

# KIC 004671225

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004671225-01	OBS	No	0.915349	132.334379	42.4	3.376	9.2	6.7	3.90	8631	2.94	122470.08
004671225-02	OBS	No	185.760663	190.527688	750.0	4.490	8.0	7.6	3.90	8631	13.04	102.69
004671225-03	OBS	No	125.958540	200.770918	665.0	7.319	7.7	7.1	3.90	8631	10.92	172.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004671225-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004671225-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004671225-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

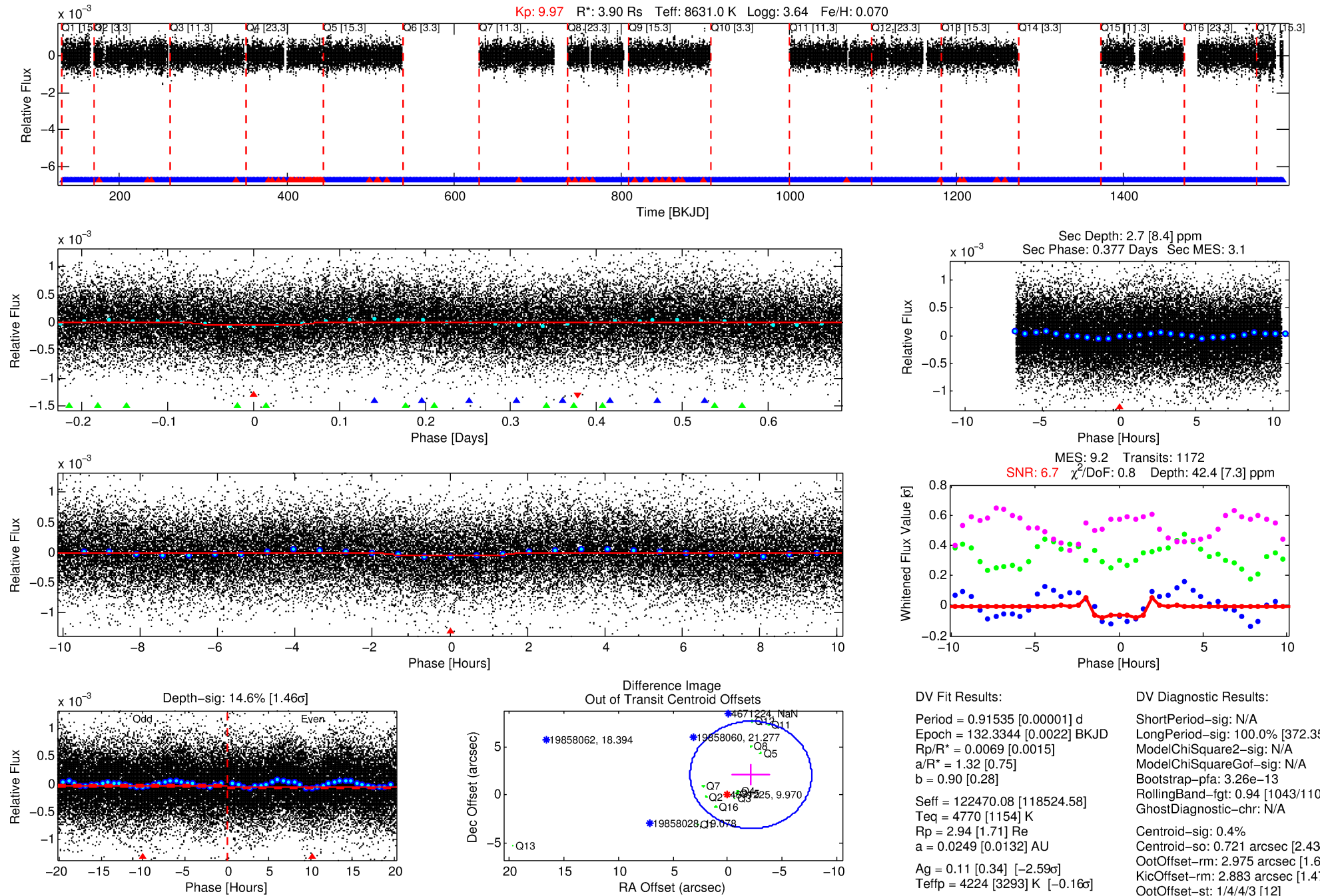
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004671225-01

No Significant Match Found

# DV One-Page Summary

KIC: 4671225 Candidate: 1 of 3 Period: 0.915 d



## DV Fit Results:

Period = 0.91535 [0.00001] d  
Epoch = 132.3344 [0.0022] BKJD  
Rp/R\* = 0.0069 [0.0015]  
a/R\* = 1.32 [0.75]  
b = 0.90 [0.28]  
Seff = 122470.08 [118524.58]  
Teff = 4770 [1154] K  
Rp = 2.94 [1.71] Re  
a = 0.0249 [0.0132] AU  
Ag = 0.11 [0.34] [-2.59σ]  
Teffp = 4224 [3293] K [-0.16σ]

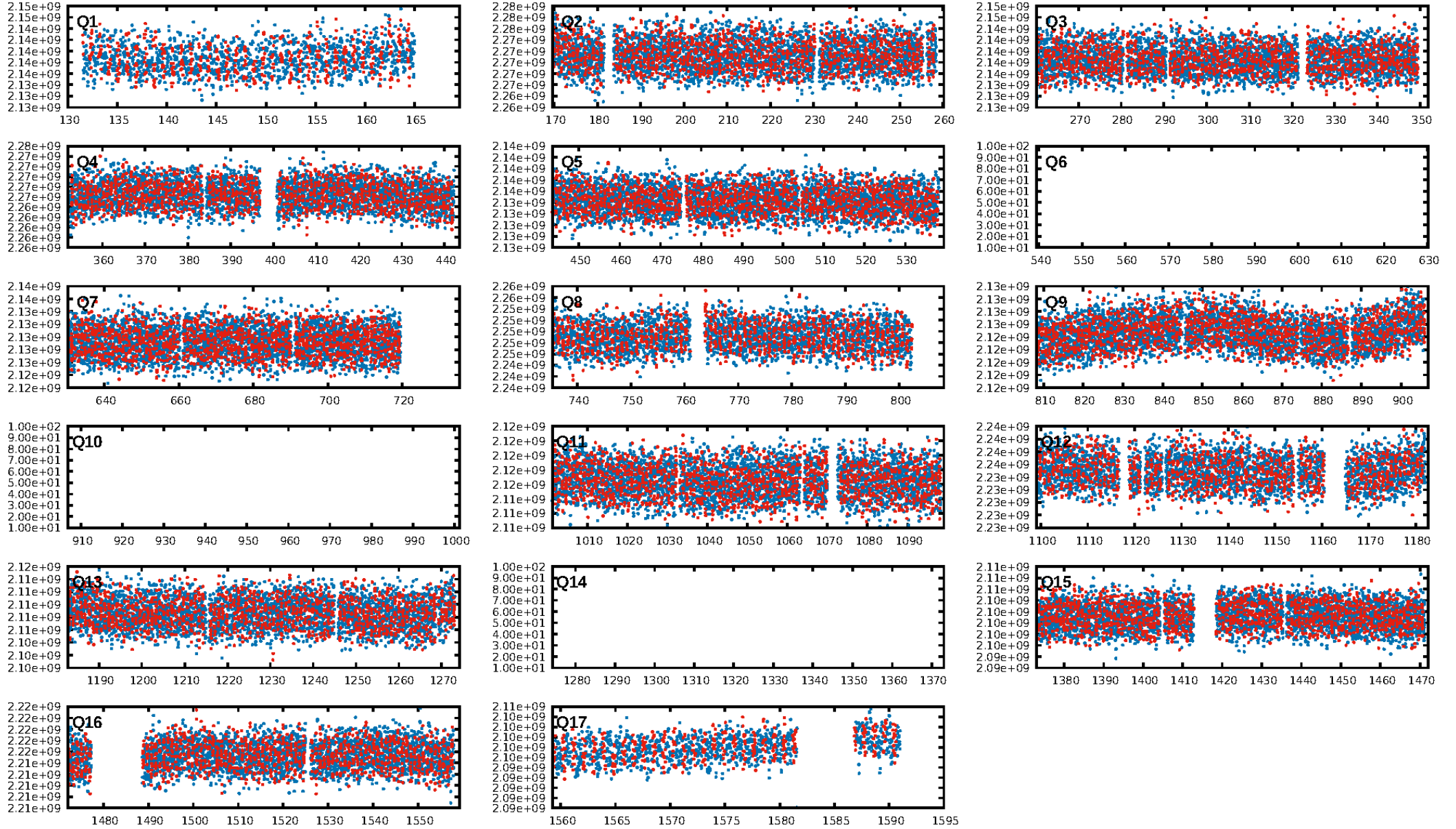
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [372.35σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.26e-13  
RollingBand-fgt: 0.94 [1043/1106]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.4%  
Centroid-so: 0.721 arcsec [2.43σ]  
OotOffset-rm: 2.975 arcsec [1.60σ]  
KicOffset-rm: 2.883 arcsec [1.47σ]  
OotOffset-st: 1/4/4/3 [12]  
KicOffset-st: 1/4/4/3 [12]  
DiffImageQuality-fgm: 0.08 [1/12]  
DiffImageOverlap-fno: 1.00 [14/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:44:53 Z

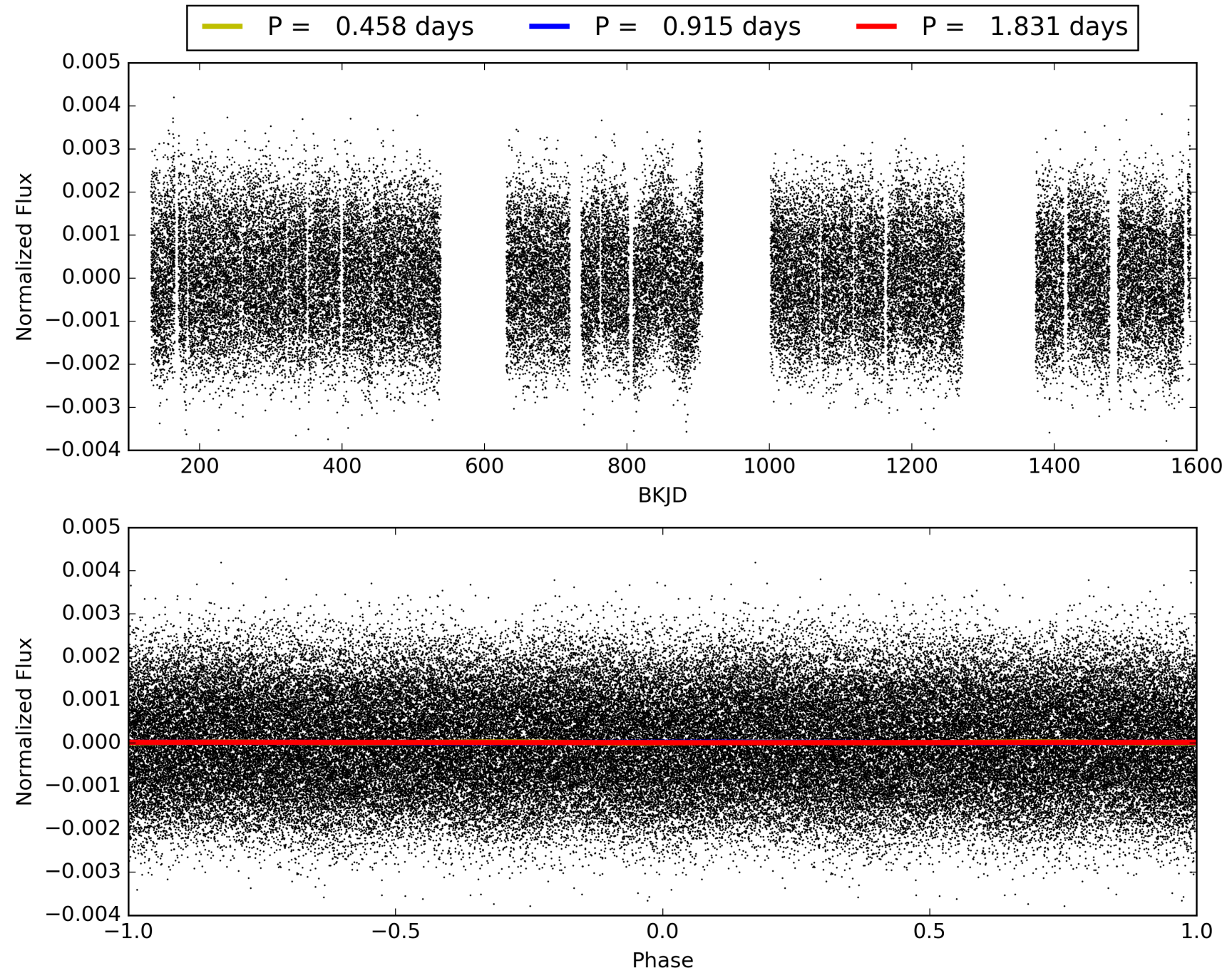
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004671225-01, PDC Light Curves





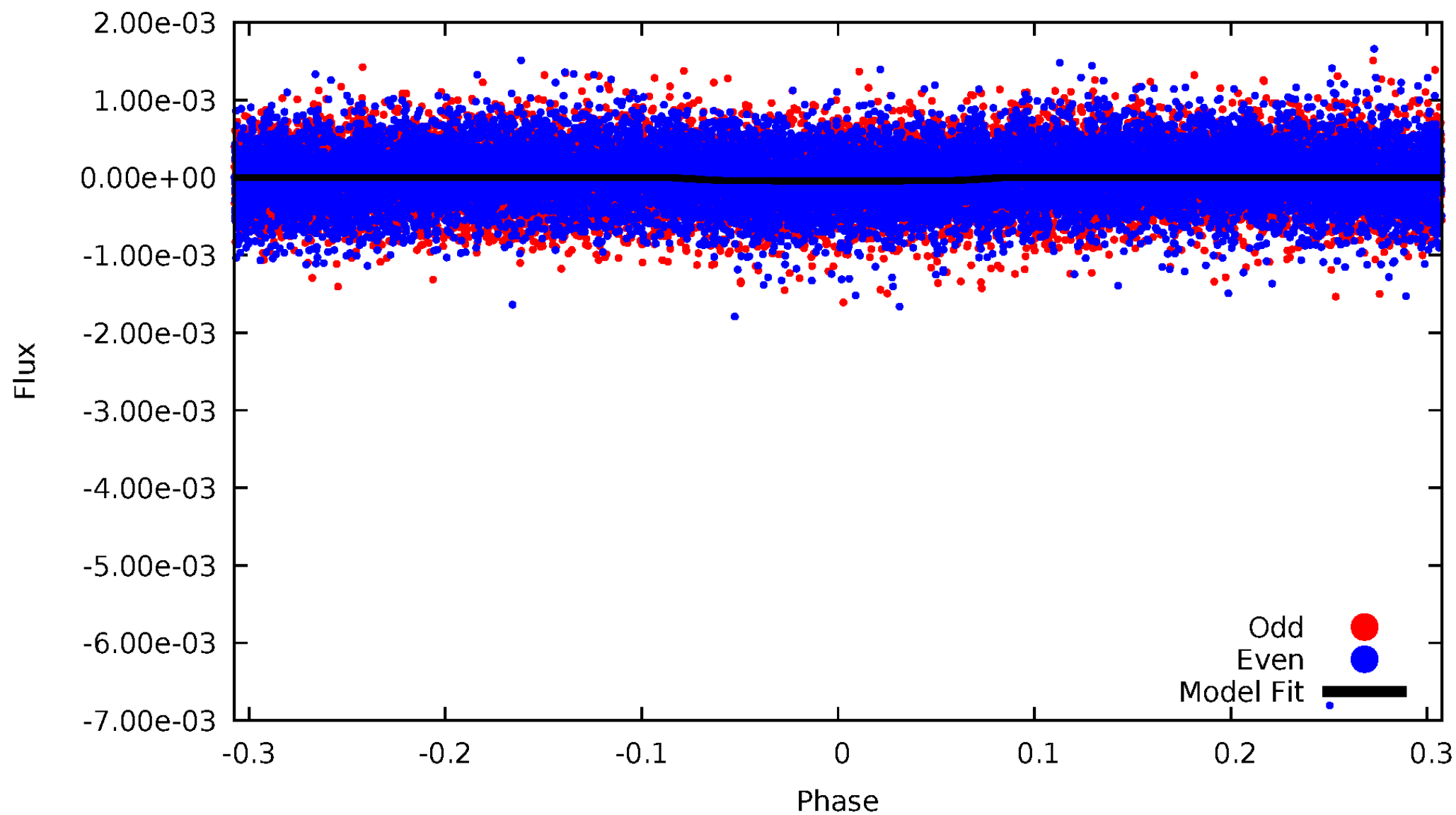
# TCE 004671225-01





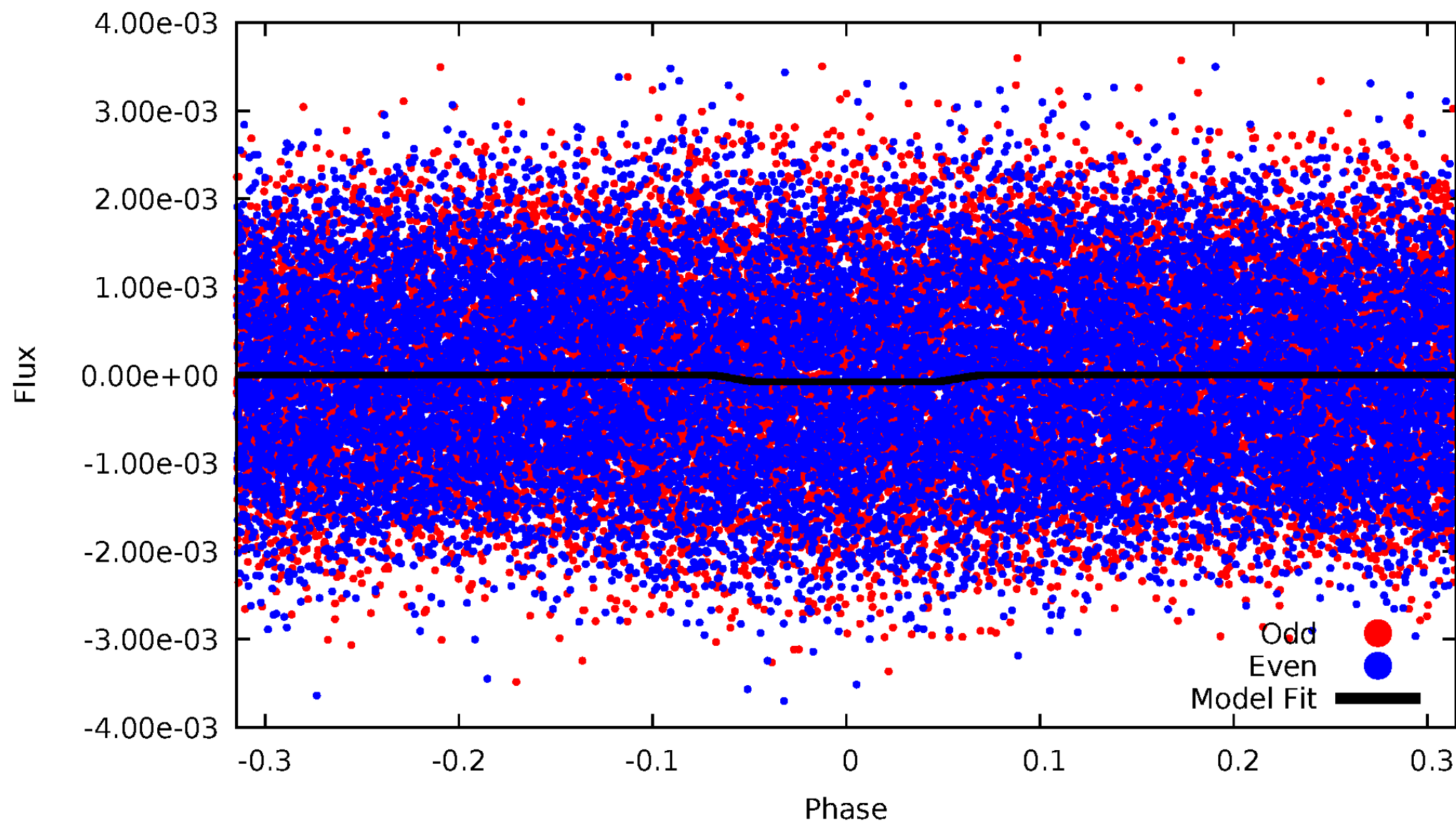
# DV Odd/Even

TCE 004671225-01



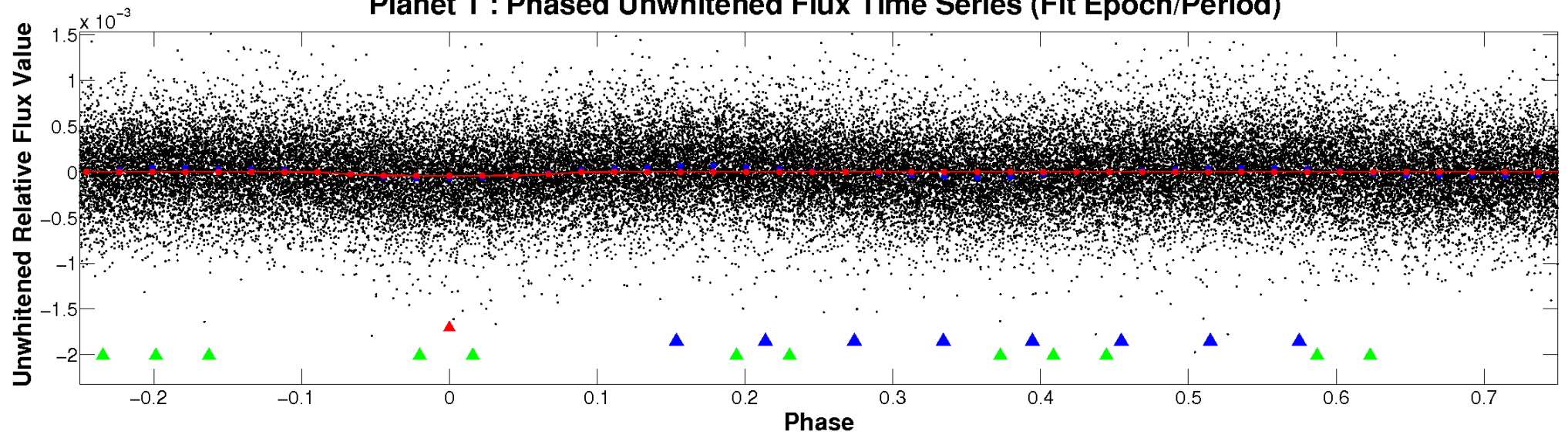
# ALT Odd/Even

TCE 004671225-01

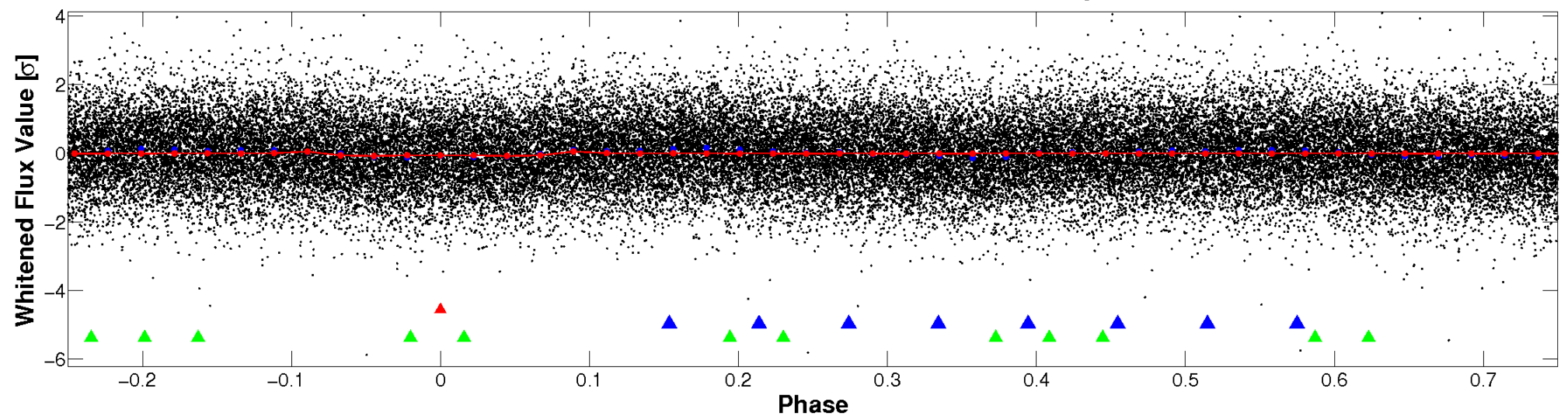


# Non-Whitened Vs. Whitened Light Curve

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



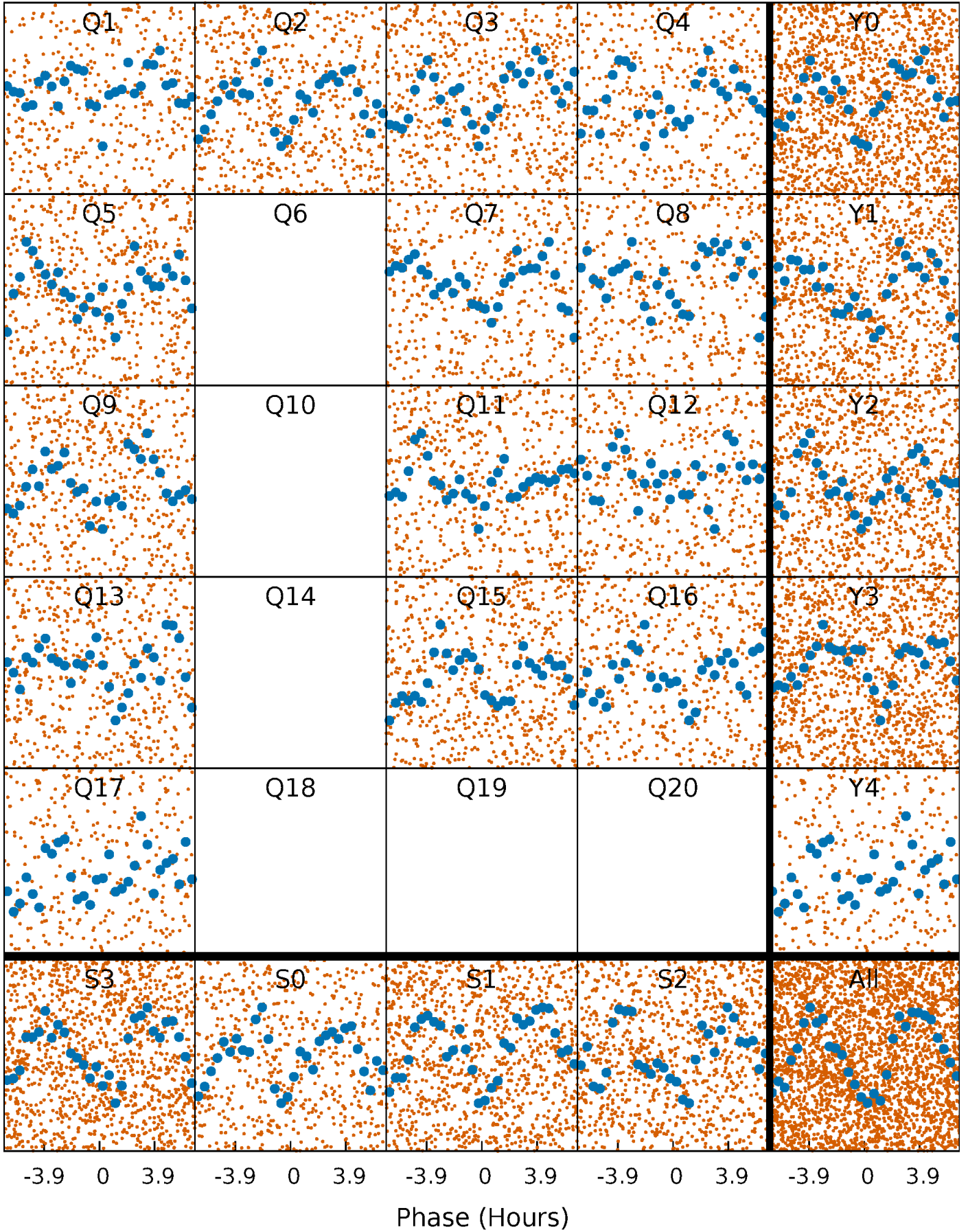
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





