

# KIC 008849165

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008849165-01	OBS	No	0.932339	132.412117	24.7	3.936	12.1	11.7	3.63	7350	1.83	61382.18
008849165-02	OBS	No	243.658023	224.575050	669.0	14.424	19.3	14.6	3.63	7350	17.58	36.74
008849165-03	OBS	No	0.932350	131.943404	28.5	3.732	14.0	14.7	3.63	7350	2.27	61381.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008849165-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008849165-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008849165-03	OBS	FP	0.00	1	0	0	0	LPP_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.

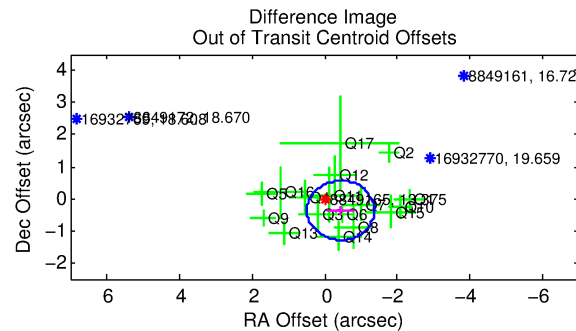
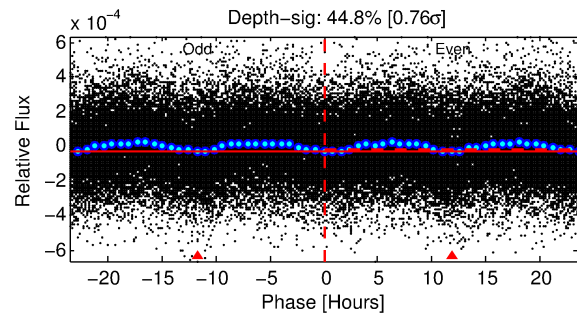
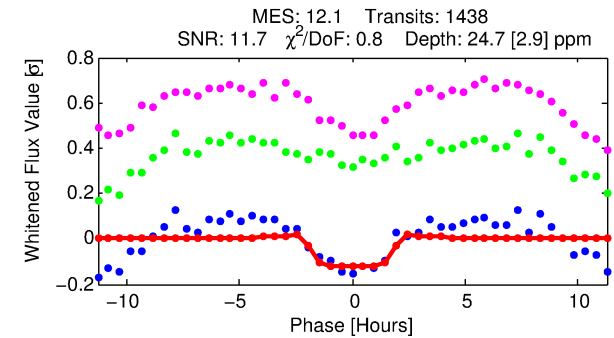
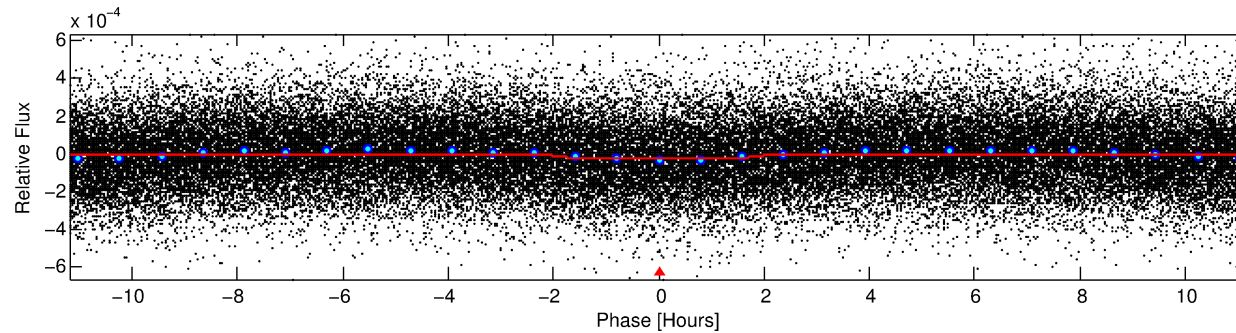
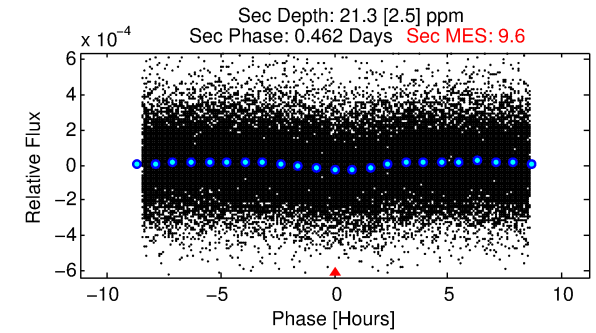
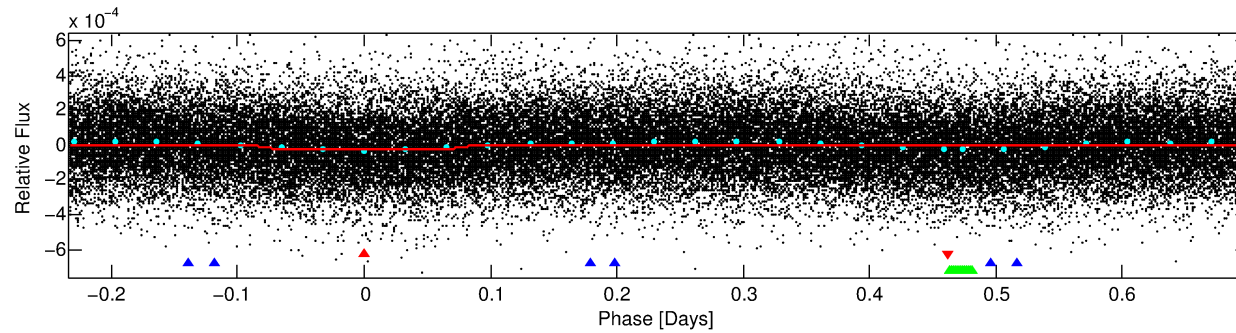
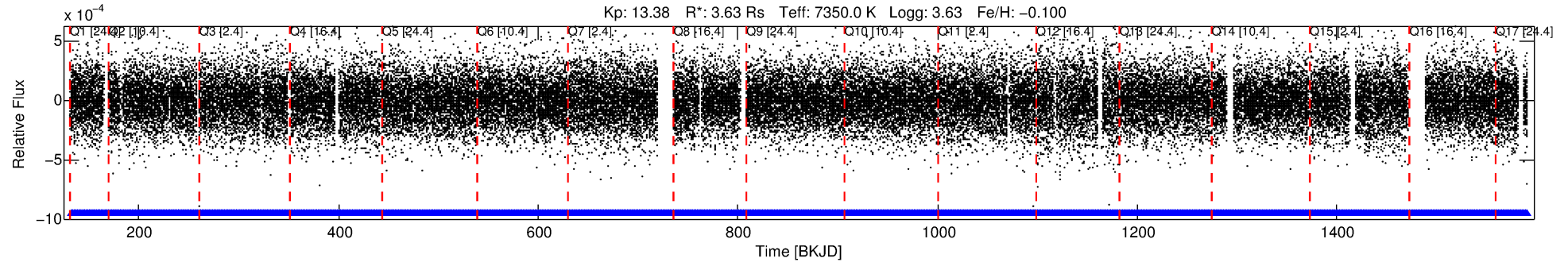
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008849165-01

No Significant Match Found

# DV One-Page Summary

KIC: 8849165 Candidate: 1 of 3 Period: 0.932 d



## DV Fit Results:

Period = 0.93234 [0.00001] d  
Epoch = 132.4121 [0.0035] BKJD  
Rp/R\* = 0.0046 [0.0032]  
a/R\* = 1.90 [5.50]  
b = 0.14 [27.81]  
Seff = 61382.17 [52714.94]  
Teff = 4014 [862] K  
Rp = 1.83 [1.56] Re  
a = 0.0237 [0.0121] AU  
Ag = 1.96 [3.17] [0.30σ]  
Teffp = 7345 [2551] K [1.24σ]

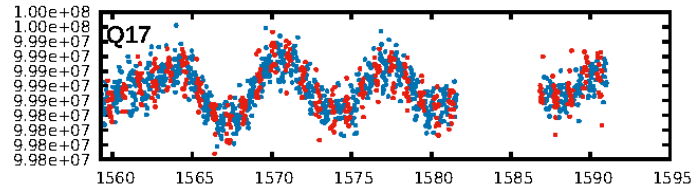
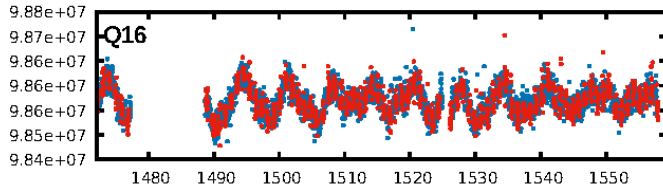
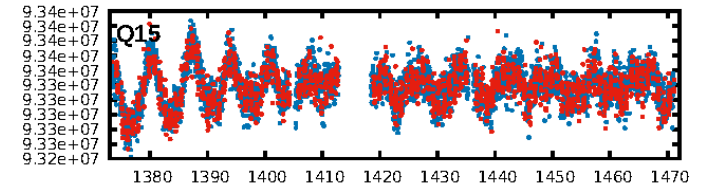
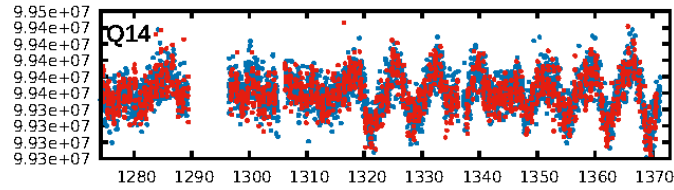
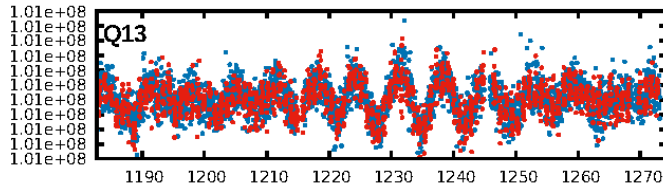
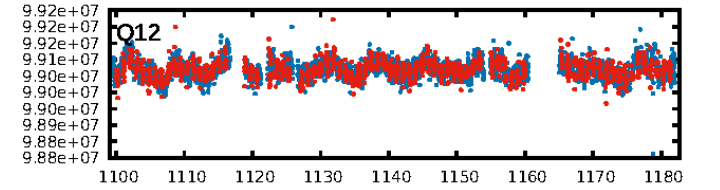
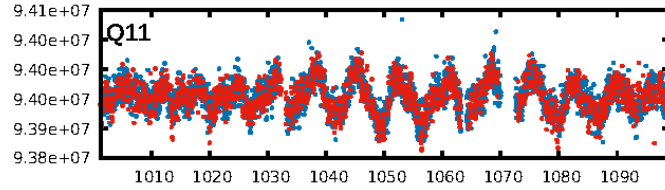
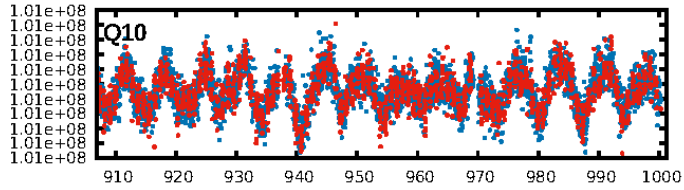
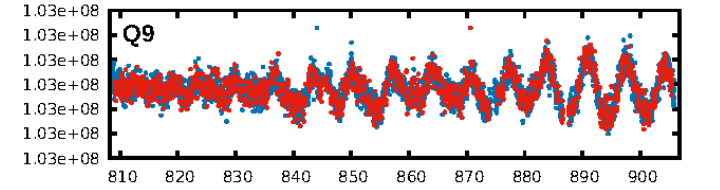
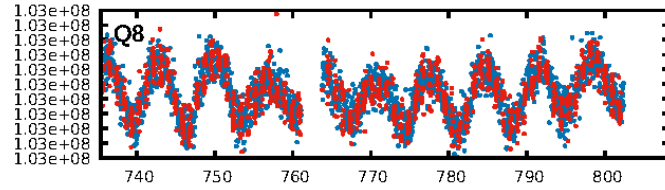
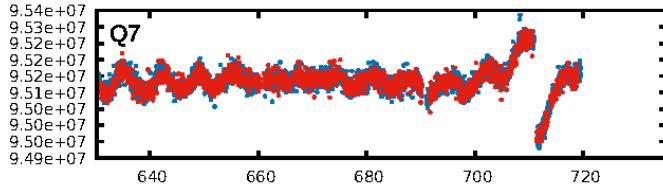
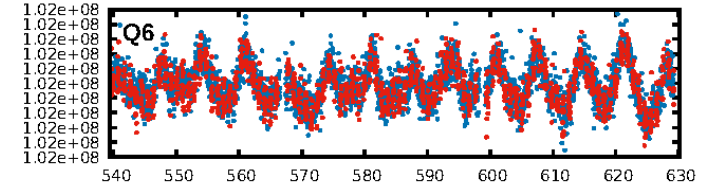
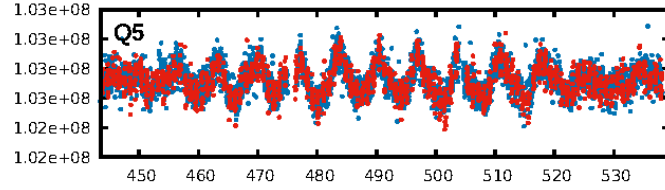
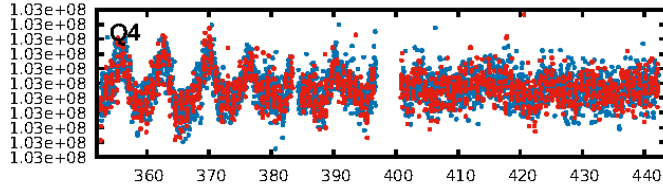
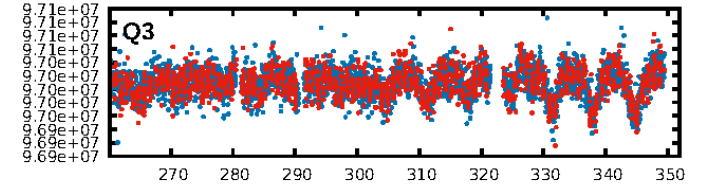
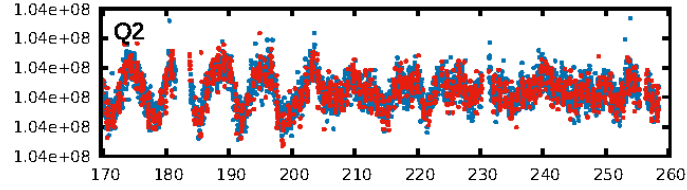
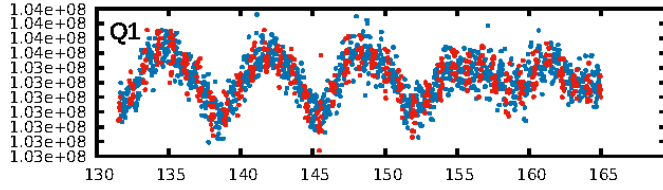
## DV Diagnostic Results:

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 [1372/1372]  
GhostDiagnostic-chr: 2.512  
Centroid-sig: 0.6%  
Centroid-so: 1.575 arcsec [1.71σ]  
OotOffset-rm: 0.571 arcsec [1.85σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.643 arcsec [2.07σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.94 [16/17]  
DiffImageOverlap-fno: 1.00 [17/17]

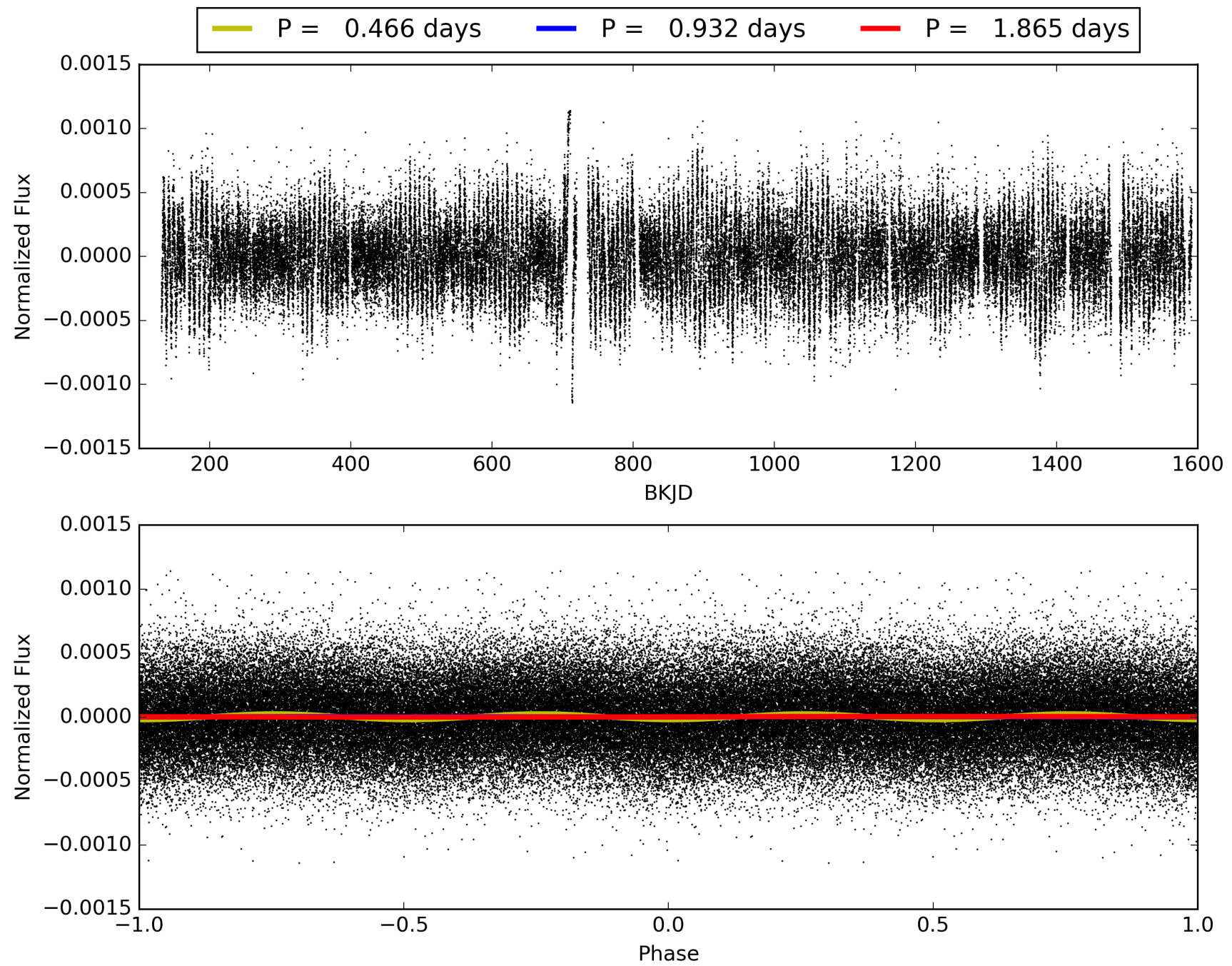
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:30:00 Z

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

# TCE 008849165-01, PDC Light Curves



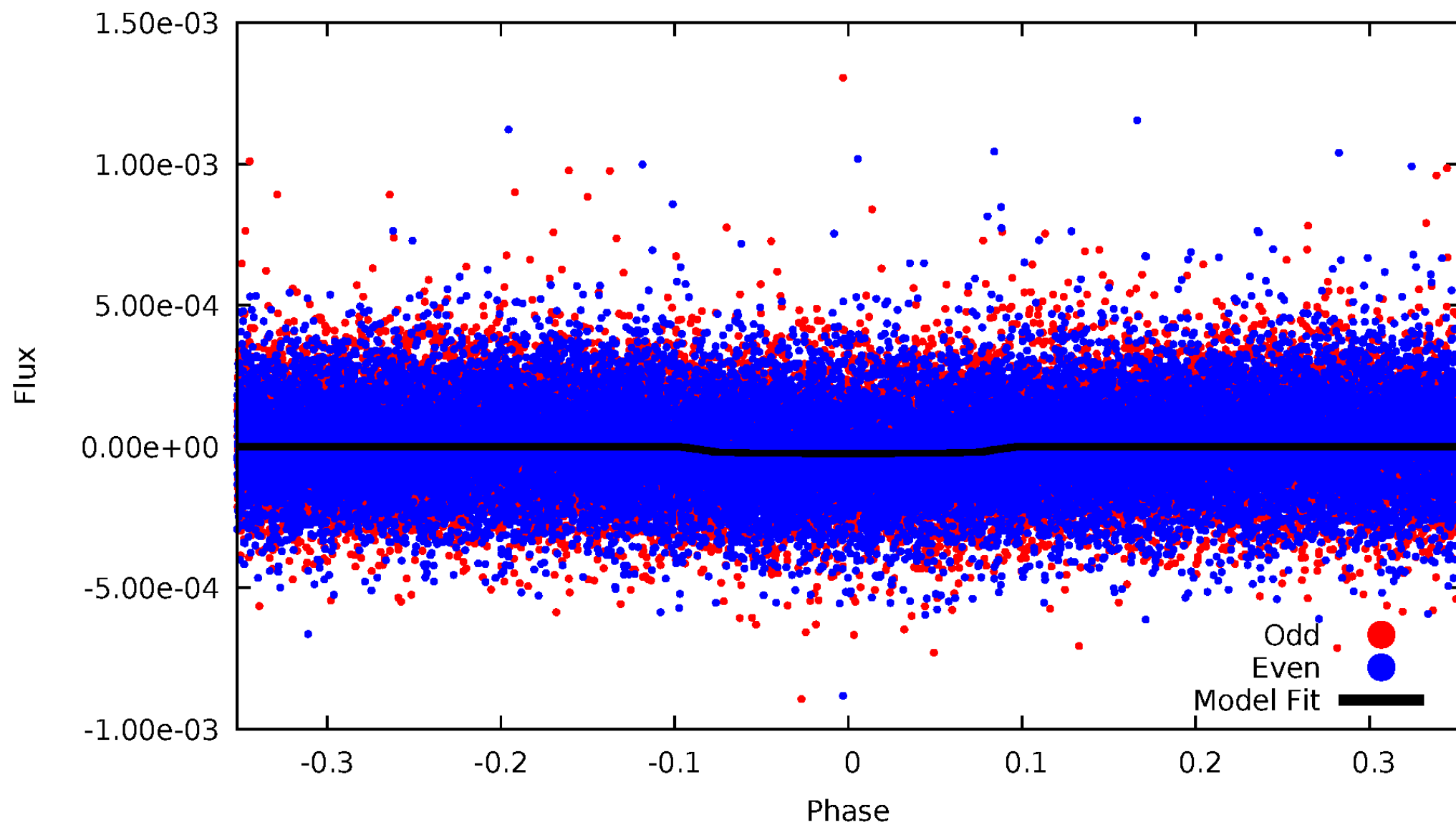
TCE 008849165-01





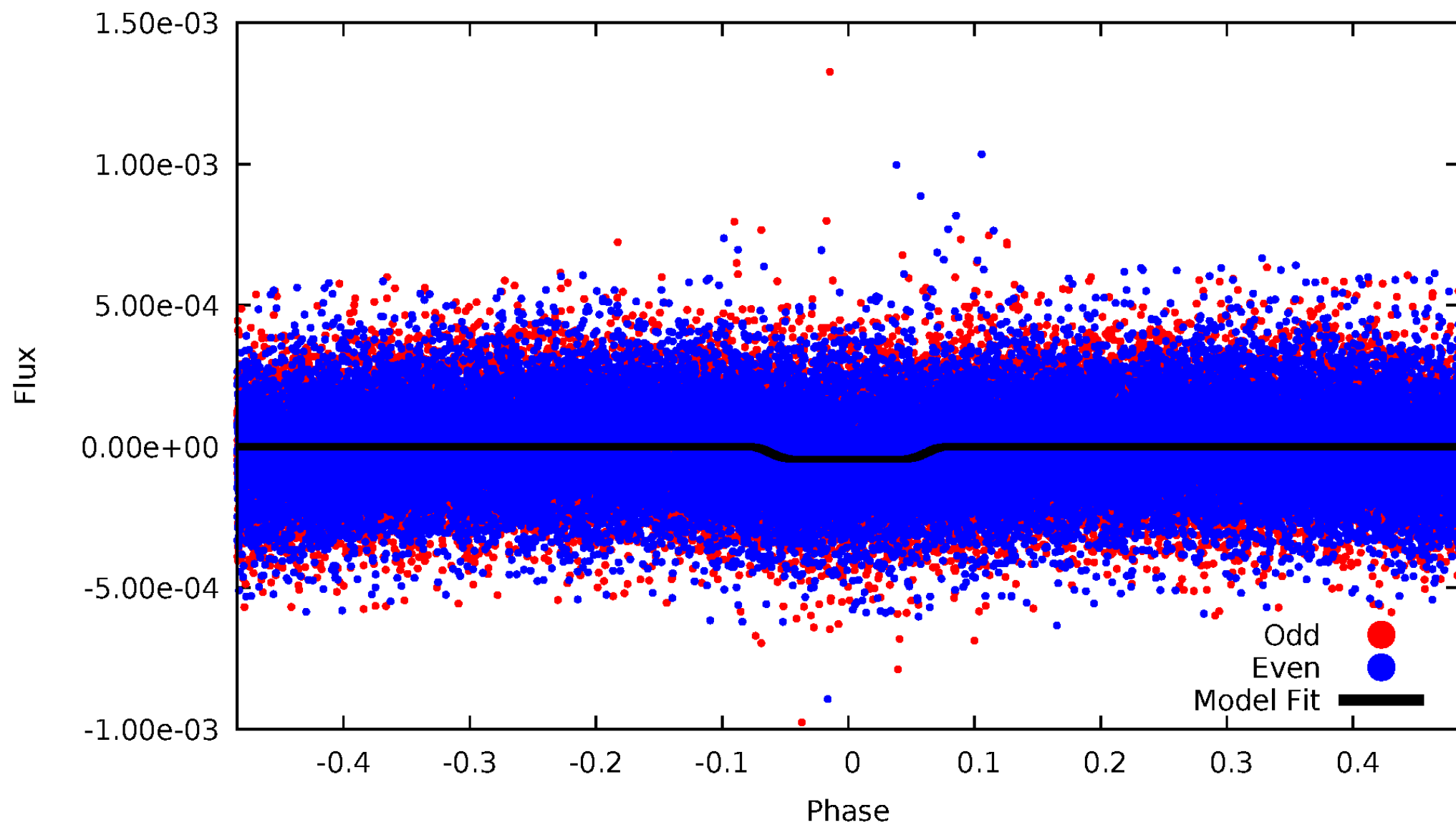
# DV Odd/Even

TCE 008849165-01

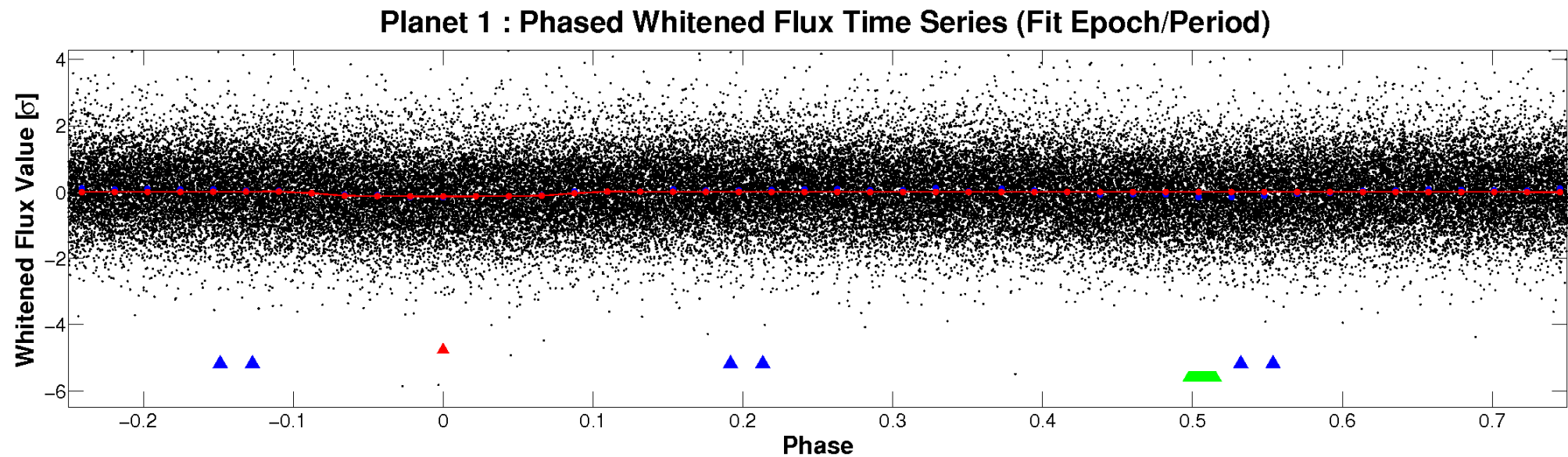
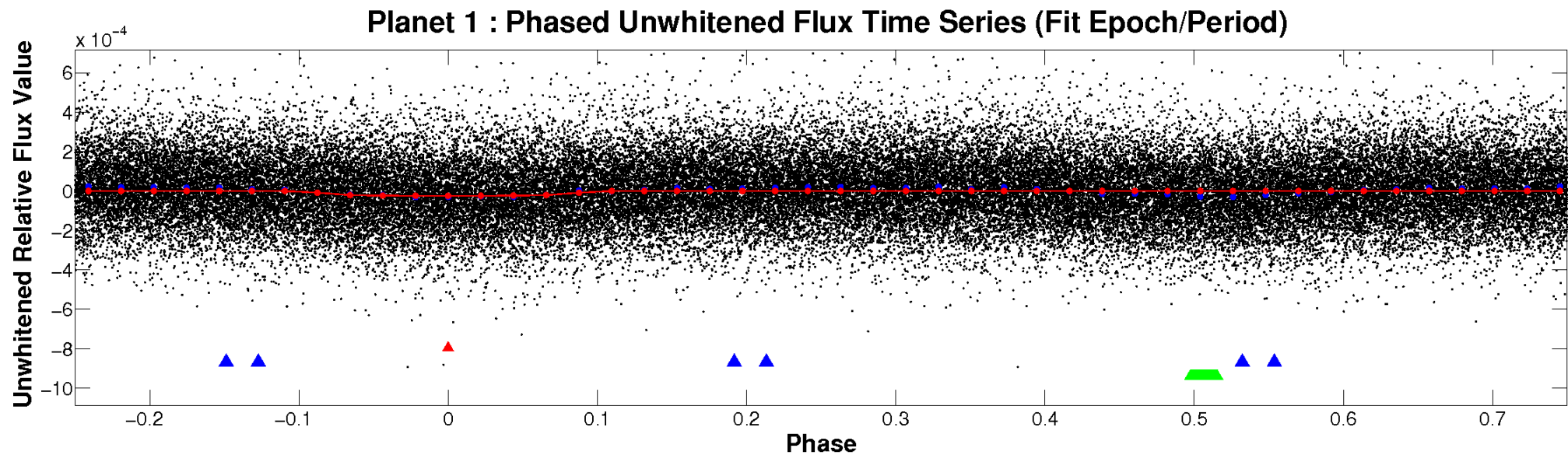


