

# KIC 005823557

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
005823557-01	OBS	7743.01	2.404351	133.249410	35.8	4.605	8.7	8.1	1.25	6398	0.87	1809.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005823557-01	OBS	FP	0.00	0	0	0	1	CENT_FEW_MEAS—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.

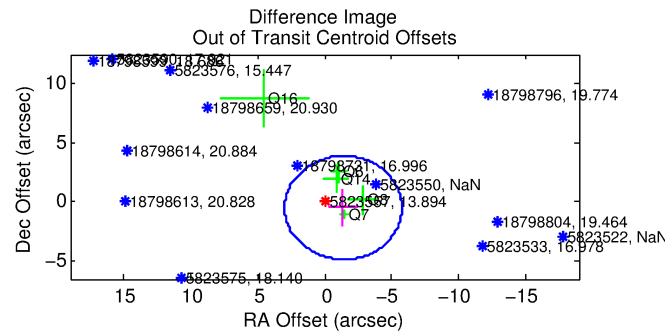
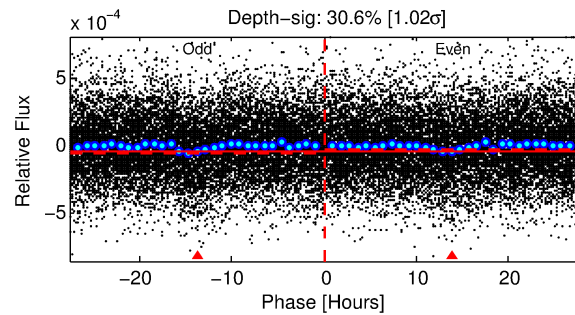
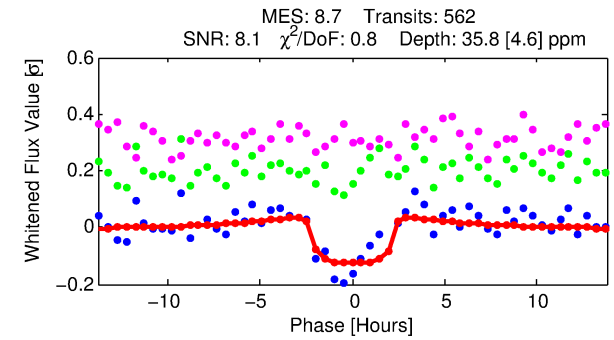
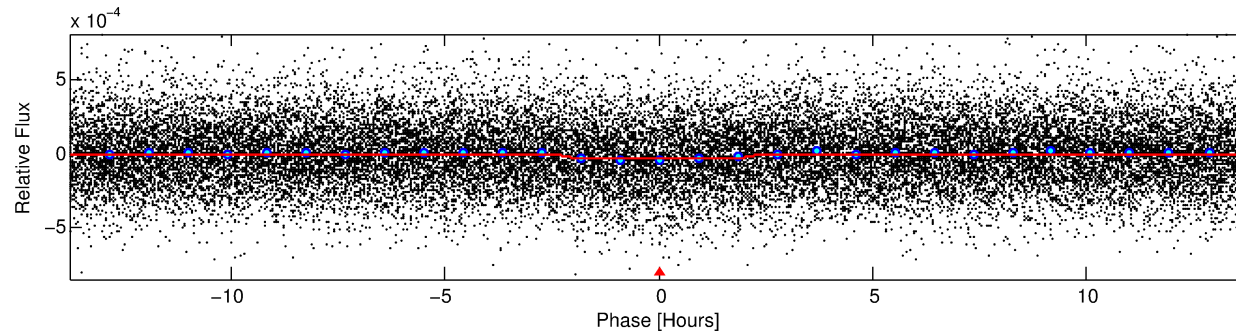
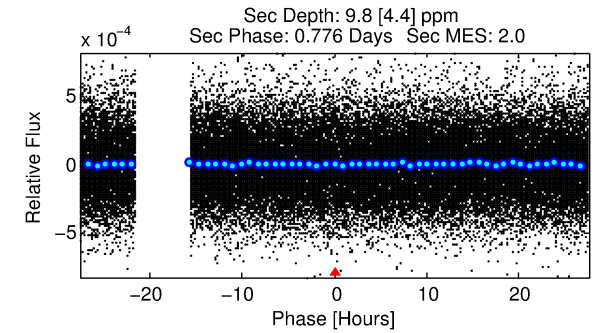
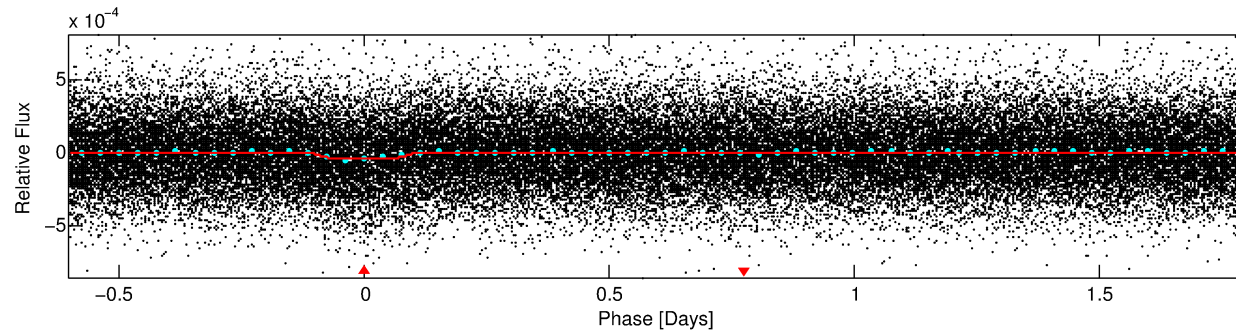
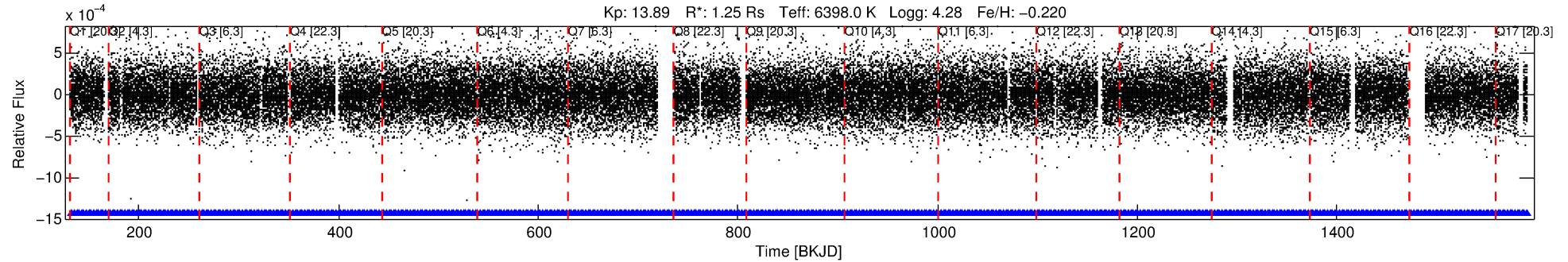
## Ephemeris Match Information For 005823557-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
005823557-01	5823557	6134.01	5738698	1:1	533.0	134	0	11.94	13.89	8898.90	Col-Anomaly	0	1.01	2.06

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol 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. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 5823557 Candidate: 1 of 1 Period: 2.404 d



## DV Fit Results:

Period = 2.40435 [0.00002] d  
Epoch = 133.2494 [0.0057] BKJD  
Rp/R\* = 0.0064 [0.0029]  
a/R\* = 2.03 [3.90]  
b = 0.90 [0.54]  
Seff = 1809.04 [703.95]  
Teff = 1663 [162] K  
Rp = 0.87 [0.47] Re  
a = 0.0360 [0.0091] AU  
Ag = 9.15 [9.75] [0.84σ]  
Teffp = 4471 [1130] K [2.46σ]

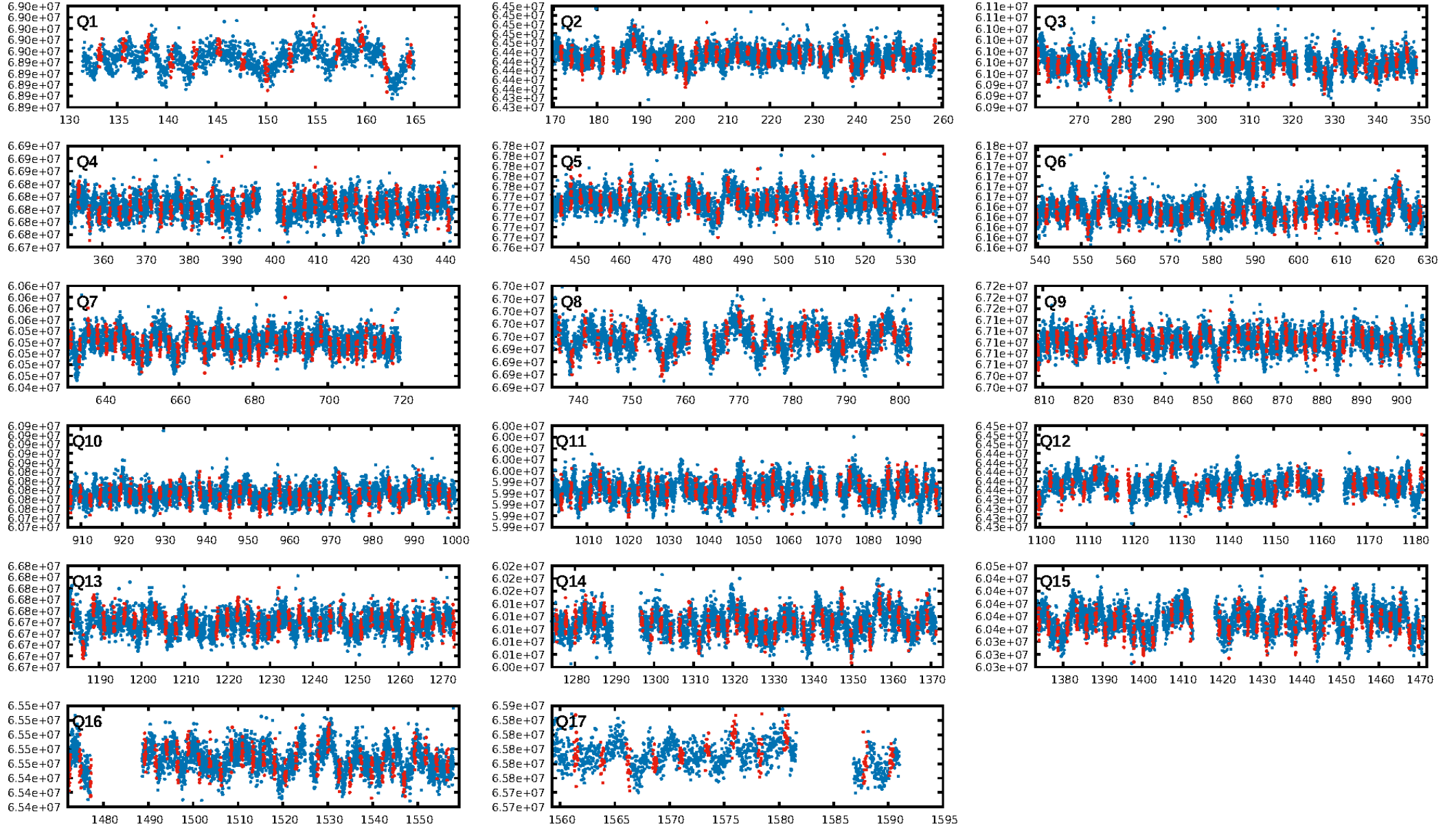
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.34e-18  
RollingBand-fgt: 1.00 [537/537]  
GhostDiagnostic-chr: -0.4509  
Centroid-sig: 28.2%  
Centroid-so: 2.958 arcsec [1.80σ]  
OotOffset-rm: 1.469 arcsec [1.01σ]  
KicOffset-rm: 1.513 arcsec [0.96σ]  
OotOffset-st: 2/1/2/0 [5]  
KicOffset-st: 2/1/2/0 [5]  
DiffImageQuality-fgm: 0.40 [2/5]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:12:55 Z

