

# KIC 002707985

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002707985-01	OBS	3253.01	1.891287	132.677286	30.3	4.549	18.9	20.1	3.46	7919	2.24	29554.01

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002707985-01	OBS	FP	0.00	0	0	1	1	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.

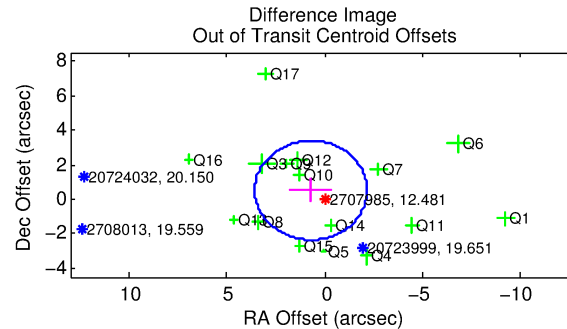
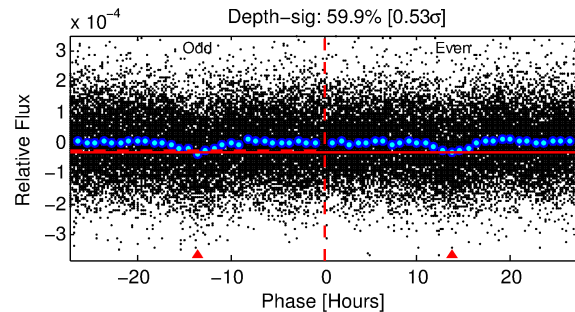
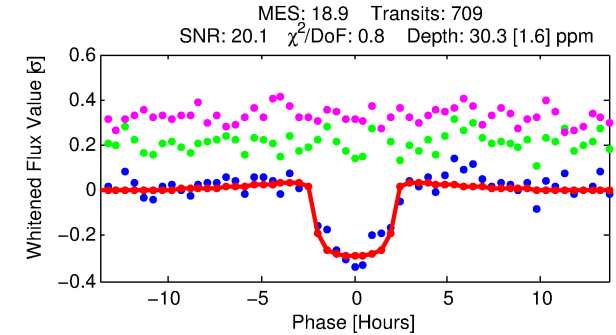
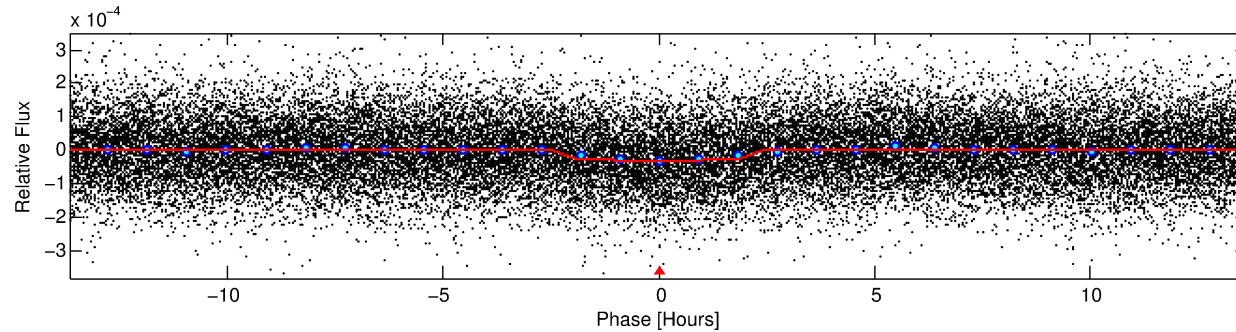
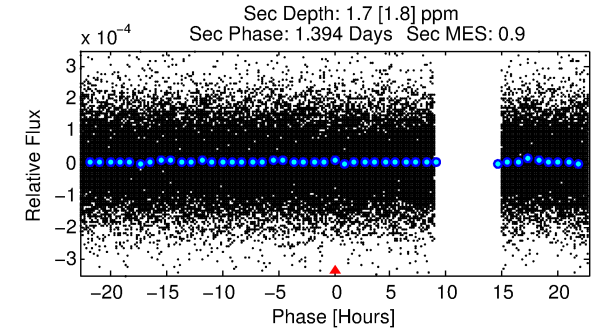
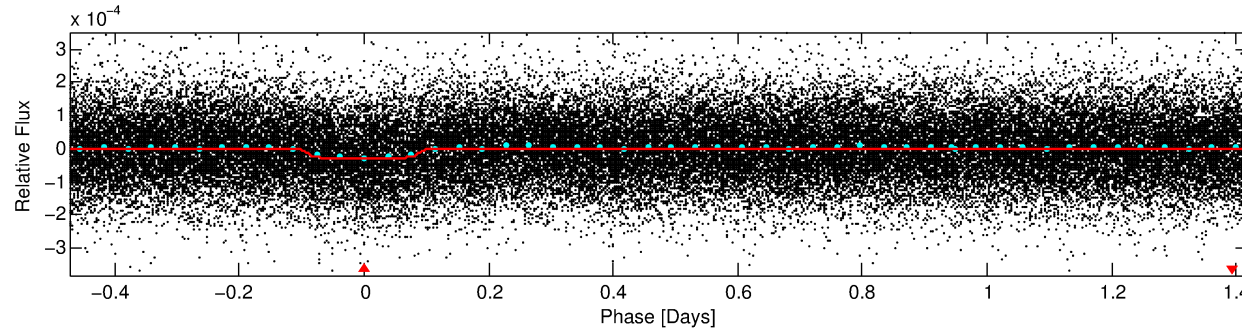
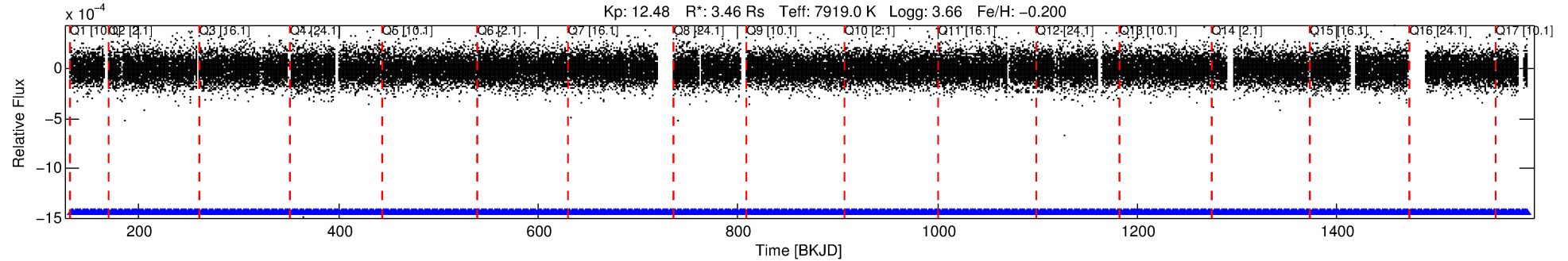
## Ephemeris Match Information For 002707985-01

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	$\sigma_P$	$\sigma_T$
002707985-01	2707985	6286.01	2708156	1:1	100.8	-6	-24	10.67	12.48	21364.00	Direct-PRF	0	0.73	0.35

**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: 2707985 Candidate: 1 of 1 Period: 1.891 d  
KOI: K03253.01 Corr: 0.966



## DV Fit Results:

Period = 1.89129 [0.00001] d  
Epoch = 132.6773 [0.0025] BKJD  
Rp/R\* = 0.0059 [0.0011]  
a/R\* = 1.67 [1.14]  
b = 0.91 [0.21]  
Seff = 29554.01 [24983.70]  
Teq = 3343 [707] K  
Rp = 2.24 [1.20] Re  
a = 0.0378 [0.0192] AU  
Ag = 0.27 [0.37] [-1.99σ]  
Teffp = 3721 [1023] K [0.30σ]

