

# KIC 003869825

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003869825-01	OBS	1178.01	4.800635	134.376596	11544.2	8.026	232.6	233.5	1.24	6715	14.37	779.58
003869825-02	OBS	No	4.800657	131.771673	1111.5	11.930	21.2	21.8	1.24	6715	7.75	779.58
003869825-03	OBS	No	4.800506	132.611000	327.5	6.000	12.5	-1.0	1.24	6715	2.26	779.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003869825-01	OBS	FP	0.00	0	1	0	0	HAS_SEC_TCE
003869825-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
003869825-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

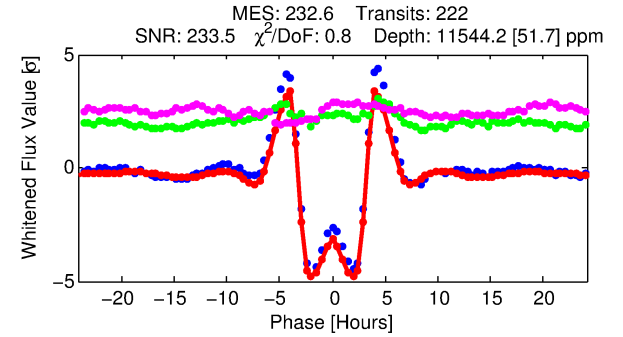
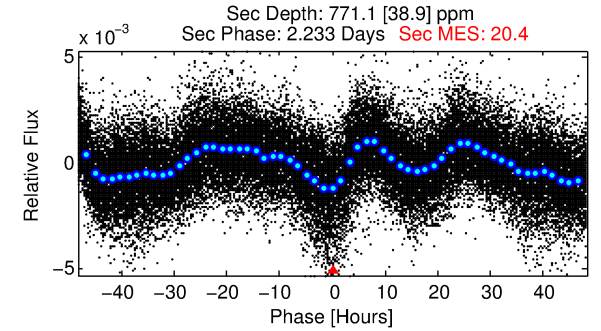
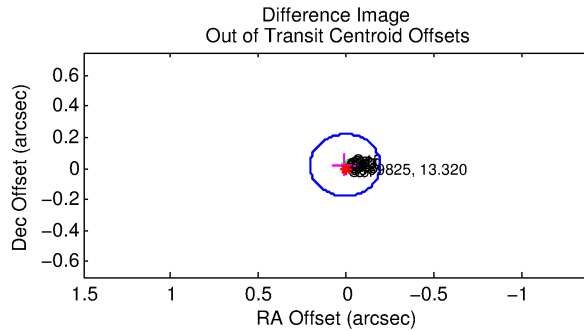
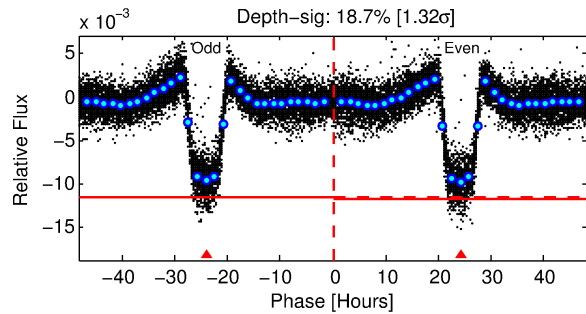
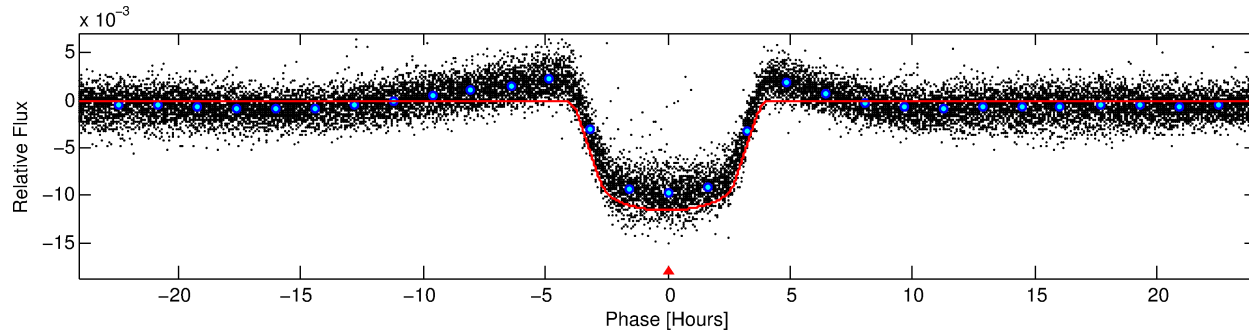
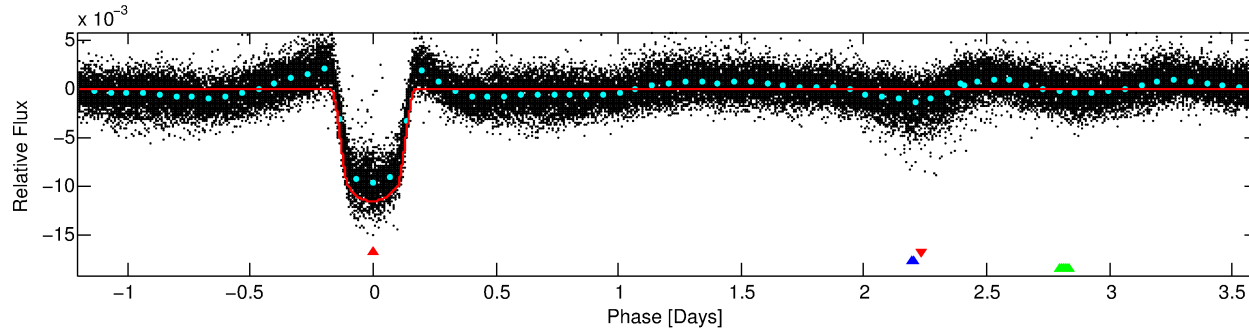
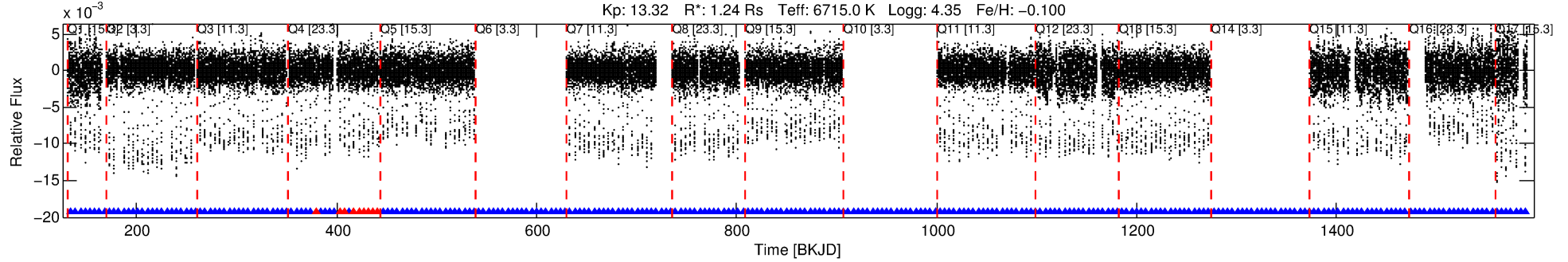
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003869825-01

No Significant Match Found

# DV One-Page Summary

KIC: 3869825 Candidate: 1 of 3 Period: 4.801 d  
KOI: K01178.01 Corr: 0.966



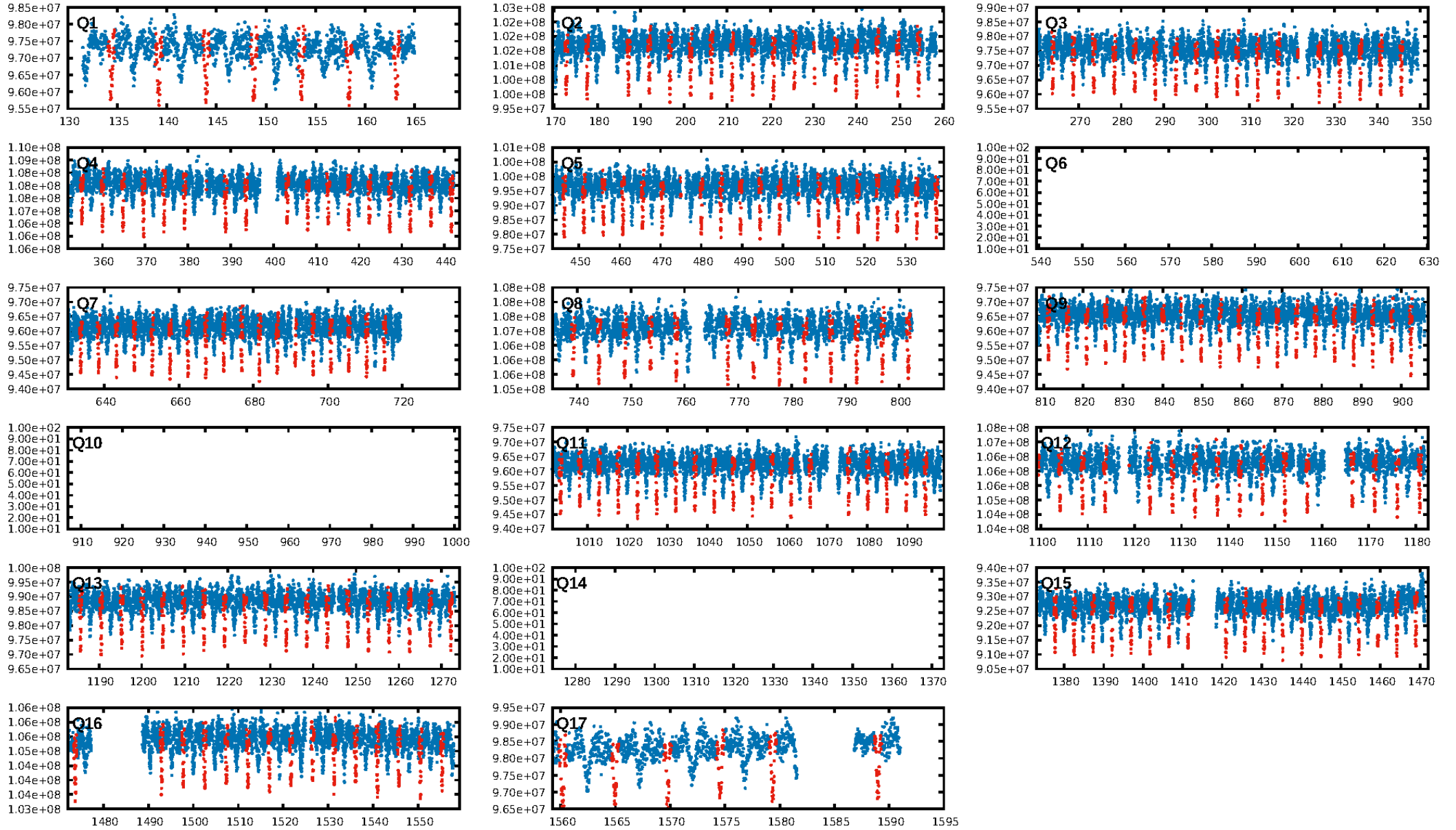
## DV Fit Results:

Period = 4.80063 [0.00000] d  
Epoch = 134.3766 [0.0003] BKJD  
Rp/R\* = 0.1061 [0.0003]  
a/R\* = 3.94 [0.03]  
b = 0.72 [0.00]  
Seff = 779.58 [344.23]  
Teq = 1347 [149] K  
Rp = 14.37 [5.11] Re  
a = 0.0600 [0.0176] AU  
Ag = 7.39 [3.11] [2.06 $\sigma$ ]  
Teffp = 3435 [131] K [10.54 $\sigma$ ]

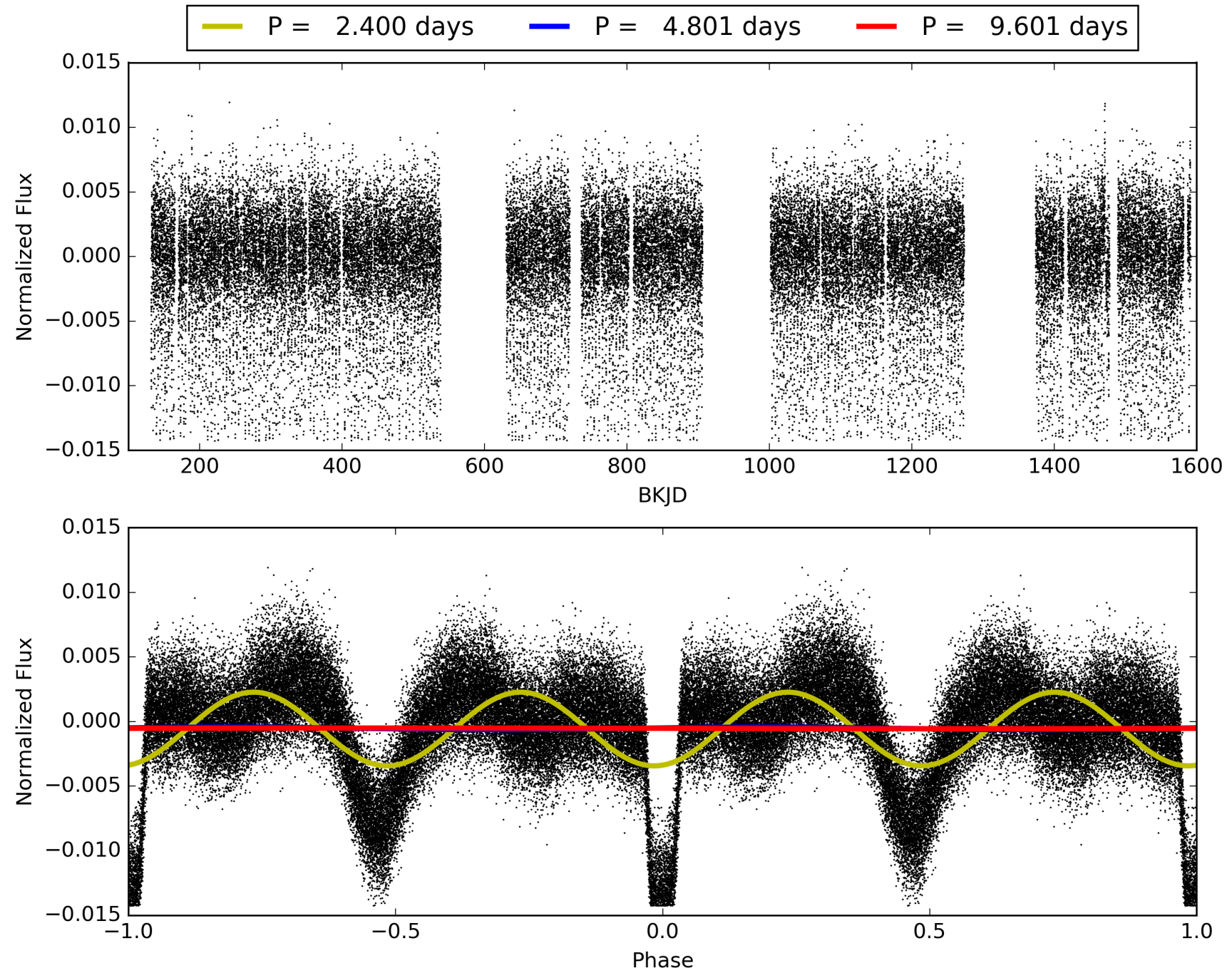
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.96 [200/209]  
GhostDiagnostic-chr: 3.119  
Centroid-sig: 0.0%  
Centroid-so: 0.327 arcsec [64.06 $\sigma$ ]  
OotOffset-rm: 0.023 arcsec [0.35 $\sigma$ ]  
KicOffset-rm: 0.236 arcsec [3.46 $\sigma$ ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 003869825-01, PDC Light Curves

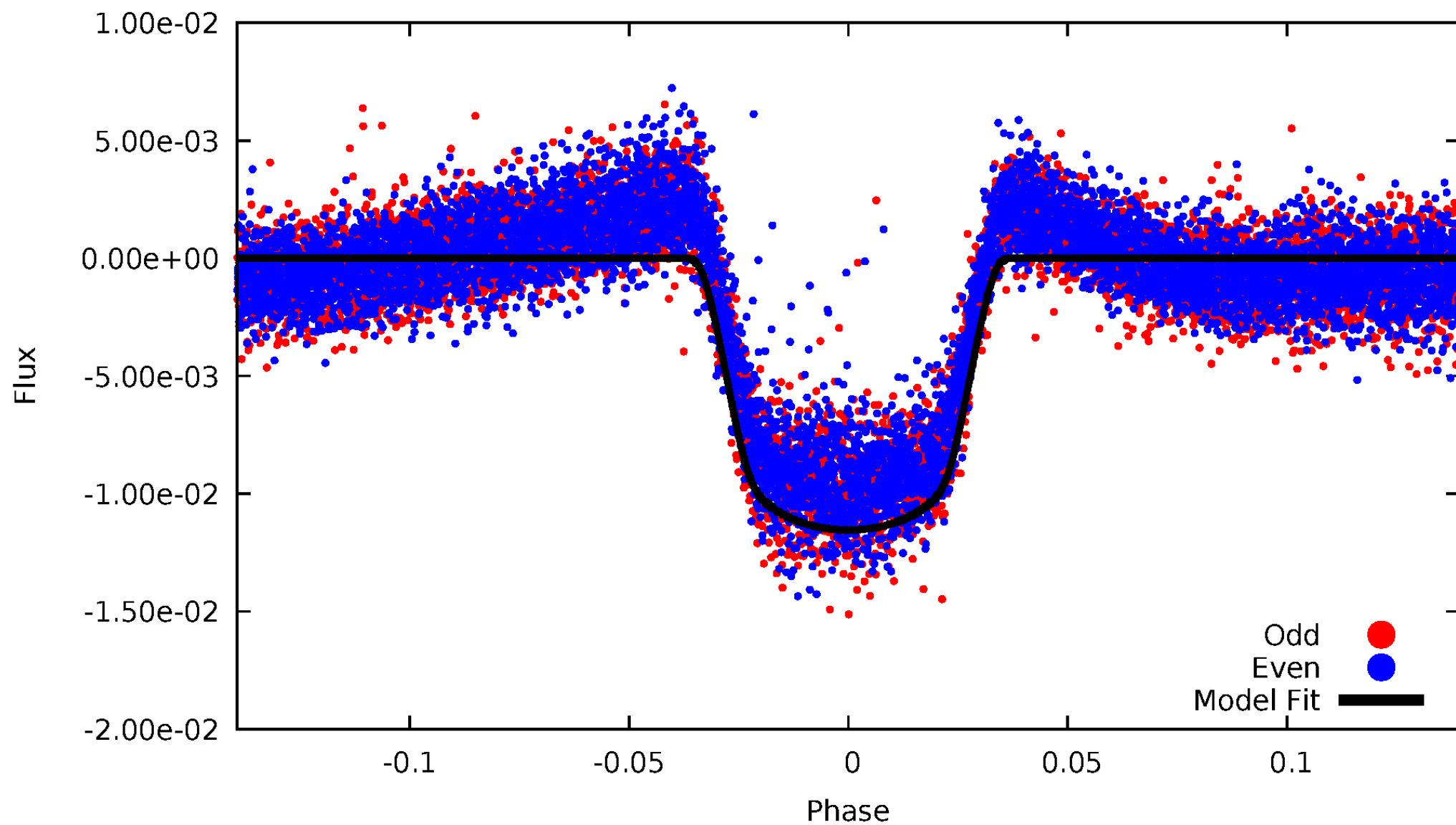


TCE 003869825-01



# DV Odd/Even

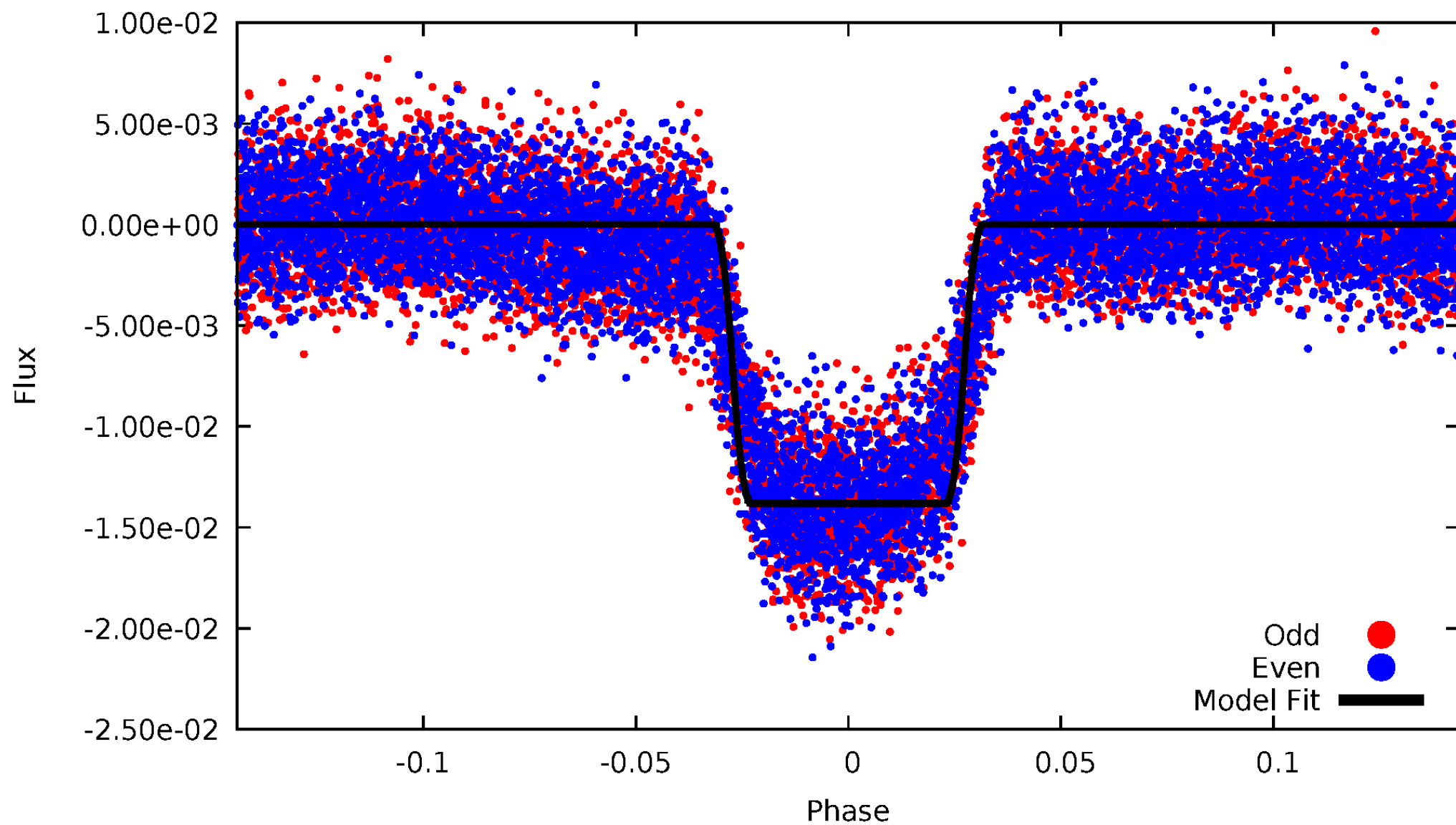
TCE 003869825-01





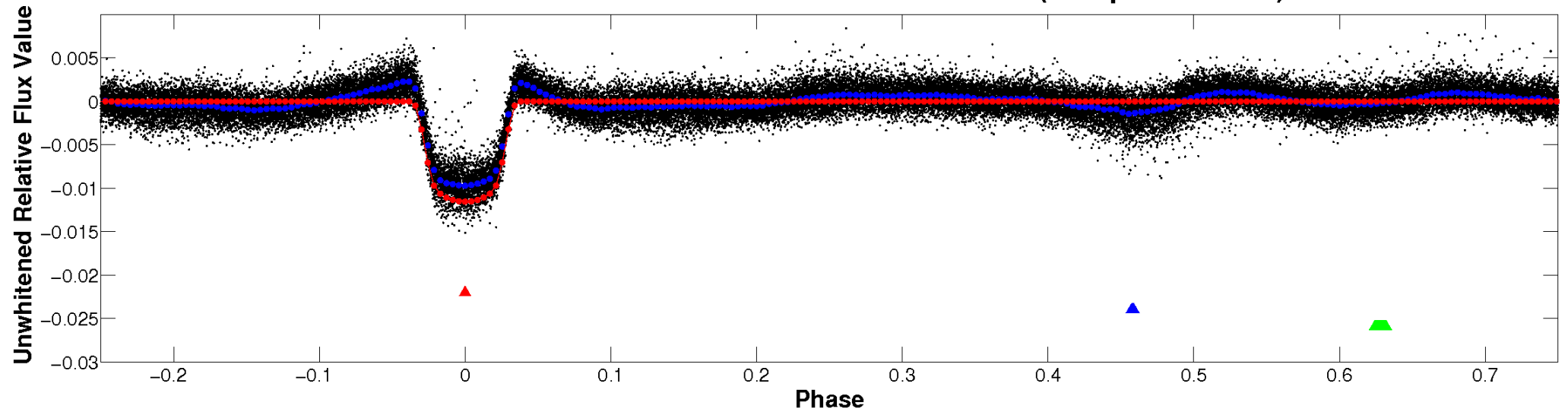
# ALT Odd/Even

TCE 003869825-01

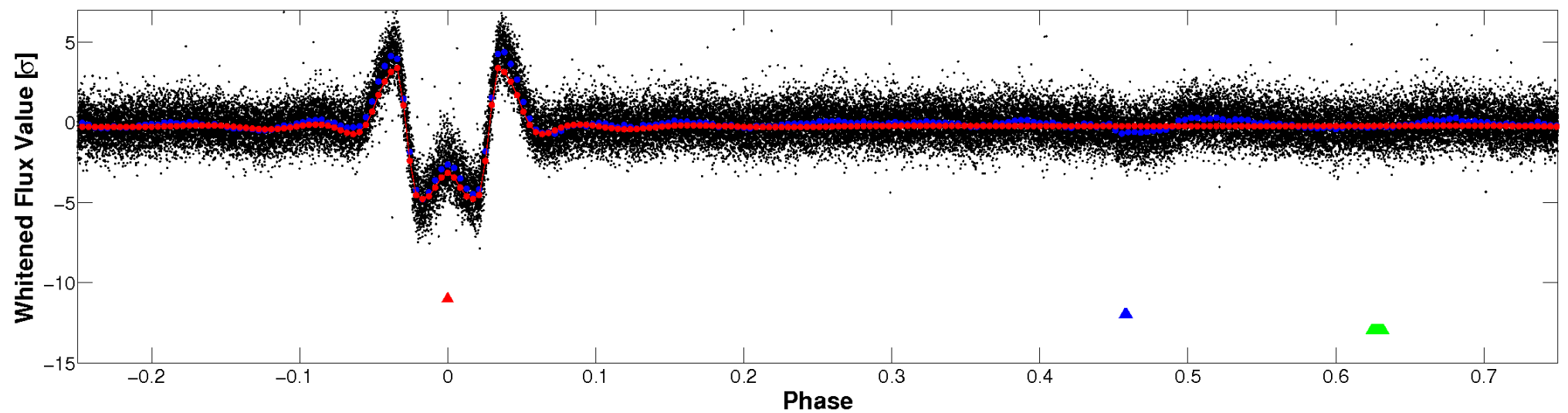


# Non-Whitened Vs. Whitened Light Curve

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

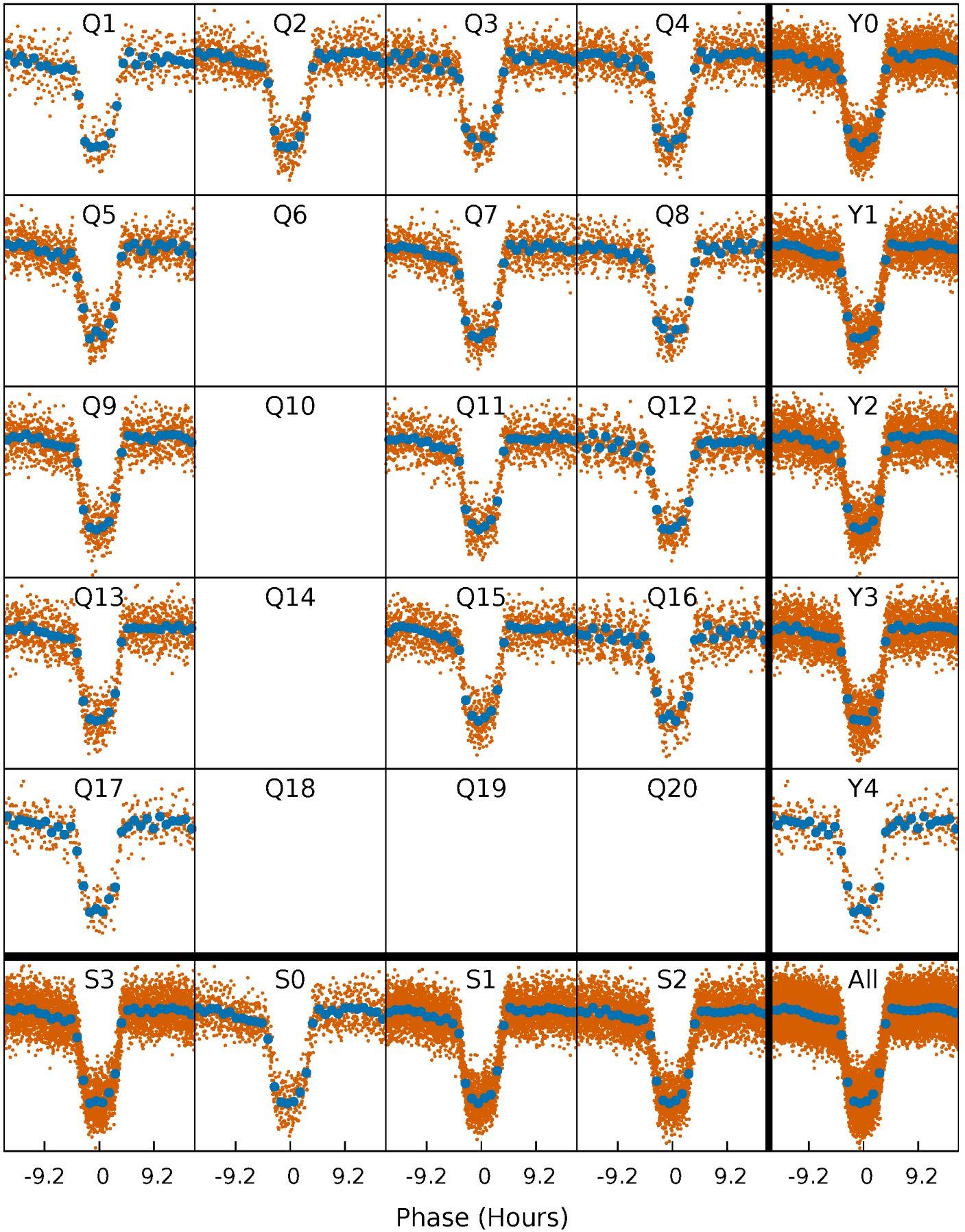


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

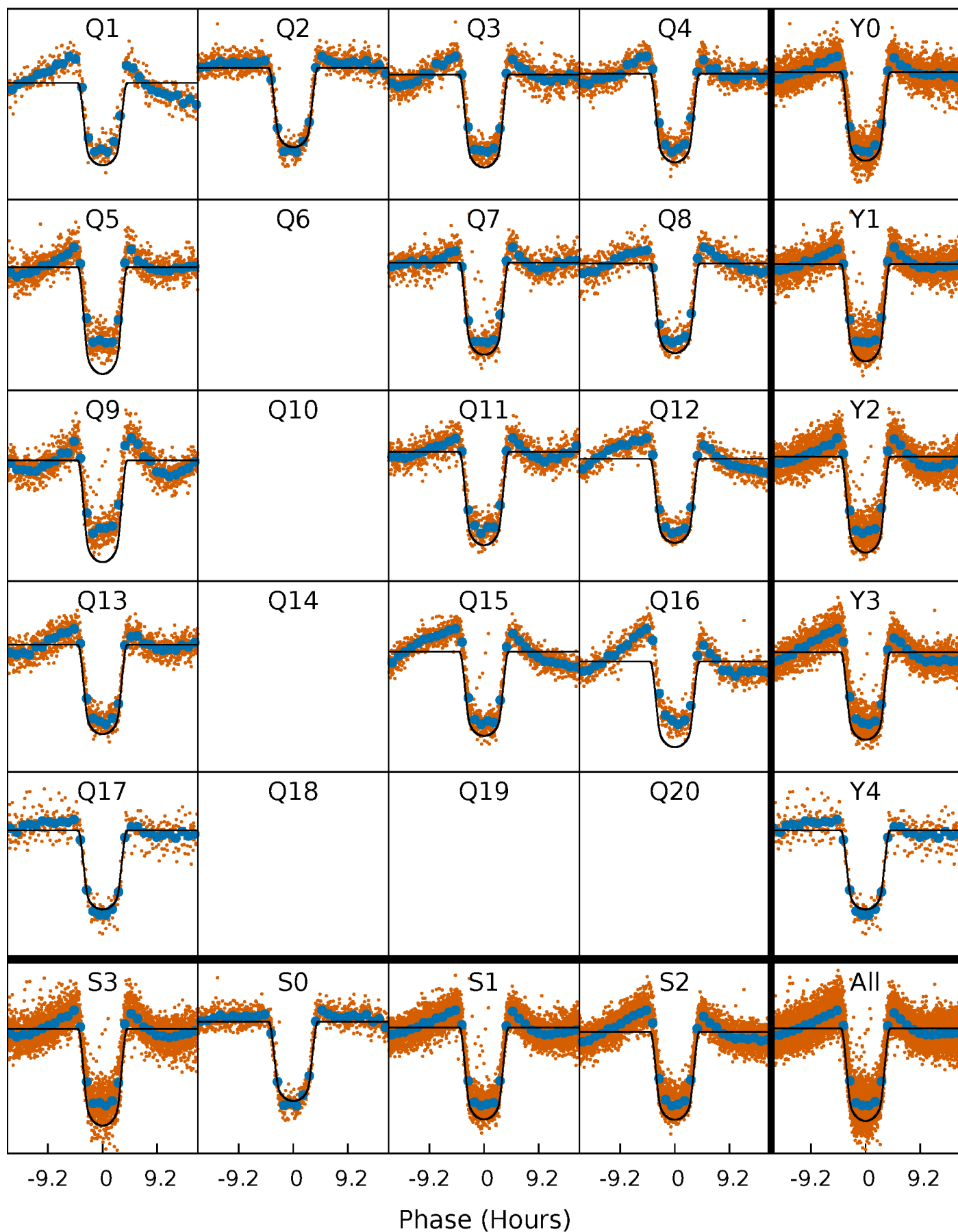
TCE 003869825-01   P= 4.800635 Days    $T_0=134.376596$  (BKJD)





