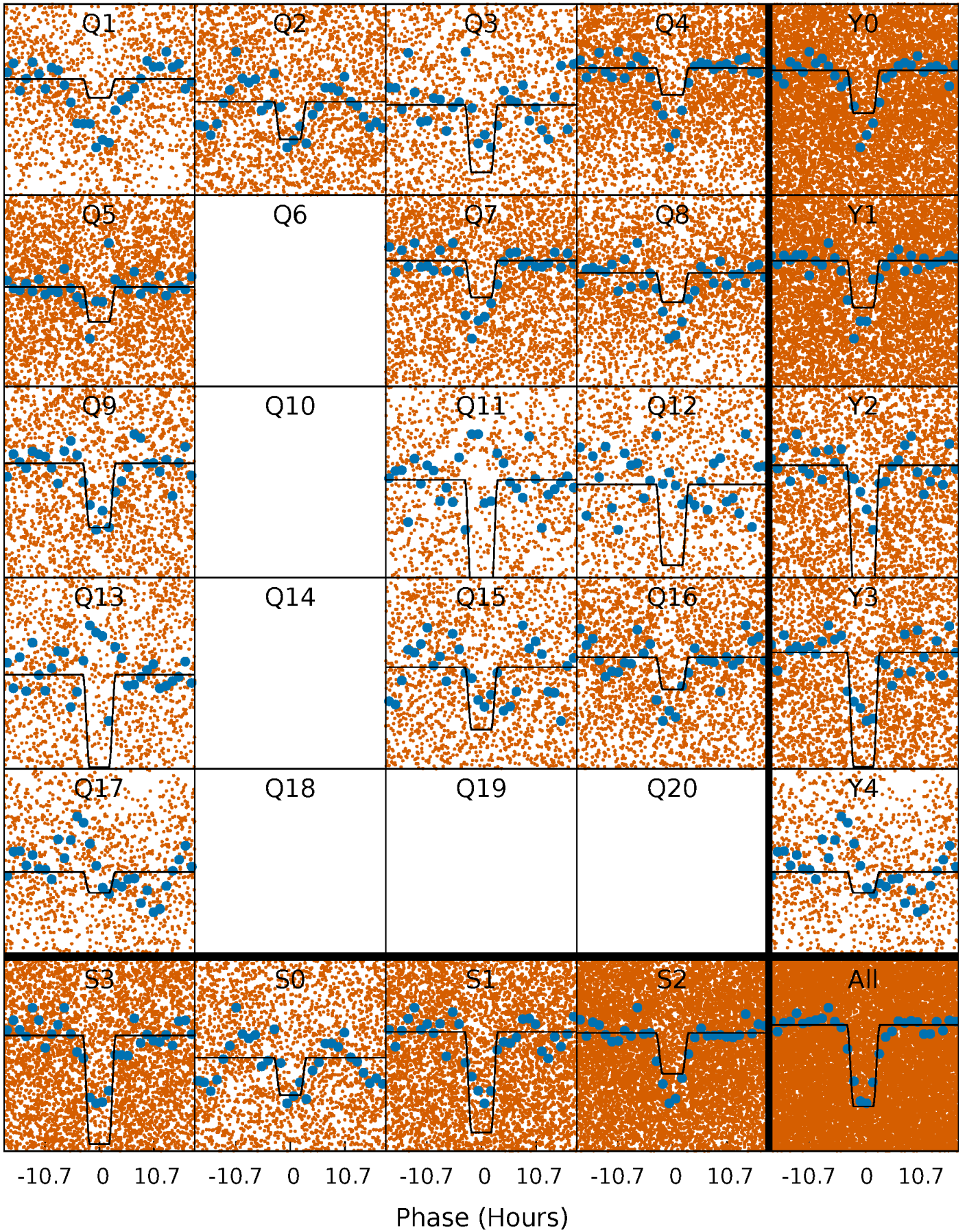
# DV Quarter-Phased Transit Curves

TCE 004283612-01 P= 1.366457 Days  $T_0=132.365092$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004283612-01 P= 1.366258 Days  $T_0=132.378580$  (BKJD)

