

# KIC 007778427

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007778427-01	OBS	4482.01	5.382833	136.264817	33.2	4.103	9.4	10.5	1.29	6256	0.85	583.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007778427-01	OBS	PC	0.90	0	0	0	0	NO_COMMENT

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

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

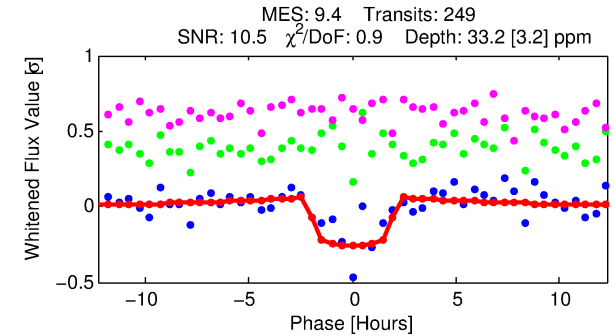
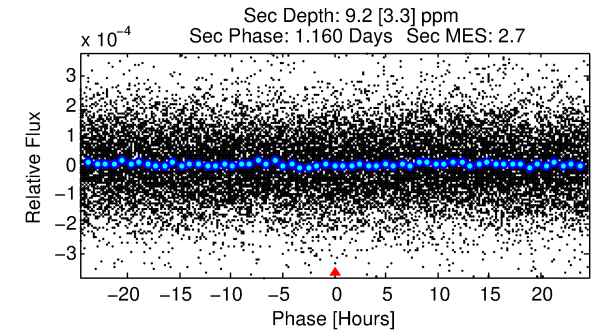
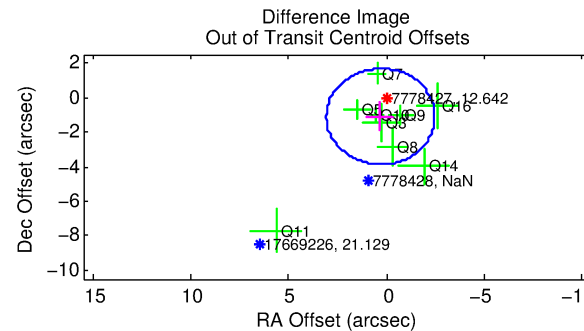
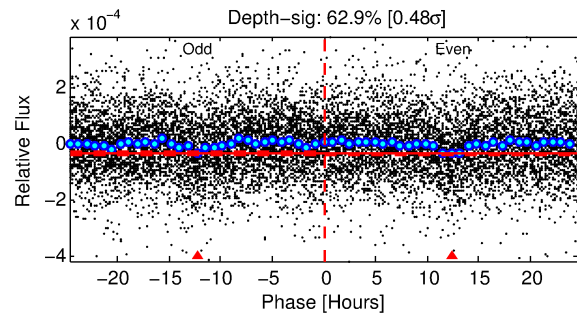
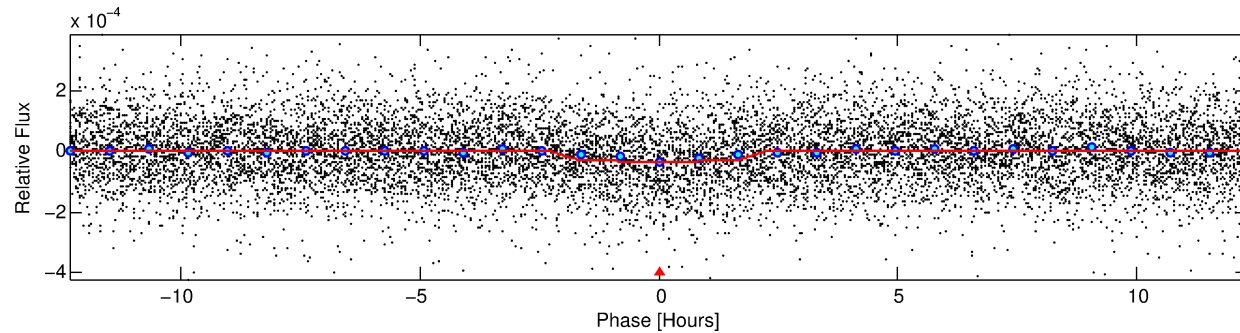
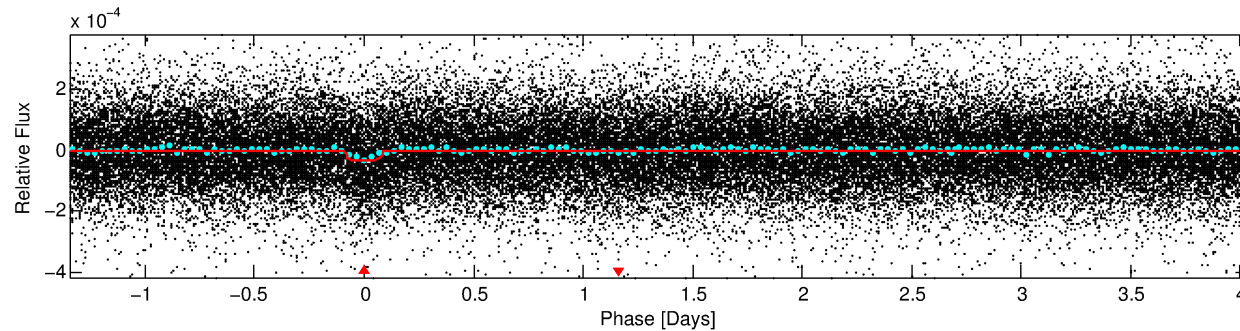
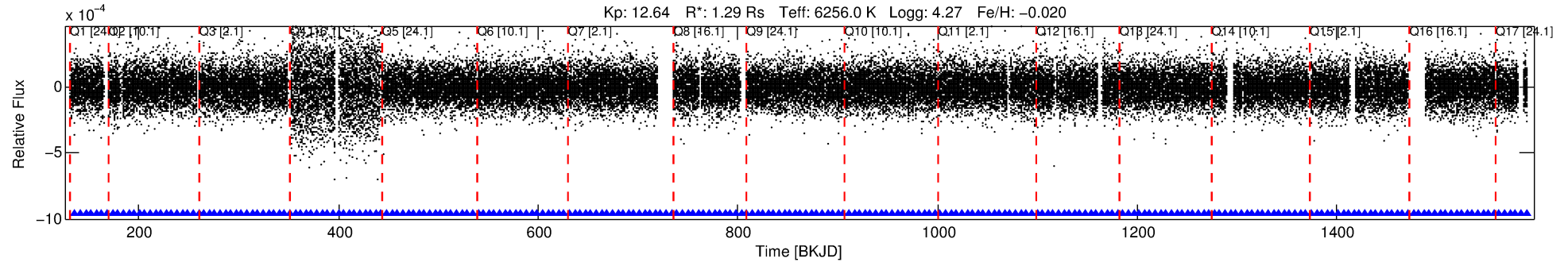
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007778427-01

No Significant Match Found

# DV One-Page Summary

KIC: 7778427 Candidate: 1 of 1 Period: 5.383 d  
KOI: K04482.01 Corr: 0.902



## DV Fit Results:

Period = 5.38283 [0.00004] d  
Epoch = 136.2648 [0.0055] BKJD  
Rp/R\* = 0.0061 [0.0022]  
a/R\* = 5.14 [9.49]  
b = 0.87 [0.54]  
Seff = 583.18 [132.31]  
Teq = 1253 [71] K  
Rp = 0.85 [0.34] Re  
a = 0.0627 [0.0092] AU  
Ag = 27.37 [22.79] [1.16 $\sigma$ ]  
Teffp = 4431 [897] K [3.53 $\sigma$ ]

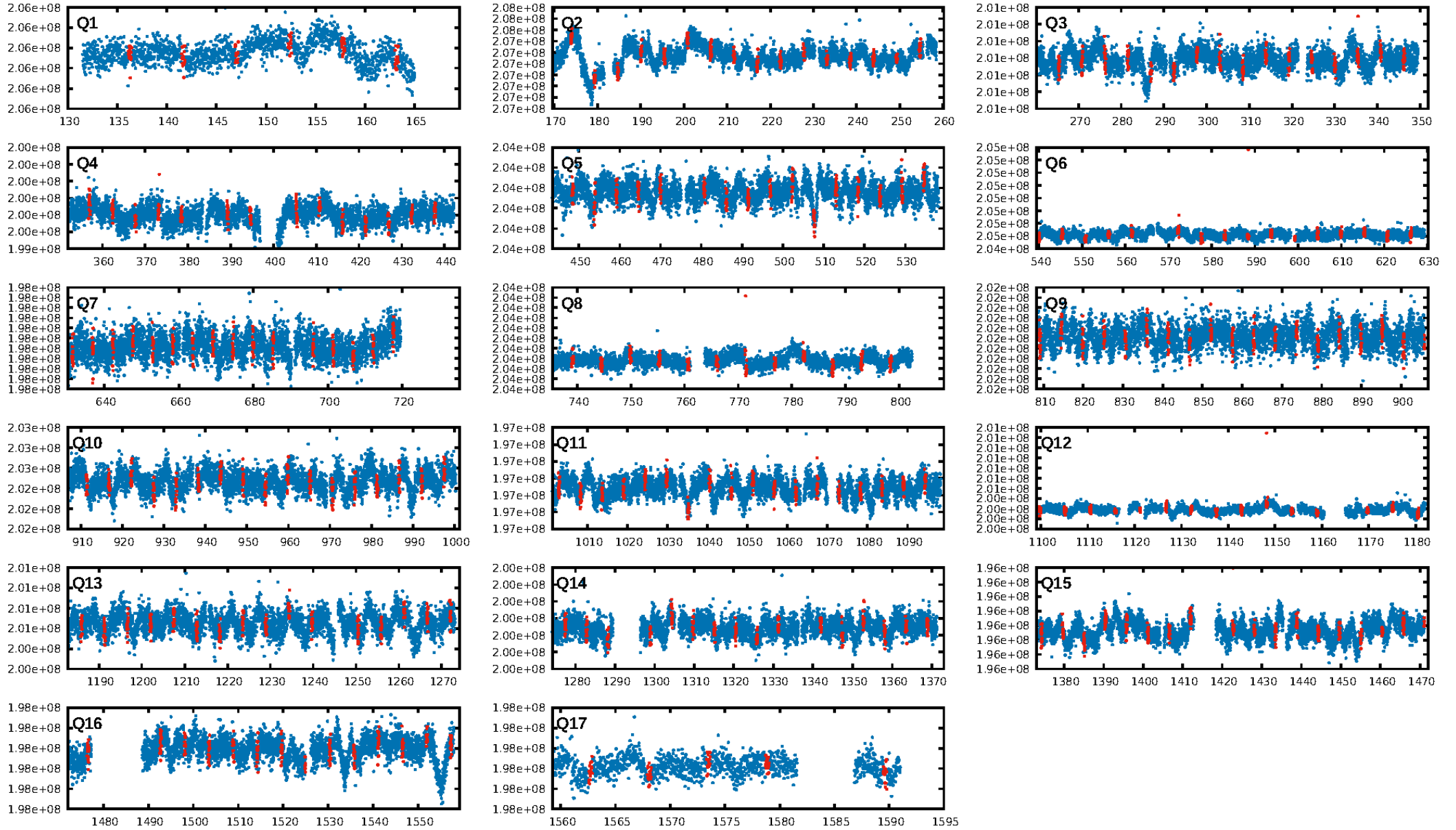
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.39e-21  
RollingBand-fgt: 1.00 [238/238]  
GhostDiagnostic-chr: -1.8  
Centroid-sig: 16.9%  
Centroid-so: 1.454 arcsec [1.20 $\sigma$ ]  
OotOffset-rm: 1.143 arcsec [1.24 $\sigma$ ]  
KicOffset-rm: 1.163 arcsec [1.42 $\sigma$ ]  
OotOffset-st: 2/3/2/2 [9]  
KicOffset-st: 2/3/2/2 [9]  
DiffImageQuality-fgm: 0.44 [4/9]  
DiffImageOverlap-fno: 1.00 [17/17]

