

# KIC 007257008

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007257008-01	OBS	No	0.511796	131.717244	14603.9	1.500	117.7	-1.0	1.57	7308	19.30	32509.17
007257008-02	OBS	No	1.023597	131.891202	6793.9	2.500	44.2	-1.0	1.57	7308	13.12	12901.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007257008-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—CENT_NOFITS
007257008-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

**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.

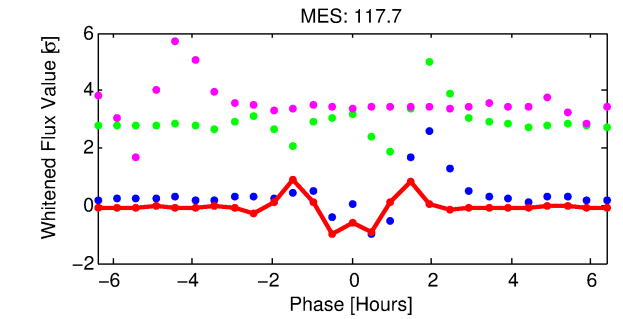
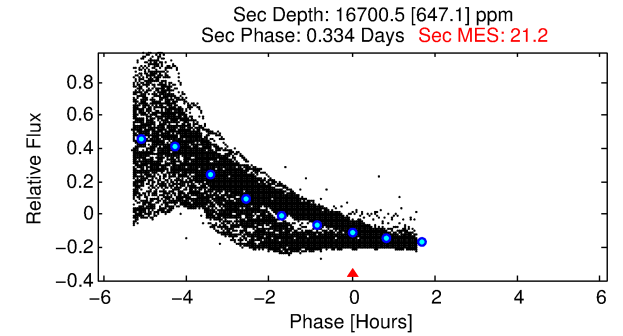
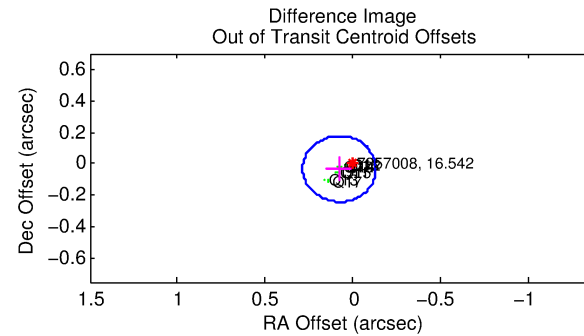
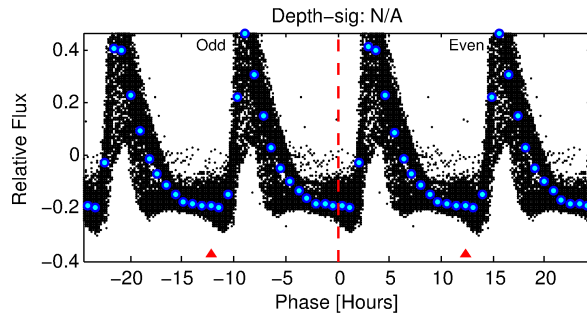
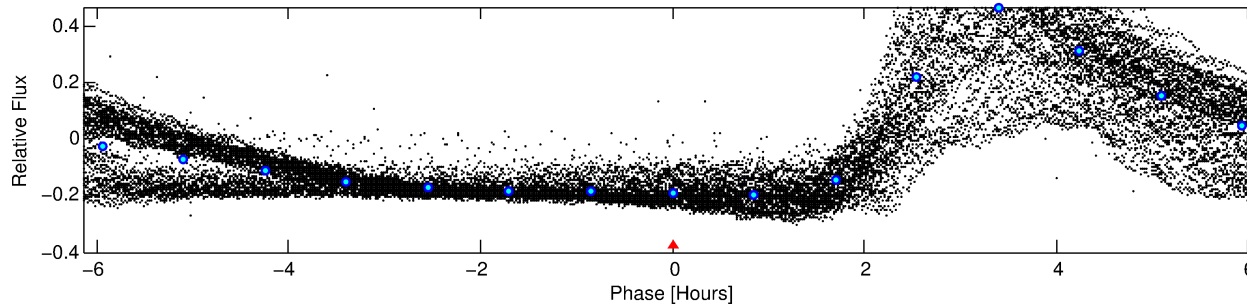
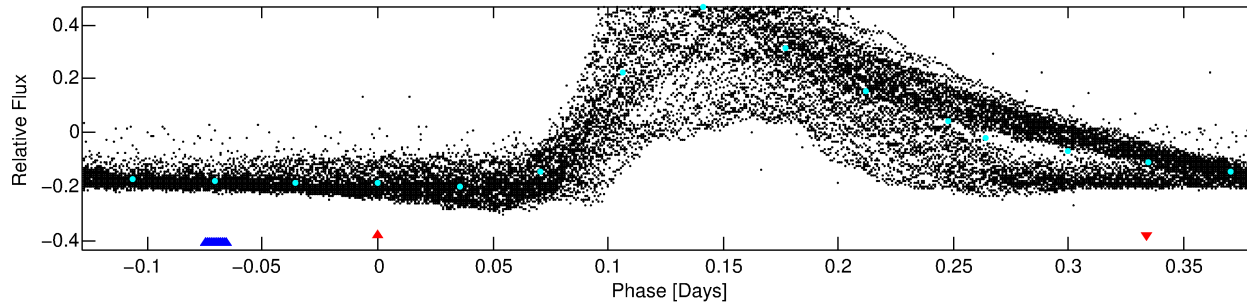
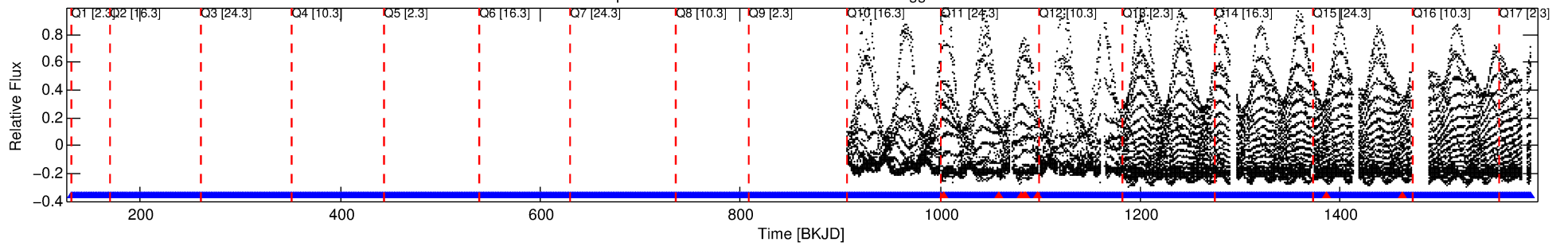
## Ephemeris Match Information For 007257008-01

No Significant Match Found

# DV One-Page Summary

KIC: 7257008 Candidate: 1 of 2 Period: 0.512 d

Kp: 16.54 R\*: 1.57 Rs Teff: 7308.0 K Logg: 4.18 Fe/H: -0.340



## TPS TCE Results:

Period = 0.51180 d  
Epoch = 131.7172 BKJD

DV fit results are unavailable

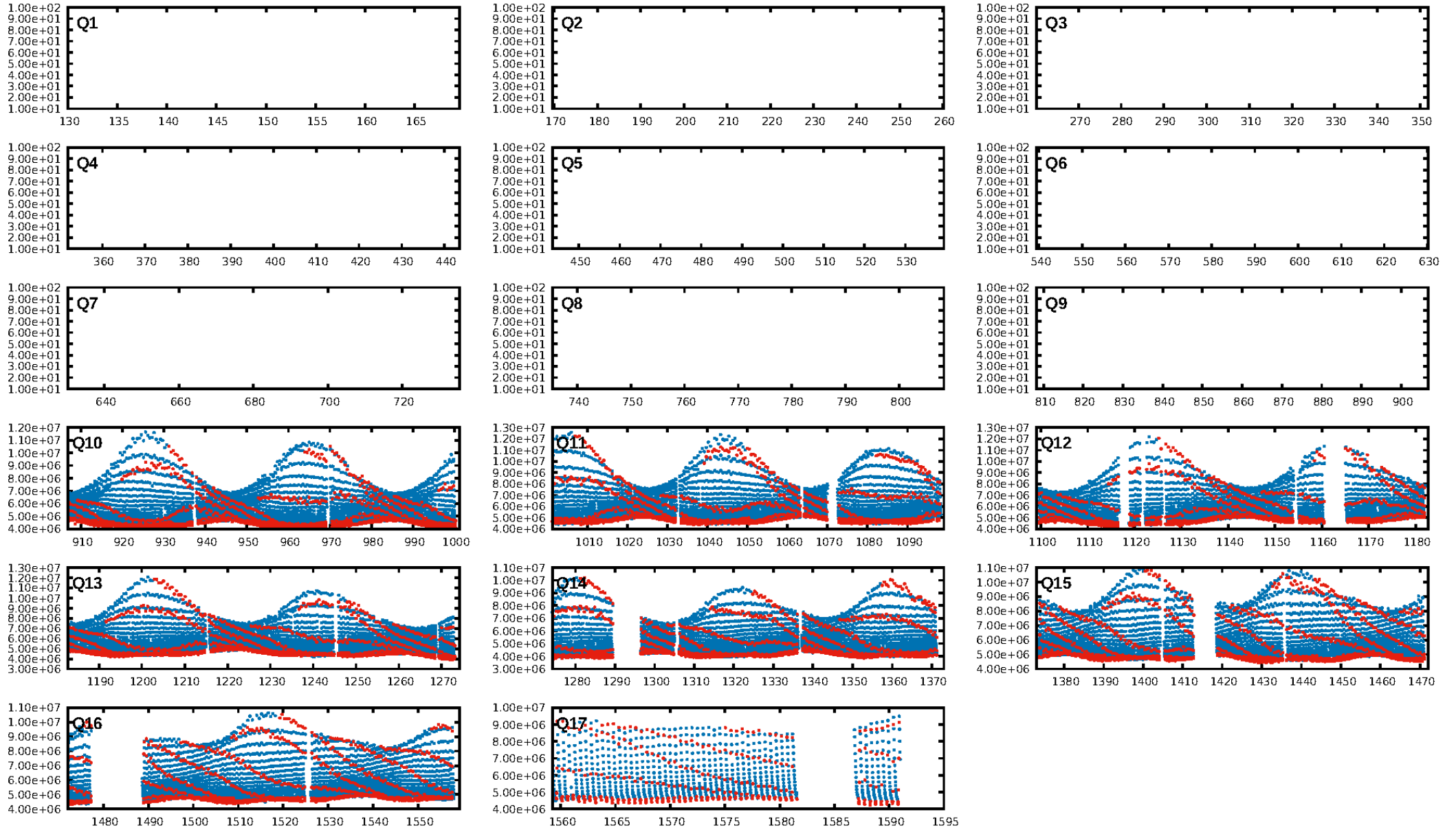
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [4.21σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [1156/1164]  
GhostDiagnostic-chr: 1.512  
Centroid-sig: 12.1%  
Centroid-so: 0.785 arcsec [339.25σ]  
OotOffset-rm: 0.085 arcsec [1.22σ]  
KicOffset-rm: 0.162 arcsec [2.35σ]  
OotOffset-st: 2/2/2/2 [8]  
KicOffset-st: 2/2/2/2 [8]  
DiffImageQuality-fgm: 1.00 [8/8]  
DiffImageOverlap-fno: 1.00 [8/8]

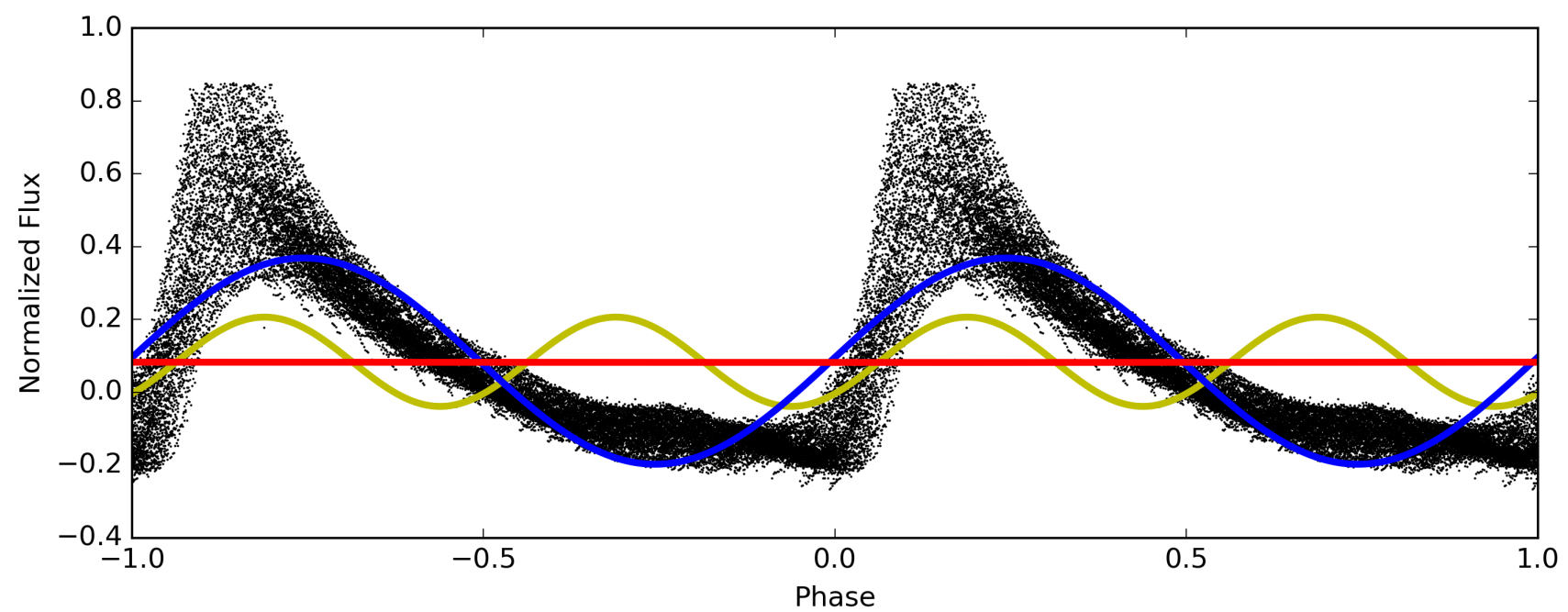
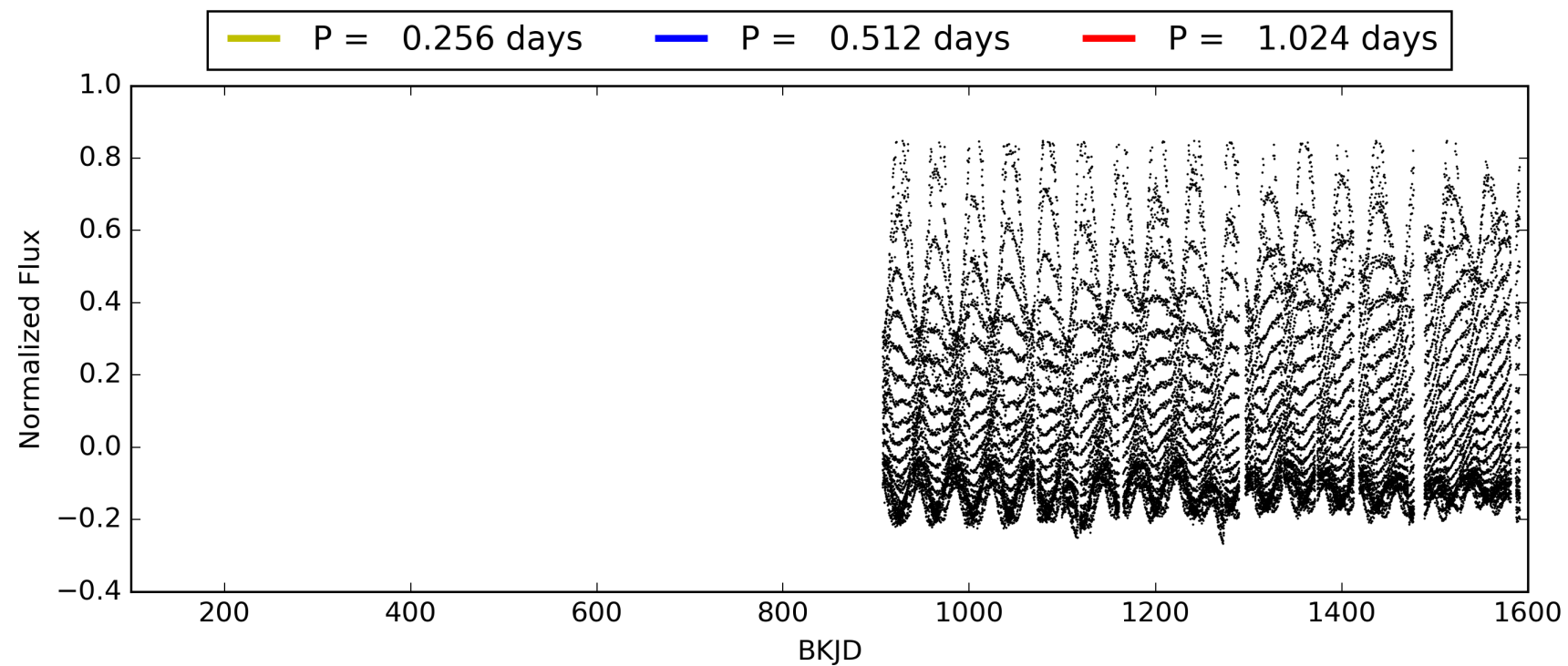
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:57:06 Z

