

# KIC 004459285

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004459285-01	OBS	No	1.384657	132.601635	11.3	11.173	8.6	5.5	3.71	7141	1.46	36366.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004459285-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

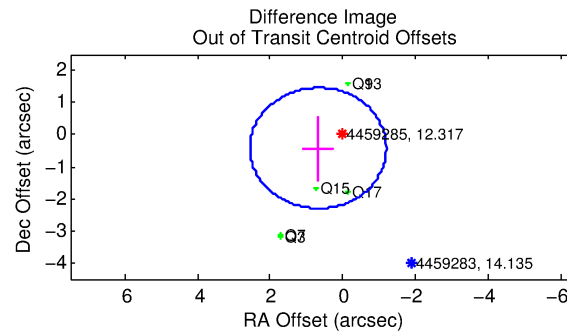
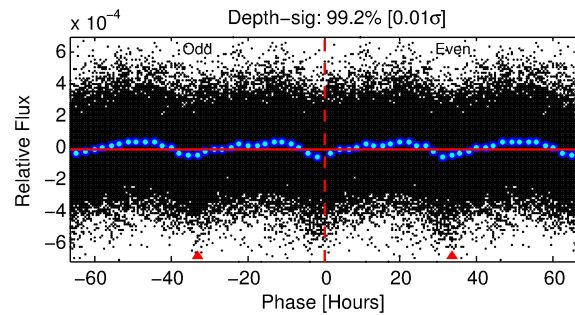
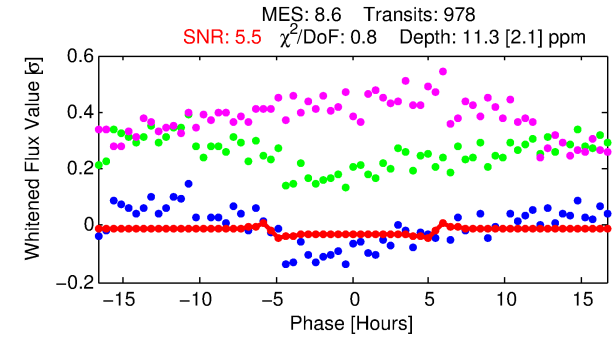
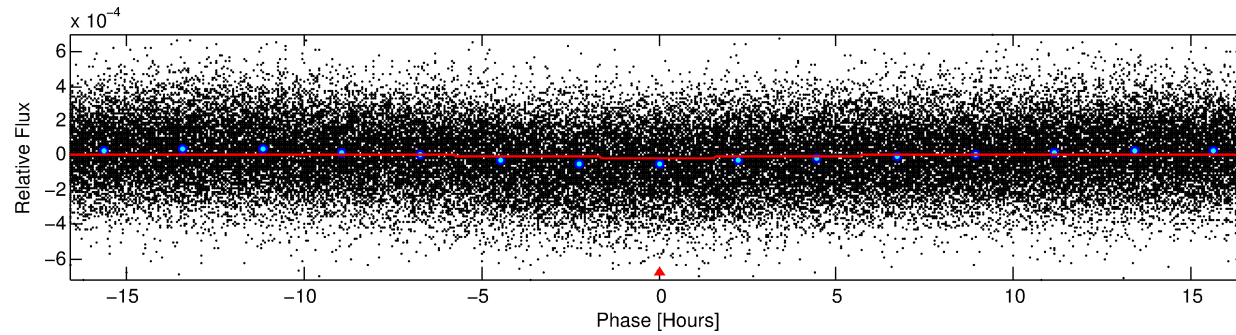
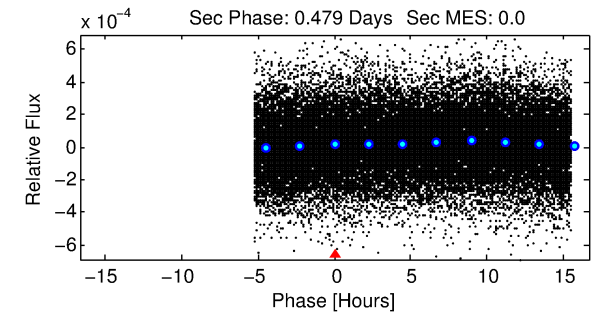
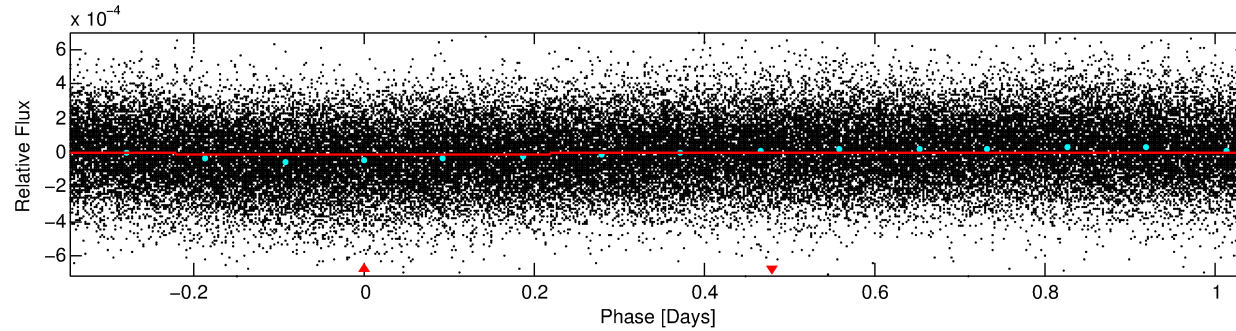
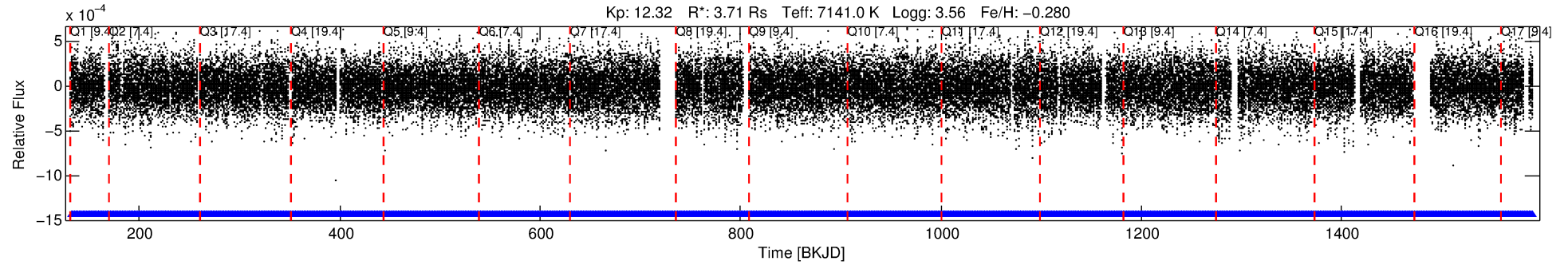
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004459285-01

No Significant Match Found

# DV One-Page Summary

KIC: 4459285 Candidate: 1 of 1 Period: 1.385 d



## DV Fit Results:

Period = 1.38466 [0.00004] d  
Epoch = 132.6016 [0.0088] BKJD  
Rp/R\* = 0.0036 [0.0014]  
a/R\* = 1.03 [0.16]  
b = 0.90 [0.50]  
Seff = 36366.56 [20120.12]  
Teq = 3521 [487] K  
Rp = 1.46 [0.77] Re  
a = 0.0297 [0.0100] AU  
Ag = N/A  
Teffp = N/A

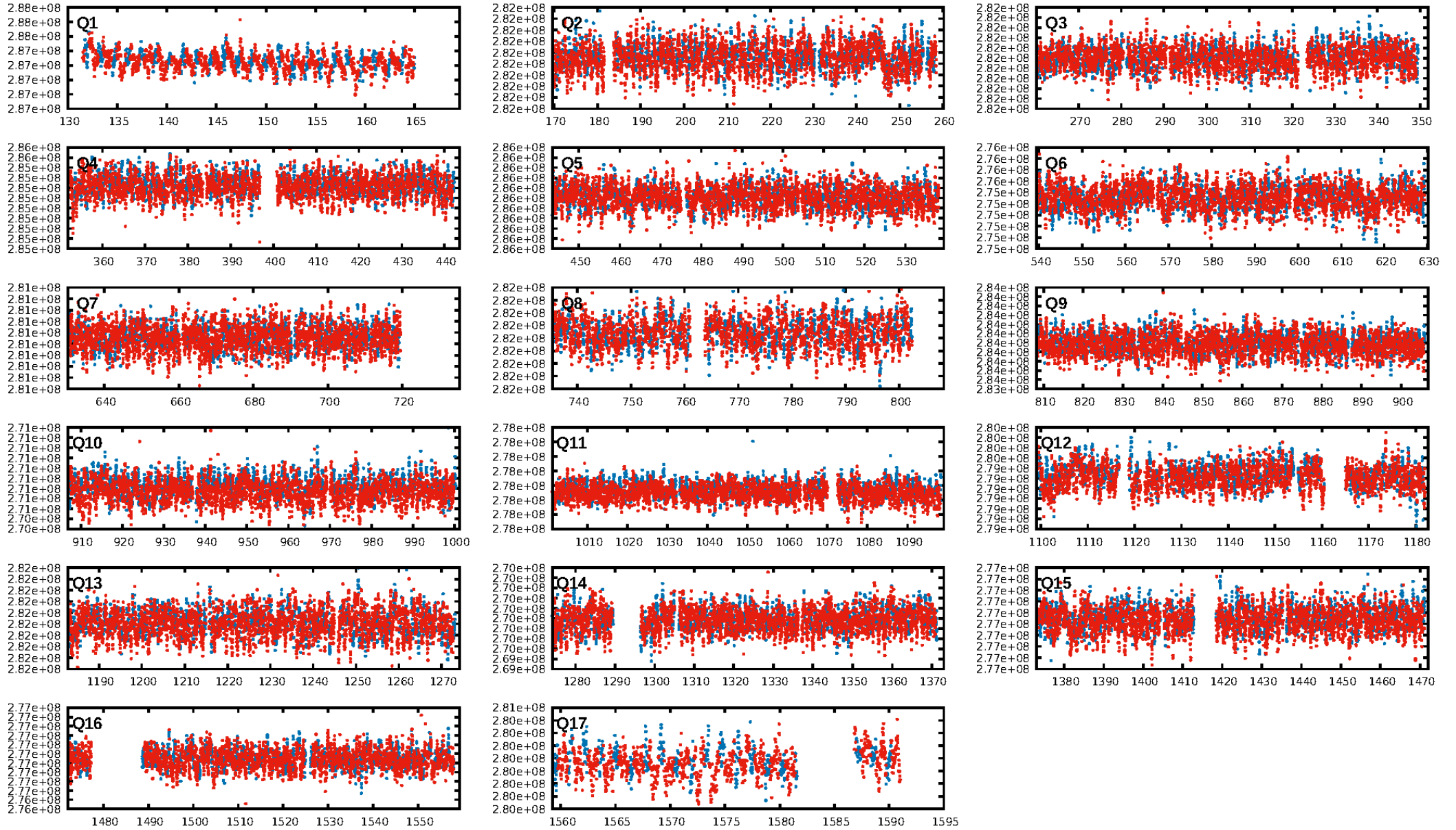
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [935/935]  
GhostDiagnostic-chr: 3.462  
Centroid-sig: 29.8%  
Centroid-so: 0.704 arcsec [1.06σ]  
OotOffset-rm: 0.800 arcsec [1.28σ]  
KicOffset-rm: 0.830 arcsec [1.21σ]  
OotOffset-st: 0/3/0/3 [6]  
KicOffset-st: 0/3/0/3 [6]  
DiffImageQuality-fgm: 1.00 [6/6]  
DiffImageOverlap-fno: 1.00 [17/17]

