

# KIC 007671081

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007671081-01	OBS	No	1.009459	131.708686	0.2	1.576	187.8	0.0	1.87	7351	0.08	18060.20
007671081-02	OBS	No	0.504615	131.982869	12413.9	1.500	204.2	-1.0	1.87	7351	21.16	45522.62

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007671081-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
007671081-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

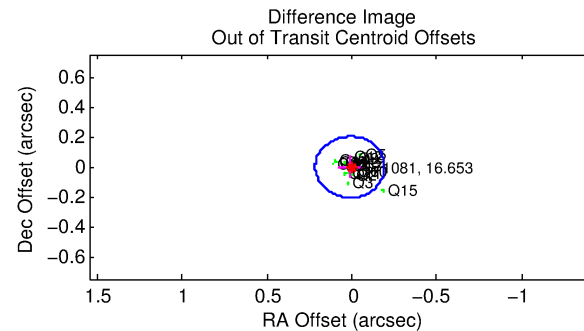
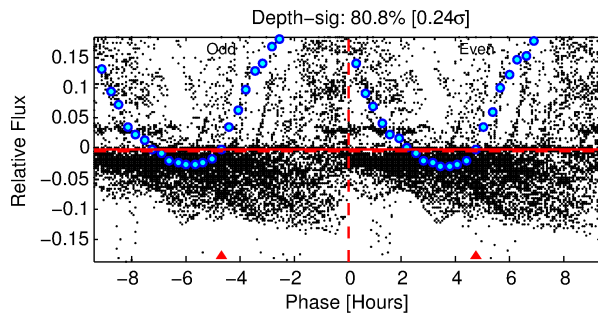
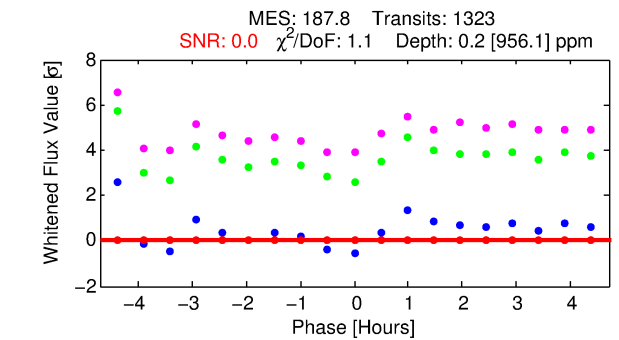
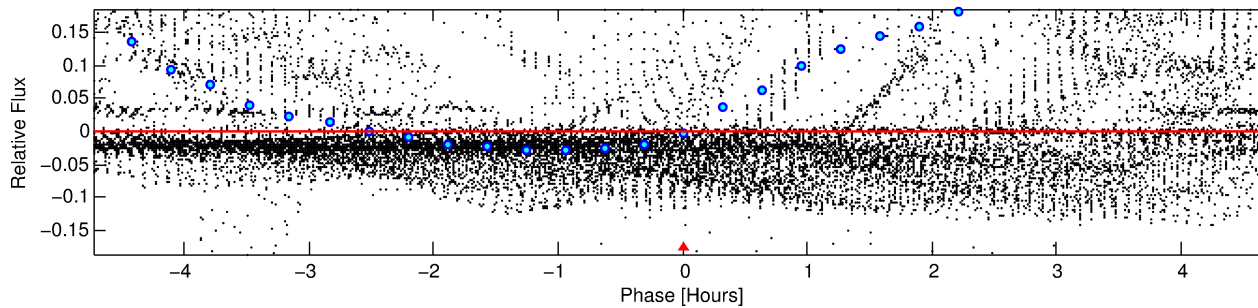
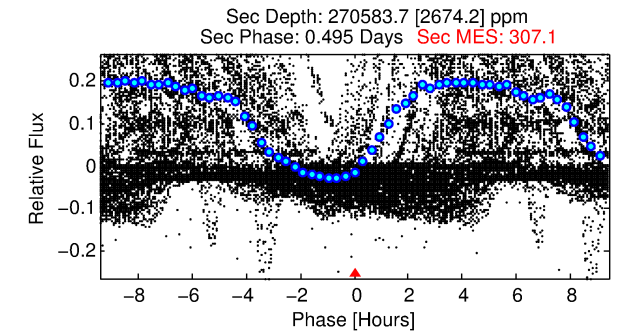
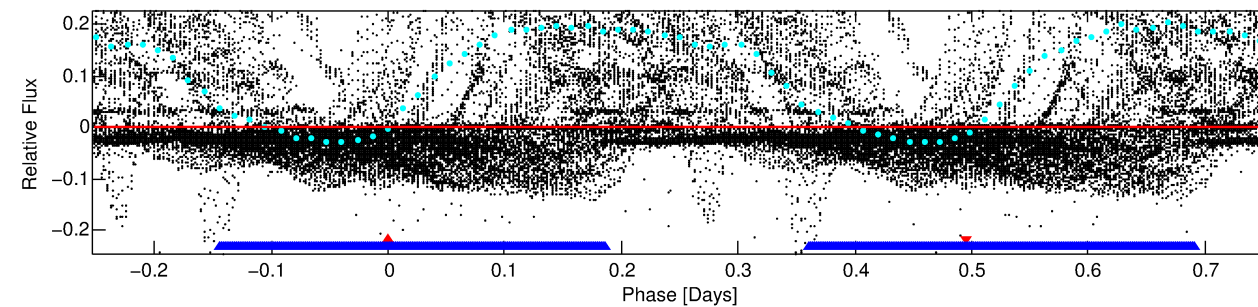
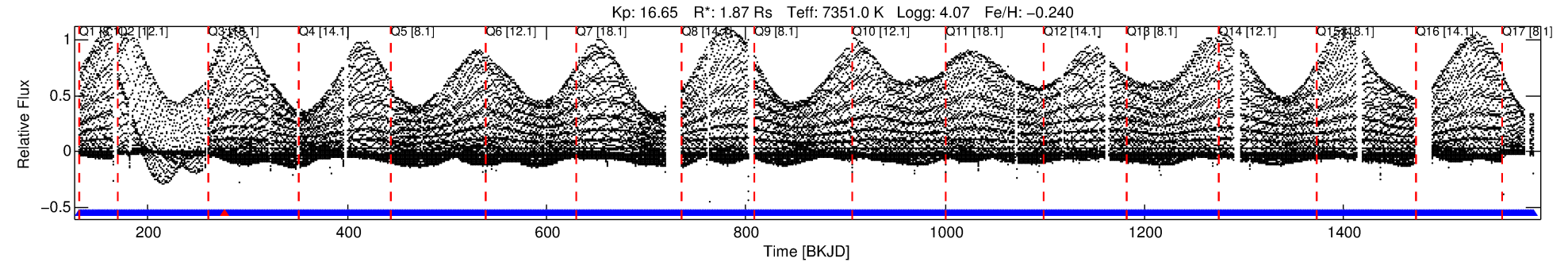
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007671081-01

No Significant Match Found

# DV One-Page Summary

KIC: 7671081 Candidate: 1 of 2 Period: 1.009 d



## DV Fit Results:

Period = 1.00946 [0.39657] d  
Epoch = 131.7087 [42.2249] BKJD  
Rp/R\* = 0.0004 [1.1454]  
a/R\* = 3.53 [2010.32]  
b = 0.71 [431.88]  
Seff = 18060.20 [11642.82]  
Teq = 2956 [476] K  
Rp = 0.08 [233.73] Re  
a = 0.0225 [0.0078] AU  
Ag = 10802460.64 [60436573655.73] [0.00σ]  
Teffp = 262016 [366497314] K [0.00σ]

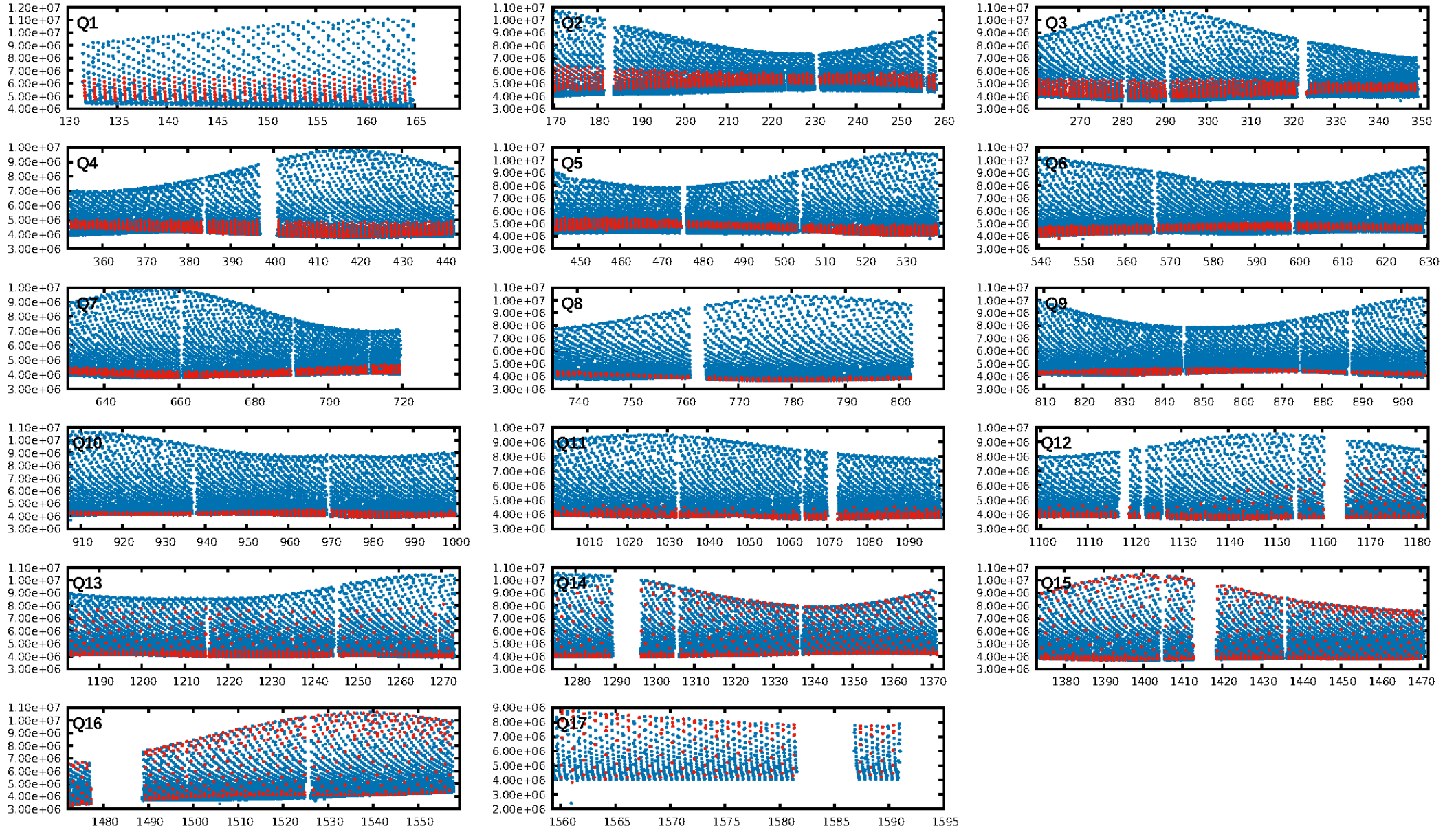
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.57σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1262/1263]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
QotOffset-rm: 0.013 arcsec [0.19σ]  
KicOffset-rm: 0.076 arcsec [1.09σ]  
QotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.88 [15/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:08:05 Z

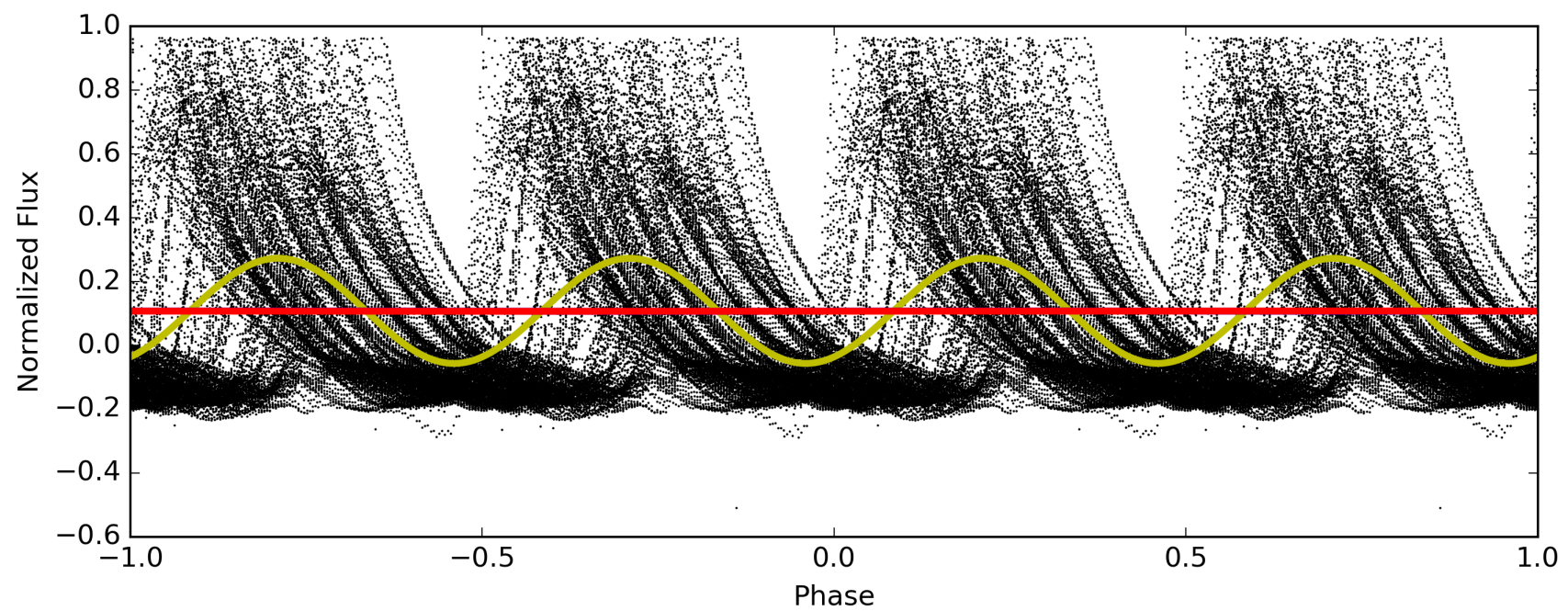
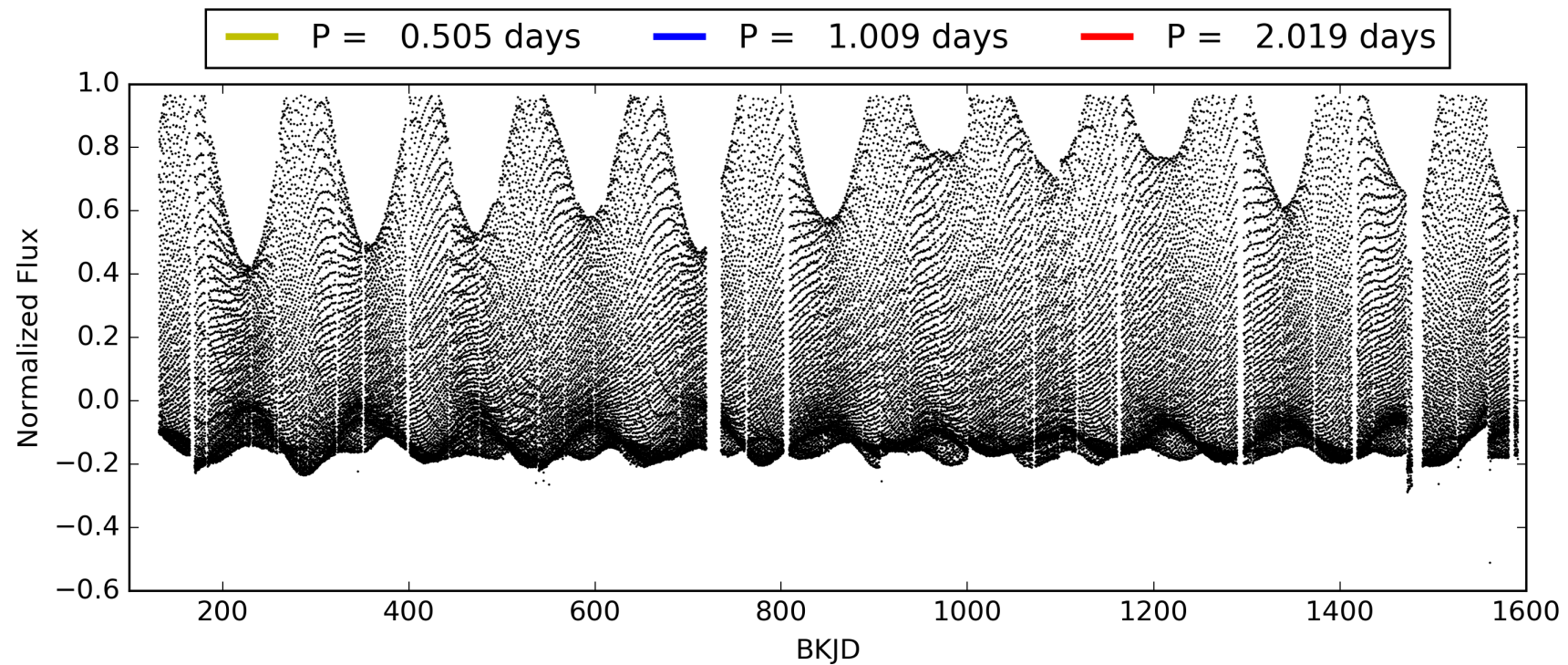
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007671081-01, PDC Light Curves