# ALT Odd/Even

TCE 008849165-01

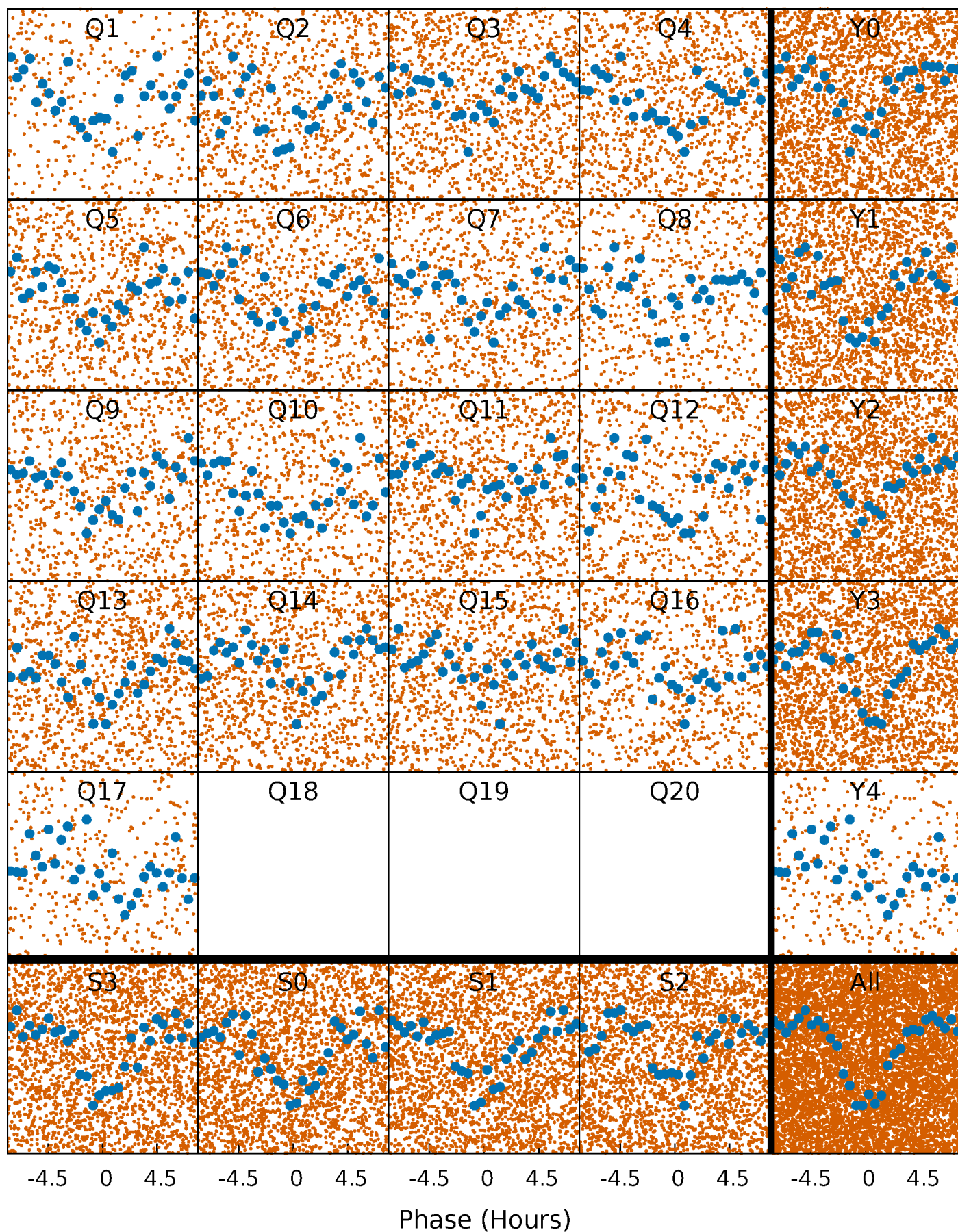


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

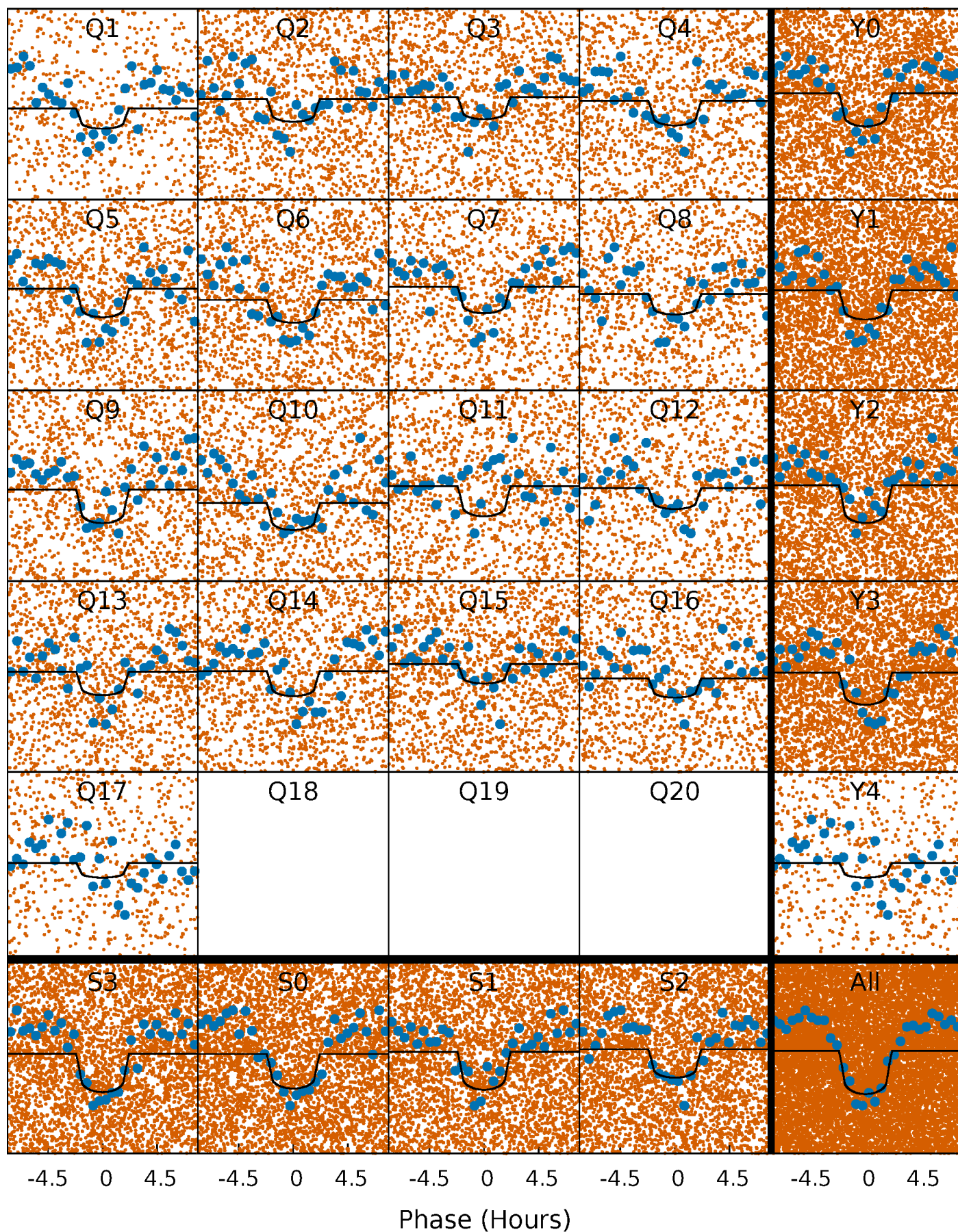
TCE 008849165-01 P= 0.932339 Days  $T_0=132.412117$  (BKJD)





# DV Quarter-Phased Transit Curves

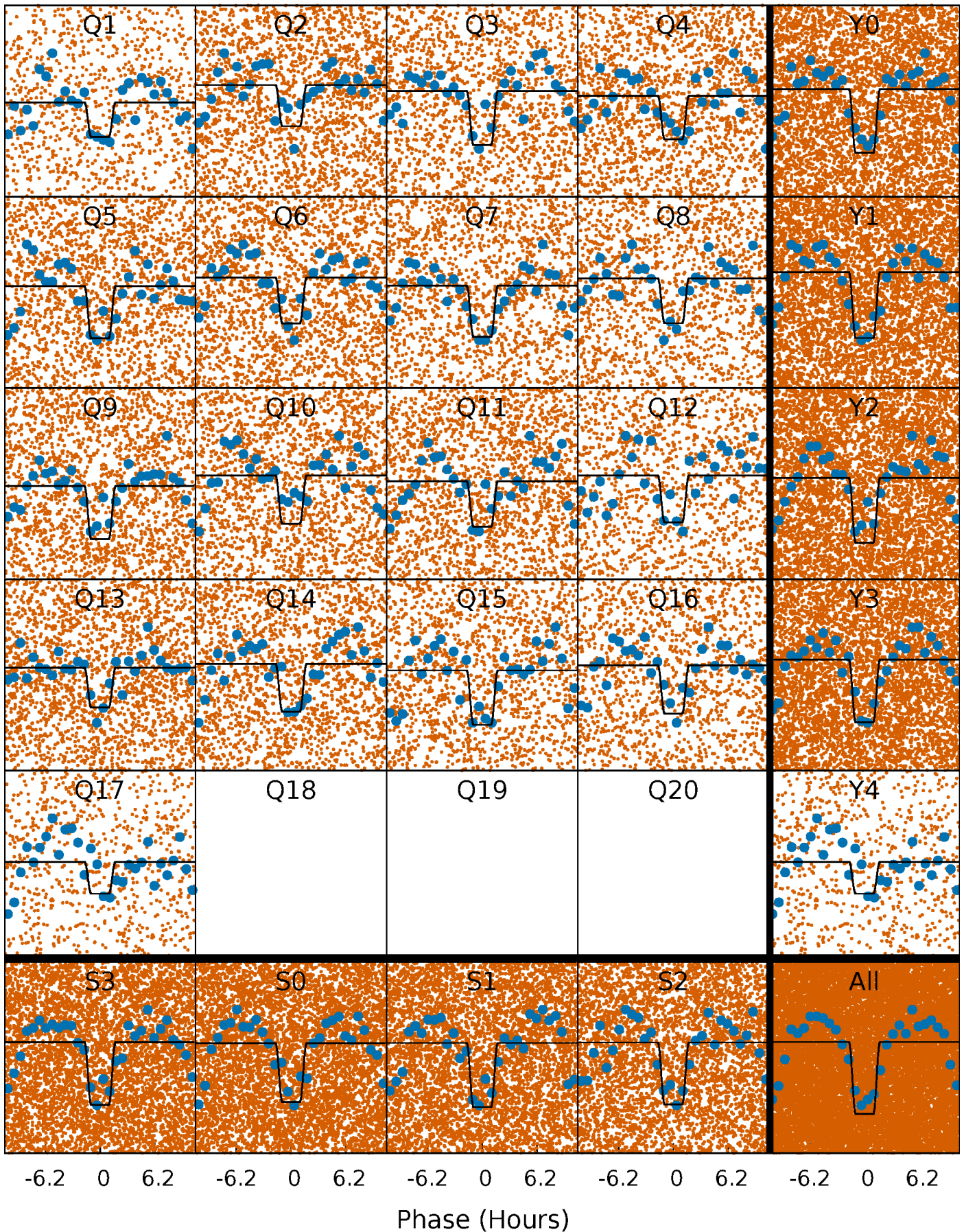
TCE 008849165-01 P= 0.932339 Days  $T_0=132.412117$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

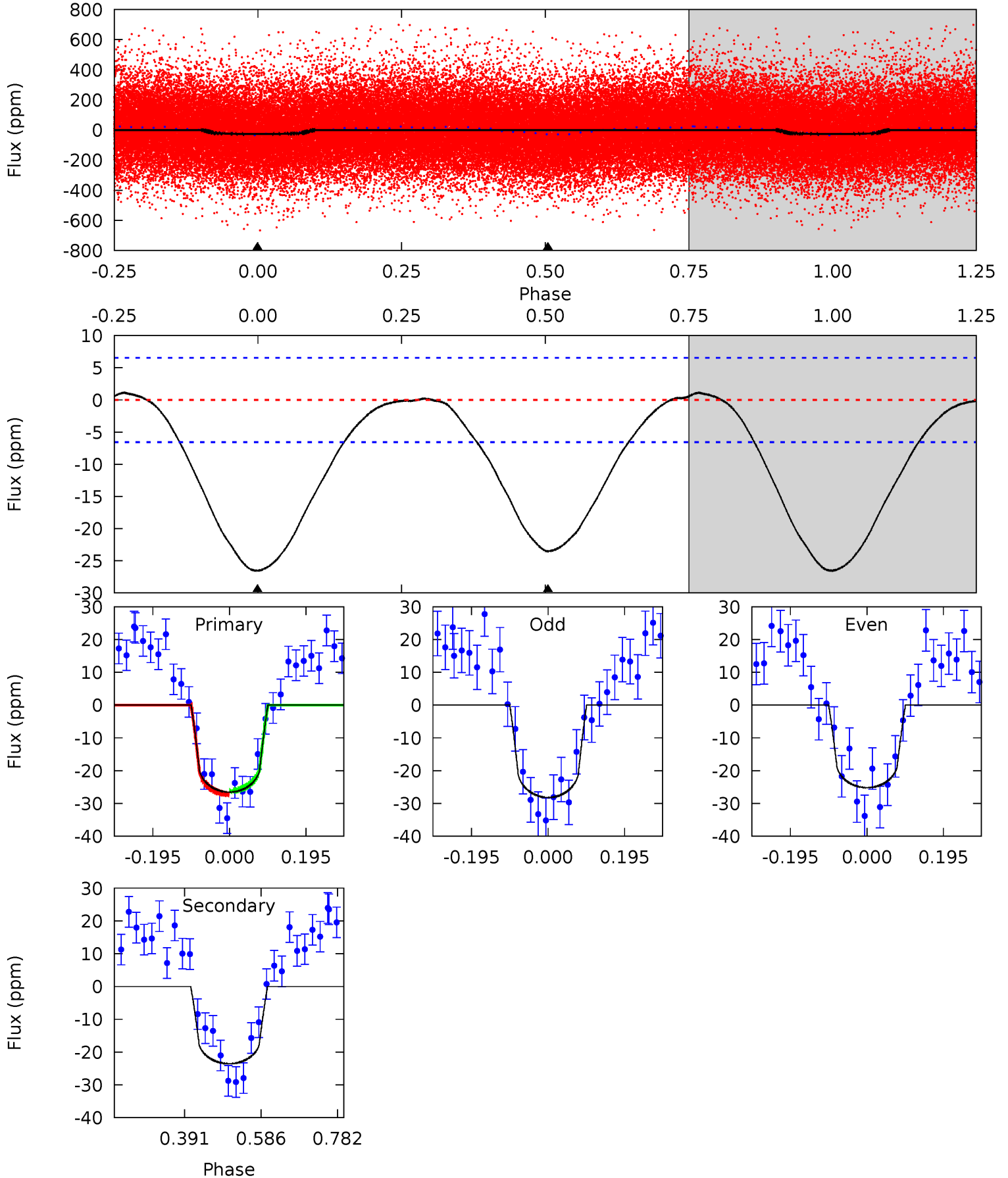
TCE 008849165-01   P= 0.932380 Days    $T_0=132.379429$  (BKJD)



# DV Model-Shift Uniqueness Test

008849165-01, P = 0.932339 Days, E = 131.479778 Days

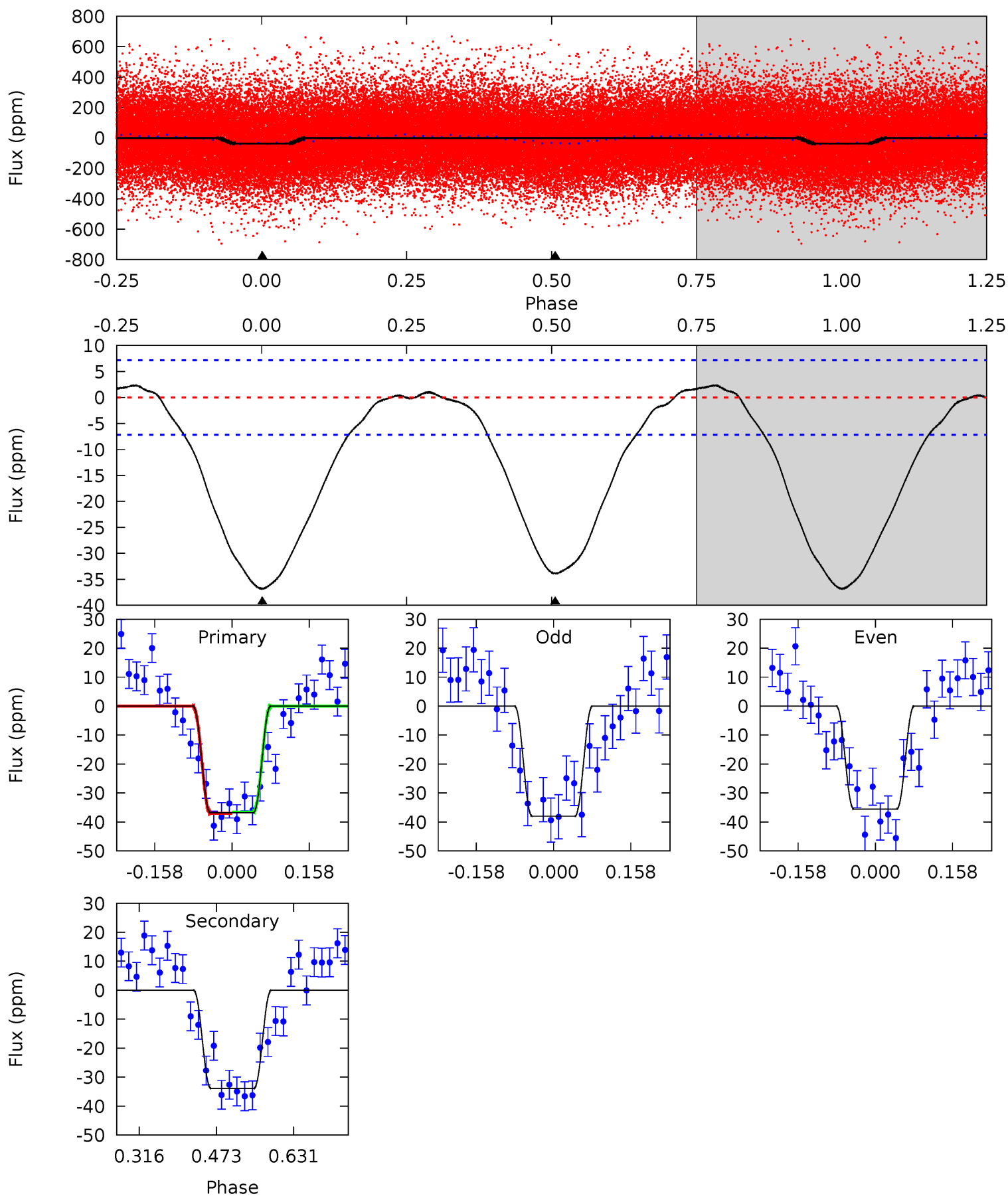
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	15.9	0	0	4.42	1.29	0.45	17.9	17.9	15.9	15.9	1.02	0.96	0.04	0.34



# Alt Model-Shift Uniqueness Test

008849165-01, P = 0.932380 Days, E = 131.447049 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
23.0	21.1	0	0	4.47	1.41	1.13	23.0	23.0	21.1	21.1	0.76	1.00	0.06	0.14





### Stellar Parameters For KIC 008849165

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7350^{+228}_{-304}$	$3.628^{+0.504}_{-0.056}$	$-0.100^{+0.250}_{-0.300}$	$3.632^{+0.341}_{-1.820}$	$2.041^{+0.110}_{-0.585}$	$0.060^{+0.343}_{-0.011}$
	+3%/-4%	+14%/-2%	+250%/-300%	+9%/-50%	+5%/-29%	+571%/-19%
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 008849165-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-24±1	$1.60^{+1.22}_{-0.88}$	$5375^{+372}_{-739}$	$7111^{+5558}_{-1941}$	$2.731^{+10.411}_{-1.817}$
Alt.	-34±2	$2.33^{+1.25}_{-1.16}$	$5439^{+316}_{-728}$	$6413^{+3309}_{-1374}$	$1.908^{+5.437}_{-1.091}$

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

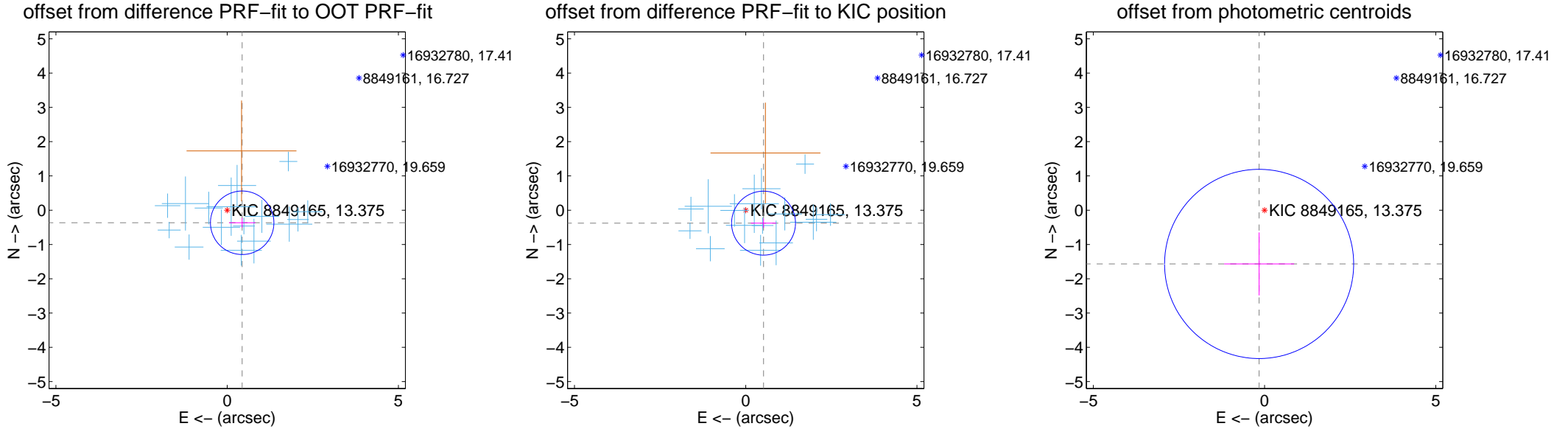
## DV Centroid Data

Supplemental centroid analysis for 008849165-01. Kepler magnitude: 13.38. Transit SNR 11.72

There are 16 quarters with good PRF difference image offsets

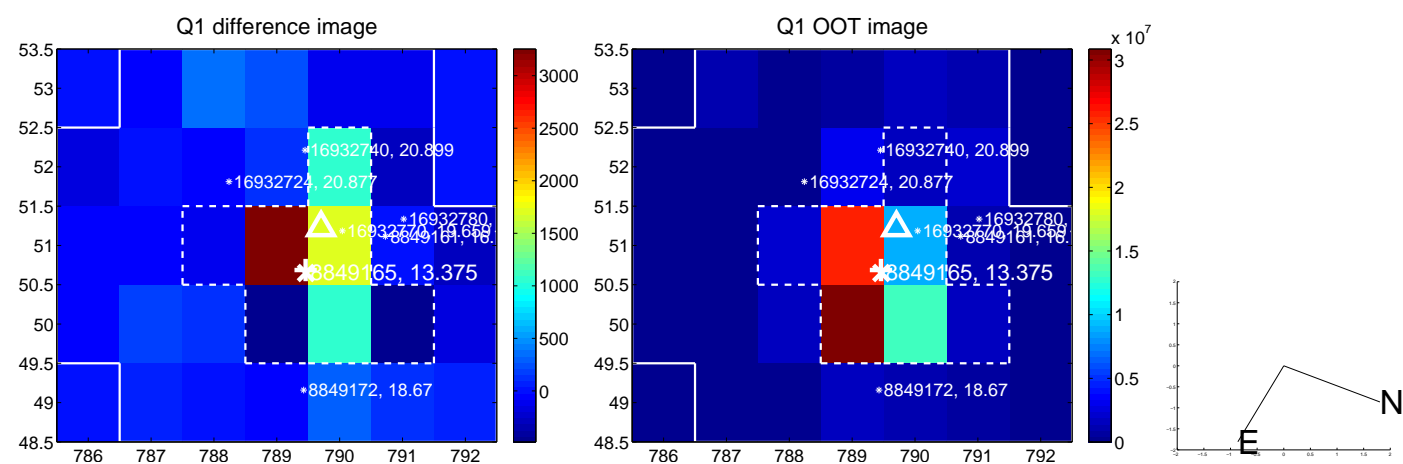
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.571 \pm 0.309$	1.85	$-0.438 \pm 0.385$	$-0.366 \pm 0.139$
PRF-fit source offset from KIC position	$0.643 \pm 0.311$	2.07	$-0.520 \pm 0.371$	$-0.378 \pm 0.137$
photometric centroid source offset	$1.58 \pm 0.92$	1.71	$0.16 \pm 1.02$	$-1.57 \pm 0.92$

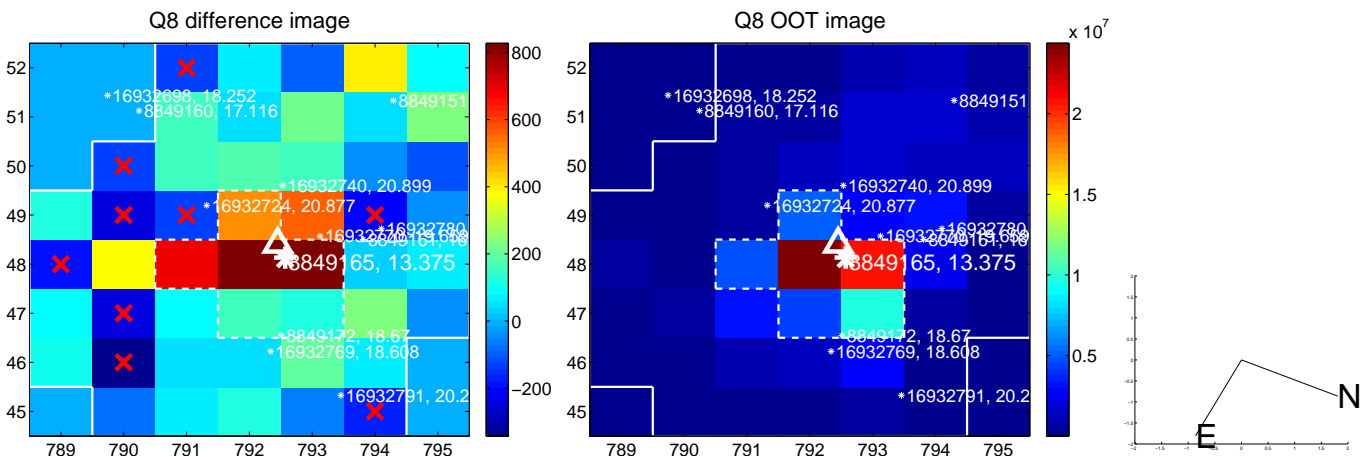
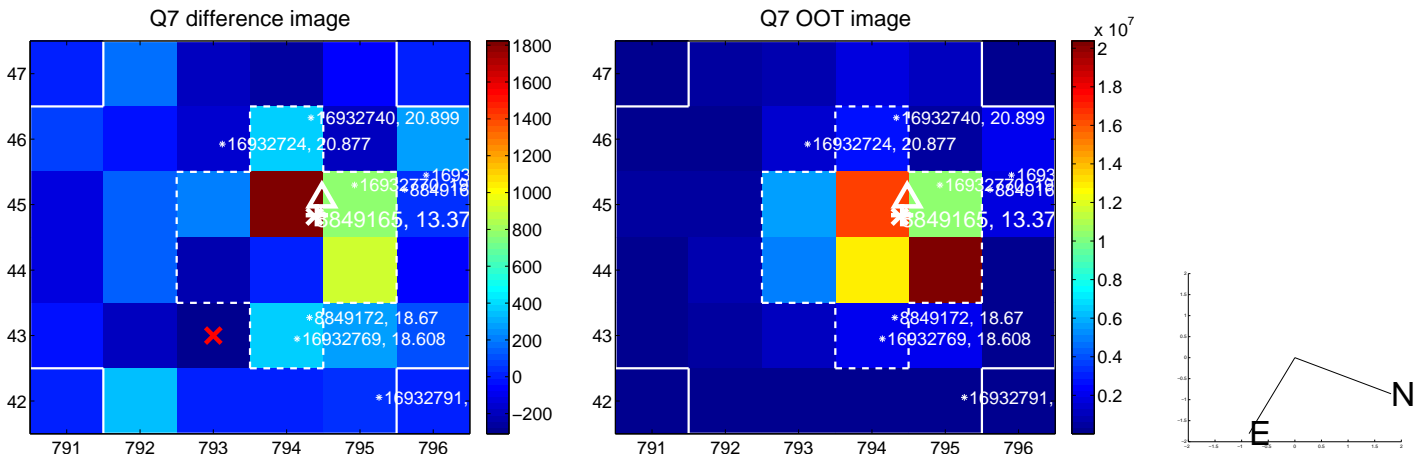
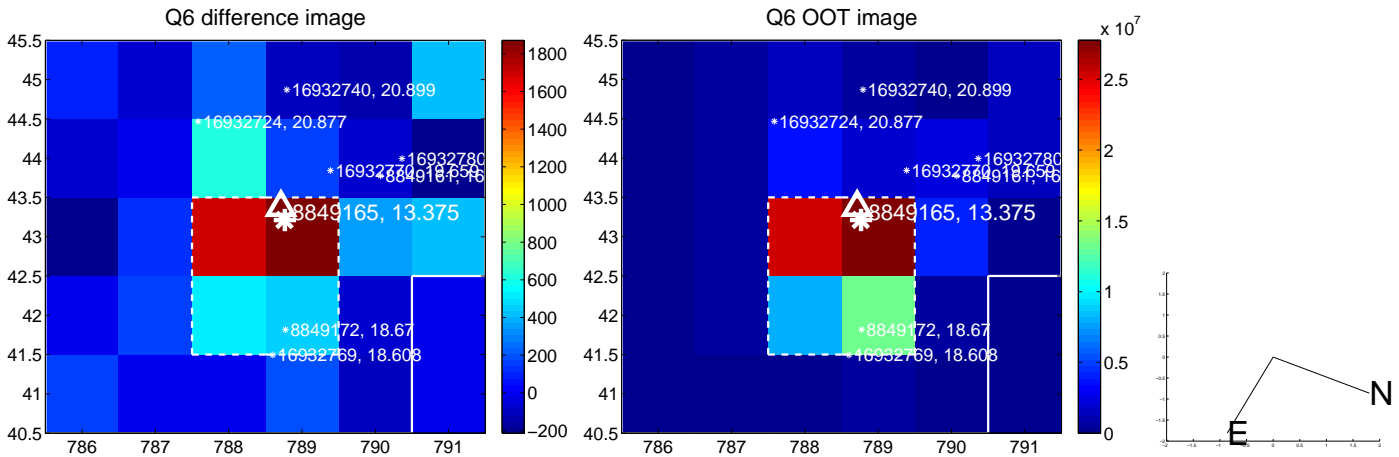
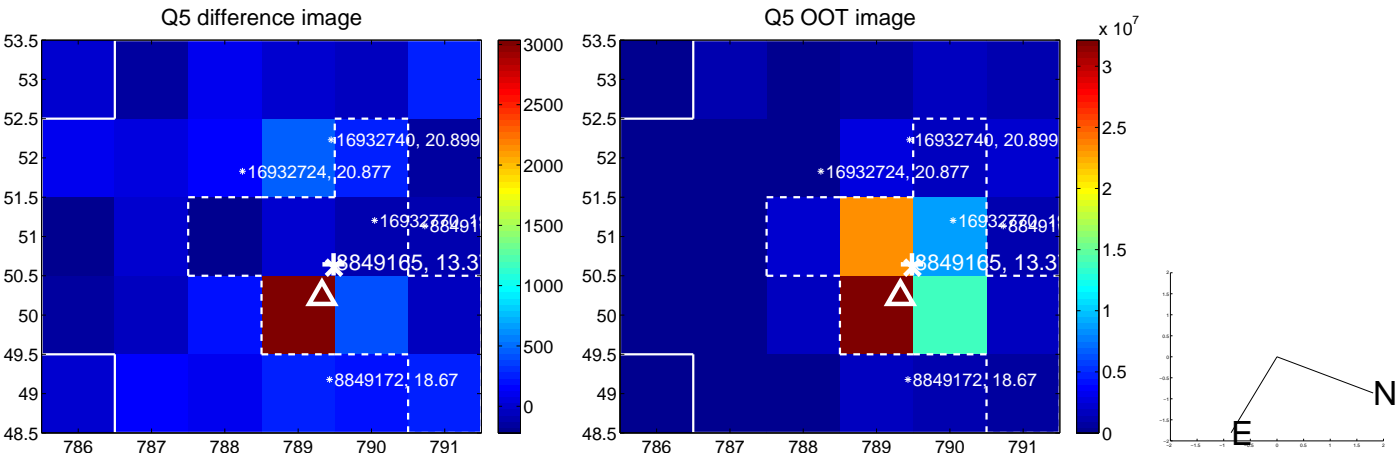


