

# KIC 008397426

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008397426-01	OBS	No	0.632828	131.552938	43.7	1.041	9.9	7.3	4.17	7246	3.21	0.00
008397426-02	OBS	No	0.632818	131.974916	69.2	1.864	9.5	8.7	4.17	7246	4.03	0.00
008397426-03	OBS	No	4.195239	135.045289	199.3	9.282	8.4	9.6	4.17	7246	6.83	10260.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008397426-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008397426-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008397426-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

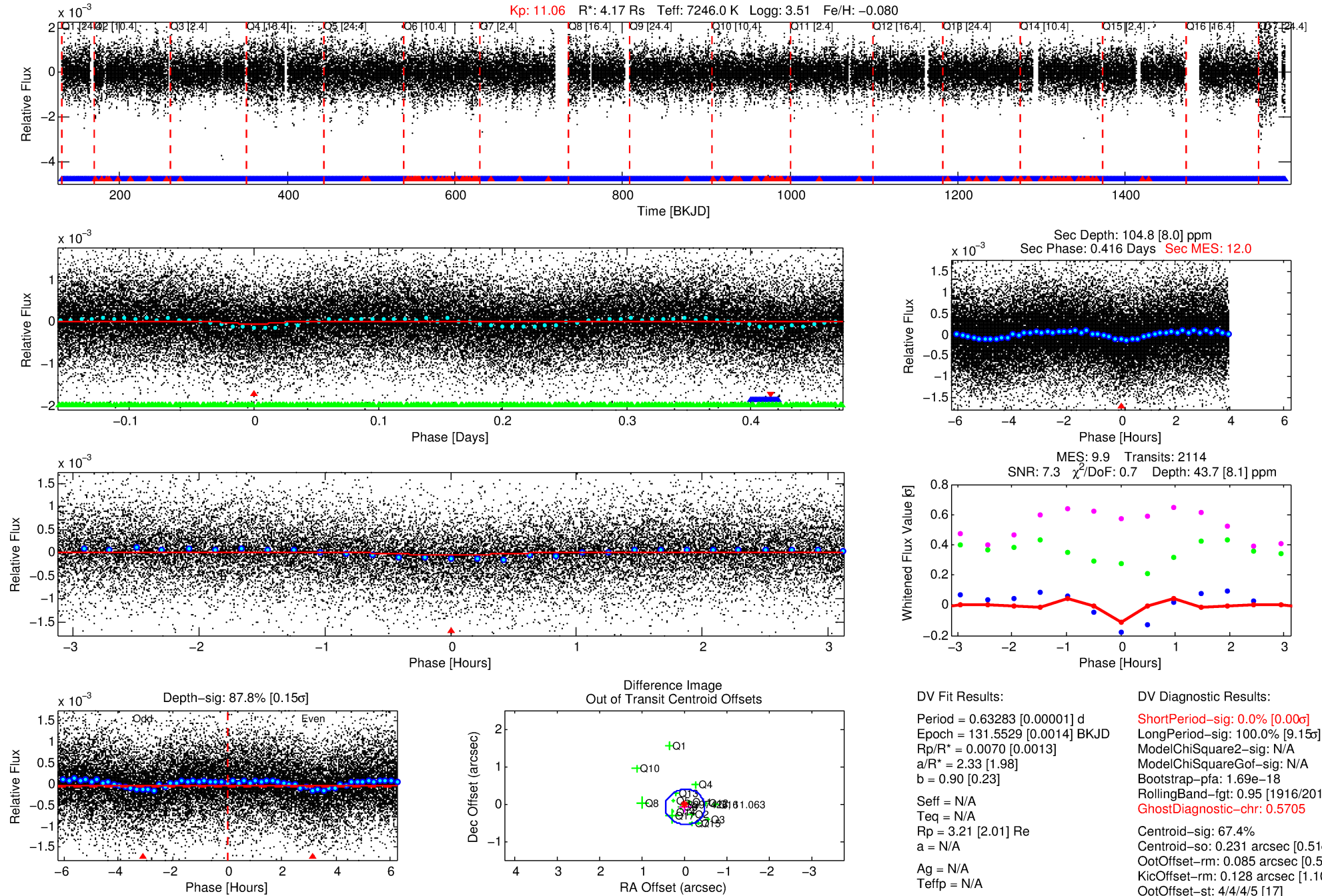
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008397426-01

No Significant Match Found

# DV One-Page Summary

KIC: 8397426 Candidate: 1 of 3 Period: 0.633 d



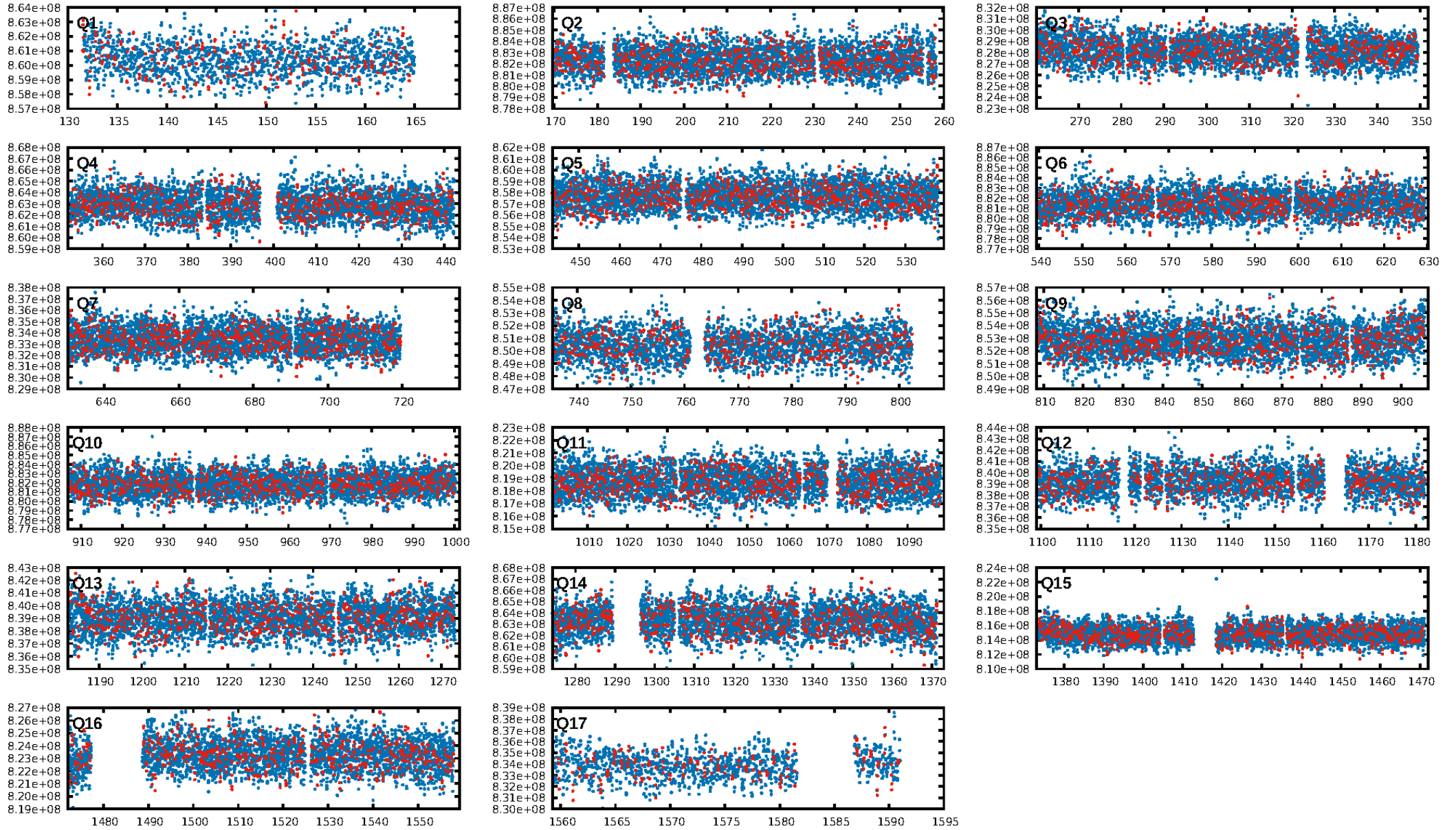
## DV Fit Results:

Period = 0.63283 [0.00001] d  
Epoch = 131.5529 [0.0014] BKJD  
Rp/R\* = 0.0070 [0.0013]  
a/R\* = 2.33 [1.98]  
b = 0.90 [0.23]  
Seff = N/A  
Teq = N/A  
Rp = 3.21 [2.01] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

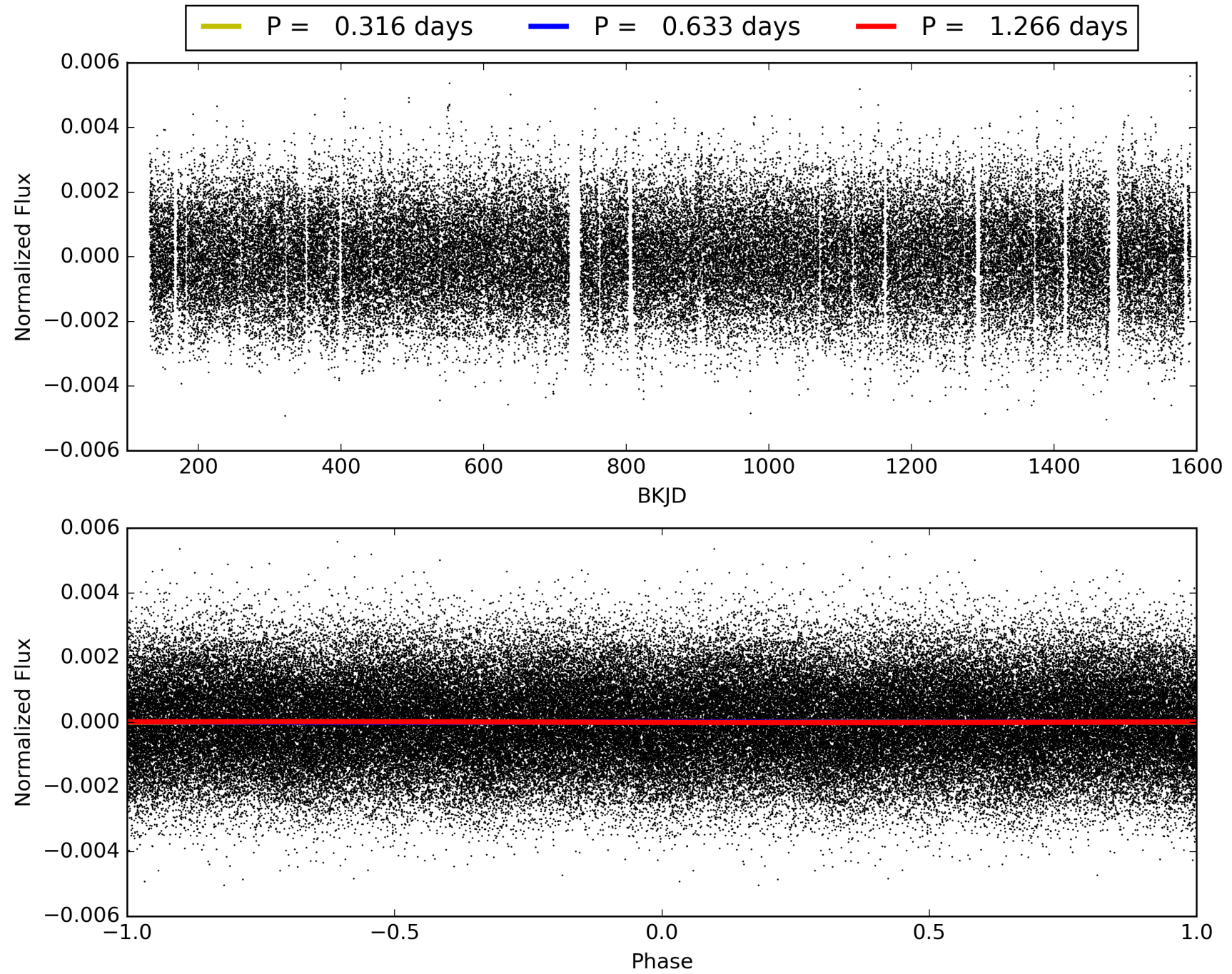
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [9.15σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.69e-18  
RollingBand-fgt: 0.95 [1916/2018]  
GhostDiagnostic-chr: 0.5705  
Centroid-sig: 67.4%  
Centroid-so: 0.231 arcsec [0.51σ]  
OotOffset-rm: 0.085 arcsec [0.54σ]  
KicOffset-rm: 0.128 arcsec [1.10σ]  
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]

# TCE 008397426-01, PDC Light Curves

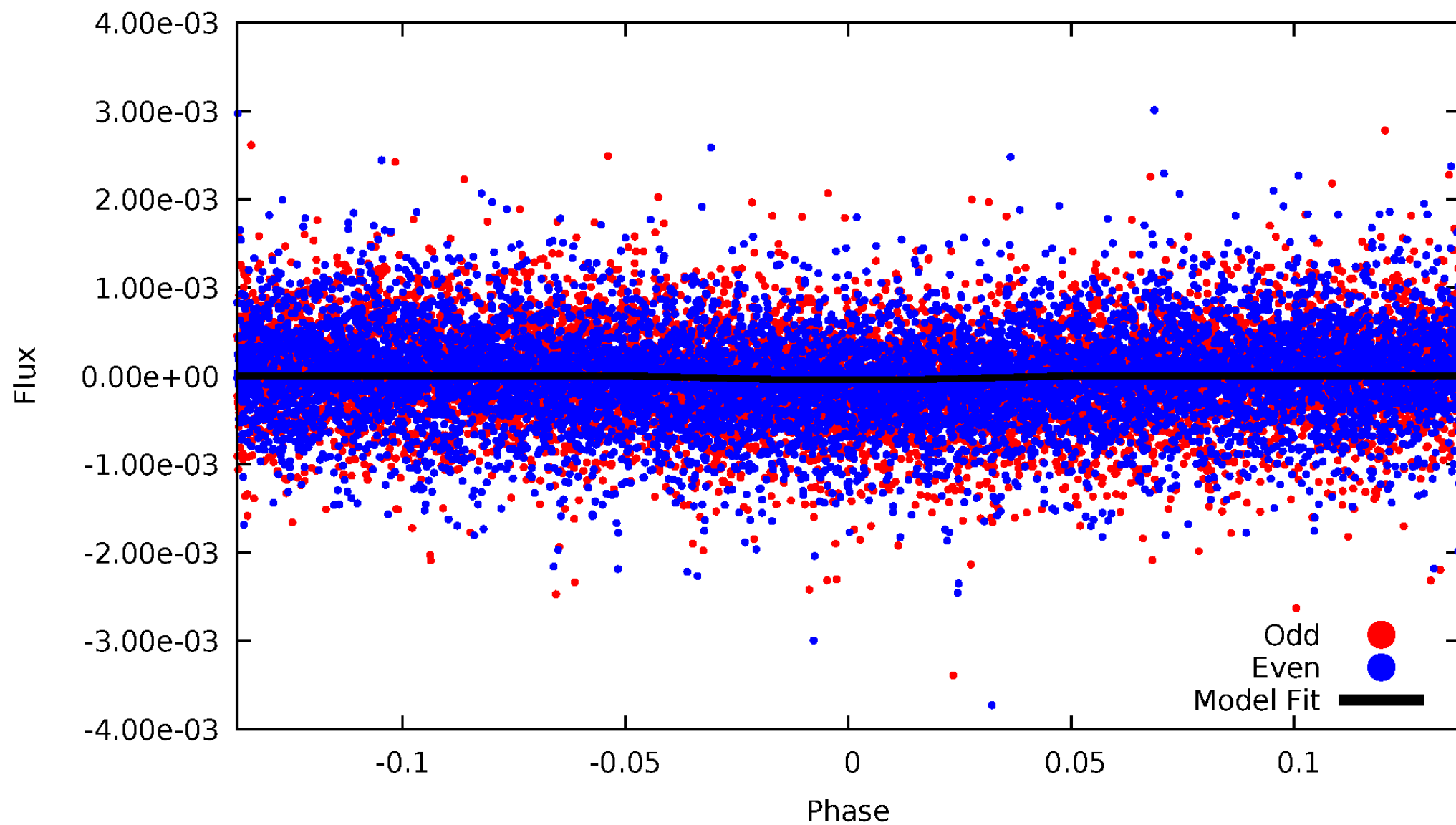


TCE 008397426-01



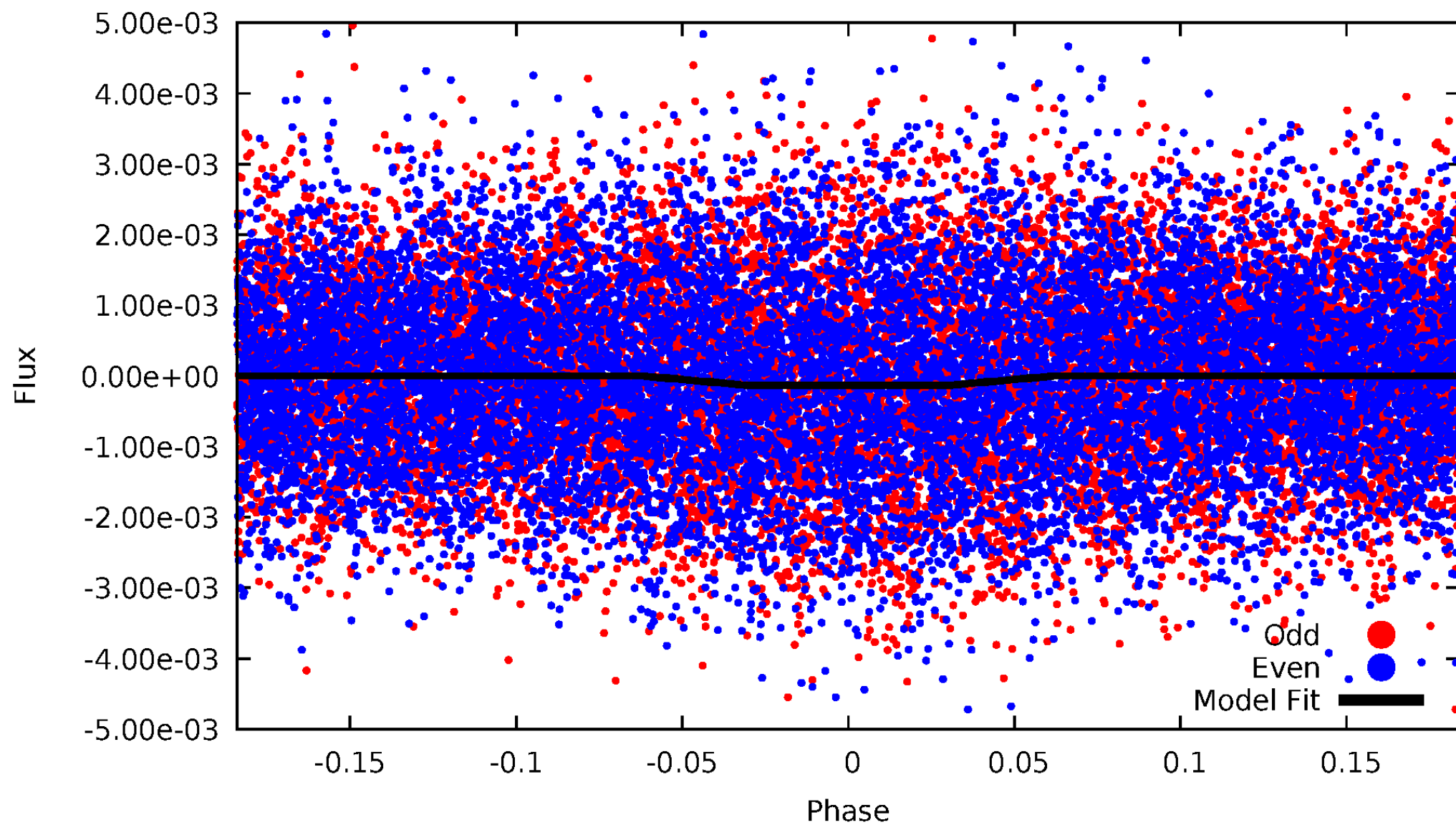
# DV Odd/Even

TCE 008397426-01



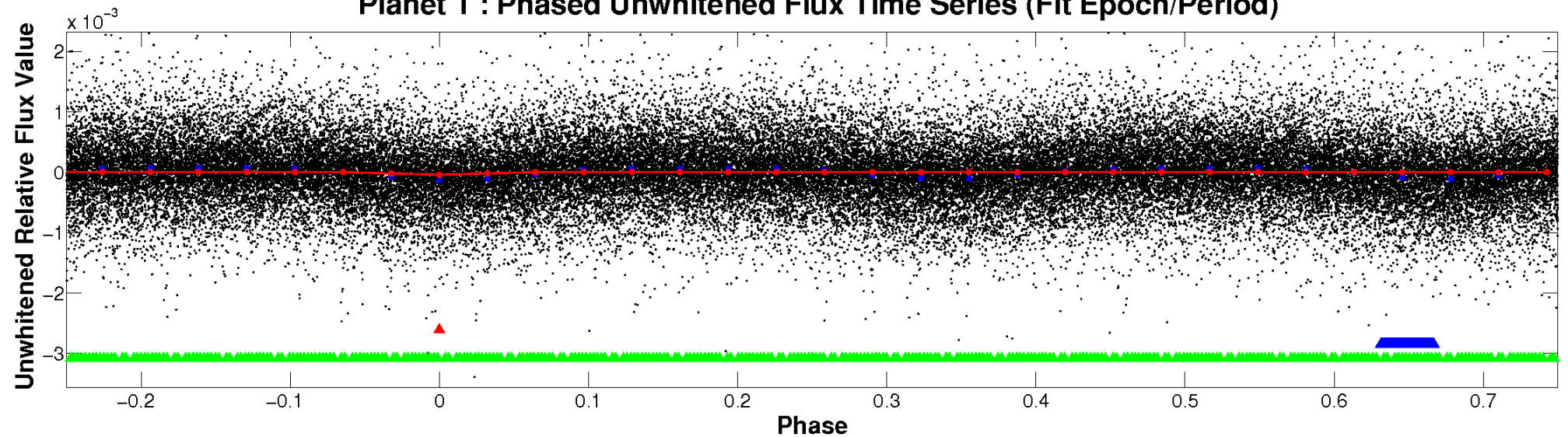
# ALT Odd/Even

TCE 008397426-01

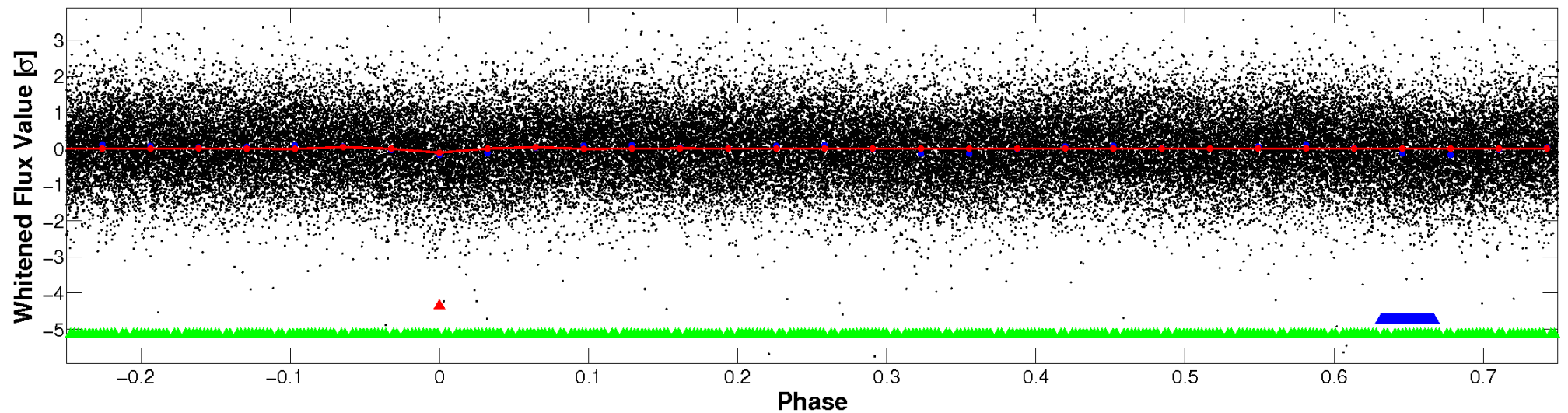


# Non-Whitened Vs. Whitened Light Curve

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

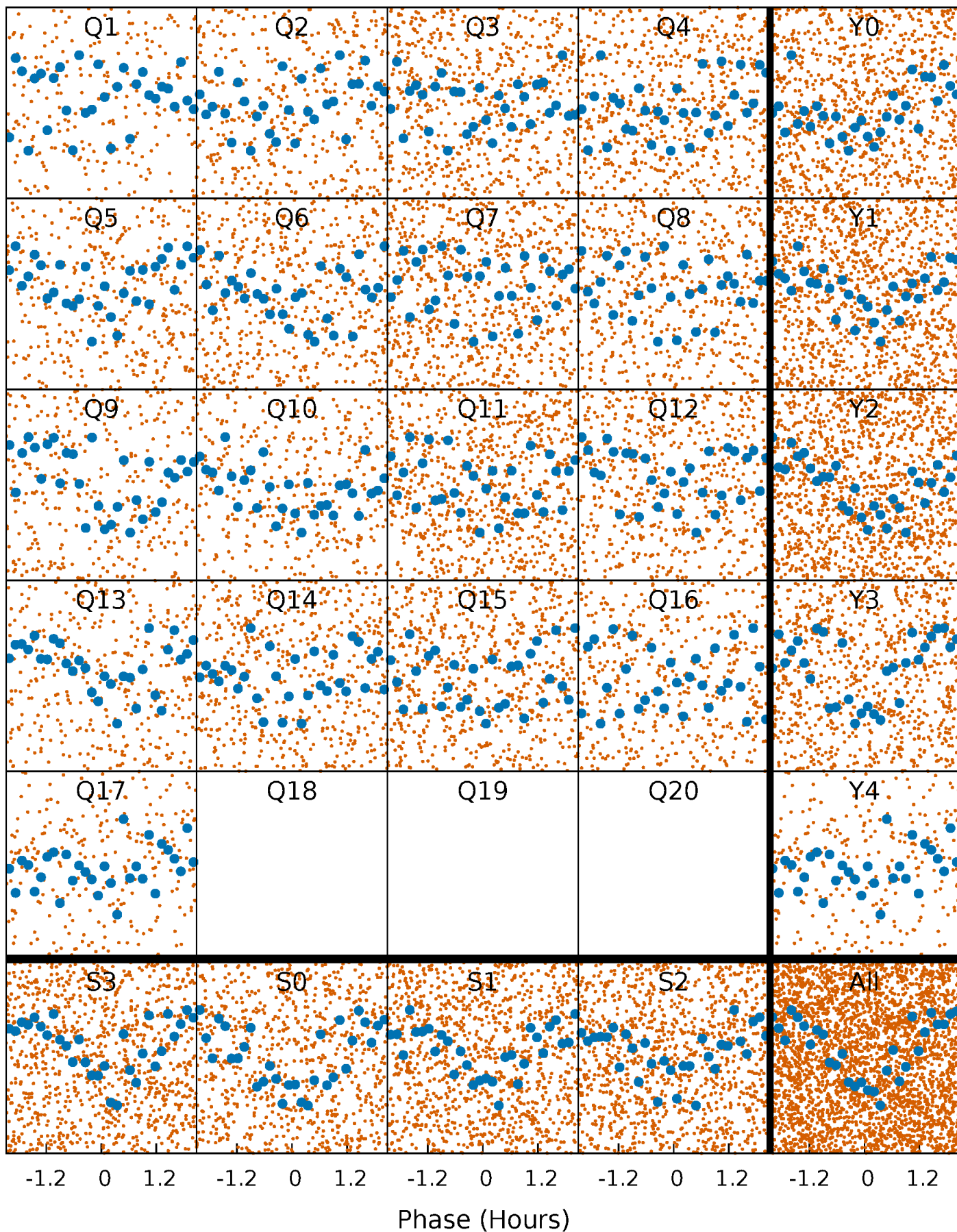


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



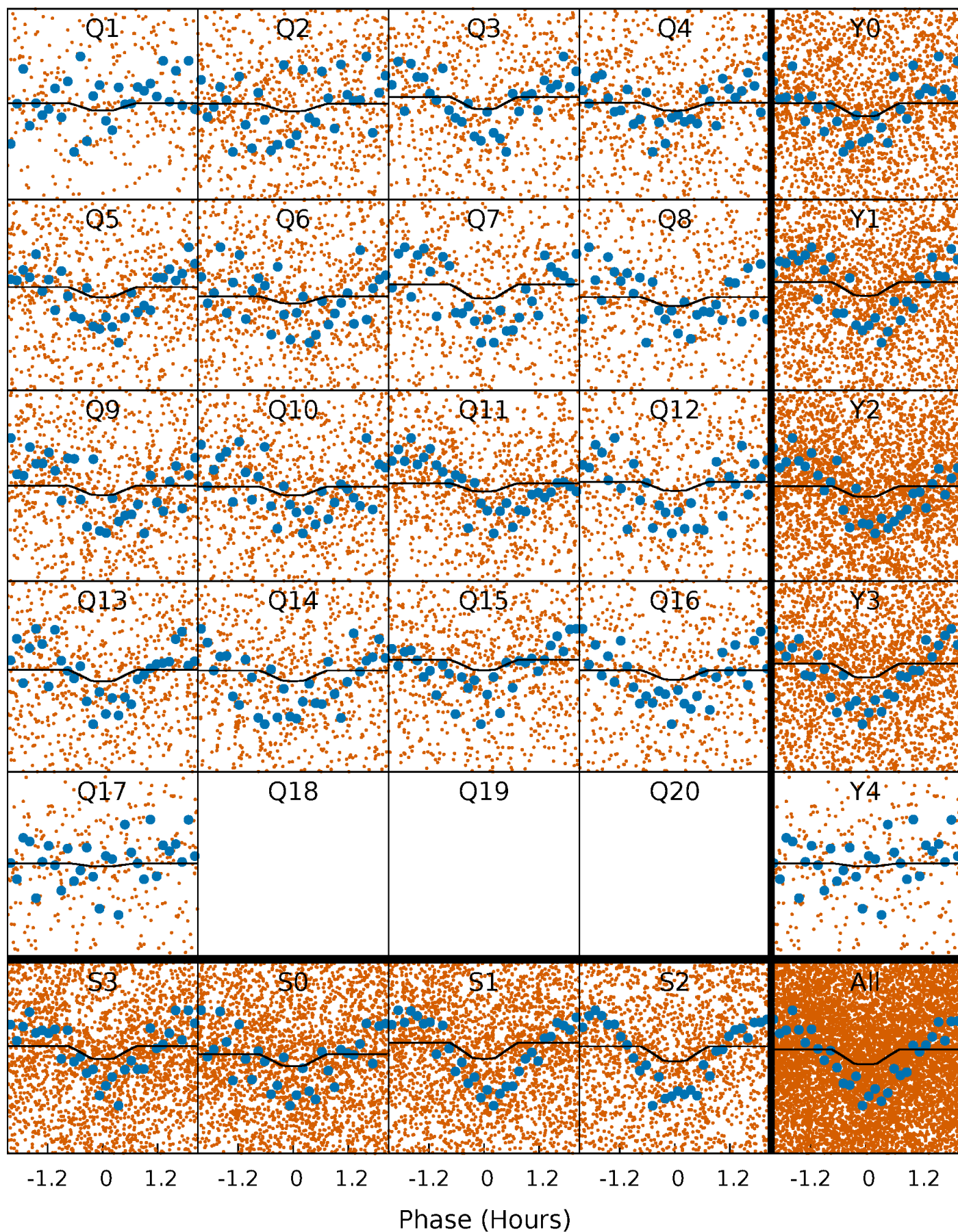
# PDC Quarter-Phased Transit Curves

TCE 008397426-01 P= 0.632828 Days  $T_0=131.552938$  (BKJD)



