

# KIC 006955650

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006955650-01	OBS	No	58.520369	180.513148	1970.2	3.934	33.1	2.8	2.06	7547	9.76	100.19
006955650-02	OBS	No	0.527542	131.968043	0.0	2.514	16.6	0.0	2.06	7547	0.05	53402.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006955650-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006955650-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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

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

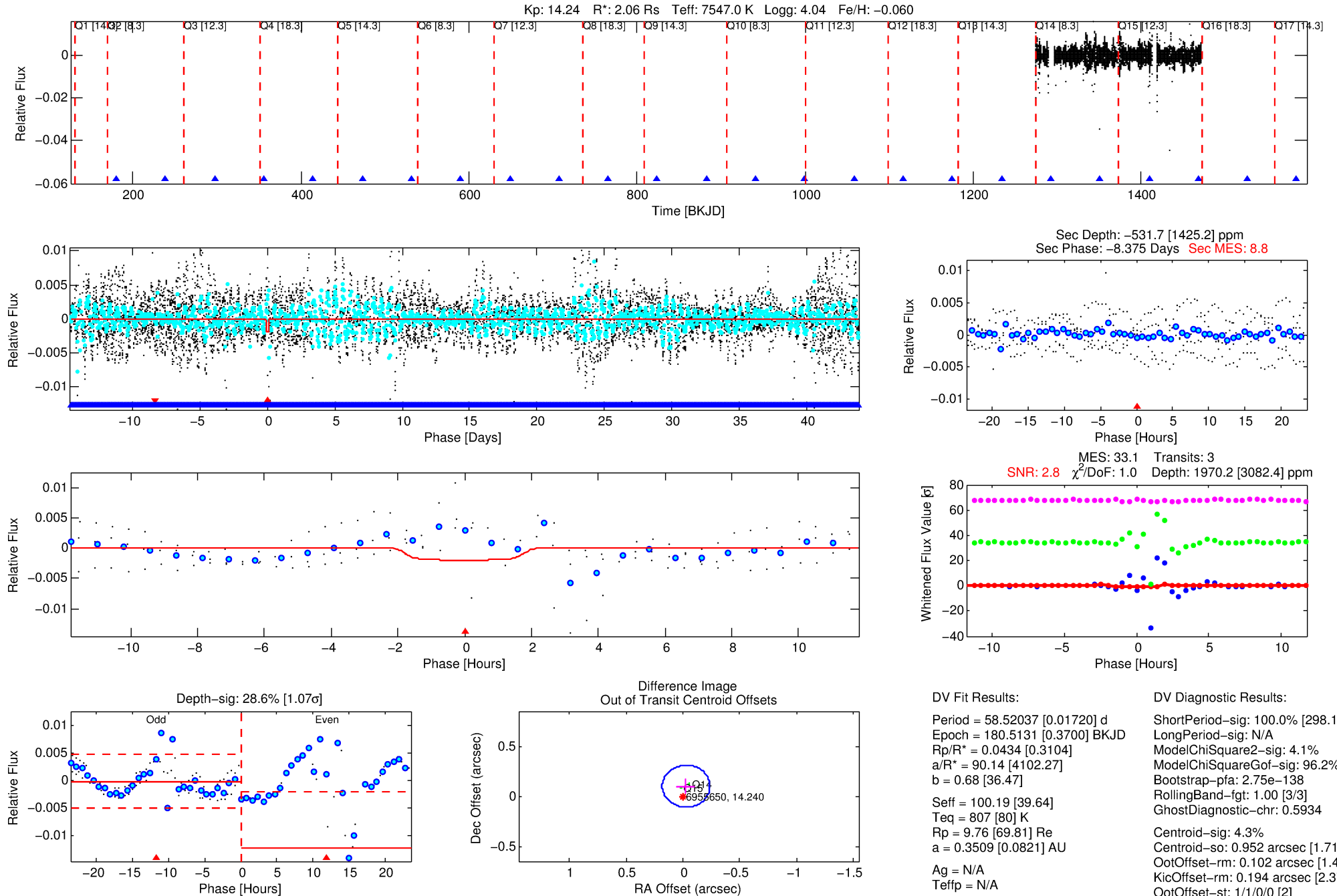
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006955650-01

No Significant Match Found

# DV One-Page Summary

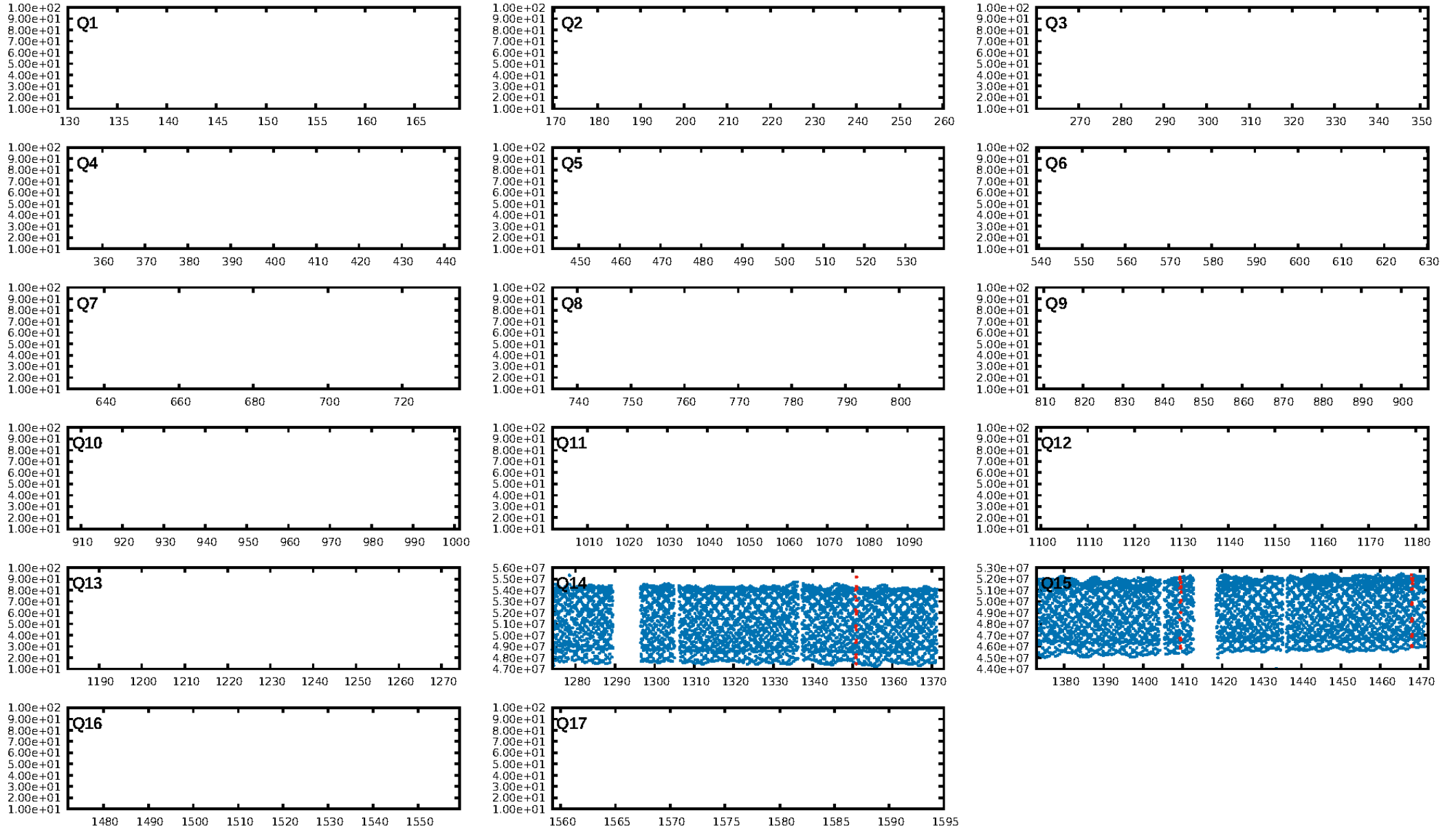
KIC: 6955650 Candidate: 1 of 2 Period: 58.520 d



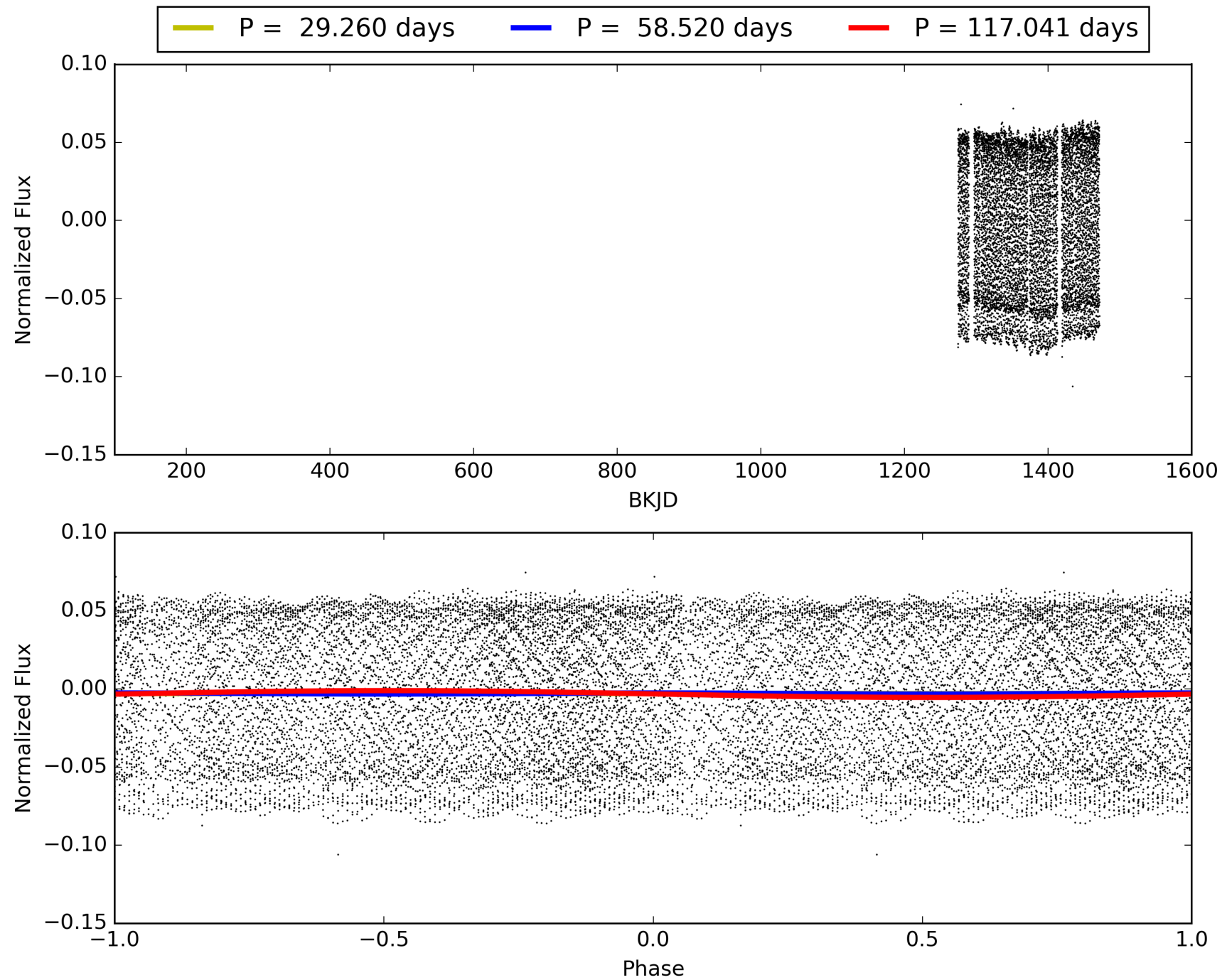
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:53:59 Z