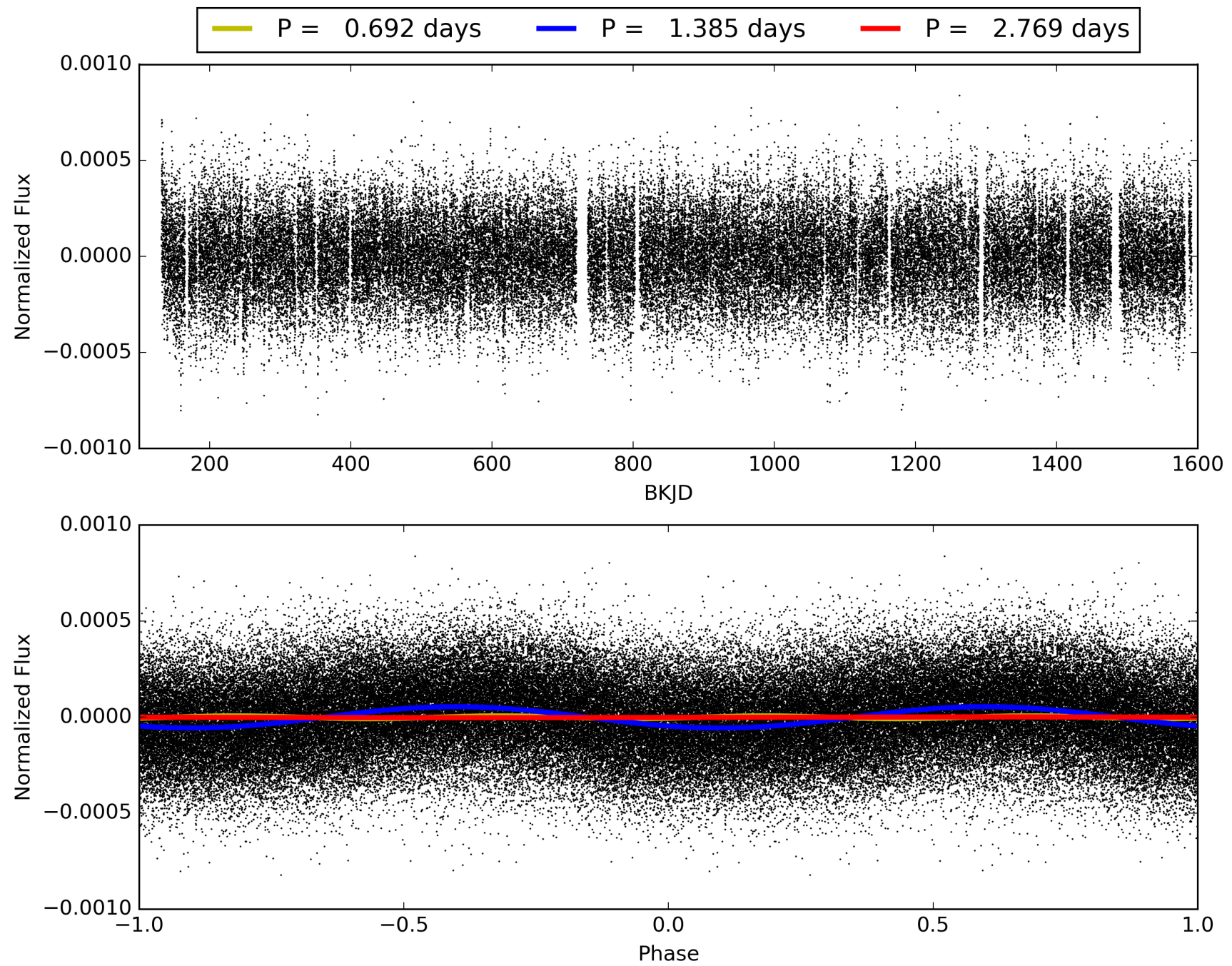
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:09:59 Z