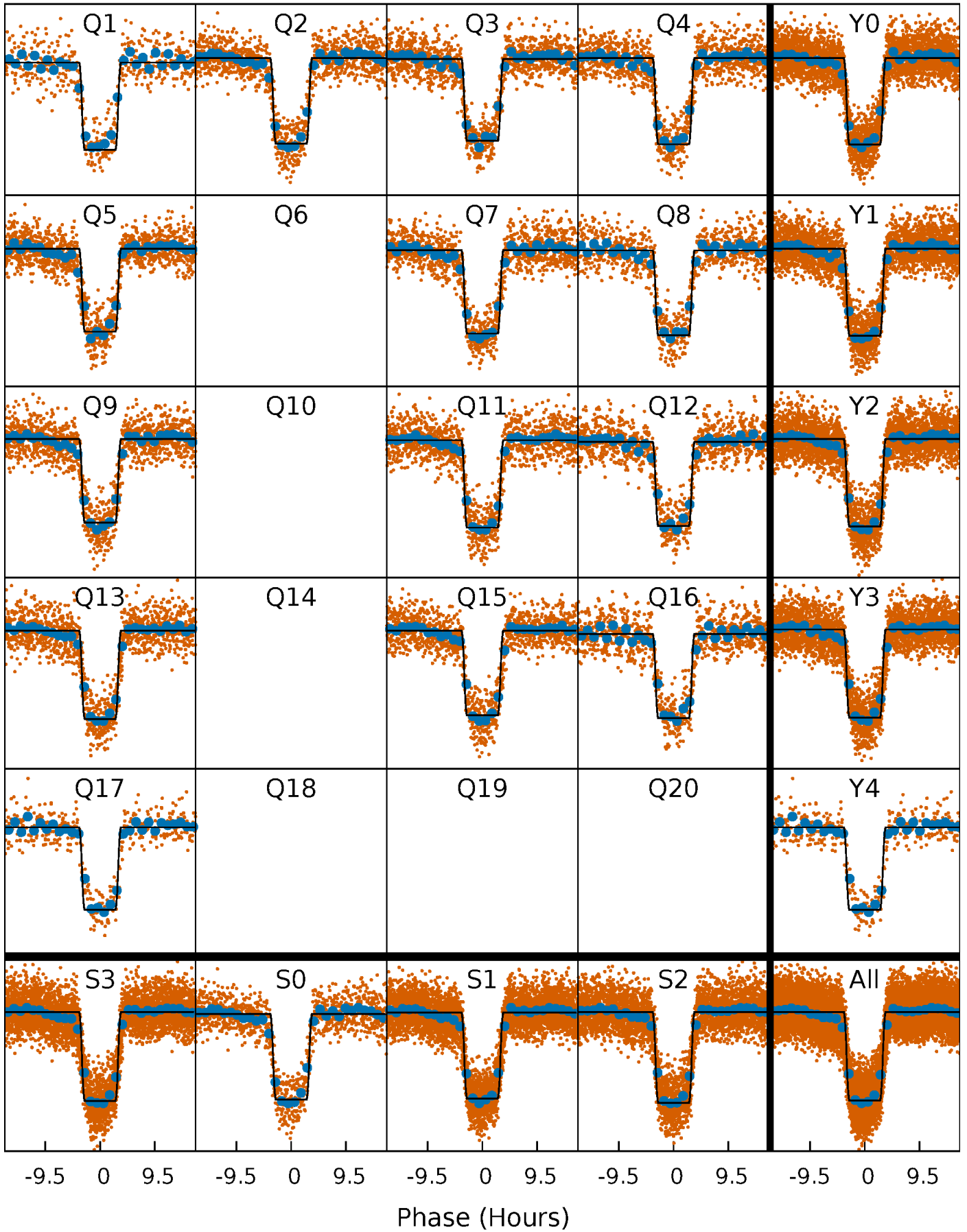
# DV Quarter-Phased Transit Curves

TCE 003869825-01   P= 4.800635 Days    $T_0=134.376596$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

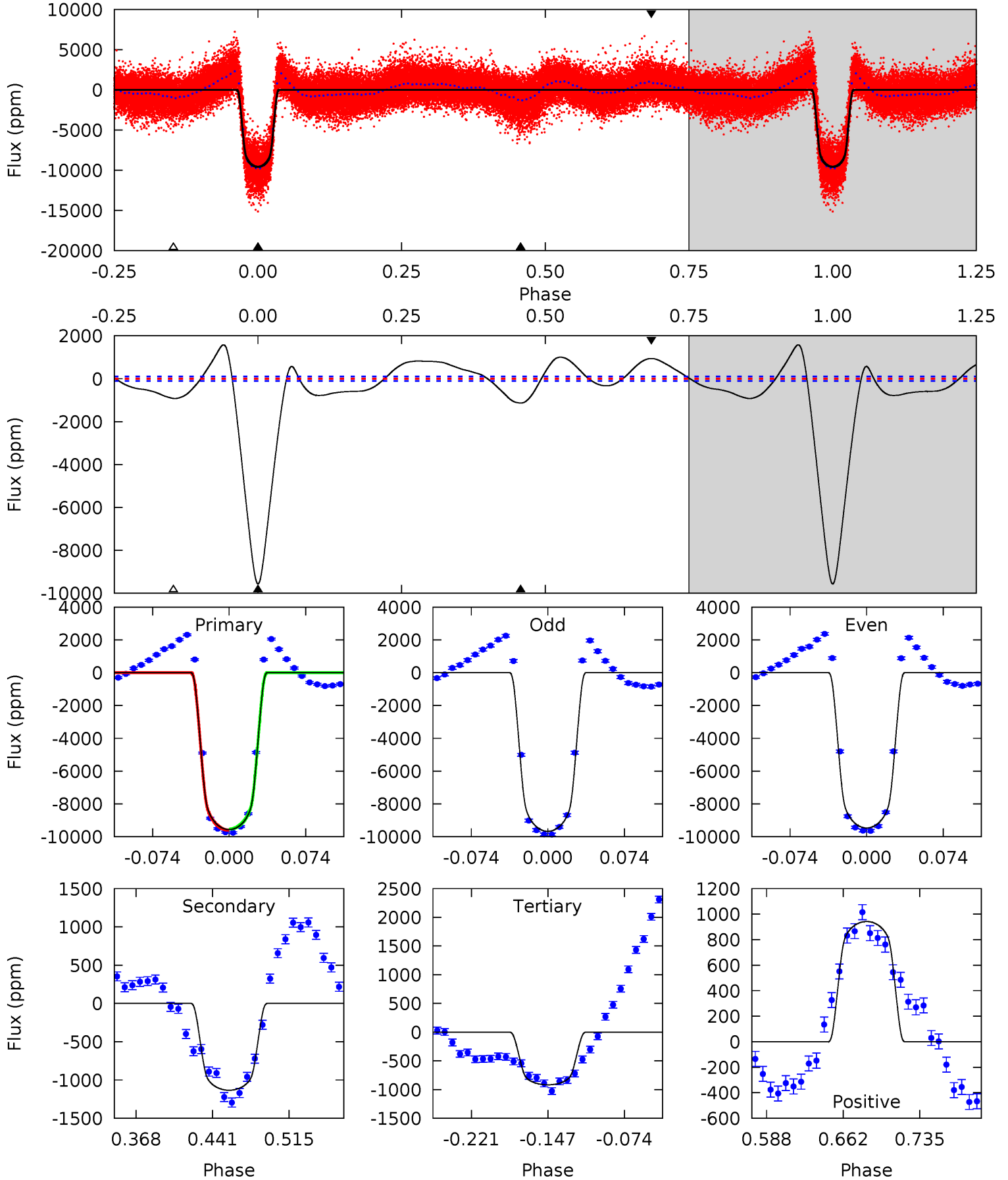
TCE 003869825-01   P= 4.800593 Days    $T_0=134.377912$  (BKJD)



# DV Model-Shift Uniqueness Test

003869825-01, P = 4.800635 Days, E = 129.575961 Days

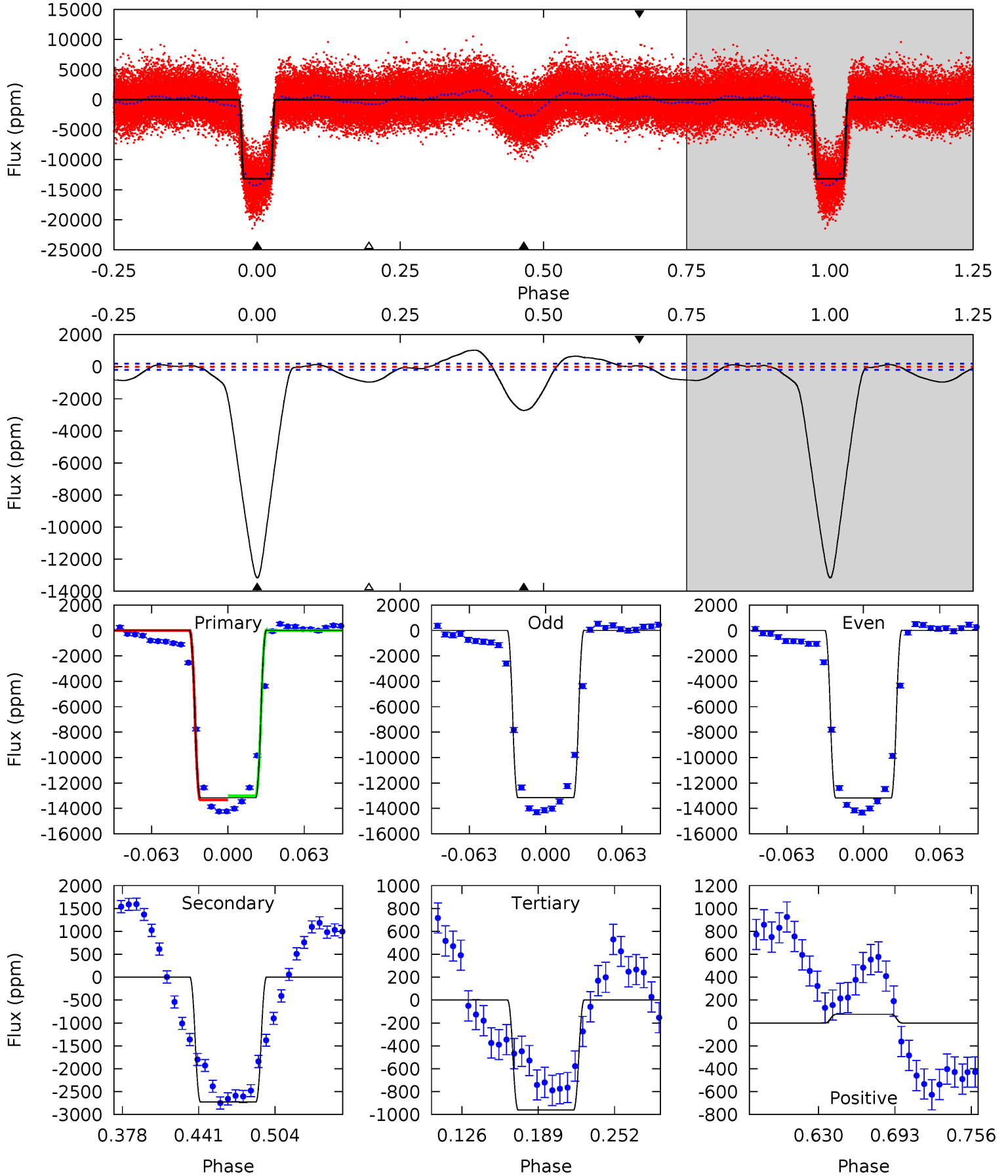
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
430.1	51.0	41.2	42.4	4.63	1.79	26.6	388.8	387.7	9.76	8.63	4.61	0.99	0.14	1.52



# Alt Model-Shift Uniqueness Test

003869825-01, P = 4.800593 Days, E = 129.577319 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
317.2	65.7	23.2	1.81	4.66	1.86	12.3	294.1	315.4	42.5	63.9	0.29	1.00	0.07	3.92



### Stellar Parameters For KIC 003869825

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6715^{+161}_{-241}$	$4.347^{+0.056}_{-0.224}$	$-0.100^{+0.250}_{-0.350}$	$1.241^{+0.441}_{-0.147}$	$1.256^{+0.191}_{-0.174}$	$0.927^{+0.276}_{-0.498}$
	+2%/-4%	+1%/-5%	+250%/-350%	+36%/-12%	+15%/-14%	+30%/-54%
Source	PHO1	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 003869825-01 / KOI 1178.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1134 \pm 22$	$14.79^{+2.75}_{-1.29}$	$1923^{+160}_{-96}$	$4050^{+71}_{-94}$	$10^{+2}_{-3}$
Alt.	$-2726 \pm 41$	$16.68^{+3.21}_{-1.56}$	$1933^{+160}_{-104}$	$4610^{+87}_{-124}$	$19^{+3}_{-6}$

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

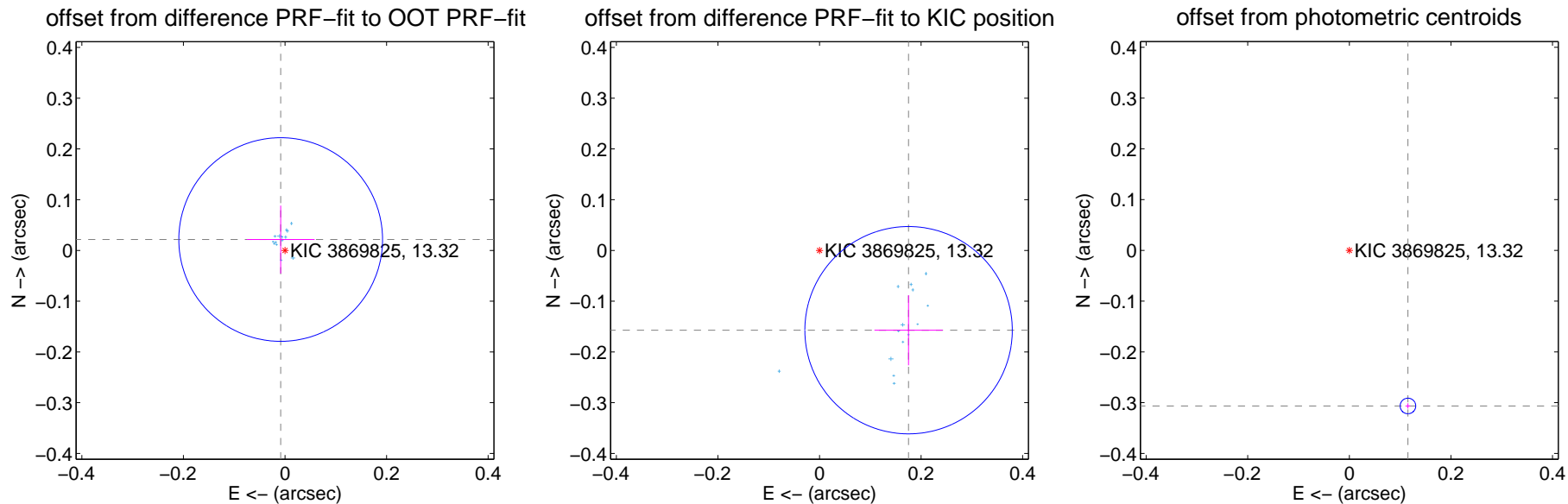
## DV Centroid Data

Supplemental centroid analysis for 003869825-01. Kepler magnitude: 13.32. Transit SNR 233.52

There are 14 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

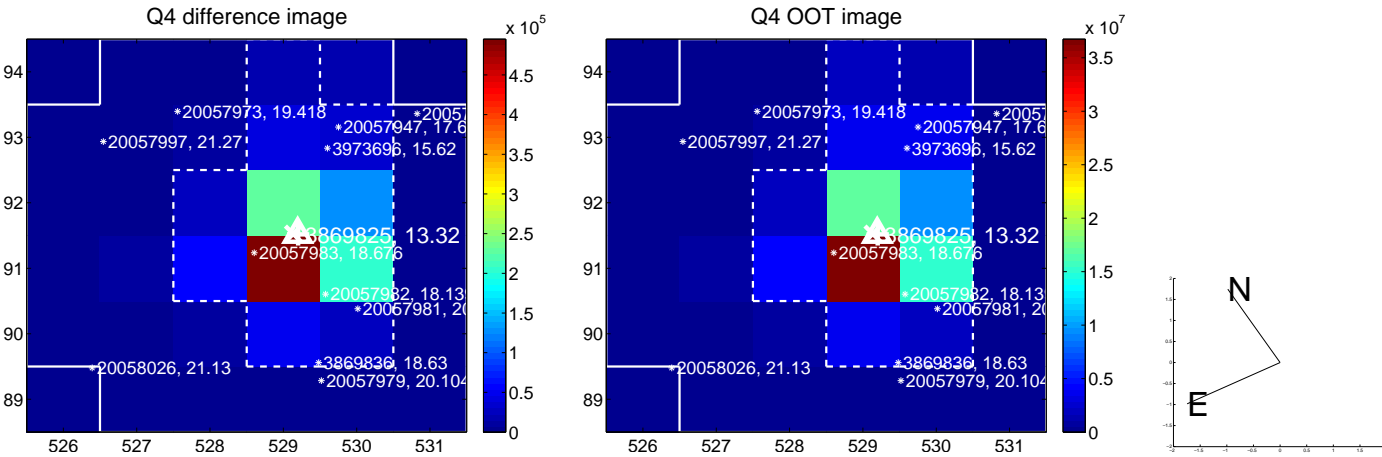
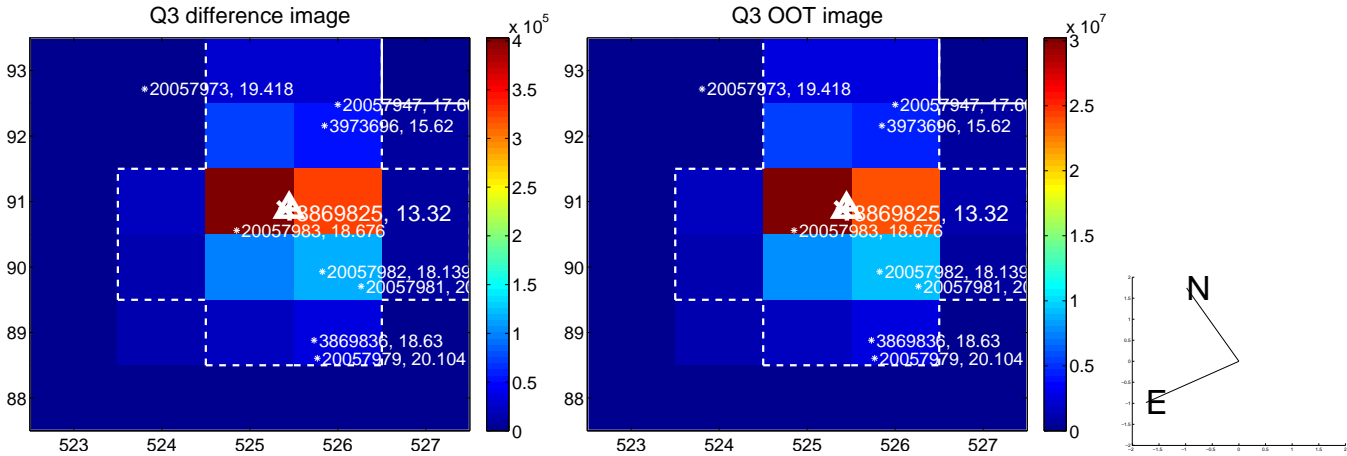
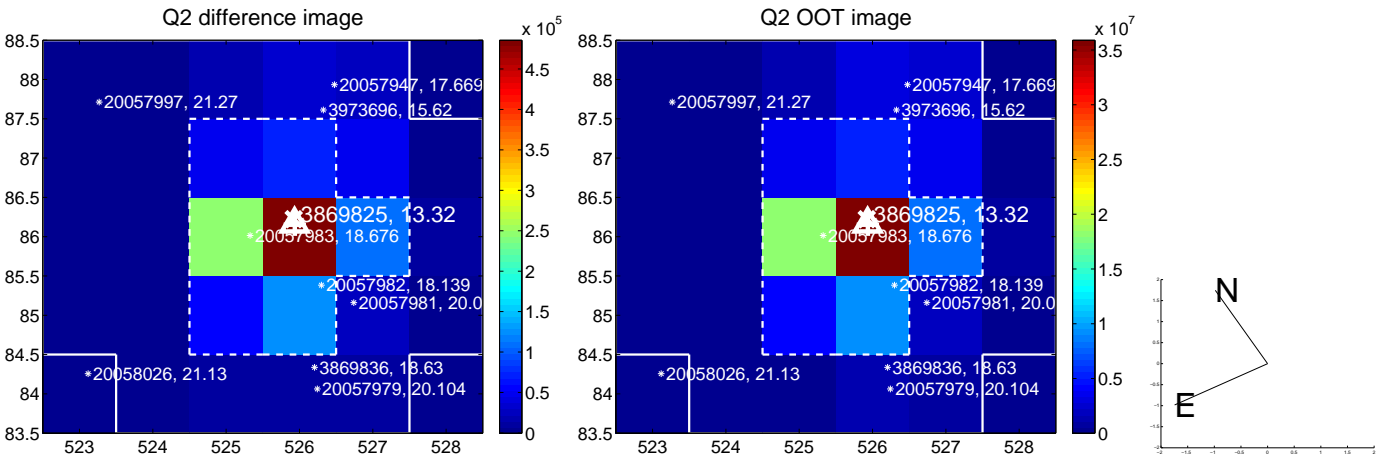
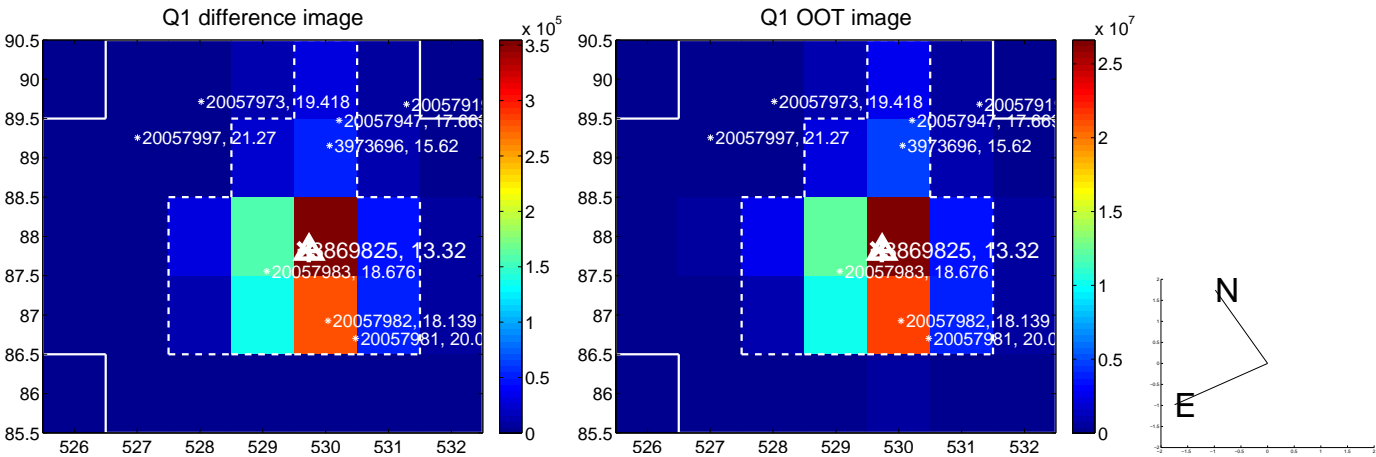
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.023 \pm 0.067$	0.35	$0.009 \pm 0.067$	$0.021 \pm 0.067$
PRF-fit source offset from KIC position	$0.236 \pm 0.068$	3.46	$-0.175 \pm 0.067$	$-0.157 \pm 0.069$
photometric centroid source offset	$0.33 \pm 0.01$	64.06	$-0.12 \pm 0.00$	$-0.31 \pm 0.01$



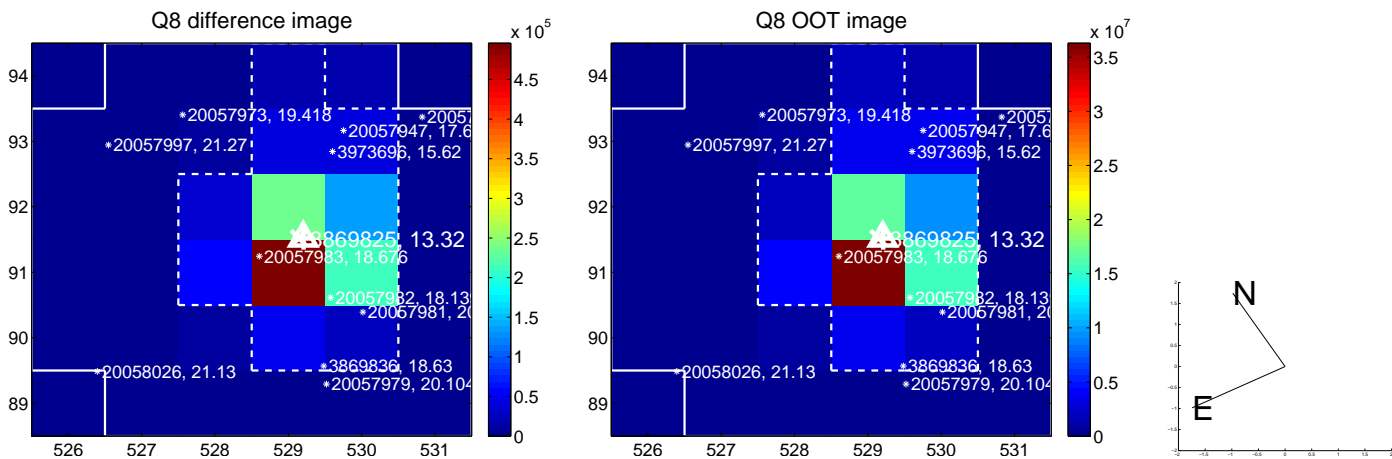
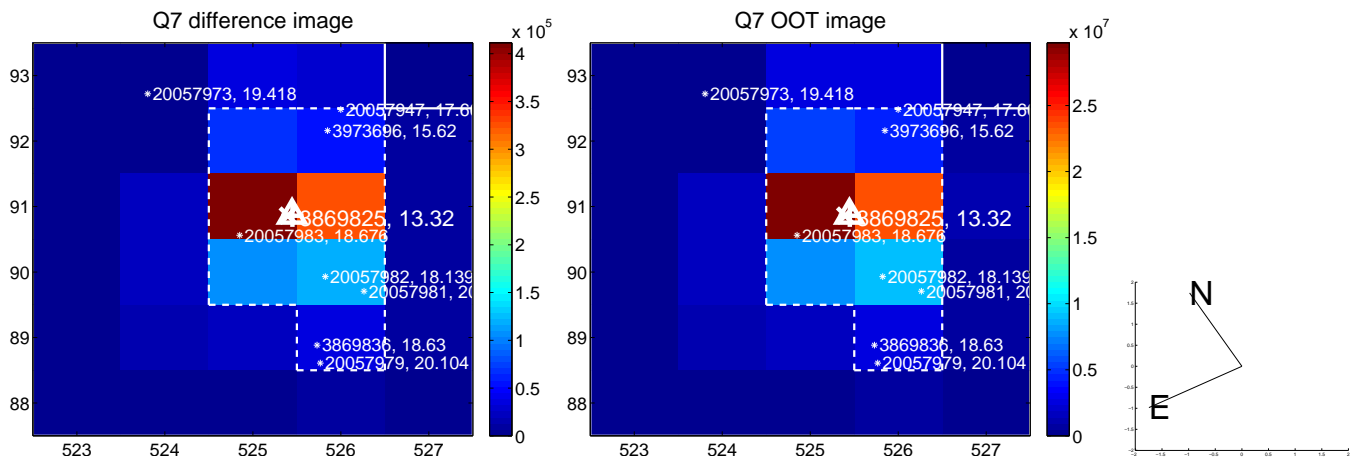
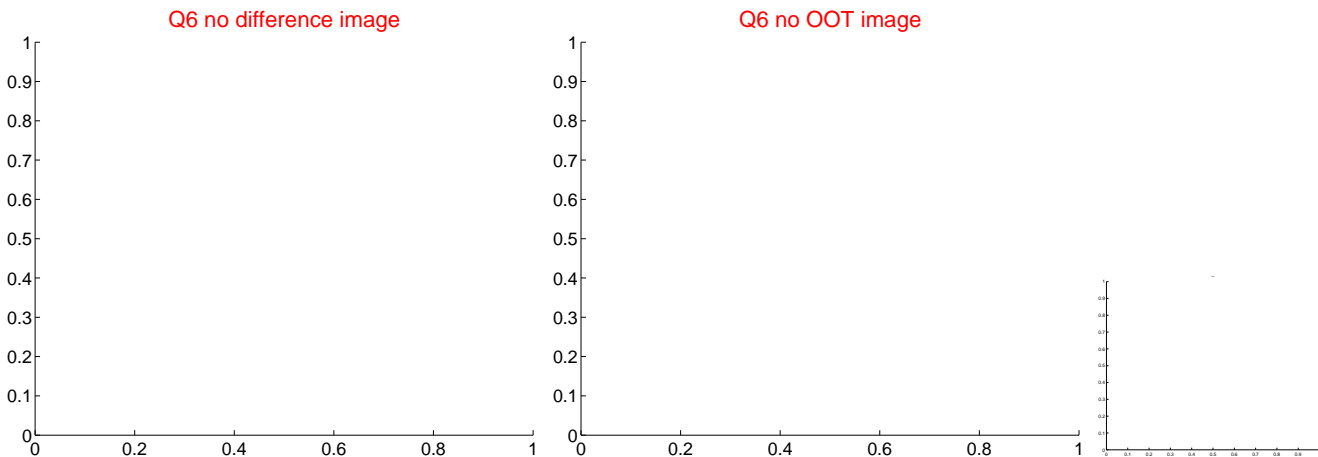
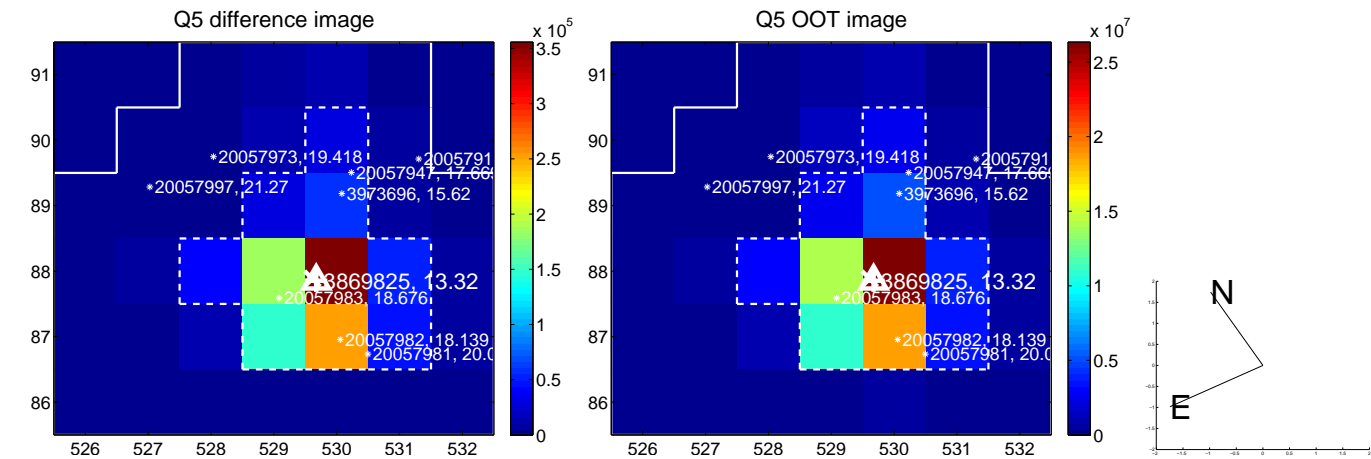
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