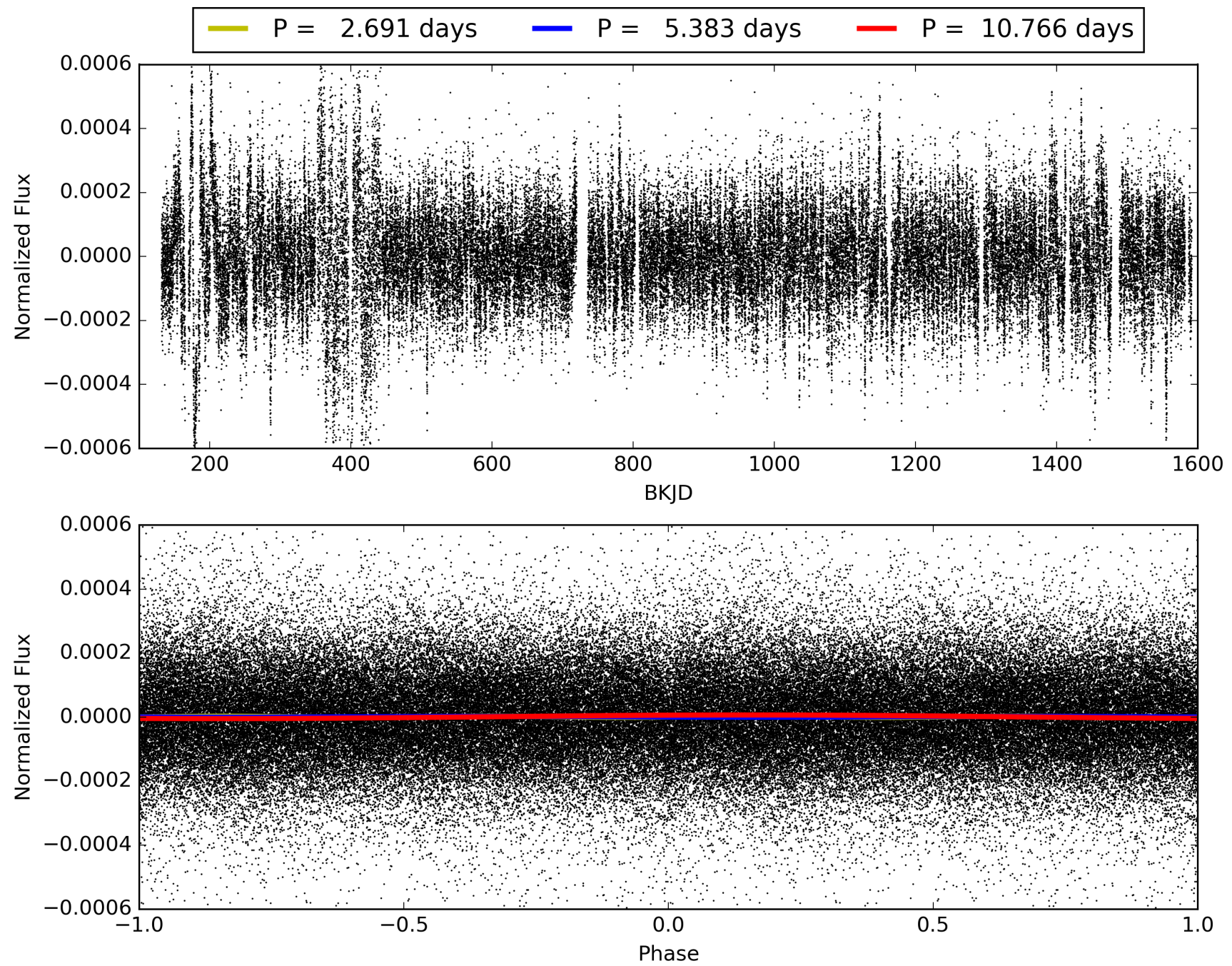
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:34:01 Z

