

# KIC 004055765

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004055765-01	OBS	0100.01	9.966398	141.153232	1629.7	5.044	161.1	168.6	3.08	6638	16.89	1469.83
004055765-02	OBS	No	4.307893	132.571225	130.7	18.052	16.4	20.4	3.08	6638	7.00	4497.42
004055765-03	OBS	No	4.307509	135.055488	71.2	14.794	13.3	16.2	3.08	6638	4.67	4497.95

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004055765-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004055765-02	OBS	FP	0.00	1	0	0	0	LPP_DV
004055765-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

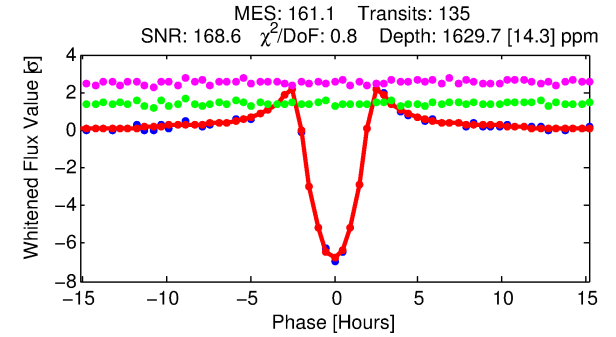
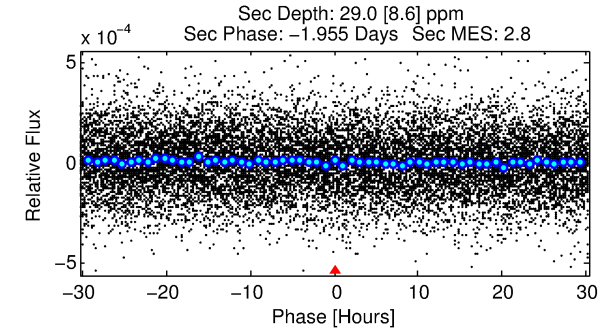
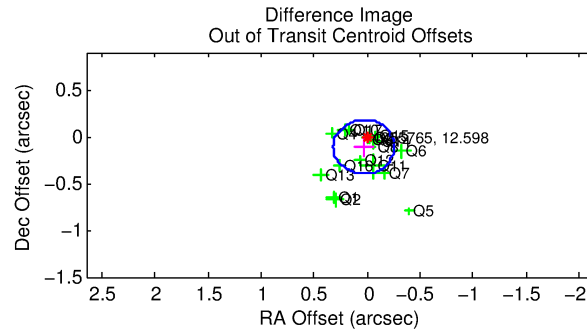
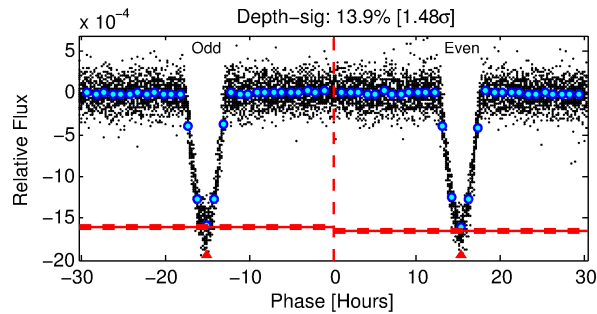
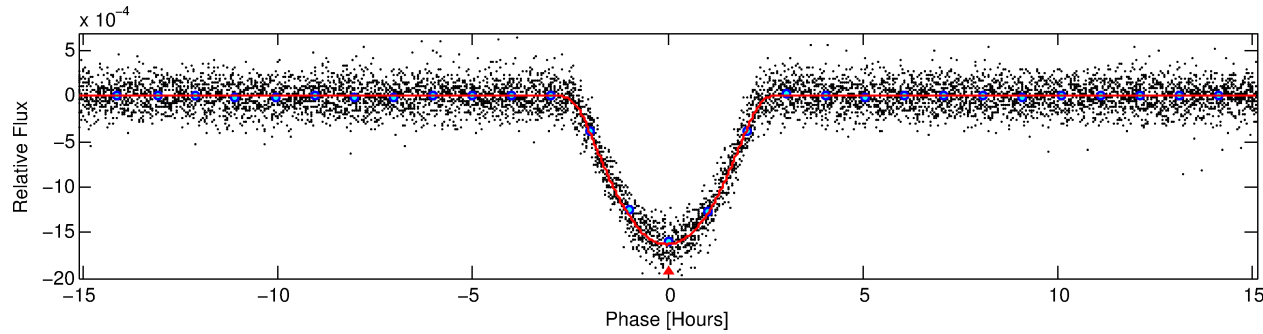
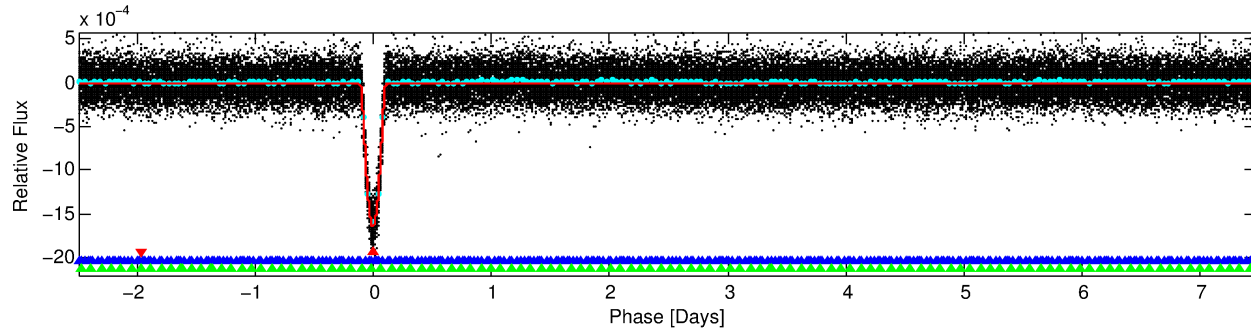
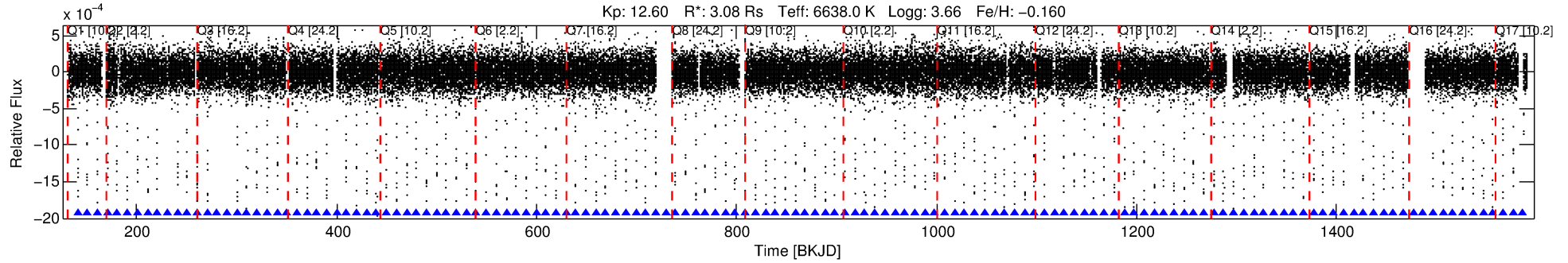
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004055765-01

No Significant Match Found

# DV One-Page Summary

KIC: 4055765 Candidate: 1 of 3 Period: 9.966 d  
KOI: K00100.01 Corr: 0.994



## DV Fit Results:

Period = 9.96640 [0.00001] d  
Epoch = 141.1532 [0.0005] BKJD  
Rp/R\* = 0.0503 [0.0014]  
a/R\* = 6.26 [0.09]  
b = 0.97 [0.00]  
Seff = 1469.82 [519.03]  
Teq = 1579 [139] K  
Rp = 16.89 [4.31] Re  
a = 0.1059 [0.0239] AU  
Ag = 0.63 [0.29] [-1.29 $\sigma$ ]  
Teffp = 2173 [170] K [2.71 $\sigma$ ]

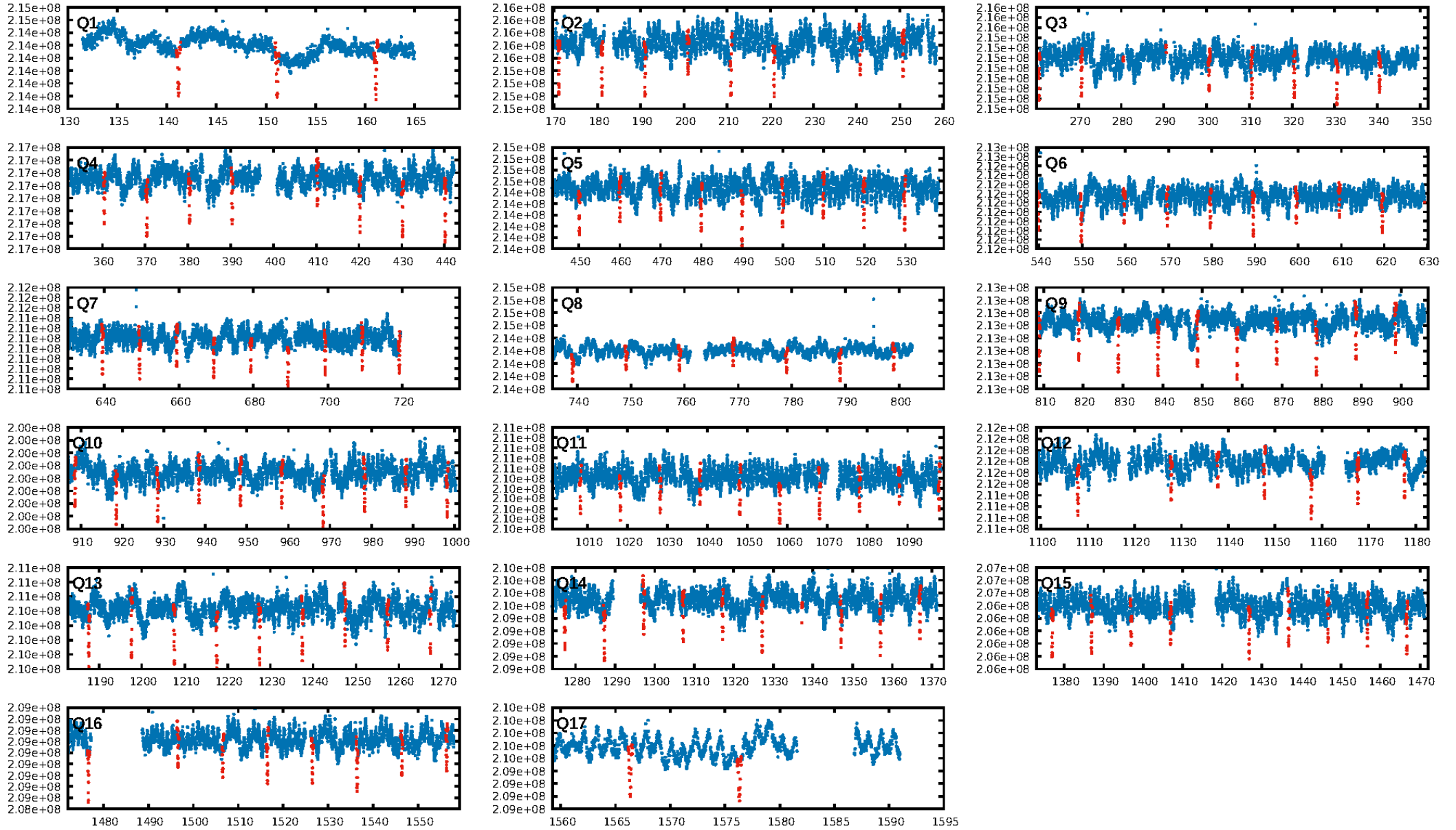
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.25 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [130/130]  
GhostDiagnostic-chr: 3.166  
Centroid-sig: 67.1%  
Centroid-so: 0.081 arcsec [2.65 $\sigma$ ]  
OotOffset-rm: 0.115 arcsec [1.19 $\sigma$ ]  
KicOffset-rm: 0.085 arcsec [0.93 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.88 [15/17]

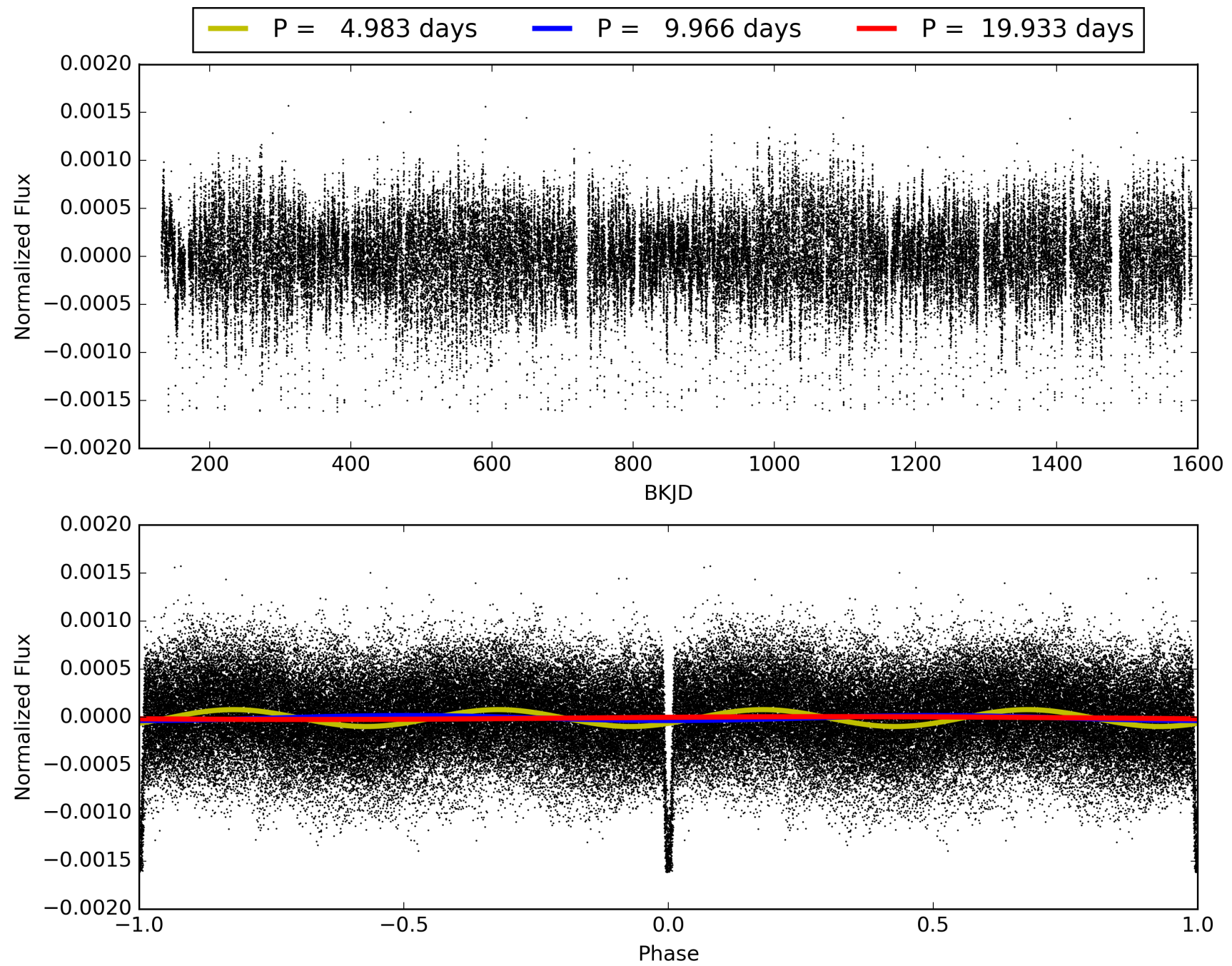
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:42:19 Z

