

# KIC 011233911

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011233911-01	OBS	7422.01	2.479952	133.642736	123330.5	5.669	7268.9	3777.3	0.82	5391	41.51	442.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011233911-01	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.

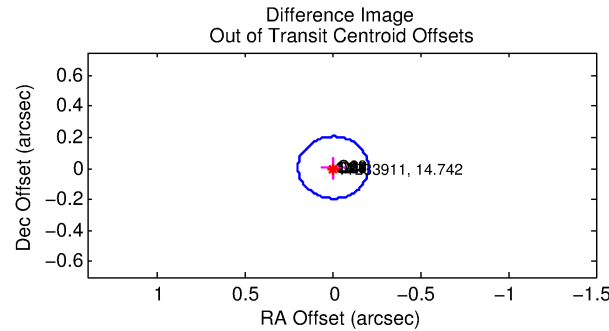
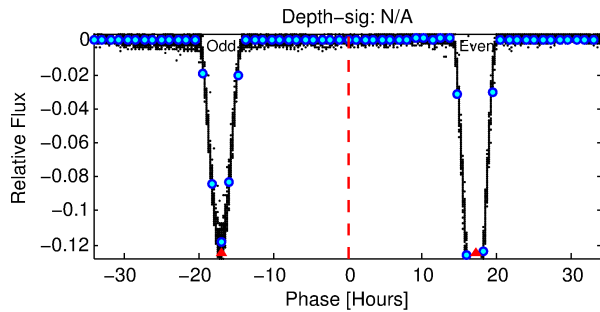
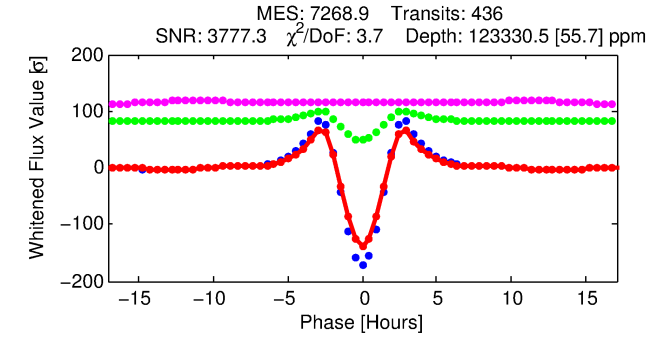
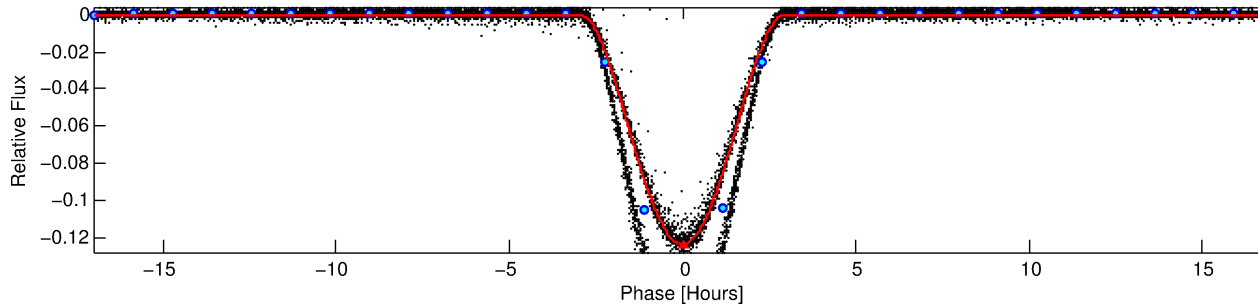
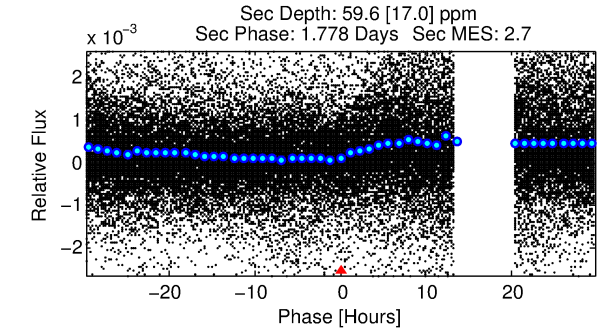
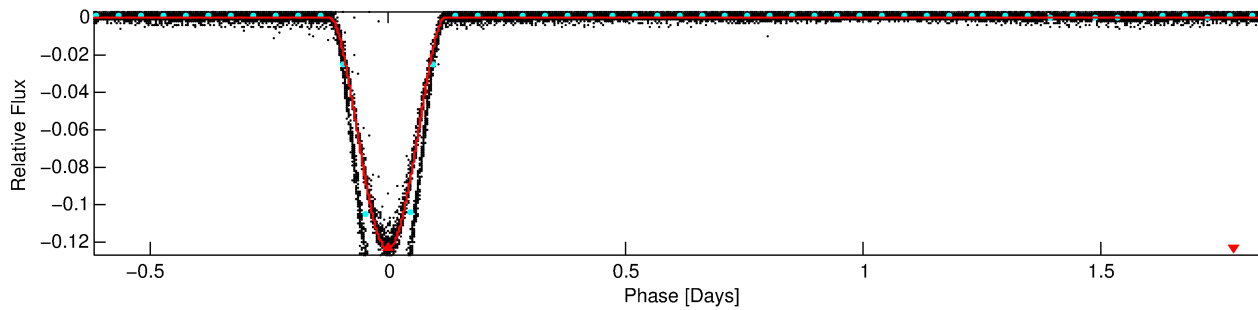
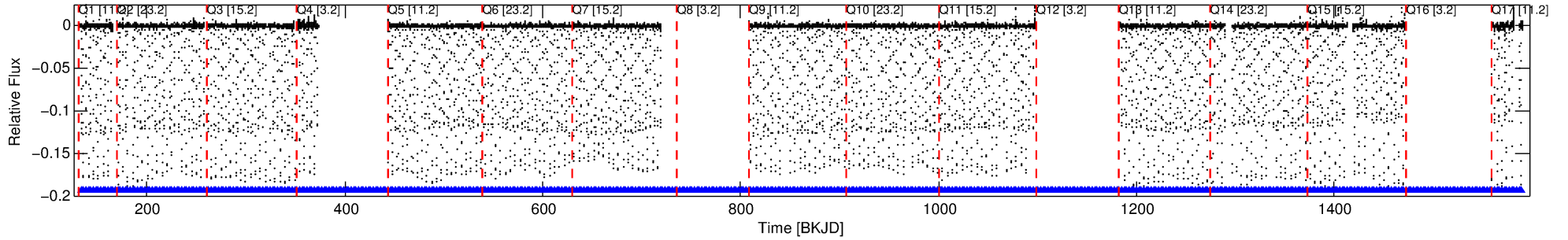
## Ephemeris Match Information For 011233911-01

No Significant Match Found

# DV One-Page Summary

KIC: 11233911 Candidate: 1 of 1 Period: 2.480 d  
KOI: K07422.01 Corr: 0.994

Kp: 14.74 R\*: 0.82 Rs Teff: 5391.0 K Logg: 4.54 Fe/H: -0.080



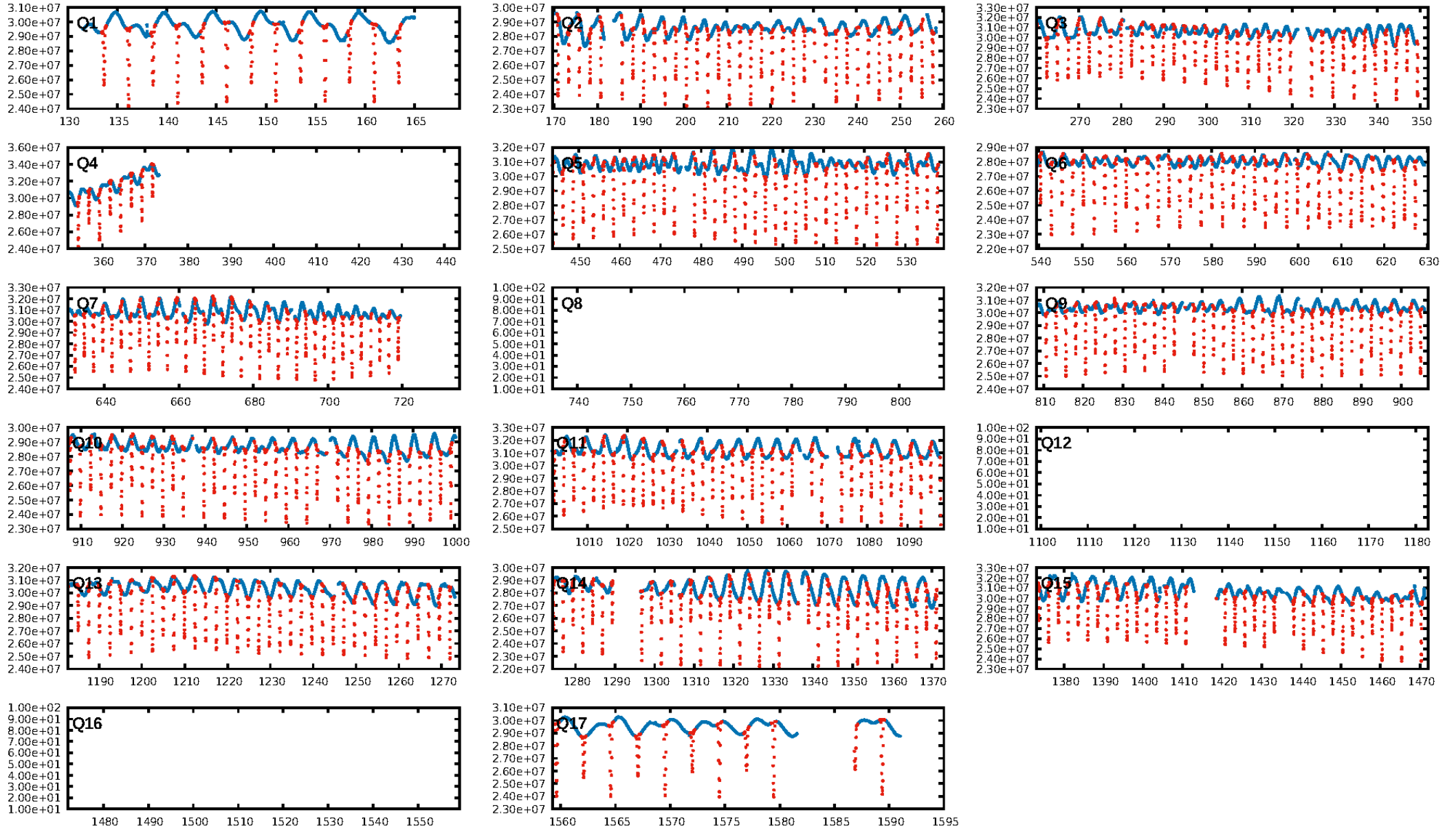
## DV Fit Results:

Period = 2.47995 [0.00000] d  
Epoch = 133.6427 [0.0000] BKJD  
Rp/R\* = 0.4628 [0.0135]  
a/R\* = 4.06 [0.01]  
b = 0.88 [0.02]  
Seff = 442.14 [111.39]  
Teff = 1169 [74] K  
Rp = 41.51 [7.97] Re  
a = 0.0340 [0.0053] AU  
Ag = 0.02 [0.01] [-121.32σ]  
Teffp = 696 [55] K [-5.15σ]