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

# TCE 006955650-01, PDC Light Curves

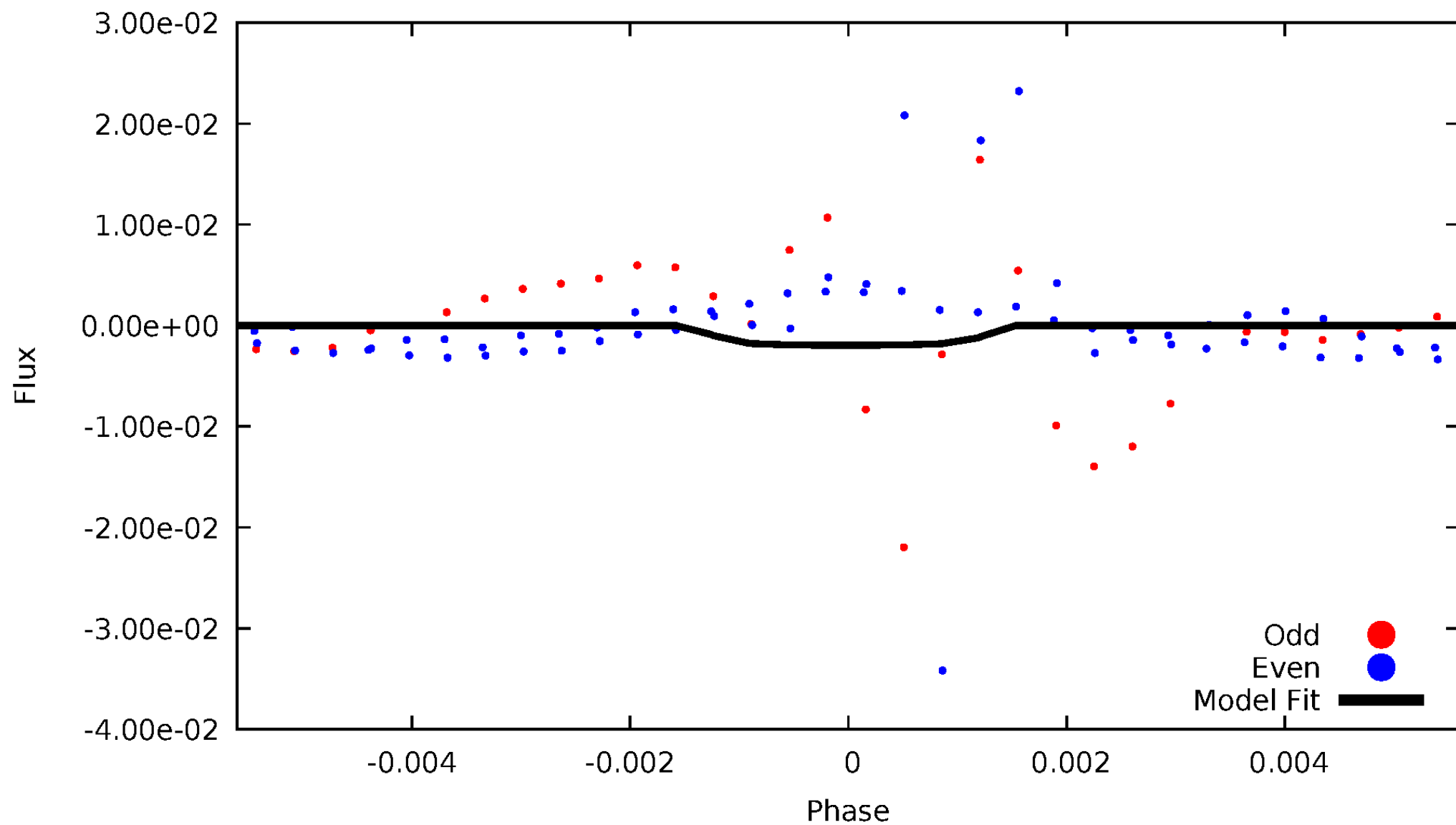


# TCE 006955650-01



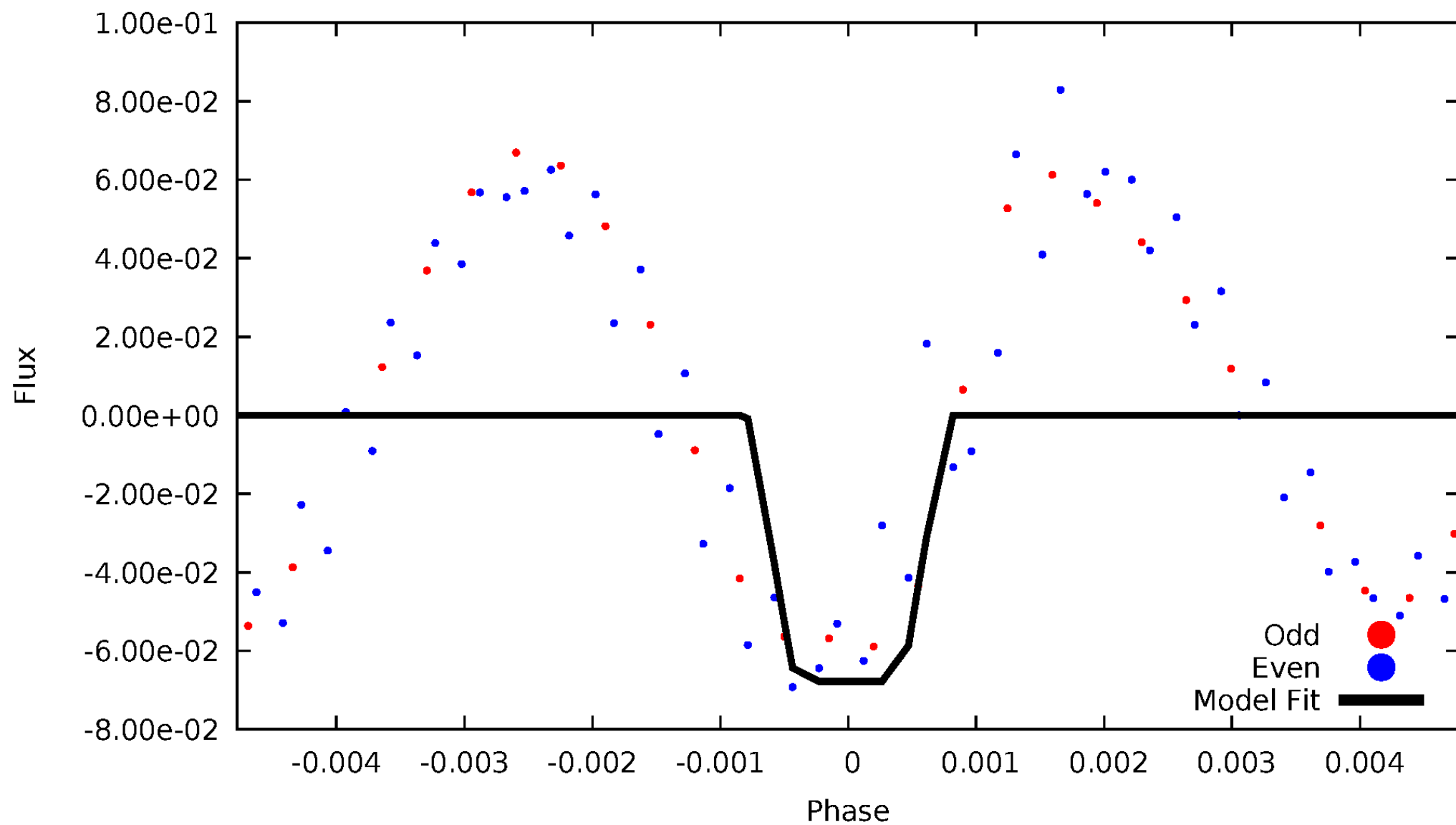
# DV Odd/Even

TCE 006955650-01



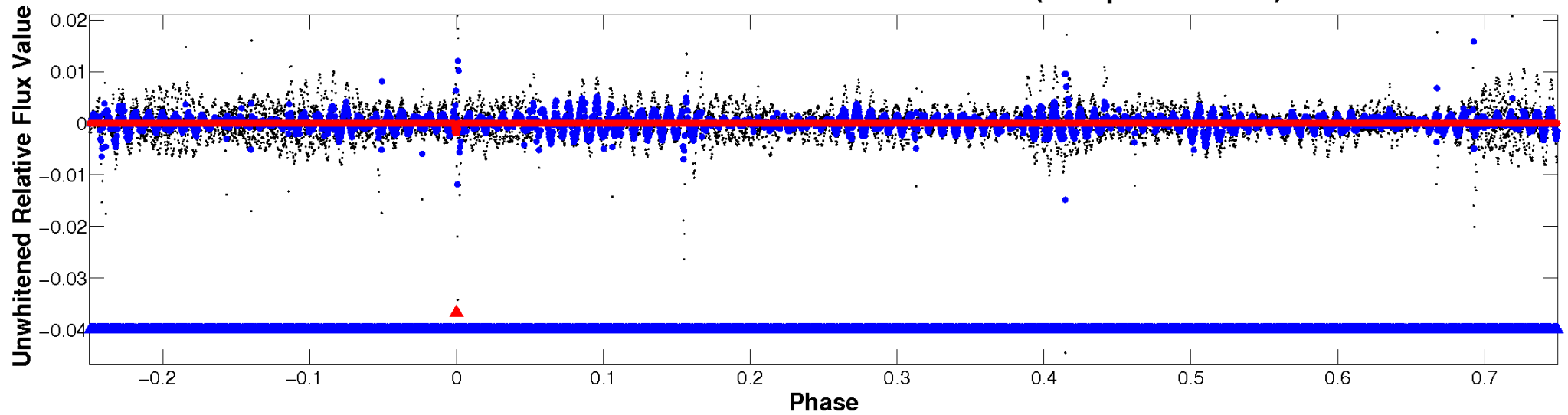
# ALT Odd/Even

TCE 006955650-01

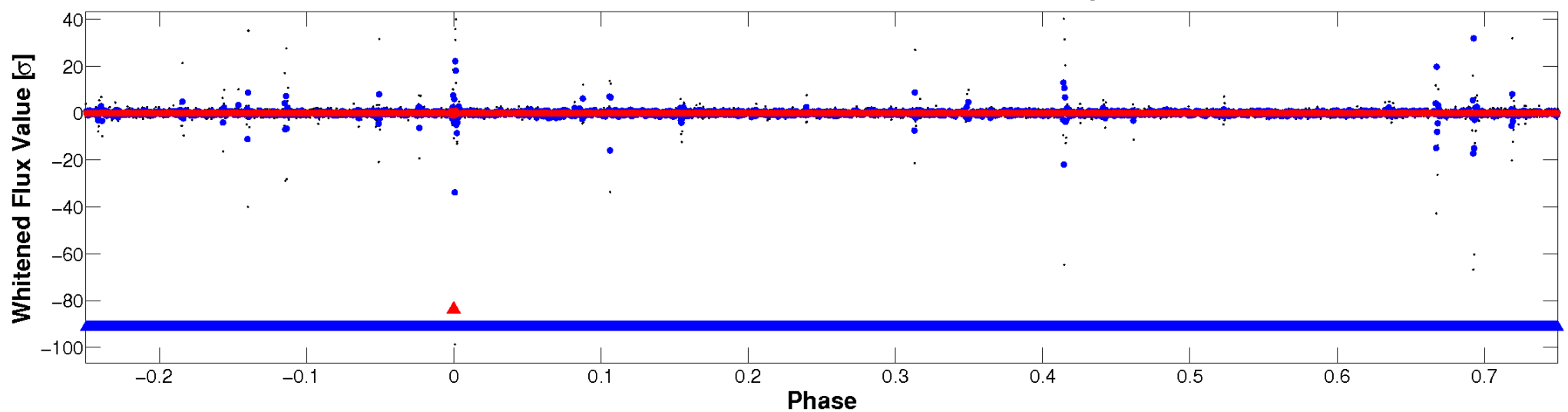


# Non-Whitened Vs. Whitened Light Curve

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

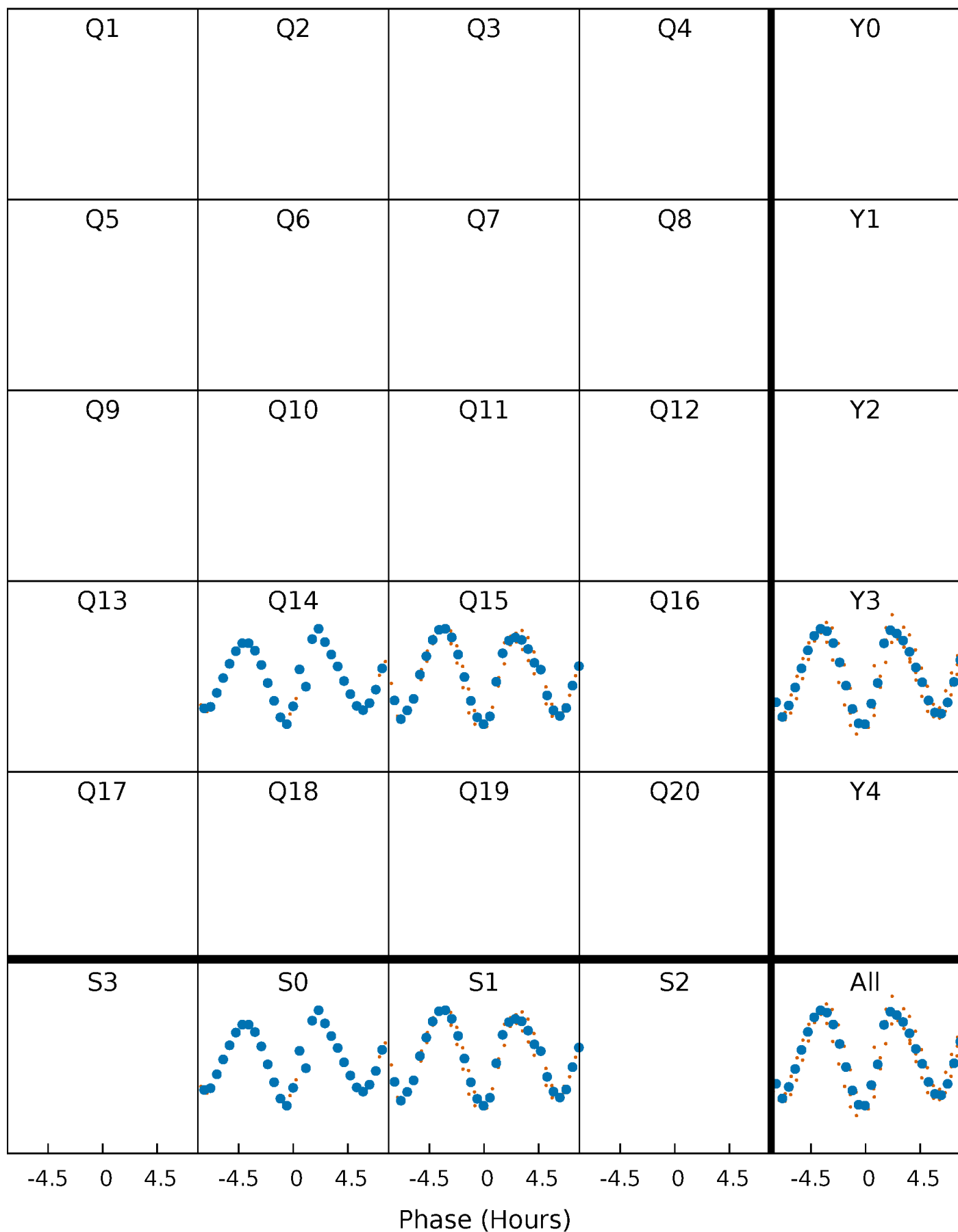


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

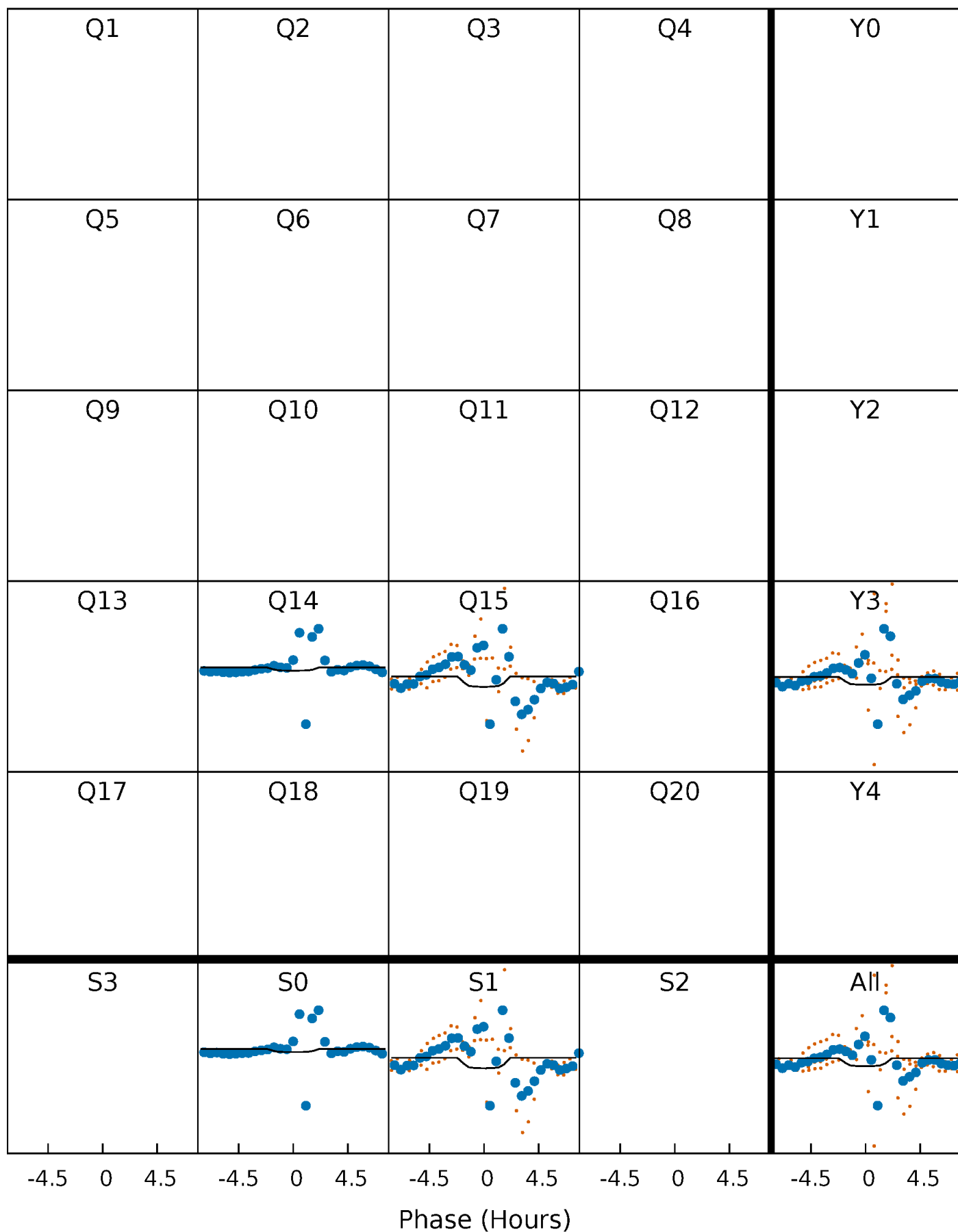