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

# TCE 004055765-01, PDC Light Curves



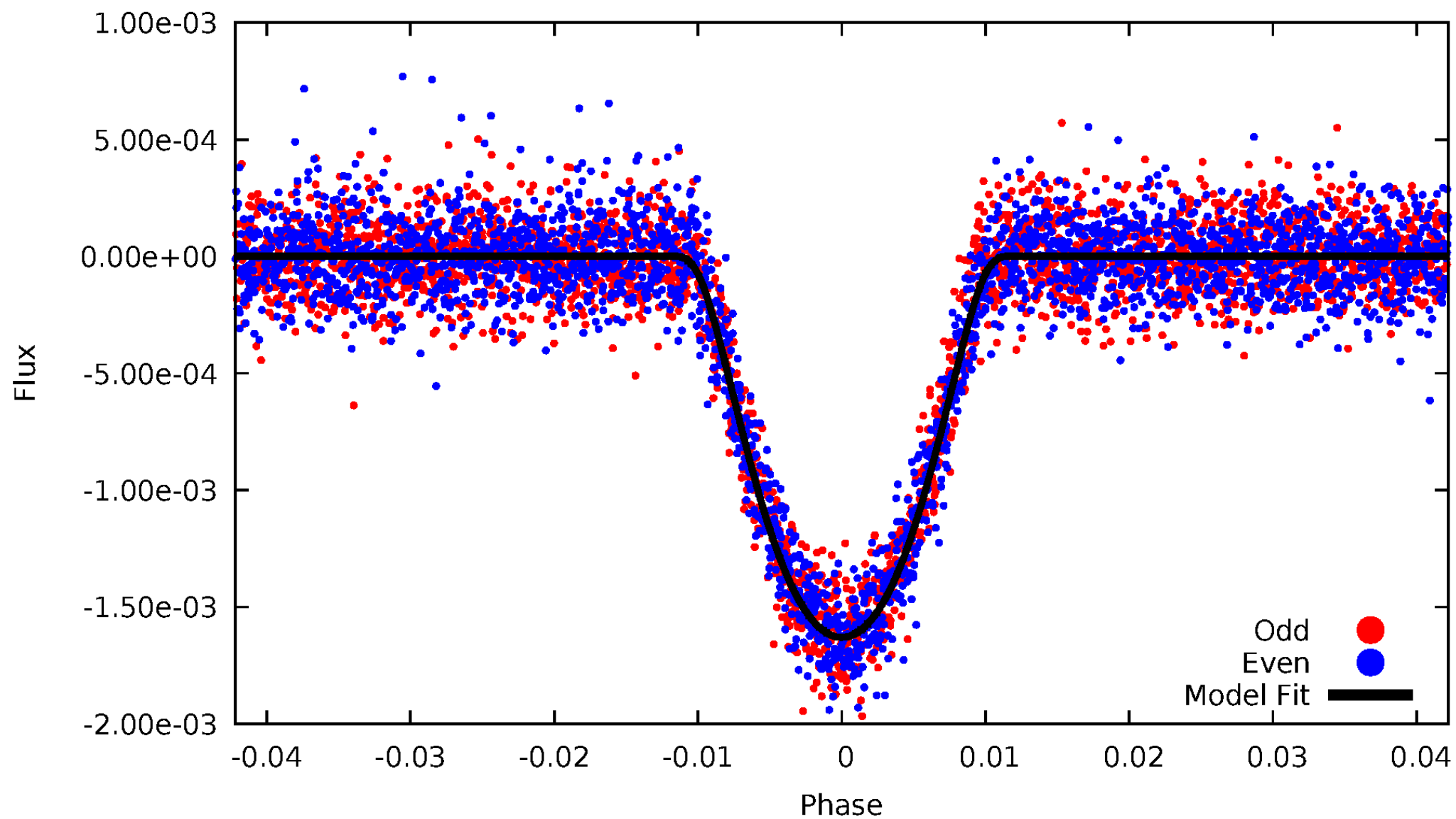
TCE 004055765-01





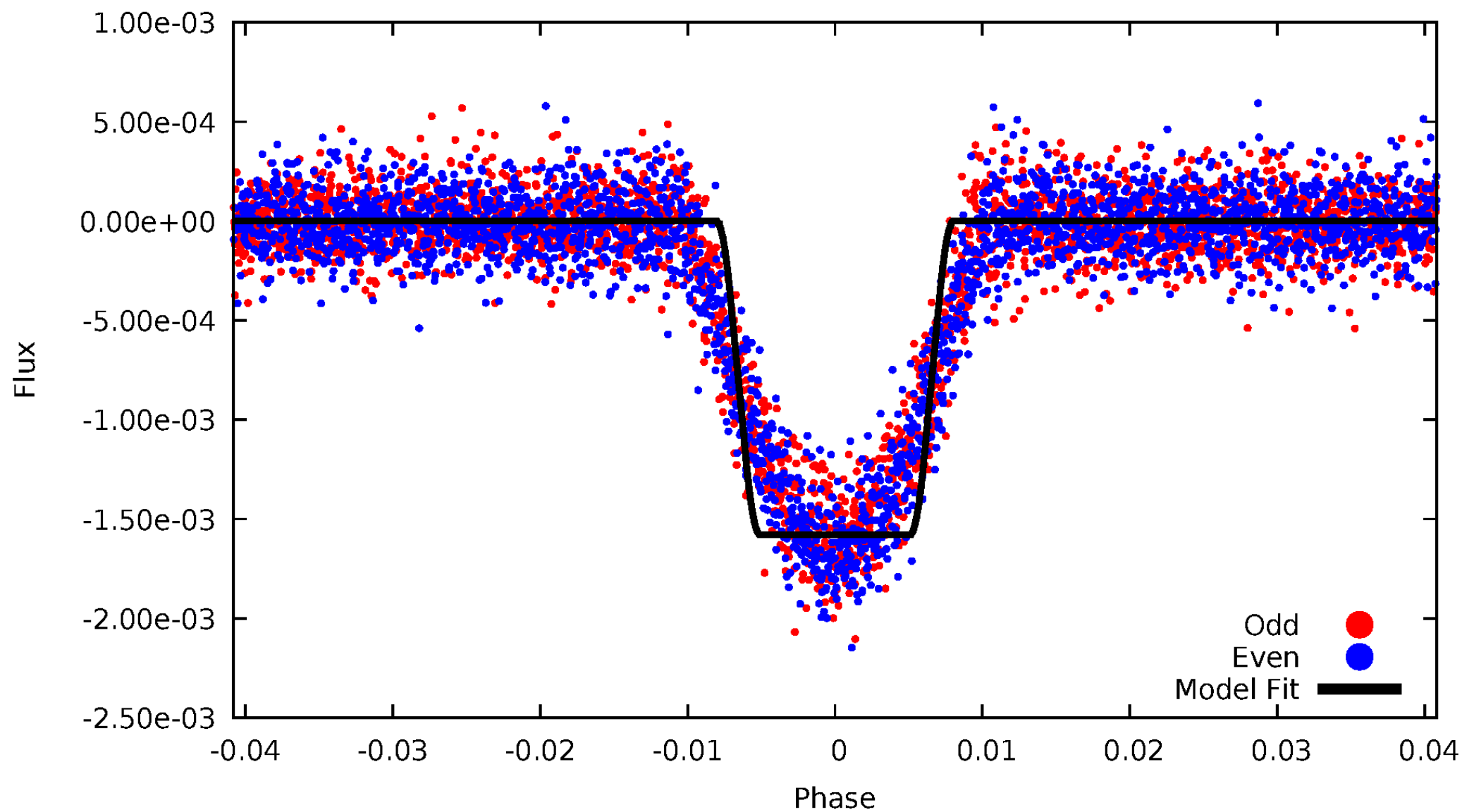
# DV Odd/Even

TCE 004055765-01



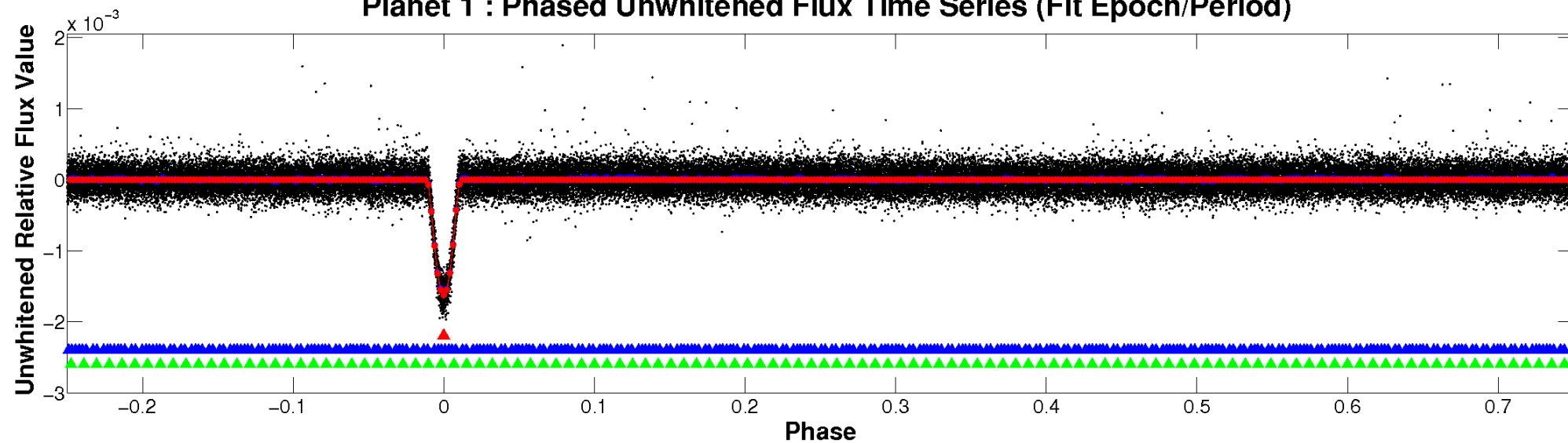
# ALT Odd/Even

TCE 004055765-01

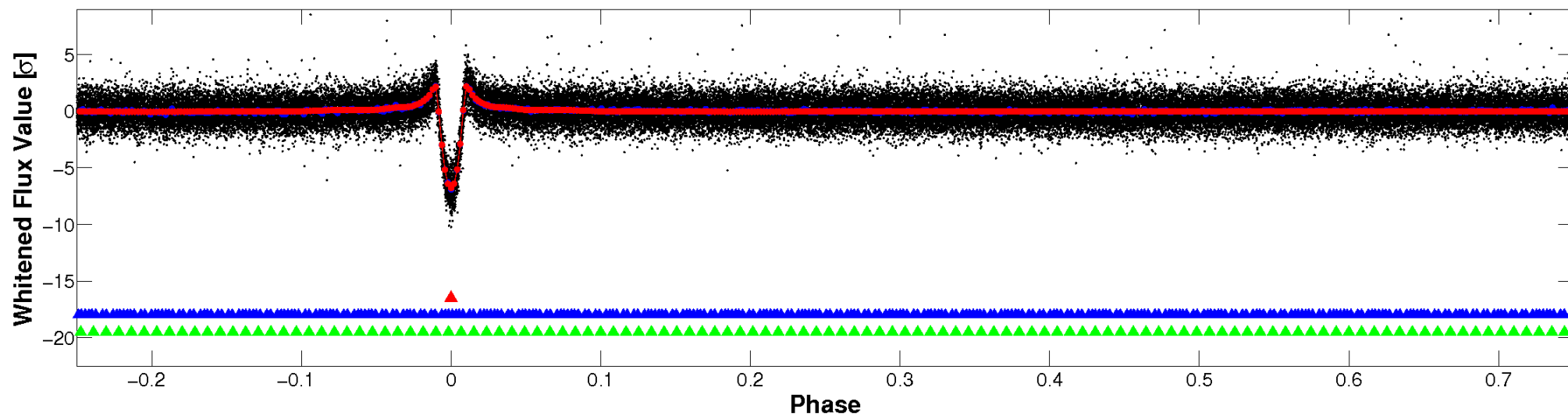


# Non-Whitened Vs. Whitened Light Curve

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

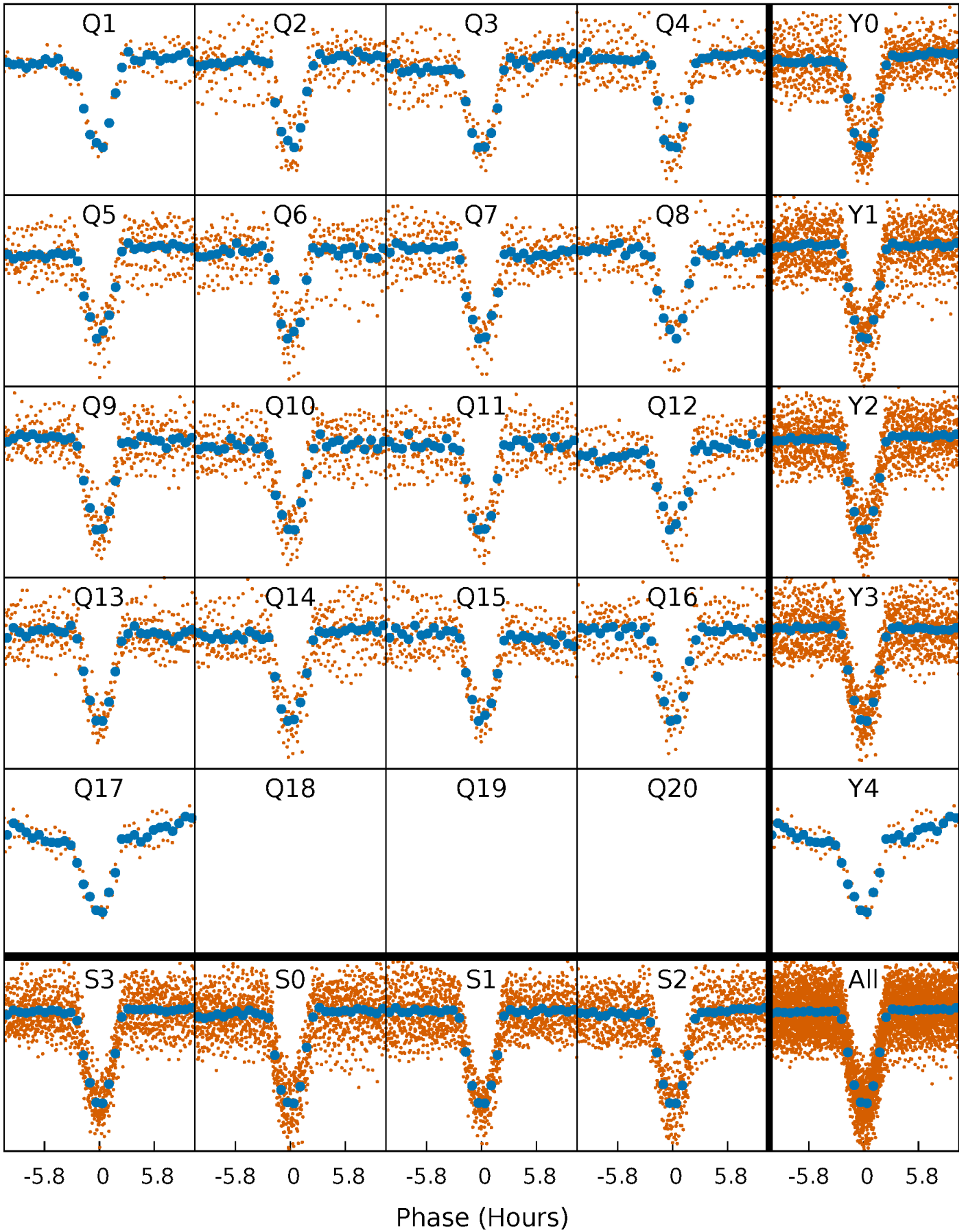


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

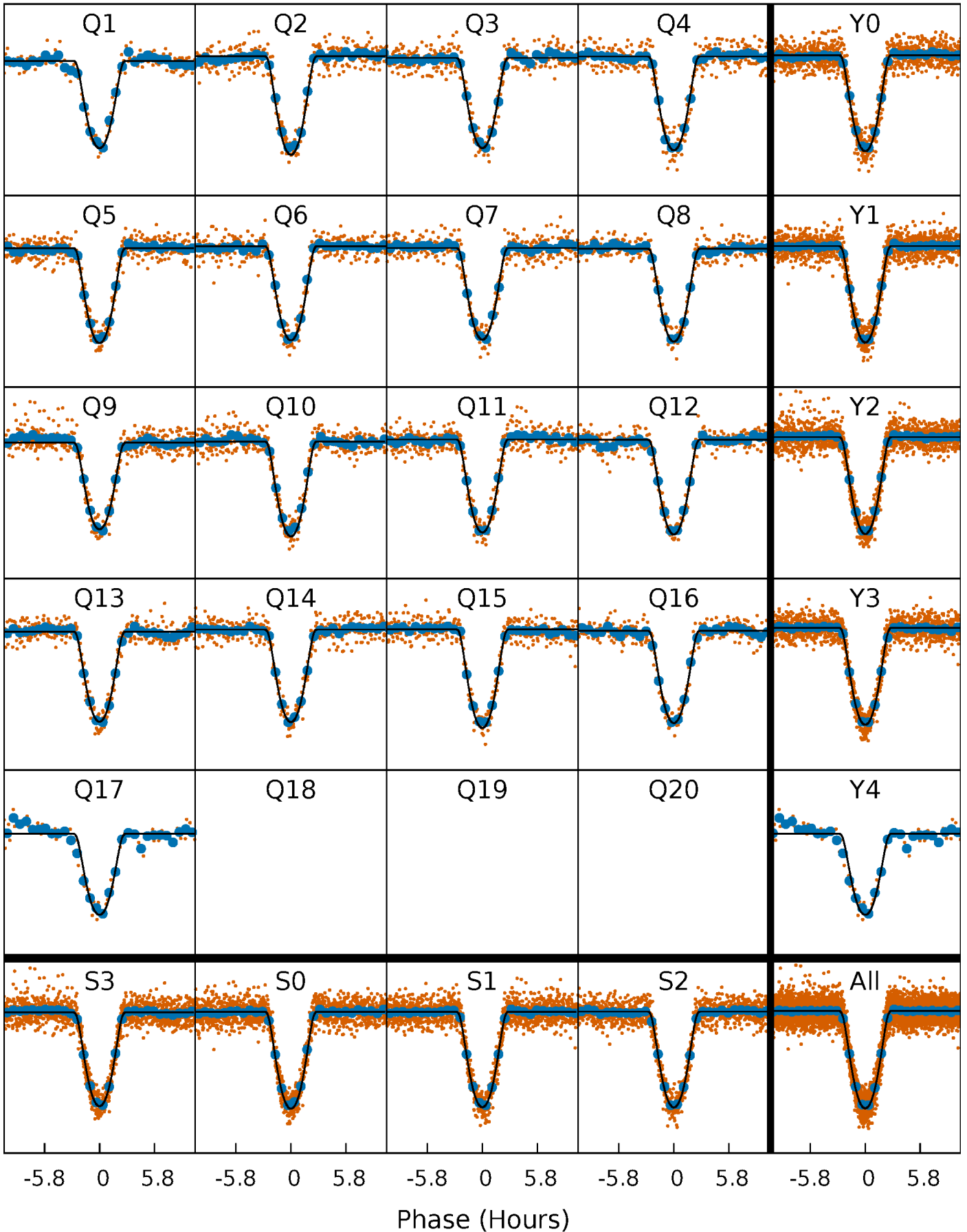
TCE 004055765-01 P= 9.966398 Days  $T_0=141.153232$  (BKJD)





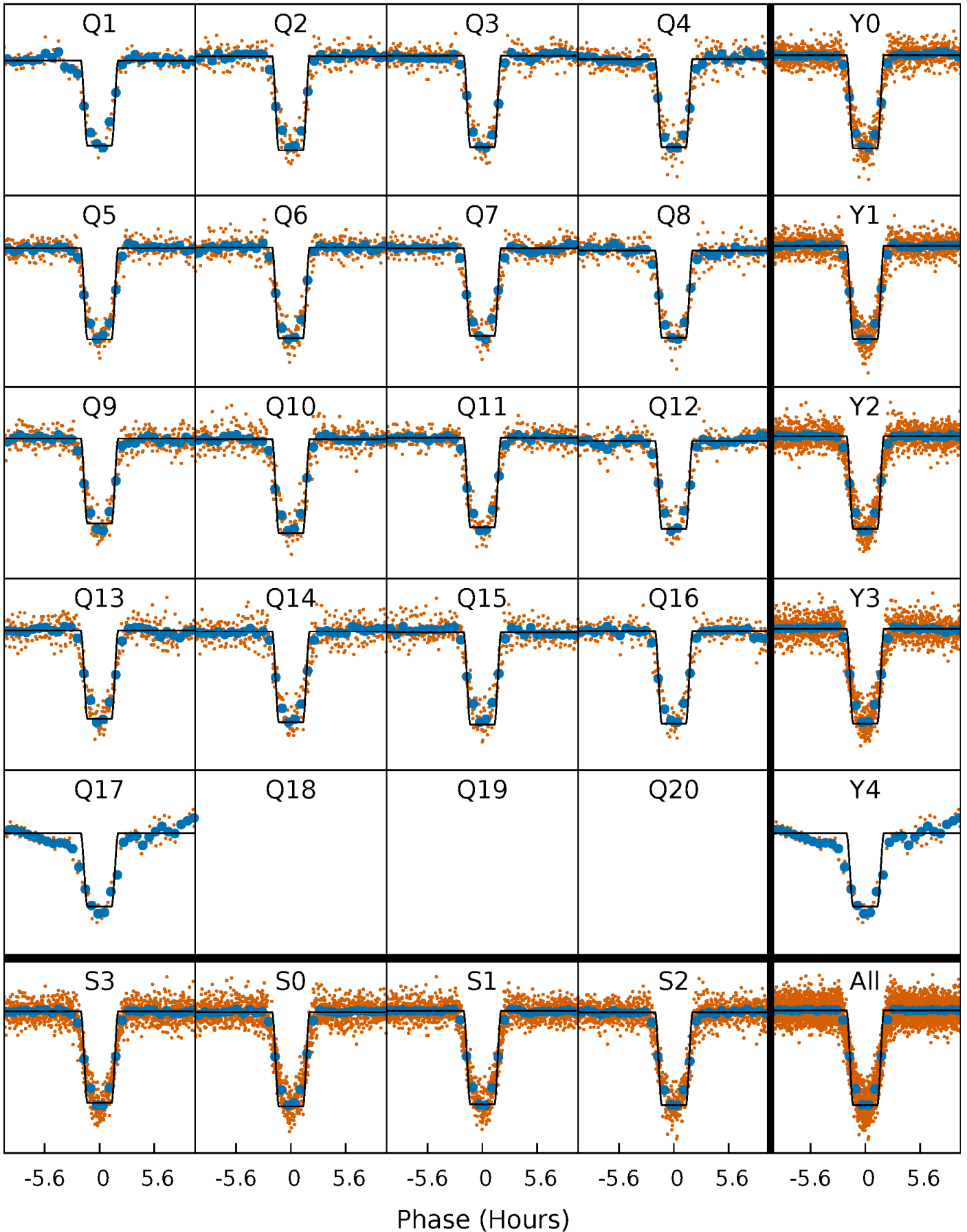
# DV Quarter-Phased Transit Curves

TCE 004055765-01 P= 9.966398 Days  $T_0=141.153232$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

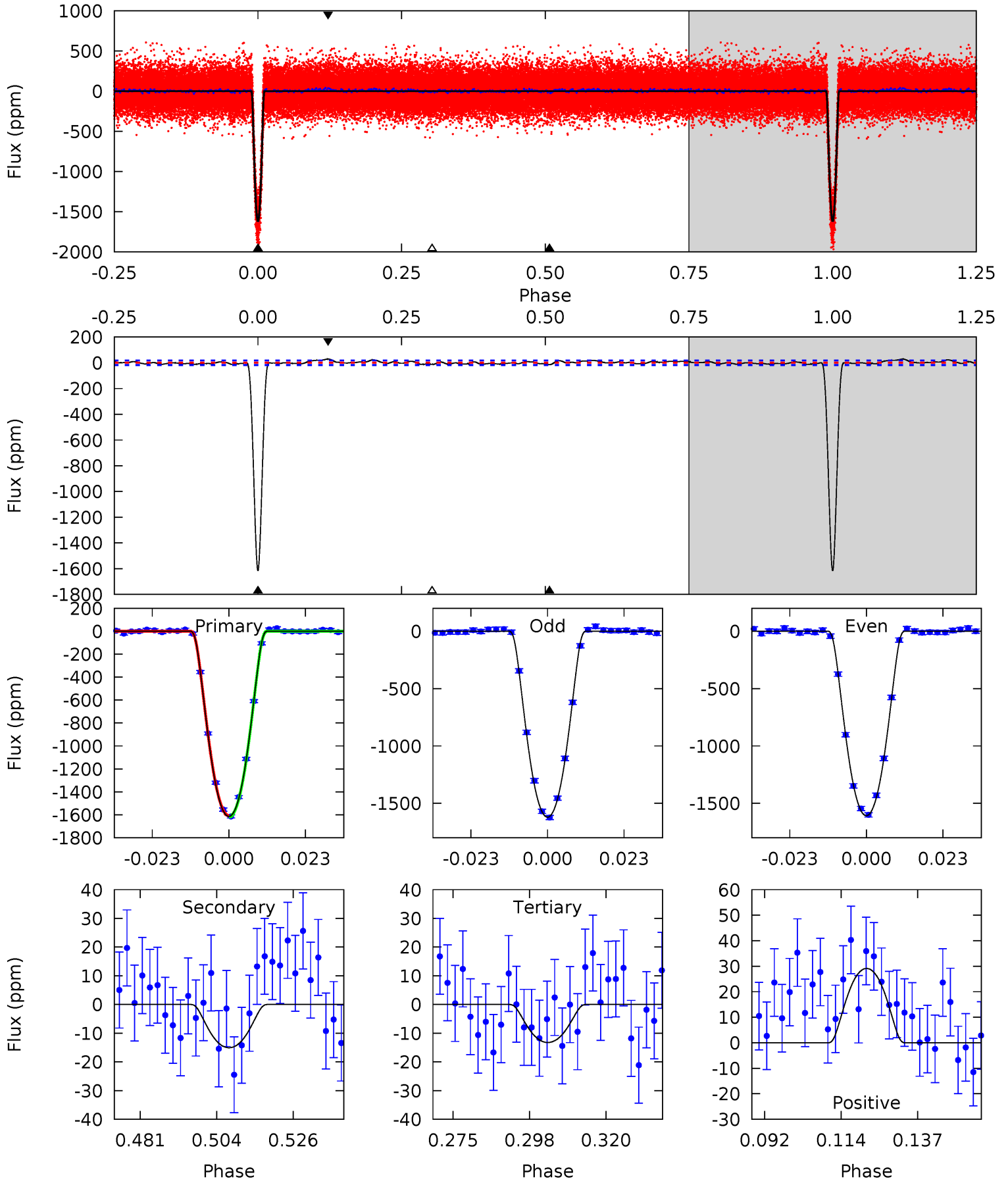
TCE 004055765-01   P= 9.966392 Days    $T_0=141.153775$  (BKJD)



# DV Model-Shift Uniqueness Test

004055765-01, P = 9.966398 Days, E = 131.186834 Days

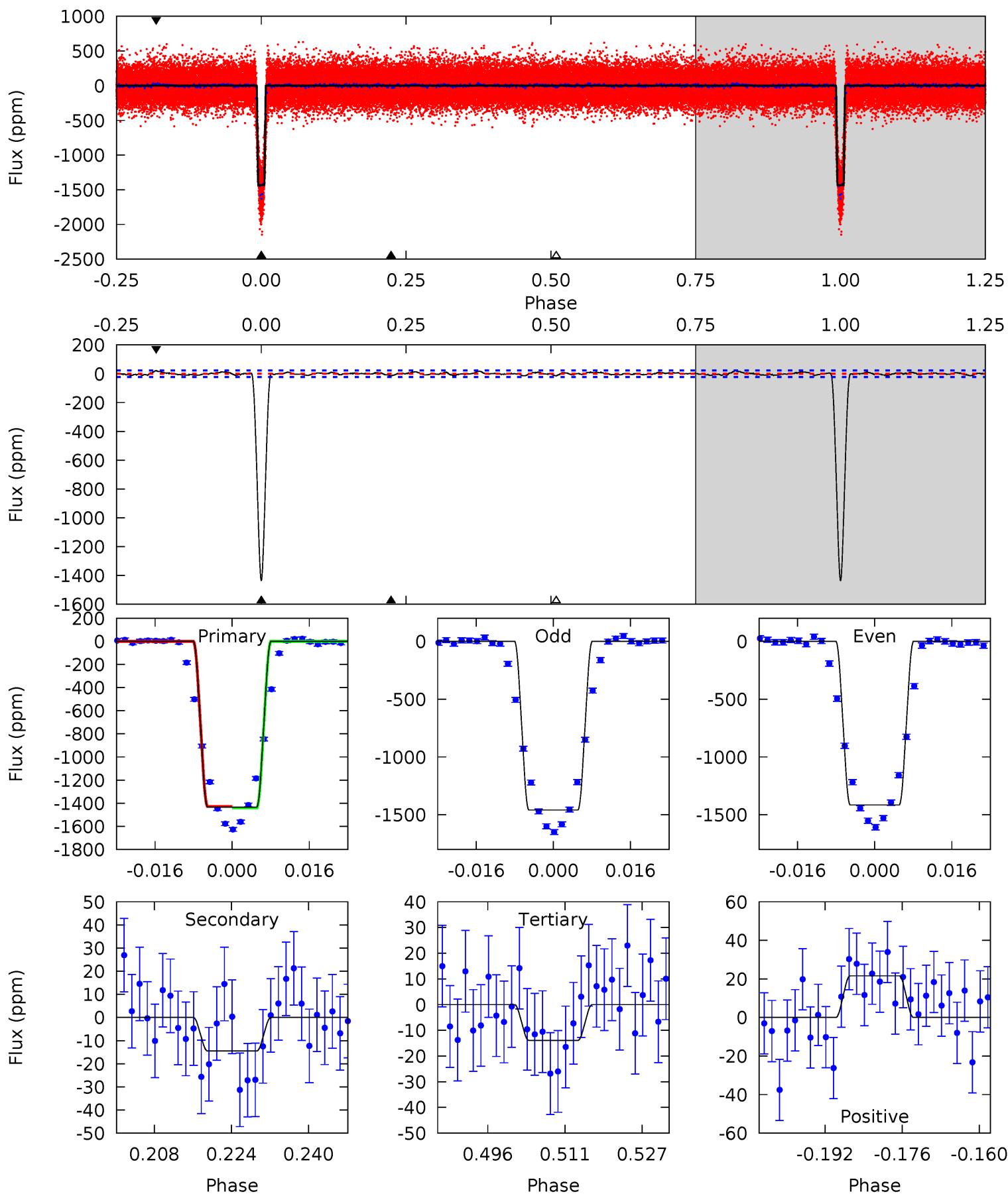
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
424.5	3.96	3.48	7.66	4.87	2.28	2.24	421.0	416.8	0.48	-3.70	1.62	1.00	0.02	1.62



# Alt Model-Shift Uniqueness Test

004055765-01, P = 9.966392 Days, E = 131.187383 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
308.6	3.12	2.99	4.65	4.94	2.41	1.33	305.6	304.0	0.13	-1.53	4.66	0.99	0.01	1.36





### Stellar Parameters For KIC 004055765

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6638^{+120}_{-133}$	$3.664^{+0.195}_{-0.065}$	$-0.160^{+0.150}_{-0.100}$	$3.079^{+0.391}_{-0.782}$	$1.595^{+0.176}_{-0.194}$	$0.077^{+0.085}_{-0.017}$
	+2%/-2%	+5%/-2%	+94%/-62%	+13%/-25%	+11%/-12%	+111%/-22%
Source	SPE18	SPE18	SPE18	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 004055765-01 / KOI 0100.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-15 \pm 4$	$16.54^{+1.50}_{-1.98}$	$2176^{+92}_{-124}$	$2075^{+318}_{-4211}$	$0.345^{+0.129}_{-0.098}$
Alt.	$-14 \pm 5$	$13.21^{+1.23}_{-1.73}$	$2183^{+88}_{-134}$	$2511^{+194}_{-418}$	$0.523^{+0.231}_{-0.182}$

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

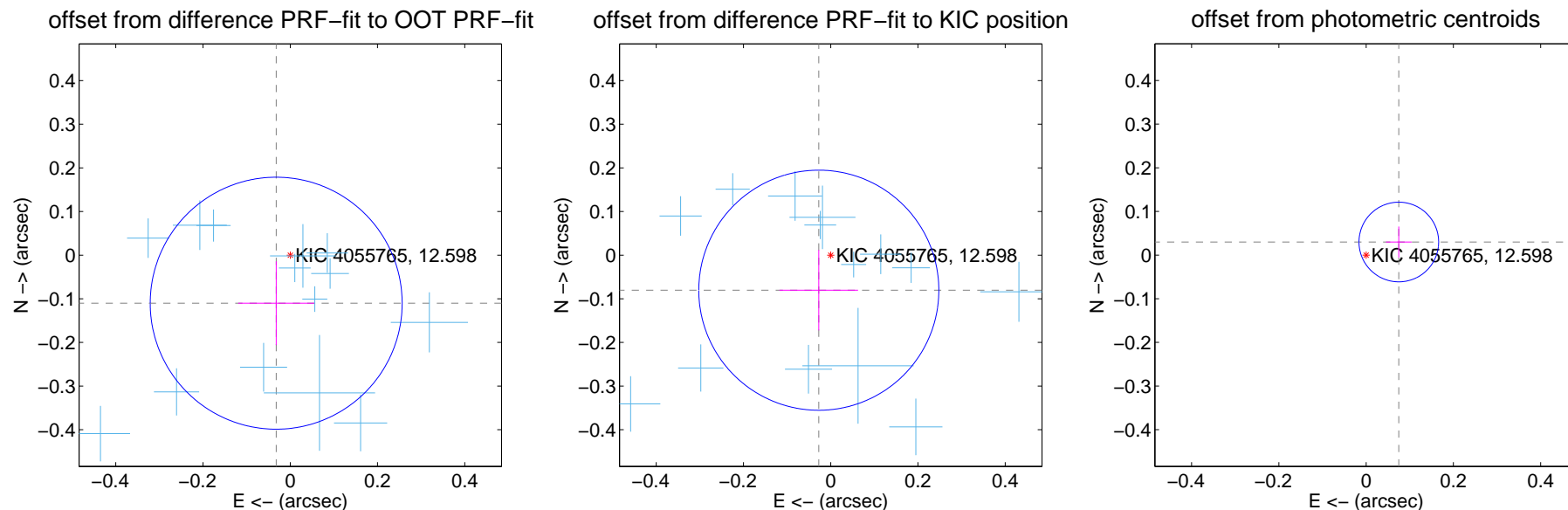
## DV Centroid Data

Supplemental centroid analysis for 004055765-01. Kepler magnitude: 12.60. Transit SNR 168.58

There are 17 quarters with good PRF difference image offsets

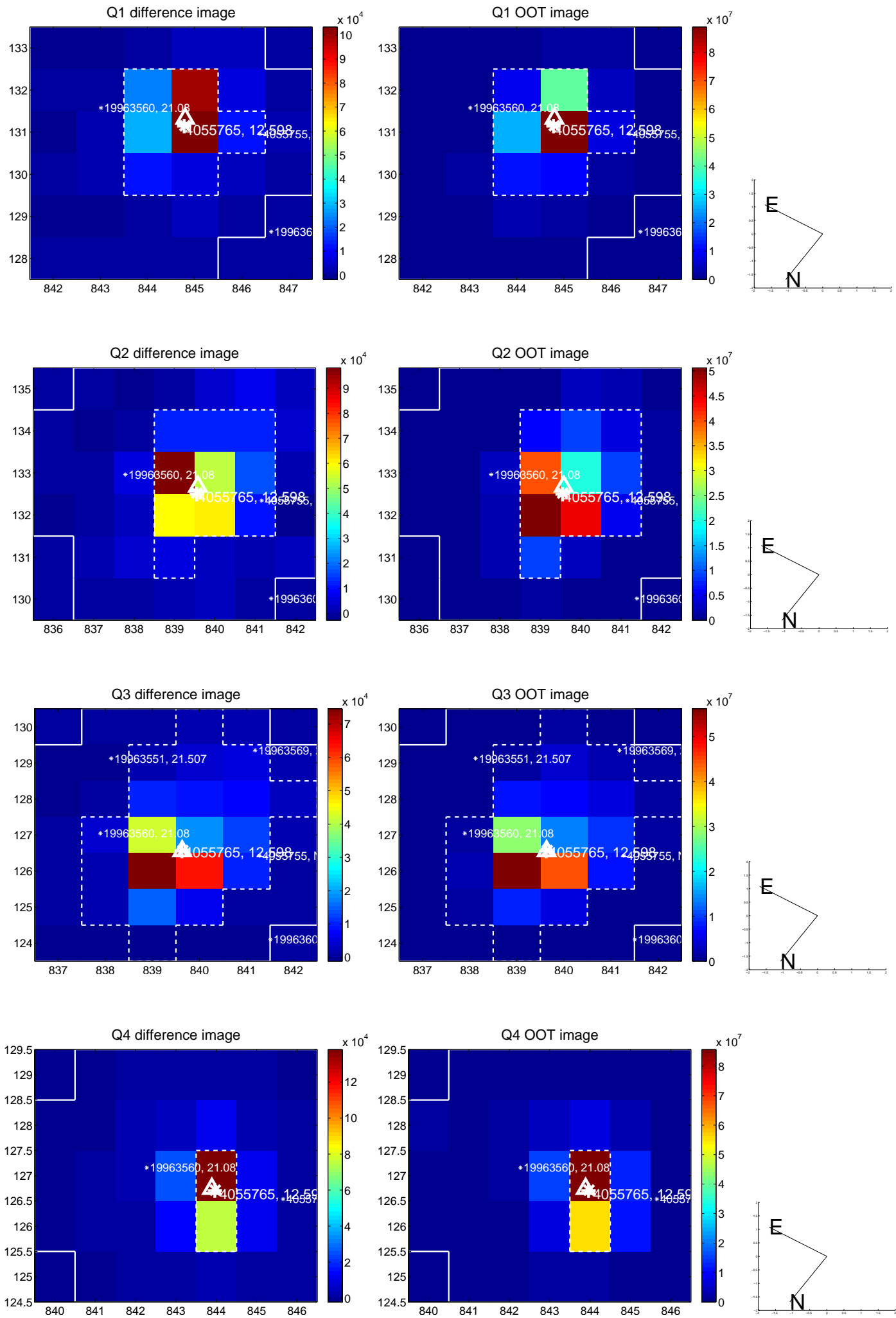
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.115 \pm 0.096$	1.19	$0.032 \pm 0.087$	$-0.110 \pm 0.096$
PRF-fit source offset from KIC position	$0.085 \pm 0.092$	0.93	$0.027 \pm 0.090$	$-0.080 \pm 0.092$
photometric centroid source offset	$0.08 \pm 0.03$	2.65	$-0.07 \pm 0.03$	$0.03 \pm 0.04$

