

# KIC 004729553

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004729553-01	OBS	6438.01	0.962323	132.036080	103529.3	11.548	4828.9	164.5	1.40	6300	45.46	7135.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004729553-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS

**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.

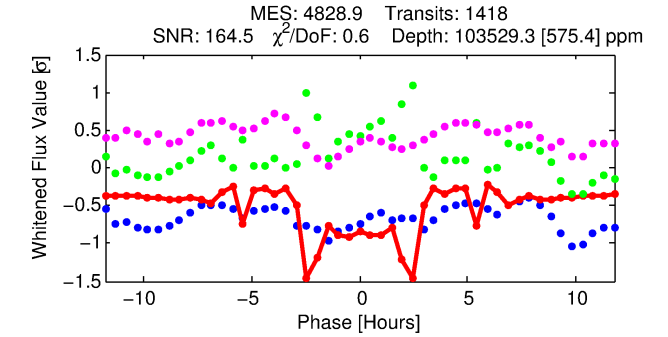
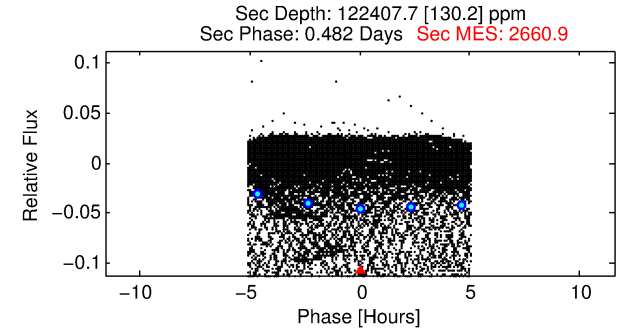
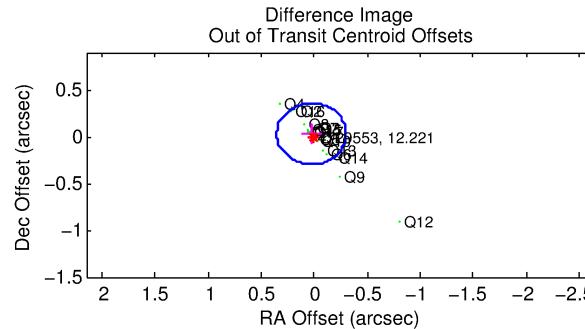
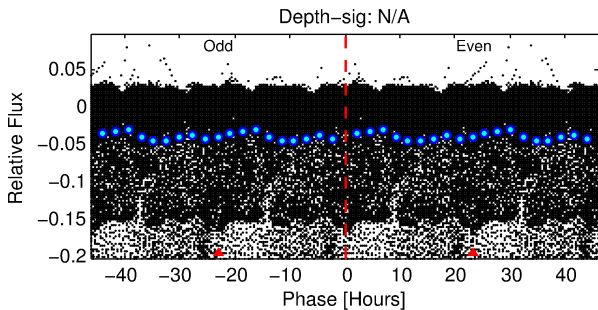
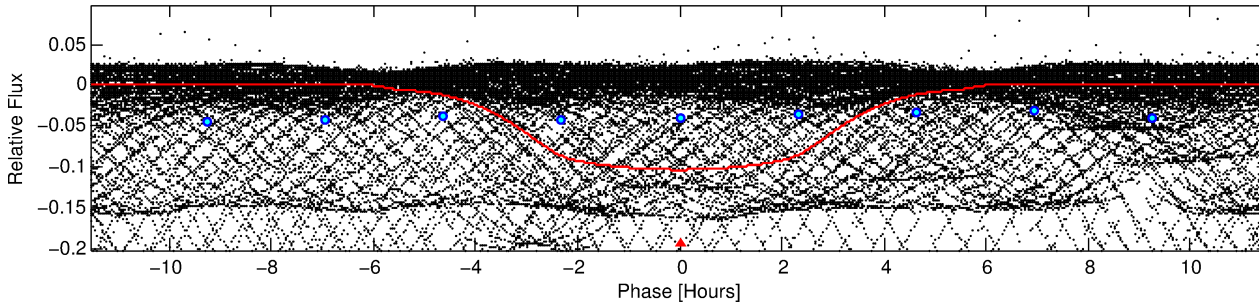
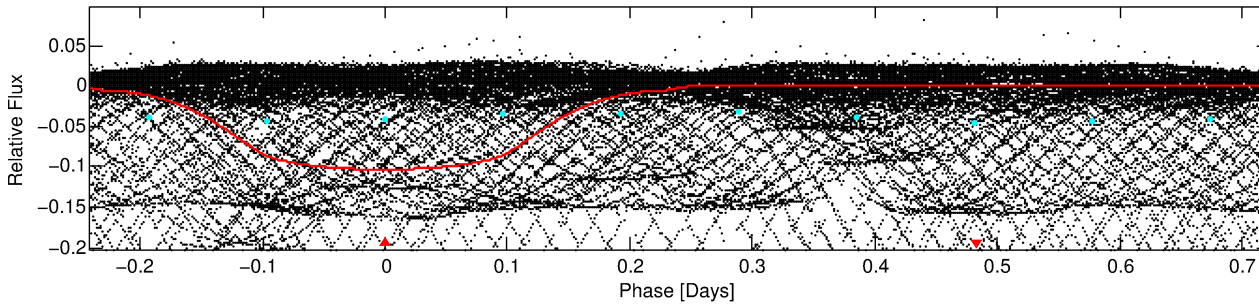
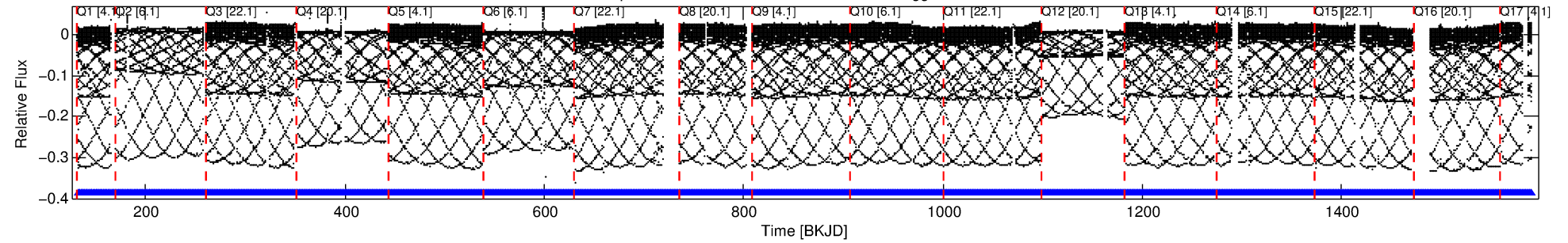
## Ephemeris Match Information For 004729553-01

No Significant Match Found

# DV One-Page Summary

KIC: 4729553 Candidate: 1 of 1 Period: 0.962 d  
KOI: K06438 Corr: No Ephemeris Match

Kp: 12.22 R\*: 1.40 Rs Teff: 6300.0 K Logg: 4.19 Fe/H: -0.140



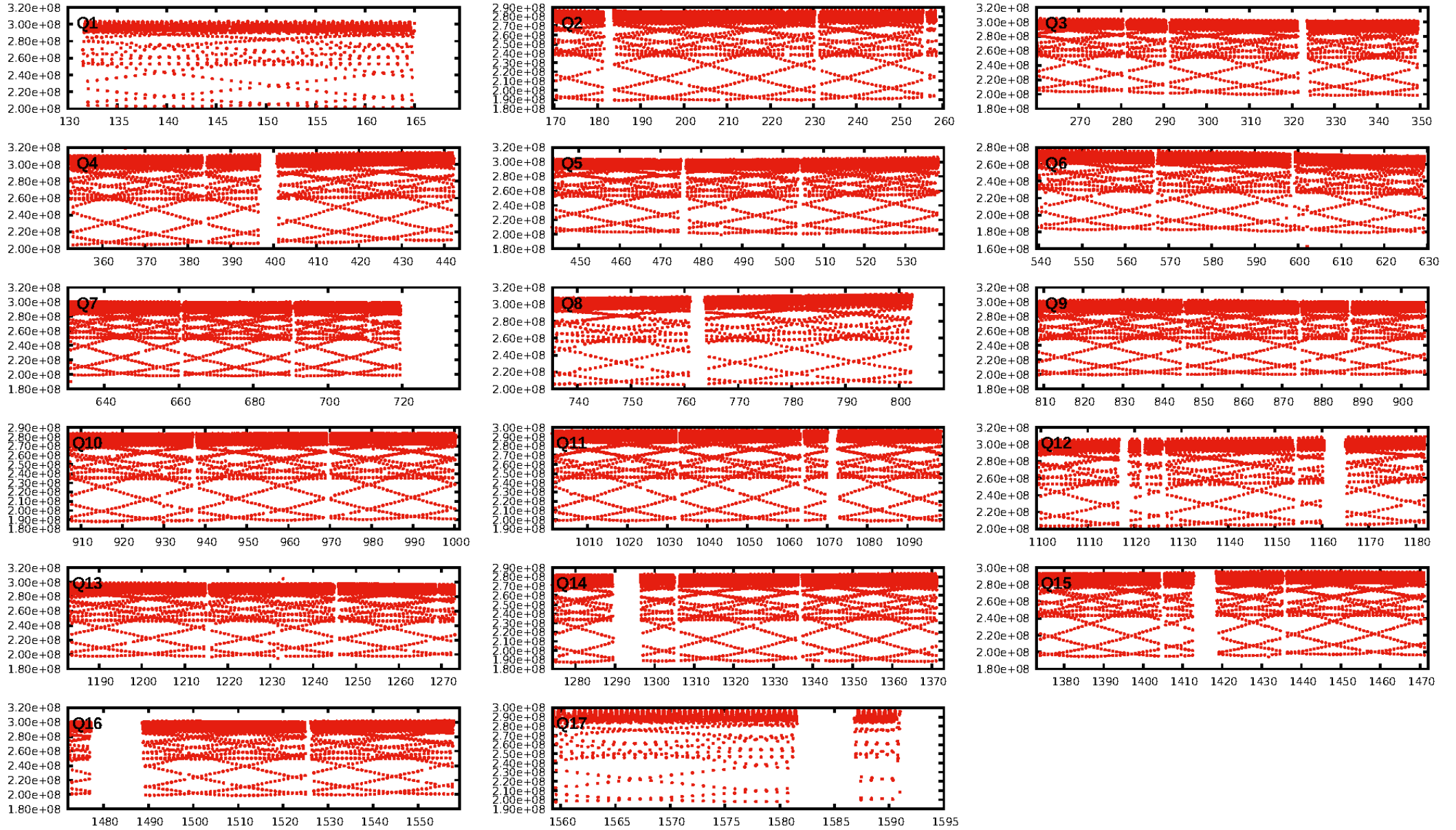
## DV Fit Results:

Period = 0.96232 [0.00000] d  
Epoch = 132.0361 [0.0002] BKJD  
Rp/R\* = 0.2967 [0.0008]  
a/R\* = 1.21 [0.00]  
b = 0.05 [0.05]  
Seff = 7135.21 [2712.65]  
Teq = 2344 [223] K  
Rp = 45.46 [13.73] Re  
a = 0.0197 [0.0050] AU  
Ag = 12.70 [4.58] [2.55σ]  
Teffp = 6841 [205] K [14.84σ]

## DV Diagnostic Results:

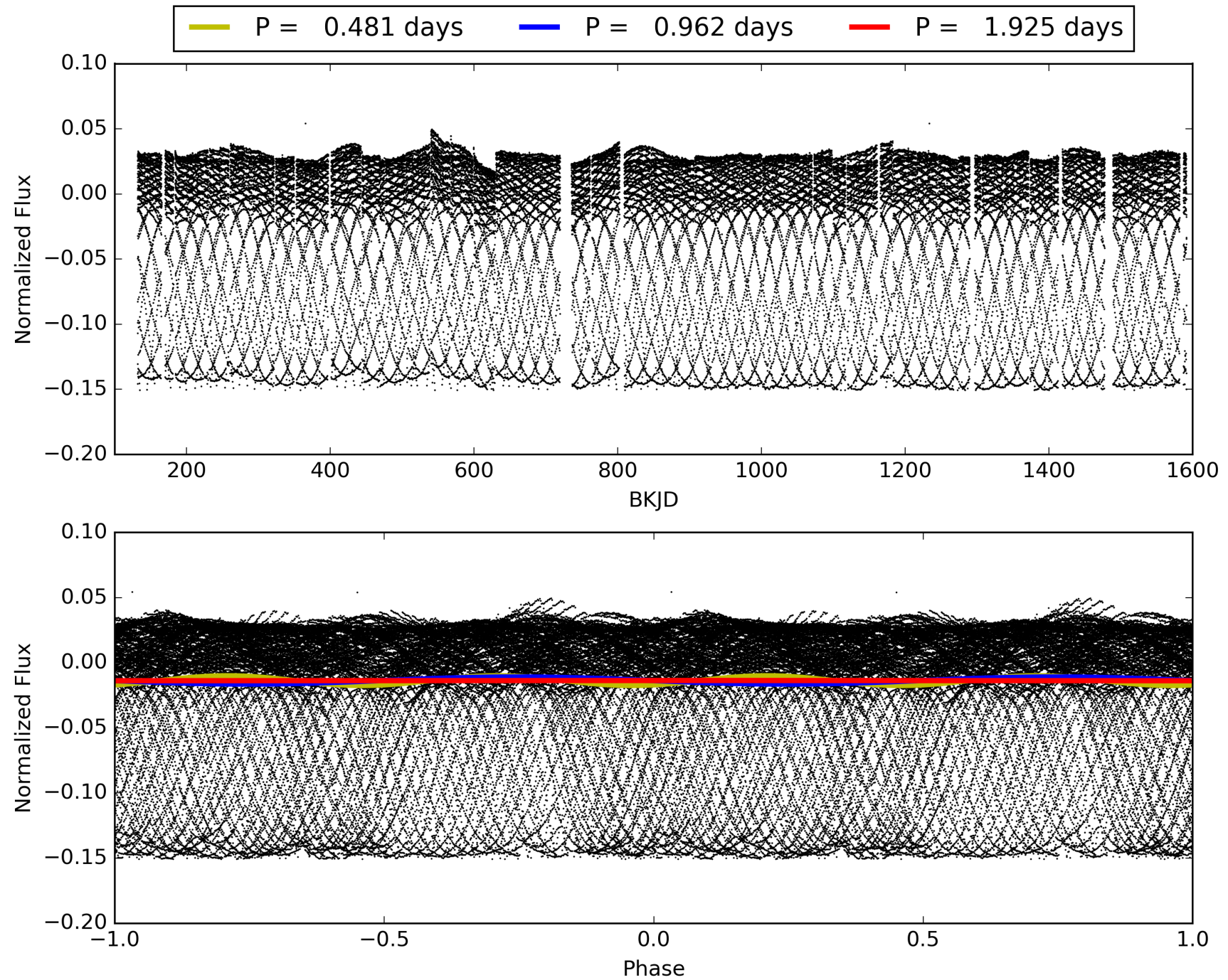
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1354/1354]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: 0.334 arcsec [1111.52σ]  
OotOffset-rm: 0.039 arcsec [0.36σ]  
KicOffset-rm: 0.350 arcsec [2.97σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.29 [5/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 004729553-01, PDC Light Curves