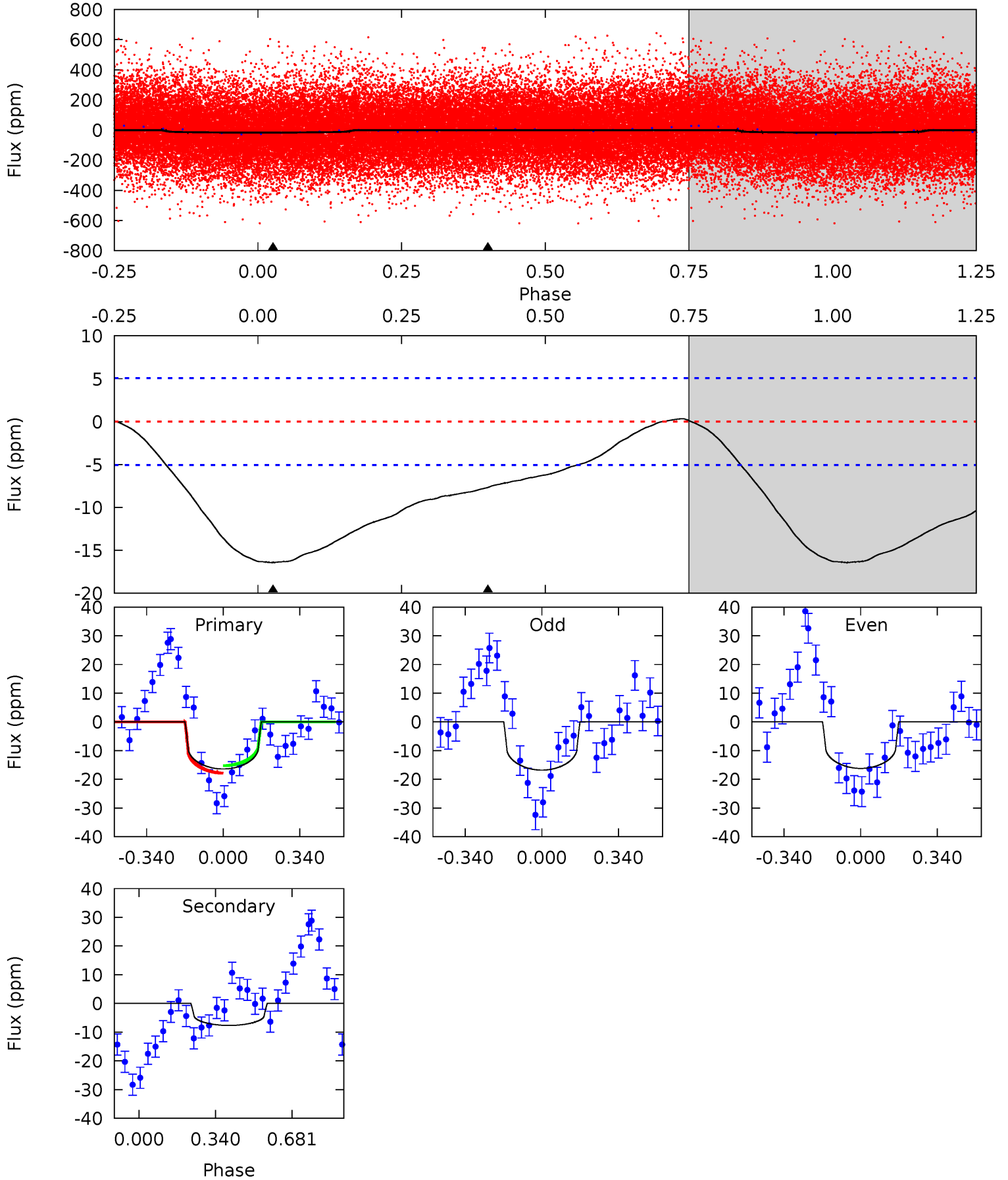




# DV Model-Shift Uniqueness Test

004283612-01, P = 1.366457 Days, E = 130.998635 Days

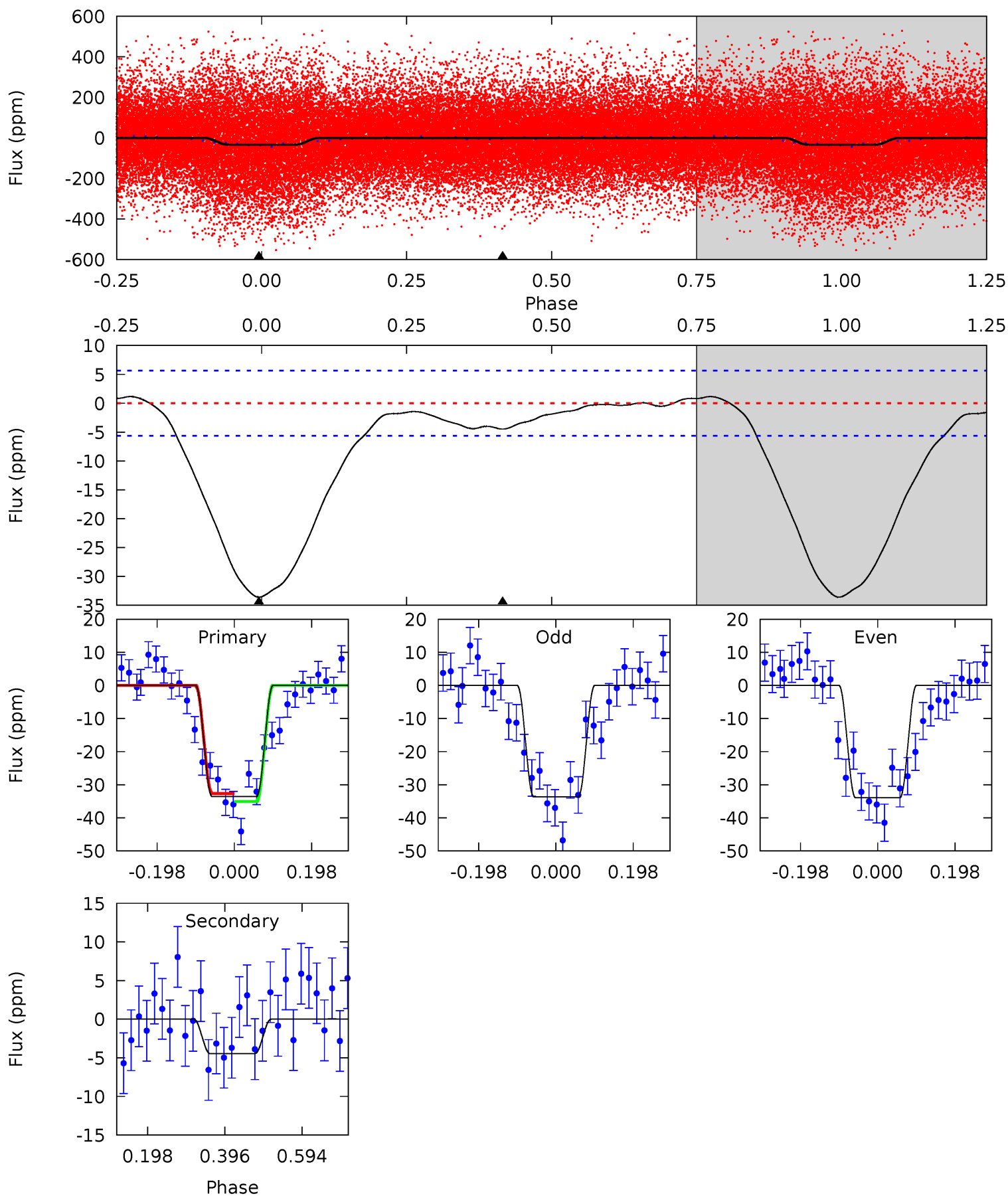
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	6.51	0	0	4.30	0.95	0.34	13.9	13.9	6.51	6.51	0.26	0.92	0.02	1.12



# Alt Model-Shift Uniqueness Test

004283612-01, P = 1.366258 Days, E = 131.012322 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	3.50	0	0	4.42	1.29	0.83	26.3	26.3	3.50	3.50	0.10	1.11	0.03	0.92





### Stellar Parameters For KIC 004283612

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$\rho_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6617^{+200}_{-200}$	$3.688^{+0.344}_{-0.108}$	$-0.500^{+0.350}_{-0.300}$	$2.791^{+0.451}_{-1.052}$	$1.385^{+0.224}_{-0.299}$	$0.090^{+0.209}_{-0.024}$
	+3%/-3%	+9%/-3%	+70%/-60%	+16%/-38%	+16%/-22%	+233%/-27%
Source	PHO1	FLK73	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 004283612-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-8 \pm 1$	$1.31^{+0.92}_{-0.70}$	$4089^{+276}_{-395}$	$5006^{+2544}_{-1285}$	$1.783^{+6.702}_{-1.179}$
Alt.	$-4 \pm 1$	$1.85^{+1.01}_{-0.88}$	$4086^{+255}_{-346}$	$3507^{+1409}_{-6651}$	$0.520^{+1.221}_{-0.312}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