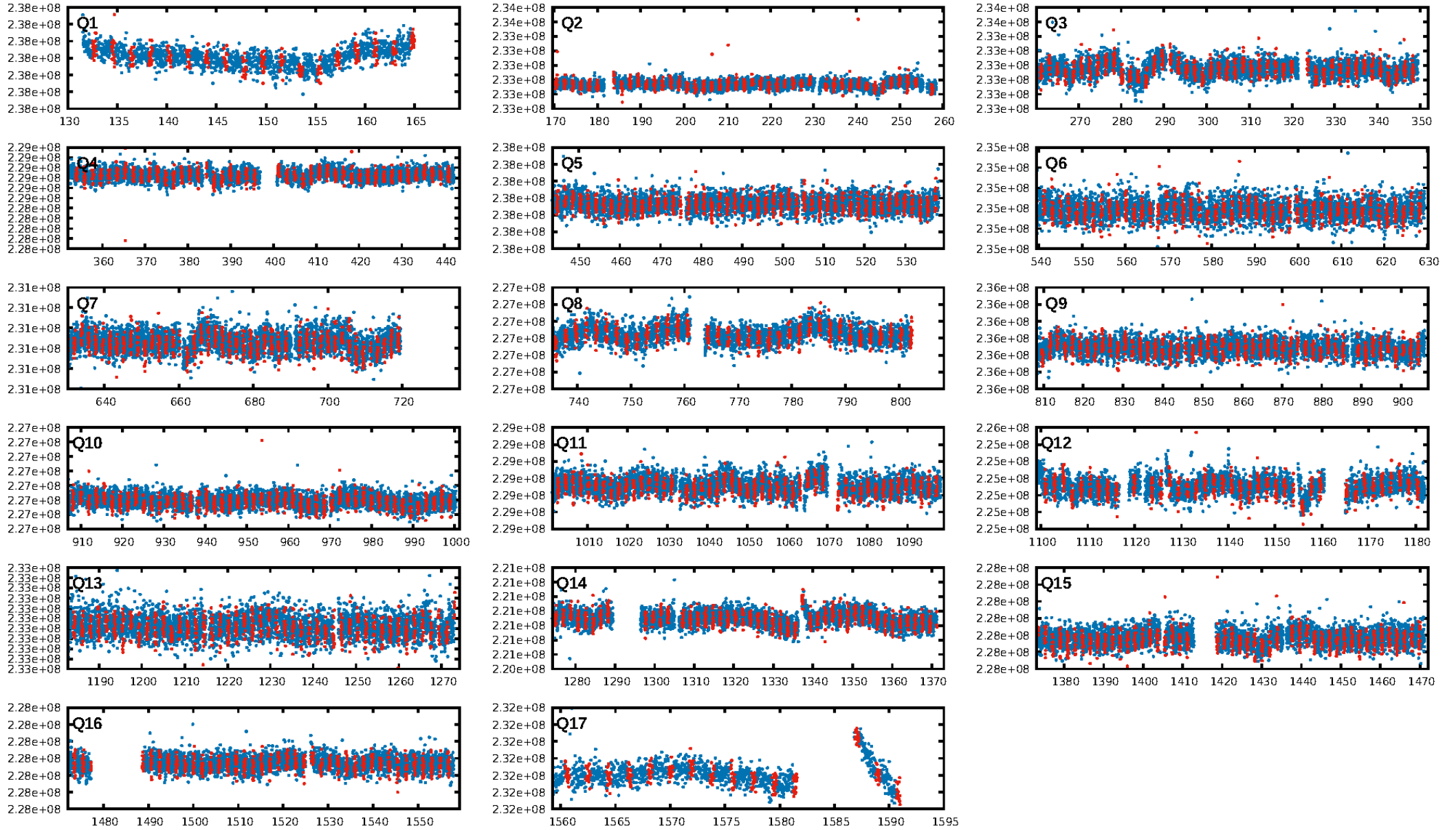
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.03e-72  
RollingBand-fgt: 1.00 [676/676]  
GhostDiagnostic-chr: -0.02355  
Centroid-sig: 42.5%  
Centroid-so: 0.659 arcsec [1.05σ]  
OotOffset-rm: 0.869 arcsec [0.91σ]  
KicOffset-rm: 1.000 arcsec [1.06σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.12 [2/16]  
DiffImageOverlap-fno: 1.00 [17/17]

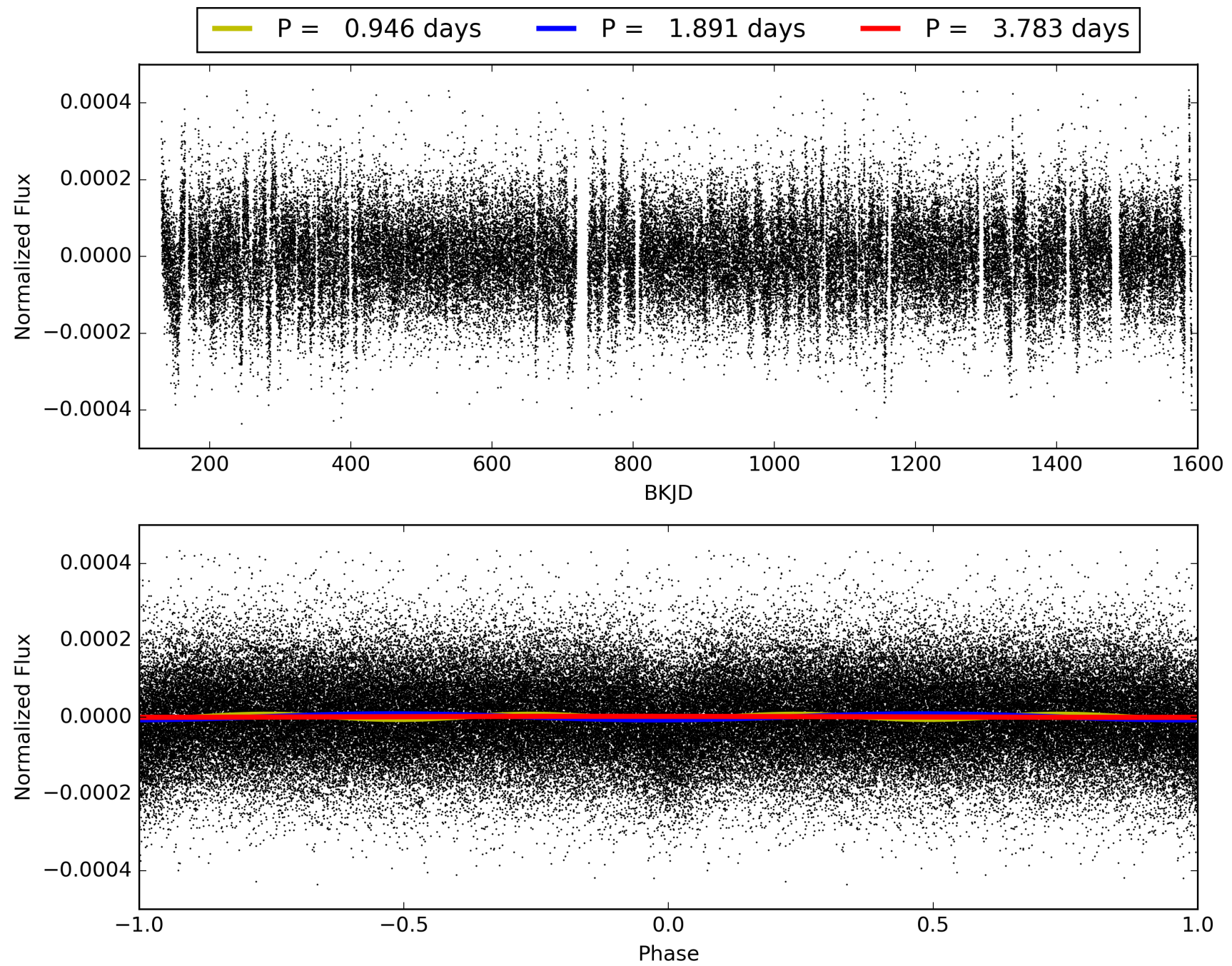
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:03:03 Z