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

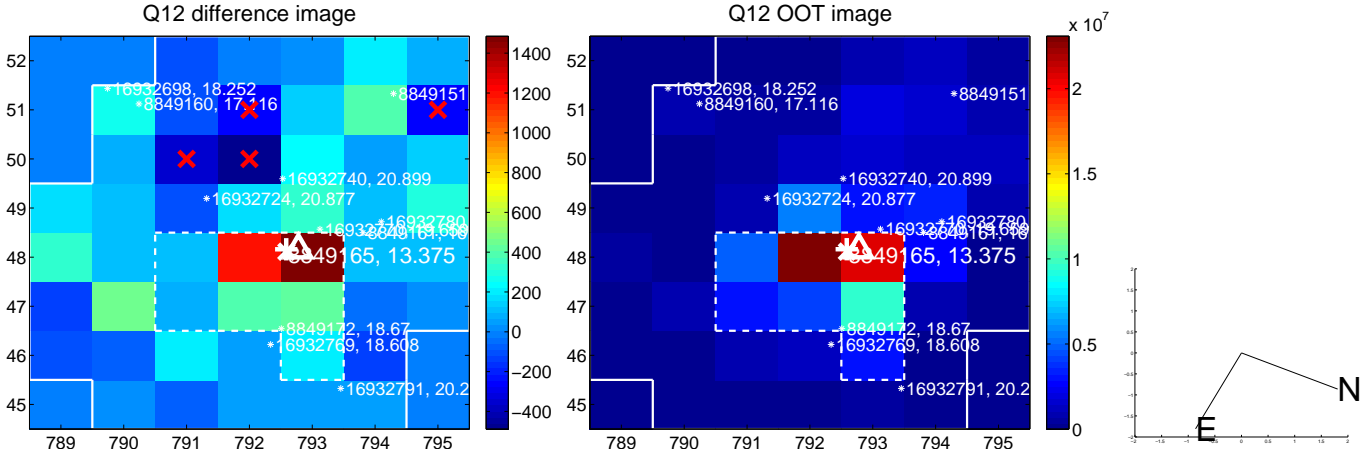
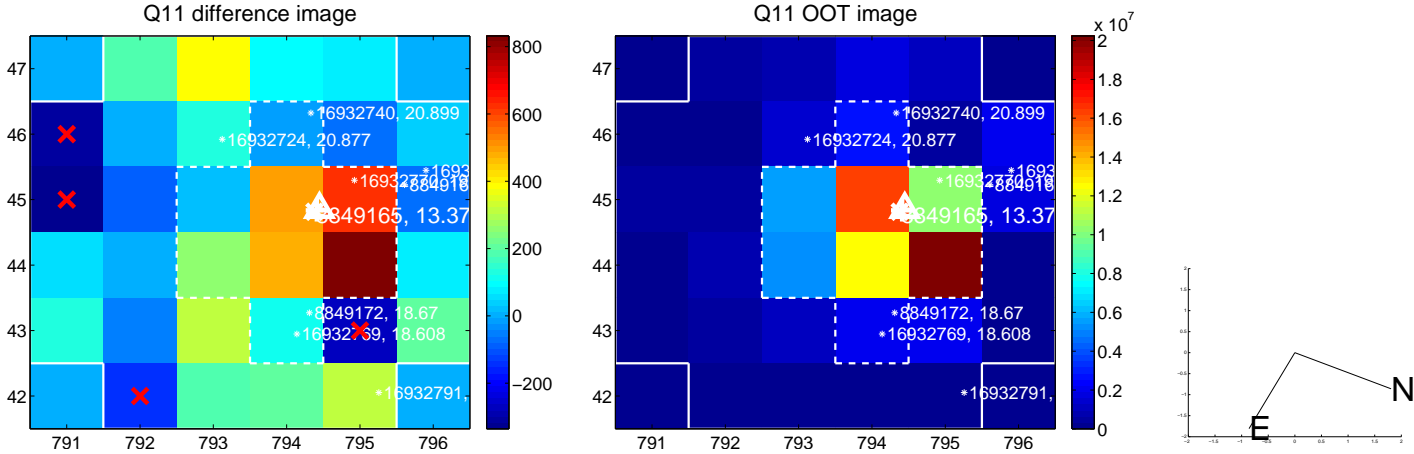
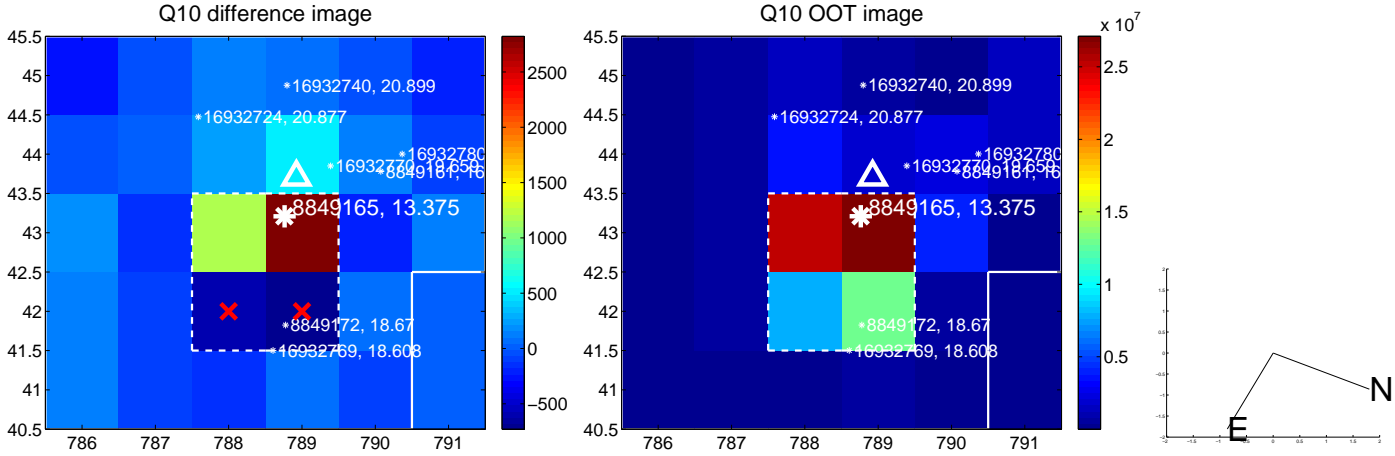
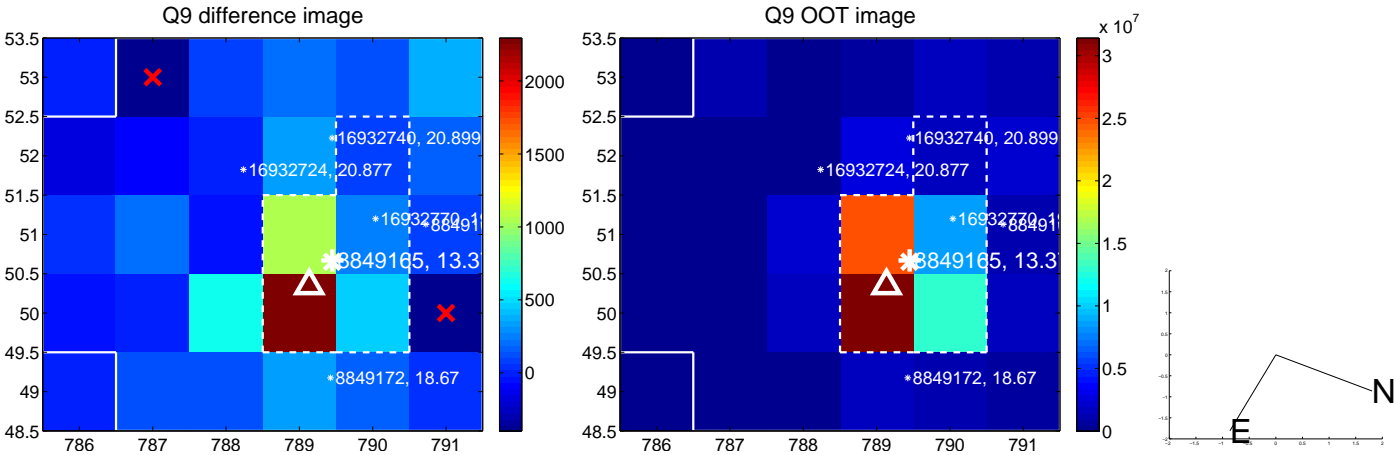


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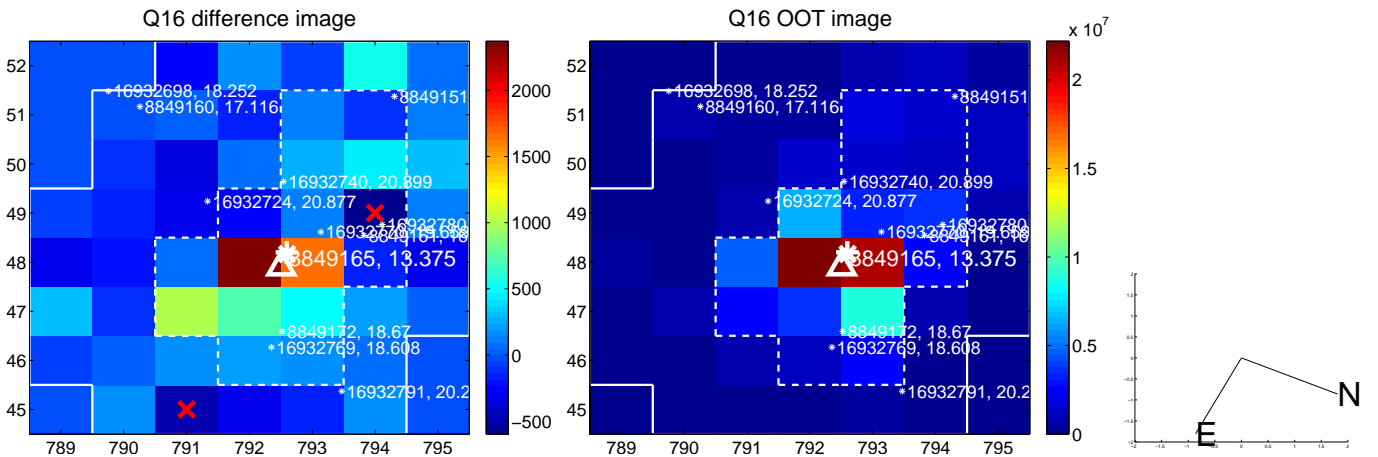
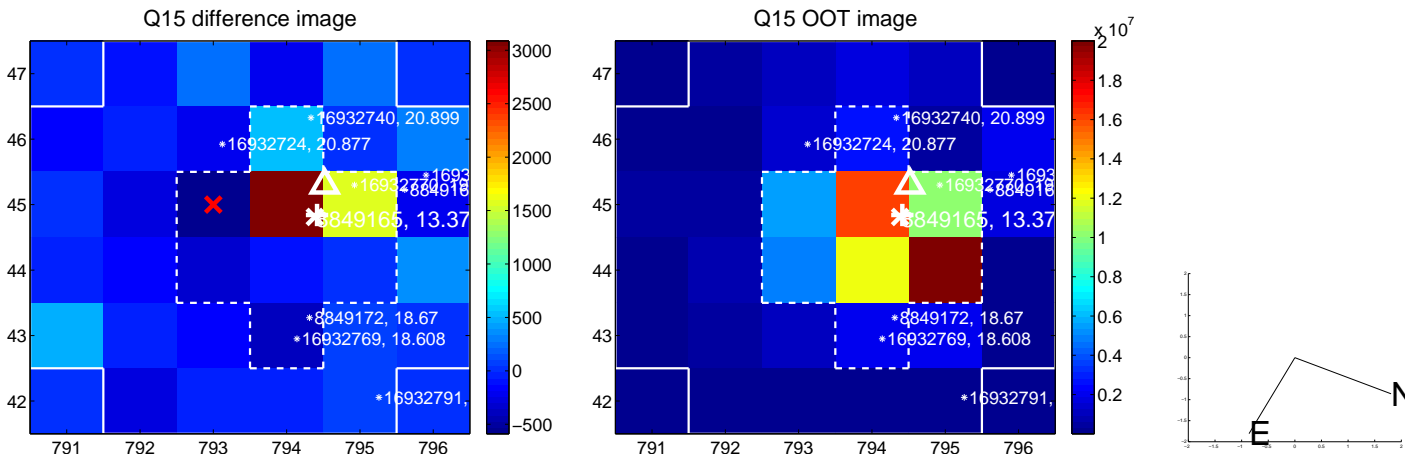
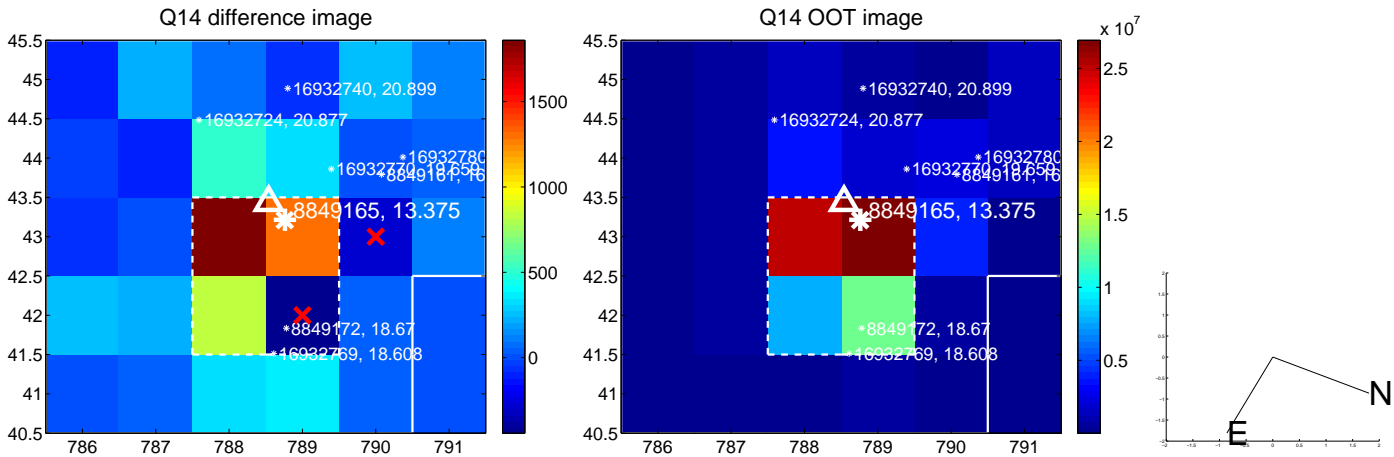
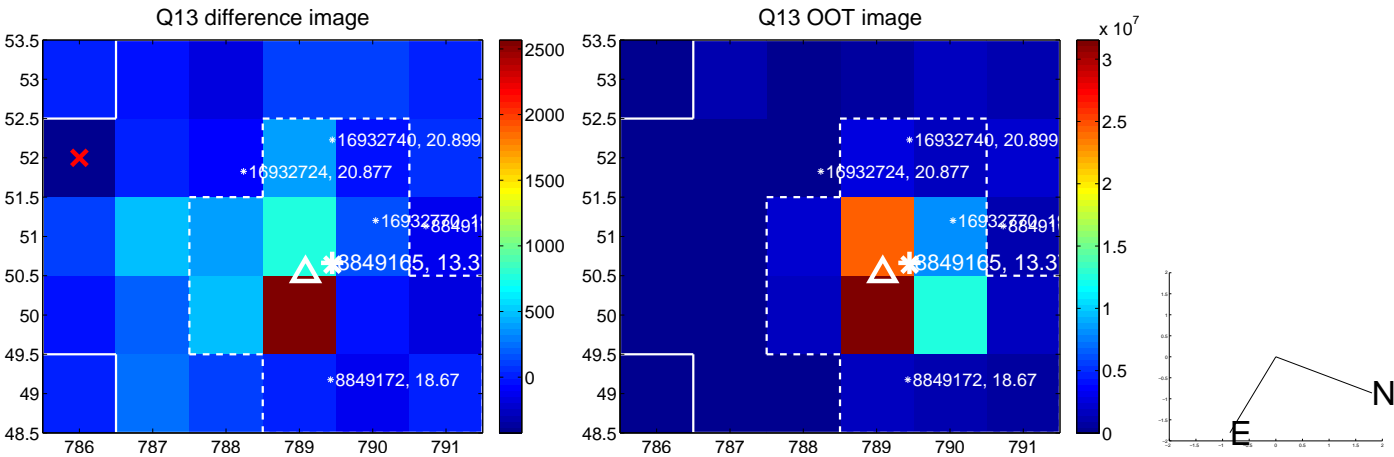




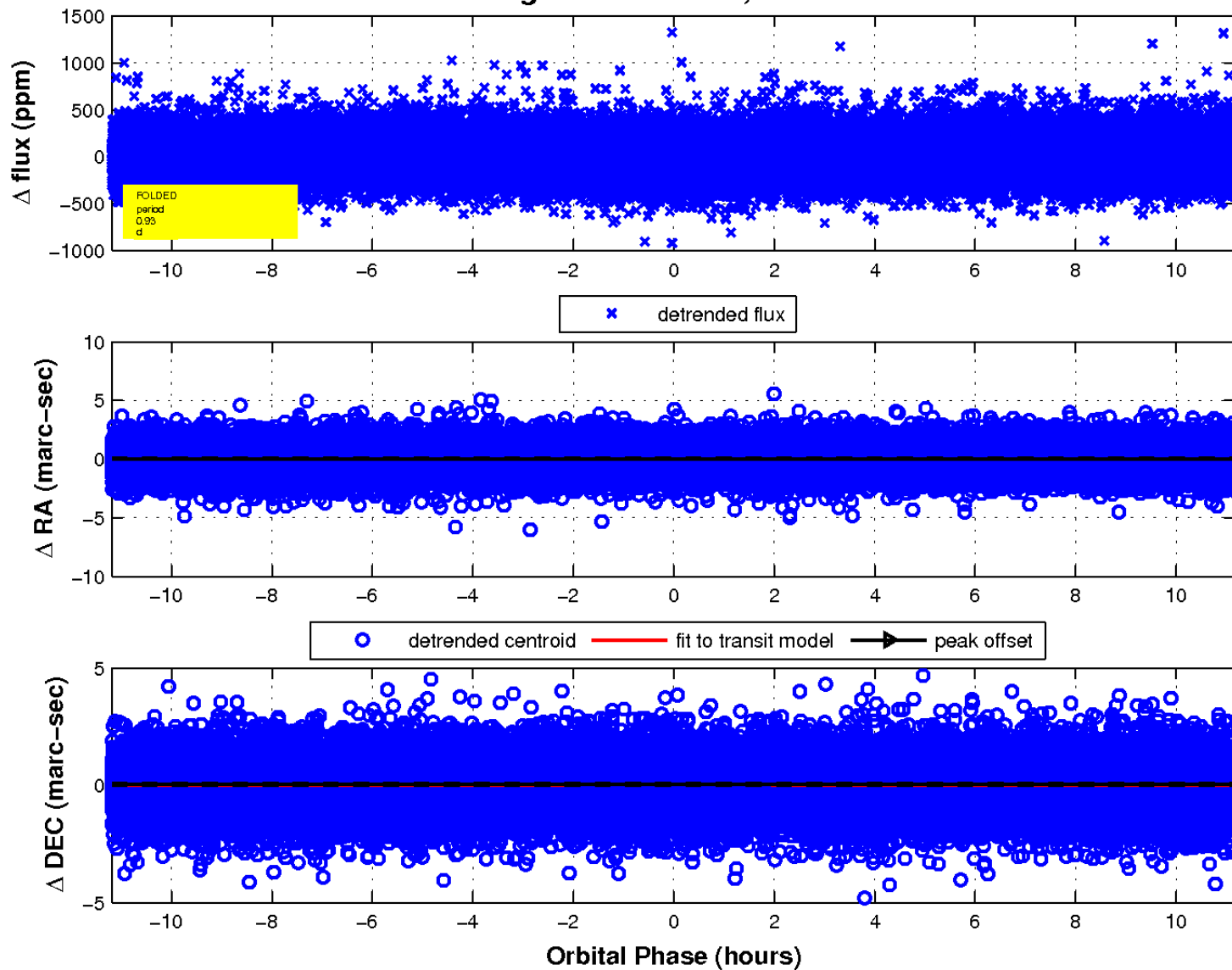
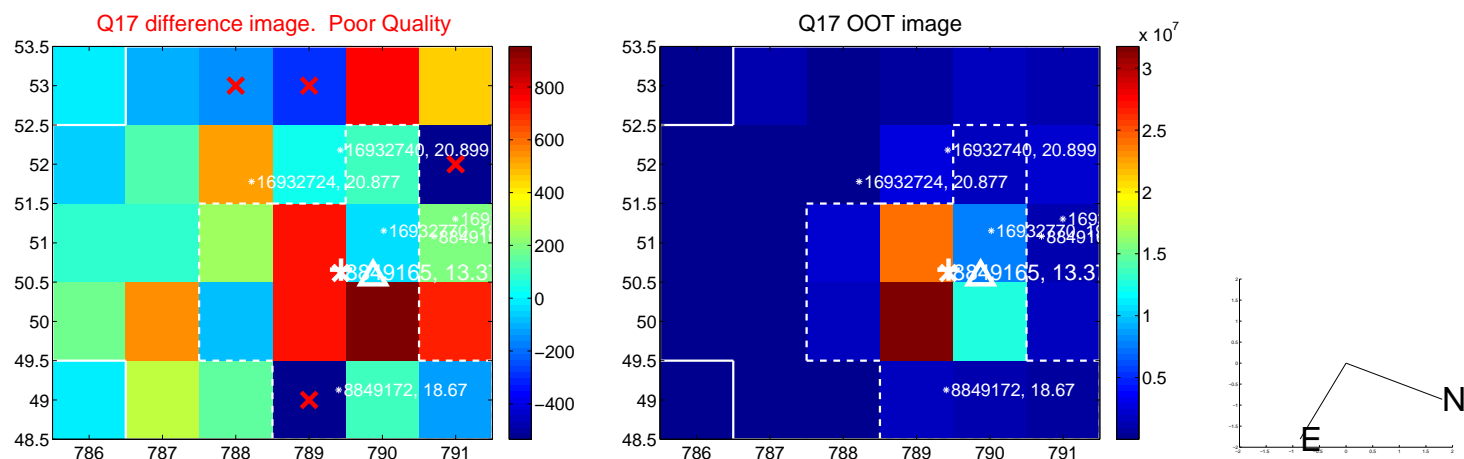
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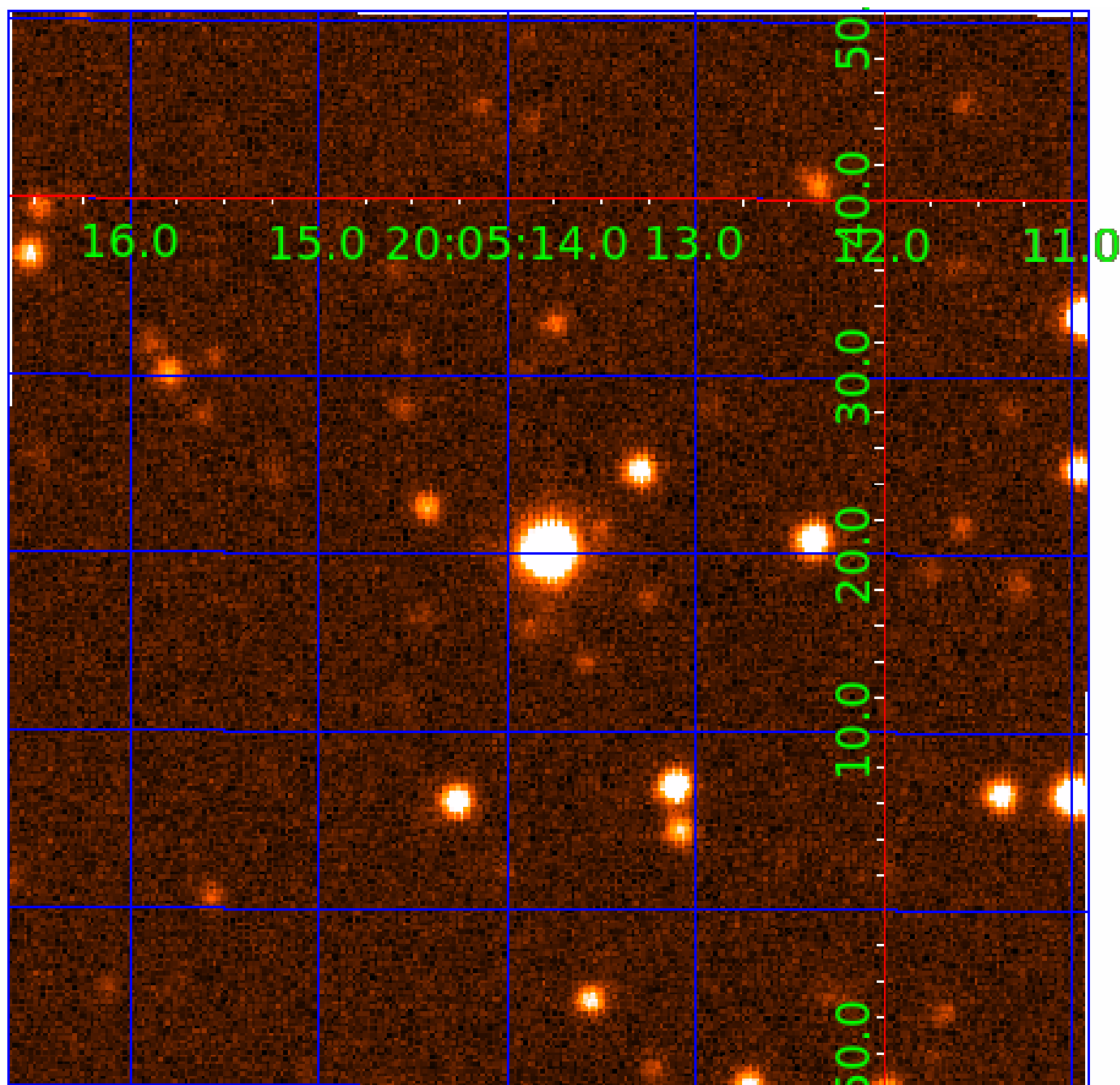


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value



UKIRT Image

Declination





# KIC 008849165

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008849165-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008849165-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008849165-03	OBS	FP	0.00	1	0	0	0	LPP_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.

