

# KIC 010468883

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010468883-01	OBS	No	0.661125	131.884799	53.5	2.872	11.9	8.0	1.48	7190	1.26	18213.28
010468883-02	OBS	No	0.575885	131.735765	199.6	6.911	9.8	21.3	1.48	7190	2.12	21893.67

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010468883-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
010468883-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT

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

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

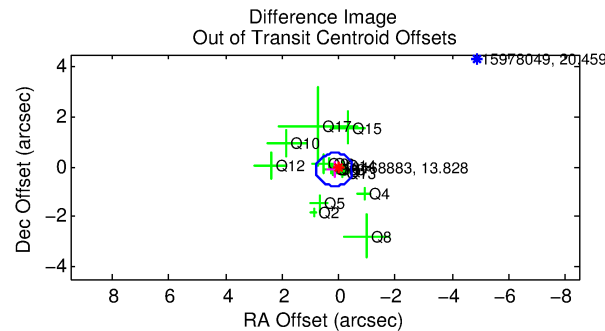
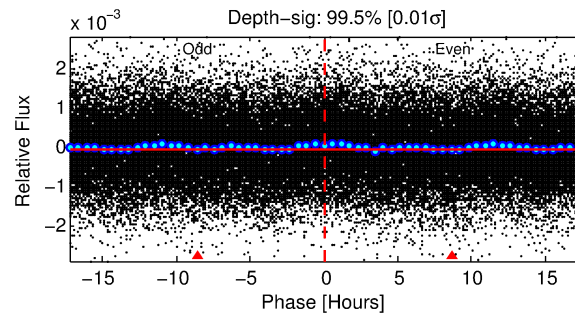
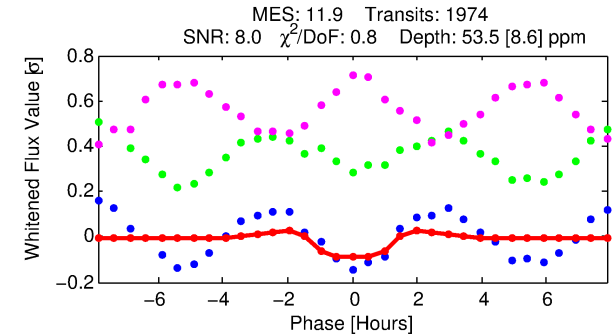
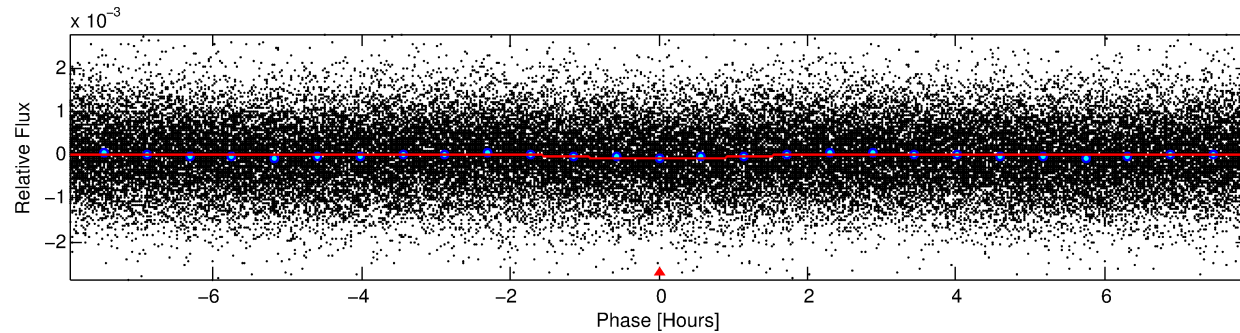
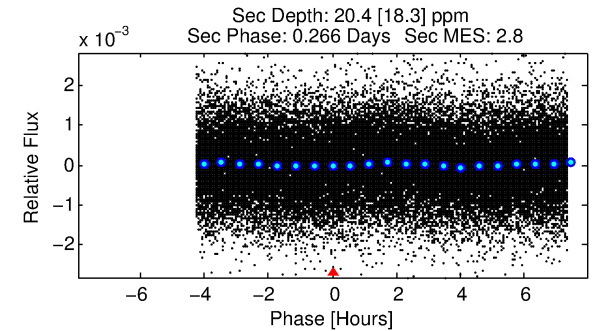
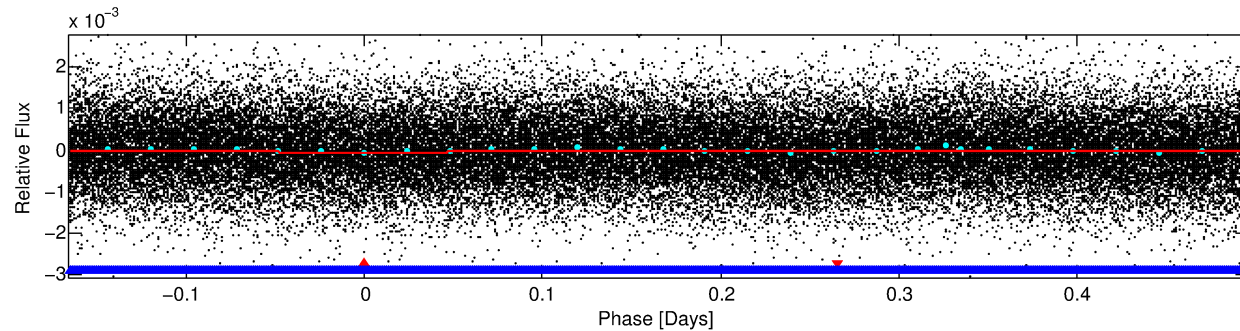
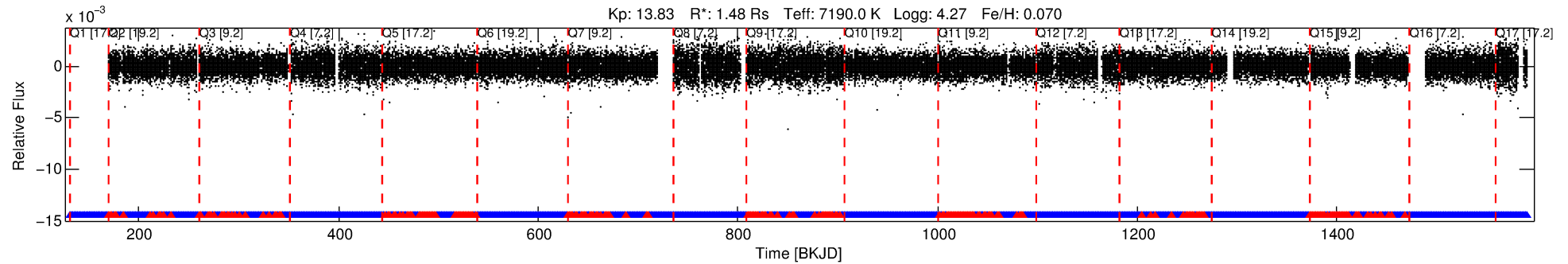
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010468883-01

No Significant Match Found

# DV One-Page Summary

KIC: 10468883 Candidate: 1 of 2 Period: 0.661 d



## DV Fit Results:

Period = 0.66112 [0.00001] d  
Epoch = 131.8848 [0.0037] BKJD  
Rp/R\* = 0.0078 [0.0053]  
a/R\* = 1.23 [1.81]  
b = 0.90 [0.92]  
Seff = 18213.28 [8923.22]  
Teq = 2962 [363] K  
Rp = 1.26 [0.99] Re  
a = 0.0170 [0.0054] AU  
Ag = 2.04 [3.47] [0.30σ]  
Teffp = 5476 [2254] K [1.10σ]

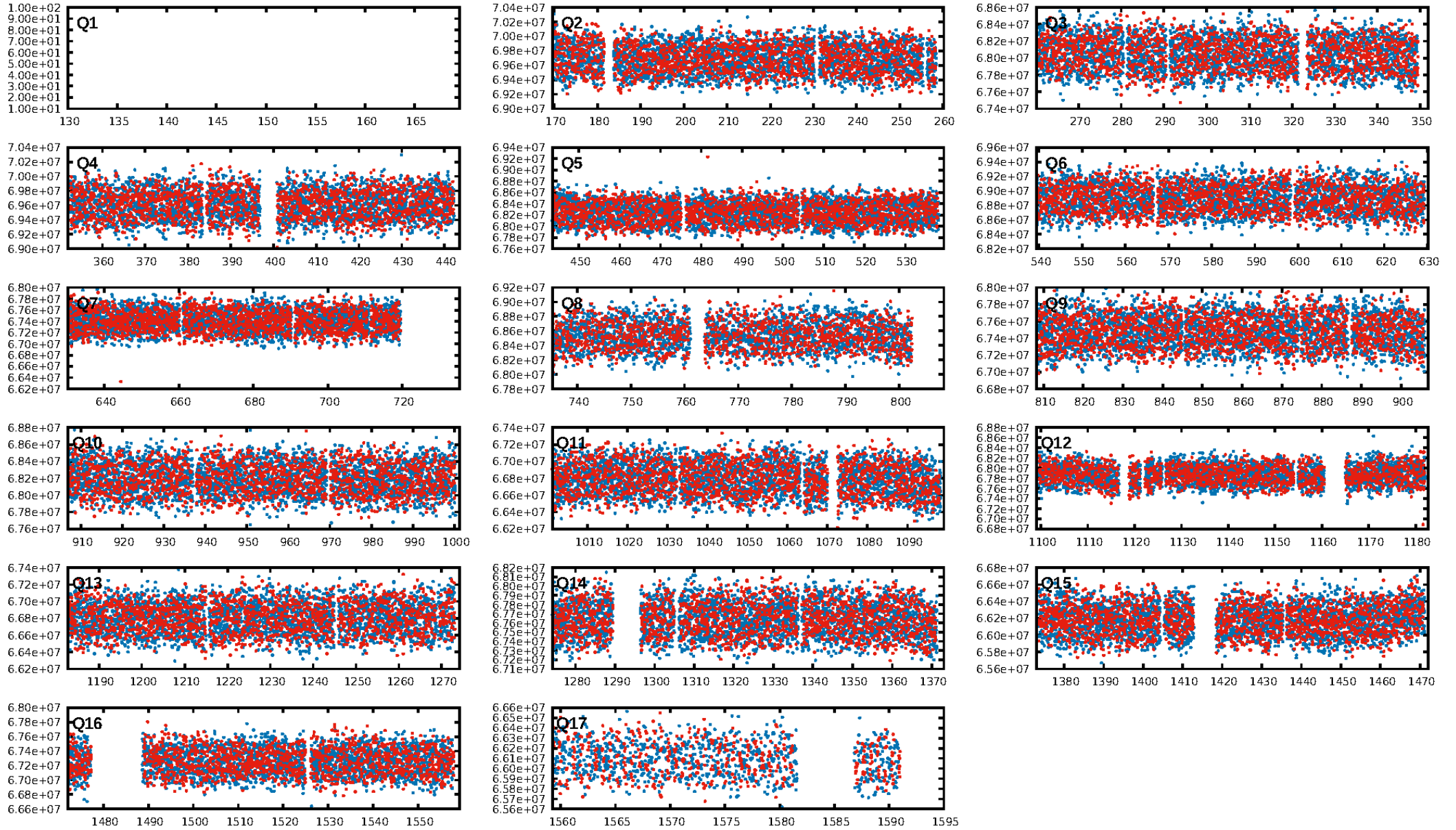
## DV Diagnostic Results:

ShortPeriod-sig: 21.5% [0.27σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.84 [1633/1933]  
GhostDiagnostic-chr: 72.53  
Centroid-sig: 3.4%  
Centroid-so: 1.184 arcsec [1.98σ]  
OotOffset-rm: 0.200 arcsec [0.92σ]  
KicOffset-rm: 0.230 arcsec [1.02σ]  
OotOffset-st: 4/3/4/4 [15]  
KicOffset-st: 4/3/4/4 [15]  
DiffImageQuality-fgm: 0.53 [8/15]  
DiffImageOverlap-fno: 0.00 [0/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:46:48 Z

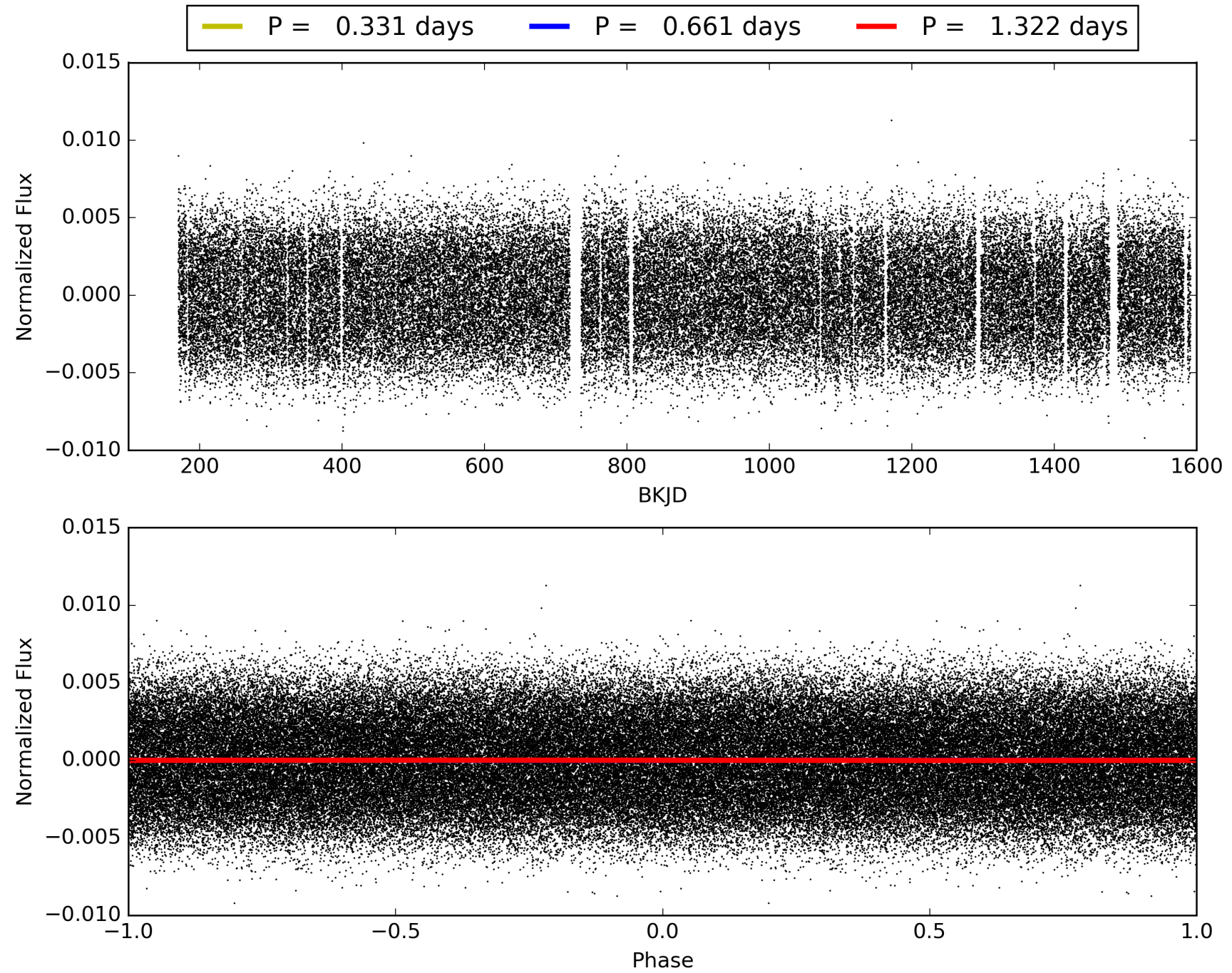
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010468883-01, PDC Light Curves