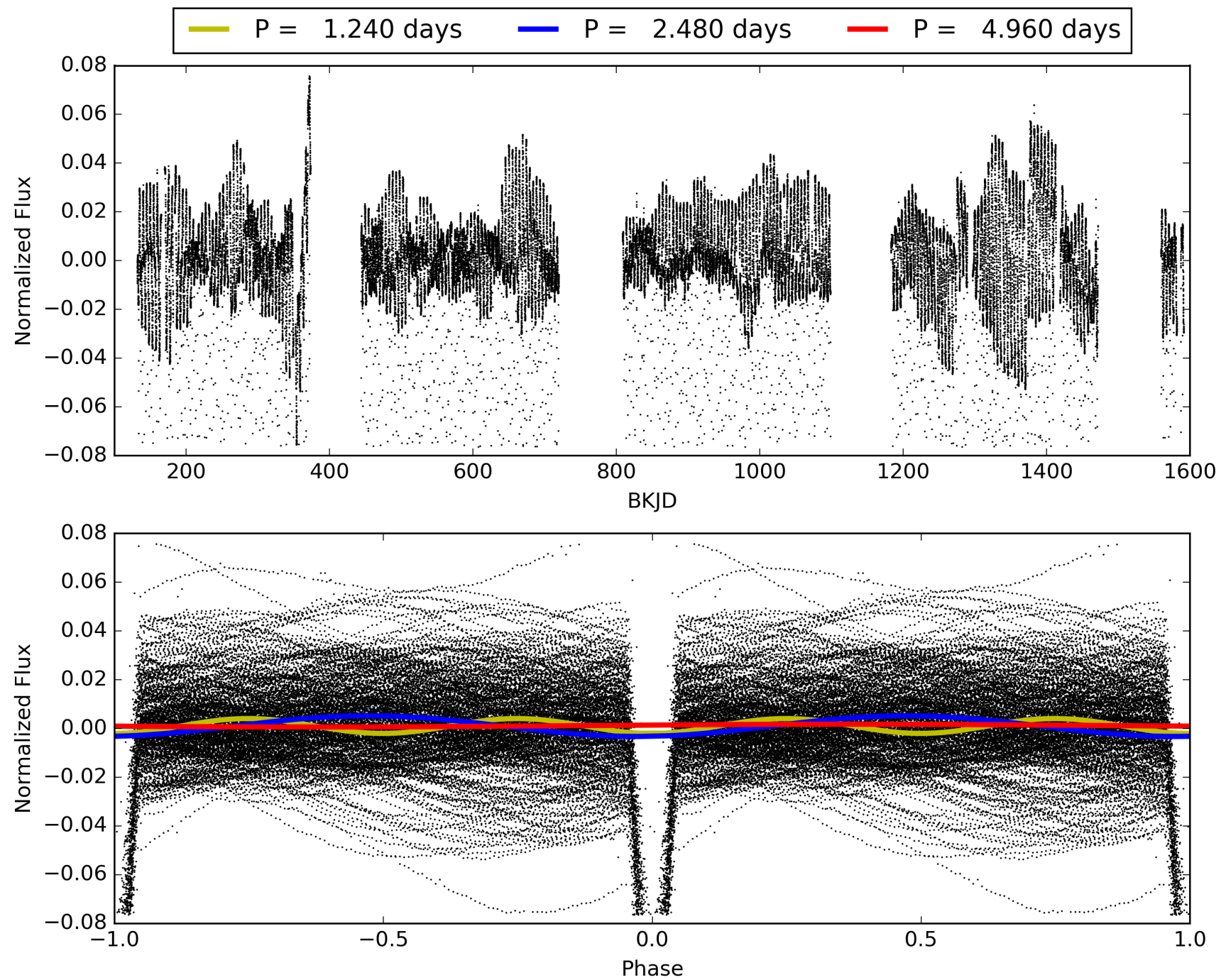
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [404/404]  
GhostDiagnostic-chr: 1.31  
Centroid-sig: 0.0%  
Centroid-so: 0.071 arcsec [81.00σ]  
OotOffset-rm: 0.007 arcsec [0.10σ]  
KicOffset-rm: 0.015 arcsec [0.23σ]  
OotOffset-st: 4/4/1/5 [14]  
KicOffset-st: 4/4/1/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 011233911-01, PDC Light Curves