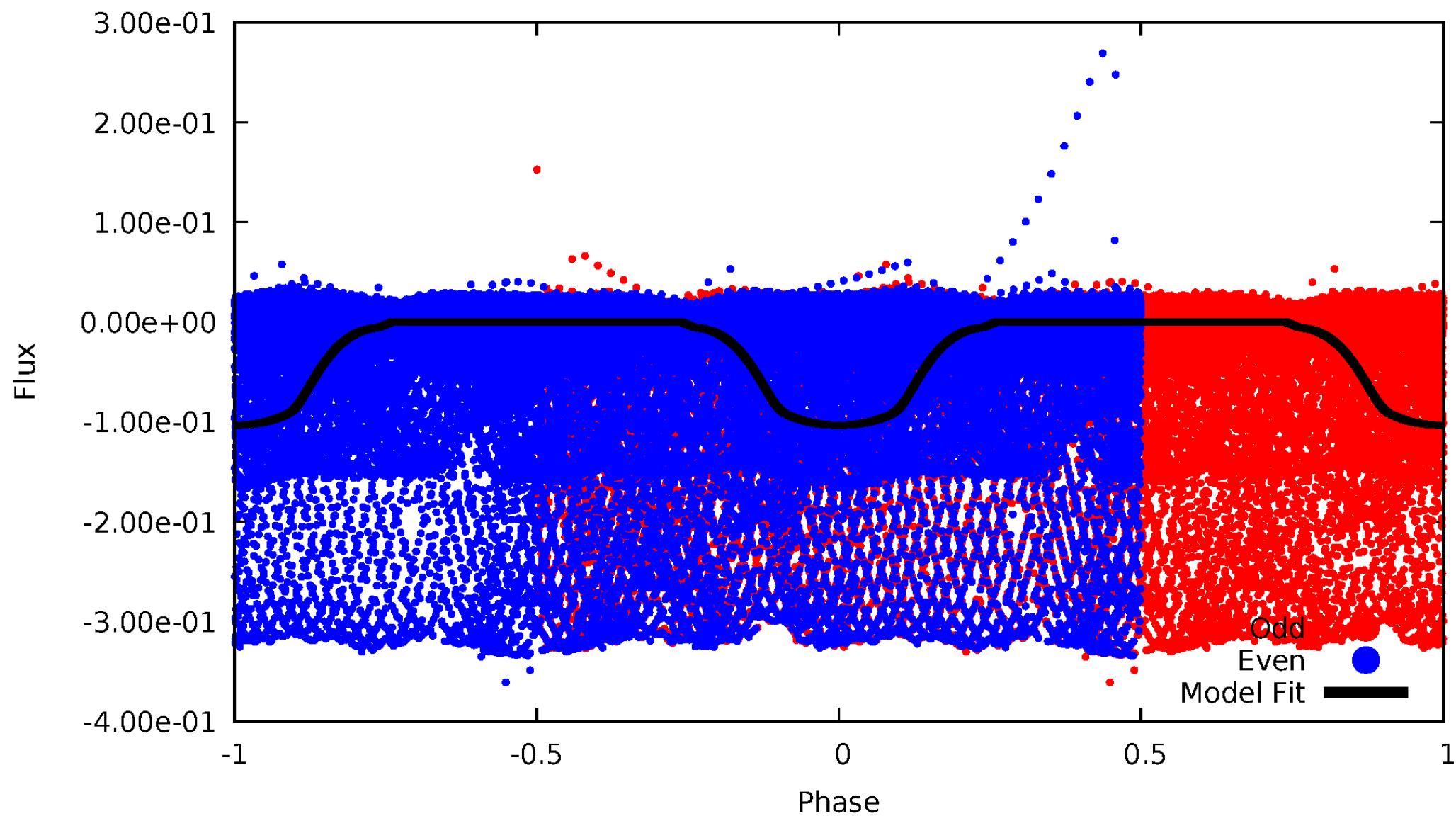


TCE 004729553-01



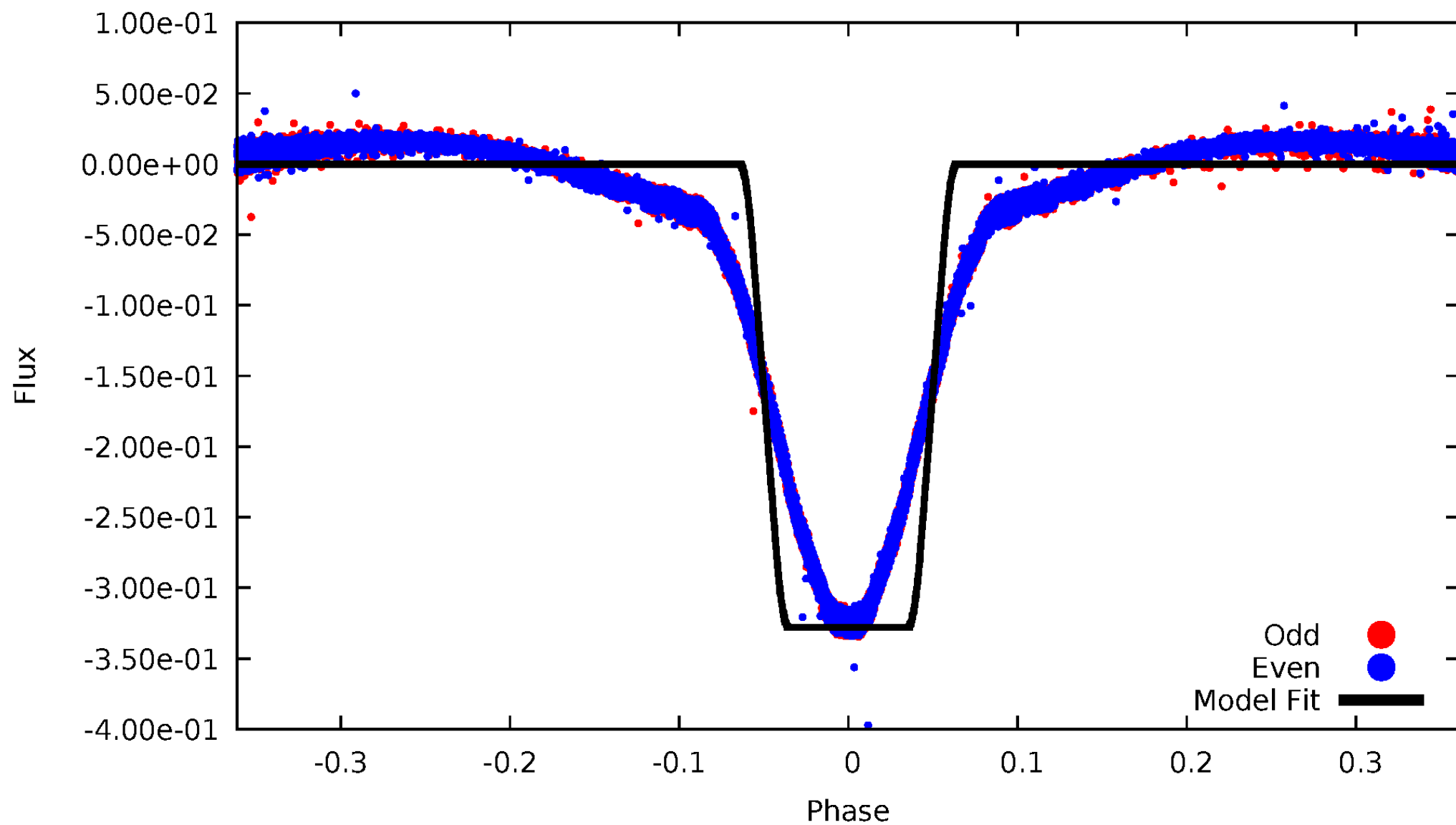
# DV Odd/Even

TCE 004729553-01



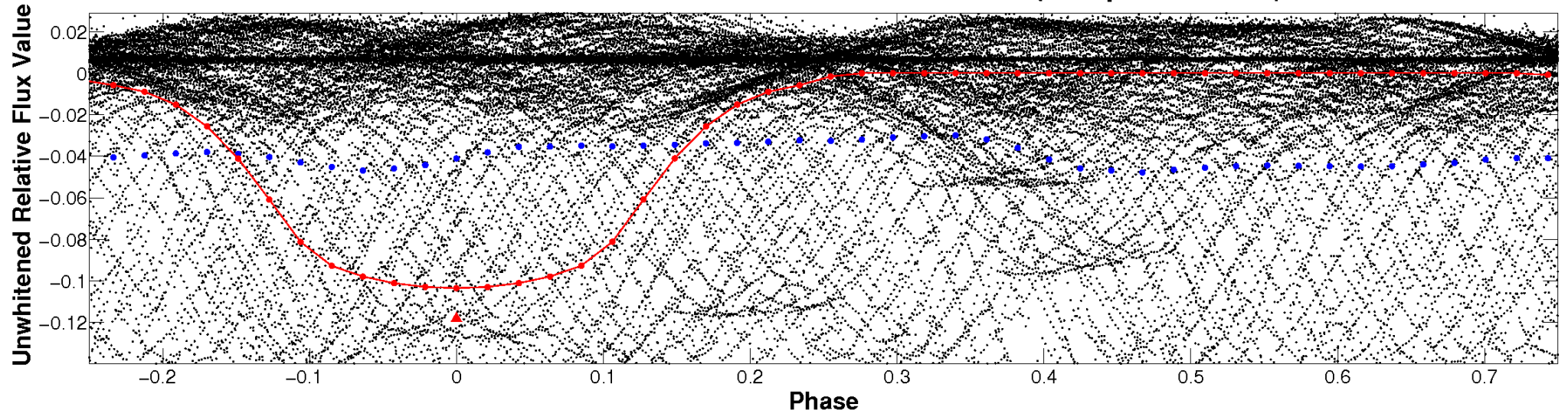
# ALT Odd/Even

TCE 004729553-01

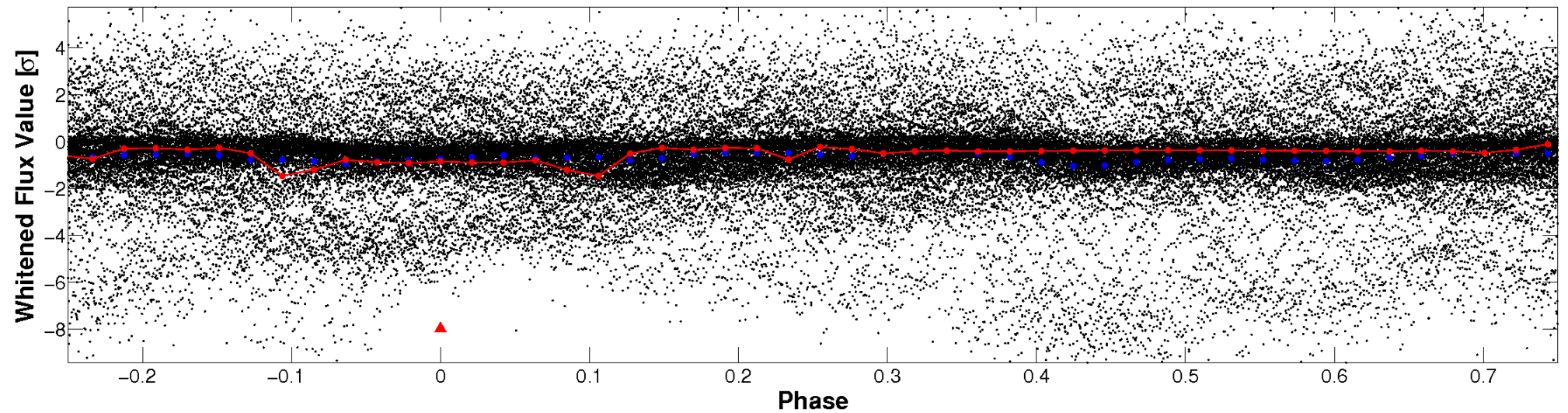


# Non-Whitened Vs. Whitened Light Curve

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

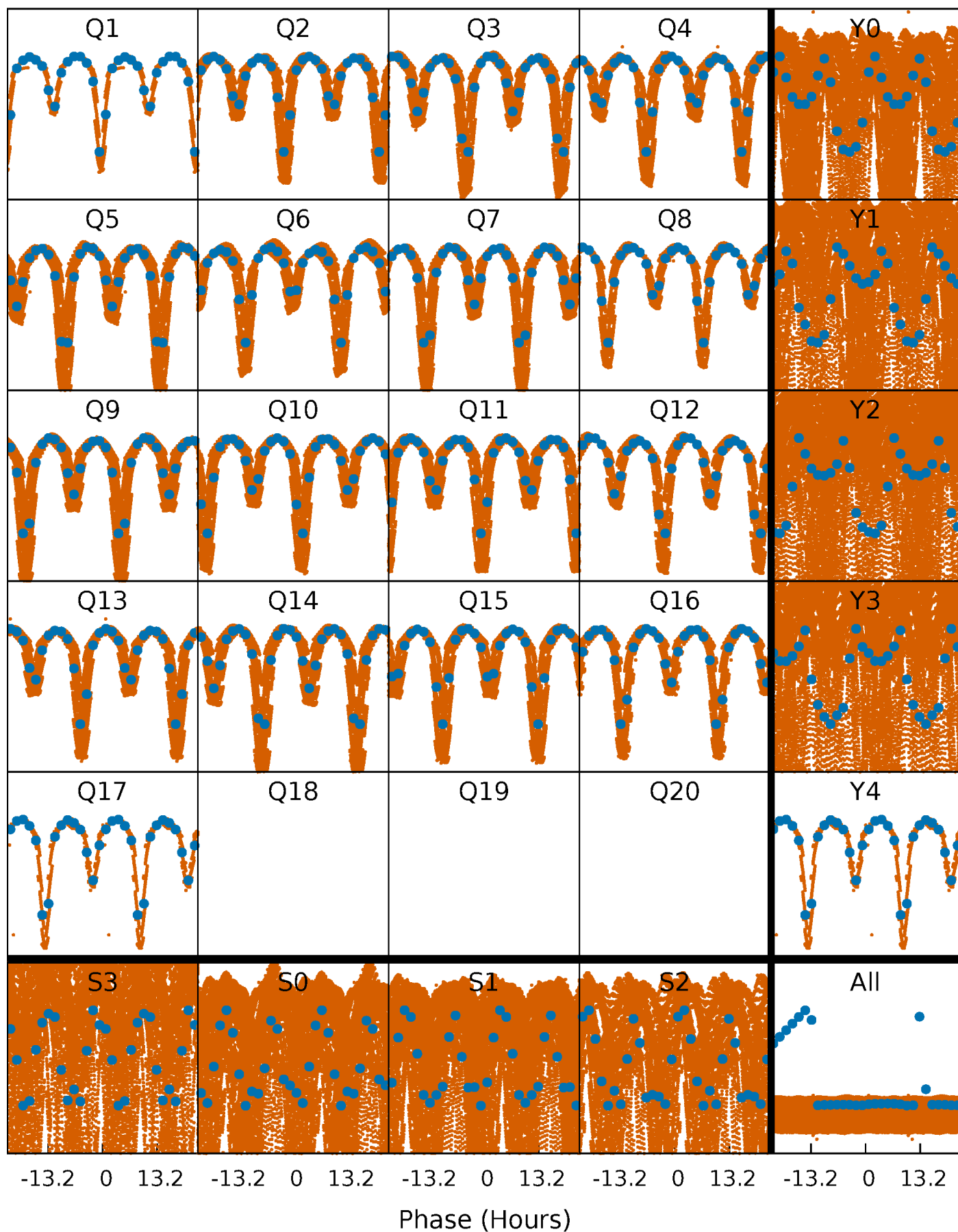