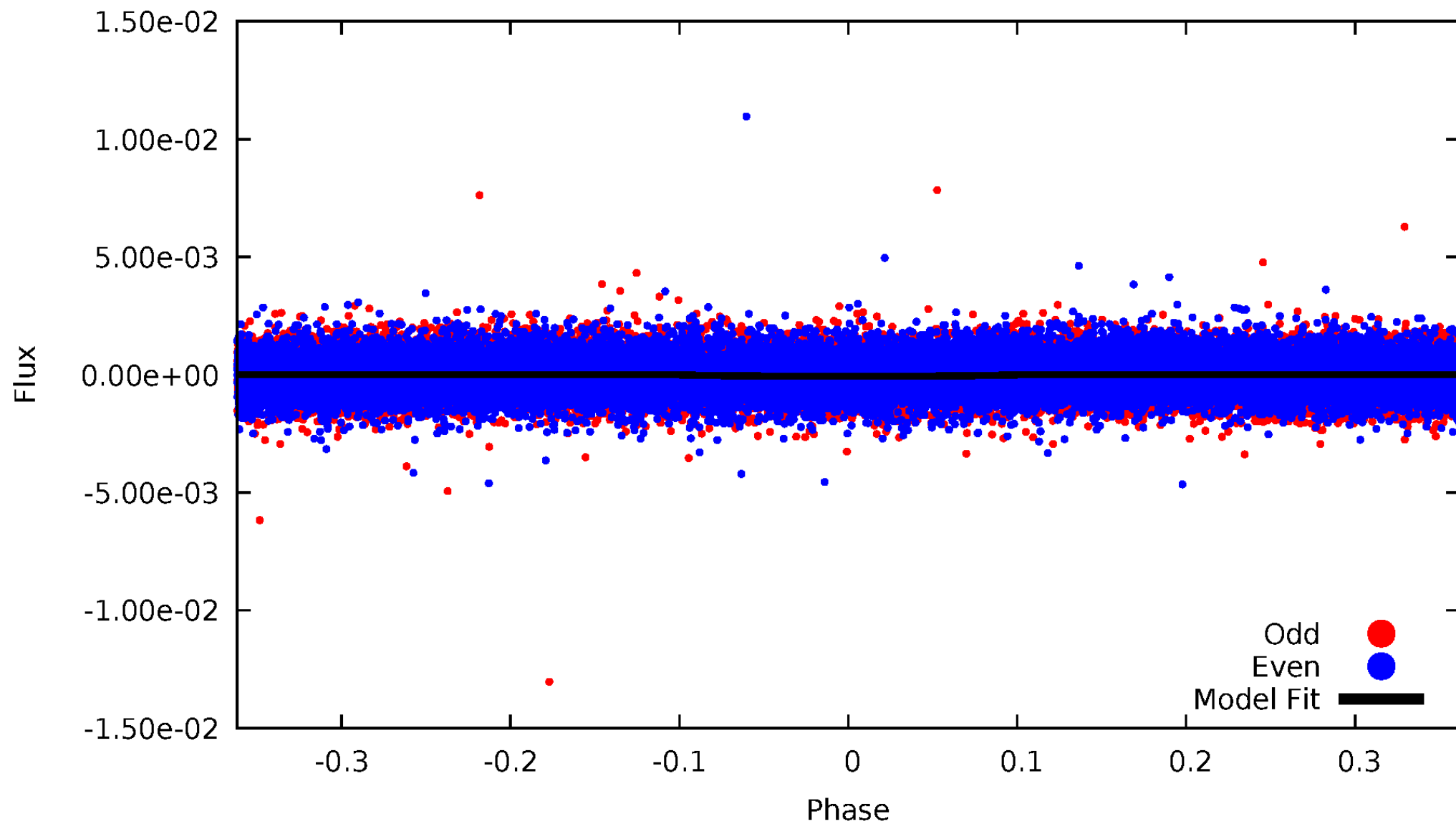


TCE 010468883-01



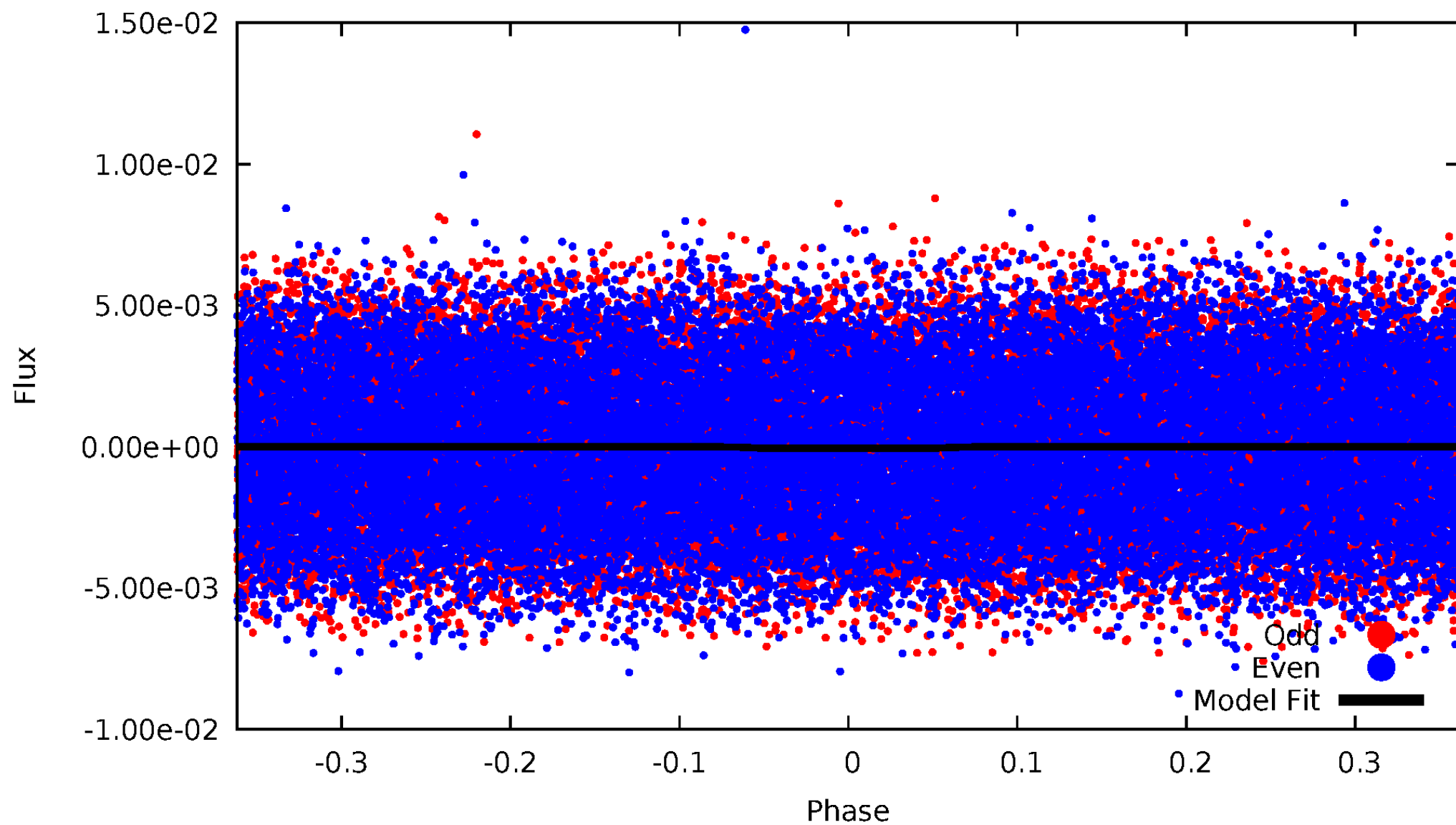
# DV Odd/Even

TCE 010468883-01



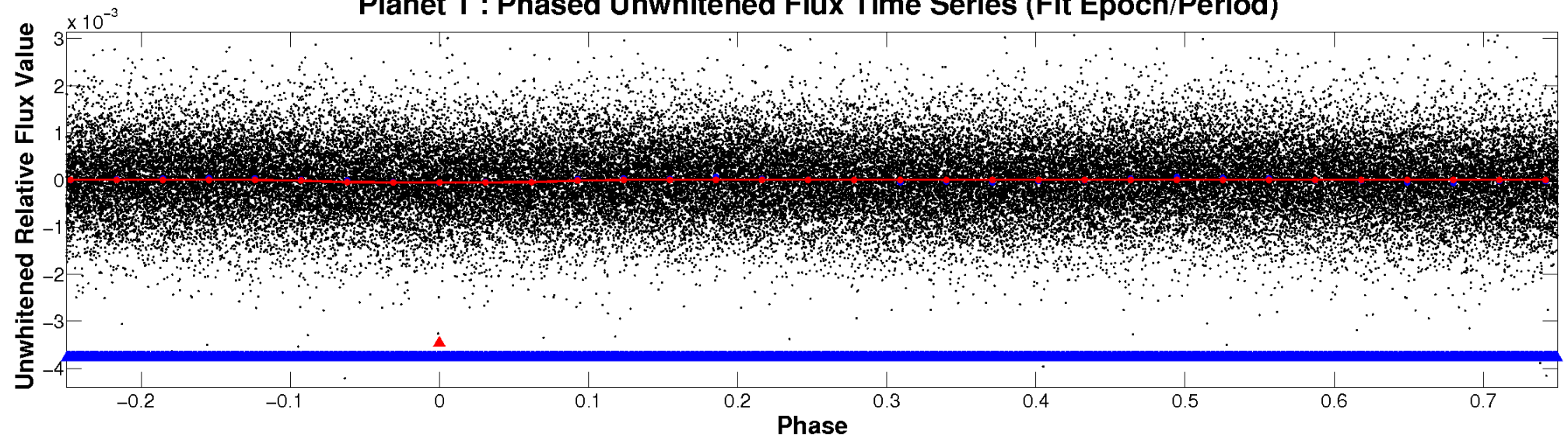
# ALT Odd/Even

TCE 010468883-01

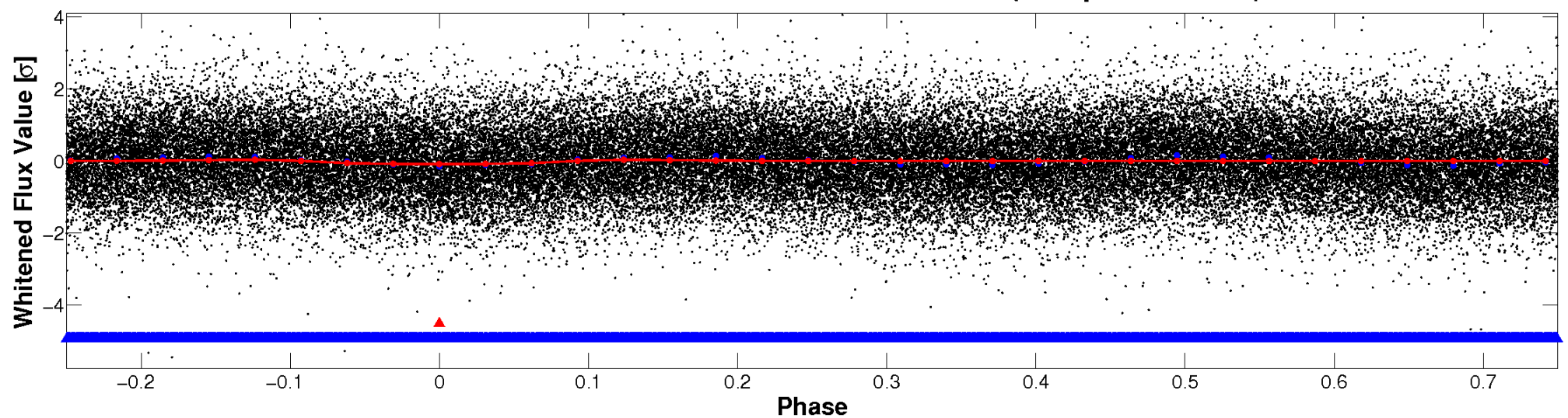


# Non-Whitened Vs. Whitened Light Curve

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



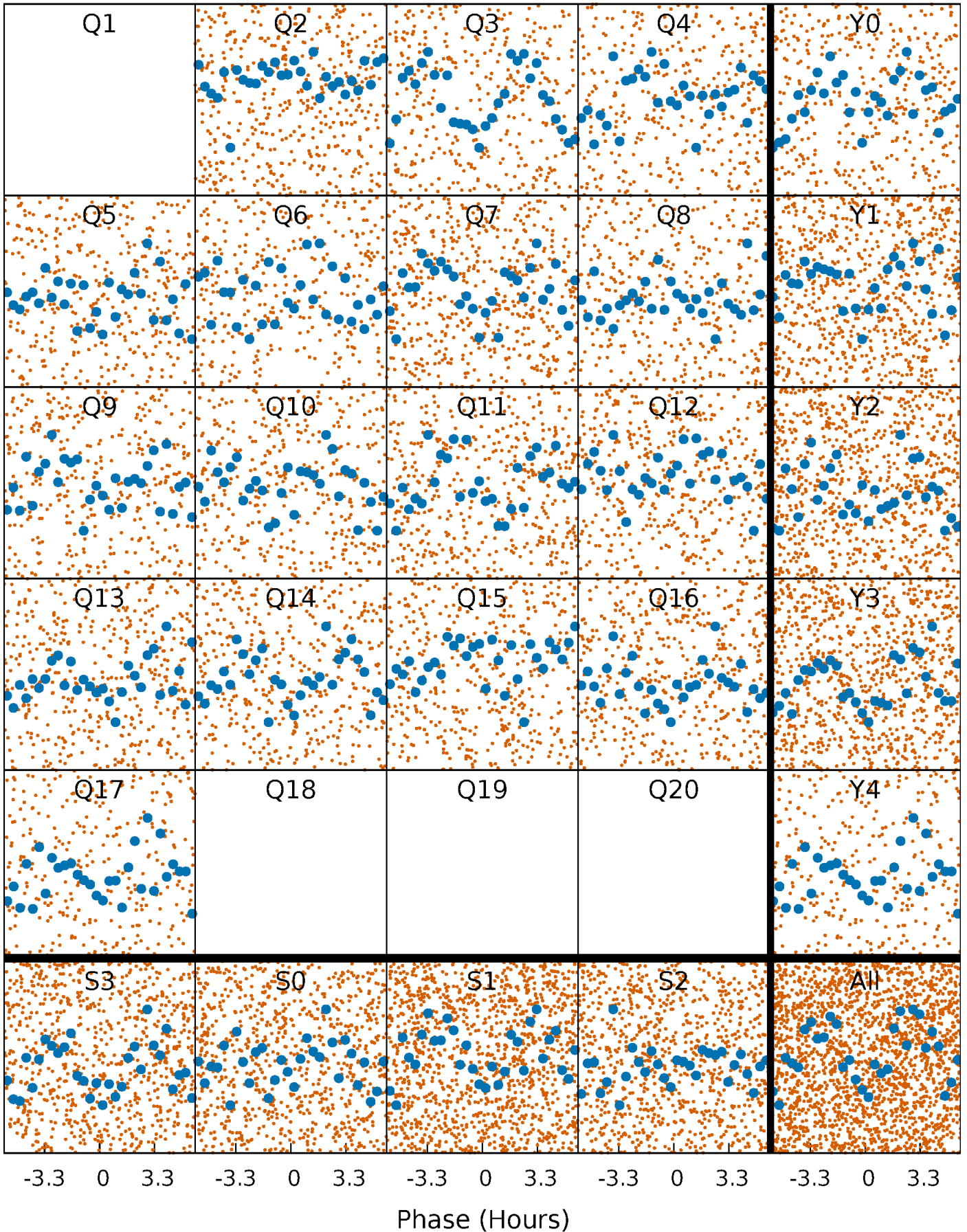
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

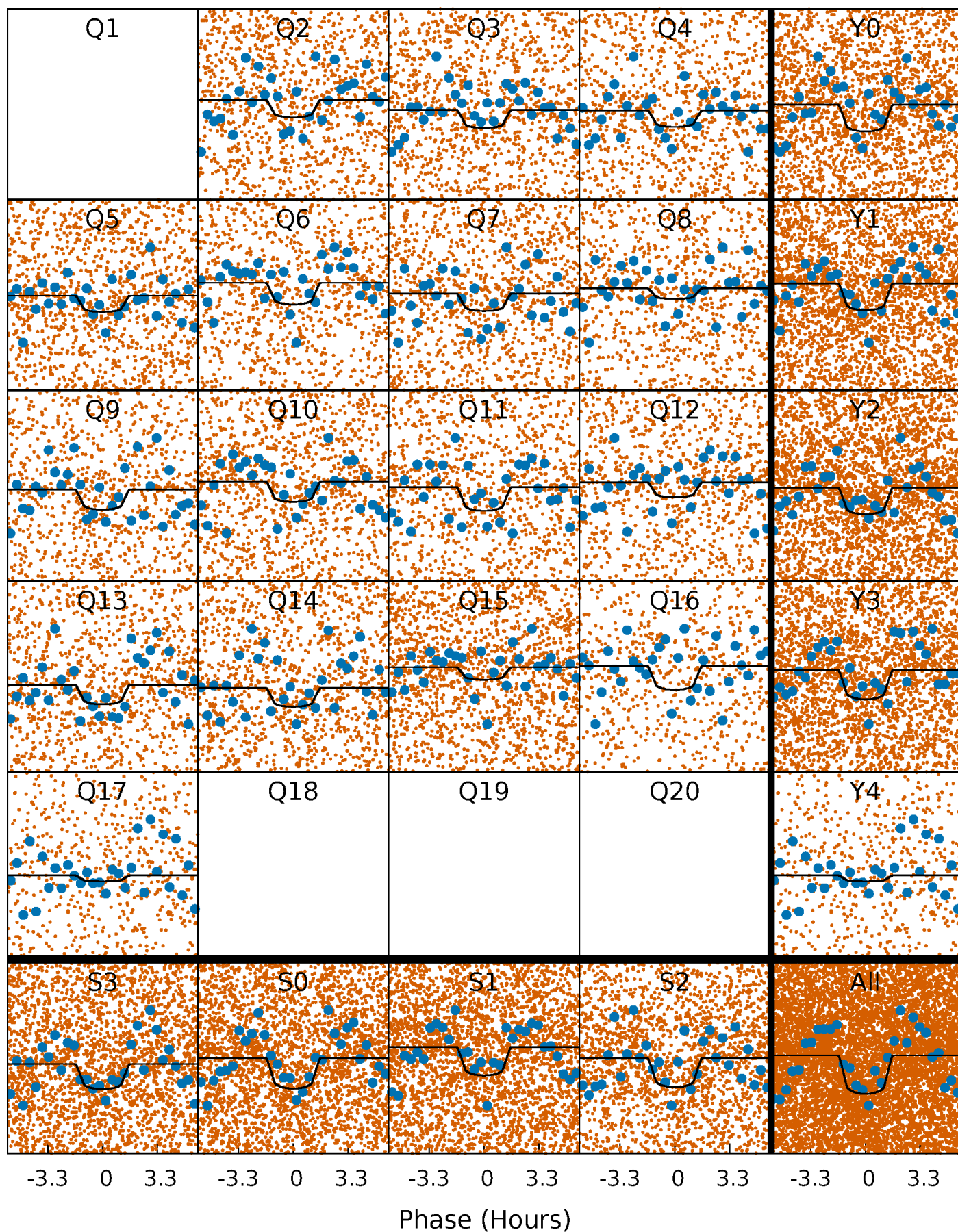
TCE 010468883-01 P= 0.661125 Days  $T_0=131.884799$  (BKJD)





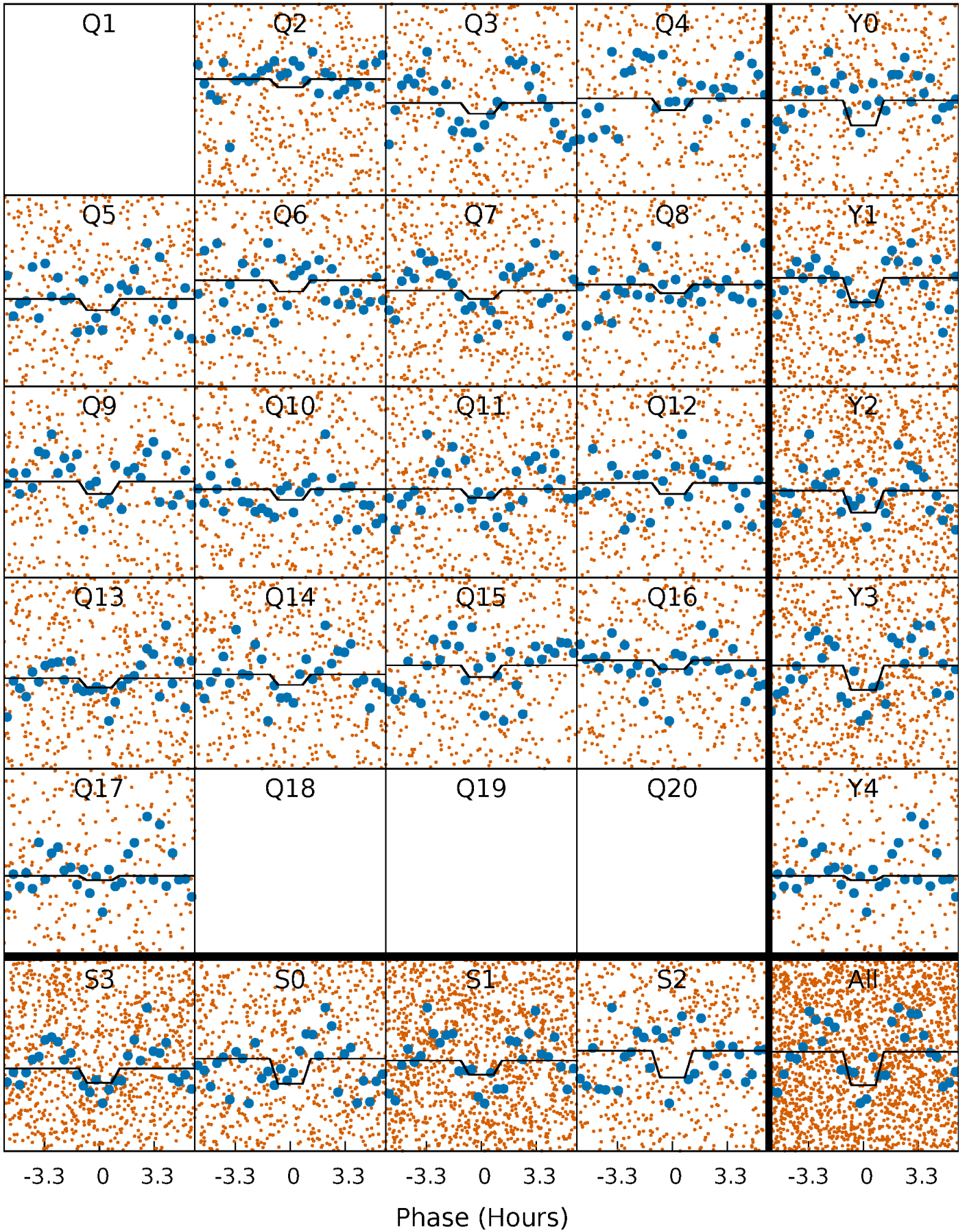
# DV Quarter-Phased Transit Curves

TCE 010468883-01 P= 0.661125 Days  $T_0=131.884799$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

