

# KIC 006125731

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006125731-01	OBS	No	47.216650	160.354751	3188.5	1.500	110.3	-1.0	15.49	4307	83.50	1191.91
006125731-02	OBS	No	90.974190	154.858768	150.6	45.161	10.9	8.9	15.49	4307	27.68	497.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006125731-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006125731-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

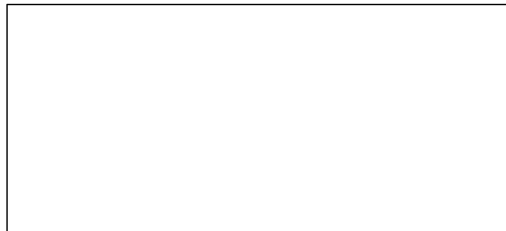
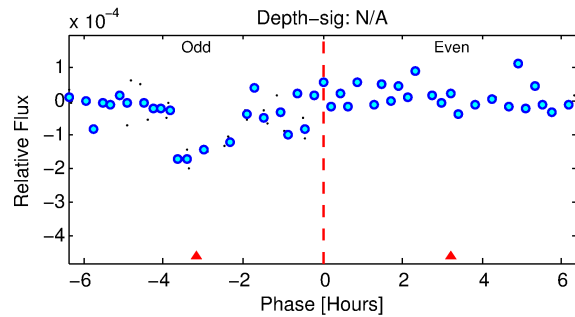
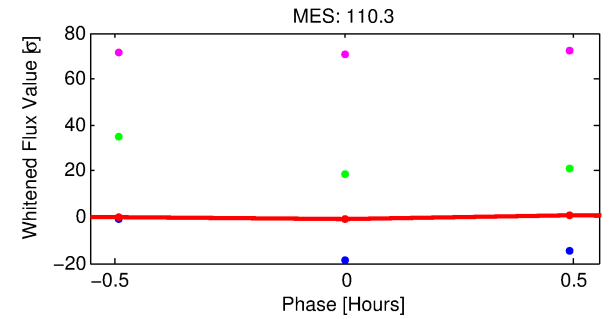
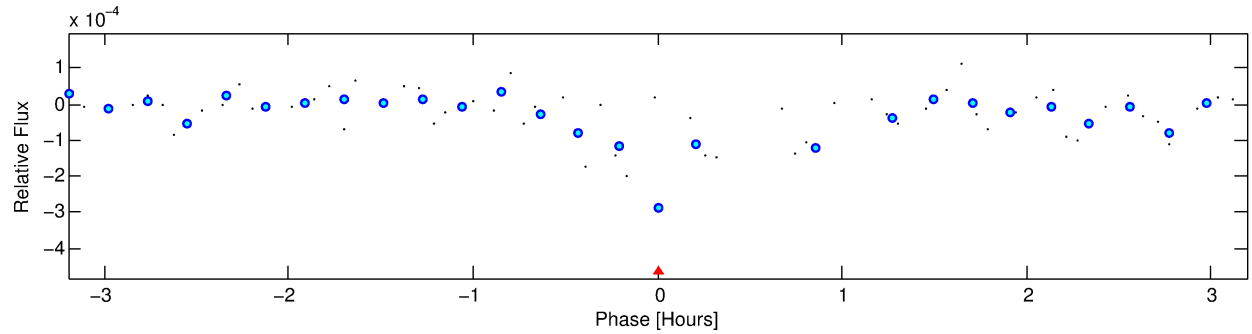
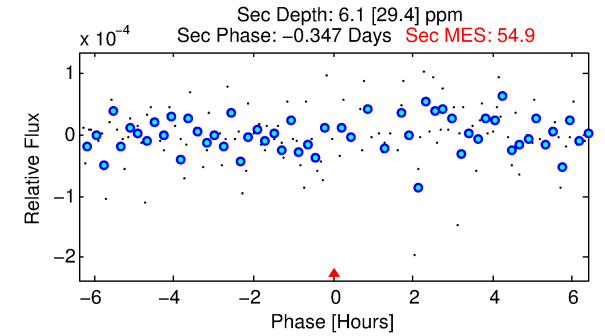
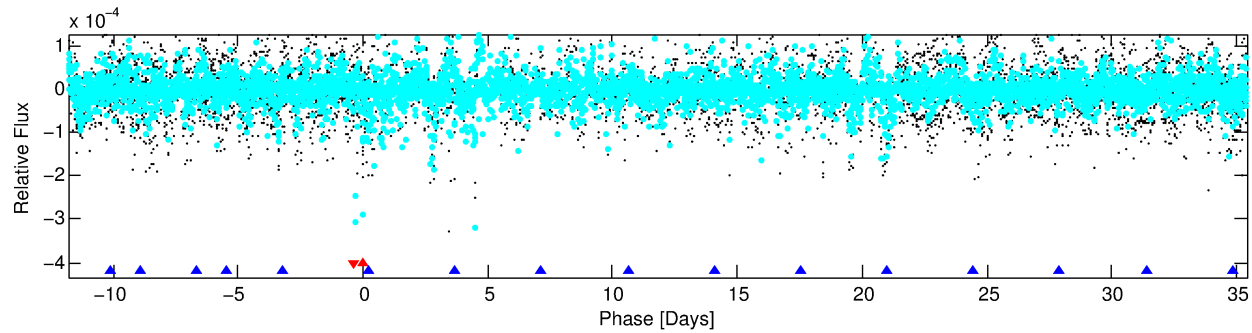
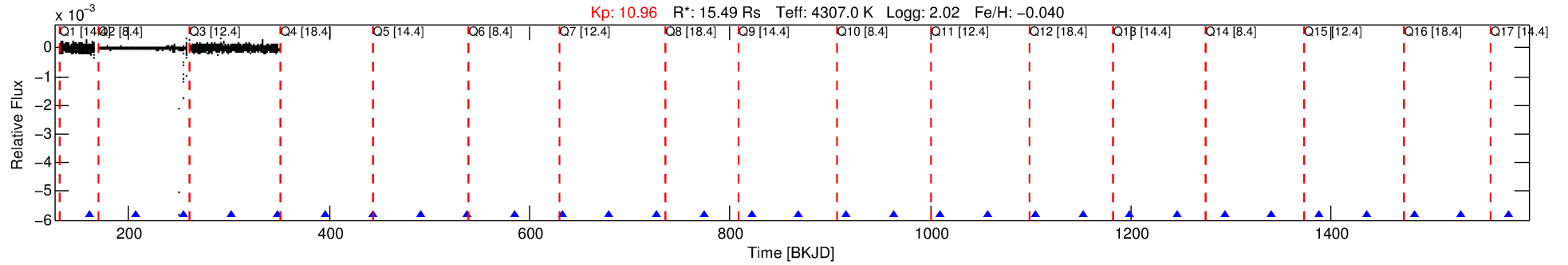
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006125731-01

No Significant Match Found

# DV One-Page Summary

KIC: 6125731 Candidate: 1 of 2 Period: 47.217 d



## TPS TCE Results:

Period = 47.21665 d  
Epoch = 160.3548 BKJD

DV fit results are unavailable

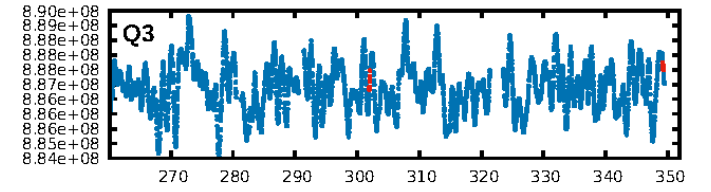
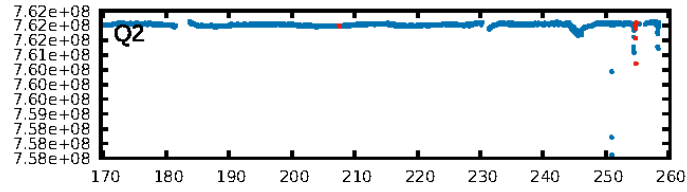
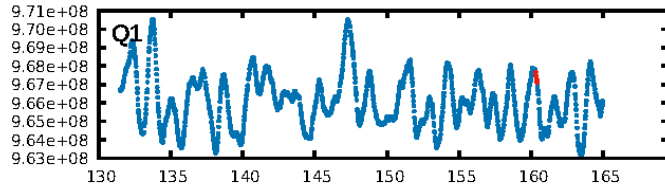
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [23.24σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 7.208  
Centroid-sig: 16.9%  
Centroid-so: 1.707 arcsec [1.27σ]  
QotOffset-rm: N/A  
KicOffset-rm: N/A  
QotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [1/1]

