

# KIC 007457296

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007457296-01	OBS	2213.01	3.970720	134.647581	329.6	1.920	19.8	22.6	0.78	5178	1.65	199.08

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007457296-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**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.

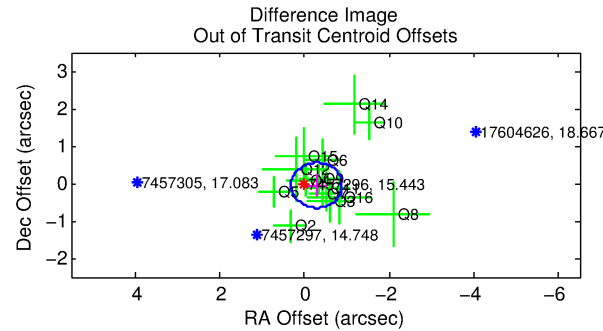
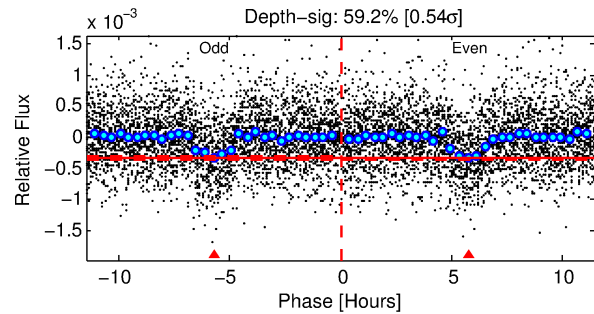
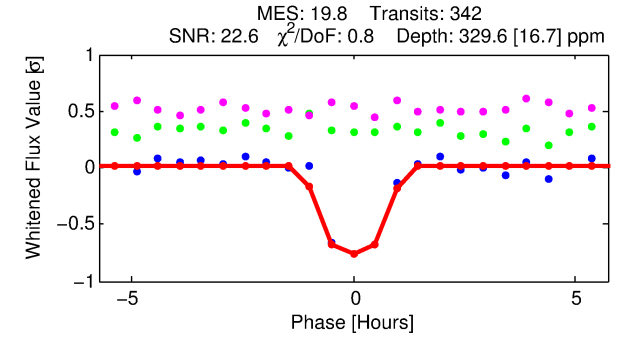
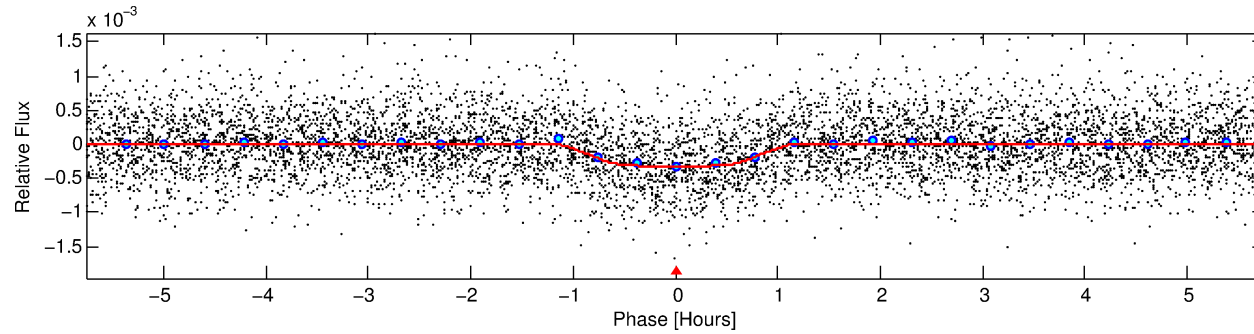
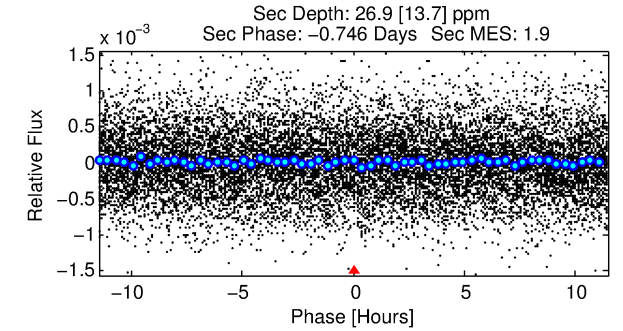
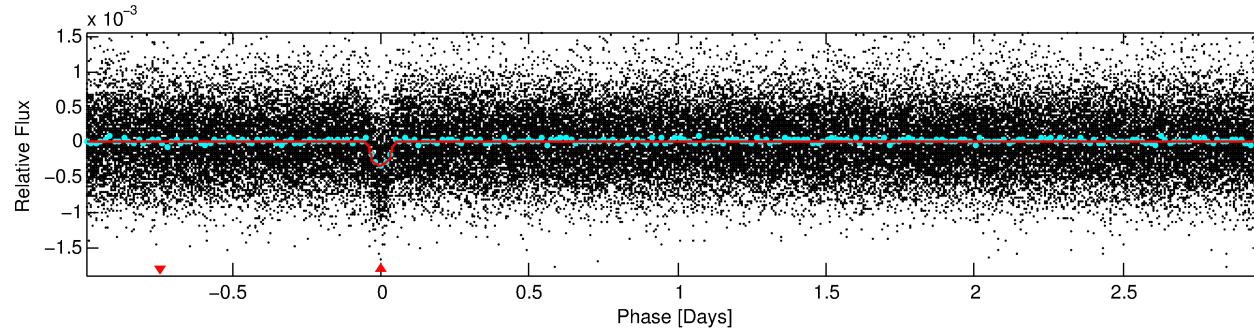
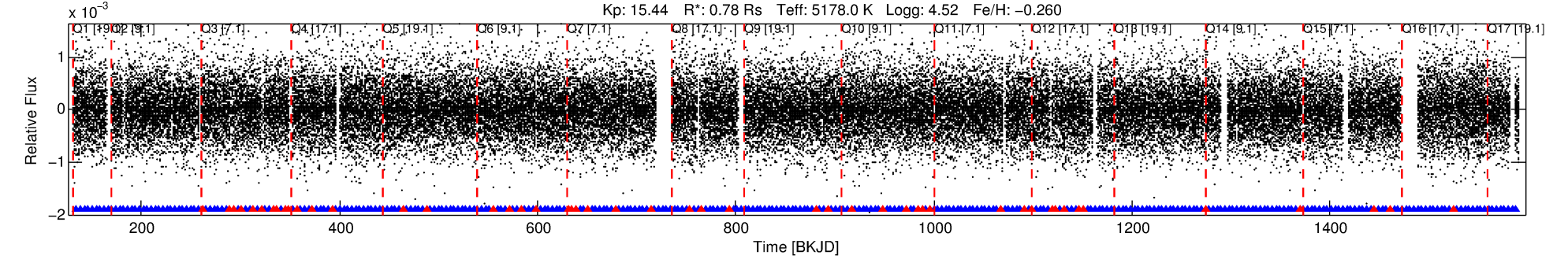
## Ephemeris Match Information For 007457296-01

No Significant Match Found

# DV One-Page Summary

KIC: 7457296 Candidate: 1 of 1 Period: 3.971 d

KOI: K02213.01 Corr: 0.941



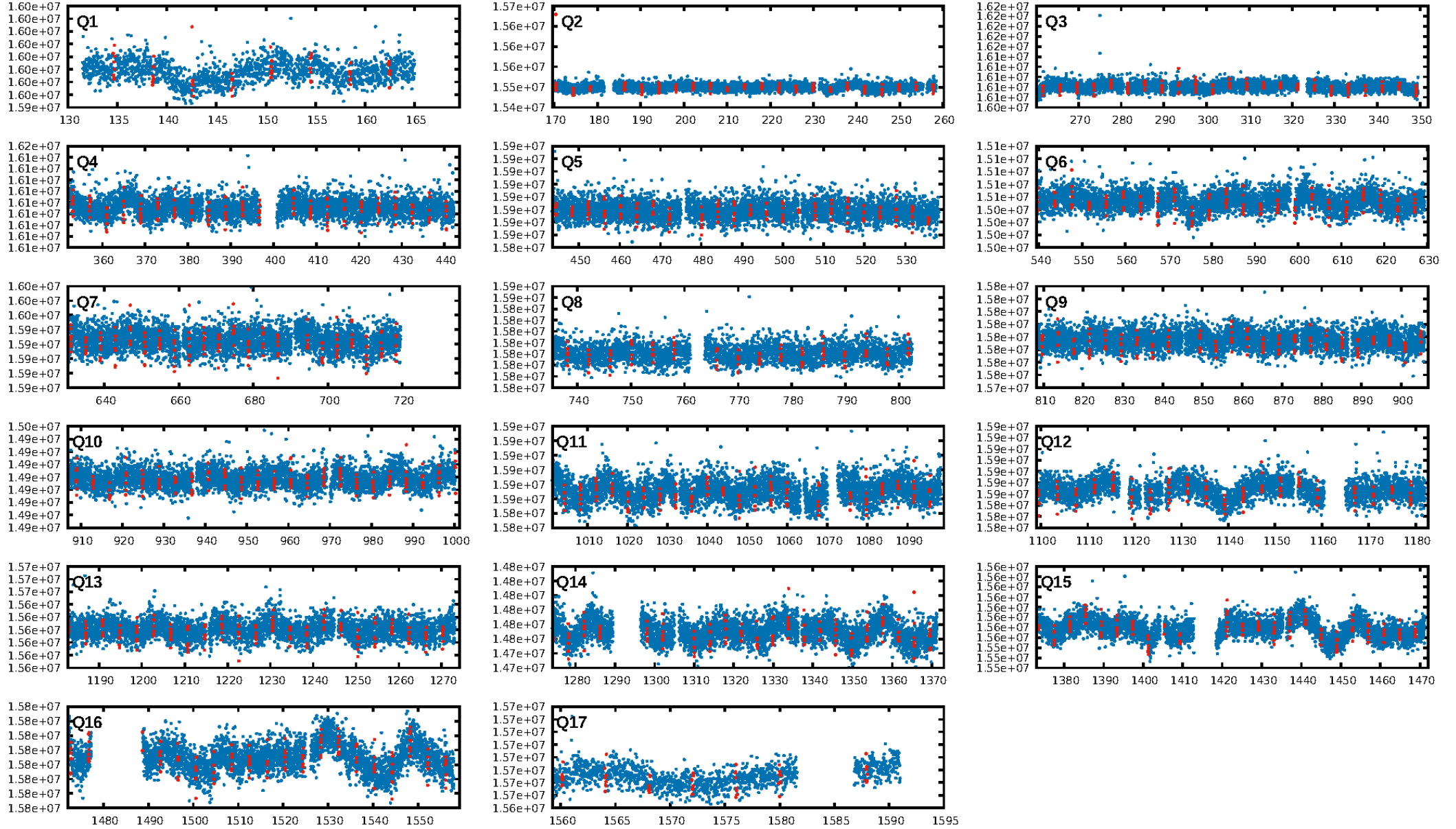
## DV Fit Results:

