

# KIC 009826551

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009826551-01	OBS	7965.01	7.196847	136.636445	52.3	1.821	9.0	10.6	1.68	6325	1.44	626.80

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009826551-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_ALT—CENT_RESOLVED_OFFSET

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

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

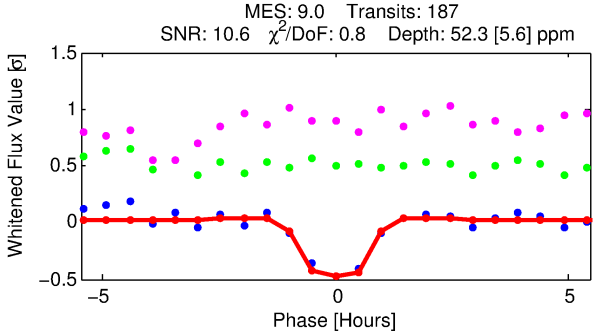
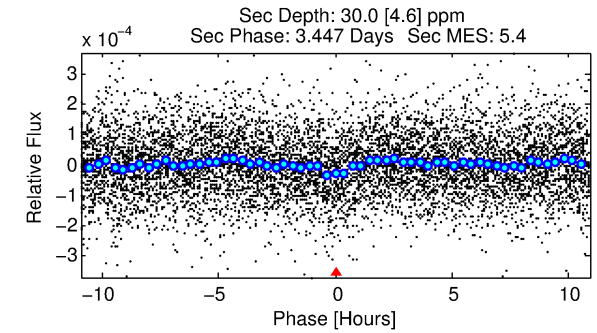
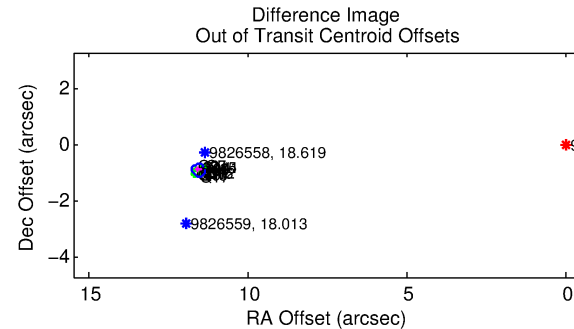
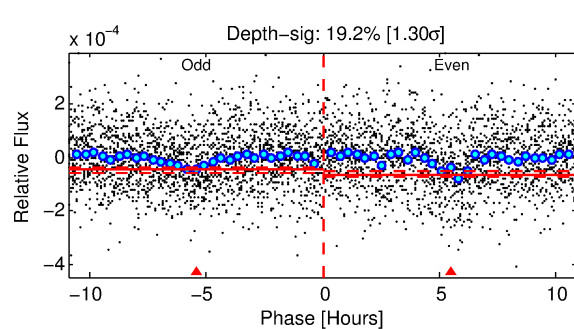
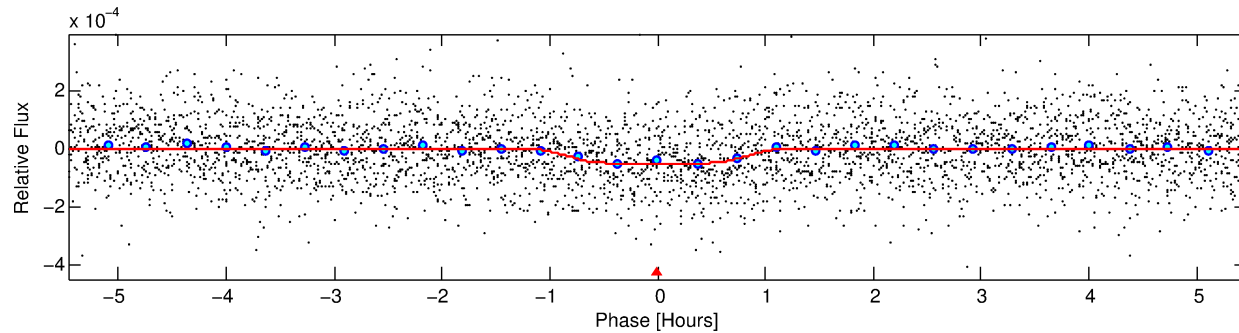
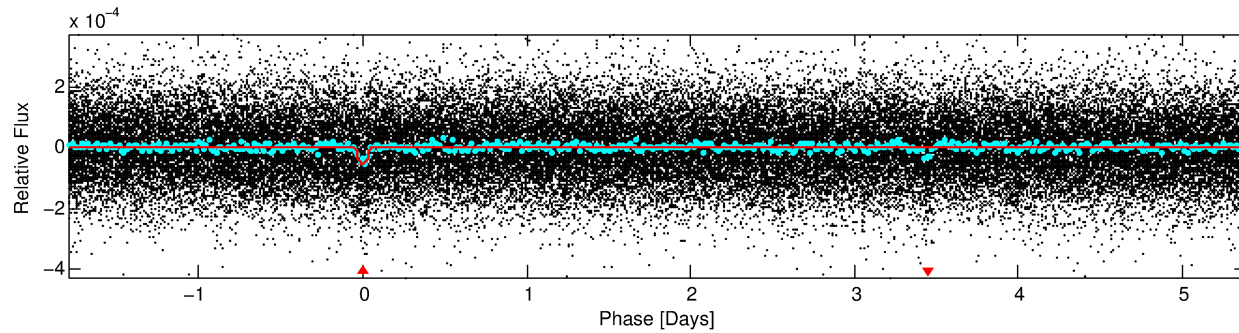
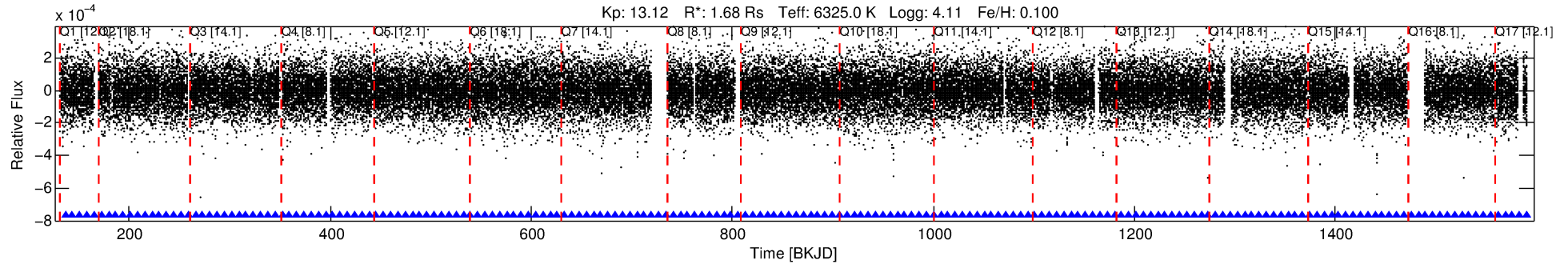
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009826551-01

No Significant Match Found

# DV One-Page Summary

KIC: 9826551 Candidate: 1 of 1 Period: 7.197 d



## DV Fit Results:

Period = 7.19685 [0.00004] d  
Epoch = 136.6364 [0.0039] BKJD  
Rp/R\* = 0.0079 [0.0034]  
a/R\* = 12.99 [30.52]  
b = 0.91 [0.44]  
Seff = 626.80 [267.98]  
Teff = 1276 [136] K  
Rp = 1.44 [0.76] Re  
a = 0.0802 [0.0212] AU  
Ag = 51.05 [49.09] [1.02 $\sigma$ ]  
Teffp = 5273 [1171] K [3.39 $\sigma$ ]

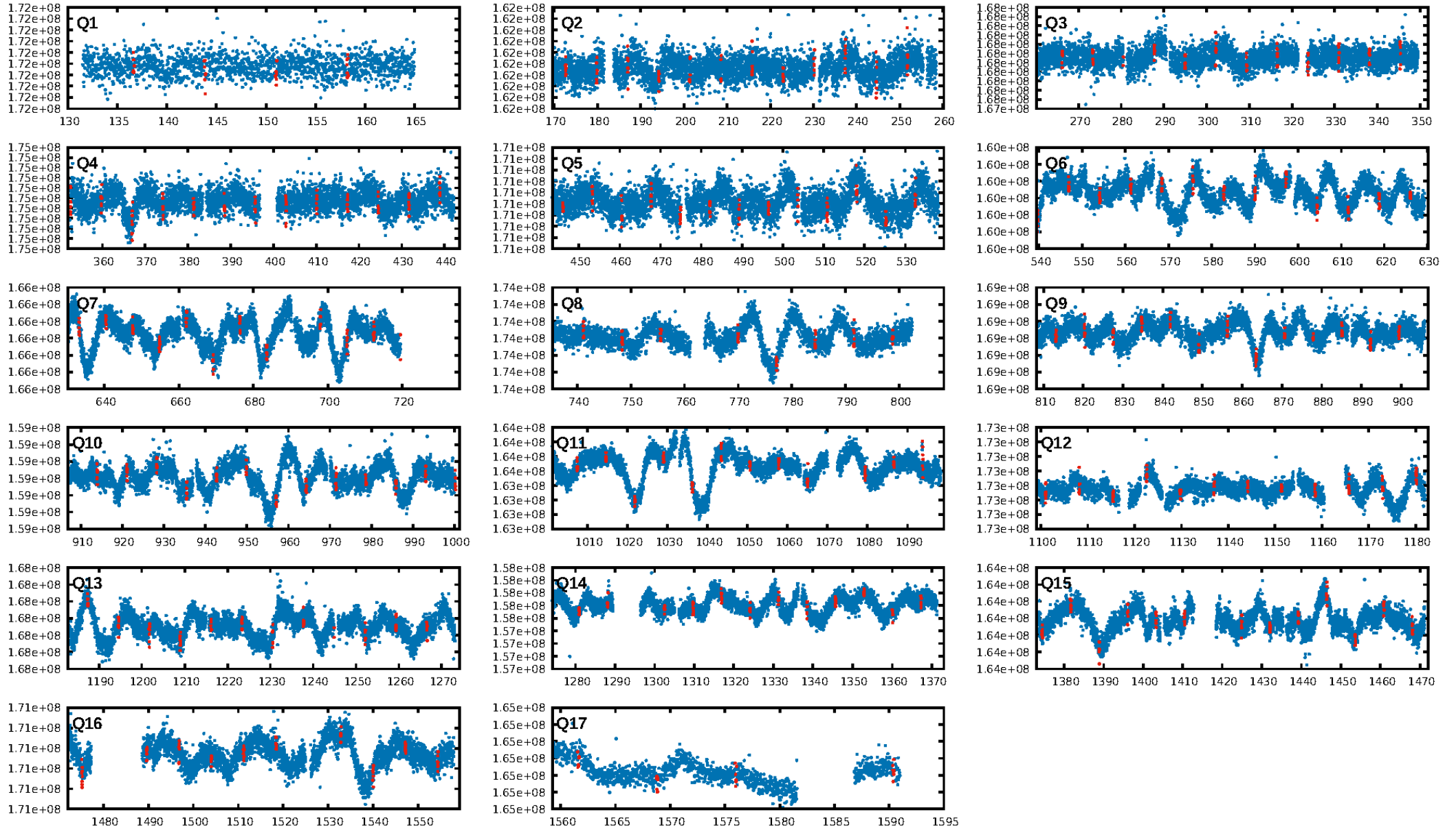
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.14e-19  
RollingBand-fgt: 1.00 [179/179]  
GhostDiagnostic-chr: -0.8319  
Centroid-sig: 0.0%  
Centroid-so: 80.221 arcsec [63.42 $\sigma$ ]  
OotOffset-rm: 11.599 arcsec [158.03 $\sigma$ ]  
KicOffset-rm: 11.611 arcsec [161.17 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