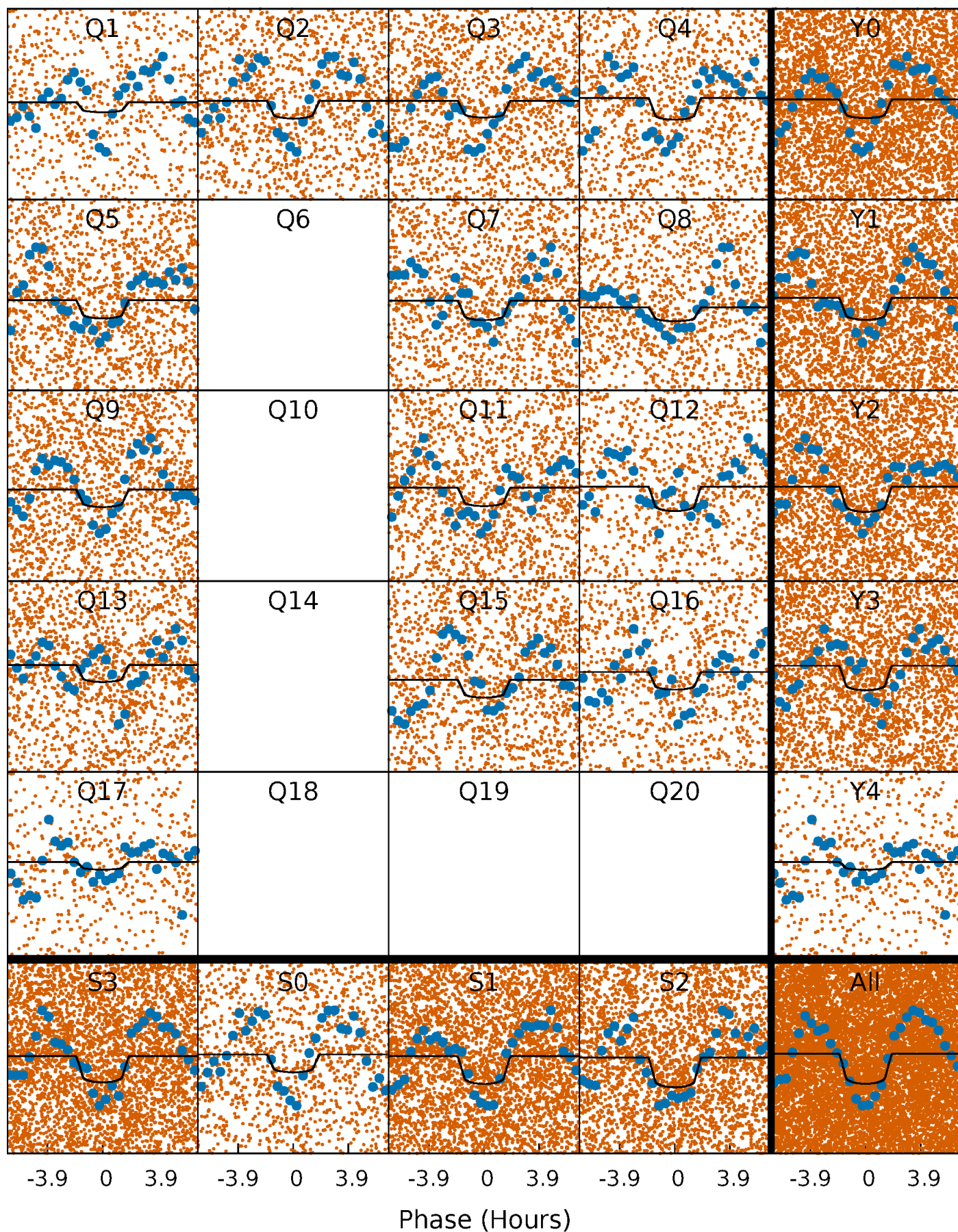
# PDC Quarter-Phased Transit Curves

TCE 004671225-01   P= 0.915349 Days    $T_0=132.334379$  (BKJD)



# DV Quarter-Phased Transit Curves

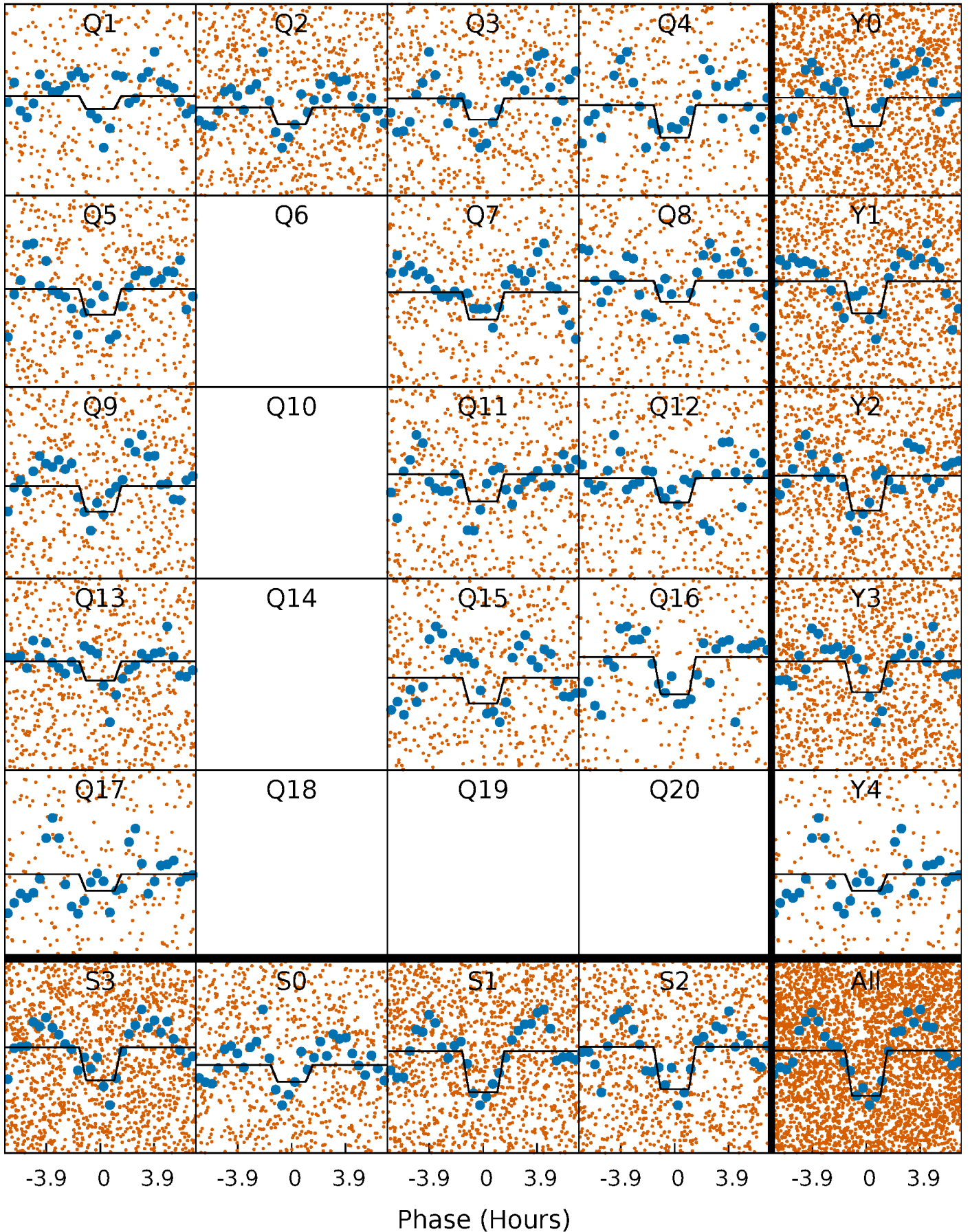
TCE 004671225-01 P= 0.915349 Days  $T_0=132.334379$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 004671225-01 P= 0.915363 Days  $T_0=132.334189$  (BKJD)

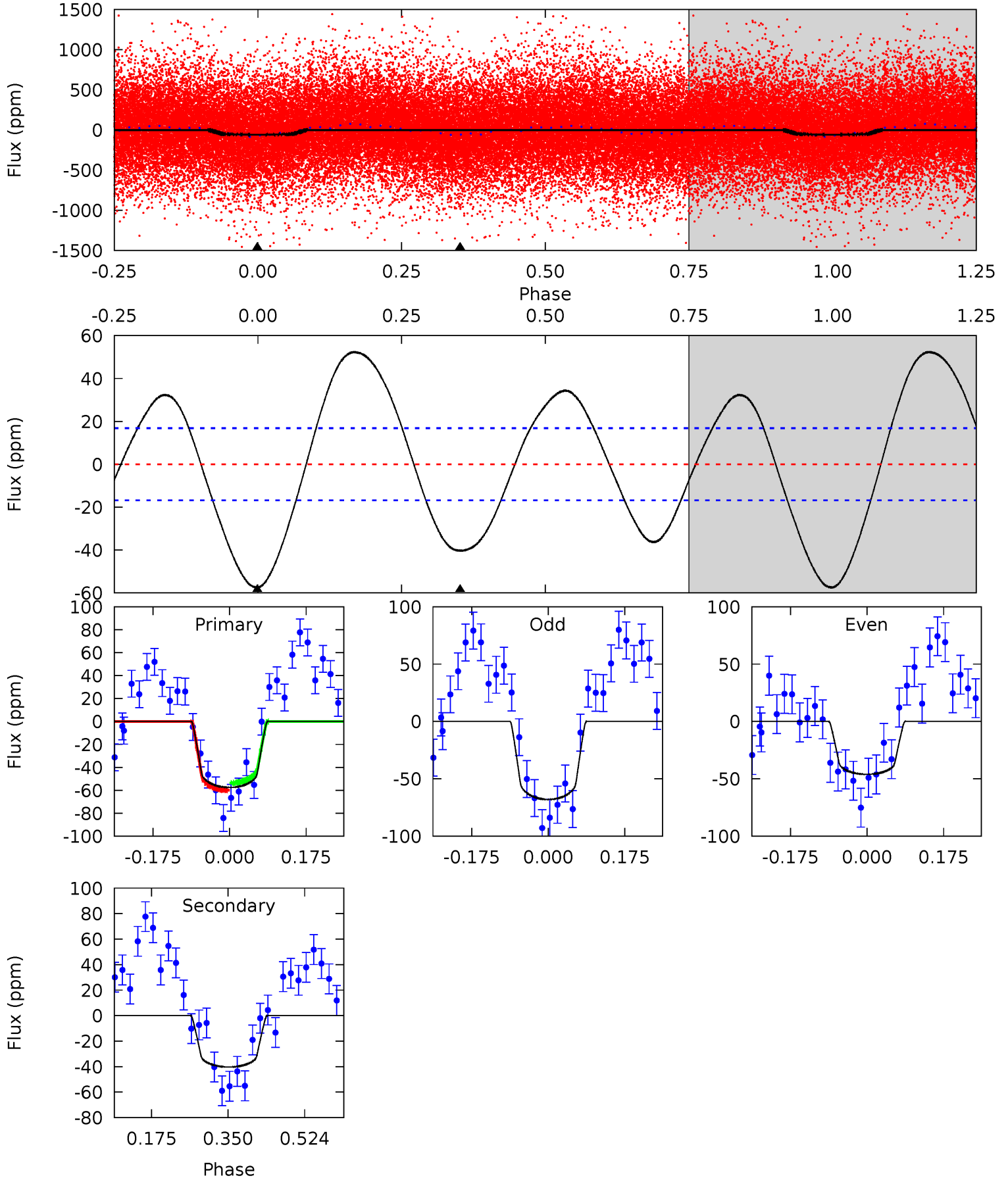




# DV Model-Shift Uniqueness Test

004671225-01, P = 0.915349 Days, E = 131.419030 Days

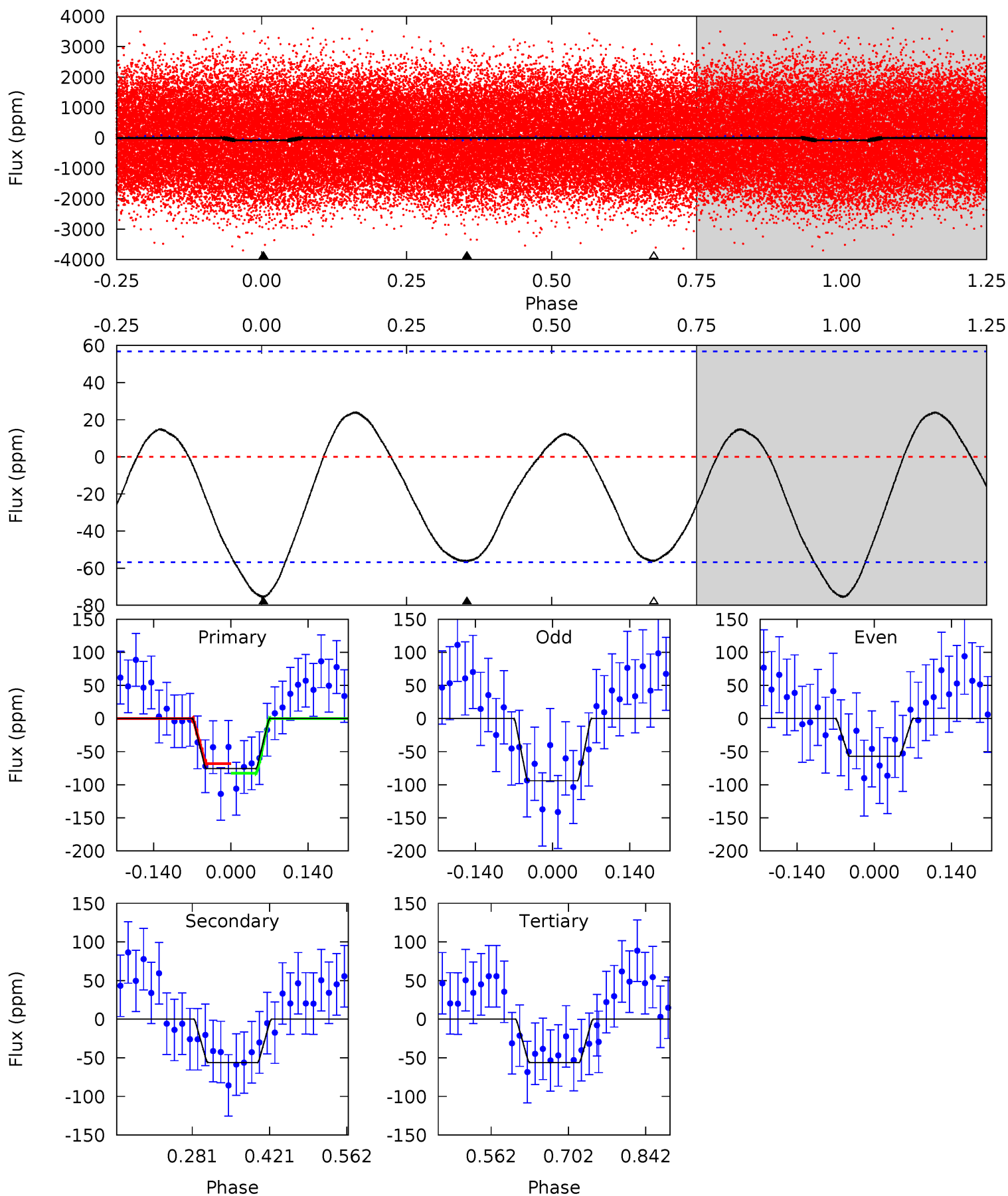
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	10.7	0	0	4.45	1.36	6.40	15.2	15.2	10.7	10.7	2.91	1.09	0.48	0.83



# Alt Model-Shift Uniqueness Test

004671225-01, P = 0.915363 Days, E = 131.418826 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
5.97	4.45	4.44	0	4.49	1.47	2.12	1.53	5.97	0.01	4.45	1.46	1.00	0.24	0.58



### Stellar Parameters For KIC 004671225

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8631^{+475}_{-951}$	$3.644^{+0.510}_{-0.090}$	$0.070^{+0.150}_{-0.250}$	$3.904^{+0.702}_{-2.107}$	$2.449^{+0.310}_{-0.774}$	$0.058^{+0.326}_{-0.016}$
	+6%/-11%	+14%/-2%	+214%/-357%	+18%/-54%	+13%/-32%	+563%/-27%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 004671225-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-40 \pm 4$	$2.63^{+0.91}_{-0.78}$	$6271^{+717}_{-1019}$	$7579^{+1579}_{-1253}$	$1.954^{+1.998}_{-0.808}$
Alt.	$-56 \pm 13$	$3.40^{+0.99}_{-1.07}$	$6182^{+778}_{-926}$	$7096^{+1411}_{-1024}$	$1.662^{+1.615}_{-0.689}$

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



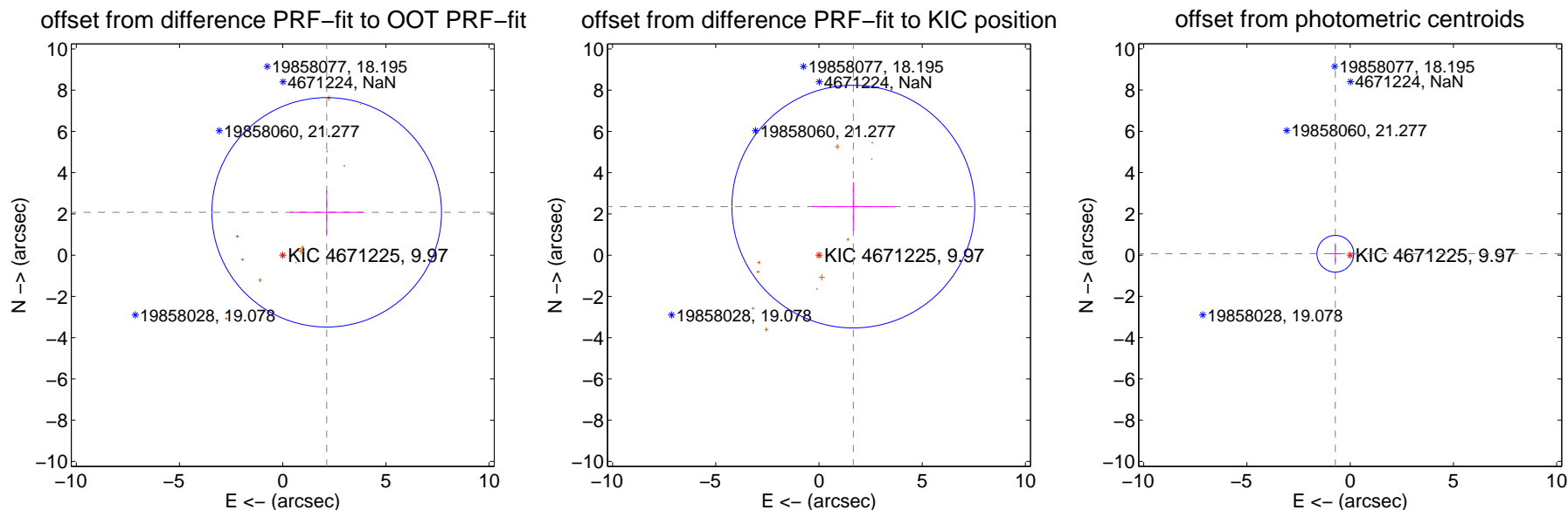
## DV Centroid Data

Supplemental centroid analysis for 004671225-01. **Kepler magnitude: 9.97.** Transit SNR 6.69

There are 1 quarters with good PRF difference image offsets

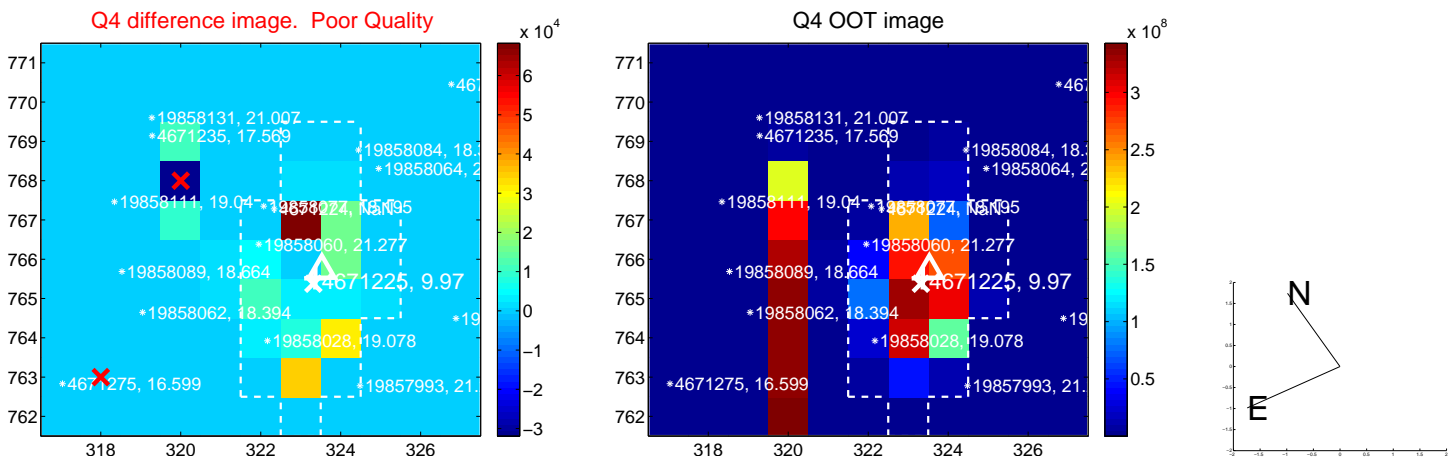
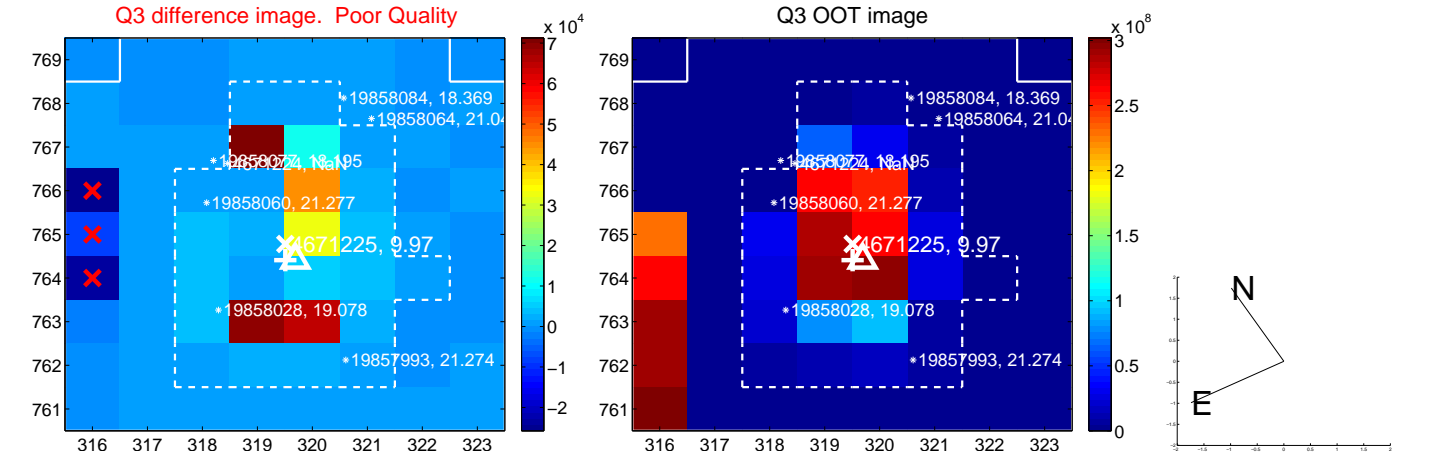
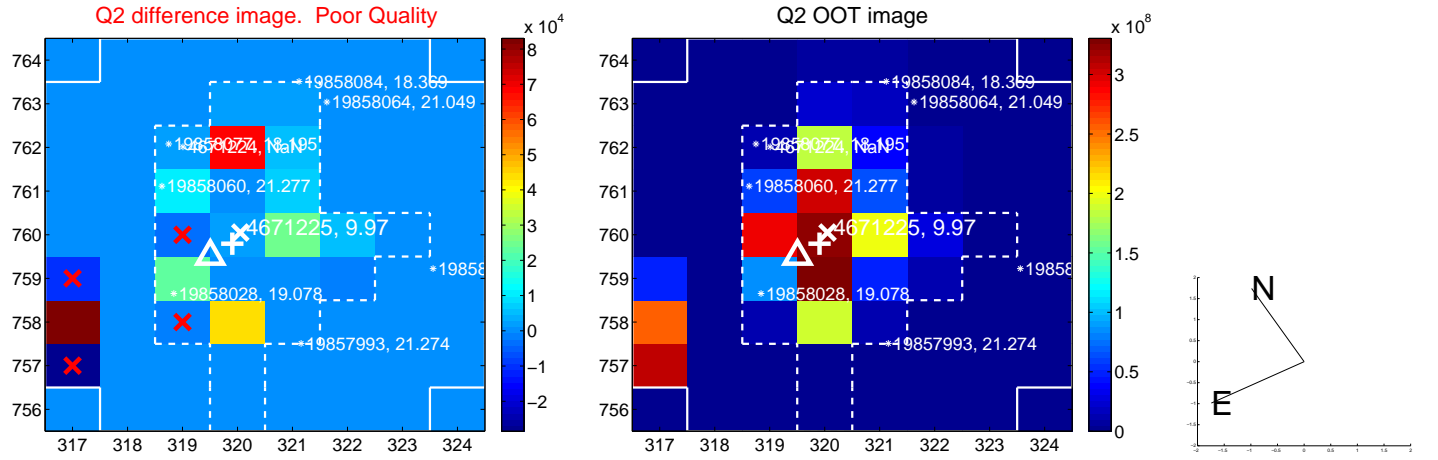
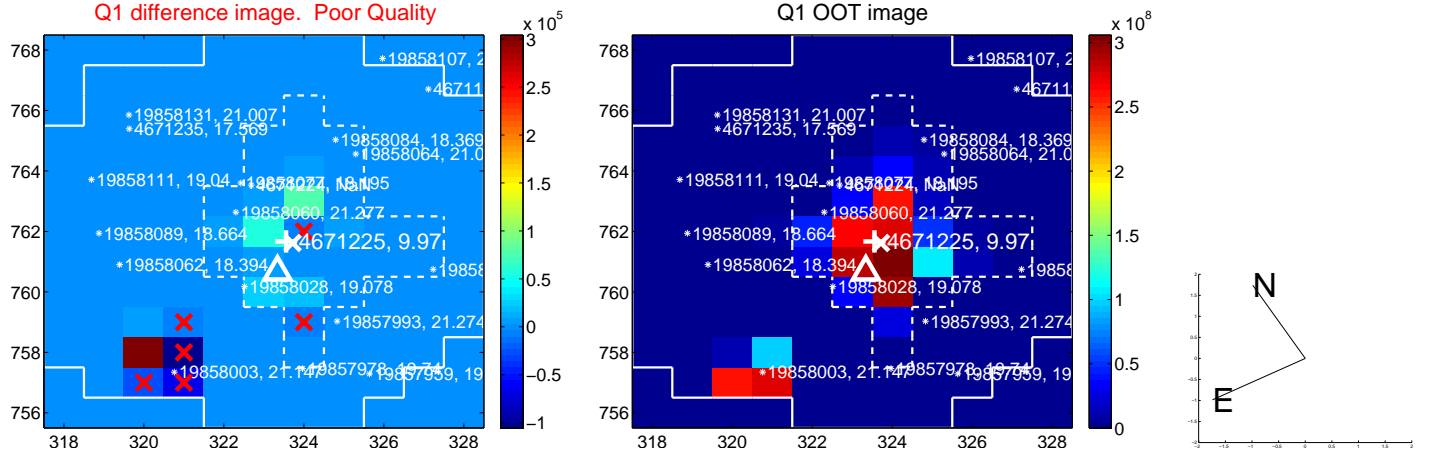
The OOT PRF centroid is offset from the target star catalog position by about 2.80 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.975 \pm 1.854$	1.60	$-2.130 \pm 1.754$	$2.077 \pm 1.059$
PRF-fit source offset from KIC position	$2.883 \pm 1.961$	1.47	$-1.665 \pm 2.005$	$2.353 \pm 1.171$
photometric centroid source offset	$0.72 \pm 0.30$	2.43	$0.72 \pm 0.30$	$0.06 \pm 0.44$