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

# TCE 002707985-01, PDC Light Curves



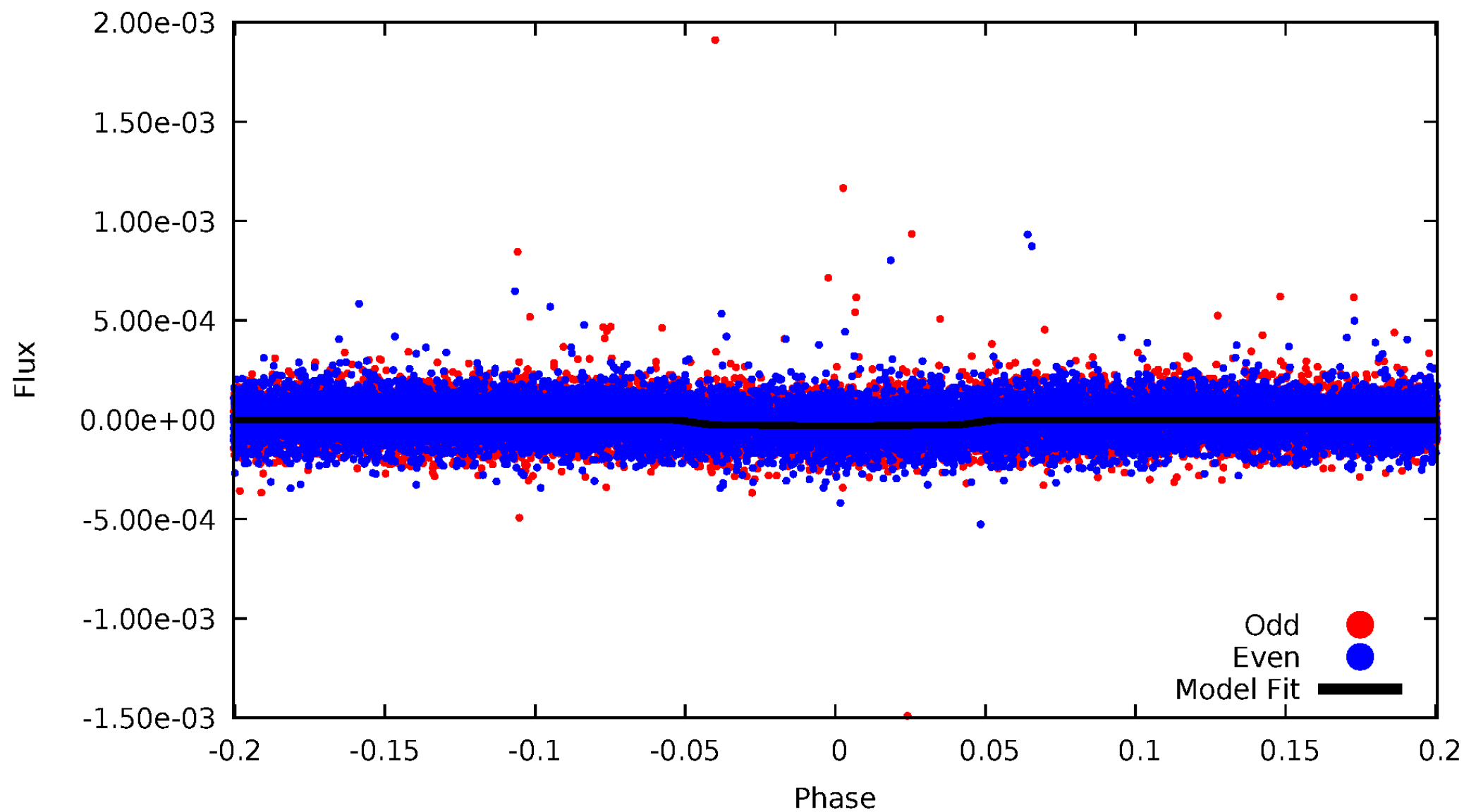
TCE 002707985-01





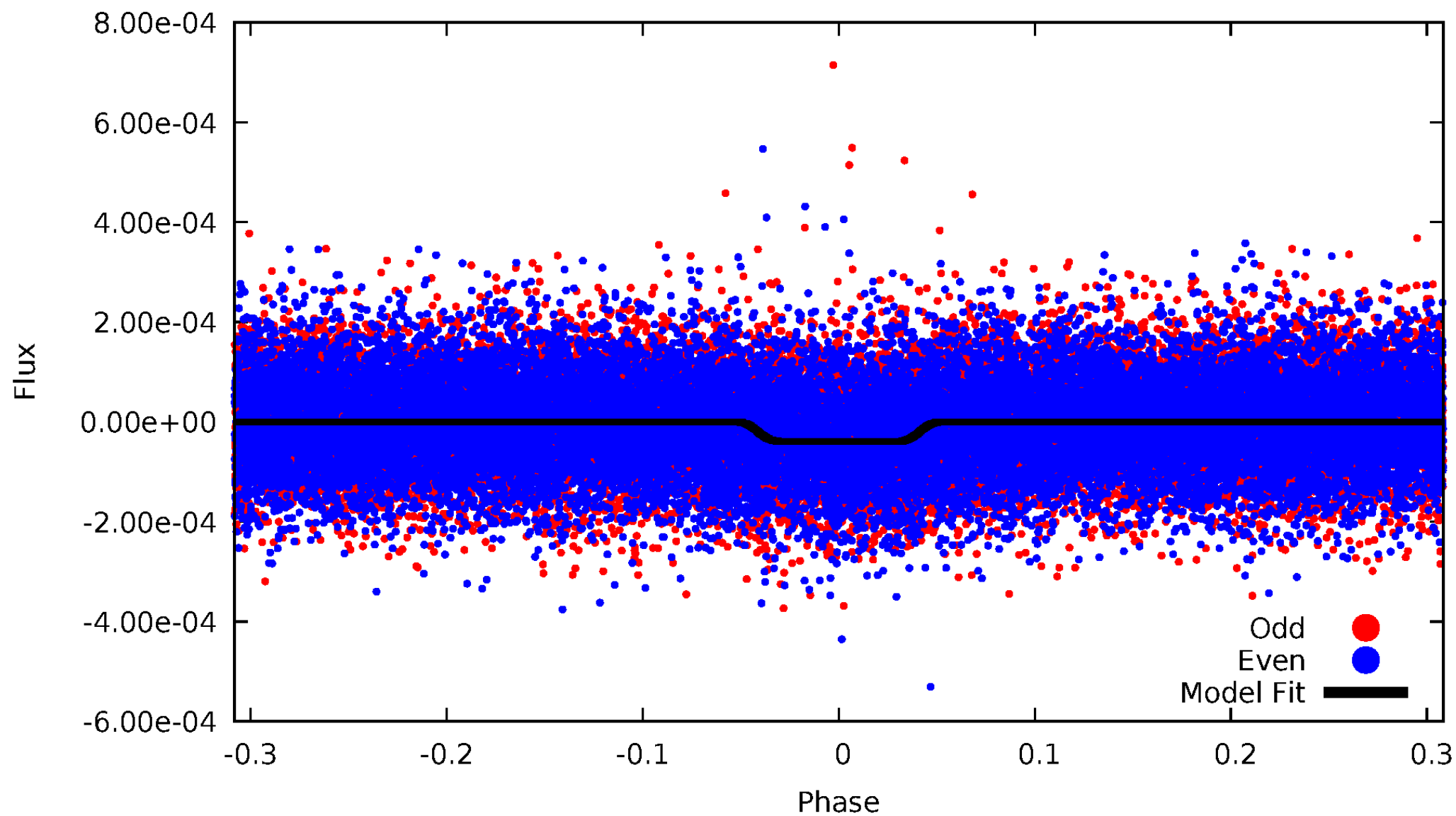
# DV Odd/Even

TCE 002707985-01



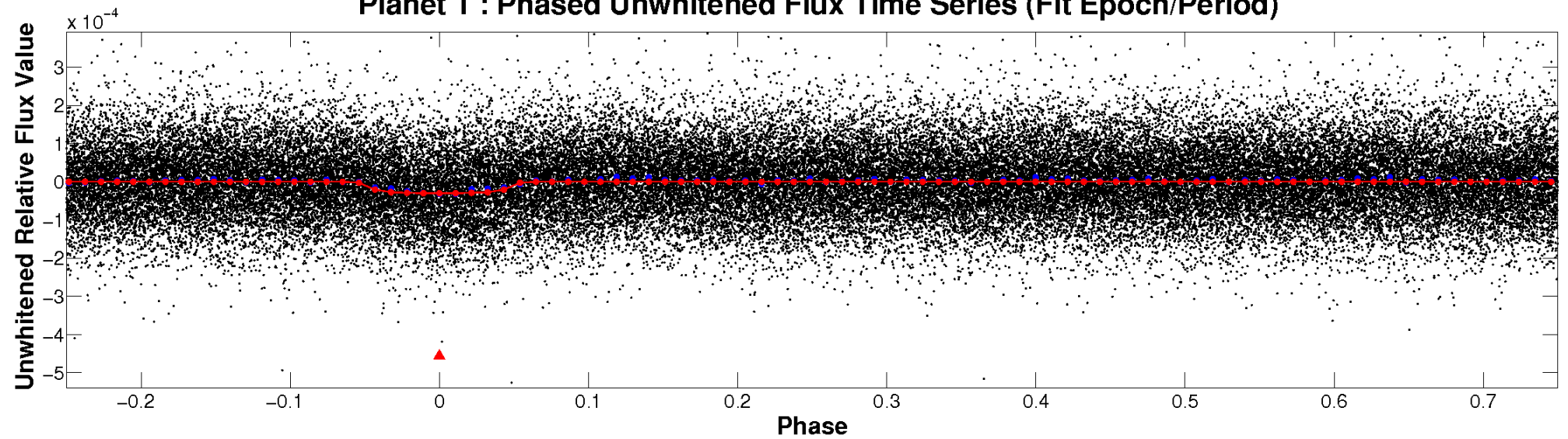
# ALT Odd/Even

TCE 002707985-01

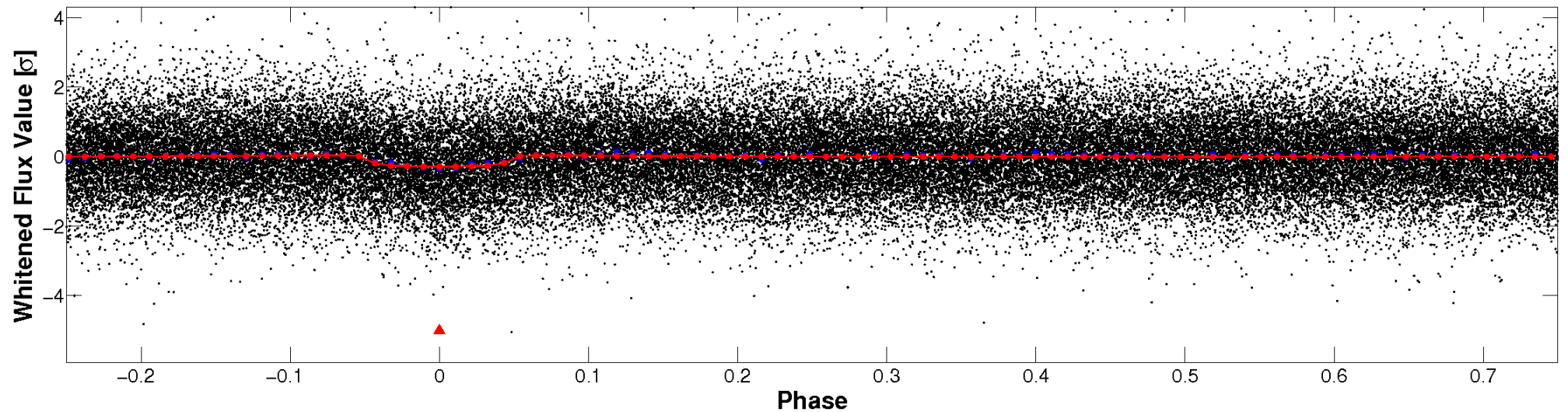


# Non-Whitened Vs. Whitened Light Curve

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