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

# TCE 007778427-01, PDC Light Curves



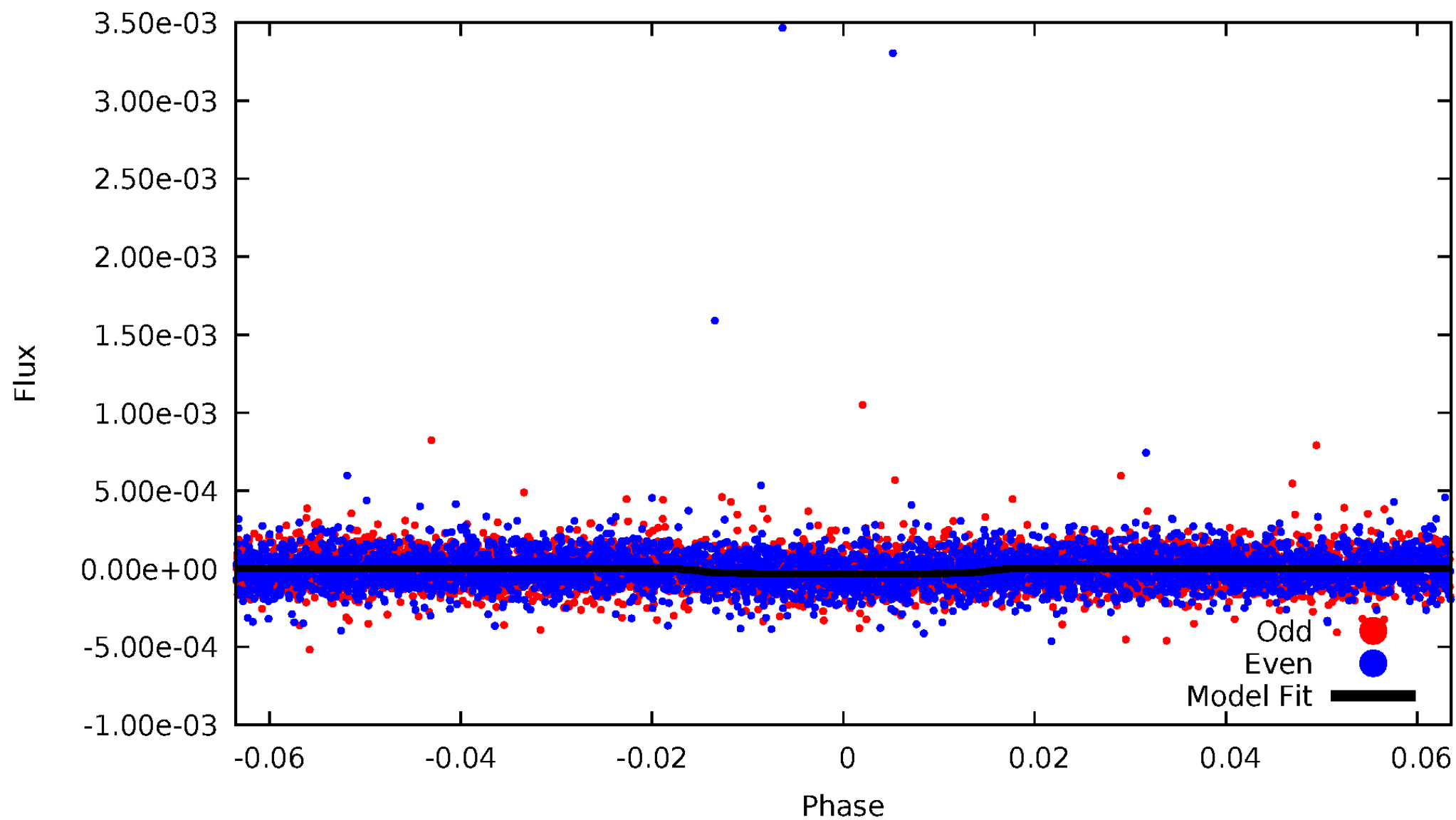
TCE 007778427-01





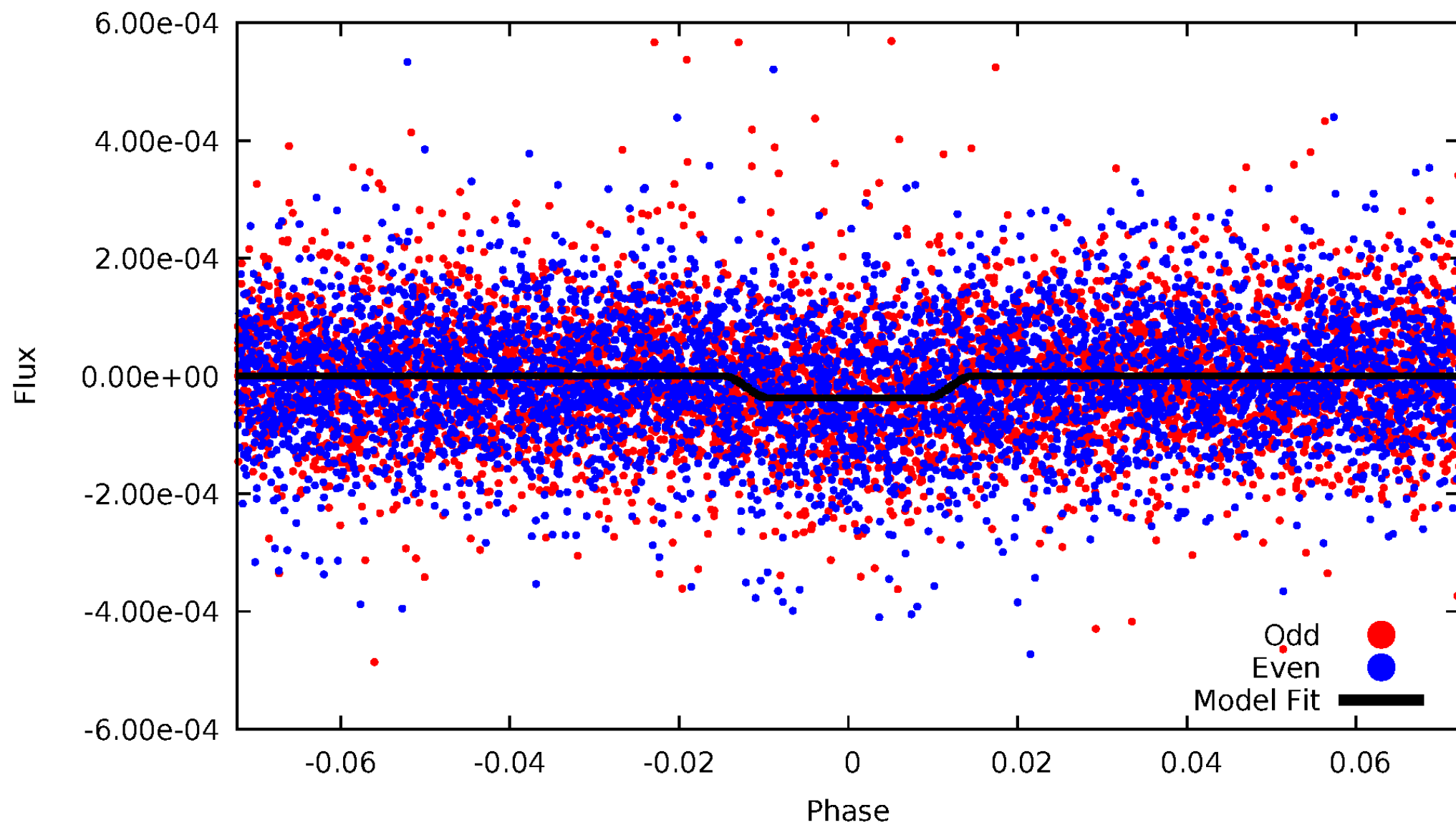
# DV Odd/Even

TCE 007778427-01



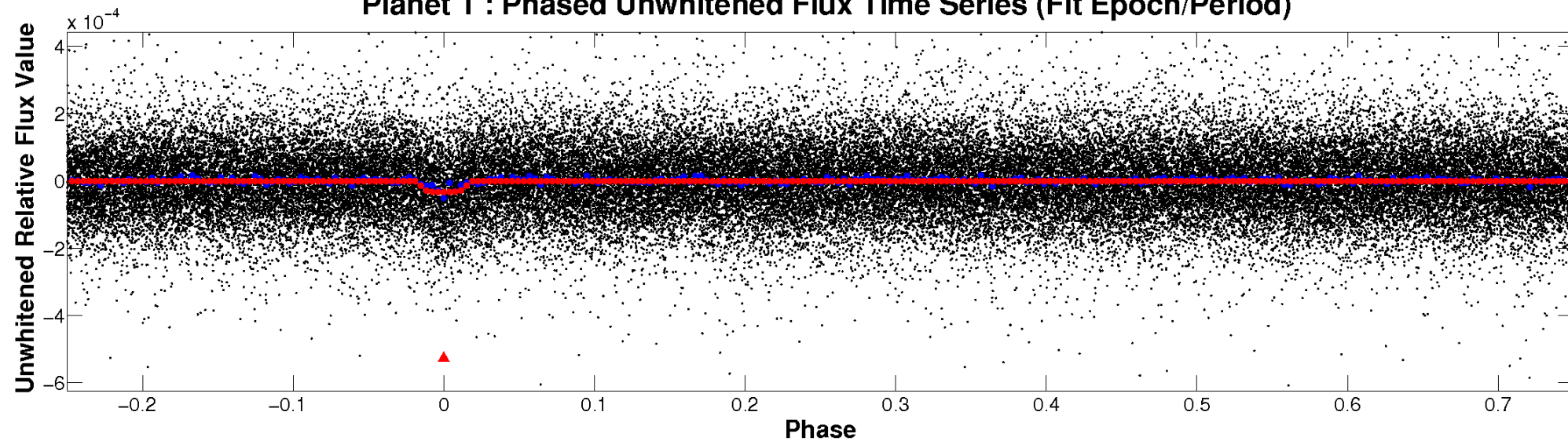
# ALT Odd/Even

TCE 007778427-01

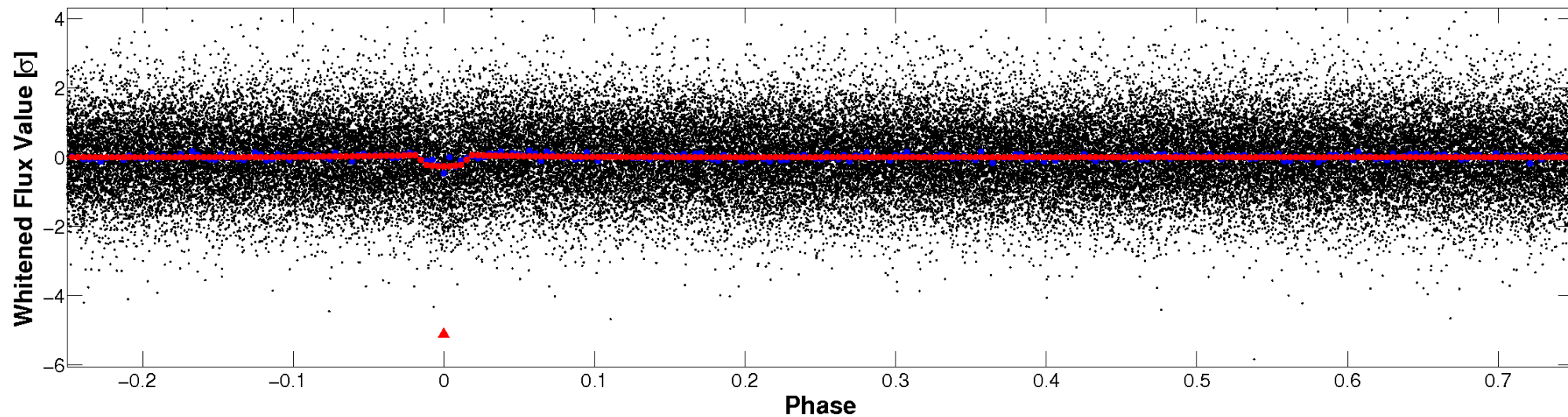


# Non-Whitened Vs. Whitened Light Curve

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