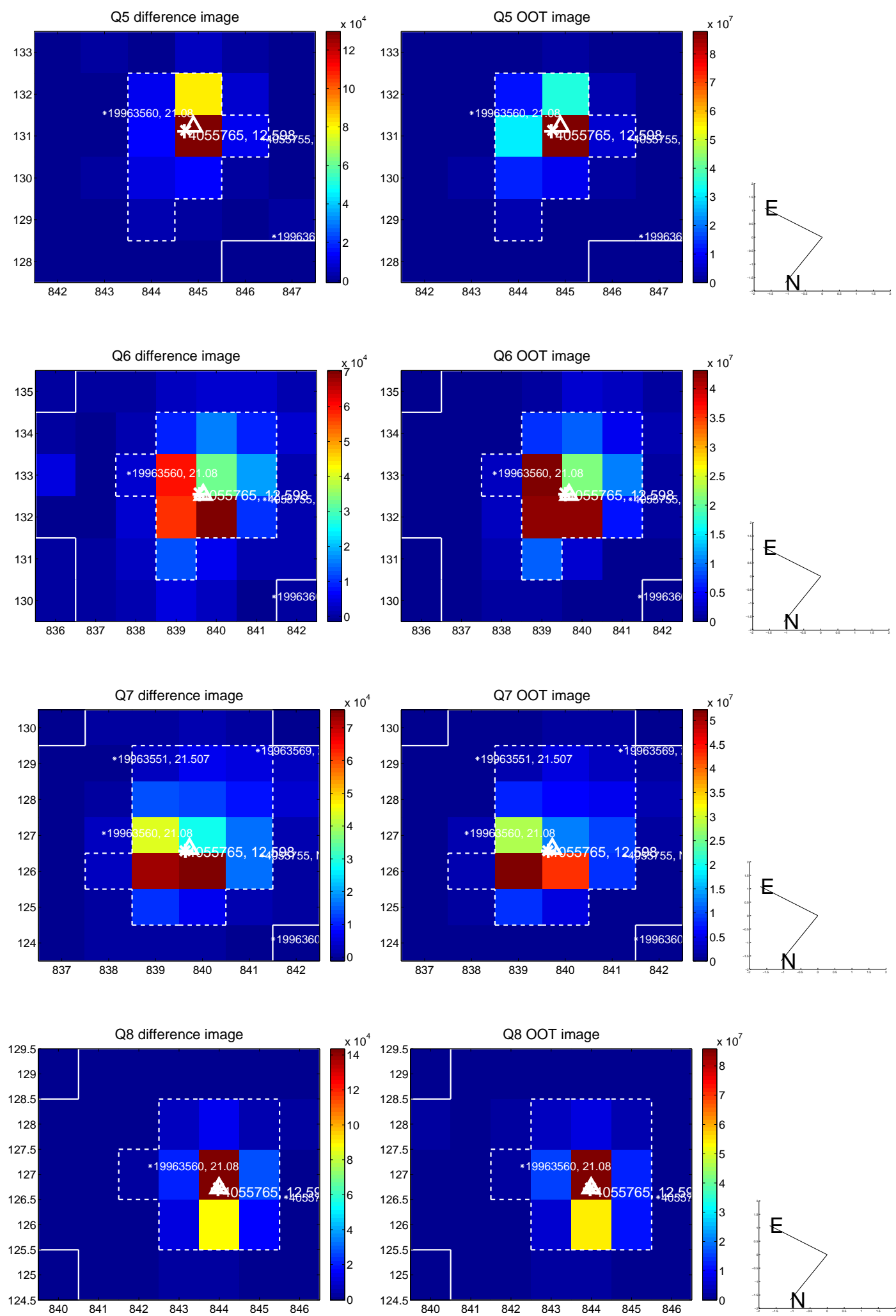


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

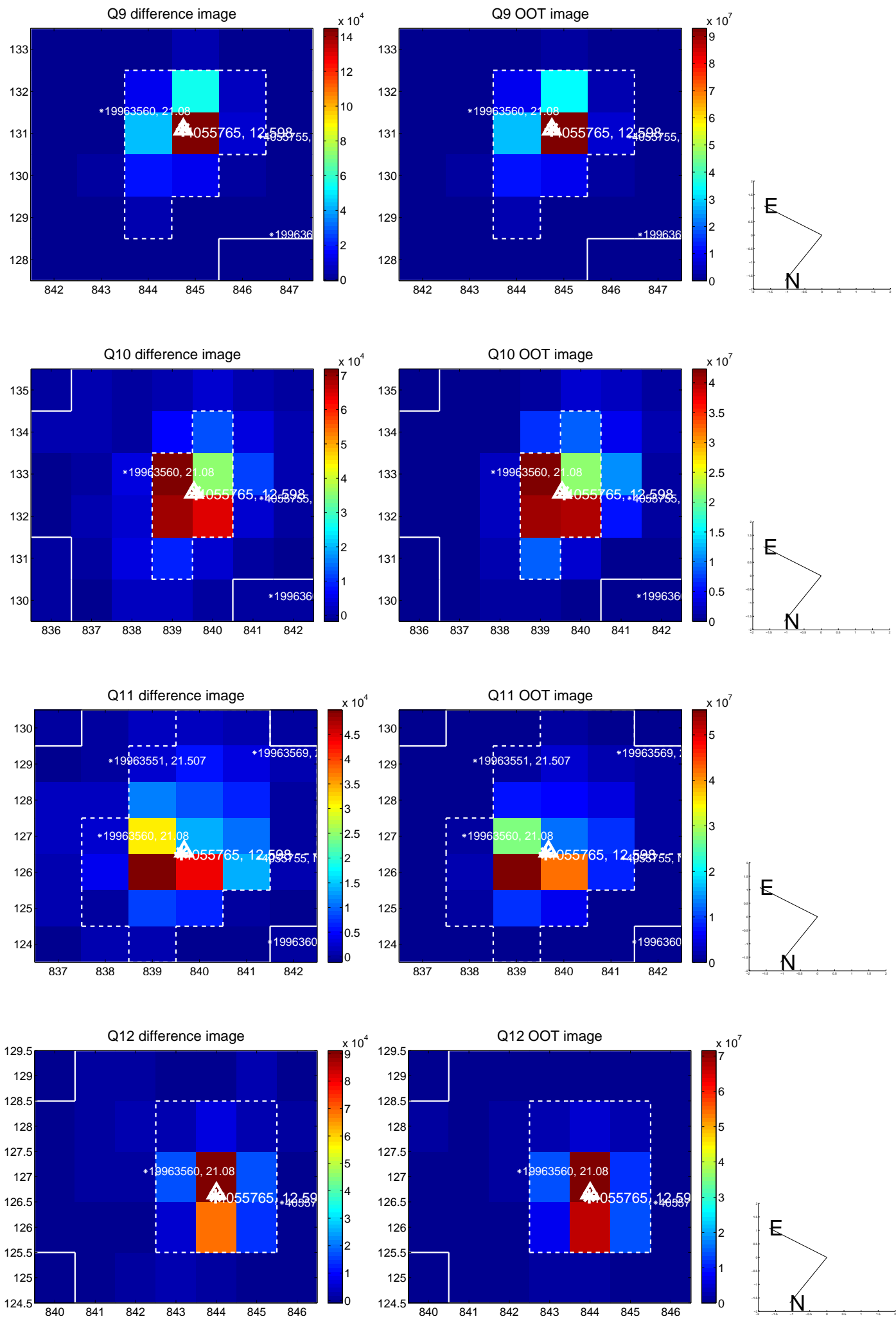


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

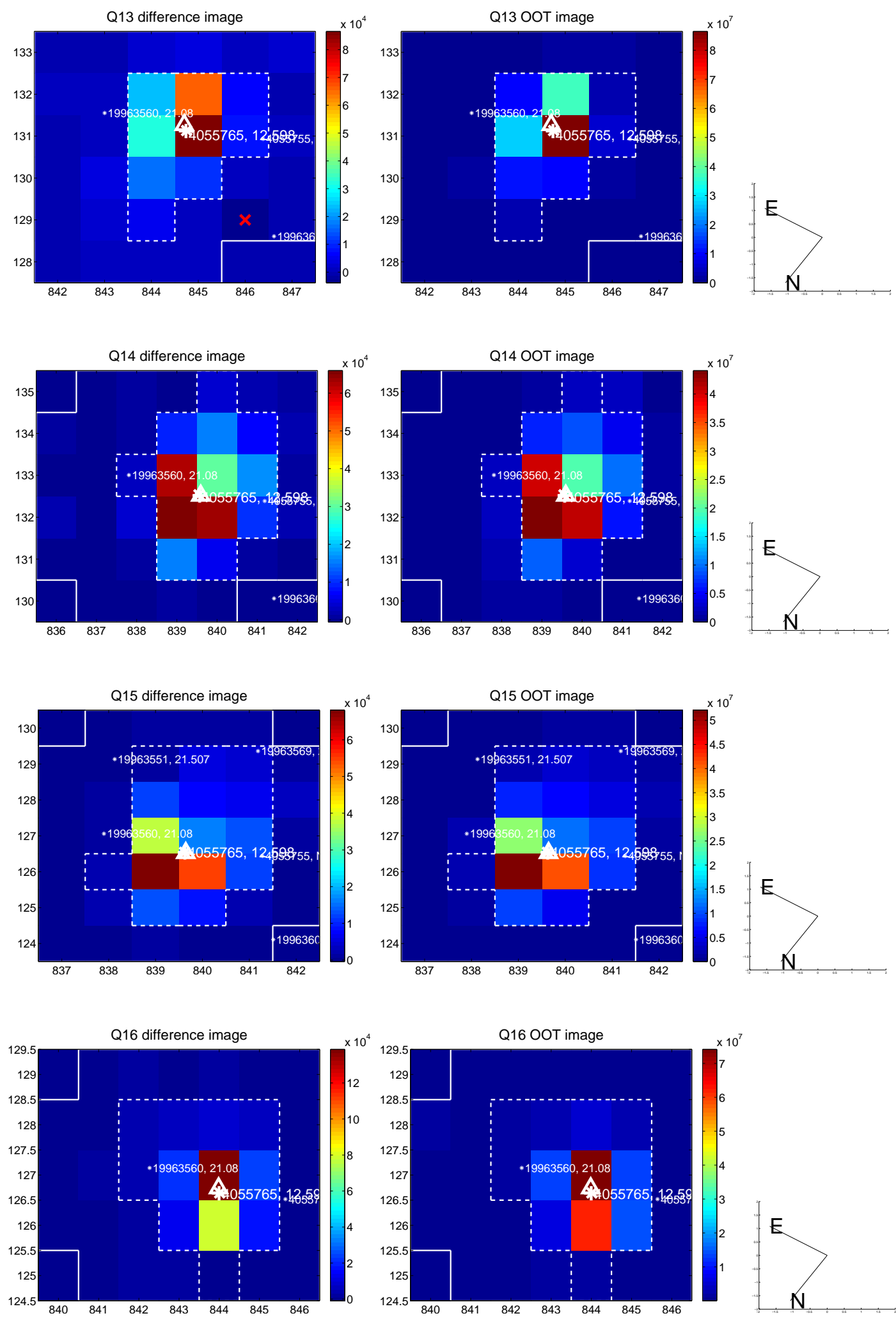




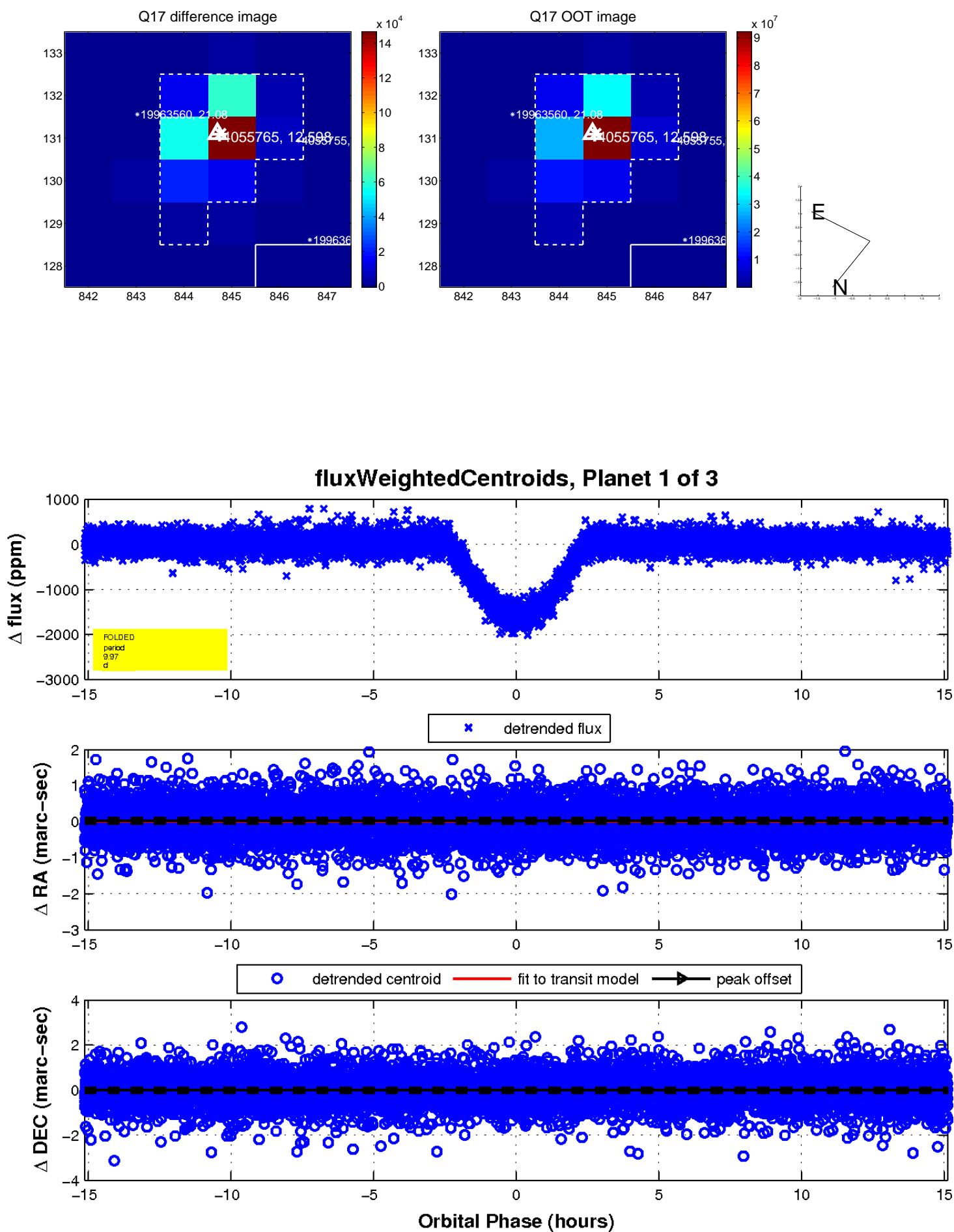
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

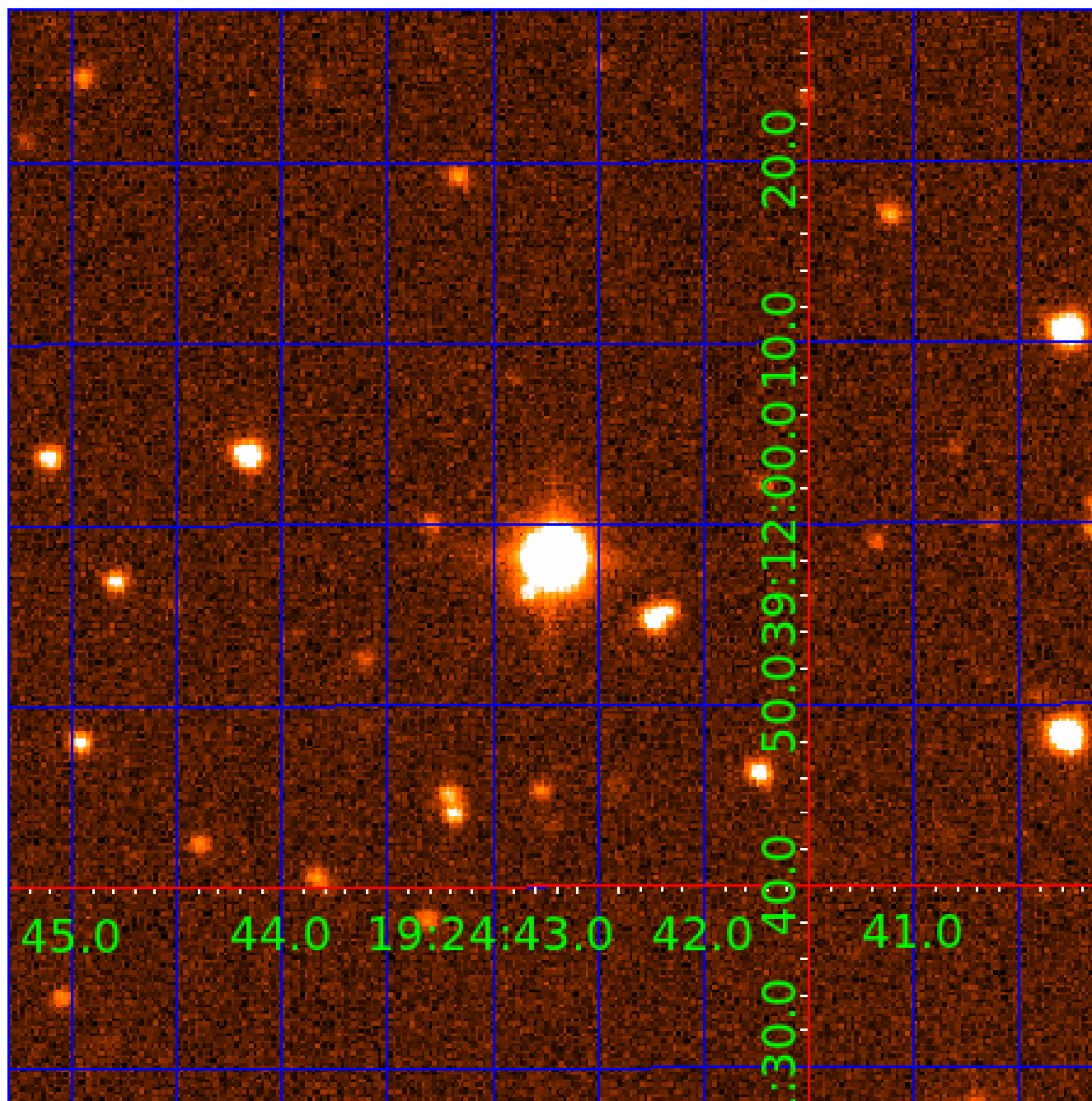


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 004055765

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004055765-01	OBS	0100.01	9.966398	141.153232	1629.7	5.044	161.1	168.6	3.08	6638	16.89	1469.83
004055765-02	OBS	No	4.307893	132.571225	130.7	18.052	16.4	20.4	3.08	6638	7.00	4497.42
004055765-03	OBS	No	4.307509	135.055488	71.2	14.794	13.3	16.2	3.08	6638	4.67	4497.95

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004055765-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004055765-02	OBS	FP	0.00	1	0	0	0	LPP_DV
004055765-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

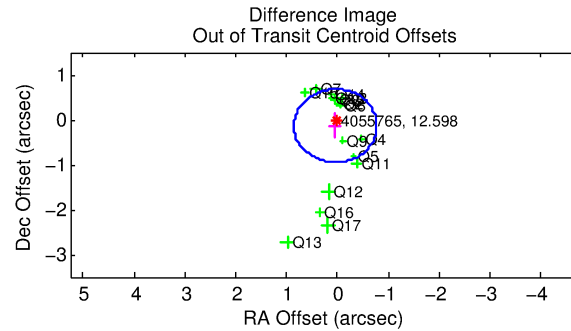
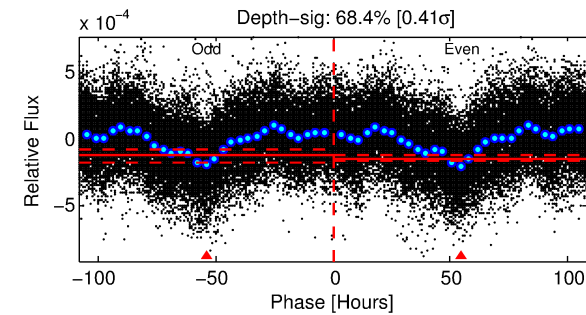
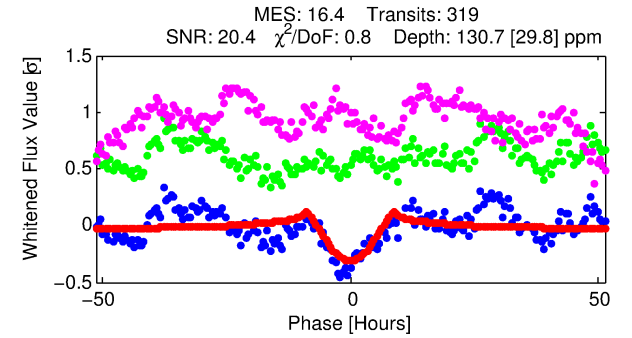
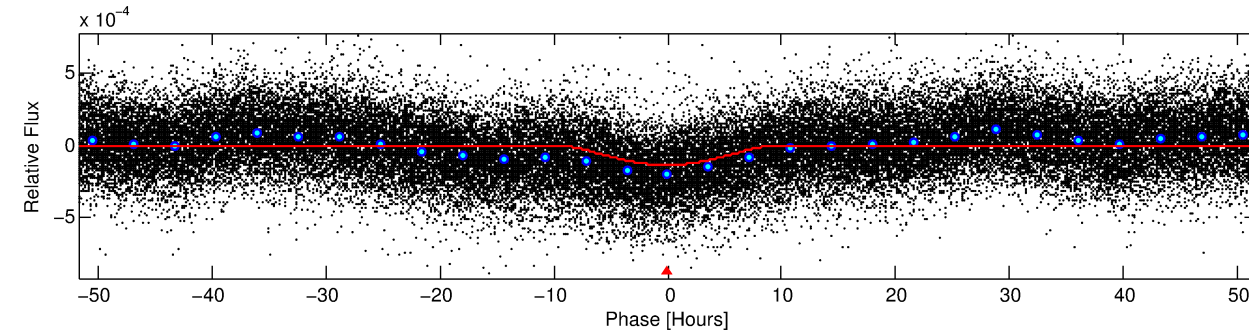
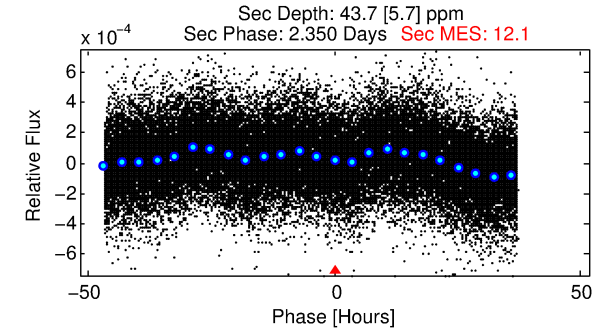
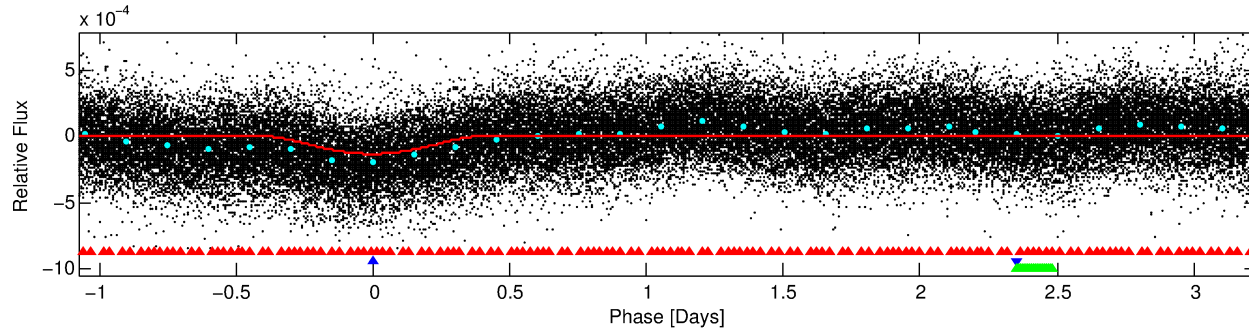
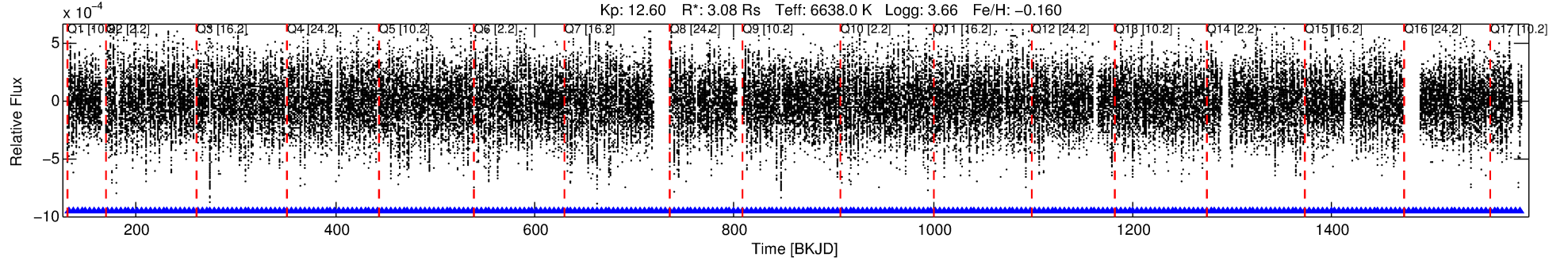
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004055765-02

No Significant Match Found

# DV One-Page Summary

KIC: 4055765 Candidate: 2 of 3 Period: 4.308 d  
KOI: K00100 Corr: No Ephemeris Match



## DV Fit Results:

Period = 4.30789 [0.00008] d  
Epoch = 132.5712 [0.0149] BKJD  
Rp/R\* = 0.0208 [0.0163]  
a/R\* = 1.07 [0.01]  
b = 1.00 [0.03]  
Seff = 4497.42 [1588.13]  
Teff = 2088 [184] K  
Rp = 7.00 [5.76] Re  
a = 0.0606 [0.0137] AU  
Ag = 1.80 [2.90] [0.28σ]  
Teffp = 3740 [1471] K [1.11σ]

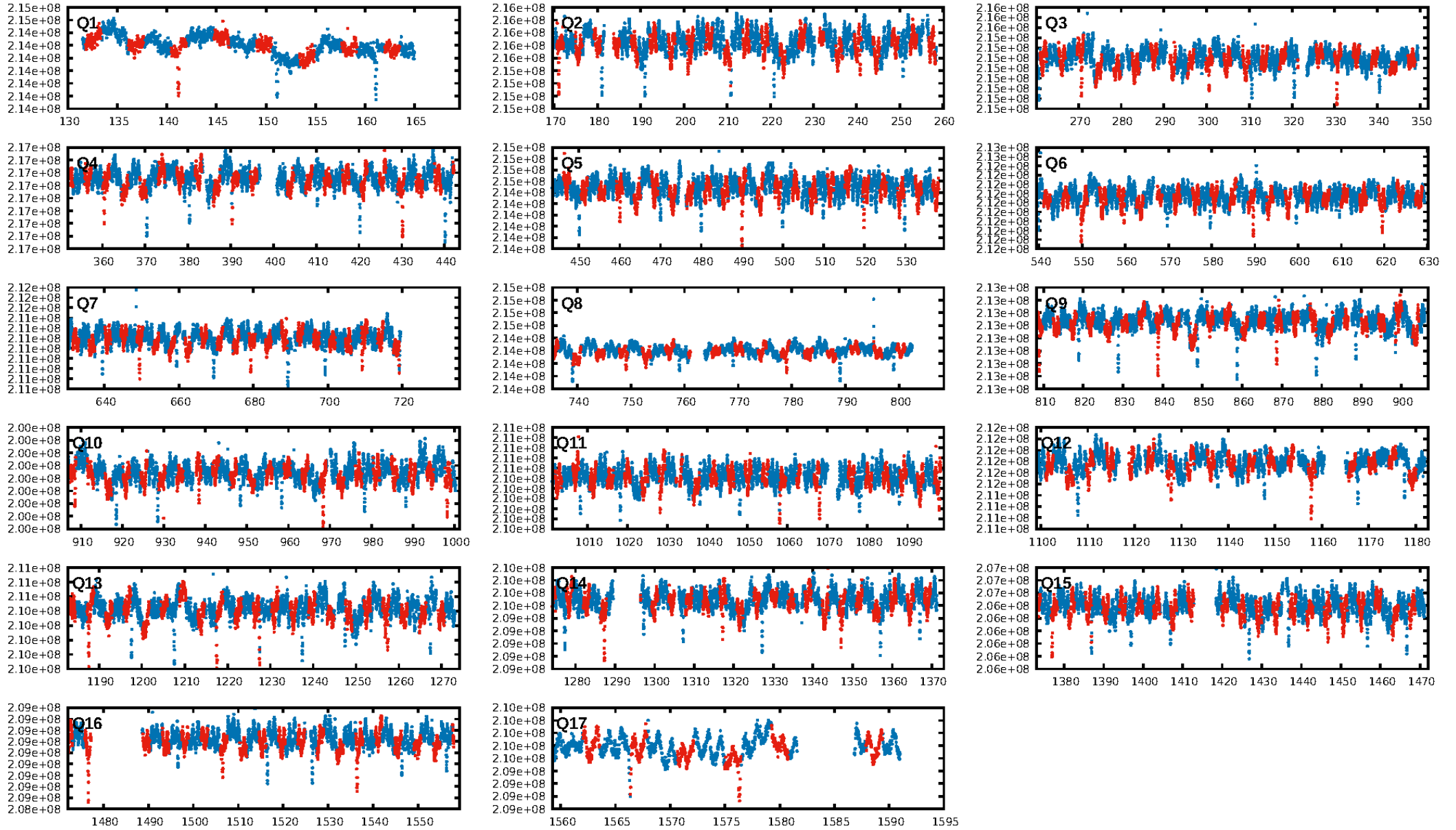
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [7.25σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [305/305]  
GhostDiagnostic-chr: 2.016  
Centroid-sig: 2.2%  
Centroid-so: 0.266 arcsec [1.51σ]  
OotOffset-rm: 0.139 arcsec [0.51σ]  
KicOffset-rm: 0.085 arcsec [0.36σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [17/17]

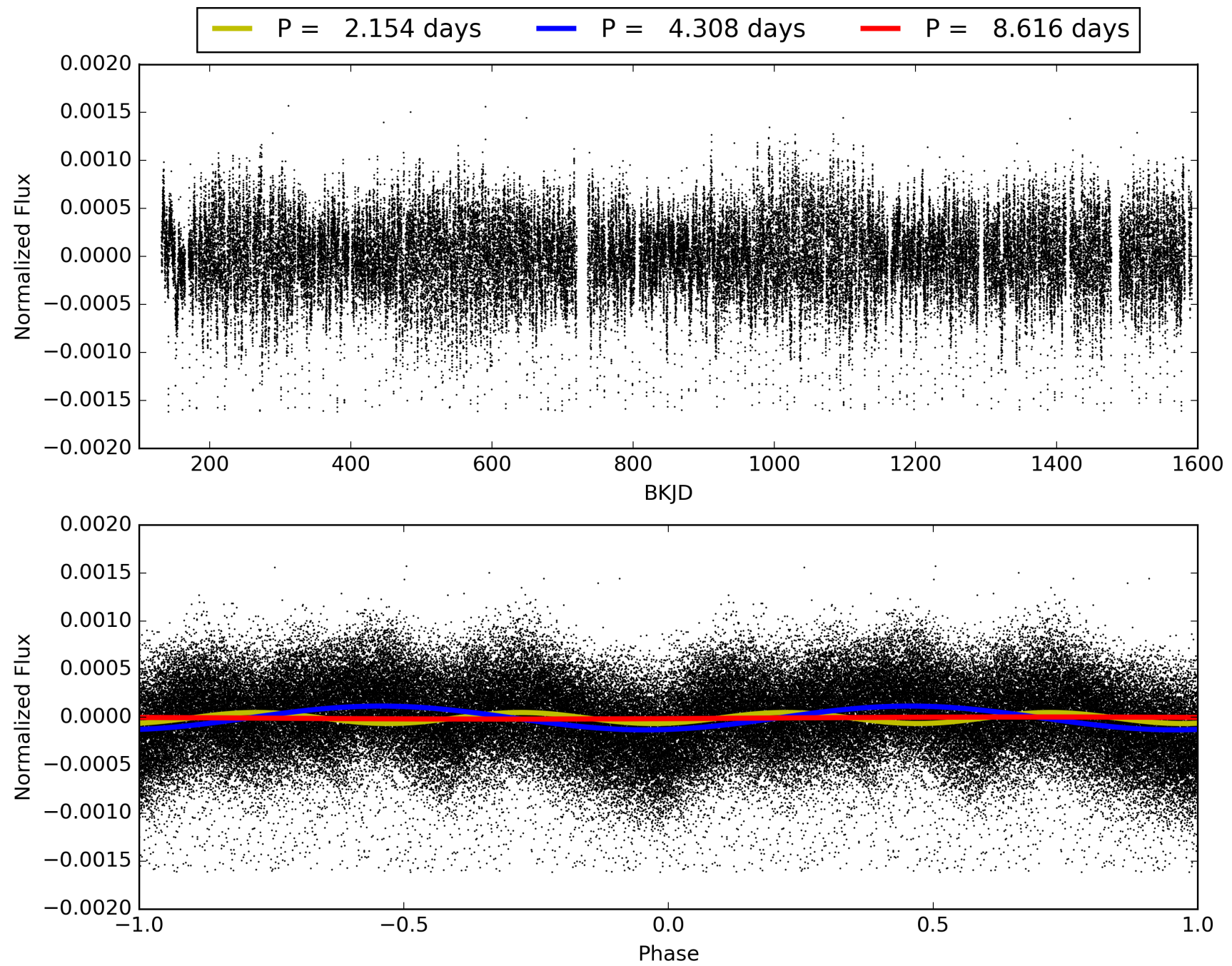
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:42:28 Z