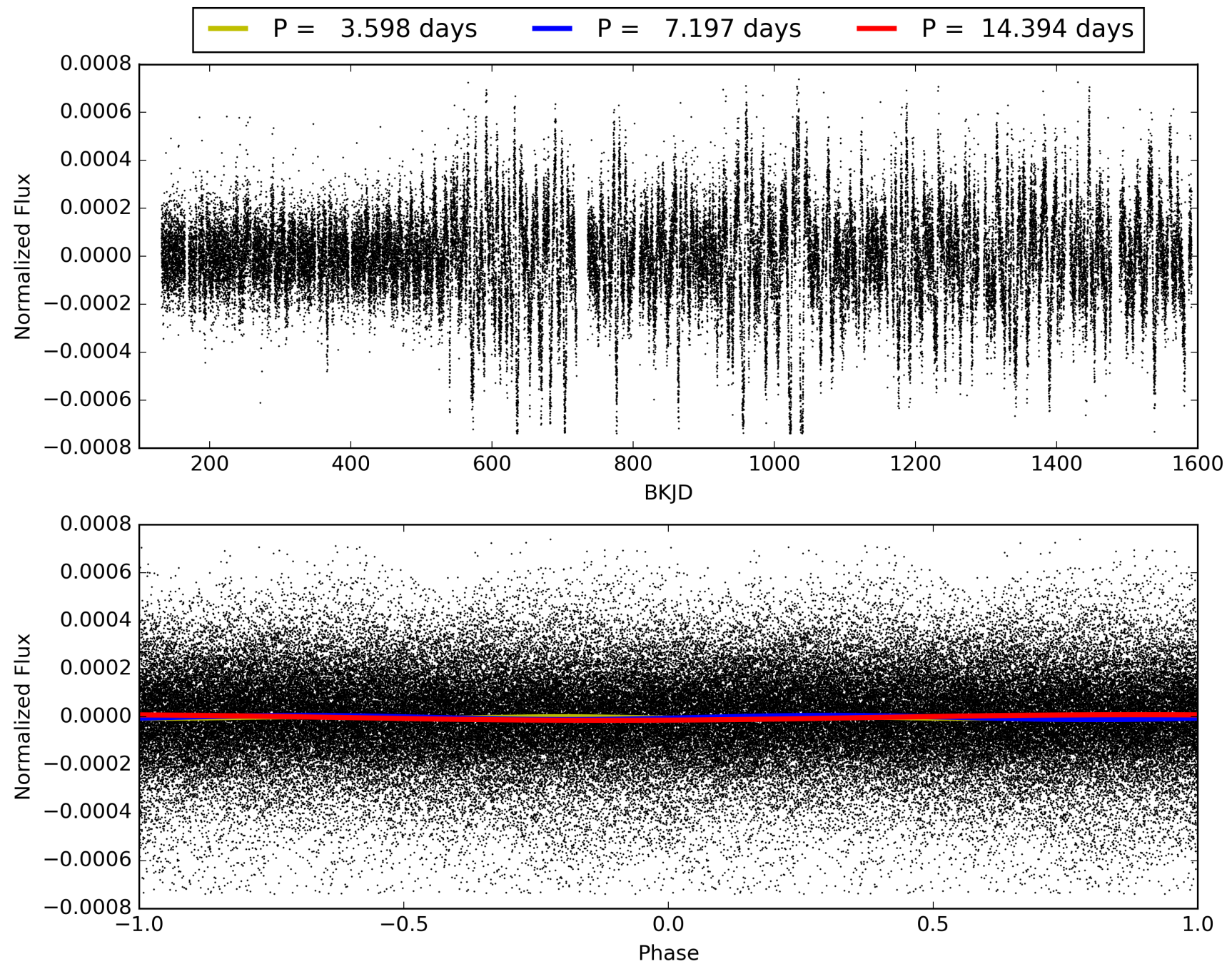
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:56:12 Z