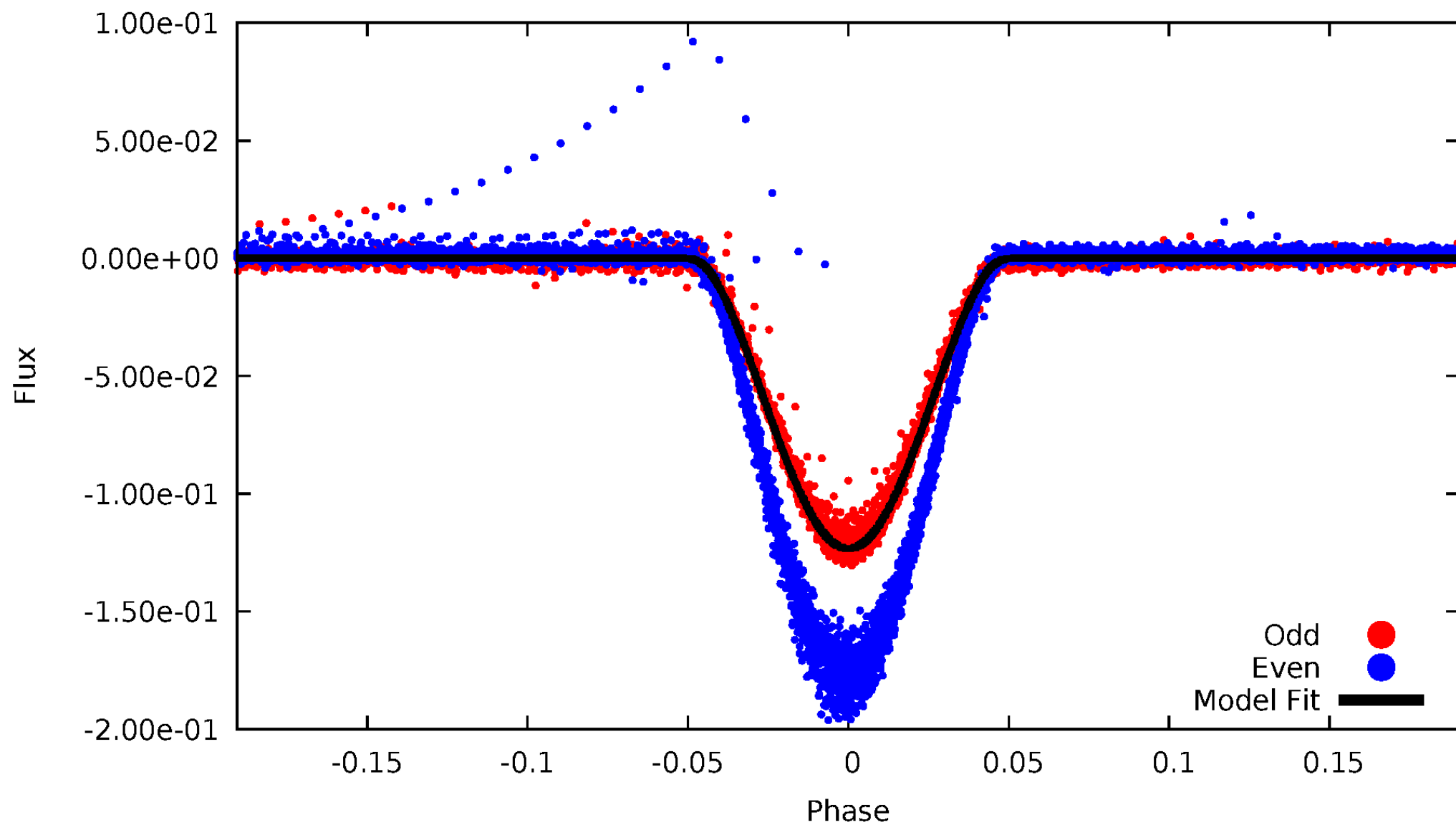


TCE 011233911-01



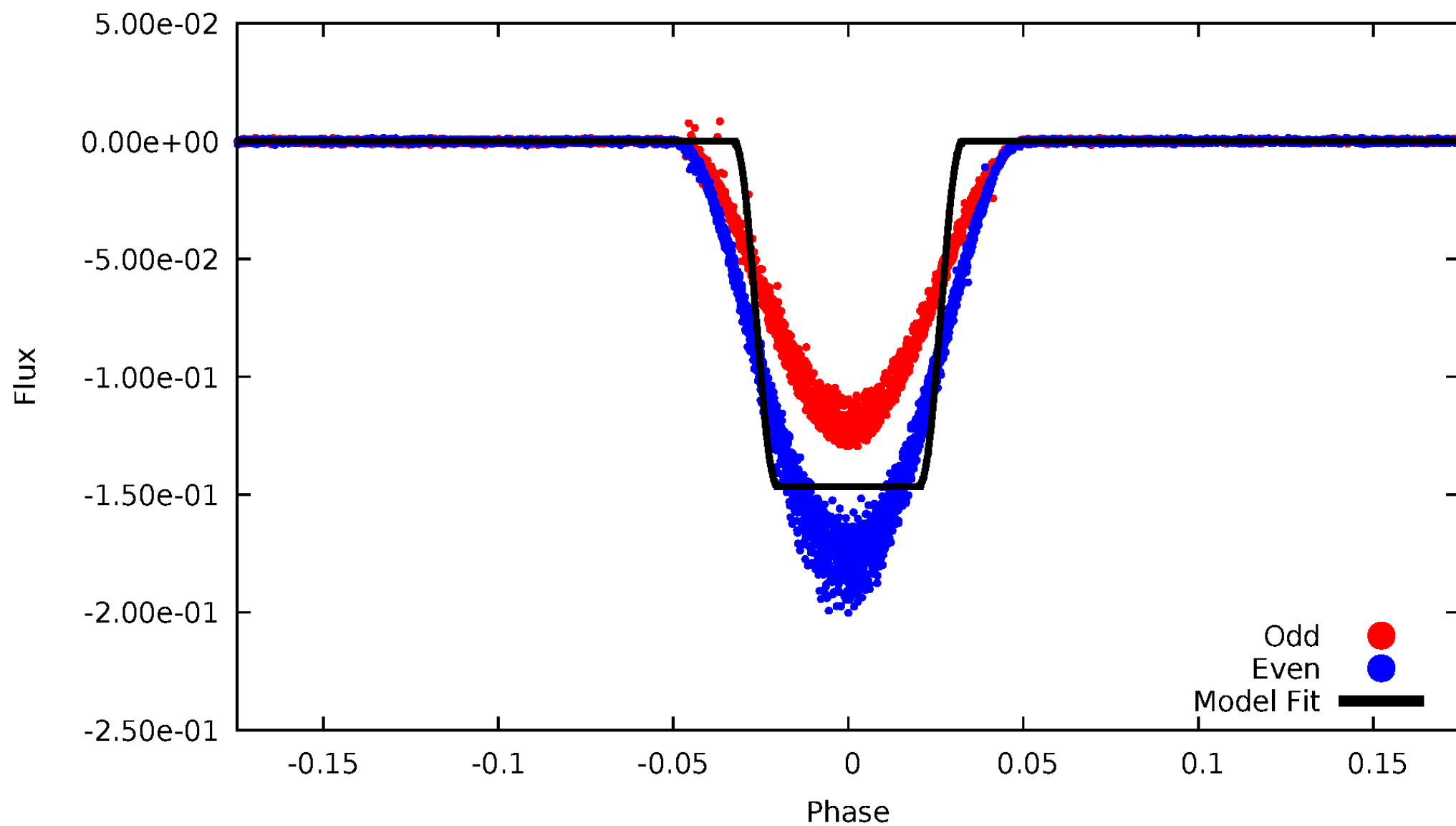
# DV Odd/Even

TCE 011233911-01



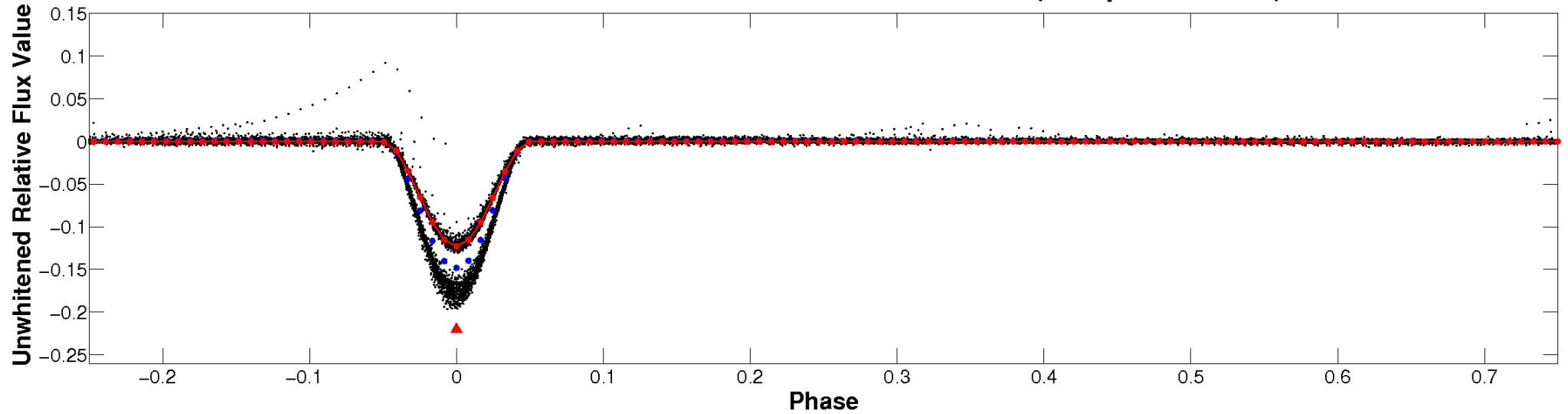
# ALT Odd/Even

TCE 011233911-01

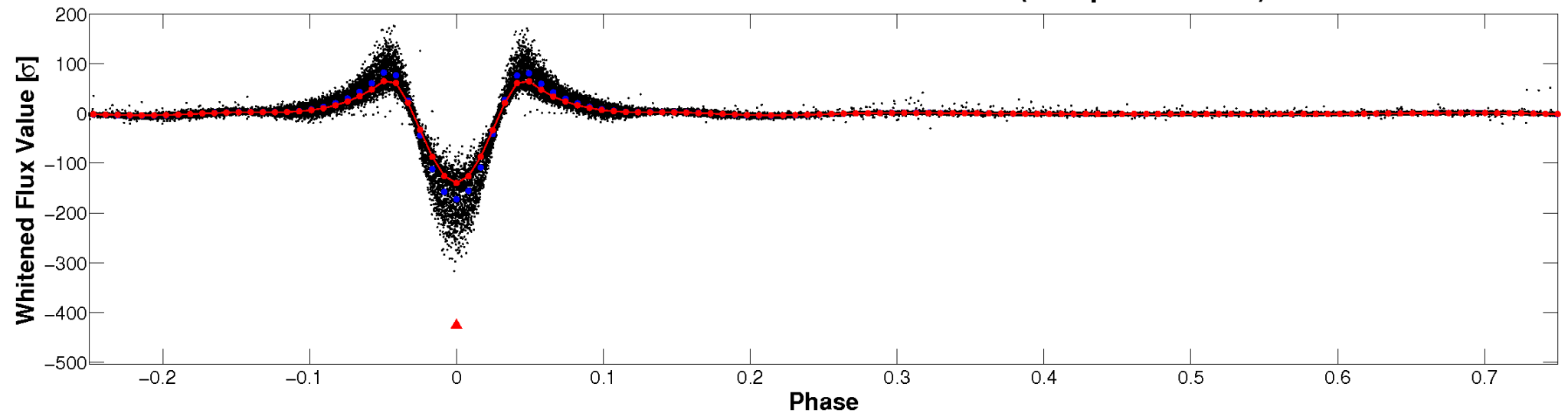


# Non-Whitened Vs. Whitened Light Curve

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



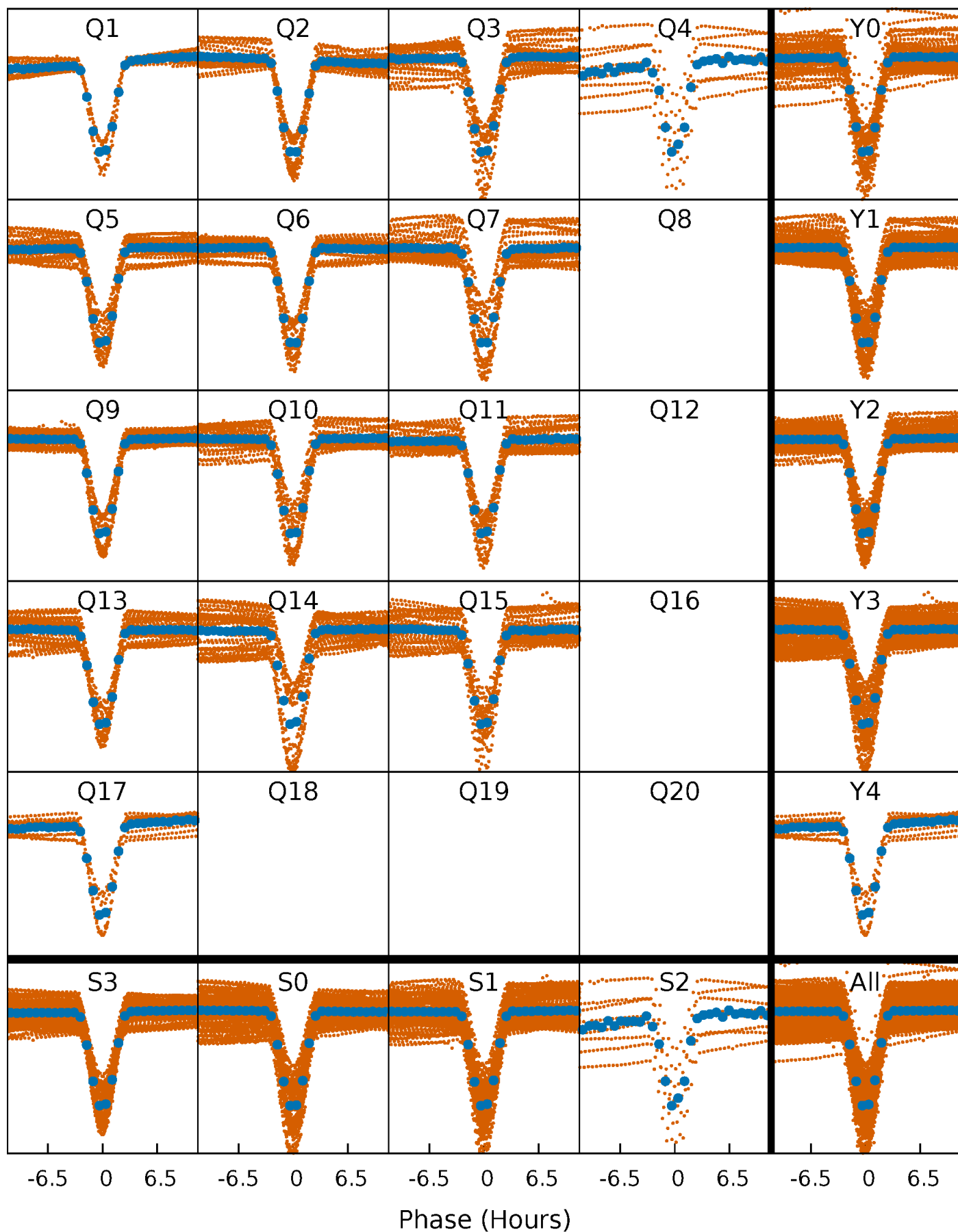
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

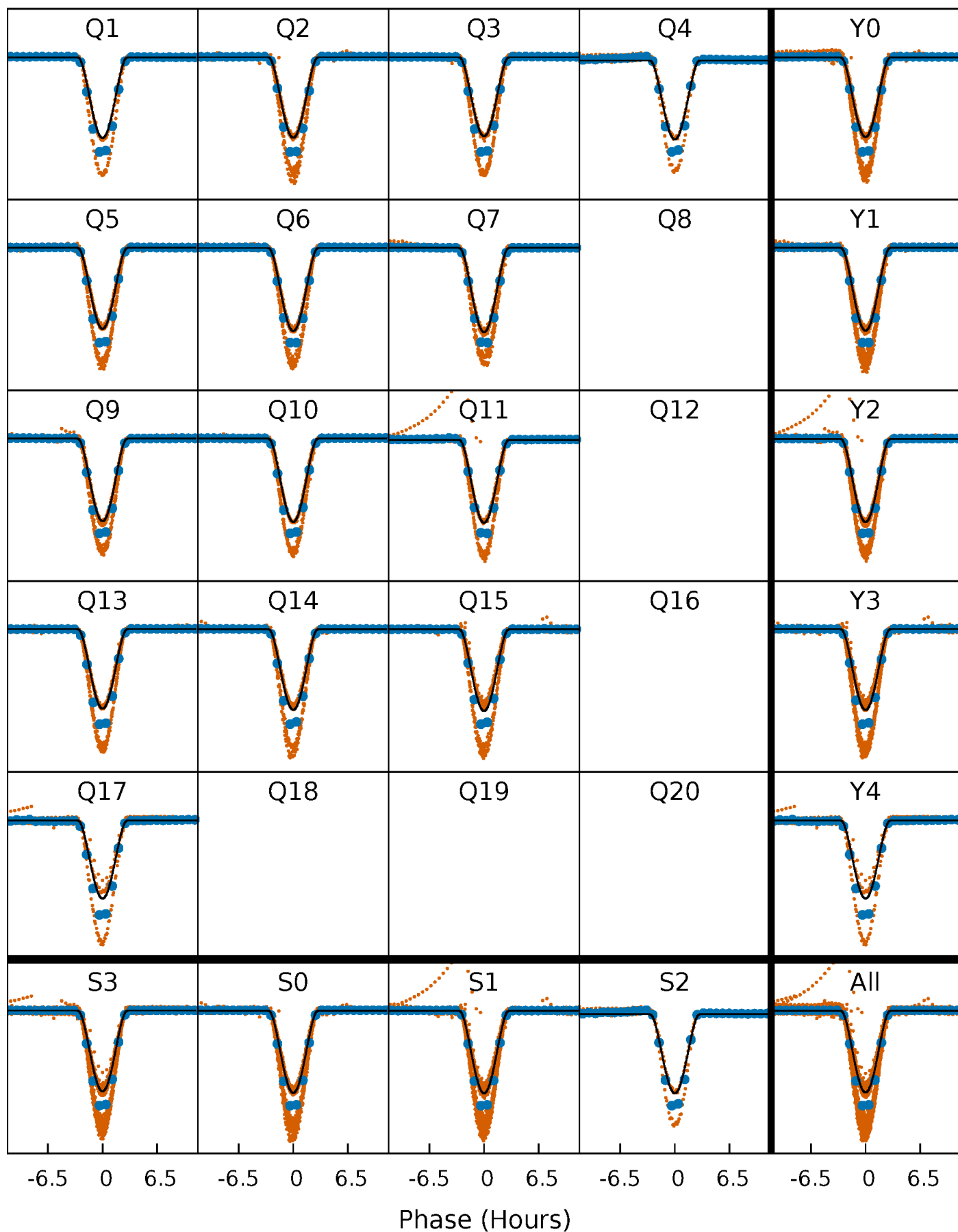
TCE 011233911-01 P= 2.479952 Days  $T_0=133.642736$  (BKJD)