TCE 006955650-01 P= 58.520369 Days  $T_0=180.513148$  (BKJD)





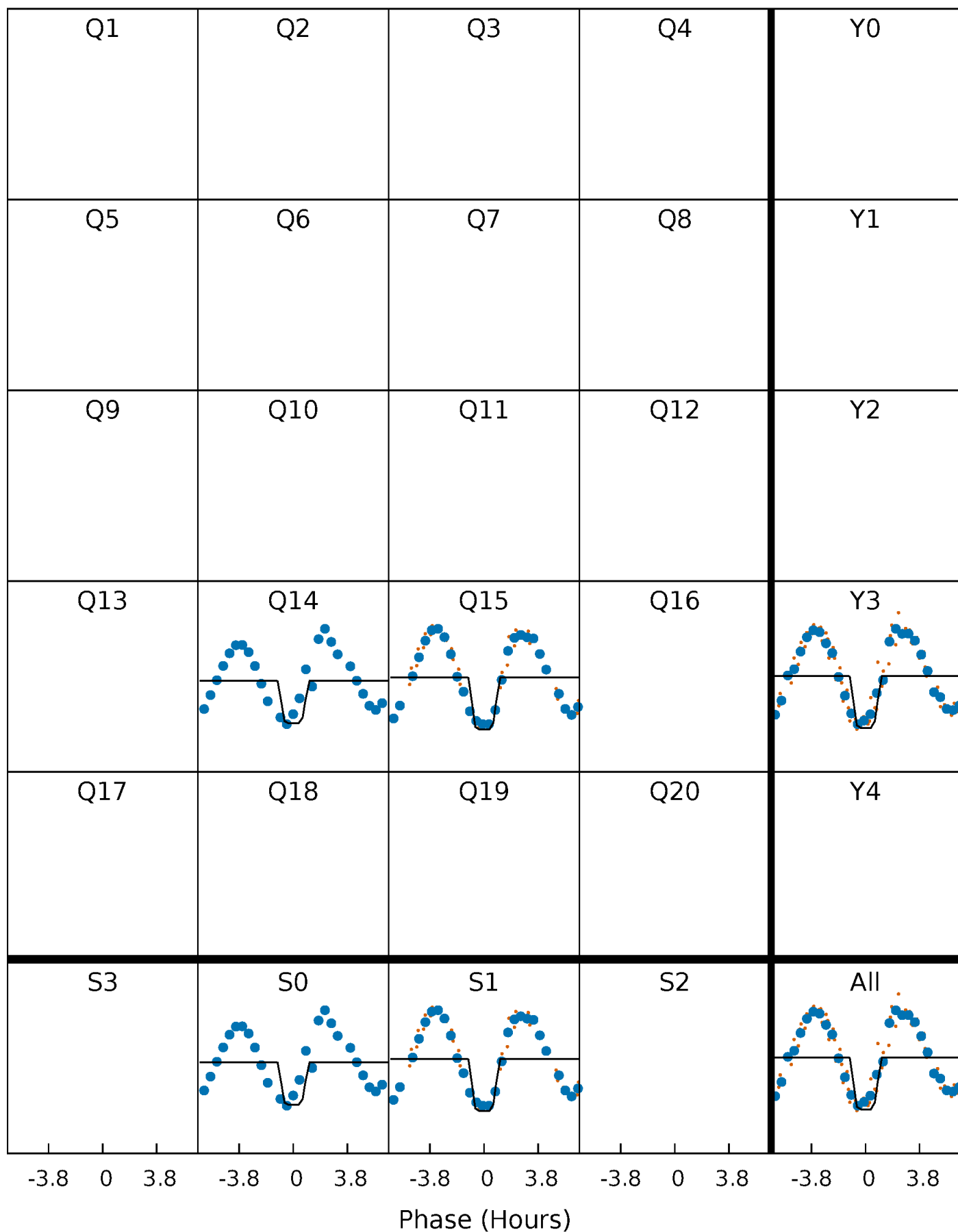
# DV Quarter-Phased Transit Curves

TCE 006955650-01 P= 58.520369 Days  $T_0=180.513148$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

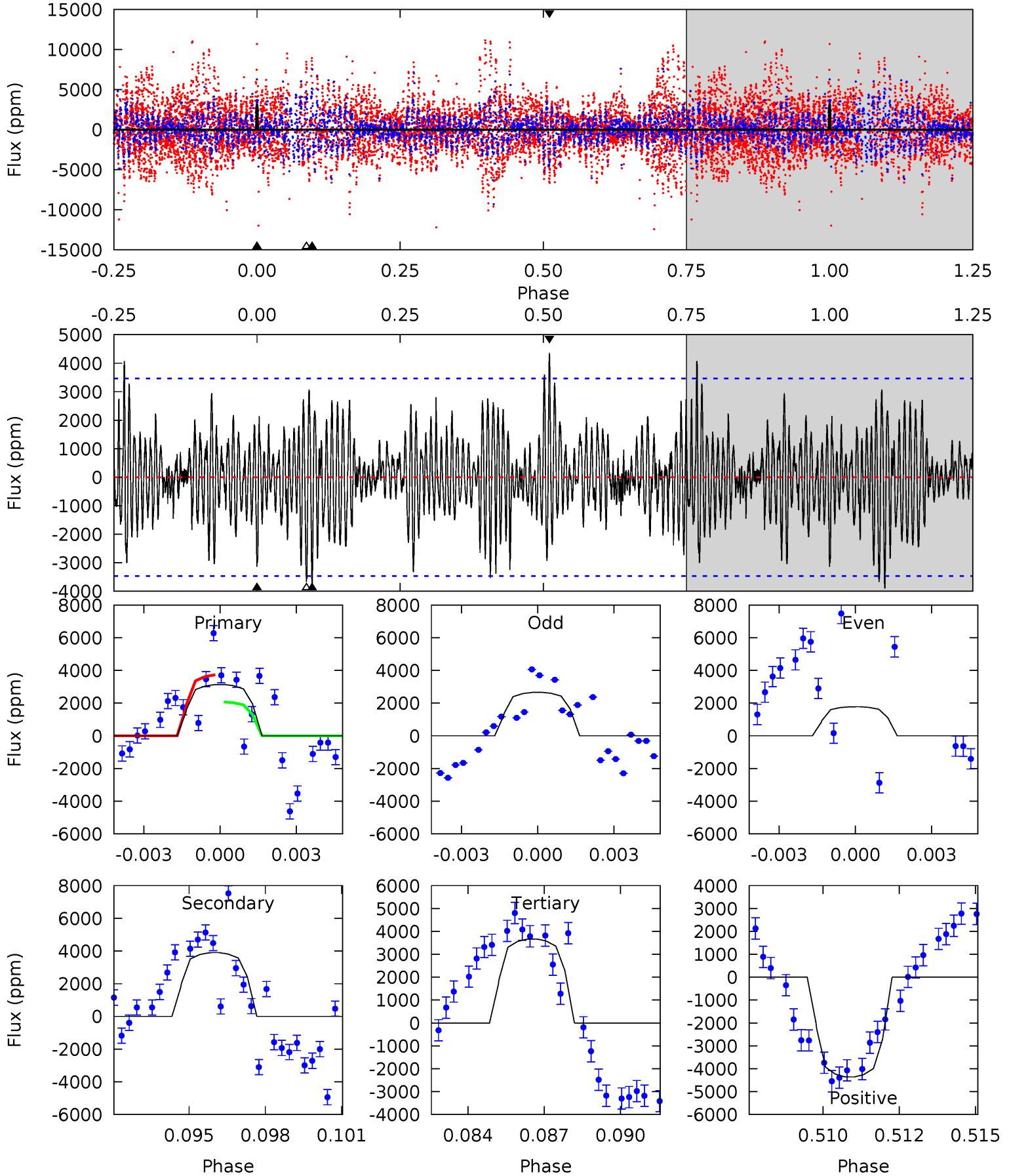
TCE 006955650-01 P= 58.523771 Days  $T_0=180.439460$  (BKJD)



# DV Model-Shift Uniqueness Test

006955650-01, P = 58.520369 Days, E = 180.513148 Days

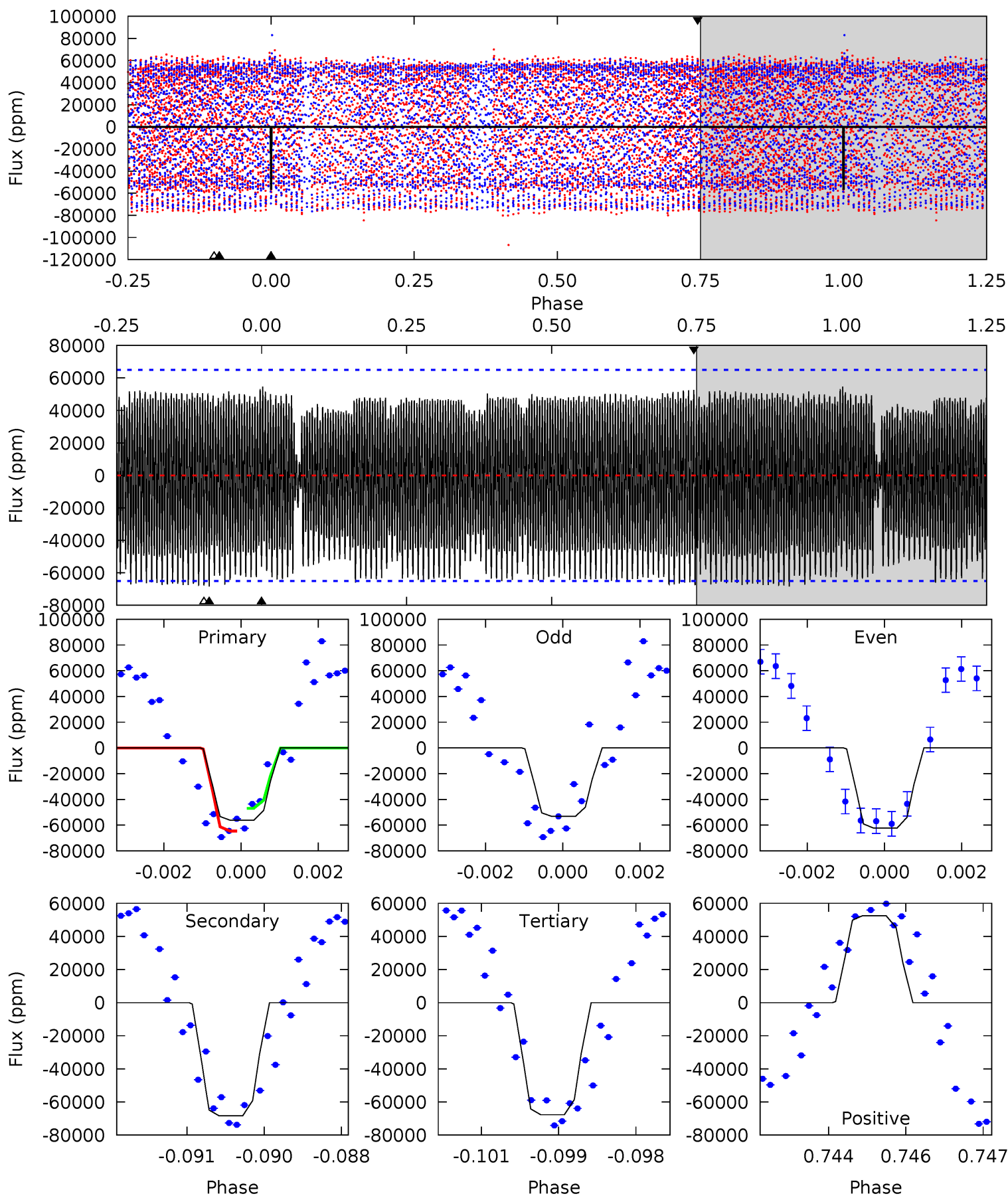
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.77	5.93	5.57	6.62	5.27	2.99	1.79	-0.81	-1.86	0.36	-0.70	0.69	0.90	0.53	1.26



