

# KIC 004285087

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004285087-01	OBS	6112.01	2.243016	133.450705	275596.1	4.314	33027.9	15433.5	1.44	6181	93.19	2557.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004285087-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED

**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.

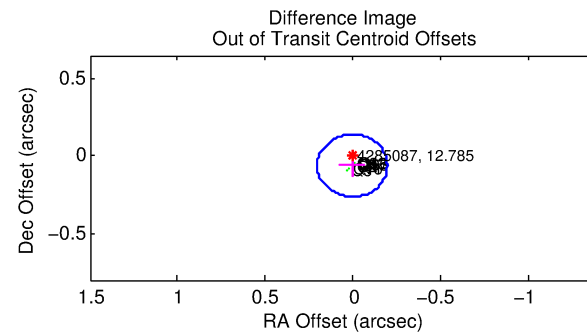
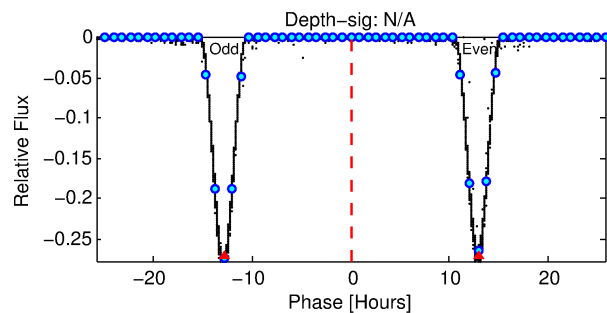
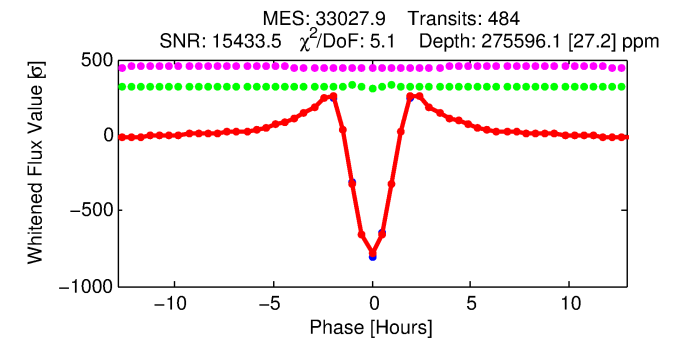
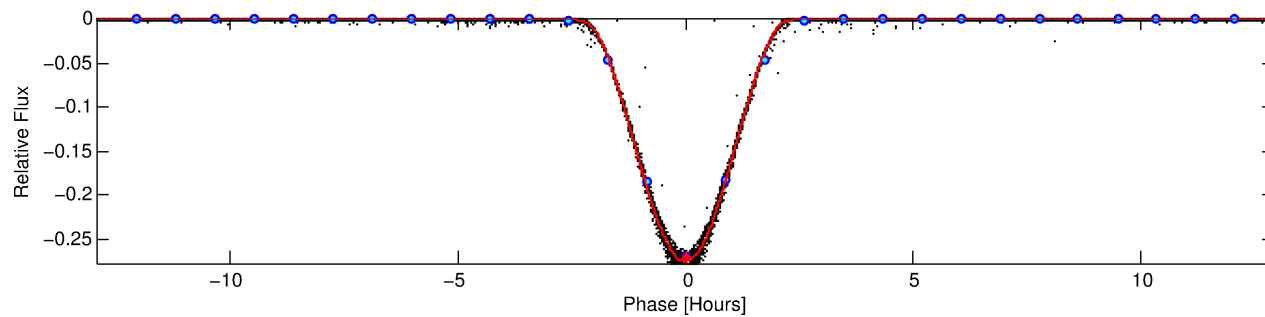
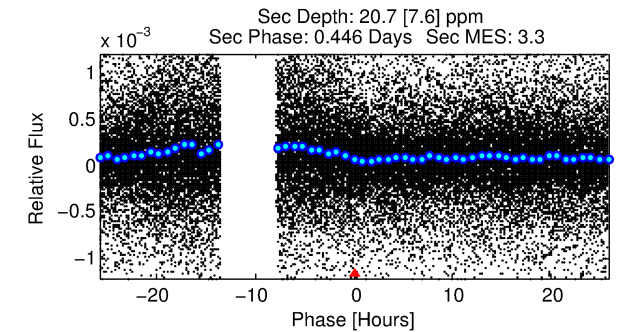
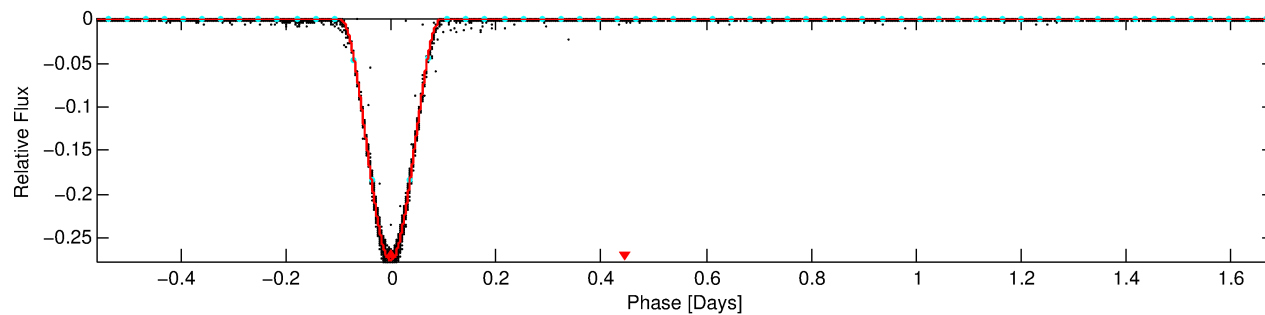
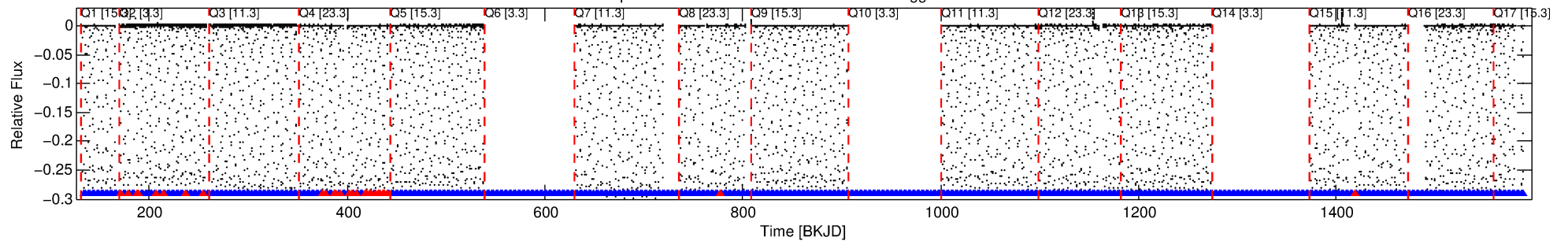
## Ephemeris Match Information For 004285087-01

No Significant Match Found

# DV One-Page Summary

KIC: 4285087 Candidate: 1 of 1 Period: 2.243 d  
KOI: K06112.01 Corr: 0.998

Kp: 12.78 R\*: 1.44 Rs Teff: 6181.0 K Logg: 4.08 Fe/H: -0.580



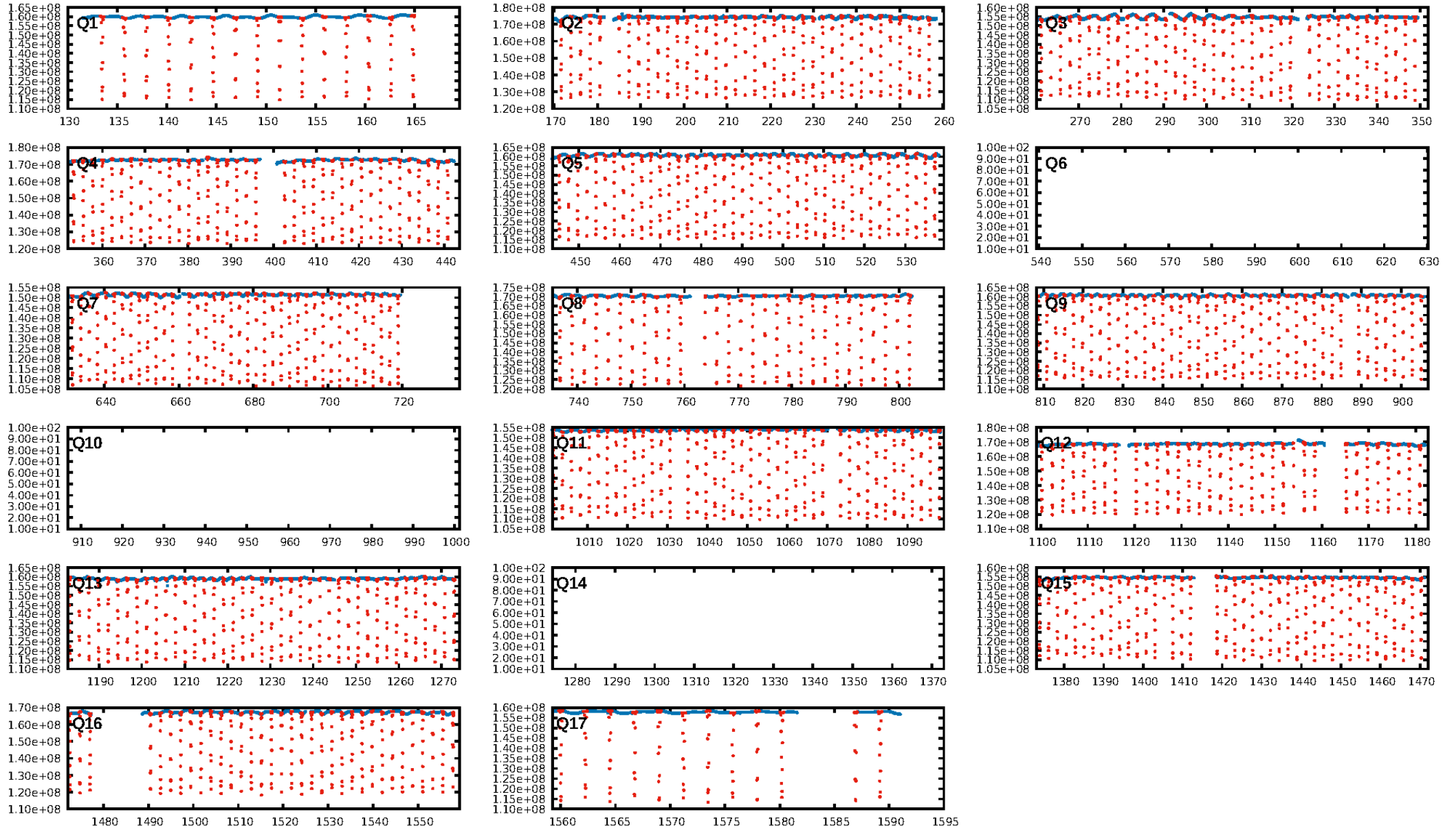
## DV Fit Results:

Period = 2.24302 [0.00000] d  
Epoch = 133.4507 [0.0000] BKJD  
Rp/R\* = 0.5914 [0.0063]  
a/R\* = 5.82 [0.01]  
b = 0.68 [0.01]  
Seff = 2557.00 [1592.47]  
Teff = 1813 [282] K  
Rp = 93.19 [34.54] Re  
a = 0.0327 [0.0122] AU  
Ag = 0.00 [0.00] [-1001.52σ]  
Teffp = 542 [52] K [-4.43σ]

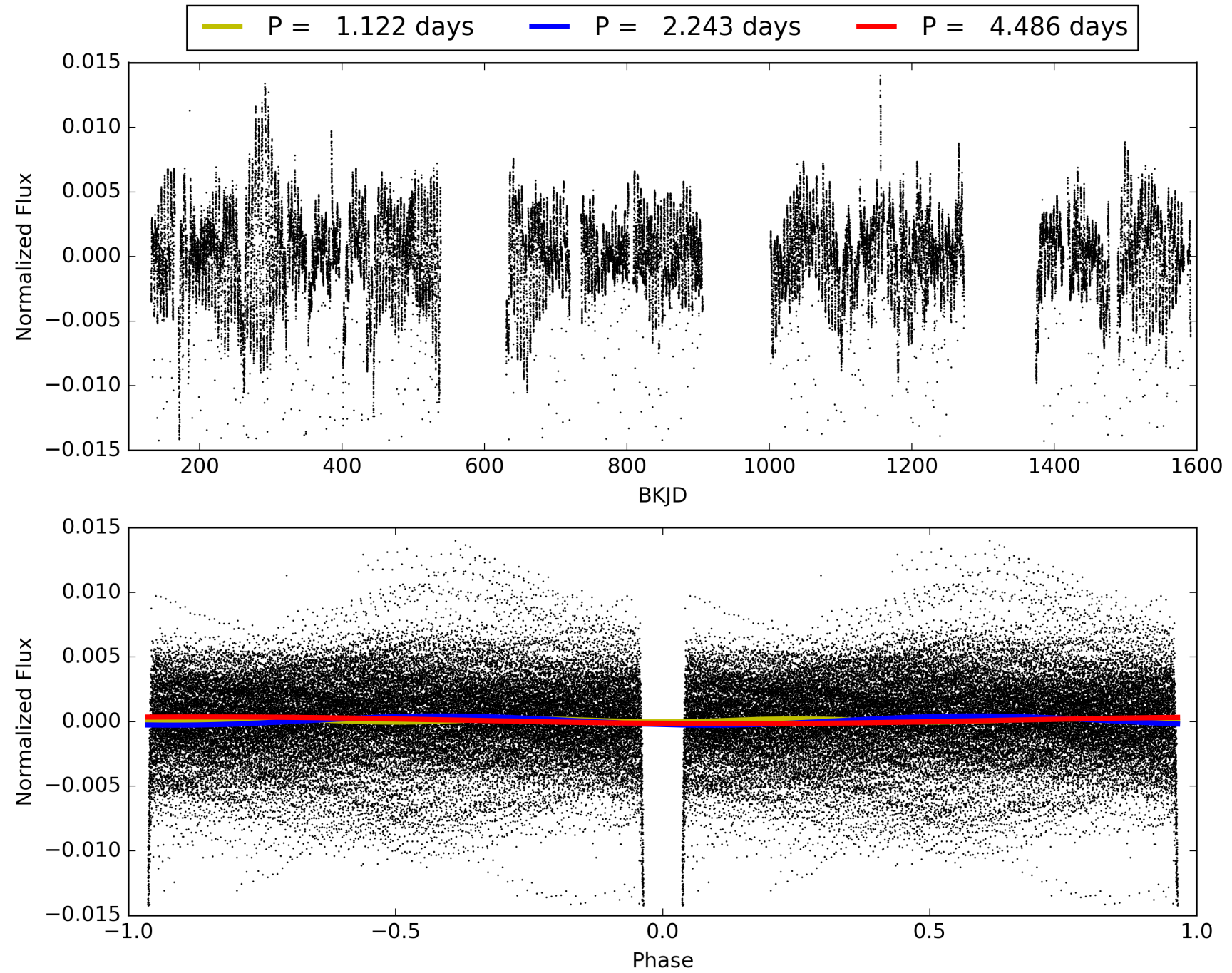
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.94 [429/457]  
GhostDiagnostic-chr: 1.547  
Centroid-sig: 0.0%  
Centroid-so: 0.279 arcsec [845.75σ]  
OotOffset-rm: 0.062 arcsec [0.93σ]  
KicOffset-rm: 0.135 arcsec [1.92σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 004285087-01, PDC Light Curves