Period = 3.97072 [0.00001] d  
Epoch = 134.6476 [0.0016] BKJD  
Rp/R\* = 0.0194 [0.0088]  
a/R\* = 8.68 [15.54]  
b = 0.86 [0.56]  
Seff = 199.08 [38.13]  
Teff = 958 [46] K  
Rp = 1.65 [0.77] Re  
a = 0.0443 [0.0044] AU  
Ag = 10.69 [11.22] [0.86σ]  
Teffp = 2678 [700] K [2.45σ]

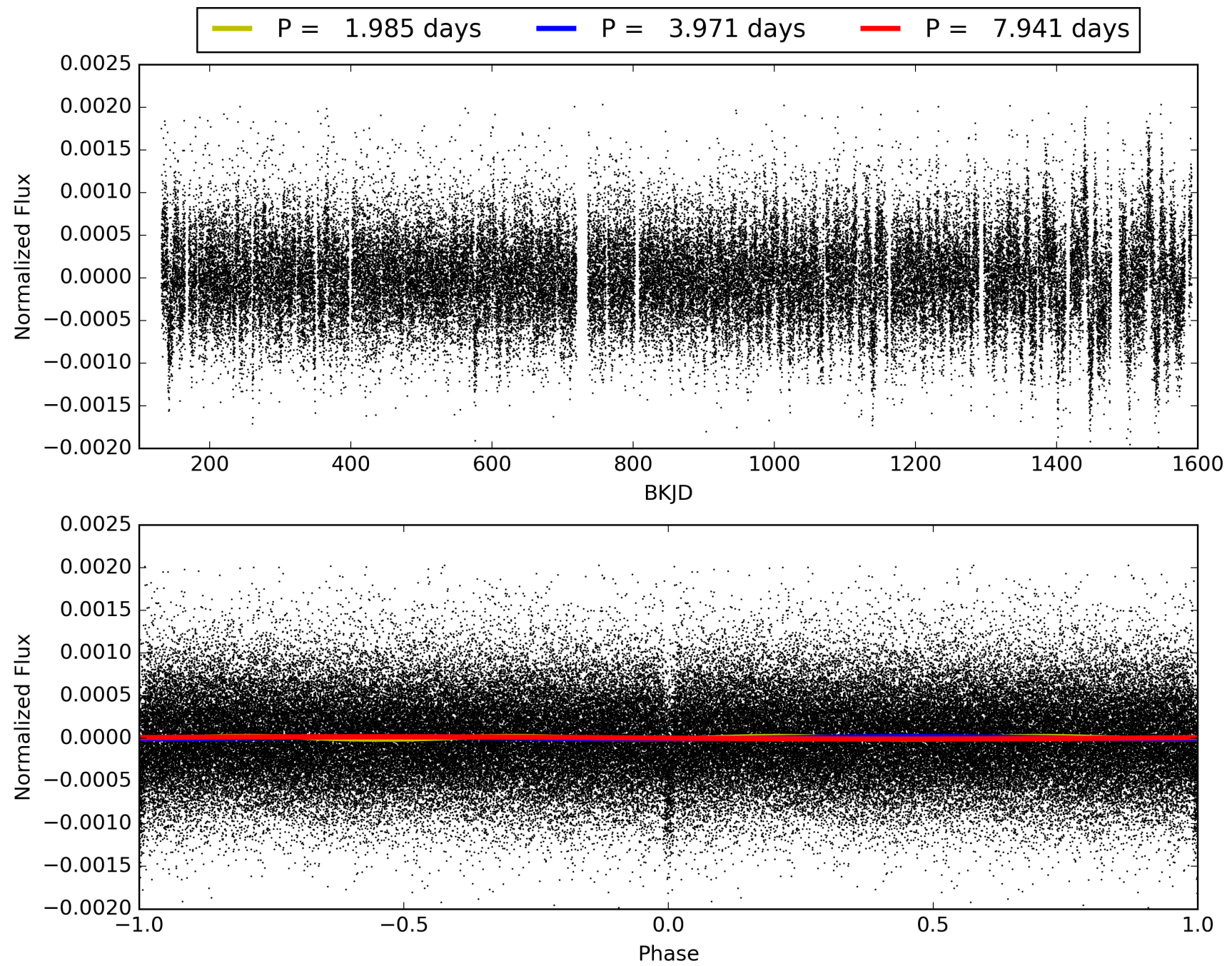
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.82e-85  
RollingBand-fgt: 0.85 [278/327]  
GhostDiagnostic-chr: 29.06  
Centroid-sig: 11.7%  
Centroid-so: 0.511 arcsec [1.07σ]  
OotOffset-rm: 0.295 arcsec [1.47σ]  
KicOffset-rm: 0.085 arcsec [0.33σ]  
OotOffset-st: 4/4/4/2 [14]  
KicOffset-st: 4/4/4/2 [14]  
DiffImageQuality-fgm: 0.86 [12/14]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007457296-01, PDC Light Curves



