

# KIC 007031399

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007031399-01	OBS	No	0.566718	131.922646	20.8	3.572	12.7	3.5	0.89	5551	0.43	3924.99

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007031399-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_UNRESOLVED_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.

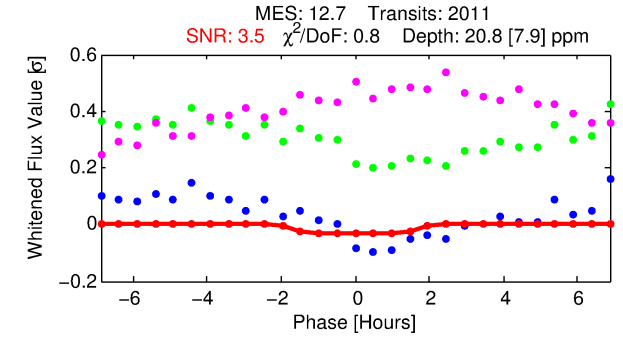
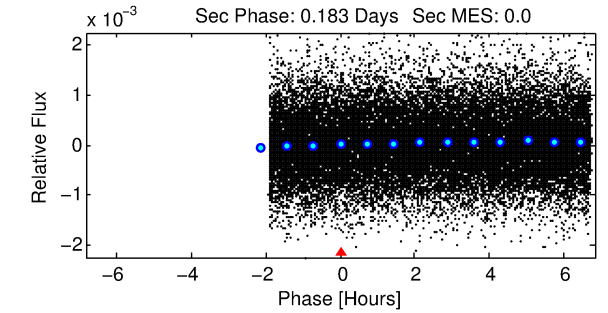
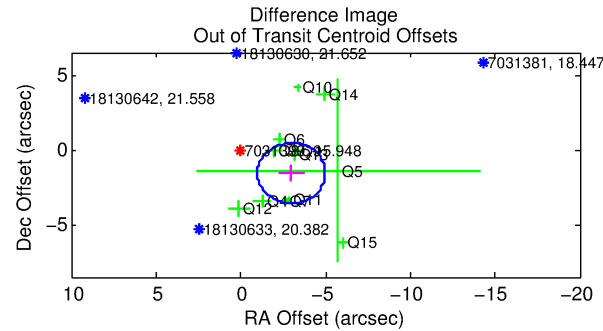
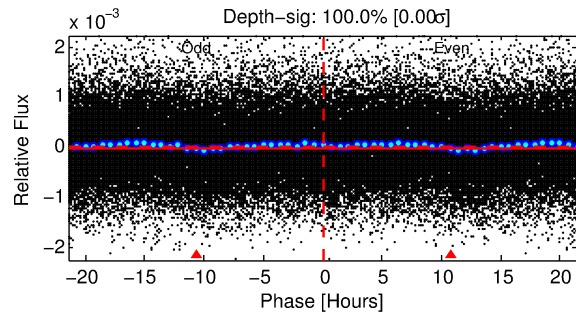
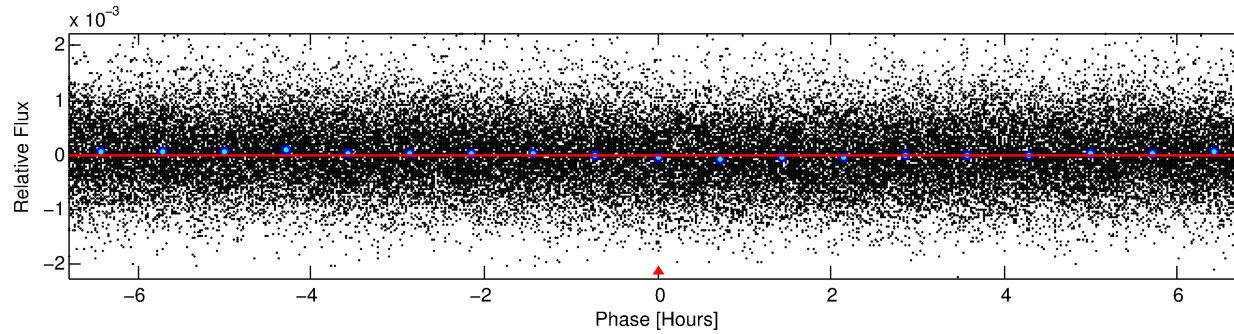
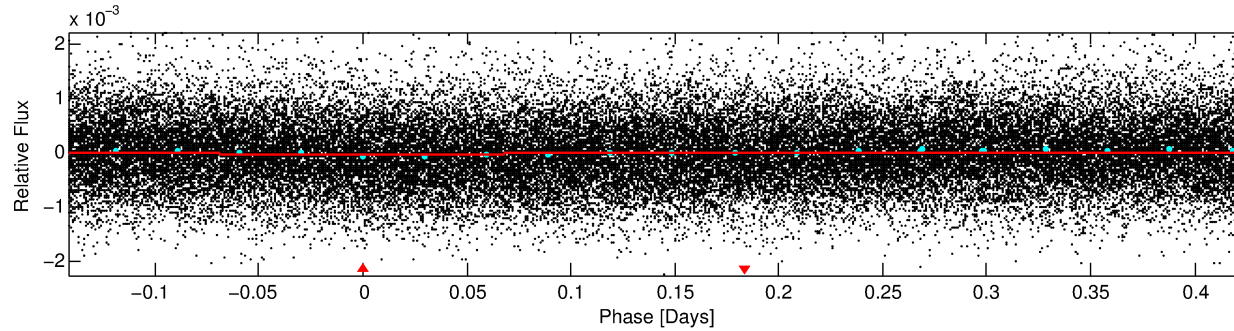
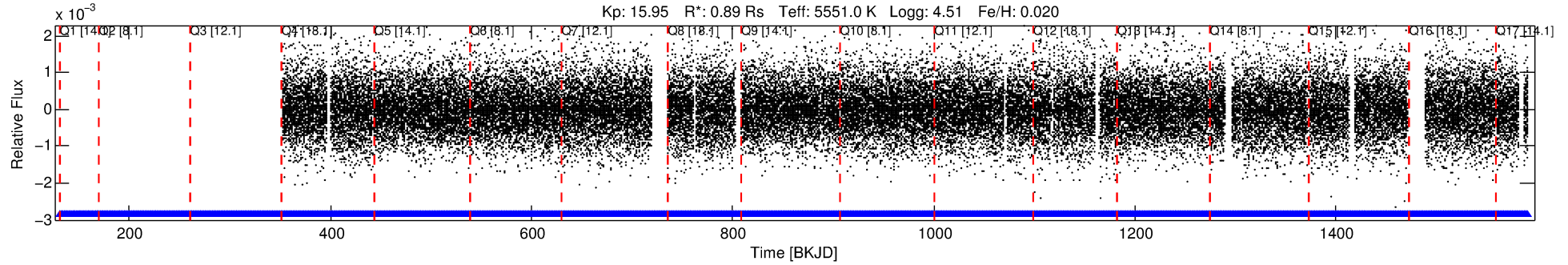
## Ephemeris Match Information For 007031399-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007031399-01	7031399	RR-Lyr-pri	7198959	1:1	1091.8	61	-268	7.86	15.95	29681.00	Direct-PRF	0	0.04	10.43

**Notes:** P<sub>1</sub>:P<sub>2</sub> 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<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> 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: 7031399 Candidate: 1 of 1 Period: 0.567 d



## DV Fit Results:

Period = 0.56672 [0.00003] d  
Epoch = 131.9226 [0.0126] BKJD  
Rp/R\* = 0.0045 [0.0084]  
a/R\* = 1.20 [2.90]  
b = 0.70 [5.79]  
Seff = 3924.99 [1334.29]  
Teq = 2018 [172] K  
Rp = 0.43 [0.82] Re  
a = 0.0131 [0.0028] AU  
Ag = N/A  
Teffp = N/A

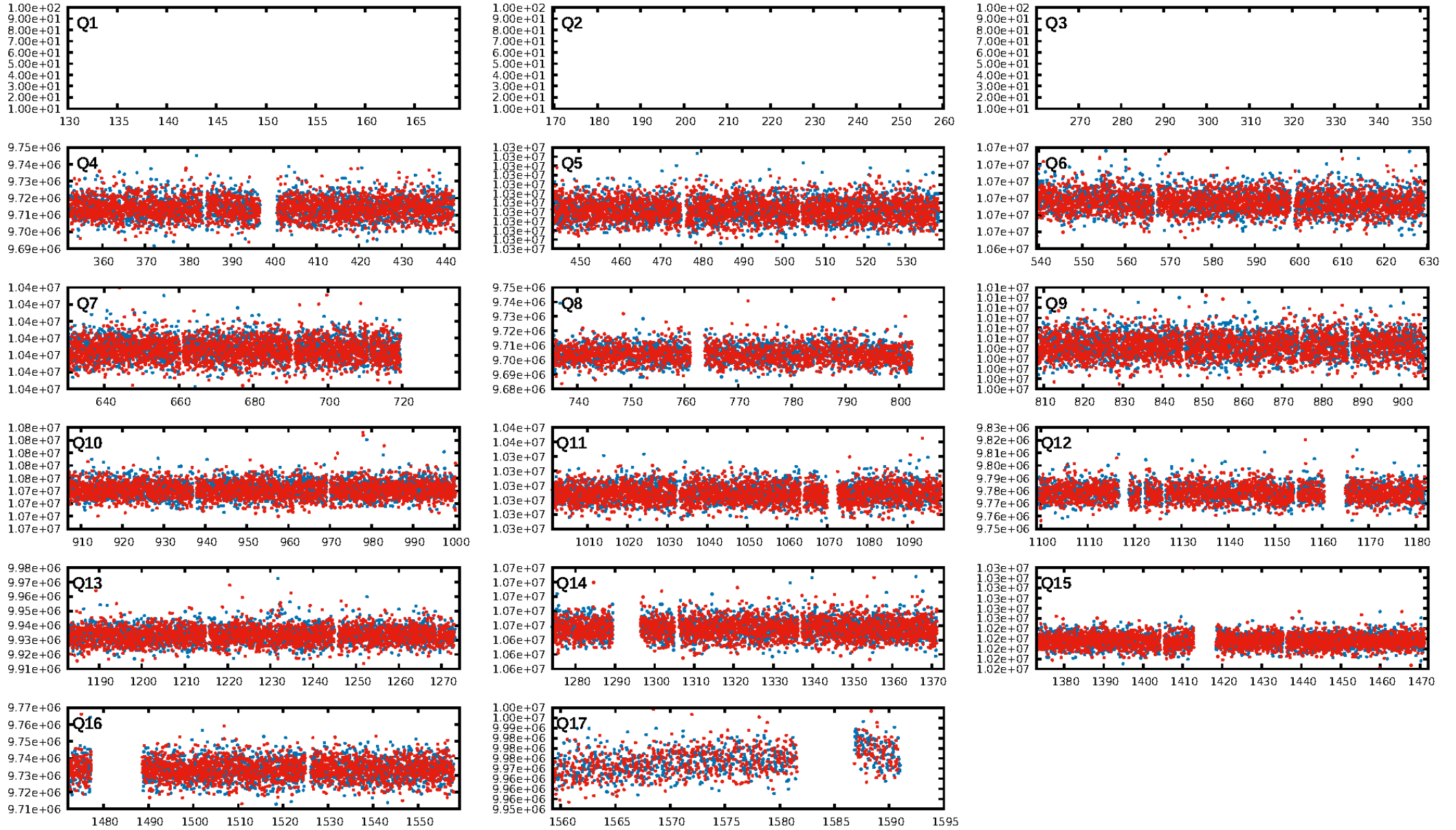
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.62e-26  
RollingBand-fgt: 1.00 [1964/1964]  
GhostDiagnostic-chr: -0.07204  
Centroid-sig: 11.7%  
Centroid-so: 6.576 arcsec [1.62σ]  
OotOffset-rm: 3.371 arcsec [5.04σ]  
KicOffset-rm: 3.512 arcsec [5.24σ]  
OotOffset-st: 3/3/3/3 [12]  
KicOffset-st: 3/3/3/3 [12]  
DiffImageQuality-fgm: 0.17 [2/12]  
DiffImageOverlap-fno: 1.00 [14/14]