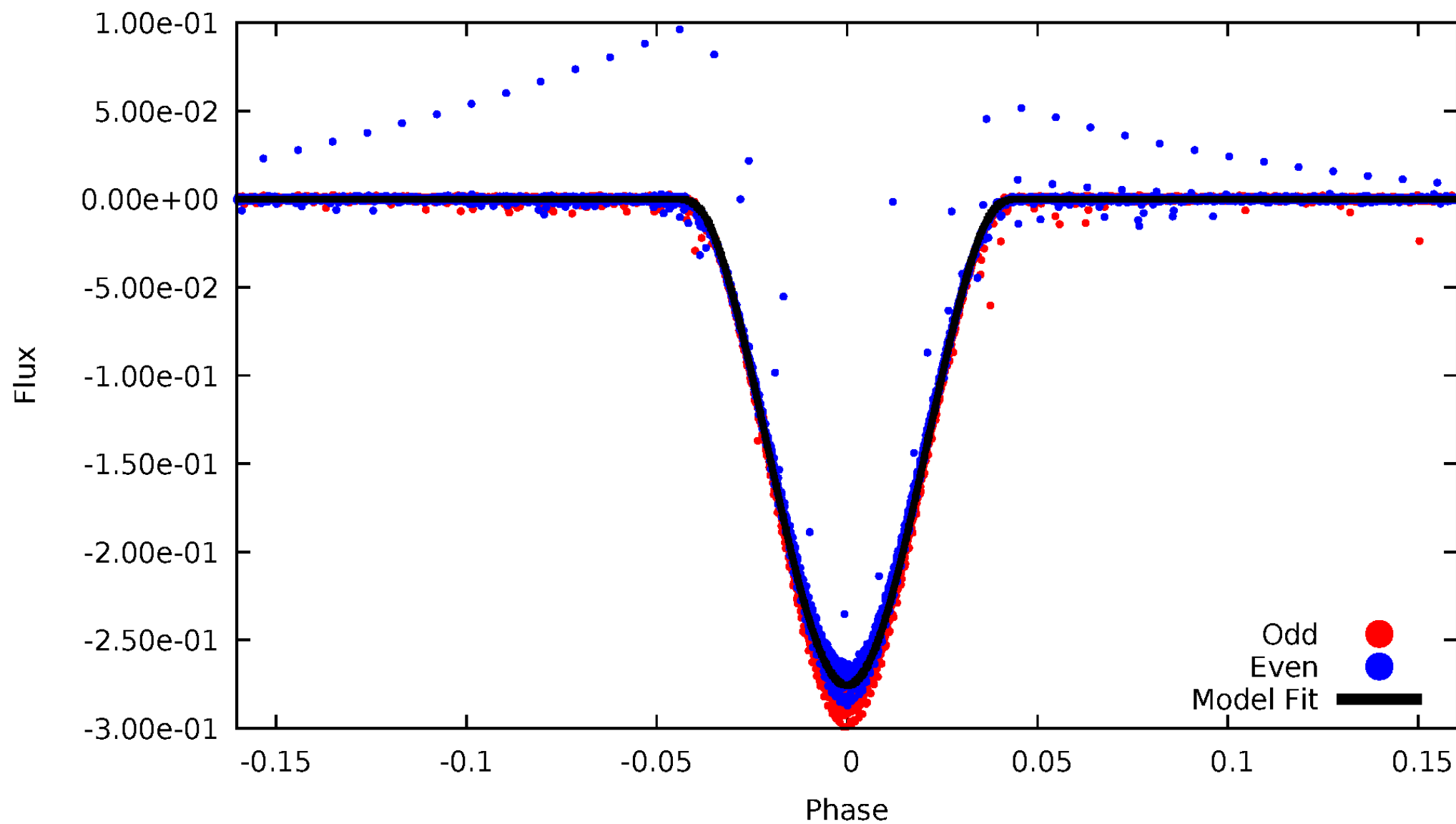


TCE 004285087-01



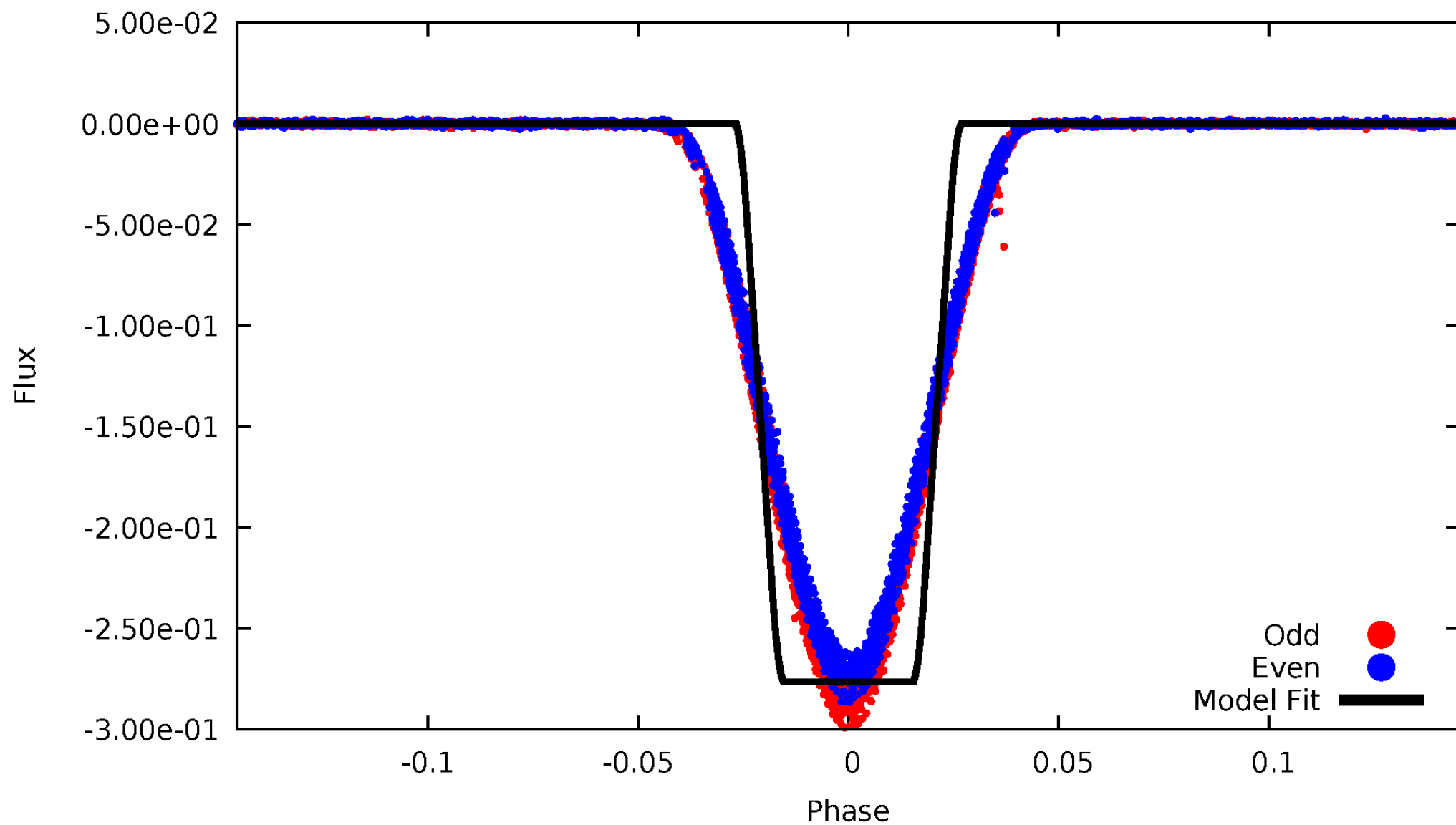
# DV Odd/Even

TCE 004285087-01



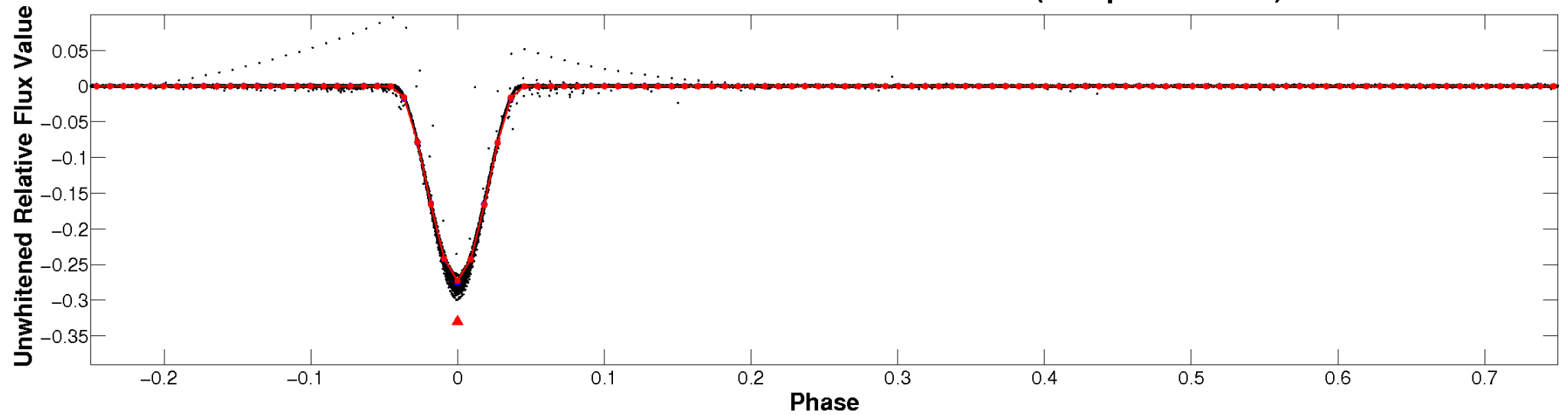
# ALT Odd/Even

TCE 004285087-01

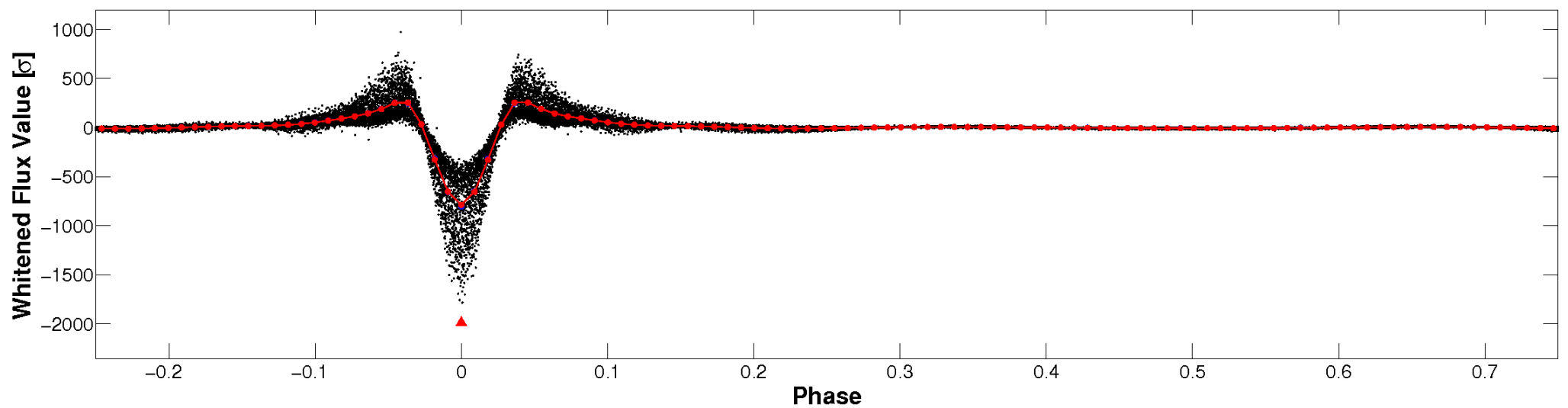


# Non-Whitened Vs. Whitened Light Curve

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

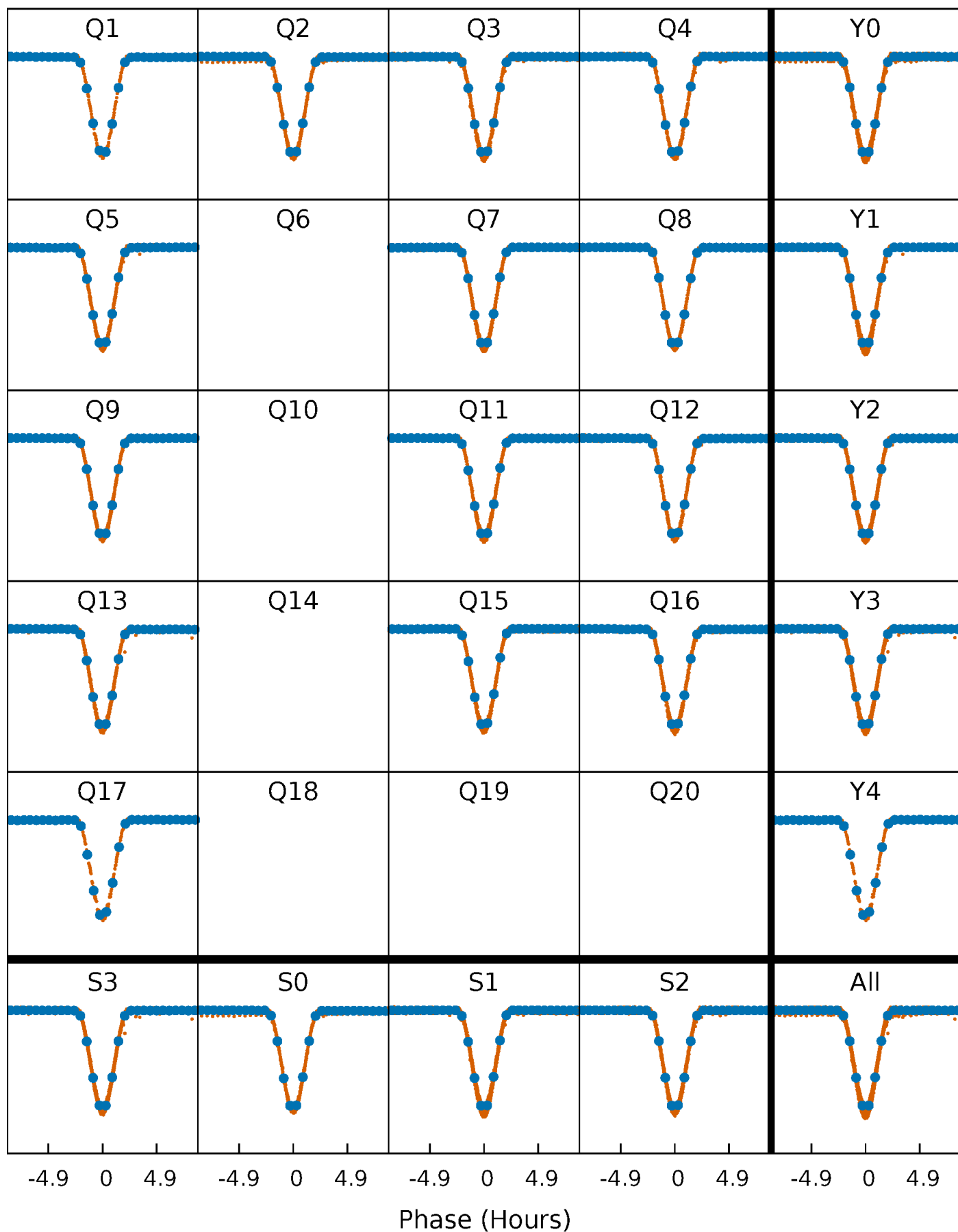


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

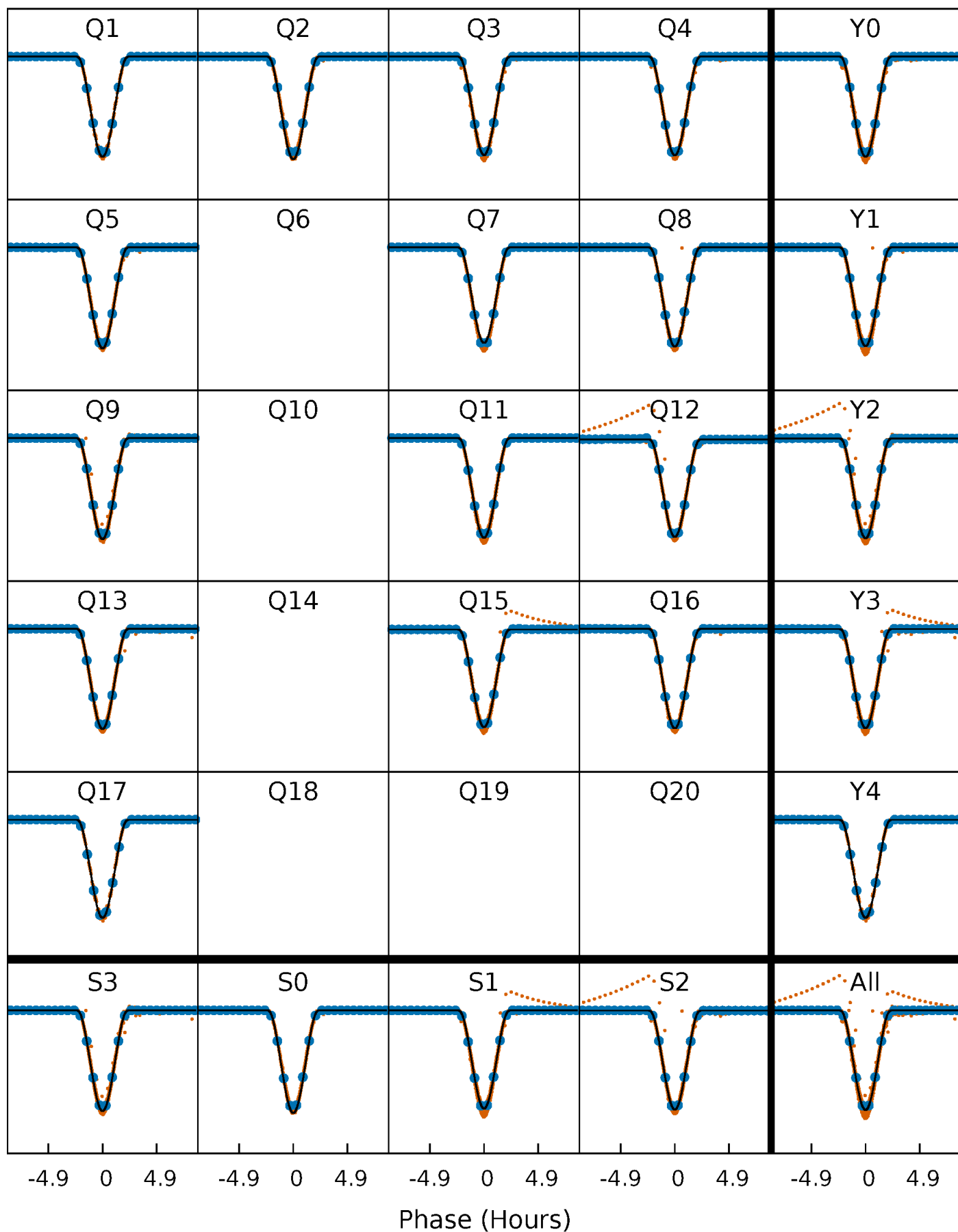