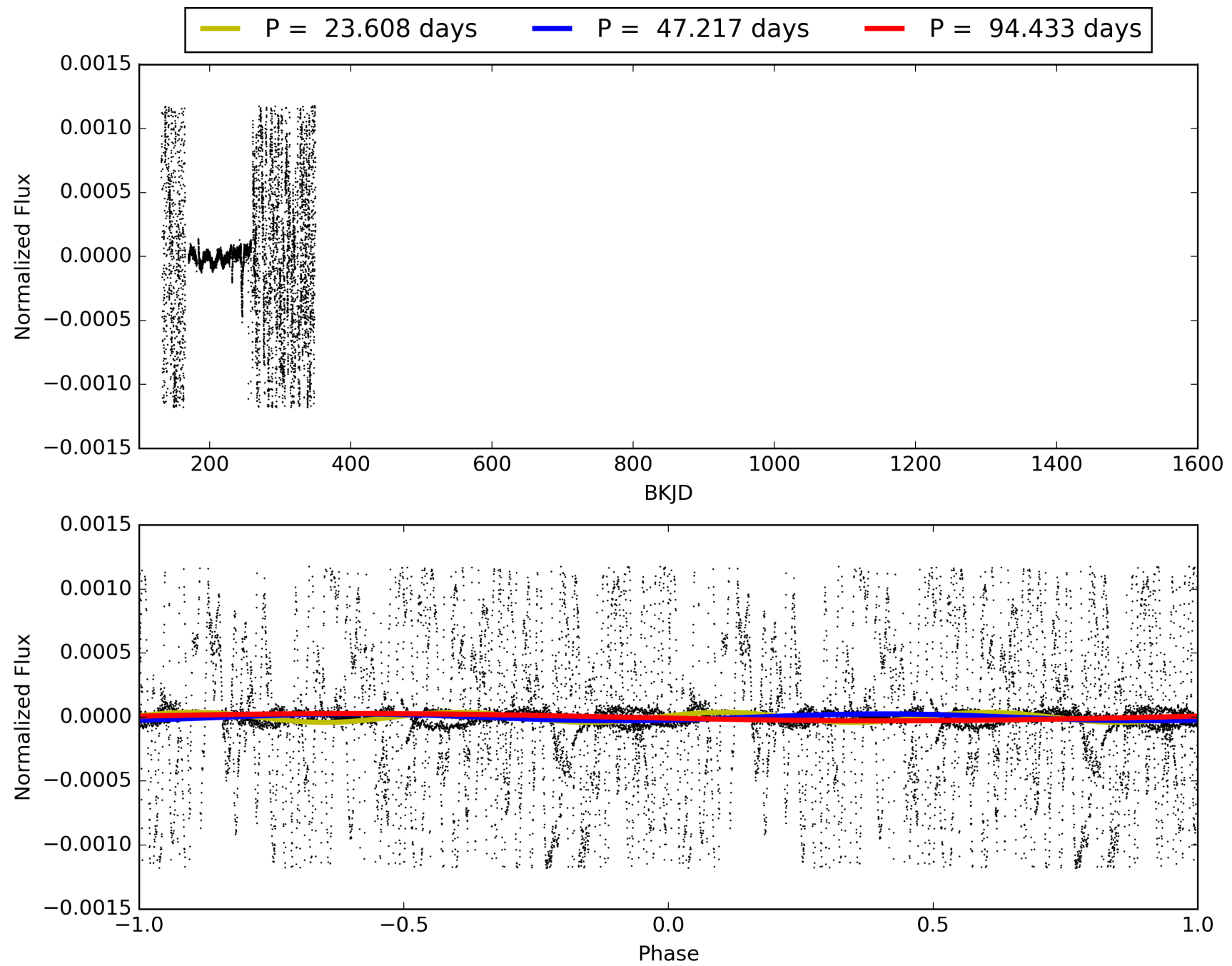
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:55:31 Z