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

# TCE 004459285-01, PDC Light Curves



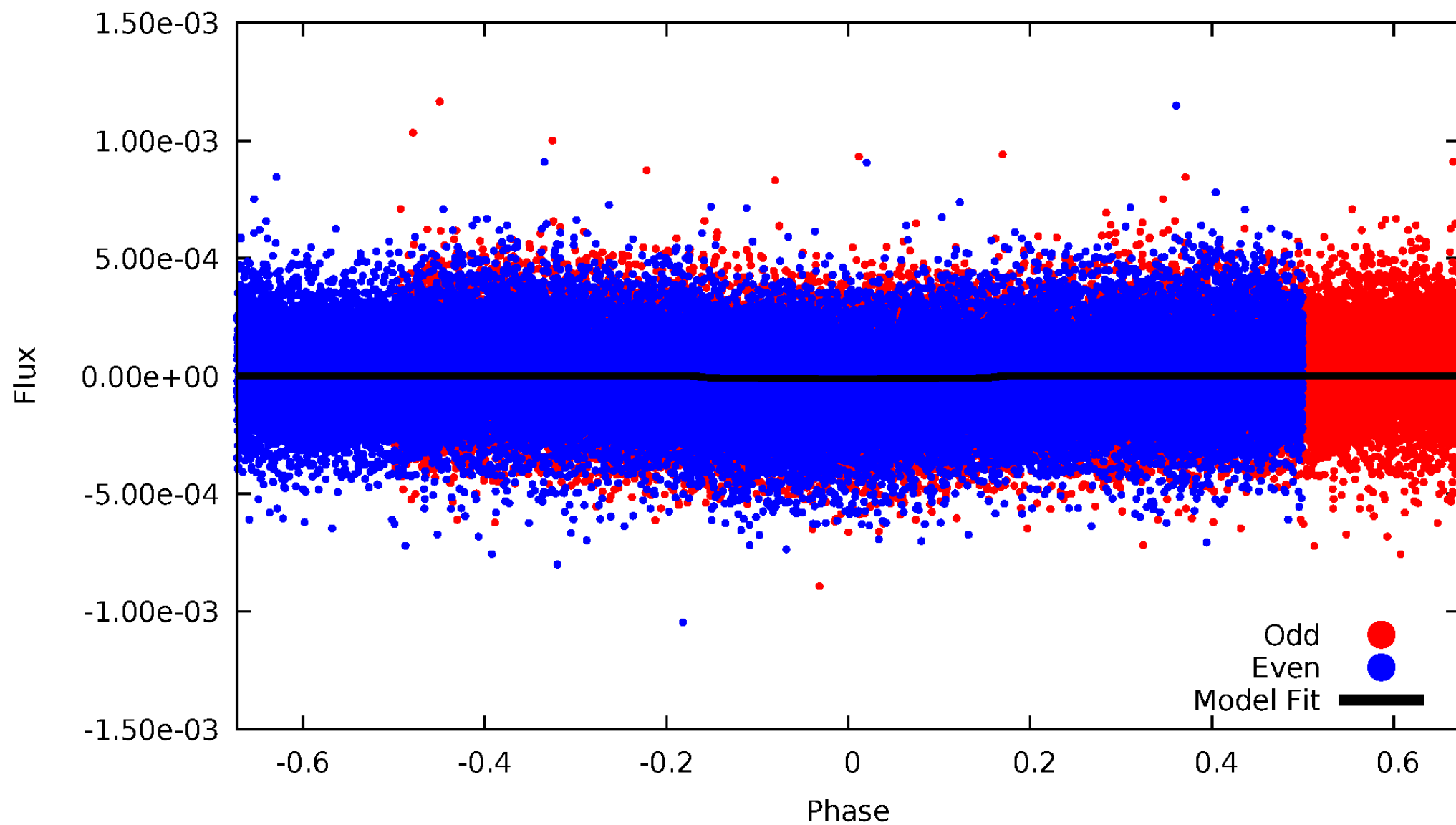
TCE 004459285-01





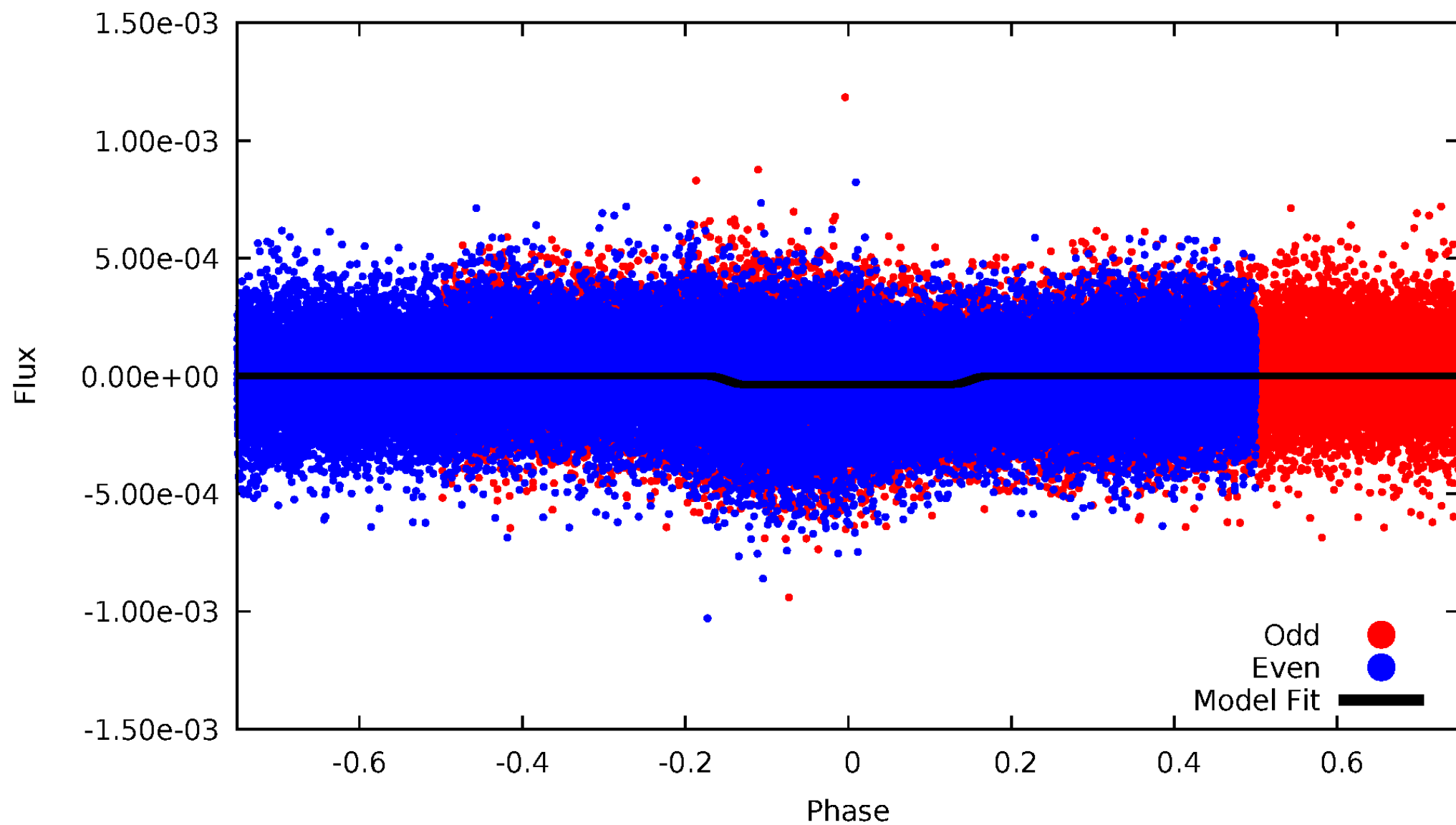
DV Odd/Even

TCE 004459285-01



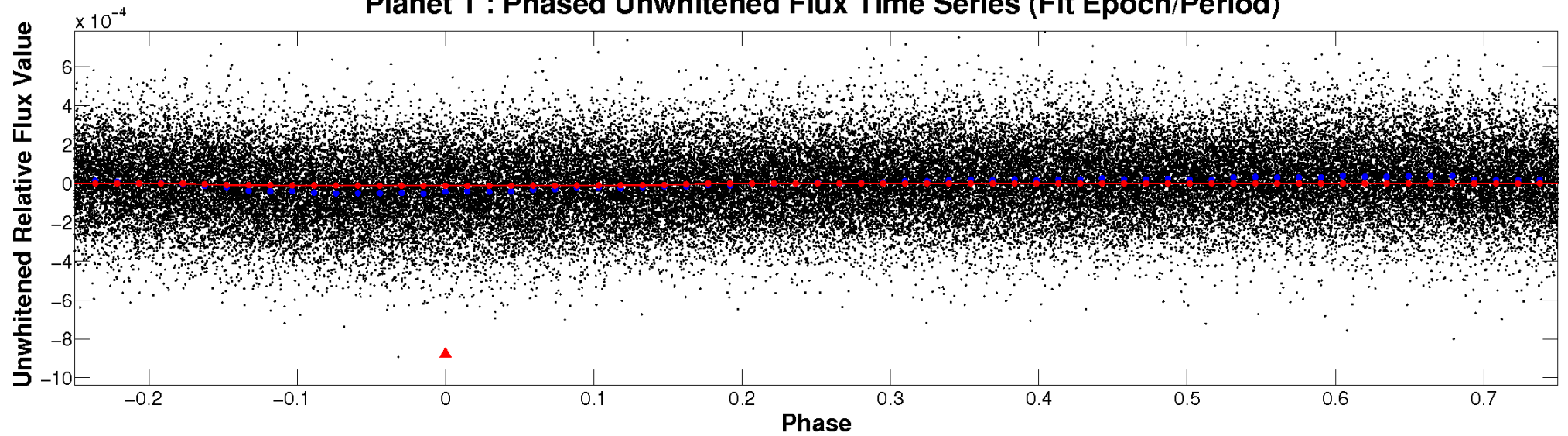
# ALT Odd/Even

TCE 004459285-01

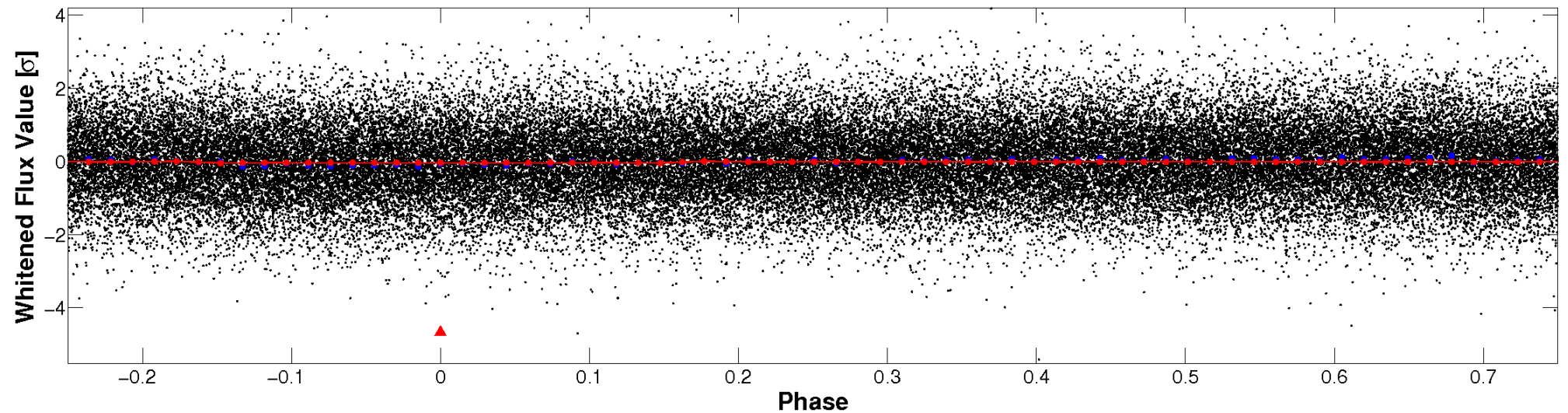


# Non-Whitened Vs. Whitened Light Curve

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