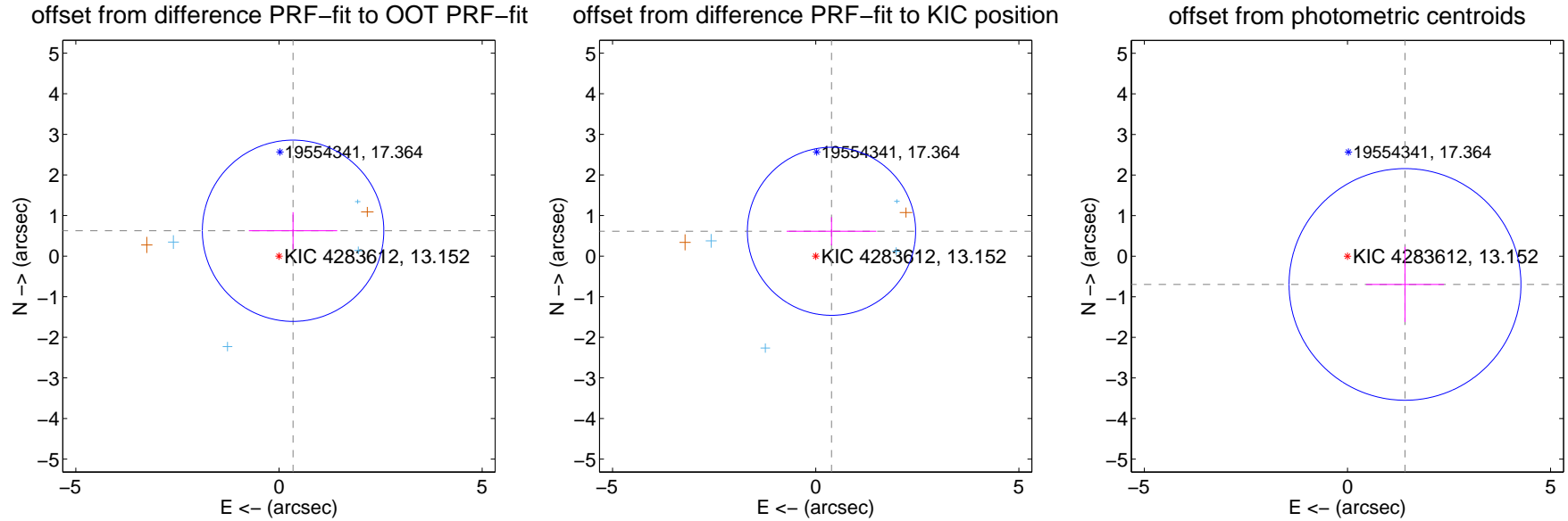
## DV Centroid Data

Supplemental centroid analysis for 004283612-01. Kepler magnitude: 13.15. Transit SNR 7.21