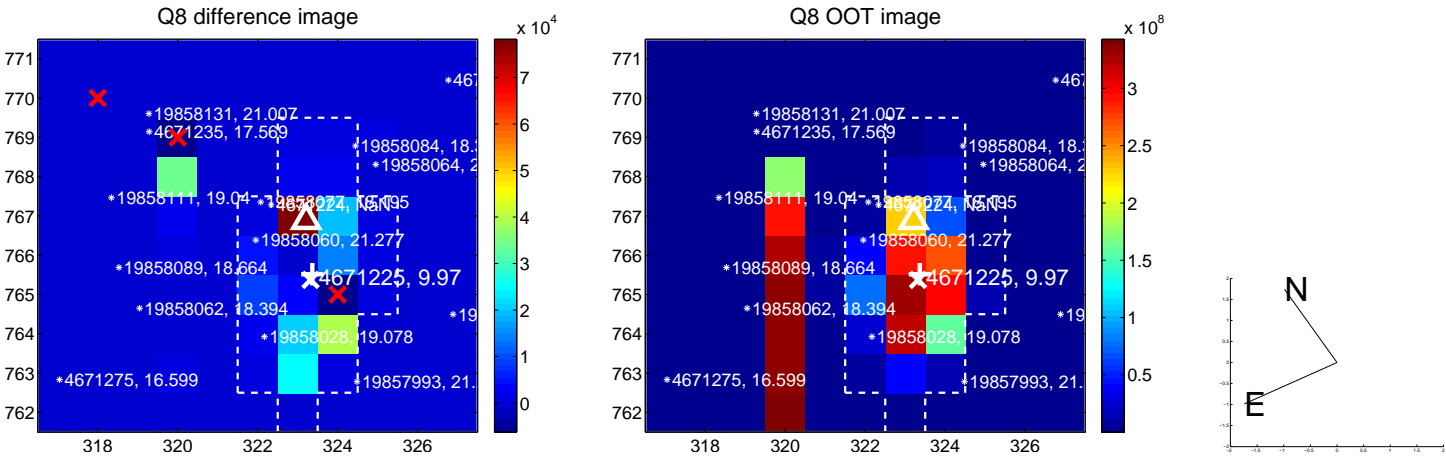
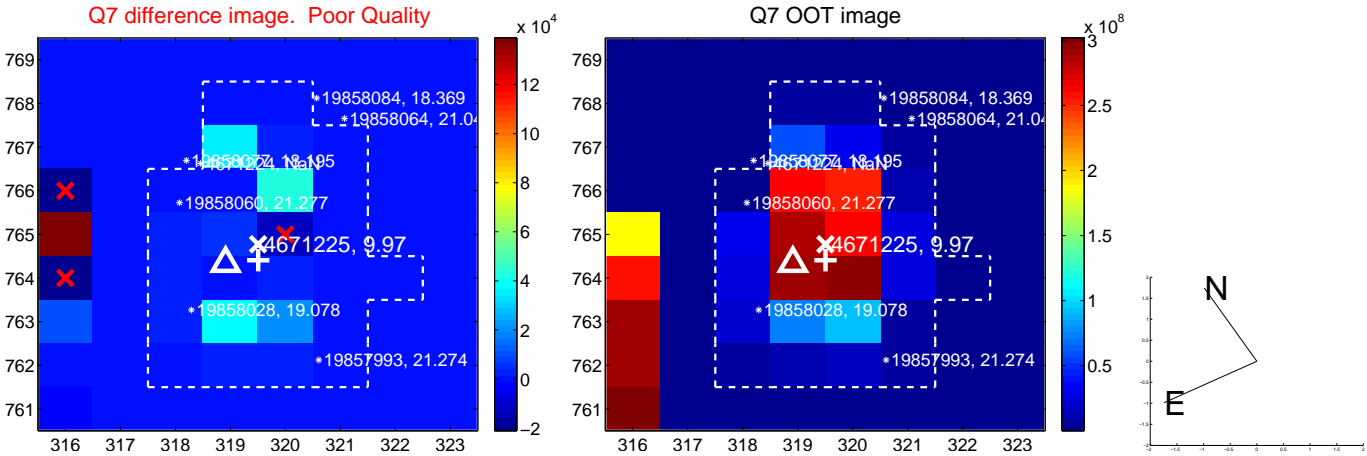
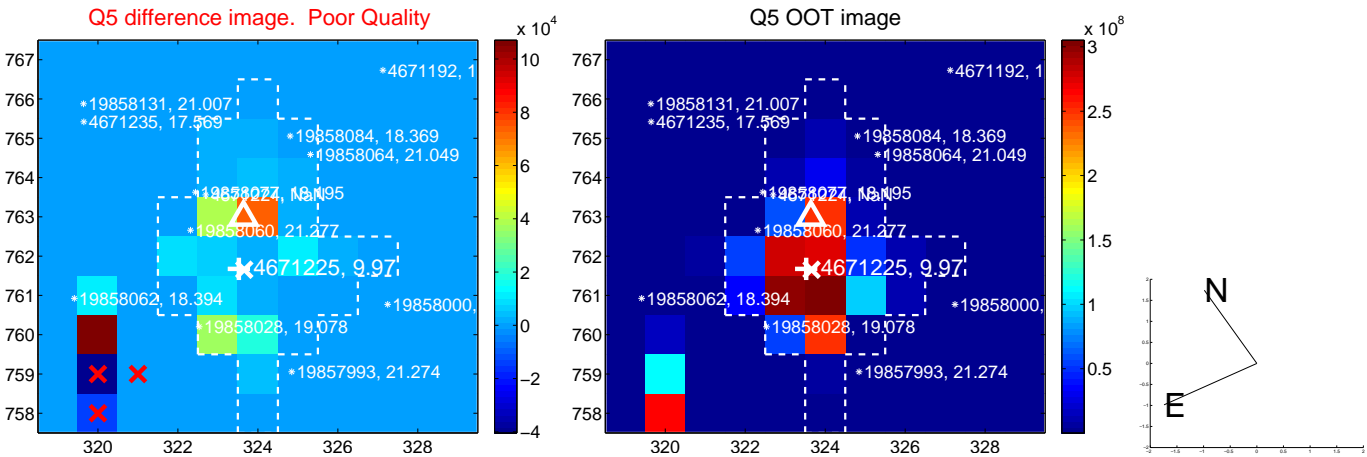


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

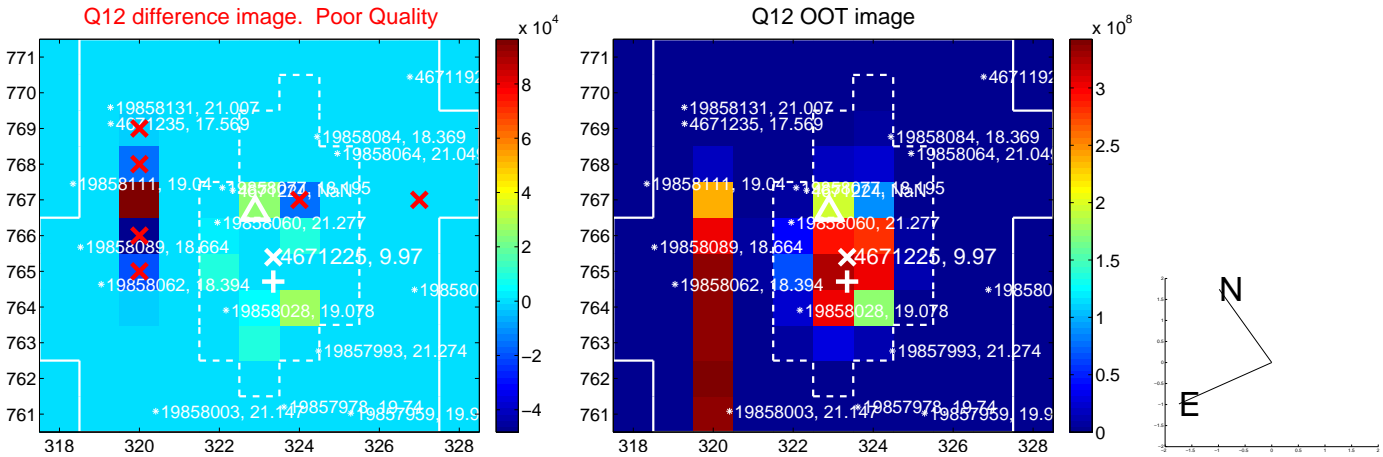
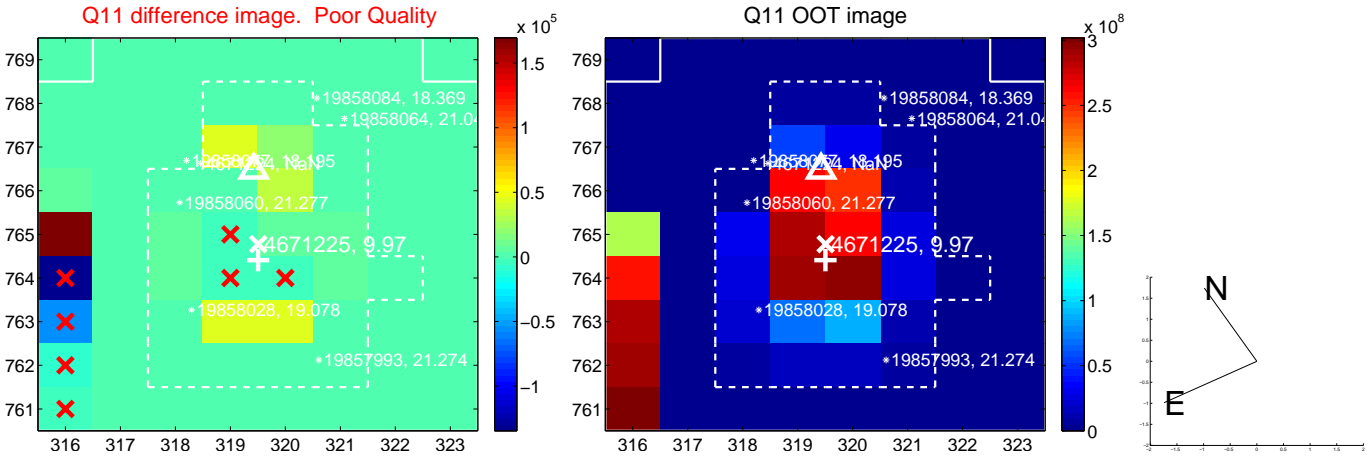
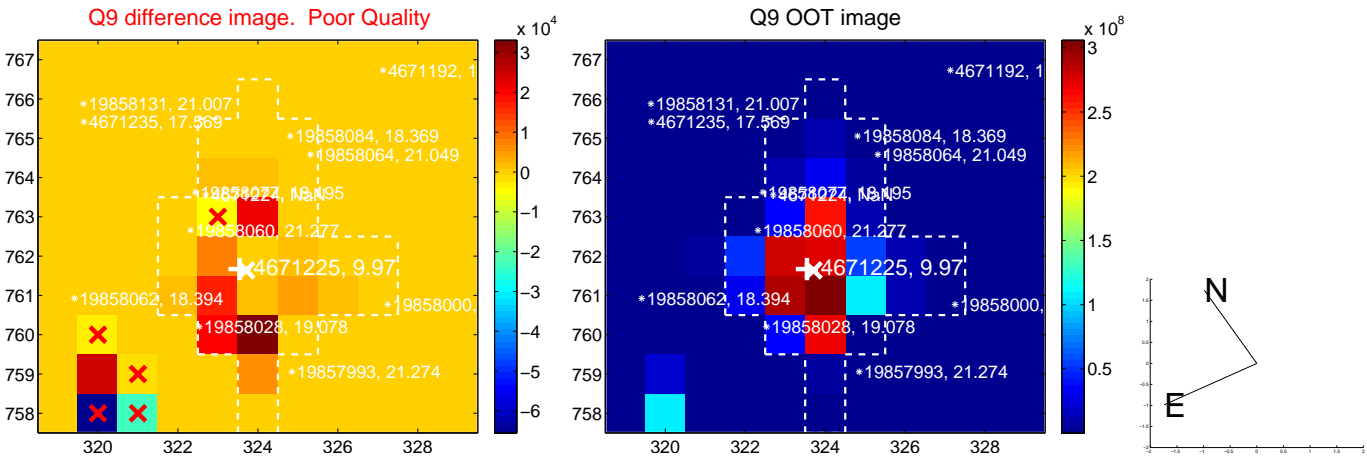


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



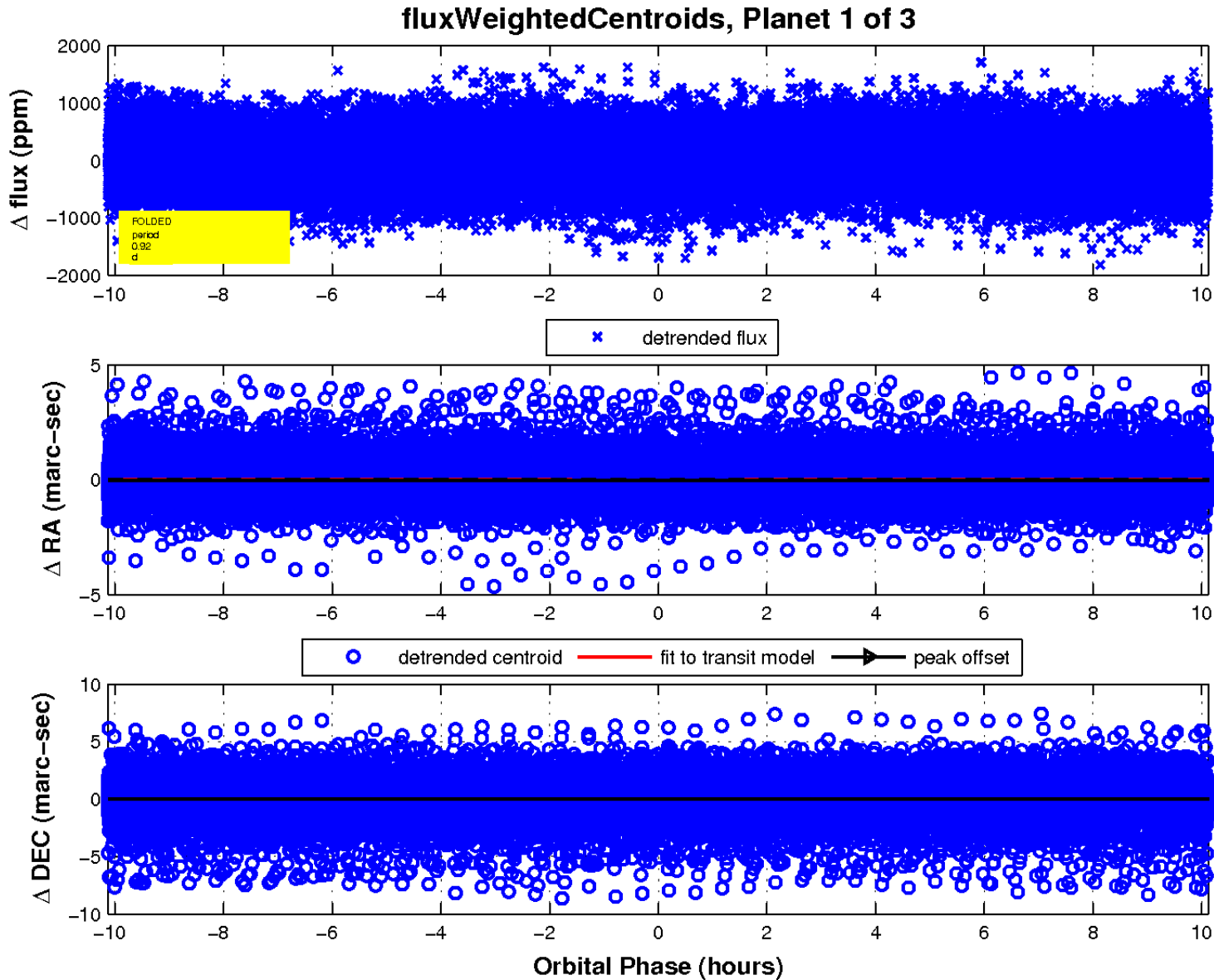
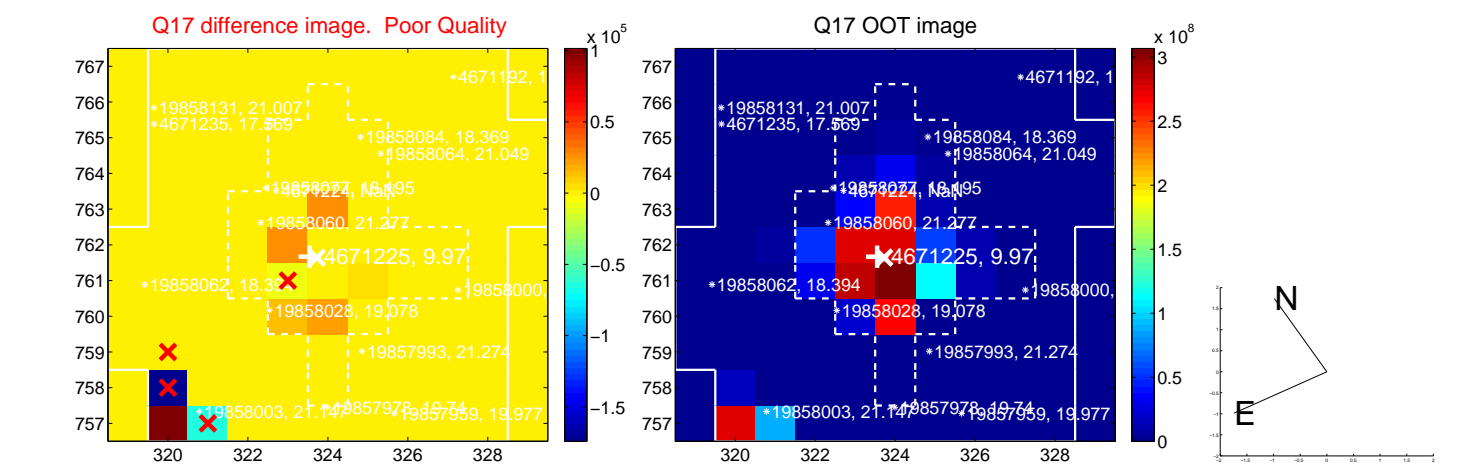


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



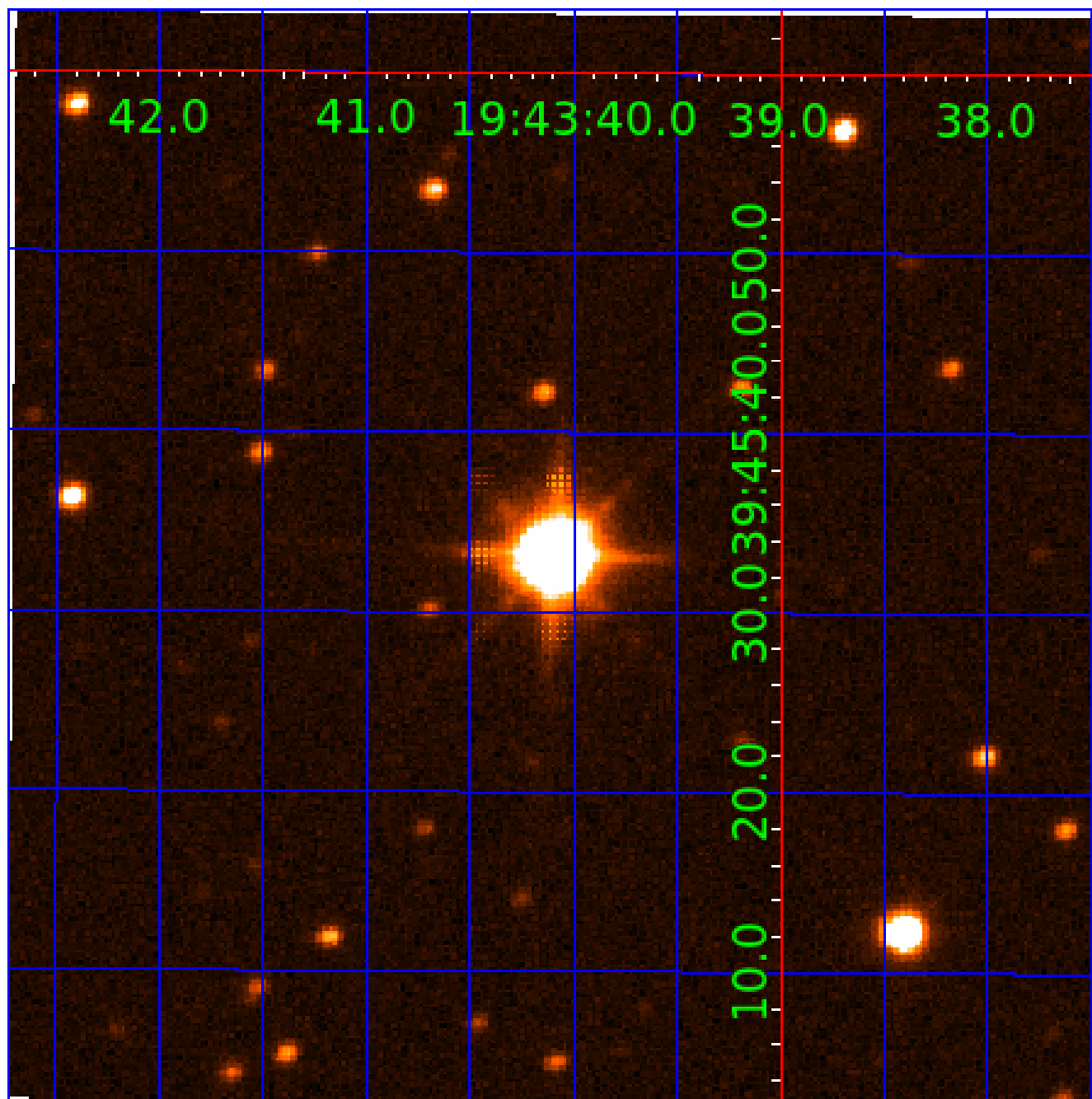


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 004671225

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004671225-01	OBS	No	0.915349	132.334379	42.4	3.376	9.2	6.7	3.90	8631	2.94	122470.08
004671225-02	OBS	No	185.760663	190.527688	750.0	4.490	8.0	7.6	3.90	8631	13.04	102.69
004671225-03	OBS	No	125.958540	200.770918	665.0	7.319	7.7	7.1	3.90	8631	10.92	172.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004671225-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004671225-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004671225-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

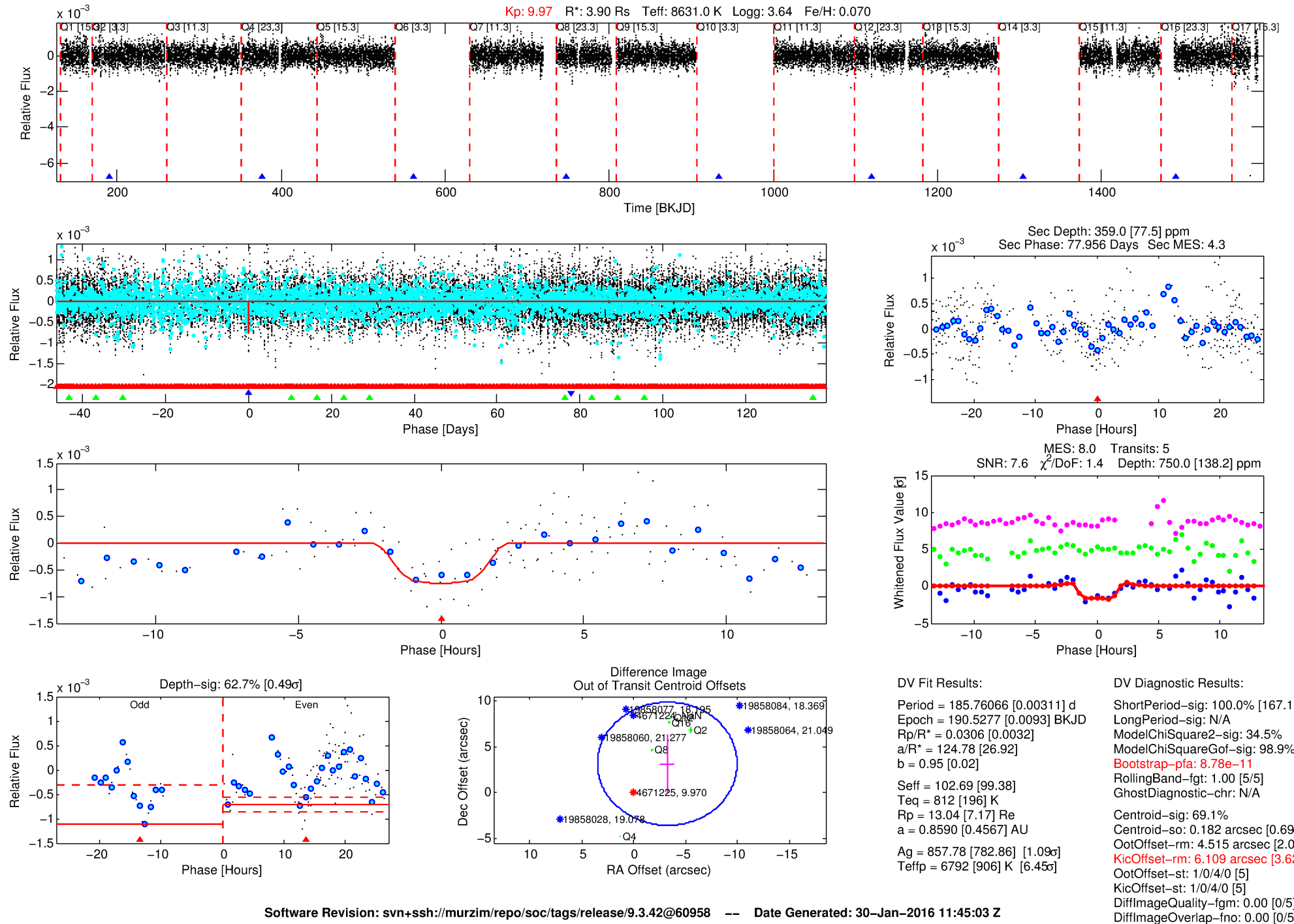
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004671225-02