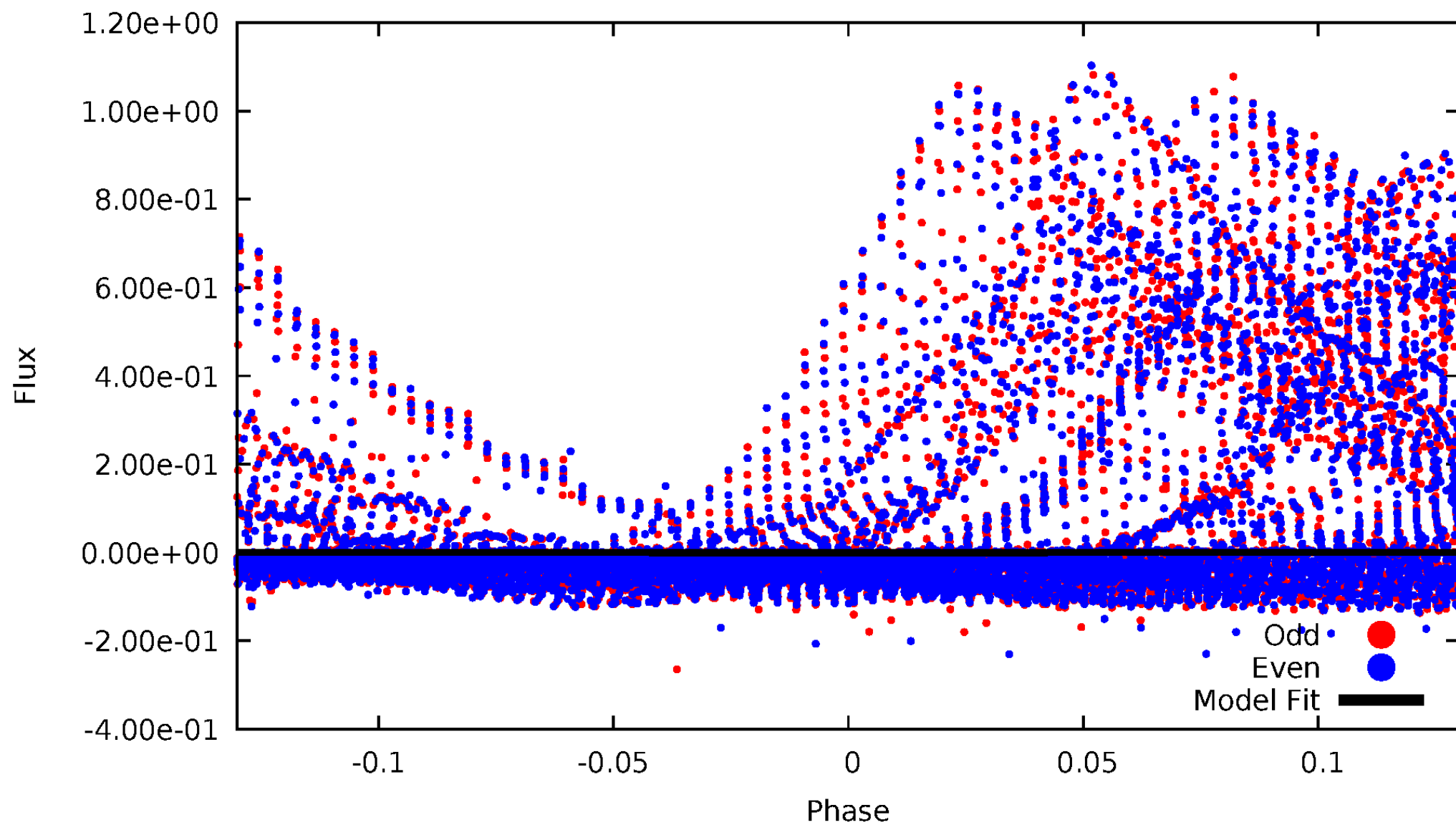


TCE 007671081-01



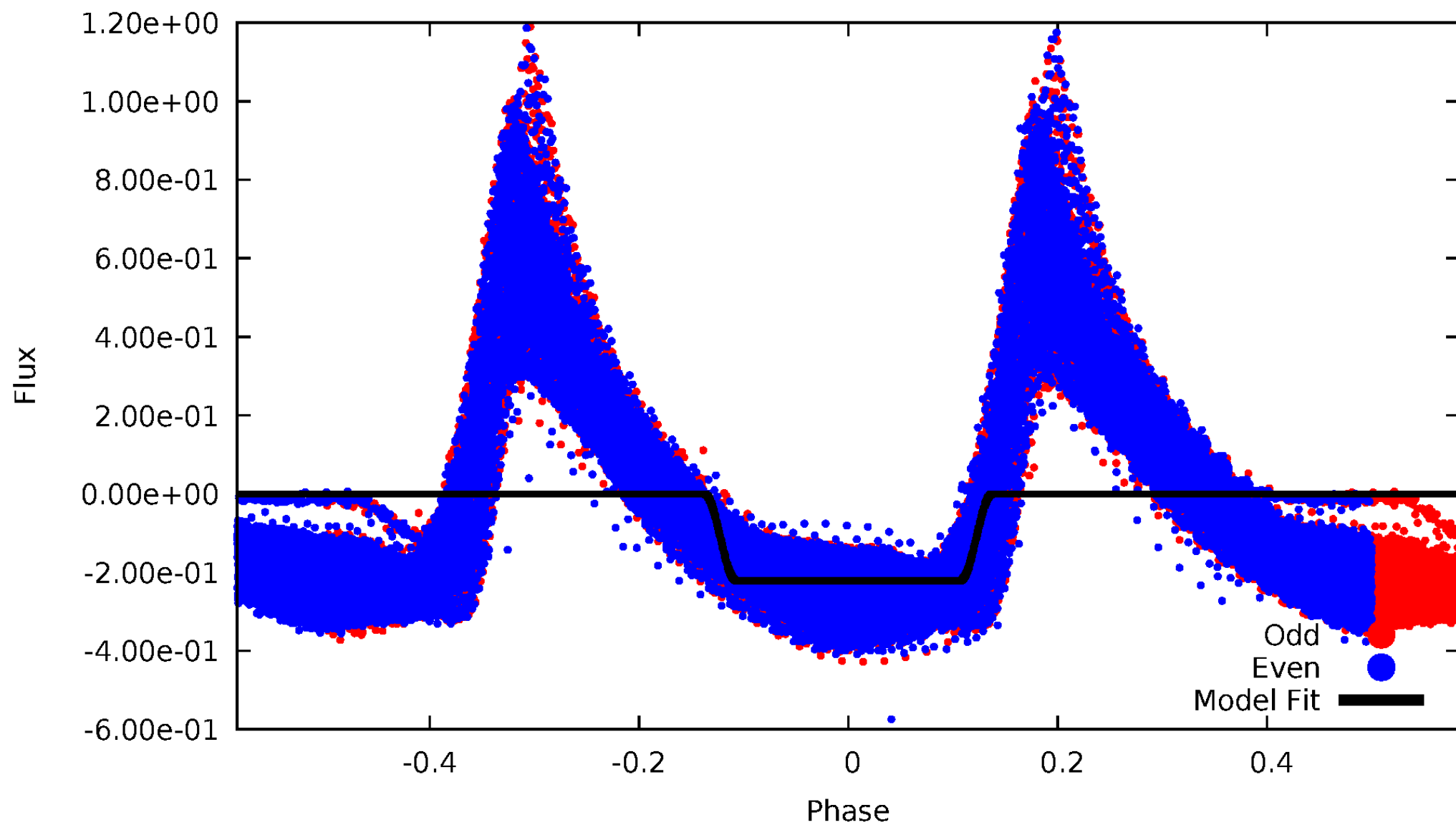
# DV Odd/Even

TCE 007671081-01



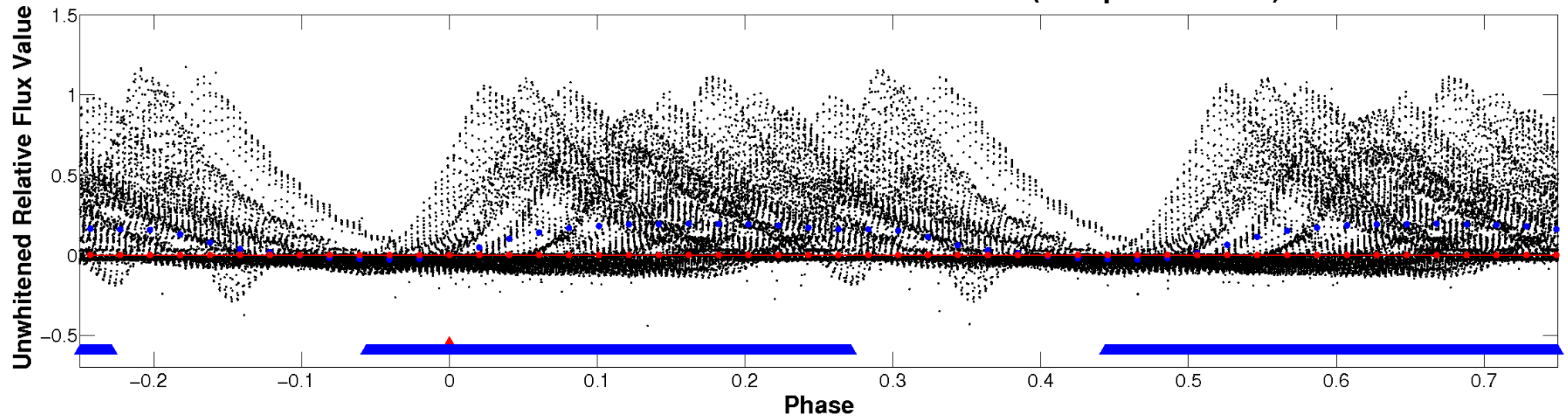
# ALT Odd/Even

TCE 007671081-01

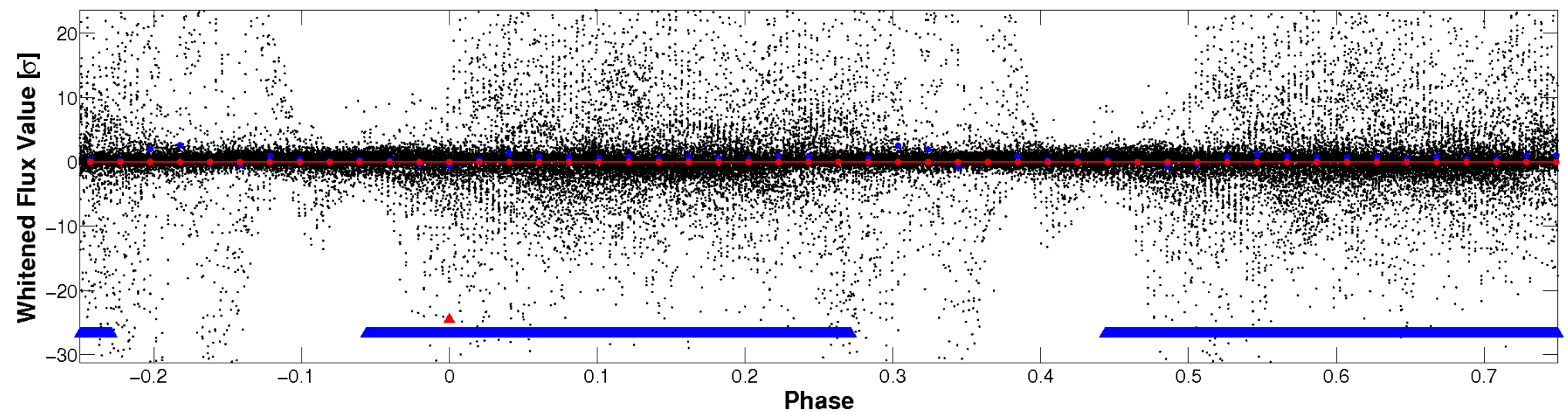


# Non-Whitened Vs. Whitened Light Curve

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

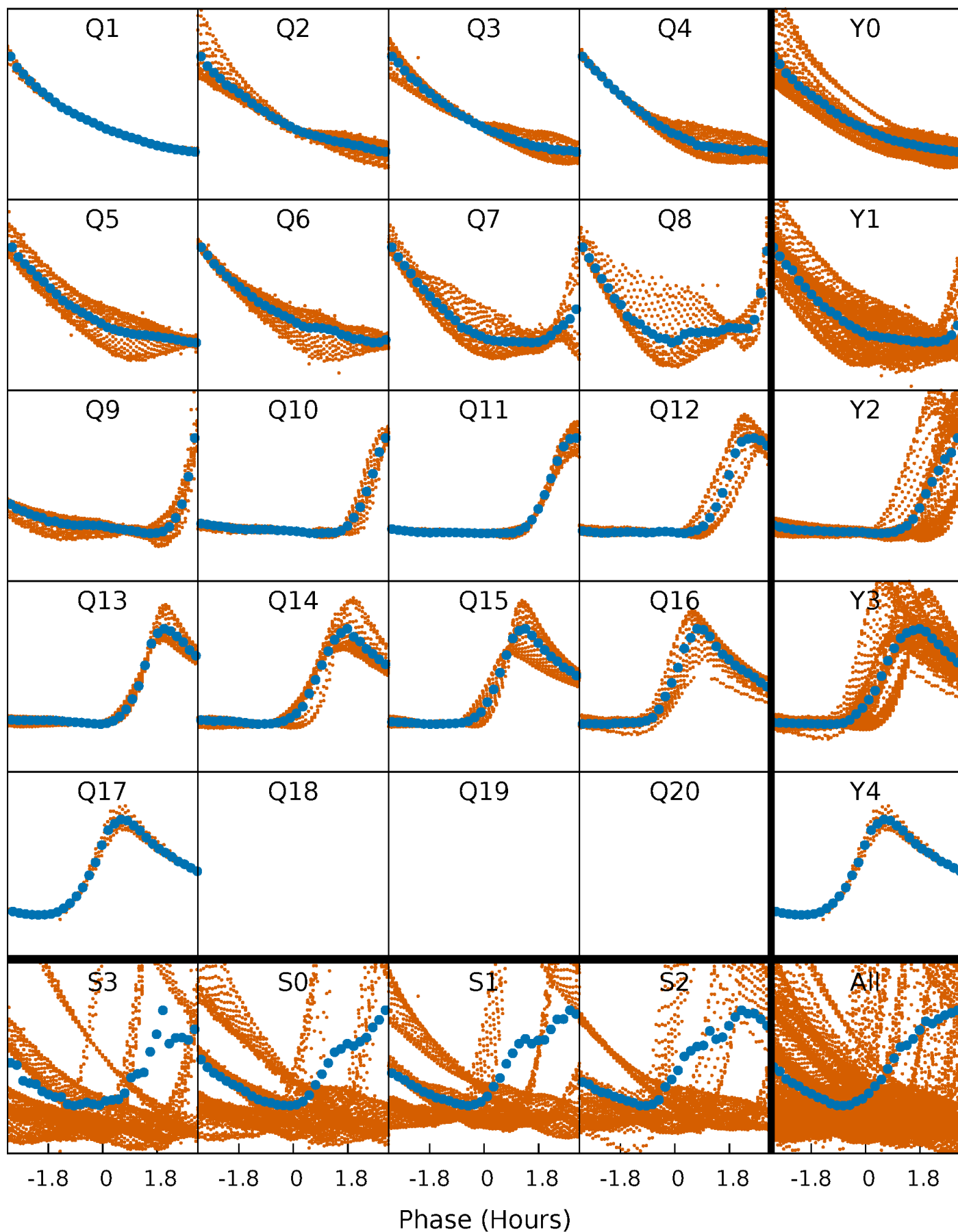


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

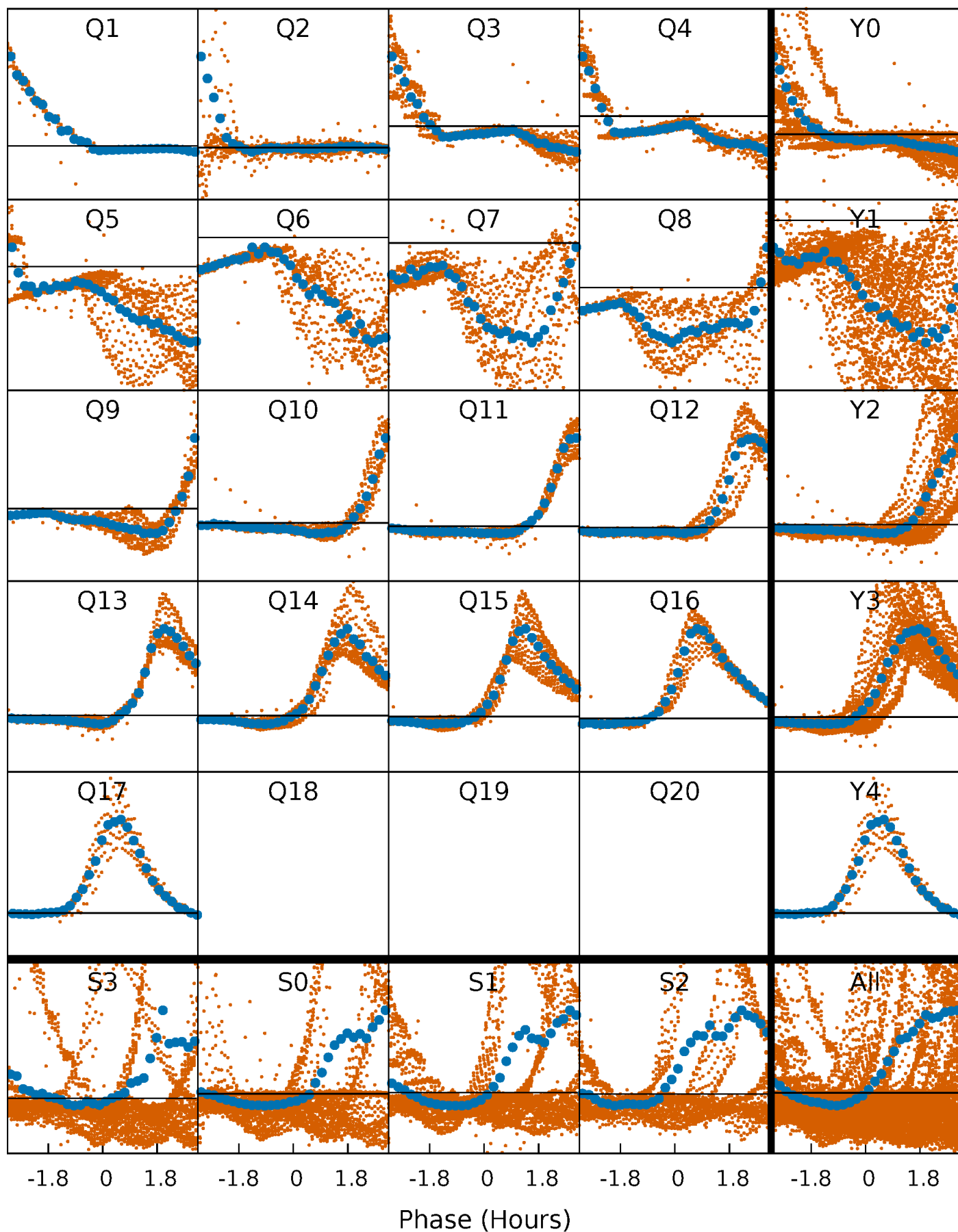
TCE 007671081-01 P= 1.009459 Days  $T_0=131.708686$  (BKJD)





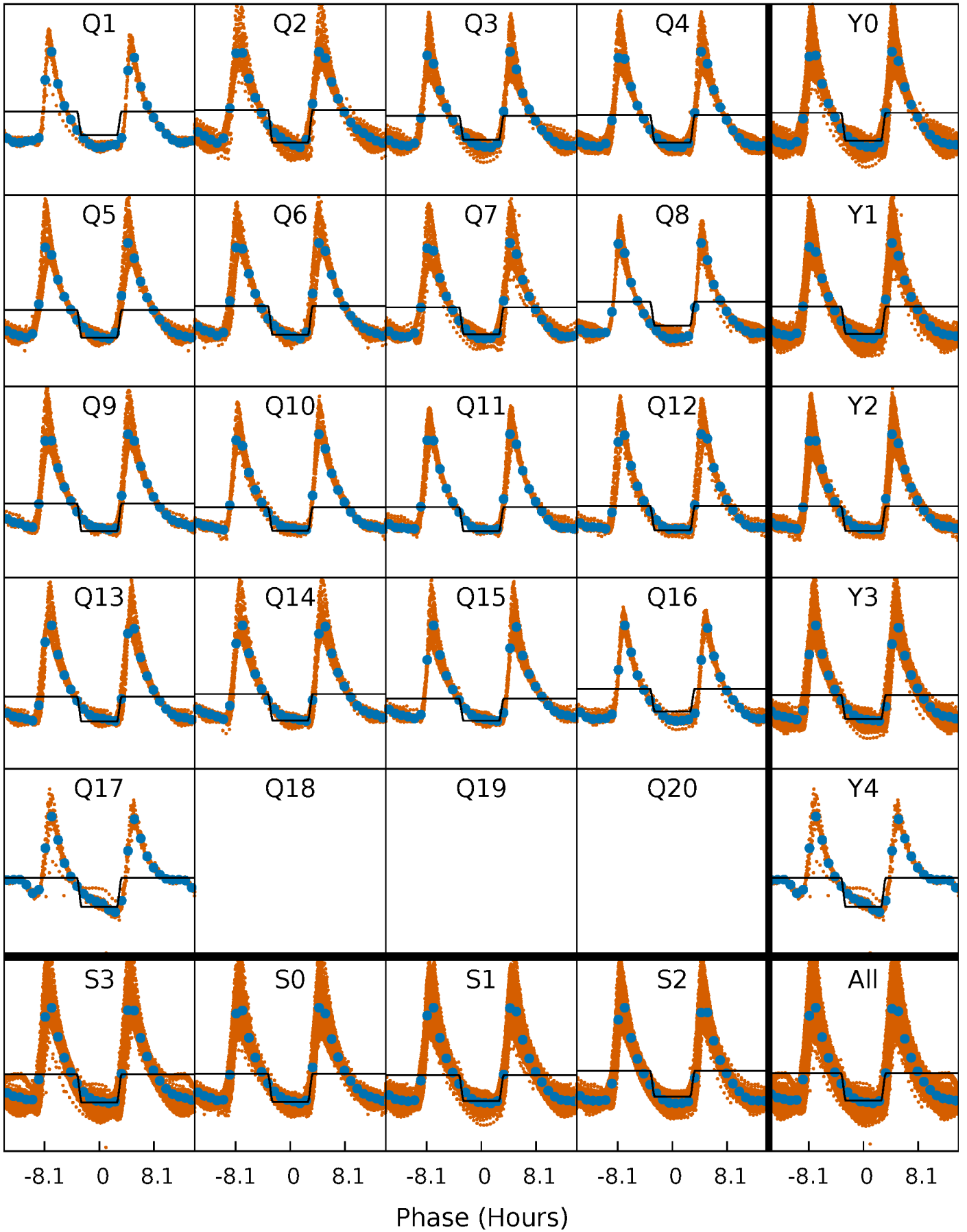
# DV Quarter-Phased Transit Curves

TCE 007671081-01 P= 1.009459 Days  $T_0=131.708686$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