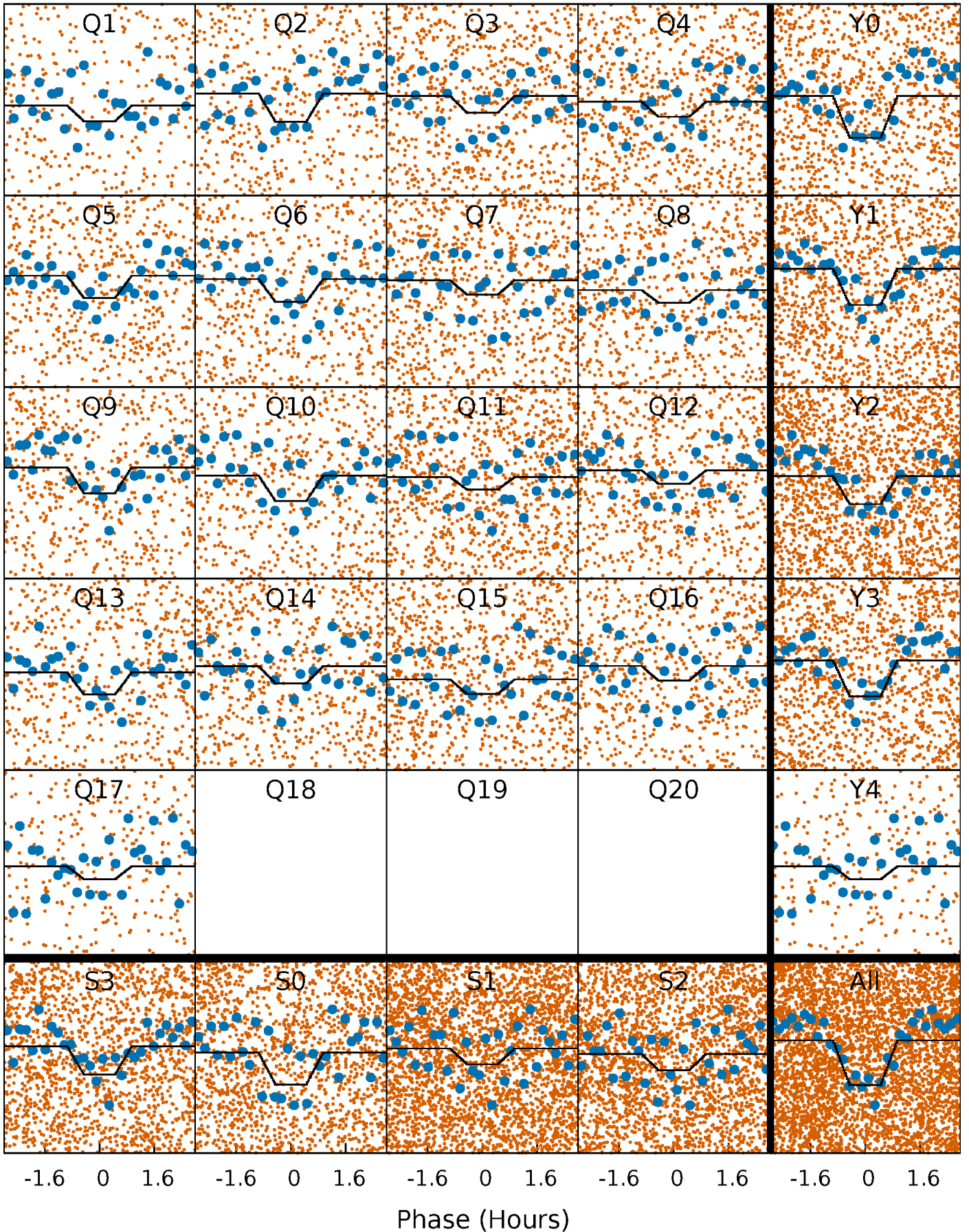
# DV Quarter-Phased Transit Curves

TCE 008397426-01   P= 0.632828 Days    $T_0=131.552938$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

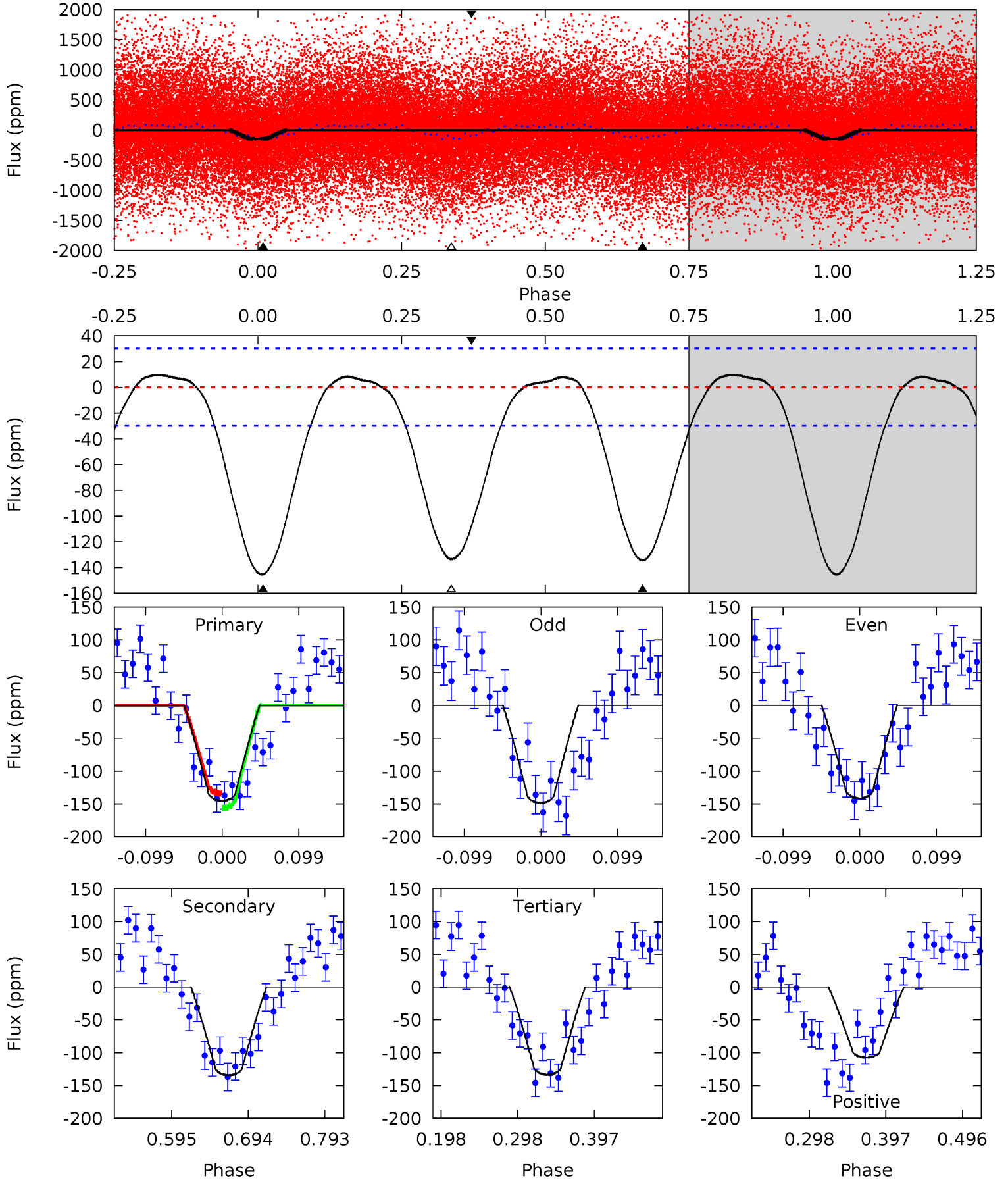
TCE 008397426-01 P= 0.632833 Days  $T_0=131.549050$  (BKJD)



# DV Model-Shift Uniqueness Test

008397426-01, P = 0.632828 Days, E = 130.920110 Days

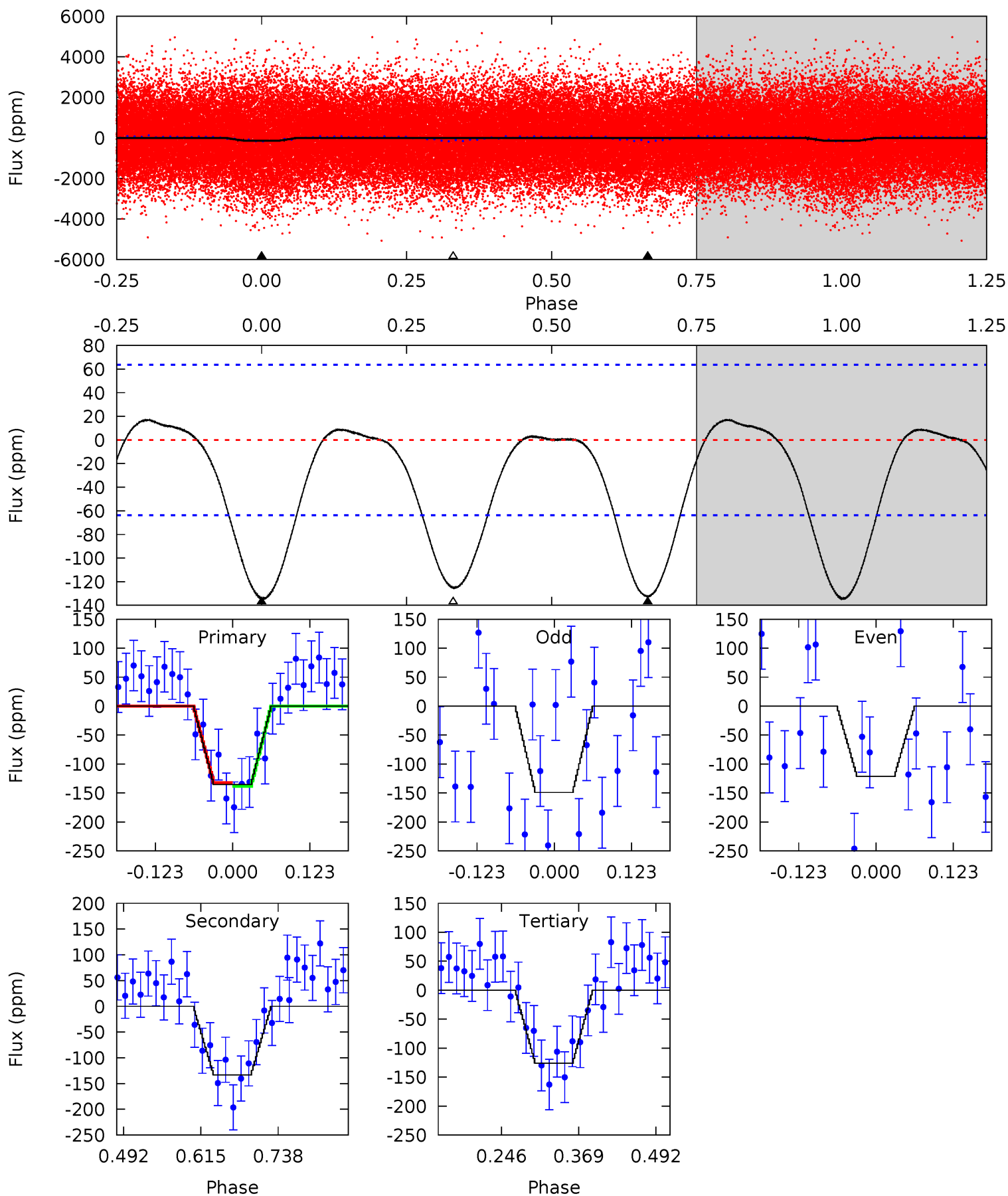
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	20.5	20.4	-16.4	4.57	1.65	6.89	1.80	38.6	0.10	36.9	0.54	1.26	0.06	1.69



# Alt Model-Shift Uniqueness Test

008397426-01, P = 0.632833 Days, E = 130.916217 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
9.60	9.44	8.94	0	4.52	1.54	3.19	0.66	9.60	0.50	9.44	0.98	0.98	0.12	0.23



### Stellar Parameters For KIC 008397426

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7246^{+226}_{-302}$	$3.510^{+0.603}_{-0.067}$	$-0.080^{+0.250}_{-0.300}$	$4.172^{+0.278}_{-2.501}$	$2.054^{+0.077}_{-0.613}$	$0.040^{+0.334}_{-0.009}$
	+3%/-4%	+17%/-2%	+312%/-375%	+7%/-60%	+4%/-30%	+839%/-22%
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 008397426-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-134 \pm 7$	$2.85^{+0.78}_{-0.87}$	$6527^{+420}_{-1014}$	$9552^{+1583}_{-1207}$	$2.986^{+2.645}_{-1.110}$
Alt.	$-133 \pm 14$	$4.77^{+1.03}_{-1.42}$	$6481^{+437}_{-952}$	$6574^{+773}_{-677}$	$1.067^{+1.025}_{-0.348}$

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

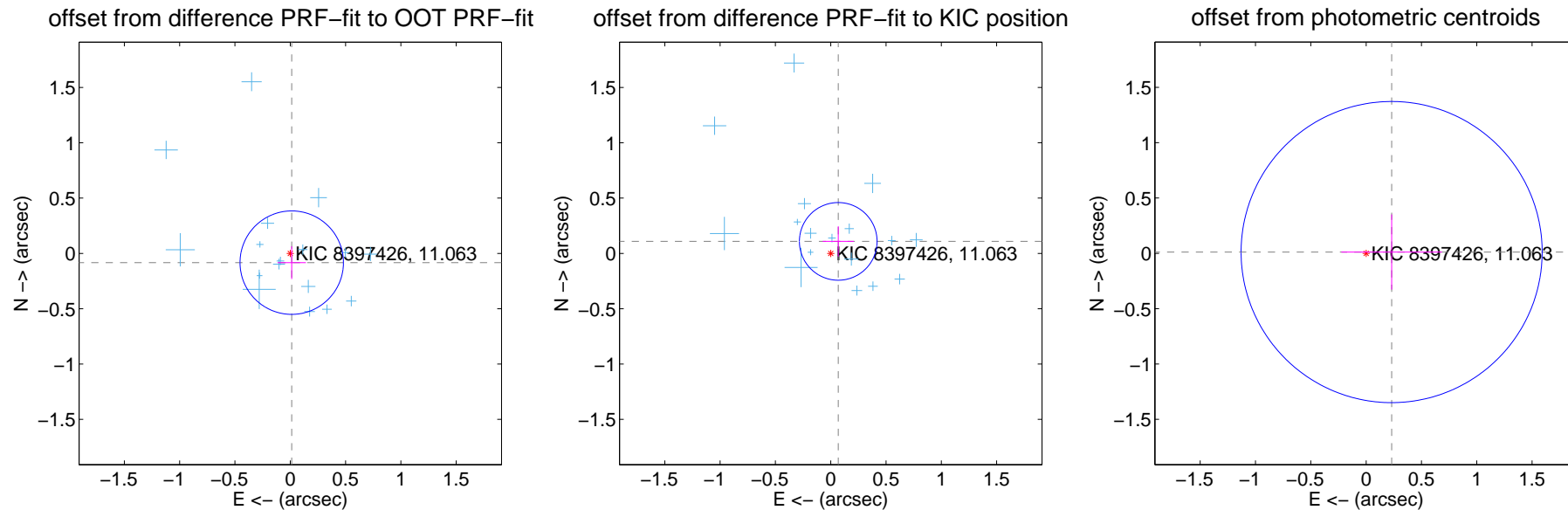
## DV Centroid Data

Supplemental centroid analysis for 008397426-01. **Kepler magnitude: 11.06.** Transit SNR 7.28

There are 17 quarters with good PRF difference image offsets

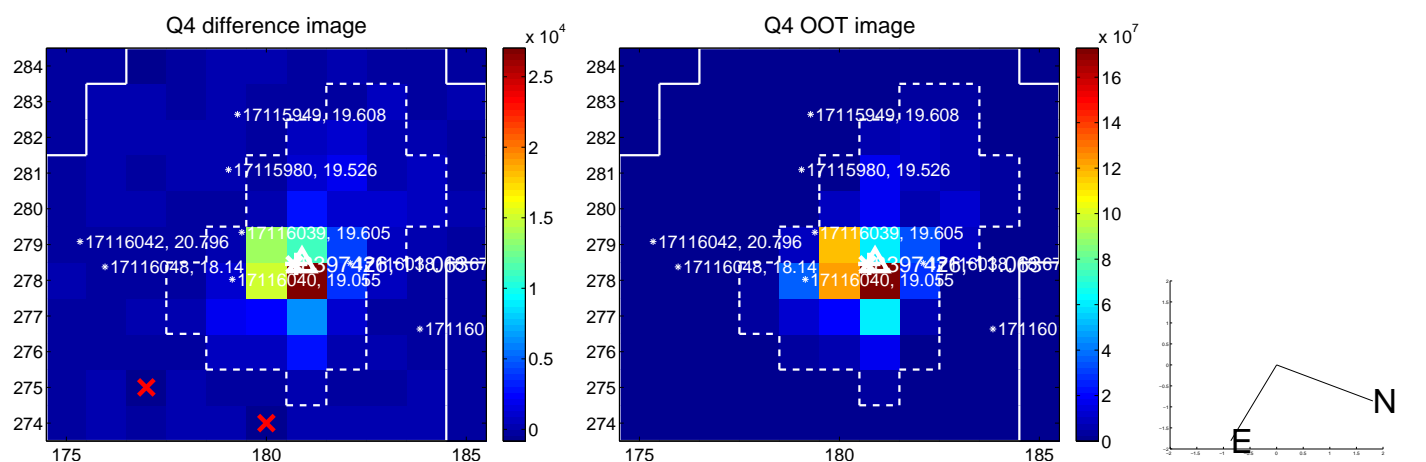
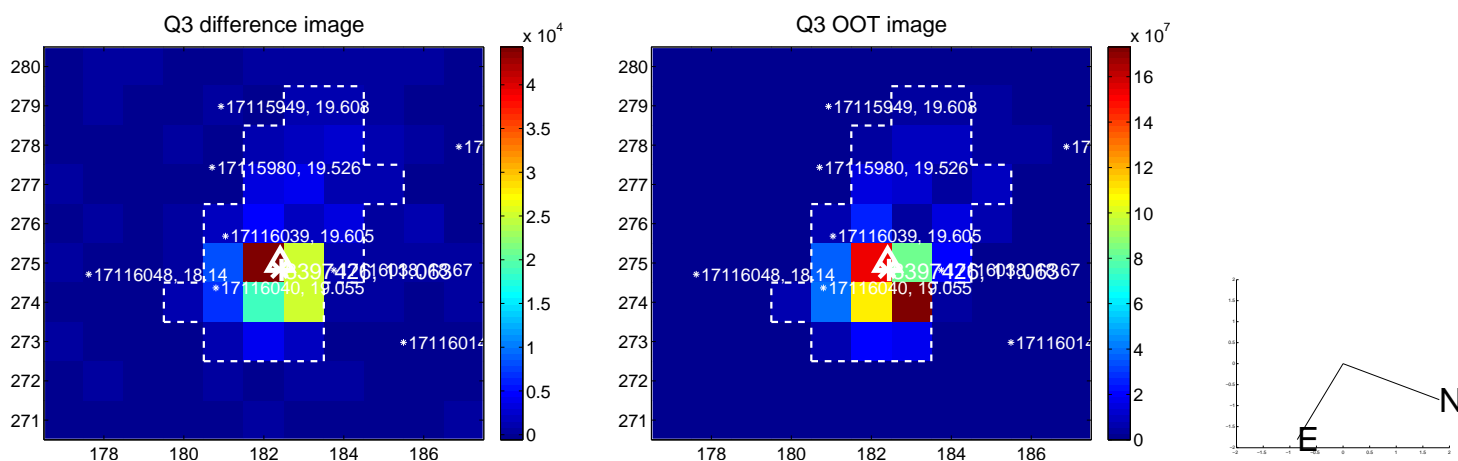
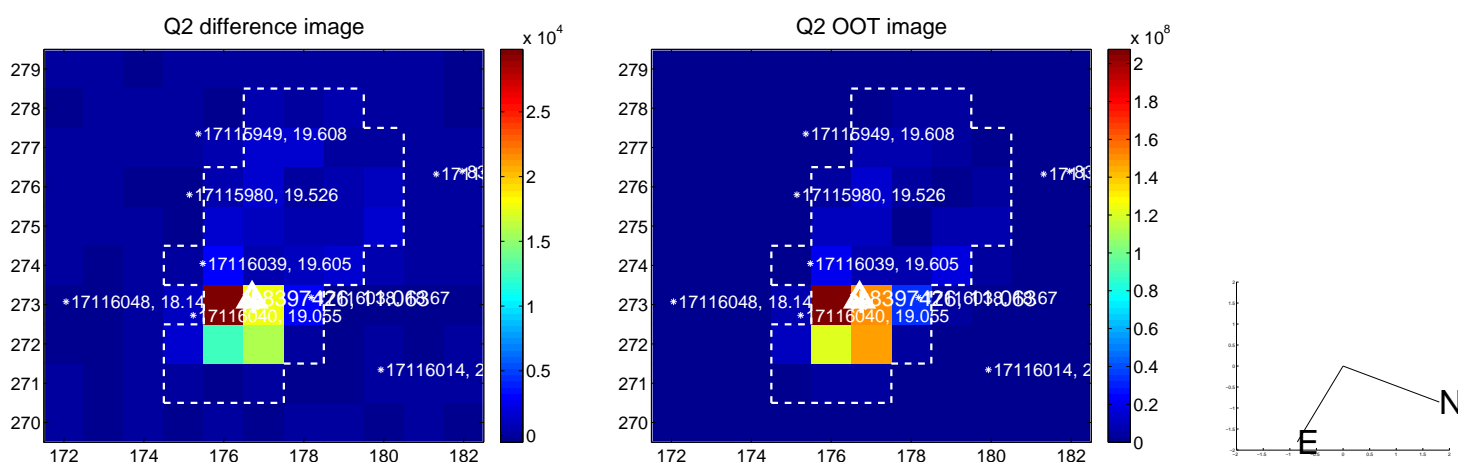
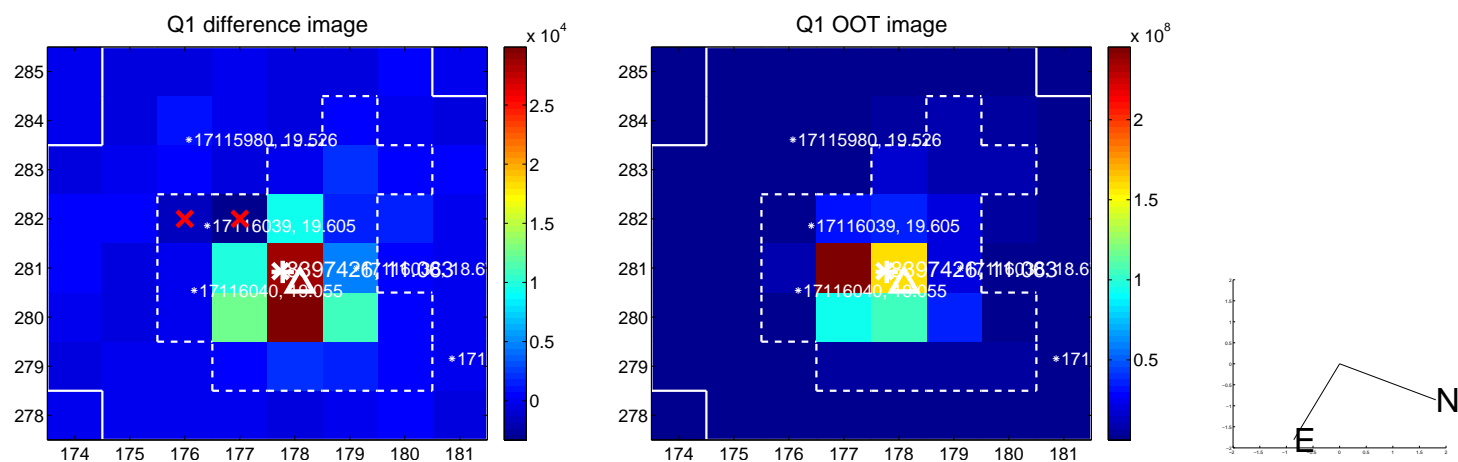
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.085 \pm 0.156$	0.54	$-0.013 \pm 0.128$	$-0.083 \pm 0.148$
PRF-fit source offset from KIC position	$0.128 \pm 0.117$	1.10	$-0.068 \pm 0.140$	$0.109 \pm 0.137$
photometric centroid source offset	$0.23 \pm 0.45$	0.51	$-0.23 \pm 0.45$	$0.01 \pm 0.34$

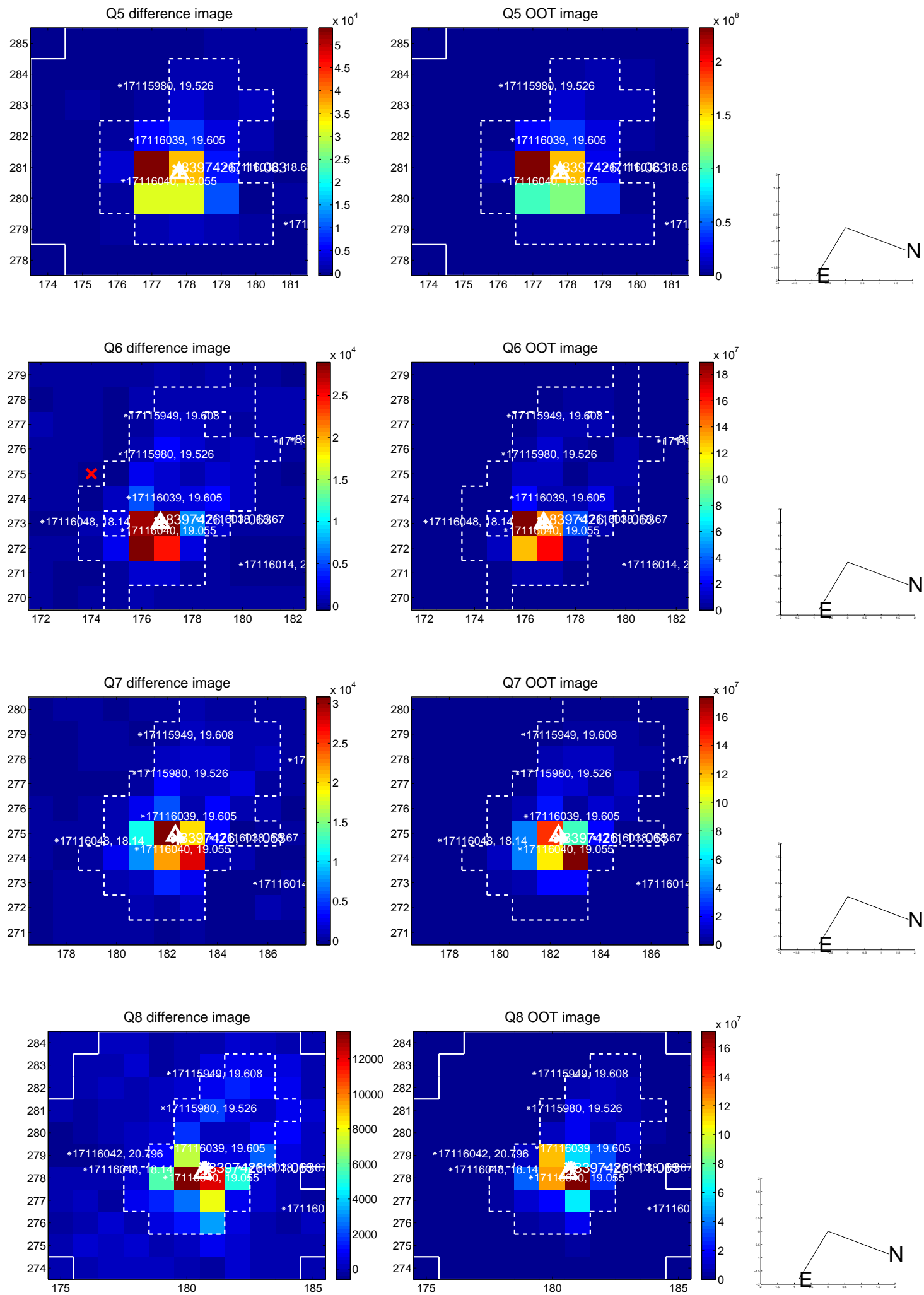


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

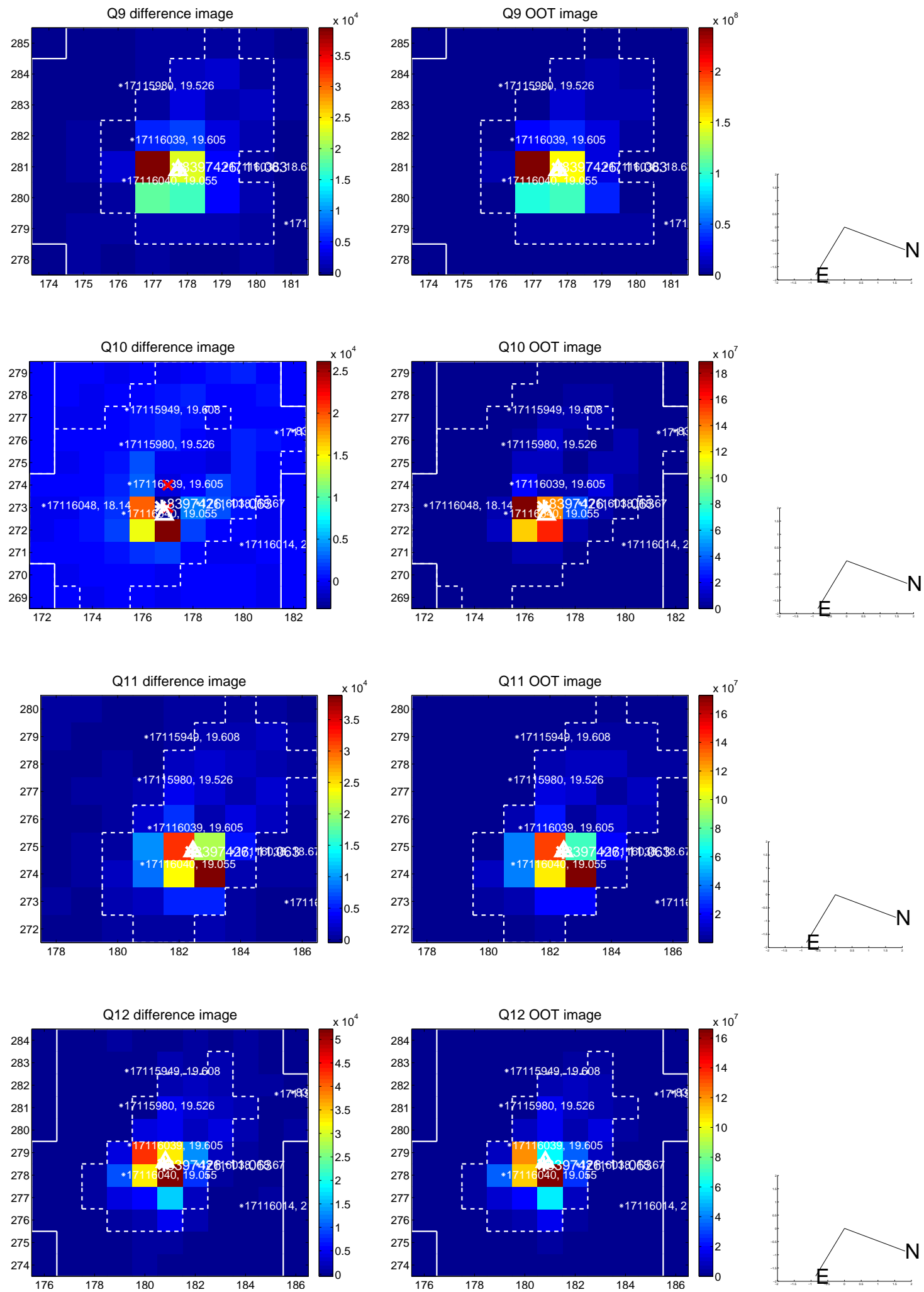
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