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

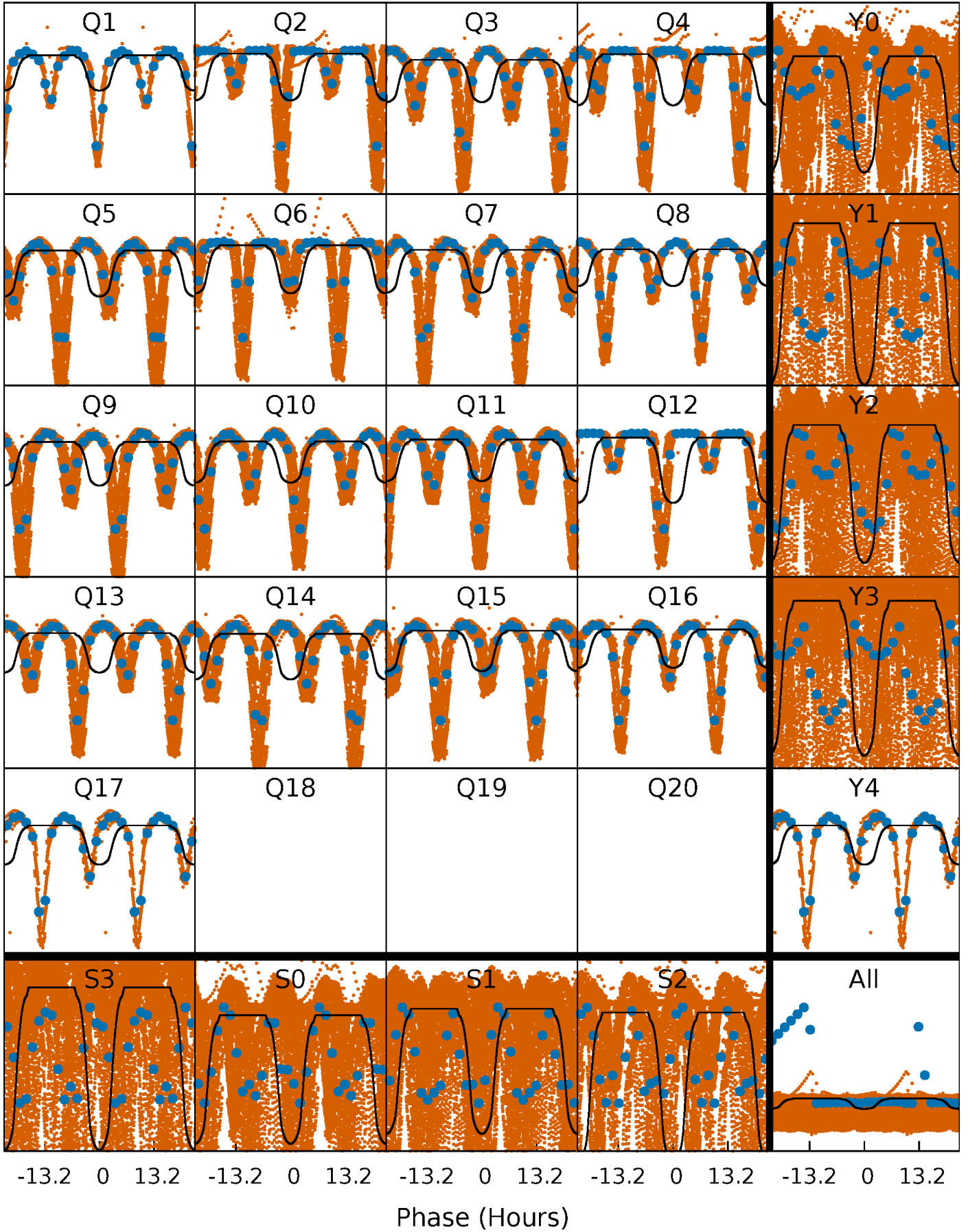
TCE 004729553-01 P= 0.962323 Days  $T_0=132.036080$  (BKJD)





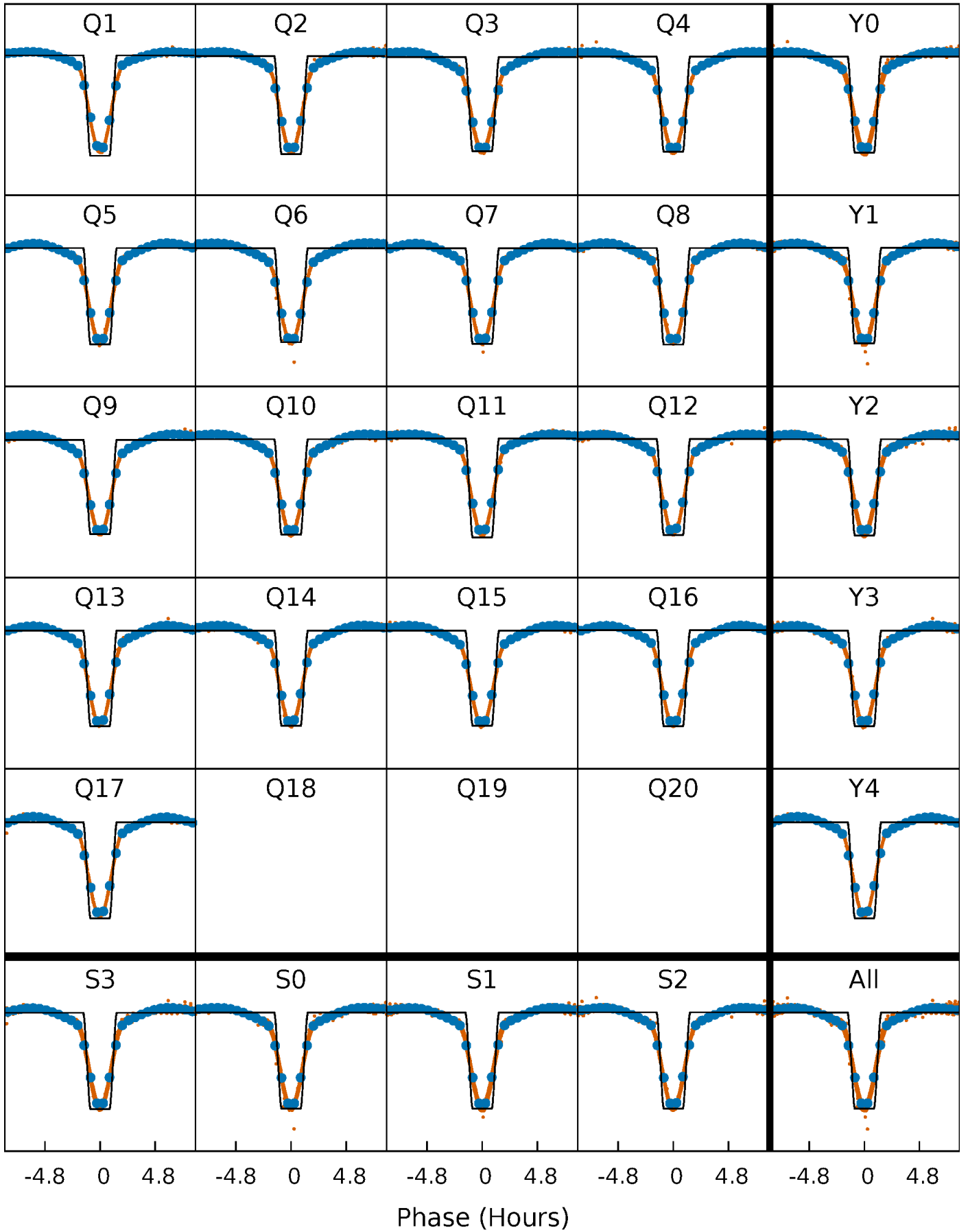
# DV Quarter-Phased Transit Curves

TCE 004729553-01 P= 0.962323 Days  $T_0=132.036080$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

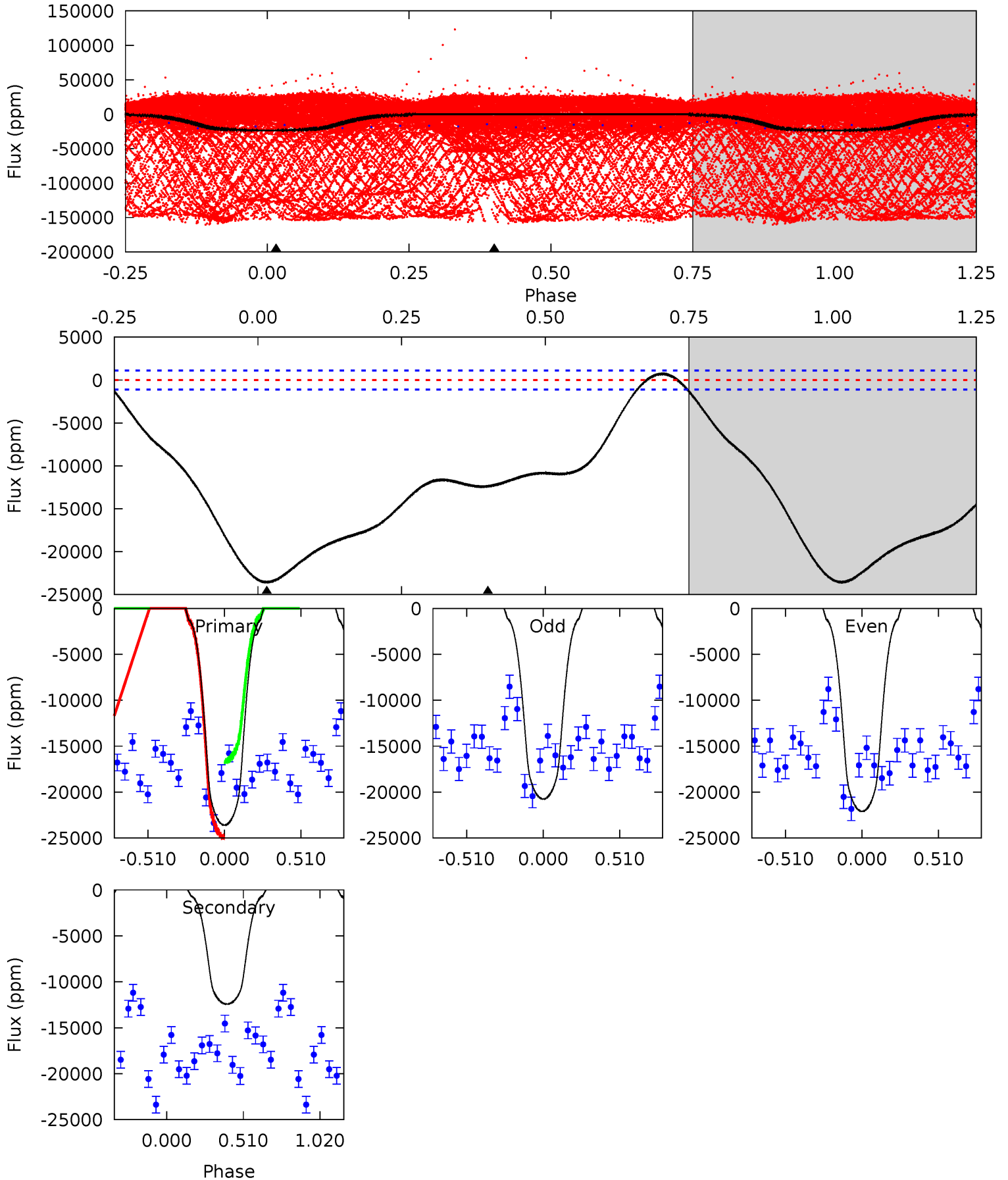
TCE 004729553-01 P= 0.961293 Days  $T_0=132.036957$  (BKJD)