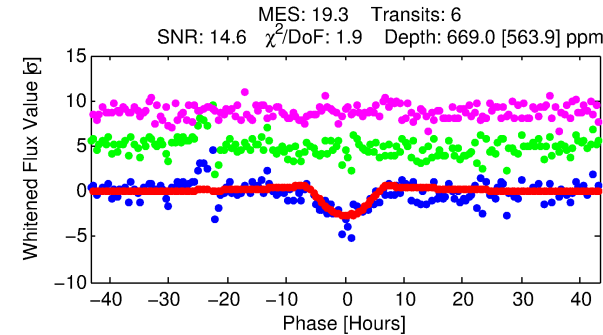
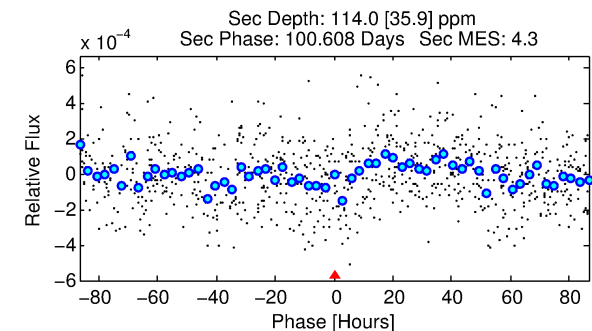
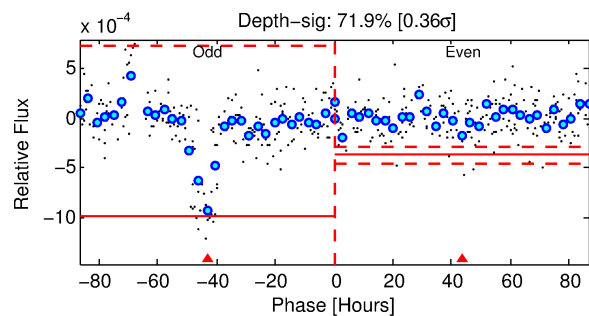
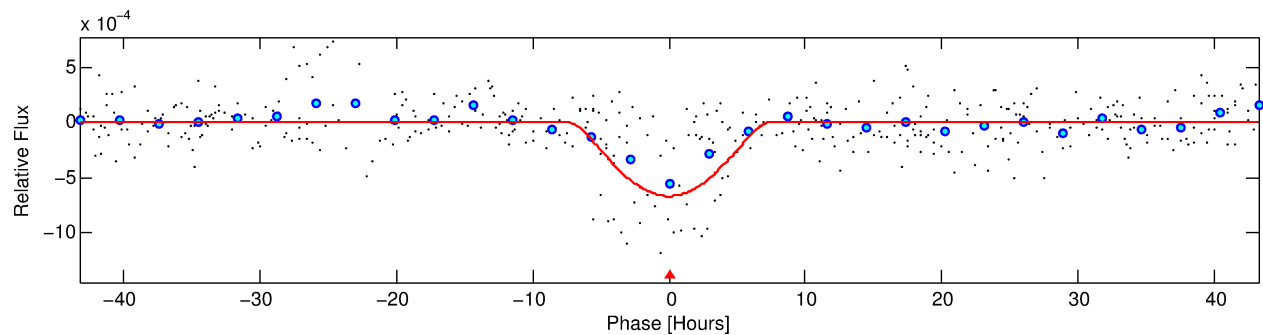
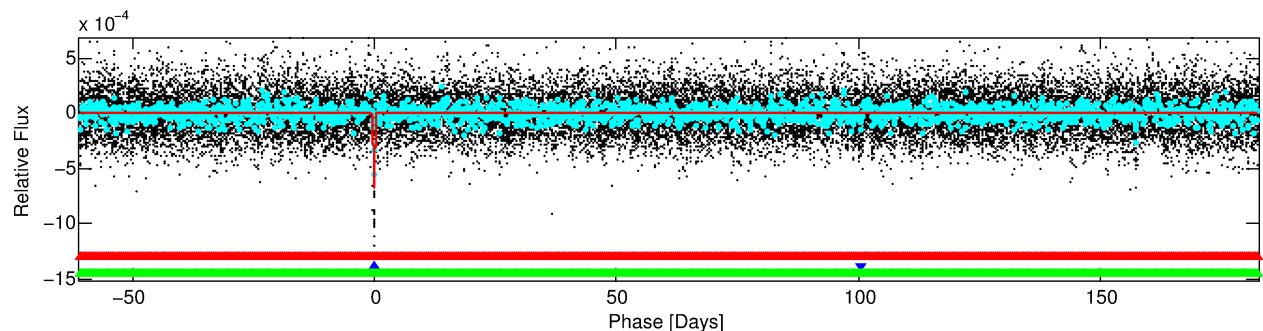
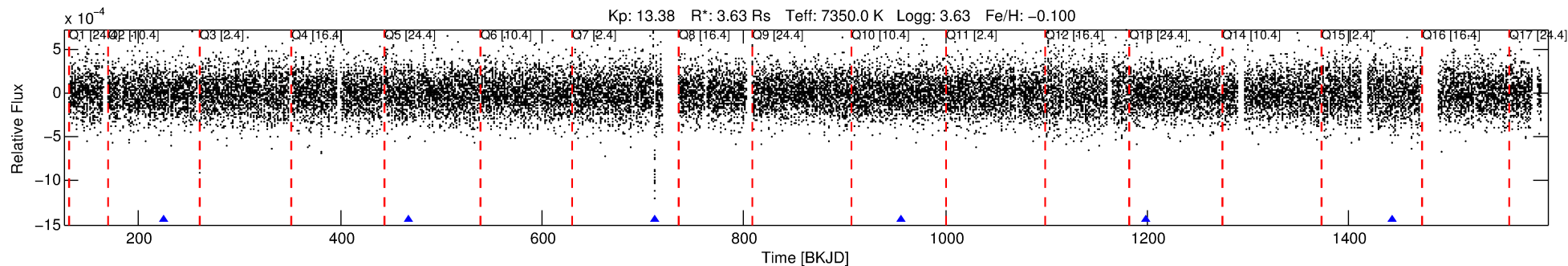
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008849165-02

No Significant Match Found

# DV One-Page Summary

KIC: 8849165 Candidate: 2 of 3 Period: 243.658 d



## DV Fit Results:

Period = 243.65802 [0.00779] d  
Epoch = 224.5750 [0.0243] BKJD  
Rp/R\* = 0.0444 [0.1151]  
a/R\* = 38.88 [25.37]  
b = 1.00 [0.14]  
Seff = 36.74 [31.55]  
Teq = 628 [135] K  
Rp = 17.58 [46.46] Re  
a = 0.9690 [0.4953] AU  
Ag = 190.45 [1003.18] [0.19 $\sigma$ ]  
Teffp = 3606 [4689] K [0.63 $\sigma$ ]

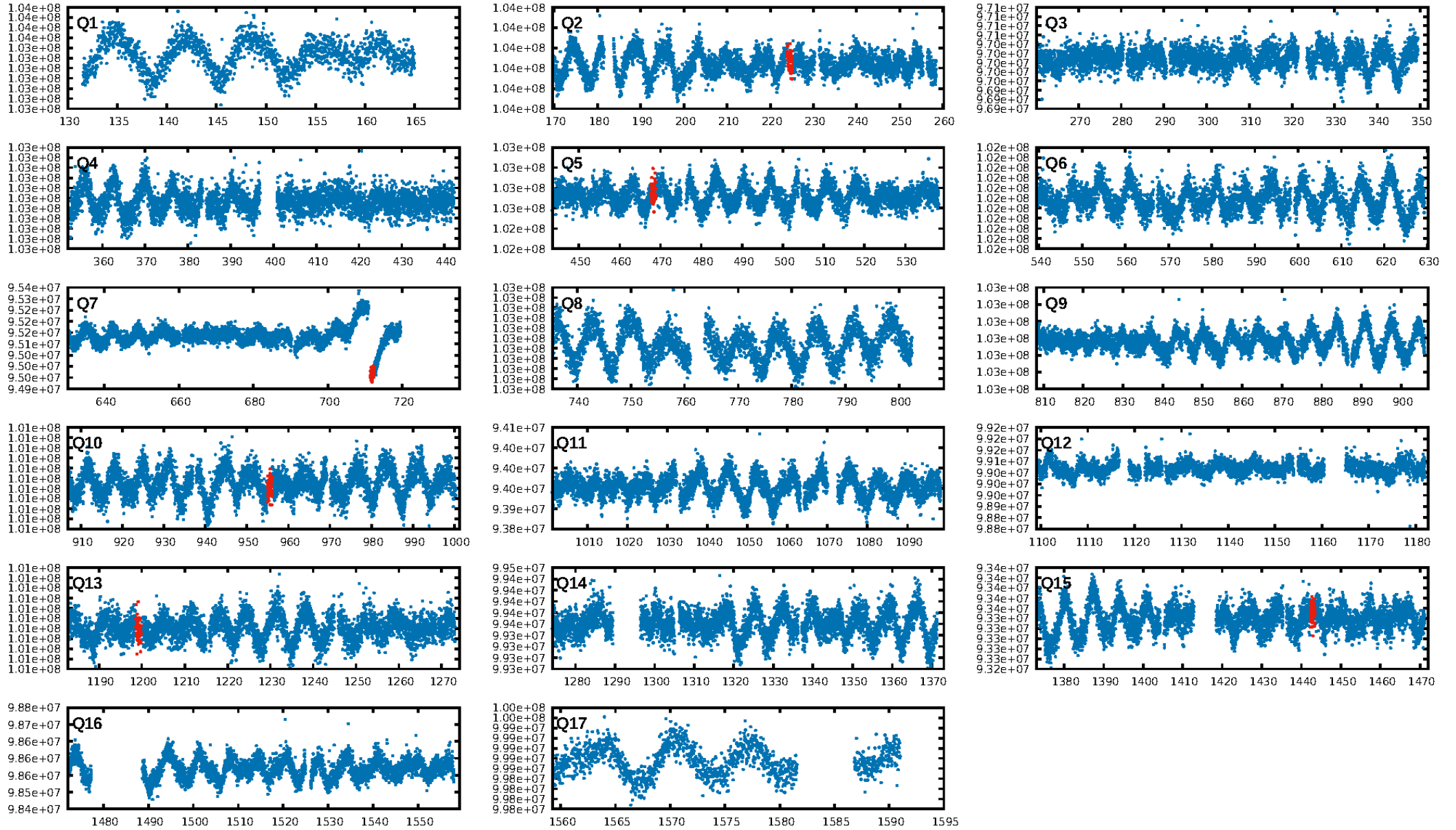
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [390.98 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 0.3638  
Centroid-sig: 1.7%  
Centroid-so: 0.979 arcsec [2.09 $\sigma$ ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 0.00 [0/3]

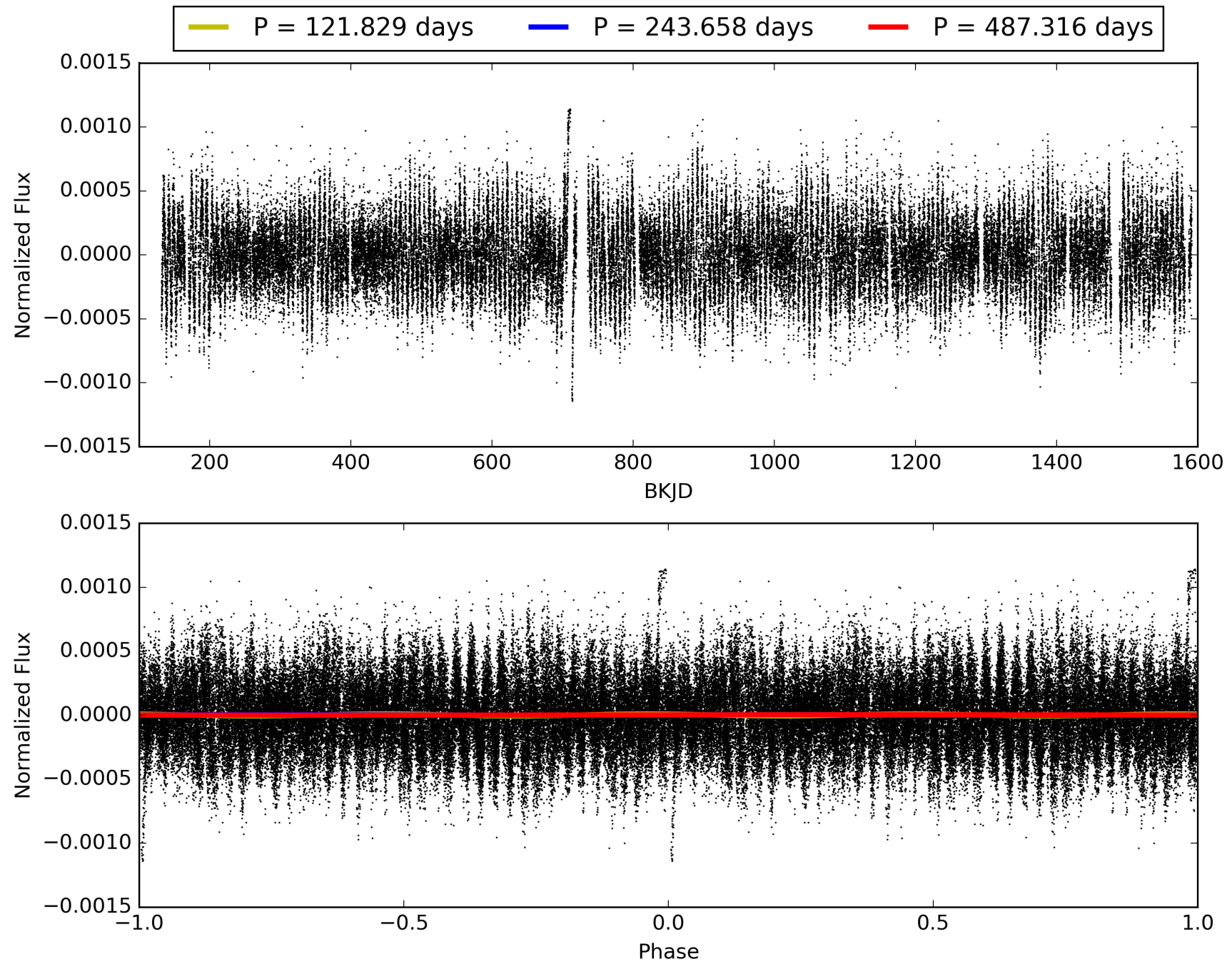
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:30:11 Z

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

# TCE 008849165-02, PDC Light Curves

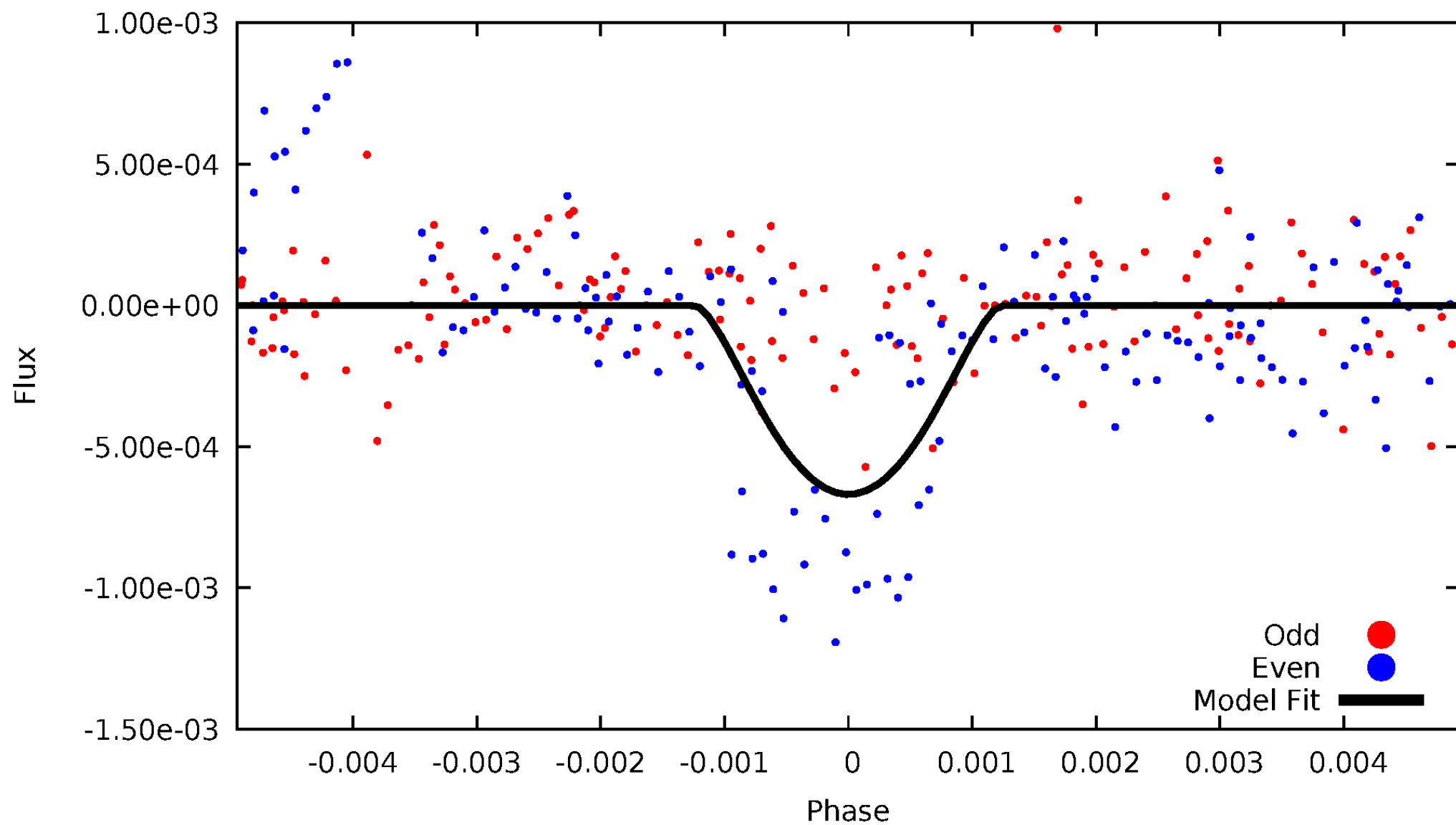


TCE 008849165-02



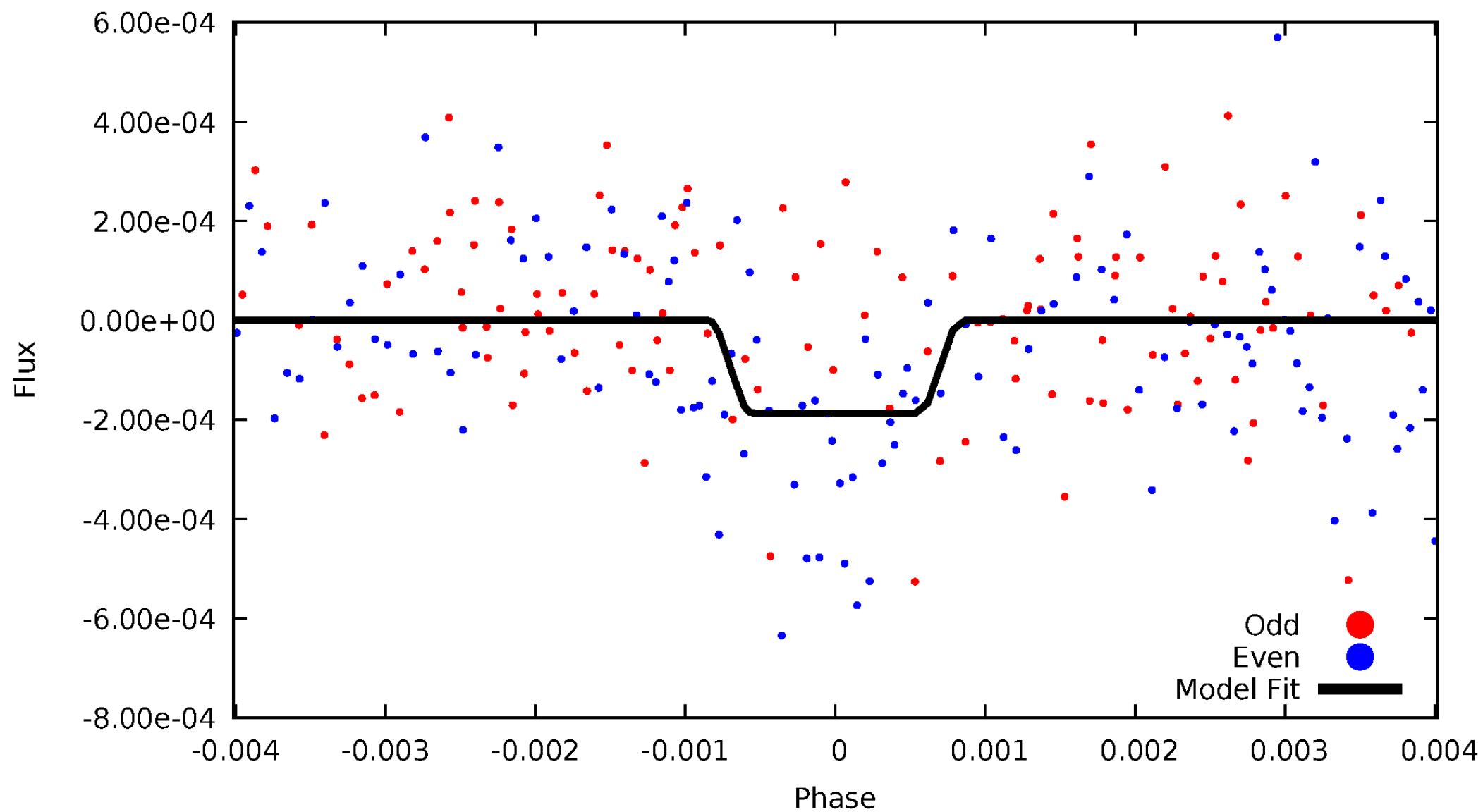
# DV Odd/Even

TCE 008849165-02



# ALT Odd/Even

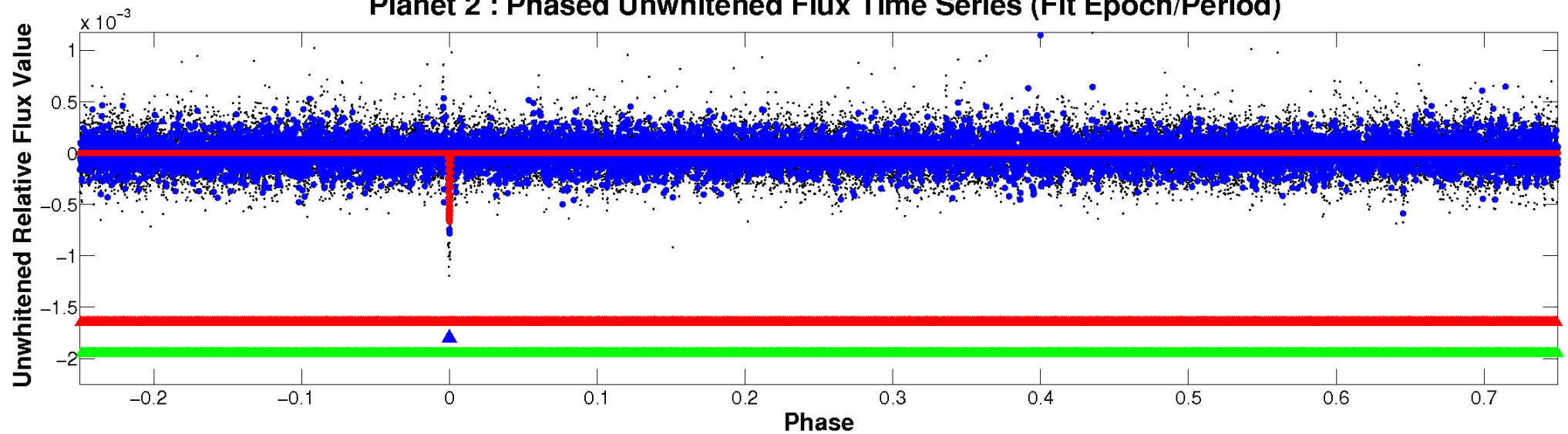
TCE 008849165-02



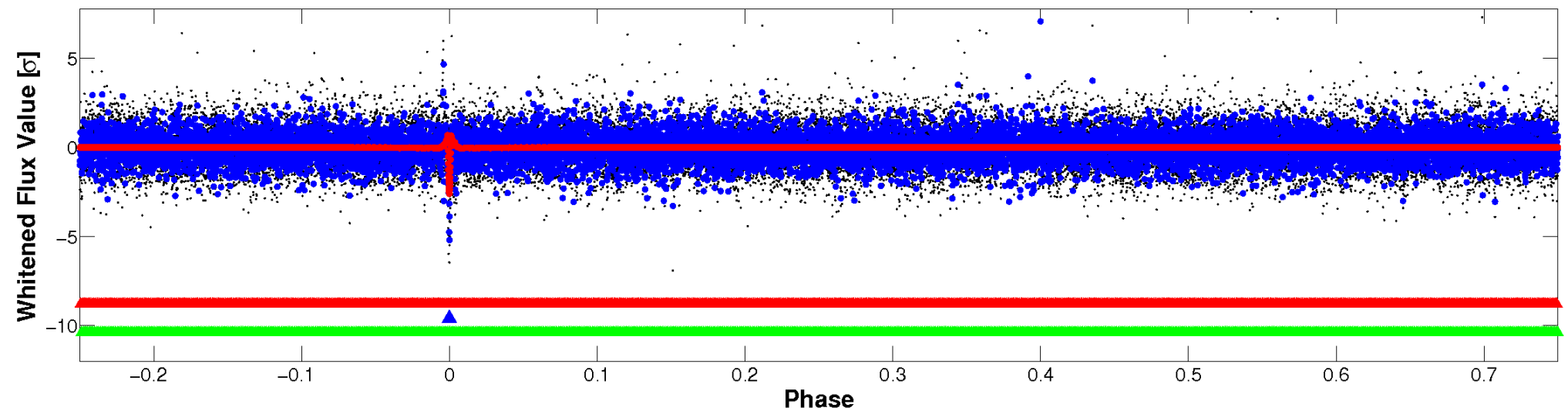


# Non-Whitened Vs. Whitened Light Curve

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



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



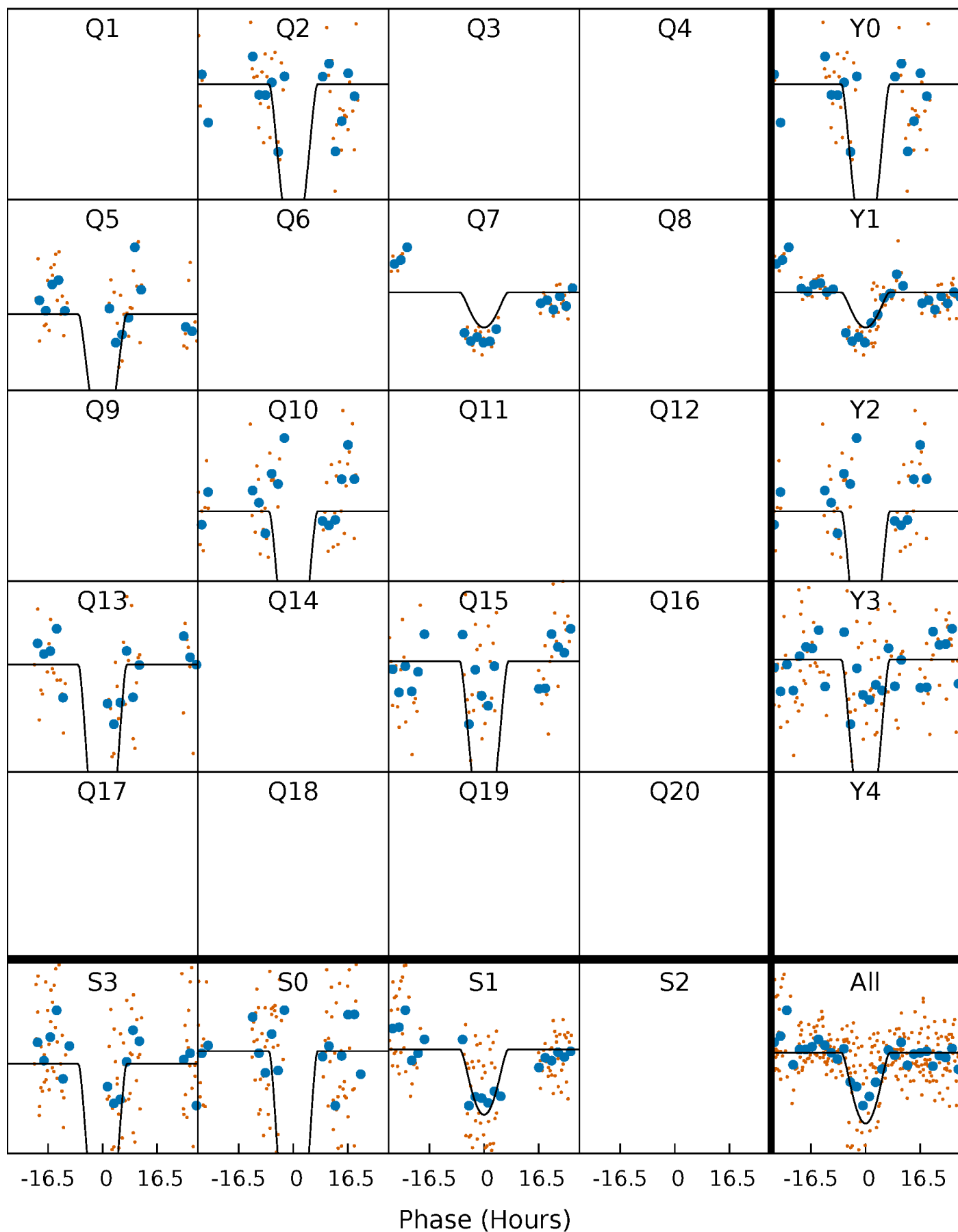
# PDC Quarter-Phased Transit Curves

TCE 008849165-02     $P=243.658023$  Days     $T_0=224.575050$  (BKJD)