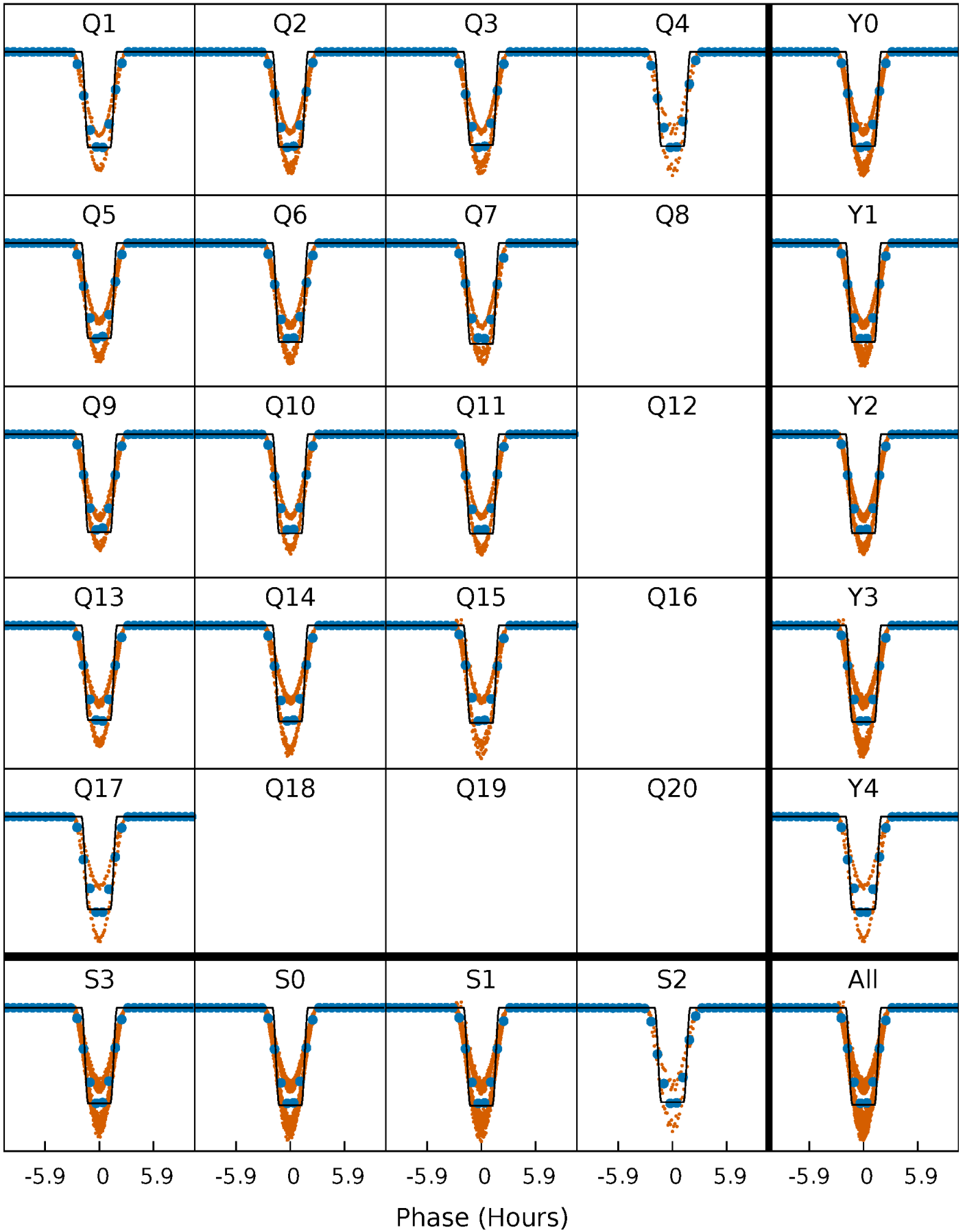
# DV Quarter-Phased Transit Curves

TCE 011233911-01 P= 2.479952 Days  $T_0=133.642736$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

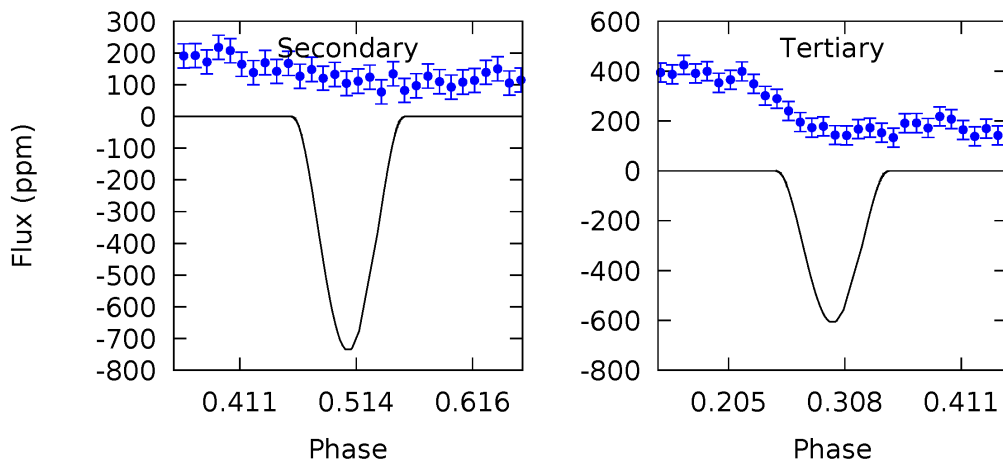
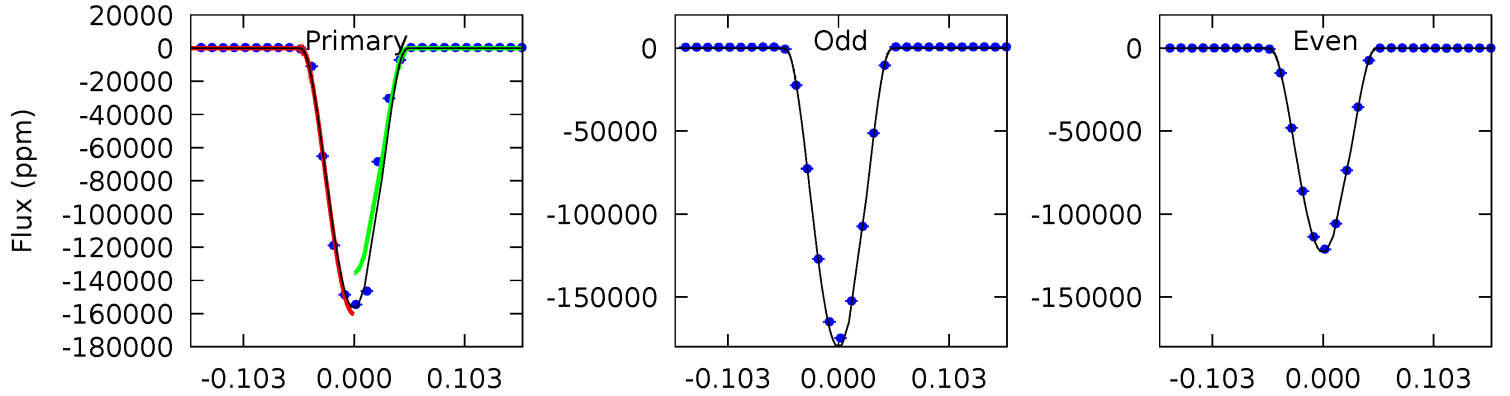
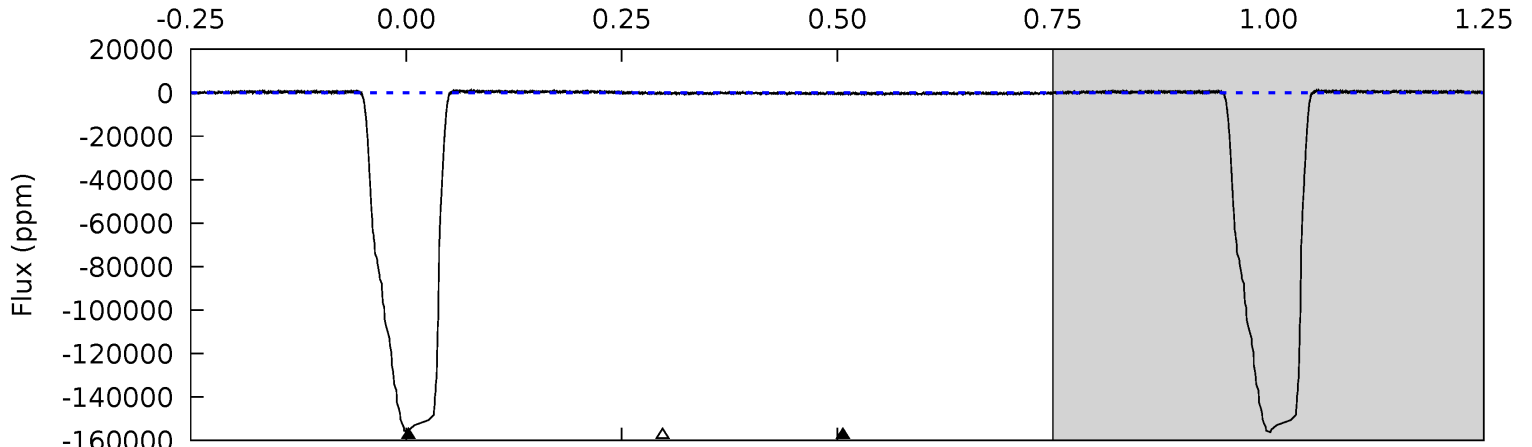
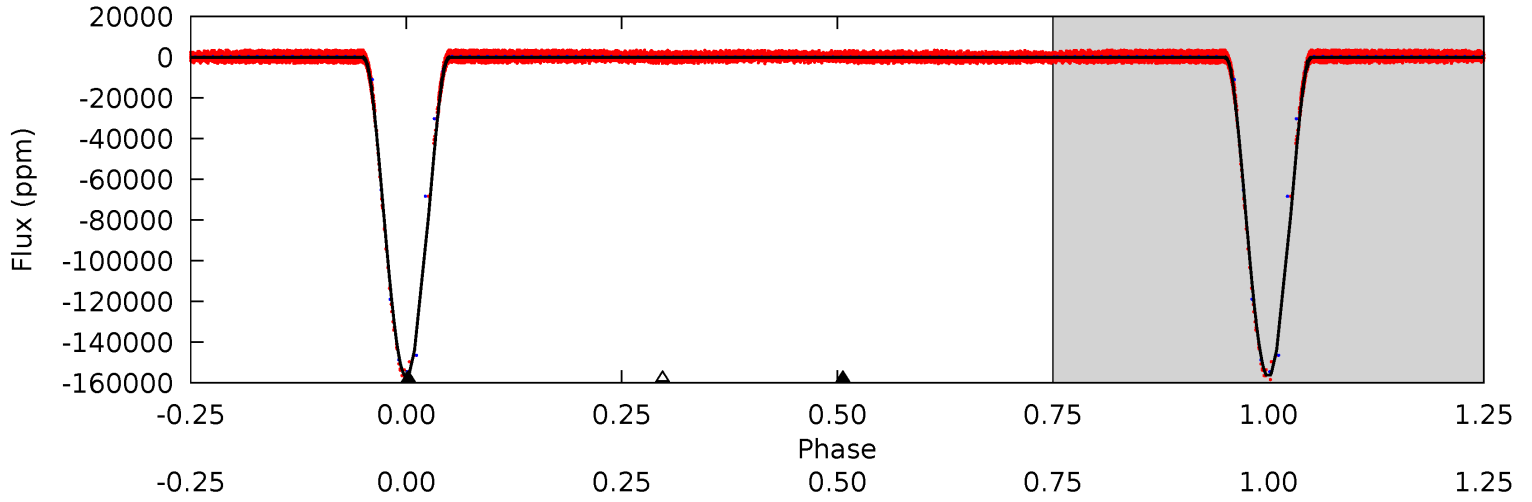
TCE 011233911-01 P= 2.479946 Days  $T_0=133.643749$  (BKJD)