TCE 004285087-01 P= 2.243016 Days  $T_0=133.450705$  (BKJD)





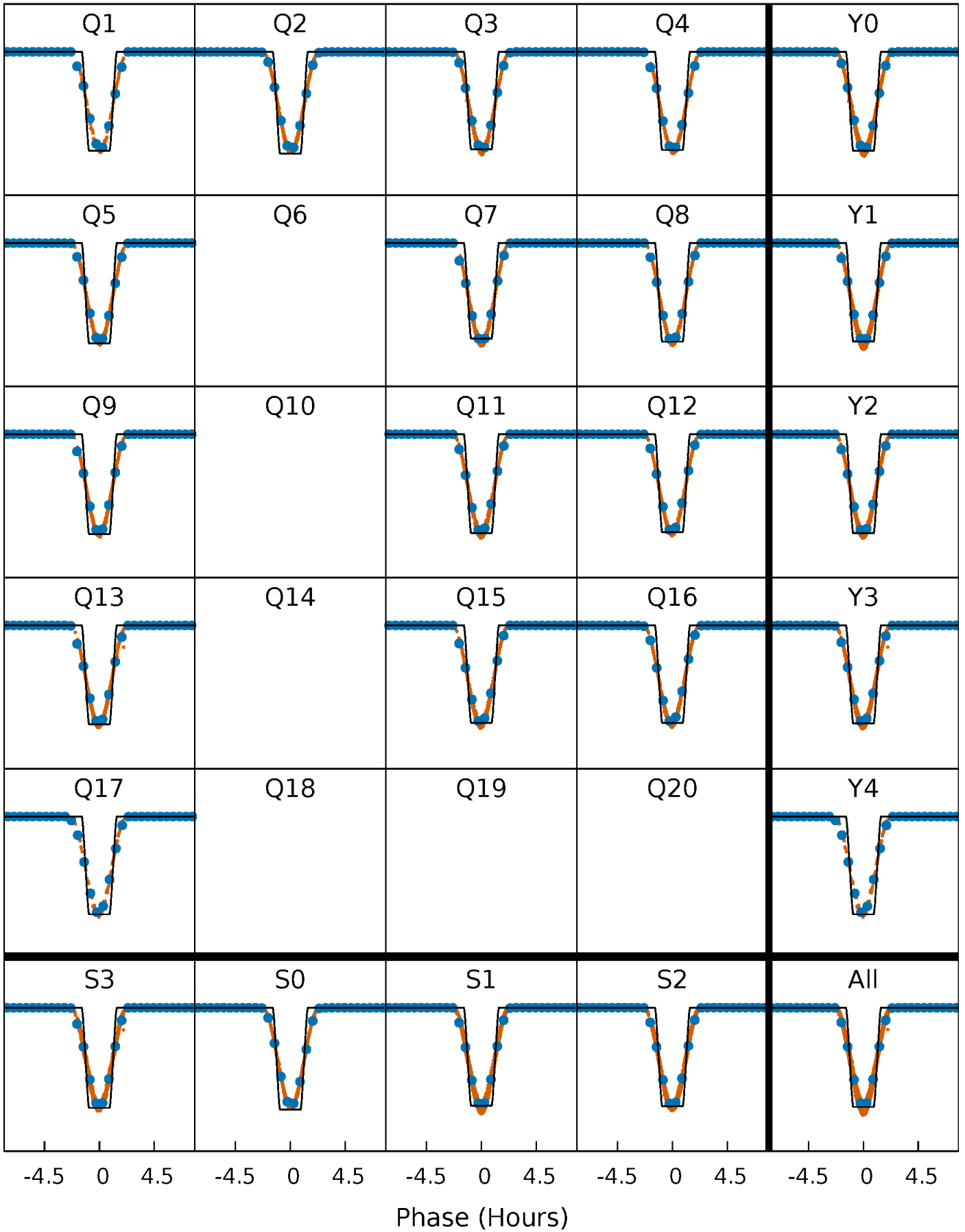
# DV Quarter-Phased Transit Curves

TCE 004285087-01   P= 2.243016 Days    $T_0=133.450705$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

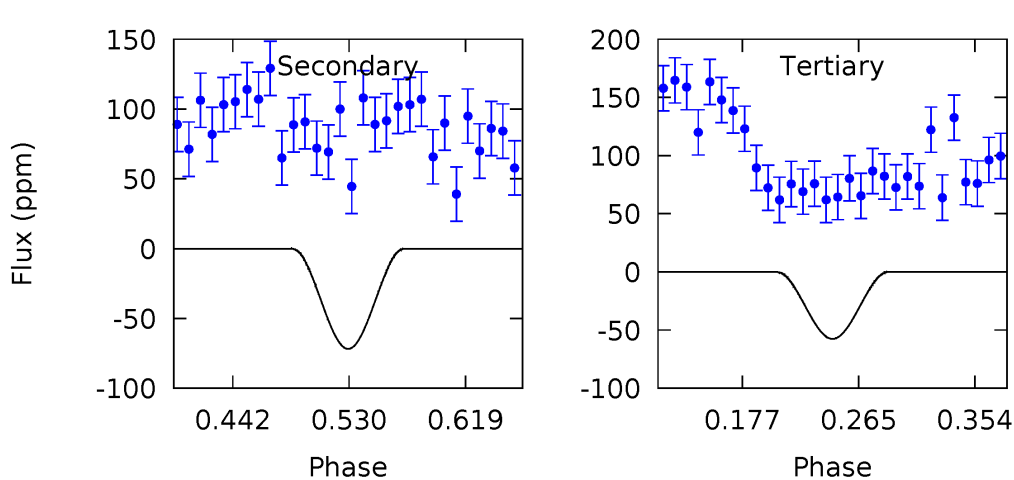
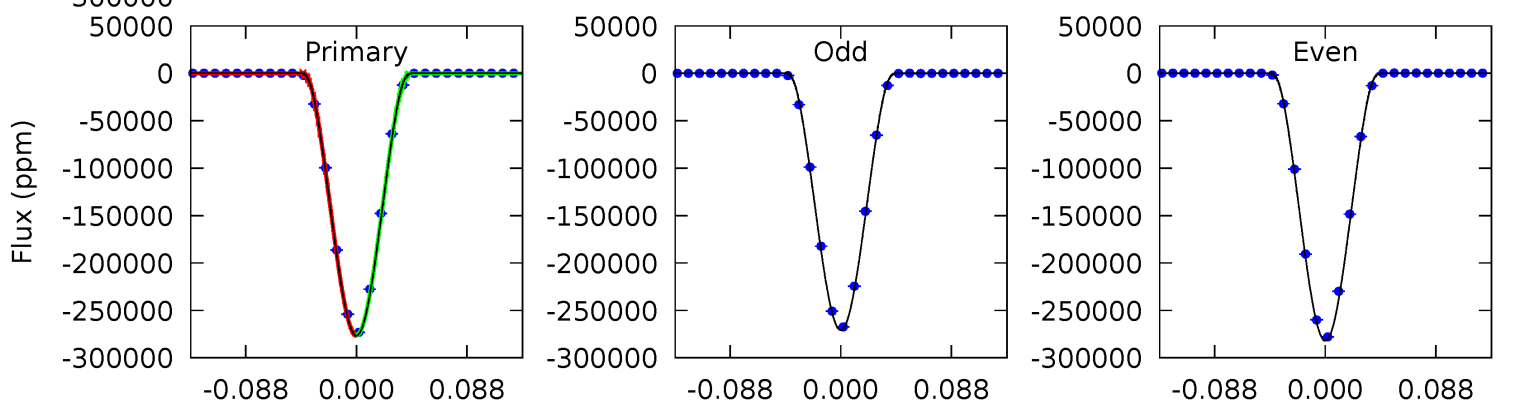
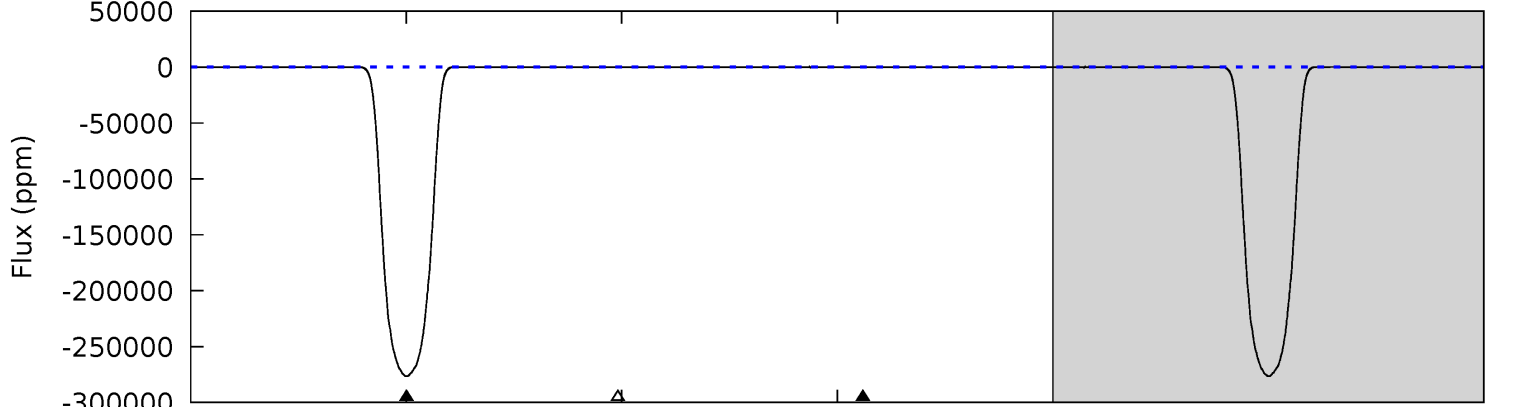
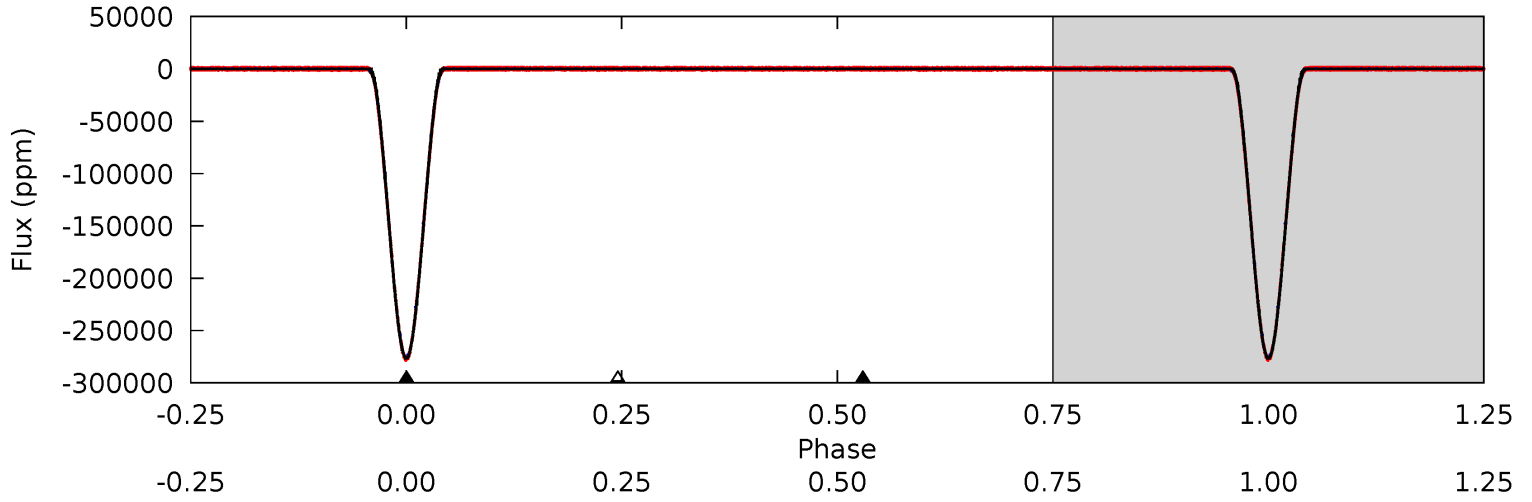
TCE 004285087-01 P= 2.243024 Days  $T_0=133.448261$  (BKJD)