# DV Model-Shift Uniqueness Test

004729553-01, P = 0.962323 Days, E = 131.073757 Days

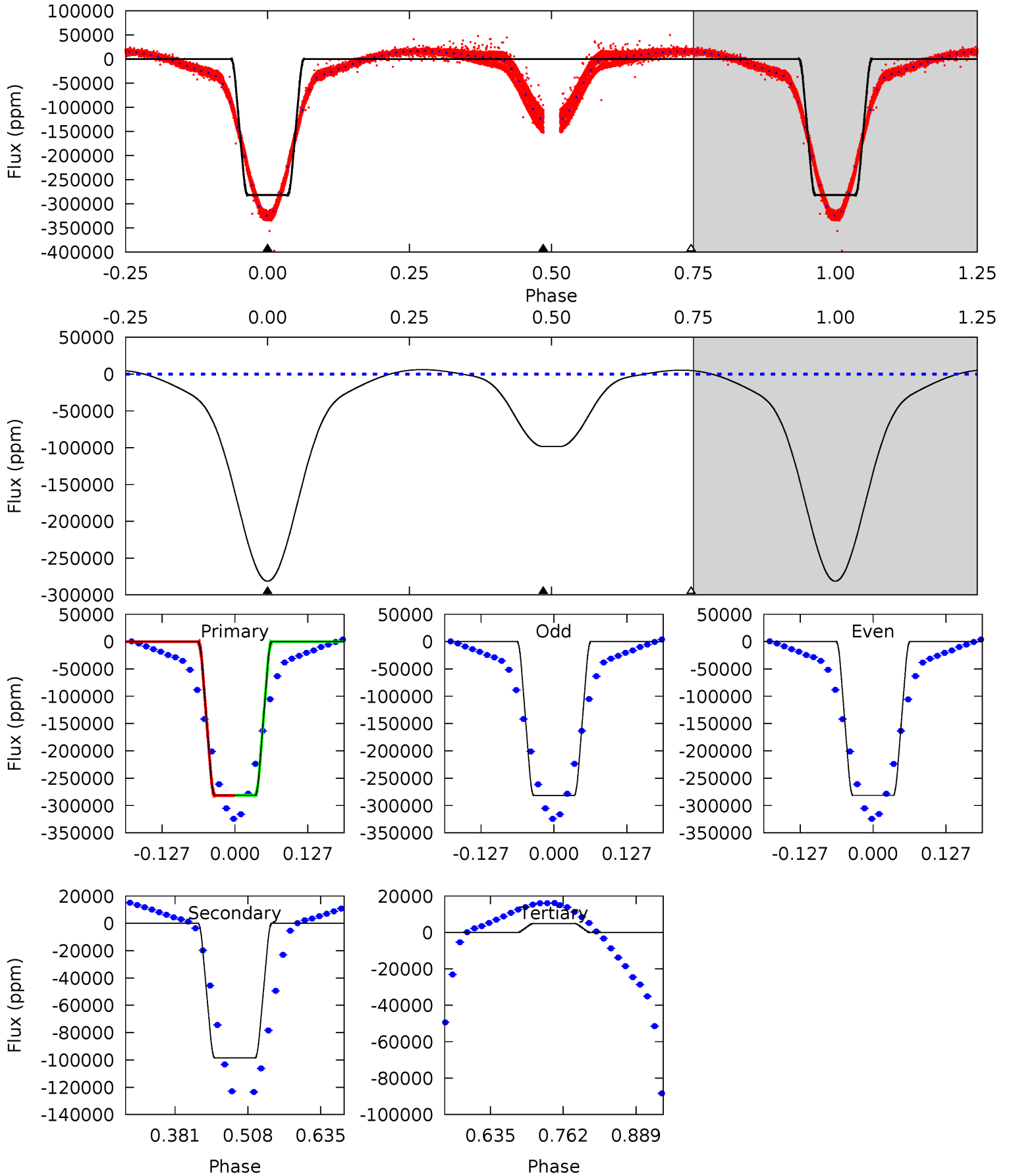
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
89.8	47.3	0	0	4.21	0.66	3.43	89.8	89.8	47.3	47.3	2.68	1.22	0.04	15.9



# Alt Model-Shift Uniqueness Test

004729553-01, P = 0.961293 Days, E = 131.075664 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
2014	704.4	-35.0	0	4.51	1.53	71.0	2049	2014	739.4	704.4	0.55	1.00	0.02	1.45





### Stellar Parameters For KIC 004729553

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6300^{+158}_{-189}$	$4.188^{+0.195}_{-0.175}$	$-0.140^{+0.250}_{-0.300}$	$1.404^{+0.424}_{-0.308}$	$1.106^{+0.182}_{-0.136}$	$0.562^{+0.588}_{-0.291}$
	+3%/-3%	+5%/-4%	+179%/-214%	+30%/-22%	+16%/-12%	+105%/-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 004729553-01 / KOI 6438.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-12428 \pm 263$	$45.25^{+6.80}_{-5.93}$	$3248^{+243}_{-222}$	$3958^{+93}_{-106}$	$1.328^{+0.415}_{-0.301}$
Alt.	$-98439 \pm 140$	$87.60^{+14.99}_{-10.08}$	$3272^{+244}_{-217}$	$4778^{+98}_{-115}$	$3.026^{+0.805}_{-0.771}$

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

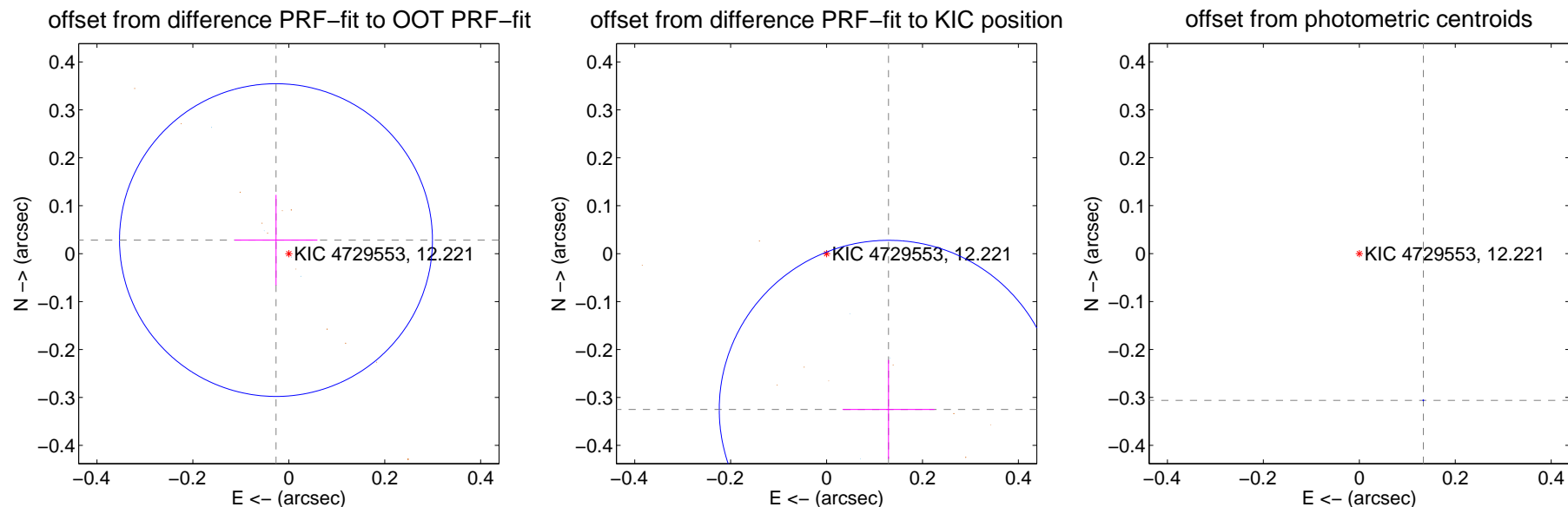
## DV Centroid Data

Supplemental centroid analysis for 004729553-01. Kepler magnitude: 12.22. Transit SNR 164.53