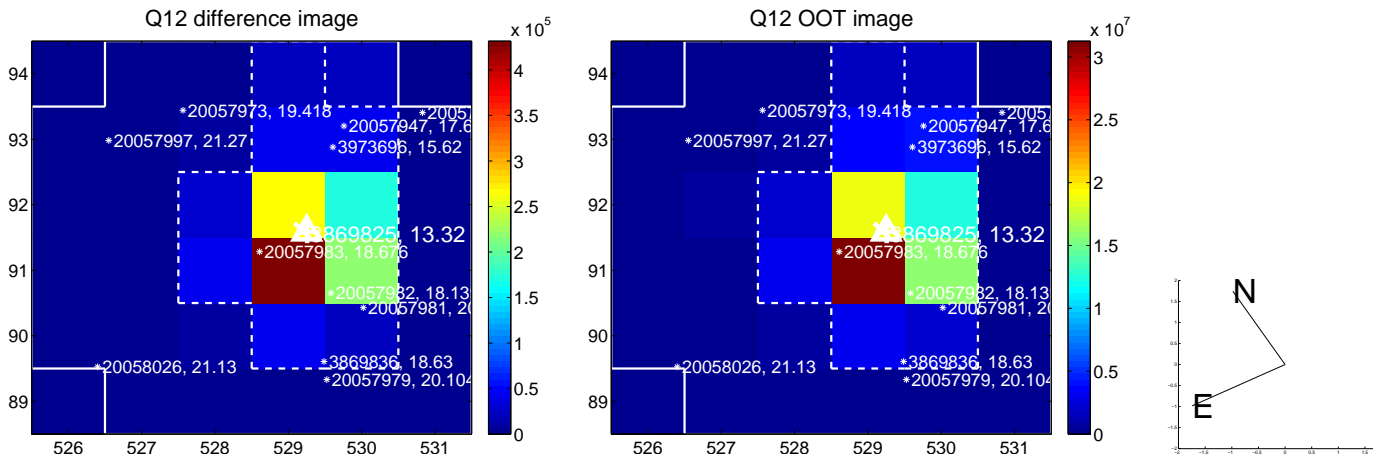
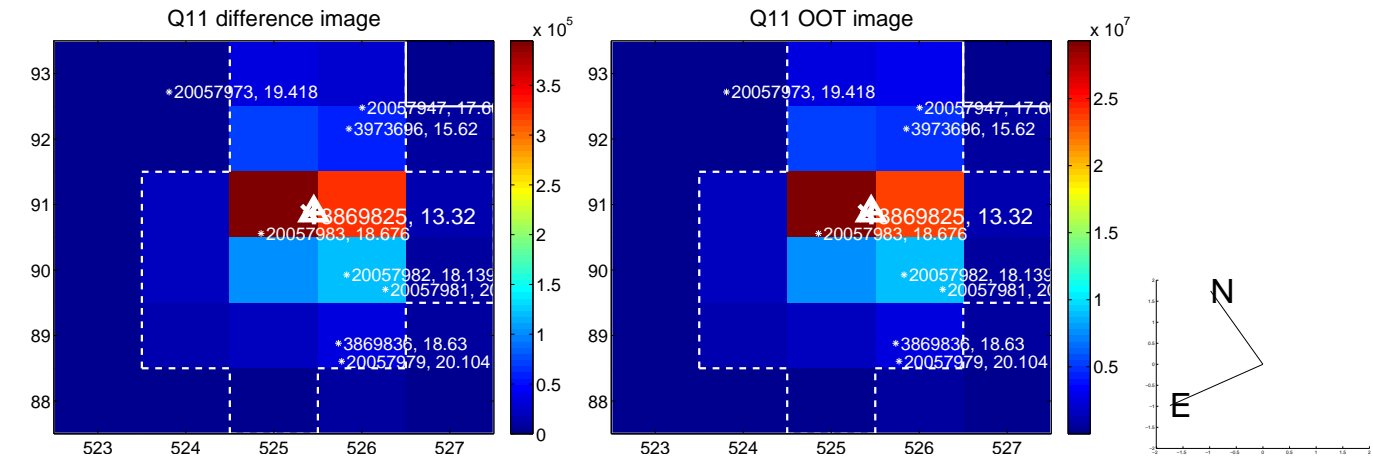
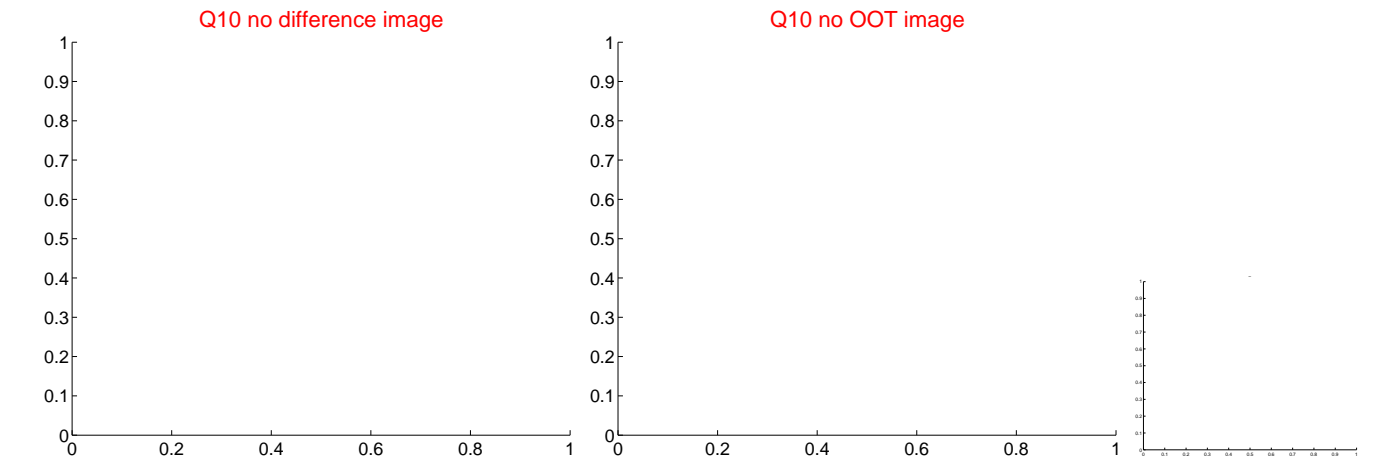
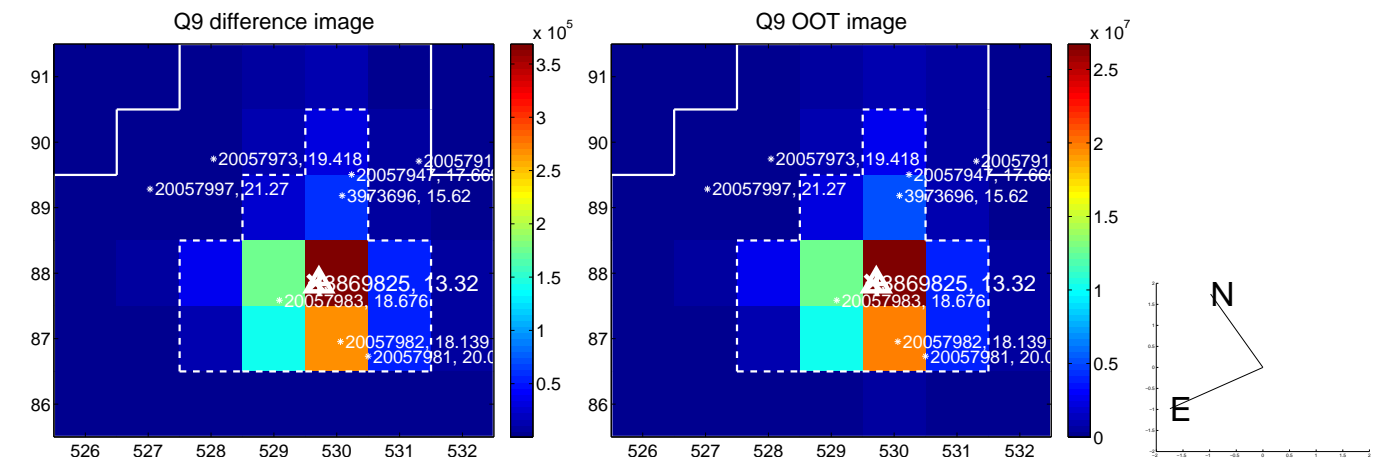
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



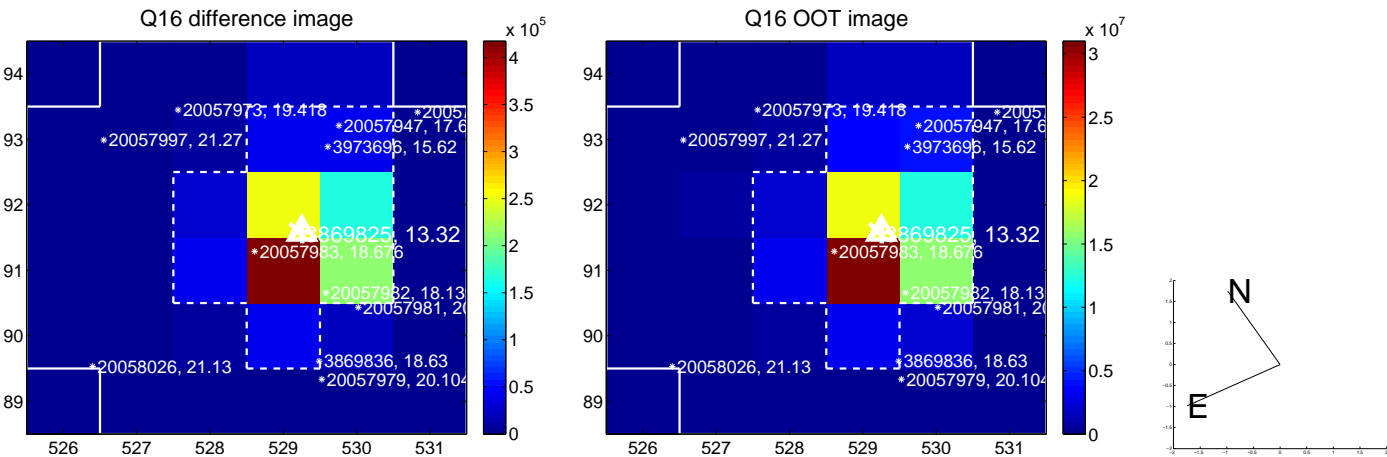
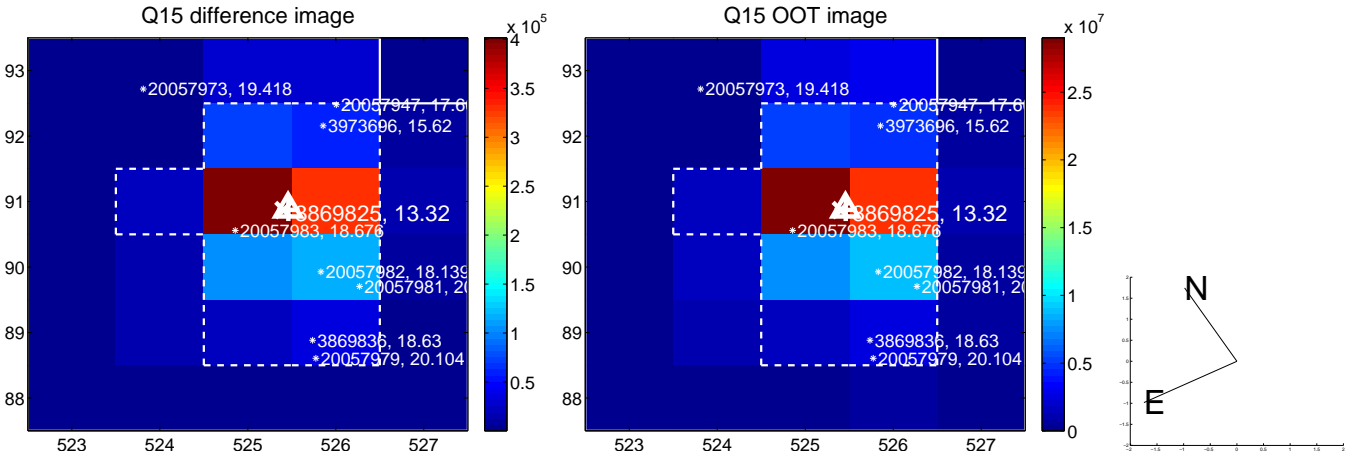
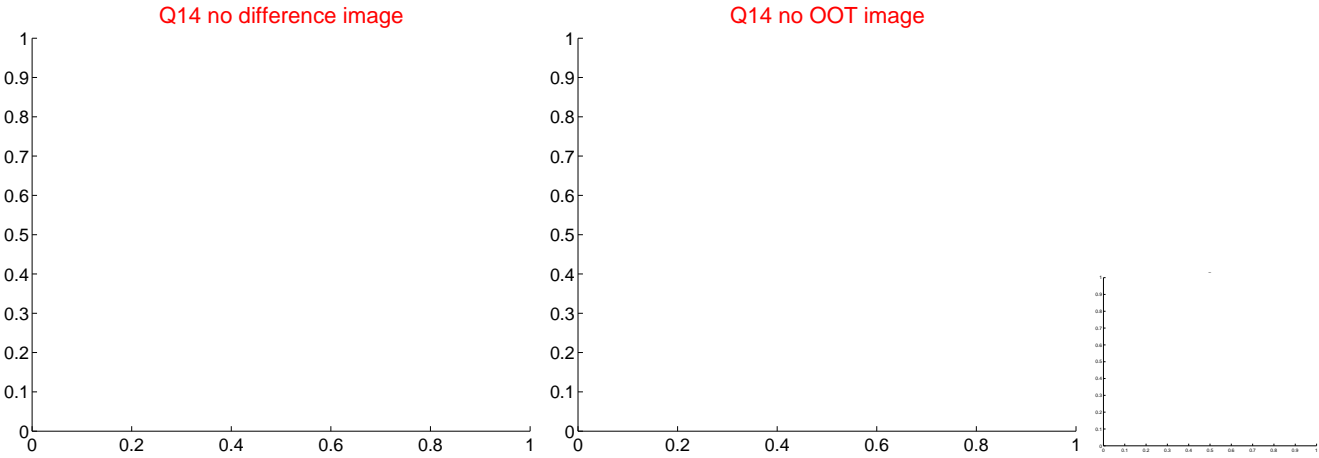
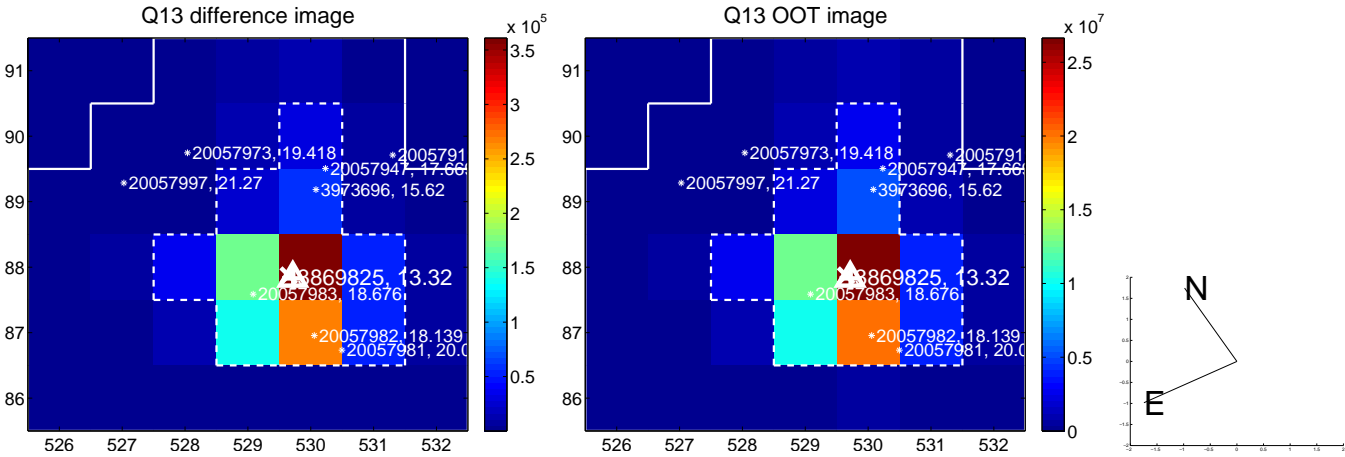
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



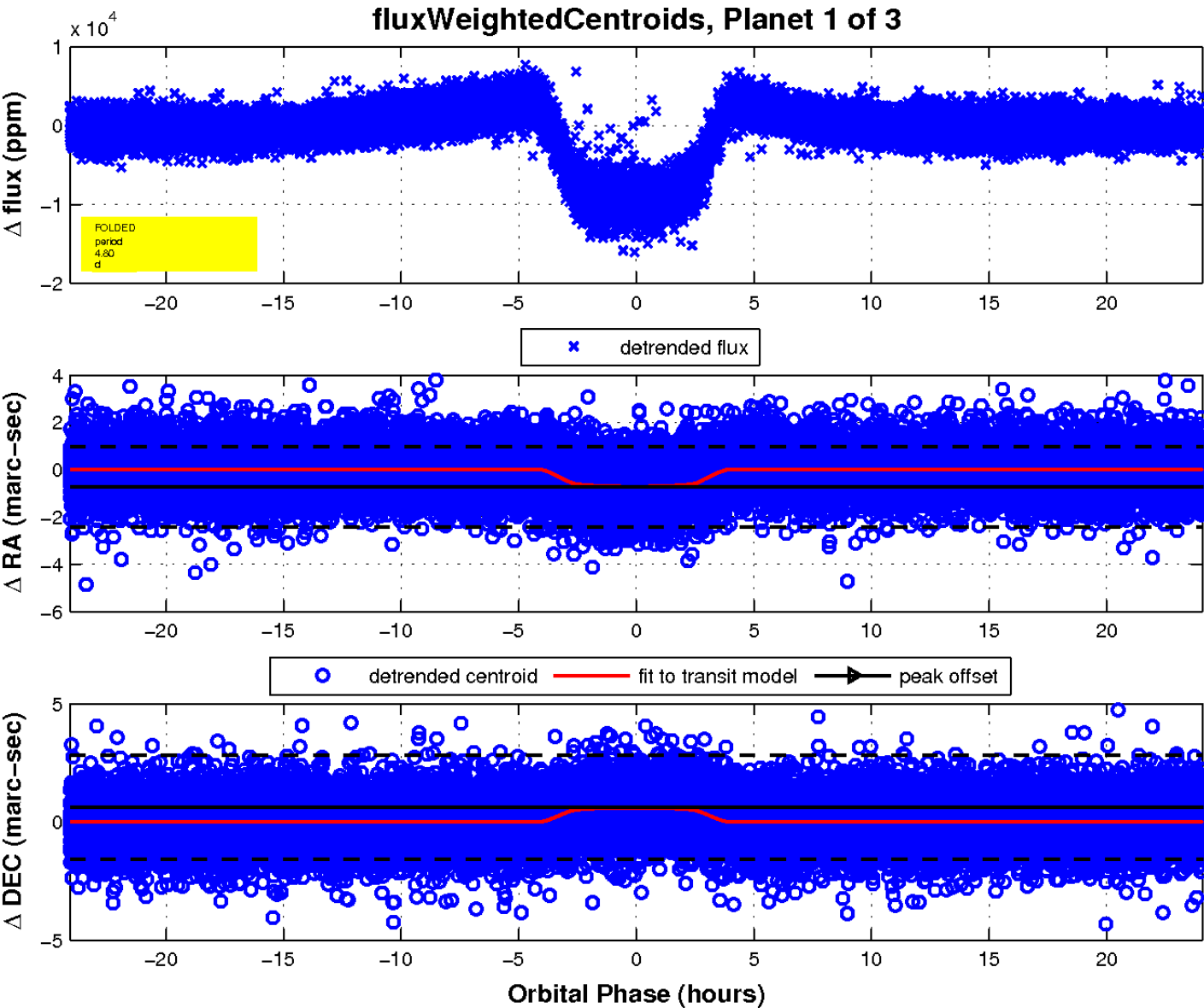
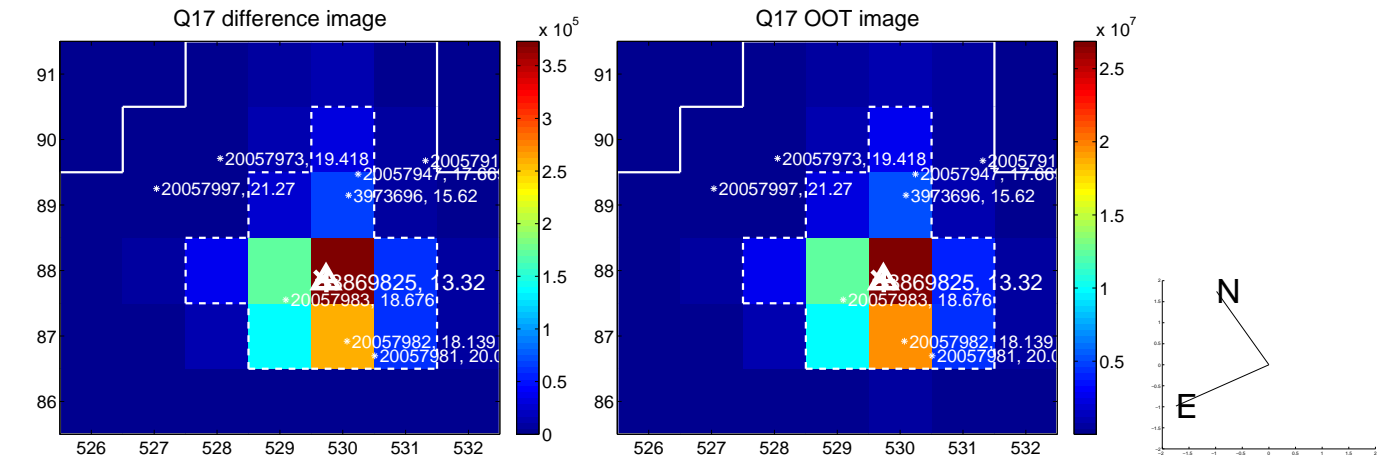
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

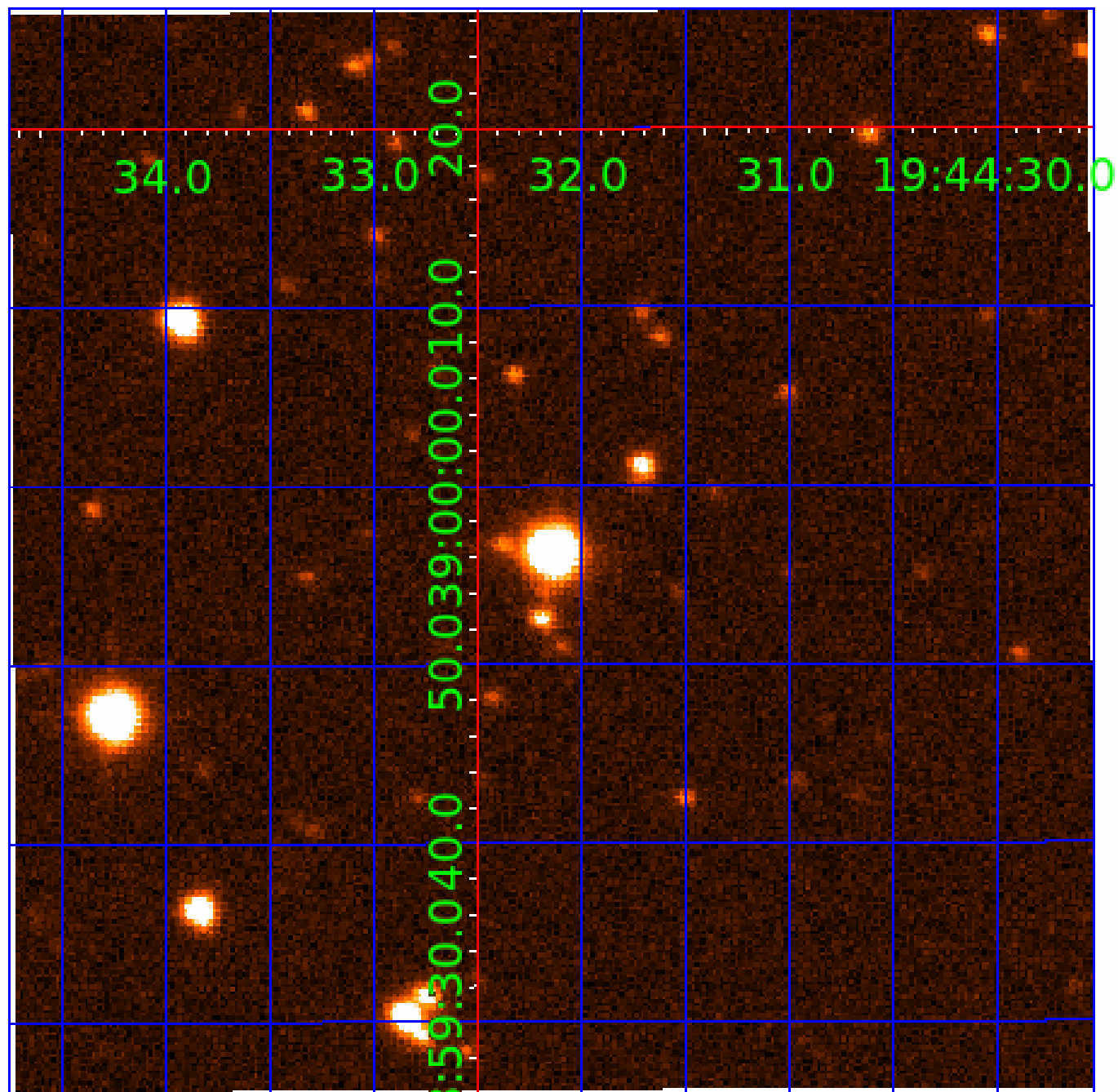


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003869825

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003869825-01	OBS	1178.01	4.800635	134.376596	11544.2	8.026	232.6	233.5	1.24	6715	14.37	779.58
003869825-02	OBS	No	4.800657	131.771673	1111.5	11.930	21.2	21.8	1.24	6715	7.75	779.58
003869825-03	OBS	No	4.800506	132.611000	327.5	6.000	12.5	-1.0	1.24	6715	2.26	779.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003869825-01	OBS	FP	0.00	0	1	0	0	HAS_SEC_TCE
003869825-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
003869825-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

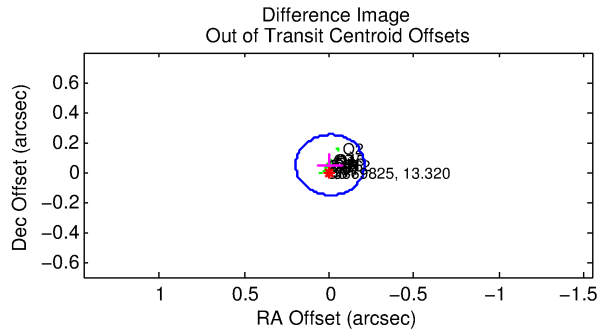
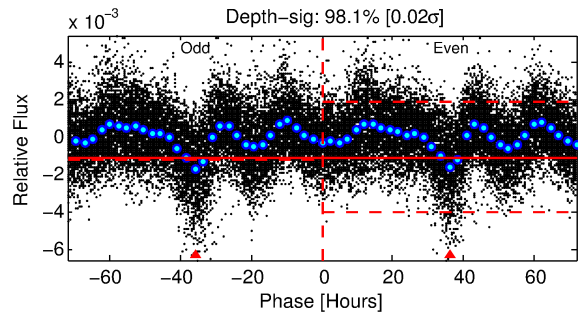
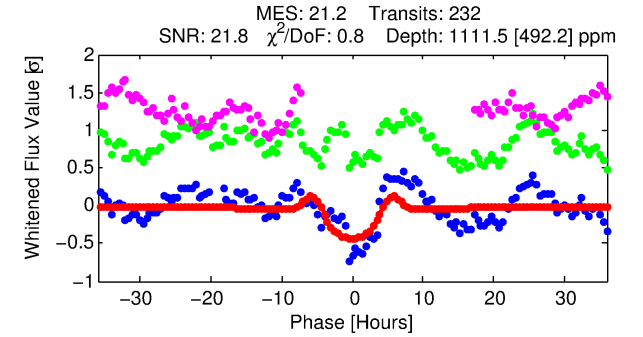
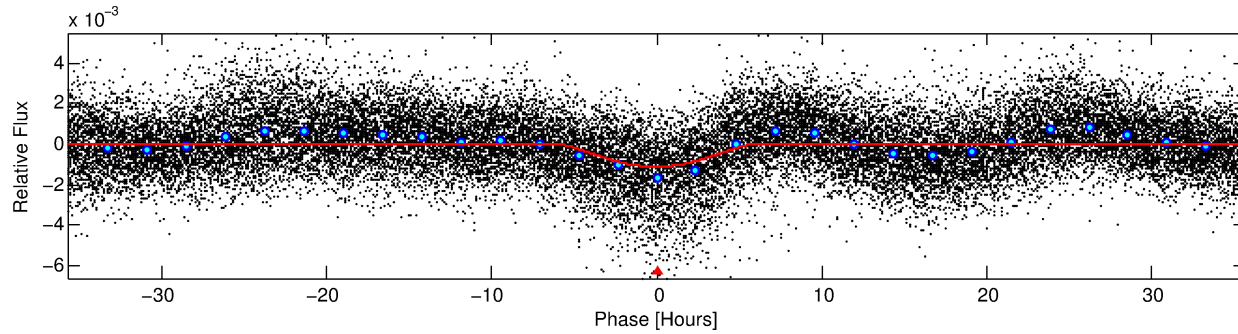
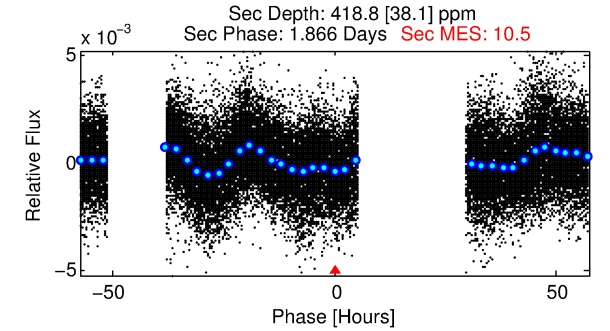
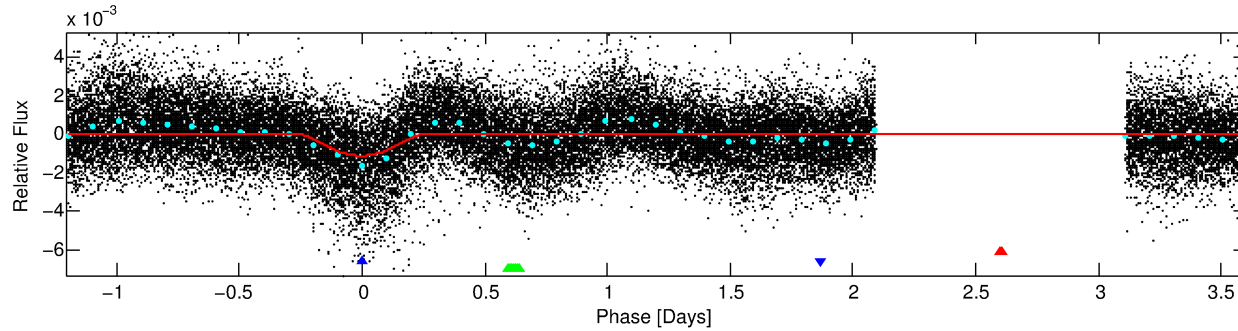
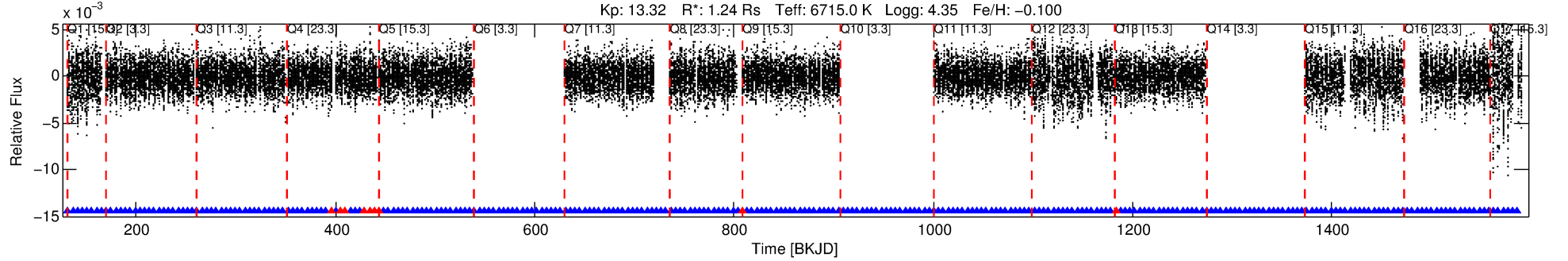
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003869825-02

No Significant Match Found

# DV One-Page Summary

KIC: 3869825 Candidate: 2 of 3 Period: 4.801 d  
KOI: K01178 Corr: No Ephemeris Match