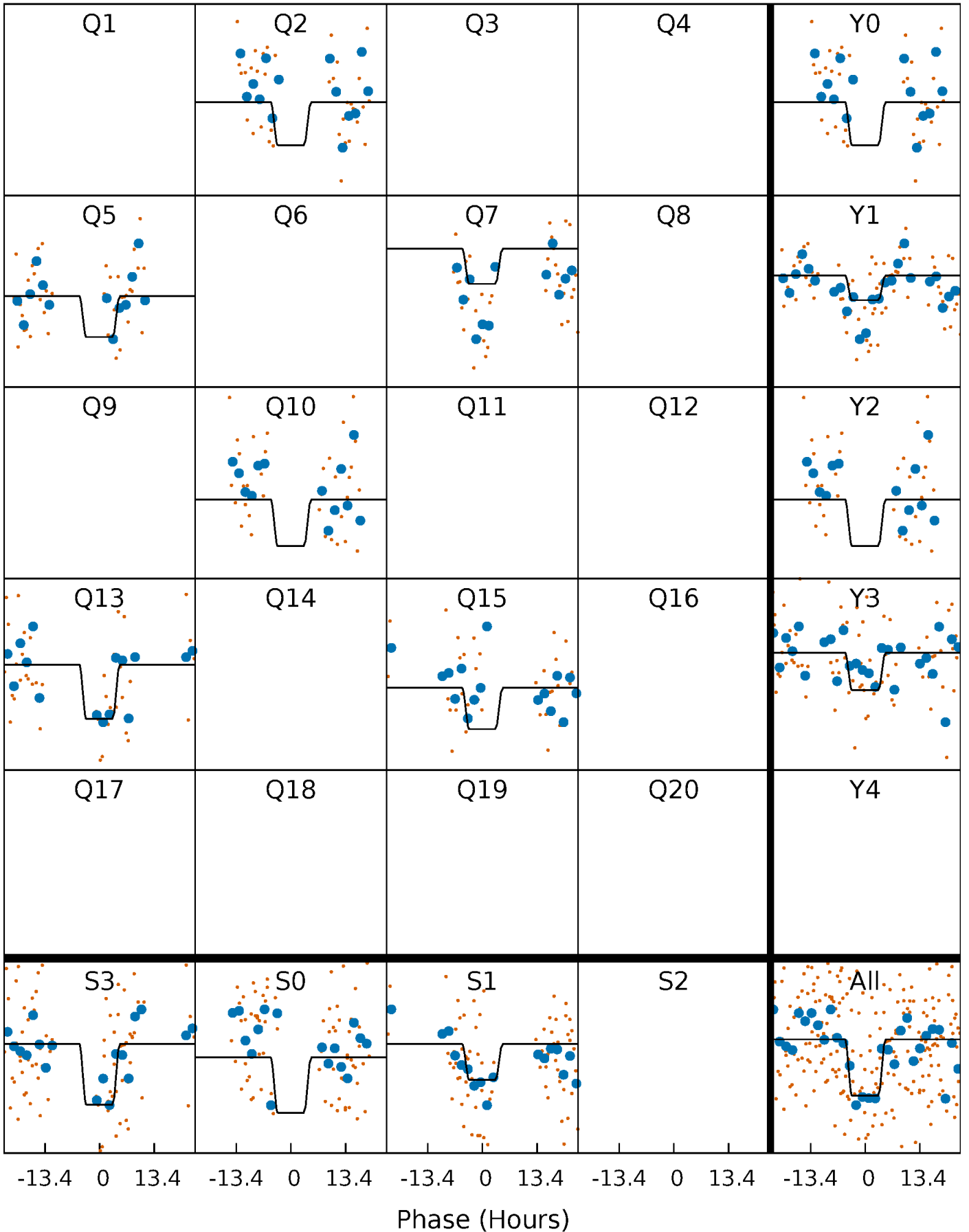
# DV Quarter-Phased Transit Curves

TCE 008849165-02     $P=243.658023$  Days     $T_0=224.575050$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

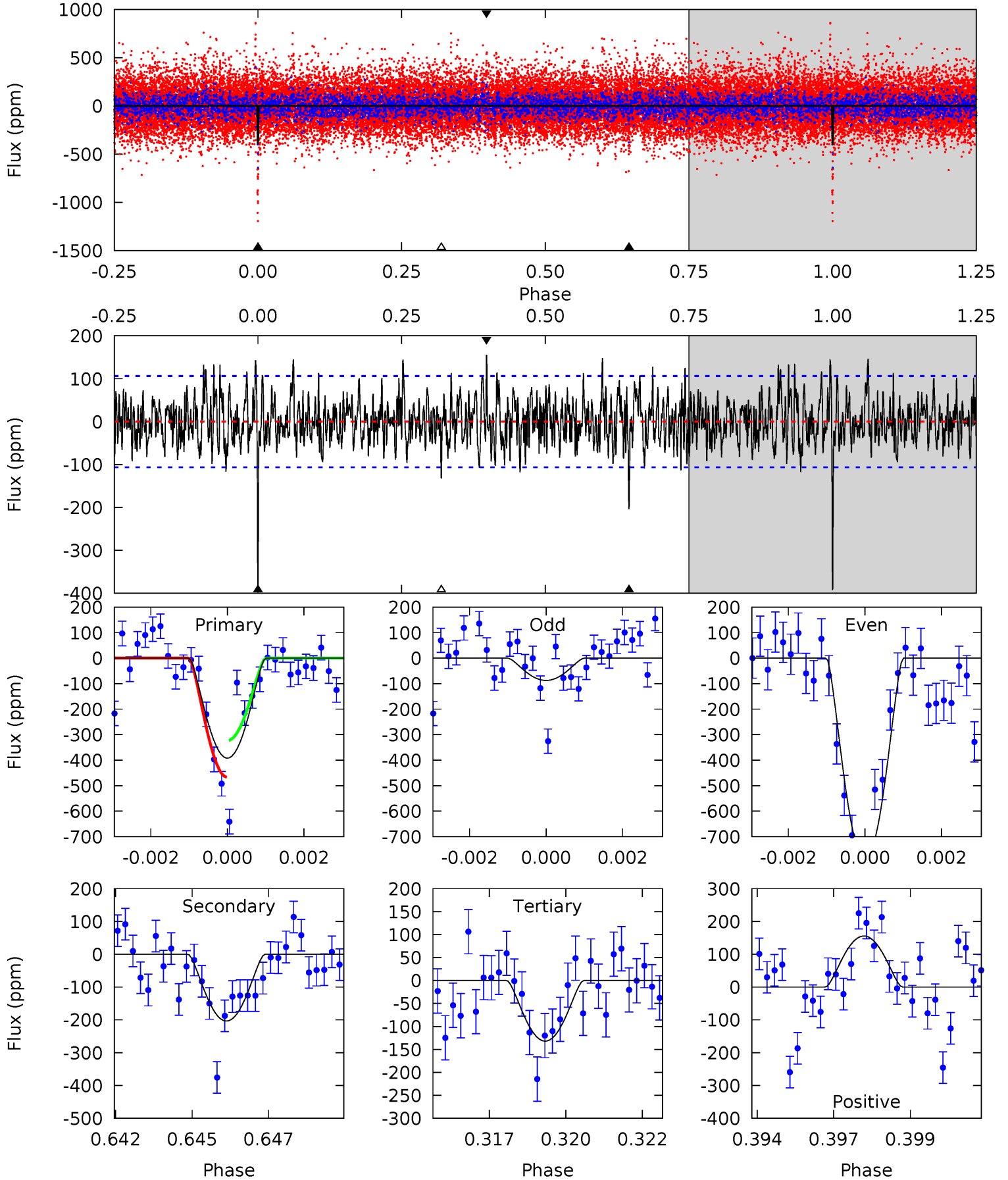
TCE 008849165-02     $P=243.683825$  Days     $T_0=224.585562$  (BKJD)



# DV Model-Shift Uniqueness Test

008849165-02, P = 243.658023 Days, E = 224.575050 Days

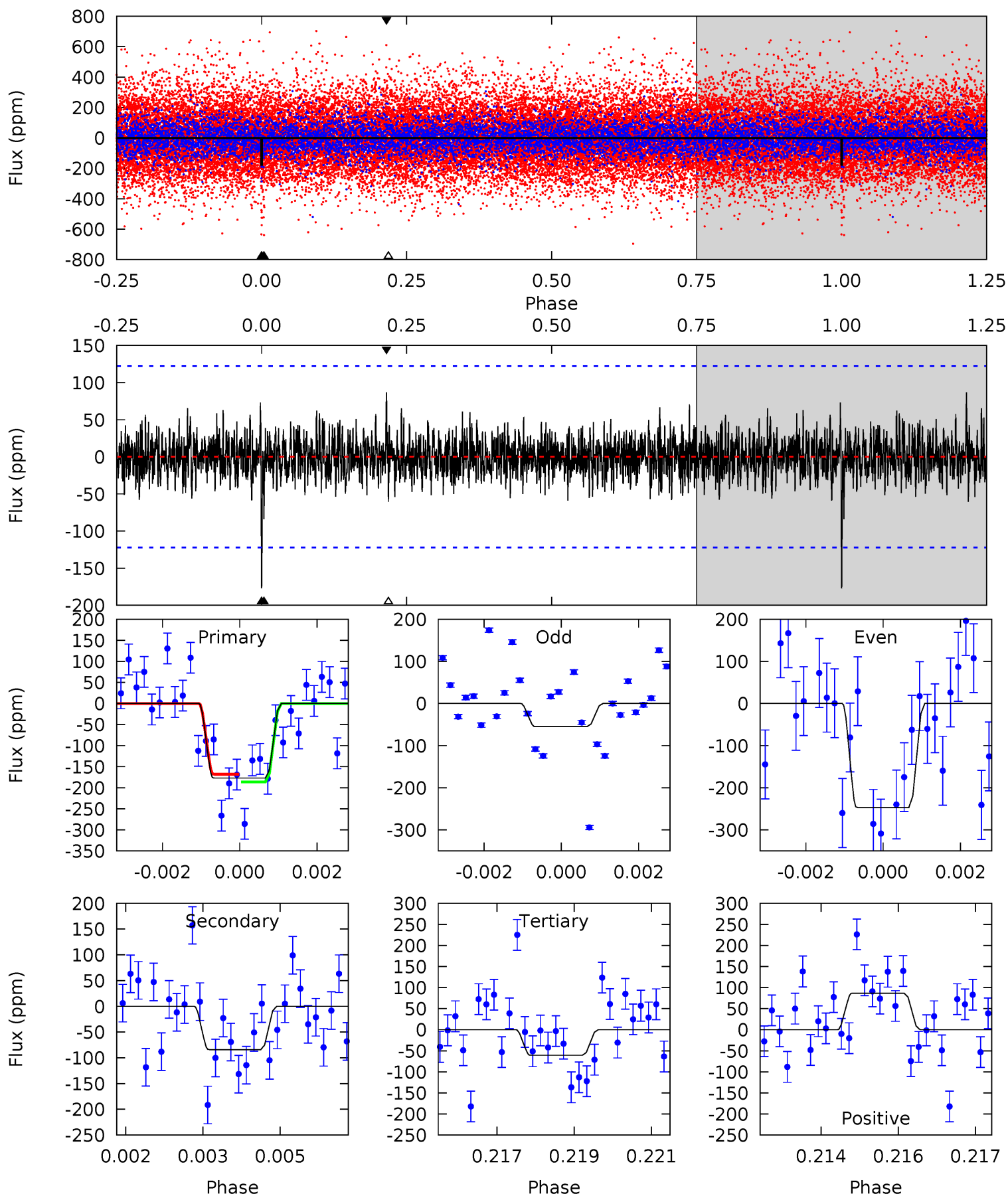
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	10.1	6.56	7.73	5.29	3.03	2.31	12.9	11.8	3.55	2.38	18.0	1.45	0.28	3.59



# Alt Model-Shift Uniqueness Test

008849165-02, P = 243.683825 Days, E = 224.585562 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.78	3.69	2.66	3.81	5.37	3.15	0.90	5.12	3.97	1.03	-0.12	4.14	0.99	0.33	0.40





### Stellar Parameters For KIC 008849165

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7350^{+228}_{-304}$	$3.628^{+0.504}_{-0.056}$	$-0.100^{+0.250}_{-0.300}$	$3.632^{+0.341}_{-1.820}$	$2.041^{+0.110}_{-0.585}$	$0.060^{+0.343}_{-0.011}$
	+3%/-4%	+14%/-2%	+250%/-300%	+9%/-50%	+5%/-29%	+571%/-19%
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 008849165-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-204 \pm 20$	$33.08^{+34.82}_{-22.19}$	$838^{+64}_{-99}$	$3331^{+1532}_{-596}$	$93^{+750}_{-71}$
Alt.	$-84 \pm 23$	$26.64^{+30.82}_{-18.76}$	$838^{+57}_{-112}$	$3016^{+1578}_{-504}$	$52^{+589}_{-40}$

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

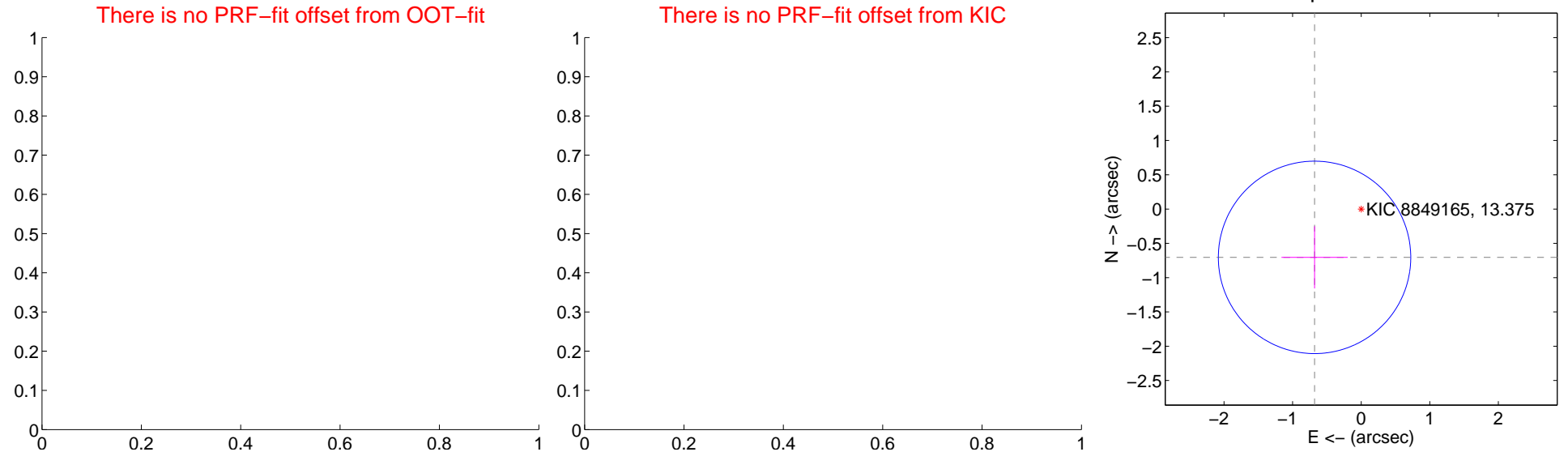
## DV Centroid Data

Supplemental centroid analysis for 008849165-02. Kepler magnitude: 13.38. Transit SNR 14.60

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$0.98 \pm 0.47$	2.09	$0.68 \pm 0.48$	$-0.70 \pm 0.45$

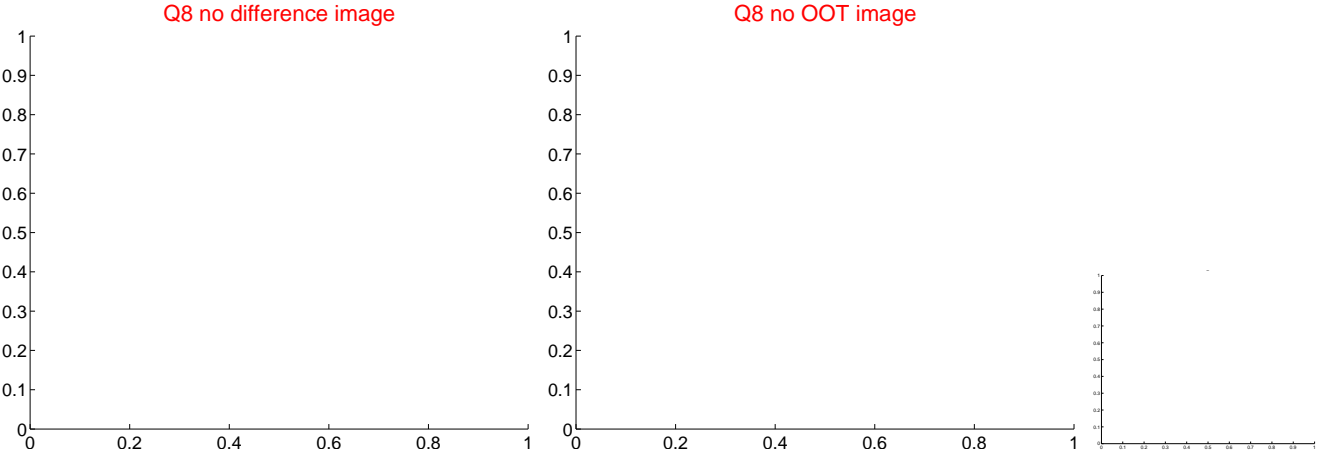
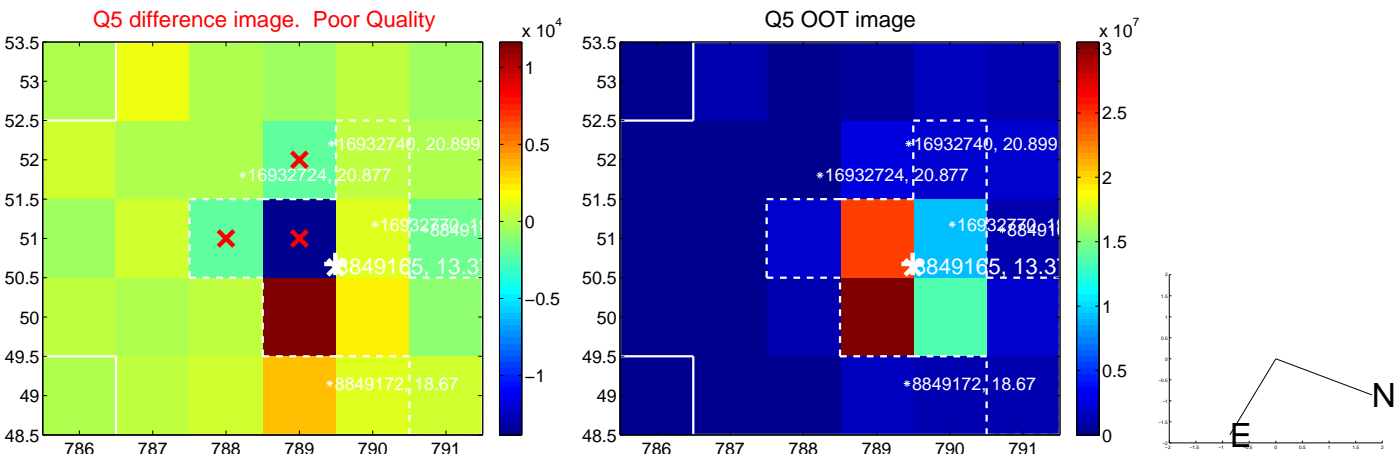


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

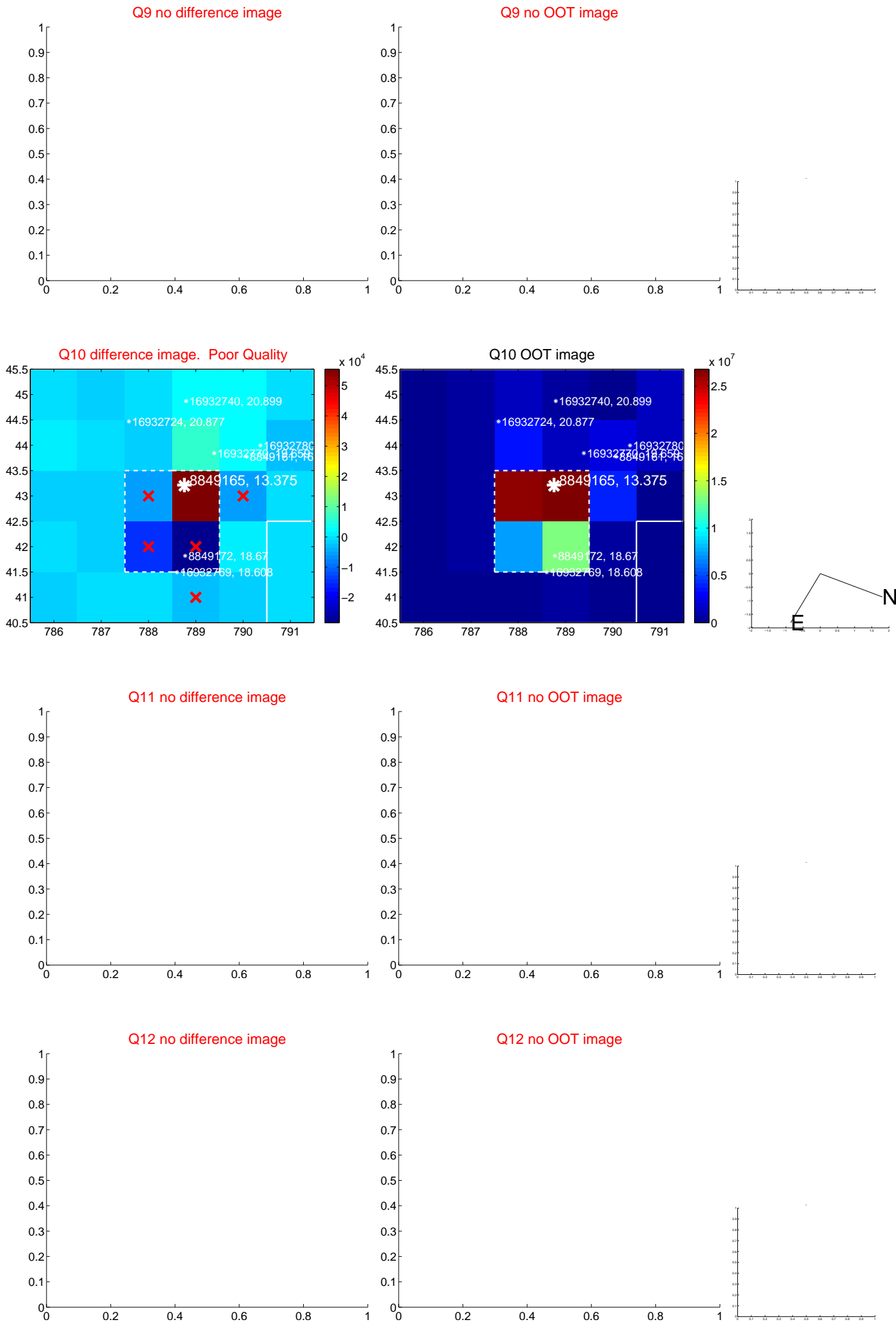
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

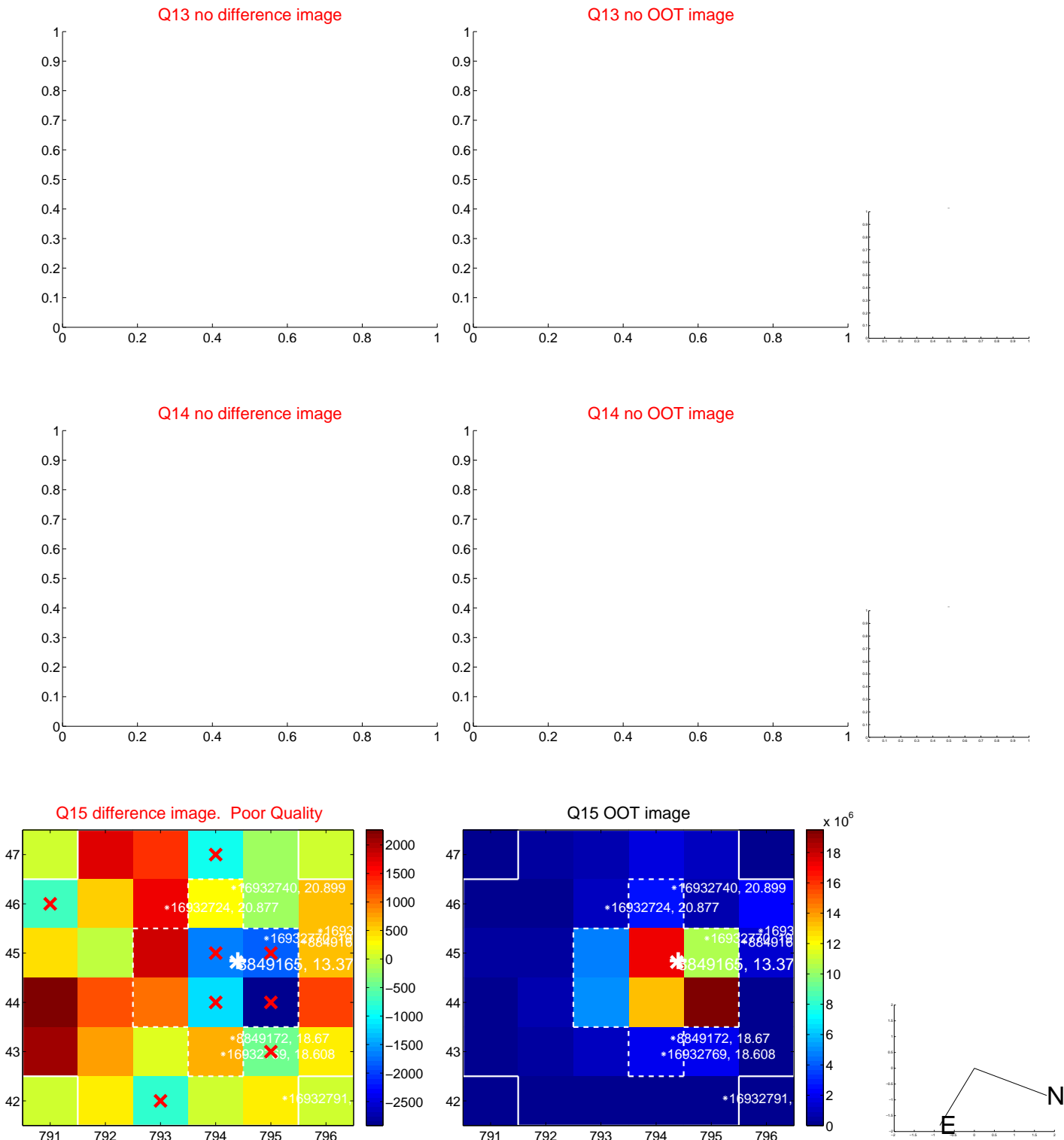


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

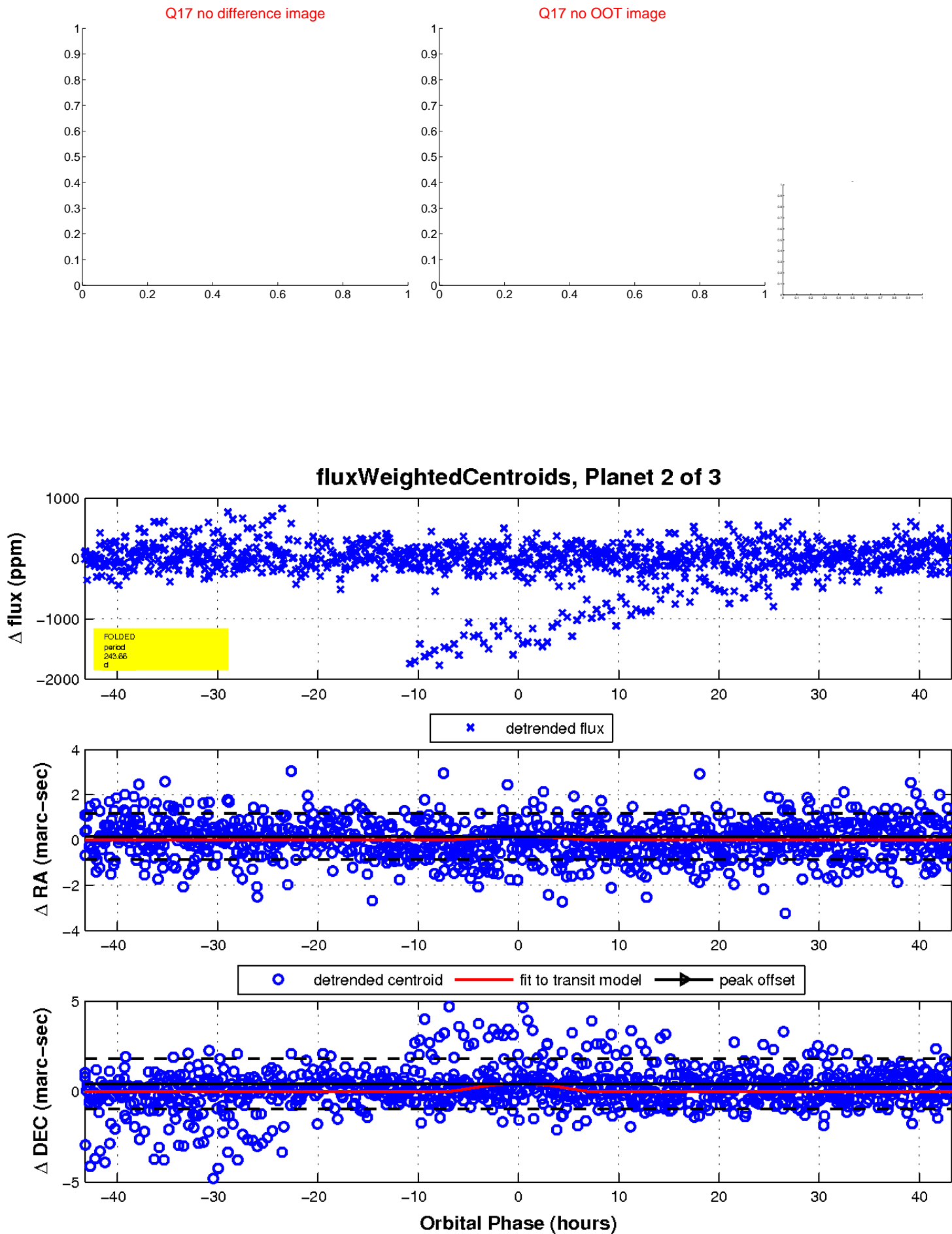




white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

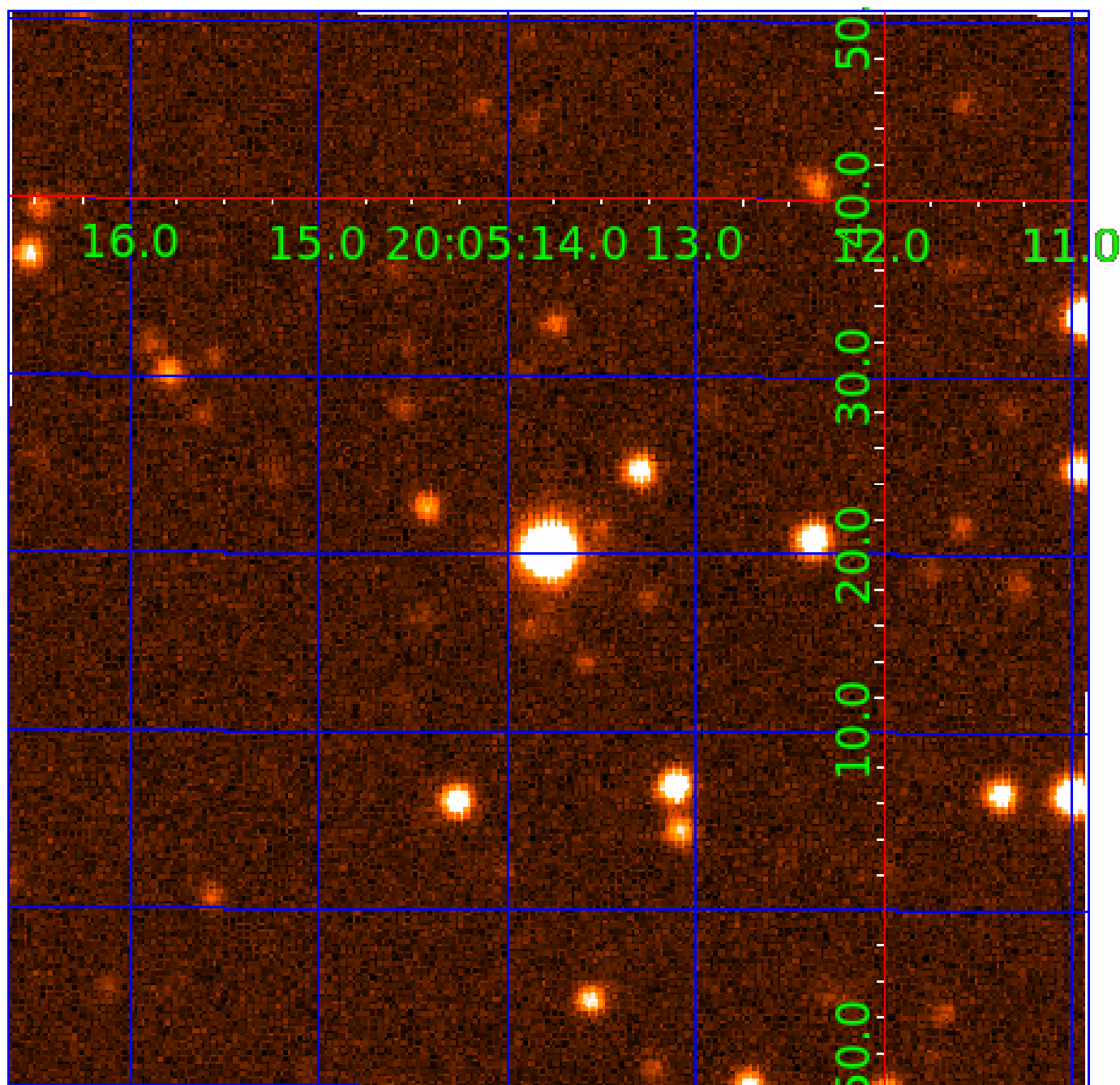


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008849165

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008849165-01	OBS	No	0.932339	132.412117	24.7	3.936	12.1	11.7	3.63	7350	1.83	61382.18
008849165-02	OBS	No	243.658023	224.575050	669.0	14.424	19.3	14.6	3.63	7350	17.58	36.74
008849165-03	OBS	No	0.932350	131.943404	28.5	3.732	14.0	14.7	3.63	7350	2.27	61381.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008849165-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008849165-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008849165-03	OBS	FP	0.00	1	0	0	0	LPP_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.

