

# KIC 008379833

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008379833-01	OBS	No	2.185847	133.178913	43.0	3.140	14.0	14.1	2.58	6792	2.04	9335.59
008379833-02	OBS	No	2.185889	133.464119	175.5	2.500	9.1	-1.0	2.58	6792	3.46	9335.35
008379833-03	OBS	No	1.092984	131.862966	20.5	3.304	9.3	8.6	2.58	6792	1.40	23522.47
008379833-04	OBS	No	235.418685	300.190302	215.4	27.627	8.0	6.7	2.58	6792	3.99	18.22

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008379833-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008379833-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
008379833-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD
008379833-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

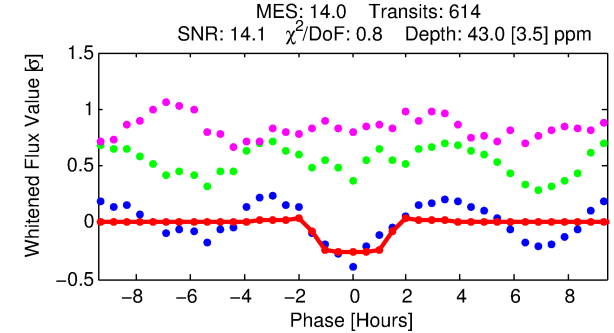
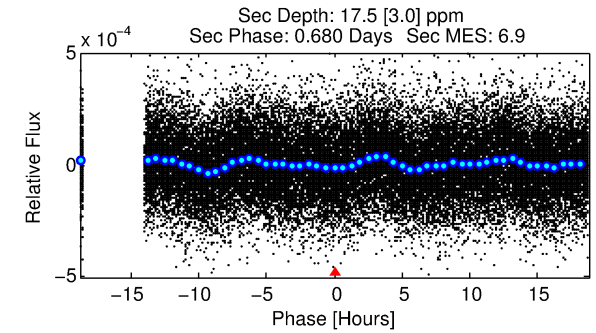
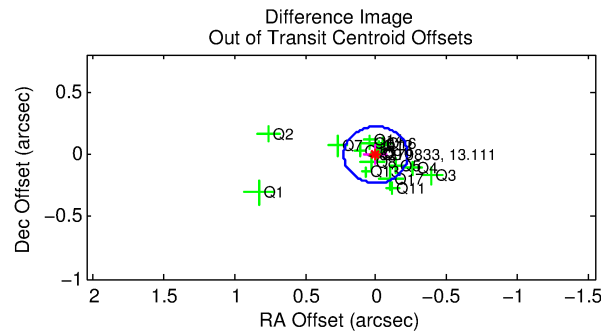
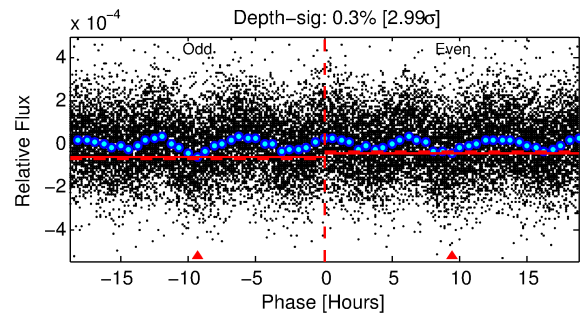
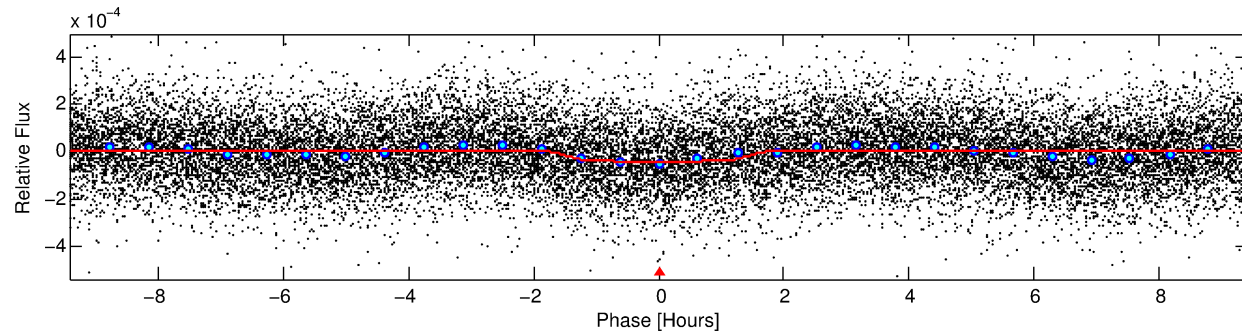
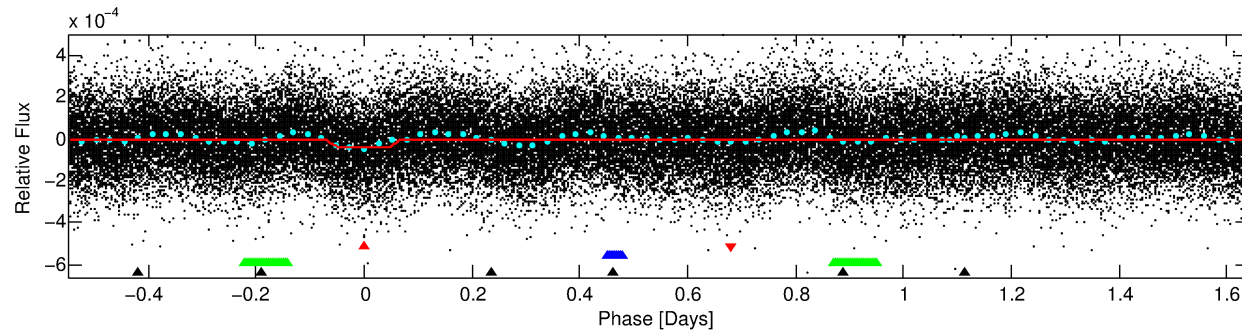
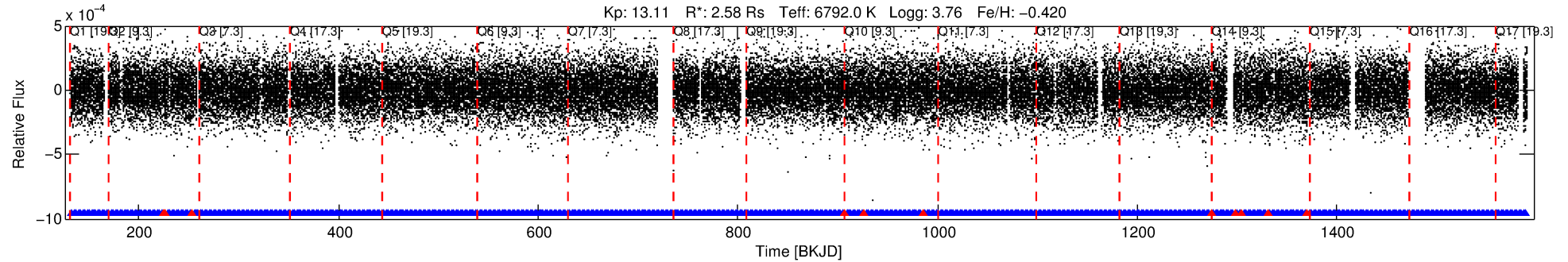
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008379833-01

No Significant Match Found

# DV One-Page Summary

KIC: 8379833 Candidate: 1 of 4 Period: 2.186 d



## DV Fit Results:

Period = 2.18585 [0.00001] d  
Epoch = 133.1789 [0.0025] BKJD  
Rp/R\* = 0.0072 [0.0015]  
a/R\* = 2.19 [2.28]  
b = 0.94 [0.17]  
Seff = 9335.59 [5123.72]  
Teq = 2506 [344] K  
Rp = 2.04 [0.84] Re  
a = 0.0369 [0.0123] AU  
Ag = 3.14 [2.21] [0.97σ]  
Teffp = 5160 [617] K [3.75σ]

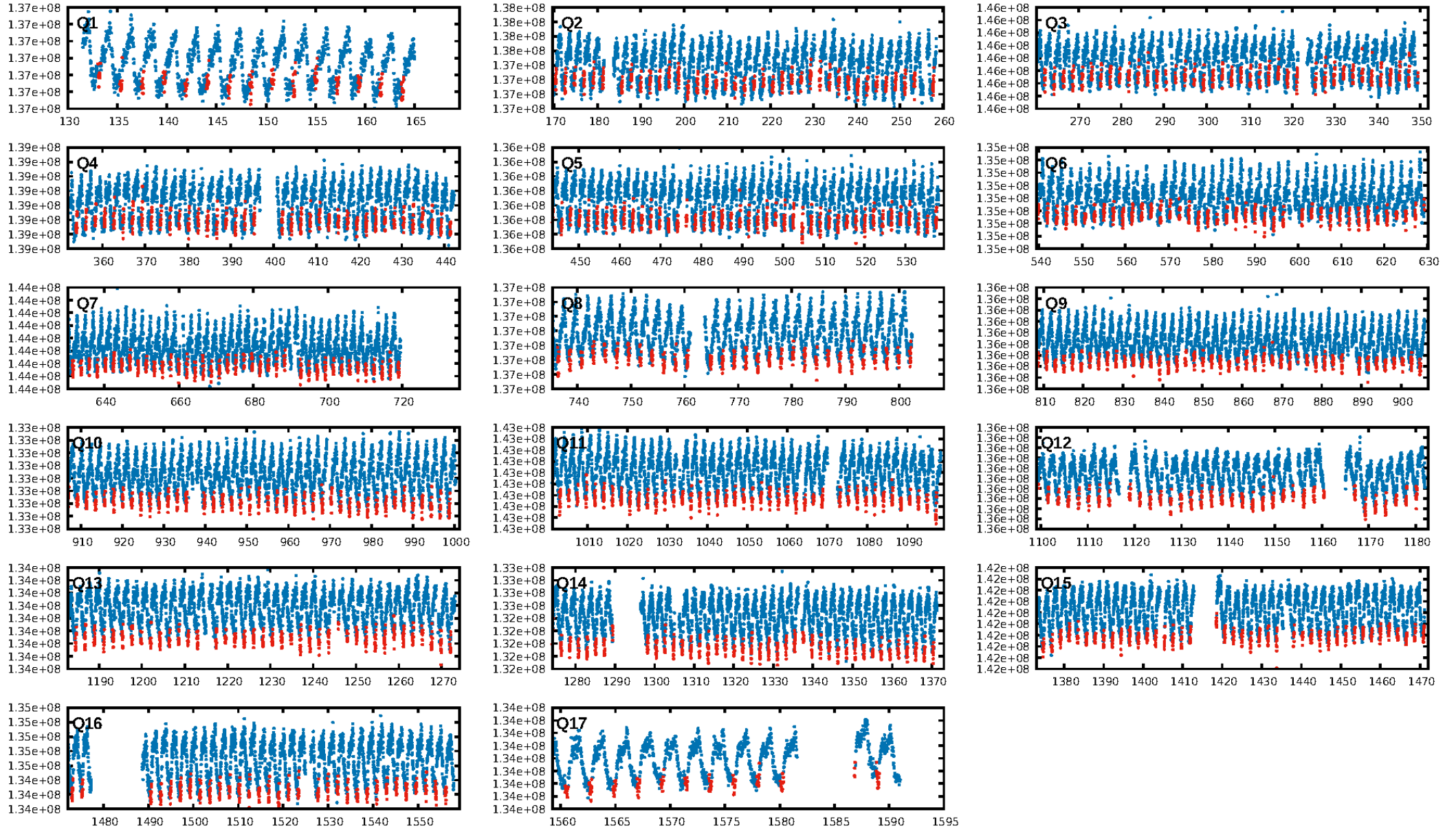
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.75σ]  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.19e-32  
RollingBand-fgt: 0.98 [576/587]  
GhostDiagnostic-chr: 1.133  
Centroid-sig: 0.0%  
Centroid-so: 1.485 arcsec [2.62σ]  
OotOffset-rm: 0.006 arcsec [0.07σ]  
KicOffset-rm: 0.102 arcsec [1.13σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.00 [0/17]

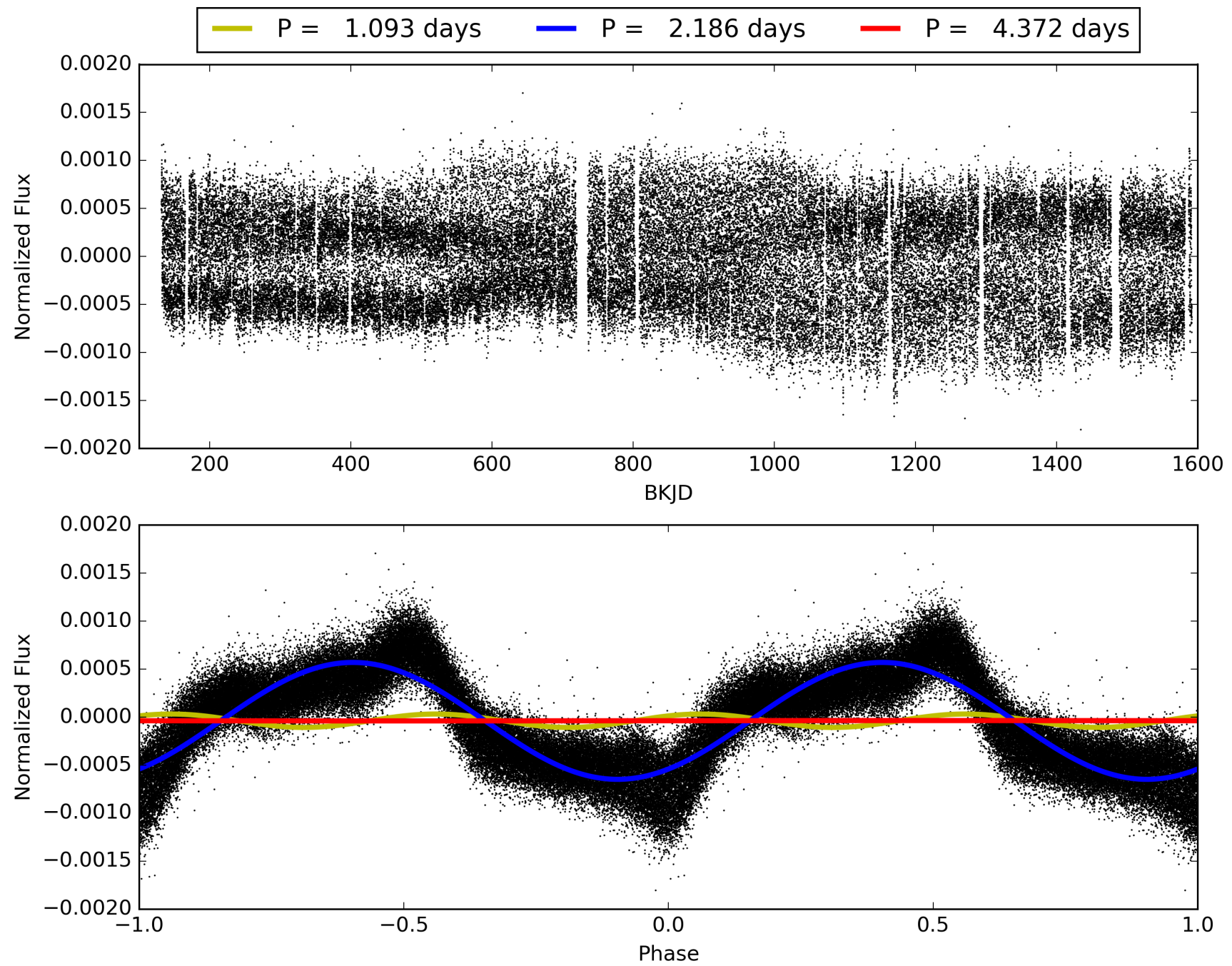
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:10:00 Z

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

# TCE 008379833-01, PDC Light Curves



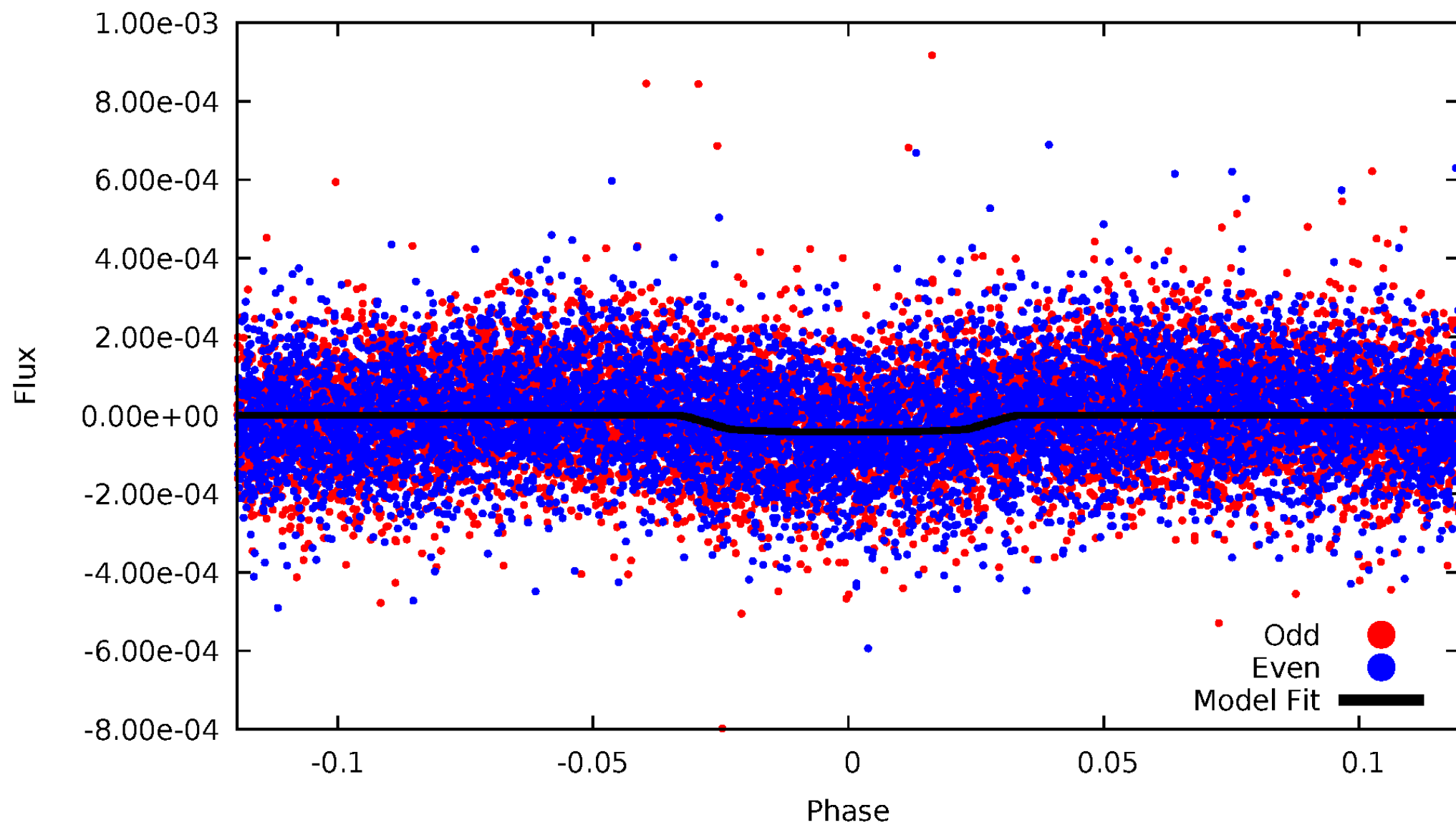
TCE 008379833-01





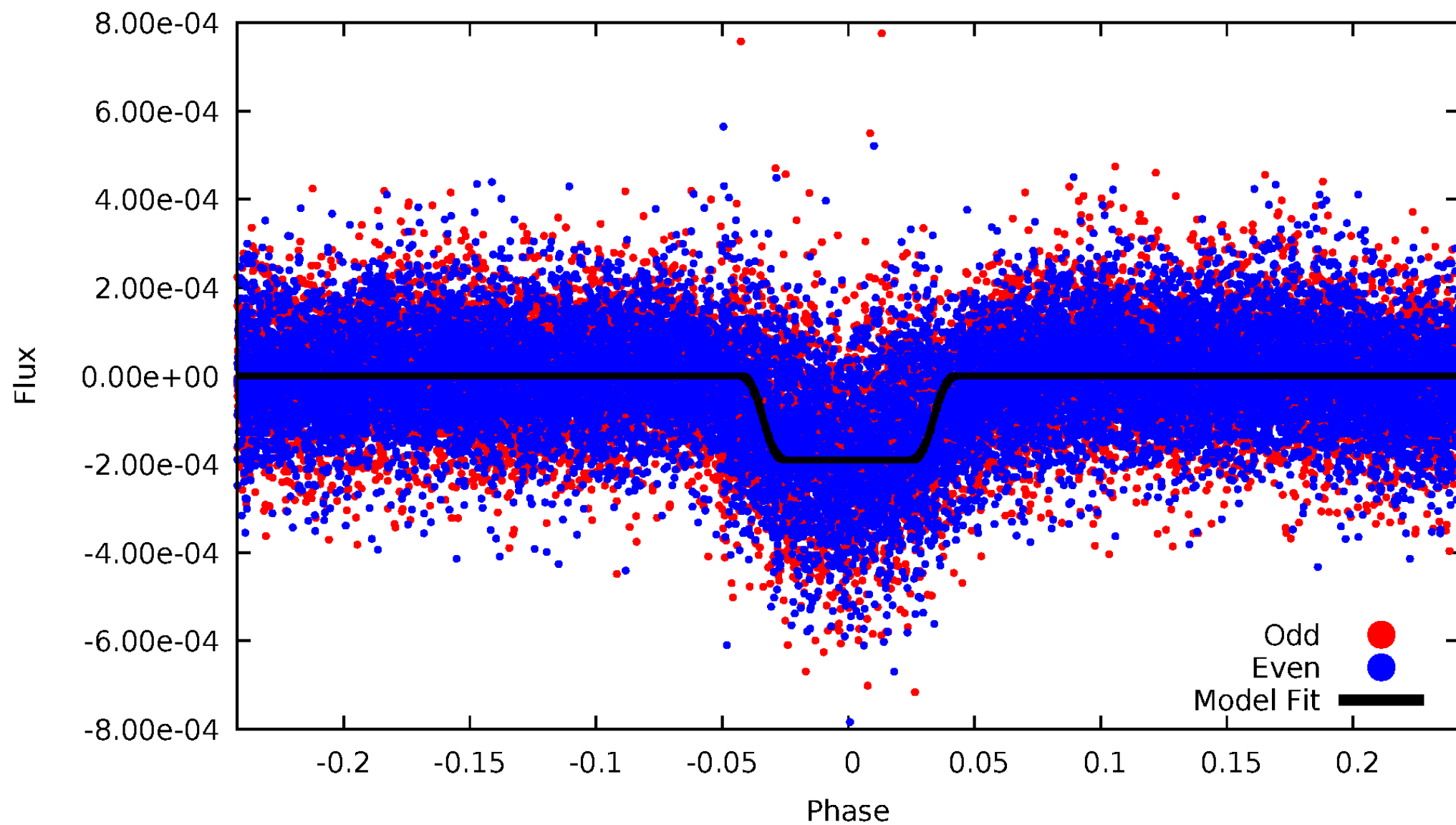
# DV Odd/Even

TCE 008379833-01

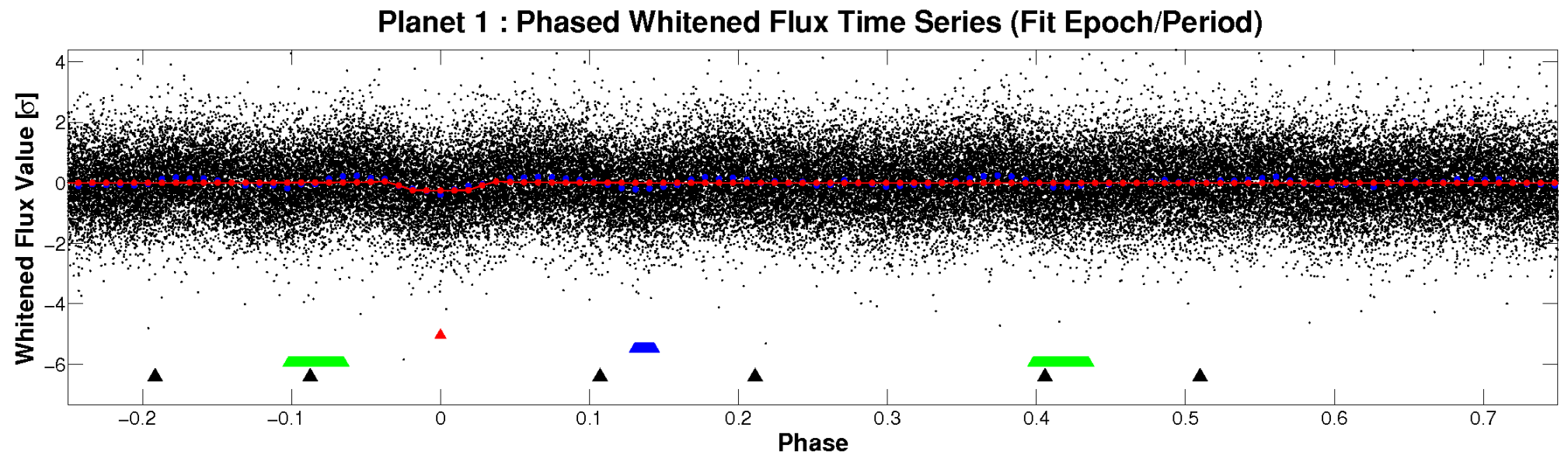
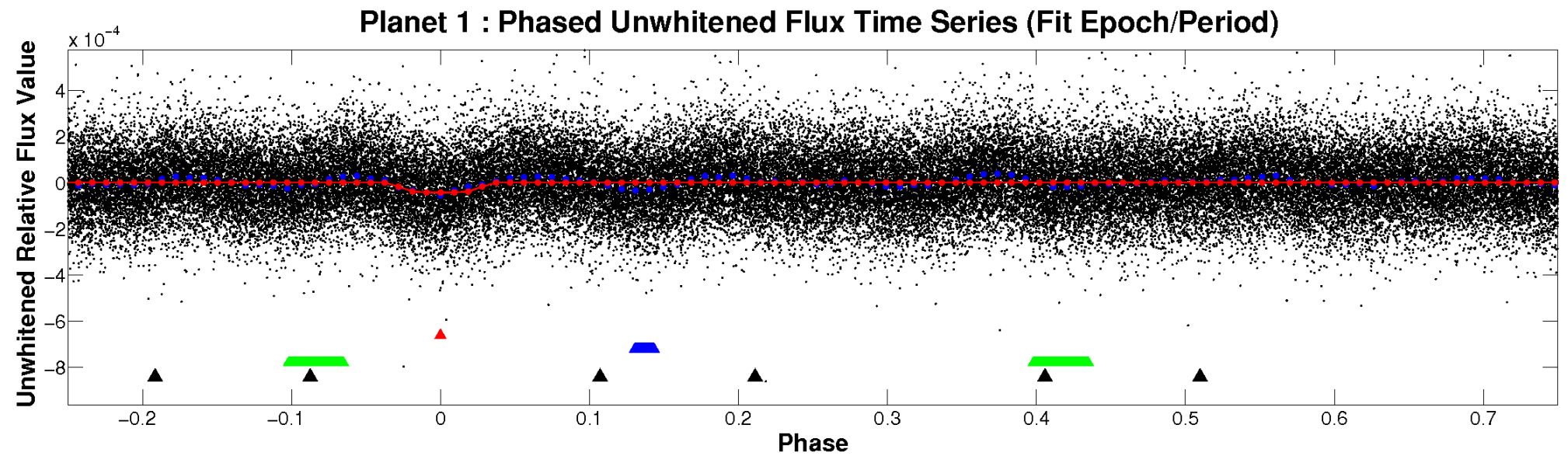


# ALT Odd/Even

TCE 008379833-01

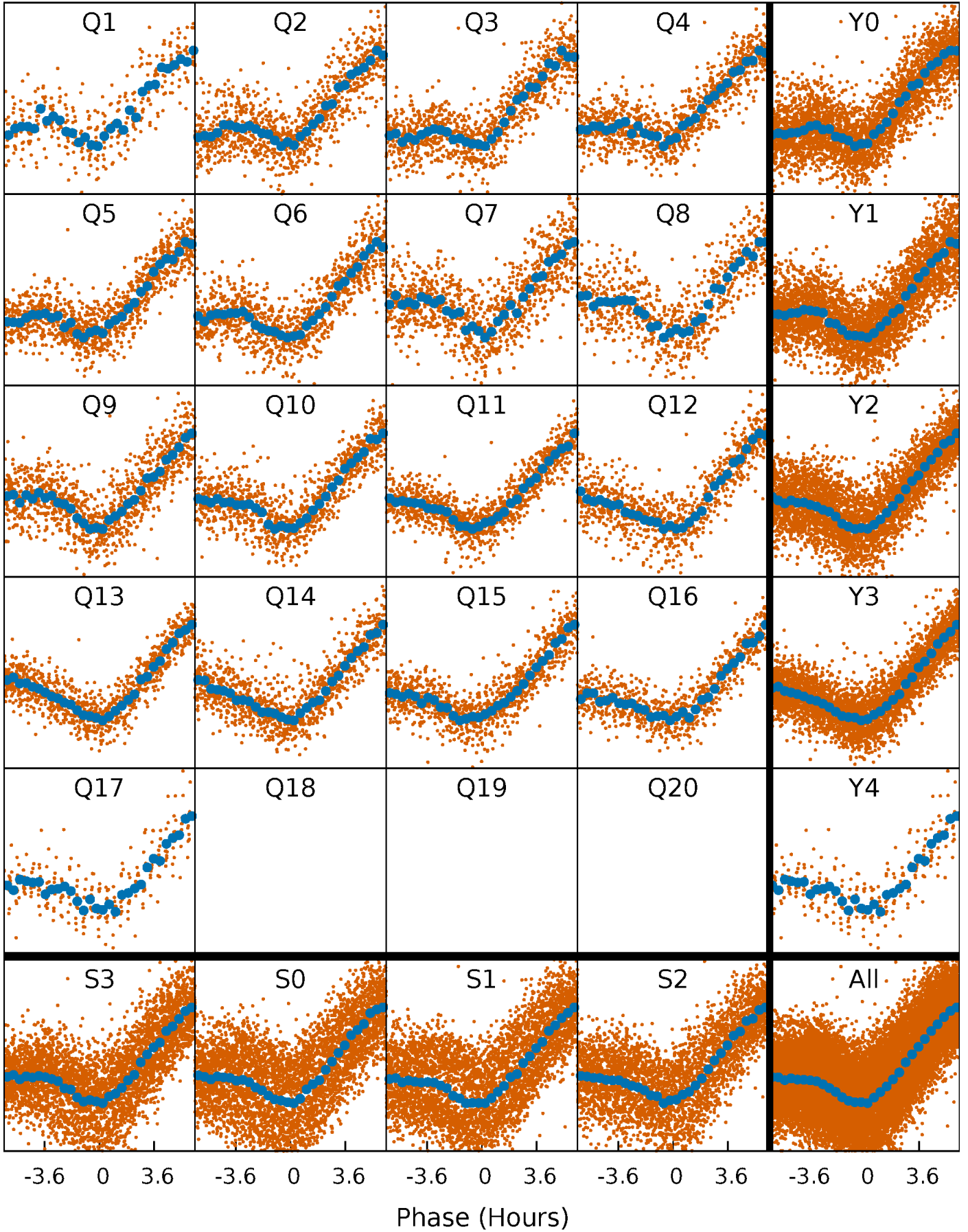


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

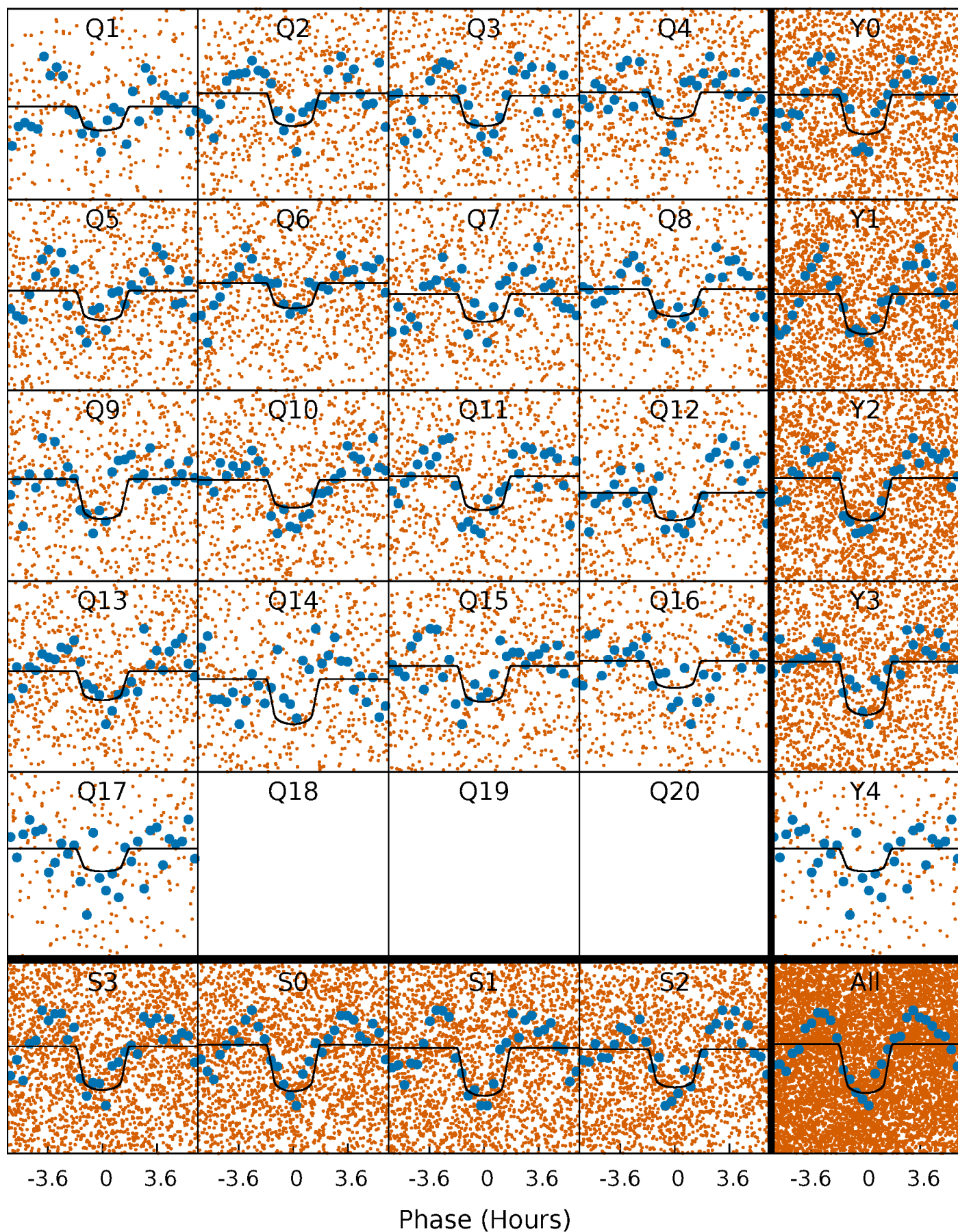
TCE 008379833-01   P= 2.185847 Days    $T_0=133.178913$  (BKJD)





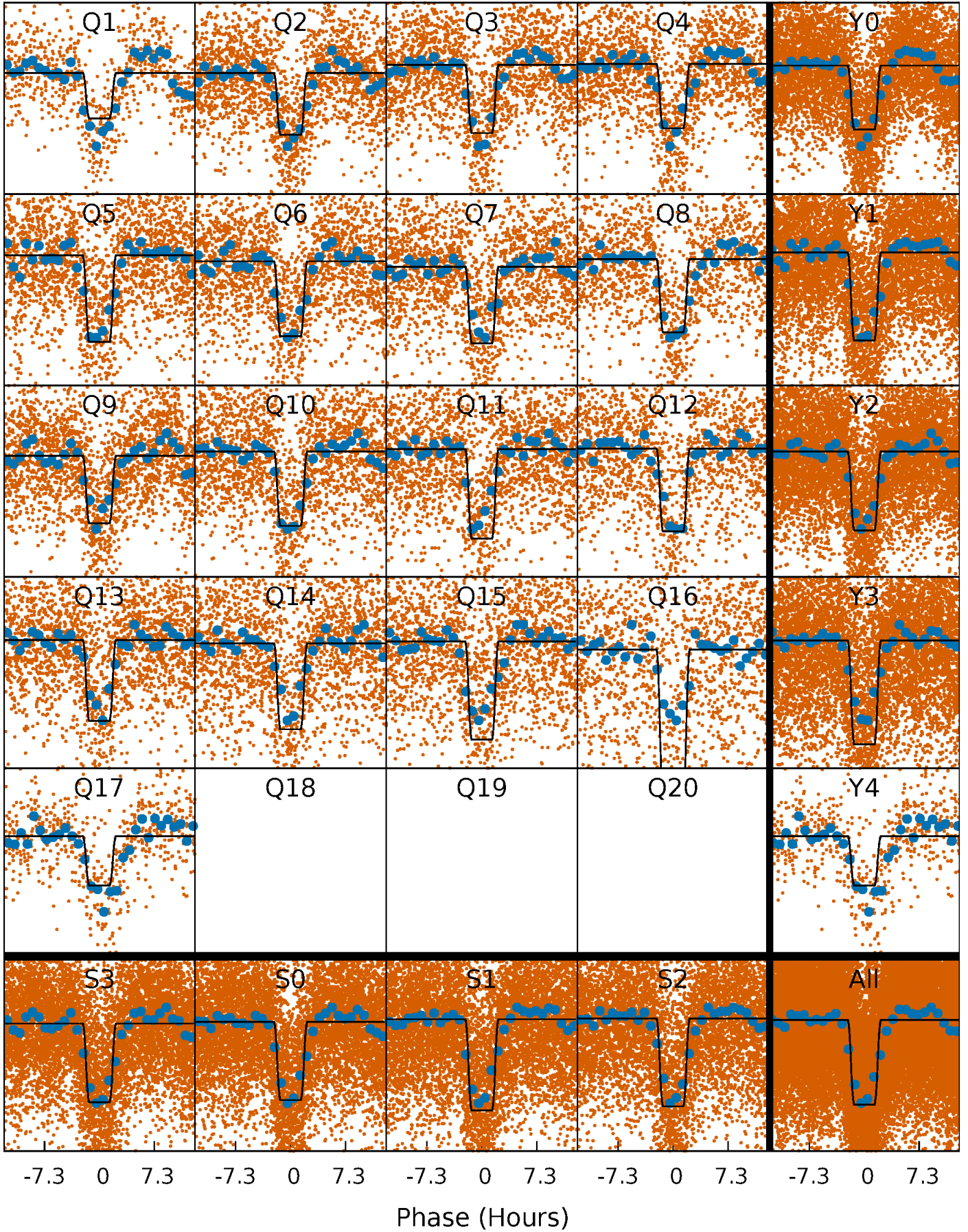
# DV Quarter-Phased Transit Curves

TCE 008379833-01 P= 2.185847 Days  $T_0=133.178913$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