There are 4 quarters with good PRF difference image offsets

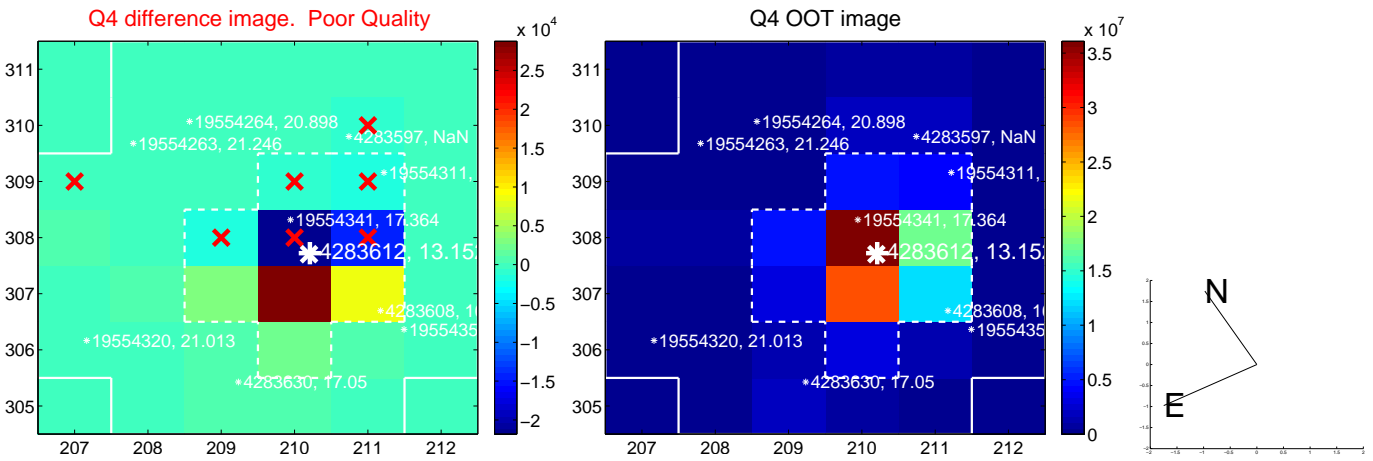
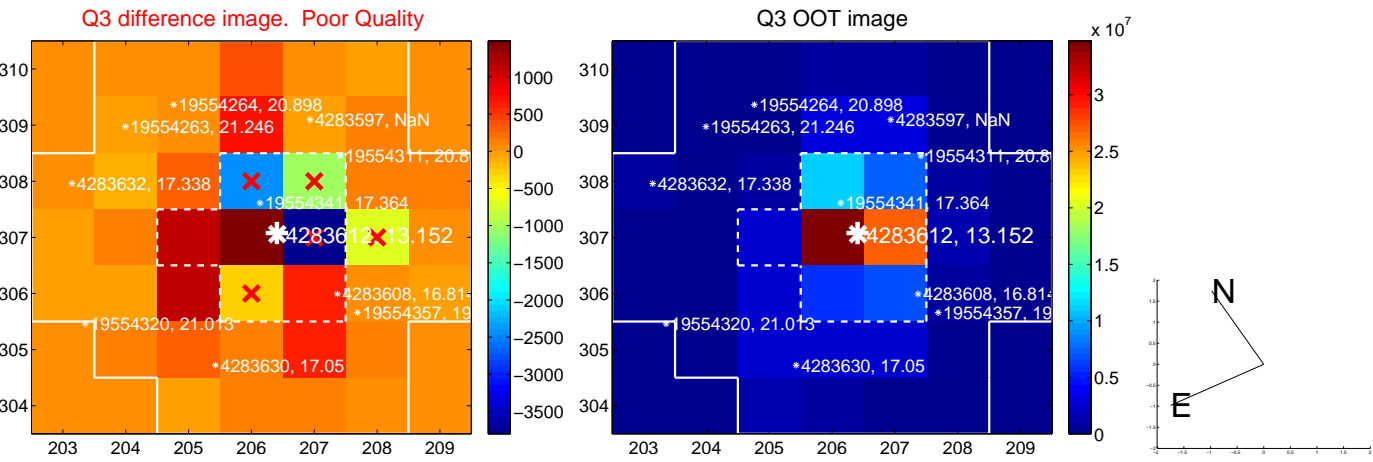
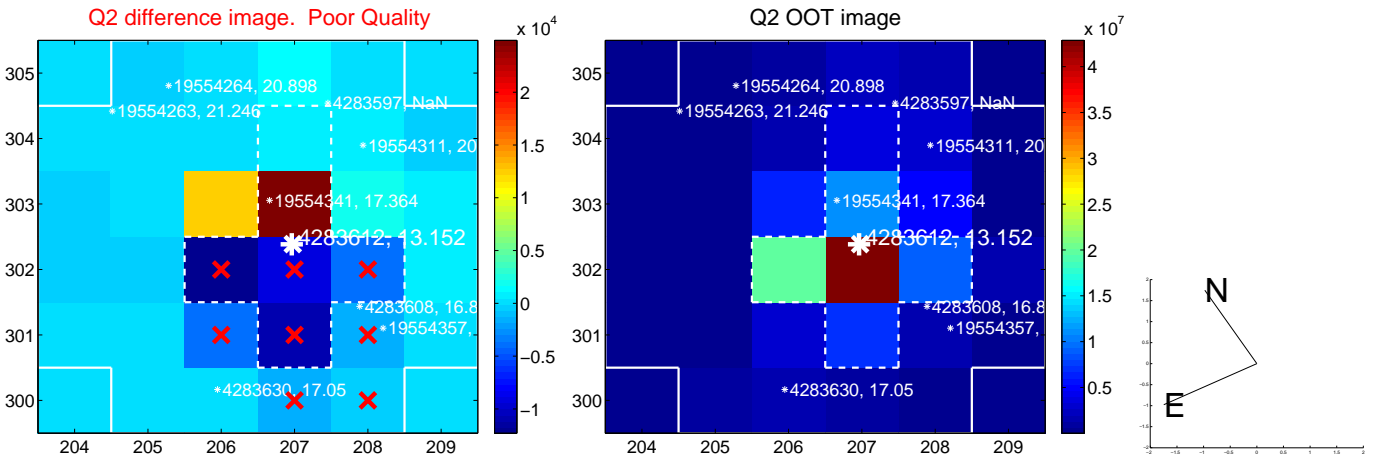
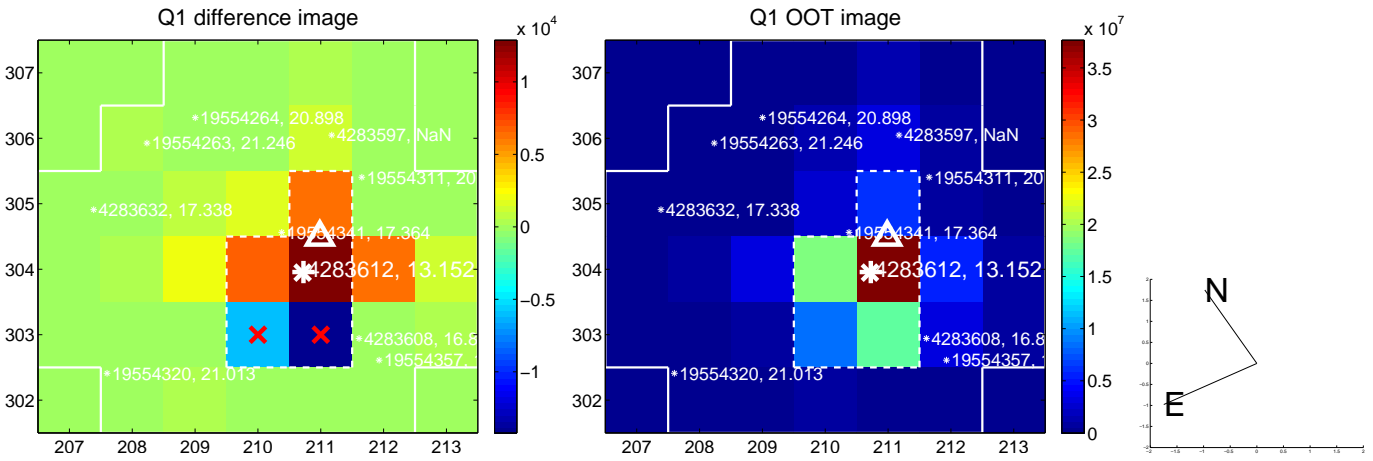
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.715 \pm 0.744$	0.96	$-0.347 \pm 1.087$	$0.625 \pm 0.459$
PRF-fit source offset from KIC position	$0.725 \pm 0.690$	1.05	$-0.388 \pm 1.104$	$0.612 \pm 0.347$
photometric centroid source offset	$1.58 \pm 0.95$	1.66	$-1.42 \pm 0.96$	$-0.70 \pm 0.93$