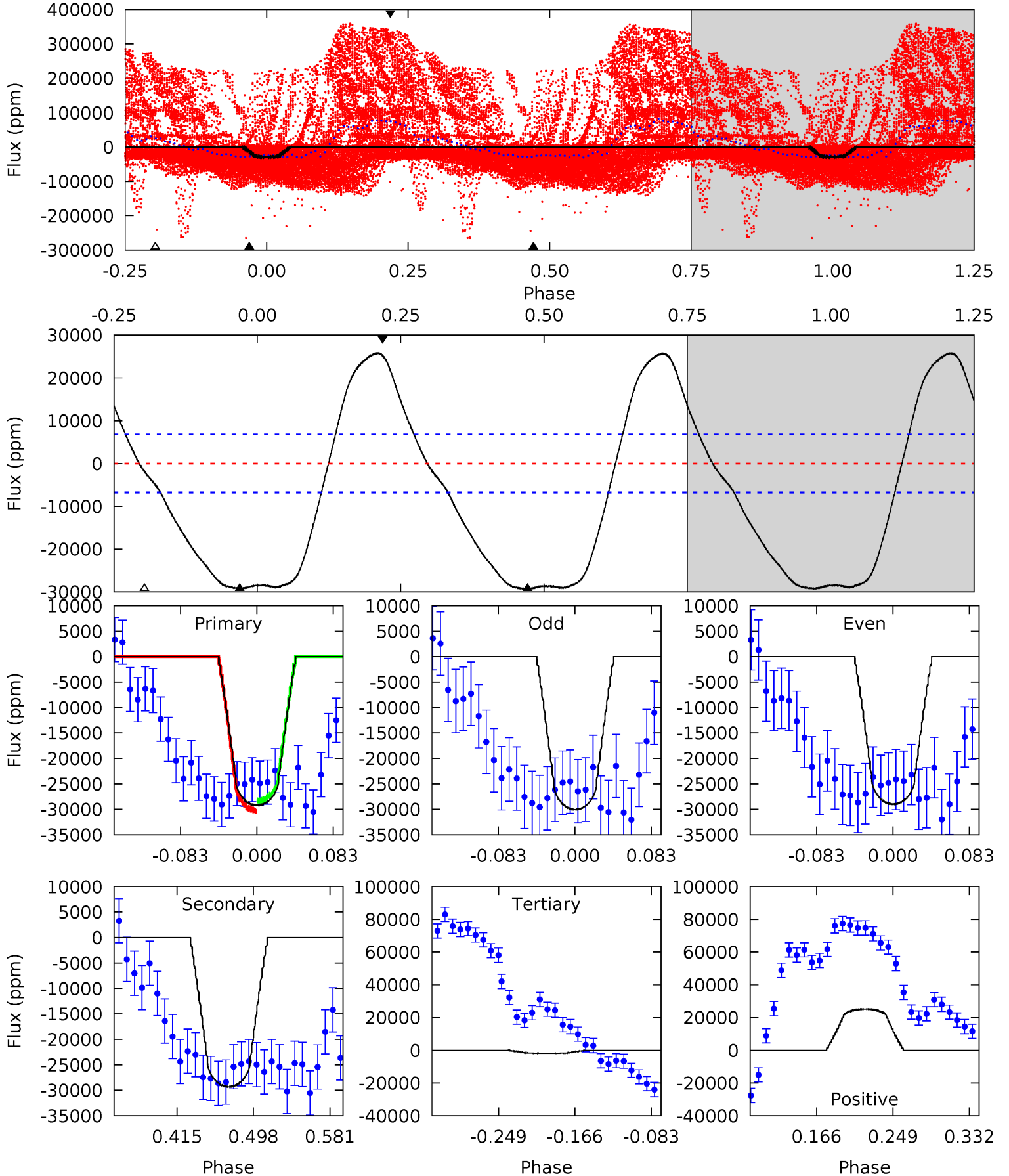
TCE 007671081-01   P= 1.009225 Days    $T_0=131.859562$  (BKJD)



# DV Model-Shift Uniqueness Test

007671081-01, P = 1.009459 Days, E = 130.699227 Days

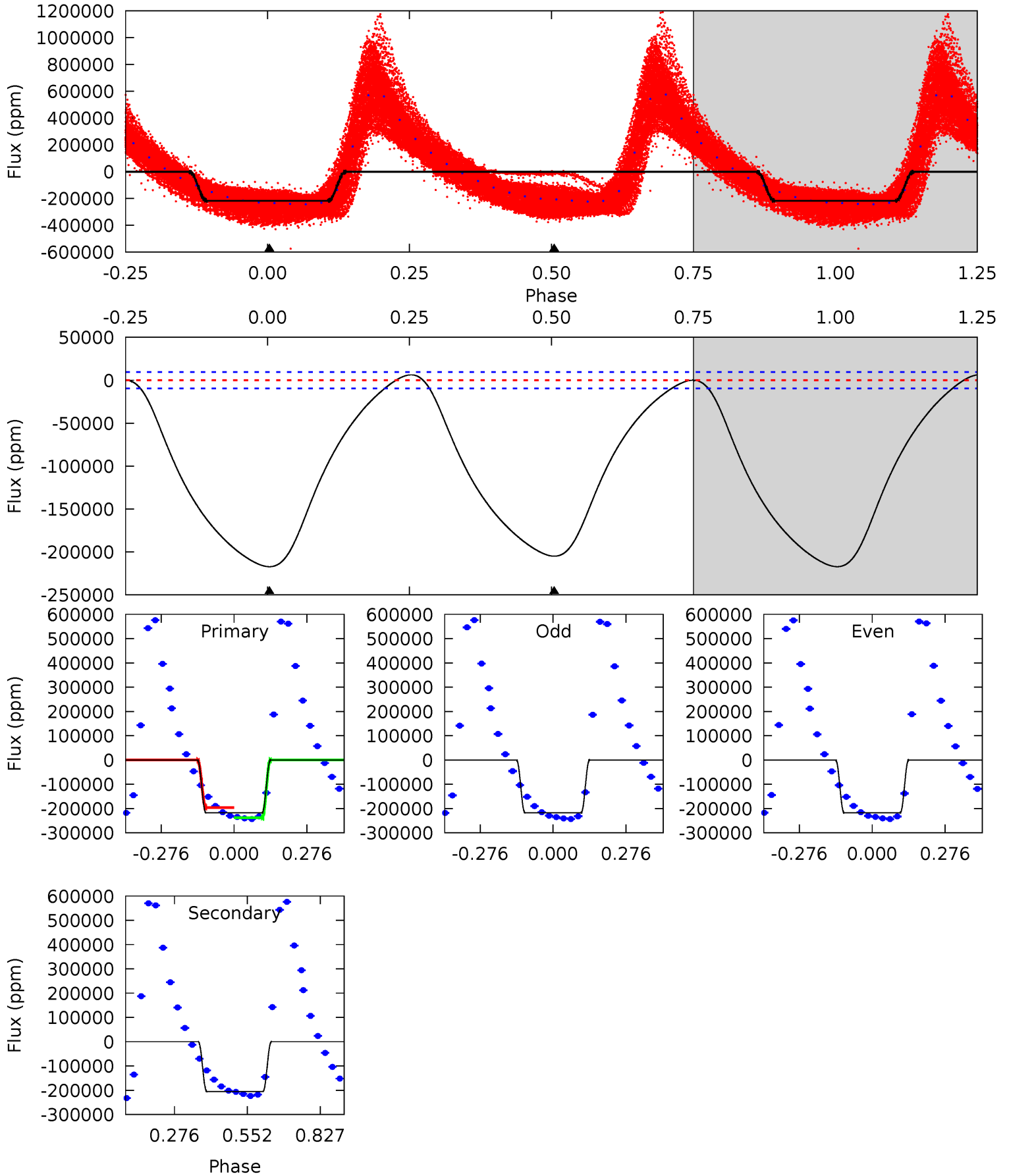
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.8	19.9	1.26	17.1	4.60	1.73	11.2	18.5	2.71	18.6	2.78	0.38	-0.45	0.47	0.62



# Alt Model-Shift Uniqueness Test

007671081-01, P = 1.009225 Days, E = 130.850337 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
98.9	93.3	0	0	4.35	1.09	1.89	98.9	98.9	93.3	93.3	0.02	1.08	0.03	12.4





### Stellar Parameters For KIC 007671081

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7351^{+230}_{-307}$	$4.068^{+0.185}_{-0.167}$	$-0.240^{+0.250}_{-0.350}$	$1.870^{+0.507}_{-0.507}$	$1.489^{+0.209}_{-0.255}$	$0.321^{+0.382}_{-0.153}$
	+3%/-4%	+5%/-4%	+104%/-146%	+27%/-27%	+14%/-17%	+119%/-48%
Source	KIC0	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 007671081-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-29312 \pm 1475$	$158.86^{+163.89}_{-109.73}$	$4127^{+862}_{-508}$	$2652^{+3155}_{-6488}$	$0.334^{+2.718}_{-0.273}$
Alt.	$-204934 \pm 2196$	$196.98^{+198.39}_{-133.20}$	$4143^{+799}_{-509}$	$5081^{+4688}_{-1968}$	$1.721^{+15.563}_{-1.337}$

$T_{max}$  = 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

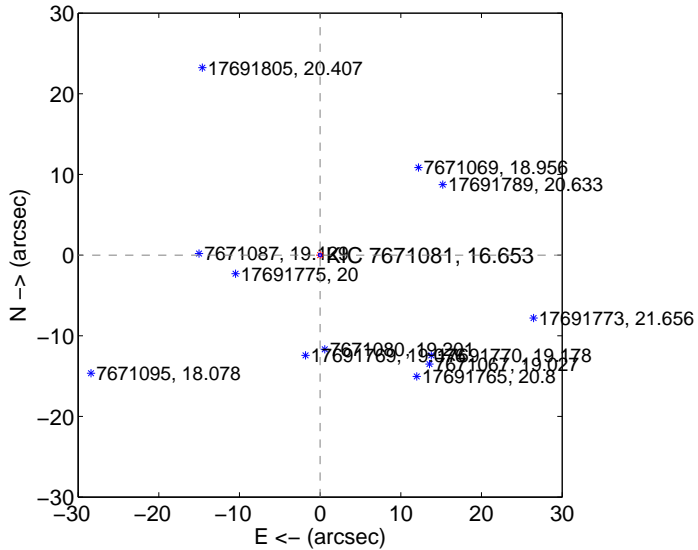
Supplemental centroid analysis for 007671081-01. Kepler magnitude: 16.65. Transit SNR 0.00

There are 15 quarters with good PRF difference image offsets

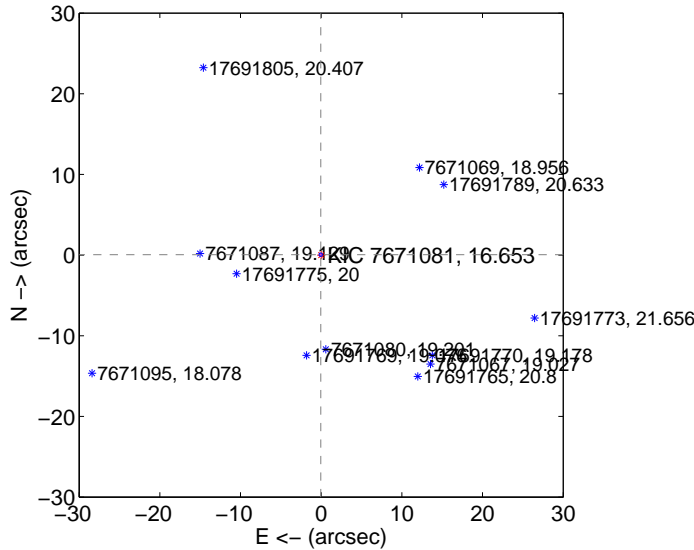
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.013 \pm 0.068$	0.19	$0.012 \pm 0.068$	$-0.003 \pm 0.068$
PRF-fit source offset from KIC position	$0.076 \pm 0.070$	1.09	$0.056 \pm 0.070$	$0.052 \pm 0.069$
photometric centroid source offset	—	—	—	—

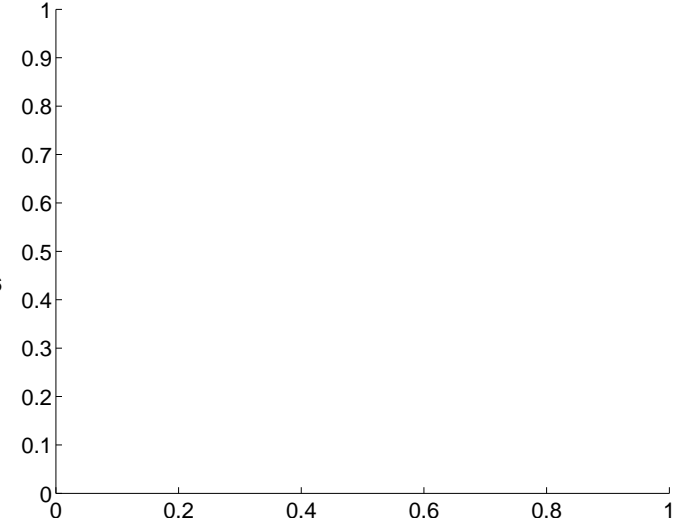
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