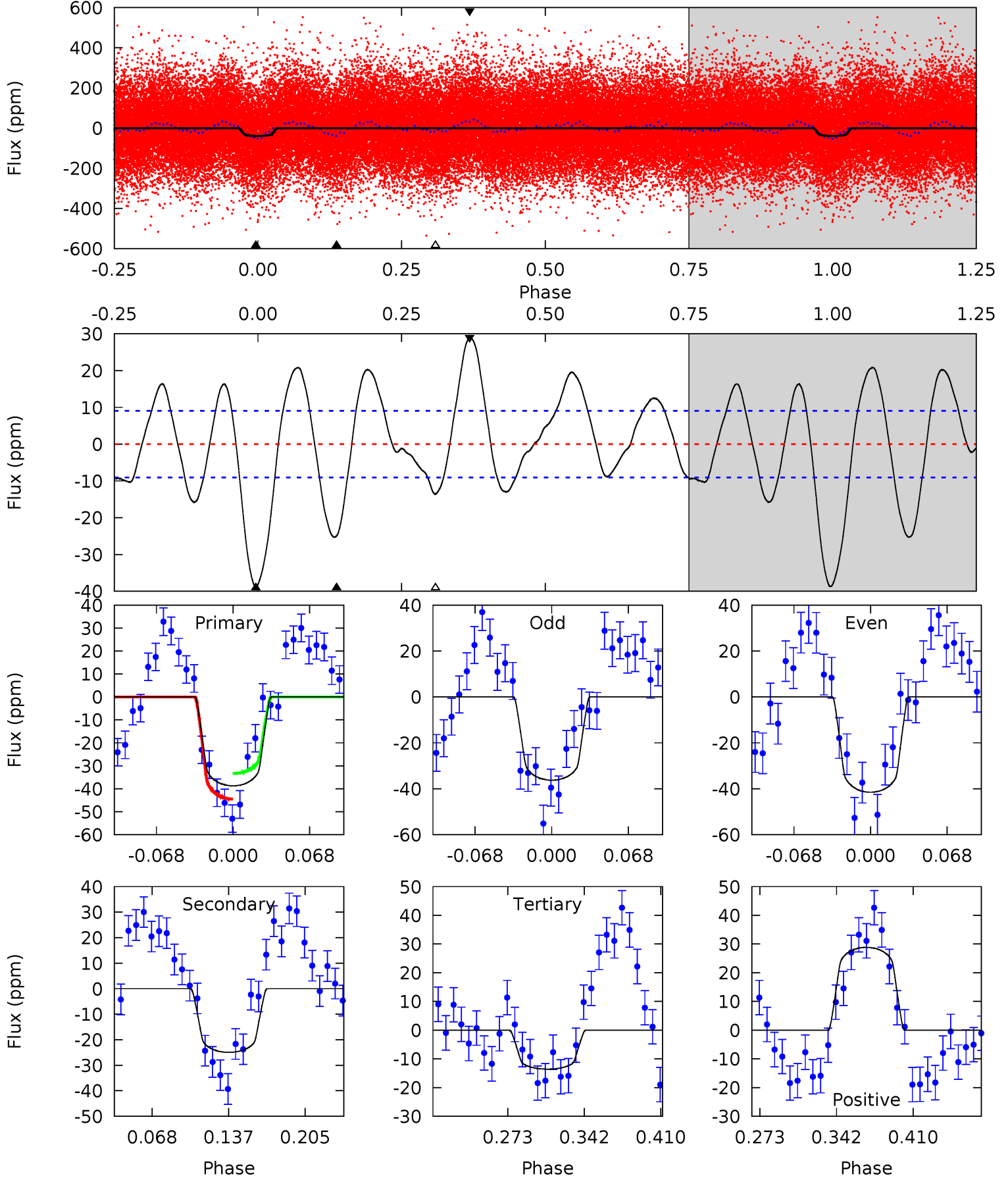
TCE 008379833-01 P= 2.185848 Days  $T_0=133.185314$  (BKJD)



# DV Model-Shift Uniqueness Test

008379833-01, P = 2.185847 Days, E = 130.993066 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	12.8	6.94	14.8	4.64	1.82	5.45	12.9	5.06	5.82	-2.01	1.35	0.95	0.43	2.86

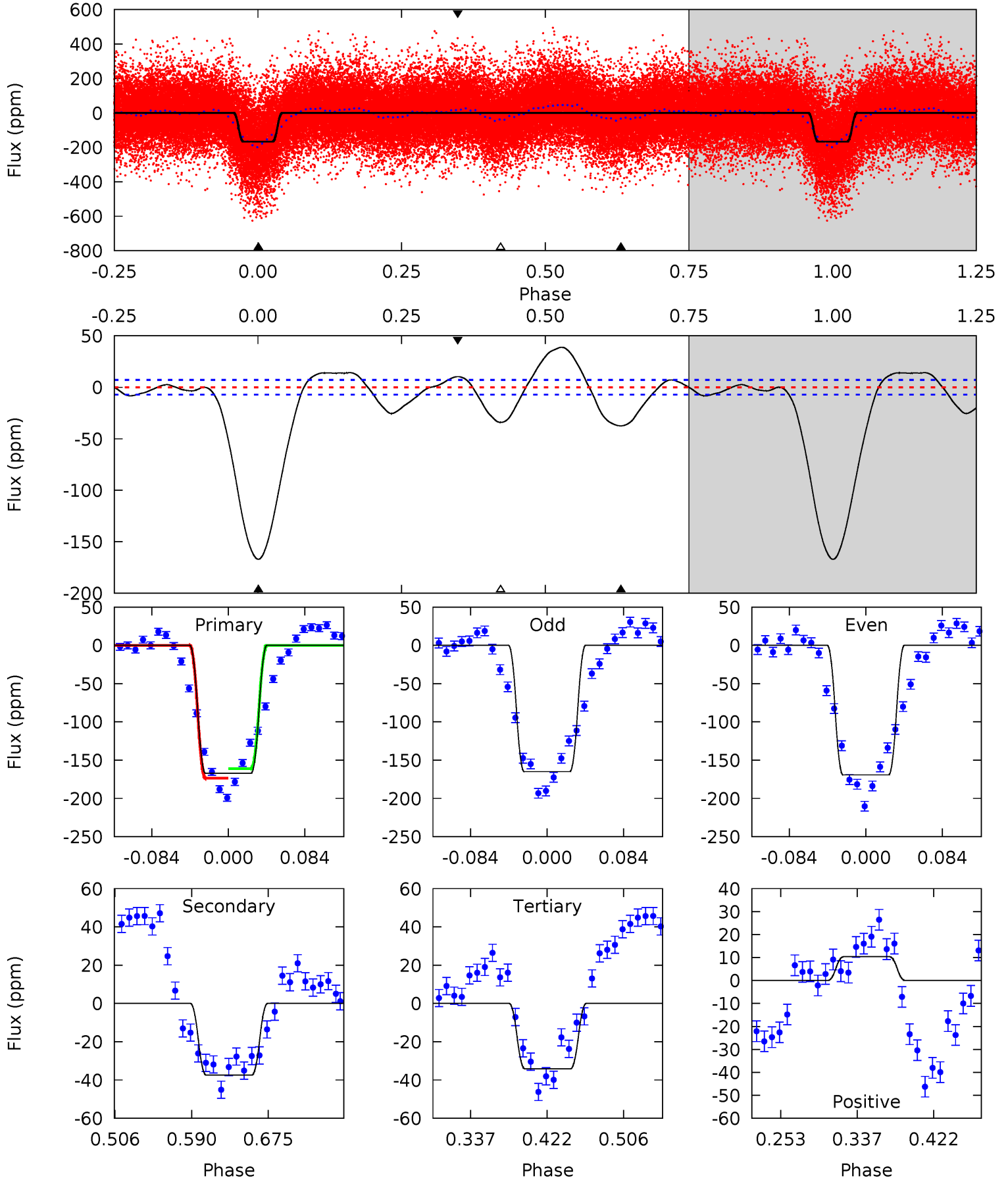




# Alt Model-Shift Uniqueness Test

008379833-01, P = 2.185848 Days, E = 130.999466 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
106.7	23.9	21.8	6.62	4.60	1.73	10.3	84.9	100.1	2.13	17.3	1.38	1.01	0.19	4.06





### Stellar Parameters For KIC 008379833

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6792^{+183}_{-224}$	$3.761^{+0.312}_{-0.078}$	$-0.420^{+0.300}_{-0.250}$	$2.583^{+0.417}_{-0.904}$	$1.401^{+0.231}_{-0.257}$	$0.115^{+0.229}_{-0.035}$
	+3%/-3%	+8%/-2%	+71%/-60%	+16%/-35%	+16%/-18%	+200%/-30%
Source	PHO1	FLK73	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 008379833-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-25 \pm 2$	$1.91^{+0.53}_{-0.51}$	$3425^{+190}_{-342}$	$5569^{+736}_{-542}$	$5.249^{+4.351}_{-2.098}$
Alt.	$-37 \pm 2$	$3.72^{+0.67}_{-0.75}$	$3413^{+199}_{-294}$	$4506^{+273}_{-225}$	$2.097^{+1.071}_{-0.577}$

$T_{\text{max}}$  = 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

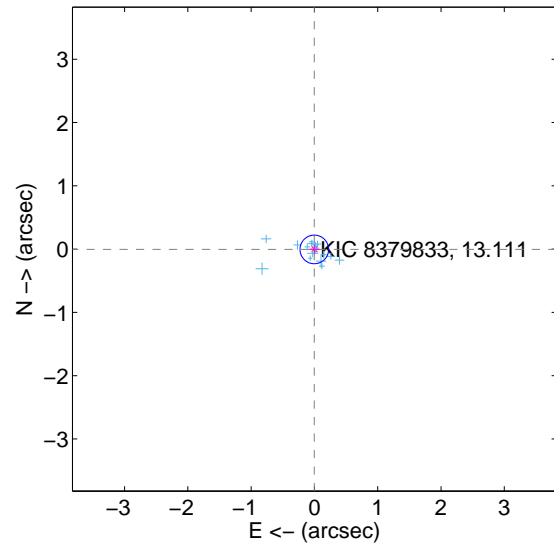
Supplemental centroid analysis for 008379833-01. Kepler magnitude: 13.11. Transit SNR 14.06

There are 17 quarters with good PRF difference image offsets

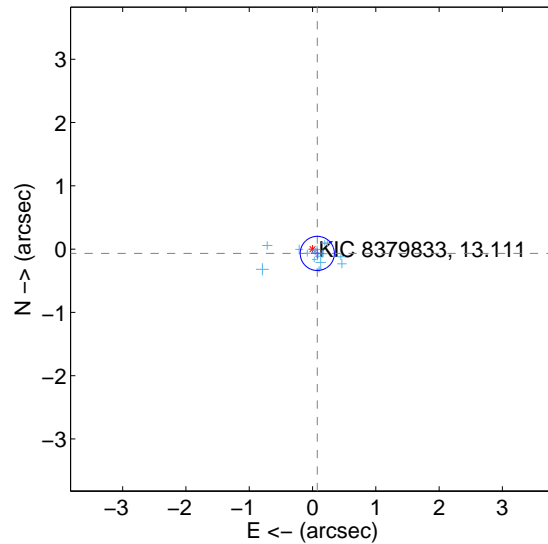
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.006 \pm 0.075$	0.07	$0.002 \pm 0.083$	$-0.005 \pm 0.074$
PRF-fit source offset from KIC position	$0.102 \pm 0.090$	1.13	$-0.076 \pm 0.103$	$-0.068 \pm 0.074$
photometric centroid source offset	$1.49 \pm 0.57$	2.62	$1.47 \pm 0.57$	$-0.24 \pm 0.61$

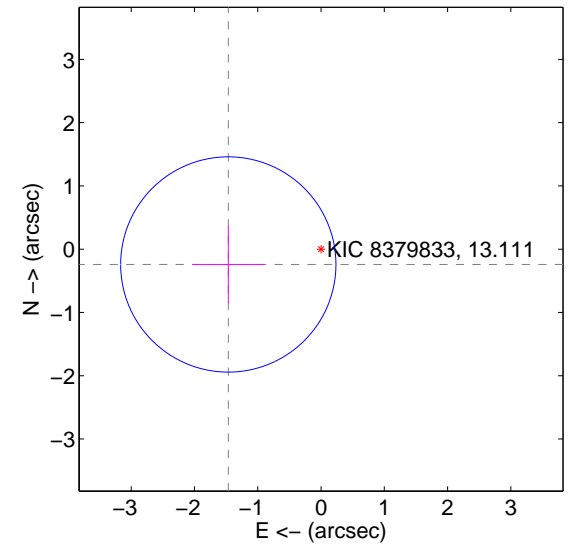
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

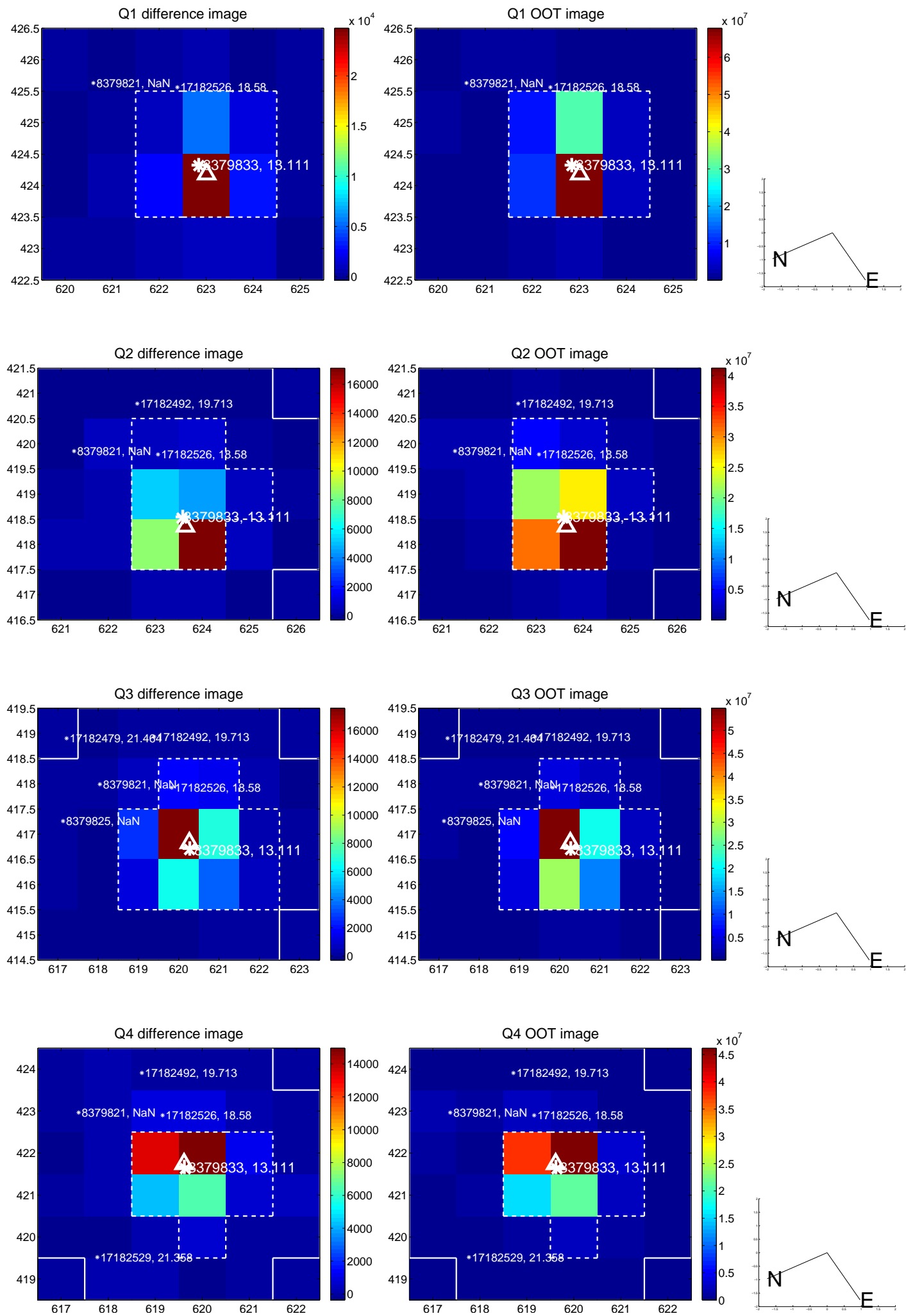


offset from photometric centroids

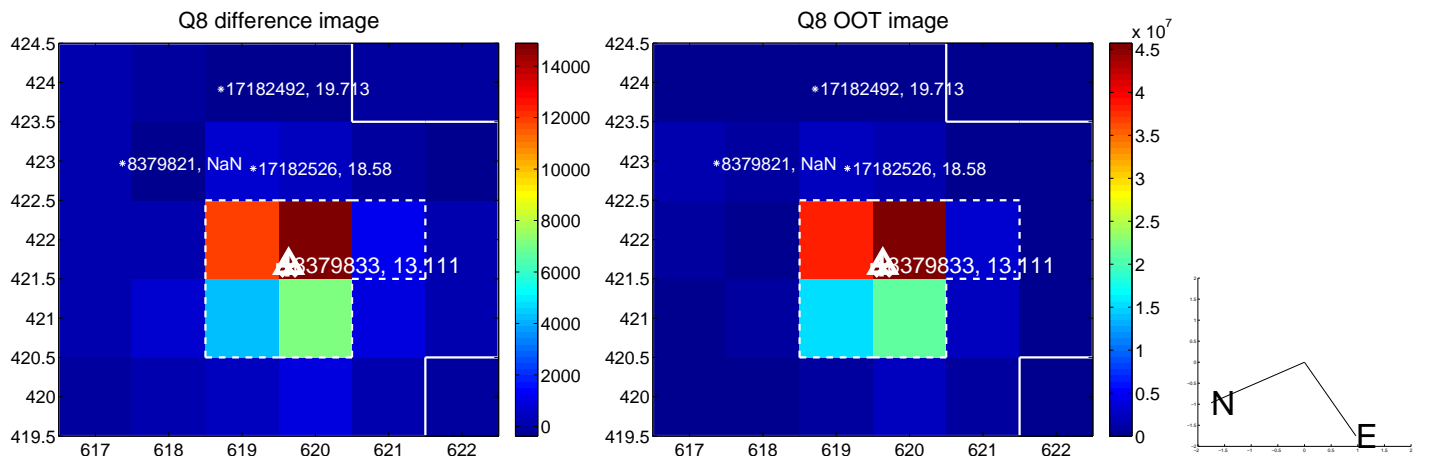
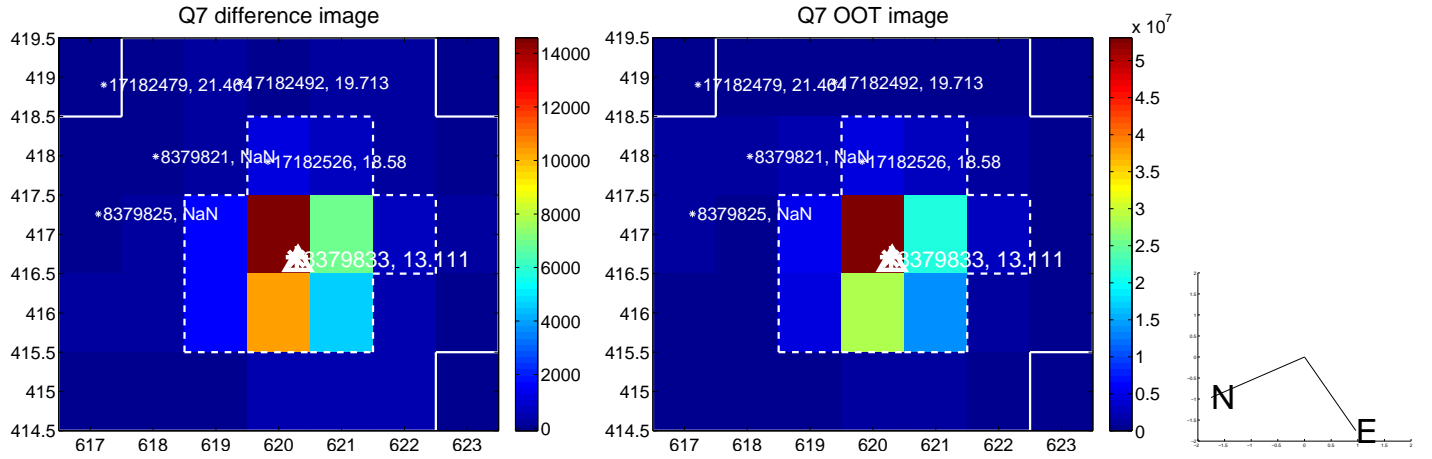
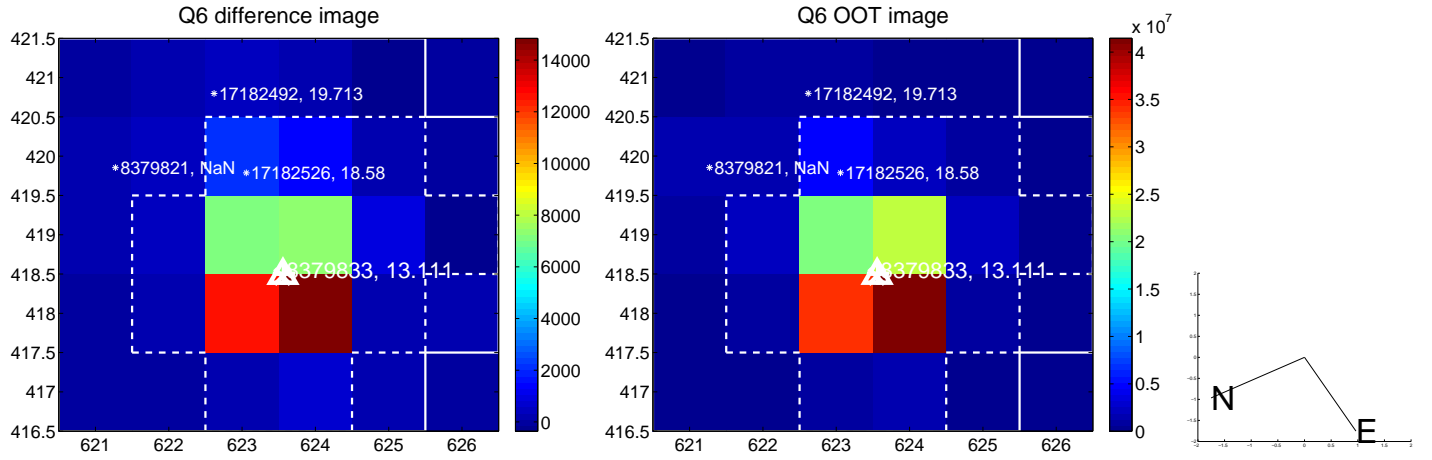
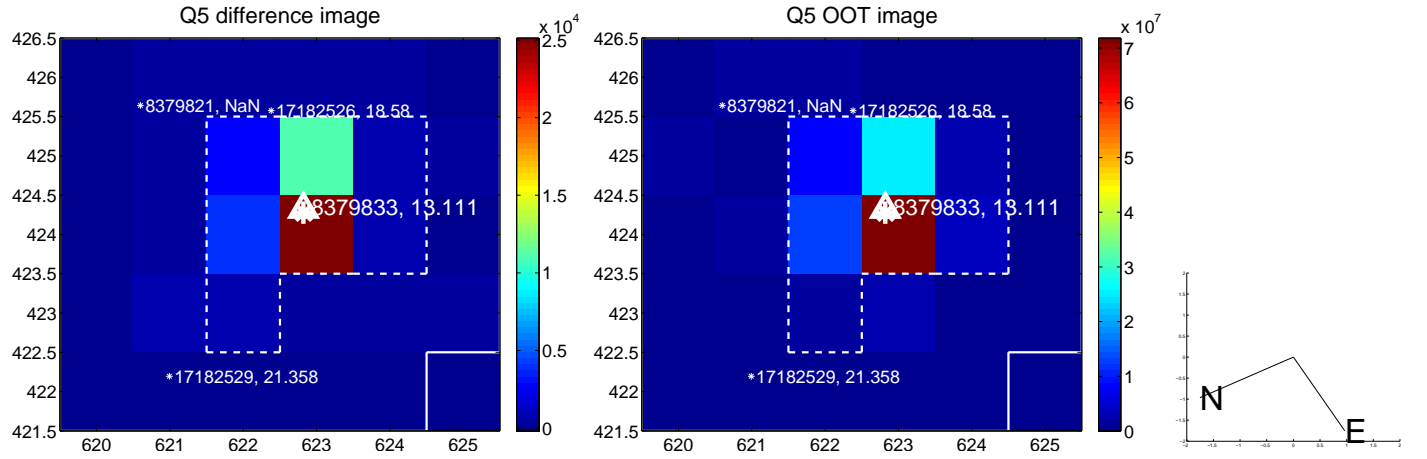


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

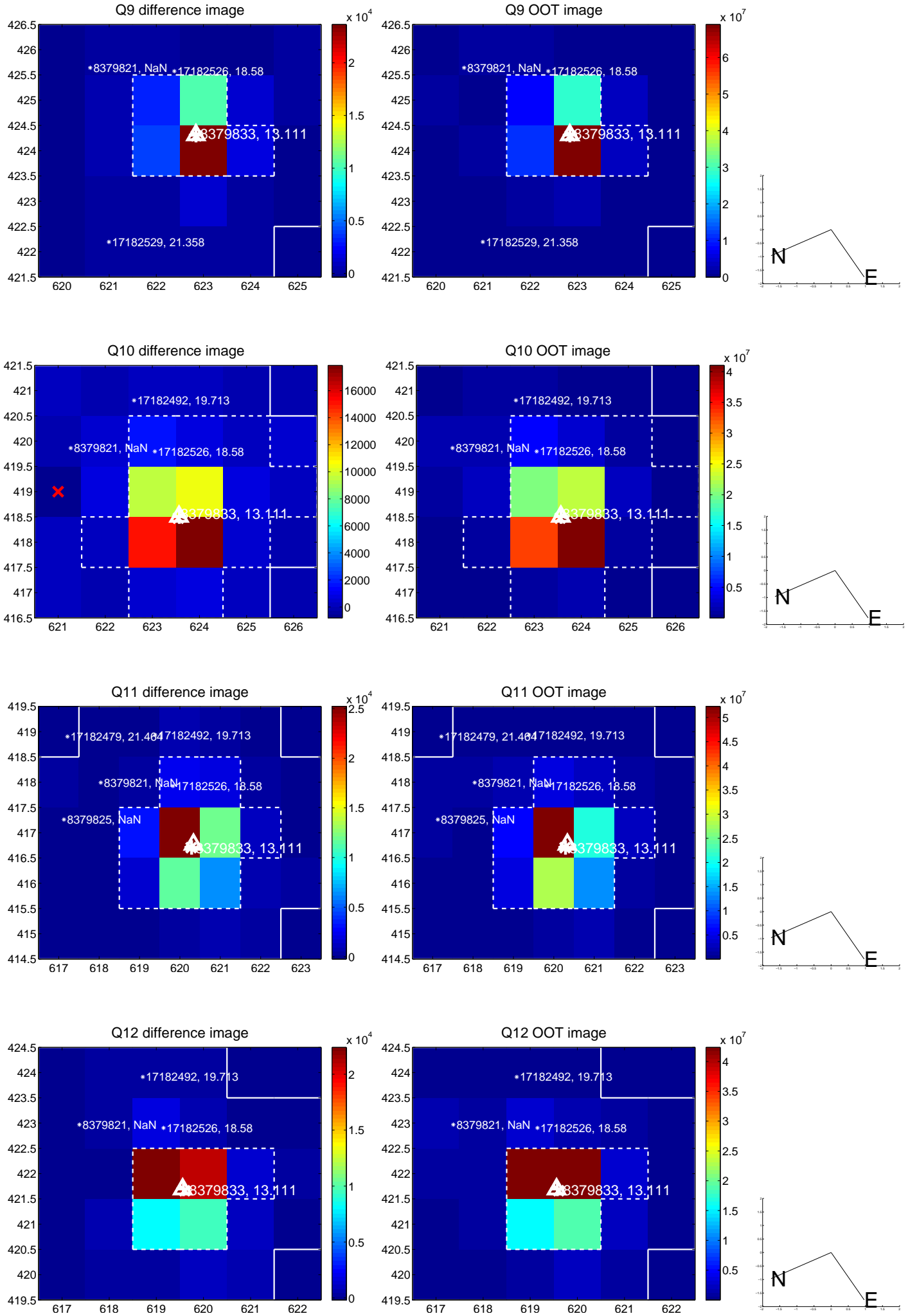


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

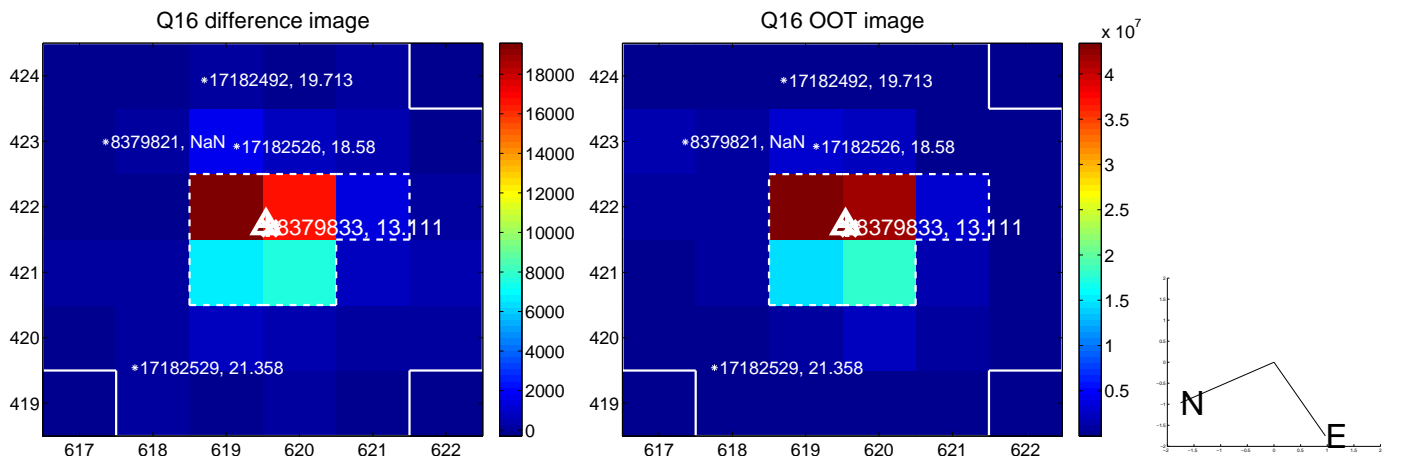
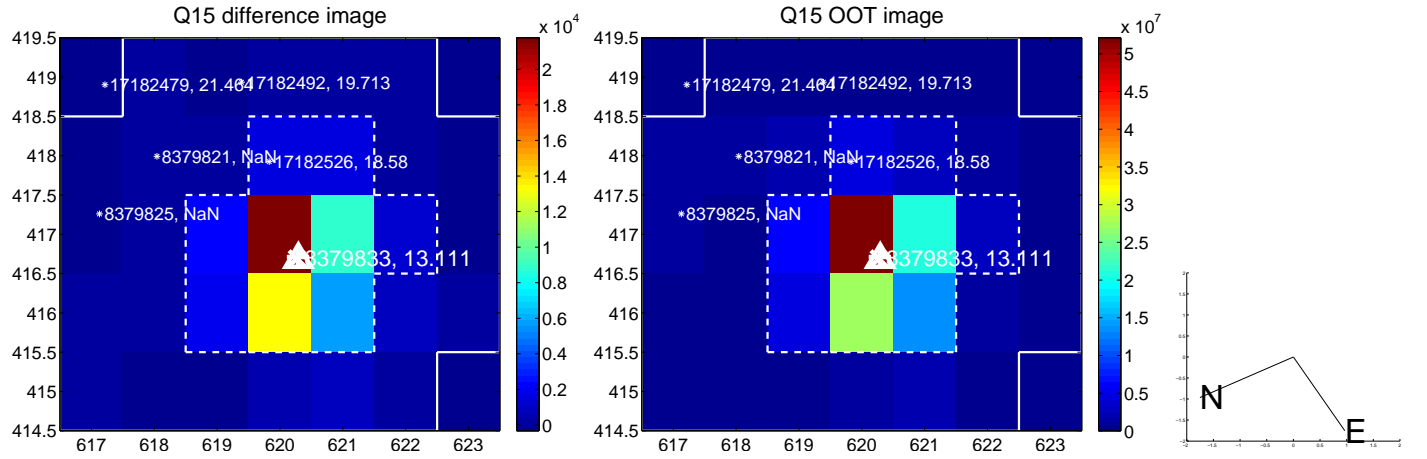
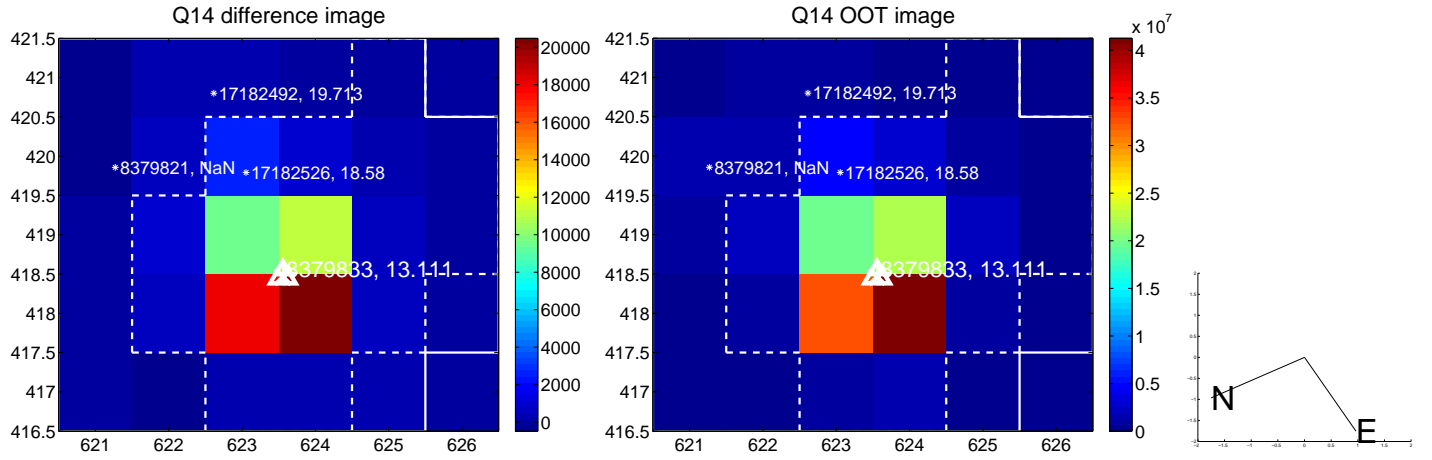
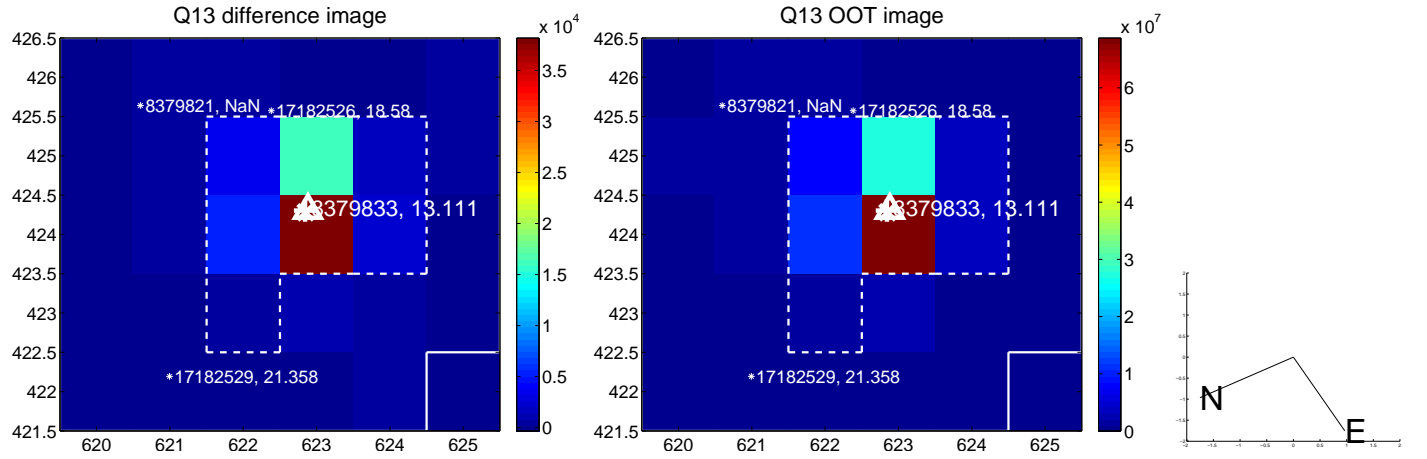




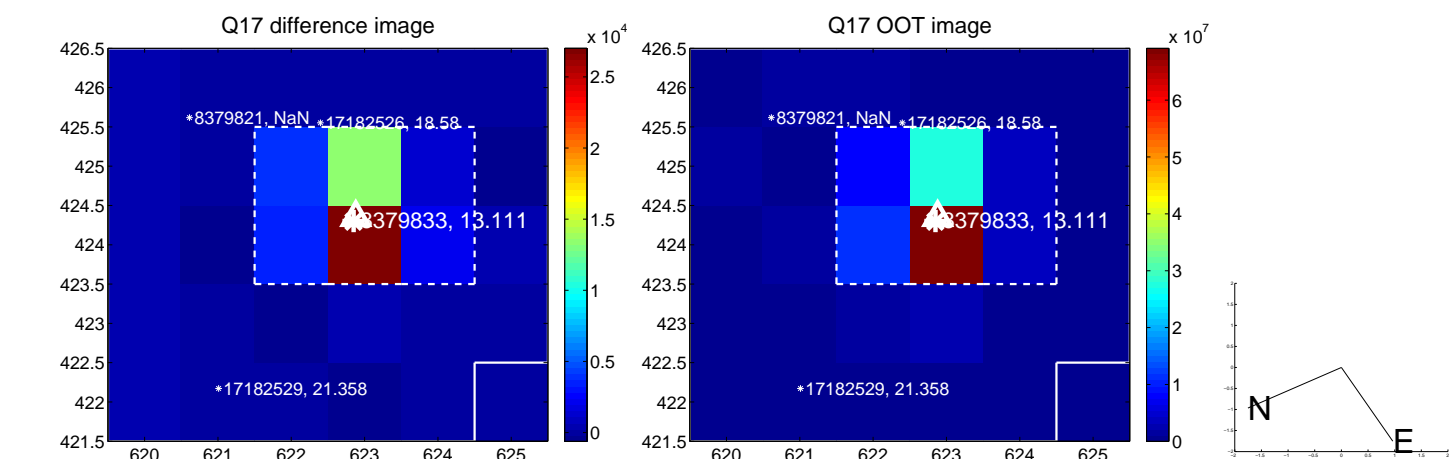
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



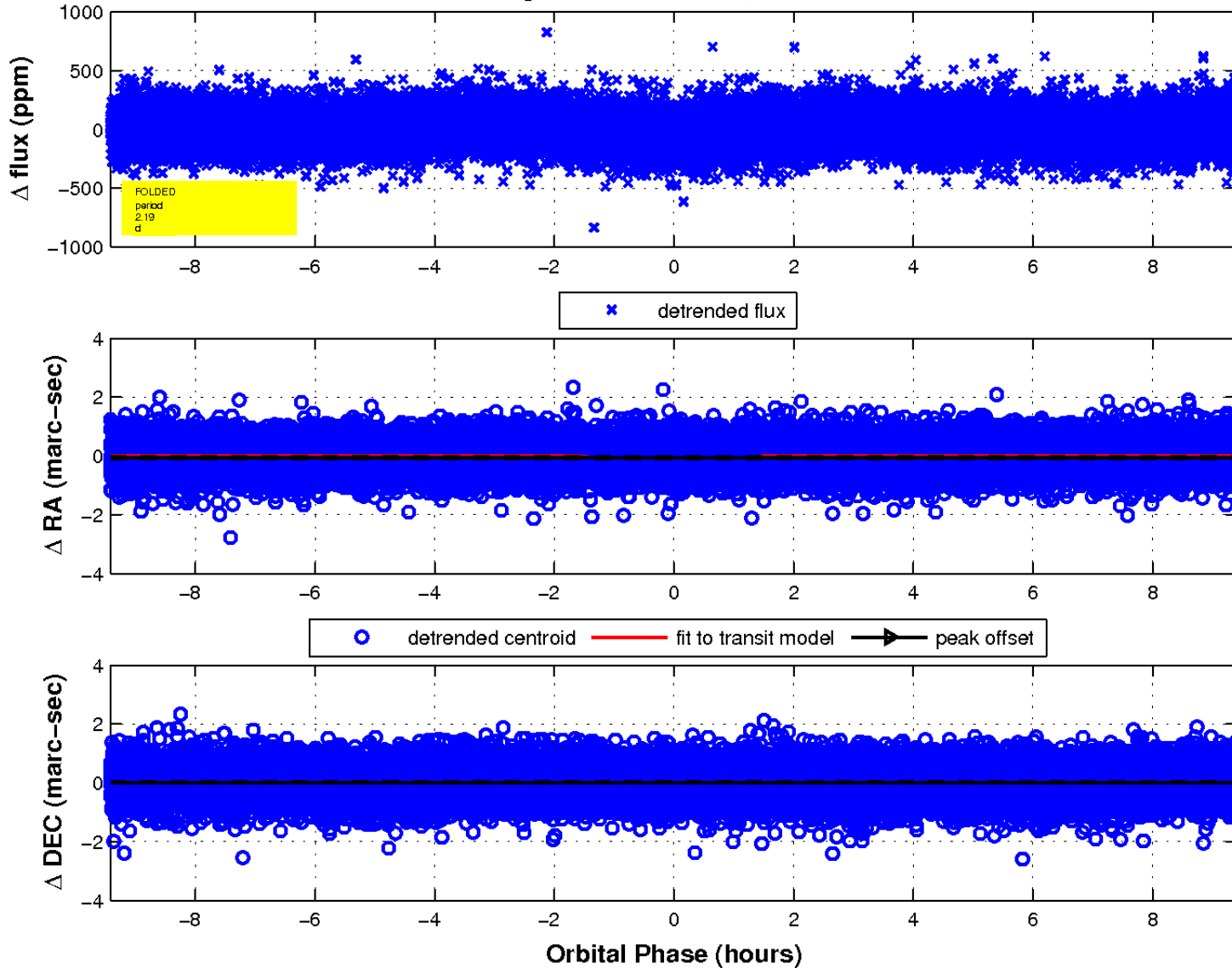
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