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

# TCE 004055765-02, PDC Light Curves

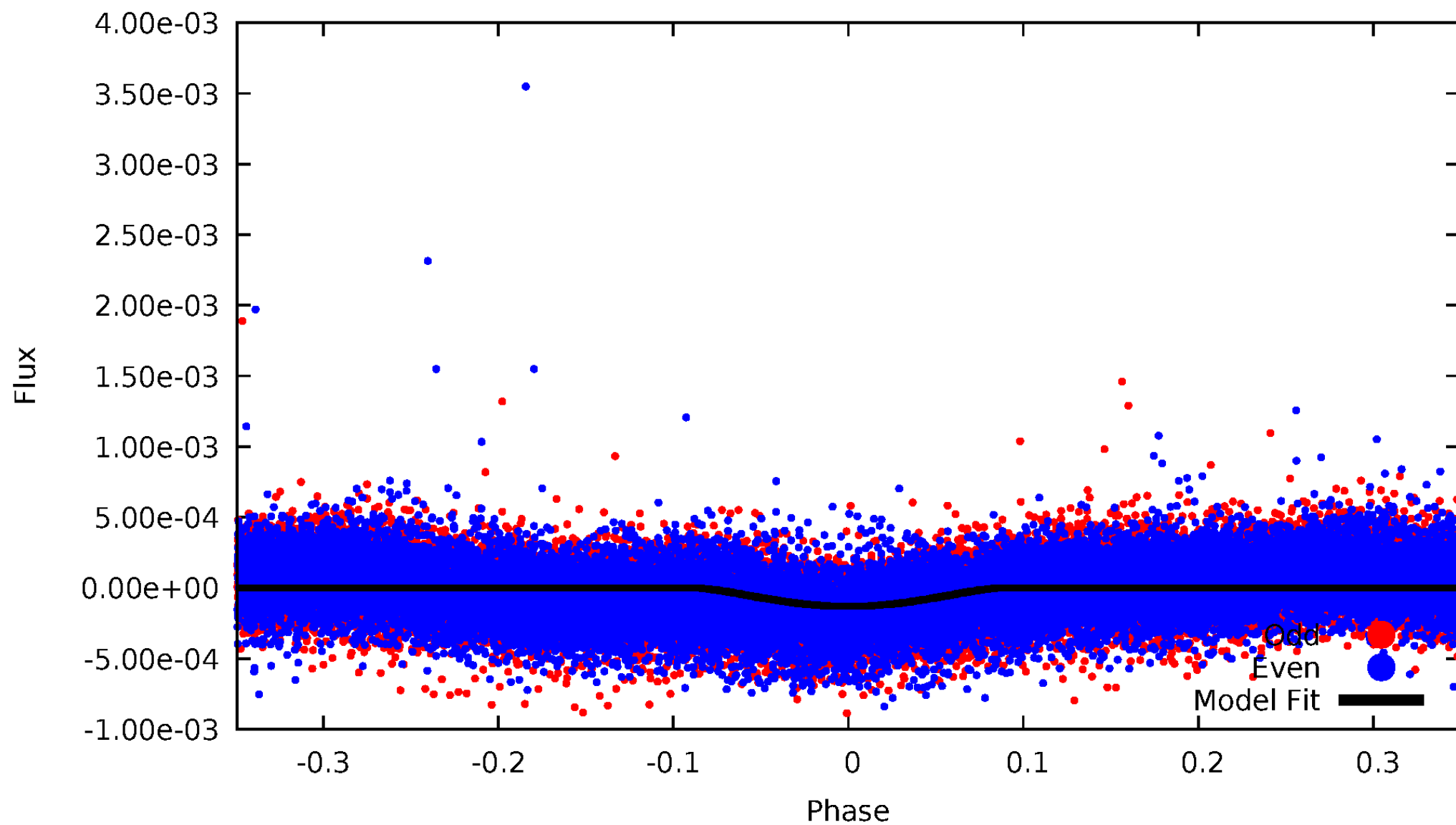


TCE 004055765-02



# DV Odd/Even

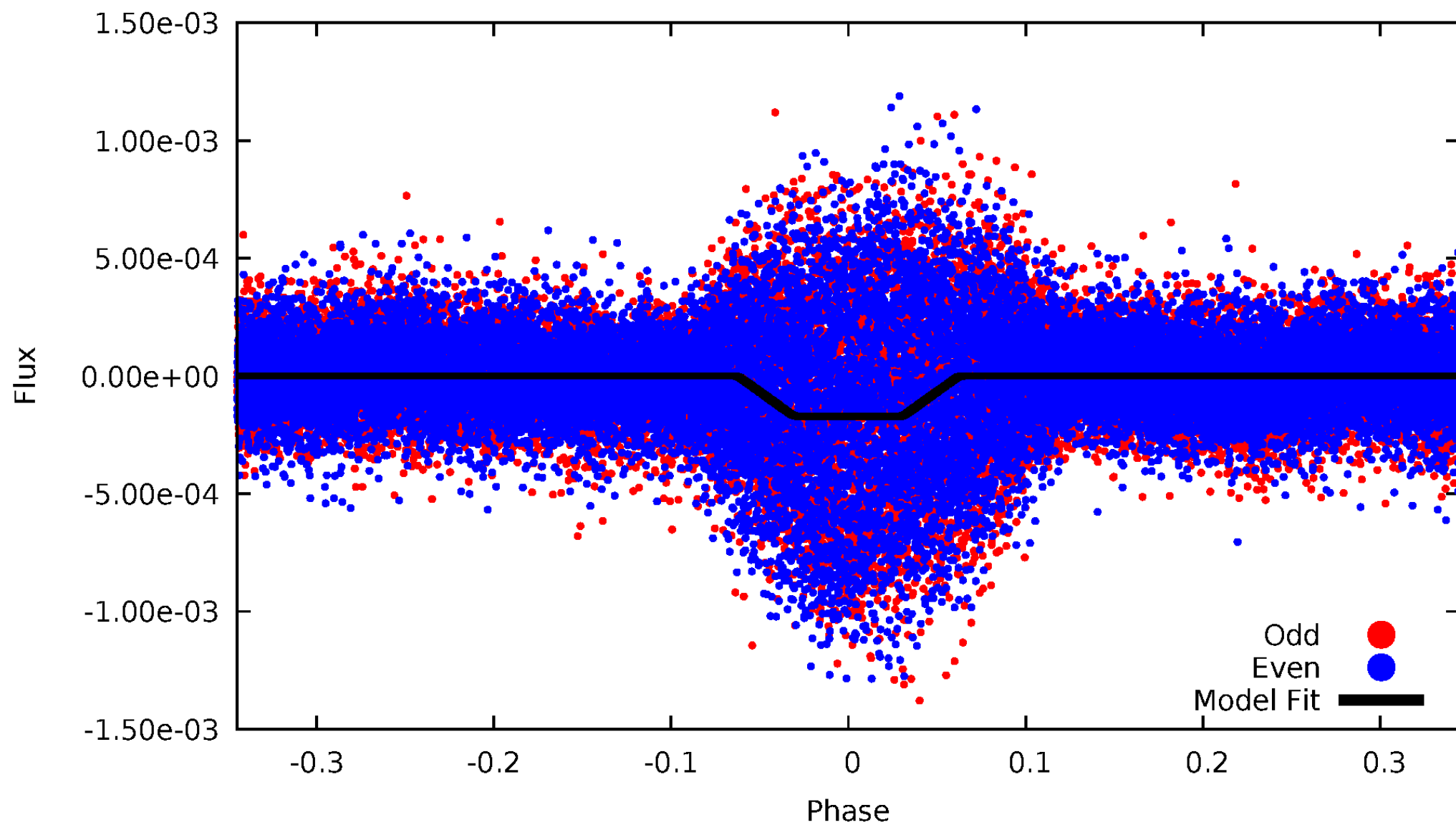
TCE 004055765-02





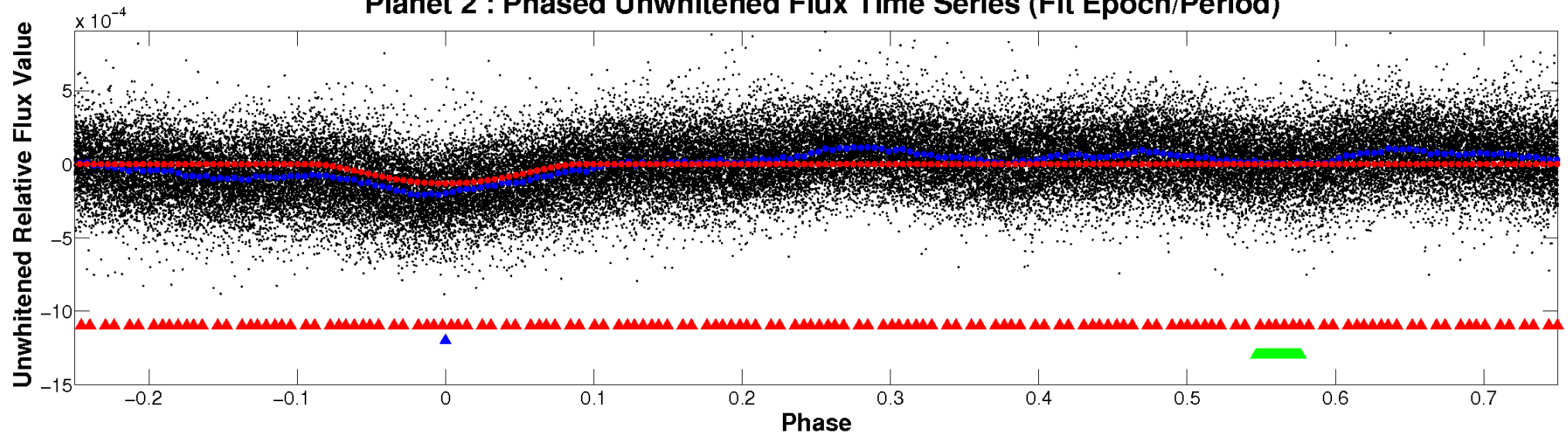
# ALT Odd/Even

TCE 004055765-02

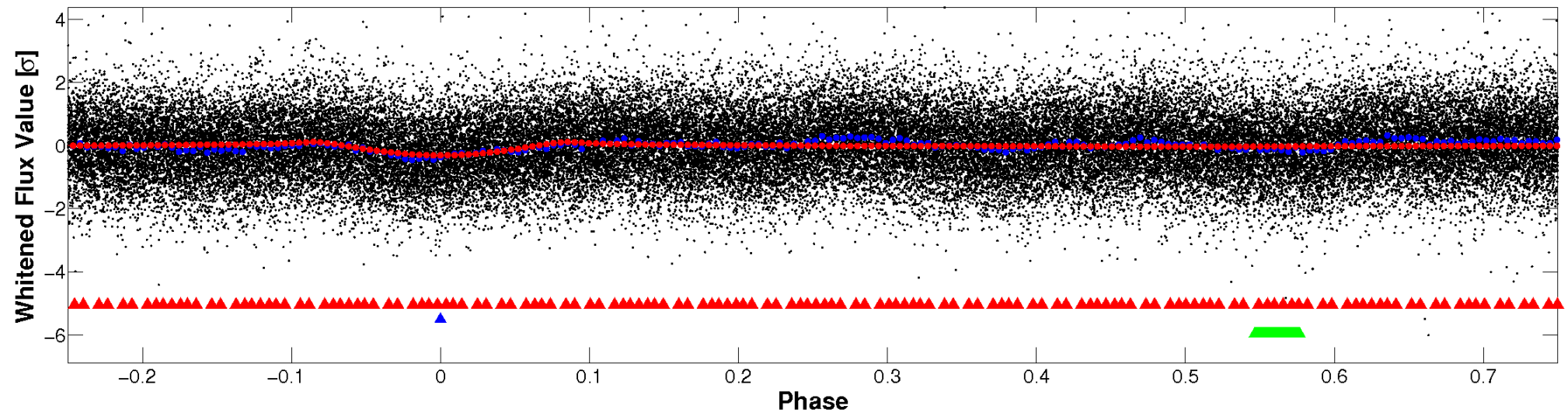


# Non-Whitened Vs. Whitened Light Curve

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



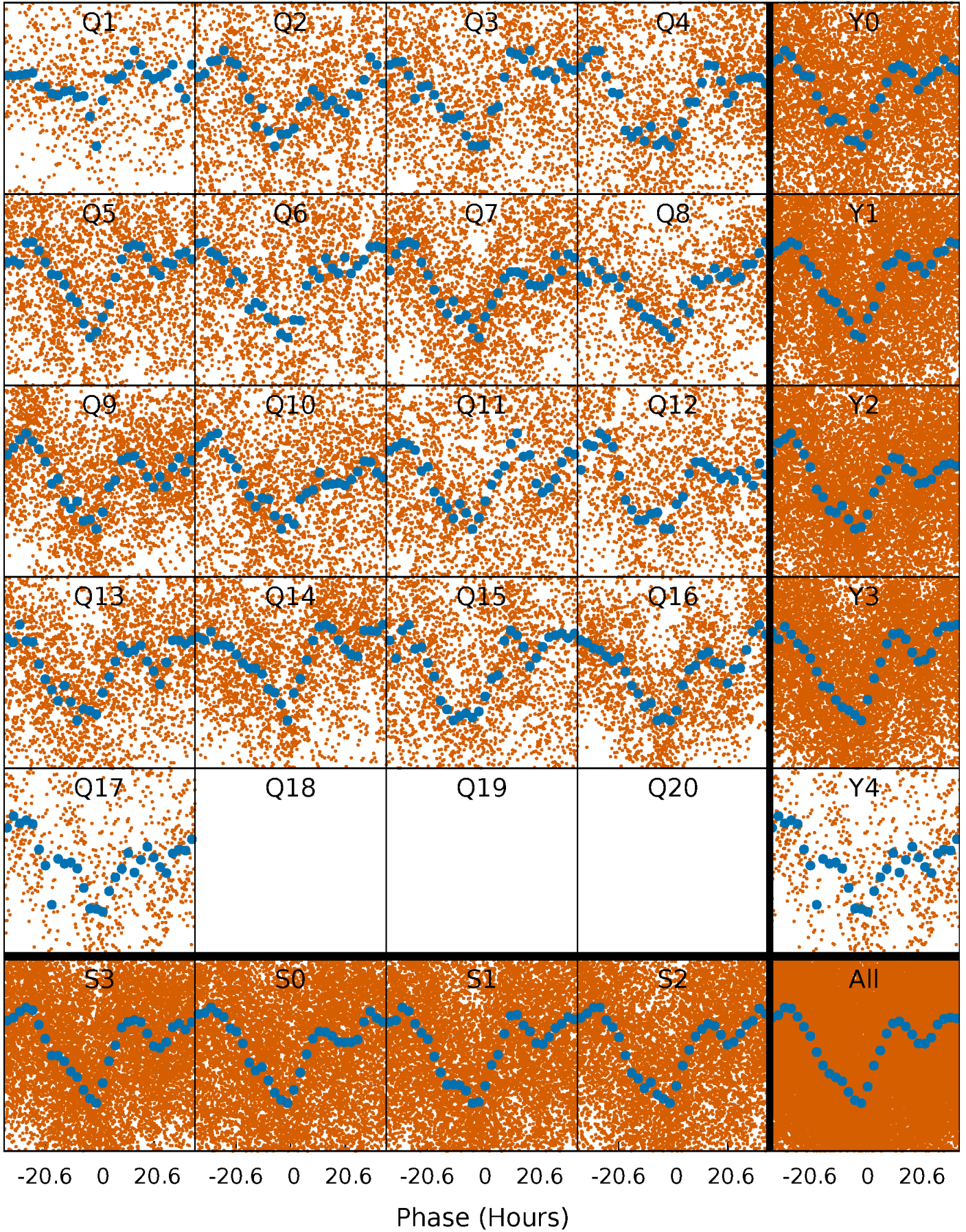
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





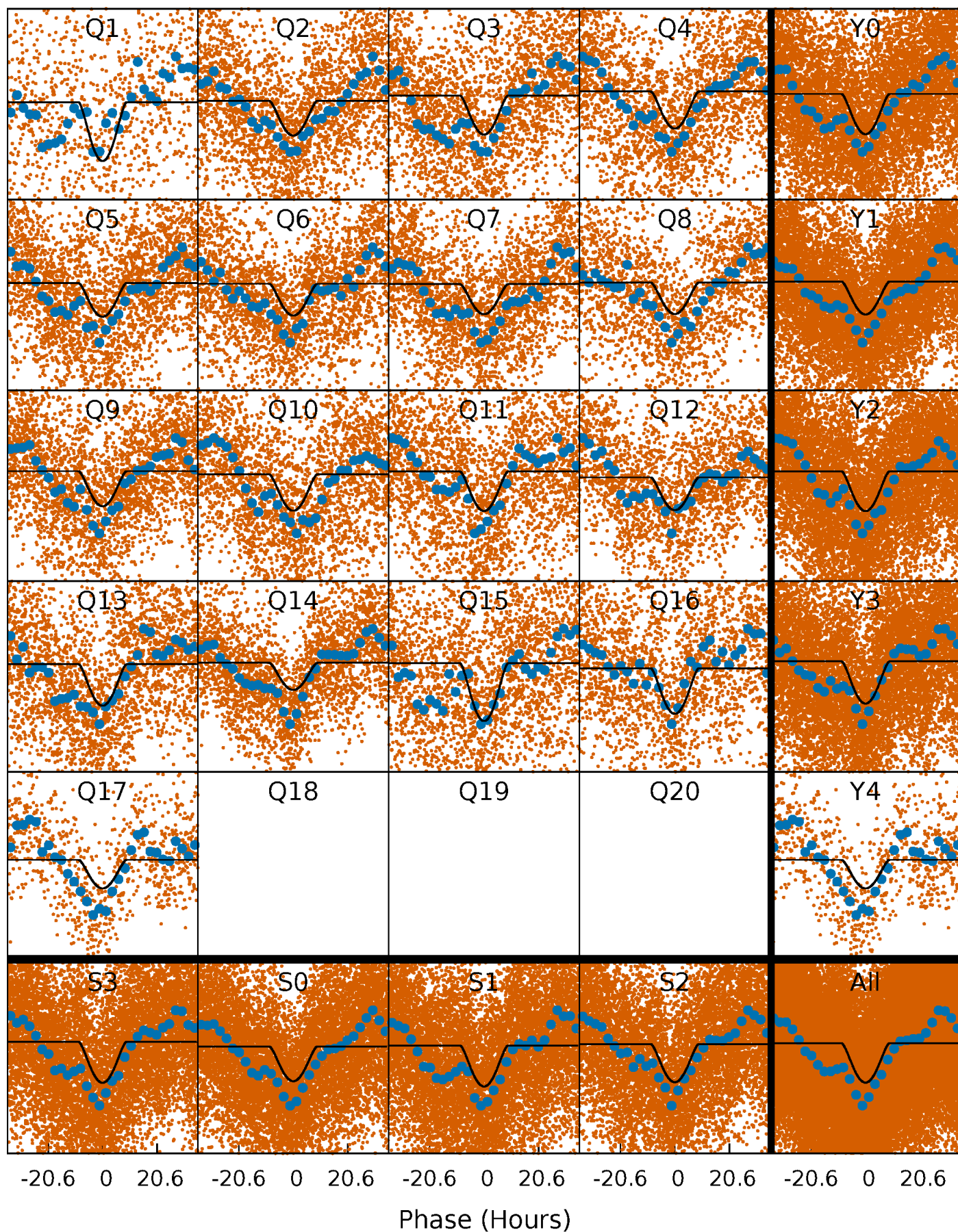
# PDC Quarter-Phased Transit Curves

TCE 004055765-02   P= 4.307893 Days    $T_0=132.571225$  (BKJD)



# DV Quarter-Phased Transit Curves

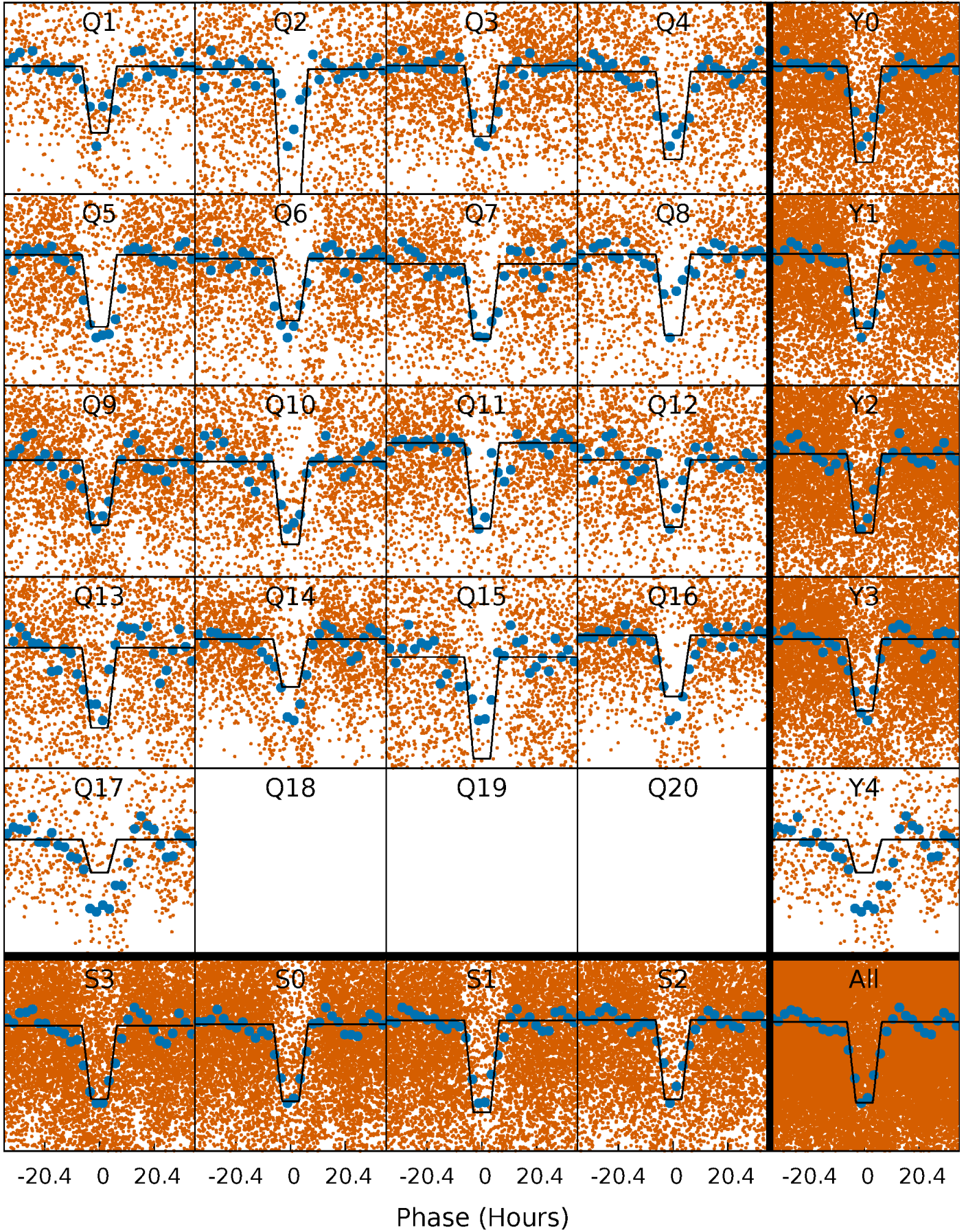
TCE 004055765-02   P= 4.307893 Days    $T_0=132.571225$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

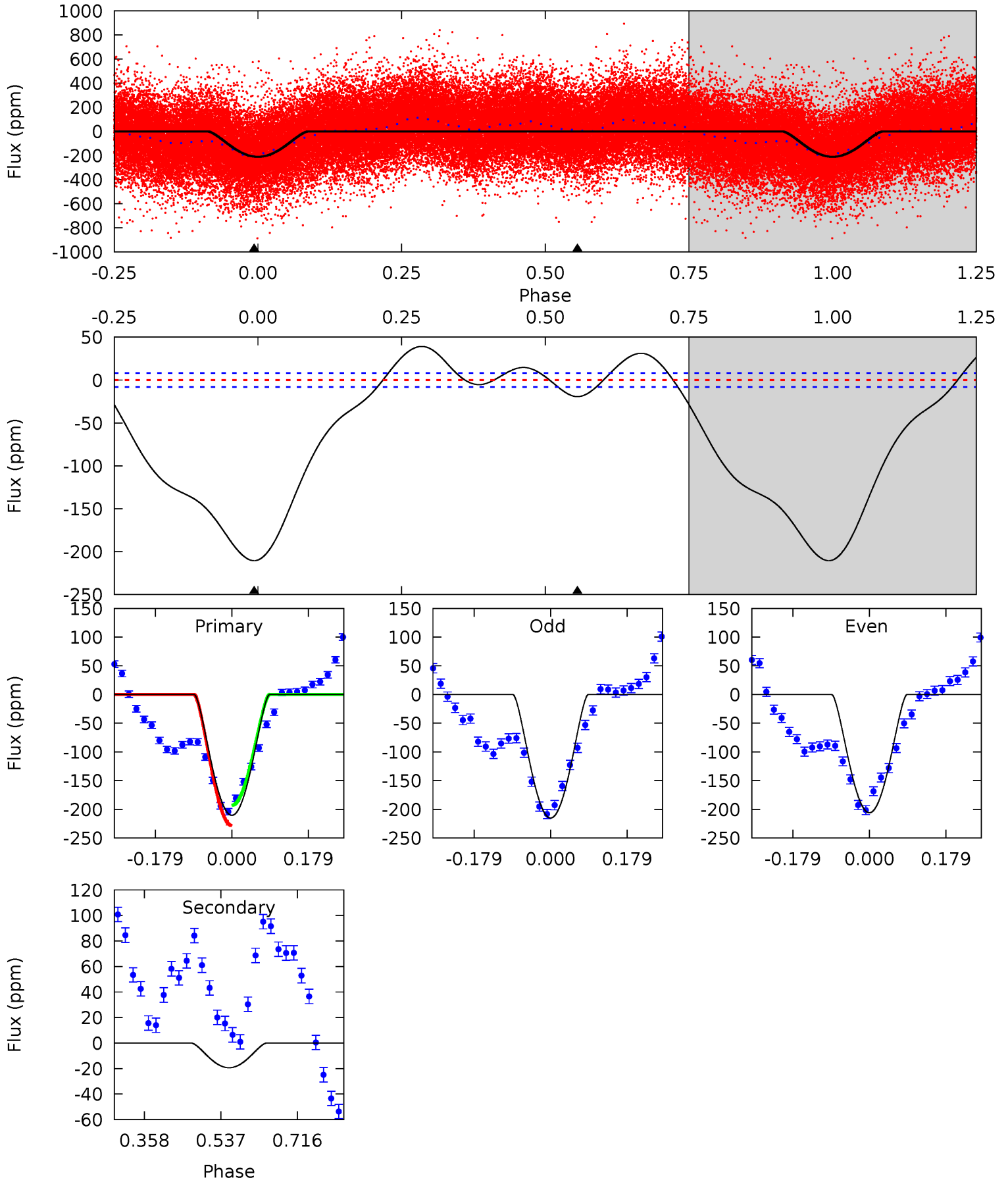
TCE 004055765-02   P= 4.307877 Days    $T_0=132.527507$  (BKJD)