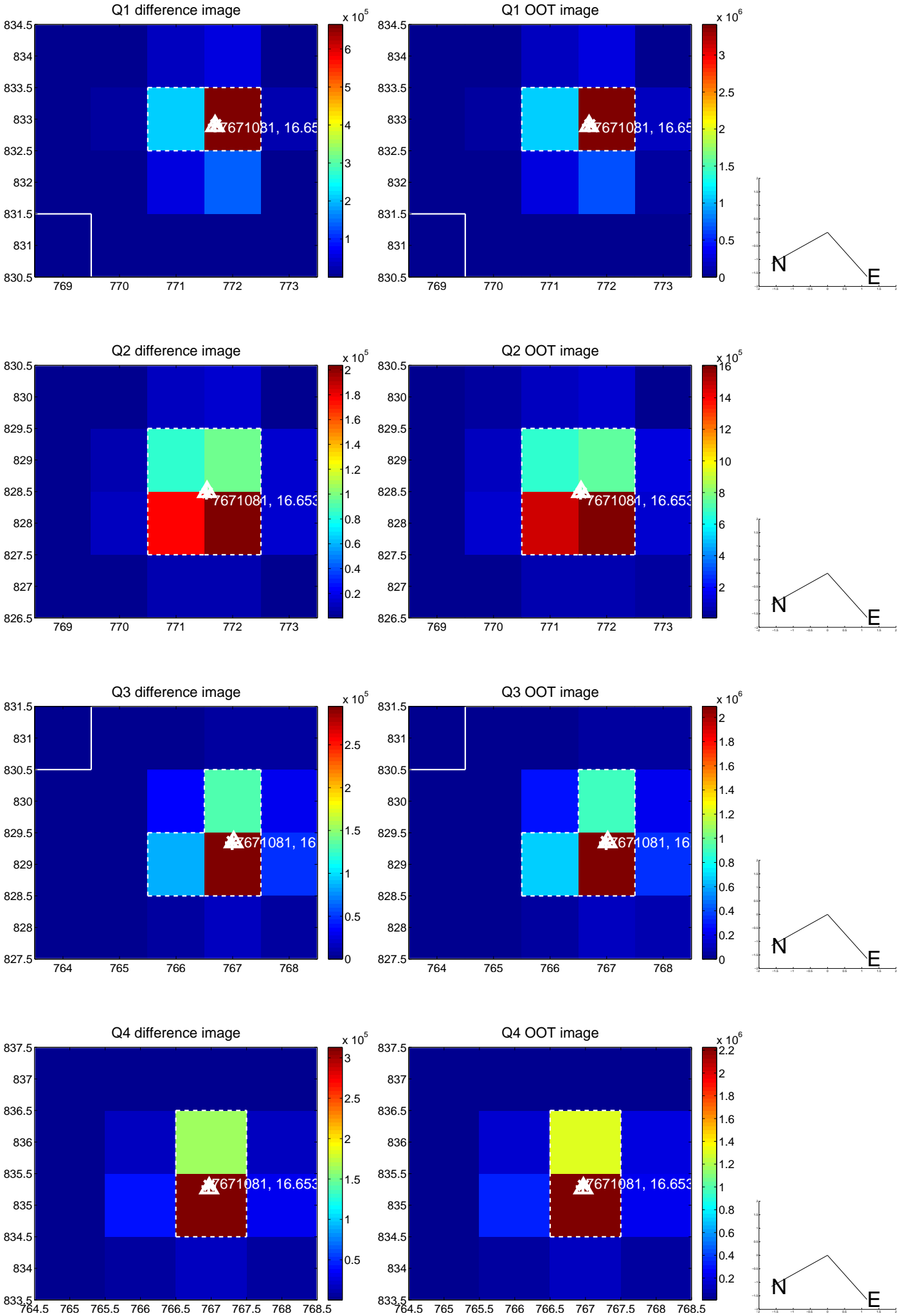


There are no photometric centroids

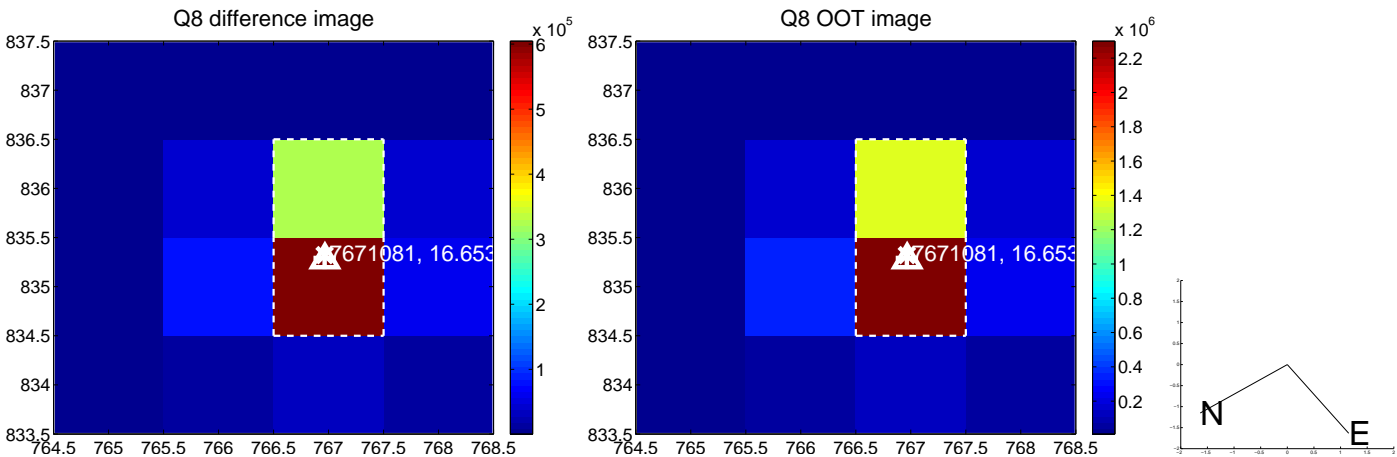
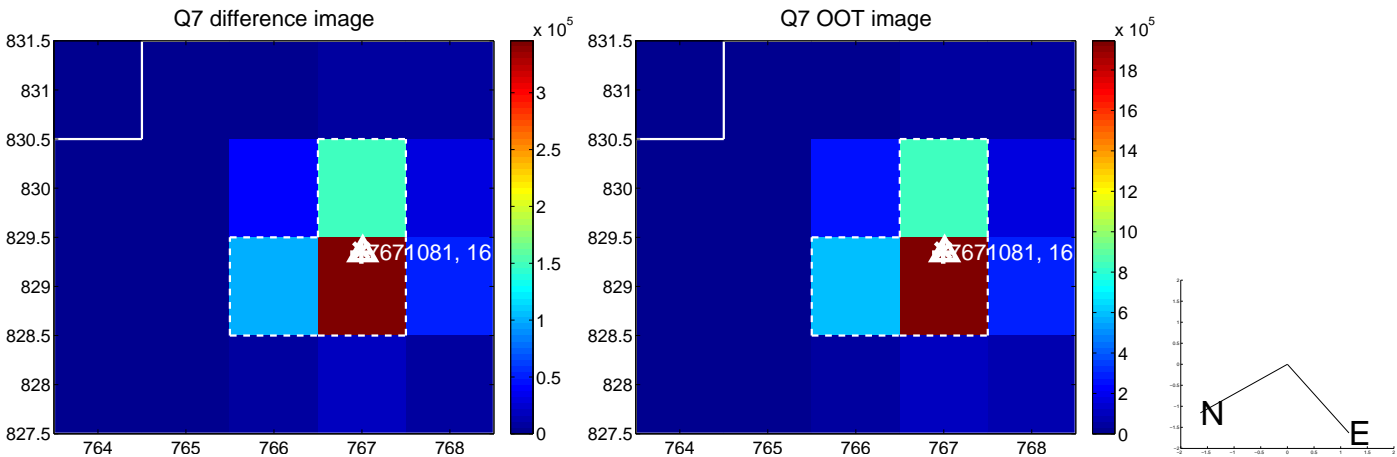
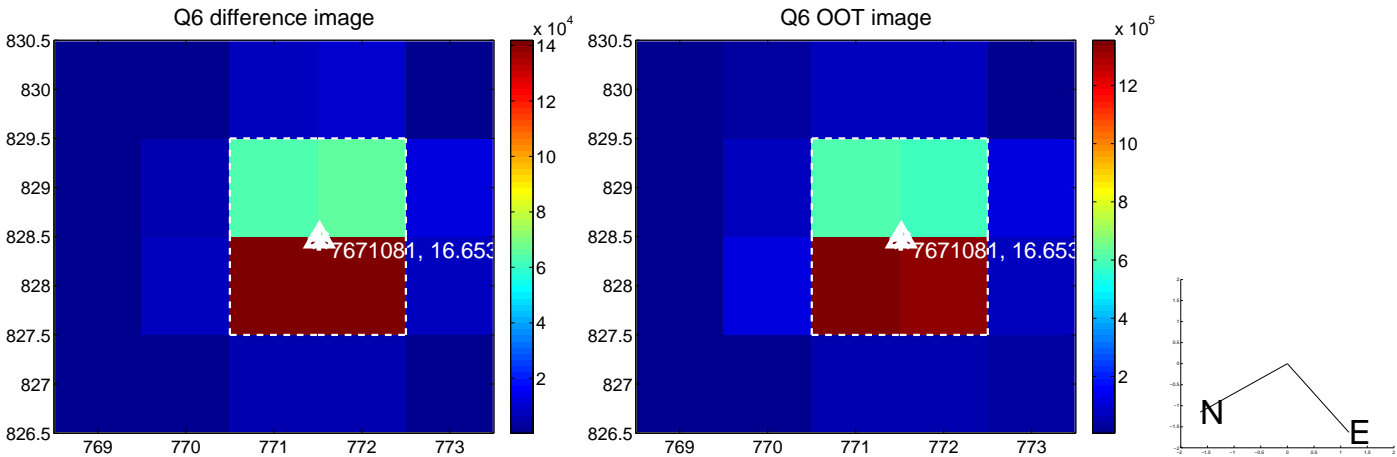
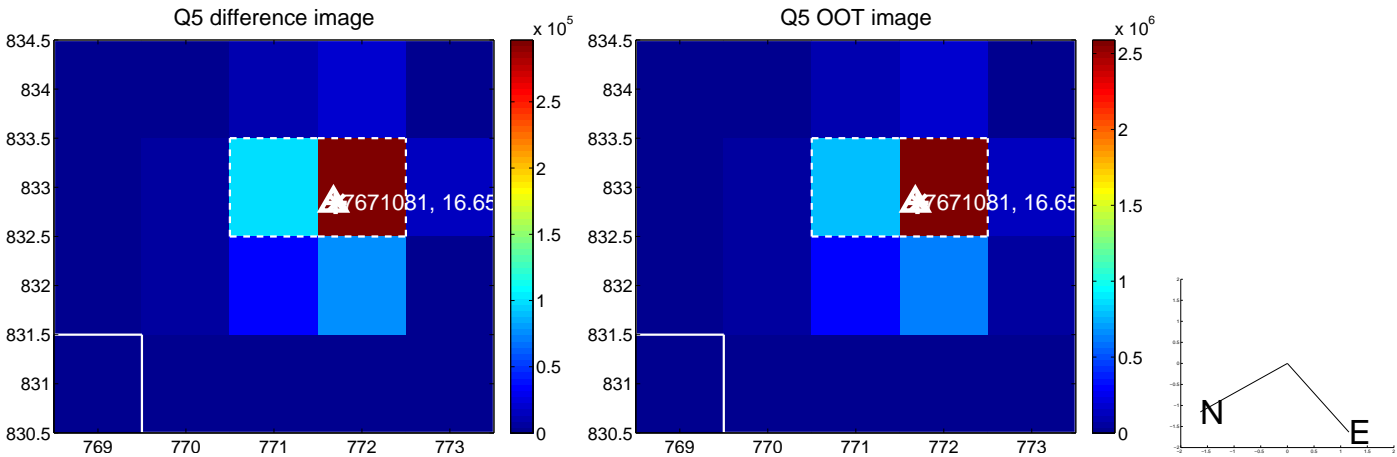


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

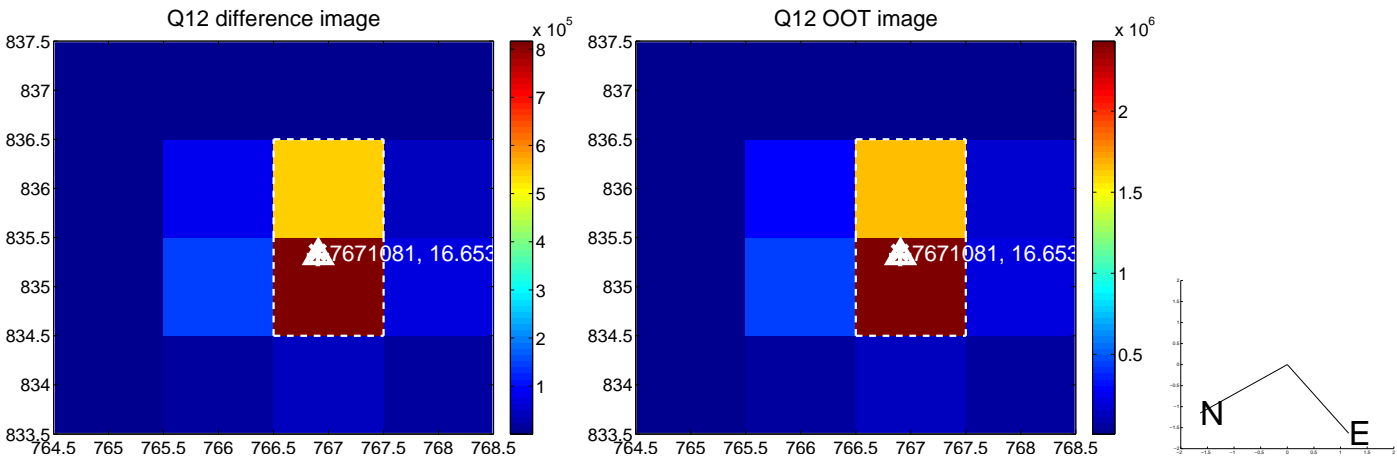
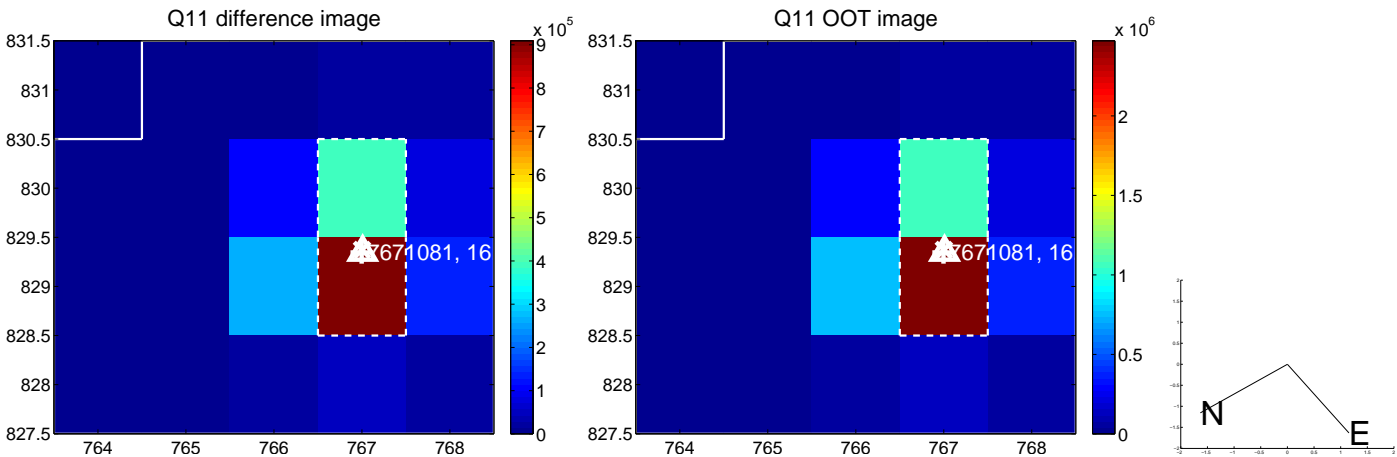
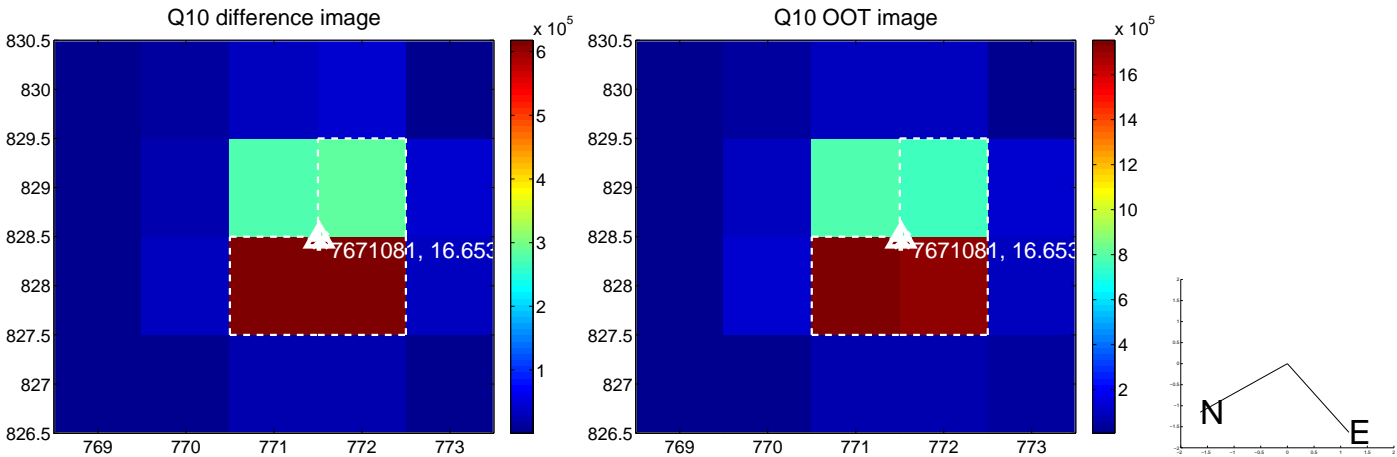
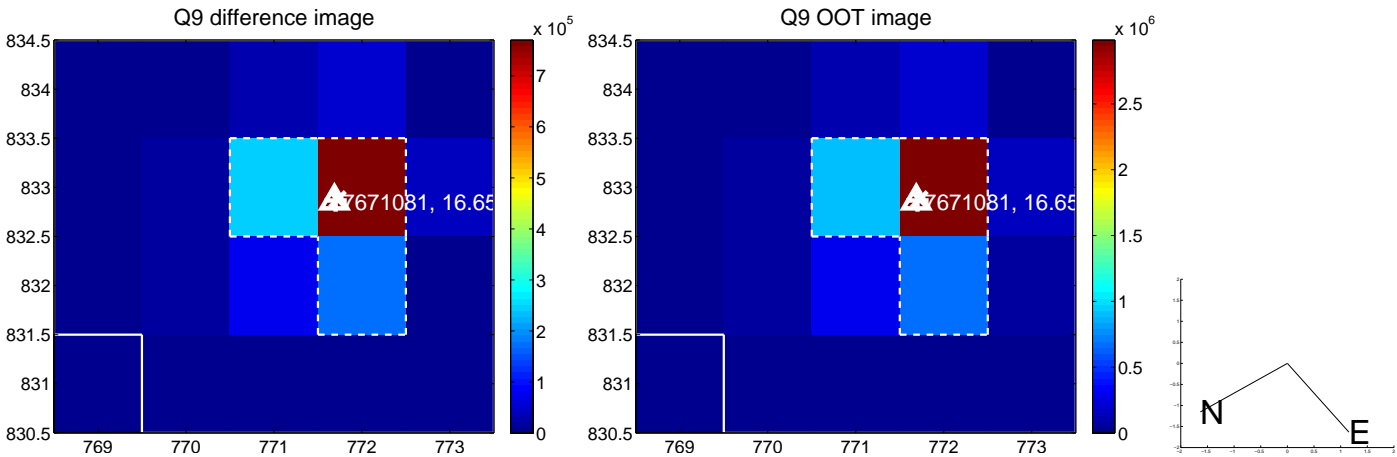


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



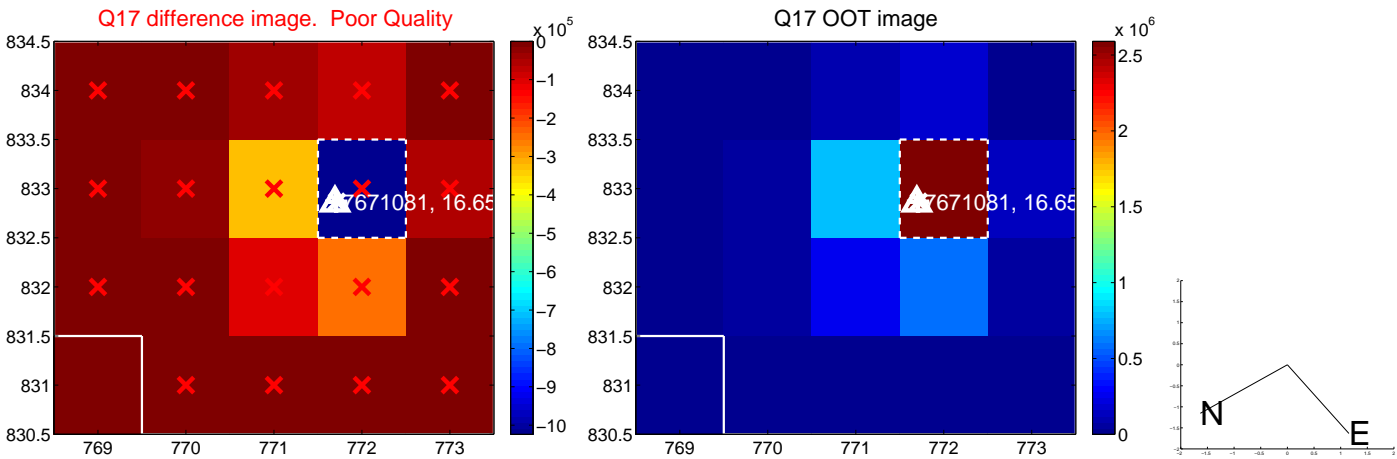


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





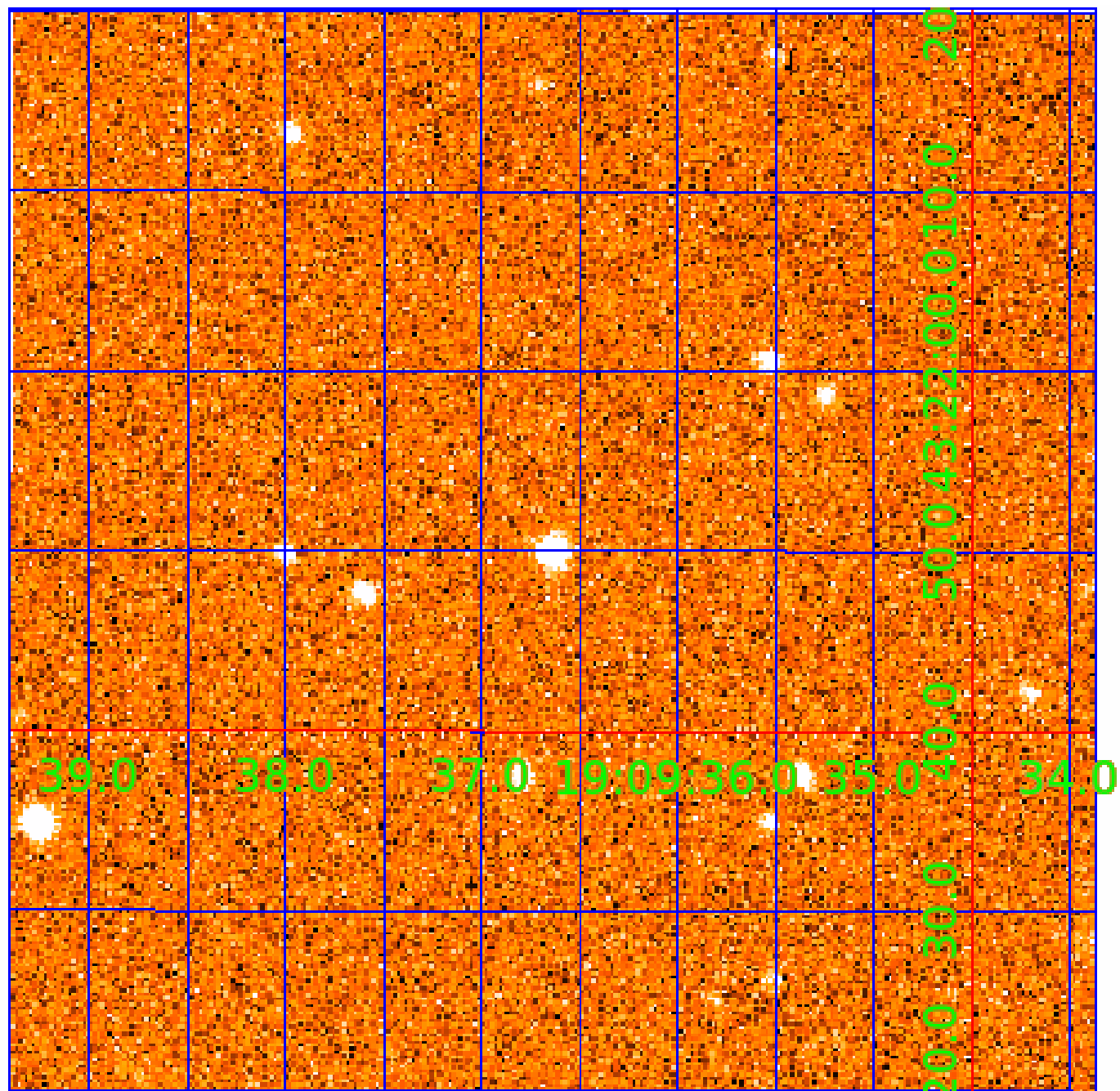
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

# UKIRT Image

Declination





# KIC 007671081

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007671081-01	OBS	No	1.009459	131.708686	0.2	1.576	187.8	0.0	1.87	7351	0.08	18060.20
007671081-02	OBS	No	0.504615	131.982869	12413.9	1.500	204.2	-1.0	1.87	7351	21.16	45522.62

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007671081-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
007671081-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

