

# KIC 012268220

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012268220-01	OBS	7518.01	4.421575	134.396118	51993.3	7.652	1626.9	1429.1	3.46	8026	134.01	10254.69
012268220-02	OBS	No	4.421547	132.190067	1087.4	5.805	73.4	72.7	3.46	8026	12.29	10254.78
012268220-03	OBS	No	376.878304	297.600891	2060.7	17.850	17.3	5.3	3.46	8026	28.34	27.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012268220-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_SATURATED
012268220-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
012268220-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST

**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.

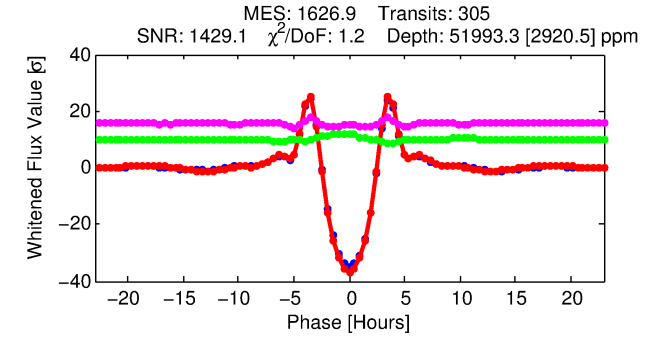
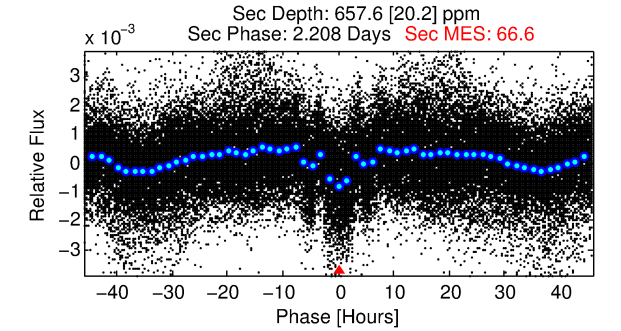
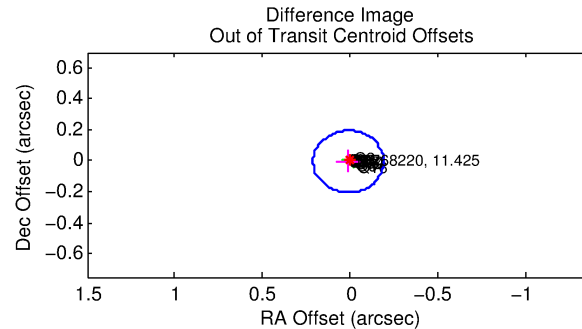
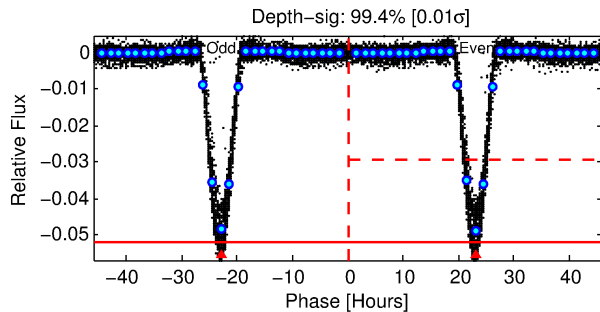
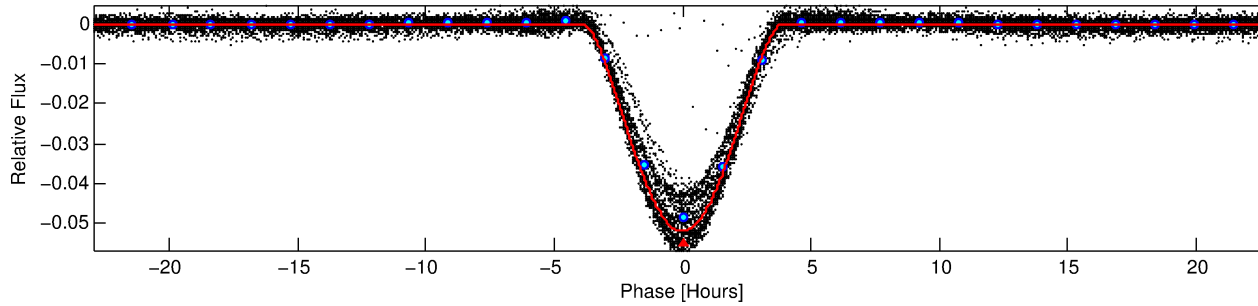
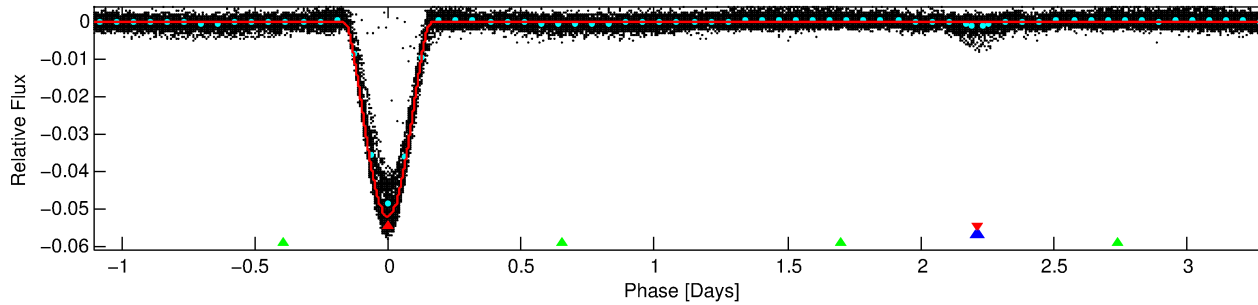
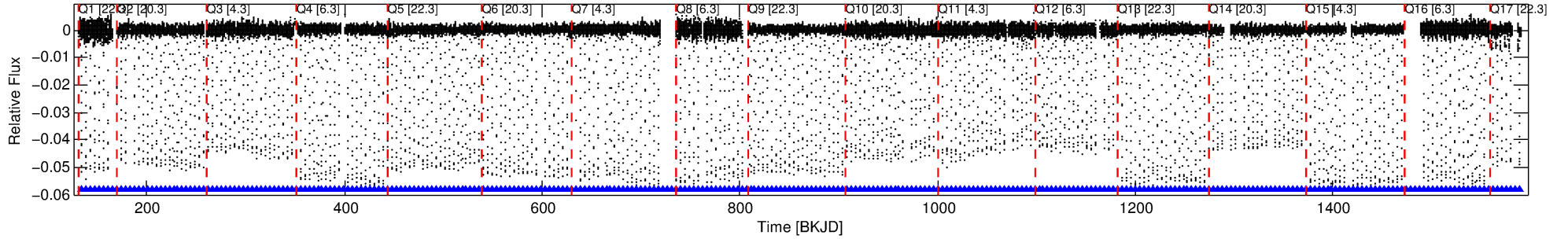
## Ephemeris Match Information For 012268220-01

No Significant Match Found

# DV One-Page Summary

KIC: 12268220 Candidate: 1 of 3 Period: 4.422 d  
KOI: K07518 Corr: No Ephemeris Match

Kp: 11.43 R\*: 3.46 Rs Teff: 8026.0 K Logg: 3.65 Fe/H: -0.360



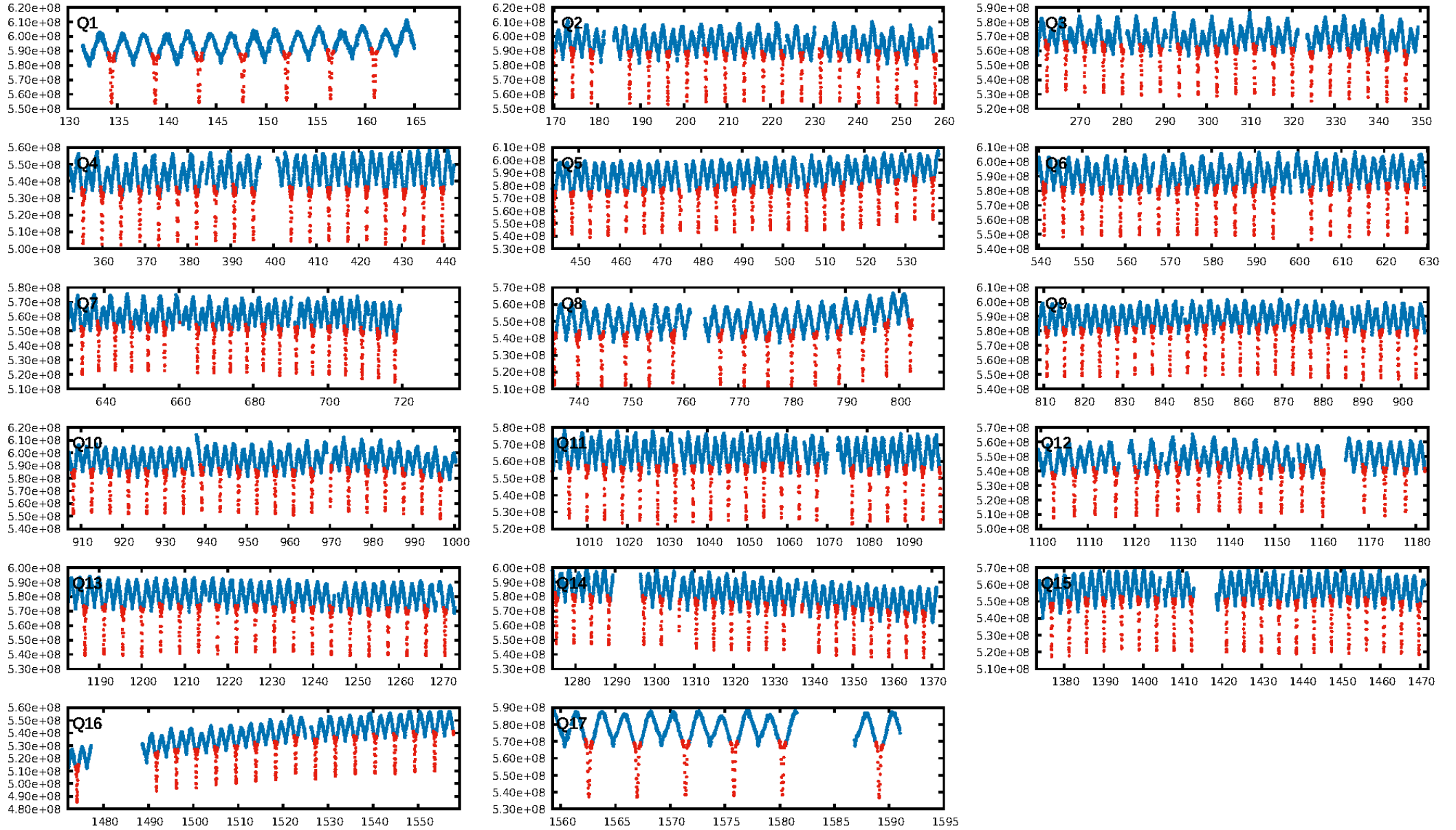
## DV Fit Results:

Period = 4.42158 [0.00000] d  
Epoch = 134.3961 [0.0001] BKJD  
Rp/R\* = 0.3548 [0.0048]  
a/R\* = 4.19 [0.00]  
b = 1.00 [0.01]  
Seff = 10254.69 [8935.09]  
Teq = 2566 [559] K  
Rp = 134.01 [70.53] Re  
a = 0.0659 [0.0346] AU  
Ag = 0.09 [0.08] [-12.14σ]  
Teffp = 2158 [85] K [-0.72σ]

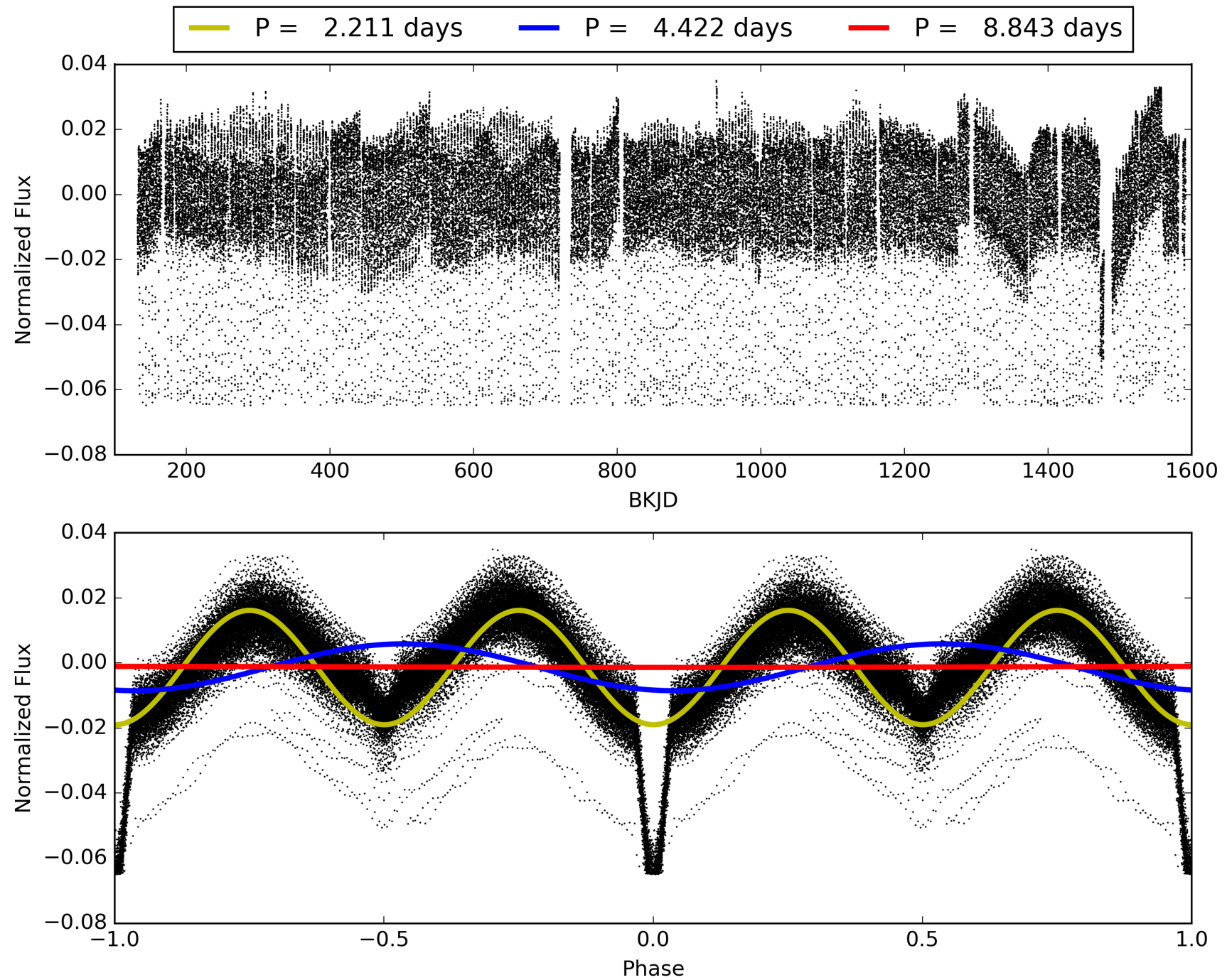
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [460.27σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [292/292]  
GhostDiagnostic-chr: 1.105  
Centroid-sig: N/A  
Centroid-so: 0.057 arcsec [96.88σ]  
OotOffset-rm: 0.013 arcsec [0.19σ]  
KicOffset-rm: 0.035 arcsec [0.51σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 012268220-01, PDC Light Curves

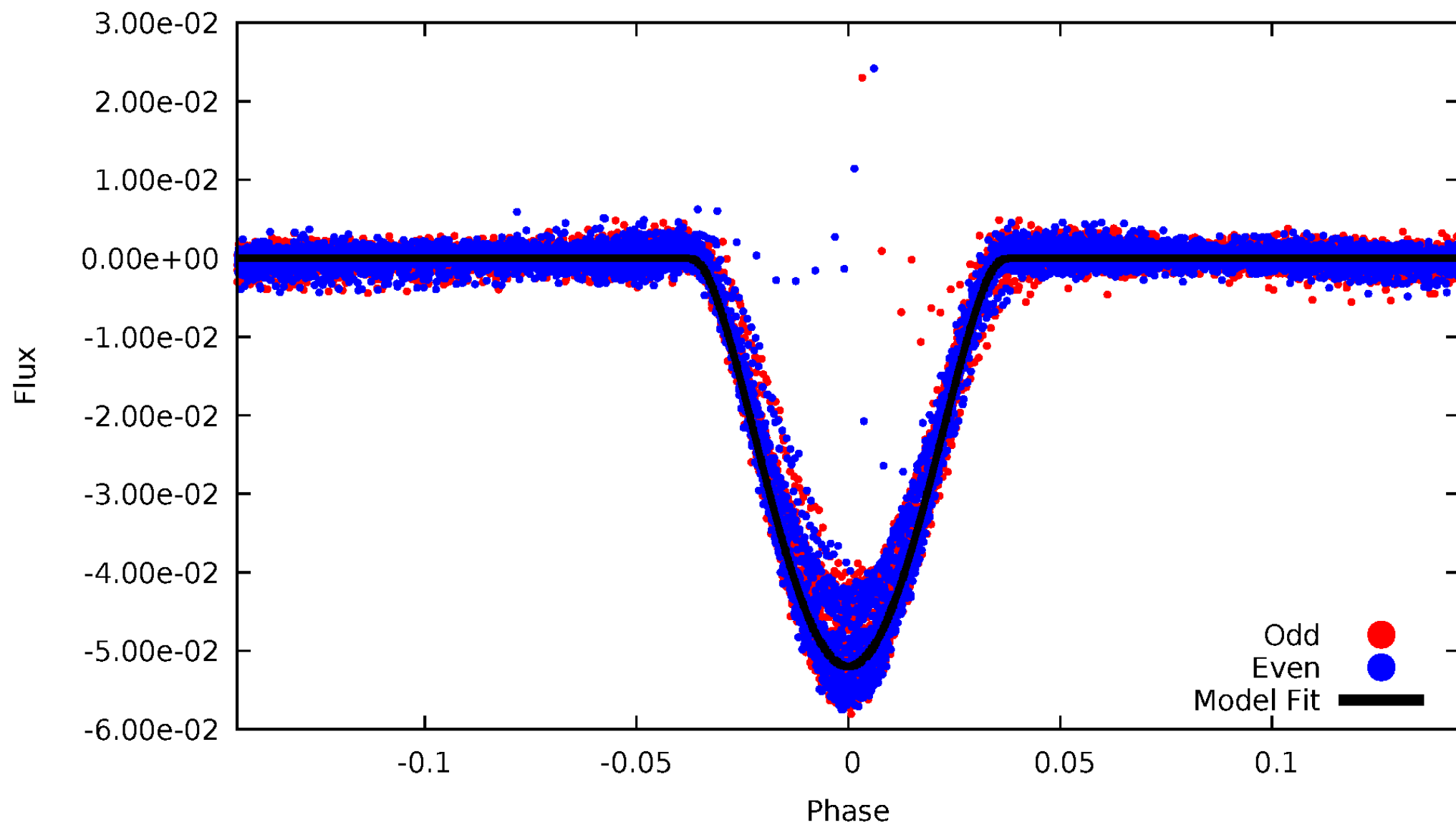


TCE 012268220-01



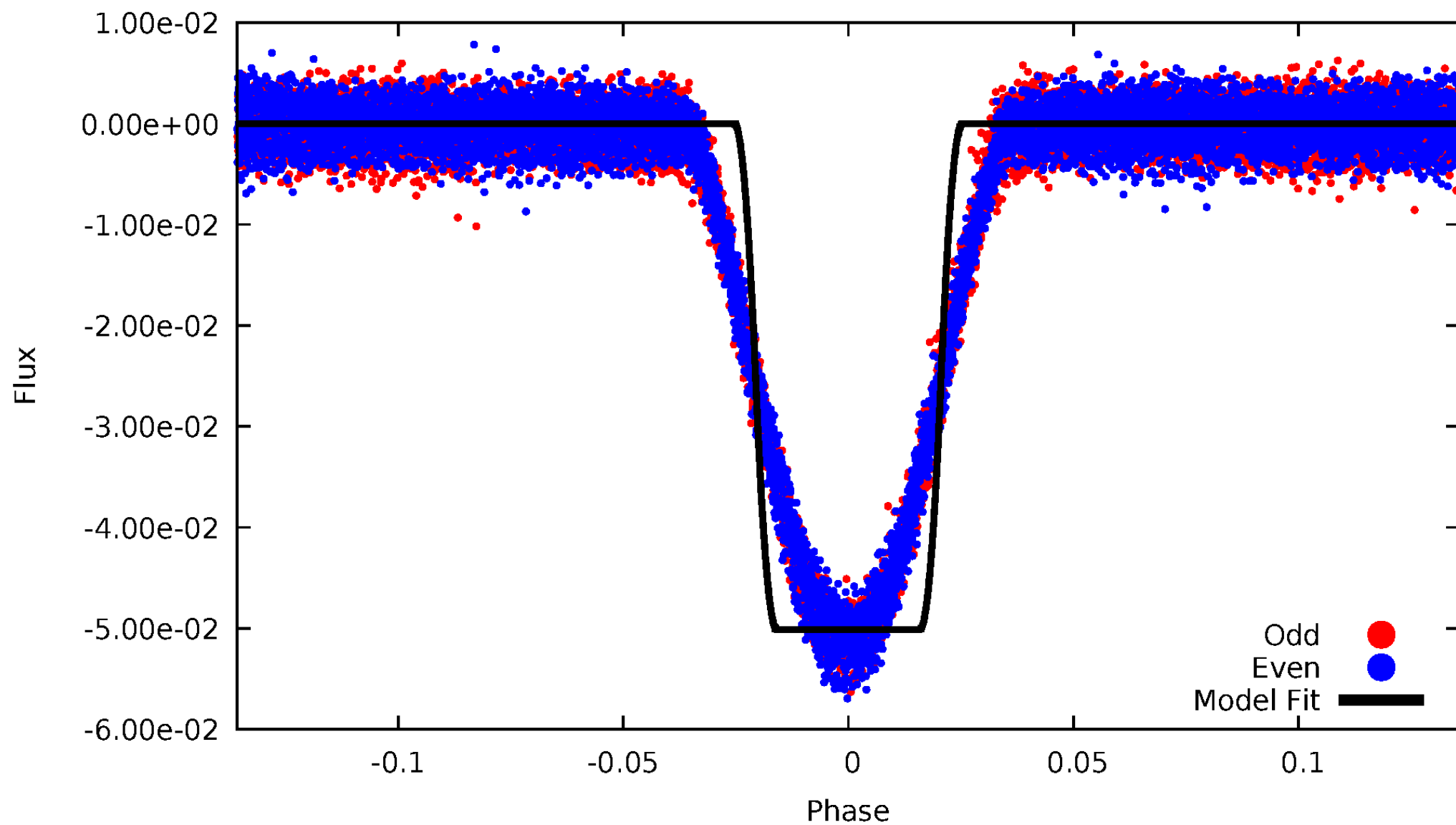
# DV Odd/Even

TCE 012268220-01



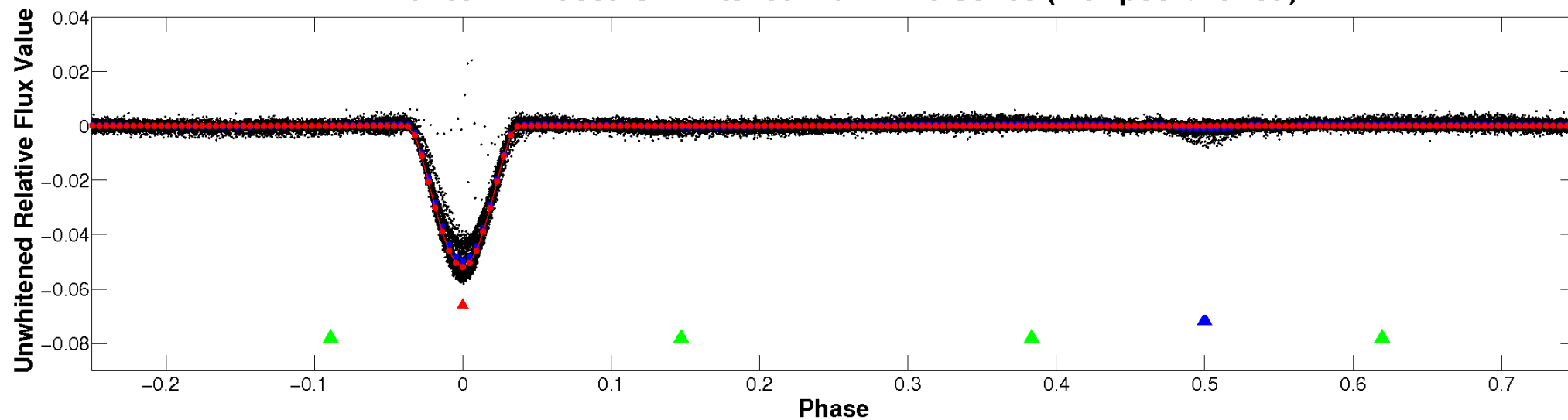
# ALT Odd/Even

TCE 012268220-01

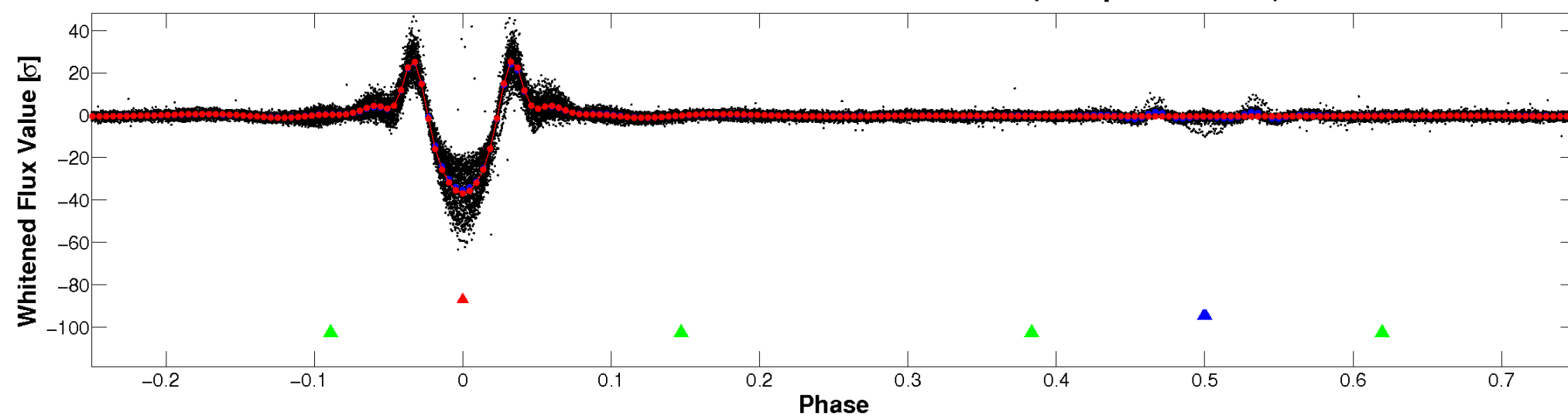


# Non-Whitened Vs. Whitened Light Curve

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



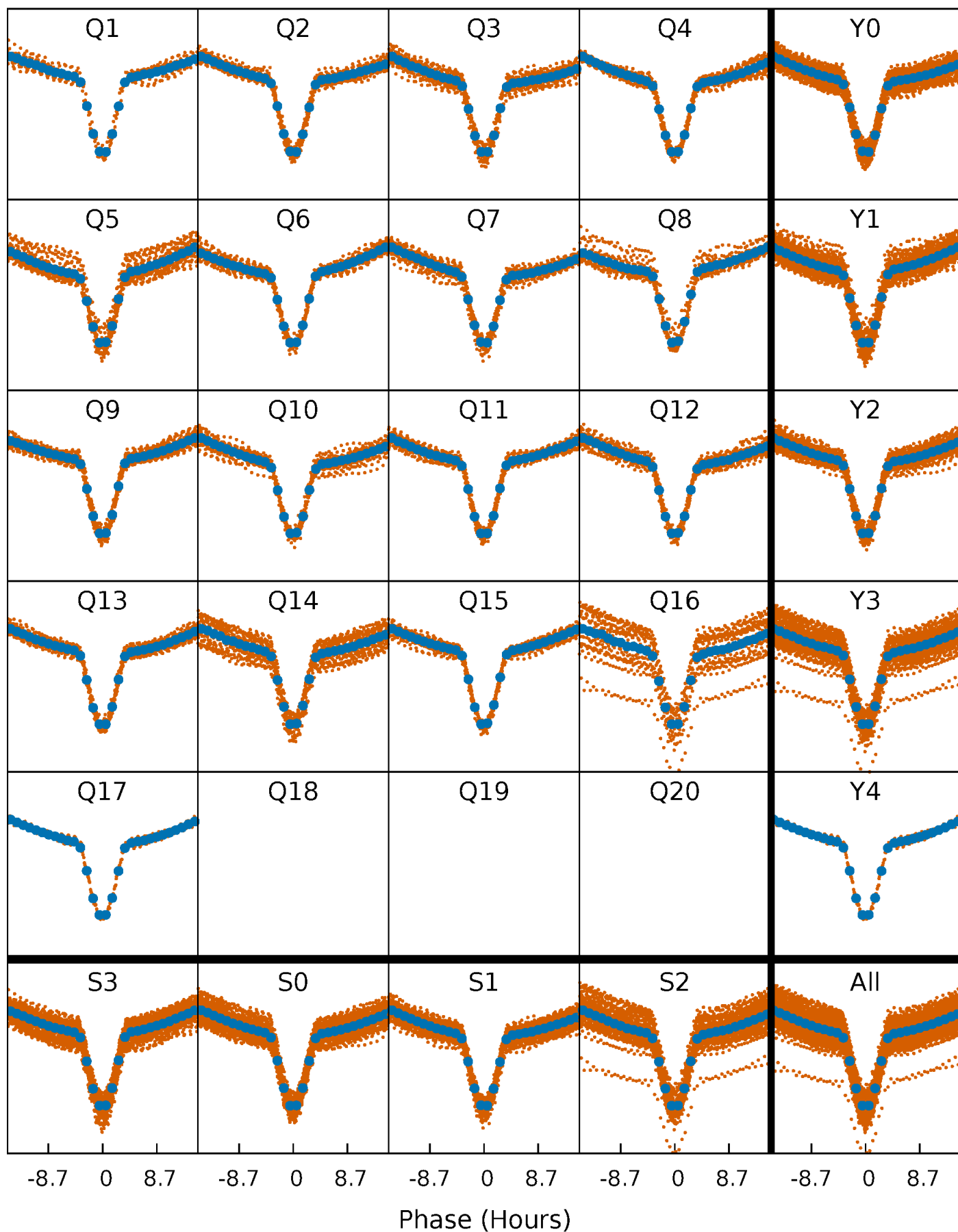
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