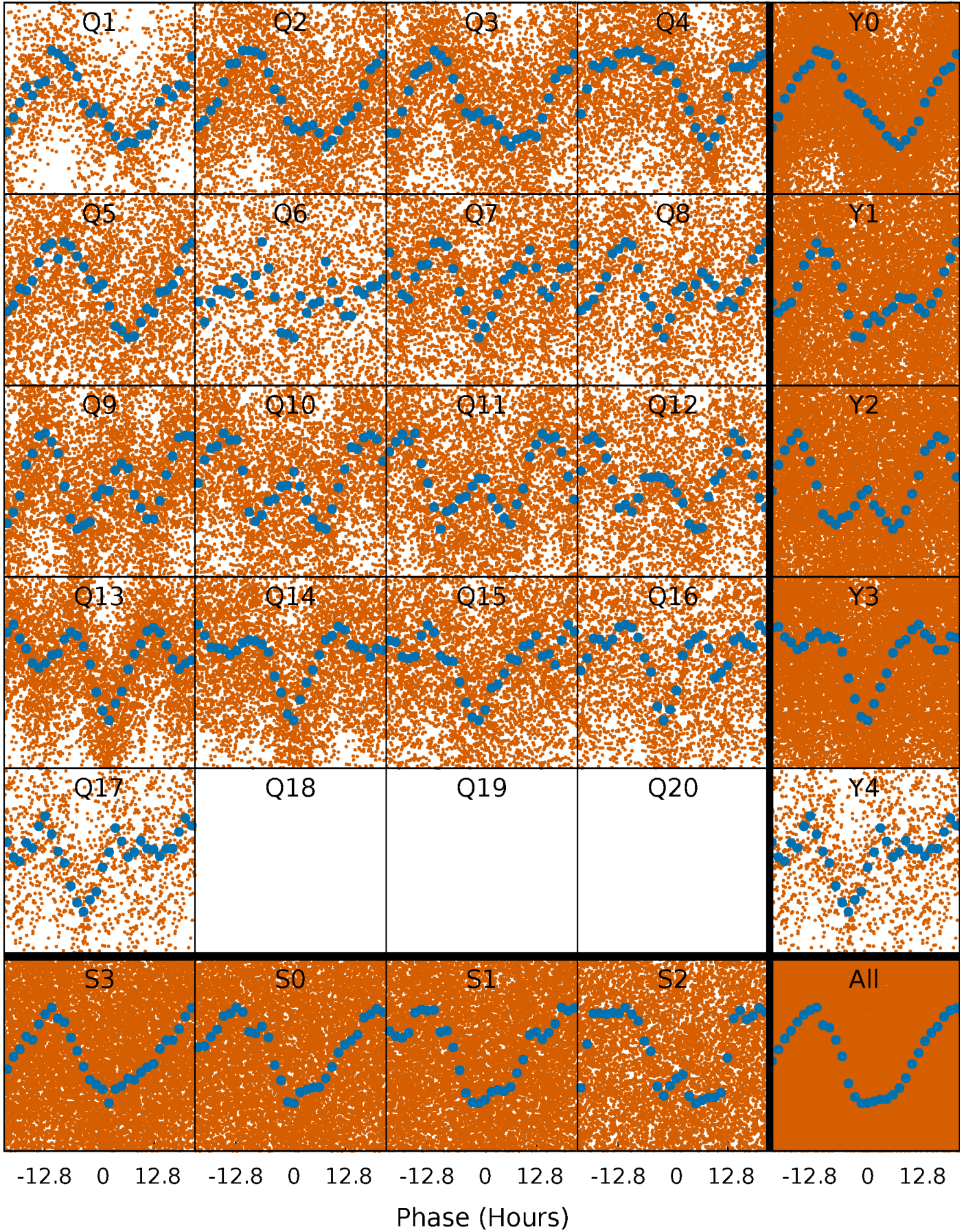


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

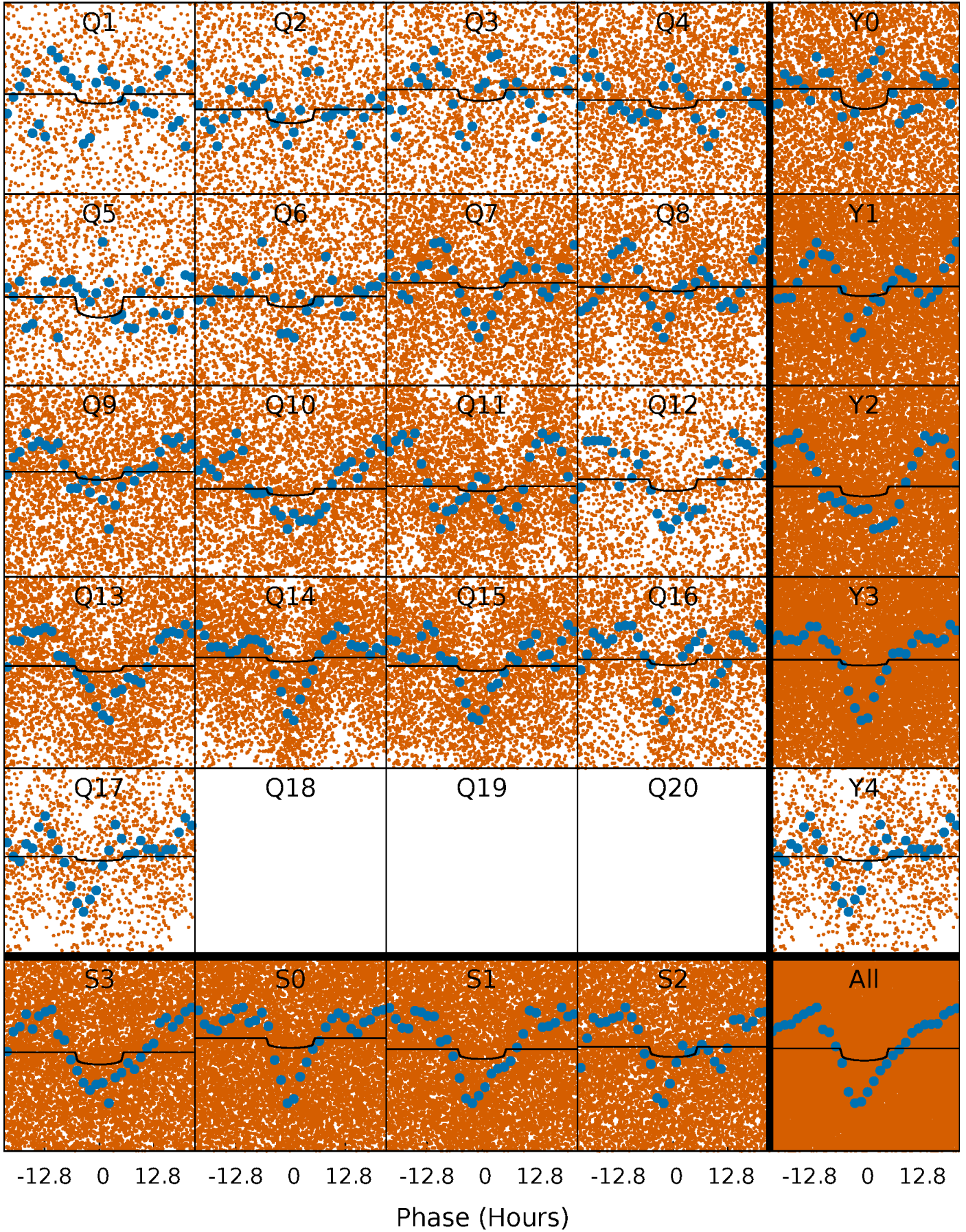
TCE 004459285-01 P= 1.384657 Days  $T_0=132.601635$  (BKJD)





# DV Quarter-Phased Transit Curves

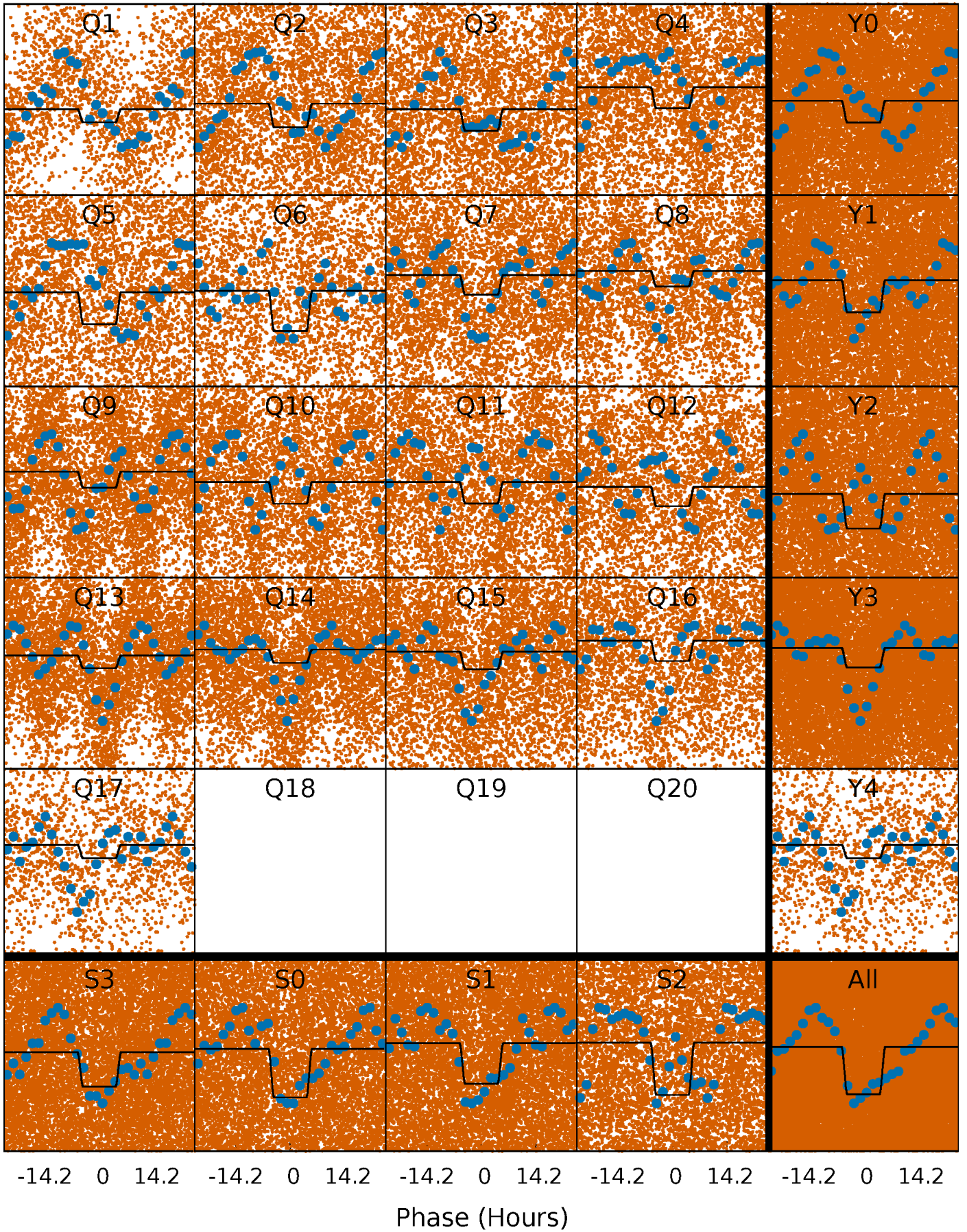
TCE 004459285-01   P= 1.384657 Days    $T_0=132.601635$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