**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.

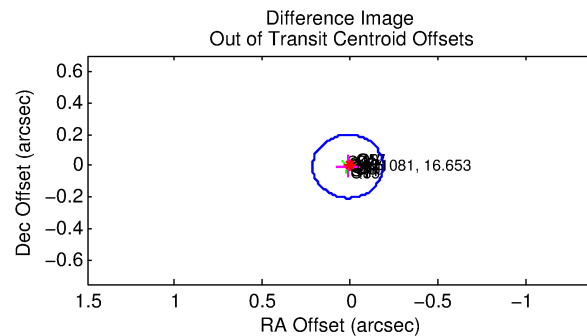
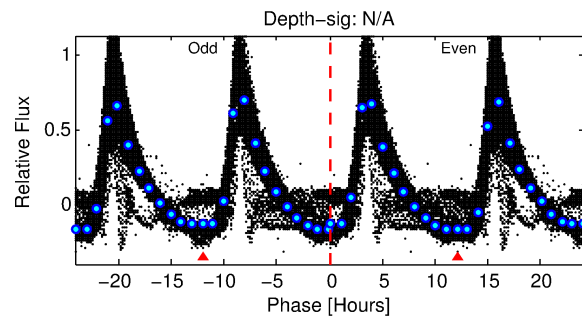
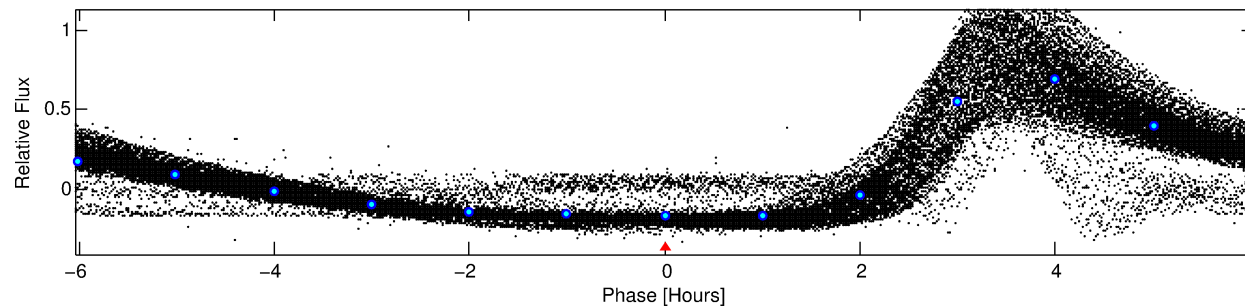
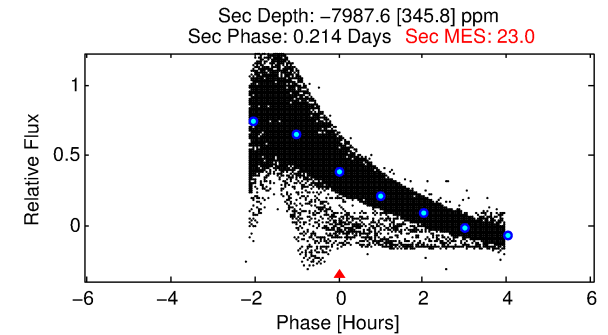
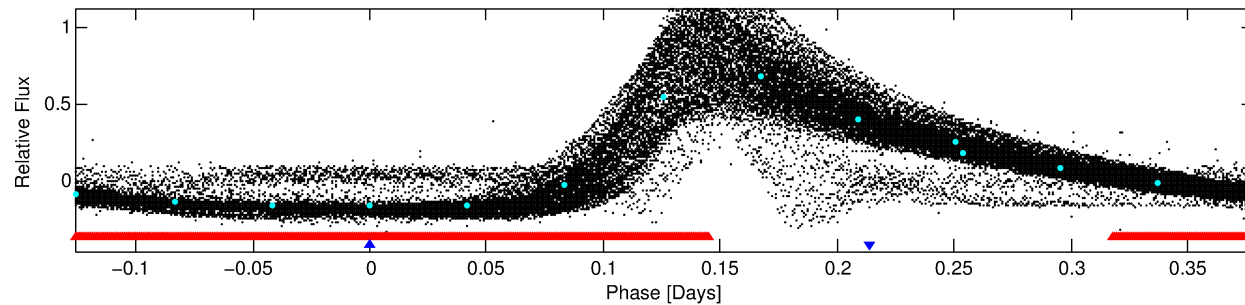
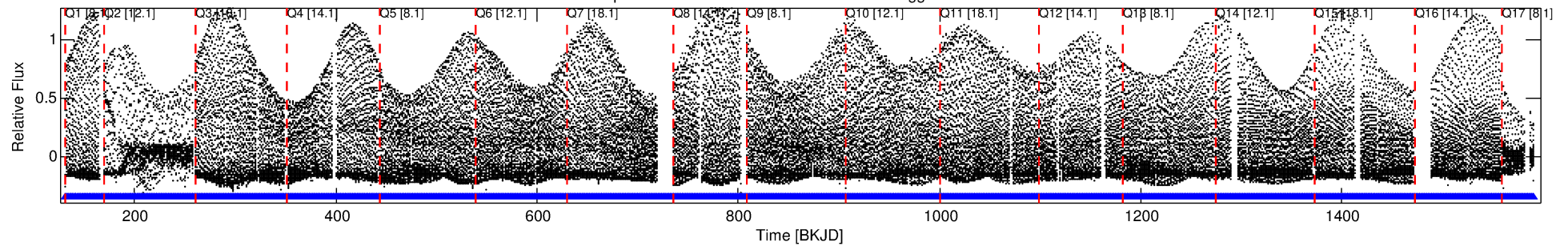
## Ephemeris Match Information For 007671081-02

No Significant Match Found

# DV One-Page Summary

KIC: 7671081 Candidate: 2 of 2 Period: 0.505 d

Kp: 16.65 R\*: 1.87 Rs Teff: 7351.0 K Logg: 4.07 Fe/H: -0.240



## TPS TCE Results:

Period = 0.50462 d  
Epoch = 131.9829 BKJD

DV fit results are unavailable

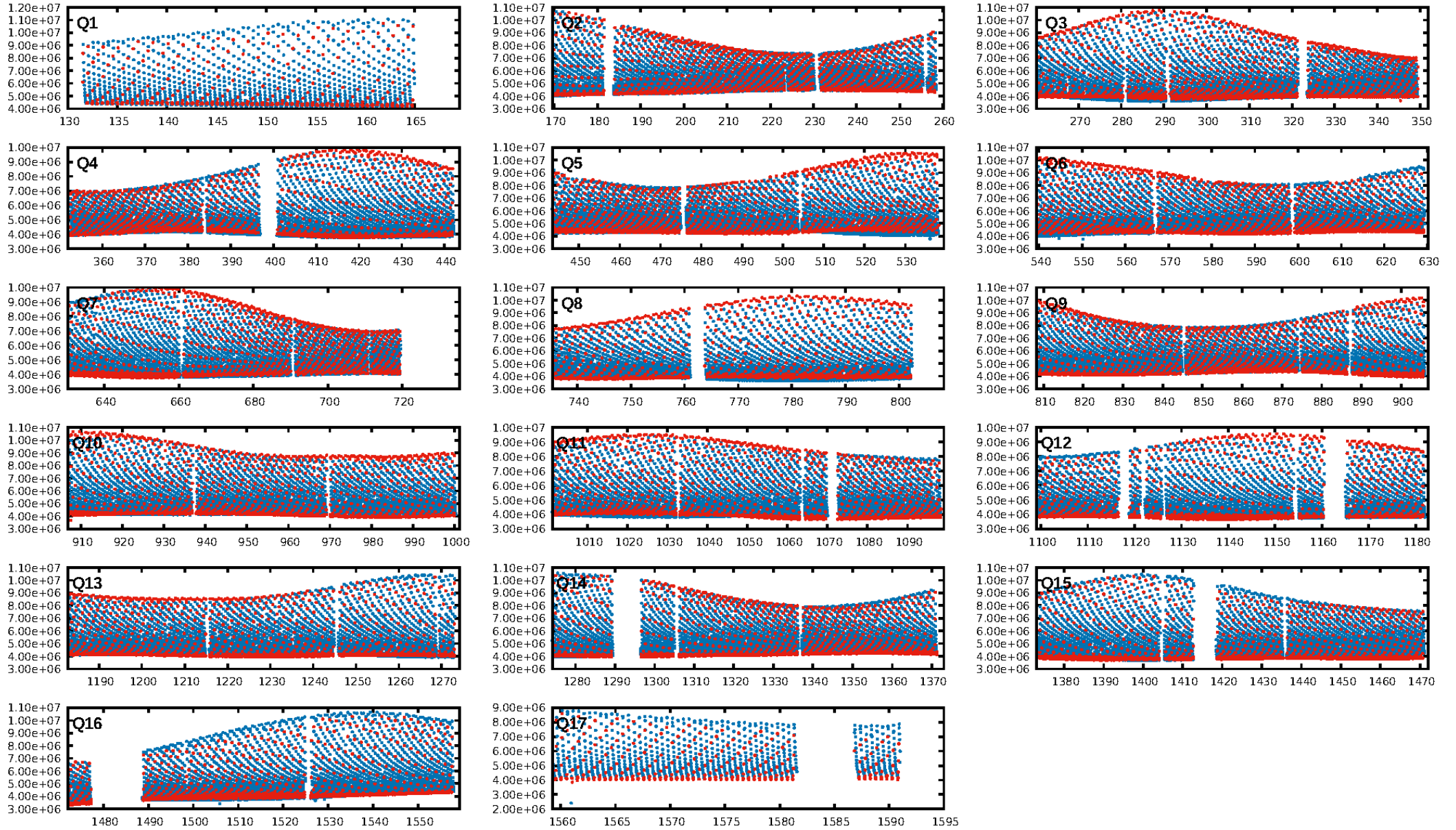
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [5.57 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2503/2503]  
GhostDiagnostic-chr: 2.555  
Centroid-sig: 17.2%  
Centroid-so: 0.187 arcsec [184.18 $\sigma$ ]  
OotOffset-rm: 0.015 arcsec [0.22 $\sigma$ ]  
KicOffset-rm: 0.070 arcsec [1.02 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.65 [11/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:08:19 Z

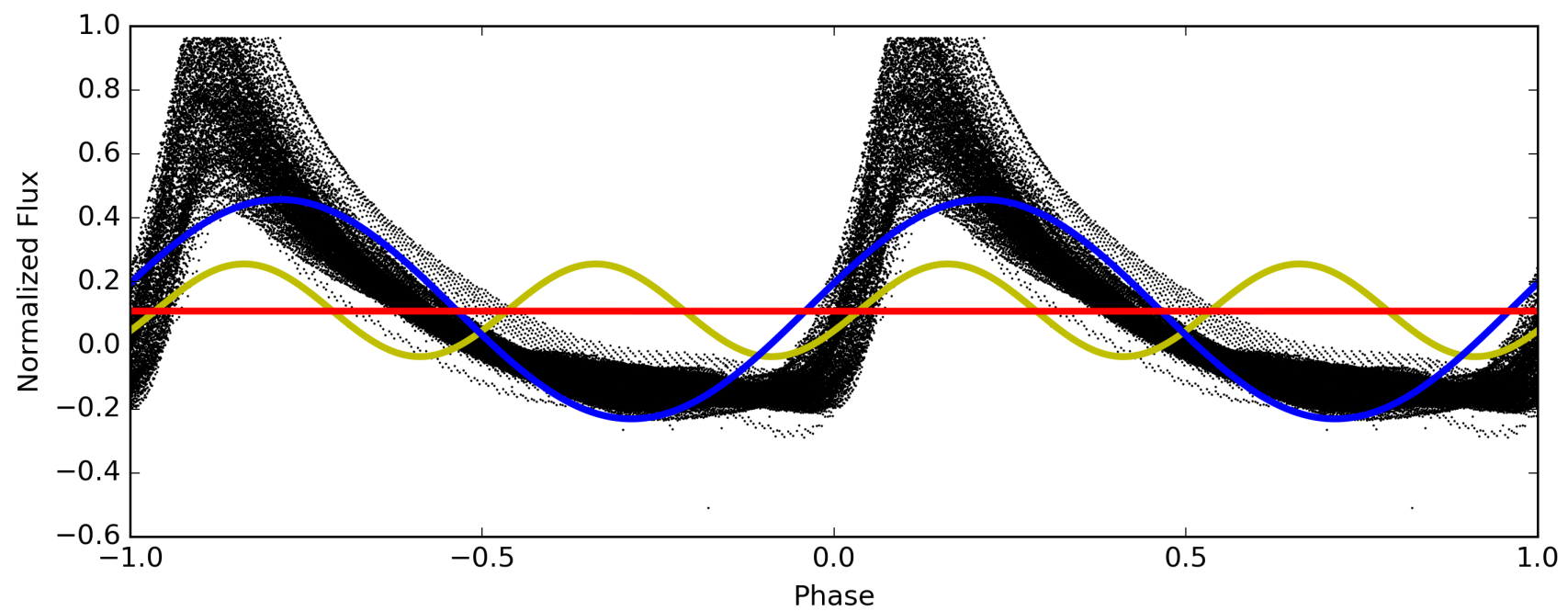
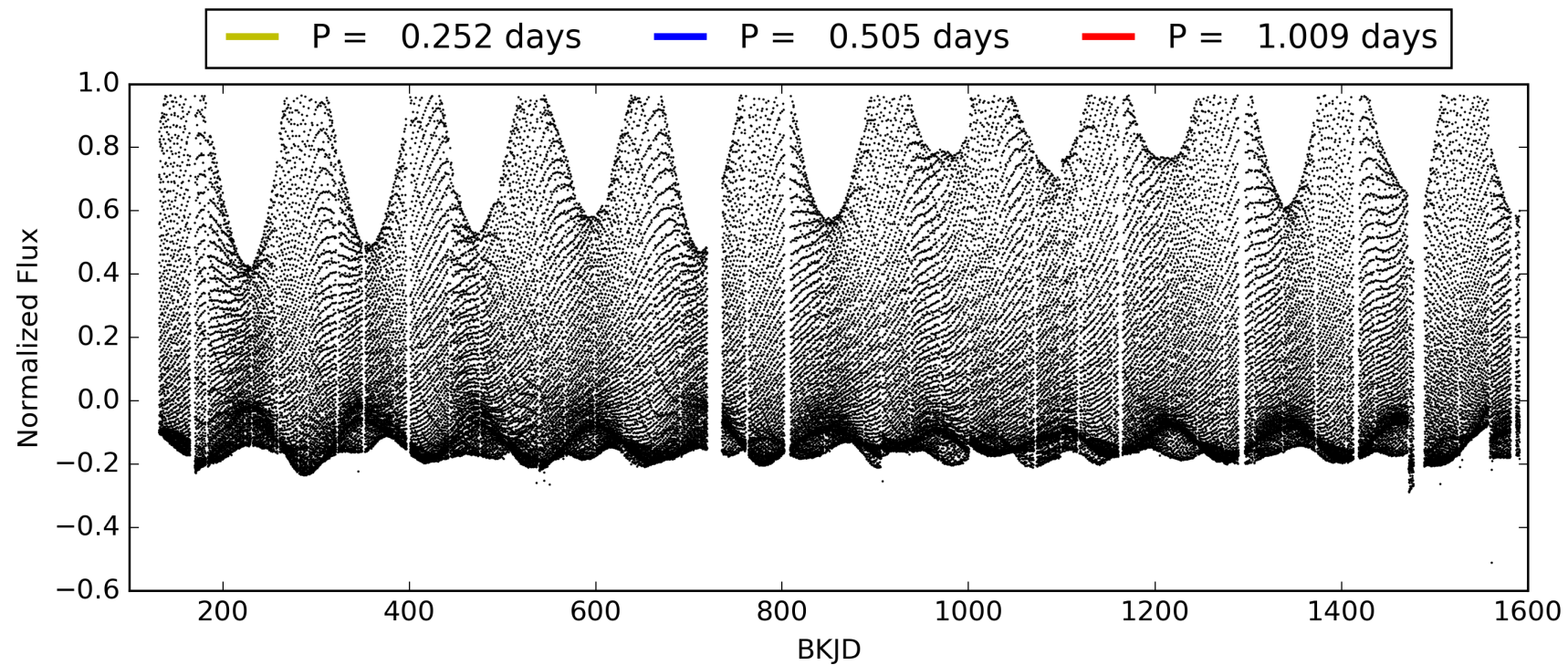
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007671081-02, PDC Light Curves