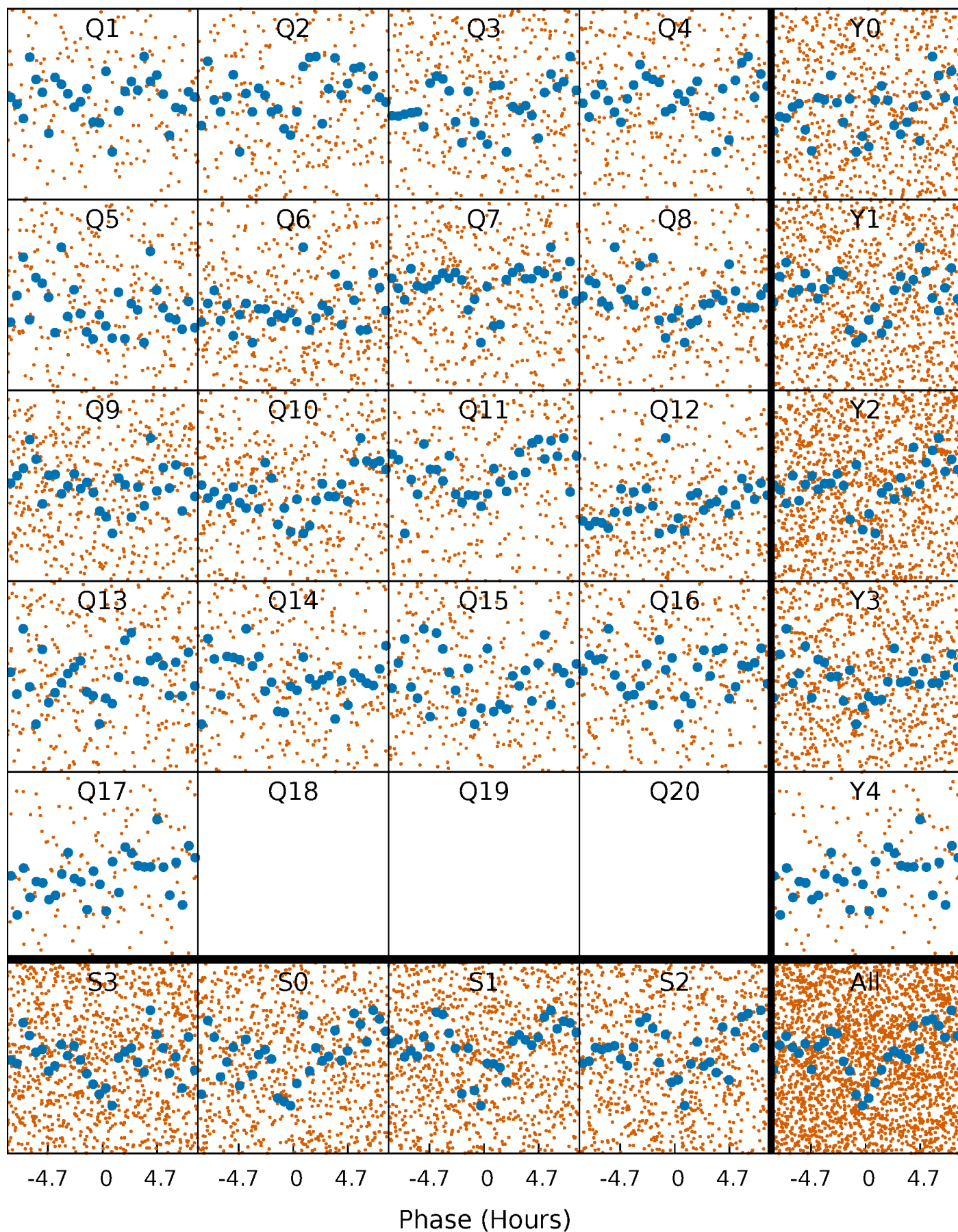


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

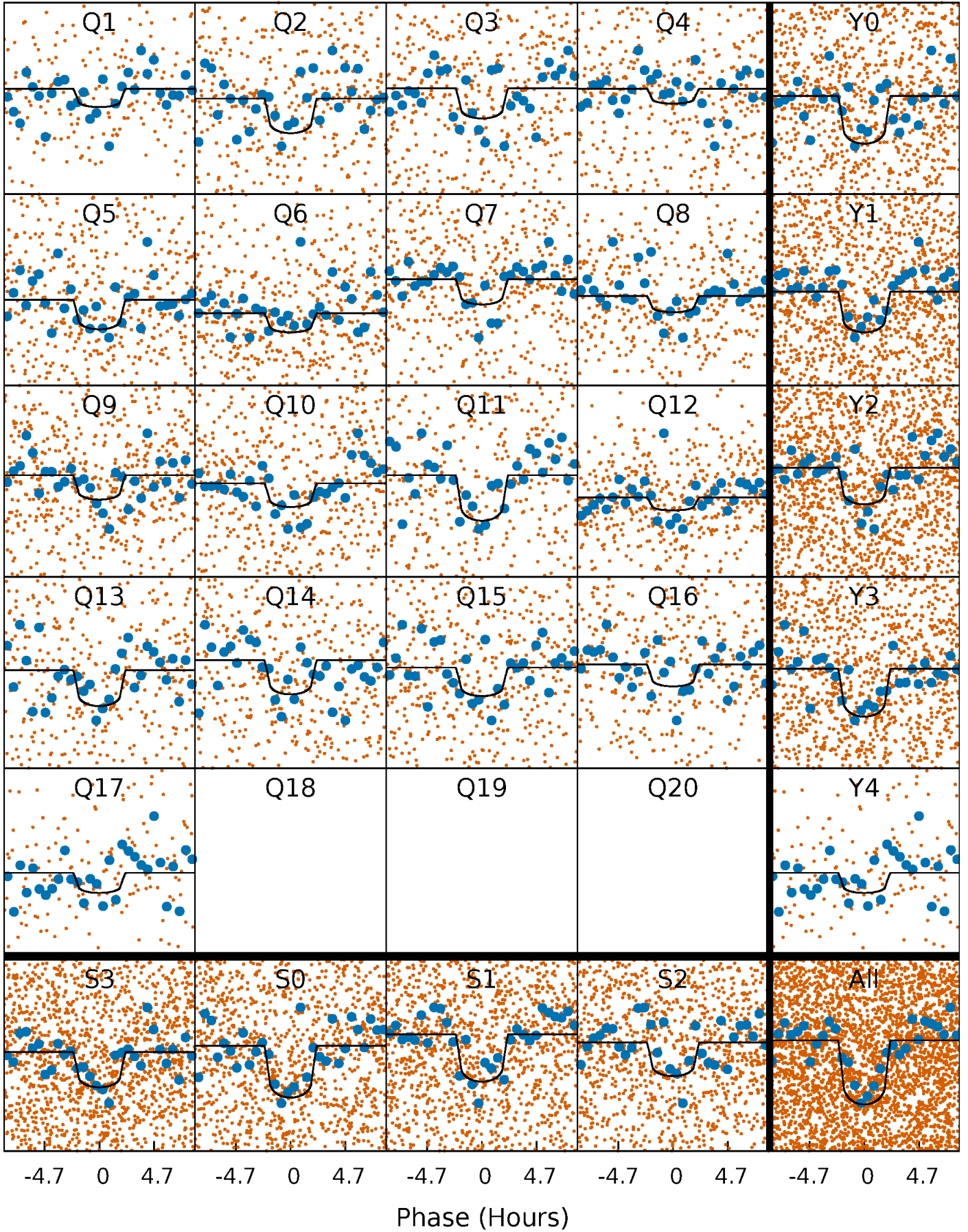
TCE 007778427-01 P= 5.382833 Days  $T_0=136.264817$  (BKJD)





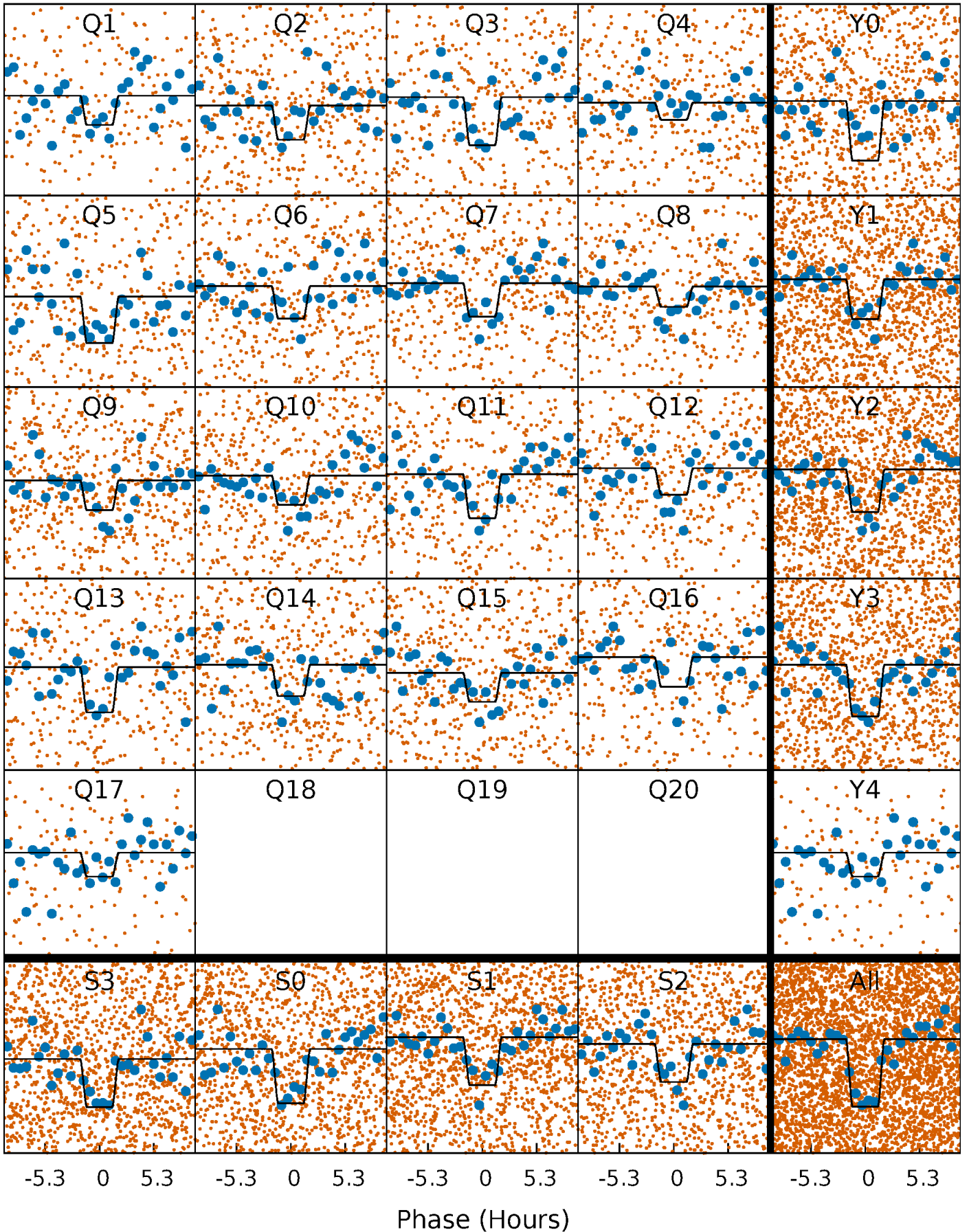
# DV Quarter-Phased Transit Curves

TCE 007778427-01 P= 5.382833 Days  $T_0=136.264817$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