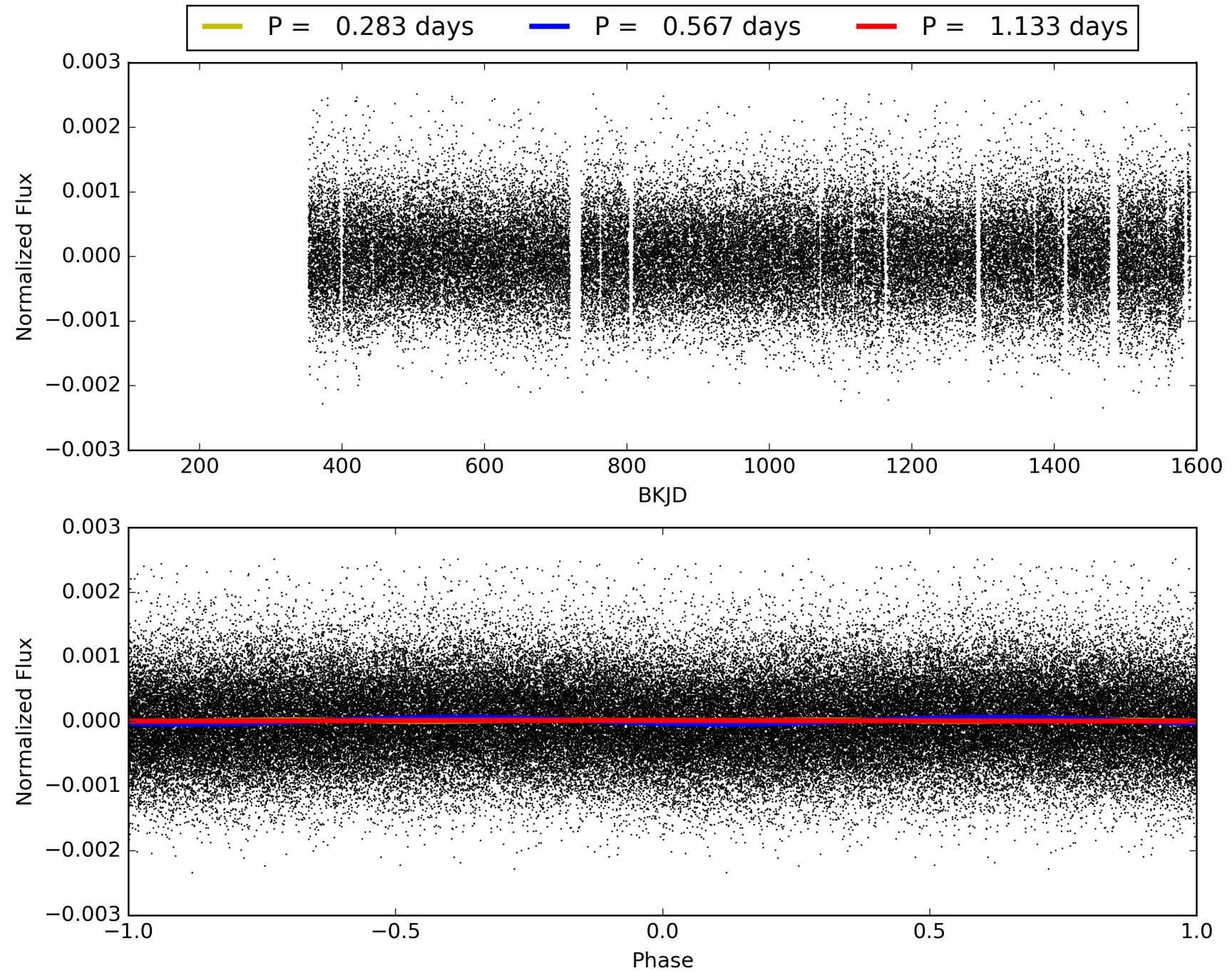
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:23:04 Z