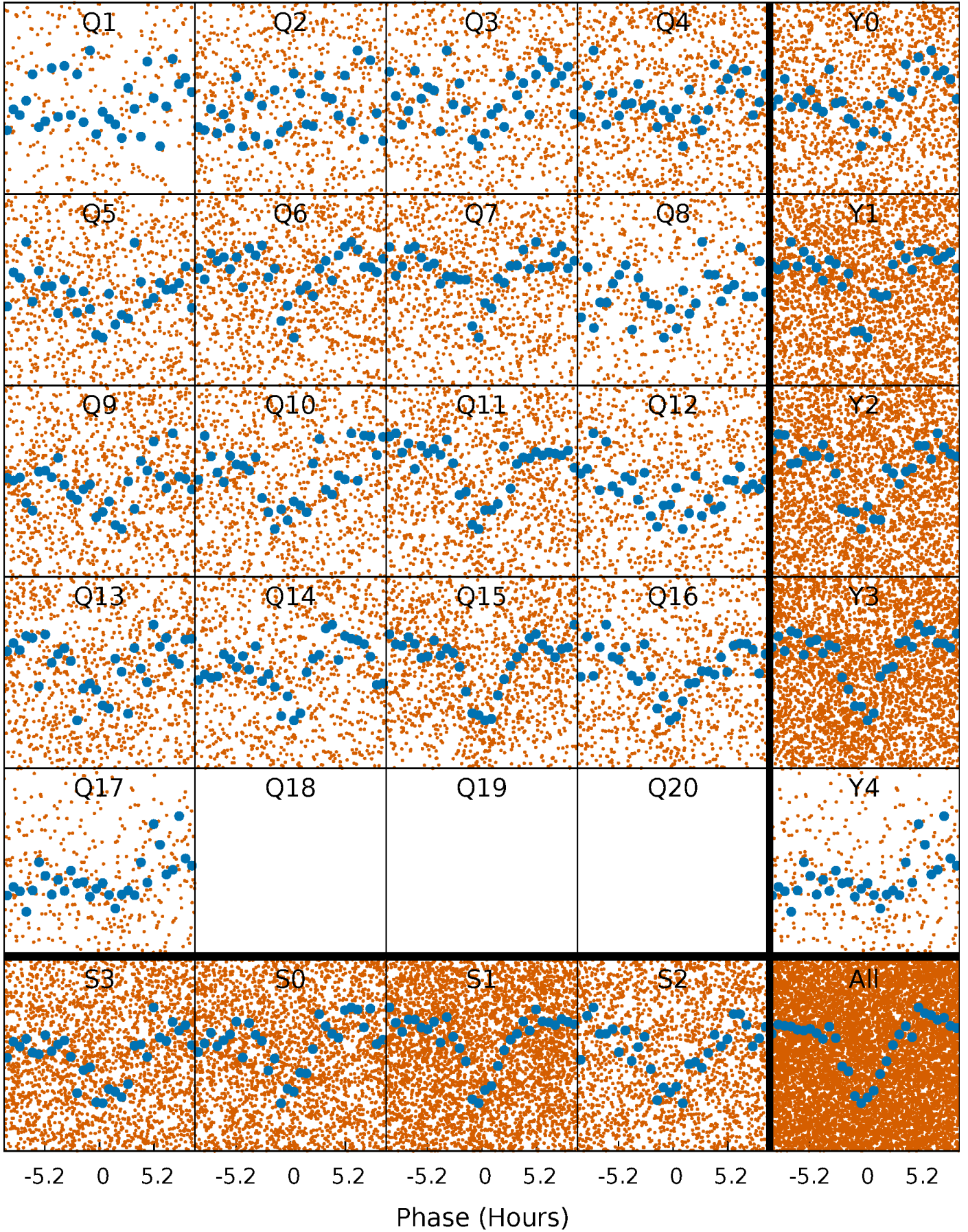


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

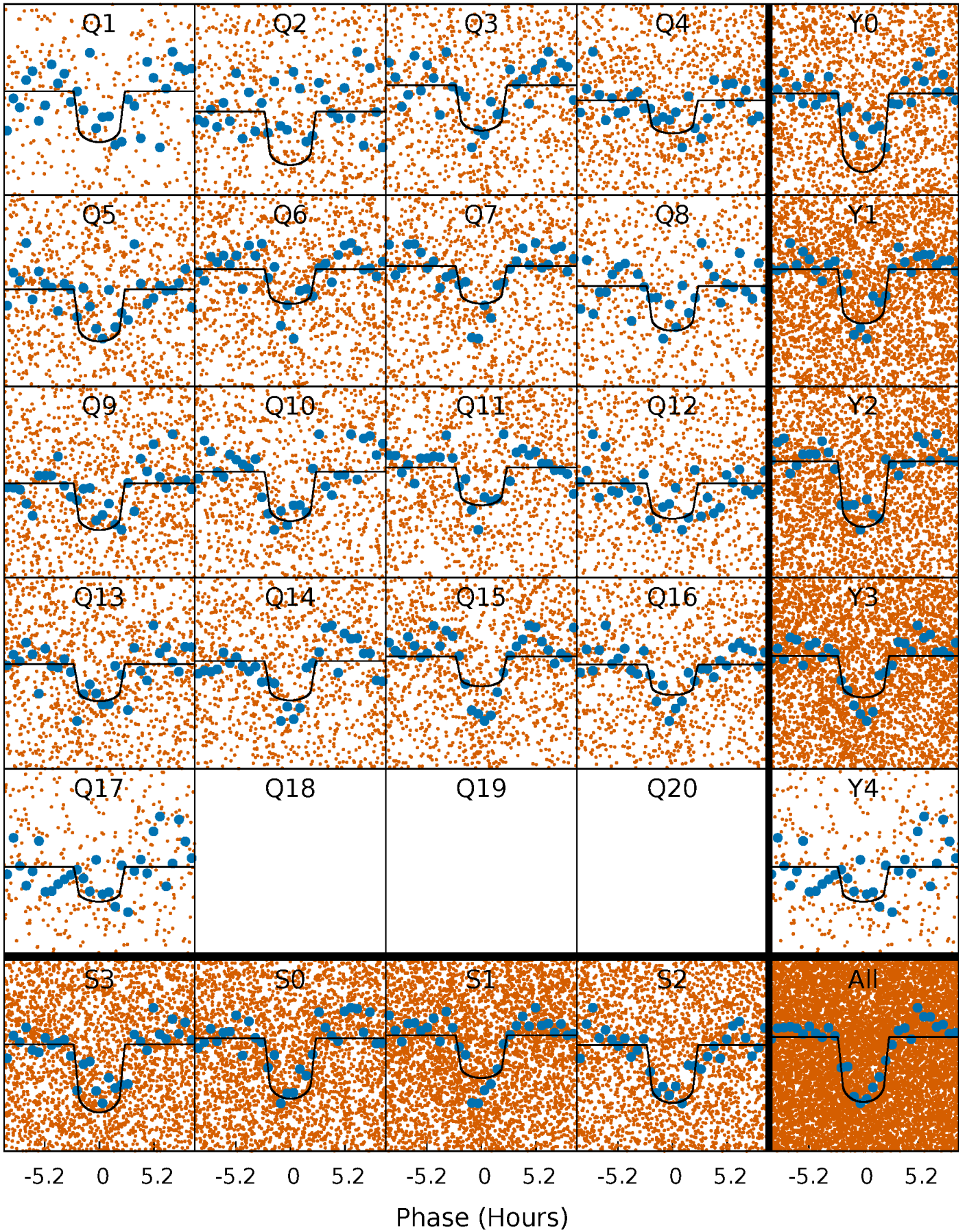
TCE 002707985-01   P= 1.891287 Days    $T_0=132.677286$  (BKJD)





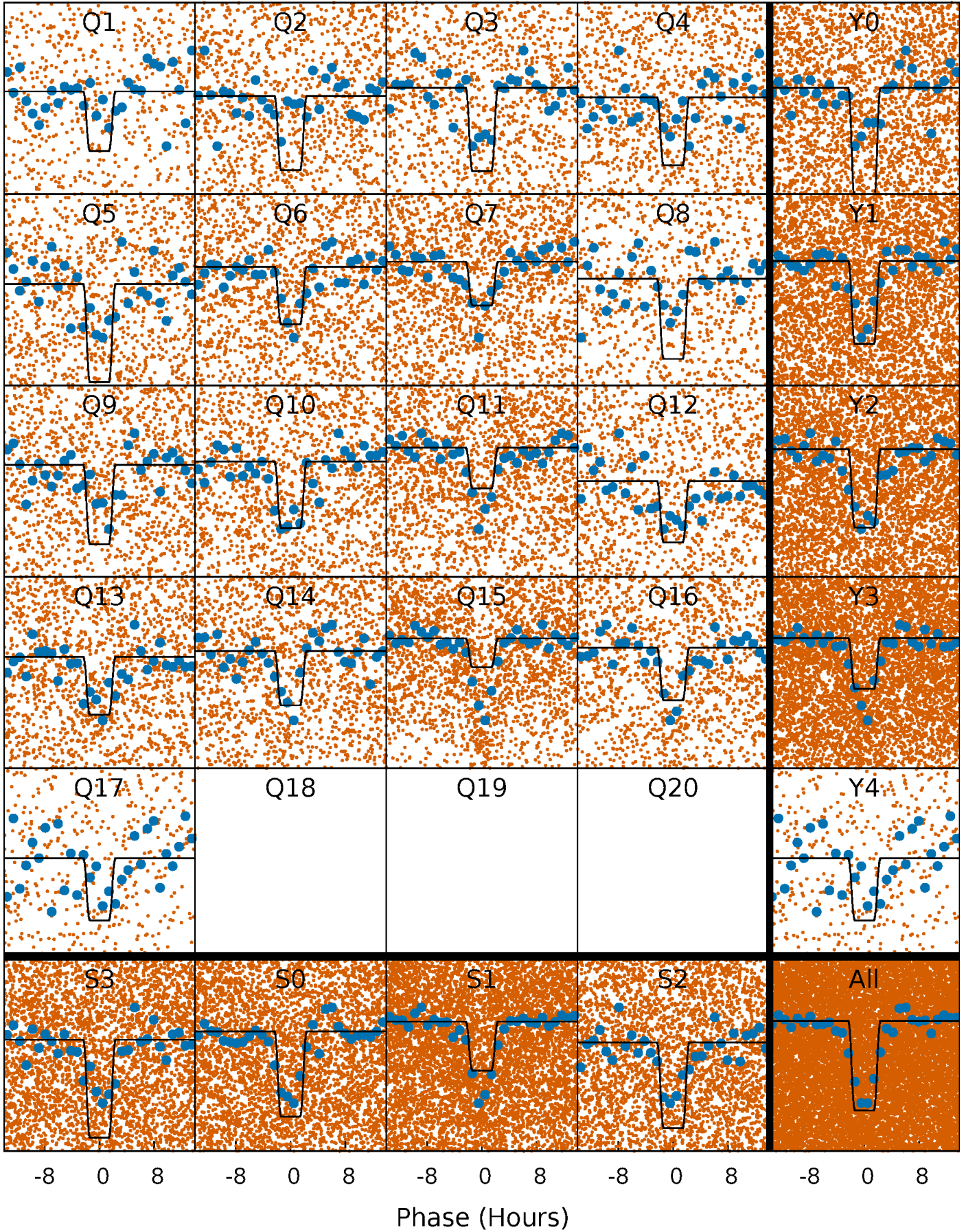
# DV Quarter-Phased Transit Curves

TCE 002707985-01   P= 1.891287 Days    $T_0=132.677286$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 002707985-01 P= 1.891283 Days  $T_0=132.680437$  (BKJD)