# DV Model-Shift Uniqueness Test

004285087-01, P = 2.243016 Days, E = 131.207689 Days

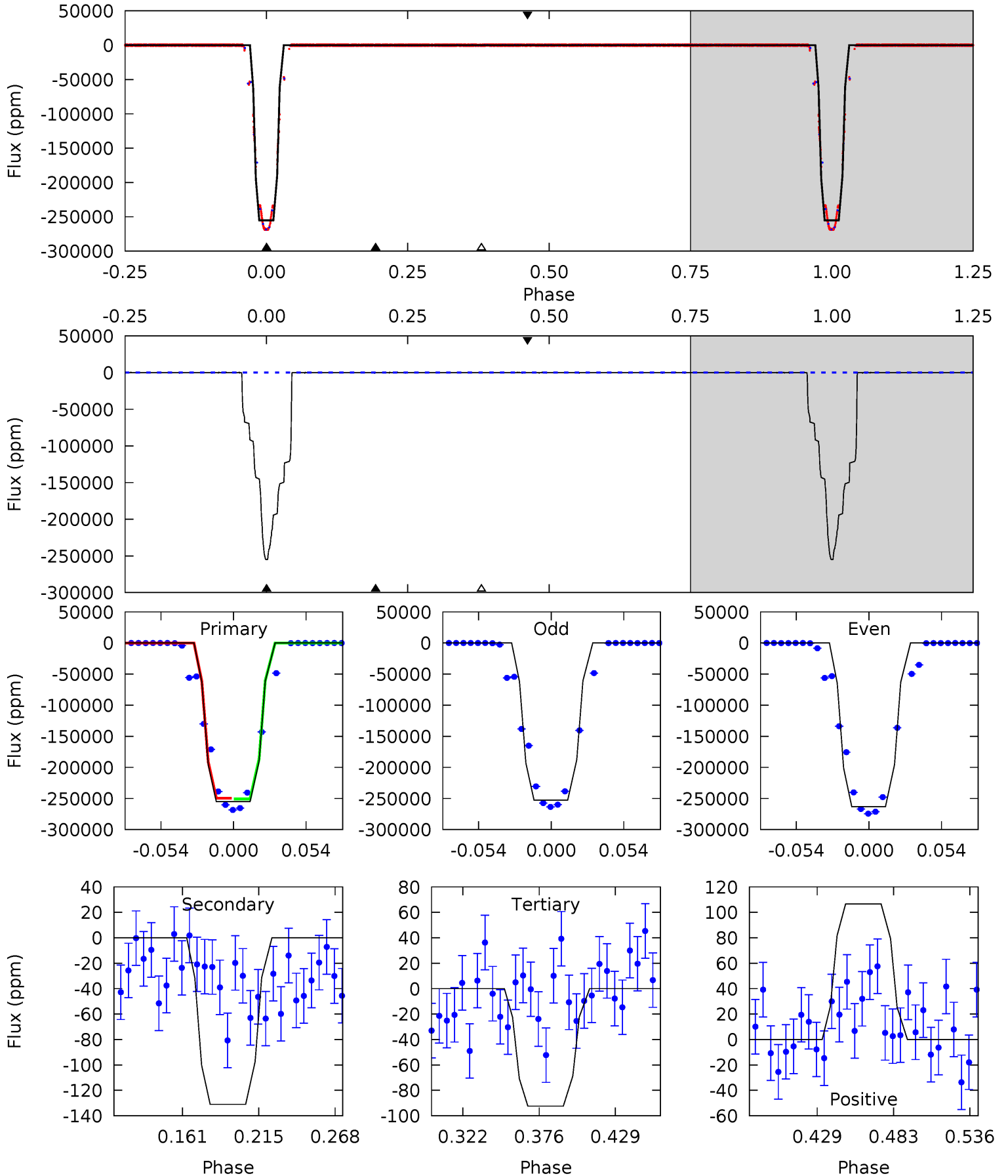
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28791	7.48	5.99	0	4.59	1.70	5.34	28785	28791	1.48	7.48	651.0	1.00	0.00	25.4



# Alt Model-Shift Uniqueness Test

004285087-01, P = 2.243024 Days, E = 131.205237 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
8942	4.59	3.24	3.74	4.69	1.93	1.29	8938	8938	1.35	0.85	214.4	1.00	0.00	0



### Stellar Parameters For KIC 004285087

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6181^{+169}_{-187}$	$4.084^{+0.364}_{-0.156}$	$-0.580^{+0.300}_{-0.300}$	$1.444^{+0.401}_{-0.535}$	$0.923^{+0.128}_{-0.105}$	$0.431^{+1.058}_{-0.215}$
	+3%/-3%	+9%/-4%	+52%/-52%	+28%/-37%	+14%/-11%	+245%/-50%
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 004285087-01 / KOI 6112.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-72 \pm 10$	$91.04^{+14.00}_{-18.21}$	$2494^{+187}_{-262}$	$-2785^{+159}_{-115}$	$0.005^{+0.003}_{-0.001}$
Alt.	$-131 \pm 29$	$82.05^{+11.32}_{-15.61}$	$2502^{+185}_{-250}$	$-2783^{+155}_{-110}$	$0.012^{+0.007}_{-0.004}$

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

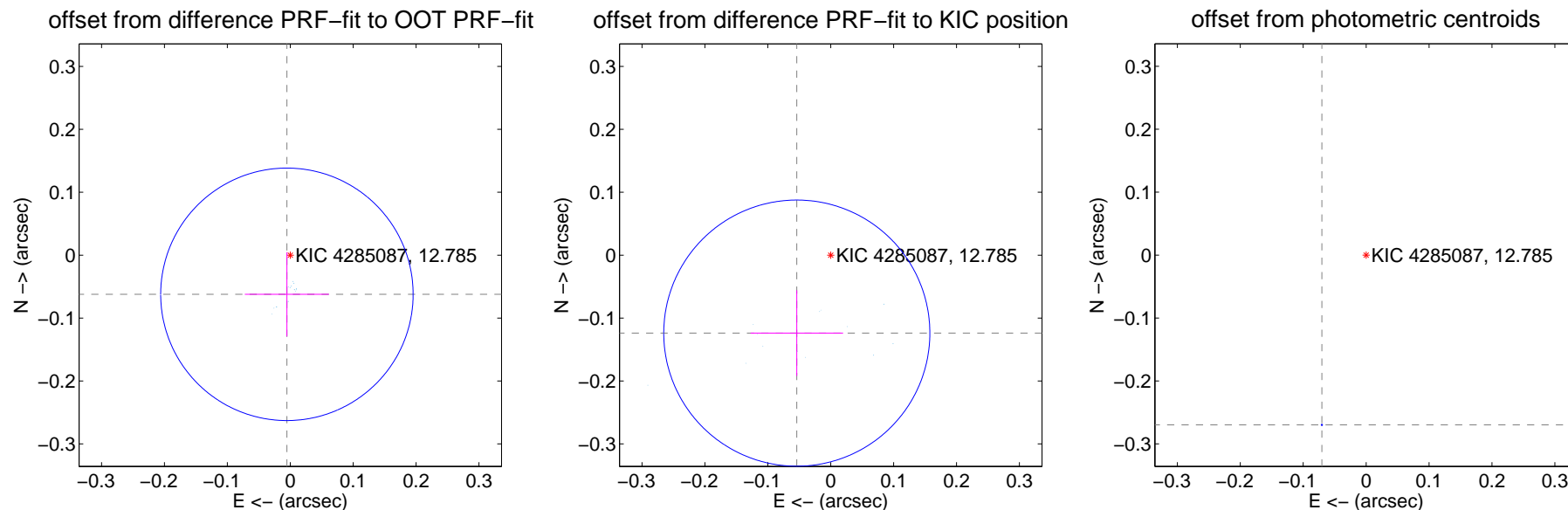
## DV Centroid Data

Supplemental centroid analysis for 004285087-01. Kepler magnitude: 12.79. Transit SNR 15433.45