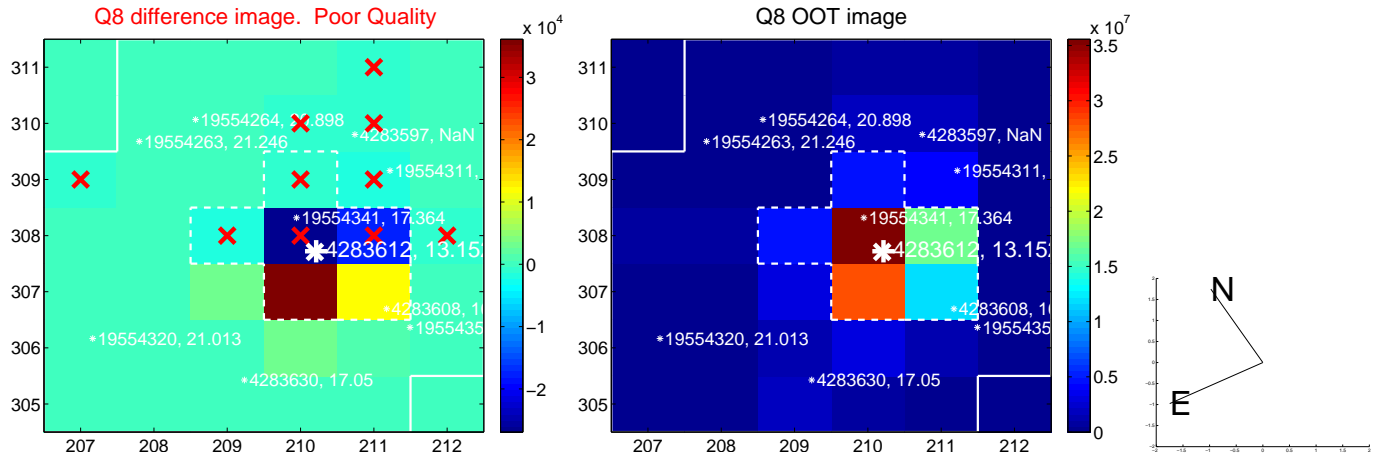
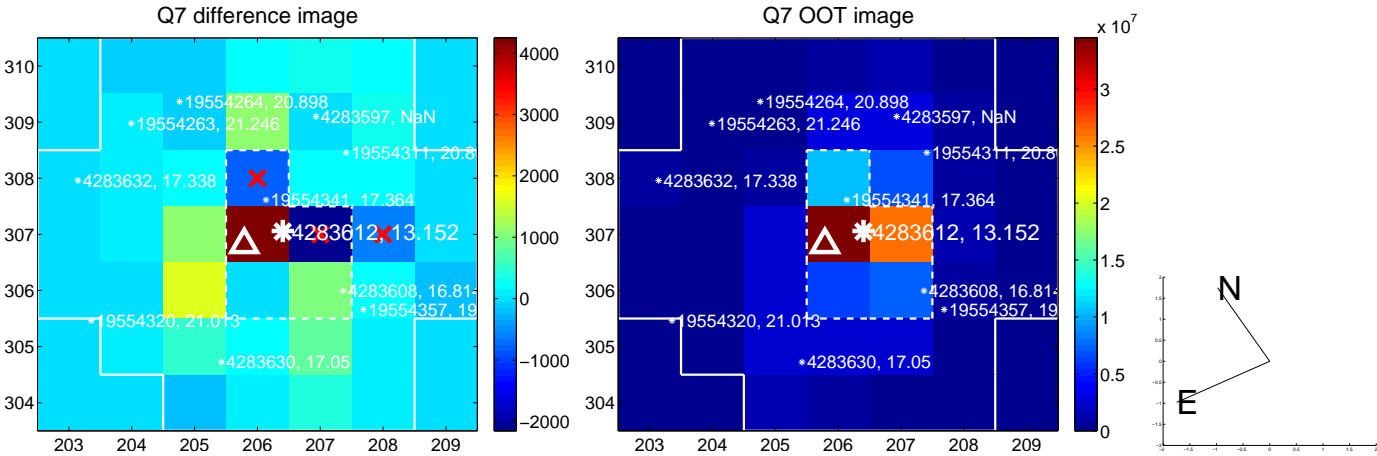
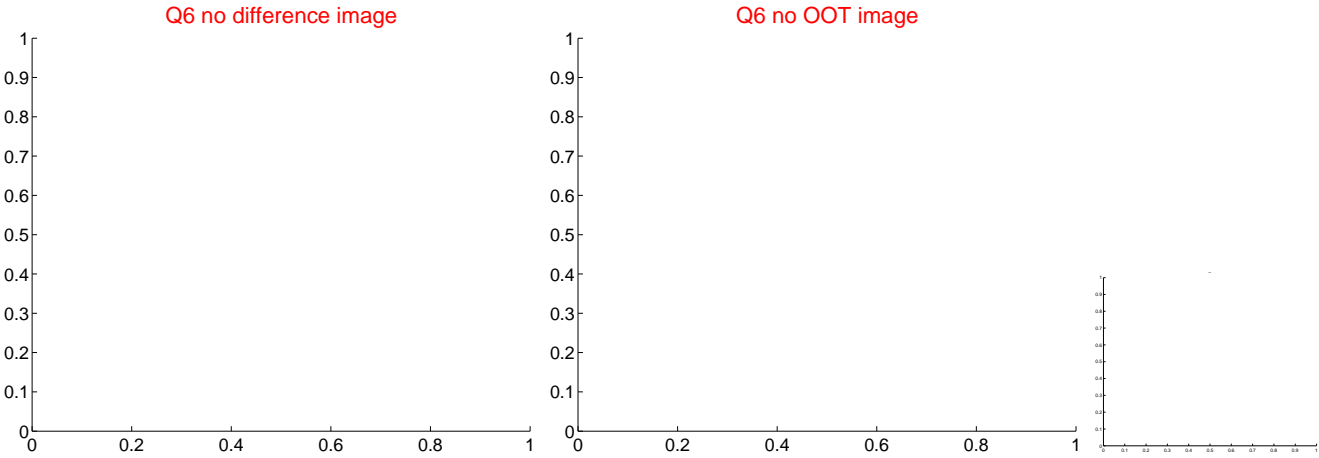
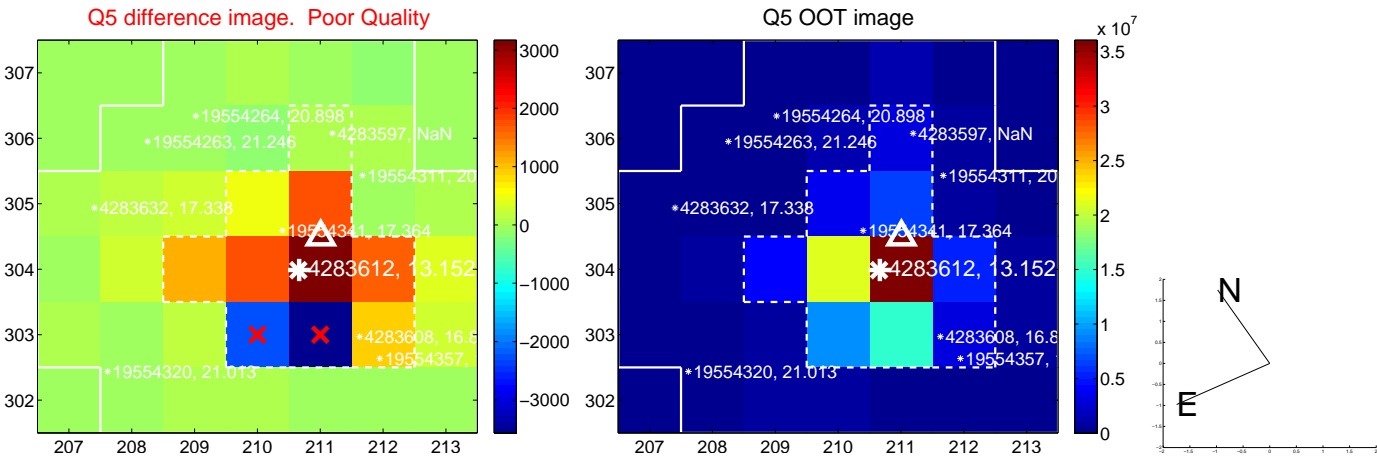