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

# TCE 007031399-01, PDC Light Curves



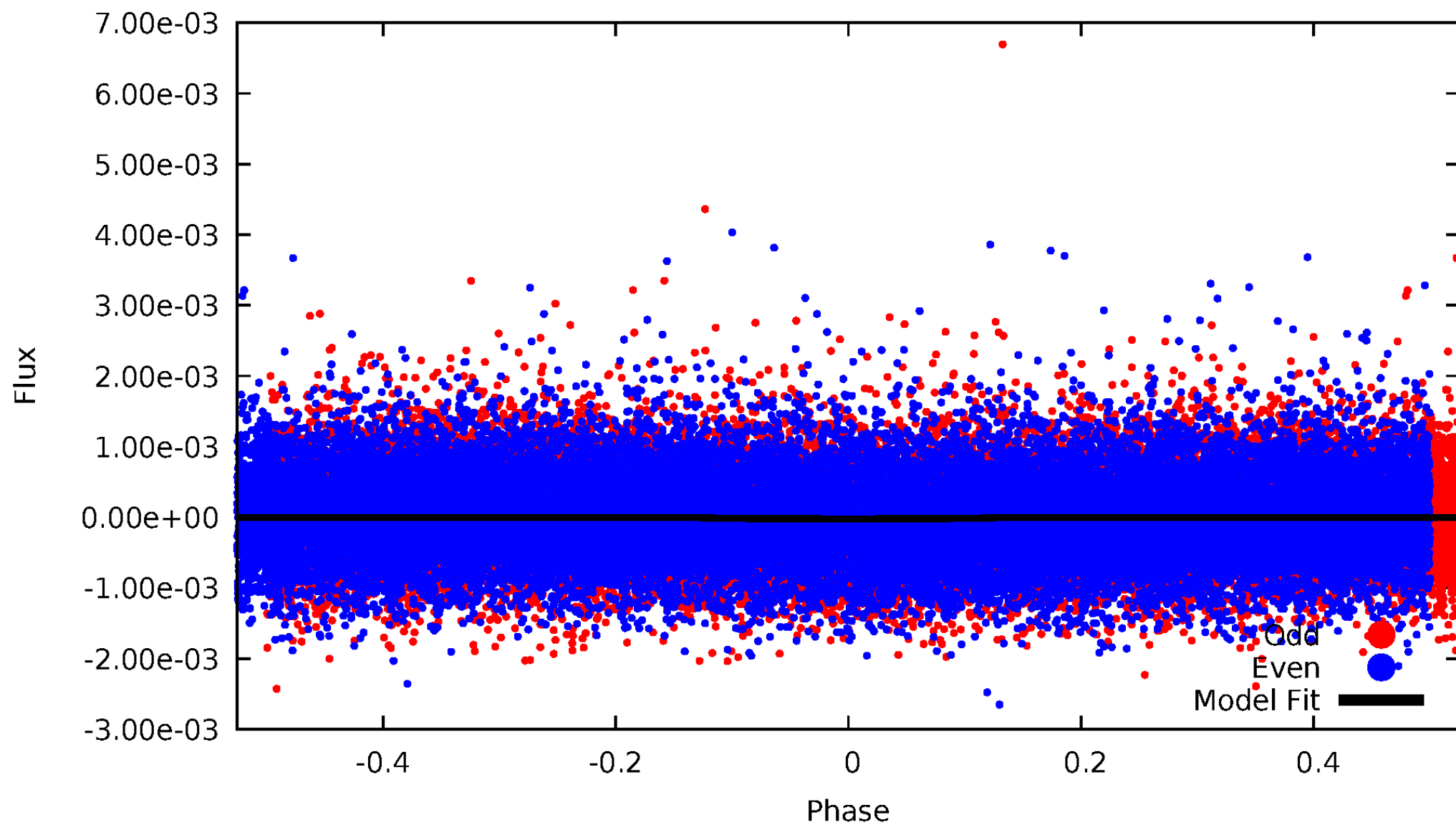
TCE 007031399-01





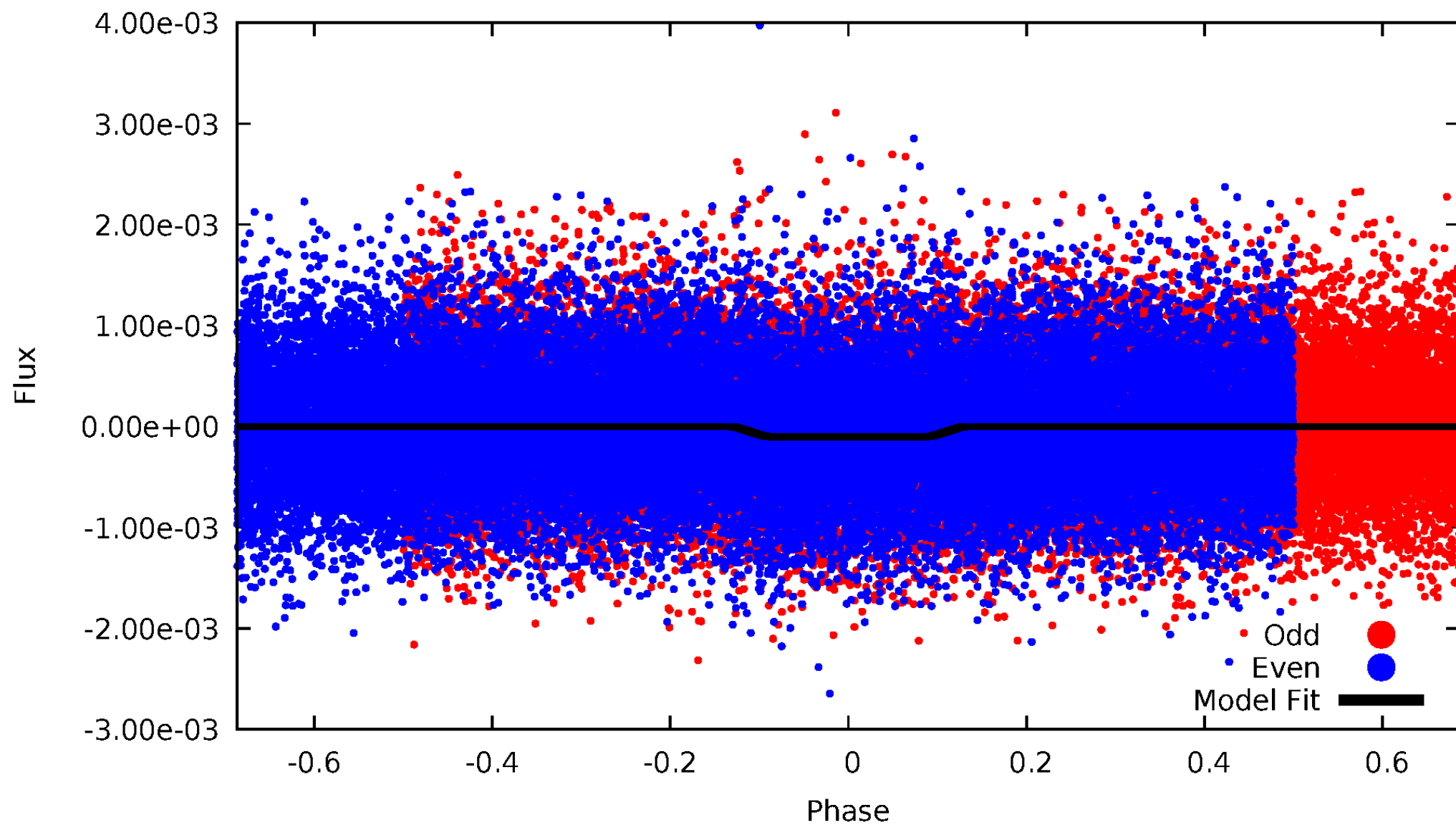
# DV Odd/Even

TCE 007031399-01

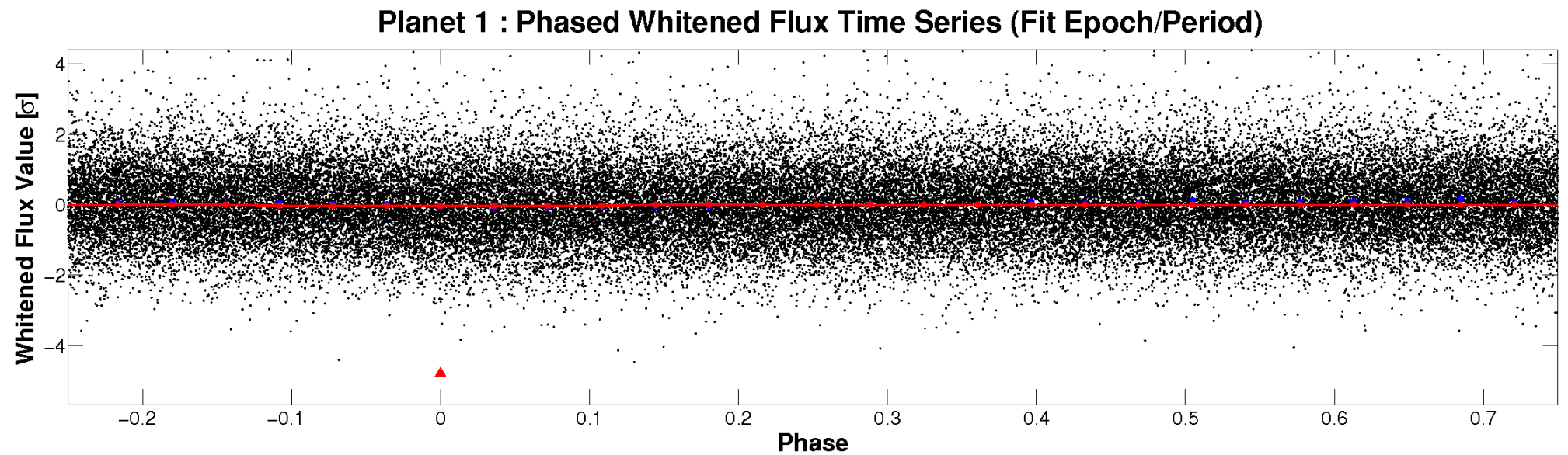
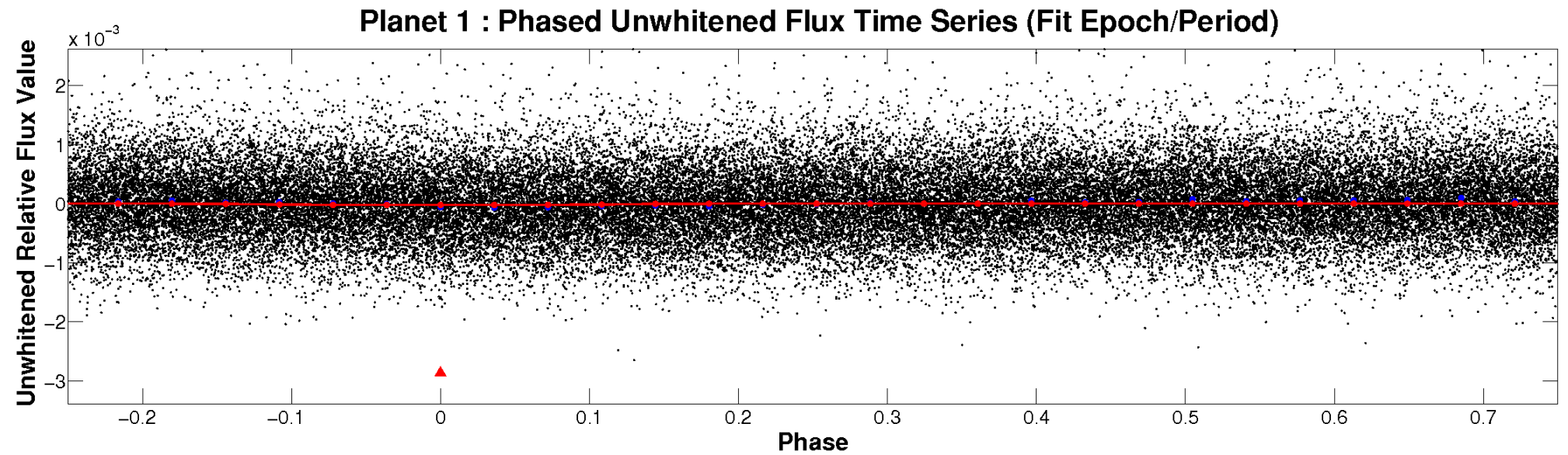