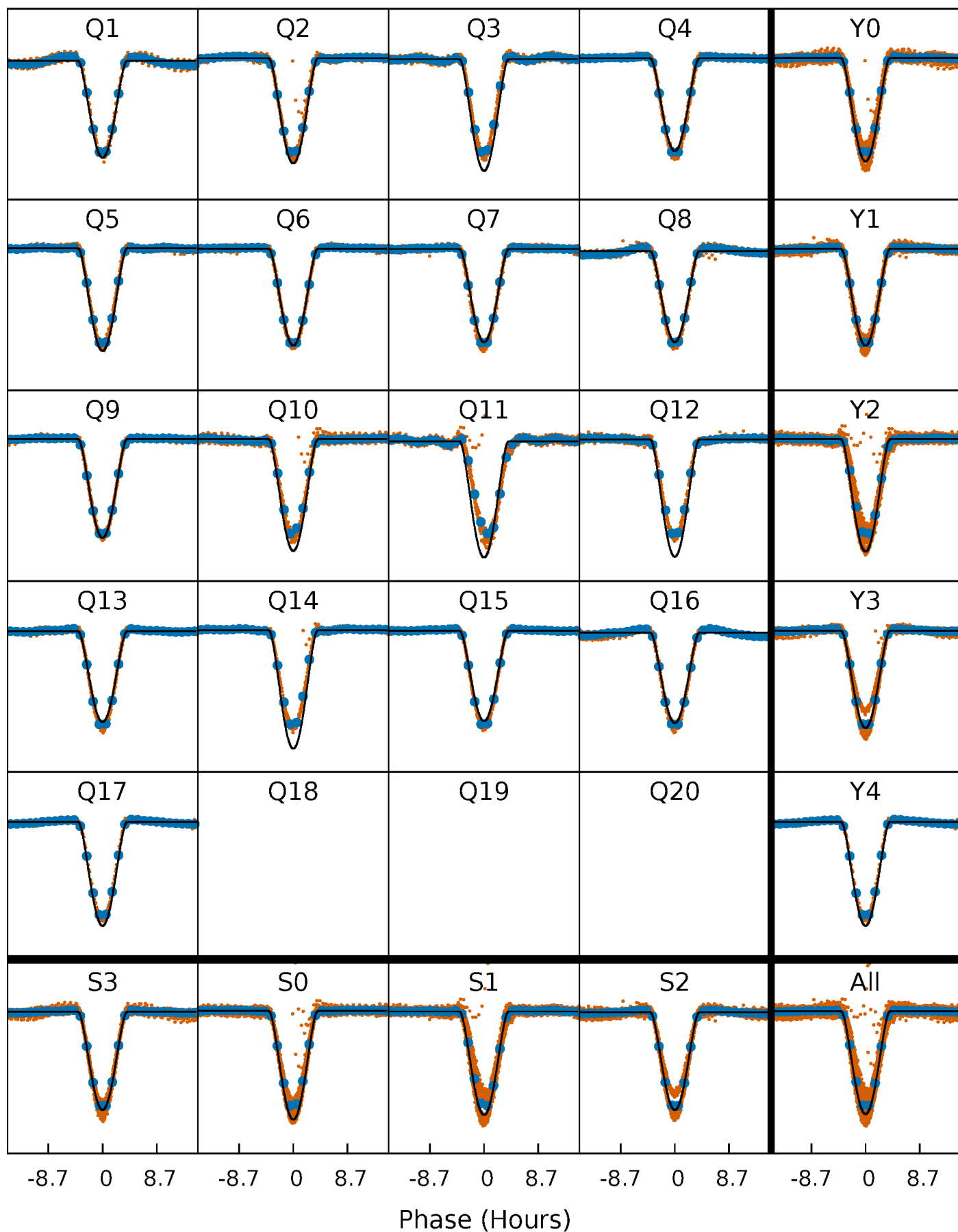
TCE 012268220-01 P= 4.421575 Days  $T_0=134.396118$  (BKJD)





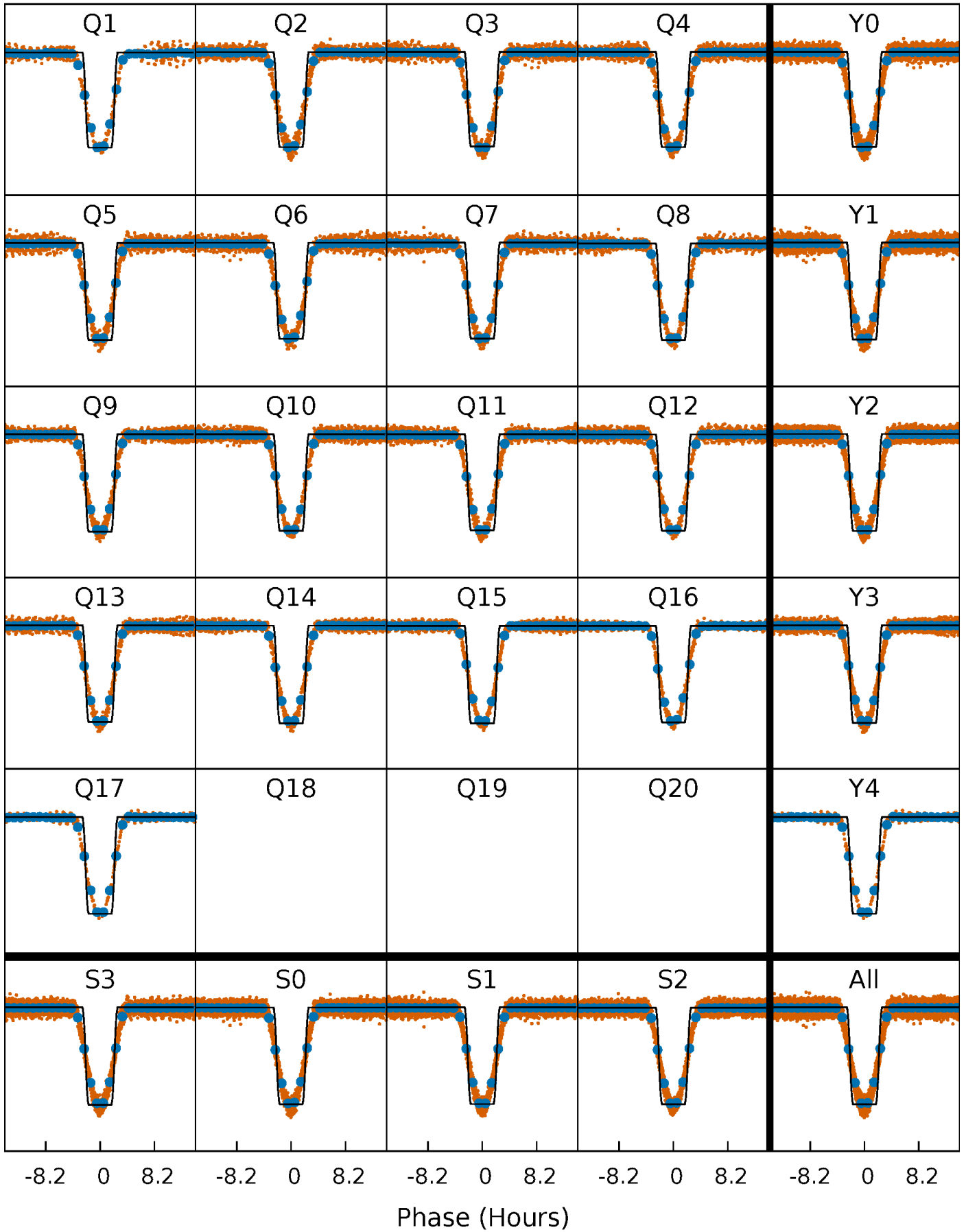
# DV Quarter-Phased Transit Curves

TCE 012268220-01   P= 4.421575 Days    $T_0=134.396118$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

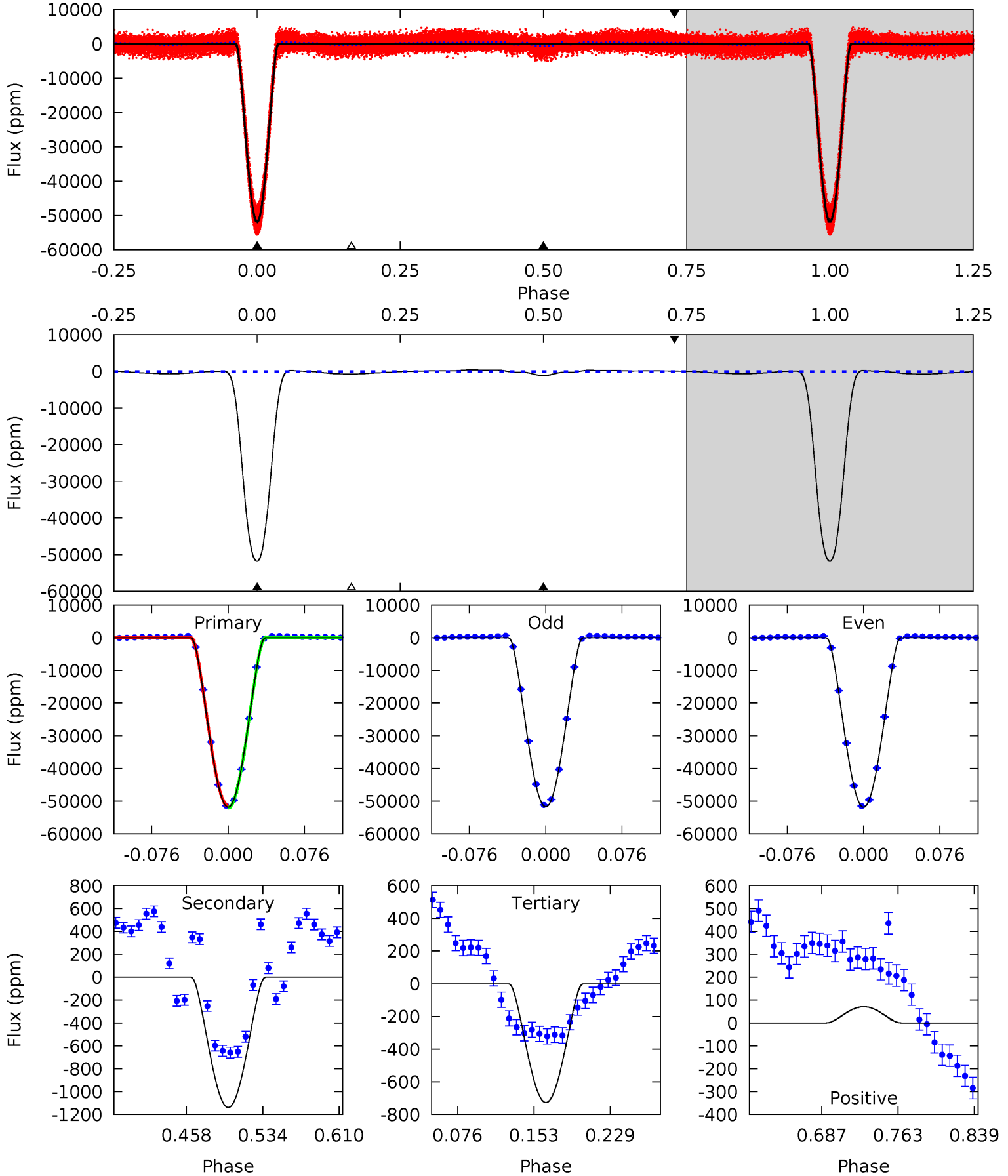
TCE 012268220-01   P= 4.421564 Days    $T_0=134.397879$  (BKJD)



# DV Model-Shift Uniqueness Test

012268220-01, P = 4.421575 Days, E = 129.974543 Days

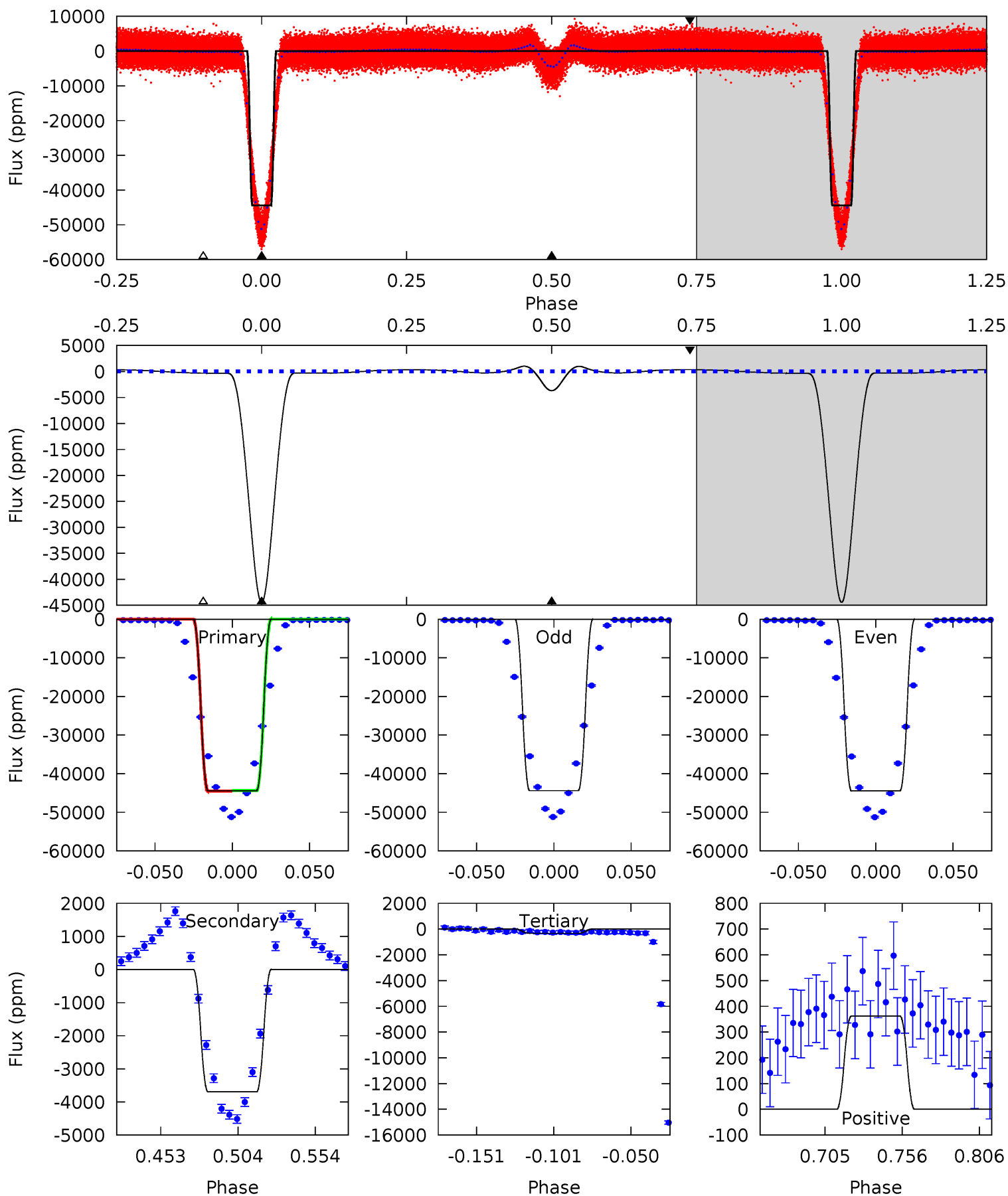
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2973	65.3	41.7	4.08	4.62	1.77	19.8	2931	2969	23.6	61.2	3.23	0.97	0.01	16.7



# Alt Model-Shift Uniqueness Test

012268220-01, P = 4.421564 Days, E = 129.976315 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
1118	93.0	8.35	9.11	4.71	1.96	7.27	1109	1109	84.6	83.9	0.55	1.00	0.02	1.82



### Stellar Parameters For KIC 012268220

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8026^{+251}_{-306}$	$3.650^{+0.510}_{-0.090}$	$-0.360^{+0.200}_{-0.300}$	$3.461^{+0.607}_{-1.821}$	$1.950^{+0.238}_{-0.510}$	$0.066^{+0.401}_{-0.020}$
	+3%/-4%	+14%/-2%	+56%/-83%	+18%/-53%	+12%/-26%	+605%/-30%
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 012268220-01 / KOI 7518.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1139 \pm 17$	$127.68^{+16.70}_{-36.45}$	$3446^{+273}_{-449}$	$-2940^{+4965}_{-208}$	$0.171^{+0.139}_{-0.036}$
Alt.	$-3696 \pm 40$	$80.28^{+11.55}_{-23.54}$	$3444^{+254}_{-463}$	$4123^{+128}_{-121}$	$1.376^{+1.212}_{-0.281}$

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

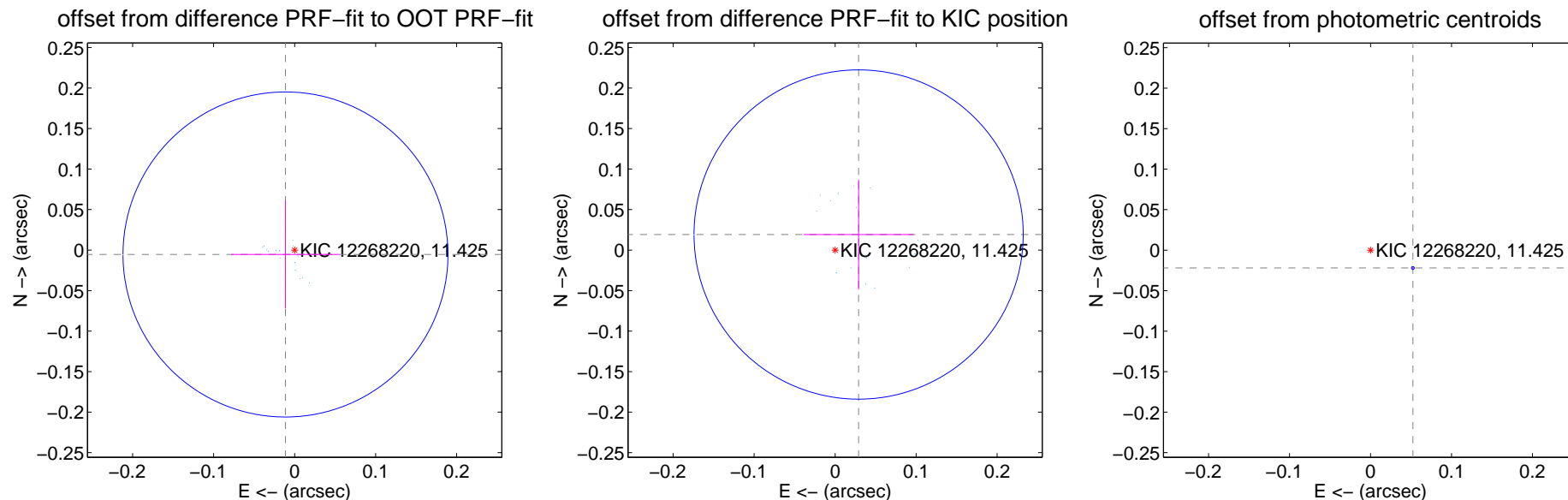
## DV Centroid Data

Supplemental centroid analysis for 012268220-01. **Kepler magnitude: 11.43.** Transit SNR 1429.13

There are 17 quarters with good PRF difference image offsets

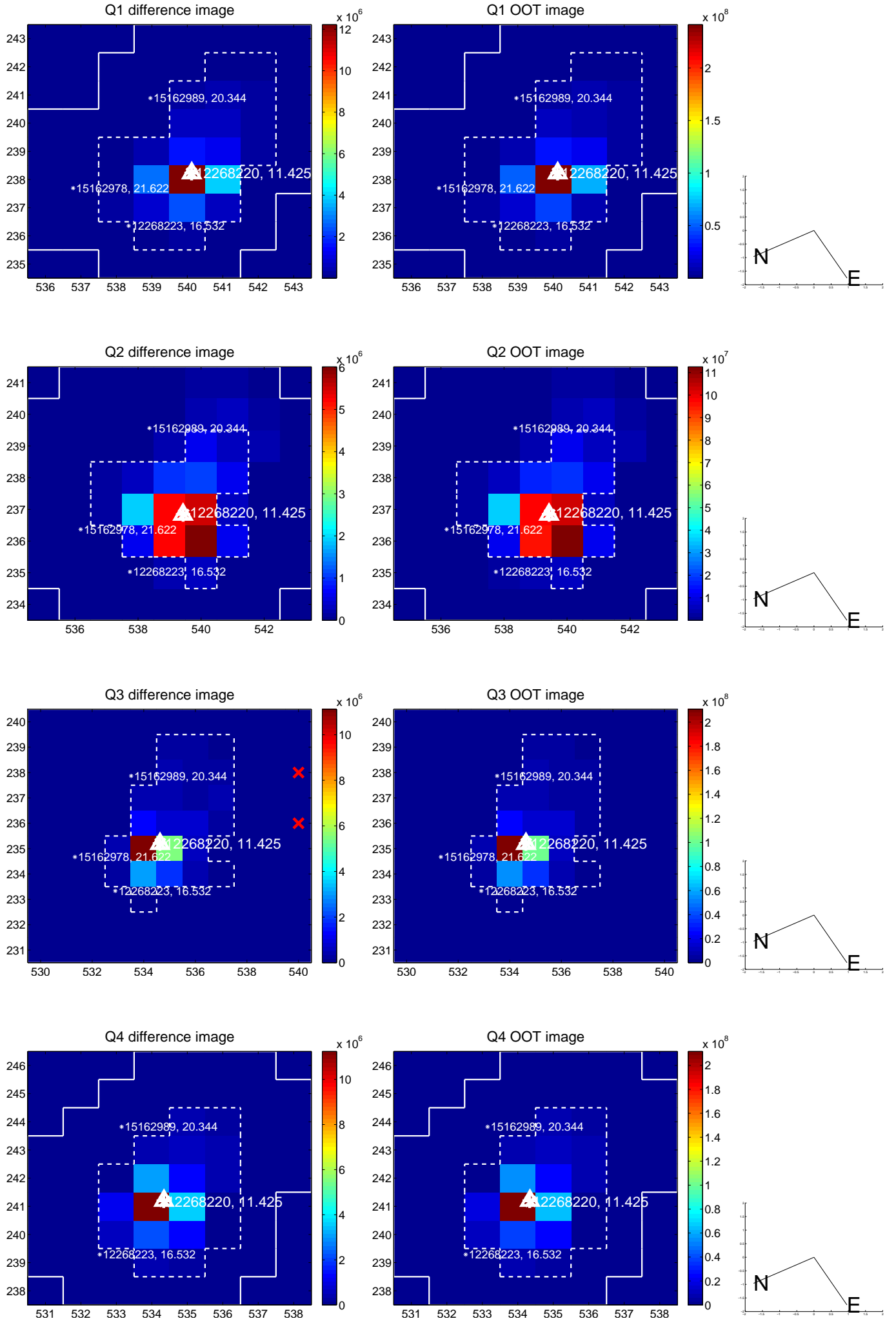
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.013 \pm 0.067$	0.19	$0.011 \pm 0.067$	$-0.005 \pm 0.067$
PRF-fit source offset from KIC position	$0.035 \pm 0.068$	0.51	$-0.029 \pm 0.068$	$0.019 \pm 0.068$
photometric centroid source offset	<b><math>0.06 \pm 0.00</math></b>	<b>96.88</b>	$-0.05 \pm 0.00$	$-0.02 \pm 0.00$



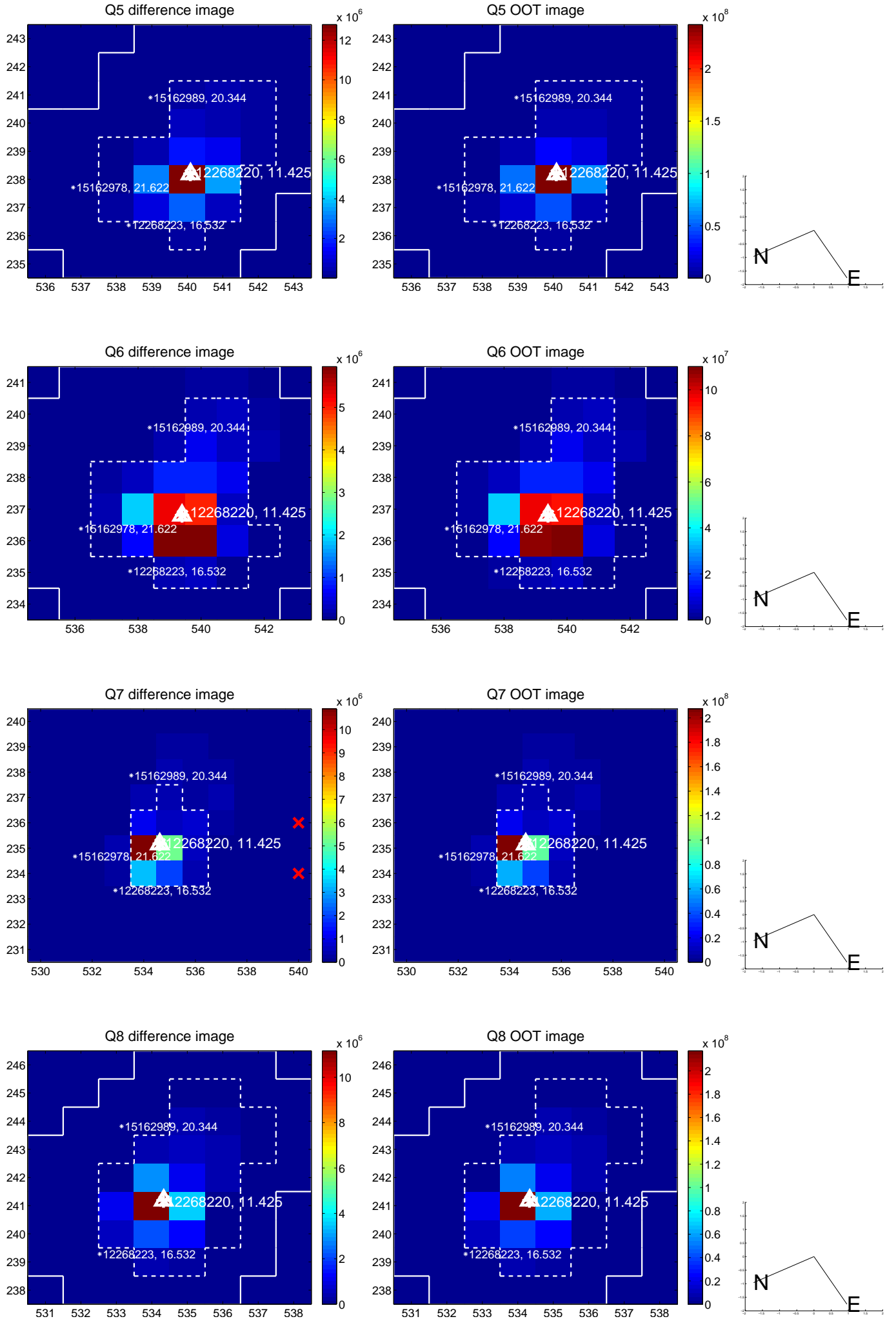
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