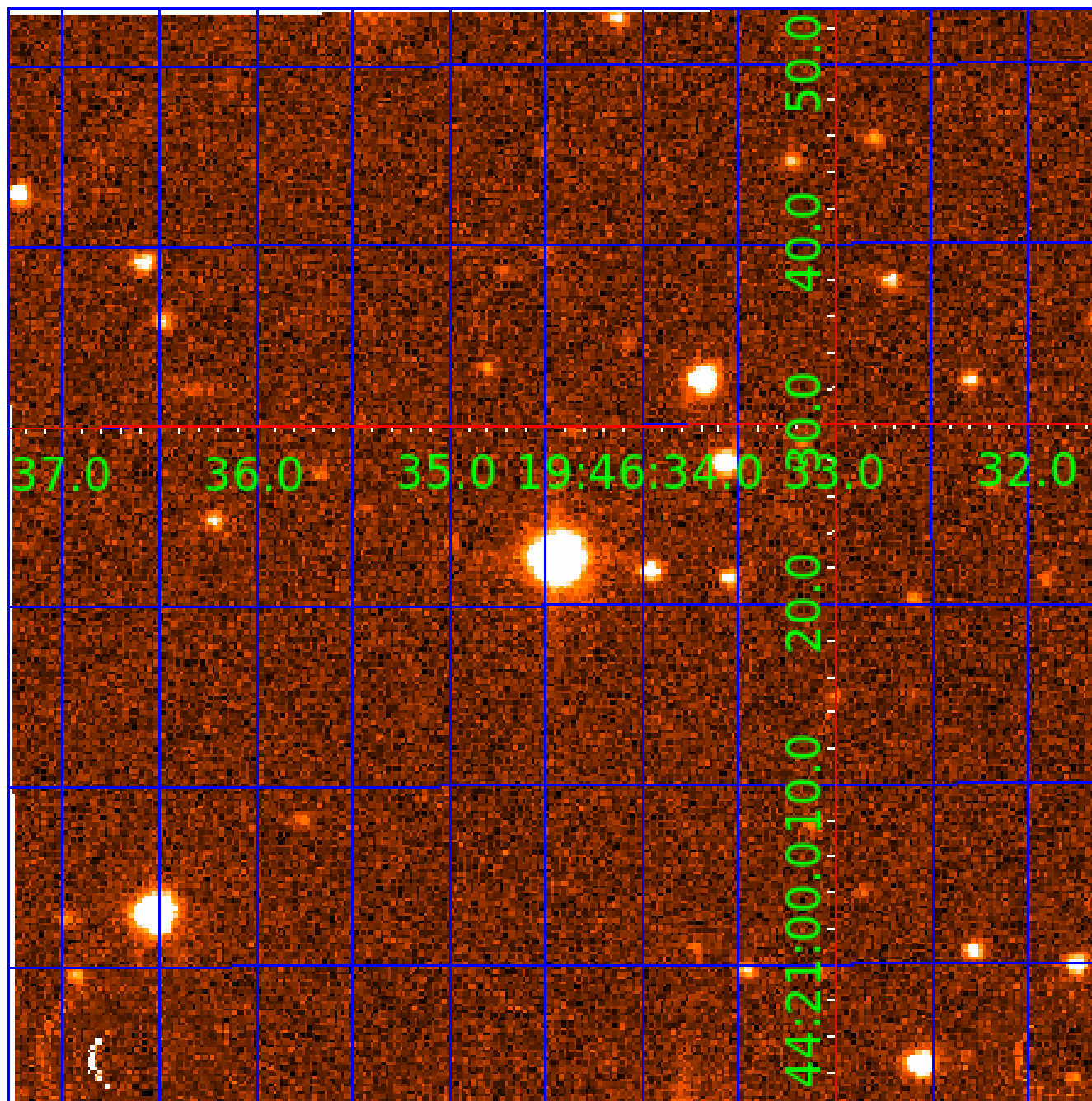


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination





# KIC 008379833

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008379833-01	OBS	No	2.185847	133.178913	43.0	3.140	14.0	14.1	2.58	6792	2.04	9335.59
008379833-02	OBS	No	2.185889	133.464119	175.5	2.500	9.1	-1.0	2.58	6792	3.46	9335.35
008379833-03	OBS	No	1.092984	131.862966	20.5	3.304	9.3	8.6	2.58	6792	1.40	23522.47
008379833-04	OBS	No	235.418685	300.190302	215.4	27.627	8.0	6.7	2.58	6792	3.99	18.22

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008379833-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008379833-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
008379833-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD
008379833-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

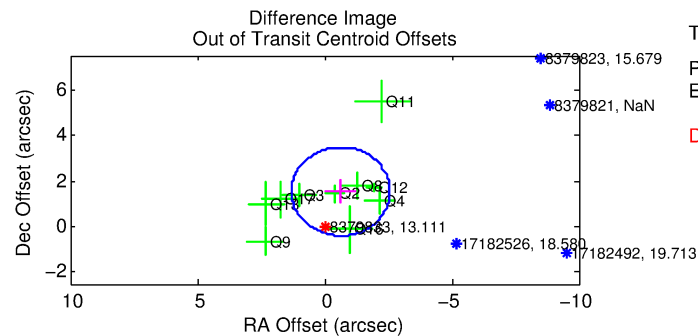
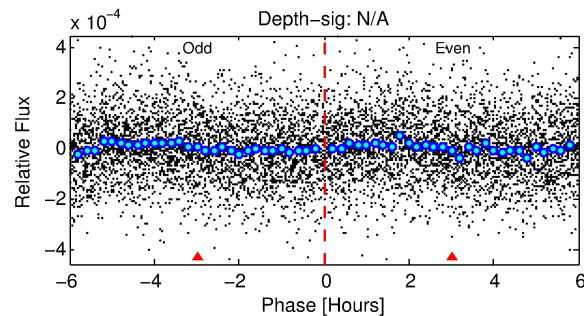
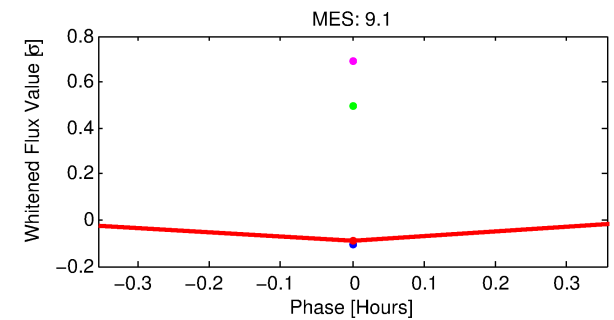
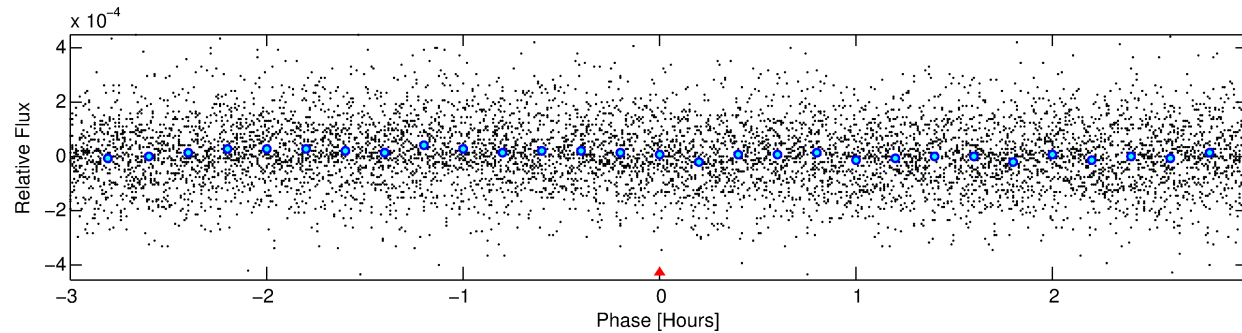
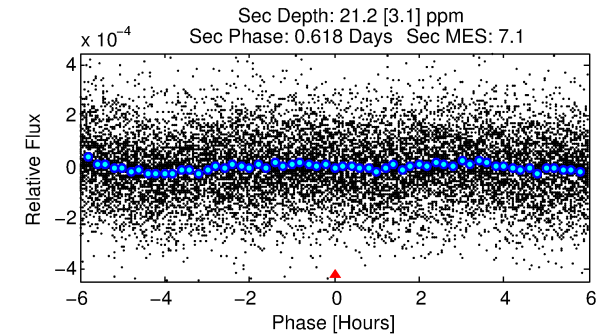
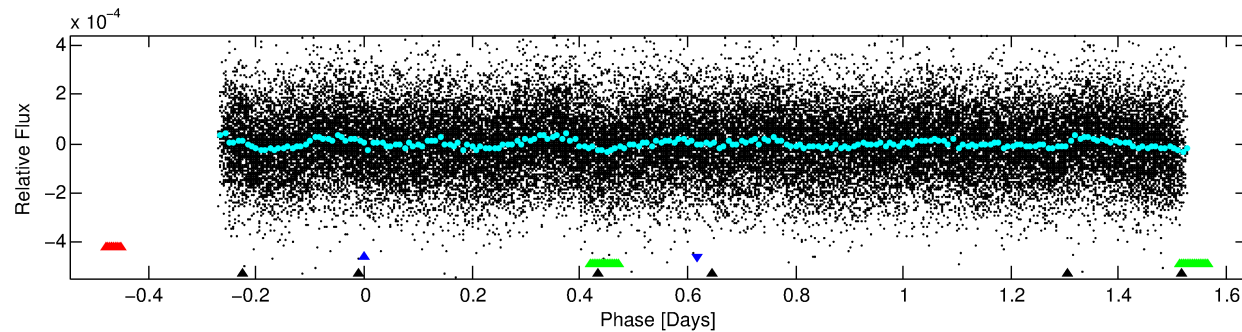
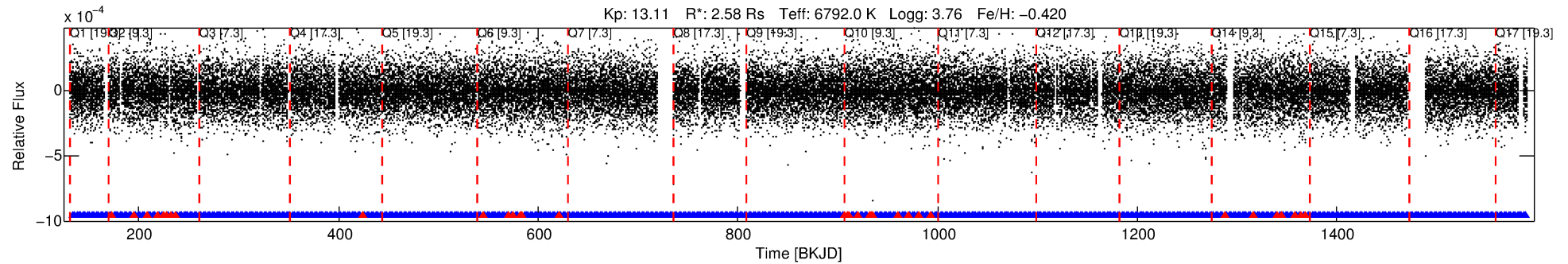
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008379833-02

No Significant Match Found

# DV One-Page Summary

KIC: 8379833 Candidate: 2 of 4 Period: 2.186 d



## TPS TCE Results:

Period = 2.18589 d  
Epoch = 133.4641 BKJD

DV fit results are unavailable

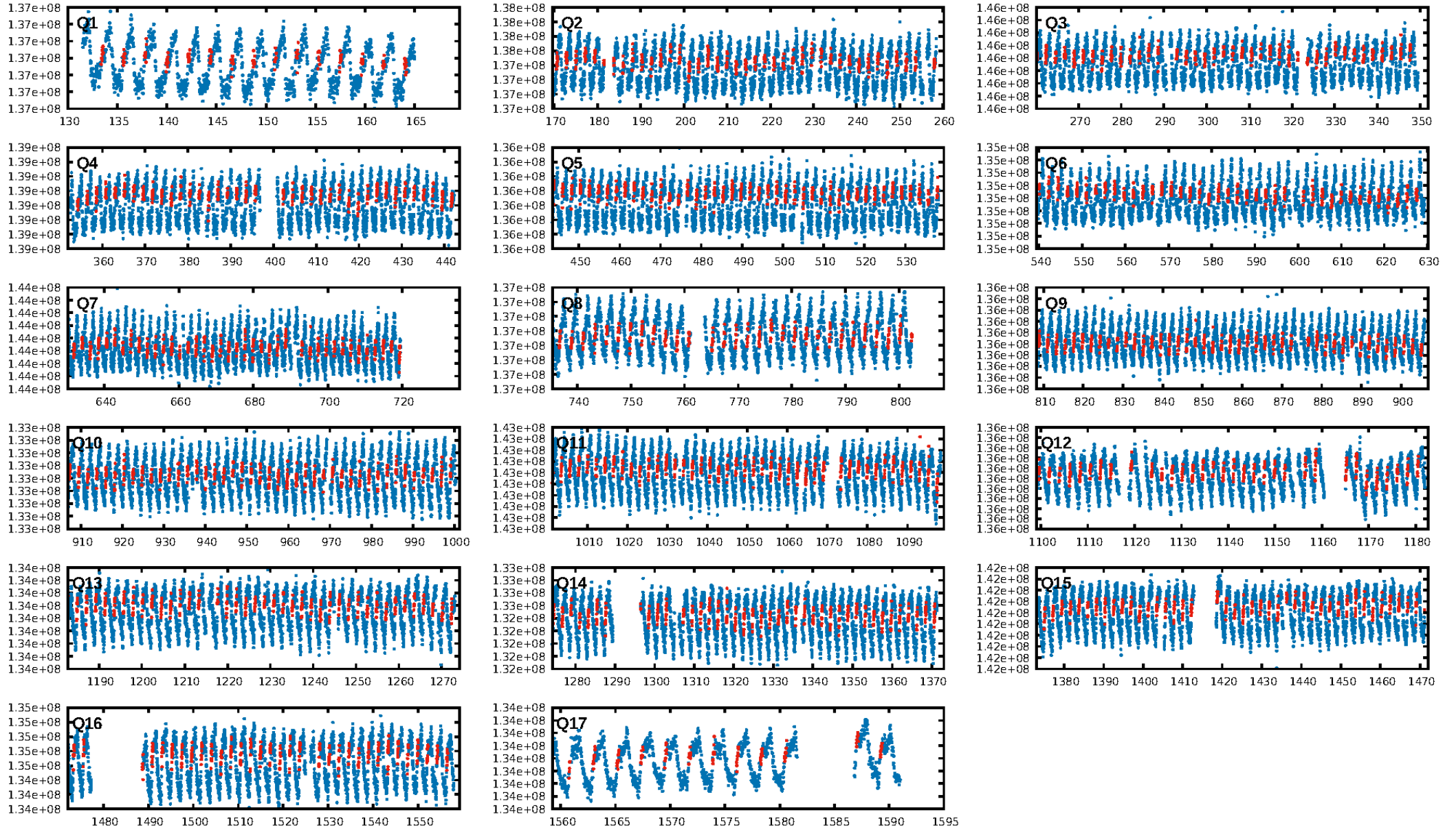
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [201.79σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.67e-15  
RollingBand-fgt: 0.94 [555/588]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 1.669 arcsec [2.59σ]  
OotOffset-st: 1/2/4/3 [10]  
KicOffset-rm: 1.674 arcsec [3.06σ]  
KicOffset-st: 1/2/4/3 [10]  
DiffImageQuality-fgm: 0.60 [6/10]  
DiffImageOverlap-fno: 1.00 [16/16]

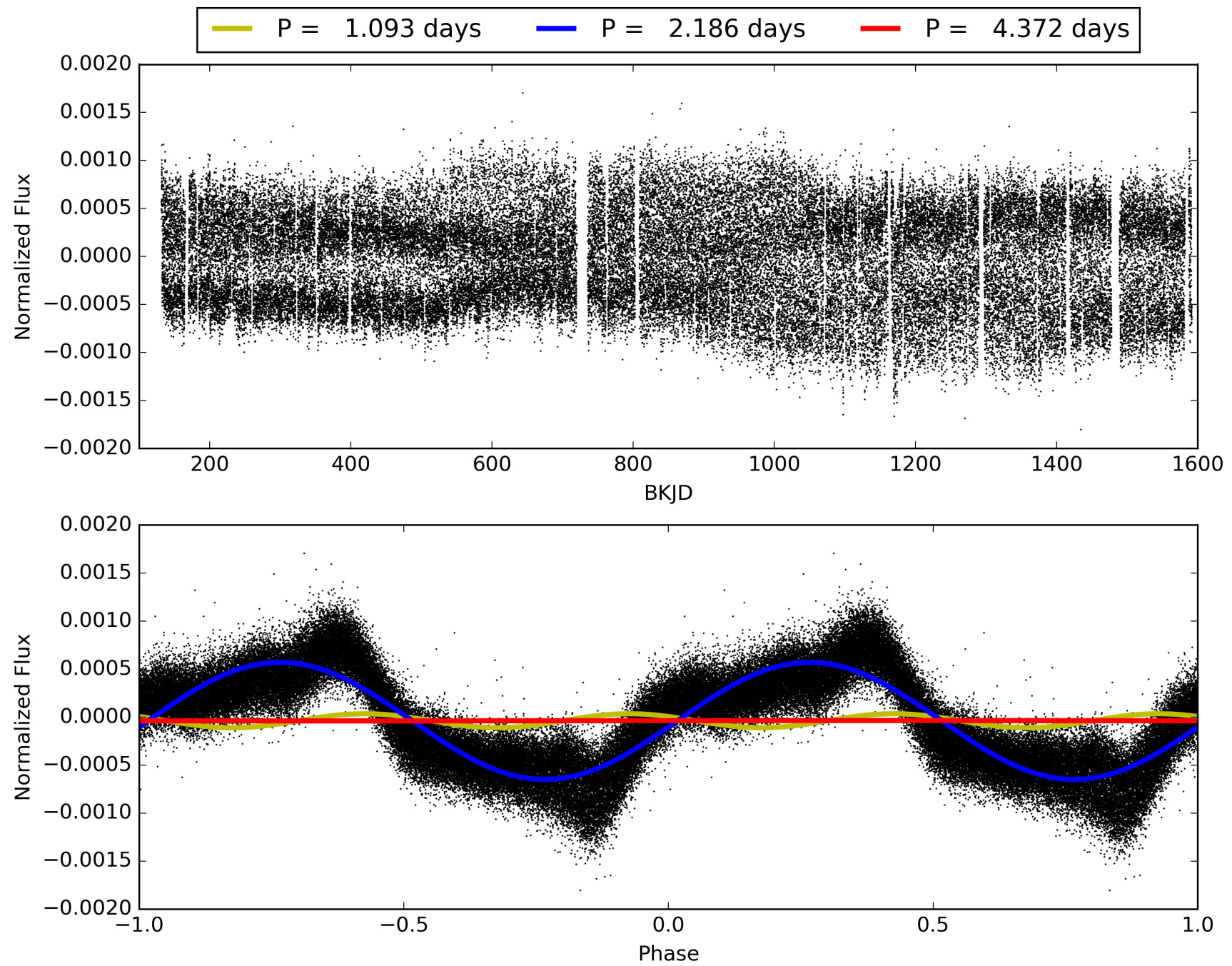
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:10:09 Z

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

# TCE 008379833-02, PDC Light Curves



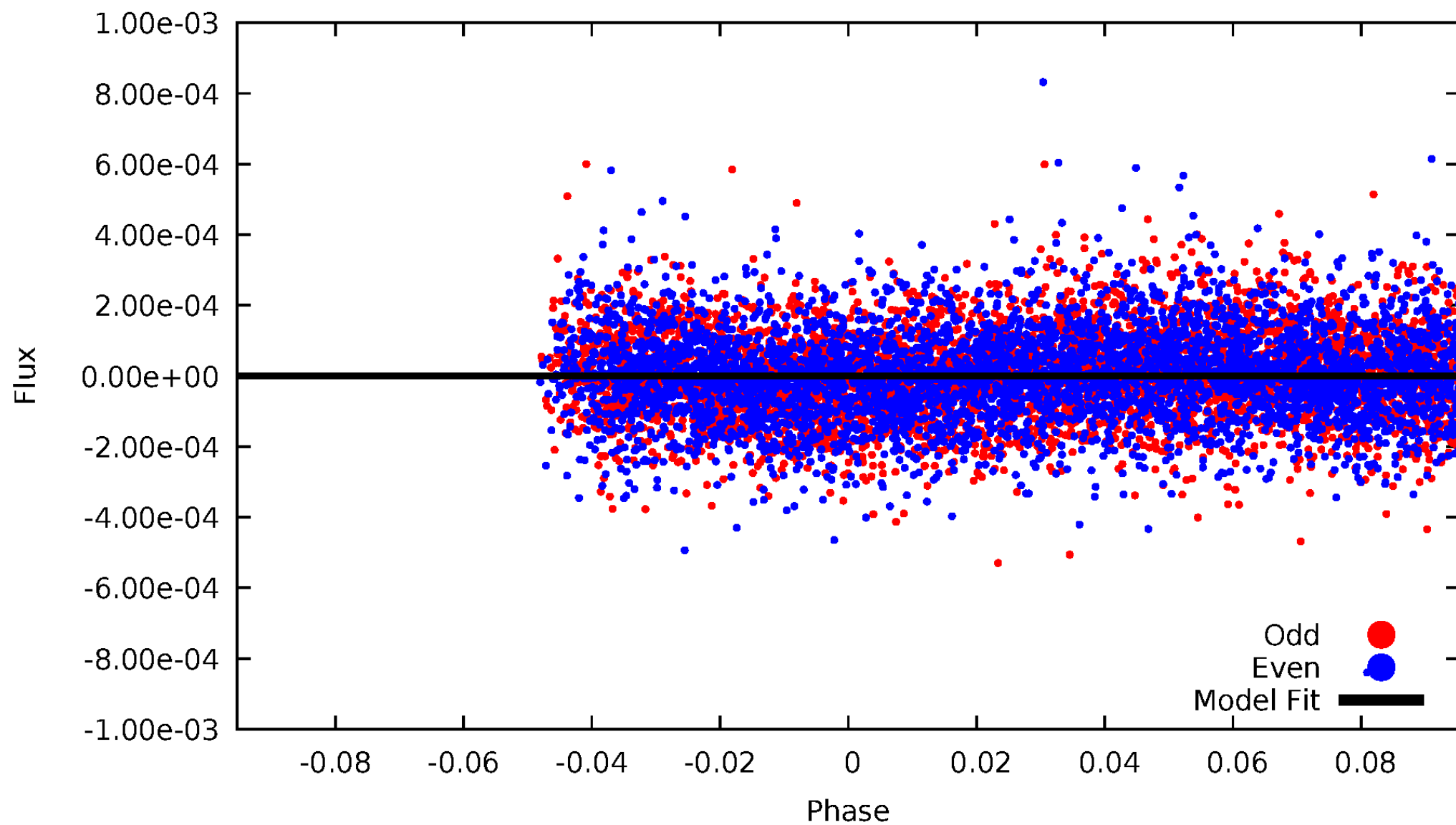
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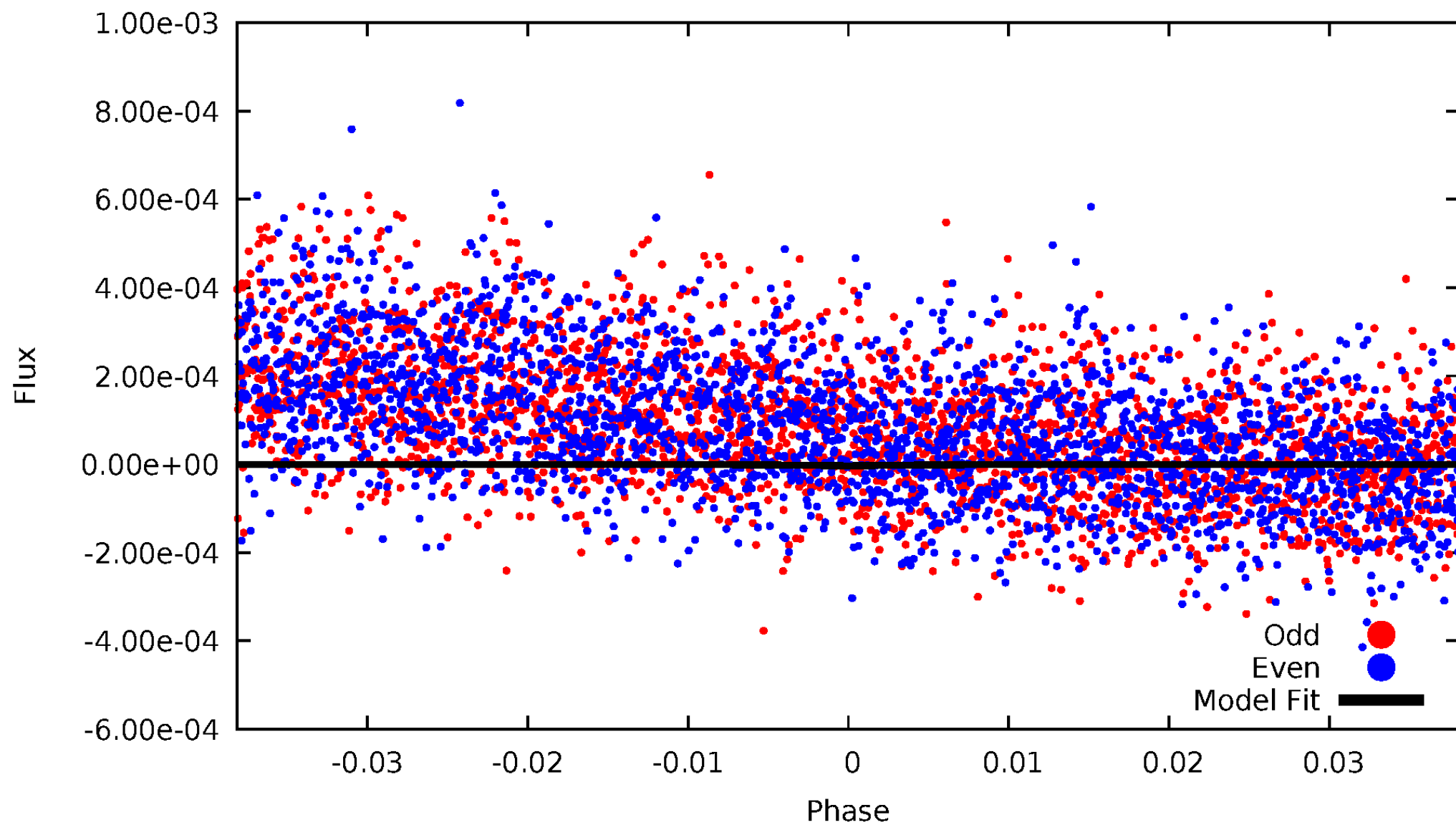
DV Odd/Even

TCE 008379833-02



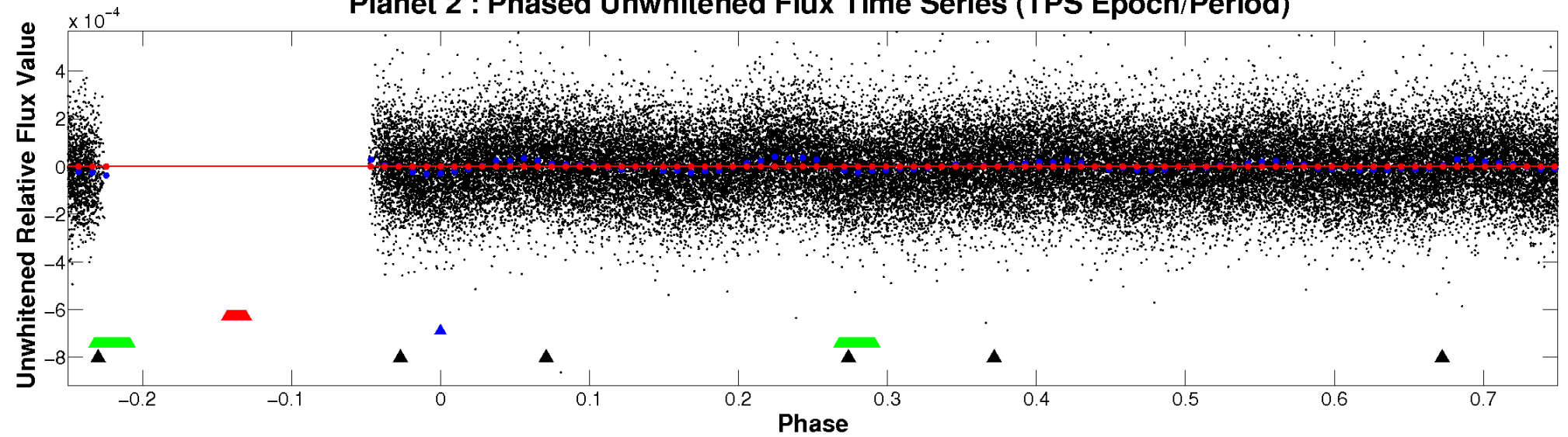
# ALT Odd/Even

TCE 008379833-02



# Non-Whitened Vs. Whitened Light Curve

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



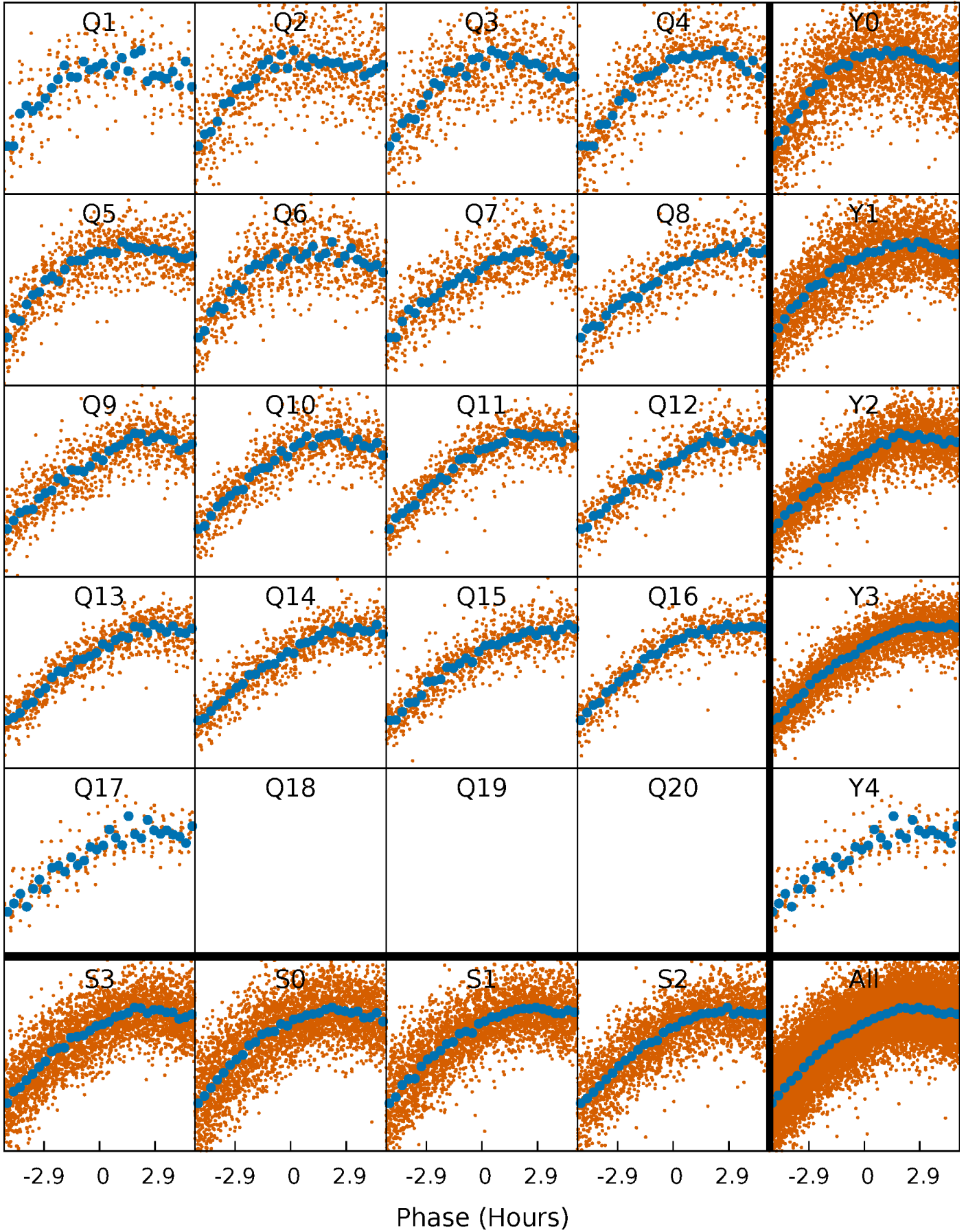
**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





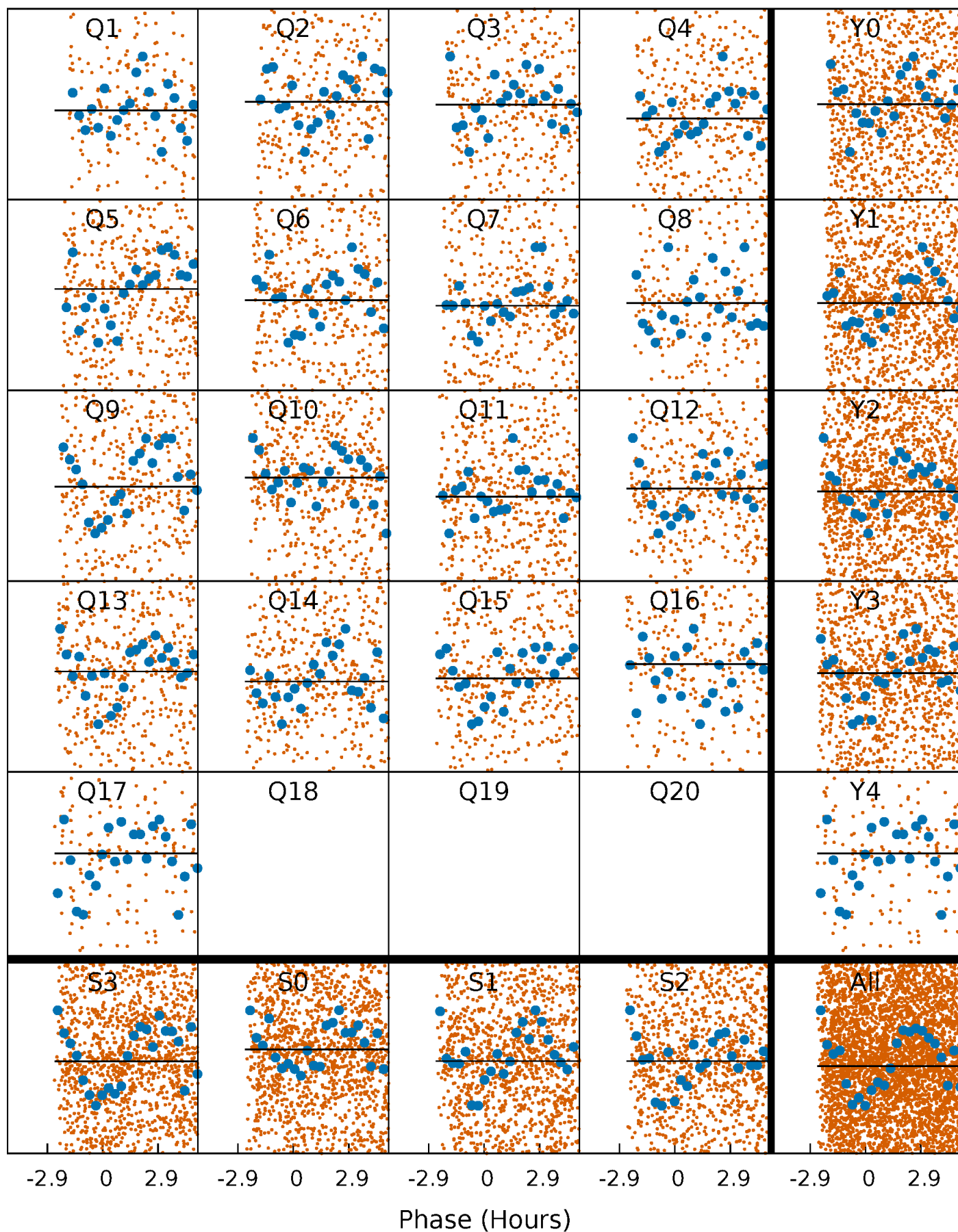
# PDC Quarter-Phased Transit Curves

TCE 008379833-02   P= 2.185889 Days    $T_0=133.464119$  (BKJD)



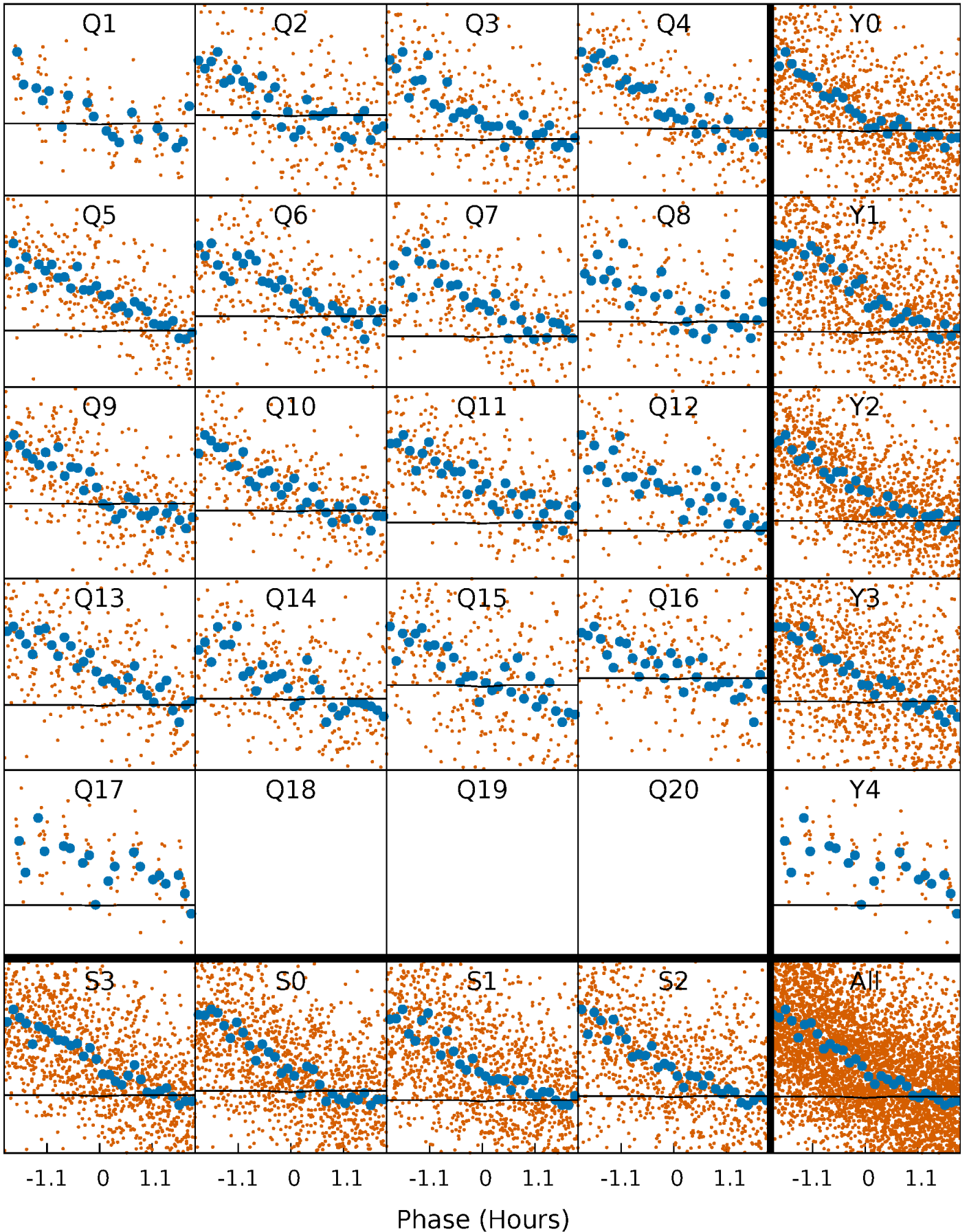
# DV Quarter-Phased Transit Curves

TCE 008379833-02     $P = 2.185889$  Days     $T_0 = 133.464119$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