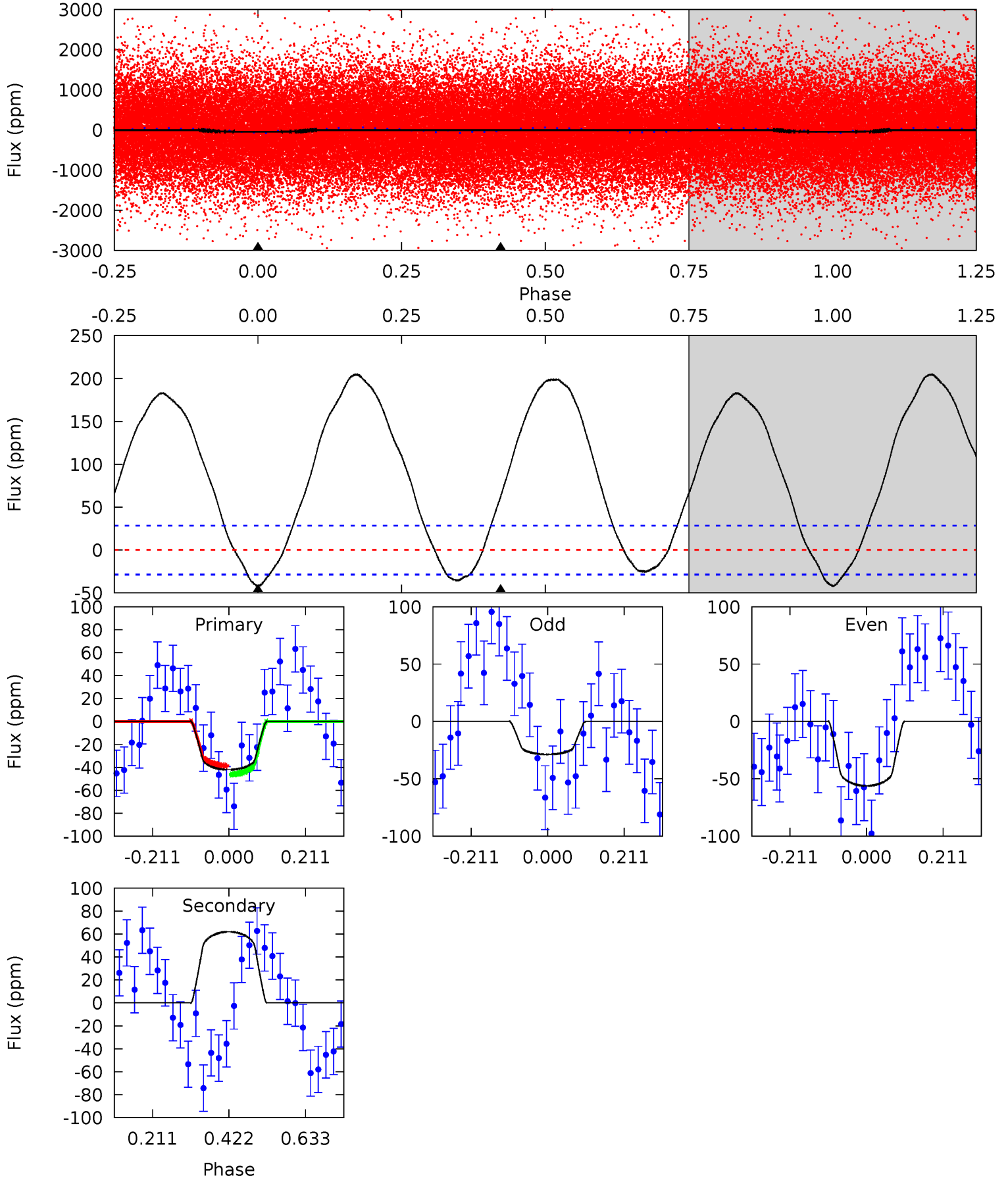
TCE 010468883-01 P= 0.661125 Days  $T_0=131.884789$  (BKJD)



# DV Model-Shift Uniqueness Test

010468883-01, P = 0.661125 Days, E = 131.884799 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
6.49	-9.56	0	0	4.41	1.25	8.09	6.49	6.49	-9.56	-9.56	2.14	1.29	0.83	0.58

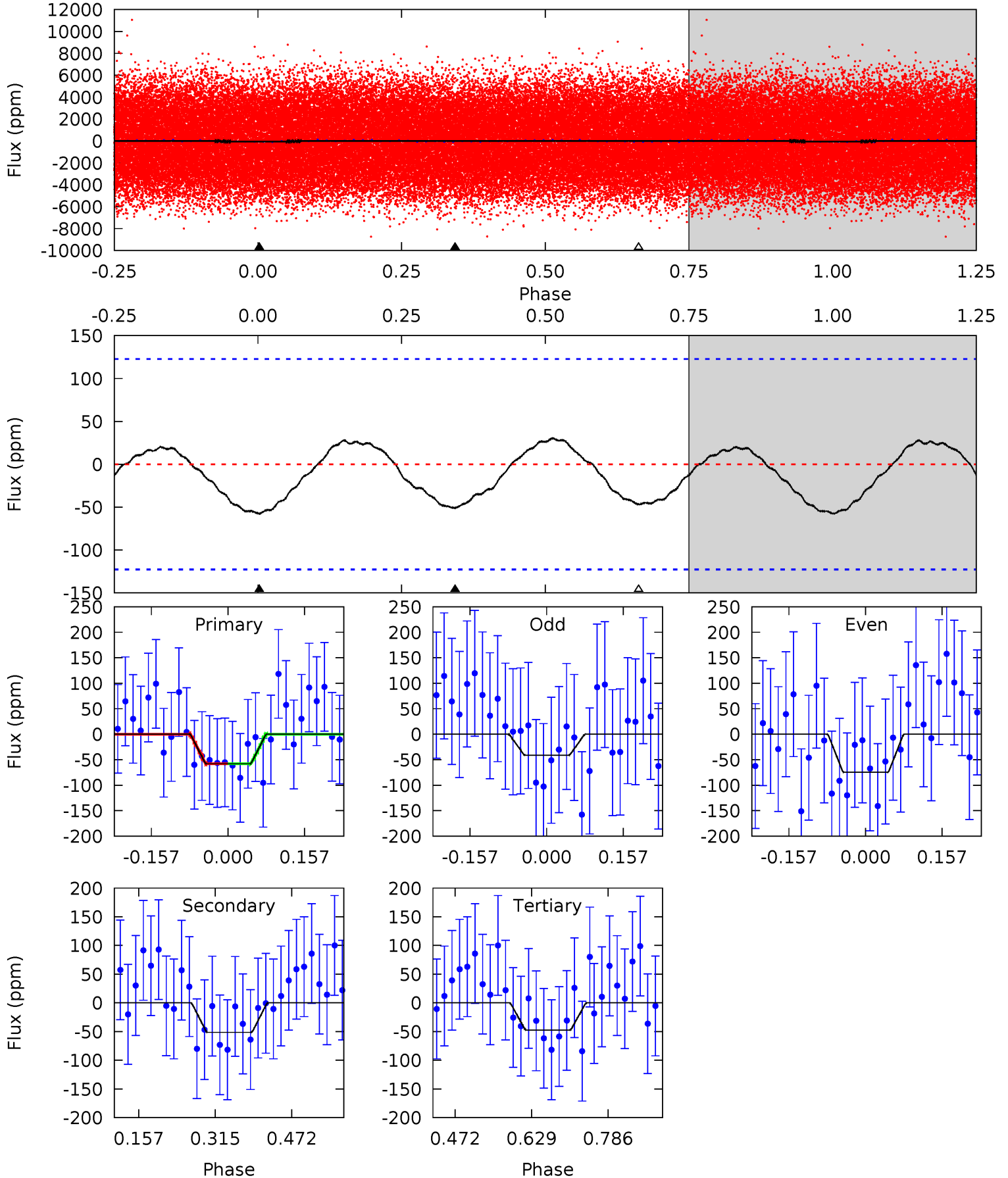




# Alt Model-Shift Uniqueness Test

010468883-01, P = 0.661125 Days, E = 131.884789 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
2.11	1.87	1.72	0	4.47	1.41	0.96	0.39	2.11	0.15	1.87	0.62	1.01	0.35	0.01





### Stellar Parameters For KIC 010468883

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7190^{+200}_{-343}$	$4.272^{+0.060}_{-0.240}$	$0.070^{+0.200}_{-0.350}$	$1.484^{+0.580}_{-0.193}$	$1.500^{+0.211}_{-0.211}$	$0.647^{+0.217}_{-0.373}$
	+3%/-5%	+1%/-6%	+286%/-500%	+39%/-13%	+14%/-14%	+34%/-58%
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 010468883-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$62 \pm 6$	$1.36^{+1.03}_{-0.75}$	$4234^{+344}_{-246}$	$-7220^{+1595}_{-5374}$	$-5.096^{+3.385}_{-22.385}$
Alt.	$-51 \pm 27$	$1.39^{+0.91}_{-0.78}$	$4195^{+338}_{-236}$	$6375^{+4512}_{-1863}$	$3.870^{+15.743}_{-2.864}$

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

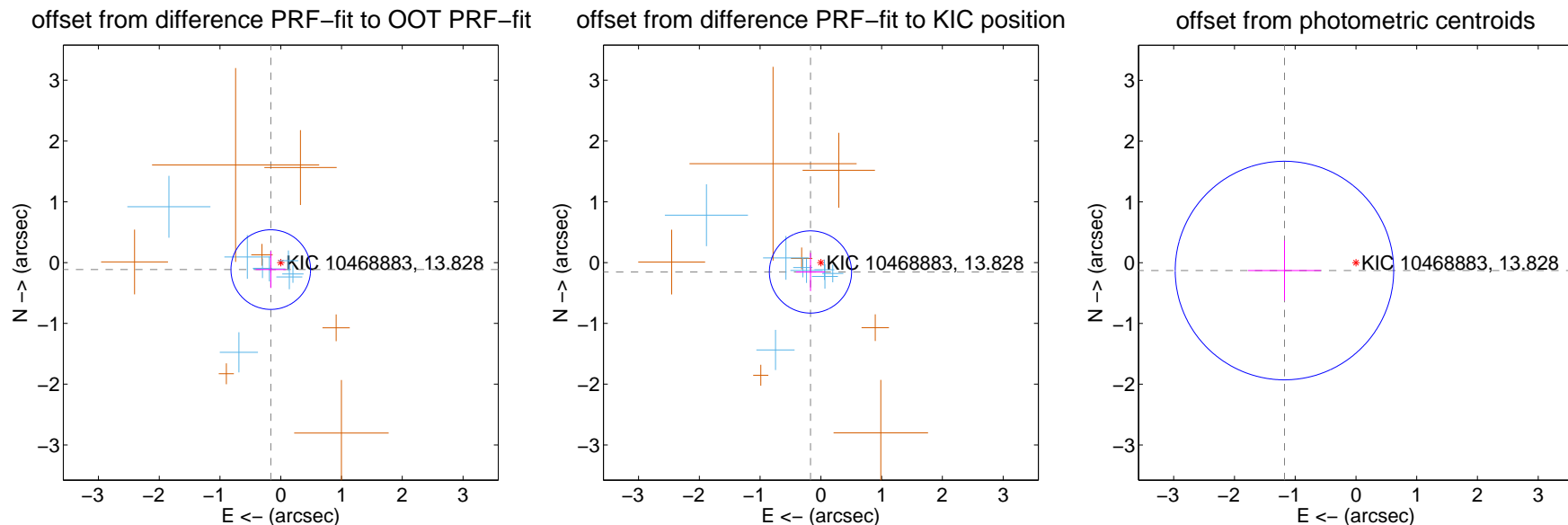
## DV Centroid Data

Supplemental centroid analysis for 010468883-01. Kepler magnitude: 13.83. Transit SNR 8.03

There are 8 quarters with good PRF difference image offsets

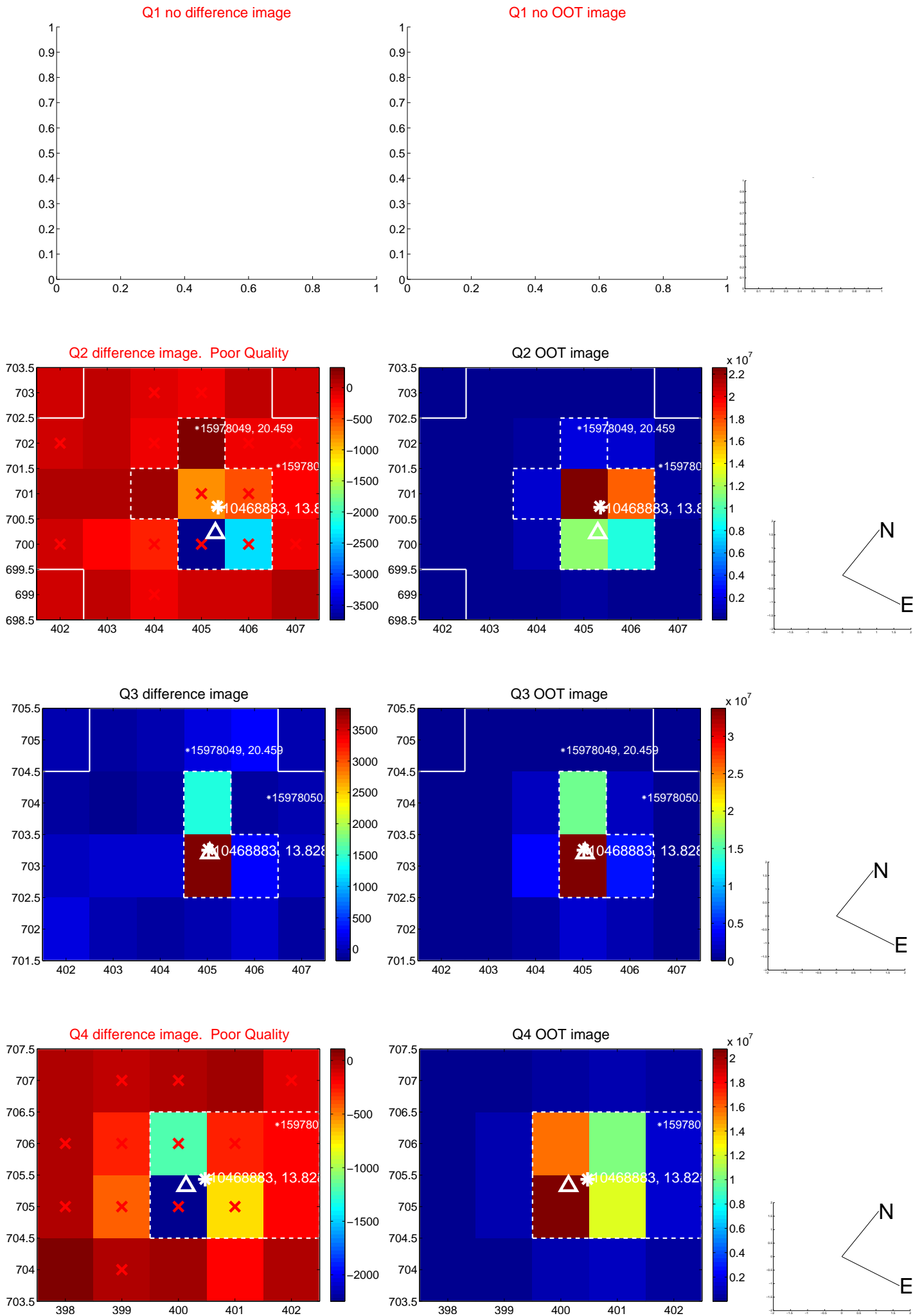
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.200 \pm 0.218$	0.92	$0.164 \pm 0.251$	$-0.115 \pm 0.303$
PRF-fit source offset from KIC position	$0.230 \pm 0.225$	1.02	$0.171 \pm 0.238$	$-0.154 \pm 0.315$
photometric centroid source offset	$1.18 \pm 0.60$	1.98	$1.18 \pm 0.60$	$-0.13 \pm 0.49$

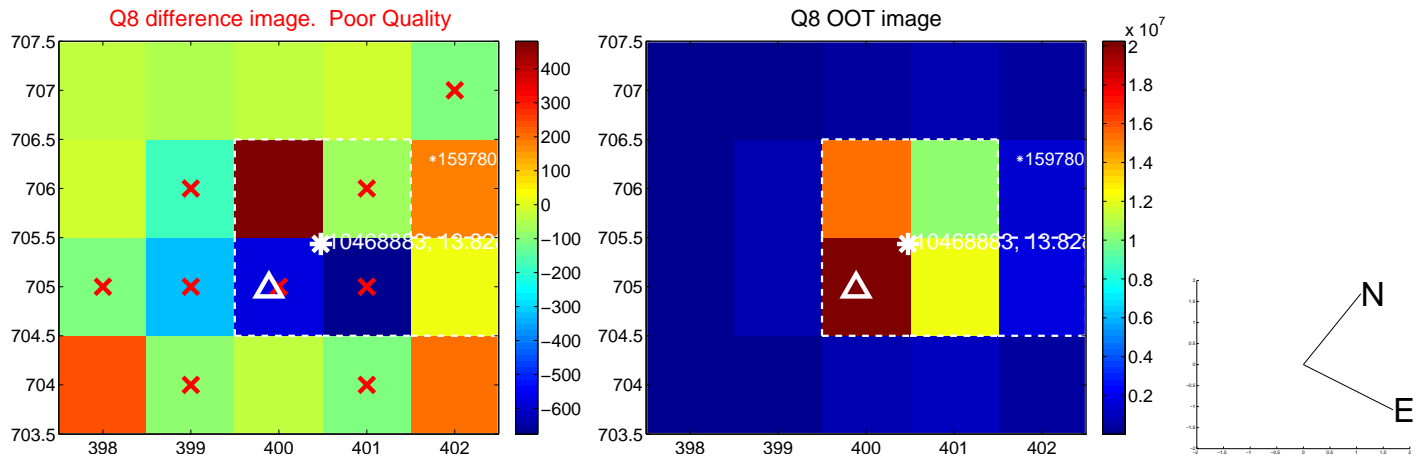
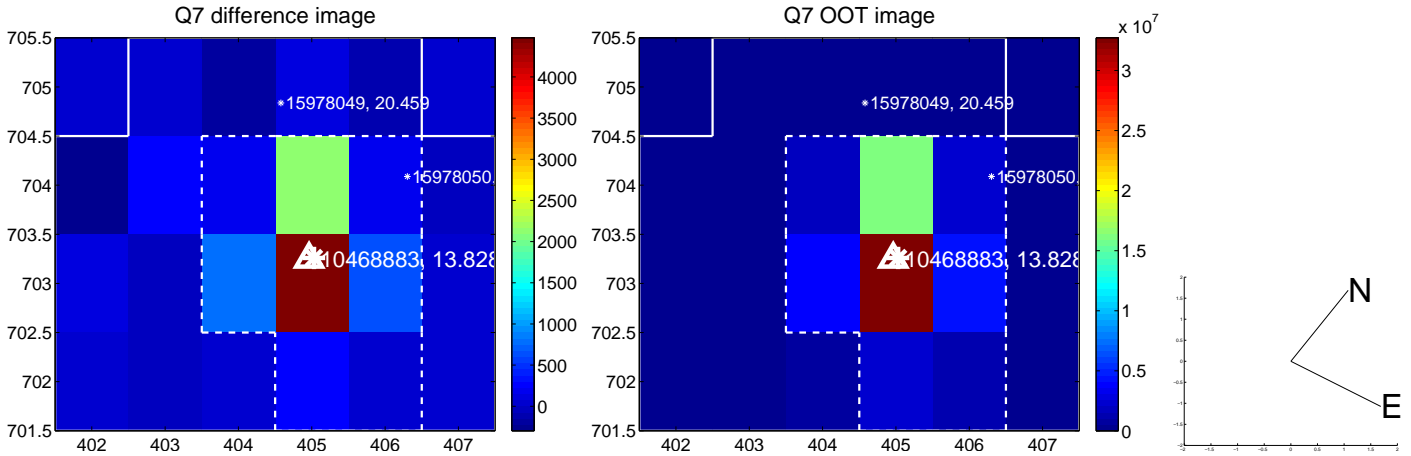
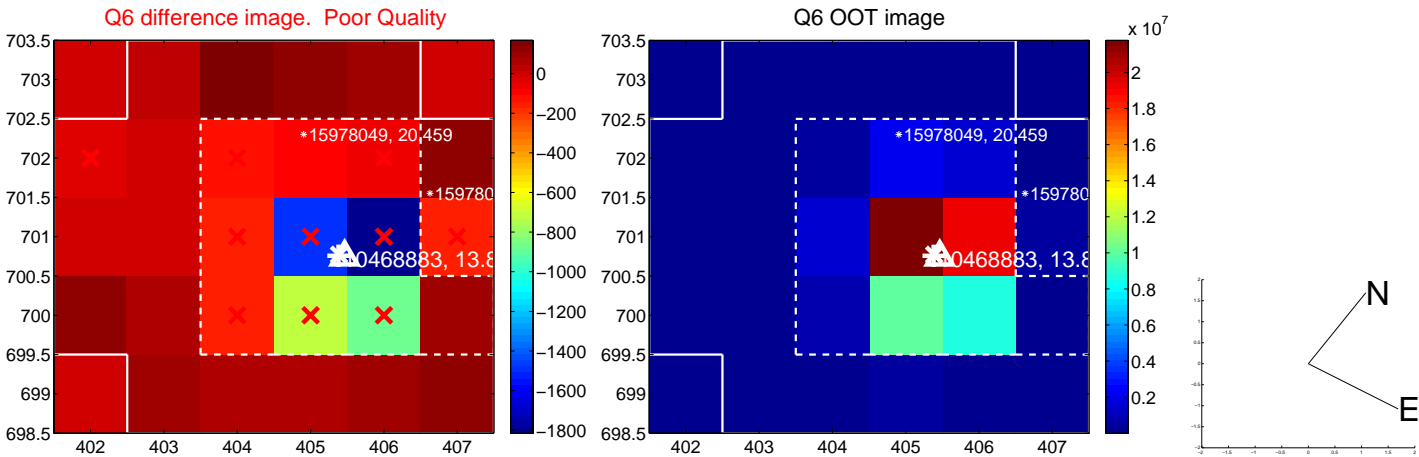
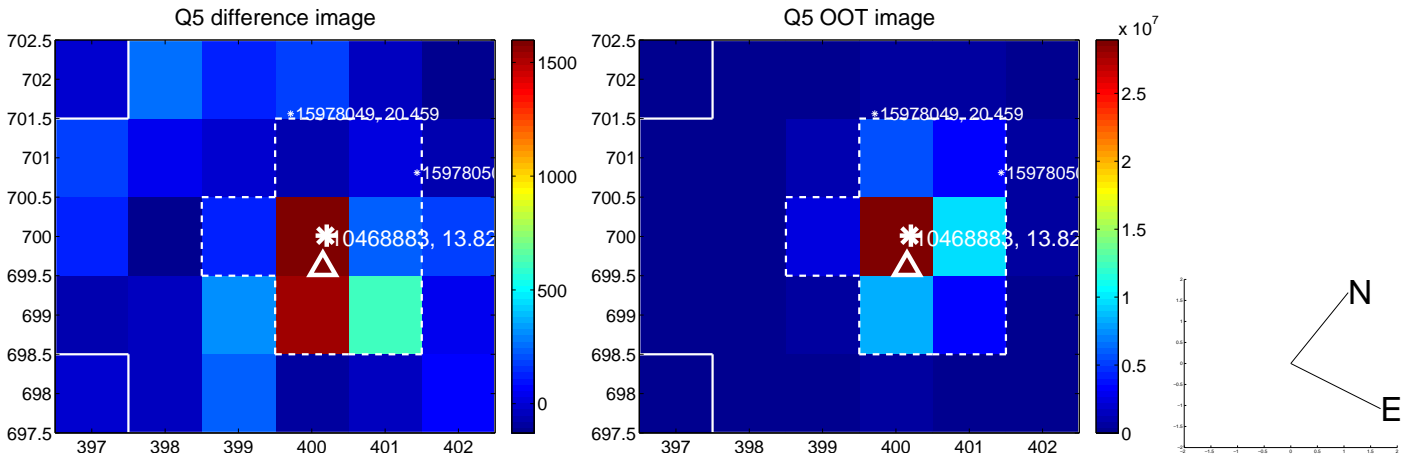