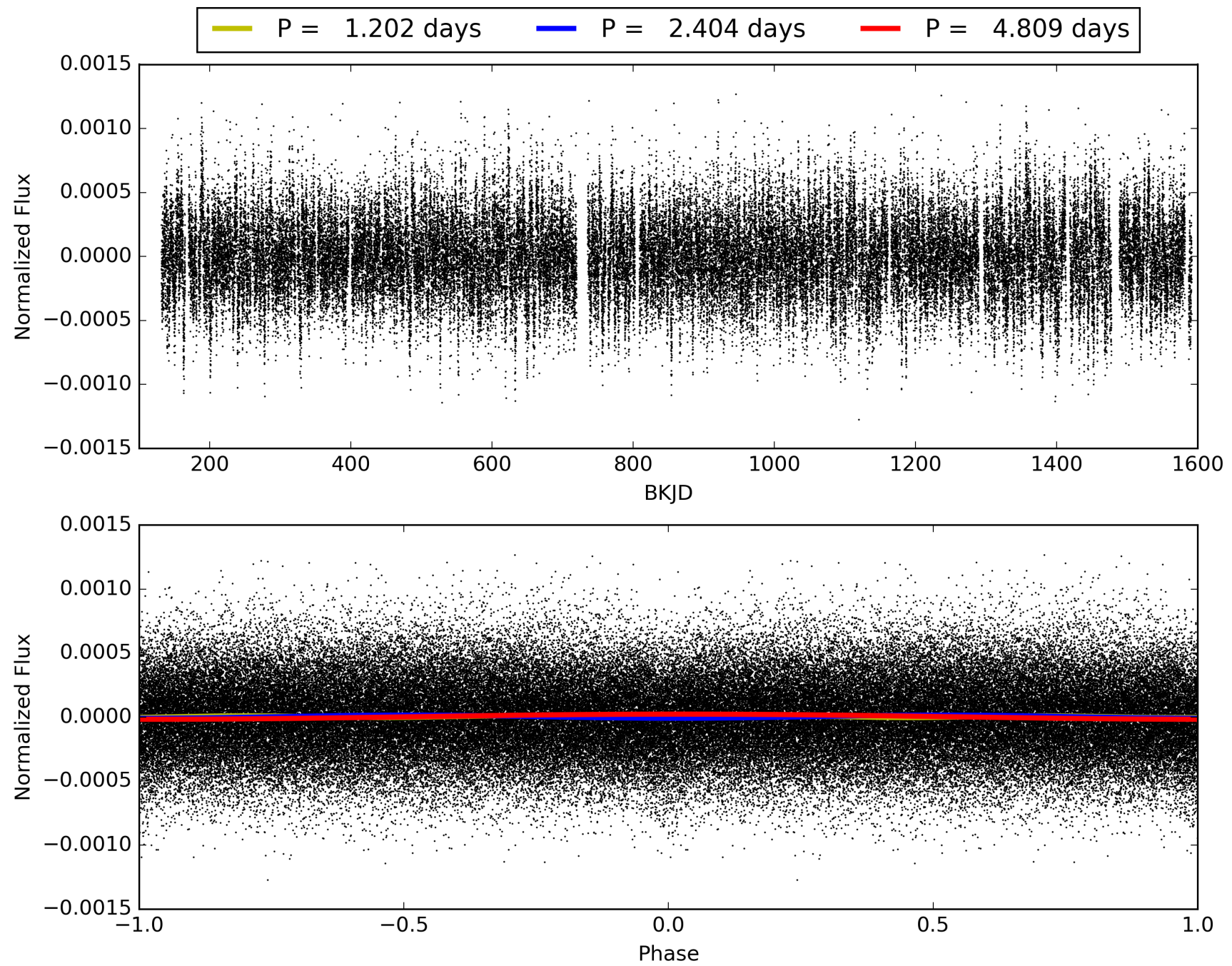
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005823557-01, PDC Light Curves



