

# KIC 007031573

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007031573-01	OBS	No	0.566761	131.858244	20.6	4.053	11.0	6.4	0.77	4931	0.35	2114.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007031573-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_KIC_POS—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.

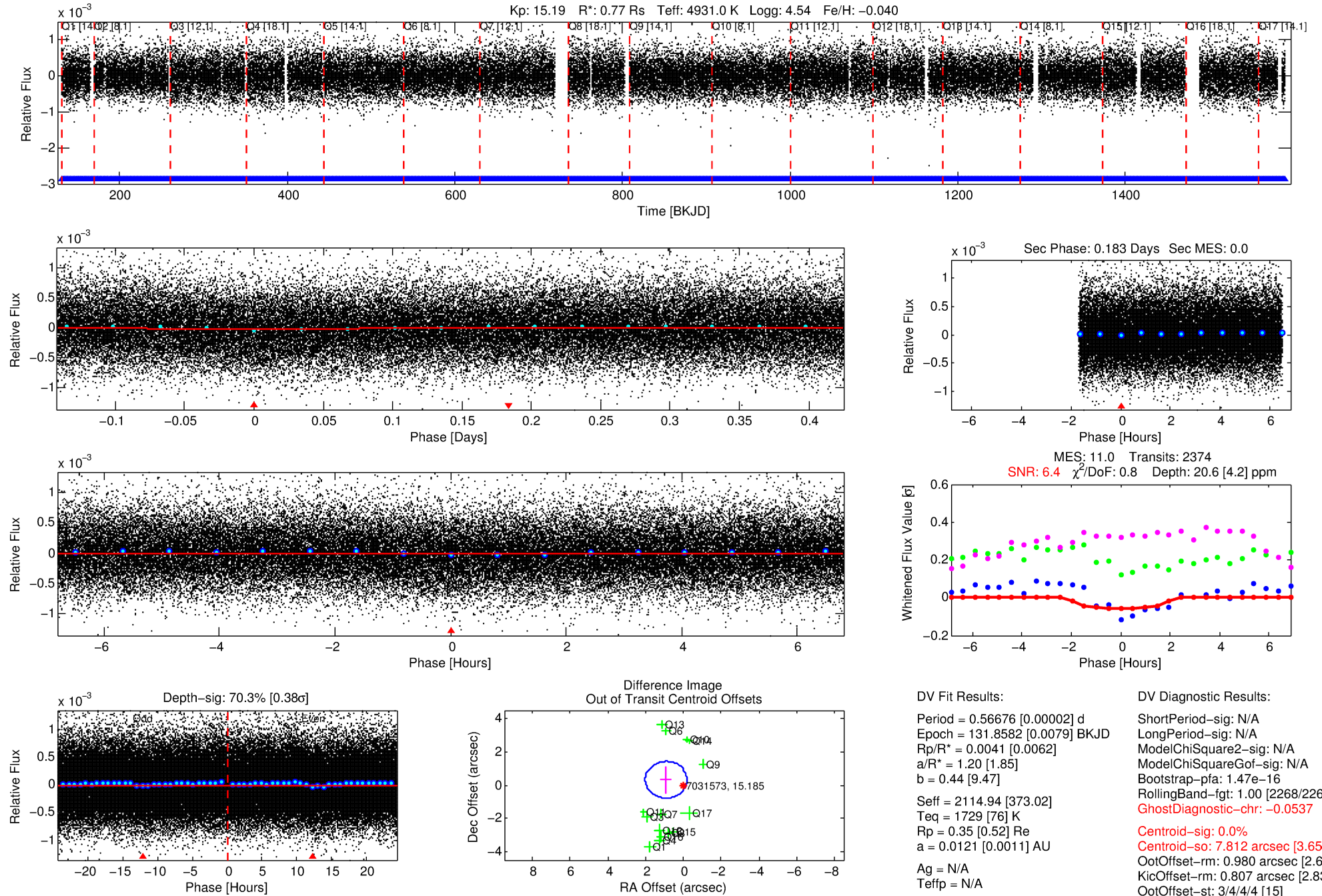
## Ephemeris Match Information For 007031573-01

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	$\sigma_P$	$\sigma_T$
007031573-01	7031573	RR-Lyr-pri	7198959	1:1	924.4	65	-224	7.86	15.18	29681.00	Direct-PRF	0	2.68	22.53

**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

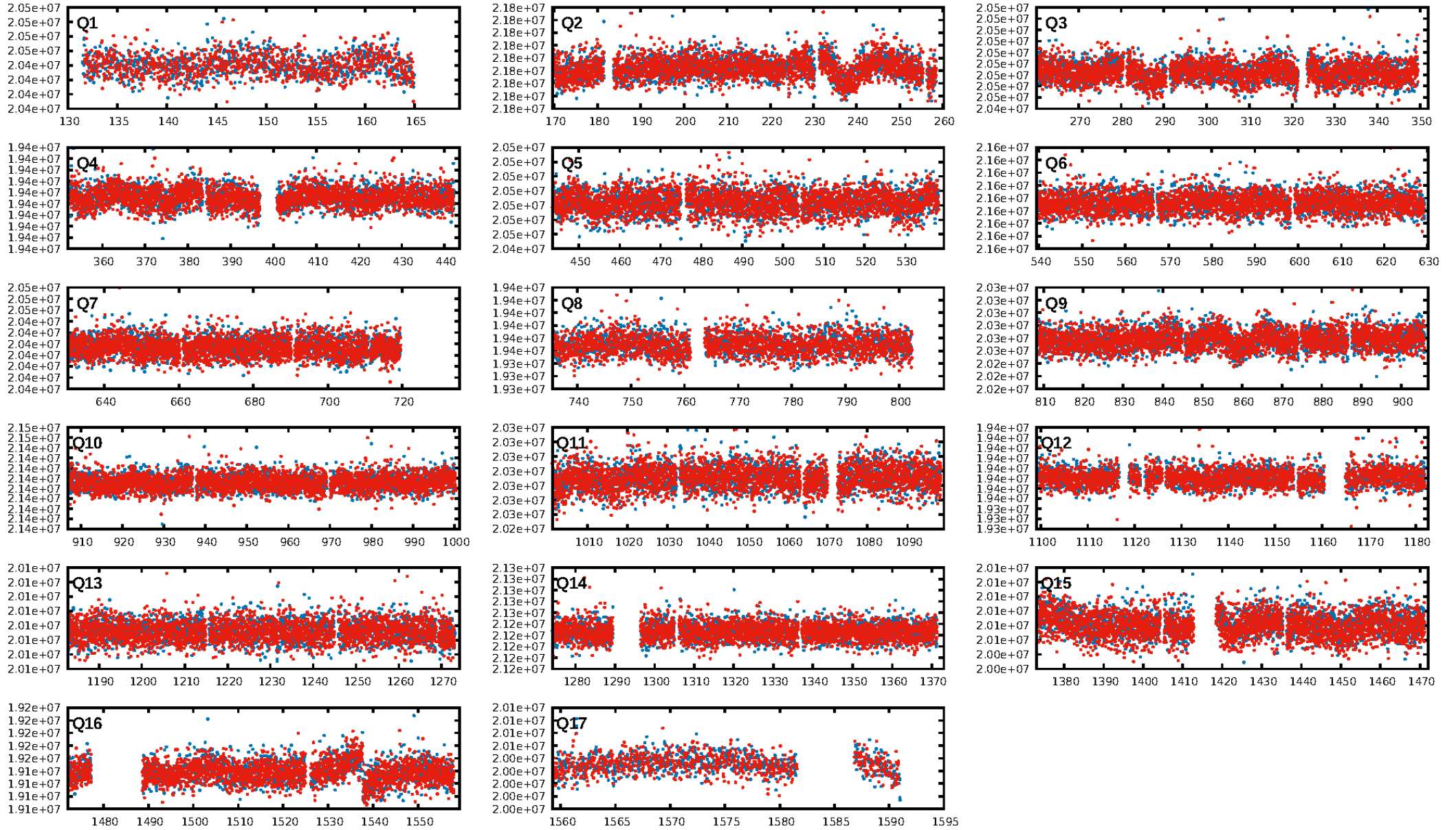
KIC: 7031573 Candidate: 1 of 1 Period: 0.567 d



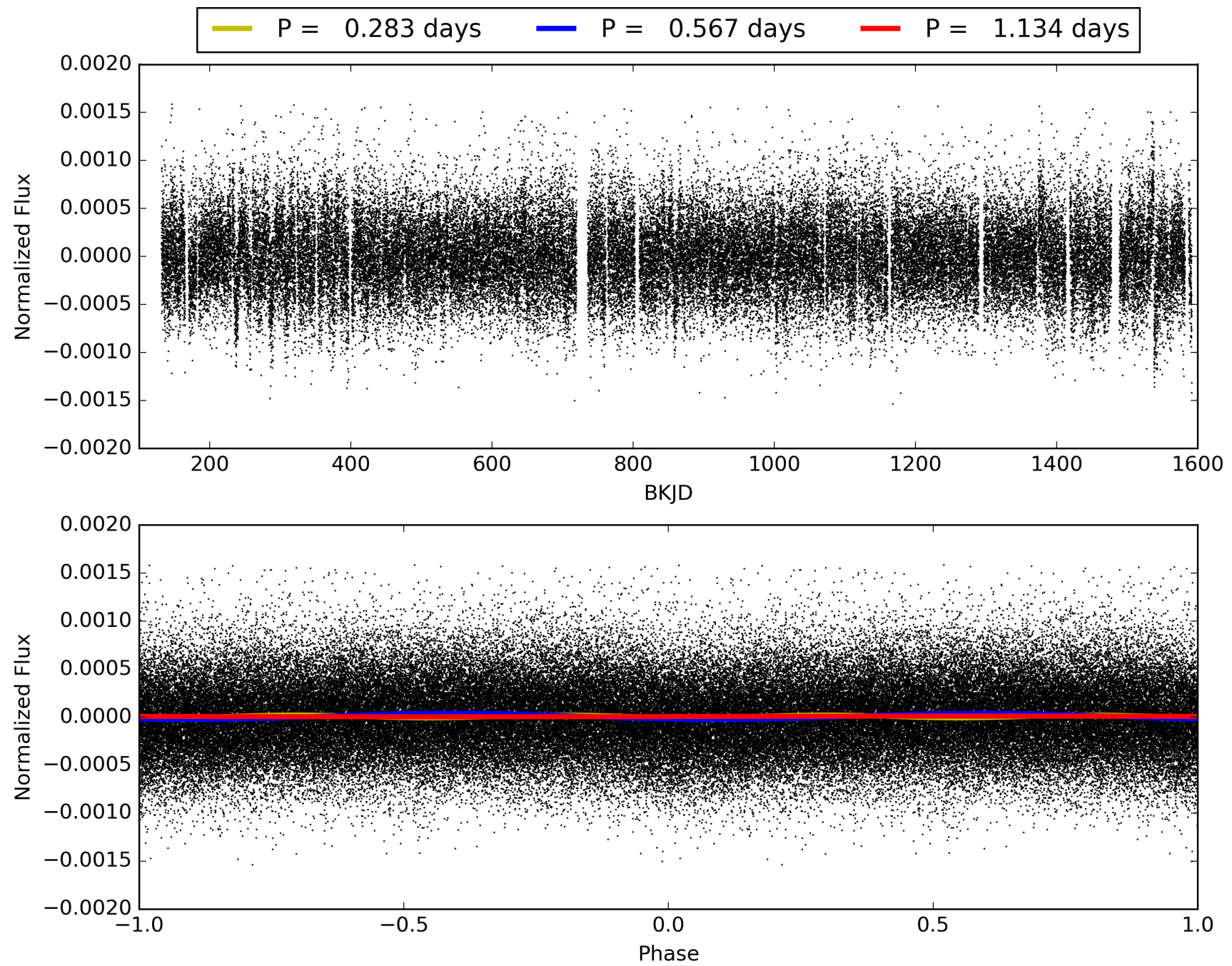
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:04:39 Z