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

# TCE 009826551-01, PDC Light Curves

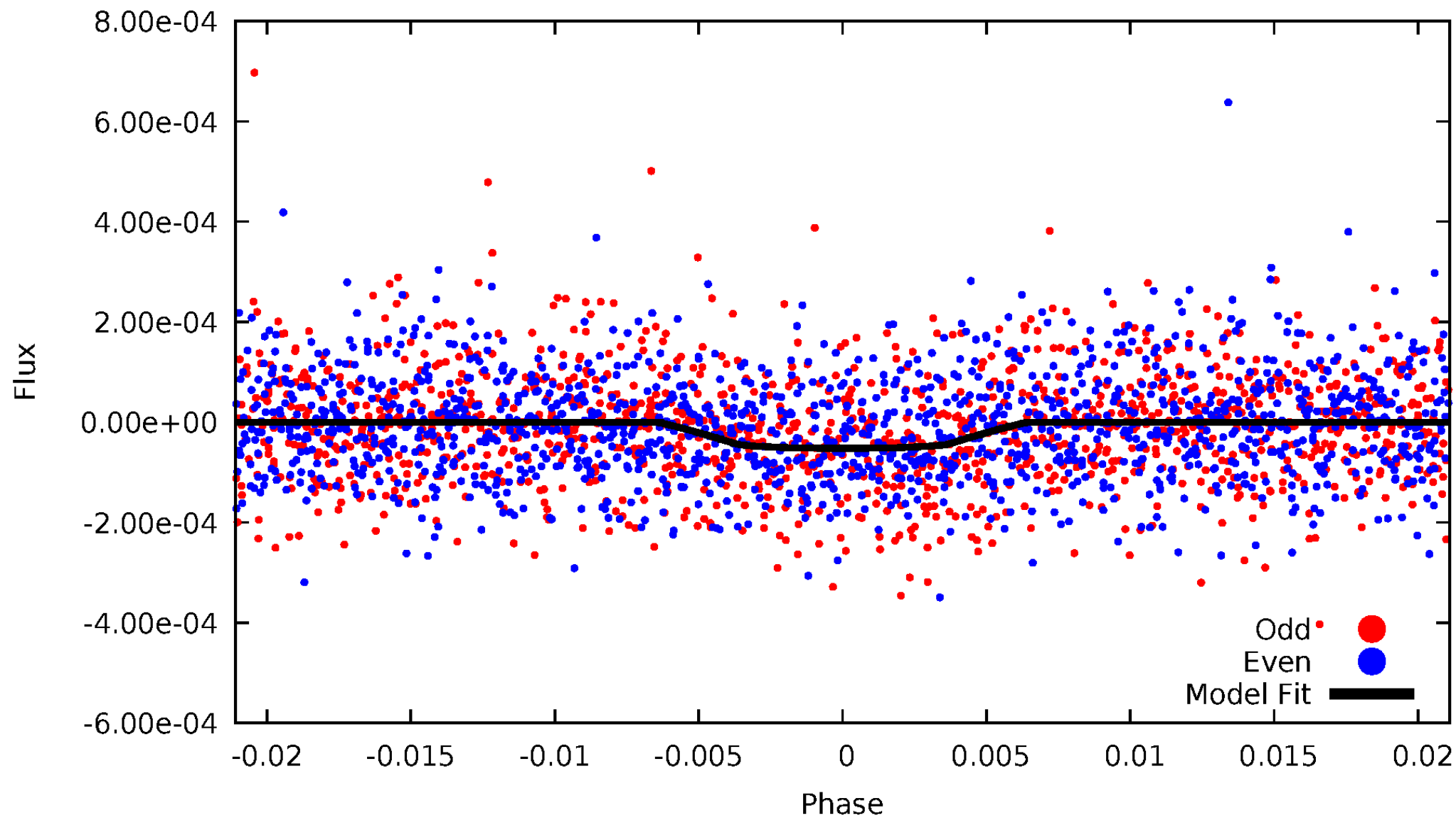


TCE 009826551-01



# DV Odd/Even

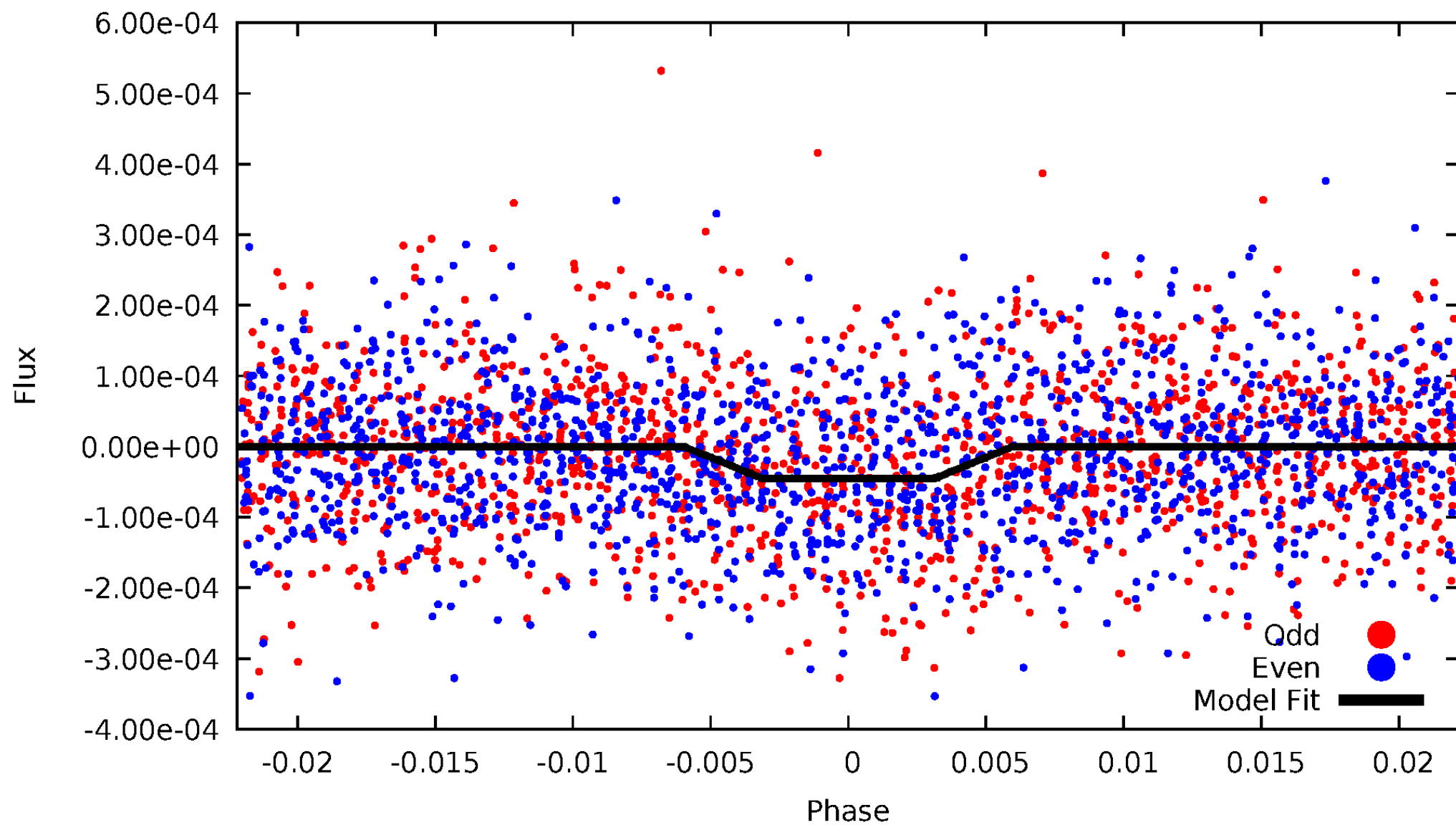
TCE 009826551-01





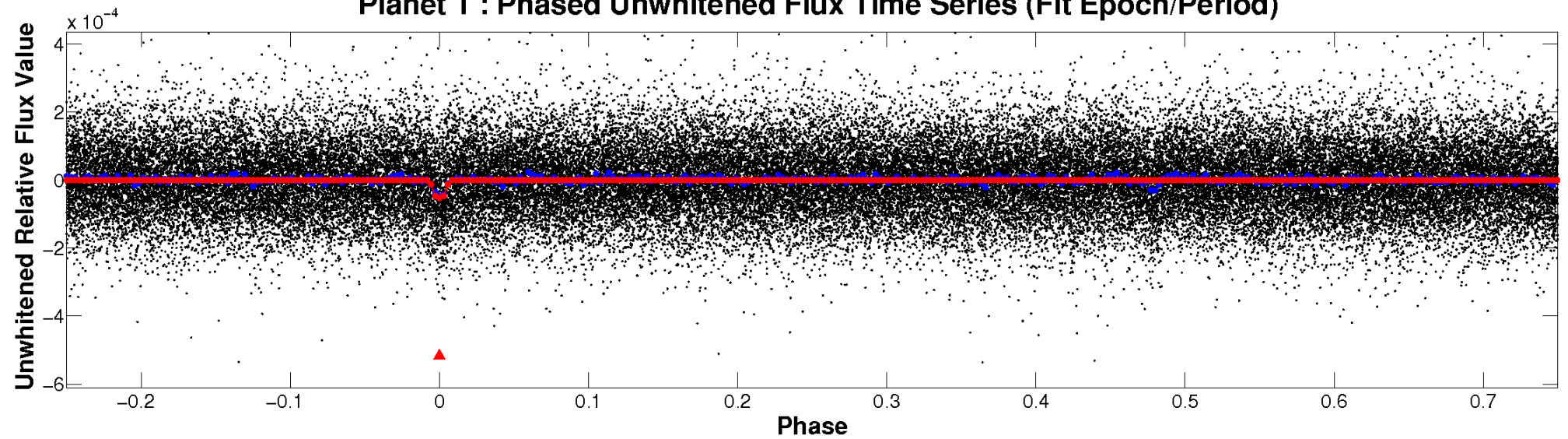
# ALT Odd/Even

TCE 009826551-01

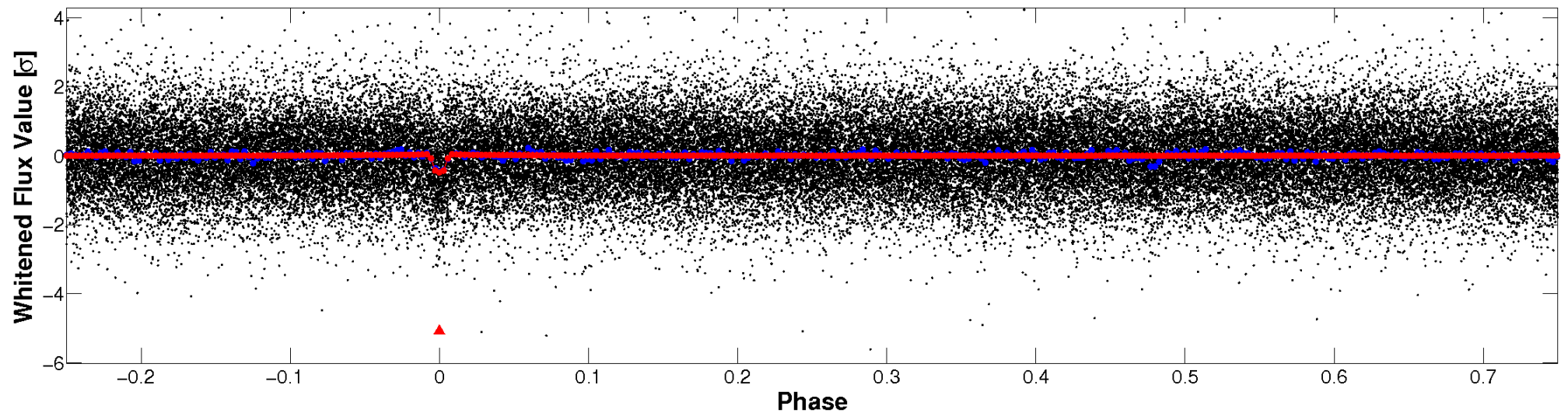


# Non-Whitened Vs. Whitened Light Curve

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

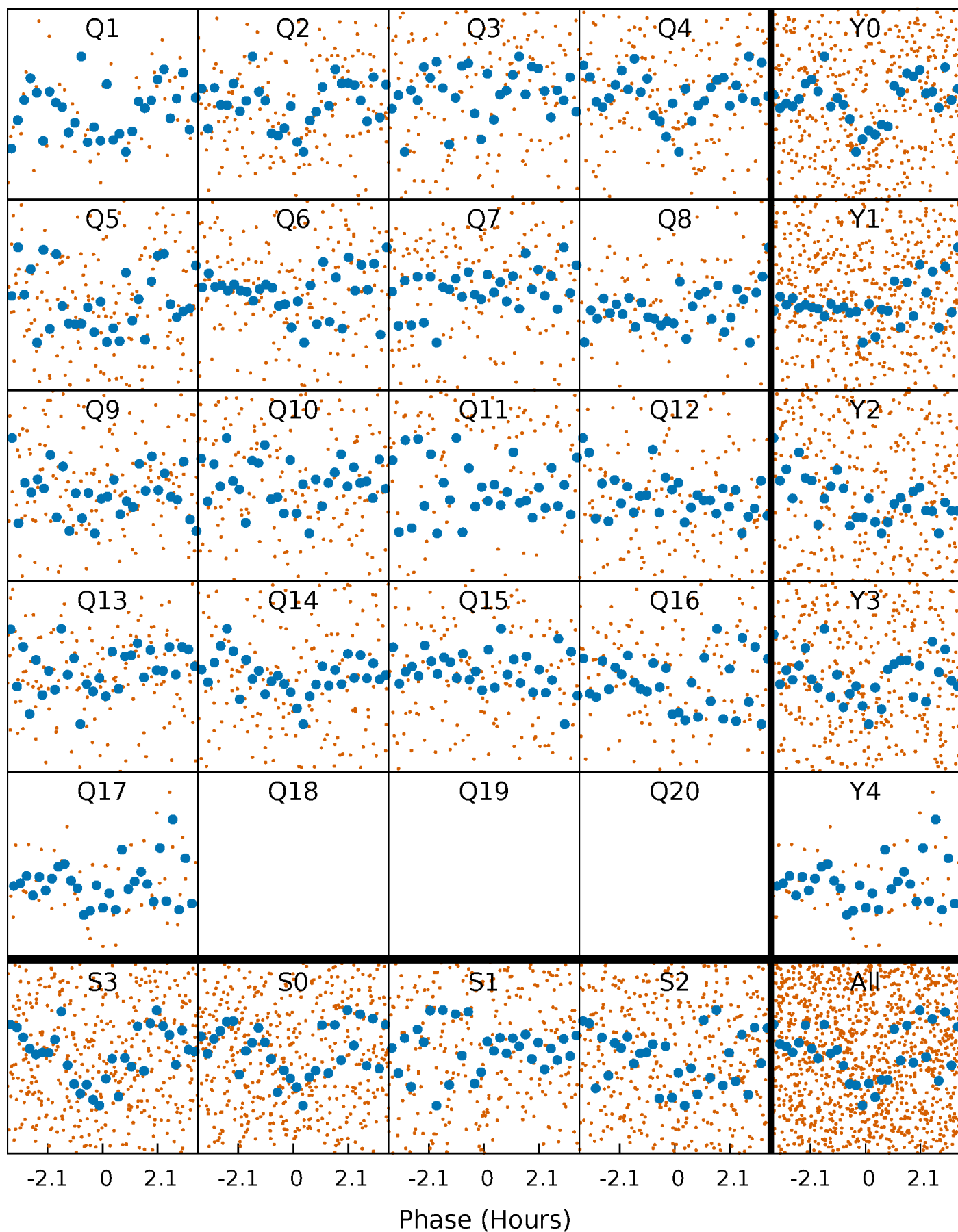


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

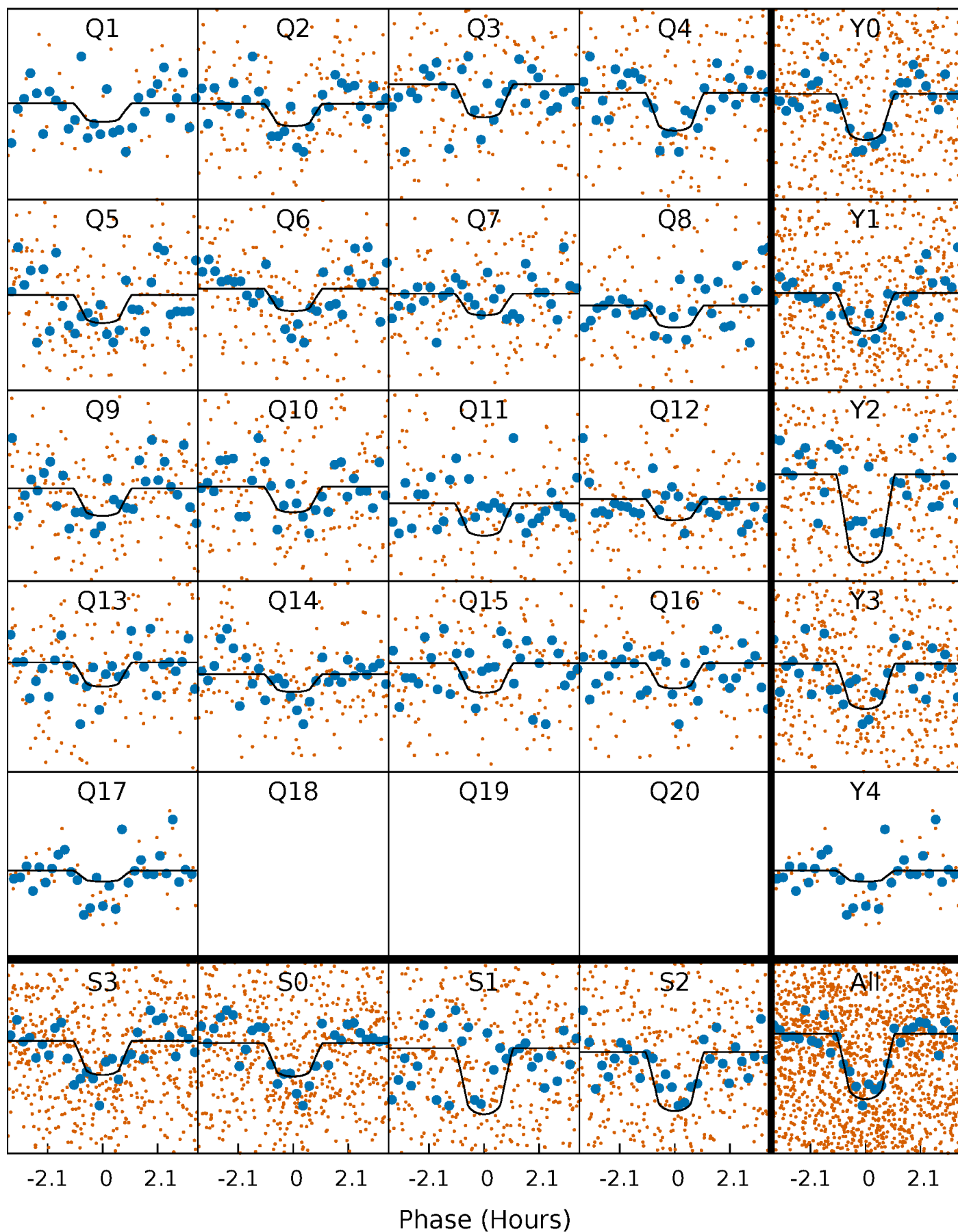
TCE 009826551-01 P= 7.196847 Days  $T_0=136.636445$  (BKJD)