# DV Model-Shift Uniqueness Test

011233911-01, P = 2.479952 Days, E = 131.162784 Days

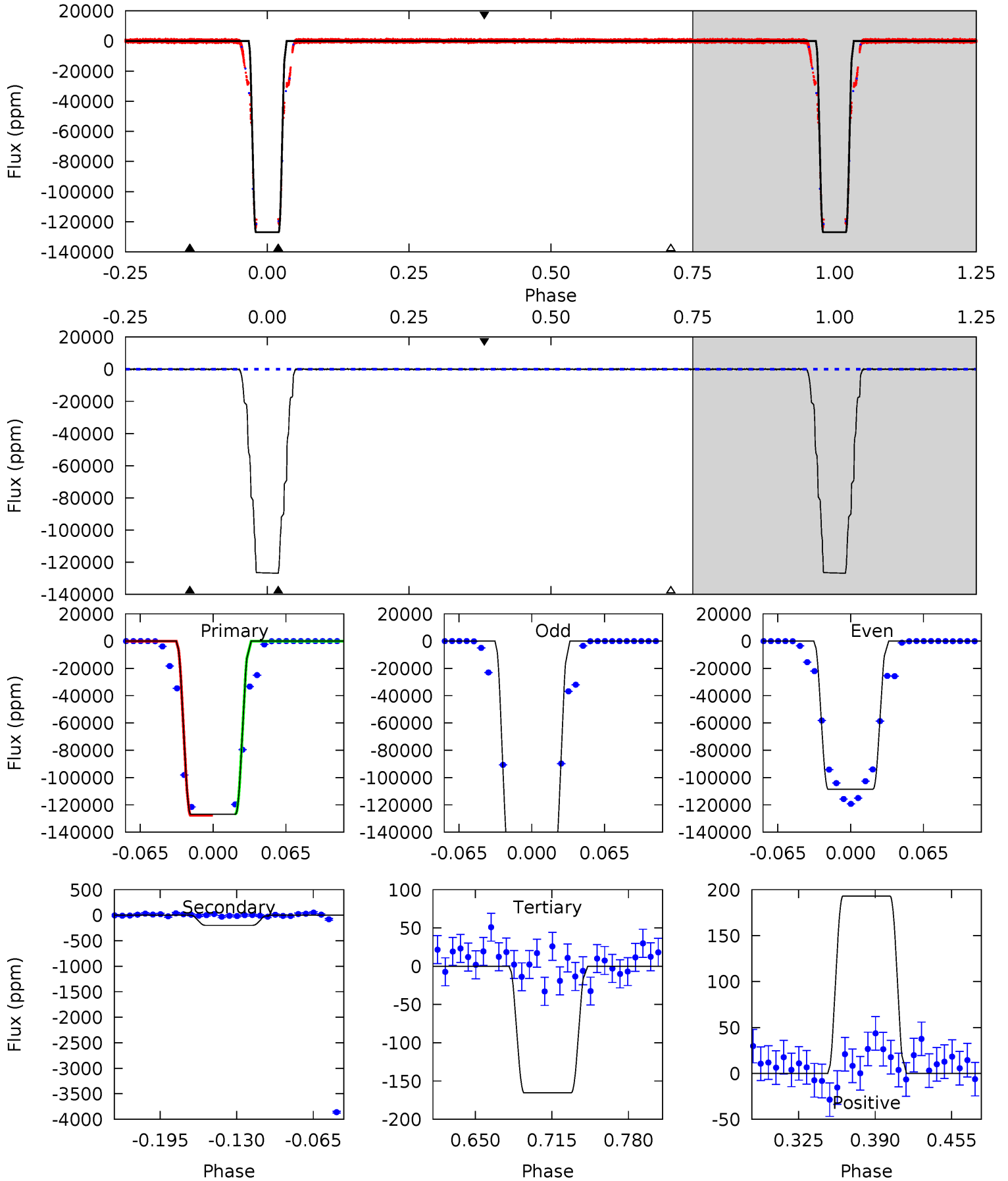
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5818	27.4	22.6	0	4.56	1.63	12.8	5795	5818	4.79	27.4	1802	1.13	0.01	0



# Alt Model-Shift Uniqueness Test

011233911-01, P = 2.479946 Days, E = 131.163803 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
3095	4.86	4.03	4.71	4.65	1.85	2.79	3091	3091	0.82	0.15	1656	0.94	0.00	0



### Stellar Parameters For KIC 011233911

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5391^{+160}_{-144}$	$4.539^{+0.051}_{-0.119}$	$-0.080^{+0.300}_{-0.300}$	$0.822^{+0.156}_{-0.072}$	$0.854^{+0.089}_{-0.089}$	$2.164^{+0.544}_{-0.781}$
	+3%/-3%	+1%/-3%	+375%/-375%	+19%/-9%	+10%/-10%	+25%/-36%
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 011233911-01 / KOI 7422.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-734 \pm 27$	$42.14^{+4.19}_{-2.77}$	$1656^{+78}_{-63}$	$-1842^{+308}_{-165}$	$0.260^{+0.035}_{-0.039}$
Alt.	$-199 \pm 41$	$34.88^{+3.39}_{-2.65}$	$1649^{+80}_{-65}$	$-2168^{+61}_{-64}$	$0.103^{+0.027}_{-0.024}$

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

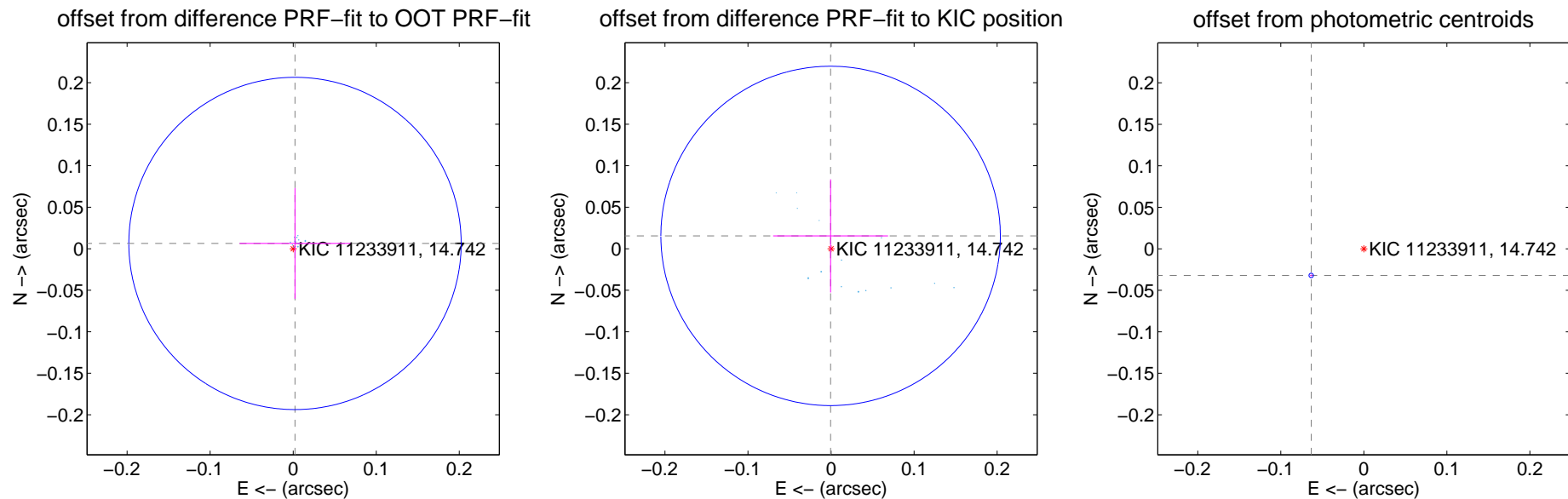
## DV Centroid Data

Supplemental centroid analysis for 011233911-01. Kepler magnitude: 14.74. Transit SNR 3777.34