No Significant Match Found

# DV One-Page Summary

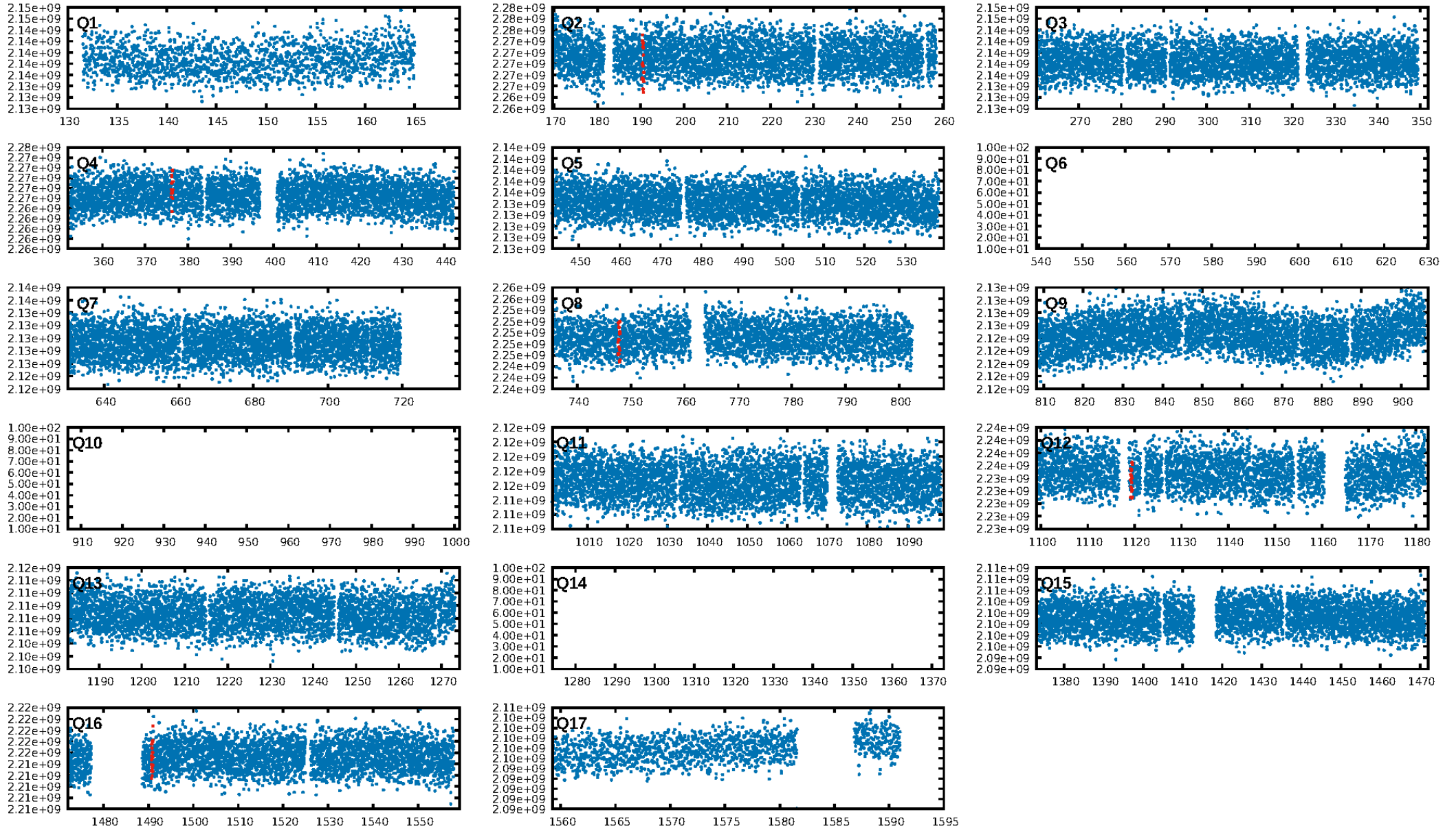
KIC: 4671225 Candidate: 2 of 3 Period: 185.761 d



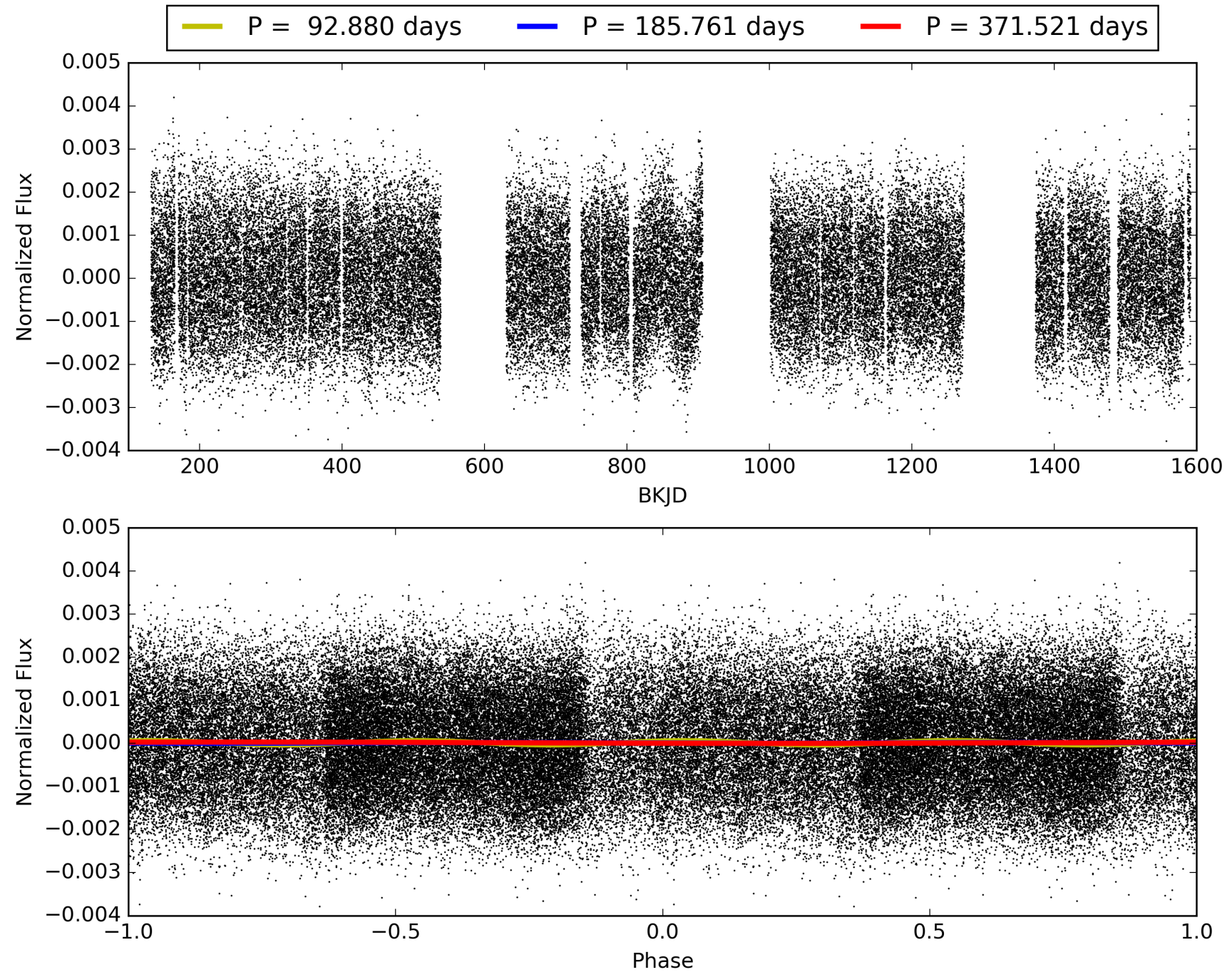
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:45:03 Z

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

# TCE 004671225-02, PDC Light Curves



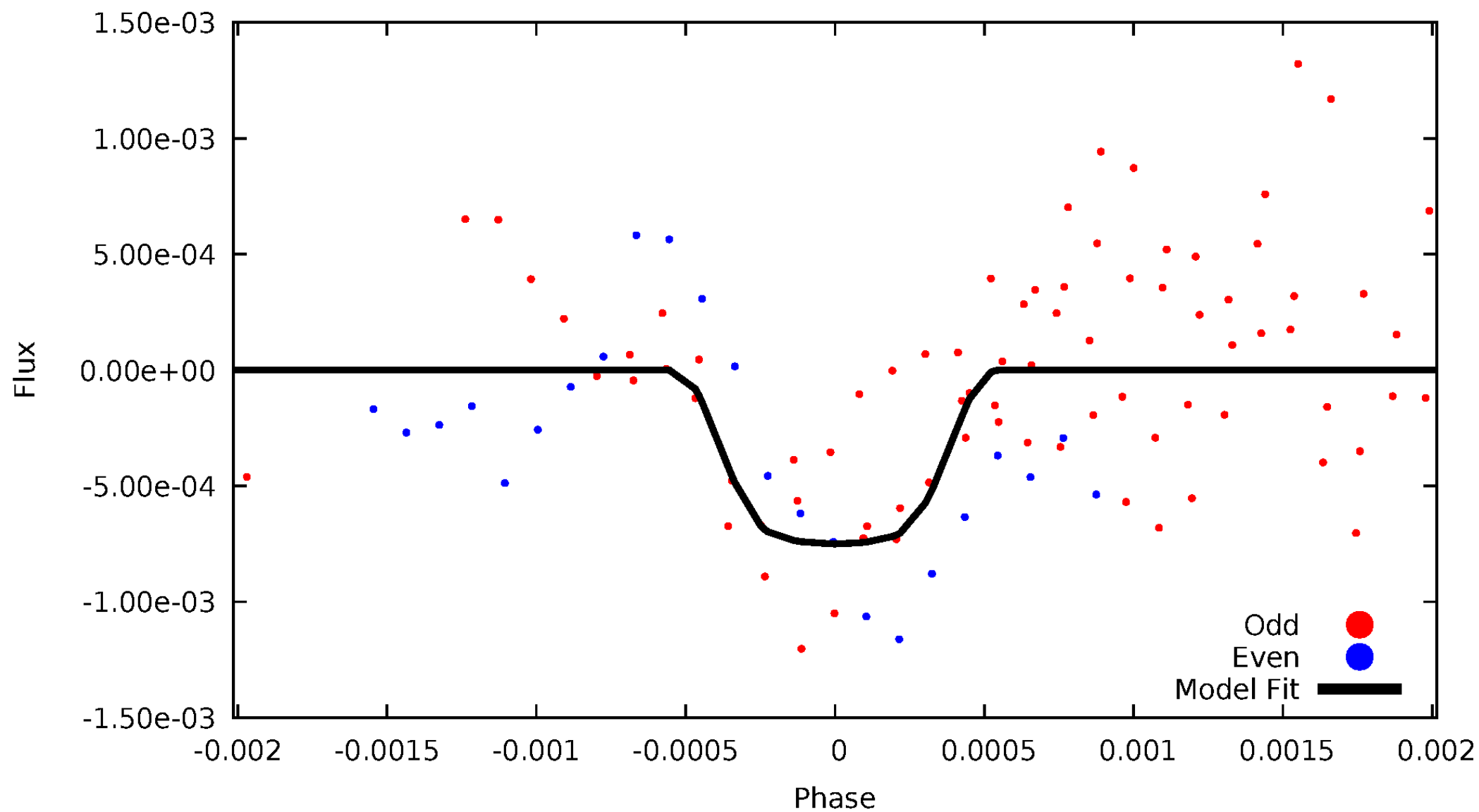
# TCE 004671225-02





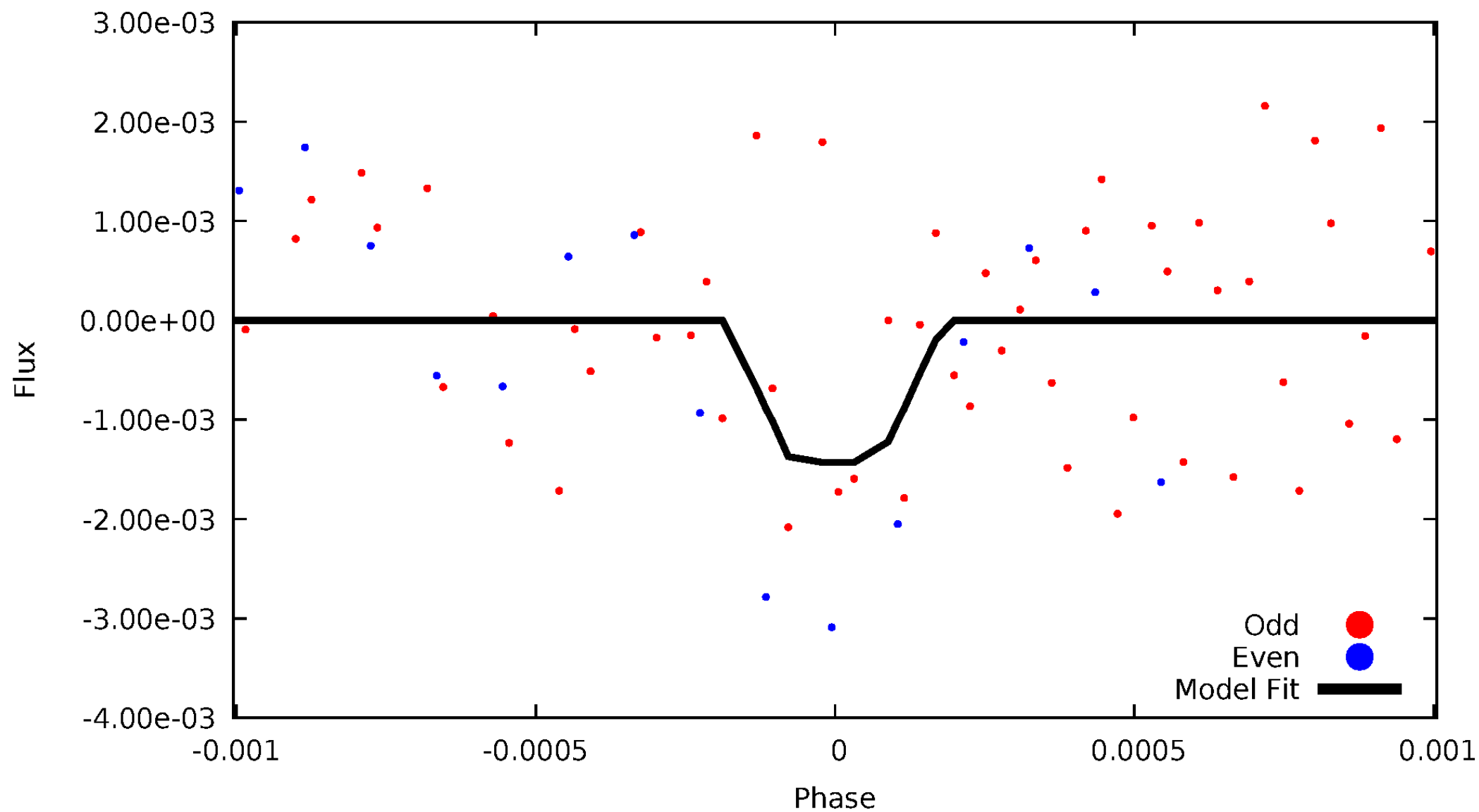
# DV Odd/Even

TCE 004671225-02



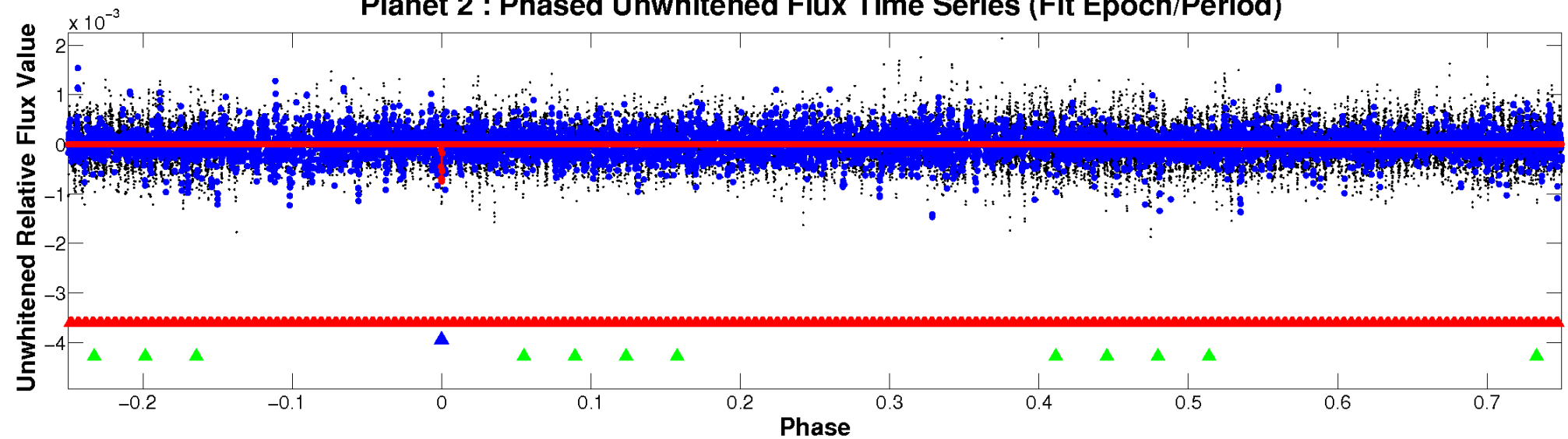
# ALT Odd/Even

TCE 004671225-02

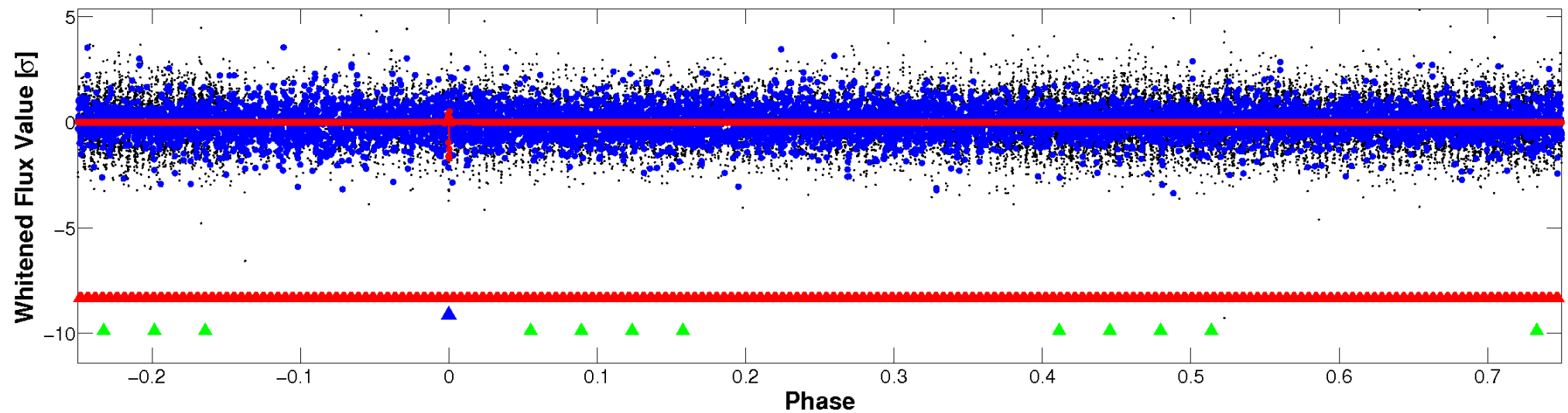


# Non-Whitened Vs. Whitened Light Curve

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

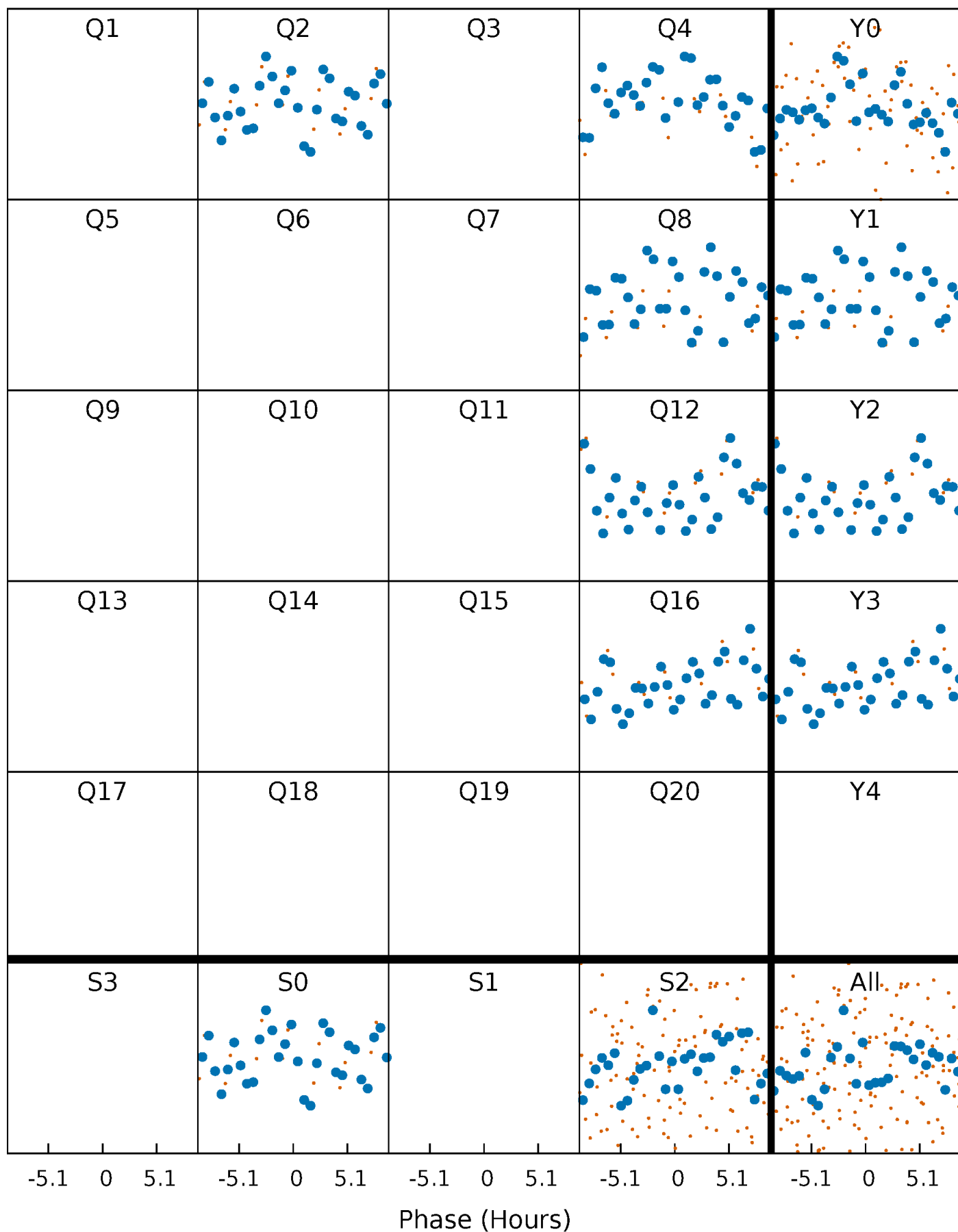


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

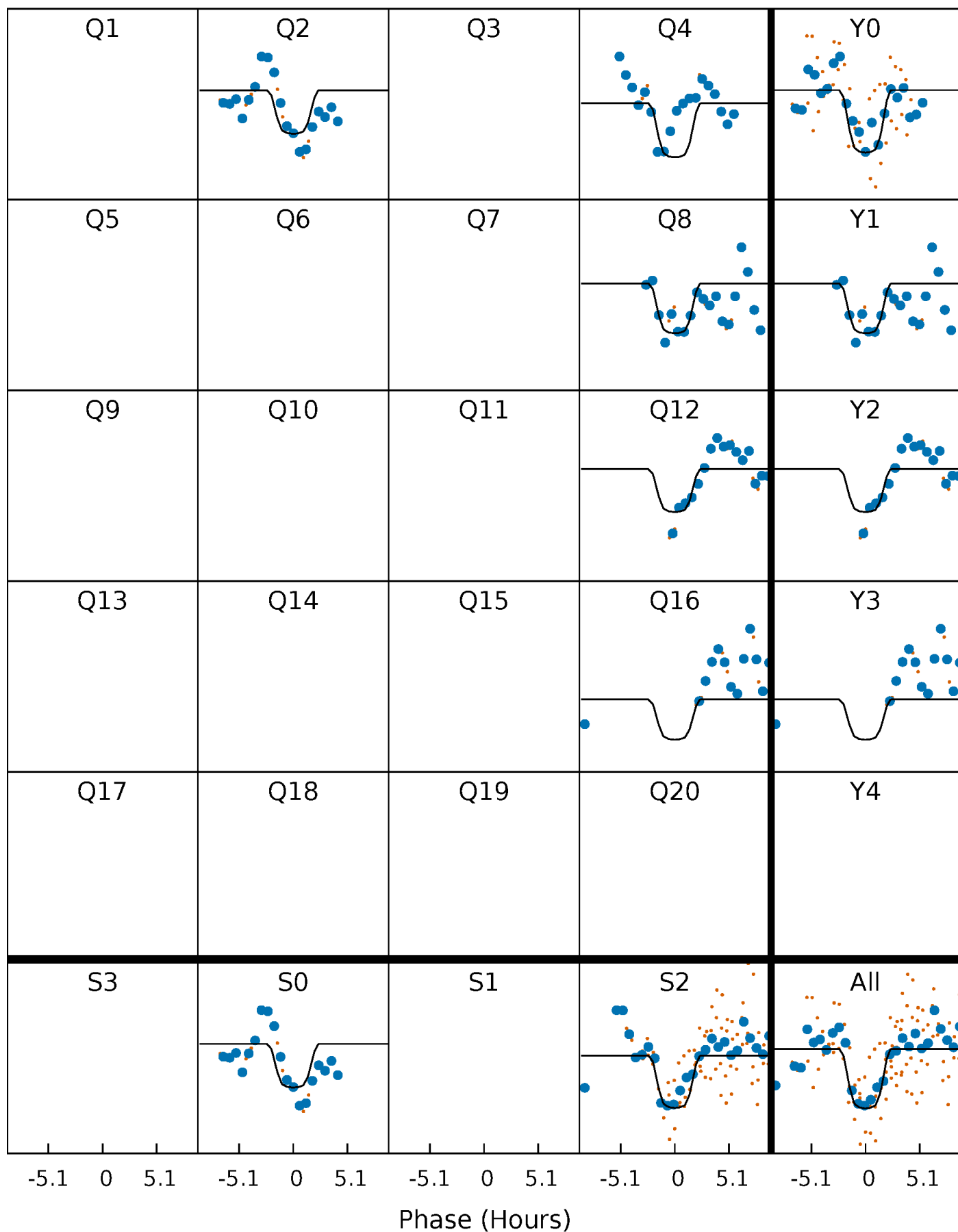
TCE 004671225-02 P=185.760663 Days  $T_0=190.527689$  (BKJD)