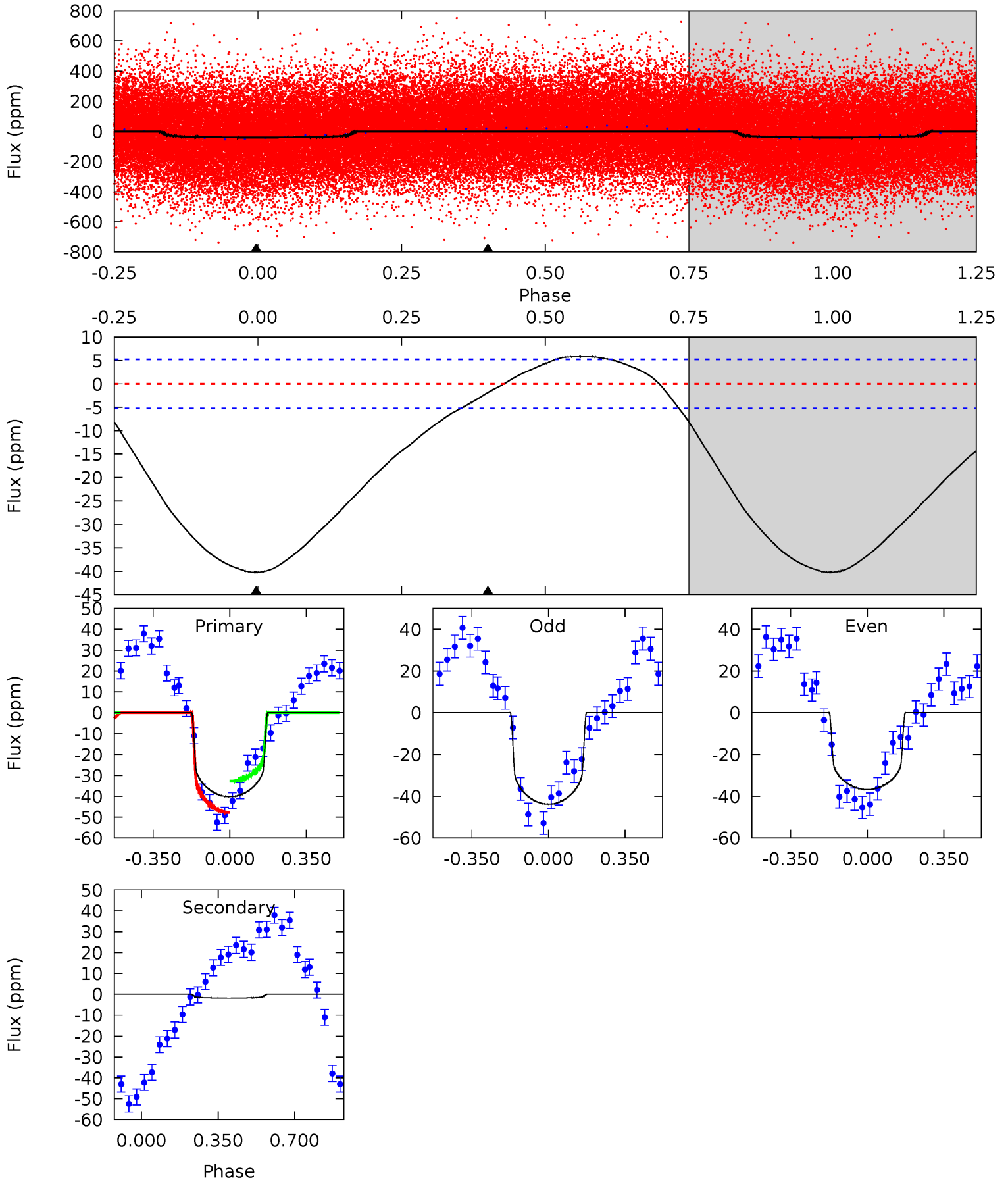
TCE 004459285-01 P= 1.384744 Days  $T_0=132.572025$  (BKJD)



# DV Model-Shift Uniqueness Test

004459285-01, P = 1.384657 Days, E = 131.216978 Days

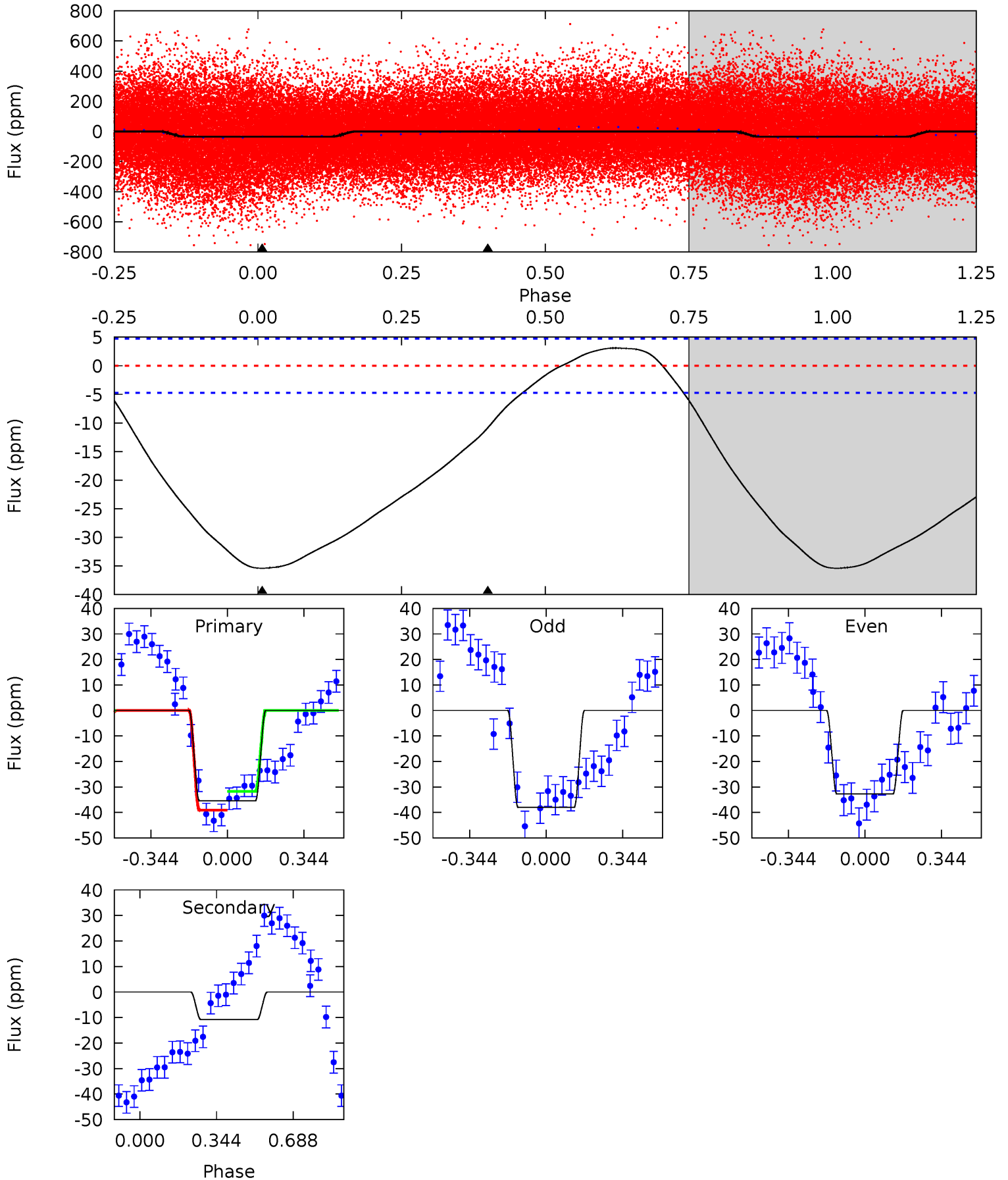
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.0	1.52	0	0	4.29	0.93	2.95	33.0	33.0	1.52	1.52	2.87	1.13	0.13	6.42



# Alt Model-Shift Uniqueness Test

004459285-01, P = 1.384744 Days, E = 131.187281 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
32.1	9.82	0	0	4.30	0.95	2.74	32.1	32.1	9.82	9.82	2.37	1.01	0.08	3.29





### Stellar Parameters For KIC 004459285

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$\rho_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7141^{+191}_{-255}$	$3.560^{+0.312}_{-0.078}$	$-0.280^{+0.300}_{-0.250}$	$3.714^{+0.330}_{-1.322}$	$1.828^{+0.192}_{-0.330}$	$0.050^{+0.106}_{-0.013}$
	+3%/-4%	+9%/-2%	+107%/-89%	+9%/-36%	+11%/-18%	+211%/-25%
Source	PHO1	FLK73	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 004459285-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-2 \pm 1$	$1.36^{+0.66}_{-0.54}$	$4818^{+267}_{-408}$	$3462^{+1855}_{-7349}$	$0.405^{+0.996}_{-0.310}$
Alt.	$-11 \pm 1$	$2.30^{+0.66}_{-0.63}$	$4820^{+257}_{-417}$	$4881^{+847}_{-698}$	$1.001^{+0.906}_{-0.398}$

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

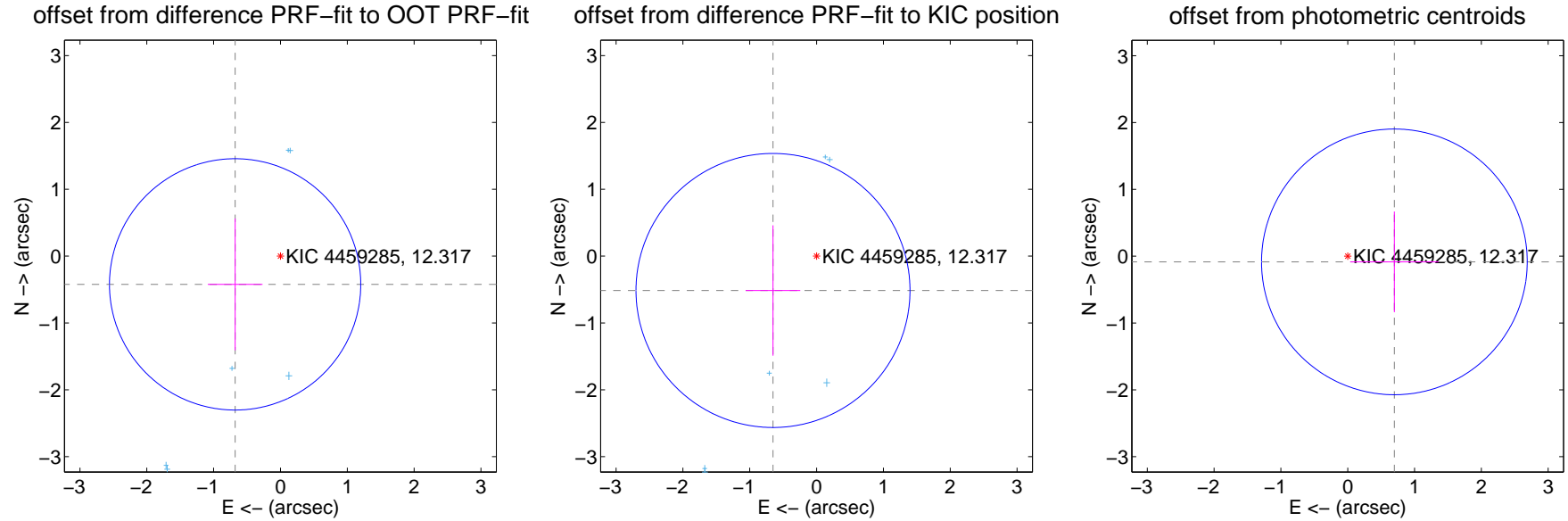
## DV Centroid Data

Supplemental centroid analysis for 004459285-01. Kepler magnitude: 12.32. Transit SNR 5.53