# ALT Odd/Even

TCE 007031399-01

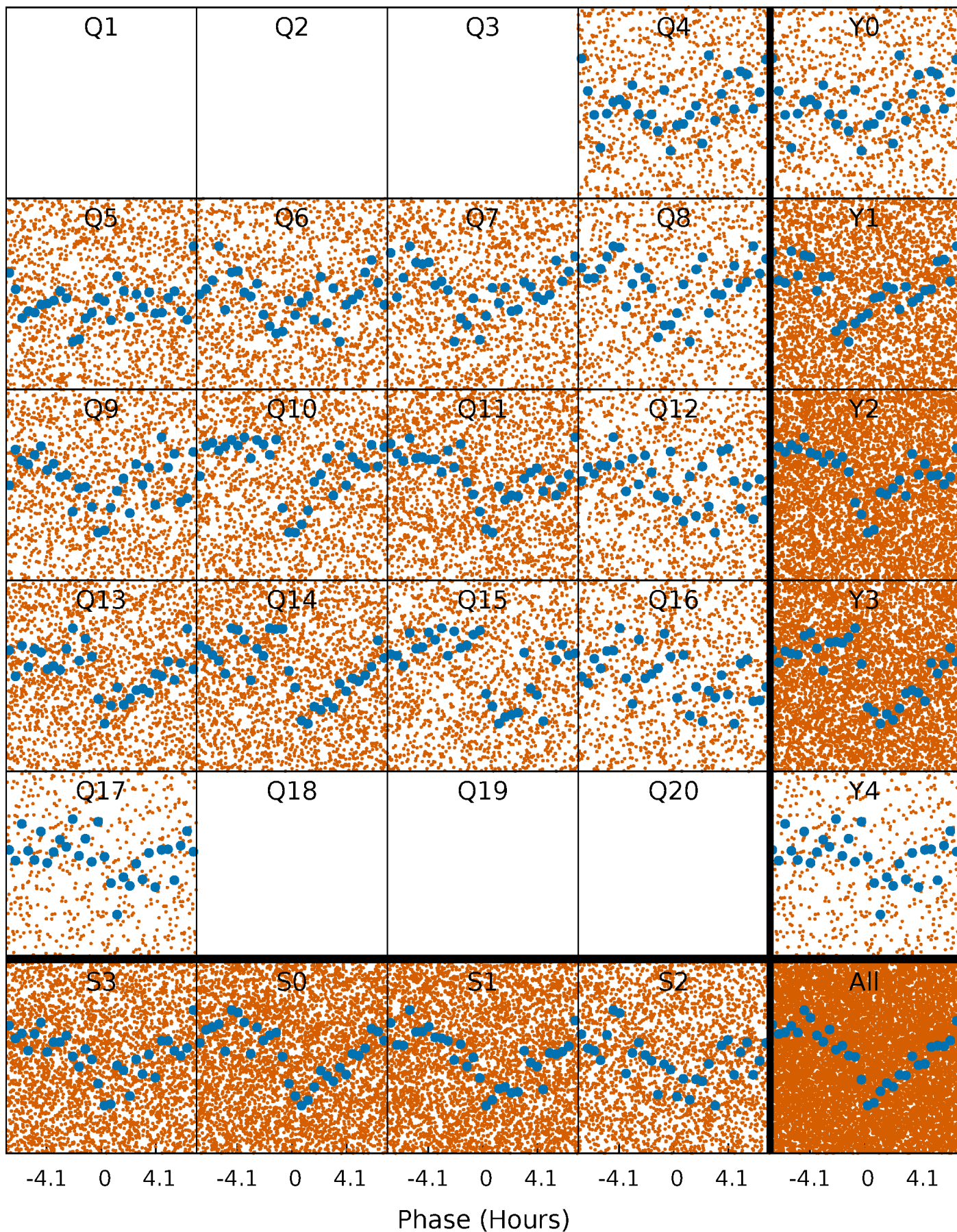


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

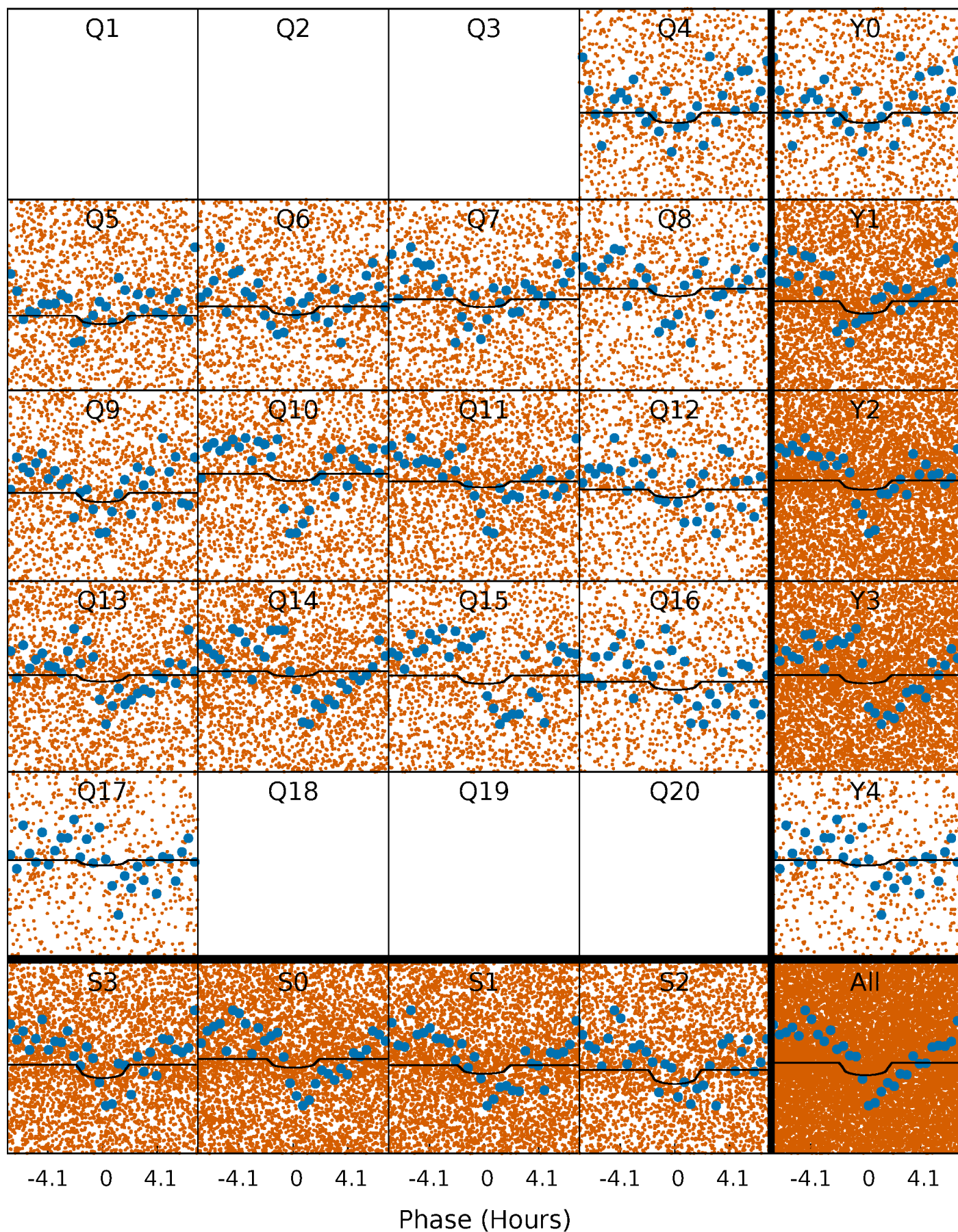
TCE 007031399-01 P= 0.566718 Days  $T_0=131.922646$  (BKJD)





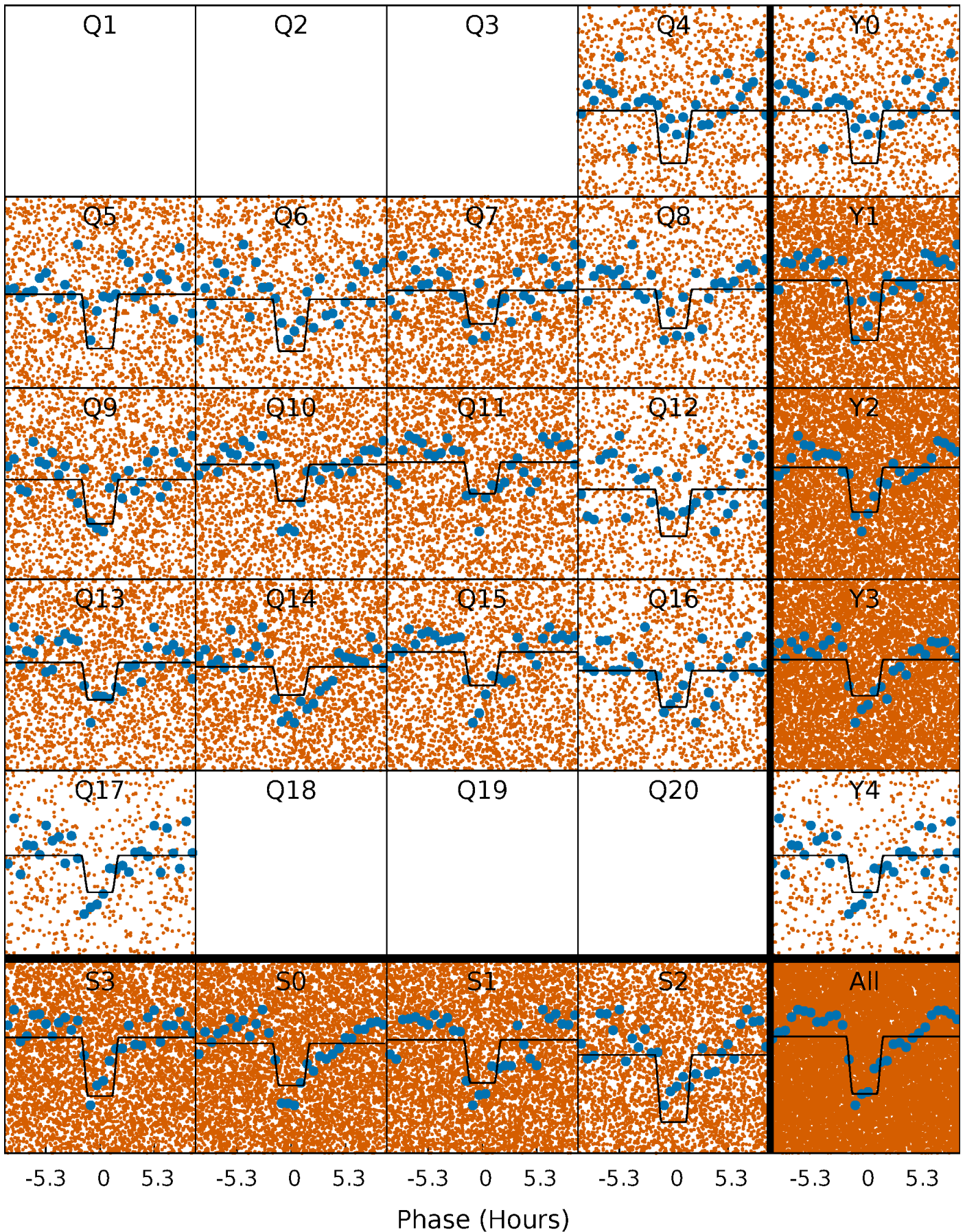
# DV Quarter-Phased Transit Curves

TCE 007031399-01 P= 0.566718 Days  $T_0=131.922646$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007031399-01 P= 0.566795 Days  $T_0=131.828332$  (BKJD)