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

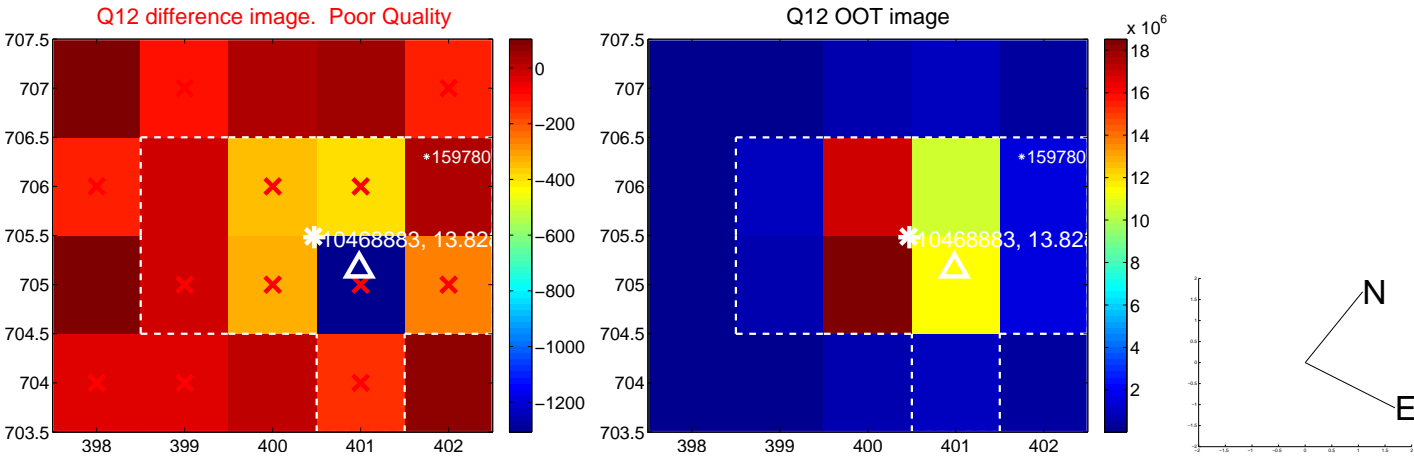
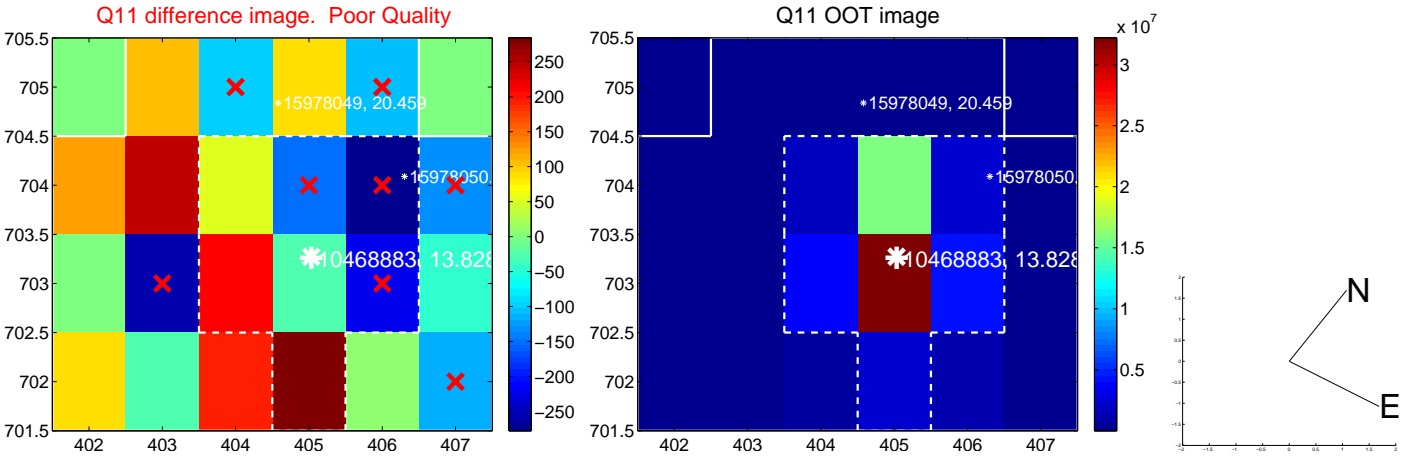
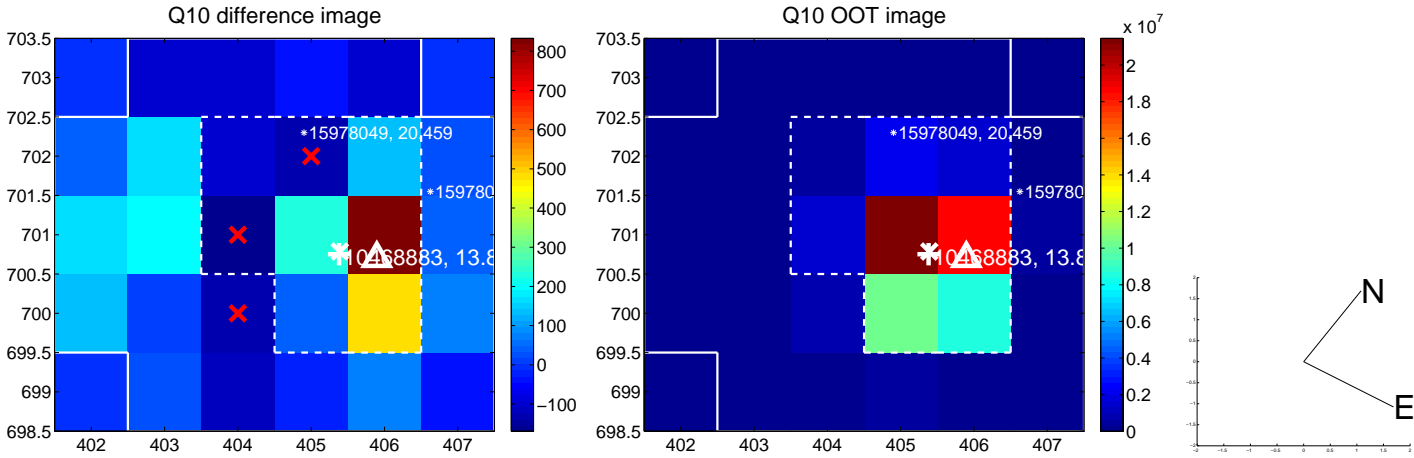
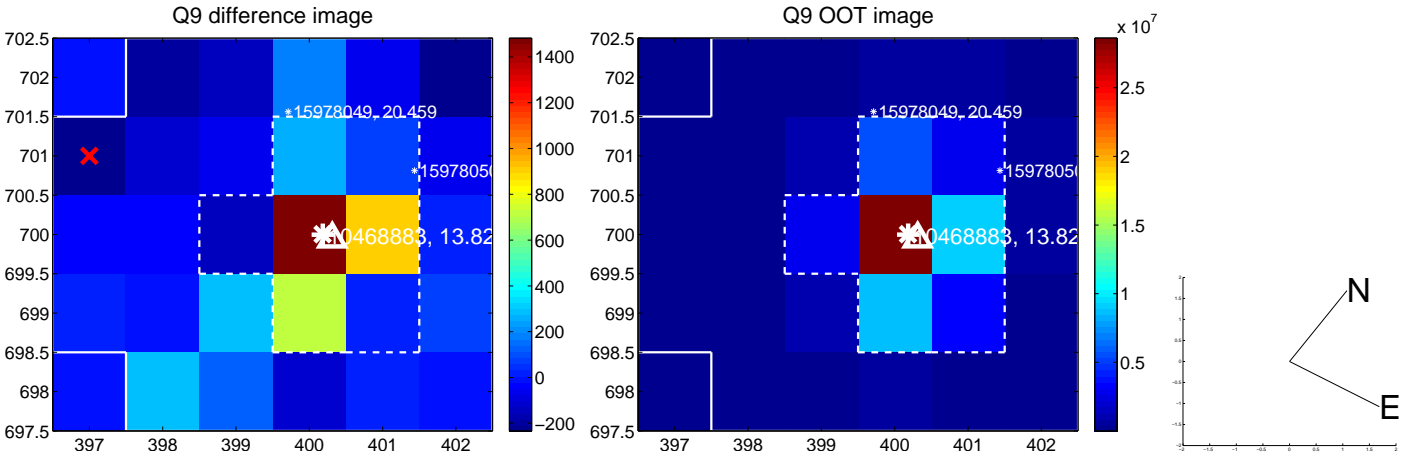


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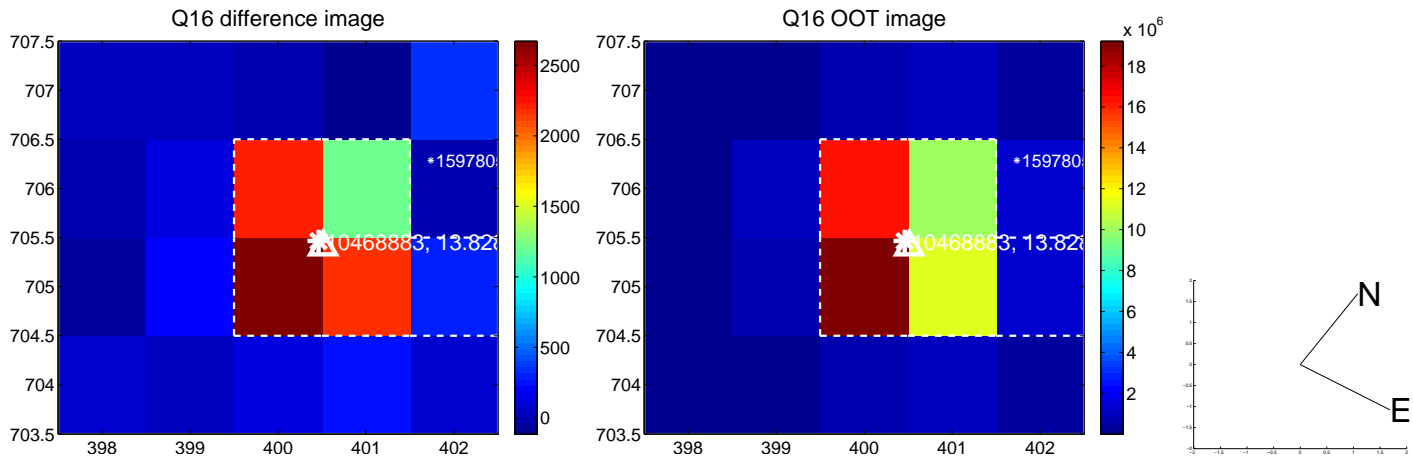
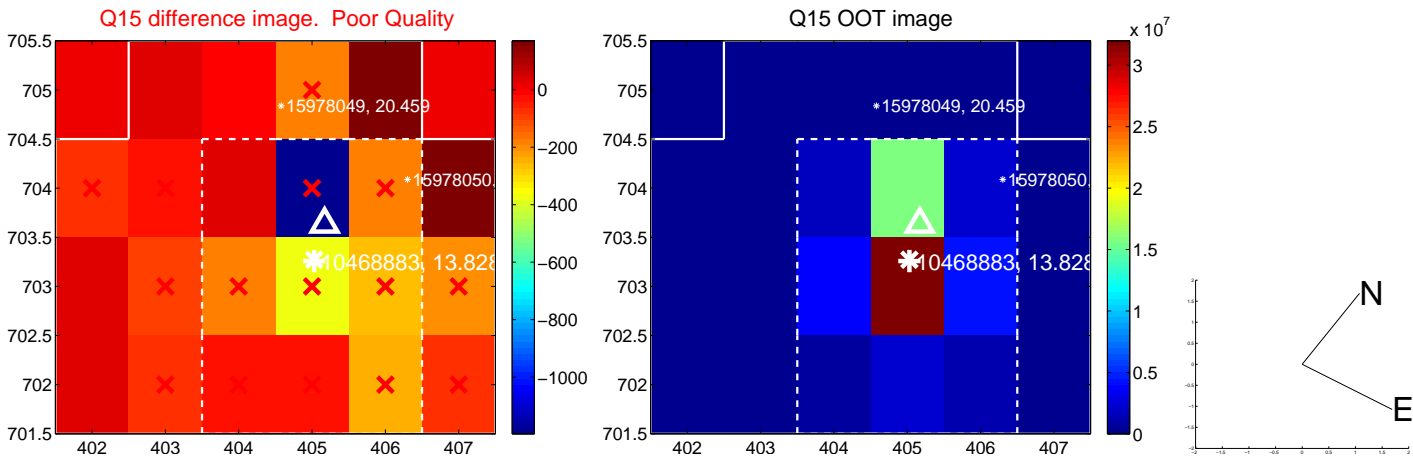
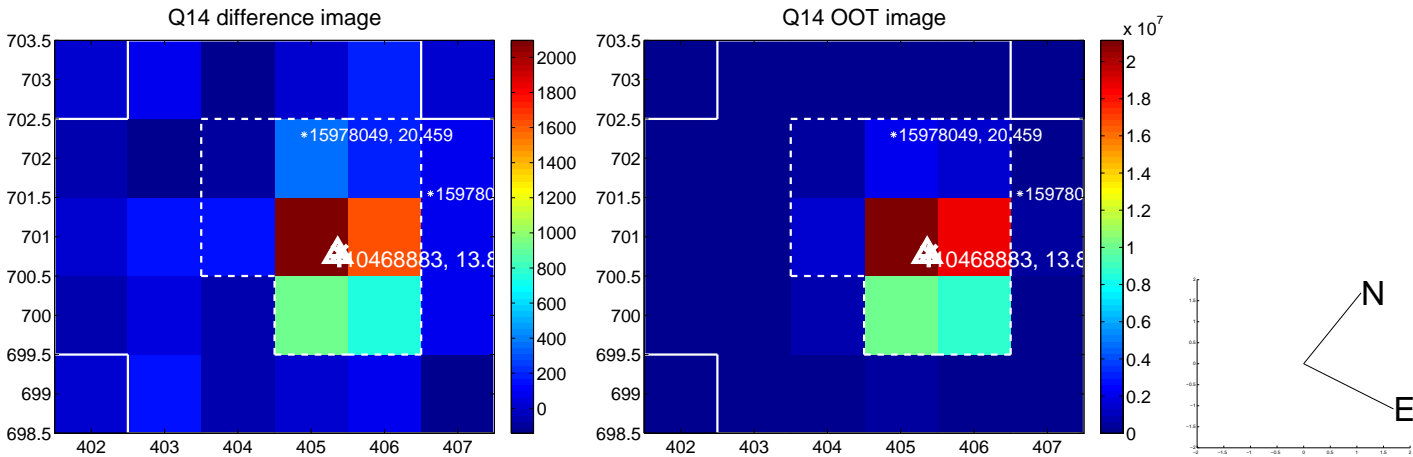
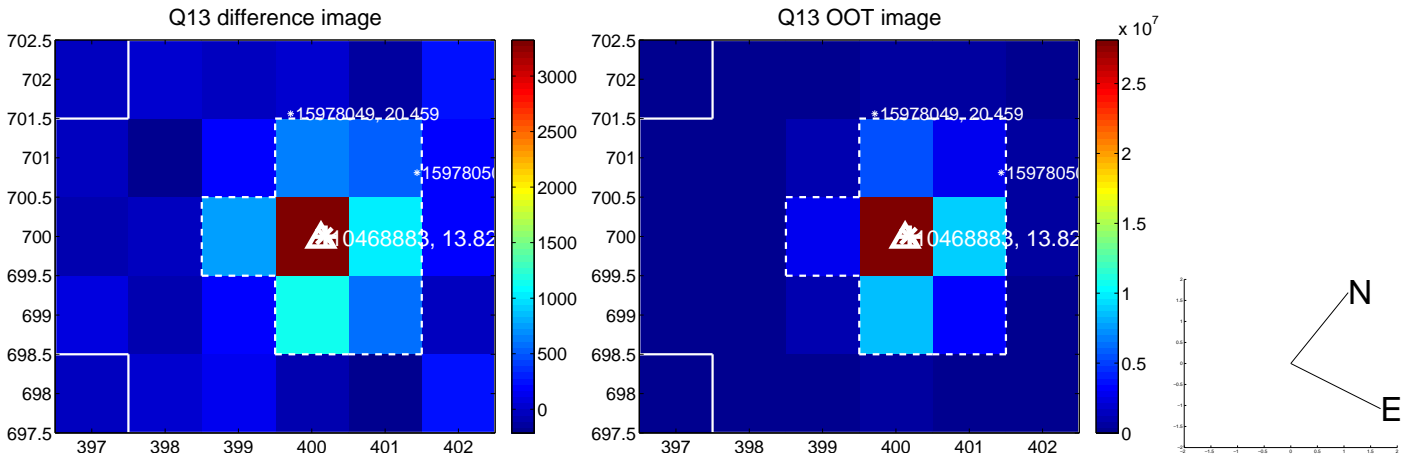