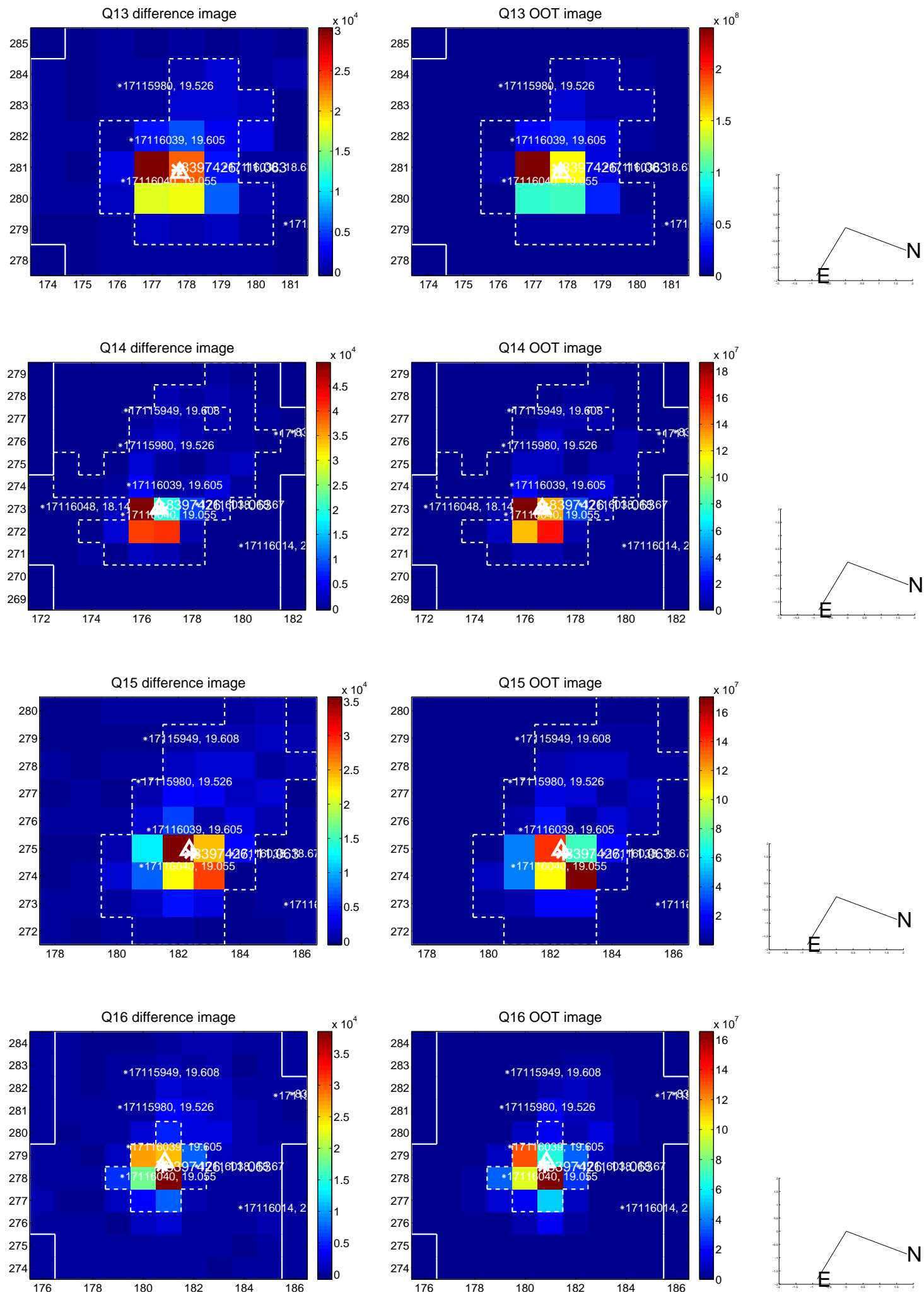
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



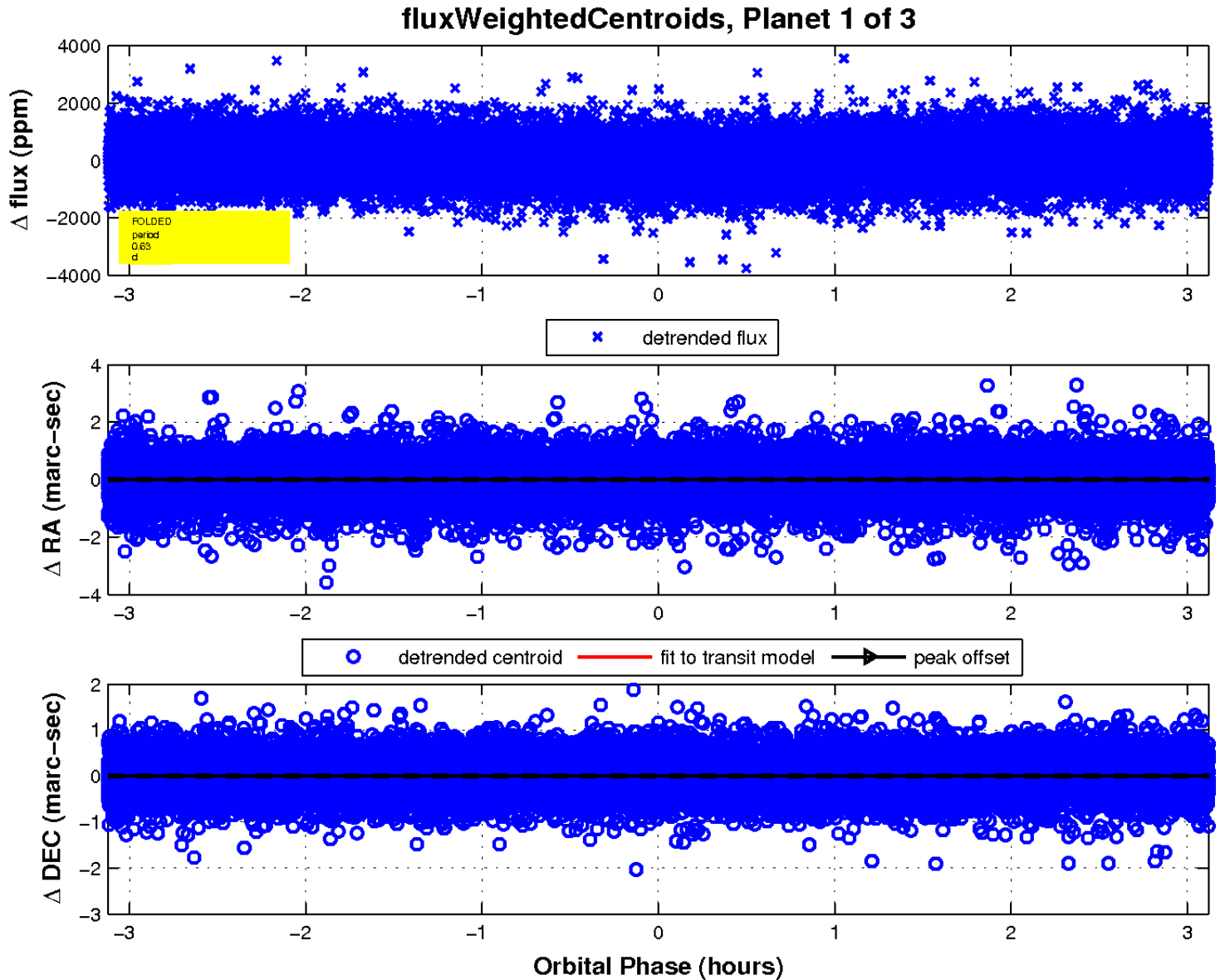
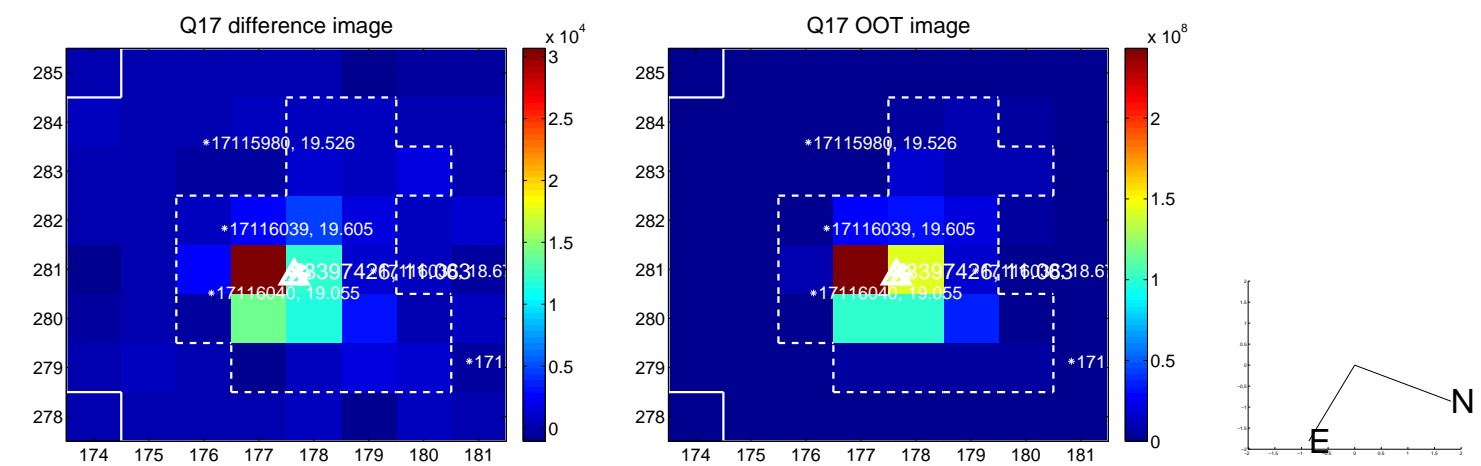
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

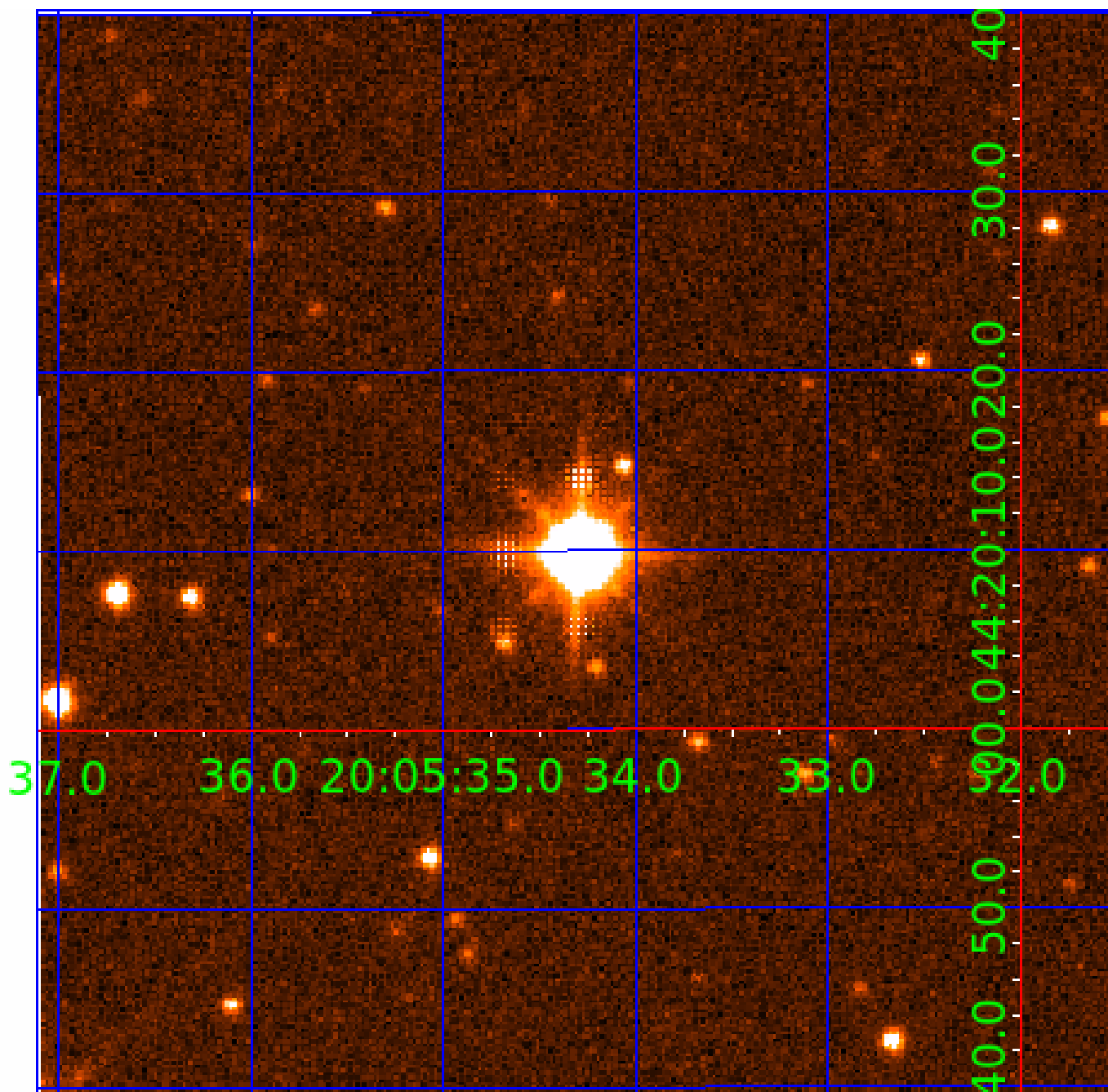


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008397426

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008397426-01	OBS	No	0.632828	131.552938	43.7	1.041	9.9	7.3	4.17	7246	3.21	0.00
008397426-02	OBS	No	0.632818	131.974916	69.2	1.864	9.5	8.7	4.17	7246	4.03	0.00
008397426-03	OBS	No	4.195239	135.045289	199.3	9.282	8.4	9.6	4.17	7246	6.83	10260.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008397426-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008397426-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008397426-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

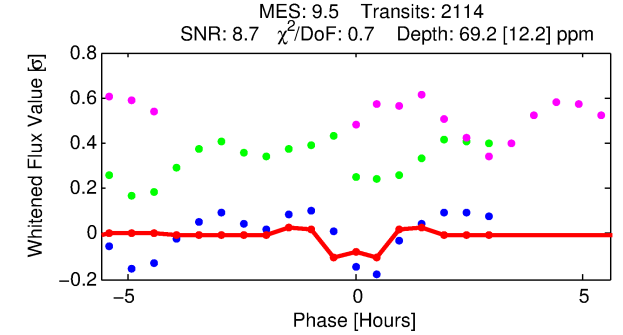
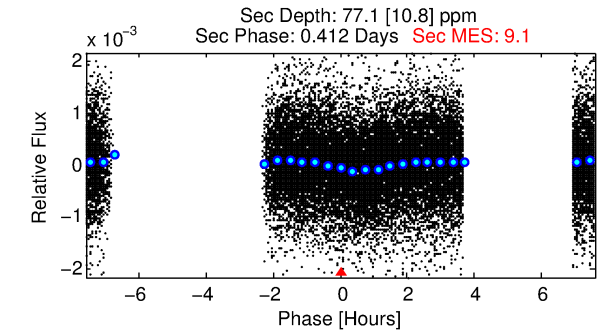
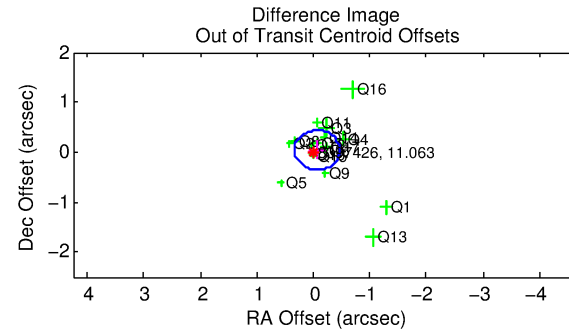
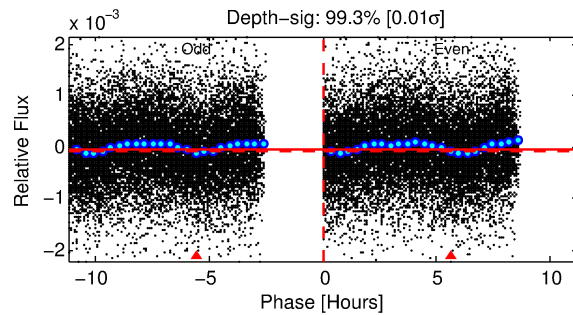
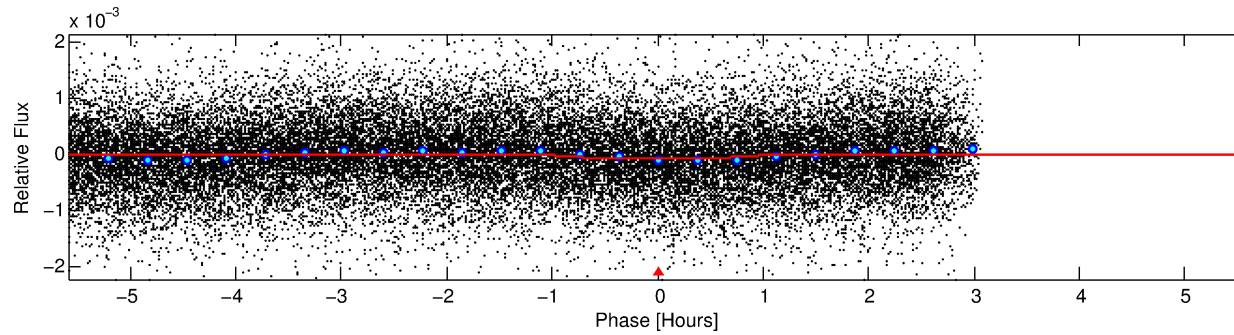
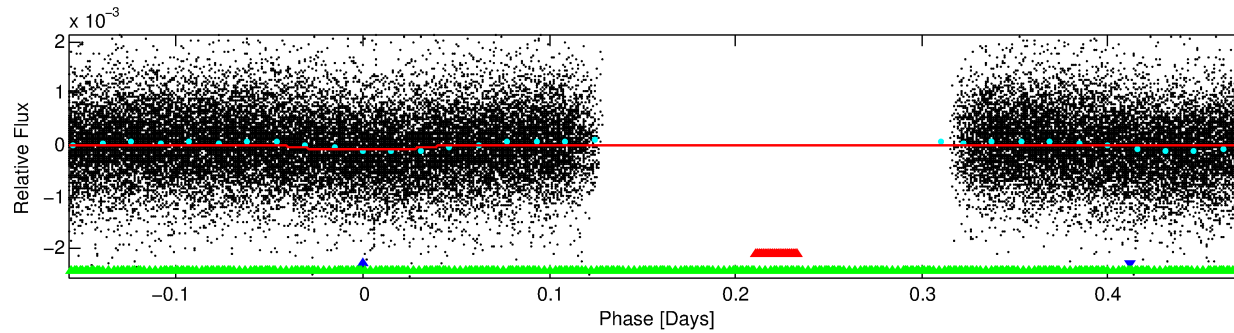
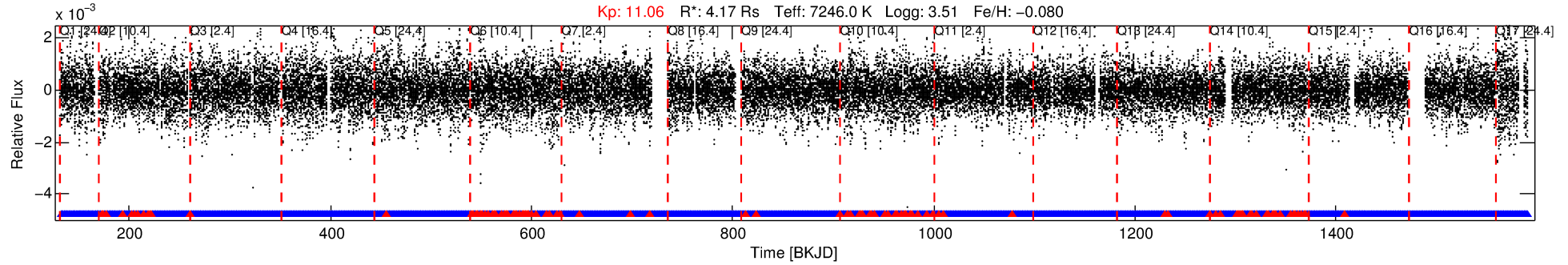
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008397426-02

No Significant Match Found

# DV One-Page Summary

KIC: 8397426 Candidate: 2 of 3 Period: 0.633 d



## DV Fit Results:

Period = 0.63282 [0.00002] d  
Epoch = 131.9749 [0.0013] BKJD  
Rp/R\* = 0.0089 [0.0018]  
a/R\* = 1.50 [1.01]  
b = 0.90 [0.25]  
Seff = N/A  
Teq = N/A  
Rp = 4.03 [2.56] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

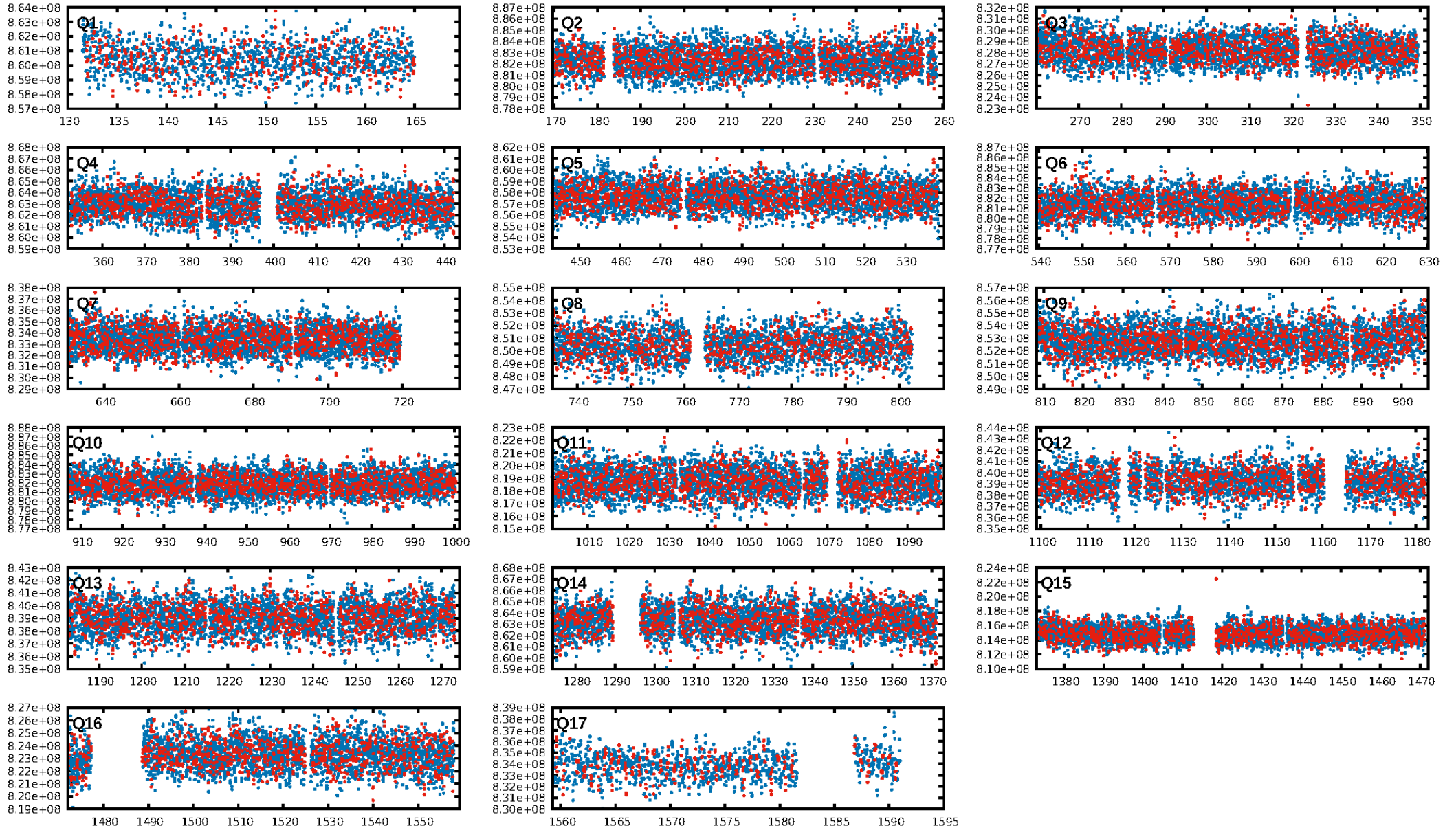
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.03e-14  
RollingBand-fgt: 0.94 [1907/2019]  
GhostDiagnostic-chr: 1.515  
Centroid-sig: 23.1%  
Centroid-so: 0.565 arcsec [2.62 $\sigma$ ]  
OotOffset-rm: 0.075 arcsec [0.57 $\sigma$ ]  
KicOffset-rm: 0.274 arcsec [1.91 $\sigma$ ]  
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]

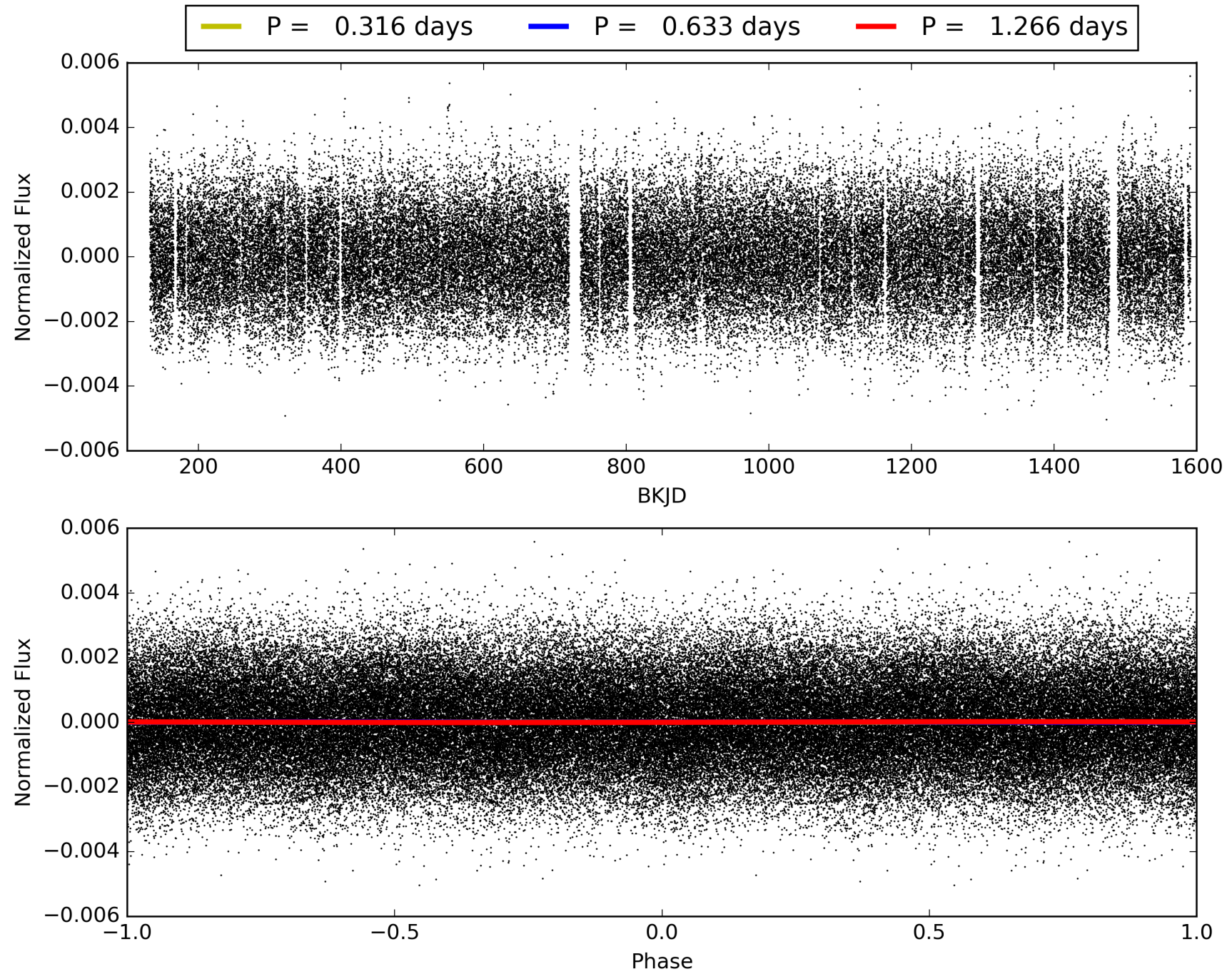
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:21:45 Z

