

# KIC 003966273

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003966273-01	OBS	No	3.446142	132.298388	448.1	9.822	9.6	10.6	2.18	7365	8.85	4555.23
003966273-02	OBS	No	1.615753	132.671128	323.6	6.984	10.1	10.1	2.18	7365	4.31	12506.08
003966273-03	OBS	No	1.615564	131.848680	352.1	8.465	10.7	12.0	2.18	7365	4.17	12508.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003966273-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
003966273-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
003966273-03	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

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

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

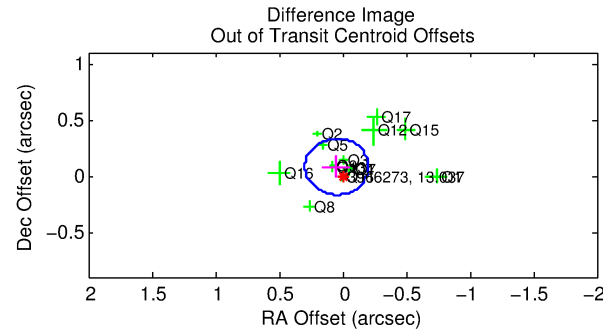
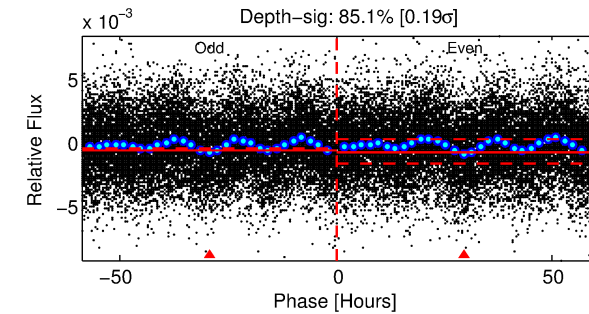
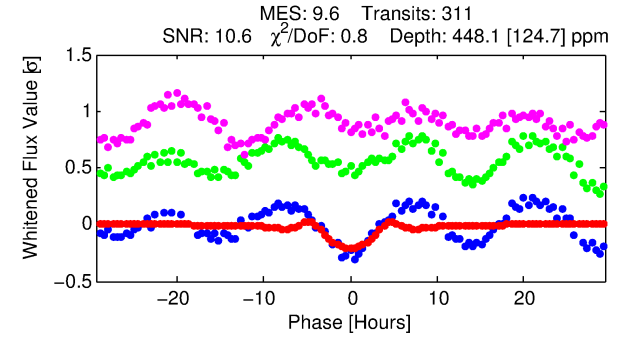
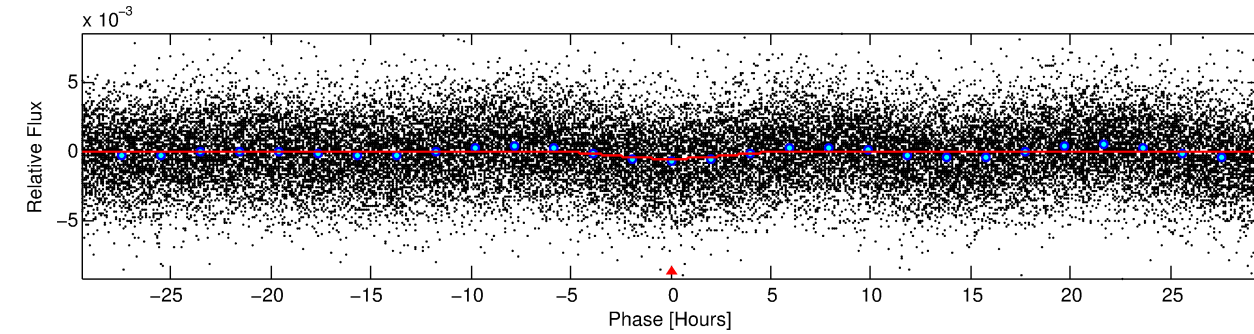
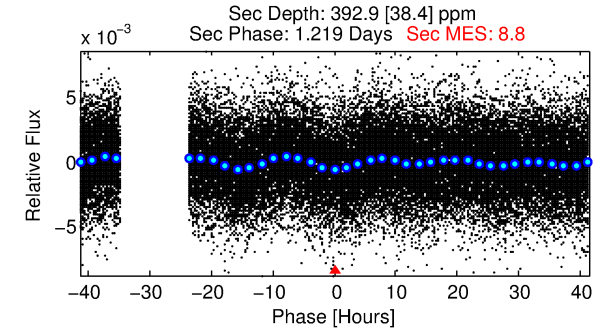
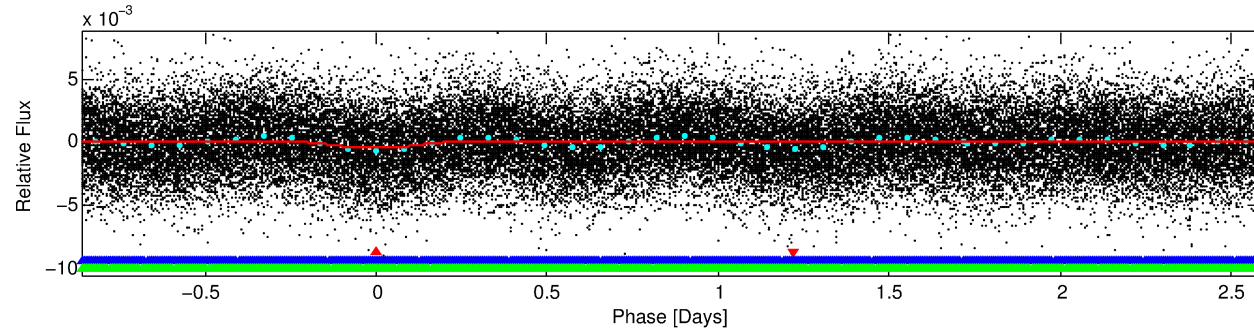
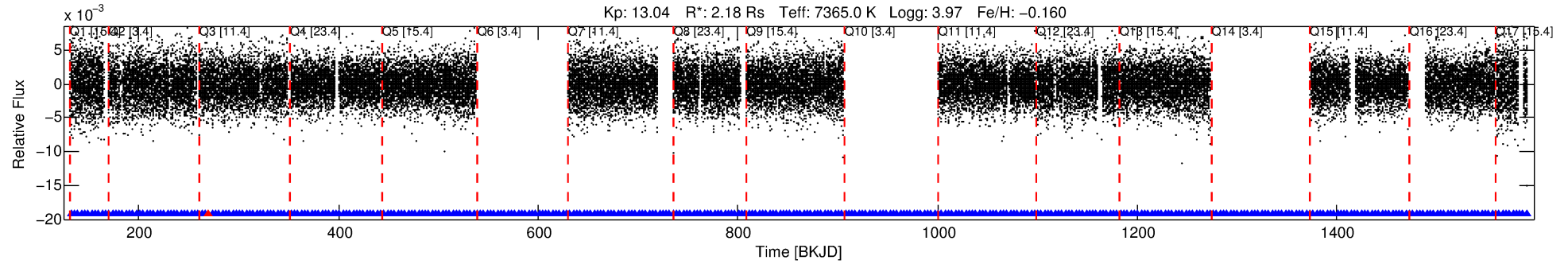
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003966273-01

No Significant Match Found

# DV One-Page Summary

KIC: 3966273 Candidate: 1 of 3 Period: 3.446 d



## DV Fit Results:

Period = 3.44614 [0.00007] d  
Epoch = 132.2984 [0.0167] BKJD  
Rp/R\* = 0.0371 [0.0588]  
a/R\* = 1.25 [0.13]  
b = 1.00 [0.09]  
Seff = 4555.23 [2032.41]  
Teq = 2095 [234] K  
Rp = 8.85 [14.27] Re  
a = 0.0525 [0.0143] AU  
Ag = 7.62 [24.33] [0.27σ]  
Teffp = 5381 [4266] K [0.77σ]

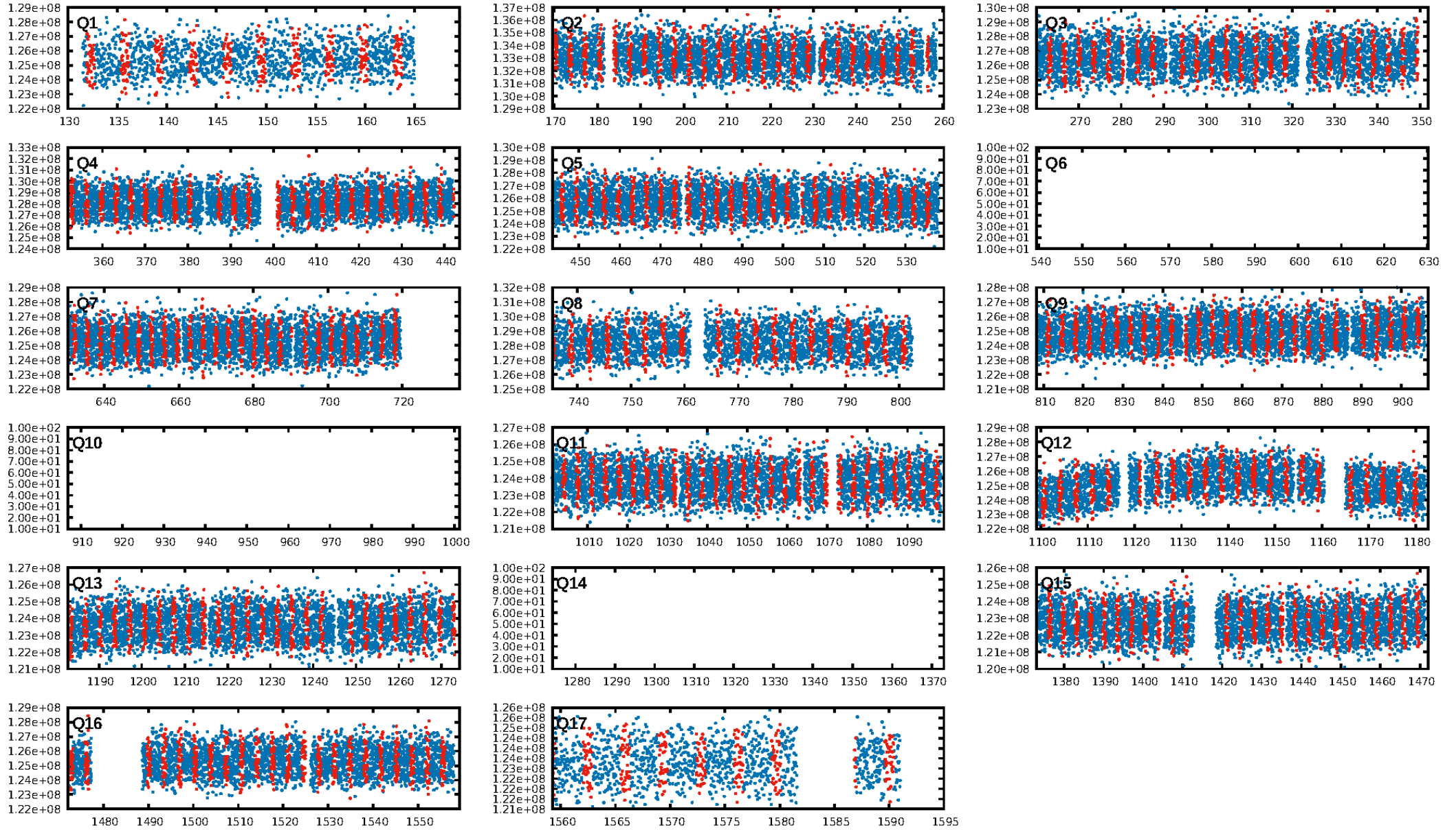
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.64σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [293/294]  
GhostDiagnostic-chr: 1.059  
Centroid-sig: 13.3%  
Centroid-so: 0.124 arcsec [1.42σ]  
OotOffset-rm: 0.094 arcsec [1.13σ]  
KicOffset-rm: 0.074 arcsec [0.84σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 0.00 [0/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:05:12 Z

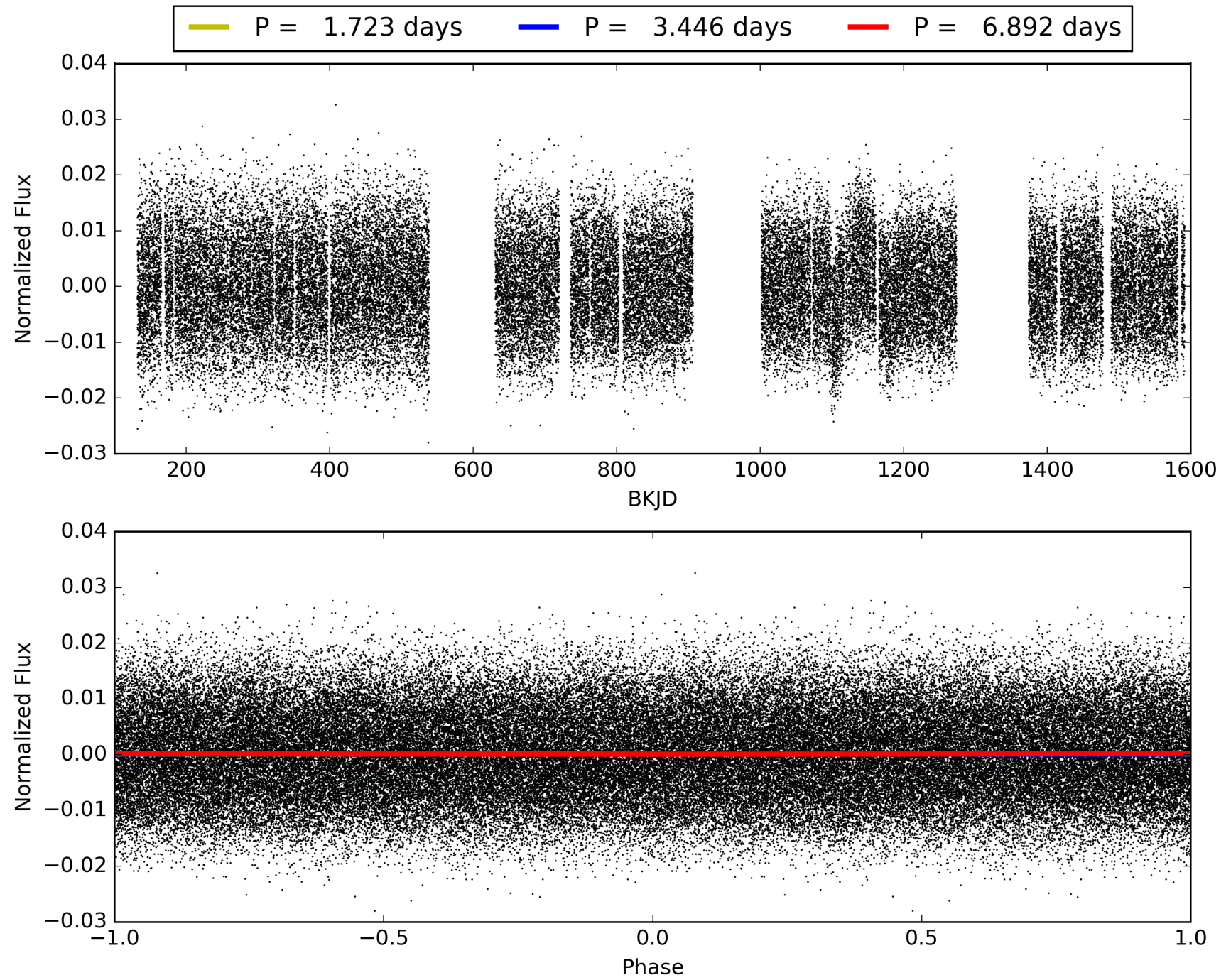
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003966273-01, PDC Light Curves





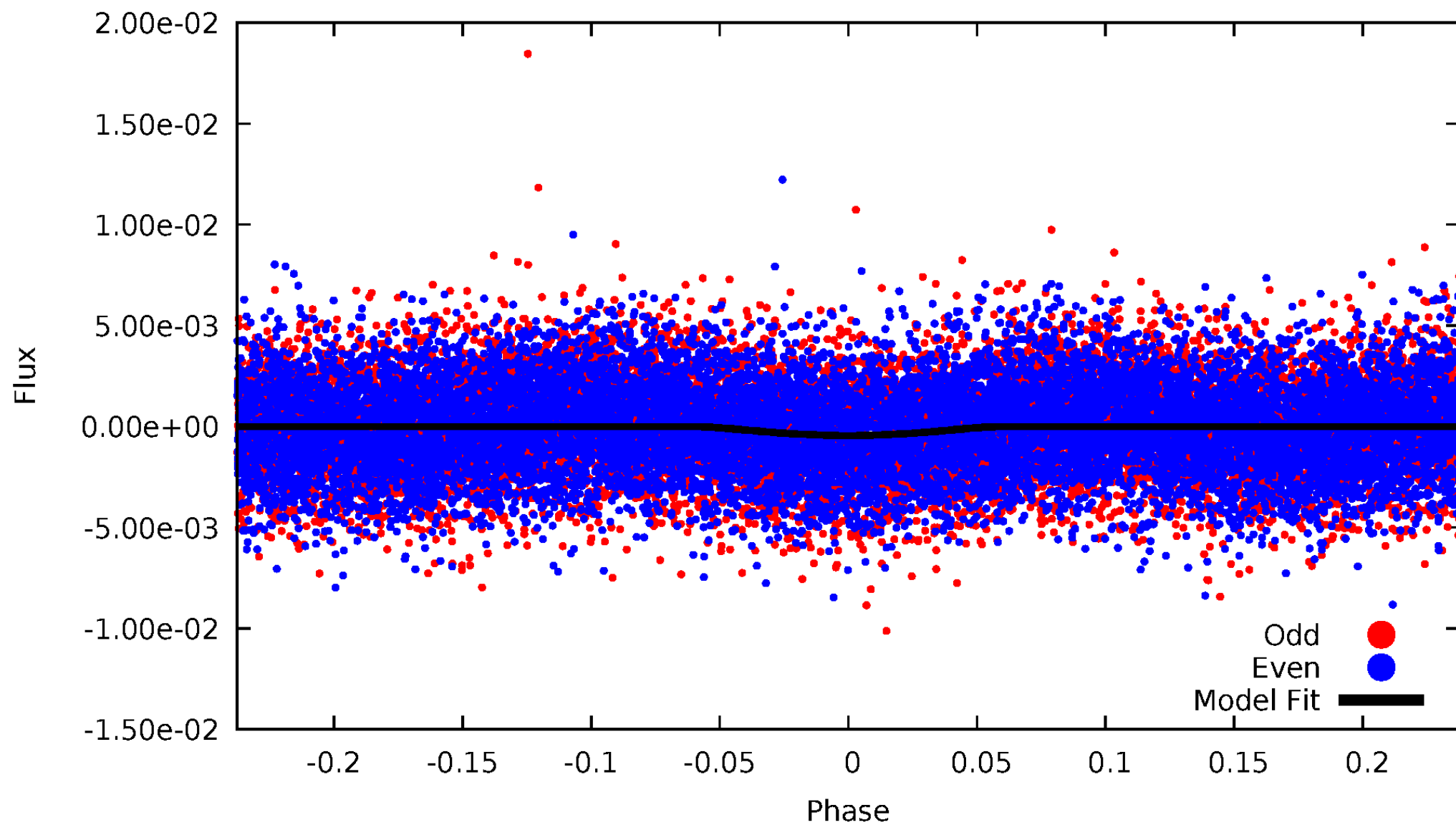
TCE 003966273-01





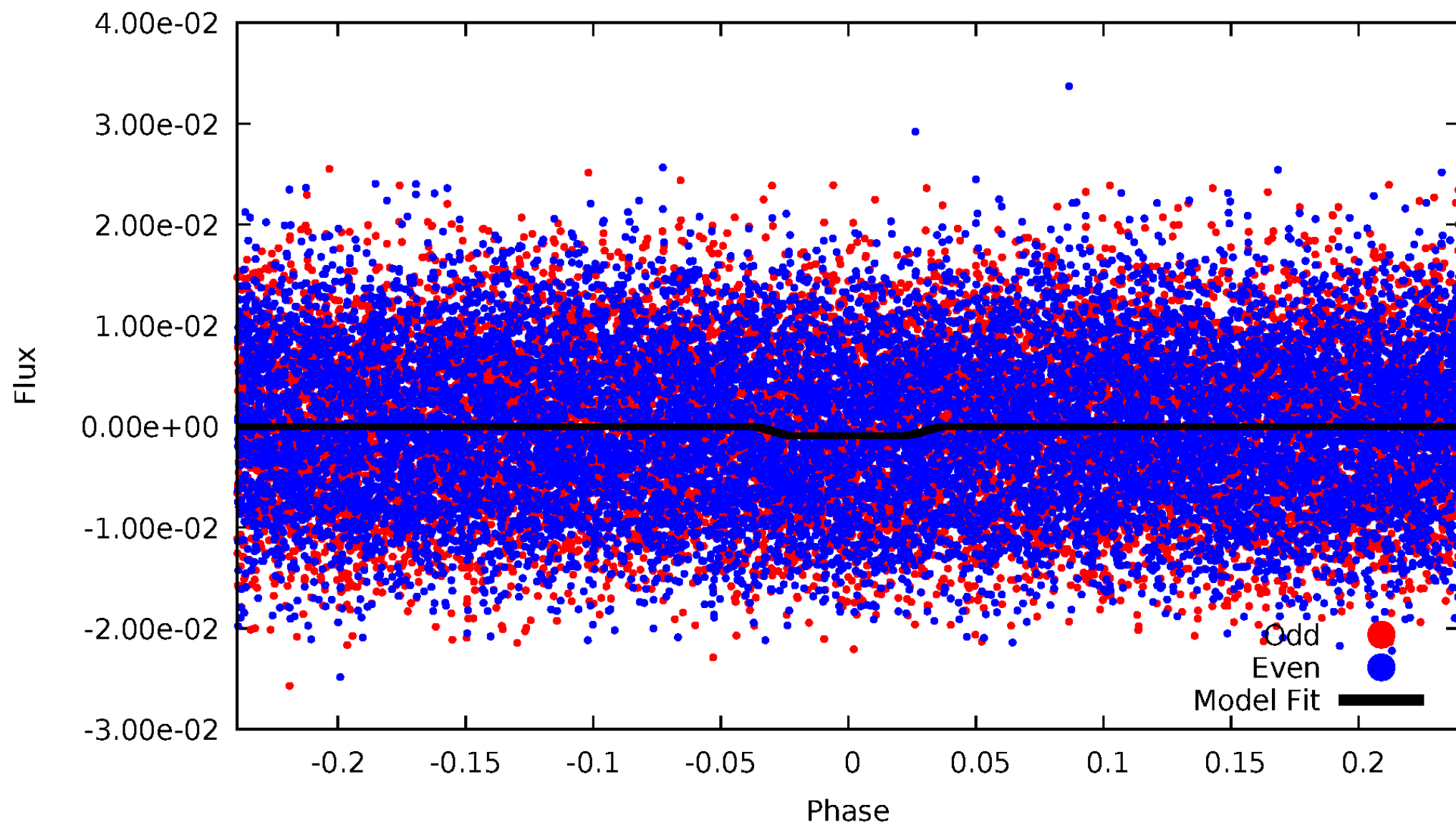
# DV Odd/Even

TCE 003966273-01

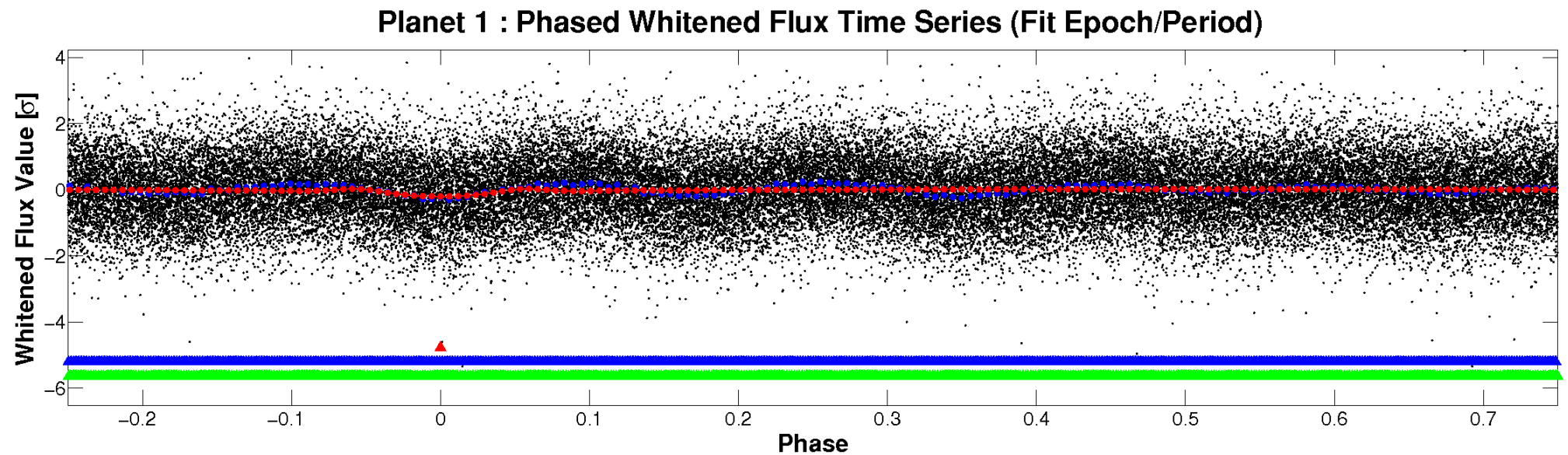
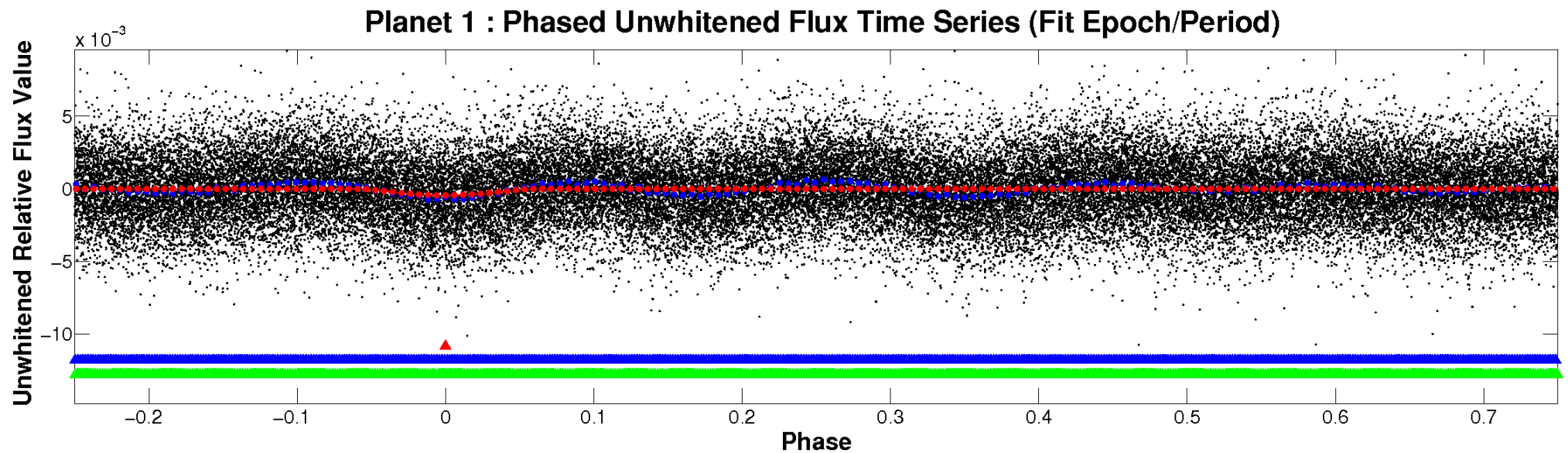