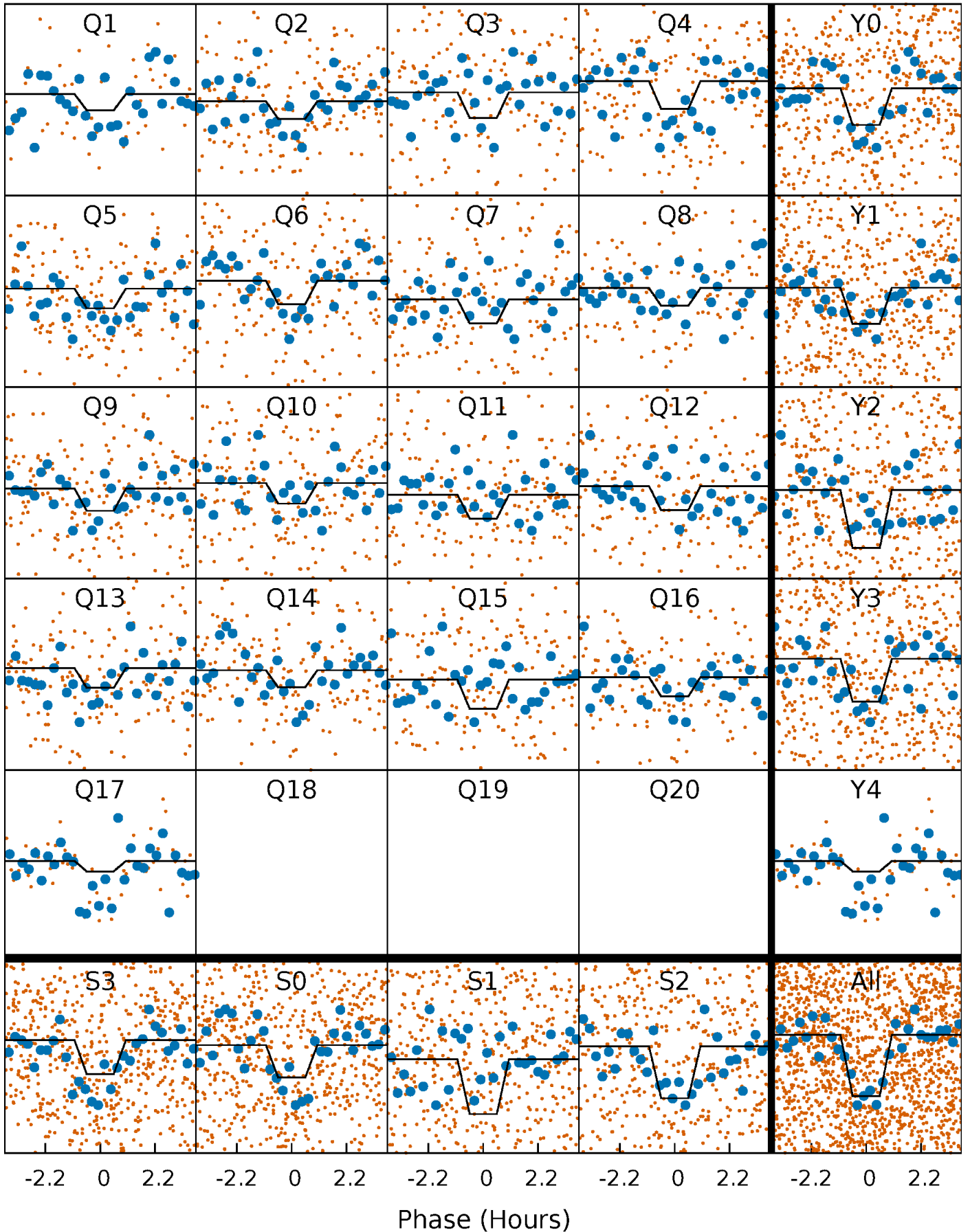
# DV Quarter-Phased Transit Curves

TCE 009826551-01 P= 7.196847 Days  $T_0=136.636445$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

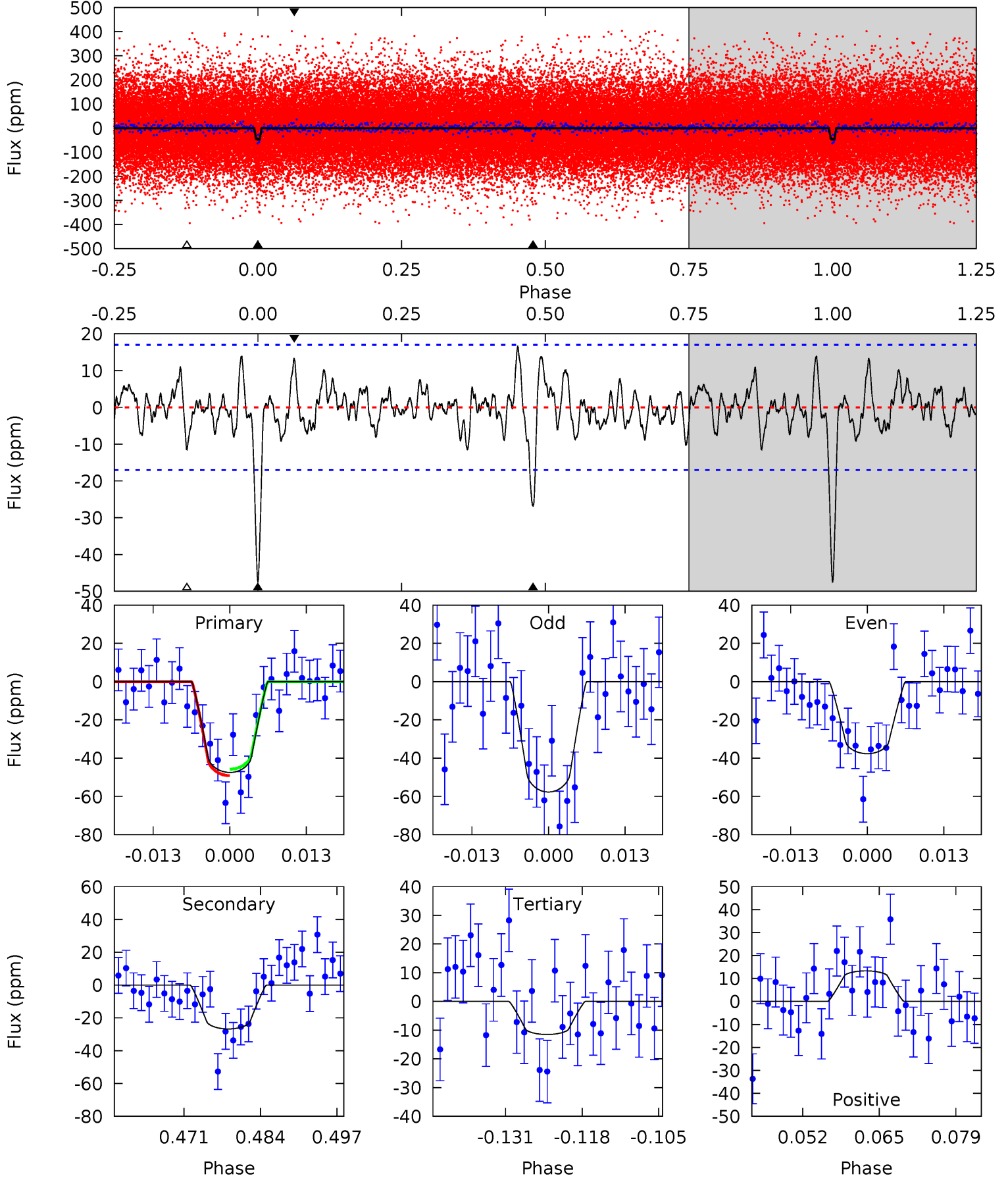
TCE 009826551-01   P= 7.196864 Days    $T_0=136.635278$  (BKJD)



# DV Model-Shift Uniqueness Test

009826551-01, P = 7.196847 Days, E = 129.439598 Days

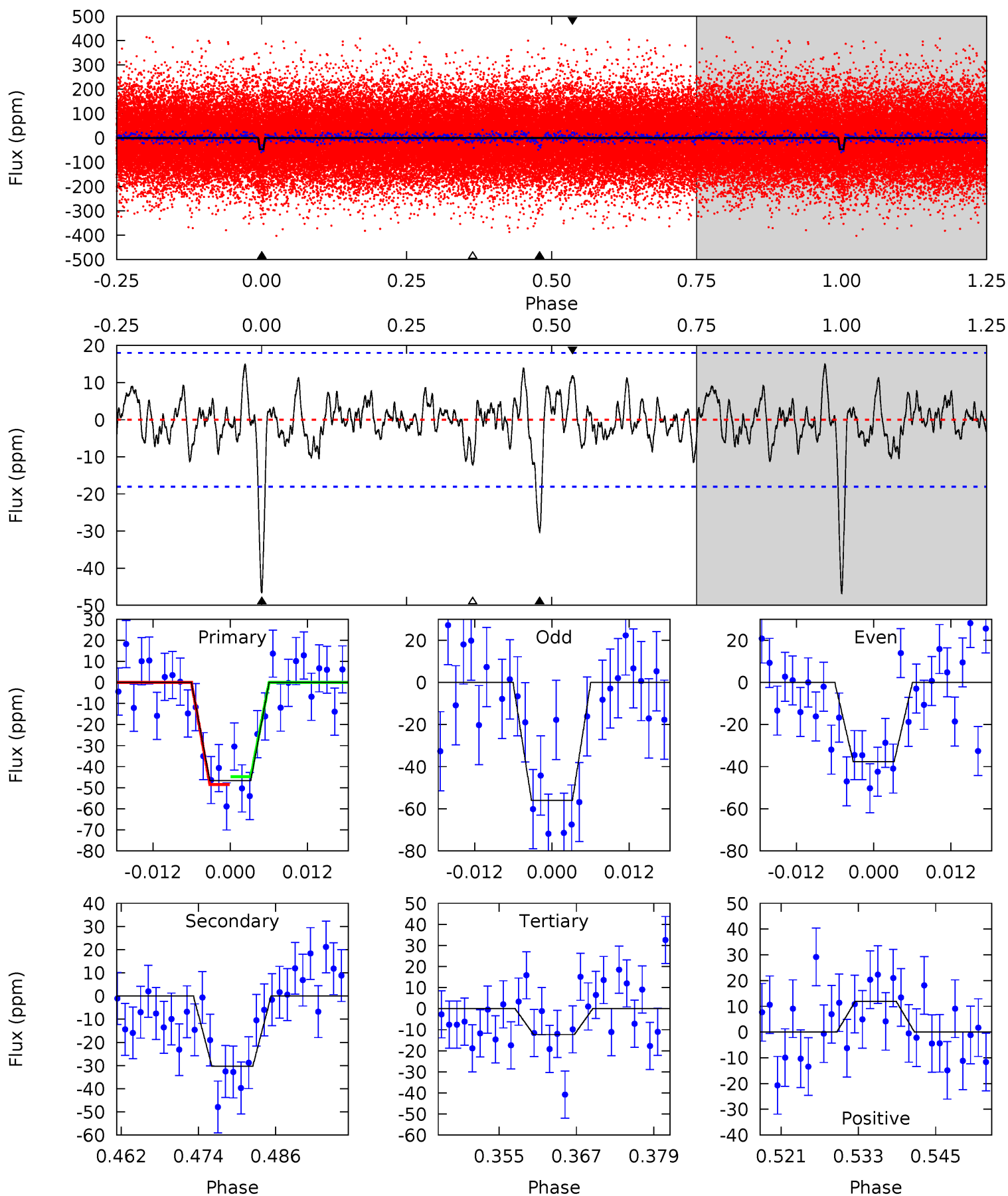
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	7.83	3.36	3.89	4.97	2.48	1.35	10.5	9.98	4.46	3.93	2.94	1.01	0.26	0.49