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

# TCE 008397426-02, PDC Light Curves

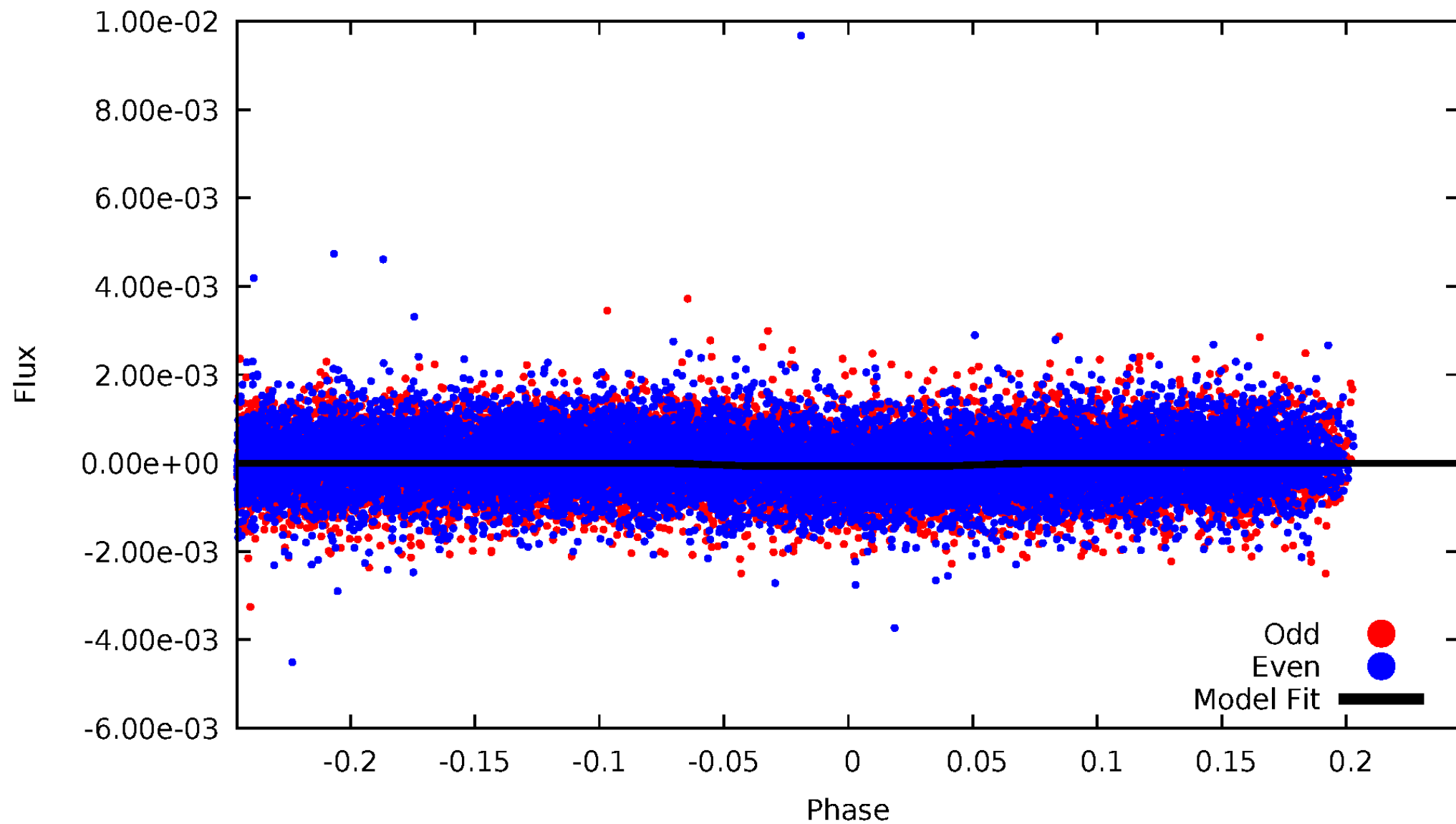


TCE 008397426-02



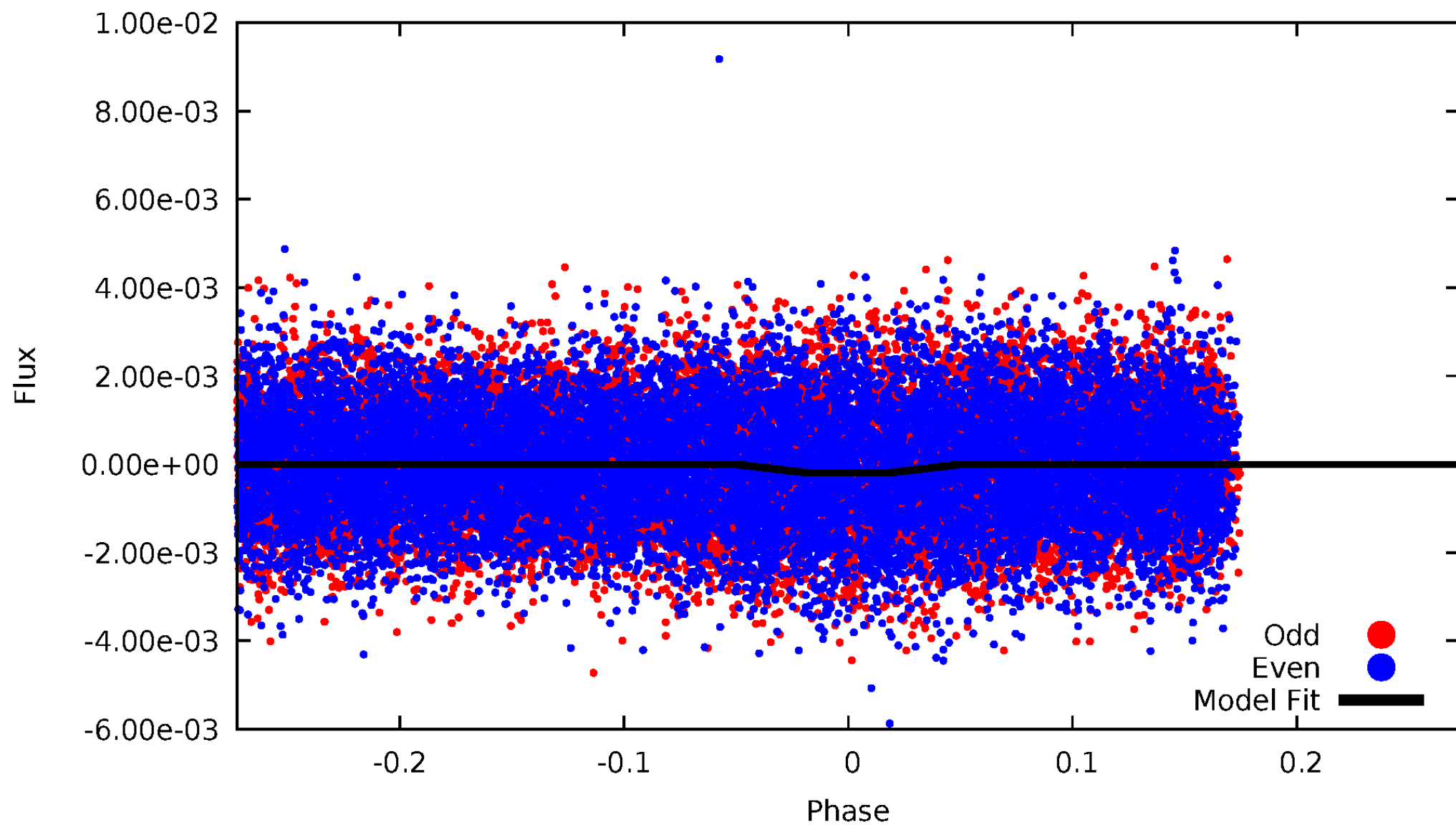
# DV Odd/Even

TCE 008397426-02



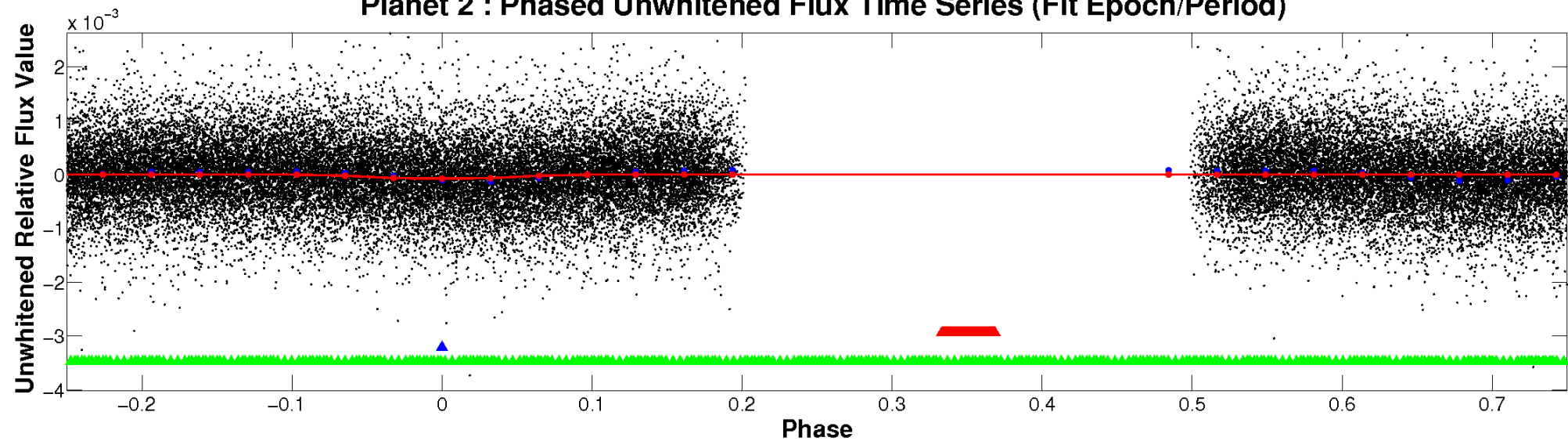
# ALT Odd/Even

TCE 008397426-02

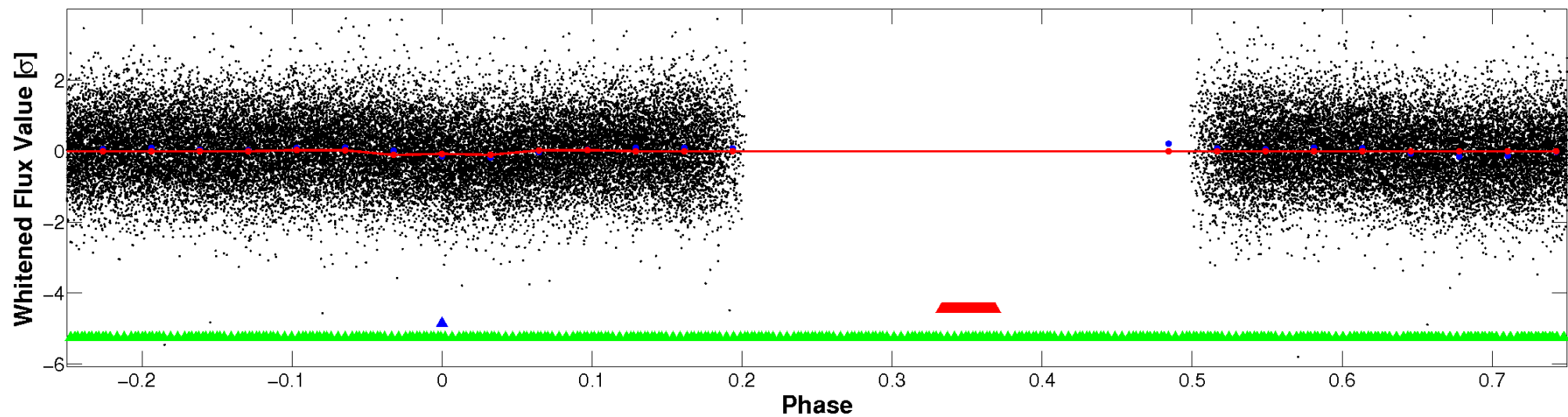


# Non-Whitened Vs. Whitened Light Curve

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

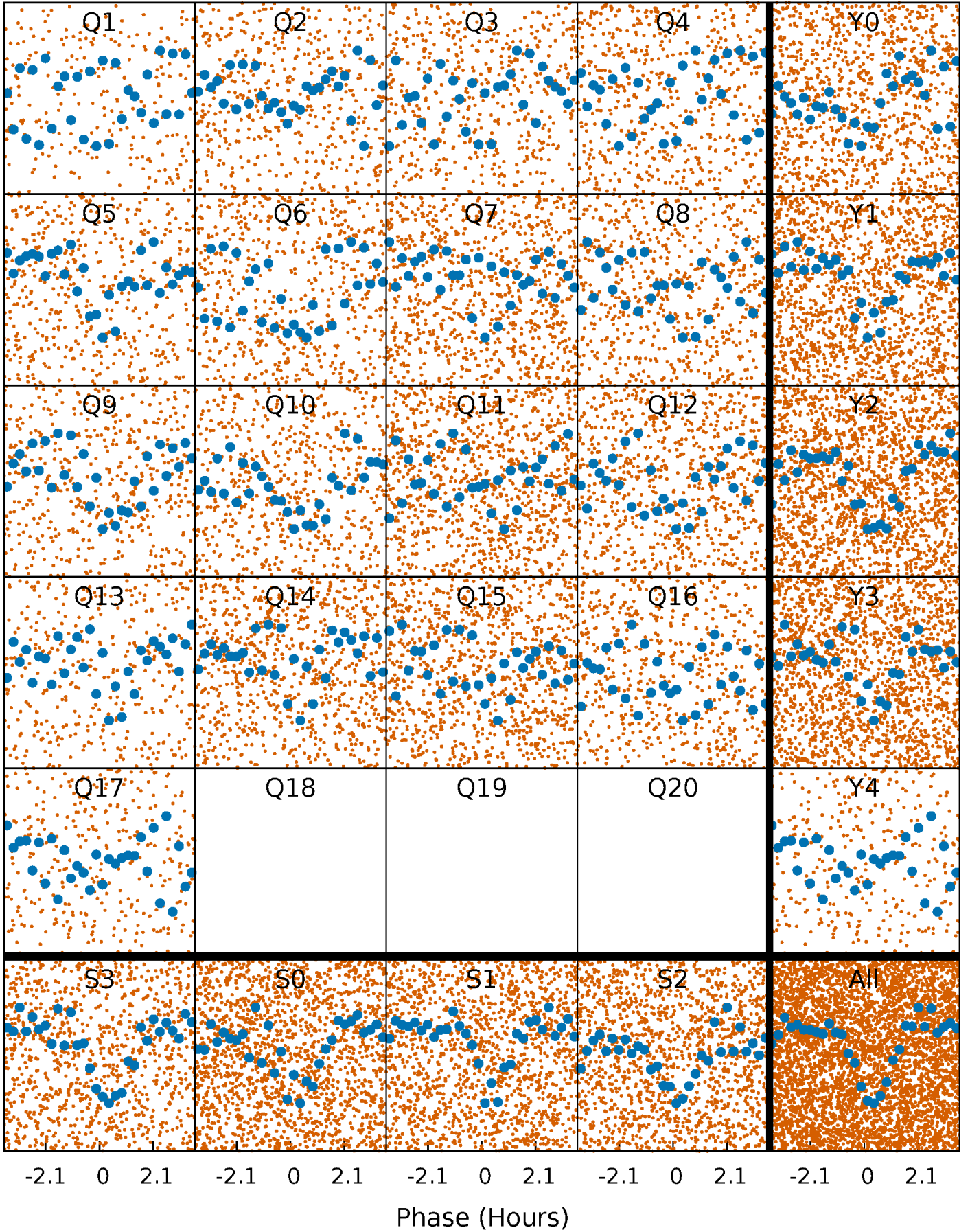


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



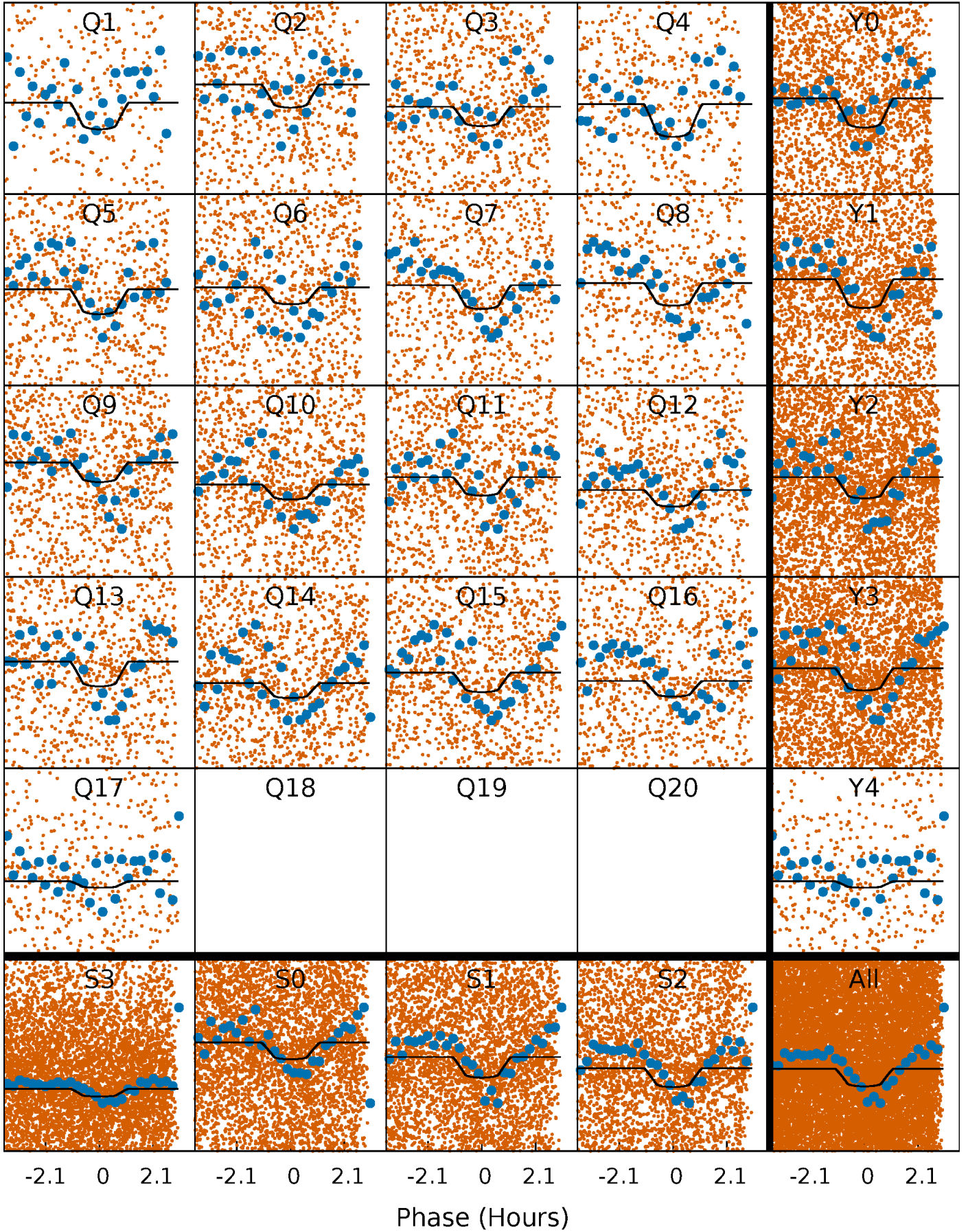
# PDC Quarter-Phased Transit Curves

TCE 008397426-02   P= 0.632818 Days    $T_0=131.974916$  (BKJD)



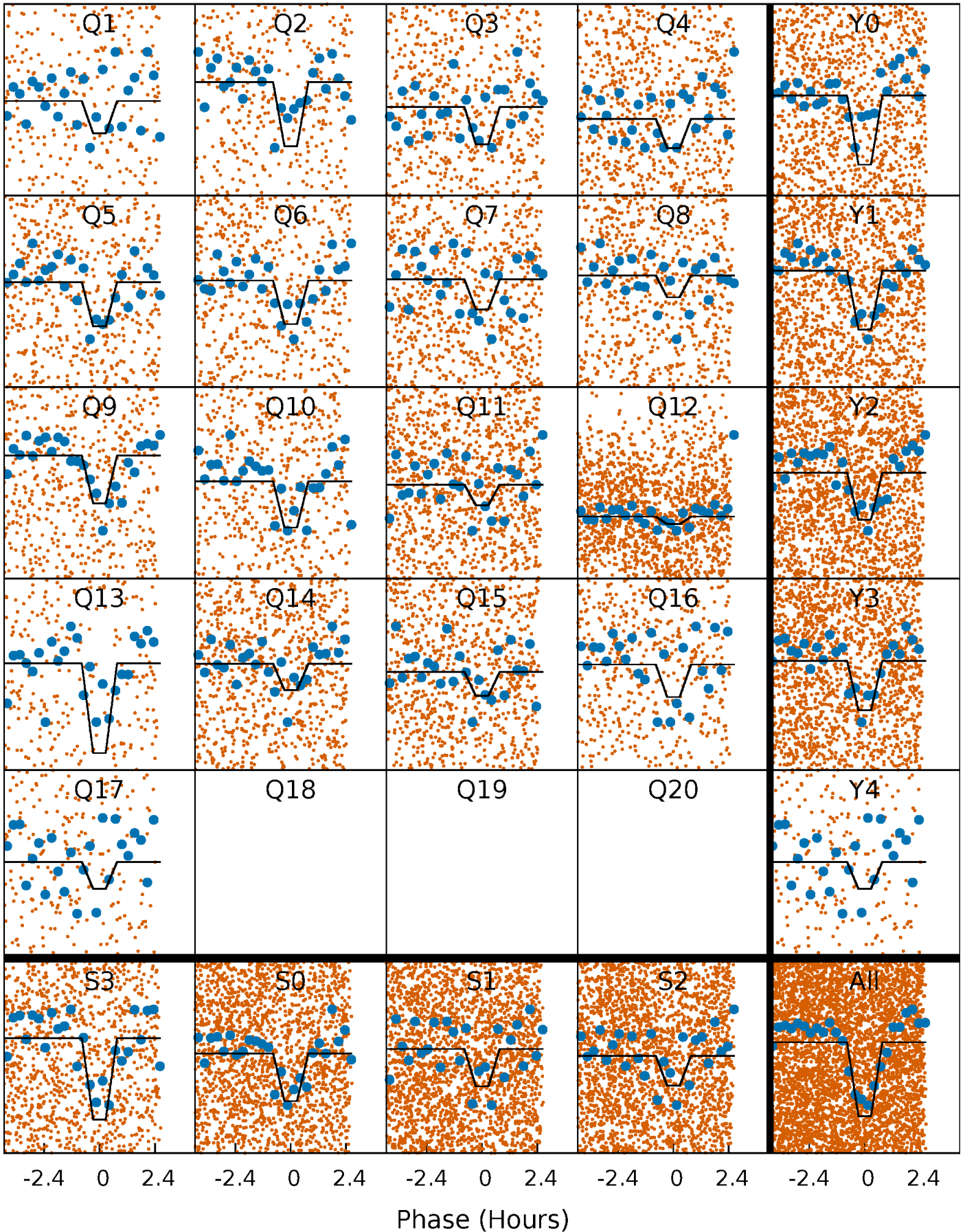
# DV Quarter-Phased Transit Curves

TCE 008397426-02   P= 0.632818 Days    $T_0=131.974916$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

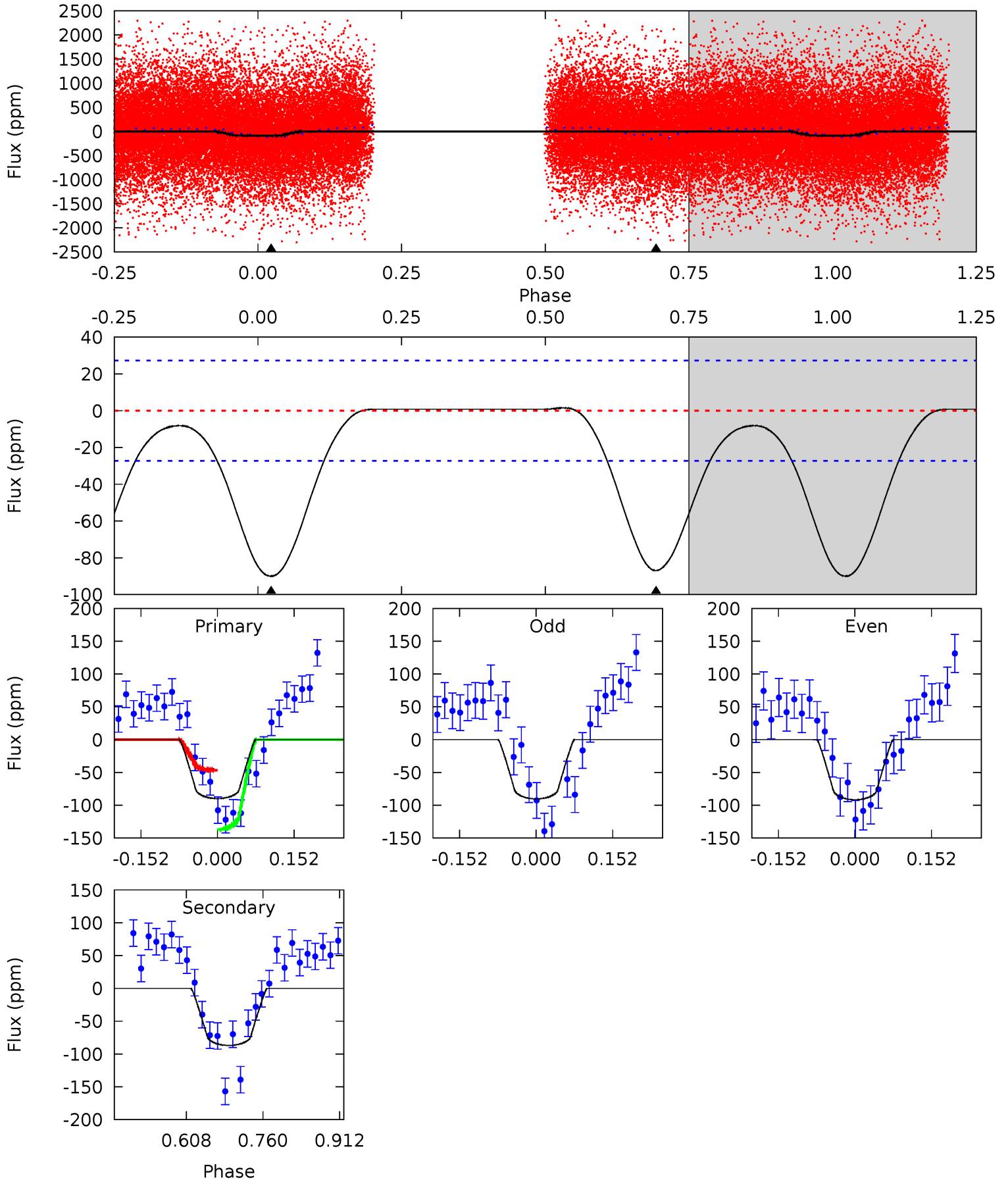
TCE 008397426-02   P= 0.632832 Days    $T_0=131.970710$  (BKJD)



# DV Model-Shift Uniqueness Test

008397426-02, P = 0.632818 Days, E = 131.342098 Days

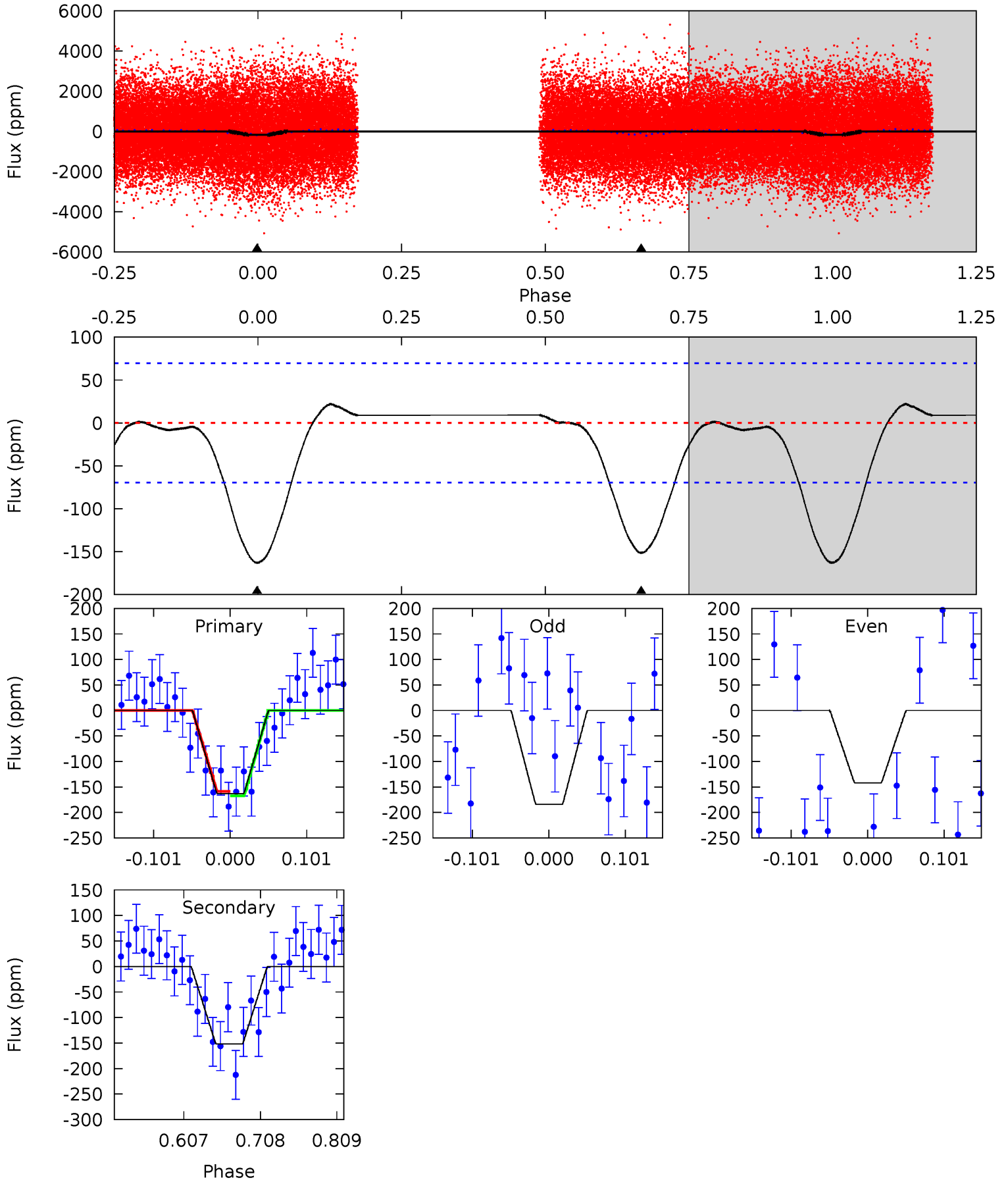
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	14.3	0	0	4.48	1.43	0.76	14.8	14.8	14.3	14.3	0.10	1.01	0.02	7.49