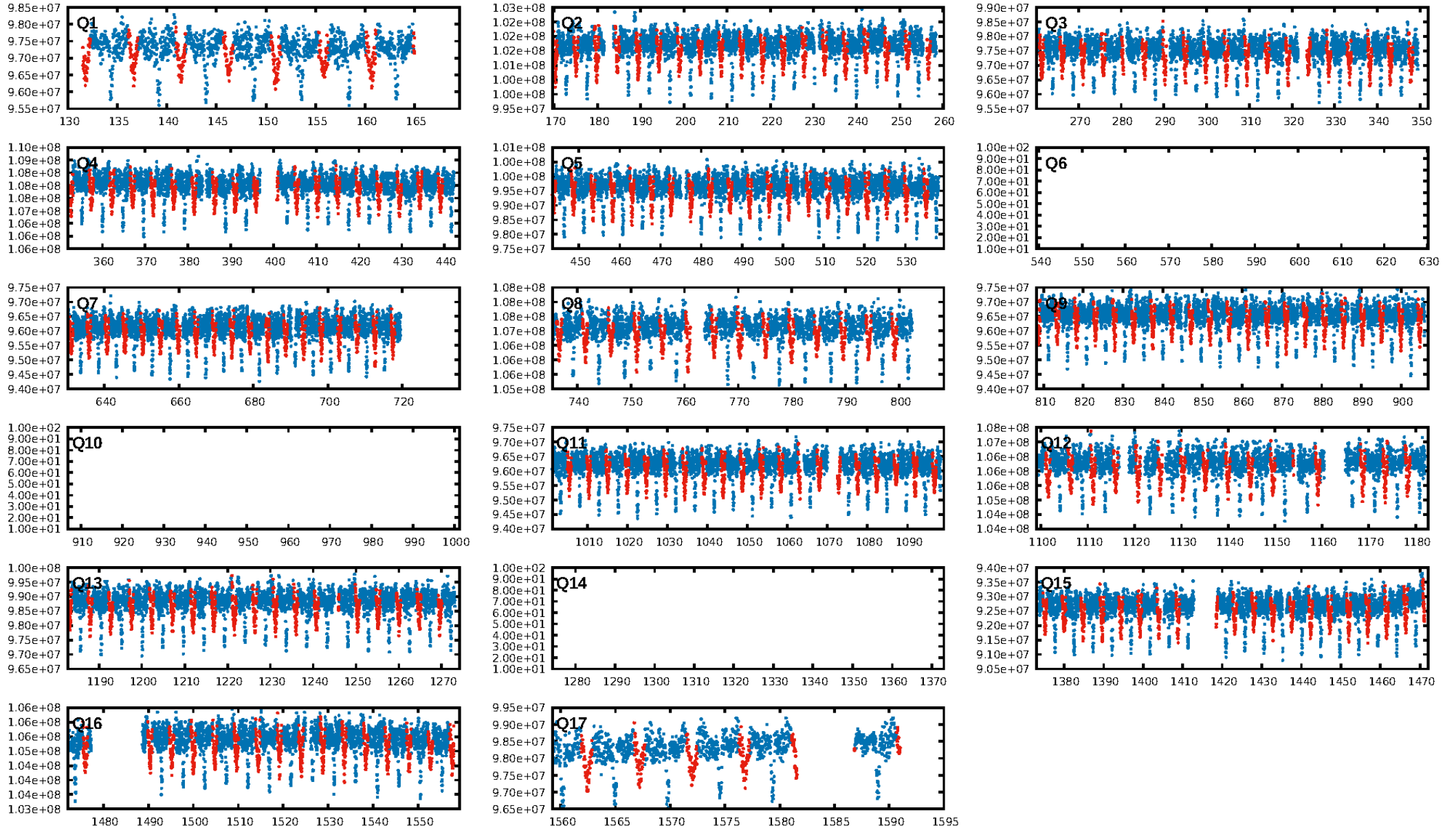
## DV Fit Results:

Period = 4.80066 [0.00005] d  
Epoch = 131.7717 [0.0082] BKJD  
Rp/R\* = 0.0572 [0.0316]  
a/R\* = 1.47 [0.07]  
b = 1.00 [0.03]  
Seff = 779.58 [344.22]  
Teq = 1347 [149] K  
Rp = 7.75 [5.09] Re  
a = 0.0600 [0.0176] AU  
Ag = 13.82 [16.38] [0.78σ]  
Teffp = 4017 [1123] K [2.36σ]

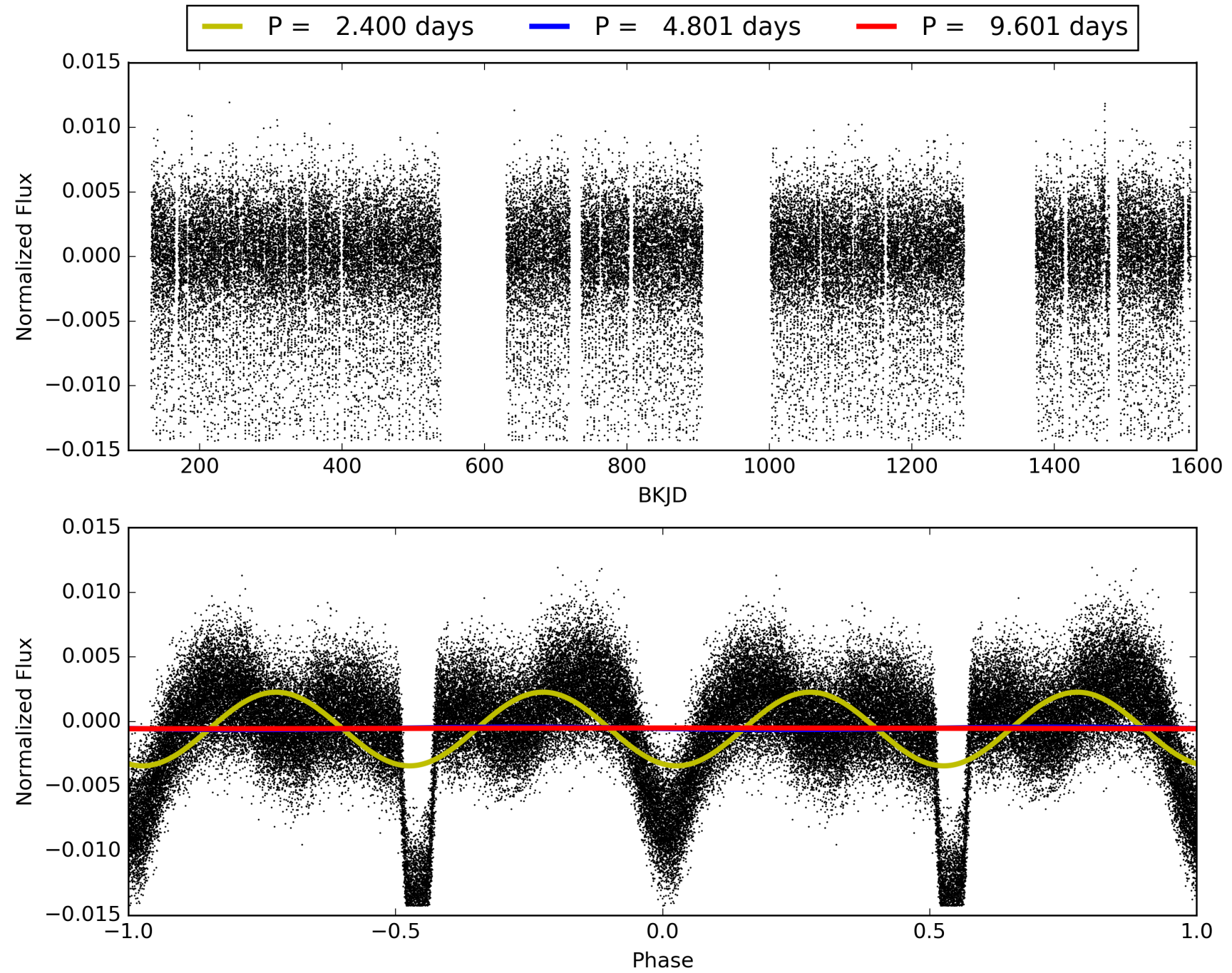
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.96 [210/219]  
GhostDiagnostic-chr: -6.922  
Centroid-sig: 0.0%  
Centroid-so: 0.338 arcsec [6.29σ]  
OotOffset-rm: 0.049 arcsec [0.72σ]  
KicOffset-rm: 0.222 arcsec [3.24σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 0.00 [0/14]

# TCE 003869825-02, PDC Light Curves

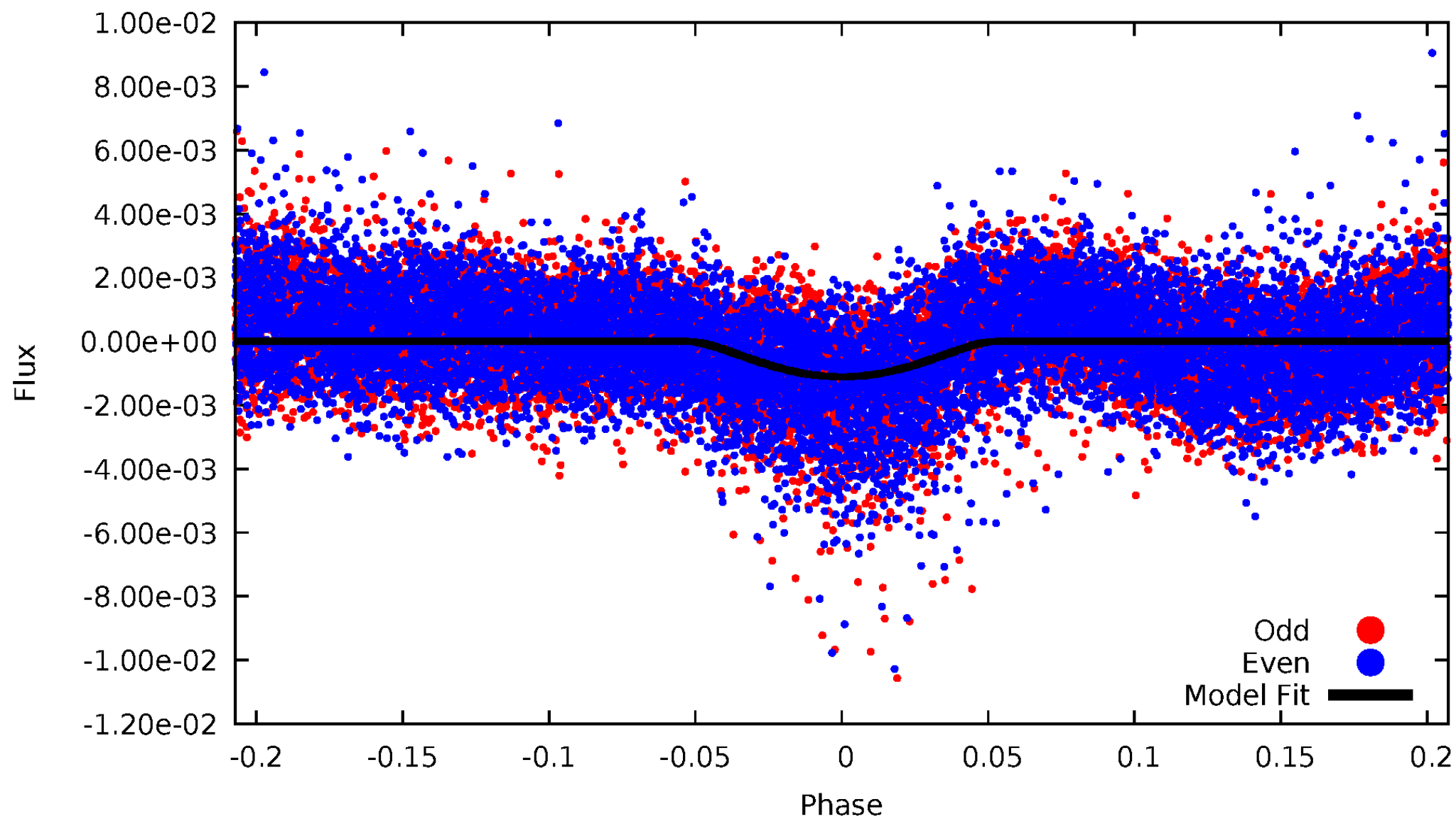


TCE 003869825-02



# DV Odd/Even

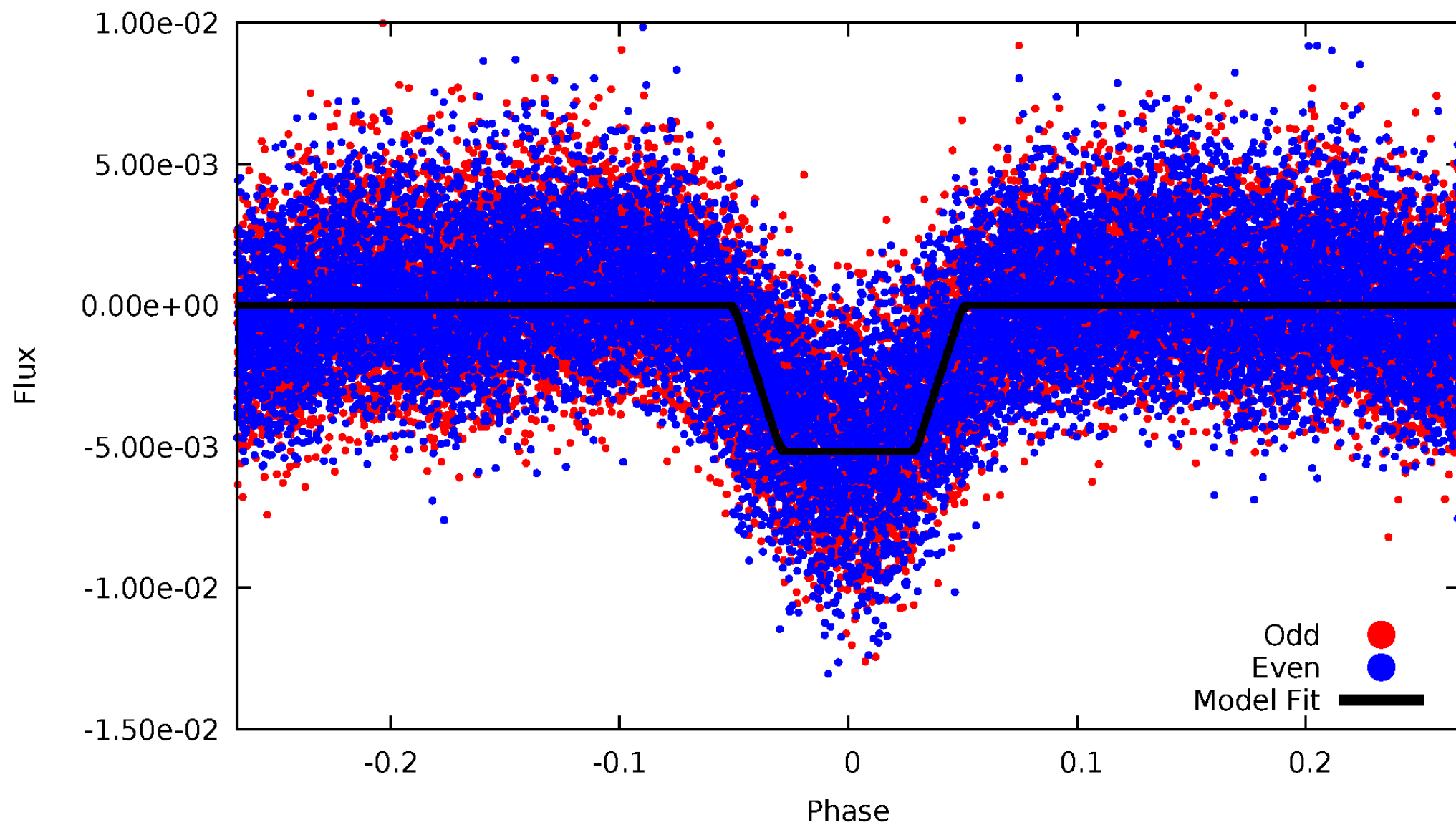
TCE 003869825-02





# ALT Odd/Even

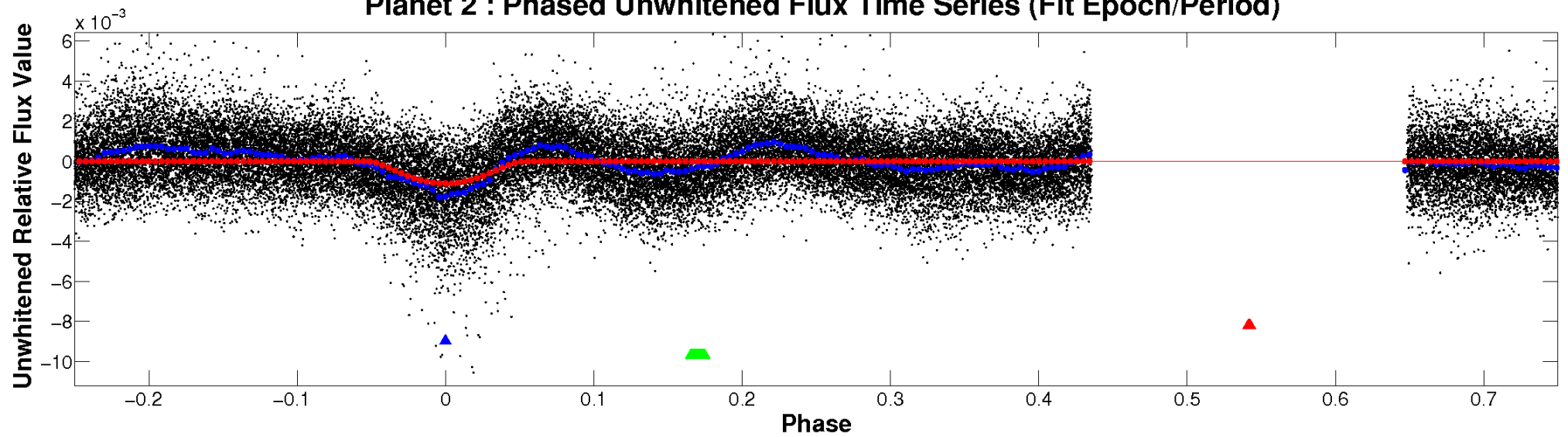
TCE 003869825-02



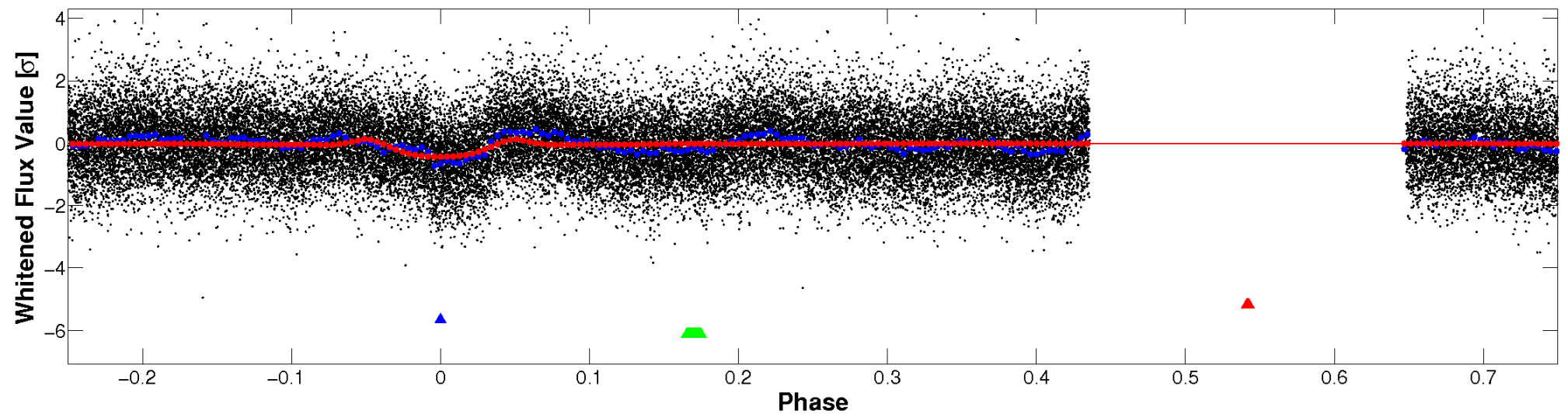


# Non-Whitened Vs. Whitened Light Curve

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

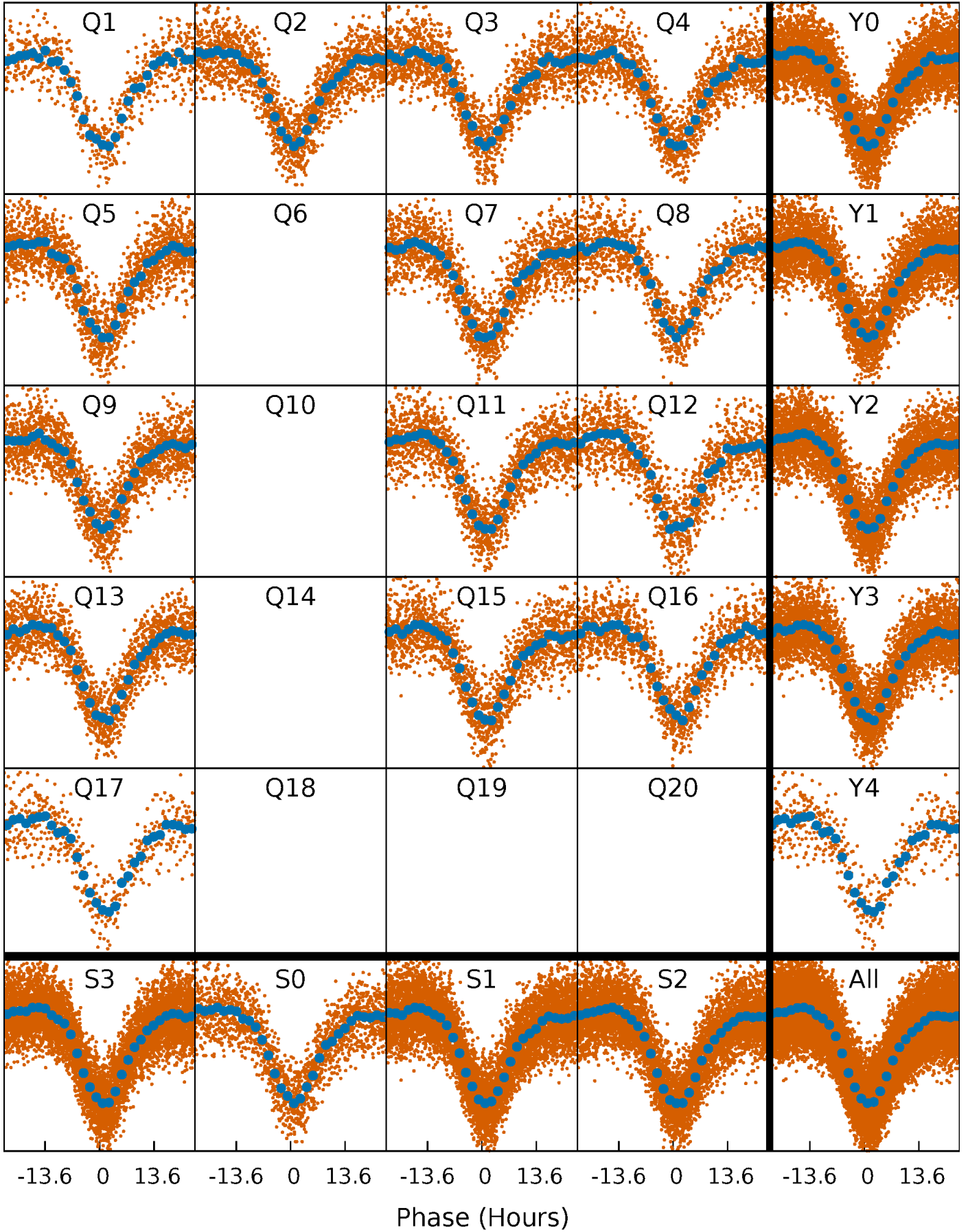


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



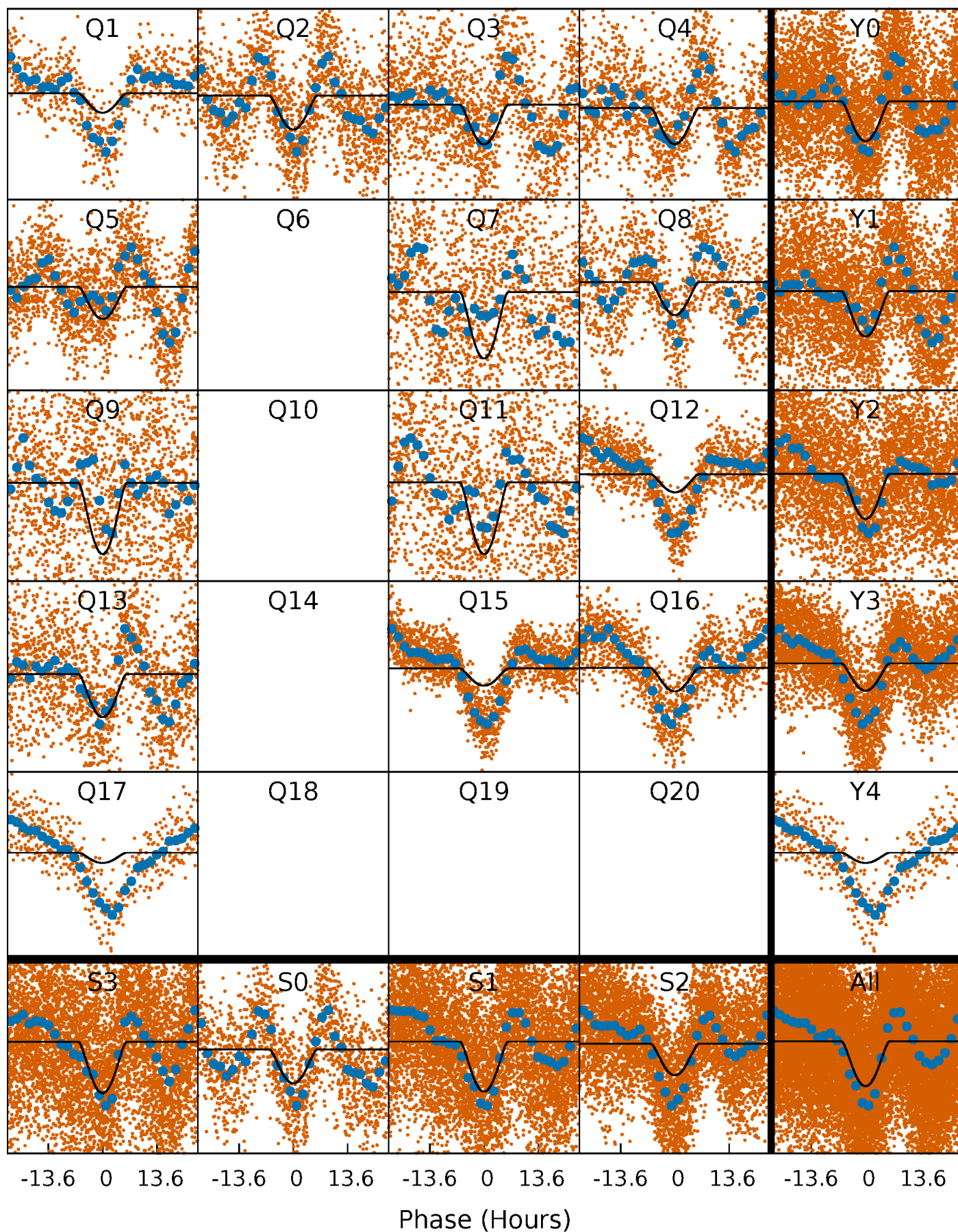
# PDC Quarter-Phased Transit Curves

TCE 003869825-02   P= 4.800657 Days    $T_0=131.771673$  (BKJD)



# DV Quarter-Phased Transit Curves

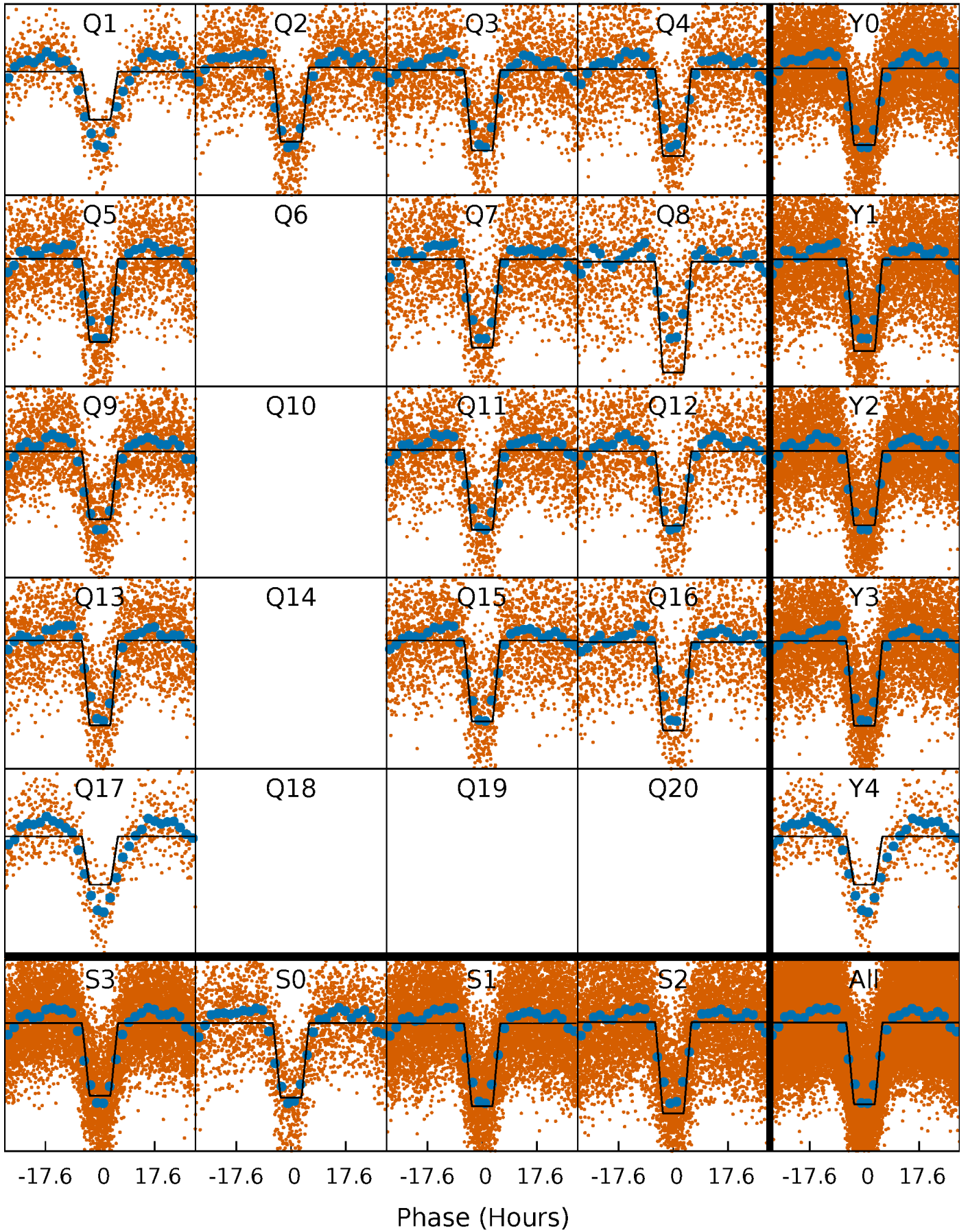
TCE 003869825-02 P= 4.800657 Days  $T_0=131.771673$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

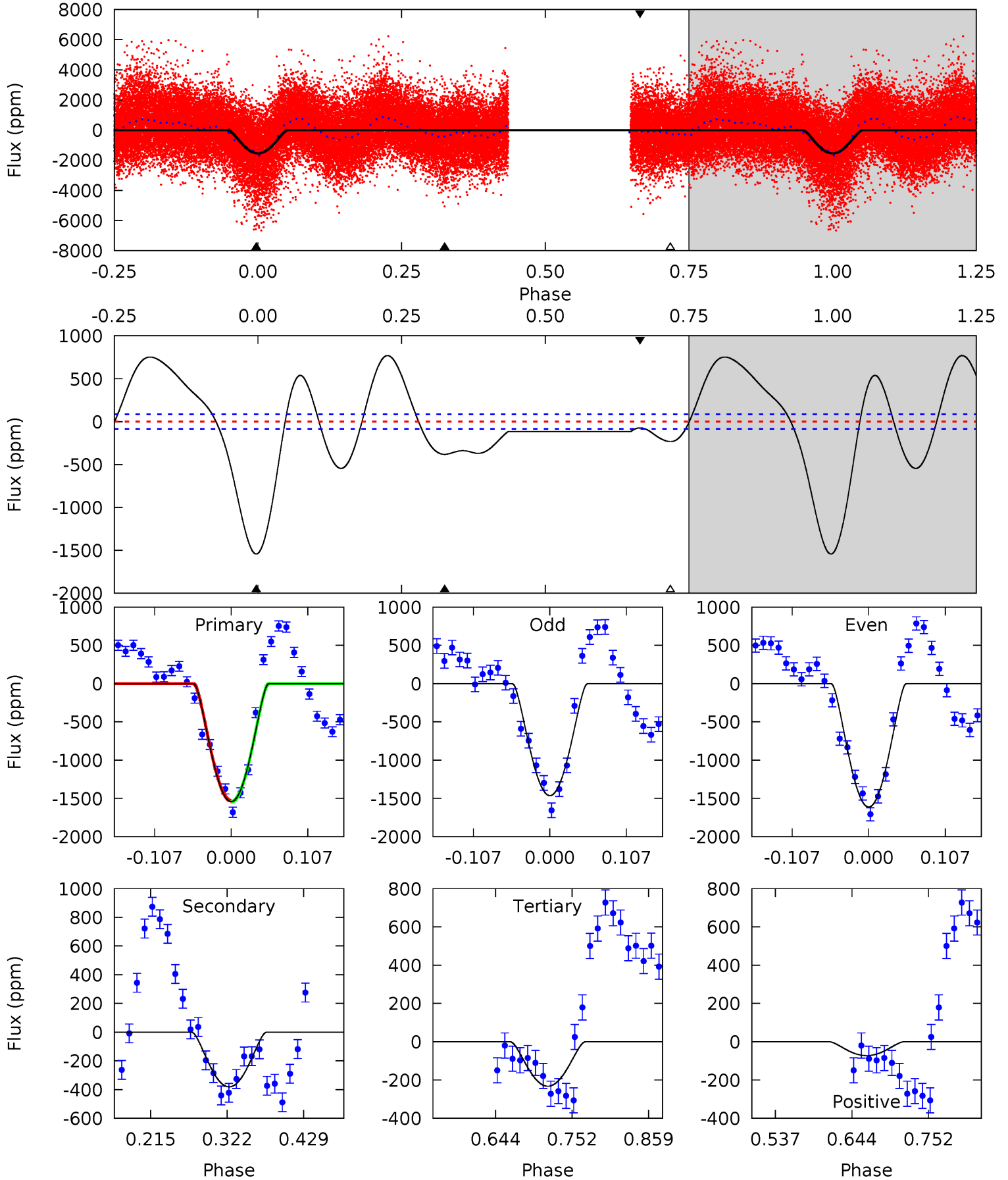
TCE 003869825-02 P= 4.800658 Days  $T_0=131.805027$  (BKJD)