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

# TCE 007031573-01, PDC Light Curves



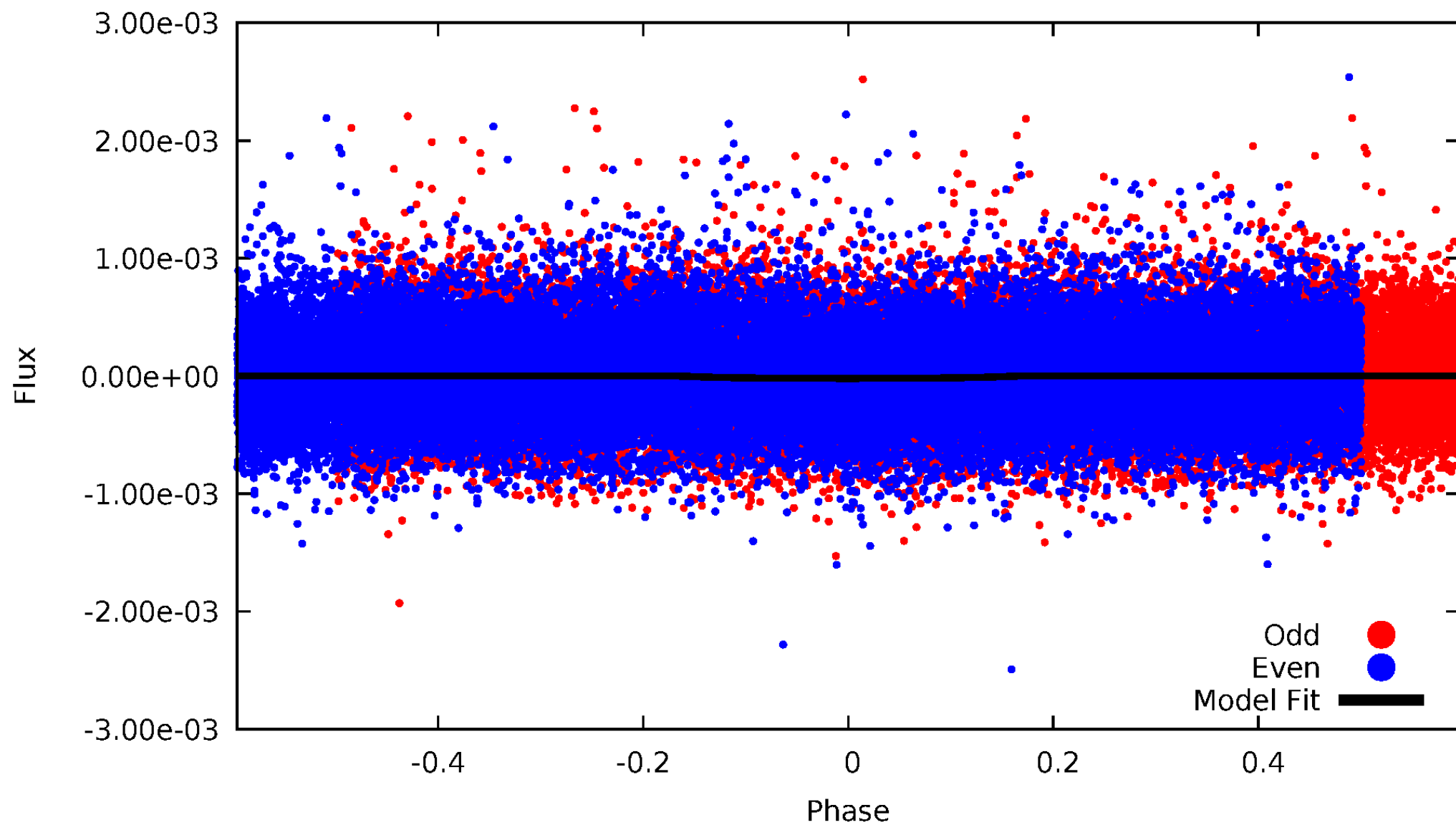
TCE 007031573-01





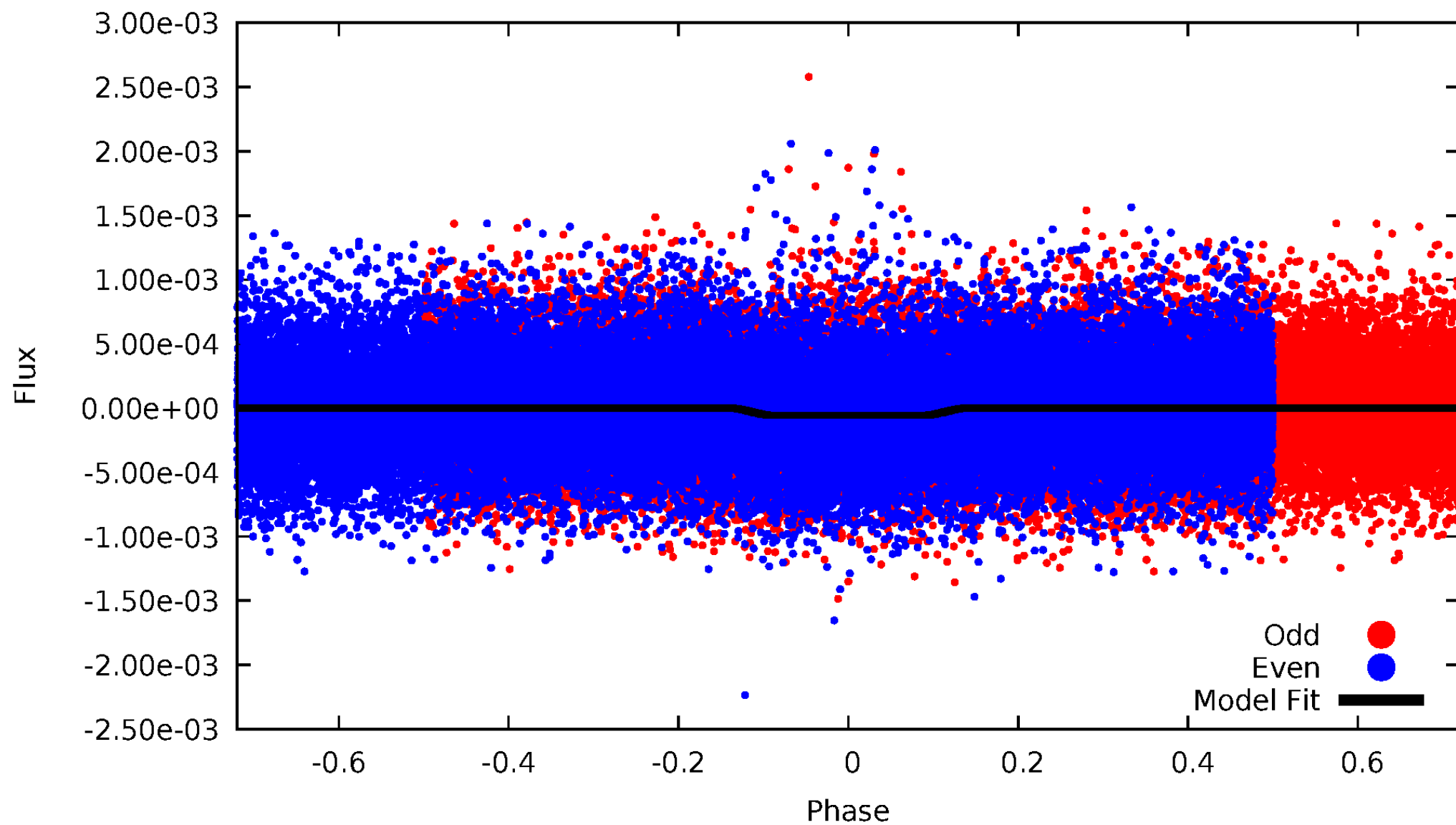
# DV Odd/Even

TCE 007031573-01



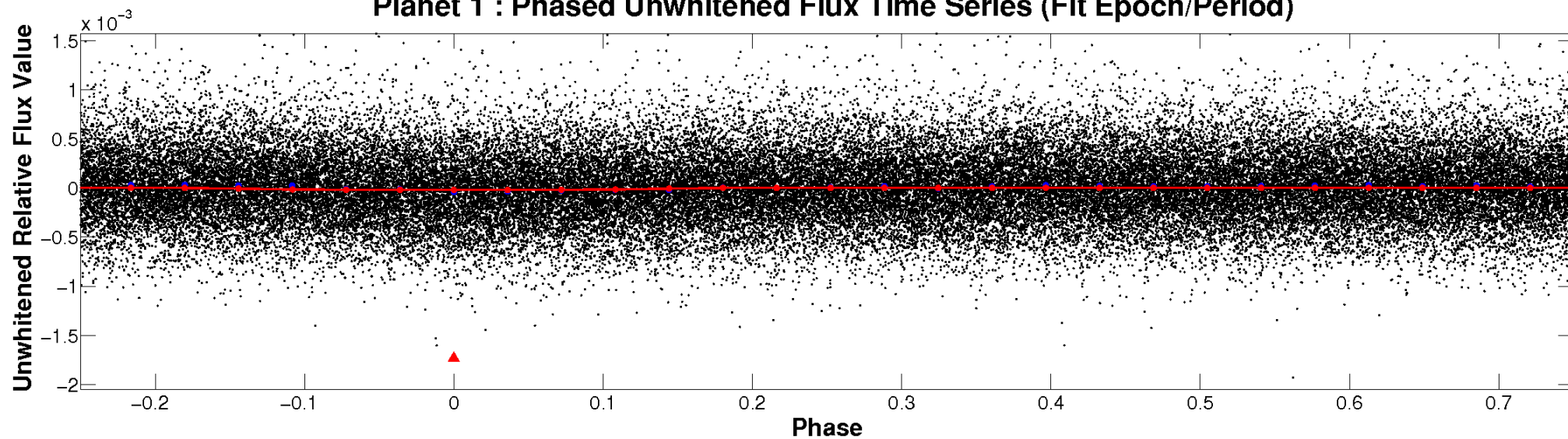
# ALT Odd/Even

TCE 007031573-01