# DV Model-Shift Uniqueness Test

004055765-02, P = 4.307893 Days, E = 128.263332 Days

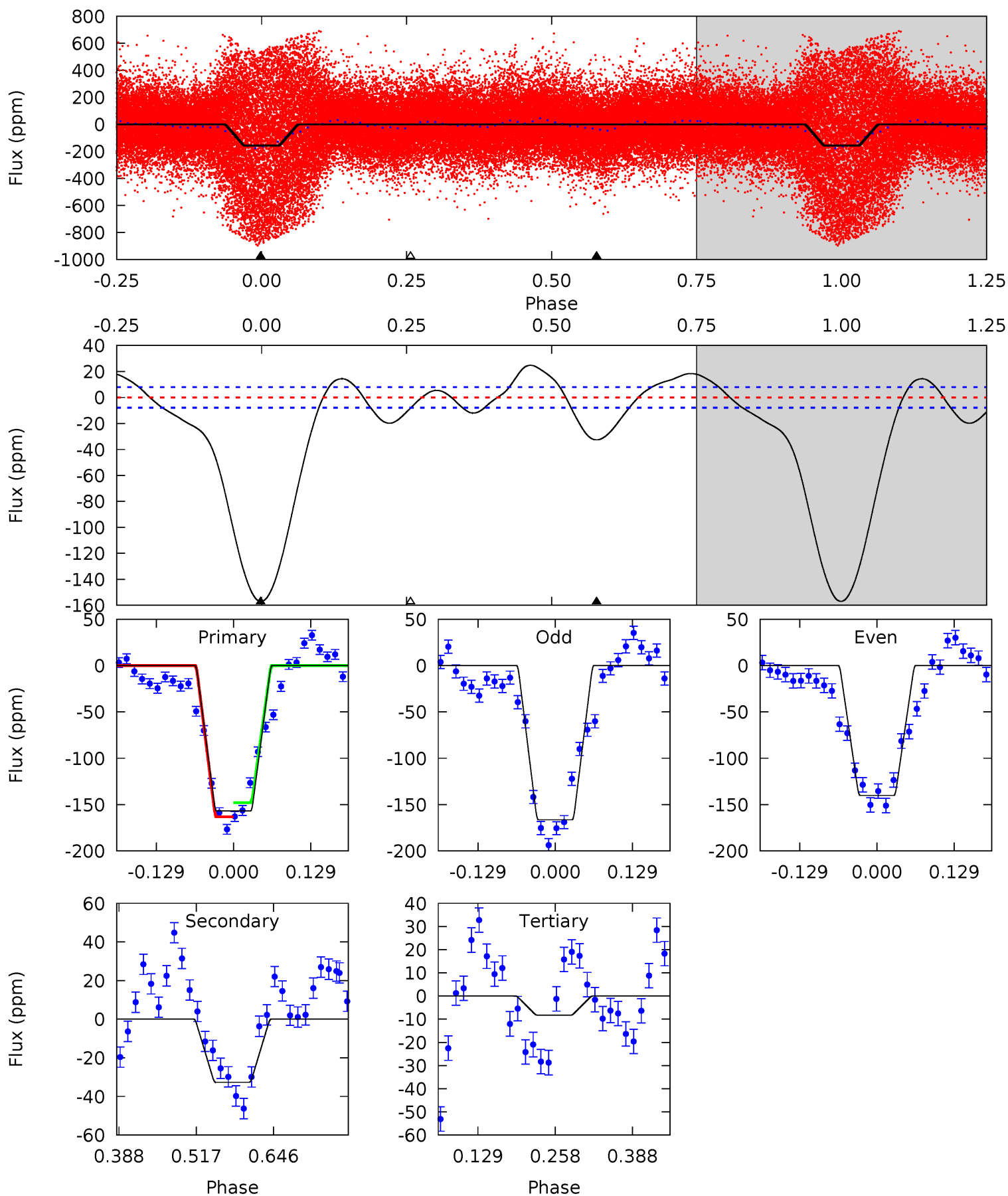
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
114.3	10.5	0	0	4.44	1.34	21.0	114.3	114.3	10.5	10.5	2.48	1.11	0.16	9.50



# Alt Model-Shift Uniqueness Test

004055765-02, P = 4.307877 Days, E = 128.219630 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
90.0	18.7	4.71	0	4.51	1.52	6.59	85.3	90.0	14.0	18.7	7.47	1.05	0.14	4.40



### Stellar Parameters For KIC 004055765

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6638^{+120}_{-133}$	$3.664^{+0.195}_{-0.065}$	$-0.160^{+0.150}_{-0.100}$	$3.079^{+0.391}_{-0.782}$	$1.595^{+0.176}_{-0.194}$	$0.077^{+0.085}_{-0.017}$
	+2%/-2%	+5%/-2%	+94%/-62%	+13%/-25%	+11%/-12%	+111%/-22%
Source	SPE18	SPE18	SPE18	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 004055765-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-19 \pm 2$	$7.30^{+5.11}_{-4.25}$	$2884^{+113}_{-190}$	$3182^{+1387}_{-5554}$	$0.749^{+3.669}_{-0.495}$
Alt.	$-33 \pm 2$	$5.54^{+5.01}_{-3.59}$	$2886^{+118}_{-180}$	$4025^{+2364}_{-1024}$	$2.209^{+15.193}_{-1.612}$

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

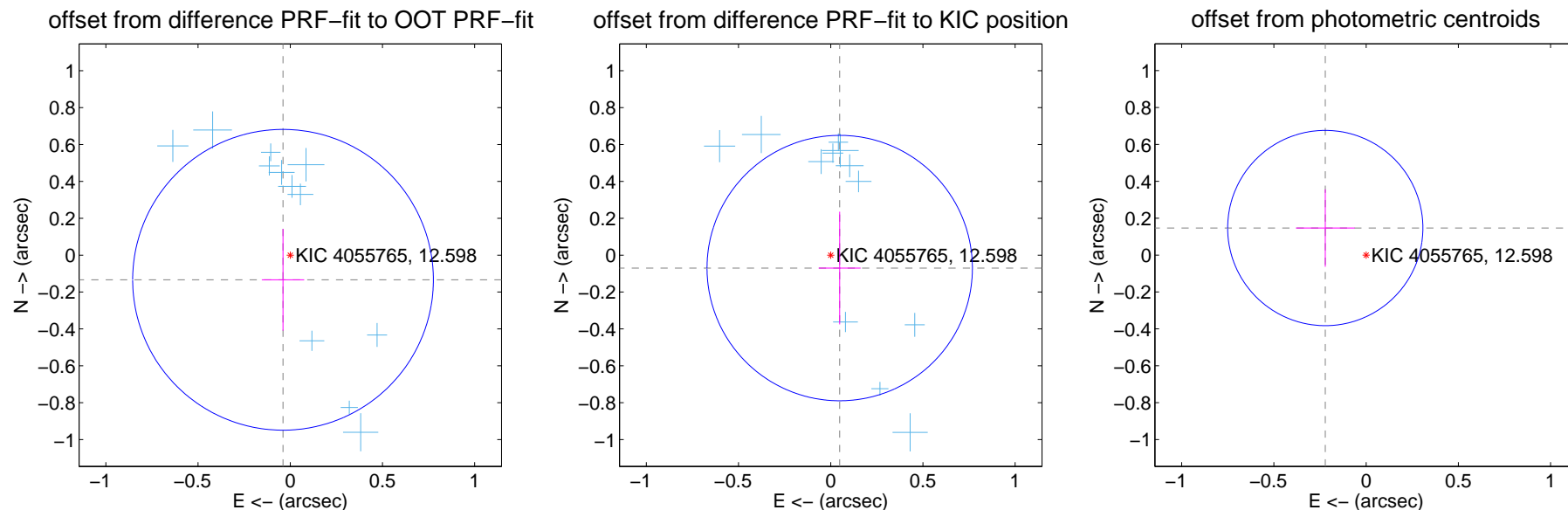
## DV Centroid Data

Supplemental centroid analysis for 004055765-02. Kepler magnitude: 12.60. Transit SNR 20.37

There are 16 quarters with good PRF difference image offsets

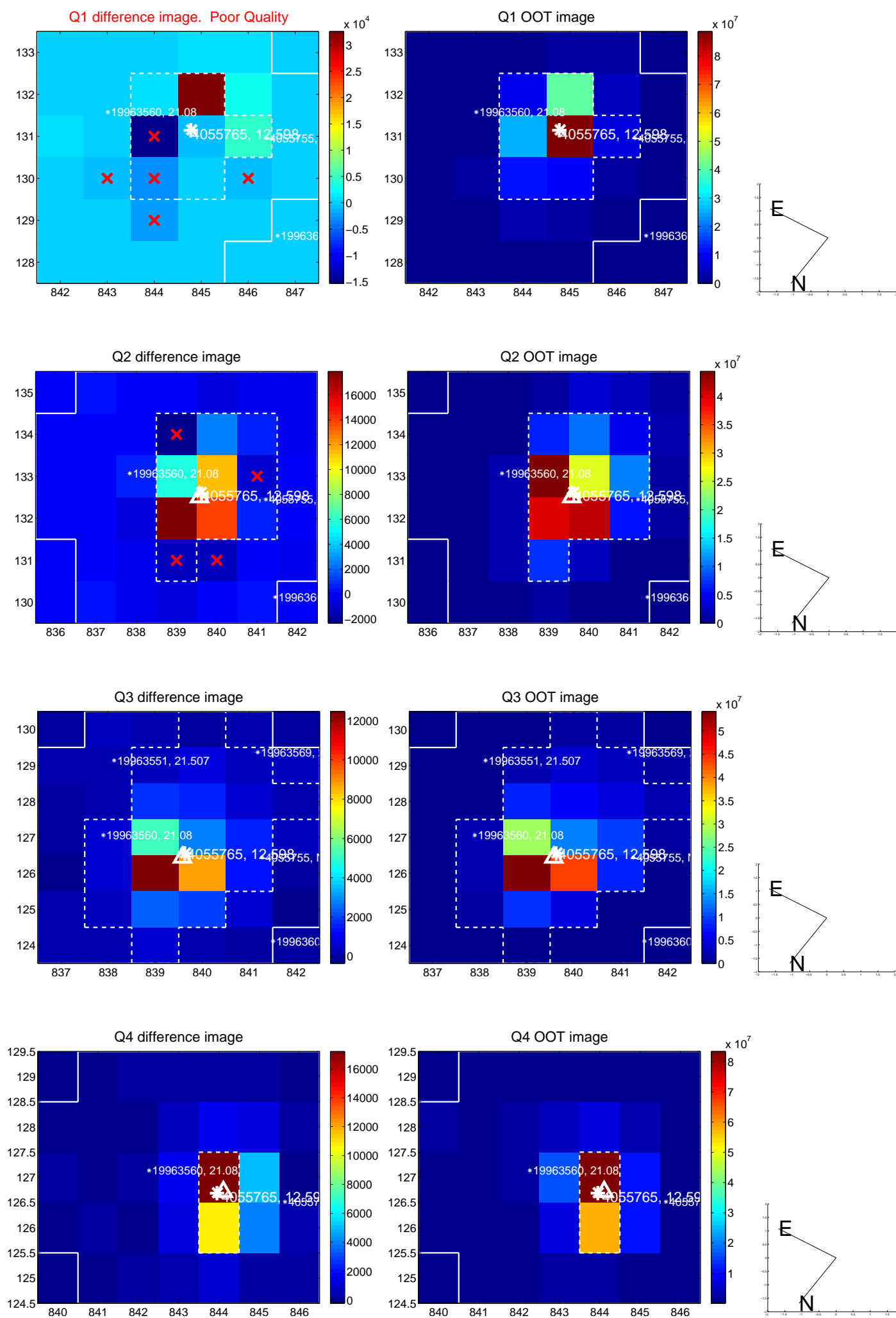
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.139 \pm 0.272$	0.51	$0.039 \pm 0.115$	$-0.134 \pm 0.276$
PRF-fit source offset from KIC position	$0.085 \pm 0.240$	0.36	$-0.049 \pm 0.114$	$-0.070 \pm 0.305$
photometric centroid source offset	$0.27 \pm 0.18$	1.51	$0.22 \pm 0.16$	$0.15 \pm 0.21$



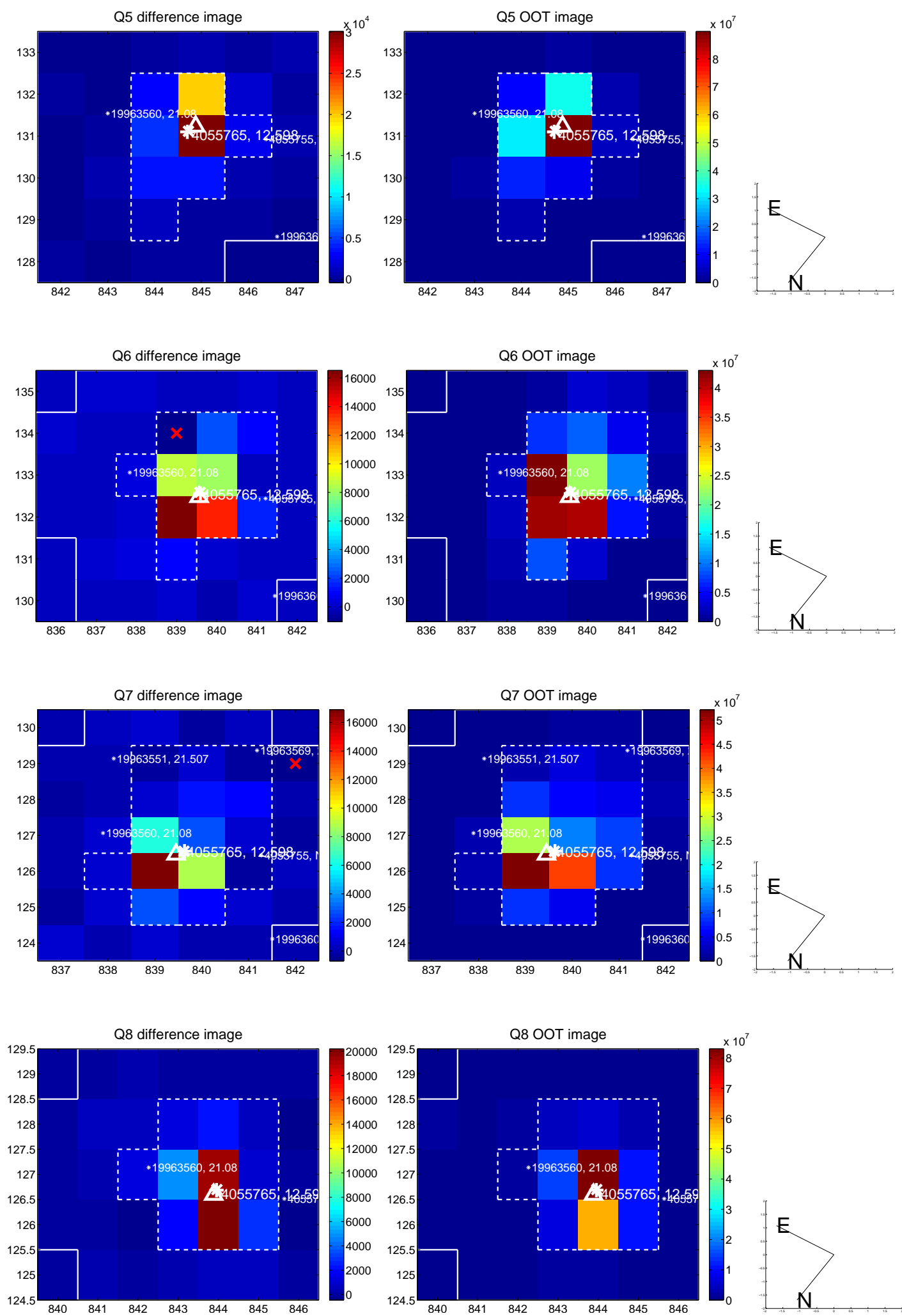
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

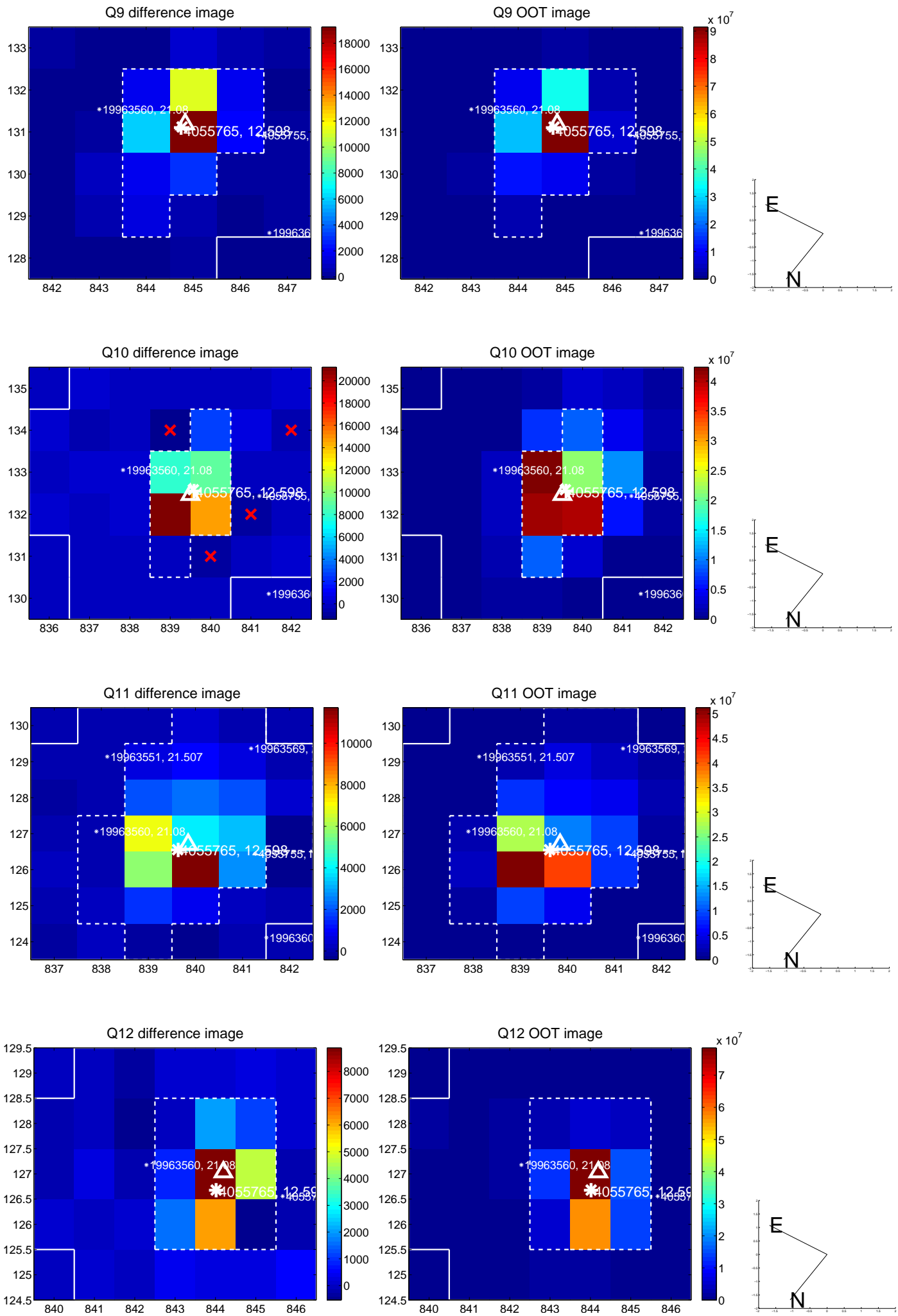




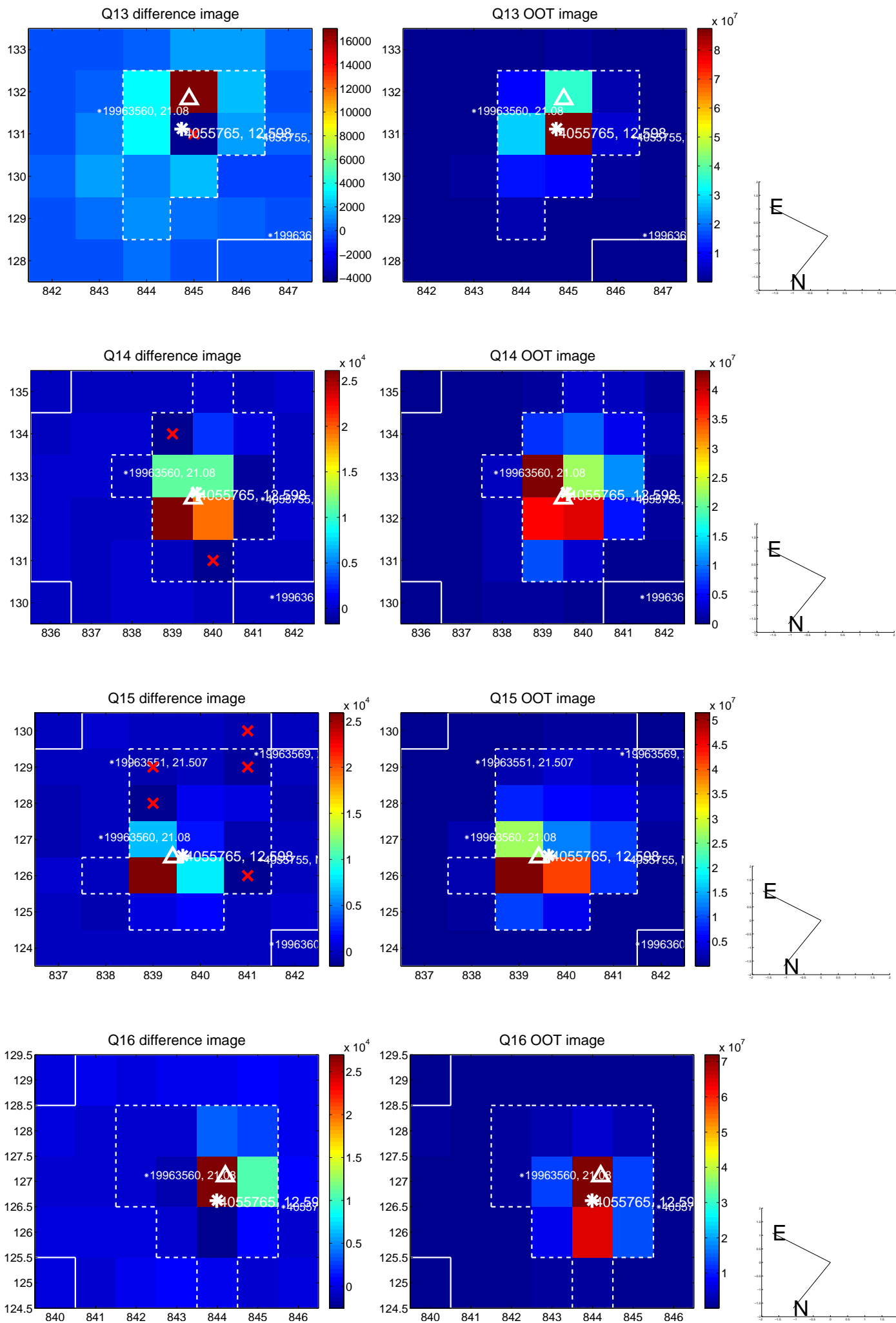
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



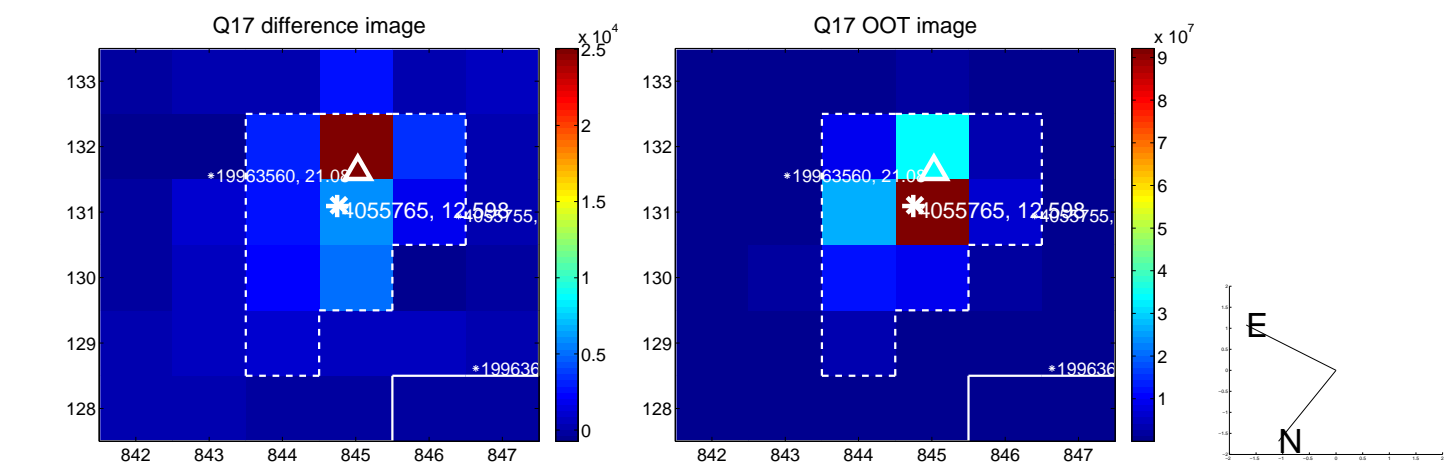
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



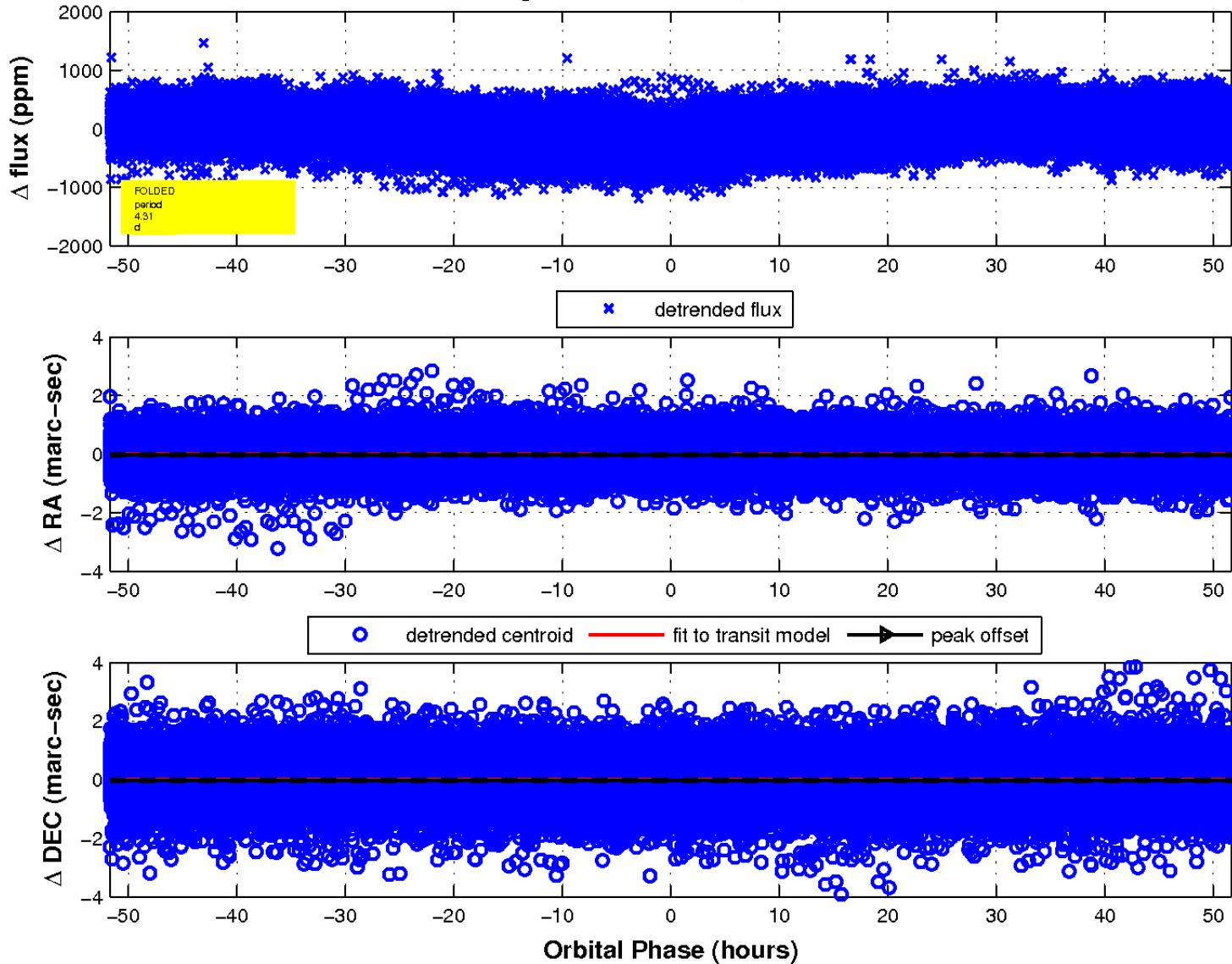
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