There are 5 quarters with good PRF difference image offsets

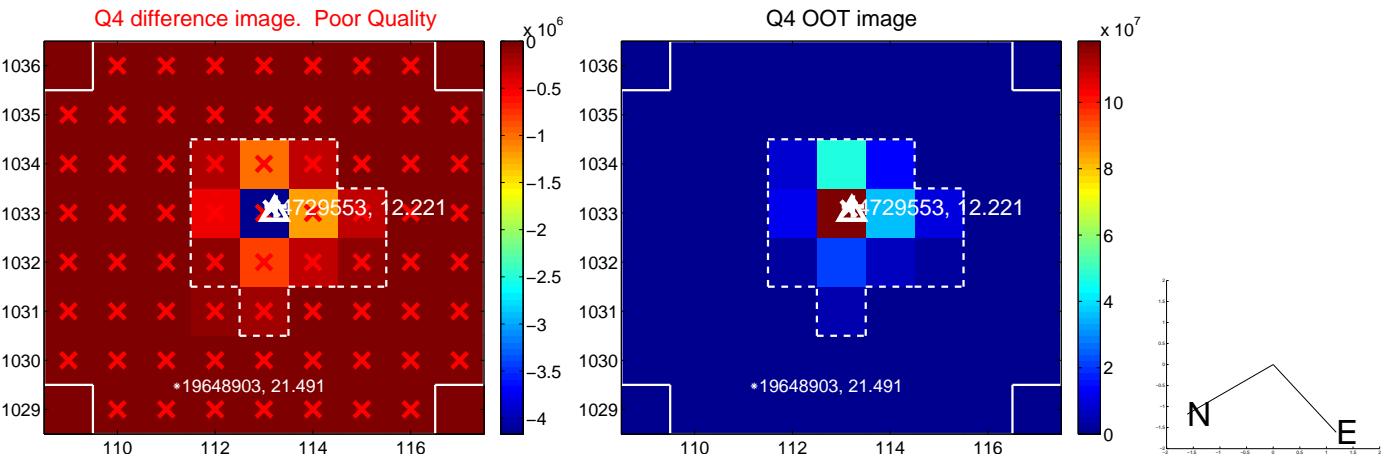
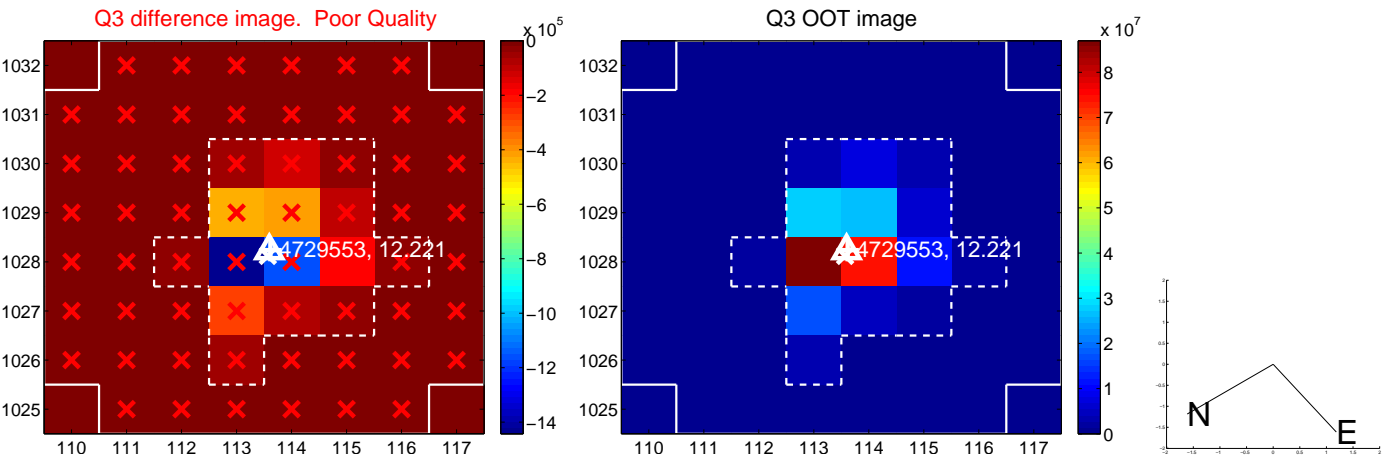
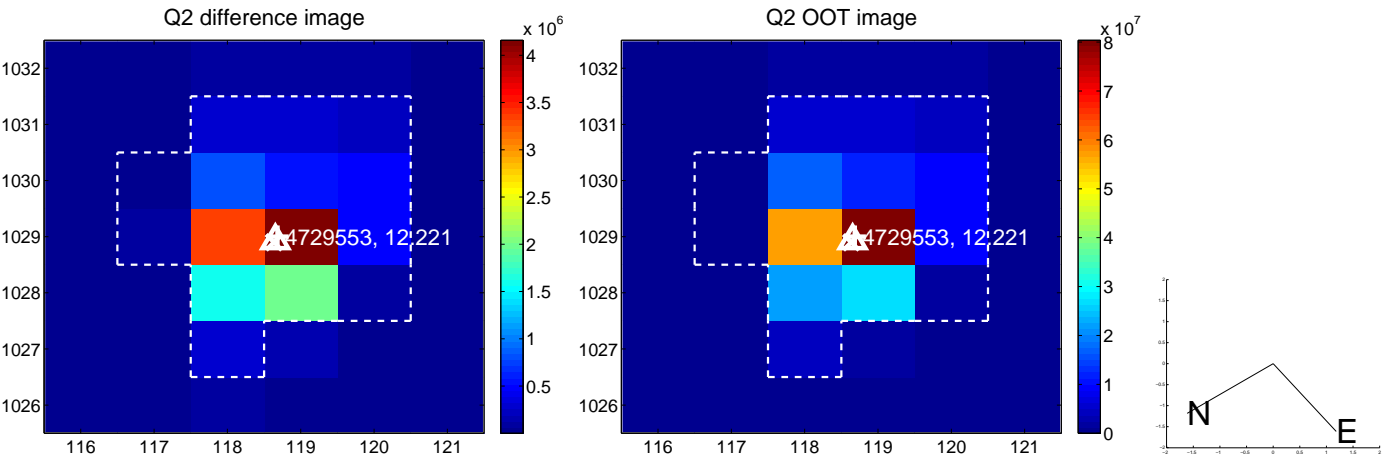
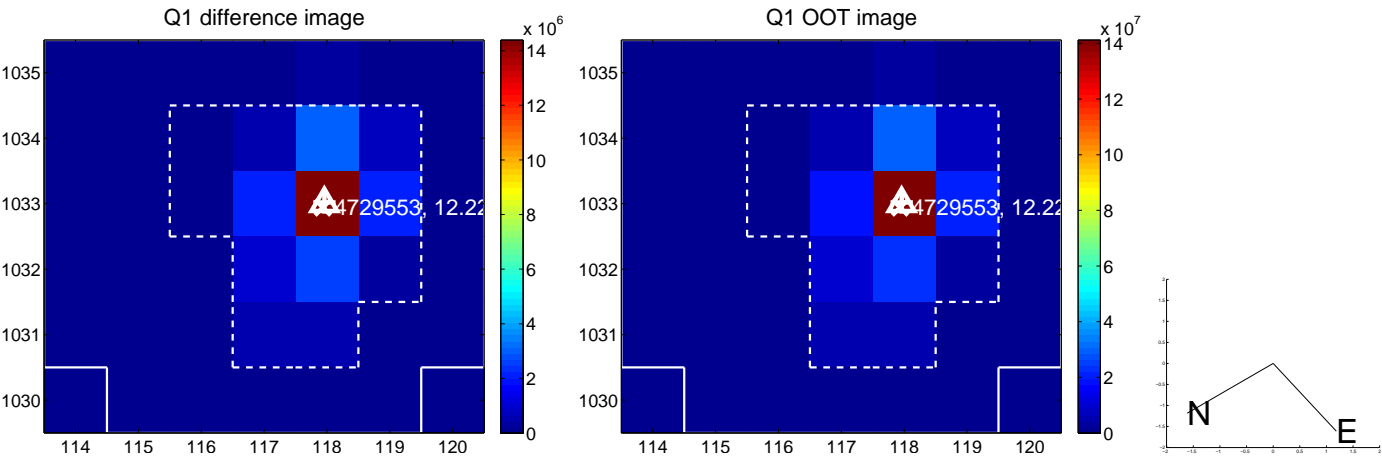
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.039 \pm 0.109$	0.36	$0.027 \pm 0.086$	$0.028 \pm 0.094$
PRF-fit source offset from KIC position	$0.350 \pm 0.118$	2.97	$-0.129 \pm 0.096$	$-0.325 \pm 0.103$
photometric centroid source offset	$0.33 \pm 0.00$	1111.52	$-0.13 \pm 0.00$	$-0.31 \pm 0.00$