There are 6 quarters with good PRF difference image offsets

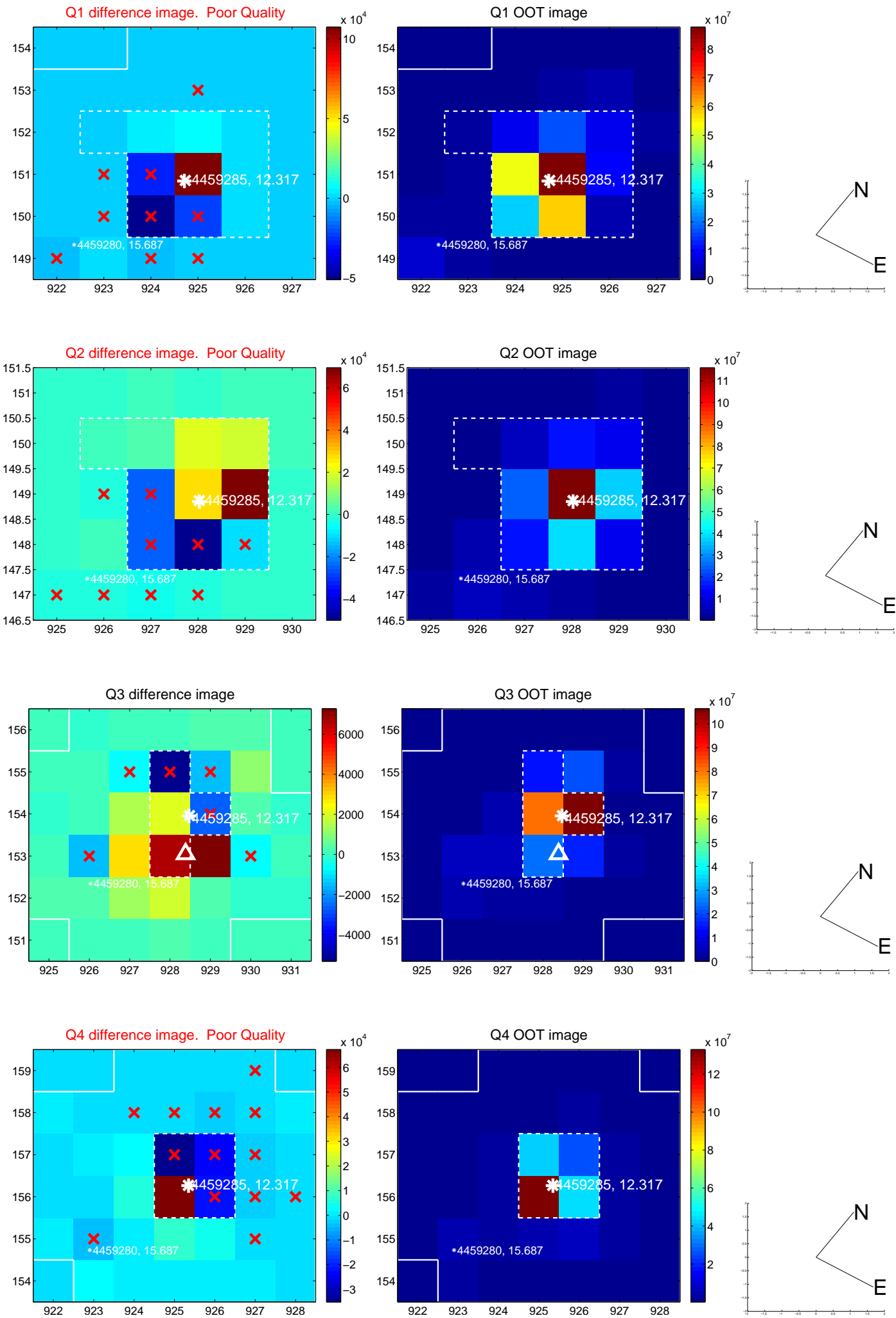
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.800 \pm 0.627$	1.28	$0.679 \pm 0.410$	$-0.423 \pm 0.986$
PRF-fit source offset from KIC position	$0.830 \pm 0.683$	1.21	$0.652 \pm 0.408$	$-0.514 \pm 0.975$
photometric centroid source offset	$0.70 \pm 0.66$	1.06	$-0.70 \pm 0.66$	$-0.08 \pm 0.75$