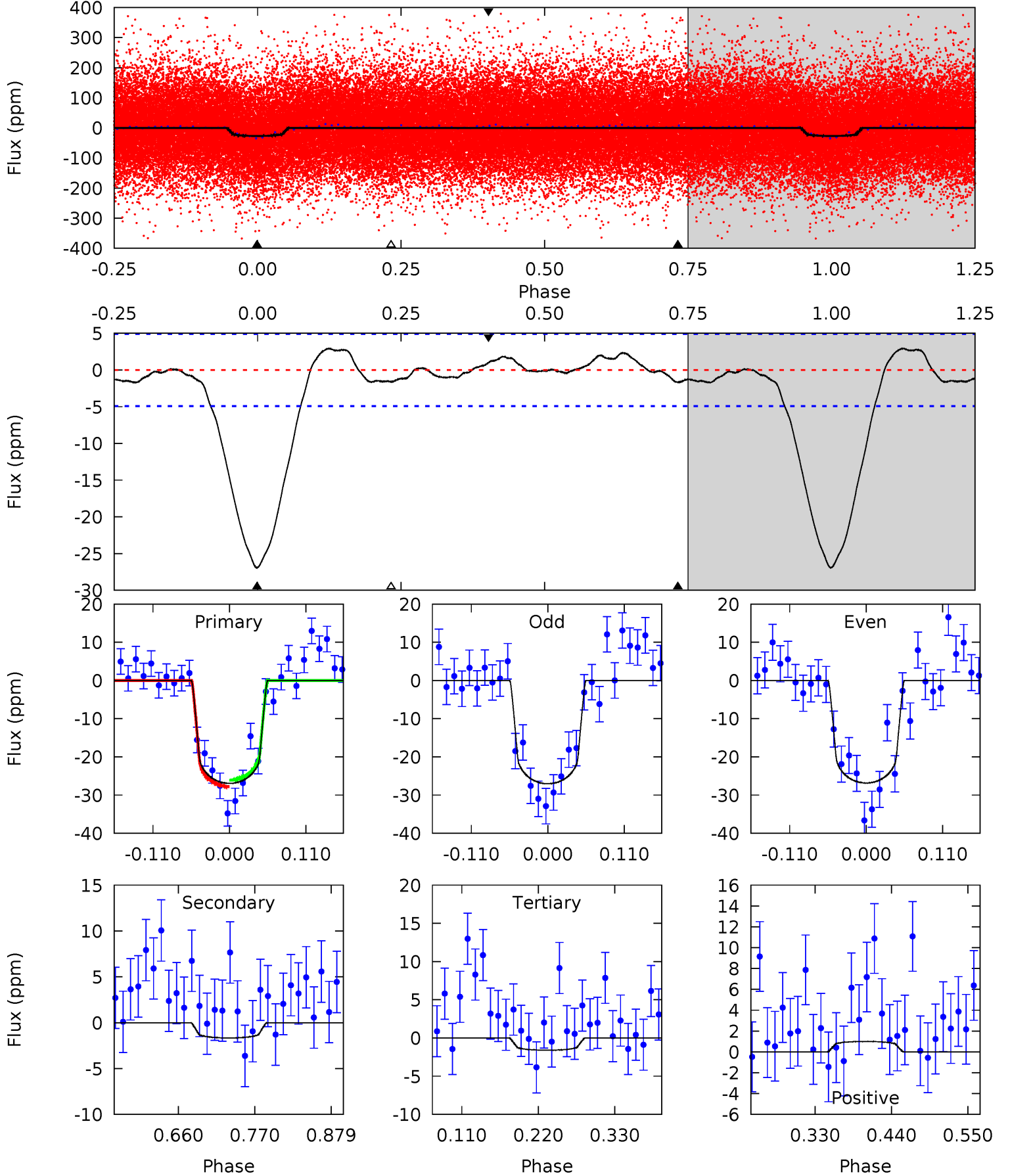




# DV Model-Shift Uniqueness Test

002707985-01, P = 1.891287 Days, E = 130.785999 Days

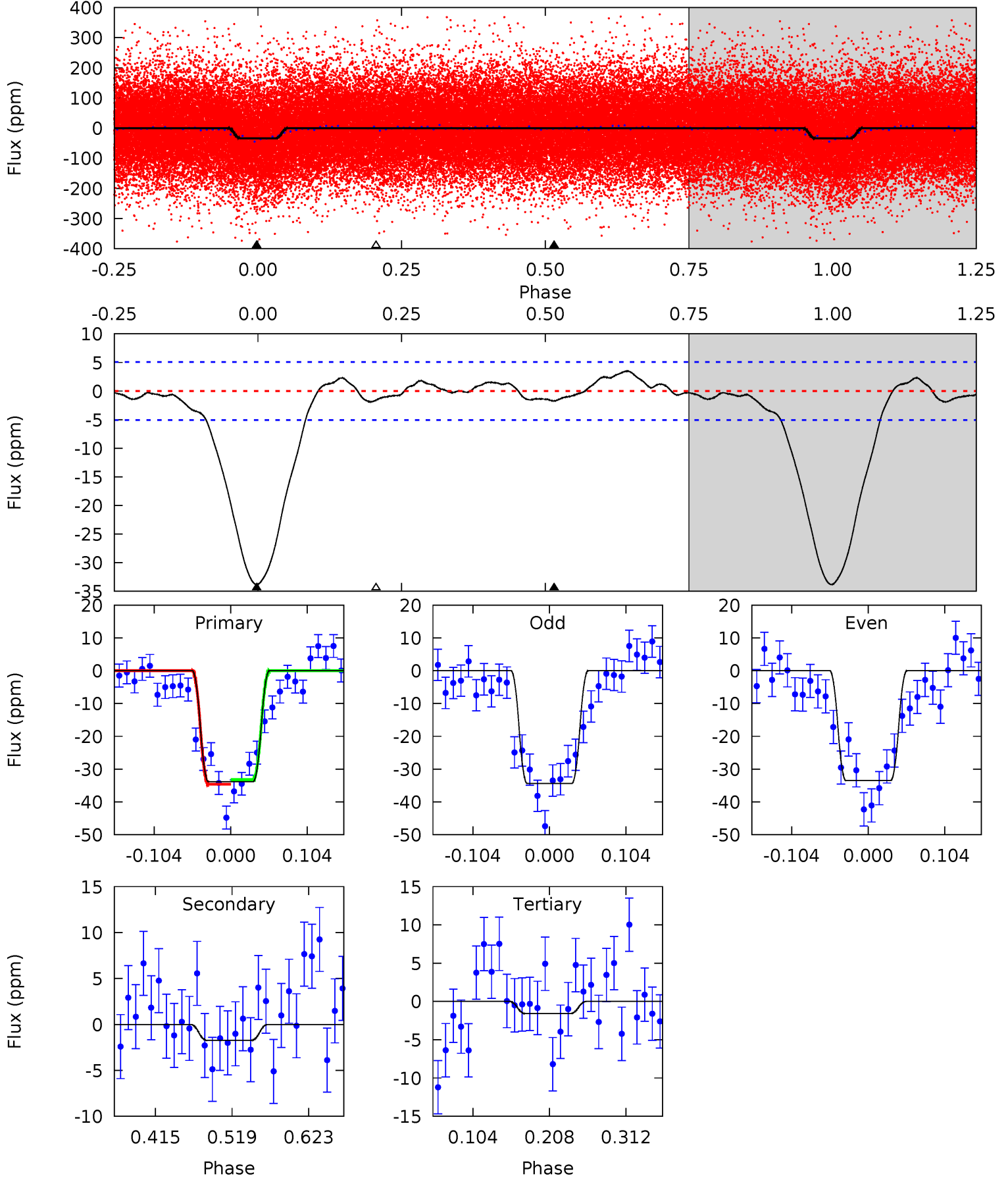
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.9	1.54	1.48	0.92	4.54	1.60	1.13	23.4	24.0	0.06	0.62	0.09	0.94	0.10	0.78



# Alt Model-Shift Uniqueness Test

002707985-01, P = 1.891283 Days, E = 130.789154 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
30.4	1.55	1.43	0	4.56	1.63	1.28	29.0	30.4	0.12	1.55	0.39	1.00	0.09	0.63





### Stellar Parameters For KIC 002707985

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7919^{+220}_{-331}$	$3.663^{+0.493}_{-0.087}$	$-0.200^{+0.200}_{-0.300}$	$3.460^{+0.584}_{-1.752}$	$2.010^{+0.297}_{-0.509}$	$0.068^{+0.374}_{-0.019}$
	+3%/-4%	+13%/-2%	+100%/-150%	+17%/-51%	+15%/-25%	+547%/-28%
Source	KIC0	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 002707985-01 / KOI 3253.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	-2 $\pm$ 1	$2.00^{+0.57}_{-0.61}$	$4467^{+363}_{-610}$	$2782^{+1182}_{-6461}$	$0.332^{+0.413}_{-0.221}$
Alt.	-2 $\pm$ 1	$2.17^{+0.53}_{-0.65}$	$4501^{+319}_{-544}$	$-2564^{+6422}_{-1203}$	$0.285^{+0.375}_{-0.186}$