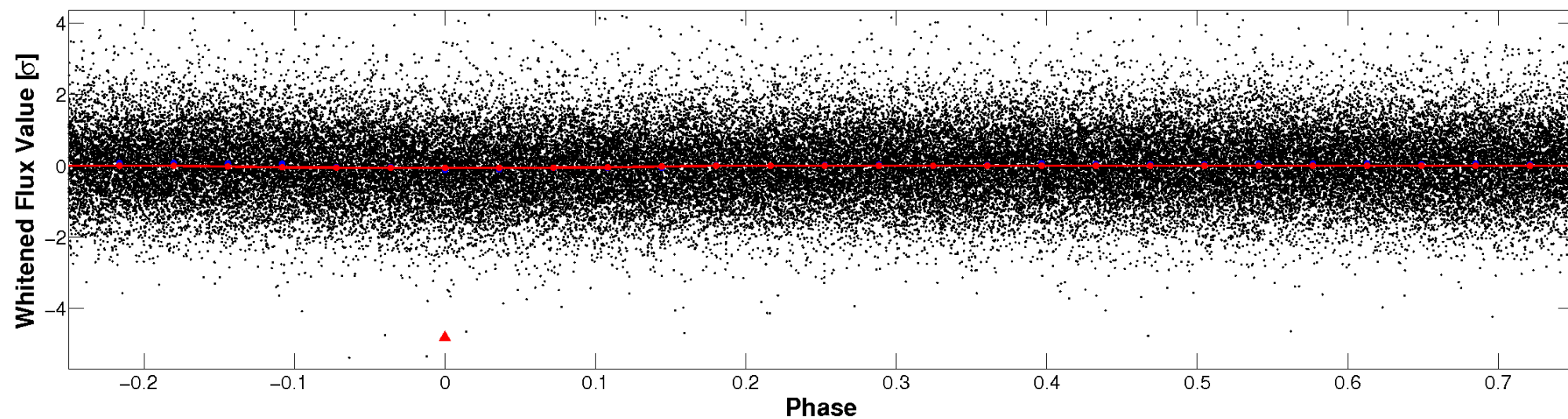


# Non-Whitened Vs. Whitened Light Curve

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

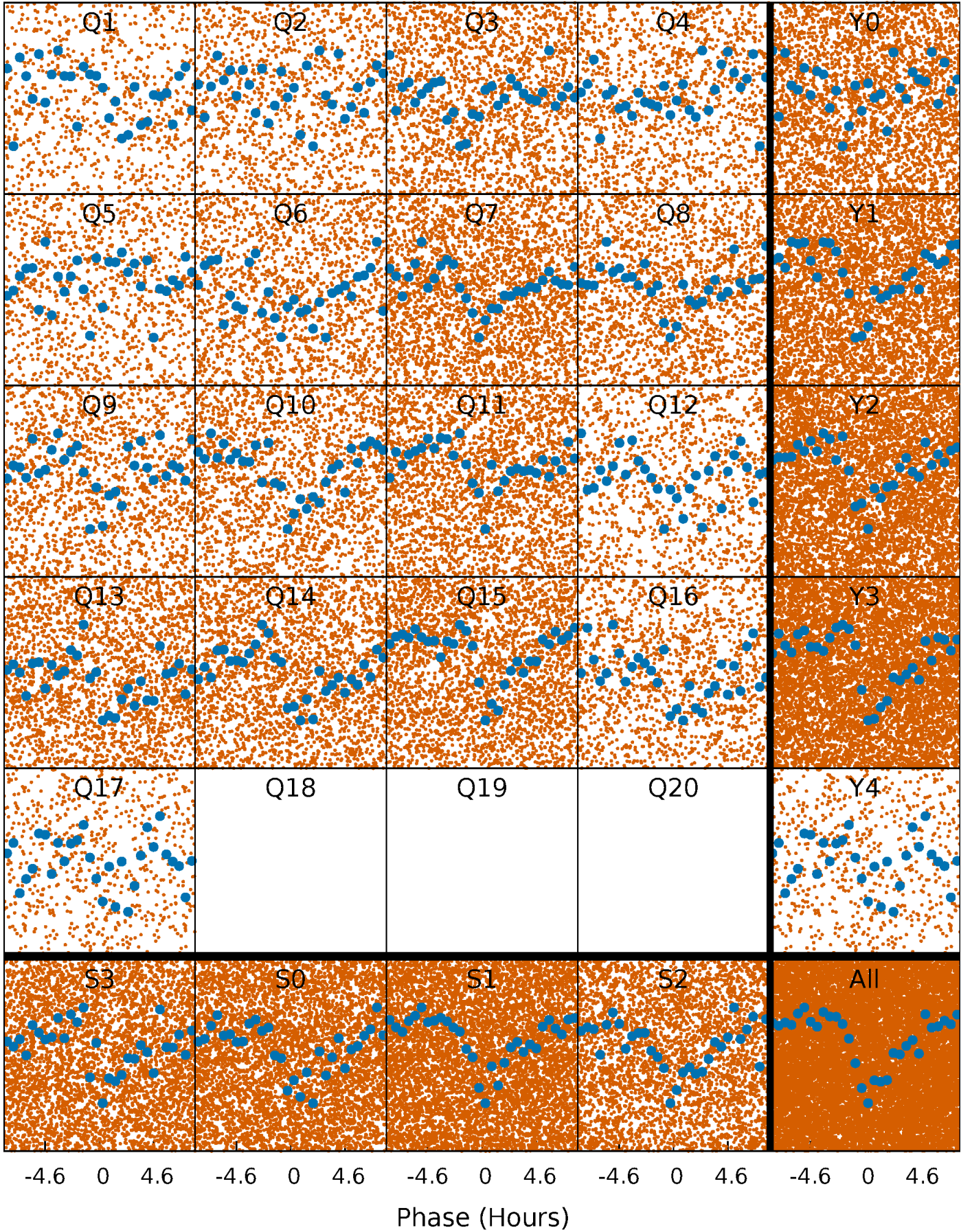


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

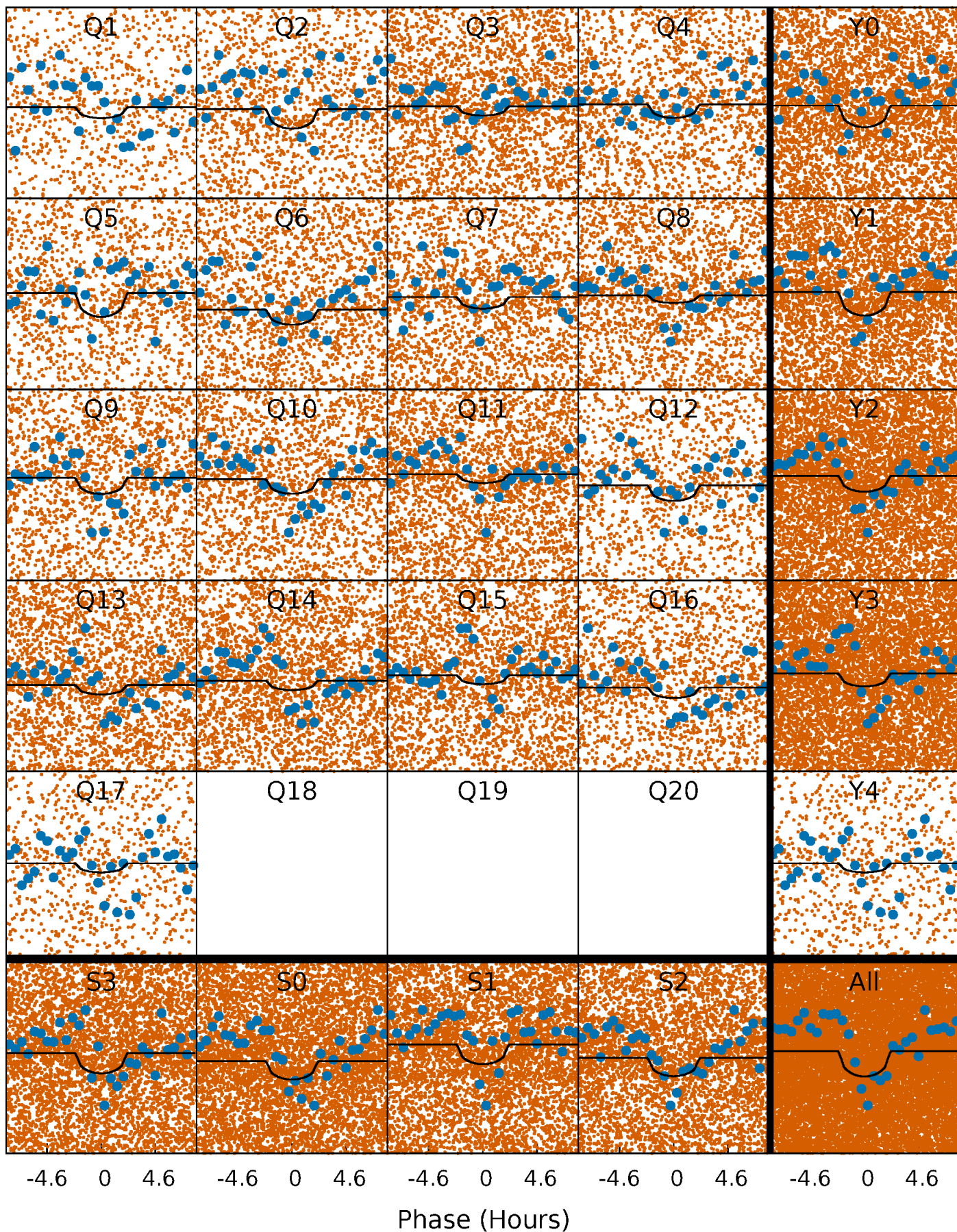
TCE 007031573-01 P= 0.566761 Days  $T_0=131.858244$  (BKJD)