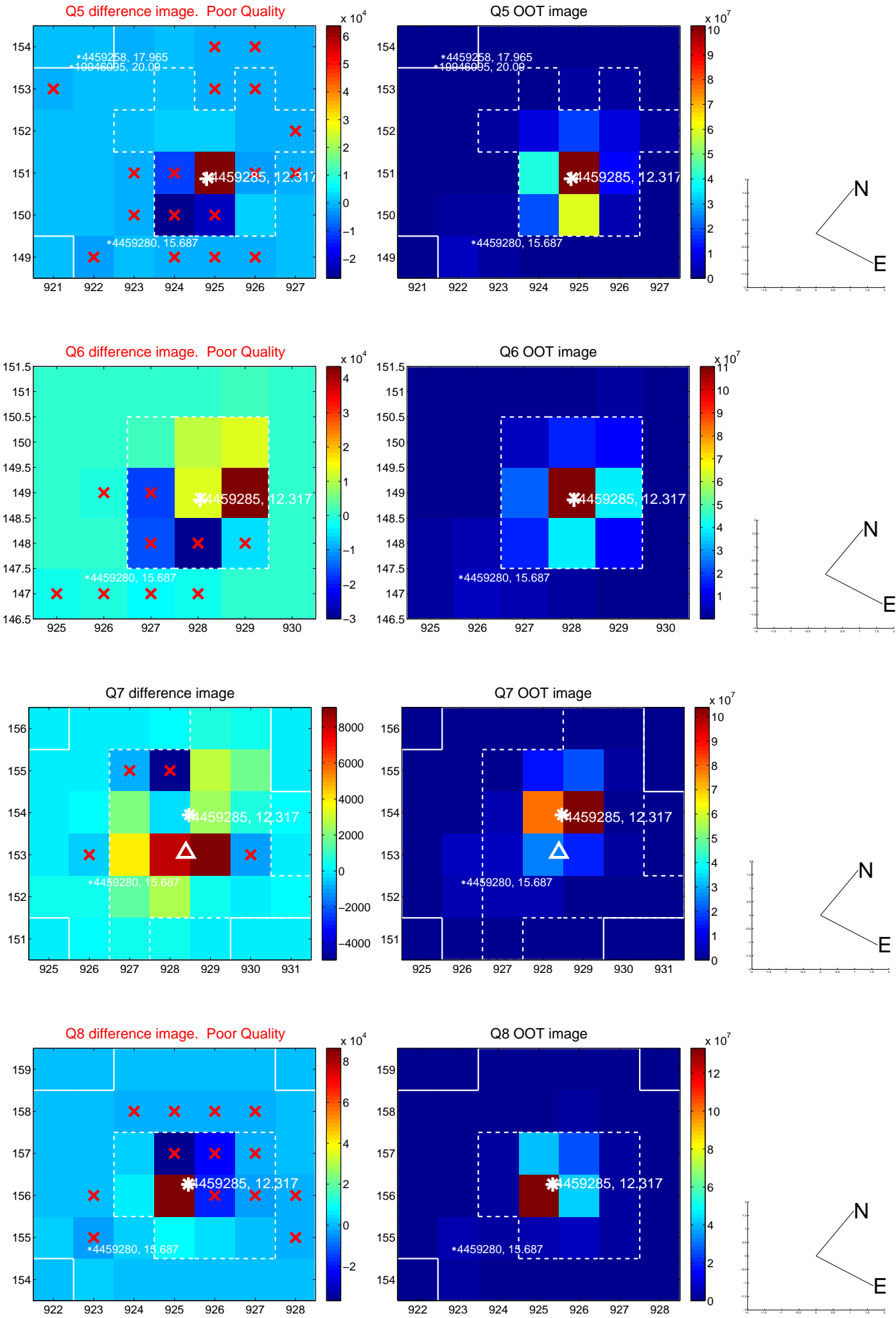


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

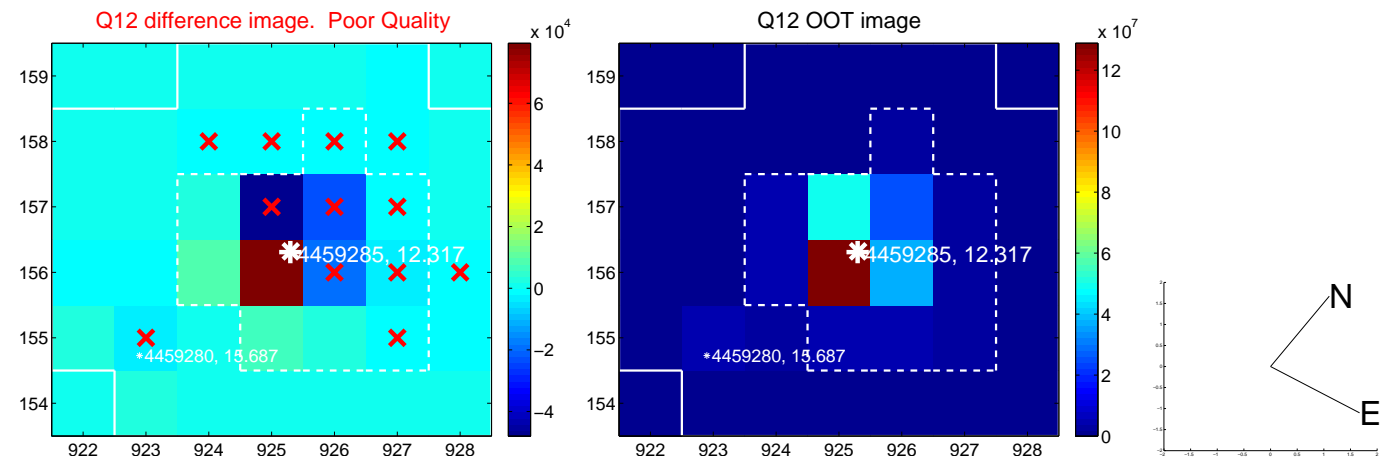
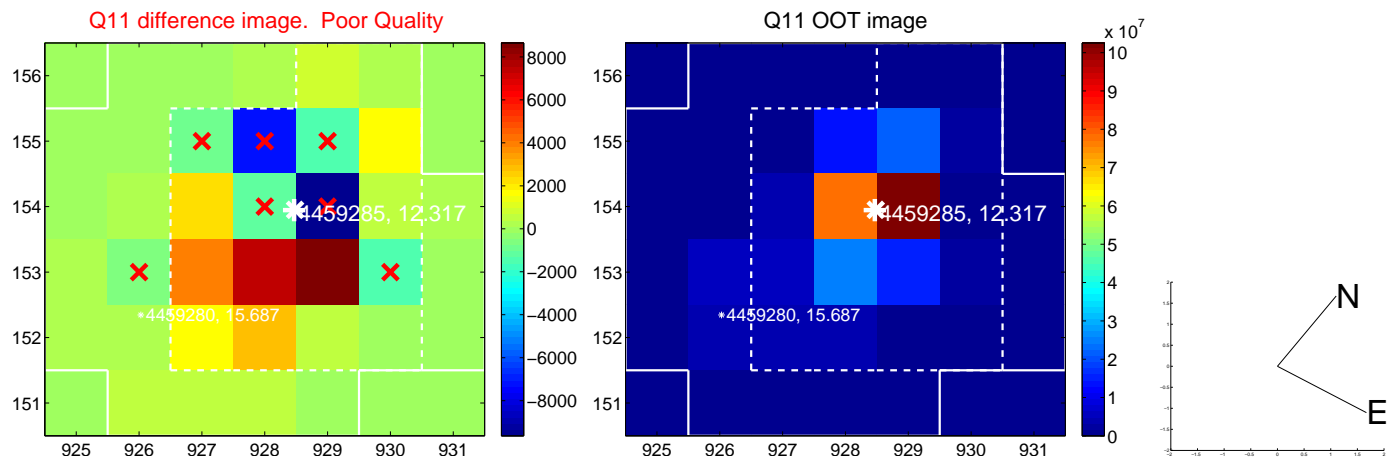
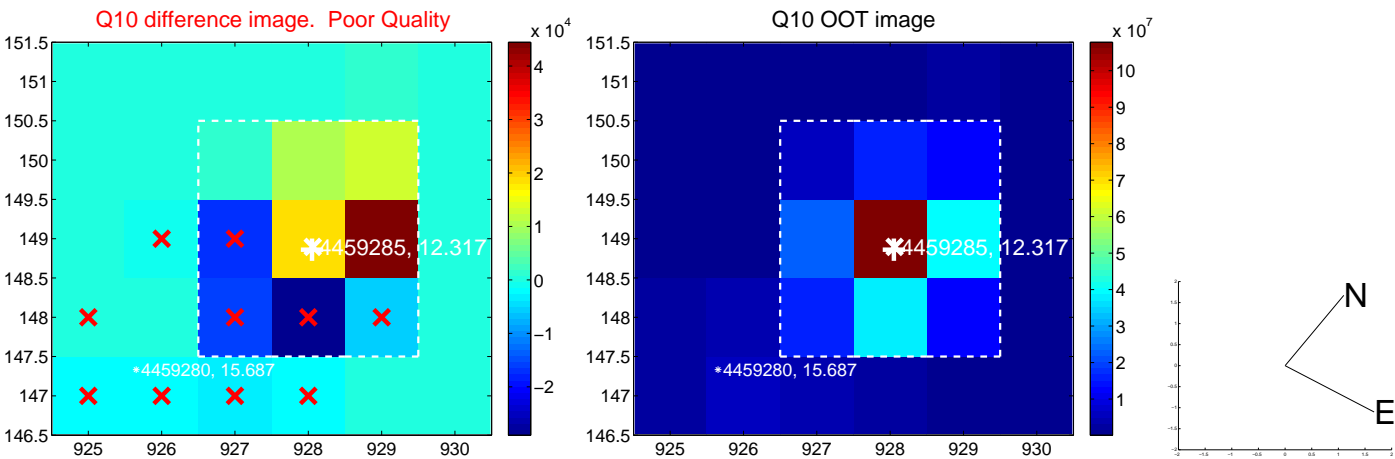
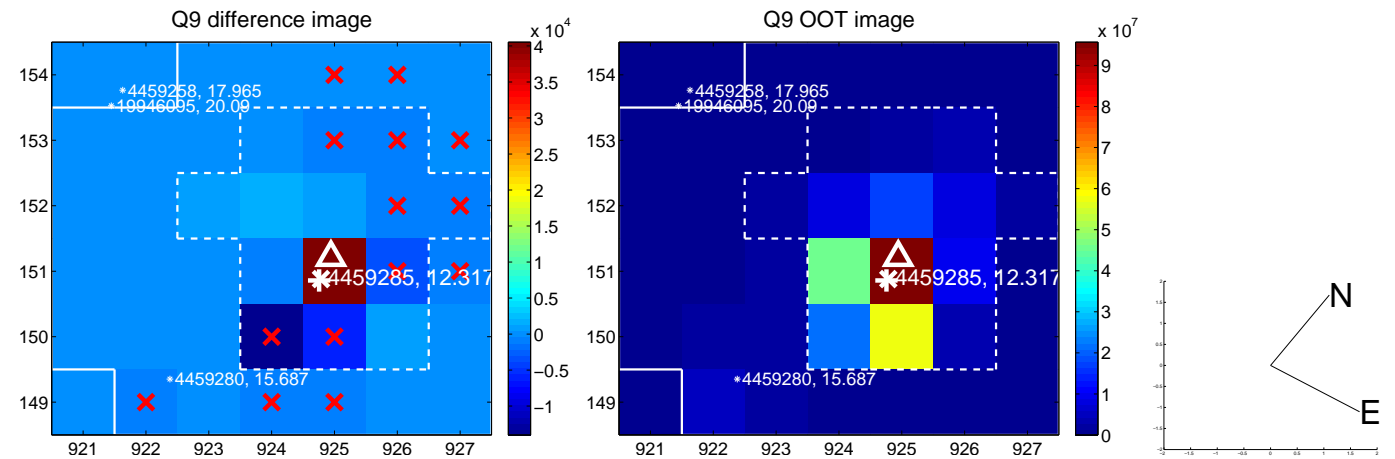