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

# TCE 007257008-01, PDC Light Curves

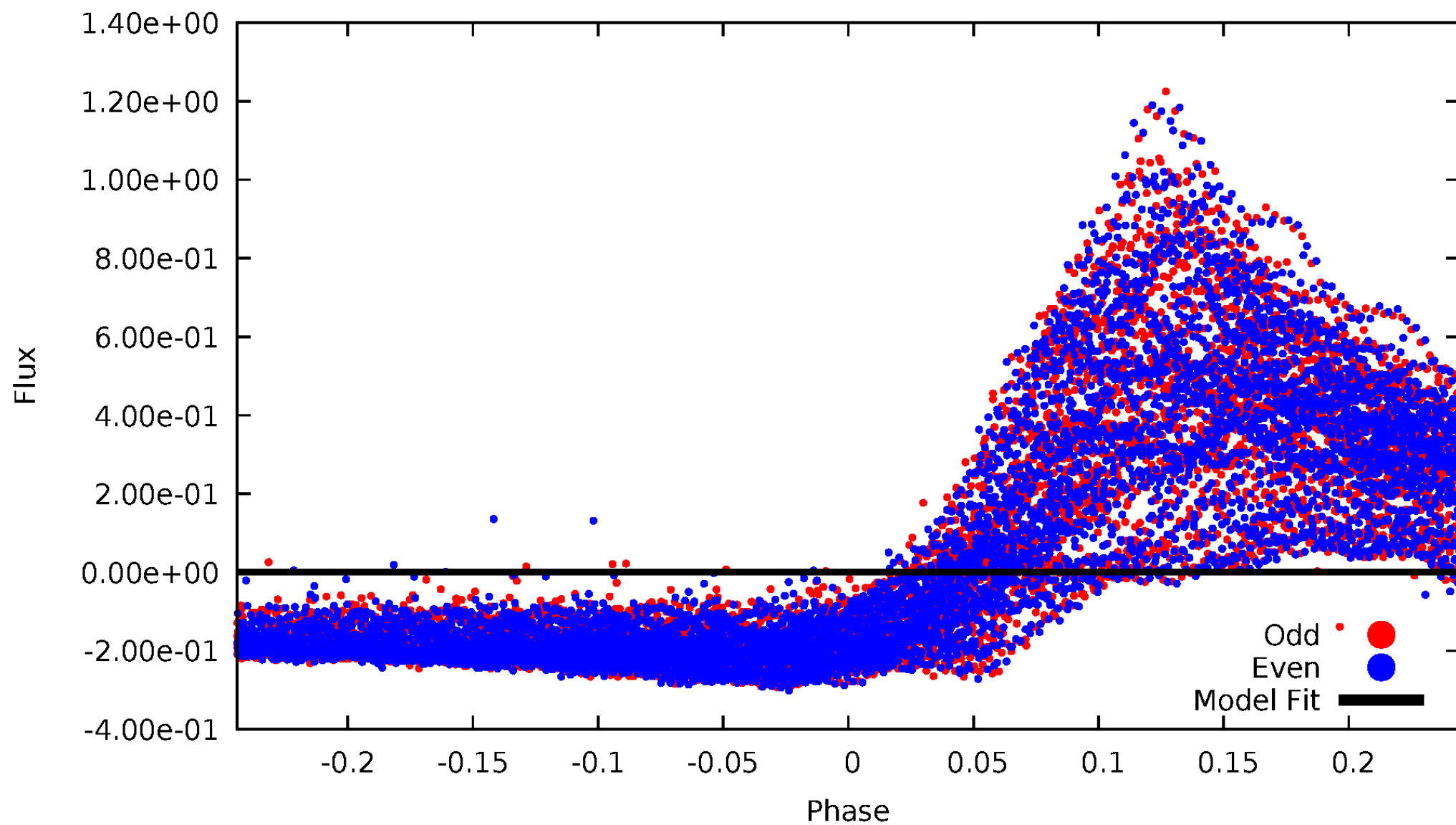


TCE 007257008-01



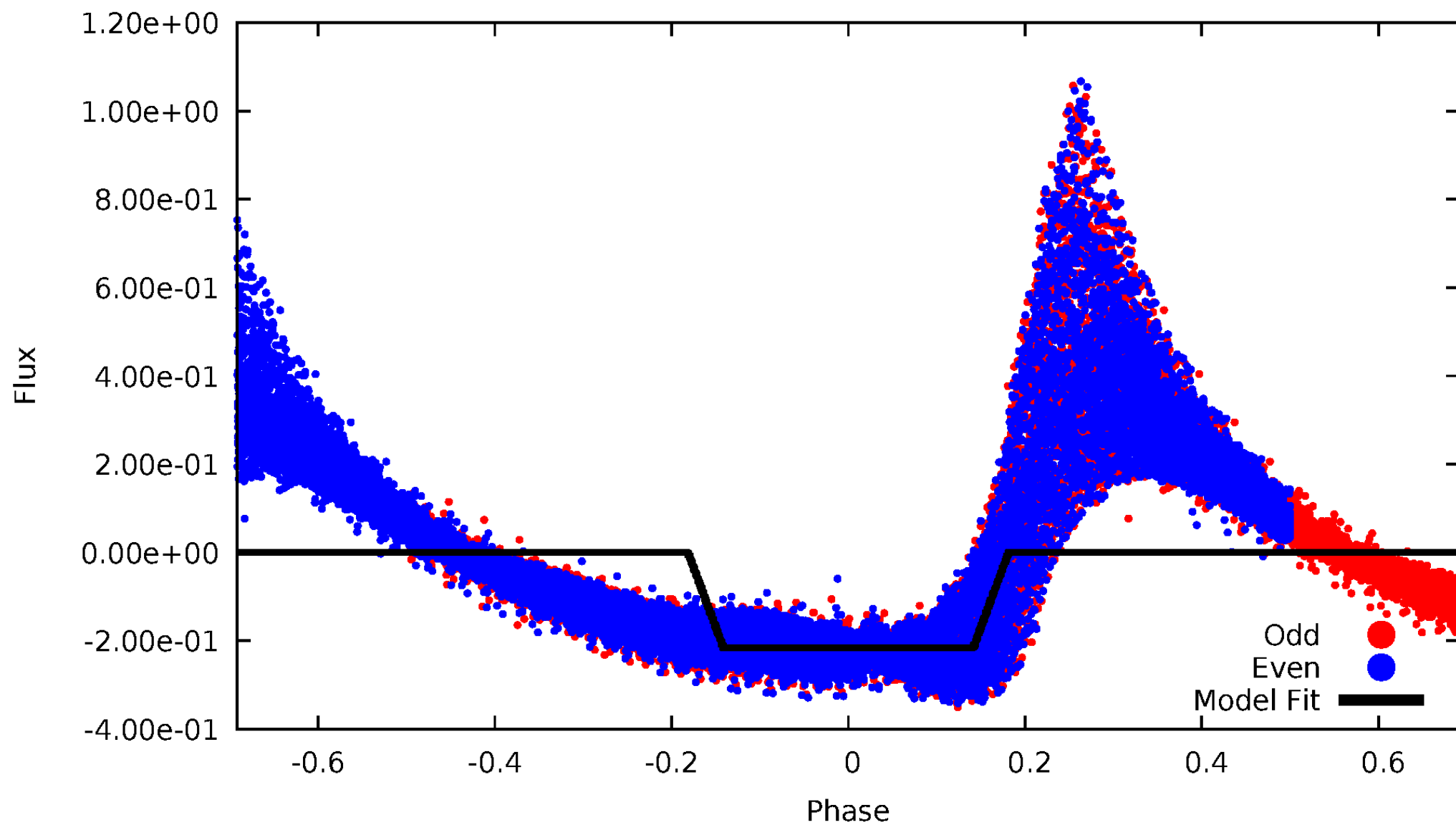
# DV Odd/Even

TCE 007257008-01



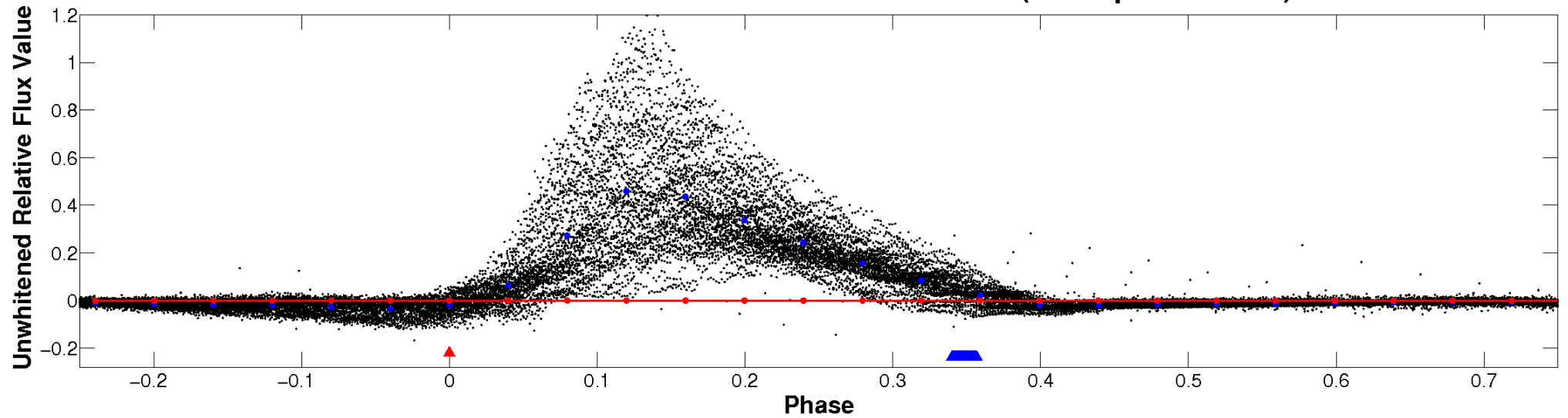
# ALT Odd/Even

TCE 007257008-01



# Non-Whitened Vs. Whitened Light Curve

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

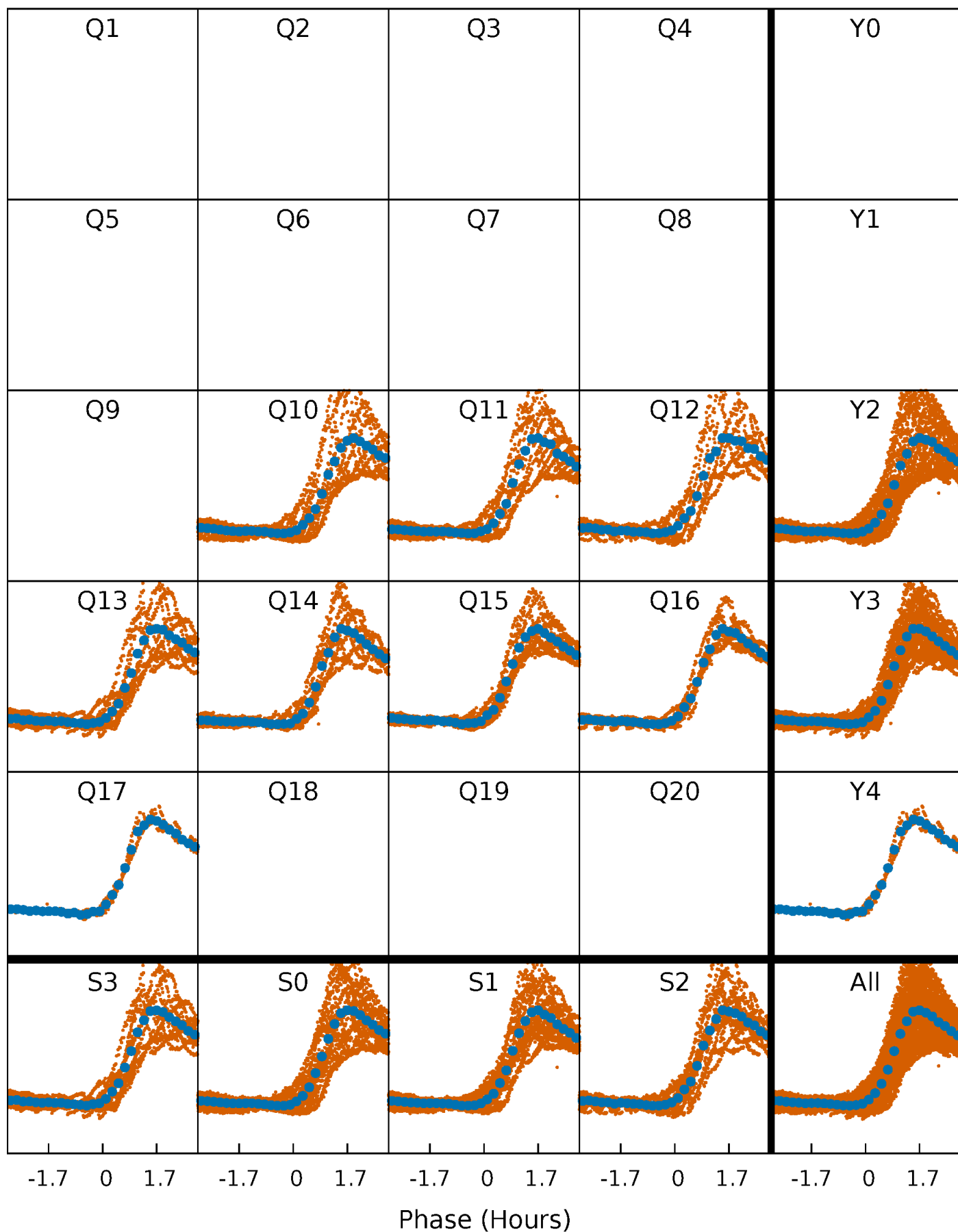


**Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

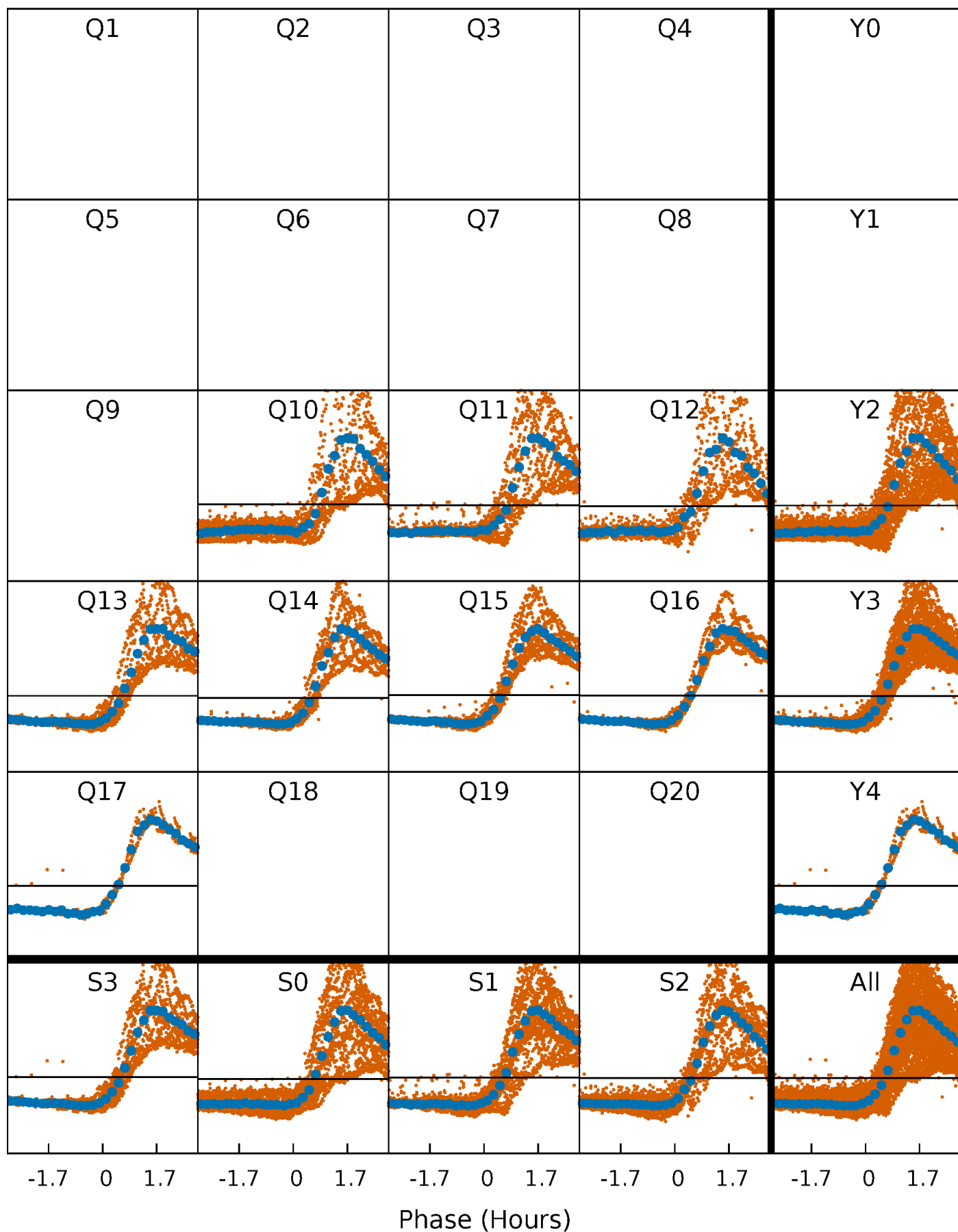
TCE 007257008-01   P= 0.511796 Days    $T_0=131.717244$  (BKJD)