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

# TCE 006125731-01, PDC Light Curves

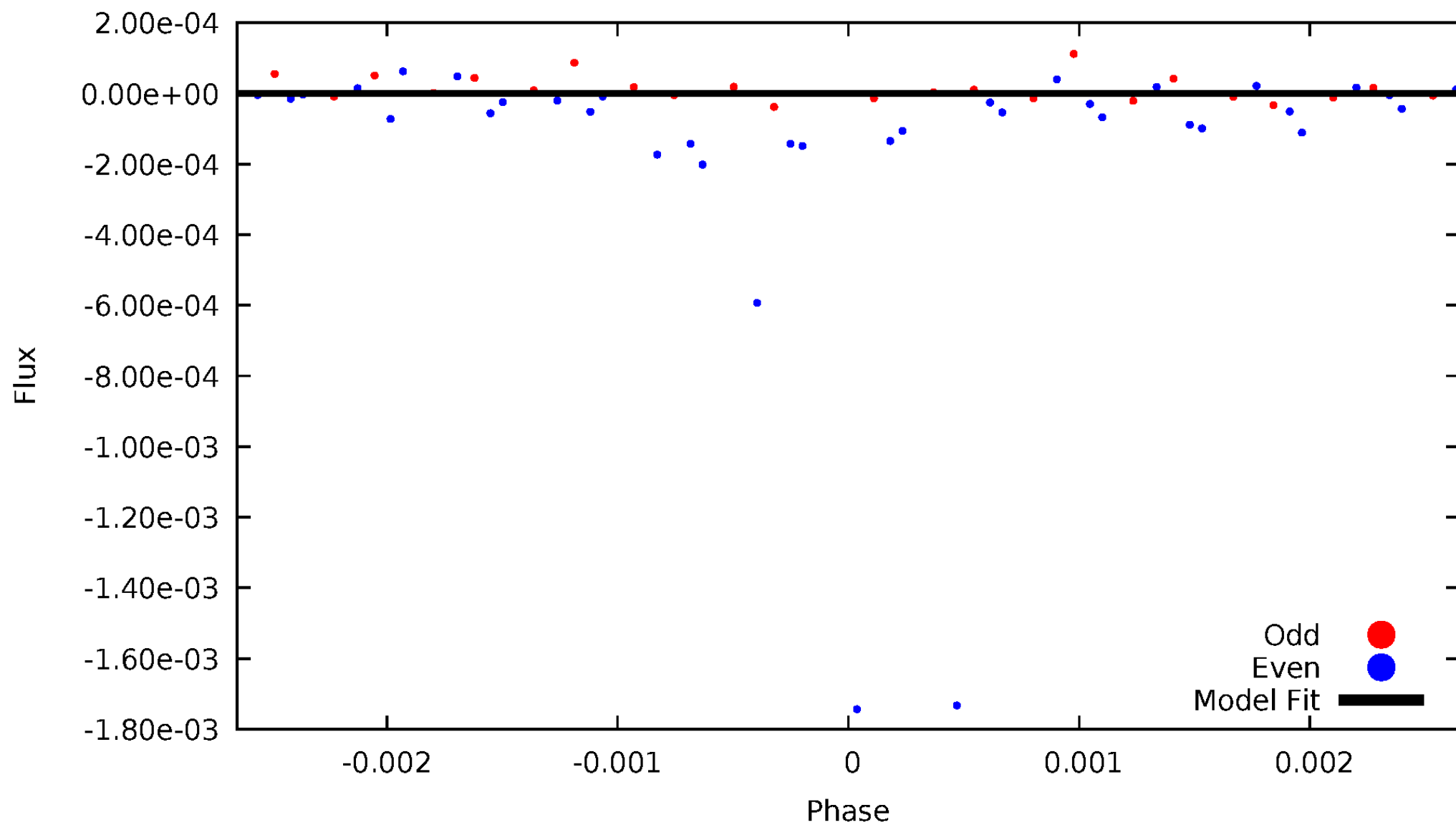


# TCE 006125731-01



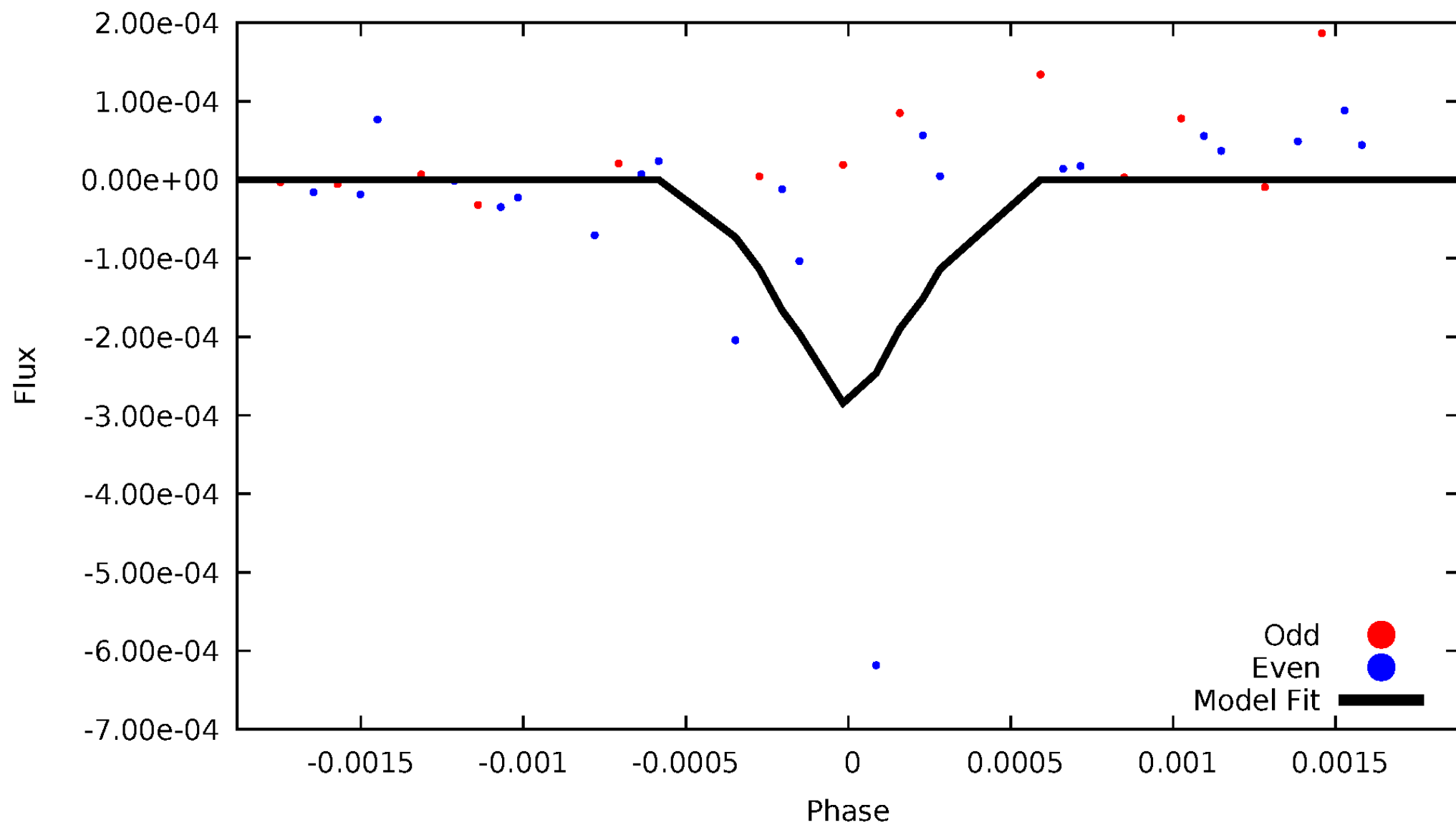
DV Odd/Even

TCE 006125731-01

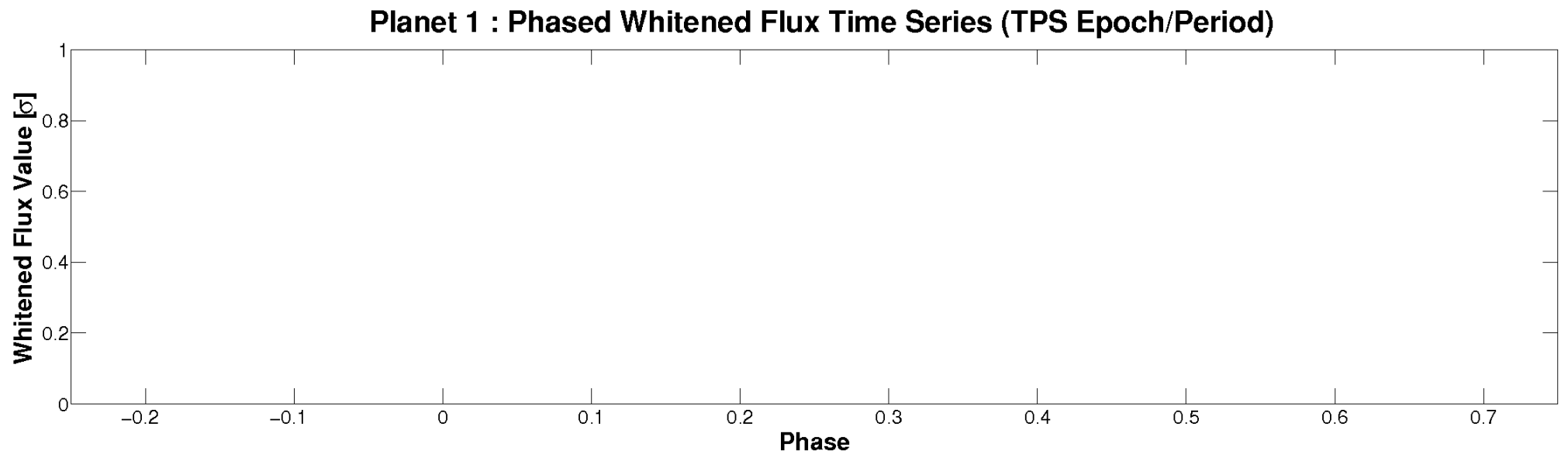
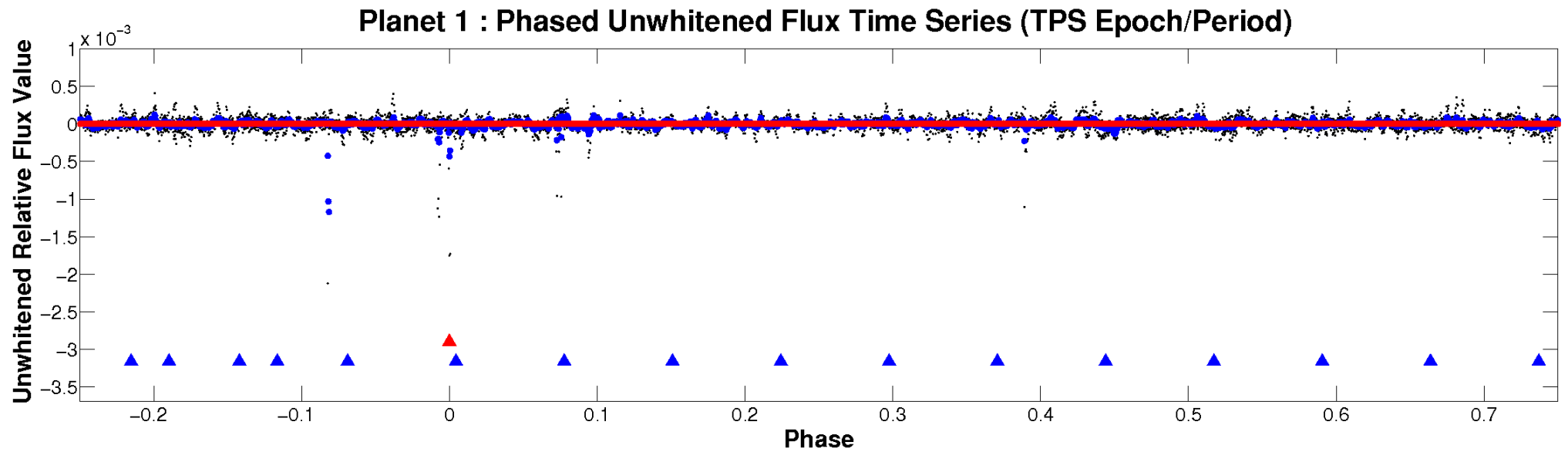