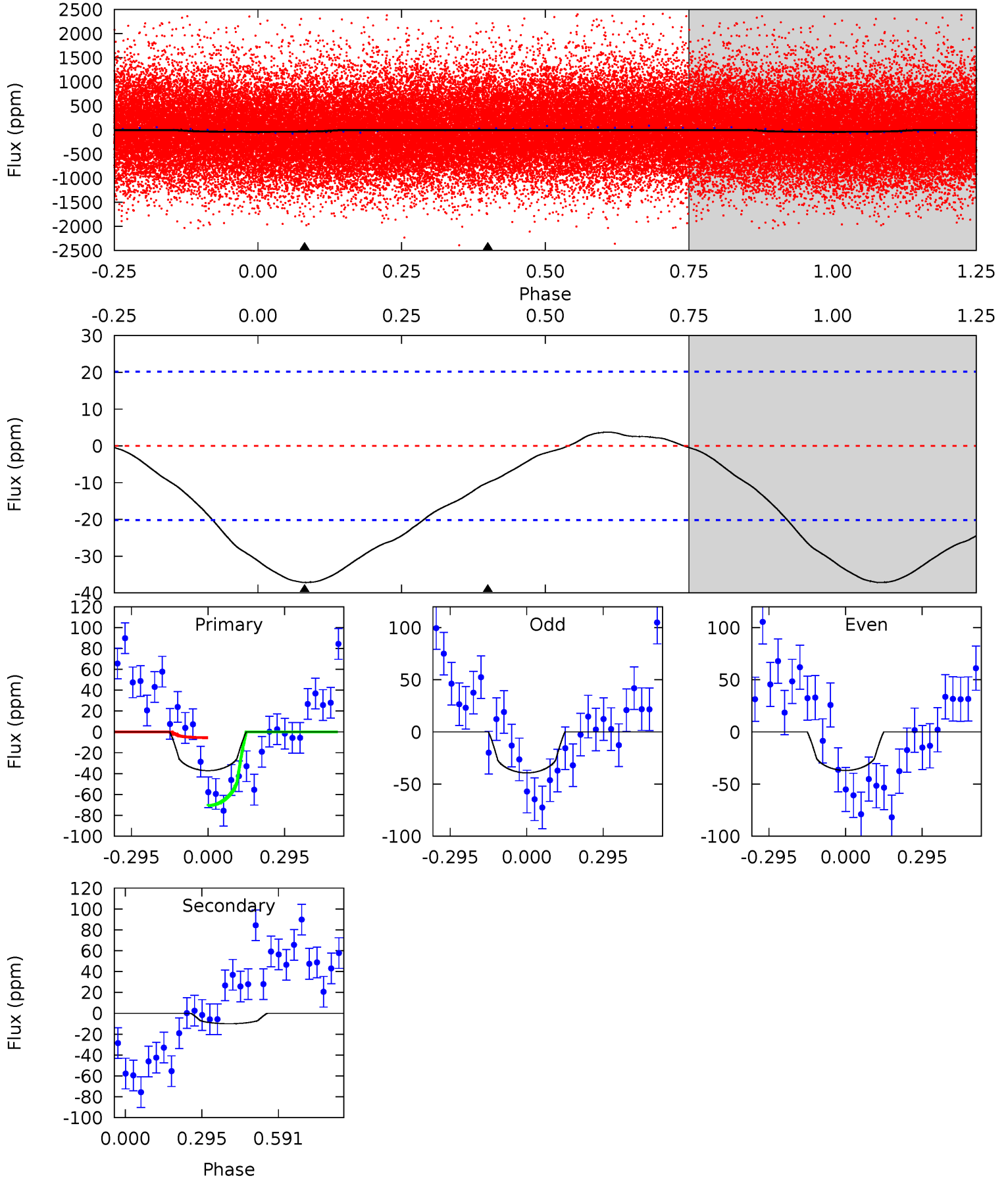




# DV Model-Shift Uniqueness Test

007031399-01, P = 0.566718 Days, E = 131.922646 Days

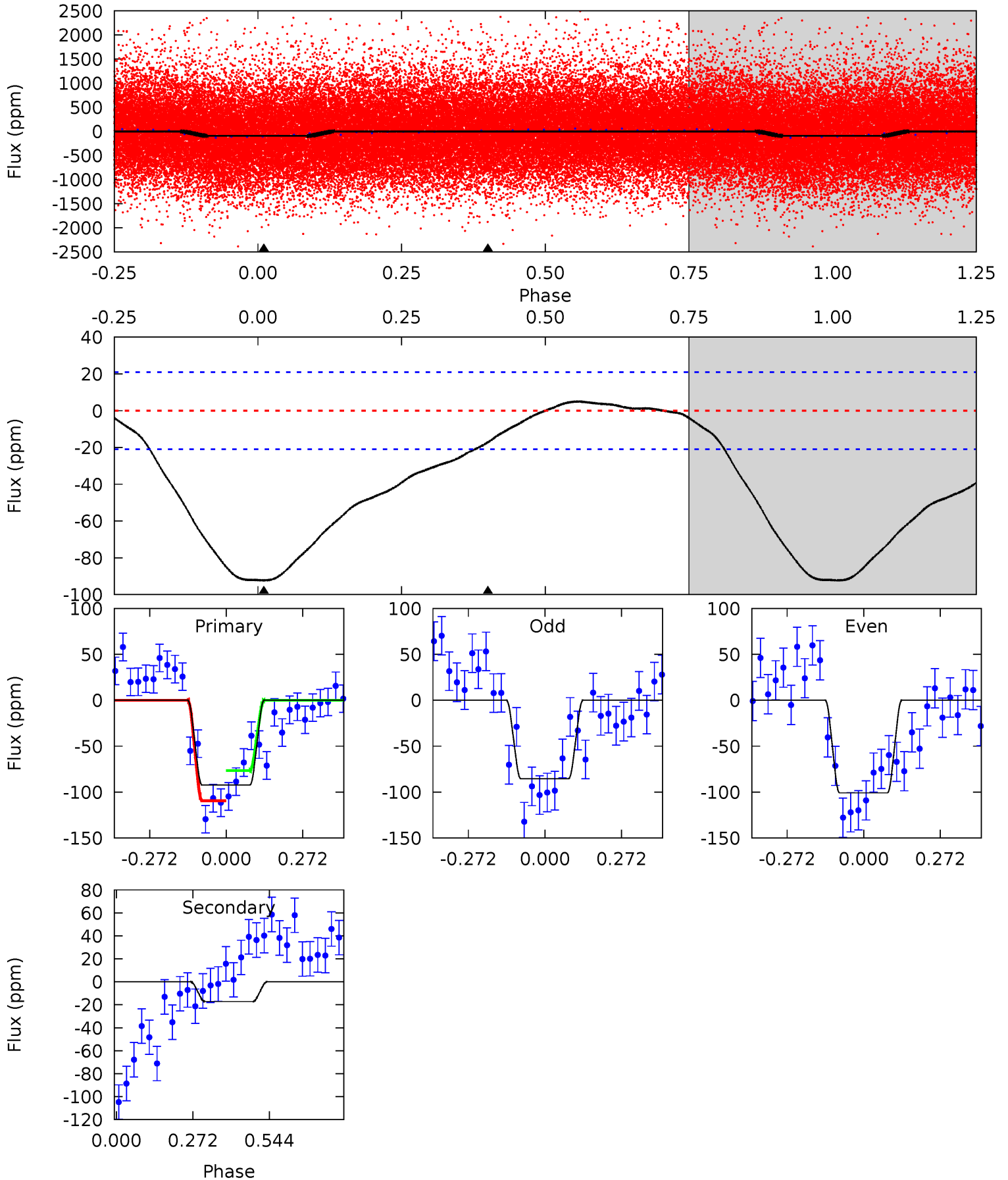
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.98	2.14	0	0	4.33	1.05	0.36	7.98	7.98	2.14	2.14	0.25	0.89	0.09	6.94



# Alt Model-Shift Uniqueness Test

007031399-01, P = 0.566795 Days, E = 131.828332 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
19.2	3.57	0	0	4.35	1.10	0.35	19.2	19.2	3.57	3.57	1.61	0.96	0.05	3.41





### Stellar Parameters For KIC 007031399

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5551^{+182}_{-182}$	$4.508^{+0.058}_{-0.173}$	$0.020^{+0.250}_{-0.300}$	$0.887^{+0.222}_{-0.095}$	$0.923^{+0.092}_{-0.092}$	$1.864^{+0.536}_{-0.827}$
	+3%/-3%	+1%/-4%	+1250%/-1500%	+25%/-11%	+10%/-10%	+29%/-44%
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 007031399-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-10 \pm 5$	$0.81^{+0.65}_{-0.57}$	$2860^{+179}_{-139}$	$3618^{+2472}_{-1284}$	$1.345^{+13.036}_{-1.006}$
Alt.	$-17 \pm 5$	$1.15^{+0.77}_{-0.69}$	$2854^{+197}_{-116}$	$3523^{+1689}_{-939}$	$1.194^{+6.034}_{-0.799}$

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

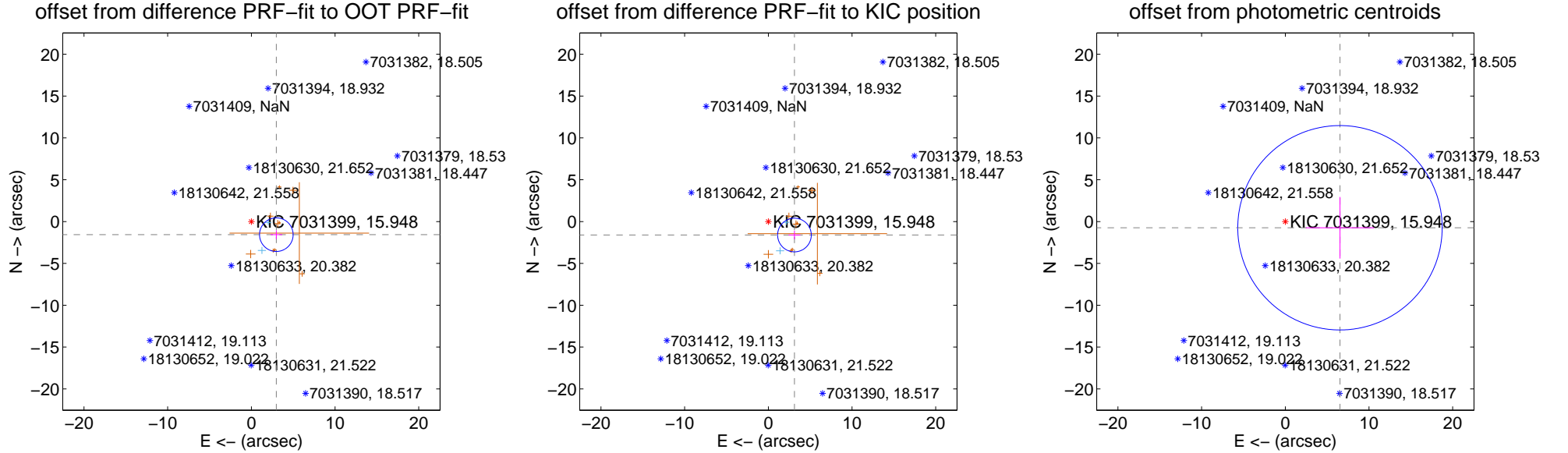
## DV Centroid Data

Supplemental centroid analysis for 007031399-01. Kepler magnitude: 15.95. Transit SNR 3.49

There are 2 quarters with good PRF difference image offsets

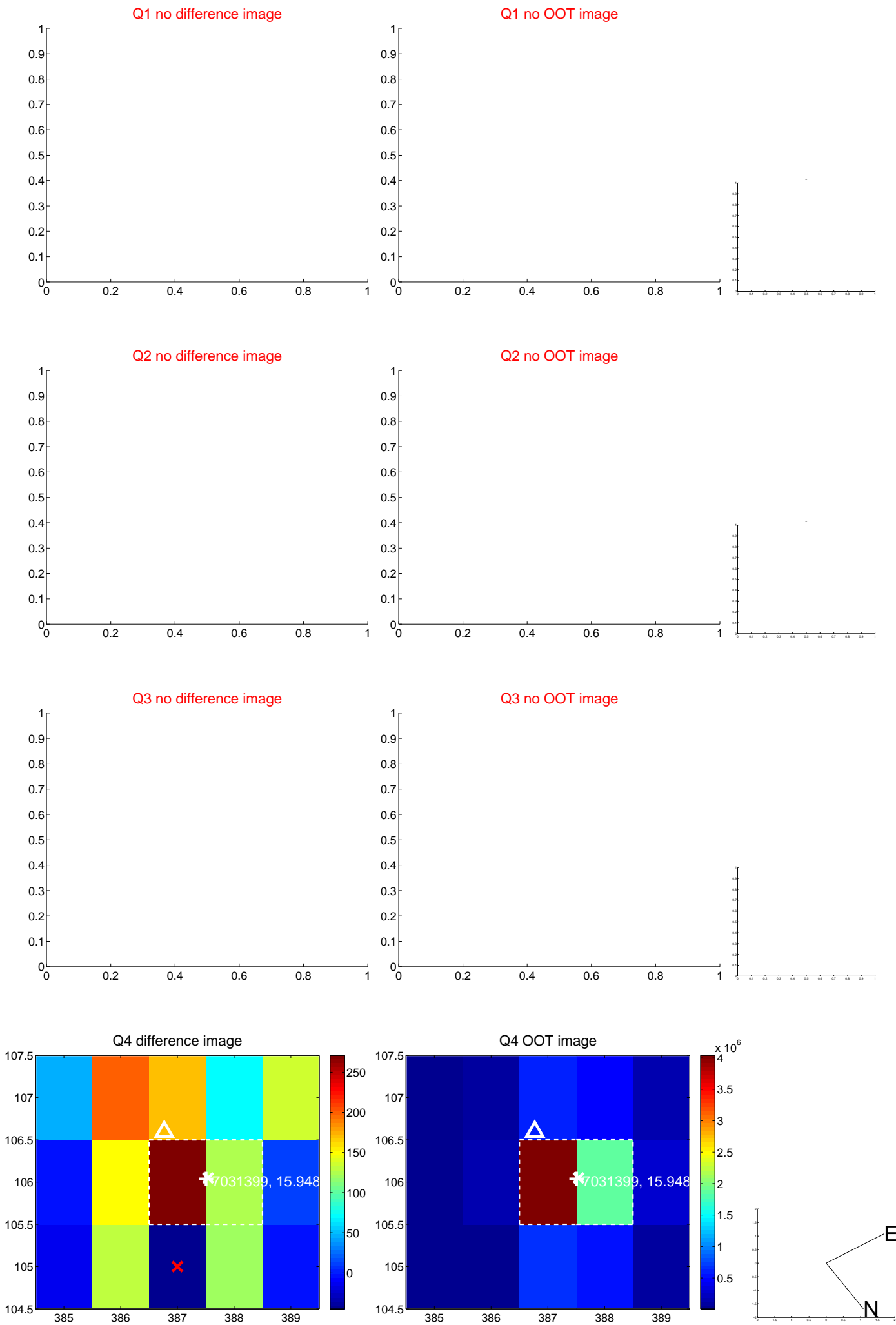
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.371 \pm 0.669$	5.04	$-2.985 \pm 0.705$	$-1.566 \pm 0.520$
PRF-fit source offset from KIC position	$3.512 \pm 0.670$	5.24	$-3.122 \pm 0.705$	$-1.609 \pm 0.520$
photometric centroid source offset	$6.58 \pm 4.07$	1.62	$-6.53 \pm 4.08$	$-0.74 \pm 3.68$