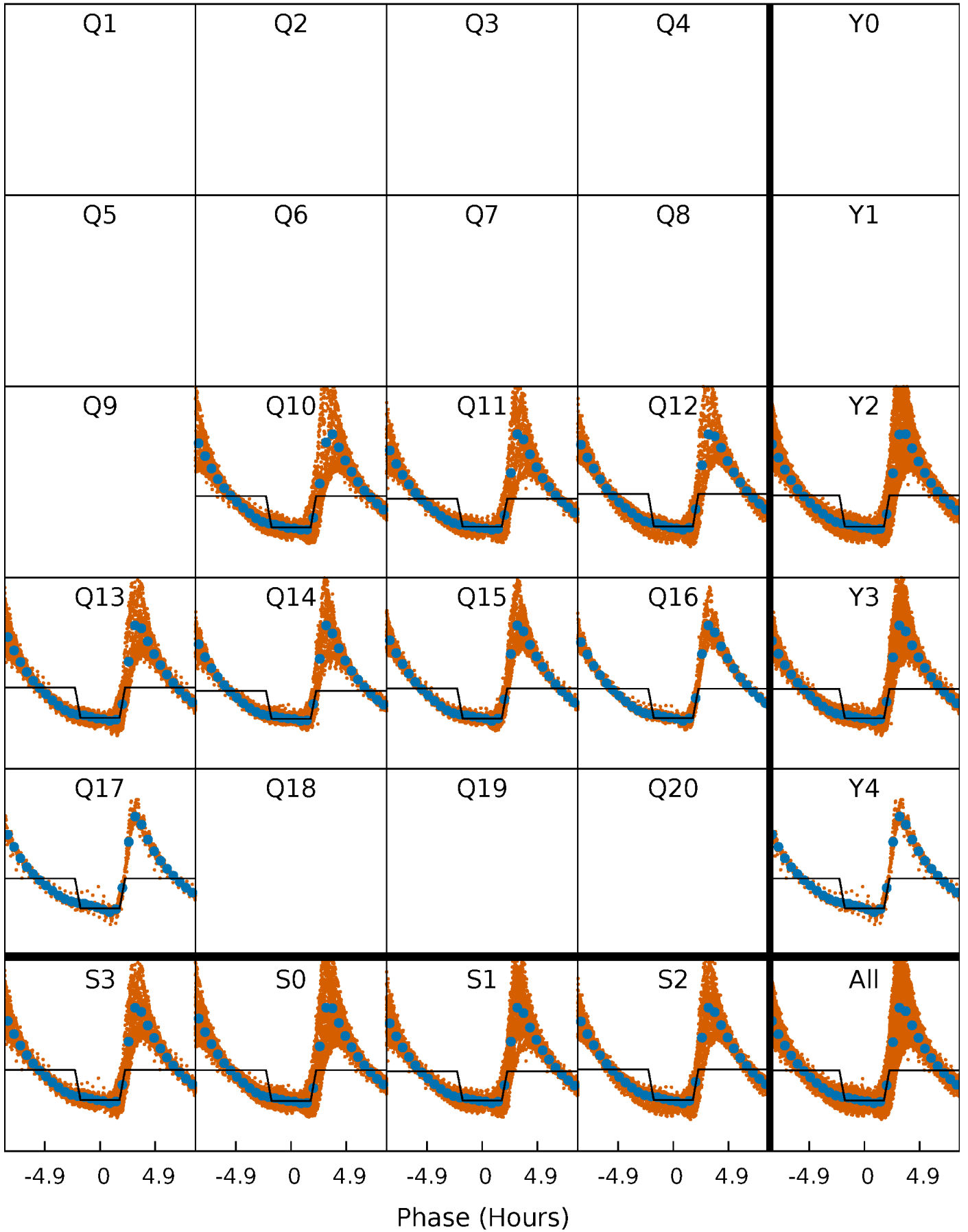
# DV Quarter-Phased Transit Curves

TCE 007257008-01   P= 0.511796 Days    $T_0=131.717244$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

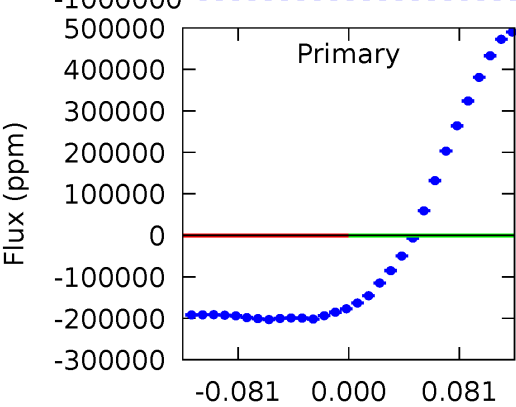
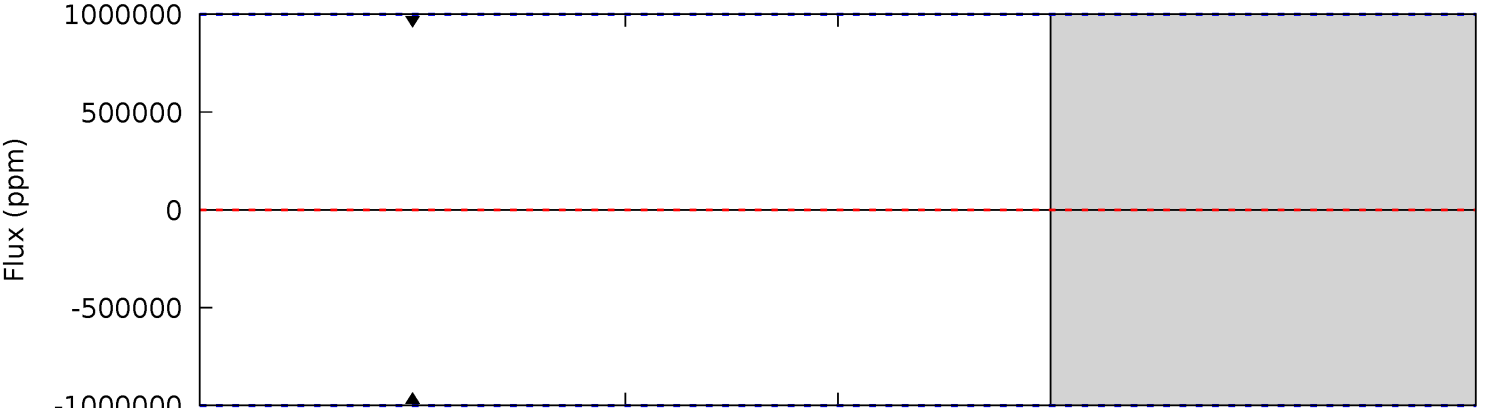
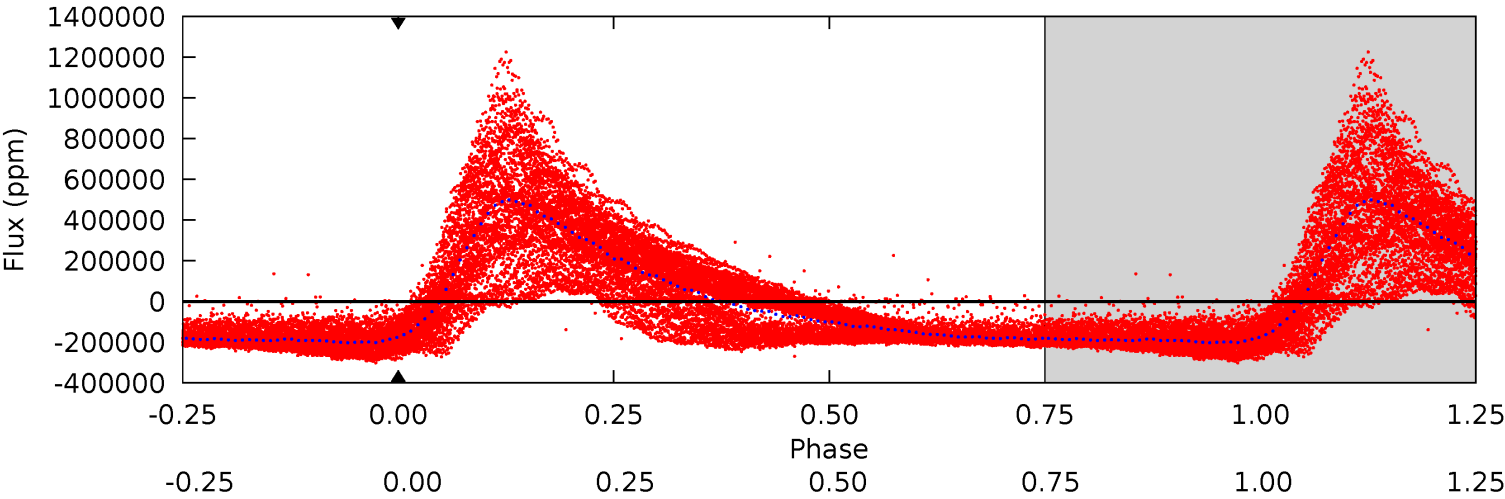
TCE 007257008-01 P= 0.511796 Days  $T_0=131.650916$  (BKJD)



# DV Model-Shift Uniqueness Test

007257008-01, P = 0.511796 Days, E = 131.717244 Days

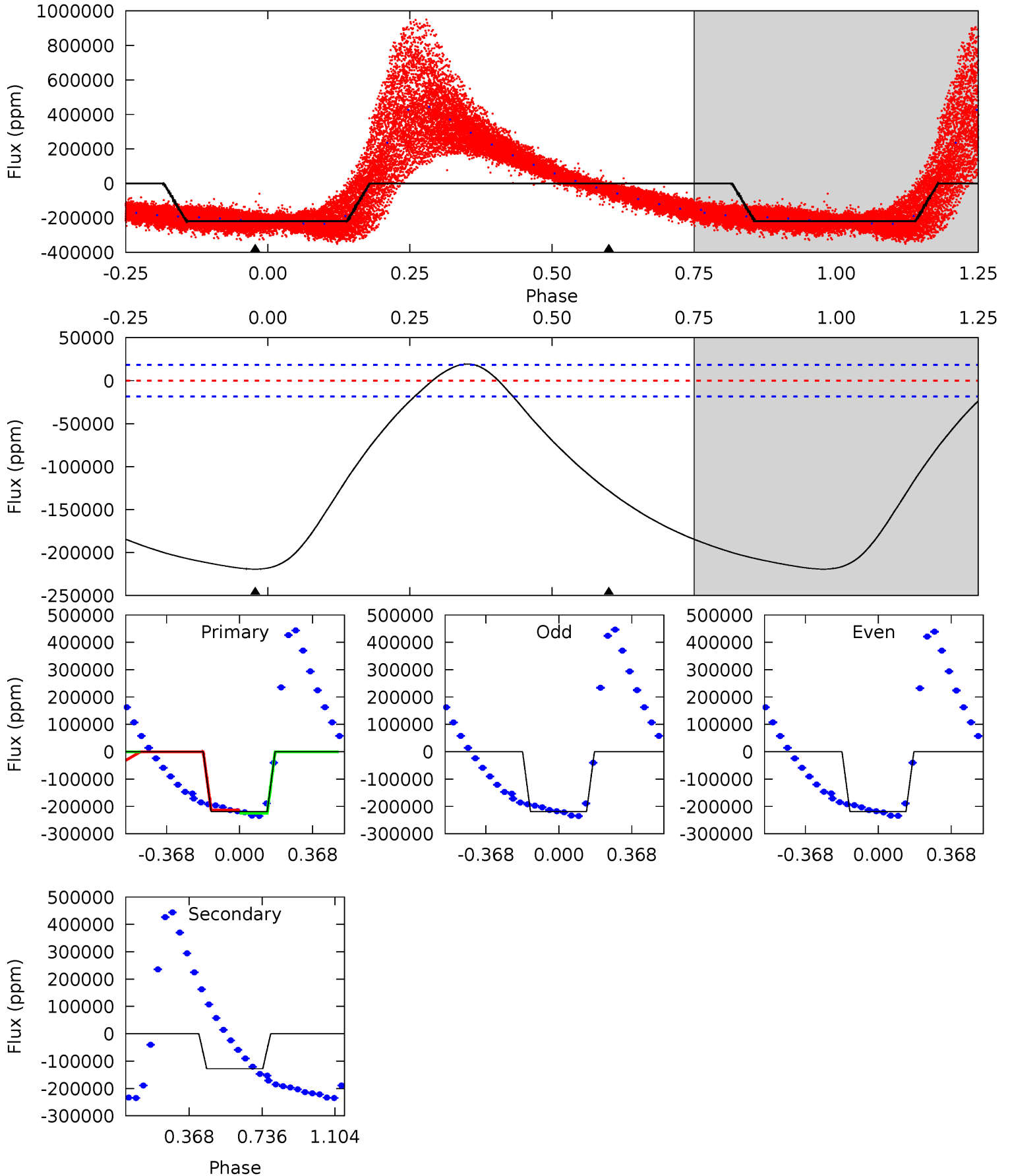
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007257008-01, P = 0.511796 Days, E = 131.650916 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
51.0	29.8	0	0	4.28	0.90	3.54	51.0	51.0	29.8	29.8	0.00	1.00	0.08	1.66



### Stellar Parameters For KIC 007257008

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$7308^{+228}_{-304}$	$4.183^{+0.132}_{-0.182}$	$-0.340^{+0.250}_{-0.350}$	$1.567^{+0.478}_{-0.319}$	$1.366^{+0.226}_{-0.204}$	$0.501^{+0.369}_{-0.244}$
	+3%/-4%	+3%/-4%	+74%/-103%	+31%/-20%	+17%/-15%	+74%/-49%
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 007257008-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$21.81^{+17.70}_{-12.73}$	$4811^{+355}_{-333}$	$-4884^{+21998}_{-11105}$	$-0.363^{+30.581}_{-25.860}$
Alt.	$-127965 \pm 4300$	$81.09^{+22.19}_{-19.89}$	$4799^{+367}_{-316}$	$6302^{+1013}_{-746}$	$2.321^{+1.888}_{-0.845}$