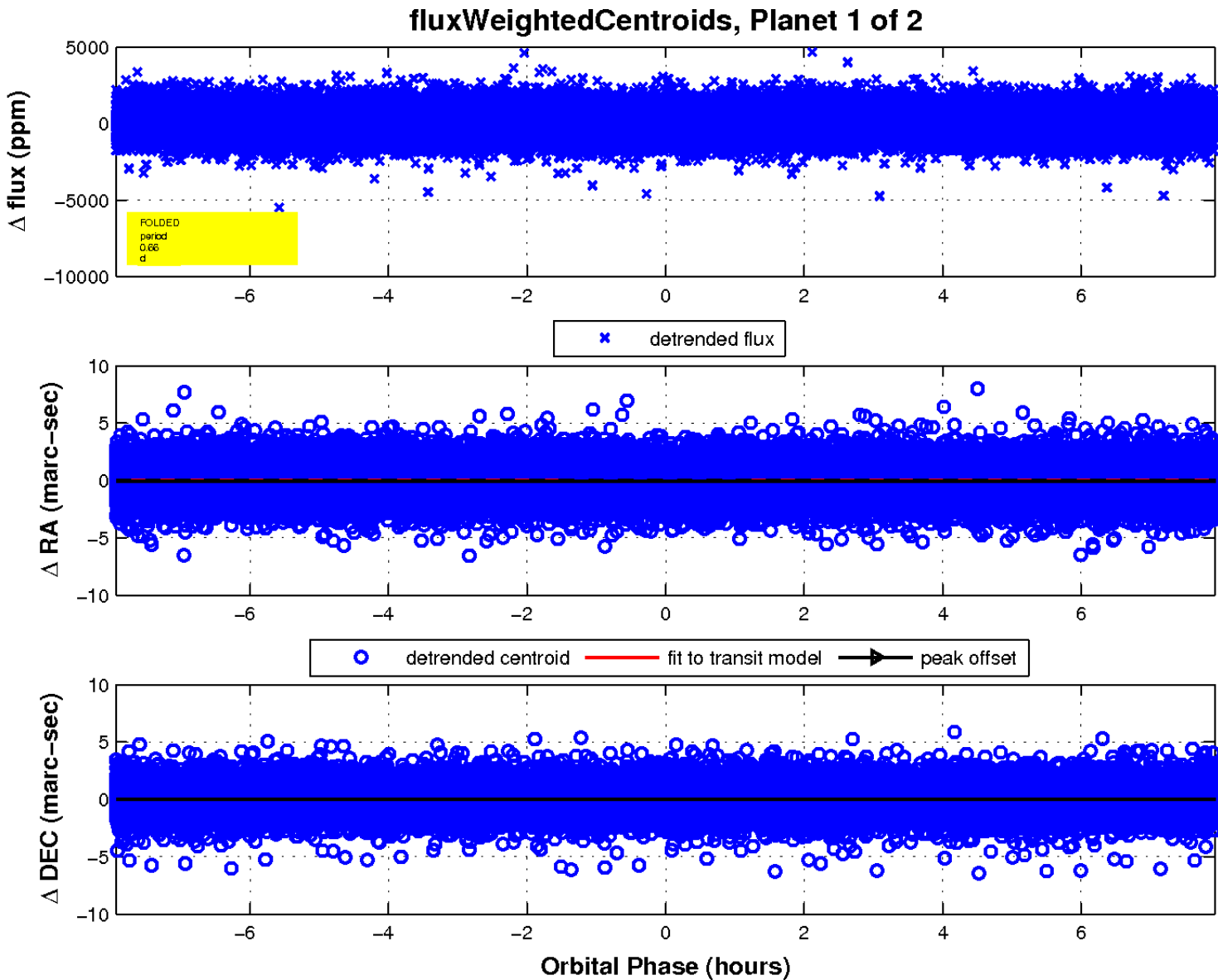
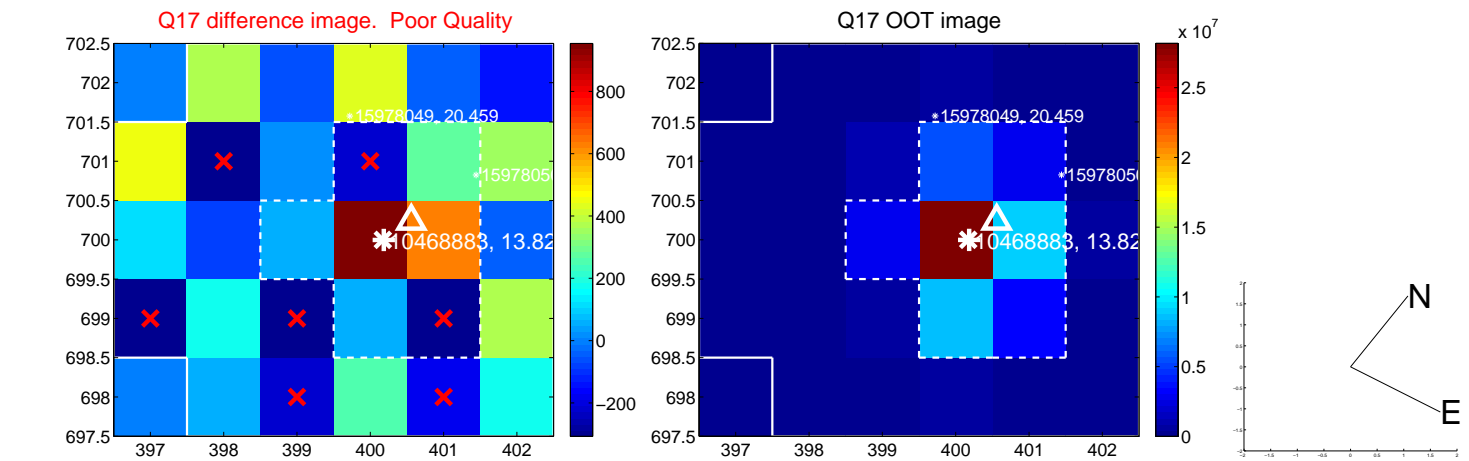
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

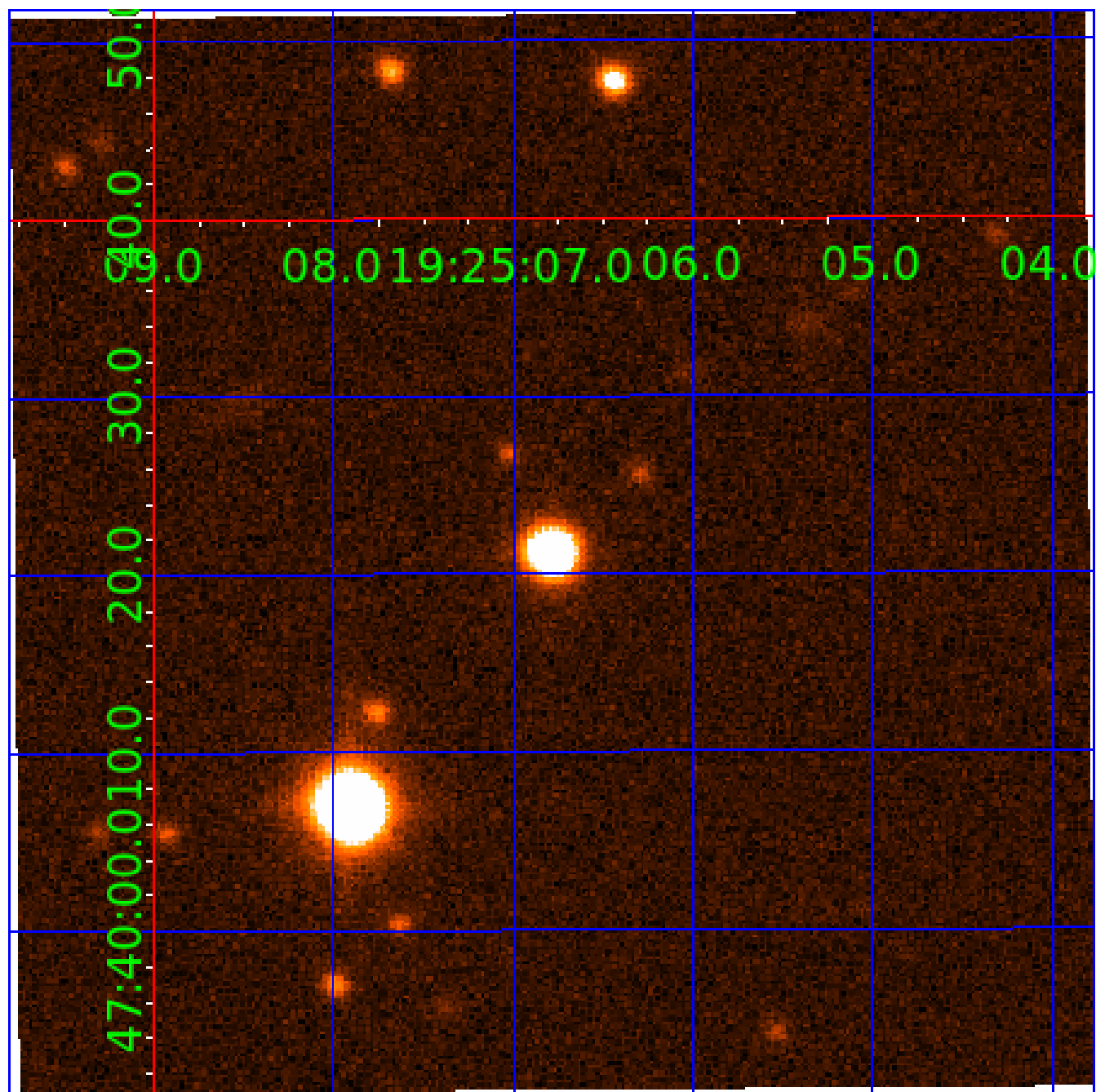


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 010468883

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010468883-01	OBS	No	0.661125	131.884799	53.5	2.872	11.9	8.0	1.48	7190	1.26	18213.28
010468883-02	OBS	No	0.575885	131.735765	199.6	6.911	9.8	21.3	1.48	7190	2.12	21893.67

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010468883-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
010468883-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT

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

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

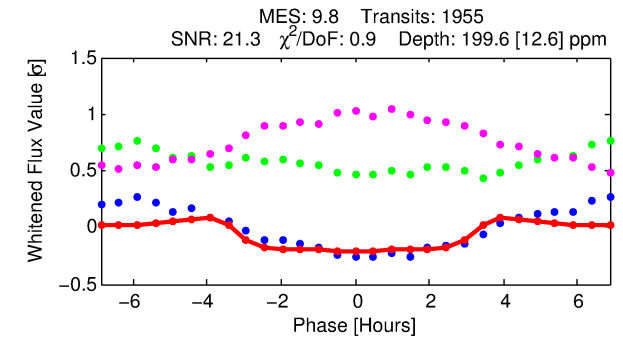
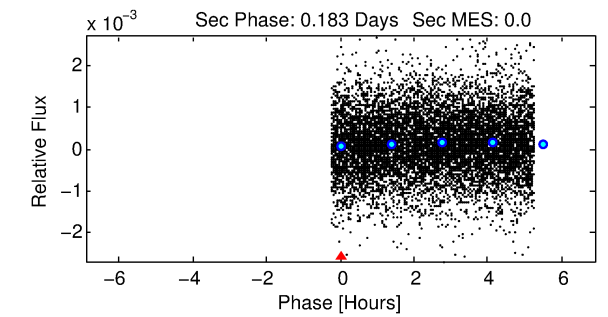
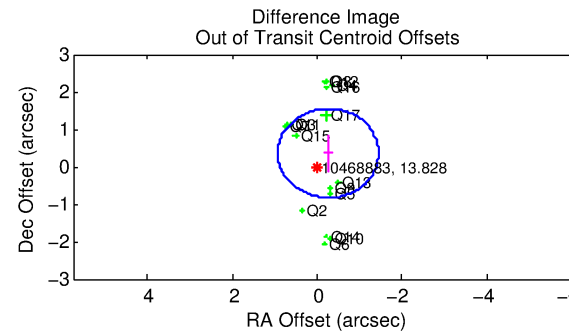
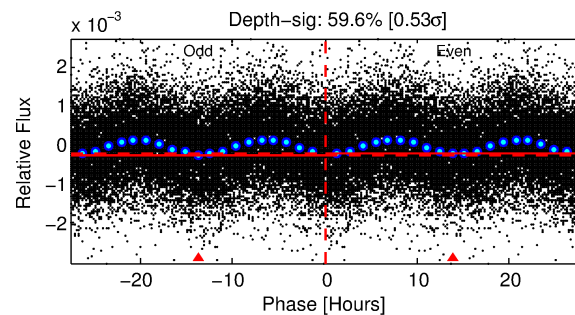
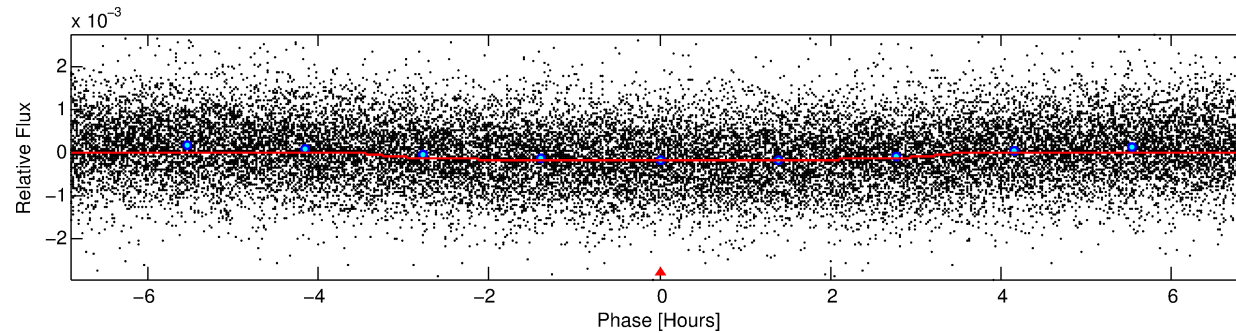
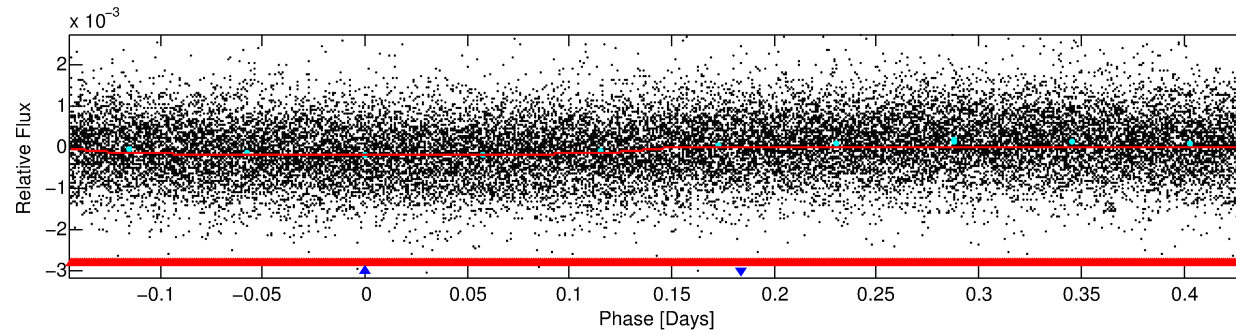
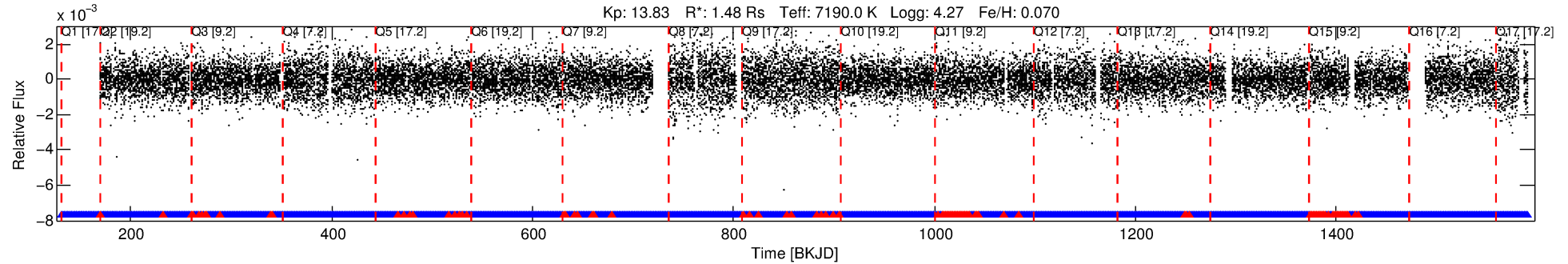
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010468883-02

No Significant Match Found

# DV One-Page Summary

KIC: 10468883 Candidate: 2 of 2 Period: 0.576 d



## DV Fit Results:

Period = 0.57588 [0.00001] d  
Epoch = 131.7358 [0.0027] BKJD  
Rp/R\* = 0.0131 [0.0032]  
a/R\* = 1.00 [0.01]  
b = 0.09 [15.53]  
Seff = 21893.67 [10726.36]  
Teq = 3102 [380] K  
Rp = 2.12 [0.98] Re  
a = 0.0155 [0.0050] AU  
Ag = N/A  
Teffp = N/A