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

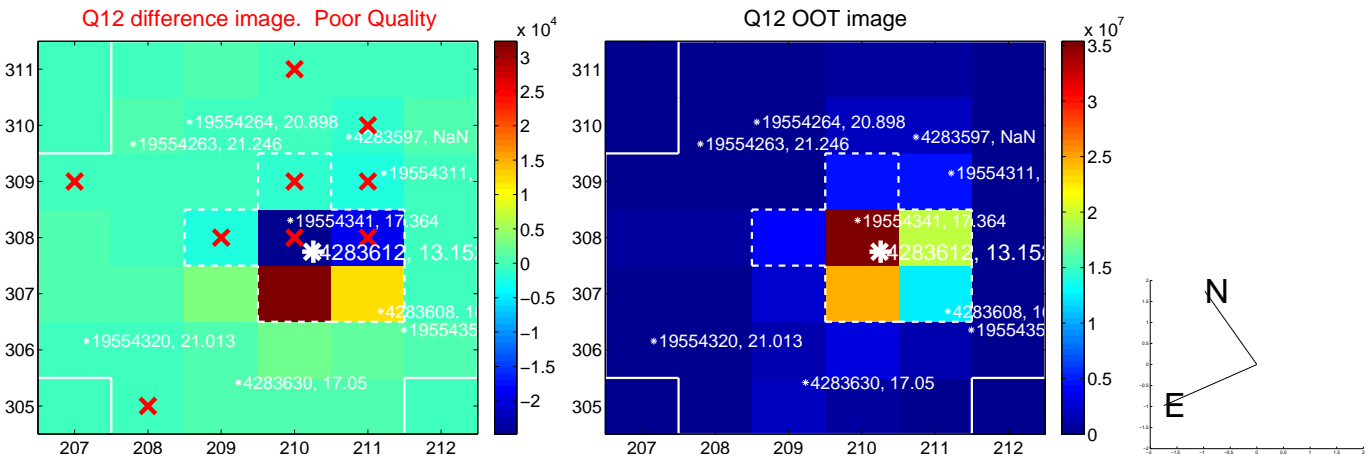
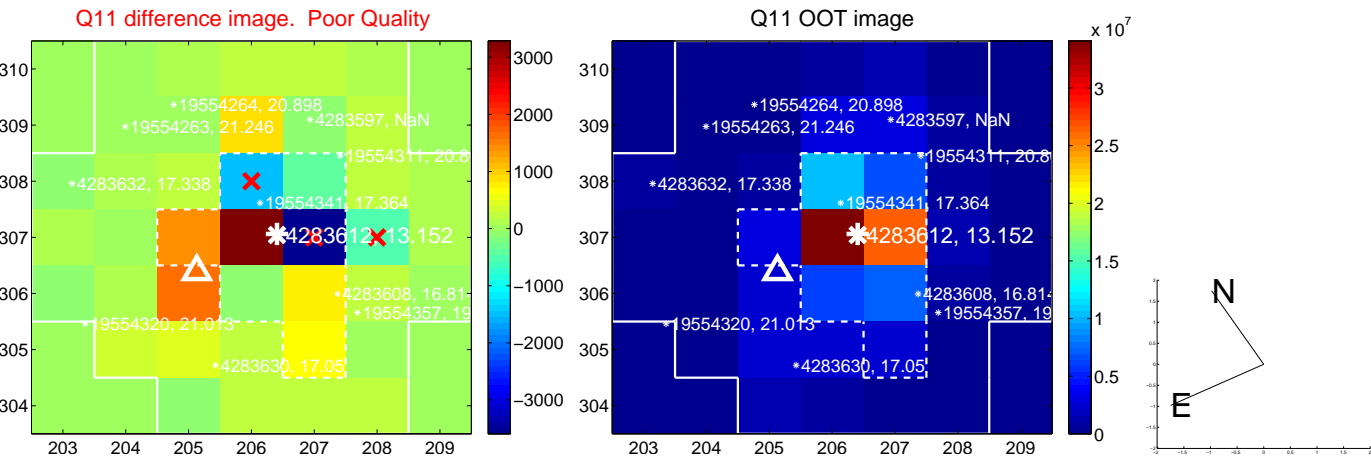
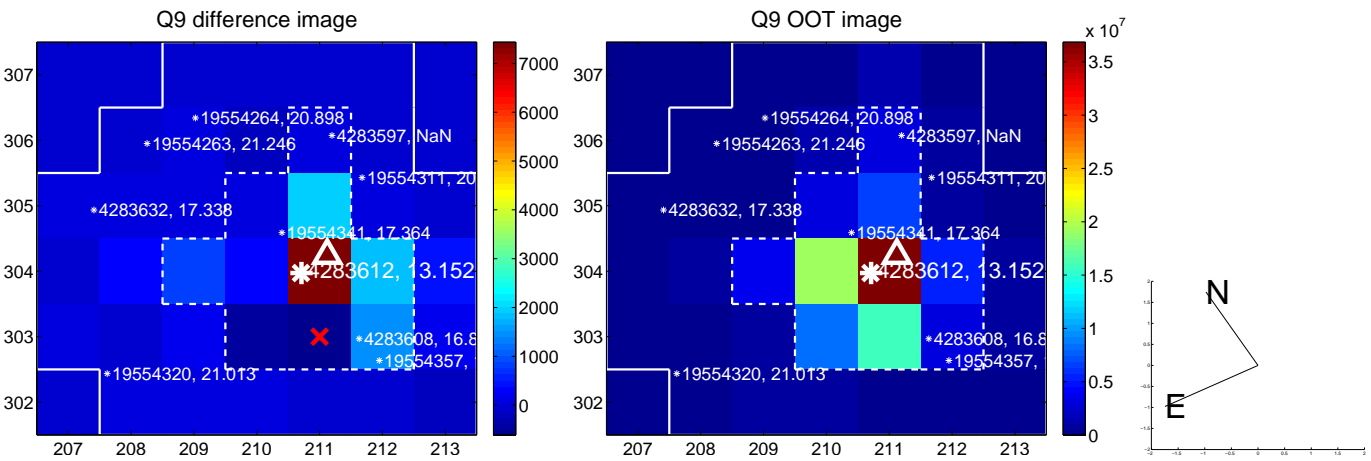