# Alt Model-Shift Uniqueness Test

006955650-01, P = 58.523771 Days, E = 180.439460 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
4.64	5.65	5.59	4.33	5.37	3.16	2.95	-0.95	0.30	0.06	1.31	0.35	0.91	0.44	0.73



### Stellar Parameters For KIC 006955650

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7547^{+209}_{-340}$	$4.036^{+0.198}_{-0.162}$	$-0.060^{+0.200}_{-0.400}$	$2.060^{+0.550}_{-0.550}$	$1.678^{+0.175}_{-0.325}$	$0.271^{+0.304}_{-0.125}$
	+3%/-5%	+5%/-4%	+333%/-667%	+27%/-27%	+10%/-19%	+112%/-46%
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 006955650-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-3901 \pm 658$	$48.21^{+54.45}_{-32.65}$	$1121^{+87}_{-88}$	$4175^{+2785}_{-923}$	$108^{+942}_{-85}$
Alt.	$-68373 \pm 12111$	$76.93^{+56.33}_{-48.81}$	$1119^{+88}_{-84}$	$6528^{+5486}_{-1530}$	$818^{+4614}_{-555}$

$T_{max}$  = 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

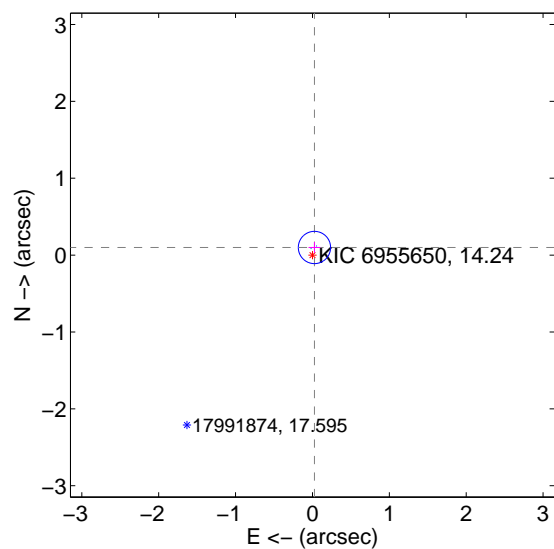
Supplemental centroid analysis for 006955650-01. Kepler magnitude: 14.24. Transit SNR 2.82

There are 2 quarters with good PRF difference image offsets

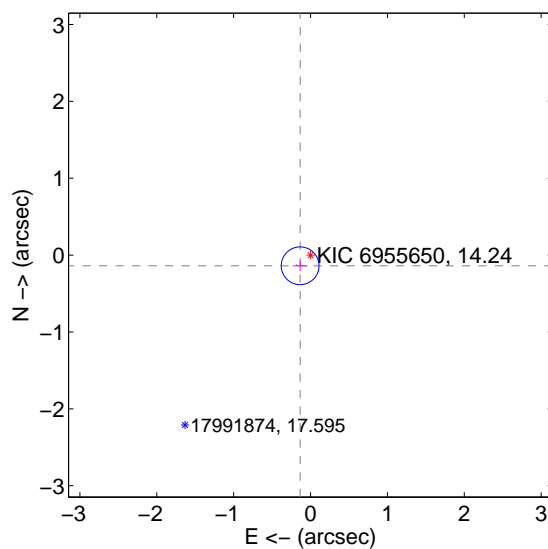
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.102 \pm 0.070$	1.46	$-0.026 \pm 0.078$	$0.099 \pm 0.069$
PRF-fit source offset from KIC position	$0.194 \pm 0.082$	2.37	$0.135 \pm 0.095$	$-0.139 \pm 0.068$
photometric centroid source offset	$0.95 \pm 0.56$	1.71	$0.21 \pm 0.38$	$-0.93 \pm 0.56$

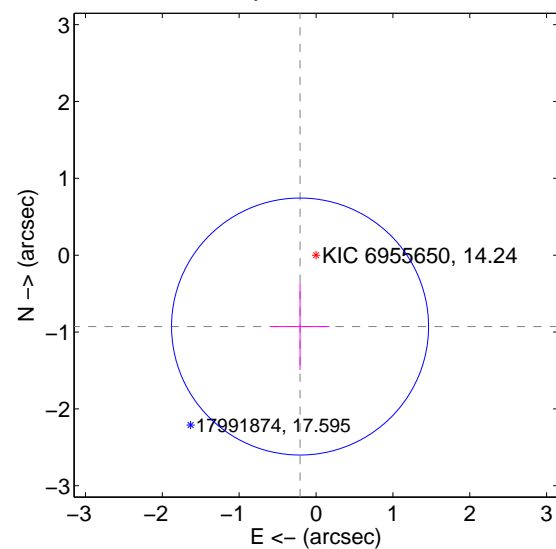
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

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



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

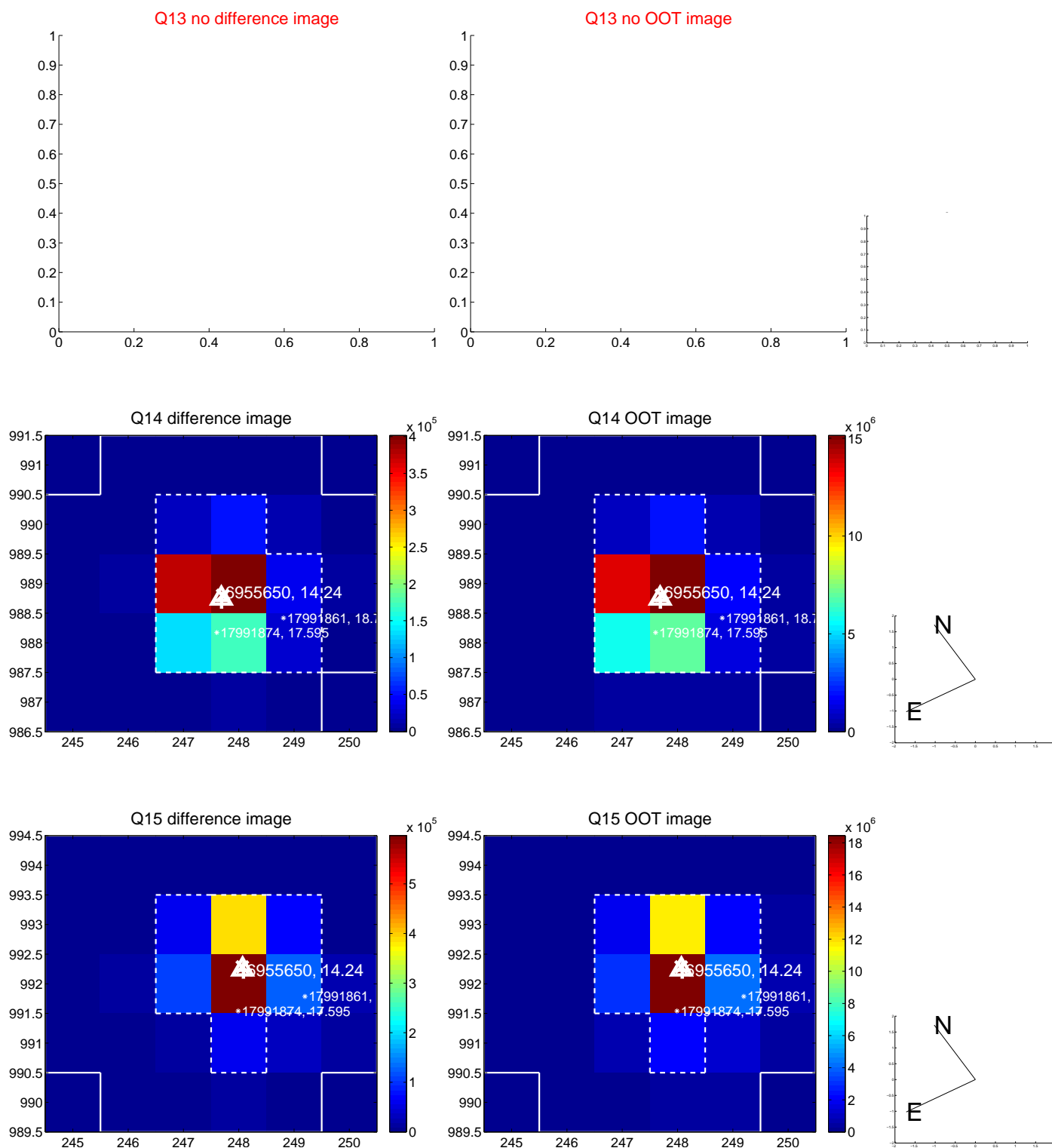




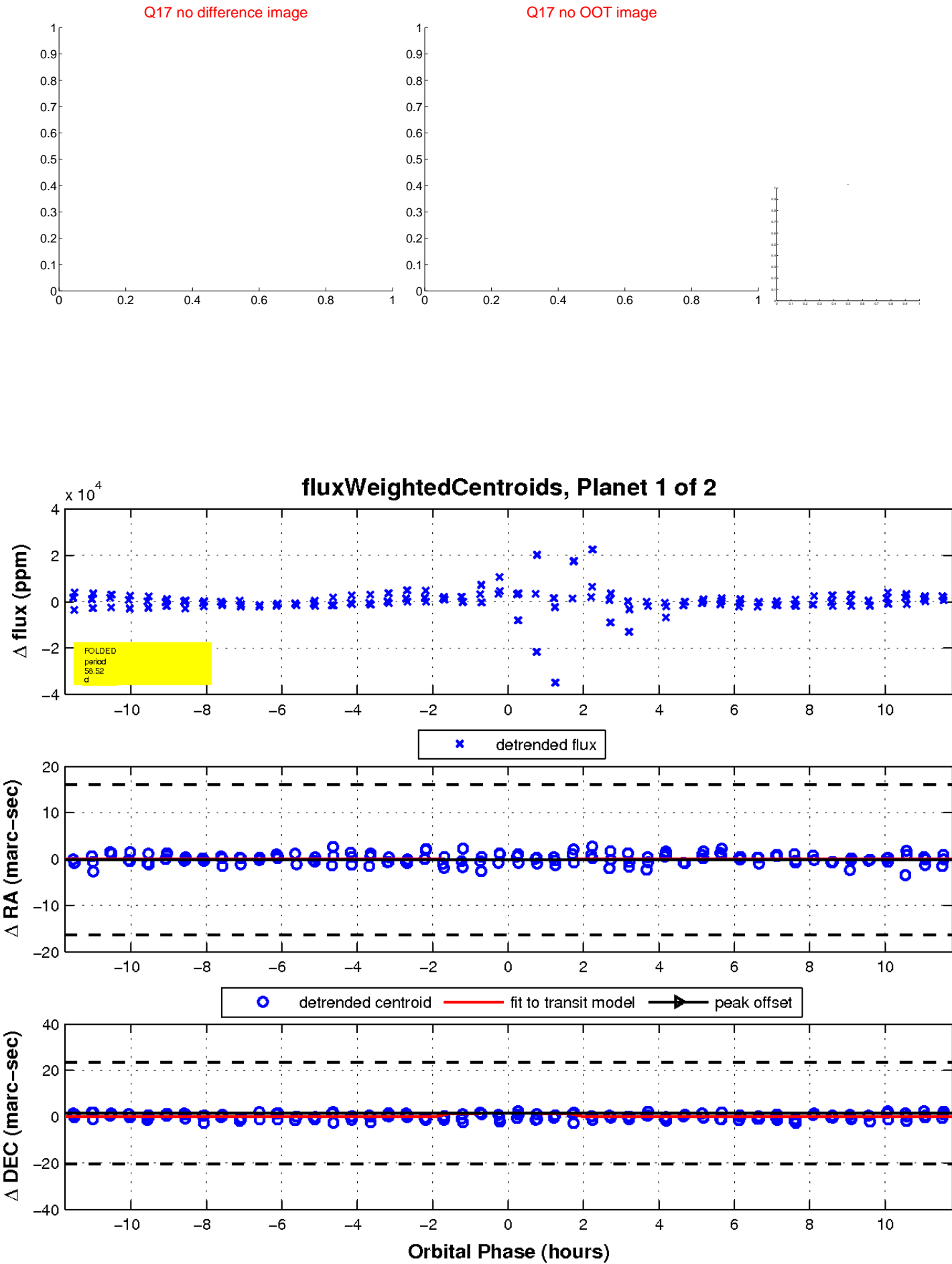
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