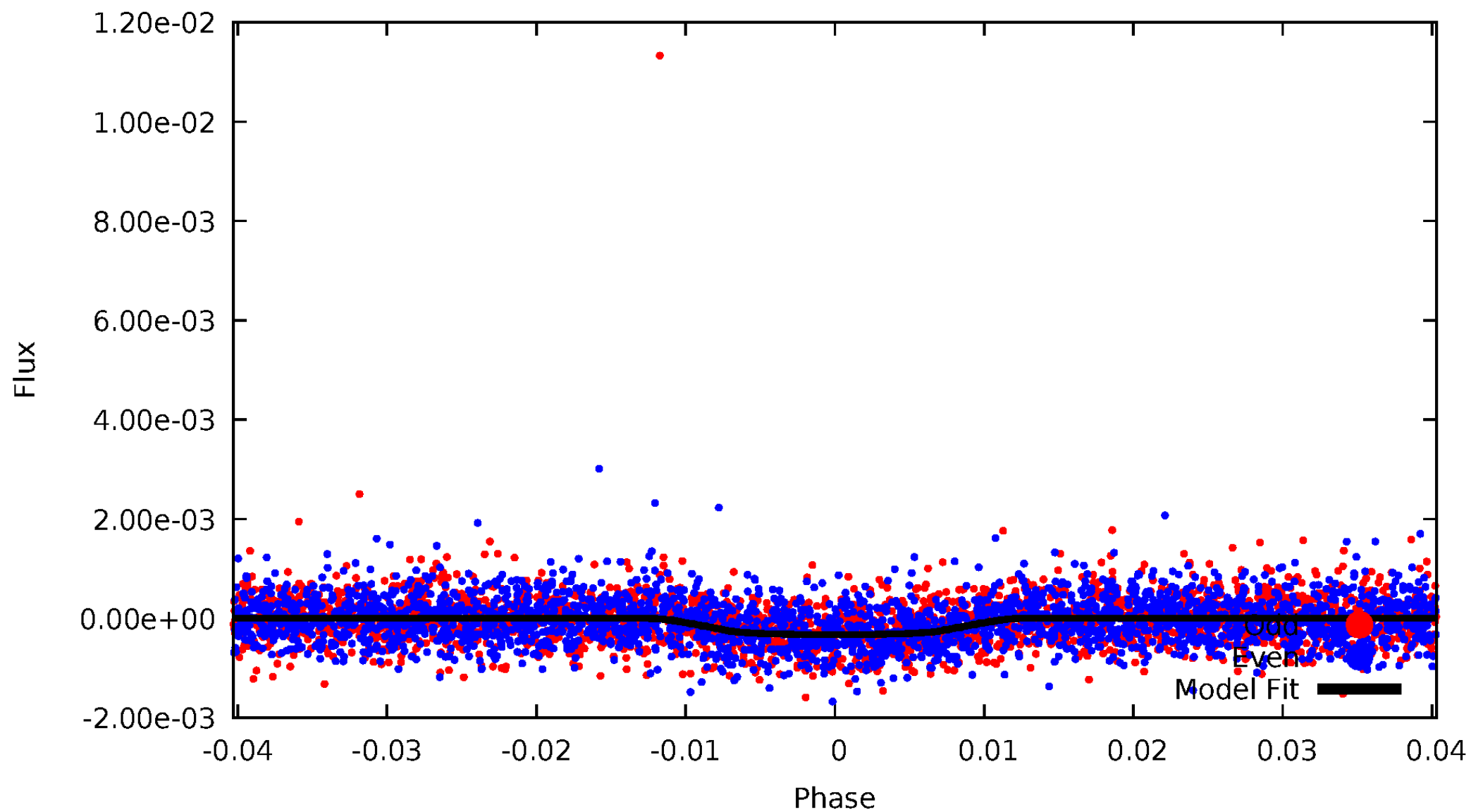
TCE 007457296-01





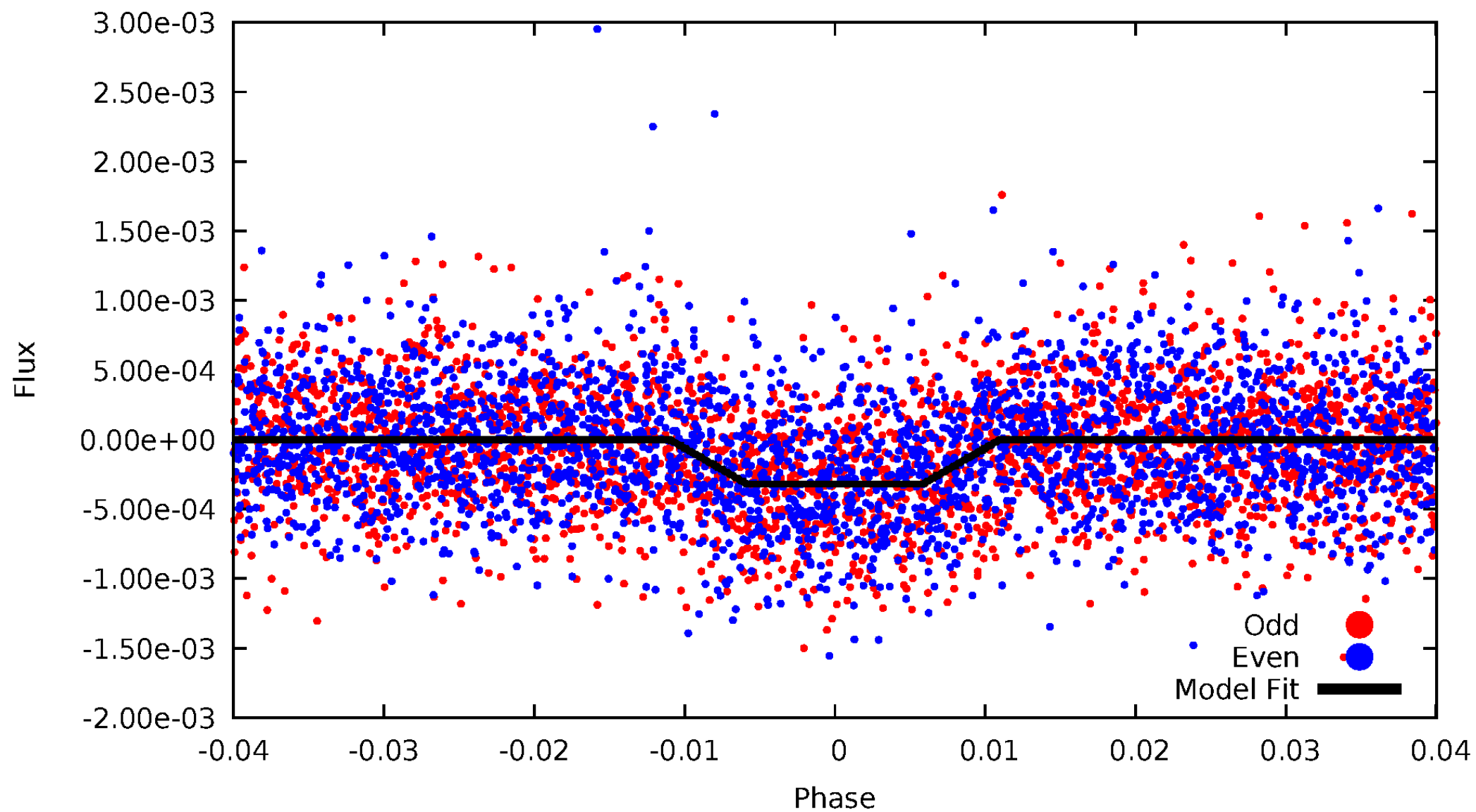
# DV Odd/Even

TCE 007457296-01



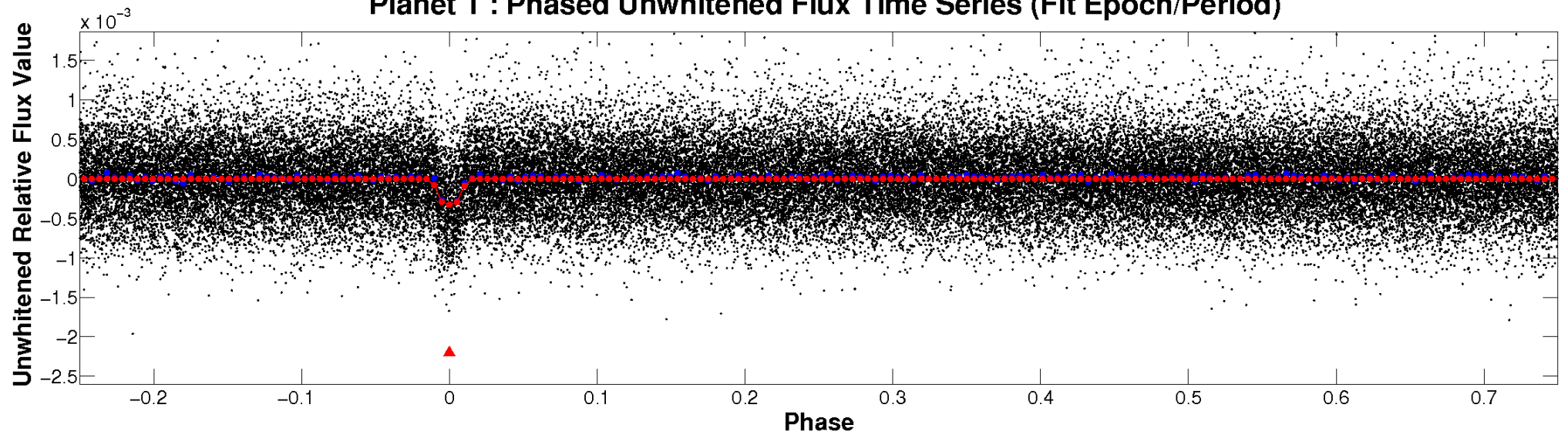
# ALT Odd/Even

TCE 007457296-01

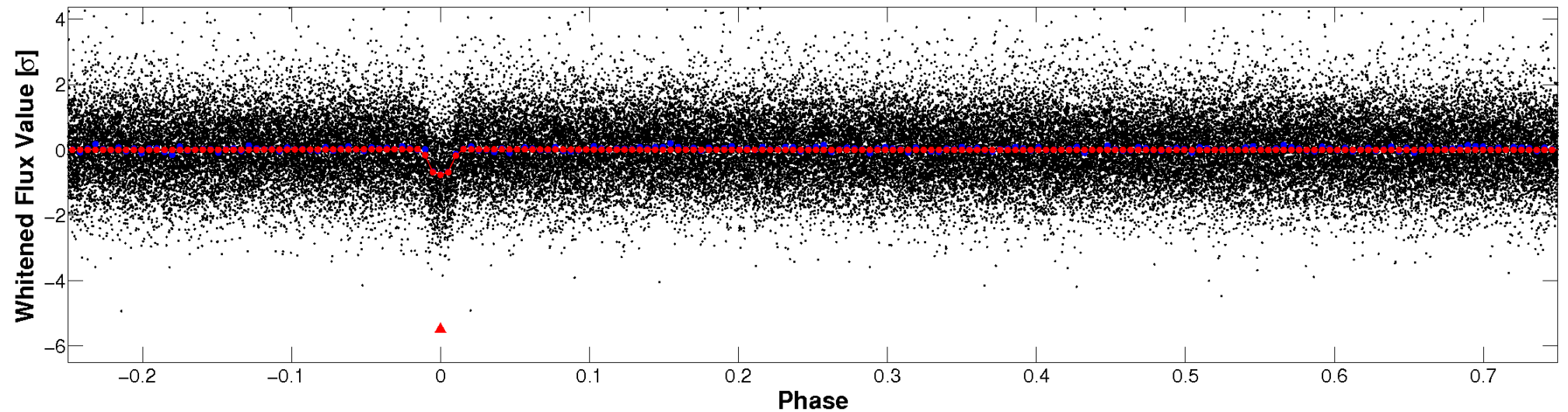


# Non-Whitened Vs. Whitened Light Curve

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

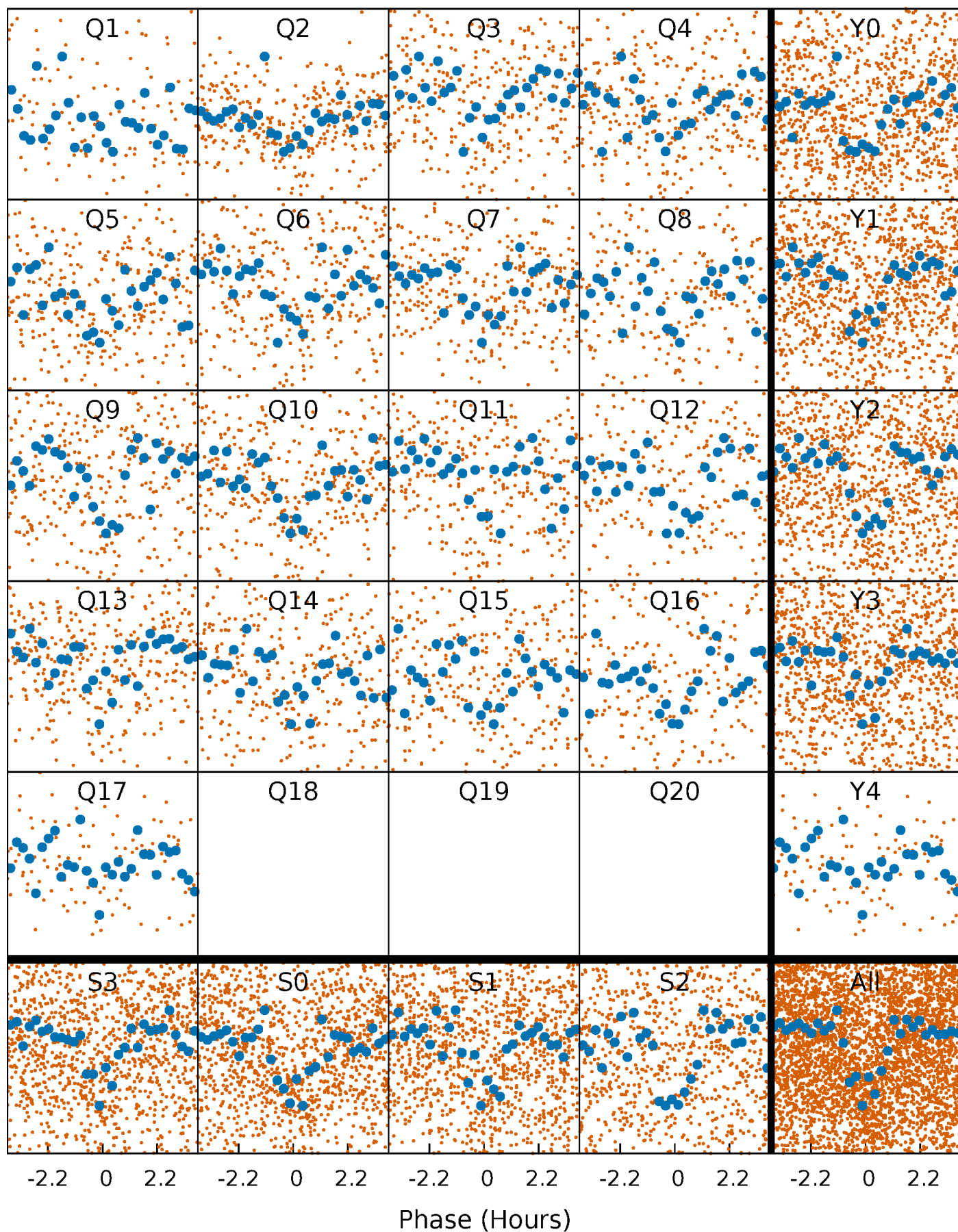