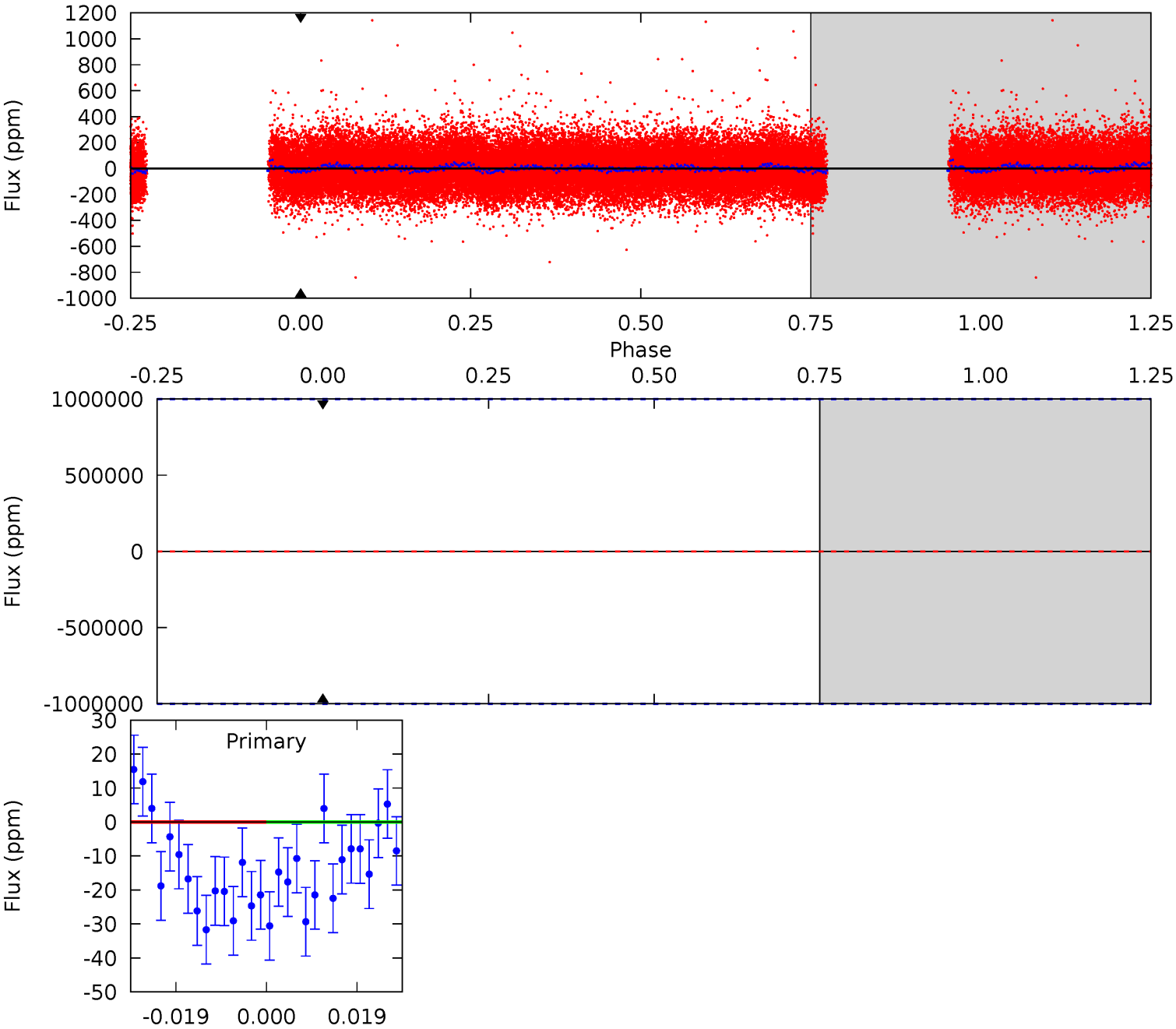
TCE 008379833-02     $P = 2.185889$  Days     $T_0 = 133.629908$  (BKJD)



DV Model-Shift Uniqueness Test

008379833-02, P = 2.185889 Days, E = 131.278230 Days

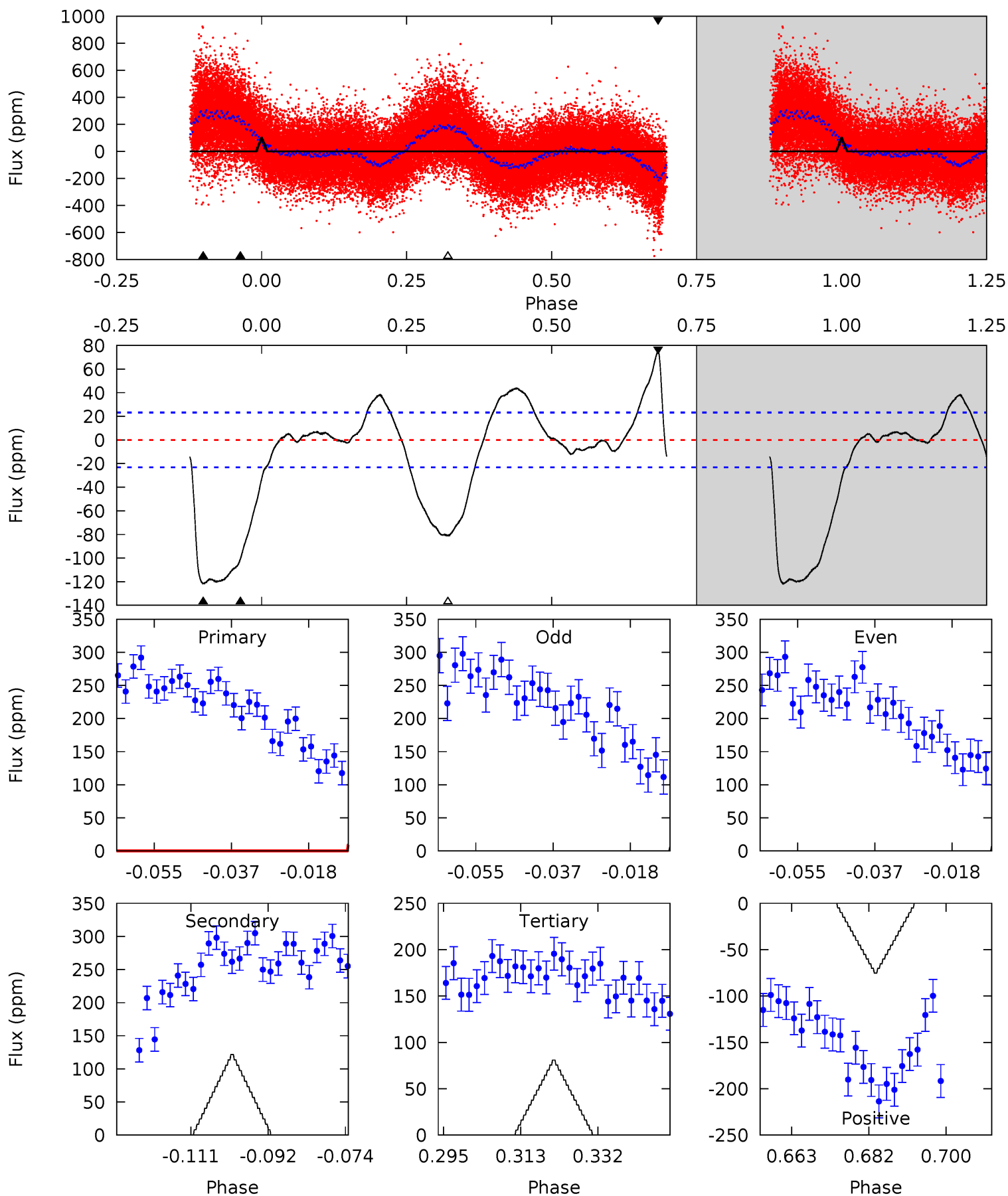
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008379833-02, P = 2.185889 Days, E = 131.444019 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
21.4	25.8	17.1	15.9	4.91	2.36	8.36	4.25	5.45	8.63	9.83	2.14	1.17	0.38	6.81





### Stellar Parameters For KIC 008379833

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6792^{+183}_{-224}$	$3.761^{+0.312}_{-0.078}$	$-0.420^{+0.300}_{-0.250}$	$2.583^{+0.417}_{-0.904}$	$1.401^{+0.231}_{-0.257}$	$0.115^{+0.229}_{-0.035}$
	+3%/-3%	+8%/-2%	+71%/-60%	+16%/-35%	+16%/-18%	+200%/-30%
Source	PHO1	FLK73	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 008379833-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$19.36^{+19.91}_{-12.98}$	$3428^{+189}_{-282}$	$4191^{+32234}_{-30252}$	$1.802^{+475.914}_{-278.774}$
Alt.	$-122 \pm 5$	$17.63^{+19.65}_{-12.44}$	$3392^{+221}_{-281}$	$-2060^{+7092}_{-1153}$	$0.293^{+3.255}_{-0.227}$

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

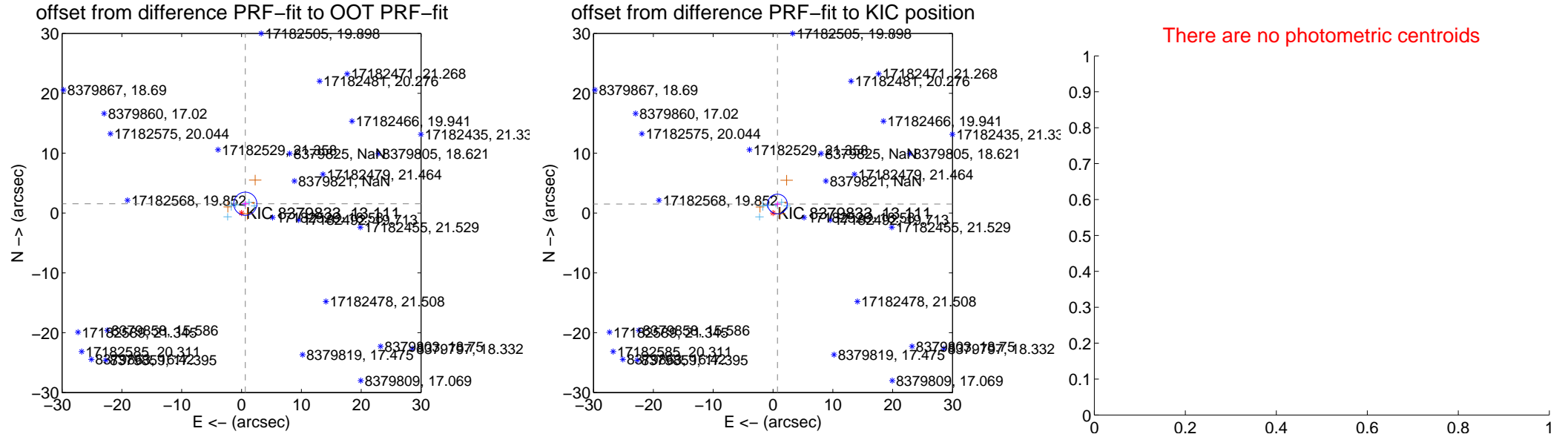
## DV Centroid Data

Supplemental centroid analysis for 008379833-02. Kepler magnitude: 13.11. Transit SNR -1.00

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

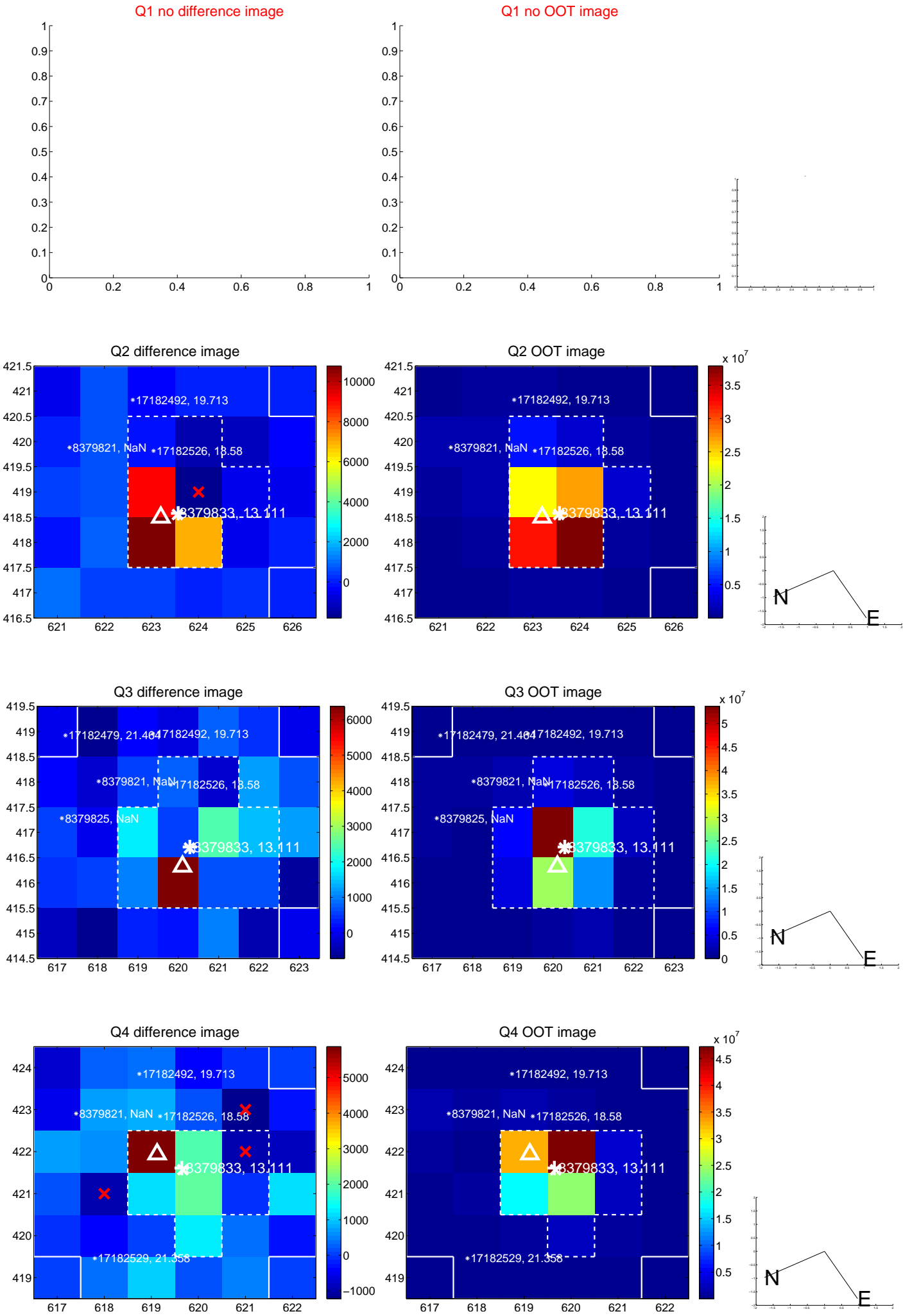
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.669 \pm 0.645$	2.59	$-0.626 \pm 0.591$	$1.547 \pm 0.521$
PRF-fit source offset from KIC position	$1.674 \pm 0.548$	3.06	$-0.739 \pm 0.521$	$1.502 \pm 0.452$
photometric centroid source offset	—	—	—	—



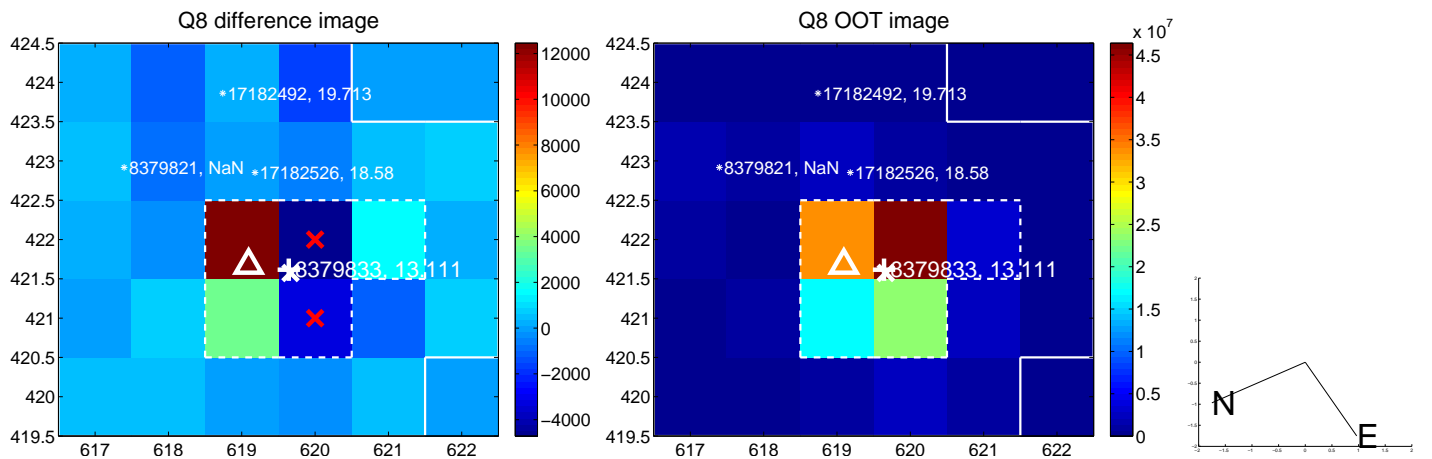
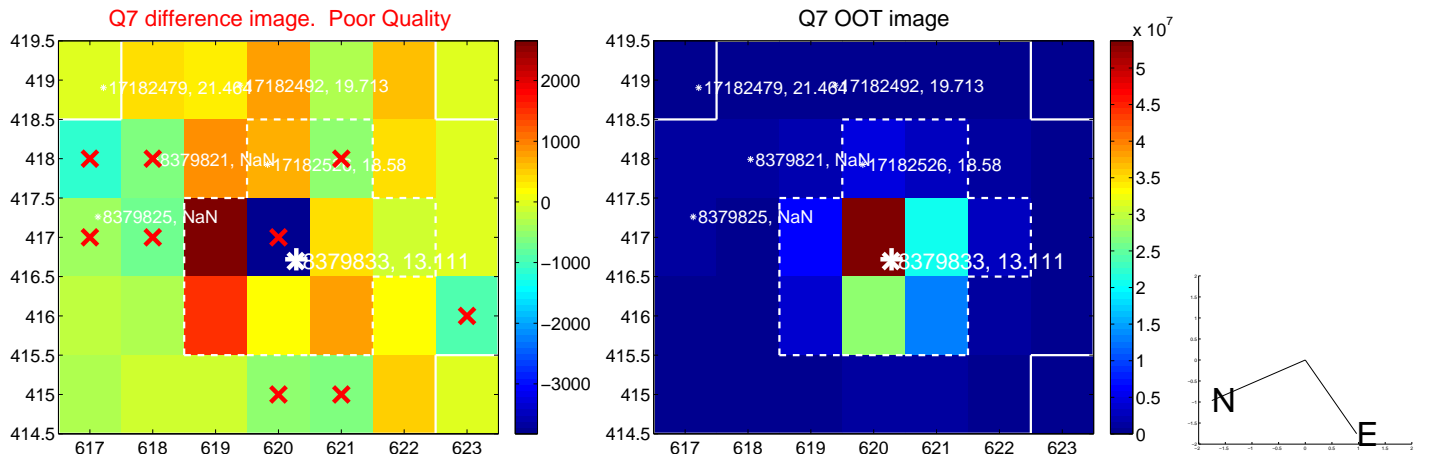
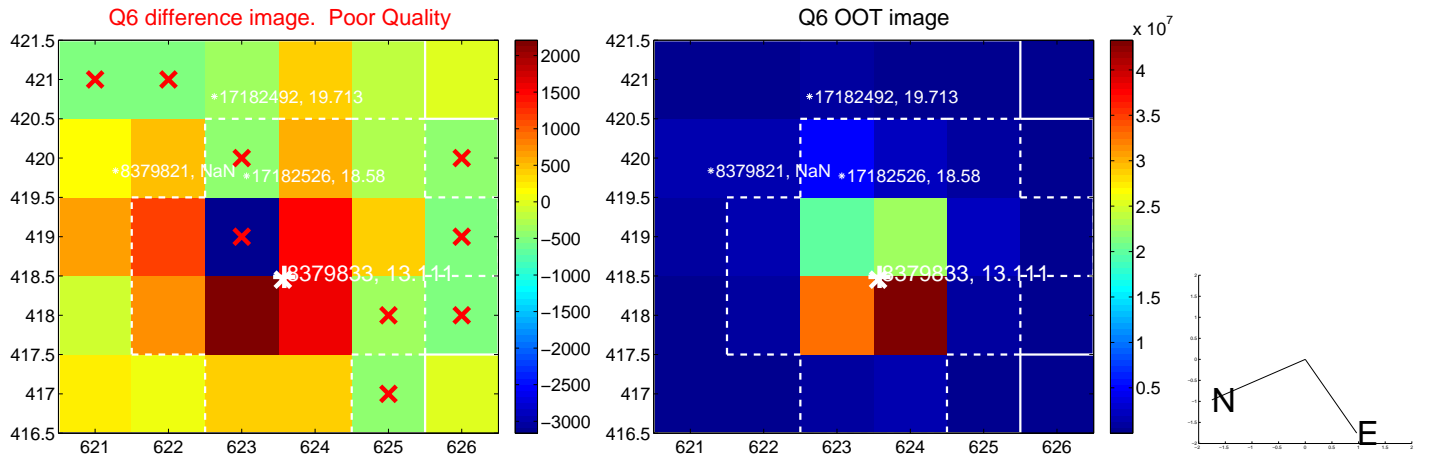
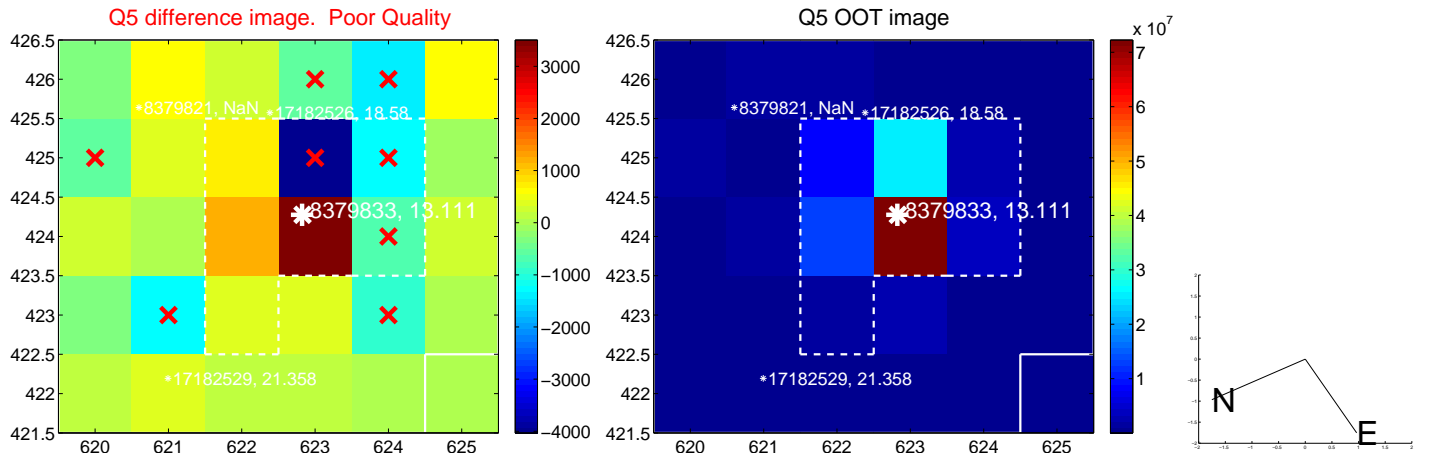
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



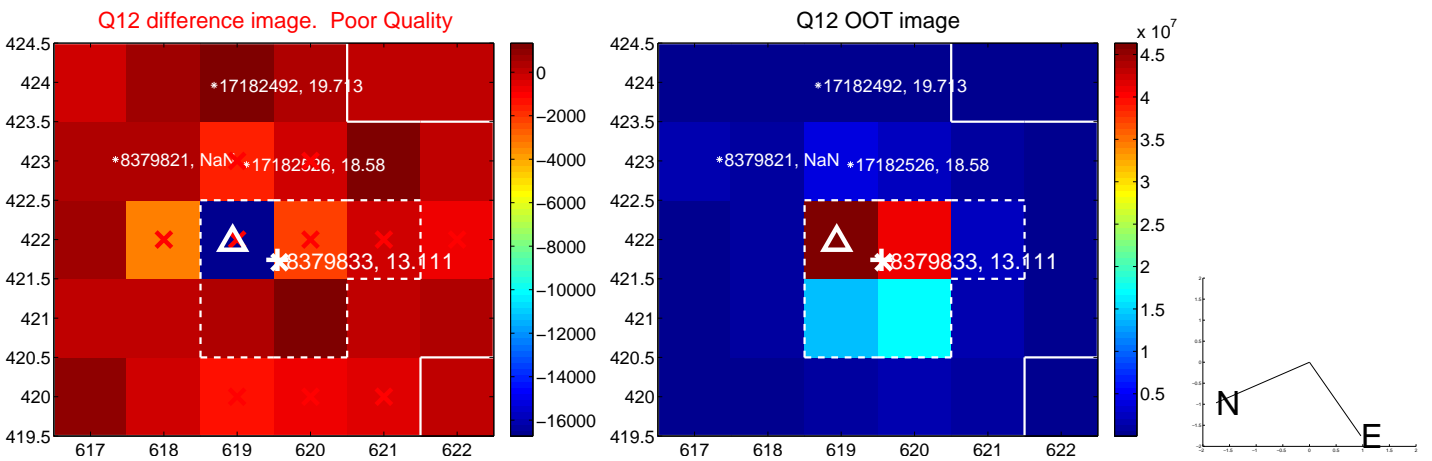
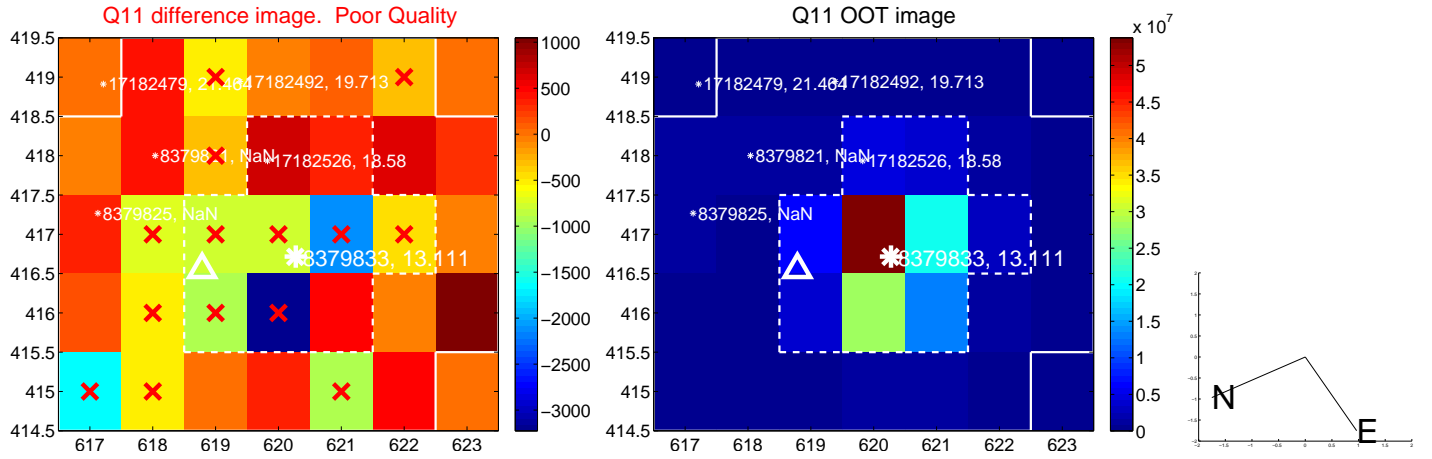
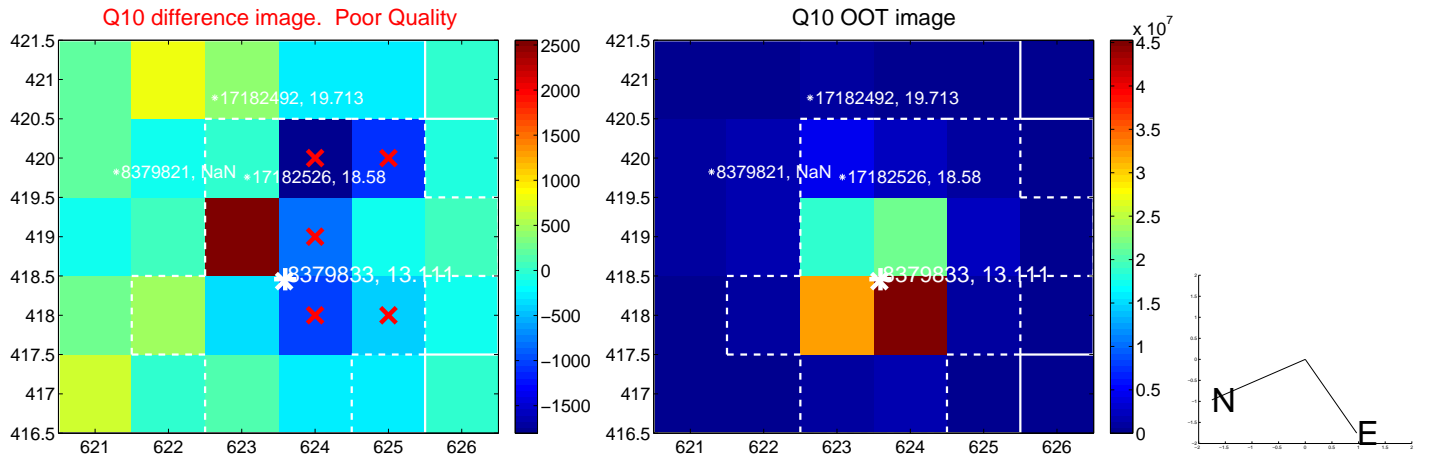
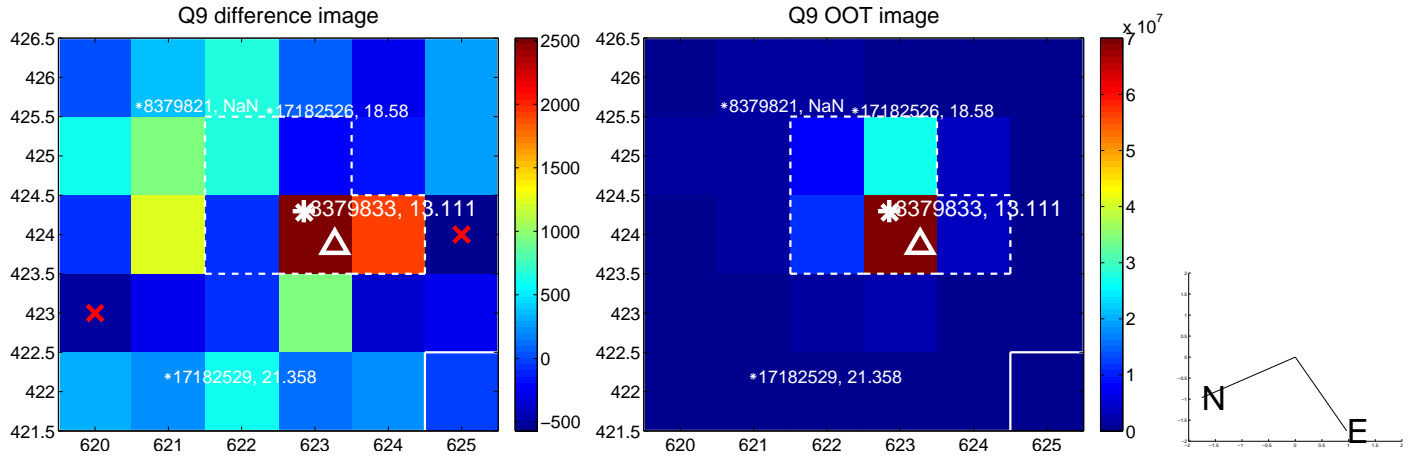
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



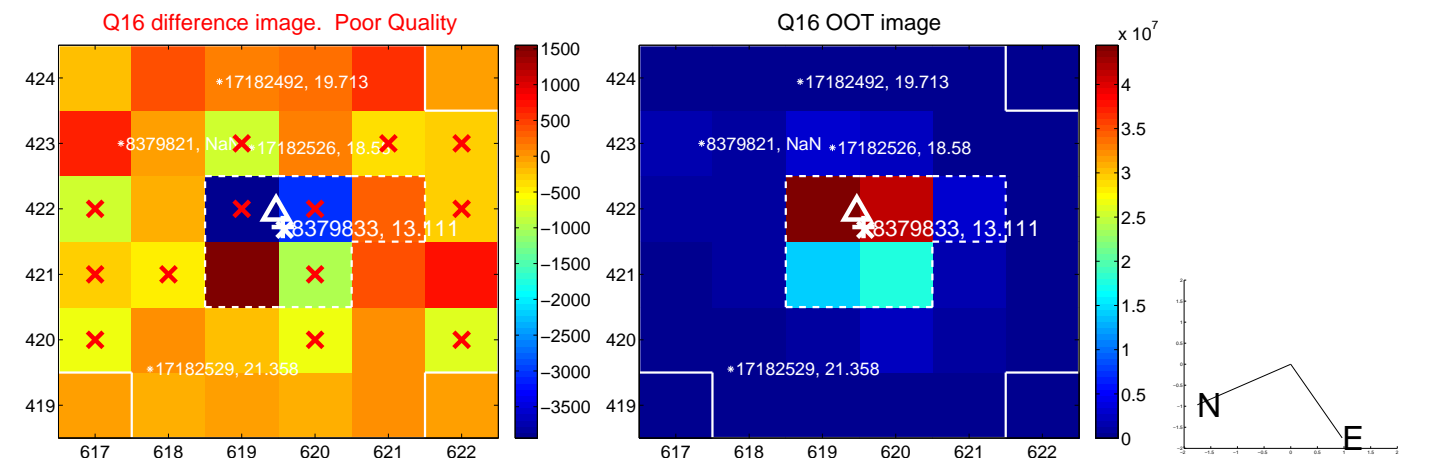
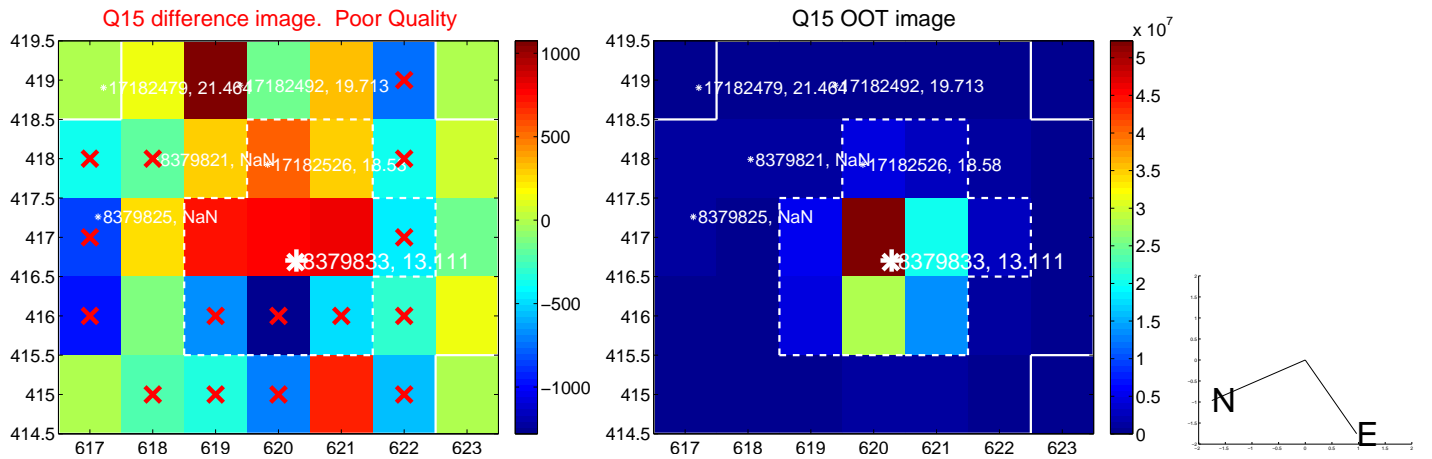
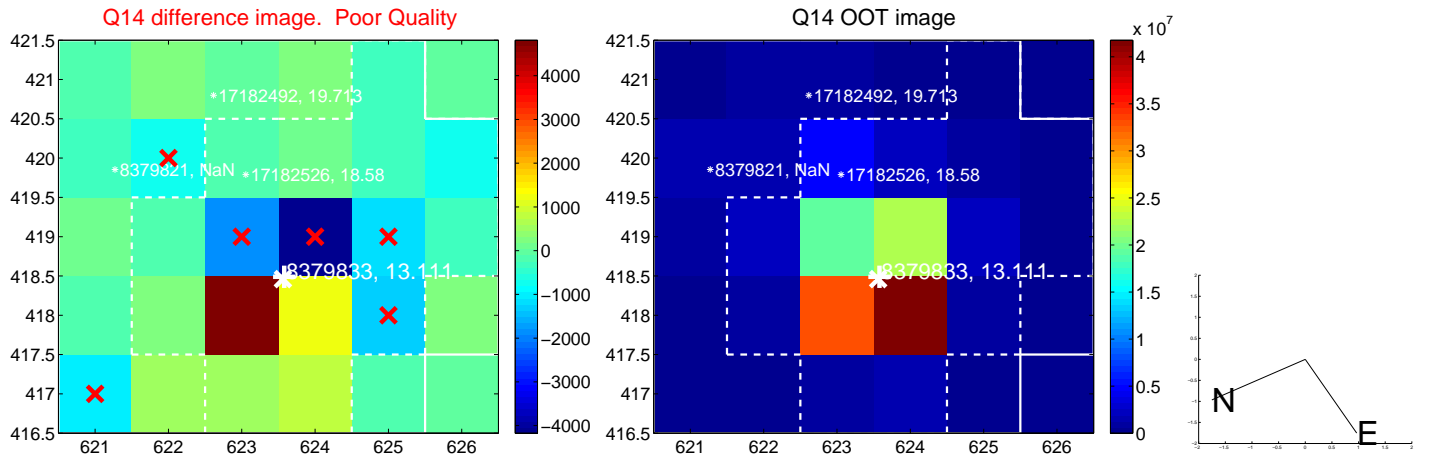
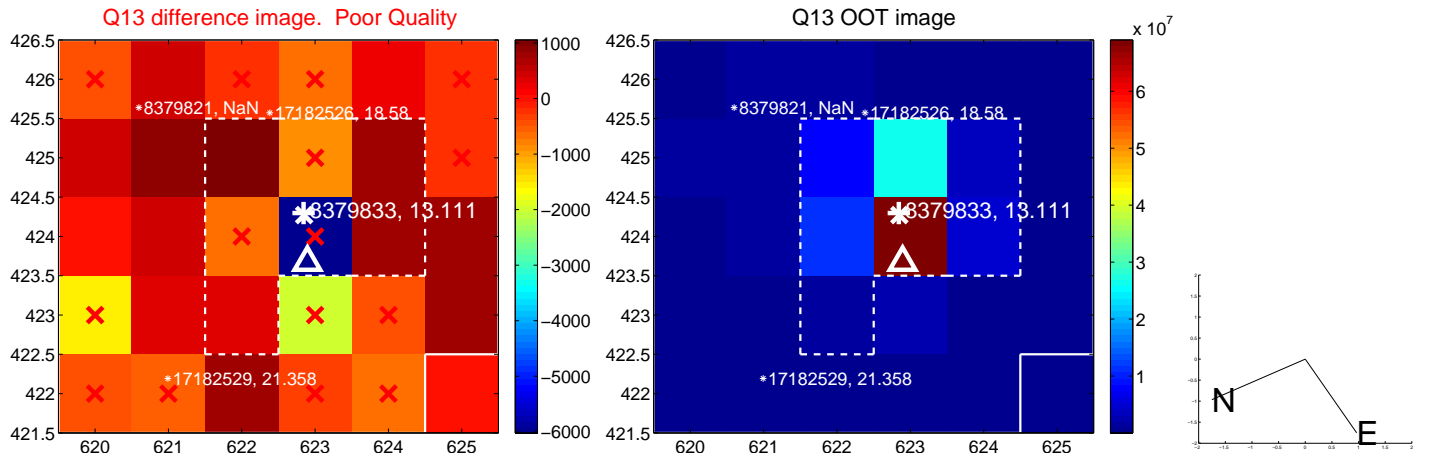
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