# ALT Odd/Even

TCE 003966273-01



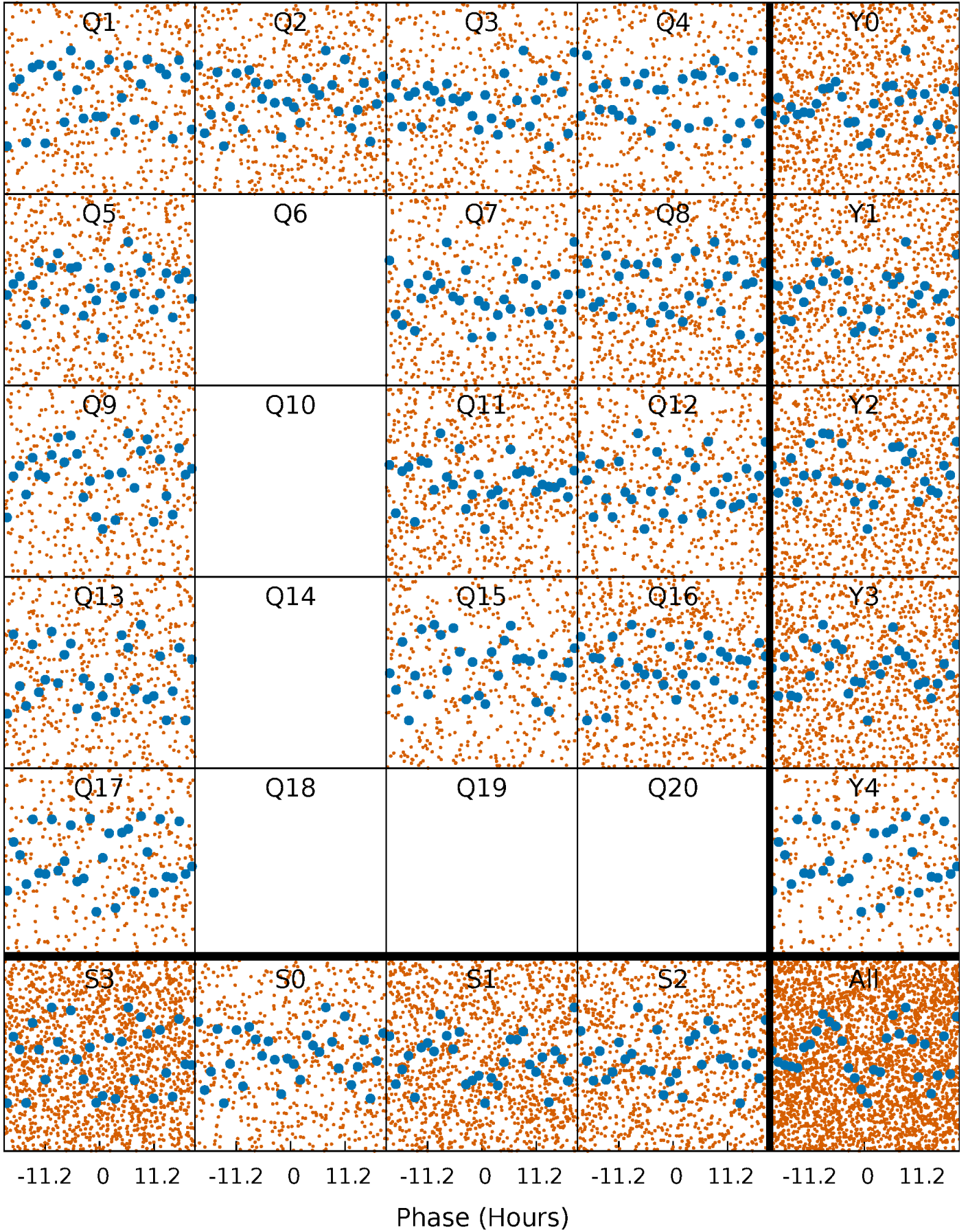
# Non-Whitened Vs. Whitened Light Curve





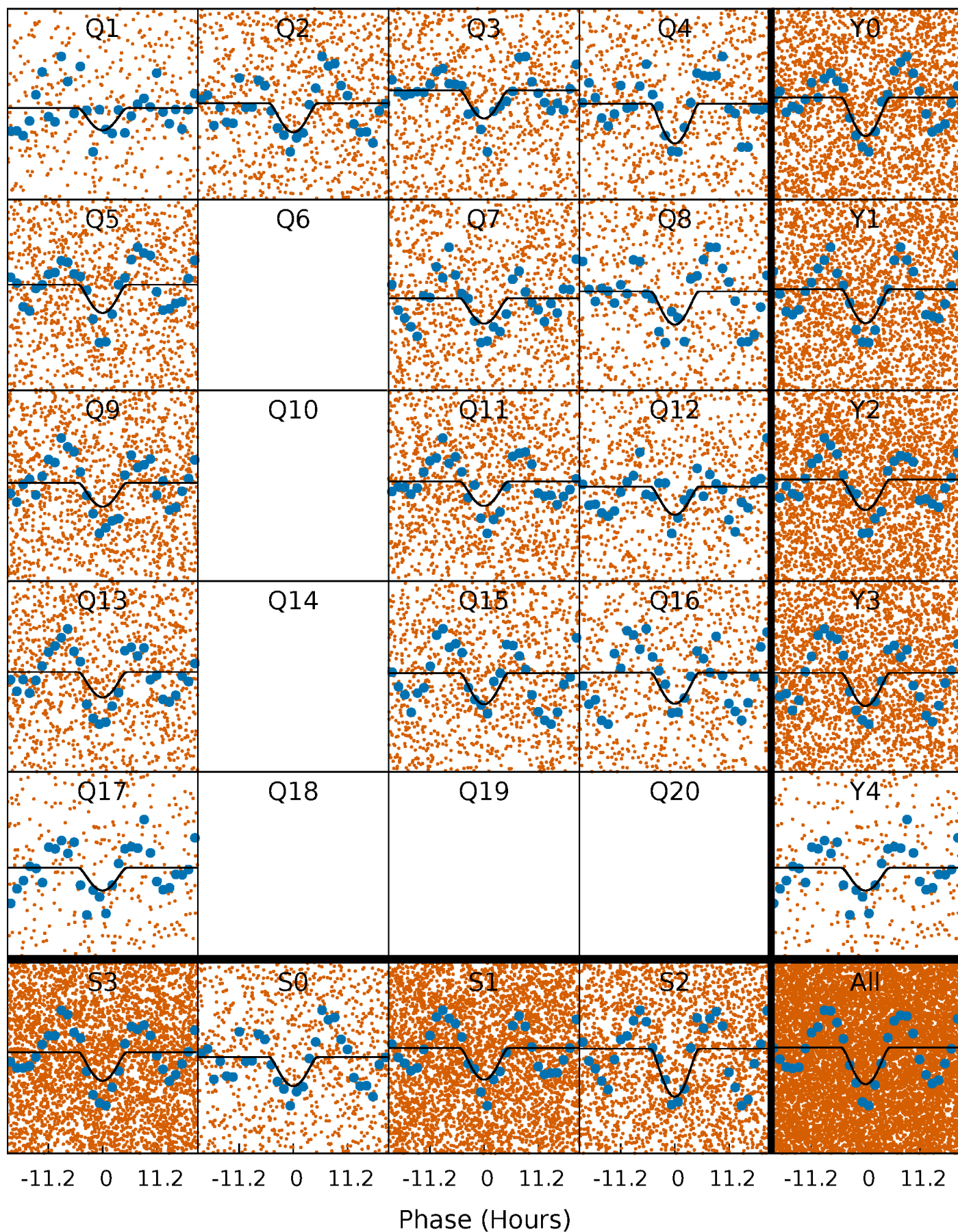
# PDC Quarter-Phased Transit Curves

TCE 003966273-01   P= 3.446142 Days    $T_0=132.298388$  (BKJD)



# DV Quarter-Phased Transit Curves

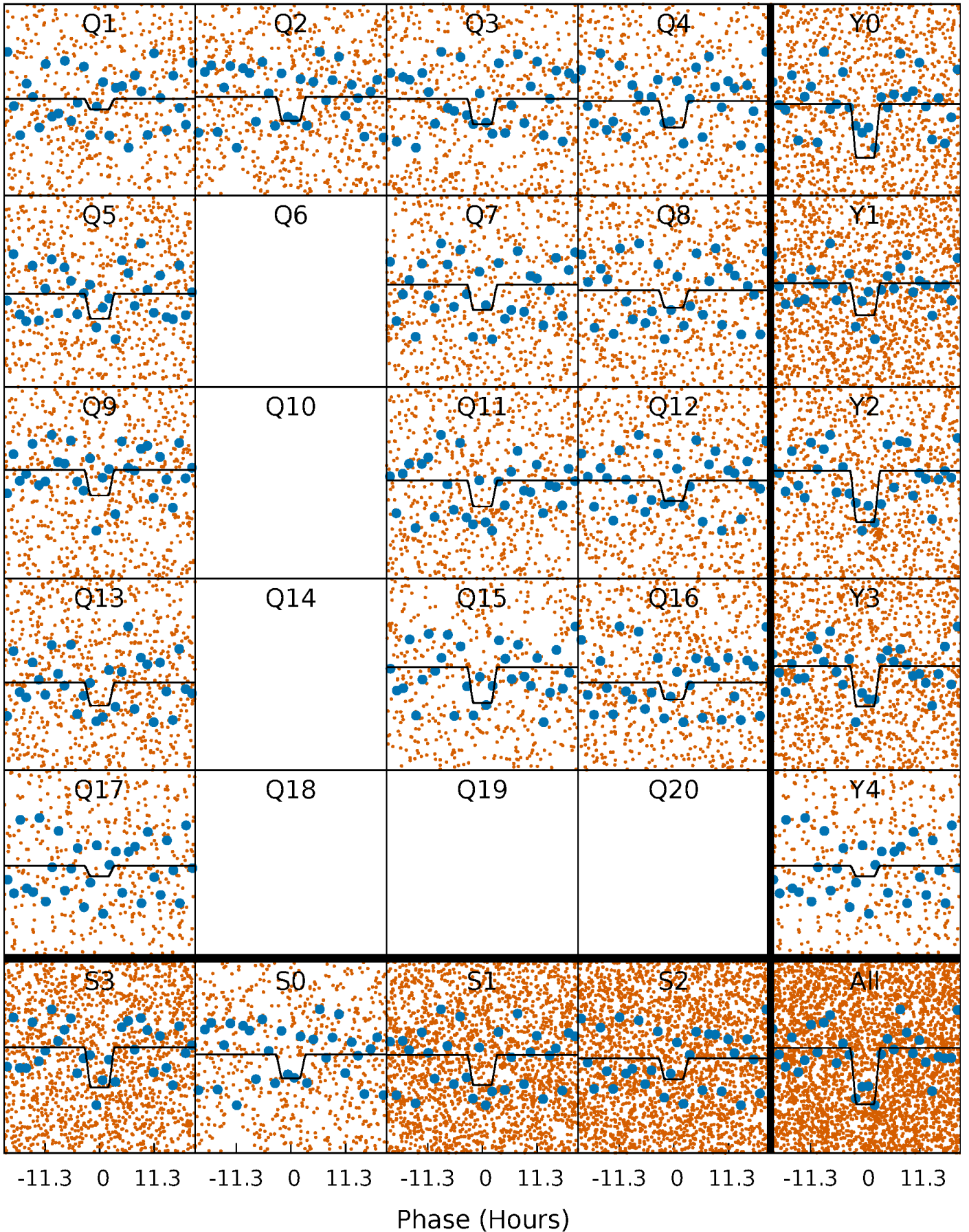
TCE 003966273-01 P= 3.446142 Days  $T_0=132.298388$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 003966273-01 P= 3.446294 Days  $T_0=132.259845$  (BKJD)

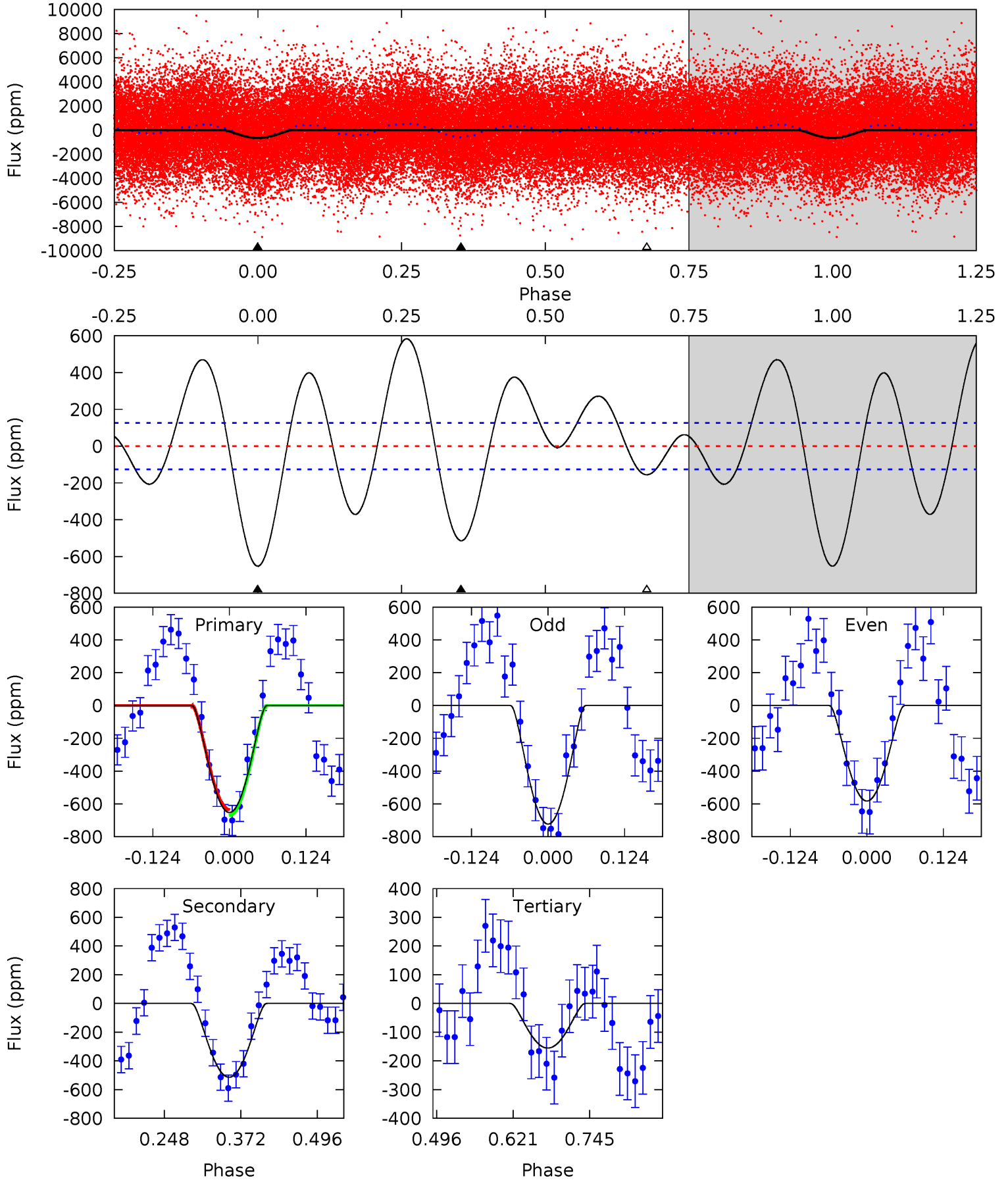




# DV Model-Shift Uniqueness Test

003966273-01, P = 3.446142 Days, E = 128.852246 Days

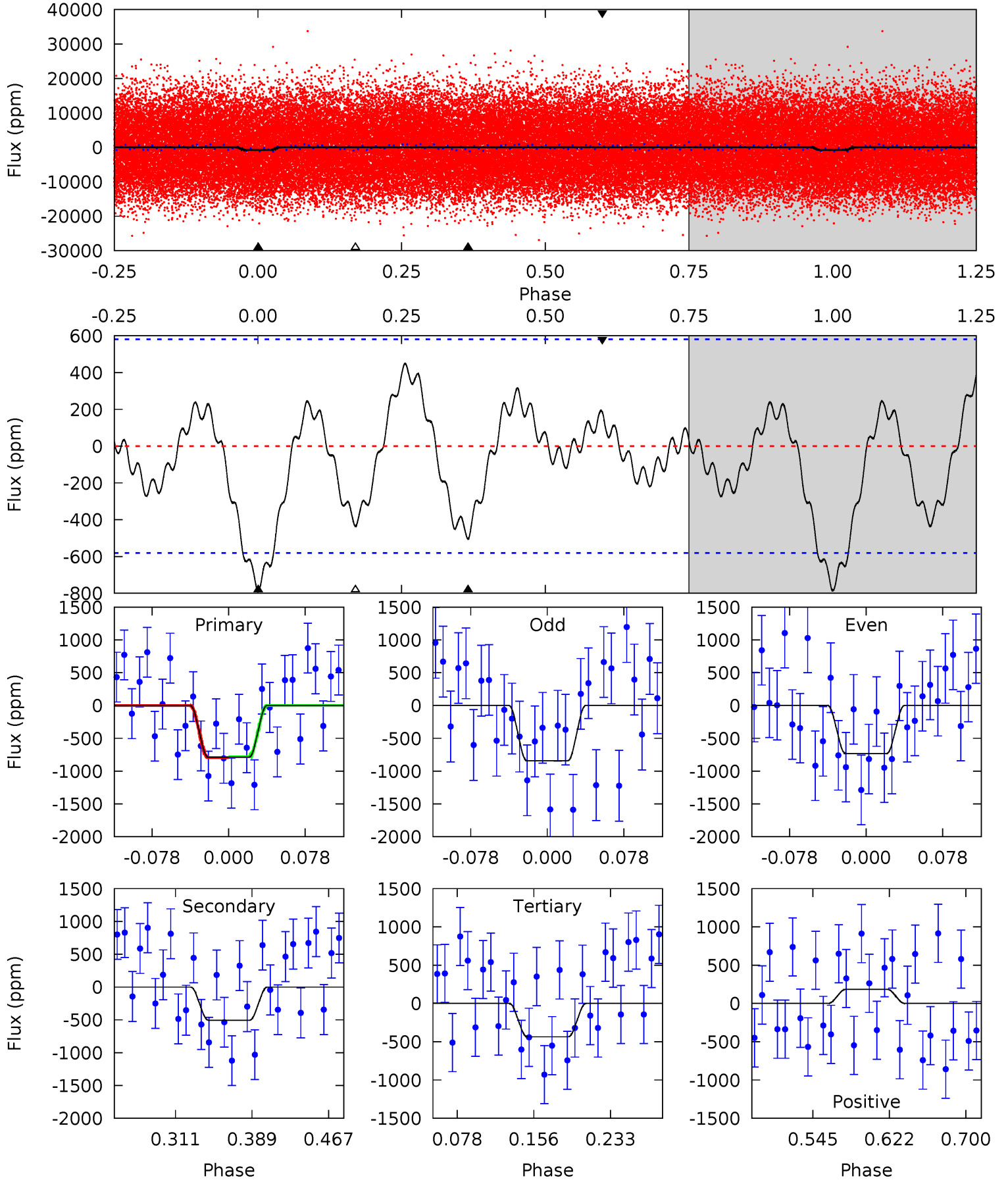
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.4	18.4	5.56	0	4.52	1.54	5.99	17.8	23.4	12.8	18.4	2.51	0.93	0.47	0.61



# Alt Model-Shift Uniqueness Test

003966273-01, P = 3.446294 Days, E = 128.813551 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
6.25	4.02	3.46	1.47	4.62	1.76	1.50	2.79	4.78	0.55	2.55	0.43	1.00	0.36	0.05



### Stellar Parameters For KIC 003966273

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7365^{+230}_{-307}$	$3.971^{+0.234}_{-0.156}$	$-0.160^{+0.250}_{-0.350}$	$2.183^{+0.551}_{-0.673}$	$1.626^{+0.183}_{-0.313}$	$0.220^{+0.322}_{-0.100}$
	+3%/-4%	+6%/-4%	+156%/-219%	+25%/-31%	+11%/-19%	+146%/-45%
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 003966273-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-514 \pm 28$	$12.92^{+12.83}_{-8.48}$	$2892^{+204}_{-234}$	$4588^{+3391}_{-1052}$	$4.465^{+33.151}_{-3.292}$
Alt.	$-506 \pm 126$	$11.42^{+11.69}_{-7.25}$	$2878^{+233}_{-237}$	$4871^{+3416}_{-1216}$	$5.720^{+37.884}_{-4.372}$

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



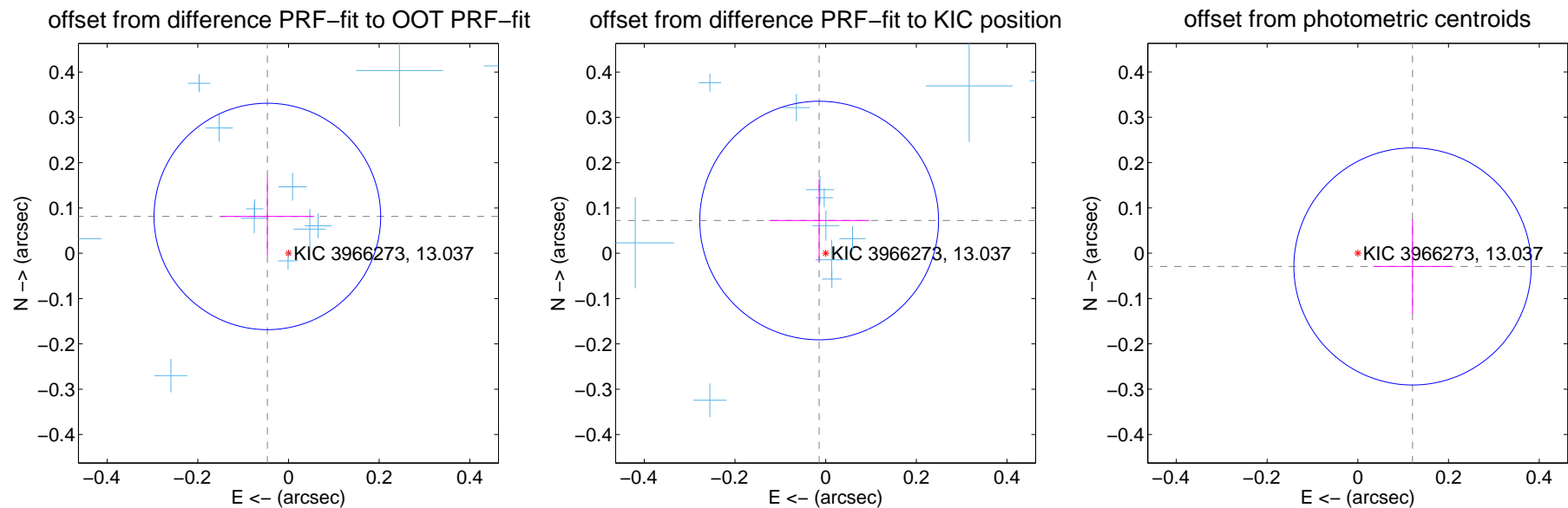
## DV Centroid Data

Supplemental centroid analysis for 003966273-01. Kepler magnitude: 13.04. Transit SNR 10.63

There are 14 quarters with good PRF difference image offsets

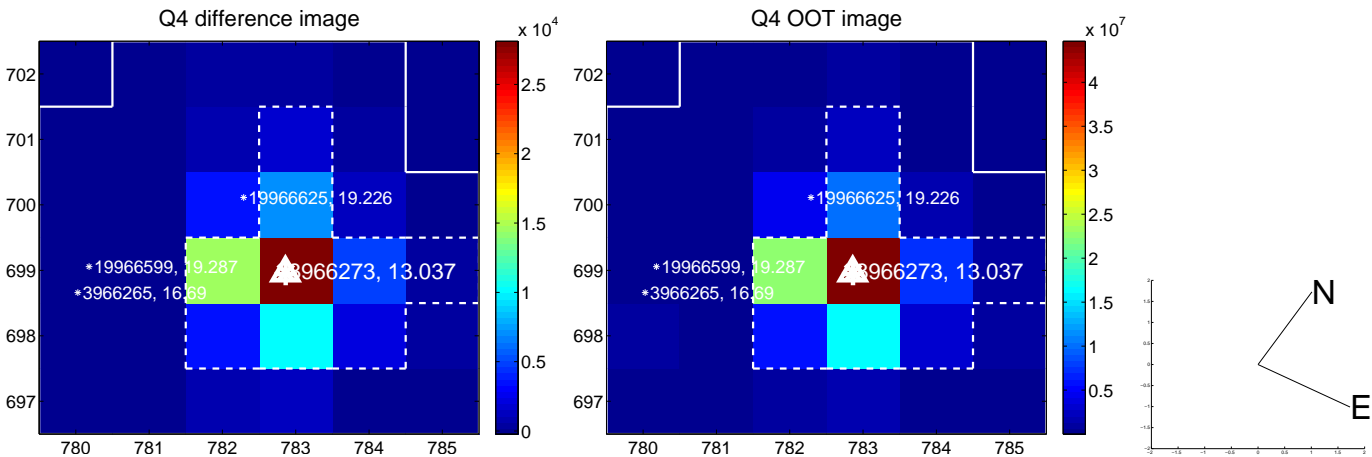
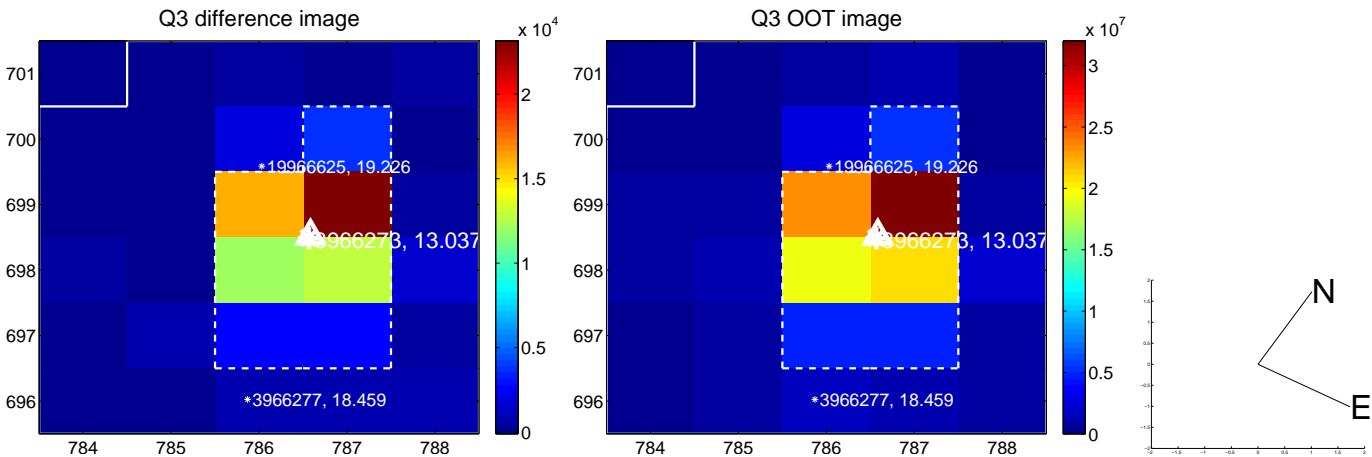
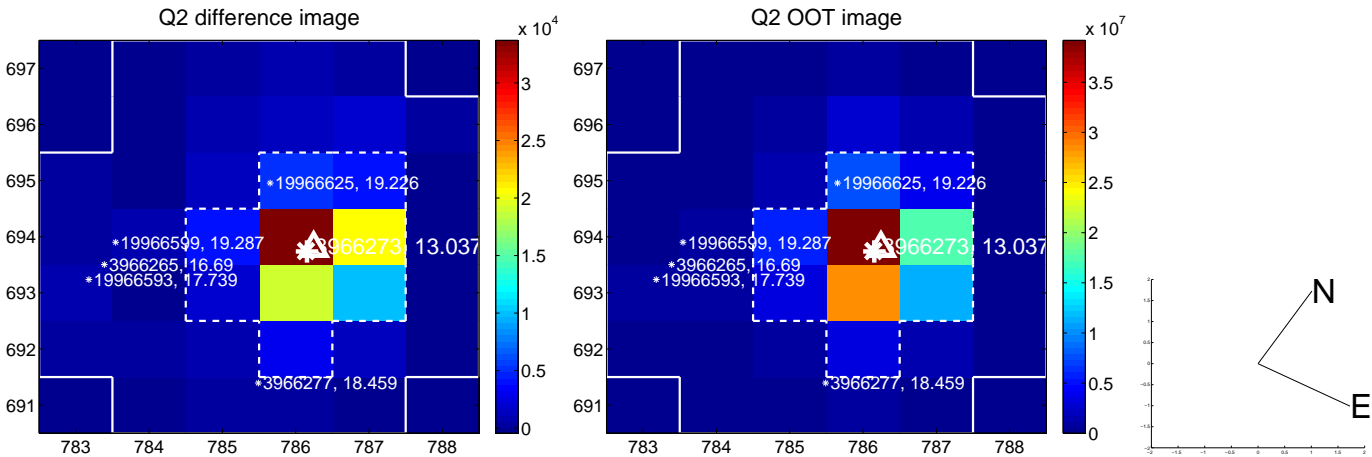
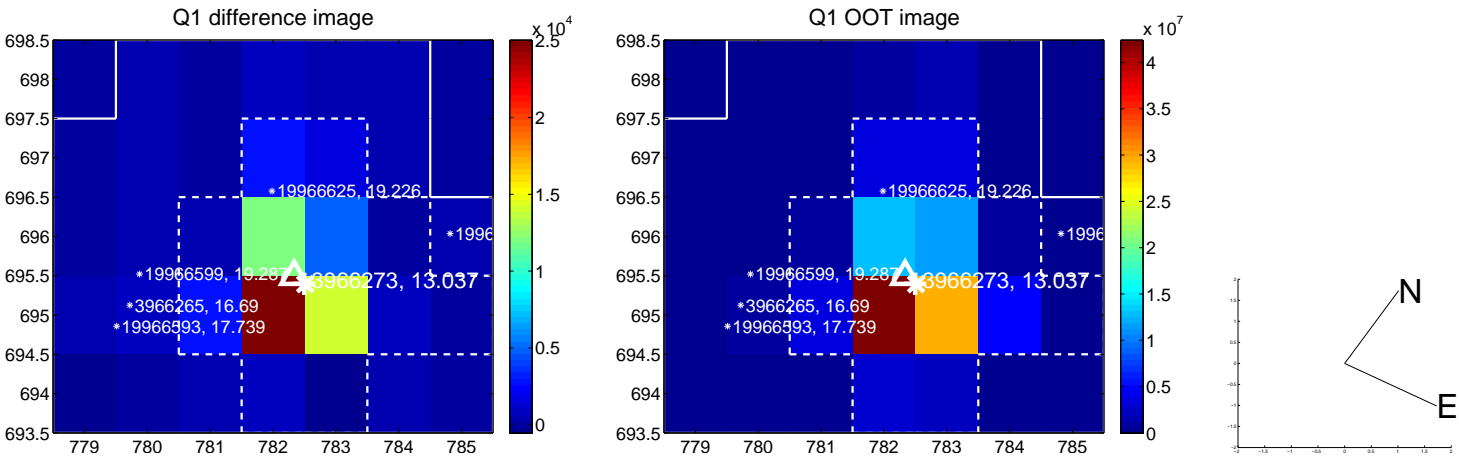
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.094 \pm 0.083$	1.13	$0.047 \pm 0.103$	$0.081 \pm 0.087$
PRF-fit source offset from KIC position	$0.074 \pm 0.088$	0.84	$0.014 \pm 0.110$	$0.072 \pm 0.091$
photometric centroid source offset	$0.12 \pm 0.09$	1.42	$-0.12 \pm 0.09$	$-0.03 \pm 0.10$