There are 14 quarters with good PRF difference image offsets

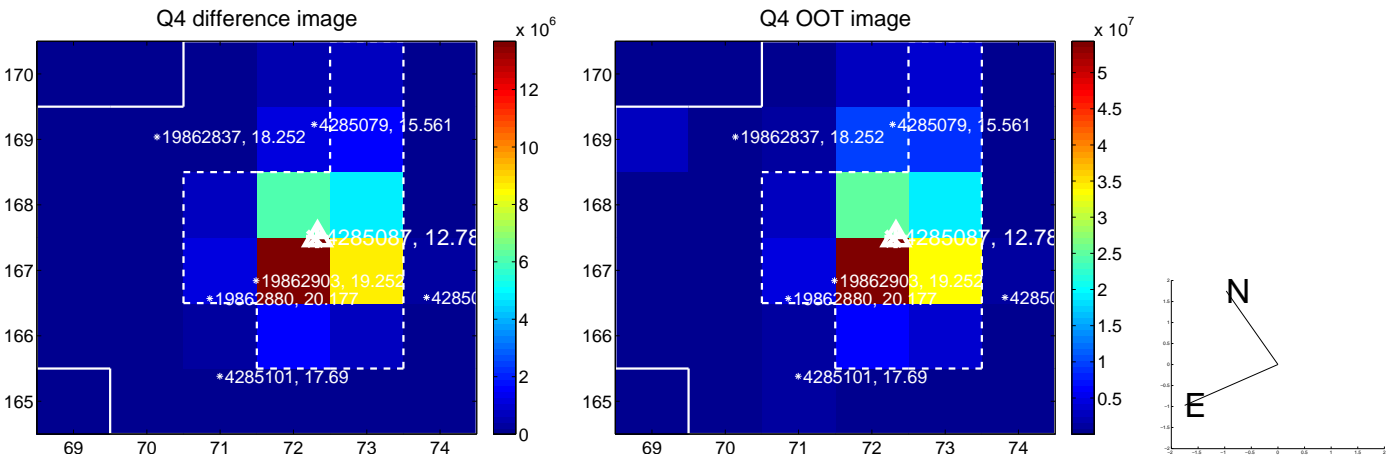
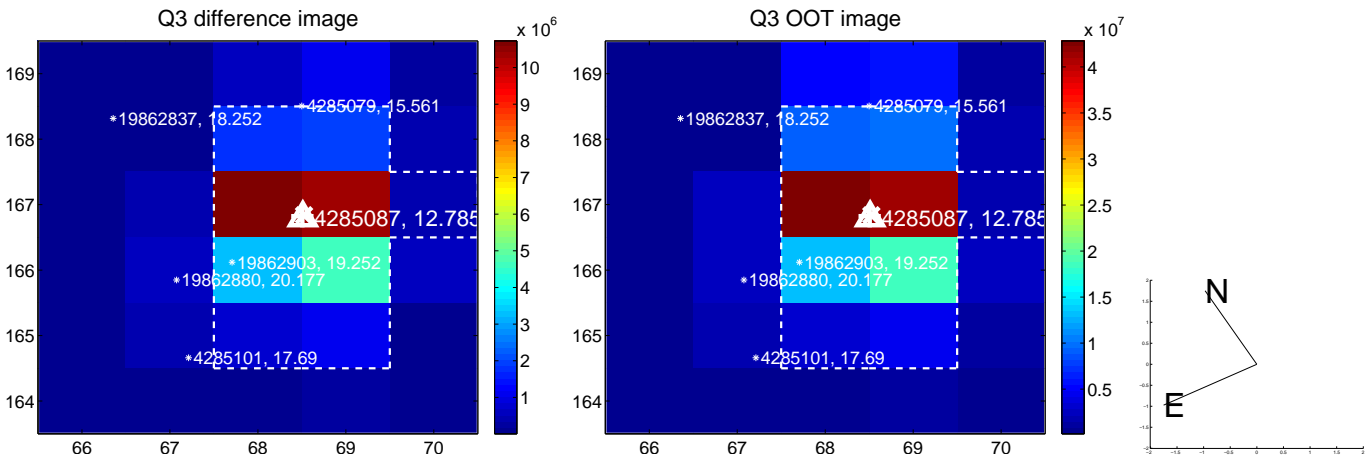
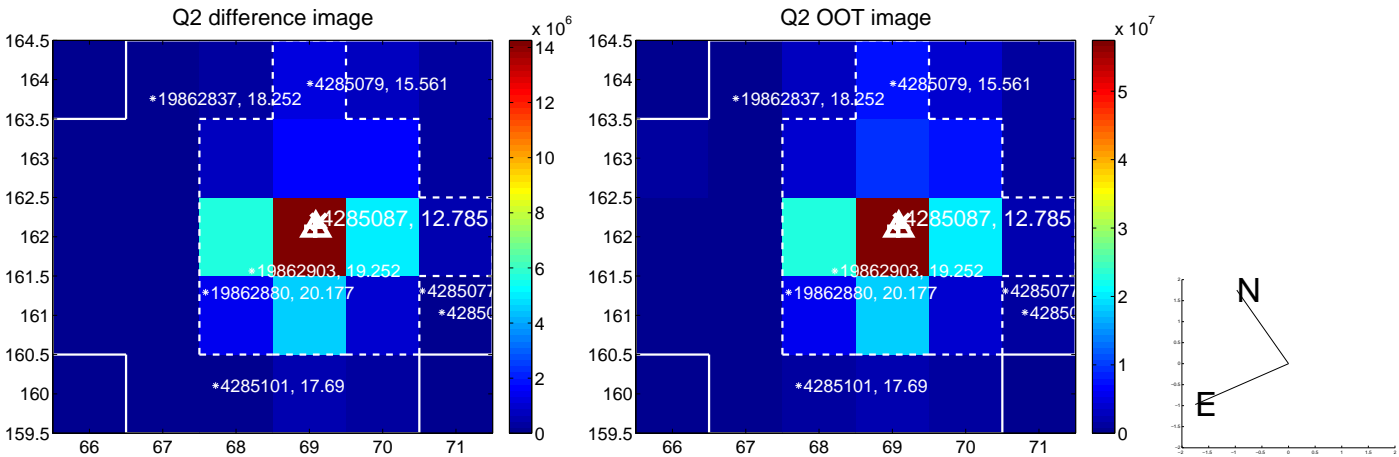
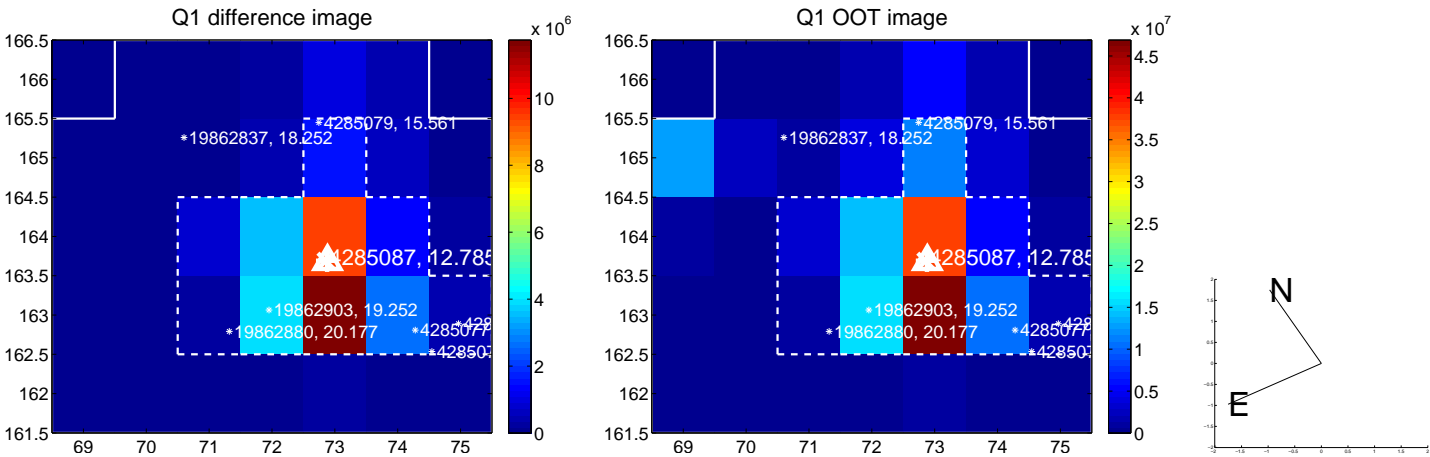
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.062 \pm 0.067$	0.93	$0.005 \pm 0.067$	$-0.062 \pm 0.067$
PRF-fit source offset from KIC position	$0.135 \pm 0.071$	1.92	$0.054 \pm 0.074$	$-0.124 \pm 0.068$
photometric centroid source offset	$0.28 \pm 0.00$	845.75	$0.07 \pm 0.00$	$-0.27 \pm 0.00$