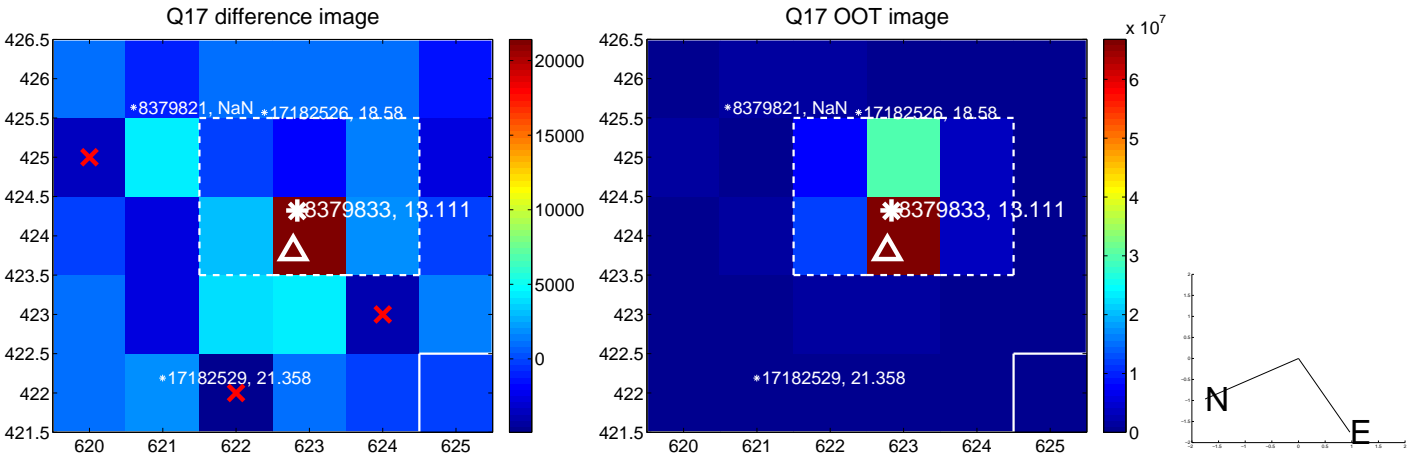
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



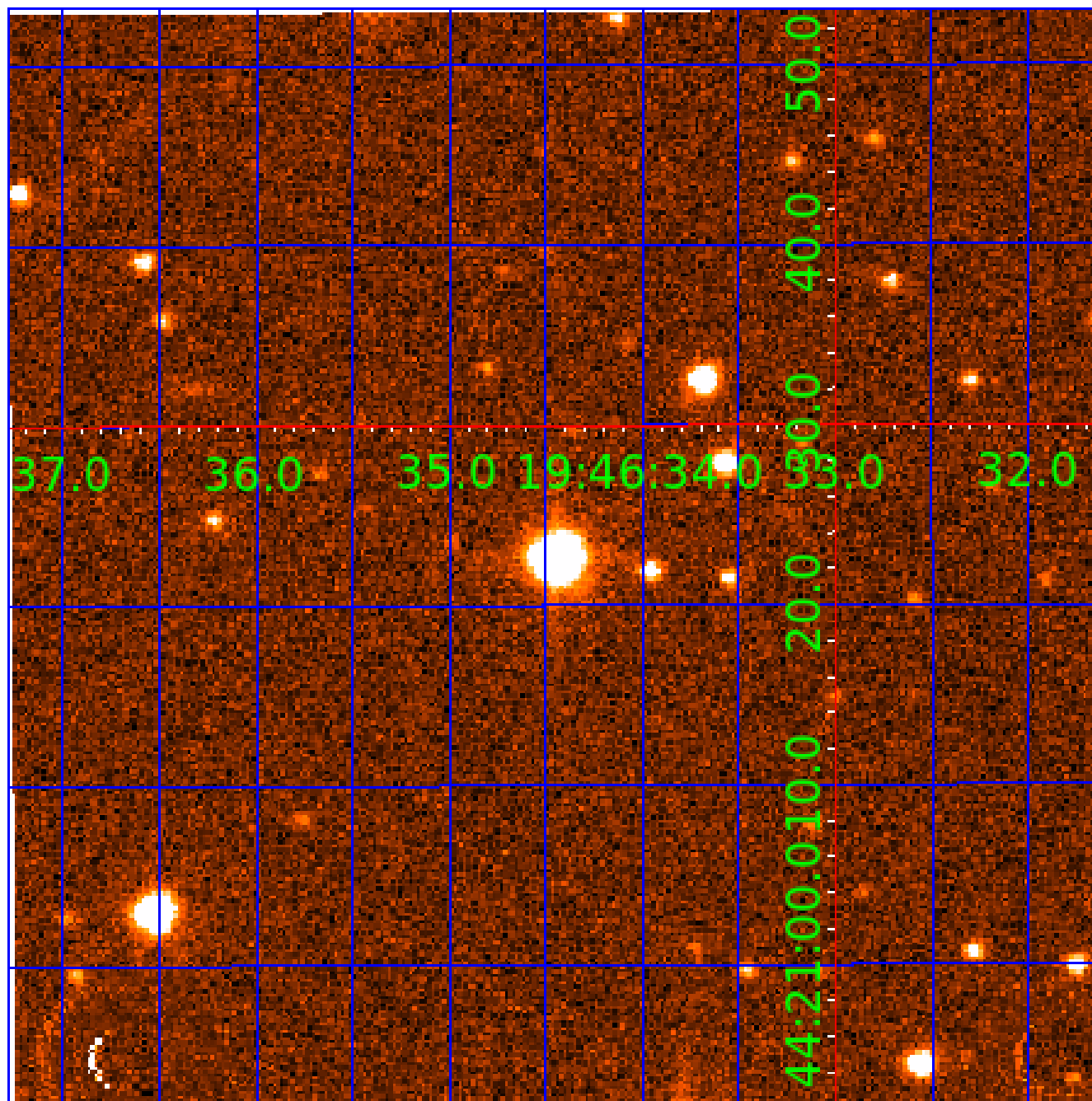
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



# KIC 008379833

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008379833-01	OBS	No	2.185847	133.178913	43.0	3.140	14.0	14.1	2.58	6792	2.04	9335.59
008379833-02	OBS	No	2.185889	133.464119	175.5	2.500	9.1	-1.0	2.58	6792	3.46	9335.35
008379833-03	OBS	No	1.092984	131.862966	20.5	3.304	9.3	8.6	2.58	6792	1.40	23522.47
008379833-04	OBS	No	235.418685	300.190302	215.4	27.627	8.0	6.7	2.58	6792	3.99	18.22

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008379833-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008379833-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
008379833-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD
008379833-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

**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.

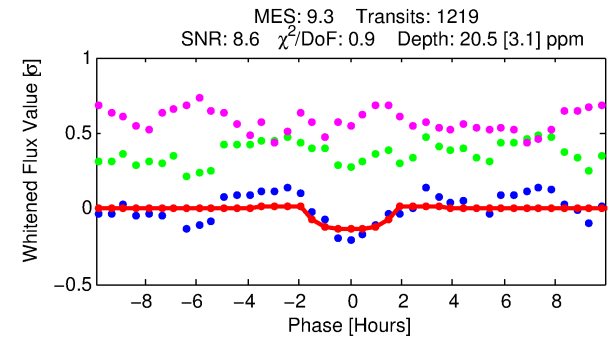
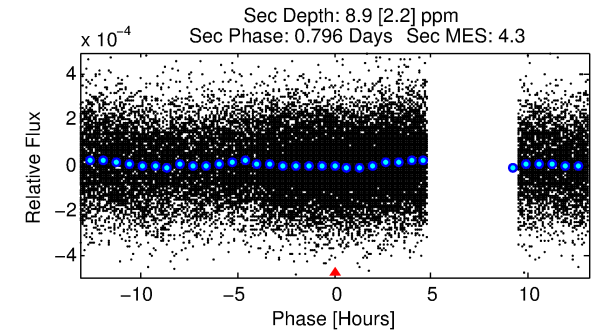
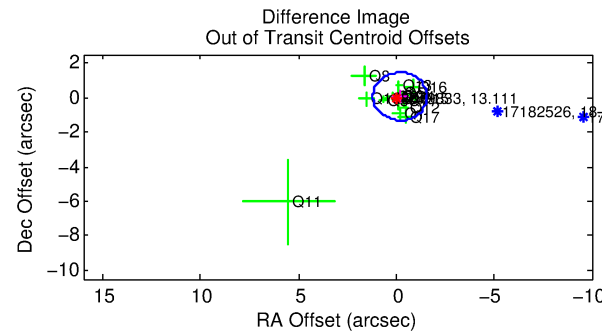
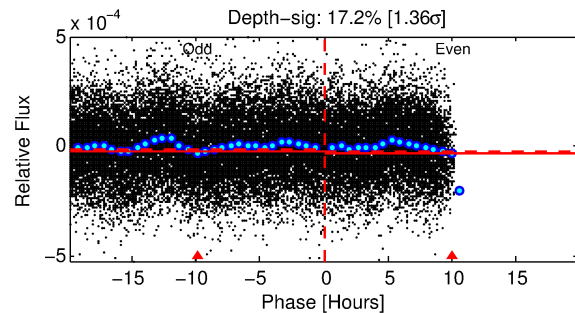
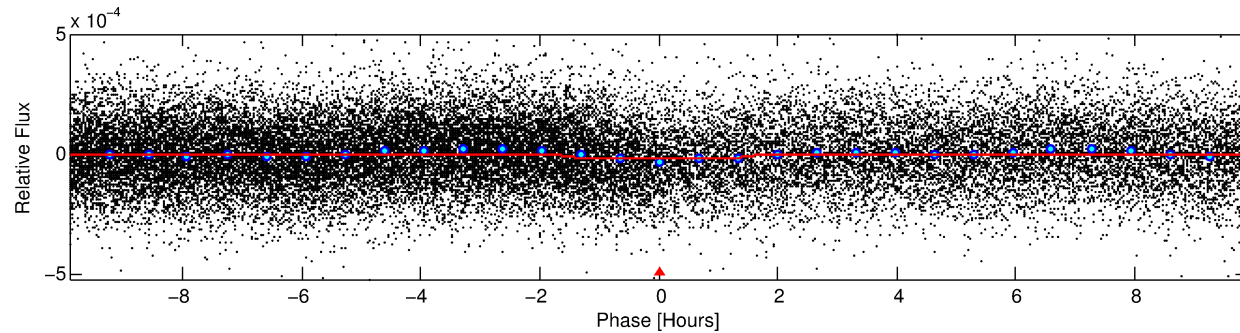
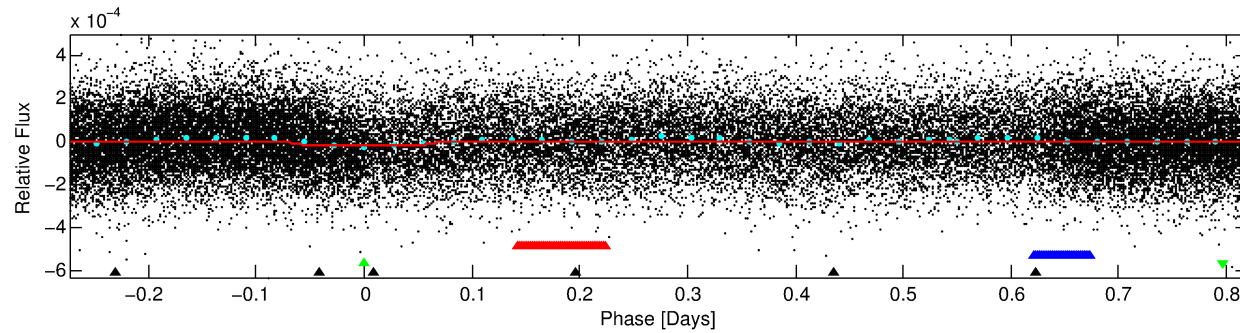
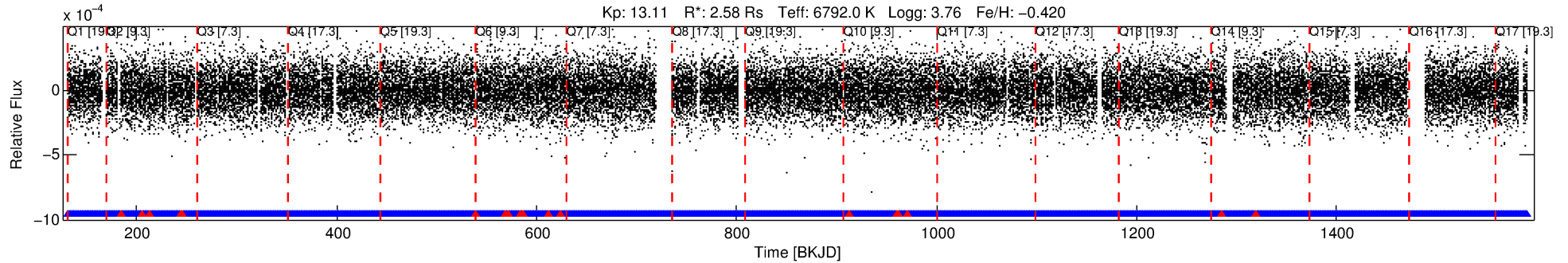
## Ephemeris Match Information For 008379833-03

No Significant Match Found



# DV One-Page Summary

KIC: 8379833 Candidate: 3 of 4 Period: 1.093 d



## DV Fit Results:

Period = 1.09298 [0.00002] d  
Epoch = 131.8630 [0.0043] BKJD  
Rp/R\* = 0.0050 [0.0018]  
a/R\* = 1.35 [1.37]  
b = 0.93 [0.33]  
Seff = 23522.47 [12910.01]  
Teq = 3158 [433] K  
Rp = 1.40 [0.71] Re  
a = 0.0233 [0.0078] AU  
Ag = 1.35 [1.27] [0.28 $\sigma$ ]  
Teffp = 5266 [1028] K [1.89 $\sigma$ ]

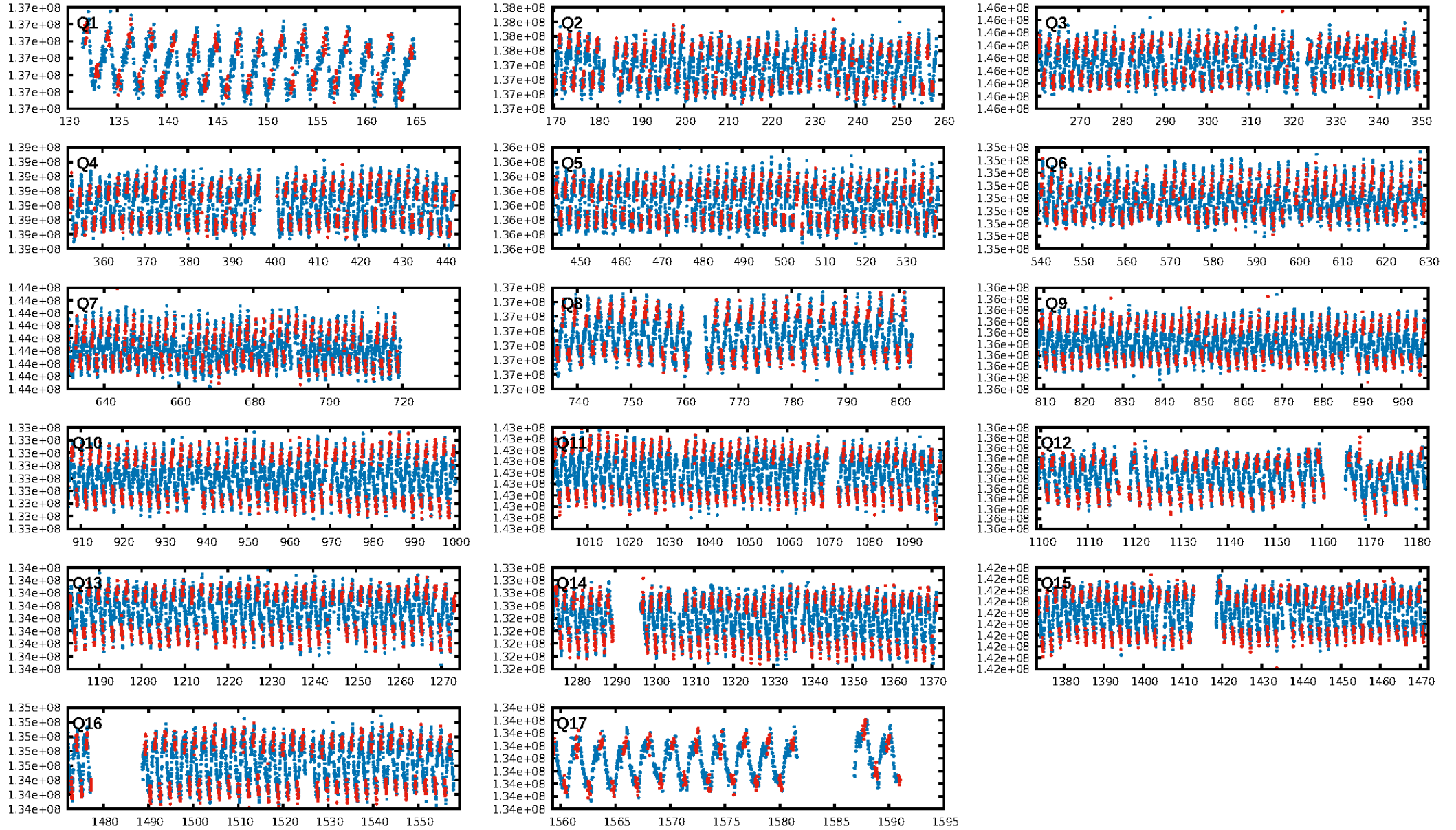
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [5.75 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.59e-15  
RollingBand-fgt: 0.98 [1152/1170]  
GhostDiagnostic-chr: 2.509  
Centroid-sig: 6.5%  
Centroid-so: 1.036 arcsec [1.23 $\sigma$ ]  
OotOffset-rm: 0.194 arcsec [0.42 $\sigma$ ]  
KicOffset-rm: 0.243 arcsec [0.67 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.82 [14/17]  
DiffImageOverlap-fno: 1.00 [17/17]

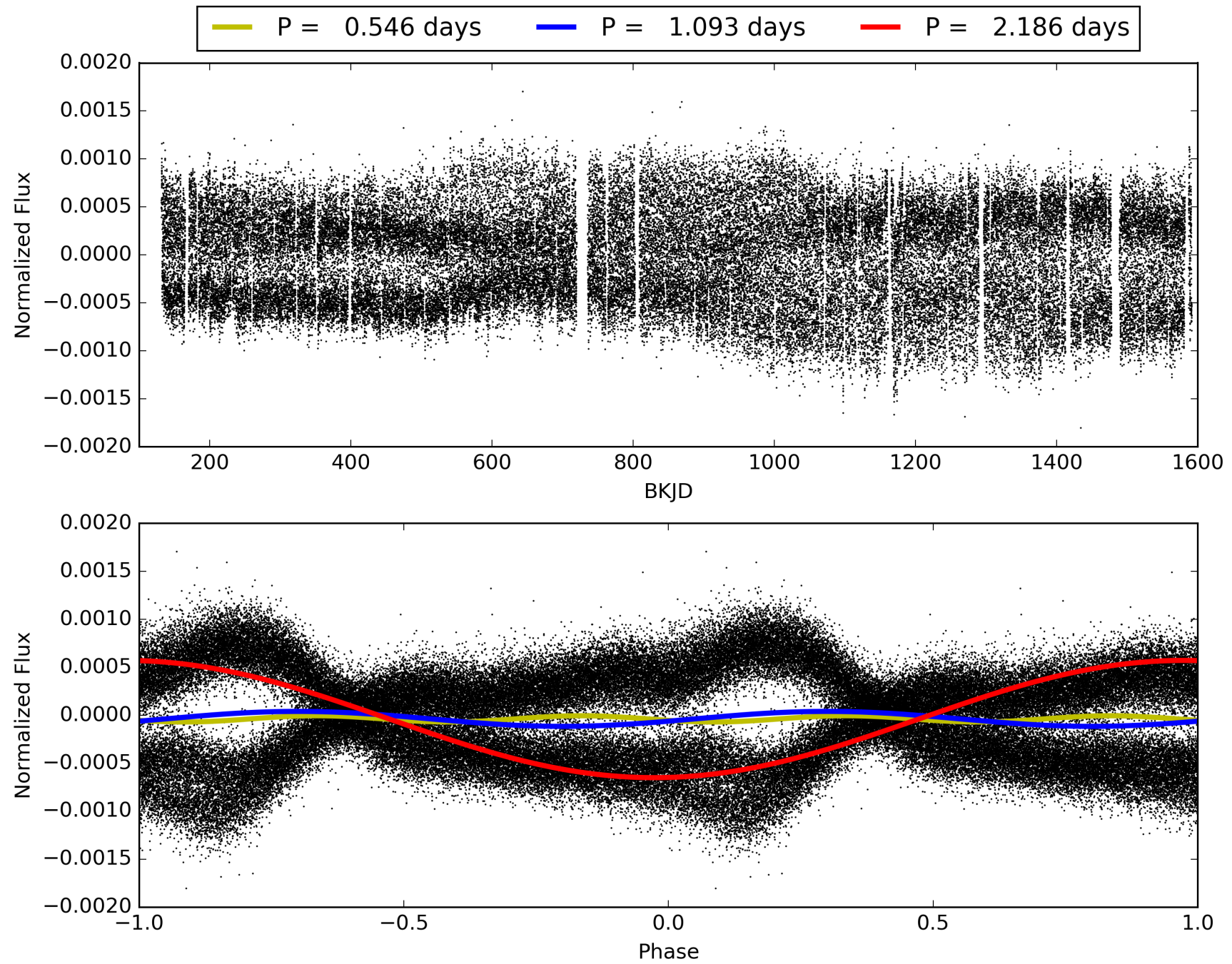
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:10:17 Z

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

# TCE 008379833-03, PDC Light Curves



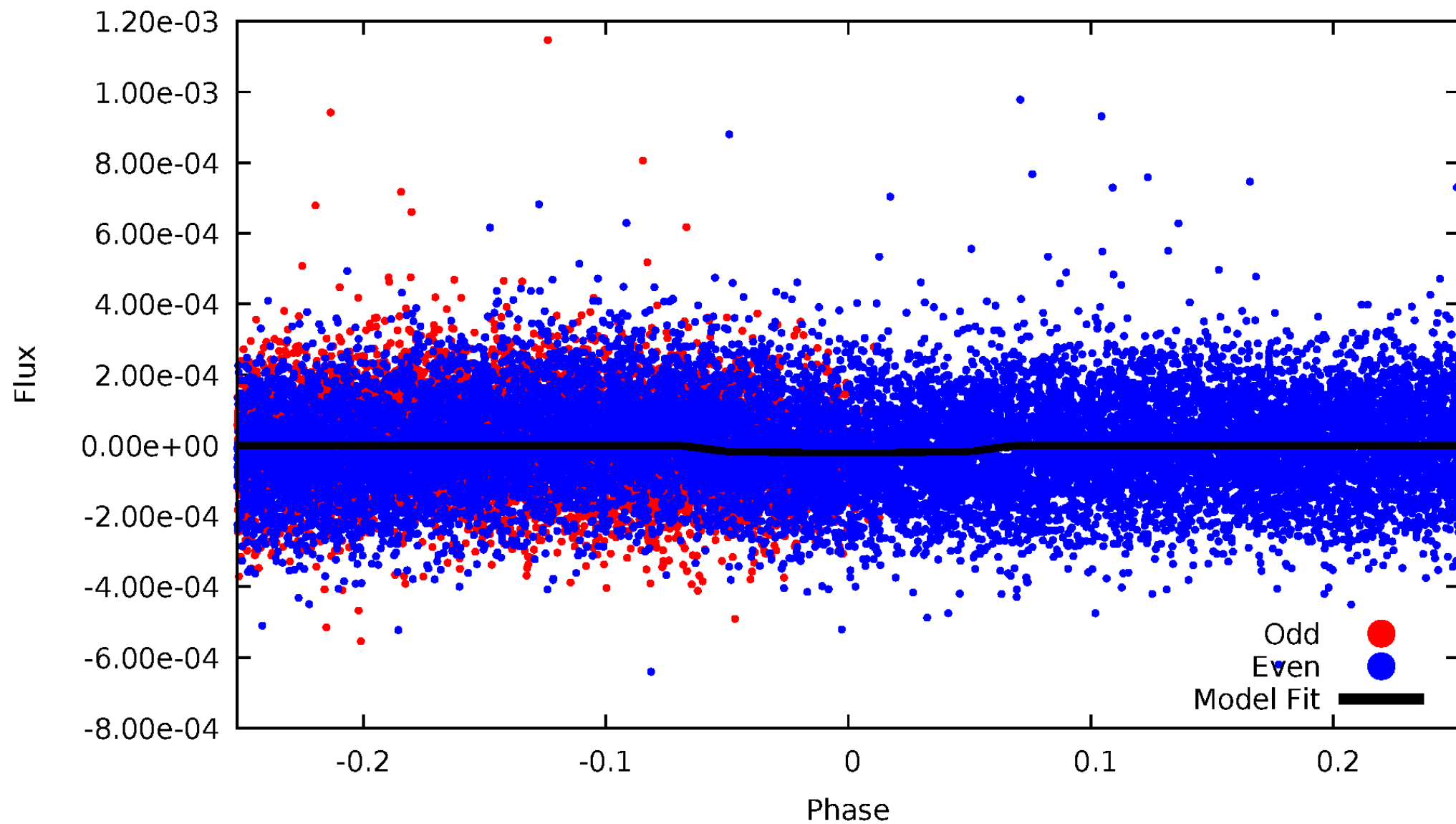
TCE 008379833-03





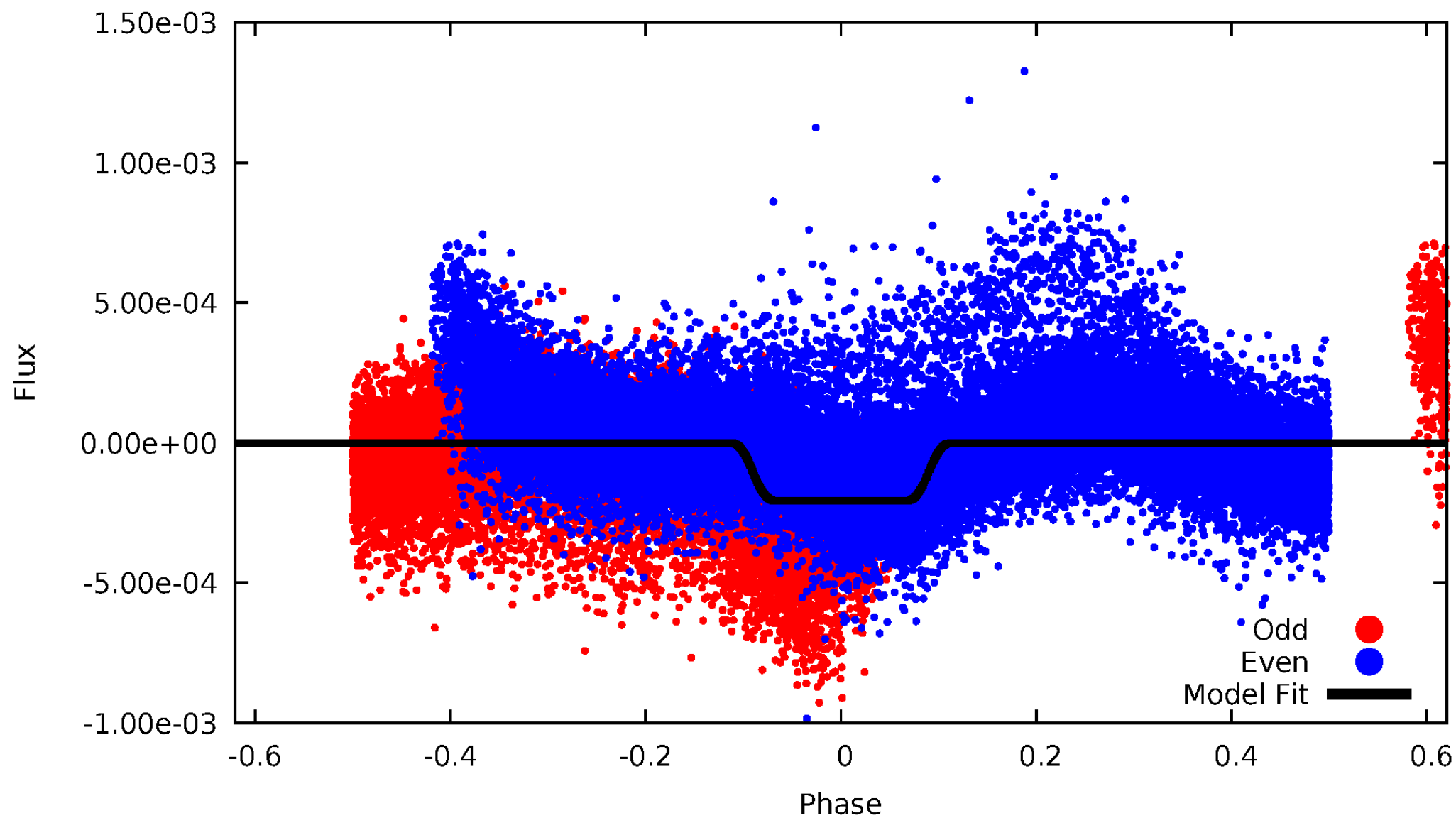
# DV Odd/Even

TCE 008379833-03



# ALT Odd/Even

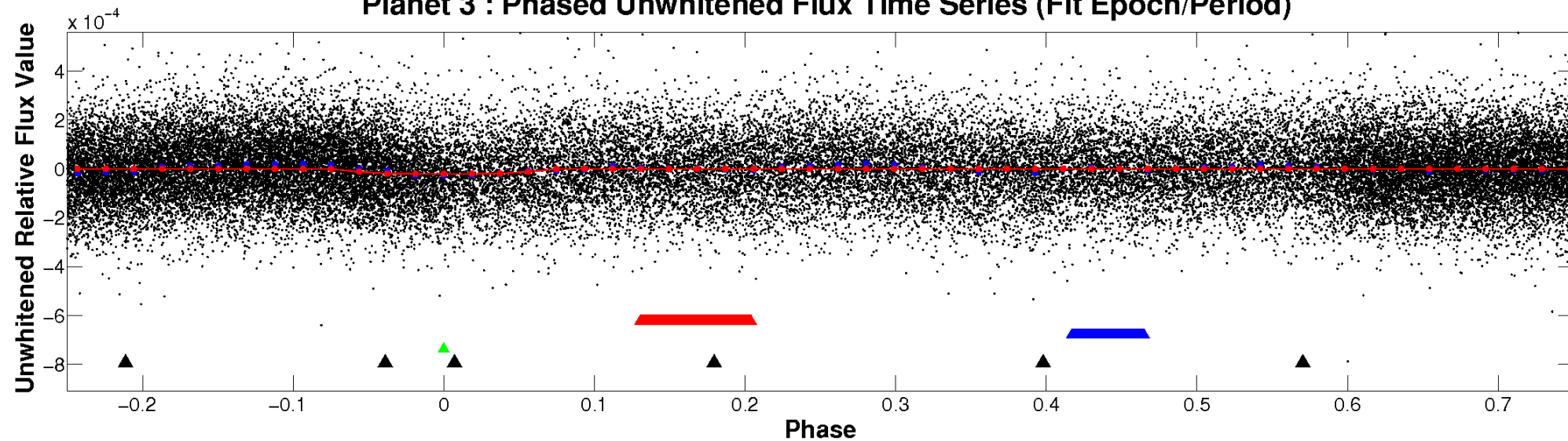
TCE 008379833-03



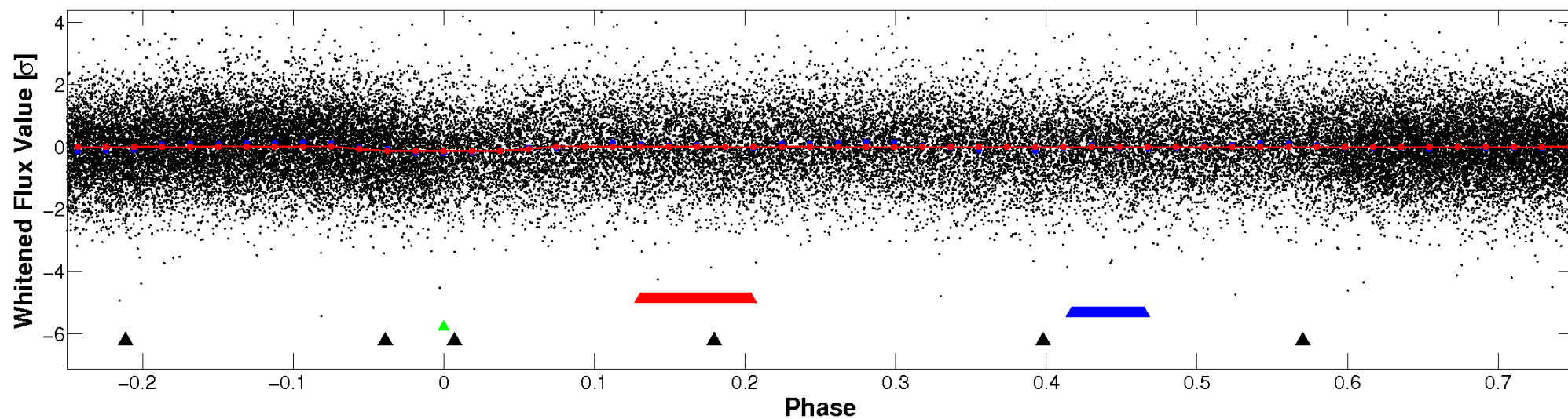


# Non-Whitened Vs. Whitened Light Curve

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

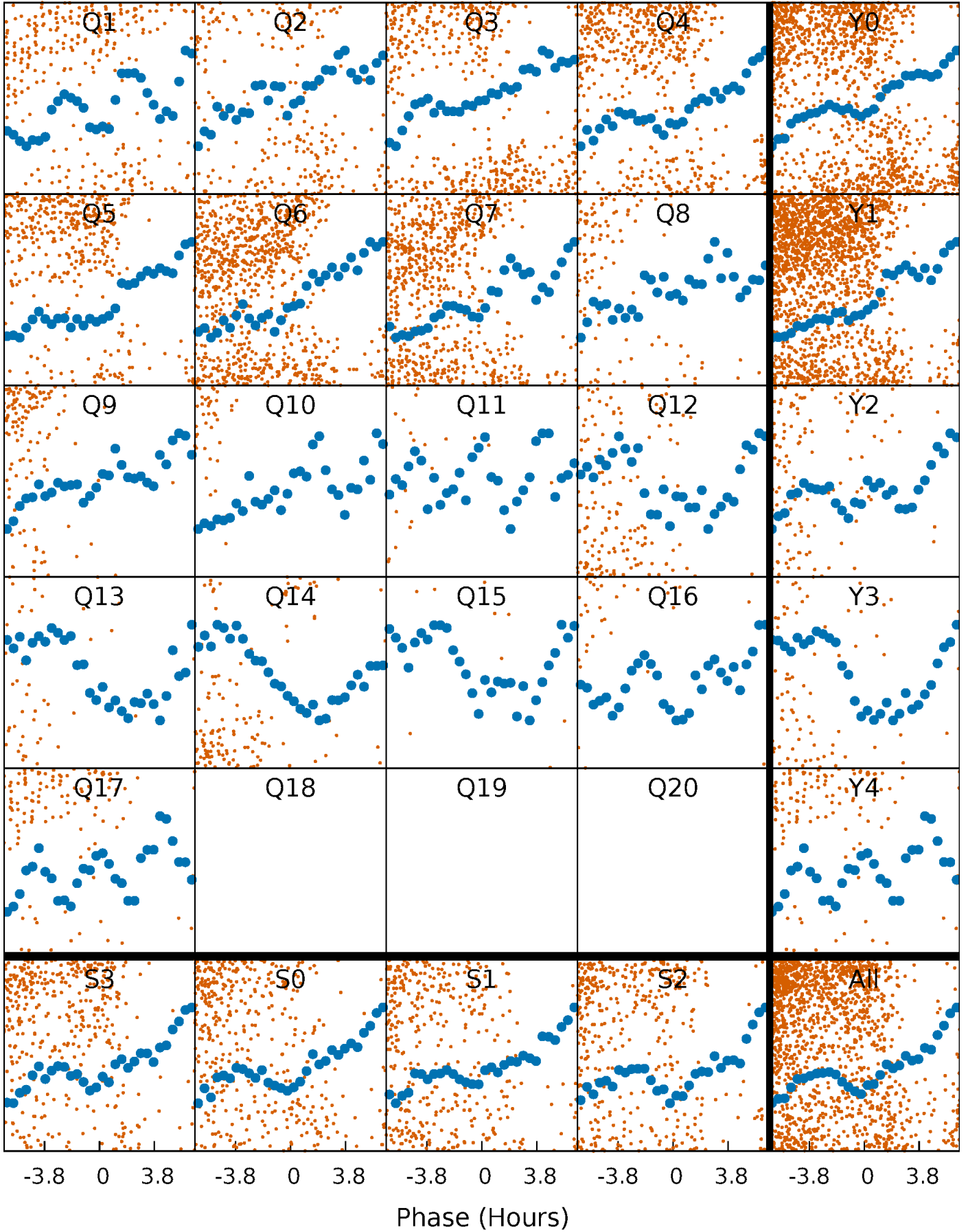


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



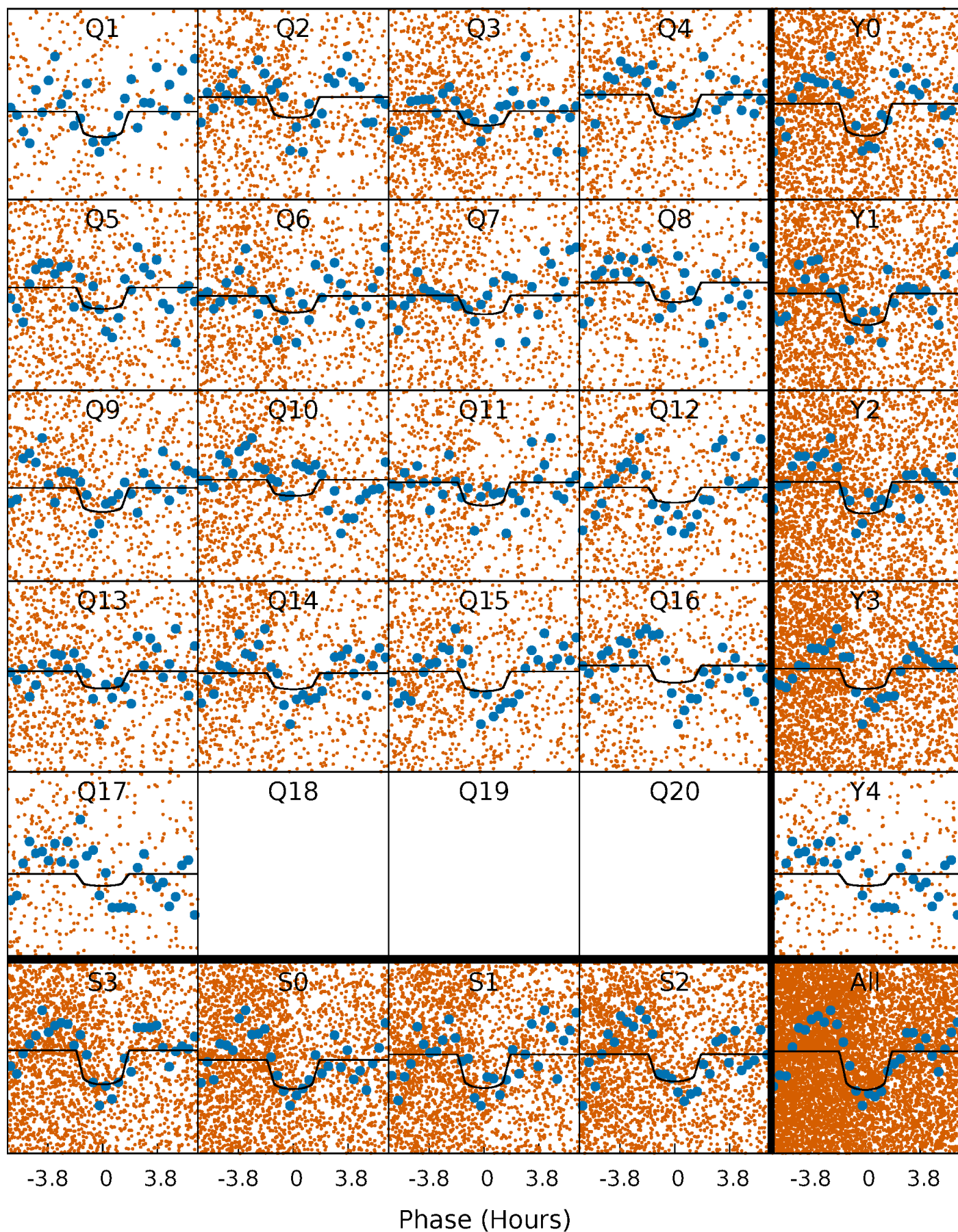
# PDC Quarter-Phased Transit Curves

TCE 008379833-03   P= 1.092984 Days    $T_0=131.862966$  (BKJD)