# DV Quarter-Phased Transit Curves

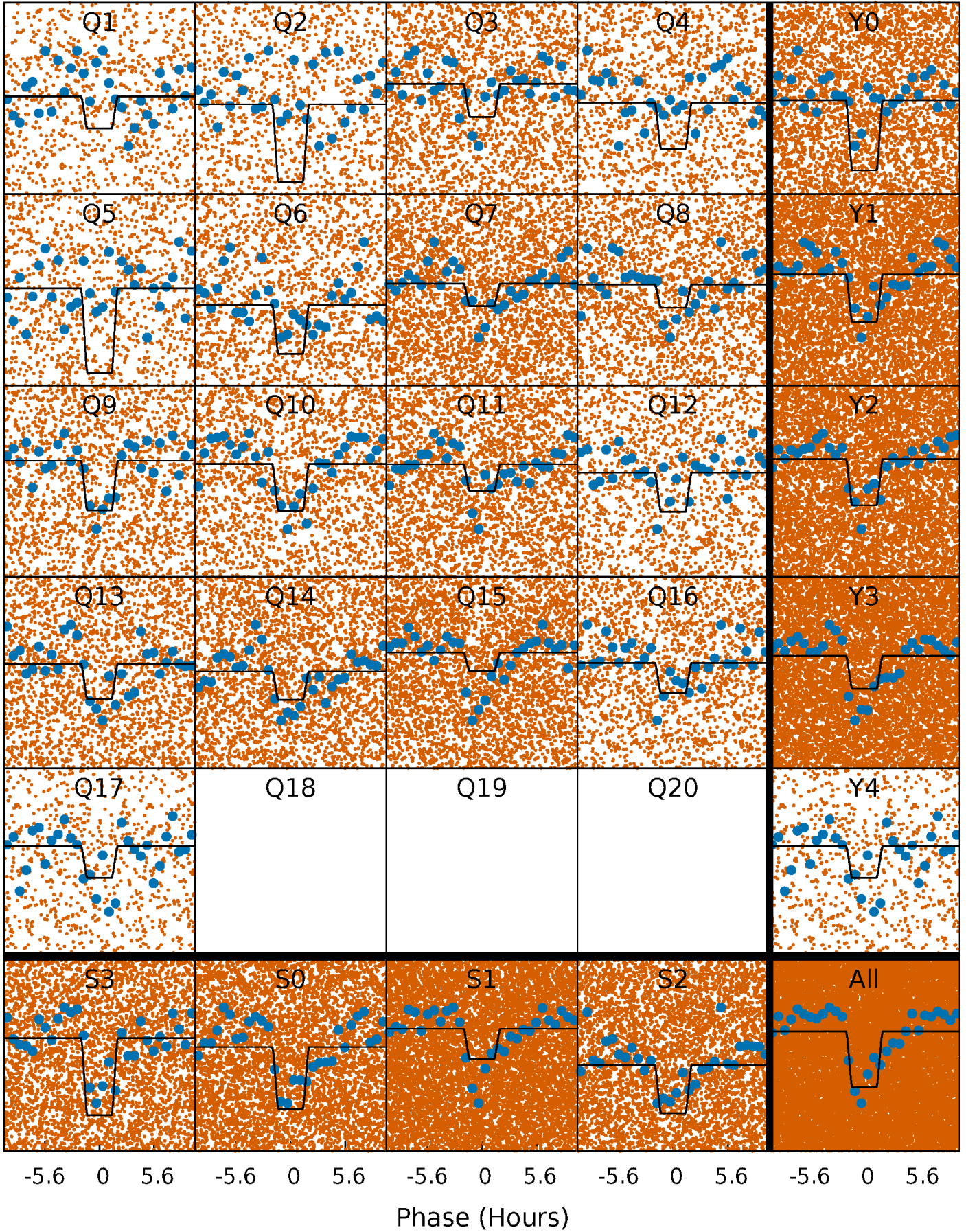
TCE 007031573-01 P= 0.566761 Days  $T_0=131.858244$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

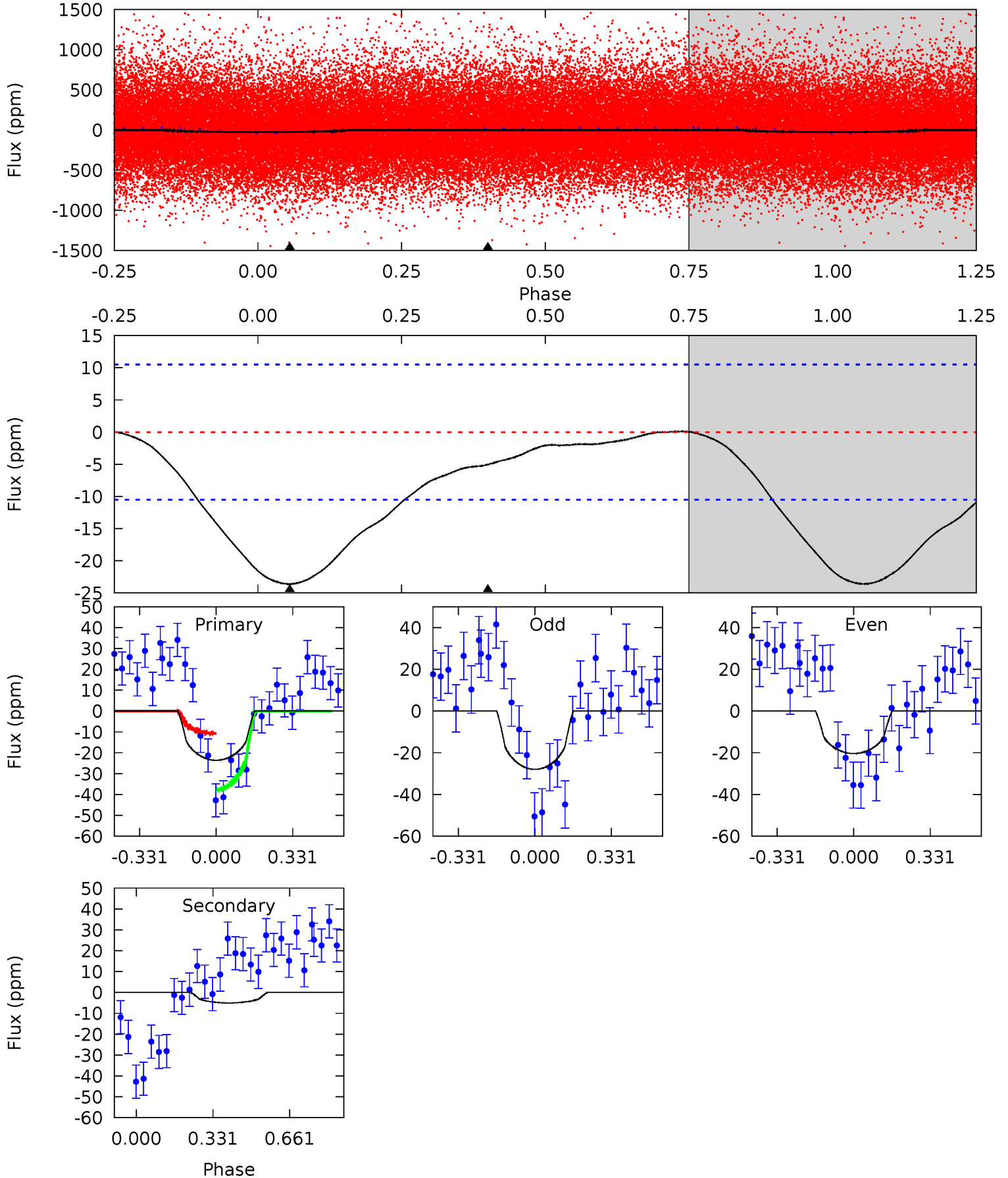
TCE 007031573-01 P= 0.566808 Days  $T_0=131.810219$  (BKJD)



# DV Model-Shift Uniqueness Test

007031573-01, P = 0.566761 Days, E = 131.291483 Days

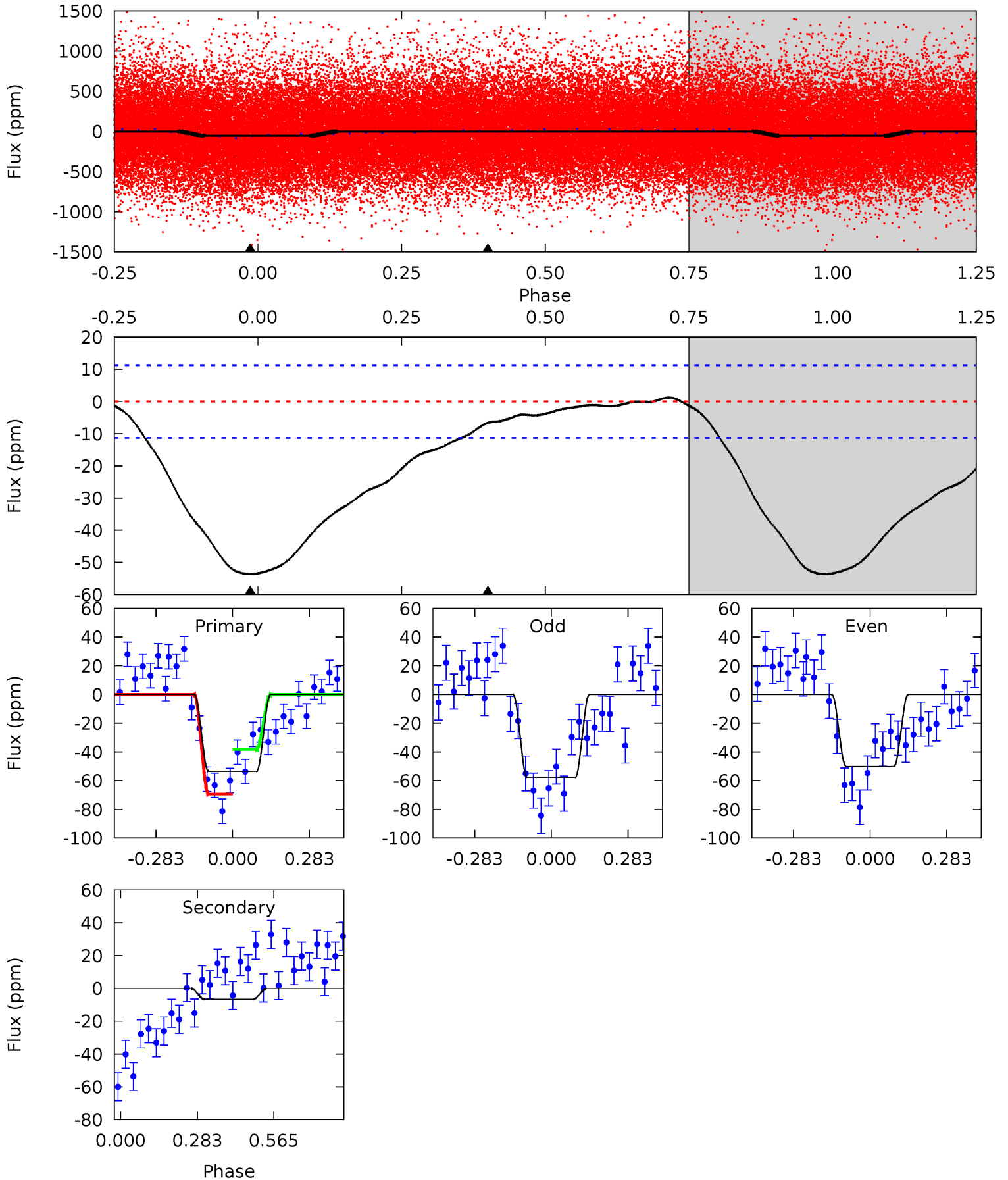
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.68	2.07	0	0	4.31	0.97	0.07	9.68	9.68	2.07	2.07	1.55	0.88	0.00	5.51