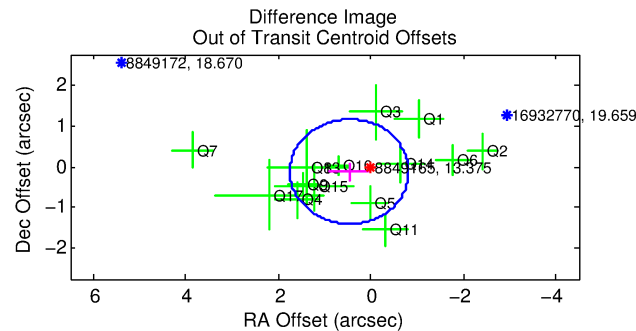
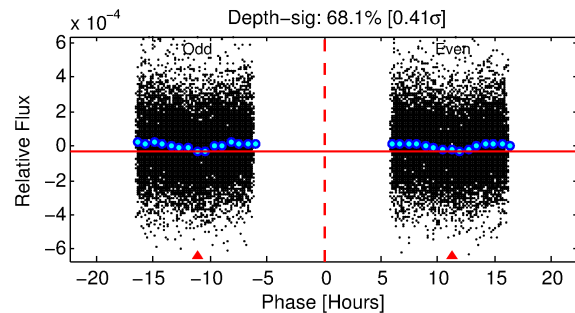
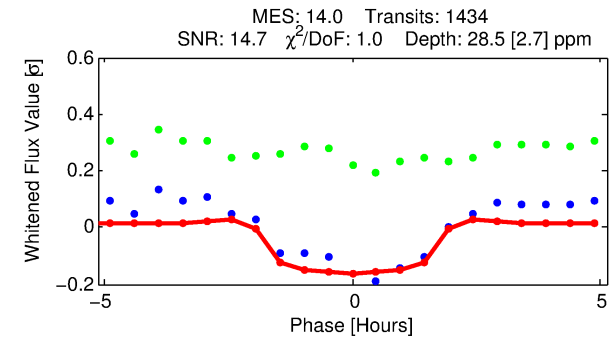
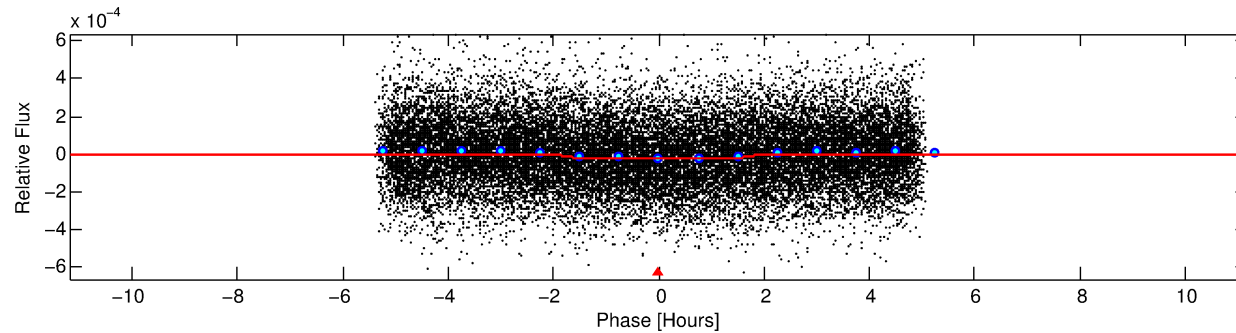
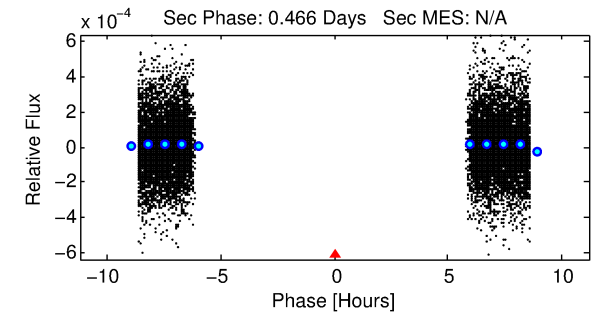
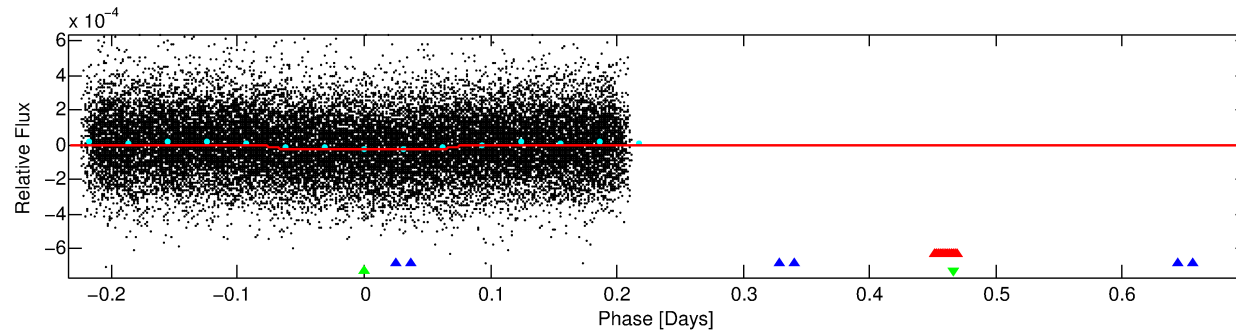
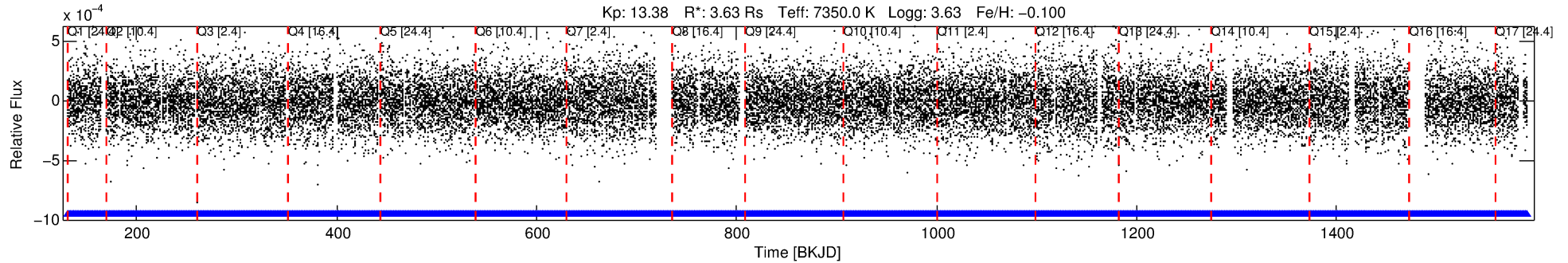
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008849165-03

No Significant Match Found

# DV One-Page Summary

KIC: 8849165 Candidate: 3 of 3 Period: 0.932 d



## DV Fit Results:

Period = 0.93235 [0.00001] d  
Epoch = 131.9434 [0.0029] BKJD  
Rp/R\* = 0.0057 [0.0017]  
a/R\* = 1.24 [0.84]  
b = 0.91 [0.35]  
Seff = 61381.21 [52714.11]  
Teff = 4014 [862] K  
Rp = 2.27 [1.32] Re  
a = 0.0237 [0.0121] AU

## DV Diagnostic Results:

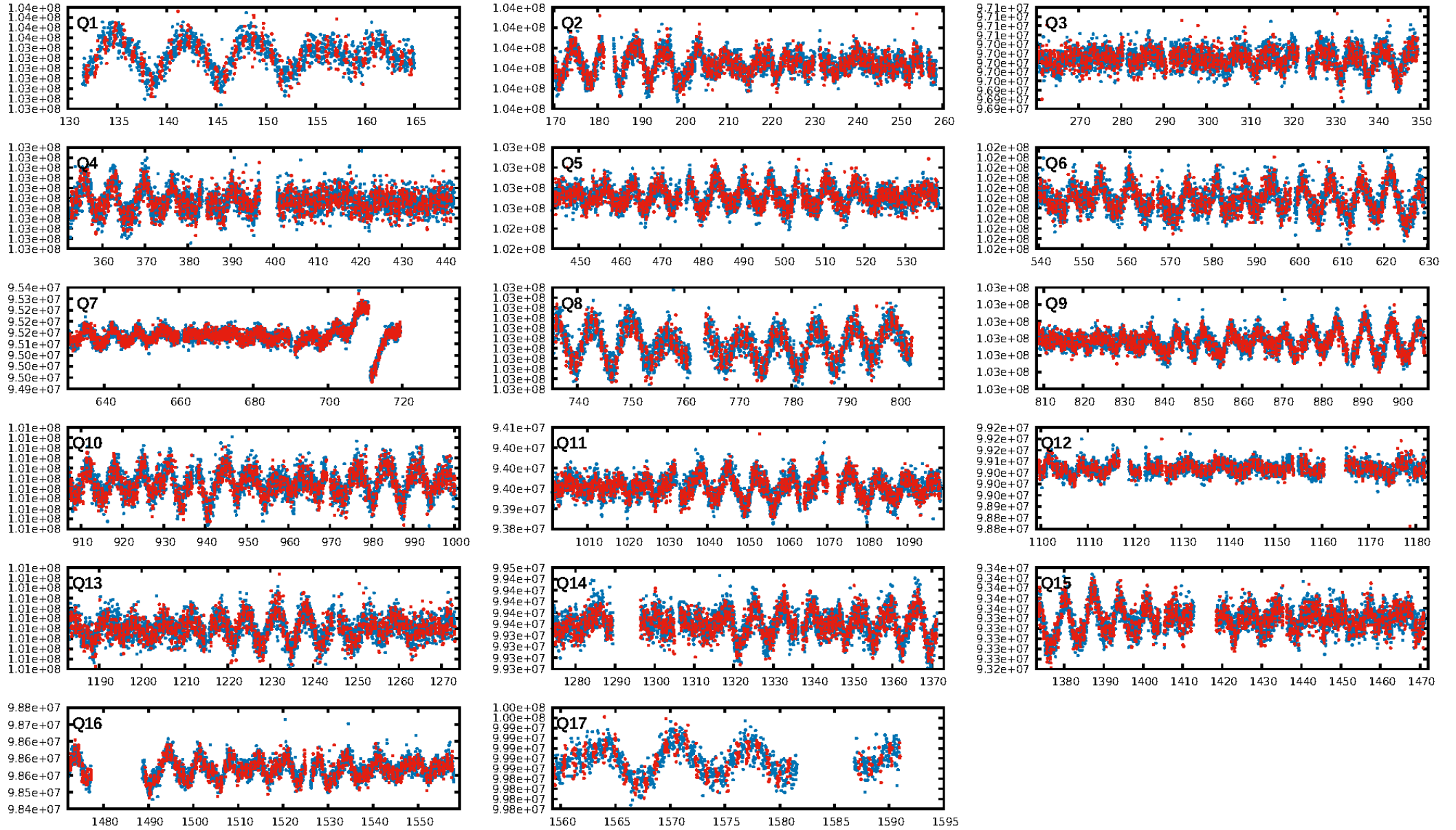
ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [390.98σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1369/1369]  
GhostDiagnostic-chr: 1.321  
Centroid-sig: 0.0%  
Centroid-so: 2.807 arcsec [3.36σ]  
OotOffset-rm: 0.484 arcsec [1.13σ]  
KicOffset-rm: 0.325 arcsec [0.83σ]  
OotOffset-st: 4/4/2/5 [15]  
KicOffset-st: 4/4/2/5 [15]  
DiffImageQuality-fgm: 0.87 [13/15]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:30:18 Z

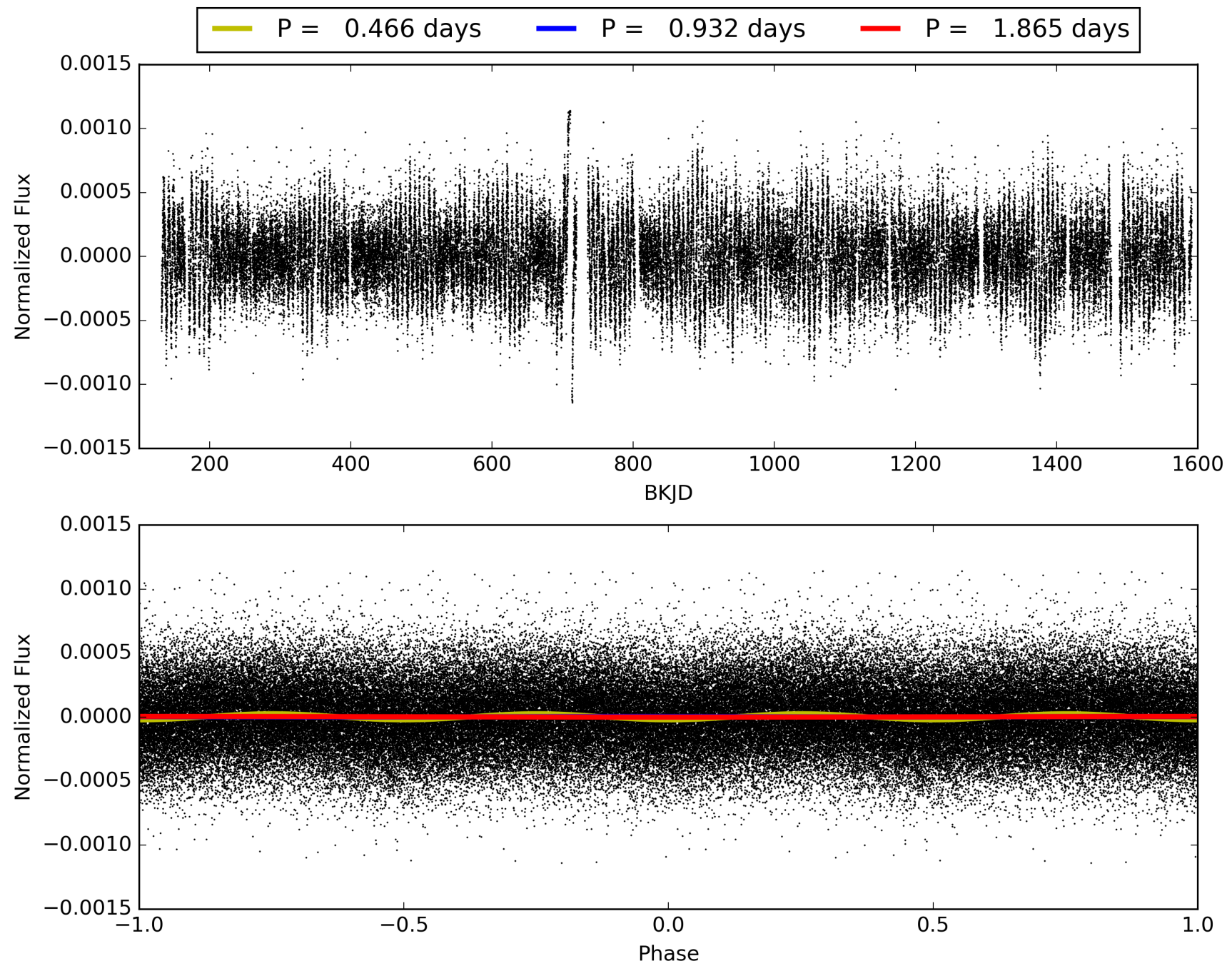
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008849165-03, PDC Light Curves

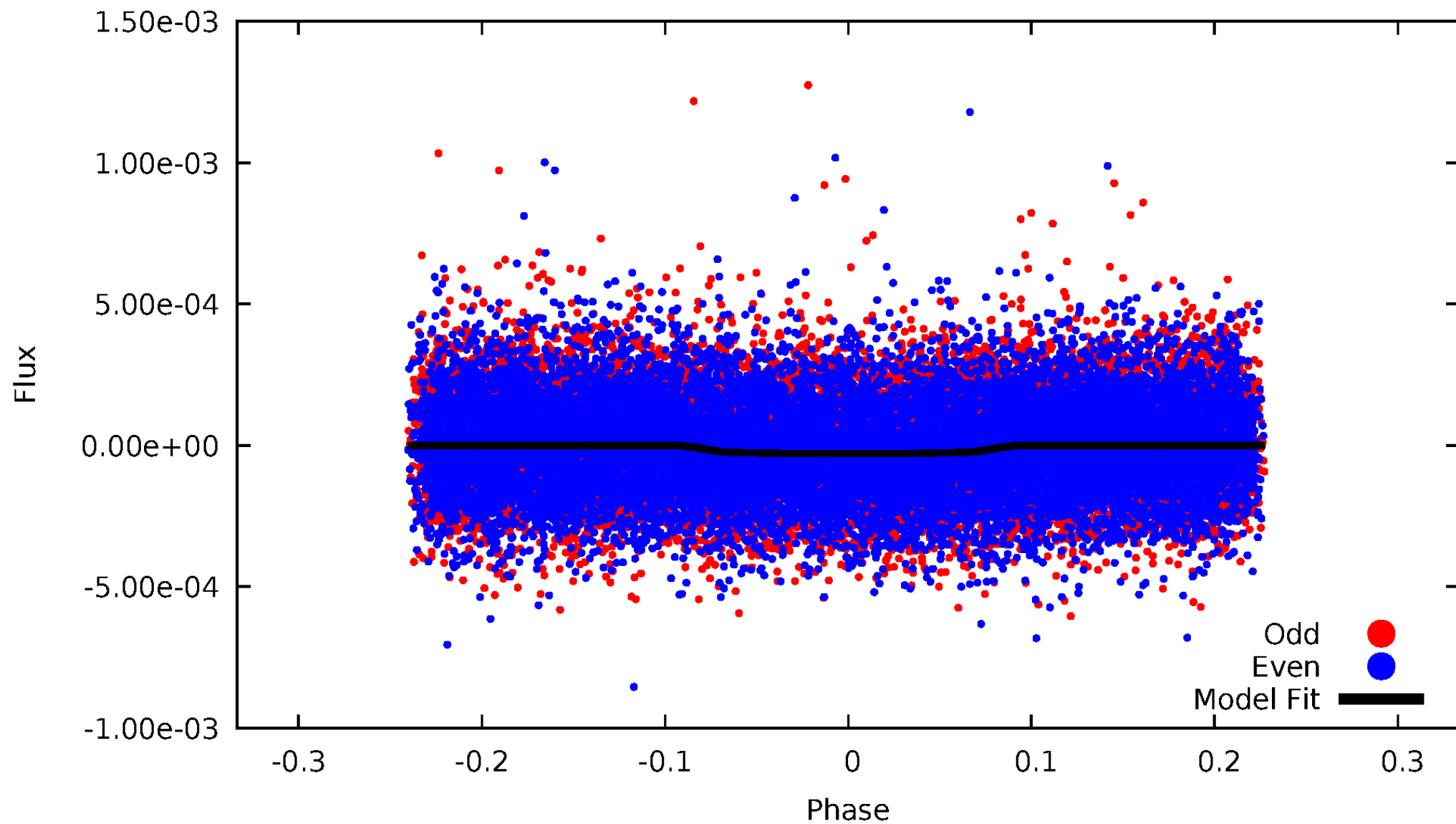


TCE 008849165-03



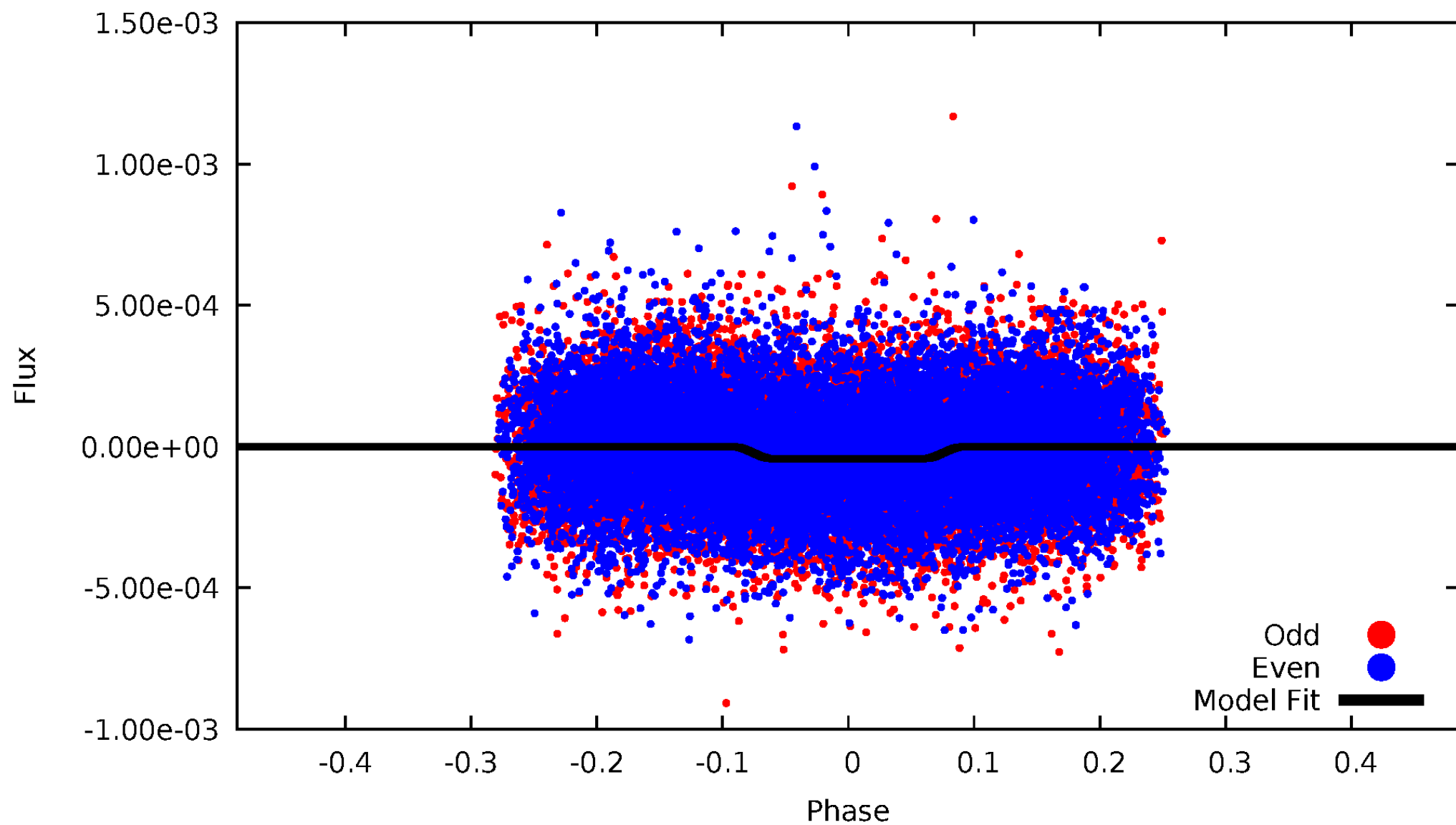
# DV Odd/Even

TCE 008849165-03

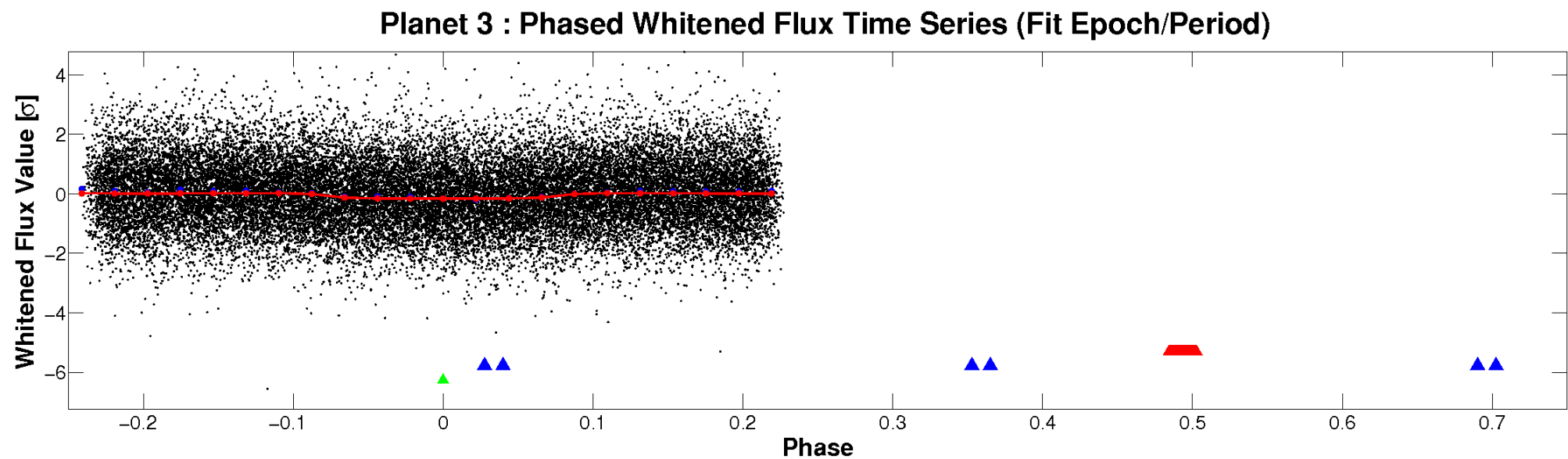
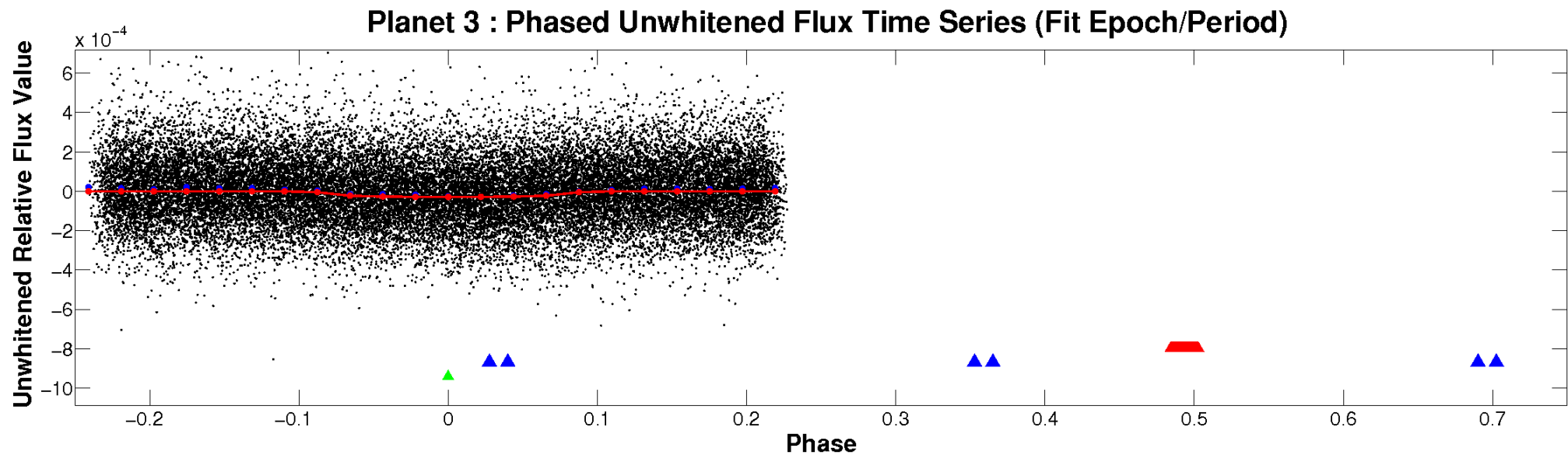