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

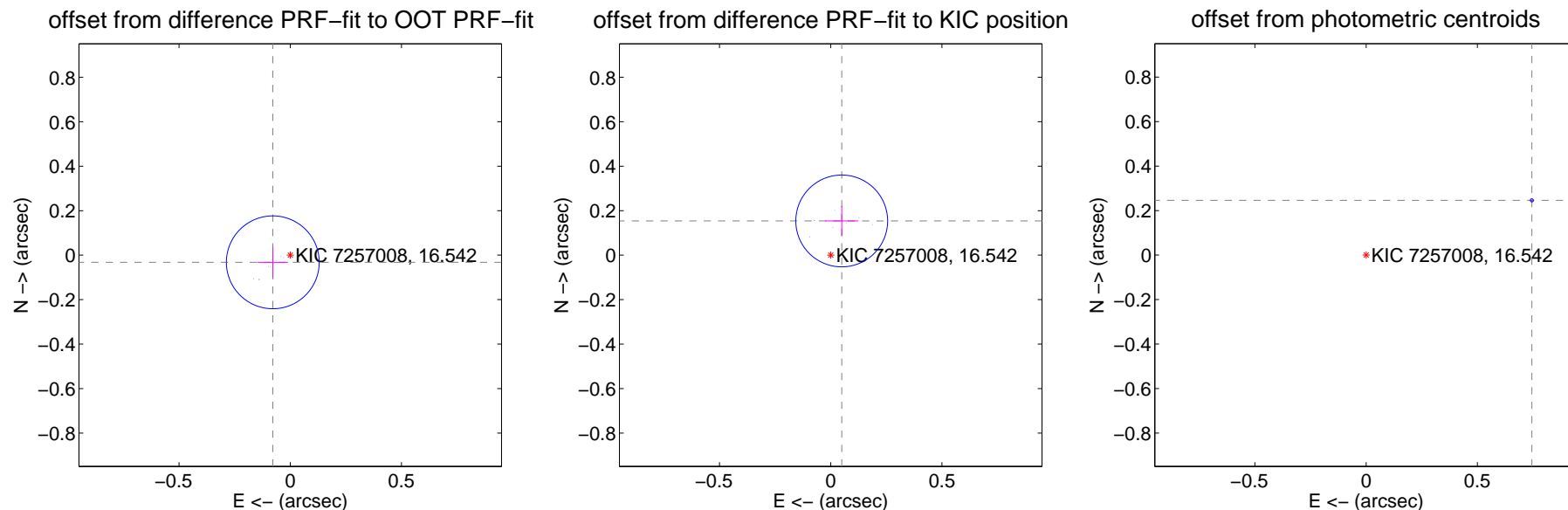
## DV Centroid Data

Supplemental centroid analysis for 007257008-01. Kepler magnitude: 16.54. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.085 \pm 0.070$	1.22	$0.079 \pm 0.069$	$-0.032 \pm 0.068$
PRF-fit source offset from KIC position	$0.162 \pm 0.069$	2.35	$-0.049 \pm 0.075$	$0.154 \pm 0.068$
photometric centroid source offset	$0.78 \pm 0.00$	<b>339.25</b>	$-0.75 \pm 0.00$	$0.25 \pm 0.00$



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

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

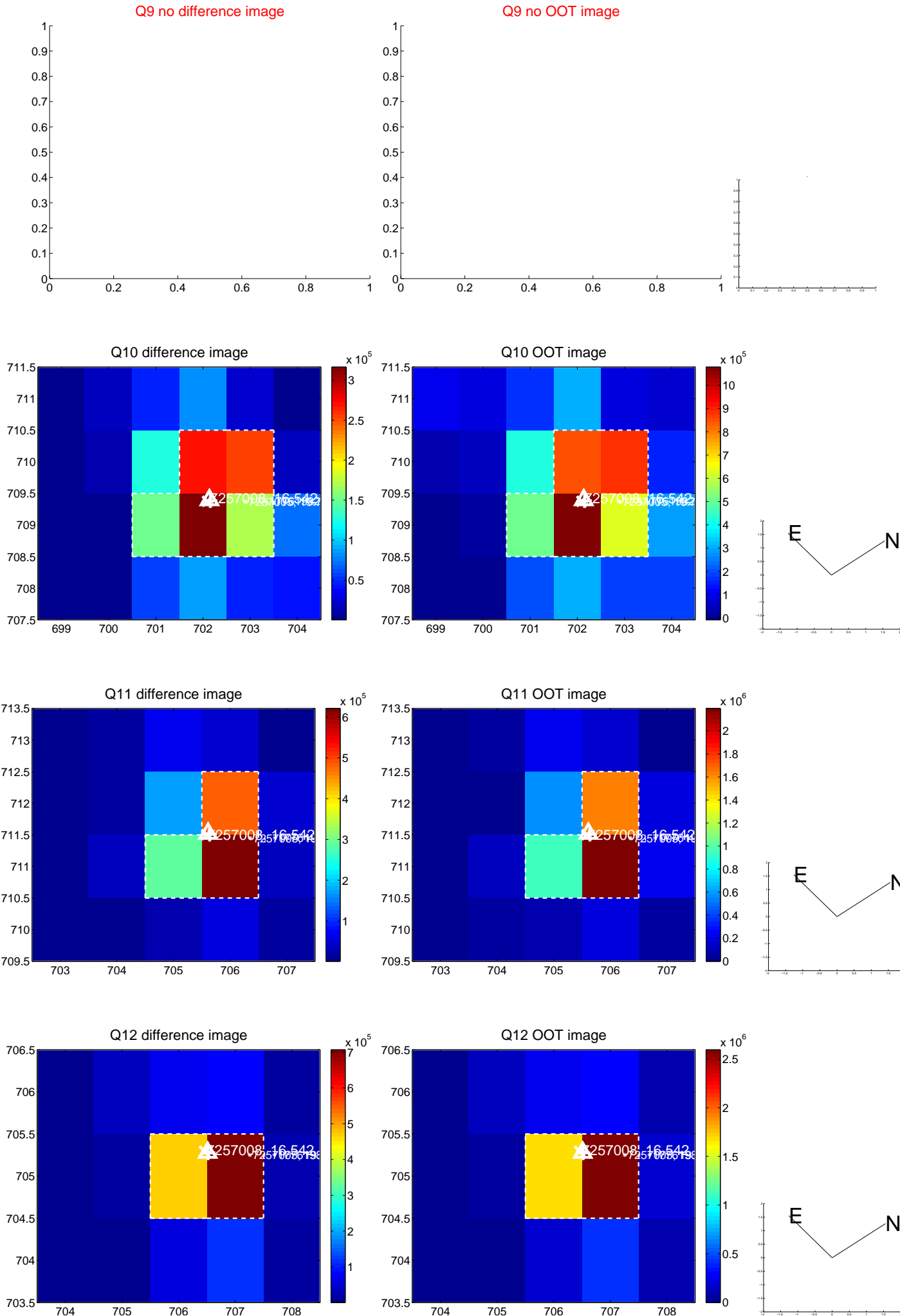


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

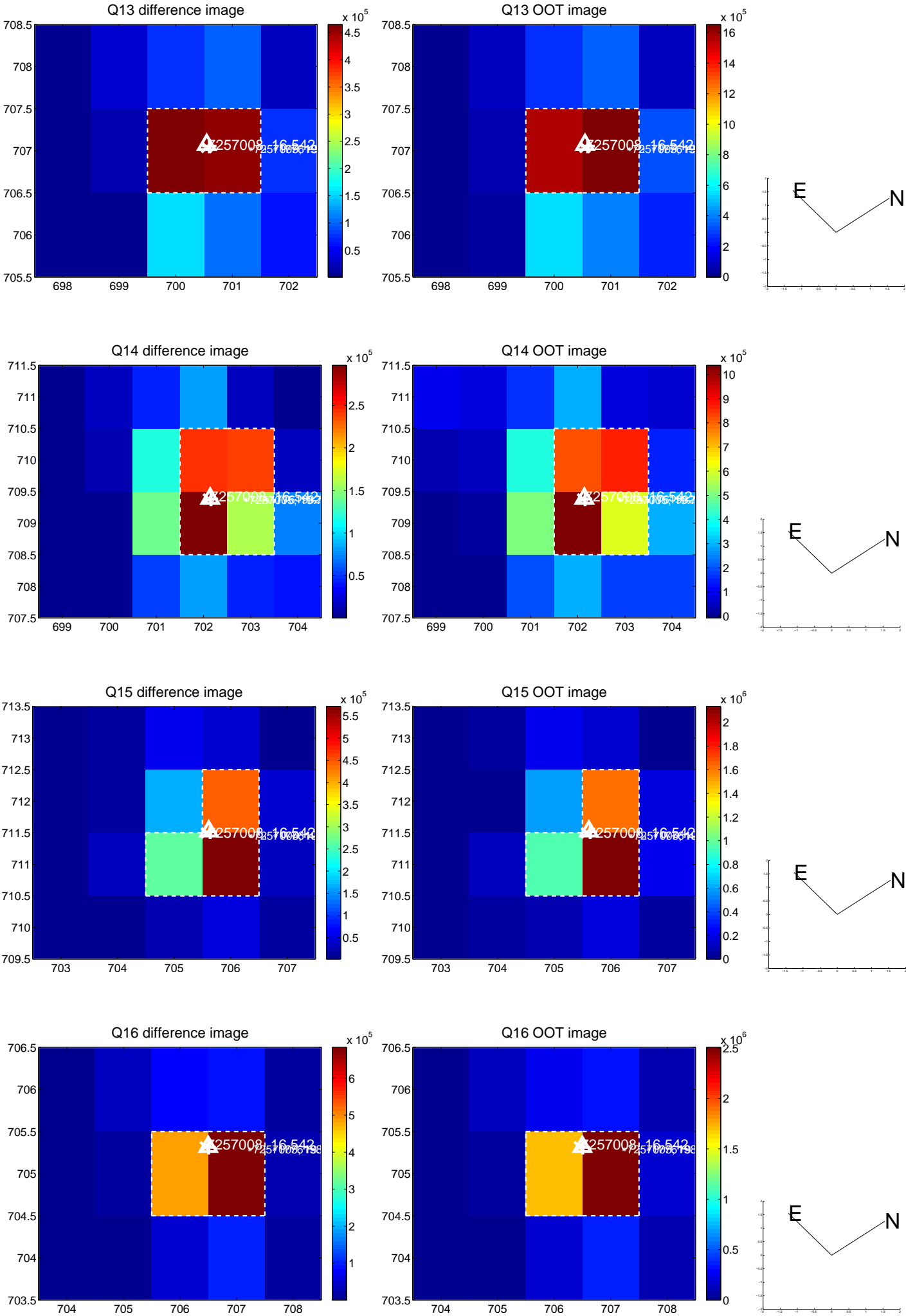




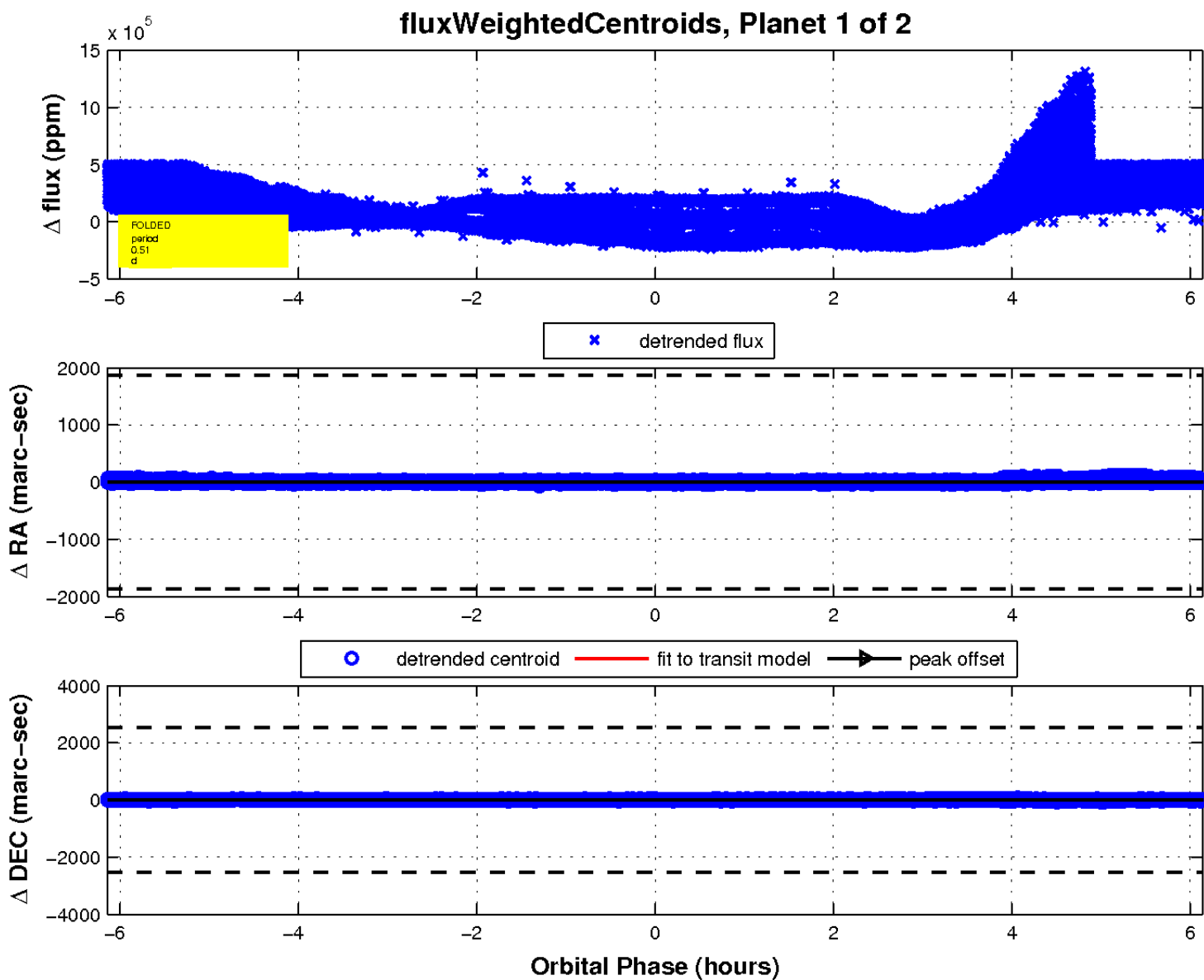
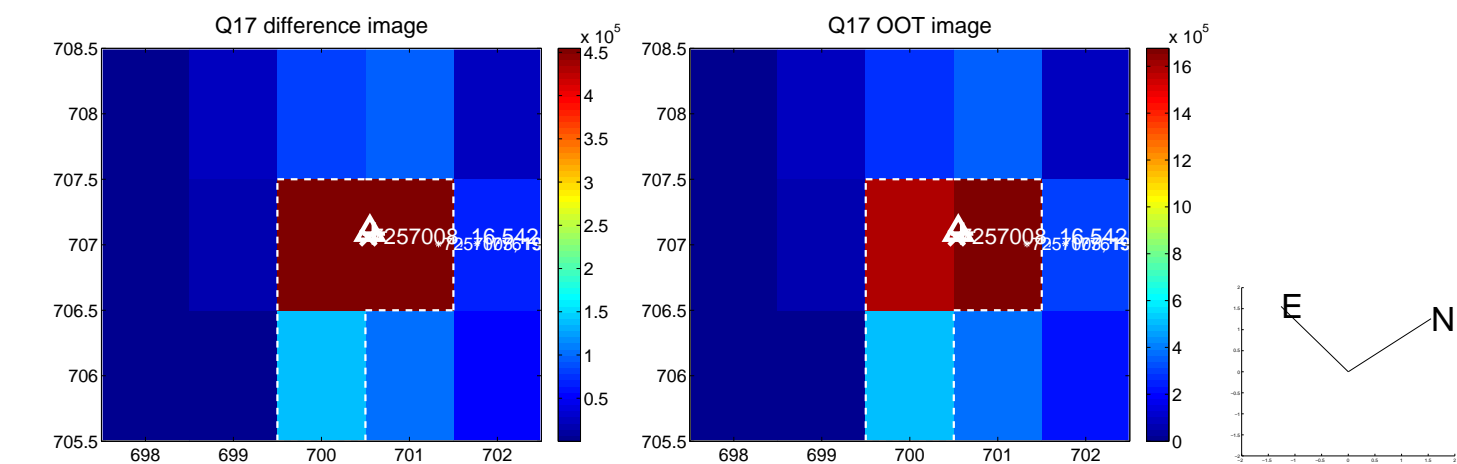
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