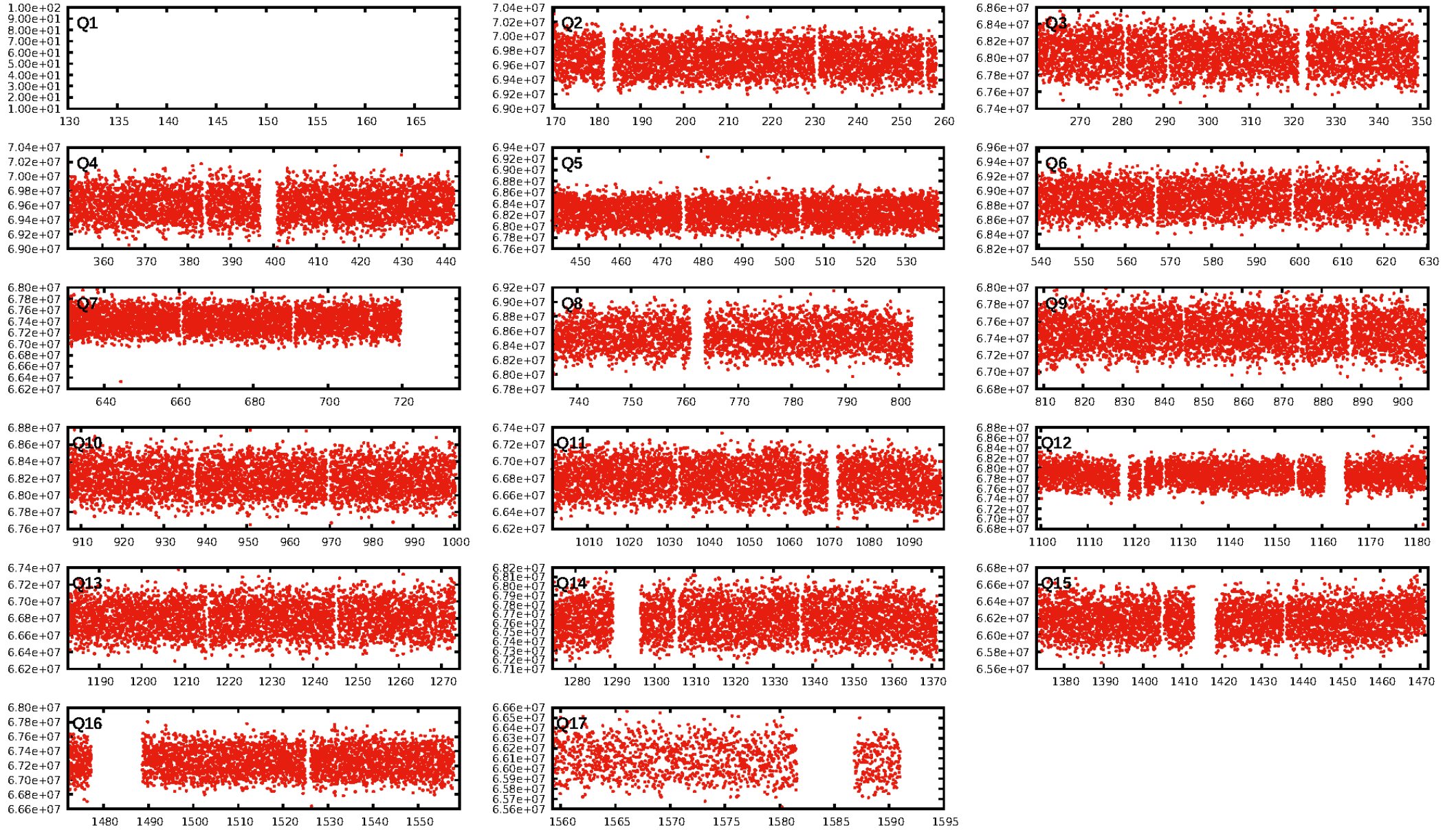
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 21.5% [0.27 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.93 [1779/1916]  
GhostDiagnostic-chr: 1.853  
Centroid-sig: 60.7%  
Centroid-so: 0.110 arcsec [1.11 $\sigma$ ]  
OotOffset-rm: 0.446 arcsec [1.13 $\sigma$ ]  
KicOffset-rm: 0.414 arcsec [0.97 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
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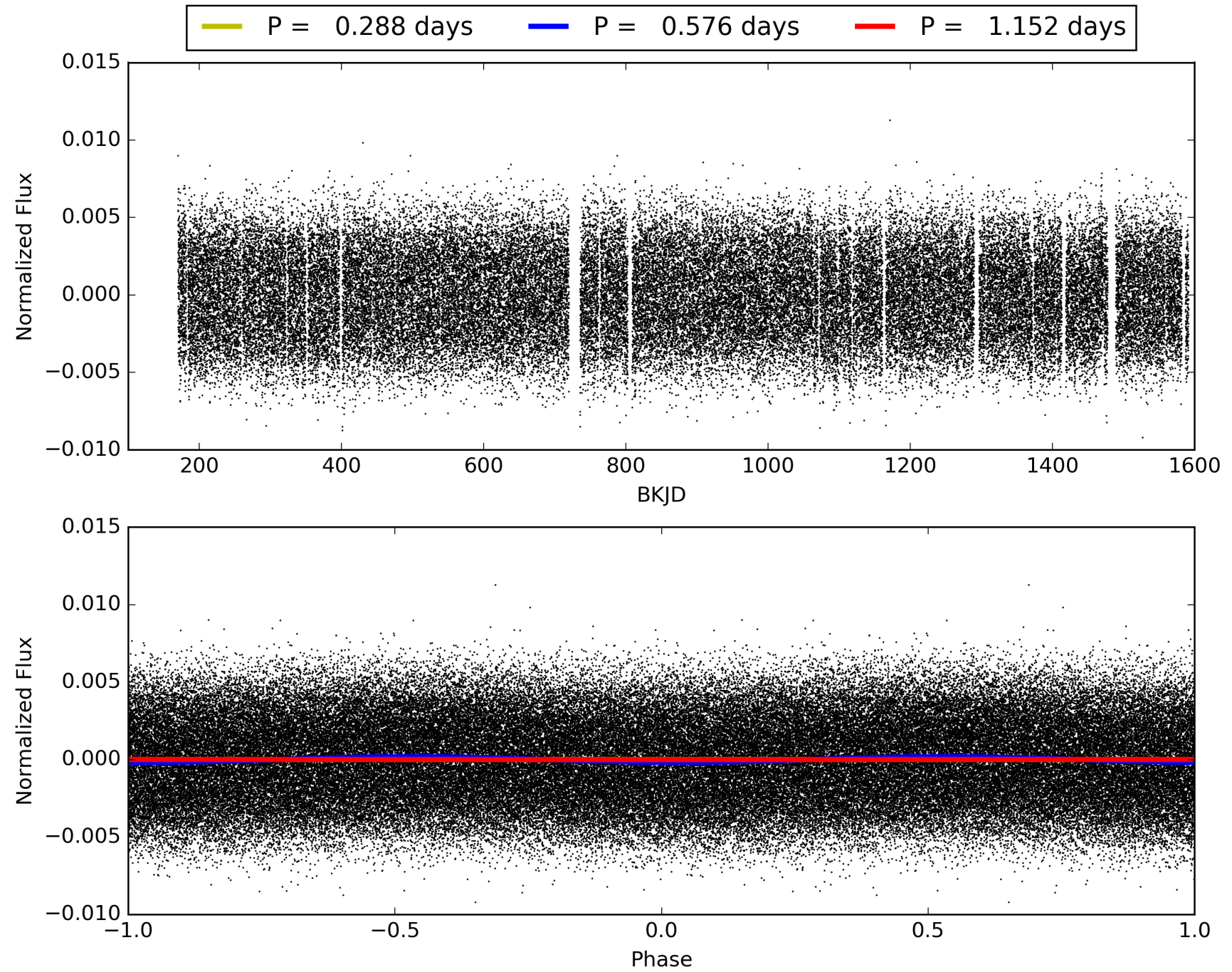
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:47:06 Z

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

# TCE 010468883-02, PDC Light Curves



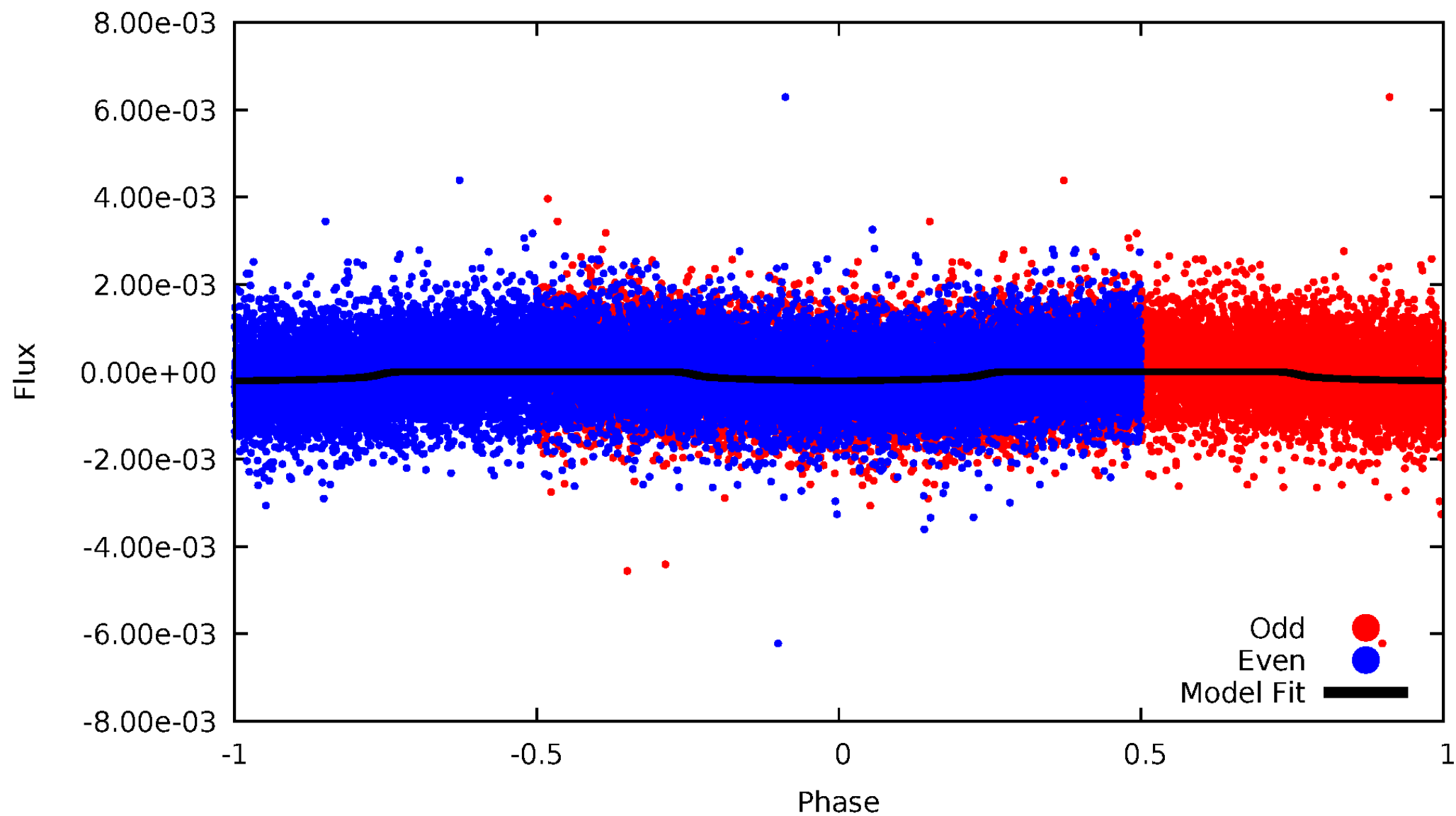
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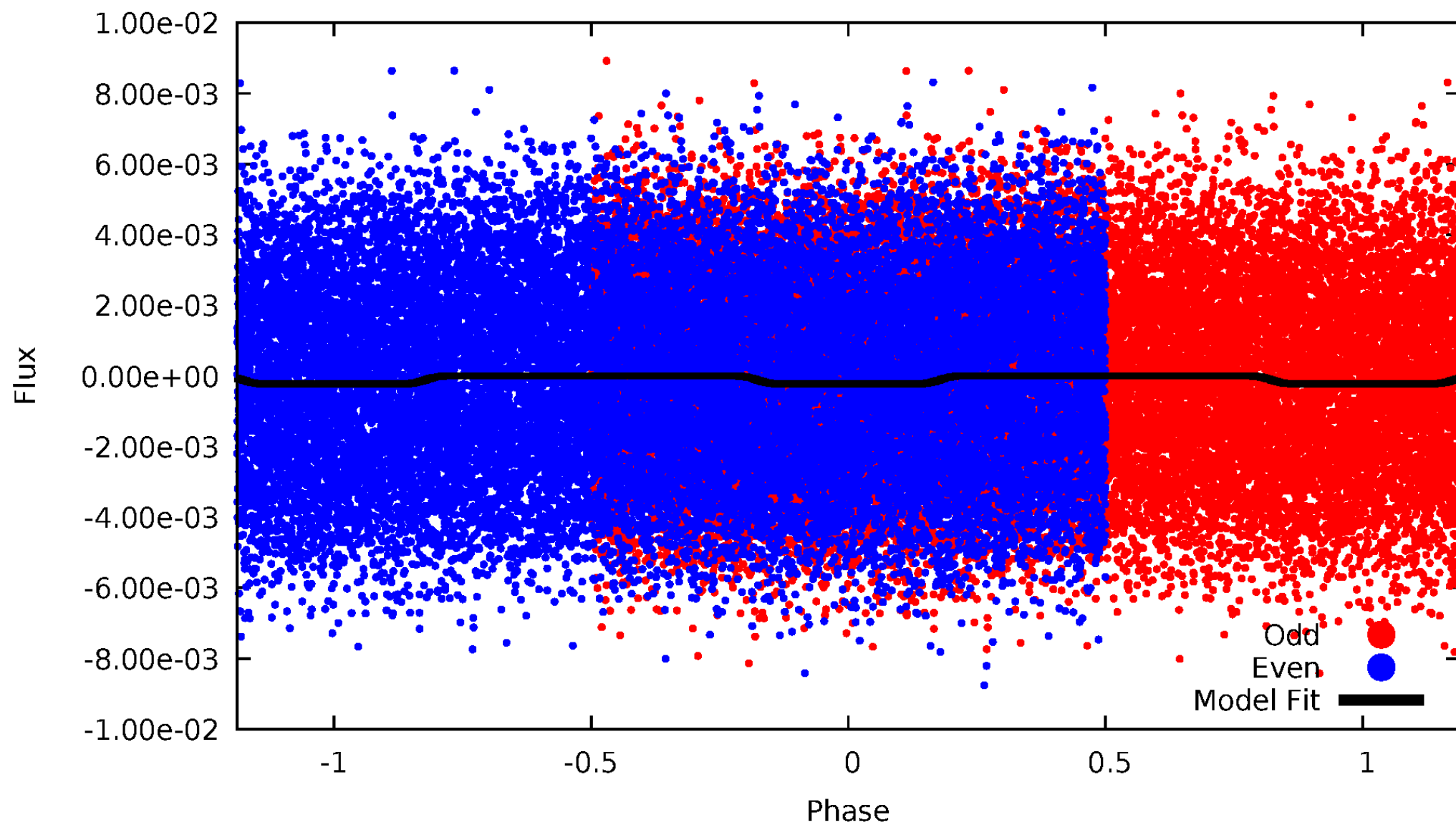
DV Odd/Even