# Alt Model-Shift Uniqueness Test

008397426-02, P = 0.632832 Days, E = 131.337878 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
10.7	9.94	0	0	4.56	1.64	0.59	10.7	10.7	9.94	9.94	1.38	0.95	0.12	0.28



### Stellar Parameters For KIC 008397426

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7246^{+226}_{-302}$	$3.510^{+0.603}_{-0.067}$	$-0.080^{+0.250}_{-0.300}$	$4.172^{+0.278}_{-2.501}$	$2.054^{+0.077}_{-0.613}$	$0.040^{+0.334}_{-0.009}$
	+3%/-4%	+17%/-2%	+312%/-375%	+7%/-60%	+4%/-30%	+839%/-22%
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 008397426-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-87 \pm 6$	$3.65^{+1.01}_{-1.14}$	$6534^{+395}_{-876}$	$6860^{+1319}_{-977}$	$1.189^{+1.188}_{-0.447}$
Alt.	$-152 \pm 15$	$5.90^{+1.18}_{-1.60}$	$6597^{+362}_{-961}$	$5973^{+717}_{-708}$	$0.805^{+0.624}_{-0.254}$

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

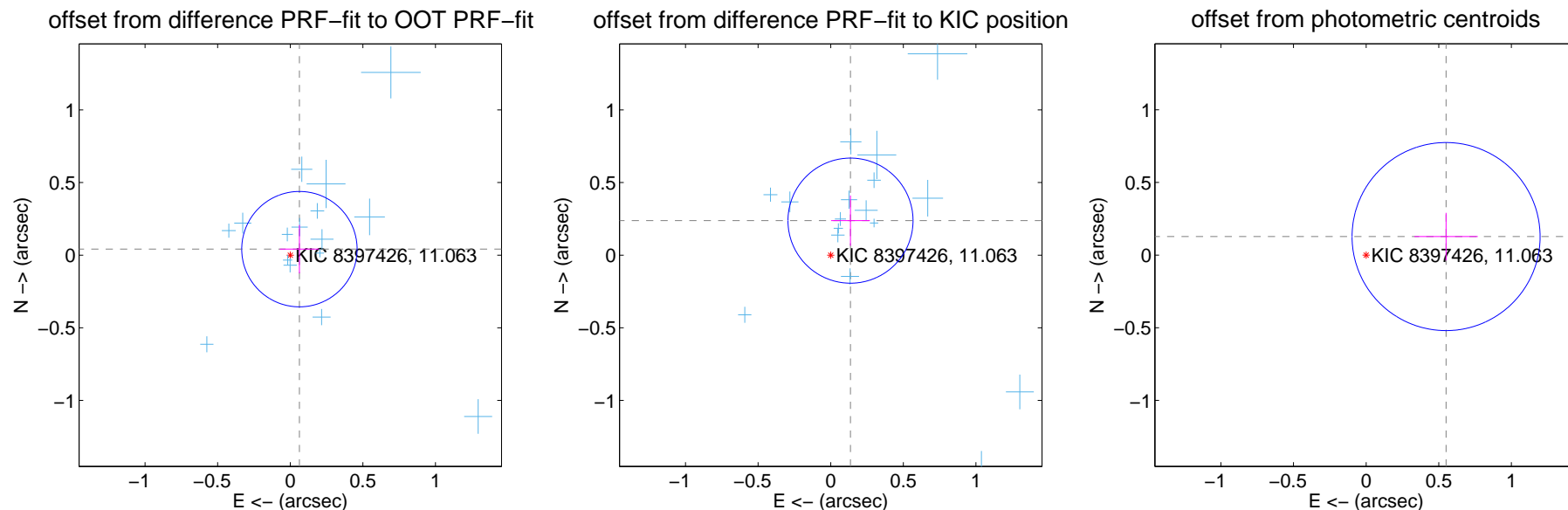
## DV Centroid Data

Supplemental centroid analysis for 008397426-02. **Kepler magnitude: 11.06.** Transit SNR 8.68

There are 17 quarters with good PRF difference image offsets

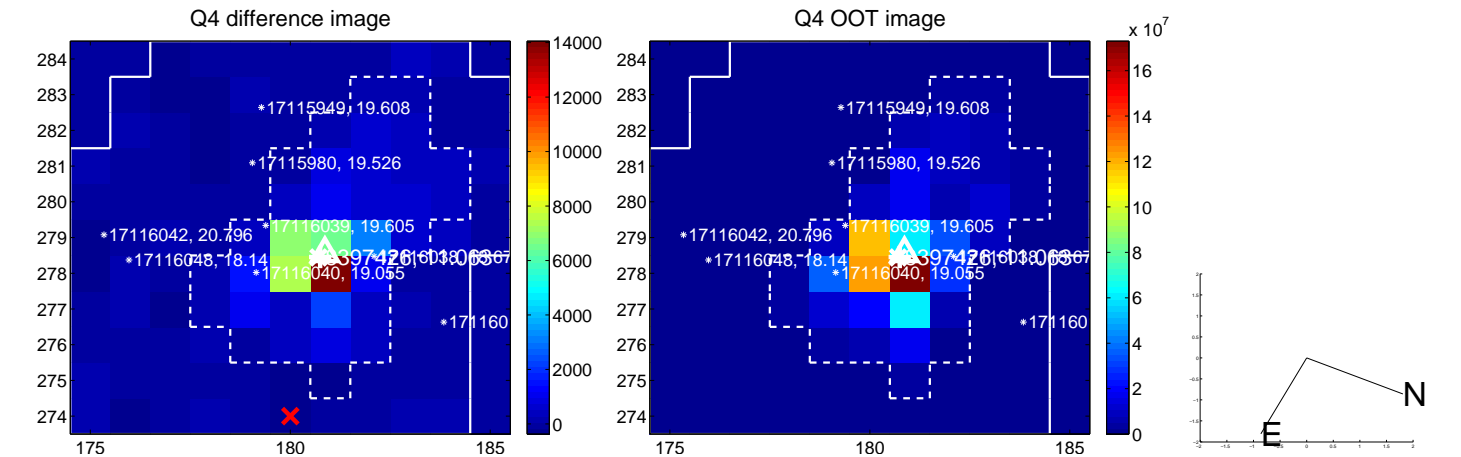
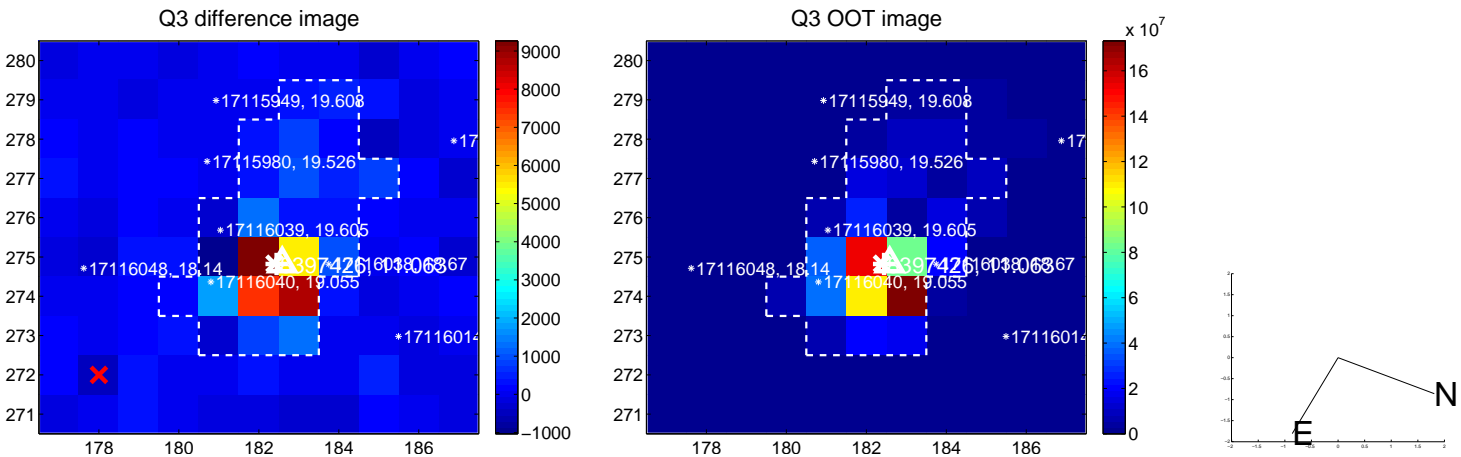
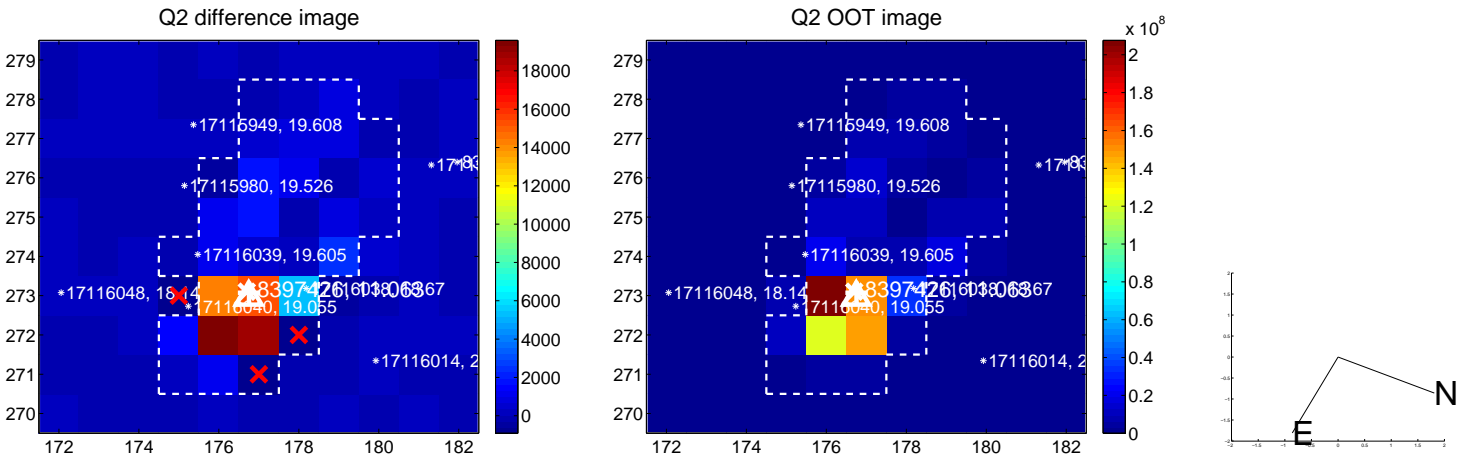
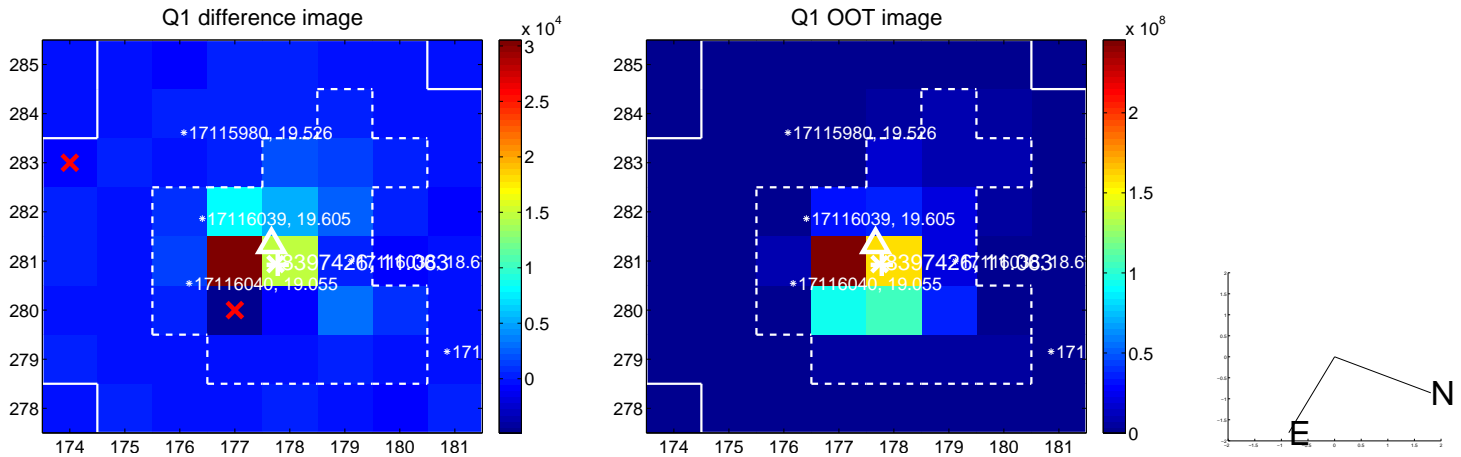
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.075 \pm 0.132$	0.57	$-0.063 \pm 0.136$	$0.041 \pm 0.166$
PRF-fit source offset from KIC position	$0.274 \pm 0.144$	1.91	$-0.136 \pm 0.134$	$0.238 \pm 0.173$
photometric centroid source offset	$0.57 \pm 0.22$	2.62	$-0.55 \pm 0.22$	$0.13 \pm 0.16$

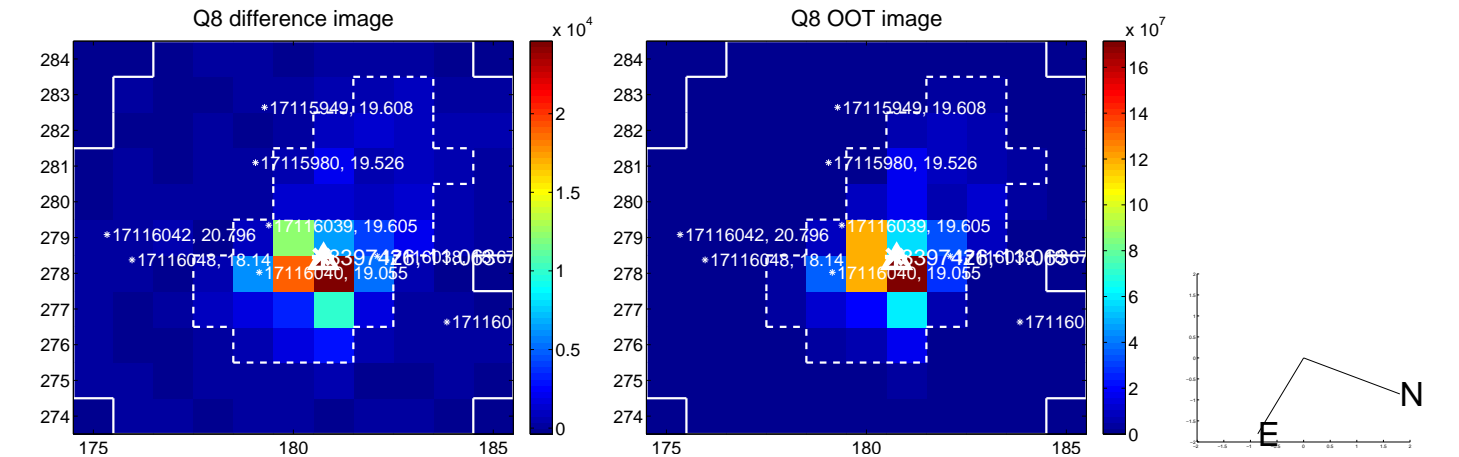
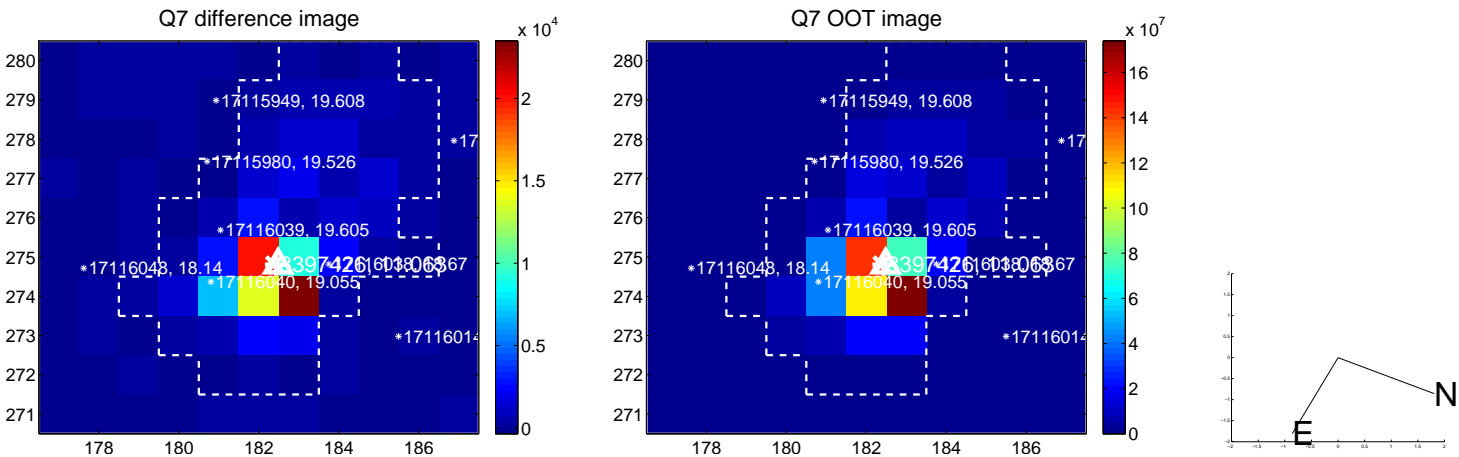
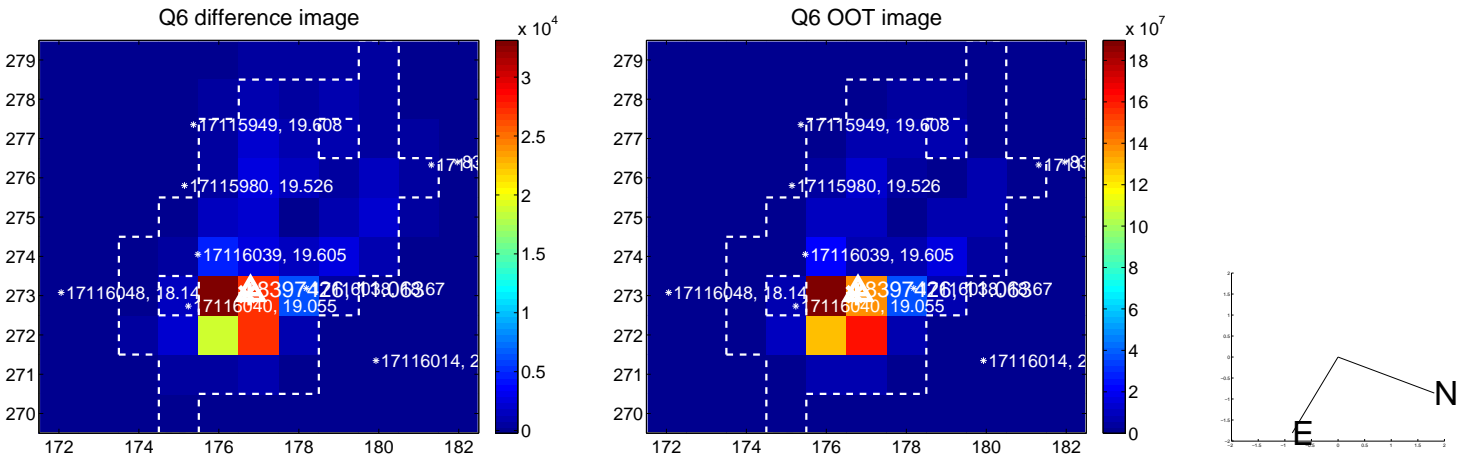
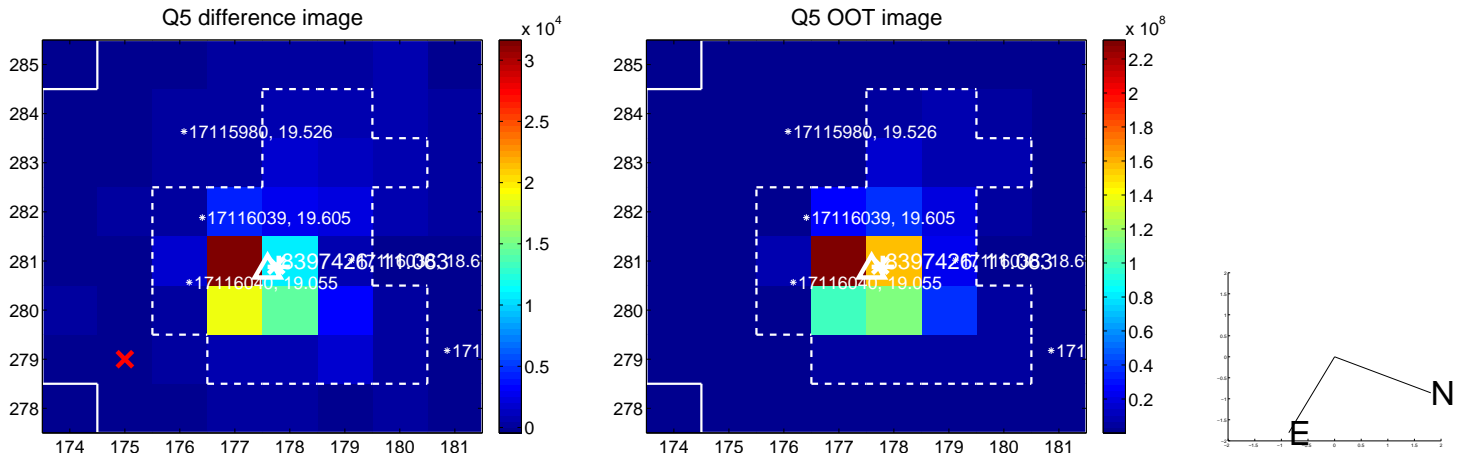


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

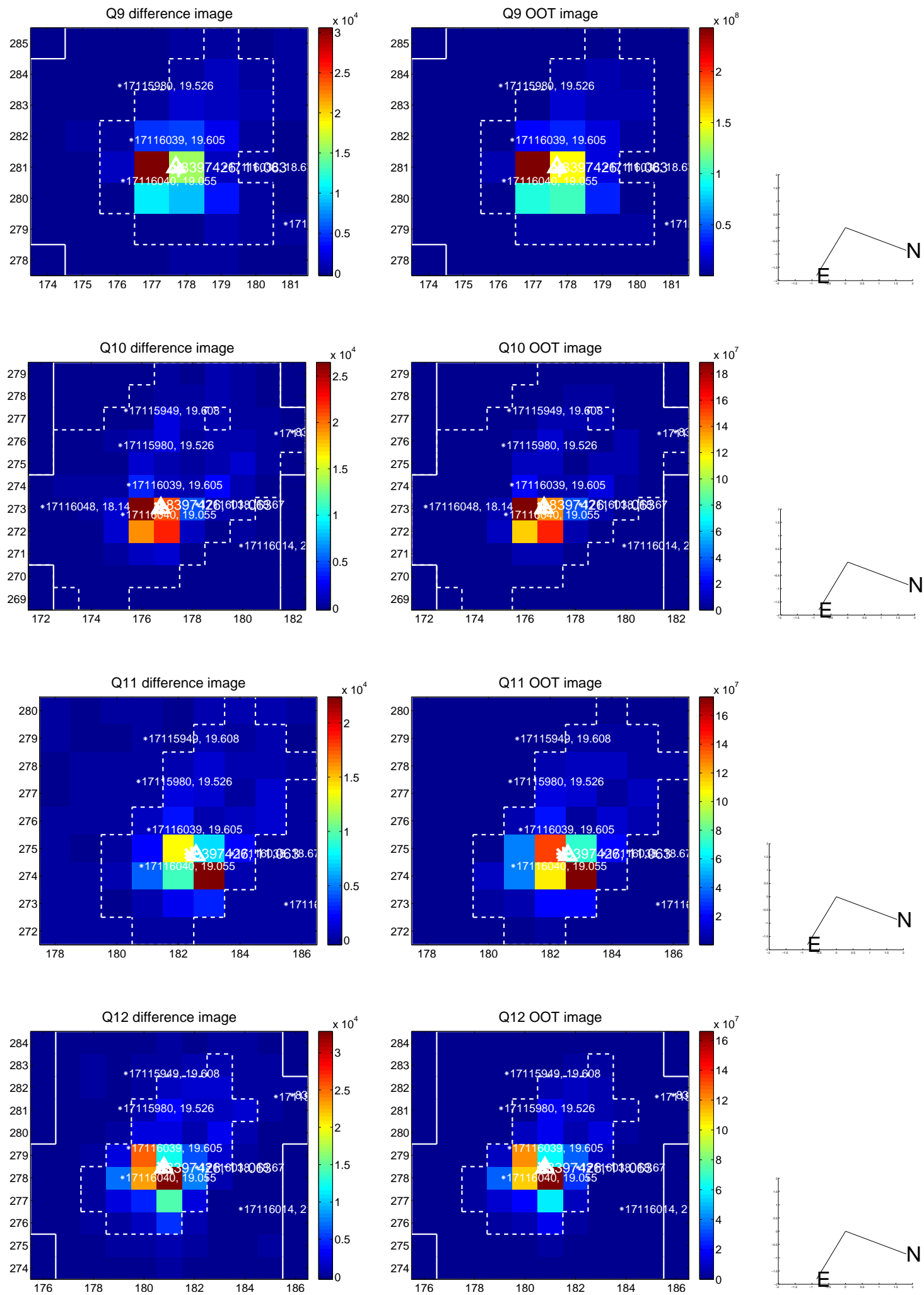
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



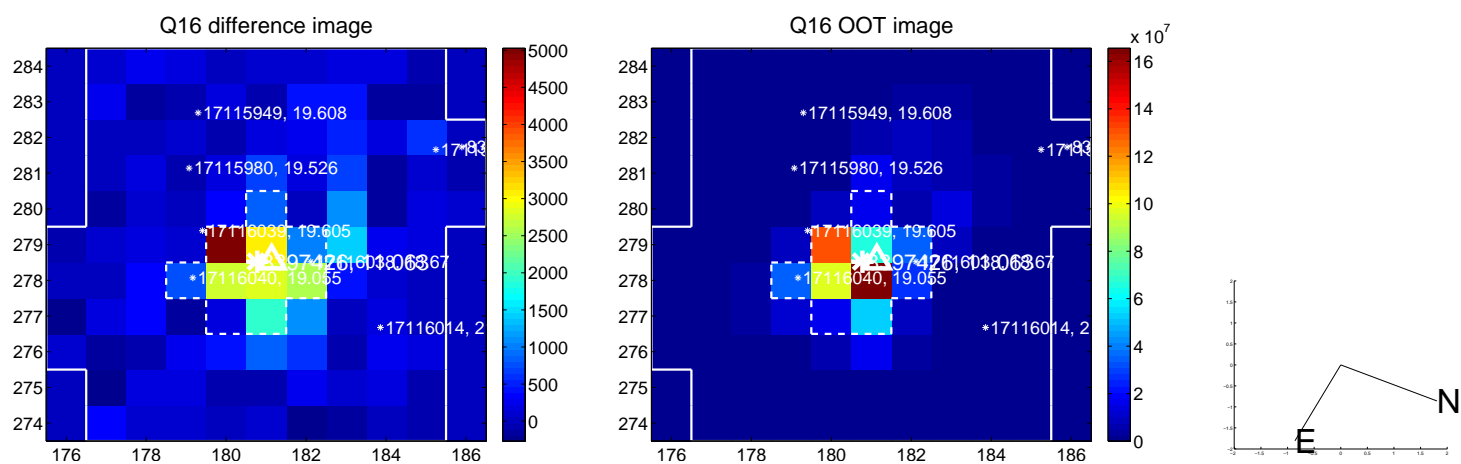
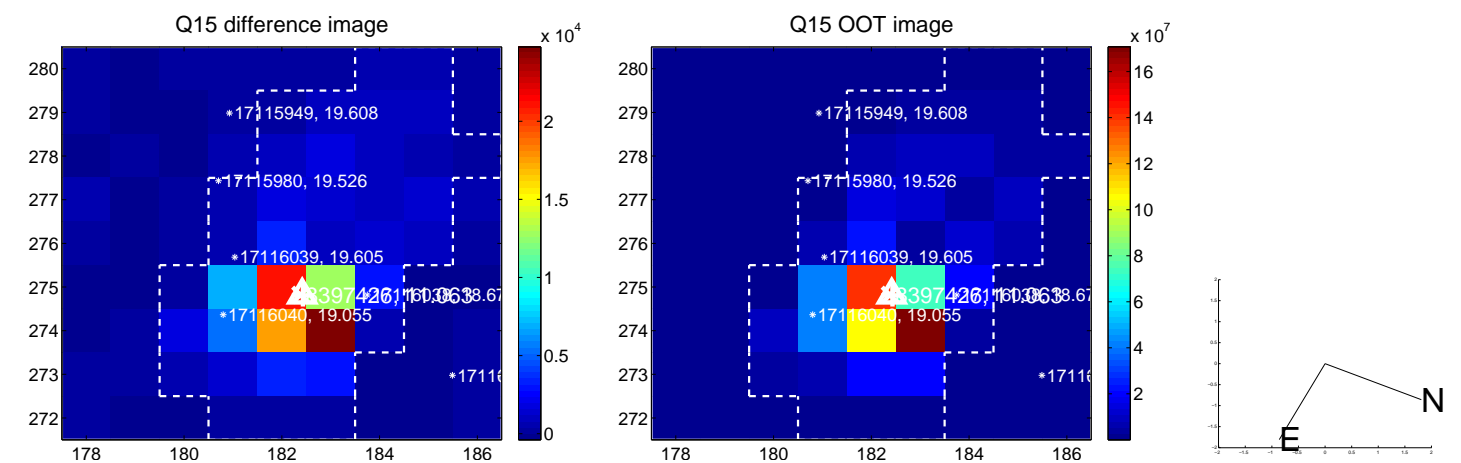
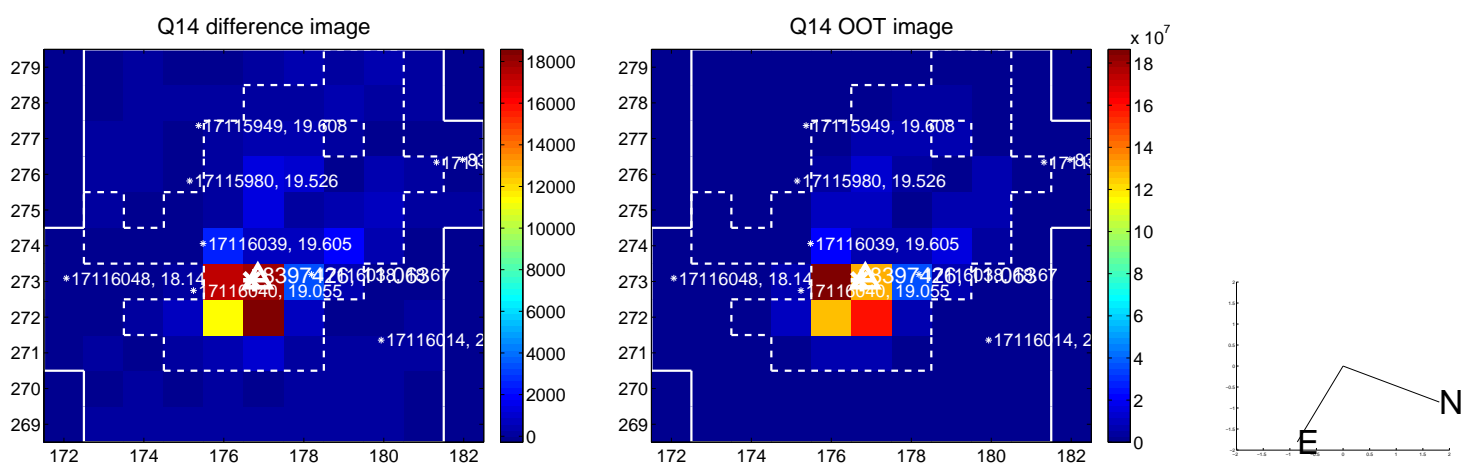
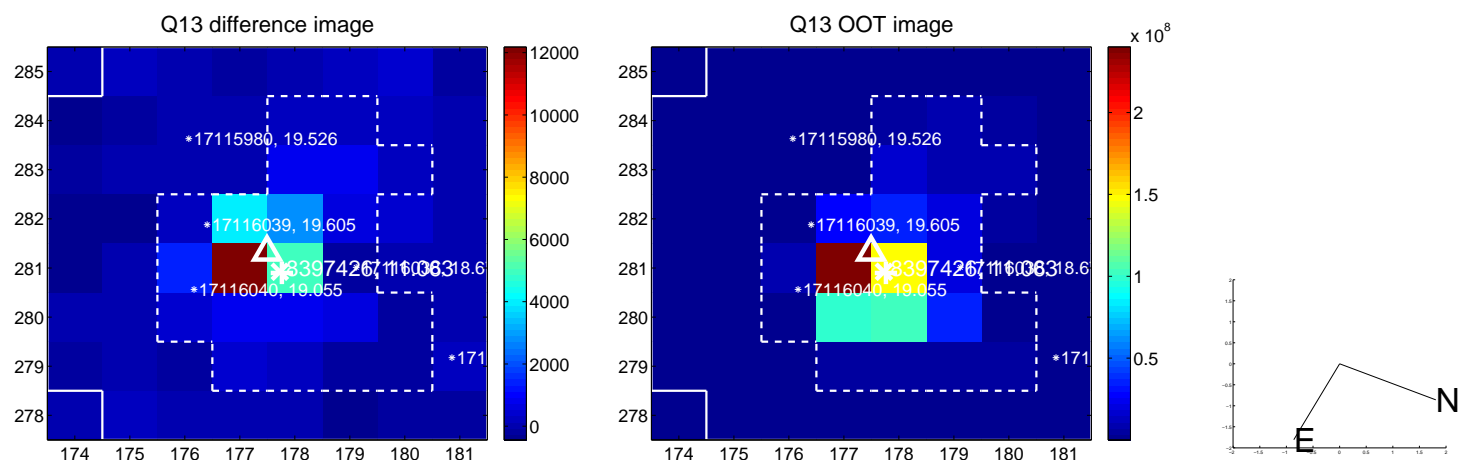
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