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

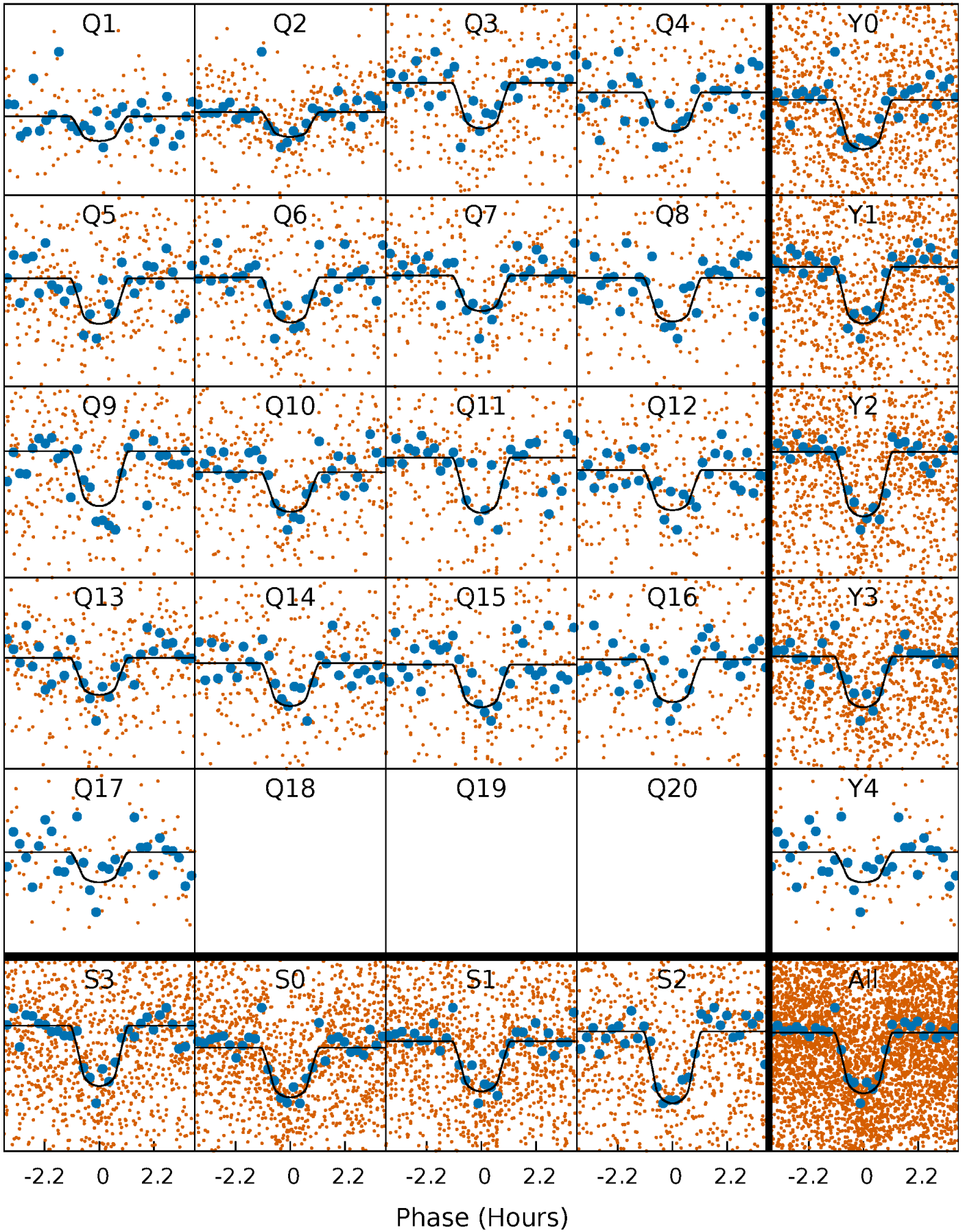
TCE 007457296-01 P= 3.970720 Days  $T_0=134.647581$  (BKJD)





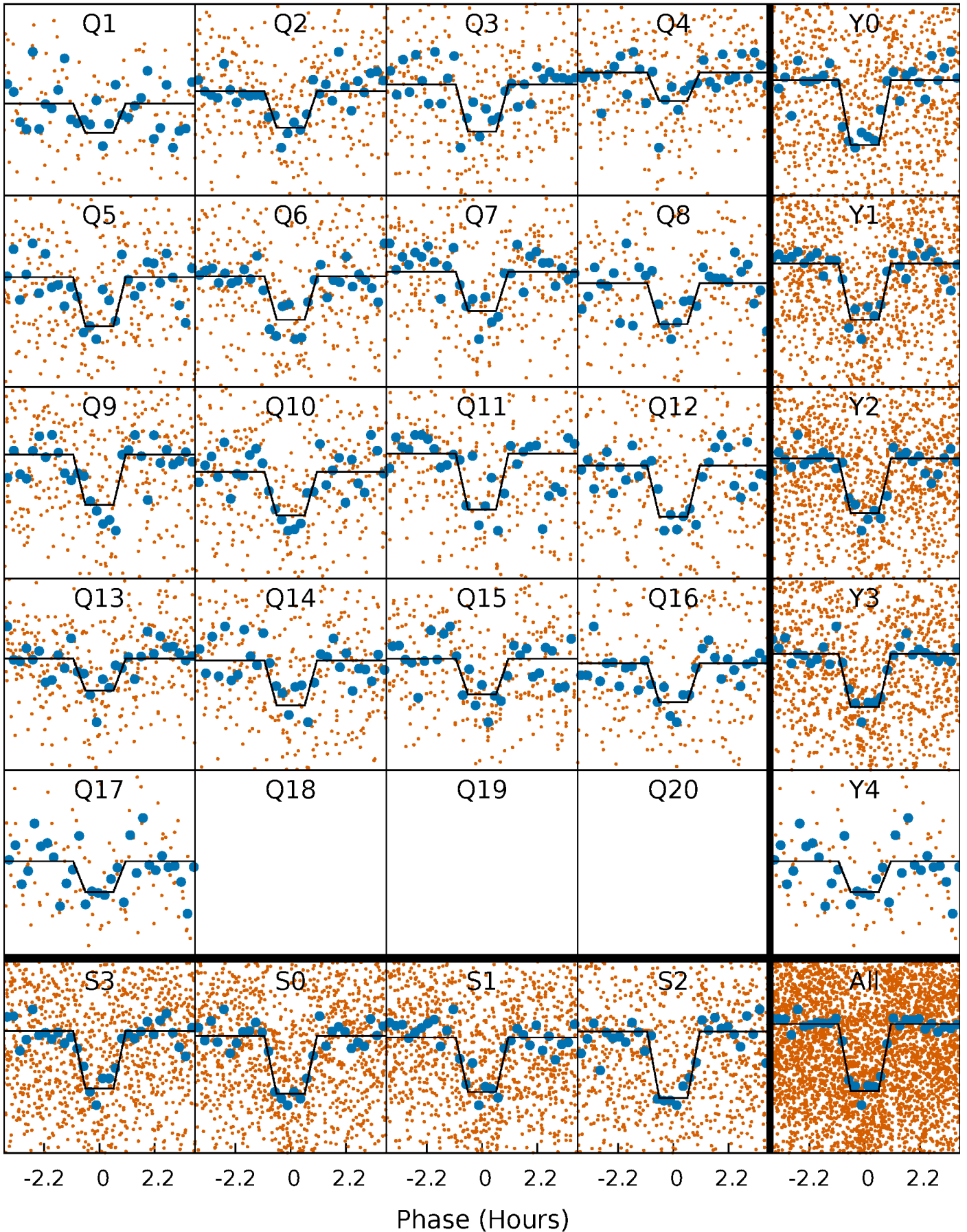
# DV Quarter-Phased Transit Curves

TCE 007457296-01 P= 3.970720 Days  $T_0=134.647581$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

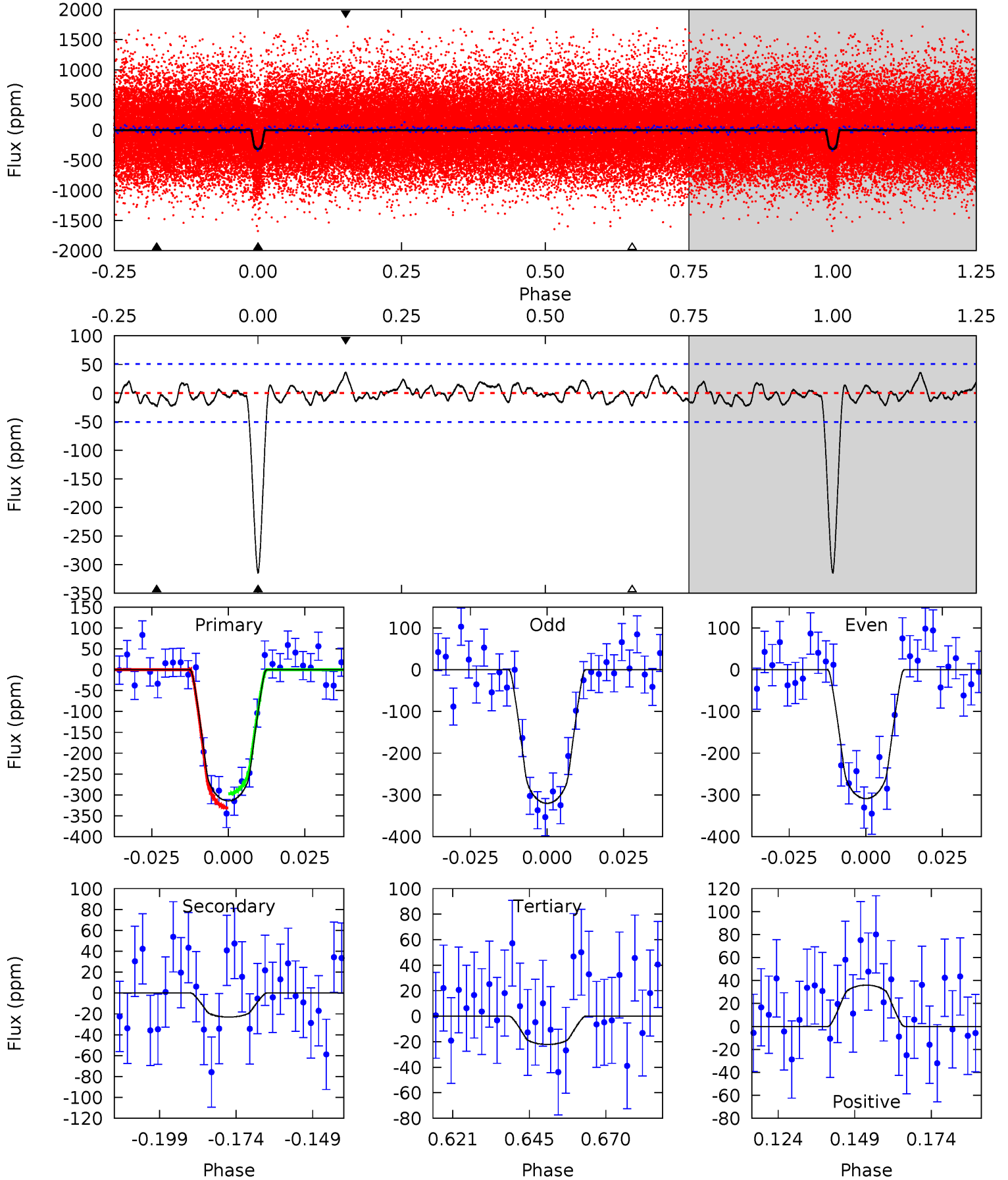
TCE 007457296-01 P= 3.970723 Days  $T_0=134.647623$  (BKJD)