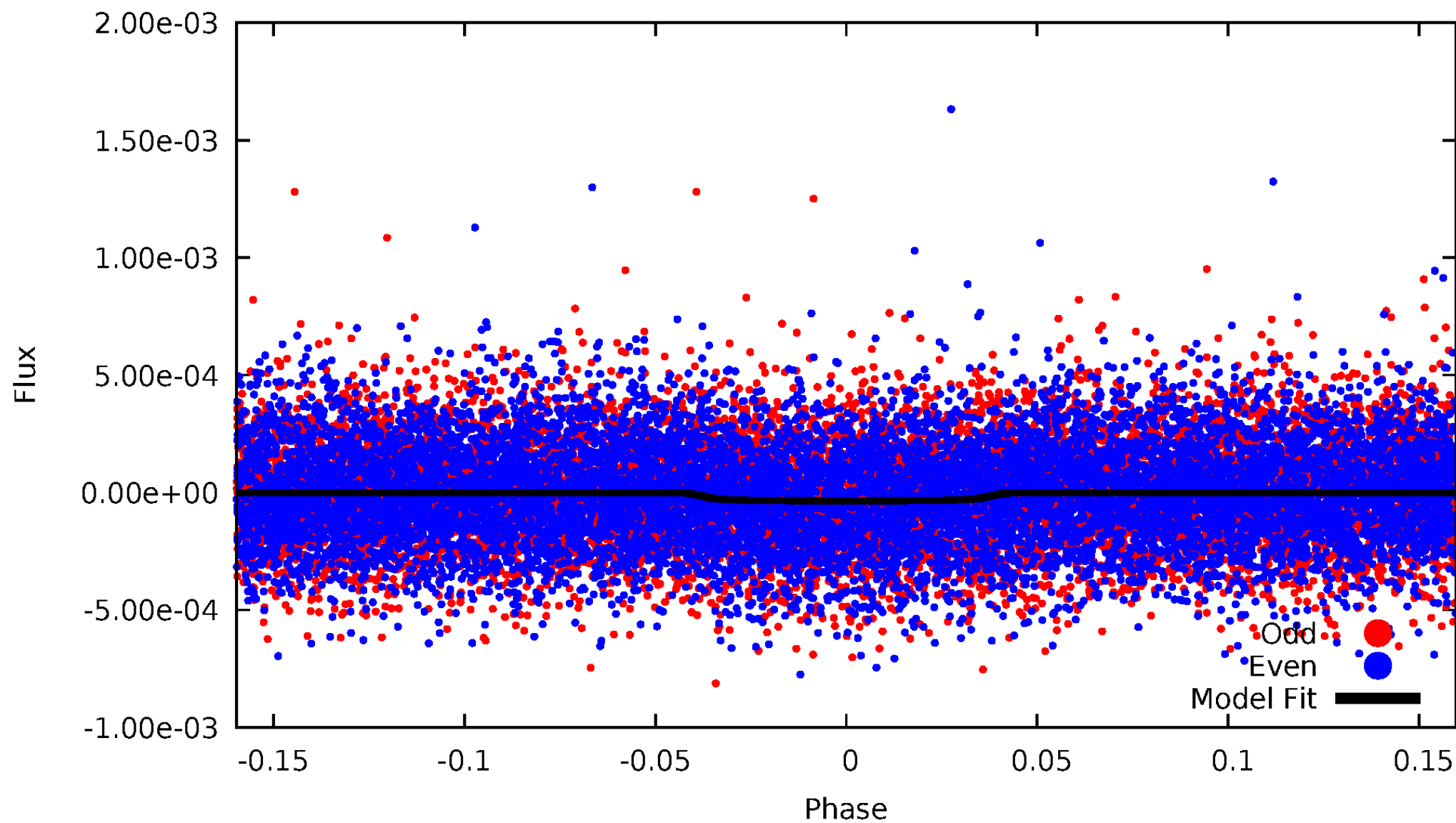


TCE 005823557-01



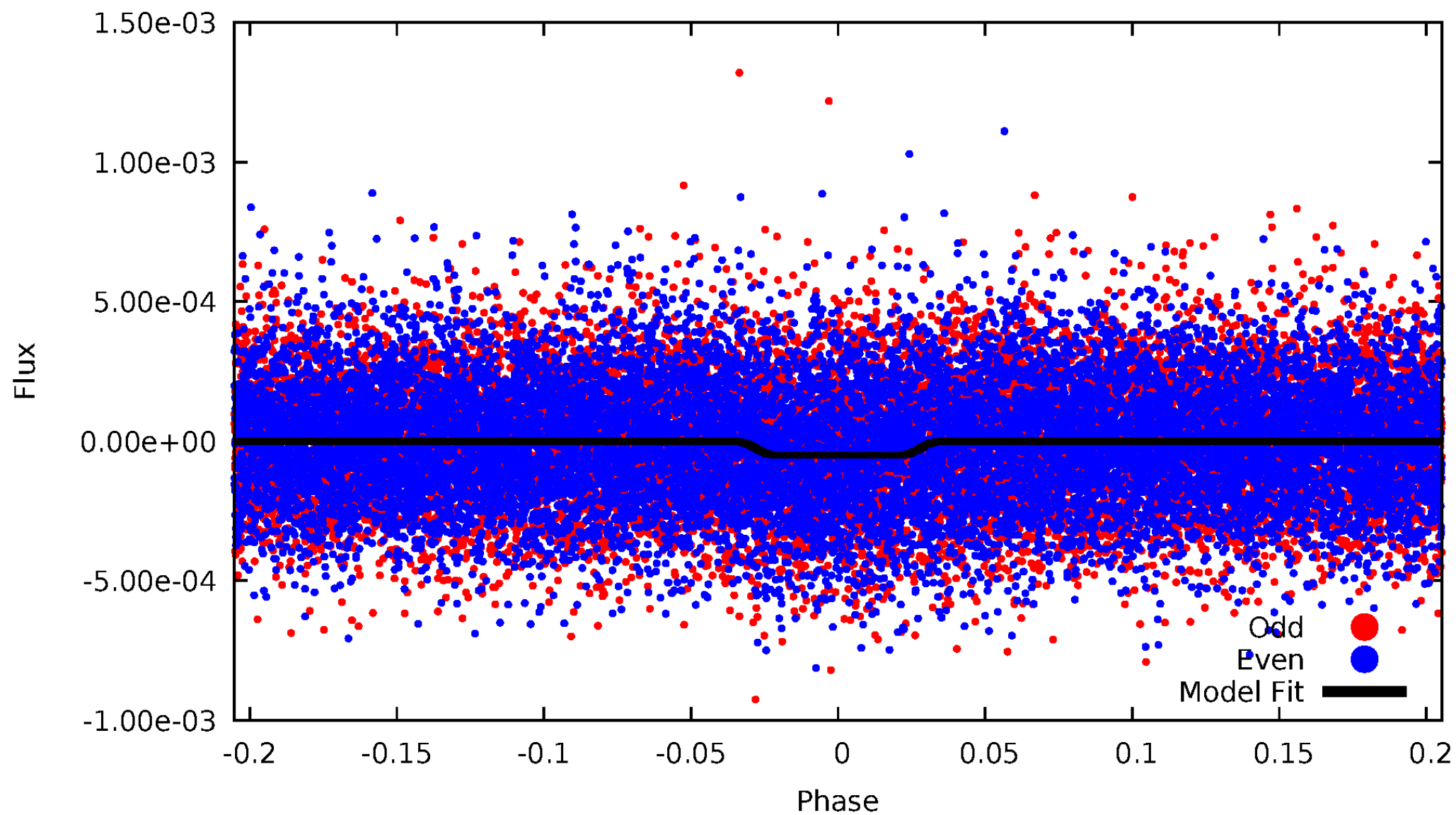
# DV Odd/Even

TCE 005823557-01

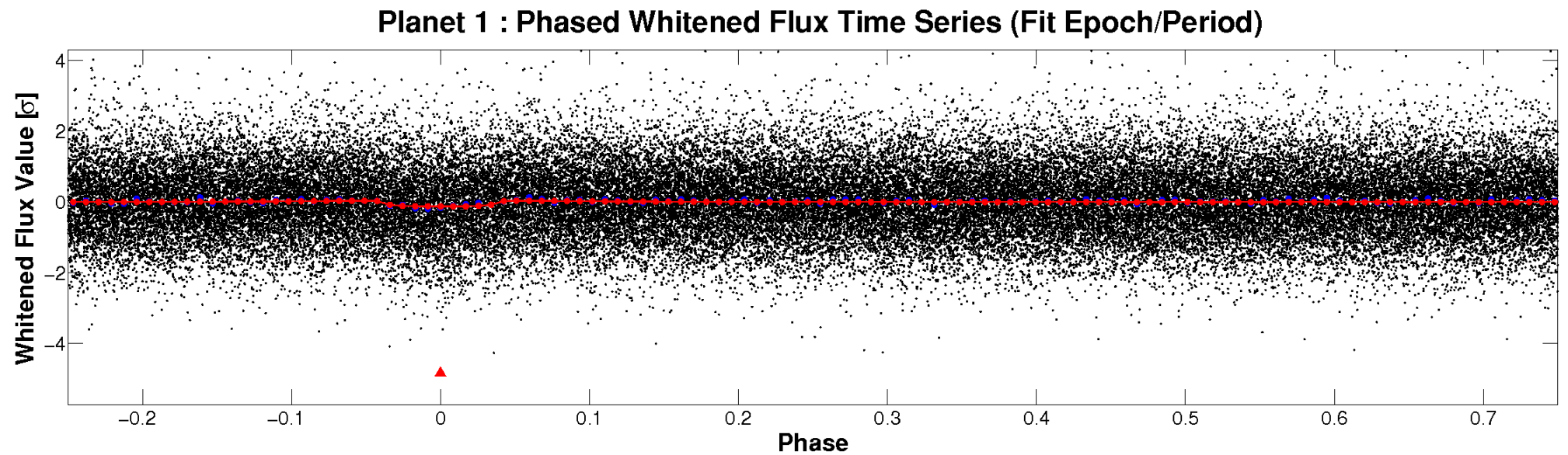
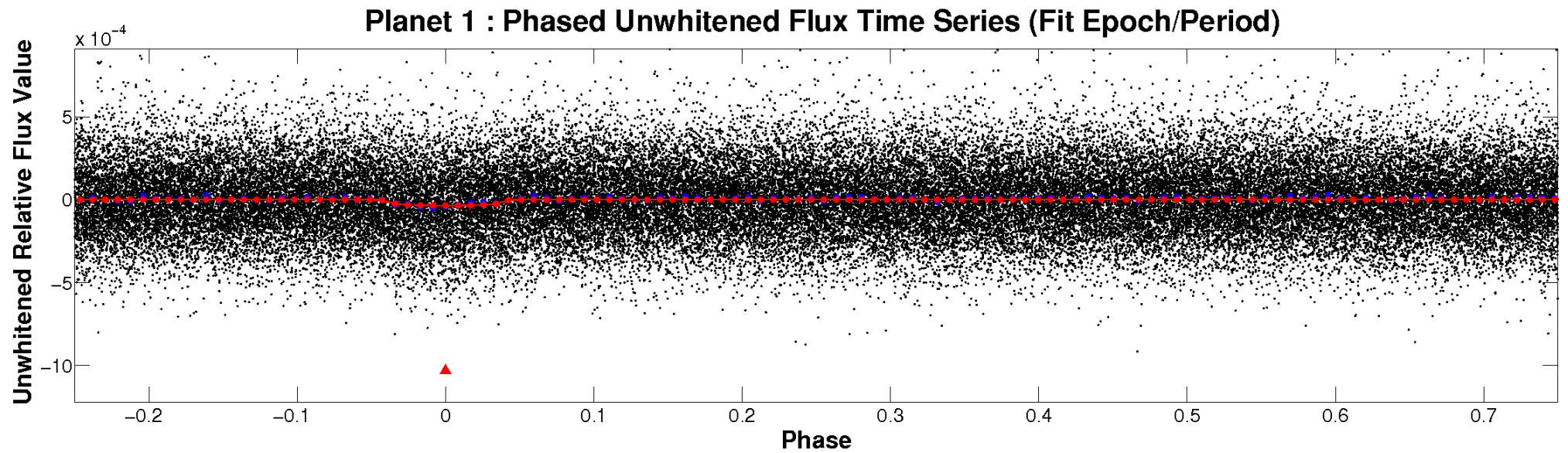


# ALT Odd/Even

TCE 005823557-01



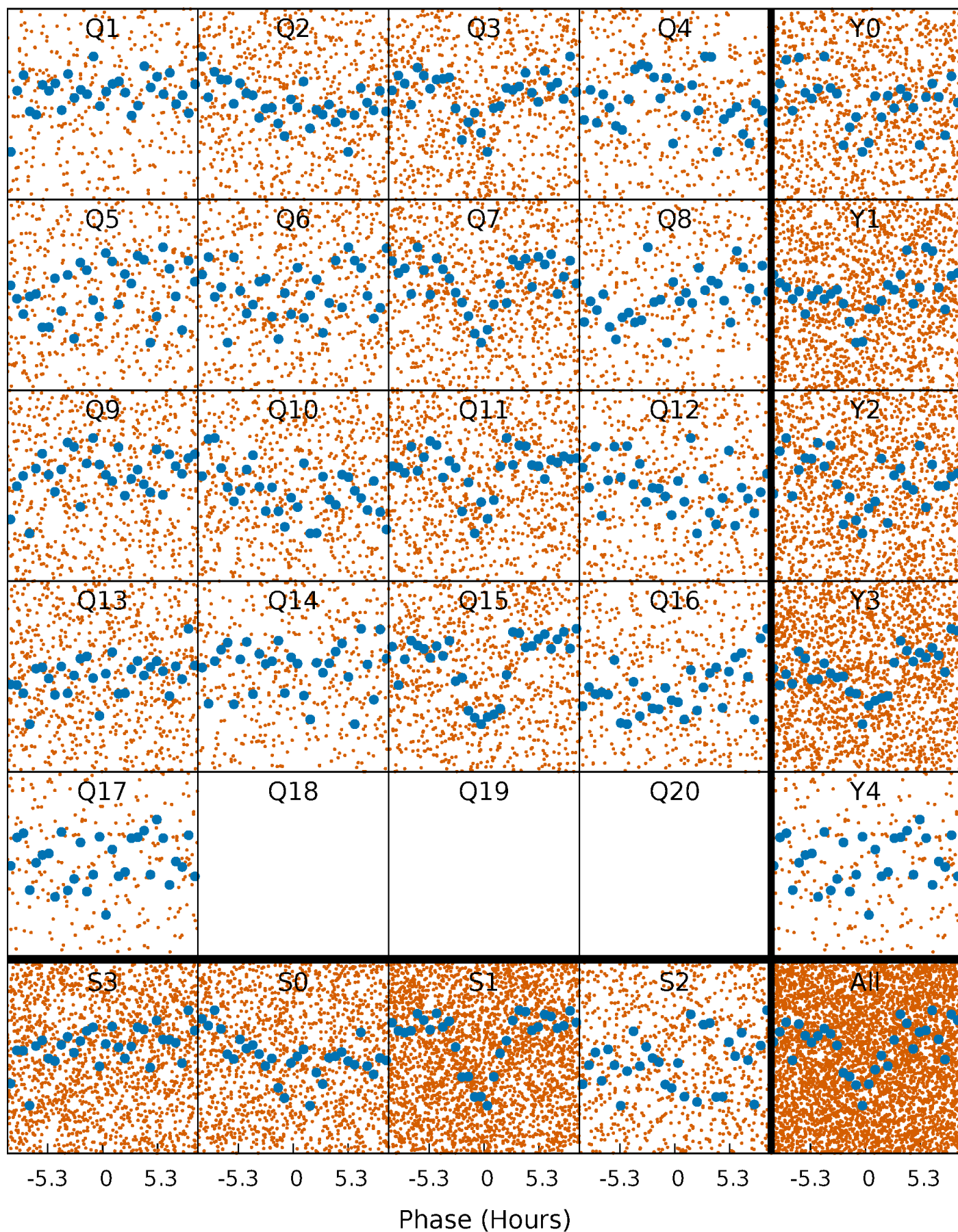
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

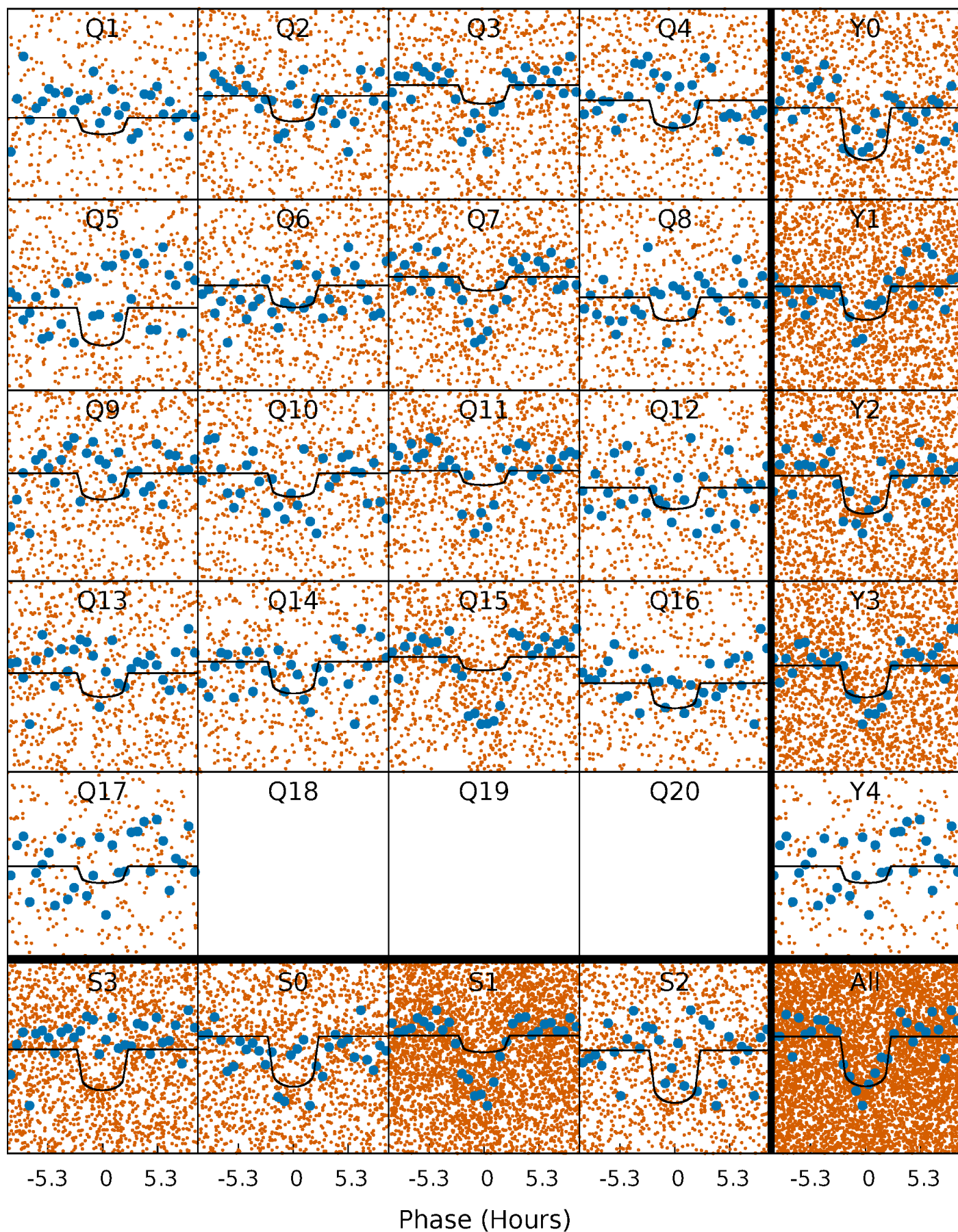
TCE 005823557-01 P= 2.404351 Days  $T_0=133.249410$  (BKJD)