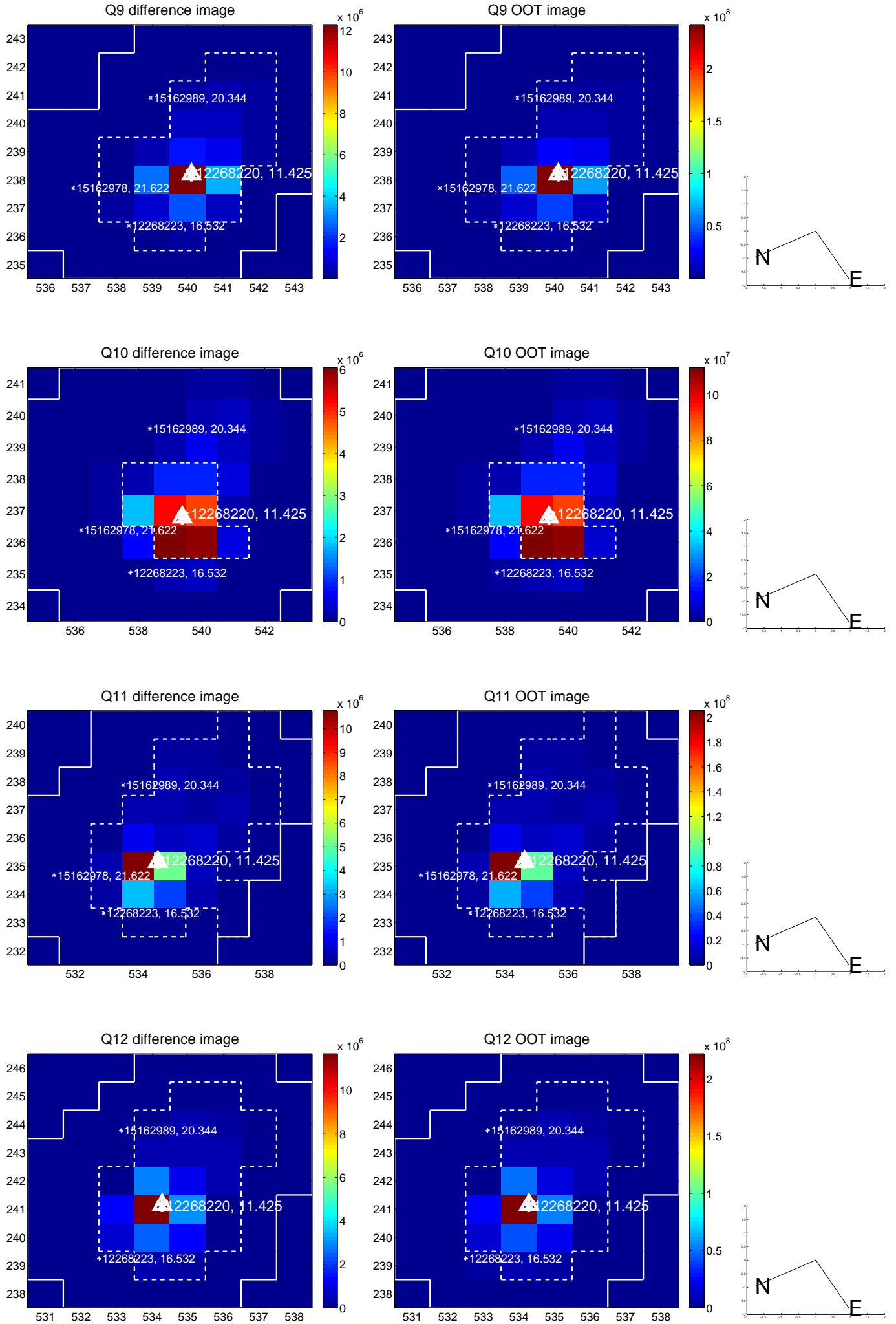




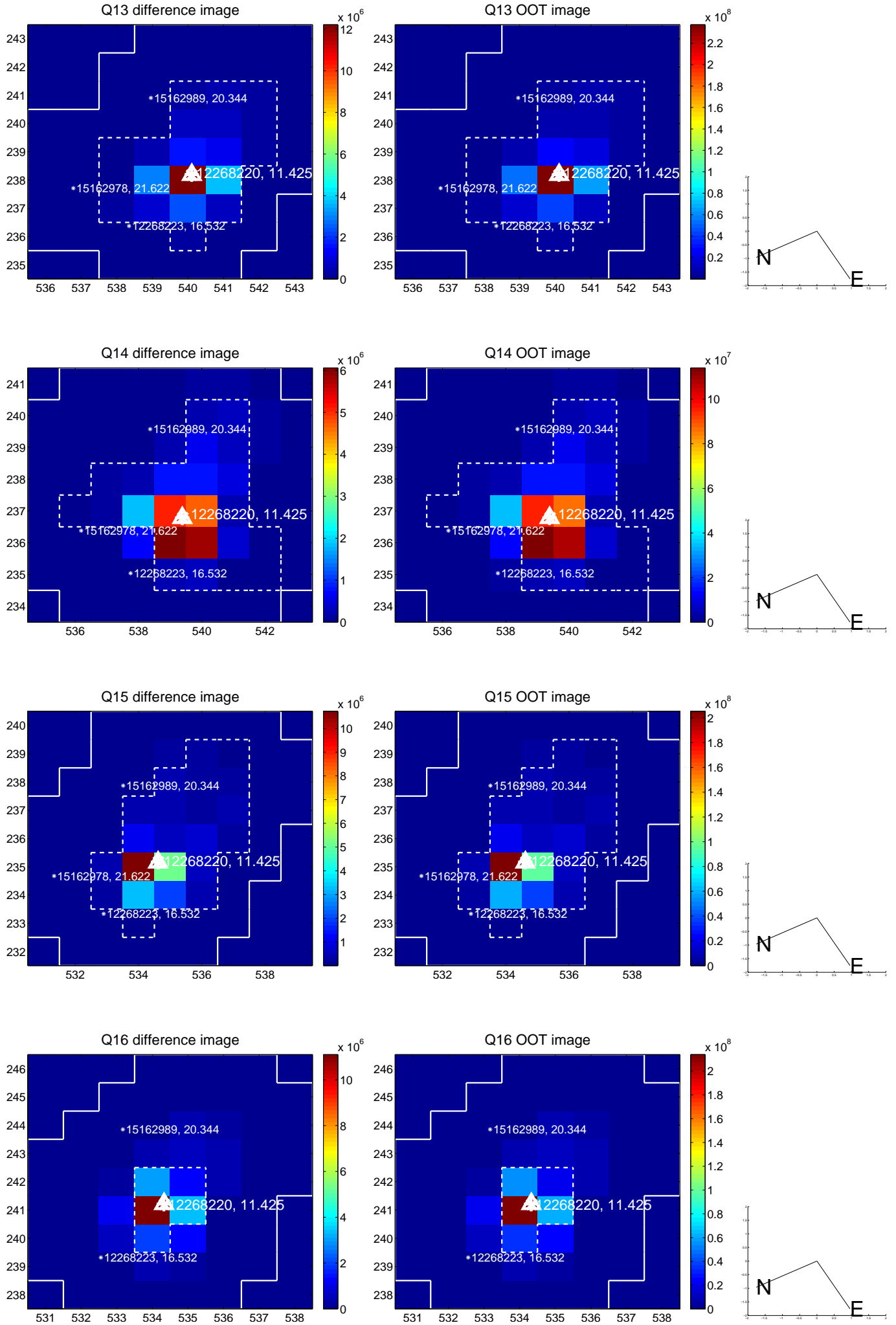
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



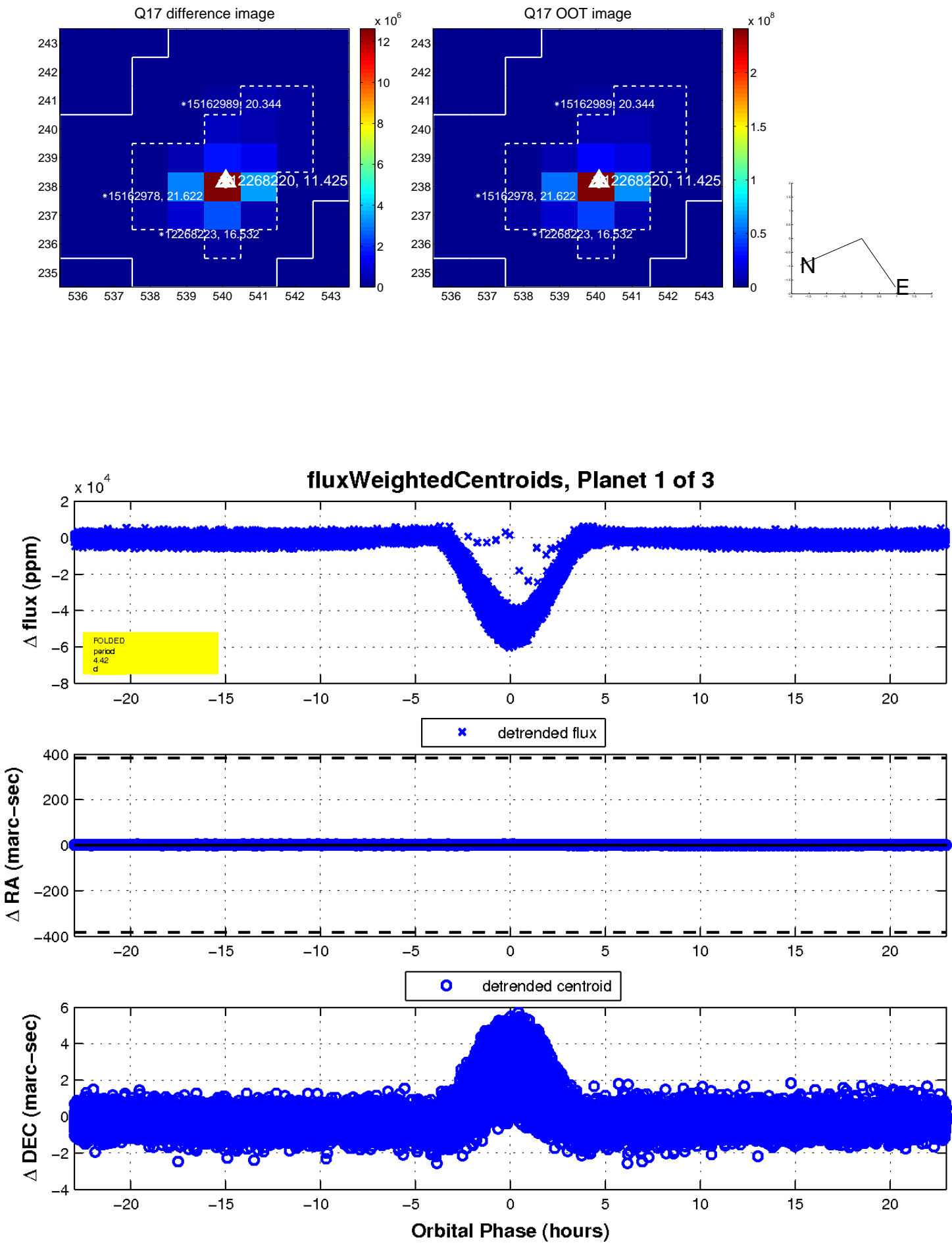
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

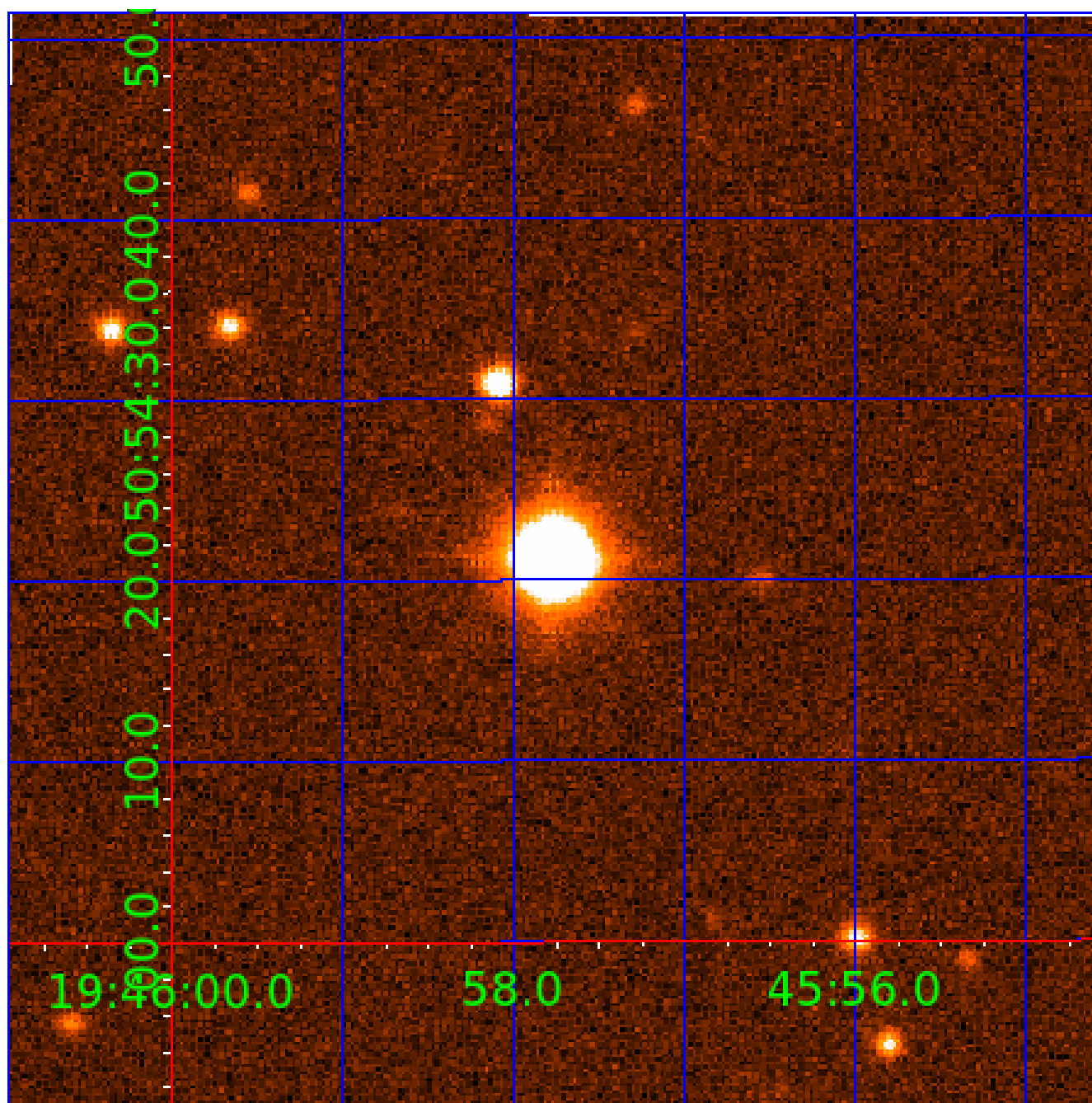


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 012268220

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012268220-01	OBS	7518.01	4.421575	134.396118	51993.3	7.652	1626.9	1429.1	3.46	8026	134.01	10254.69
012268220-02	OBS	No	4.421547	132.190067	1087.4	5.805	73.4	72.7	3.46	8026	12.29	10254.78
012268220-03	OBS	No	376.878304	297.600891	2060.7	17.850	17.3	5.3	3.46	8026	28.34	27.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012268220-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_SATURATED
012268220-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
012268220-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST

**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.

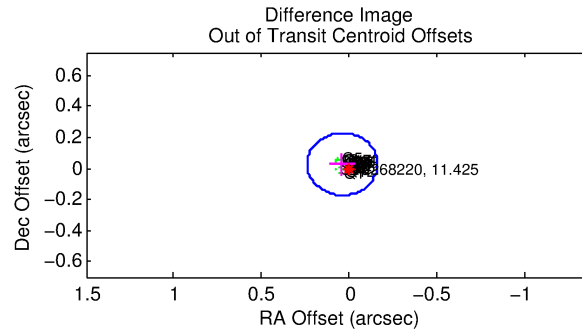
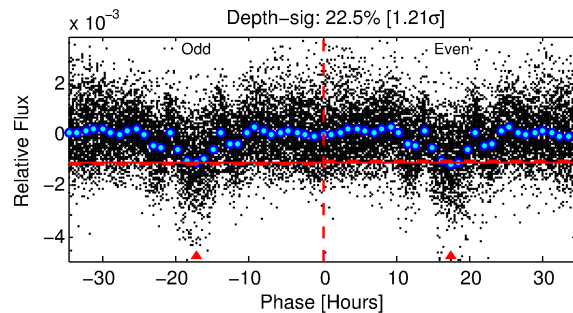
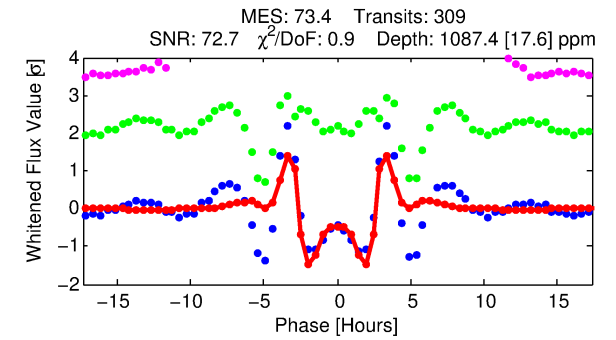
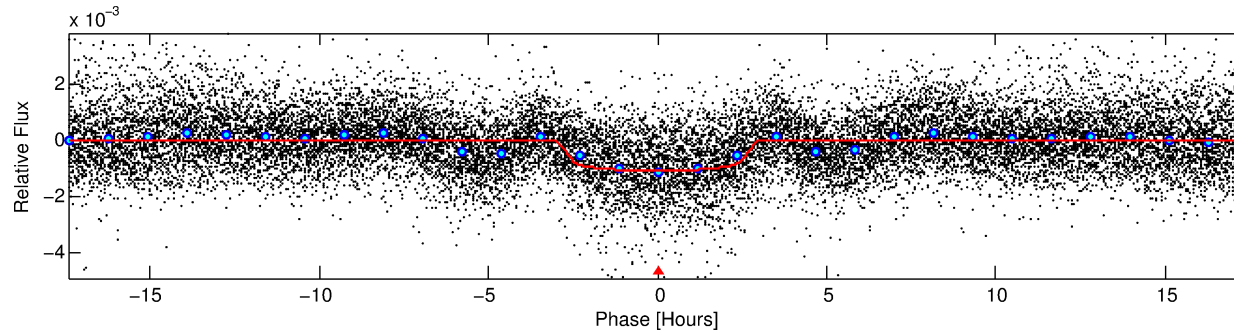
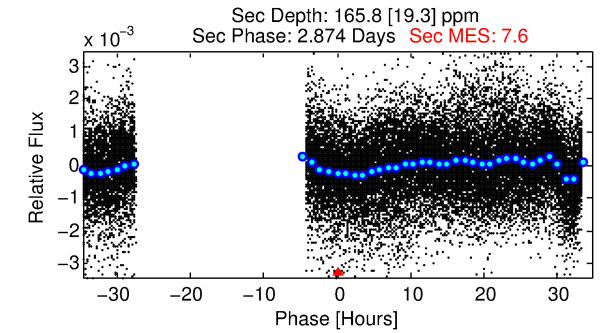
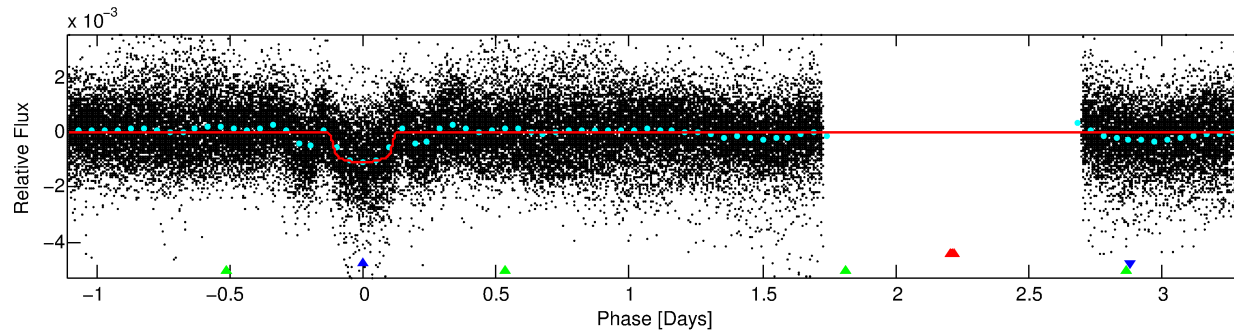
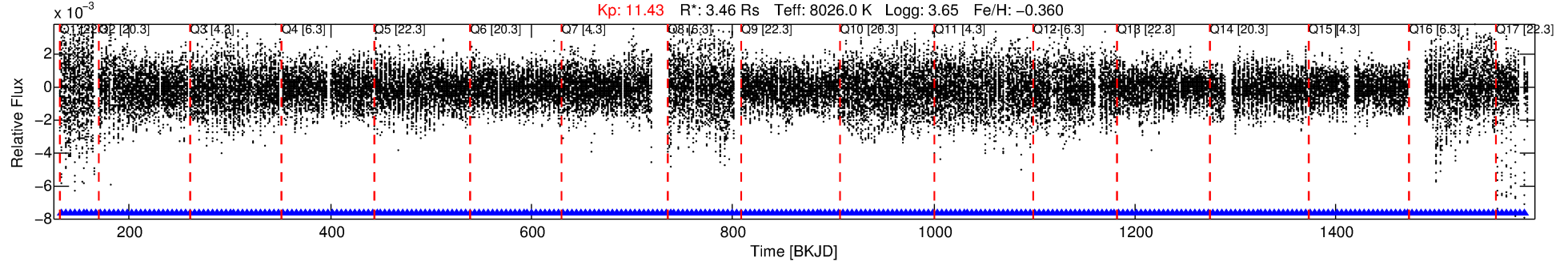
## Ephemeris Match Information For 012268220-02

No Significant Match Found

# DV One-Page Summary

KIC: 12268220 Candidate: 2 of 3 Period: 4.422 d  
KOI: K07518 Corr: No Ephemeris Match

Kp: 11.43 R\*: 3.46 Rs Teff: 8026.0 K Logg: 3.65 Fe/H: -0.360



## DV Fit Results:

Period = 4.42155 [0.00000] d  
Epoch = 132.1901 [0.0005] BKJD  
Rp/R\* = 0.0325 [0.0011]  
a/R\* = 4.39 [0.75]  
b = 0.72 [0.12]  
Seff = 10254.78 [8935.17]  
Teq = 2566 [559] K  
Rp = 12.29 [6.48] Re  
a = 0.0659 [0.0346] AU  
Ag = 2.62 [2.28] [0.71σ]  
Teffp = 5049 [258] K [4.03σ]

## DV Diagnostic Results:

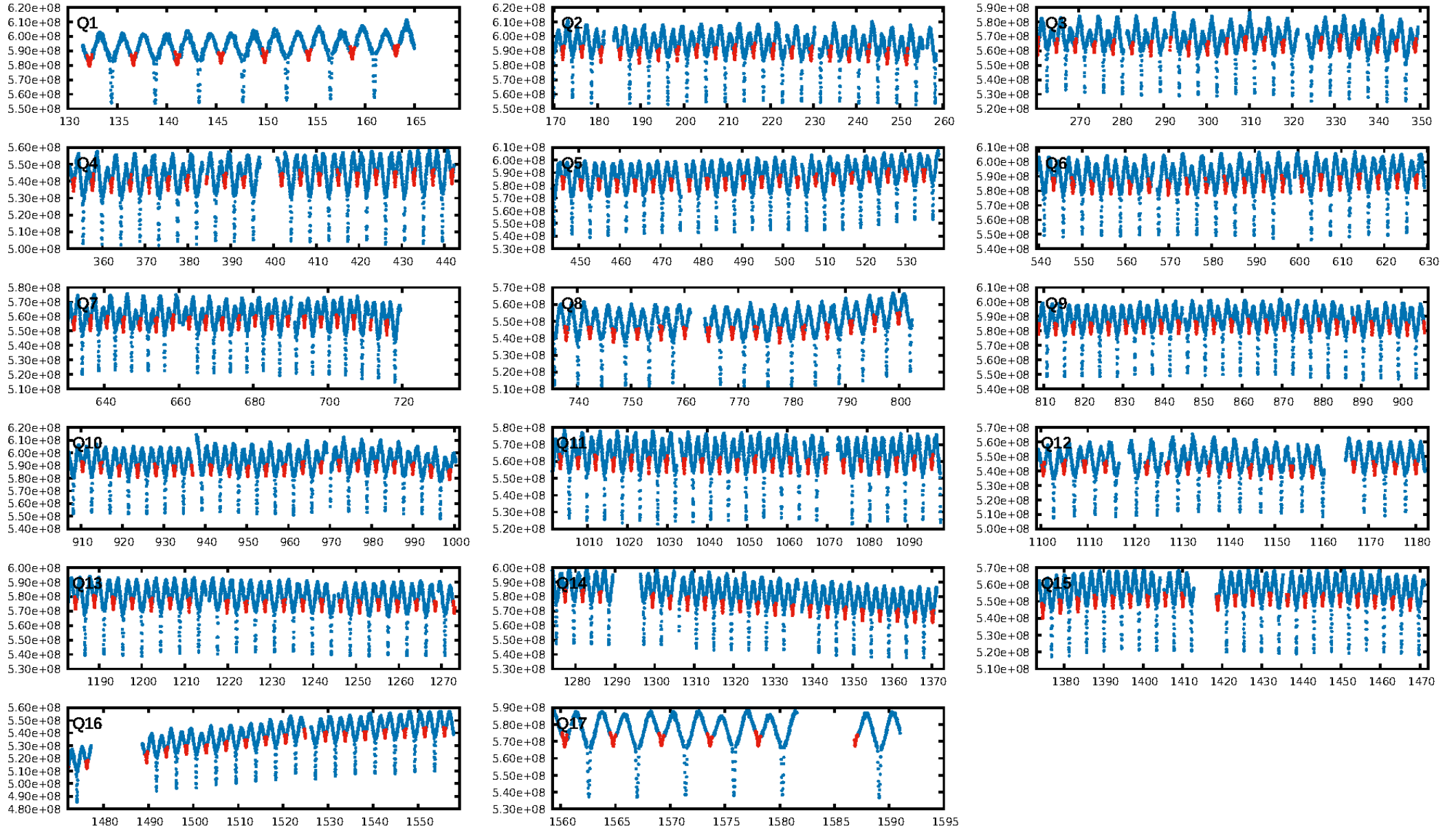
ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [295/295]  
GhostDiagnostic-chr: 0.9763  
Centroid-sig: N/A  
Centroid-so: 0.075 arcsec [2.82σ]  
OotOffset-rm: 0.049 arcsec [0.74σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.055 arcsec [0.81σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:10:37 Z

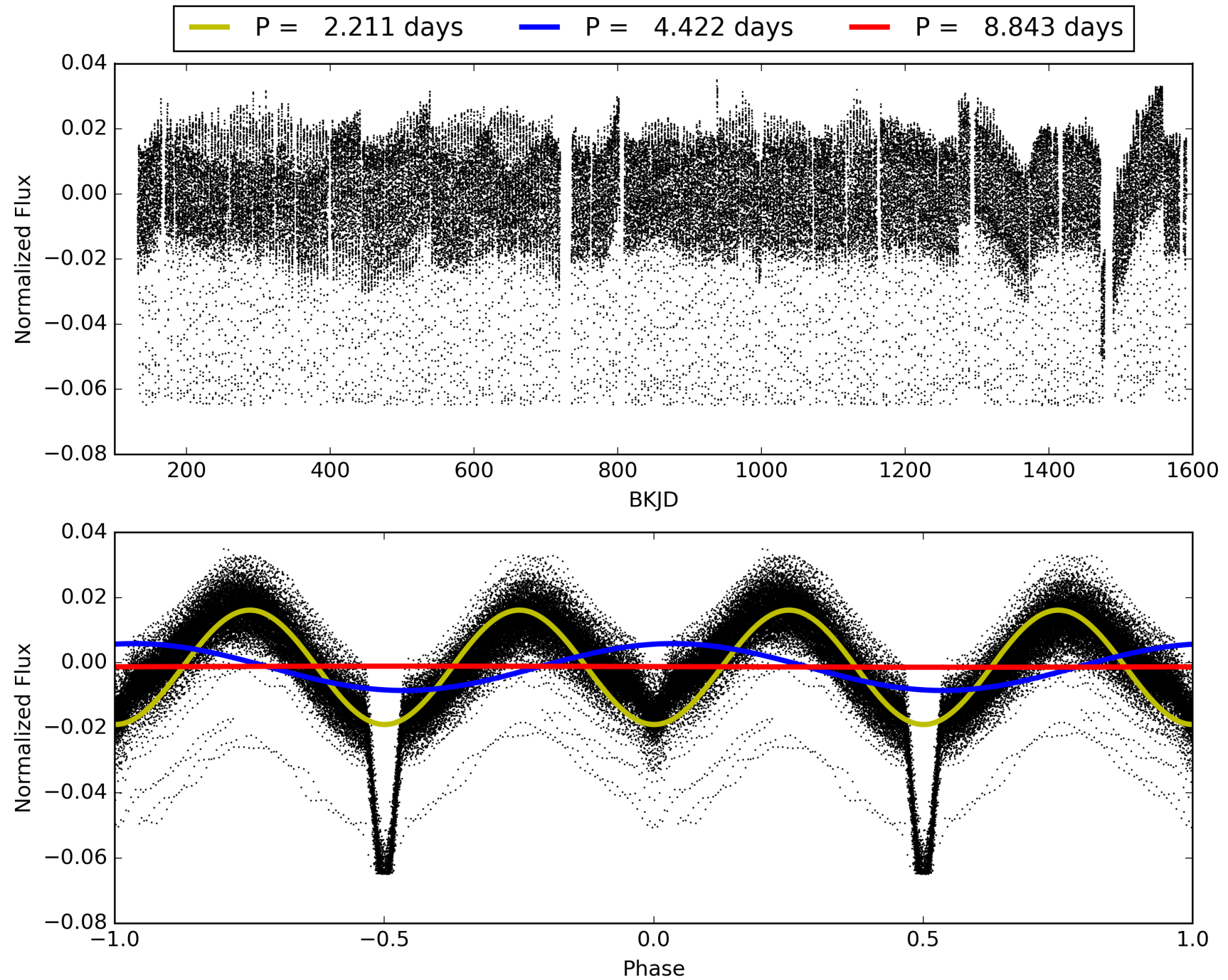
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 012268220-02, PDC Light Curves