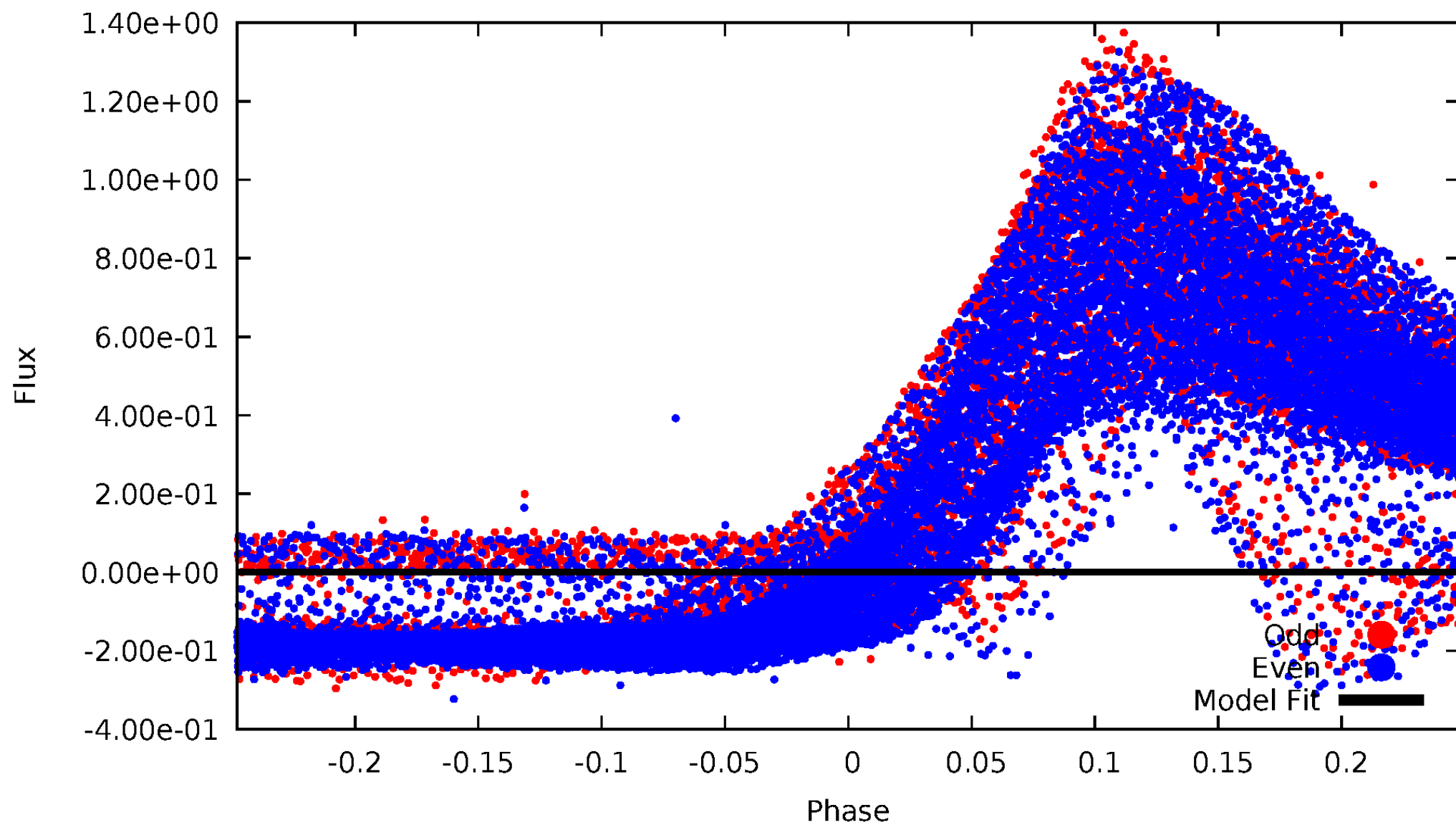
TCE 007671081-02





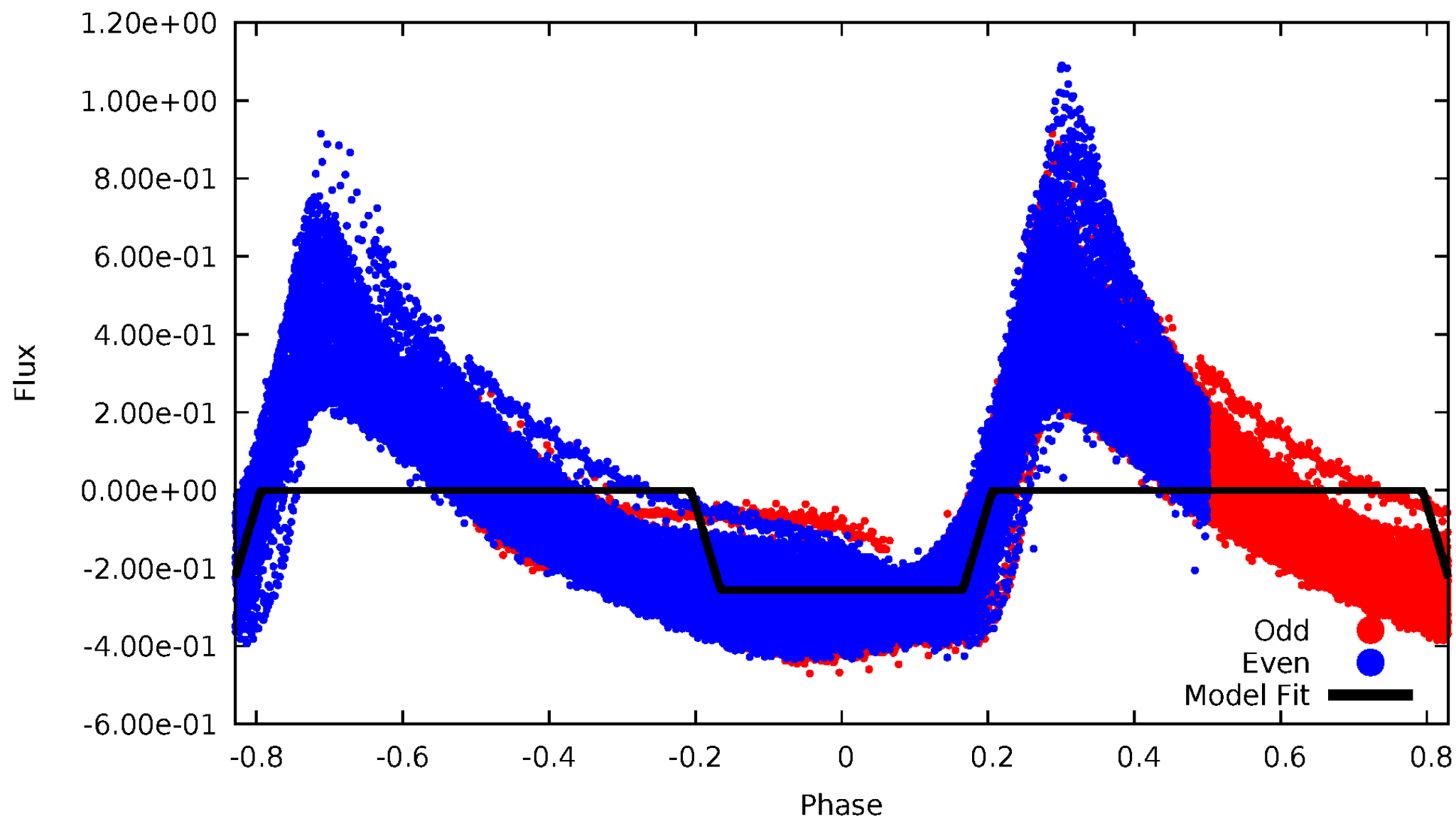
# DV Odd/Even

TCE 007671081-02



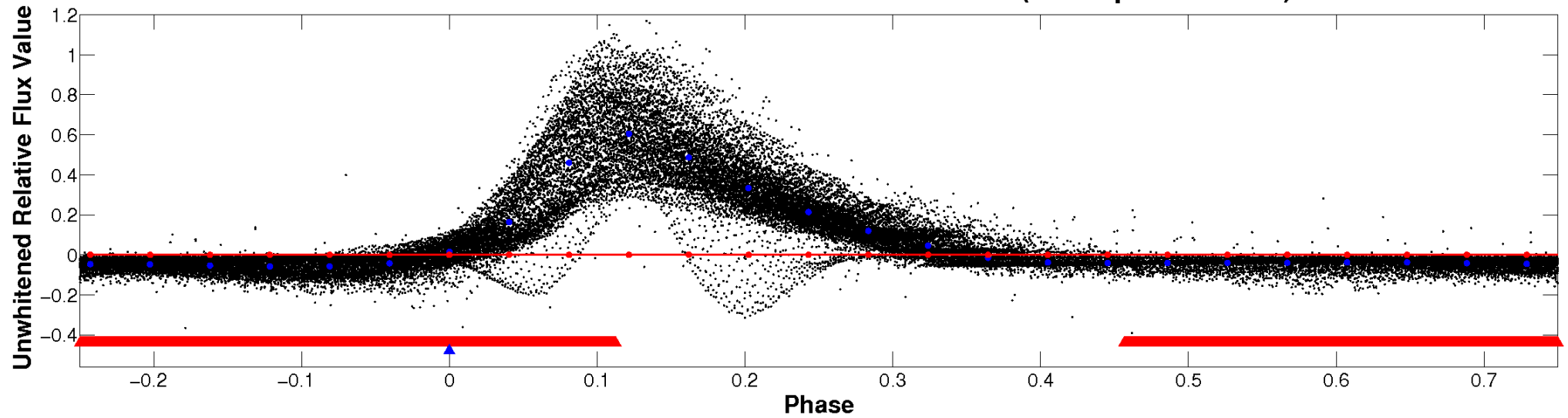
ALT Odd/Even

TCE 007671081-02



# Non-Whitened Vs. Whitened Light Curve

**Planet 2 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

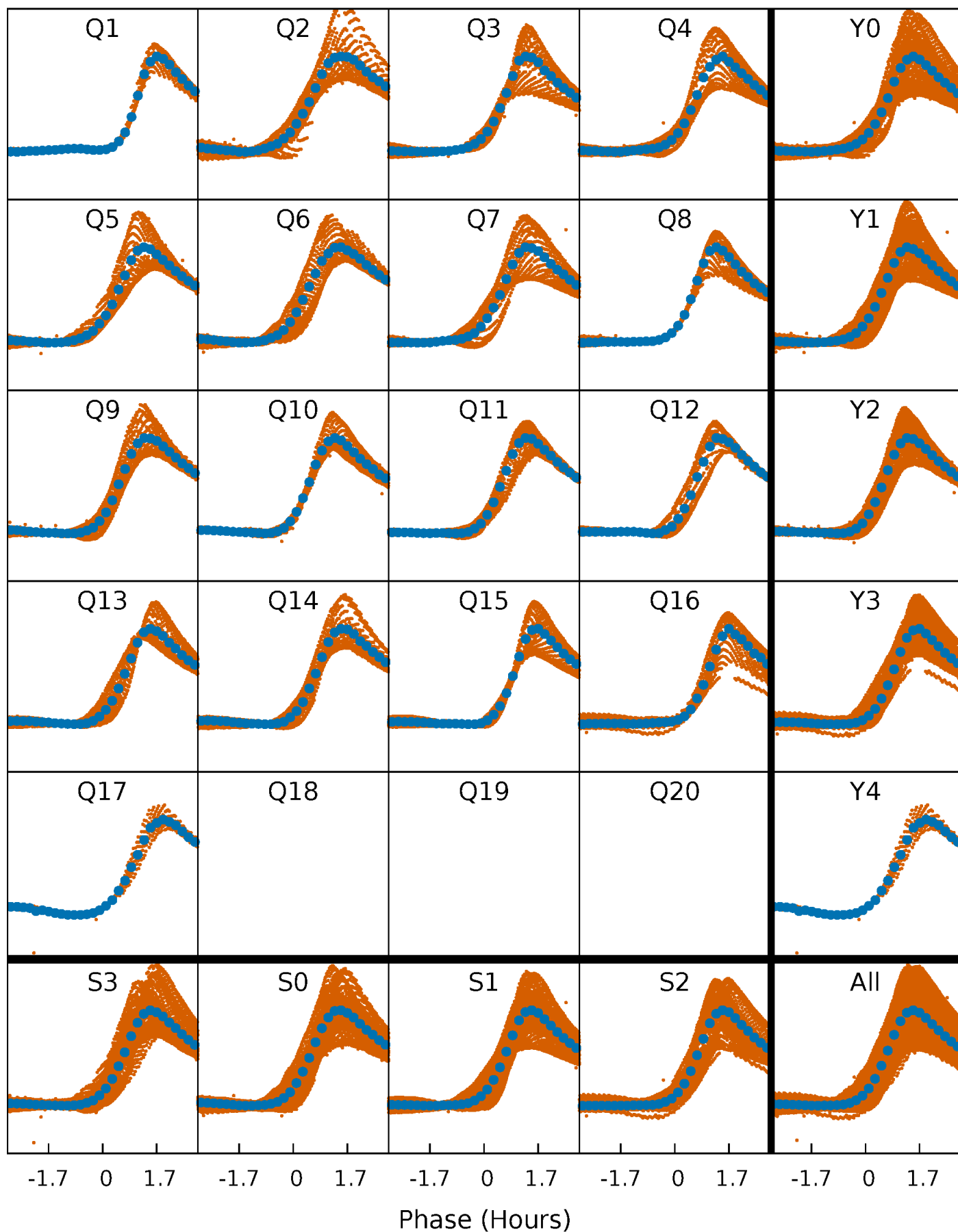


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



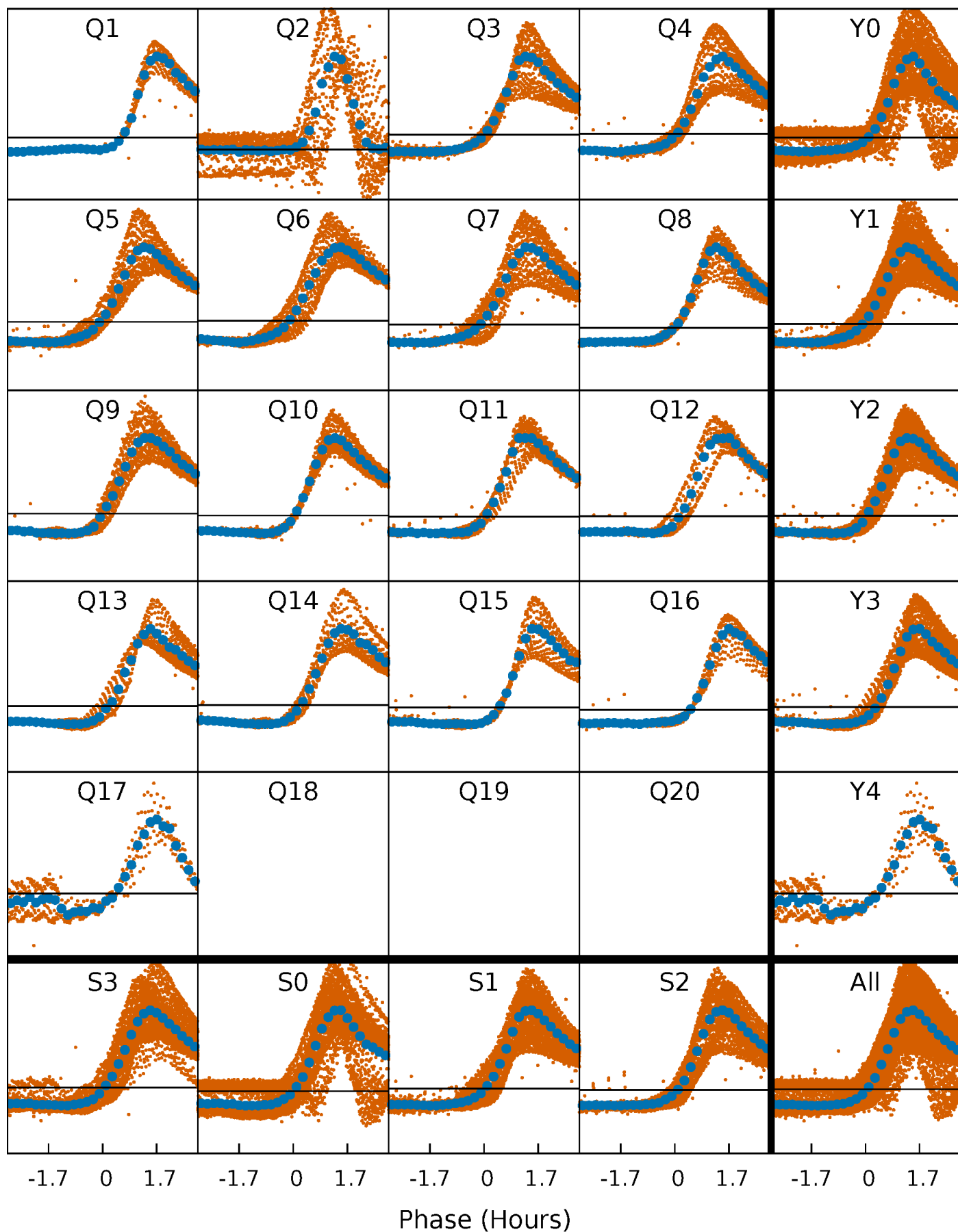
# PDC Quarter-Phased Transit Curves

TCE 007671081-02   P= 0.504615 Days    $T_0=131.982869$  (BKJD)



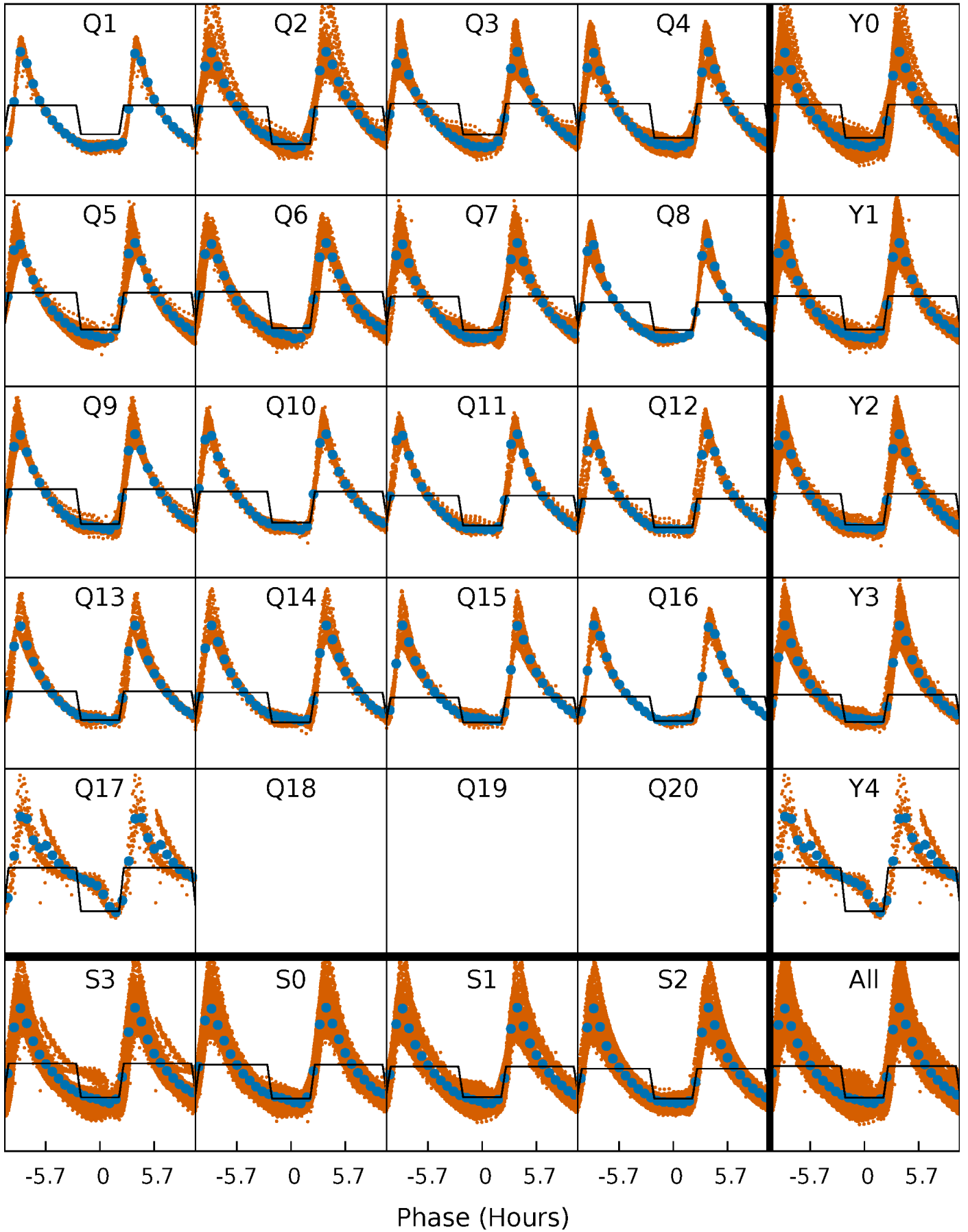
# DV Quarter-Phased Transit Curves

TCE 007671081-02   P= 0.504615 Days    $T_0=131.982869$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

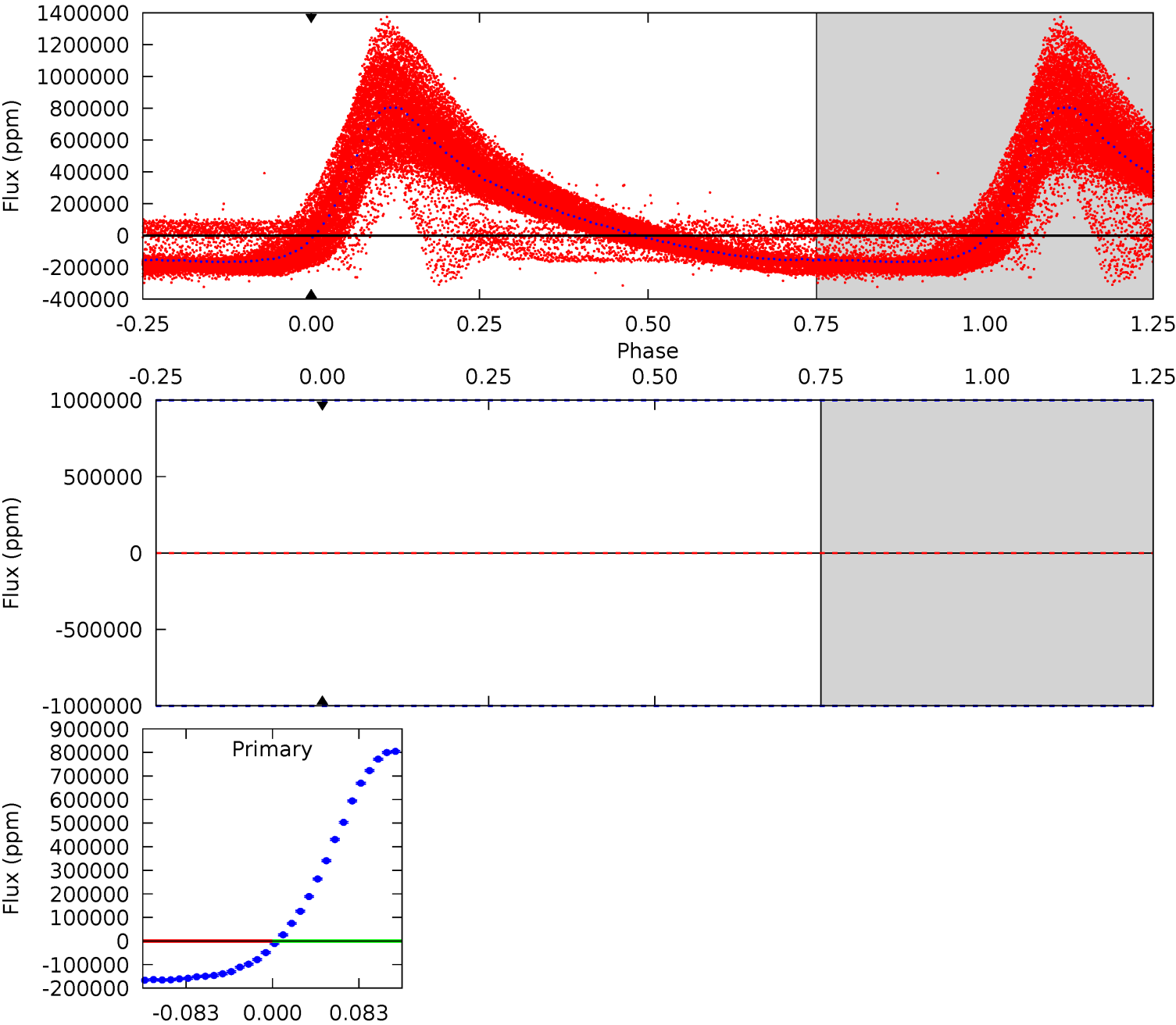
TCE 007671081-02   P= 0.504615 Days    $T_0=131.894962$  (BKJD)



# DV Model-Shift Uniqueness Test

007671081-02, P = 0.504615 Days, E = 131.478254 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
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0