$T_{\text{max}}$  = 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

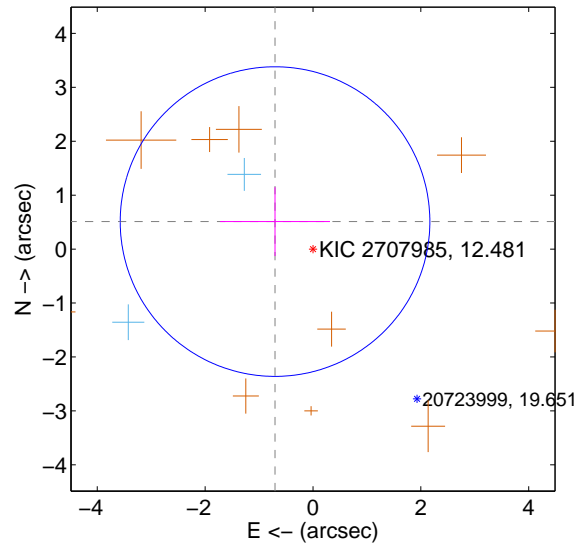
Supplemental centroid analysis for 002707985-01. Kepler magnitude: 12.48. Transit SNR 20.12

There are 2 quarters with good PRF difference image offsets

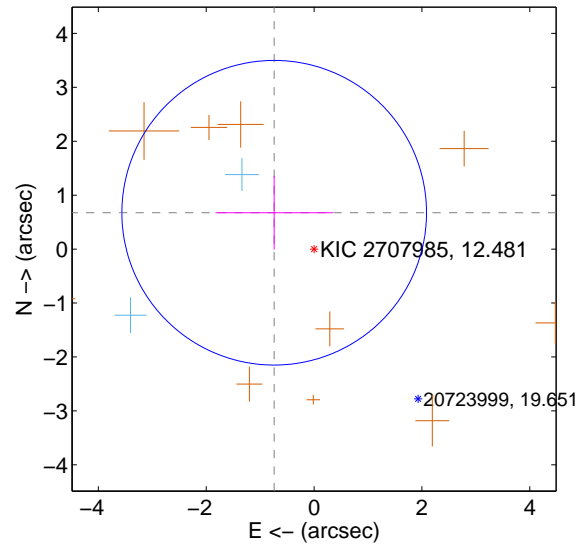
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.869 \pm 0.957$	0.91	$0.703 \pm 1.019$	$0.510 \pm 0.638$
PRF-fit source offset from KIC position	$1.000 \pm 0.941$	1.06	$0.739 \pm 1.087$	$0.674 \pm 0.682$
photometric centroid source offset	$0.66 \pm 0.63$	1.05	$0.37 \pm 0.56$	$0.54 \pm 0.66$

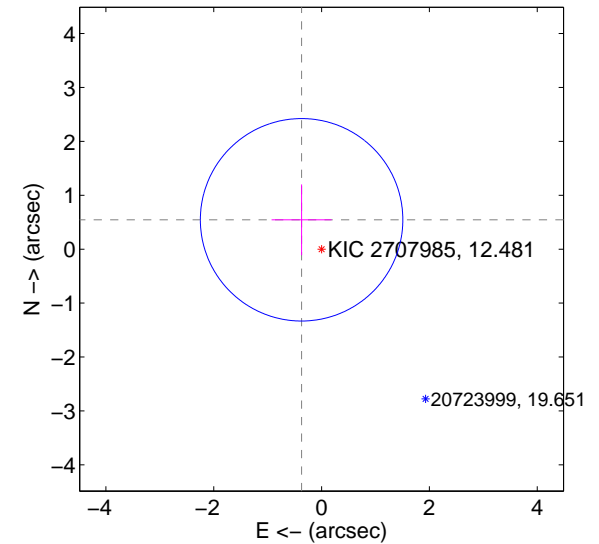
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