There are 14 quarters with good PRF difference image offsets

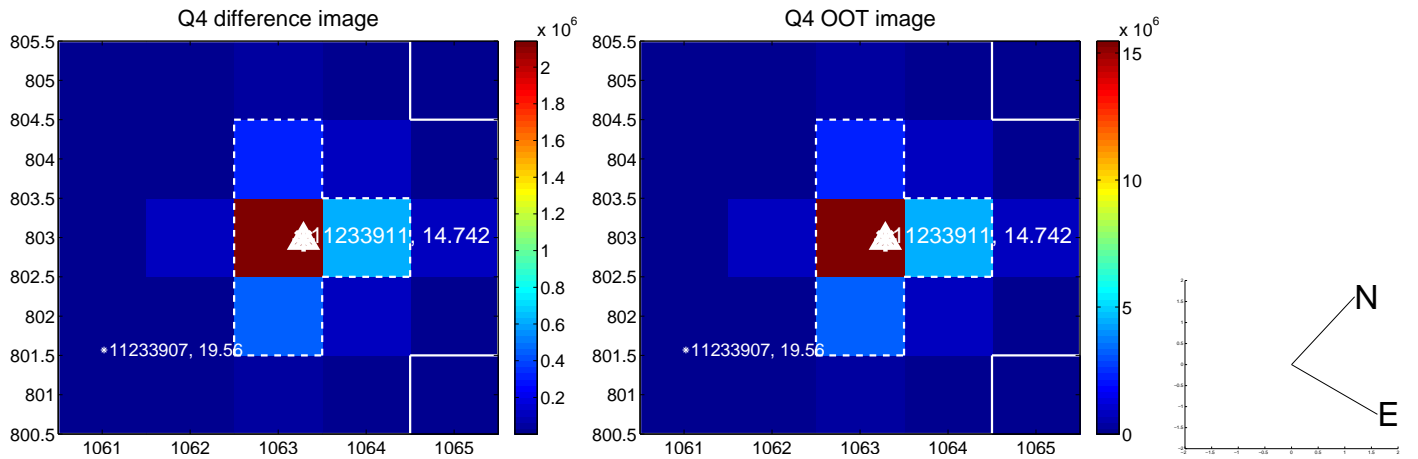
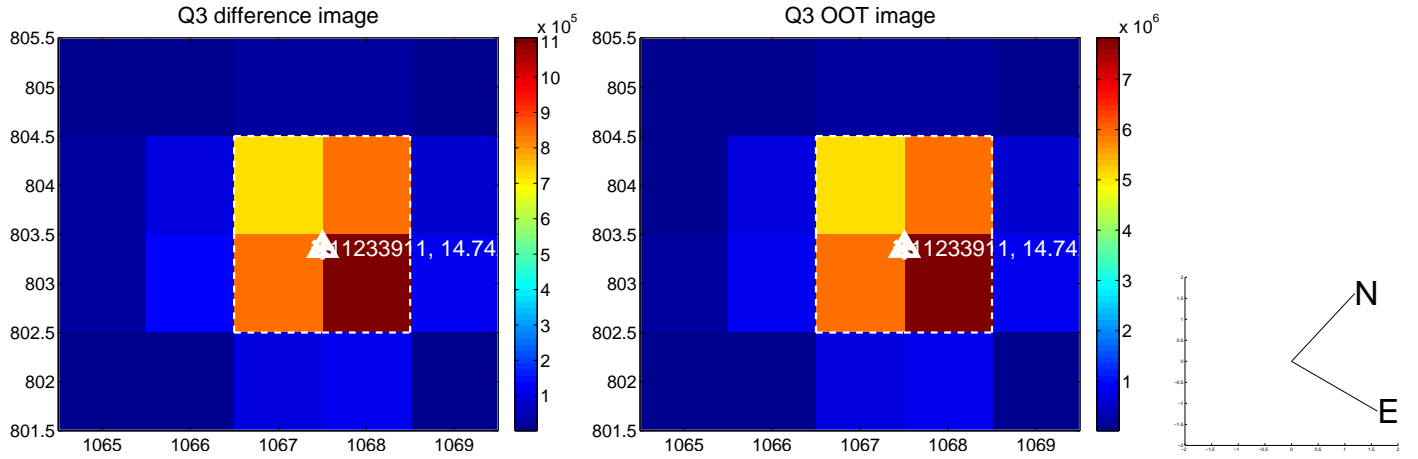
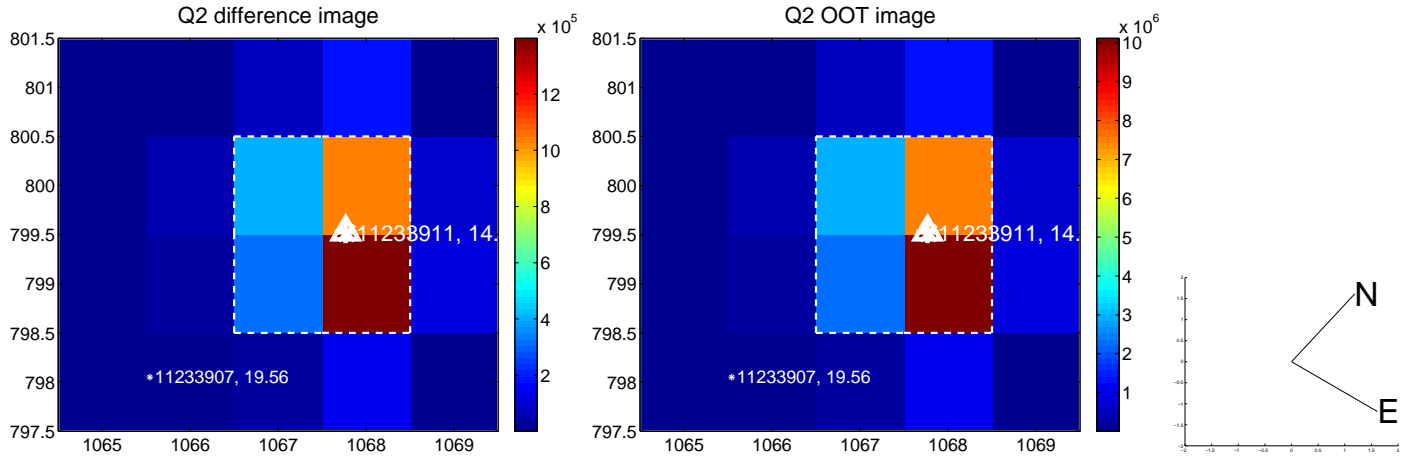
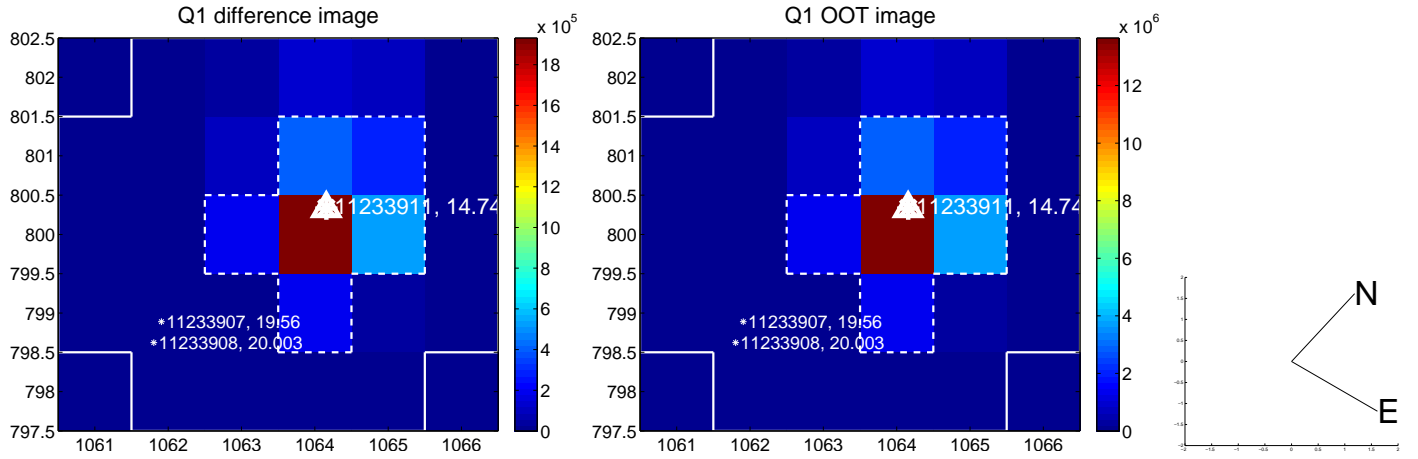
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.007 \pm 0.067$	0.10	$-0.002 \pm 0.067$	$0.006 \pm 0.067$
PRF-fit source offset from KIC position	$0.015 \pm 0.068$	0.23	$0.001 \pm 0.069$	$0.015 \pm 0.068$
photometric centroid source offset	$0.07 \pm 0.00$	81.00	$0.06 \pm 0.00$	$-0.03 \pm 0.00$



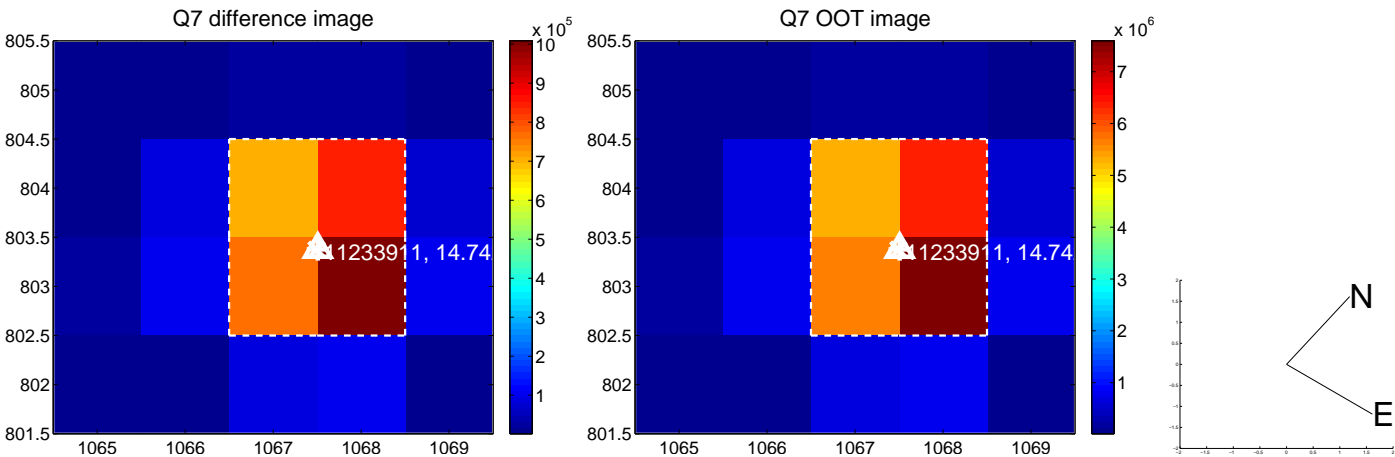
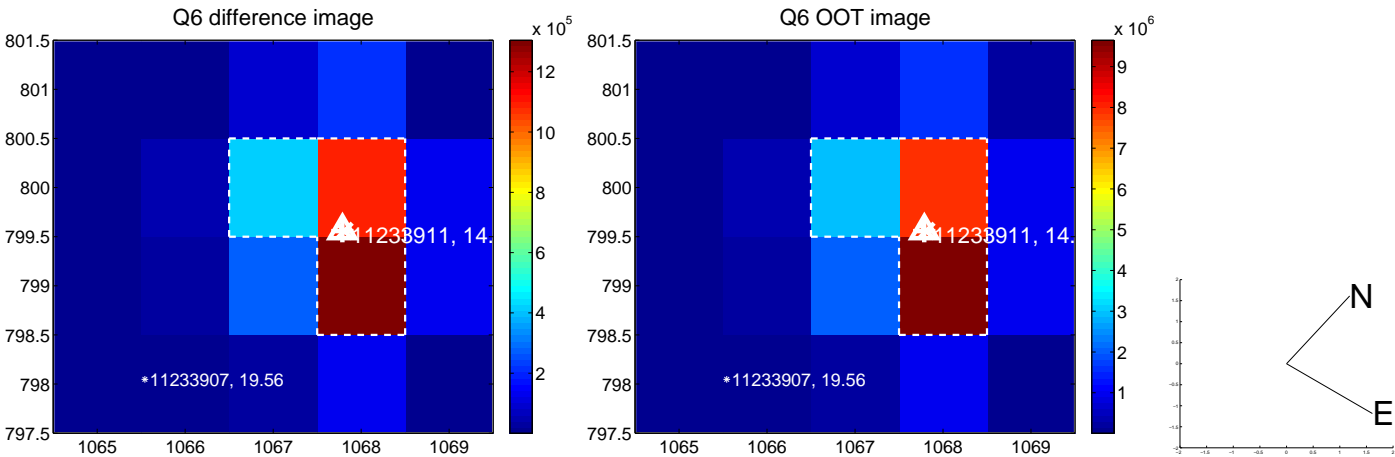
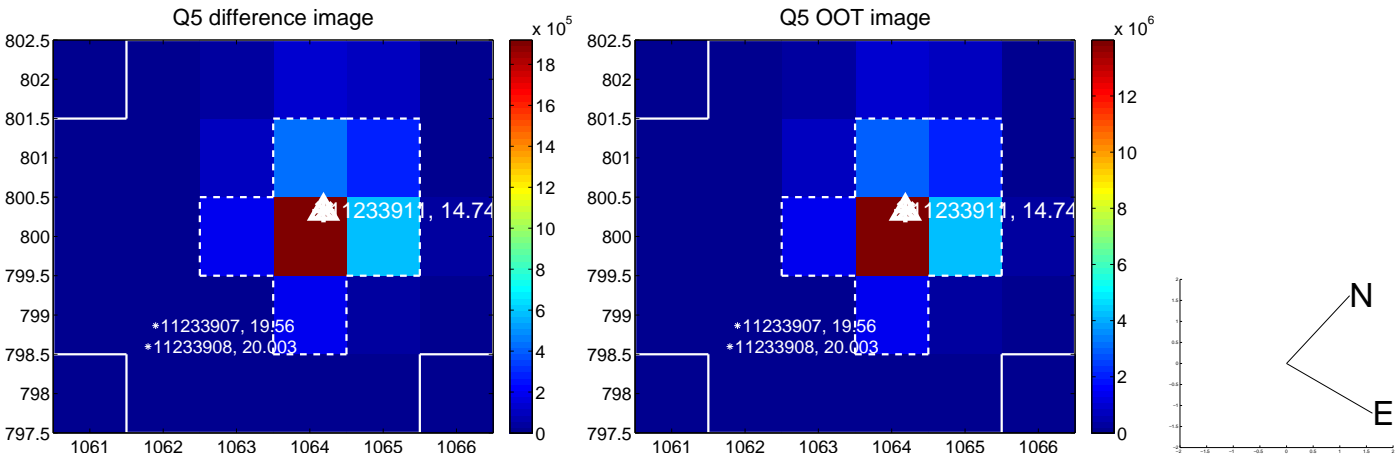
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