# DV Model-Shift Uniqueness Test

003869825-02, P = 4.800657 Days, E = 126.971016 Days

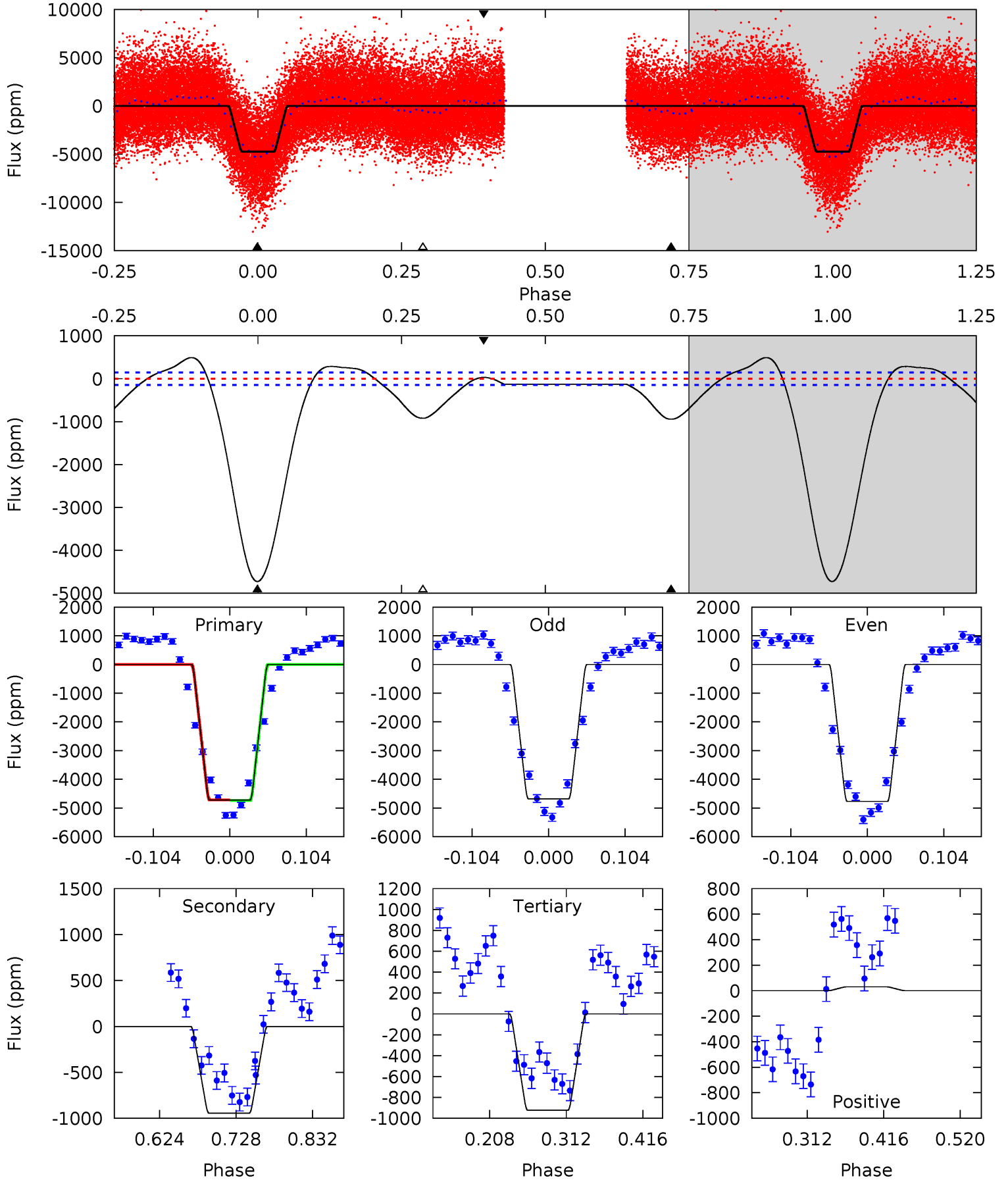
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
82.7	20.4	12.5	-3.89	4.55	1.61	22.0	70.2	86.6	7.97	24.3	4.00	1.33	0.33	0.42



# Alt Model-Shift Uniqueness Test

003869825-02, P = 4.800658 Days, E = 127.004369 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
148.7	29.7	29.0	0.95	4.56	1.63	12.9	119.7	147.8	0.67	28.8	1.40	1.01	0.09	0.33



### Stellar Parameters For KIC 003869825

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6715^{+161}_{-241}$	$4.347^{+0.056}_{-0.224}$	$-0.100^{+0.250}_{-0.350}$	$1.241^{+0.441}_{-0.147}$	$1.256^{+0.191}_{-0.174}$	$0.927^{+0.276}_{-0.498}$
	+2%/-4%	+1%/-5%	+250%/-350%	+36%/-12%	+15%/-14%	+30%/-54%
Source	PHO1	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 003869825-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-381 \pm 19$	$8.66^{+4.53}_{-4.53}$	$1927^{+129}_{-97}$	$4047^{+1392}_{-549}$	$10^{+33}_{-6}$
Alt.	$-944 \pm 32$	$10.07^{+5.65}_{-4.27}$	$1927^{+149}_{-102}$	$4526^{+1213}_{-608}$	$18^{+38}_{-10}$

$T_{\text{max}}$  = 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

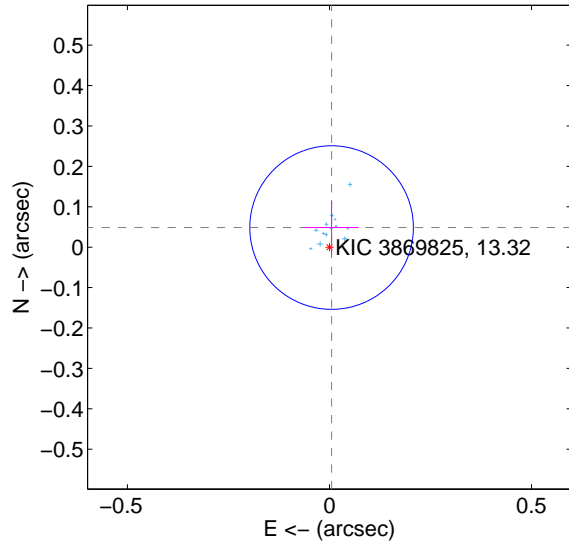
Supplemental centroid analysis for 003869825-02. Kepler magnitude: 13.32. Transit SNR 21.82

There are 14 quarters with good PRF difference image offsets

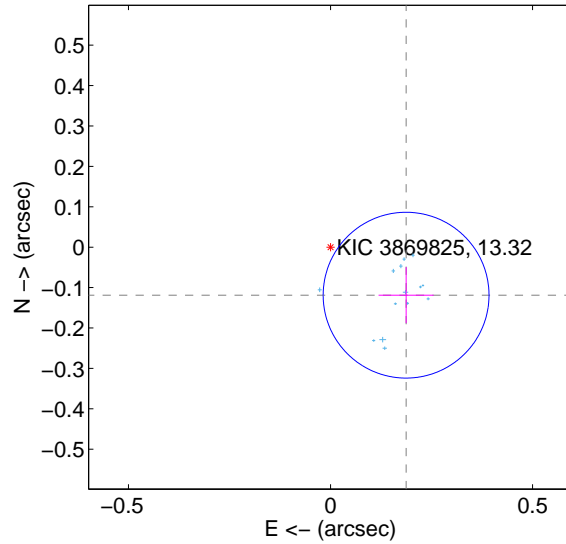
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.049 \pm 0.067$	0.72	$-0.005 \pm 0.067$	$0.049 \pm 0.067$
PRF-fit source offset from KIC position	$0.222 \pm 0.068$	3.24	$-0.187 \pm 0.068$	$-0.119 \pm 0.069$
photometric centroid source offset	$0.34 \pm 0.05$	6.29	$0.13 \pm 0.05$	$-0.31 \pm 0.05$

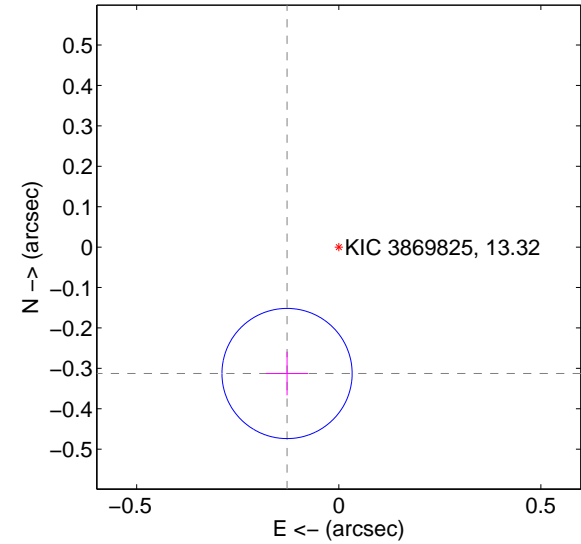
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

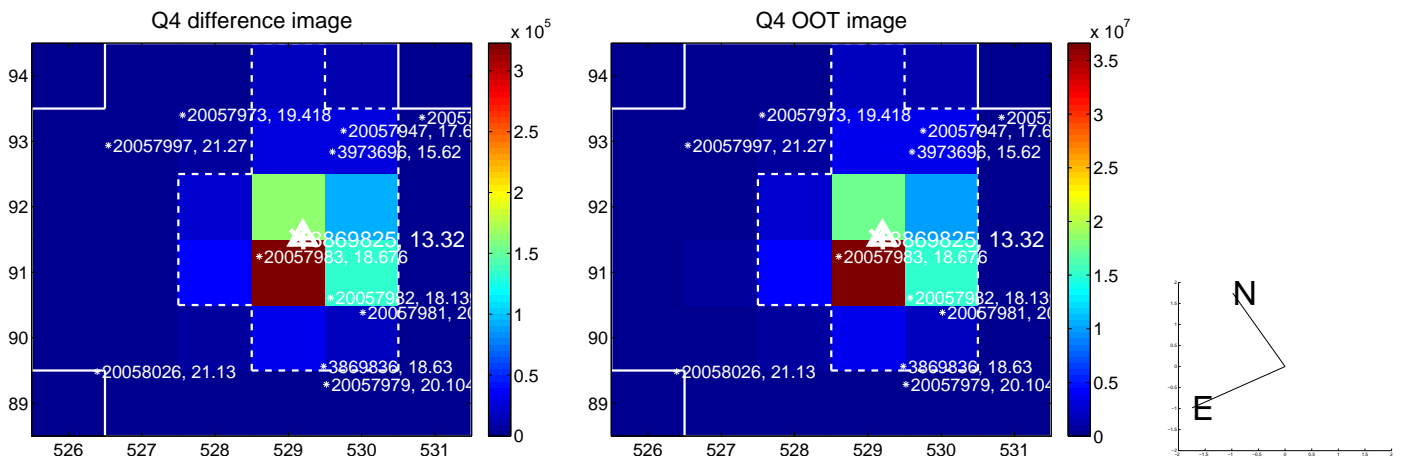
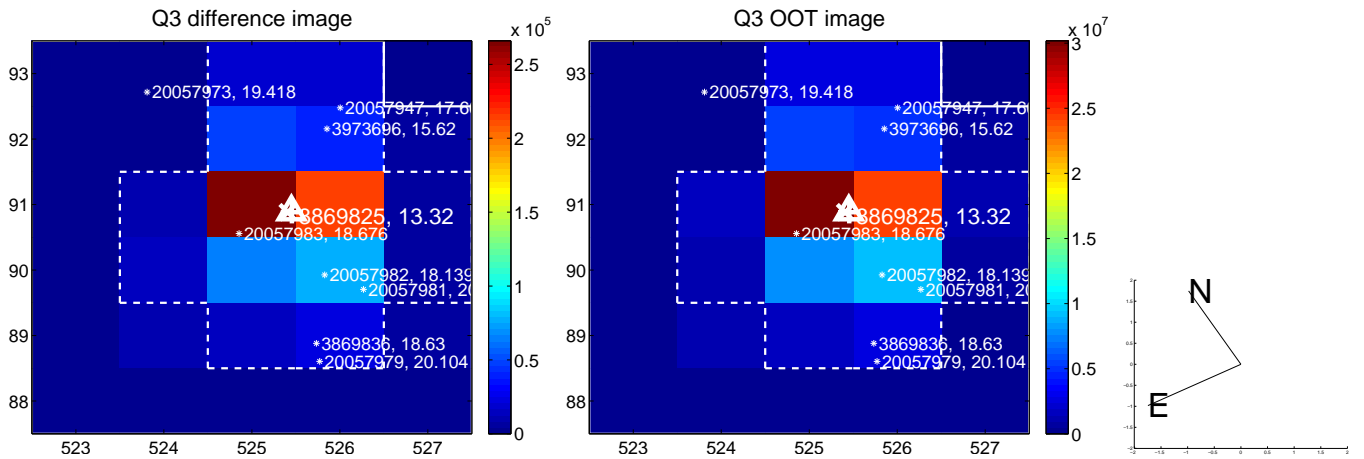
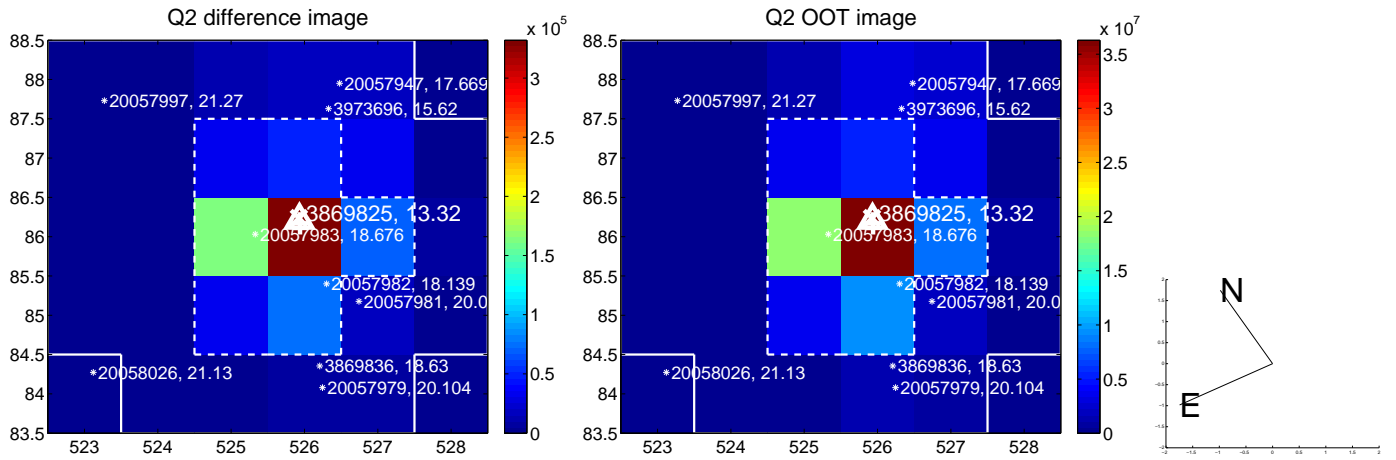
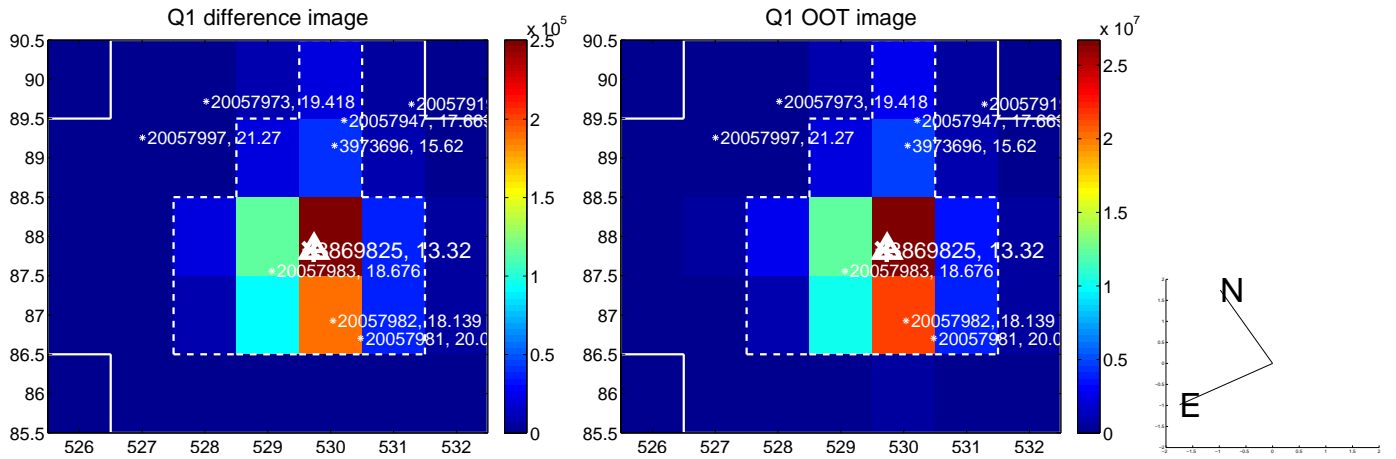


offset from photometric centroids

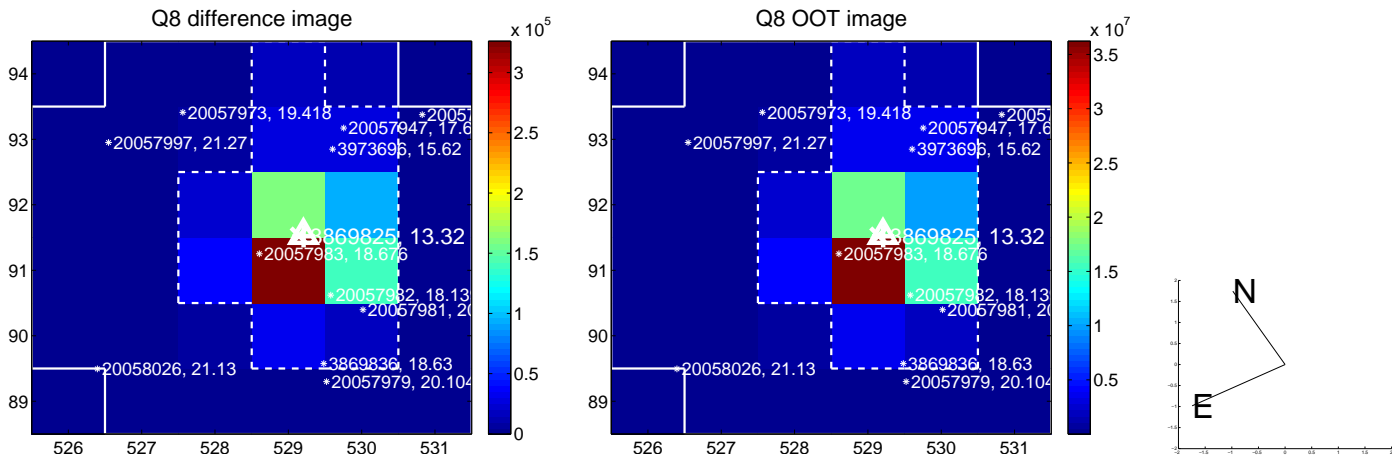
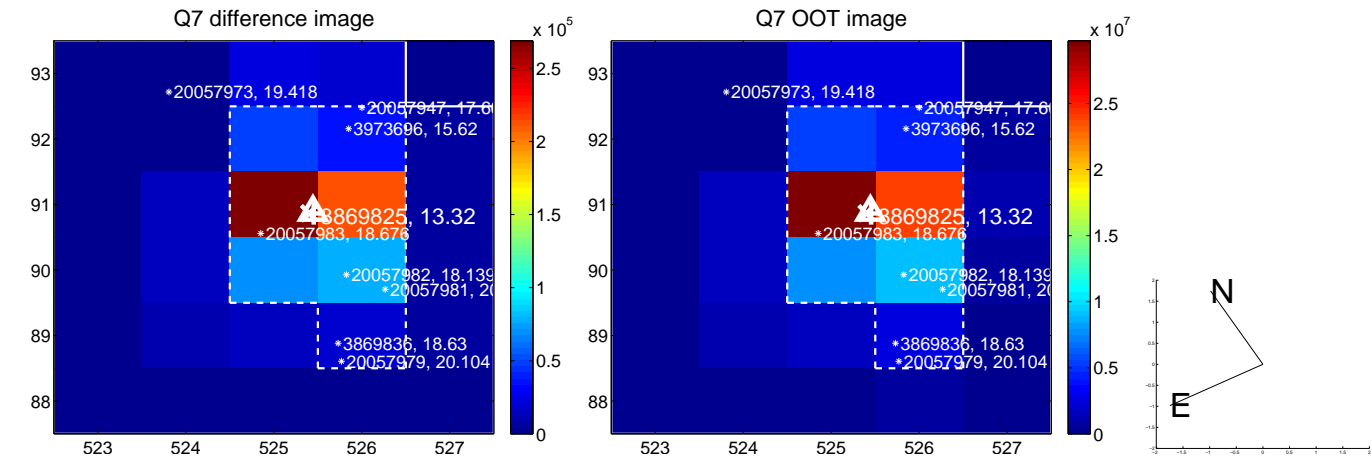
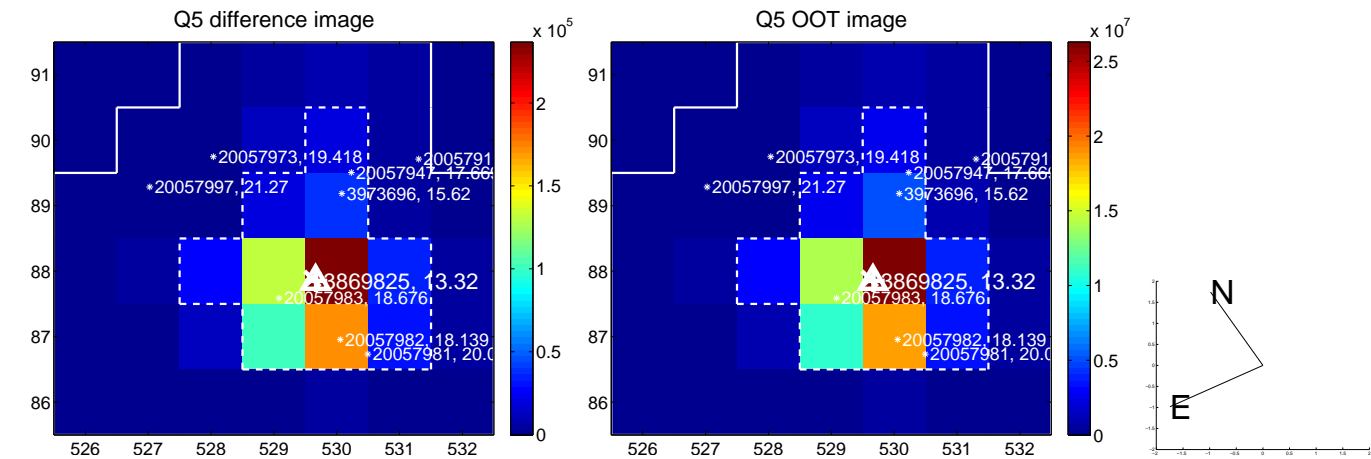


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

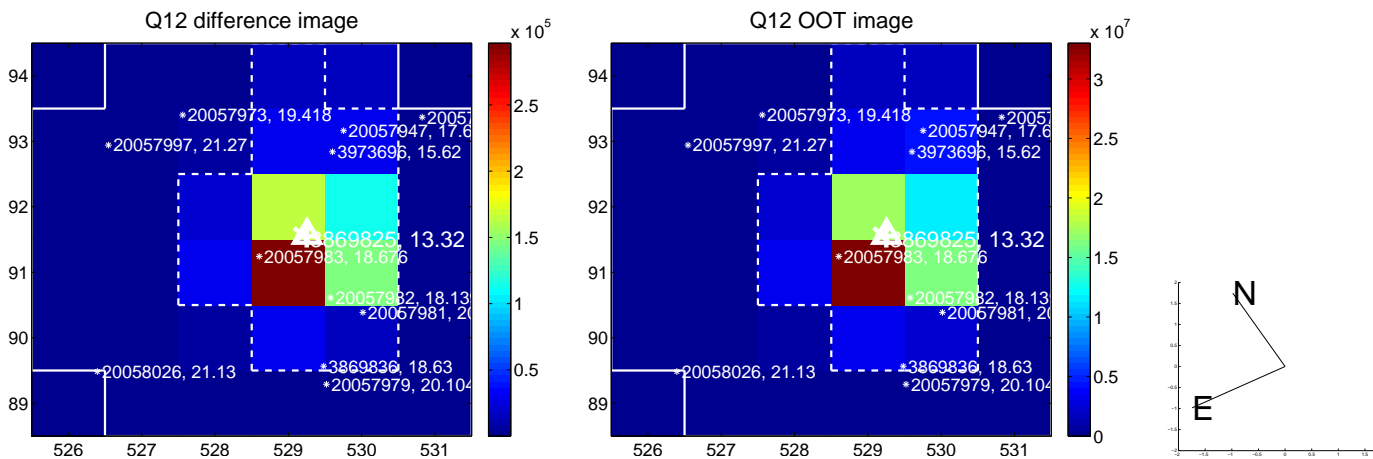
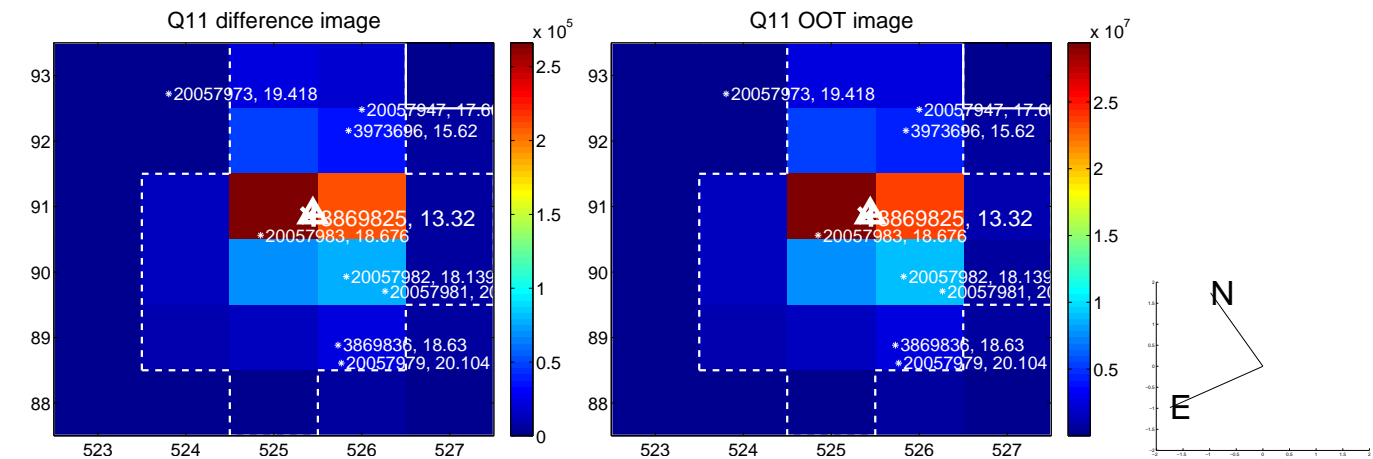
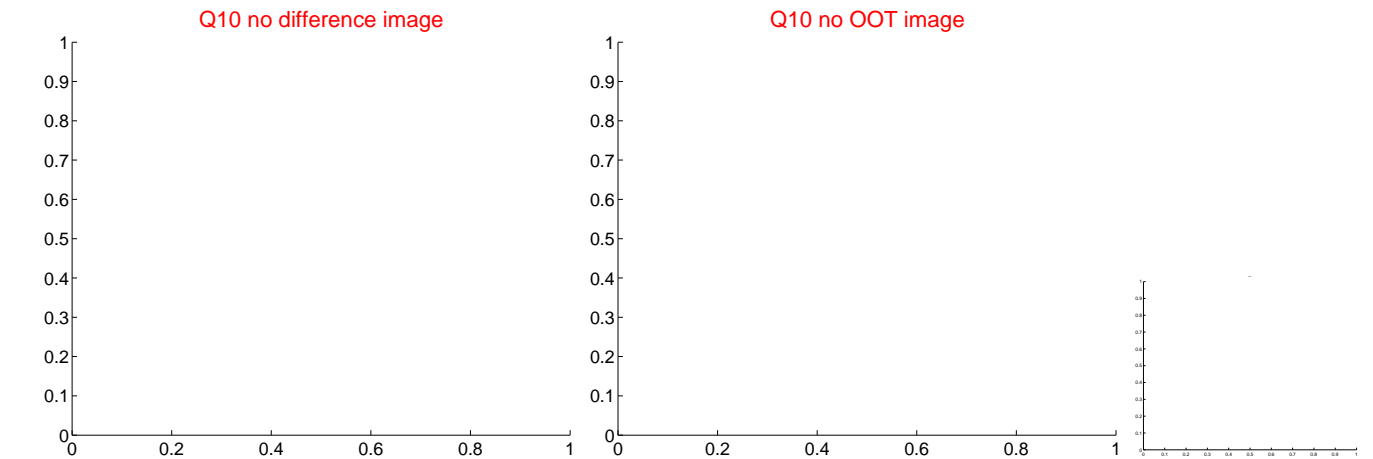
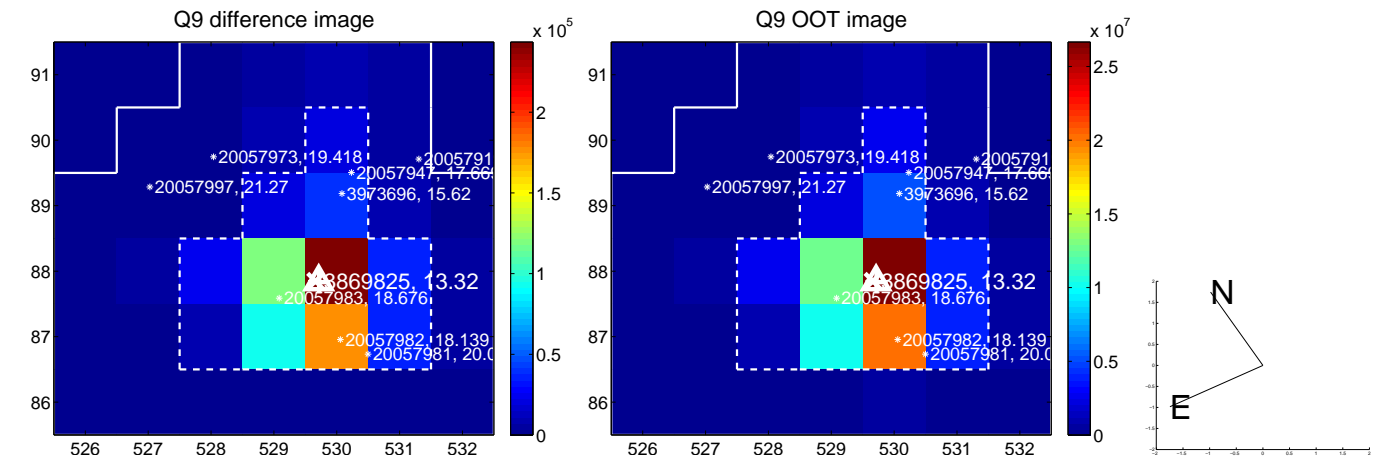
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