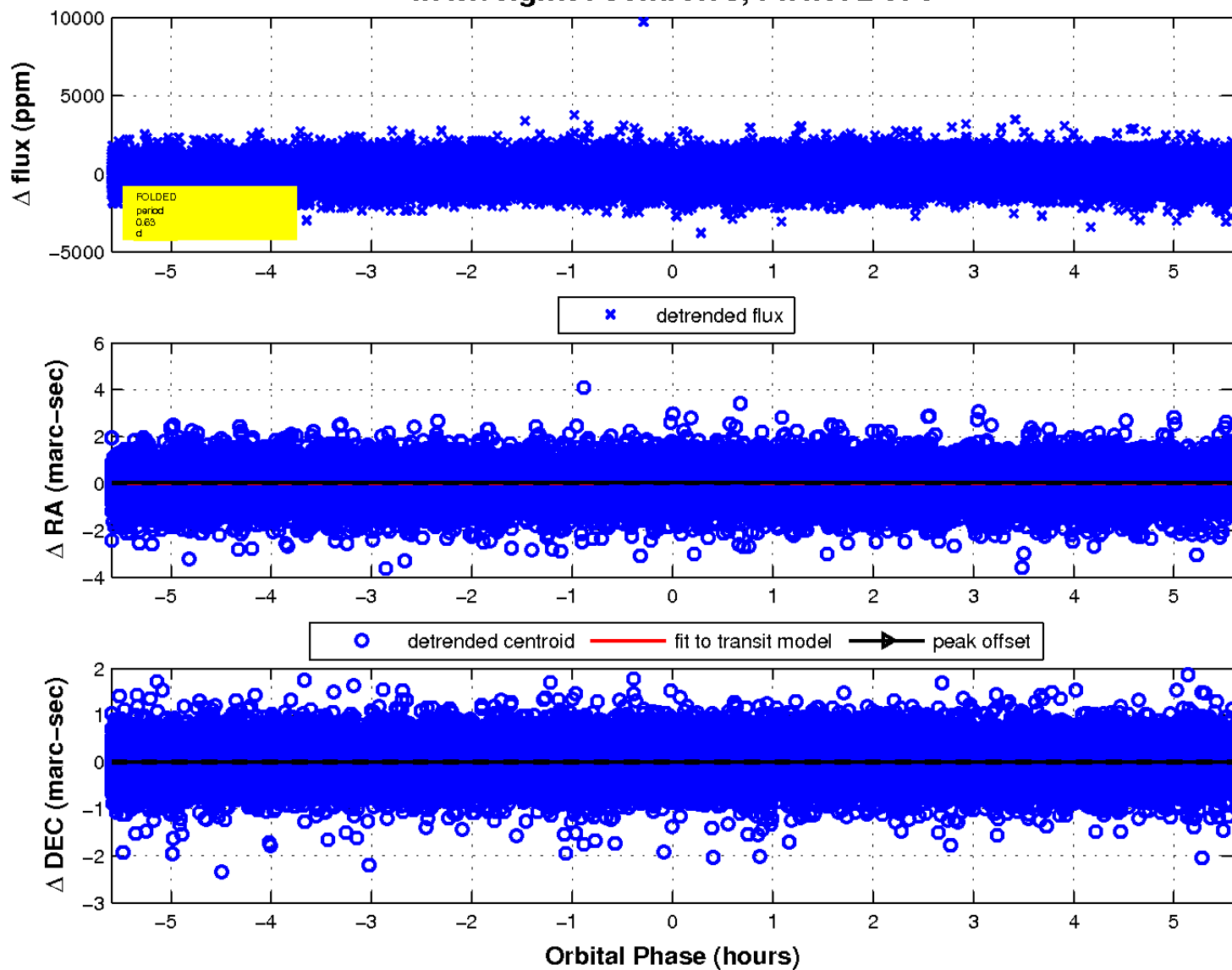
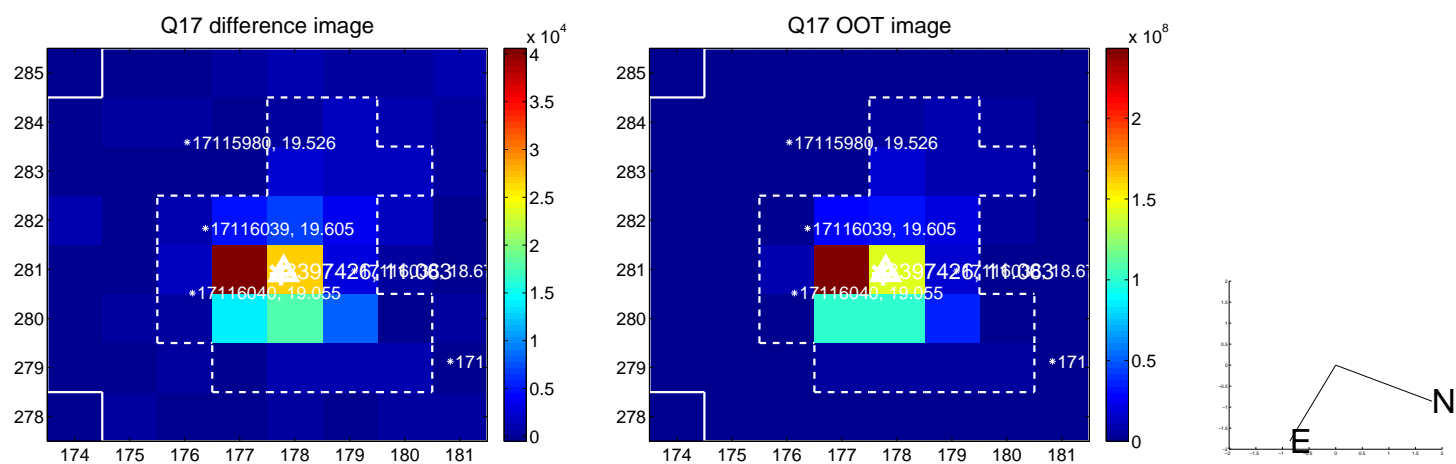
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

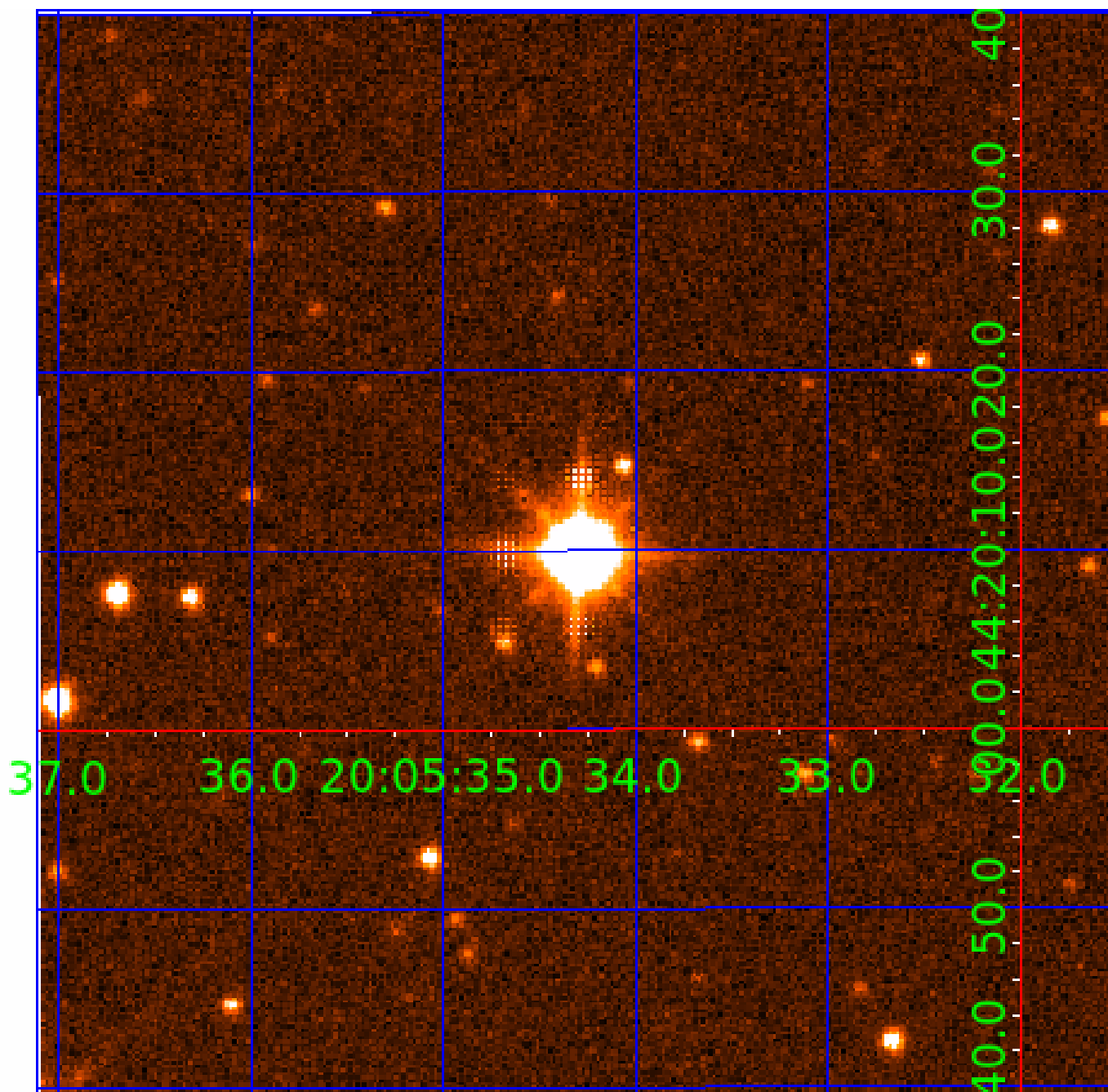


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008397426

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008397426-01	OBS	No	0.632828	131.552938	43.7	1.041	9.9	7.3	4.17	7246	3.21	0.00
008397426-02	OBS	No	0.632818	131.974916	69.2	1.864	9.5	8.7	4.17	7246	4.03	0.00
008397426-03	OBS	No	4.195239	135.045289	199.3	9.282	8.4	9.6	4.17	7246	6.83	10260.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008397426-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008397426-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008397426-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

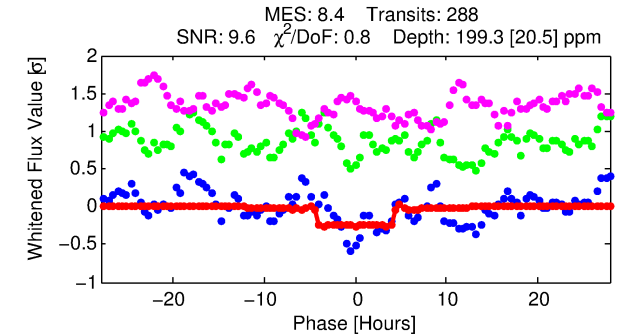
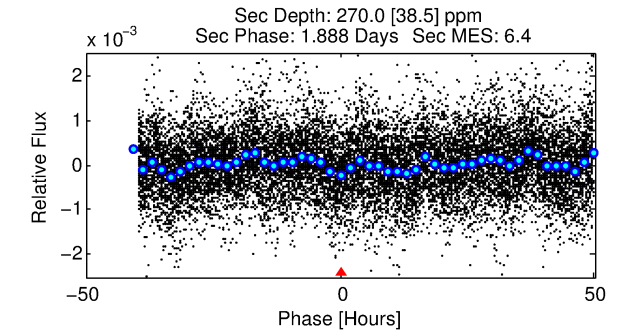
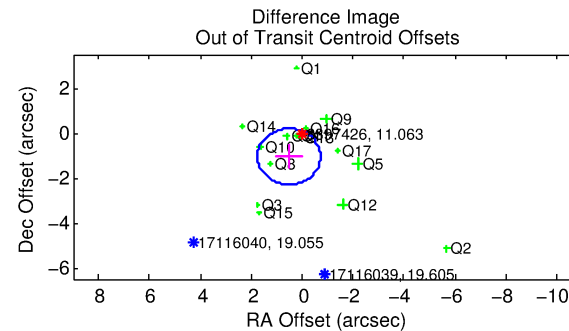
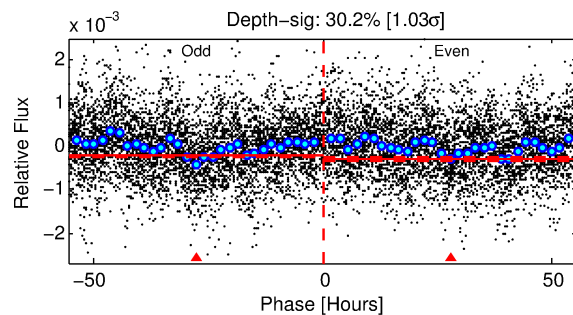
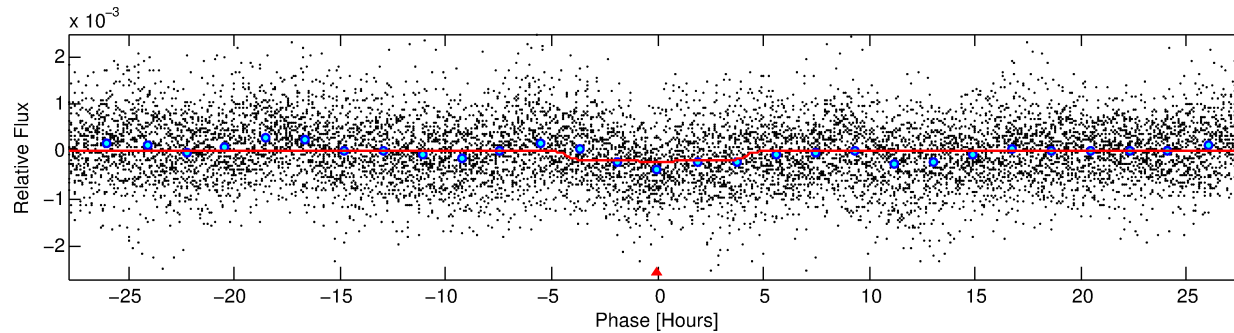
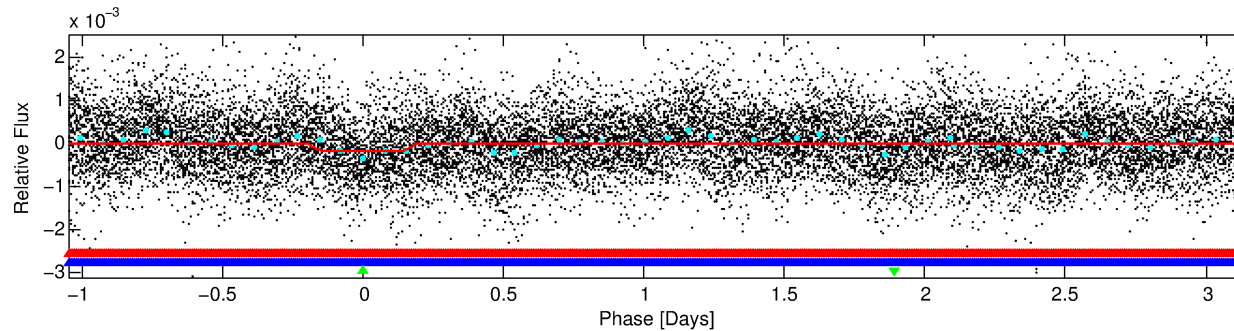
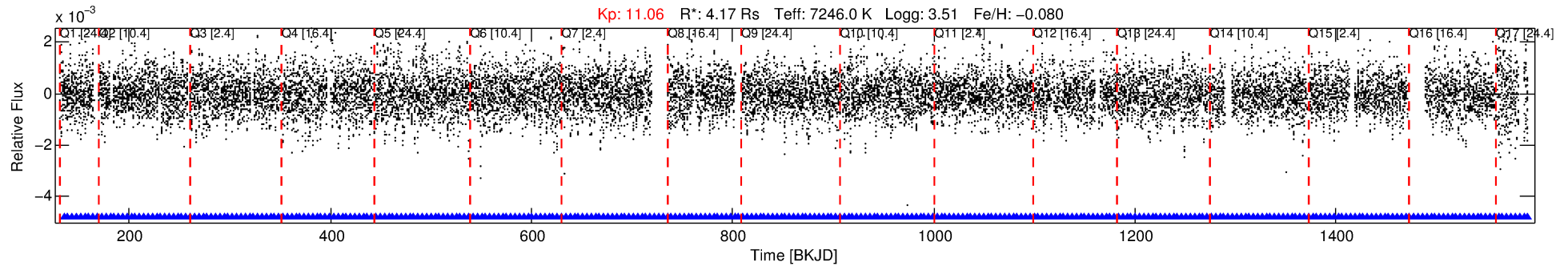
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008397426-03

No Significant Match Found

# DV One-Page Summary

KIC: 8397426 Candidate: 3 of 3 Period: 4.195 d



## DV Fit Results:

Period = 4.19524 [0.00005] d  
Epoch = 135.0453 [0.0074] BKJD  
Rp/R\* = 0.0150 [0.0013]  
a/R\* = 1.86 [0.56]  
b = 0.90 [0.09]  
Seff = 10260.65 [10485.56]  
Teq = 2566 [656] K  
Rp = 6.84 [4.14] Re  
a = 0.0647 [0.0396] AU  
Ag = 13.32 [13.75] [0.90 $\sigma$ ]  
Teffp = 7581 [524] K [5.97 $\sigma$ ]

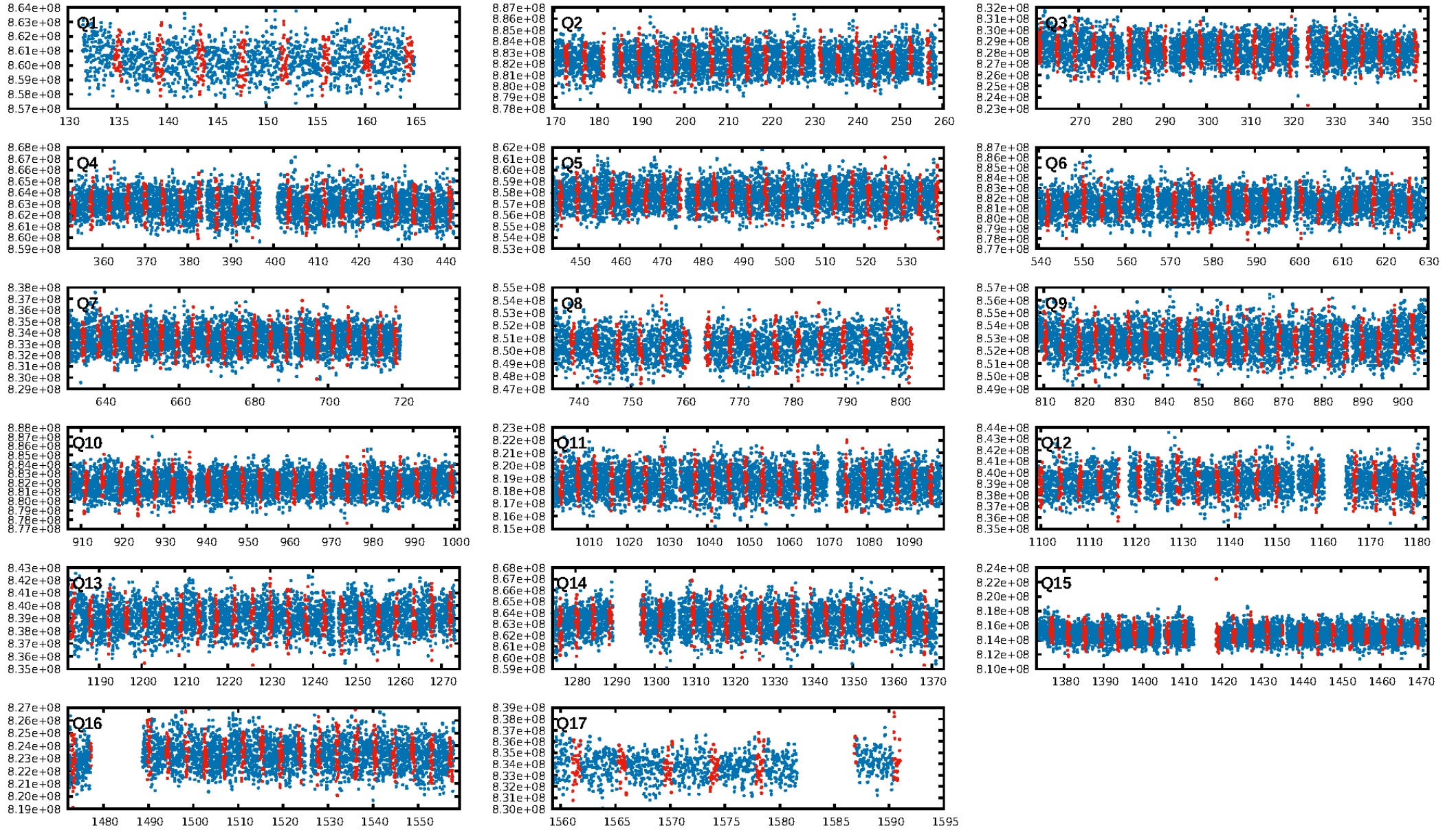
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.15 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 2.88e-10**  
RollingBand-fgt: 1.00 [276/276]  
GhostDiagnostic-chr: 10.51  
Centroid-sig: 53.5%  
**Centroid-so: 0.370 arcsec [3.48 $\sigma$ ]**  
OotOffset-rm: 1.172 arcsec [2.83 $\sigma$ ]  
KicOffset-rm: 1.007 arcsec [2.29 $\sigma$ ]  
OotOffset-st: 3/4/3/5 [15]  
KicOffset-st: 3/4/3/5 [15]  
DiffImageQuality-fgm: 0.33 [5/15]  
DiffImageOverlap-fno: 0.00 [0/17]

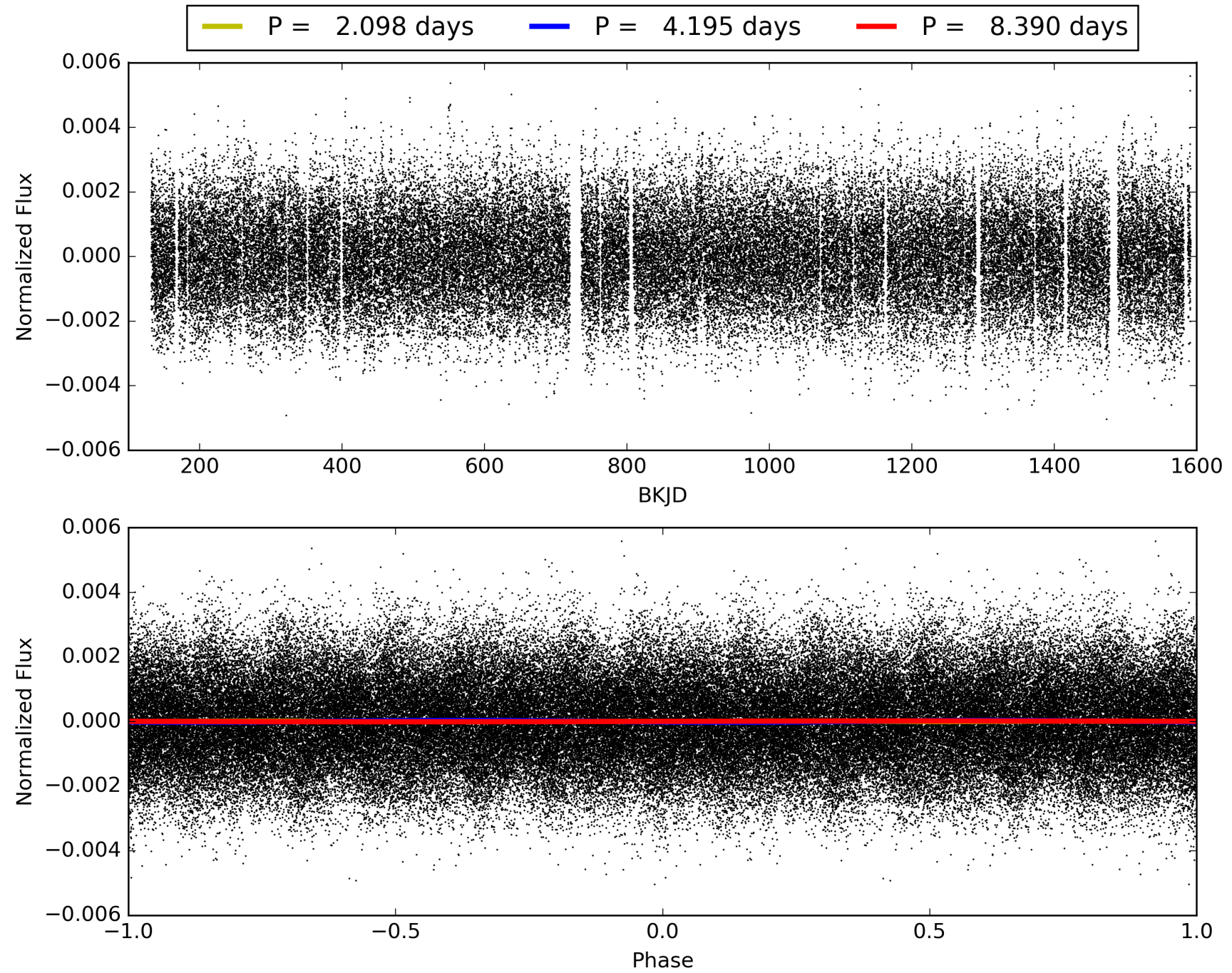
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:21:54 Z