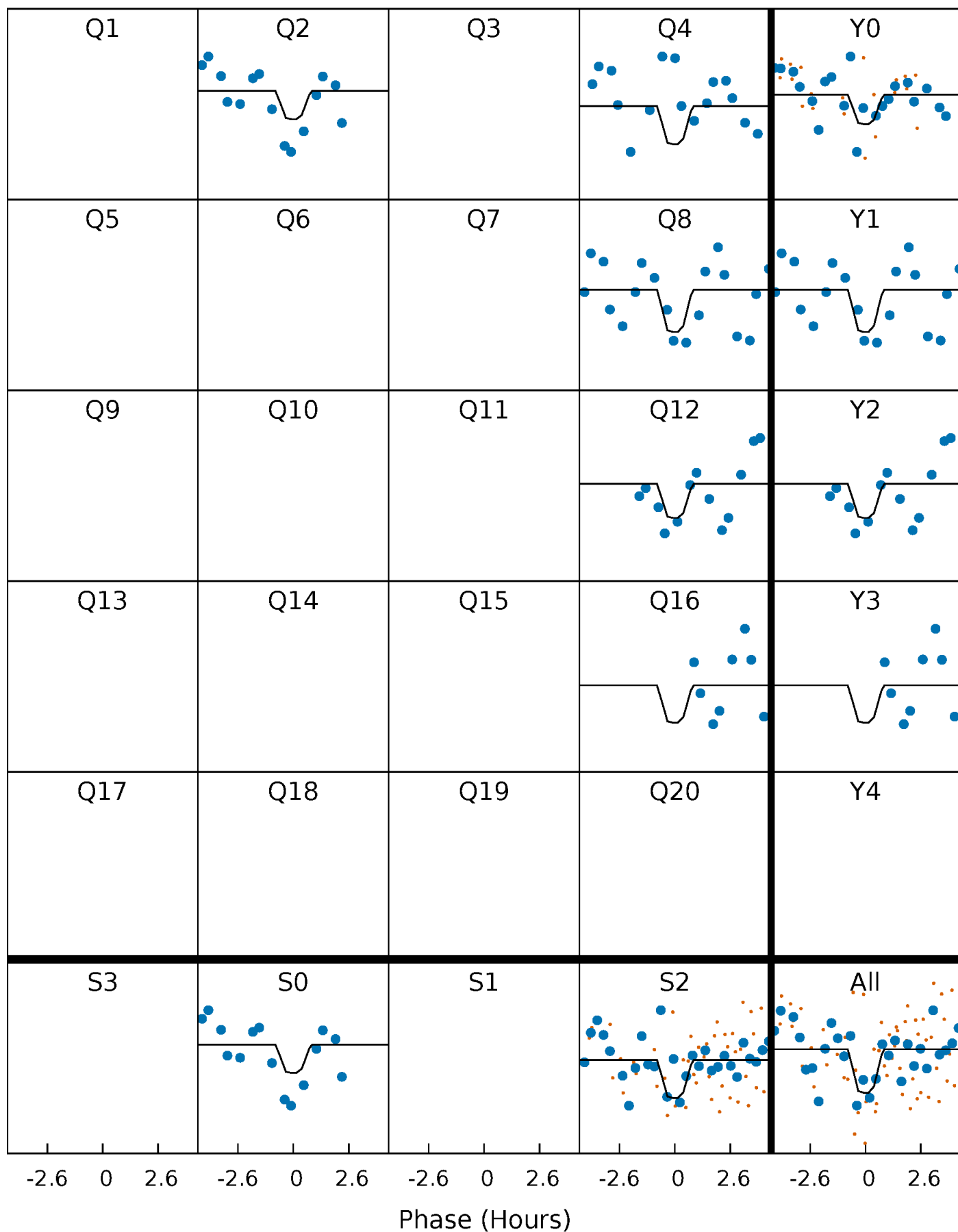
# DV Quarter-Phased Transit Curves

TCE 004671225-02 P=185.760663 Days  $T_0=190.527689$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

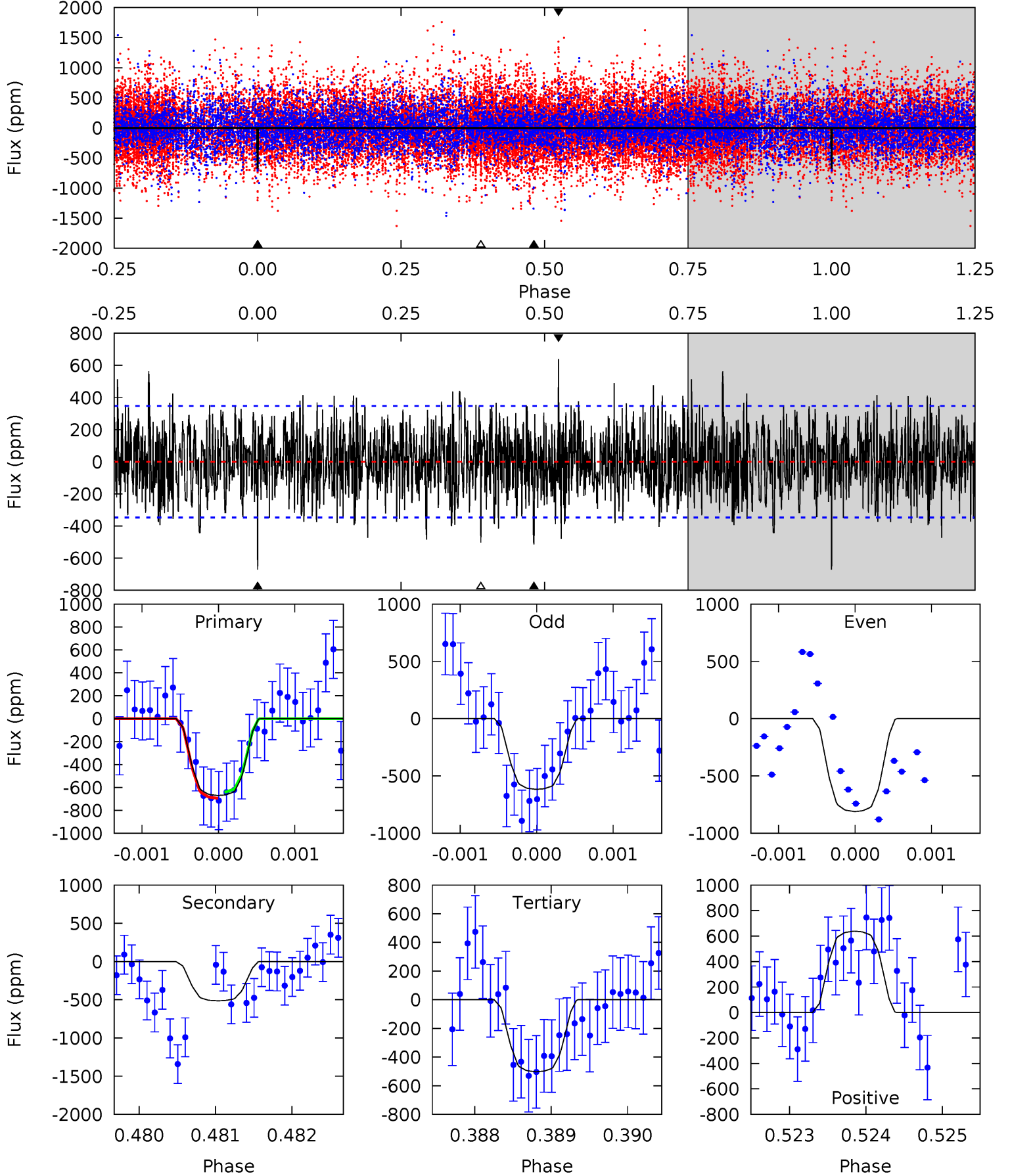
TCE 004671225-02 P=185.759394 Days  $T_0=190.588974$  (BKJD)



# DV Model-Shift Uniqueness Test

004671225-02, P = 185.760663 Days, E = 4.767026 Days

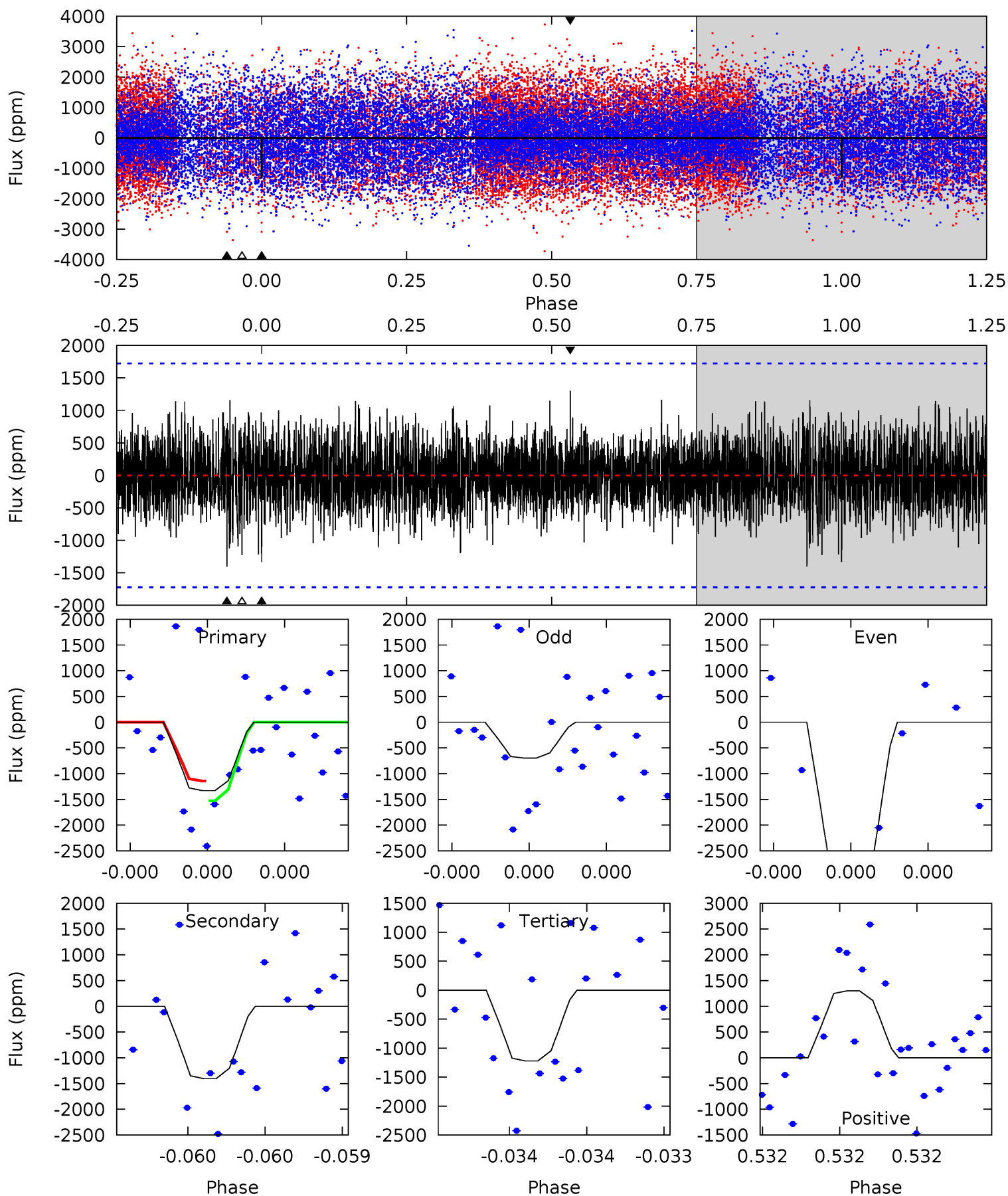
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	8.06	7.88	10.0	5.45	3.29	2.41	2.64	0.50	0.18	-1.96	1.40	0.90	0.49	0.41



# Alt Model-Shift Uniqueness Test

004671225-02, P = 185.759394 Days, E = 4.829580 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
4.36	4.60	4.00	4.26	5.65	3.59	1.05	0.36	0.10	0.60	0.34	3.71	0.78	0.48	0.62





### Stellar Parameters For KIC 004671225

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8631^{+475}_{-951}$	$3.644^{+0.510}_{-0.090}$	$0.070^{+0.150}_{-0.250}$	$3.904^{+0.702}_{-2.107}$	$2.449^{+0.310}_{-0.774}$	$0.058^{+0.326}_{-0.016}$
	+6%/-11%	+14%/-2%	+214%/-357%	+18%/-54%	+13%/-32%	+563%/-27%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 004671225-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-514 \pm 64$	$12.14^{+2.60}_{-3.26}$	$1074^{+120}_{-172}$	$7120^{+755}_{-717}$	$1476^{+1002}_{-506}$
Alt.	$-1405 \pm 305$	$14.98^{+2.99}_{-4.00}$	$1067^{+124}_{-161}$	$8379^{+1088}_{-1058}$	$2532^{+1833}_{-831}$

$T_{max}$  = 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

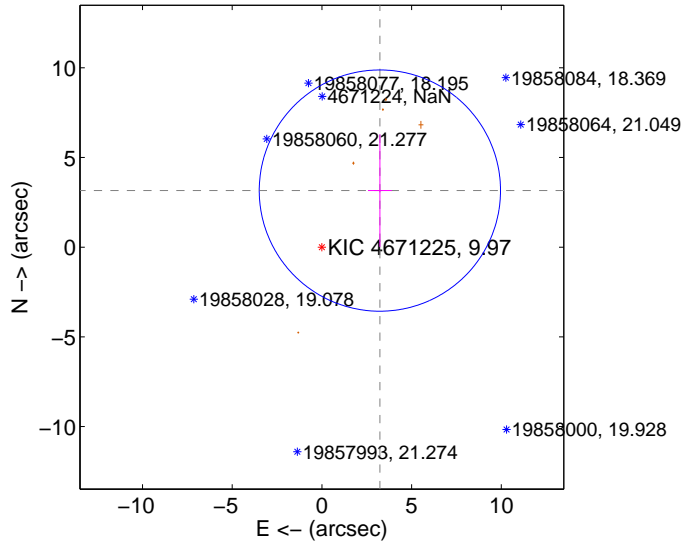
Supplemental centroid analysis for 004671225-02. **Kepler magnitude: 9.97.** Transit SNR 7.57

There are 0 quarters with good PRF difference image offsets

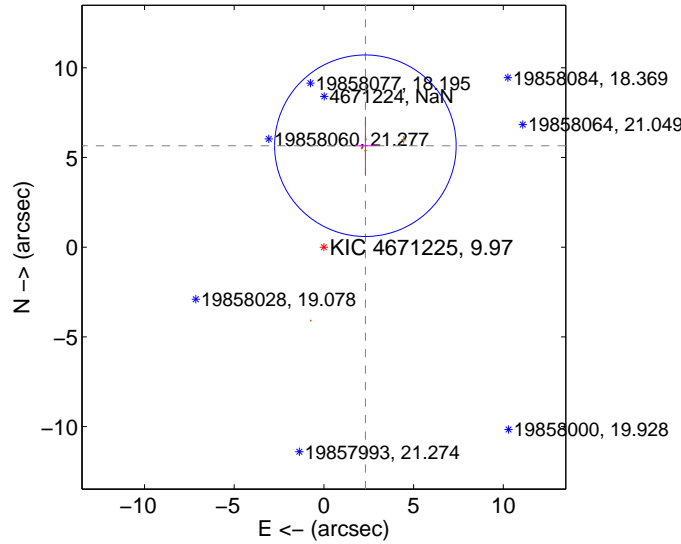
The OOT PRF centroid is offset from the target star catalog position by about 2.51 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.515 \pm 2.241$	2.01	$-3.231 \pm 0.663$	$3.153 \pm 3.136$
PRF-fit source offset from KIC position	<b><math>6.109 \pm 1.686</math></b>	<b>3.62</b>	$-2.312 \pm 0.595$	$5.654 \pm 1.628$
photometric centroid source offset	$0.18 \pm 0.26$	0.69	$0.18 \pm 0.25$	$0.05 \pm 0.38$

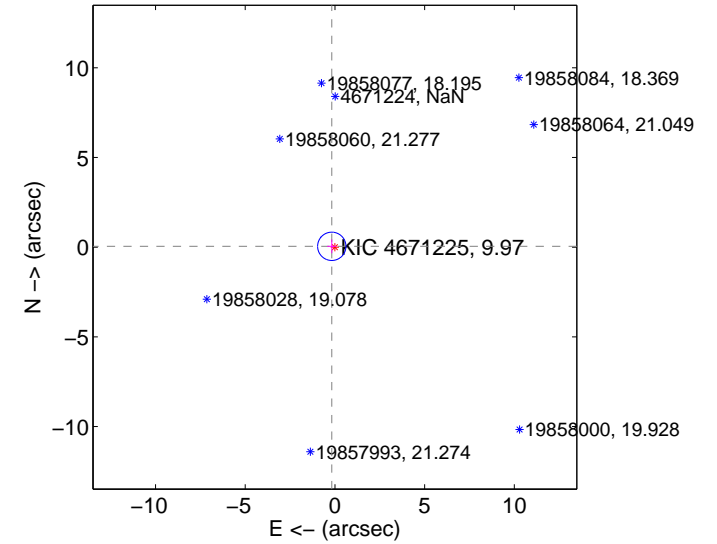
offset from difference PRF-fit to OOT PRF-fit



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.

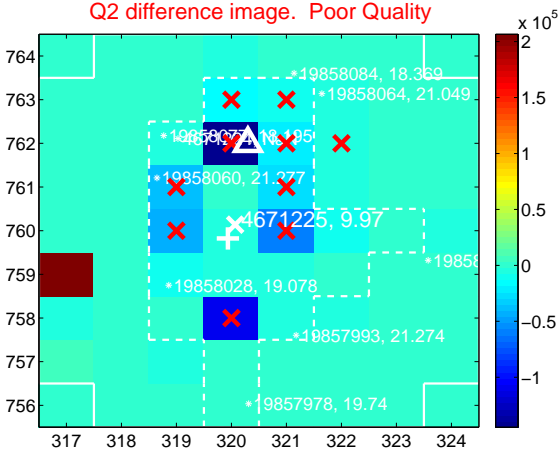
Q1 no difference image



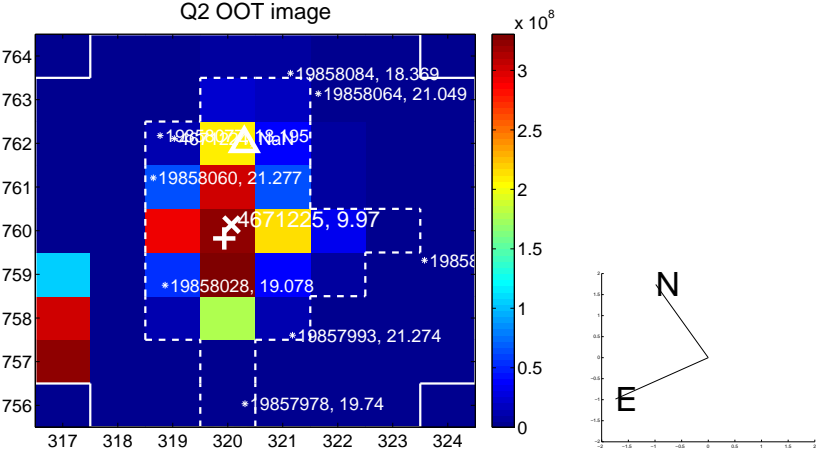
Q1 no OOT image



Q2 difference image. Poor Quality



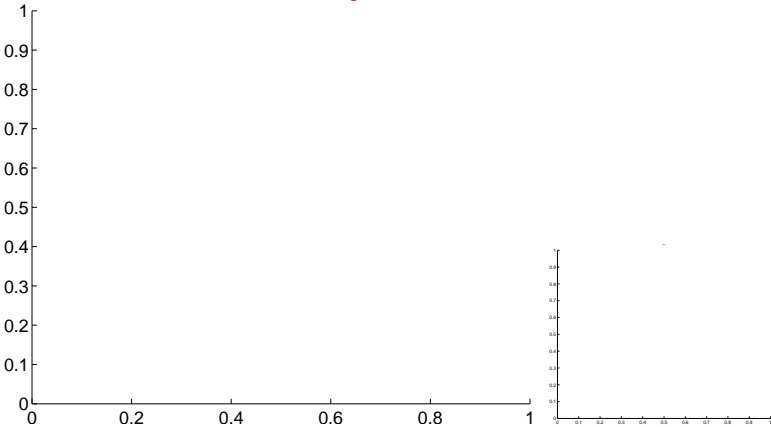
Q2 OOT image



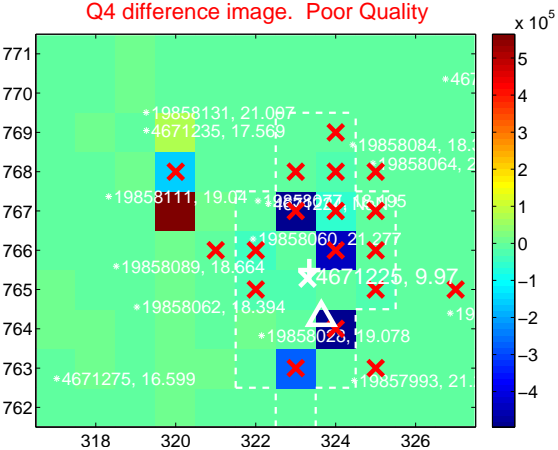
Q3 no difference image



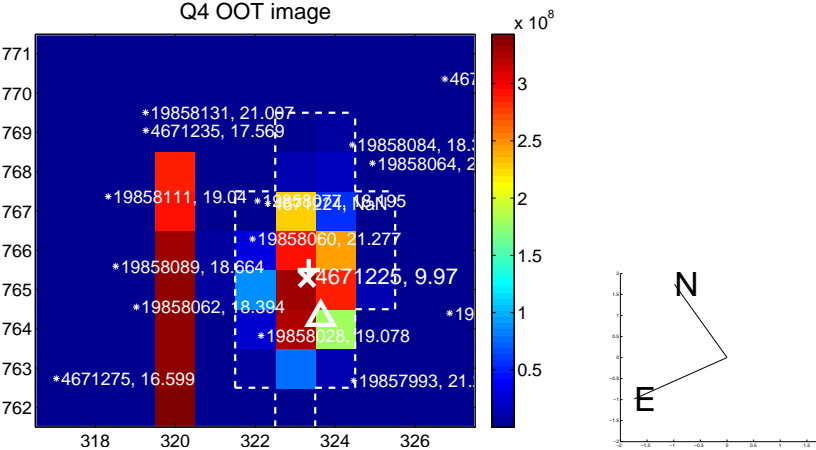
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 OOT image



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

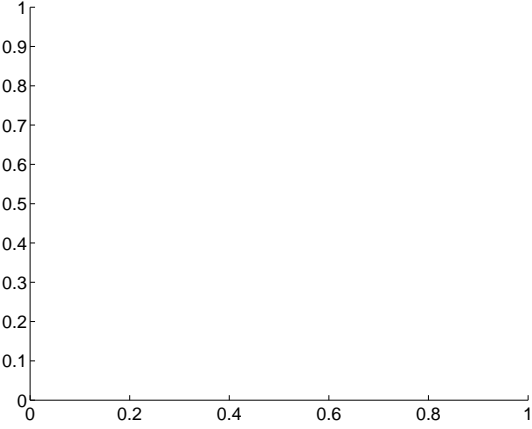
Q5 no difference image



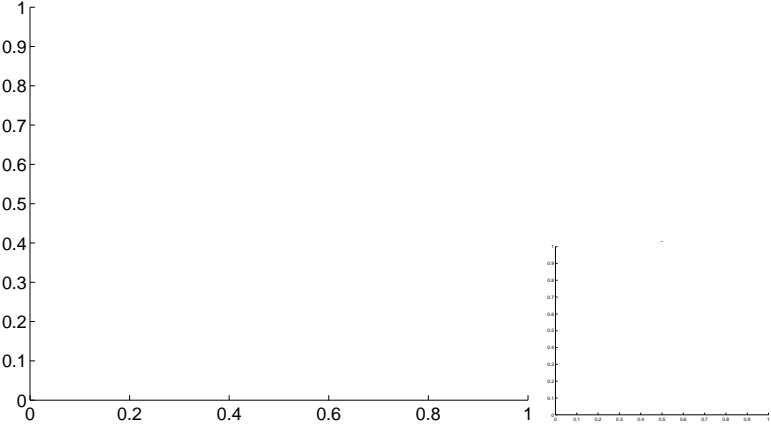
Q5 no OOT image



Q6 no difference image



Q6 no OOT image



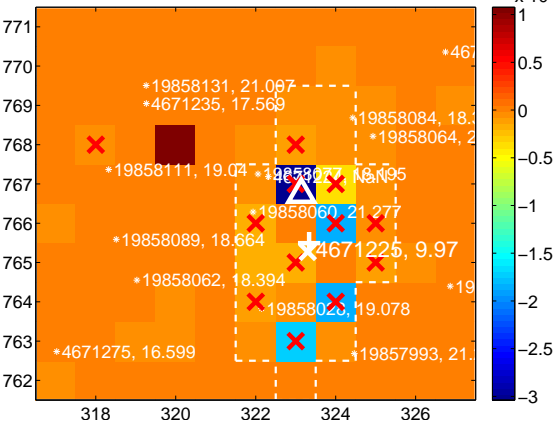
Q7 no difference image



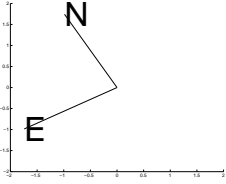
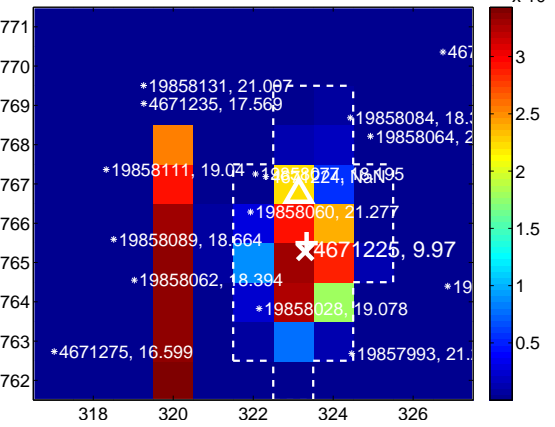
Q7 no OOT image