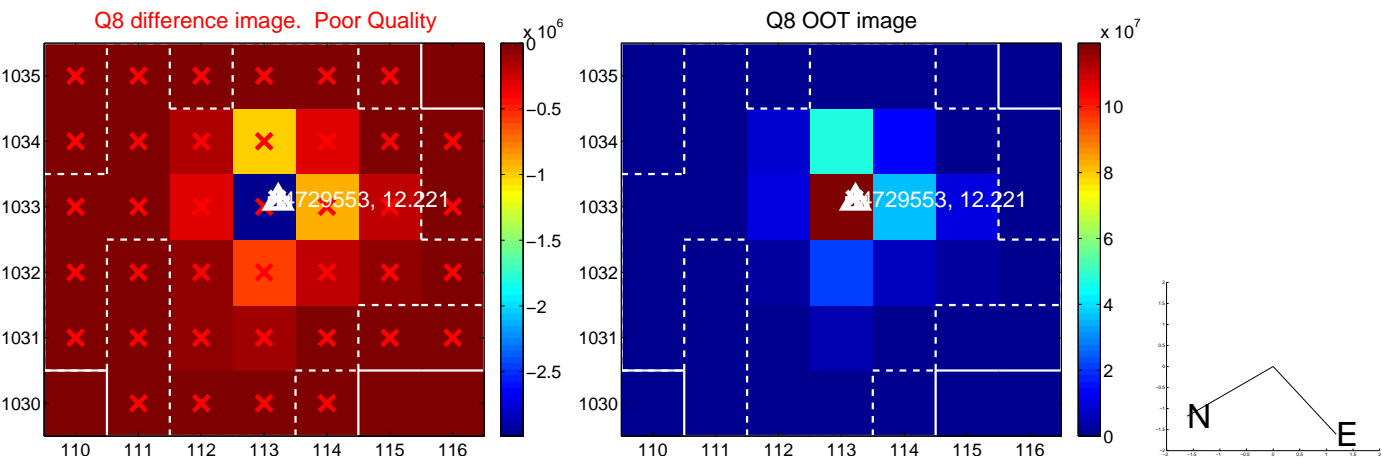
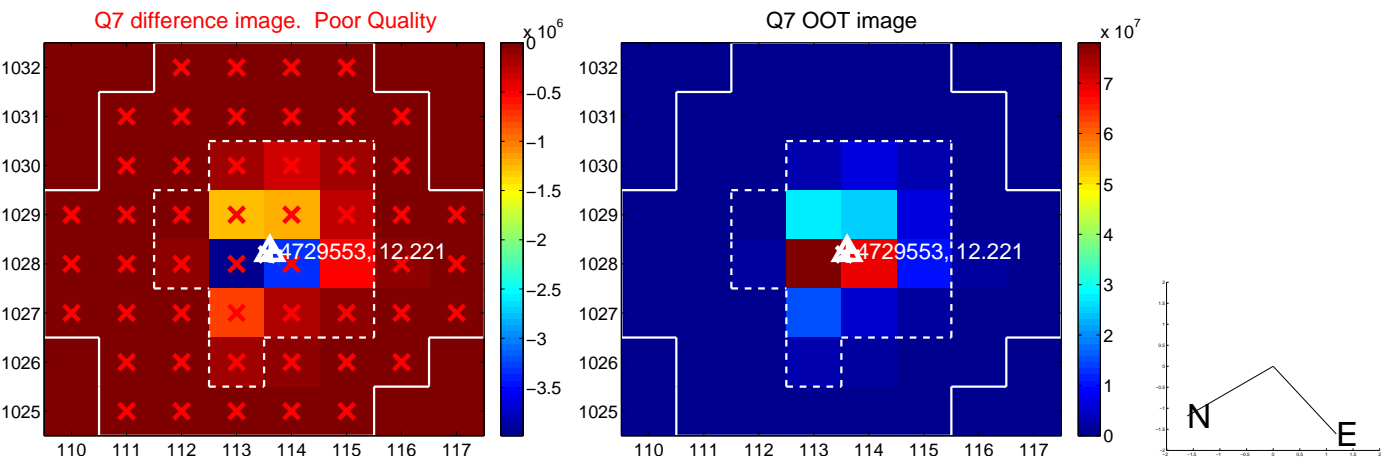
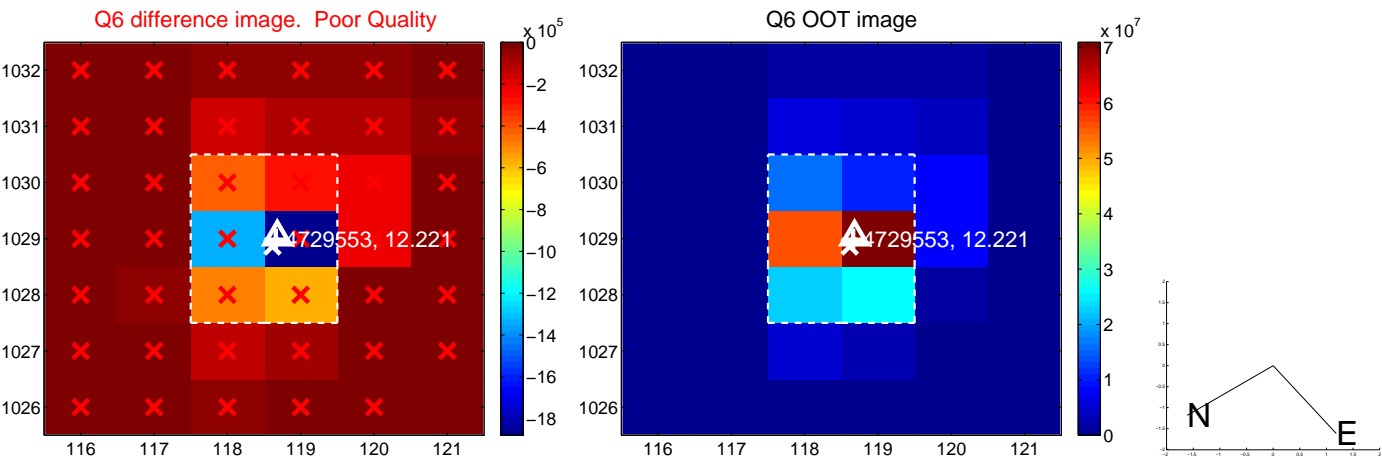
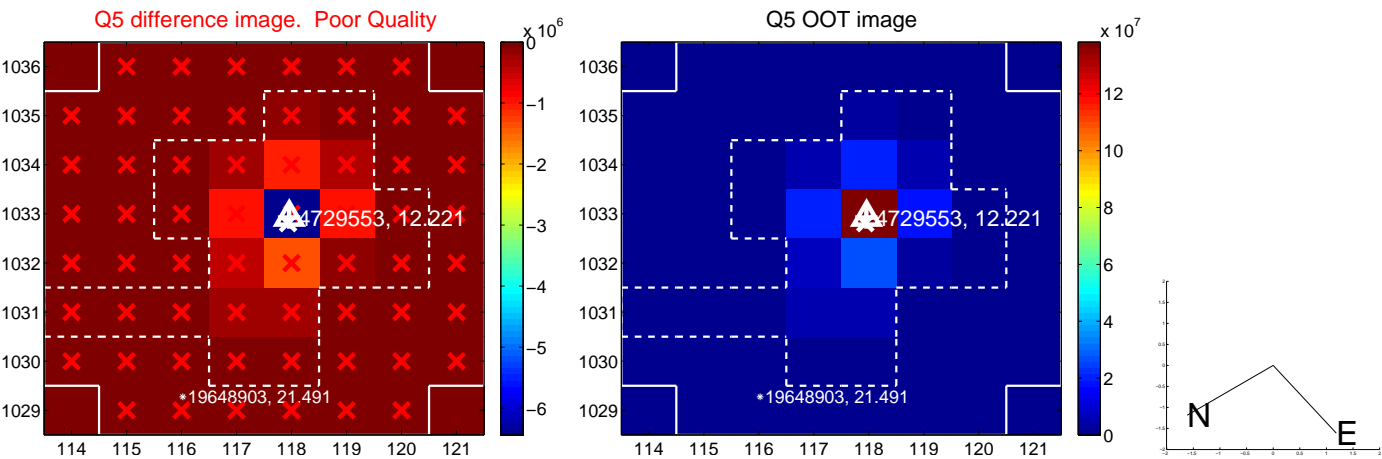