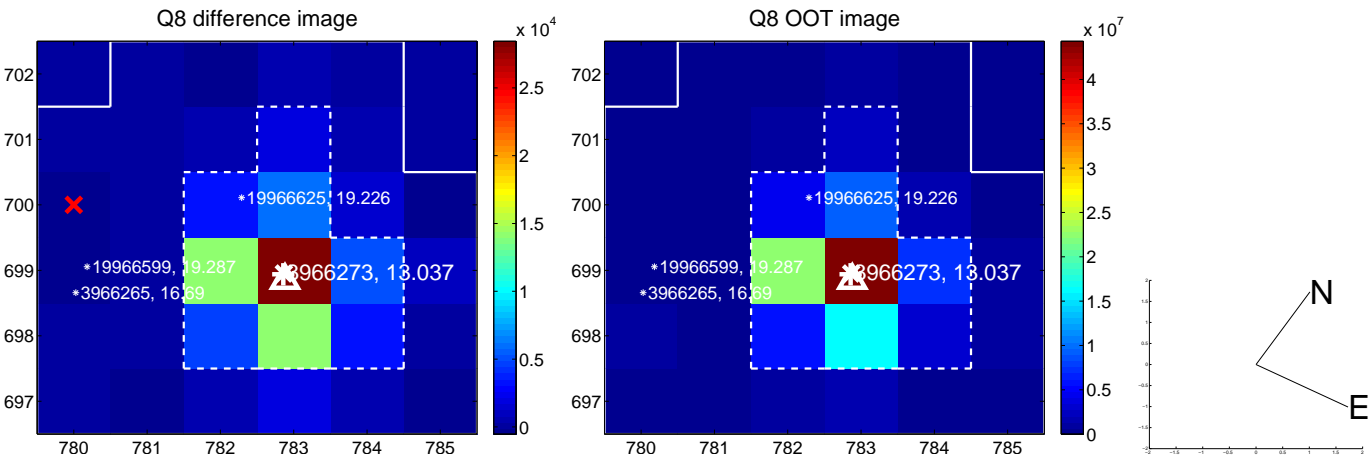
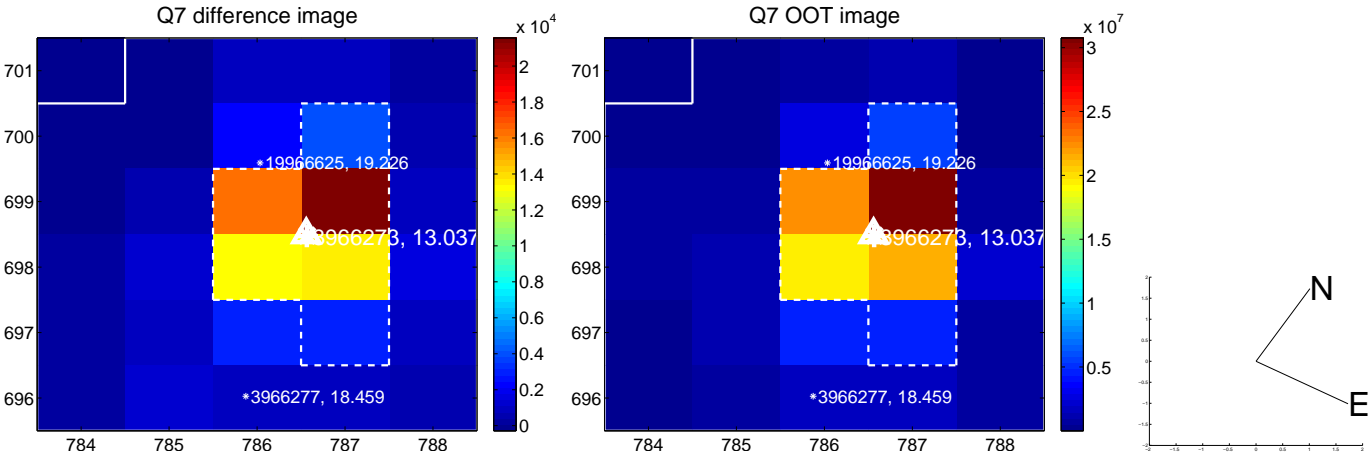
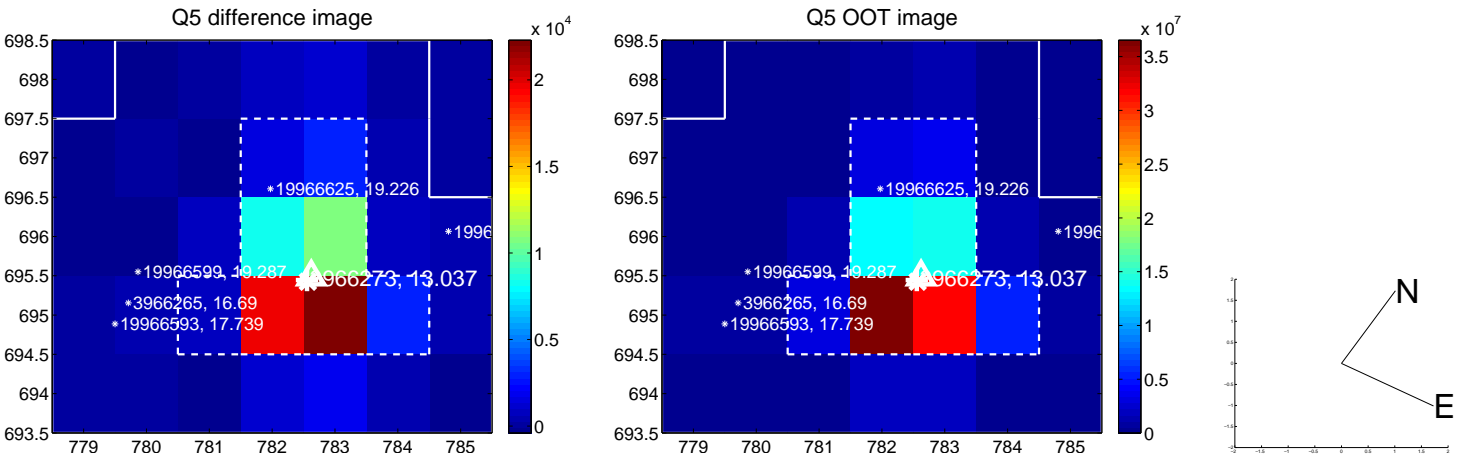


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

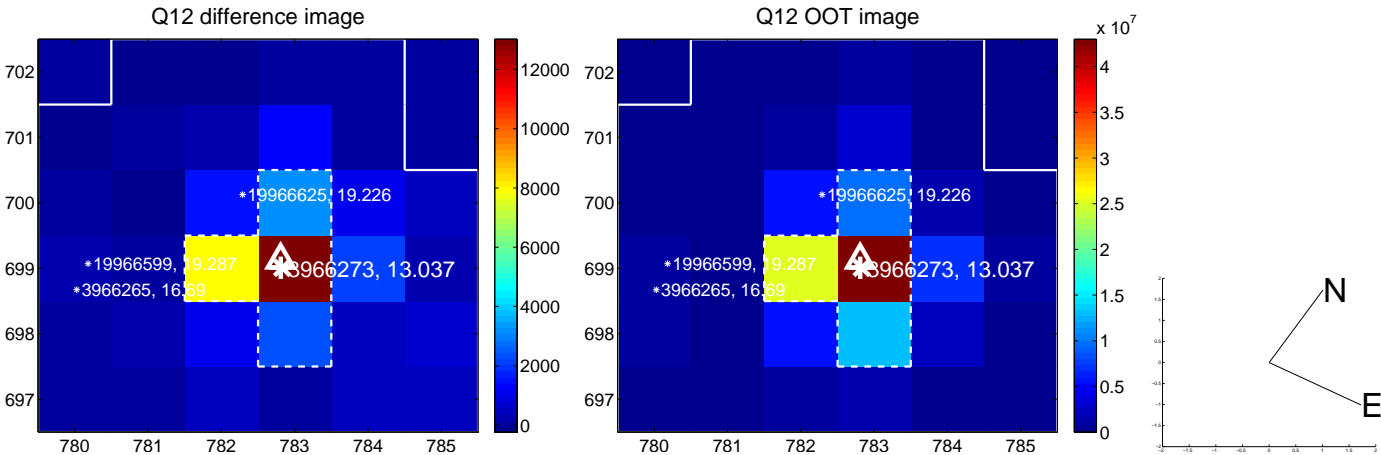
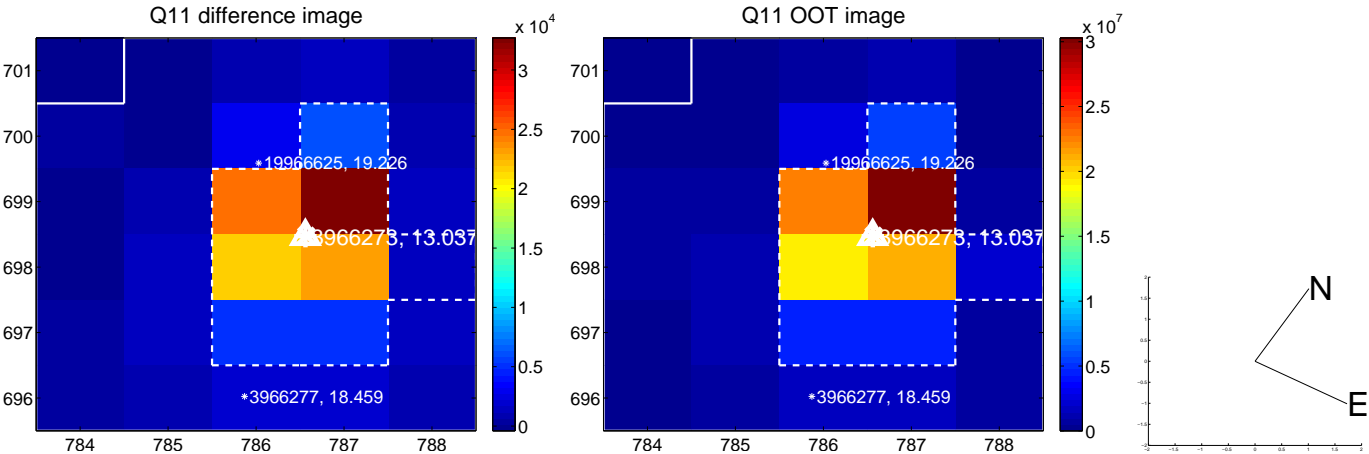
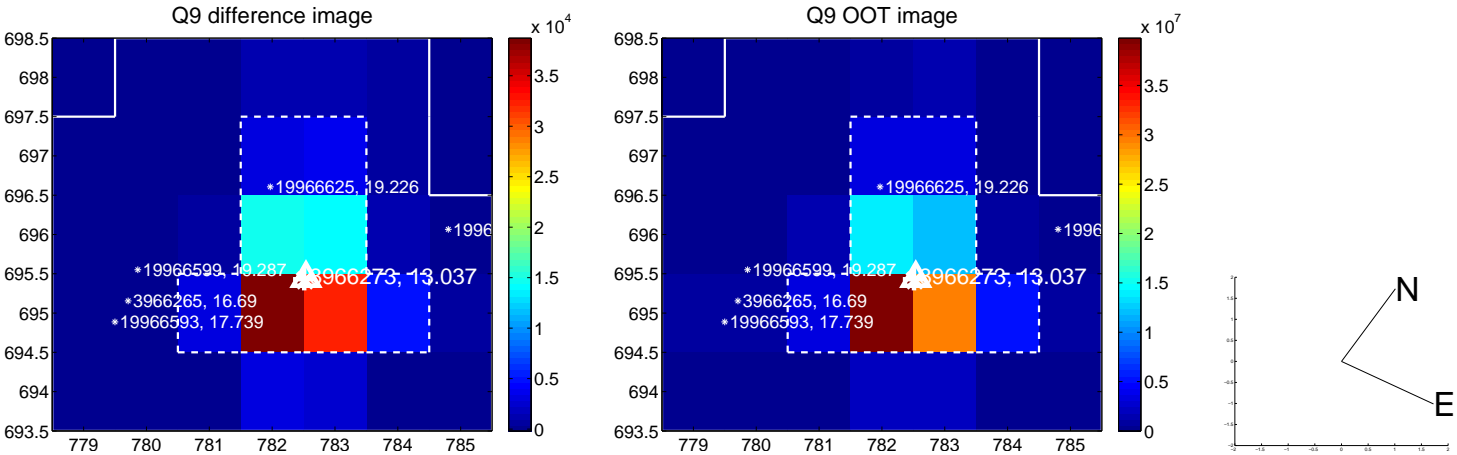


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

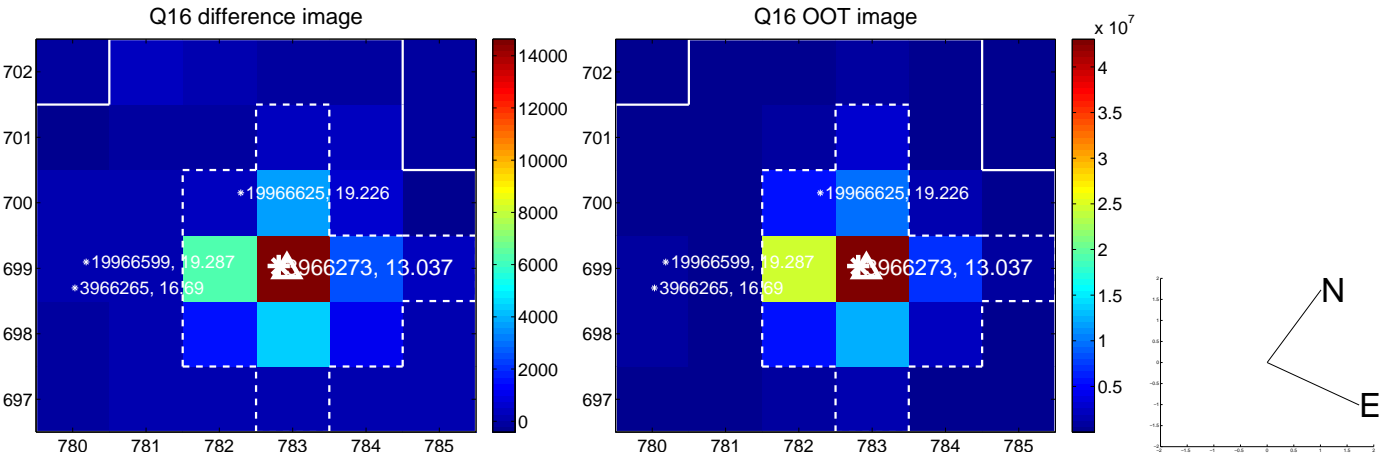
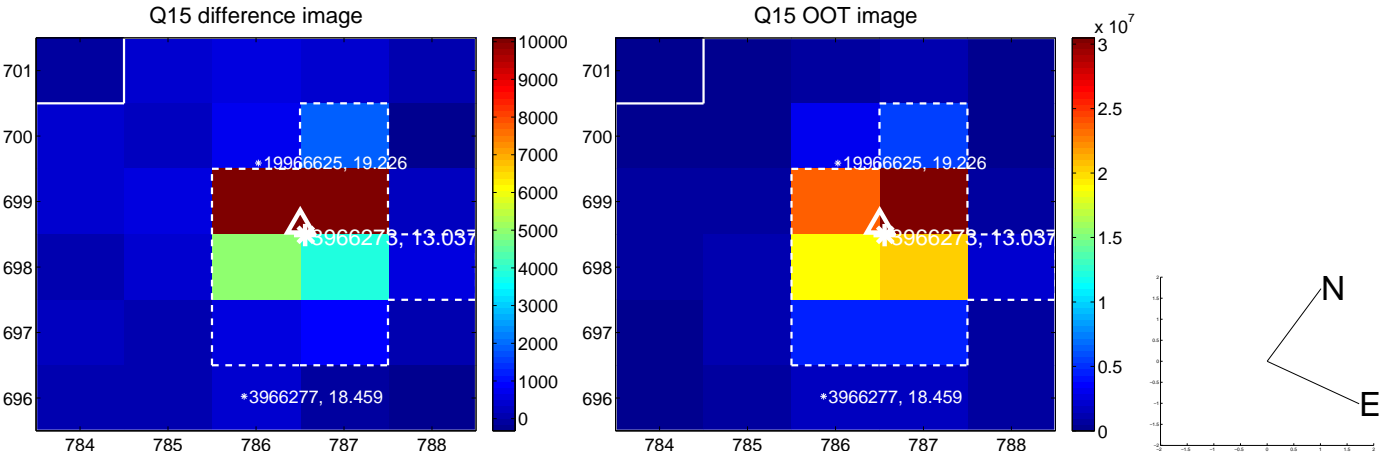
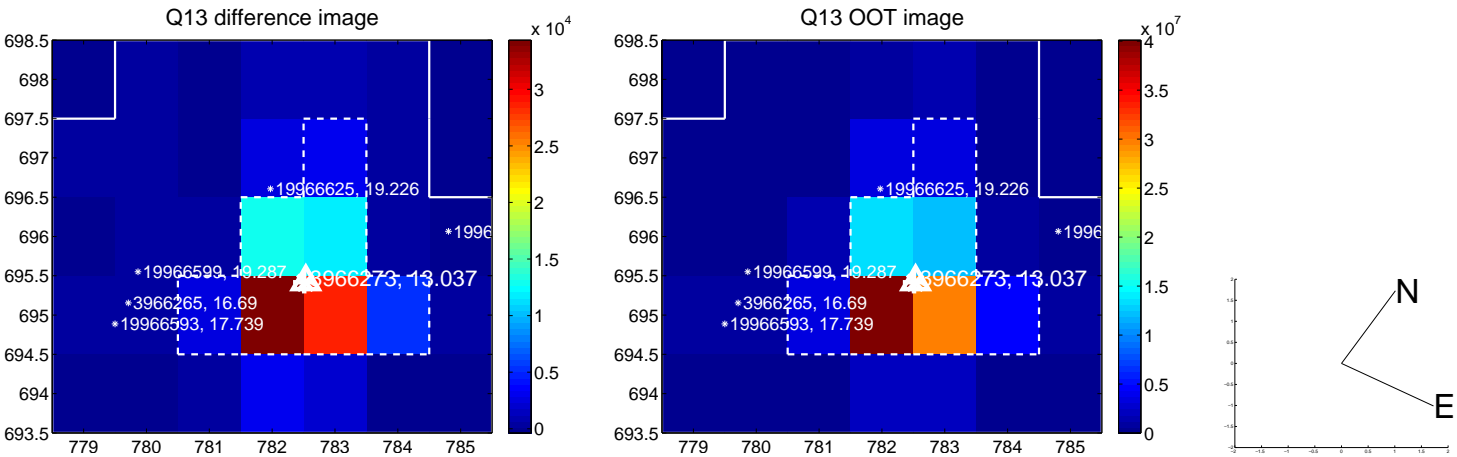




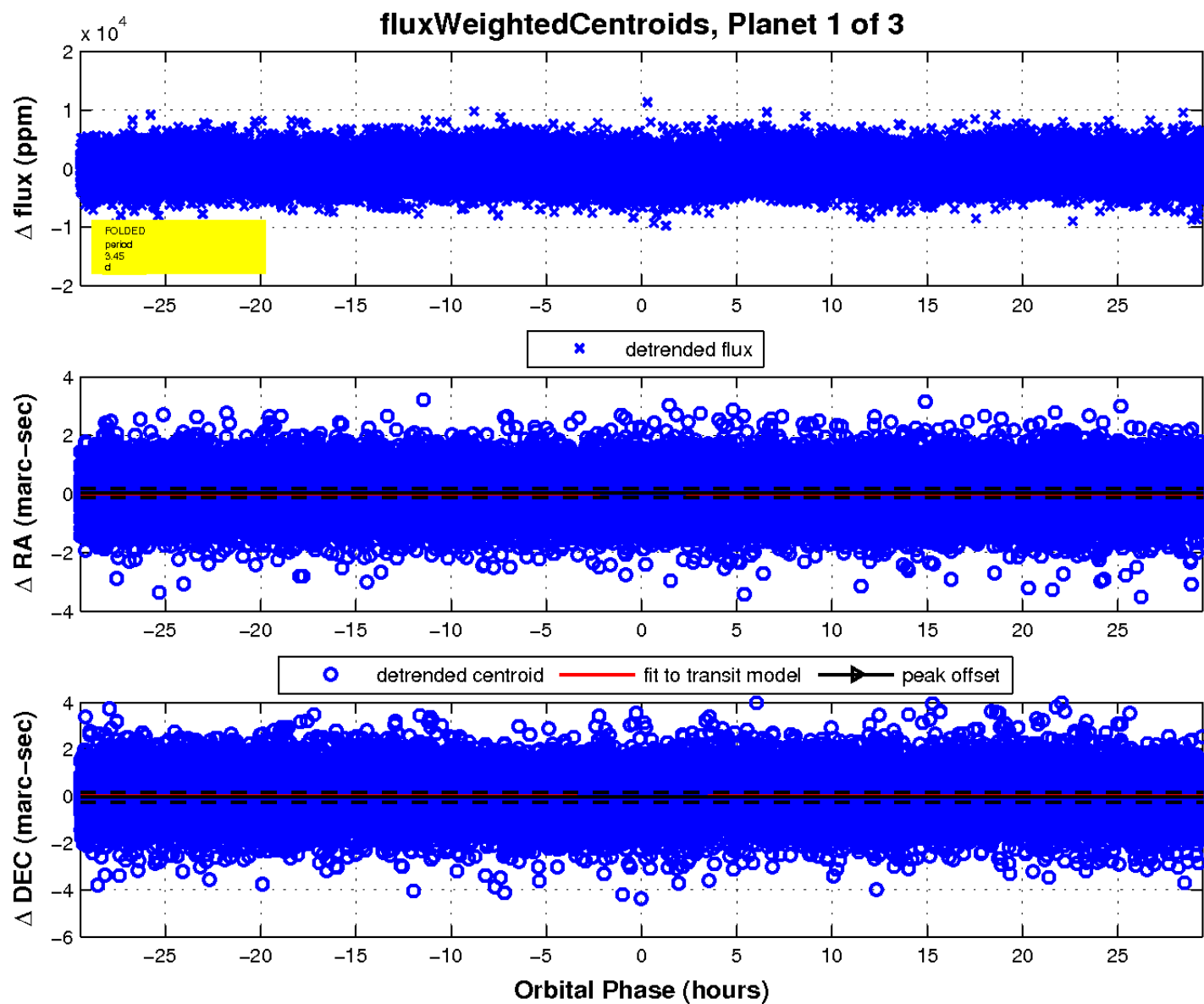
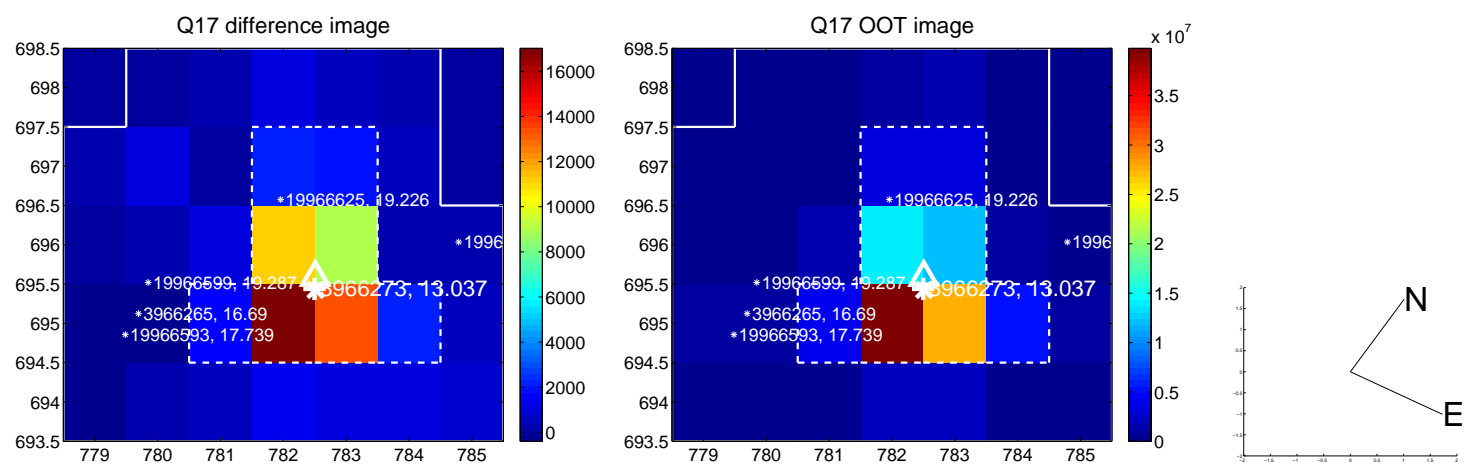
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

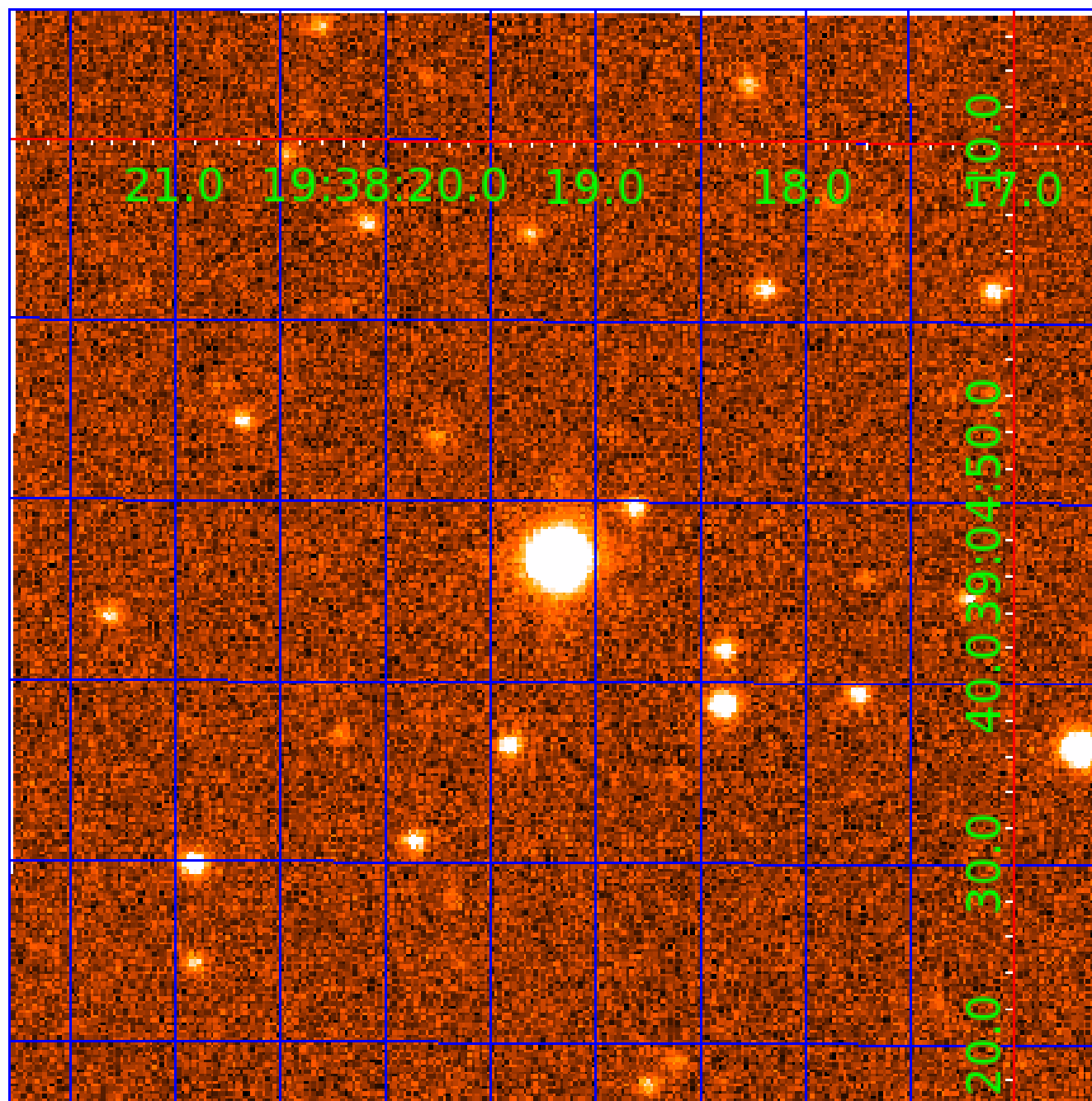


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 003966273

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003966273-01	OBS	No	3.446142	132.298388	448.1	9.822	9.6	10.6	2.18	7365	8.85	4555.23
003966273-02	OBS	No	1.615753	132.671128	323.6	6.984	10.1	10.1	2.18	7365	4.31	12506.08
003966273-03	OBS	No	1.615564	131.848680	352.1	8.465	10.7	12.0	2.18	7365	4.17	12508.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003966273-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
003966273-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
003966273-03	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