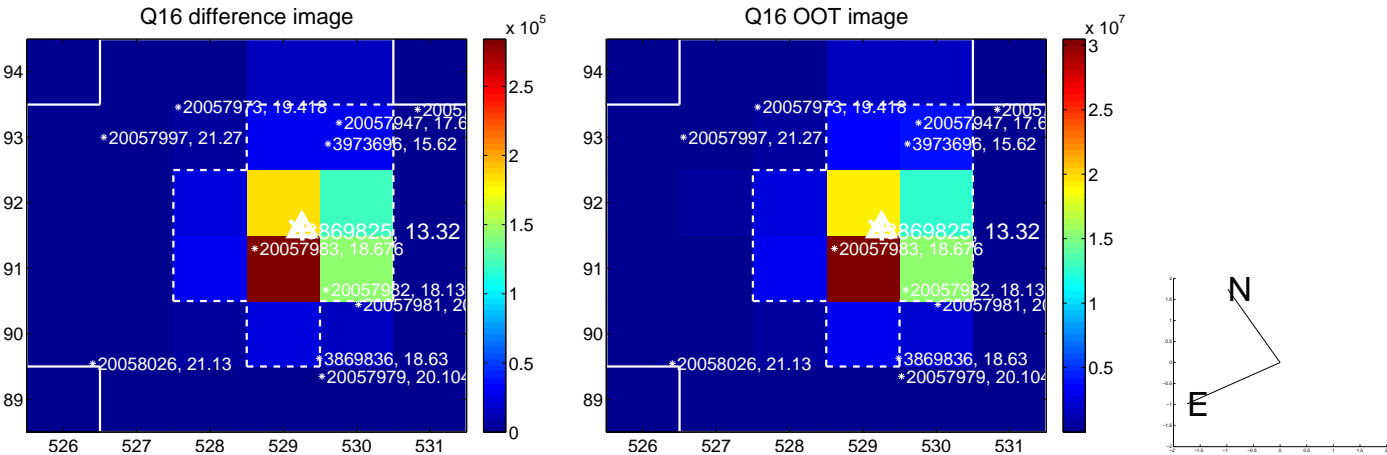
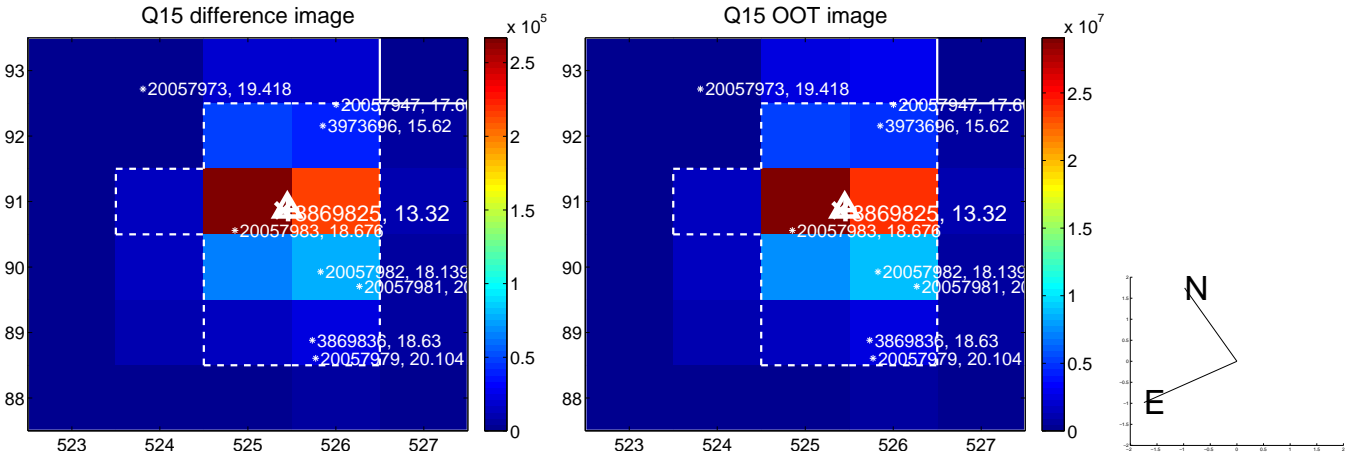
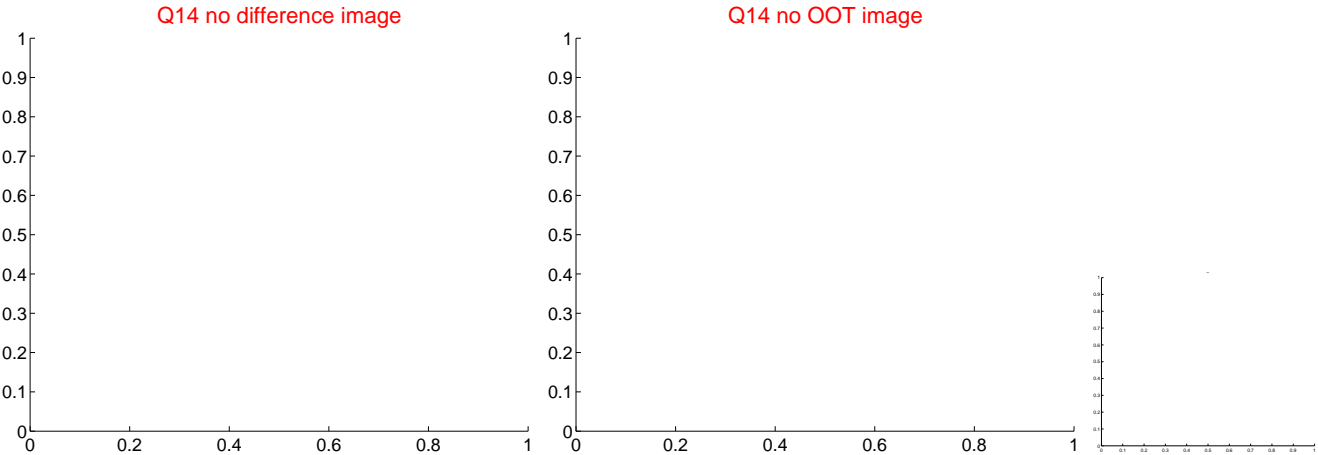
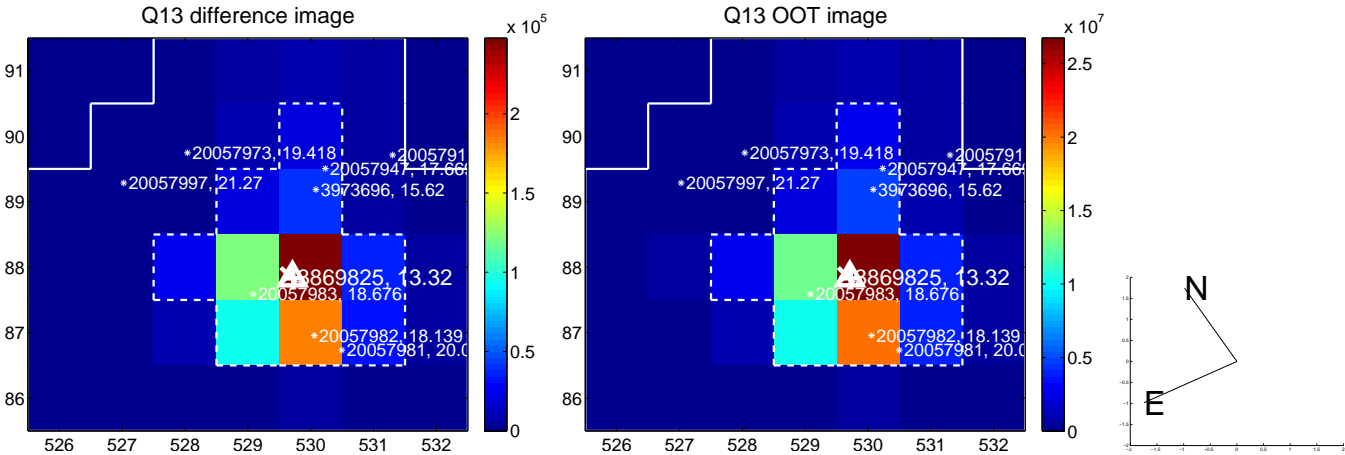
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



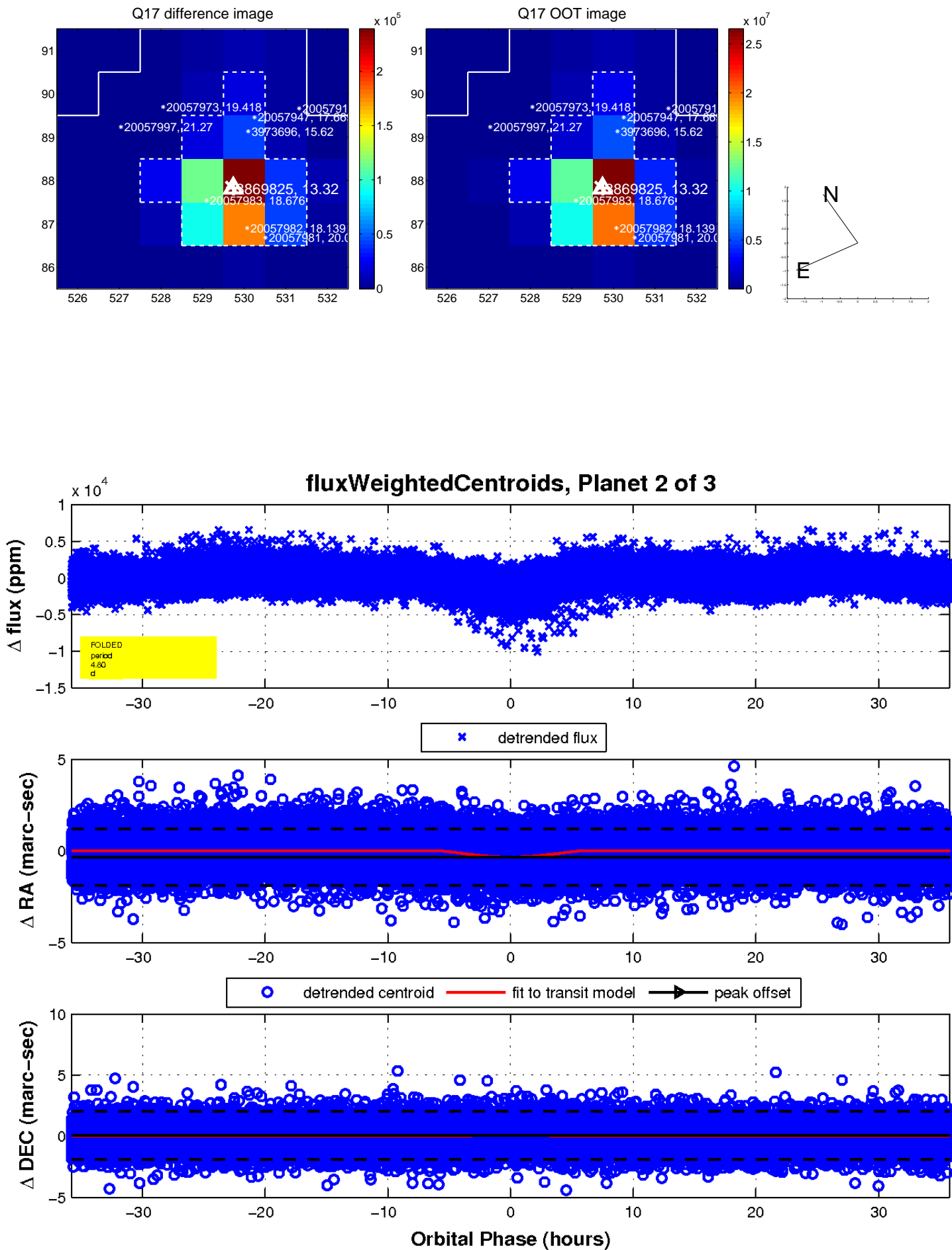
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

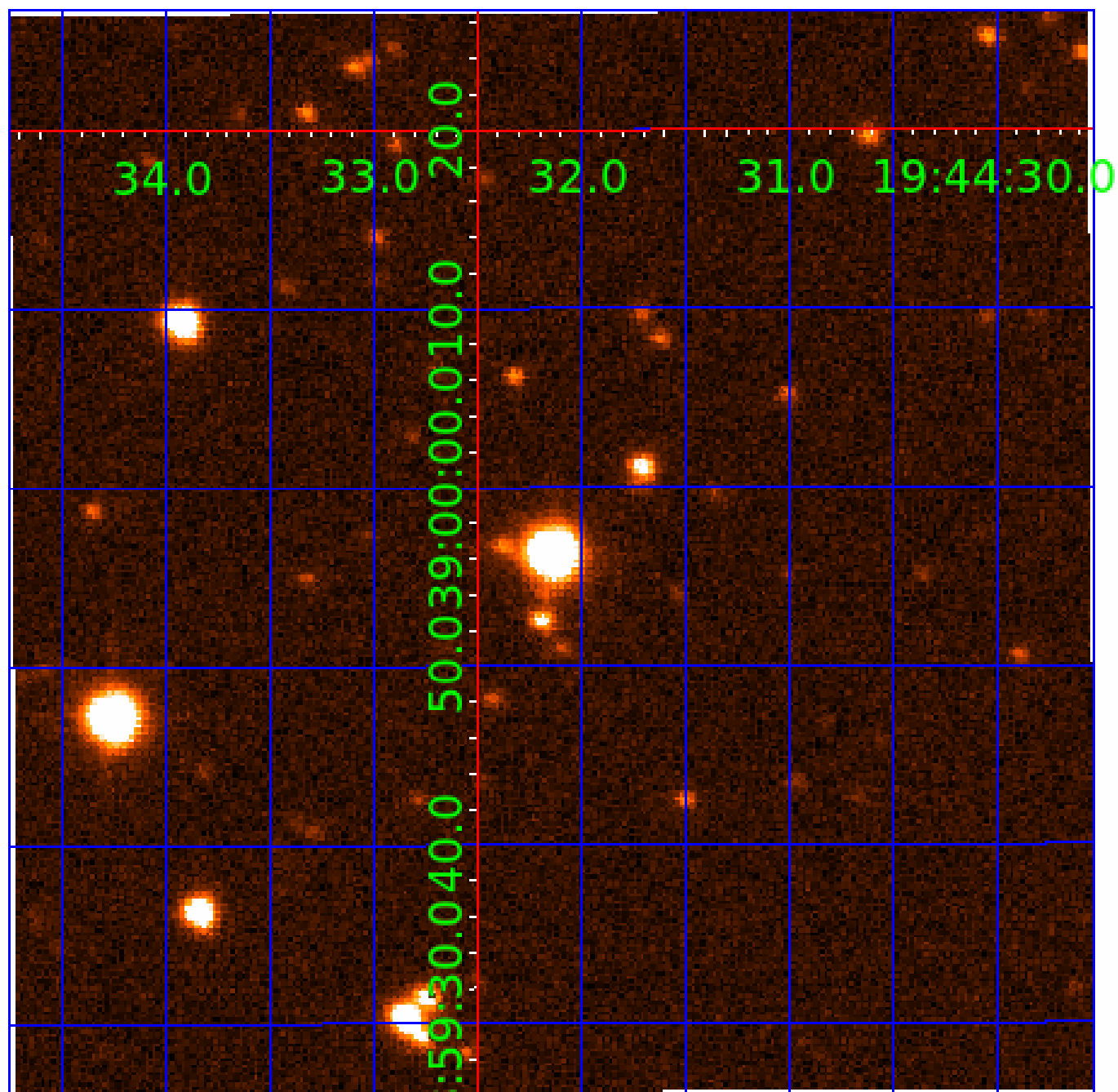


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003869825

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003869825-01	OBS	1178.01	4.800635	134.376596	11544.2	8.026	232.6	233.5	1.24	6715	14.37	779.58
003869825-02	OBS	No	4.800657	131.771673	1111.5	11.930	21.2	21.8	1.24	6715	7.75	779.58
003869825-03	OBS	No	4.800506	132.611000	327.5	6.000	12.5	-1.0	1.24	6715	2.26	779.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003869825-01	OBS	FP	0.00	0	1	0	0	HAS_SEC_TCE
003869825-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
003869825-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

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

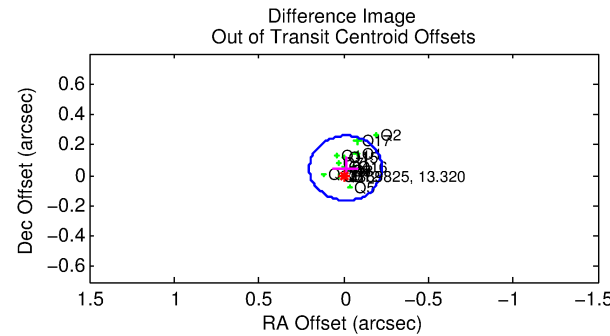
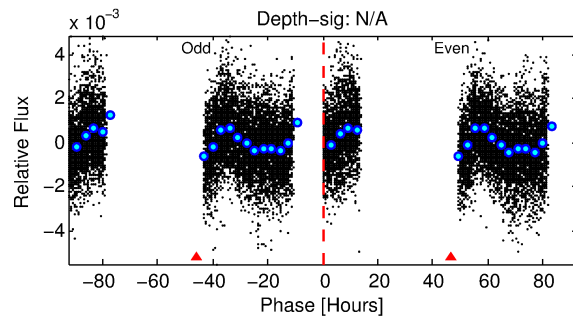
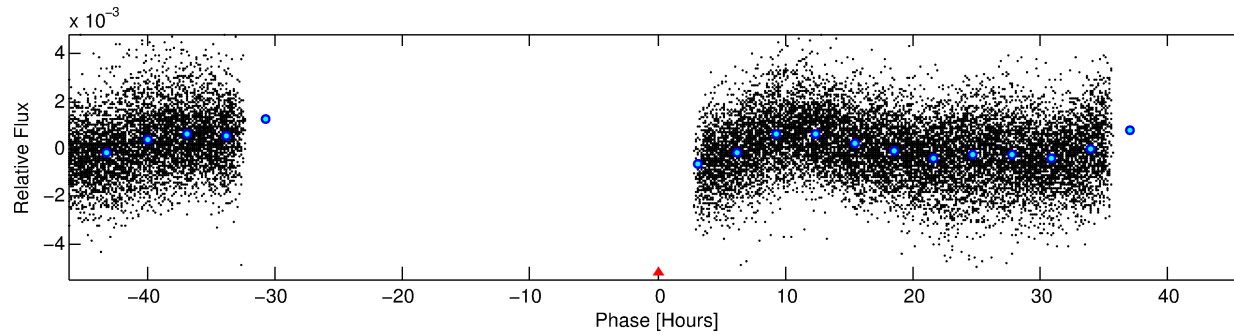
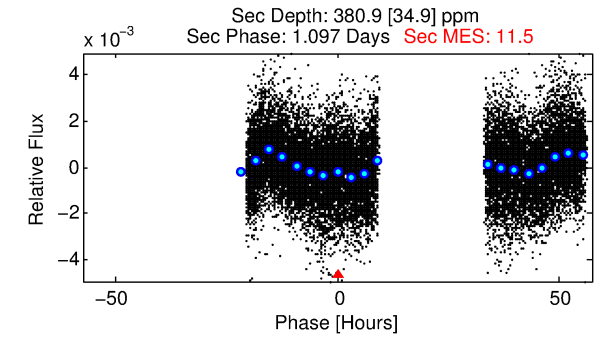
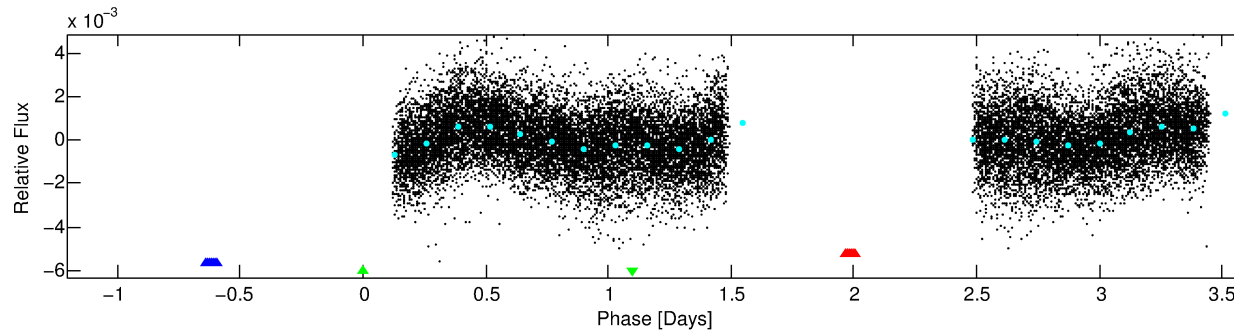
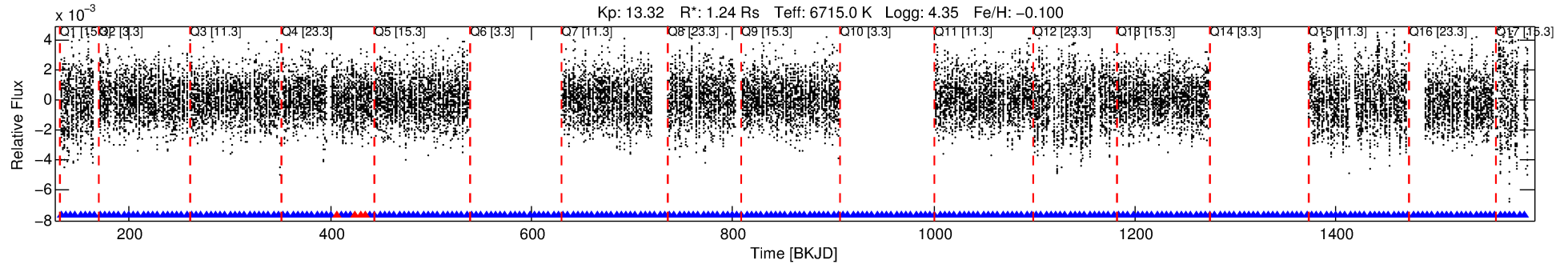
## Ephemeris Match Information For 003869825-03

No Significant Match Found

# DV One-Page Summary

KIC: 3869825 Candidate: 3 of 3 Period: 4.801 d  
KOI: K01178 Corr: No Ephemeris Match

Kp: 13.32 R\*: 1.24 Rs Teff: 6715.0 K Logg: 4.35 Fe/H: -0.100



## TPS TCE Results:

Period = 4.80051 d  
Epoch = 132.6110 BKJD

DV fit results are unavailable

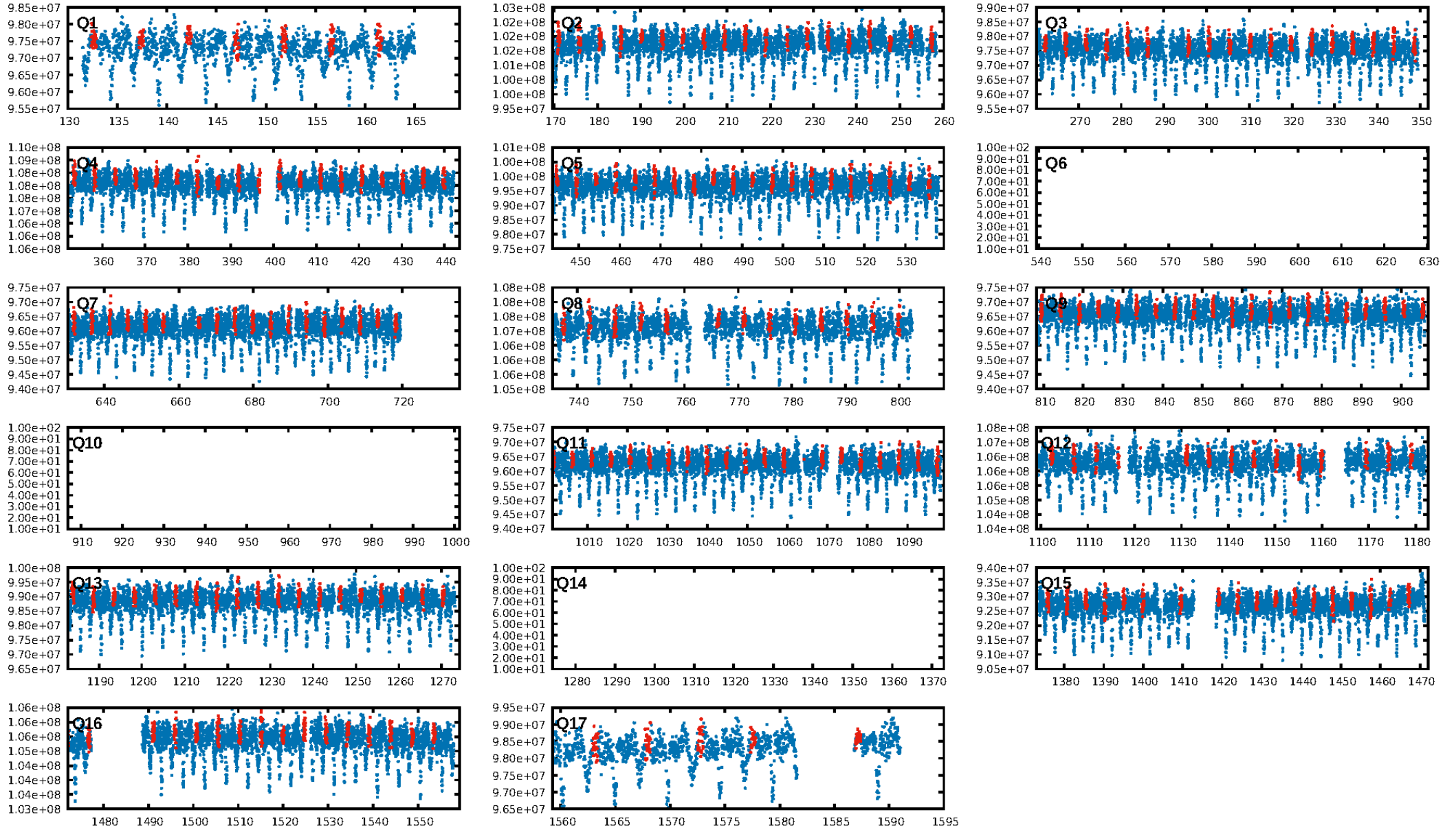
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [209/213]  
GhostDiagnostic-chr: -12.59  
Centroid-sig: 3.1%  
Centroid-so: 0.414 arcsec [5.07σ]  
OotOffset-rm: 0.049 arcsec [0.69σ]  
KicOffset-rm: 0.220 arcsec [3.18σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 0.00 [0/14]

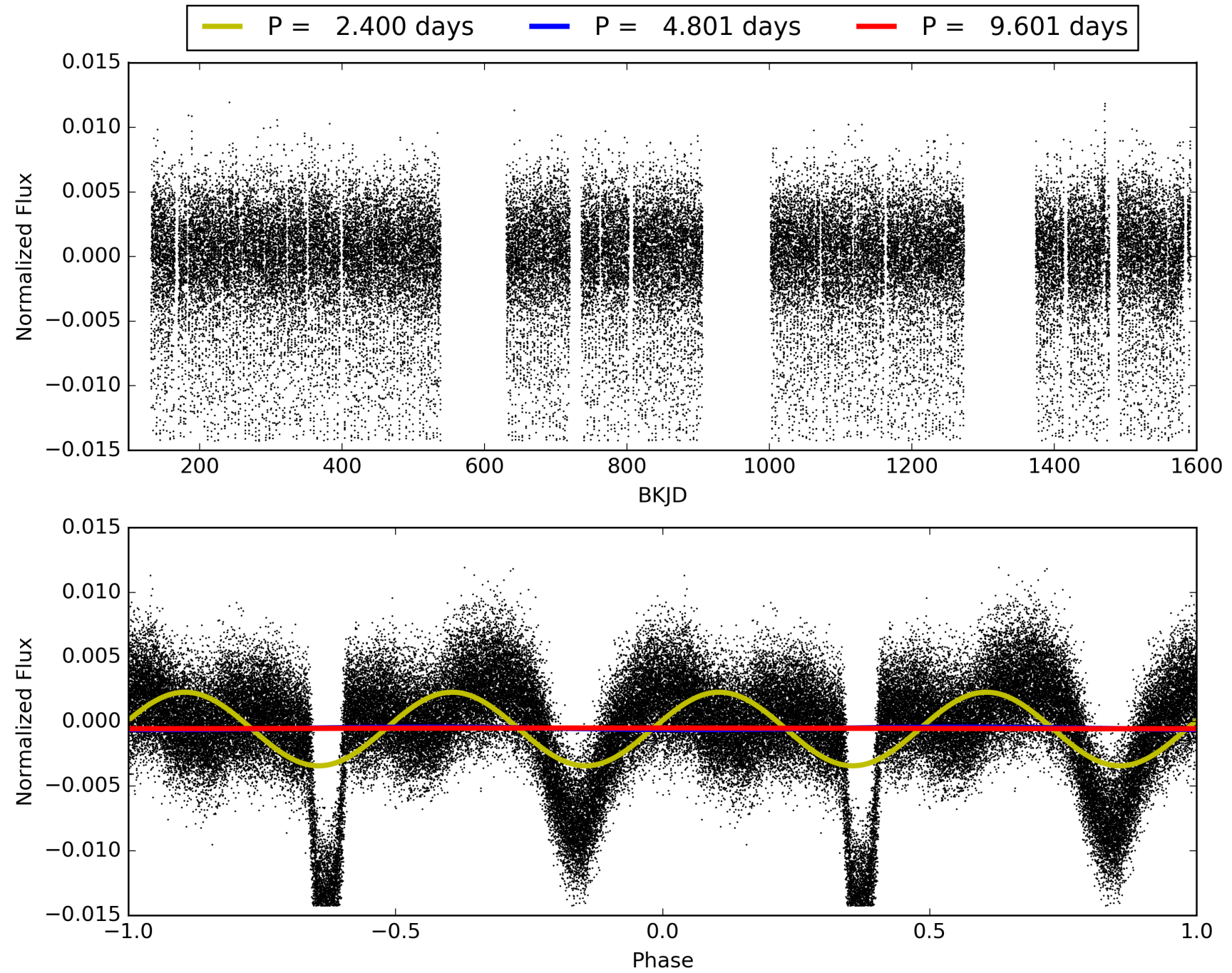
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:35:16 Z