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

# TCE 008397426-03, PDC Light Curves

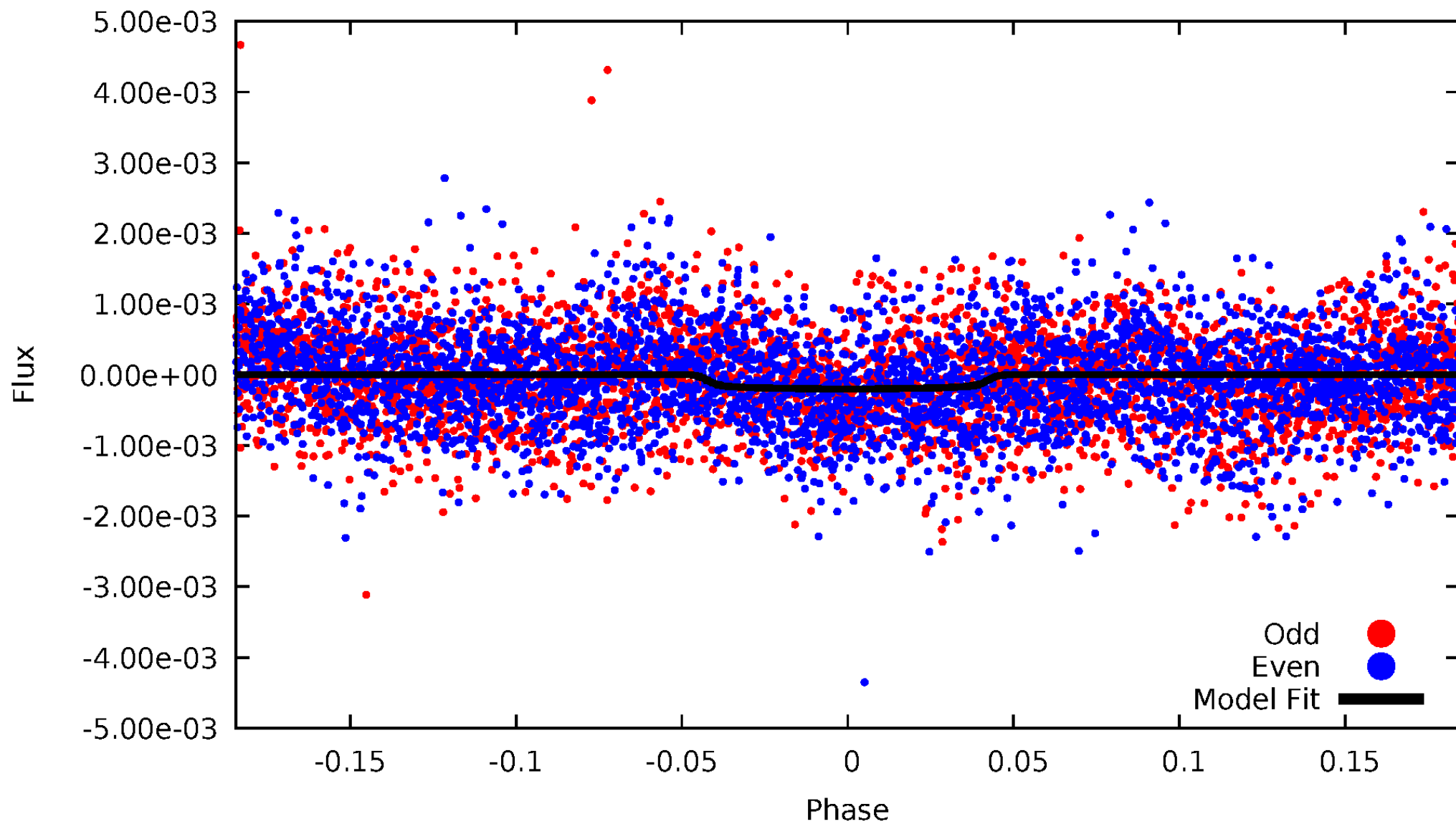


TCE 008397426-03



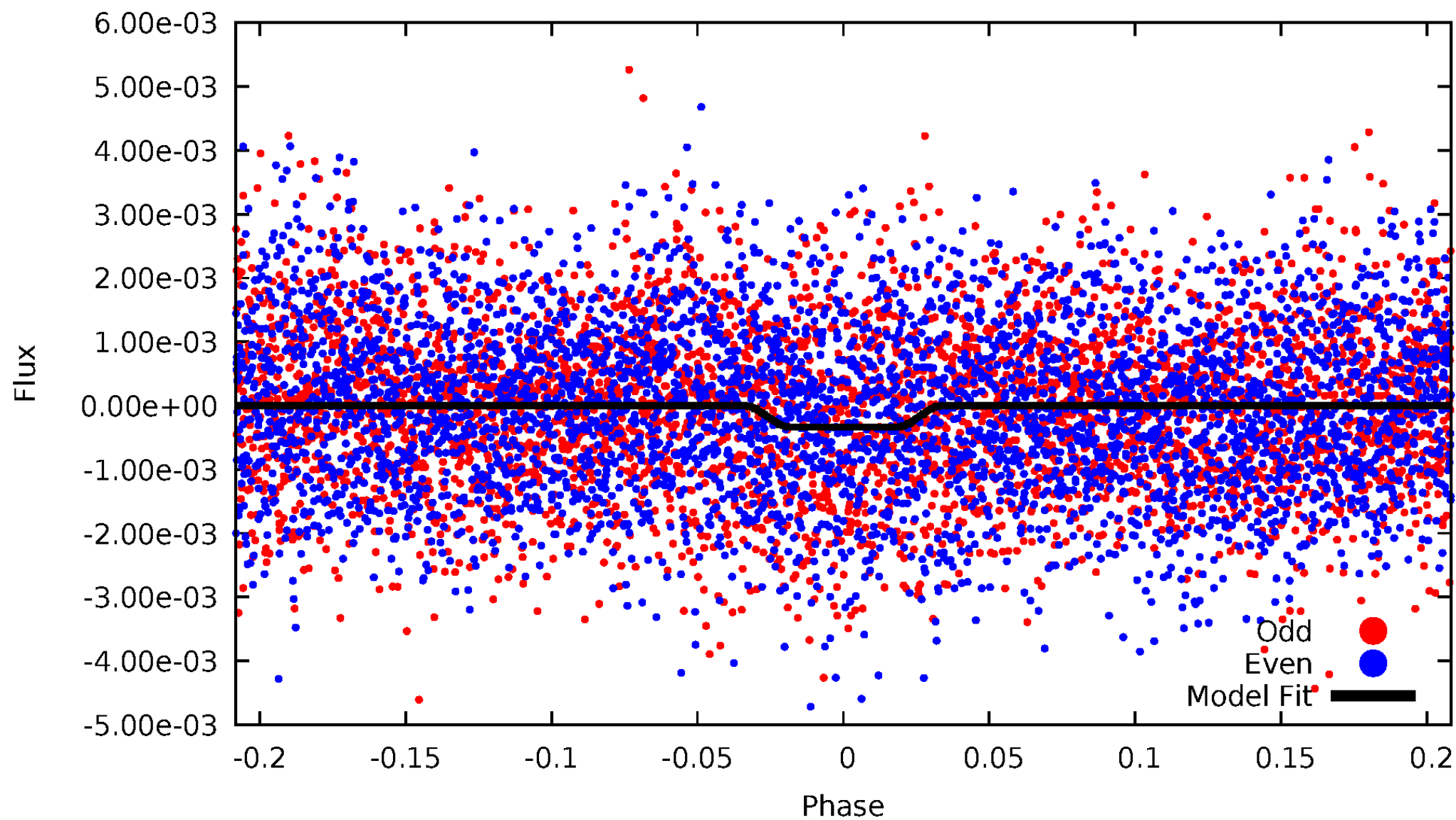
# DV Odd/Even

TCE 008397426-03



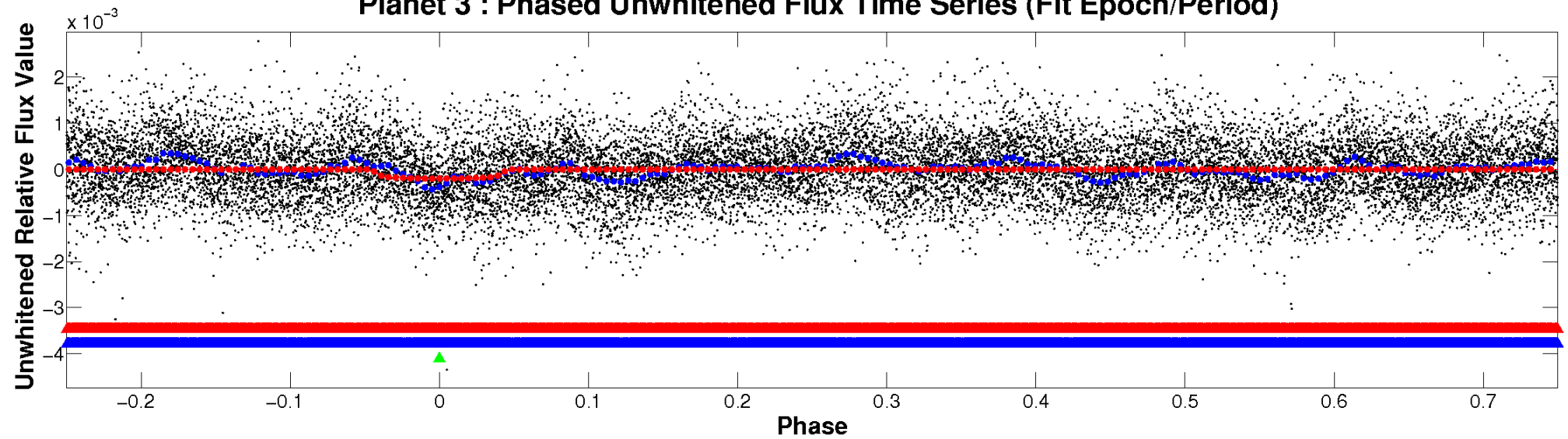
# ALT Odd/Even

TCE 008397426-03

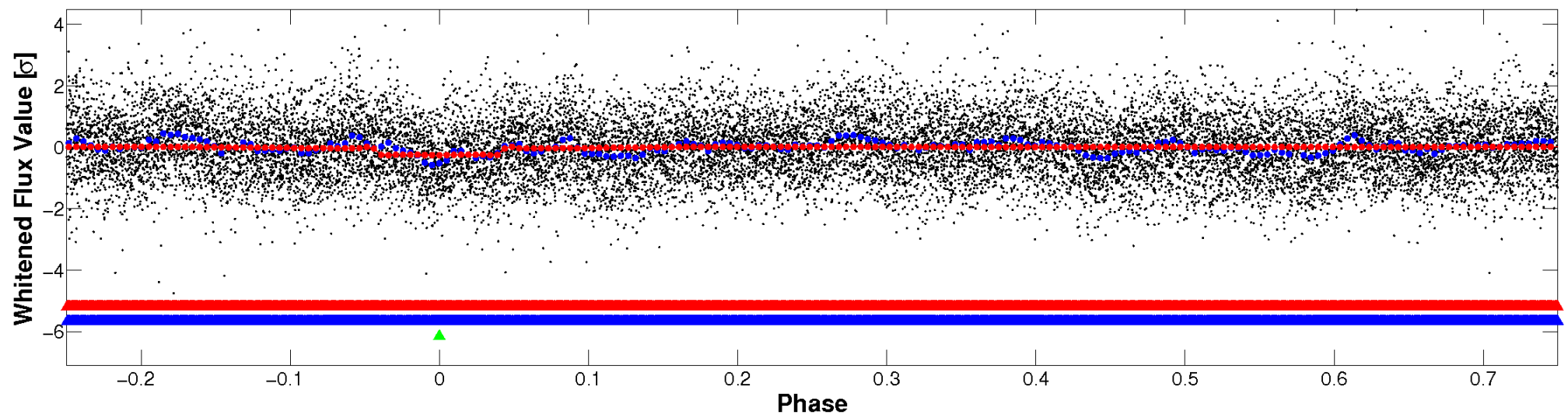


# Non-Whitened Vs. Whitened Light Curve

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

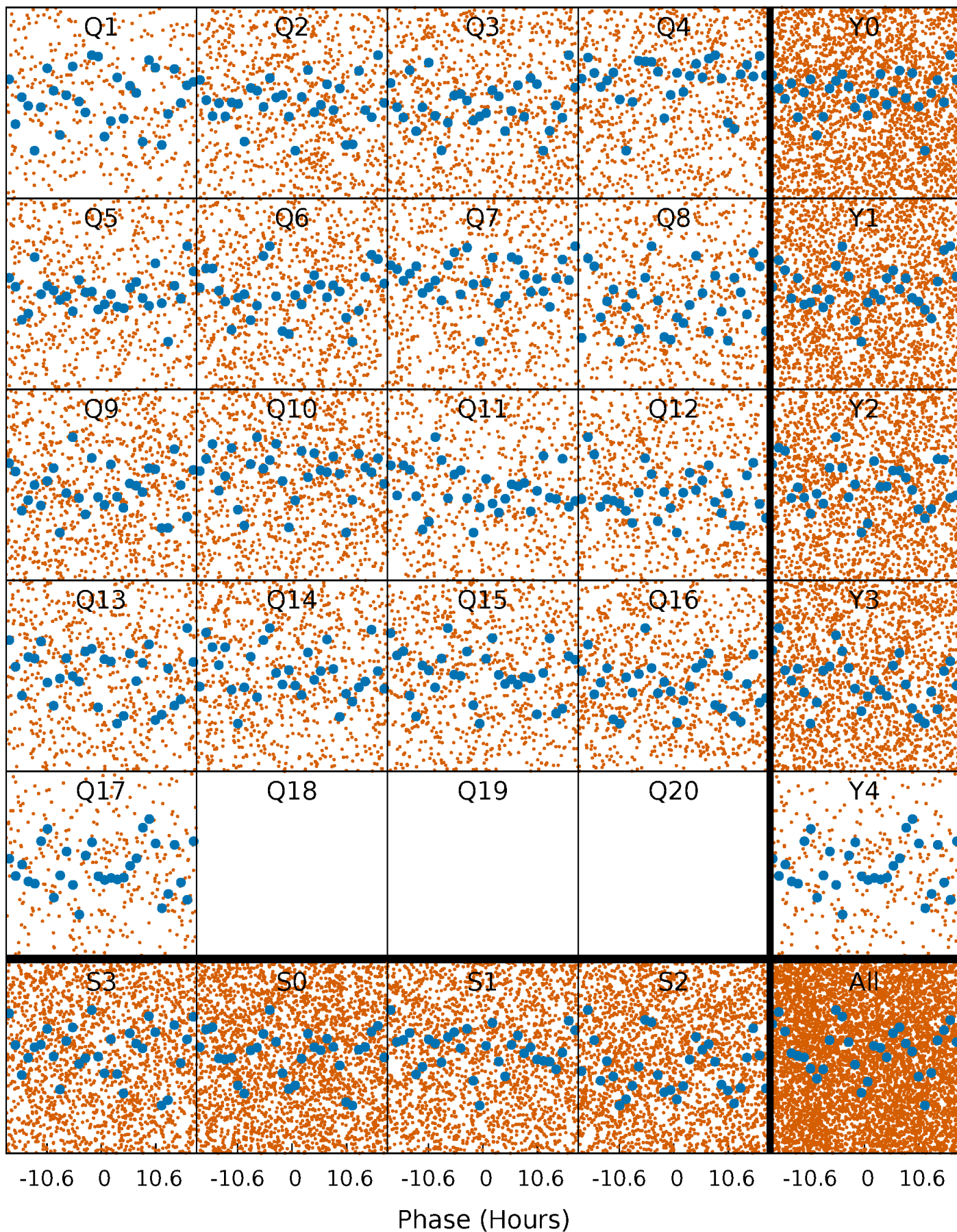


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



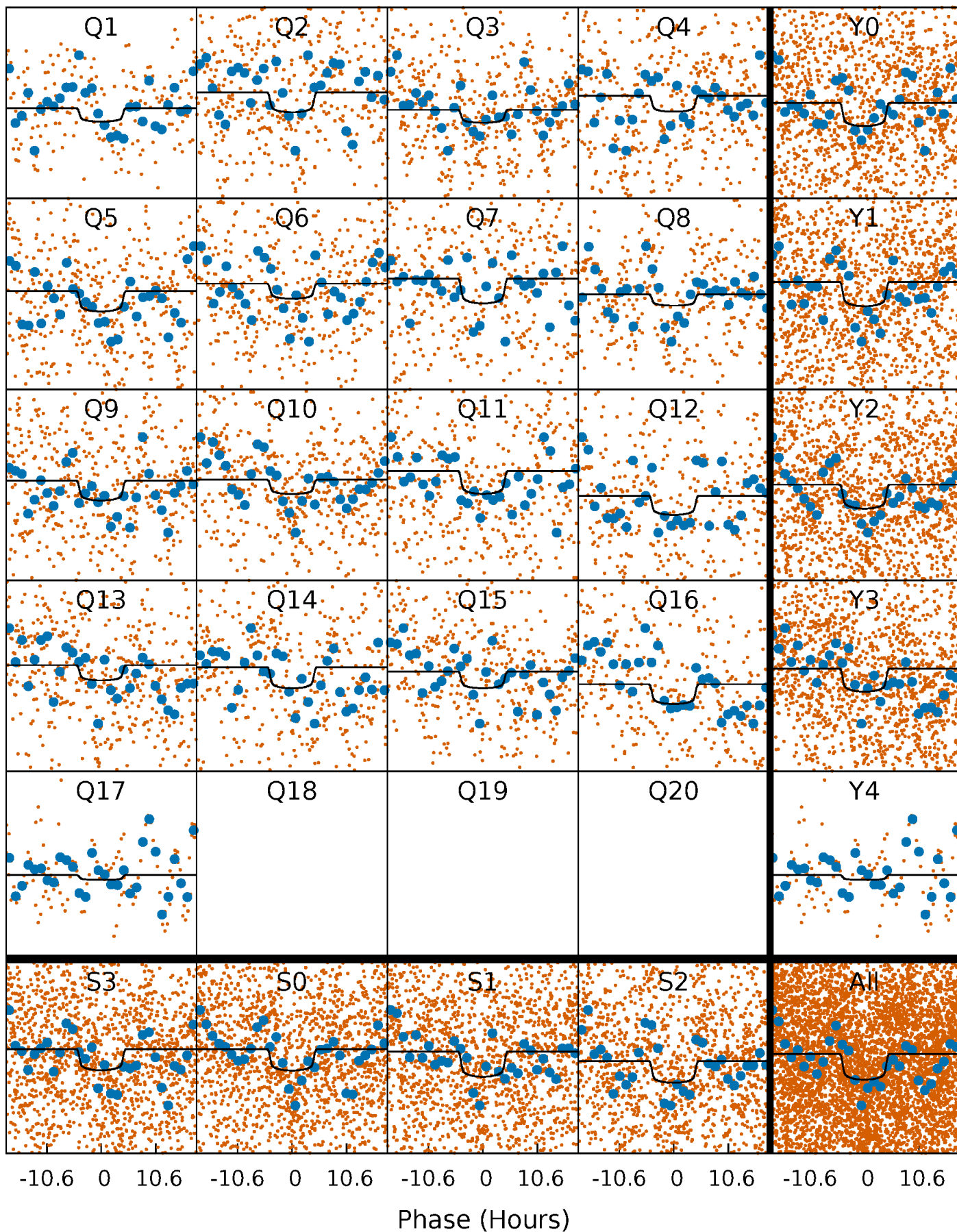
# PDC Quarter-Phased Transit Curves

TCE 008397426-03 P= 4.195239 Days  $T_0=135.045289$  (BKJD)



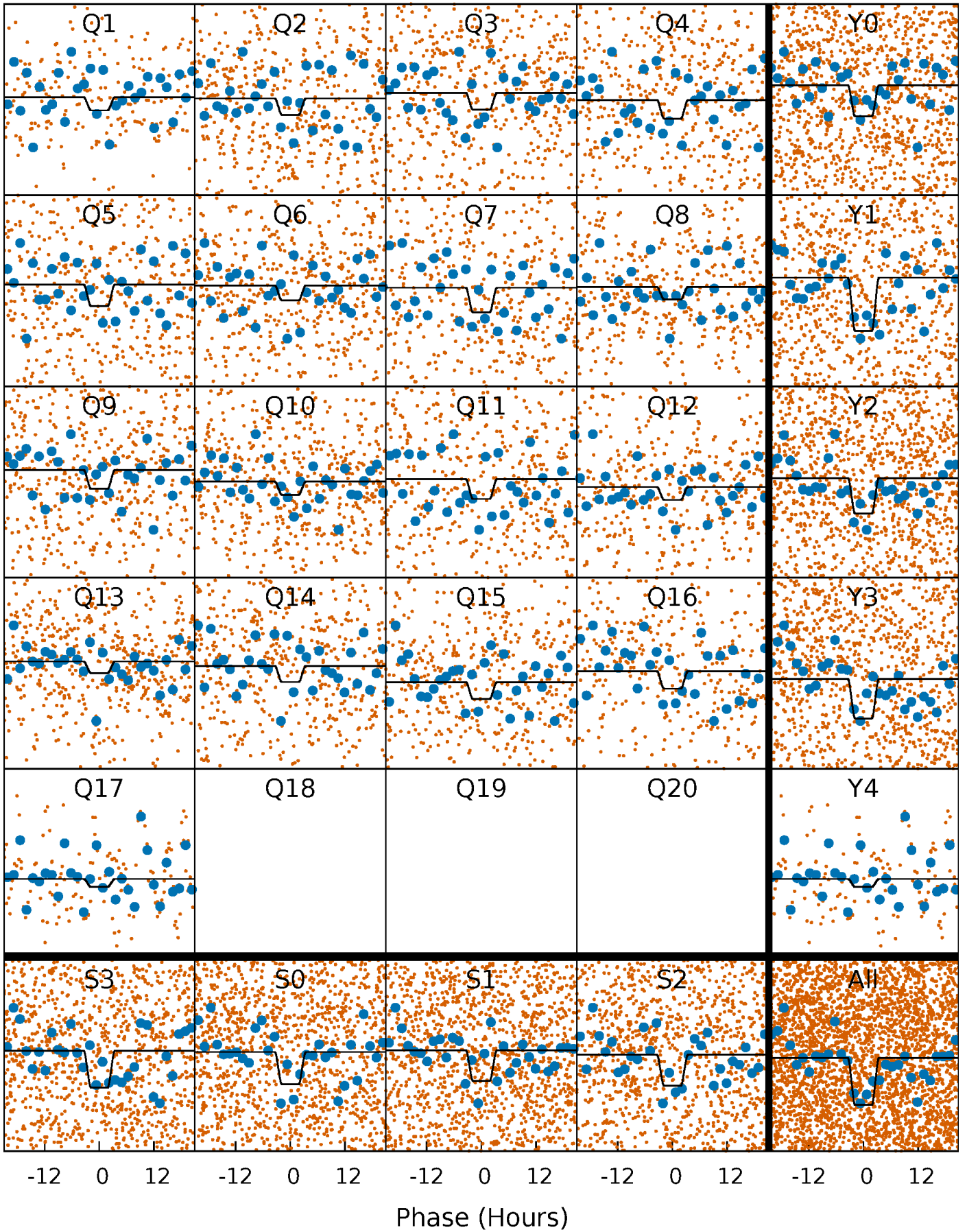
# DV Quarter-Phased Transit Curves

TCE 008397426-03   P= 4.195239 Days    $T_0=135.045289$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

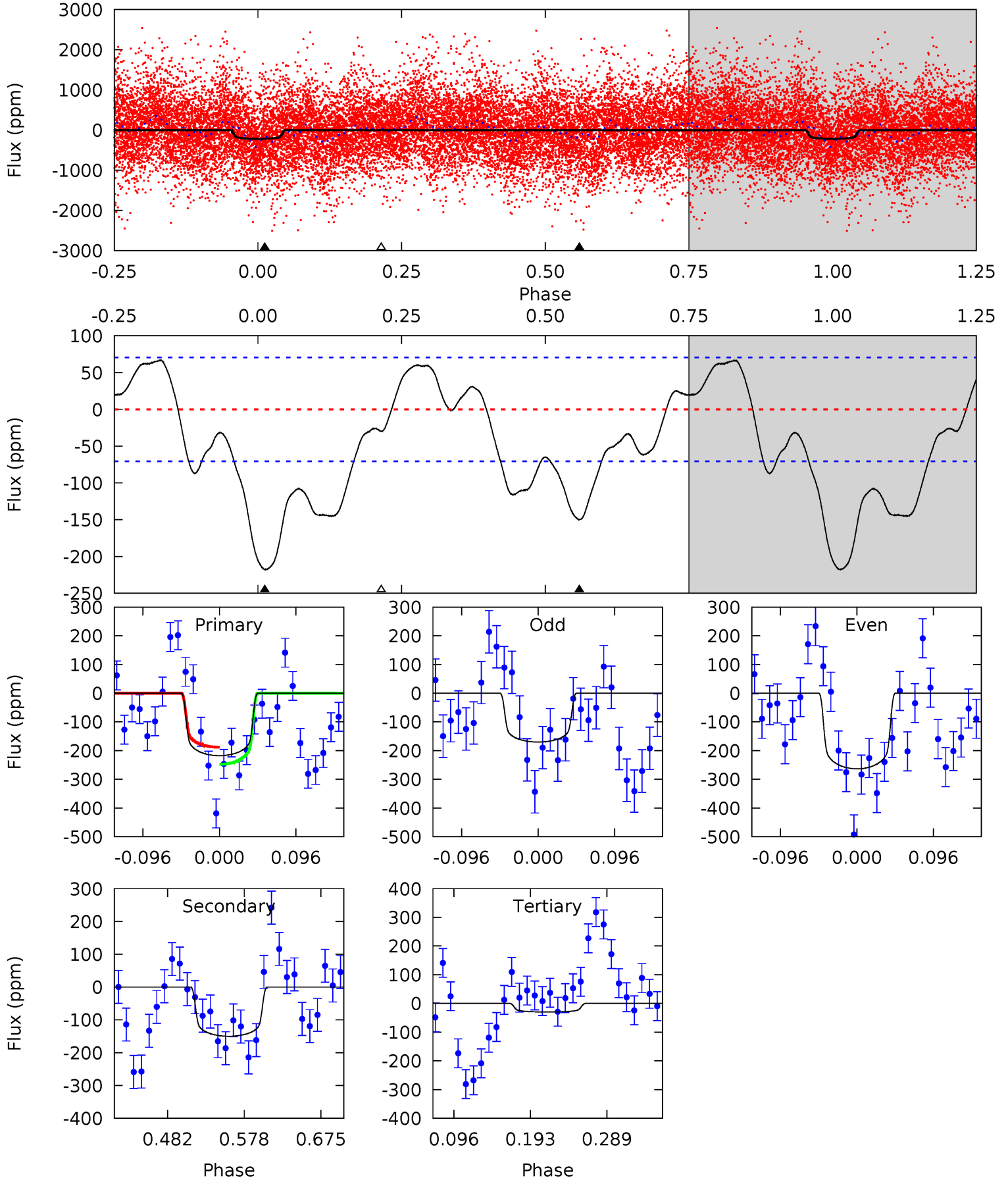
TCE 008397426-03 P= 4.195164 Days  $T_0=135.055375$  (BKJD)



# DV Model-Shift Uniqueness Test

008397426-03, P = 4.195239 Days, E = 130.850050 Days

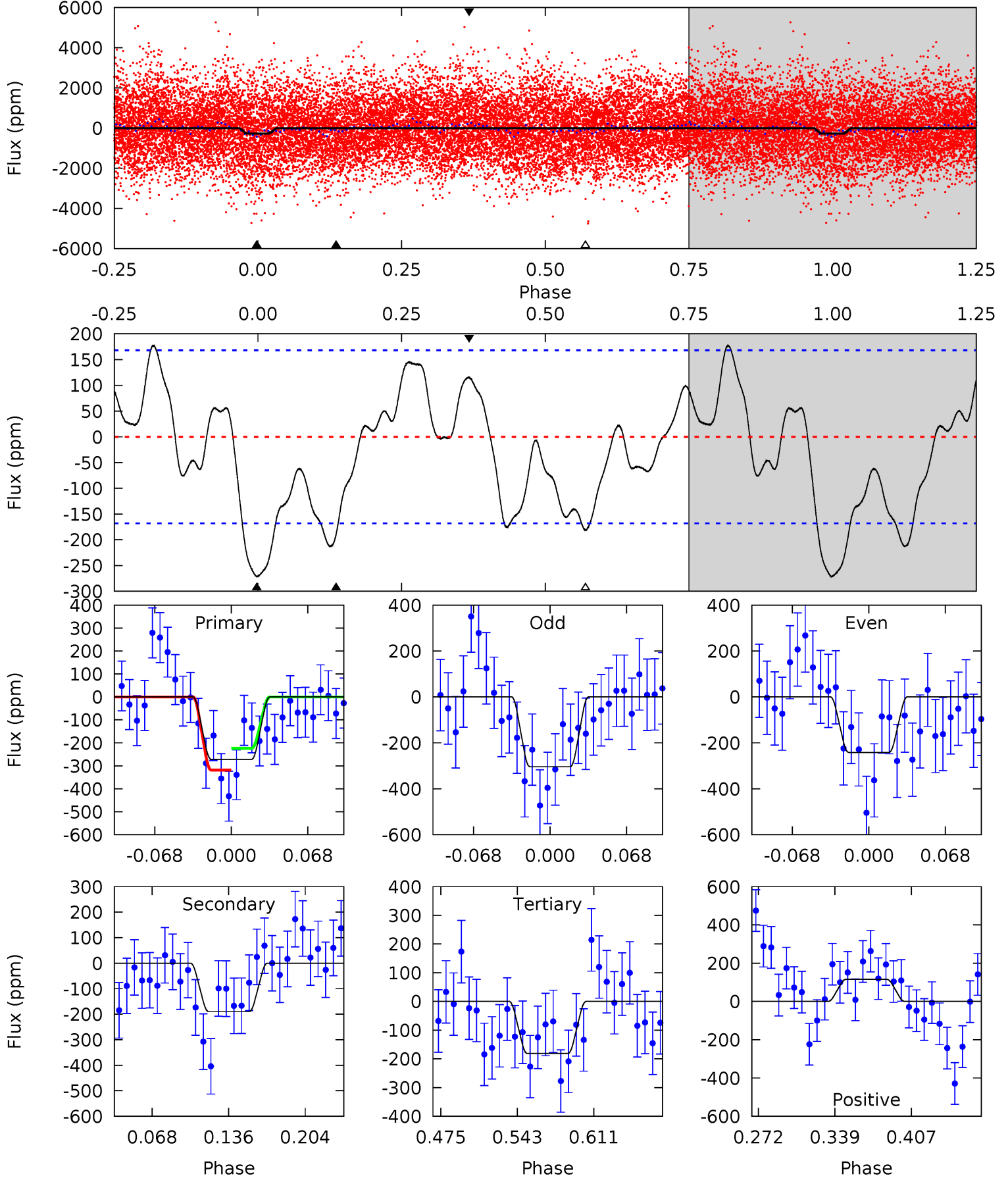
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	9.70	1.93	0	4.57	1.66	3.95	12.1	14.1	7.77	9.70	3.02	0.80	0.23	1.94



# Alt Model-Shift Uniqueness Test

008397426-03, P = 4.195164 Days, E = 130.860211 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
7.52	5.25	5.02	3.19	4.65	1.83	2.51	2.50	4.33	0.23	2.06	0.86	0.58	0.40	1.30



### Stellar Parameters For KIC 008397426

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7246^{+226}_{-302}$	$3.510^{+0.603}_{-0.067}$	$-0.080^{+0.250}_{-0.300}$	$4.172^{+0.278}_{-2.501}$	$2.054^{+0.077}_{-0.613}$	$0.040^{+0.334}_{-0.009}$
	+3%/-4%	+17%/-2%	+312%/-375%	+7%/-60%	+4%/-30%	+839%/-22%
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 008397426-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-150 \pm 15$	$6.30^{+1.14}_{-1.72}$	$3476^{+210}_{-503}$	$6371^{+453}_{-370}$	$8.583^{+6.495}_{-2.388}$
Alt.	$-190 \pm 36$	$7.87^{+1.15}_{-2.32}$	$3459^{+232}_{-521}$	$6093^{+439}_{-413}$	$7.206^{+6.589}_{-2.272}$