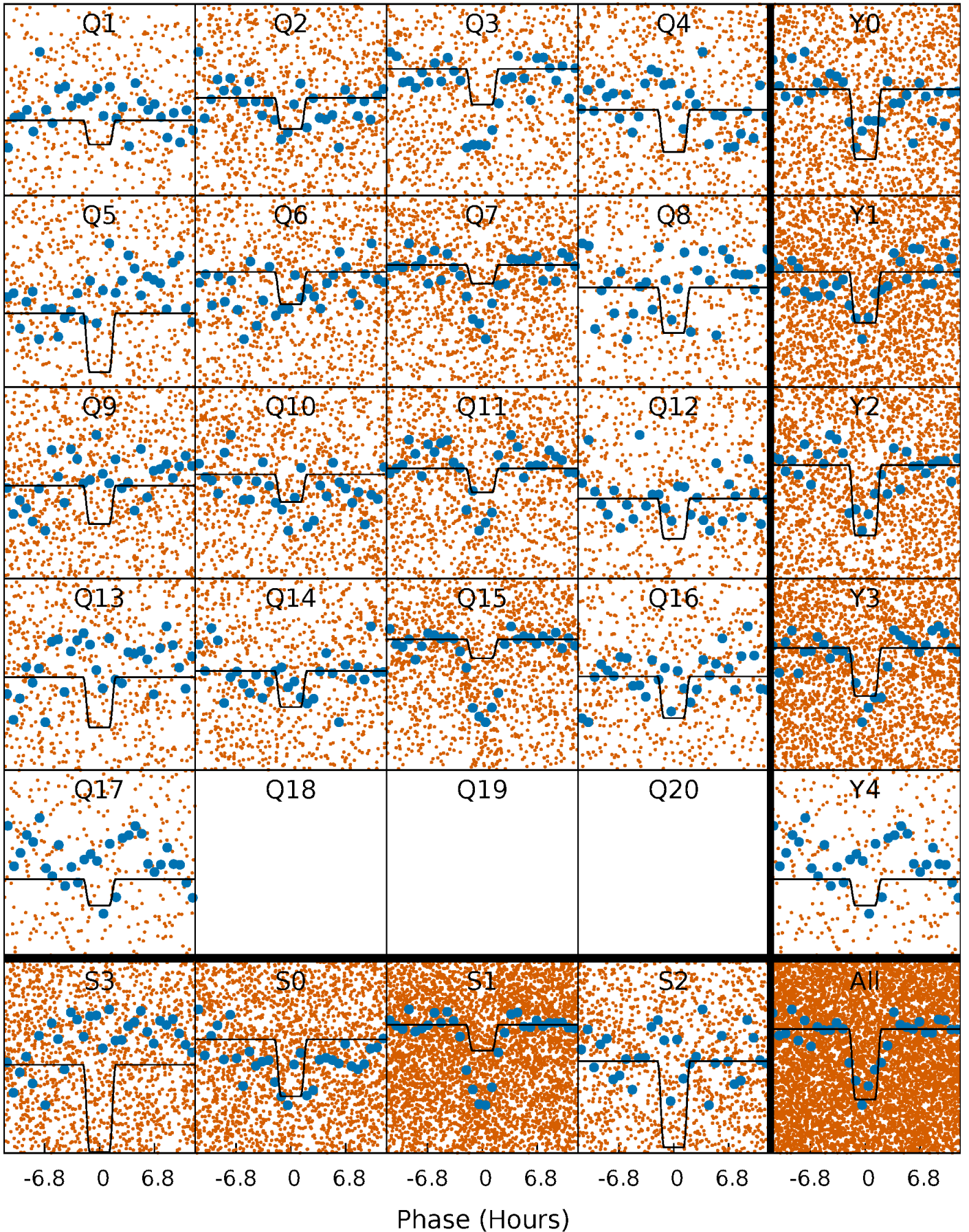
# DV Quarter-Phased Transit Curves

TCE 005823557-01 P= 2.404351 Days  $T_0=133.249410$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

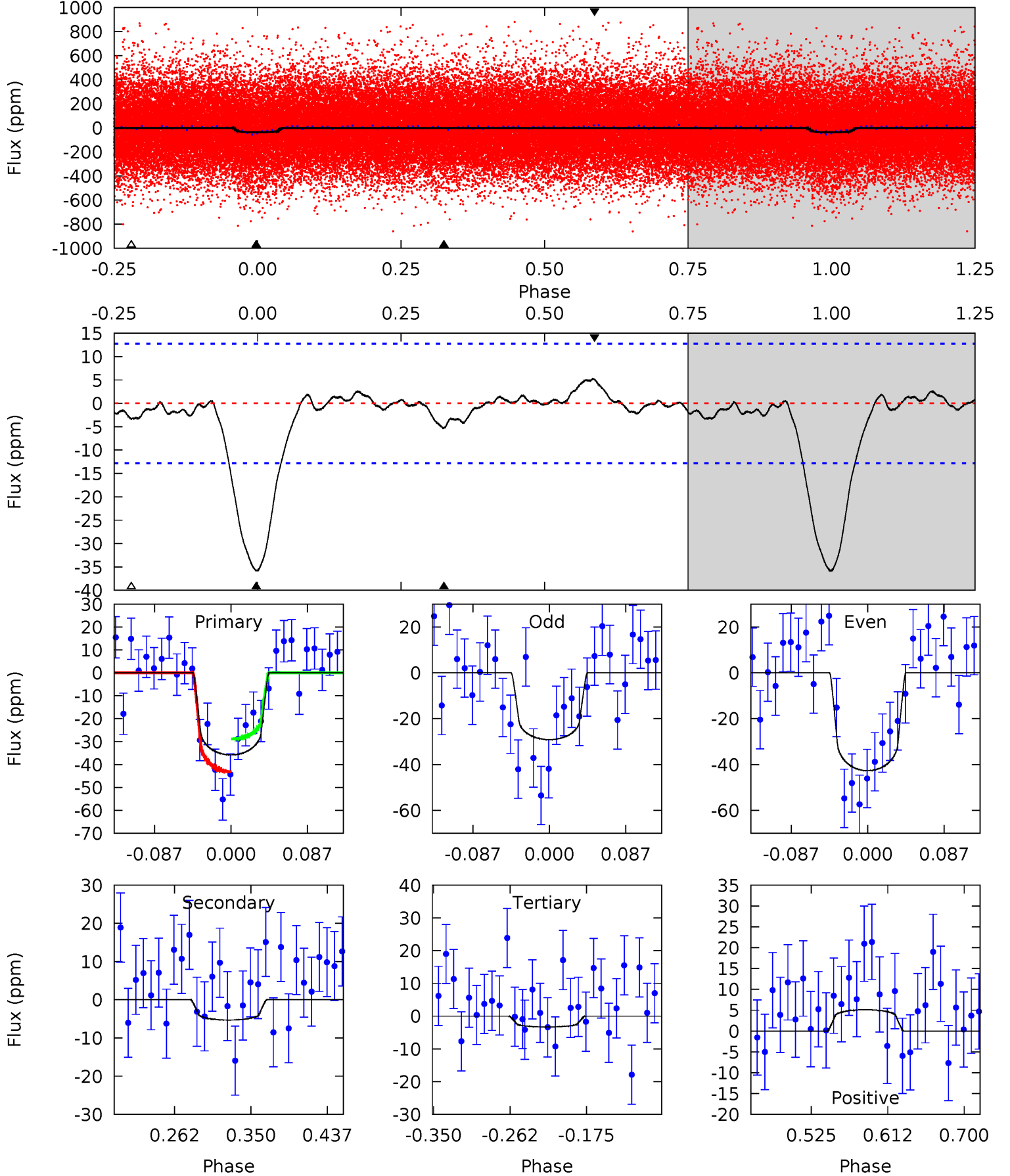
TCE 005823557-01 P= 2.404362 Days  $T_0=133.233750$  (BKJD)



# DV Model-Shift Uniqueness Test

005823557-01, P = 2.404351 Days, E = 130.845059 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
12.9	1.91	1.19	1.84	4.59	1.71	0.64	11.7	11.0	0.72	0.07	2.43	1.00	0.13	2.58