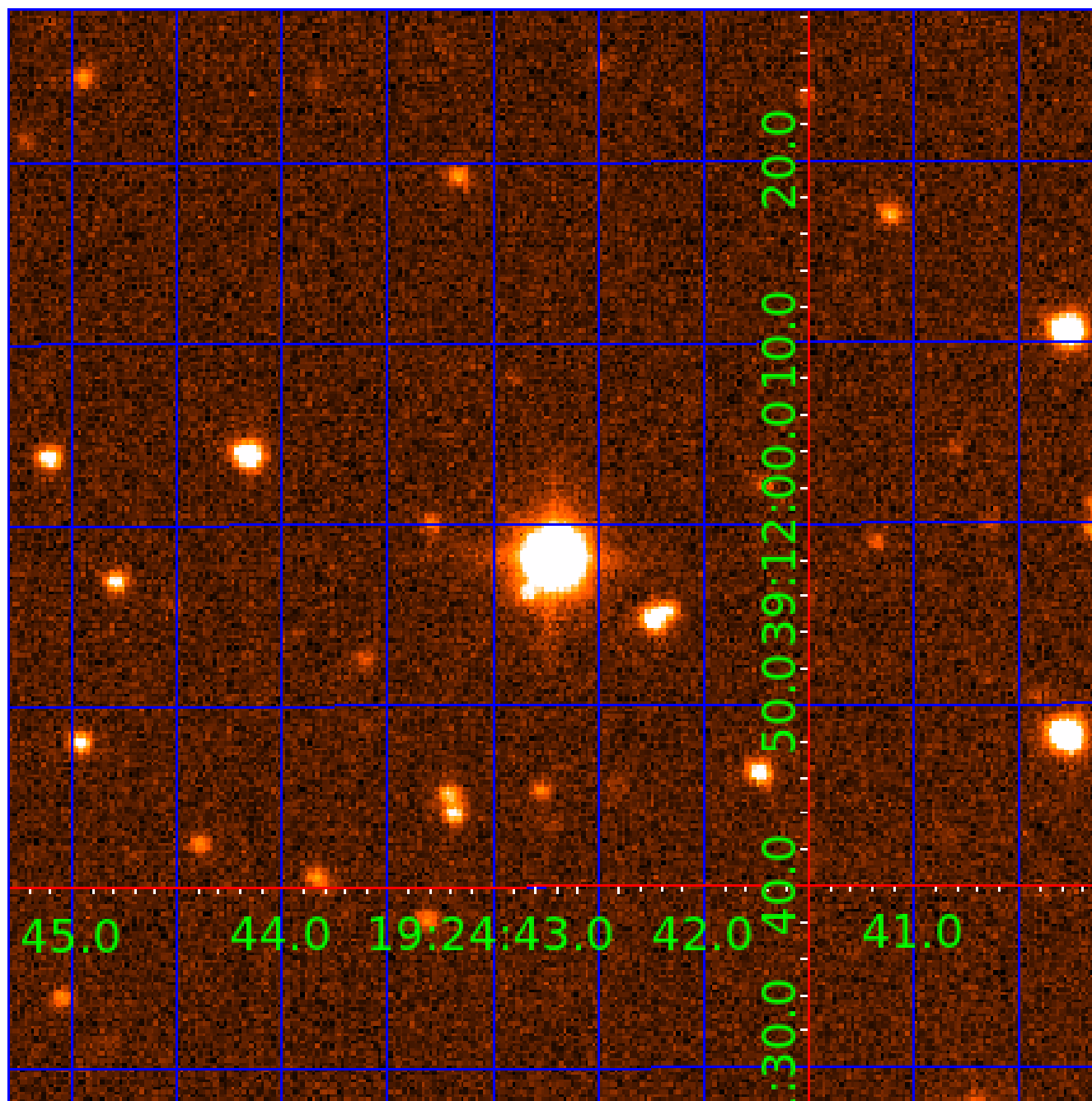


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



# KIC 004055765

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004055765-01	OBS	0100.01	9.966398	141.153232	1629.7	5.044	161.1	168.6	3.08	6638	16.89	1469.83
004055765-02	OBS	No	4.307893	132.571225	130.7	18.052	16.4	20.4	3.08	6638	7.00	4497.42
004055765-03	OBS	No	4.307509	135.055488	71.2	14.794	13.3	16.2	3.08	6638	4.67	4497.95

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004055765-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004055765-02	OBS	FP	0.00	1	0	0	0	LPP_DV
004055765-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

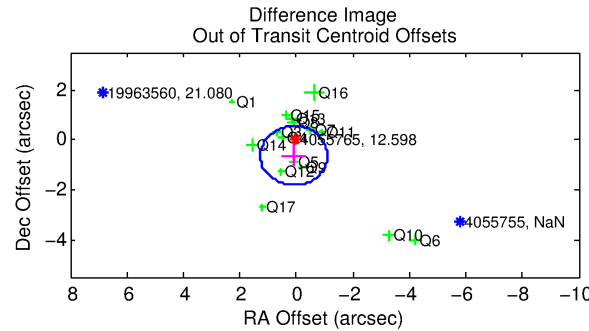
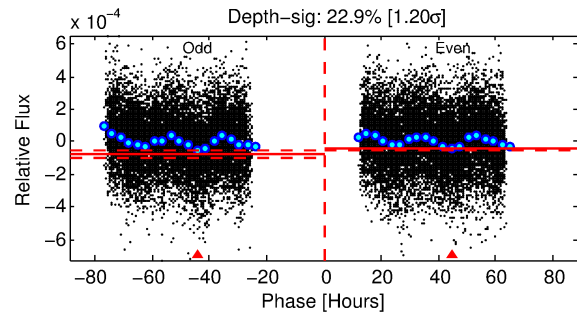
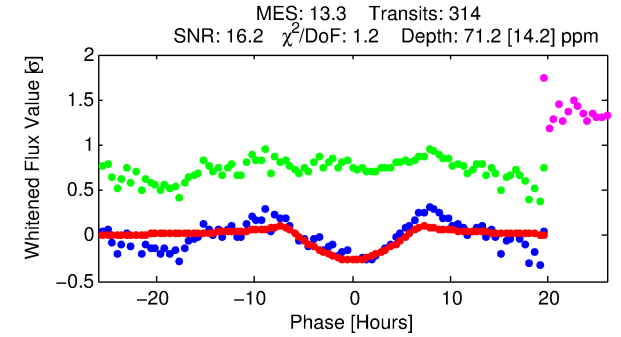
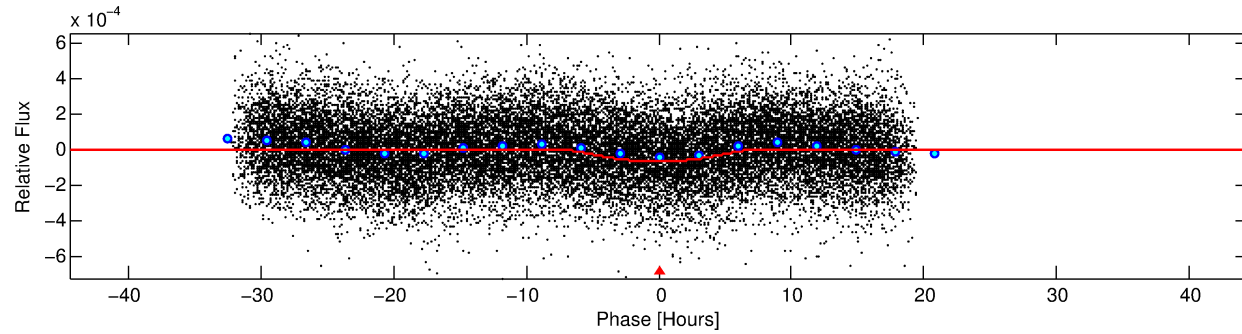
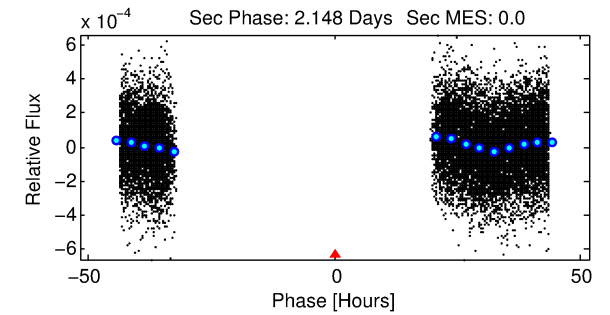
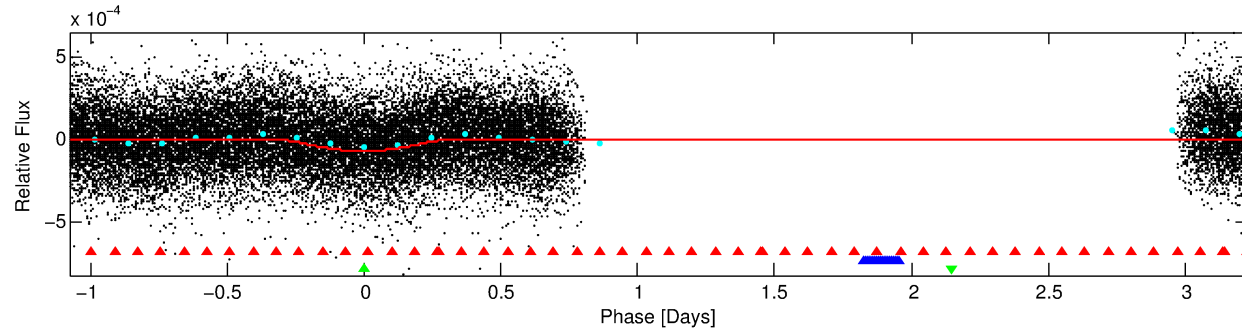
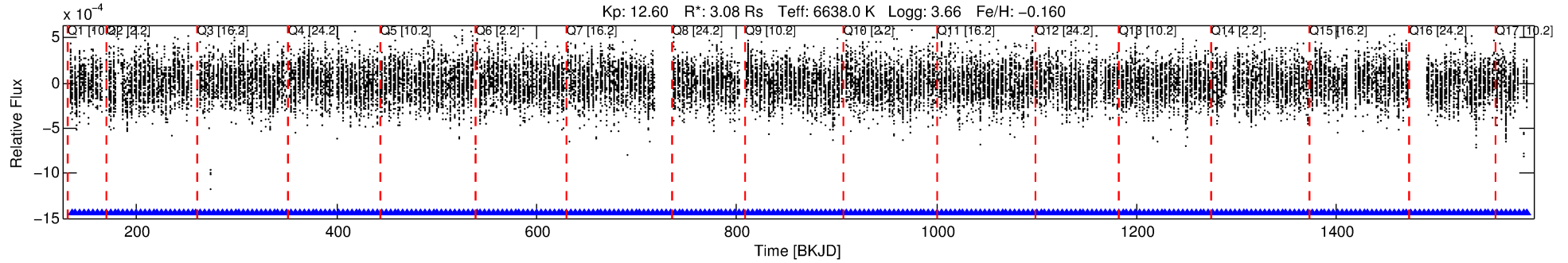
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004055765-03

No Significant Match Found

# DV One-Page Summary

KIC: 4055765 Candidate: 3 of 3 Period: 4.308 d  
KOI: K00100 Corr: No Ephemeris Match



## DV Fit Results:

Period = 4.30751 [0.00010] d  
Epoch = 135.0555 [0.0187] BKJD  
Rp/R\* = 0.0139 [0.0112]  
a/R\* = 1.08 [0.03]  
b = 1.00 [0.02]  
Seff = 4497.95 [1588.32]  
Teq = 2088 [184] K  
Rp = 4.67 [3.95] Re  
a = 0.0606 [0.0137] AU  
Ag = N/A  
Teffp = N/A

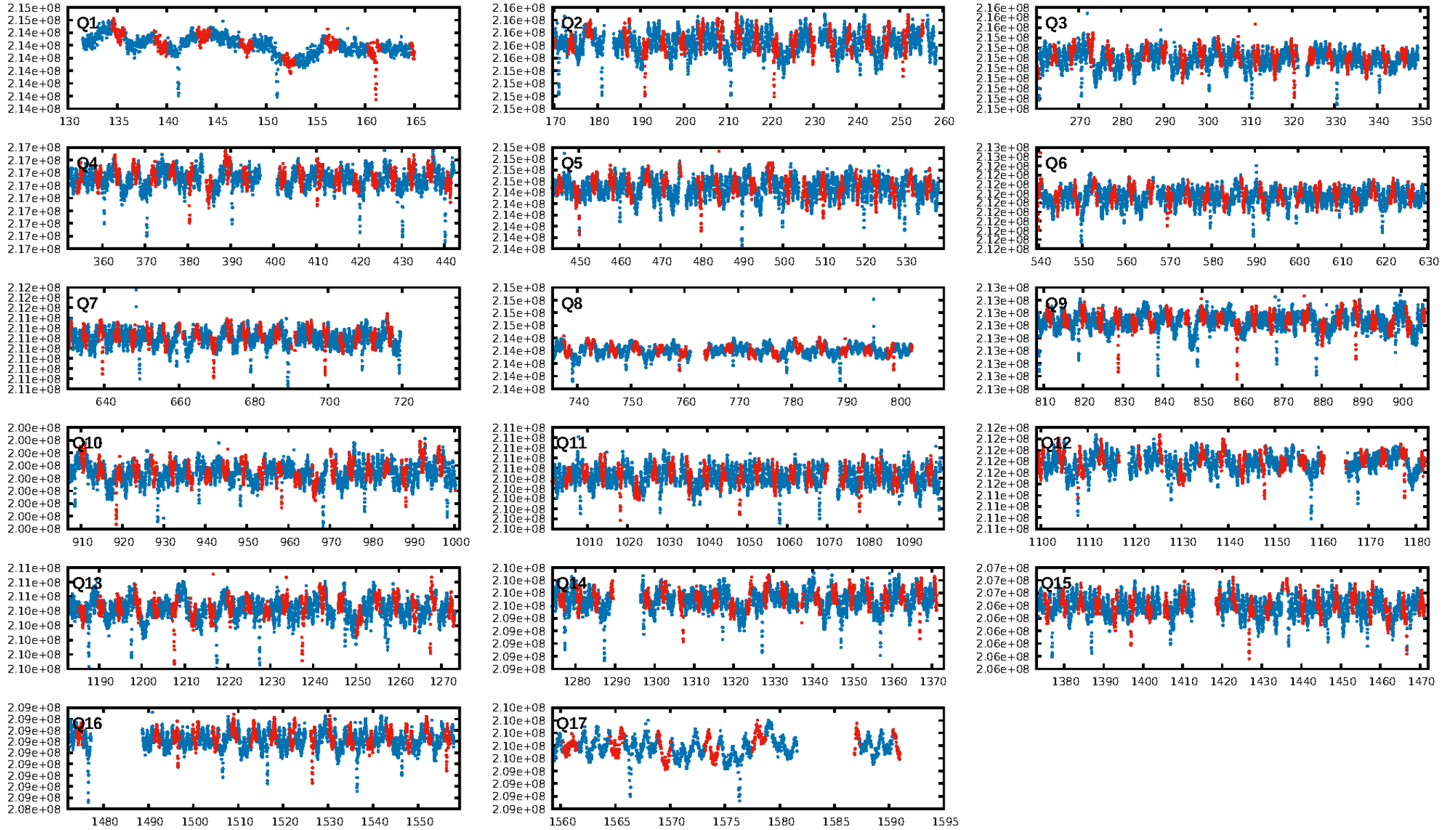
## DV Diagnostic Results:

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 [299/299]  
GhostDiagnostic-chr: 1.097  
Centroid-sig: 2.4%  
Centroid-so: 0.620 arcsec [1.53σ]  
OotOffset-rm: 0.646 arcsec [1.64σ]  
KicOffset-rm: 0.597 arcsec [1.61σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.88 [14/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:42:40 Z

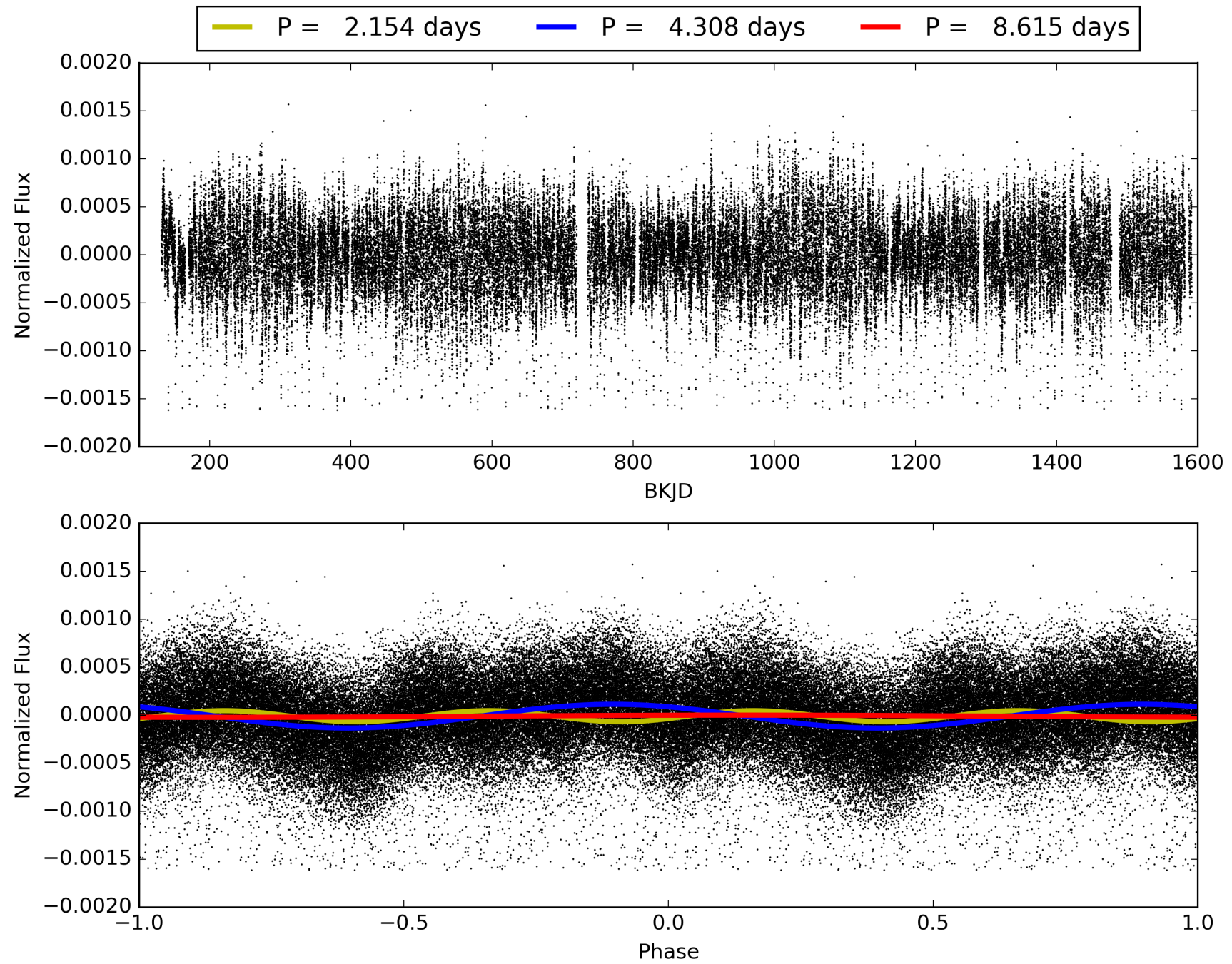
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004055765-03, PDC Light Curves



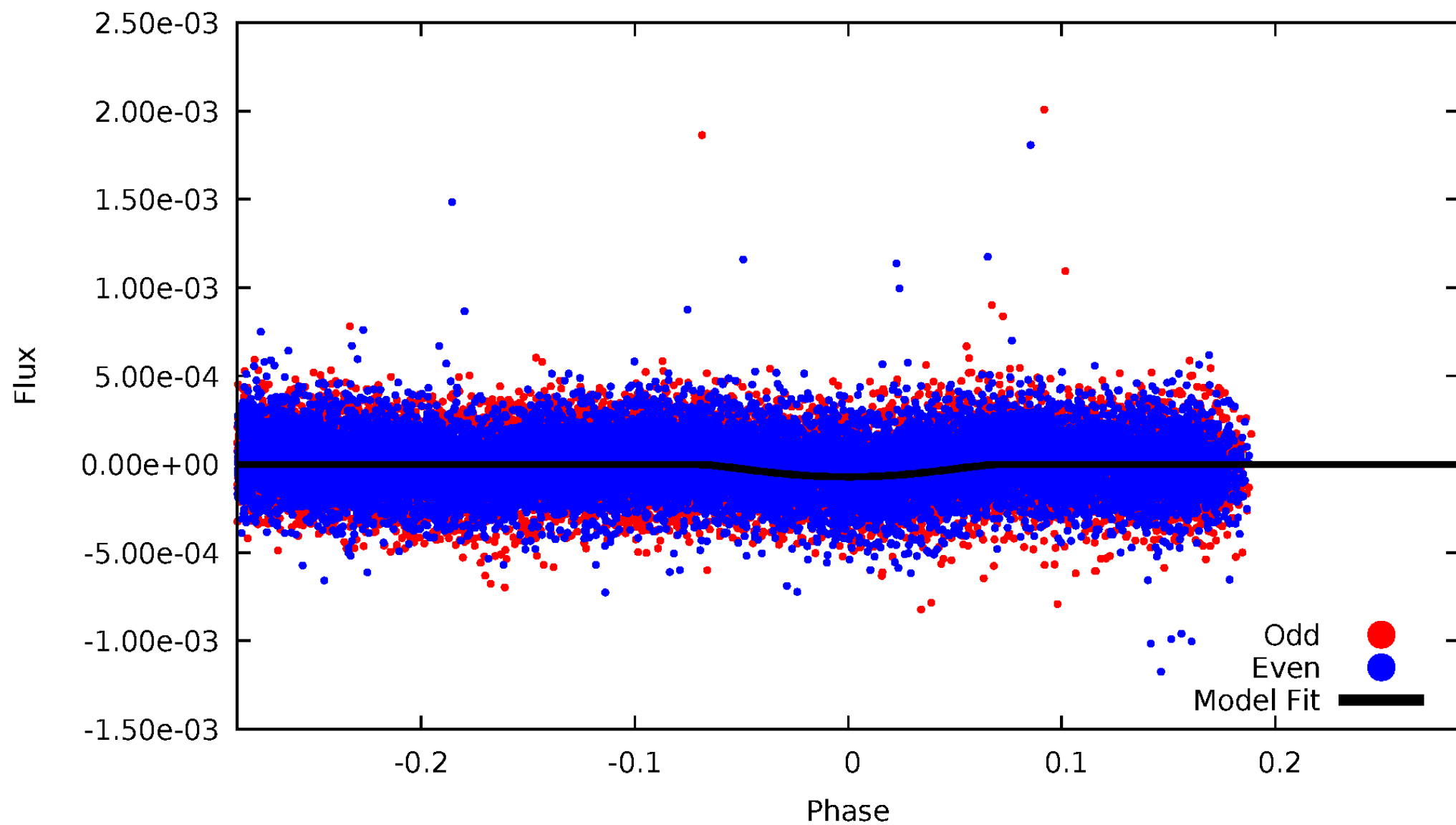


TCE 004055765-03



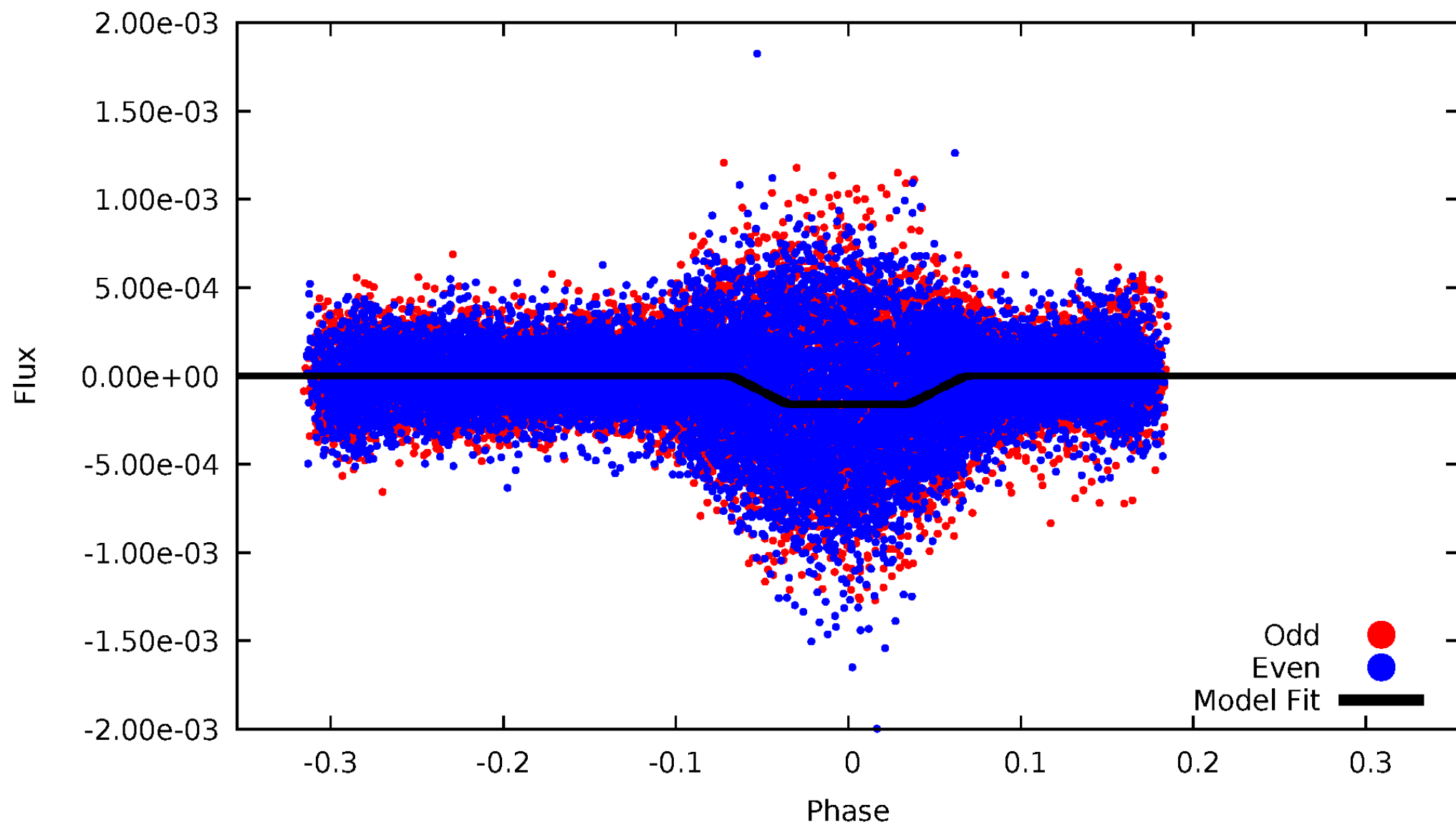
# DV Odd/Even

TCE 004055765-03

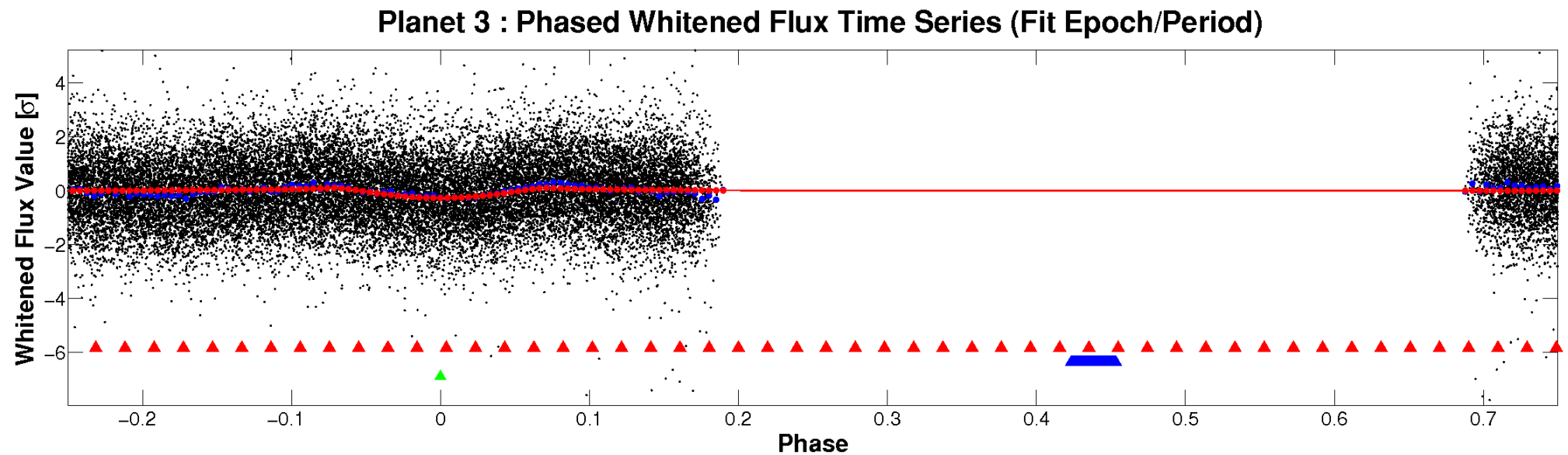
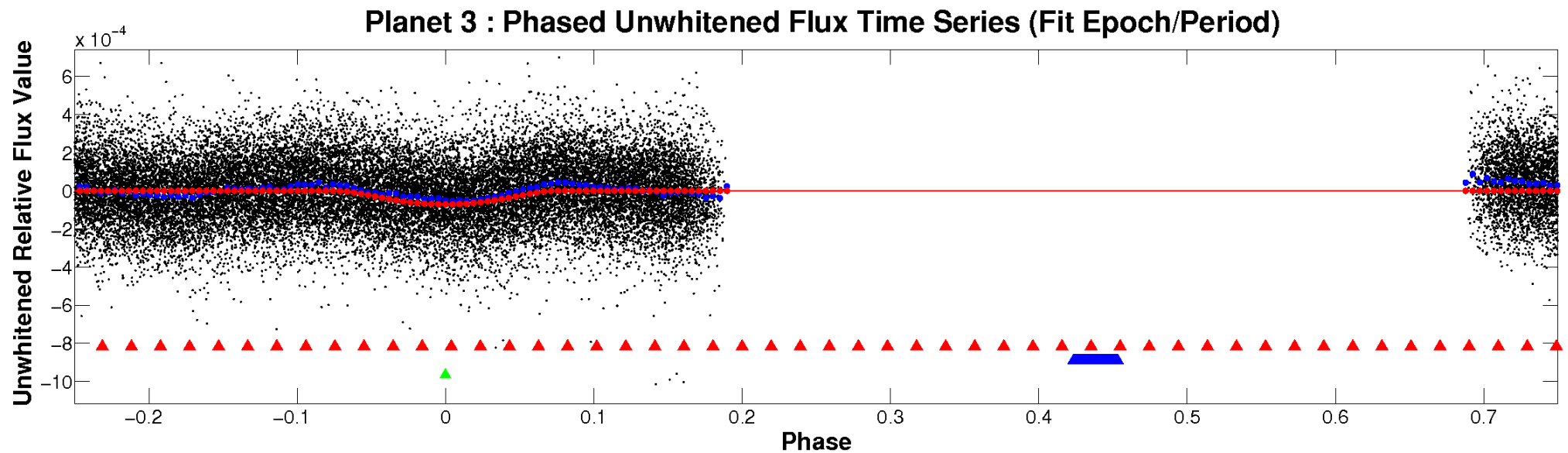