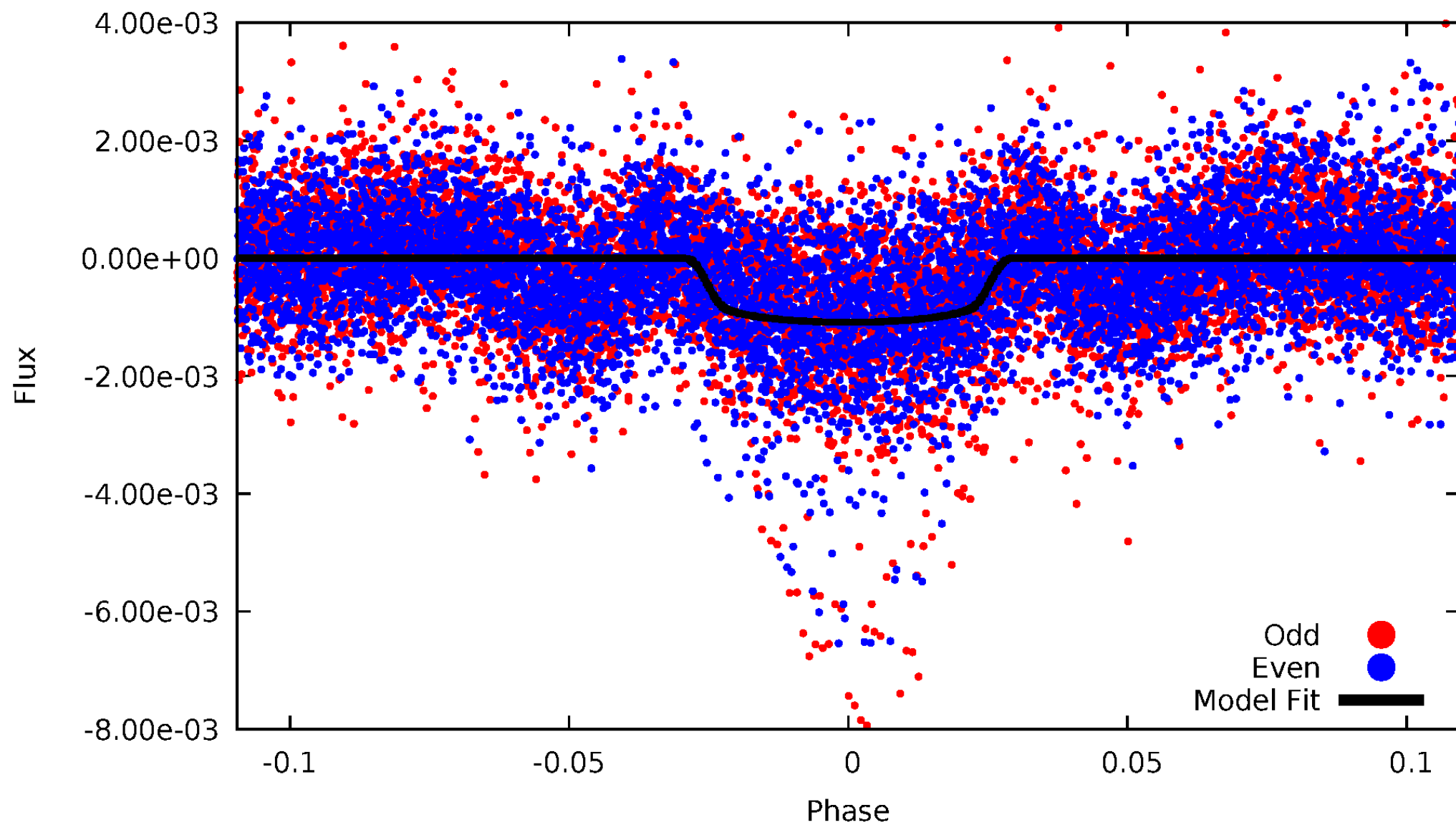


TCE 012268220-02



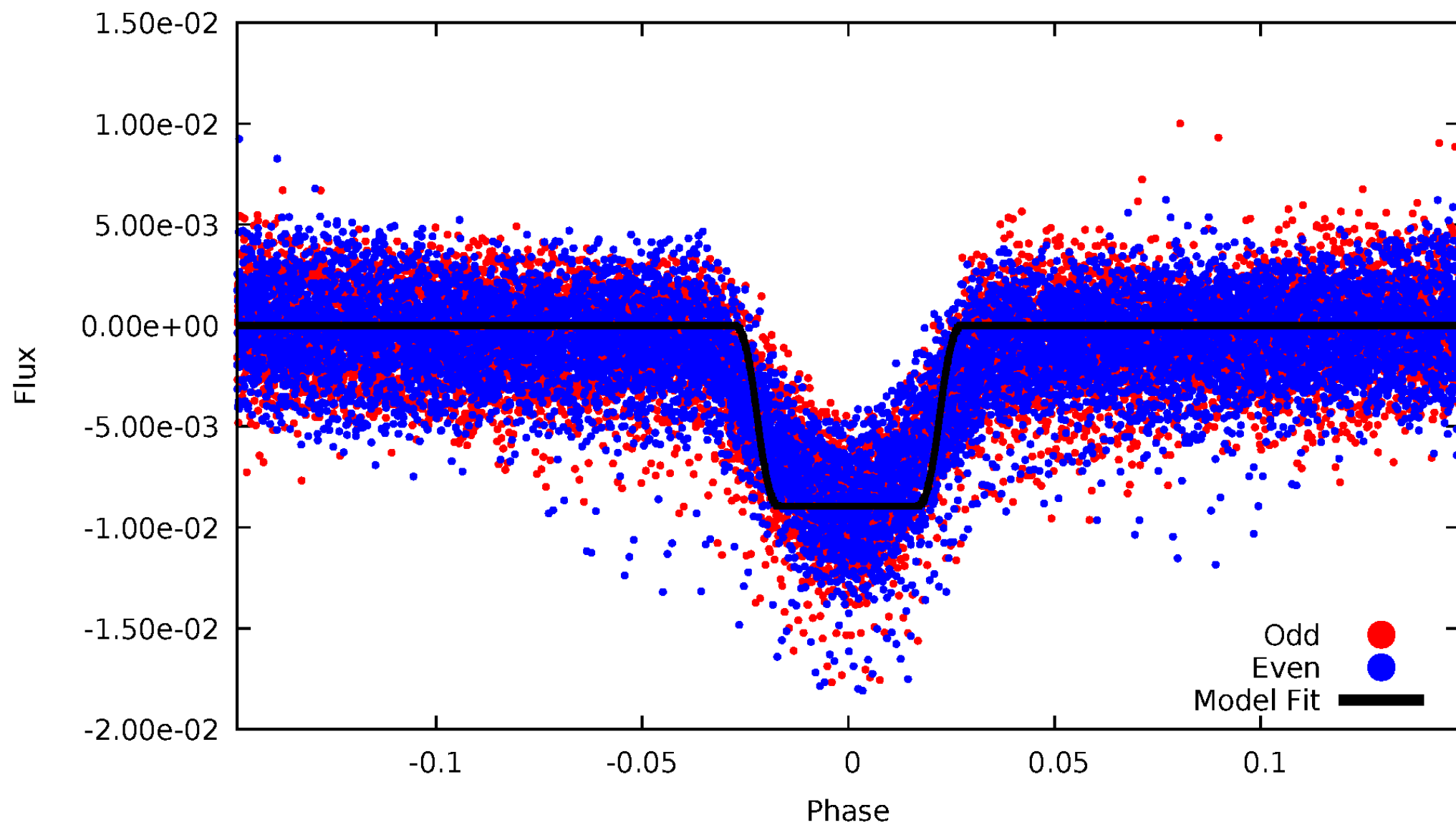
DV Odd/Even

TCE 012268220-02



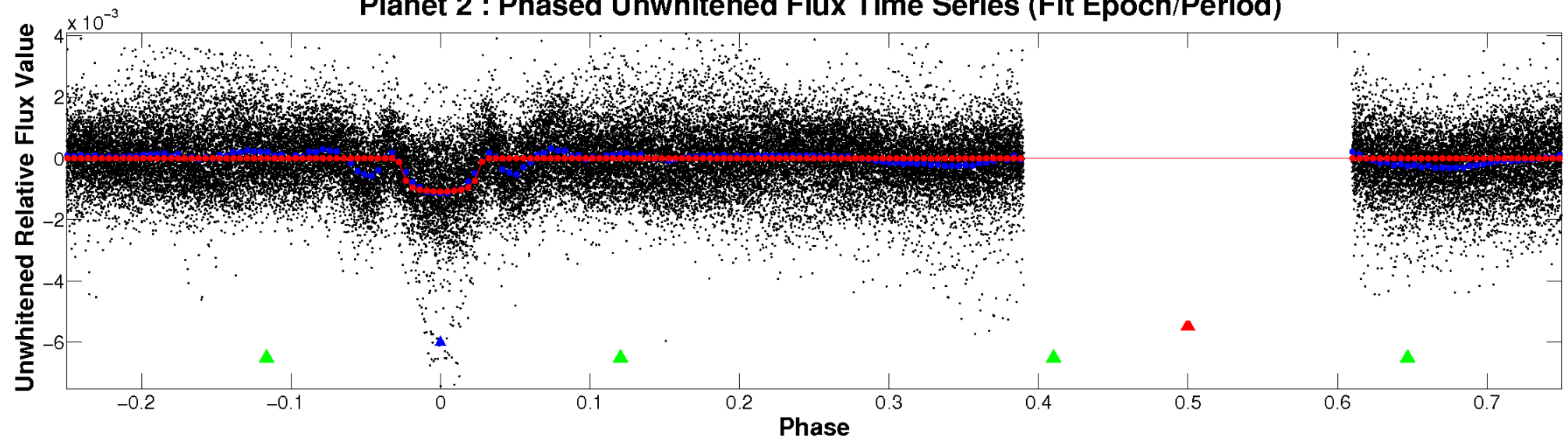
# ALT Odd/Even

TCE 012268220-02

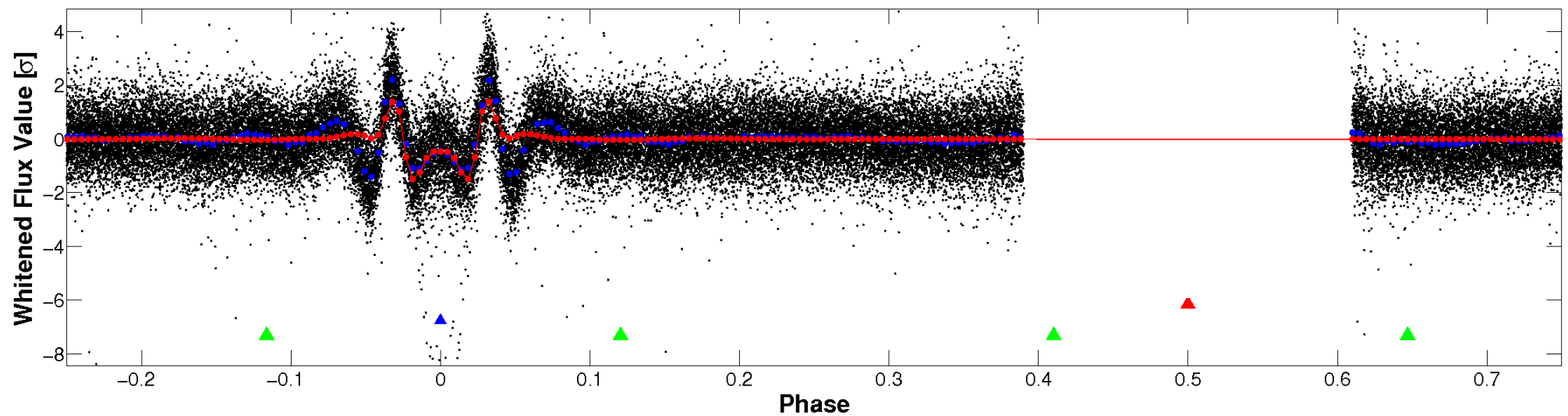


# Non-Whitened Vs. Whitened Light Curve

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



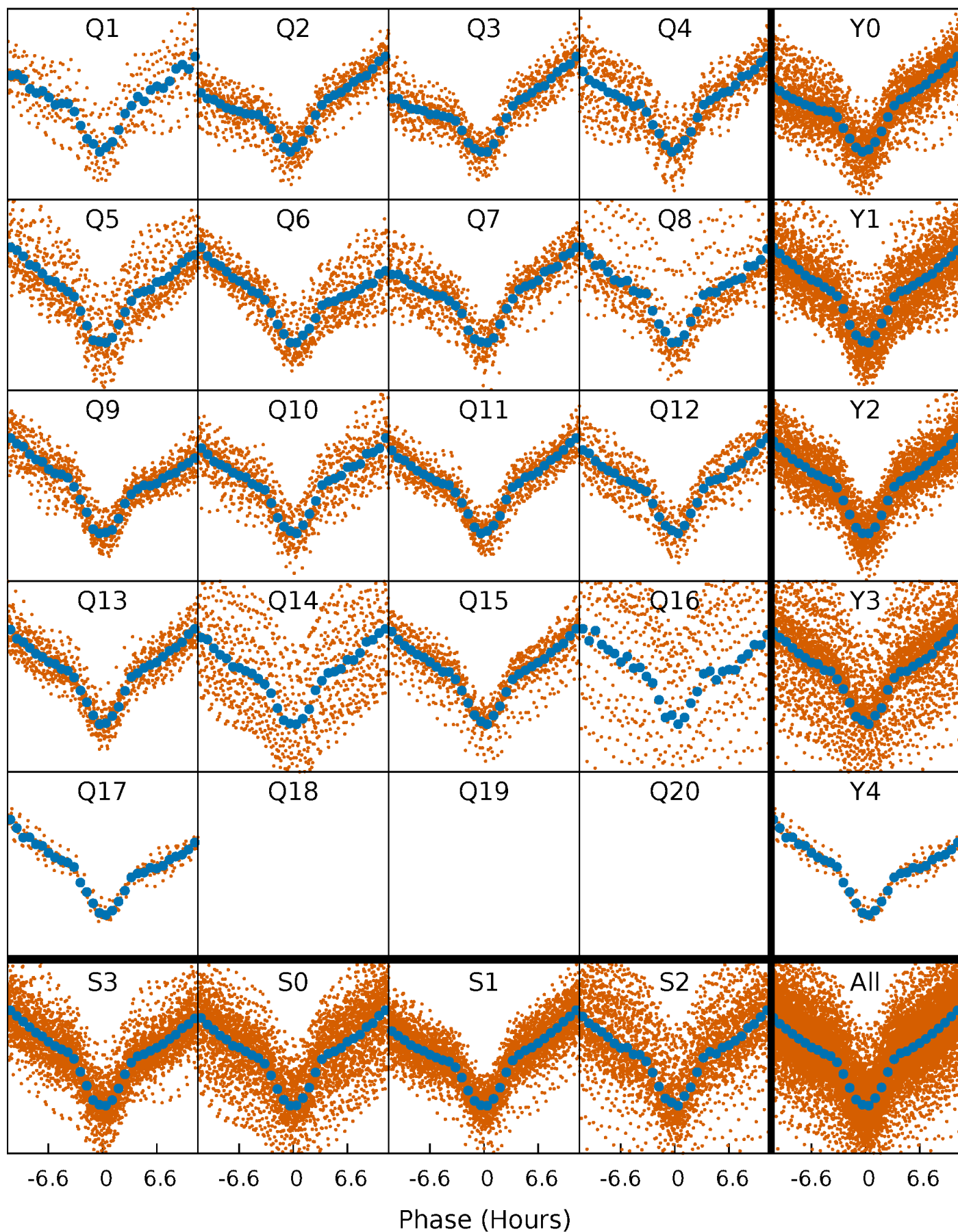
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





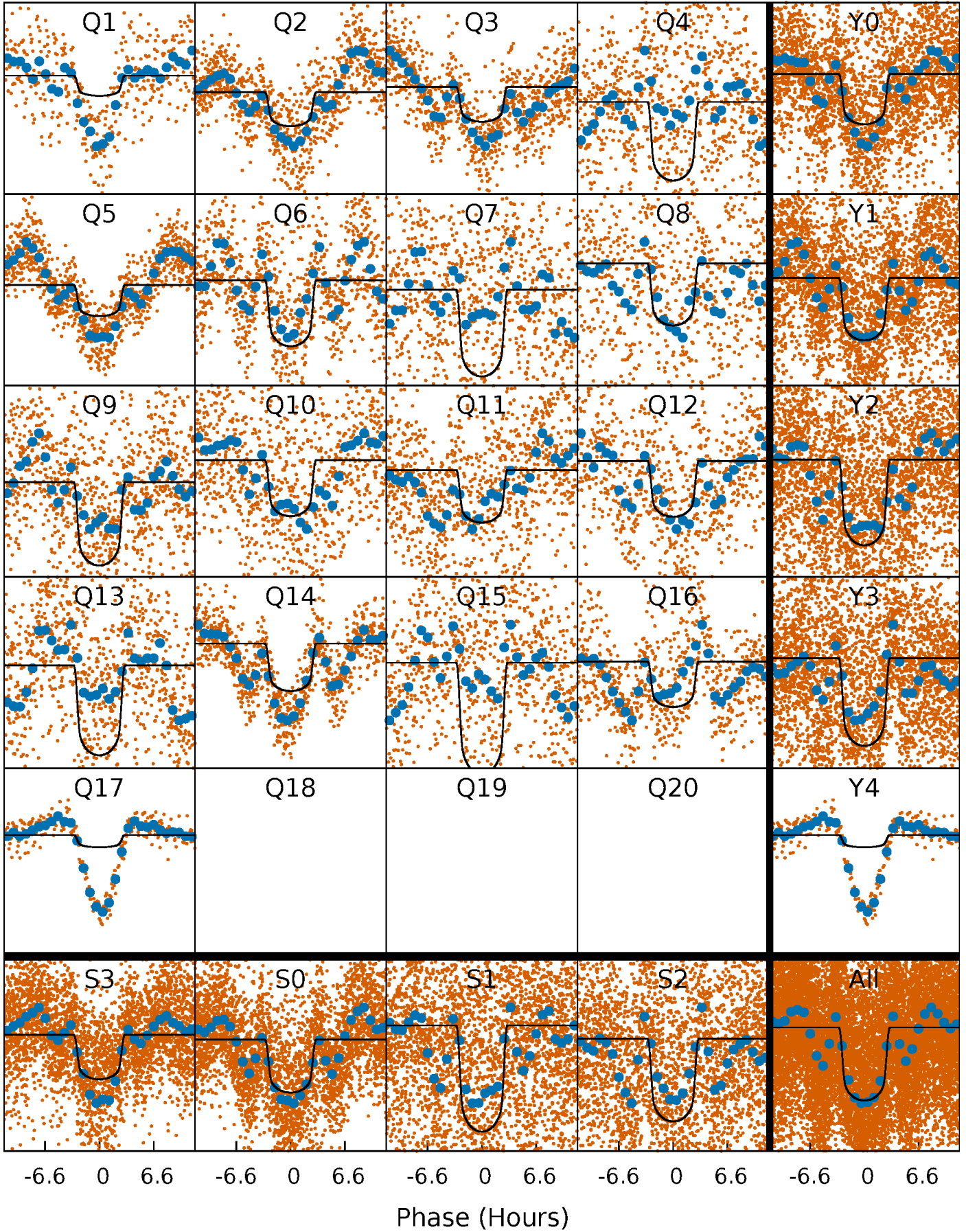
# PDC Quarter-Phased Transit Curves

TCE 012268220-02   P= 4.421547 Days    $T_0=132.190067$  (BKJD)



# DV Quarter-Phased Transit Curves

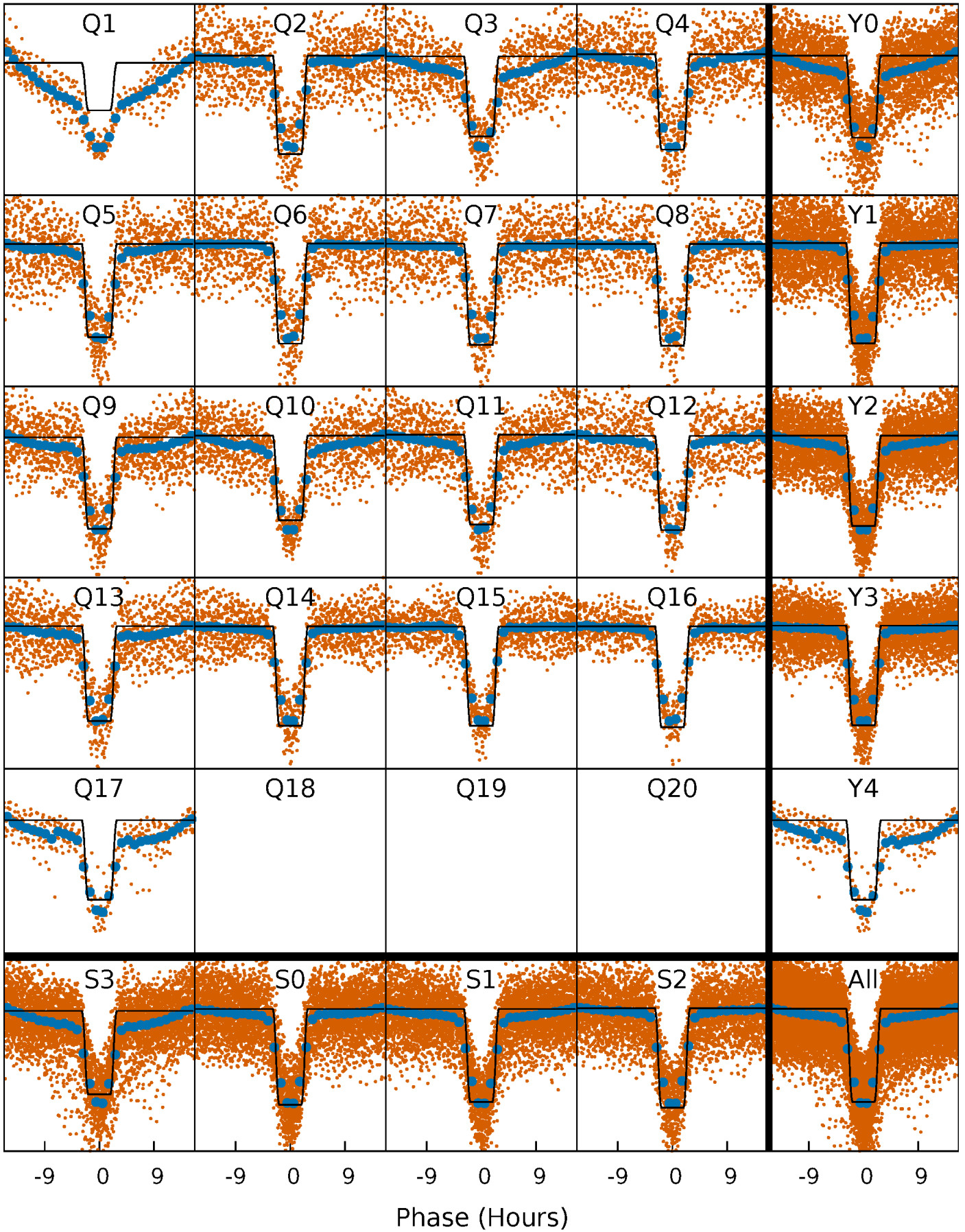
TCE 012268220-02 P= 4.421547 Days  $T_0=132.190067$  (BKJD)





## Alt. Detrend Quarter-Phased Transit Curves

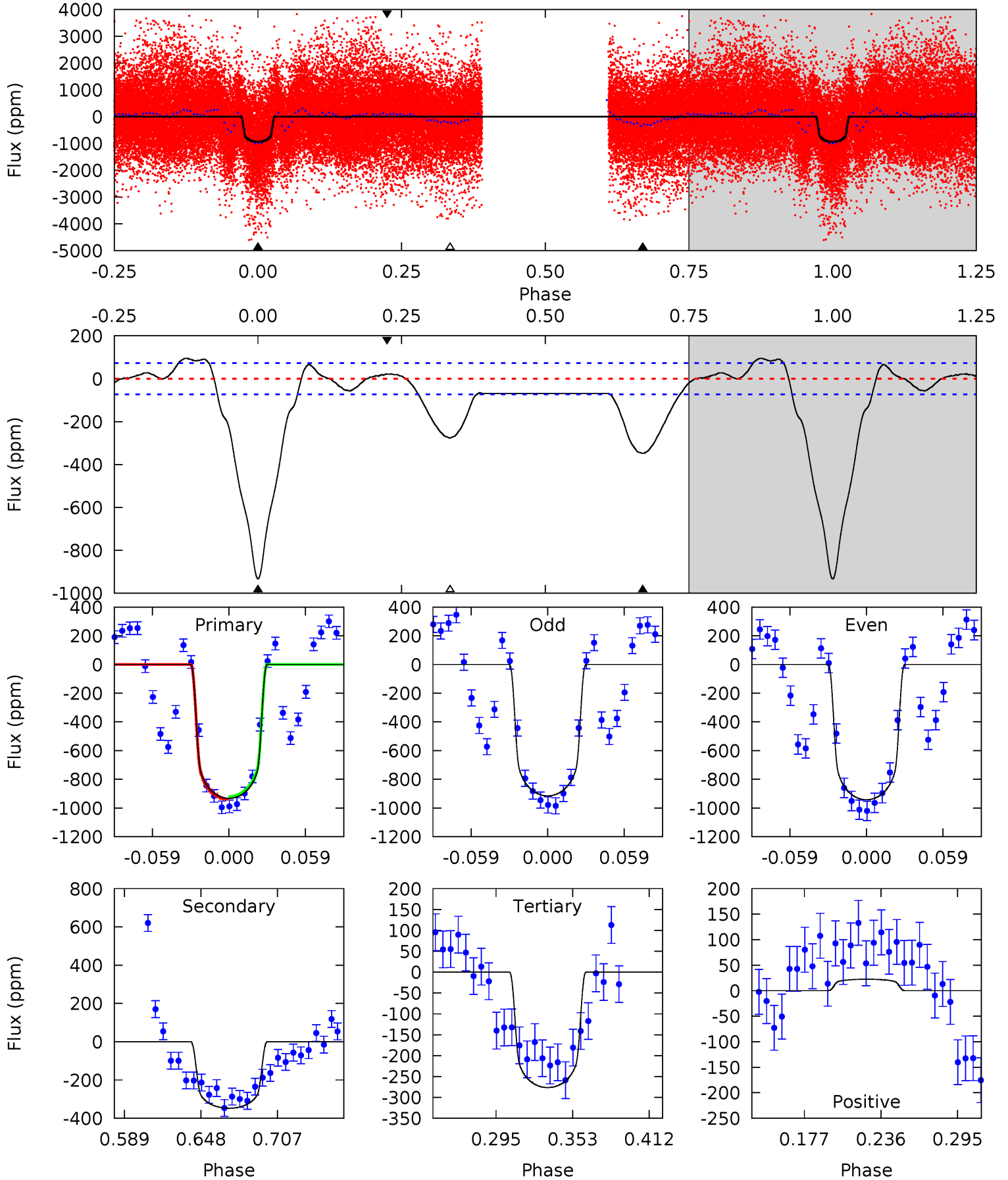
TCE 012268220-02   P= 4.421576 Days    $T_0=132.185288$  (BKJD)