TCE 010468883-02



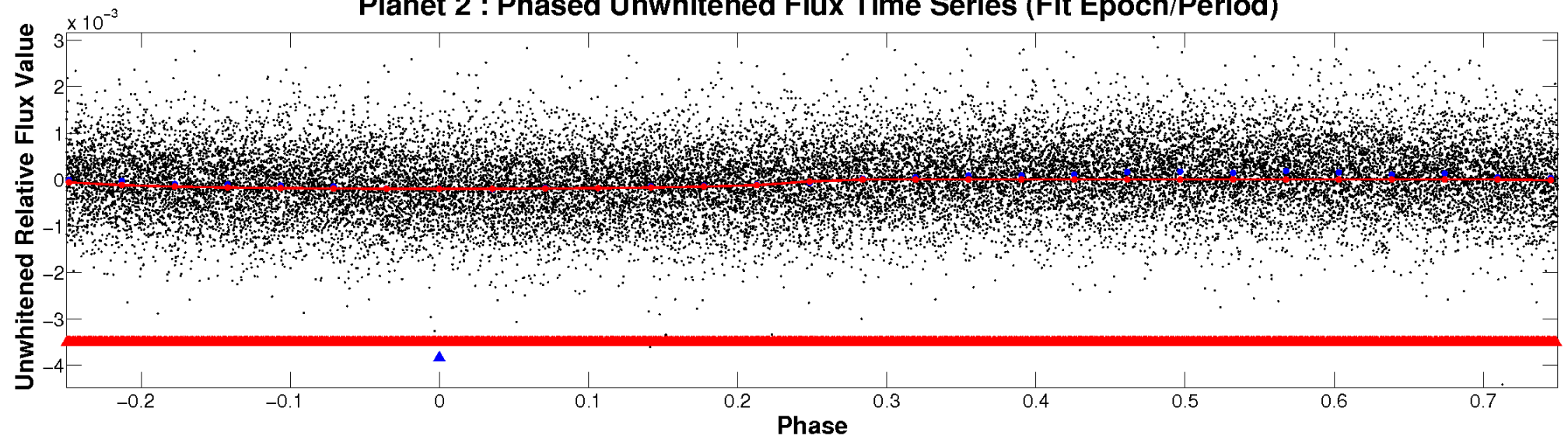
# ALT Odd/Even

TCE 010468883-02

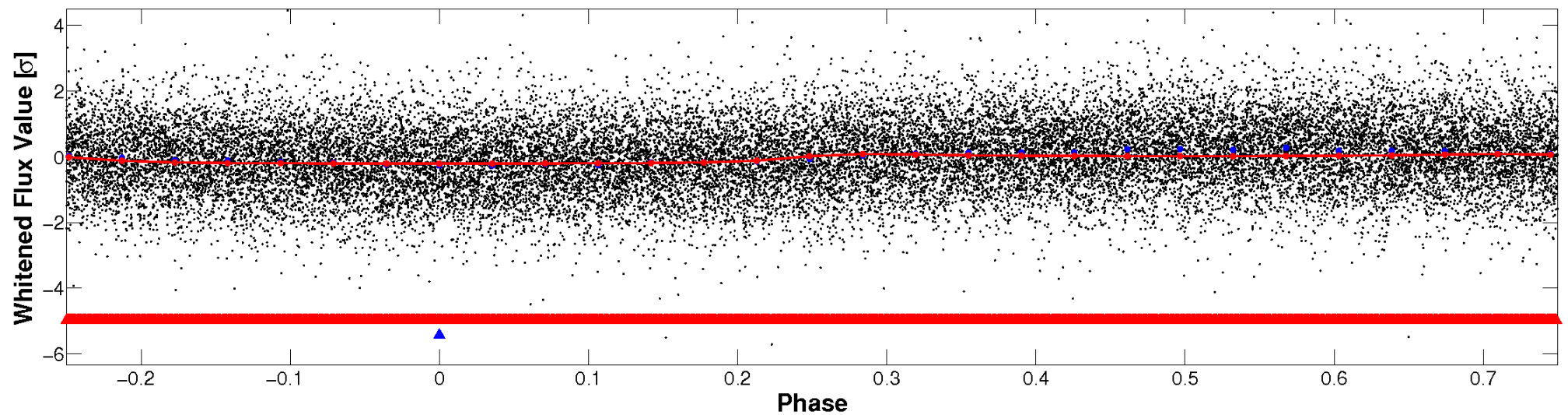


# Non-Whitened Vs. Whitened Light Curve

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

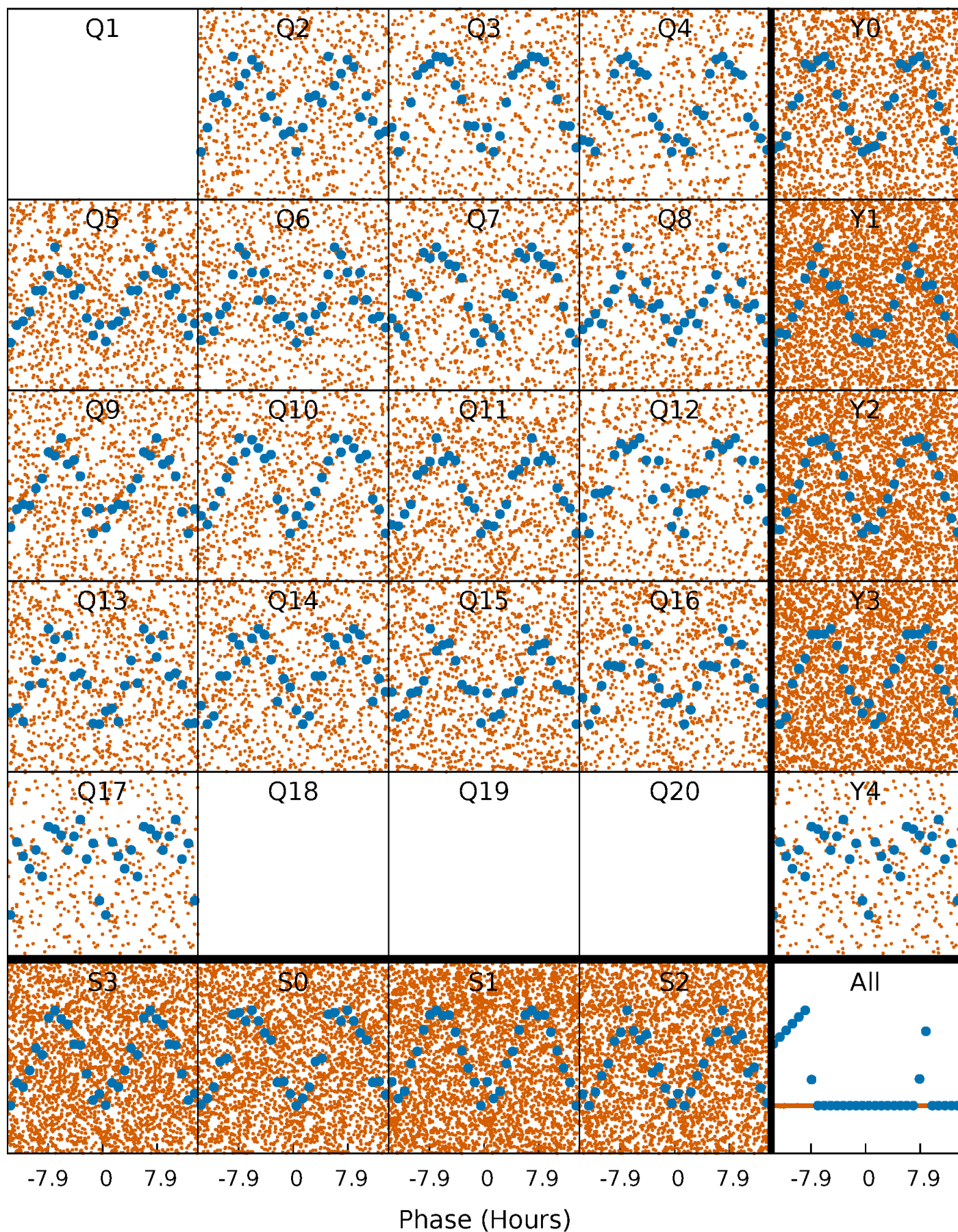


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

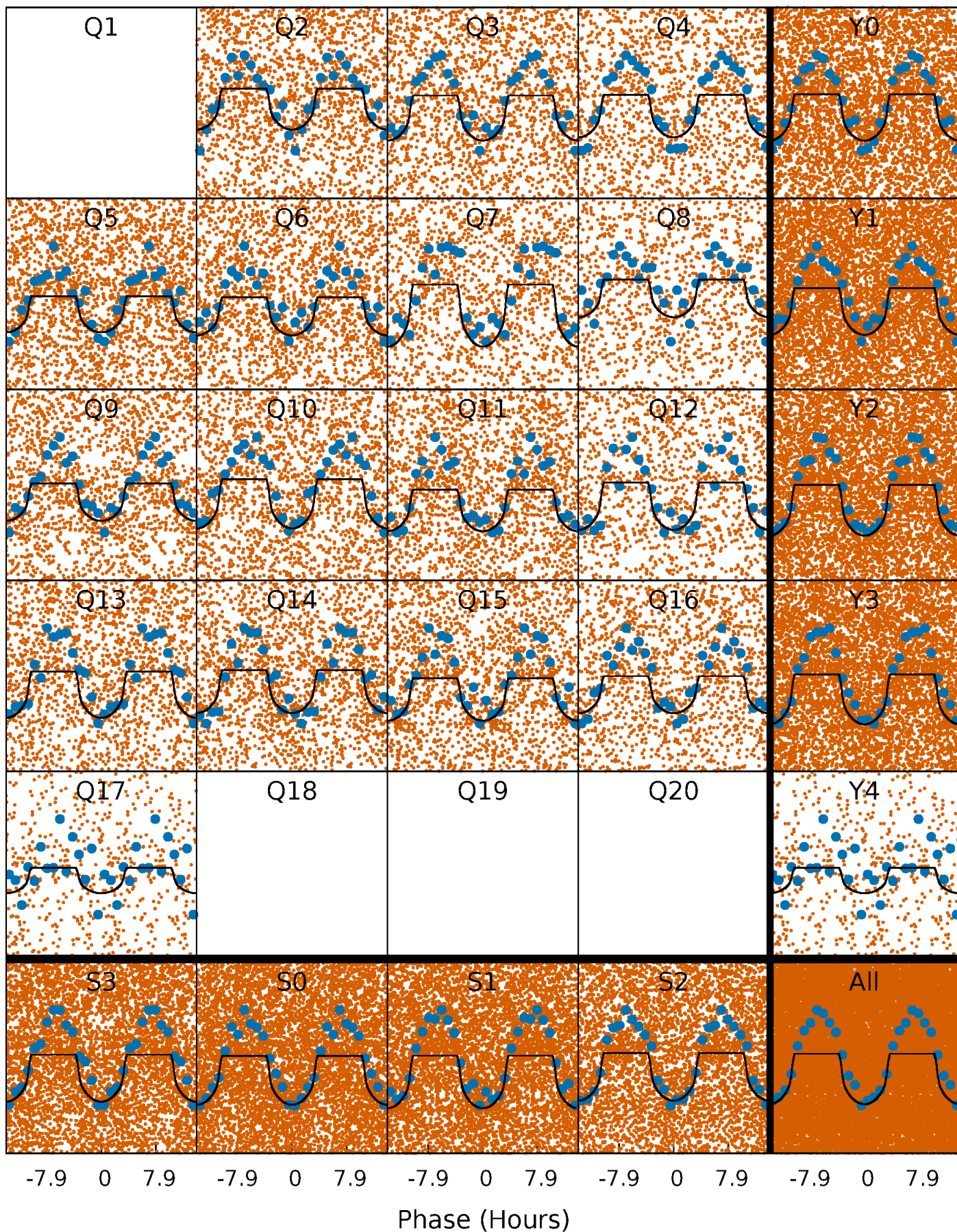
TCE 010468883-02 P= 0.575885 Days  $T_0=131.735765$  (BKJD)





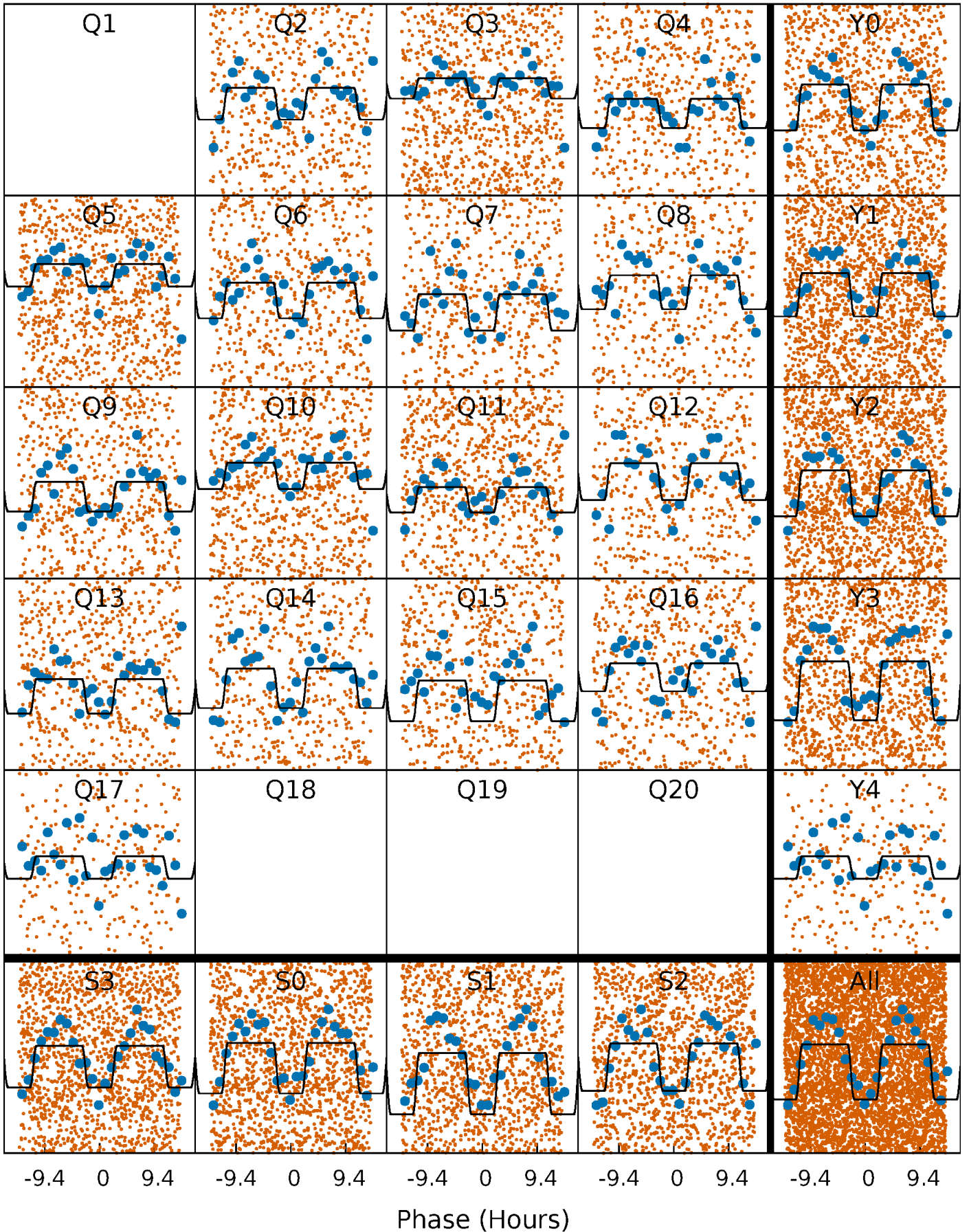
# DV Quarter-Phased Transit Curves

TCE 010468883-02   P= 0.575885 Days    $T_0=131.735765$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010468883-02 P= 0.575907 Days  $T_0=131.724121$  (BKJD)

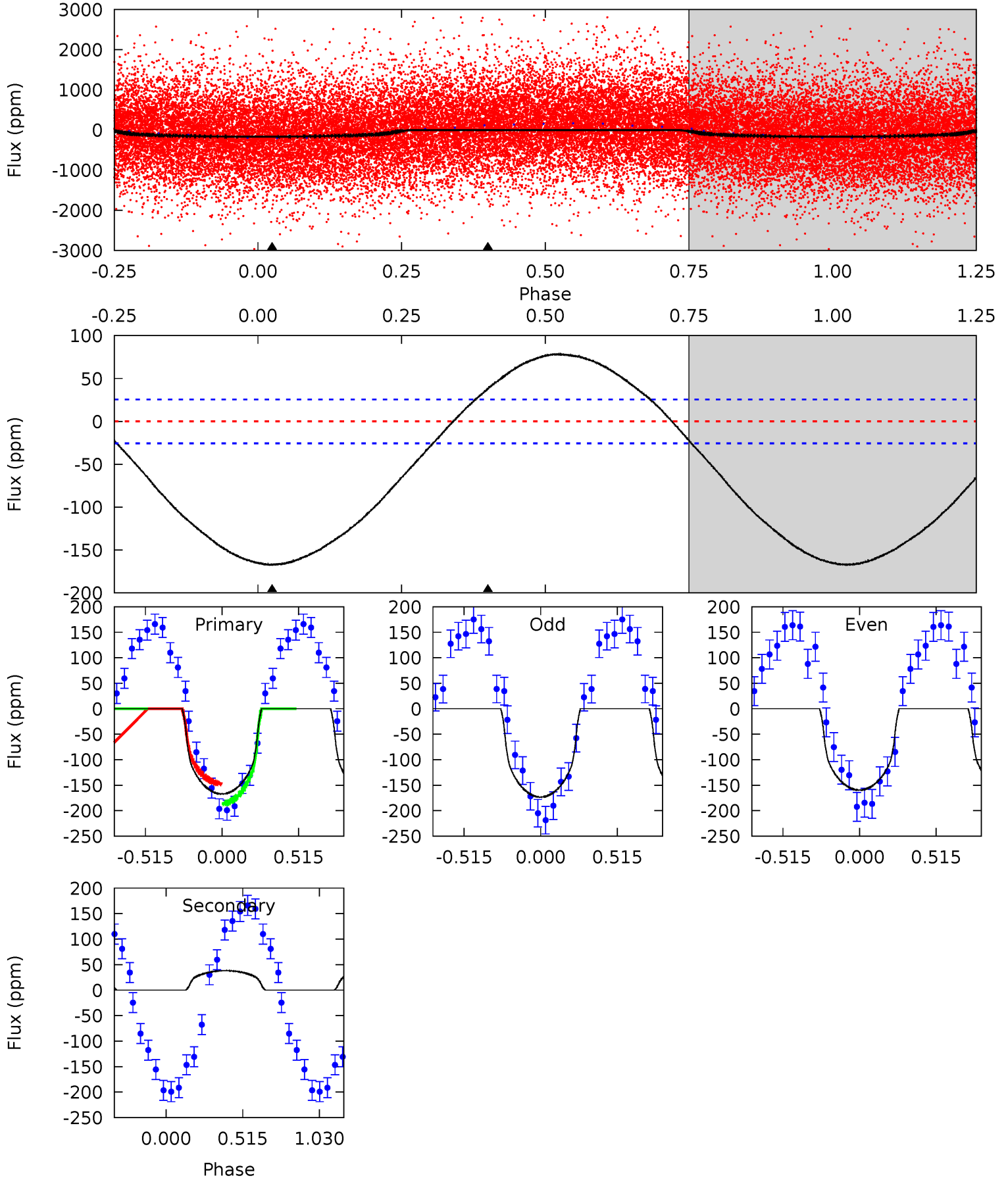




# DV Model-Shift Uniqueness Test

010468883-02, P = 0.575885 Days, E = 131.735765 Days

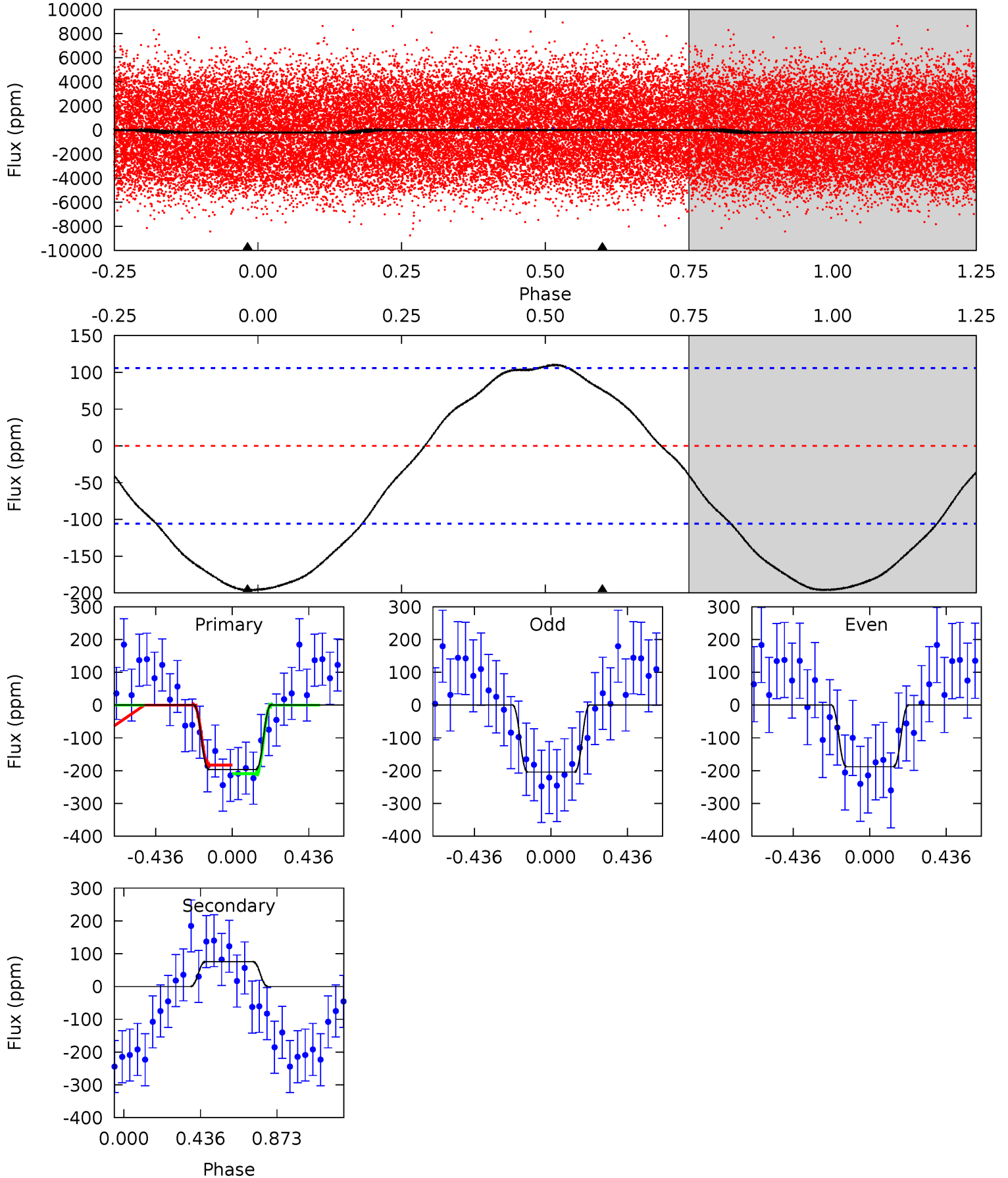
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.4	-6.26	0	0	4.21	0.65	3.35	27.4	27.4	-6.26	-6.26	1.13	1.09	0.32	3.25



# Alt Model-Shift Uniqueness Test

010468883-02, P = 0.575907 Days, E = 131.724121 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
7.88	-3.04	0	0	4.25	0.78	1.14	7.88	7.88	-3.04	-3.04	0.33	1.00	0.36	0.52



### Stellar Parameters For KIC 010468883

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7190^{+200}_{-343}$	$4.272^{+0.060}_{-0.240}$	$0.070^{+0.200}_{-0.350}$	$1.484^{+0.580}_{-0.193}$	$1.500^{+0.211}_{-0.211}$	$0.647^{+0.217}_{-0.373}$
	+3%/-5%	+1%/-6%	+286%/-500%	+39%/-13%	+14%/-14%	+34%/-58%
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 010468883-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$38 \pm 6$	$2.25^{+0.71}_{-0.58}$	$4409^{+402}_{-269}$	$-5260^{+432}_{-566}$	$-0.950^{+0.394}_{-0.807}$
Alt.	$76 \pm 25$	$2.53^{+0.70}_{-0.59}$	$4414^{+401}_{-259}$	$-5652^{+511}_{-742}$	$-1.506^{+0.716}_{-1.108}$

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

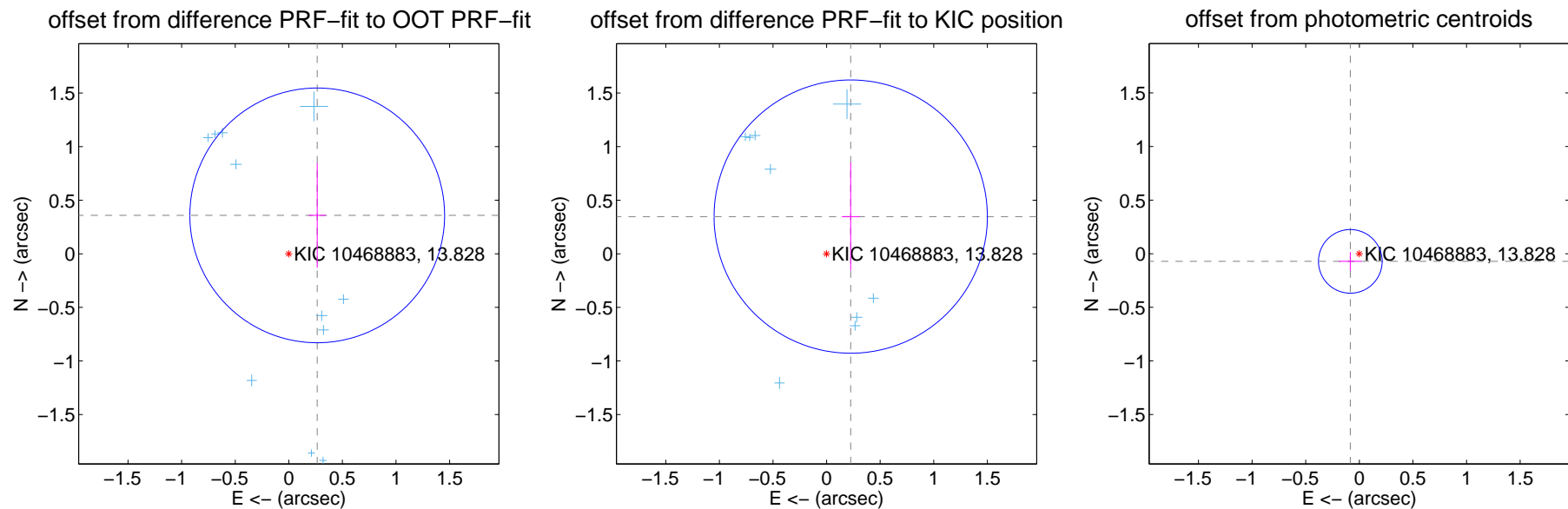
## DV Centroid Data

Supplemental centroid analysis for 010468883-02. Kepler magnitude: 13.83. Transit SNR 21.31