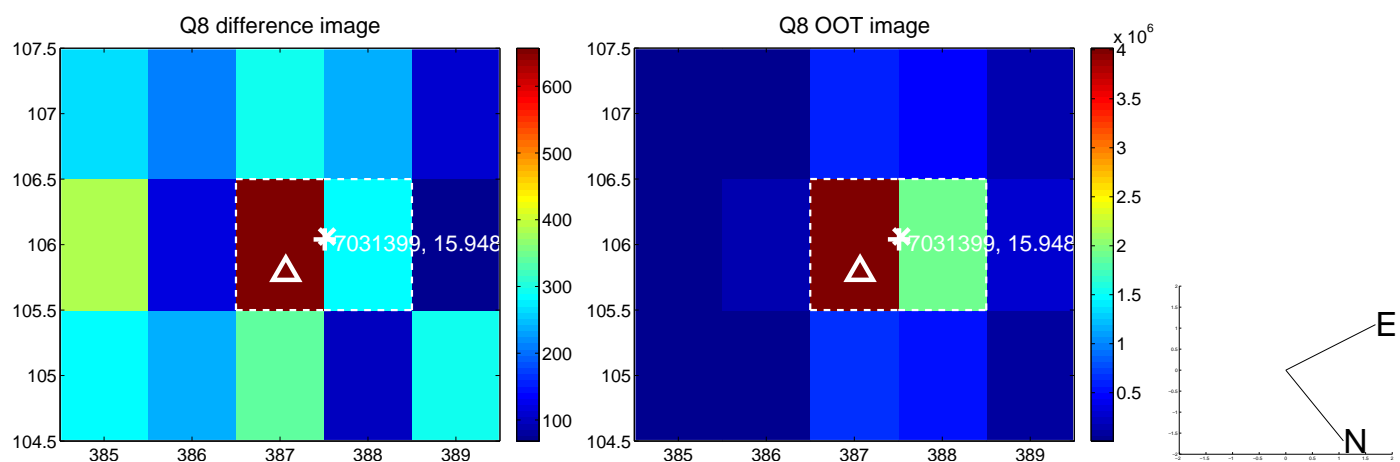
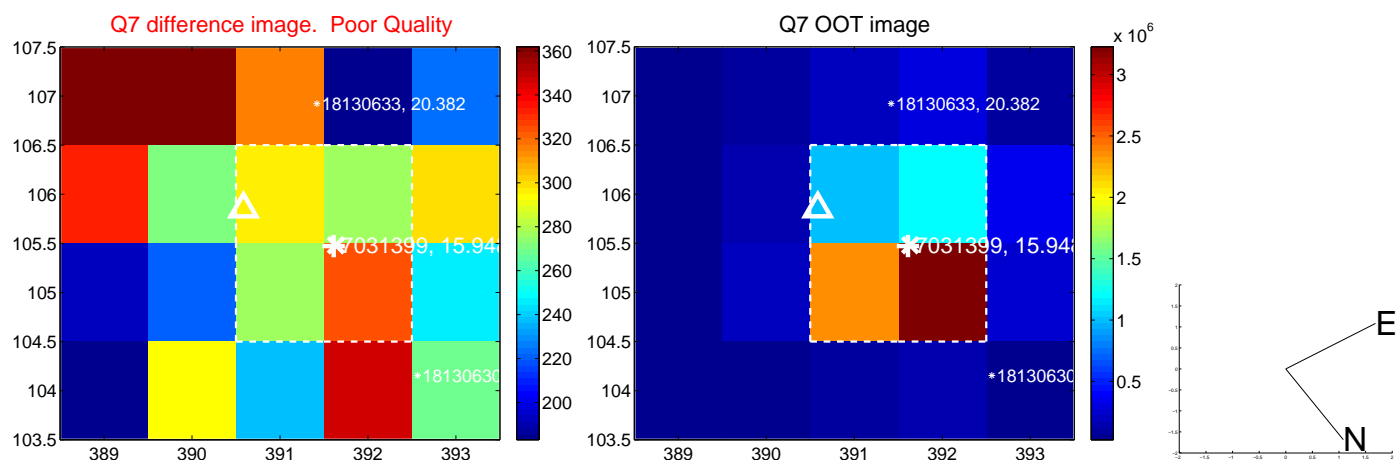
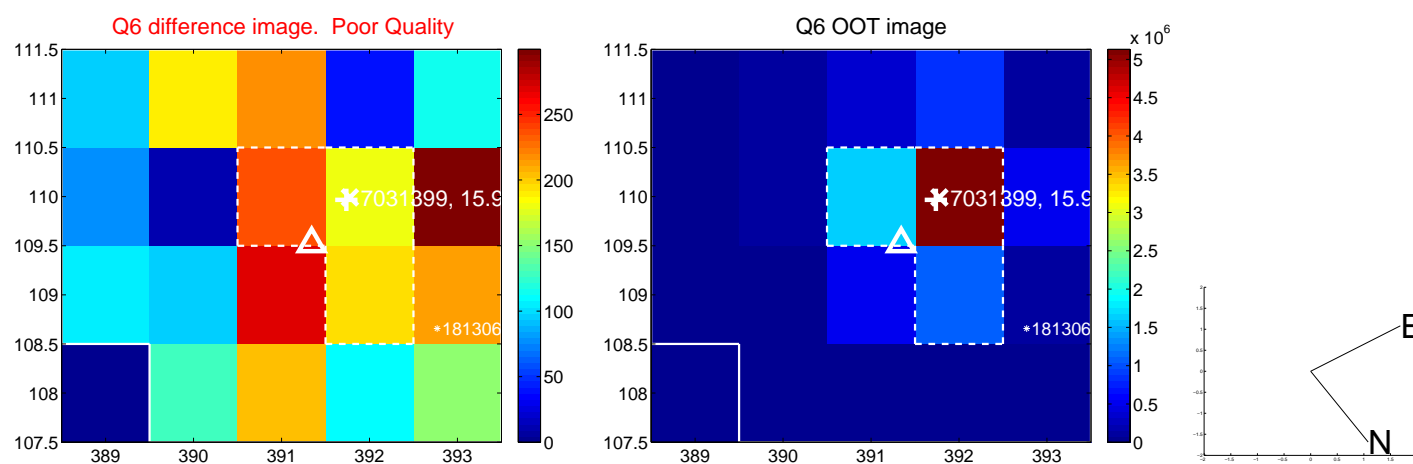
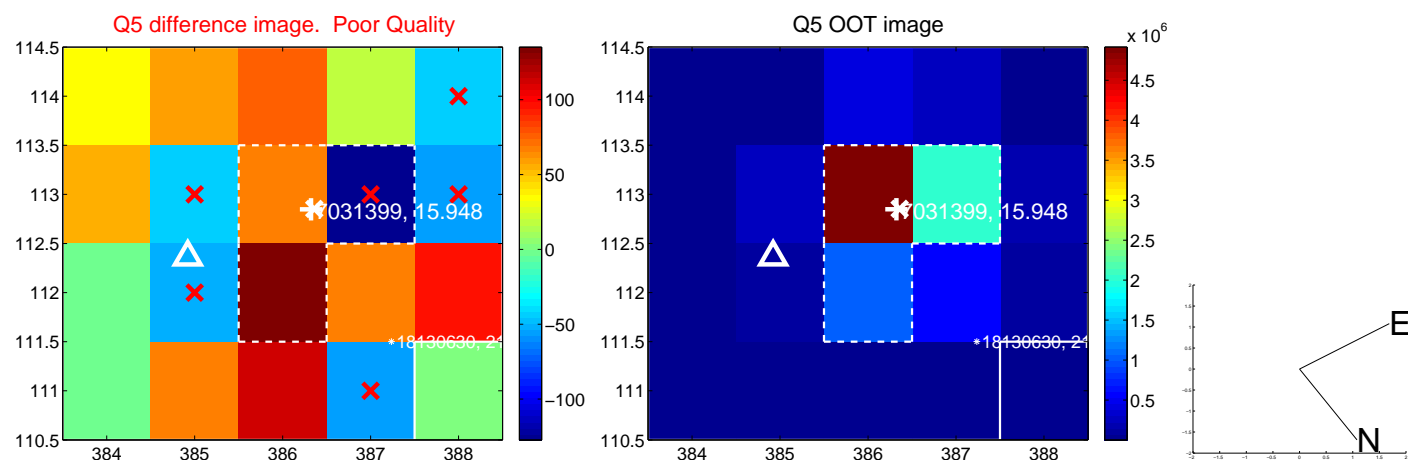