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

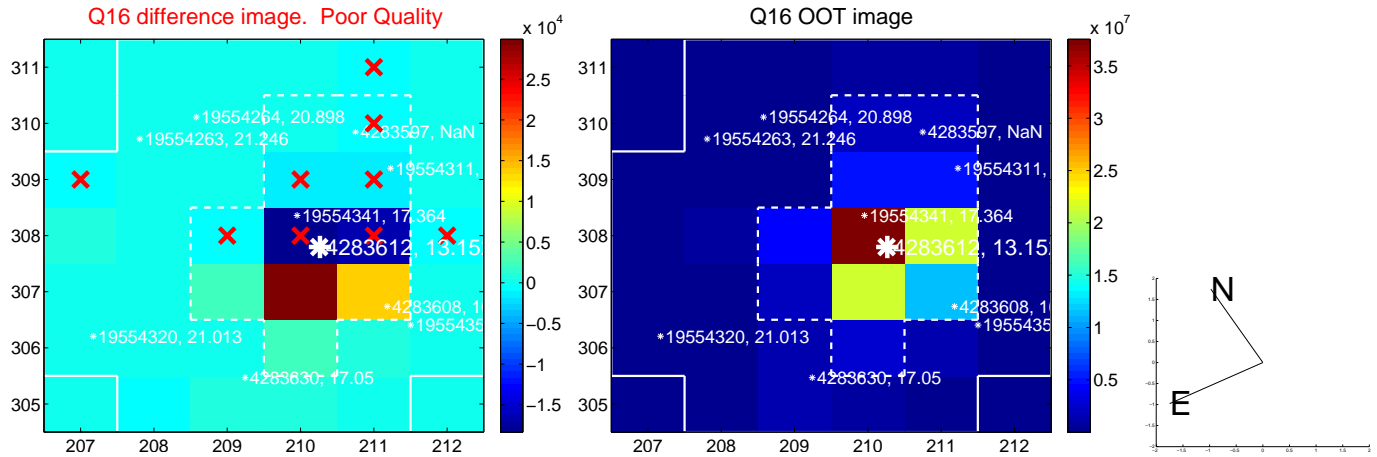
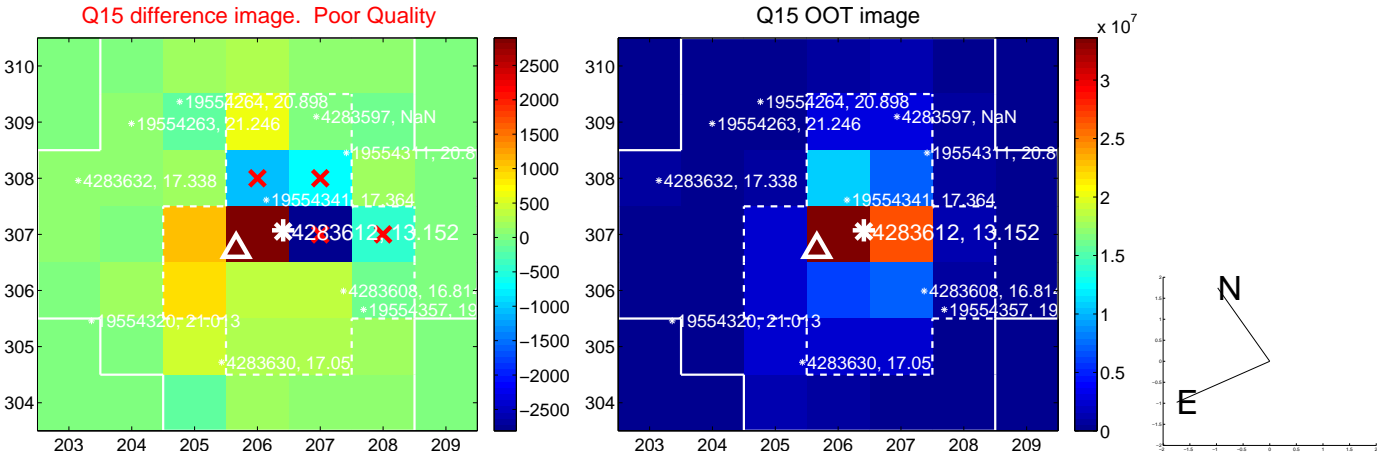
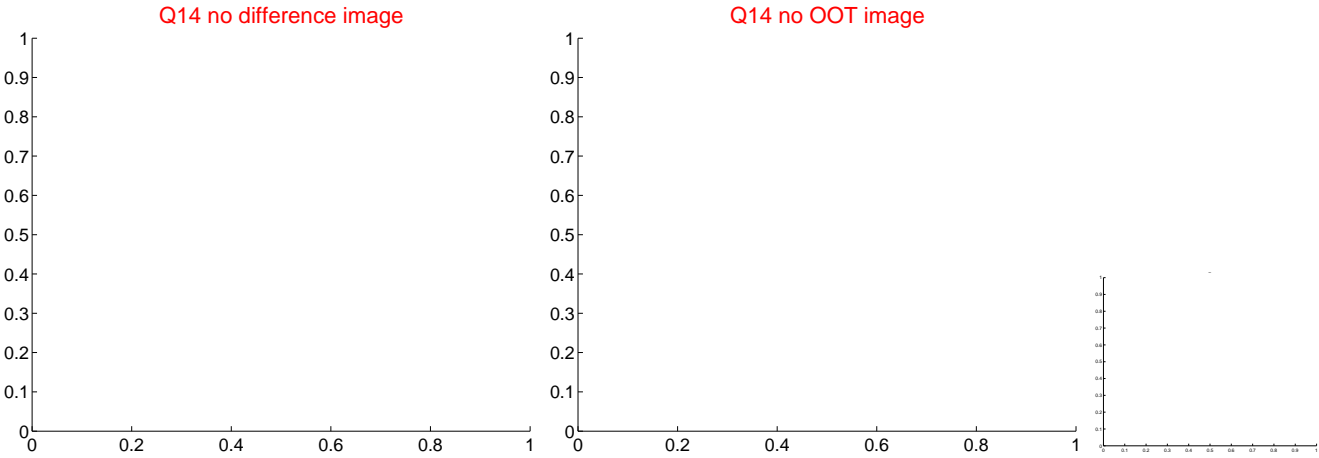
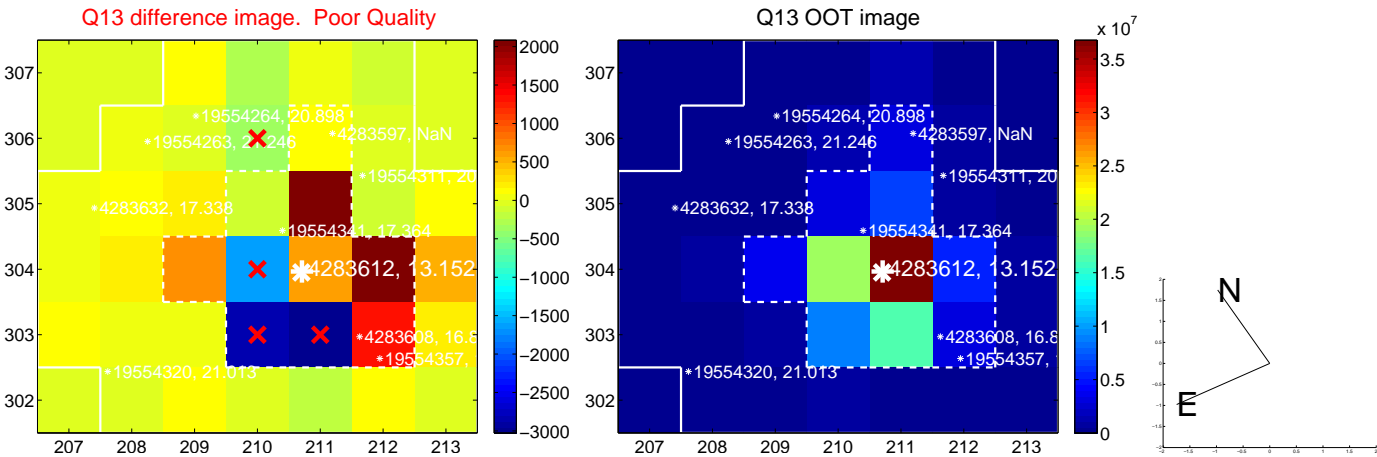