**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.

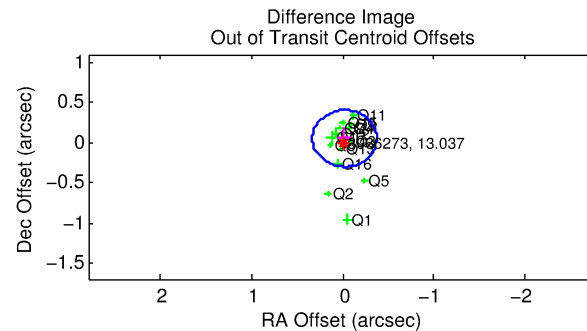
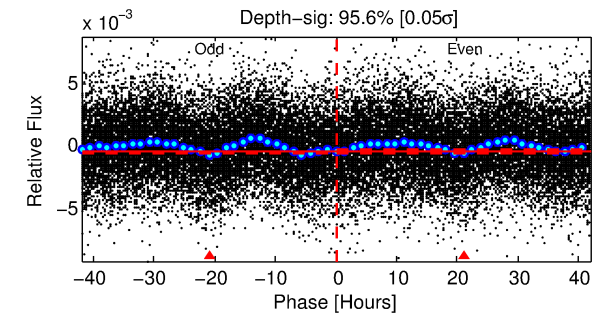
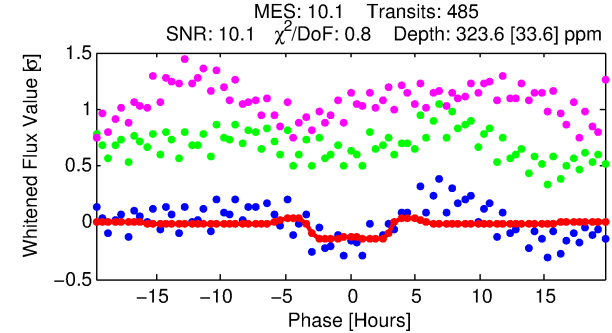
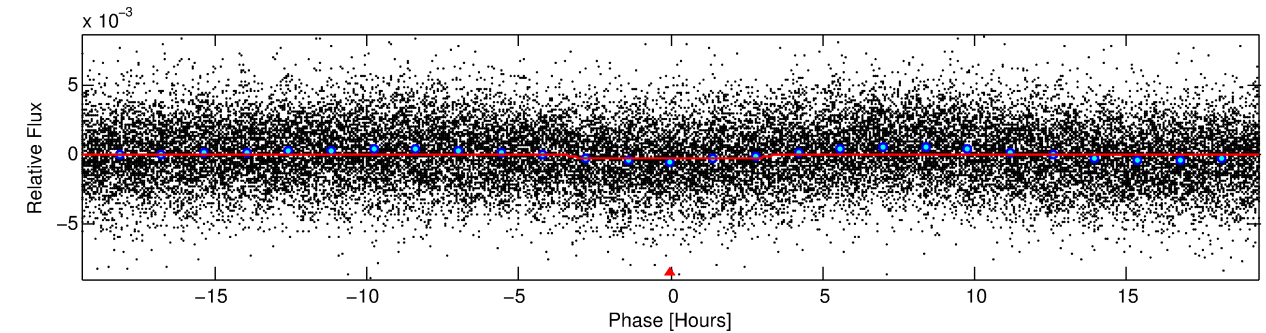
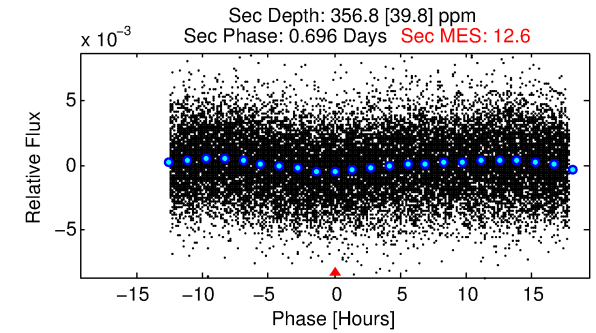
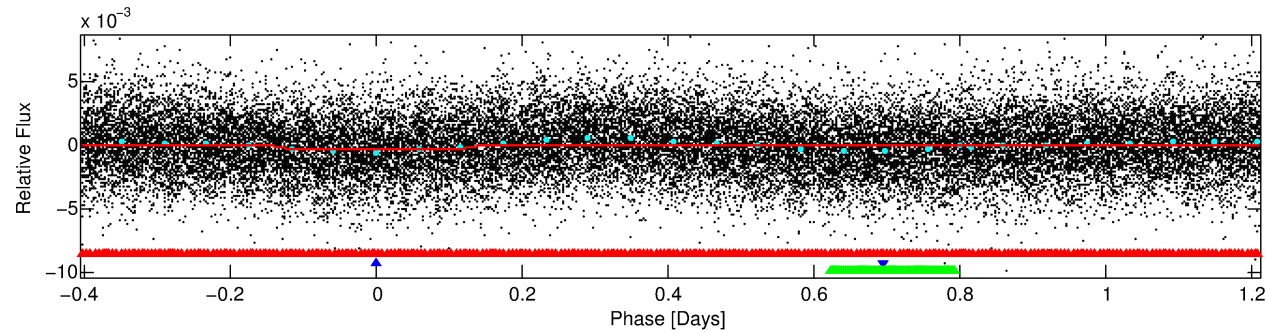
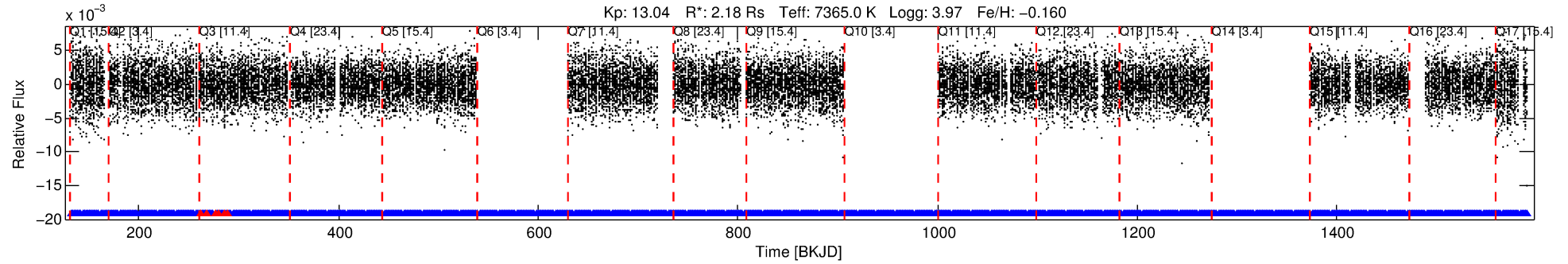
## Ephemeris Match Information For 003966273-02

No Significant Match Found



# DV One-Page Summary

KIC: 3966273 Candidate: 2 of 3 Period: 1.616 d



## DV Fit Results:

Period = 1.61575 [0.00002] d  
Epoch = 132.6711 [0.0066] BKJD  
Rp/R\* = 0.0181 [0.0084]  
a/R\* = 1.44 [1.92]  
b = 0.79 [1.27]  
Seff = 12506.08 [5579.85]  
Teq = 2697 [301] K  
Rp = 4.31 [2.41] Re  
a = 0.0317 [0.0087] AU  
Ag = 10.60 [10.89] [0.88σ]  
Teffp = 7523 [1795] K [2.65σ]

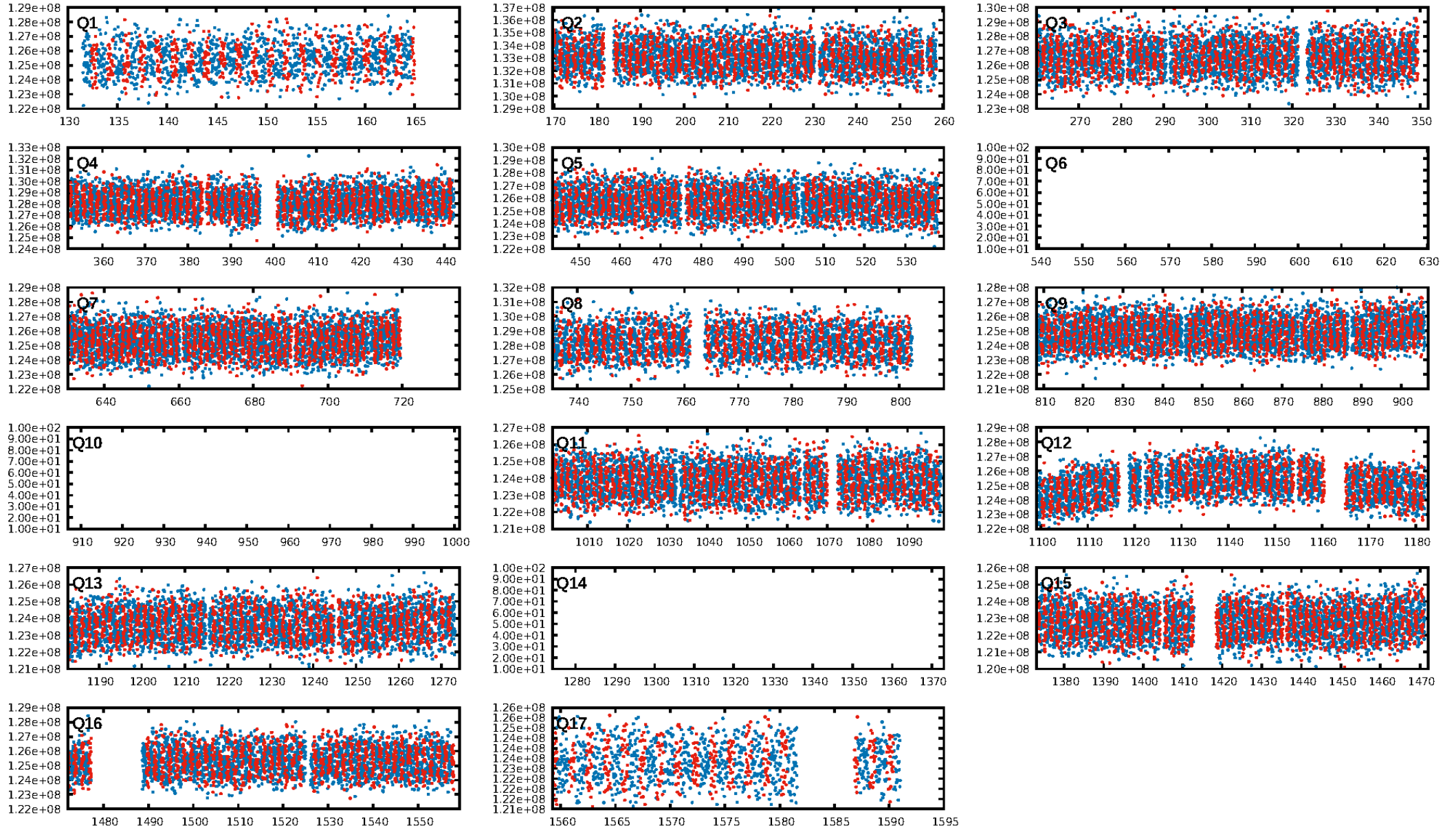
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [3.64σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [453/459]  
GhostDiagnostic-chr: 0.9459  
Centroid-sig: 0.0%  
Centroid-so: 0.175 arcsec [2.30σ]  
OotOffset-rm: 0.055 arcsec [0.47σ]  
KicOffset-rm: 0.056 arcsec [0.61σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 0.36 [5/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:05:23 Z

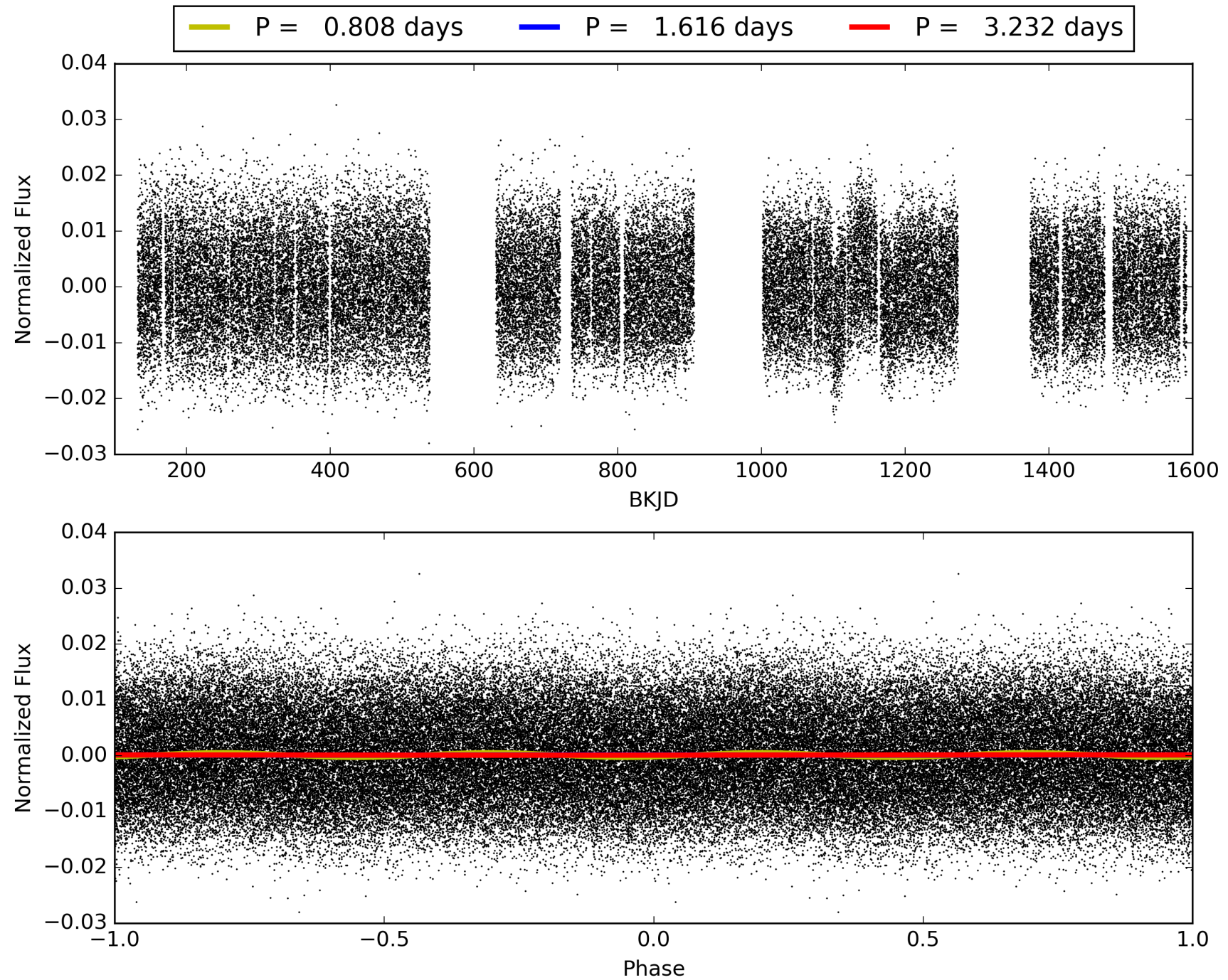
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003966273-02, PDC Light Curves



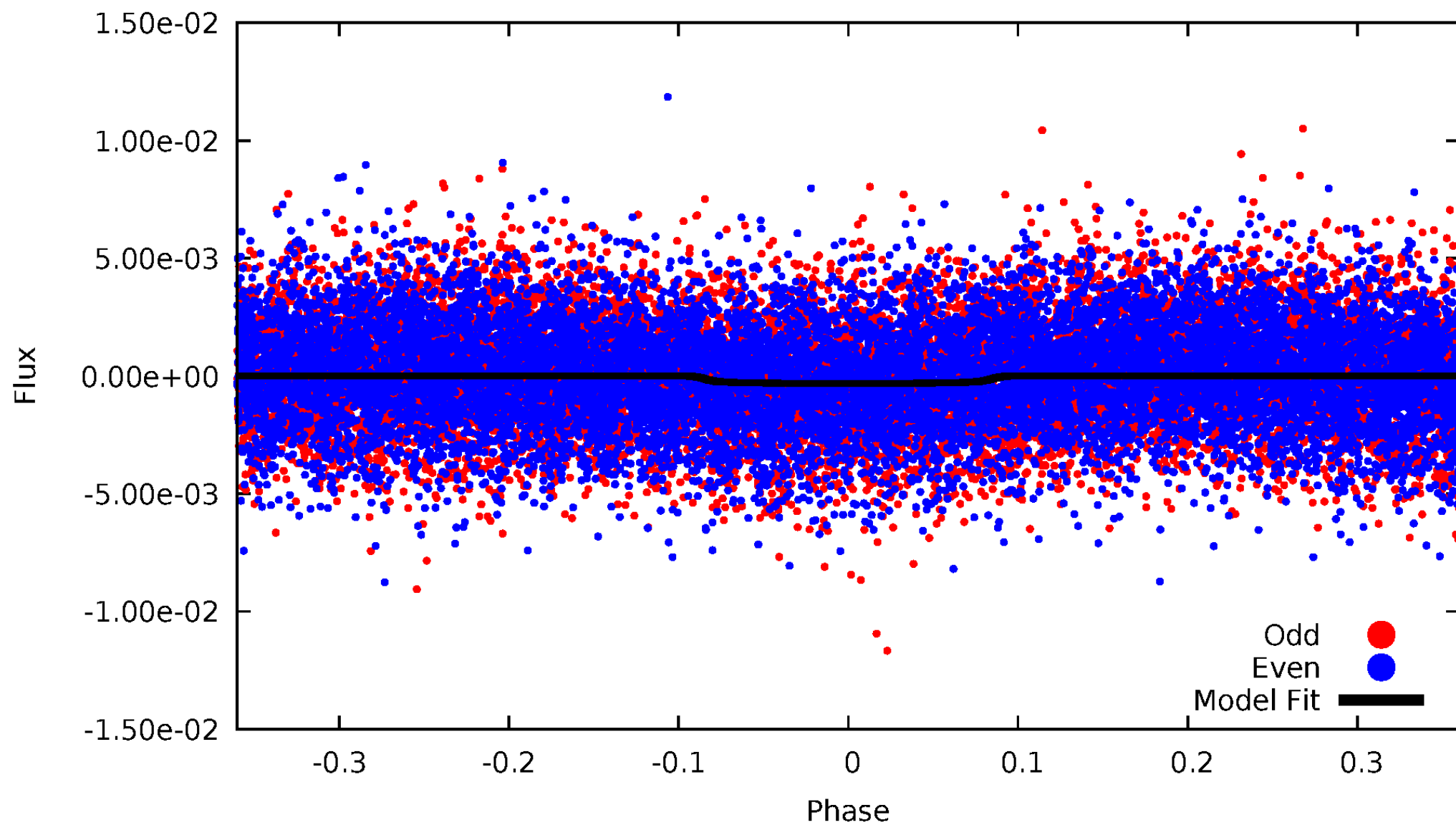


TCE 003966273-02



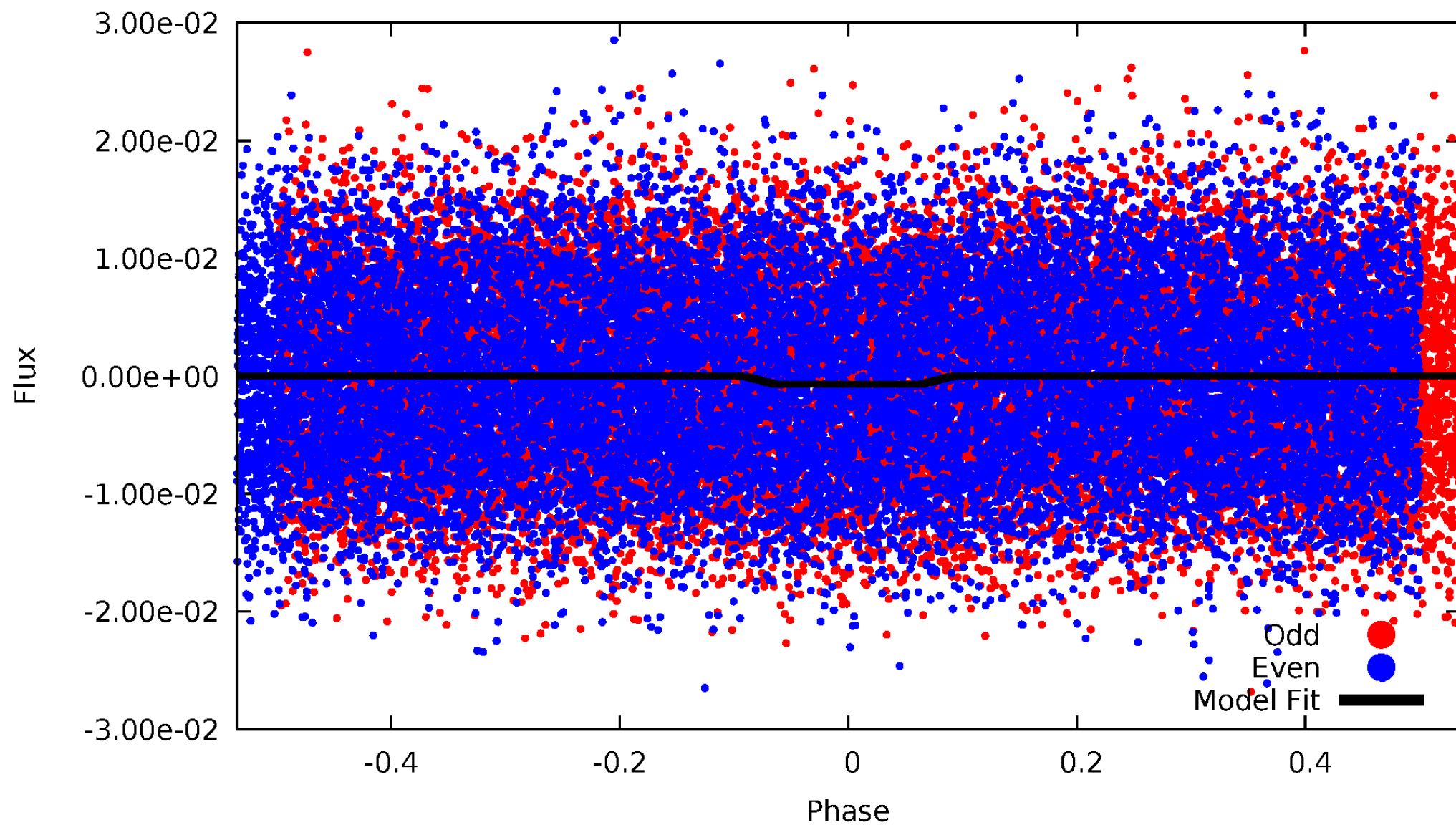
DV Odd/Even

TCE 003966273-02



# ALT Odd/Even

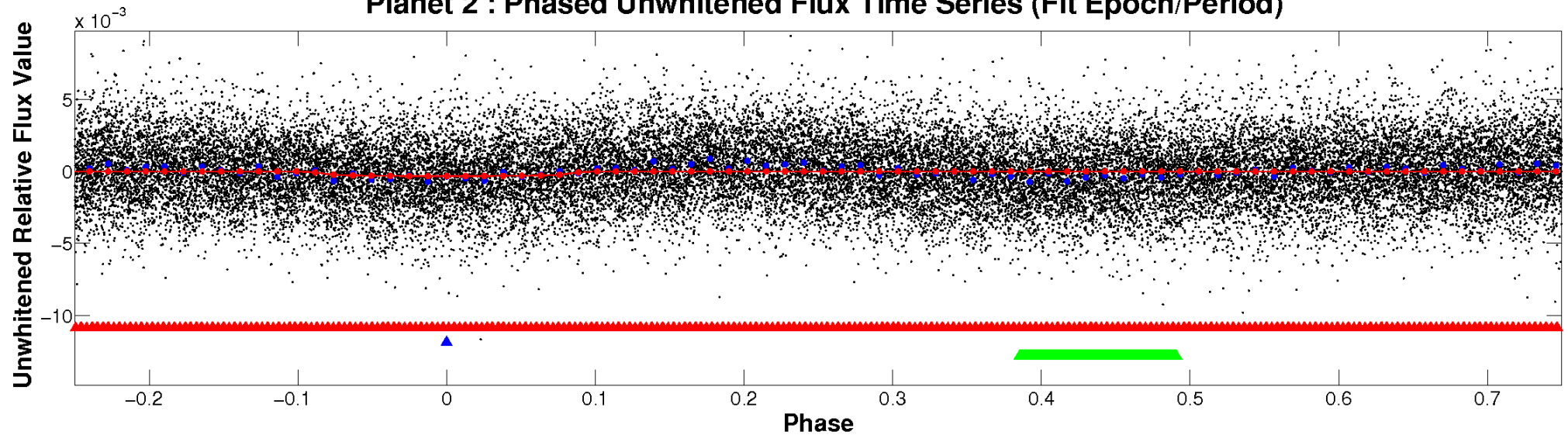
TCE 003966273-02



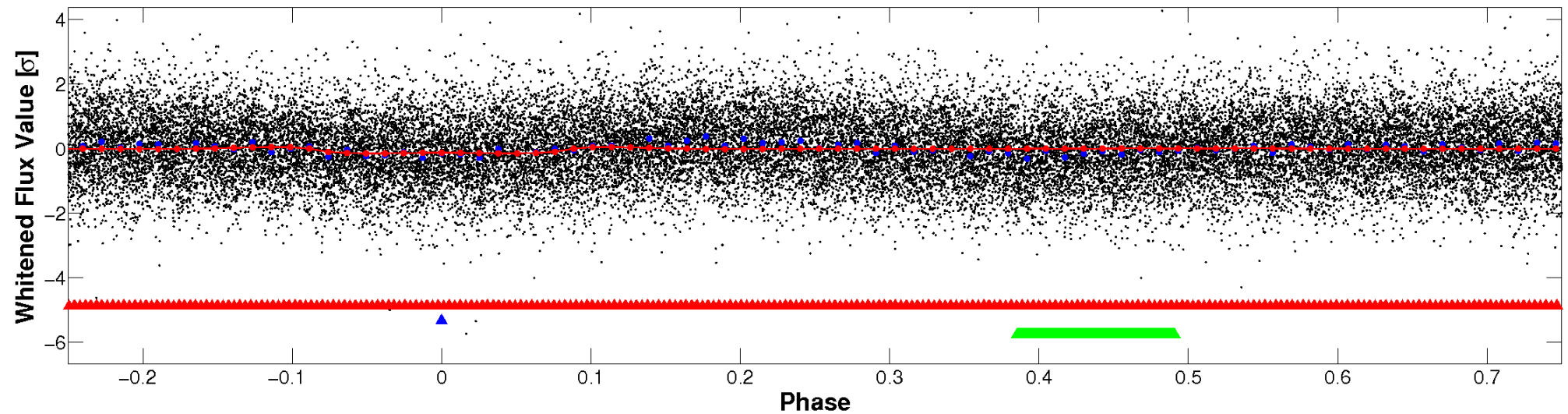


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

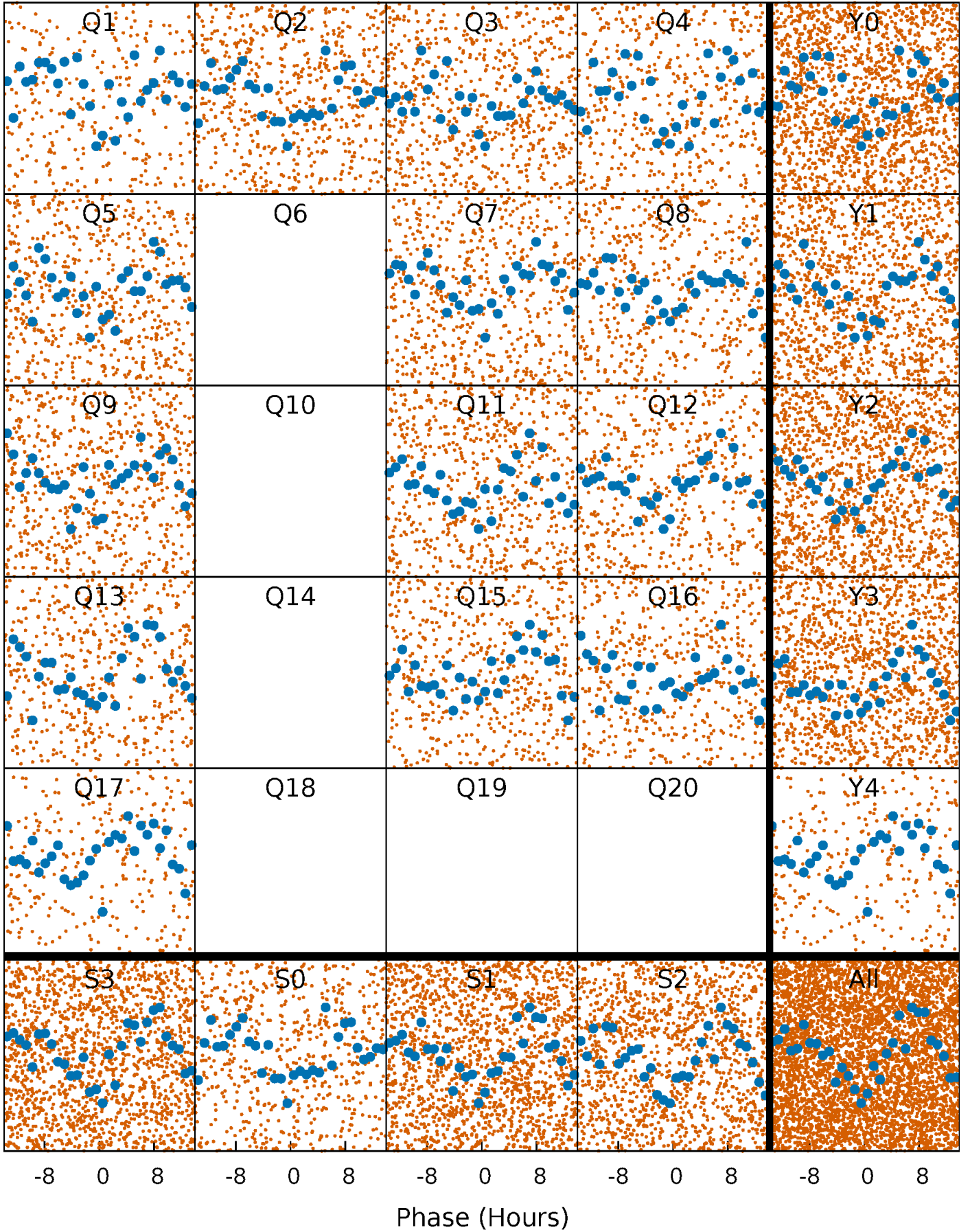


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



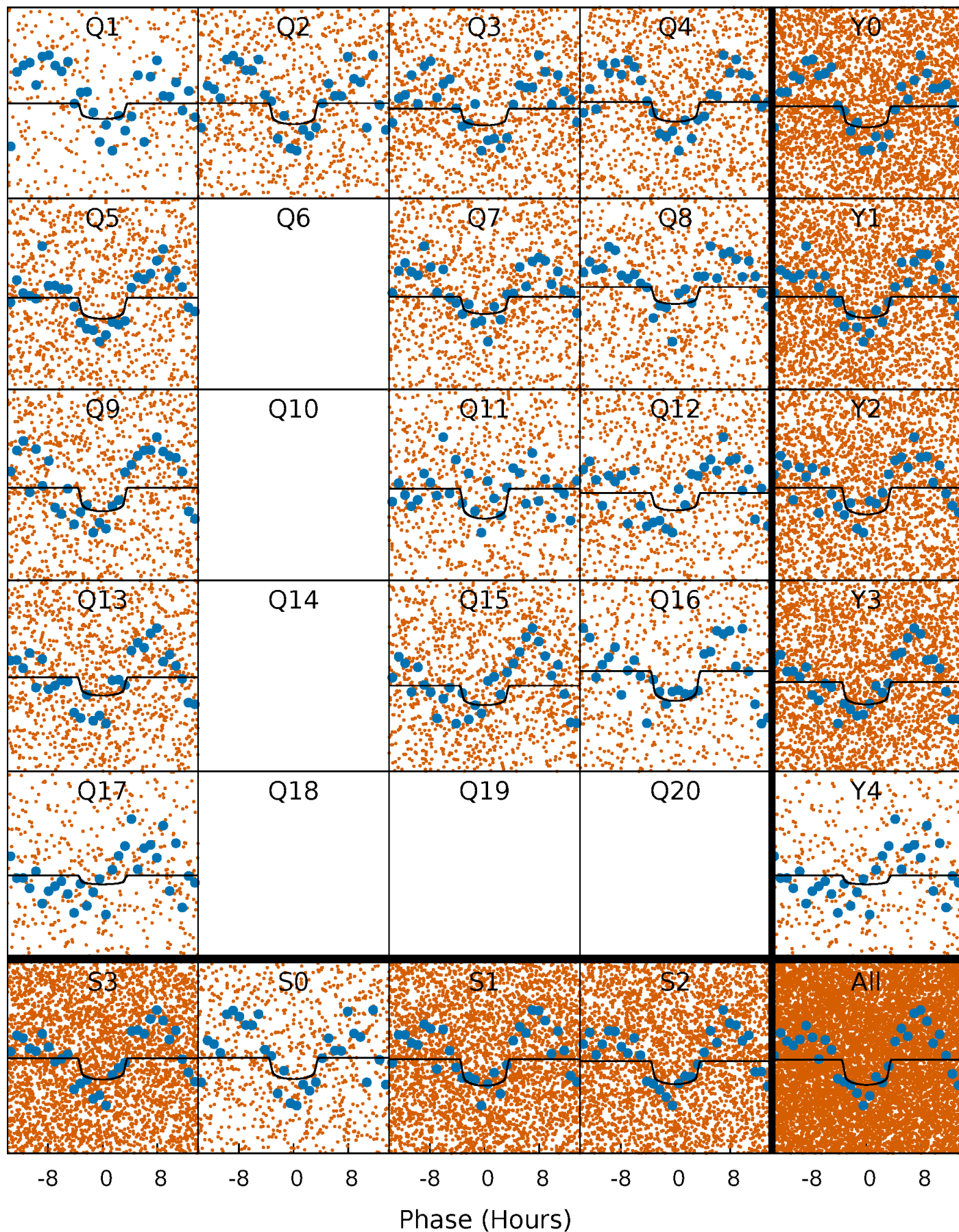
# PDC Quarter-Phased Transit Curves

TCE 003966273-02   P= 1.615753 Days    $T_0=132.671128$  (BKJD)