# DV Model-Shift Uniqueness Test

007457296-01, P = 3.970720 Days, E = 130.676861 Days

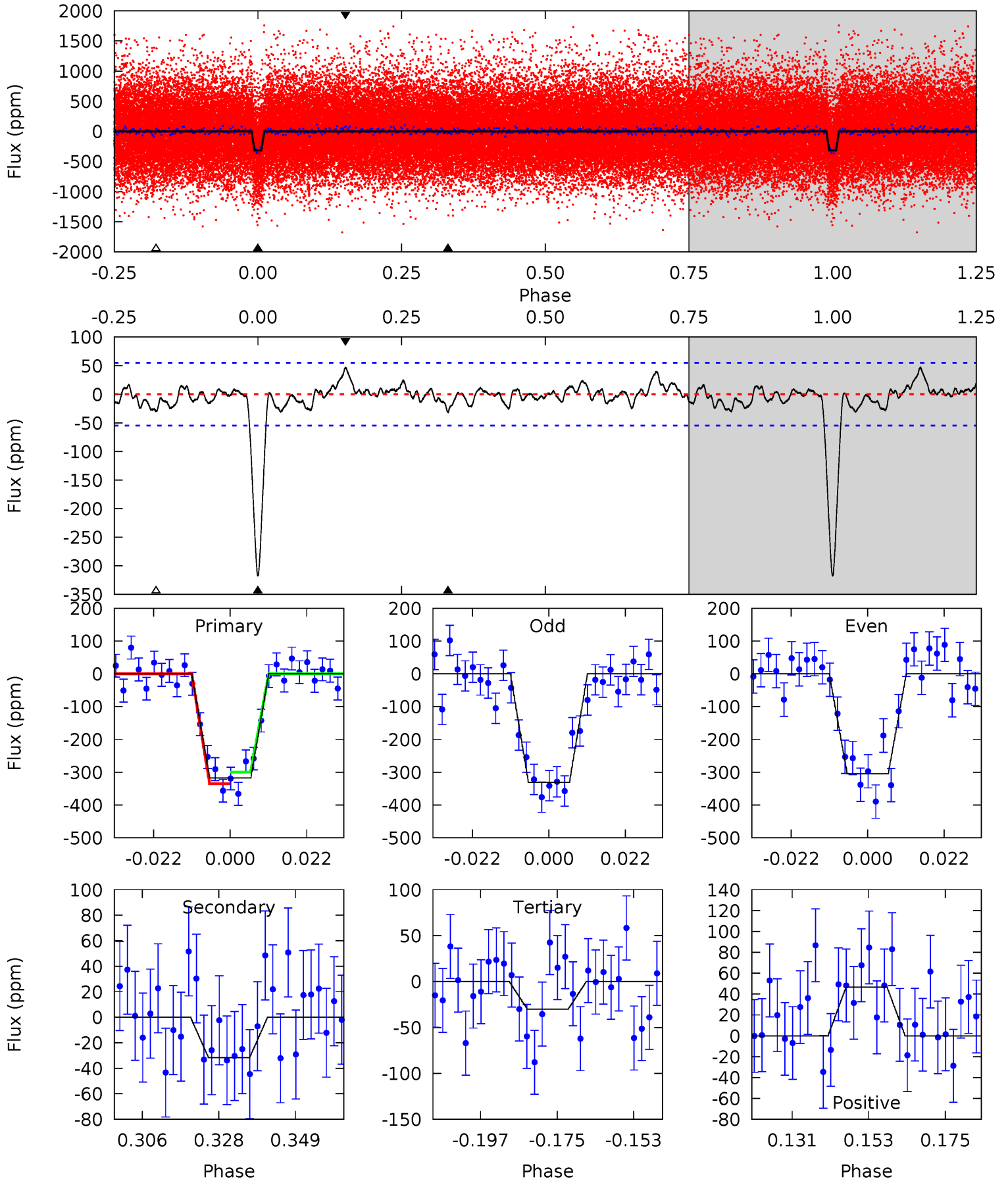
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.0	2.20	2.11	3.43	4.85	2.24	1.05	27.9	26.6	0.09	-1.24	0.54	0.99	0.10	1.62



# Alt Model-Shift Uniqueness Test

007457296-01, P = 3.970723 Days, E = 130.676900 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
28.2	2.81	2.66	4.15	4.87	2.29	1.18	25.6	24.1	0.16	-1.33	1.18	0.94	0.13	1.59





### Stellar Parameters For KIC 007457296

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5178^{+153}_{-153}$	$4.521^{+0.085}_{-0.076}$	$-0.260^{+0.300}_{-0.300}$	$0.778^{+0.088}_{-0.088}$	$0.732^{+0.106}_{-0.049}$	$2.194^{+0.863}_{-0.522}$
	+3%/-3%	+2%/-2%	+115%/-115%	+11%/-11%	+14%/-7%	+39%/-24%
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 007457296-01 / KOI 2213.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-23 \pm 10$	$1.66^{+0.82}_{-0.69}$	$1337^{+59}_{-60}$	$3102^{+621}_{-406}$	$8.679^{+18.315}_{-5.462}$
Alt.	$-32 \pm 11$	$1.57^{+0.73}_{-0.76}$	$1333^{+56}_{-52}$	$3341^{+849}_{-409}$	$14^{+40}_{-8}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

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

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

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

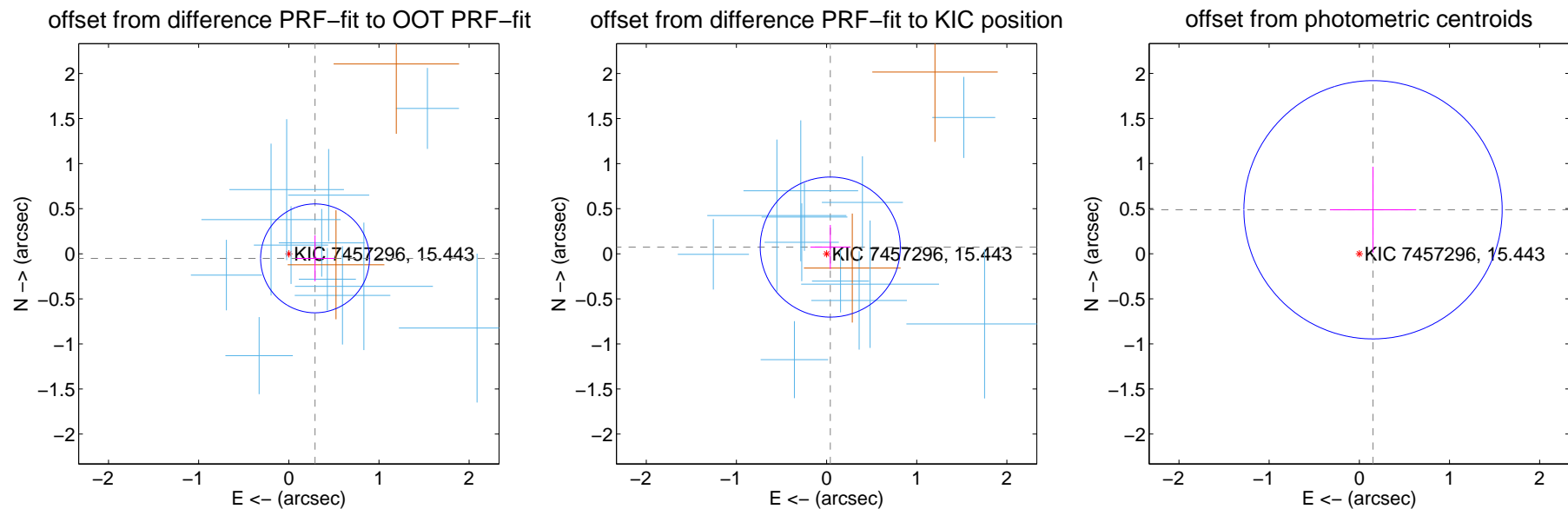
## DV Centroid Data

Supplemental centroid analysis for 007457296-01. Kepler magnitude: 15.44. Transit SNR 22.56