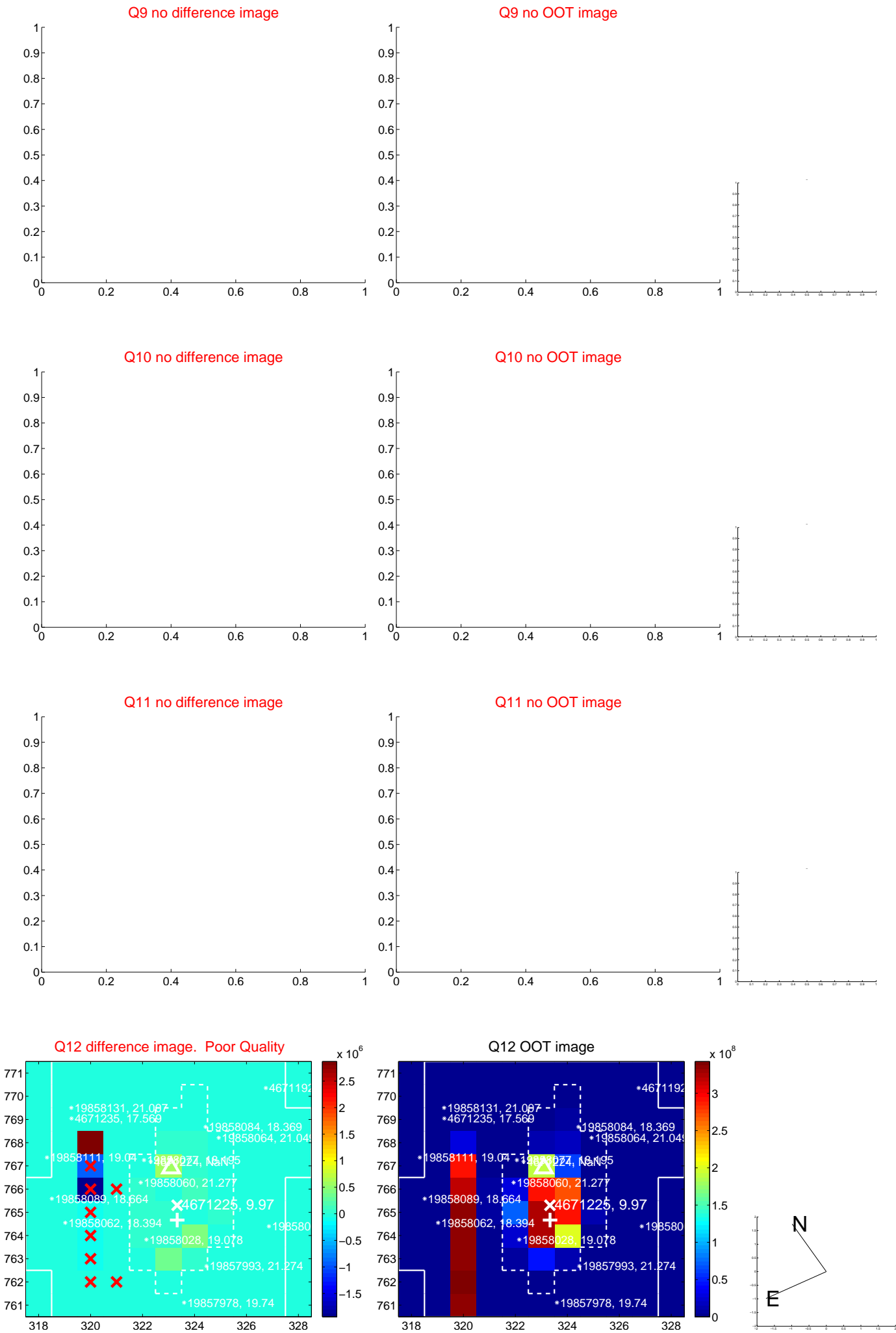
Q8 difference image. Poor Quality



Q8 OOT image

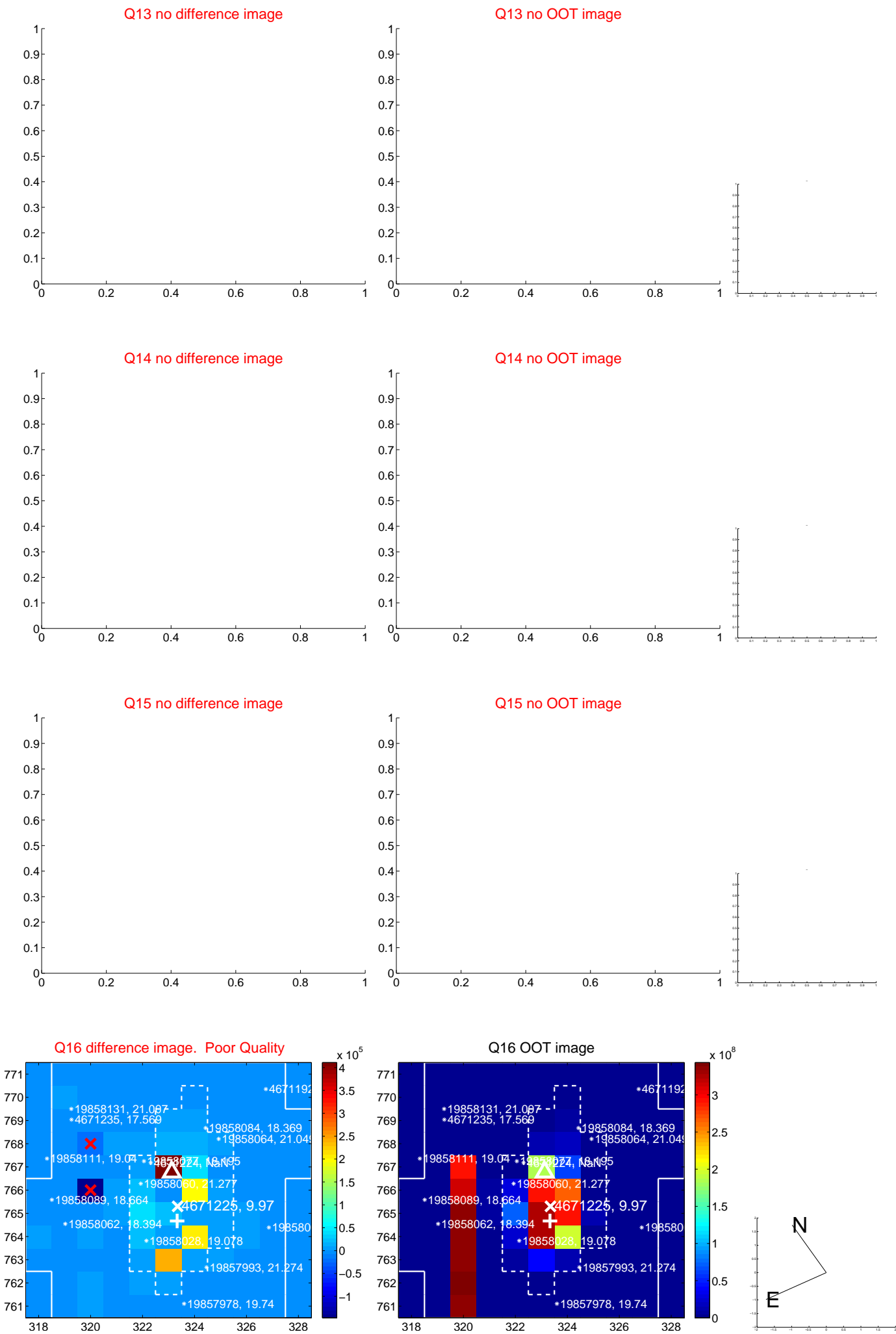


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

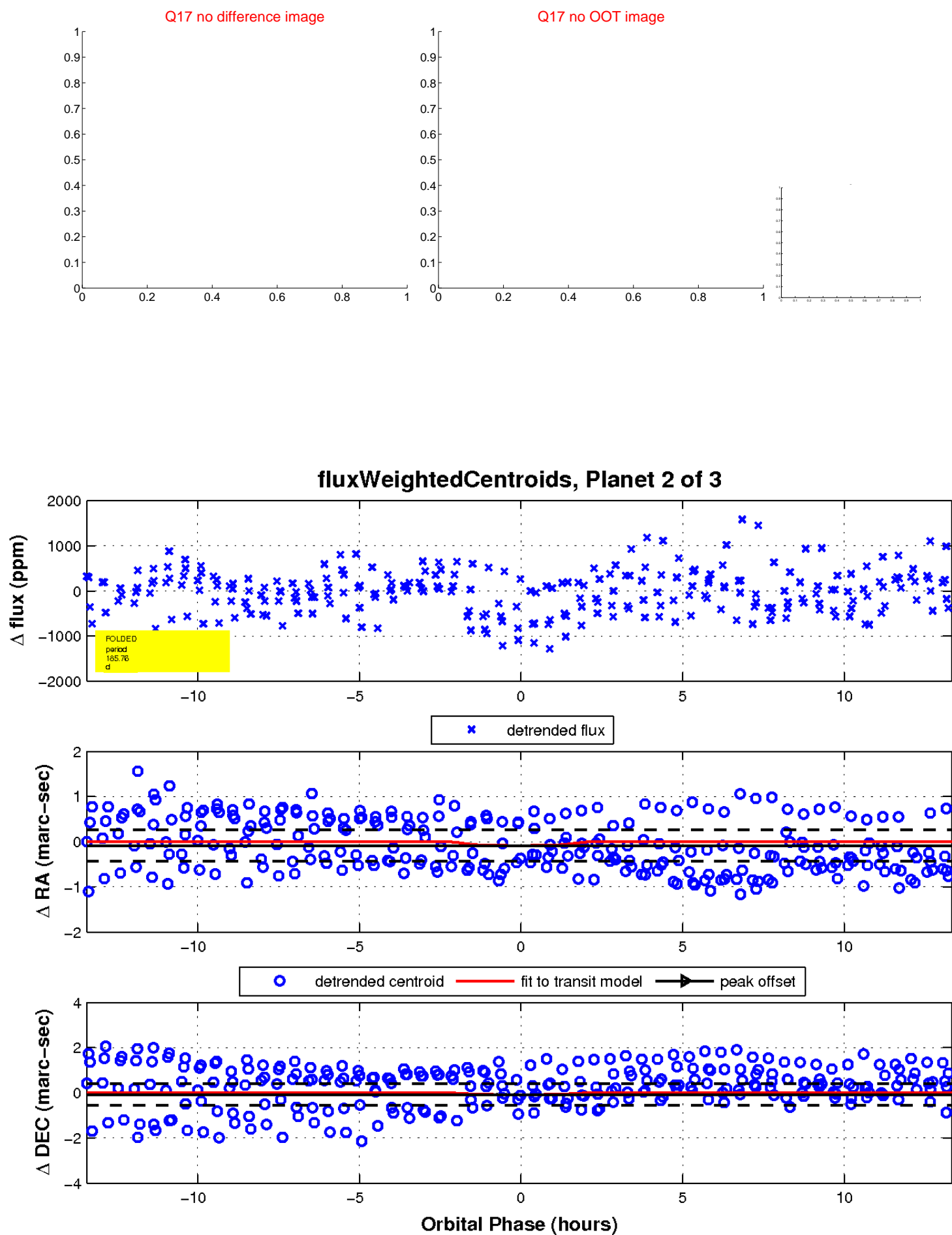




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

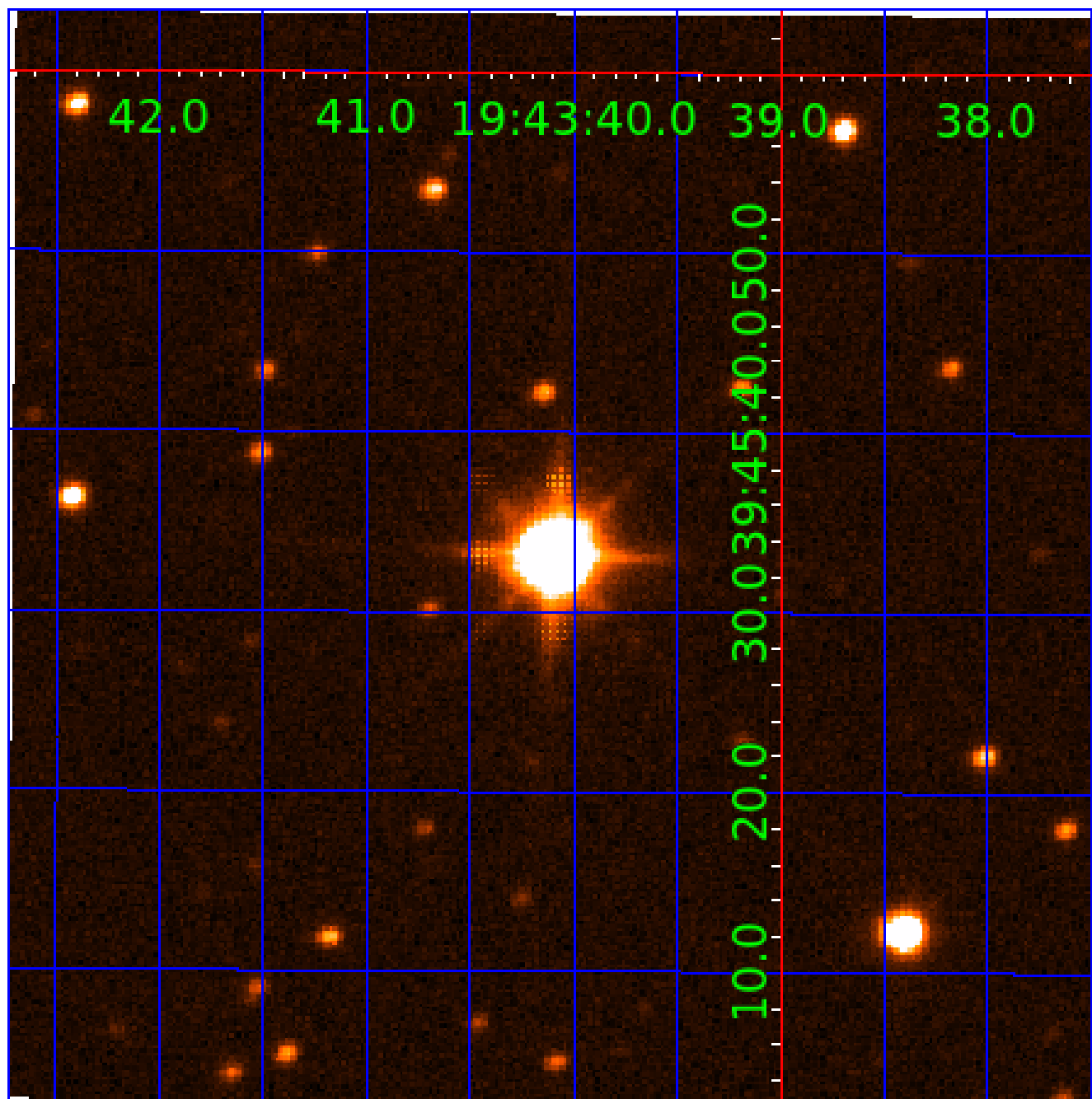


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 004671225

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004671225-01	OBS	No	0.915349	132.334379	42.4	3.376	9.2	6.7	3.90	8631	2.94	122470.08
004671225-02	OBS	No	185.760663	190.527688	750.0	4.490	8.0	7.6	3.90	8631	13.04	102.69
004671225-03	OBS	No	125.958540	200.770918	665.0	7.319	7.7	7.1	3.90	8631	10.92	172.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004671225-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004671225-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004671225-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

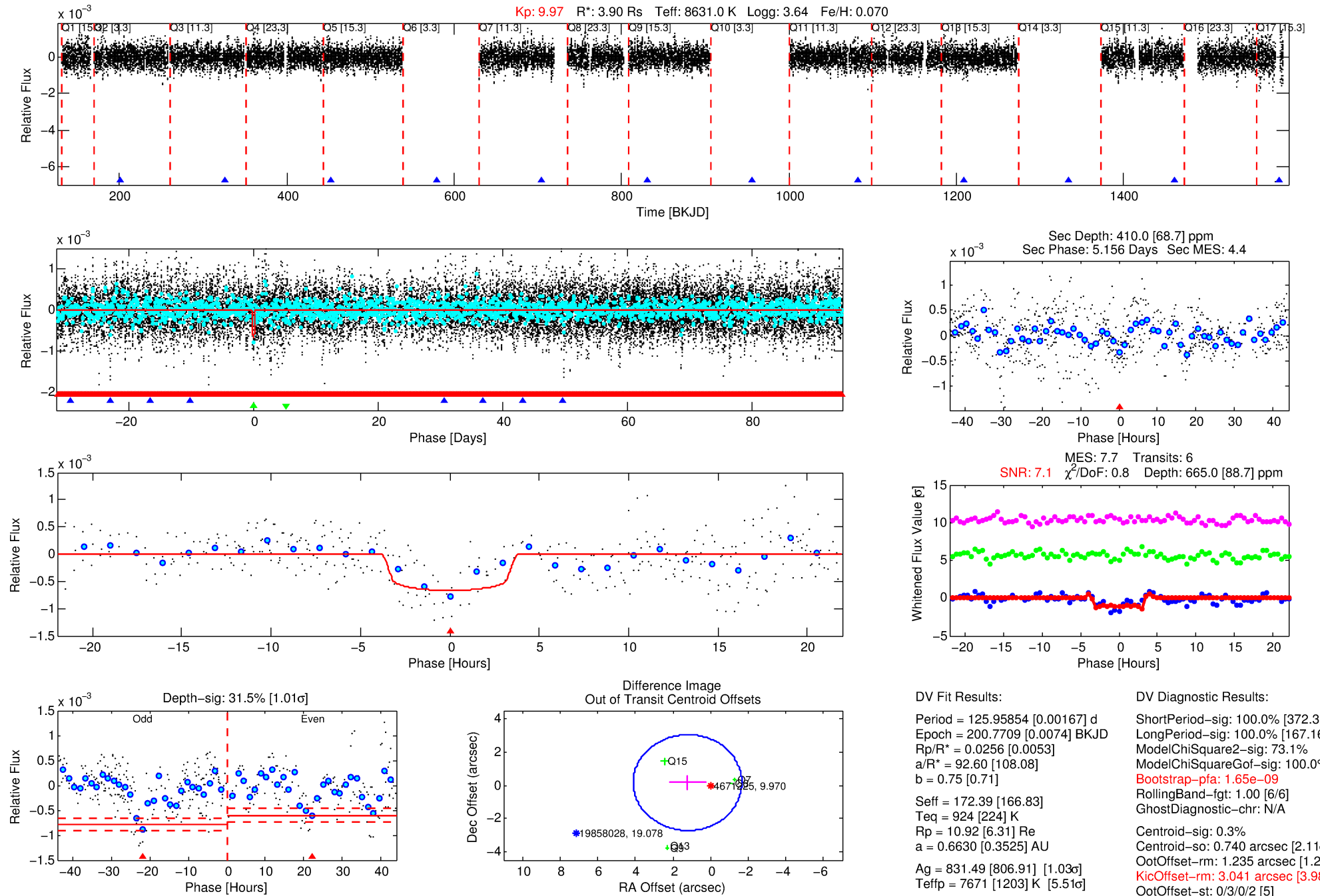
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004671225-03

No Significant Match Found

# DV One-Page Summary

KIC: 4671225 Candidate: 3 of 3 Period: 125.959 d



## DV Fit Results:

Period = 125.95854 [0.00167] d  
Epoch = 200.7709 [0.0074] BKJD  
 $R_p/R^* = 0.0256$  [0.0053]  
 $a/R^* = 92.60$  [108.08]  
 $b = 0.75$  [0.71]  
 $\text{Seff} = 172.39$  [166.83]  
 $T_{\text{eq}} = 924$  [224] K  
 $R_p = 10.92$  [6.31]  $R_e$   
 $a = 0.6630$  [0.3525] AU  
 $A_g = 831.49$  [806.91] [1.03 $\sigma$ ]  
 $T_{\text{eff}} = 7671$  [1203] K [5.51 $\sigma$ ]

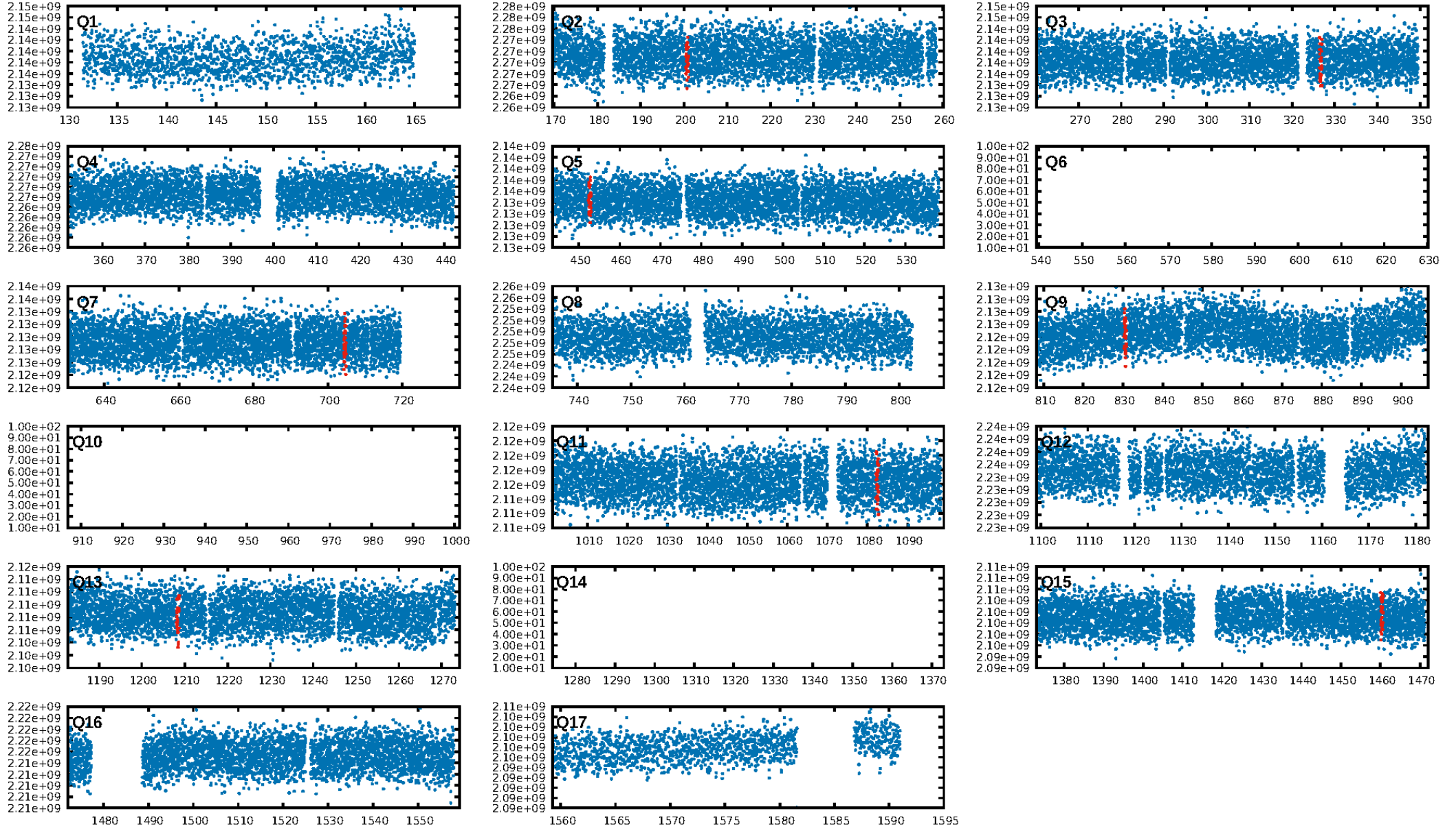
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [372.35 $\sigma$ ]  
LongPeriod-sig: 100.0% [167.16 $\sigma$ ]  
ModelChiSquare2-sig: 73.1%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.65e-09**  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.3%  
Centroid-so: 0.740 arcsec [2.11 $\sigma$ ]  
OotOffset-rm: 1.235 arcsec [1.28 $\sigma$ ]  
OotOffset-st: 0/3/0/2 [5]  
KicOffset-rm: 3.041 arcsec [3.98 $\sigma$ ]  
KicOffset-st: 0/3/0/2 [5]  
DiffImageQuality-fgm: 0.20 [1/5]  
DiffImageOverlap-fno: 0.00 [0/6]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:45:08 Z

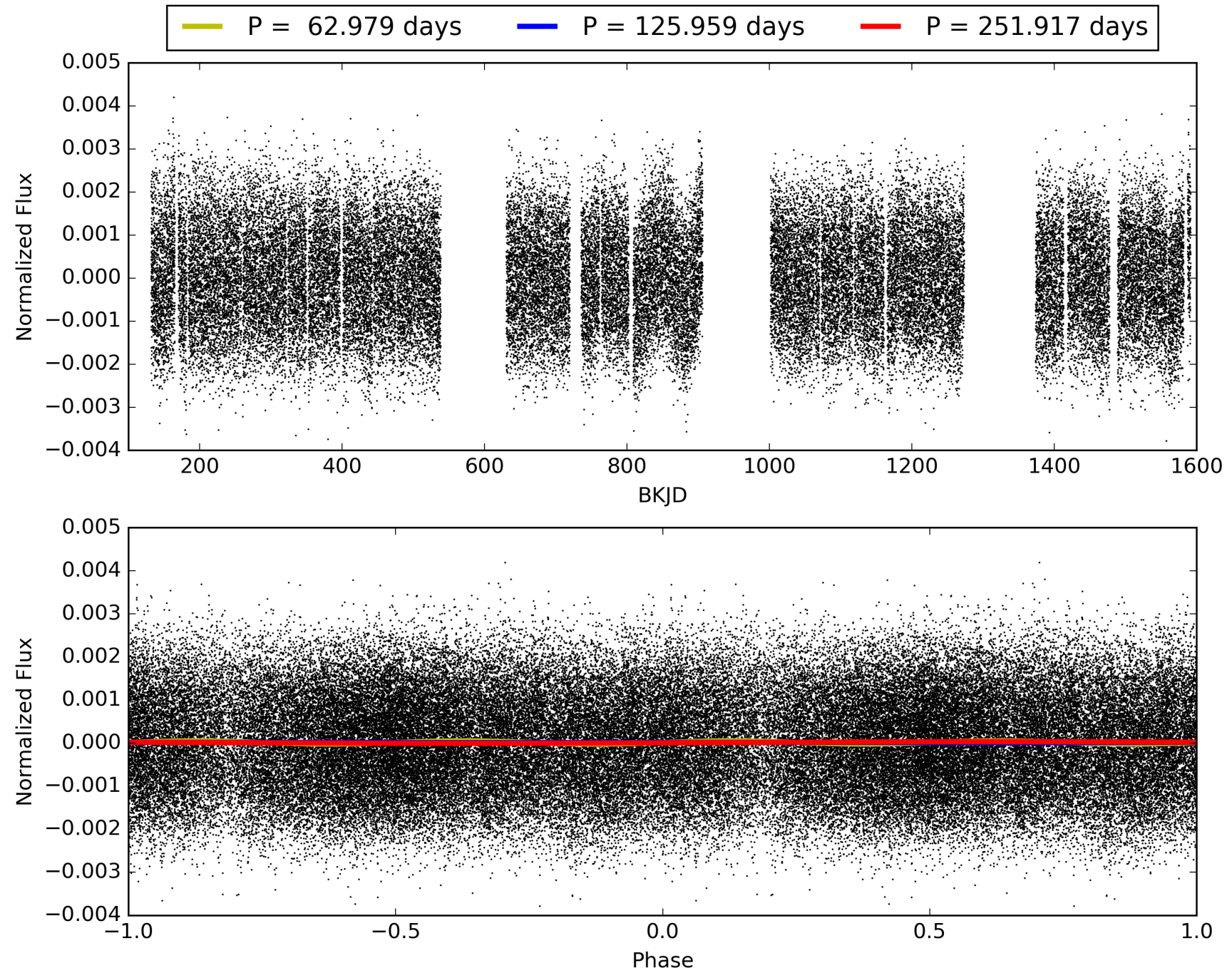
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004671225-03, PDC Light Curves