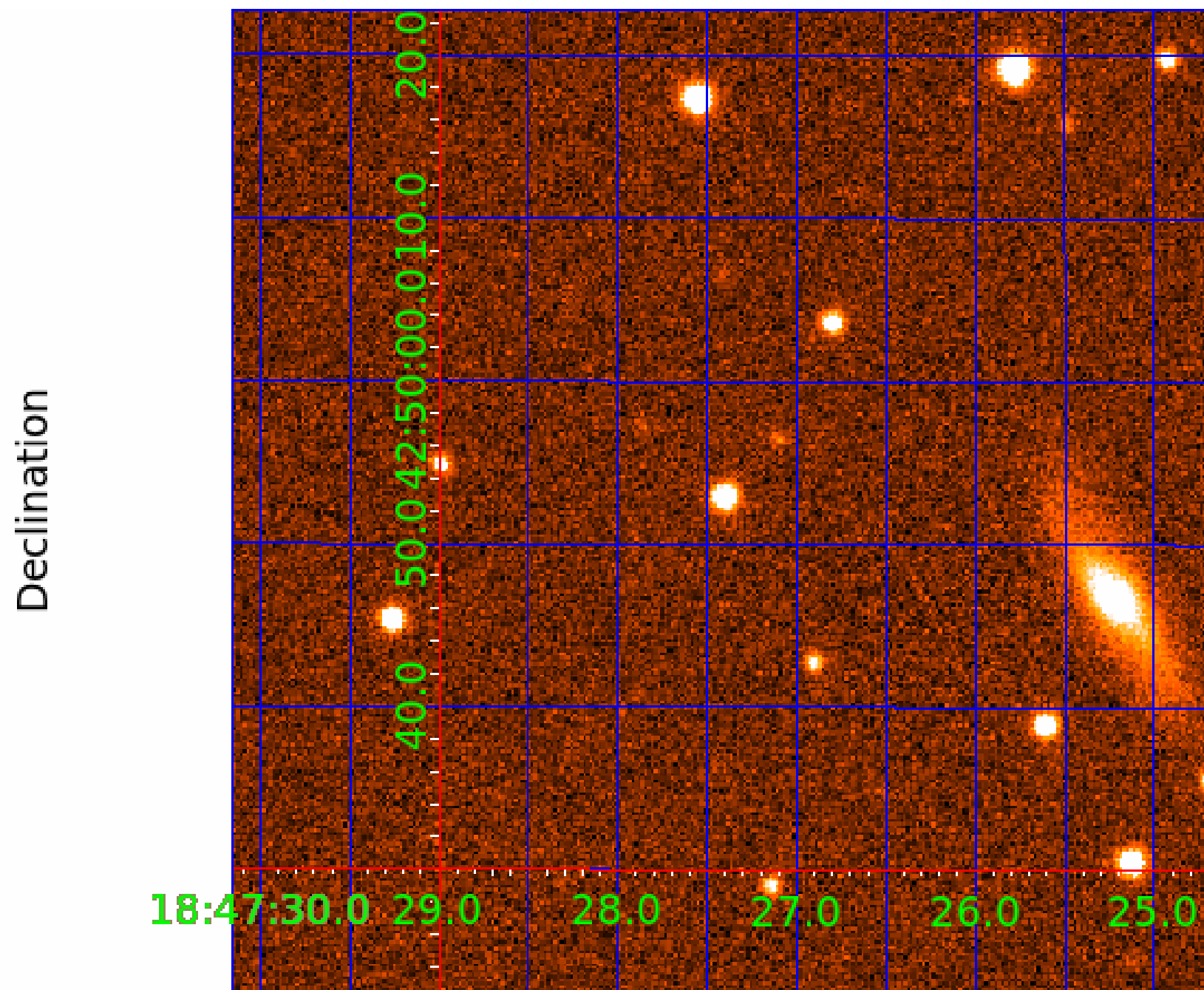
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 007257008

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007257008-01	OBS	No	0.511796	131.717244	14603.9	1.500	117.7	-1.0	1.57	7308	19.30	32509.17
007257008-02	OBS	No	1.023597	131.891202	6793.9	2.500	44.2	-1.0	1.57	7308	13.12	12901.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007257008-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—CENT_NOFITS
007257008-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

**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.

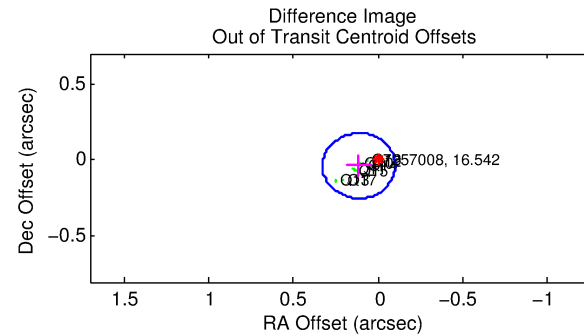
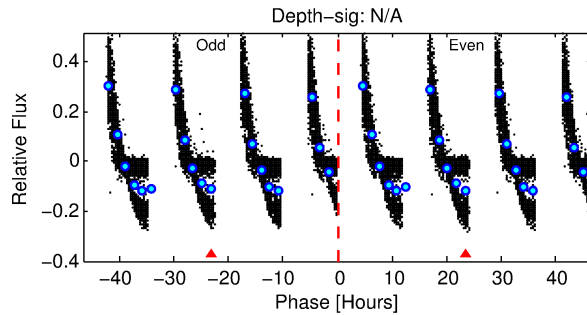
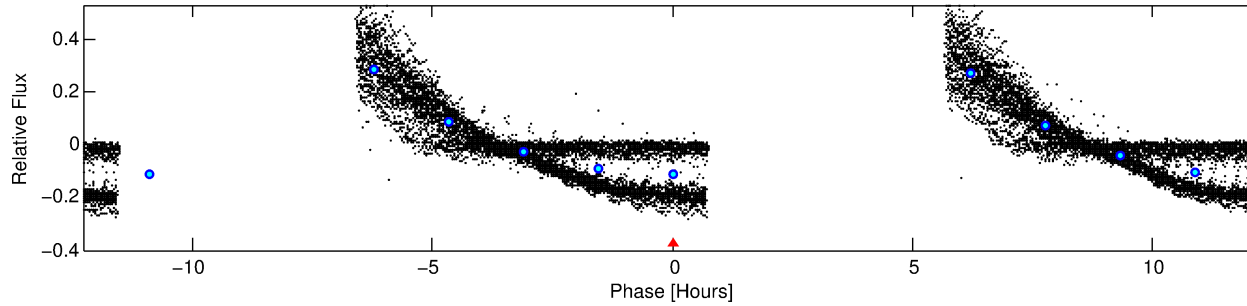
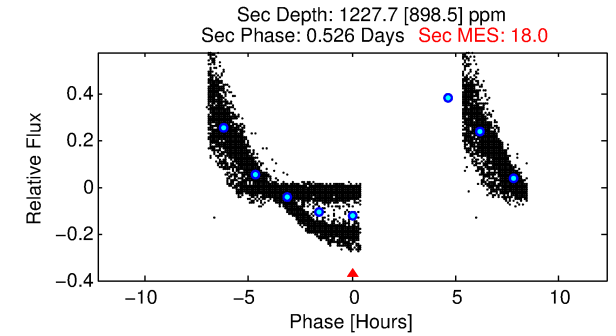
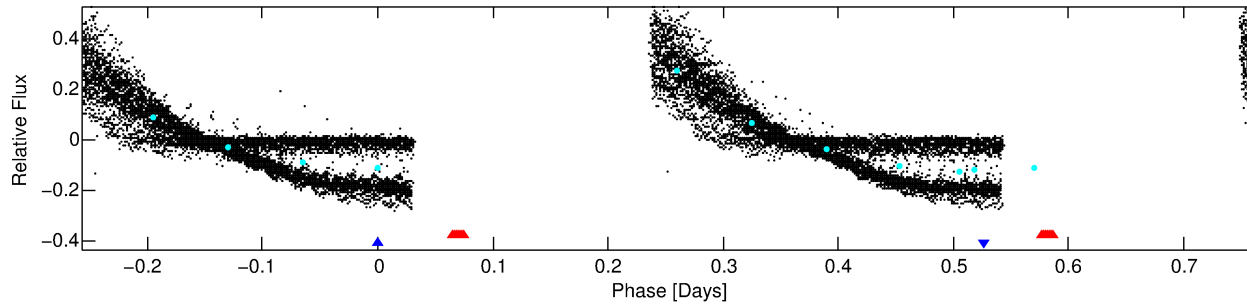
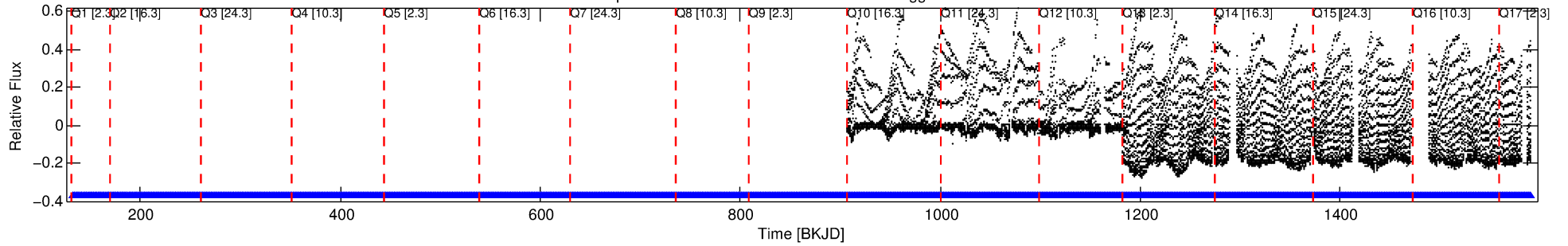
## Ephemeris Match Information For 007257008-02

No Significant Match Found

# DV One-Page Summary

KIC: 7257008 Candidate: 2 of 2 Period: 1.024 d

Kp: 16.54 R\*: 1.57 Rs Teff: 7308.0 K Logg: 4.18 Fe/H: -0.340



## TPS TCE Results:

Period = 1.02360 d  
Epoch = 131.8912 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

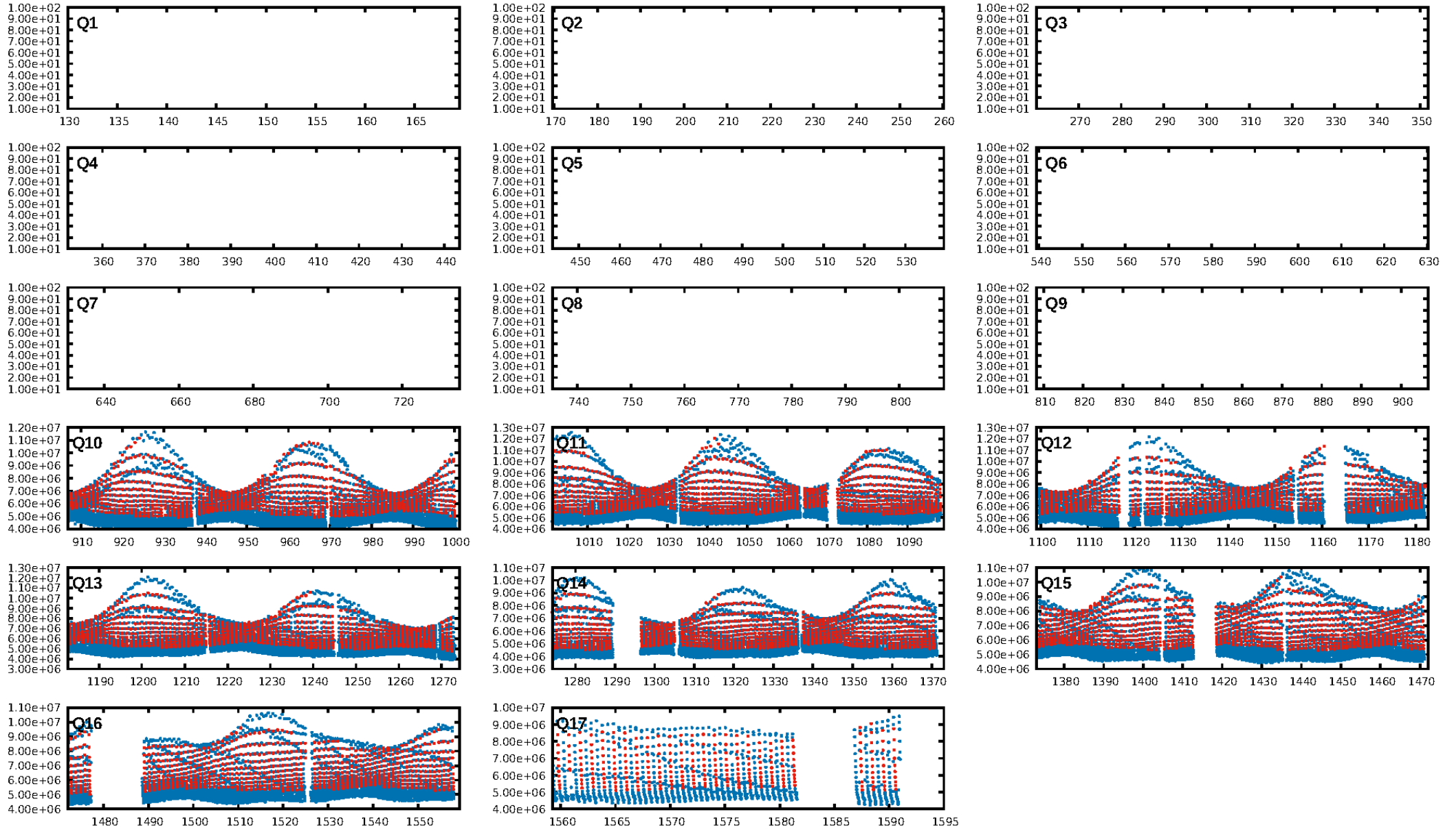
ShortPeriod-sig: 100.0% [4.21 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [585/585]  
GhostDiagnostic-chr: 1.823

Centroid-sig: 0.2%  
Centroid-so: 0.788 arcsec [288.78 $\sigma$ ]  
OotOffset-rm: 0.120 arcsec [1.67 $\sigma$ ]  
KicOffset-rm: 0.156 arcsec [2.25 $\sigma$ ]  
OotOffset-st: 2/2/2/2 [8]  
KicOffset-st: 2/2/2/2 [8]  
DiffImageQuality-fgm: 1.00 [8/8]  
DiffImageOverlap-fno: 0.00 [0/8]