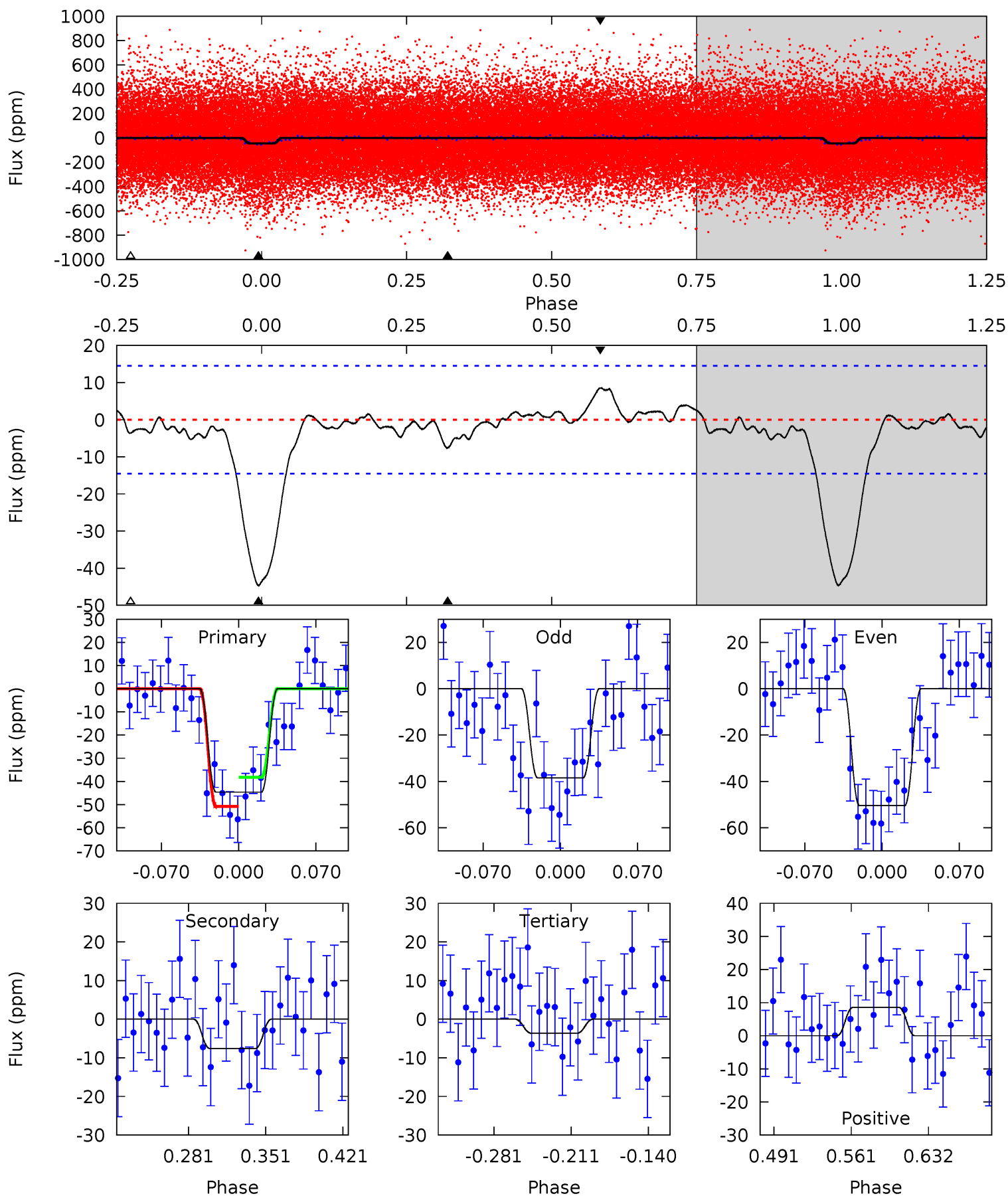




# Alt Model-Shift Uniqueness Test

005823557-01, P = 2.404362 Days, E = 130.829388 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
14.3	2.43	1.17	2.74	4.64	1.81	0.90	13.1	11.5	1.26	-0.32	1.91	0.99	0.16	2.01





### Stellar Parameters For KIC 005823557

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6398^{+175}_{-214}$	$4.276^{+0.132}_{-0.198}$	$-0.220^{+0.250}_{-0.300}$	$1.249^{+0.380}_{-0.234}$	$1.070^{+0.177}_{-0.129}$	$0.774^{+0.483}_{-0.403}$
	+3%/-3%	+3%/-5%	+114%/-136%	+30%/-19%	+17%/-12%	+62%/-52%
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 005823557-01 / KOI 7743.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-5 \pm 3$	$0.91^{+0.46}_{-0.40}$	$2348^{+187}_{-144}$	$3987^{+1107}_{-687}$	$4.353^{+10.522}_{-2.917}$
Alt.	$-8 \pm 3$	$1.02^{+0.42}_{-0.42}$	$2337^{+169}_{-147}$	$4101^{+1021}_{-604}$	$5.054^{+10.305}_{-3.041}$

$T_{\text{max}}$  = 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

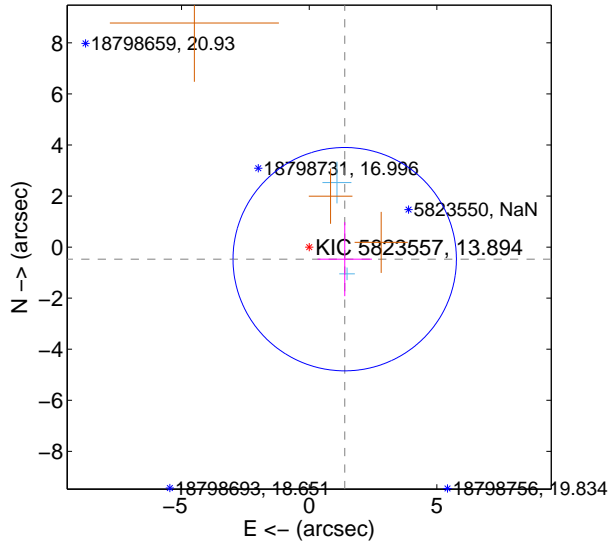
Supplemental centroid analysis for 005823557-01. Kepler magnitude: 13.89. Transit SNR 8.14

There are 2 quarters with good PRF difference image offsets

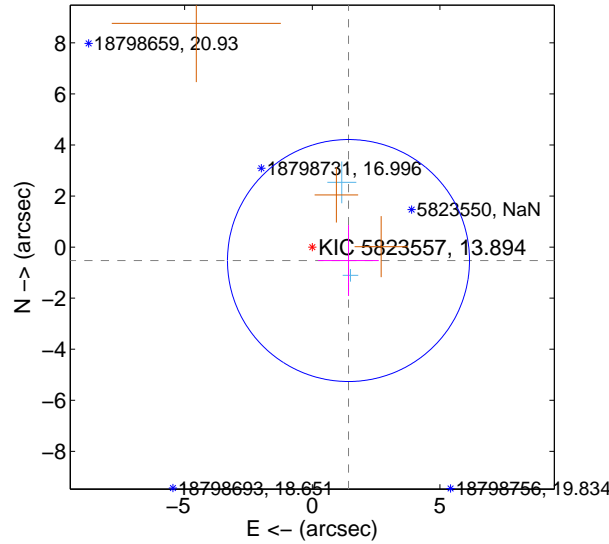
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.469 \pm 1.458$	1.01	$-1.391 \pm 1.067$	$-0.473 \pm 1.450$
PRF-fit source offset from KIC position	$1.513 \pm 1.580$	0.96	$-1.419 \pm 1.186$	$-0.526 \pm 1.388$
photometric centroid source offset	$2.96 \pm 1.65$	1.80	$-0.01 \pm 1.25$	$-2.96 \pm 1.65$

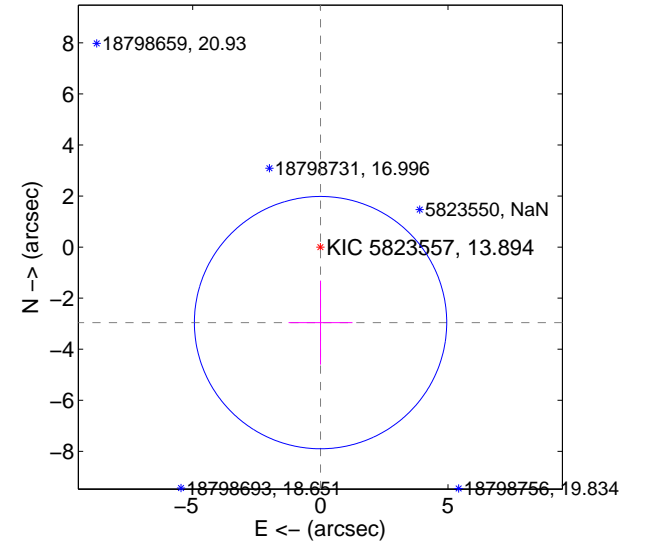
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

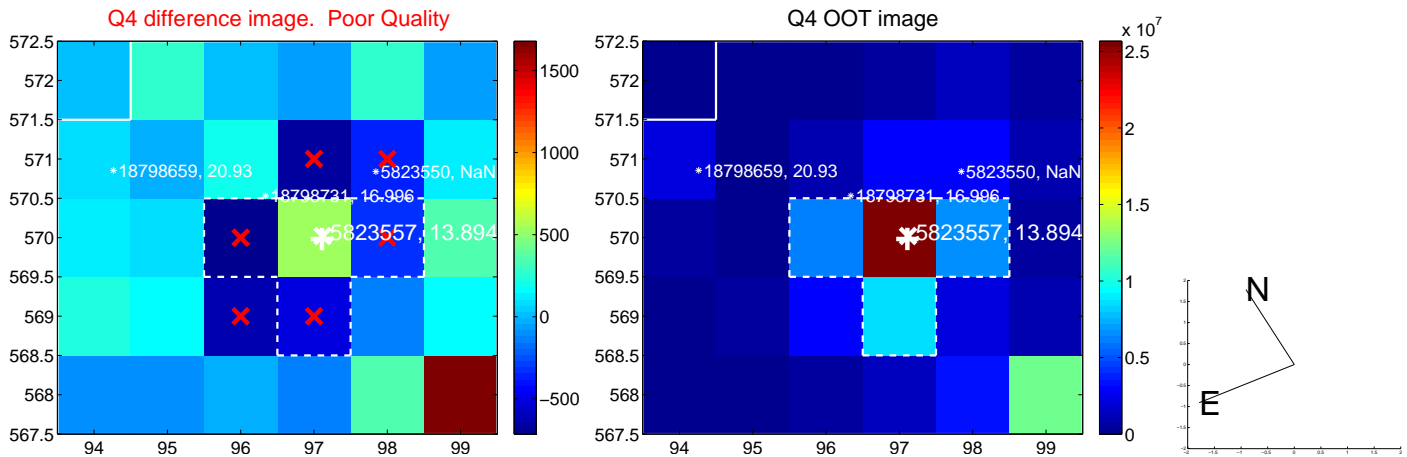
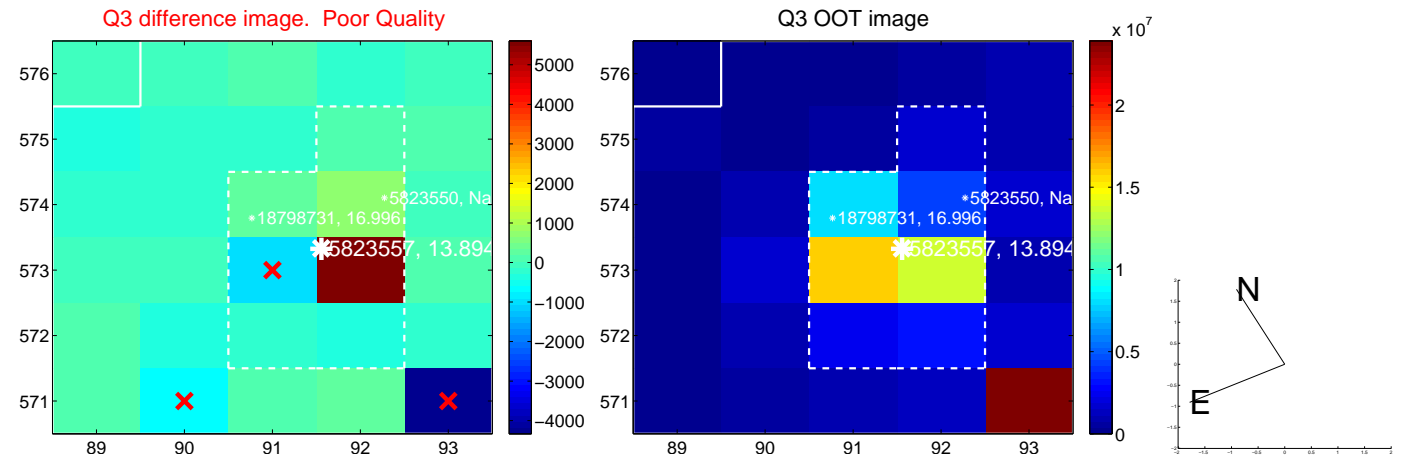
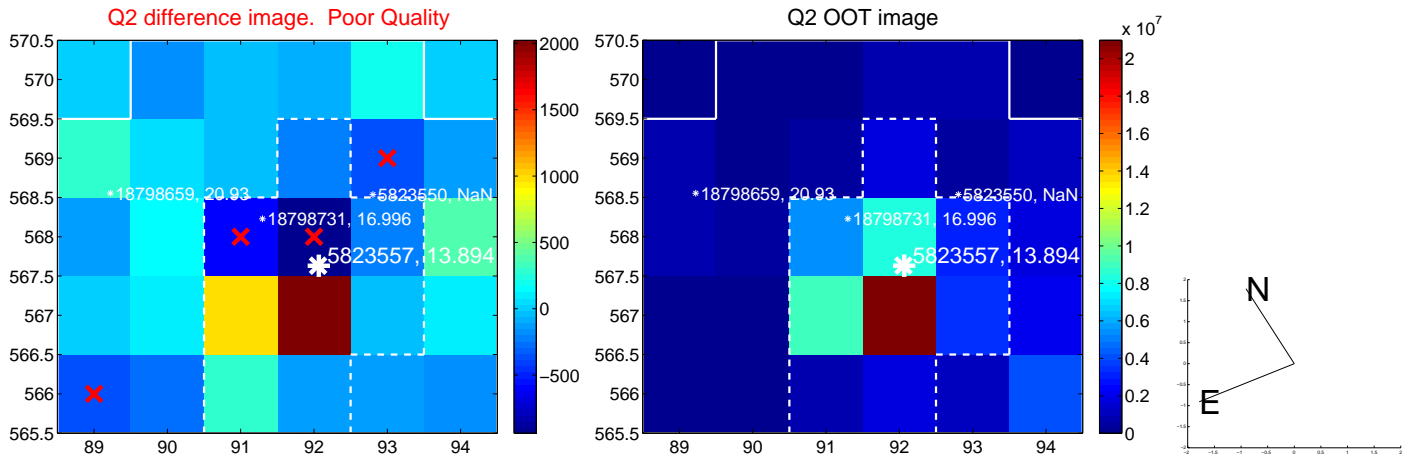
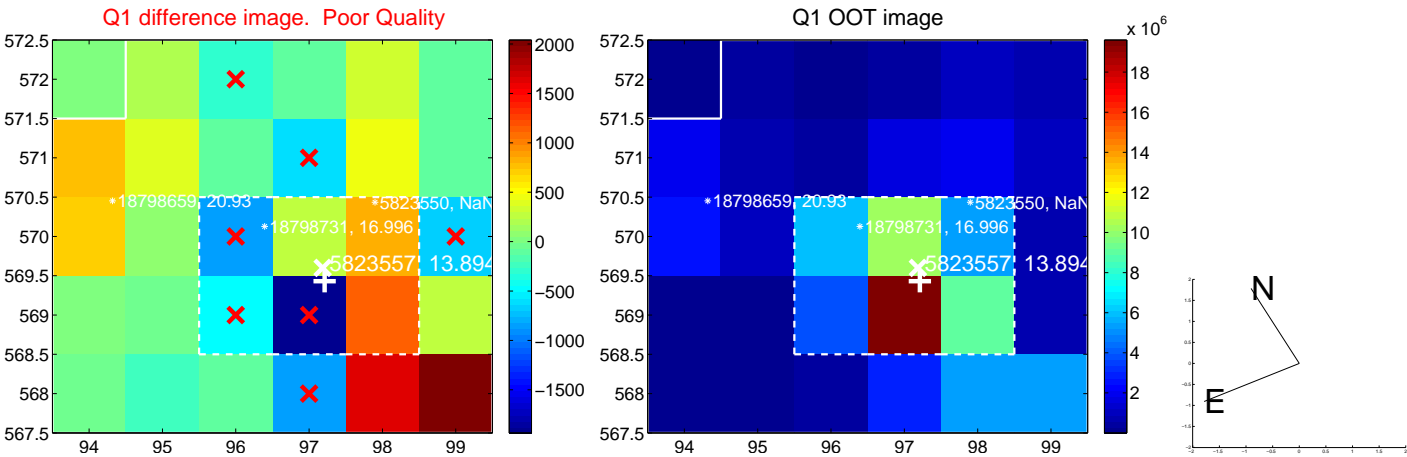