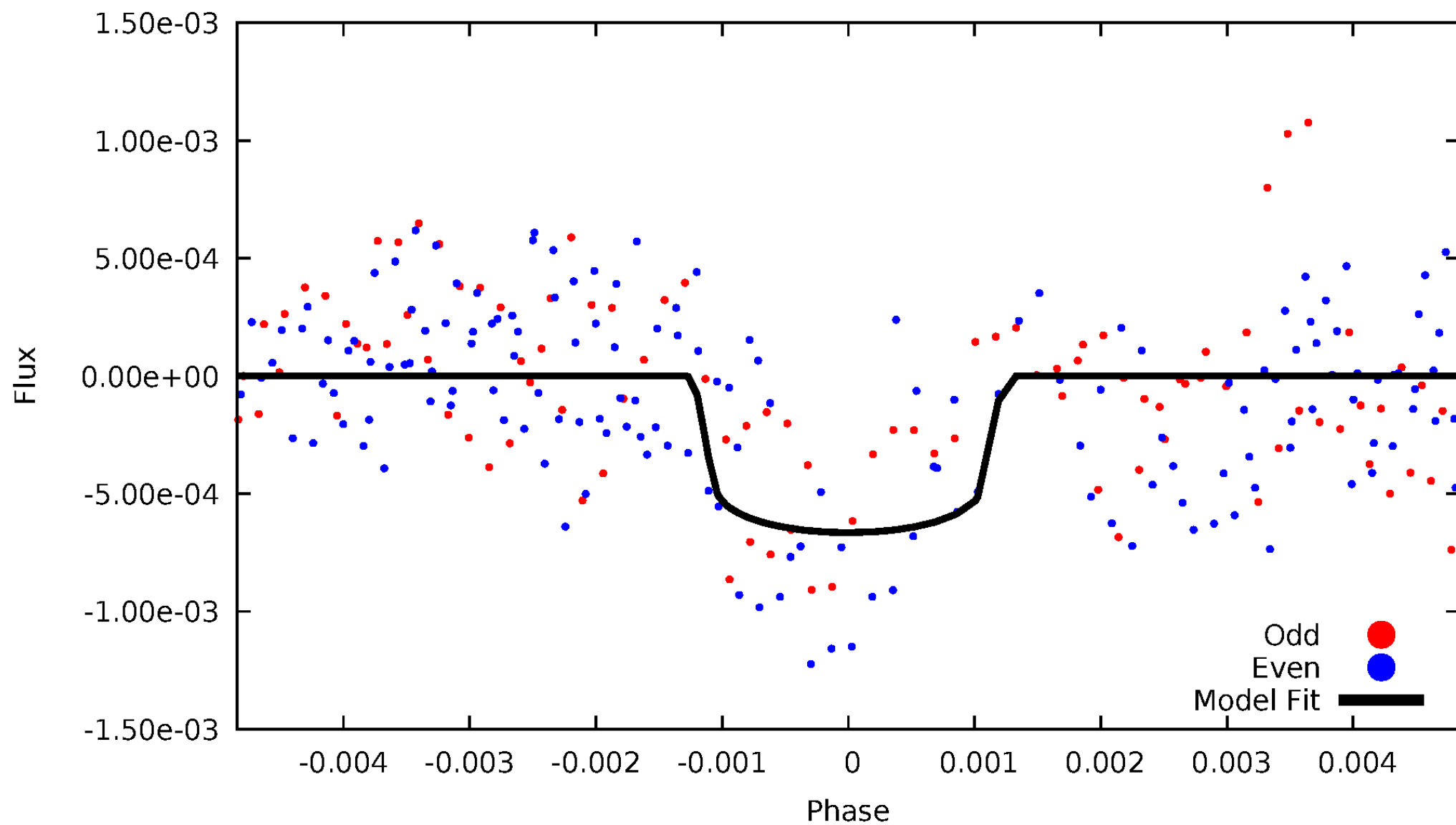


# TCE 004671225-03



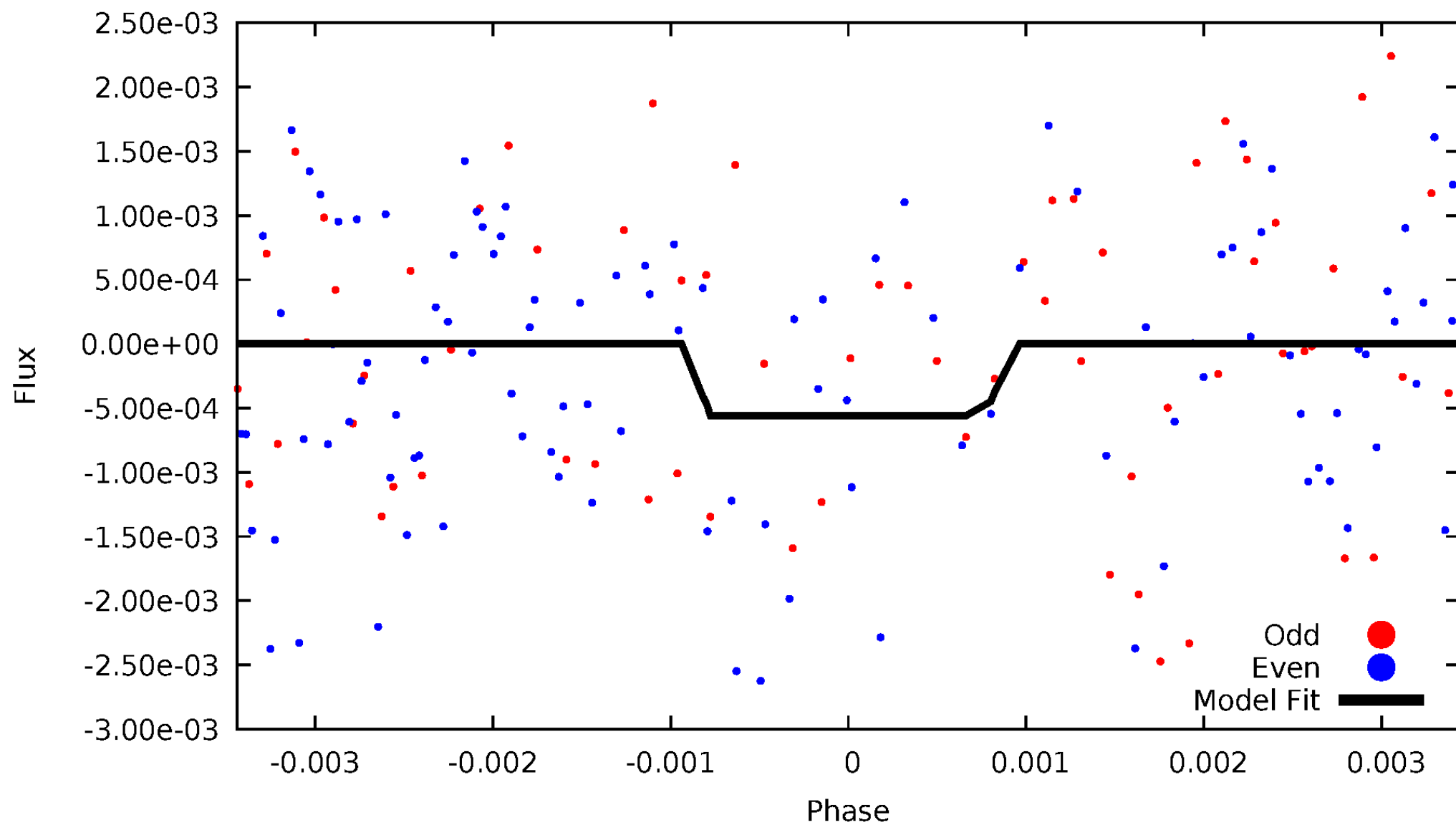
# DV Odd/Even

TCE 004671225-03



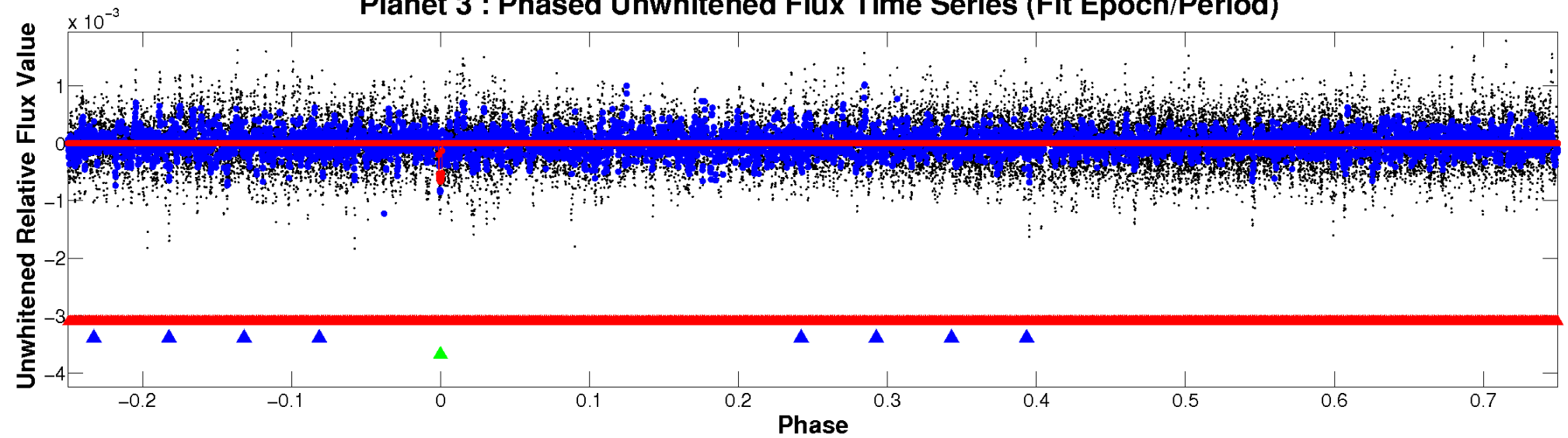
# ALT Odd/Even

TCE 004671225-03

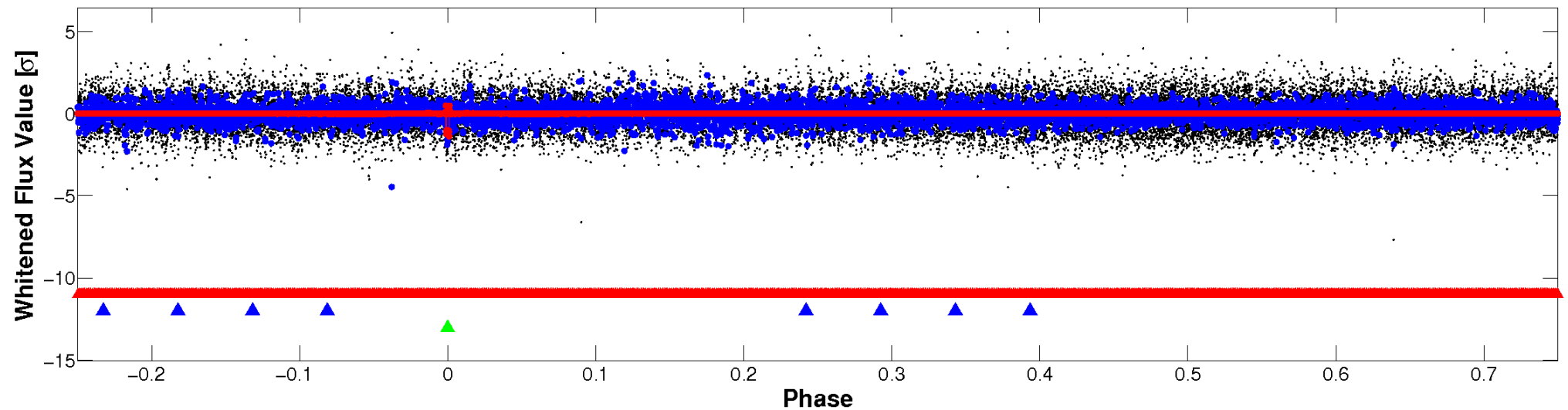


# Non-Whitened Vs. Whitened Light Curve

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

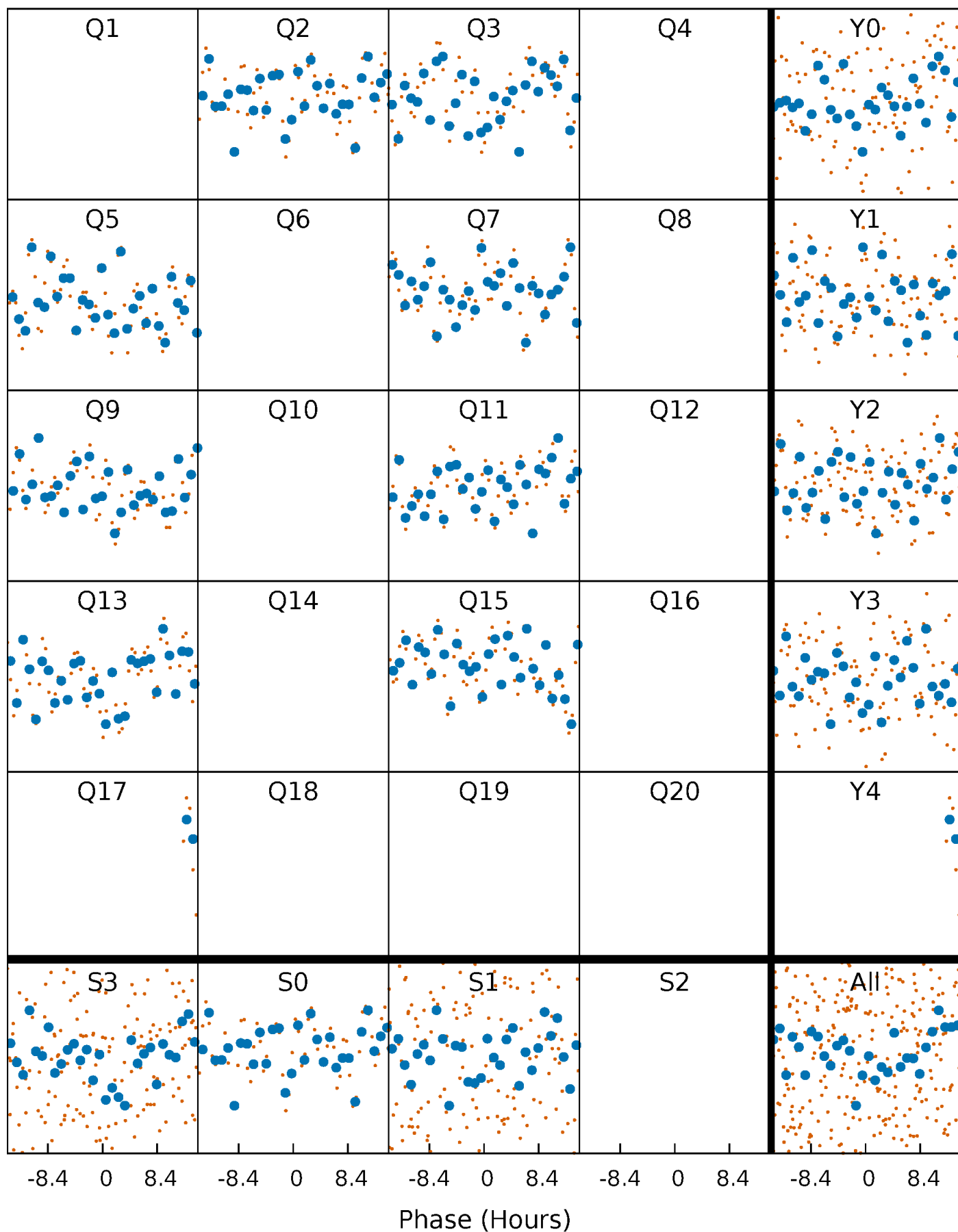


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



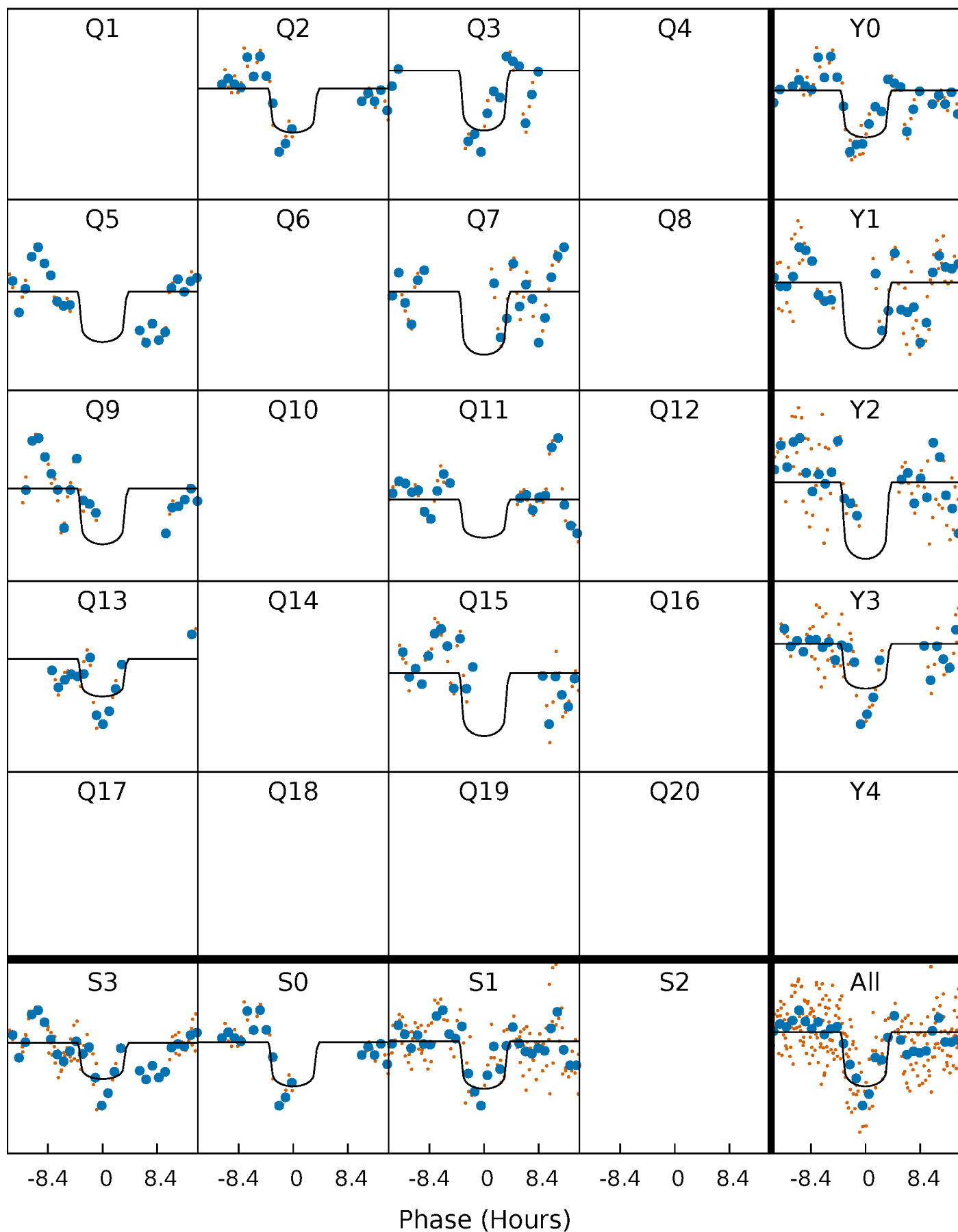
# PDC Quarter-Phased Transit Curves

TCE 004671225-03 P=125.958540 Days  $T_0=200.770918$  (BKJD)



# DV Quarter-Phased Transit Curves

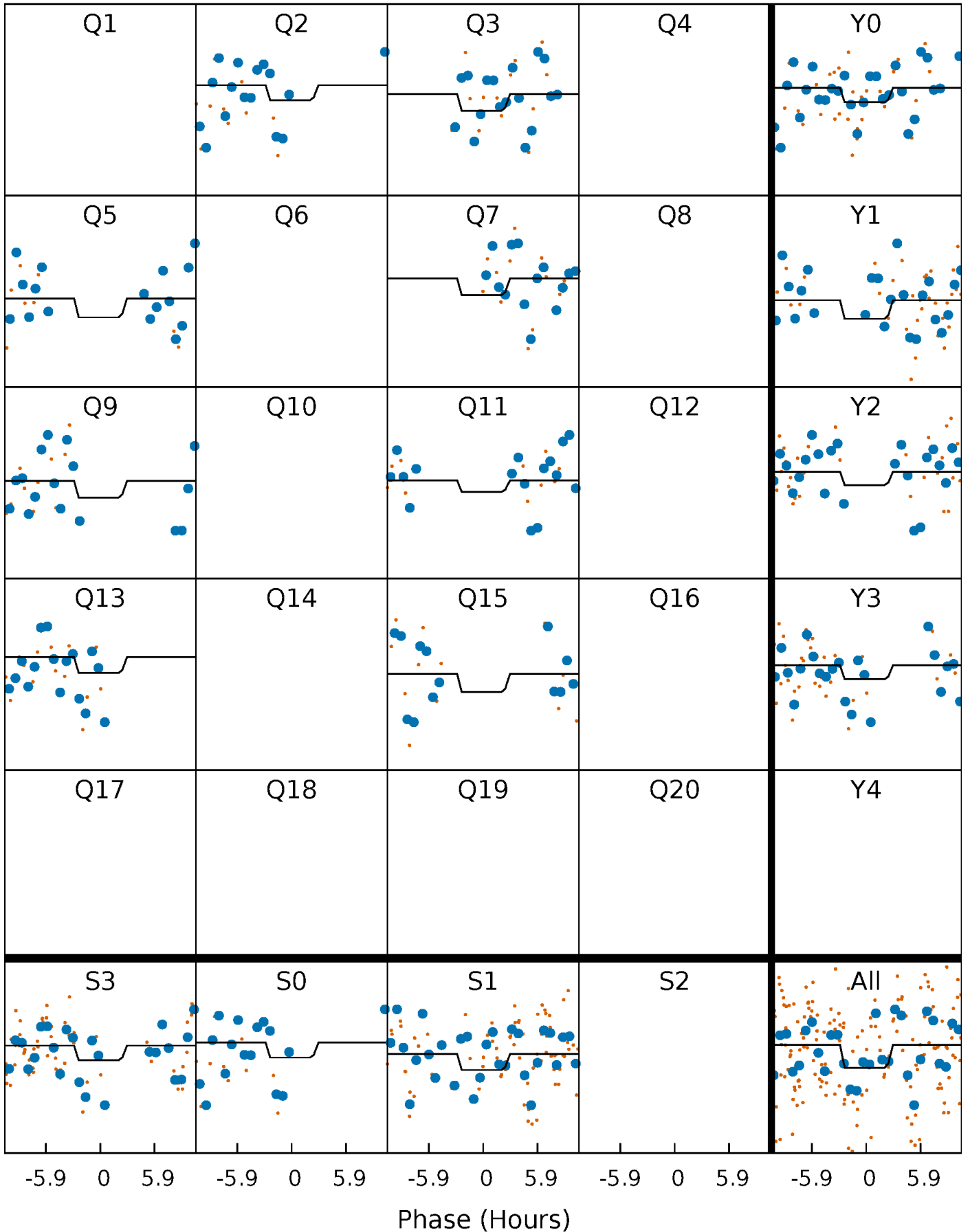
TCE 004671225-03 P=125.958540 Days  $T_0=200.770918$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

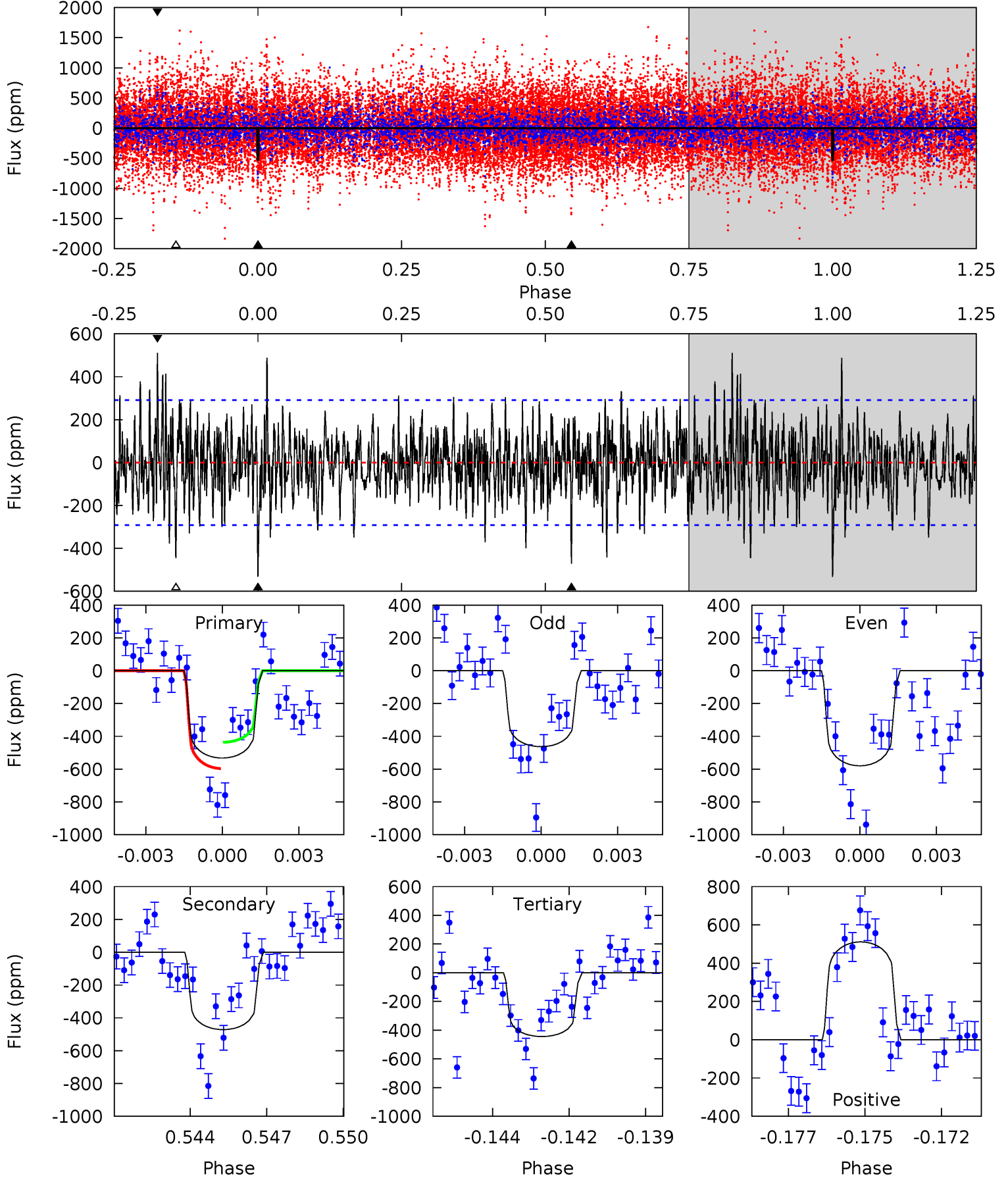
TCE 004671225-03 P=125.967090 Days  $T_0=200.785407$  (BKJD)



# DV Model-Shift Uniqueness Test

004671225-03, P = 125.958540 Days, E = 74.812378 Days

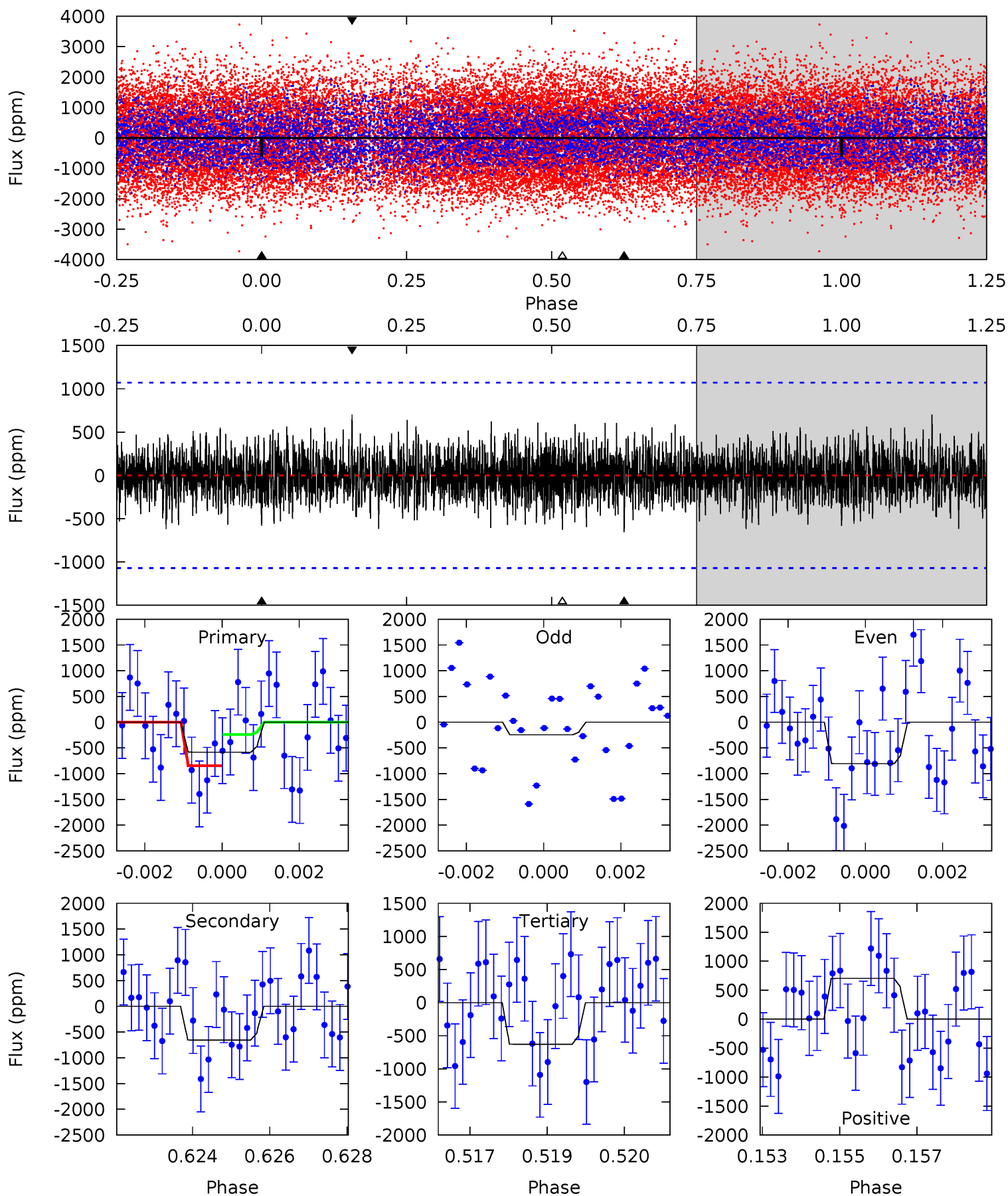
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.65	8.55	8.05	9.27	5.28	3.02	2.25	1.60	0.39	0.50	-0.72	1.04	1.08	0.49	1.43