# Alt Model-Shift Uniqueness Test

007031573-01, P = 0.566808 Days, E = 131.243411 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
20.6	2.56	0	0	4.34	1.07	0.20	20.6	20.6	2.56	2.56	1.47	0.92	0.02	5.94





### Stellar Parameters For KIC 007031573

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4931^{+148}_{-133}$	$4.539^{+0.072}_{-0.044}$	$-0.040^{+0.300}_{-0.300}$	$0.767^{+0.056}_{-0.077}$	$0.743^{+0.085}_{-0.054}$	$2.317^{+0.699}_{-0.374}$
	+3%/-3%	+2%/-1%	+750%/-750%	+7%/-10%	+11%/-7%	+30%/-16%
Source	PHO1	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 007031573-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-5 \pm 2$	$0.50^{+0.48}_{-0.33}$	$2406^{+91}_{-86}$	$3267^{+1777}_{-1134}$	$1.453^{+11.731}_{-1.110}$
Alt.	$-7 \pm 3$	$0.73^{+0.43}_{-0.44}$	$2408^{+92}_{-77}$	$3060^{+1276}_{-945}$	$1.042^{+5.561}_{-0.705}$

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

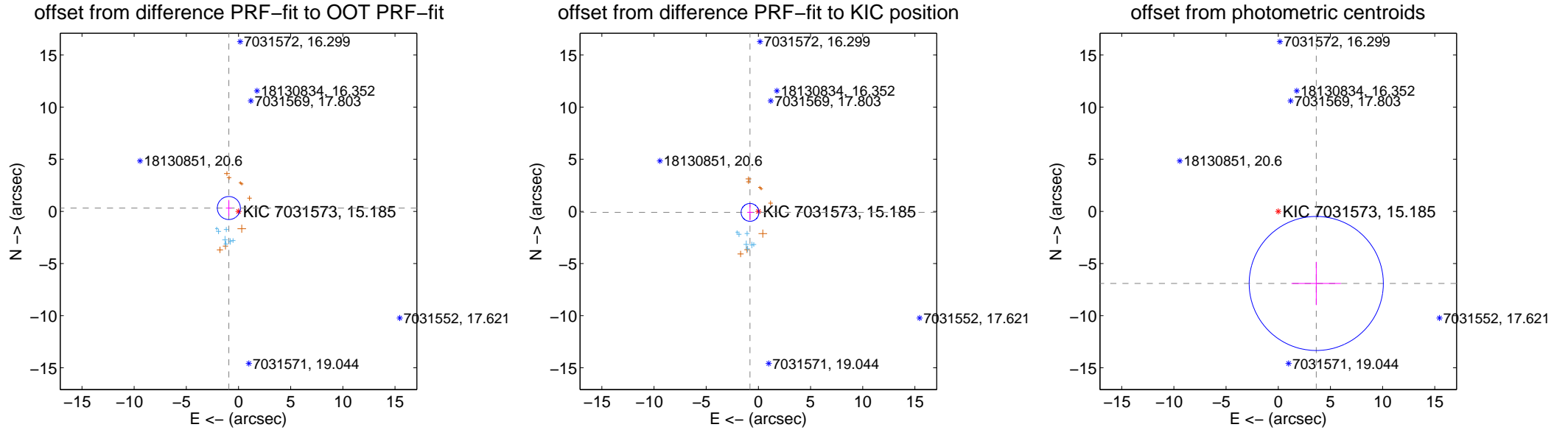
## DV Centroid Data

Supplemental centroid analysis for 007031573-01. Kepler magnitude: 15.19. Transit SNR 6.42

There are 7 quarters with good PRF difference image offsets

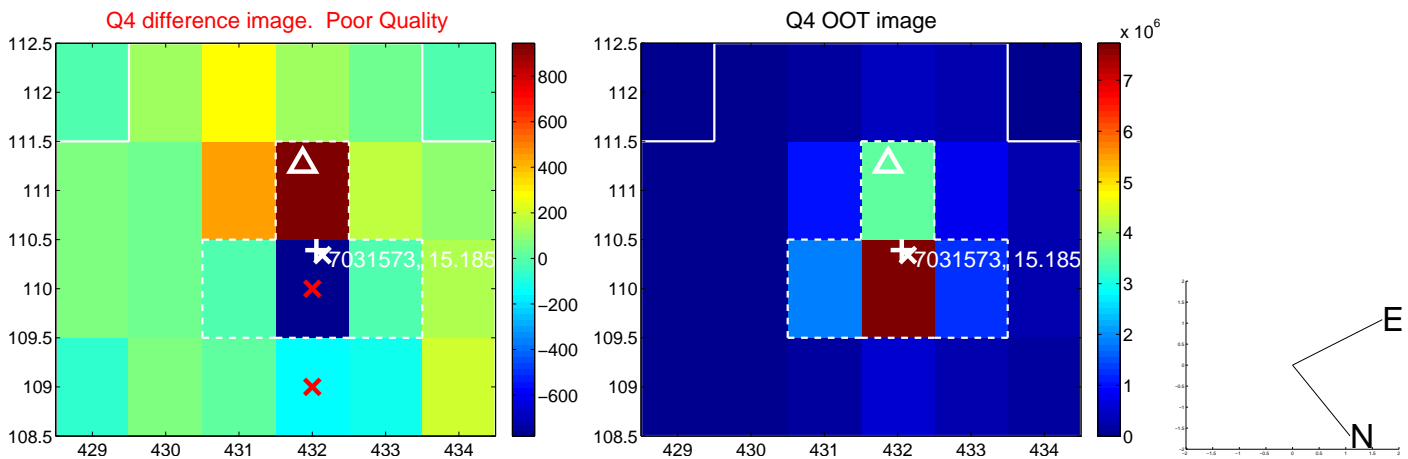
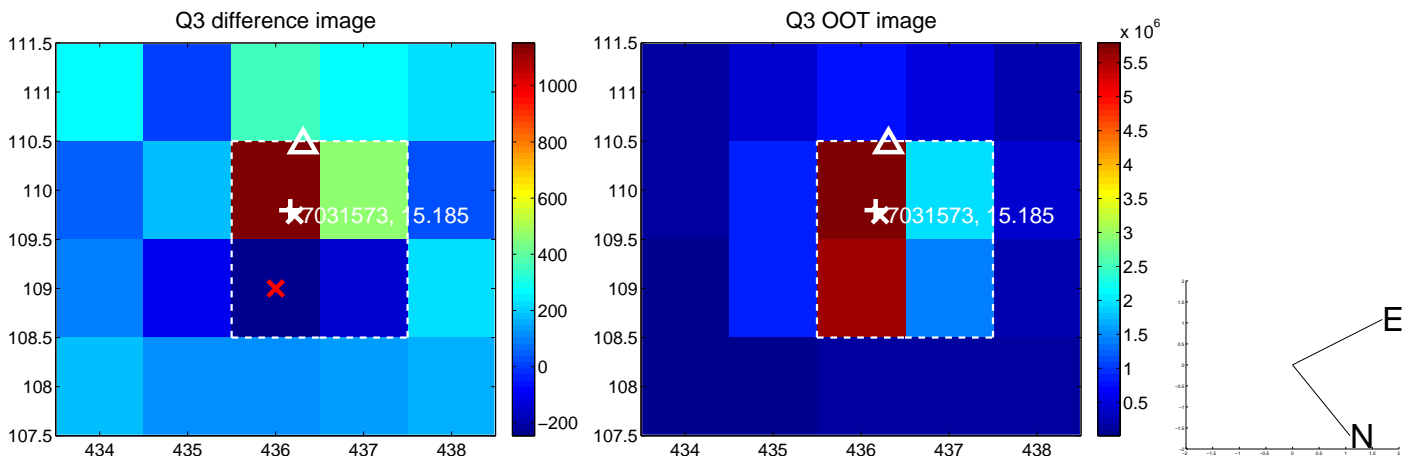
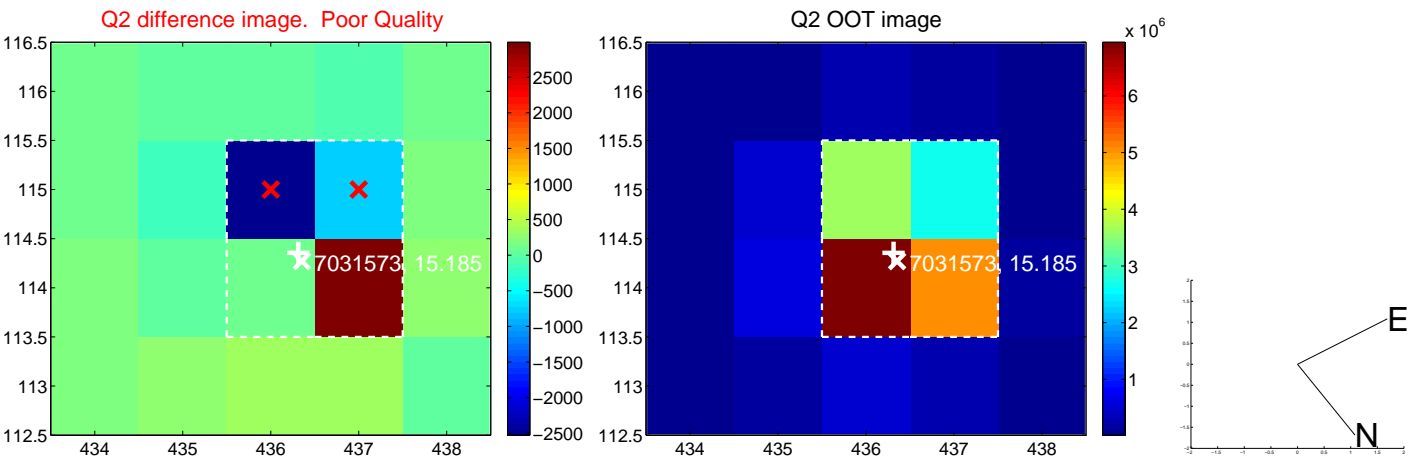
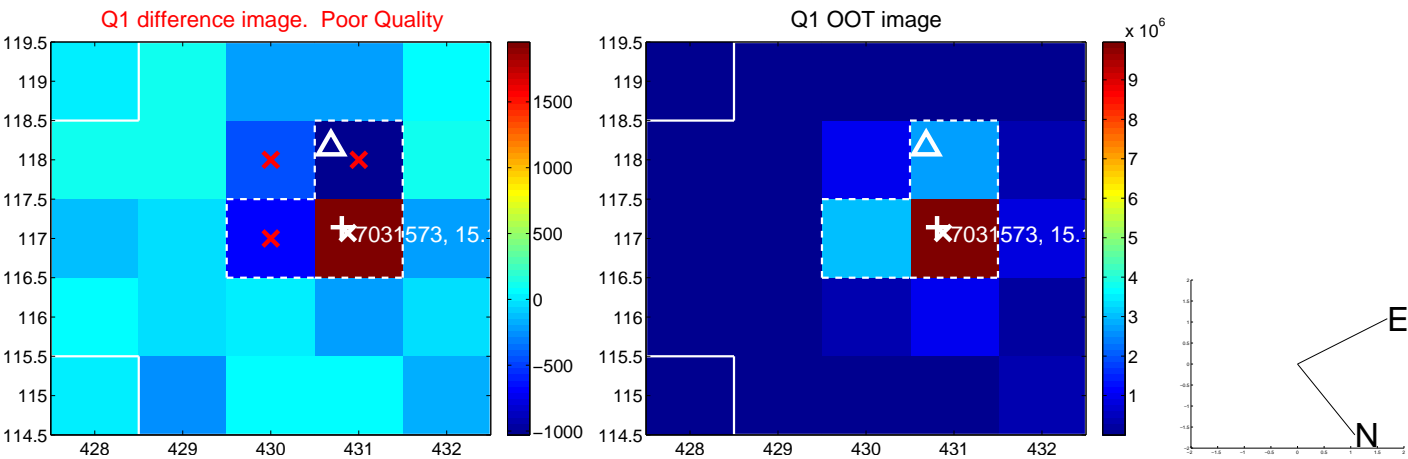
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.980 \pm 0.368$	2.66	$0.926 \pm 0.281$	$0.323 \pm 0.775$
PRF-fit source offset from KIC position	$0.807 \pm 0.285$	2.83	$0.801 \pm 0.271$	$-0.096 \pm 0.768$
photometric centroid source offset	$7.81 \pm 2.14$	3.65	$-3.64 \pm 2.37$	$-6.91 \pm 2.07$