# Alt Model-Shift Uniqueness Test

009826551-01, P = 7.196864 Days, E = 129.438414 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
12.9	8.40	3.40	3.32	4.99	2.52	1.30	9.52	9.61	5.00	5.09	2.55	0.99	0.24	0.51



### Stellar Parameters For KIC 009826551

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6325^{+177}_{-243}$	$4.112^{+0.225}_{-0.184}$	$0.100^{+0.250}_{-0.300}$	$1.676^{+0.502}_{-0.502}$	$1.325^{+0.179}_{-0.246}$	$0.396^{+0.534}_{-0.200}$
	+3%/-4%	+5%/-4%	+250%/-300%	+30%/-30%	+14%/-19%	+135%/-51%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 009826551-01 / KOI 7965.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-27 \pm 3$	$1.41^{+0.71}_{-0.62}$	$1766^{+152}_{-138}$	$5163^{+1603}_{-765}$	$46^{+105}_{-25}$
Alt.	$-30 \pm 4$	$1.24^{+0.66}_{-0.60}$	$1780^{+145}_{-136}$	$5639^{+2297}_{-905}$	$67^{+197}_{-38}$

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



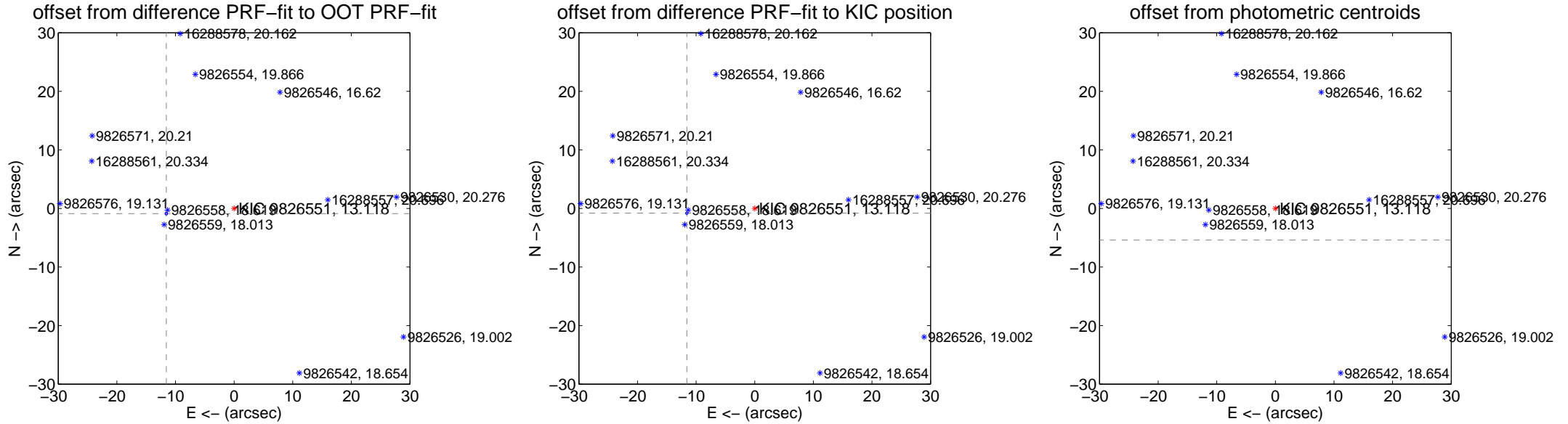
## DV Centroid Data

Supplemental centroid analysis for 009826551-01. Kepler magnitude: 13.12. Transit SNR 10.56

There are 17 quarters with good PRF difference image offsets

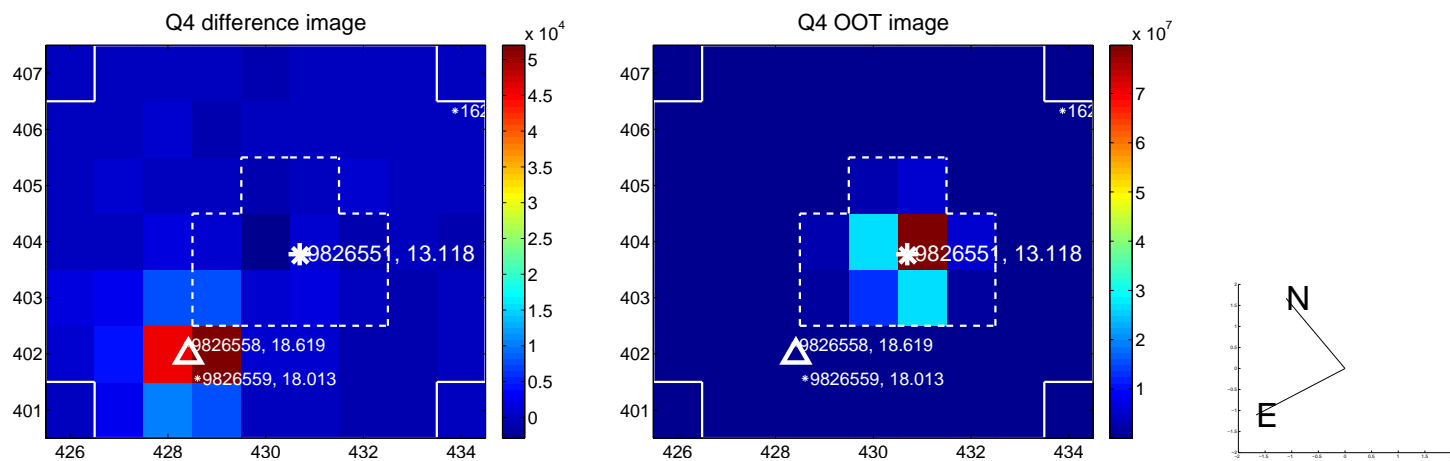
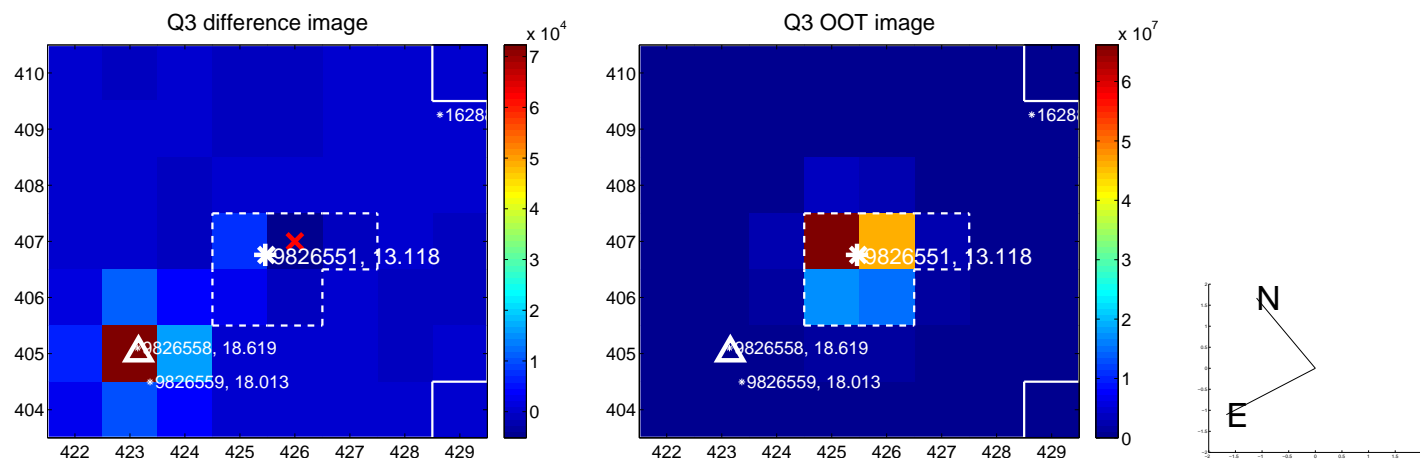
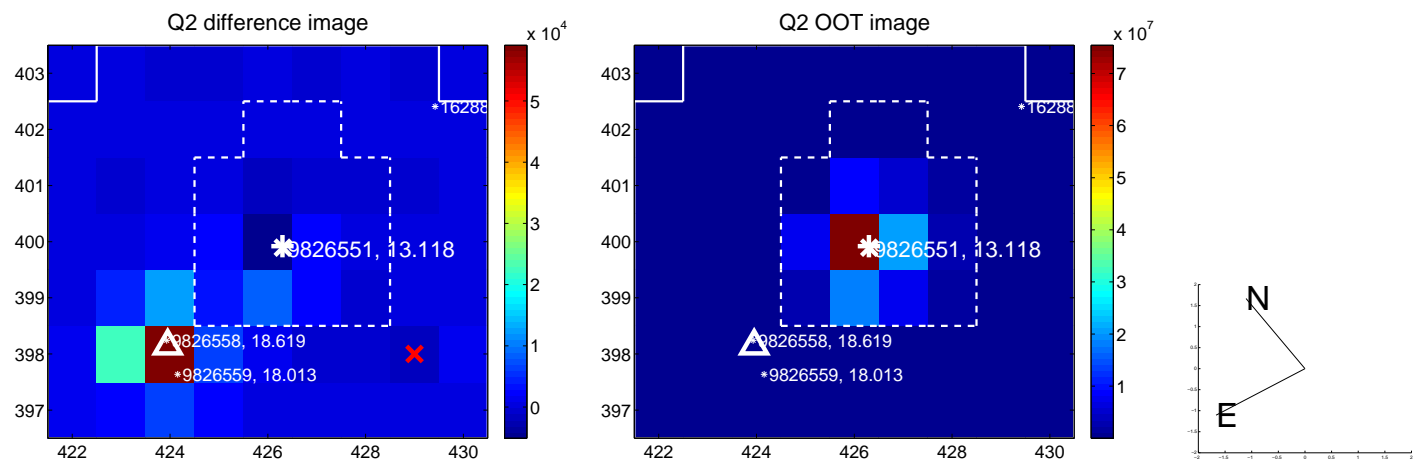
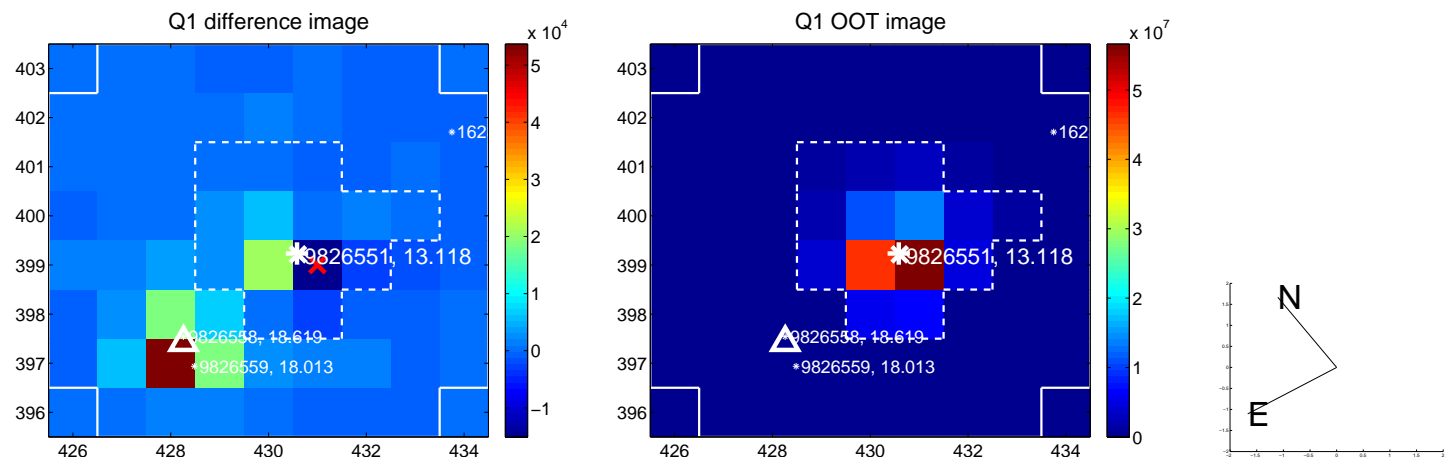
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.599 <math>\pm</math> 0.073</b>	<b>158.03</b>	11.564 $\pm$ 0.073	-0.893 $\pm$ 0.073
PRF-fit source offset from KIC position	<b>11.611 <math>\pm</math> 0.072</b>	<b>161.17</b>	11.583 $\pm$ 0.072	-0.801 $\pm$ 0.072
photometric centroid source offset	<b>80.22 <math>\pm</math> 1.26</b>	<b>63.42</b>	80.04 $\pm$ 1.27	-5.40 $\pm$ 1.04