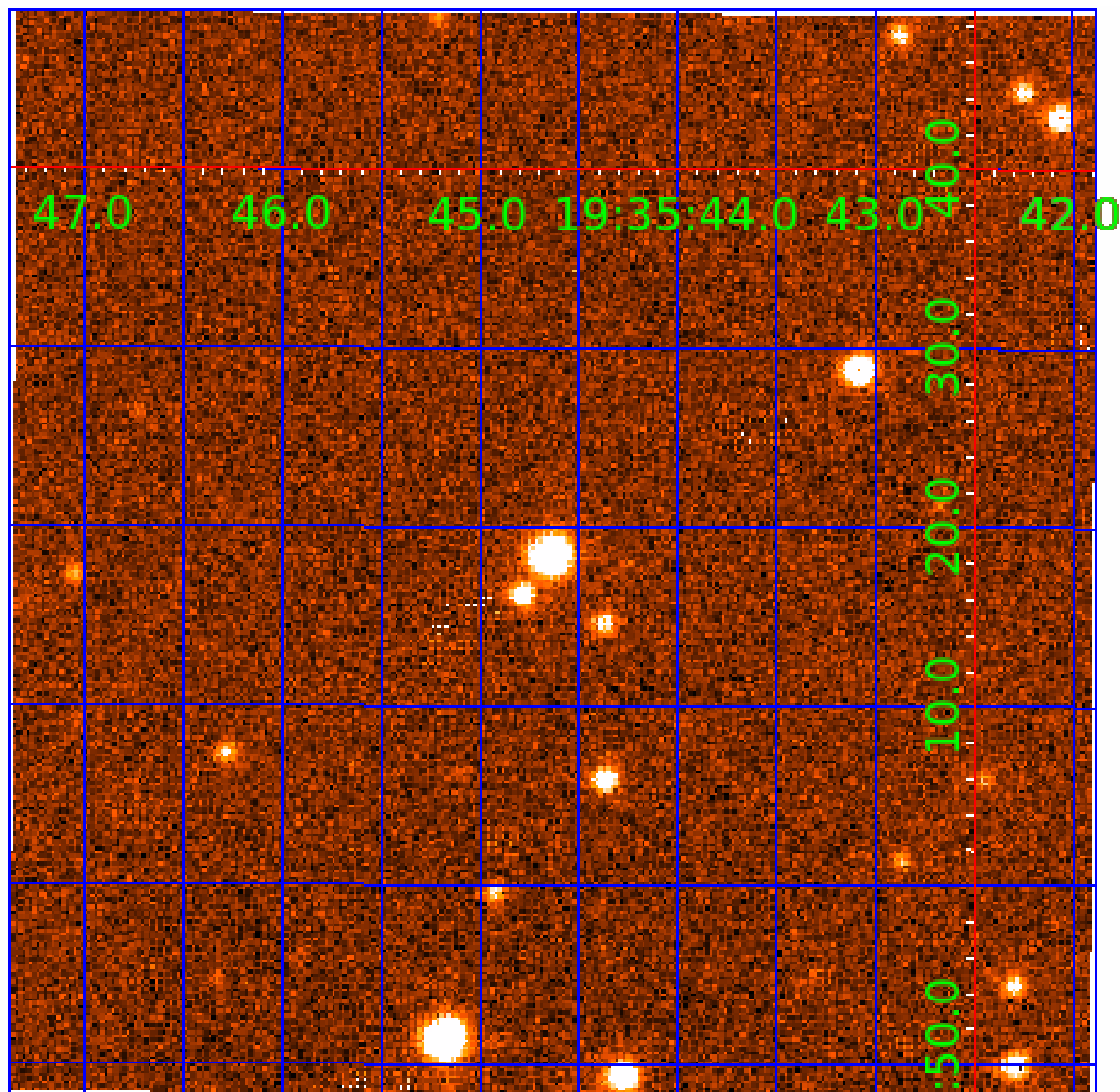


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006955650

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006955650-01	OBS	No	58.520369	180.513148	1970.2	3.934	33.1	2.8	2.06	7547	9.76	100.19
006955650-02	OBS	No	0.527542	131.968043	0.0	2.514	16.6	0.0	2.06	7547	0.05	53402.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006955650-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006955650-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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

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

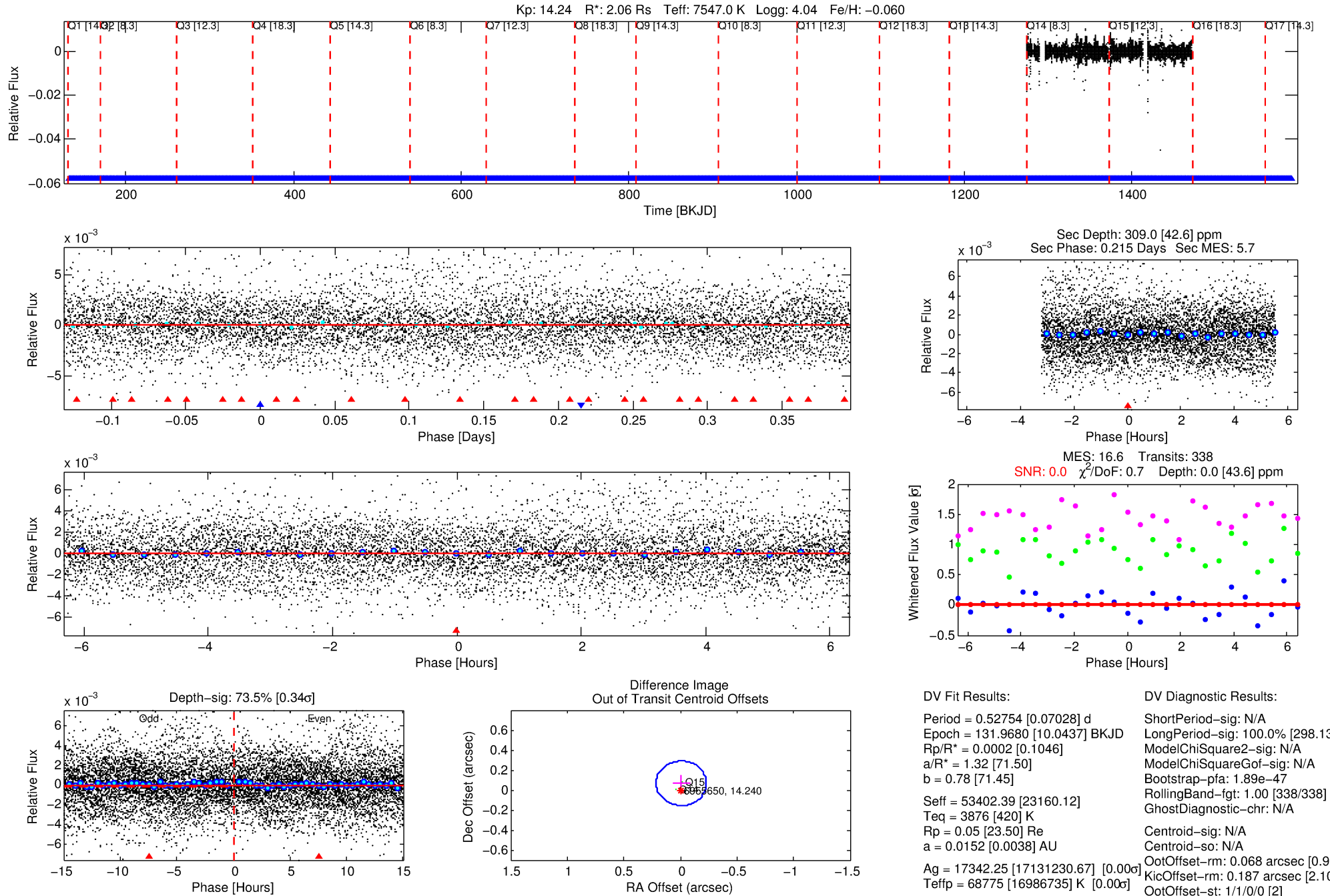
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006955650-02

No Significant Match Found

# DV One-Page Summary

KIC: 6955650 Candidate: 2 of 2 Period: 0.528 d



## DV Fit Results:

Period = 0.52754 [0.07028] d  
Epoch = 131.9680 [10.0437] BKJD  
Rp/R\* = 0.0002 [0.1046]  
a/R\* = 1.32 [71.50]  
b = 0.78 [71.45]  
Seff = 53402.39 [23160.12]  
Teq = 3876 [420] K  
Rp = 0.05 [23.50] Re  
a = 0.0152 [0.0038] AU  
Ag = 17342.25 [17131230.67] [0.00σ]  
Teffp = 68775 [16986735] K [0.00σ]

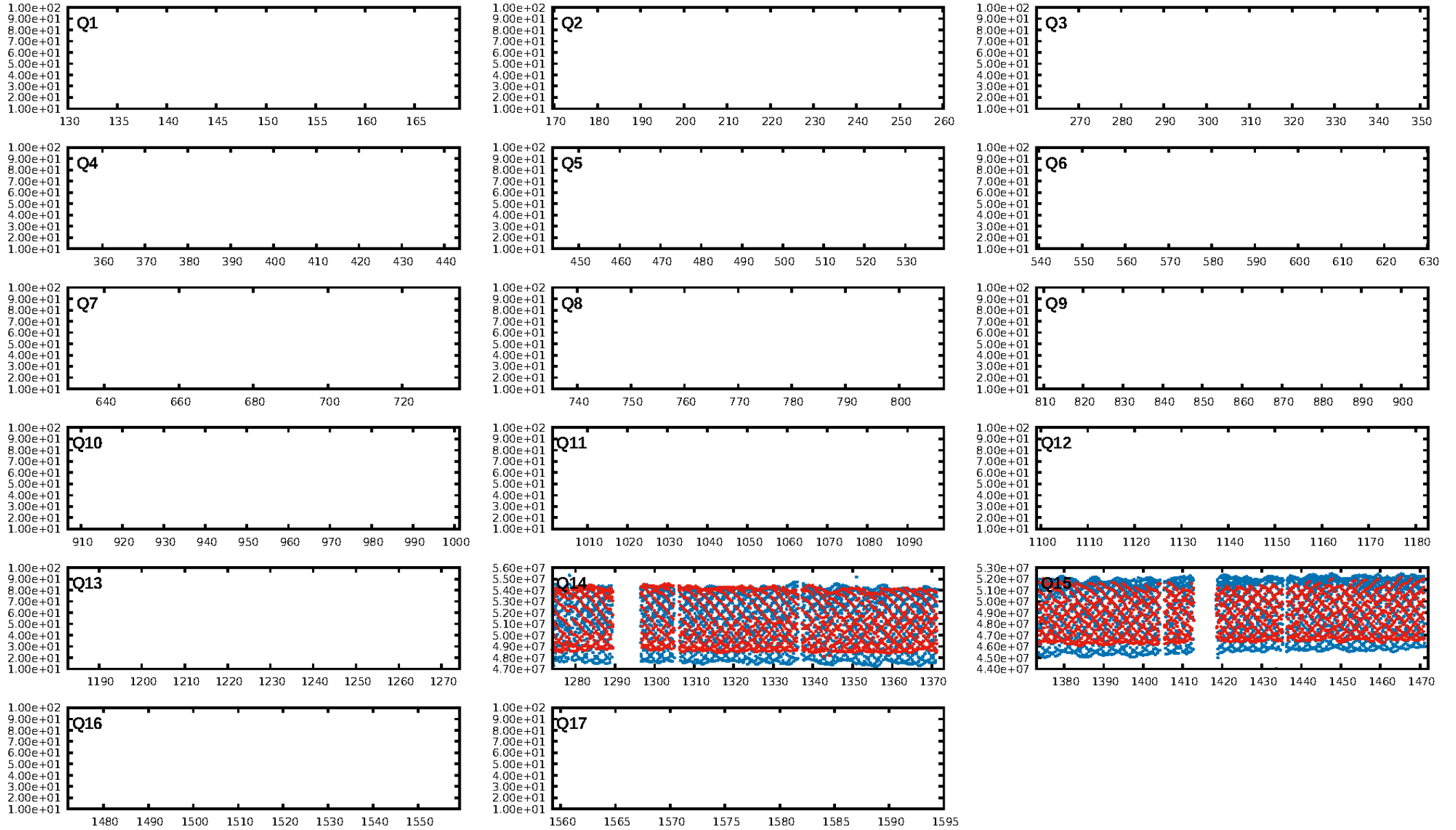
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [298.13σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.89e-47  
RollingBand-fgt: 1.00 [338/338]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.068 arcsec [0.91σ]  
KicOffset-rm: 0.187 arcsec [2.10σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

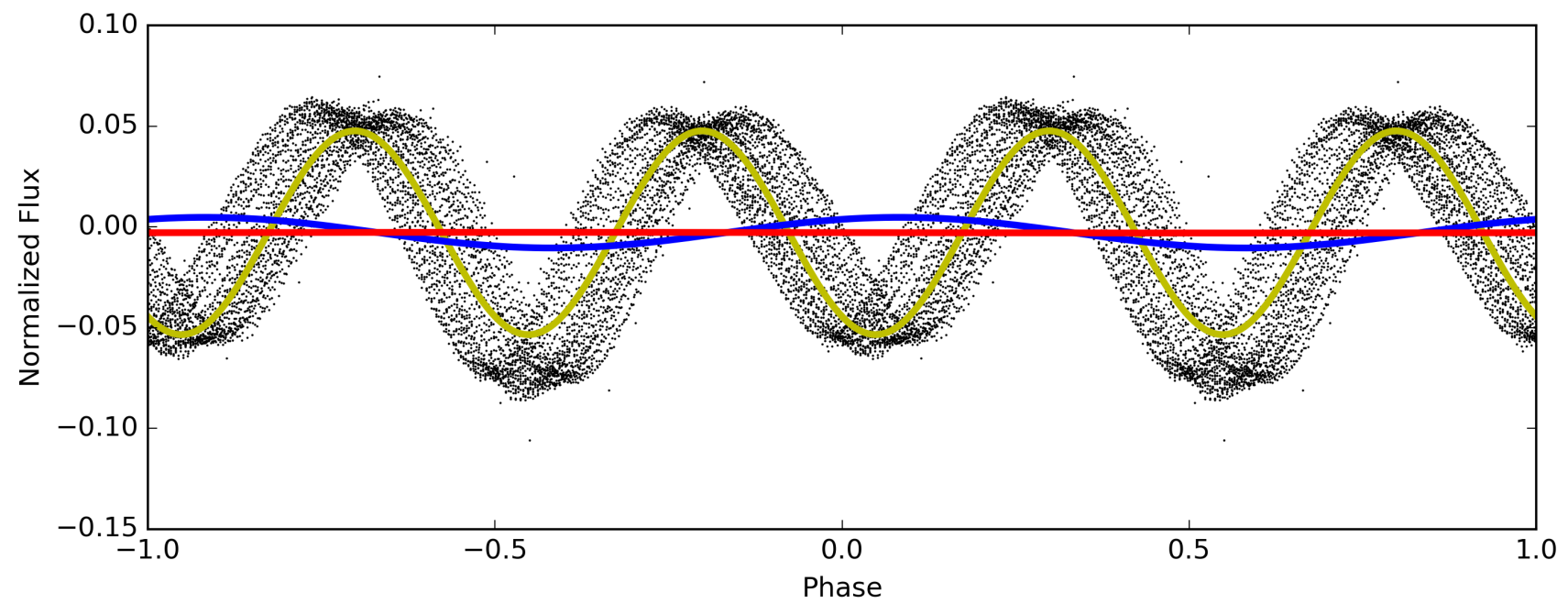
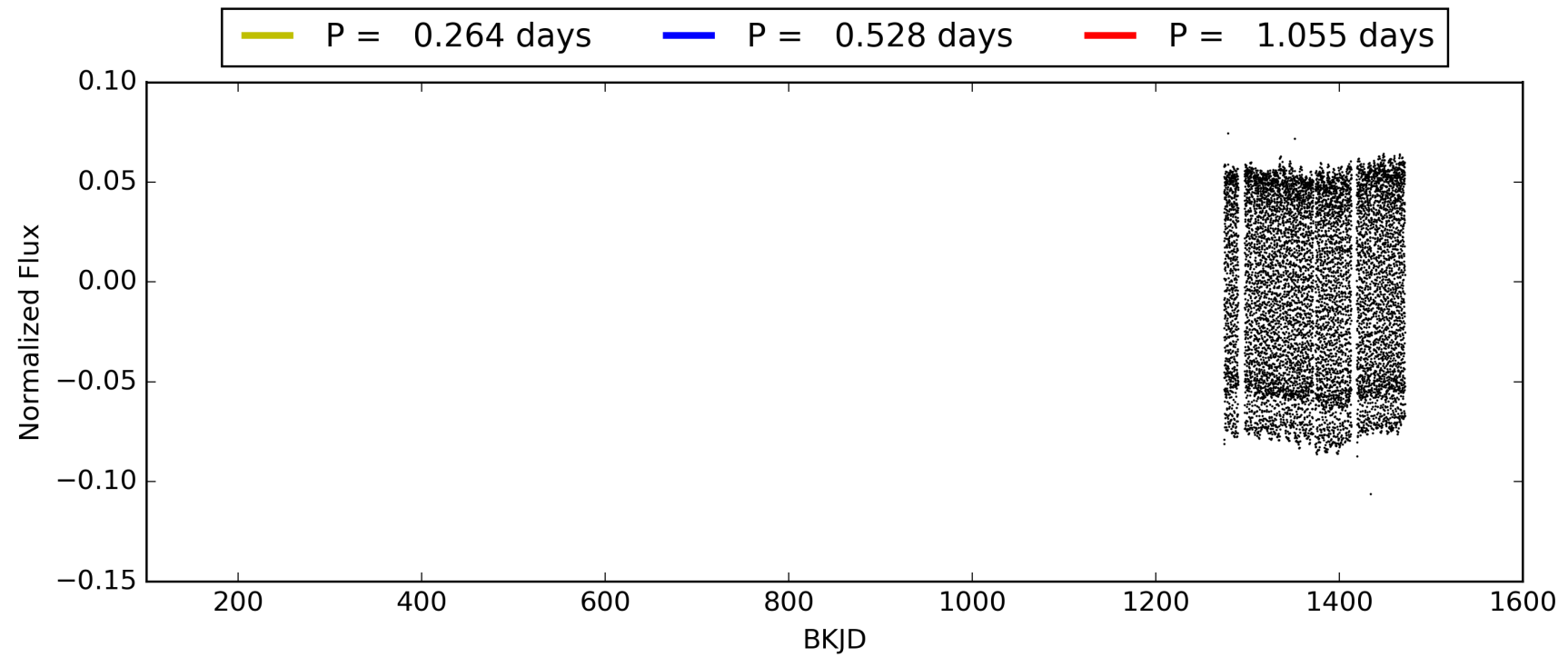
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:54:05 Z