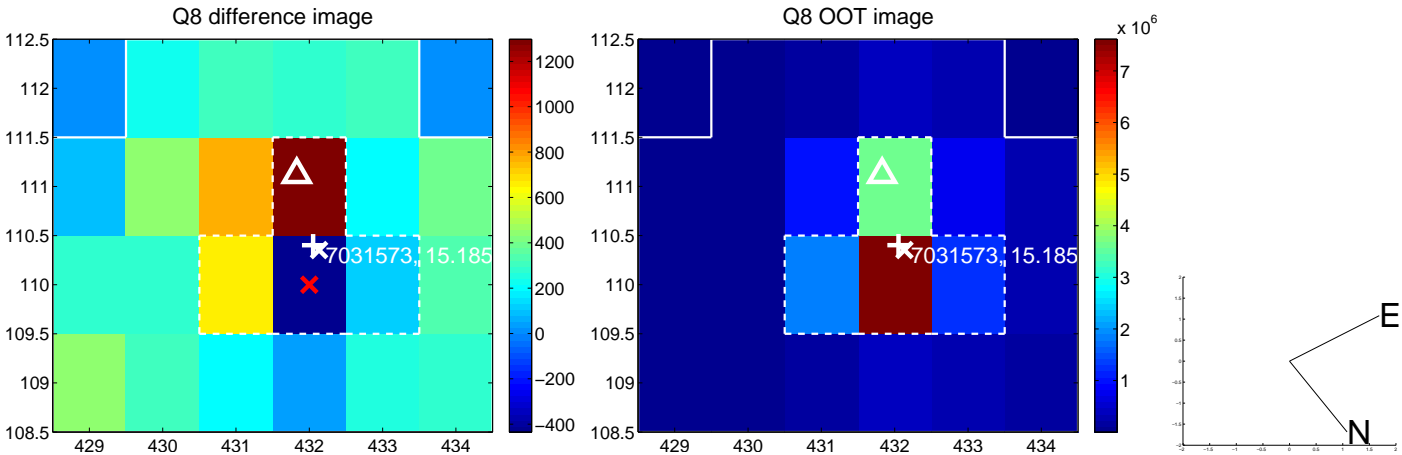
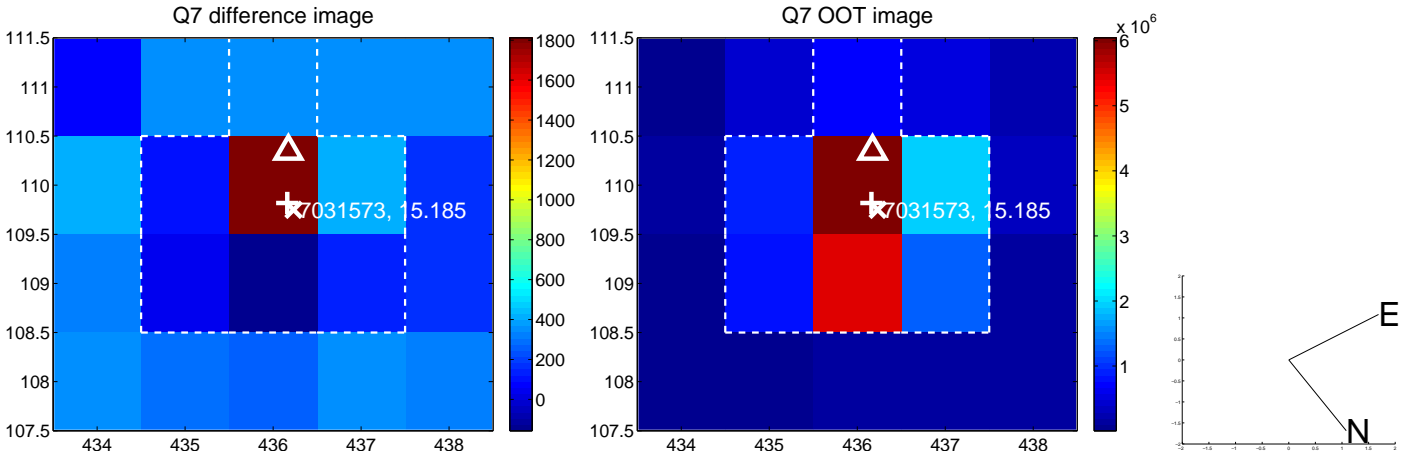
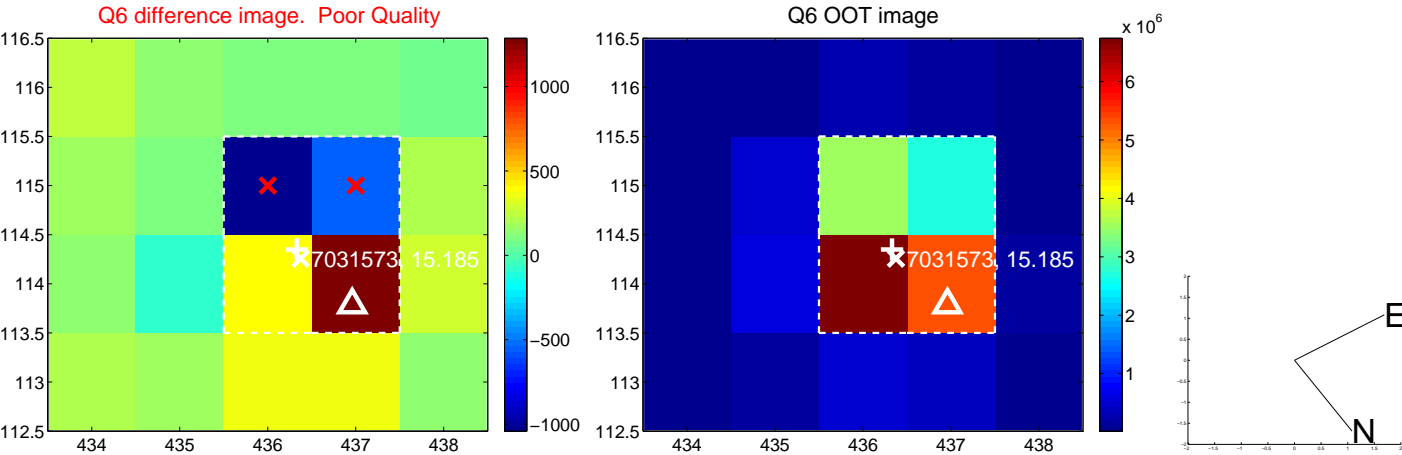
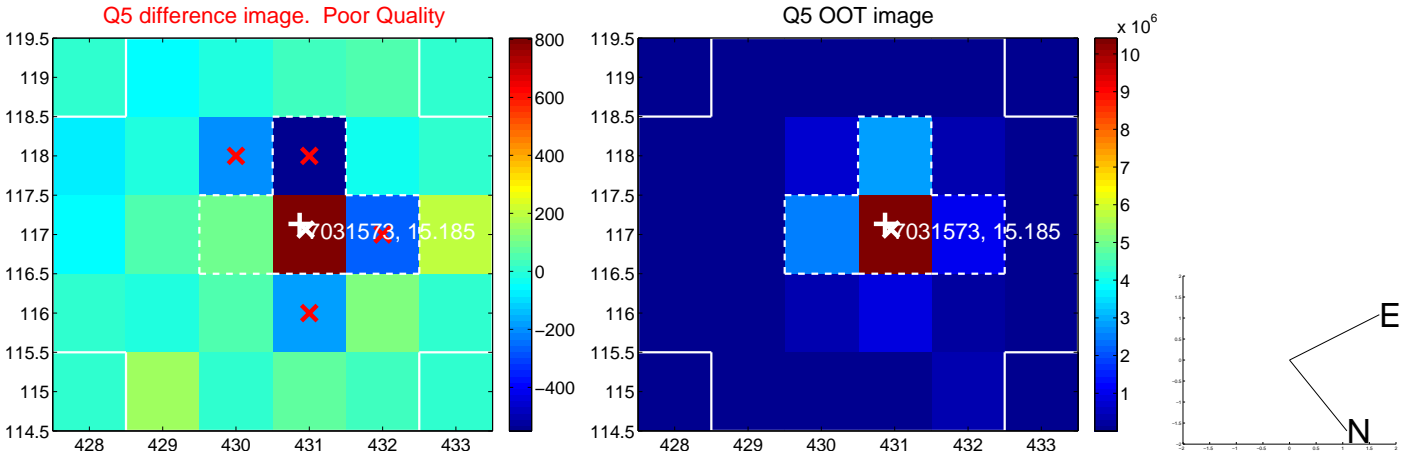