# DV Quarter-Phased Transit Curves

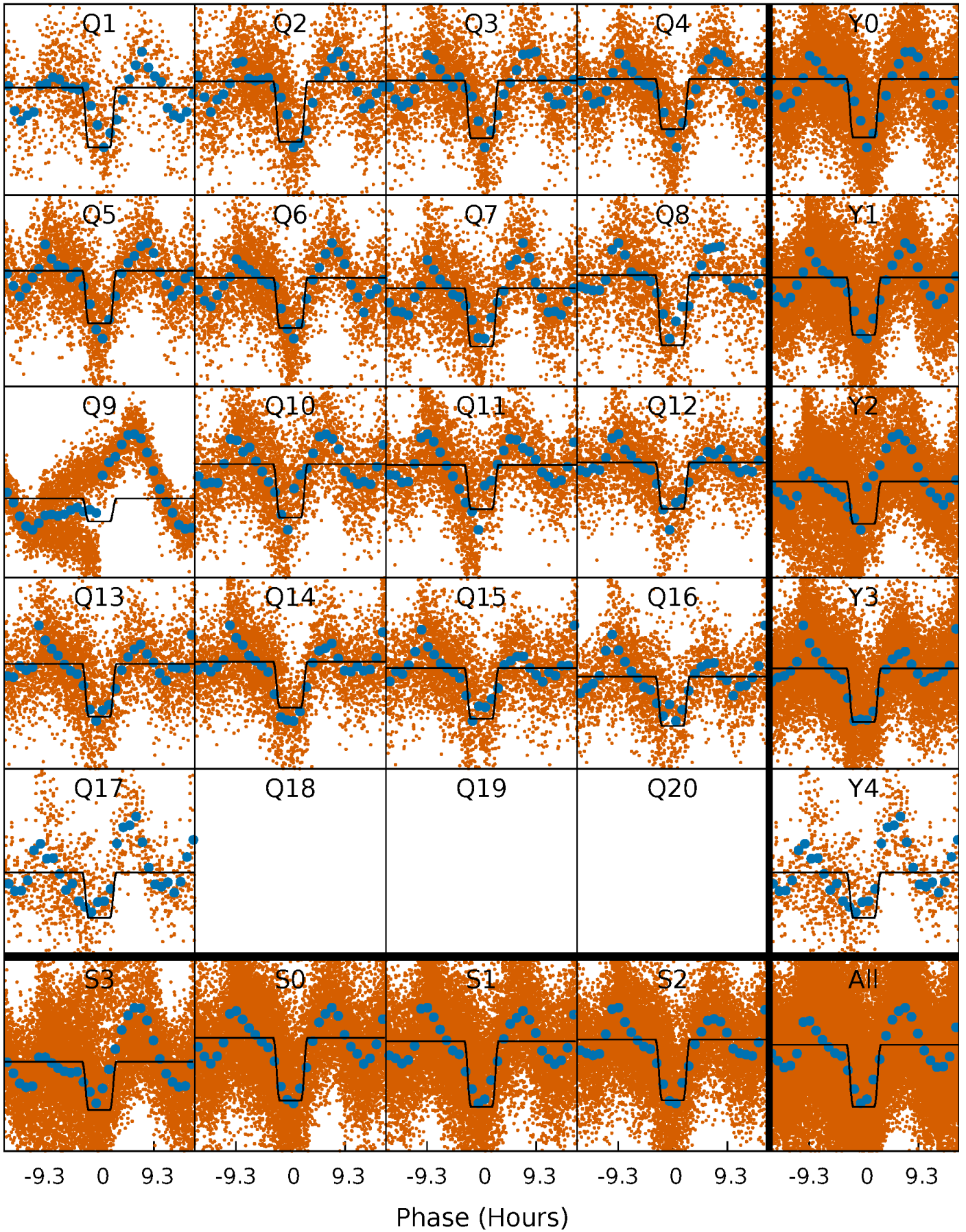
TCE 008379833-03 P= 1.092984 Days  $T_0=131.862966$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

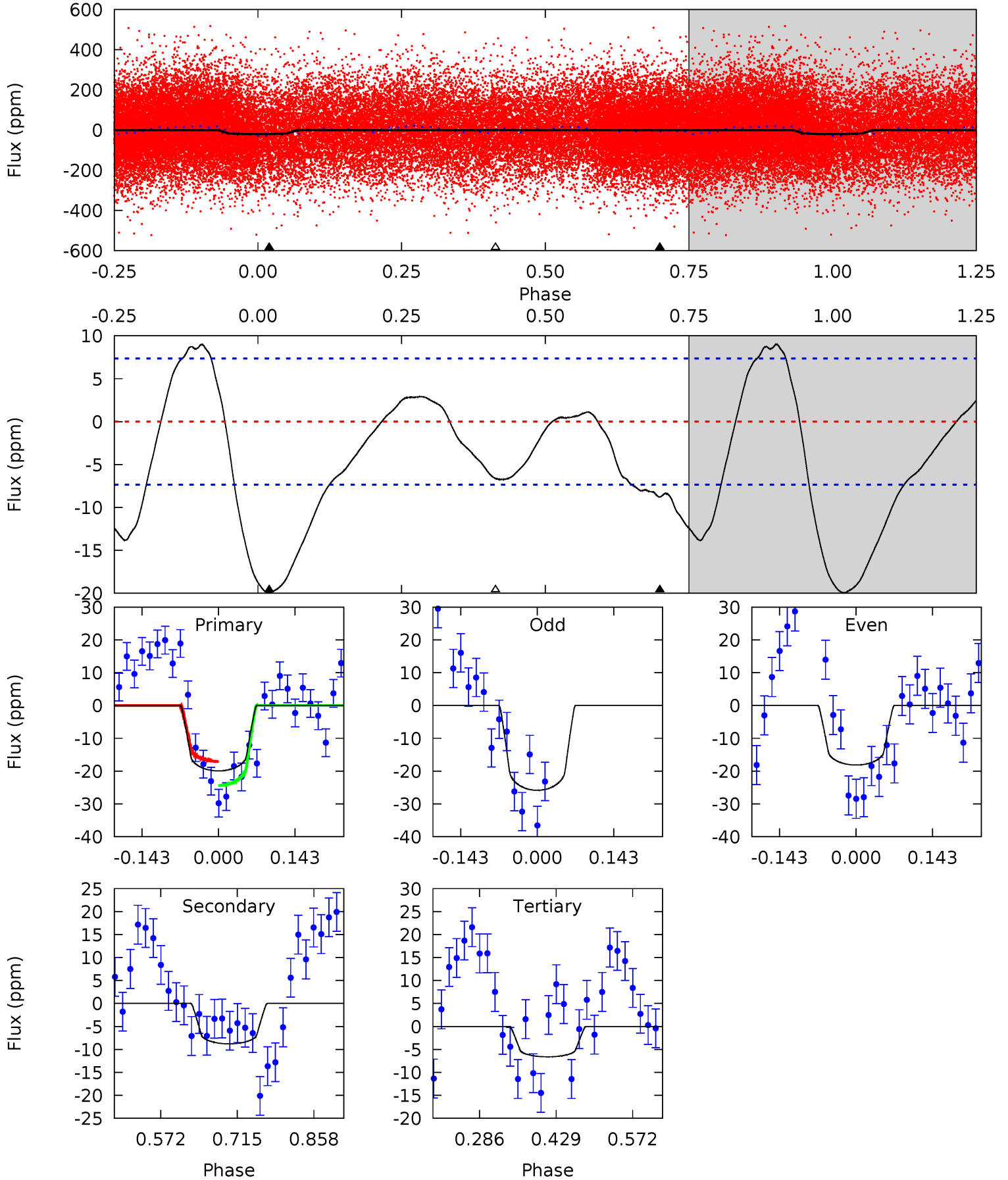
TCE 008379833-03 P= 1.093006 Days  $T_0=131.823389$  (BKJD)



# DV Model-Shift Uniqueness Test

008379833-03, P = 1.092984 Days, E = 130.769982 Days

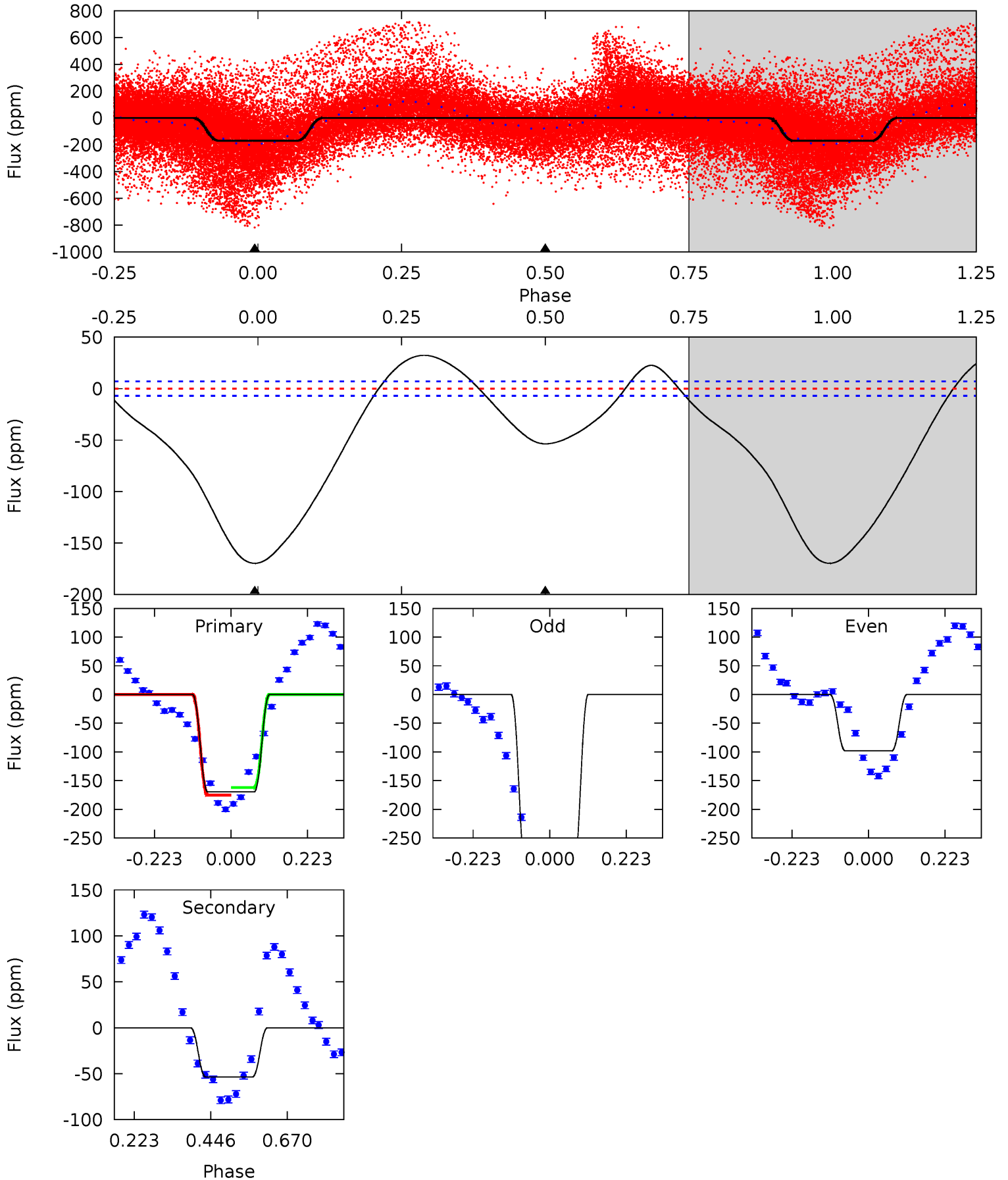
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	5.37	4.04	0	4.49	1.46	2.44	8.14	12.2	1.33	5.37	2.09	1.08	0.31	2.16



# Alt Model-Shift Uniqueness Test

008379833-03, P = 1.093006 Days, E = 130.730383 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
106.4	33.7	0	0	4.39	1.22	10.6	106.4	106.4	33.7	33.7	73.2	1.15	0.16	3.77





### Stellar Parameters For KIC 008379833

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6792^{+183}_{-224}$	$3.761^{+0.312}_{-0.078}$	$-0.420^{+0.300}_{-0.250}$	$2.583^{+0.417}_{-0.904}$	$1.401^{+0.231}_{-0.257}$	$0.115^{+0.229}_{-0.035}$
	+3%/-3%	+8%/-2%	+71%/-60%	+16%/-35%	+16%/-18%	+200%/-30%
Source	PHO1	FLK73	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 008379833-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-9 \pm 2$	$1.30^{+0.55}_{-0.48}$	$4300^{+291}_{-376}$	$4998^{+1412}_{-808}$	$1.559^{+2.242}_{-0.760}$
Alt.	$-54 \pm 2$	$3.87^{+0.73}_{-0.77}$	$4309^{+242}_{-359}$	$4610^{+378}_{-318}$	$1.092^{+0.588}_{-0.300}$

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

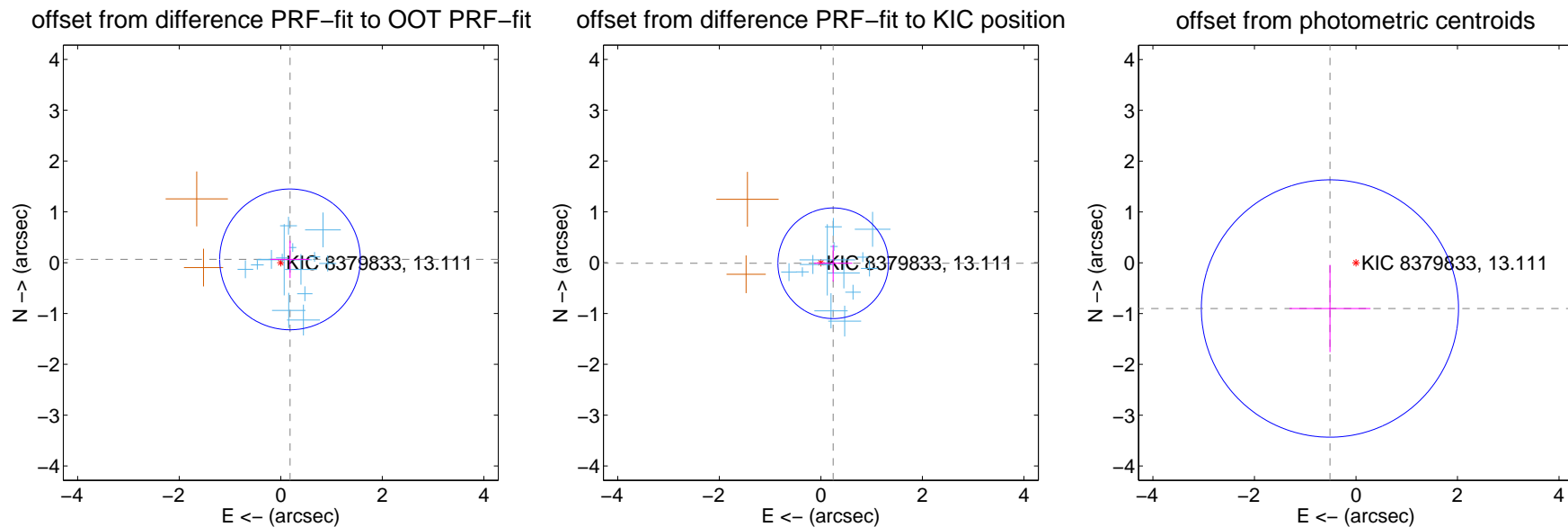
## DV Centroid Data

Supplemental centroid analysis for 008379833-03. Kepler magnitude: 13.11. Transit SNR 8.56

There are 14 quarters with good PRF difference image offsets

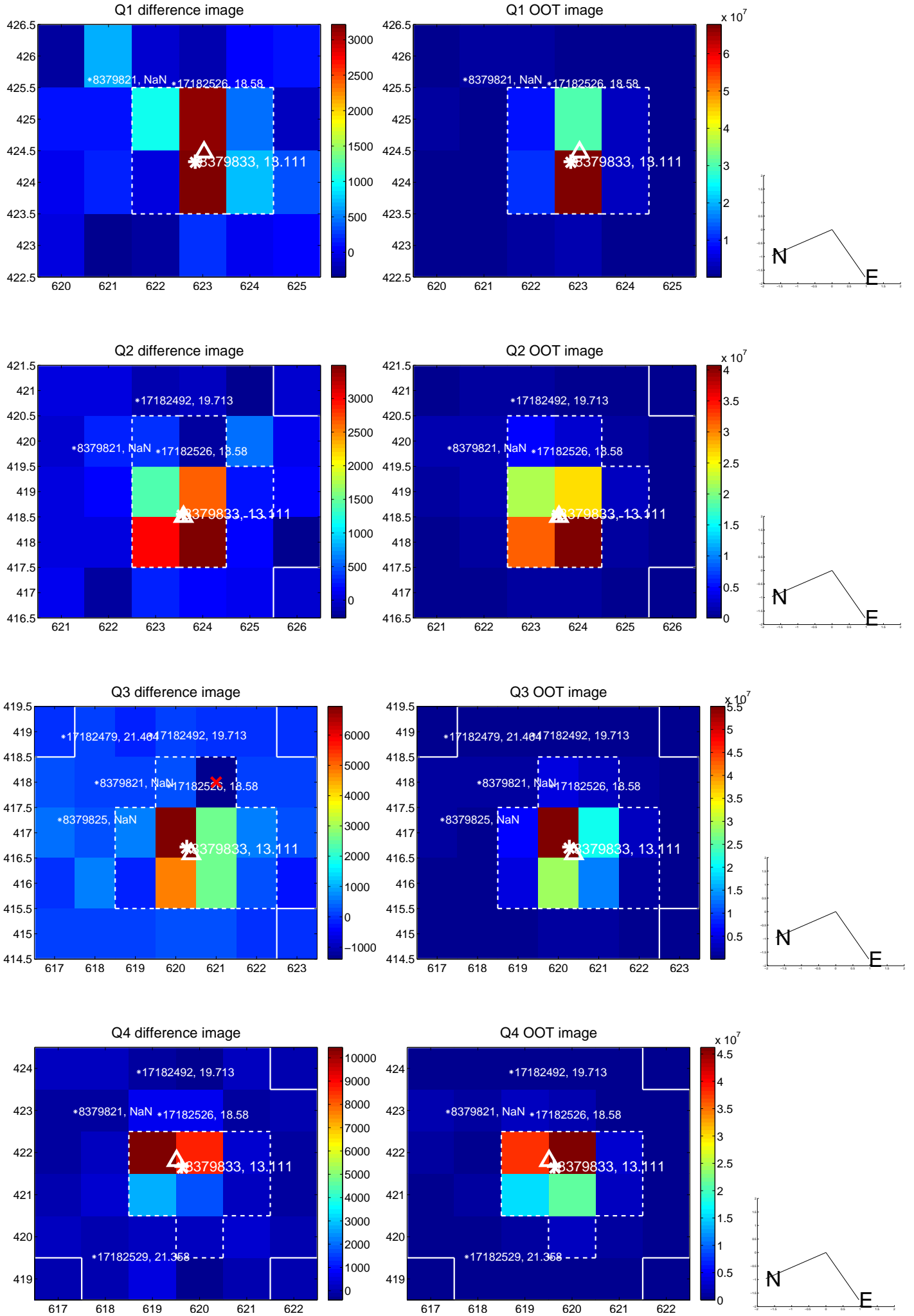
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.194 \pm 0.462$	0.42	$-0.183 \pm 0.385$	$0.065 \pm 0.368$
PRF-fit source offset from KIC position	$0.243 \pm 0.363$	0.67	$-0.243 \pm 0.376$	$-0.011 \pm 0.361$
photometric centroid source offset	$1.04 \pm 0.84$	1.23	$0.51 \pm 0.80$	$-0.90 \pm 0.86$

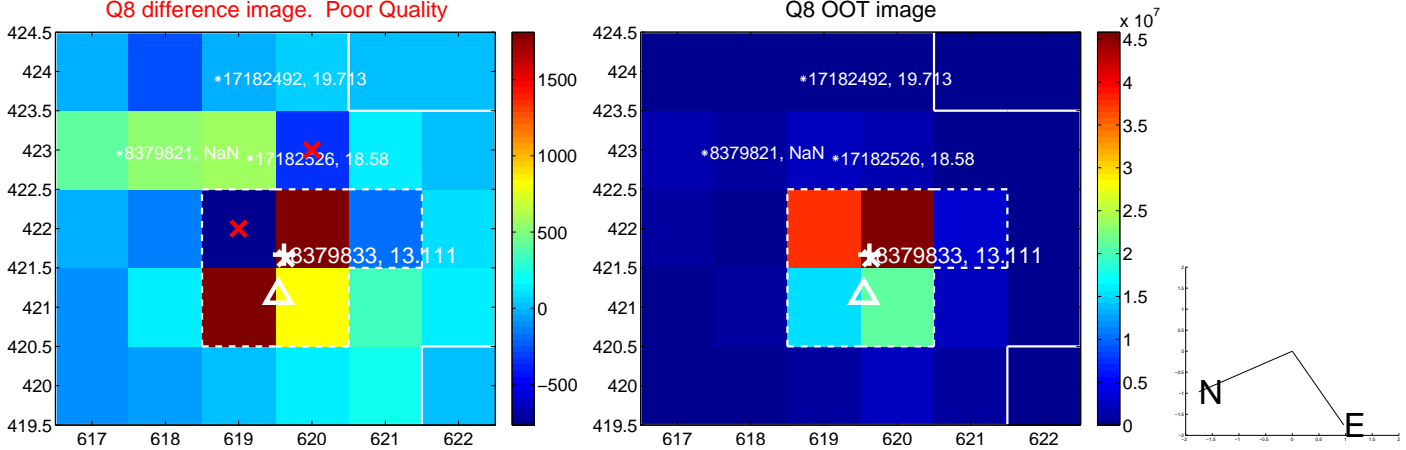
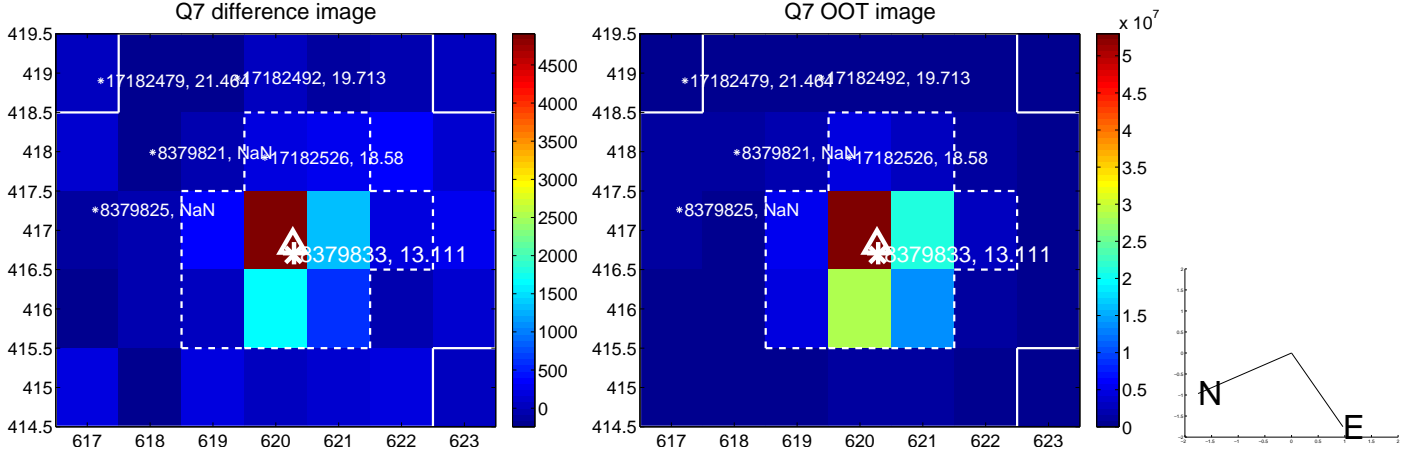
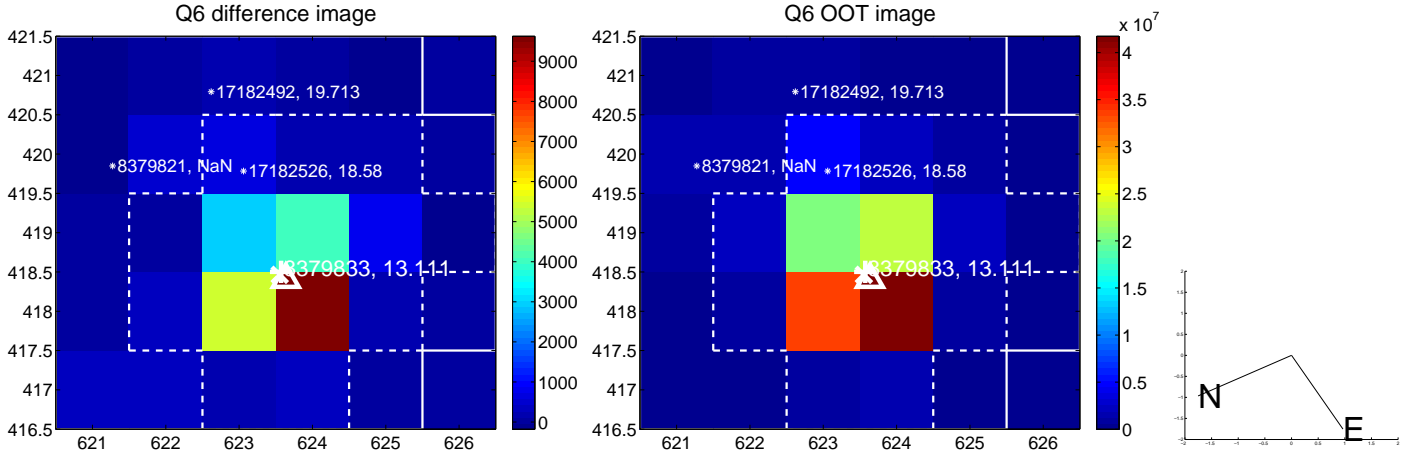
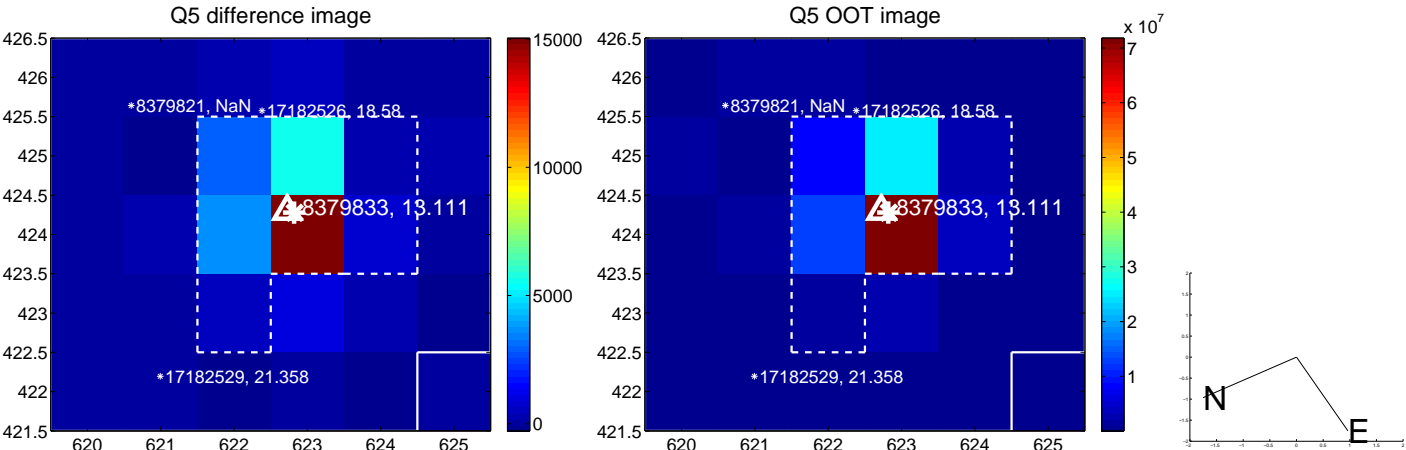


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

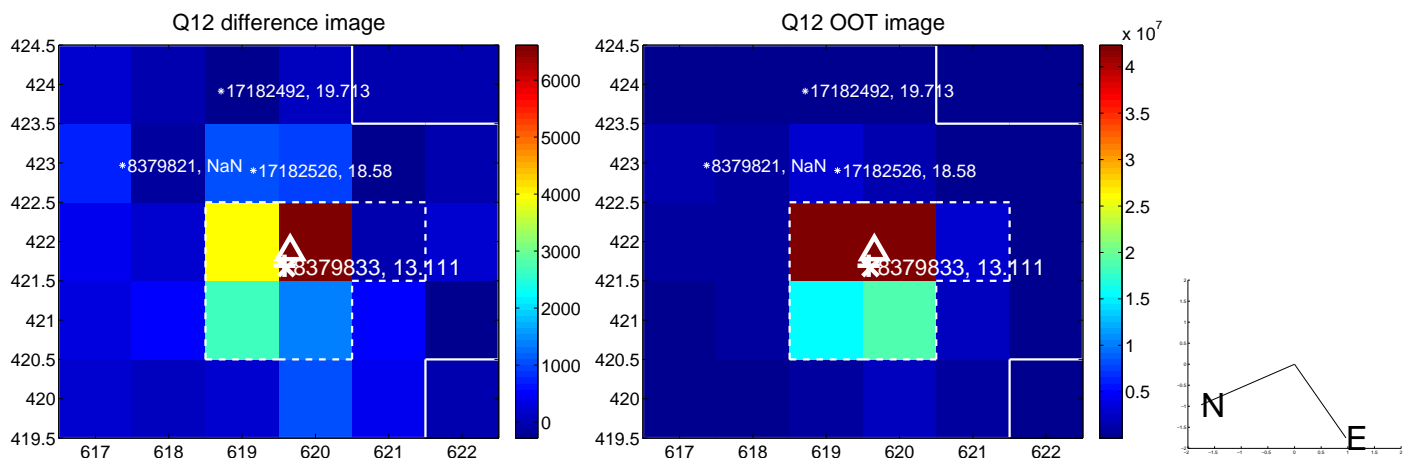
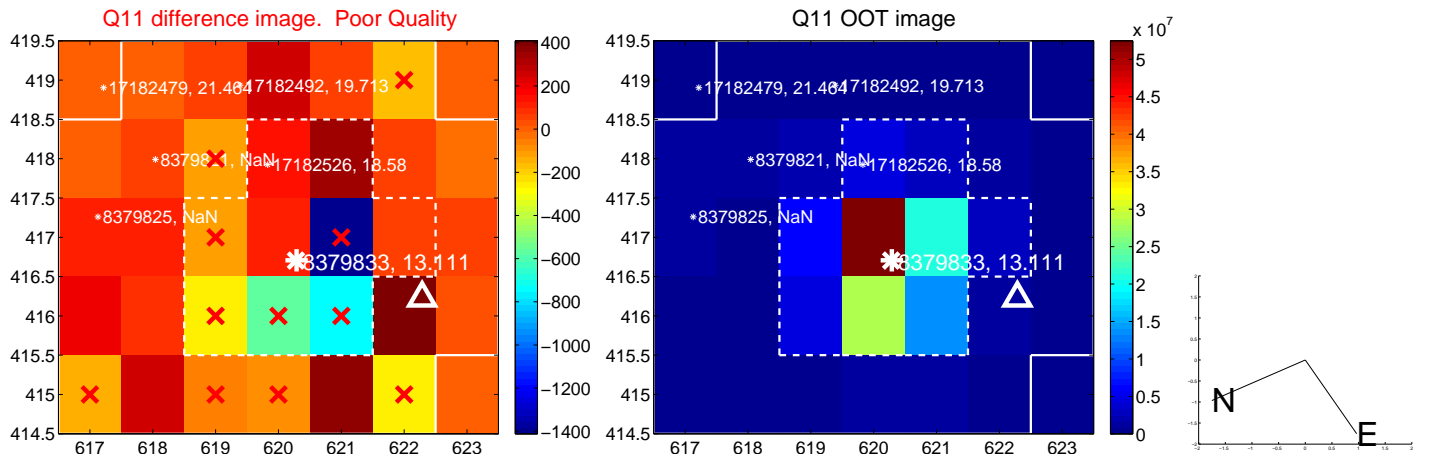
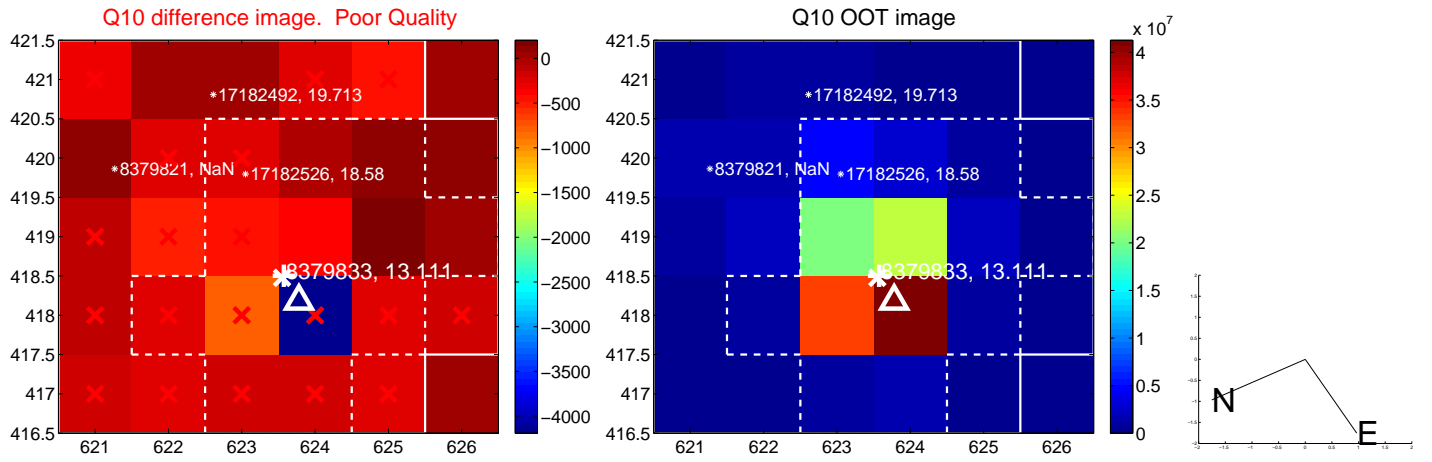
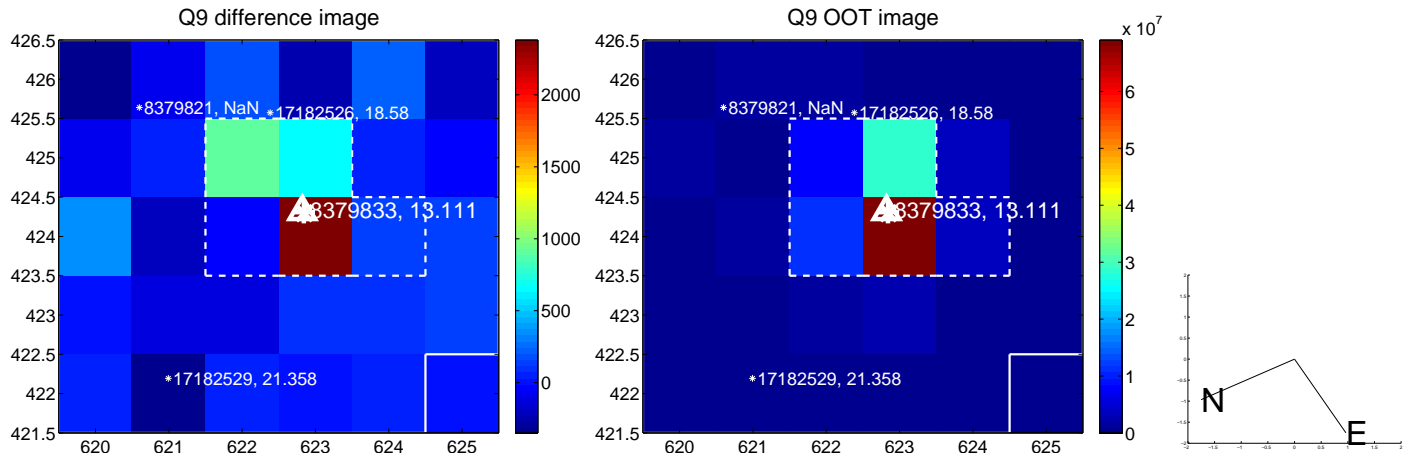
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



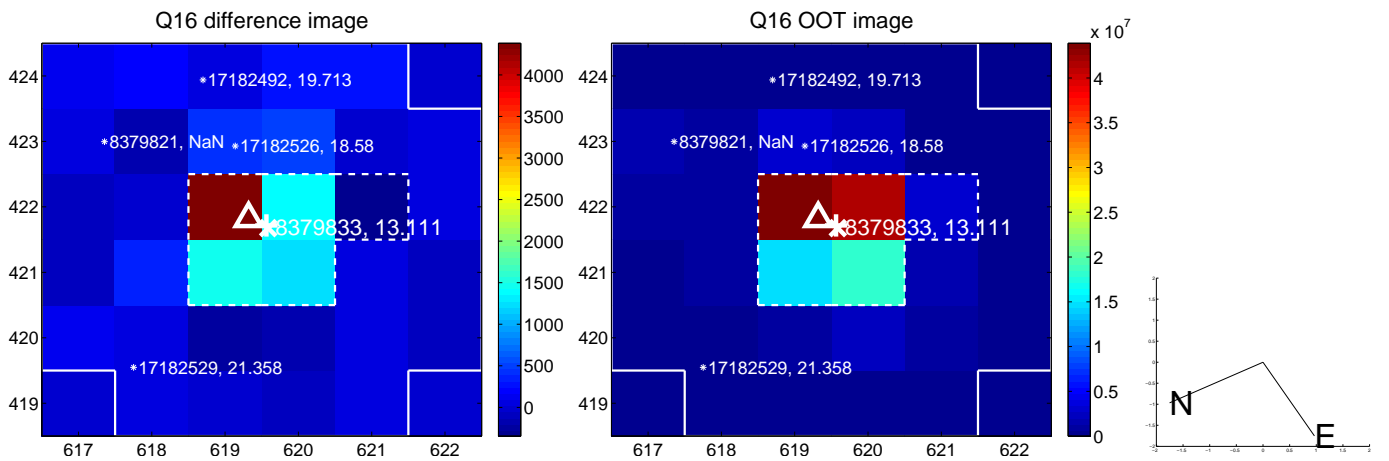
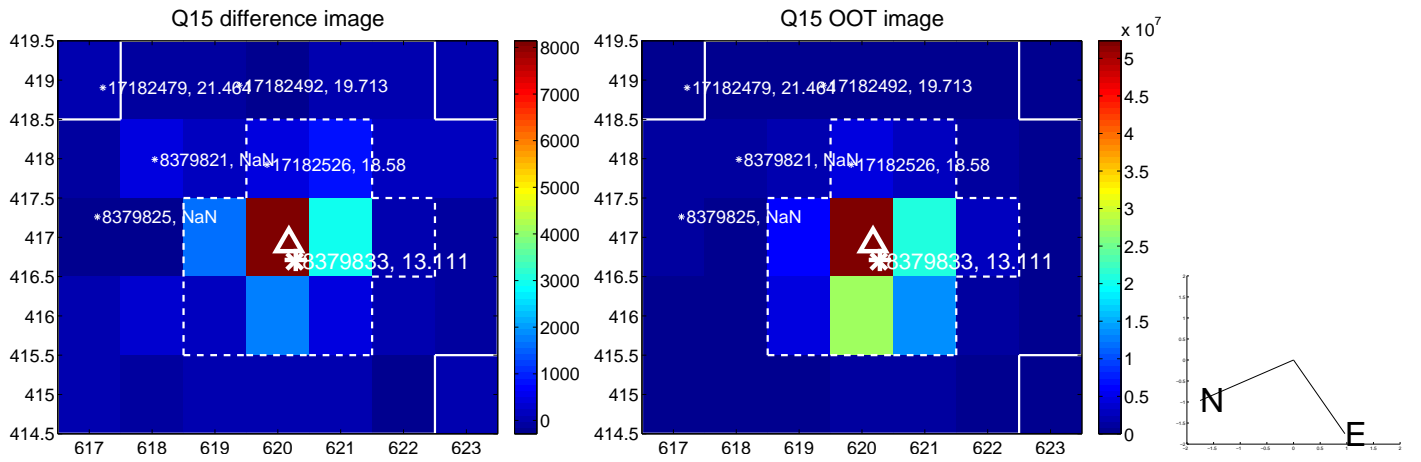
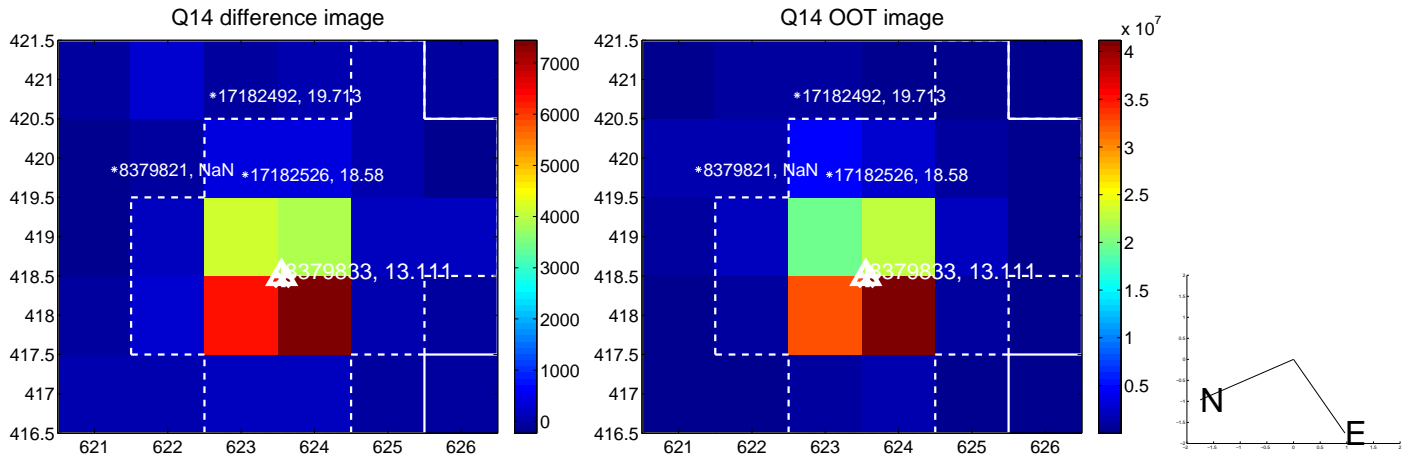
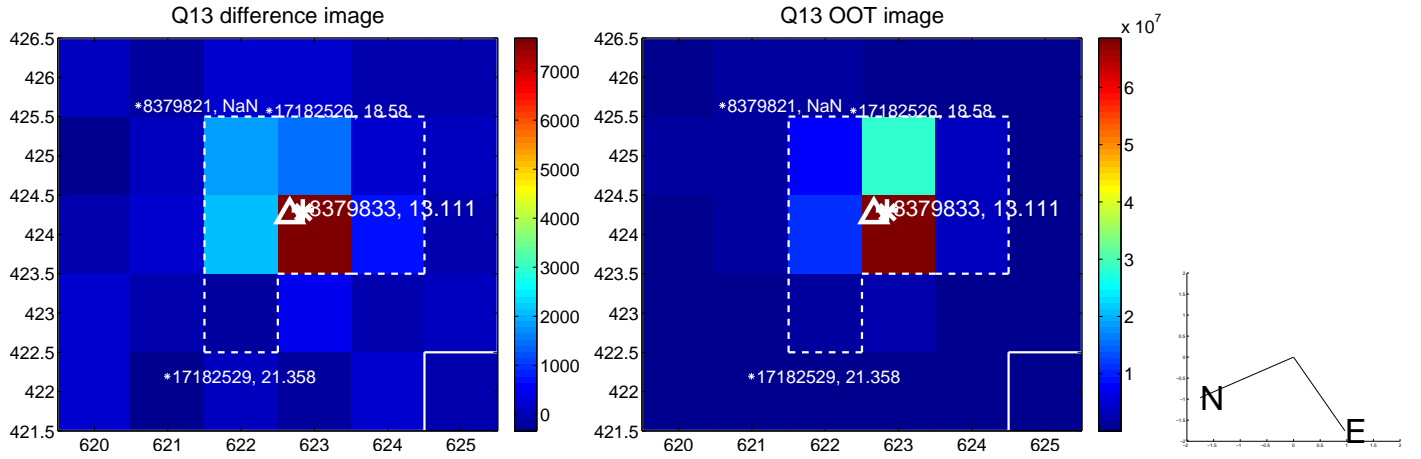
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