There are 12 quarters with good PRF difference image offsets

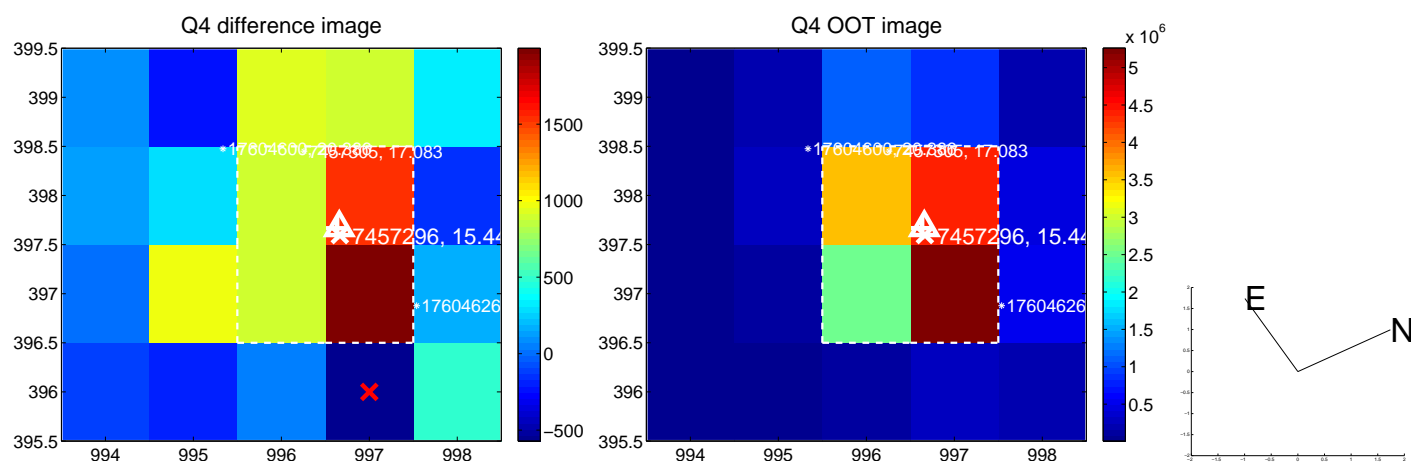
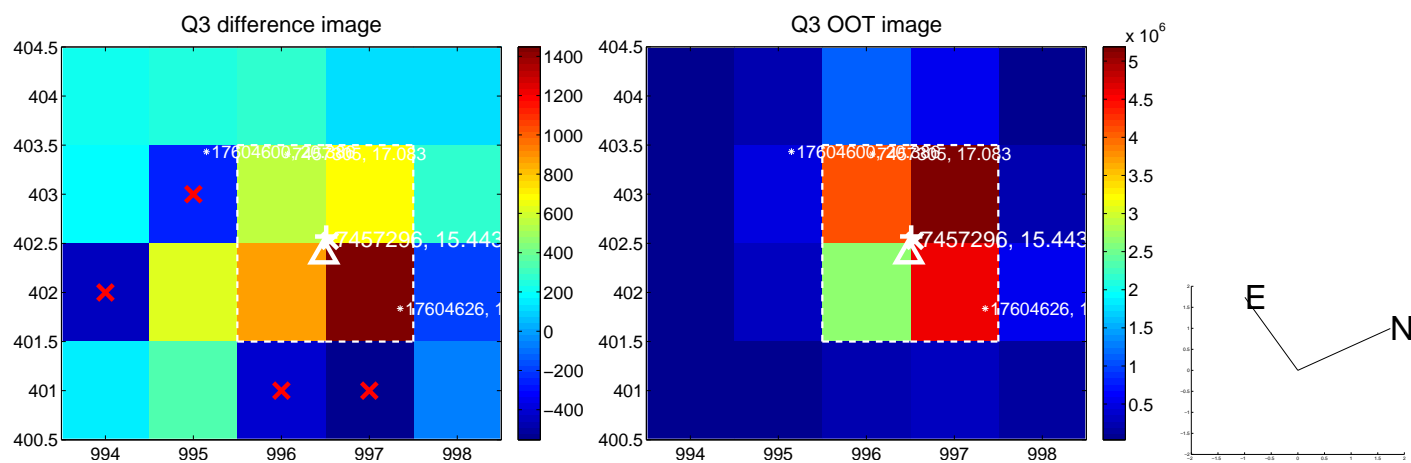
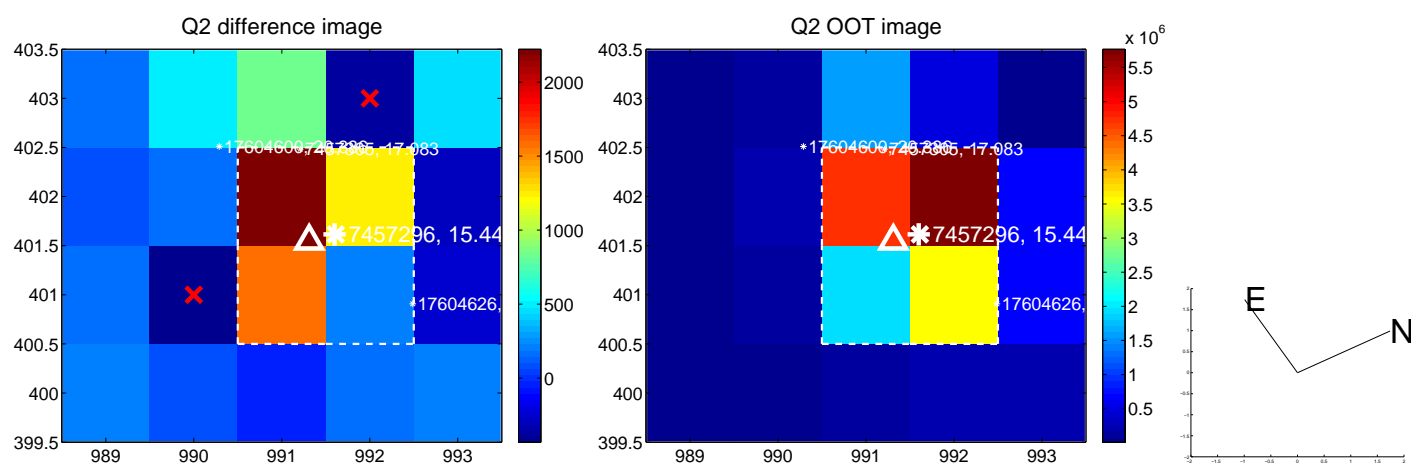
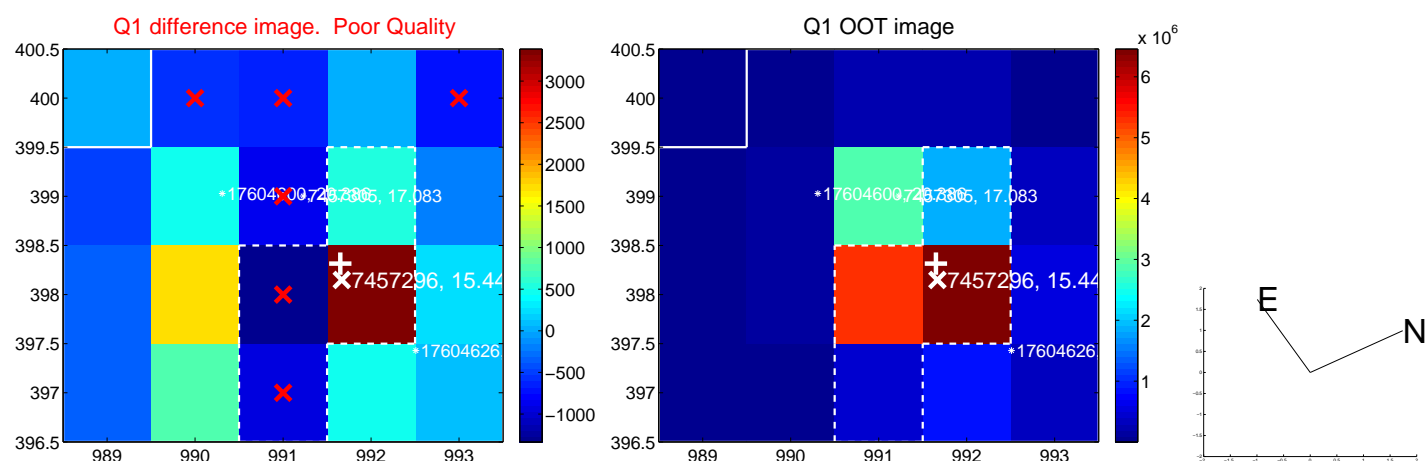
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.295 \pm 0.201$	1.47	$-0.291 \pm 0.212$	$-0.051 \pm 0.254$
PRF-fit source offset from KIC position	$0.085 \pm 0.259$	0.33	$-0.041 \pm 0.221$	$0.075 \pm 0.244$
photometric centroid source offset	$0.51 \pm 0.48$	1.07	$-0.15 \pm 0.48$	$0.49 \pm 0.48$