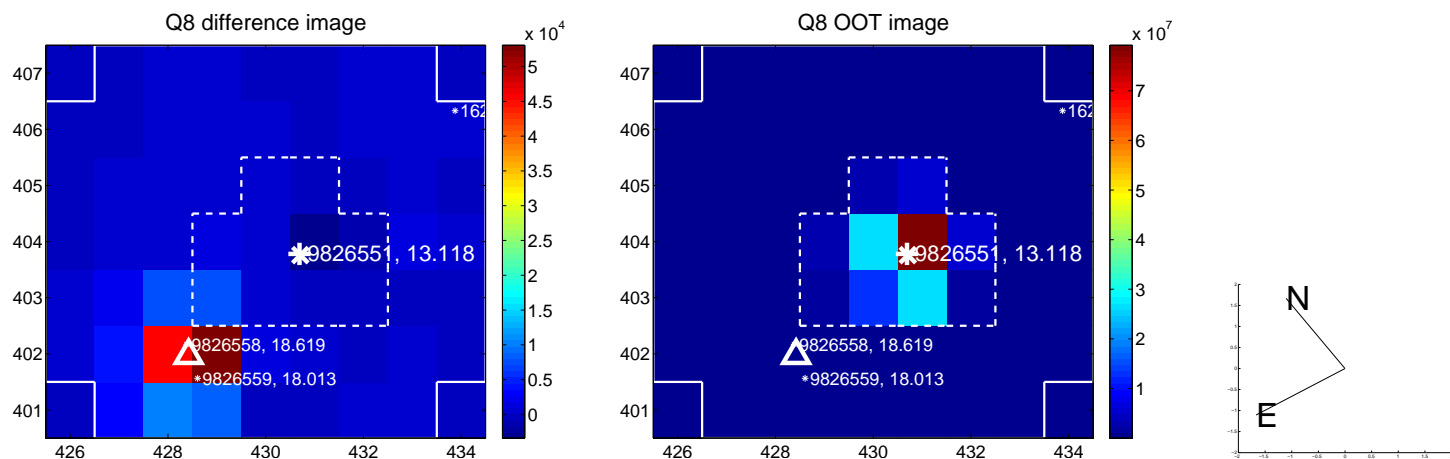
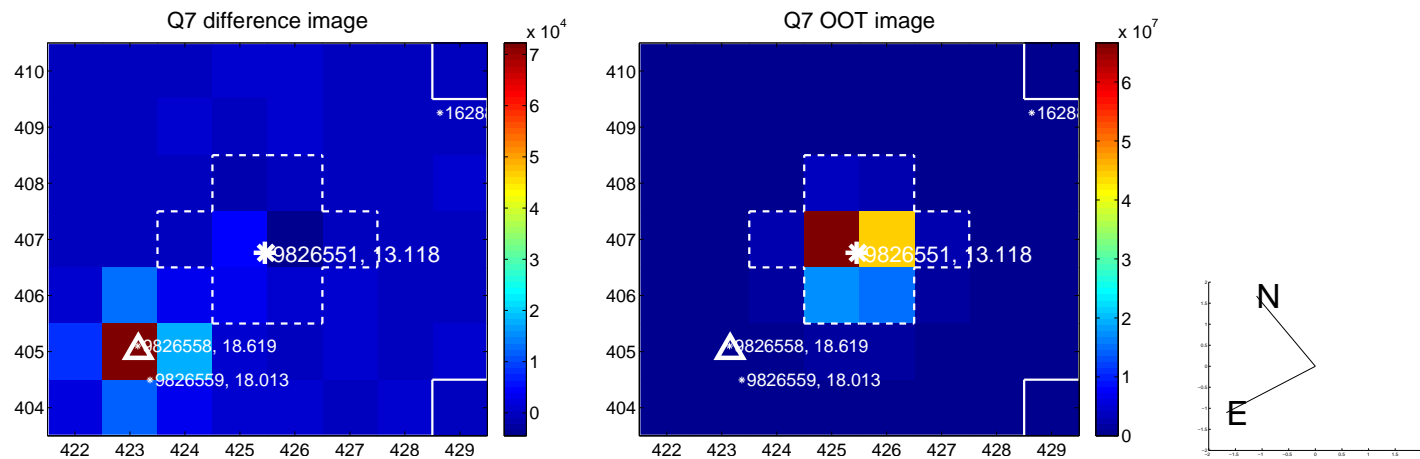
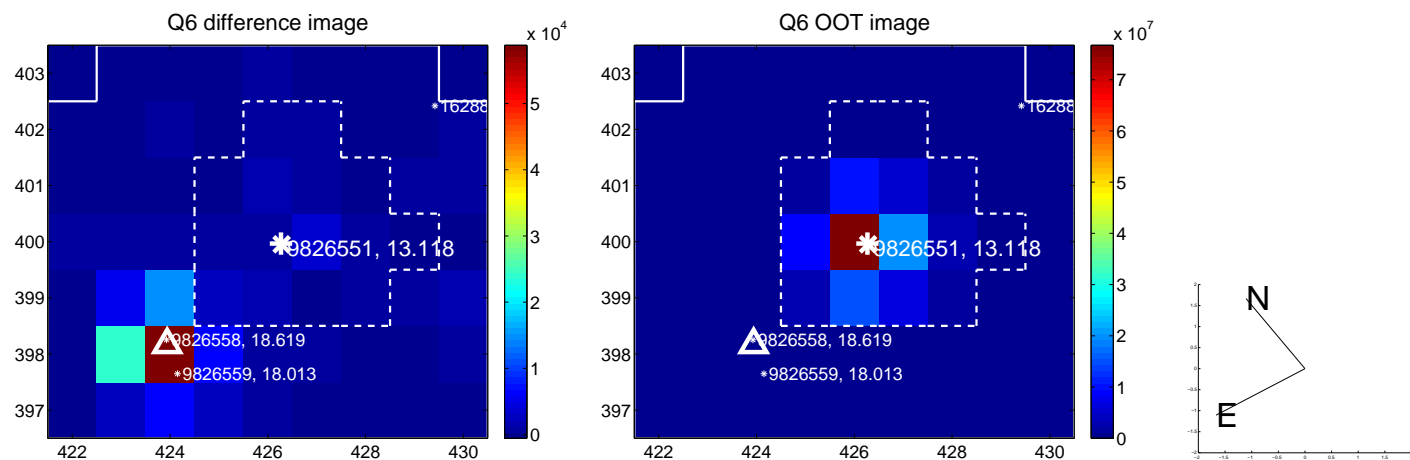
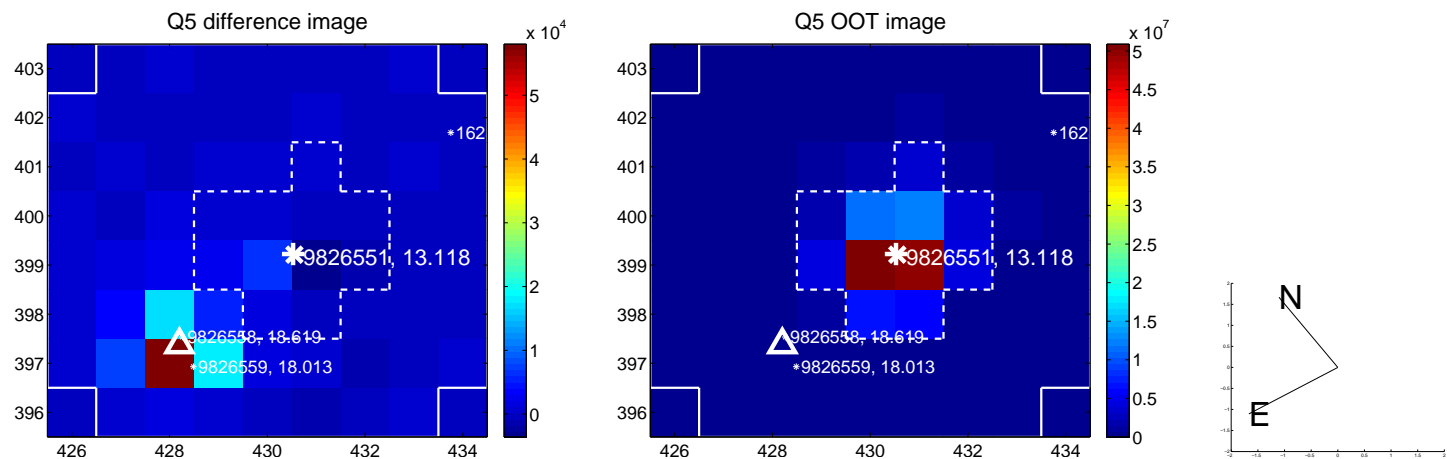