# DV Model-Shift Uniqueness Test

012268220-02, P = 4.421547 Days, E = 127.768520 Days

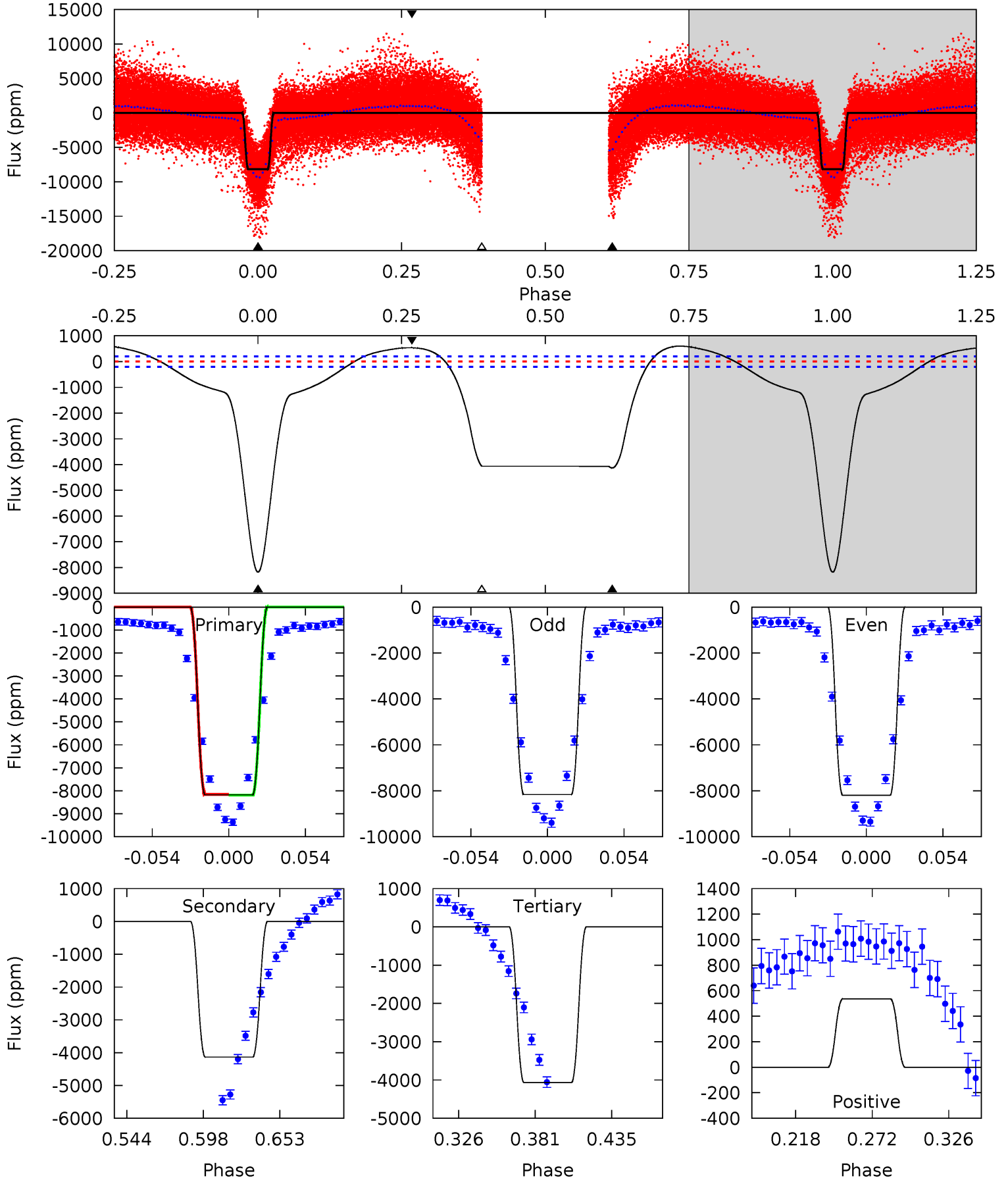
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
60.0	22.4	17.8	1.44	4.67	1.89	6.08	42.2	58.5	4.57	20.9	0.87	1.13	0.09	0.53



# Alt Model-Shift Uniqueness Test

012268220-02, P = 4.421576 Days, E = 127.763712 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
188.1	95.1	93.5	12.3	4.69	1.92	20.3	94.6	175.8	1.56	82.8	0.31	1.04	0.07	0.41



### Stellar Parameters For KIC 012268220

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8026^{+251}_{-306}$	$3.650^{+0.510}_{-0.090}$	$-0.360^{+0.200}_{-0.300}$	$3.461^{+0.607}_{-1.821}$	$1.950^{+0.238}_{-0.510}$	$0.066^{+0.401}_{-0.020}$
	+3%/-4%	+14%/-2%	+56%/-83%	+18%/-53%	+12%/-26%	+605%/-30%
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 012268220-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-348 \pm 16$	$11.70^{+1.62}_{-3.43}$	$3447^{+283}_{-453}$	$5852^{+198}_{-209}$	$6.121^{+5.123}_{-1.305}$
Alt.	$-4134 \pm 43$	$34.67^{+4.04}_{-9.08}$	$3477^{+256}_{-440}$	$6398^{+174}_{-204}$	$8.316^{+6.247}_{-1.494}$

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

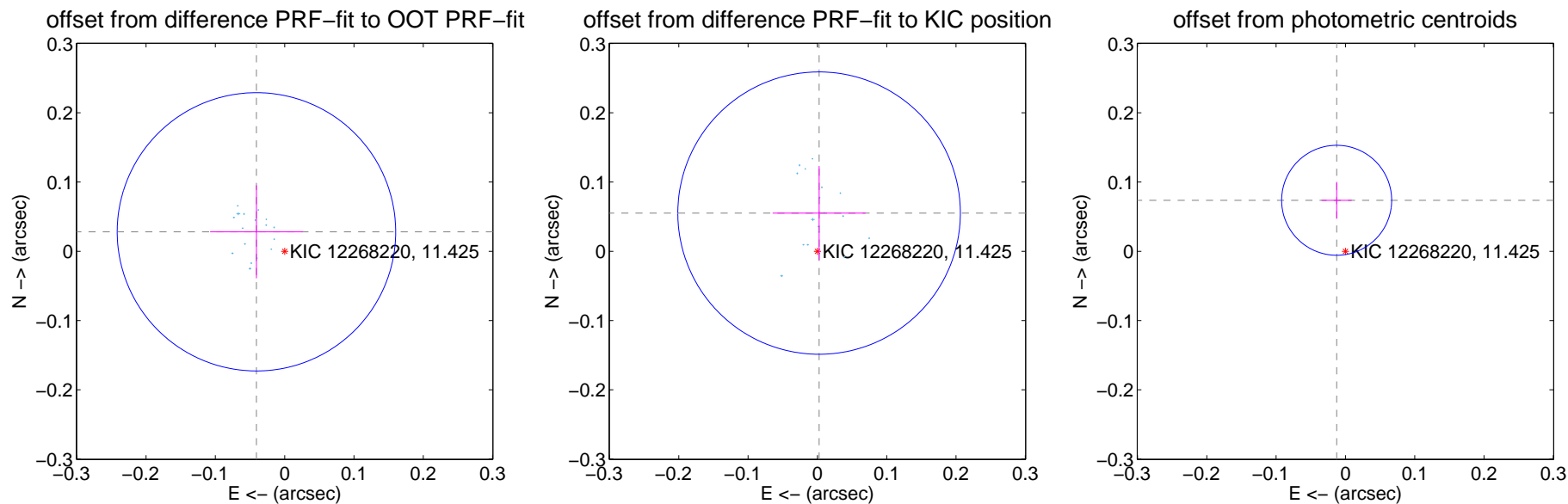
## DV Centroid Data

Supplemental centroid analysis for 012268220-02. **Kepler magnitude: 11.43.** Transit SNR 72.68

There are 17 quarters with good PRF difference image offsets

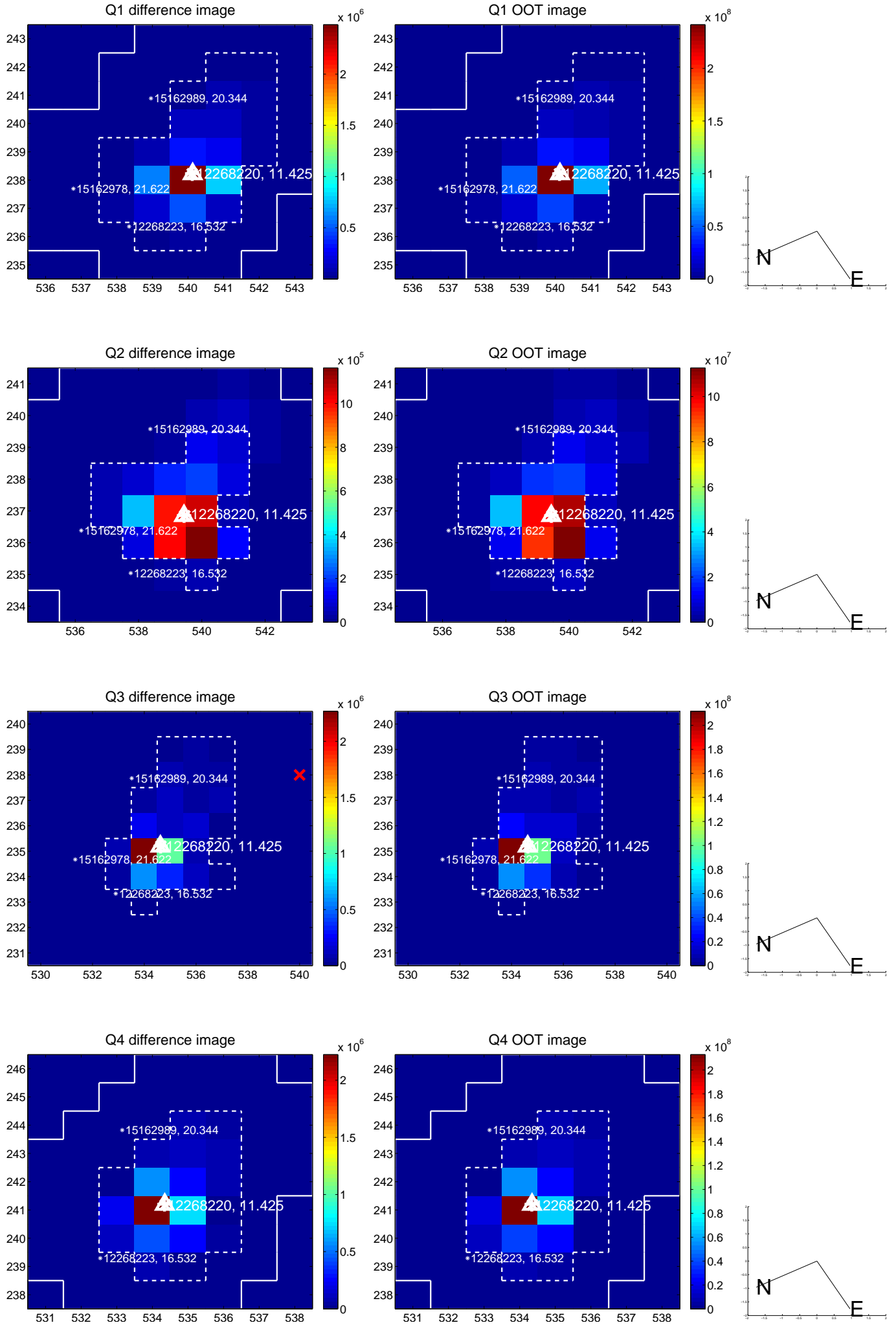
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.049 \pm 0.067$	0.74	$0.041 \pm 0.067$	$0.028 \pm 0.067$
PRF-fit source offset from KIC position	$0.055 \pm 0.068$	0.81	$-0.002 \pm 0.067$	$0.055 \pm 0.068$
photometric centroid source offset	$0.07 \pm 0.03$	2.82	$0.01 \pm 0.02$	$0.07 \pm 0.03$

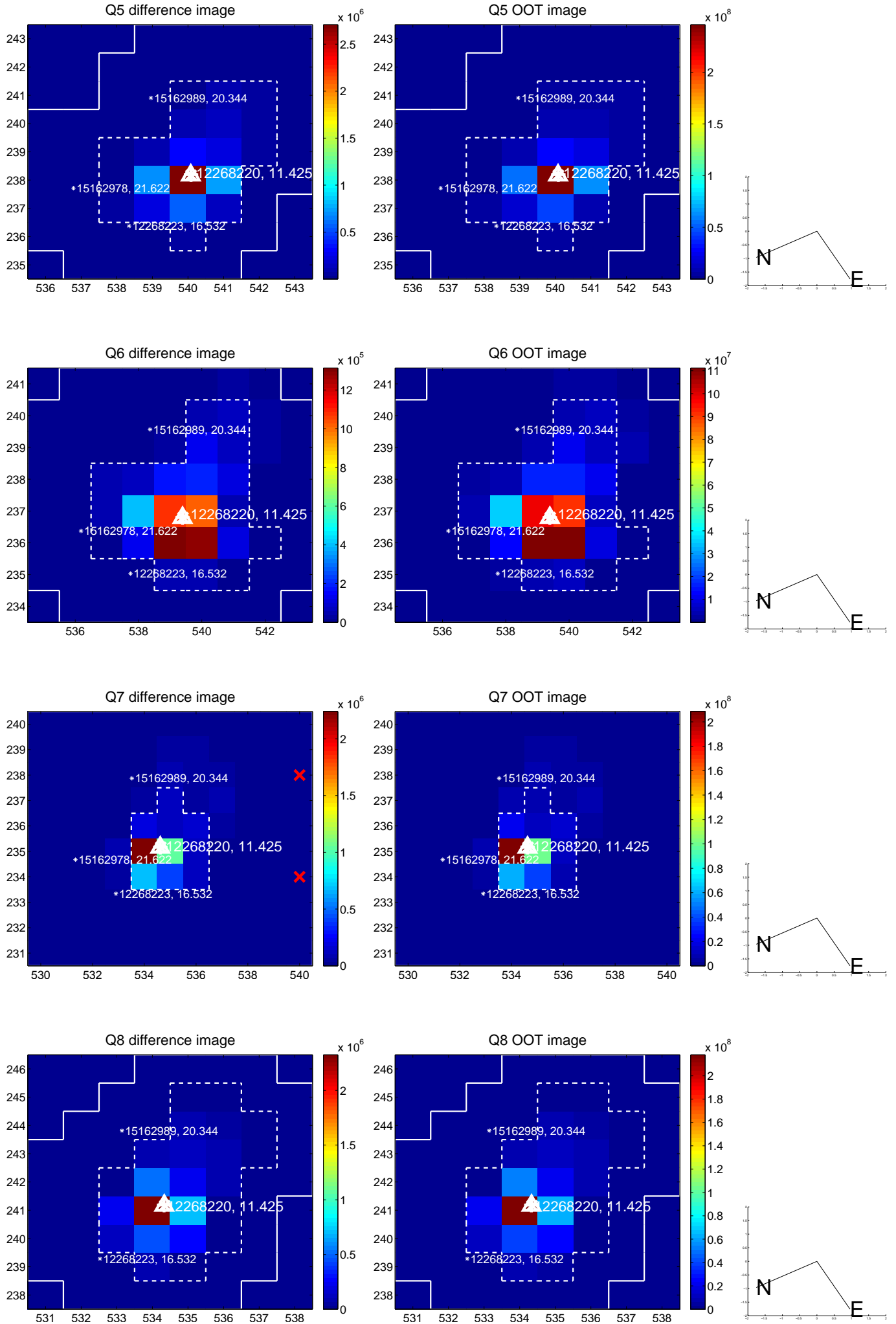


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

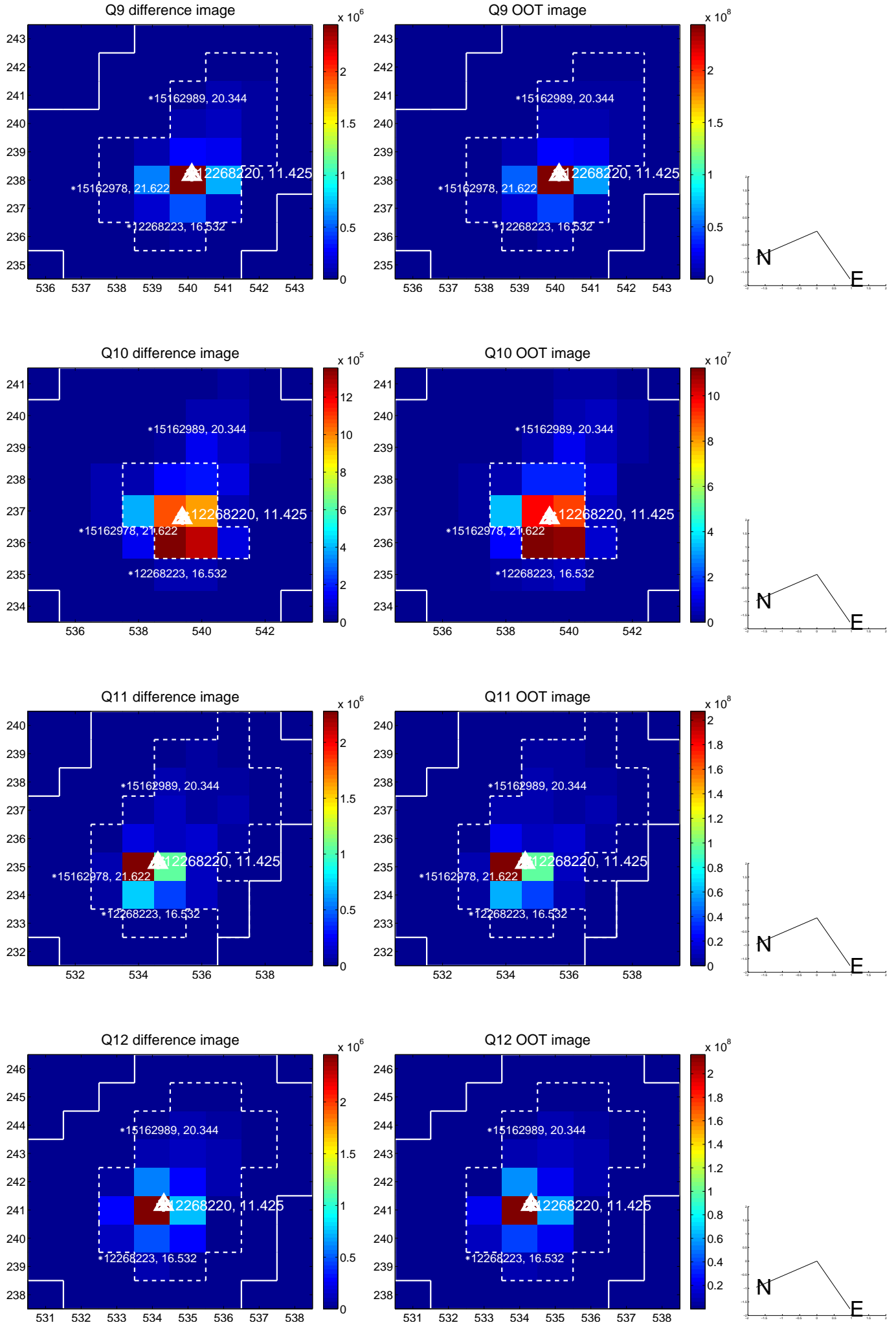


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

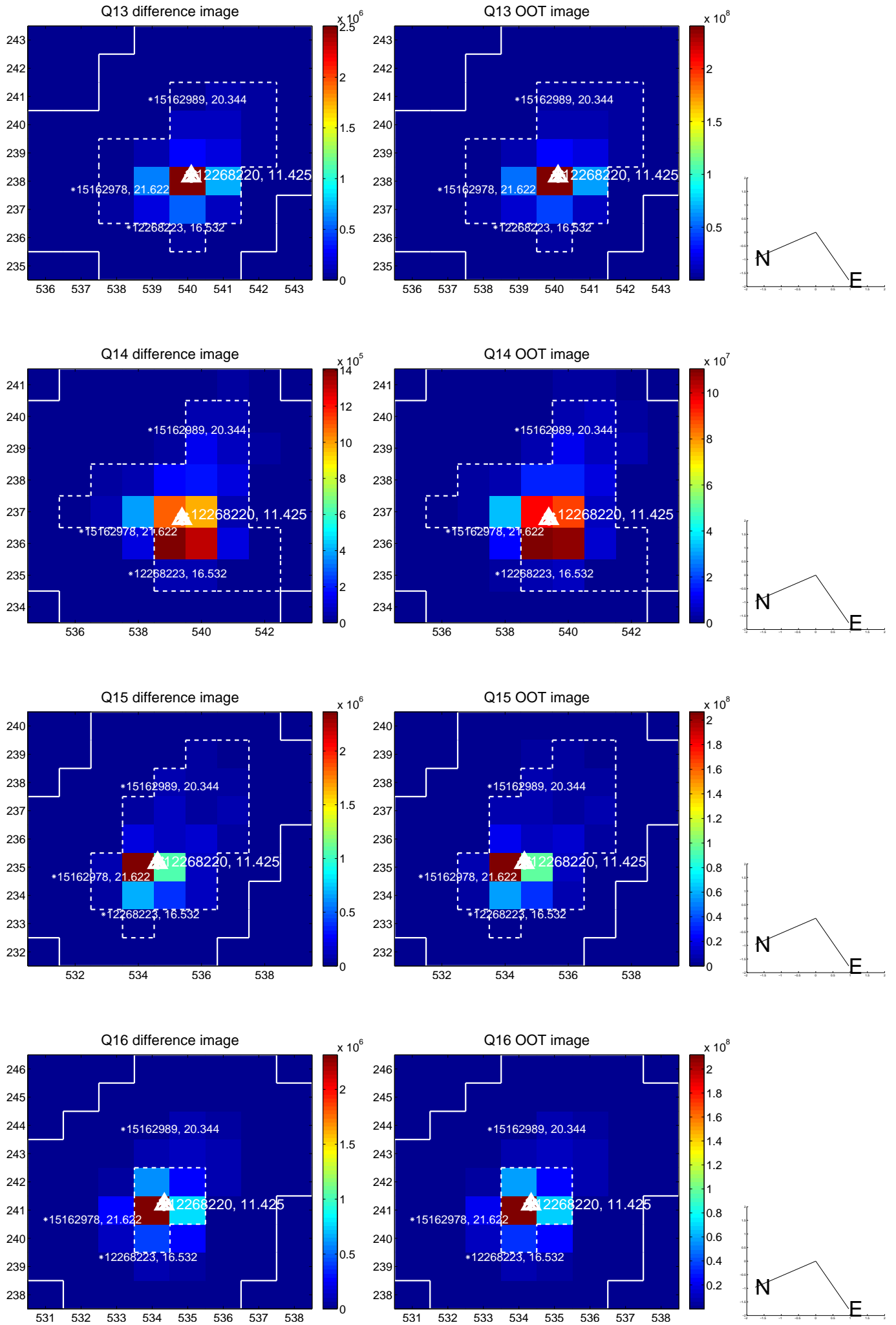




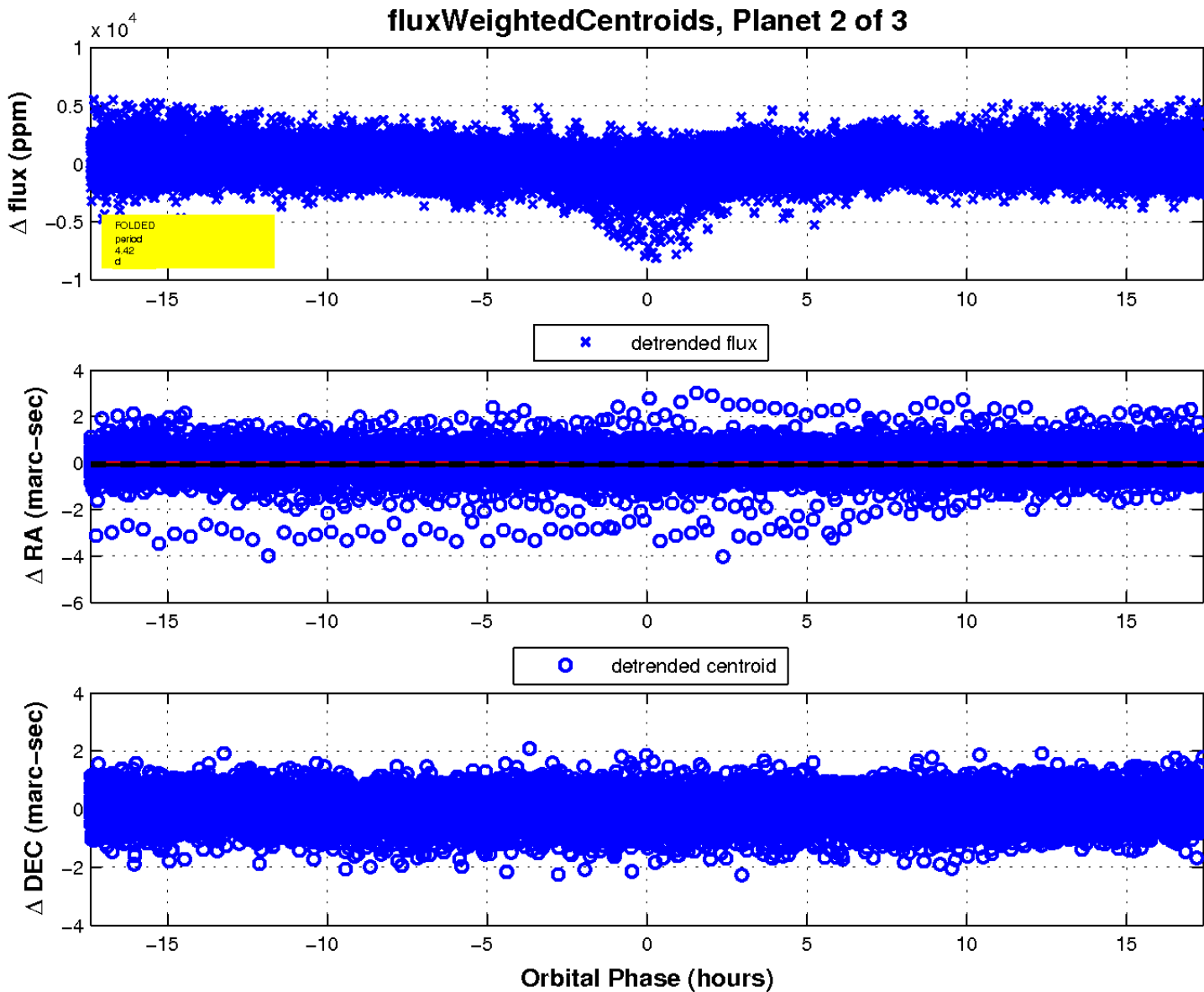
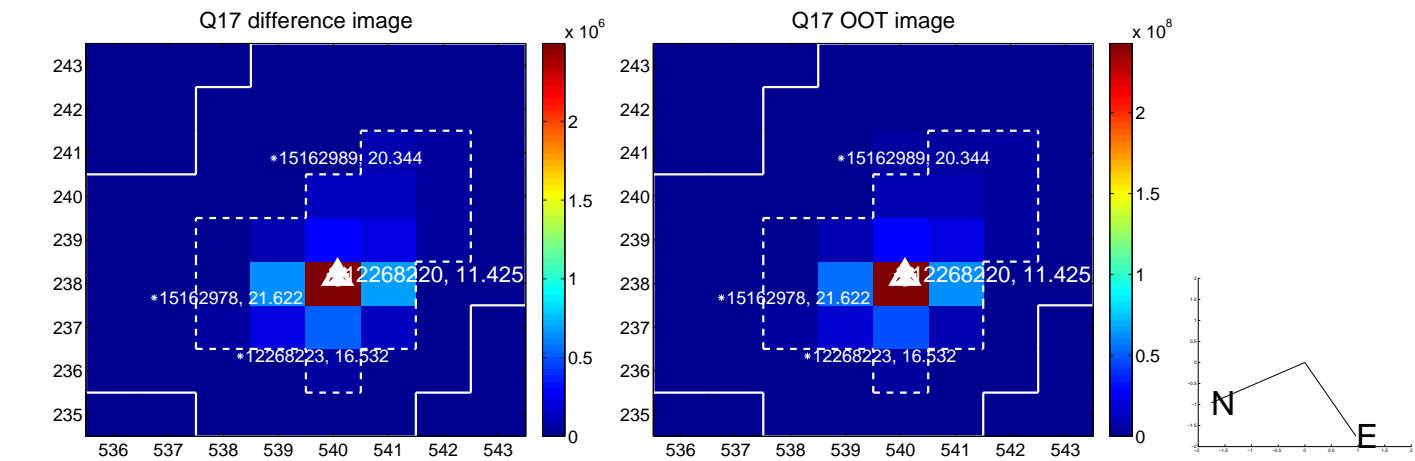
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