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

# TCE 006955650-02, PDC Light Curves



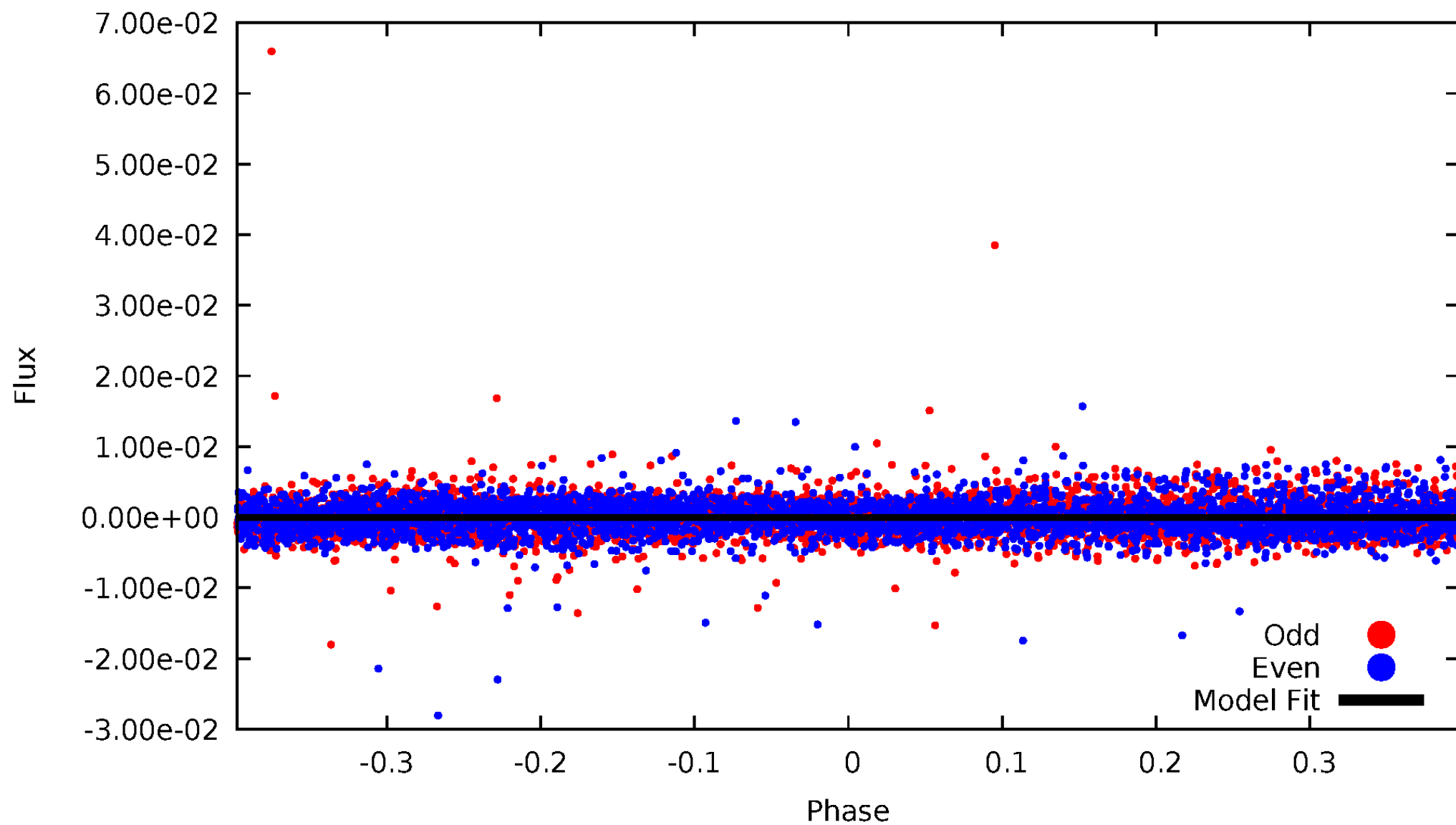
TCE 006955650-02





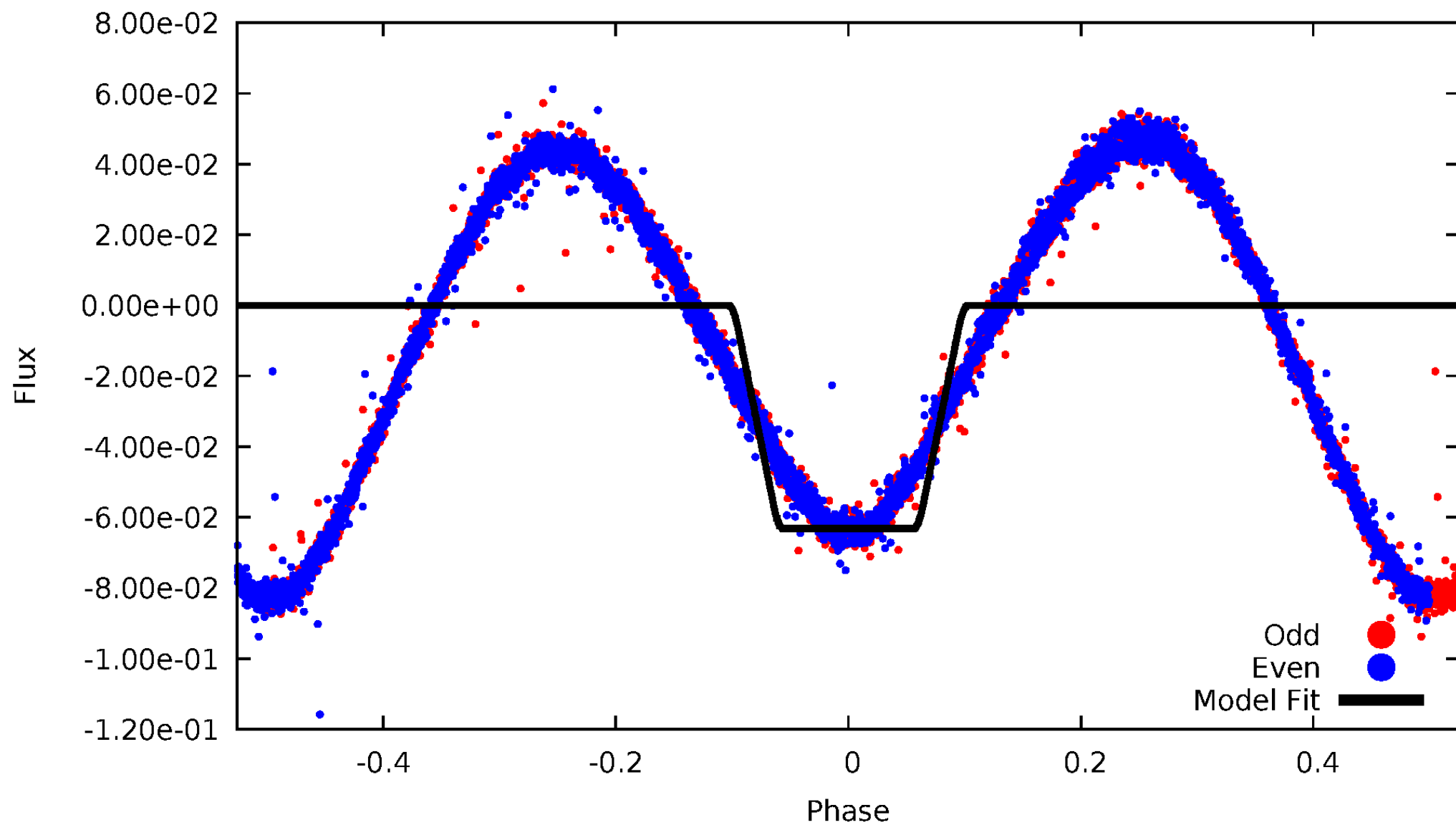
DV Odd/Even

TCE 006955650-02



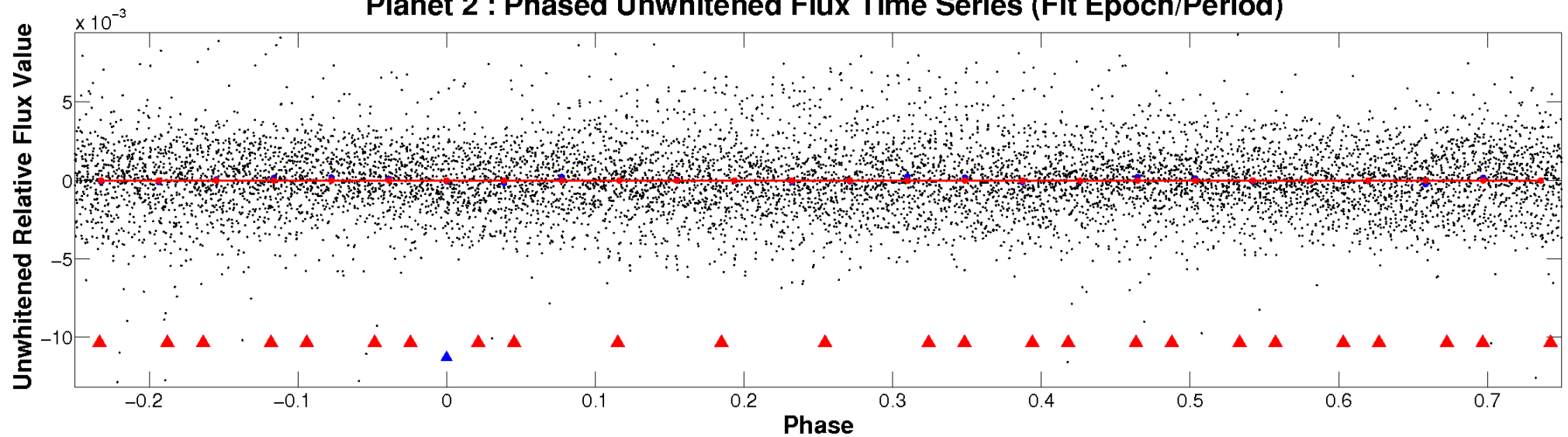
# ALT Odd/Even

TCE 006955650-02

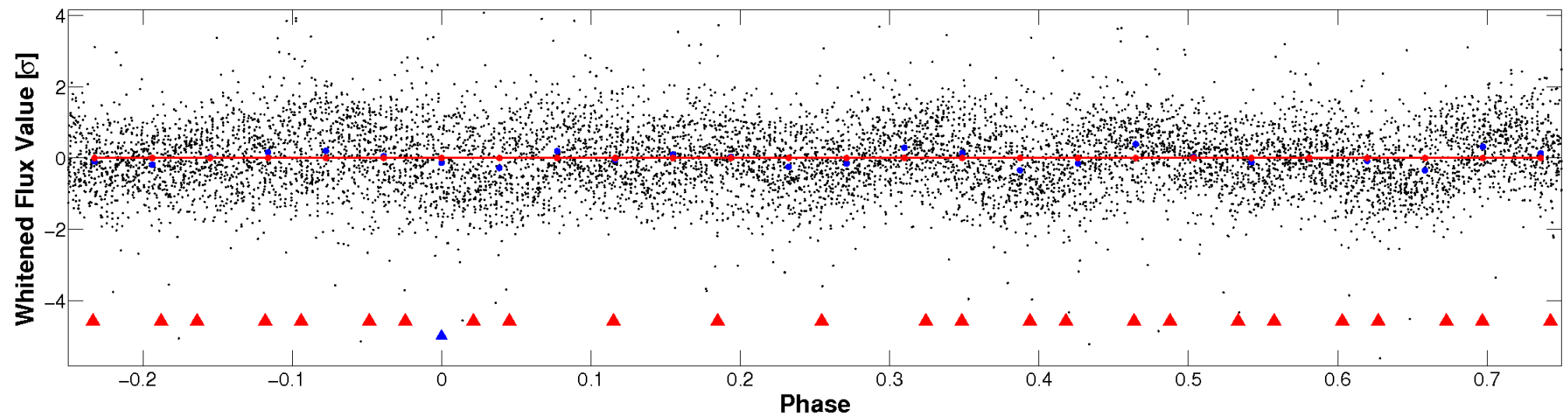


# Non-Whitened Vs. Whitened Light Curve

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

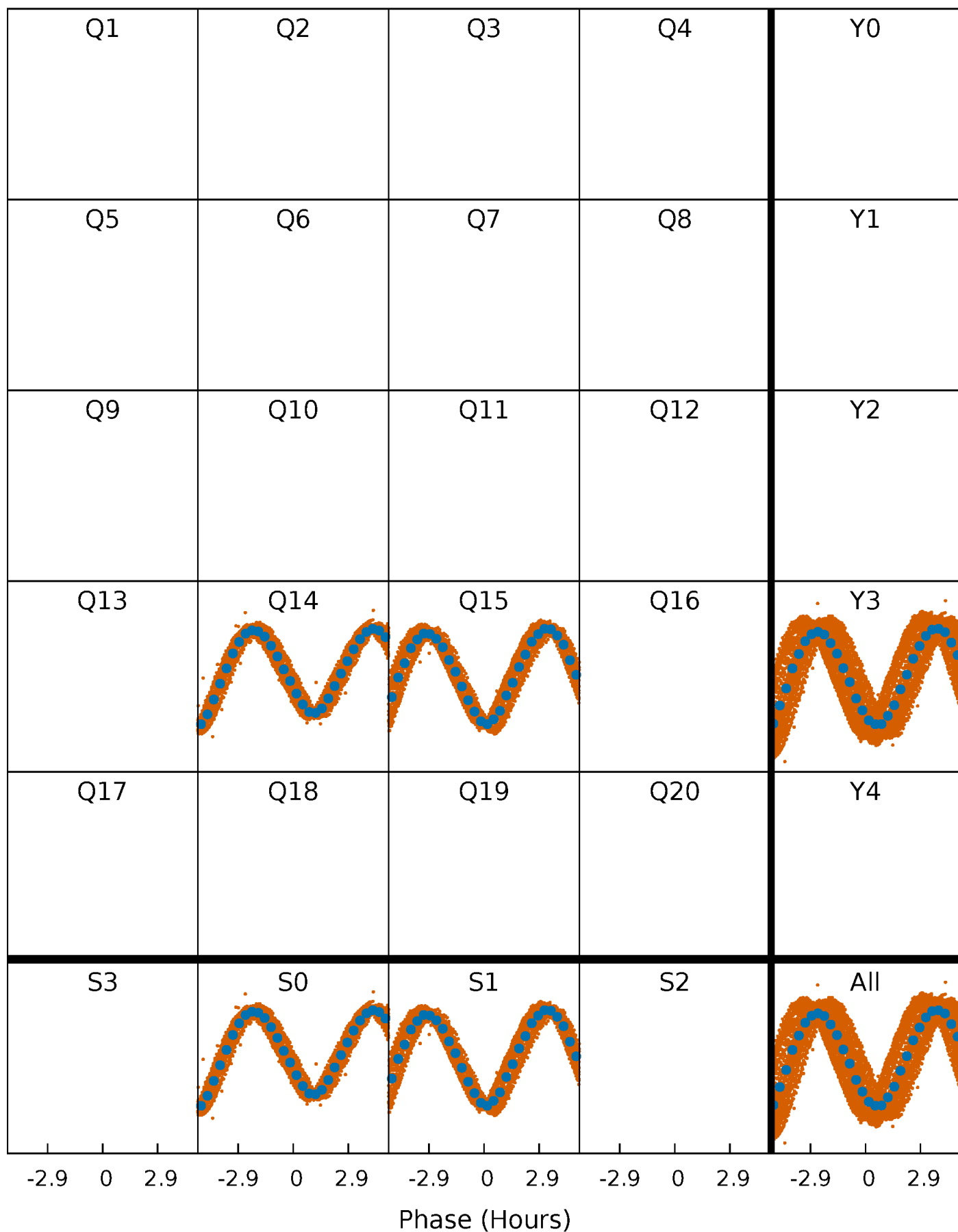