offset from photometric centroids

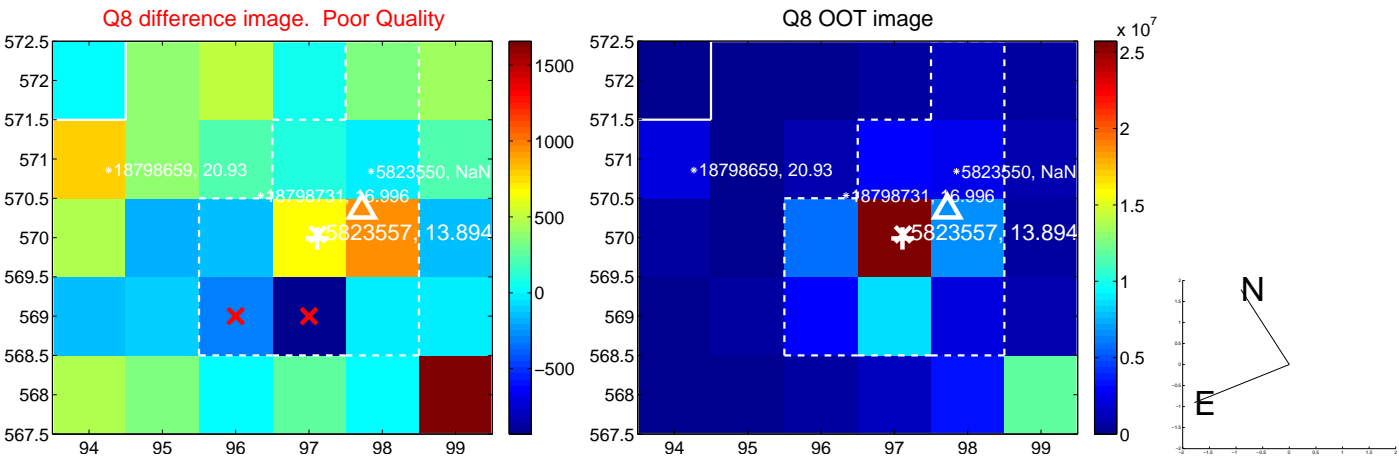
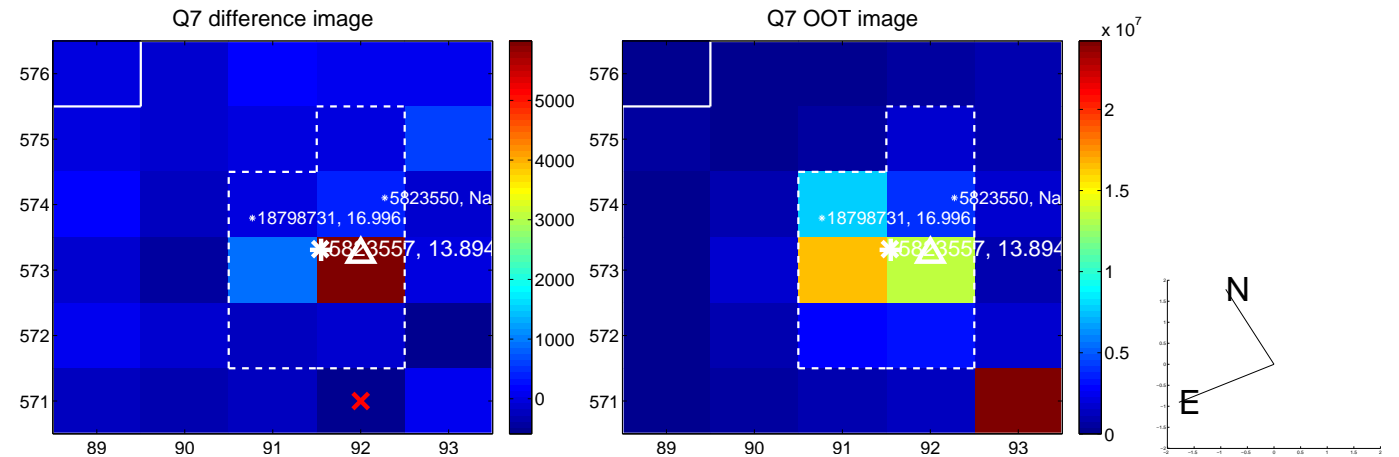
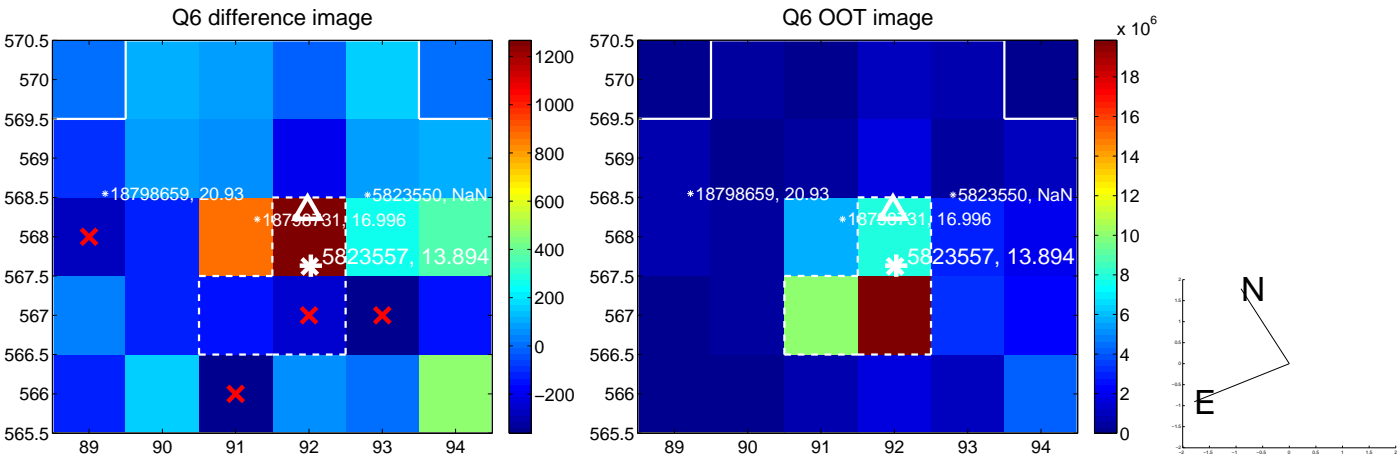
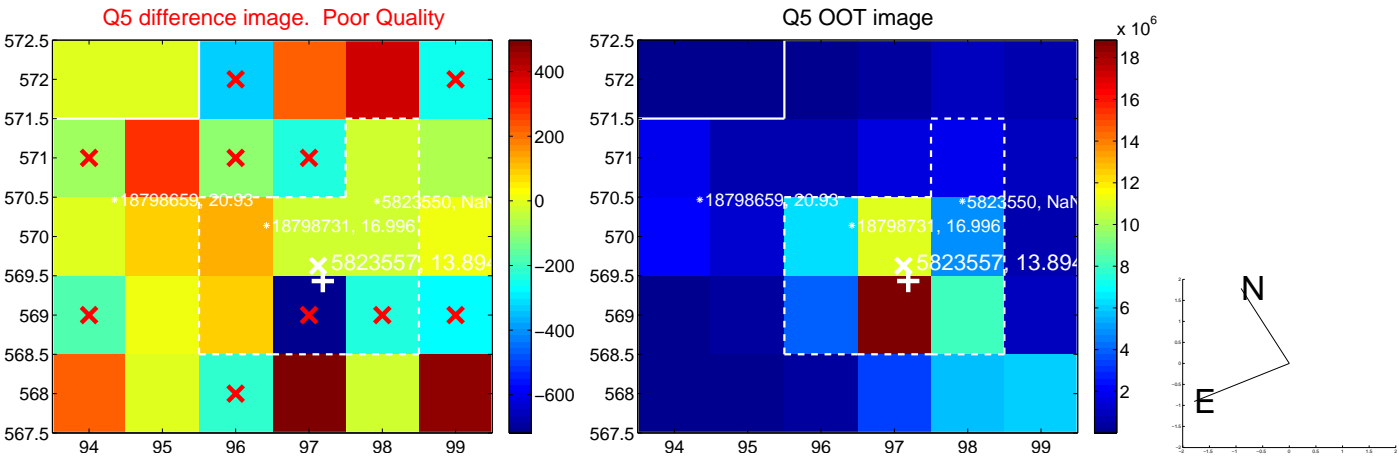