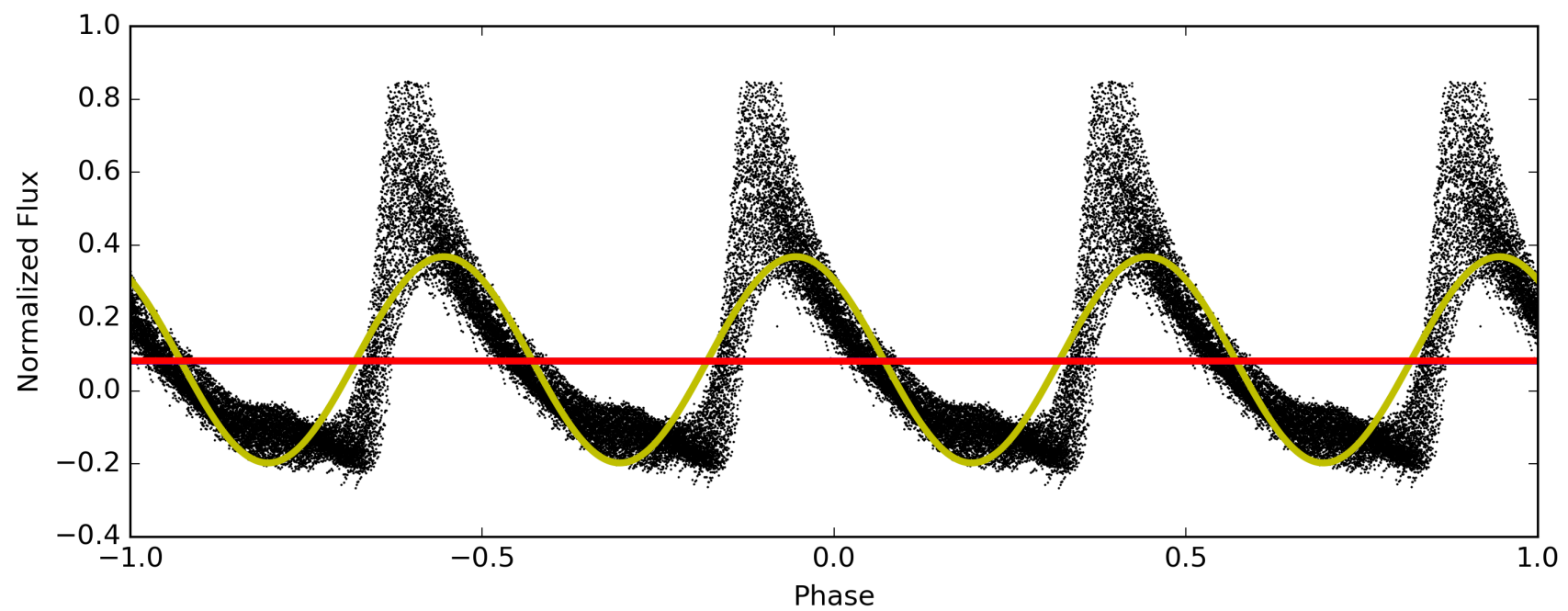
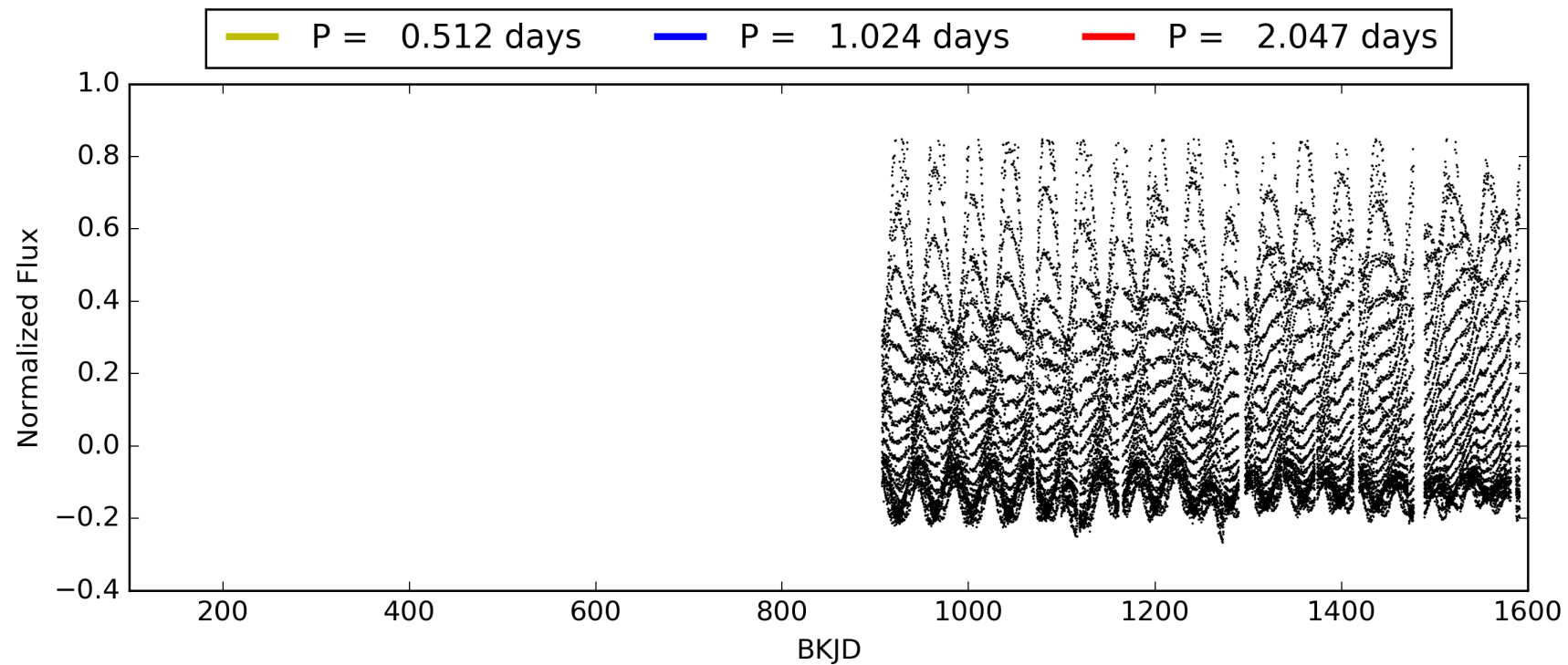
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:57:16 Z