# ALT Odd/Even

TCE 006125731-01

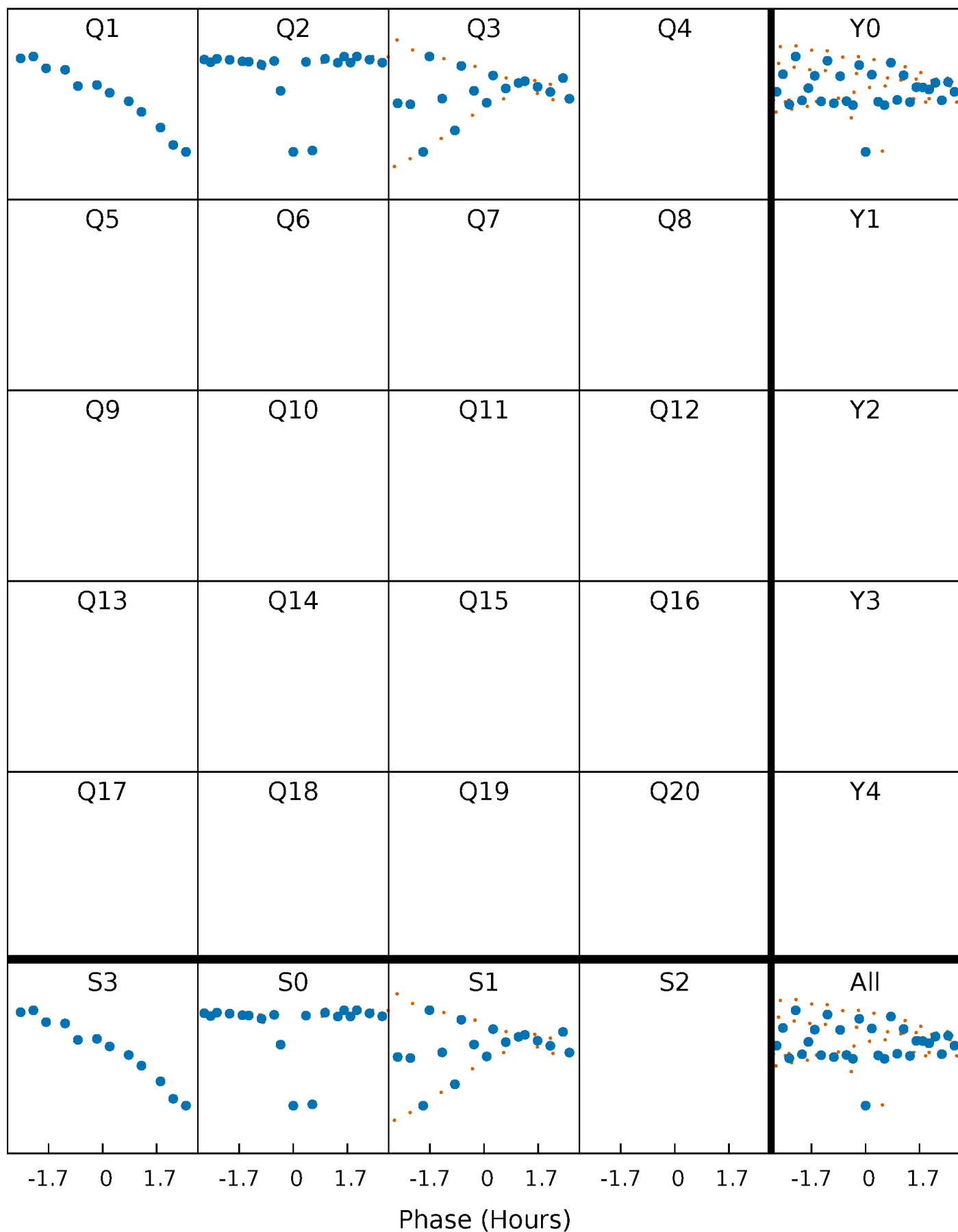


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

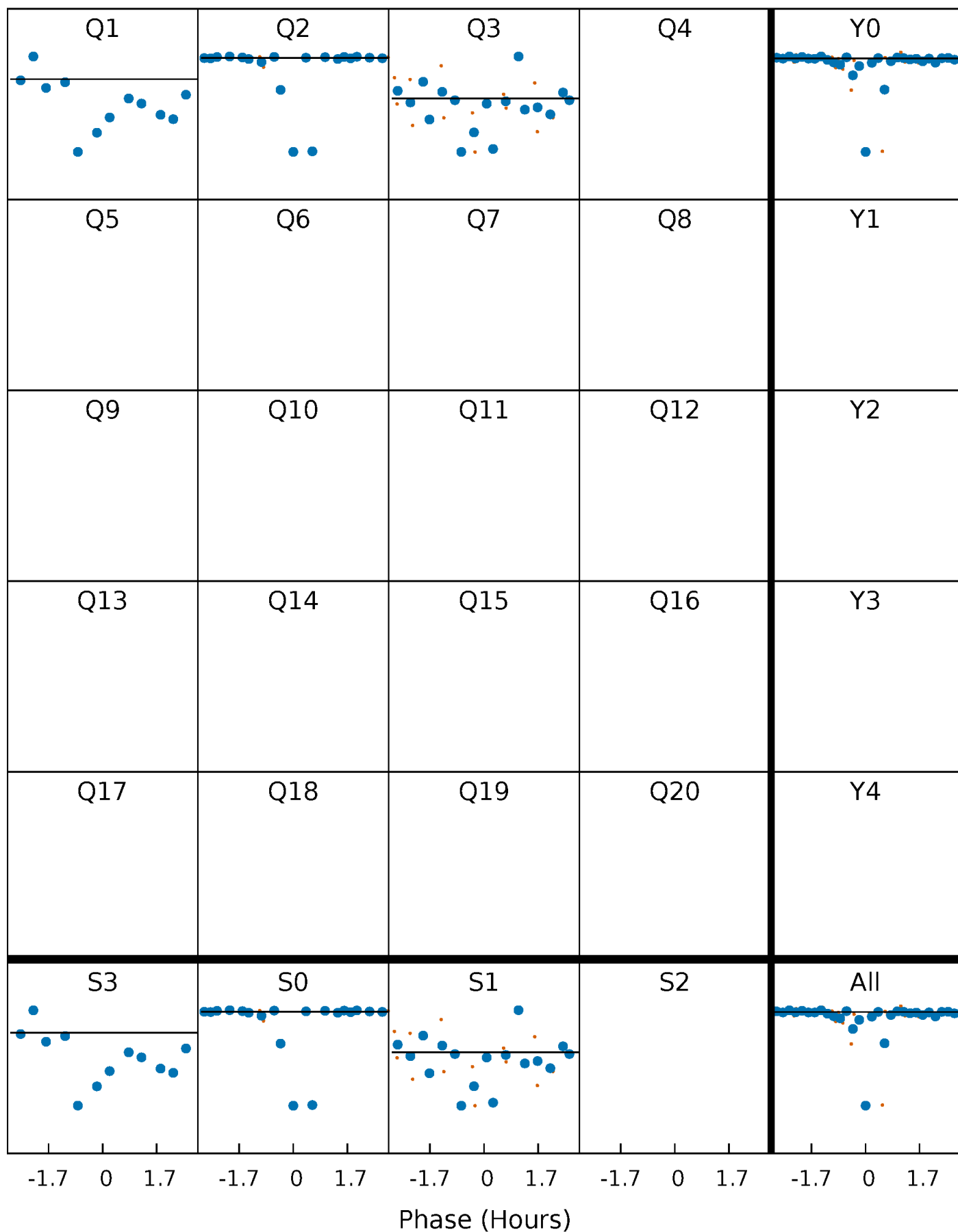
TCE 006125731-01   P= 47.216650 Days    $T_0=160.354751$  (BKJD)





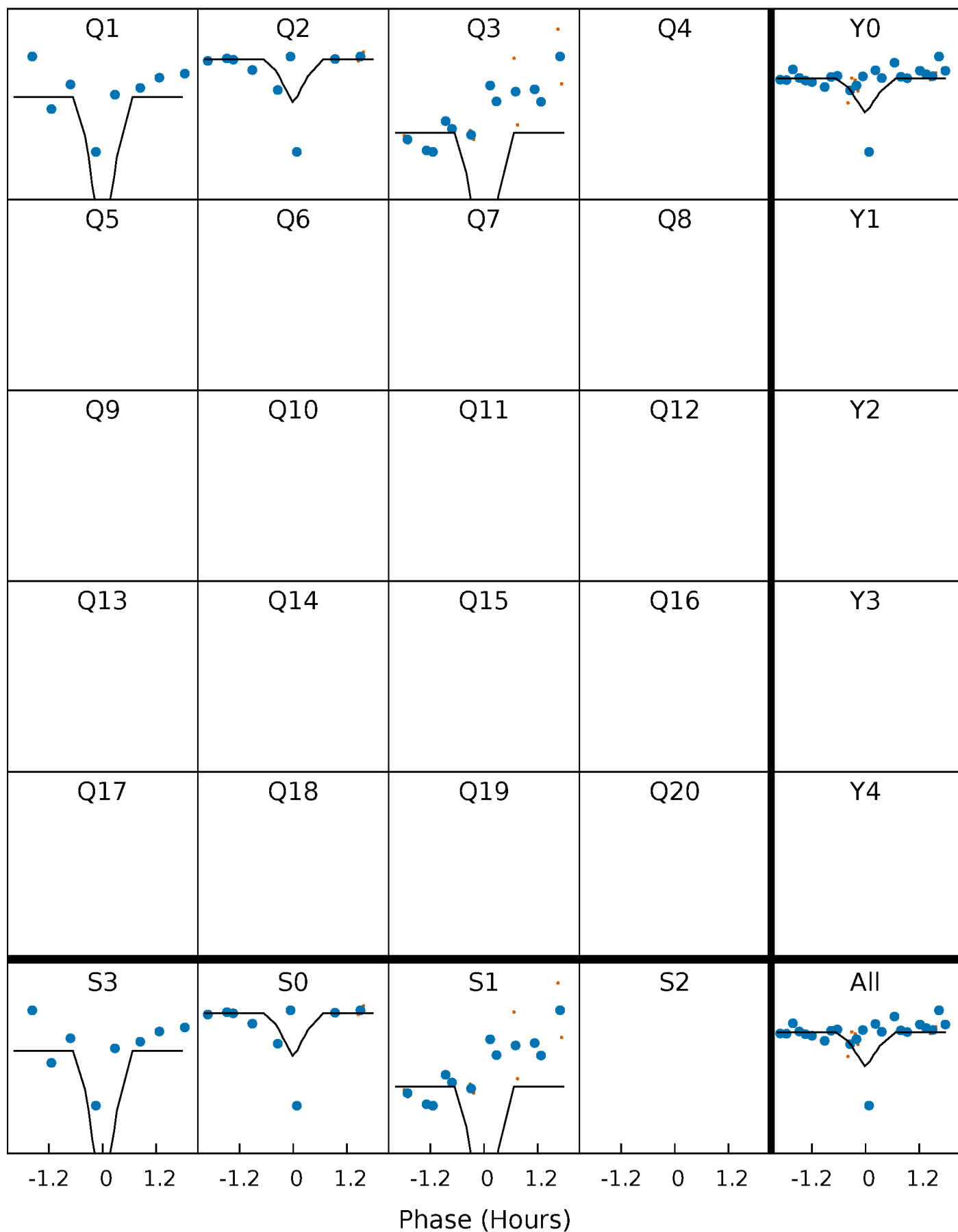
# DV Quarter-Phased Transit Curves

TCE 006125731-01   P= 47.216650 Days    $T_0=160.354751$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