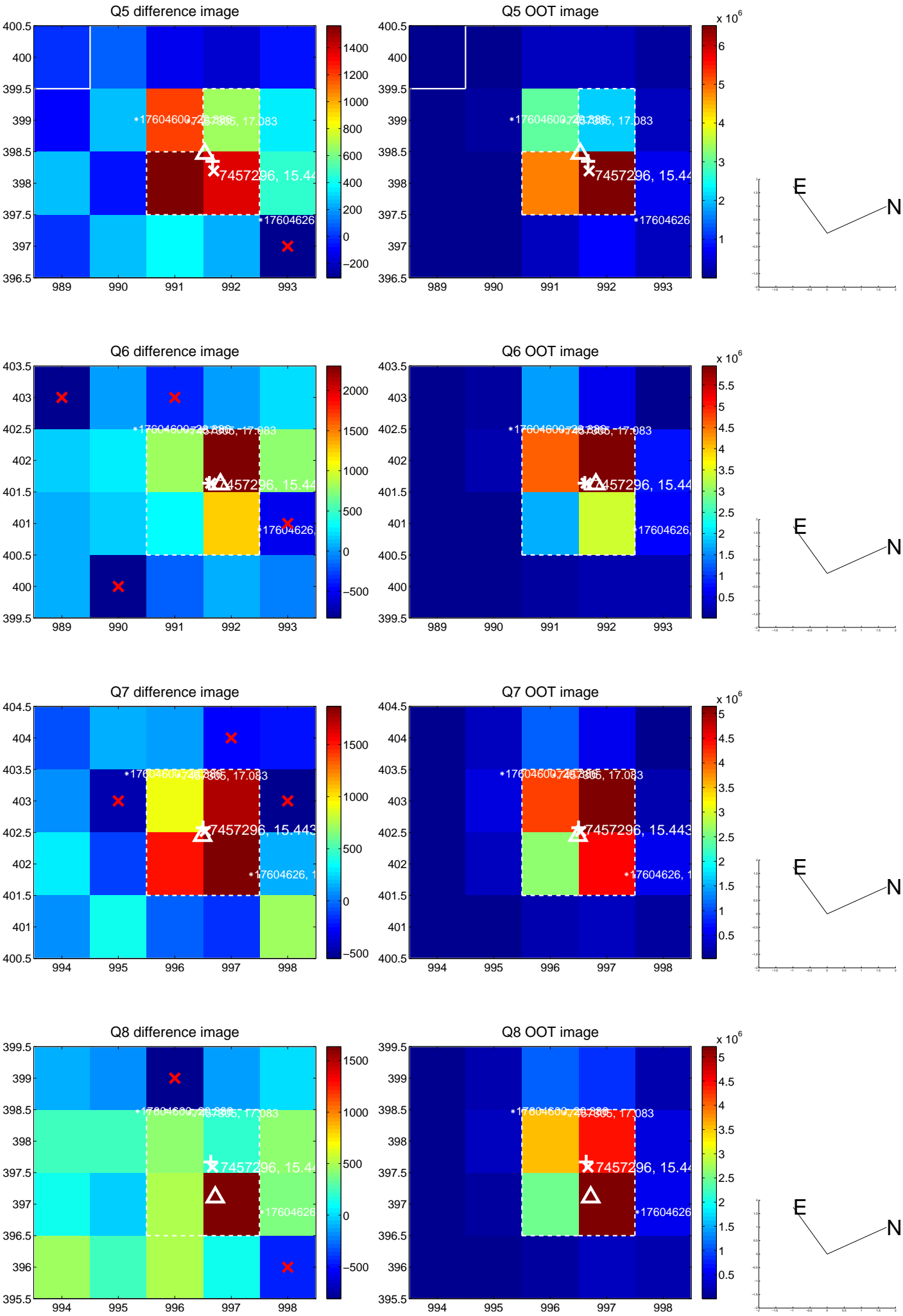


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

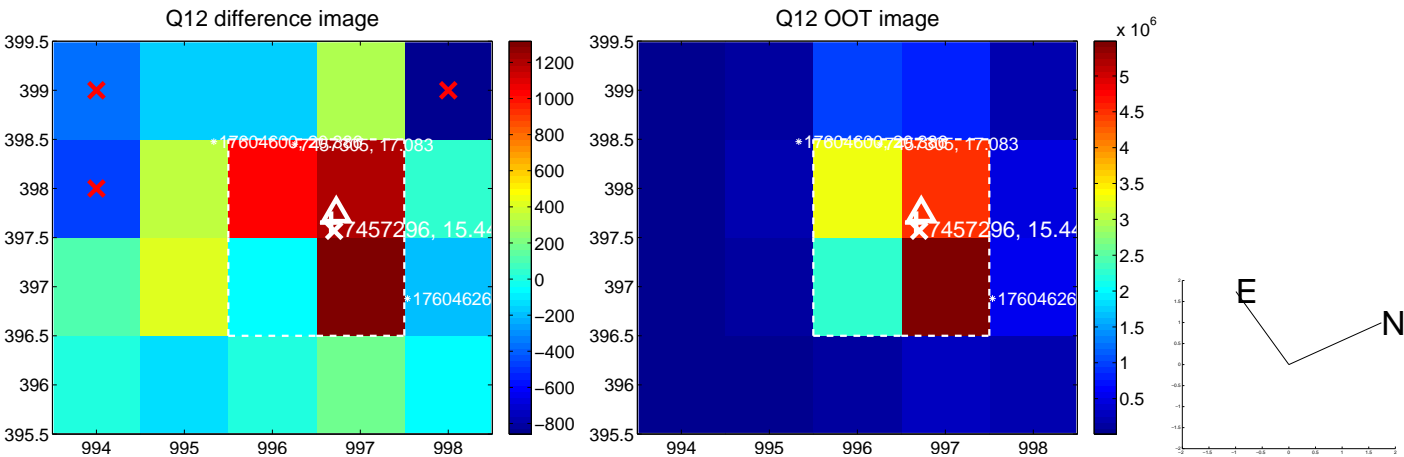
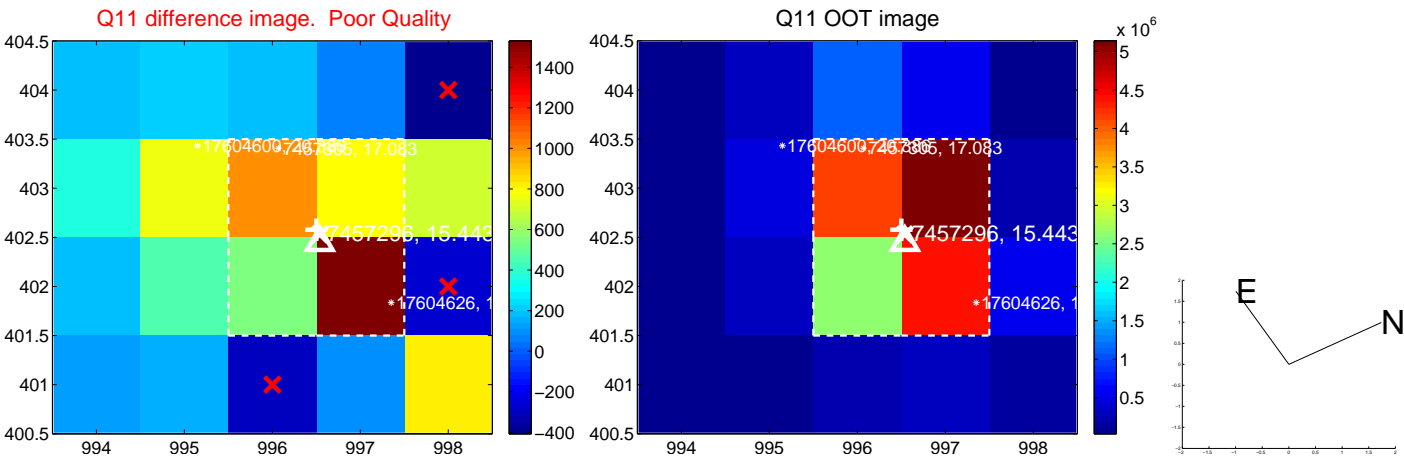
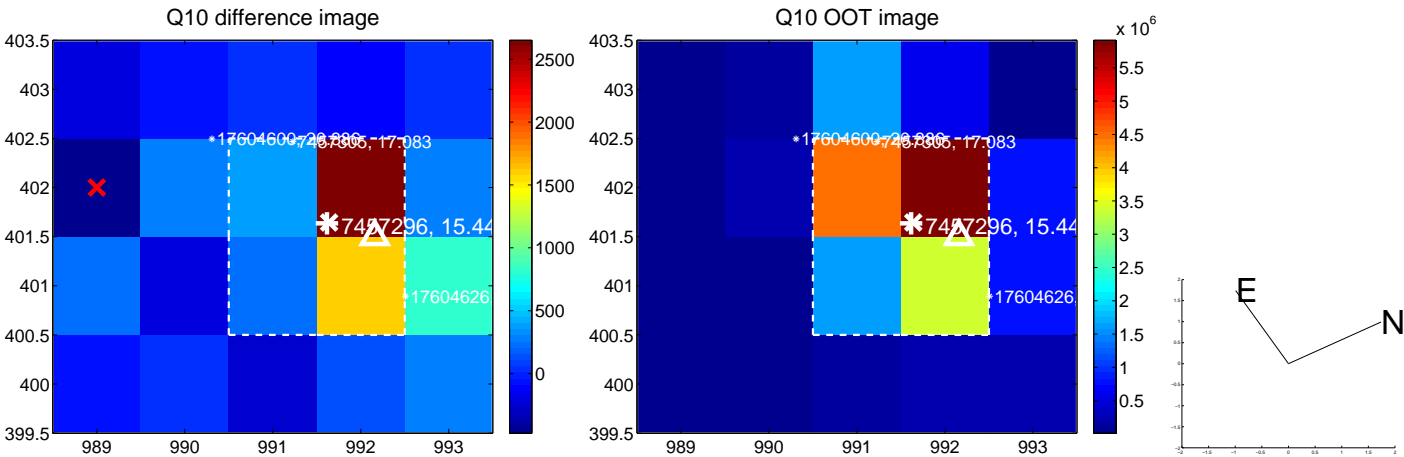
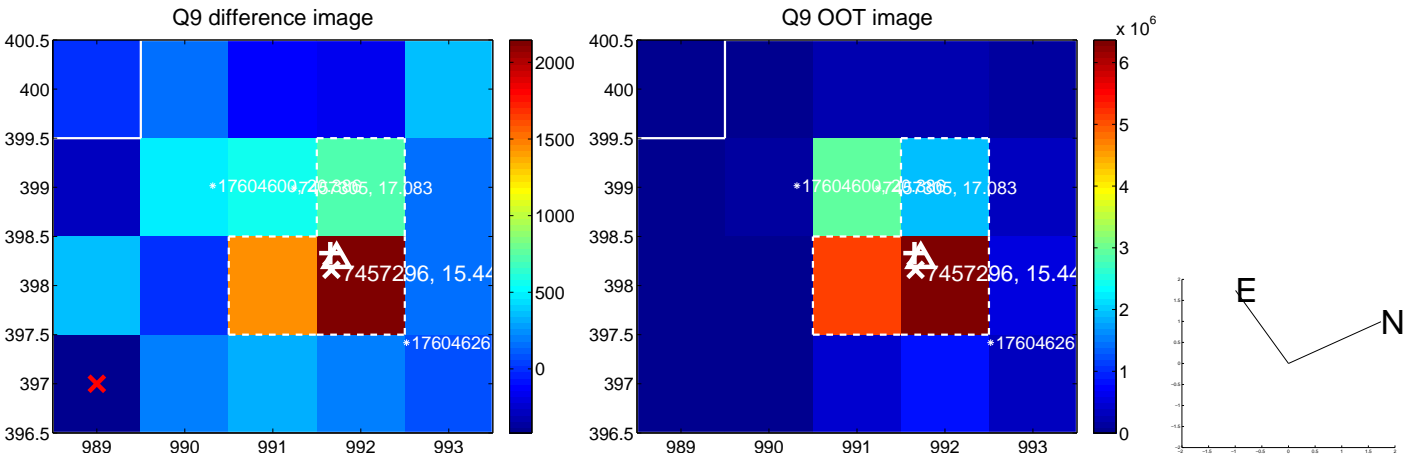