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

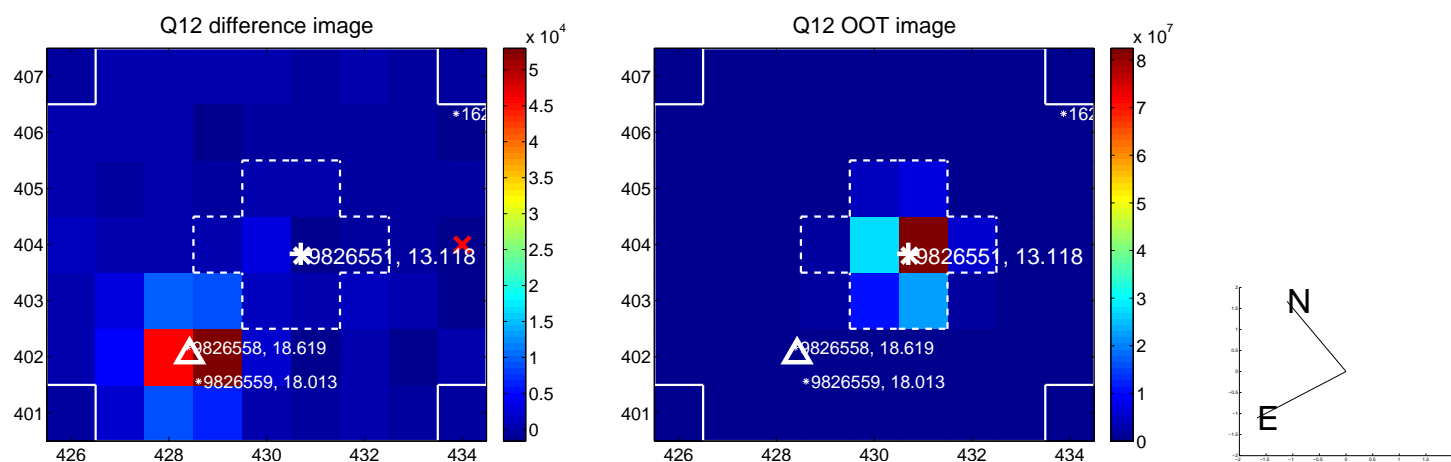
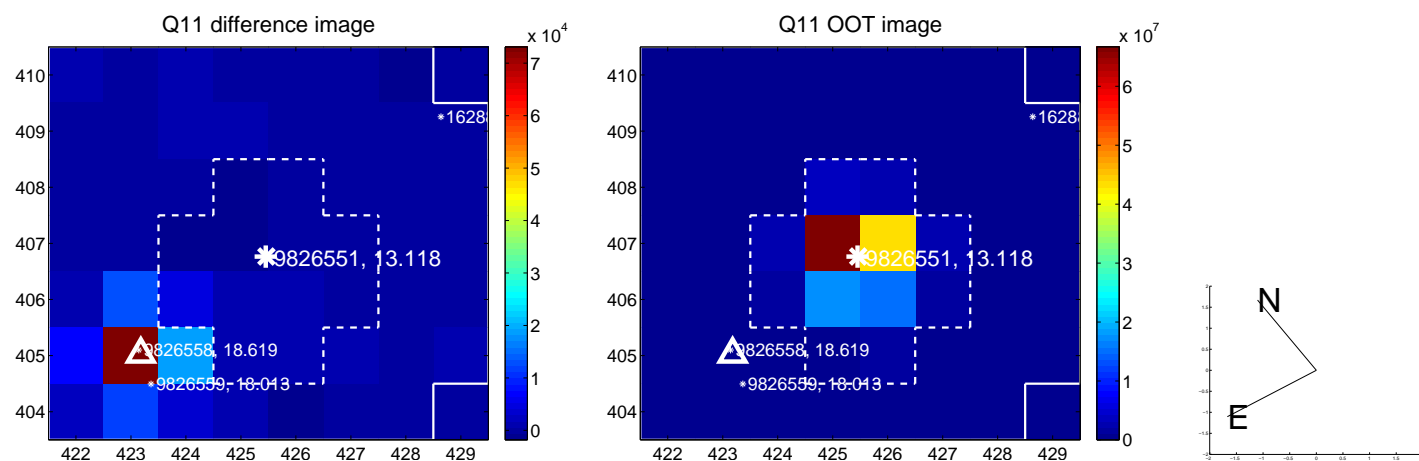
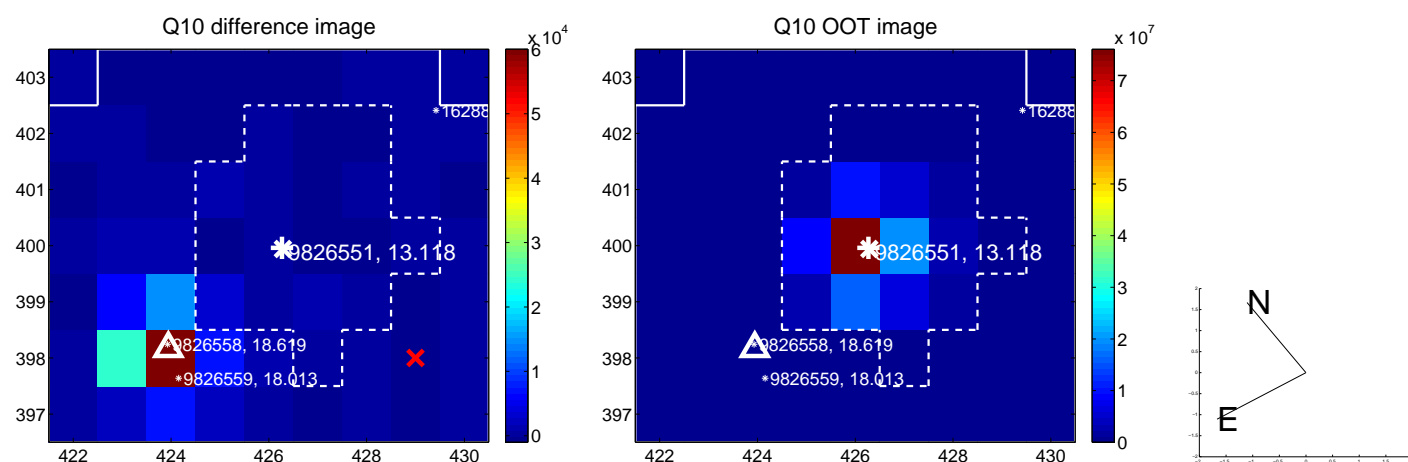
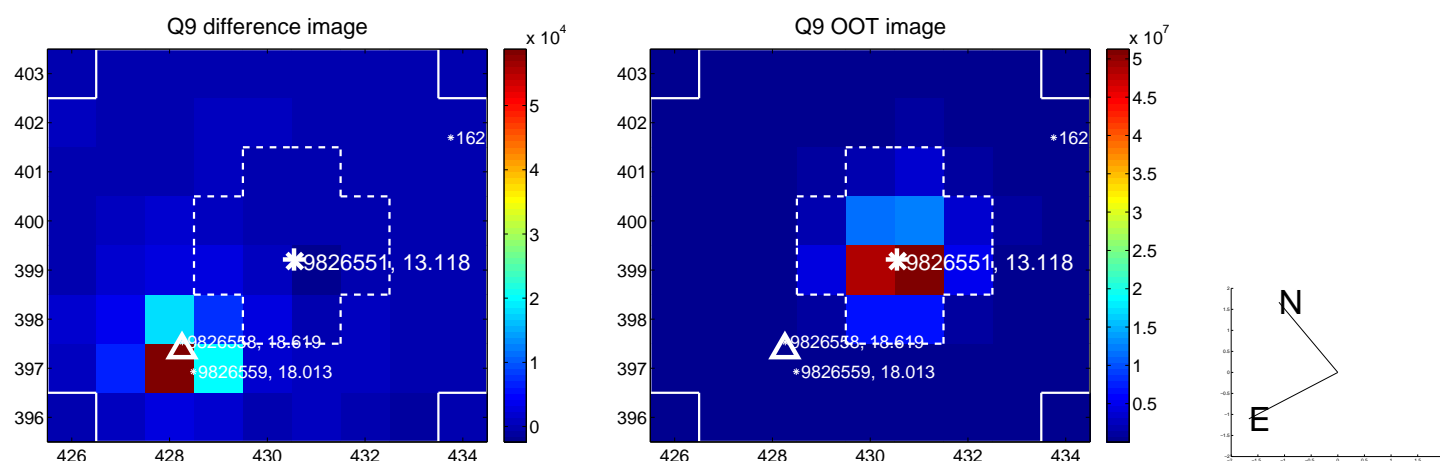
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