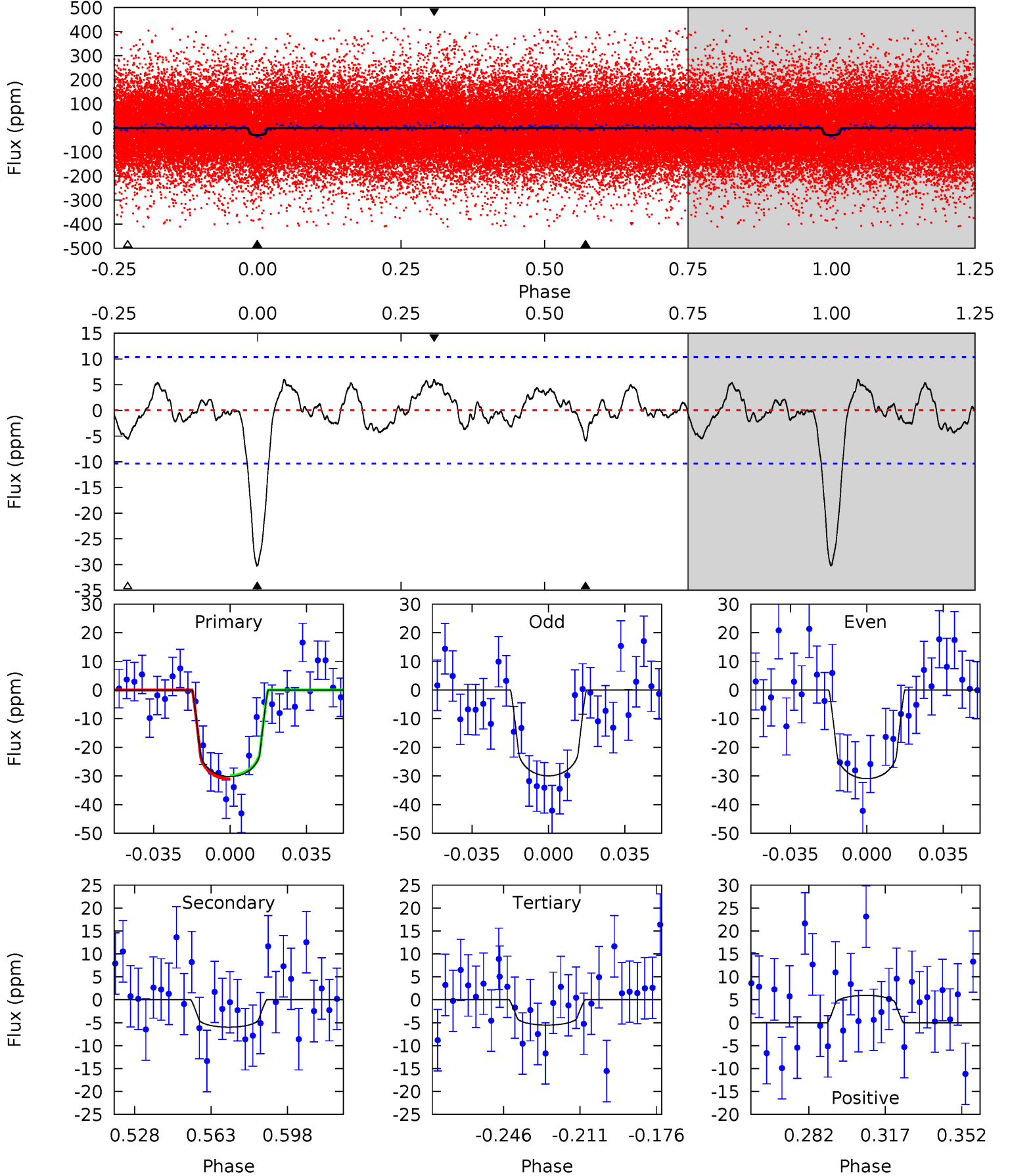
TCE 007778427-01 P= 5.382807 Days  $T_0=136.267379$  (BKJD)



# DV Model-Shift Uniqueness Test

007778427-01, P = 5.382833 Days, E = 130.881984 Days

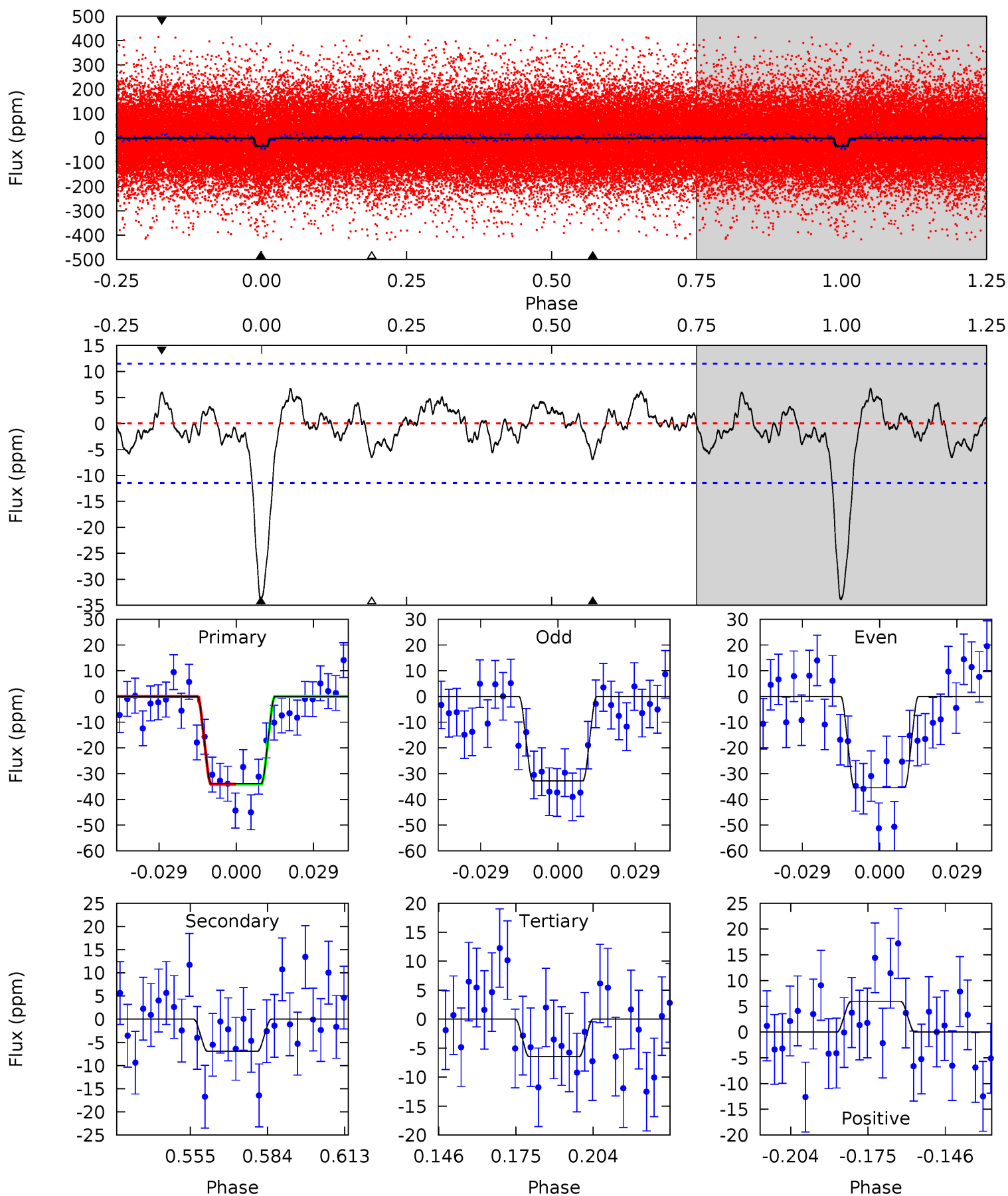
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	2.75	2.55	2.74	4.78	2.11	1.21	11.4	11.2	0.21	0.01	0.23	0.82	0.17	0.27



# Alt Model-Shift Uniqueness Test

007778427-01, P = 5.382807 Days, E = 130.884572 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
14.2	2.90	2.71	2.48	4.82	2.18	1.13	11.5	11.7	0.19	0.42	0.56	0.85	0.17	0.01





### Stellar Parameters For KIC 007778427

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6256^{+113}_{-126}$	$4.270^{+0.115}_{-0.115}$	$-0.020^{+0.150}_{-0.150}$	$1.293^{+0.228}_{-0.166}$	$1.135^{+0.106}_{-0.080}$	$0.739^{+0.329}_{-0.269}$
	+2%/-2%	+3%/-3%	+750%/-750%	+18%/-13%	+9%/-7%	+44%/-36%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 007778427-01 / KOI 4482.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-6 \pm 2$	$0.83^{+0.33}_{-0.29}$	$1741^{+84}_{-64}$	$4218^{+921}_{-531}$	$18^{+29}_{-10}$
Alt.	$-7 \pm 2$	$0.87^{+0.30}_{-0.31}$	$1745^{+81}_{-75}$	$4313^{+857}_{-546}$	$21^{+29}_{-11}$

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

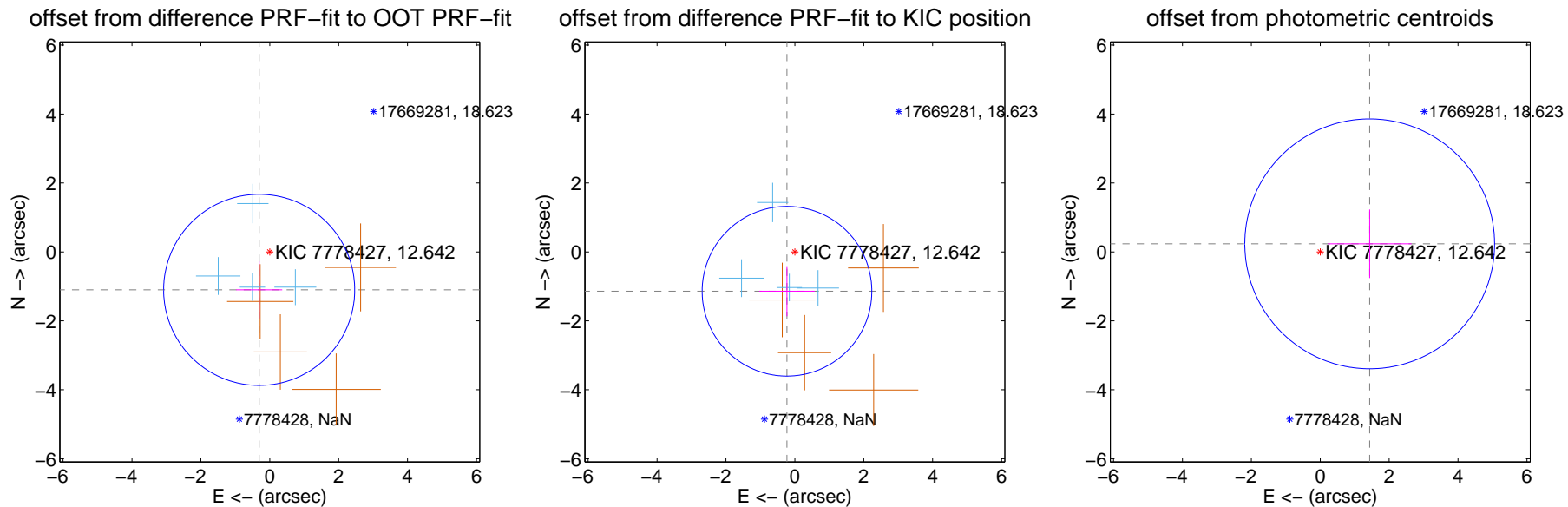
## DV Centroid Data

Supplemental centroid analysis for 007778427-01. Kepler magnitude: 12.64. Transit SNR 10.52