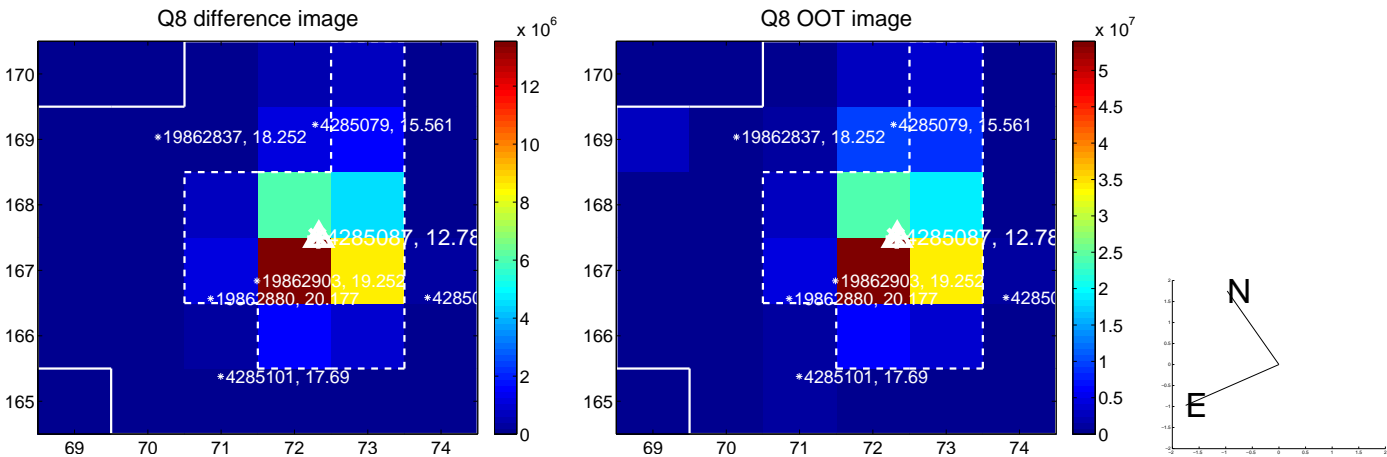
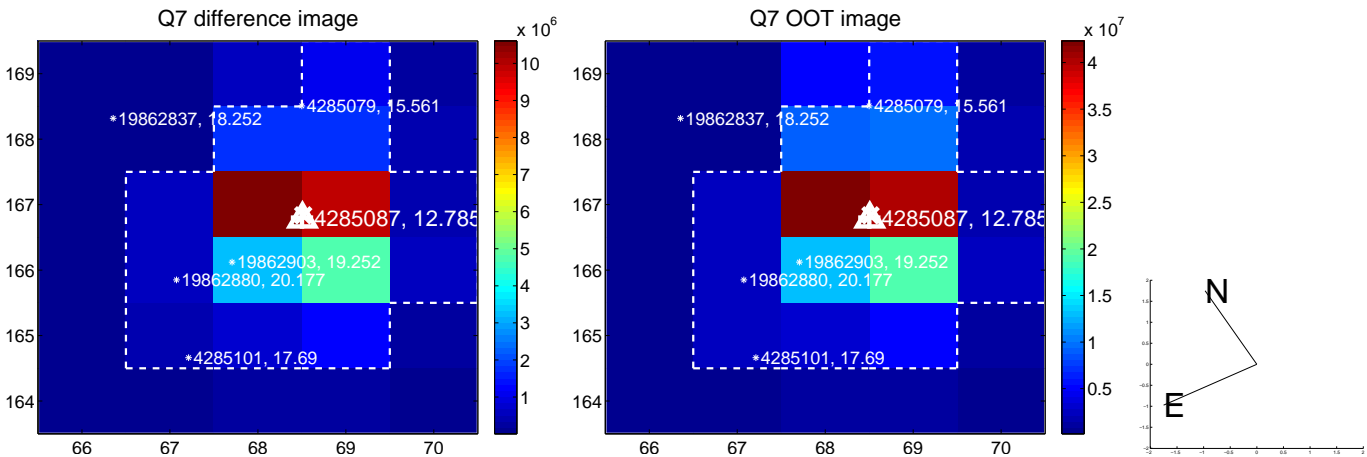
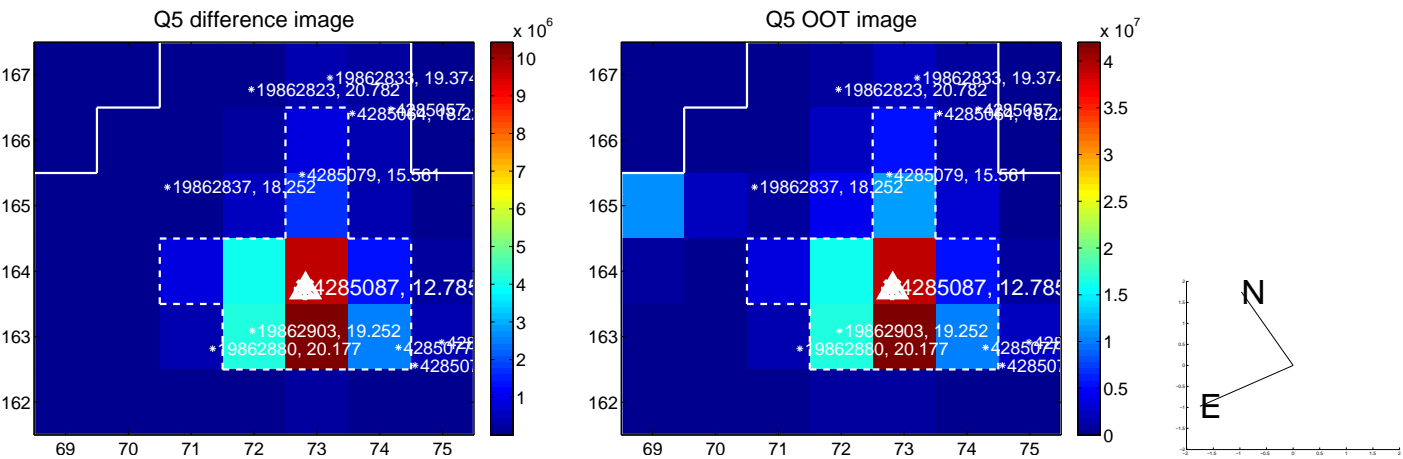


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

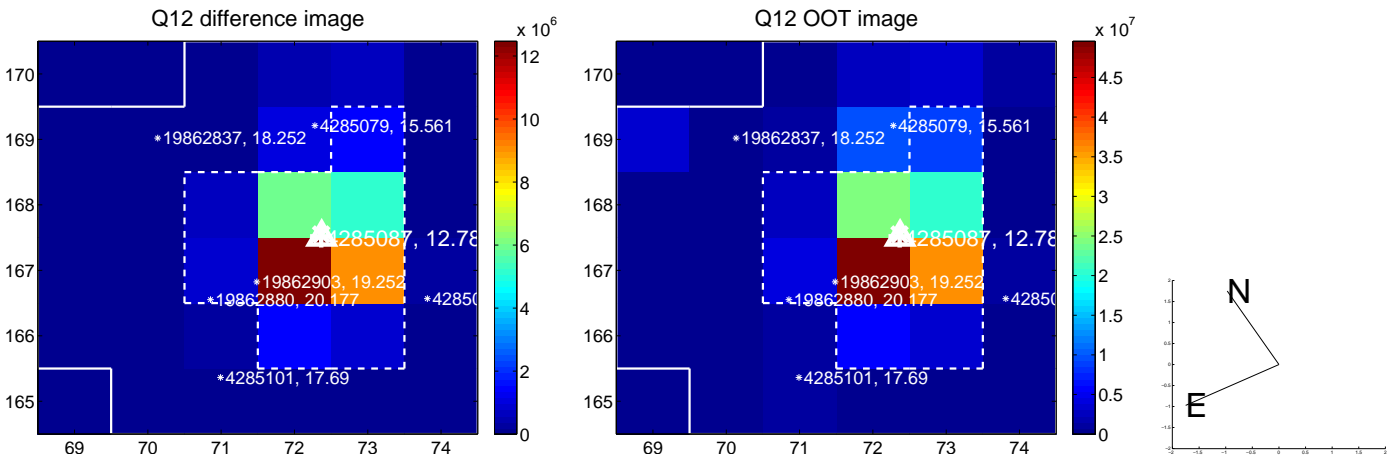
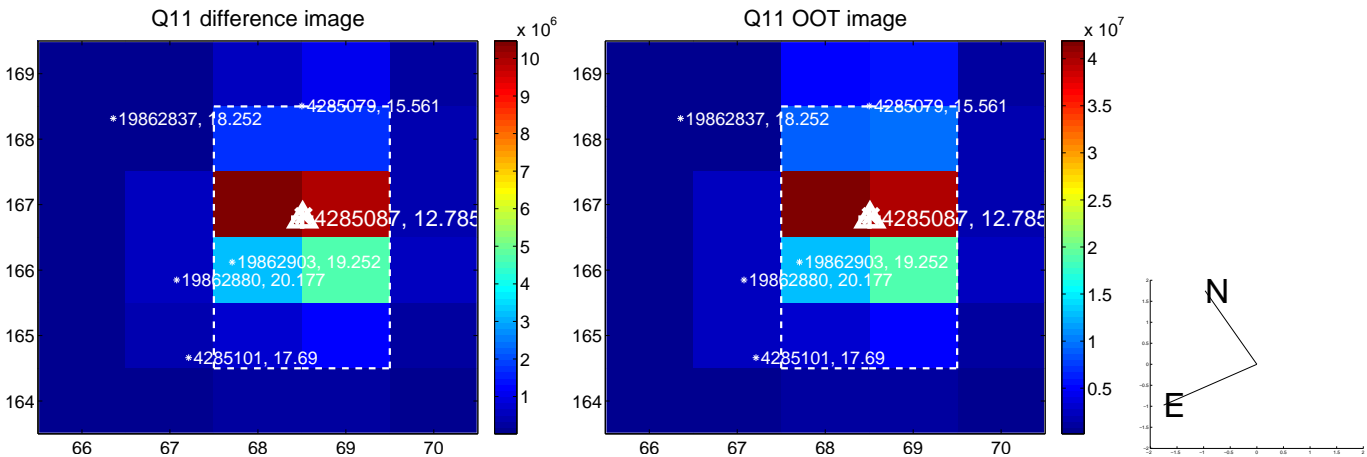
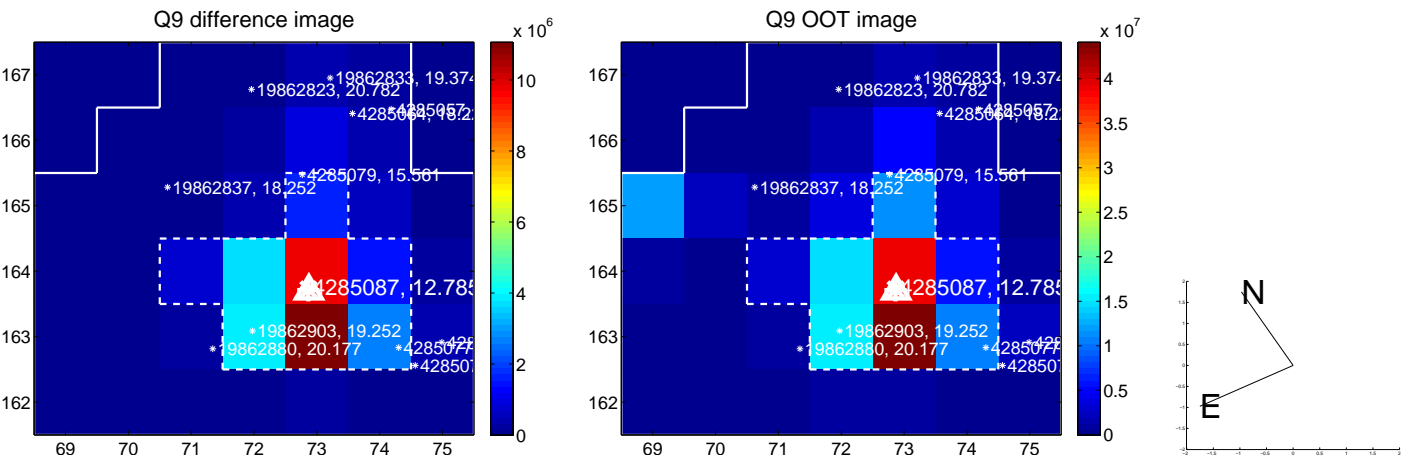