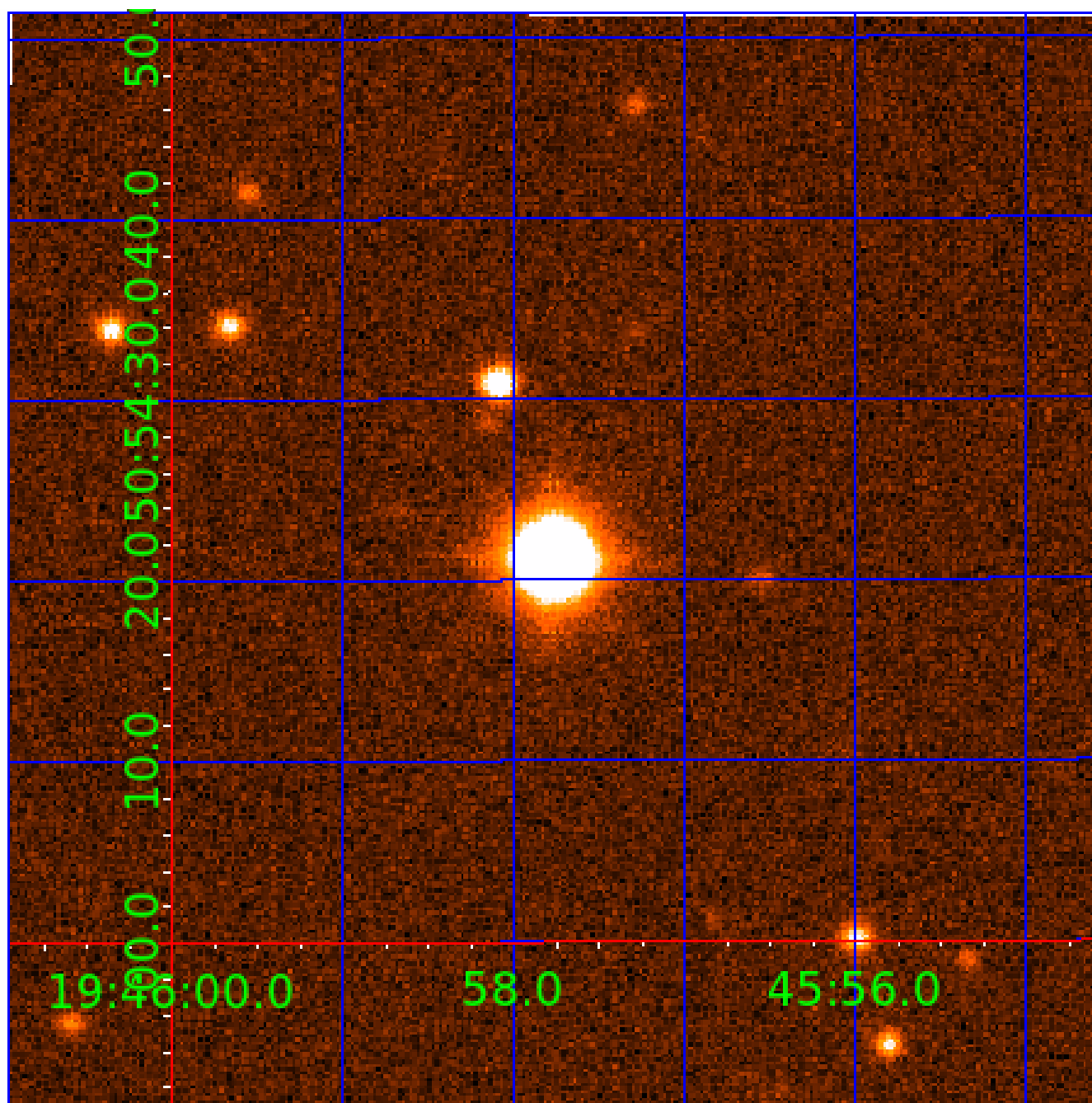


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 012268220

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012268220-01	OBS	7518.01	4.421575	134.396118	51993.3	7.652	1626.9	1429.1	3.46	8026	134.01	10254.69
012268220-02	OBS	No	4.421547	132.190067	1087.4	5.805	73.4	72.7	3.46	8026	12.29	10254.78
012268220-03	OBS	No	376.878304	297.600891	2060.7	17.850	17.3	5.3	3.46	8026	28.34	27.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012268220-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_SATURATED
012268220-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
012268220-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST

**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.

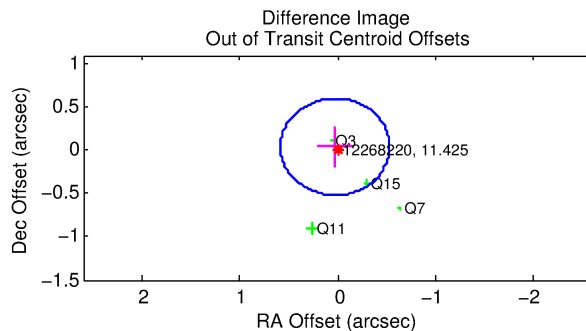
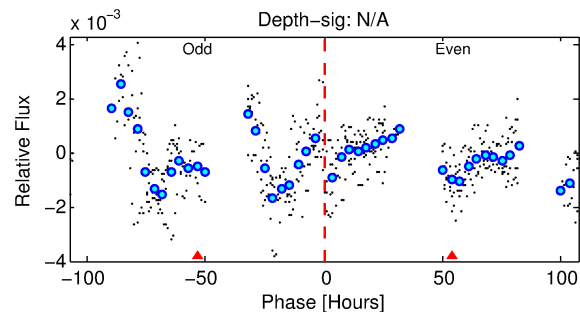
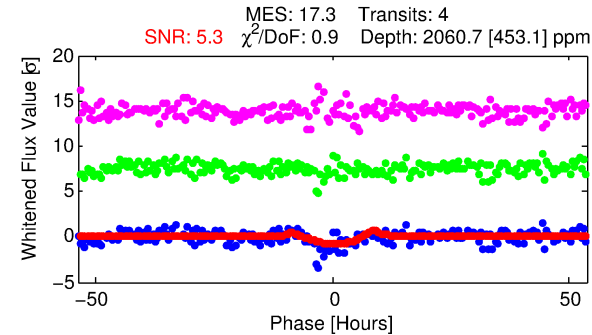
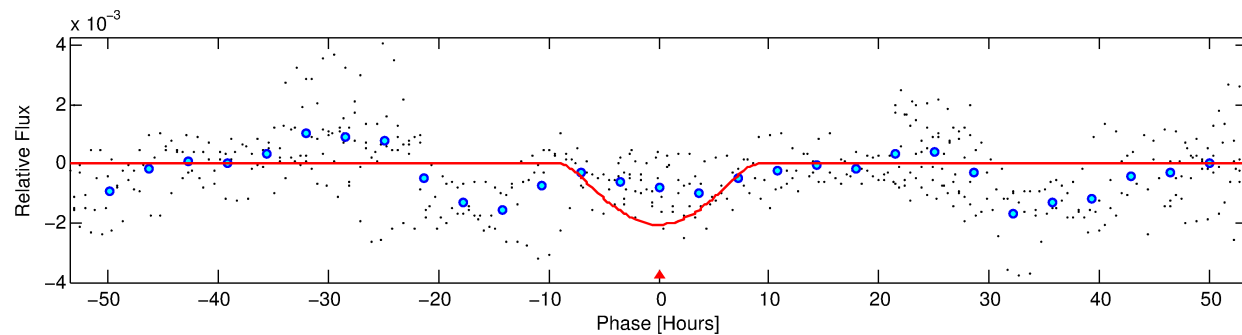
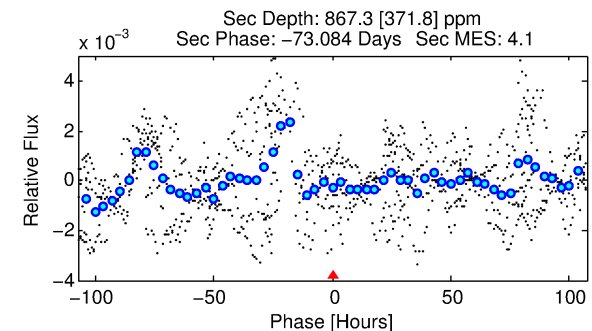
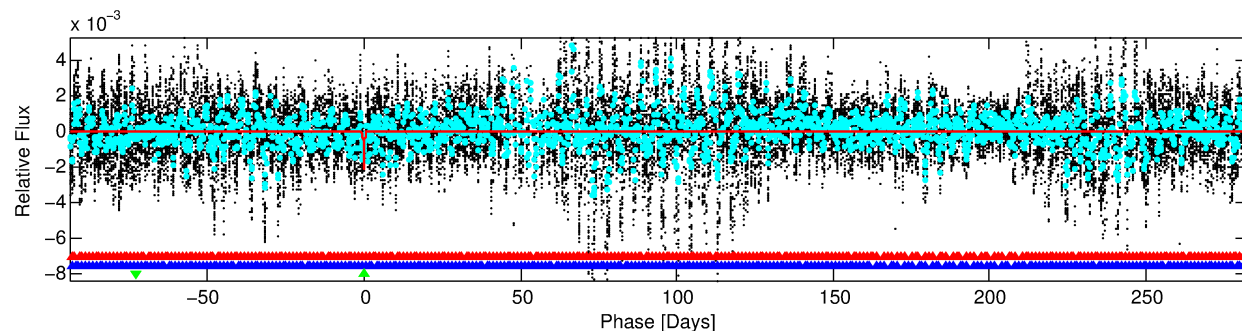
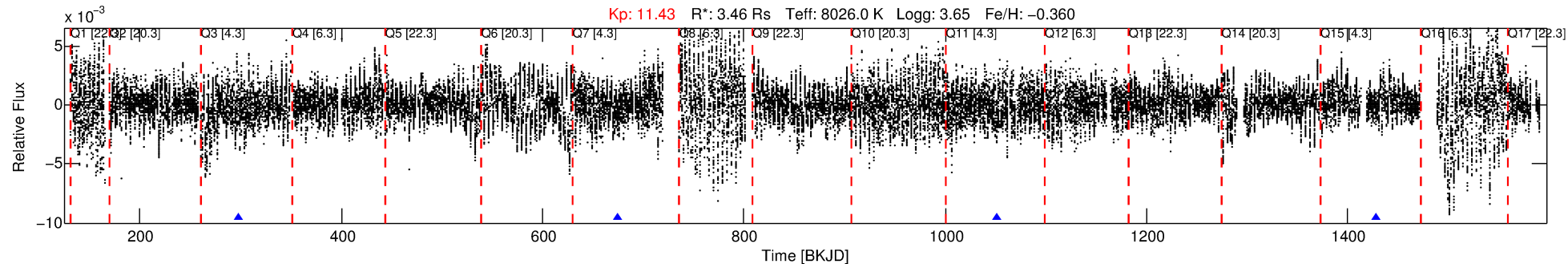
## Ephemeris Match Information For 012268220-03

No Significant Match Found

# DV One-Page Summary

KIC: 12268220 Candidate: 3 of 3 Period: 376.878 d  
KOI: K07518 Corr: No Ephemeris Match

Kp: 11.43 R\*: 3.46 Rs Teff: 8026.0 K Logg: 3.65 Fe/H: -0.360



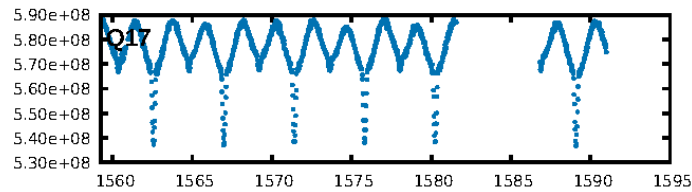
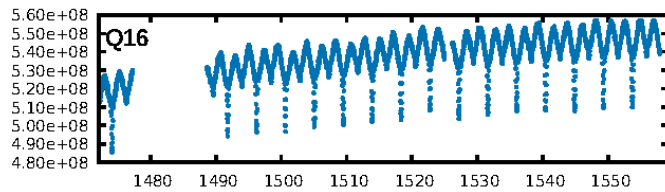
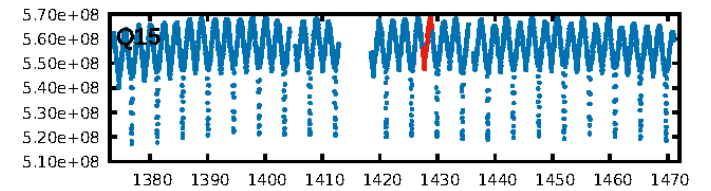
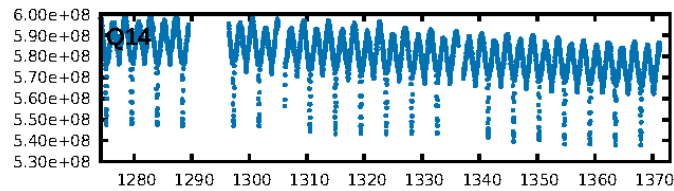
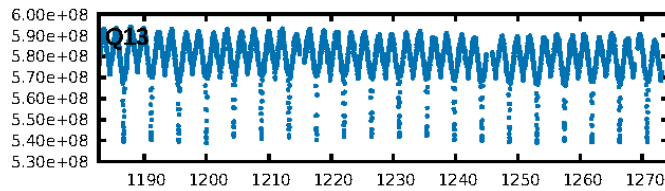
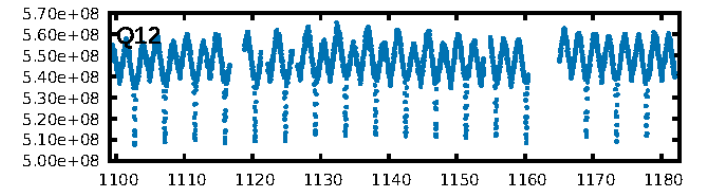
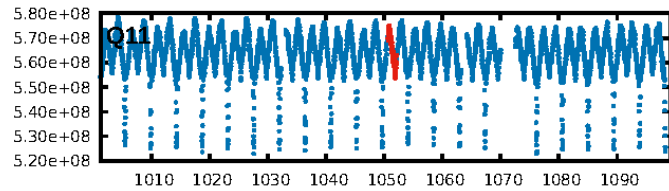
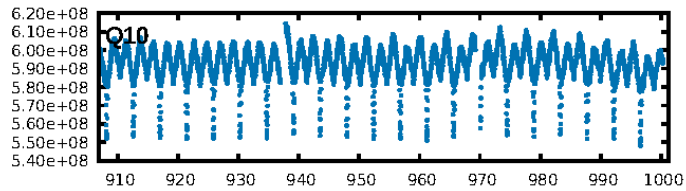
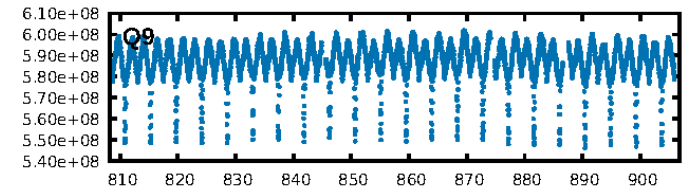
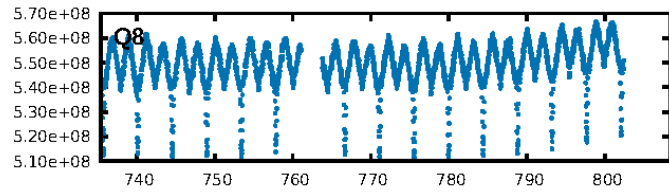
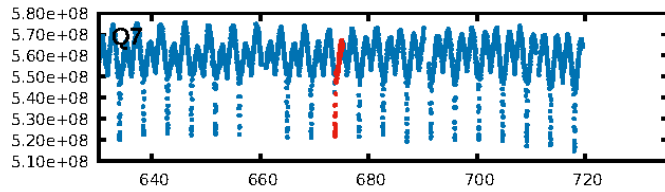
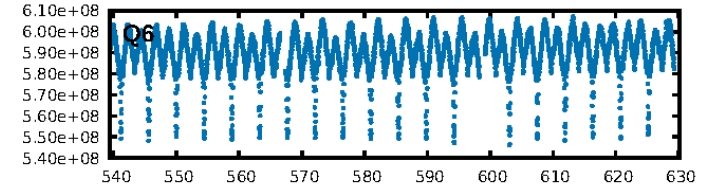
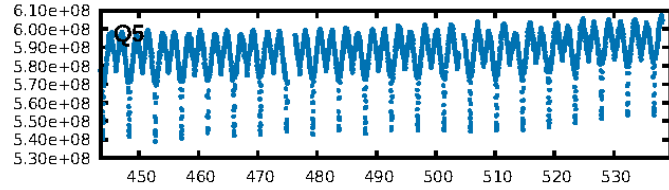
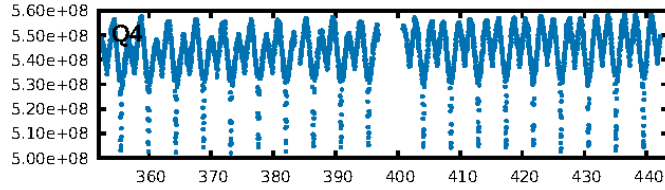
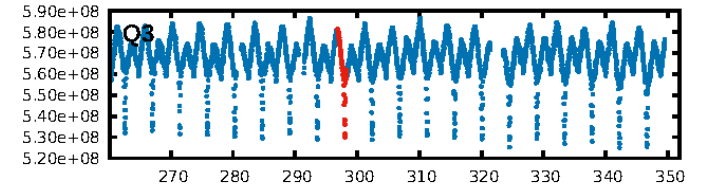
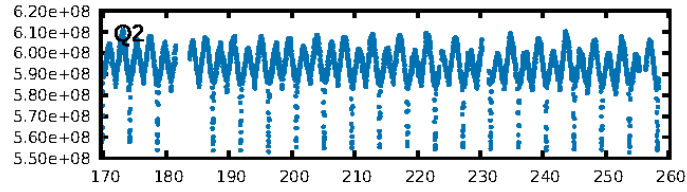
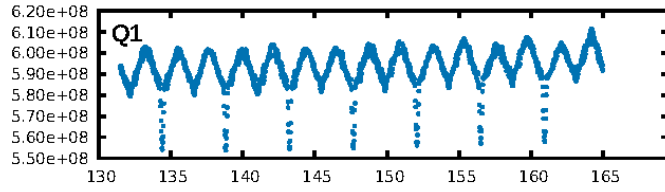
## DV Fit Results:

Period = 376.87830 [0.02515] d  
Epoch = 297.6009 [0.0526] BKJD  
Rp/R\* = 0.0751 [0.1388]  
a/R\* = 64.26 [26.50]  
b = 1.00 [0.21]  
Seff = 27.34 [23.82]  
Teq = 583 [127] K  
Rp = 28.35 [54.51] Re  
a = 1.2763 [0.6709] AU  
Ag = 967.38 [3696.75] [0.26σ]  
Teffp = 5028 [4684] K [0.95σ]

## DV Diagnostic Results:

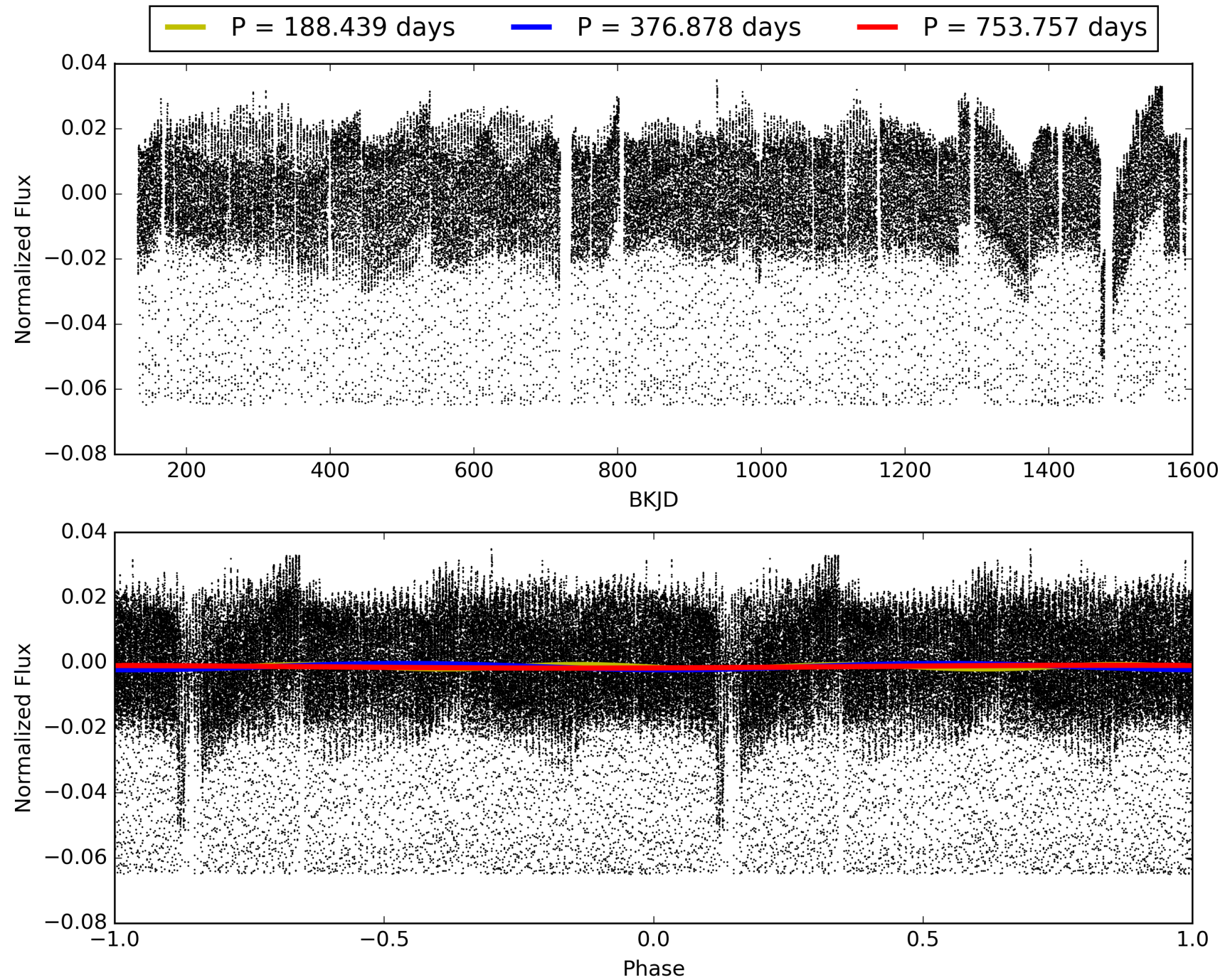
ShortPeriod-sig: 100.0% [460.27σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.08882  
Centroid-sig: N/A  
Centroid-so: 0.317 arcsec [2.70σ]  
OotOffset-rm: 0.049 arcsec [0.26σ]  
KicOffset-rm: 0.093 arcsec [0.48σ]  
OotOffset-st: 0/4/0/0 [4]  
KicOffset-st: 0/4/0/0 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 0.00 [0/4]