# ALT Odd/Even

TCE 004055765-03



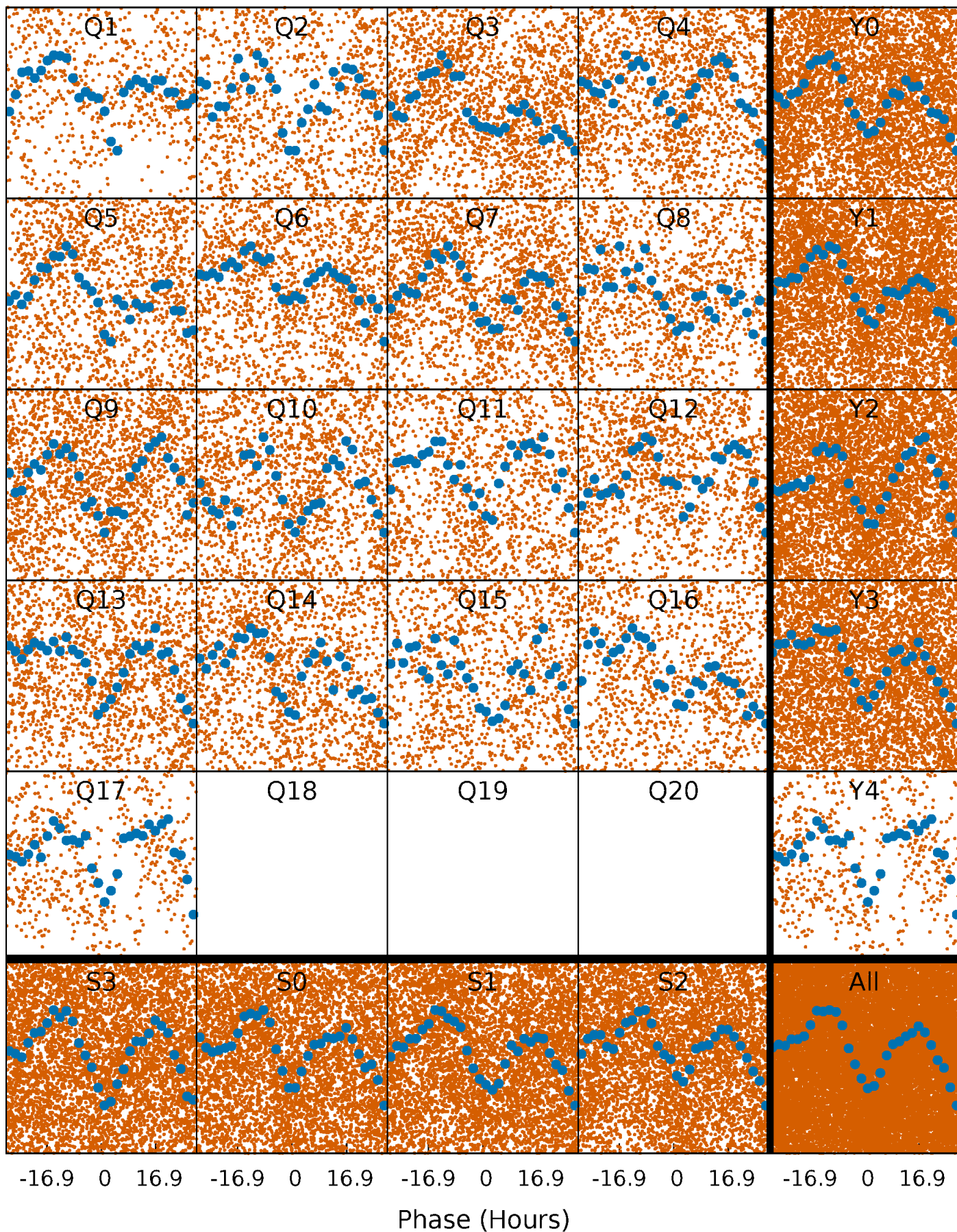
# Non-Whitened Vs. Whitened Light Curve





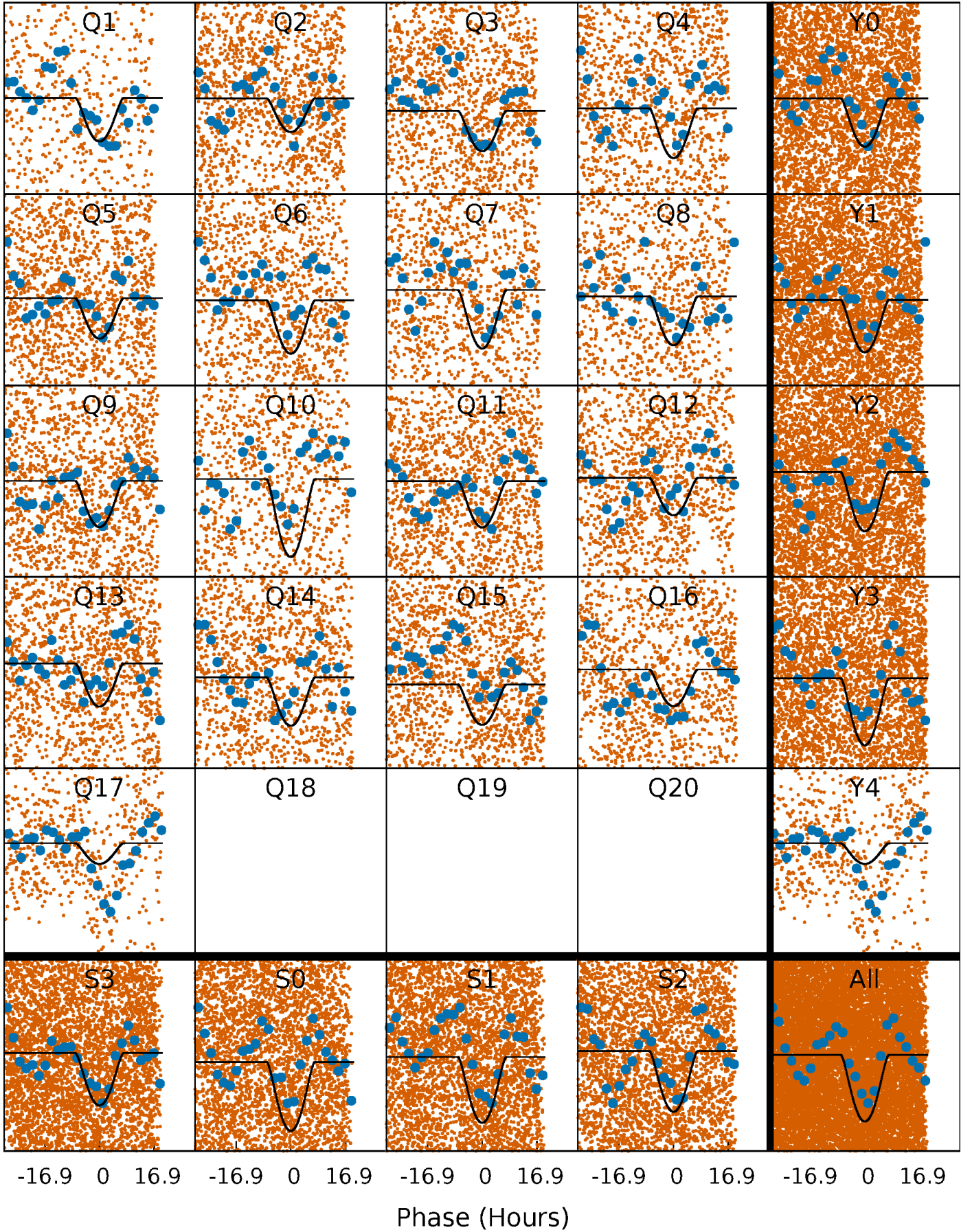
# PDC Quarter-Phased Transit Curves

TCE 004055765-03 P= 4.307509 Days  $T_0=135.055488$  (BKJD)



# DV Quarter-Phased Transit Curves

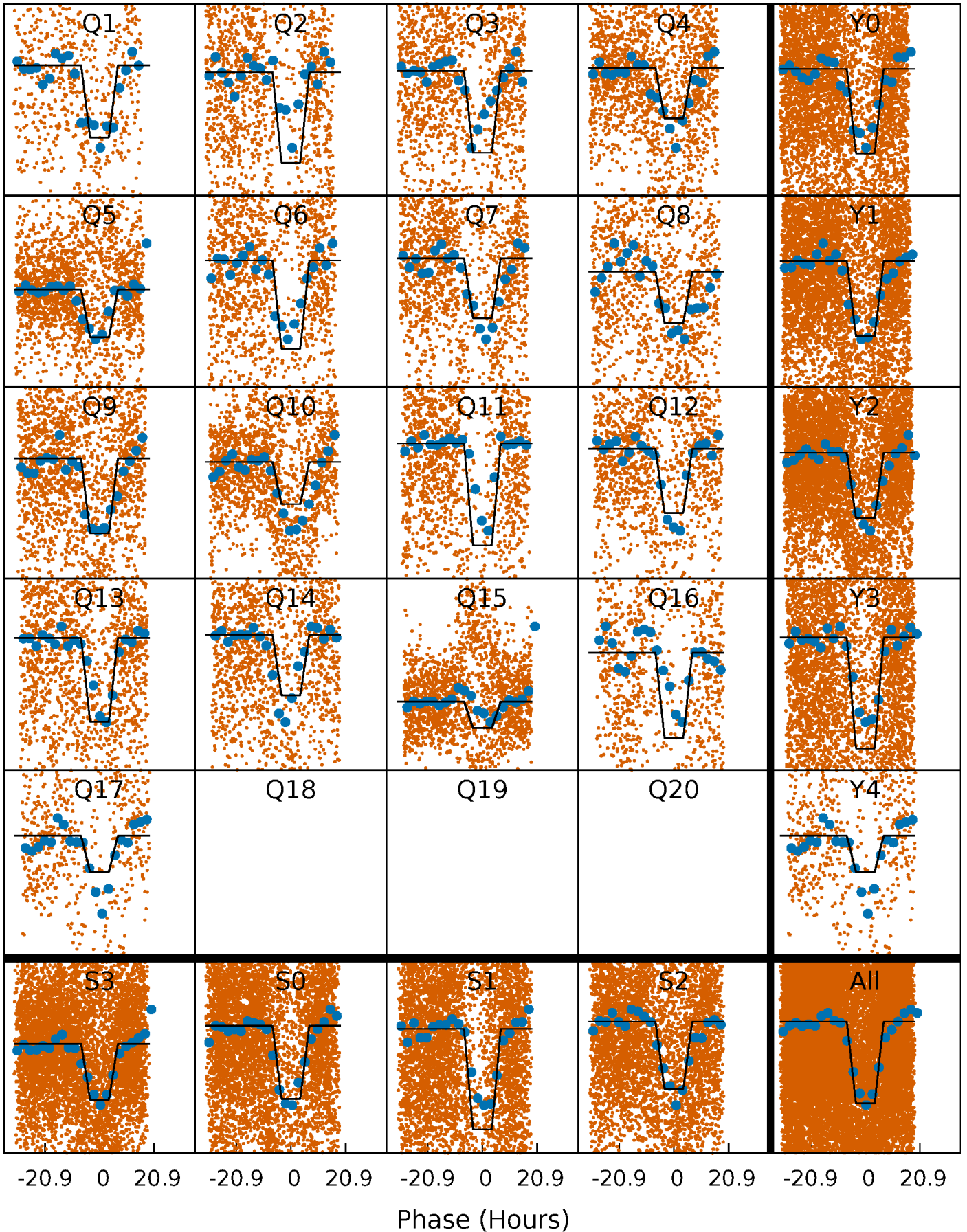
TCE 004055765-03   P= 4.307509 Days    $T_0=135.055488$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

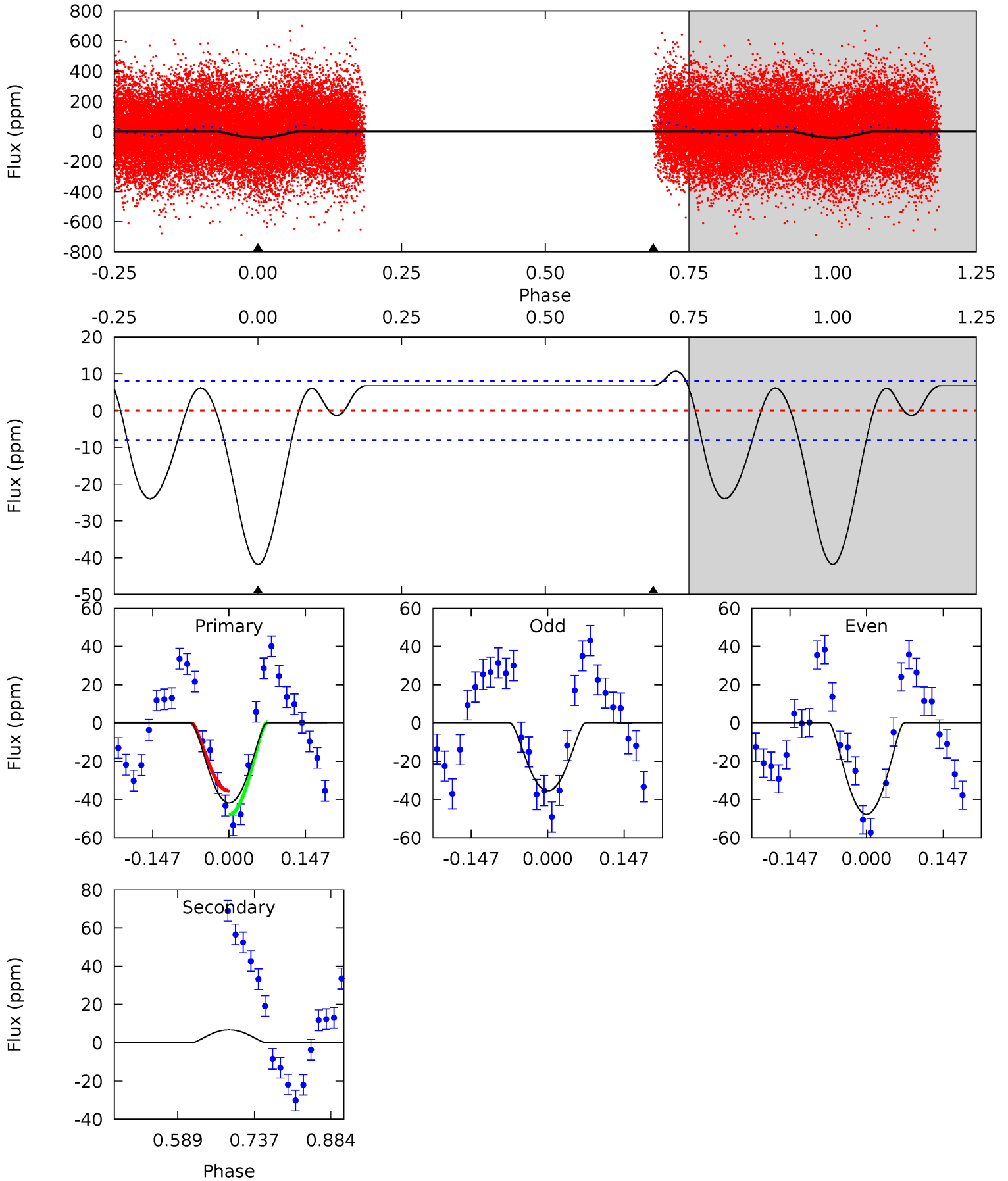
TCE 004055765-03   P= 4.307509 Days    $T_0=135.070754$  (BKJD)



# DV Model-Shift Uniqueness Test

004055765-03, P = 4.307509 Days, E = 130.747979 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
23.3	-3.80	0	0	4.48	1.45	5.32	23.3	23.3	-3.80	-3.80	3.44	0.04	0.20	3.48

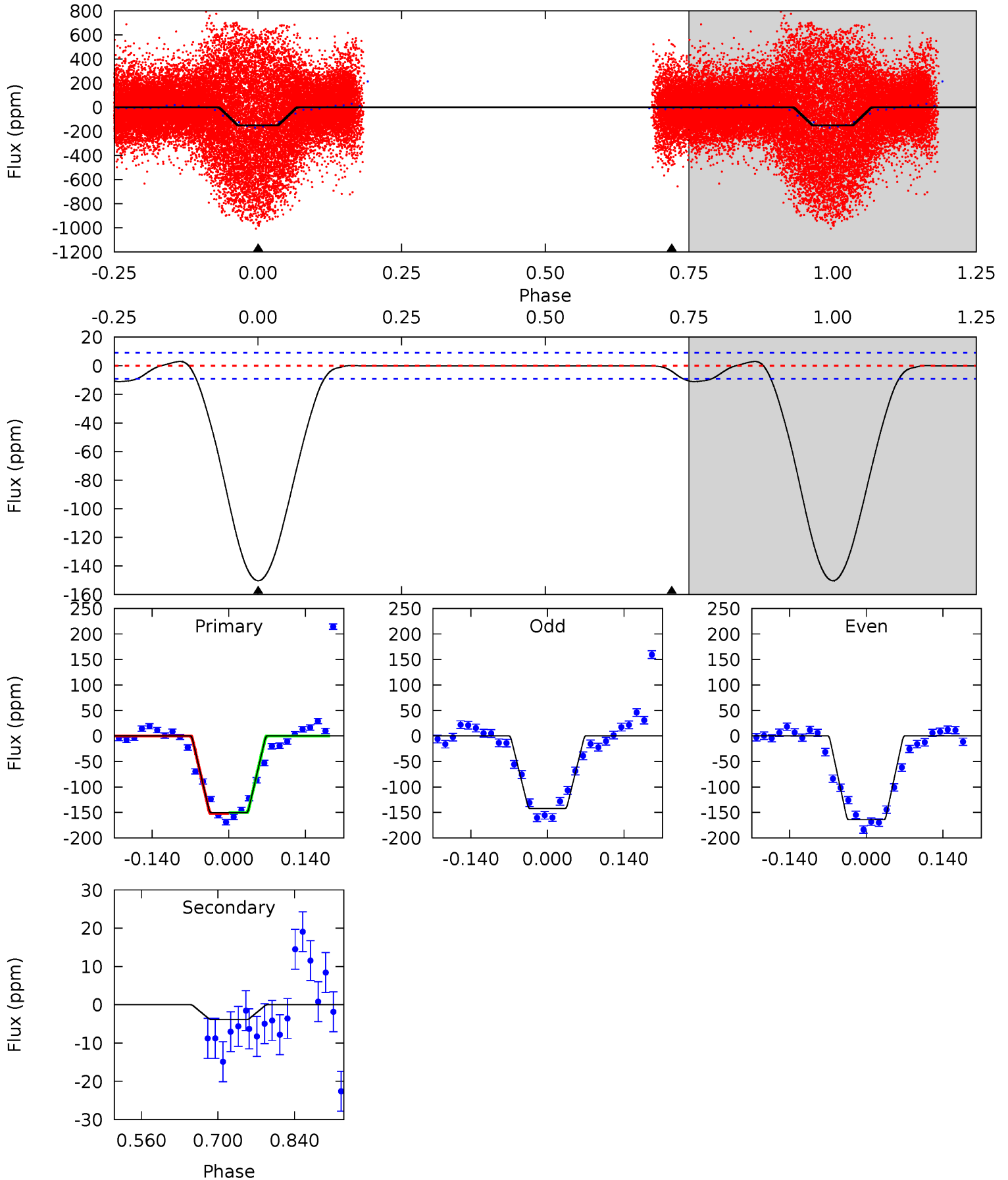




# Alt Model-Shift Uniqueness Test

004055765-03, P = 4.307509 Days, E = 130.763245 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
74.7	1.93	0	0	4.49	1.48	0.76	74.7	74.7	1.93	1.93	5.46	0.96	0.02	0.43



### Stellar Parameters For KIC 004055765

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6638^{+120}_{-133}$	$3.664^{+0.195}_{-0.065}$	$-0.160^{+0.150}_{-0.100}$	$3.079^{+0.391}_{-0.782}$	$1.595^{+0.176}_{-0.194}$	$0.077^{+0.085}_{-0.017}$
	+2%/-2%	+5%/-2%	+94%/-62%	+13%/-25%	+11%/-12%	+111%/-22%
Source	SPE18	SPE18	SPE18	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 004055765-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$7 \pm 2$	$4.70^{+3.76}_{-2.57}$	$2881^{+119}_{-175}$	$-3532^{+303}_{-1037}$	$-0.588^{+0.400}_{-2.737}$
Alt.	$-4 \pm 2$	$4.69^{+3.60}_{-2.75}$	$2875^{+127}_{-165}$	$2263^{+1672}_{-5159}$	$0.330^{+1.627}_{-0.250}$

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

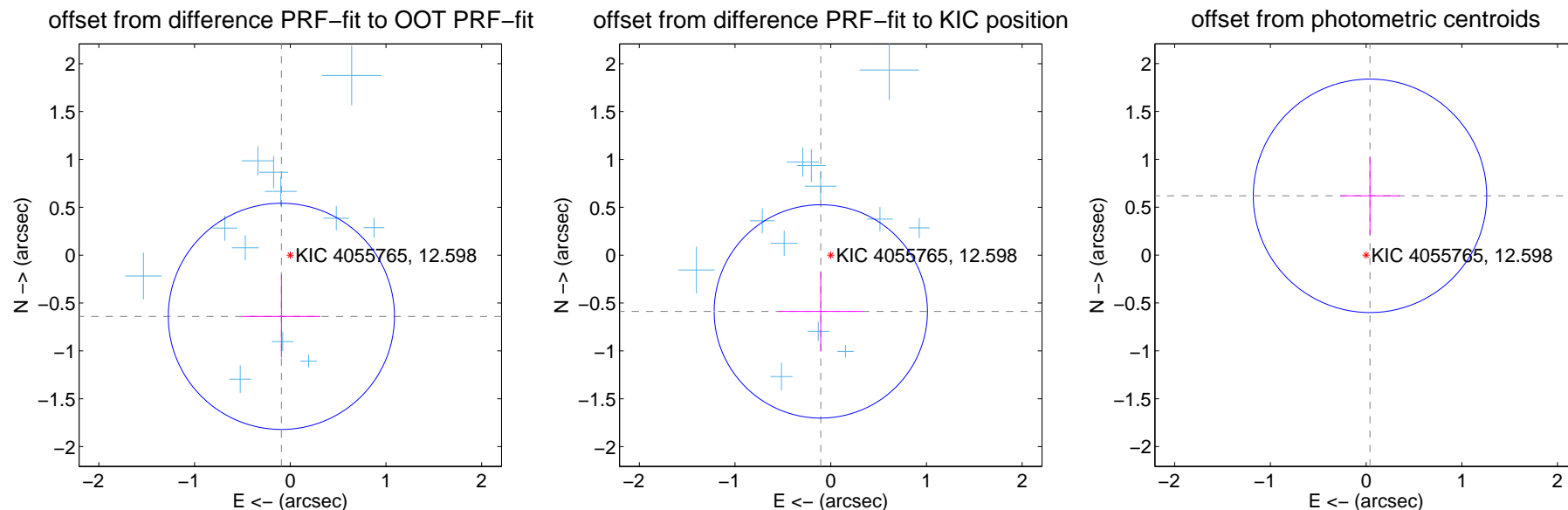
## DV Centroid Data

Supplemental centroid analysis for 004055765-03. Kepler magnitude: 12.60. Transit SNR 16.22

There are 14 quarters with good PRF difference image offsets

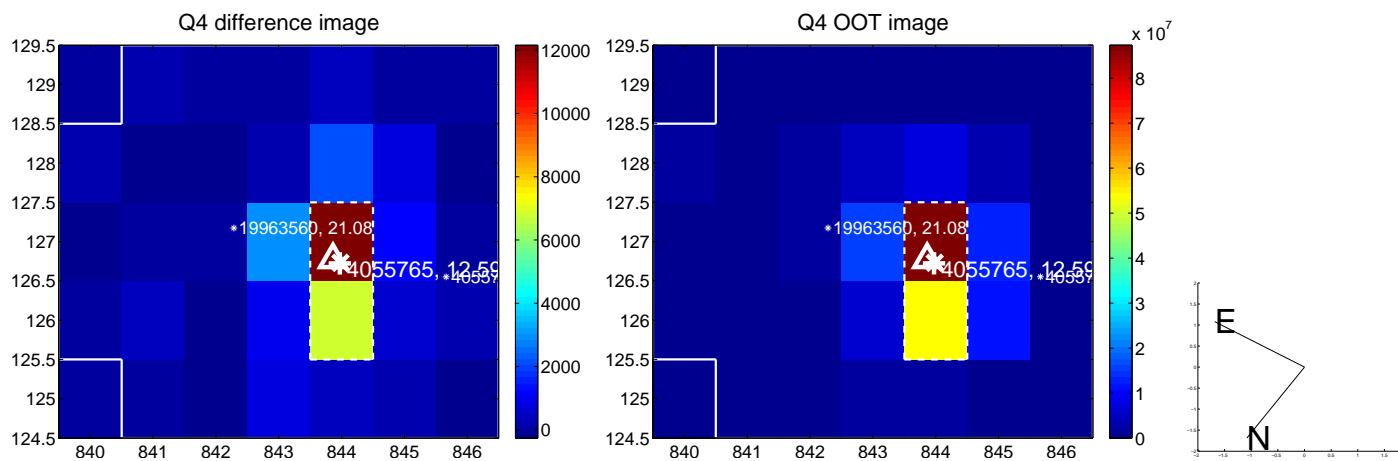
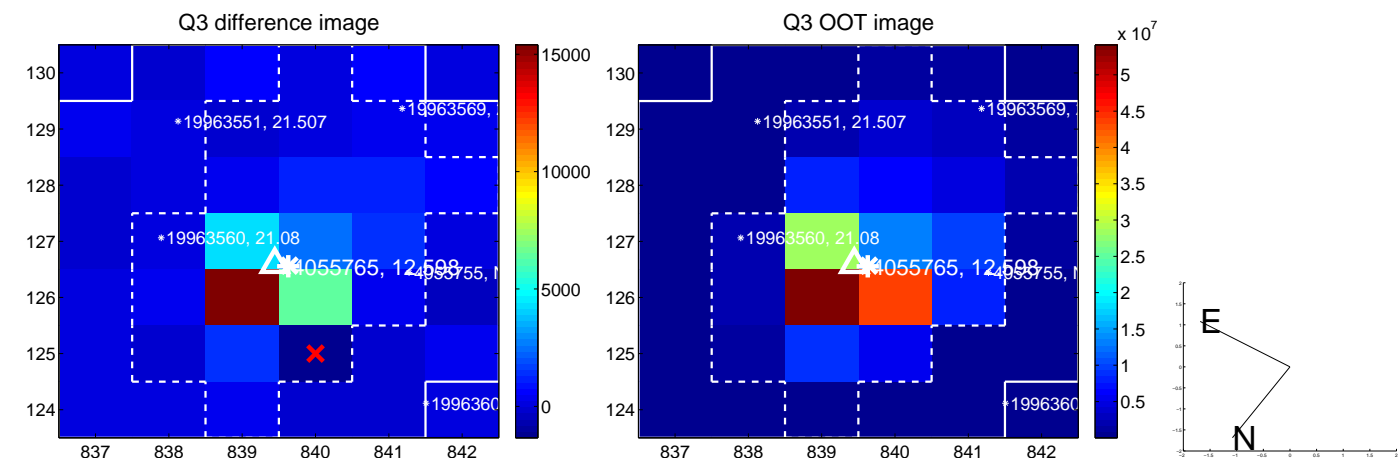
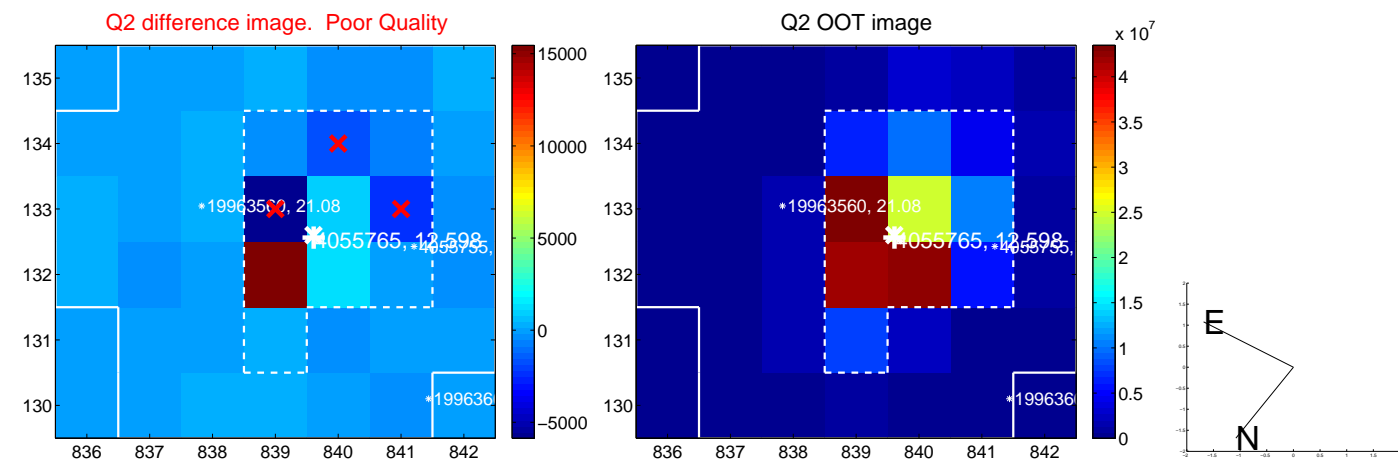
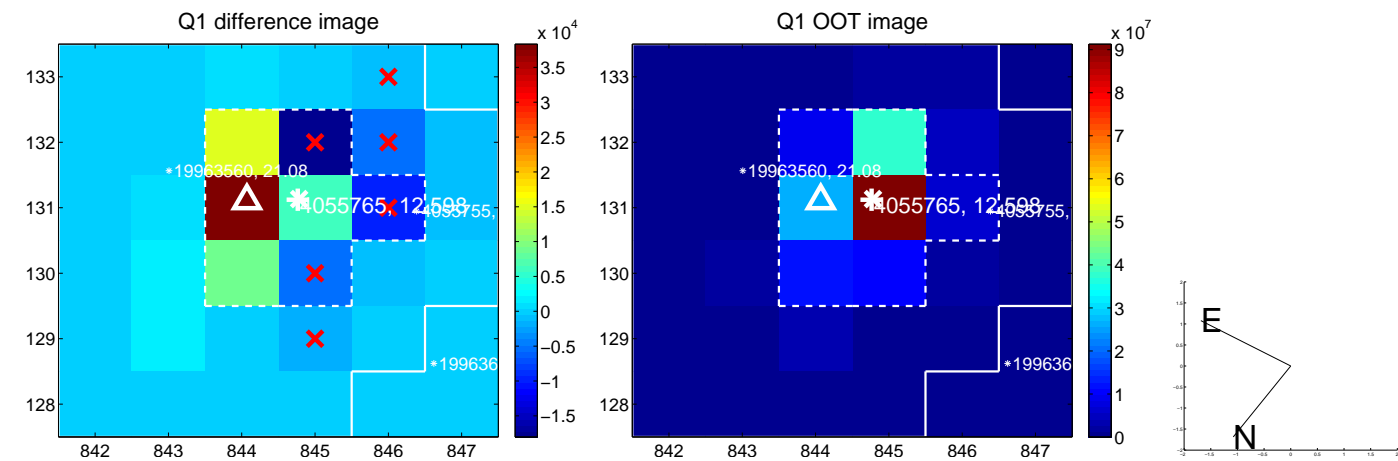
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.646 \pm 0.394$	1.64	$0.093 \pm 0.409$	$-0.639 \pm 0.431$
PRF-fit source offset from KIC position	$0.597 \pm 0.371$	1.61	$0.104 \pm 0.440$	$-0.588 \pm 0.418$
photometric centroid source offset	$0.62 \pm 0.41$	1.53	$-0.04 \pm 0.31$	$0.62 \pm 0.41$