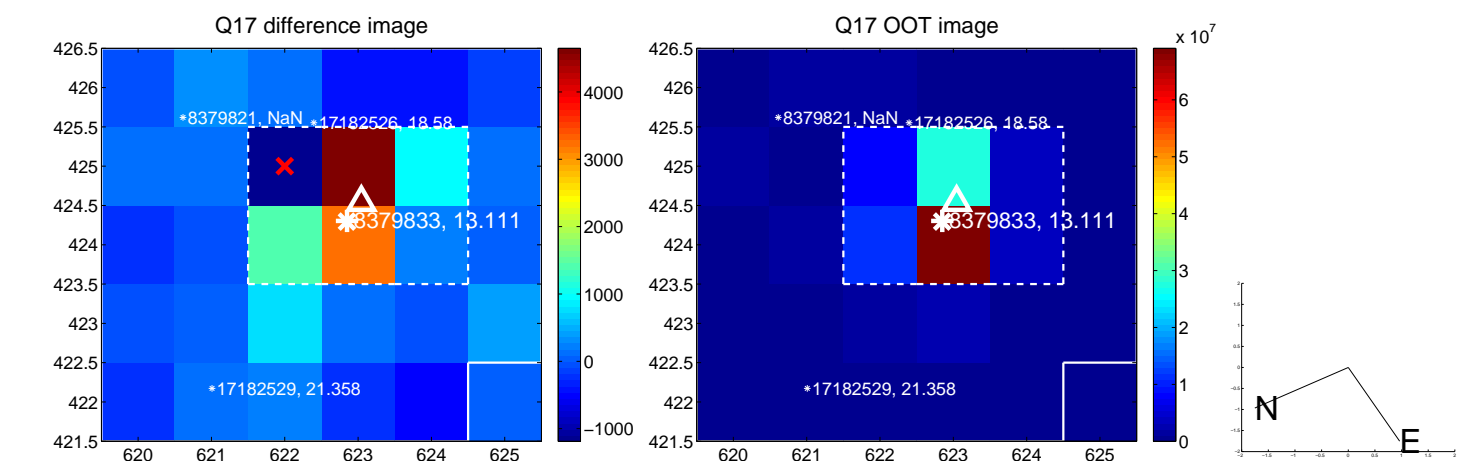


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

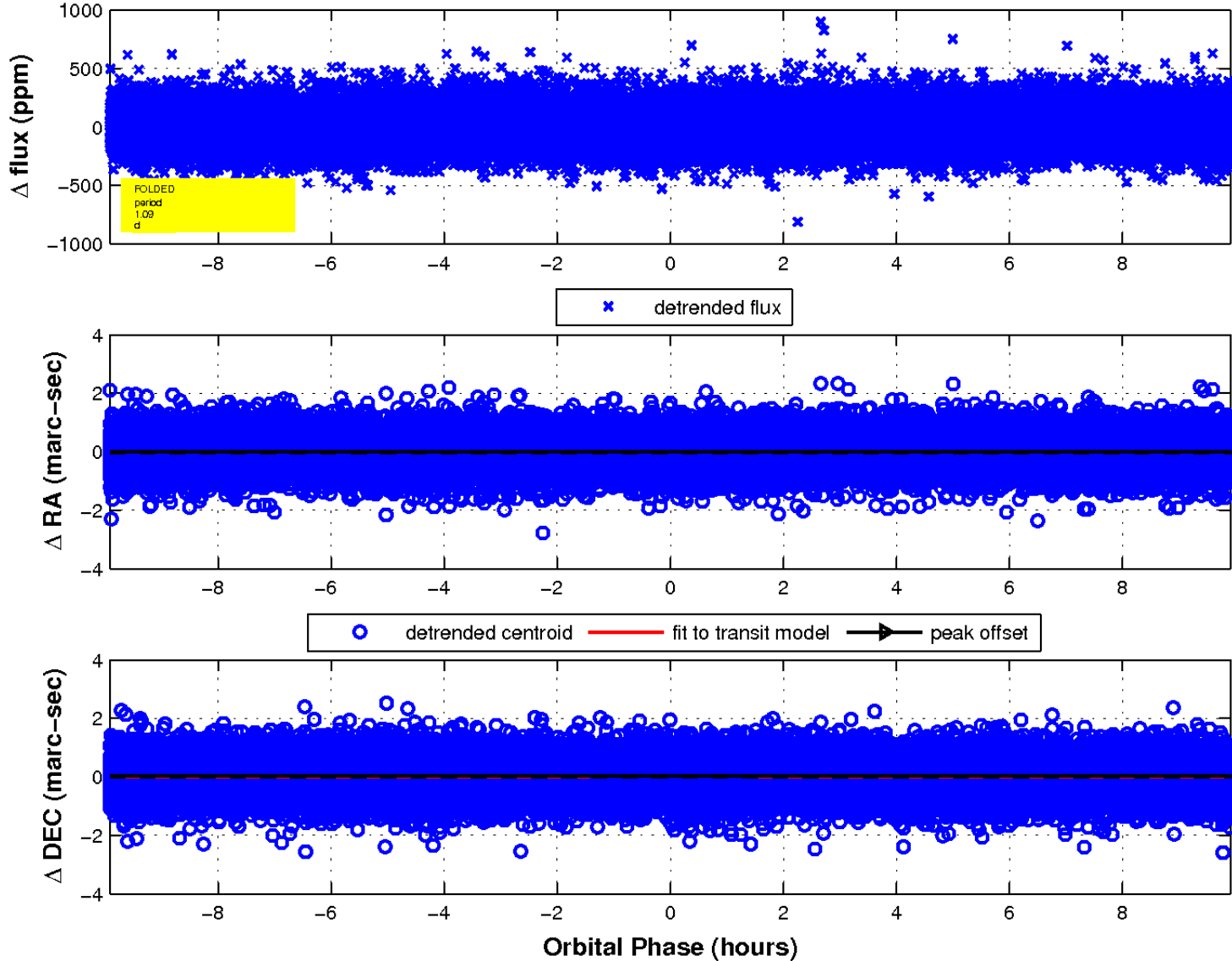




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

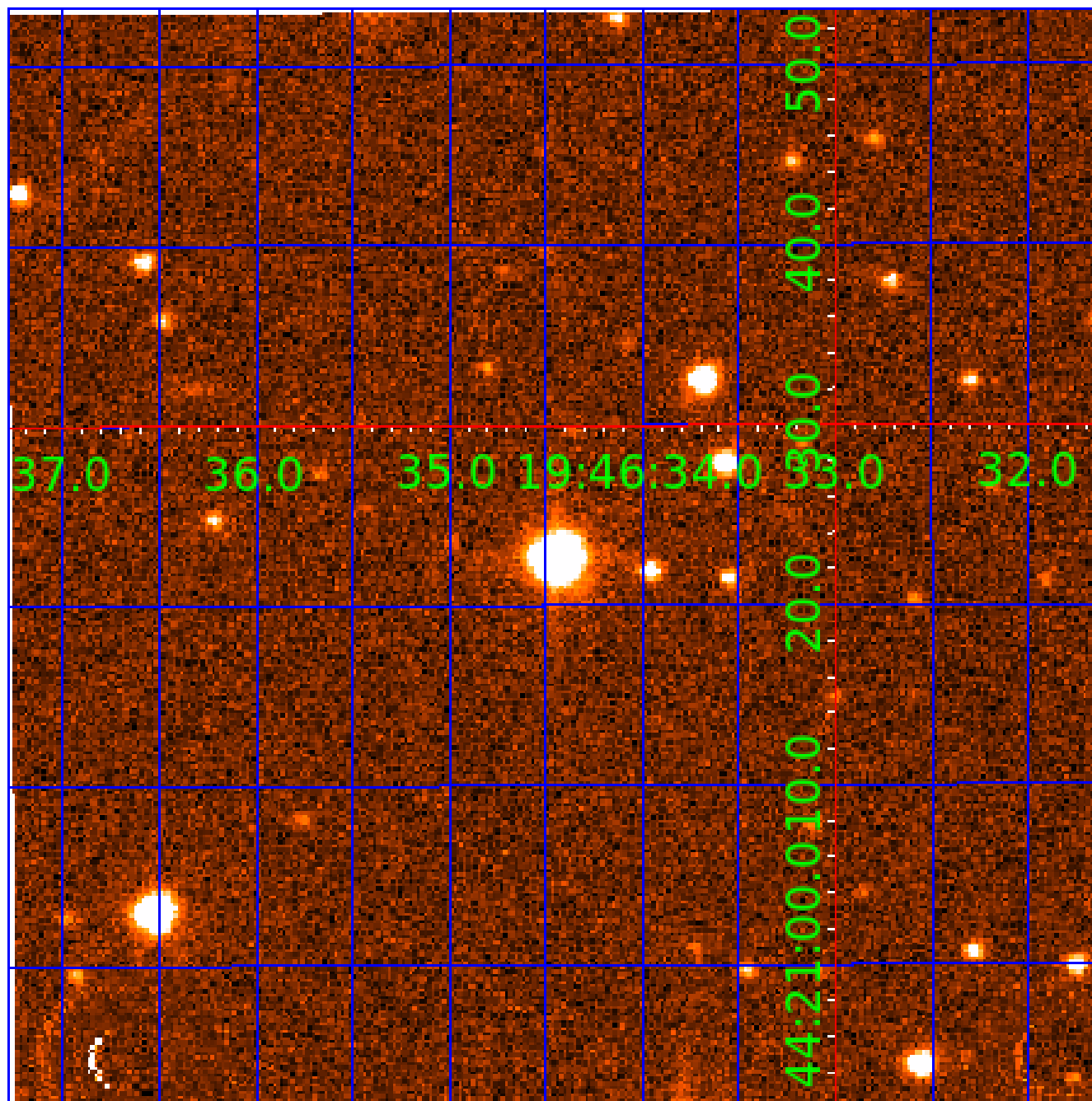


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



# KIC 008379833

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008379833-01	OBS	No	2.185847	133.178913	43.0	3.140	14.0	14.1	2.58	6792	2.04	9335.59
008379833-02	OBS	No	2.185889	133.464119	175.5	2.500	9.1	-1.0	2.58	6792	3.46	9335.35
008379833-03	OBS	No	1.092984	131.862966	20.5	3.304	9.3	8.6	2.58	6792	1.40	23522.47
008379833-04	OBS	No	235.418685	300.190302	215.4	27.627	8.0	6.7	2.58	6792	3.99	18.22

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008379833-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008379833-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
008379833-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD
008379833-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

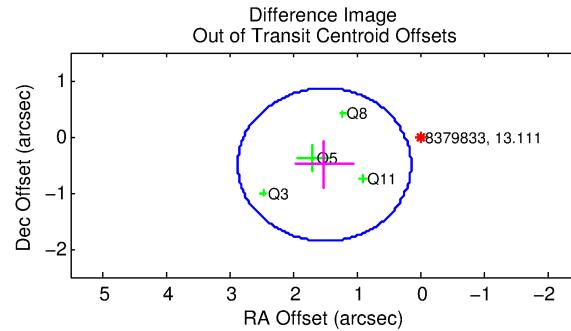
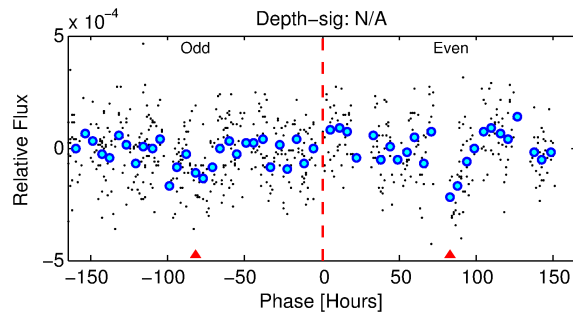
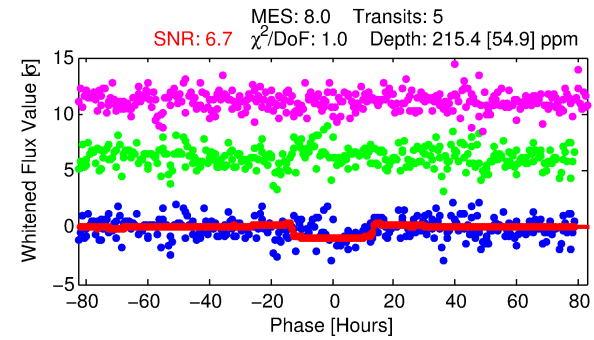
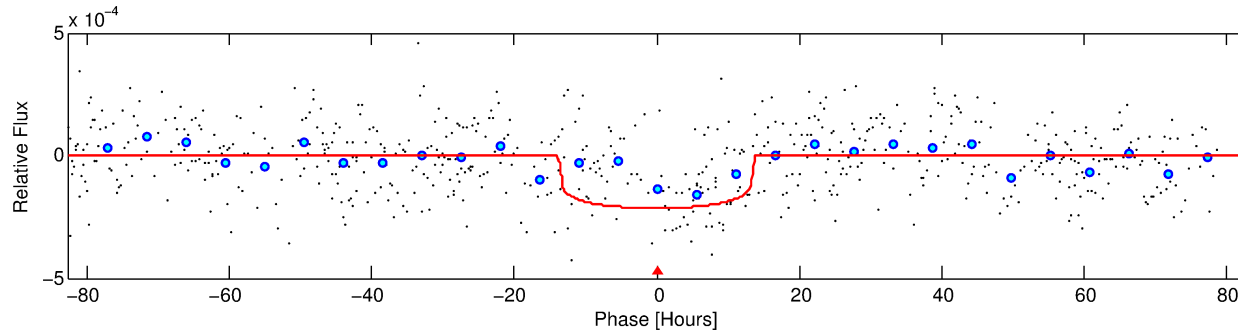
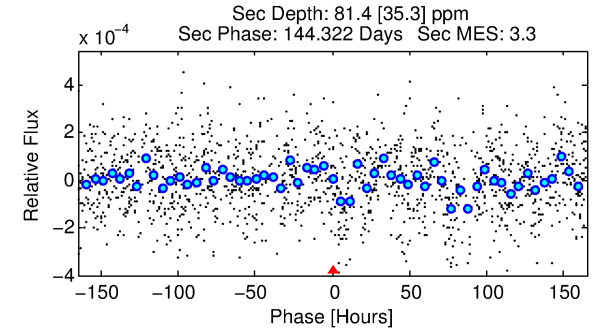
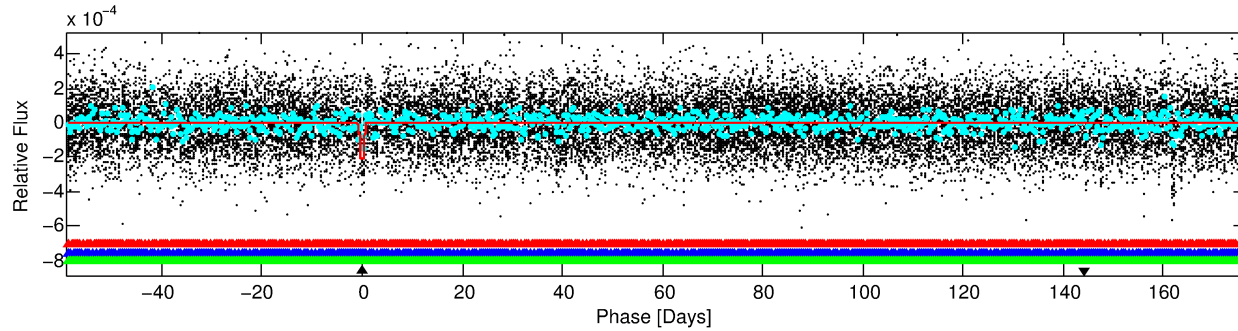
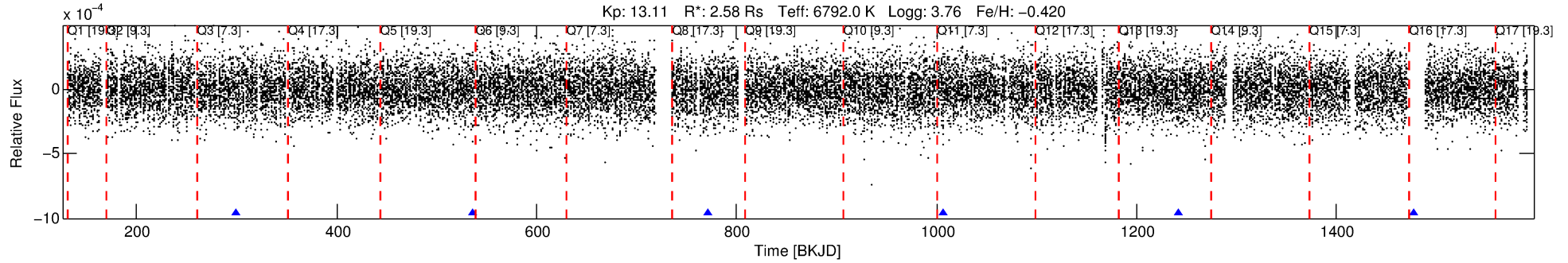
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008379833-04

No Significant Match Found

# DV One-Page Summary

KIC: 8379833 Candidate: 4 of 4 Period: 235.419 d



## DV Fit Results:

Period = 235.41869 [0.01329] d  
Epoch = 300.1903 [0.3363] BKJD  
Rp/R\* = 0.0142 [0.0108]  
a/R\* = 52.43 [227.26]  
b = 0.62 [3.82]  
Seff = 18.22 [10.00]  
Teq = 527 [72] K  
Rp = 3.99 [3.35] Re  
a = 0.8356 [0.2794] AU  
Ag = 1962.34 [3289.13] [0.60σ]  
Teffp = 5421 [2161] K [2.26σ]

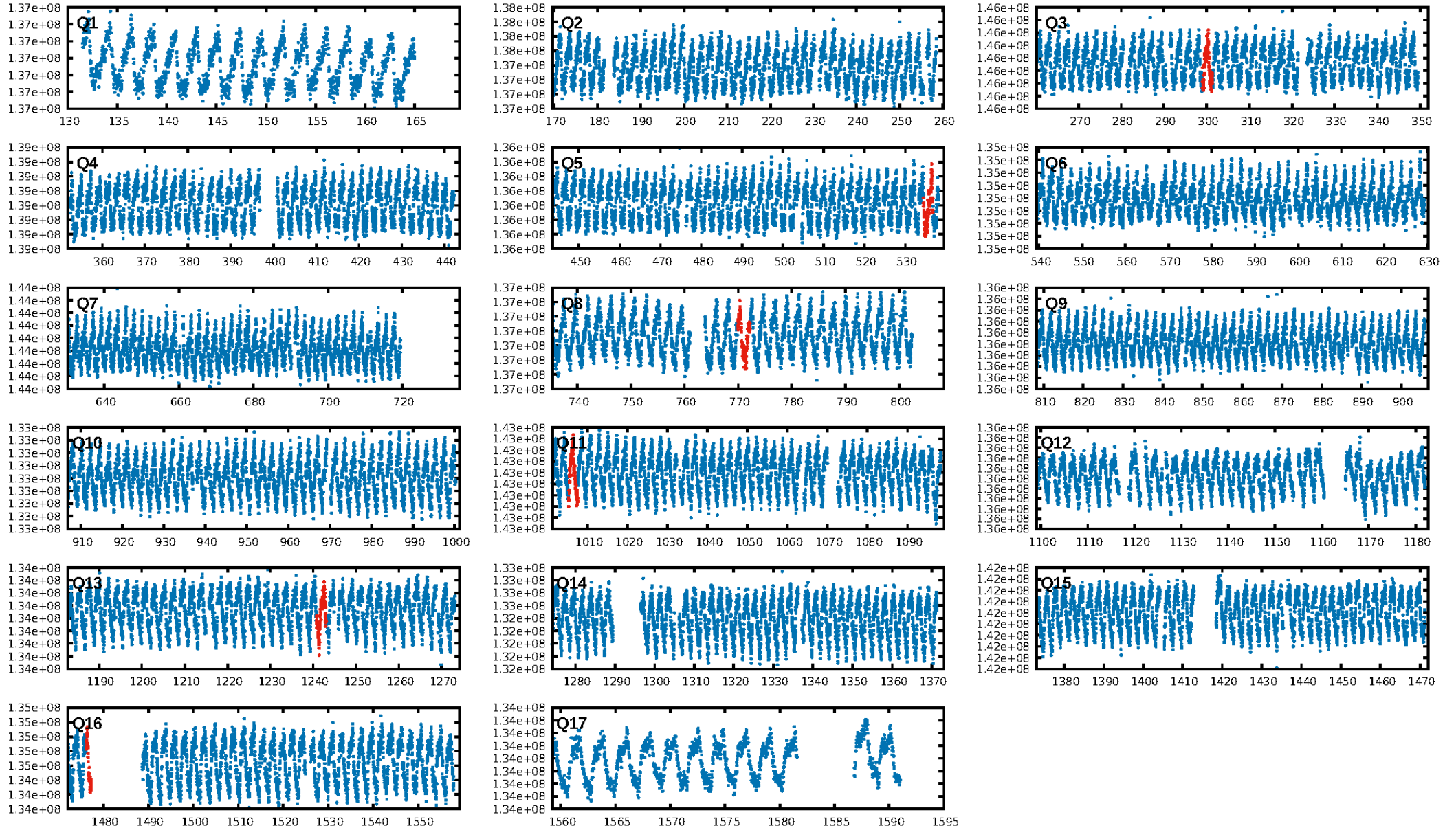
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [201.79σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 45.2%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 3.61e-11**  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 7.356  
**Centroid-sig: 0.1%**  
Centroid-so: 1.067 arcsec [1.95σ]  
**OotOffset-rm: 1.583 arcsec [3.49σ]**  
**KicOffset-rm: 1.528 arcsec [3.40σ]**  
OotOffset-st: 0/2/1/1 [4]  
KicOffset-st: 0/2/1/1 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 0.00 [0/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:10:25 Z

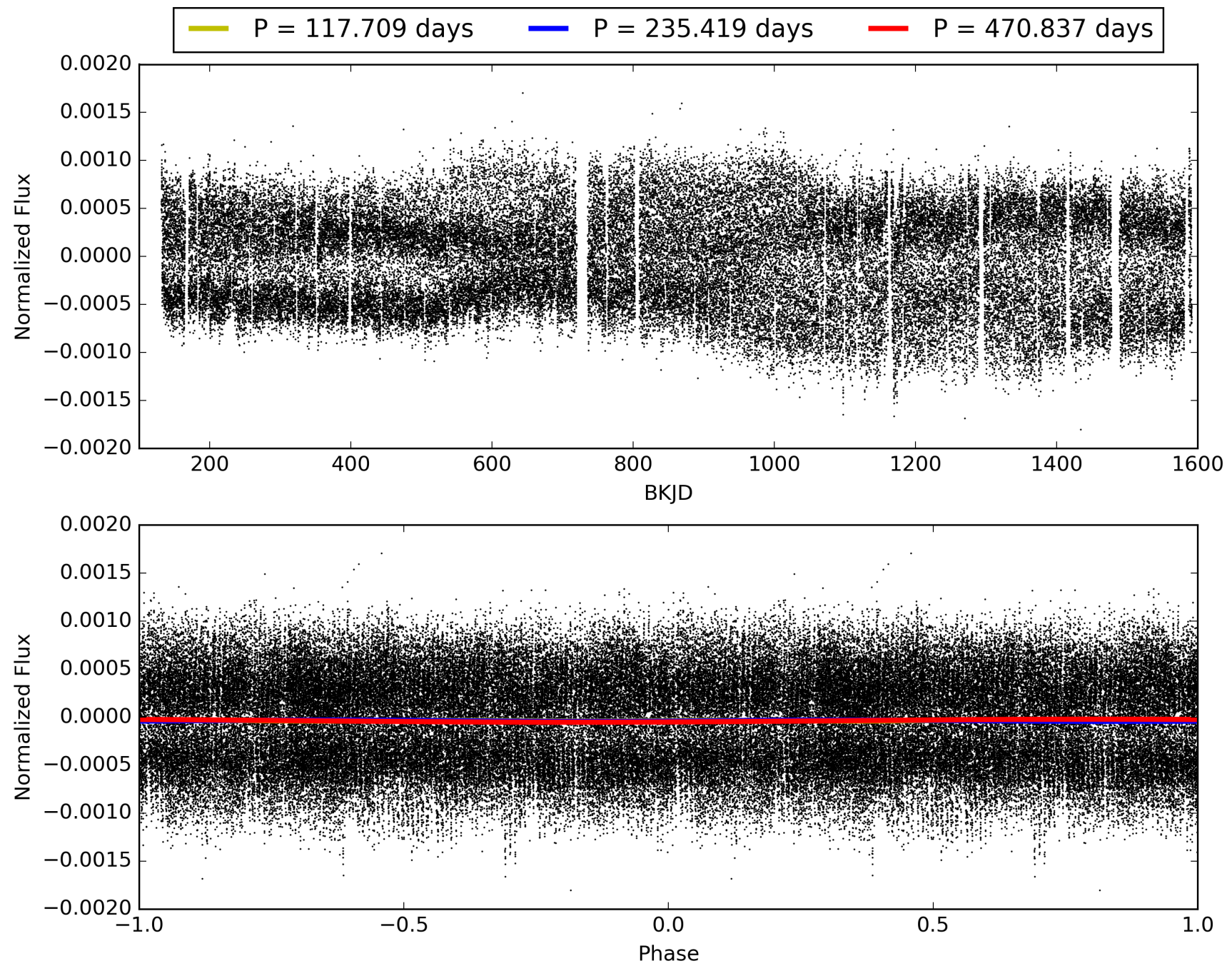
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008379833-04, PDC Light Curves