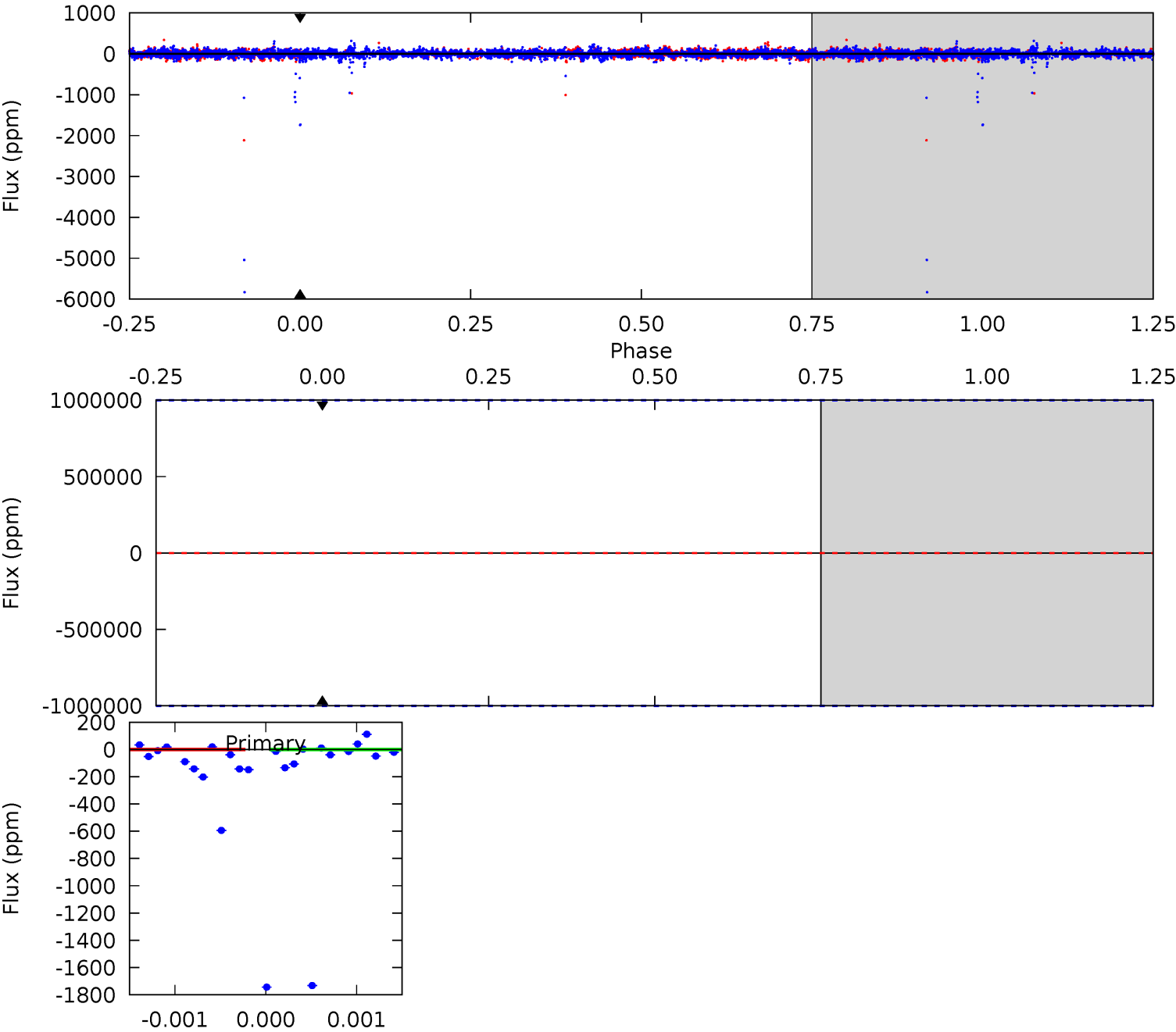
TCE 006125731-01 P= 47.216650 Days  $T_0=160.332057$  (BKJD)



DV Model-Shift Uniqueness Test

006125731-01, P = 47.216650 Days, E = 113.138101 Days

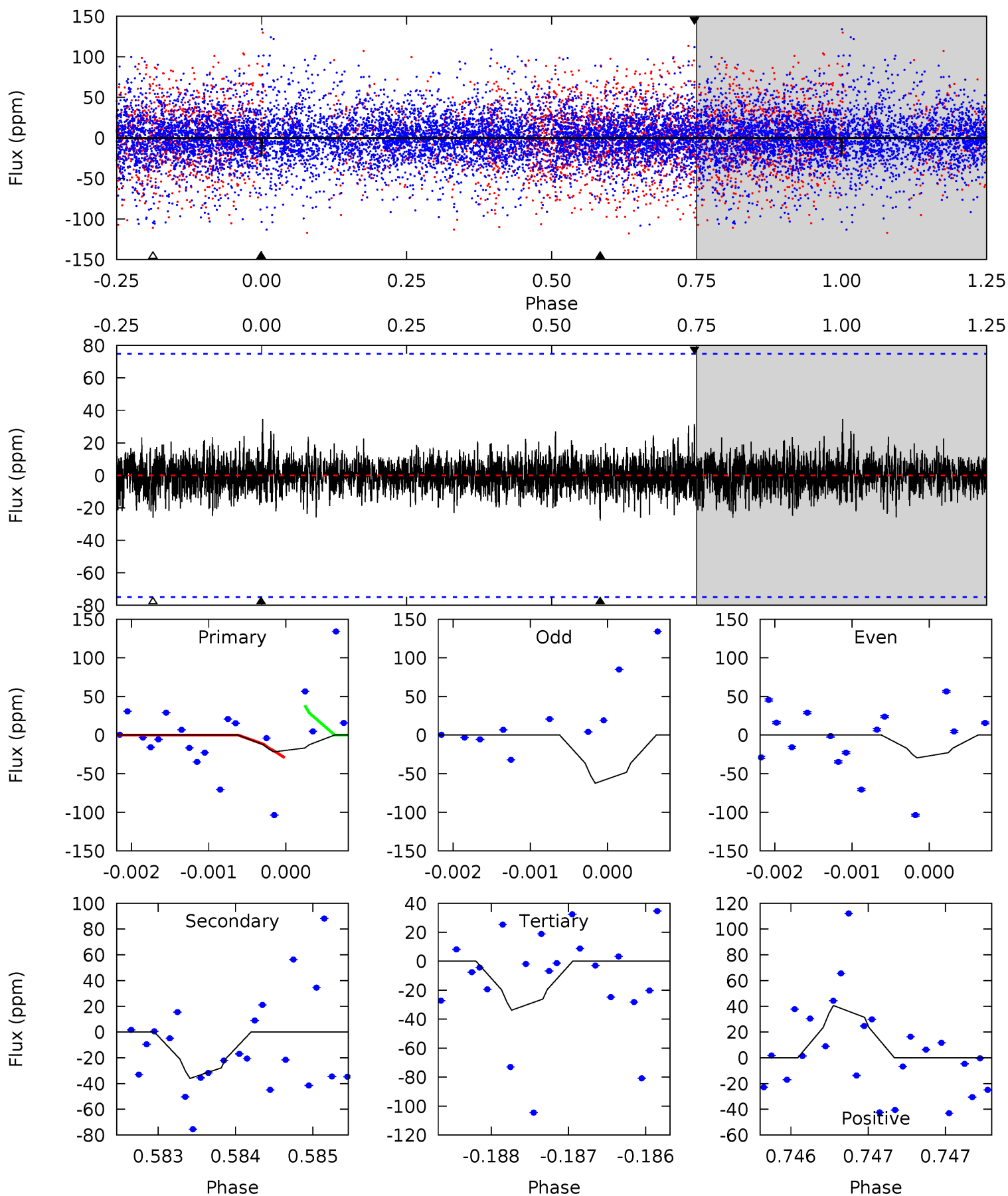
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006125731-01, P = 47.216650 Days, E = 113.115407 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
1.23	2.03	1.90	2.29	5.46	3.31	0.55	-0.68	-1.06	0.13	-0.26	1.02	4.79	0.55	0.36



### Stellar Parameters For KIC 006125731

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4307^{+77}_{-58}$	$2.024^{+0.125}_{-0.125}$	$-0.040^{+0.150}_{-0.100}$	$15.494^{+5.302}_{-1.767}$	$0.925^{+0.455}_{-0.024}$	$0.000^{+0.000}_{-0.000}$
	+2%/-1%	+6%/-6%	+375%/-250%	+34%/-11%	+49%/-3%	+46%/-44%
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 006125731-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$155.53^{+150.60}_{-105.22}$	$2081^{+125}_{-89}$	$3463^{+6422}_{-12117}$	$4.266^{+292.436}_{-208.102}$
Alt.	$-28 \pm 14$	$131.90^{+137.62}_{-94.86}$	$2087^{+128}_{-90}$	$-2404^{+4962}_{-99}$	$0.055^{+0.637}_{-0.044}$

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

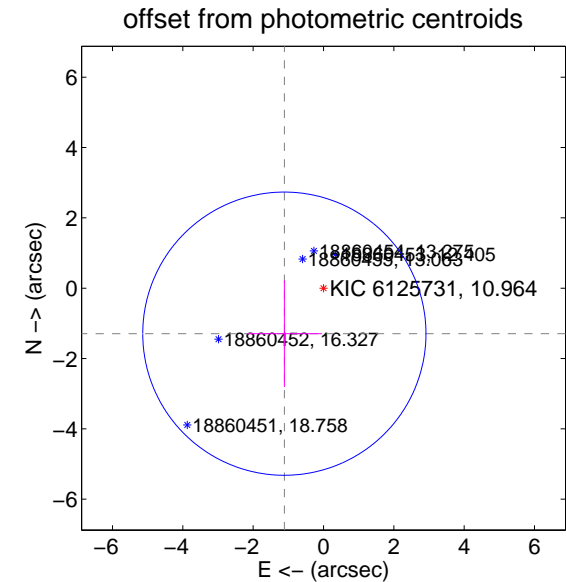
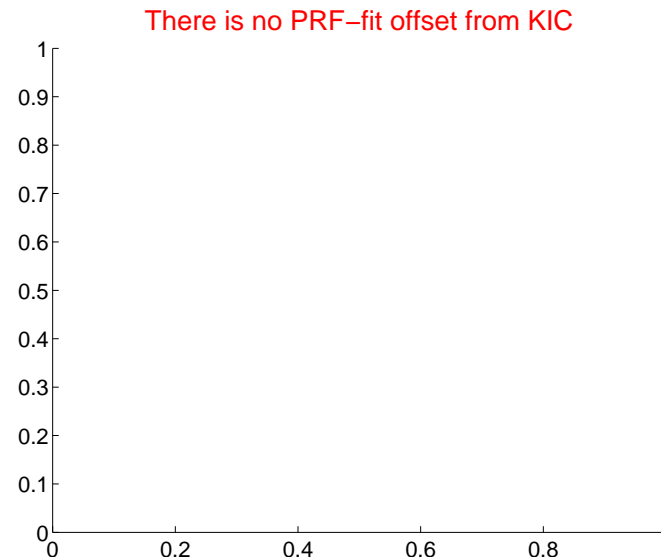
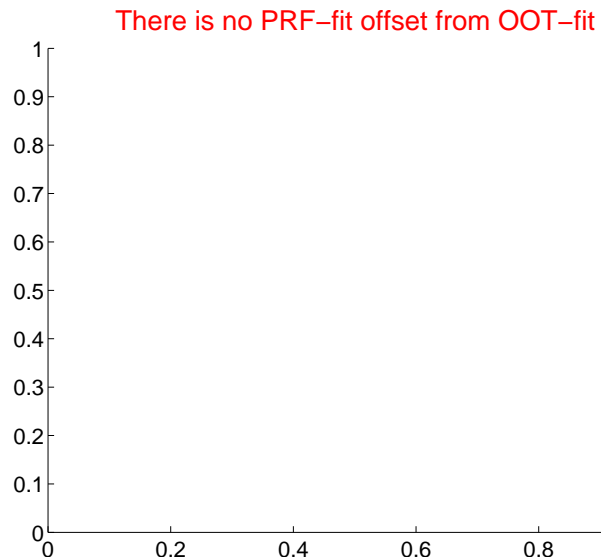
## DV Centroid Data