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

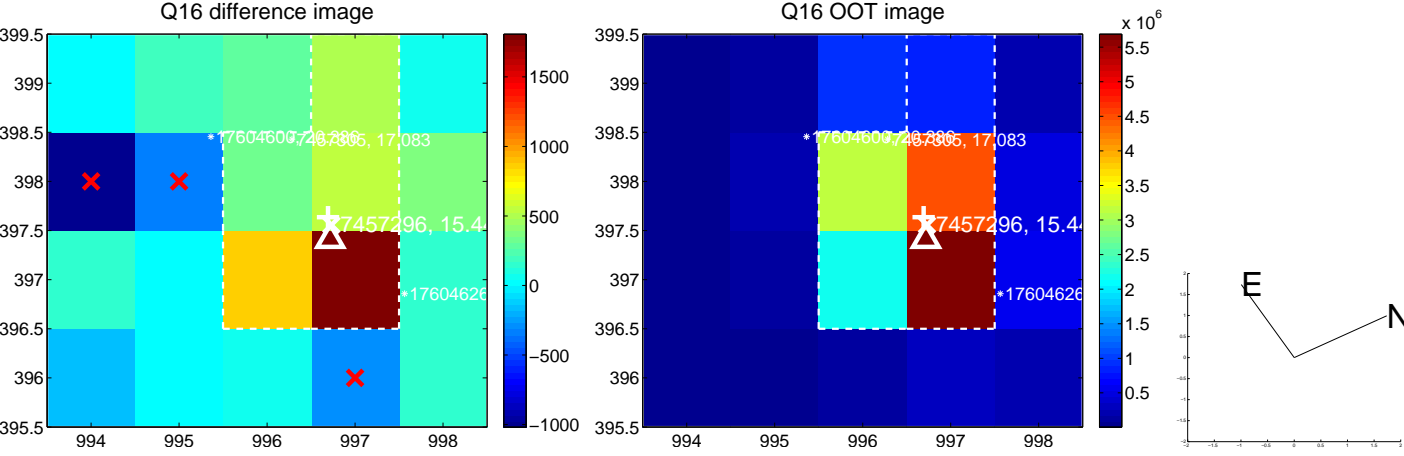
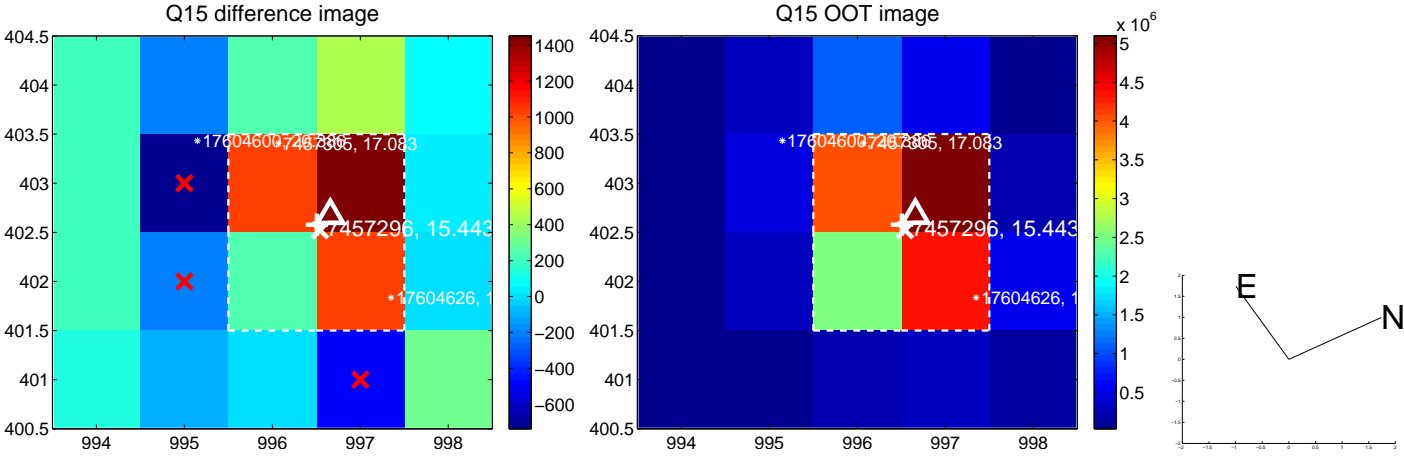
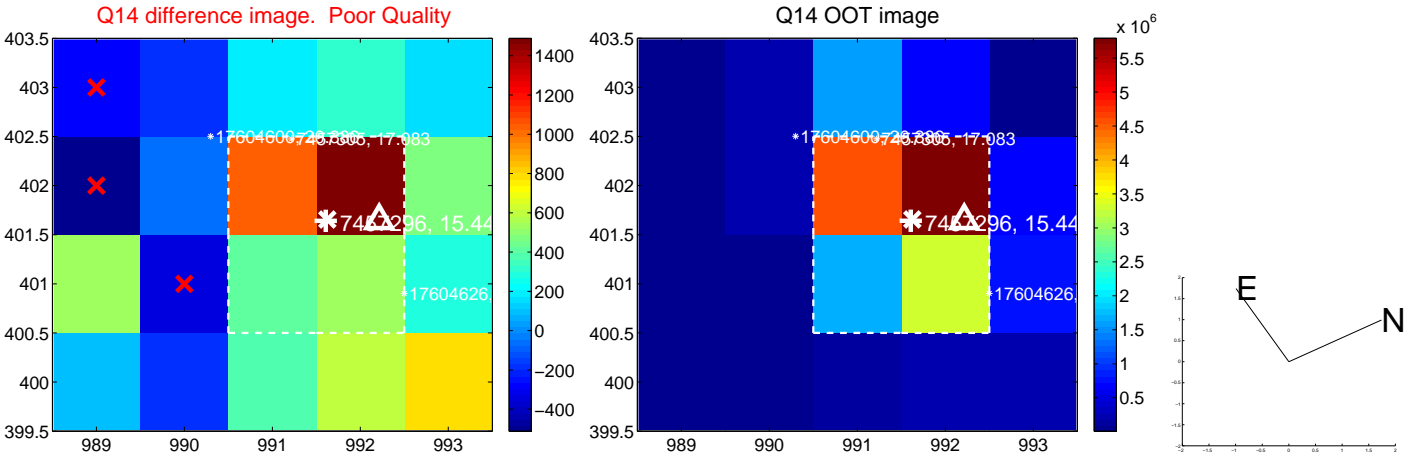
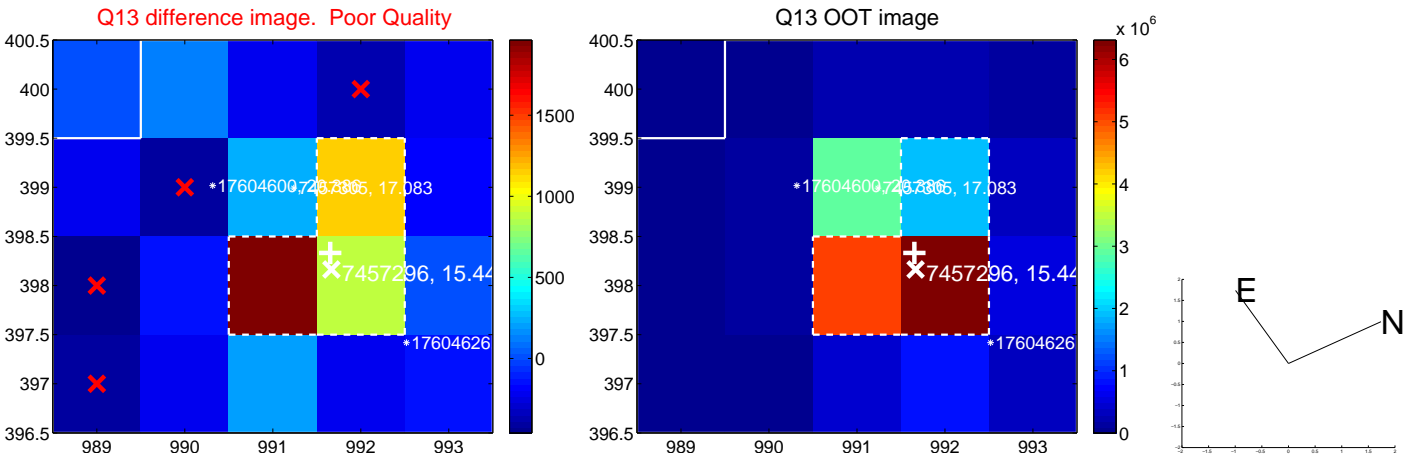




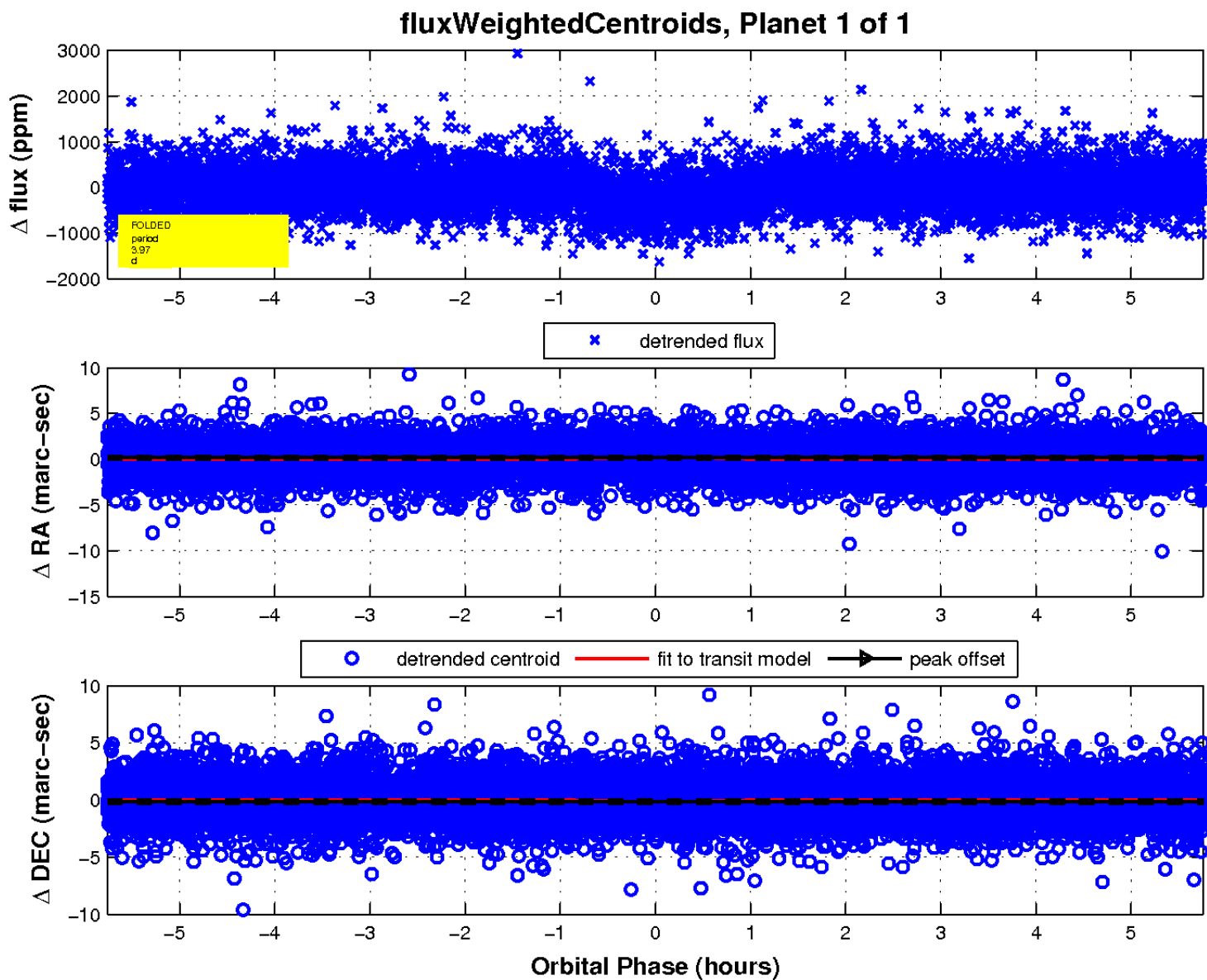
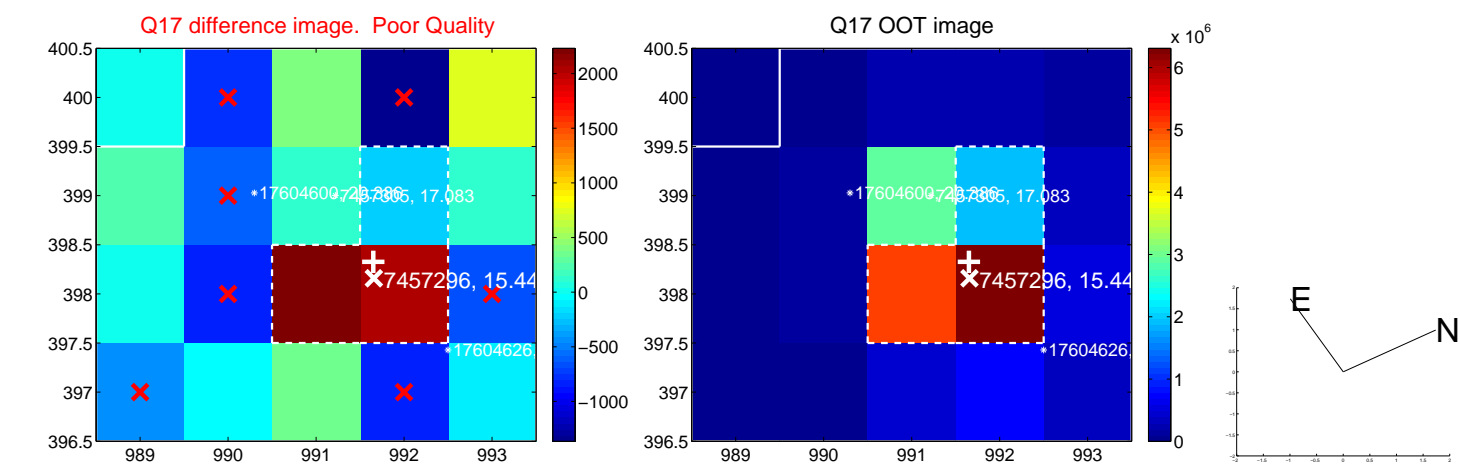
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