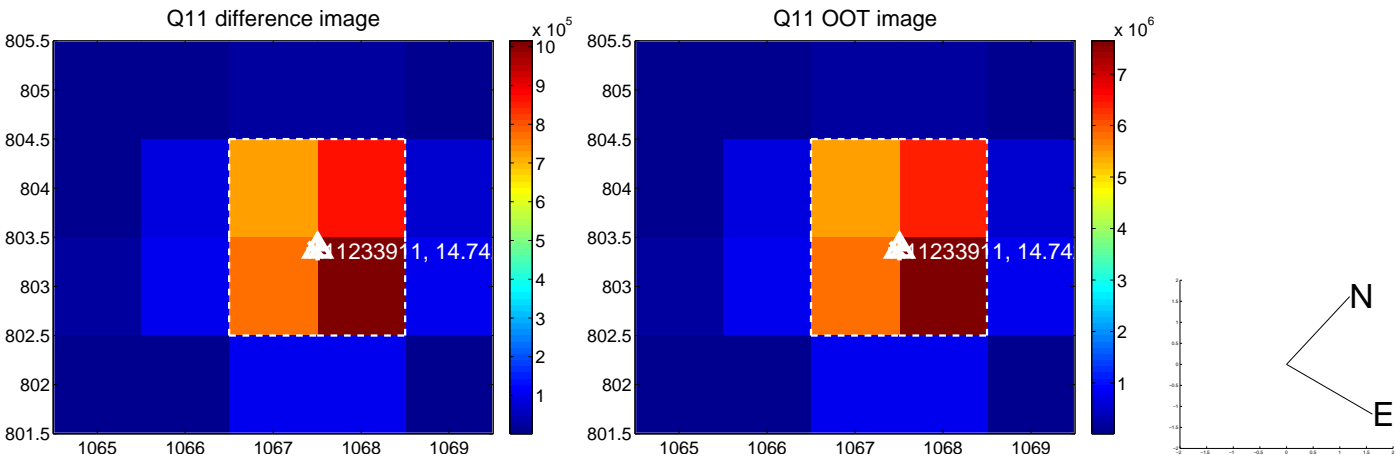
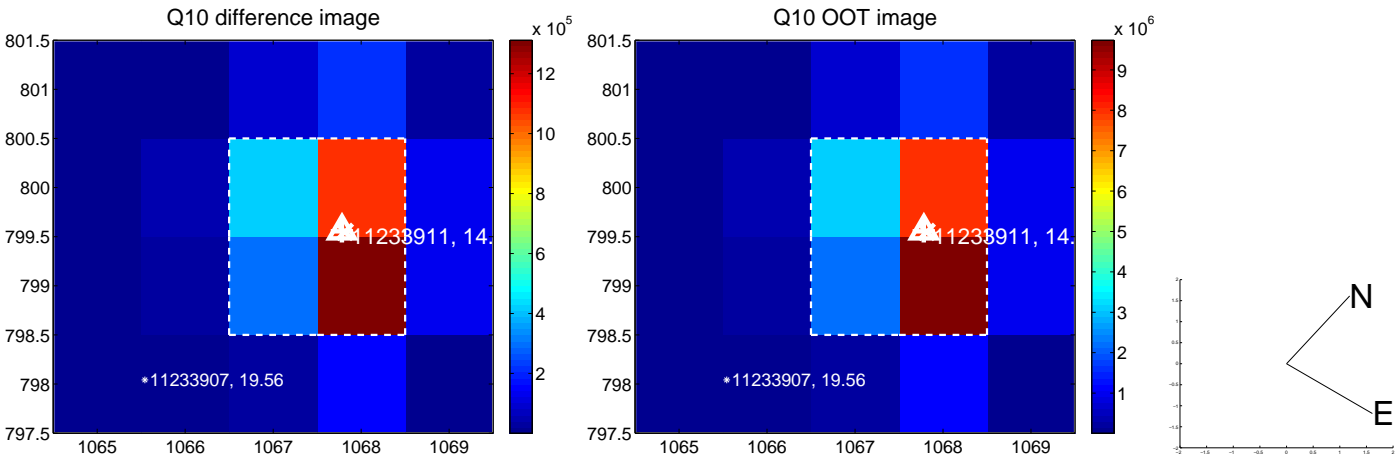
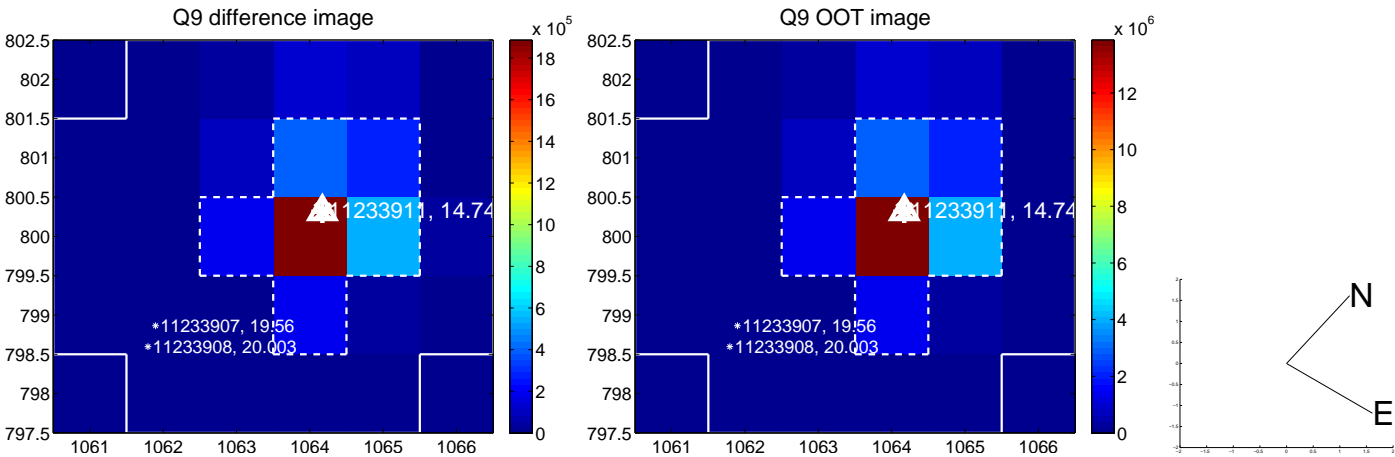