There are 4 quarters with good PRF difference image offsets

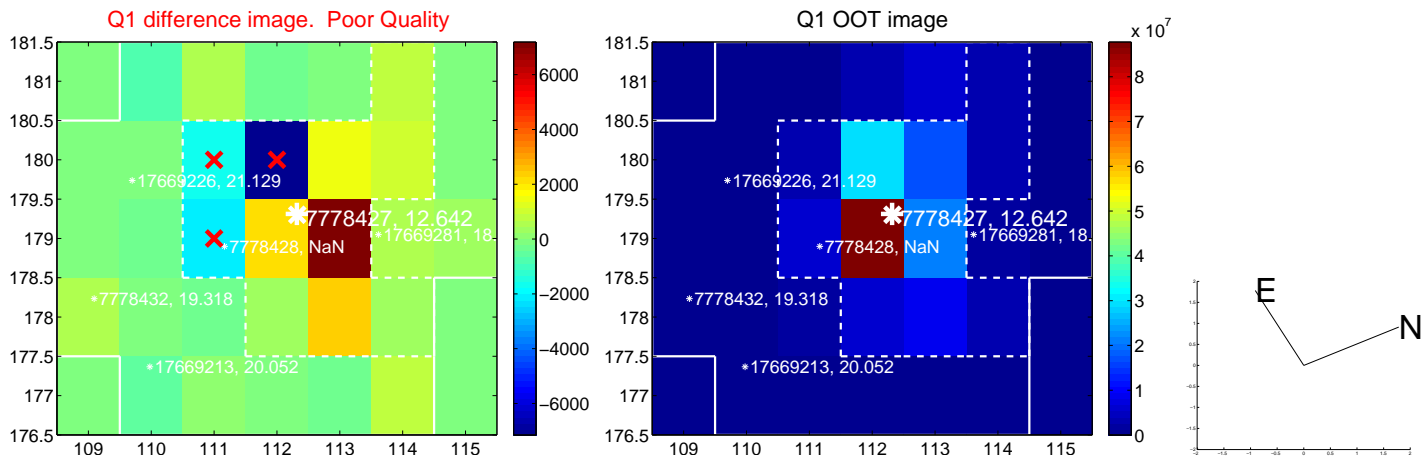
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.143 \pm 0.924$	1.24	$0.307 \pm 0.669$	$-1.101 \pm 0.829$
PRF-fit source offset from KIC position	$1.163 \pm 0.821$	1.42	$0.228 \pm 0.807$	$-1.141 \pm 0.728$
photometric centroid source offset	$1.45 \pm 1.21$	1.20	$-1.44 \pm 1.21$	$0.23 \pm 1.00$

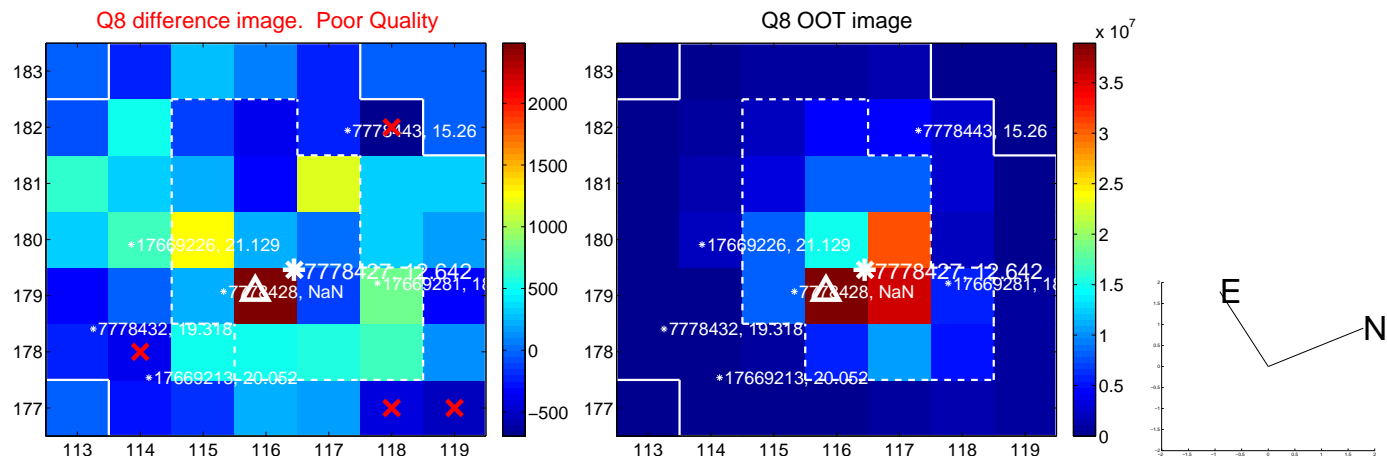
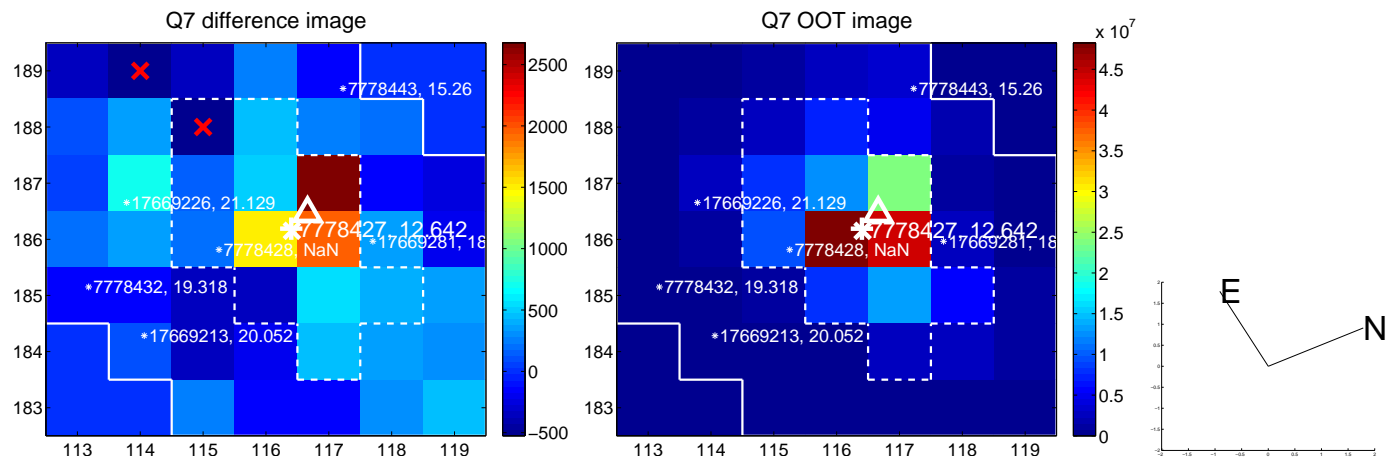
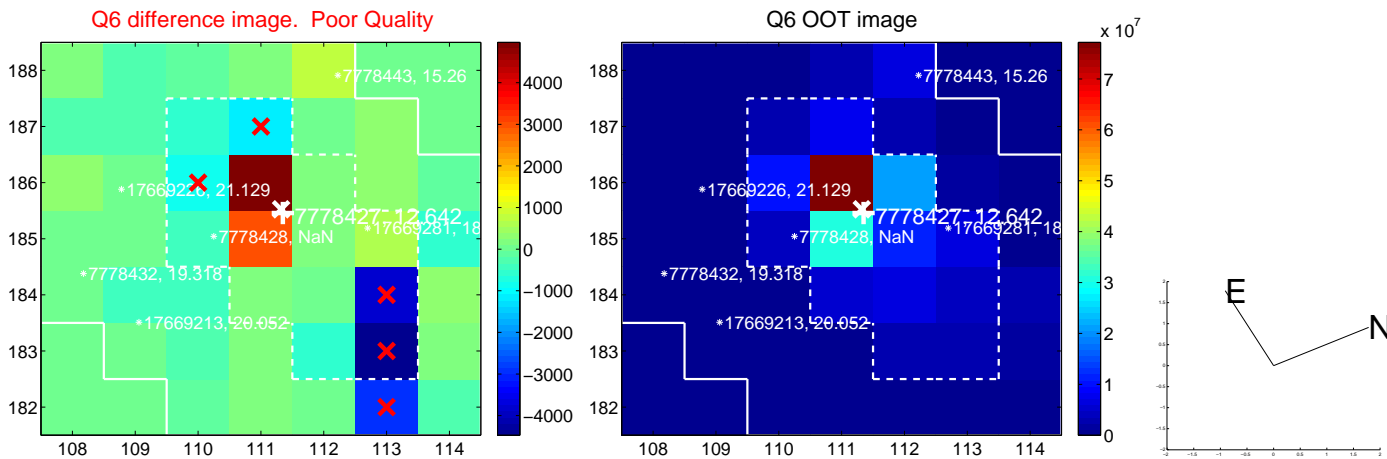
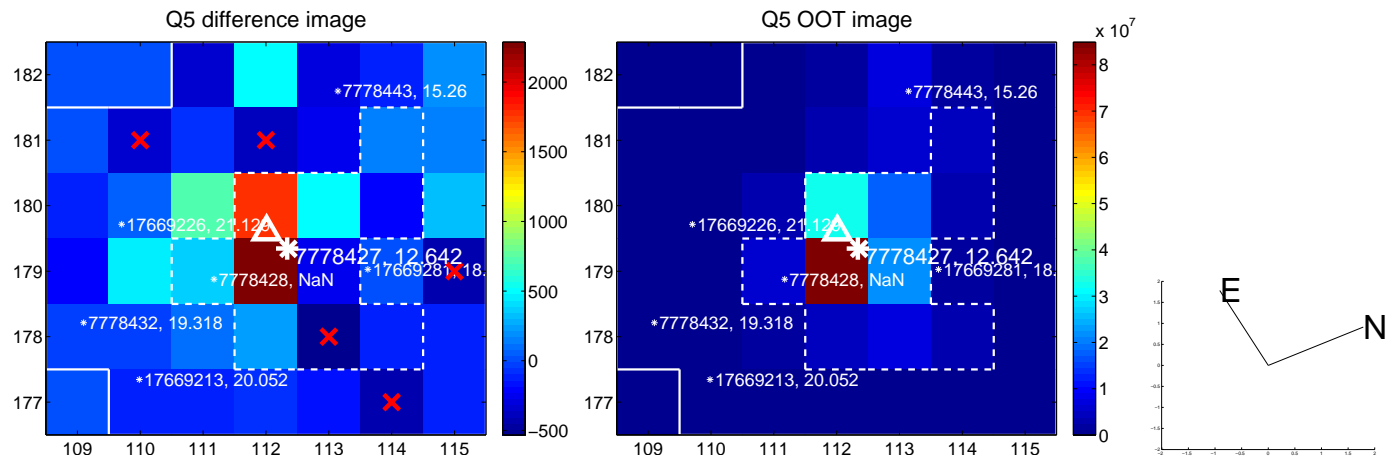