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

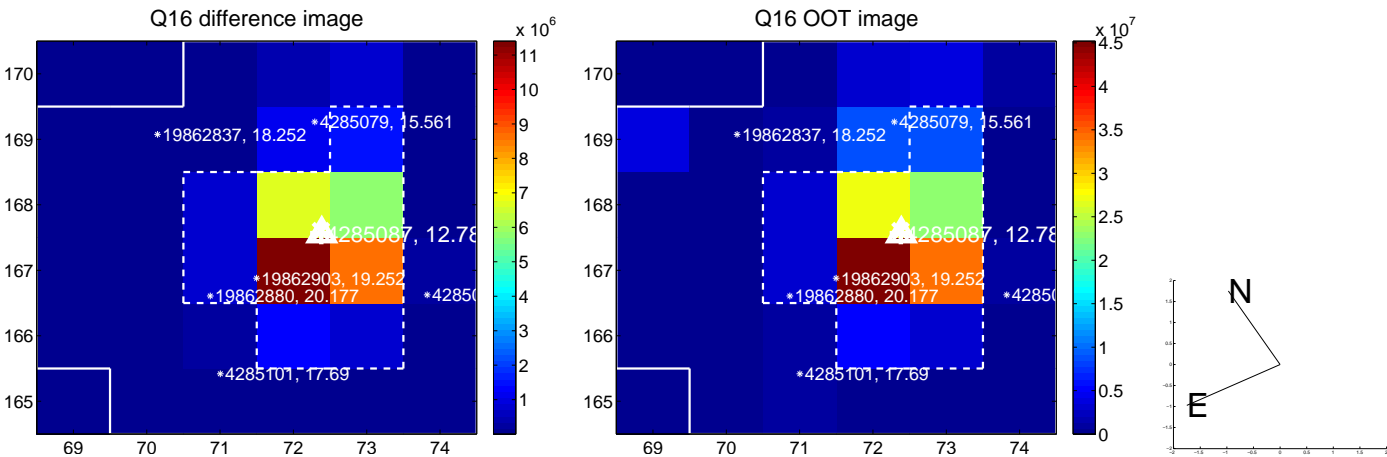
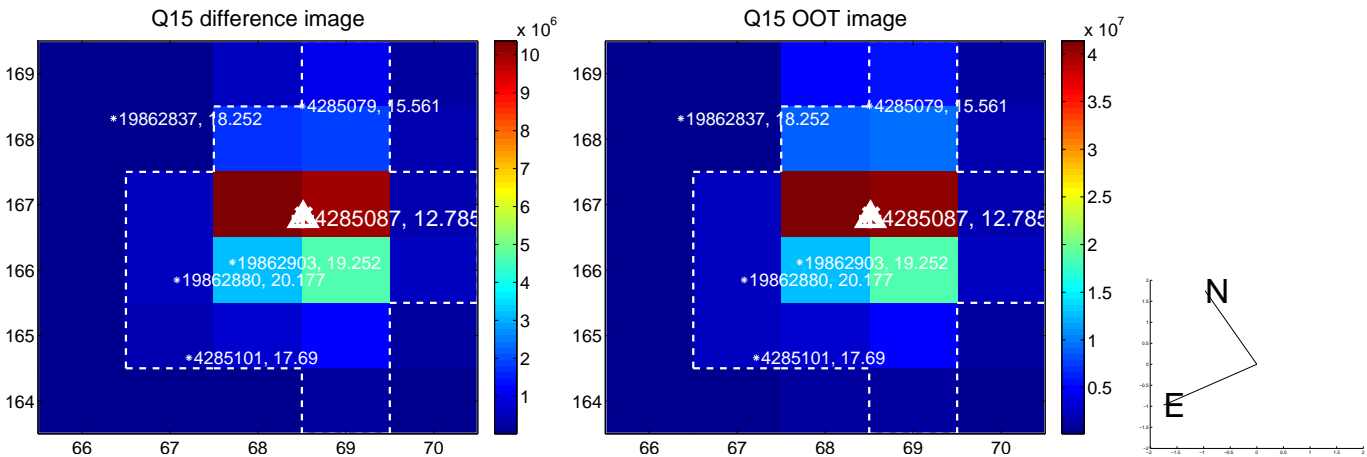
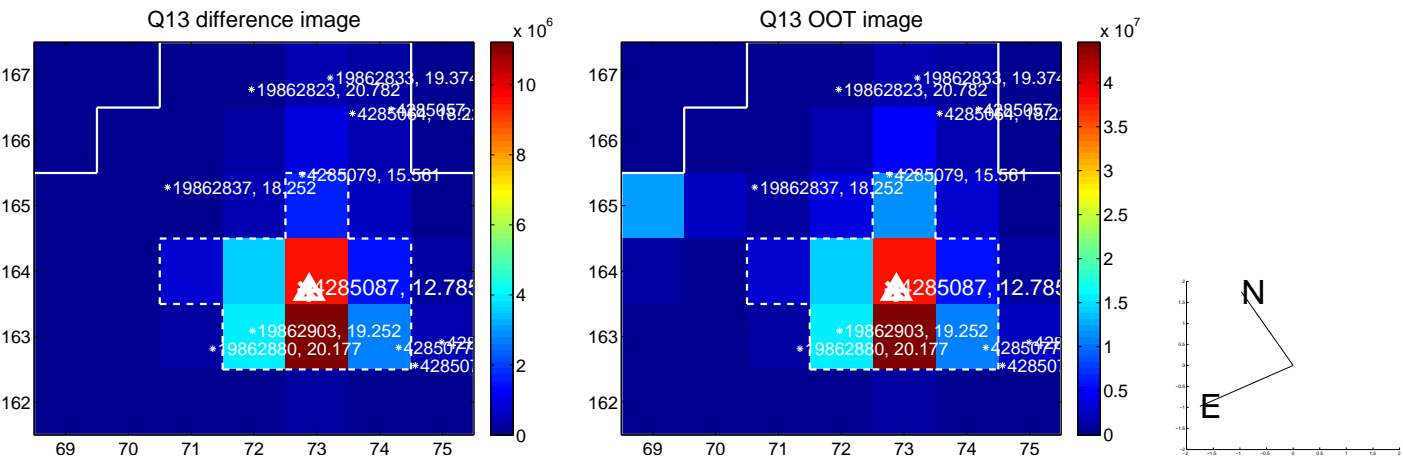




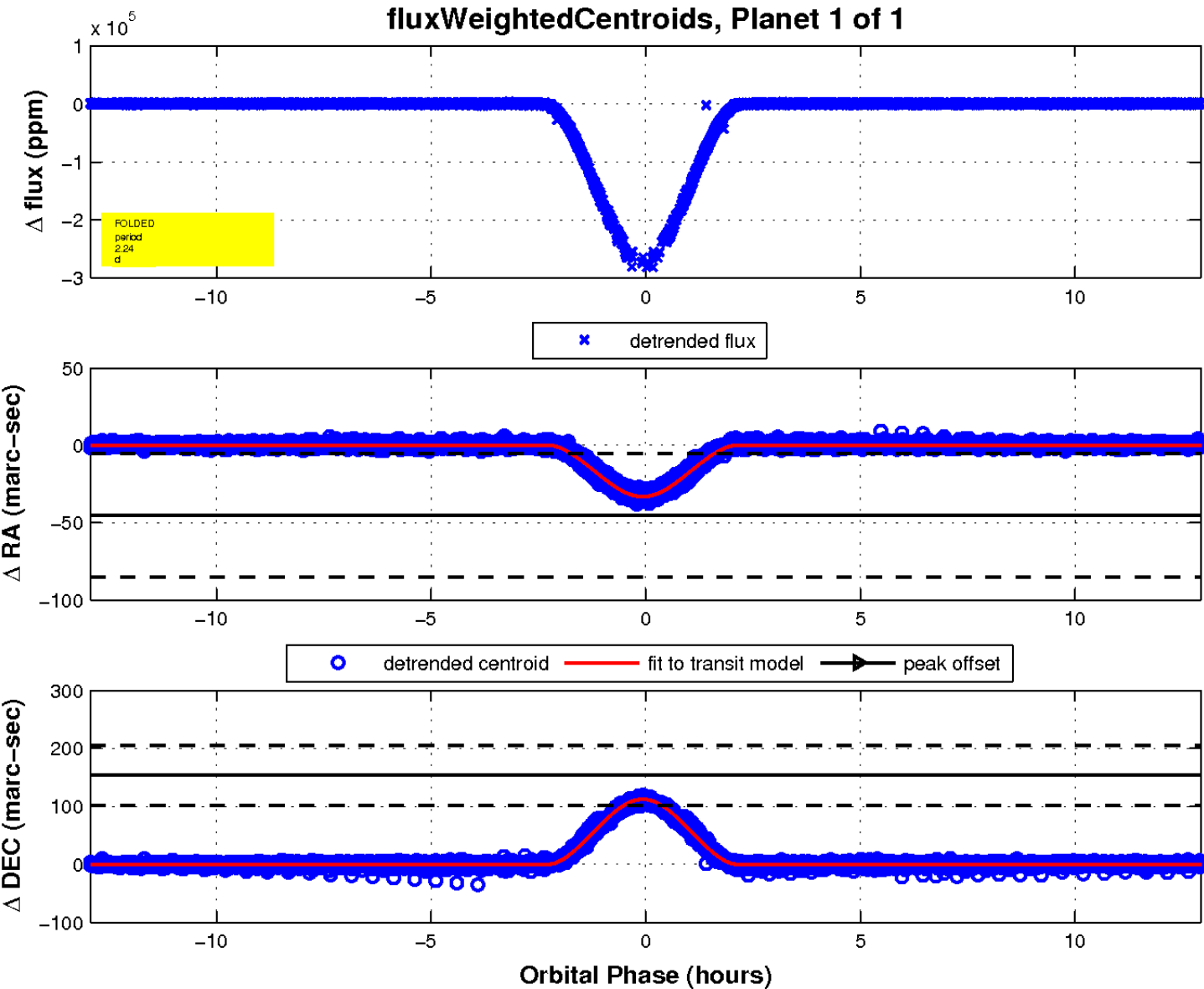
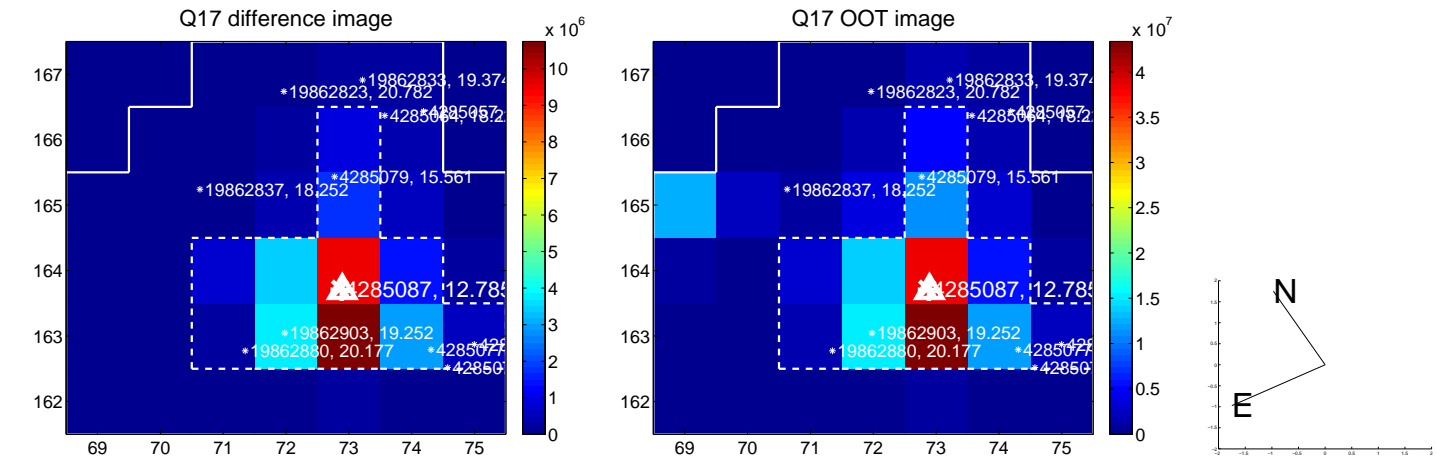
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