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

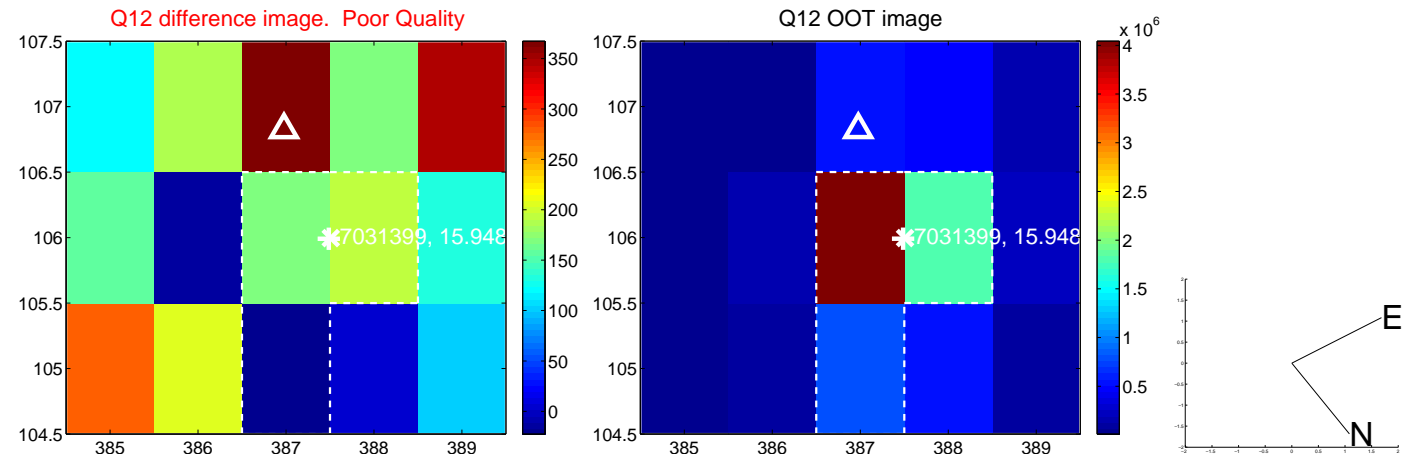
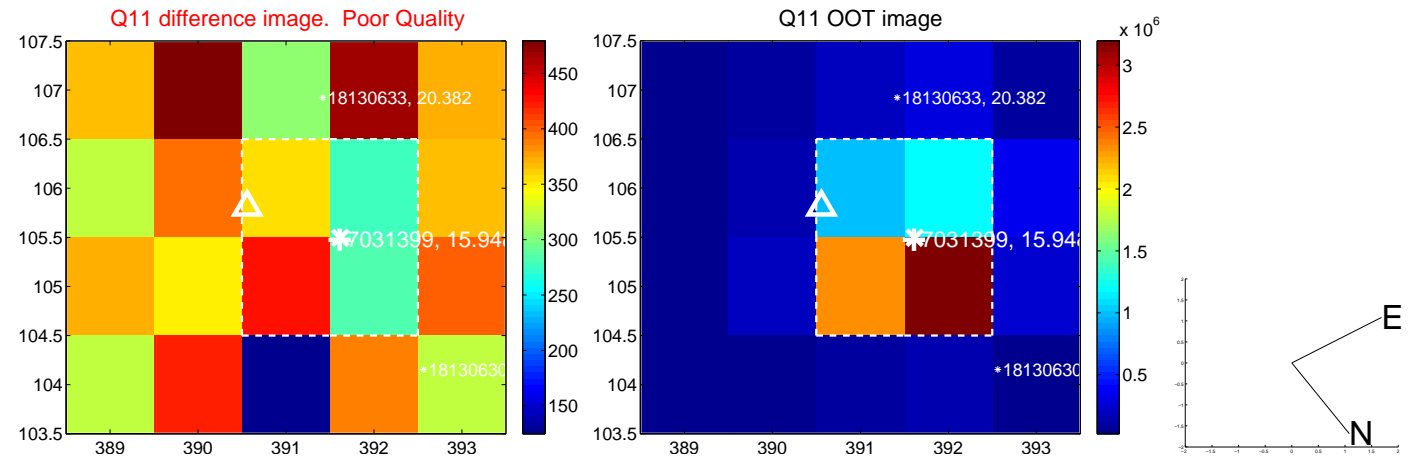
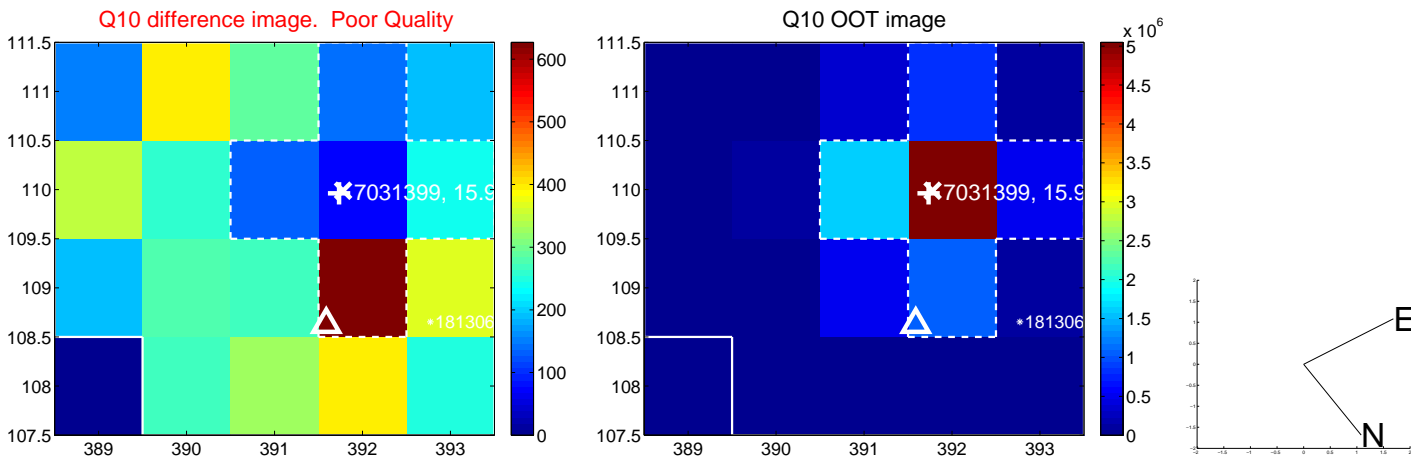
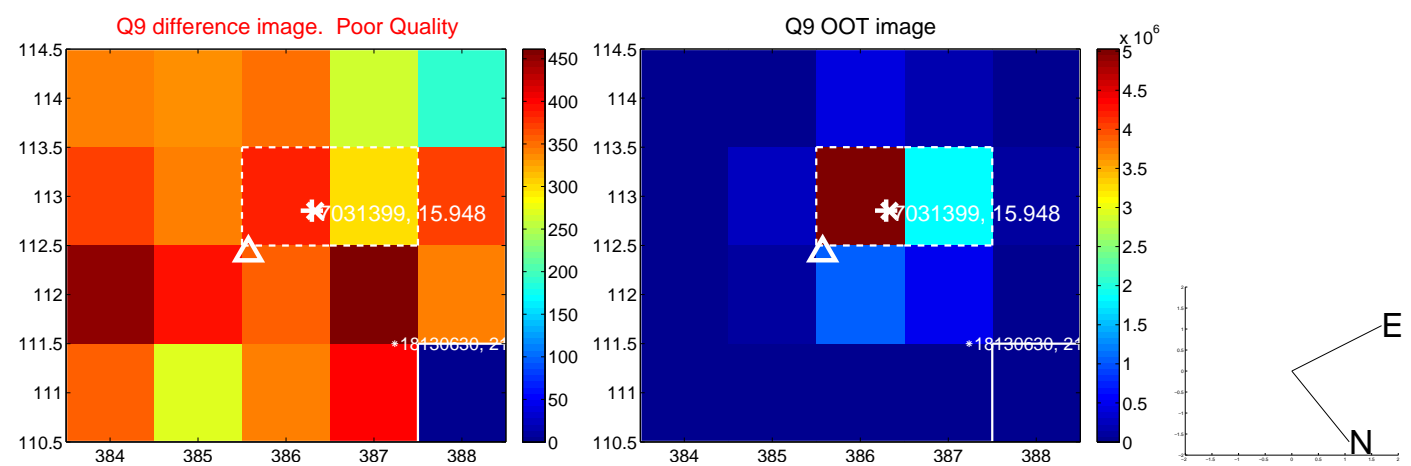