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



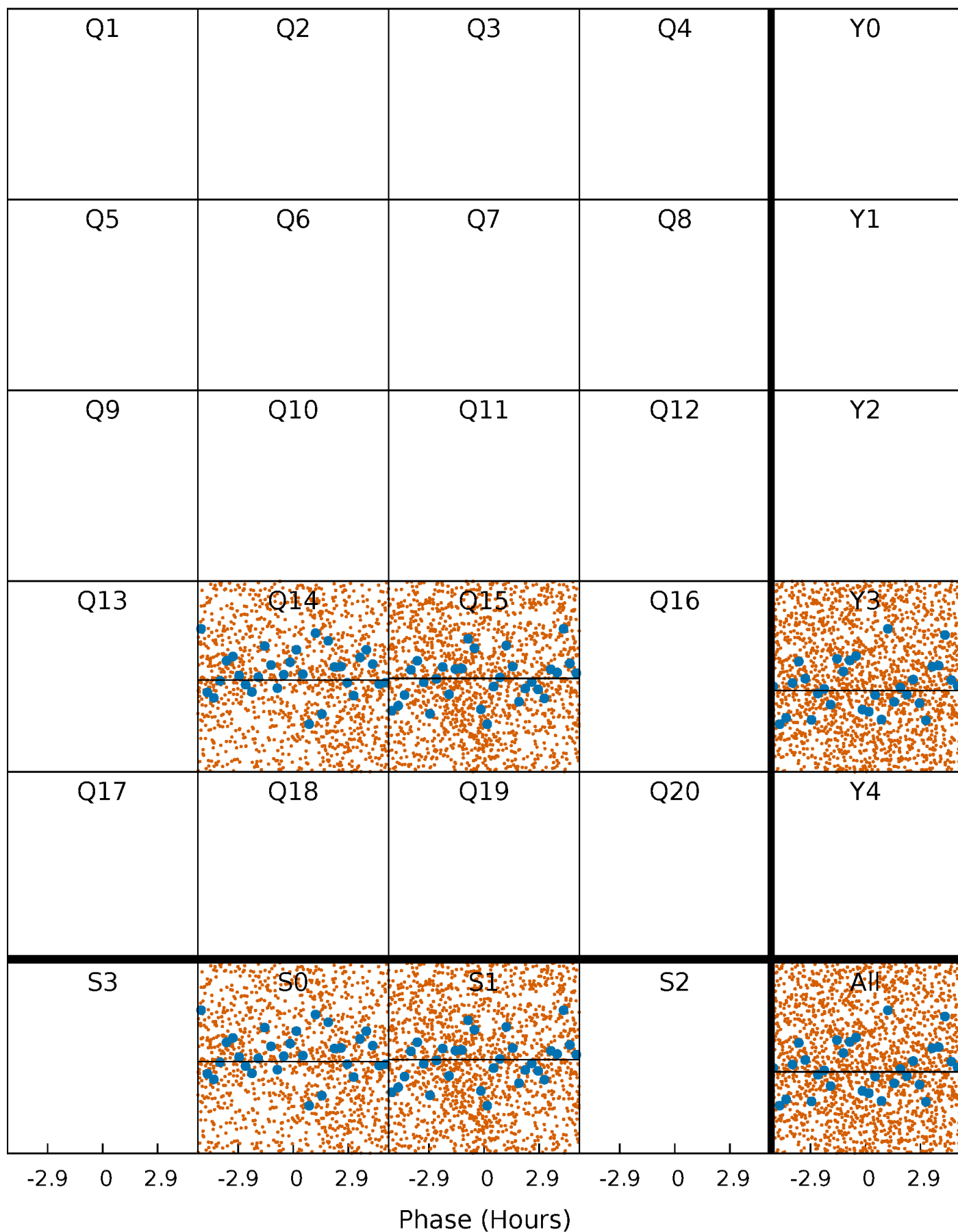
# PDC Quarter-Phased Transit Curves

TCE 006955650-02   P= 0.527542 Days    $T_0=131.968043$  (BKJD)



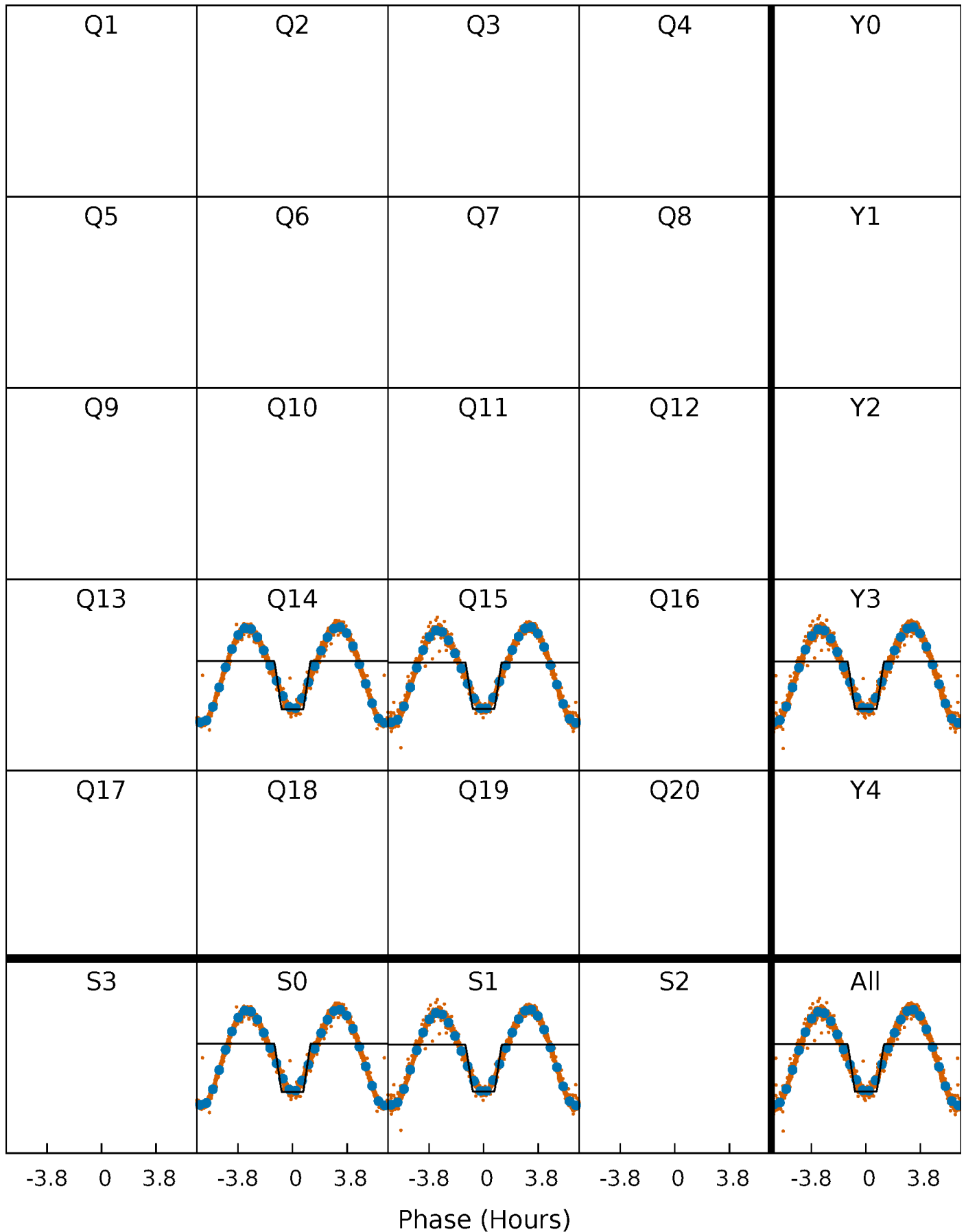
# DV Quarter-Phased Transit Curves

TCE 006955650-02    P= 0.527542 Days     $T_0=131.968043$  (BKJD)



### Alt. Detrend Quarter-Phased Transit Curves

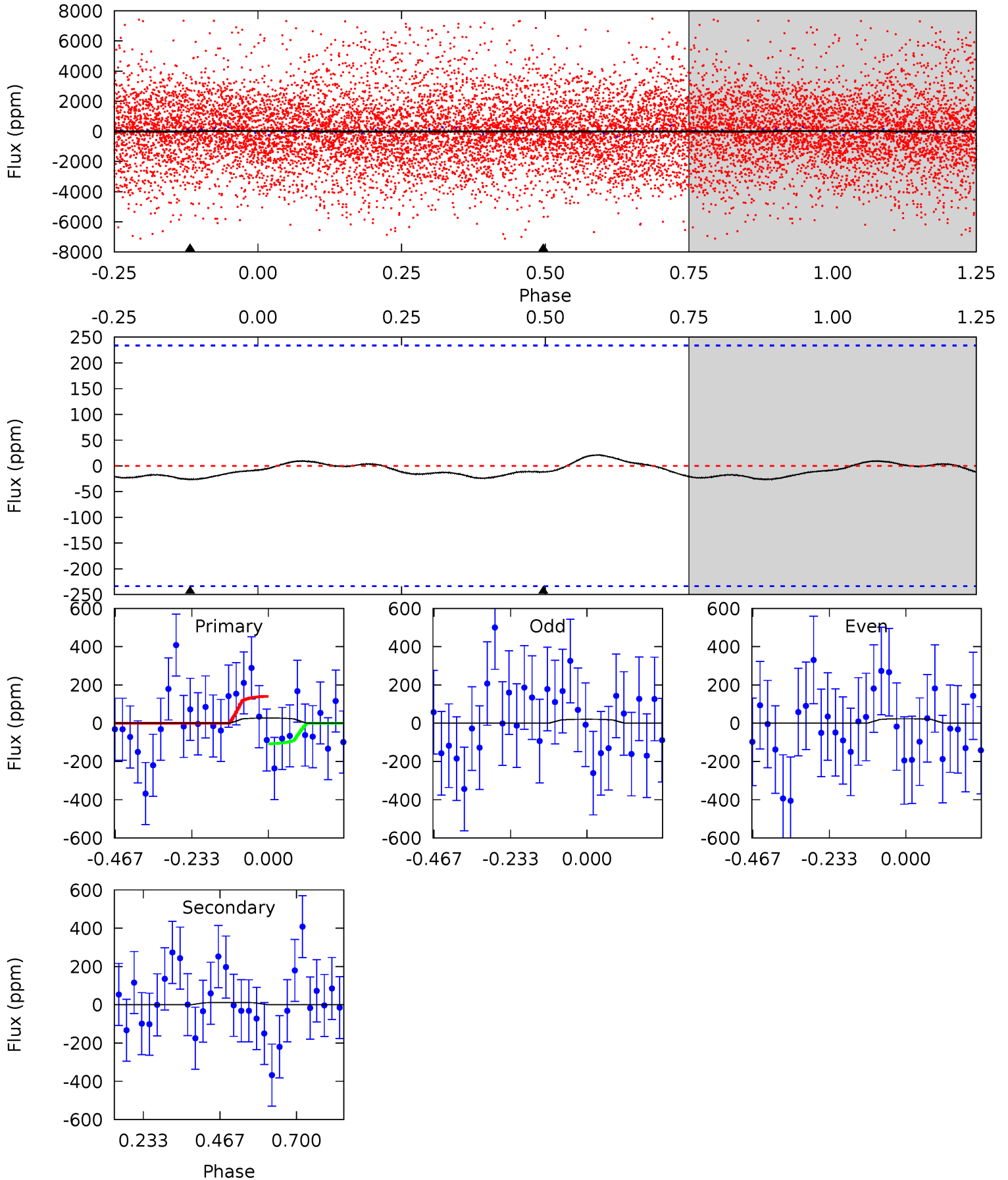
TCE 006955650-02    P= 0.527339 Days     $T_0=131.942621$  (BKJD)