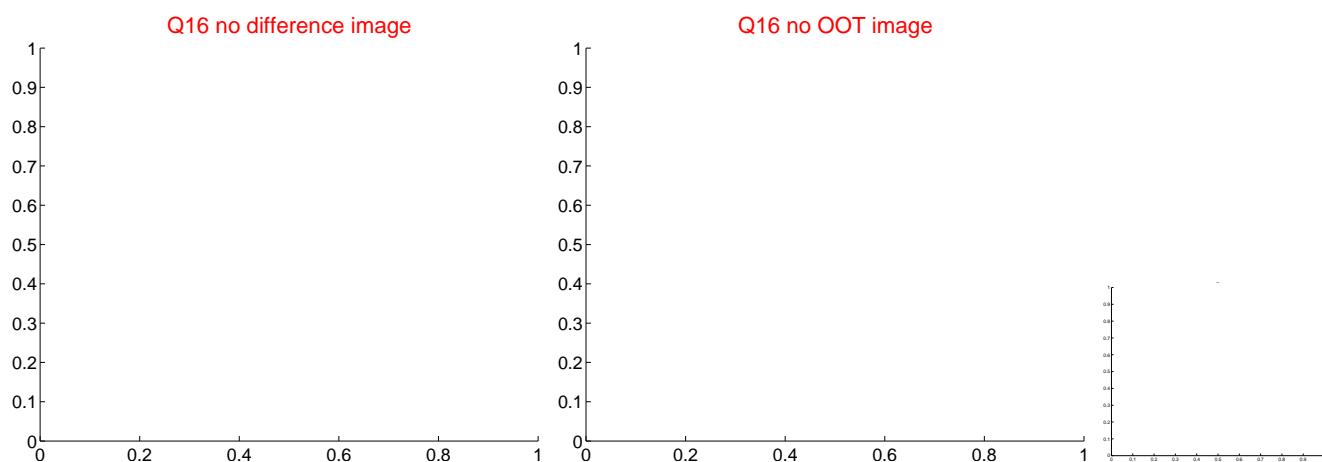
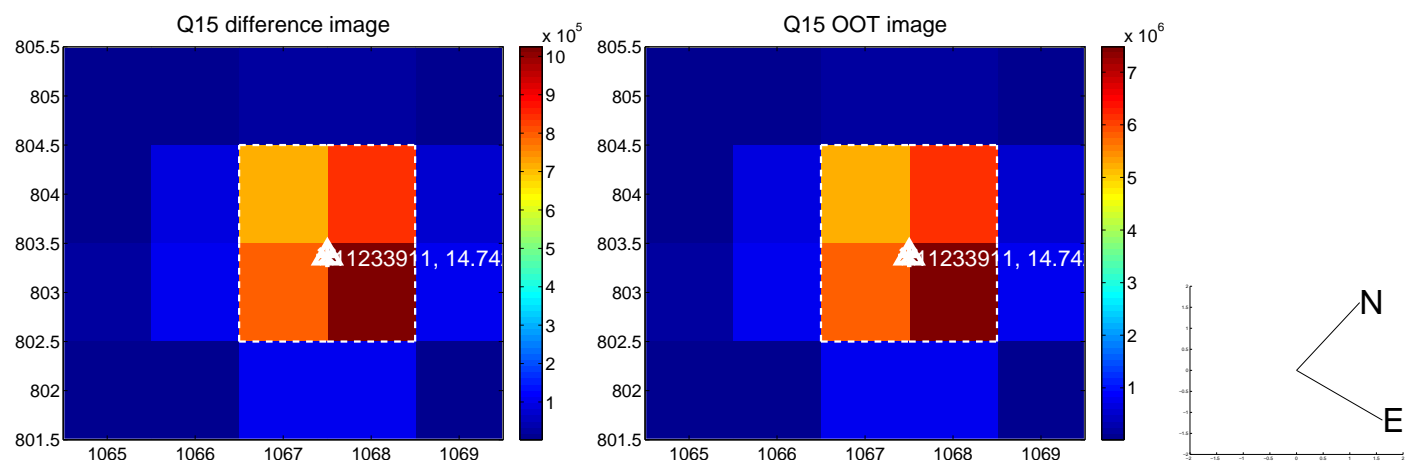
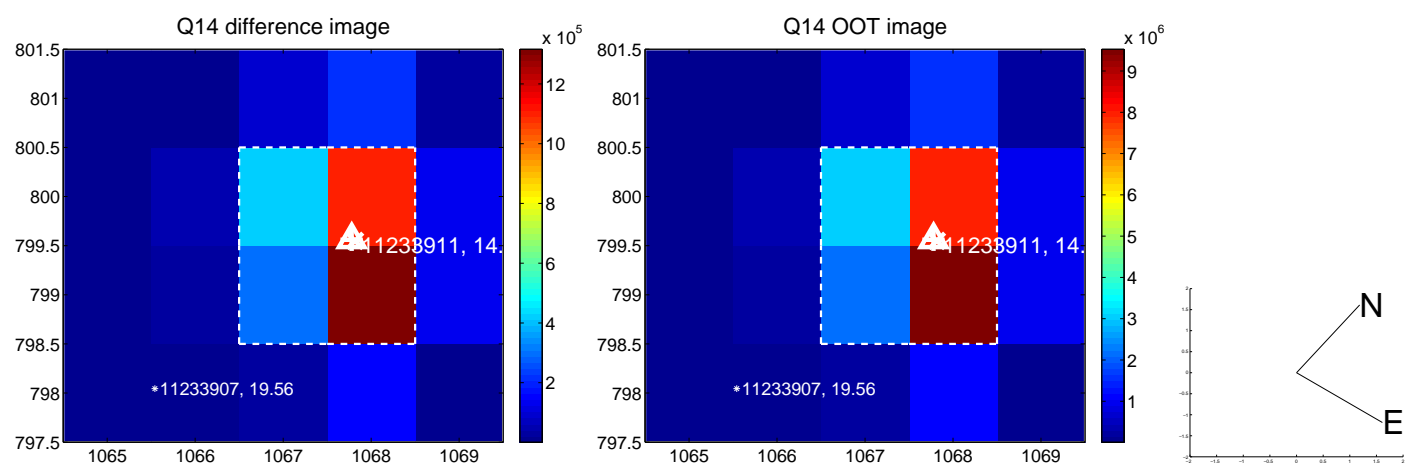
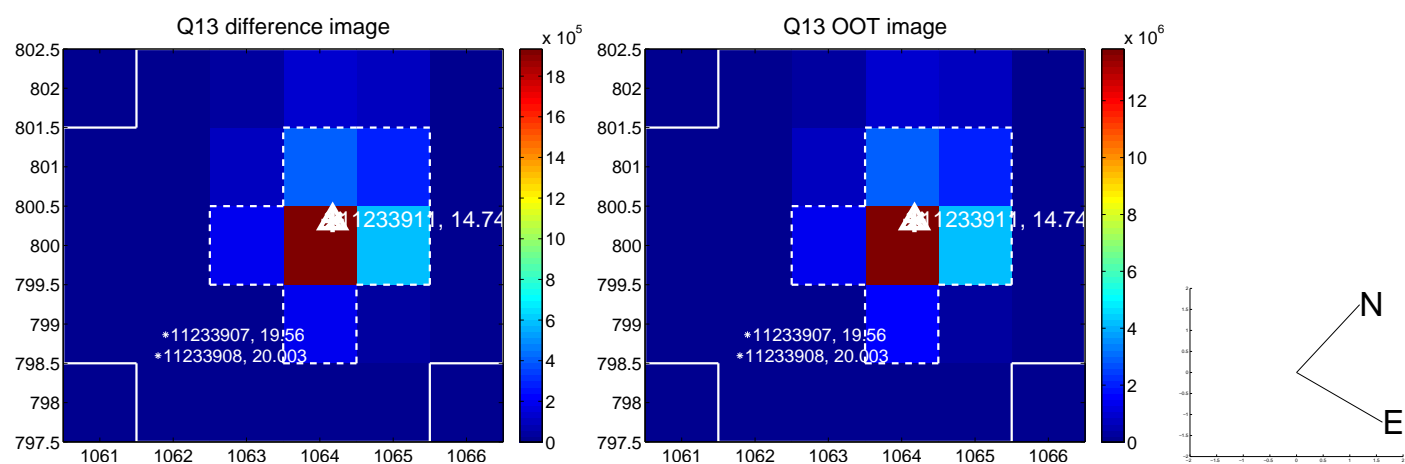
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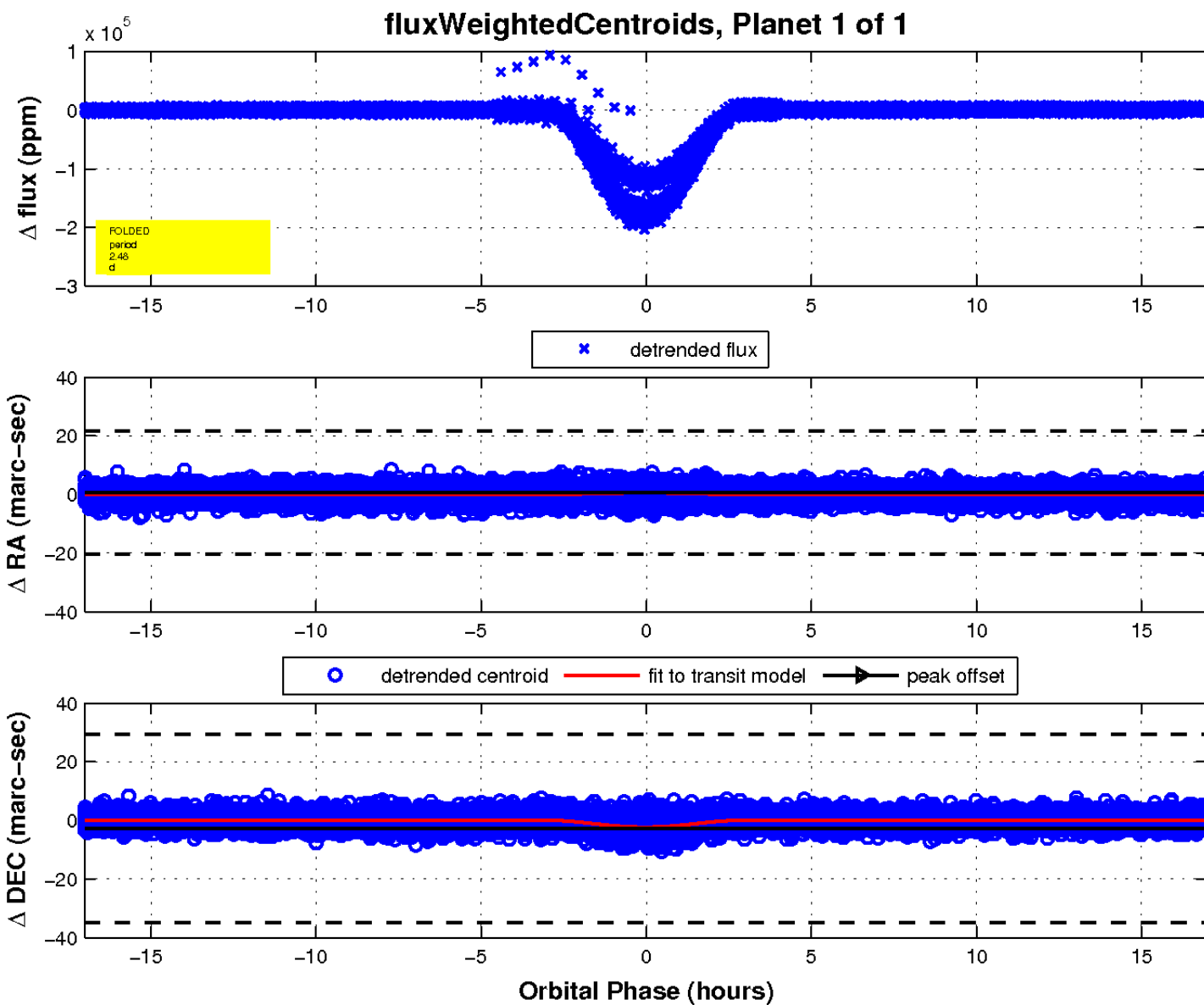
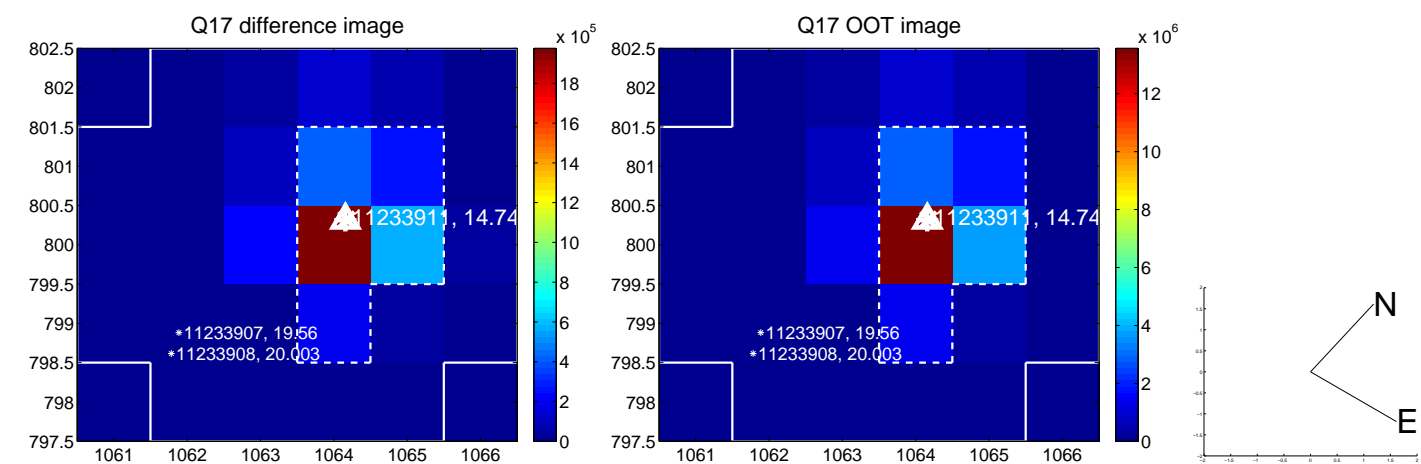
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UKIRT Image