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

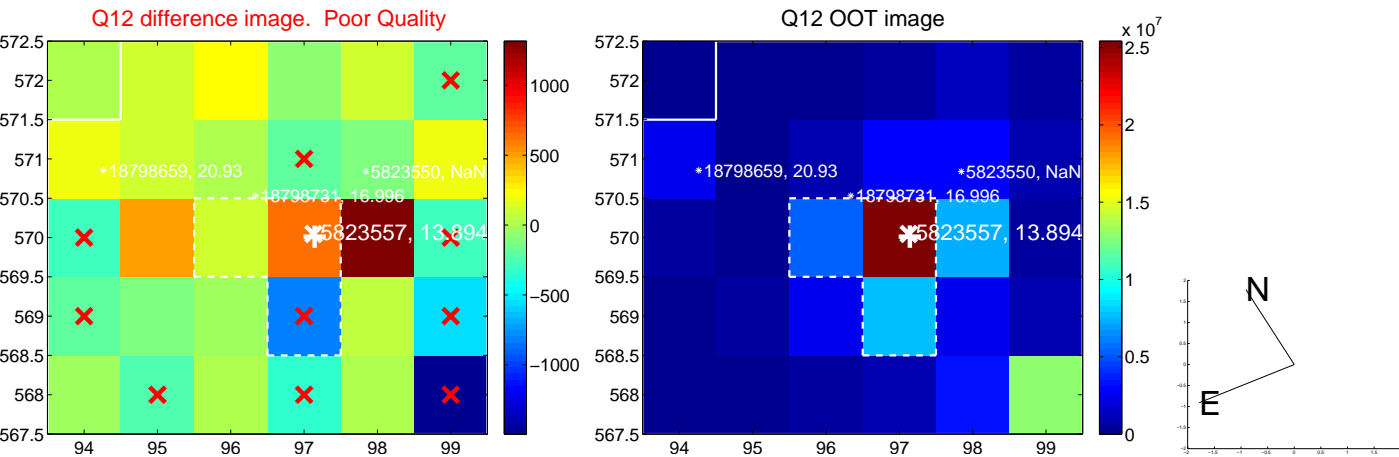
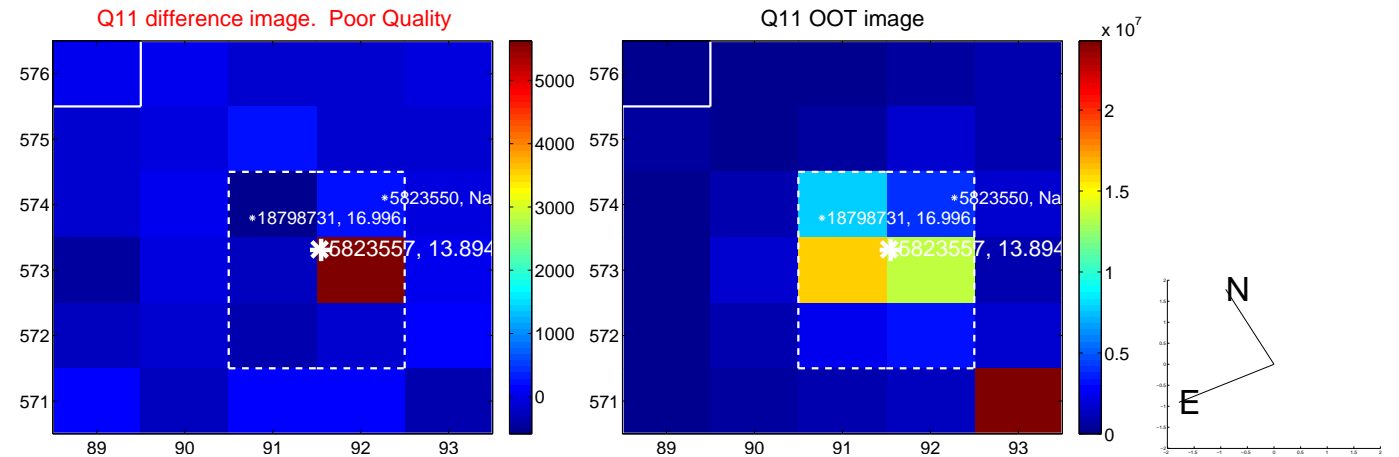
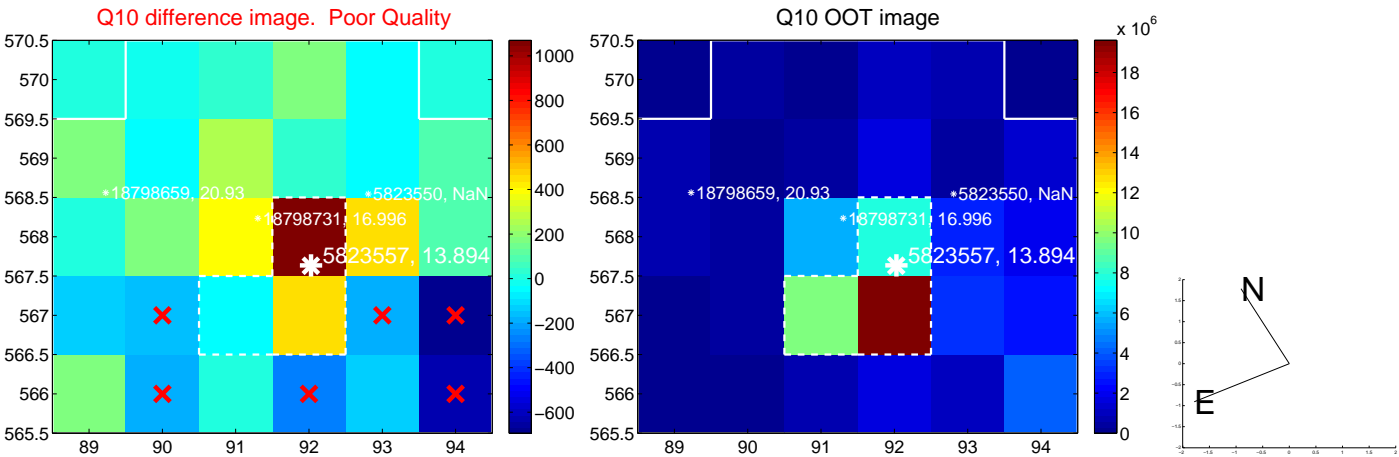
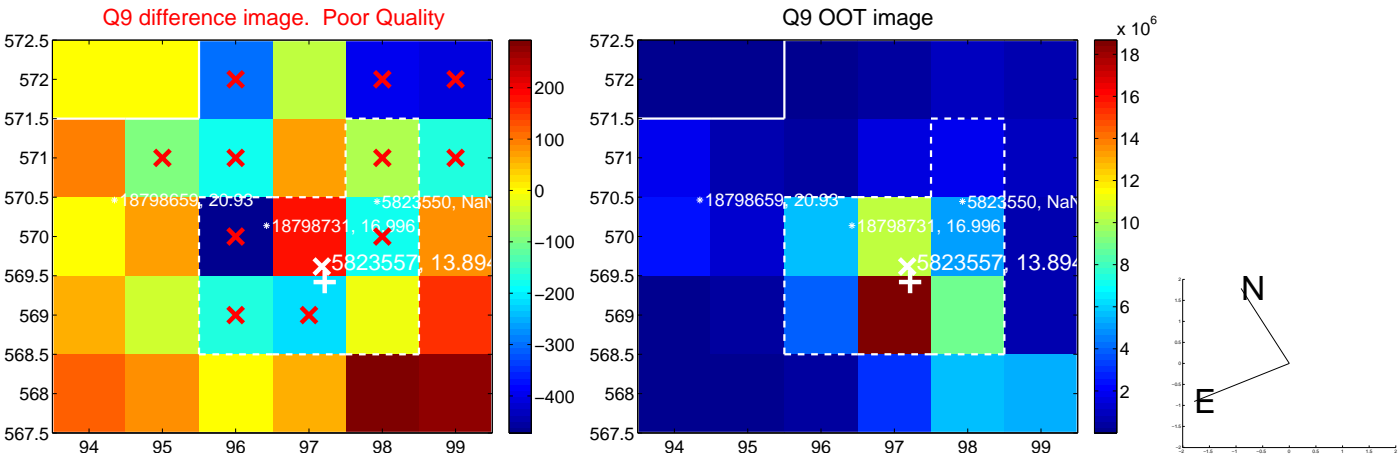