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

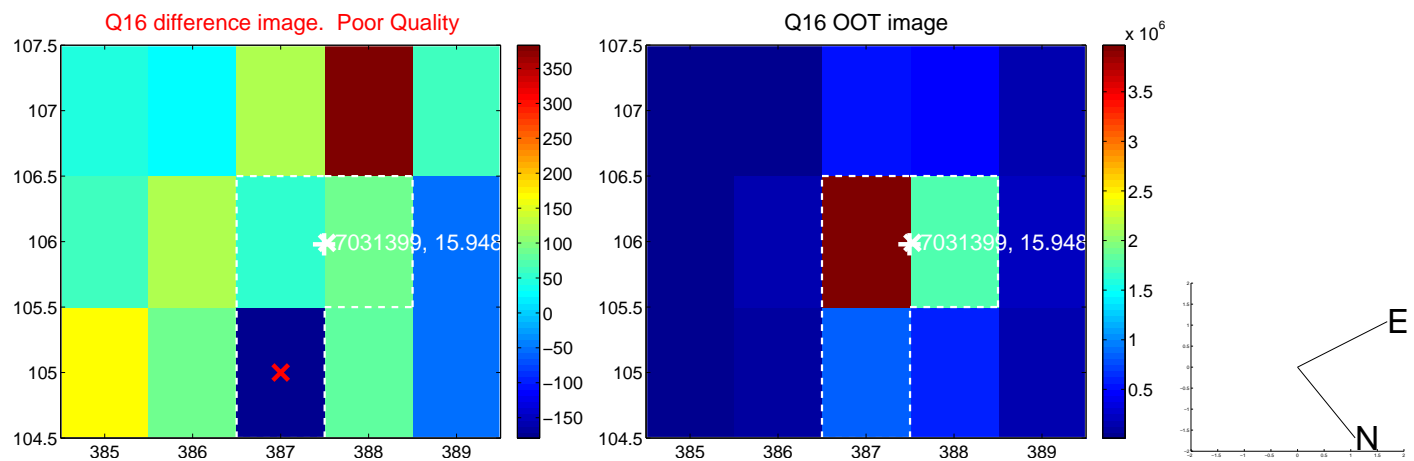
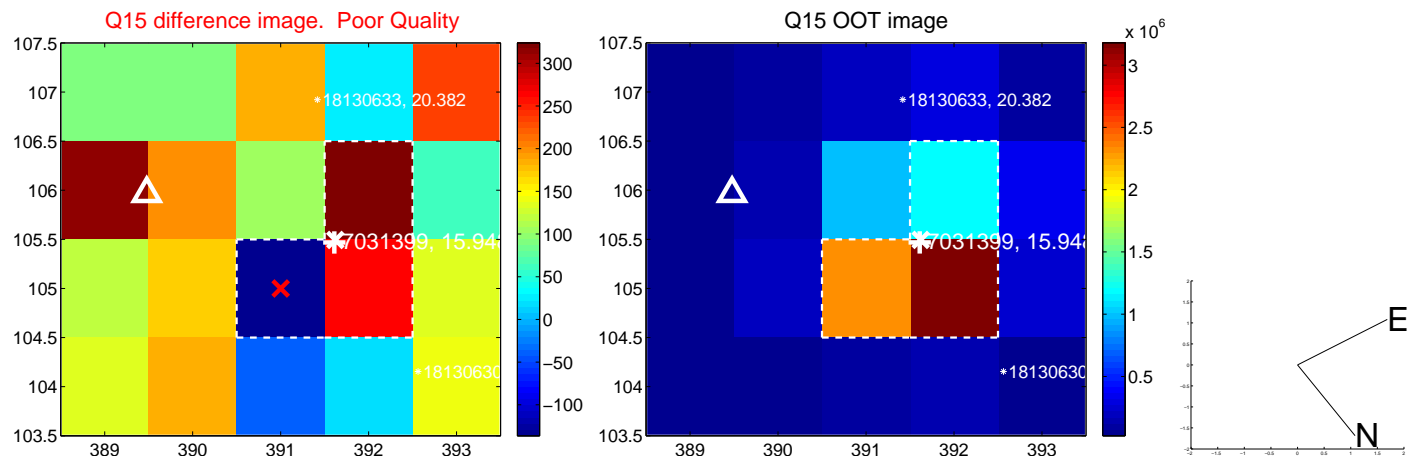
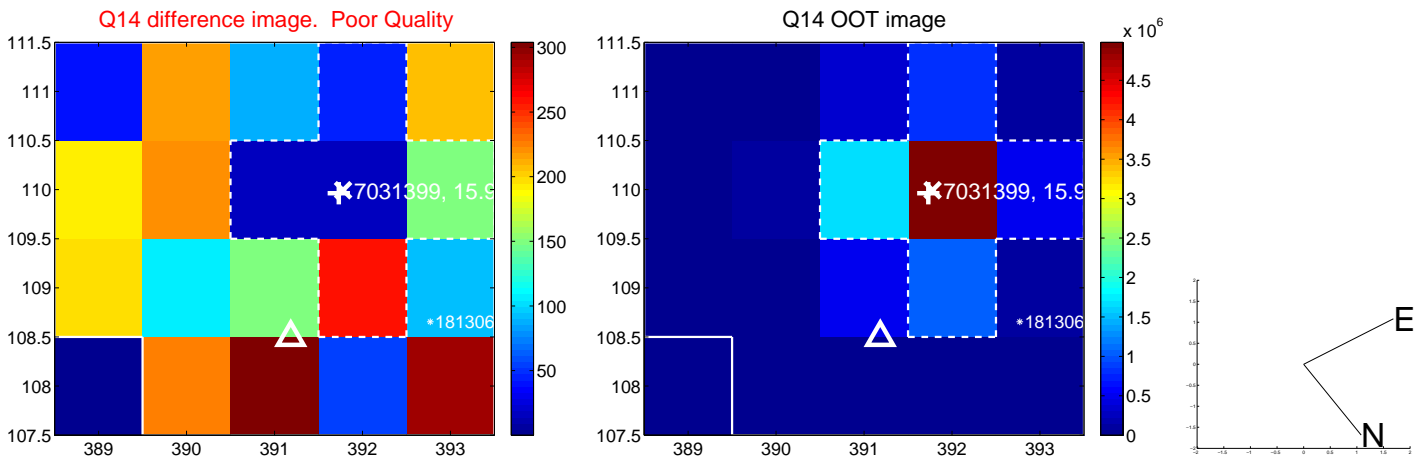
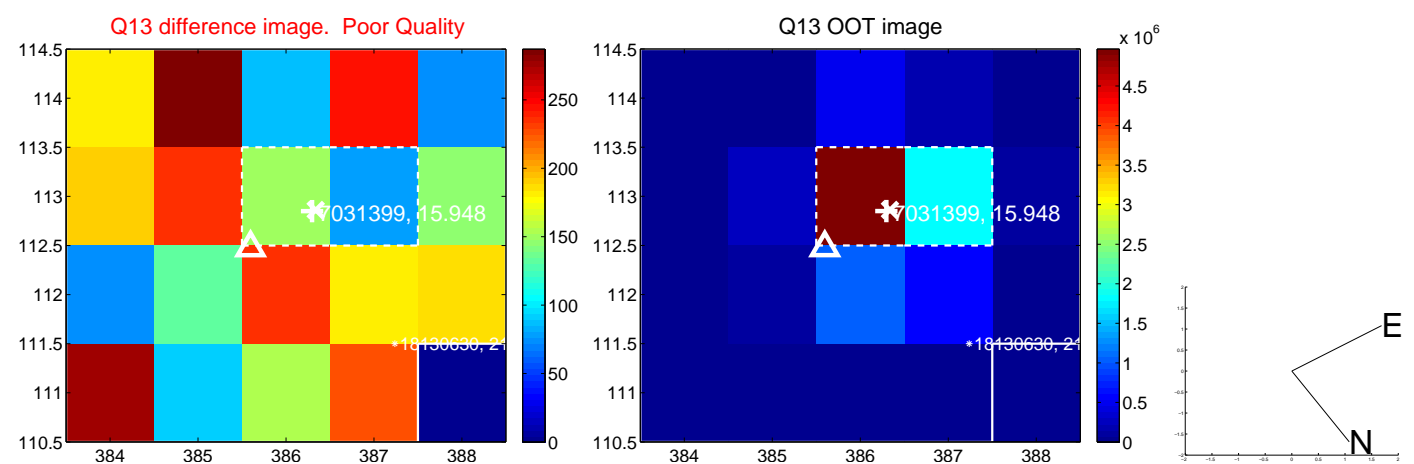




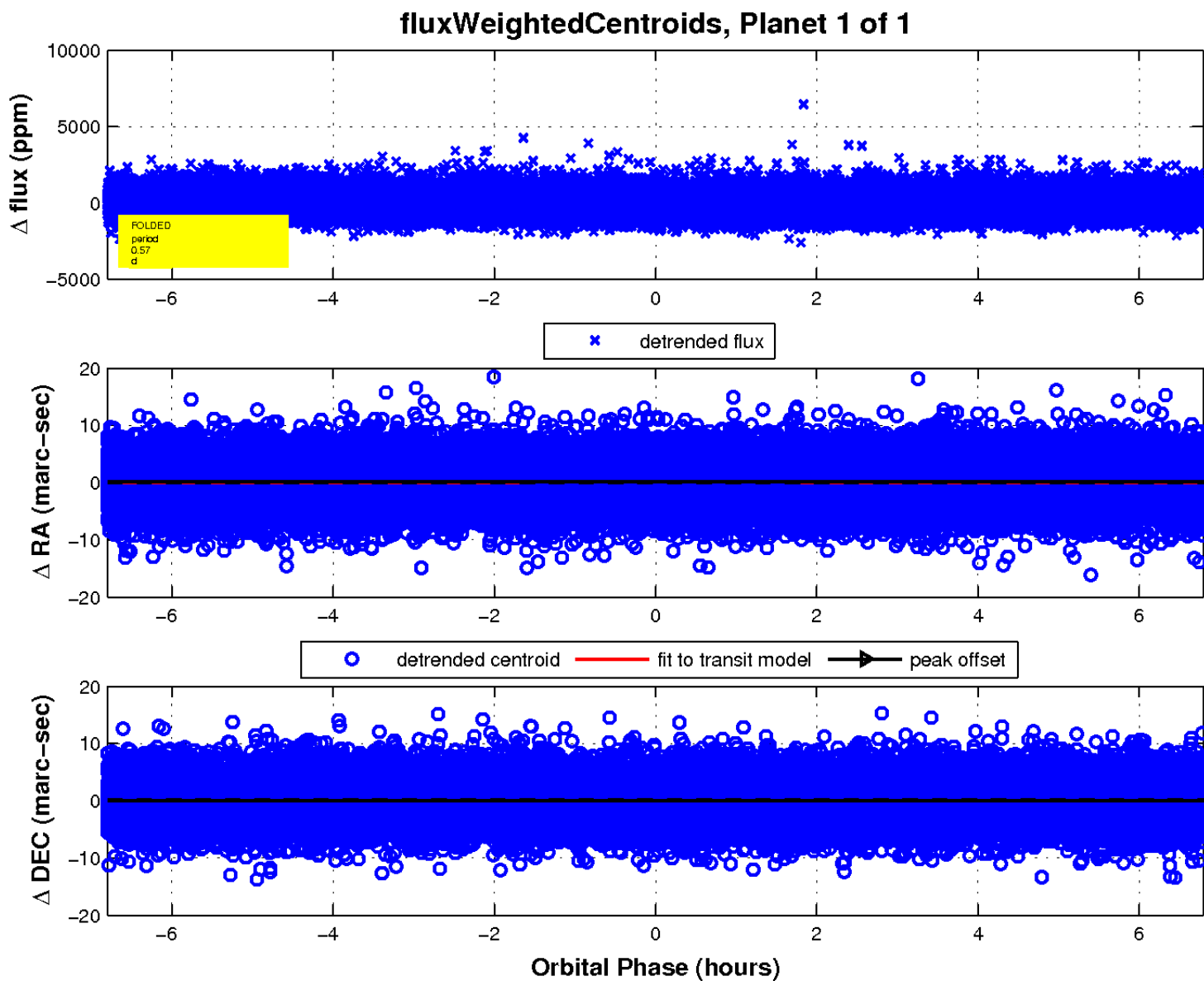
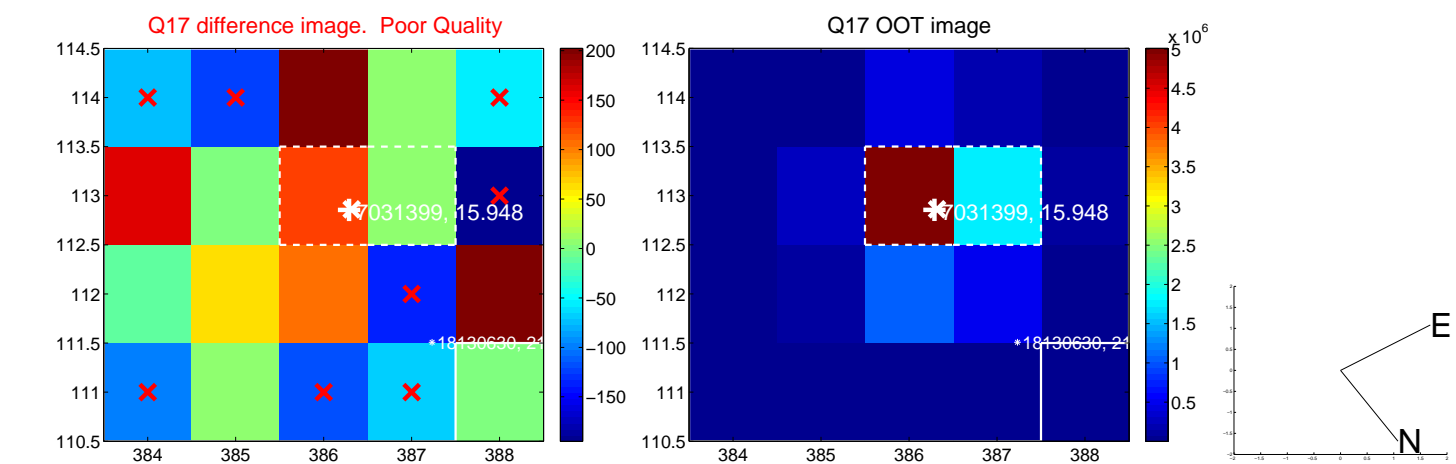
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



# UKIRT Image

Declination