# TCE 012268220-03, PDC Light Curves



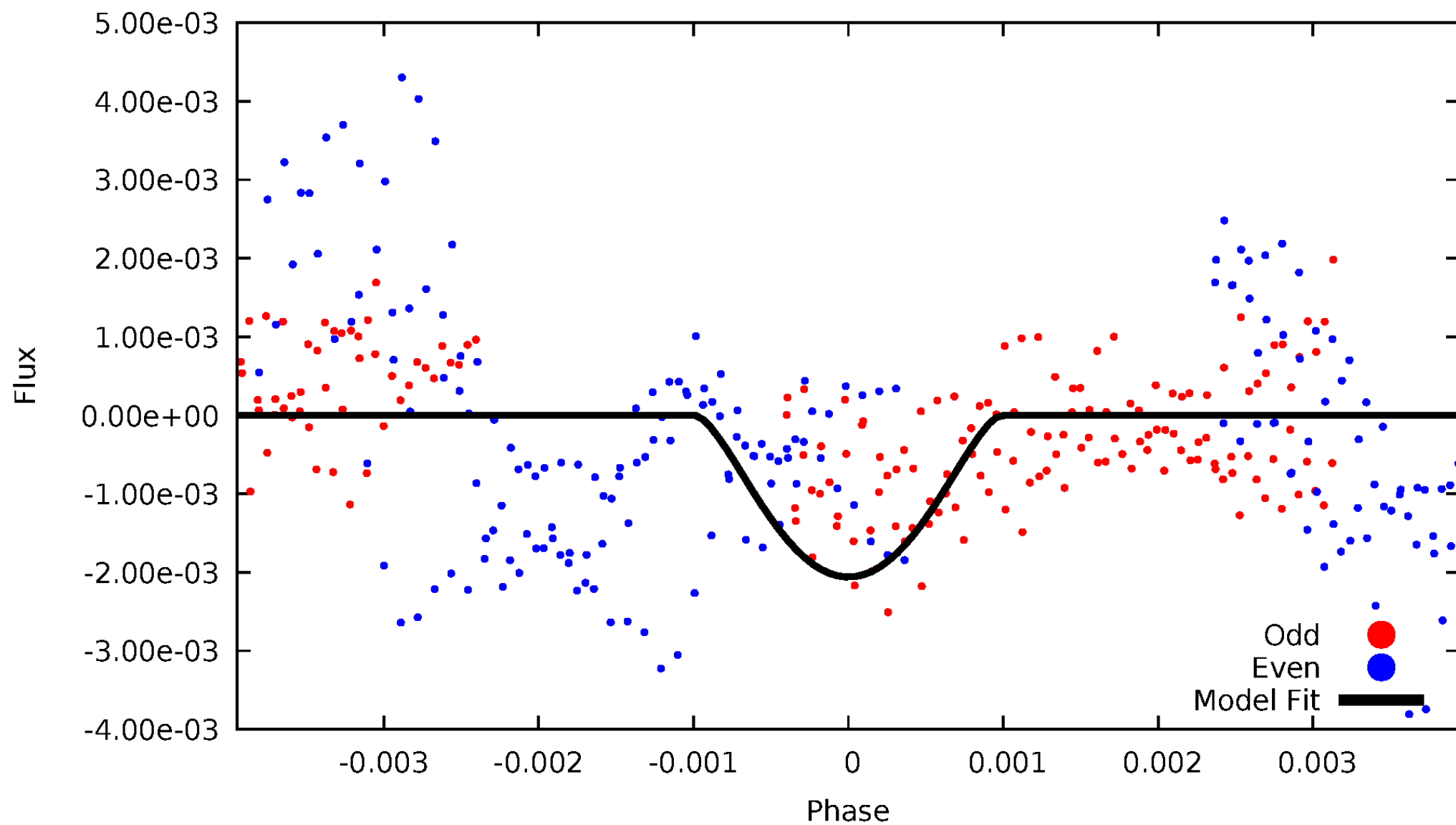


# TCE 012268220-03



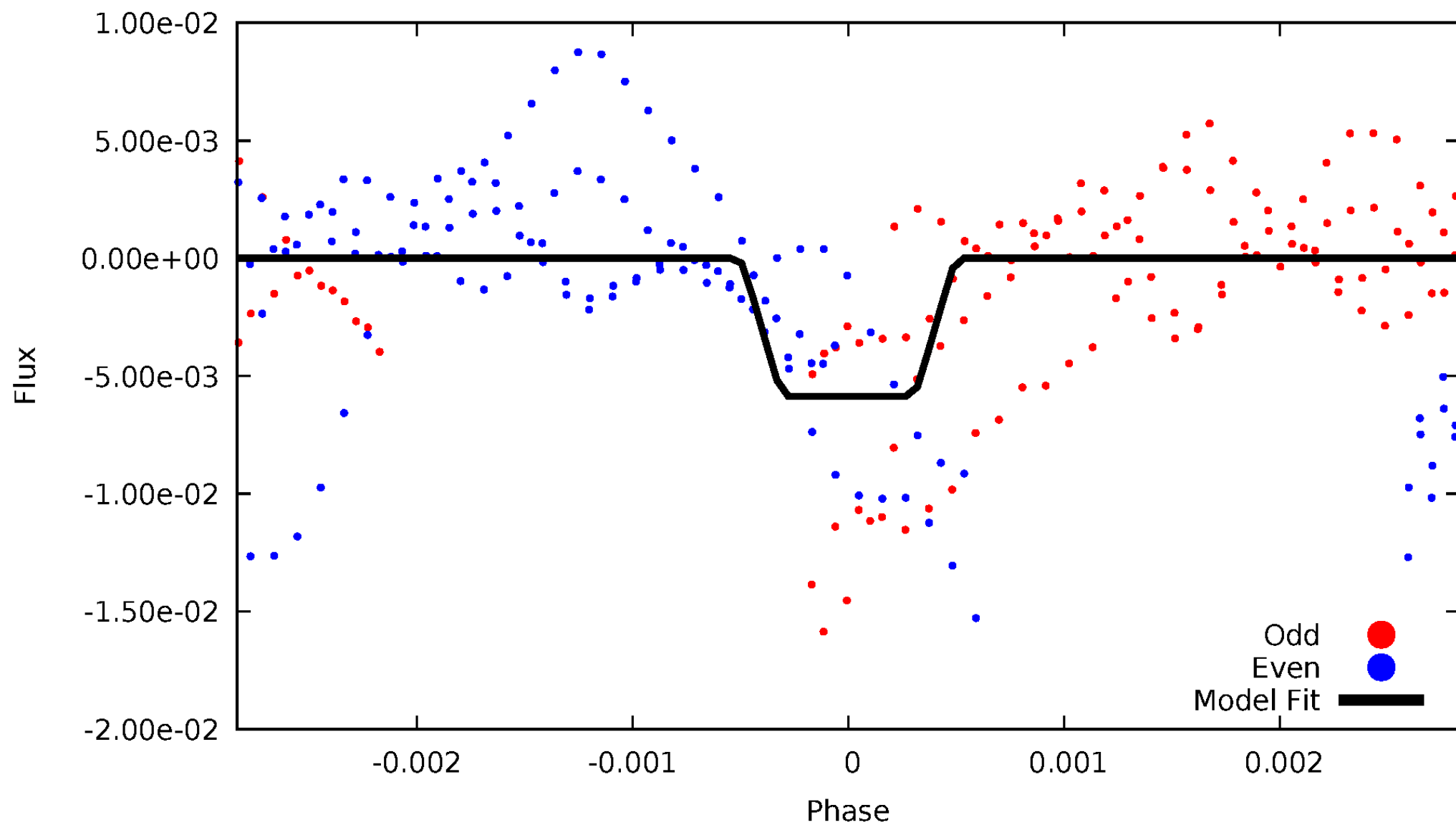
# DV Odd/Even

TCE 012268220-03



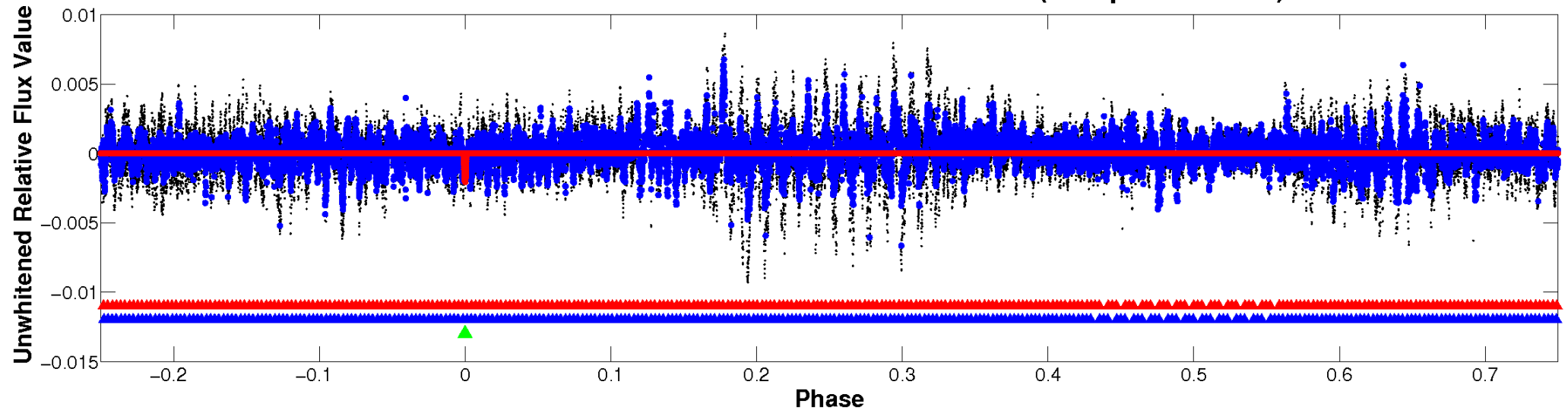
# ALT Odd/Even

TCE 012268220-03

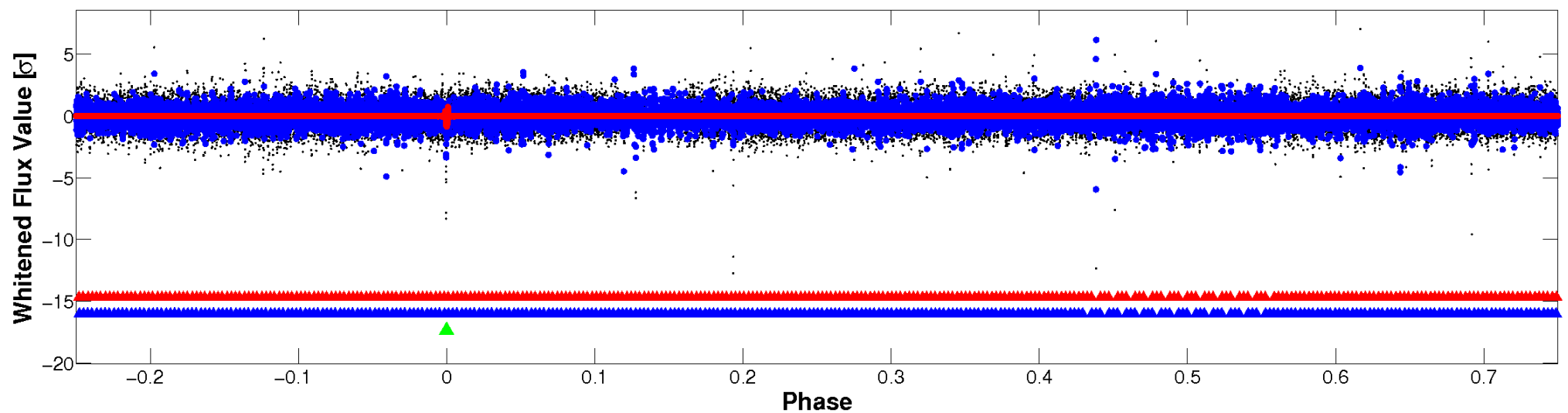


# Non-Whitened Vs. Whitened Light Curve

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

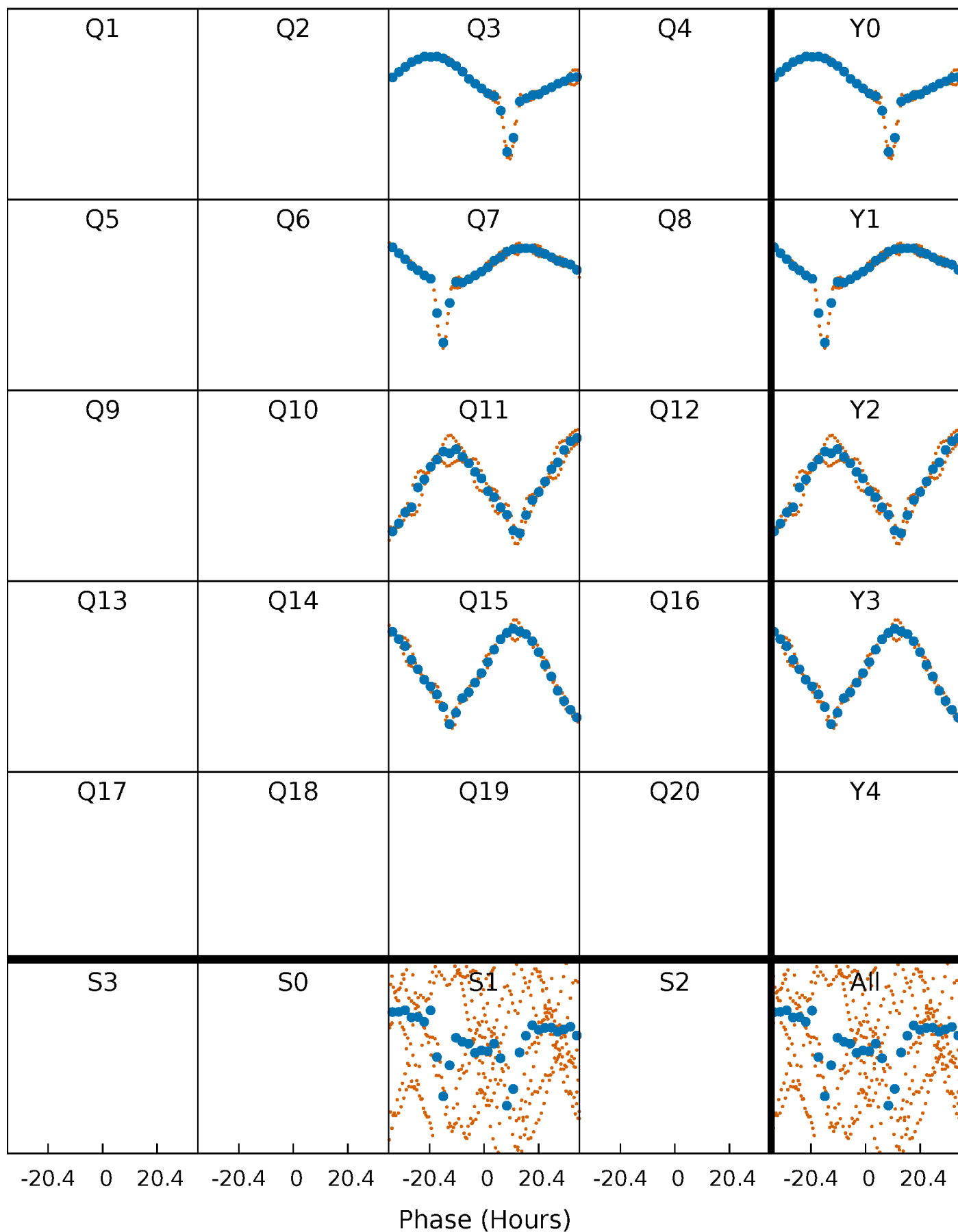


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



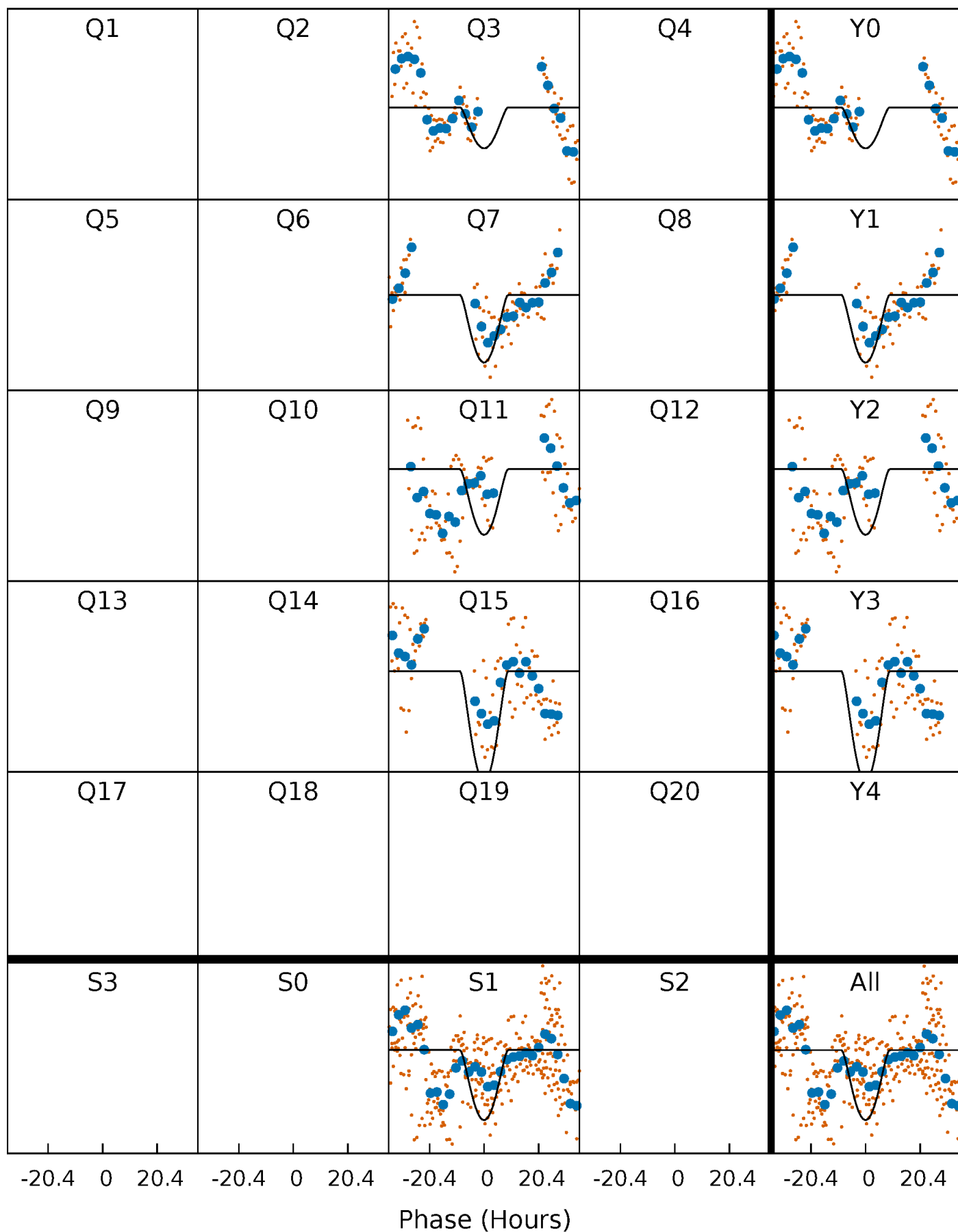
# PDC Quarter-Phased Transit Curves

TCE 012268220-03     $P=376.878305$  Days     $T_0=297.600891$  (BKJD)



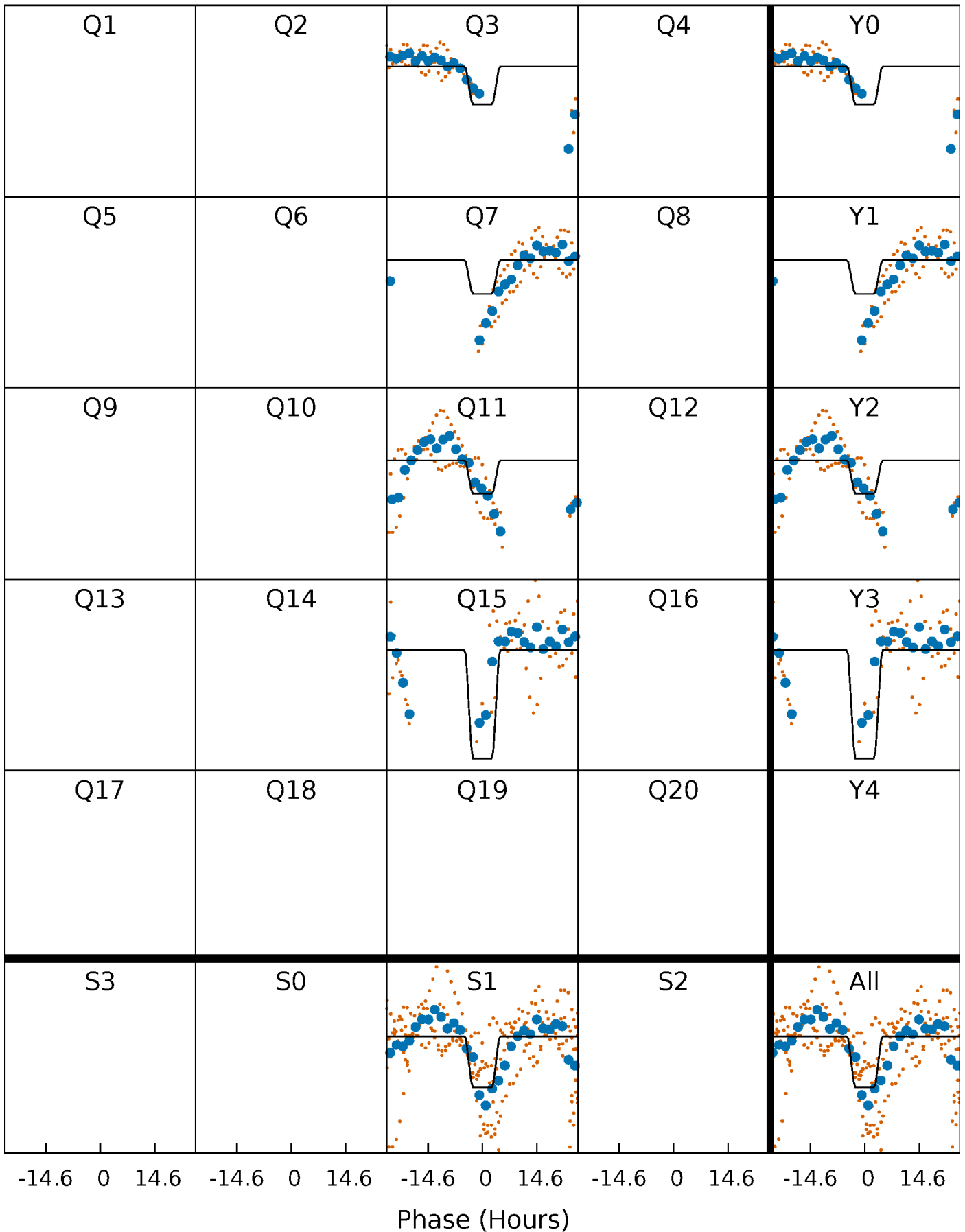
# DV Quarter-Phased Transit Curves

TCE 012268220-03     $P=376.878305$  Days     $T_0=297.600891$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 012268220-03     $P=376.876581$  Days     $T_0=297.518193$  (BKJD)

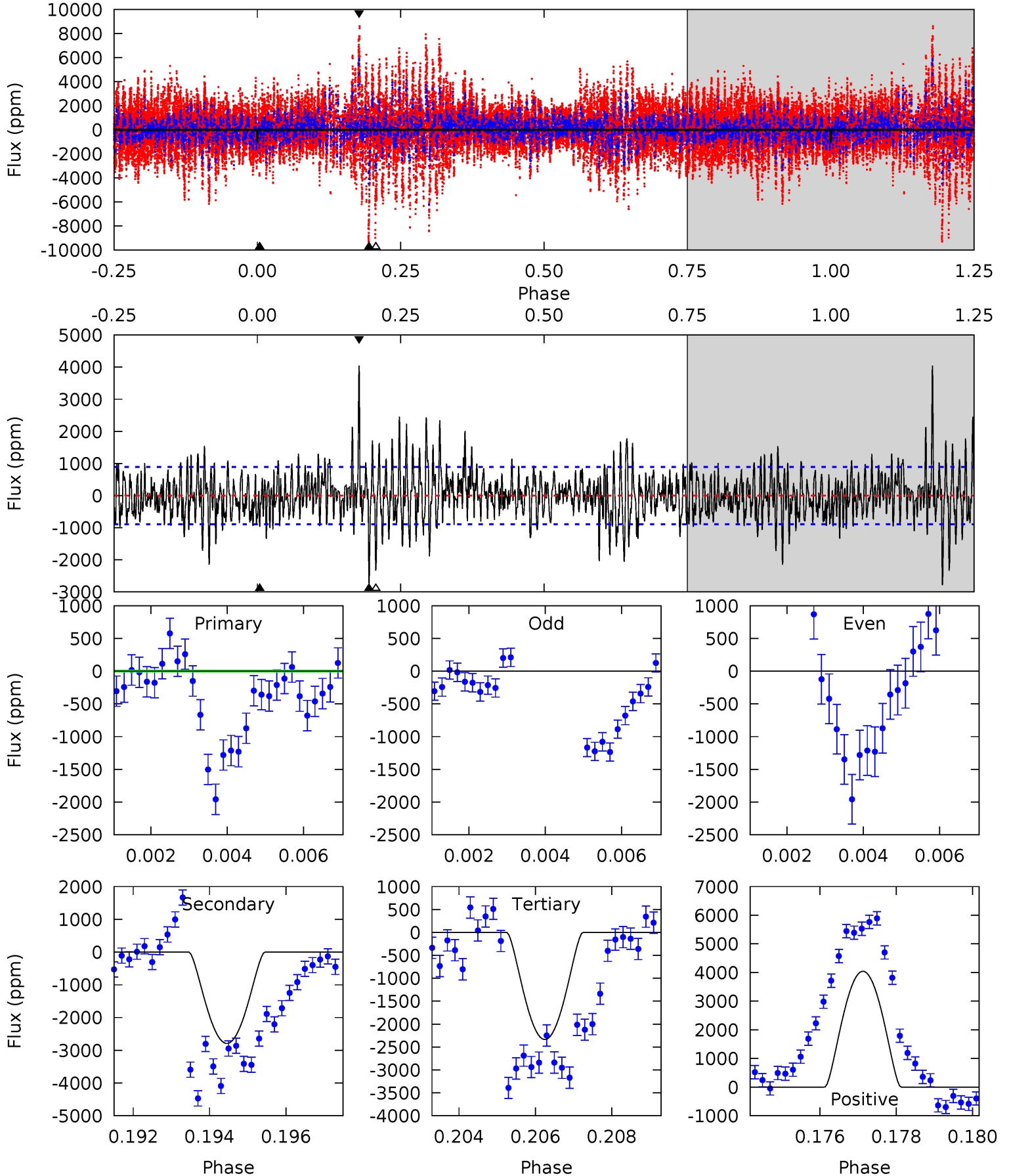




# DV Model-Shift Uniqueness Test

012268220-03, P = 376.878305 Days, E = 297.600891 Days

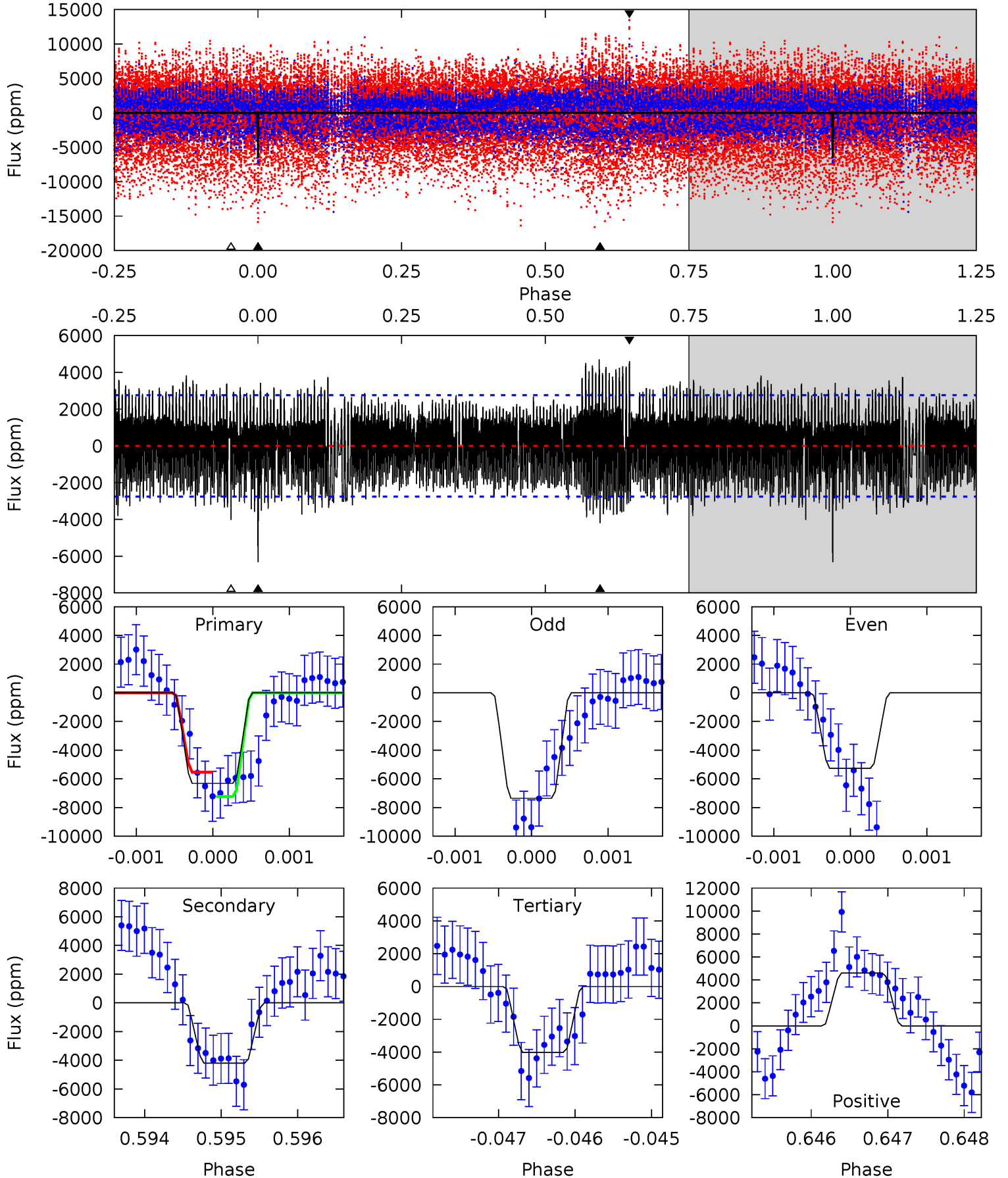
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.67	16.7	14.0	24.2	5.33	3.09	3.82	-8.31	-18.5	2.72	-7.50	1.23	0.96	0.59	1.53



# Alt Model-Shift Uniqueness Test

012268220-03, P = 376.876581 Days, E = 297.518193 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
12.5	8.28	7.95	9.10	5.45	3.28	3.25	4.52	3.37	0.34	-0.81	2.07	1.22	0.43	1.67



### Stellar Parameters For KIC 012268220

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8026^{+251}_{-306}$	$3.650^{+0.510}_{-0.090}$	$-0.360^{+0.200}_{-0.300}$	$3.461^{+0.607}_{-1.821}$	$1.950^{+0.238}_{-0.510}$	$0.066^{+0.401}_{-0.020}$
	+3%/-4%	+14%/-2%	+56%/-83%	+18%/-53%	+12%/-26%	+605%/-30%
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 012268220-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-2791 \pm 167$	$42.26^{+40.85}_{-27.06}$	$785^{+59}_{-100}$	$5030^{+3473}_{-1075}$	$1357^{+9147}_{-995}$
Alt.	$-4196 \pm 506$	$39.95^{+48.28}_{-26.31}$	$786^{+59}_{-108}$	$5618^{+4866}_{-1384}$	$2283^{+17233}_{-1785}$

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

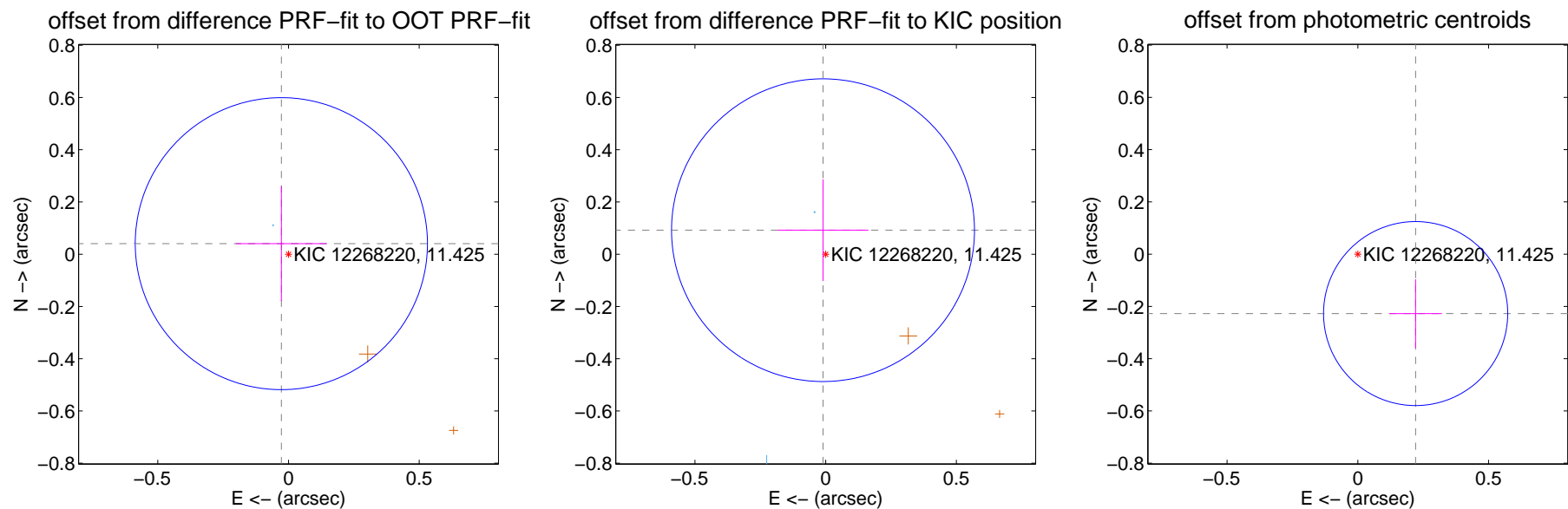
## DV Centroid Data

Supplemental centroid analysis for 012268220-03. **Kepler magnitude: 11.43.** Transit SNR 5.25

**There are 2 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.049 \pm 0.186$	0.26	$0.027 \pm 0.174$	$0.040 \pm 0.220$
PRF-fit source offset from KIC position	$0.093 \pm 0.193$	0.48	$0.010 \pm 0.174$	$0.092 \pm 0.195$
photometric centroid source offset	$0.32 \pm 0.12$	2.70	$-0.22 \pm 0.10$	$-0.23 \pm 0.13$