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

# TCE 007257008-02, PDC Light Curves



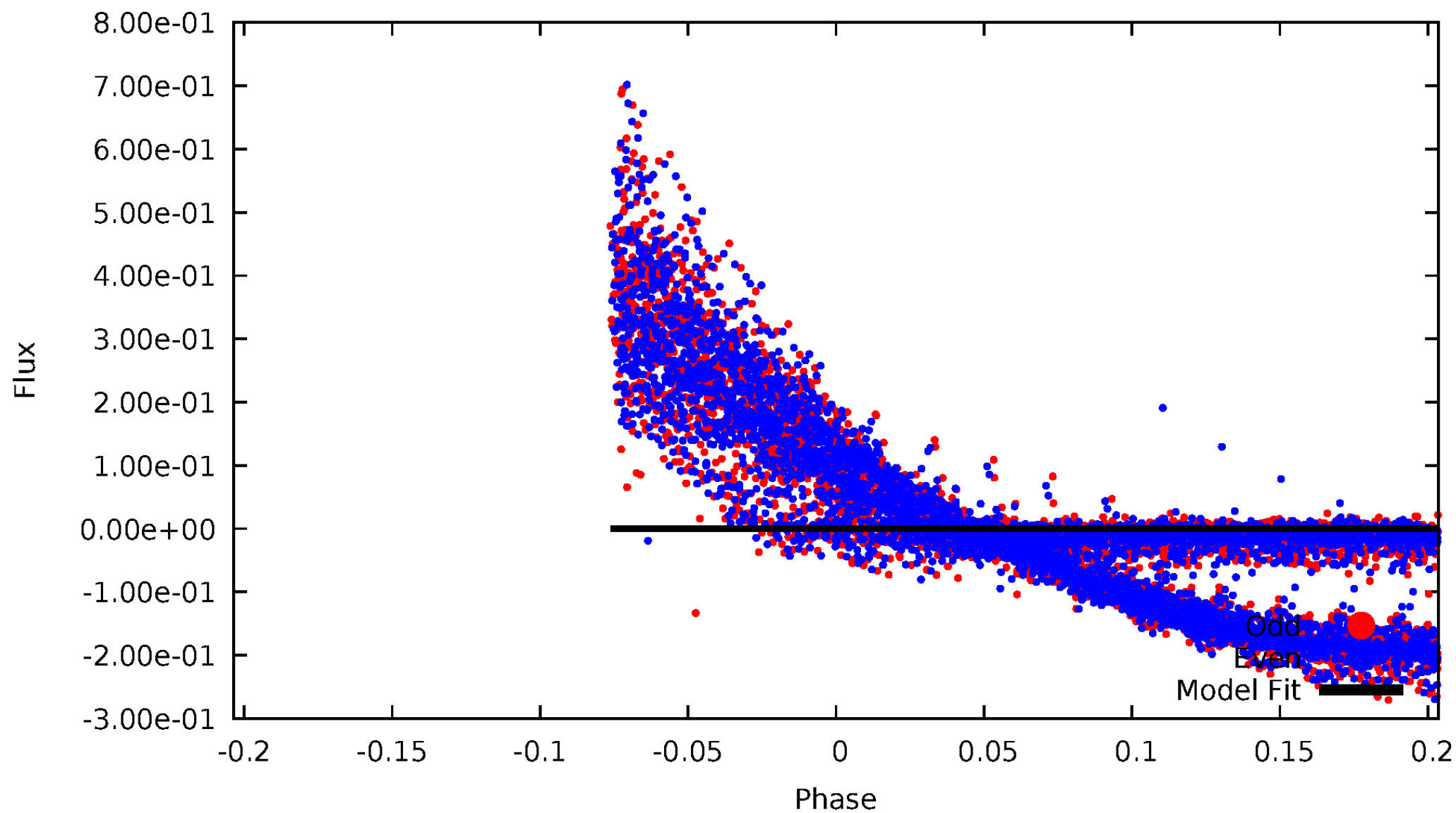
TCE 007257008-02





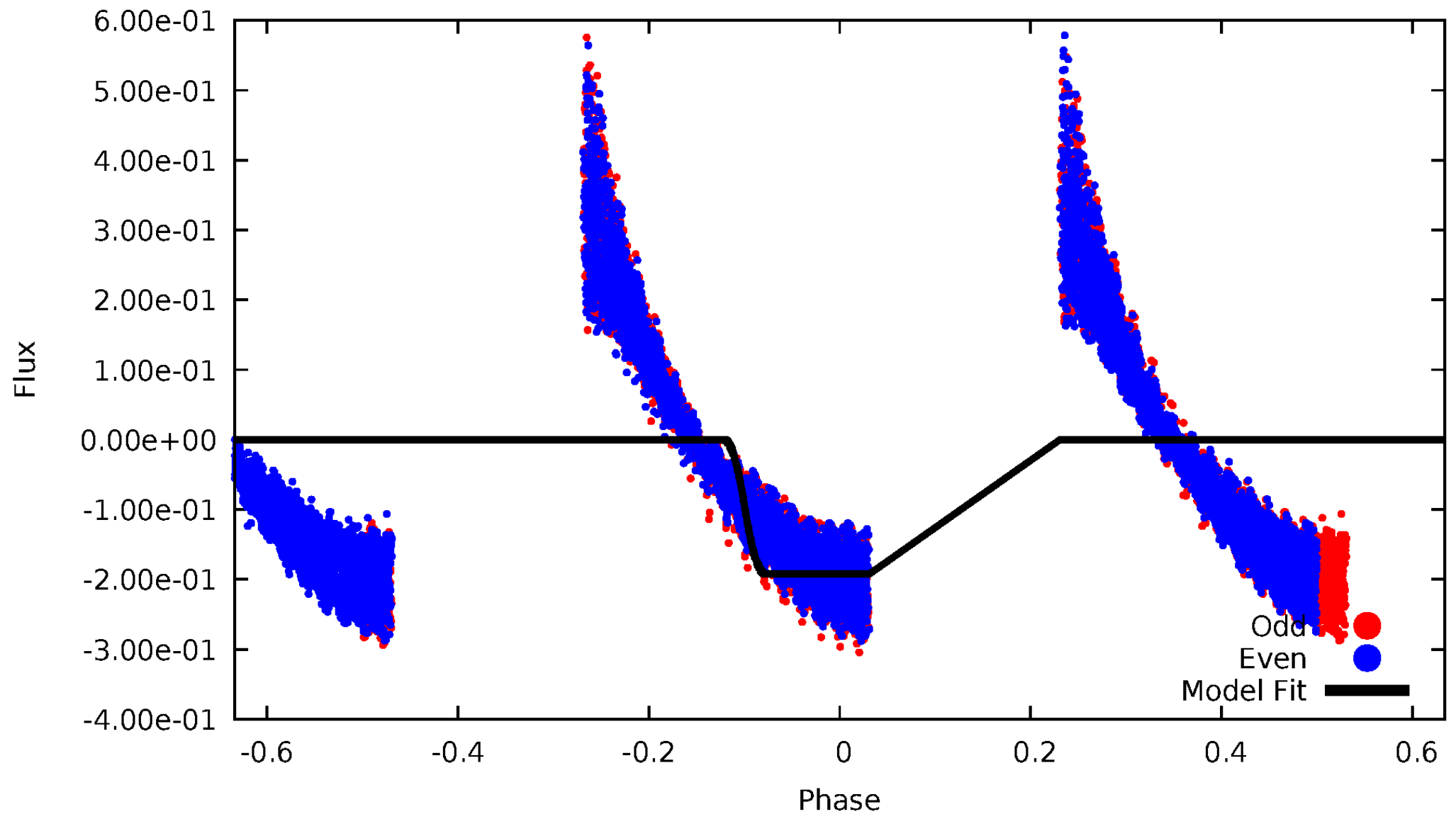
# DV Odd/Even

TCE 007257008-02



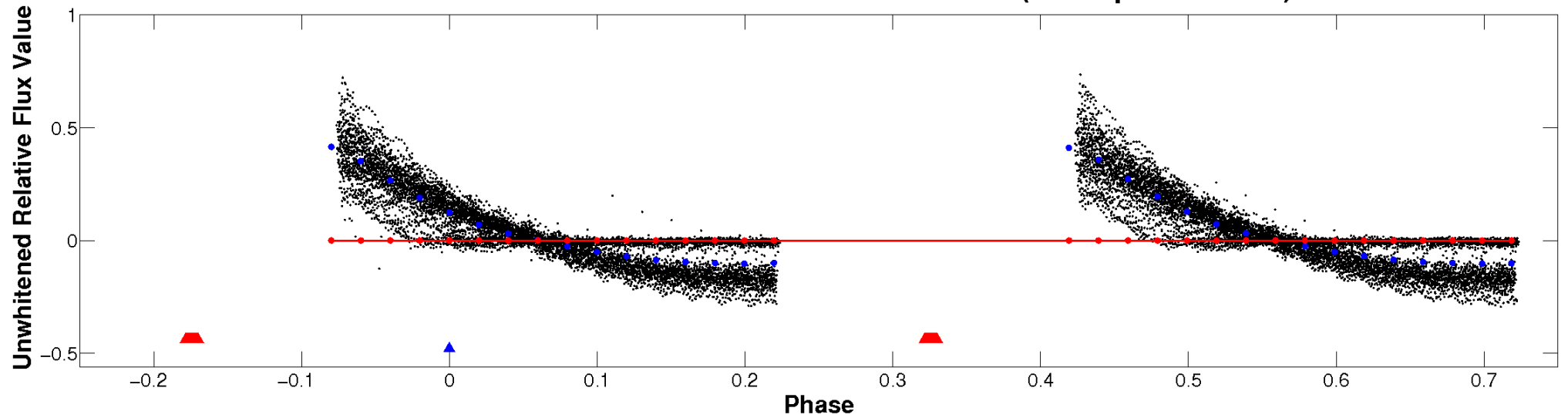
# ALT Odd/Even

TCE 007257008-02



# Non-Whitened Vs. Whitened Light Curve

**Planet 2 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

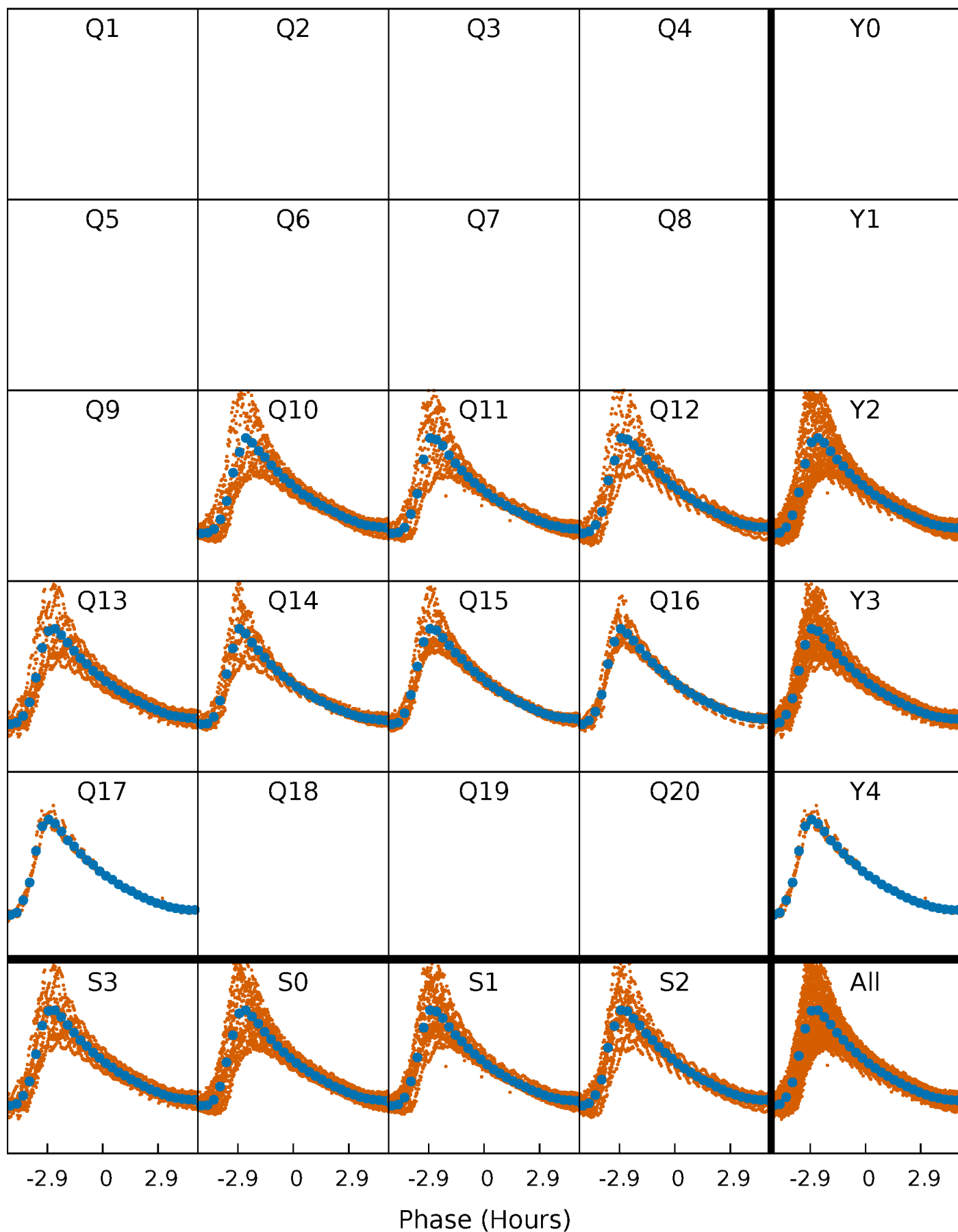


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



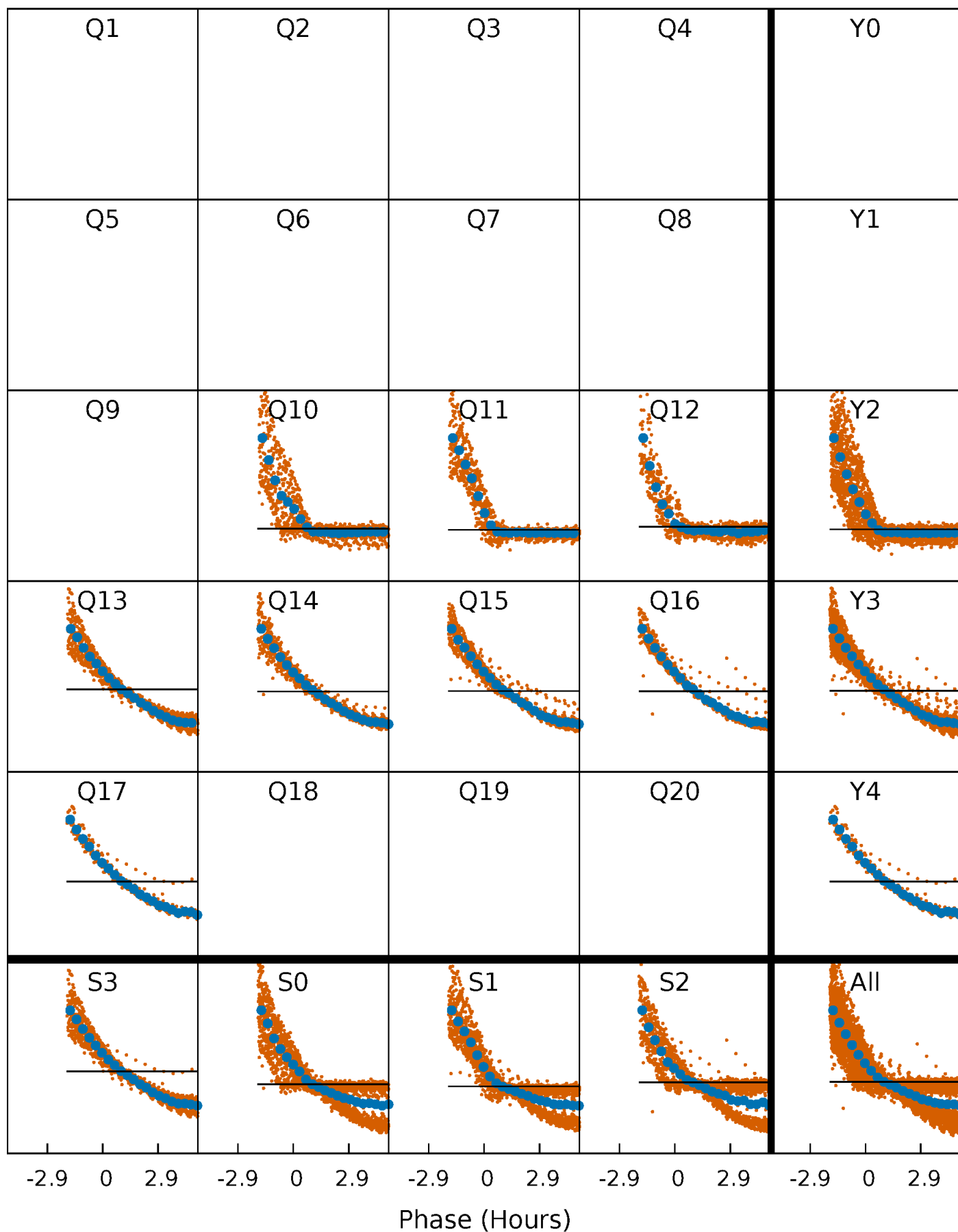
# PDC Quarter-Phased Transit Curves

TCE 007257008-02   P= 1.023597 Days    $T_0=131.891202$  (BKJD)



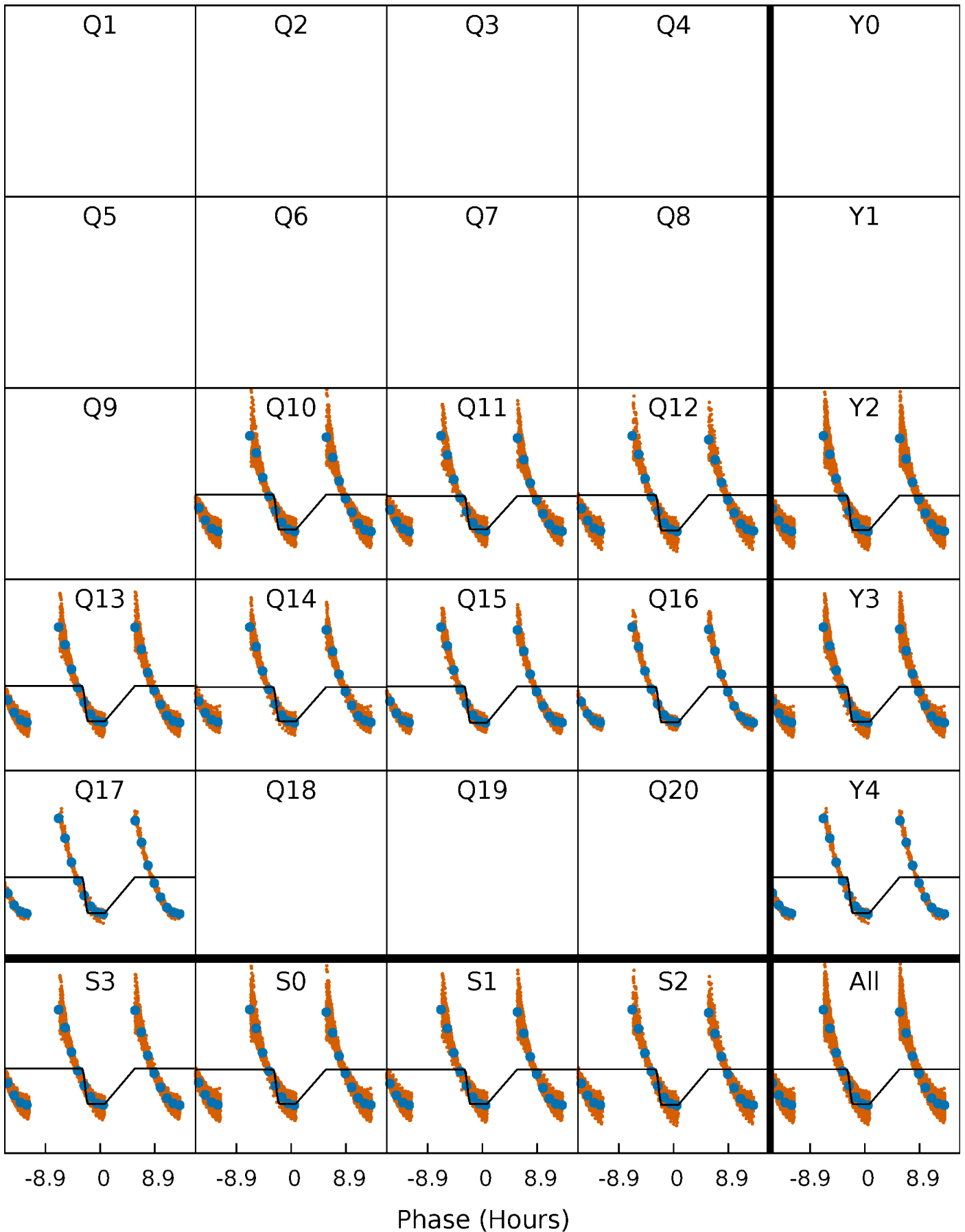
# DV Quarter-Phased Transit Curves

TCE 007257008-02     $P = 1.023597$  Days     $T_0 = 131.891202$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

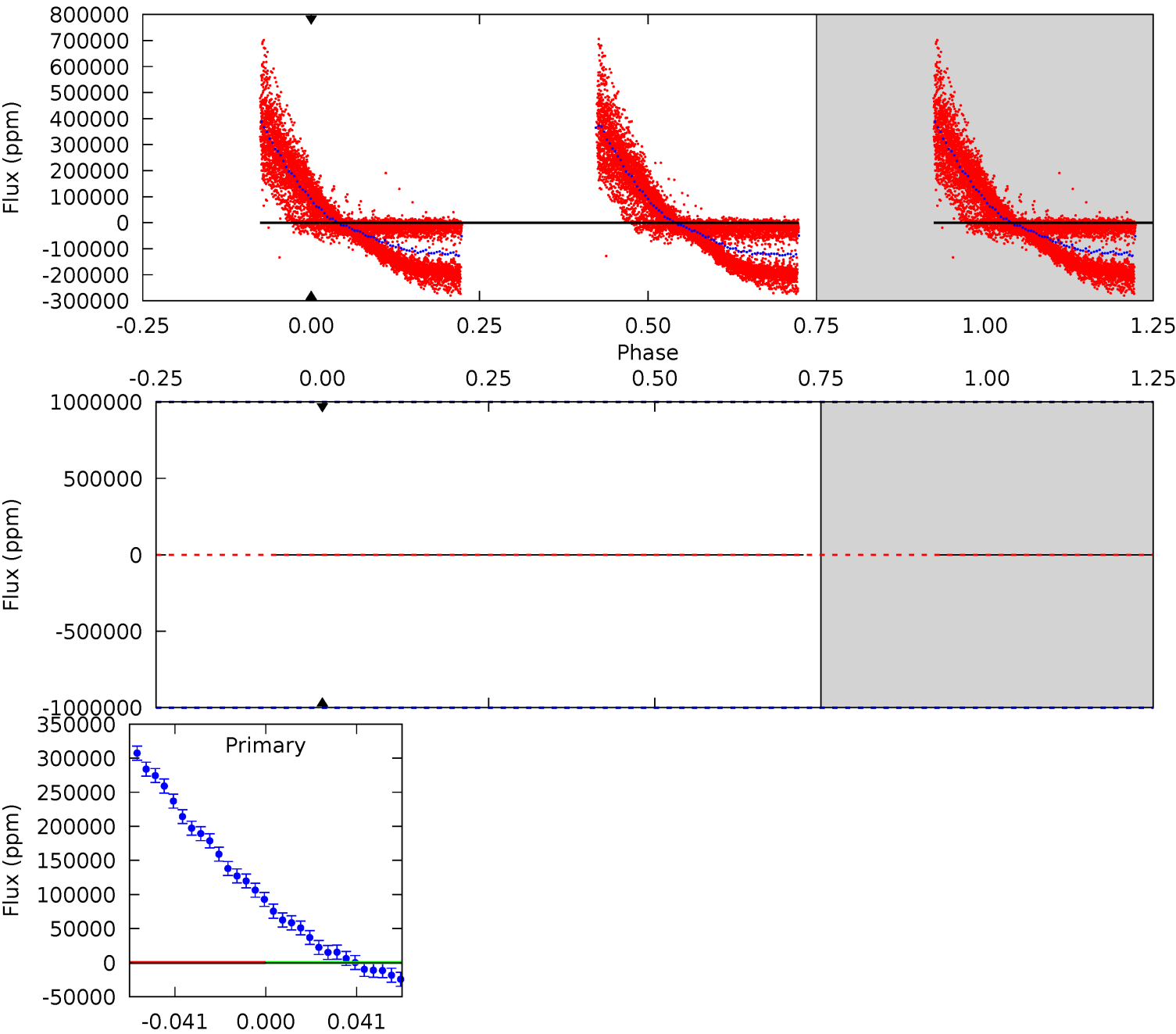
TCE 007257008-02     $P = 1.023597$  Days     $T_0 = 132.088220$  (BKJD)



# DV Model-Shift Uniqueness Test

007257008-02, P = 1.023597 Days, E = 131.891202 Days

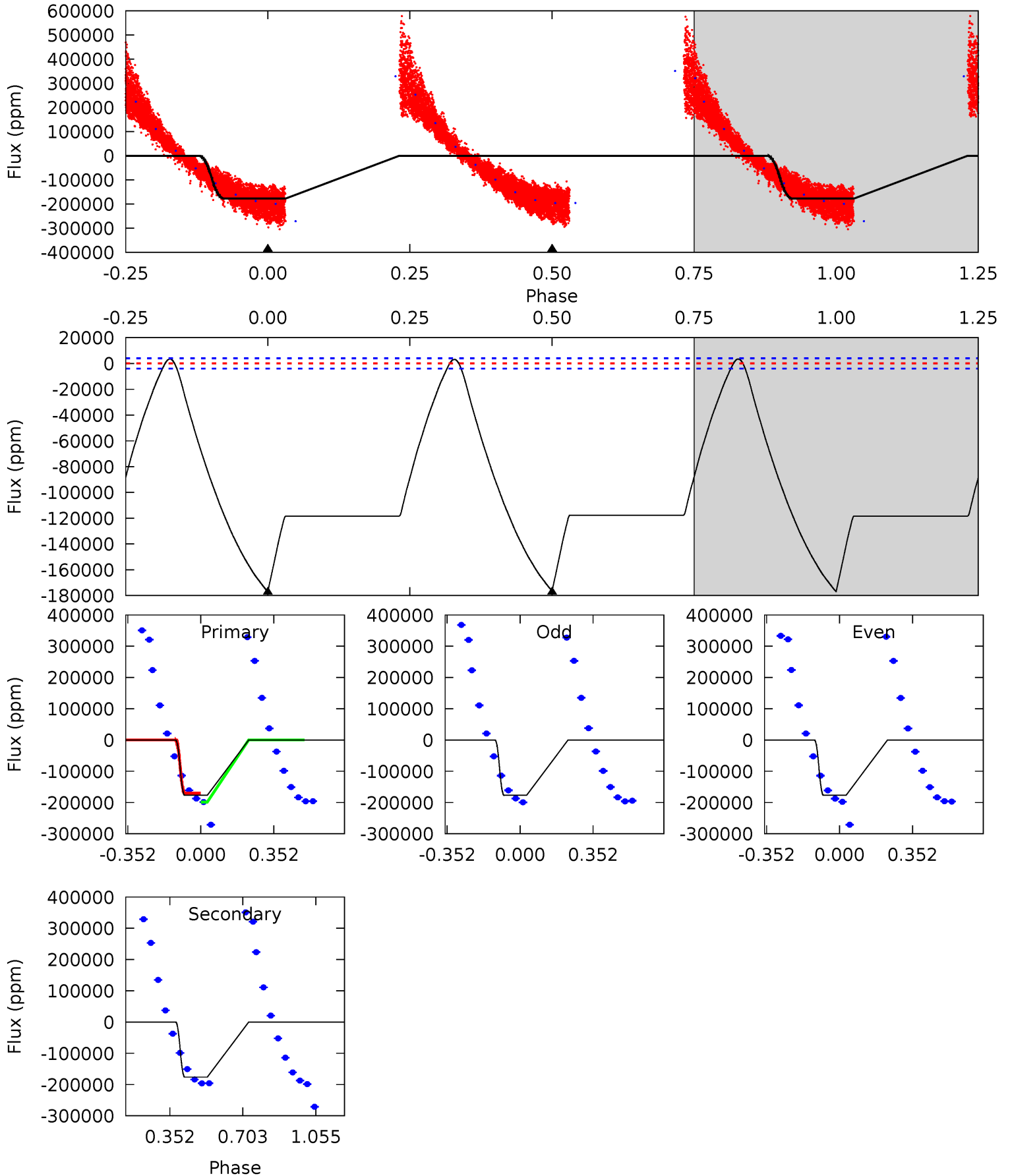
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007257008-02, P = 1.023597 Days, E = 132.088220 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
188.9	188.3	0	0	4.29	0.93	4.43	188.9	188.9	188.3	188.3	0.05	1.00	0.02	3.89