# DV Quarter-Phased Transit Curves

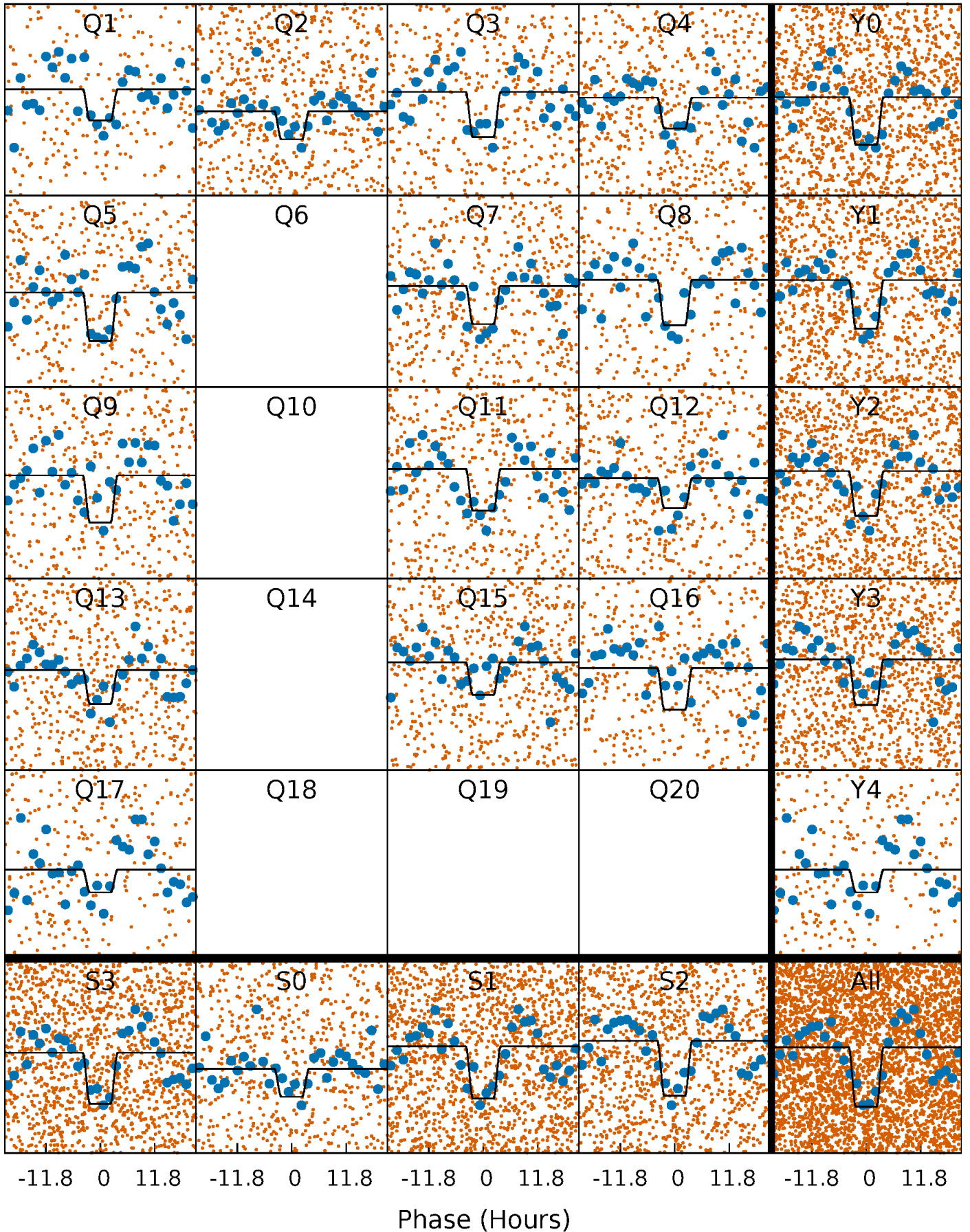
TCE 003966273-02   P= 1.615753 Days    $T_0=132.671128$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

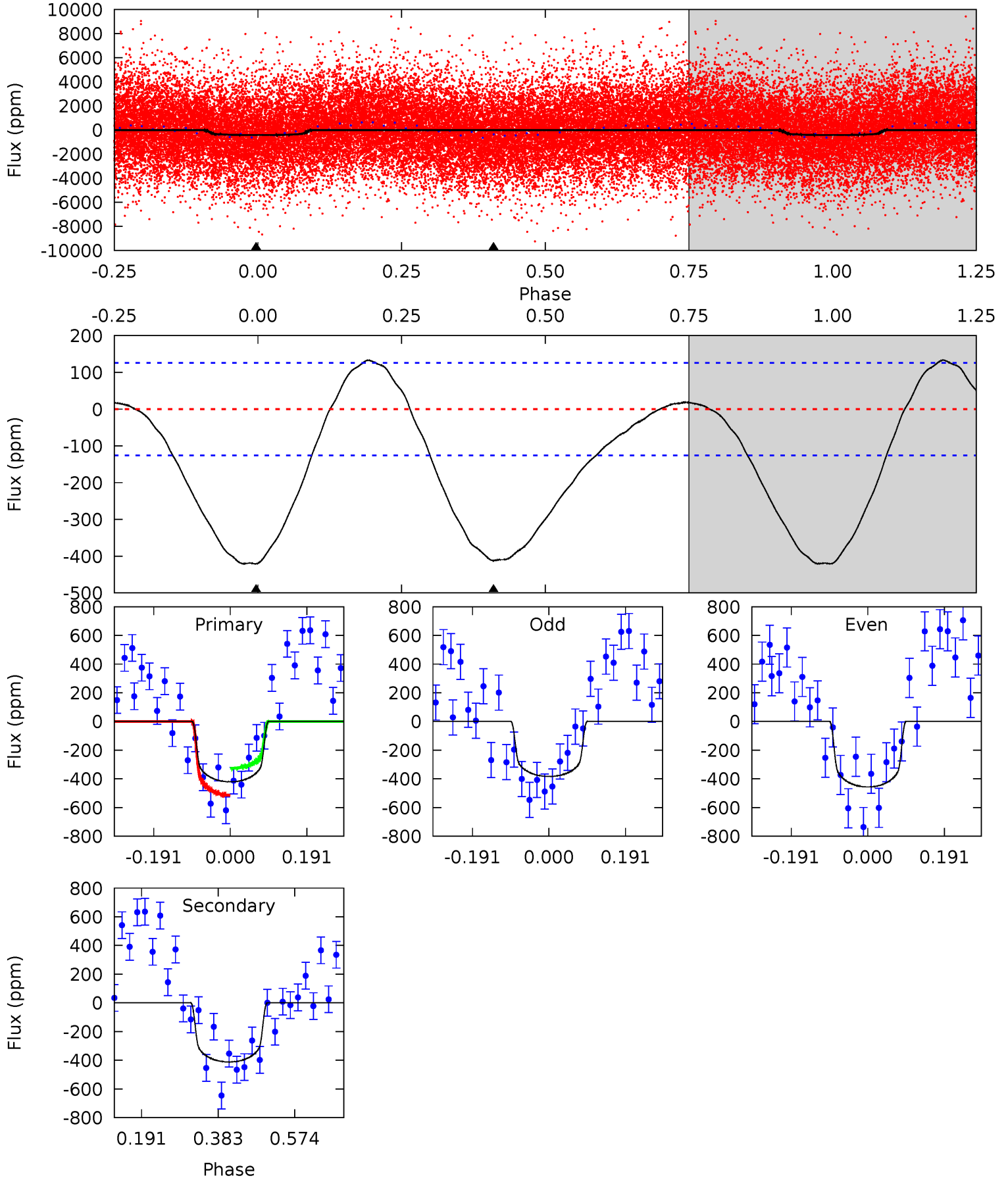
TCE 003966273-02   P= 1.615652 Days    $T_0=132.679521$  (BKJD)



# DV Model-Shift Uniqueness Test

003966273-02, P = 1.615753 Days, E = 131.055375 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
14.8	14.5	0	0	4.43	1.31	2.08	14.8	14.8	14.5	14.5	1.29	1.28	0.24	3.29

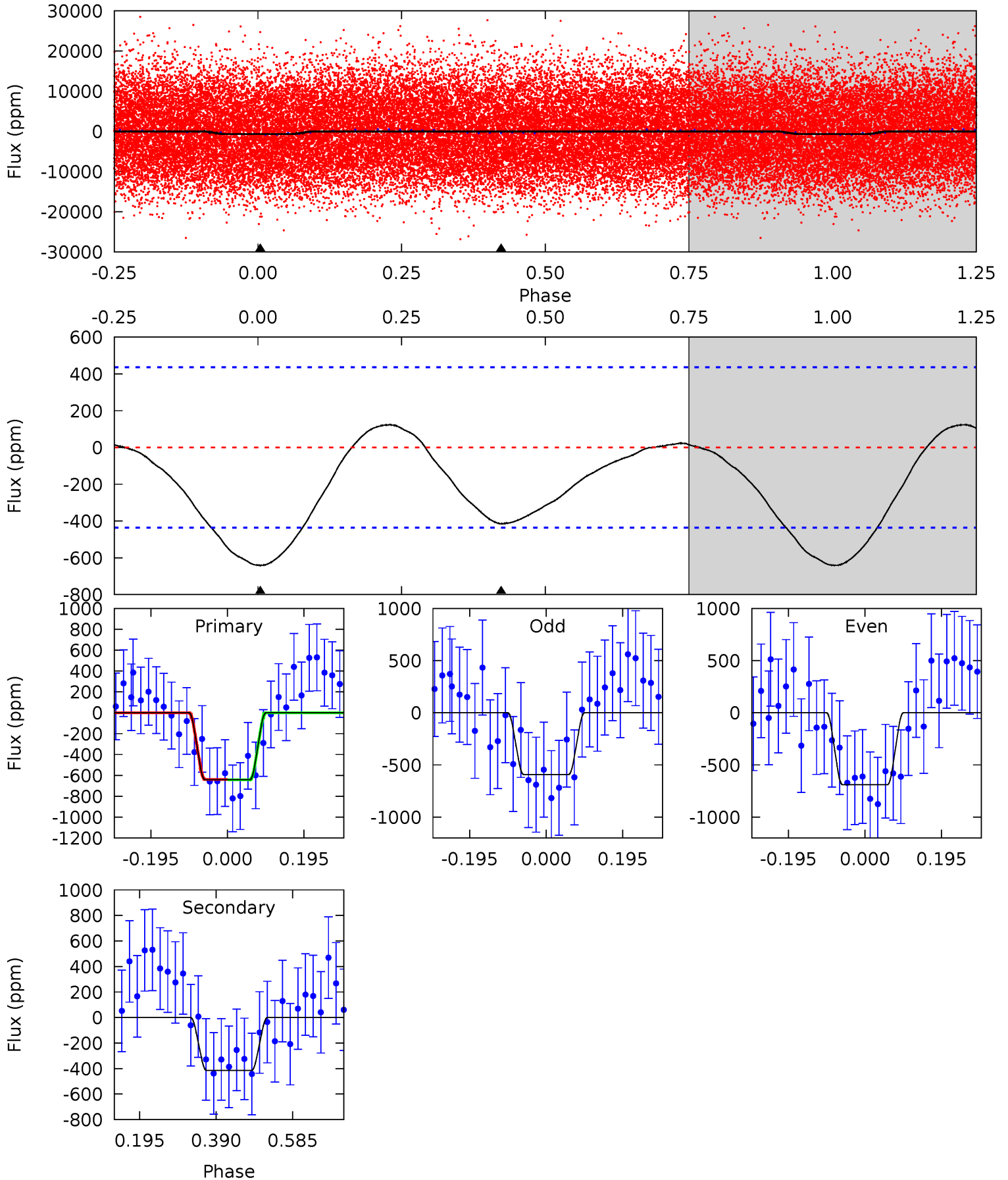




# Alt Model-Shift Uniqueness Test

003966273-02, P = 1.615652 Days, E = 131.063869 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
6.50	4.20	0	0	4.42	1.30	0.52	6.50	6.50	4.20	4.20	0.49	1.10	0.16	0.02



### Stellar Parameters For KIC 003966273

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7365^{+230}_{-307}$	$3.971^{+0.234}_{-0.156}$	$-0.160^{+0.250}_{-0.350}$	$2.183^{+0.551}_{-0.673}$	$1.626^{+0.183}_{-0.313}$	$0.220^{+0.322}_{-0.100}$
	+3%/-4%	+6%/-4%	+156%/-219%	+25%/-31%	+11%/-19%	+146%/-45%
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 003966273-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-412 \pm 28$	$4.28^{+2.02}_{-1.97}$	$3735^{+313}_{-316}$	$7765^{+4093}_{-1524}$	$12^{+28}_{-7}$
Alt.	$-414 \pm 99$	$6.16^{+2.45}_{-2.02}$	$3734^{+292}_{-330}$	$6251^{+1562}_{-956}$	$6.142^{+7.490}_{-3.193}$

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

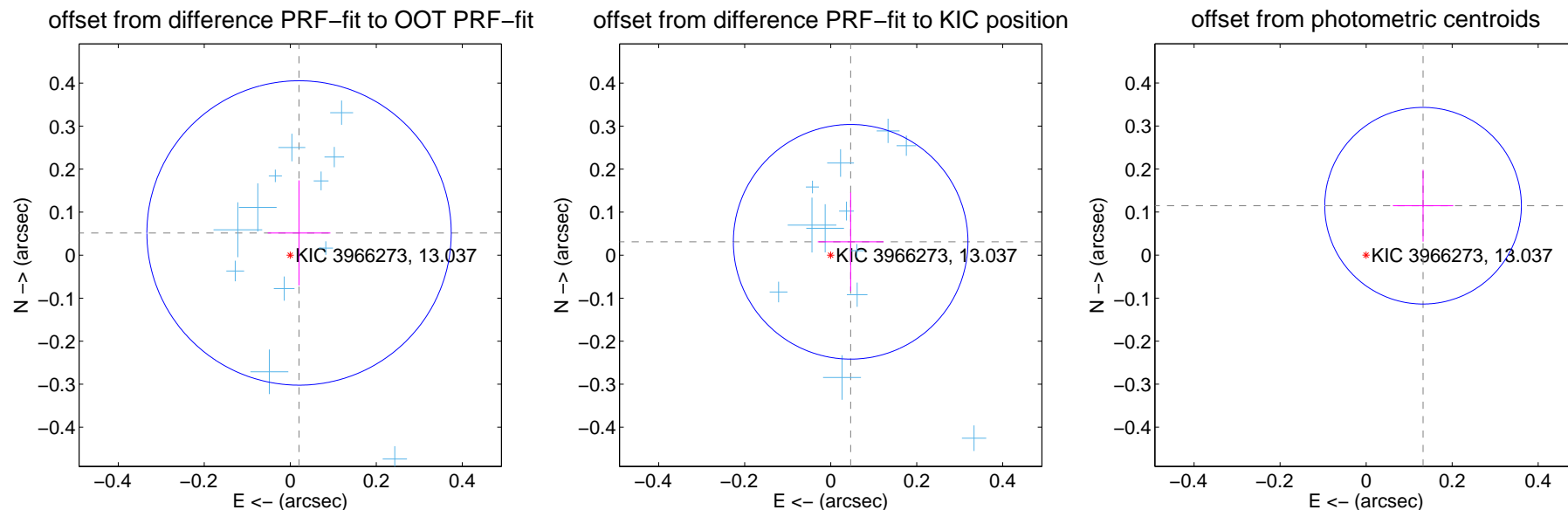
## DV Centroid Data

Supplemental centroid analysis for 003966273-02. Kepler magnitude: 13.04. Transit SNR 10.14

There are 14 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

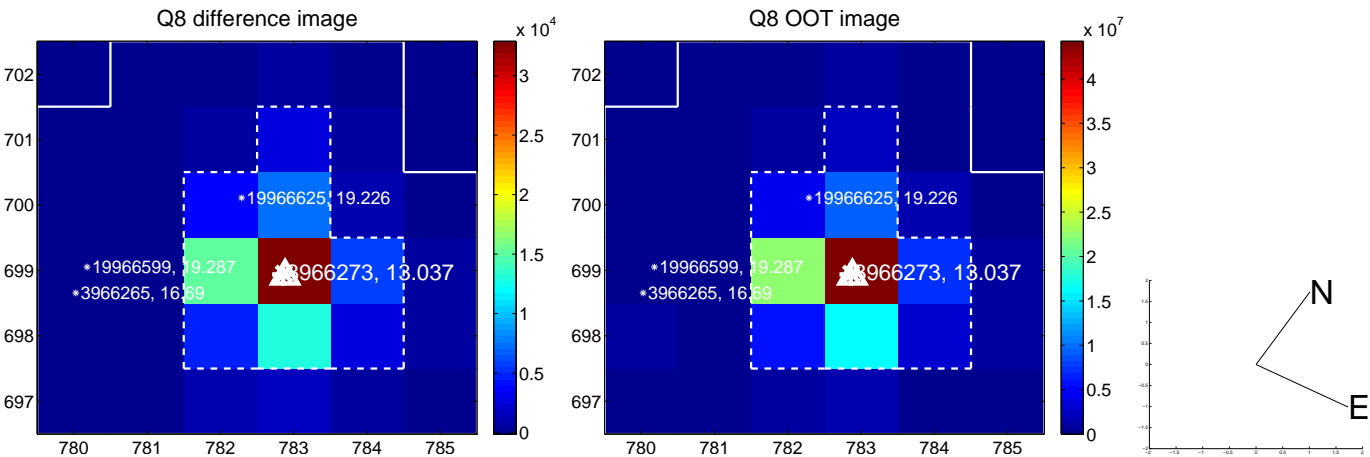
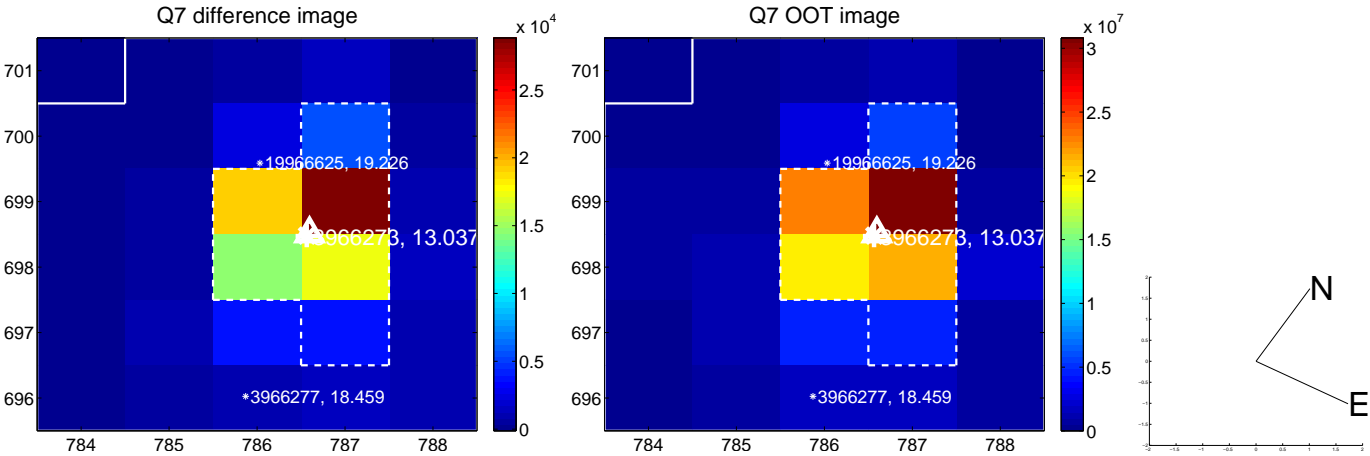
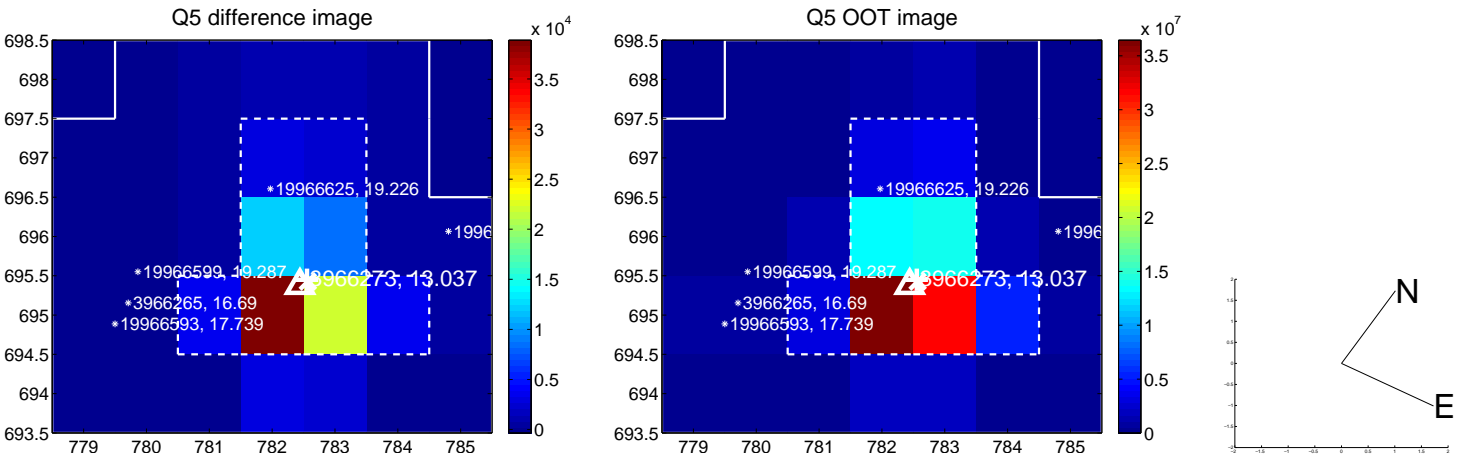
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.055 \pm 0.118$	0.47	$-0.020 \pm 0.073$	$0.052 \pm 0.122$
PRF-fit source offset from KIC position	$0.056 \pm 0.091$	0.61	$-0.046 \pm 0.077$	$0.031 \pm 0.115$
photometric centroid source offset	$0.18 \pm 0.08$	2.30	$-0.13 \pm 0.07$	$0.11 \pm 0.08$



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.

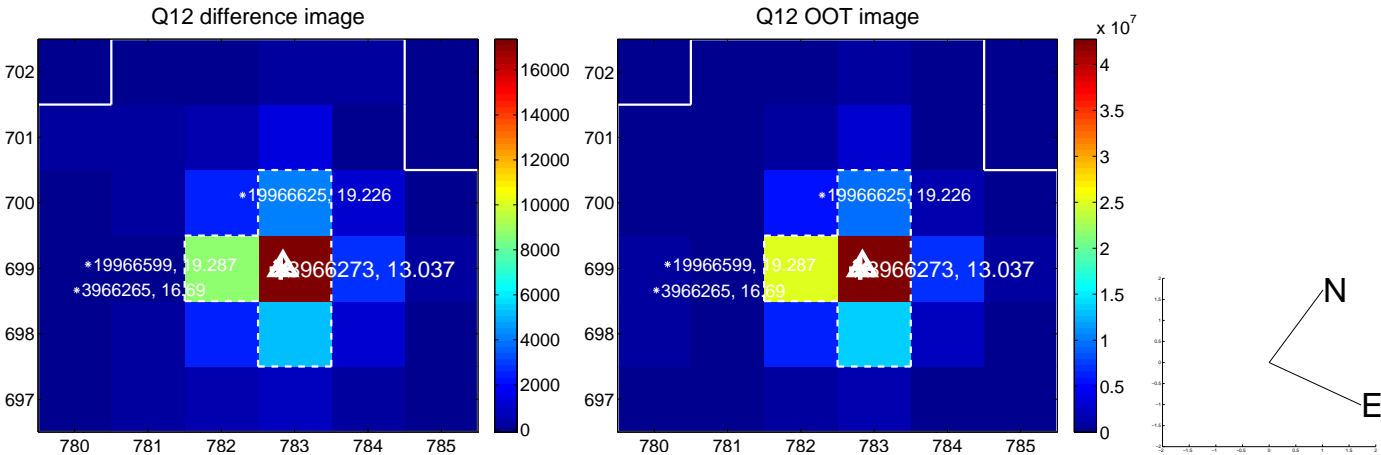
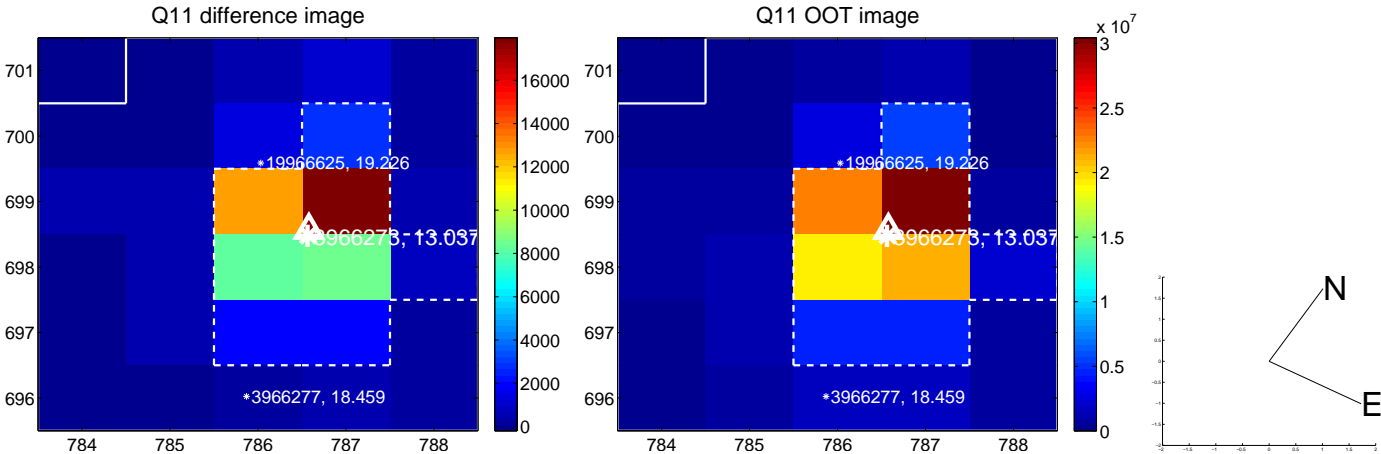
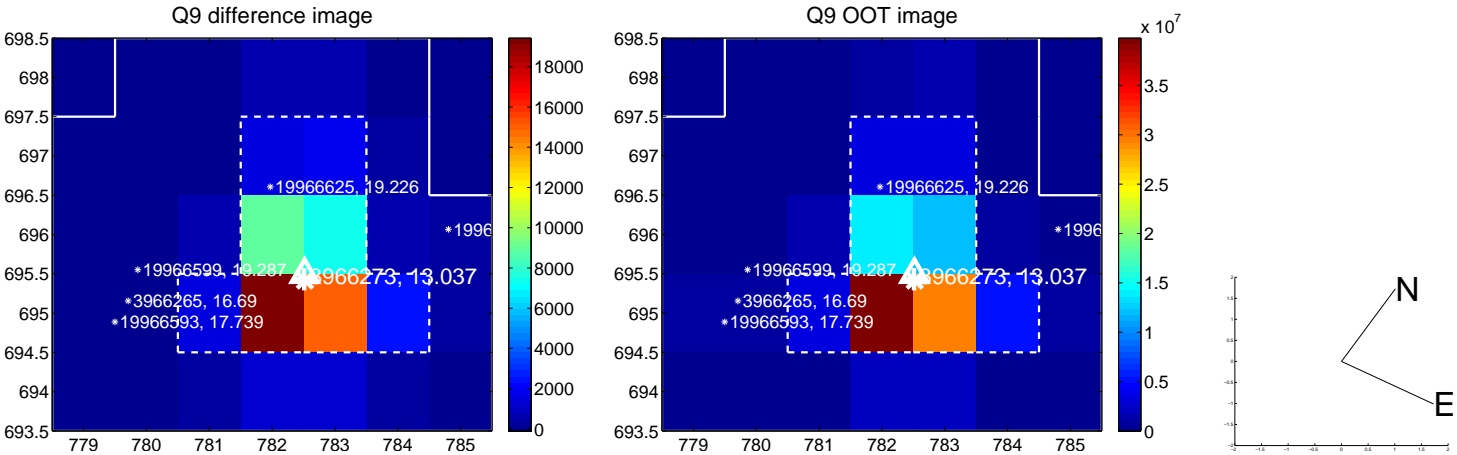