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



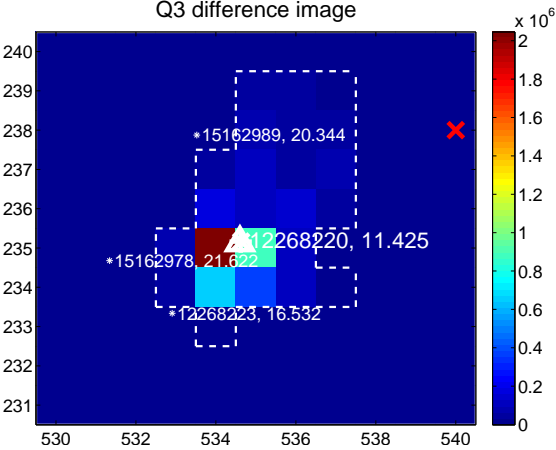
Q2 no difference image



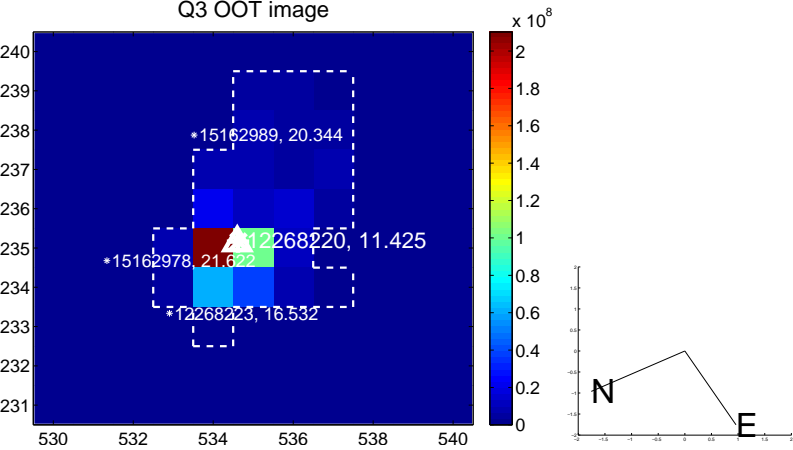
Q2 no OOT image



Q3 difference image



Q3 OOT image



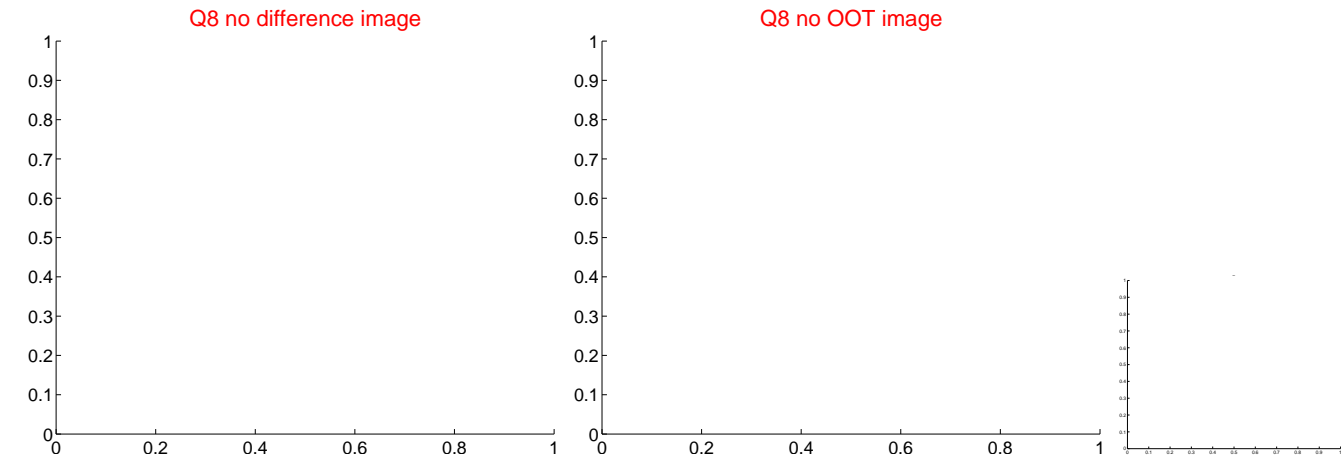
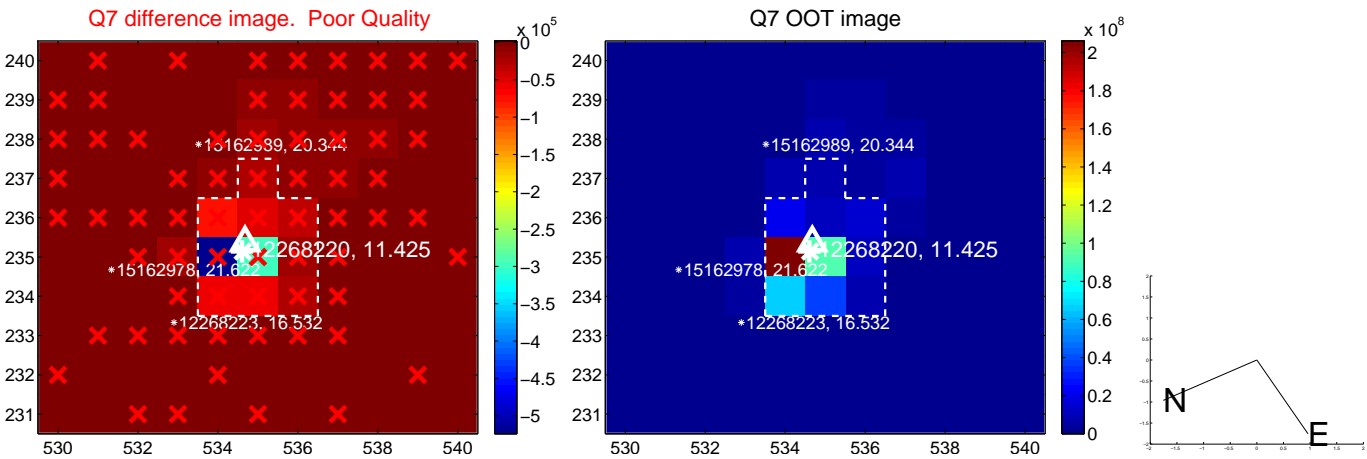
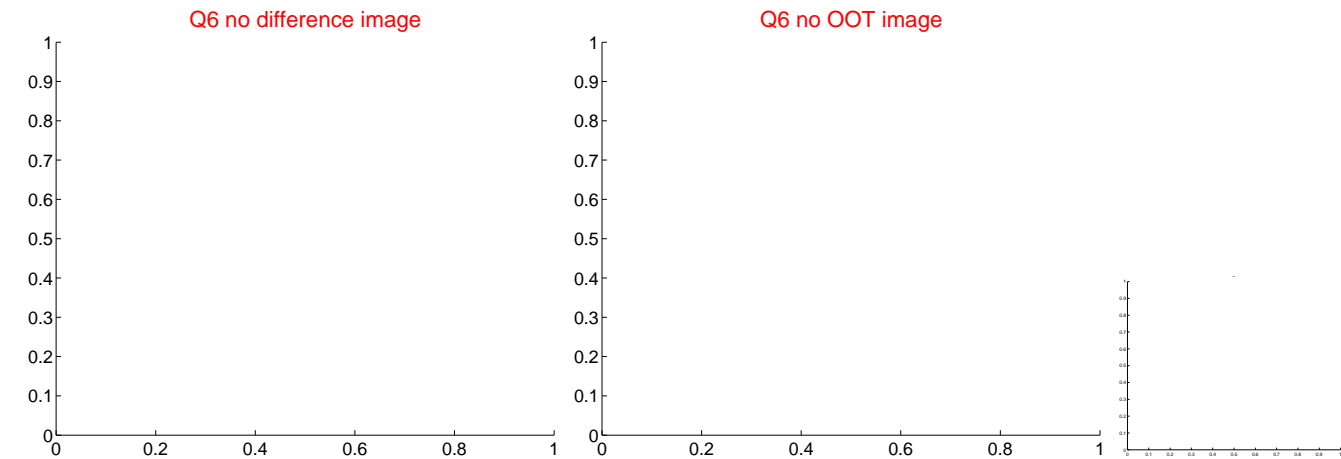
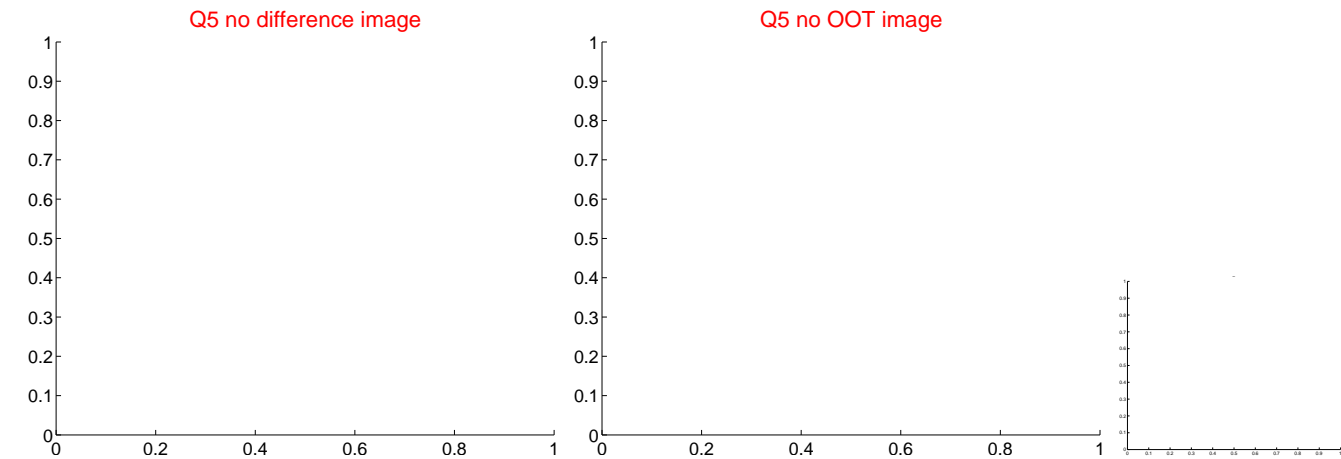
Q4 no difference image



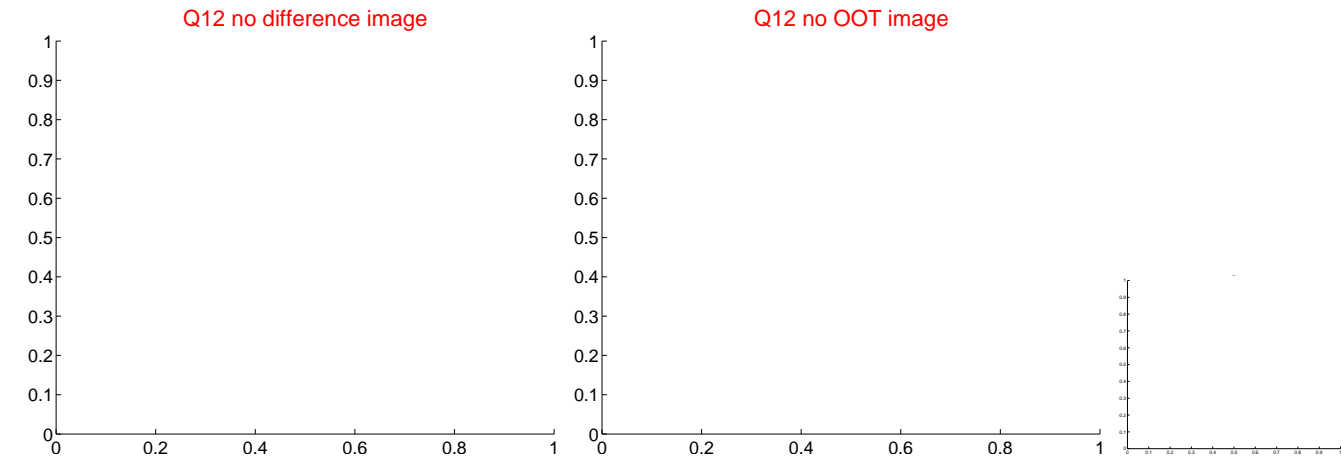
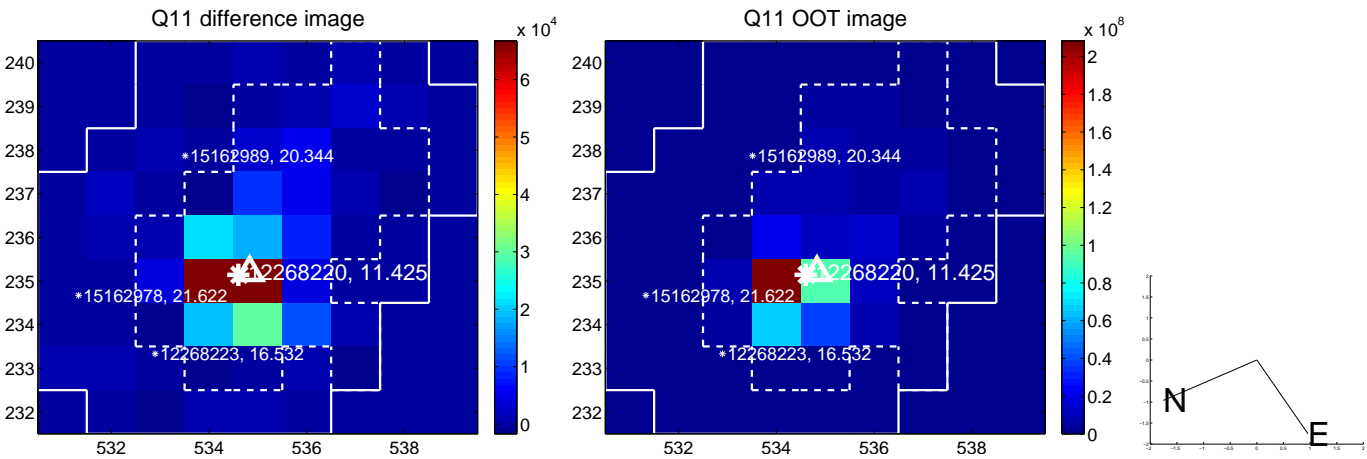
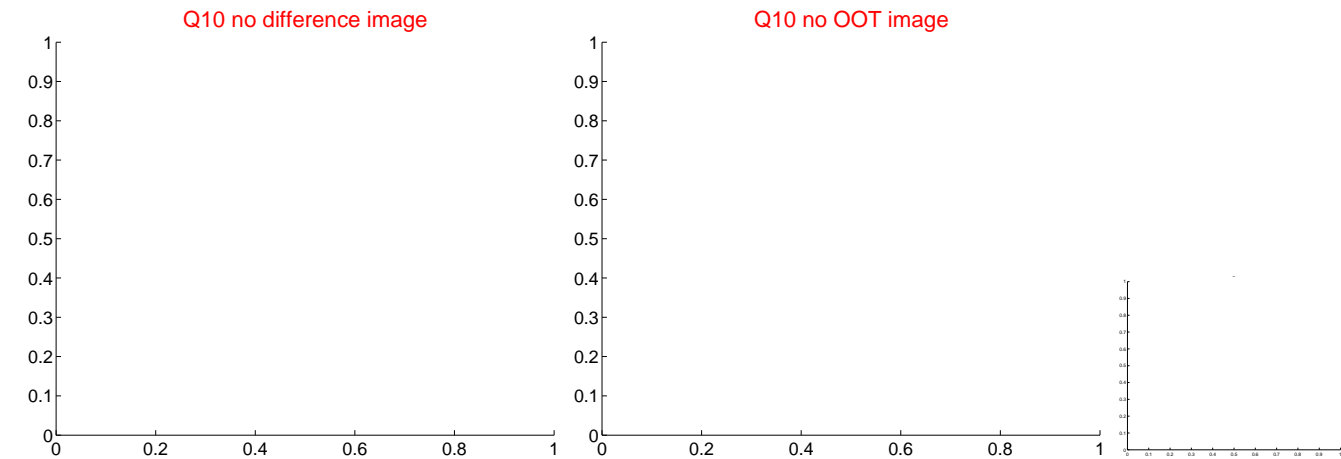
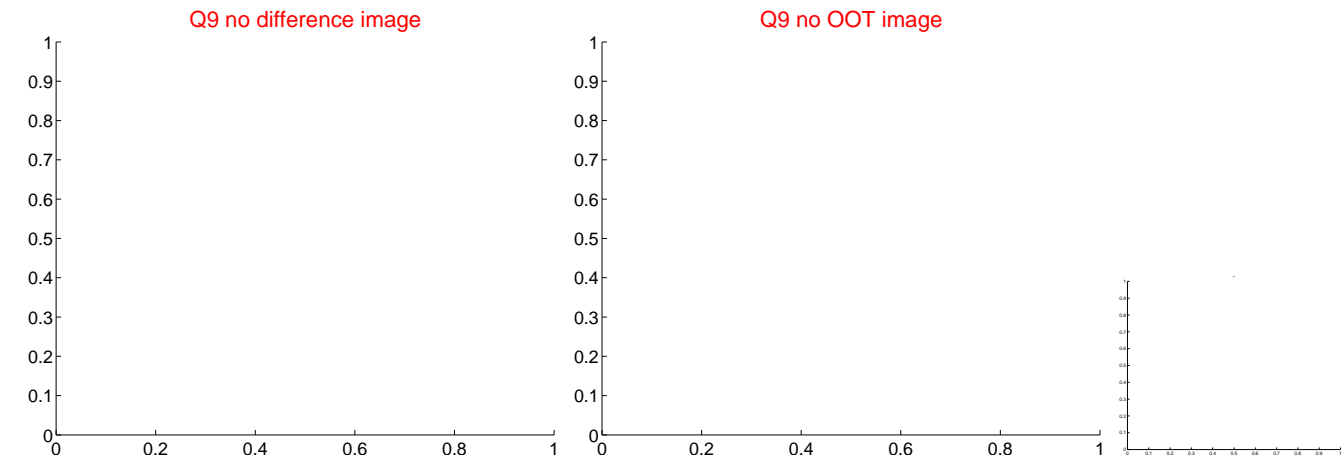
Q4 no OOT image



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

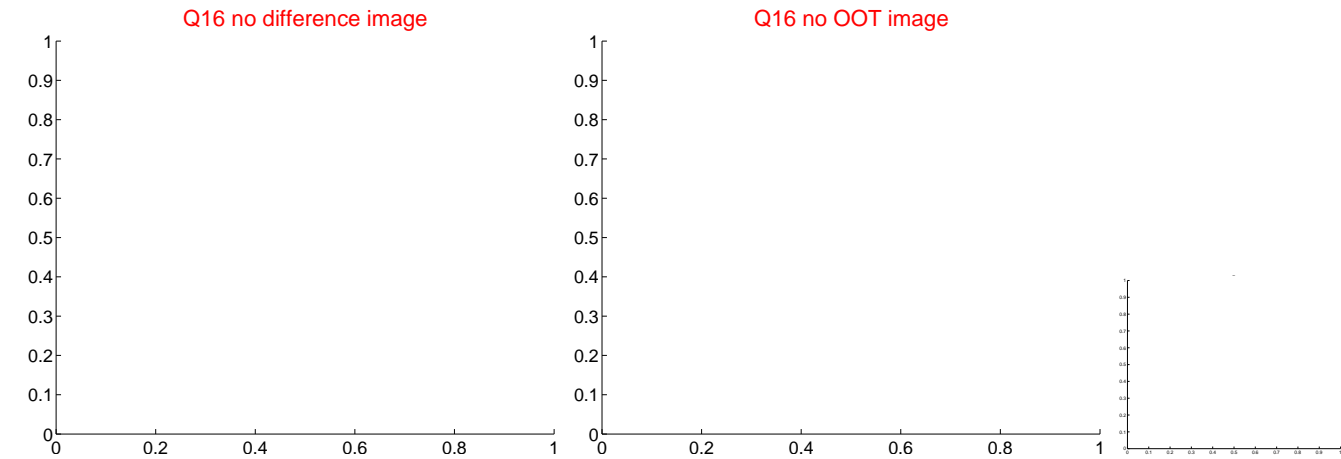
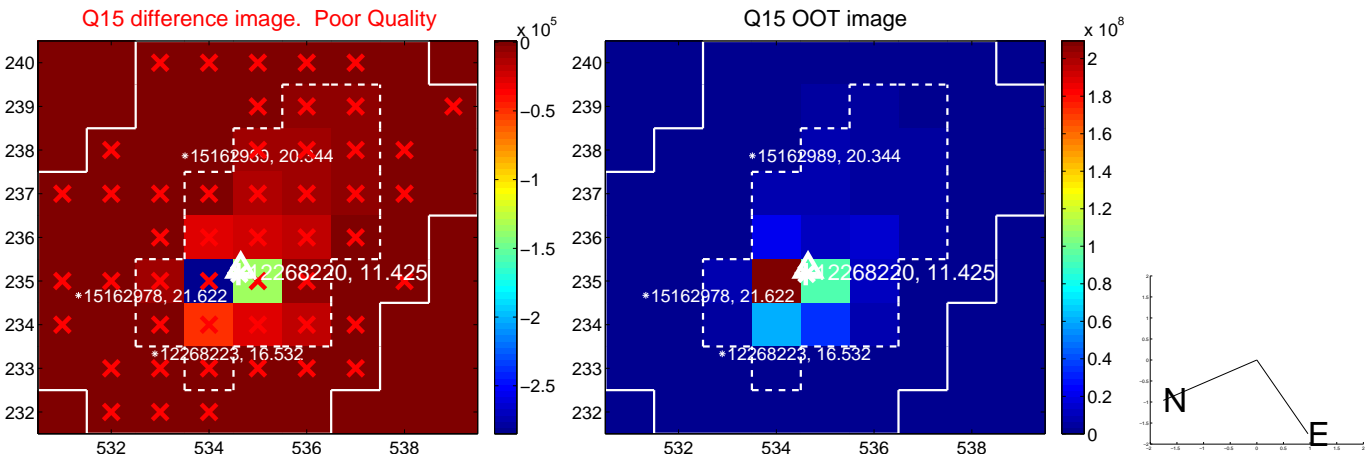
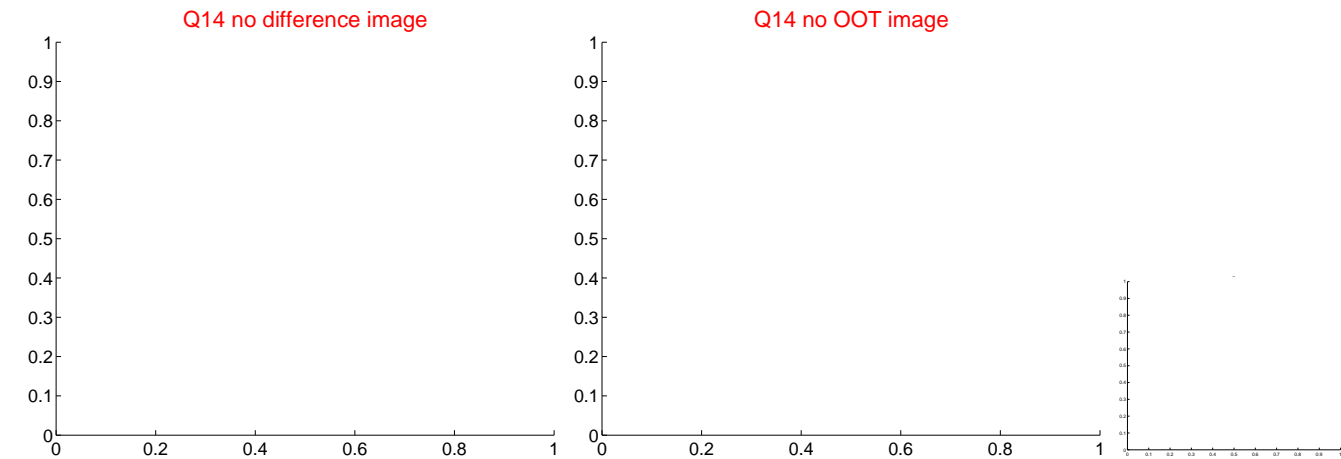
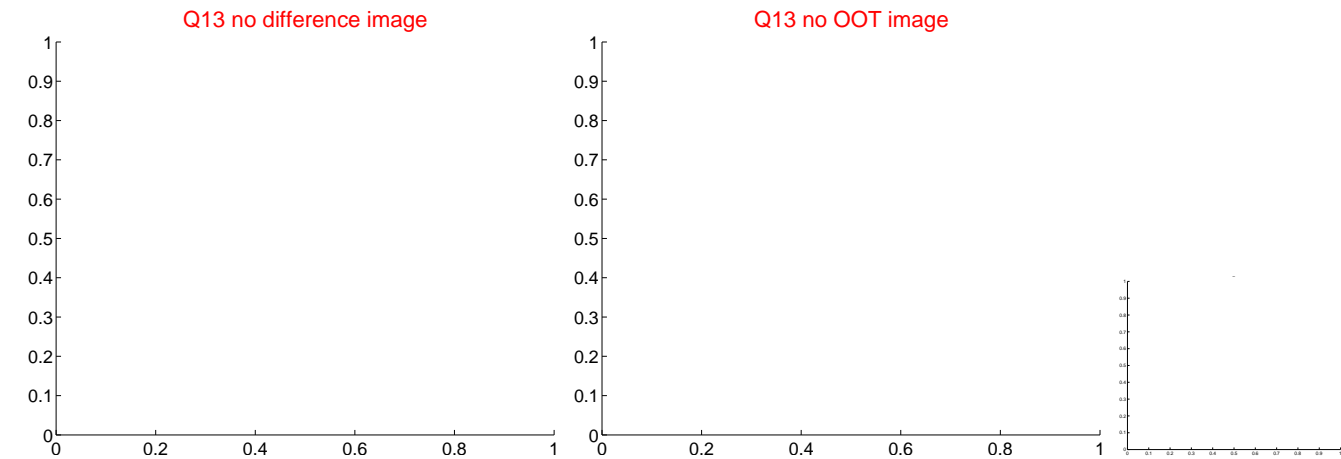


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

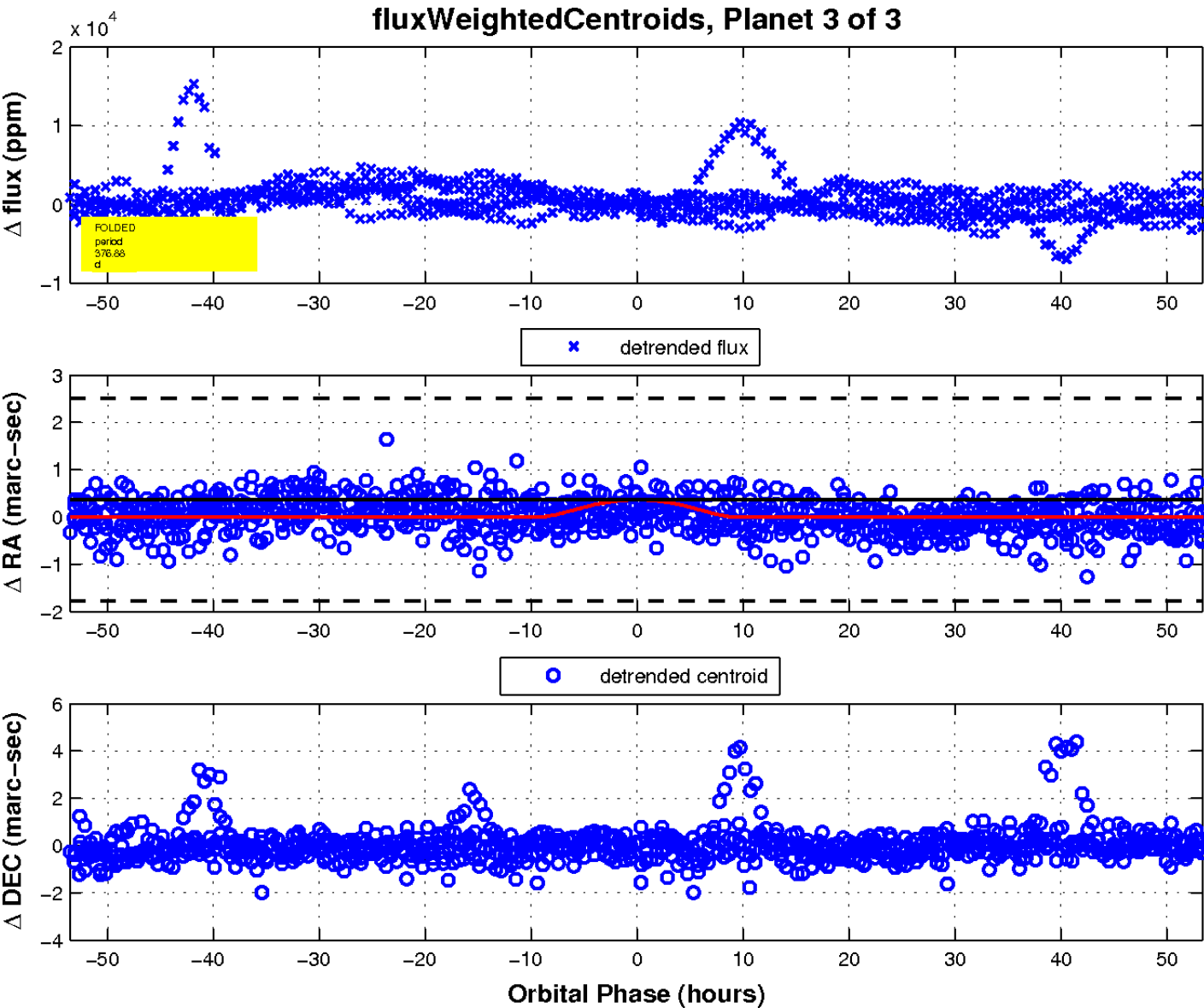
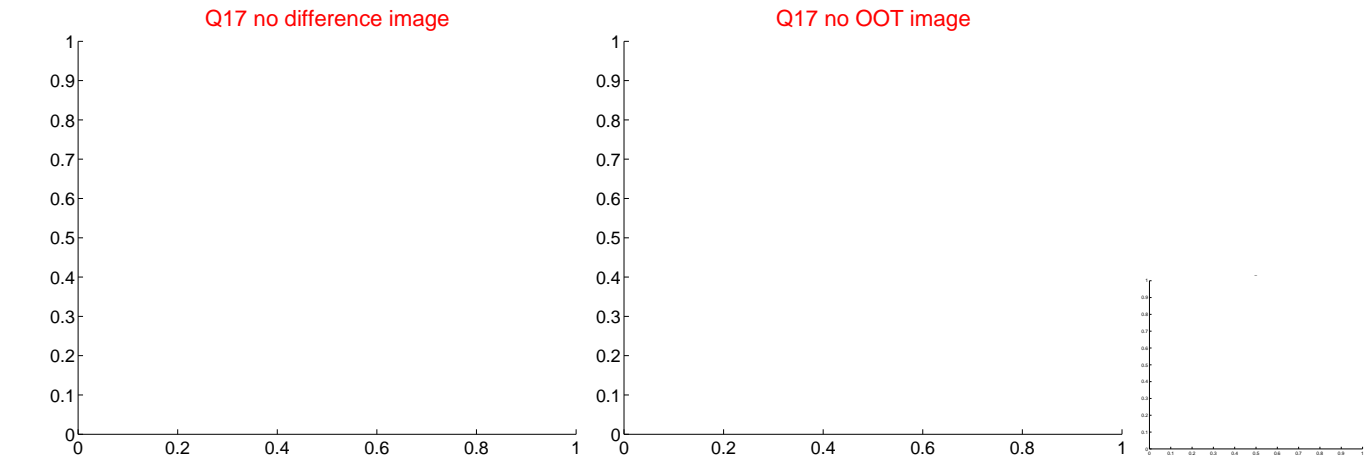




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