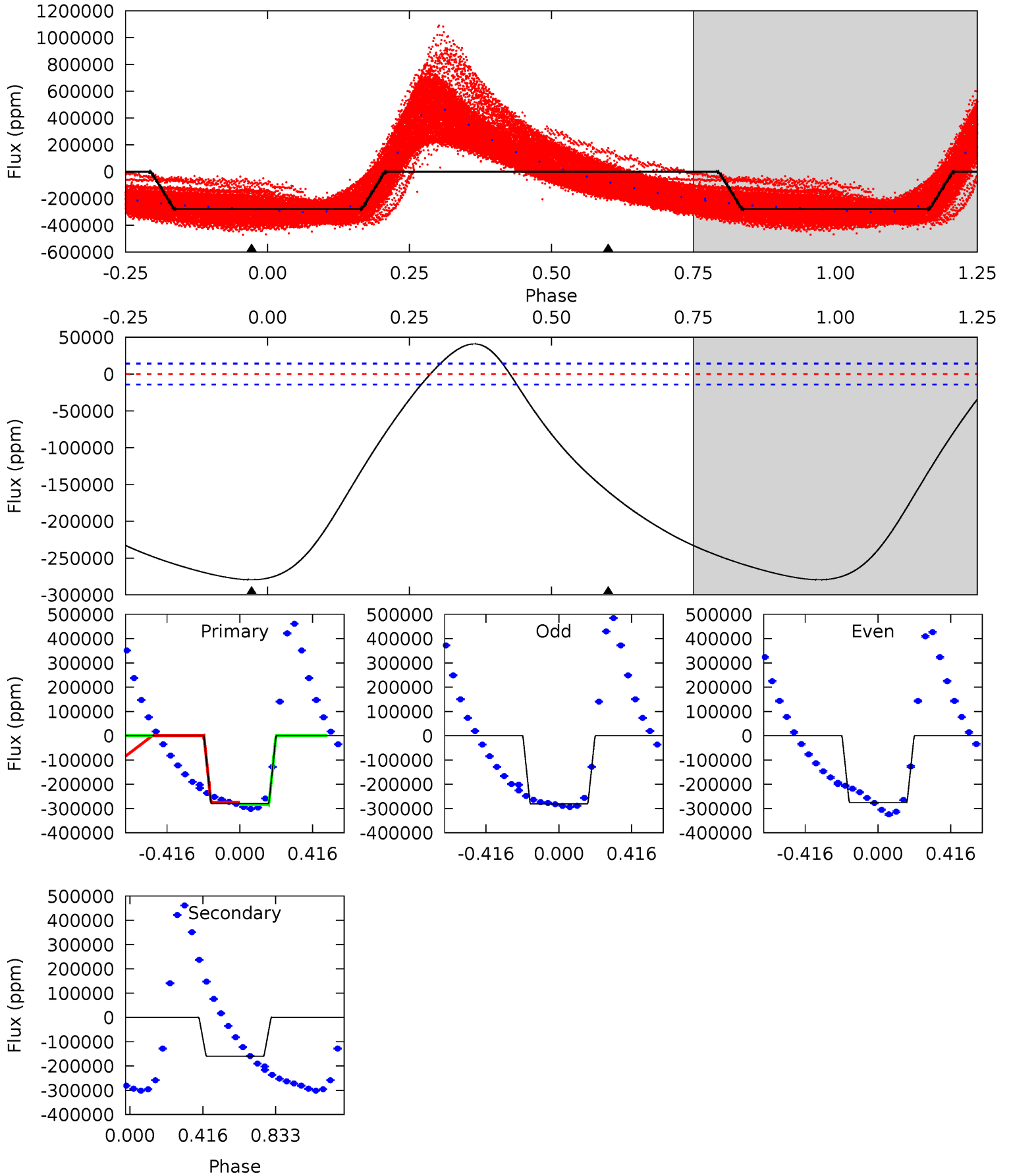




# Alt Model-Shift Uniqueness Test

007671081-02, P = 0.504615 Days, E = 131.390347 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
83.7	47.8	0	0	4.26	0.81	6.96	83.7	83.7	47.8	47.8	0.76	0.99	0.13	2.19



### Stellar Parameters For KIC 007671081

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7351^{+230}_{-307}$	$4.068^{+0.185}_{-0.167}$	$-0.240^{+0.250}_{-0.350}$	$1.870^{+0.507}_{-0.507}$	$1.489^{+0.209}_{-0.255}$	$0.321^{+0.382}_{-0.153}$
	+3%/-4%	+5%/-4%	+104%/-146%	+27%/-27%	+14%/-17%	+119%/-48%
Source	KIC0	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 007671081-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$23.76^{+19.58}_{-14.00}$	$5166^{+367}_{-382}$	$2312^{+17553}_{-20037}$	$0.303^{+32.634}_{-26.366}$
Alt.	$-159692 \pm 3338$	$102.90^{+26.25}_{-24.41}$	$5189^{+421}_{-376}$	$6449^{+985}_{-714}$	$1.988^{+1.412}_{-0.720}$

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

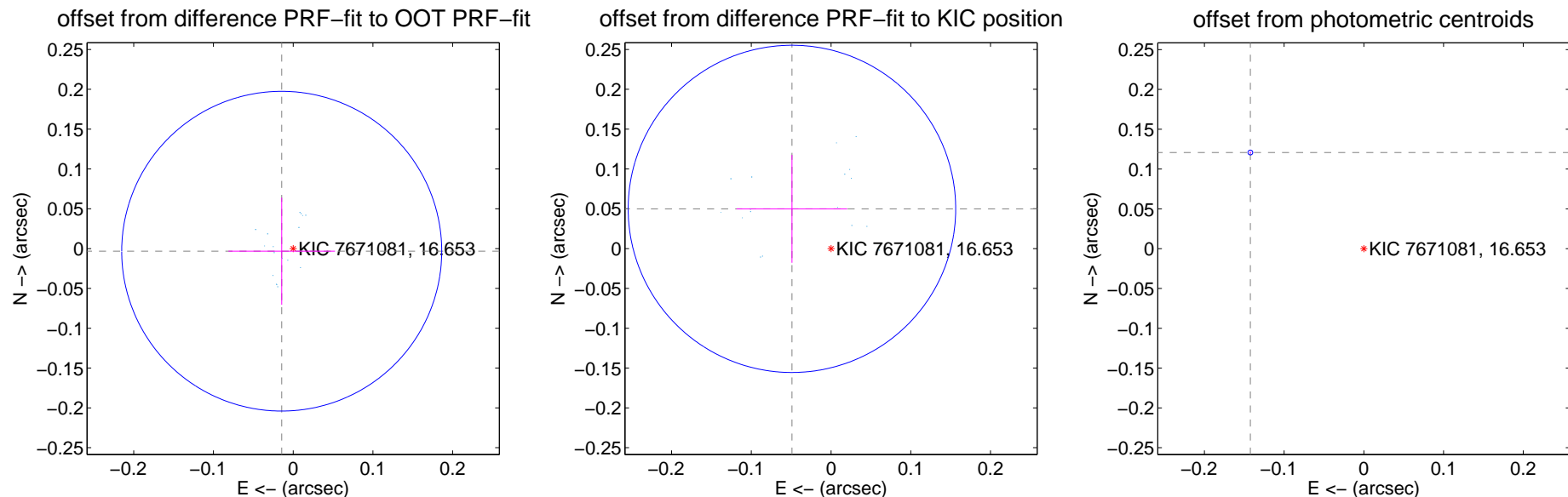
## DV Centroid Data

Supplemental centroid analysis for 007671081-02. Kepler magnitude: 16.65. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

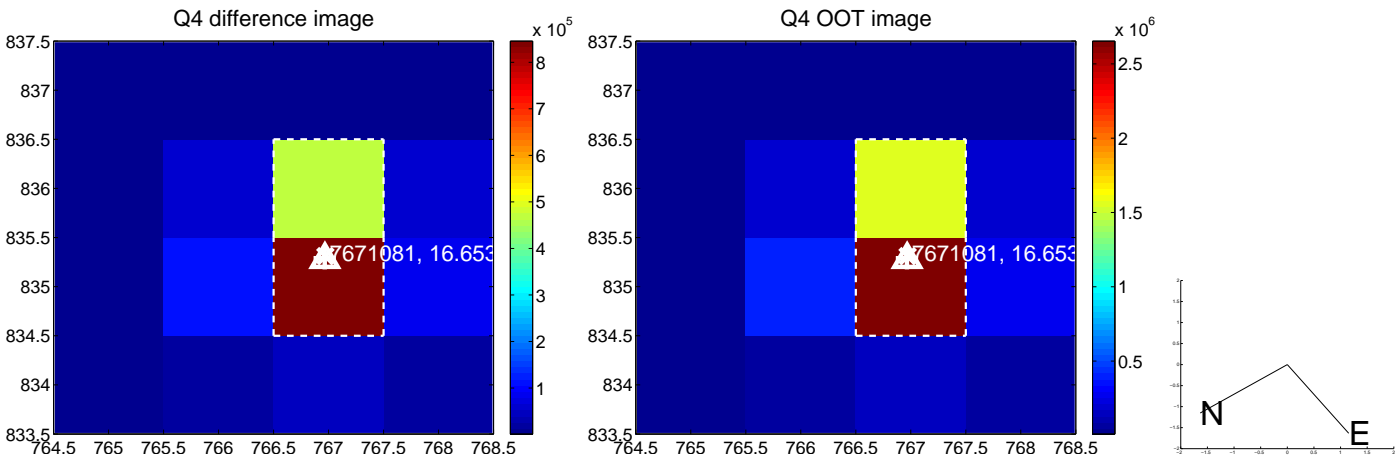
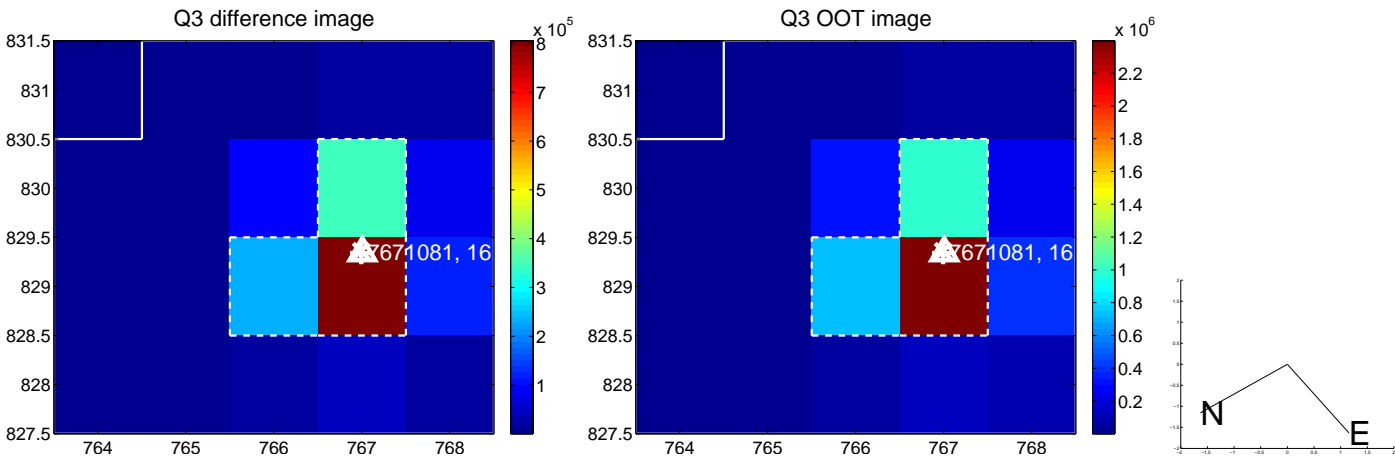
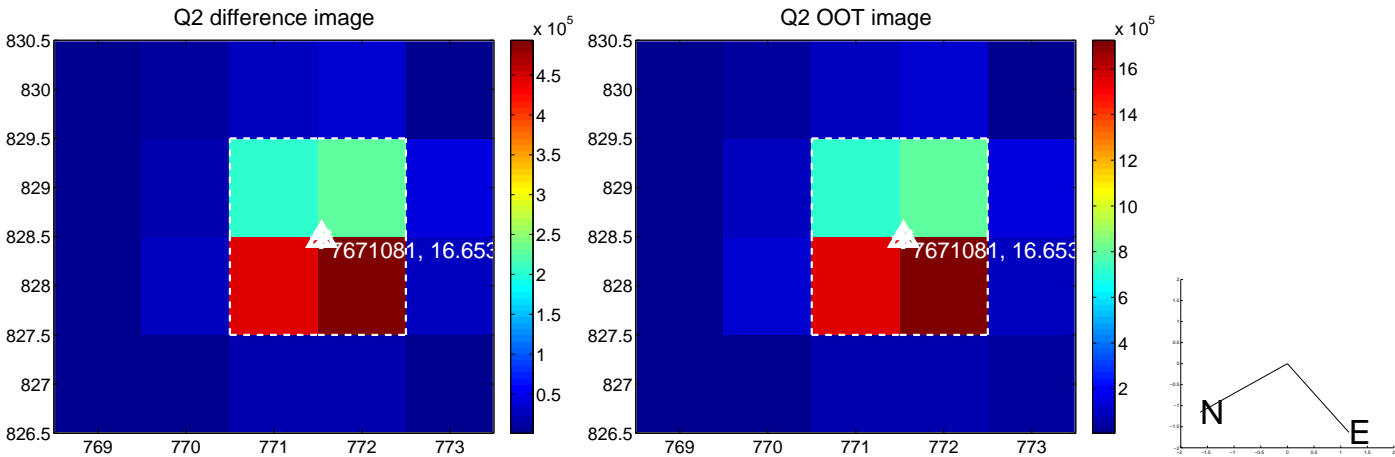
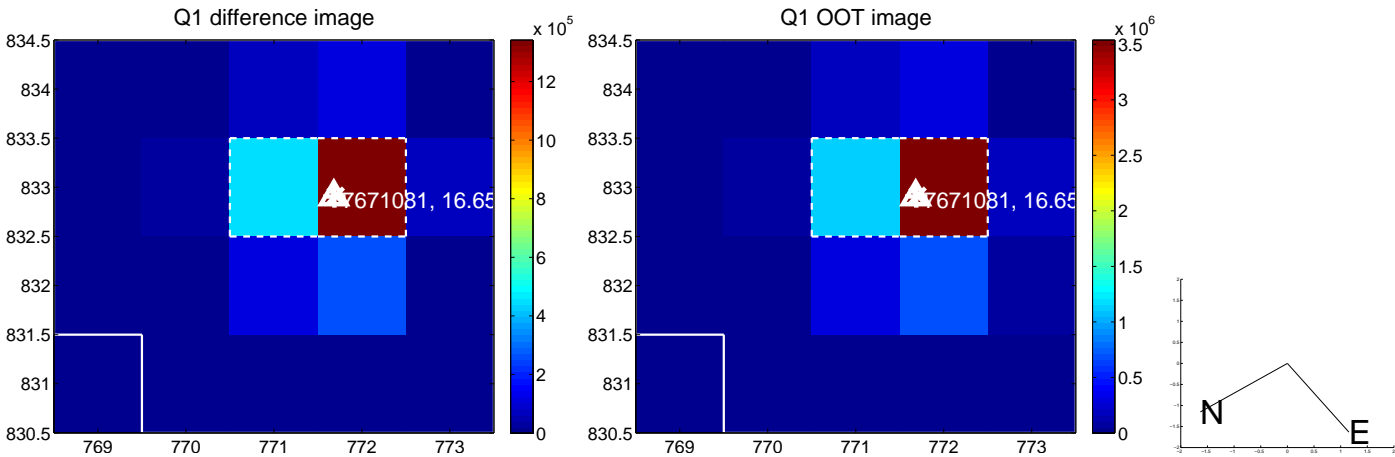
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.015 \pm 0.067$	0.22	$0.014 \pm 0.067$	$-0.003 \pm 0.067$
PRF-fit source offset from KIC position	$0.070 \pm 0.068$	1.02	$0.049 \pm 0.069$	$0.050 \pm 0.068$
photometric centroid source offset	$0.19 \pm 0.00$	184.18	$0.14 \pm 0.00$	$0.12 \pm 0.00$