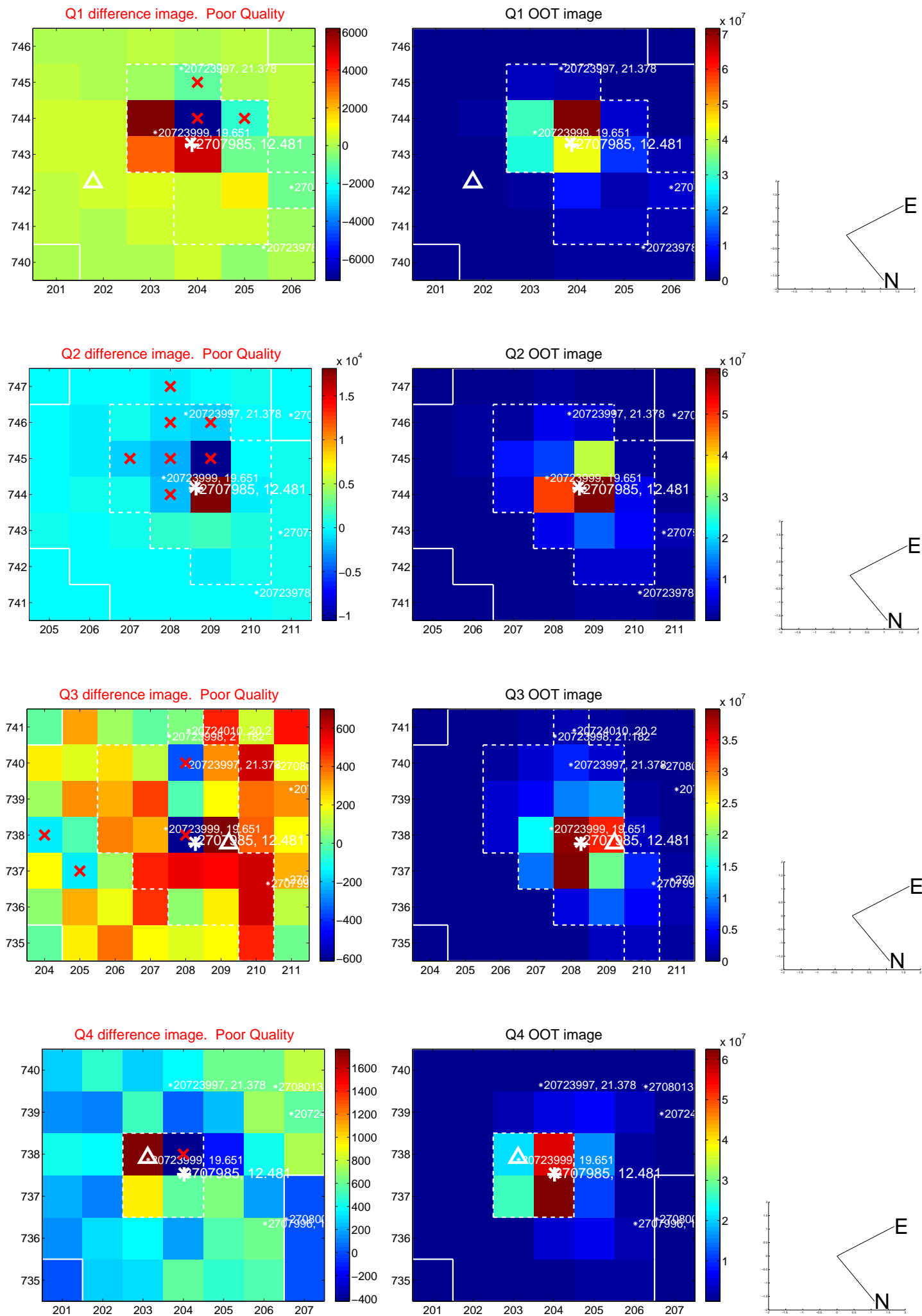


offset from photometric centroids

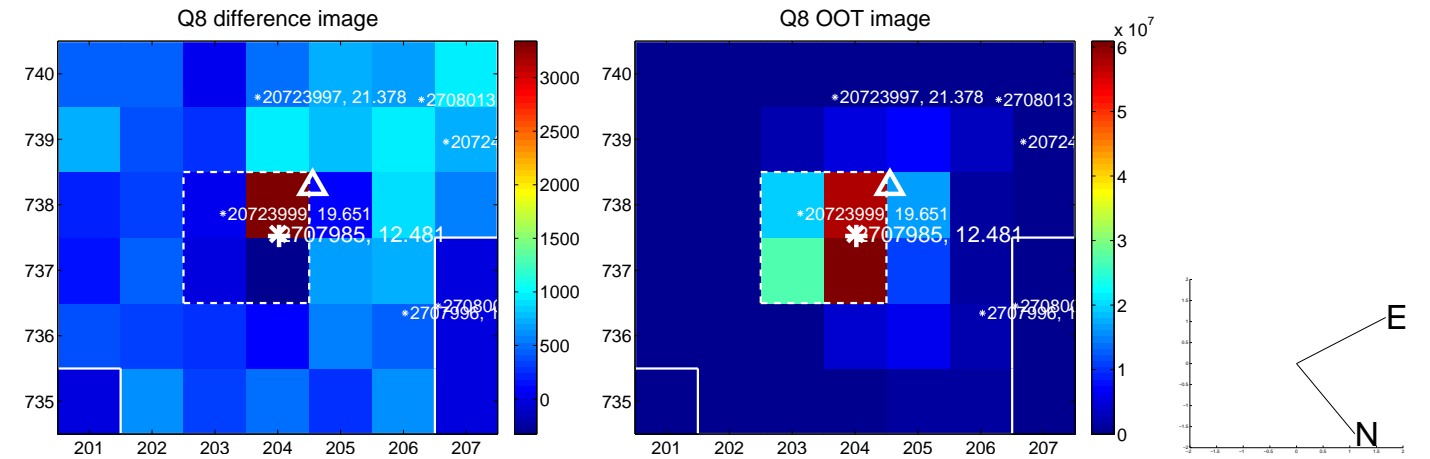
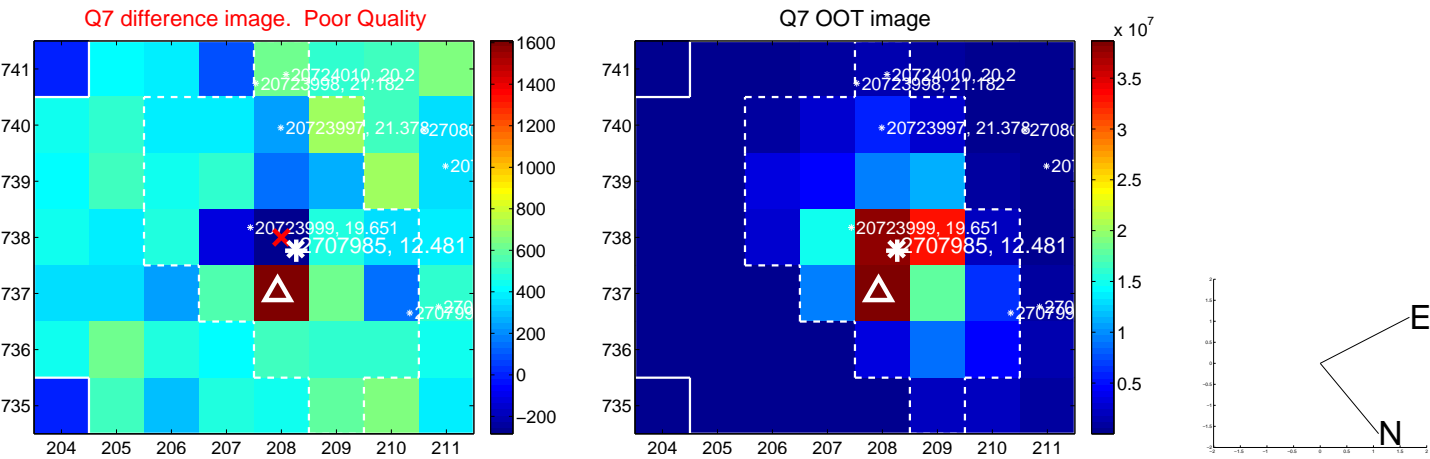
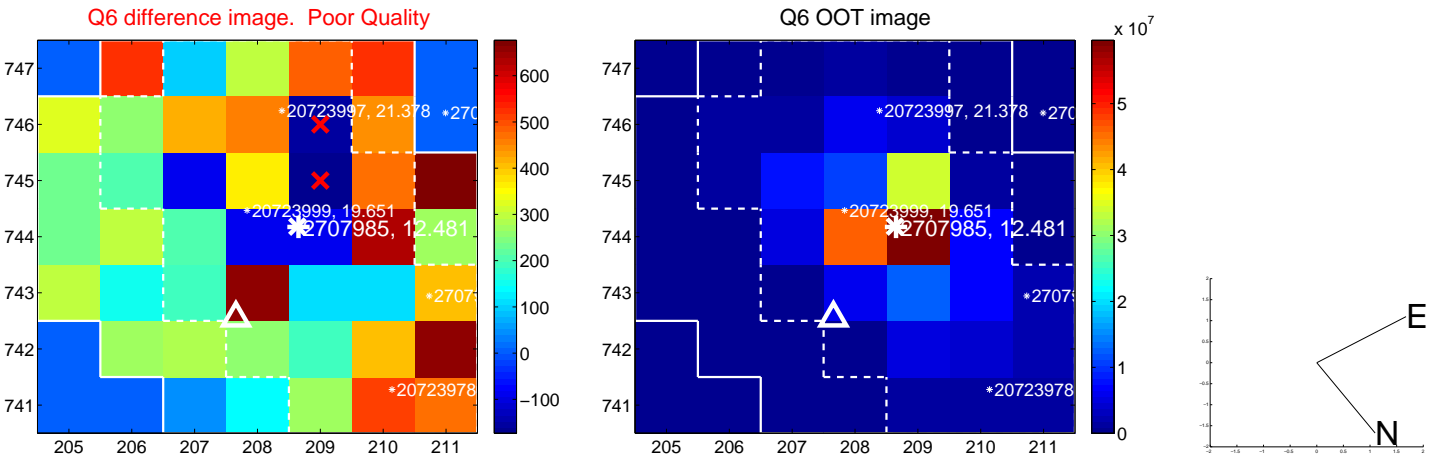
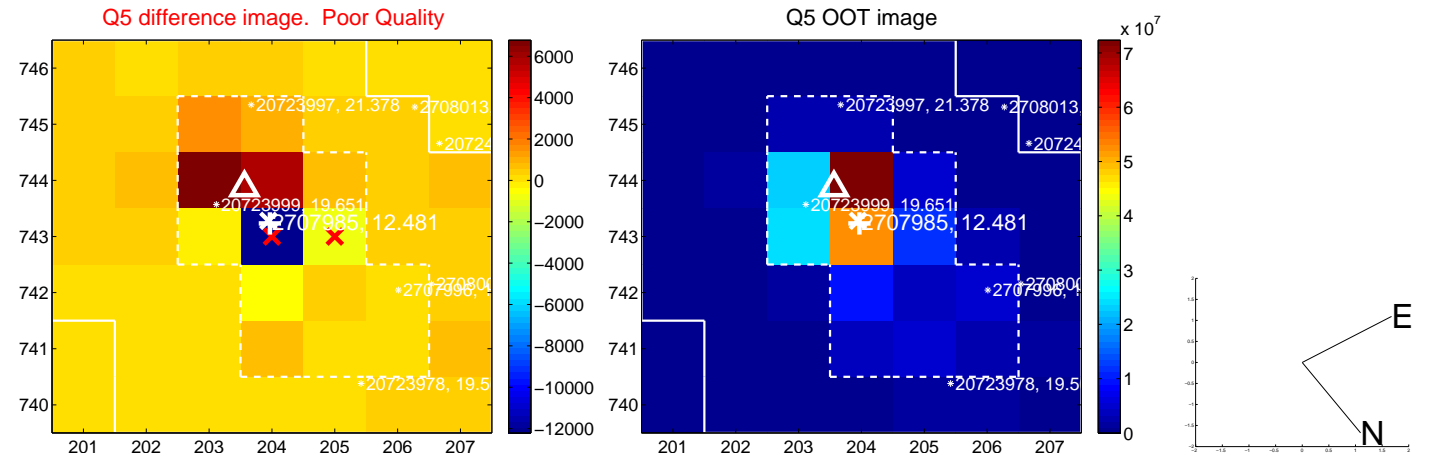