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

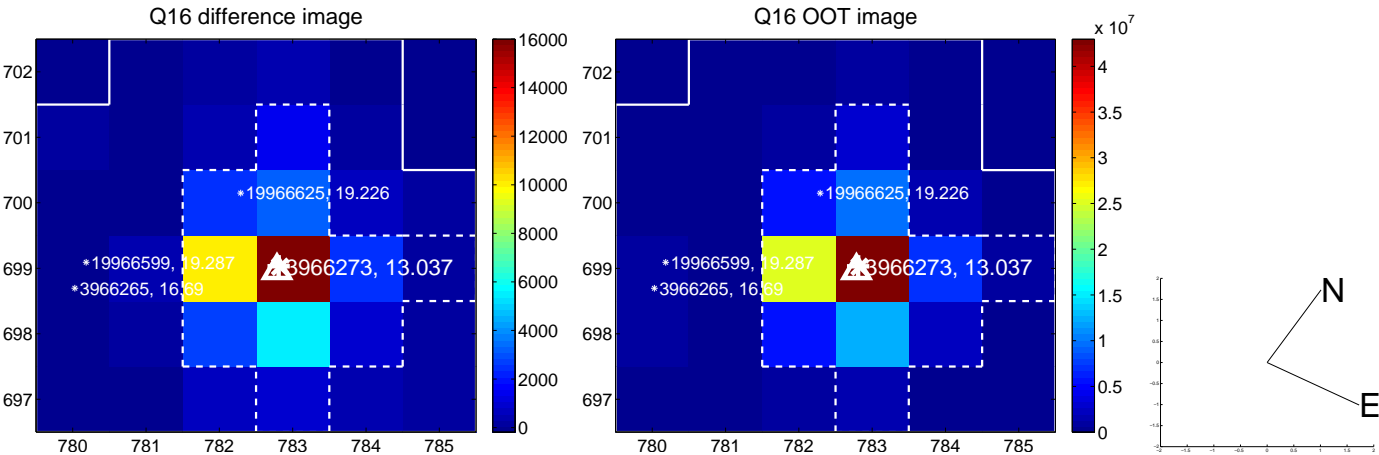
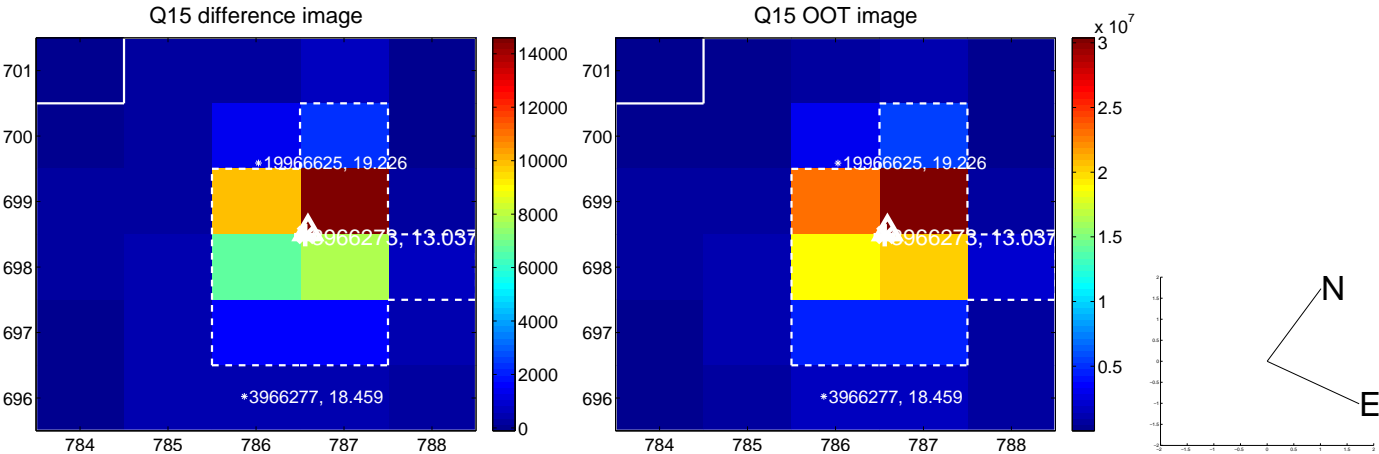
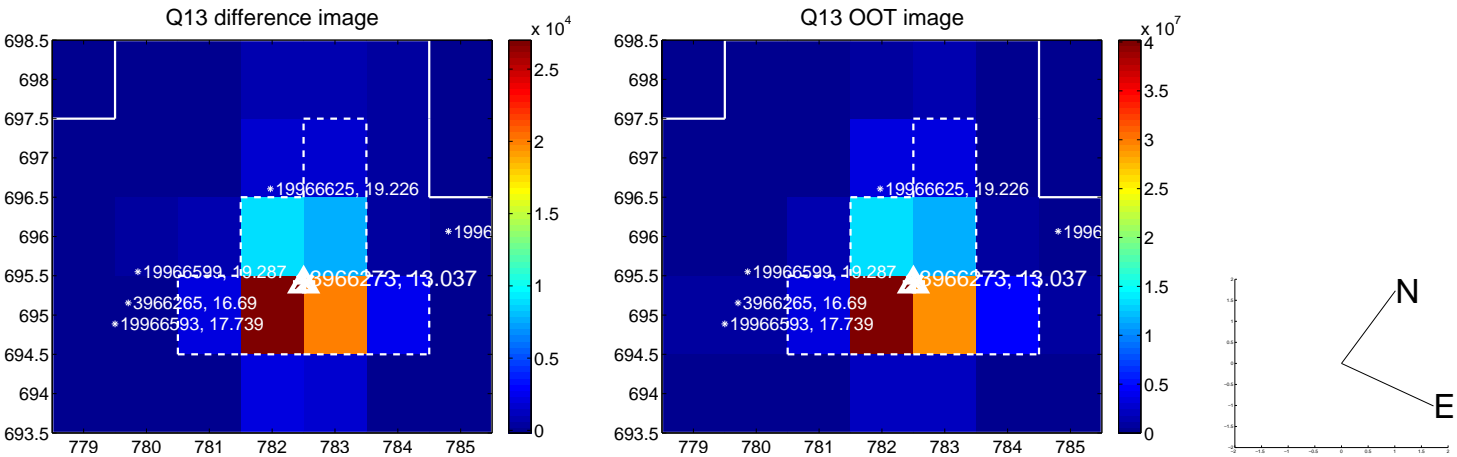




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



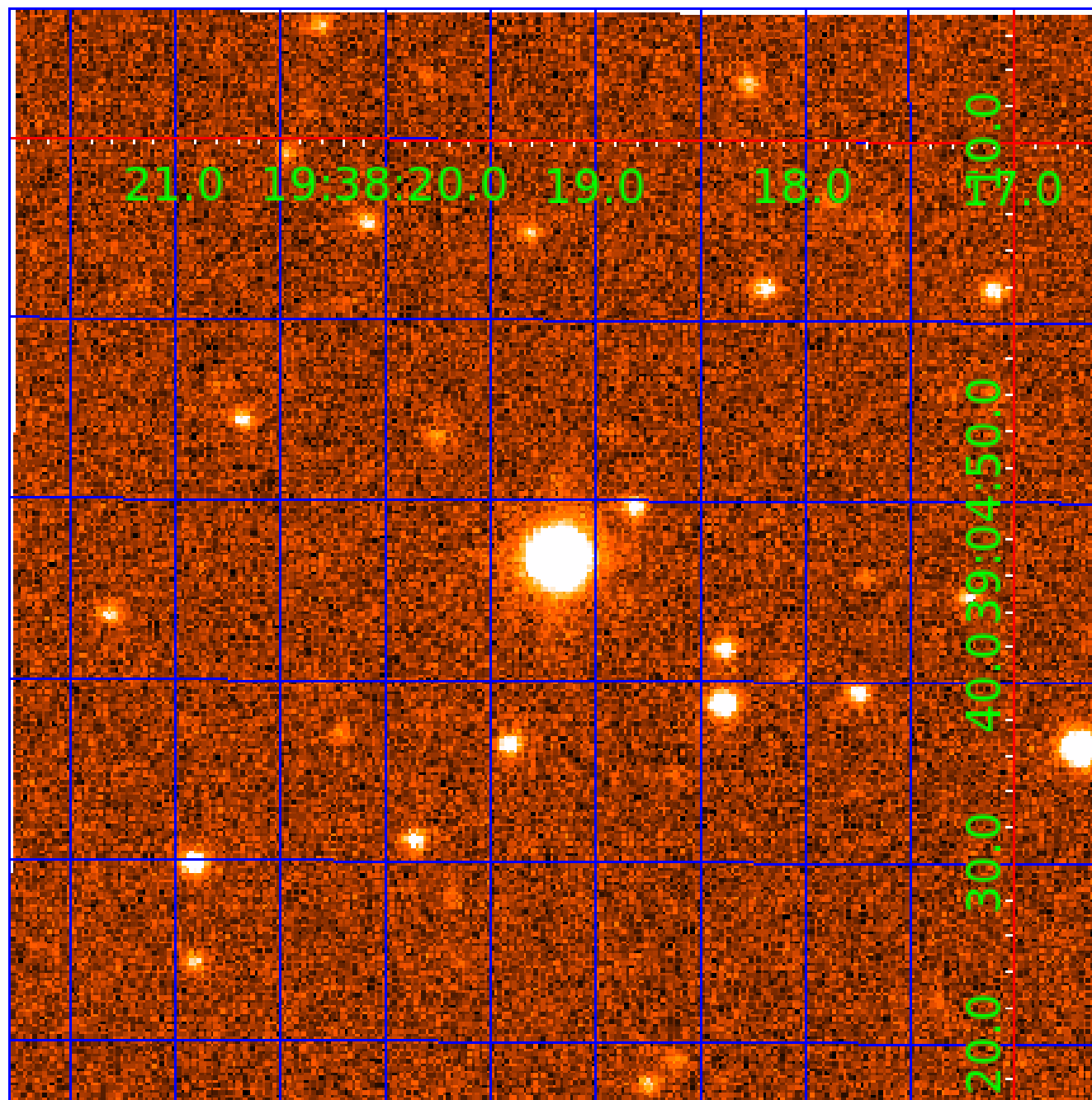
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





# UKIRT Image

Declination



# KIC 003966273

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003966273-01	OBS	No	3.446142	132.298388	448.1	9.822	9.6	10.6	2.18	7365	8.85	4555.23
003966273-02	OBS	No	1.615753	132.671128	323.6	6.984	10.1	10.1	2.18	7365	4.31	12506.08
003966273-03	OBS	No	1.615564	131.848680	352.1	8.465	10.7	12.0	2.18	7365	4.17	12508.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003966273-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
003966273-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
003966273-03	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

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

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

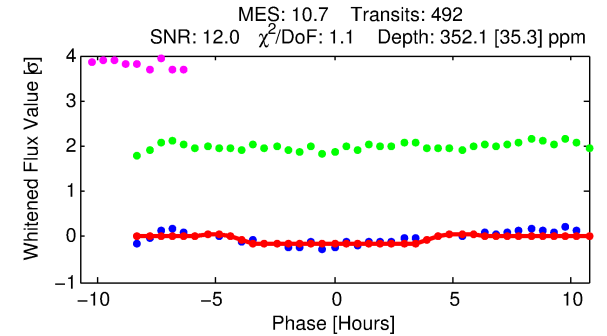
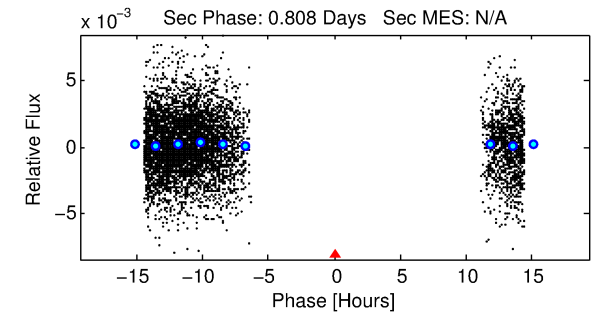
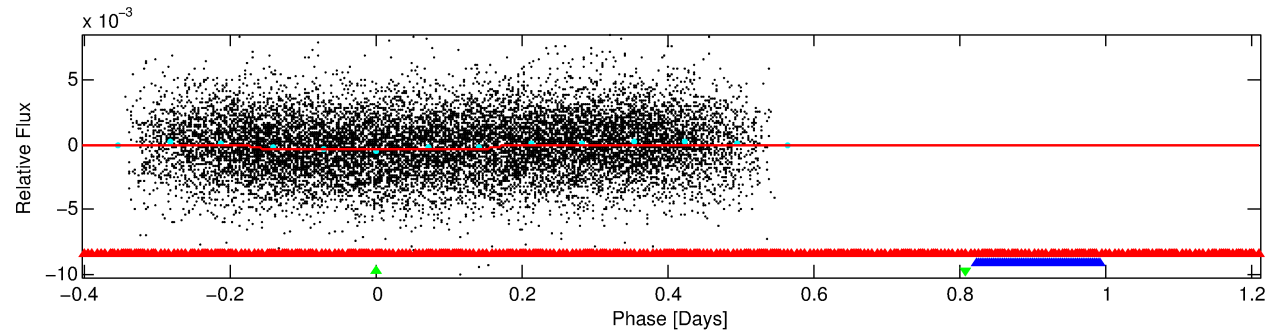
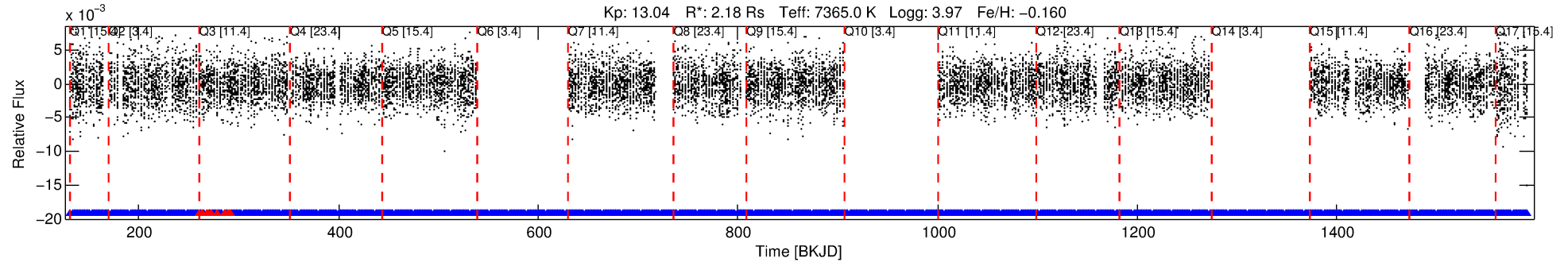
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003966273-03

No Significant Match Found

# DV One-Page Summary

KIC: 3966273 Candidate: 3 of 3 Period: 1.616 d

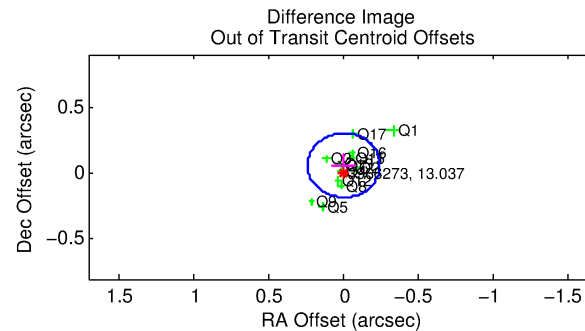
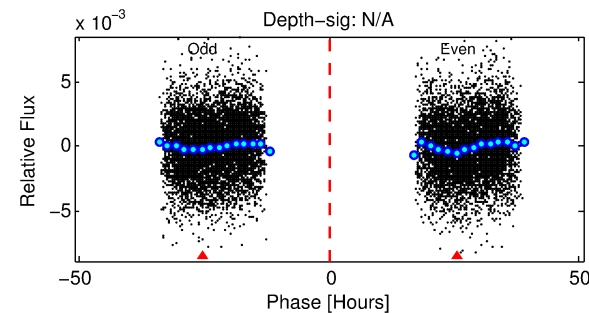
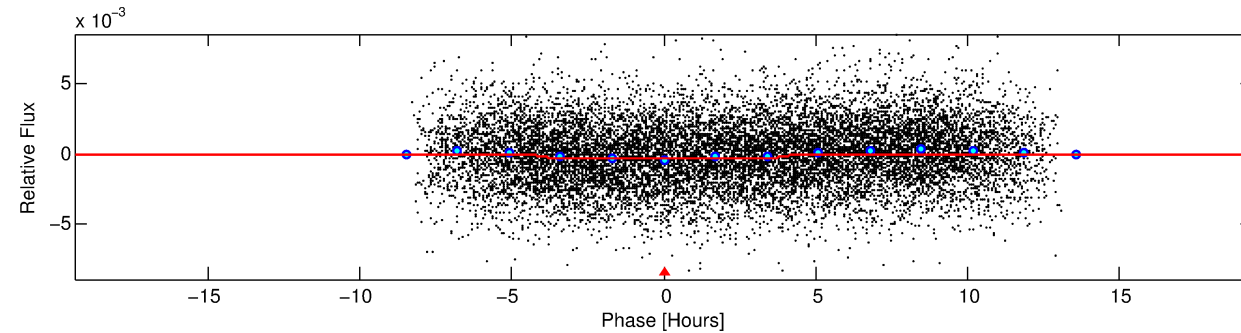


## DV Fit Results:

Period = 1.61556 [0.00002] d  
Epoch = 131.8487 [0.0072] BKJD  
Rp/R\* = 0.0175 [0.0221]  
a/R\* = 1.55 [6.24]  
b = 0.33 [18.56]  
Seff = 12508.03 [5580.73]  
Teq = 2697 [301] K  
Rp = 4.17 [5.42] Re  
a = 0.0317 [0.0087] AU

## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [453/463]  
GhostDiagnostic-chr: 1.134  
Centroid-sig: 4.7%  
Centroid-so: 0.093 arcsec [1.52σ]  
OotOffset-rm: 0.060 arcsec [0.74σ]  
KicOffset-rm: 0.045 arcsec [0.53σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 0.00 [0/14]

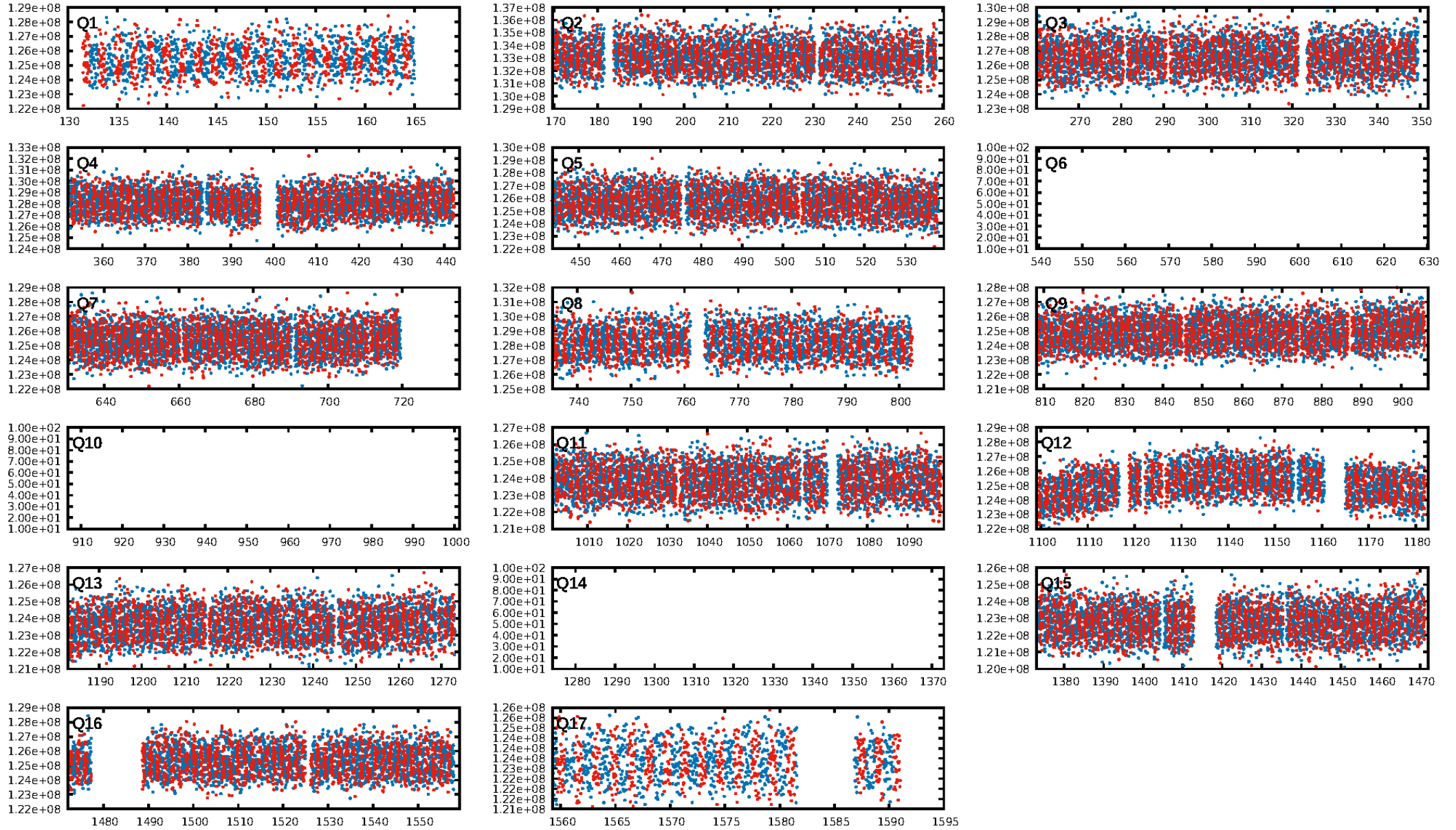


Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:05:33 Z

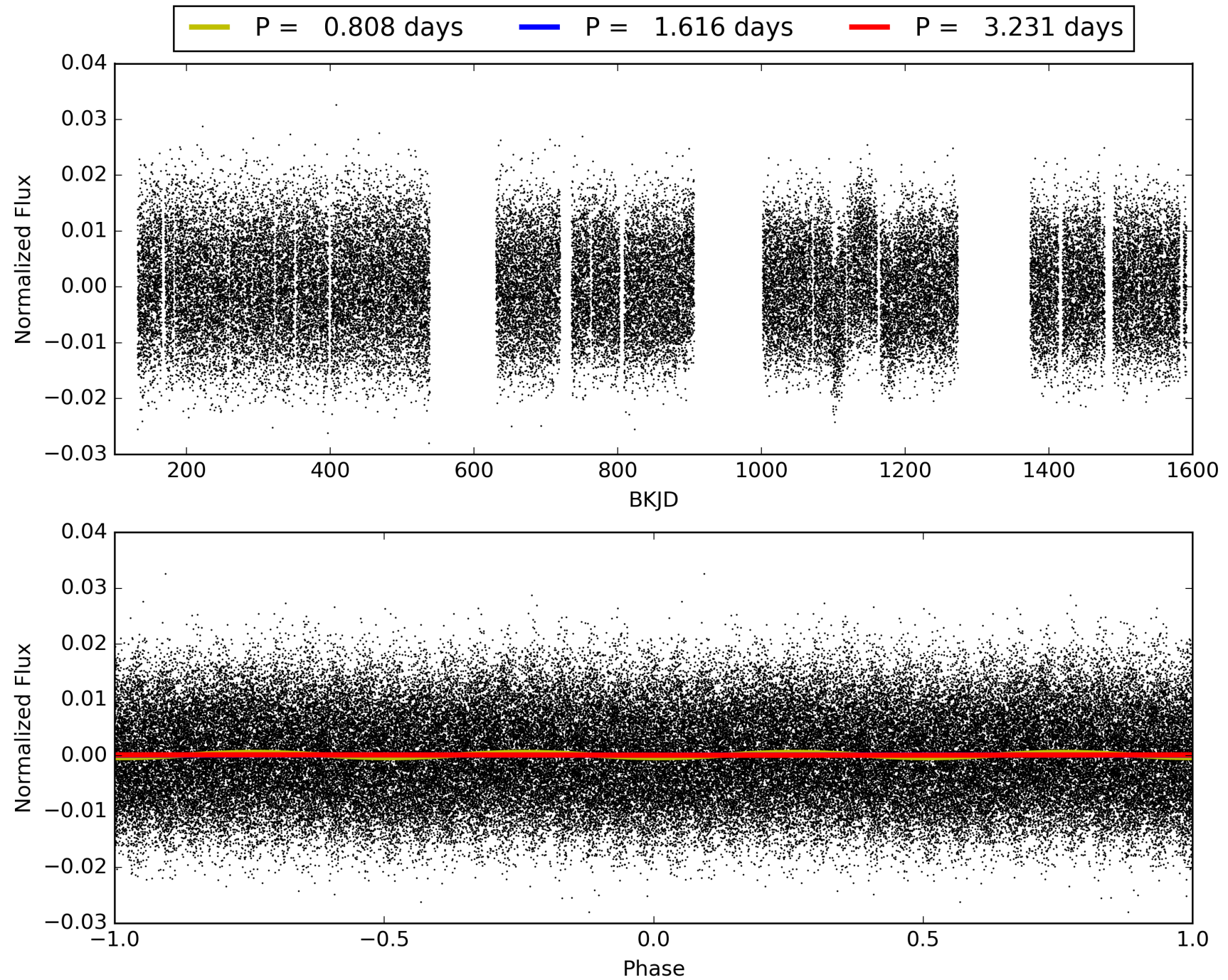
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 003966273-03, PDC Light Curves