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

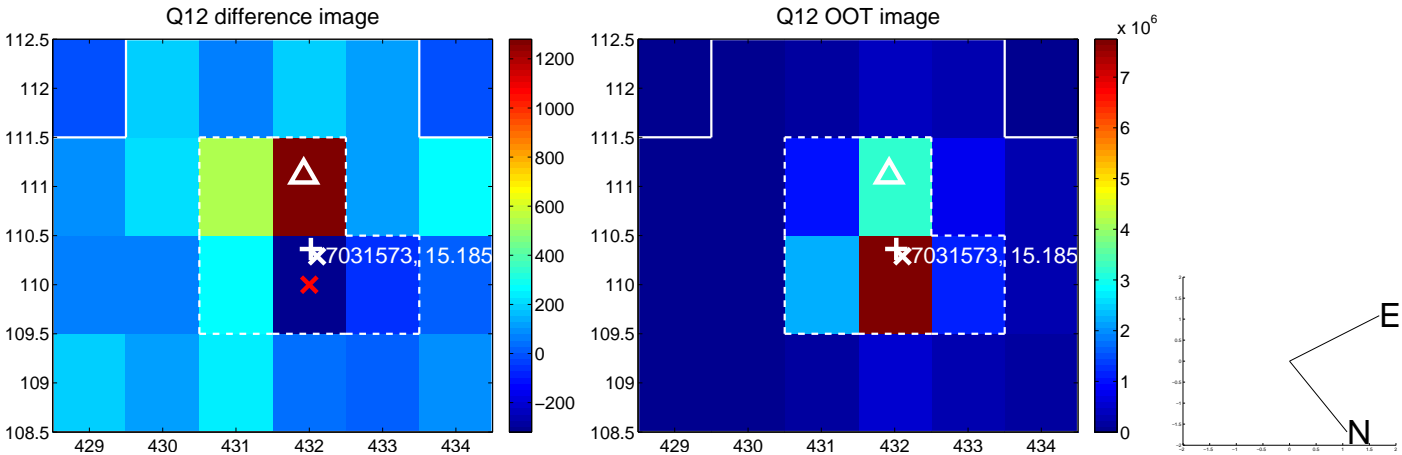
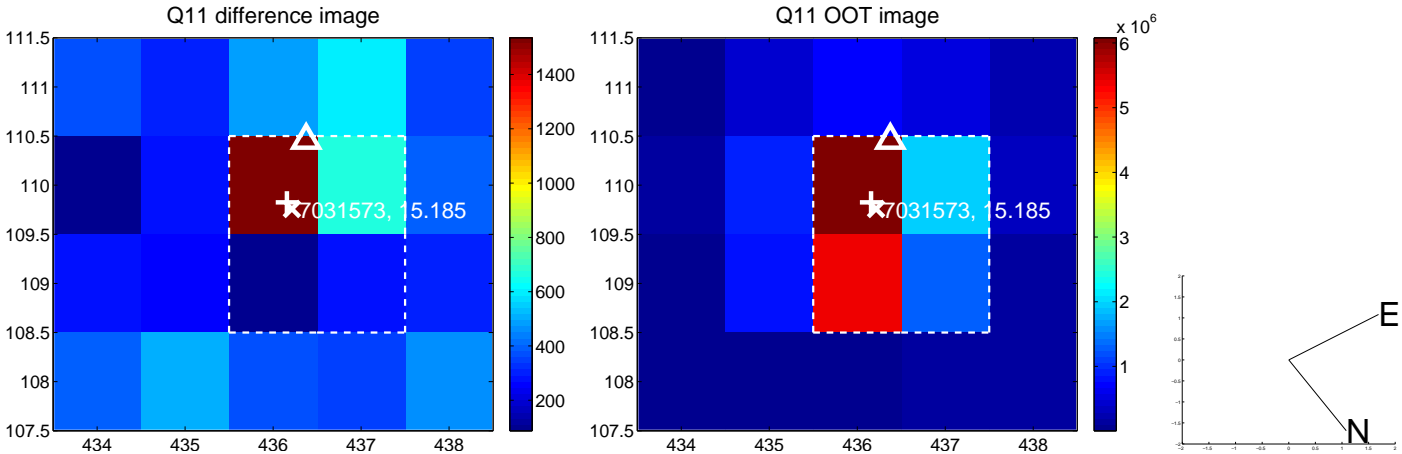
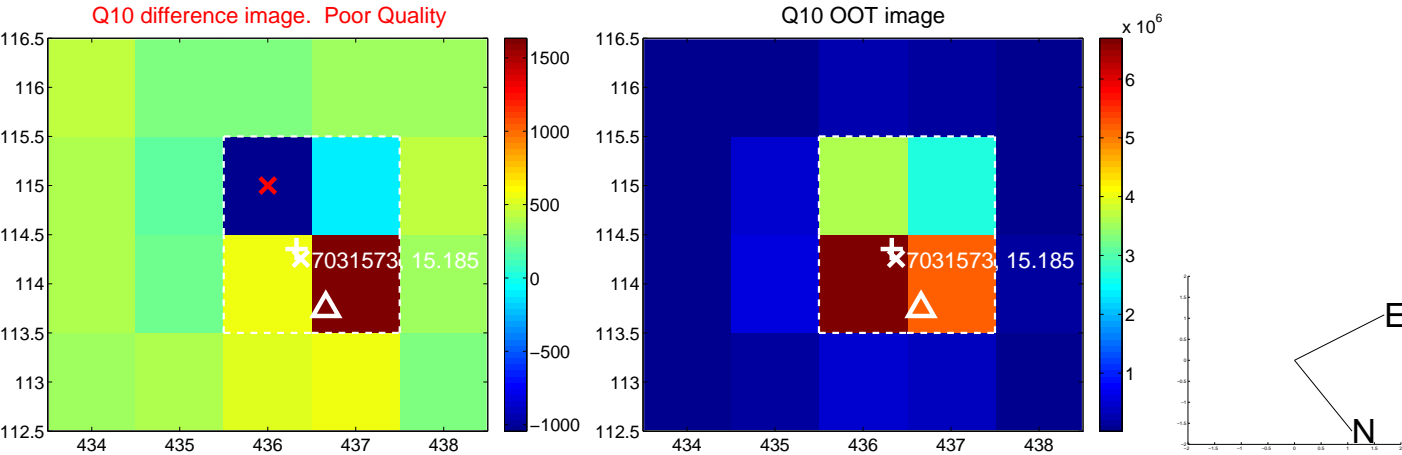
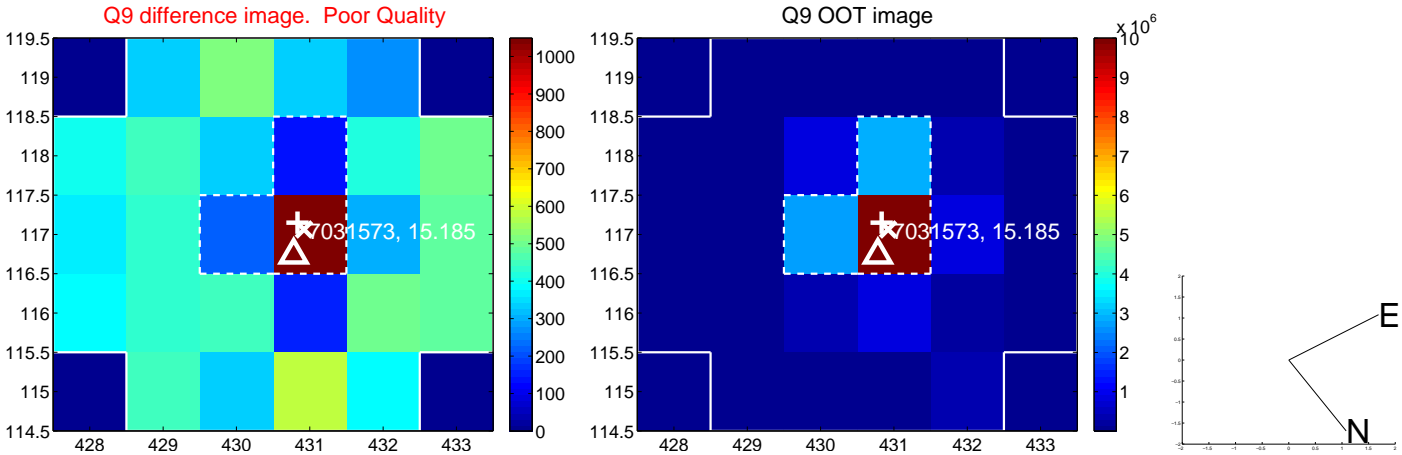