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

# TCE 003869825-03, PDC Light Curves

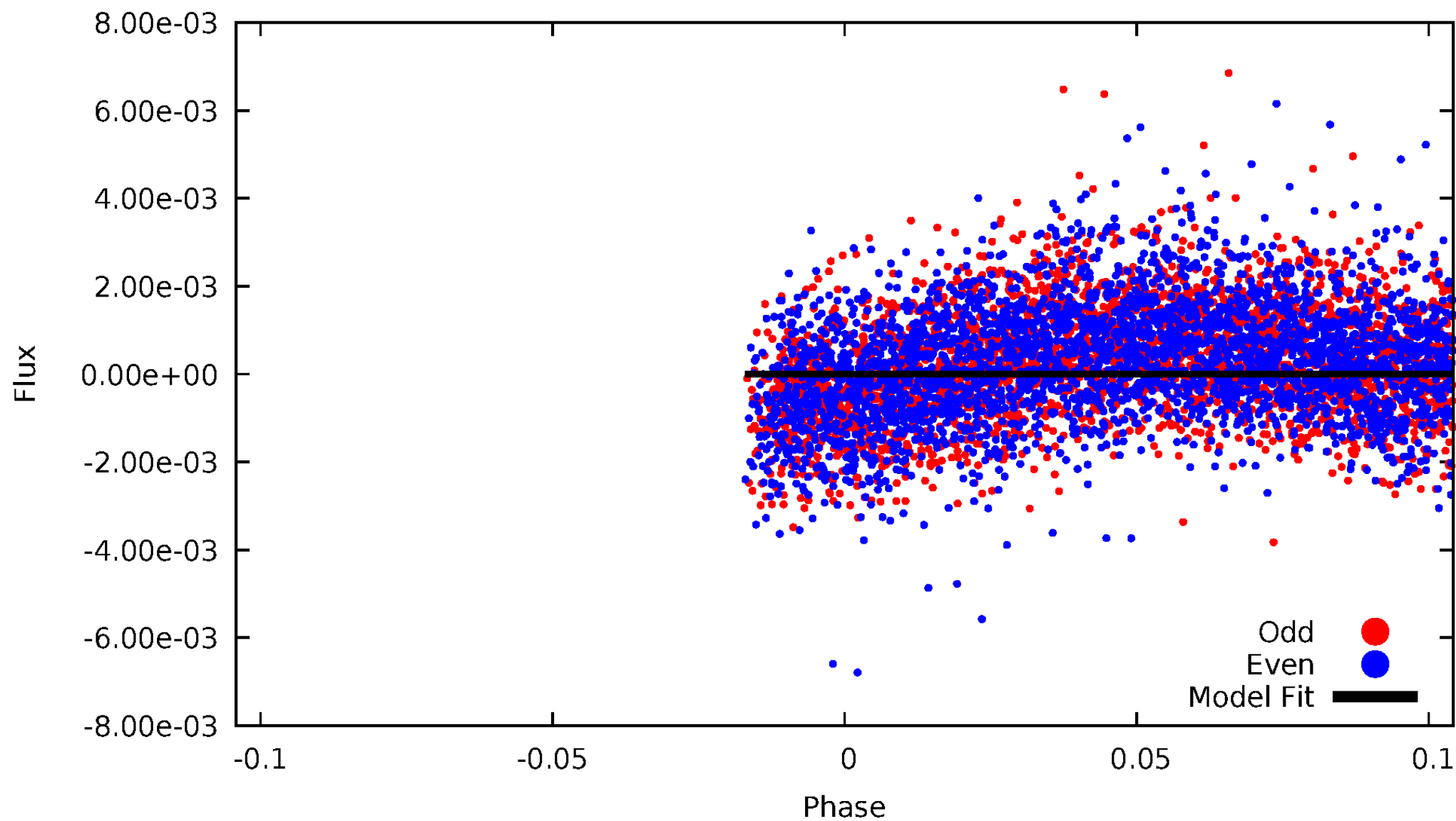


TCE 003869825-03



DV Odd/Even

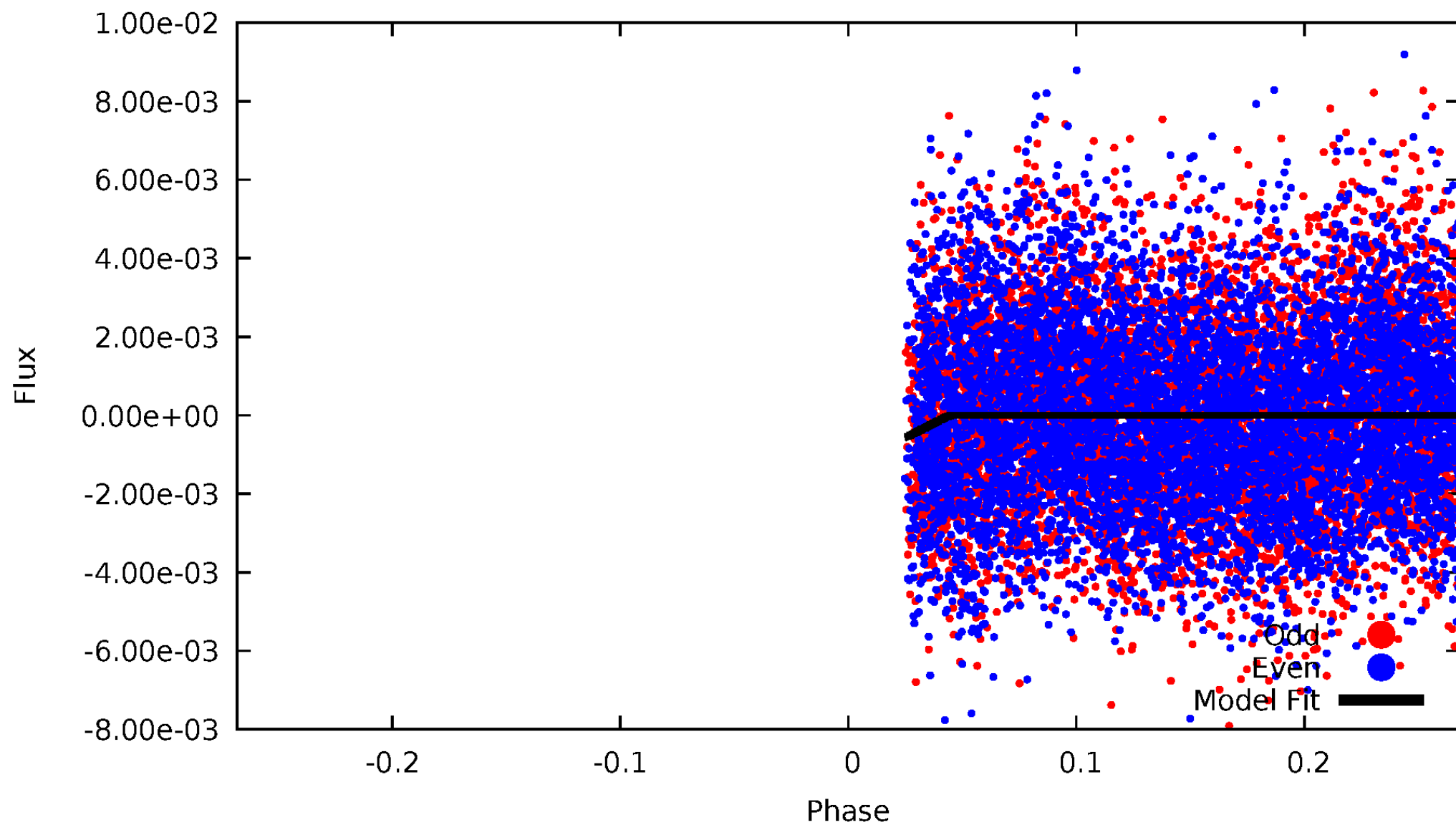
TCE 003869825-03





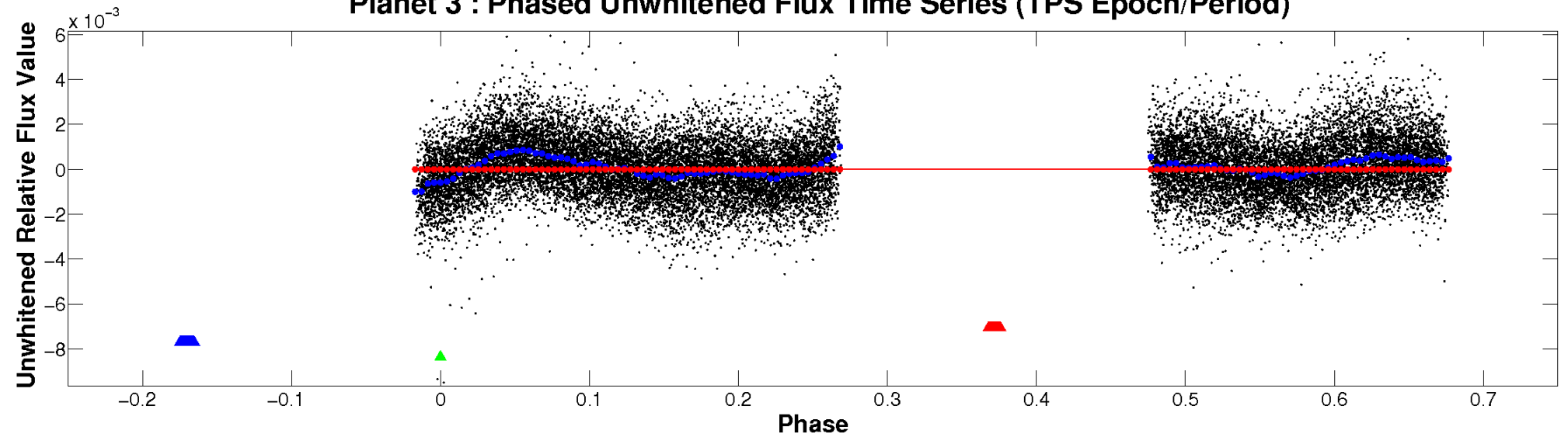
# ALT Odd/Even

TCE 003869825-03

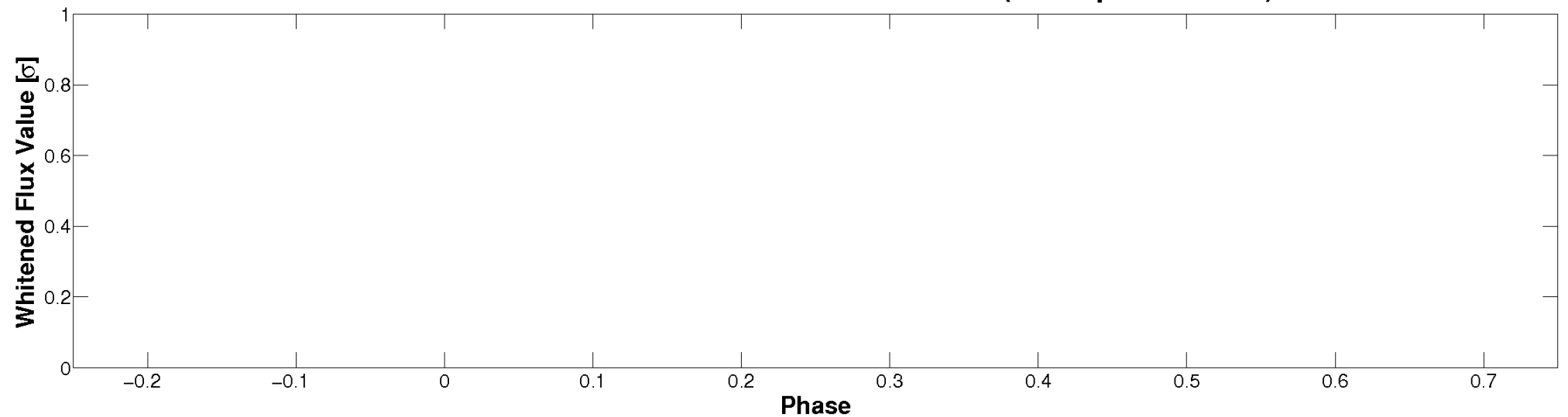


# Non-Whitened Vs. Whitened Light Curve

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



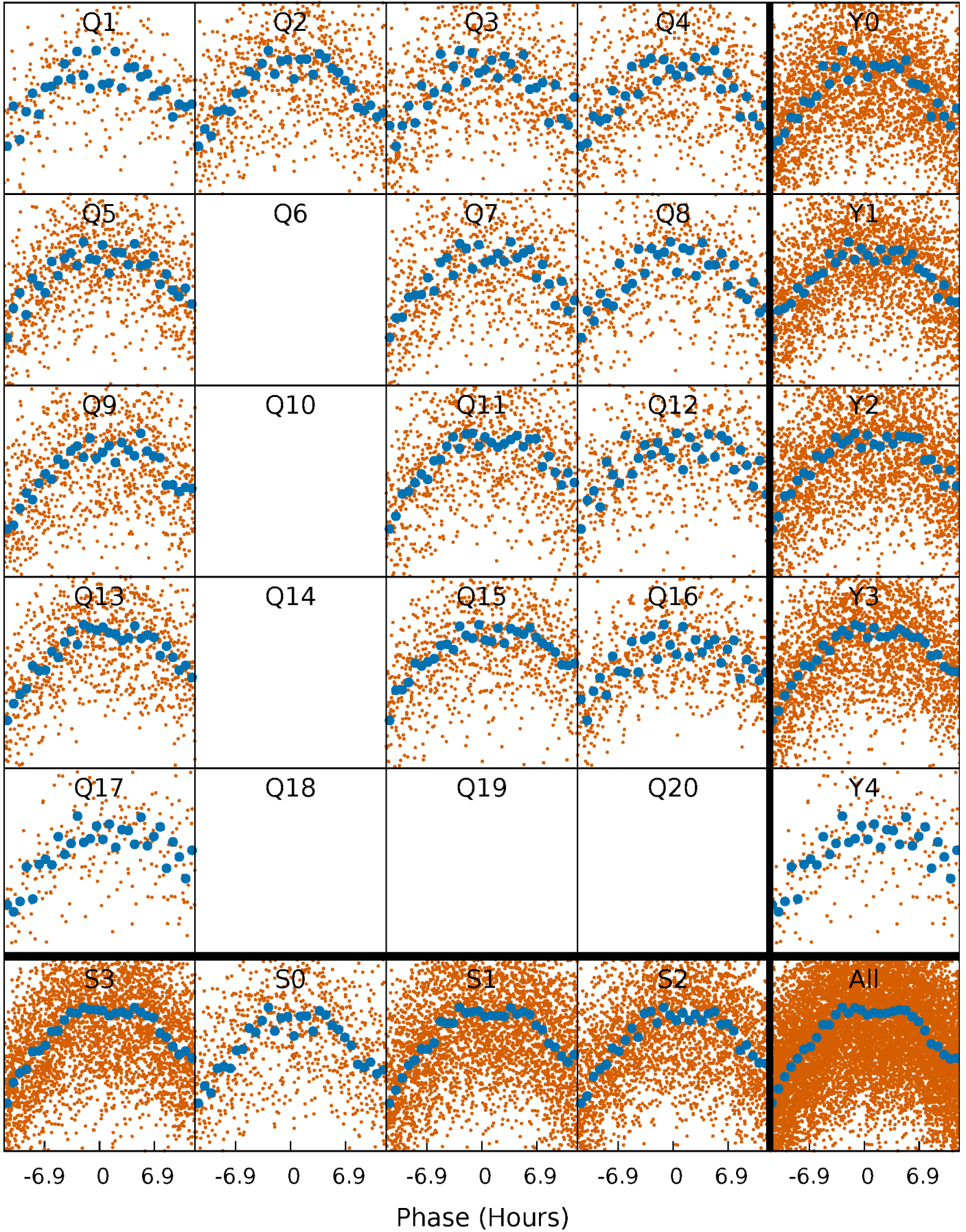
**Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





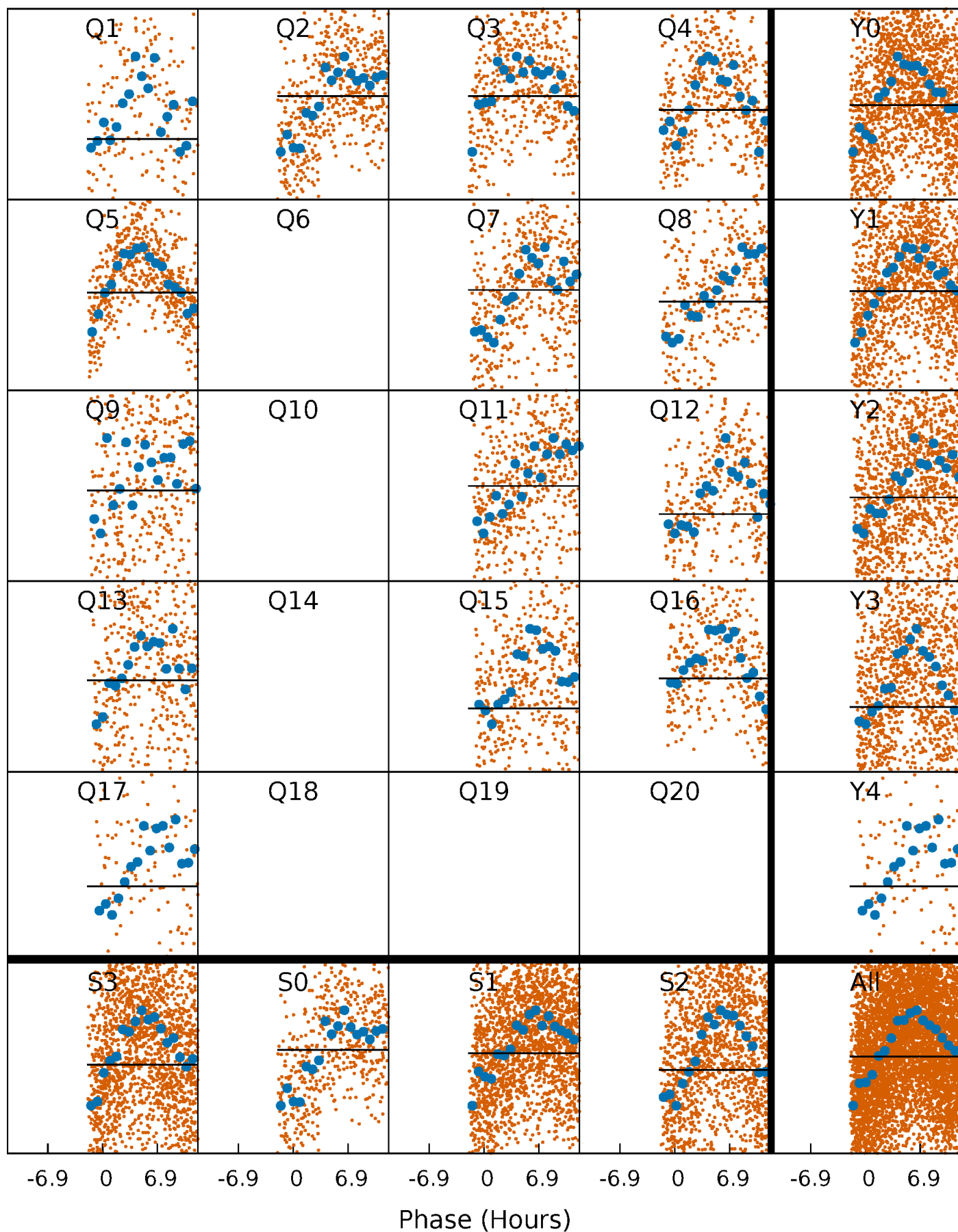
# PDC Quarter-Phased Transit Curves

TCE 003869825-03 P= 4.800506 Days  $T_0=132.611000$  (BKJD)



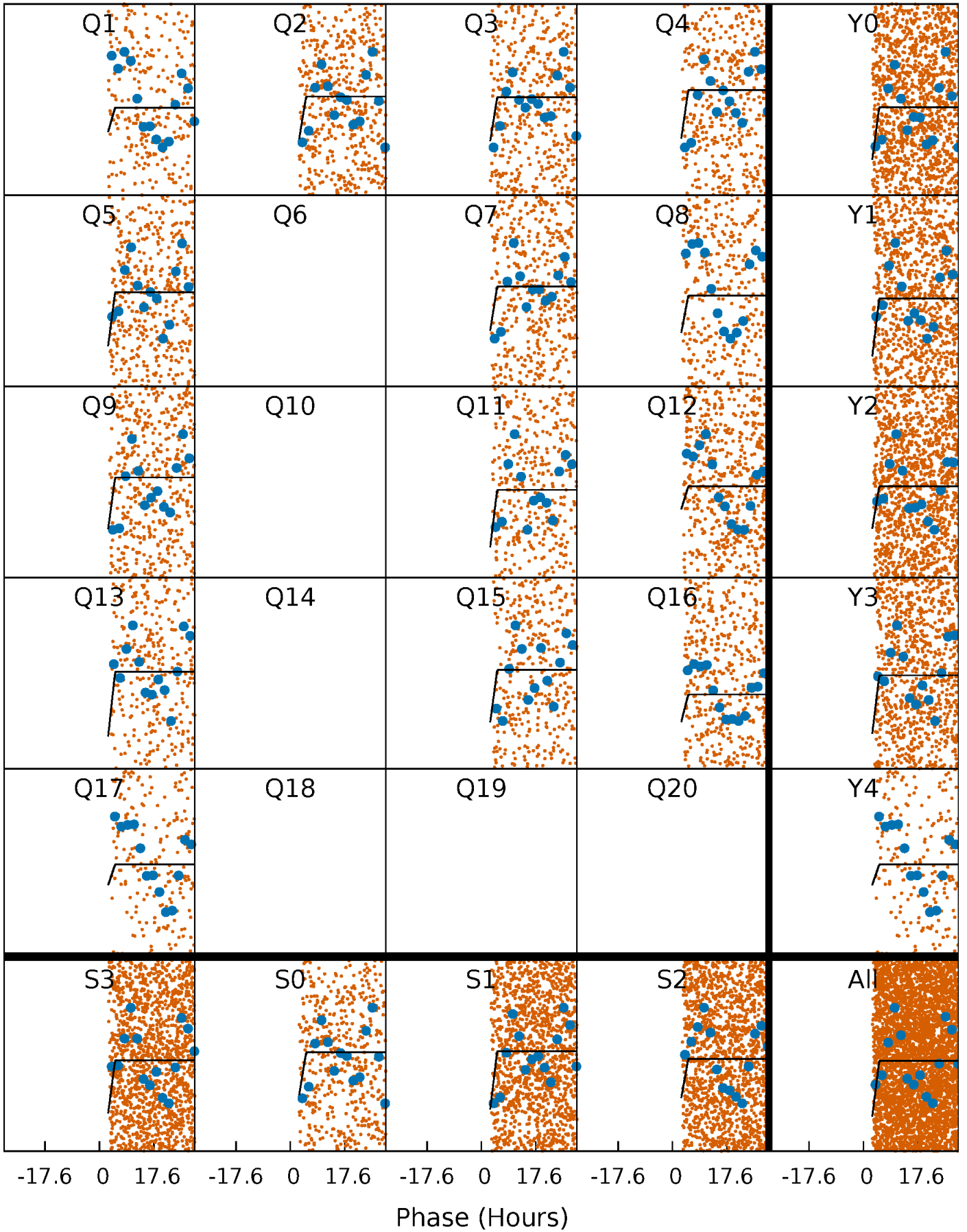
# DV Quarter-Phased Transit Curves

TCE 003869825-03   P= 4.800506 Days    $T_0=132.611000$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

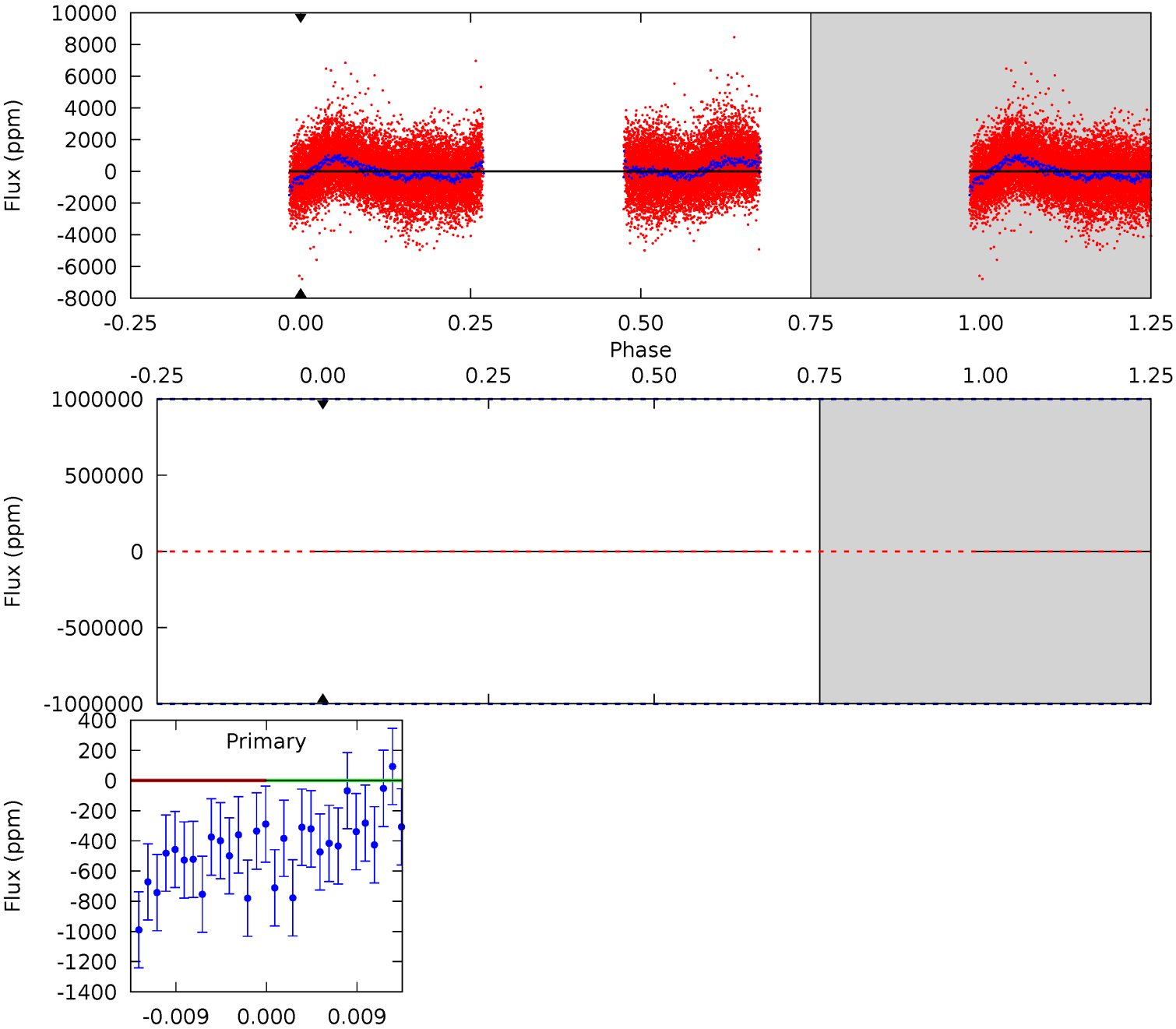
TCE 003869825-03   P= 4.800506 Days    $T_0=132.410087$  (BKJD)



# DV Model-Shift Uniqueness Test

003869825-03, P = 4.800506 Days, E = 127.810494 Days

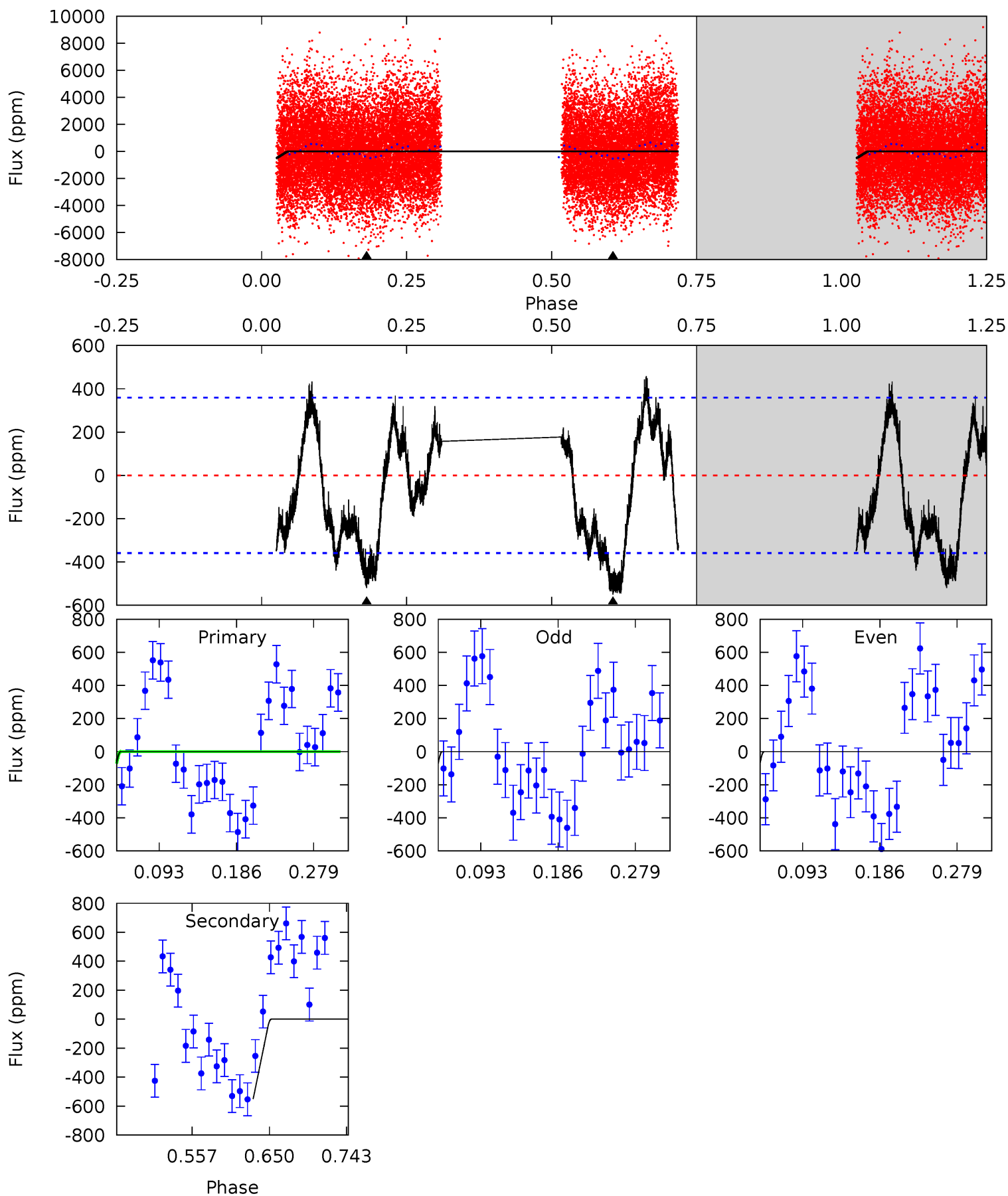
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

003869825-03, P = 4.800506 Days, E = 132.410087 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.63	7.02	0	0	4.58	1.68	2.37	6.63	6.63	7.02	7.02	0.21	0.45	0.45	0





### Stellar Parameters For KIC 003869825

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6715^{+161}_{-241}$	$4.347^{+0.056}_{-0.224}$	$-0.100^{+0.250}_{-0.350}$	$1.241^{+0.441}_{-0.147}$	$1.256^{+0.191}_{-0.174}$	$0.927^{+0.276}_{-0.498}$
	+2%/-4%	+1%/-5%	+250%/-350%	+36%/-12%	+15%/-14%	+30%/-54%
Source	PHO1	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 003869825-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$10.15^{+11.65}_{-7.19}$	$1929^{+145}_{-101}$	$4238^{+30128}_{-35417}$	$13^{+3787}_{-3161}$
Alt.	$-550 \pm 78$	$11.86^{+11.87}_{-8.43}$	$1931^{+148}_{-106}$	$3898^{+2788}_{-828}$	$7.904^{+82.459}_{-6.009}$

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

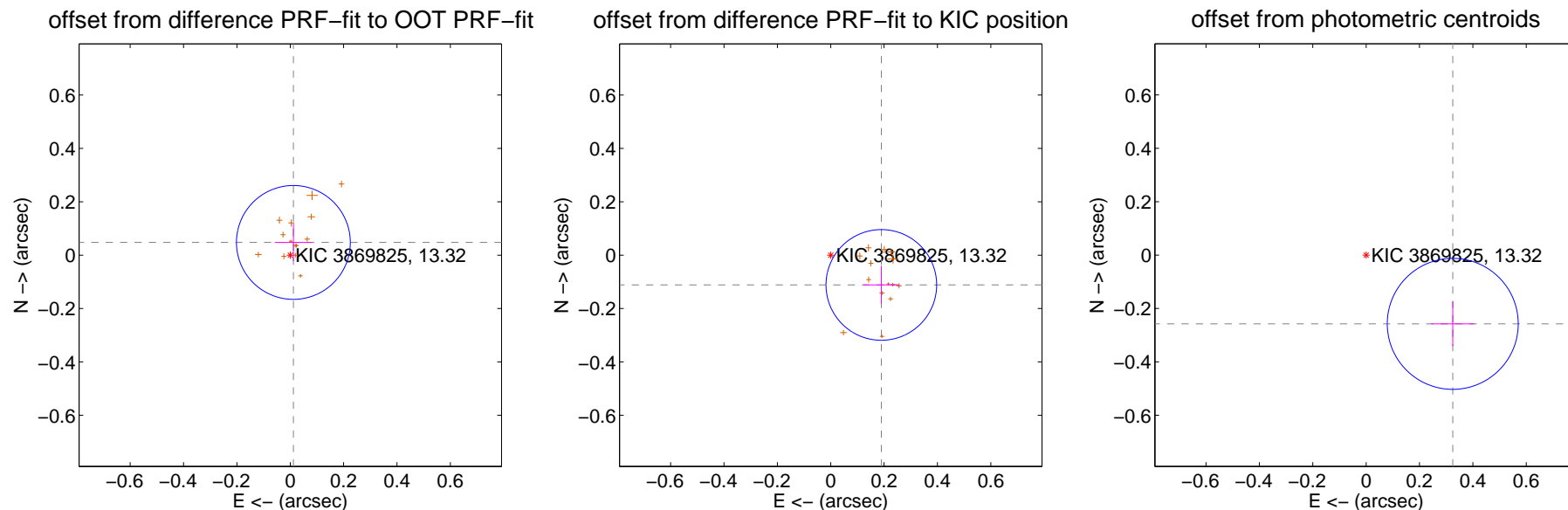
## DV Centroid Data

Supplemental centroid analysis for 003869825-03. Kepler magnitude: 13.32. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