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

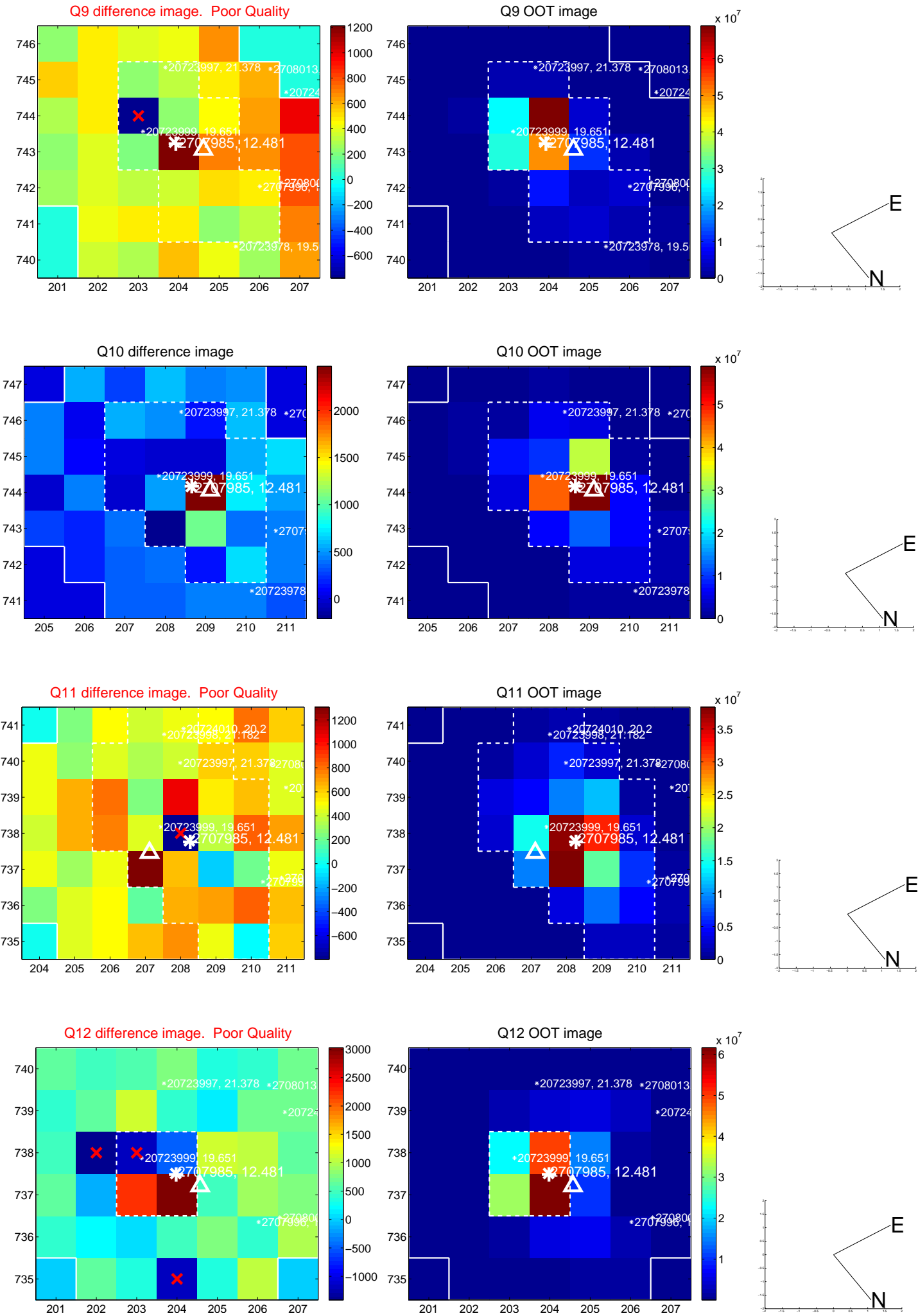


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

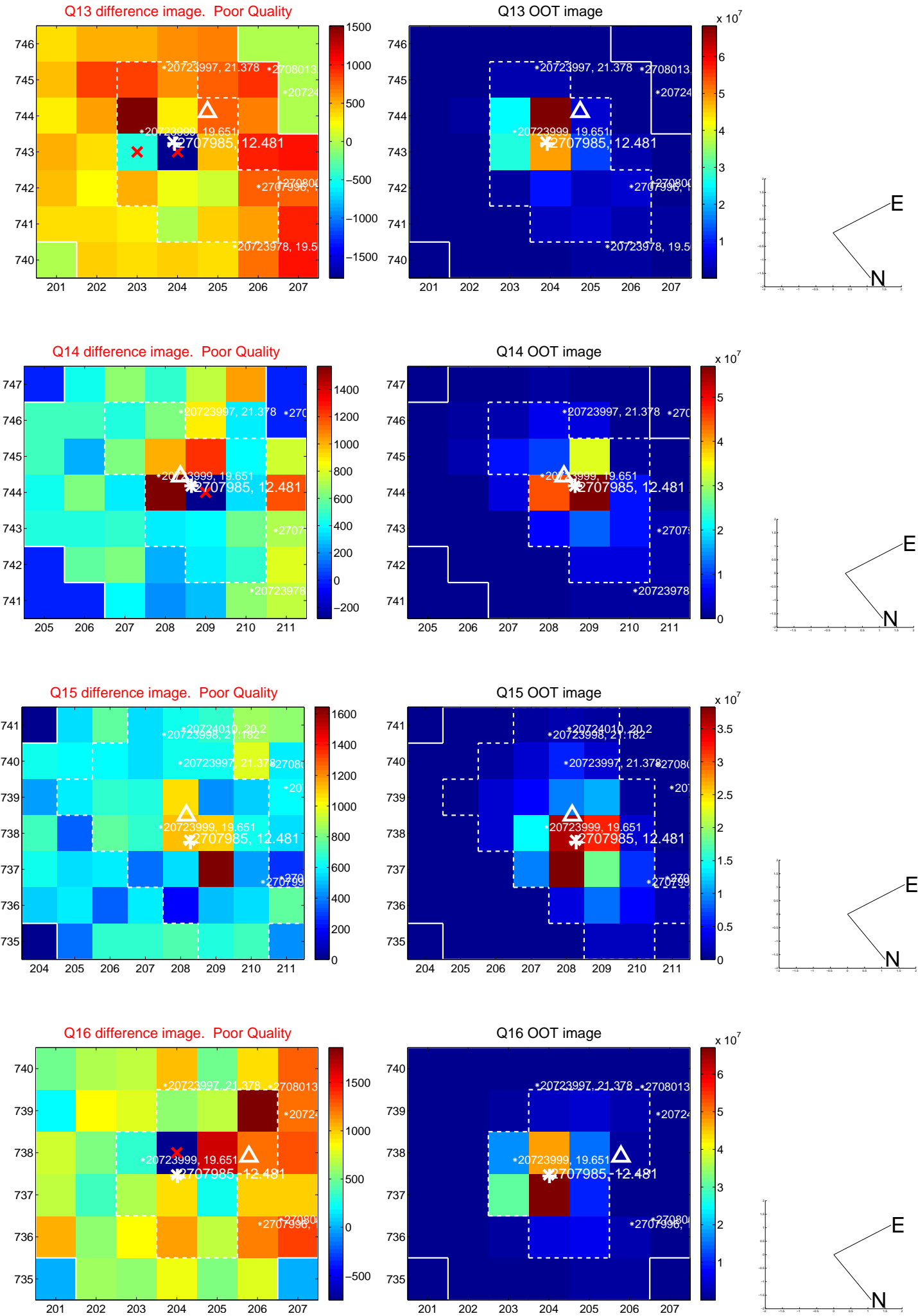




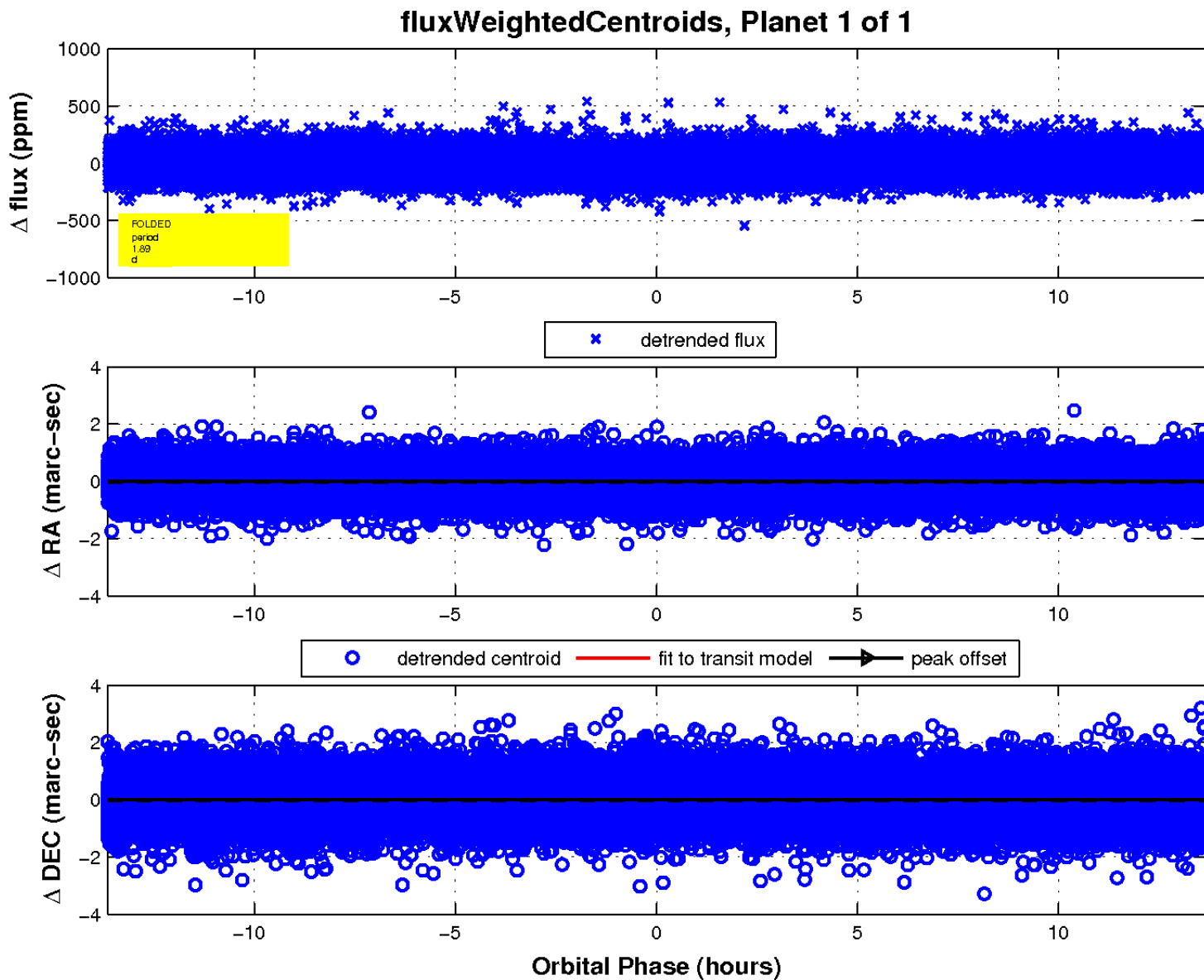
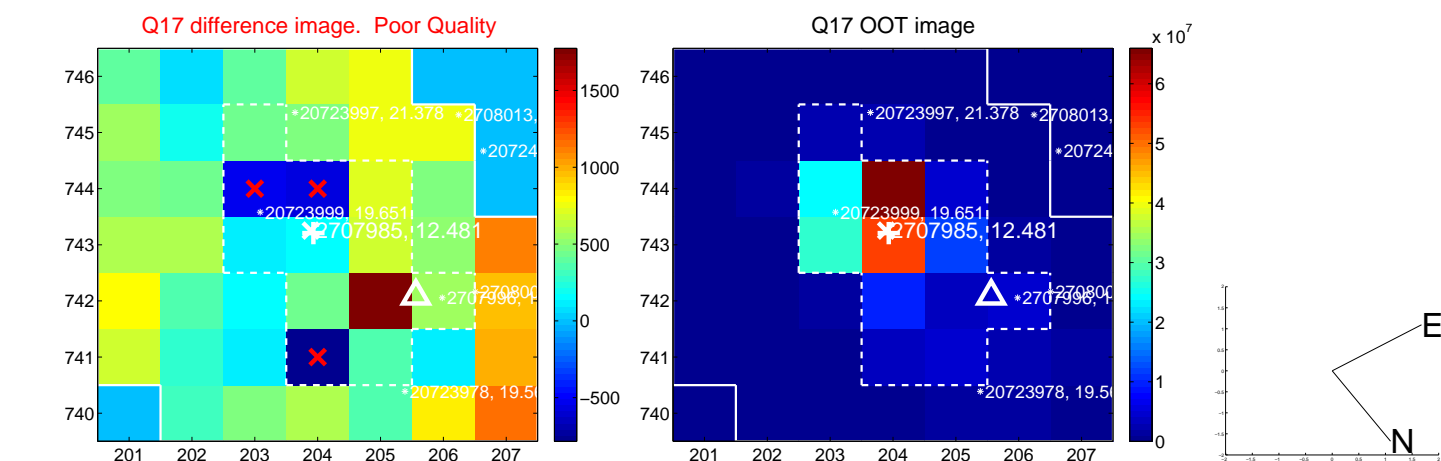
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