# Alt Model-Shift Uniqueness Test

004671225-03, P = 125.967090 Days, E = 74.818317 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
2.91	3.27	3.13	3.51	5.35	3.13	0.96	-0.22	-0.60	0.13	-0.25	1.37	0.96	0.52	1.51



### Stellar Parameters For KIC 004671225

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8631^{+475}_{-951}$	$3.644^{+0.510}_{-0.090}$	$0.070^{+0.150}_{-0.250}$	$3.904^{+0.702}_{-2.107}$	$2.449^{+0.310}_{-0.774}$	$0.058^{+0.326}_{-0.016}$
	+6%/-11%	+14%/-2%	+214%/-357%	+18%/-54%	+13%/-32%	+563%/-27%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 004671225-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-472 \pm 55$	$9.64^{+3.22}_{-2.89}$	$1219^{+140}_{-192}$	$7662^{+1444}_{-1024}$	$1197^{+1256}_{-508}$
Alt.	$-654 \pm 200$	$9.01^{+2.99}_{-3.01}$	$1205^{+154}_{-193}$	$8708^{+2350}_{-1472}$	$1864^{+2275}_{-868}$

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

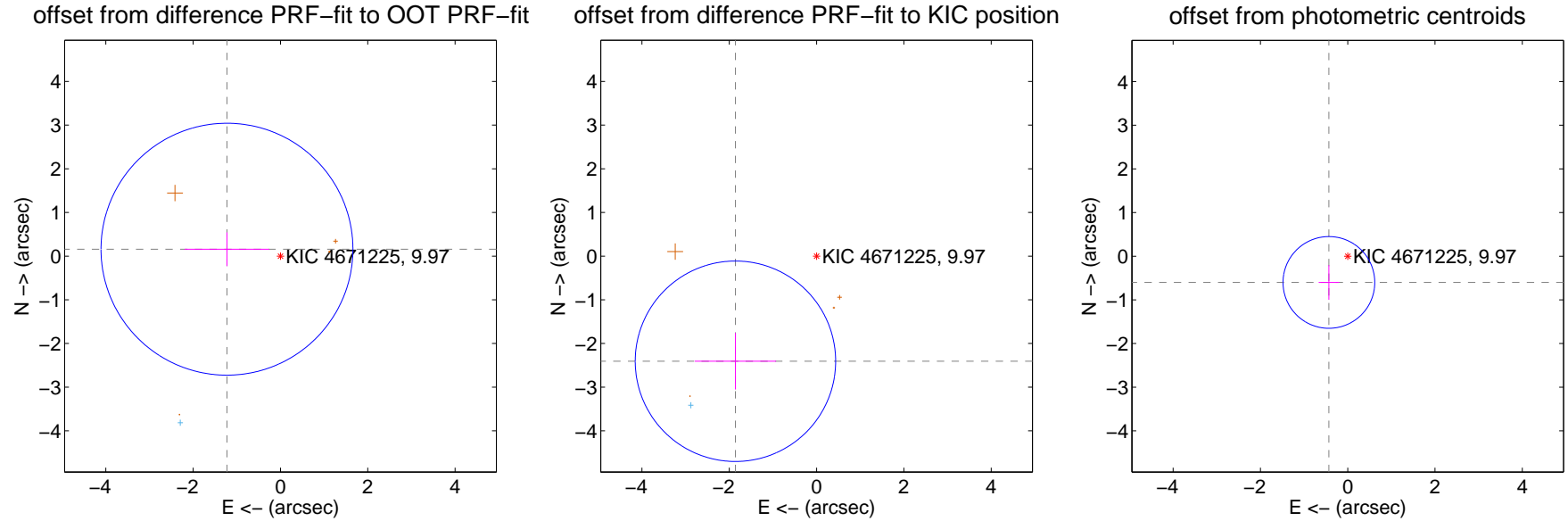
## DV Centroid Data

Supplemental centroid analysis for 004671225-03. **Kepler magnitude: 9.97.** Transit SNR 7.07

**There are 1 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 1.57 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.235 \pm 0.961$	1.28	$1.225 \pm 0.968$	$0.158 \pm 0.386$
PRF-fit source offset from KIC position	<b><math>3.041 \pm 0.765</math></b>	<b>3.98</b>	$1.858 \pm 0.931$	$-2.407 \pm 0.646$
photometric centroid source offset	$0.74 \pm 0.35$	2.11	$0.43 \pm 0.24$	$-0.60 \pm 0.40$



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.

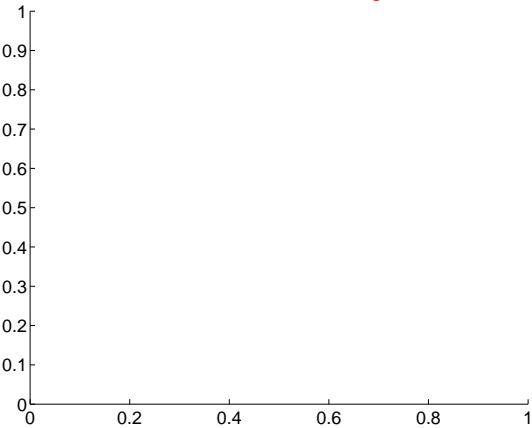
Q1 no difference image



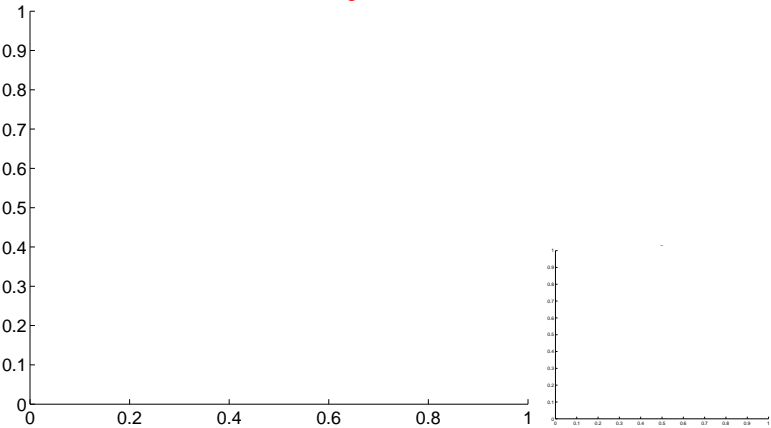
Q1 no OOT image



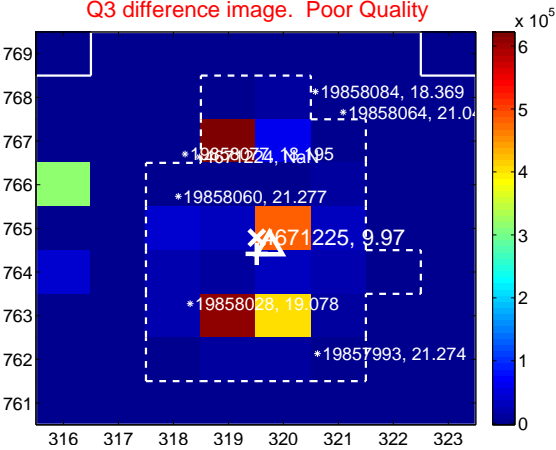
Q2 no difference image



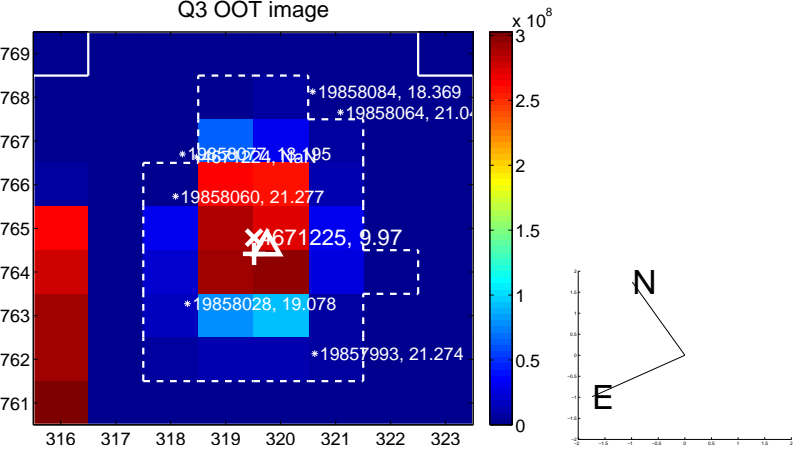
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image

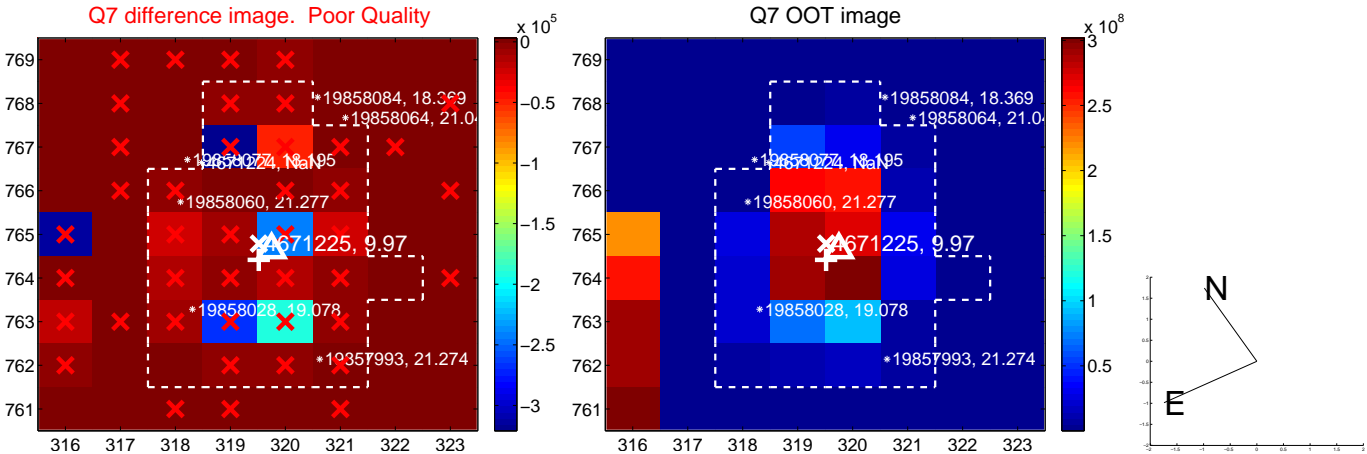
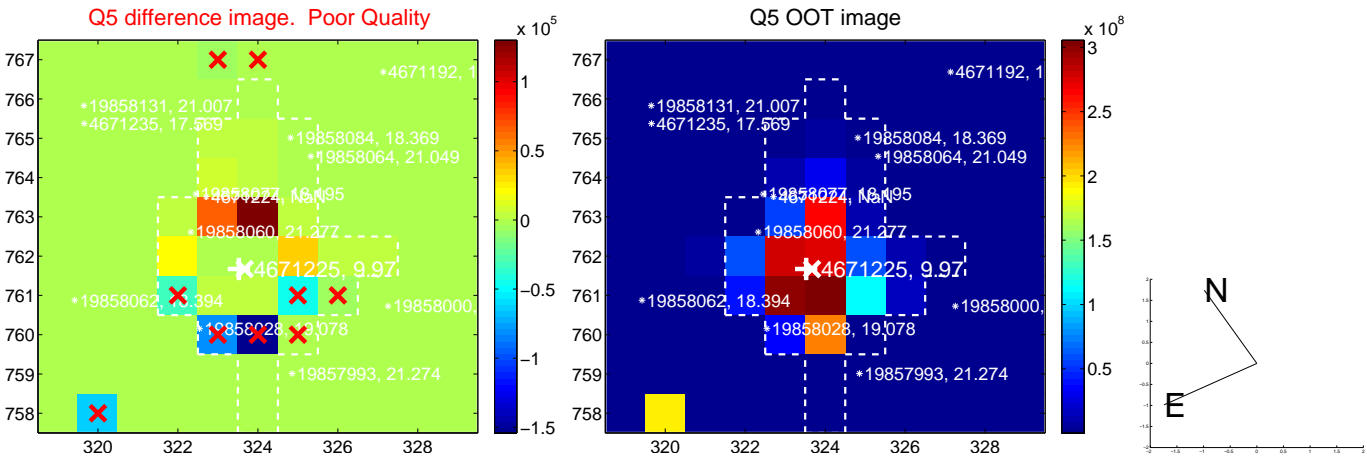


Q4 no OOT image

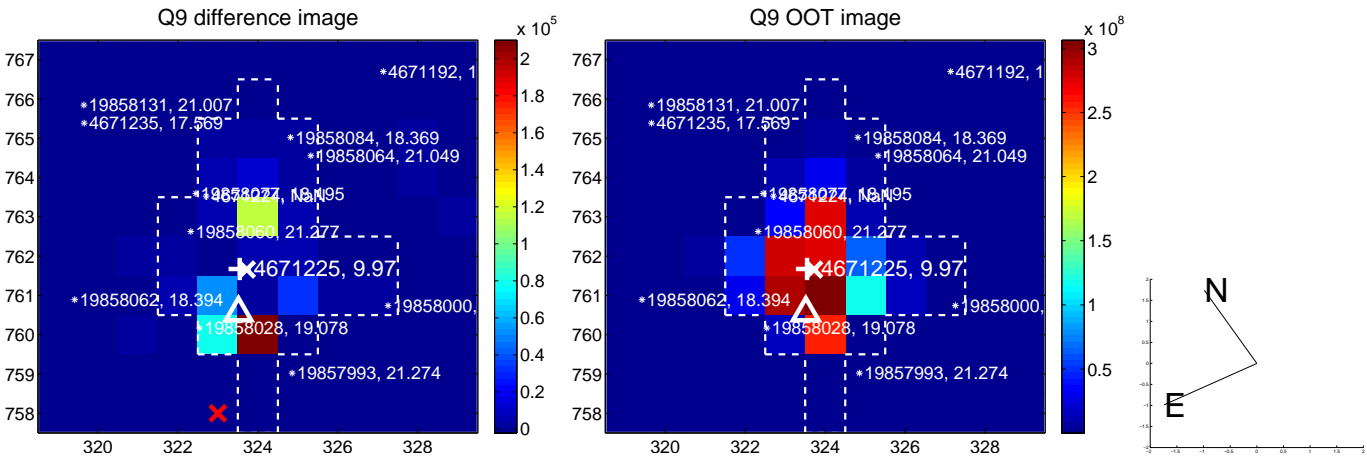




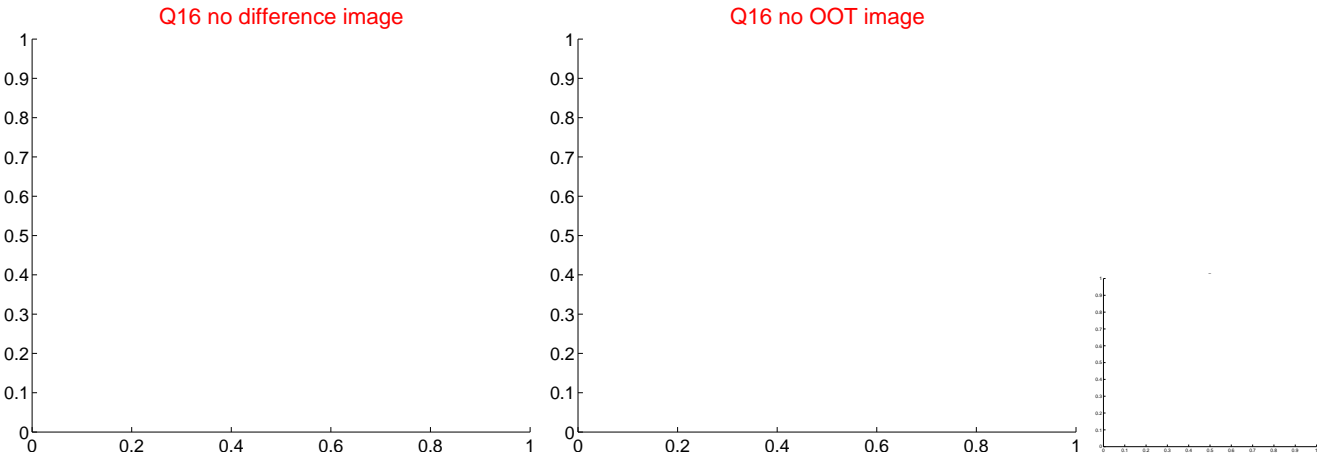
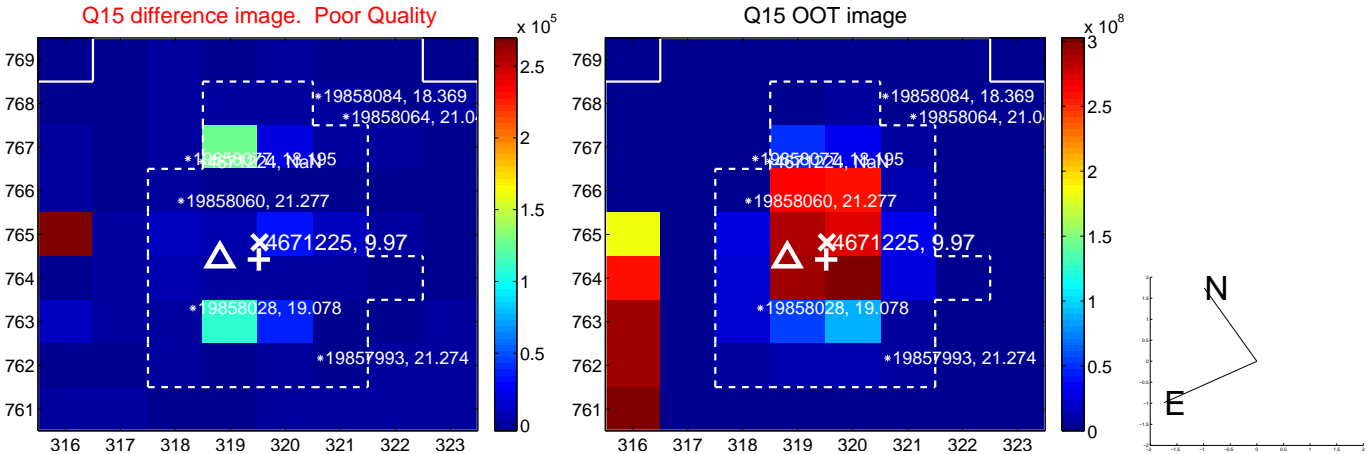
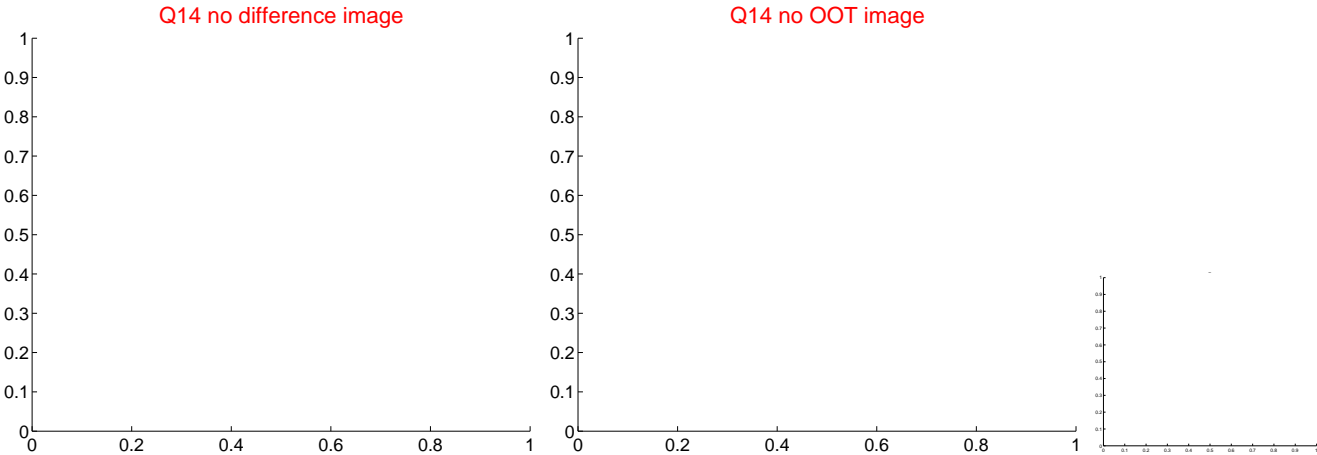
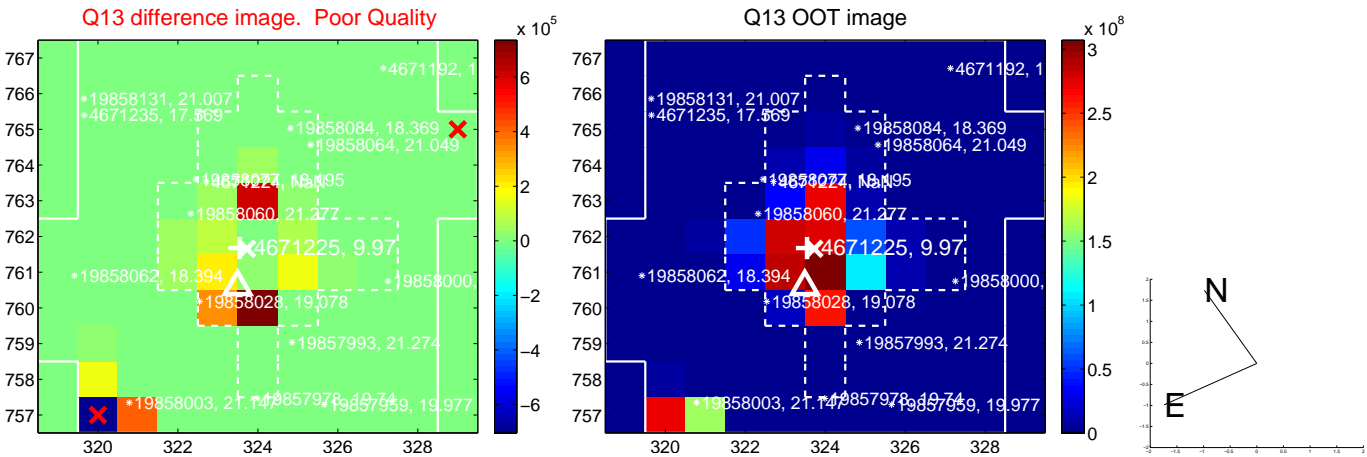
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



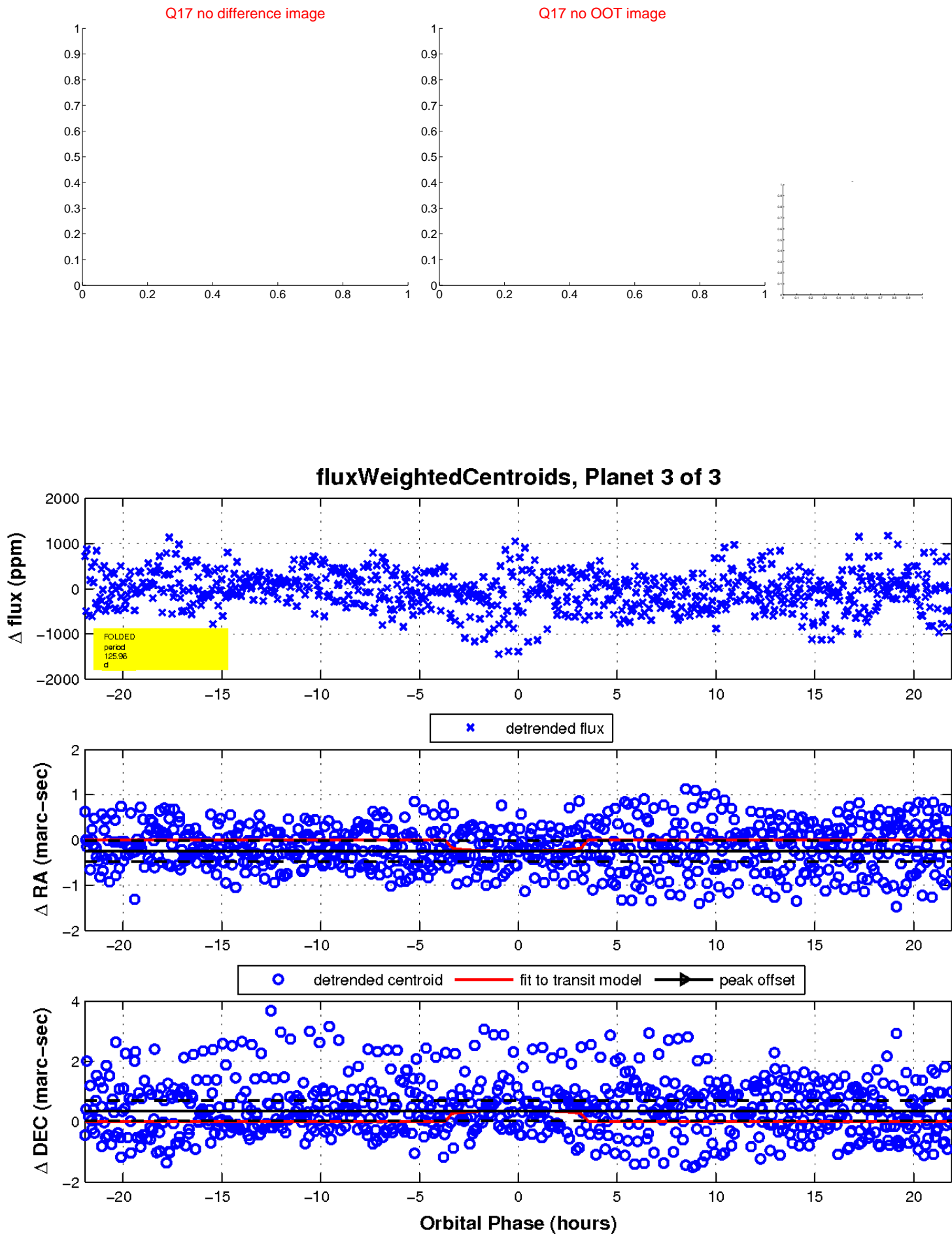
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