There are 16 quarters with good PRF difference image offsets

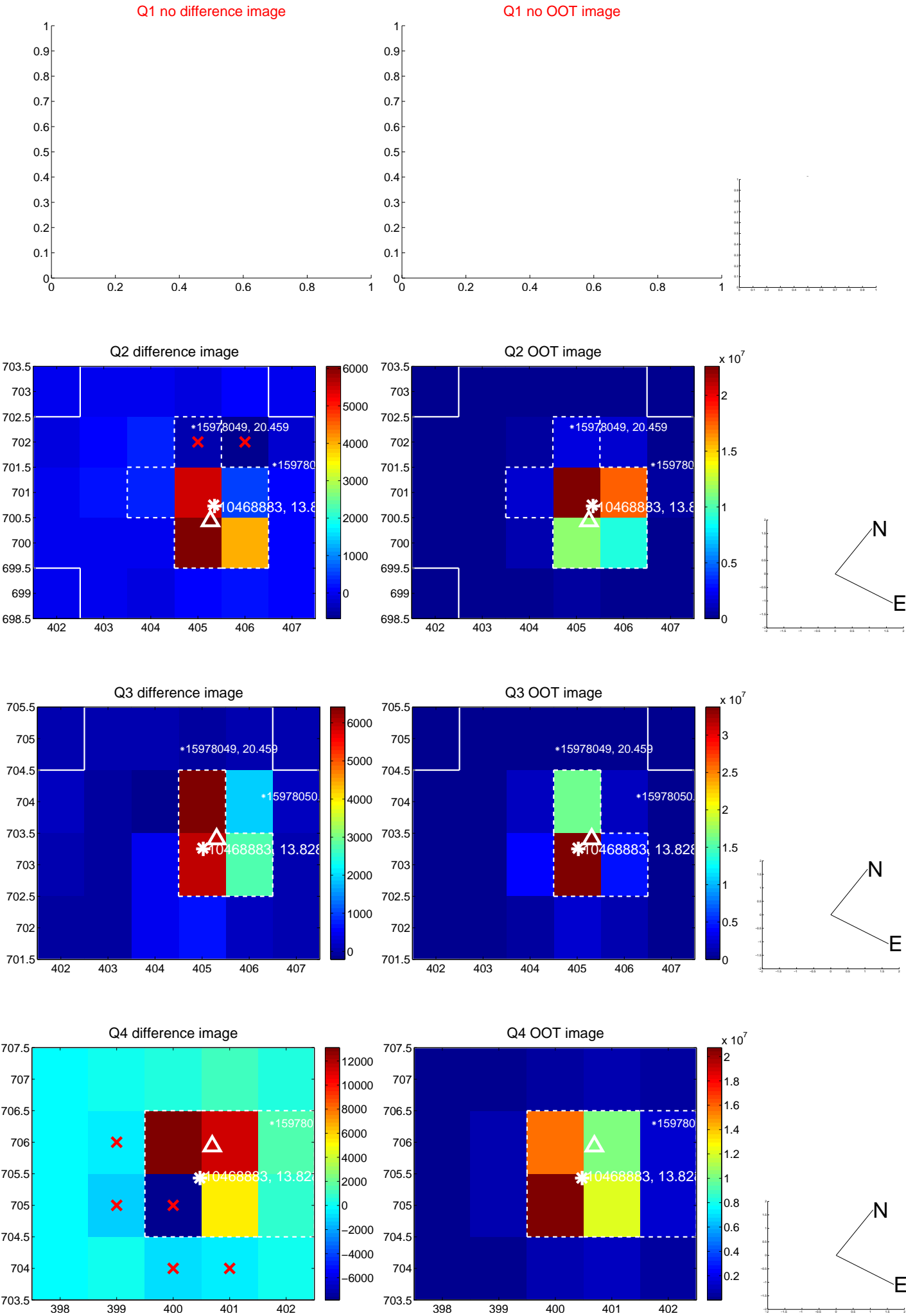
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.446 \pm 0.396$	1.13	$-0.265 \pm 0.079$	$0.358 \pm 0.489$
PRF-fit source offset from KIC position	$0.414 \pm 0.425$	0.97	$-0.225 \pm 0.083$	$0.347 \pm 0.504$
photometric centroid source offset	$0.11 \pm 0.10$	1.11	$0.08 \pm 0.11$	$-0.07 \pm 0.09$

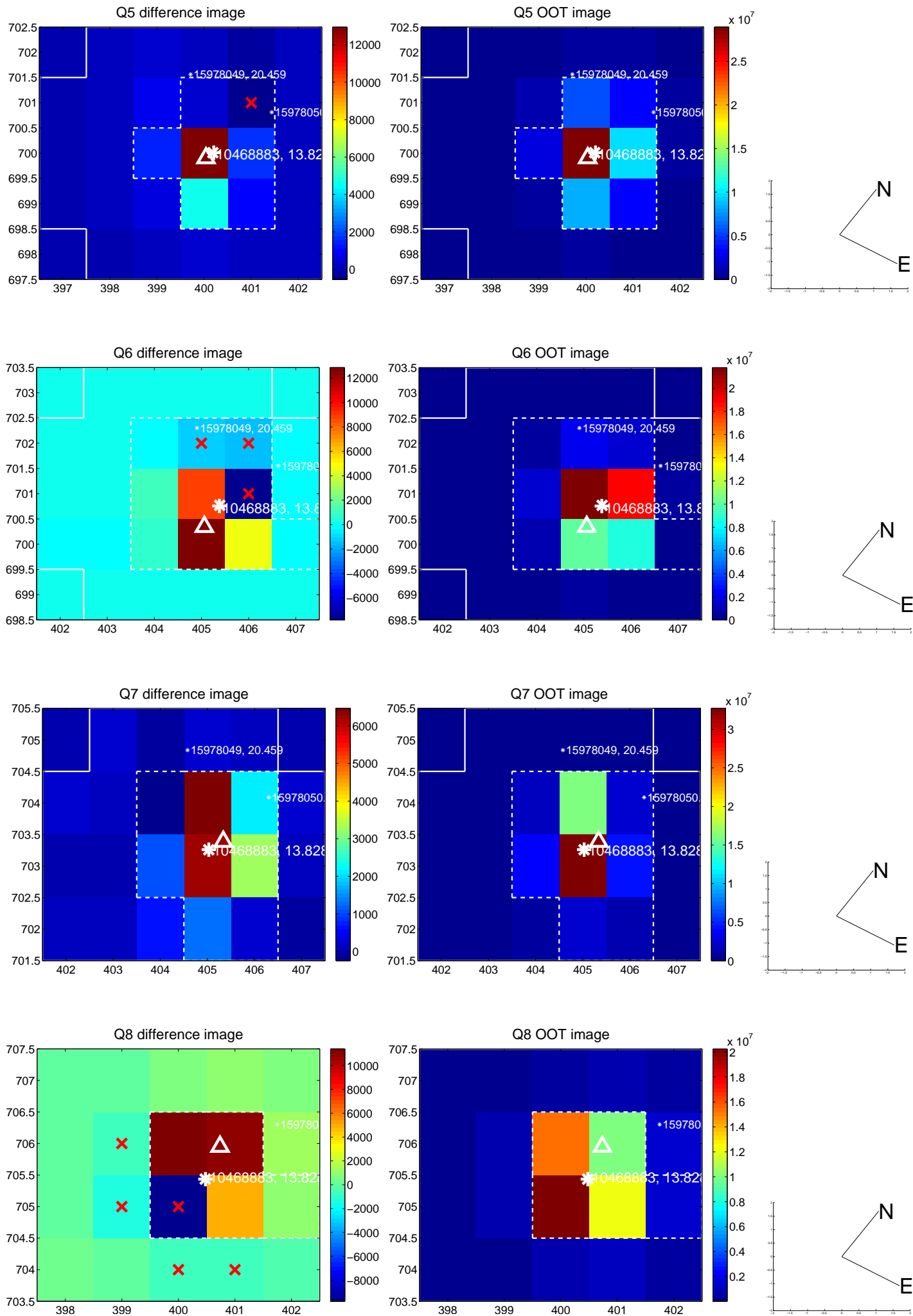


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

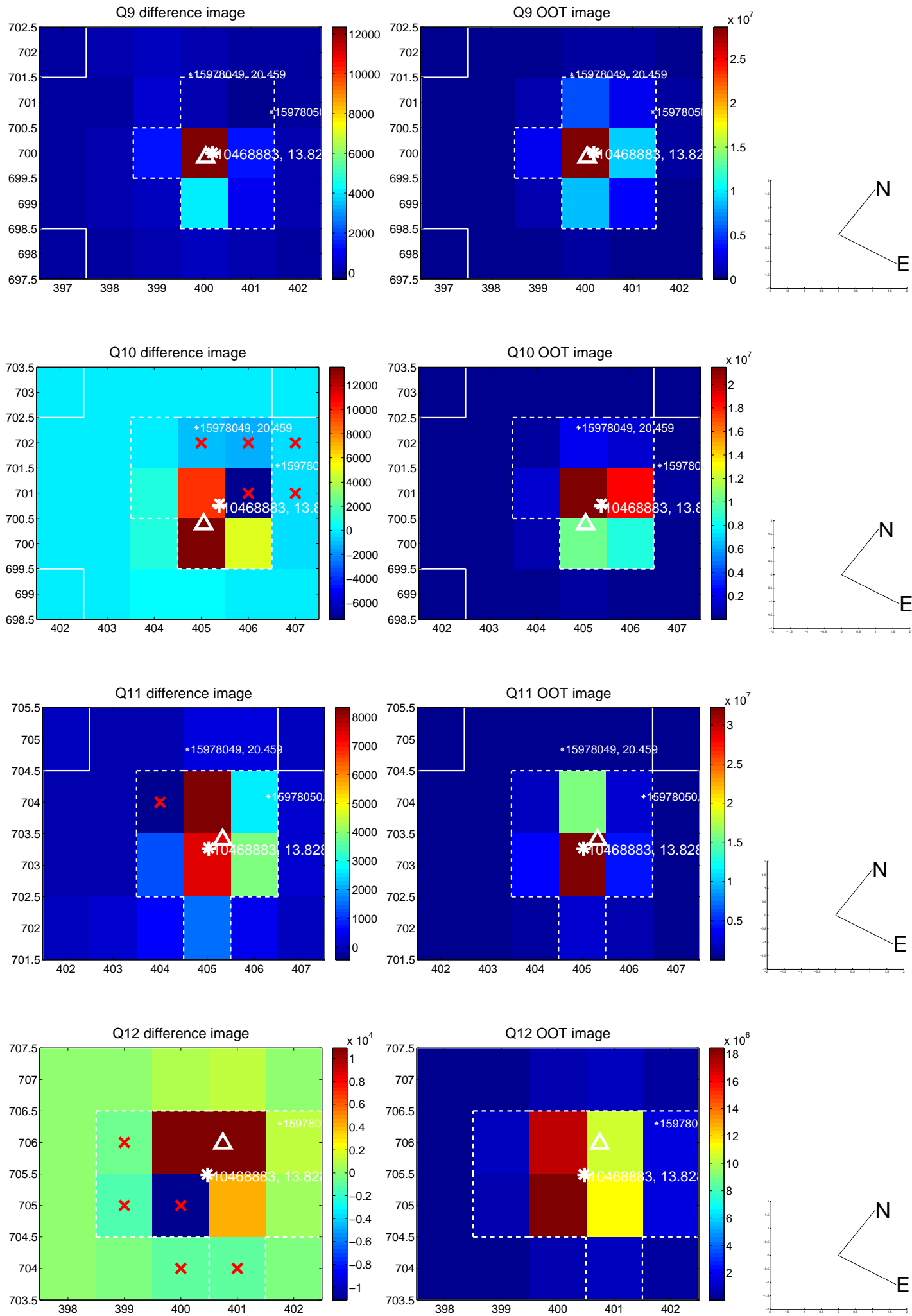


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

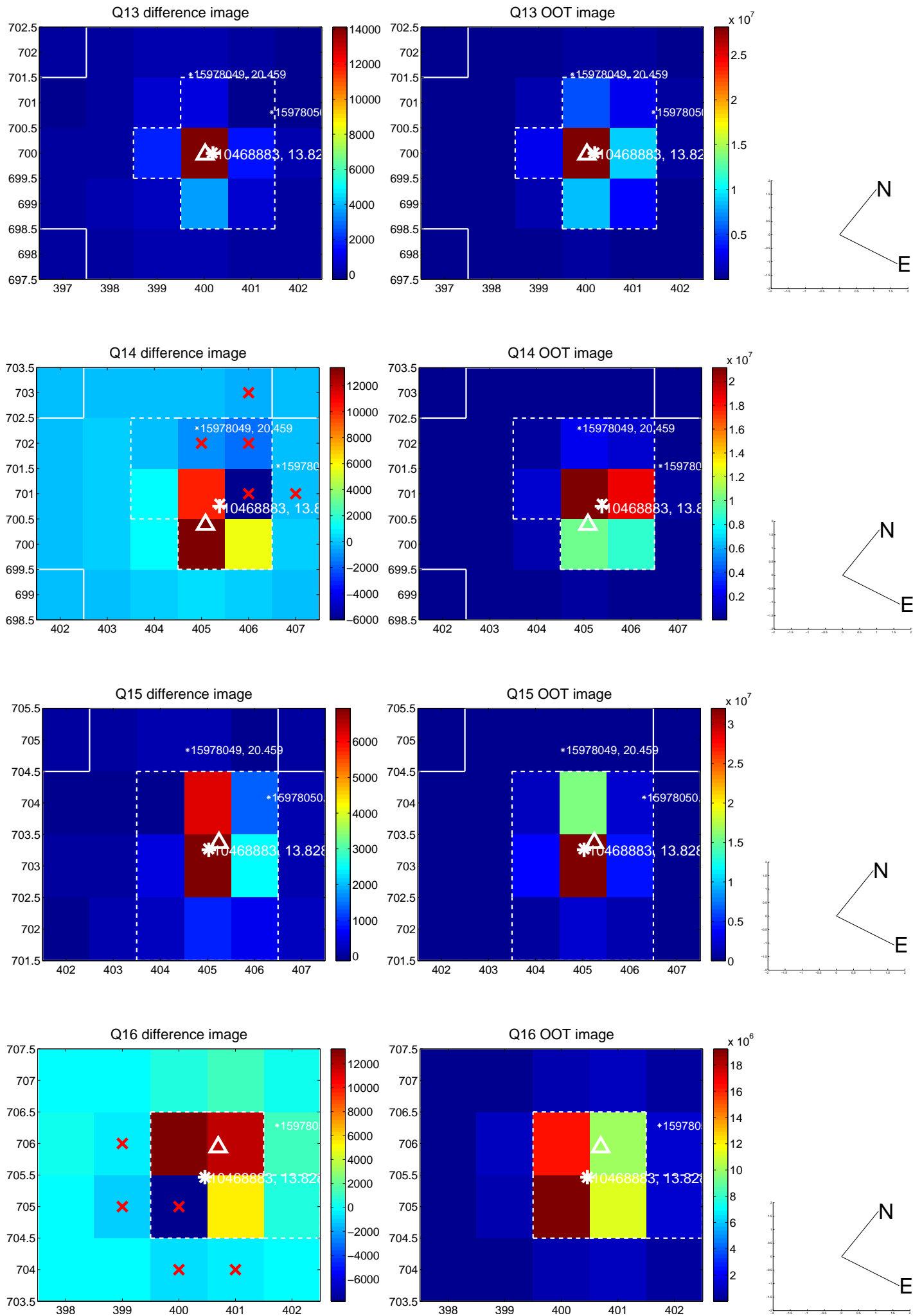




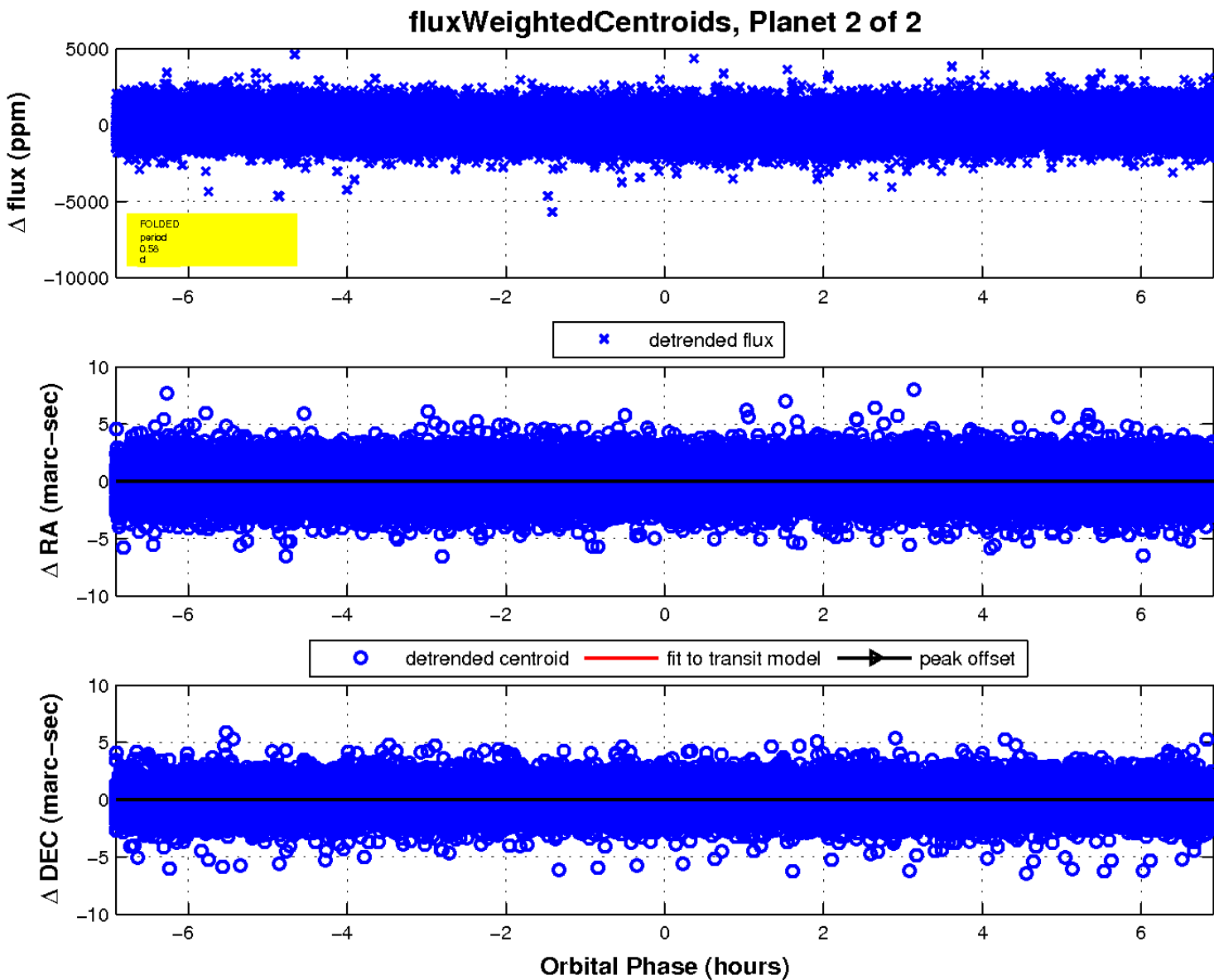
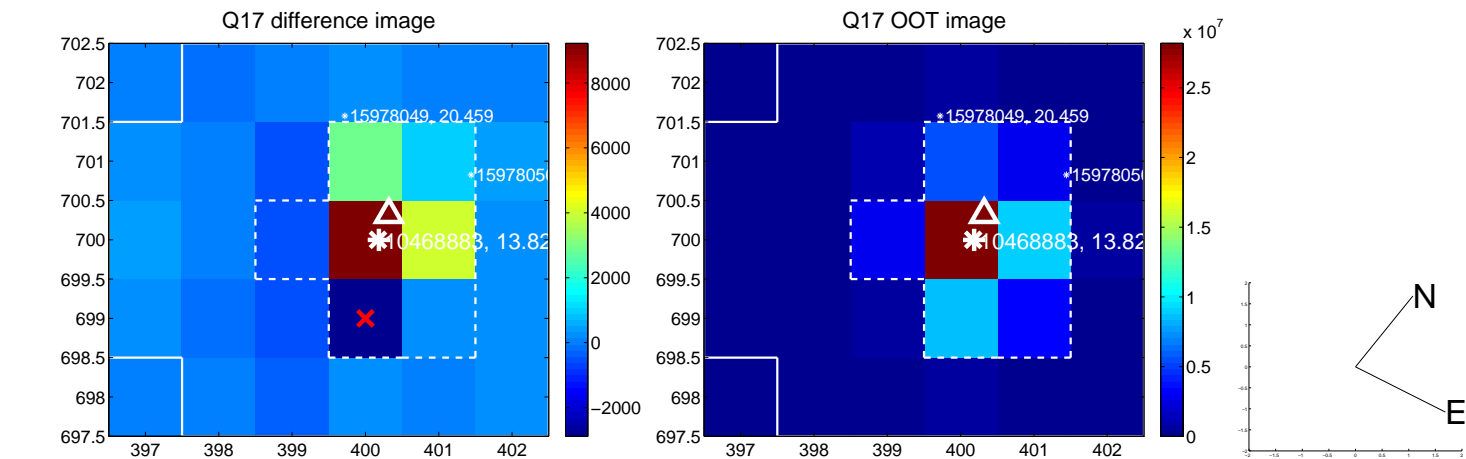
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