Supplemental centroid analysis for 006125731-01. **Kepler magnitude: 10.96.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

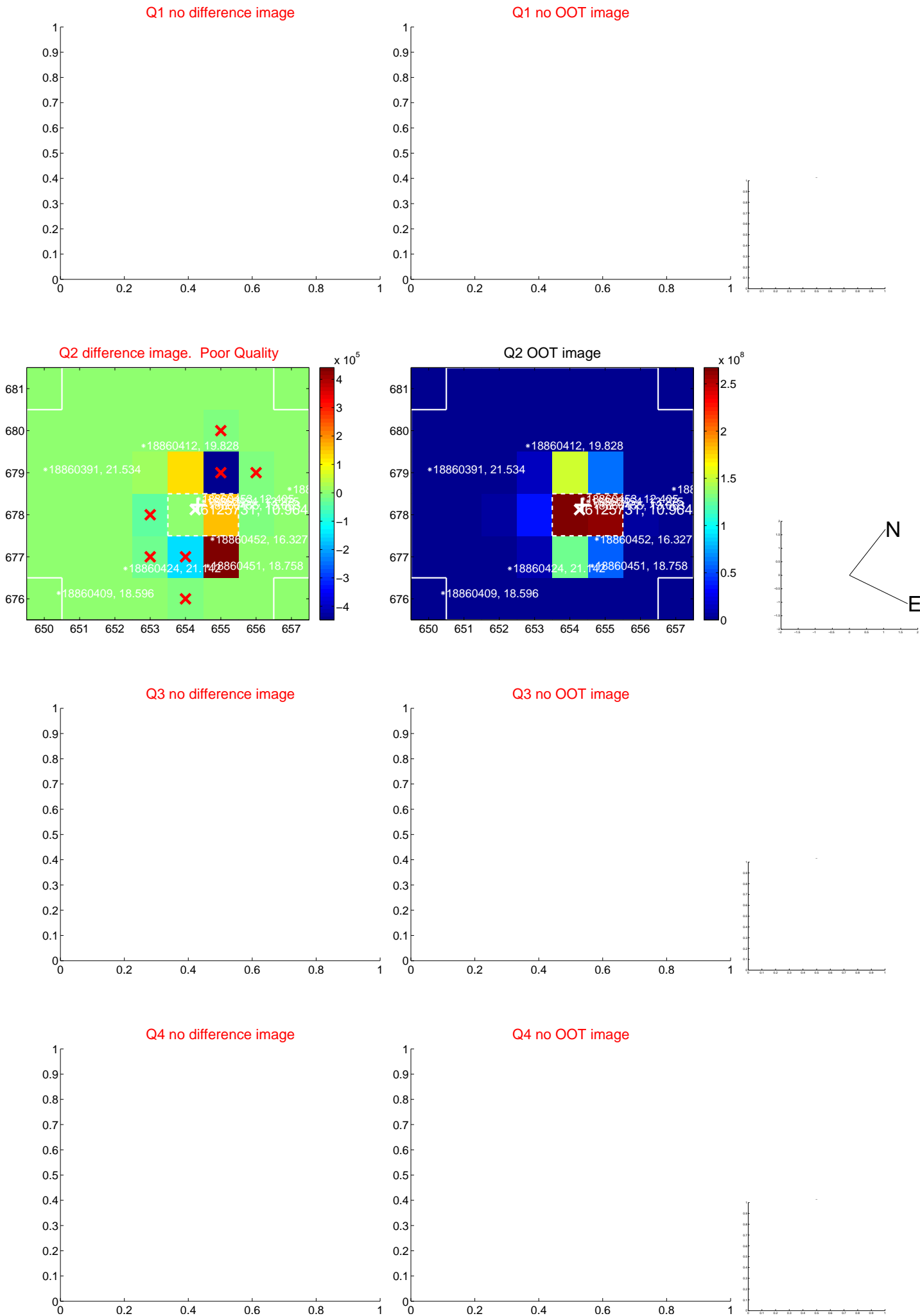
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	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	$1.71 \pm 1.34$	1.27	$1.11 \pm 1.07$	$-1.29 \pm 1.51$



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.





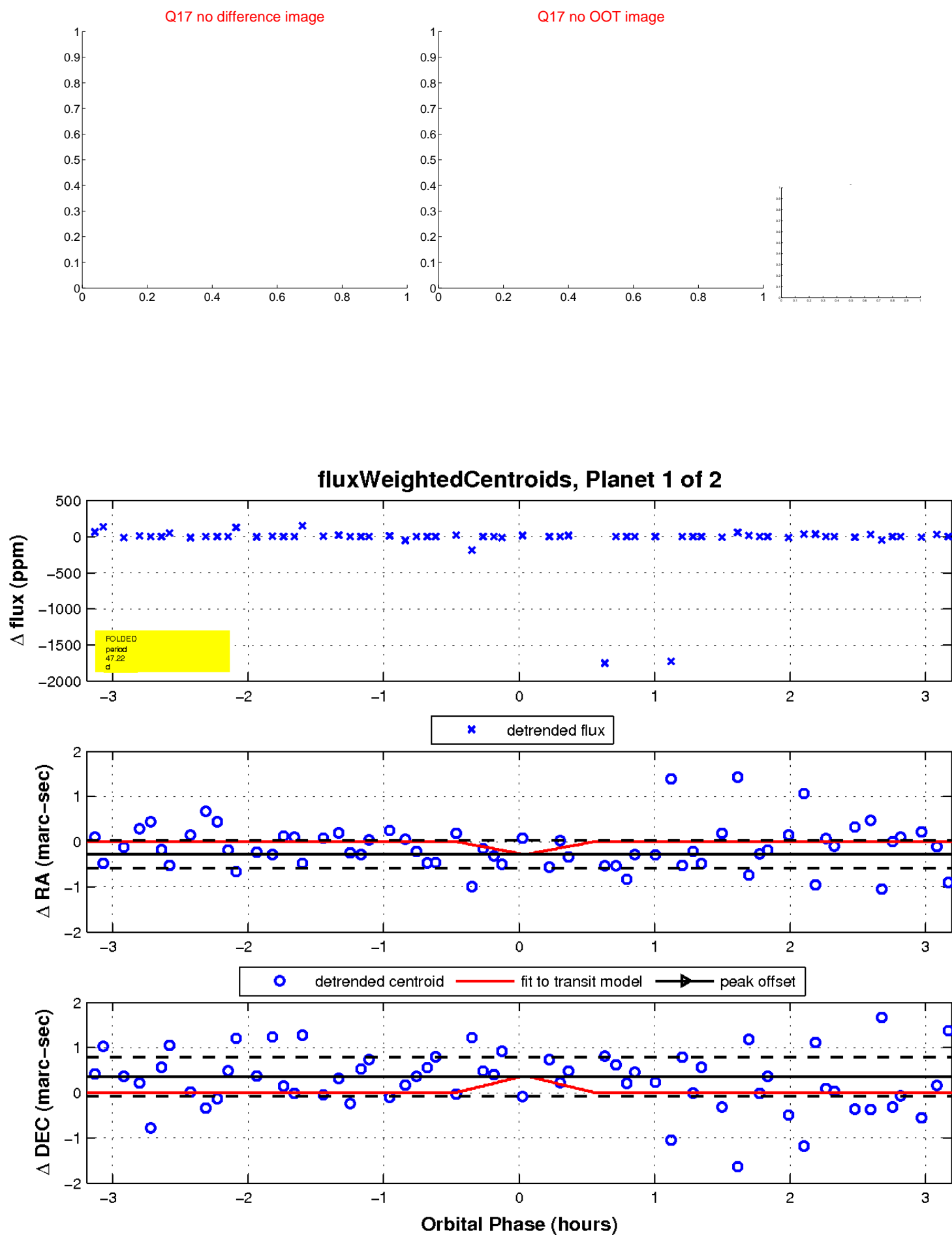
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