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

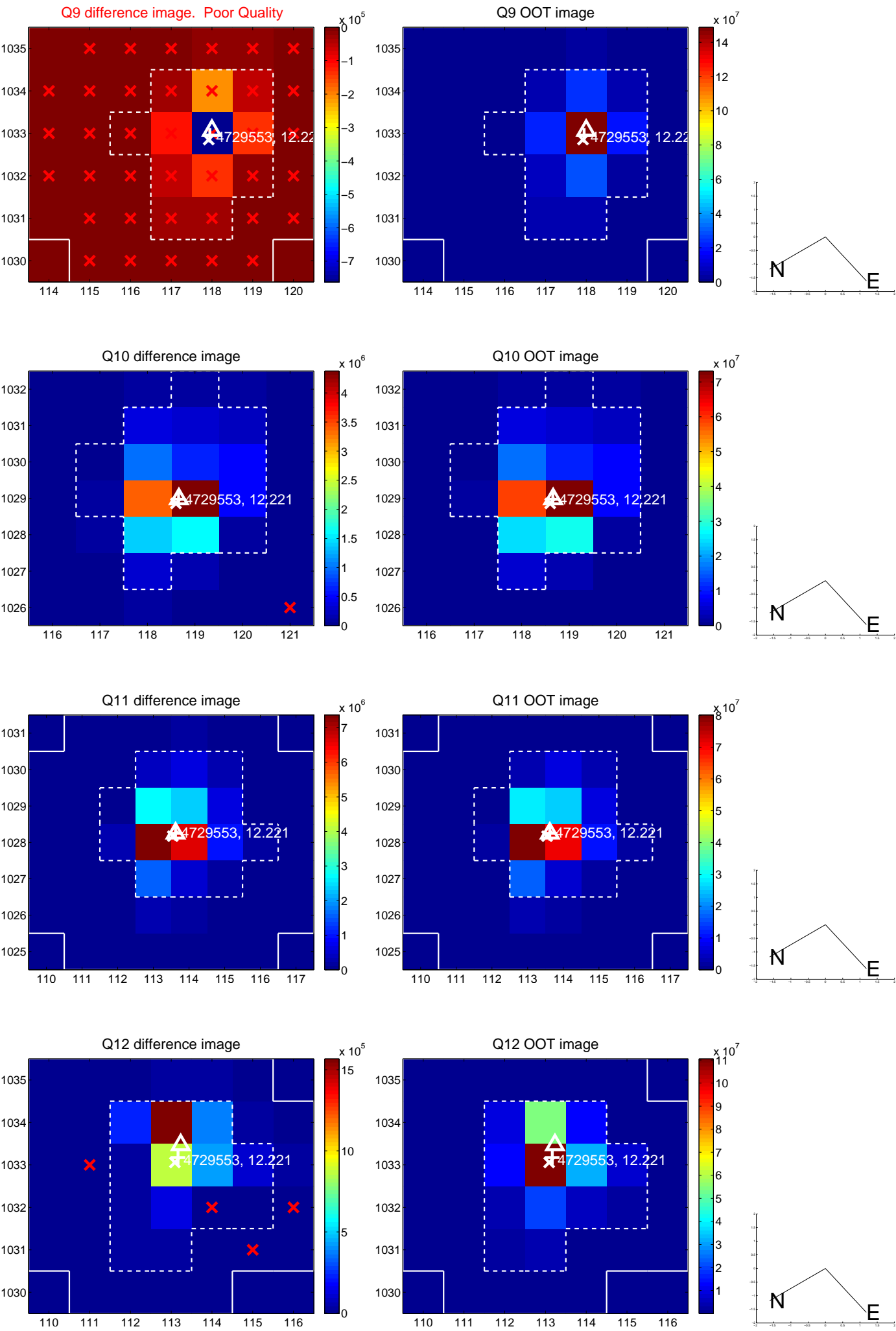


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

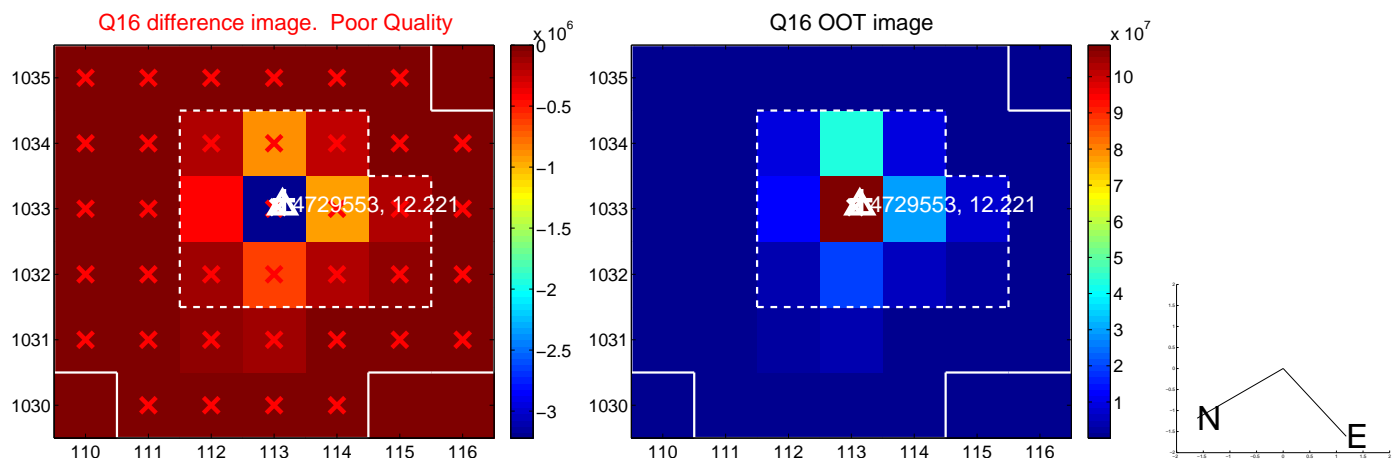
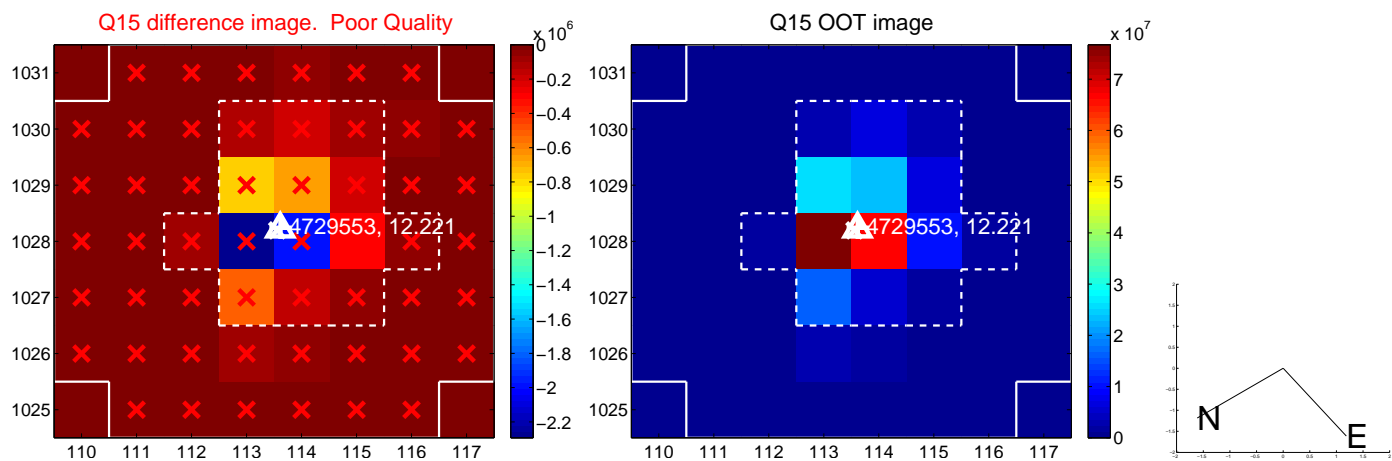
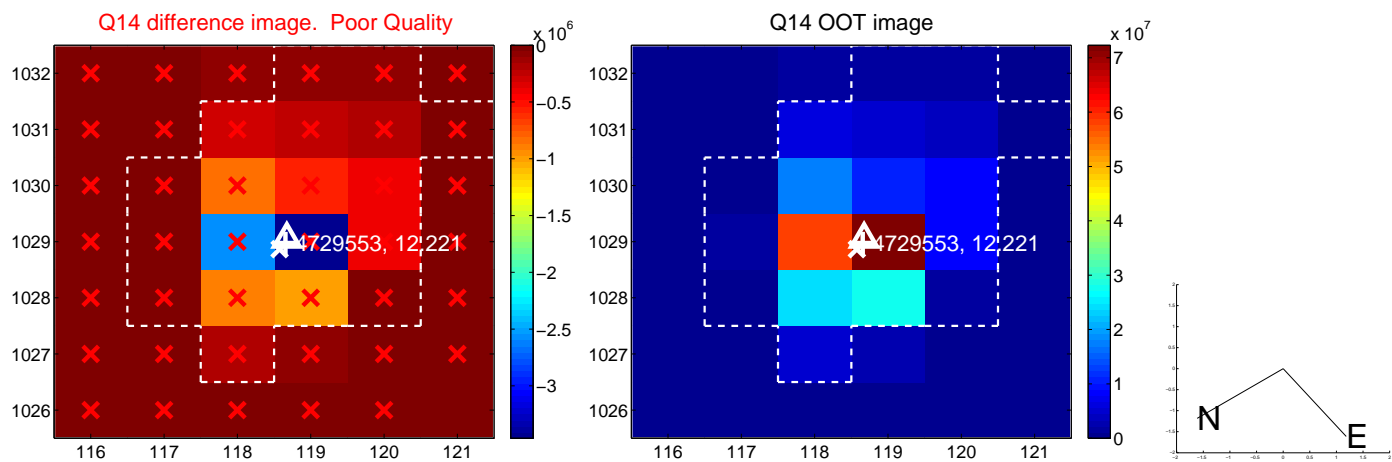
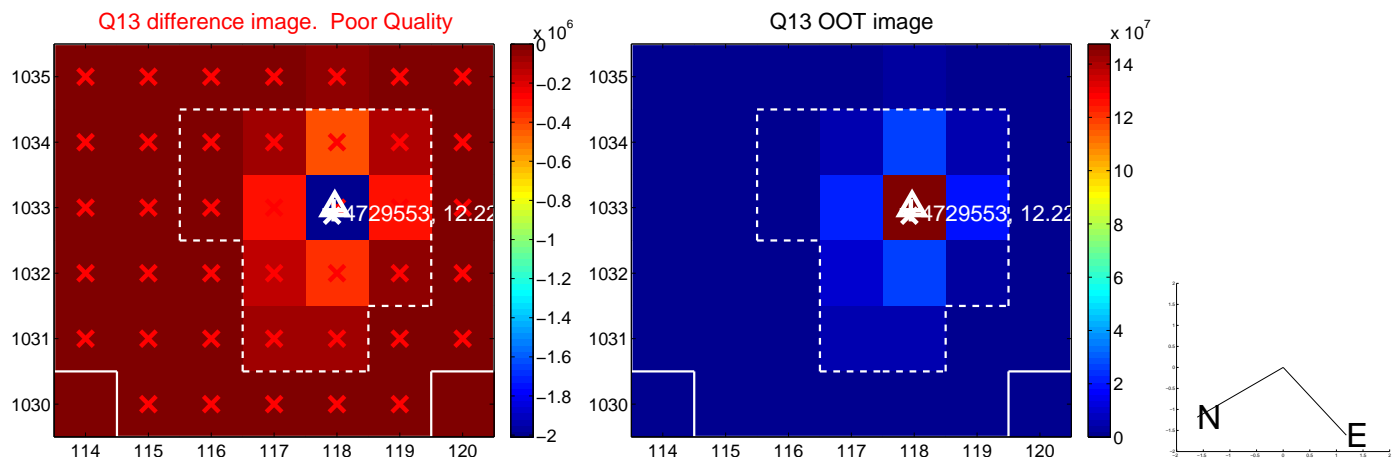




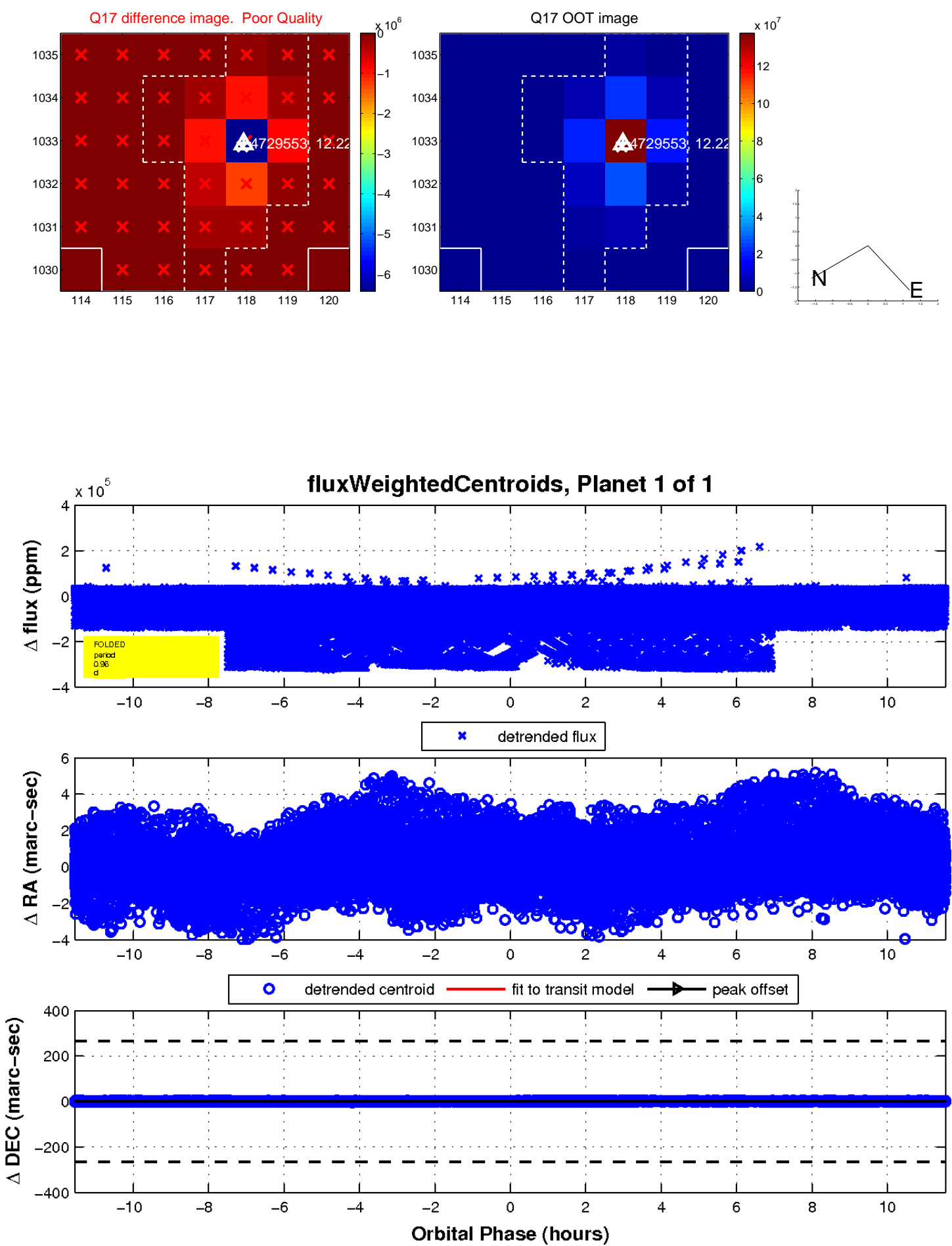
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