$T_{\text{max}}$  = 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

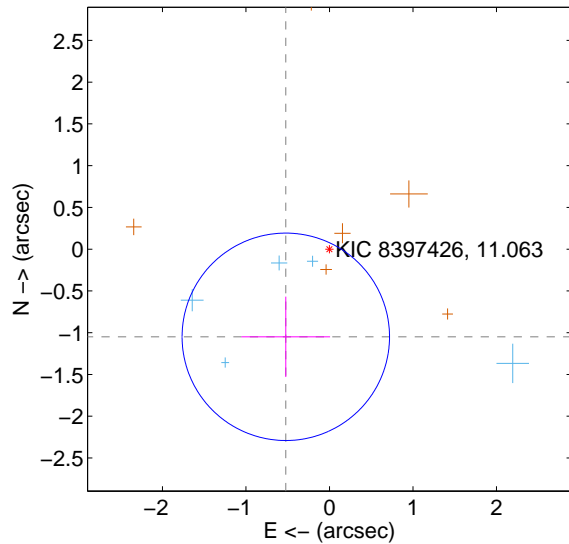
Supplemental centroid analysis for 008397426-03. **Kepler magnitude: 11.06.** Transit SNR 9.62

There are 5 quarters with good PRF difference image offsets

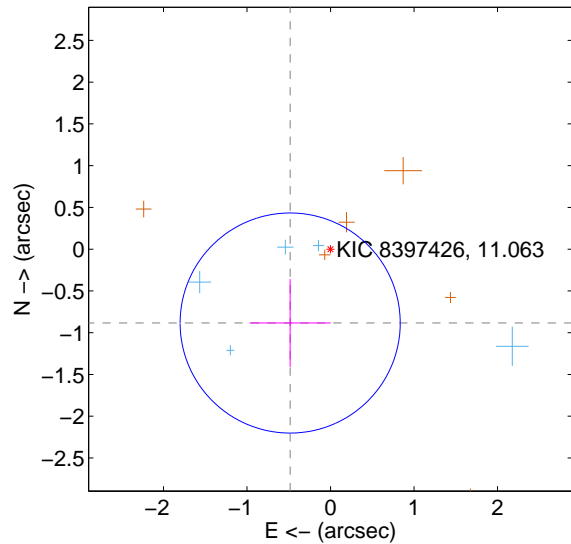
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.172 \pm 0.414$	2.83	$0.523 \pm 0.530$	$-1.049 \pm 0.481$
PRF-fit source offset from KIC position	$1.007 \pm 0.439$	2.29	$0.483 \pm 0.486$	$-0.884 \pm 0.526$
photometric centroid source offset	<b><math>0.37 \pm 0.11</math></b>	<b>3.48</b>	$-0.30 \pm 0.11$	$0.21 \pm 0.09$

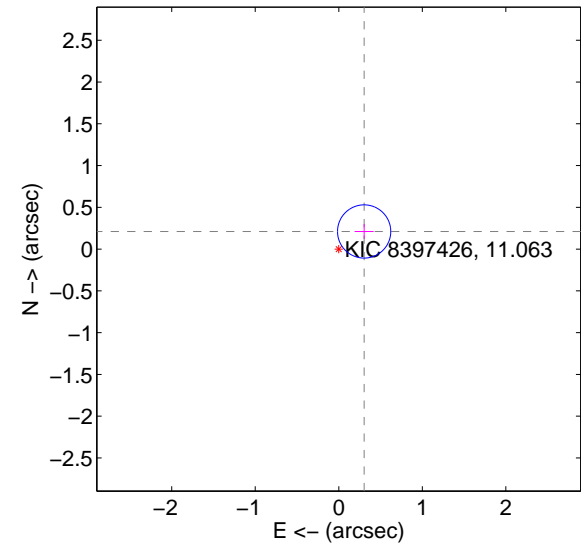
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

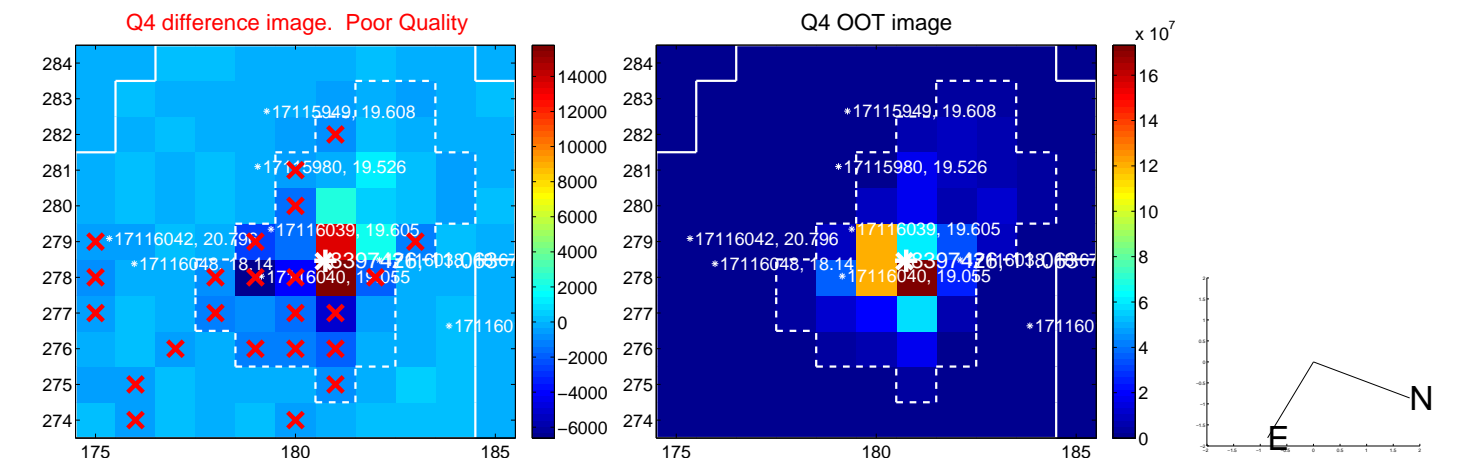
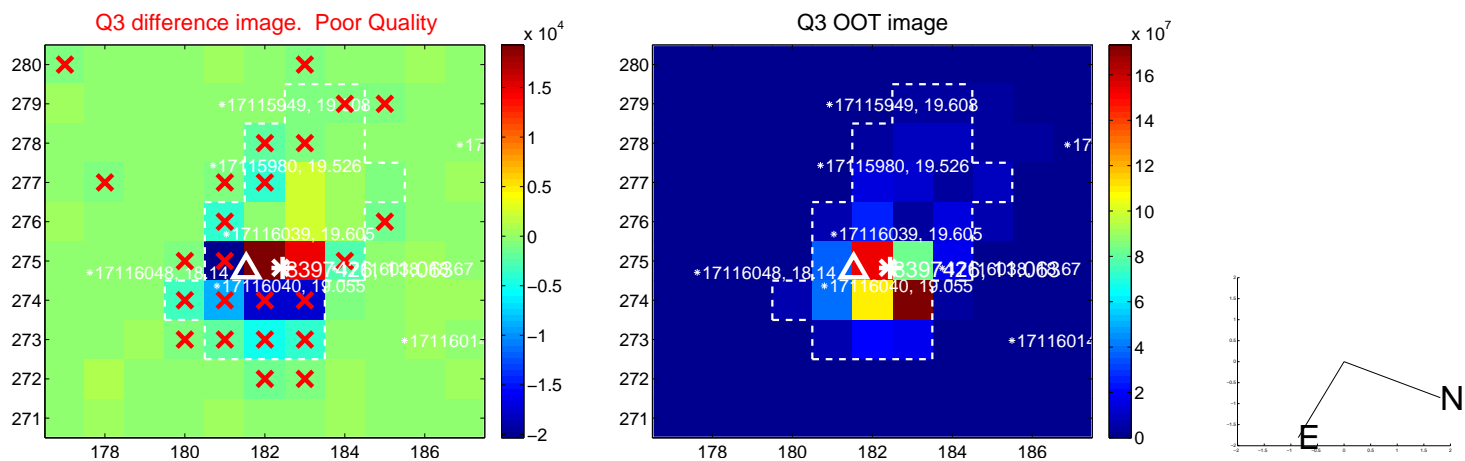
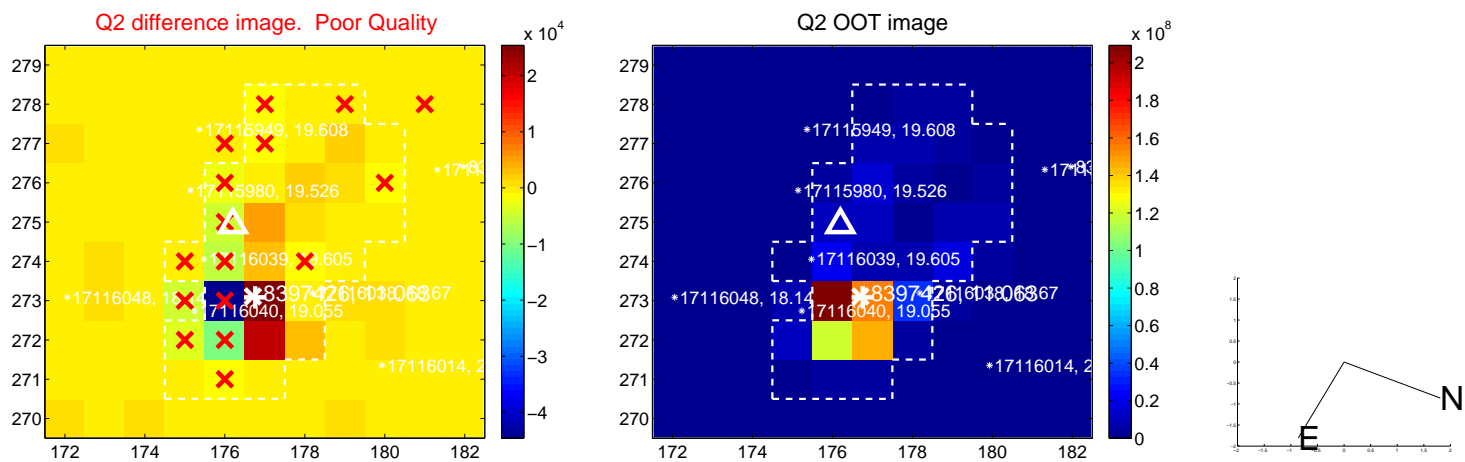
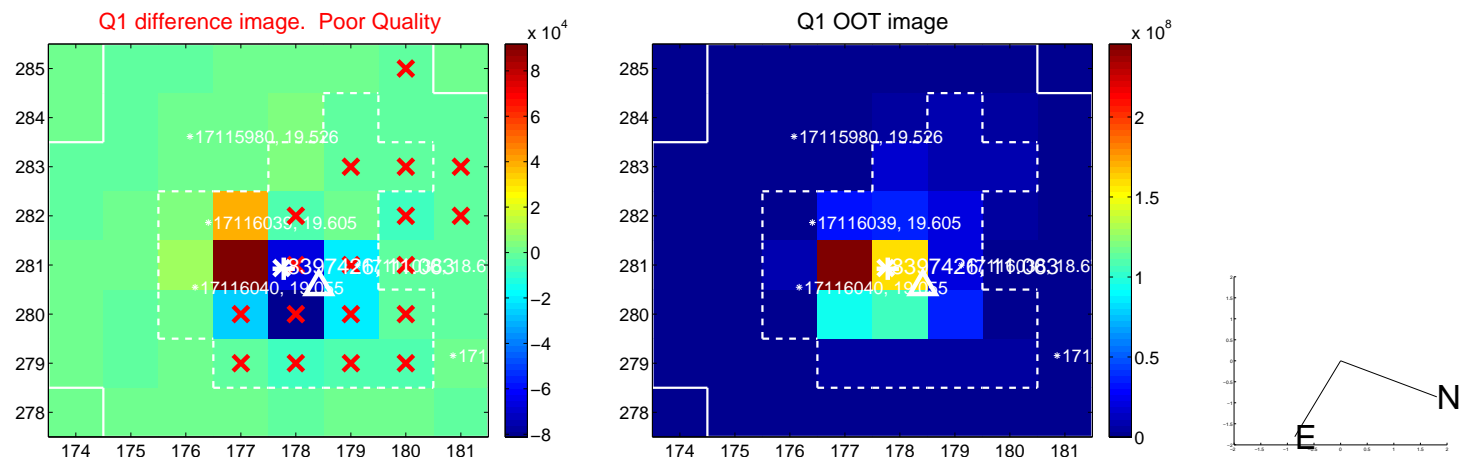


offset from photometric centroids

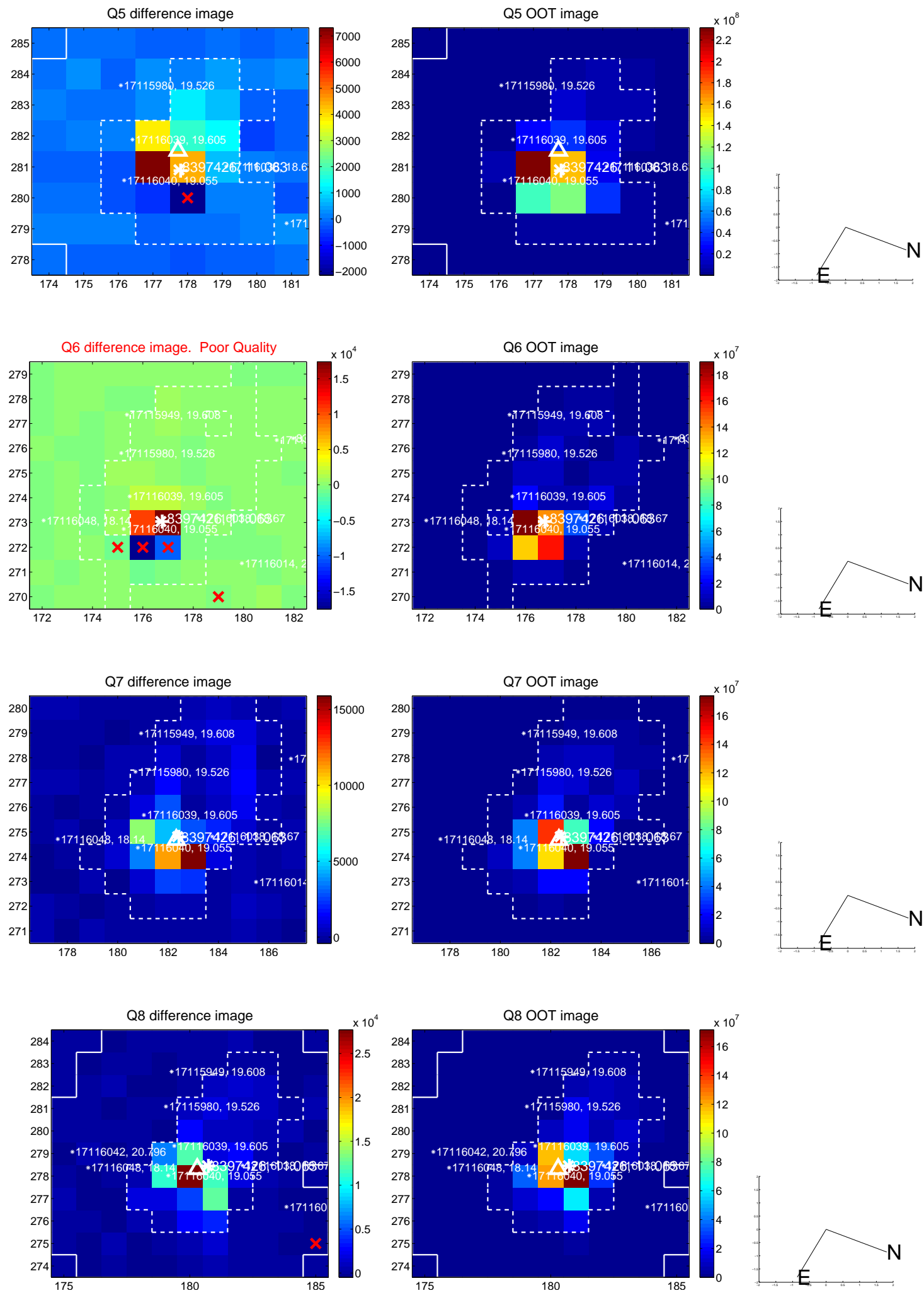


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

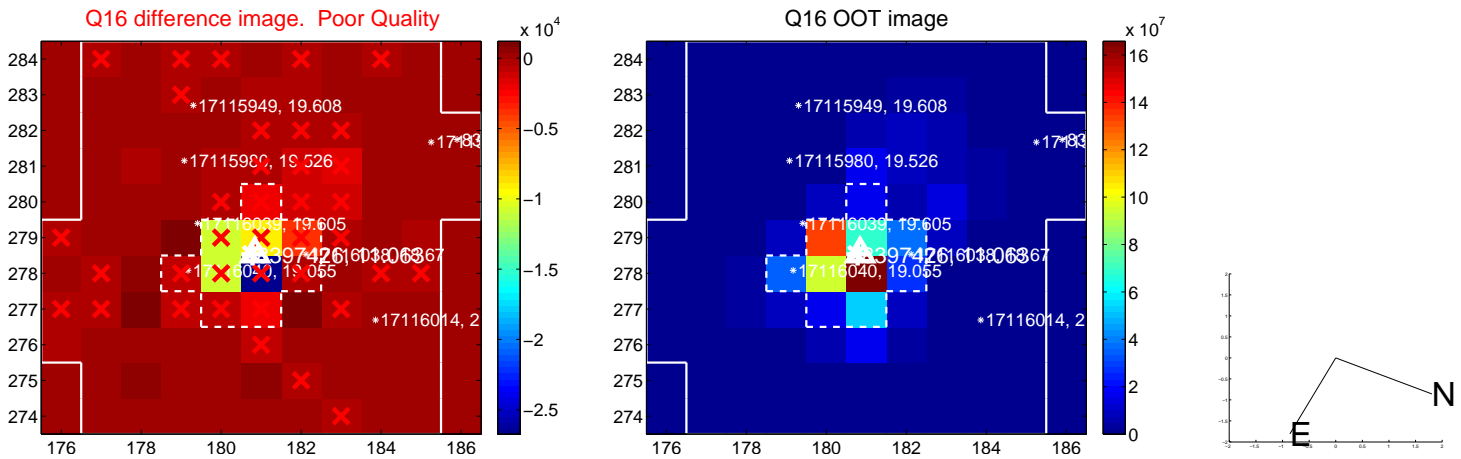
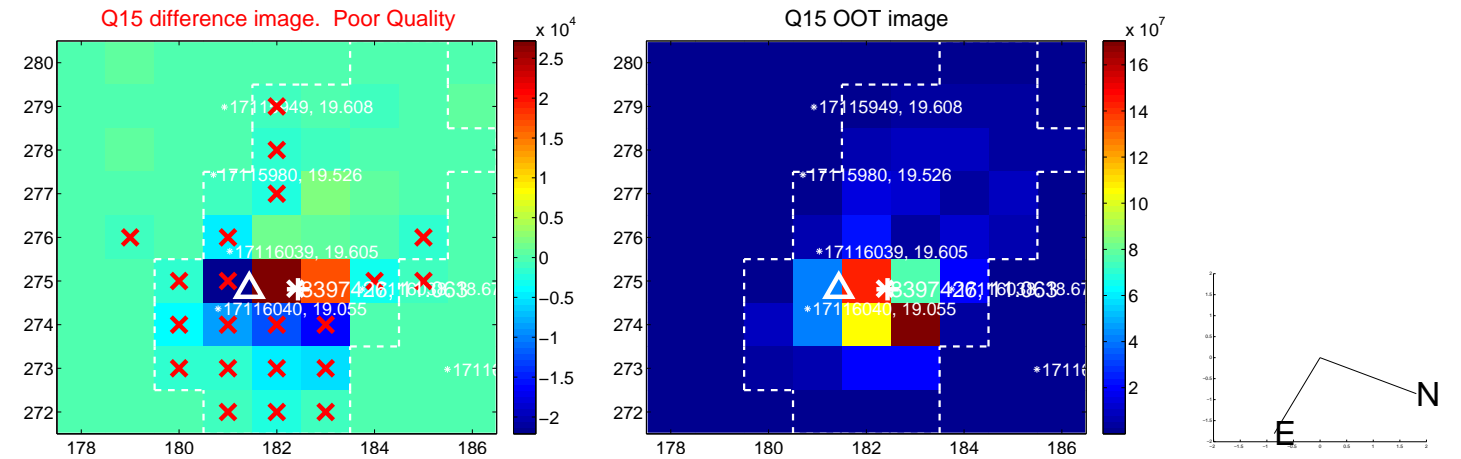
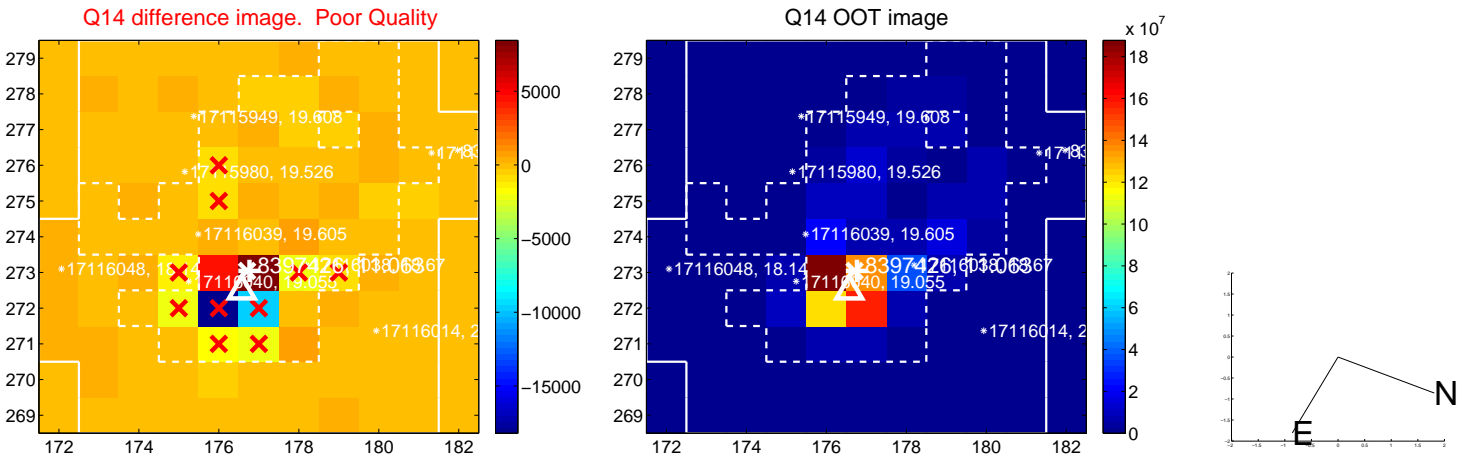
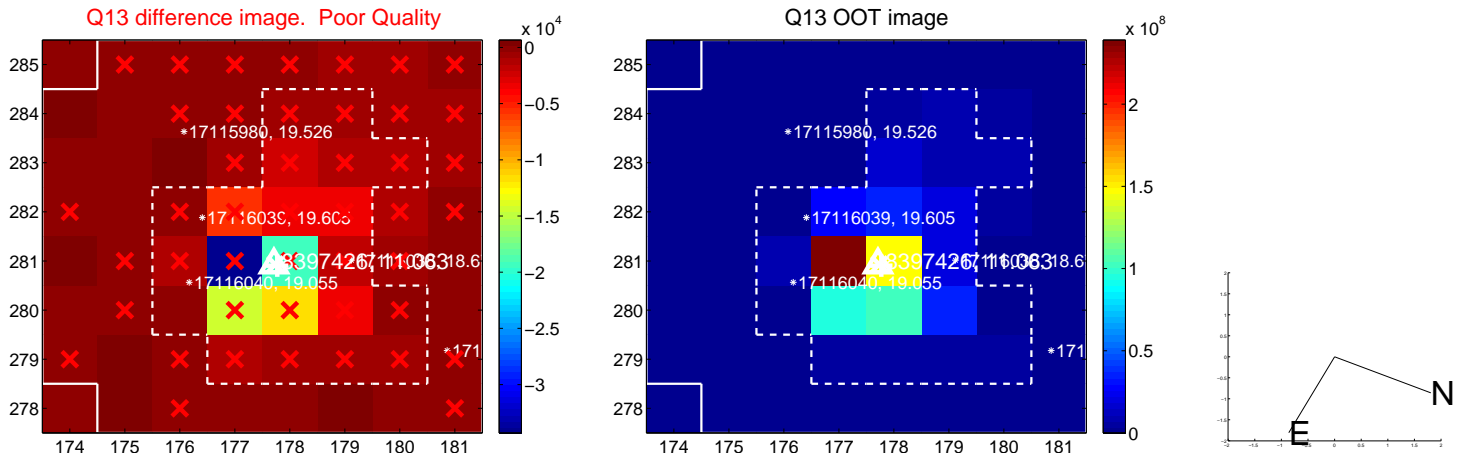


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

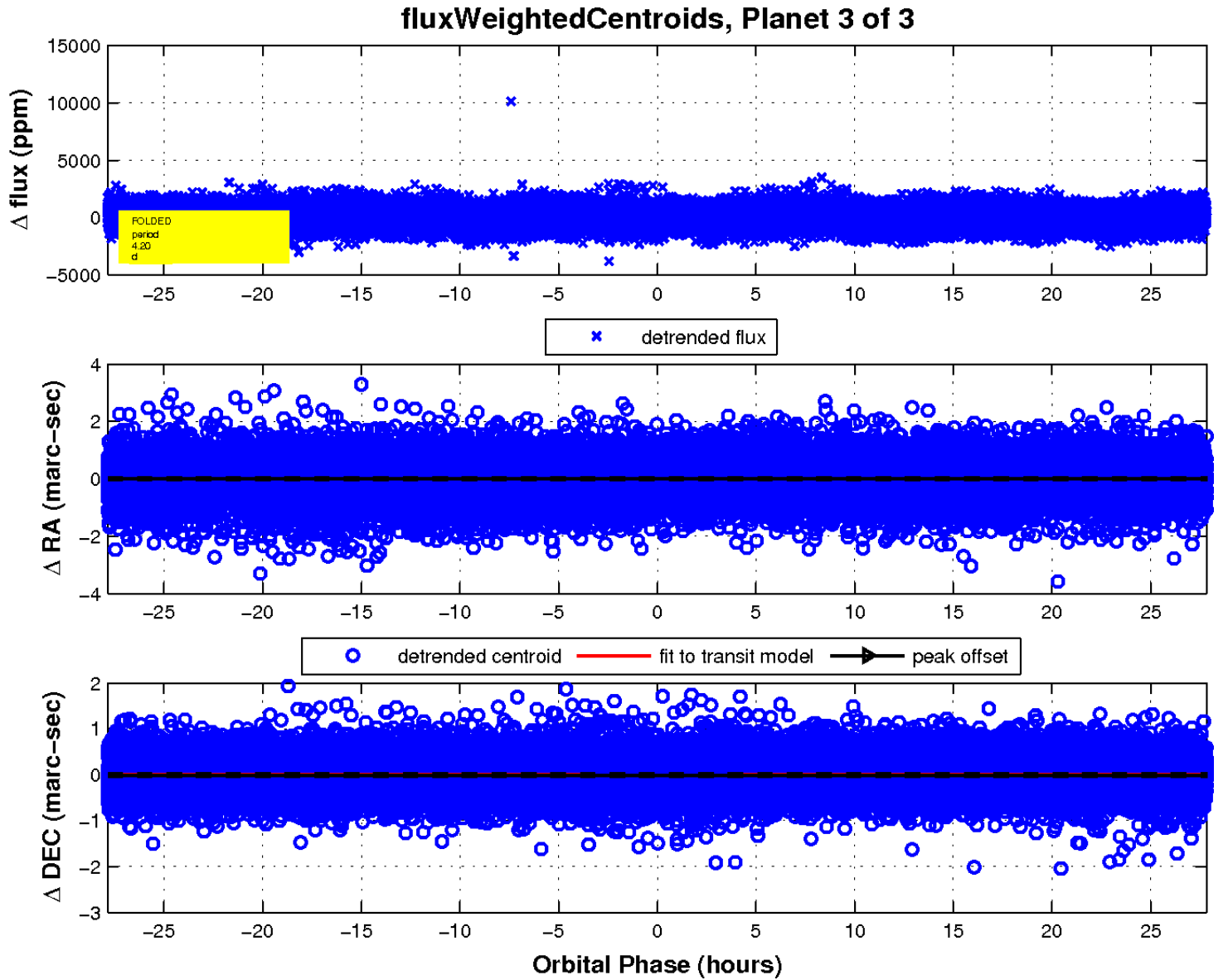
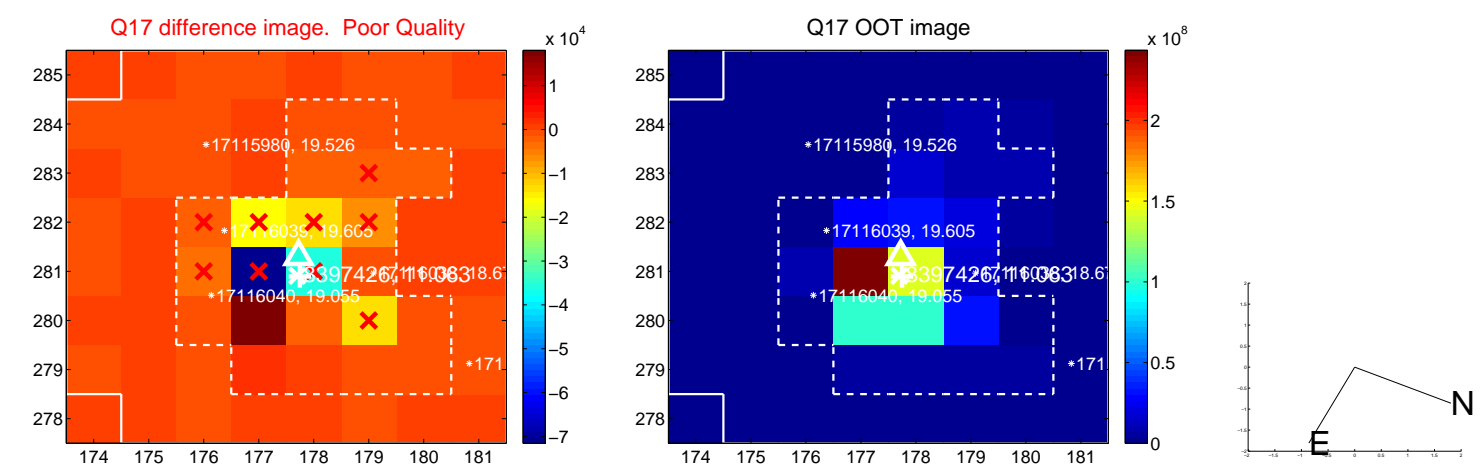




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