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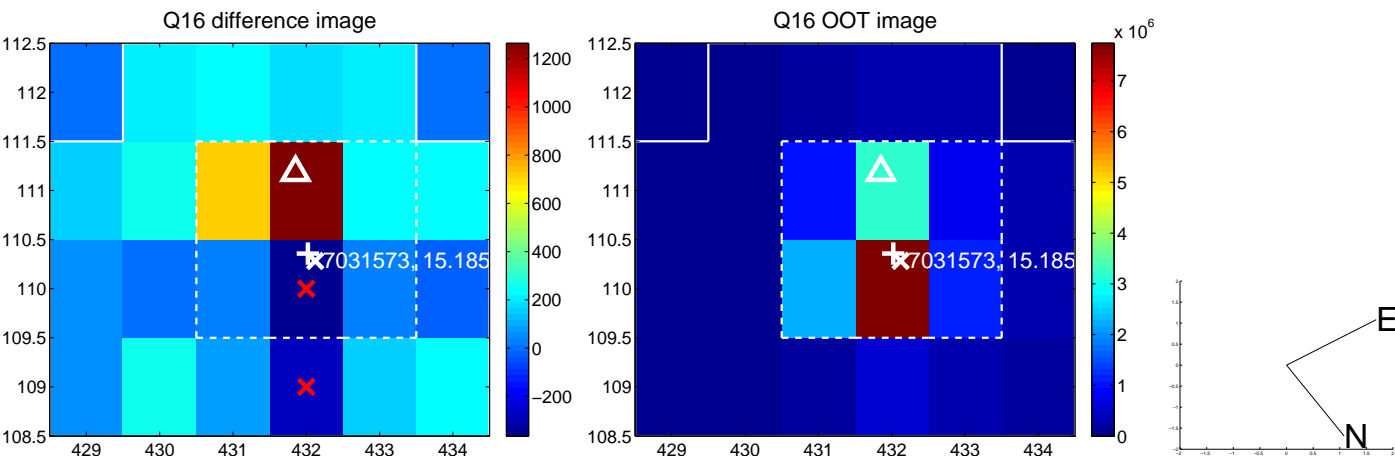
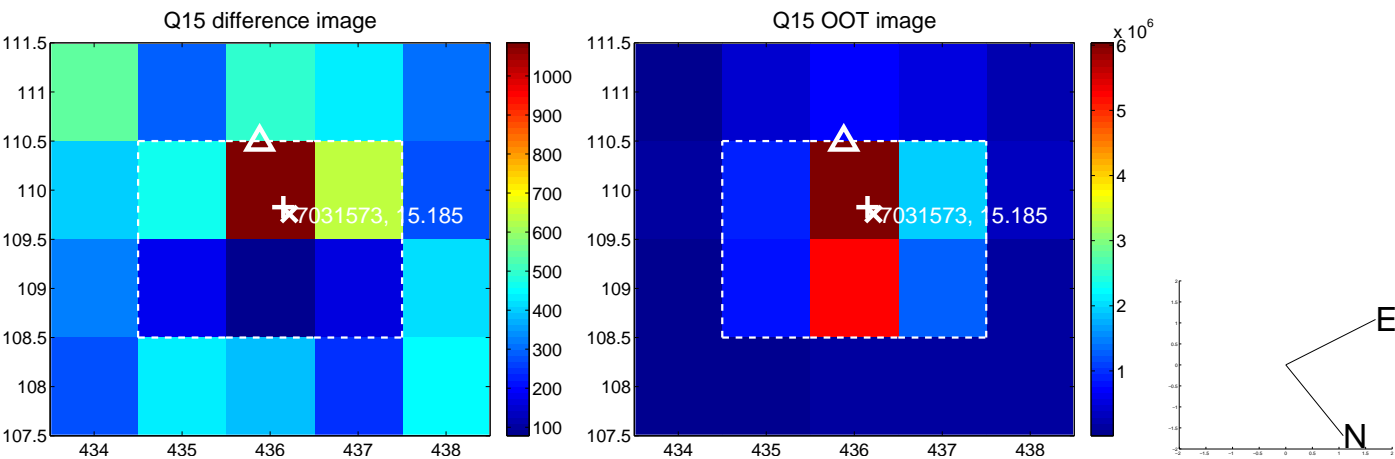
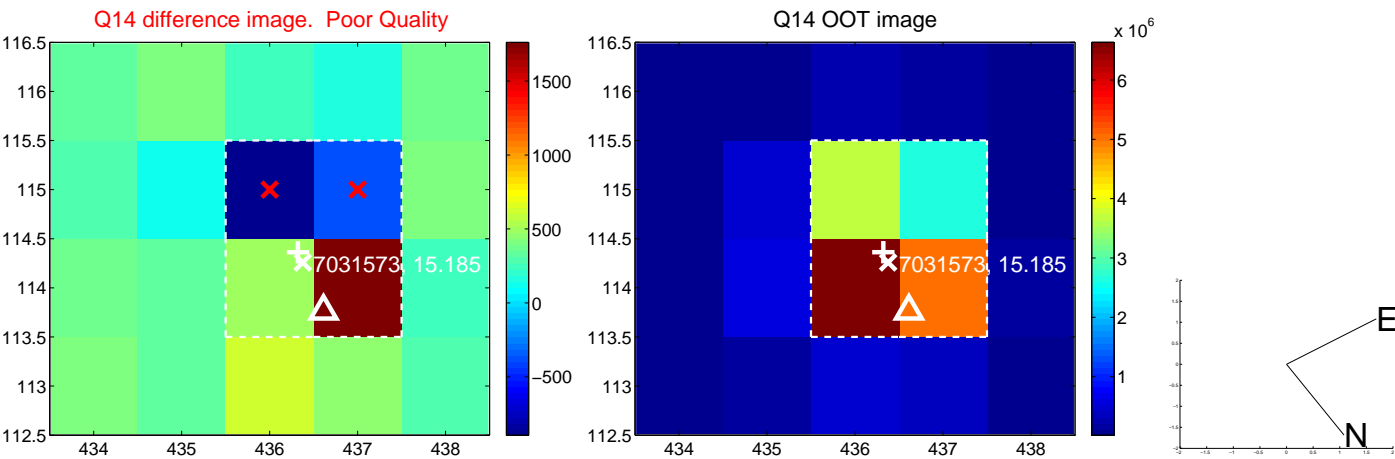
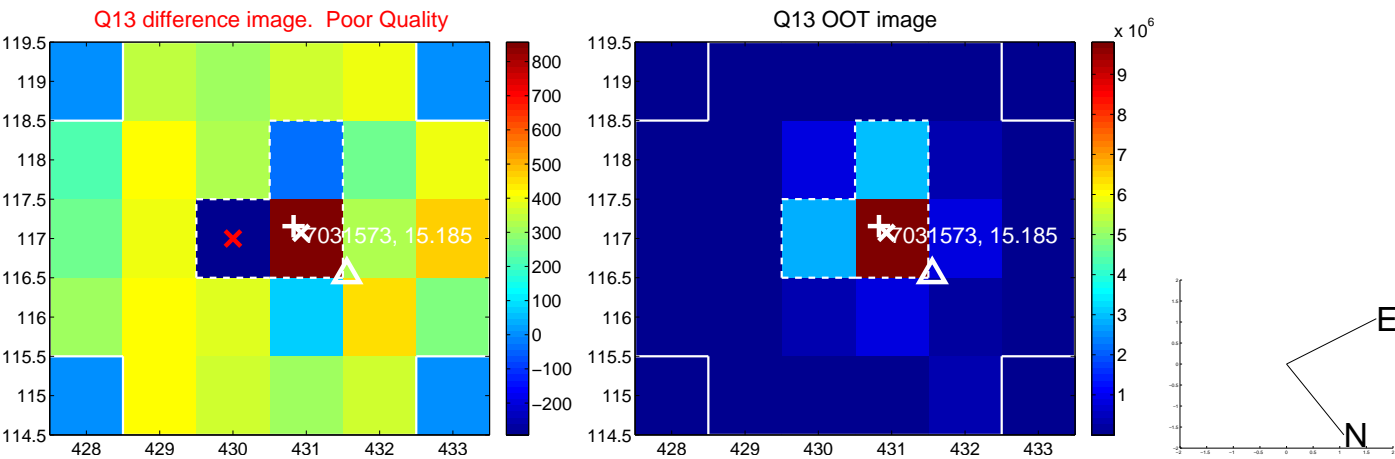




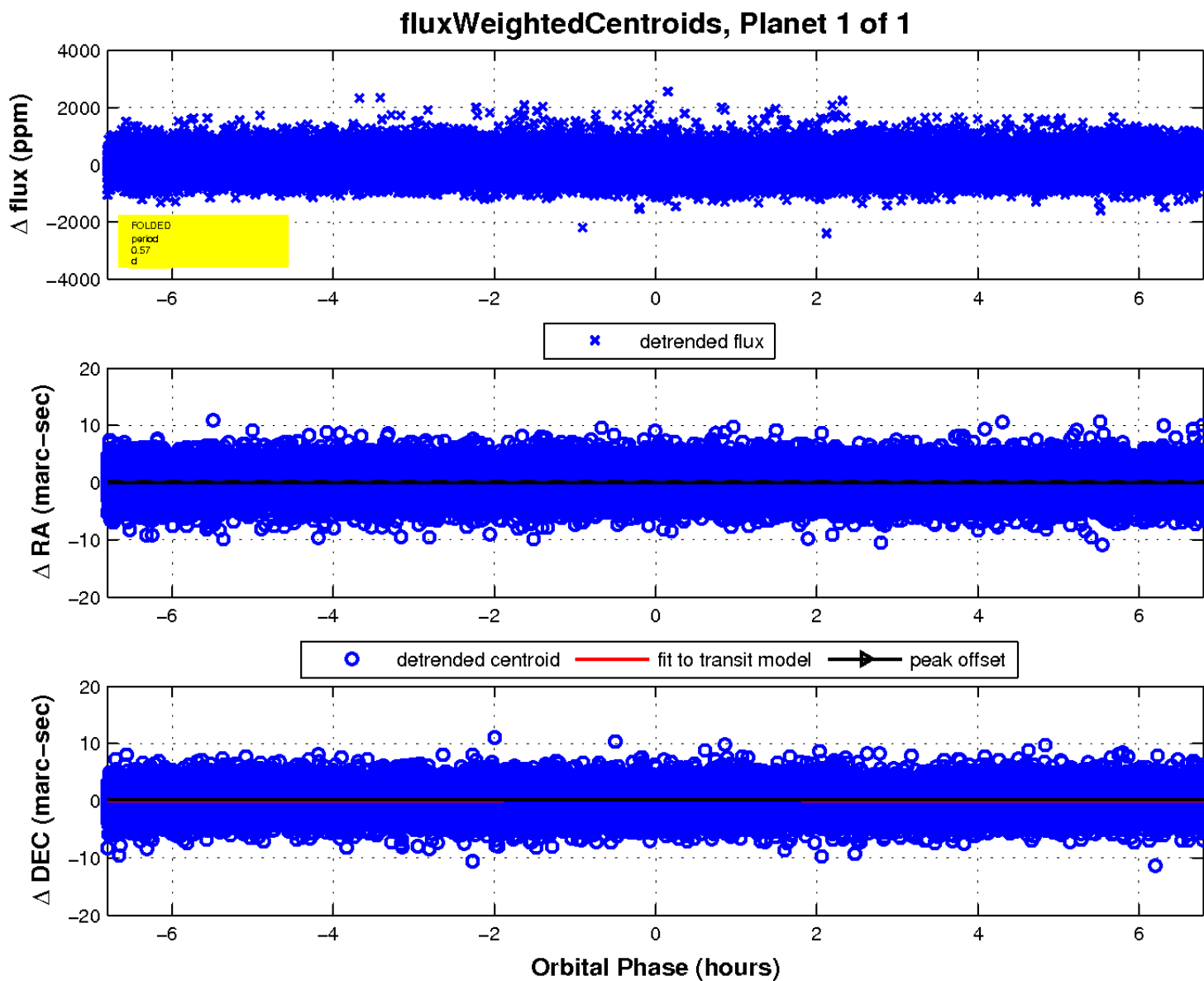
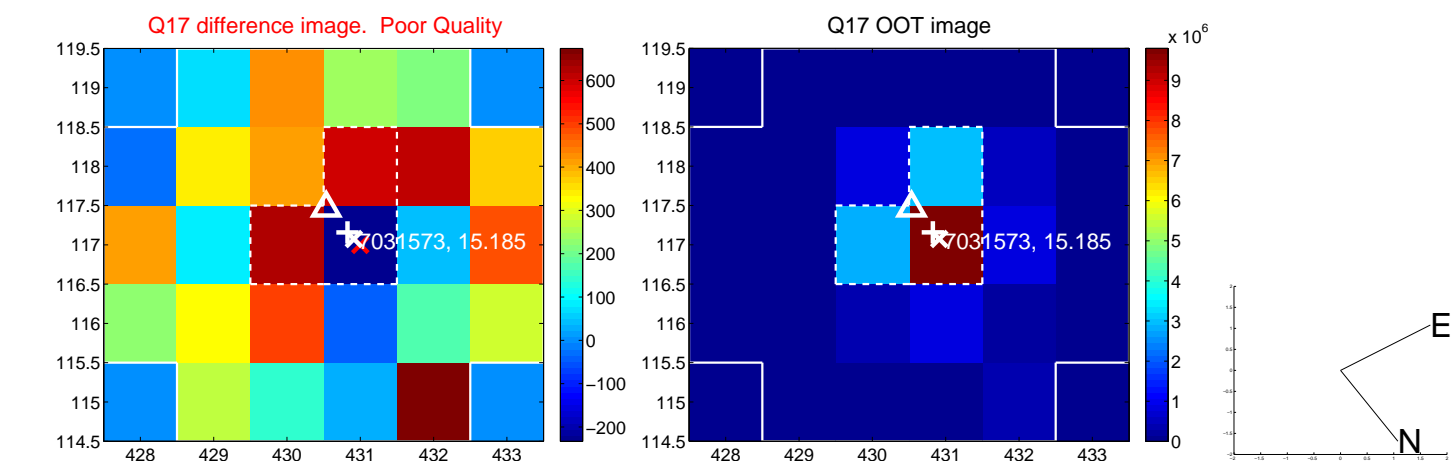
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