# ALT Odd/Even

TCE 008849165-03



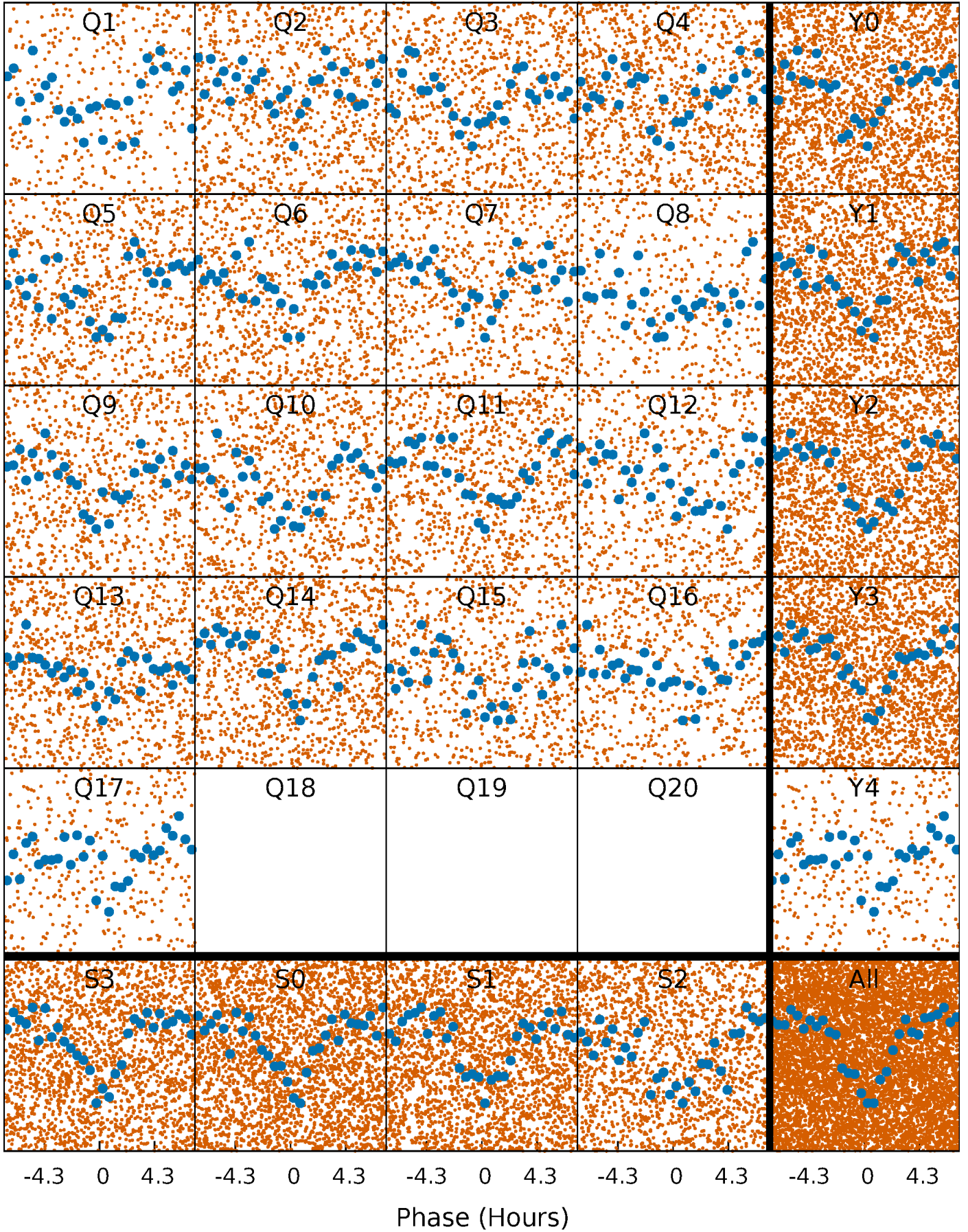
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

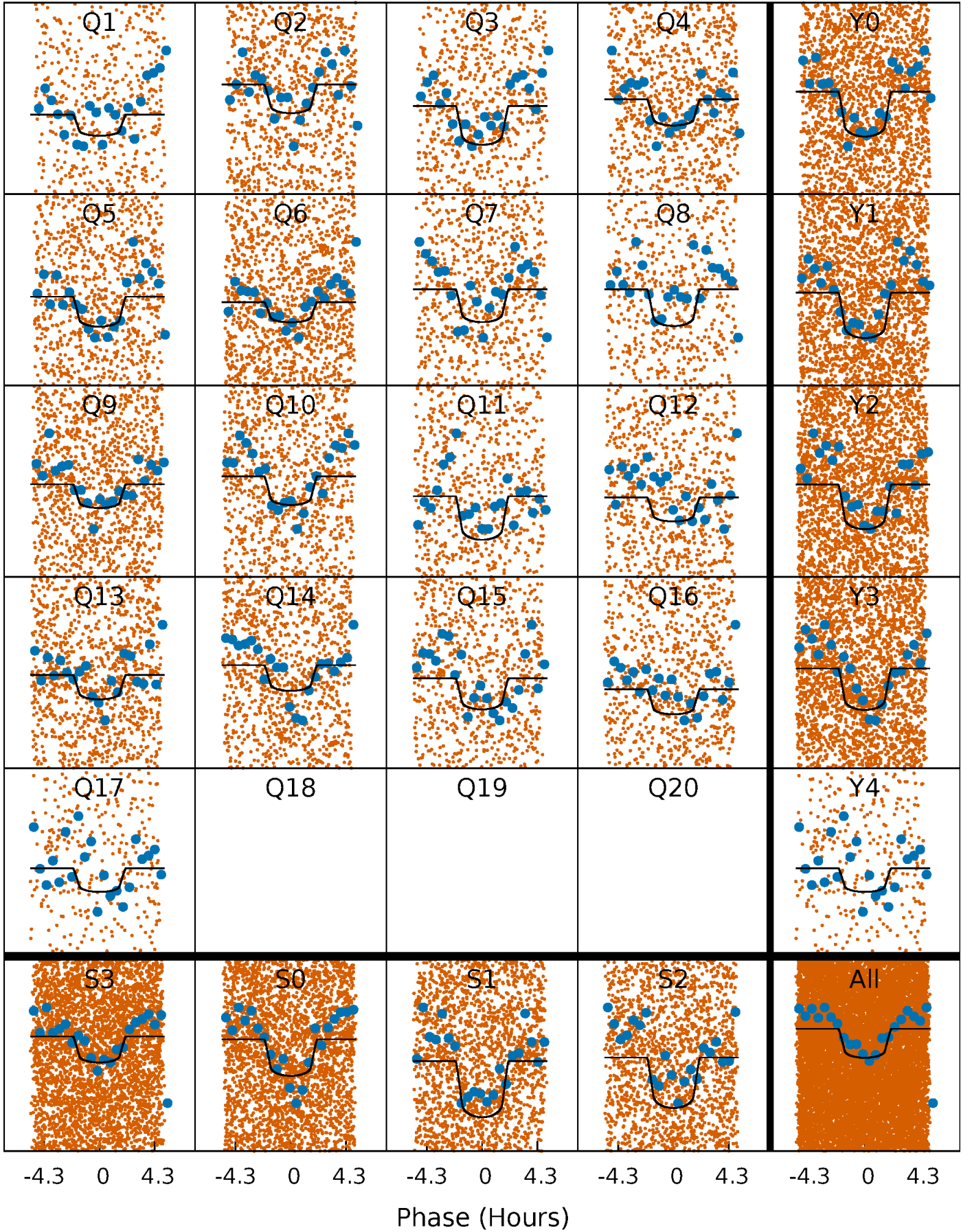
TCE 008849165-03   P= 0.932350 Days    $T_0=131.943404$  (BKJD)





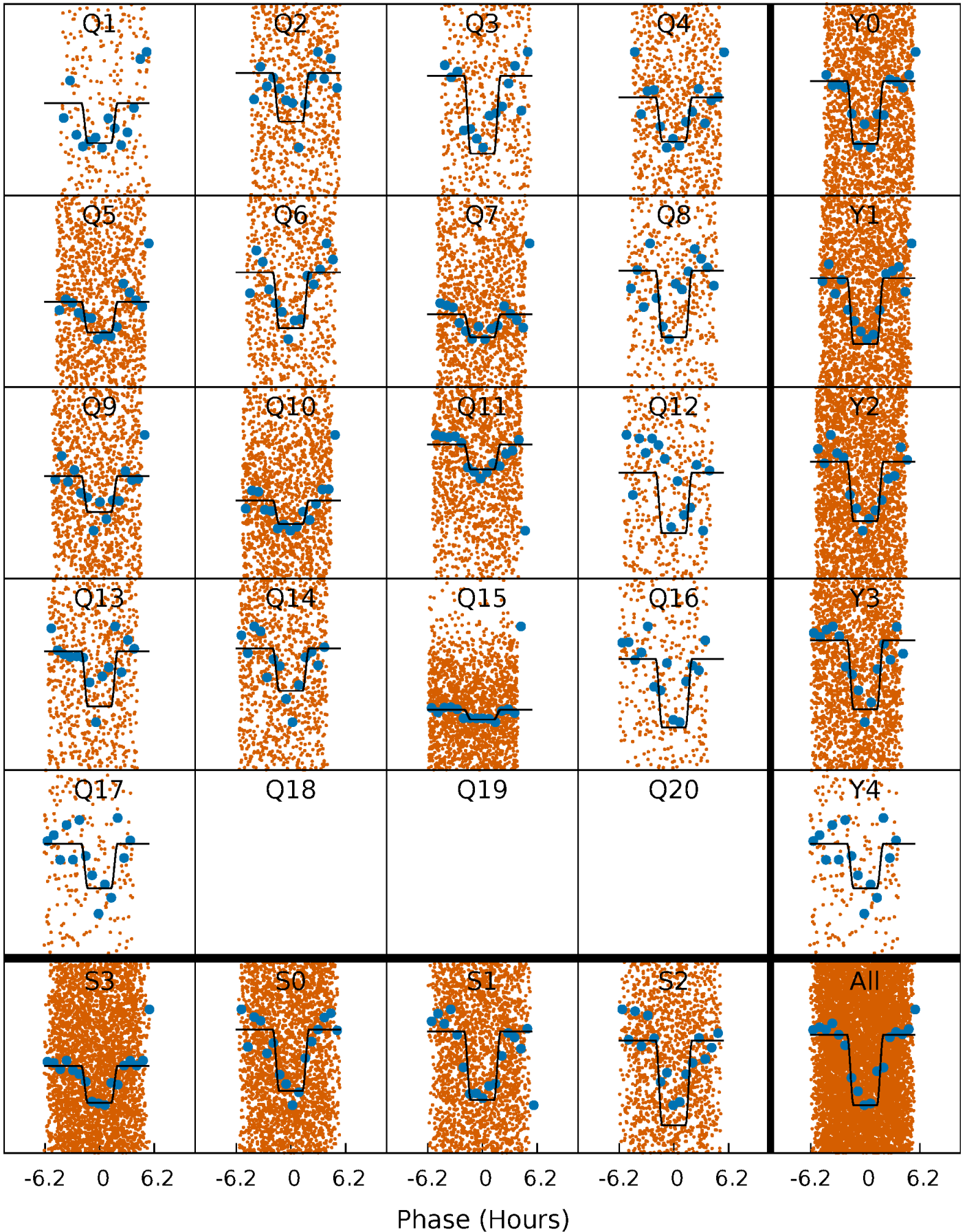
# DV Quarter-Phased Transit Curves

TCE 008849165-03   P= 0.932350 Days    $T_0=131.943404$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

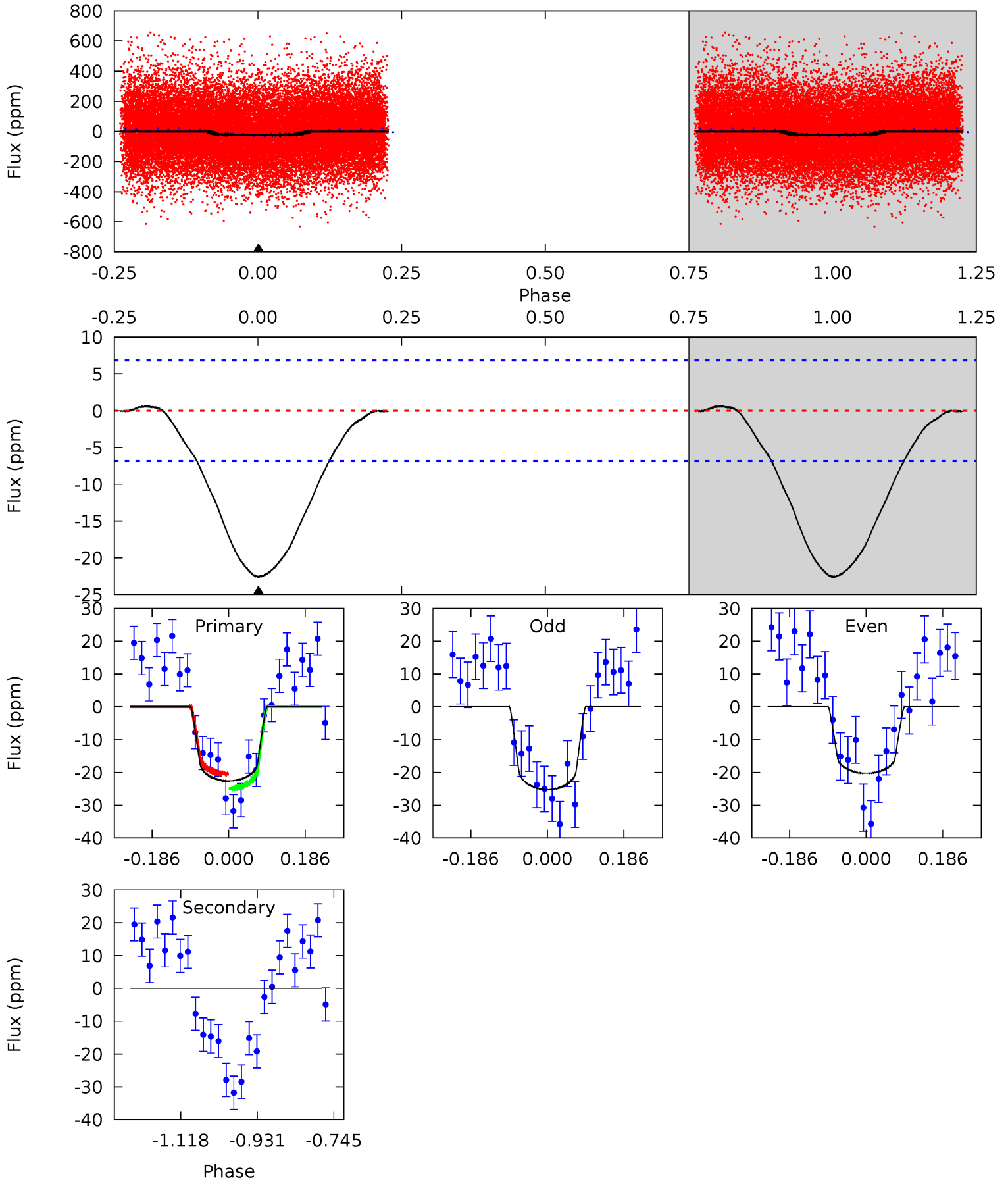
TCE 008849165-03   P= 0.932390 Days    $T_0=131.919318$  (BKJD)



# DV Model-Shift Uniqueness Test

008849165-03, P = 0.932350 Days, E = 131.011054 Days

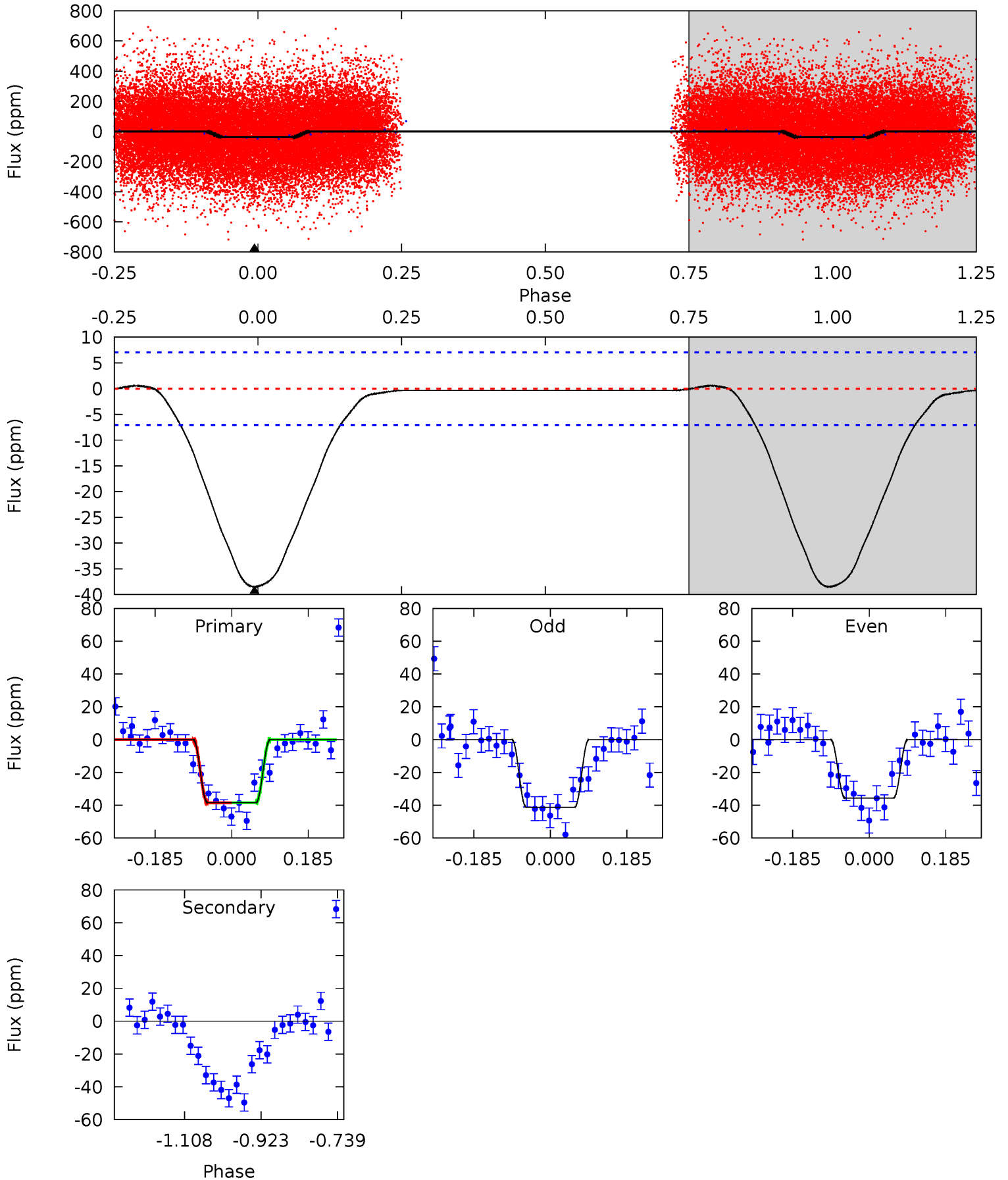
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	0	0	0	4.43	1.32	0.23	14.6	14.6	0	0	1.63	0.91	0.03	1.50



# Alt Model-Shift Uniqueness Test

008849165-03, P = 0.932390 Days, E = 130.986928 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
24.2	0	0	0	4.43	1.33	0.51	24.2	24.2	0	0	1.75	0.99	0.01	0.05



### Stellar Parameters For KIC 008849165

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$7350^{+228}_{-304}$	$3.628^{+0.504}_{-0.056}$	$-0.100^{+0.250}_{-0.300}$	$3.632^{+0.341}_{-1.820}$	$2.041^{+0.110}_{-0.585}$	$0.060^{+0.343}_{-0.011}$
	+3%/-4%	+14%/-2%	+250%/-300%	+9%/-50%	+5%/-29%	+571%/-19%
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 008849165-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 2$	$1.97^{+0.76}_{-0.68}$	$5391^{+367}_{-653}$	$-4530^{+693}_{-420}$	$0.001^{+0.133}_{-0.130}$
Alt.	$0 \pm 2$	$2.28^{+0.80}_{-0.80}$	$5347^{+409}_{-658}$	$-4498^{+572}_{-382}$	$-0.002^{+0.113}_{-0.101}$

$T_{\text{max}}$  = 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

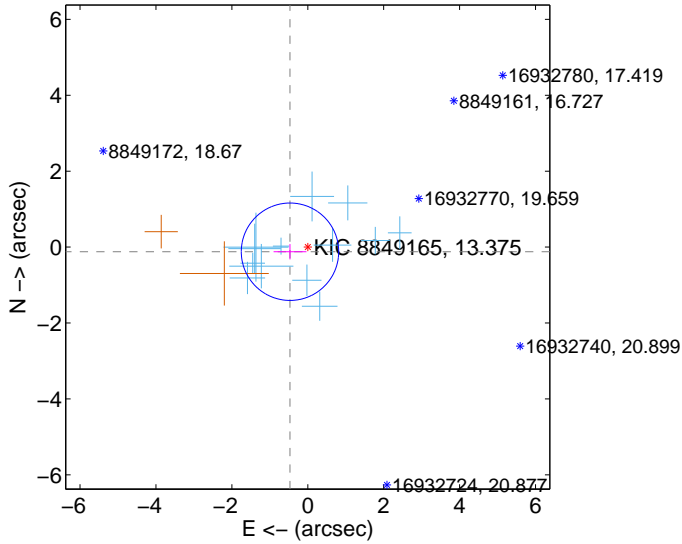
Supplemental centroid analysis for 008849165-03. Kepler magnitude: 13.38. Transit SNR 14.68

There are 13 quarters with good PRF difference image offsets

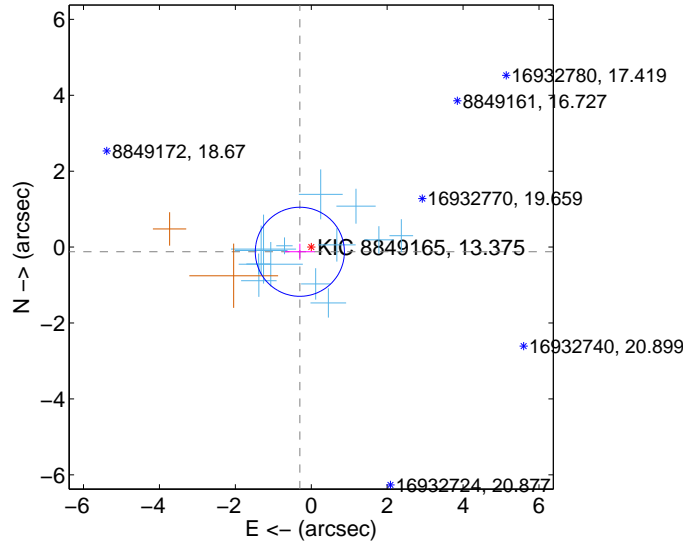
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.484 \pm 0.428$	1.13	$0.468 \pm 0.433$	$-0.122 \pm 0.203$
PRF-fit source offset from KIC position	$0.325 \pm 0.391$	0.83	$0.301 \pm 0.394$	$-0.123 \pm 0.212$
photometric centroid source offset	$2.81 \pm 0.84$	<b>3.36</b>	$1.24 \pm 0.91$	$-2.52 \pm 0.82$

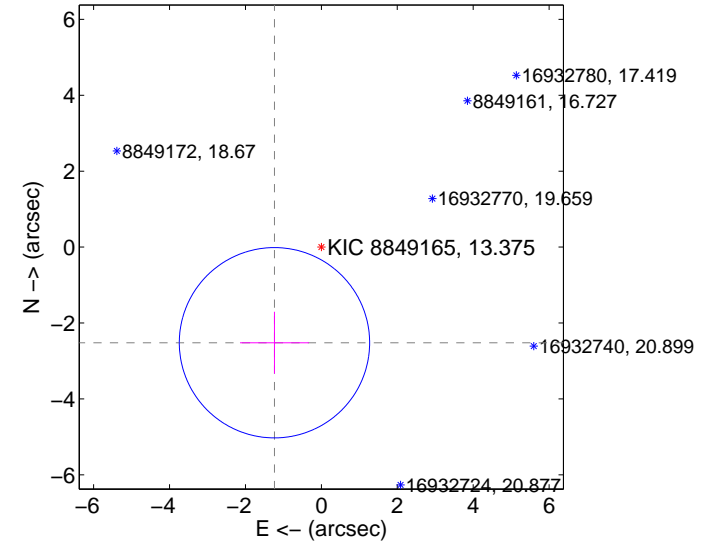
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