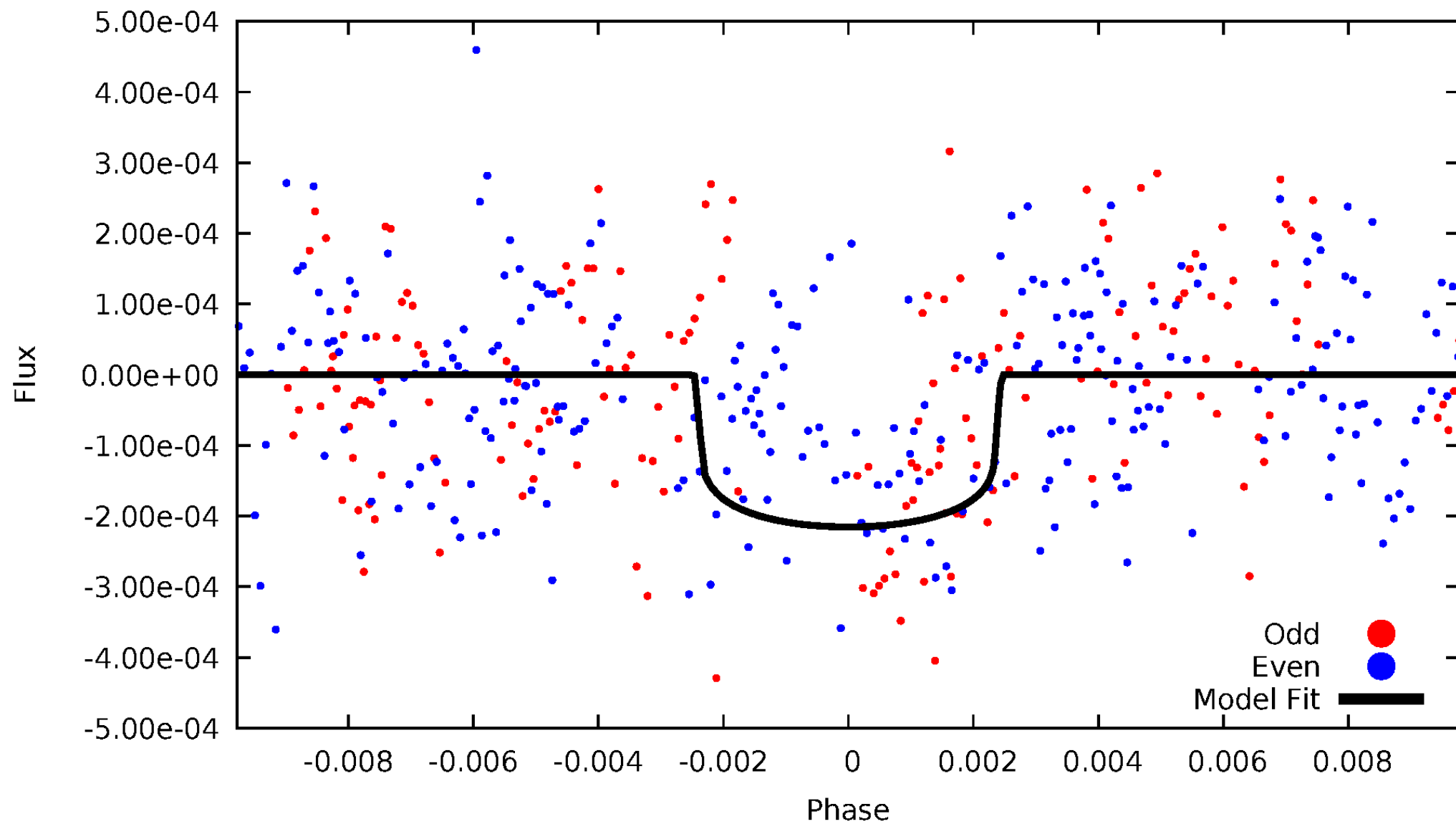
TCE 008379833-04





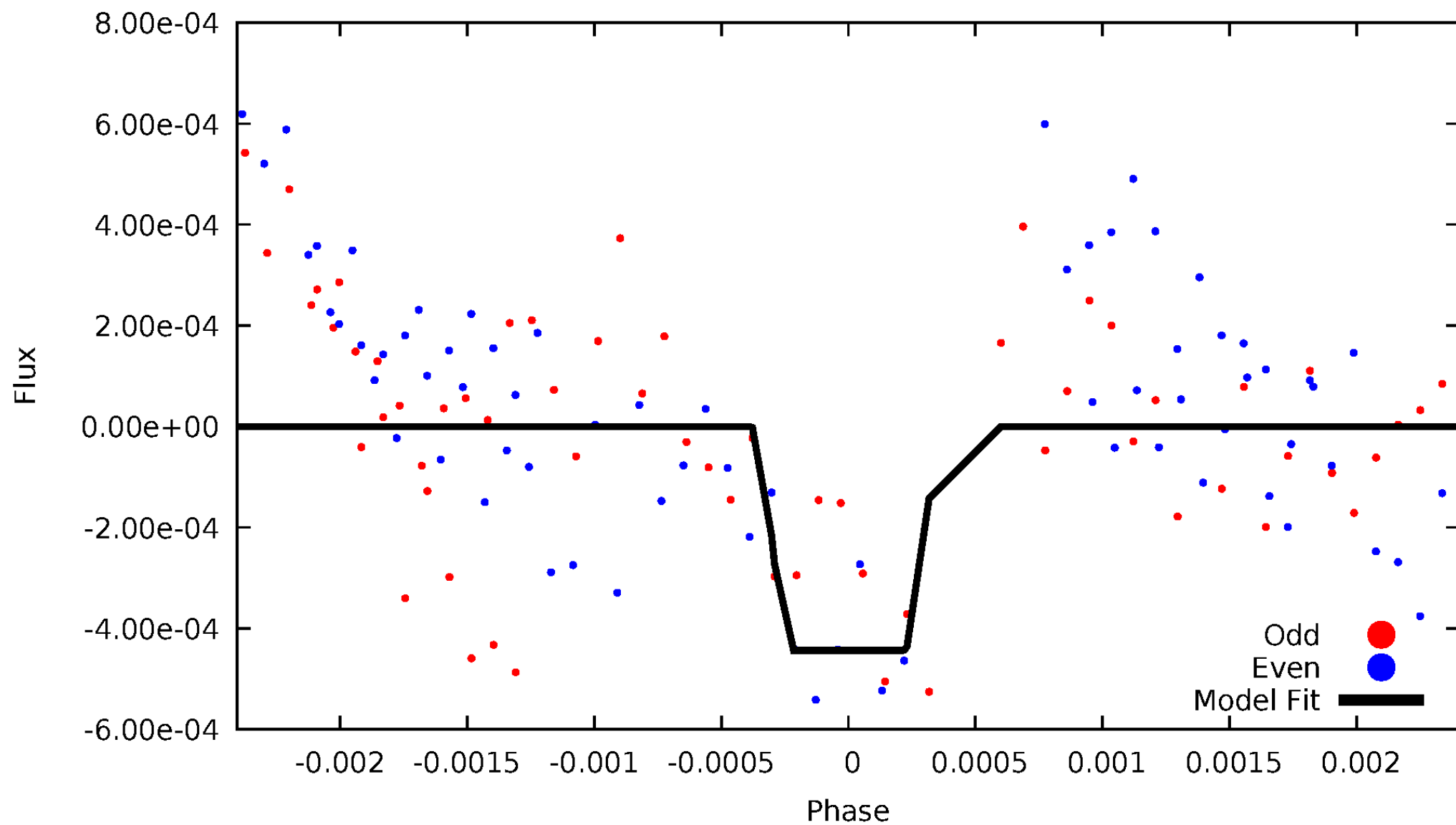
# DV Odd/Even

TCE 008379833-04



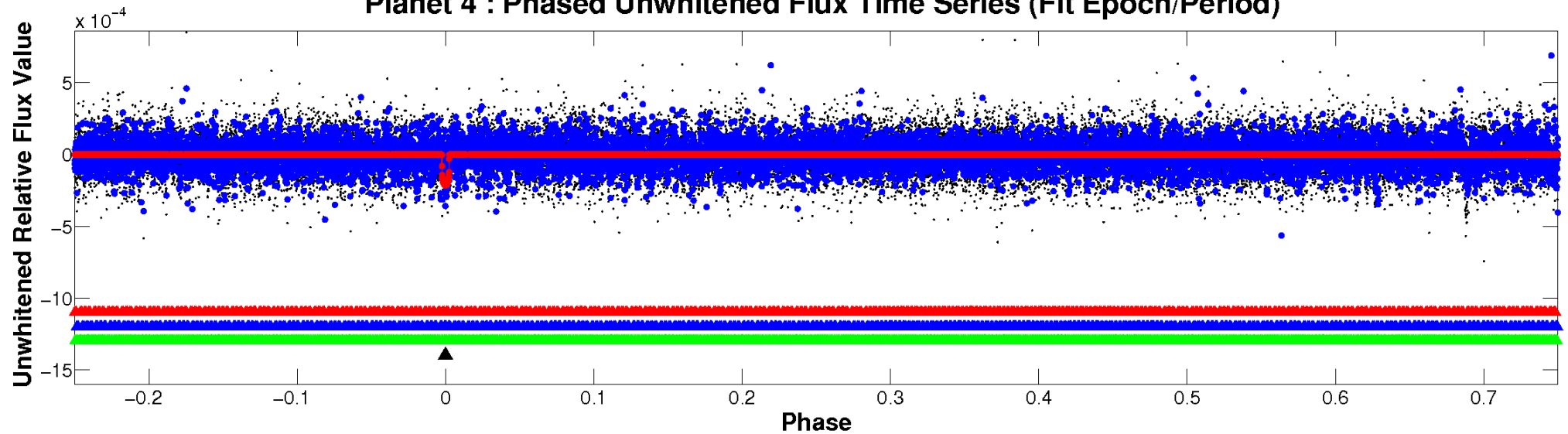
# ALT Odd/Even

TCE 008379833-04

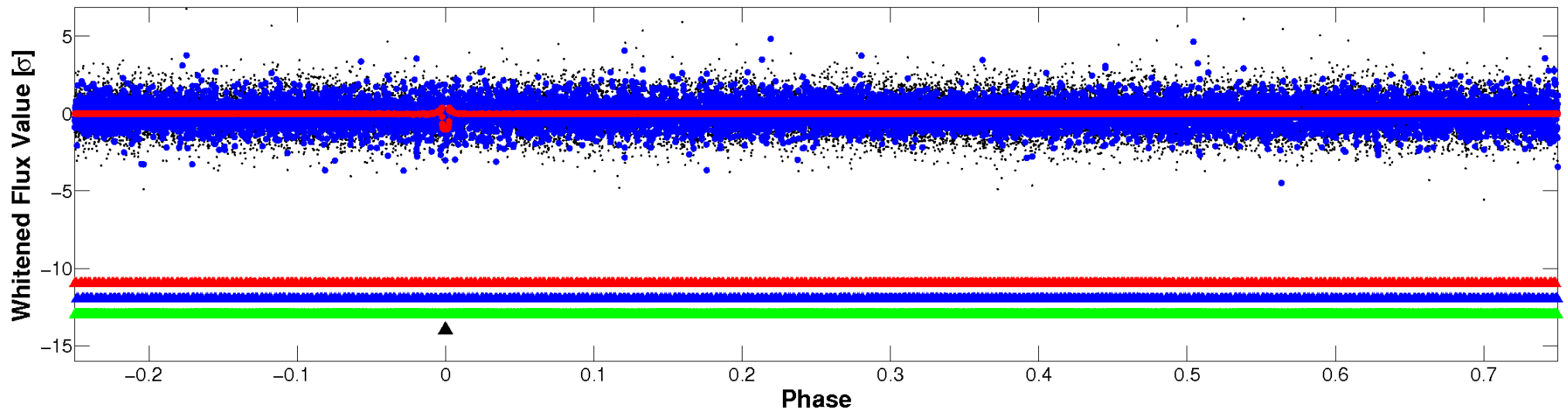


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

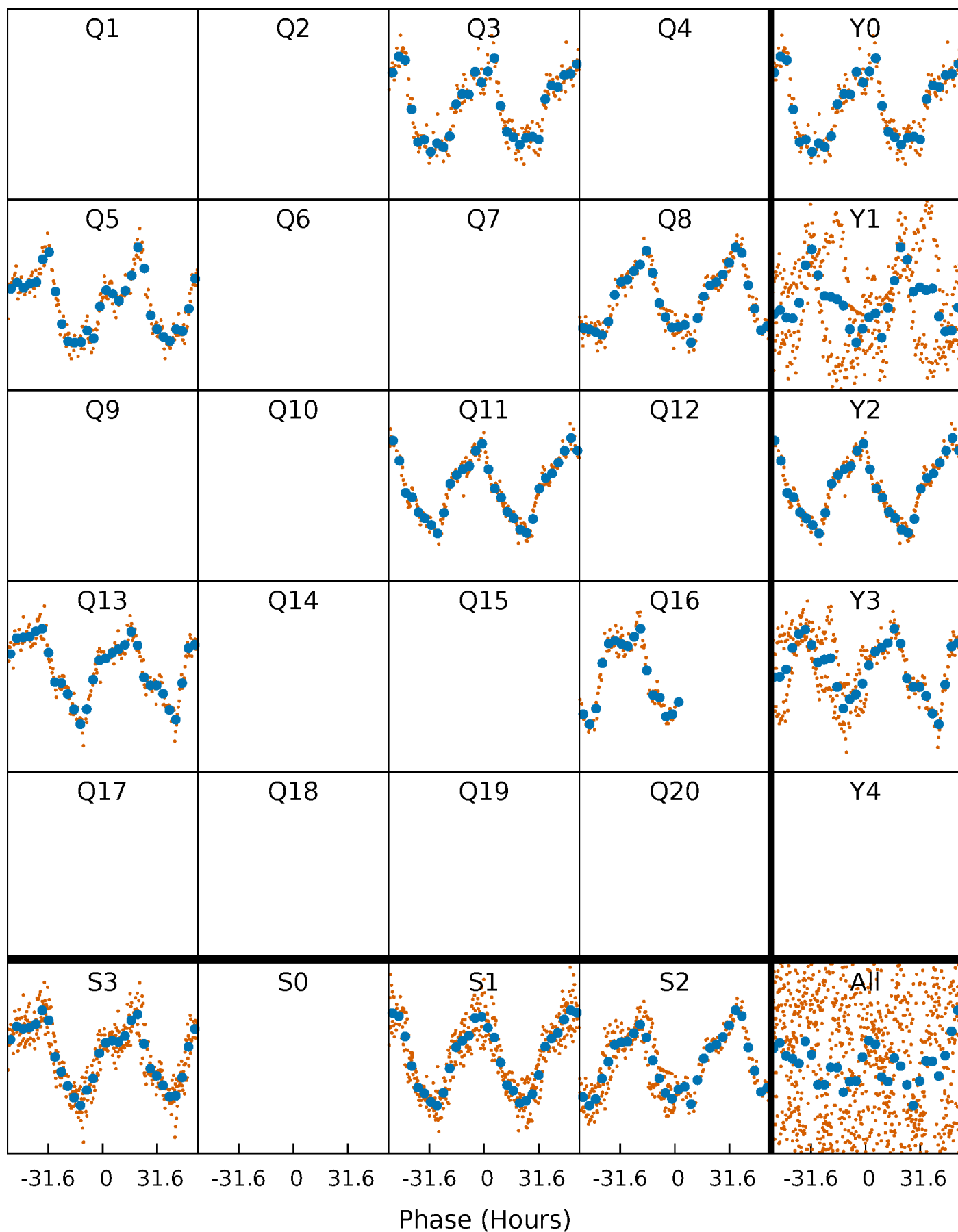


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



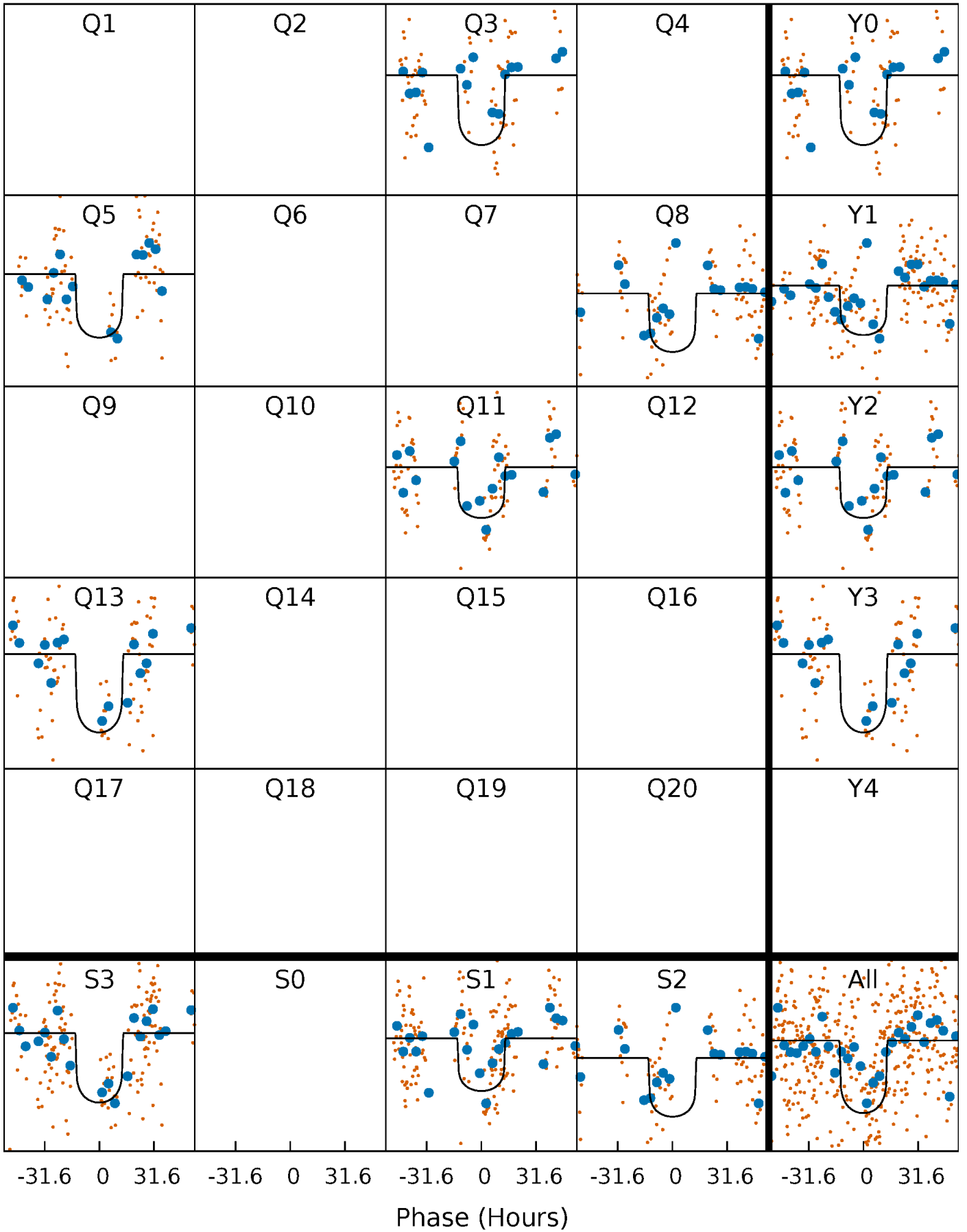
# PDC Quarter-Phased Transit Curves

TCE 008379833-04     $P=235.418685$  Days     $T_0=300.190302$  (BKJD)



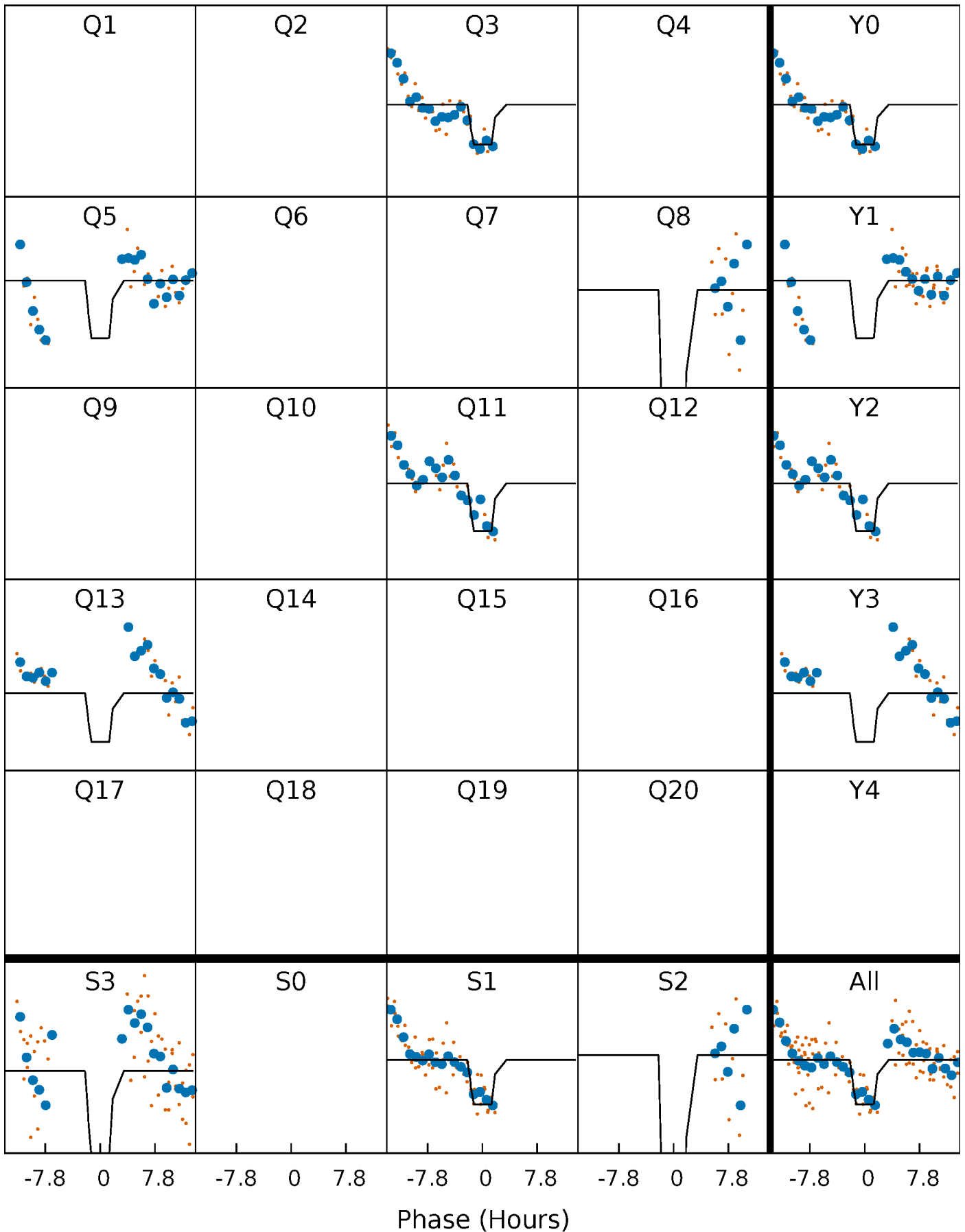
# DV Quarter-Phased Transit Curves

TCE 008379833-04     $P=235.418685$  Days     $T_0=300.190302$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008379833-04     $P=235.346933$  Days     $T_0=300.998390$  (BKJD)

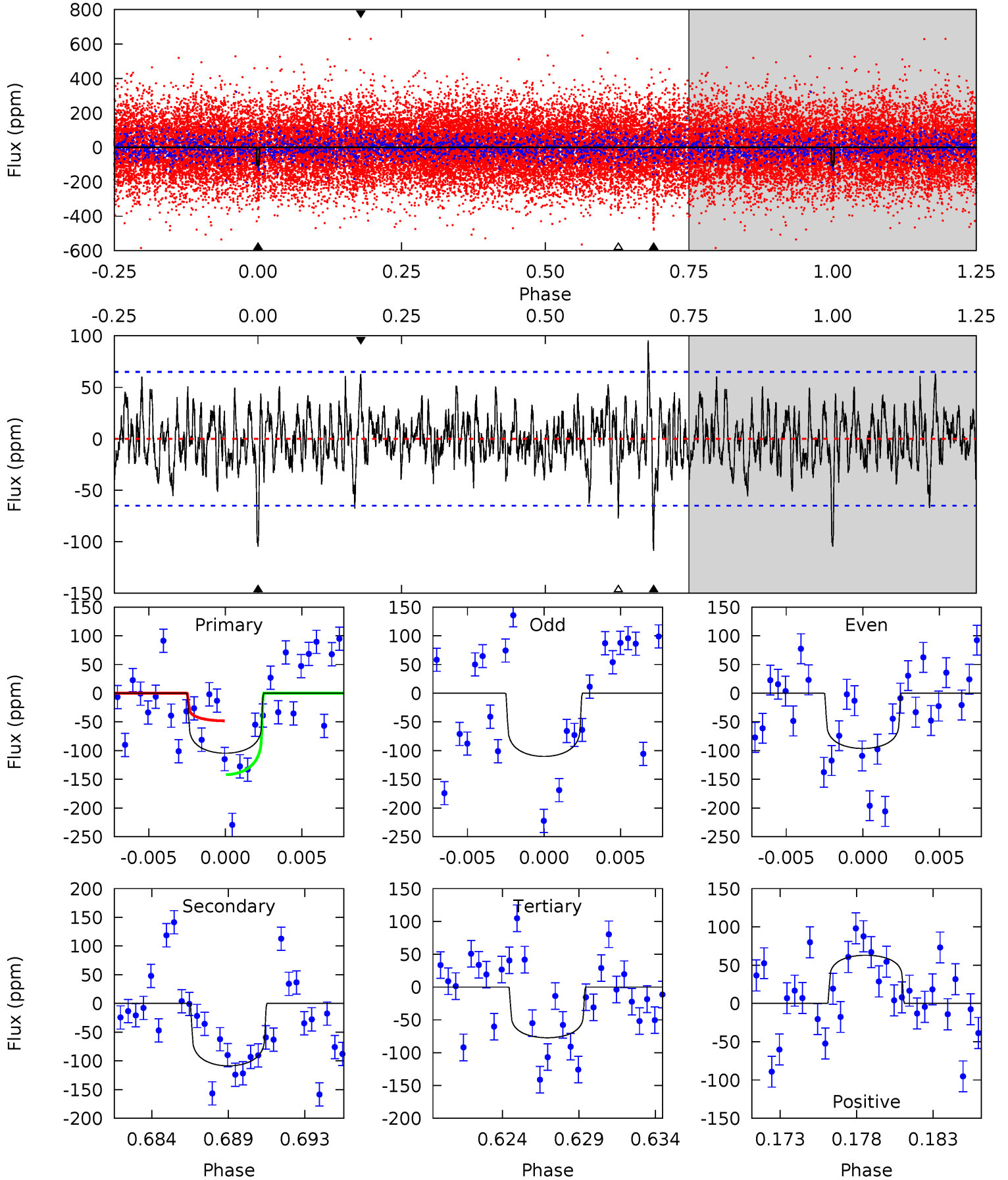




# DV Model-Shift Uniqueness Test

008379833-04, P = 235.418685 Days, E = 64.771617 Days

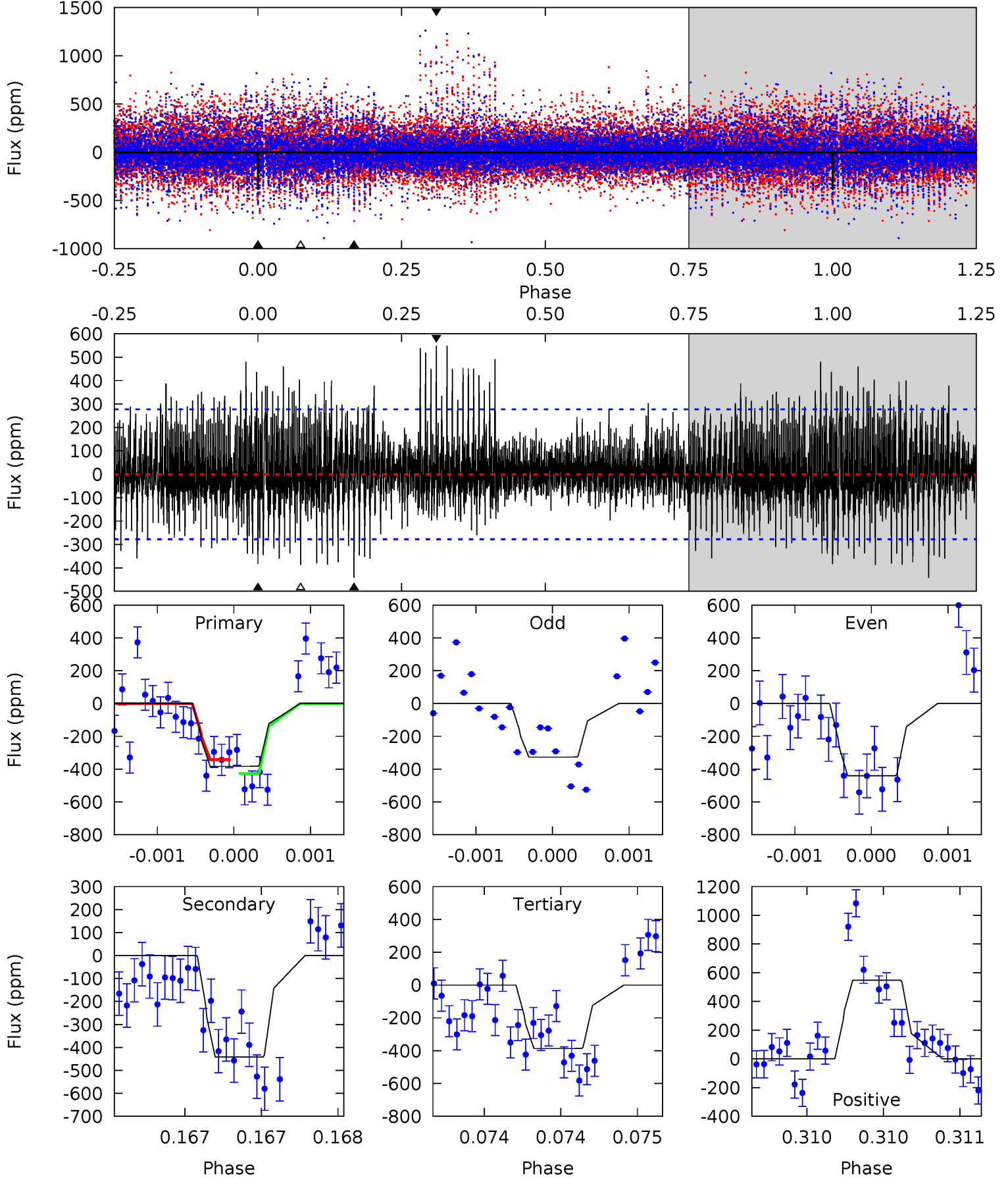
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.30	8.63	6.14	5.00	5.16	2.81	1.68	2.17	3.30	2.50	3.63	0.54	1.50	0.47	3.66



# Alt Model-Shift Uniqueness Test

008379833-04, P = 235.346933 Days, E = 65.651457 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
7.61	8.79	7.69	10.9	5.52	3.39	2.03	-0.07	-3.30	1.10	-2.12	1.13	1.00	0.55	0.83



### Stellar Parameters For KIC 008379833

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6792^{+183}_{-224}$	$3.761^{+0.312}_{-0.078}$	$-0.420^{+0.300}_{-0.250}$	$2.583^{+0.417}_{-0.904}$	$1.401^{+0.231}_{-0.257}$	$0.115^{+0.229}_{-0.035}$
	+3%/-3%	+8%/-2%	+71%/-60%	+16%/-35%	+16%/-18%	+200%/-30%
Source	PHO1	FLK73	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 008379833-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-109 \pm 13$	$3.96^{+2.89}_{-2.50}$	$716^{+42}_{-60}$	$5591^{+4432}_{-1093}$	$2658^{+17088}_{-1750}$
Alt.	$-442 \pm 50$	$5.87^{+3.10}_{-2.98}$	$718^{+42}_{-58}$	$6581^{+3627}_{-1124}$	$5005^{+15082}_{-2805}$

$T_{max}$  = 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

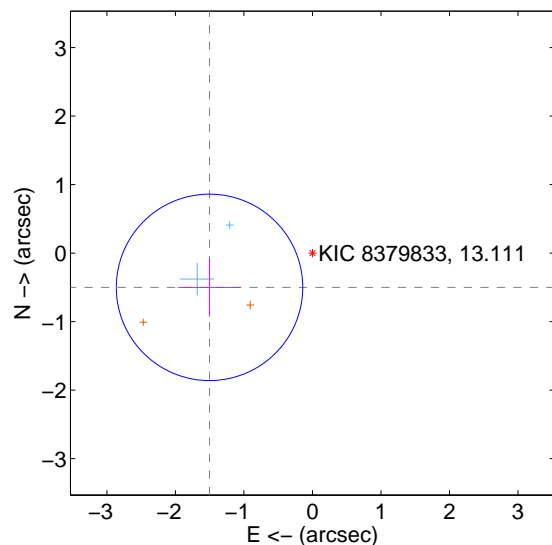
Supplemental centroid analysis for 008379833-04. Kepler magnitude: 13.11. Transit SNR 6.73

There are 2 quarters with good PRF difference image offsets

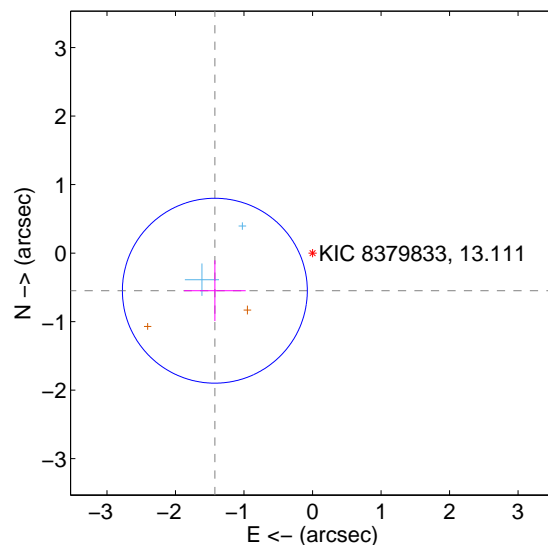
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.583 \pm 0.453$	3.49	$1.502 \pm 0.456$	$-0.500 \pm 0.427$
PRF-fit source offset from KIC position	$1.528 \pm 0.450$	3.40	$1.426 \pm 0.451$	$-0.549 \pm 0.442$
photometric centroid source offset	$1.07 \pm 0.55$	1.95	$0.13 \pm 0.51$	$-1.06 \pm 0.55$

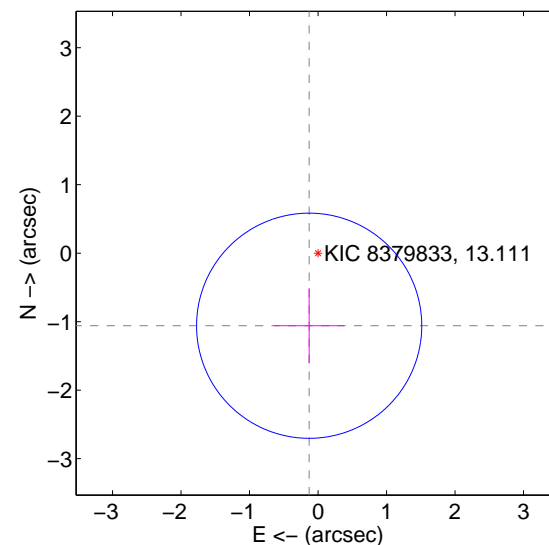
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from 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.

Q1 no difference image



Q1 no OOT image



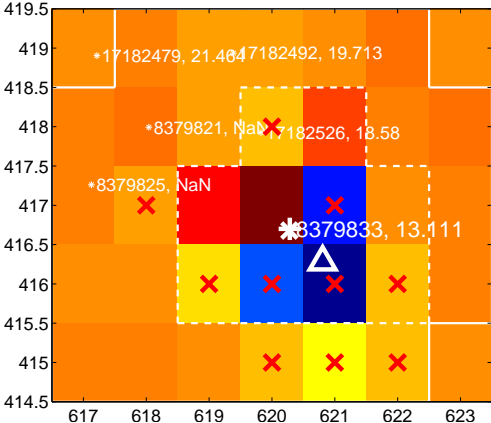
Q2 no difference image



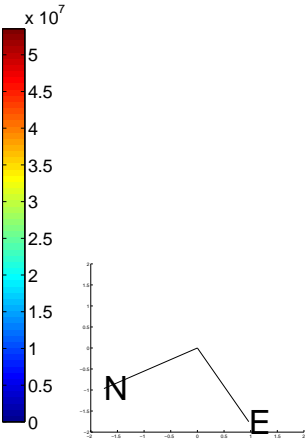
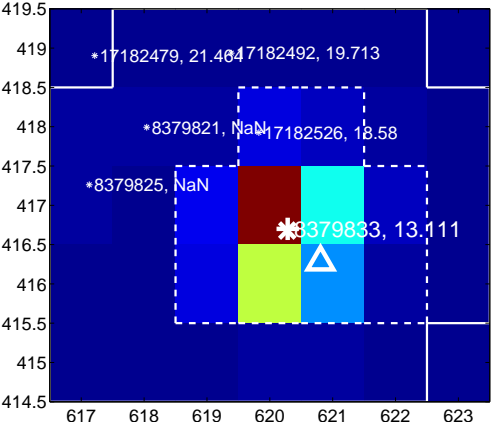
Q2 no OOT image



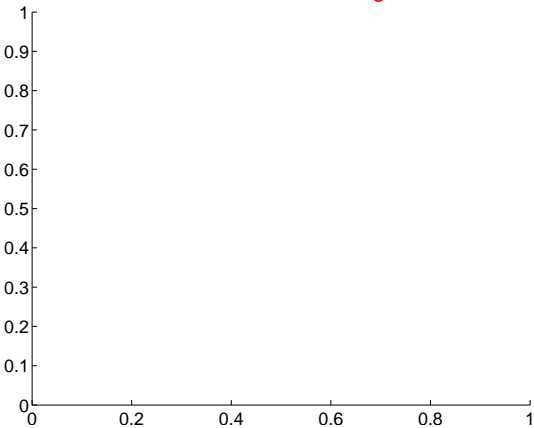
Q3 difference image. Poor Quality



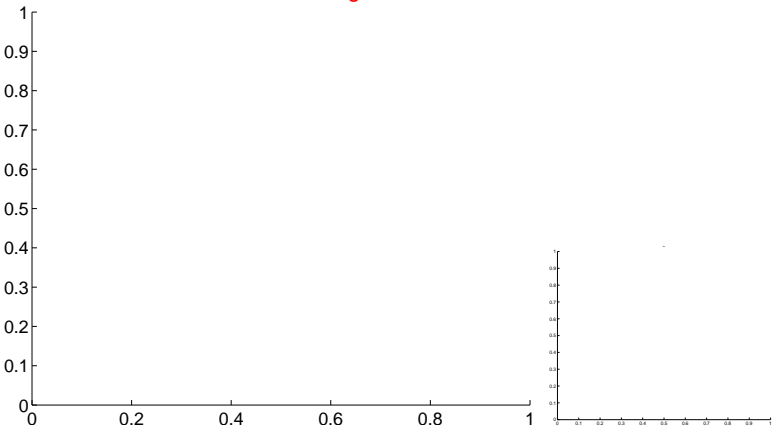
Q3 OOT image



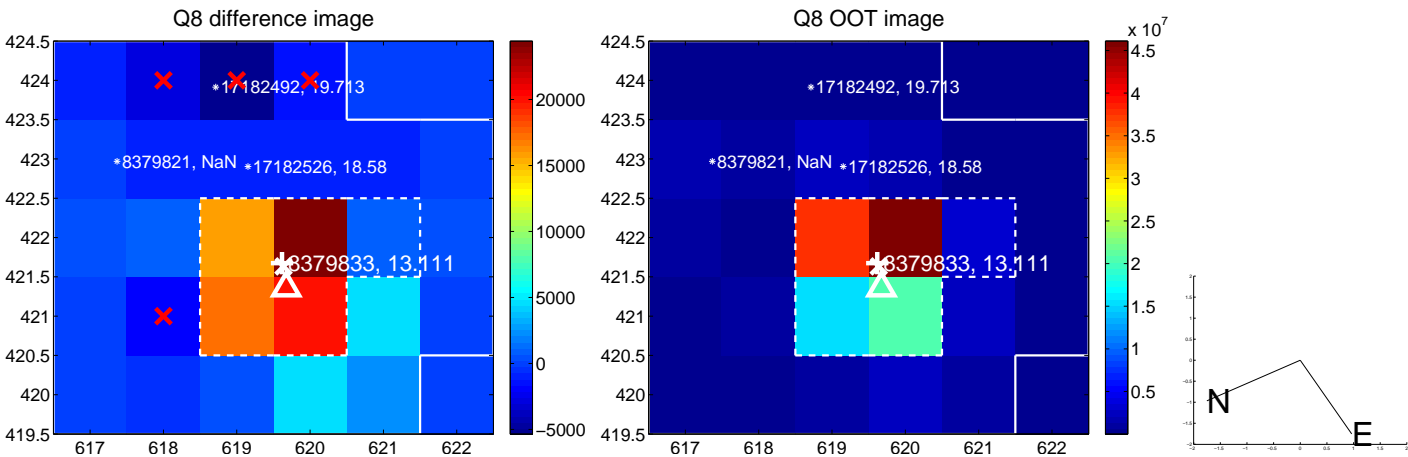
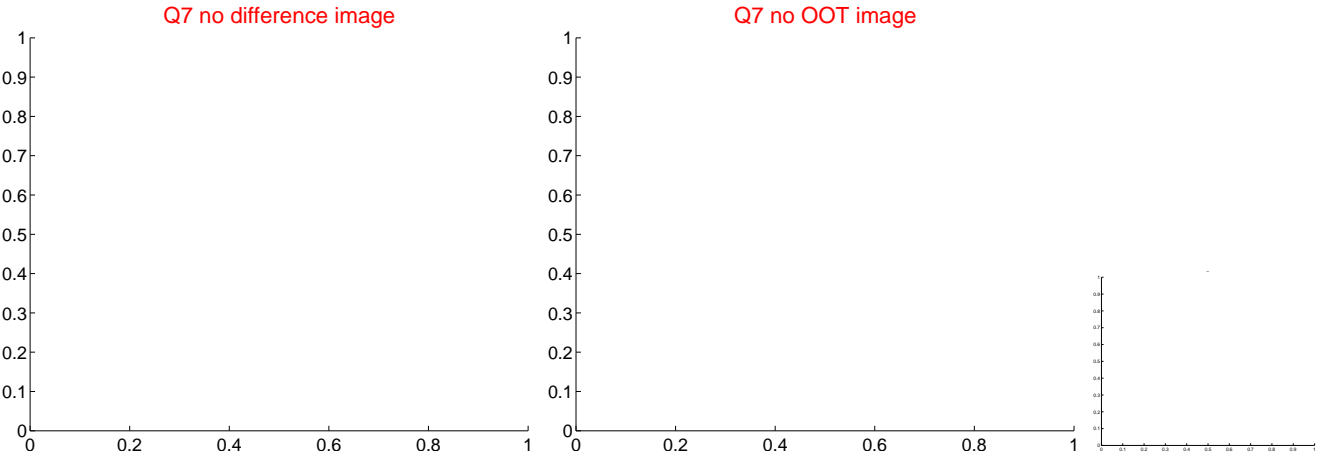
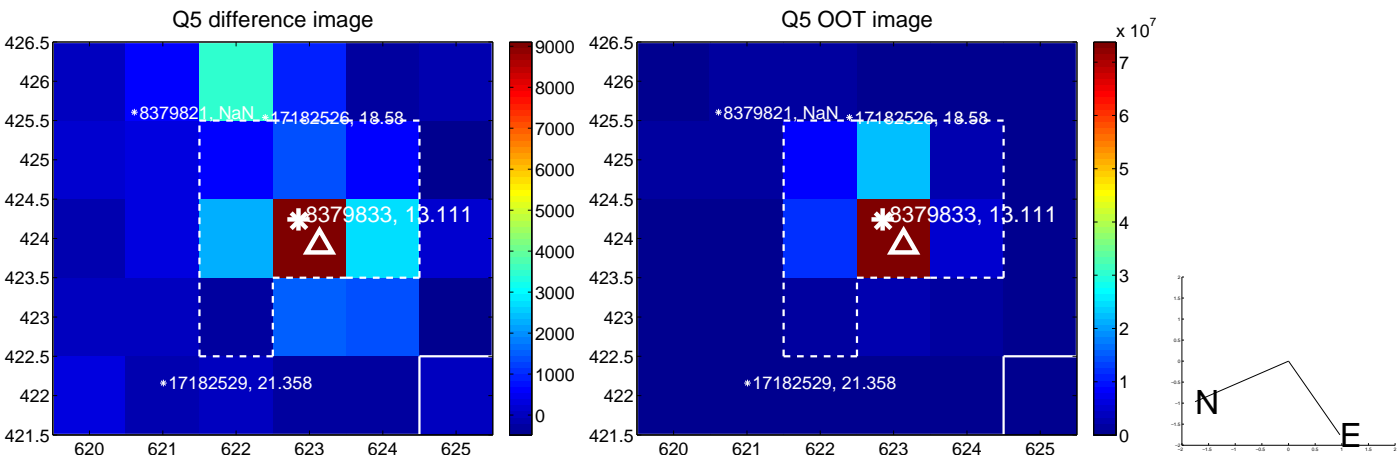
Q4 no difference image



Q4 no OOT image

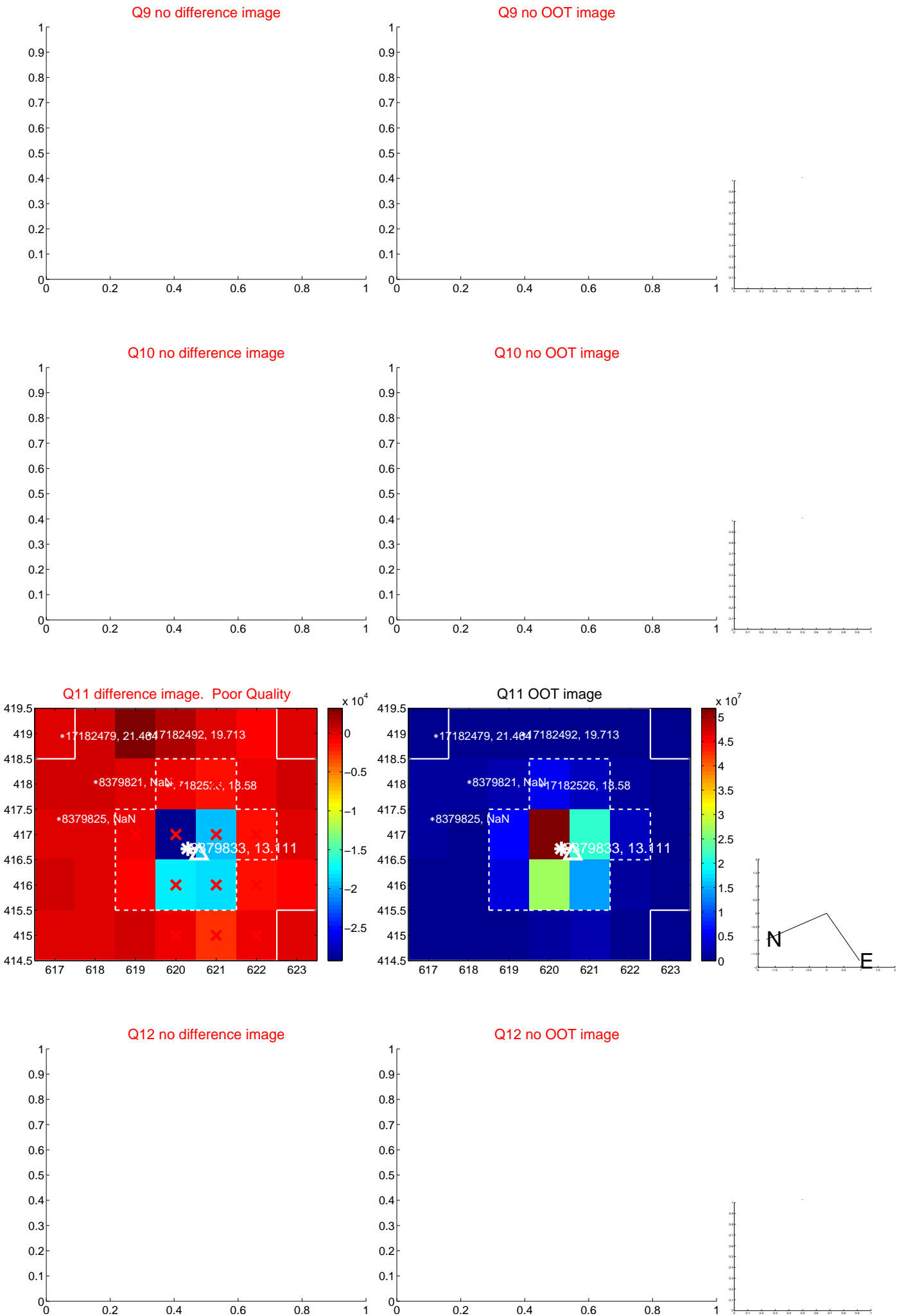


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





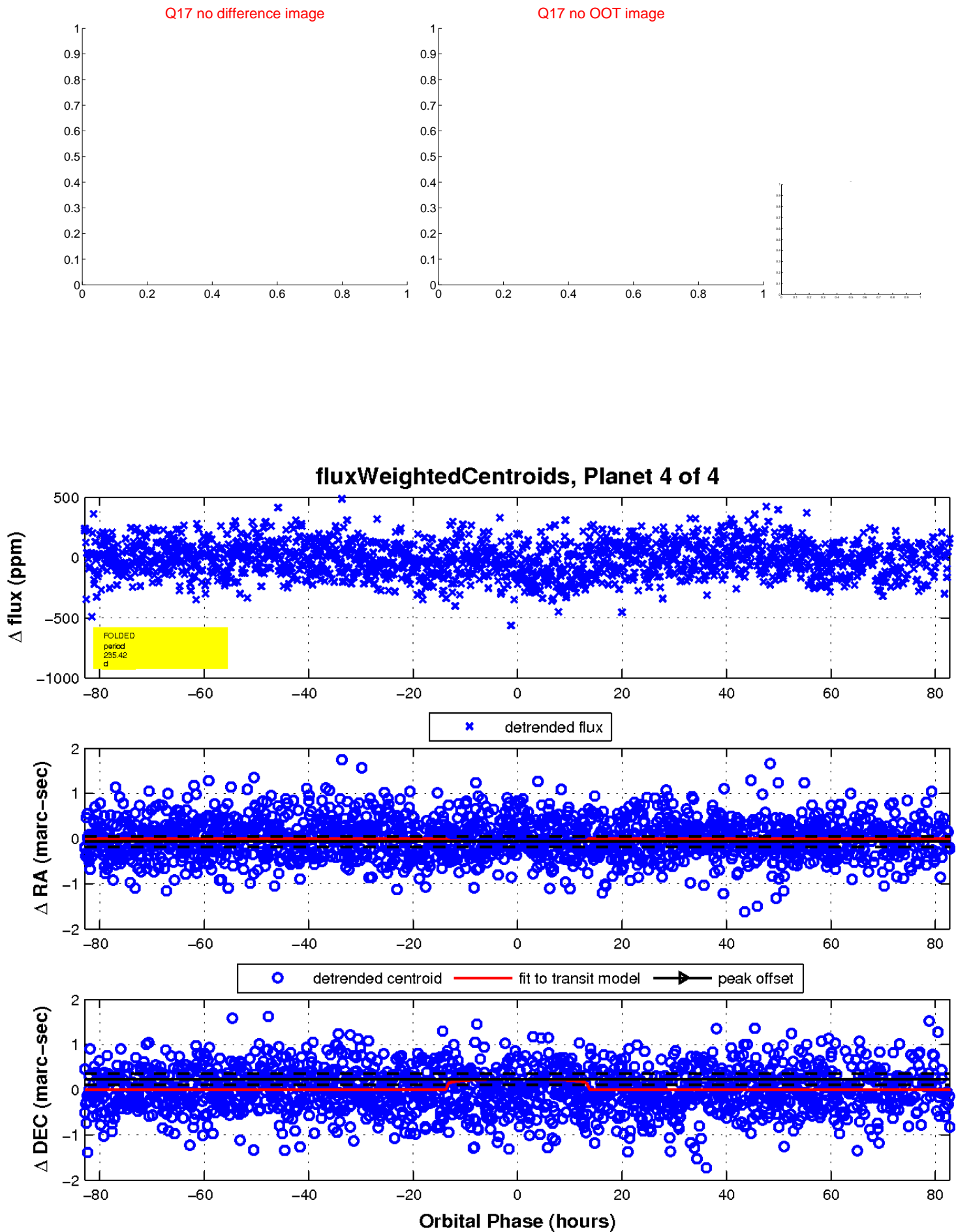
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