# DV Model-Shift Uniqueness Test

006955650-02, P = 0.527542 Days, E = 131.968043 Days

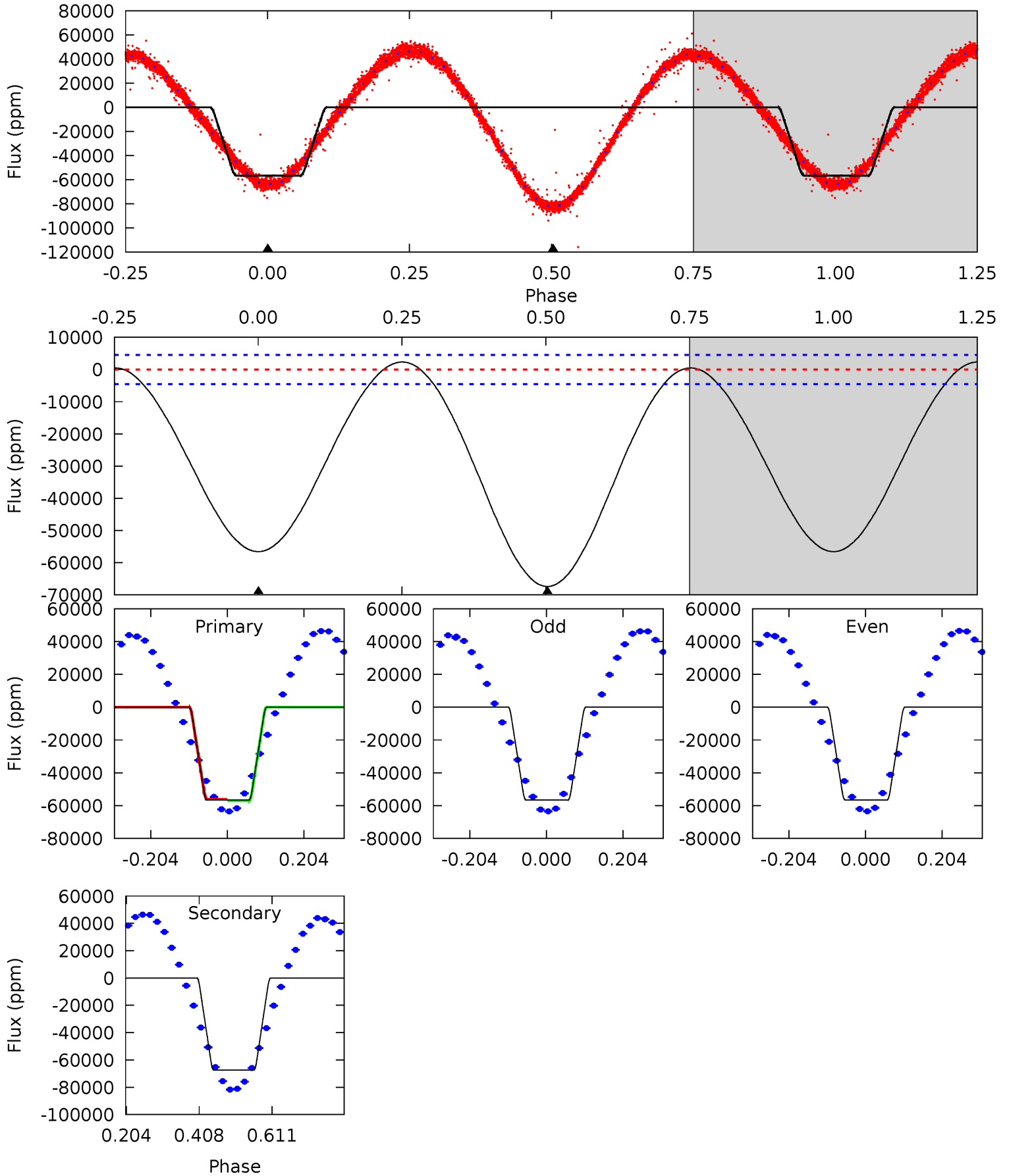
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.51	0.23	0	0	4.38	1.19	0.10	0.51	0.51	0.23	0.23	0.03	-0.11	0.44	0.32



# Alt Model-Shift Uniqueness Test

006955650-02, P = 0.527339 Days, E = 131.942621 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
55.4	66.0	0	0	4.41	1.27	1.70	55.4	55.4	66.0	66.0	0.04	1.00	0.03	1.36





### Stellar Parameters For KIC 006955650

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7547^{+209}_{-340}$	$4.036^{+0.198}_{-0.162}$	$-0.060^{+0.200}_{-0.400}$	$2.060^{+0.550}_{-0.550}$	$1.678^{+0.175}_{-0.325}$	$0.271^{+0.304}_{-0.125}$
	+3%/-5%	+5%/-4%	+333%/-667%	+27%/-27%	+10%/-19%	+112%/-46%
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 006955650-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-12 \pm 53$	$14.61^{+17.64}_{-10.00}$	$5391^{+554}_{-452}$	$-4497^{+436}_{-471}$	$0.003^{+0.060}_{-0.033}$
Alt.	$-67375 \pm 1021$	$53.83^{+27.83}_{-21.51}$	$5337^{+552}_{-462}$	$7561^{+3290}_{-1595}$	$3.025^{+6.027}_{-1.719}$

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

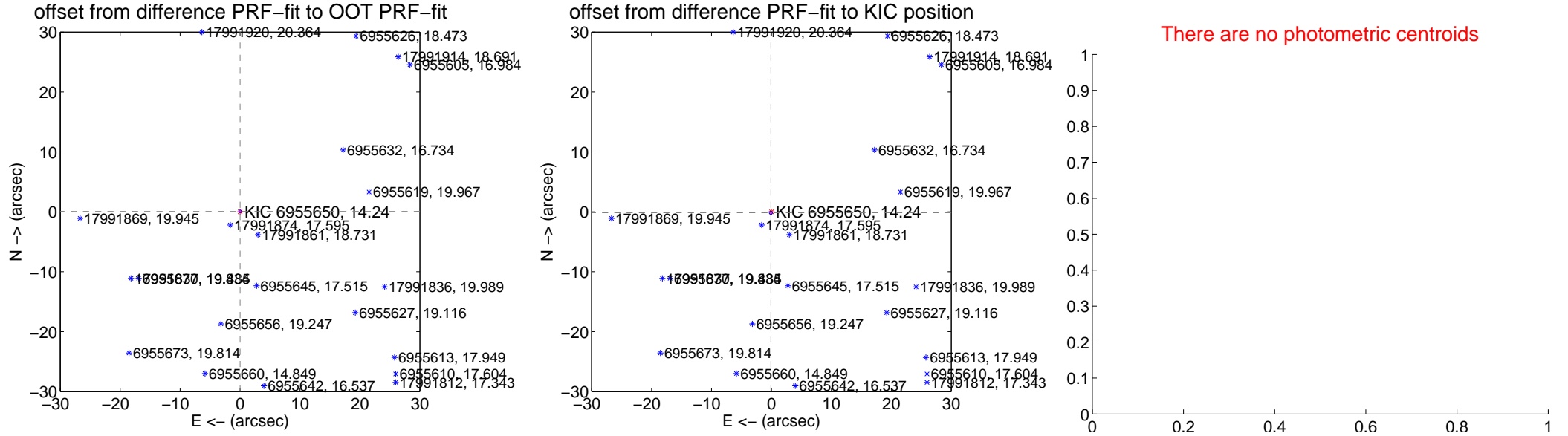
## DV Centroid Data

Supplemental centroid analysis for 0069555650-02. Kepler magnitude: 14.24. Transit SNR 0.00

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.068 \pm 0.074$	0.91	$-0.007 \pm 0.071$	$0.067 \pm 0.073$
PRF-fit source offset from KIC position	$0.187 \pm 0.089$	2.10	$0.097 \pm 0.119$	$-0.159 \pm 0.075$
photometric centroid source offset	—	—	—	—



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

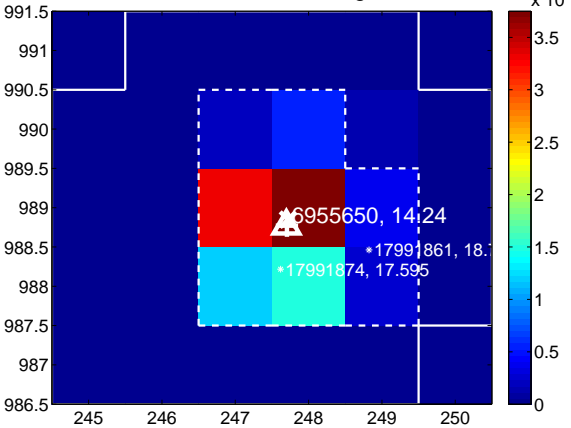
Q13 no difference image



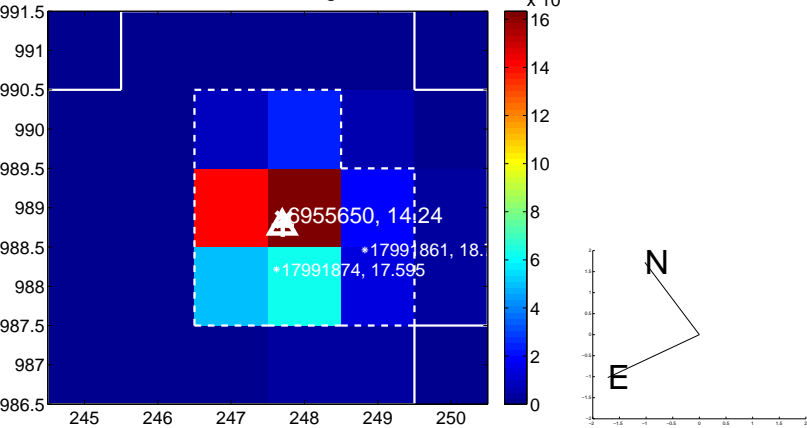
Q13 no OOT image



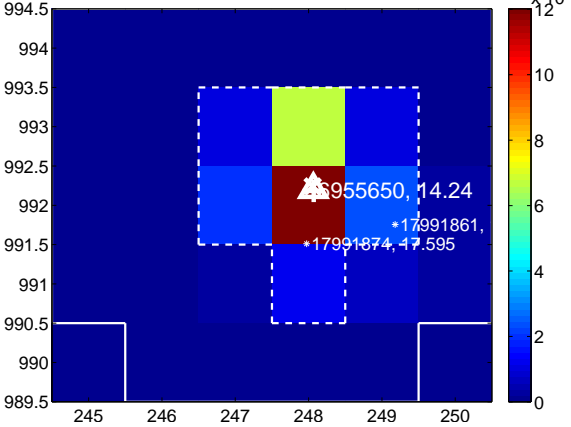
Q14 difference image



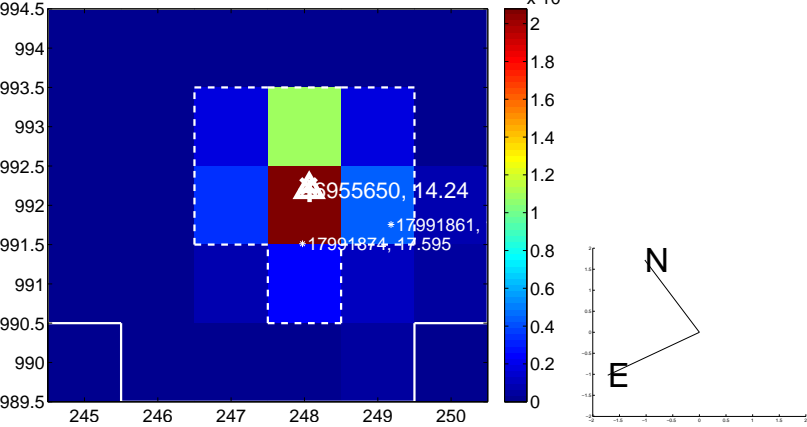
Q14 OOT image



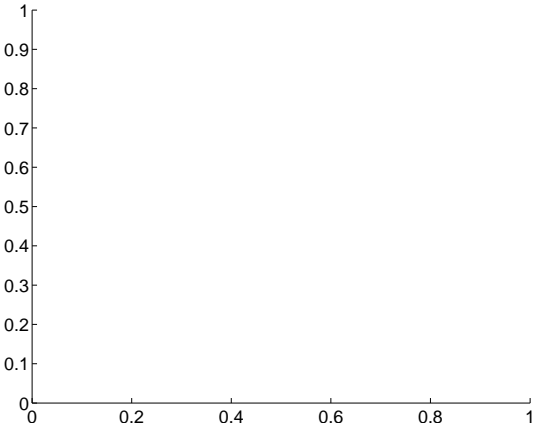
Q15 difference image



Q15 OOT image



Q16 no difference image



Q16 no OOT image



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



folded centroid time series figure for this object.

UKIRT Image

Declination