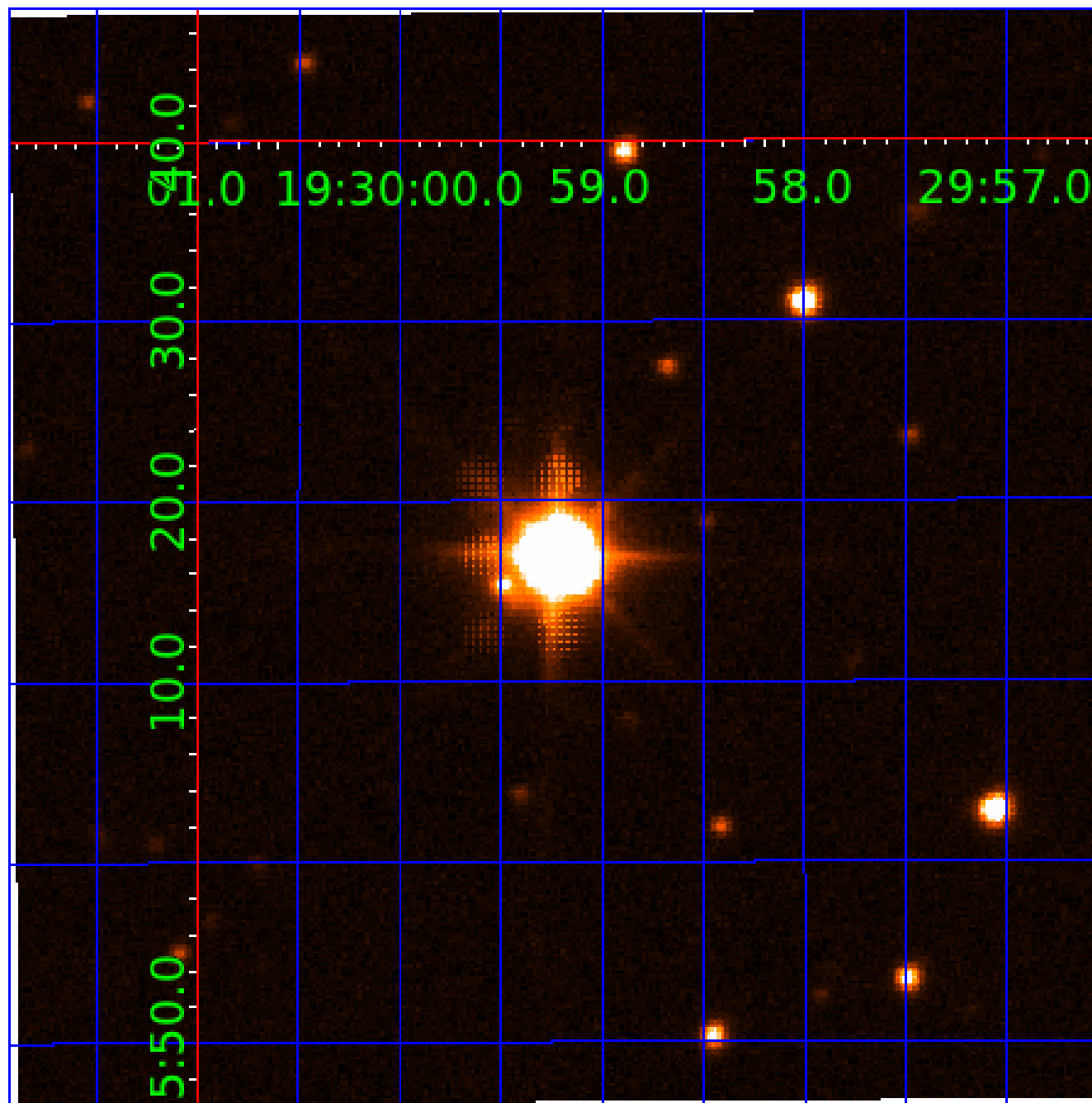


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006125731

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006125731-01	OBS	No	47.216650	160.354751	3188.5	1.500	110.3	-1.0	15.49	4307	83.50	1191.91
006125731-02	OBS	No	90.974190	154.858768	150.6	45.161	10.9	8.9	15.49	4307	27.68	497.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006125731-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006125731-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

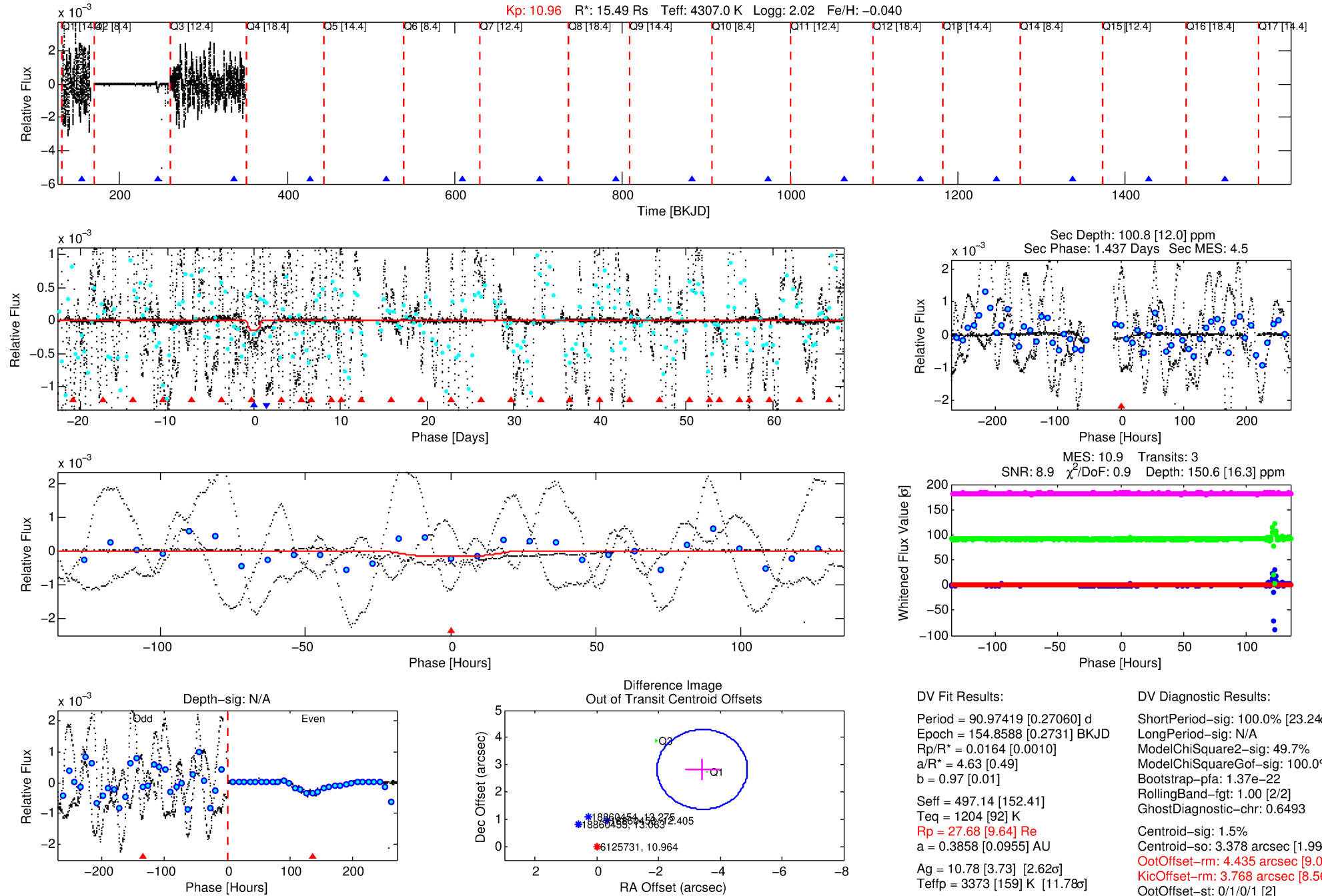
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006125731-02

No Significant Match Found

# DV One-Page Summary

KIC: 6125731 Candidate: 2 of 2 Period: 90.974 d



## DV Fit Results:

Period = 90.97419 [0.27060] d  
Epoch = 154.8588 [0.2731] BKJD  
Rp/R\* = 0.0164 [0.0010]  
a/R\* = 4.63 [0.49]  
b = 0.97 [0.01]  
Seff = 497.14 [152.41]  
Teq = 1204 [92] K  
Rp = 27.68 [9.64] Re  
a = 0.3858 [0.0955] AU  
Ag = 10.78 [3.73] [2.62σ]  
Teffp = 3373 [159] K [11.78σ]