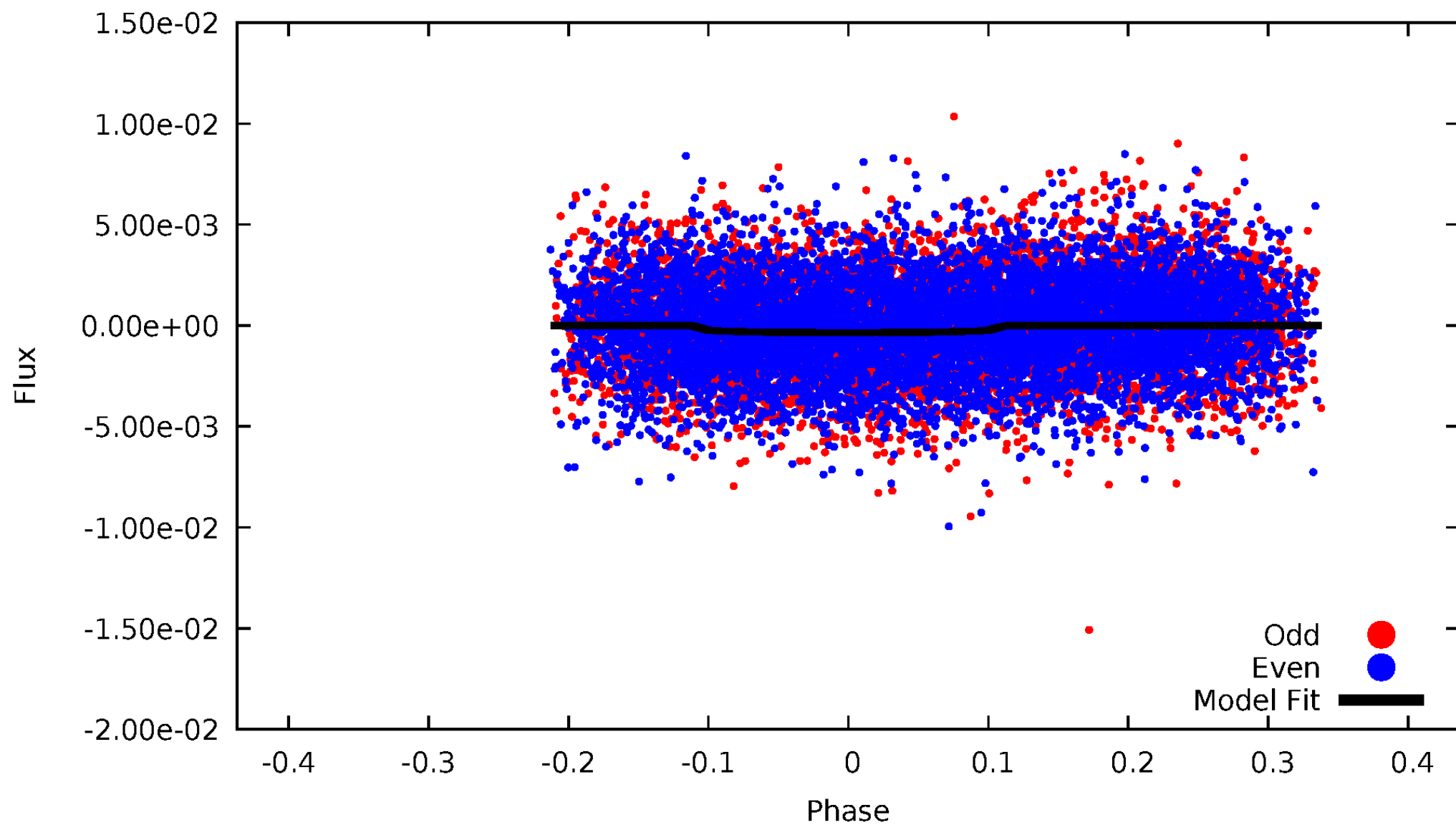


TCE 003966273-03



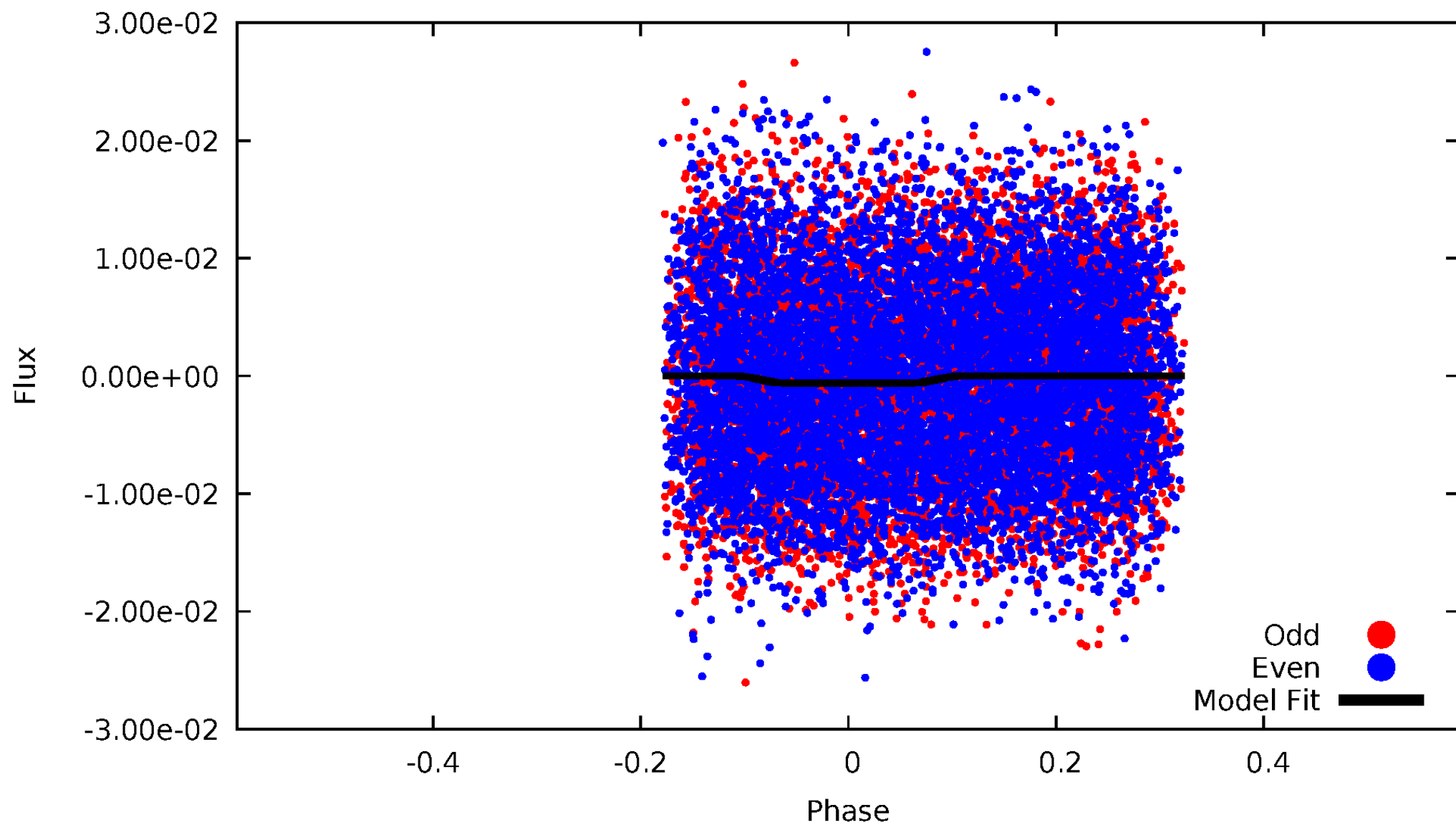
DV Odd/Even

TCE 003966273-03



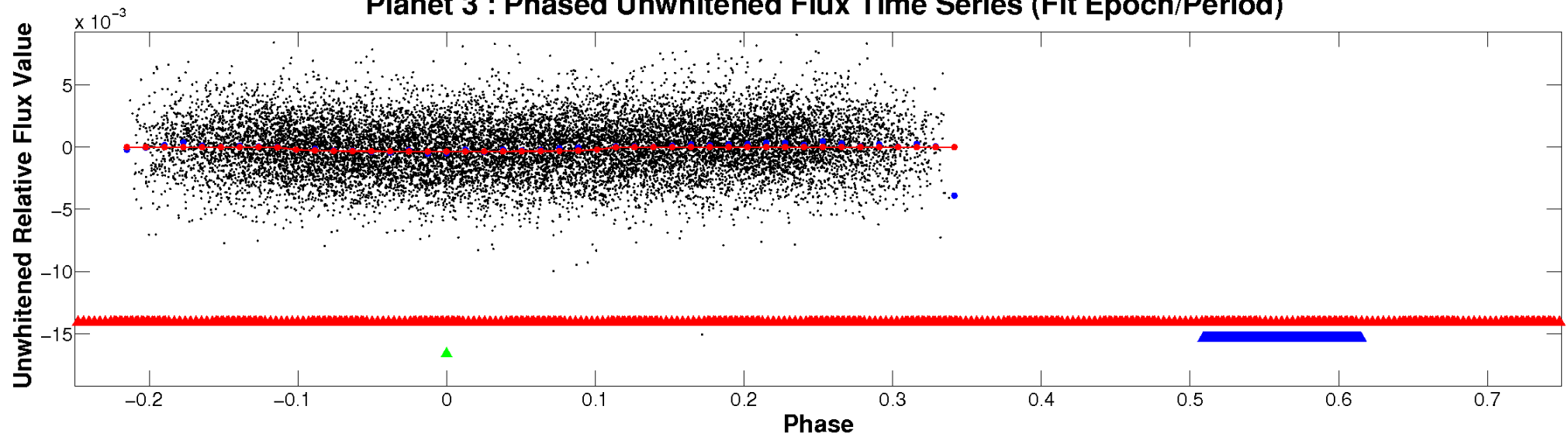
ALT Odd/Even

TCE 003966273-03

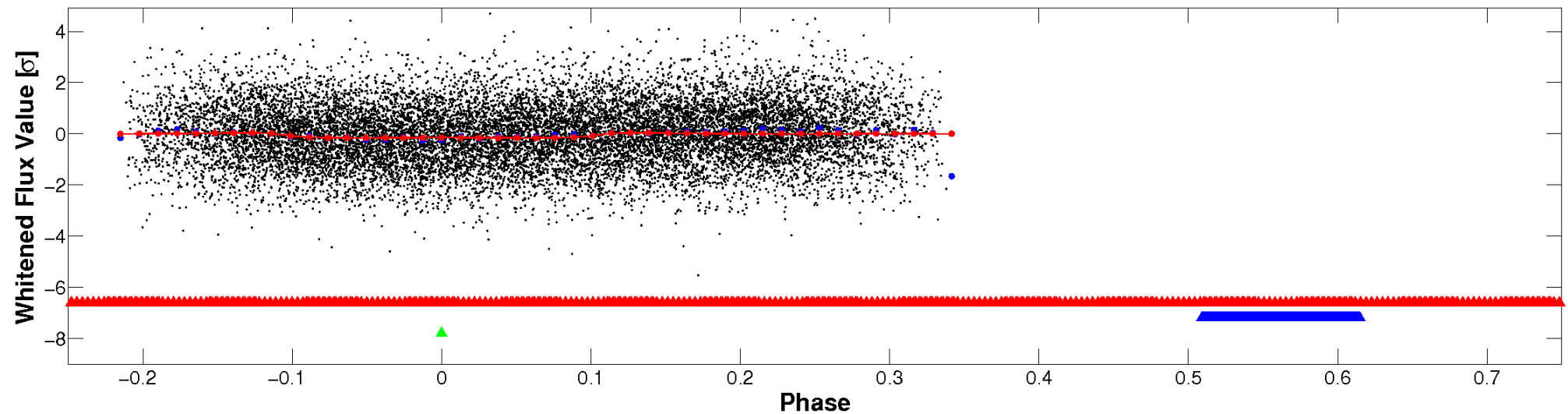


# Non-Whitened Vs. Whitened Light Curve

## Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



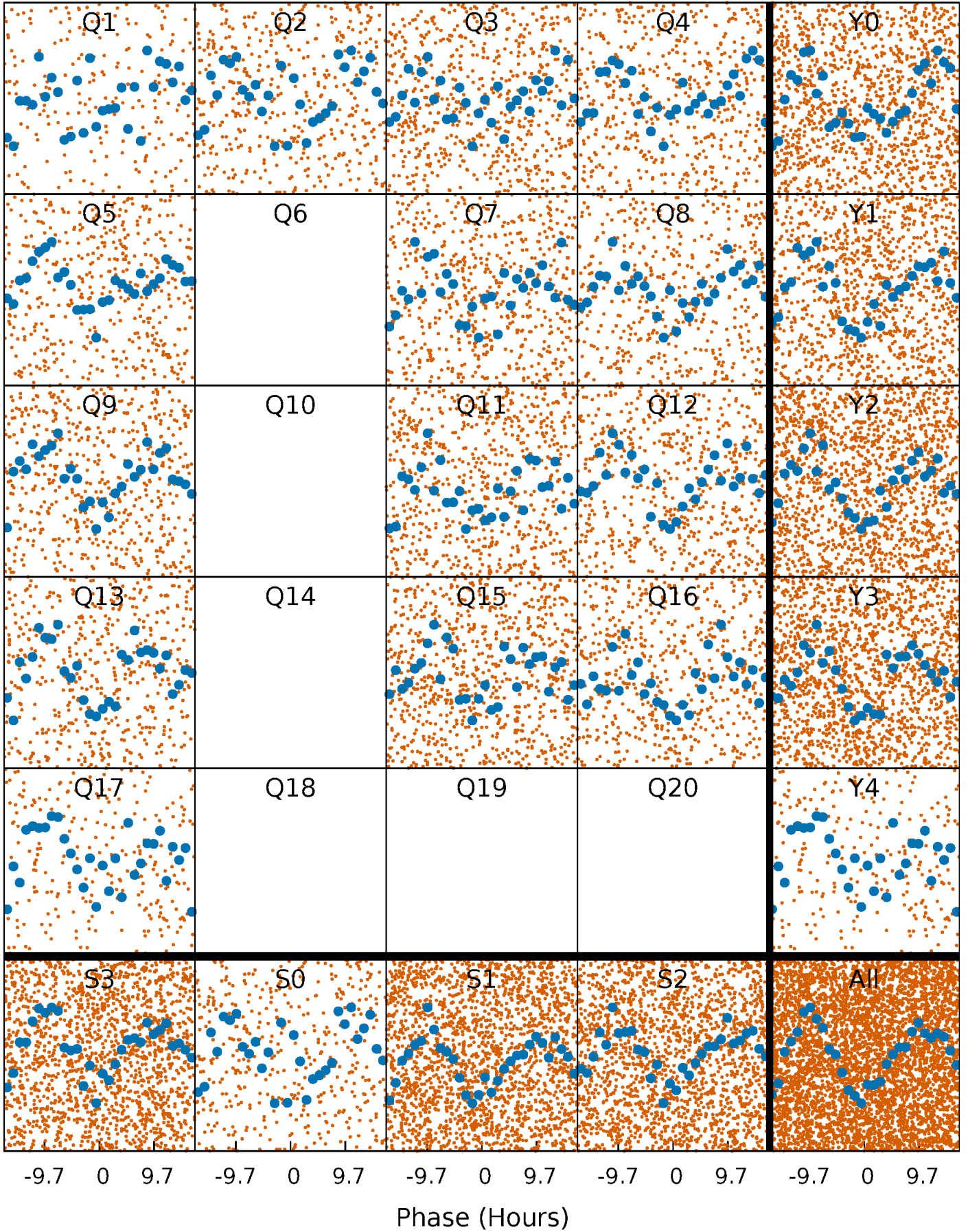
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





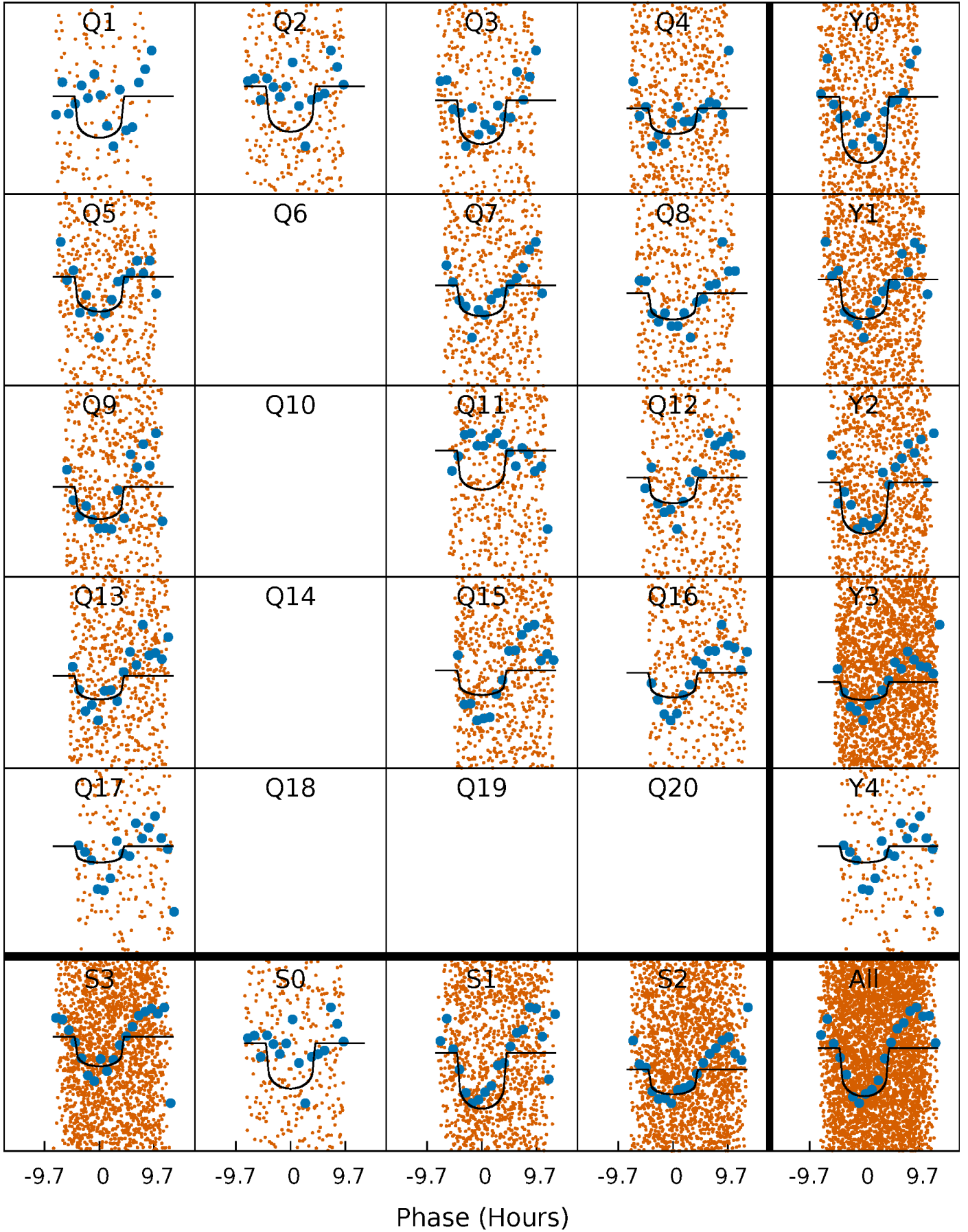
# PDC Quarter-Phased Transit Curves

TCE 003966273-03   P= 1.615564 Days    $T_0=131.848680$  (BKJD)



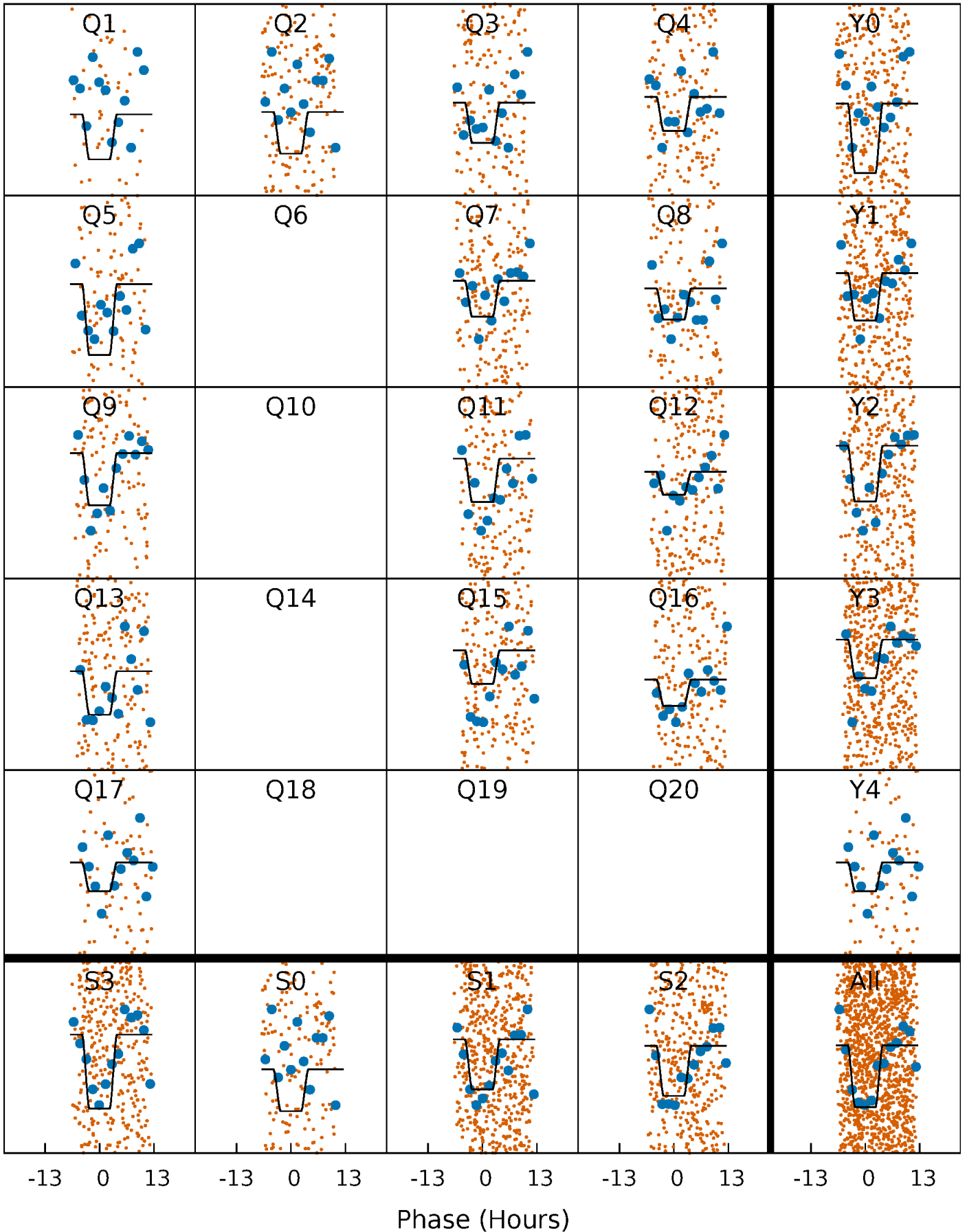
# DV Quarter-Phased Transit Curves

TCE 003966273-03    P= 1.615564 Days     $T_0=131.848680$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

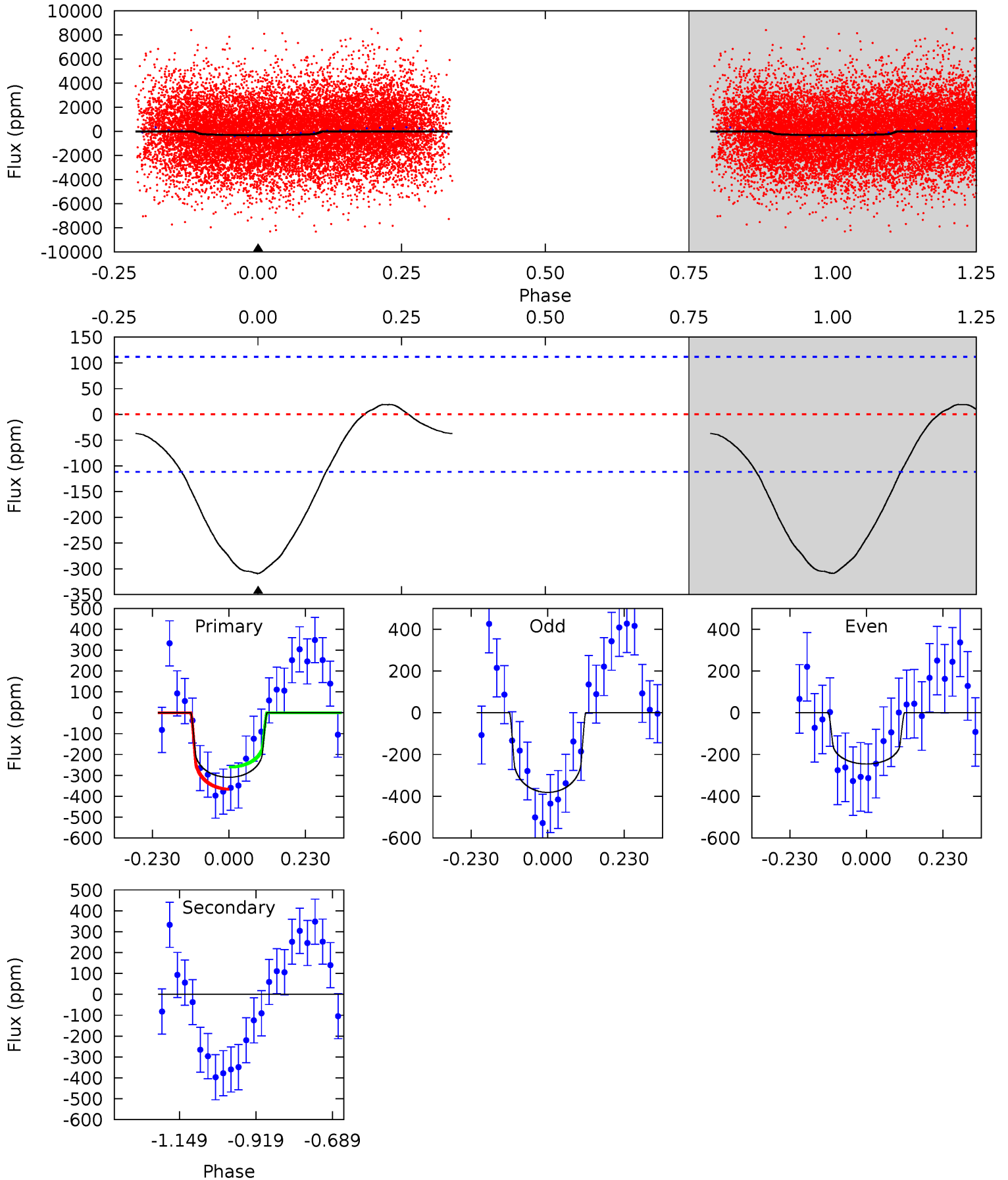
TCE 003966273-03     $P = 1.615652$  Days     $T_0 = 131.792927$  (BKJD)



# DV Model-Shift Uniqueness Test

003966273-03, P = 1.615564 Days, E = 130.233116 Days

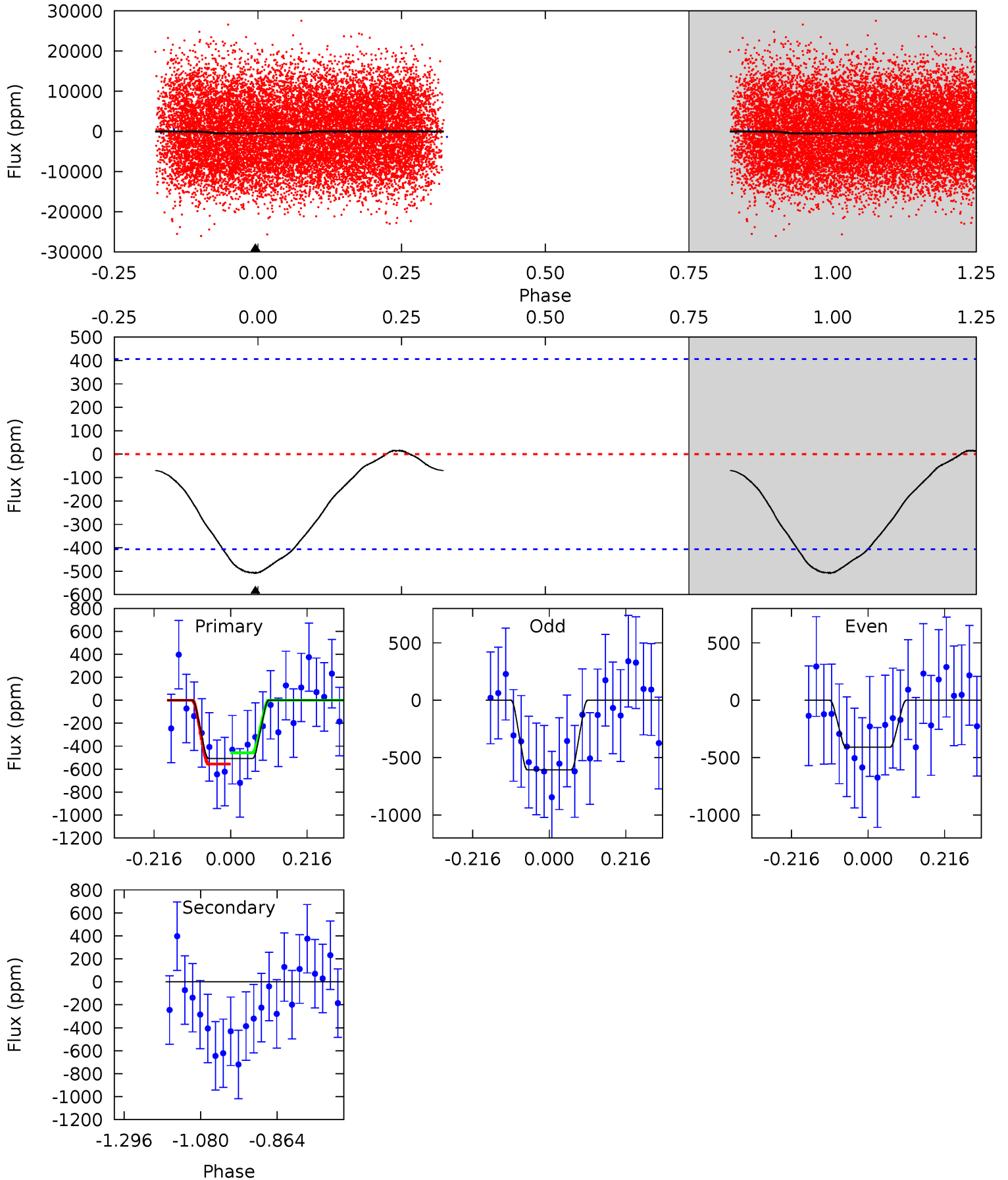
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	0	0	0	4.39	1.20	0.67	12.2	12.2	0	0	2.71	0.99	0.06	2.04



# Alt Model-Shift Uniqueness Test

003966273-03, P = 1.615652 Days, E = 130.177275 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
5.50	0	0	0	4.40	1.24	0.24	5.50	5.50	0	0	1.06	1.24	0.03	0.51





### Stellar Parameters For KIC 003966273

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7365^{+230}_{-307}$	$3.971^{+0.234}_{-0.156}$	$-0.160^{+0.250}_{-0.350}$	$2.183^{+0.551}_{-0.673}$	$1.626^{+0.183}_{-0.313}$	$0.220^{+0.322}_{-0.100}$
	+3%/-4%	+6%/-4%	+156%/-219%	+25%/-31%	+11%/-19%	+146%/-45%
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 003966273-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 25$	$5.25^{+4.95}_{-3.40}$	$3750^{+268}_{-311}$	$-3512^{+7292}_{-937}$	$-0.011^{+0.808}_{-0.825}$
Alt.	$0 \pm 92$	$6.85^{+5.07}_{-4.22}$	$3734^{+325}_{-300}$	$-3577^{+8088}_{-1420}$	$-0.025^{+1.680}_{-1.833}$

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

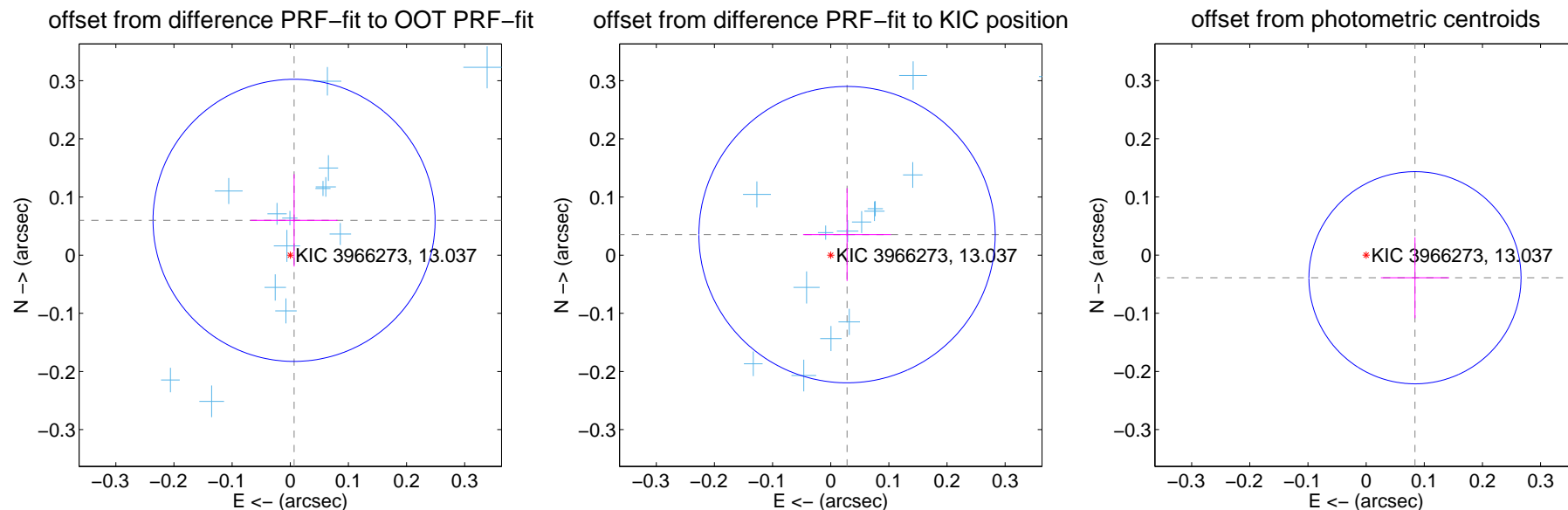
## DV Centroid Data

Supplemental centroid analysis for 003966273-03. Kepler magnitude: 13.04. Transit SNR 12.04