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

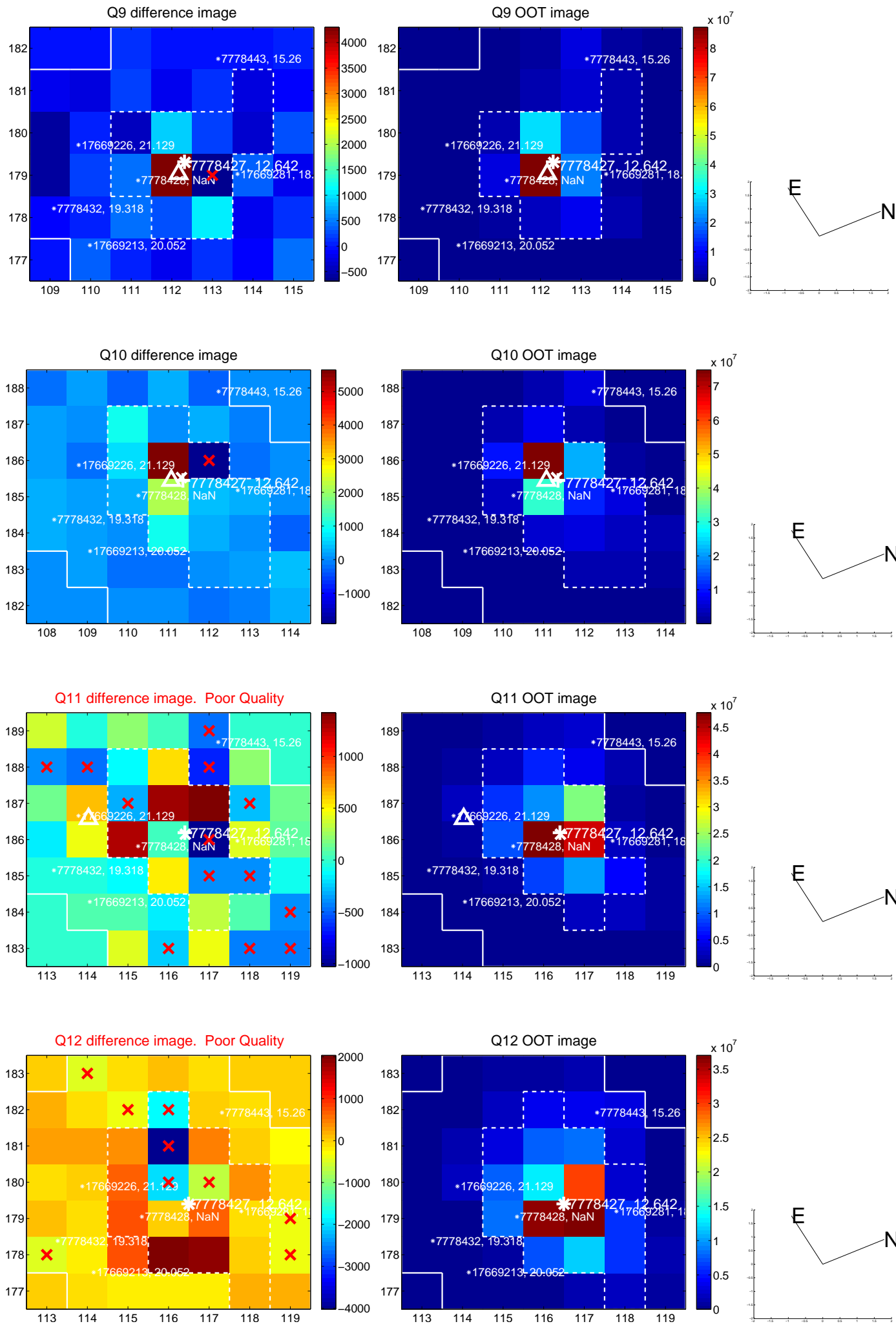


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

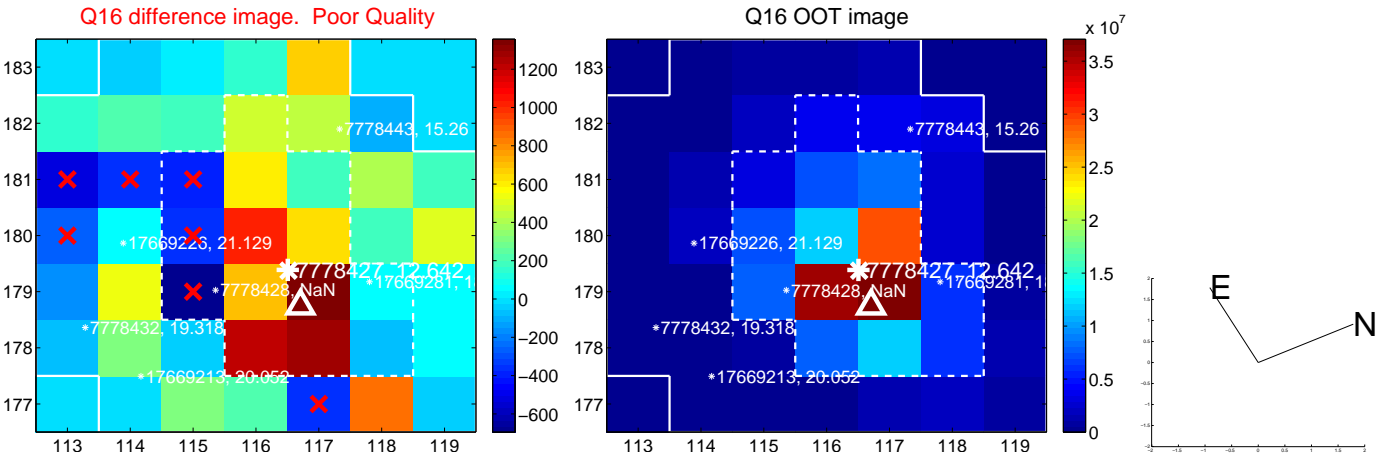
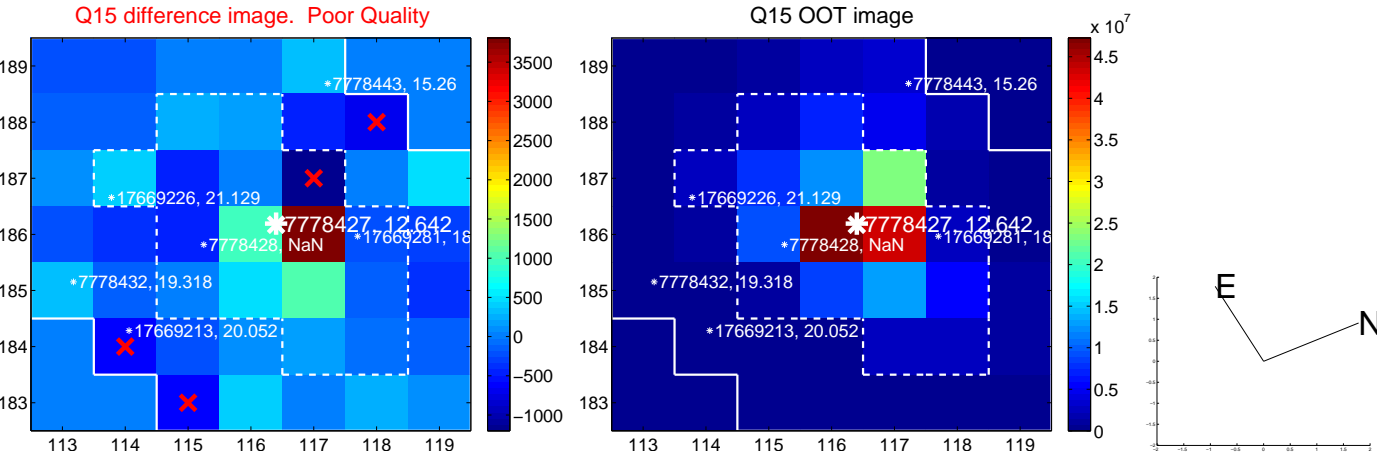
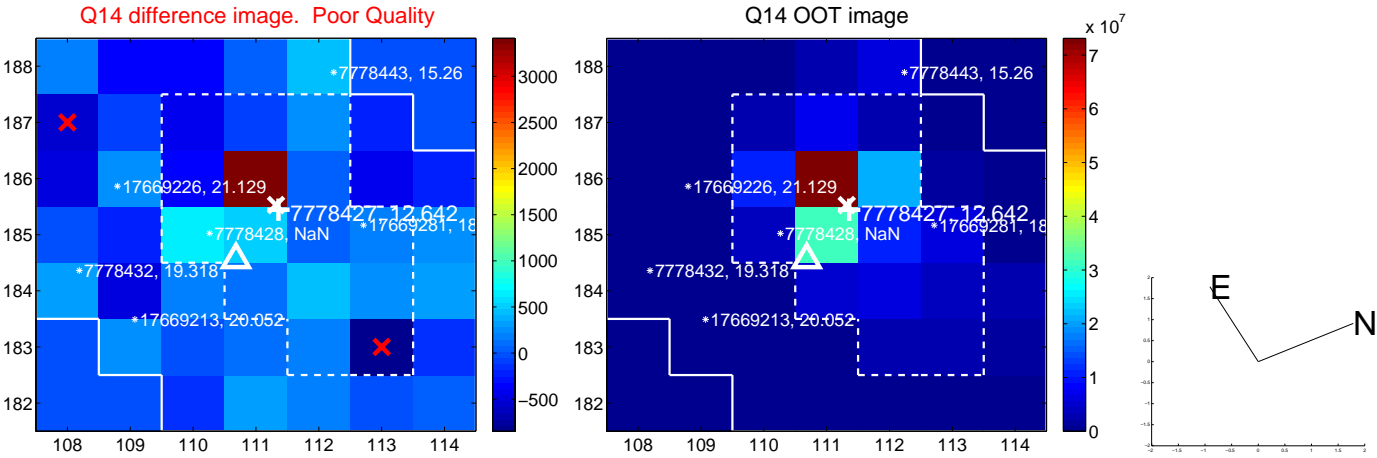
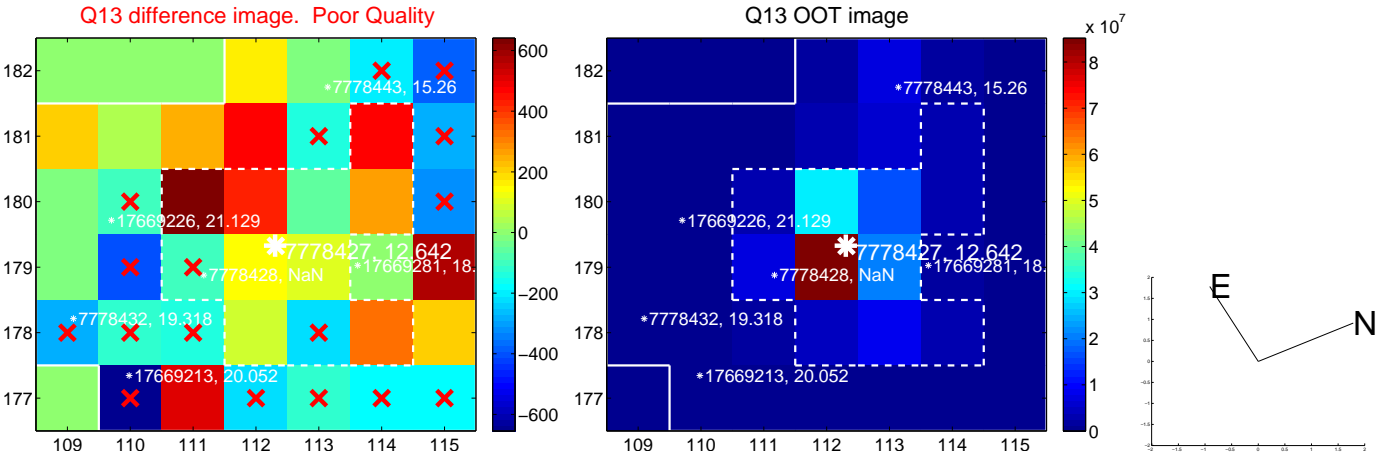