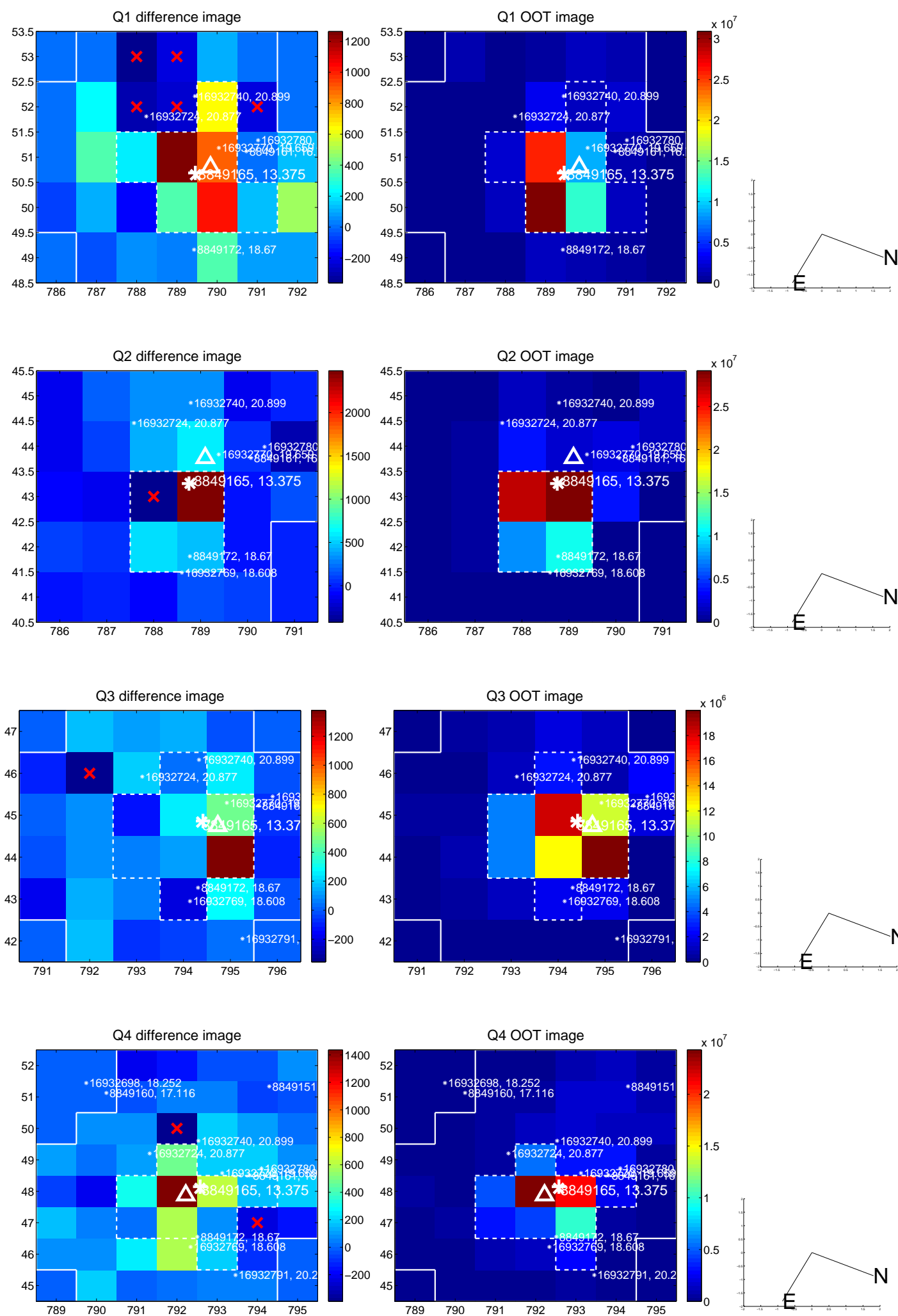
offset from photometric centroids



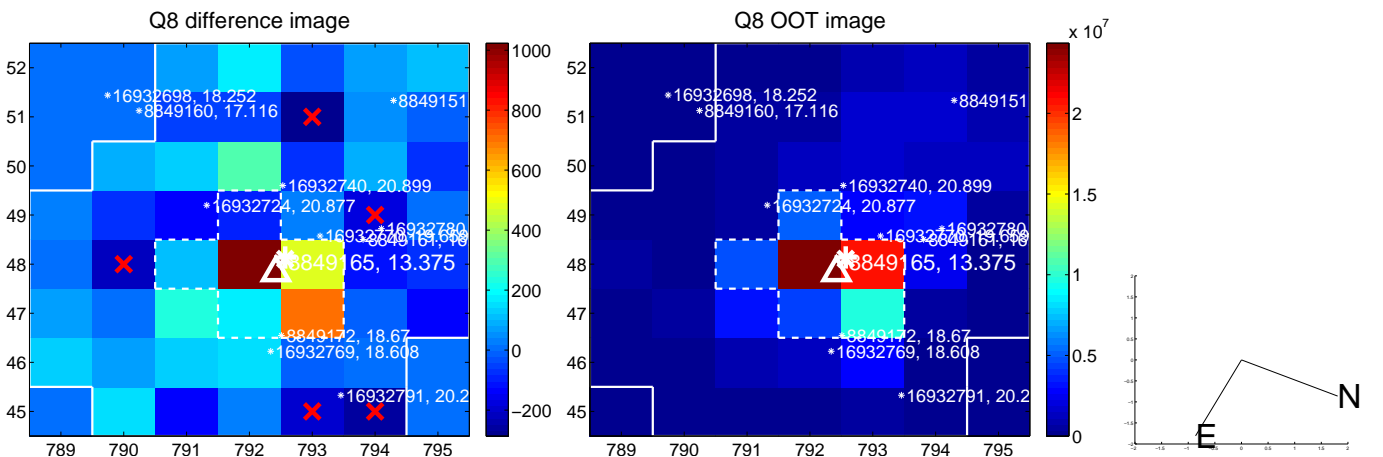
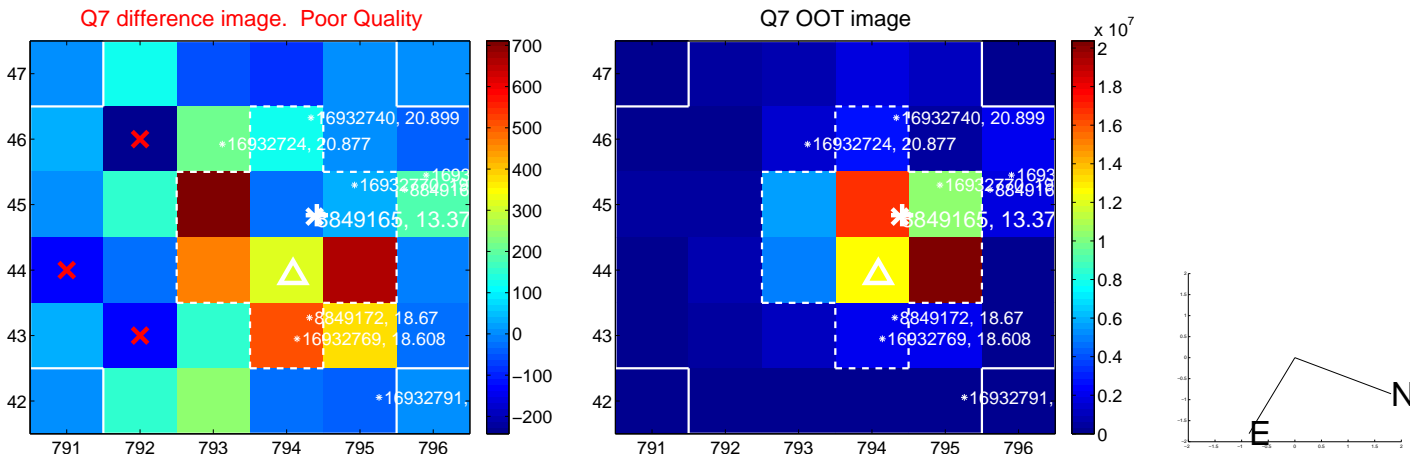
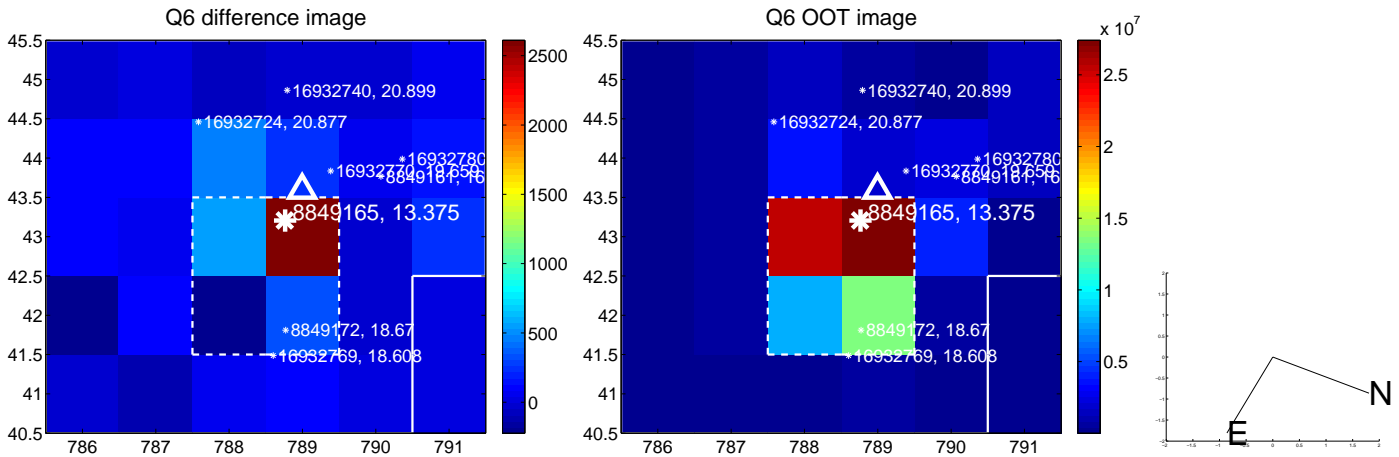
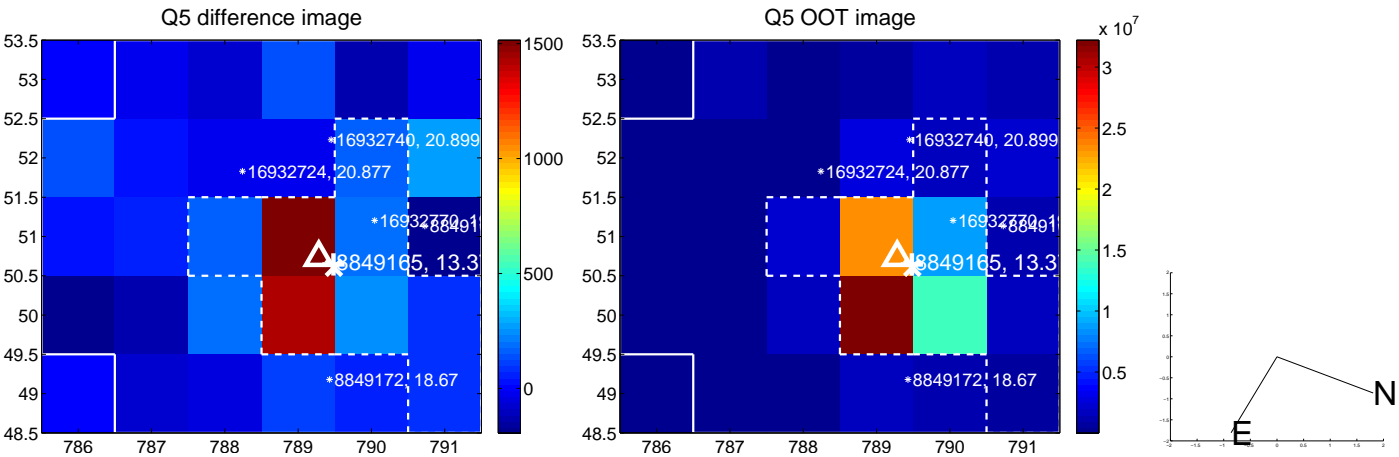
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



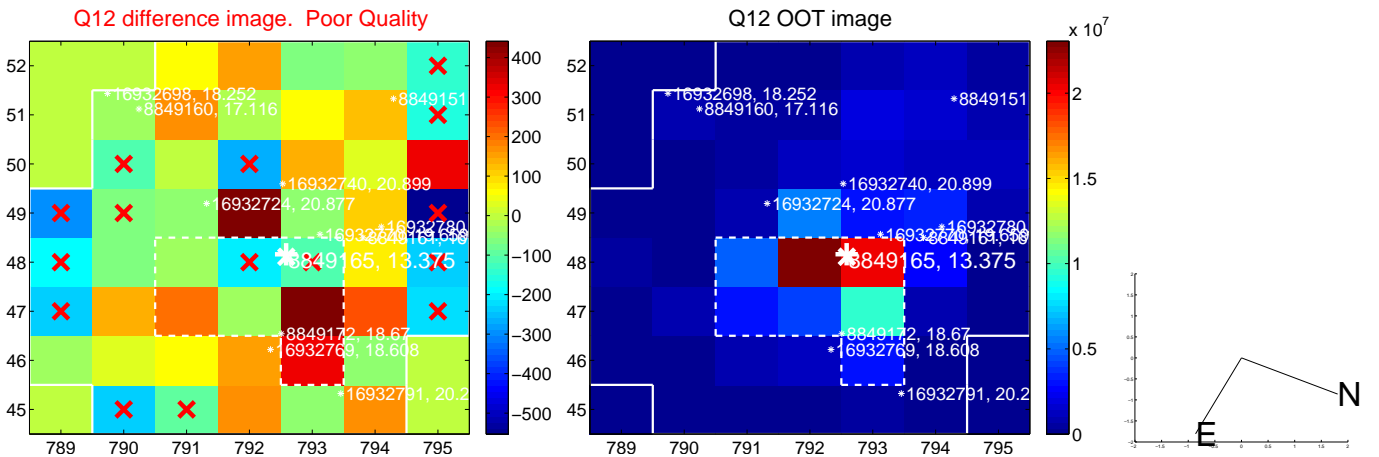
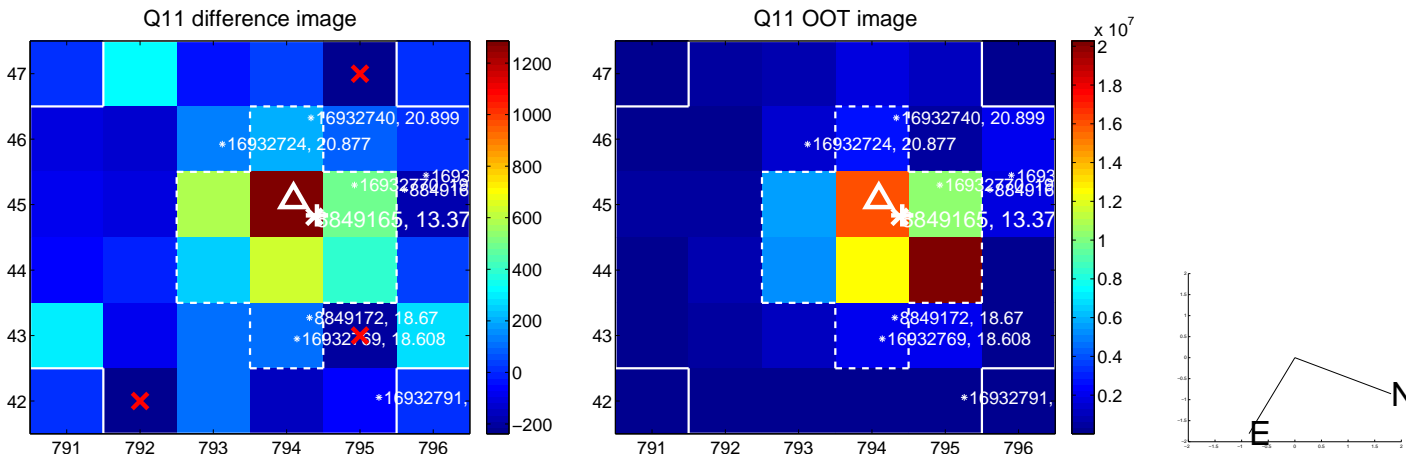
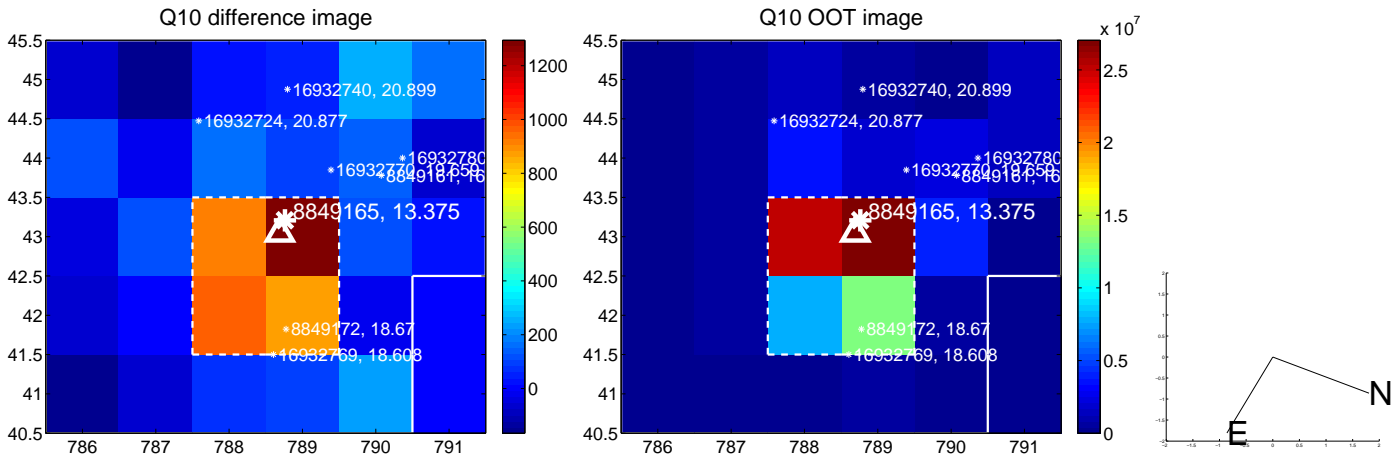
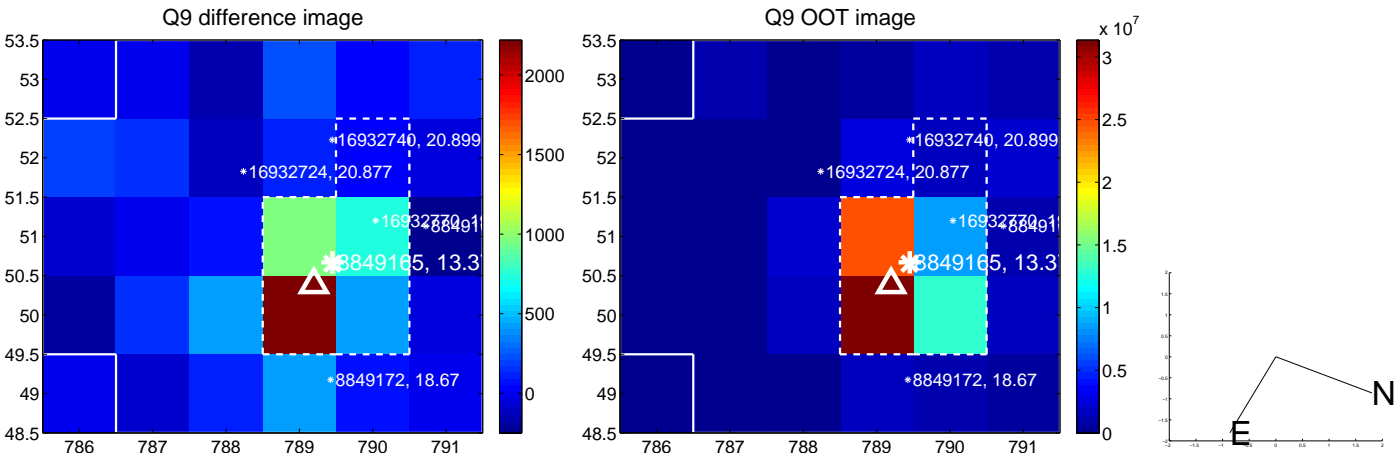
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



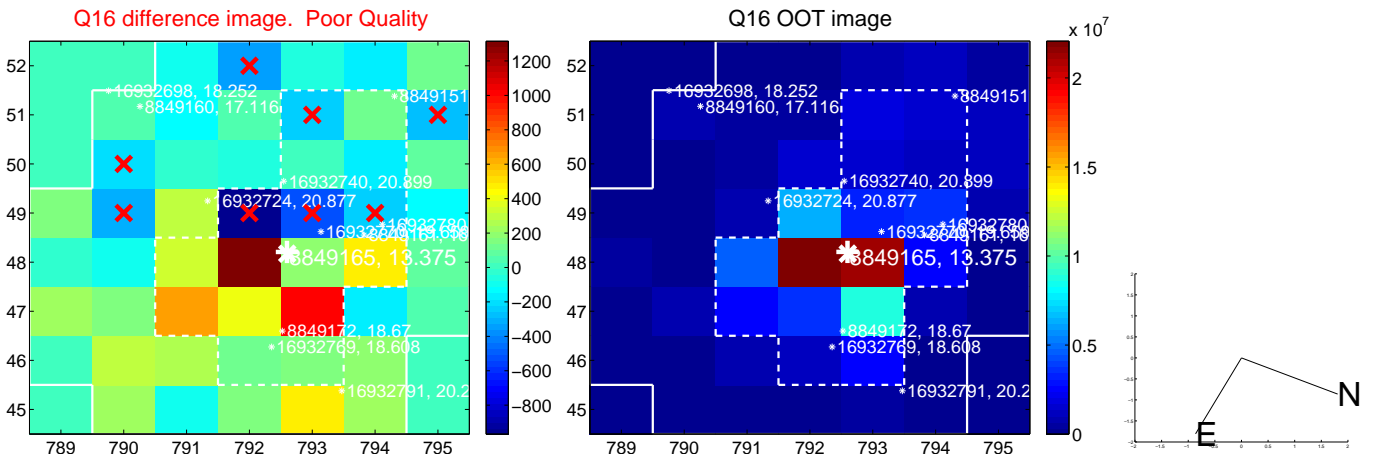
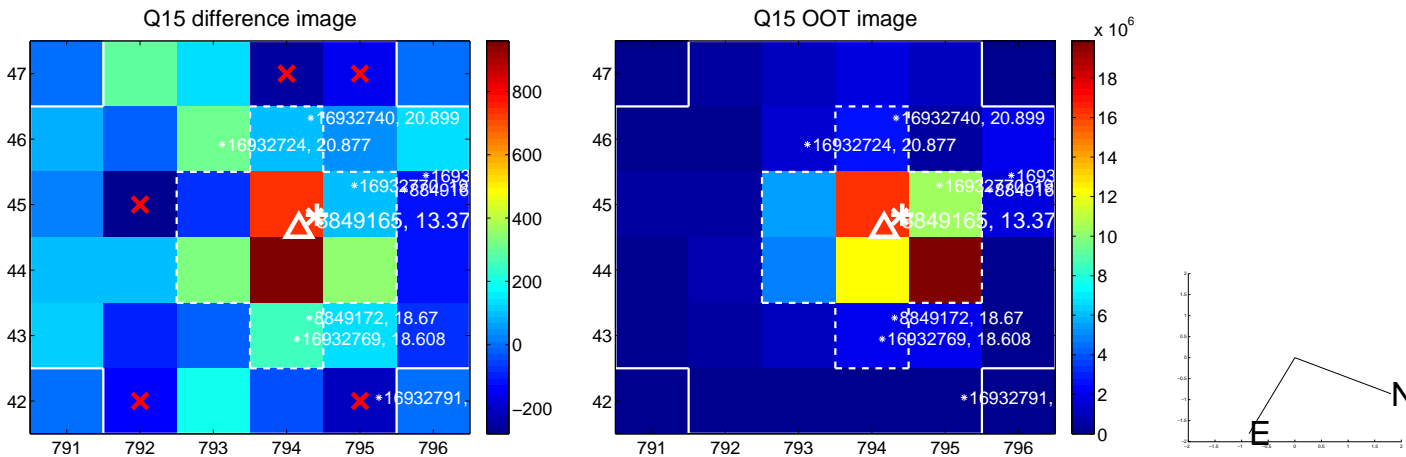
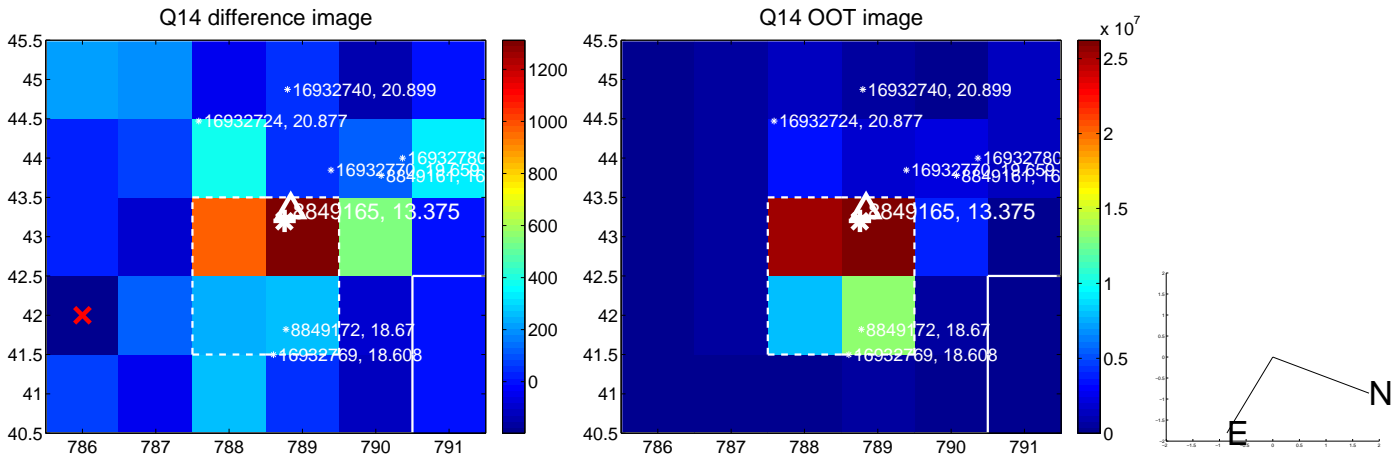
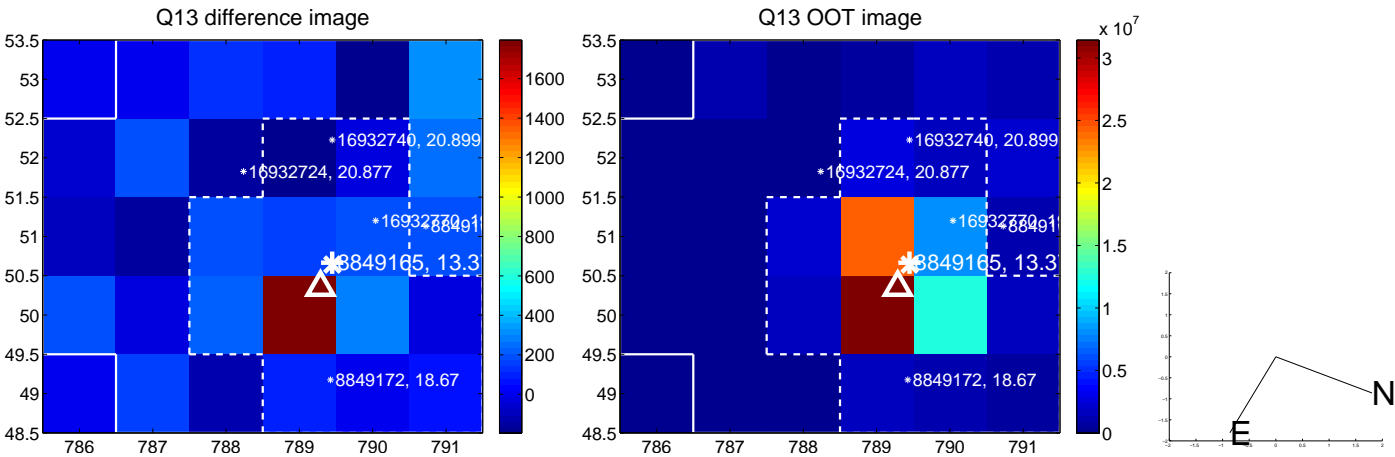
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



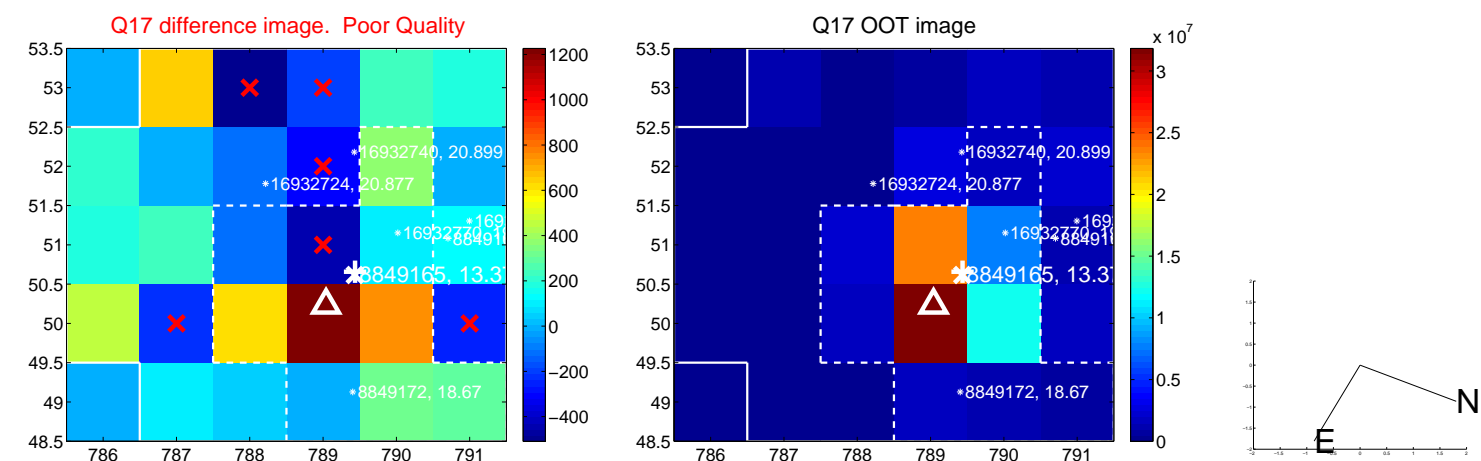
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



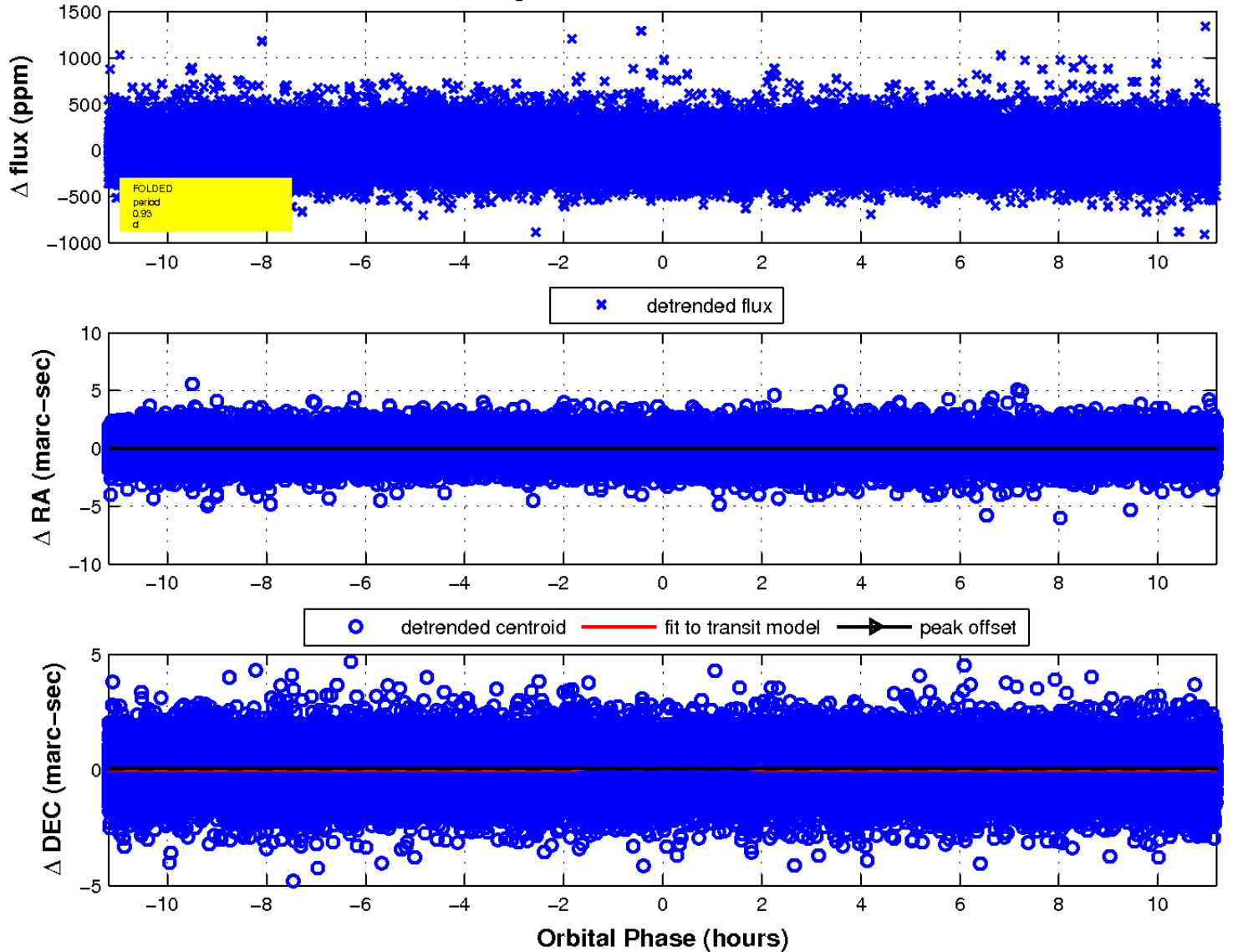
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