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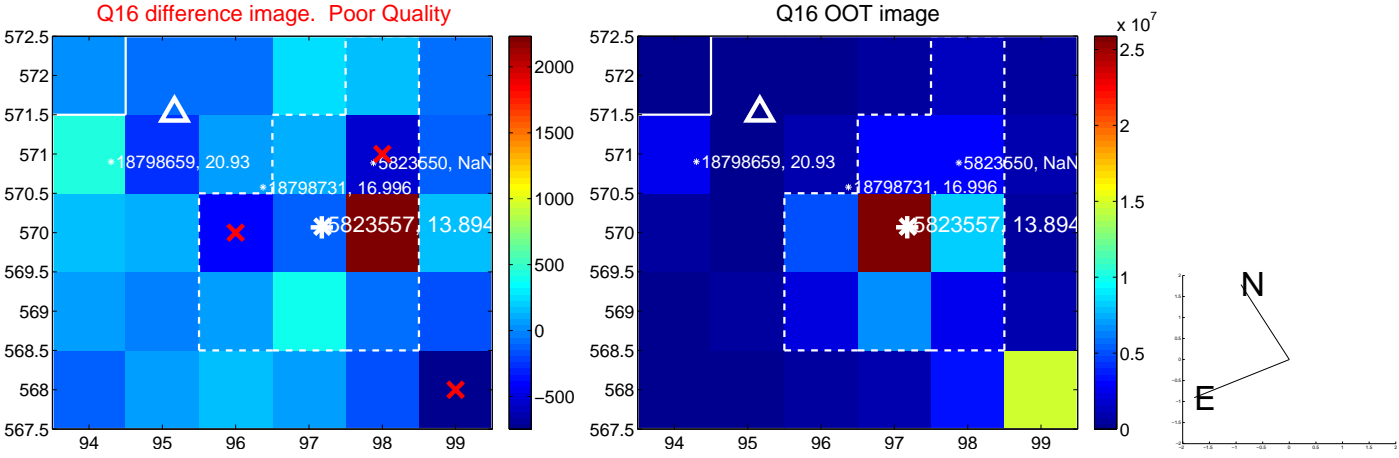
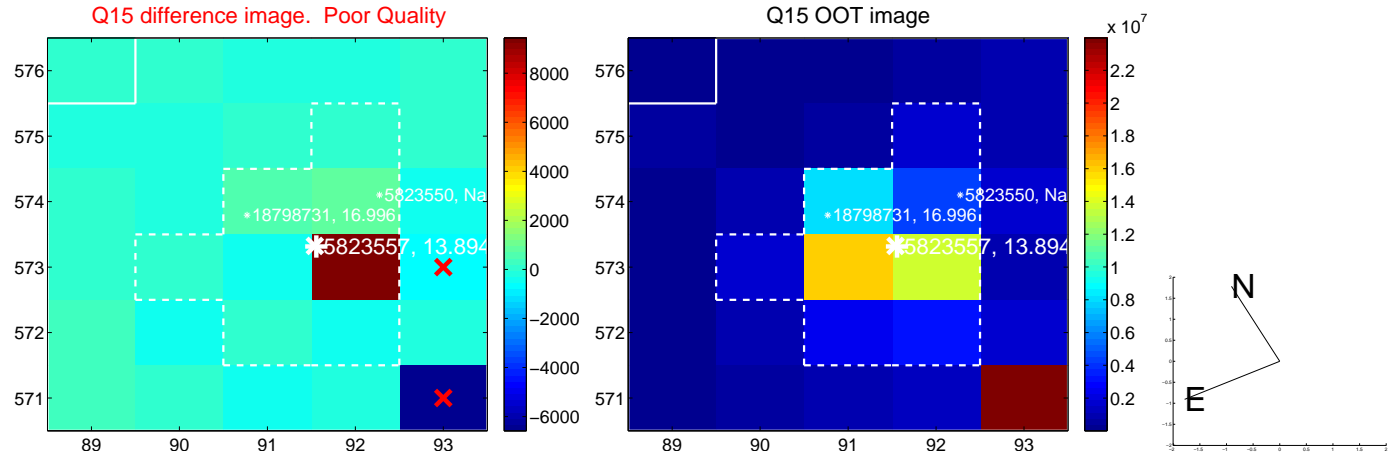
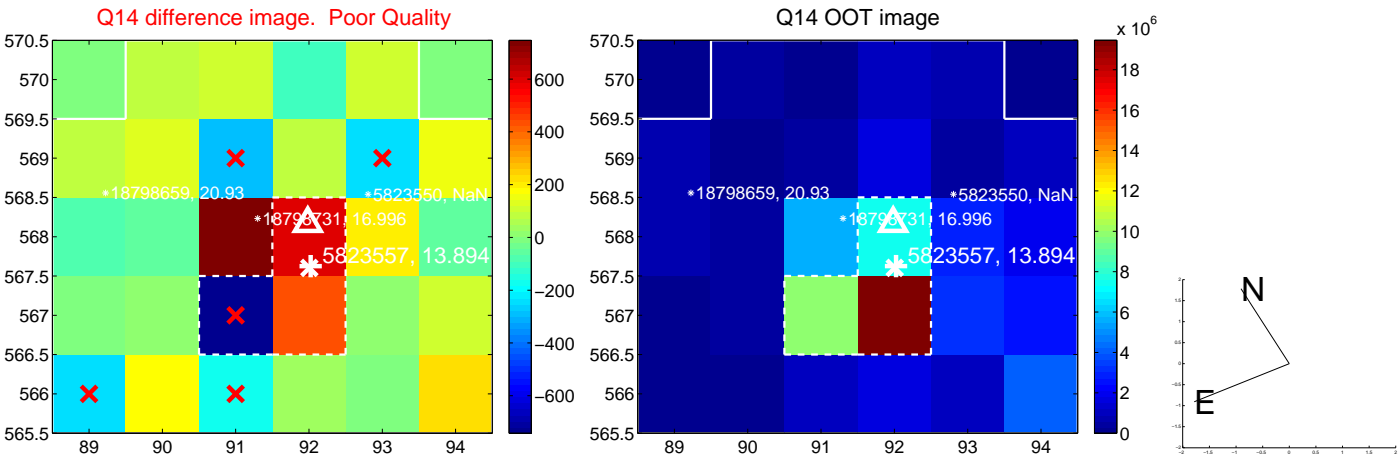
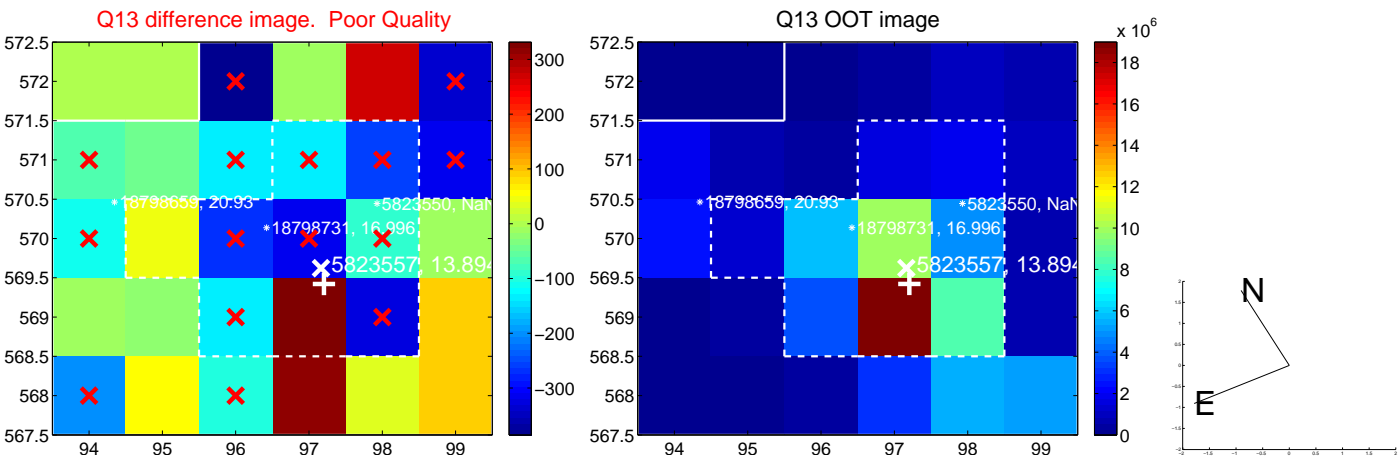




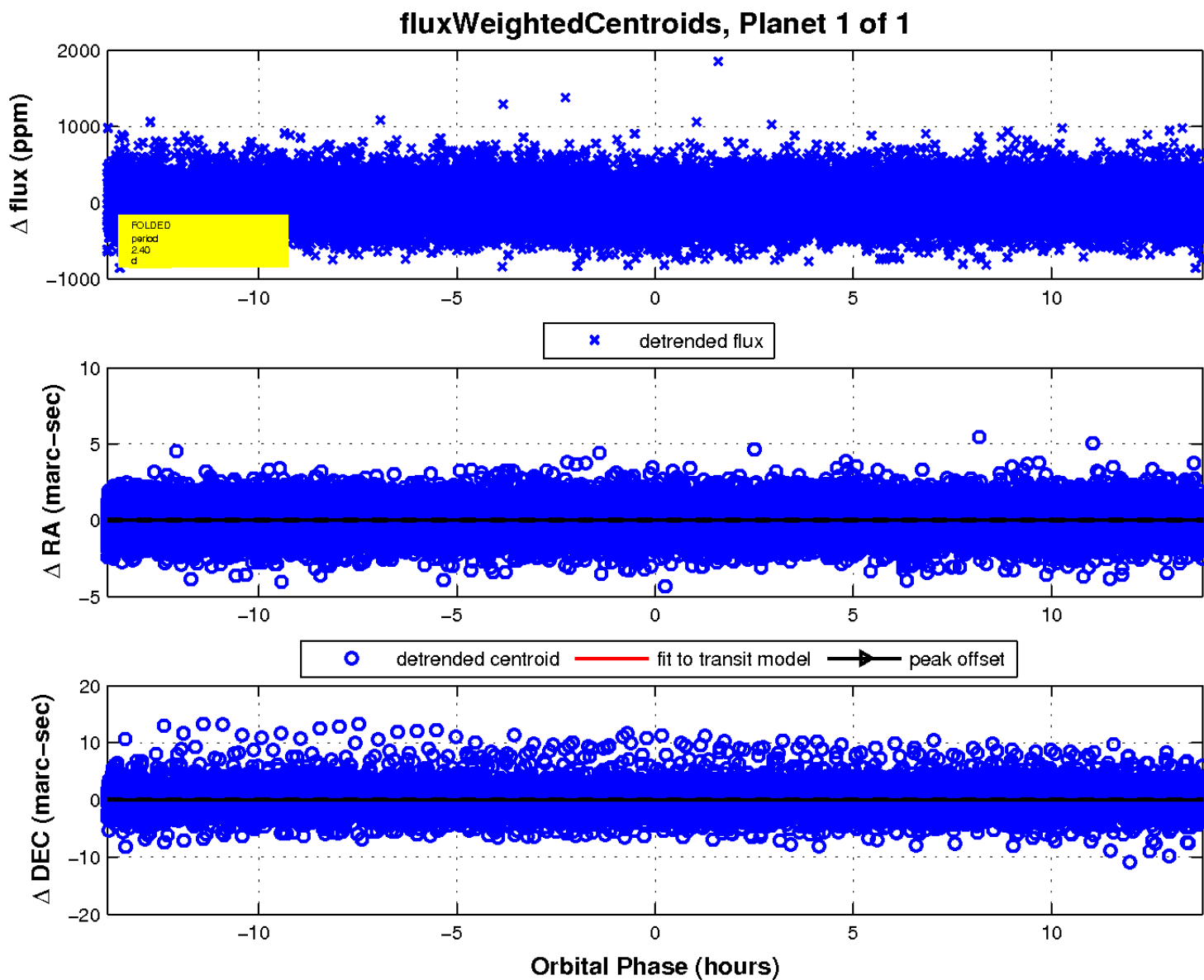
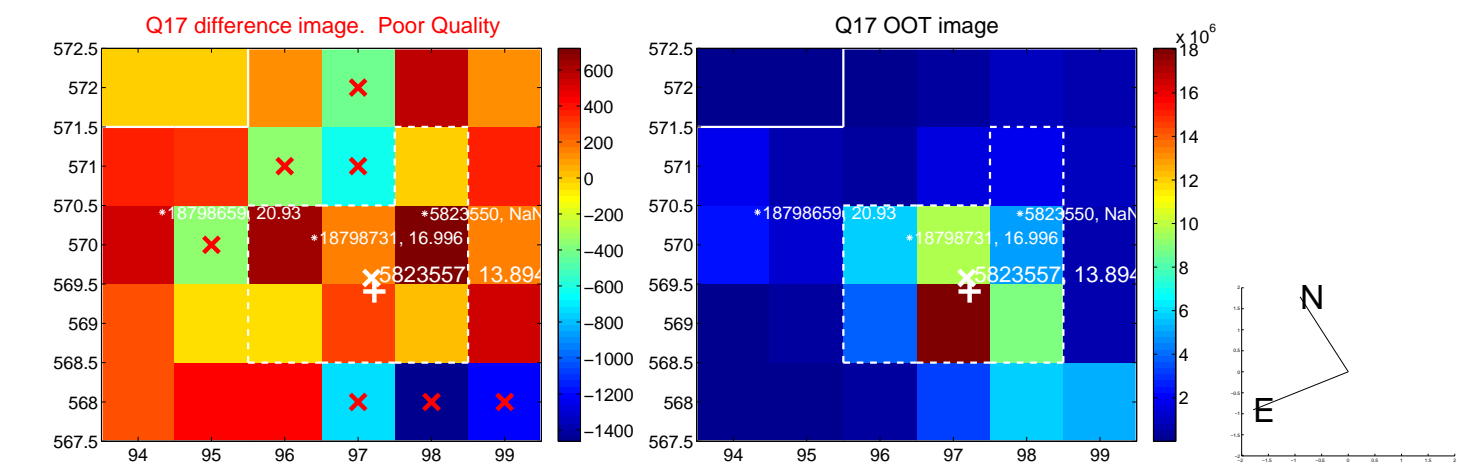
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