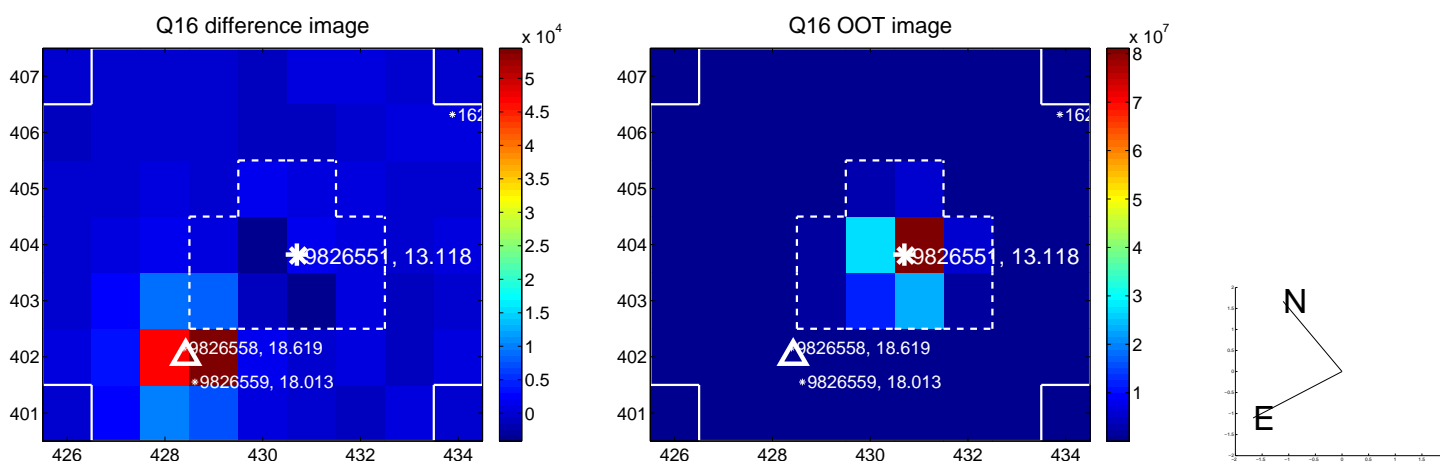
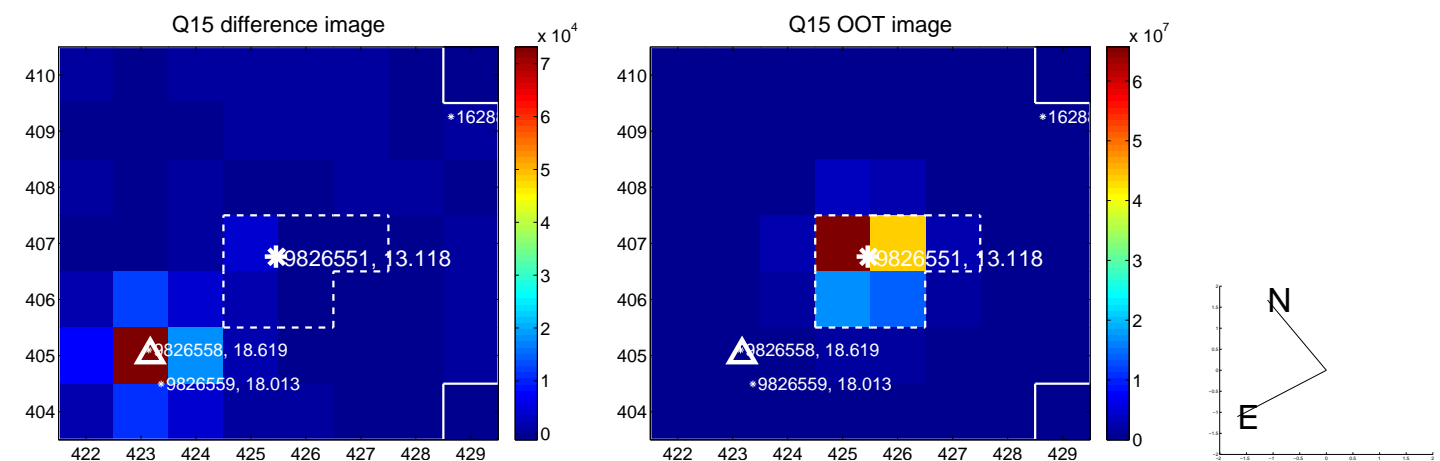
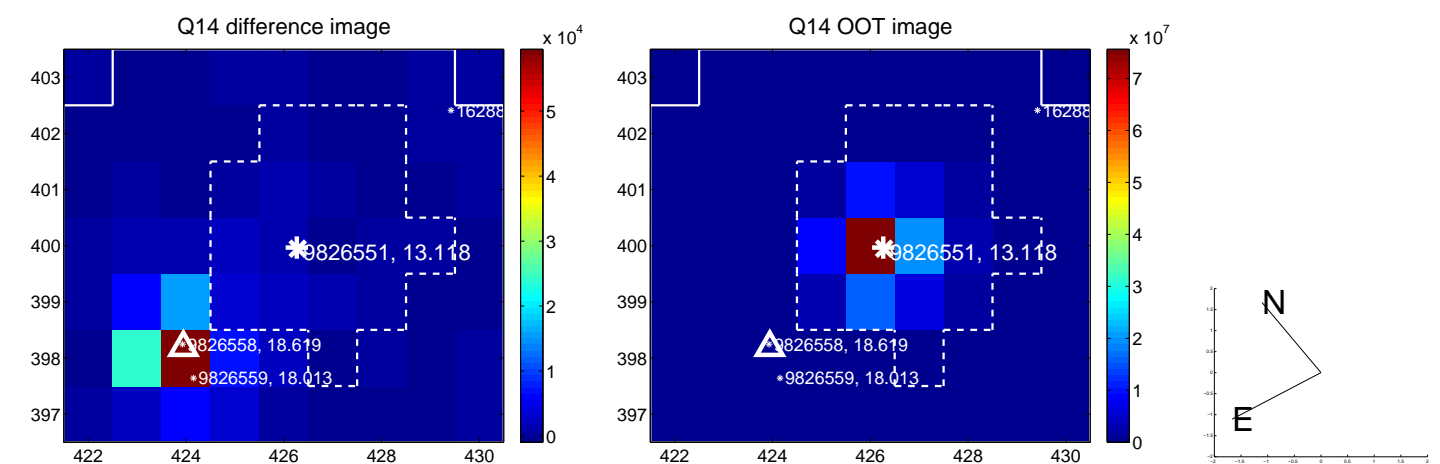
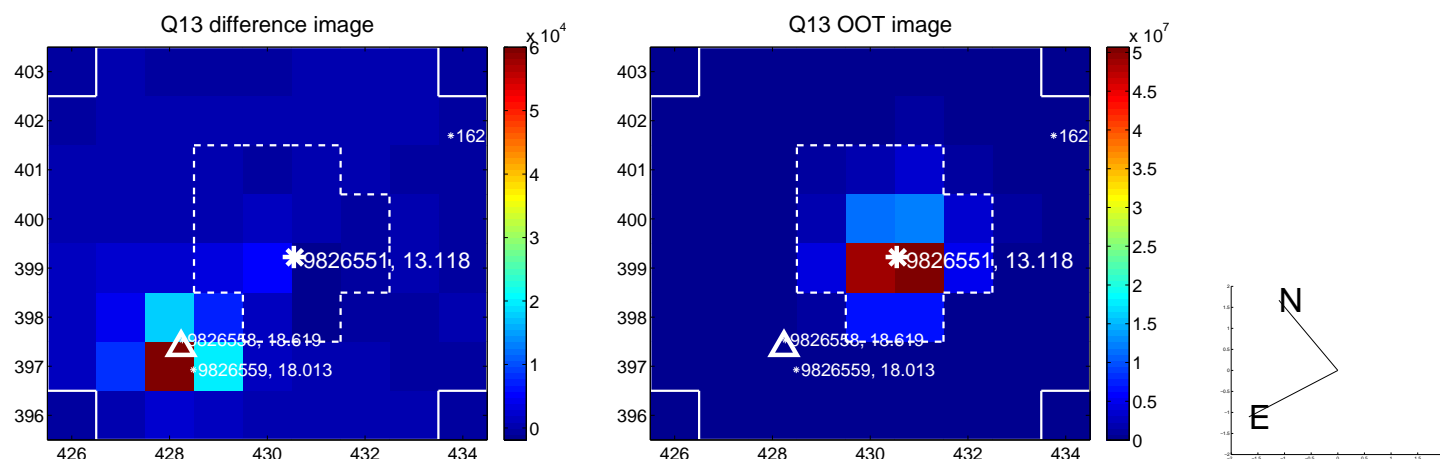
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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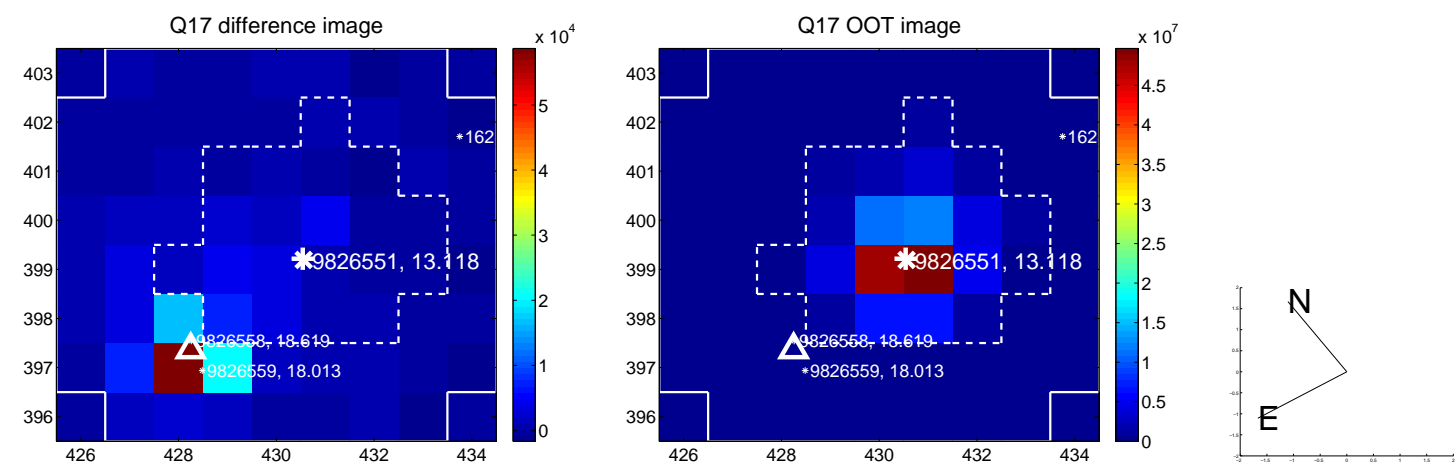


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

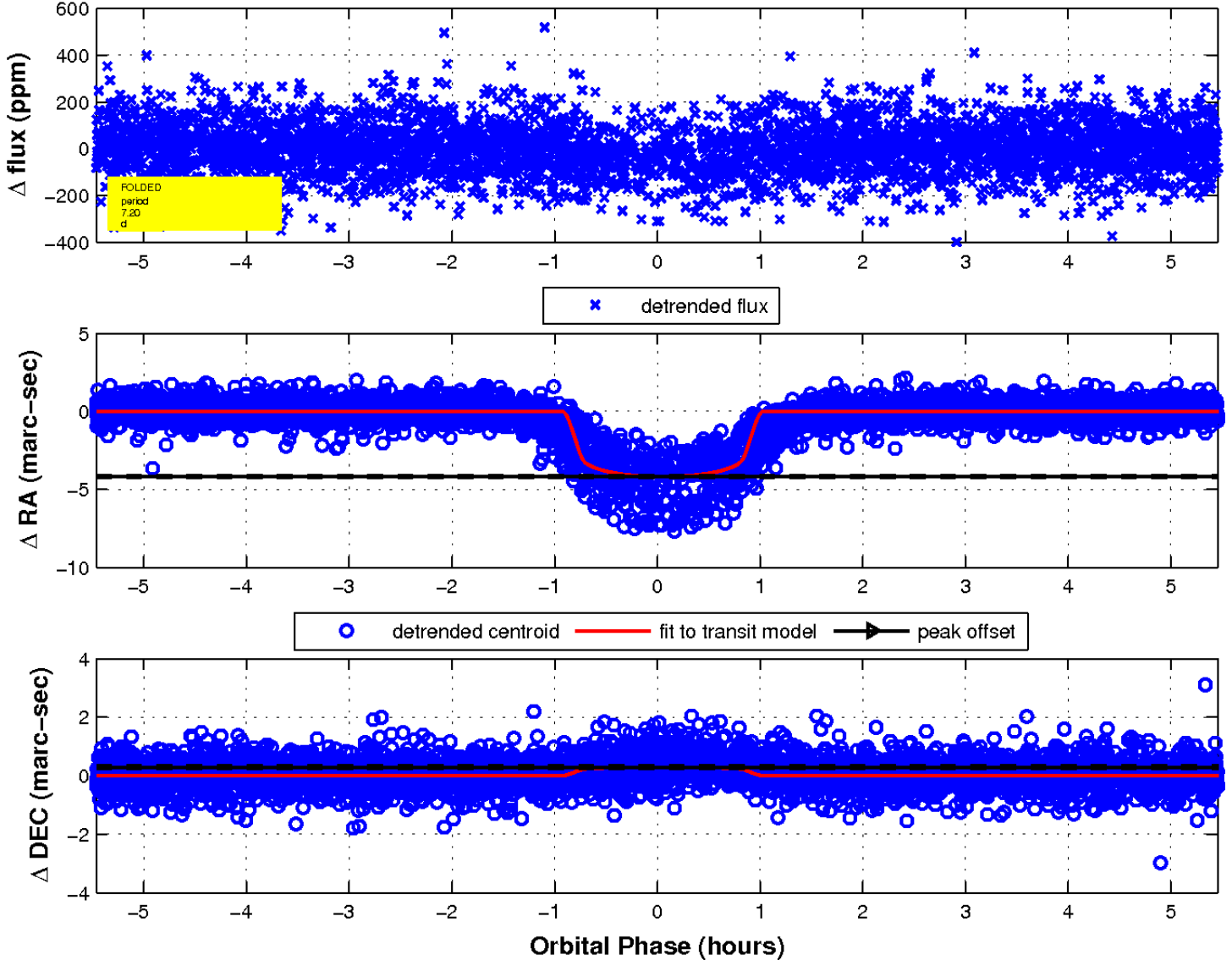




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