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

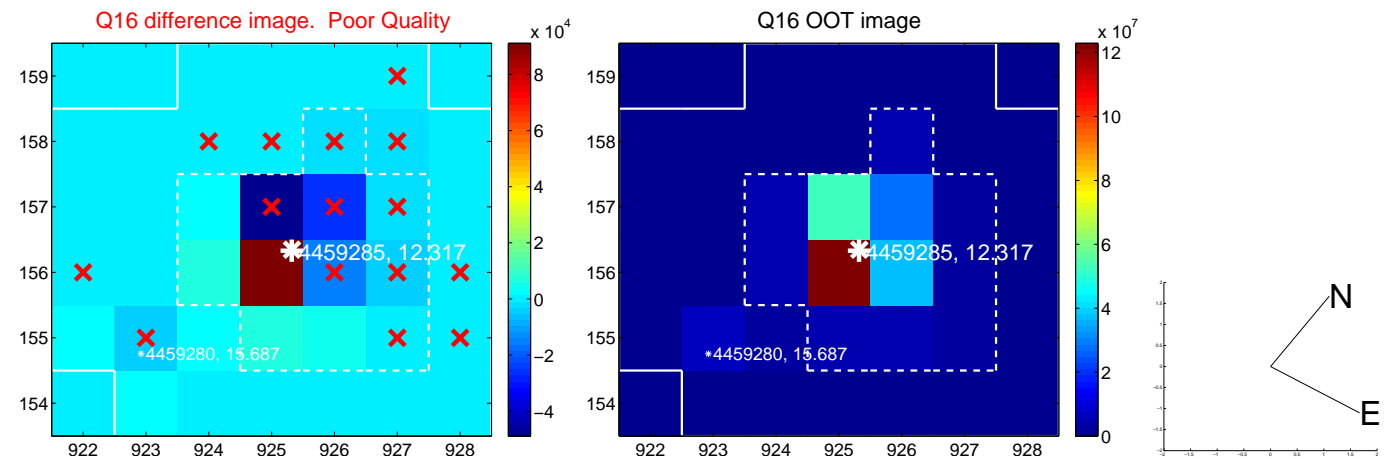
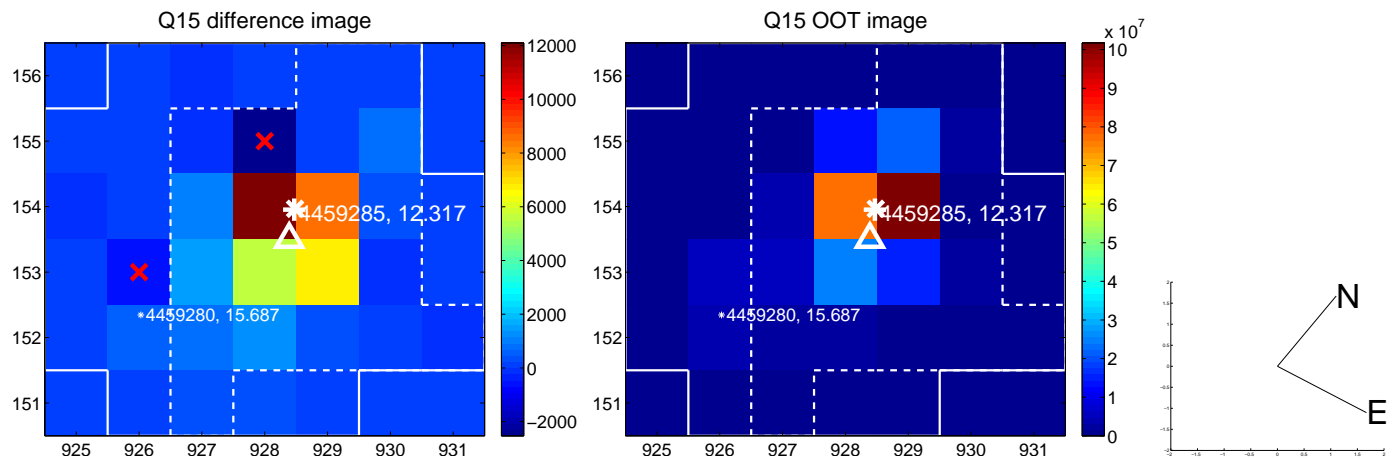
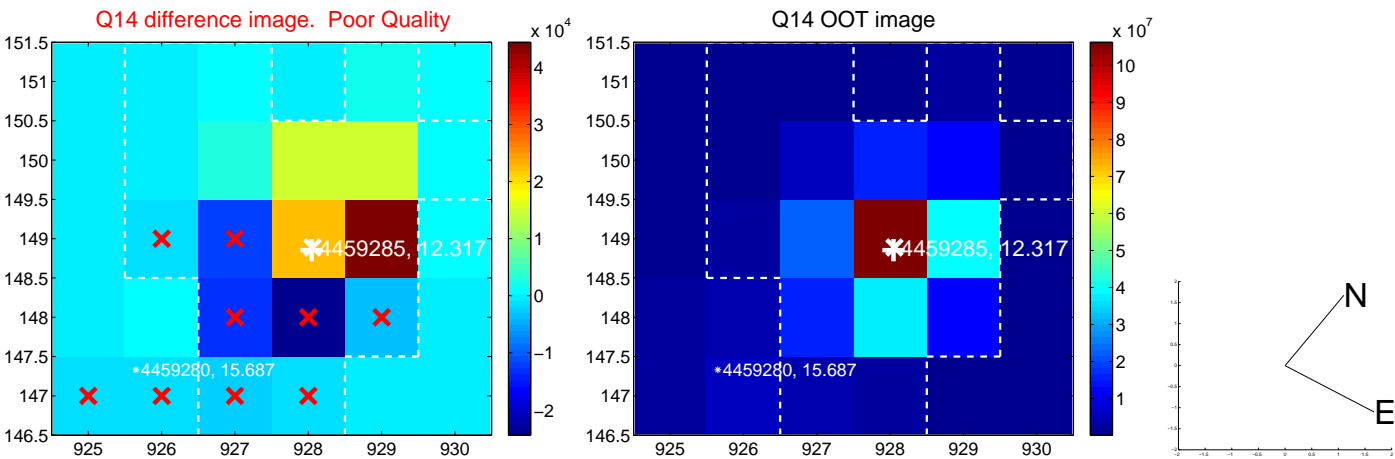
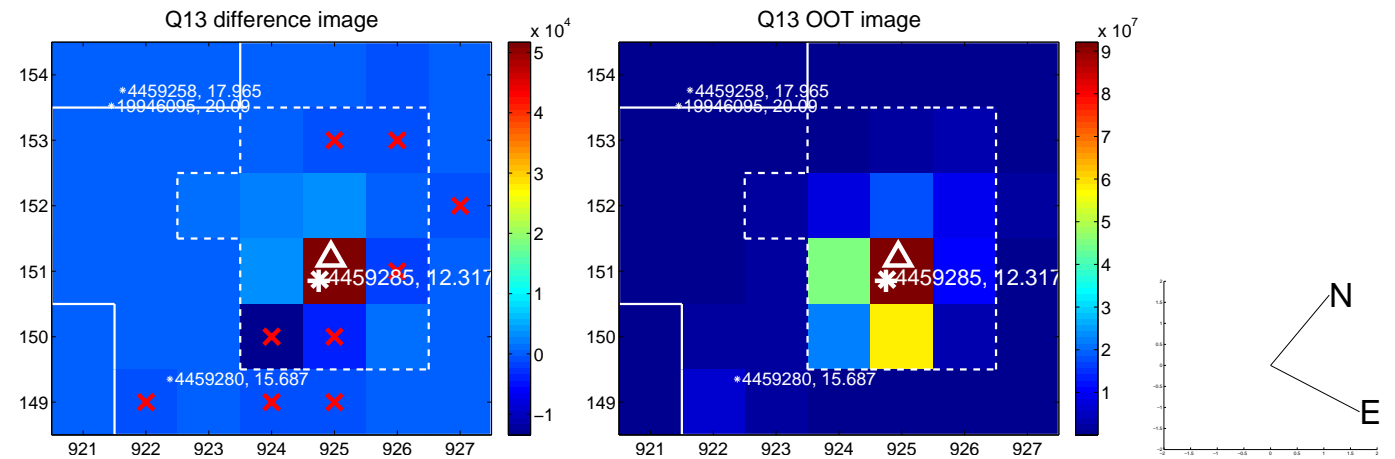




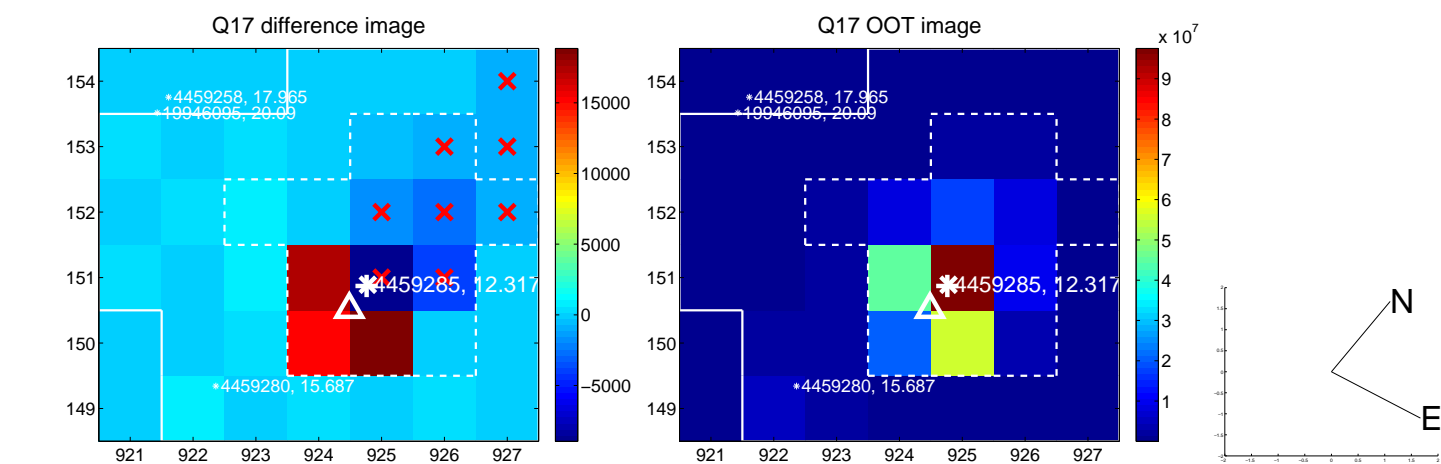
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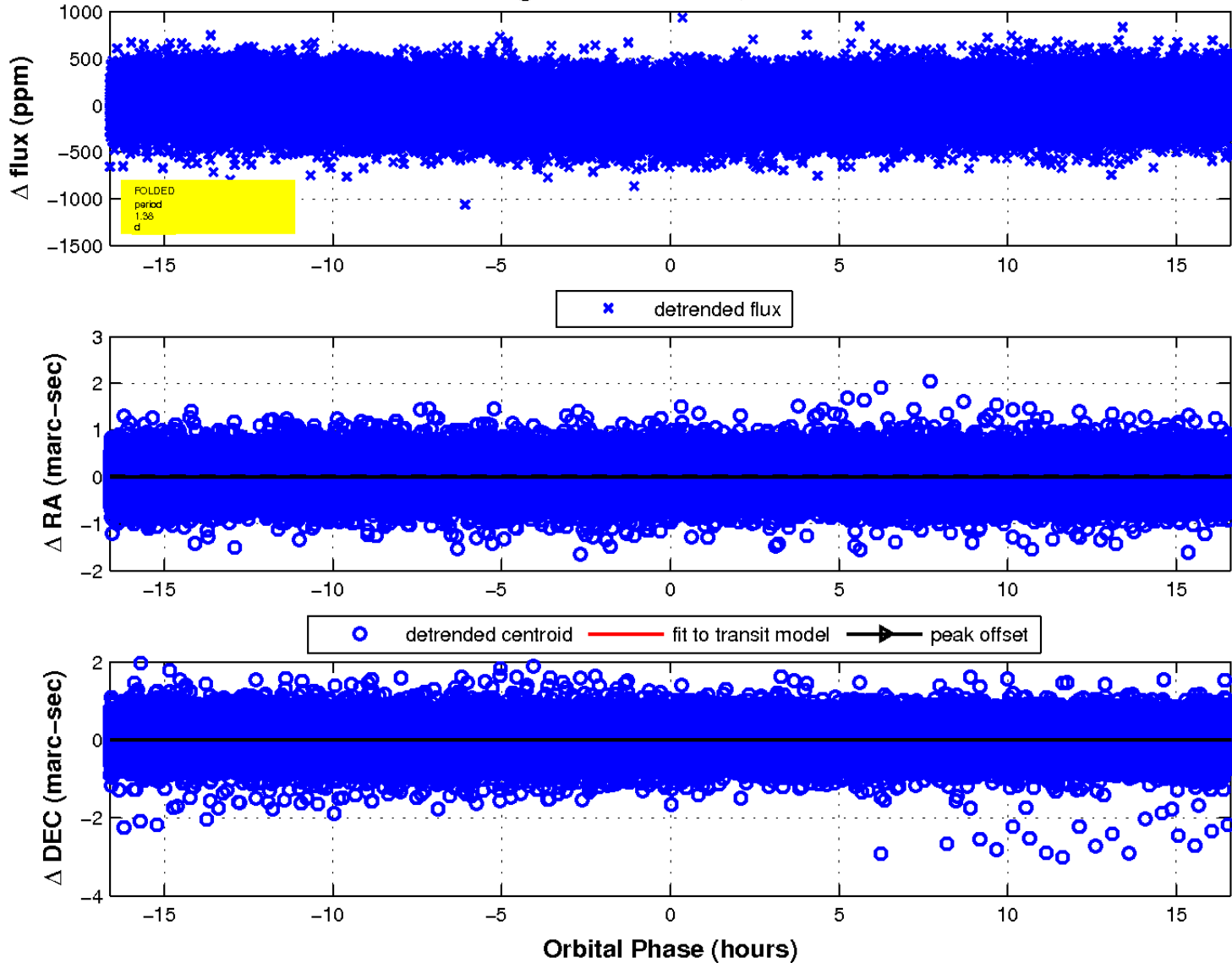
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