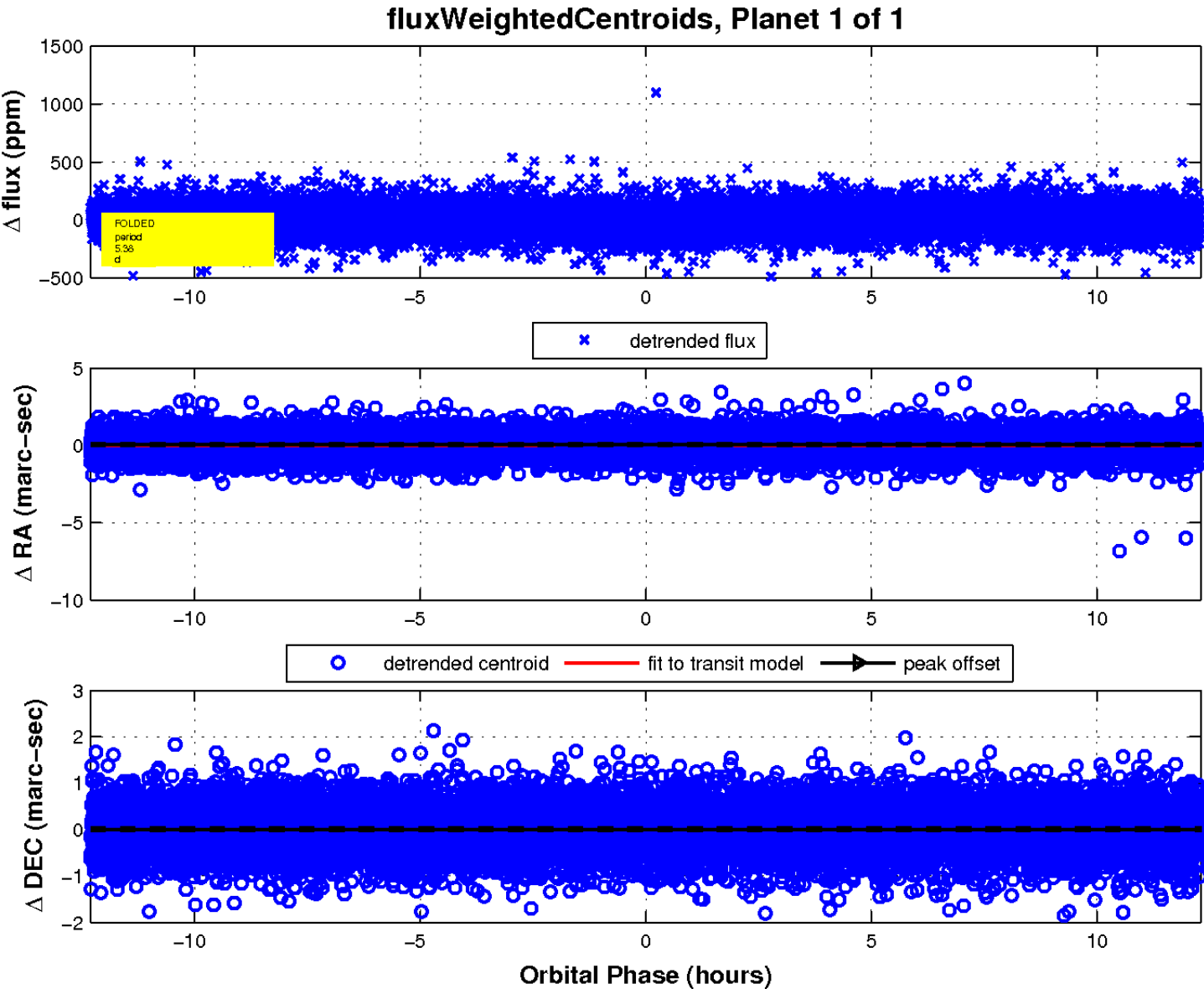
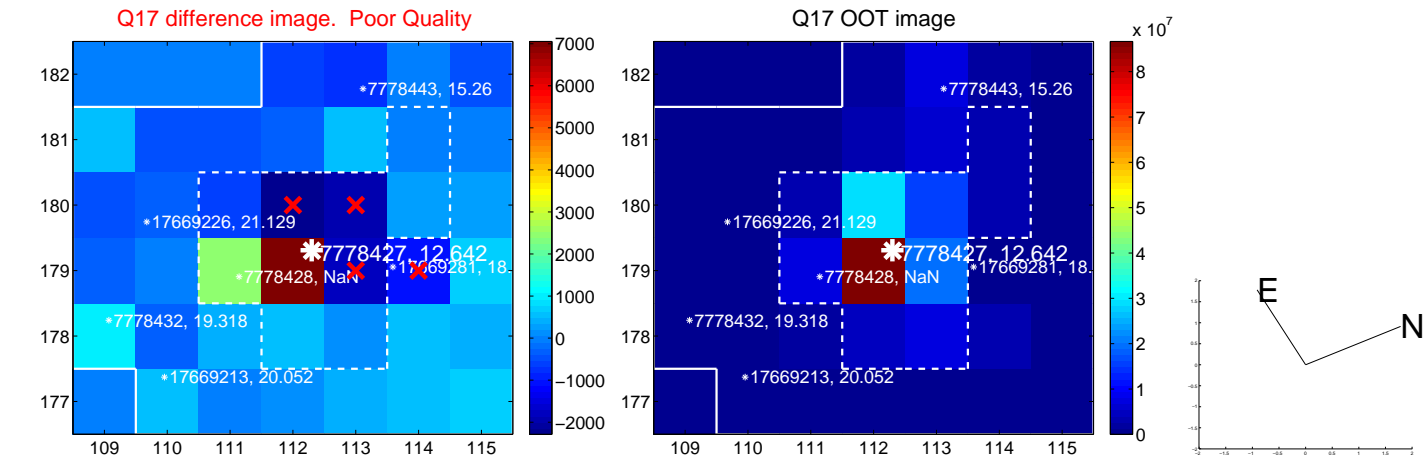
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