### Stellar Parameters For KIC 007257008

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7308^{+228}_{-304}$	$4.183^{+0.132}_{-0.182}$	$-0.340^{+0.250}_{-0.350}$	$1.567^{+0.478}_{-0.319}$	$1.366^{+0.226}_{-0.204}$	$0.501^{+0.369}_{-0.244}$
	+3%/-4%	+3%/-4%	+74%/-103%	+31%/-20%	+17%/-15%	+74%/-49%
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 007257008-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$18.29^{+15.25}_{-12.15}$	$3830^{+286}_{-261}$	$5400^{+21476}_{-24926}$	$2.890^{+168.908}_{-101.287}$
Alt.	$-176340 \pm 936$	$76.09^{+21.33}_{-19.56}$	$3808^{+300}_{-244}$	$7435^{+1302}_{-881}$	$9.860^{+7.614}_{-3.740}$

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

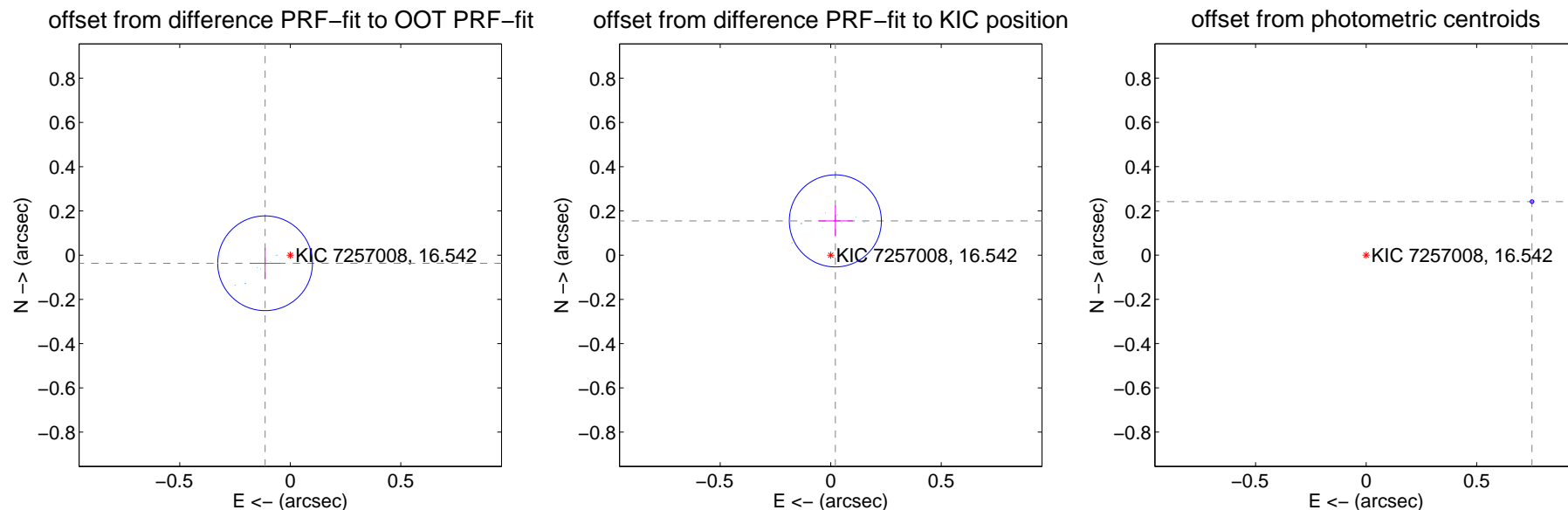
## DV Centroid Data

Supplemental centroid analysis for 007257008-02. Kepler magnitude: 16.54. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.120 \pm 0.071$	1.67	$0.114 \pm 0.070$	$-0.037 \pm 0.069$
PRF-fit source offset from KIC position	$0.156 \pm 0.069$	2.25	$-0.021 \pm 0.079$	$0.155 \pm 0.068$
photometric centroid source offset	$0.79 \pm 0.00$	288.78	$-0.75 \pm 0.00$	$0.24 \pm 0.00$



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

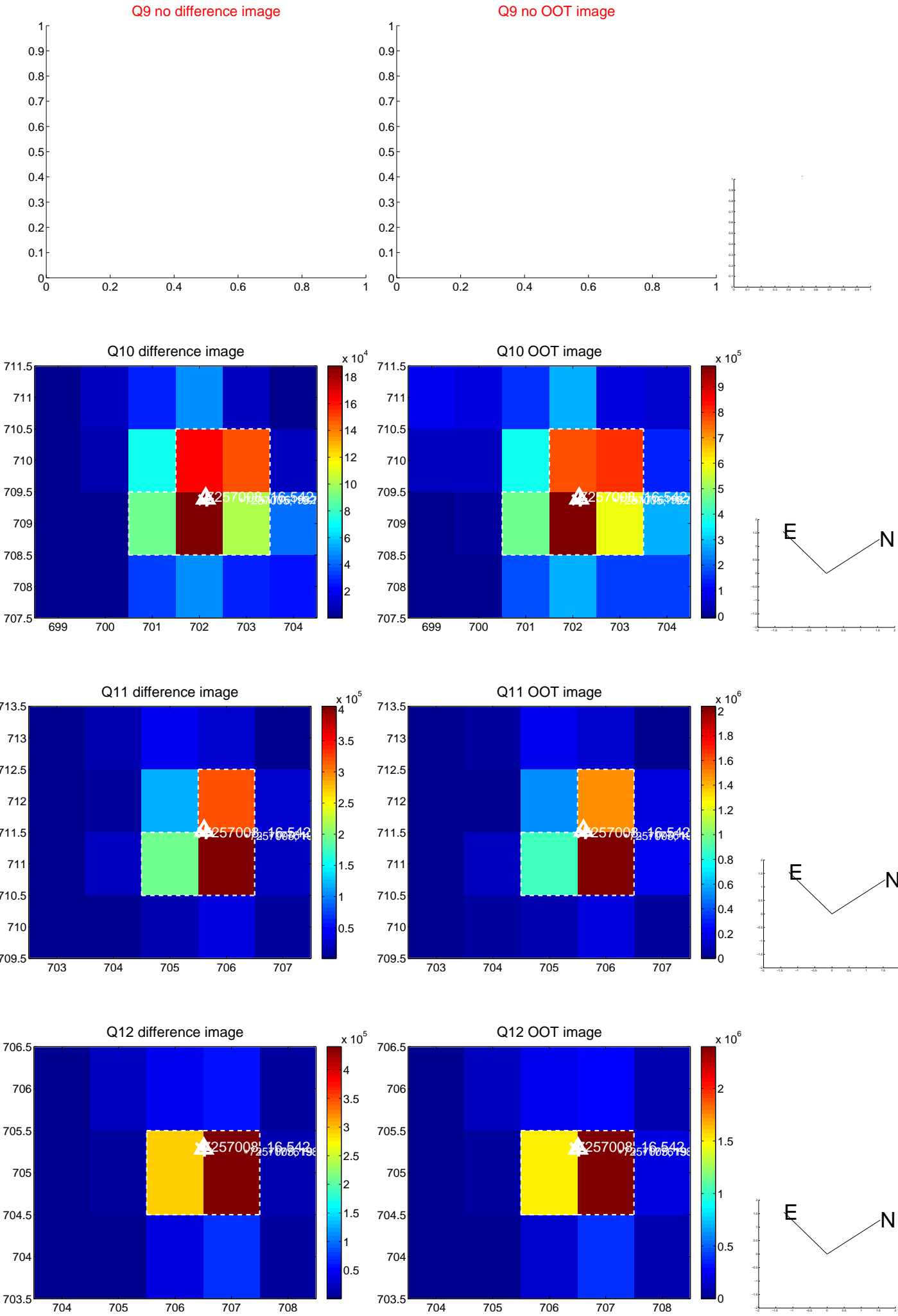
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



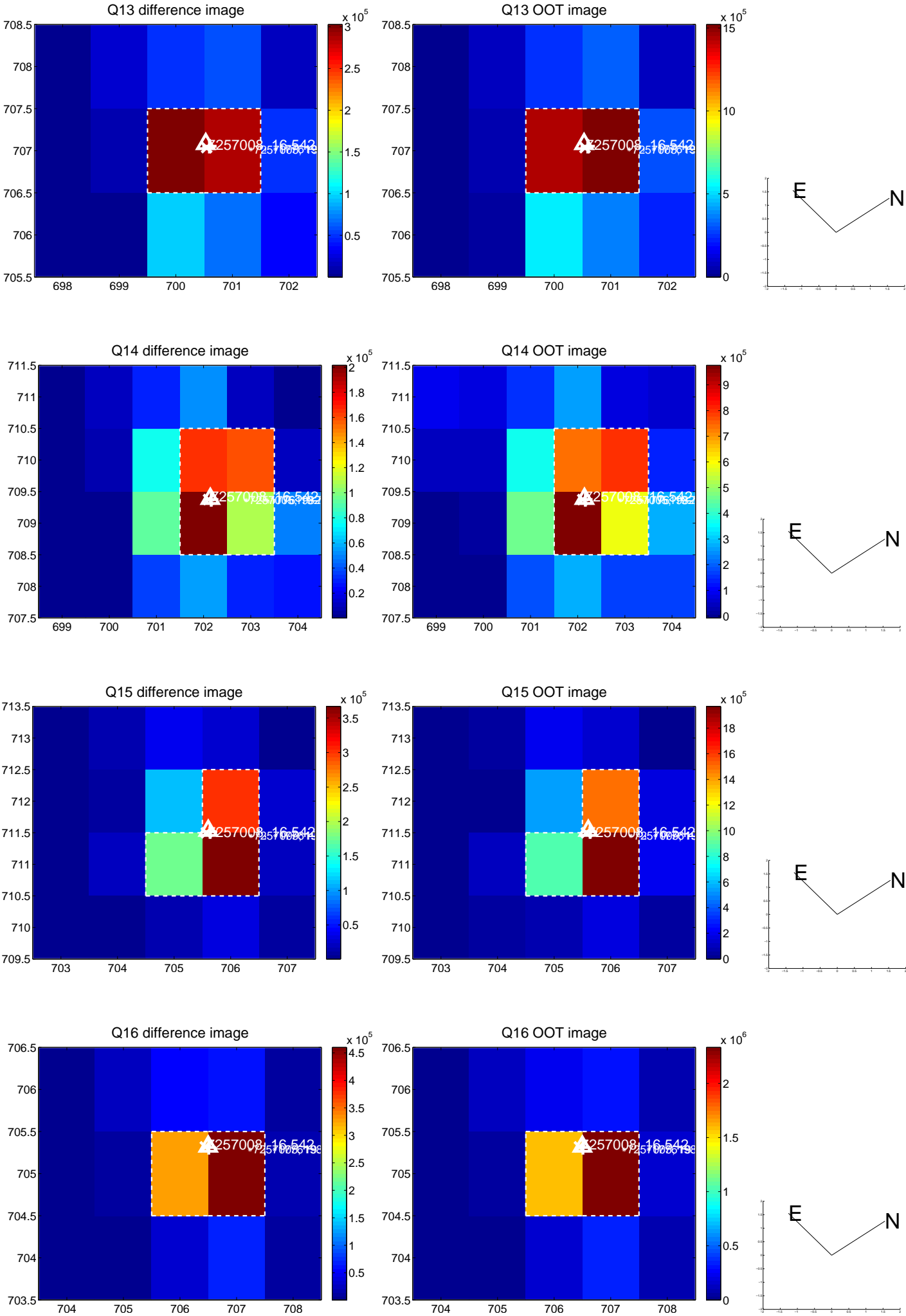
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



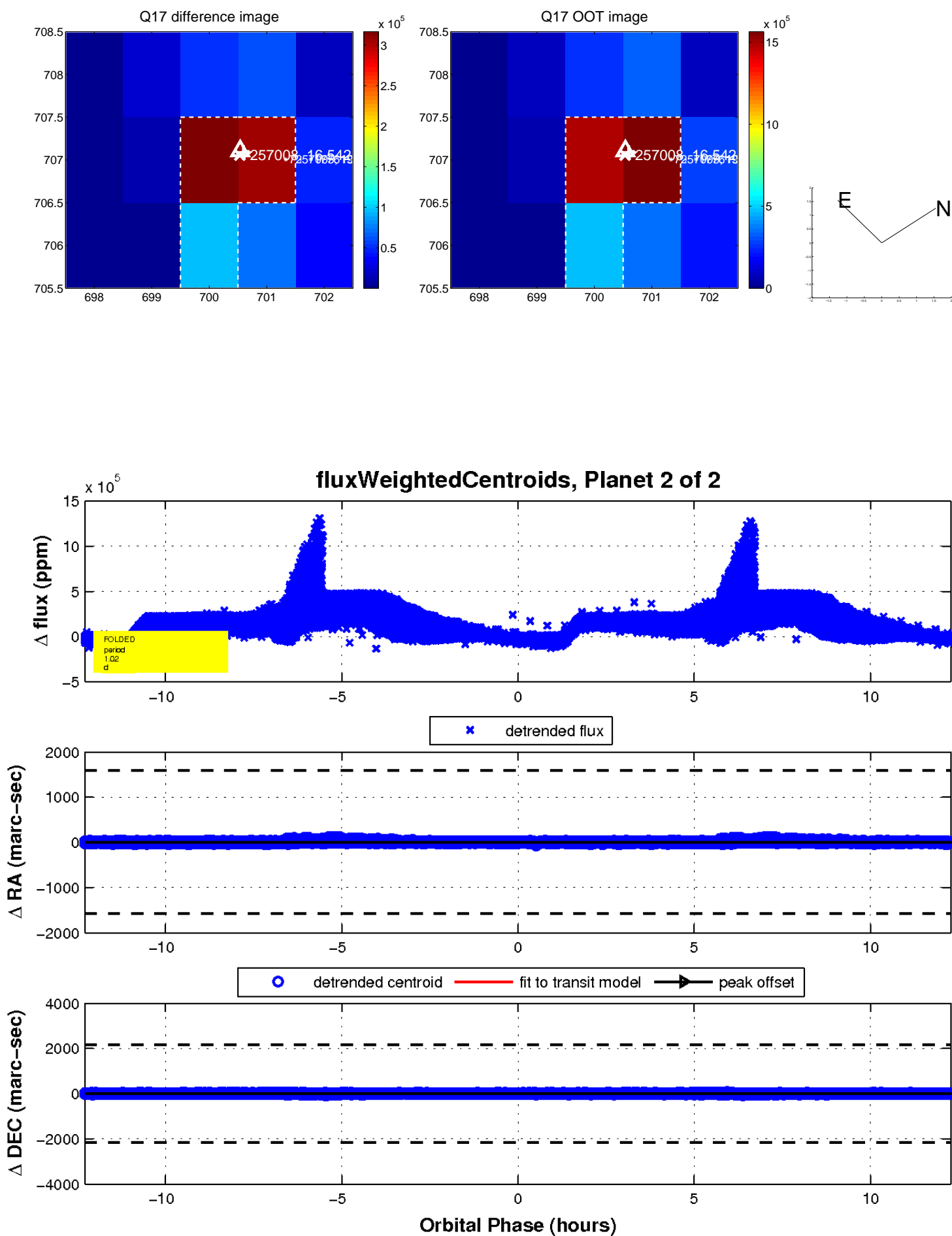
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