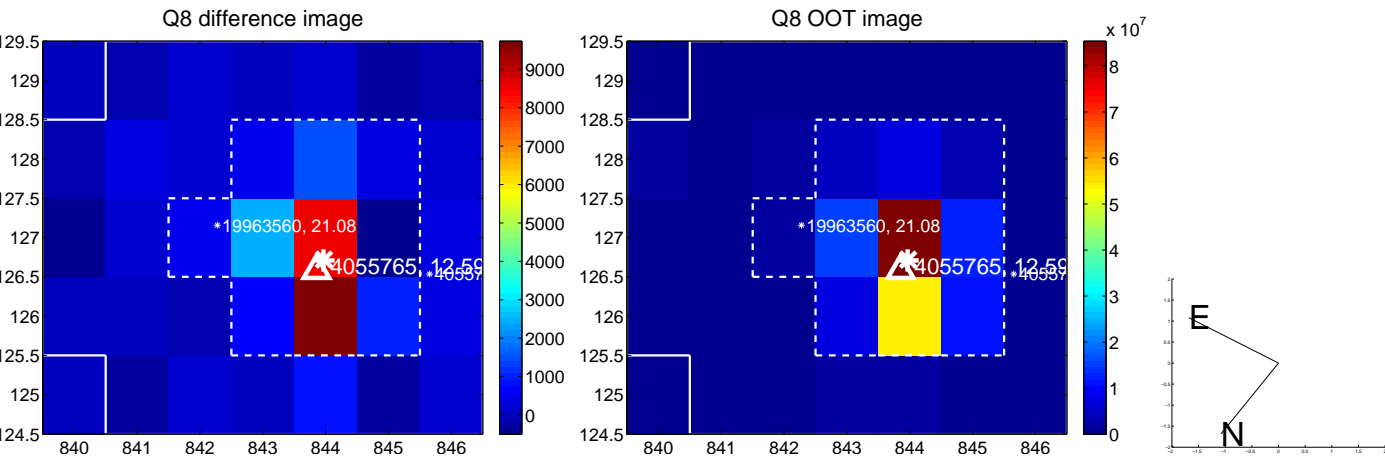
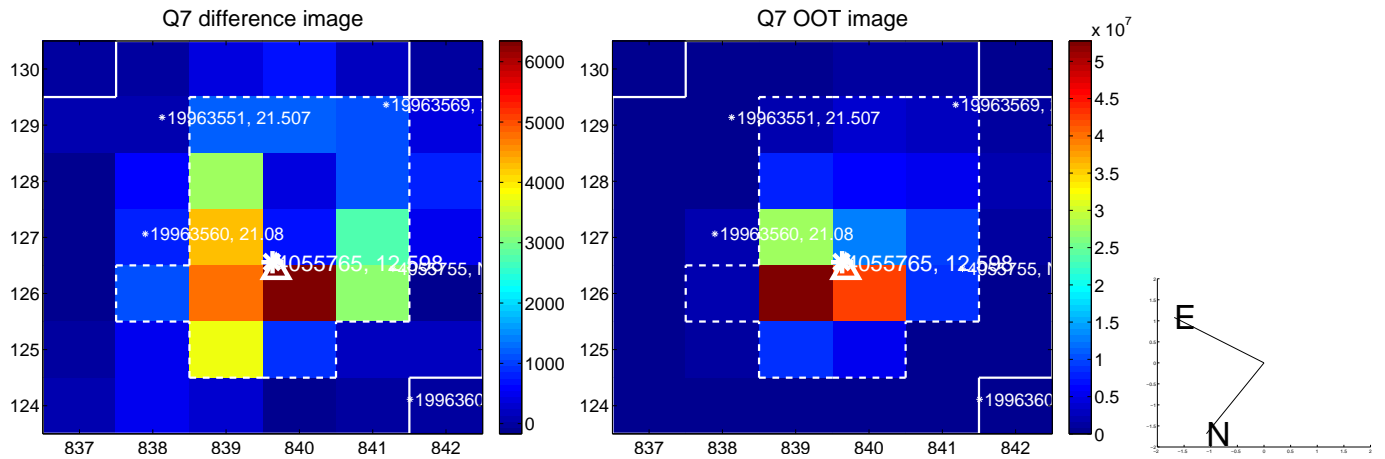
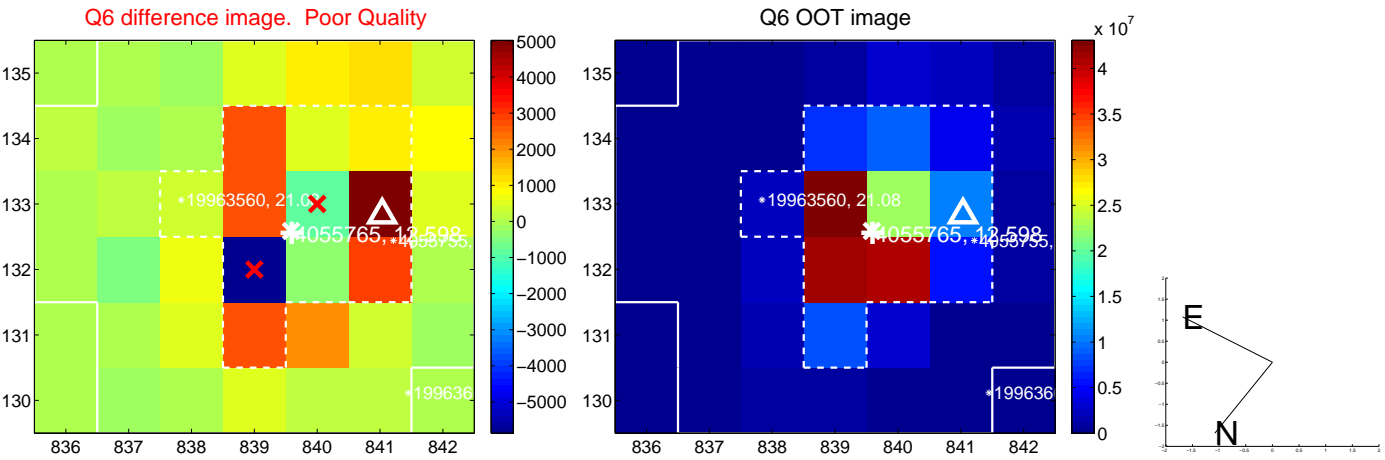
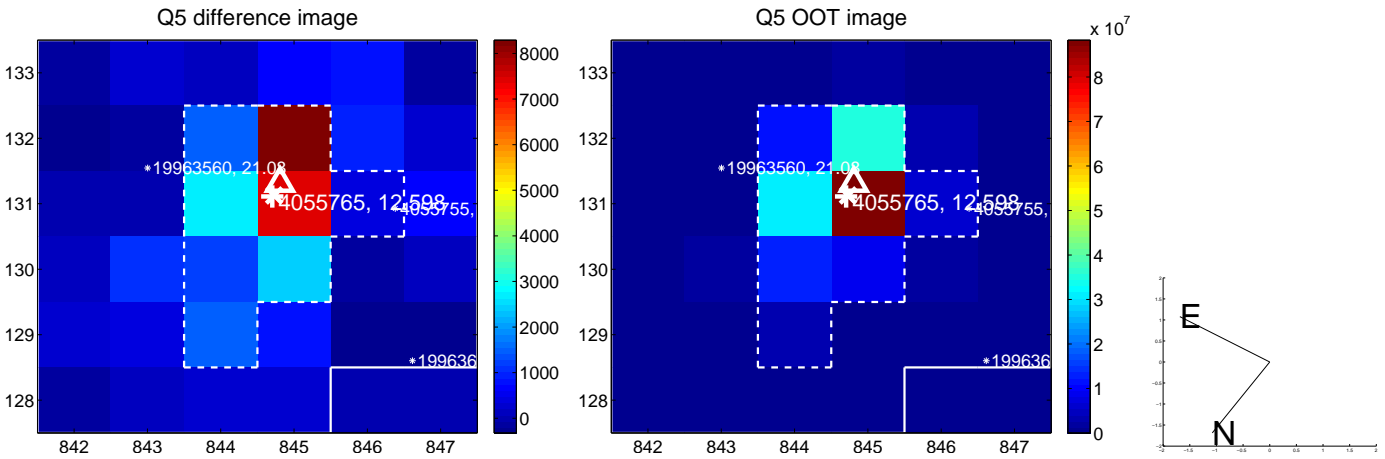


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

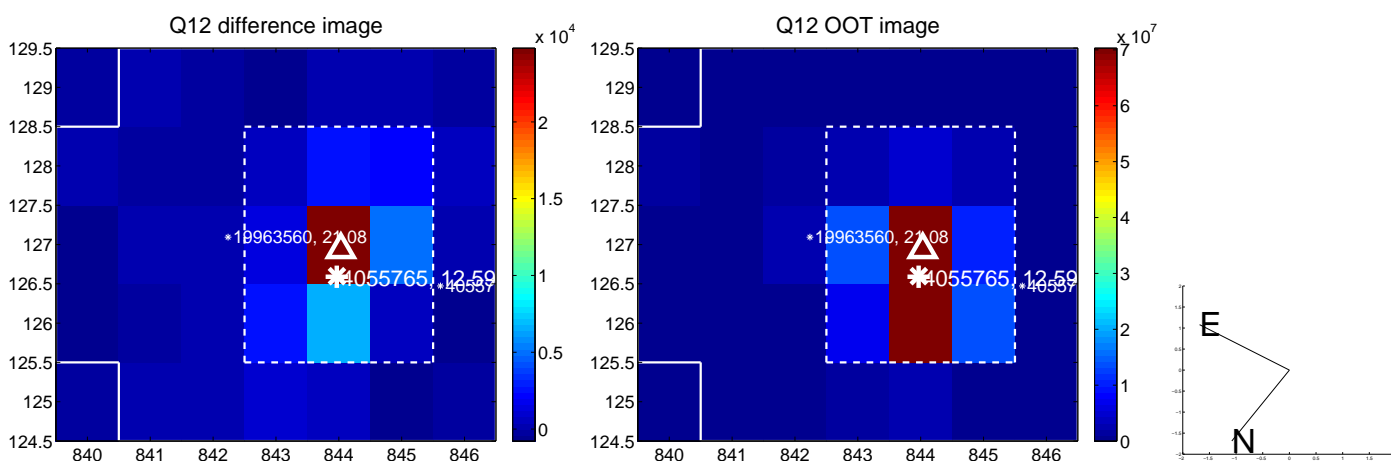
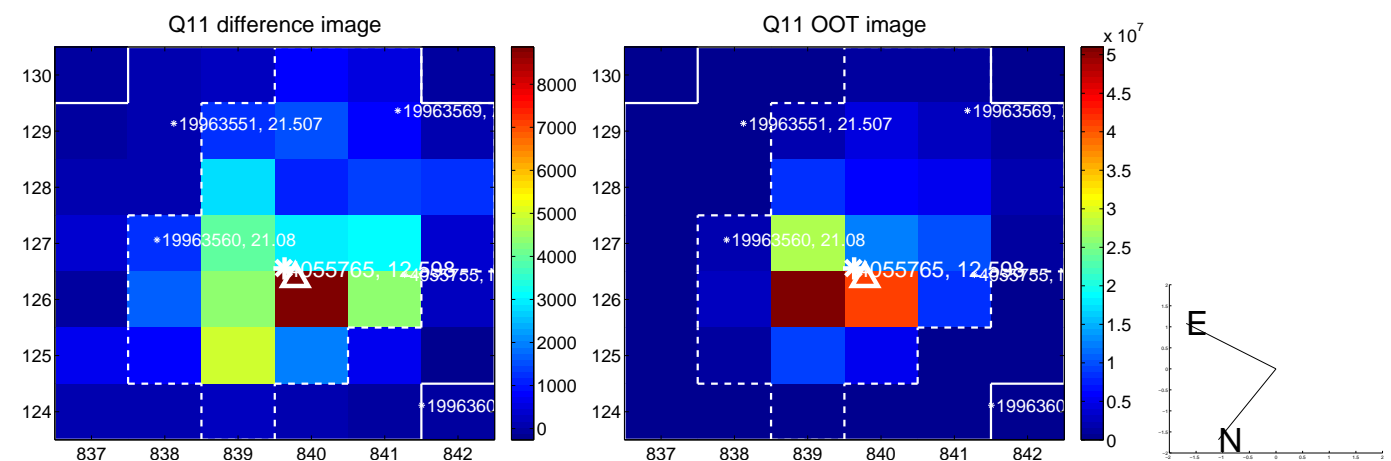
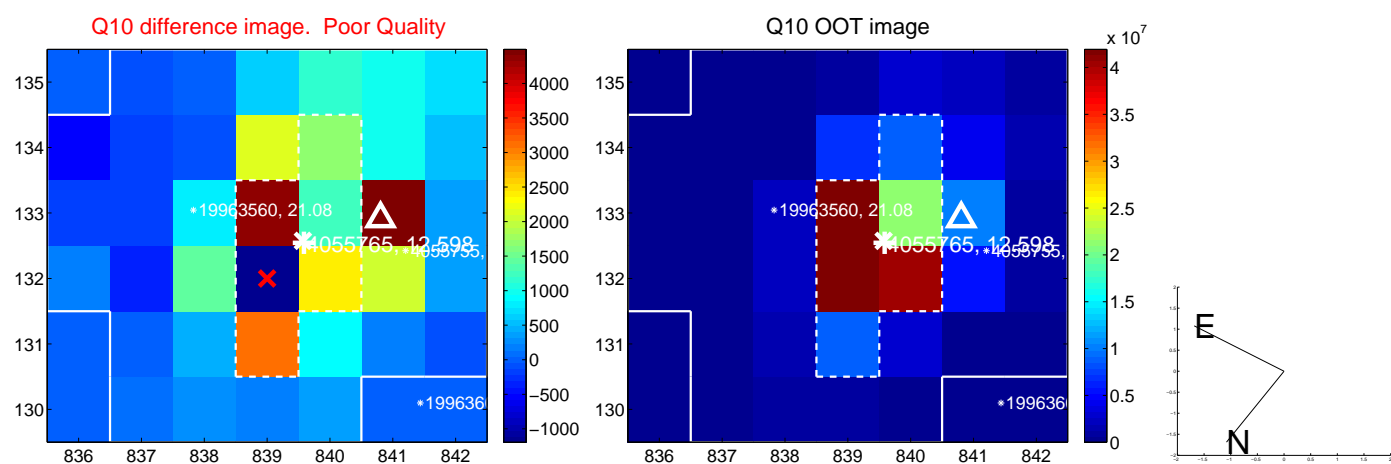
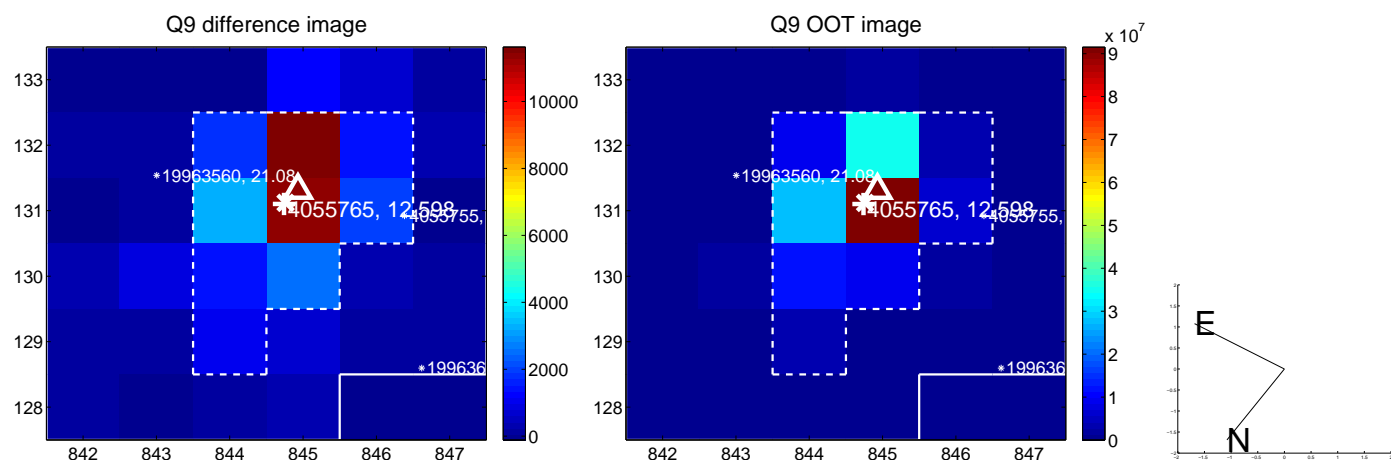
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



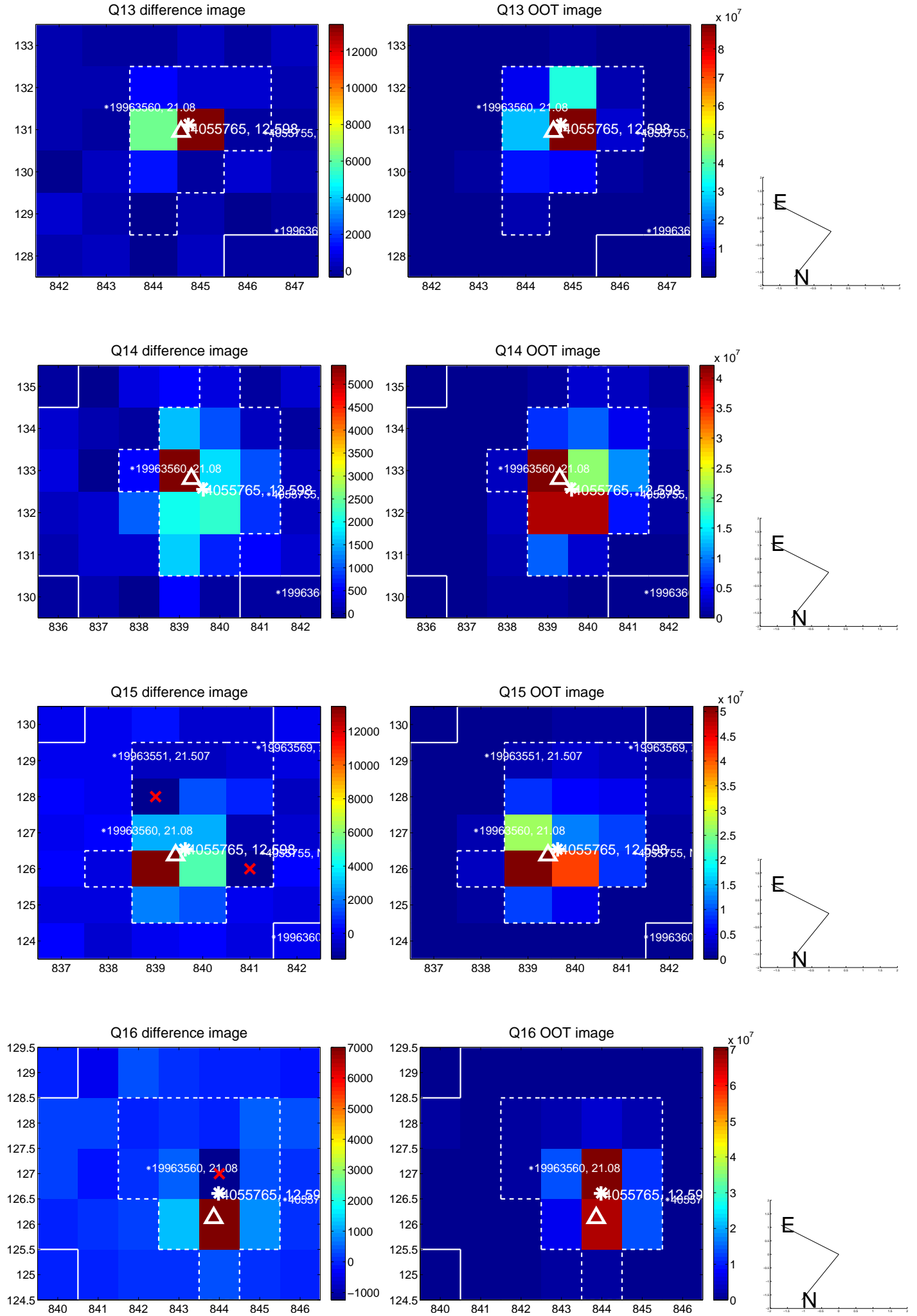
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

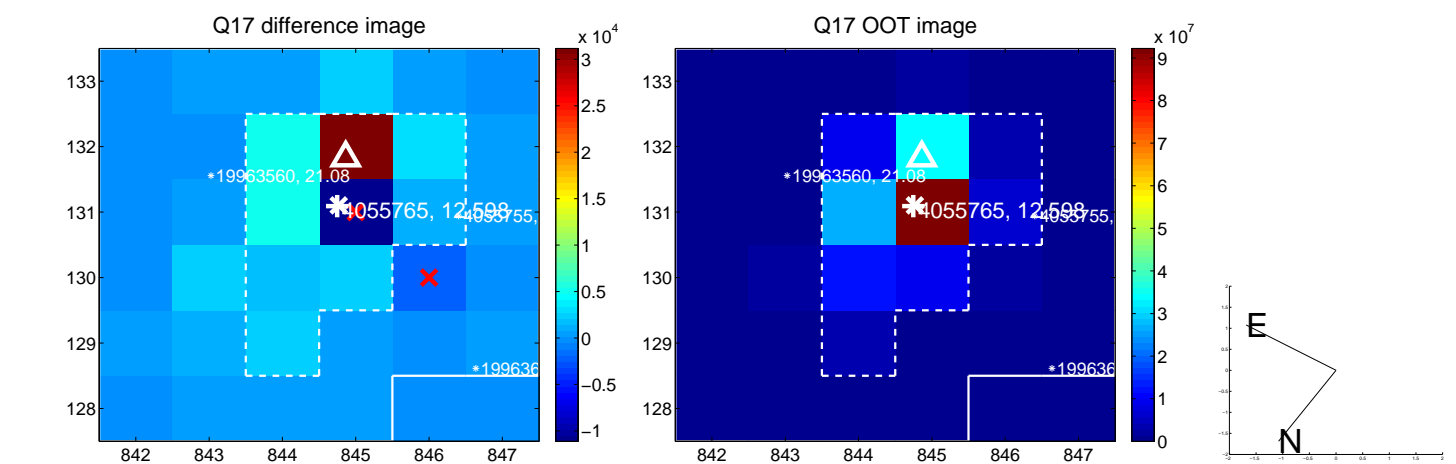


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

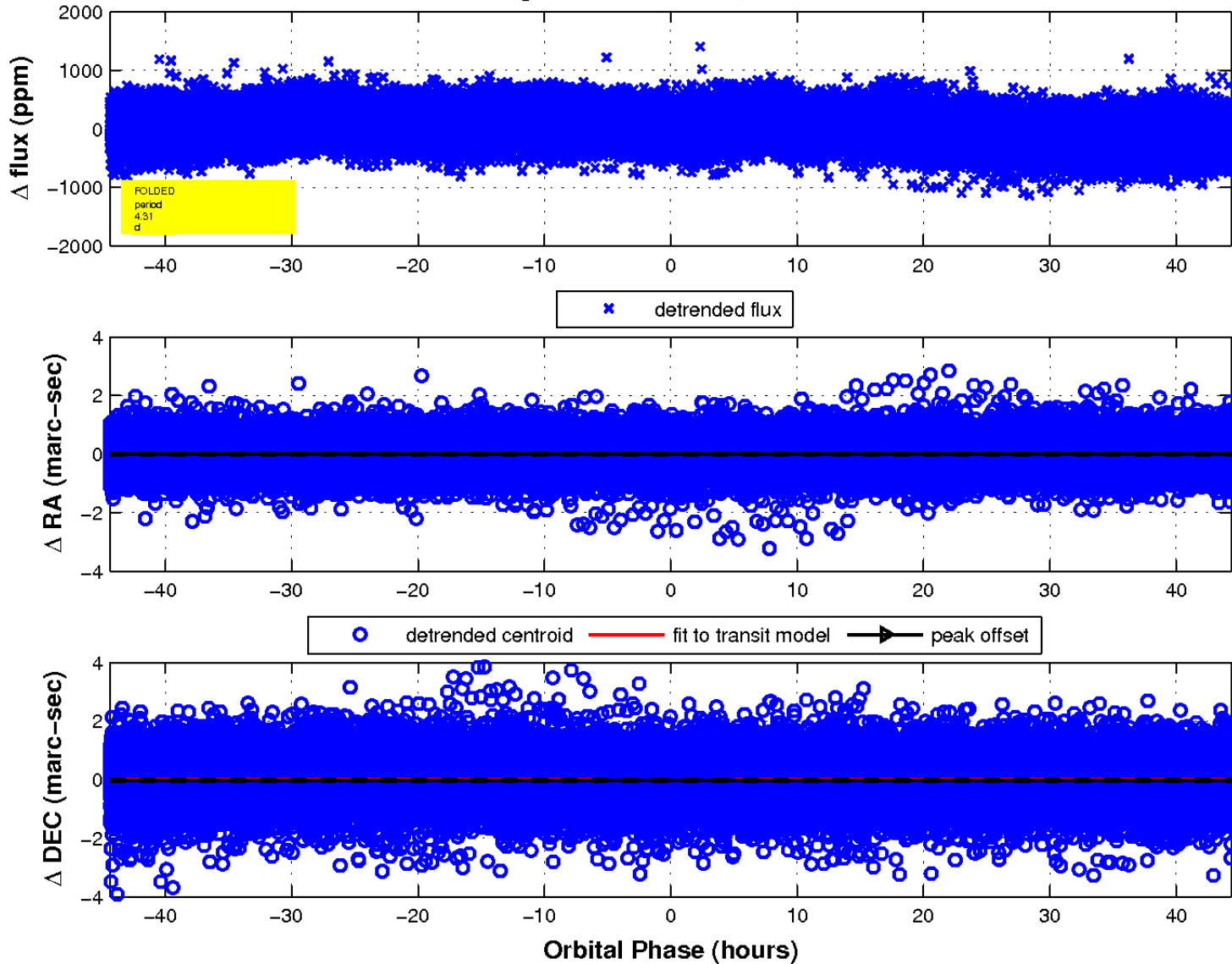




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