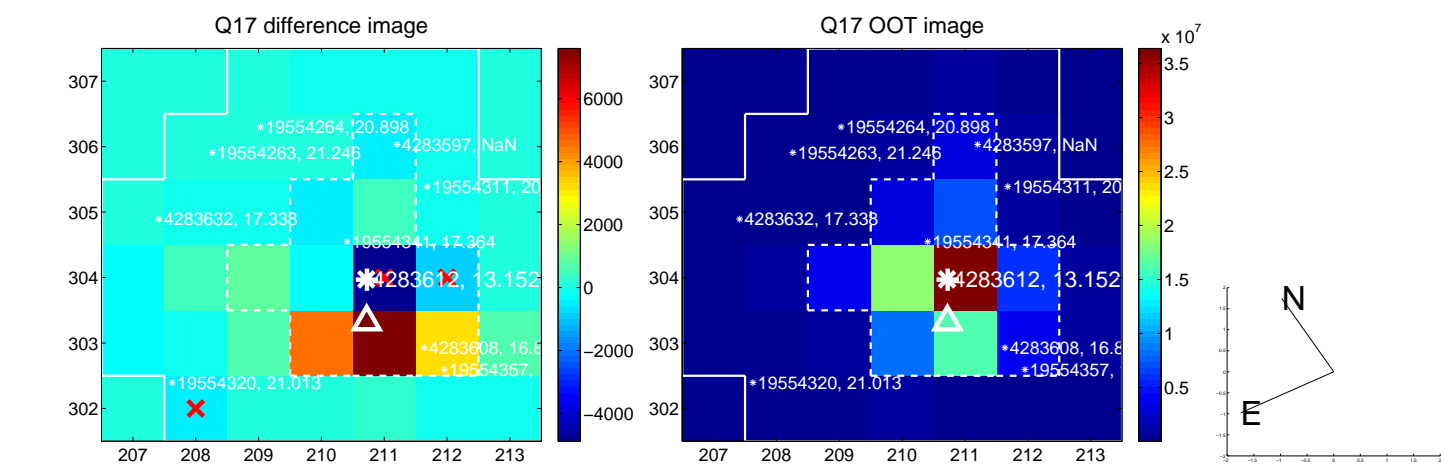
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



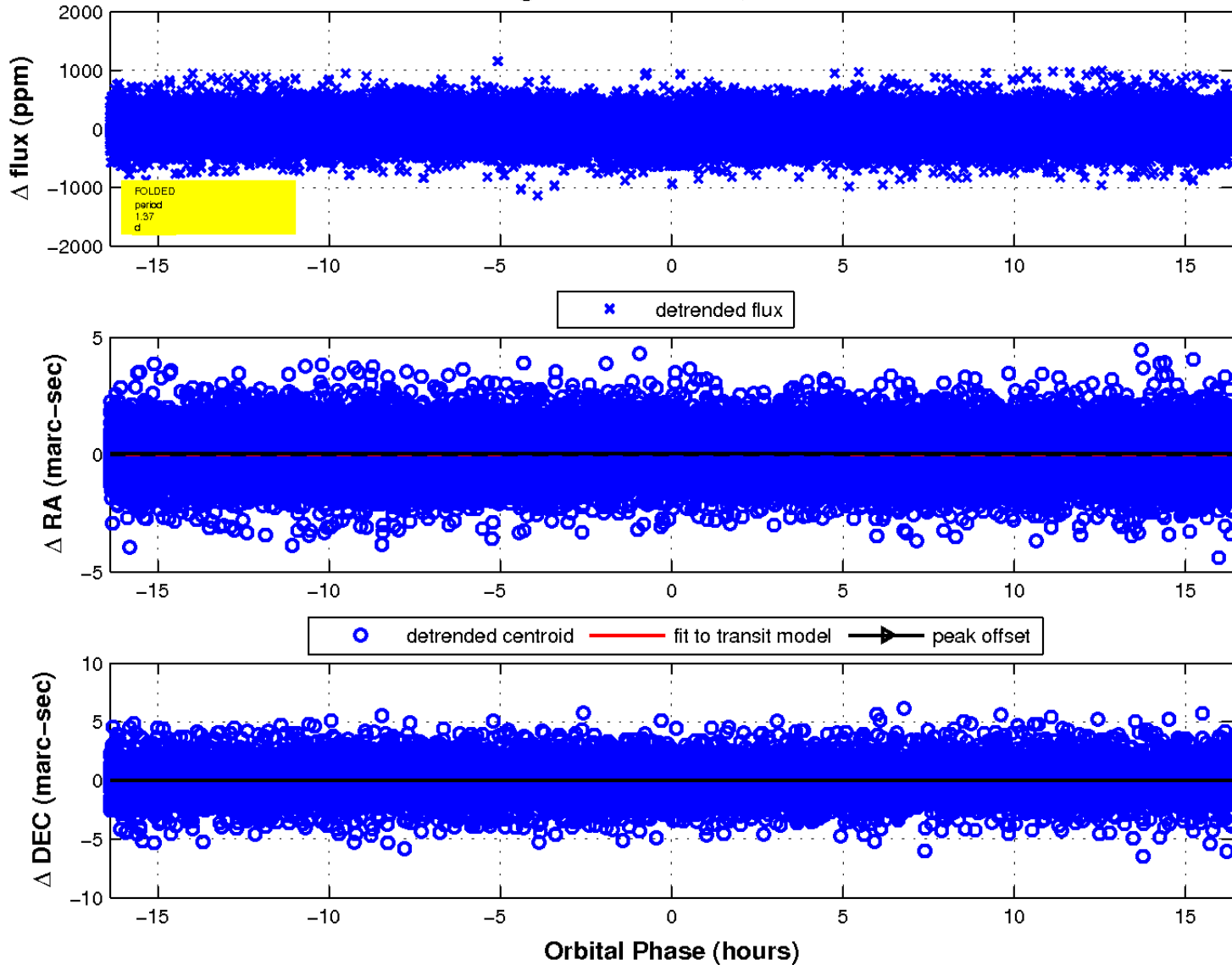
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