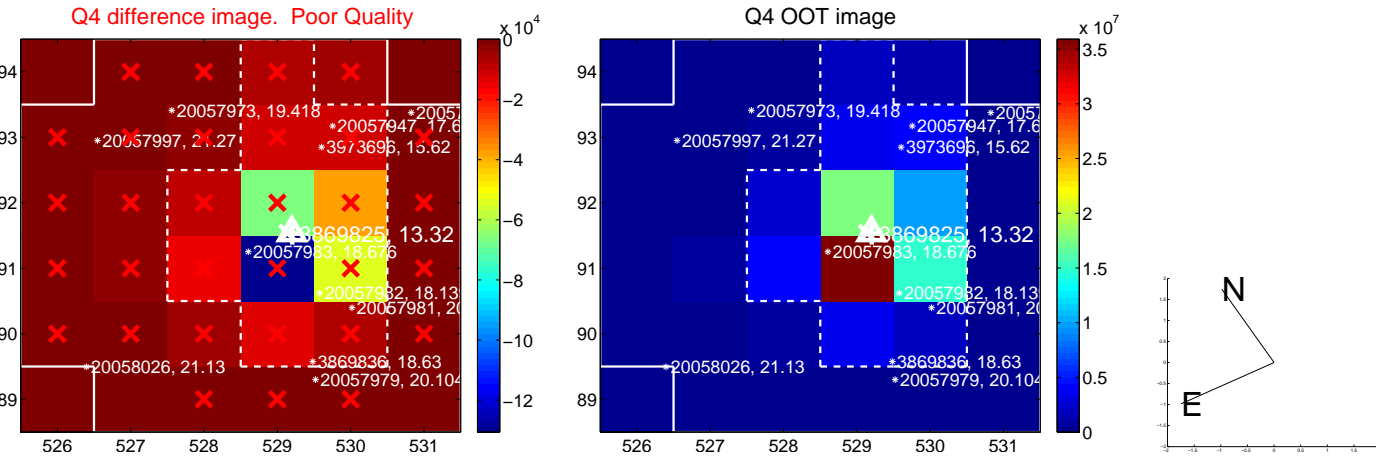
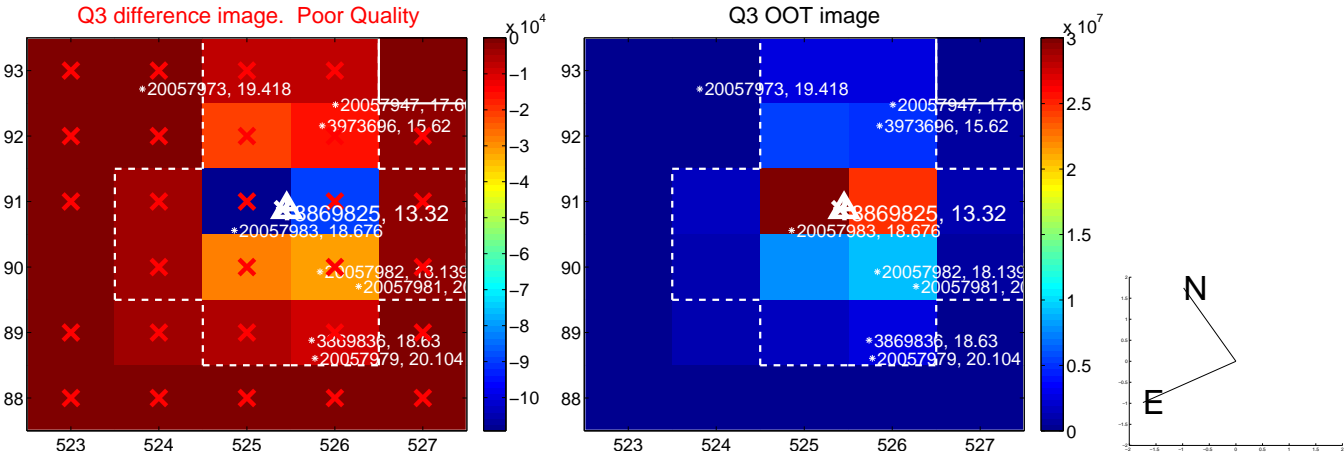
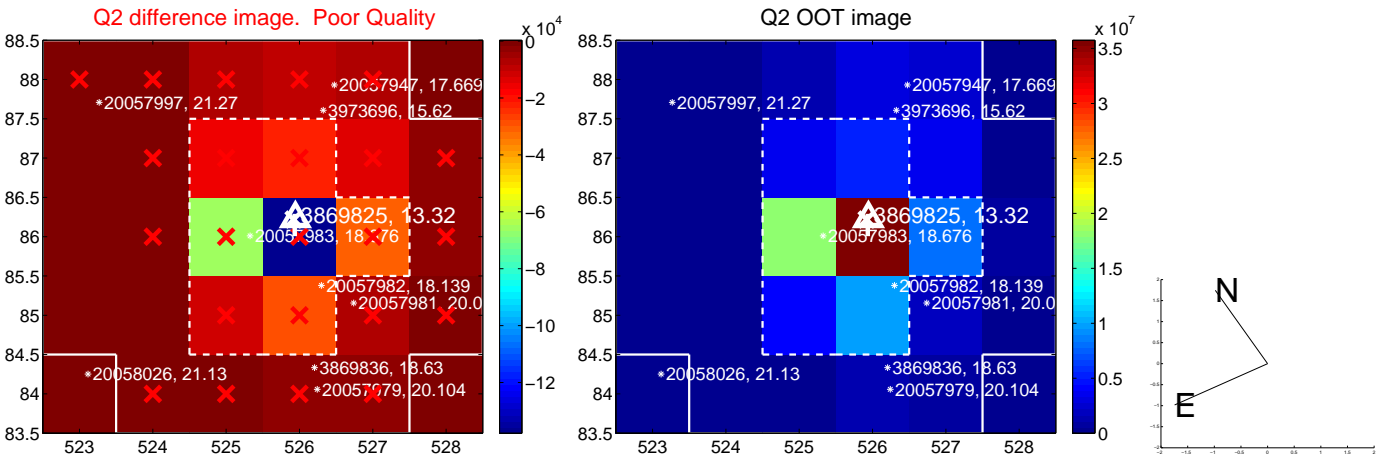
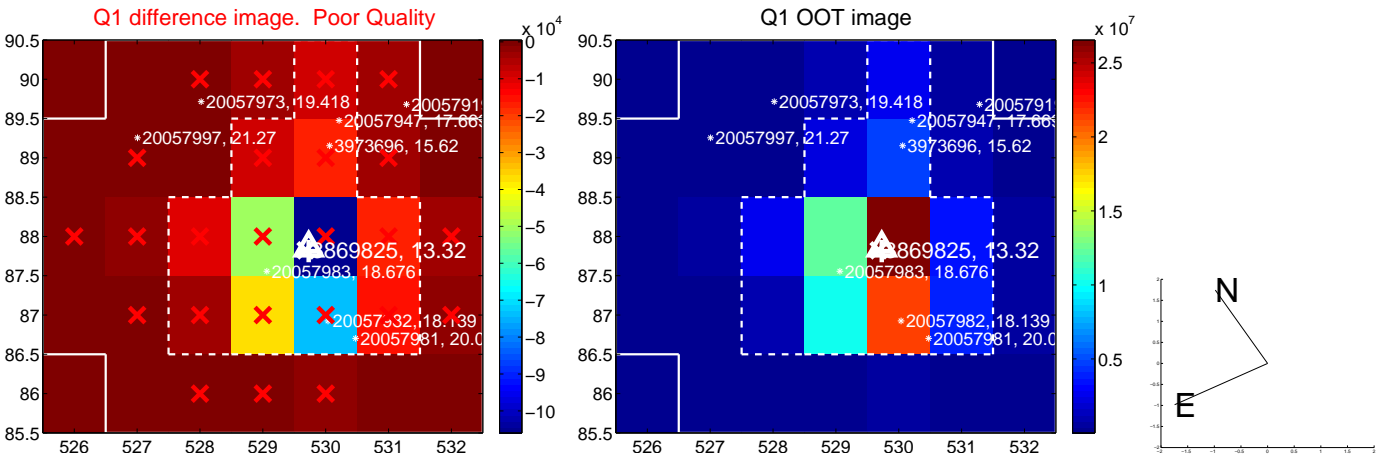
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.049 \pm 0.071$	0.69	$-0.012 \pm 0.069$	$0.048 \pm 0.070$
PRF-fit source offset from KIC position	$0.220 \pm 0.069$	3.18	$-0.190 \pm 0.068$	$-0.112 \pm 0.072$
photometric centroid source offset	$0.41 \pm 0.08$	5.07	$-0.32 \pm 0.08$	$-0.26 \pm 0.08$



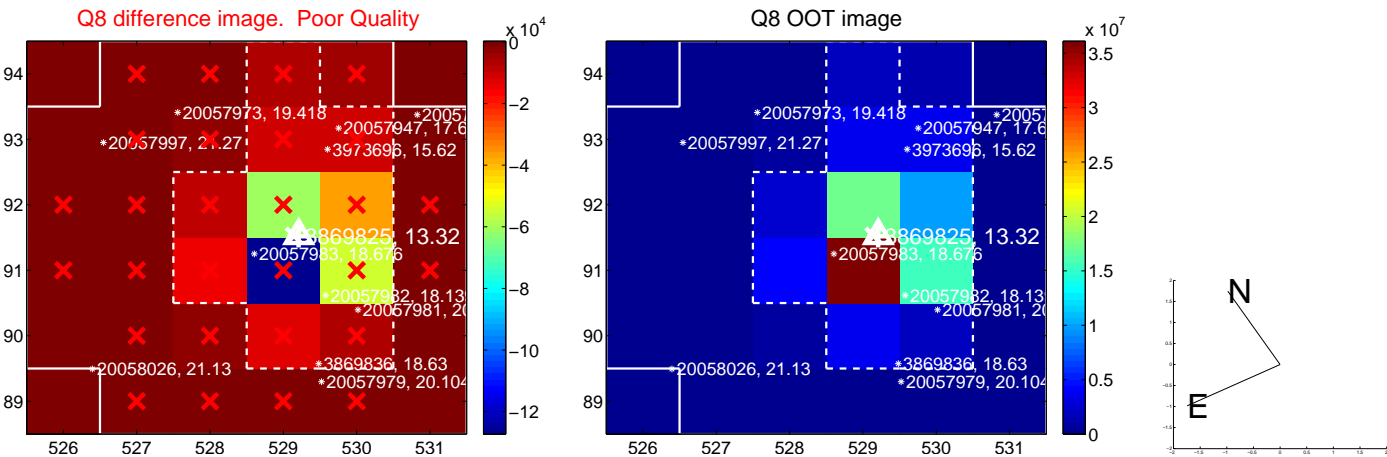
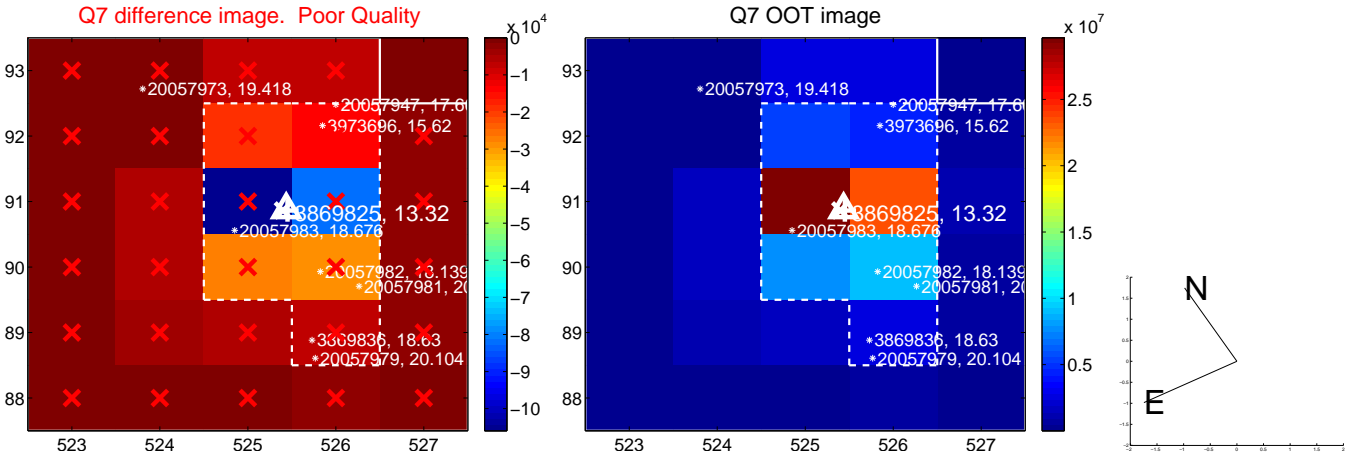
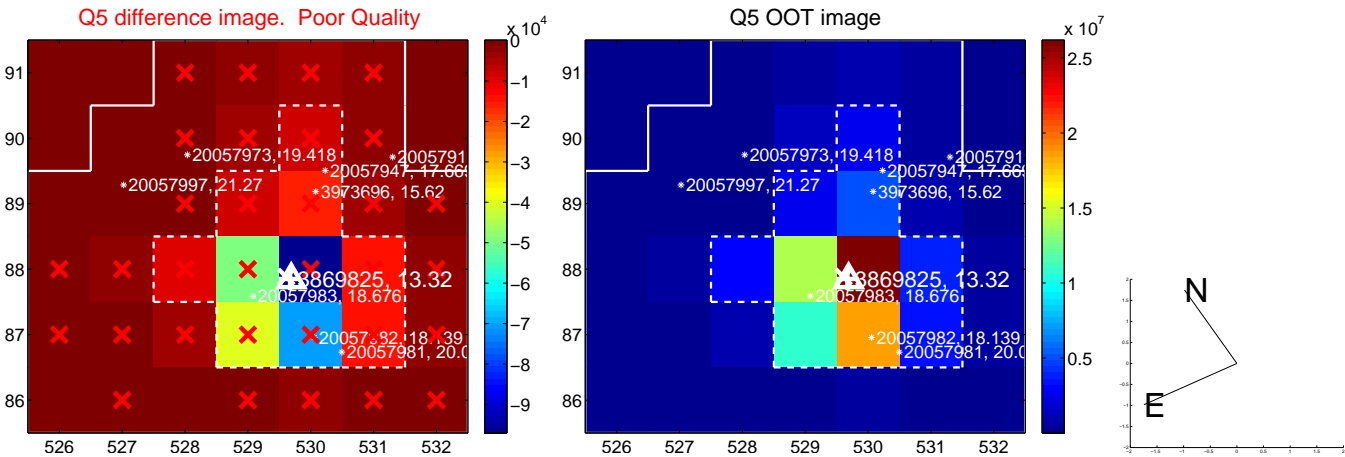
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.



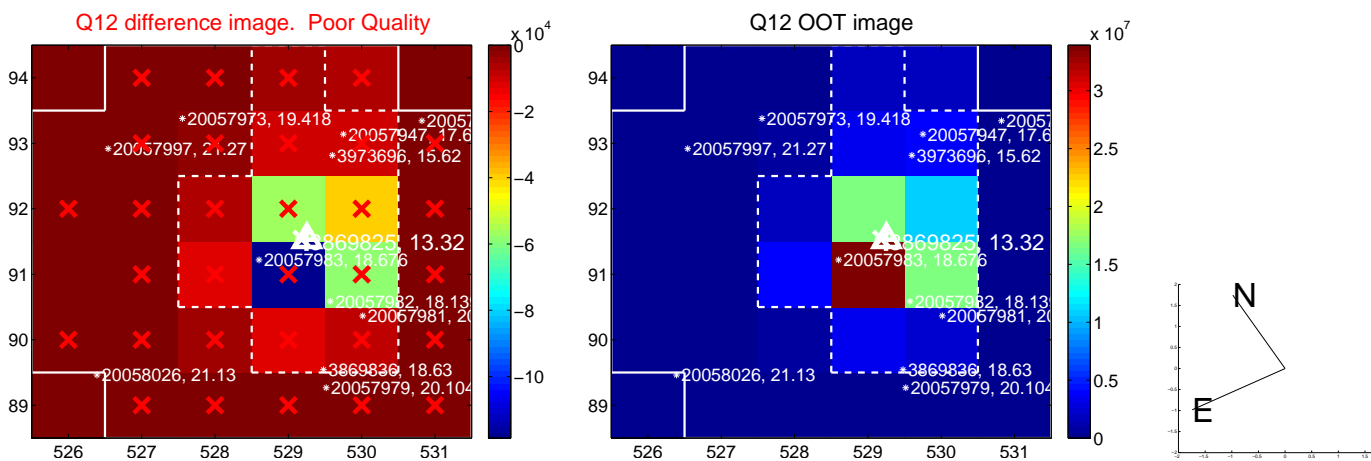
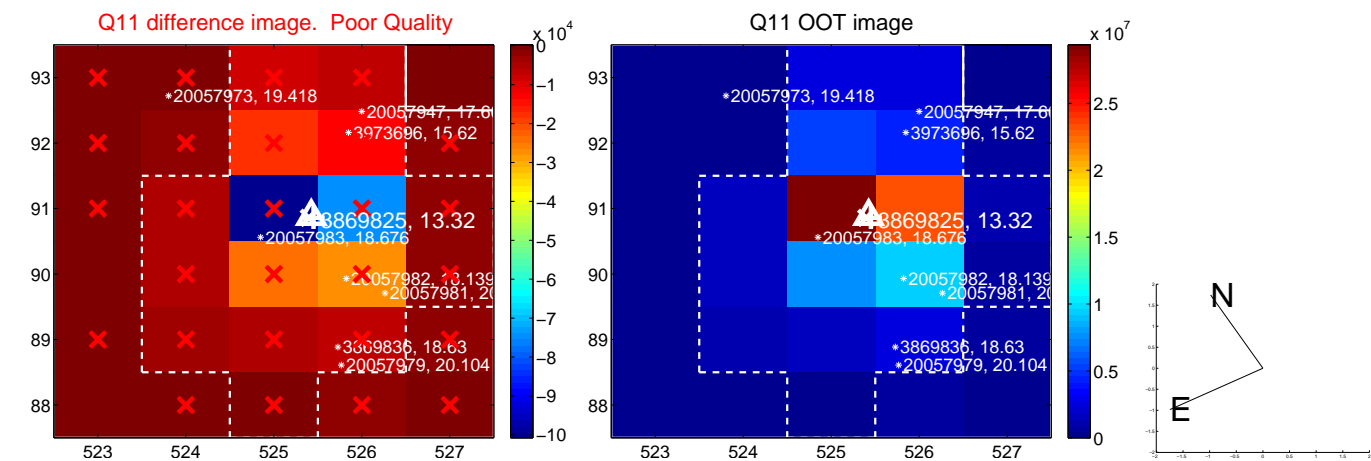
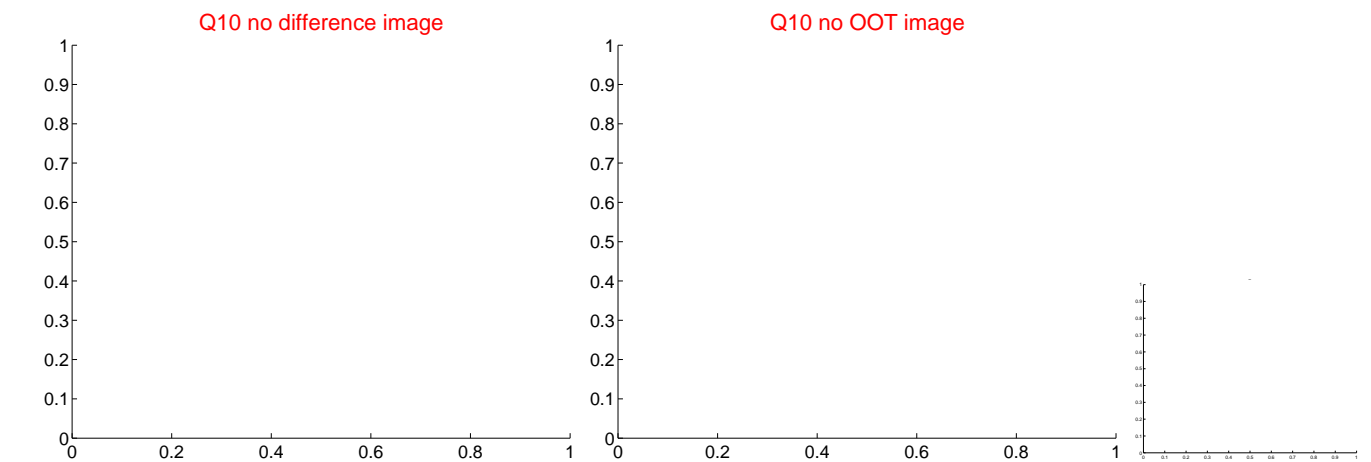
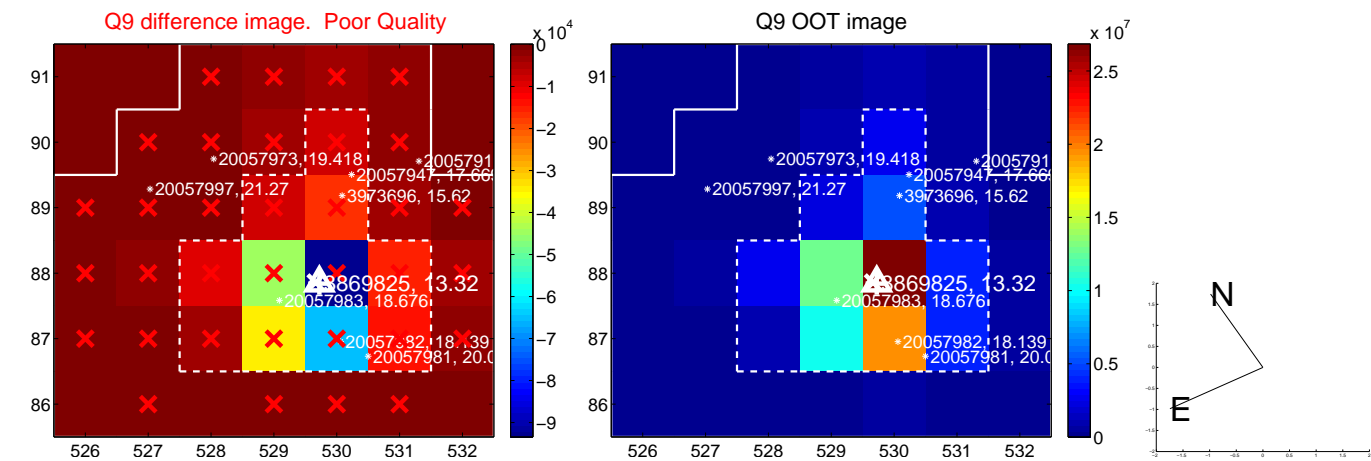
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



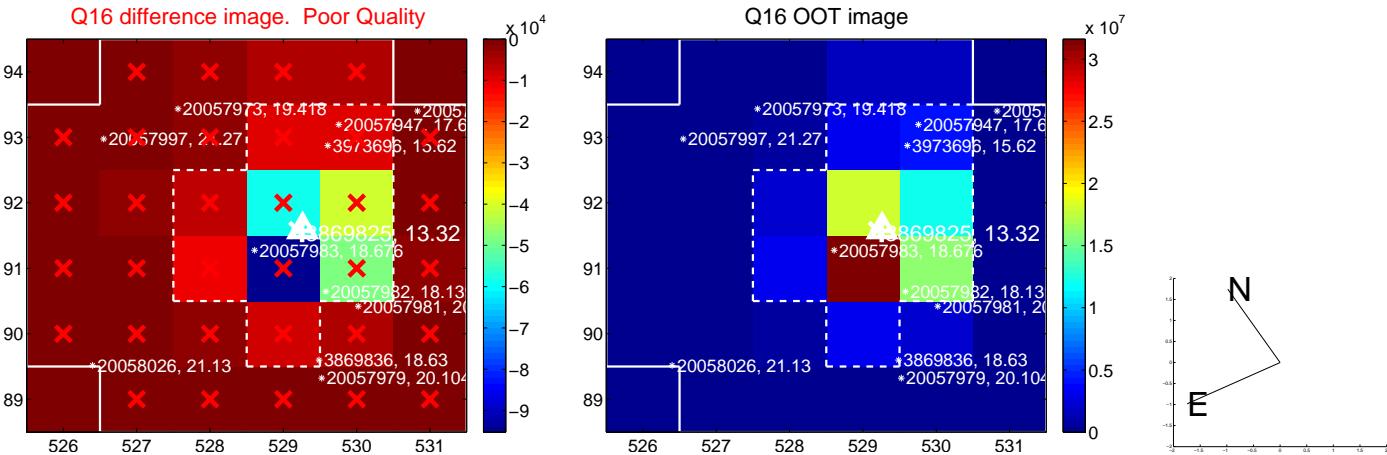
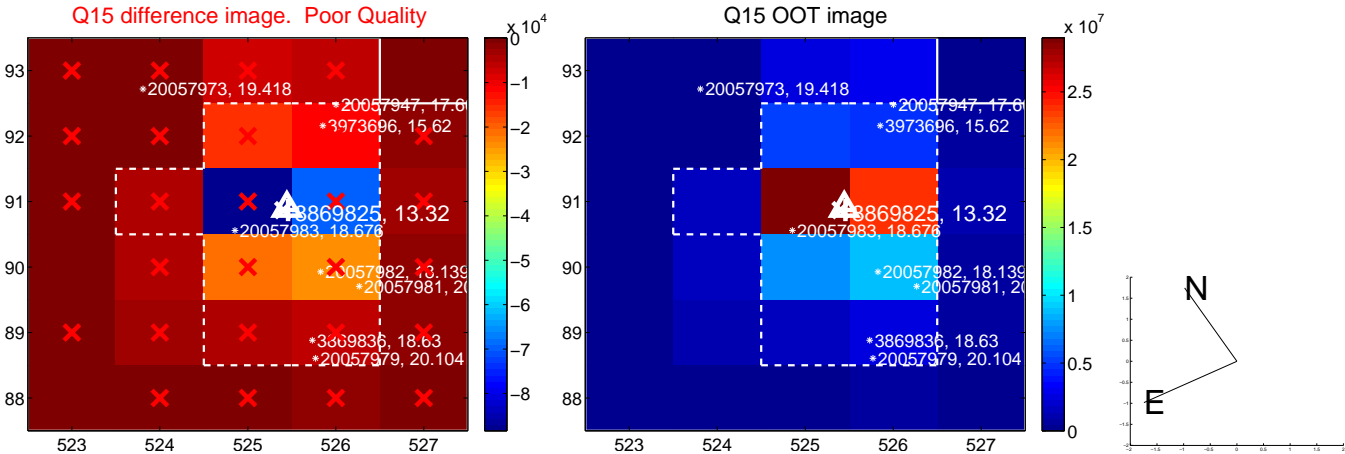
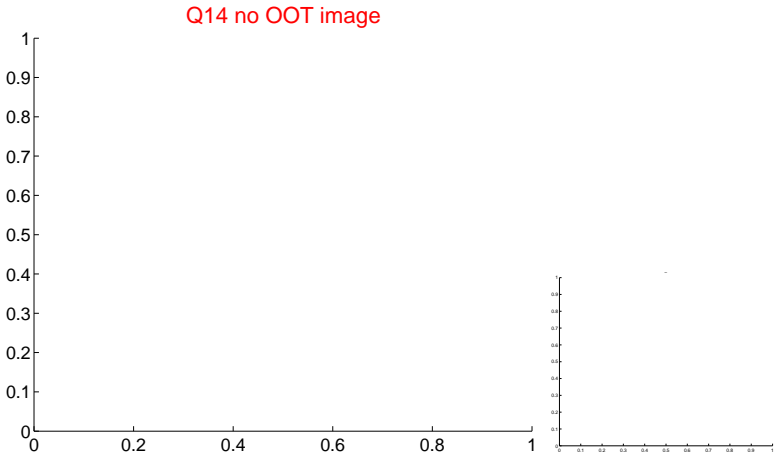
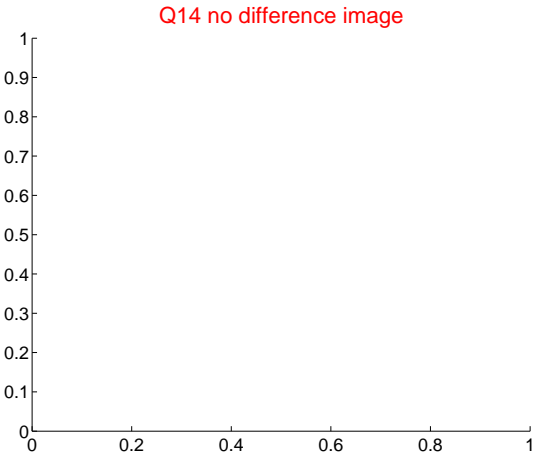
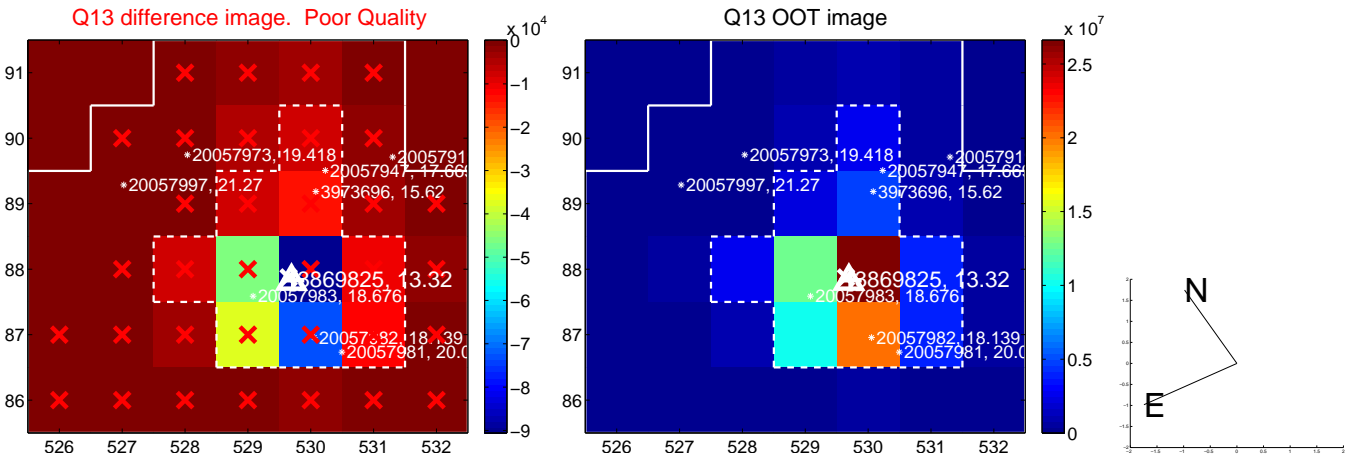
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



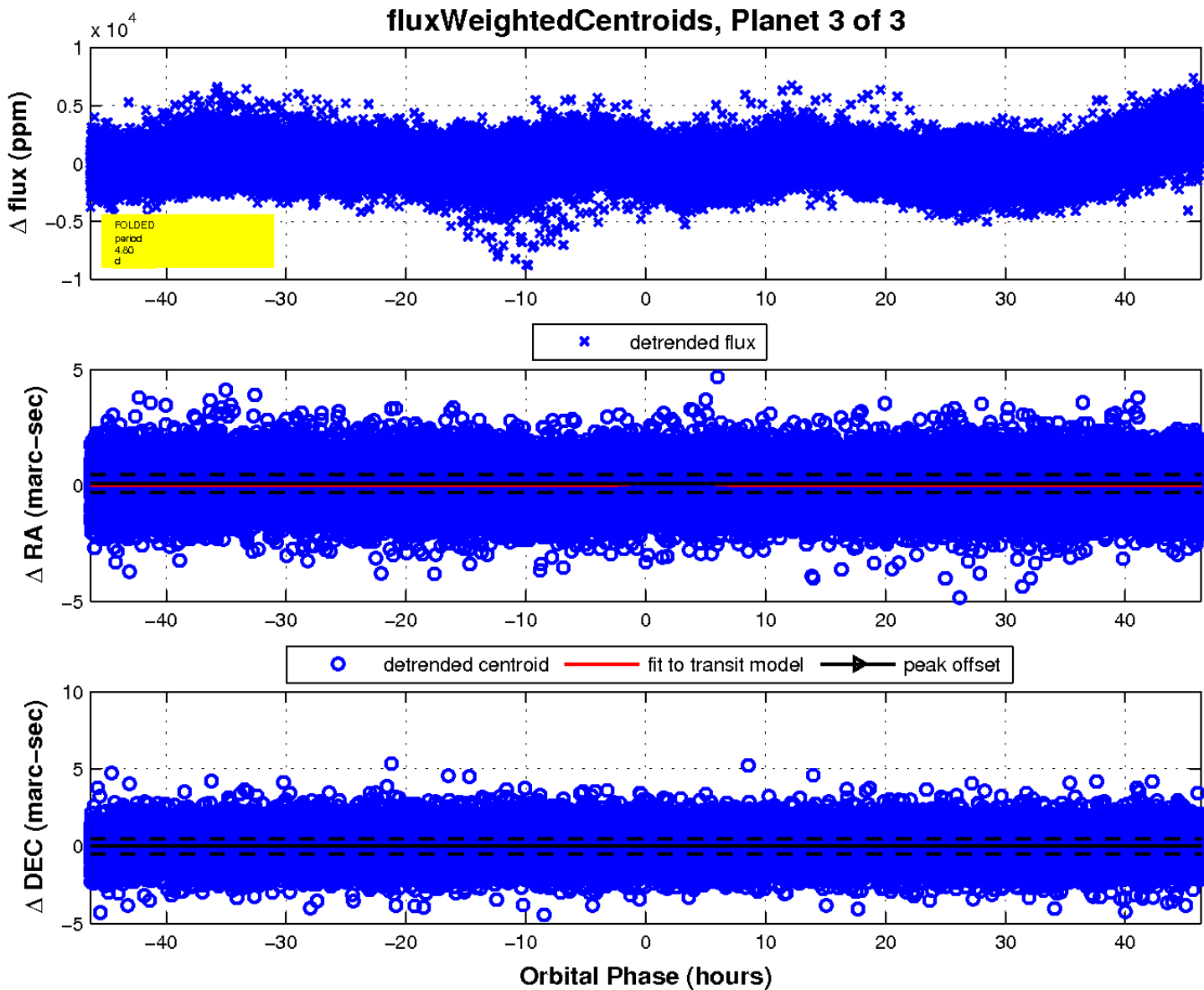
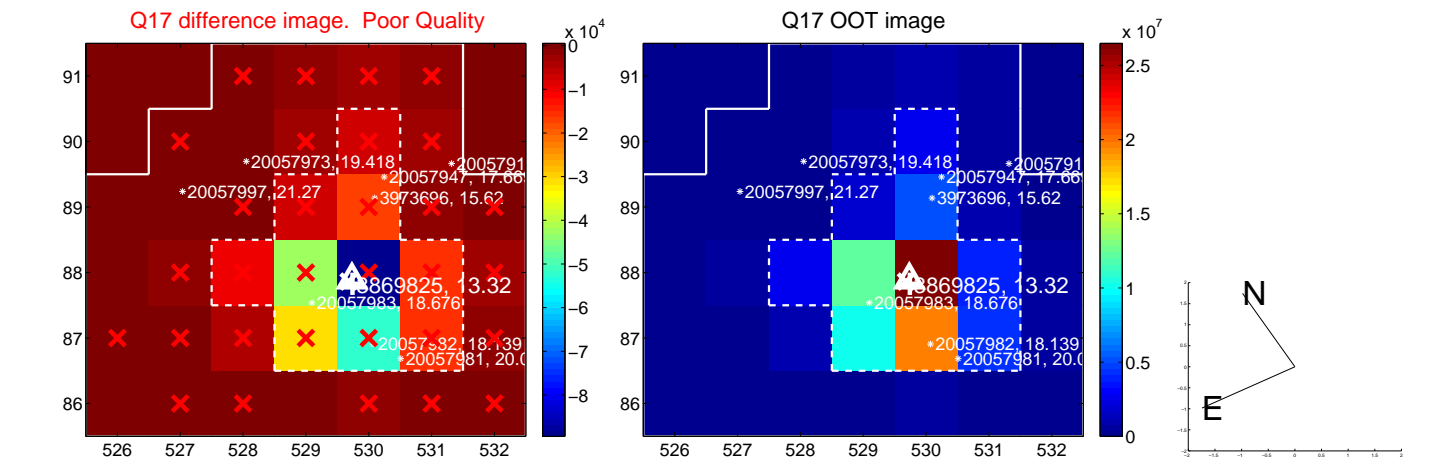
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