There are 14 quarters with good PRF difference image offsets

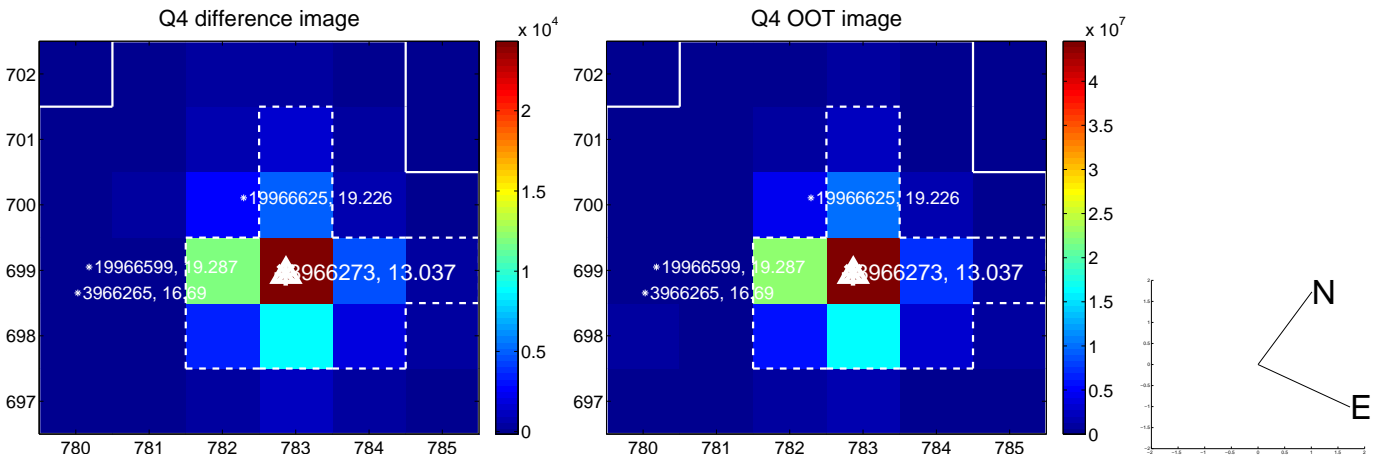
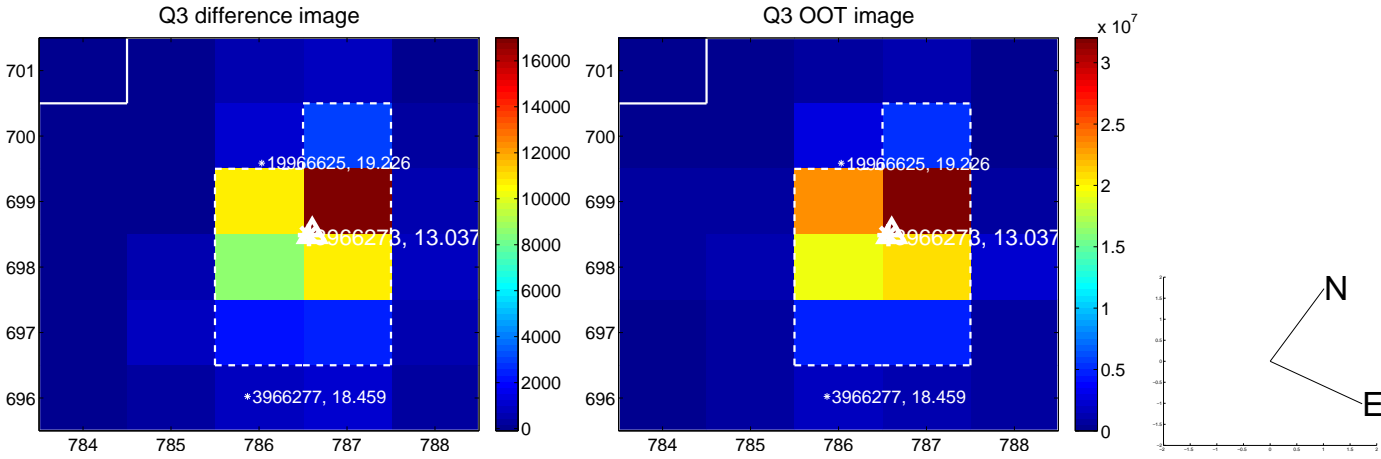
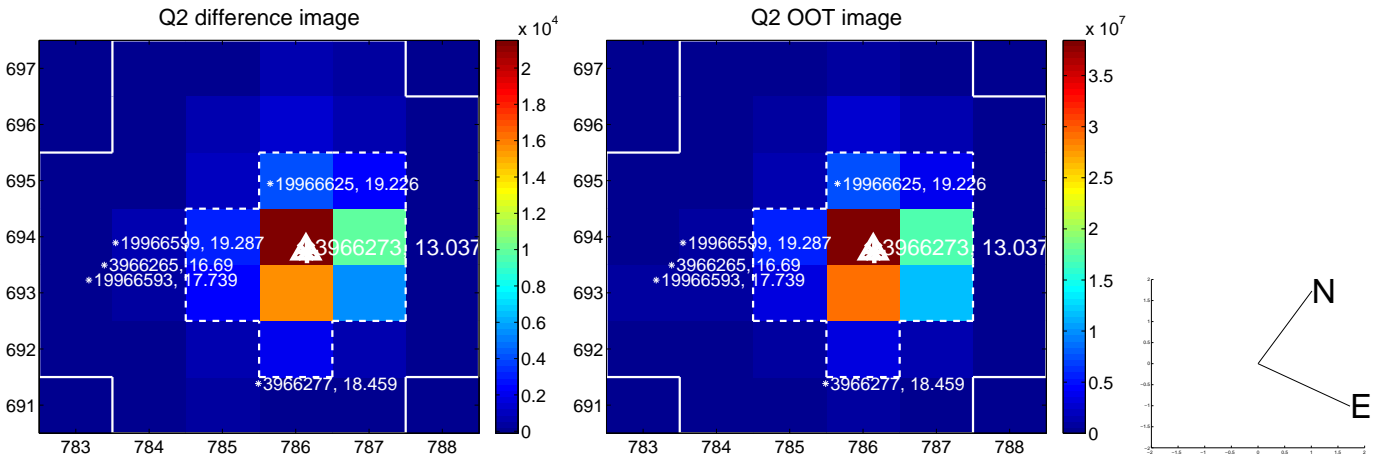
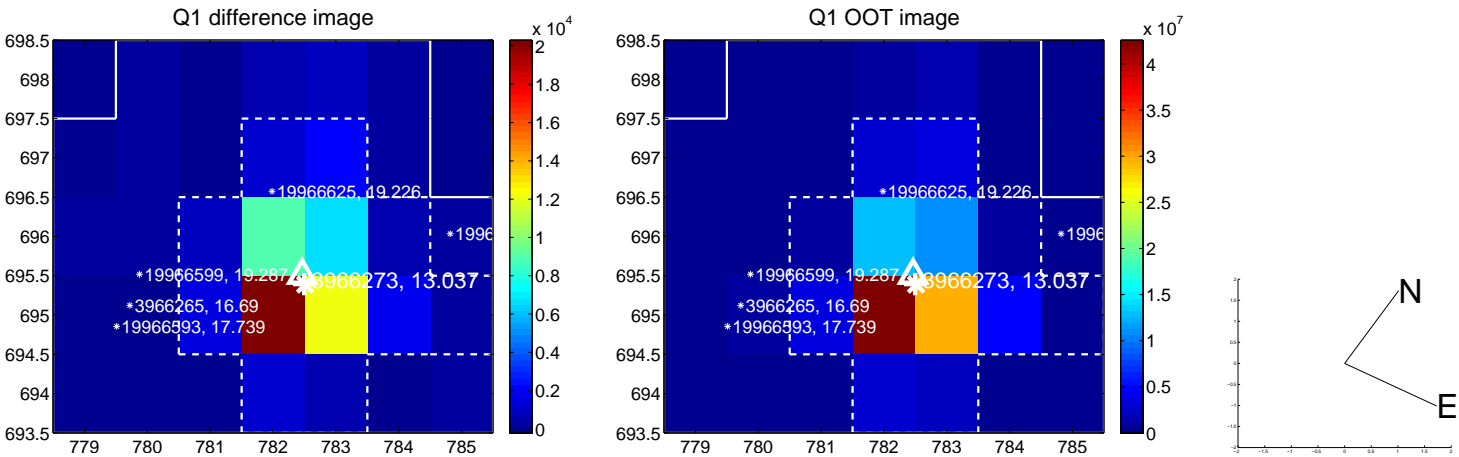
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.060 \pm 0.081$	0.74	$-0.007 \pm 0.075$	$0.060 \pm 0.079$
PRF-fit source offset from KIC position	$0.045 \pm 0.085$	0.53	$-0.028 \pm 0.076$	$0.035 \pm 0.080$
photometric centroid source offset	$0.09 \pm 0.06$	1.52	$-0.08 \pm 0.06$	$-0.04 \pm 0.07$

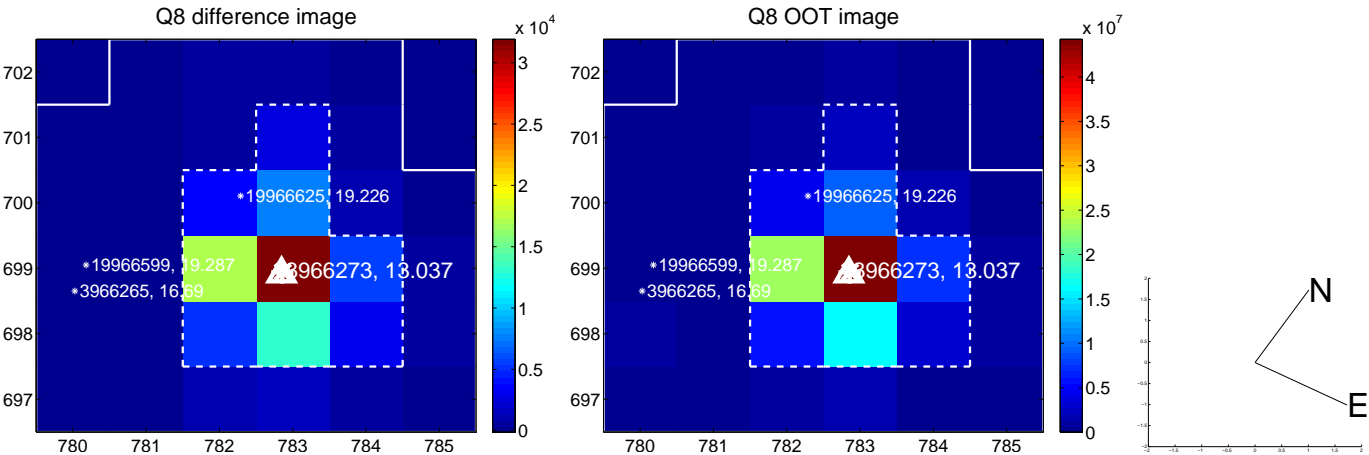
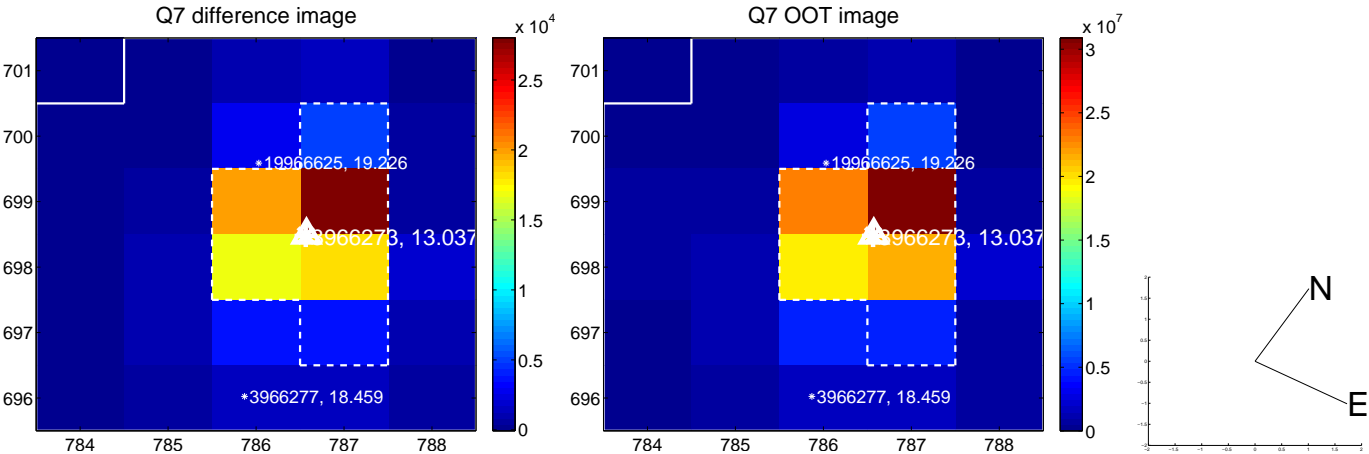
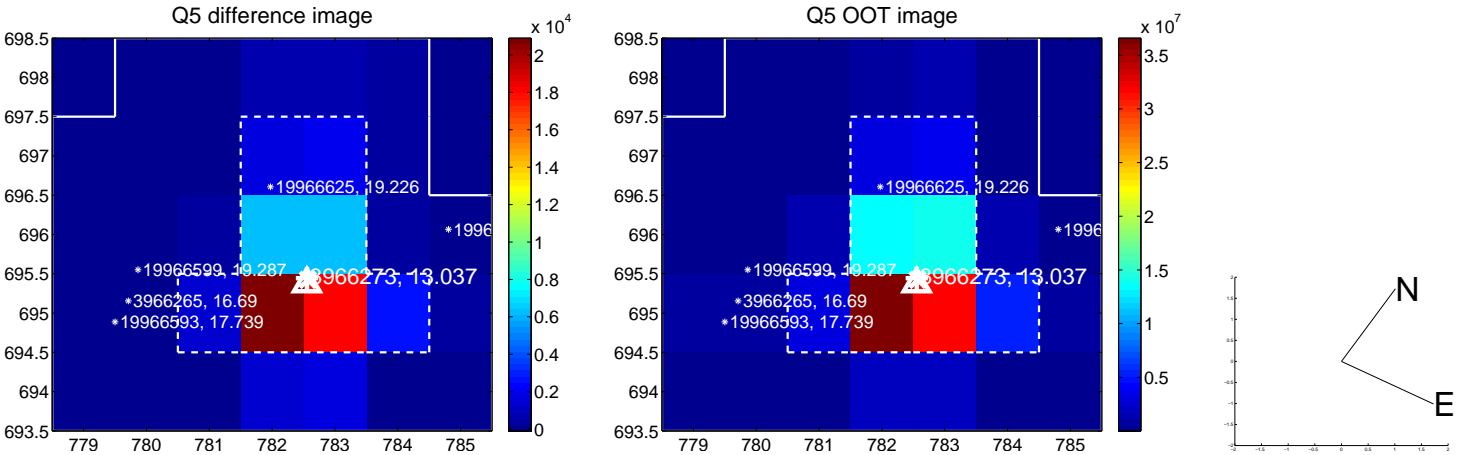


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

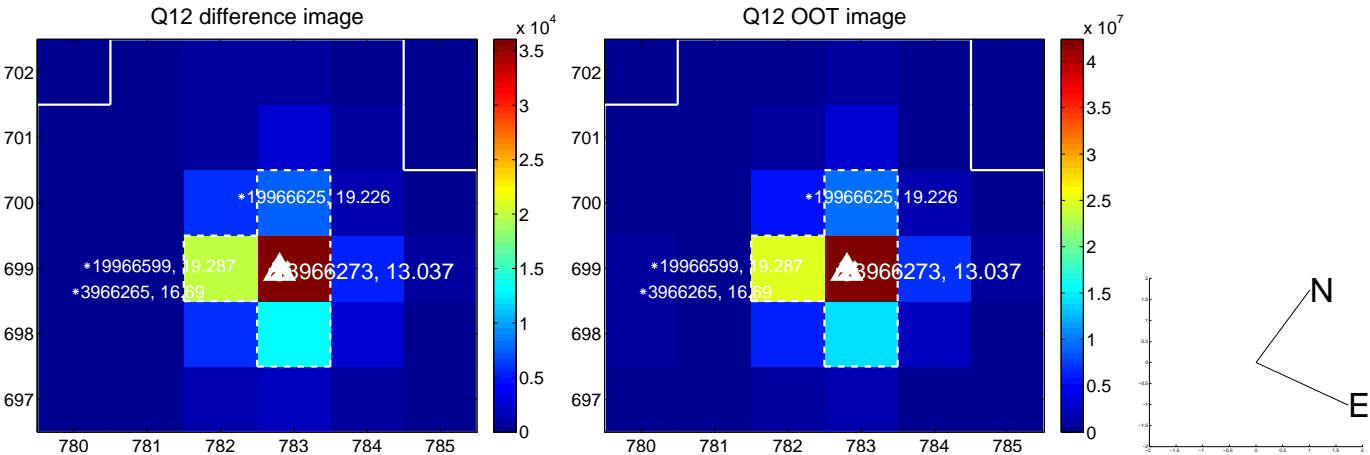
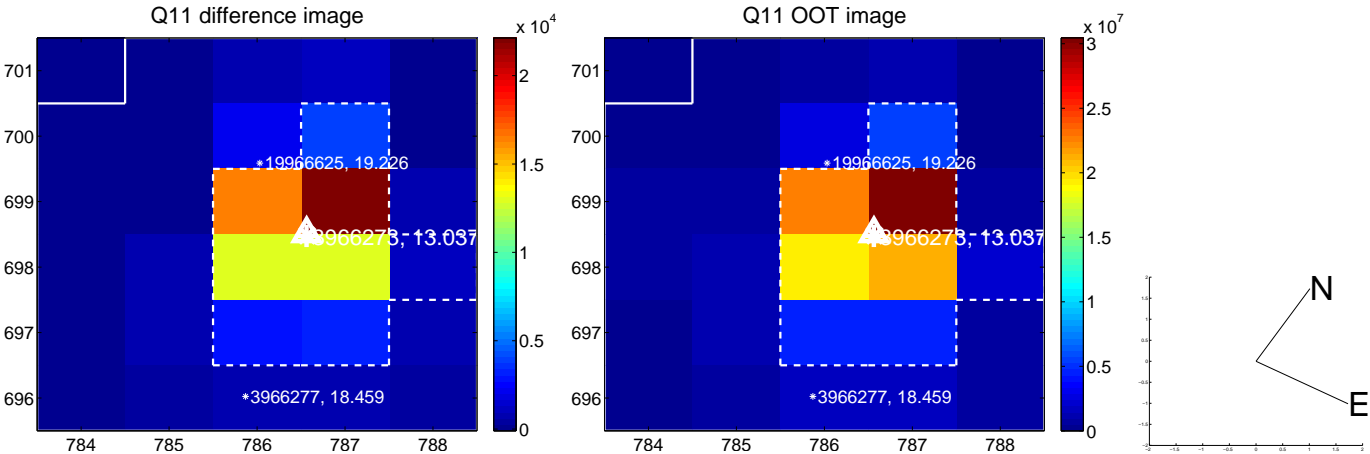
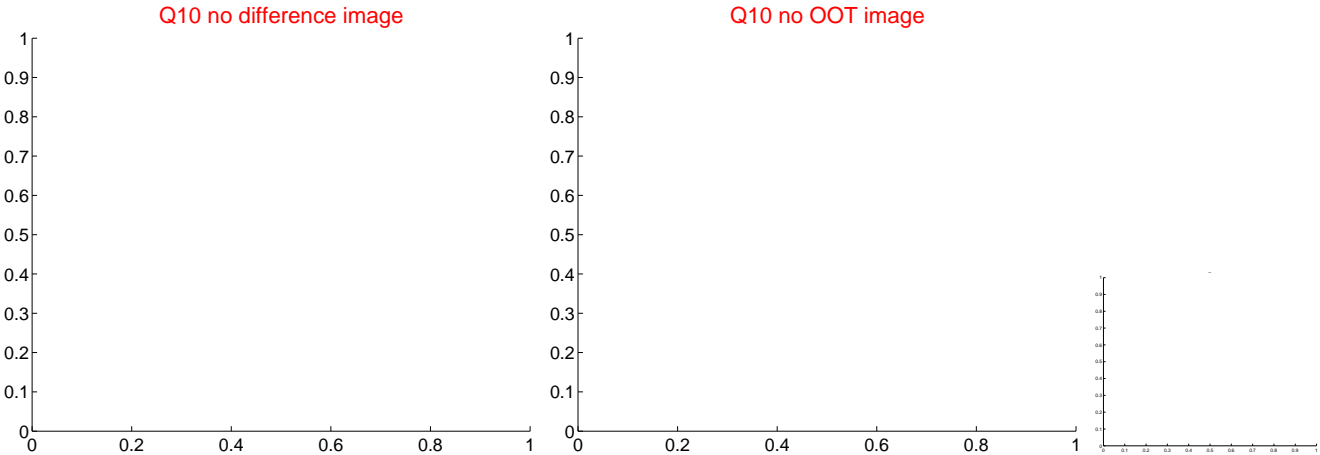
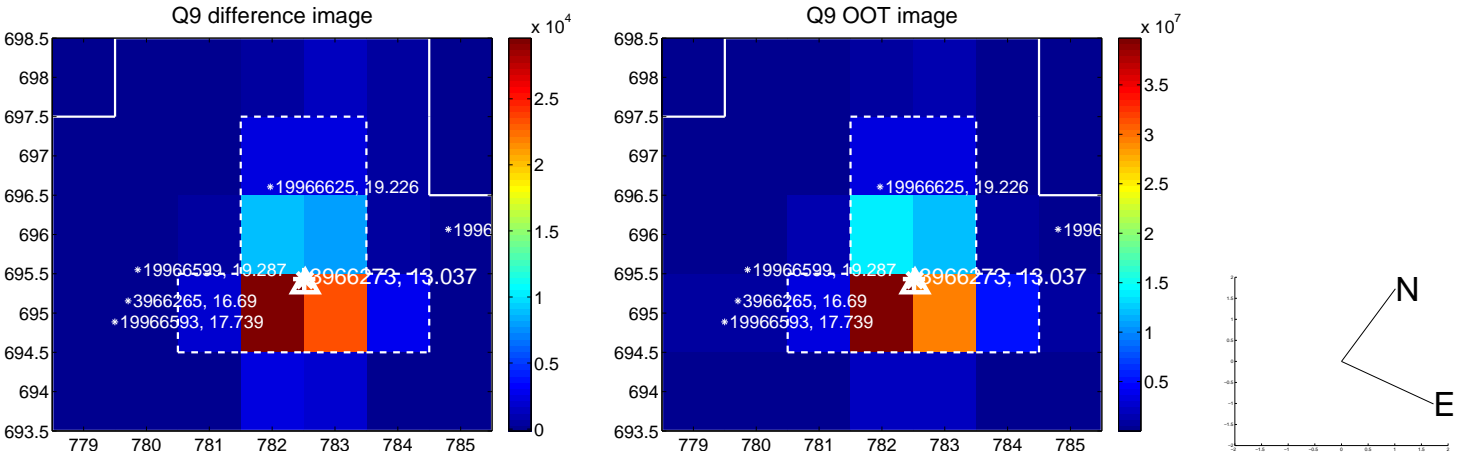
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

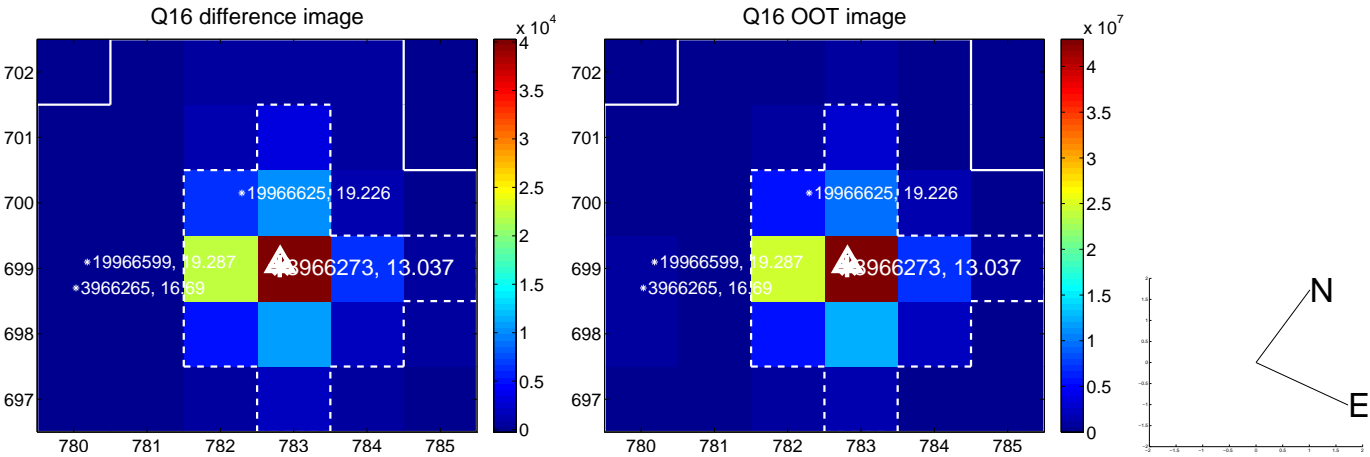
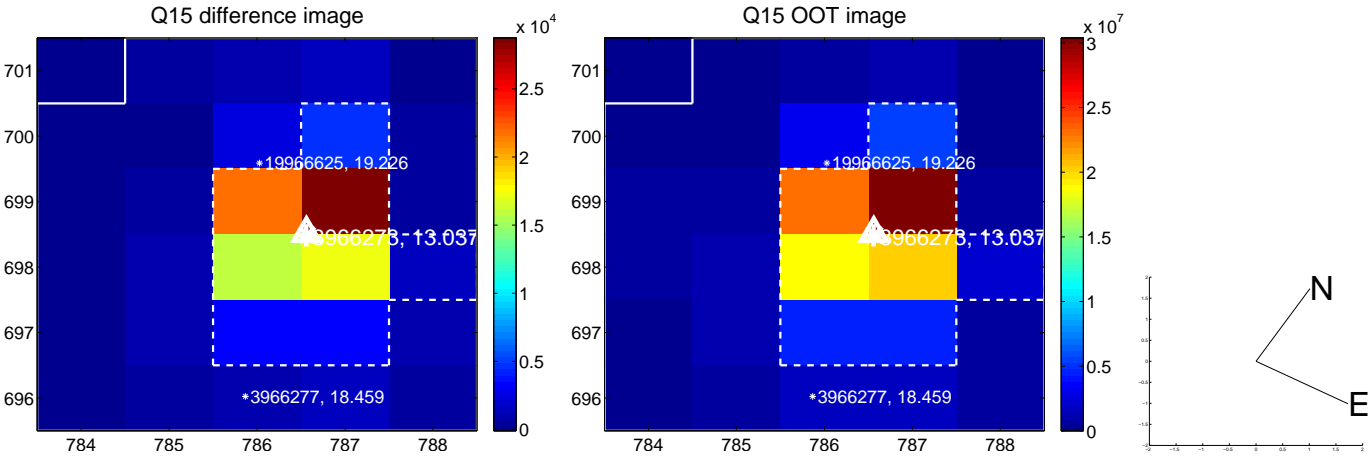
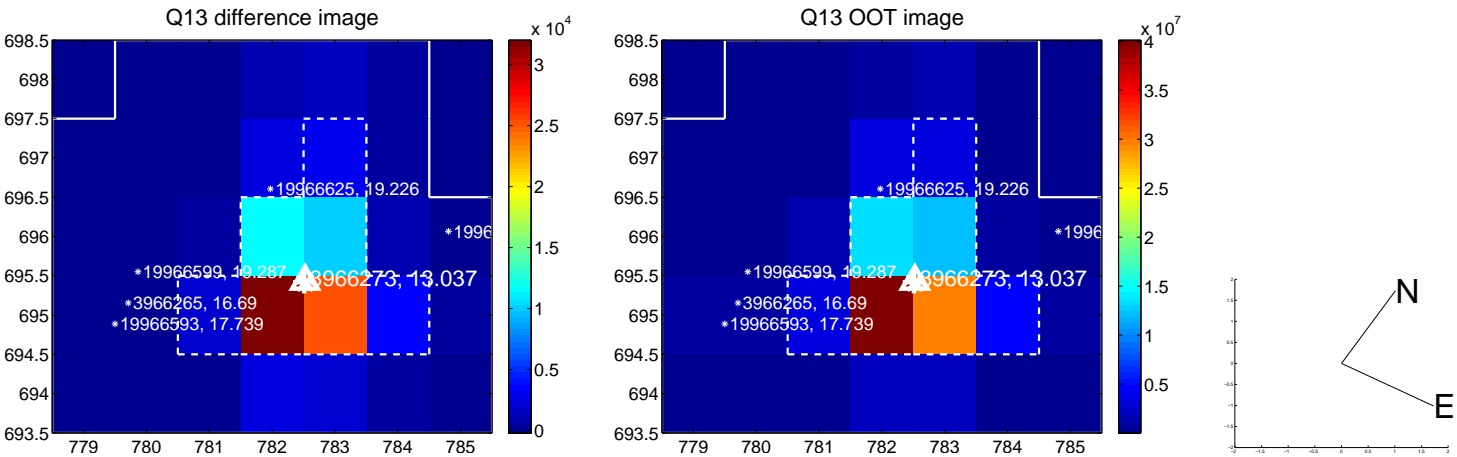


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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





# UKIRT Image

Declination