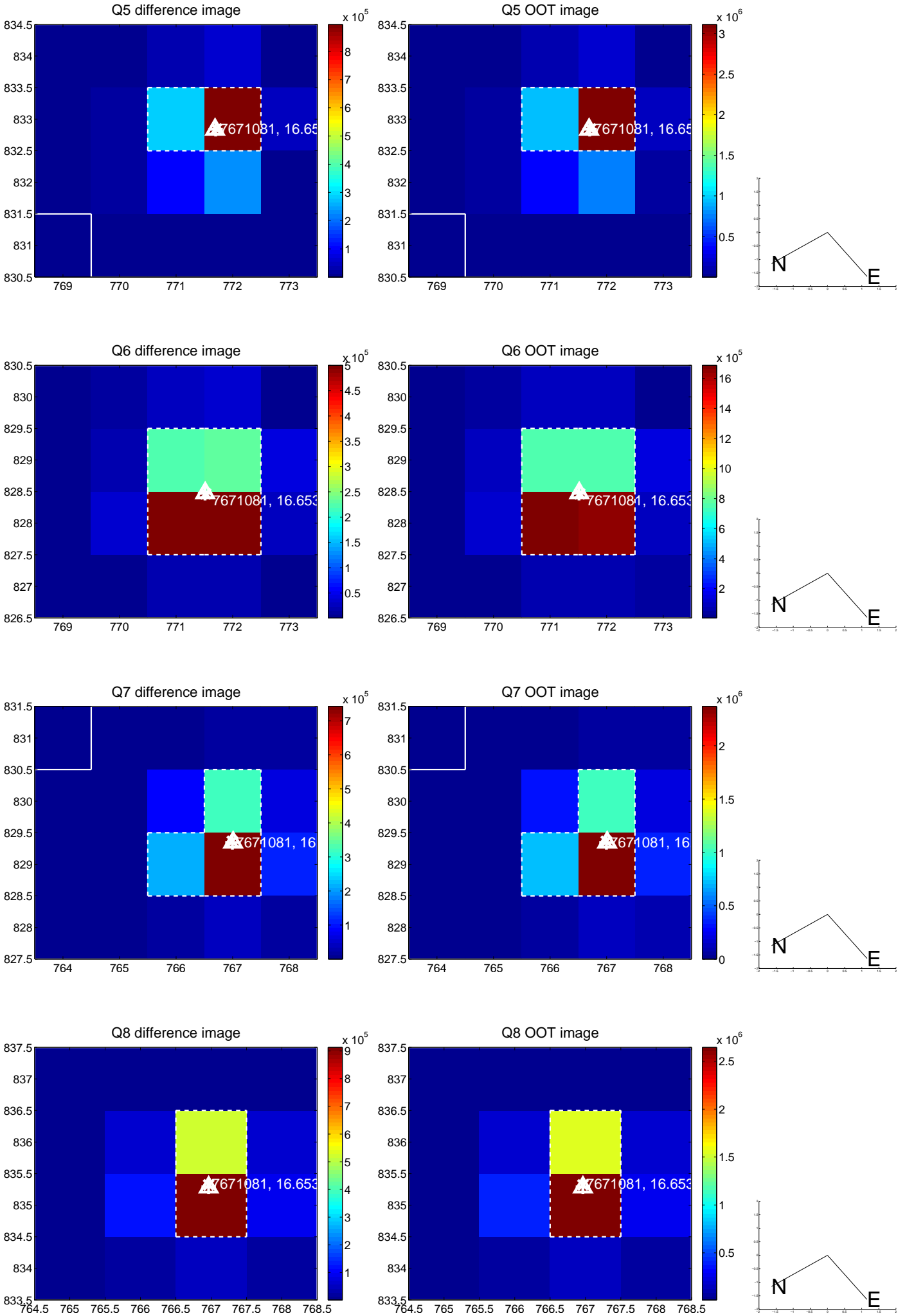


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

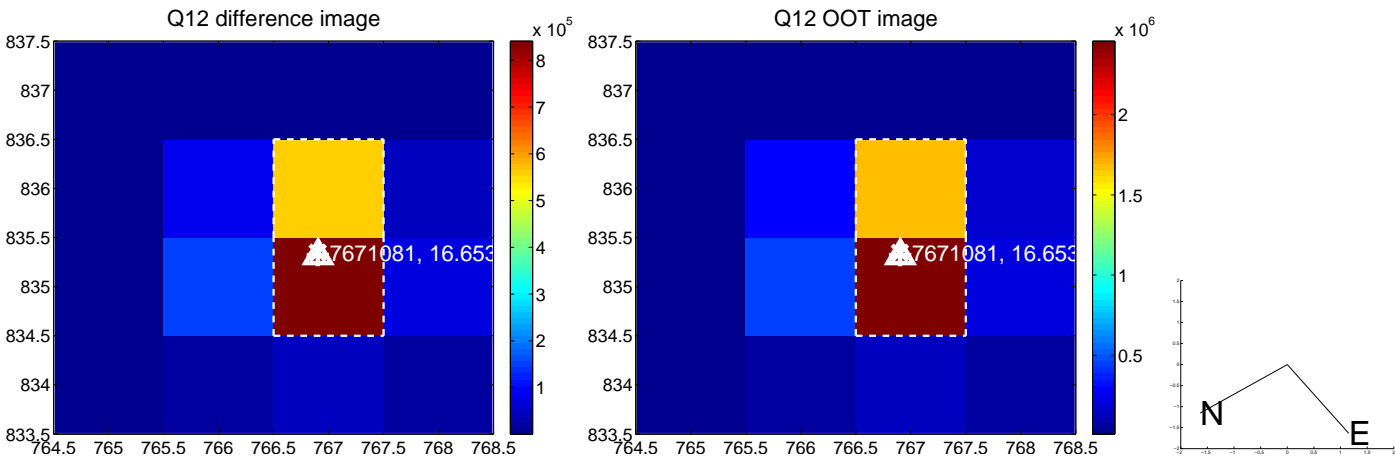
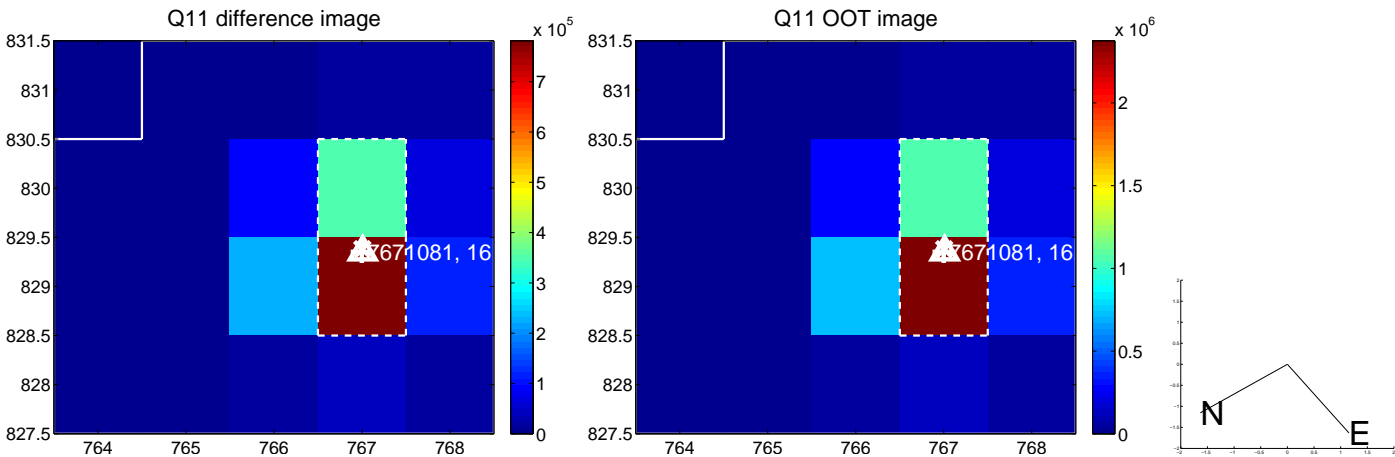
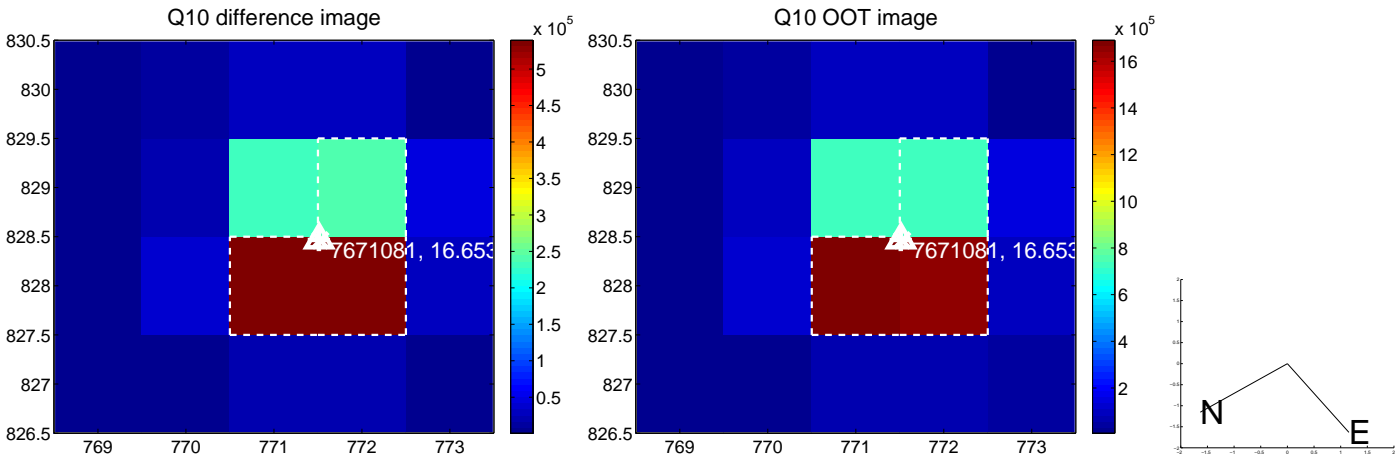
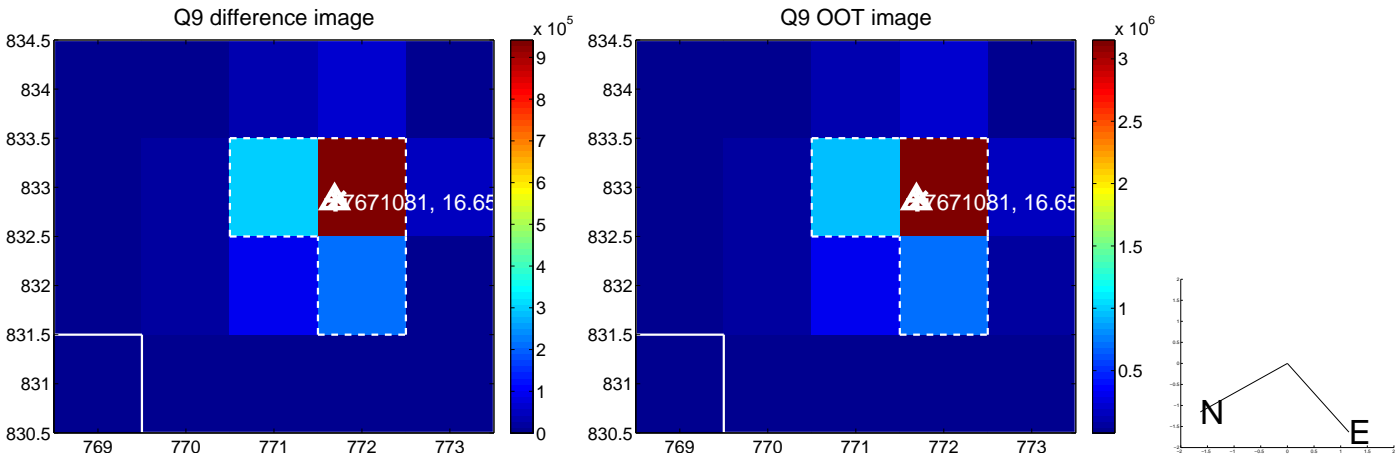
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



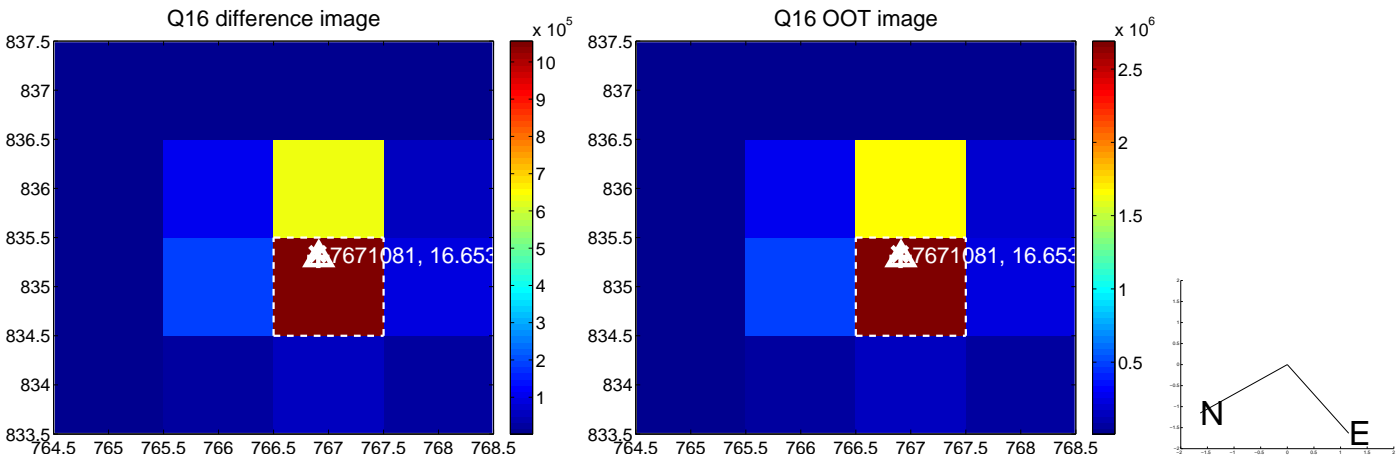
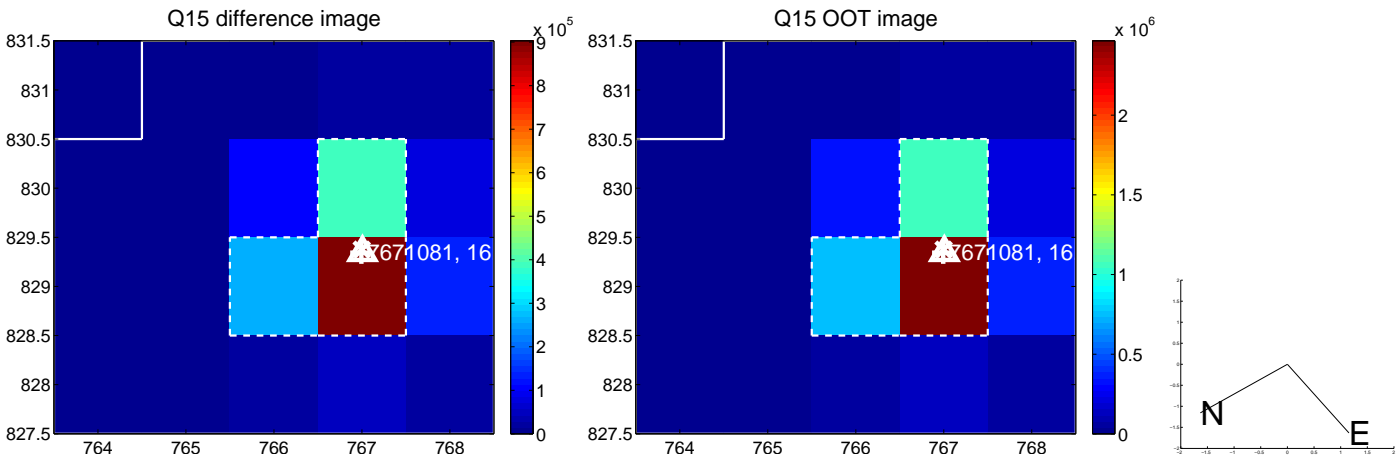
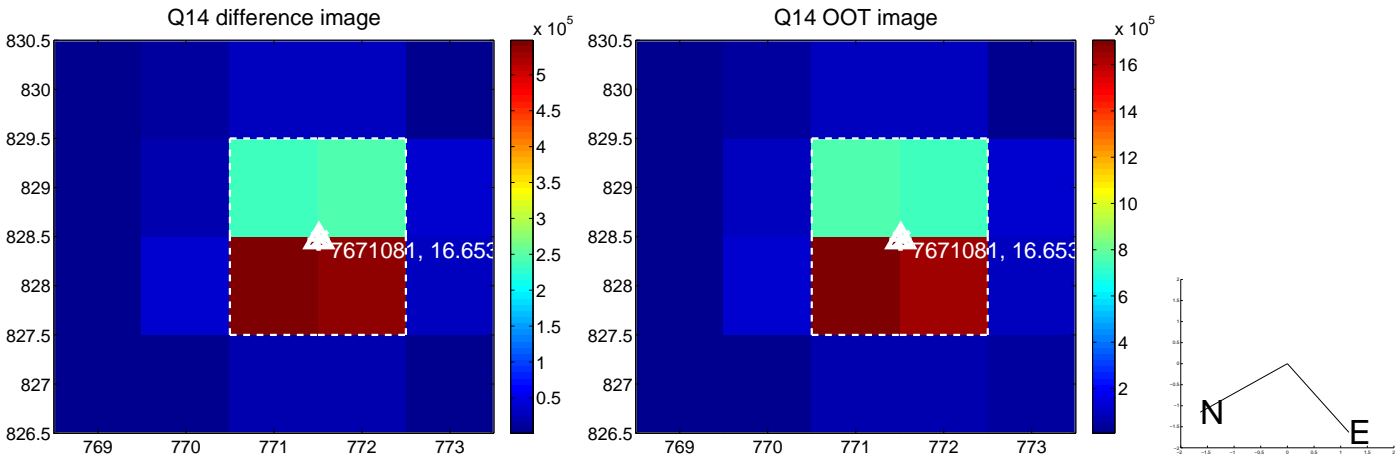
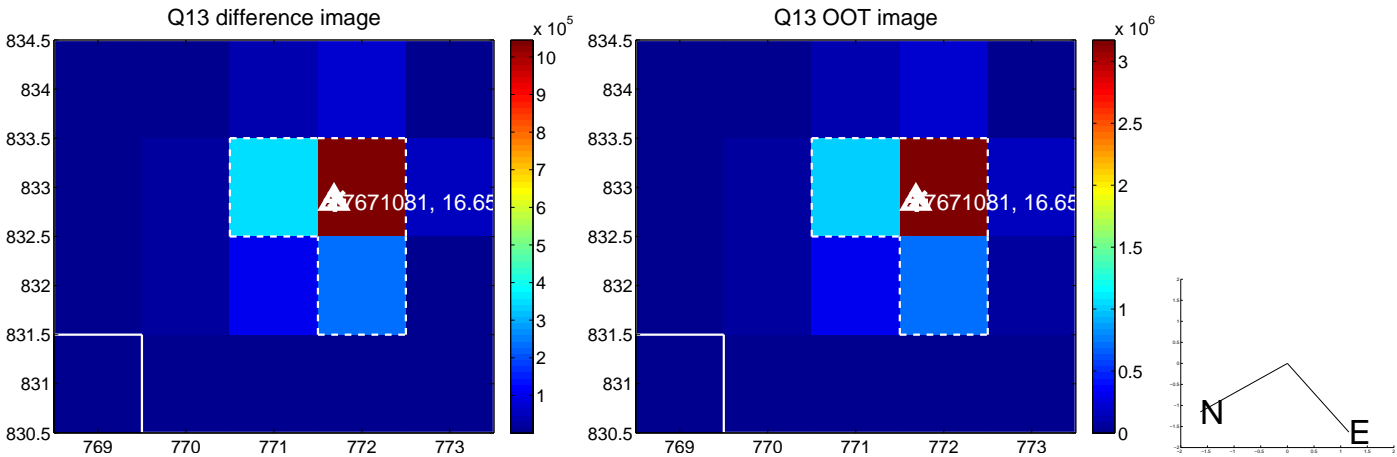
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

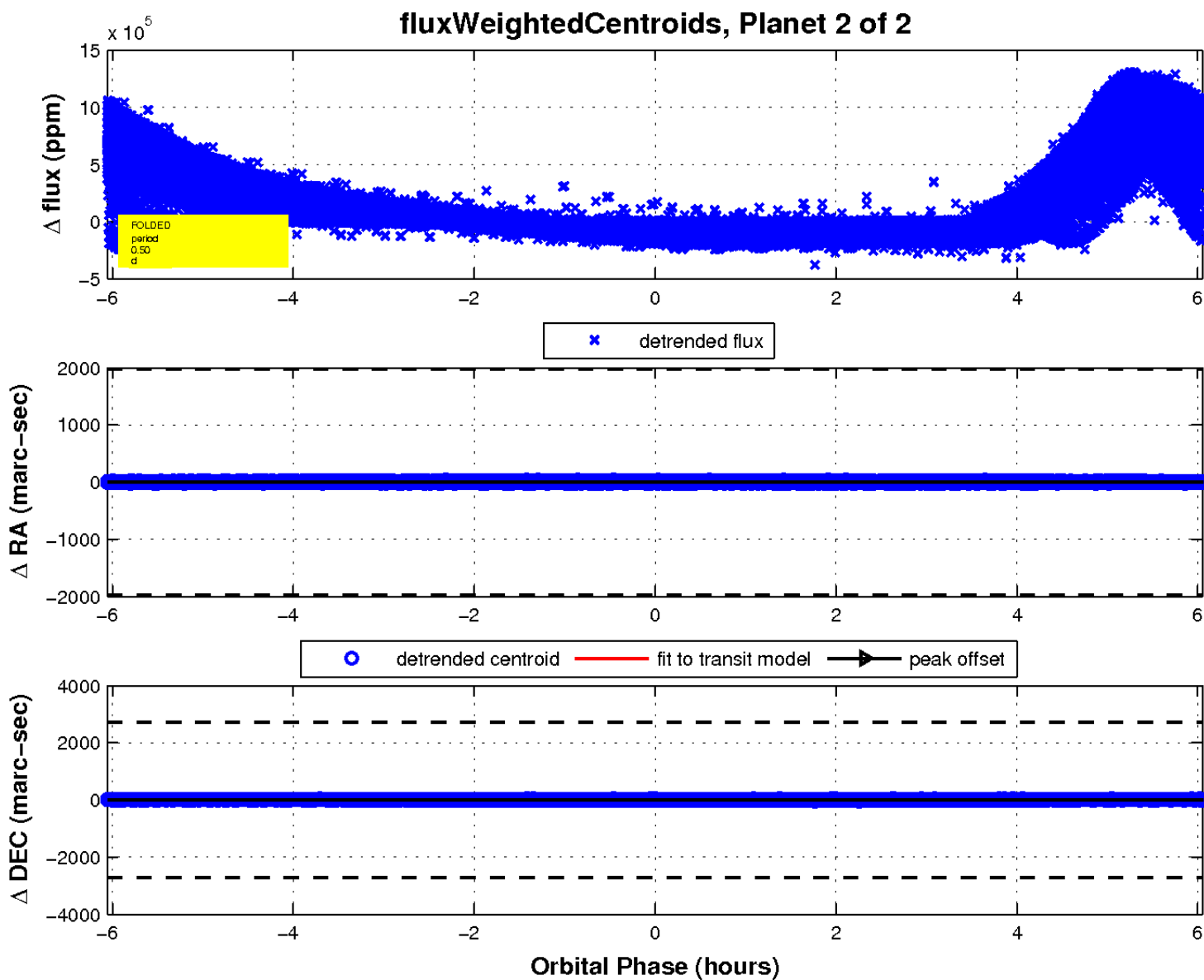
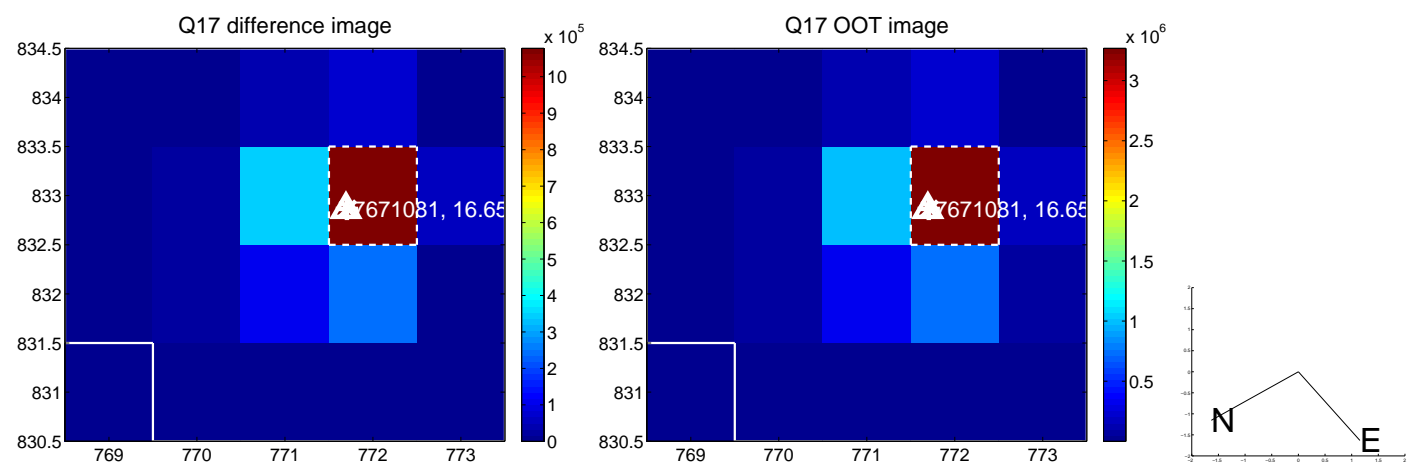


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