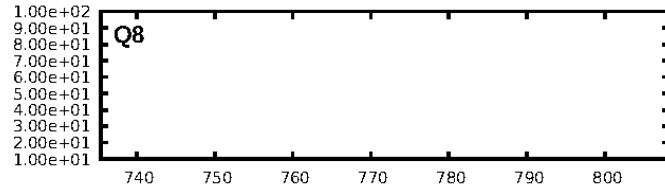
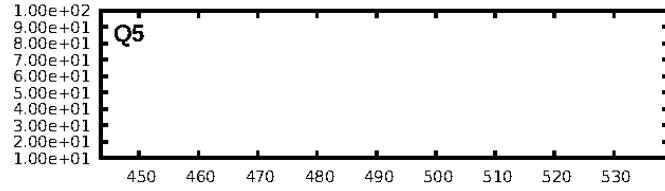
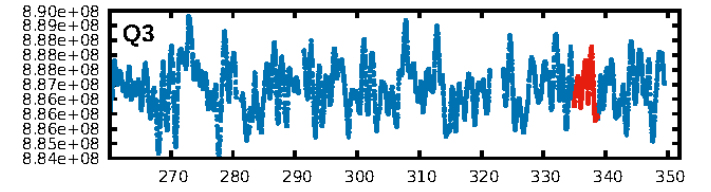
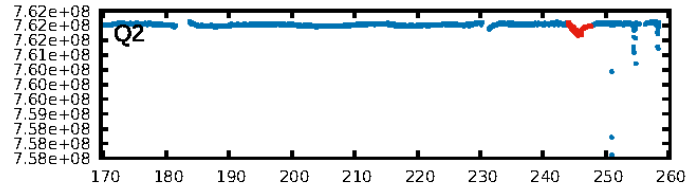
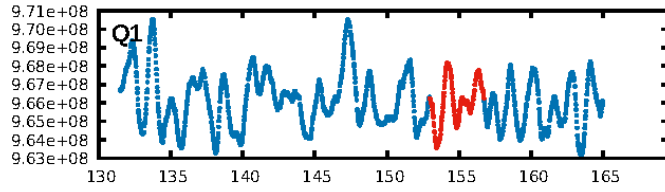
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [23.24σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 49.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.37e-22  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 0.6493  
Centroid-sig: 1.5%  
Centroid-so: 3.378 arcsec [1.99σ]  
OotOffset-rm: 4.435 arcsec [9.09σ]  
KicOffset-rm: 3.768 arcsec [8.56σ]  
OotOffset-st: 0/1/0/1 [2]  
KicOffset-st: 0/1/0/1 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

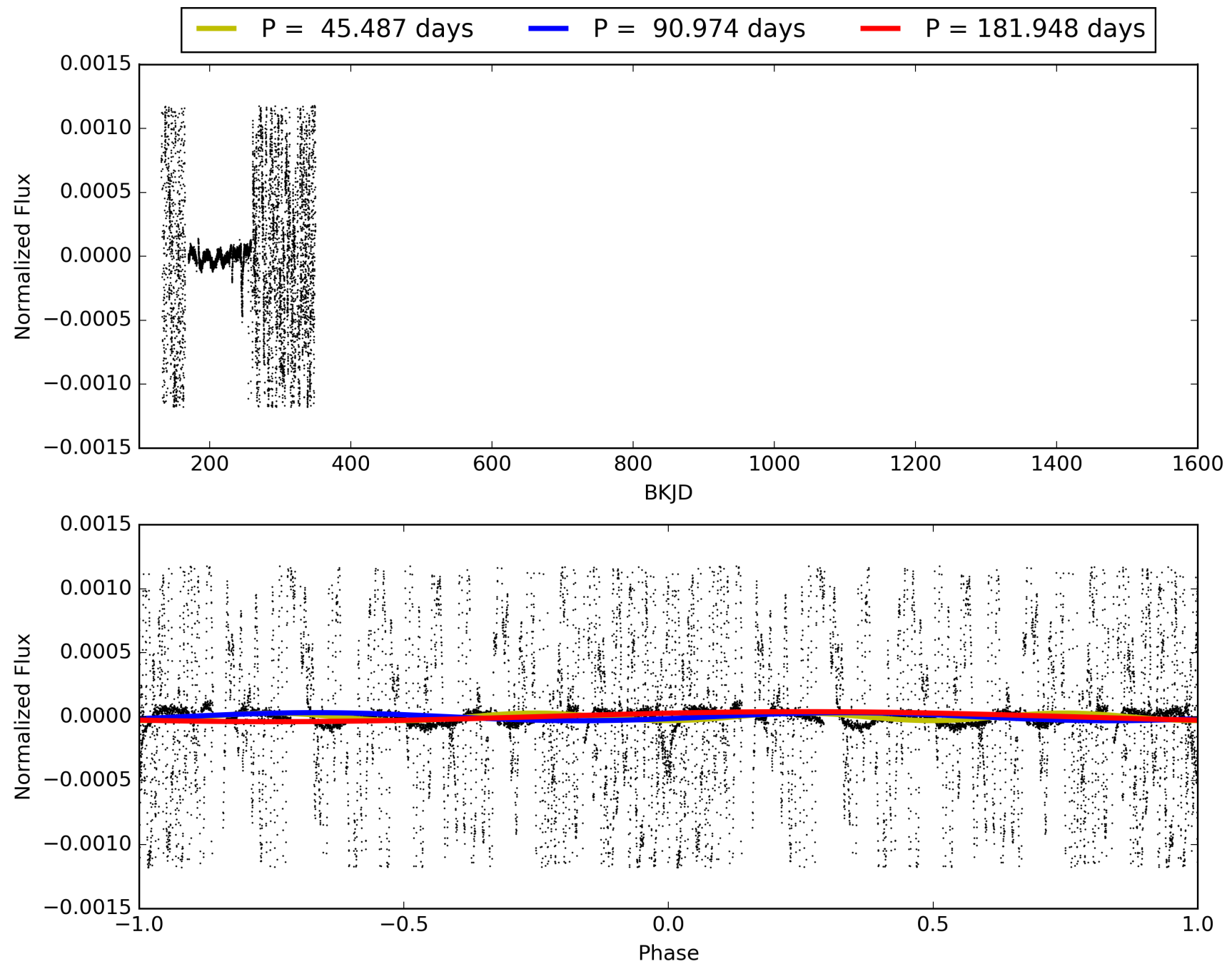
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:55:36 Z

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

# TCE 006125731-02, PDC Light Curves



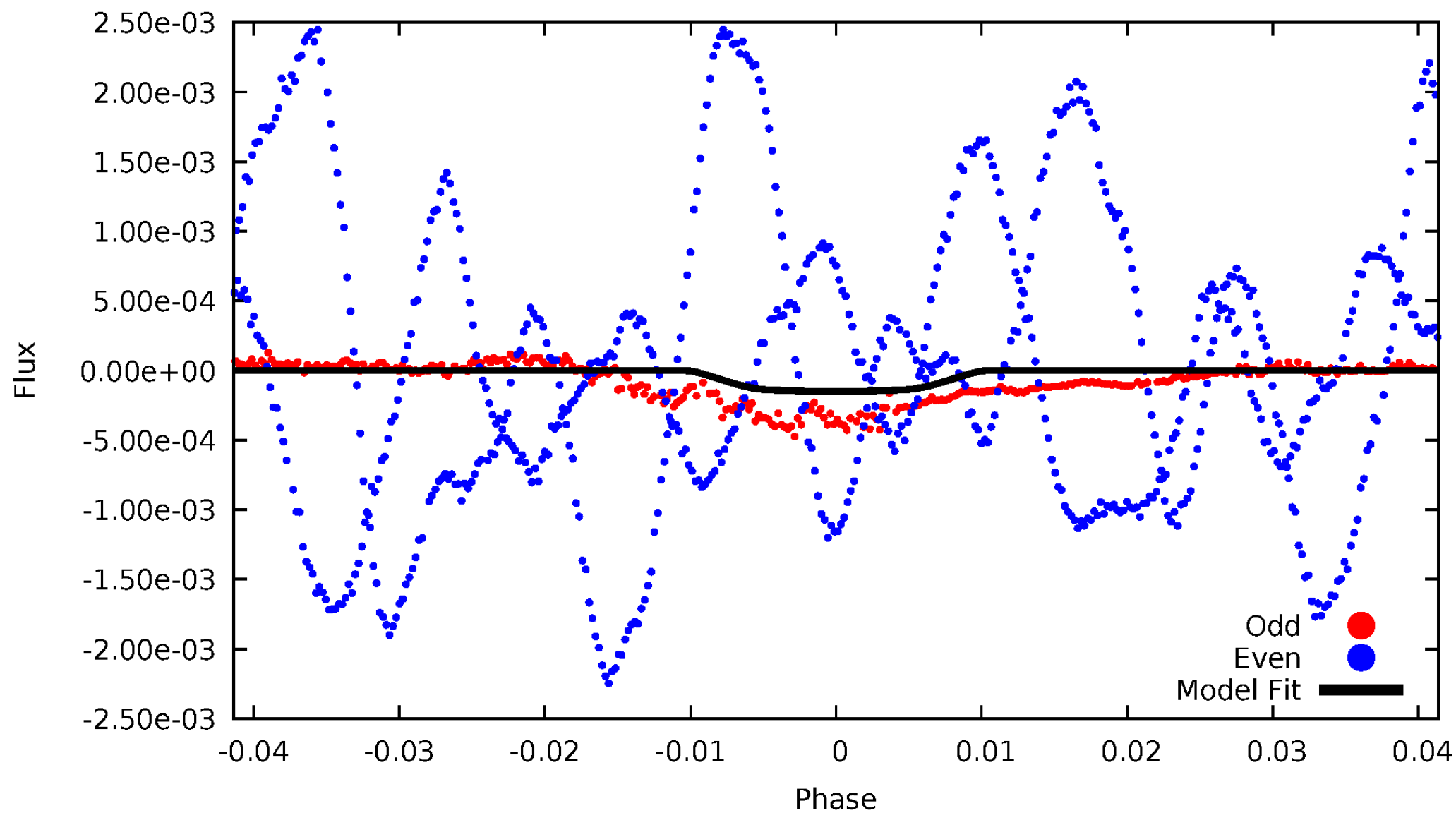
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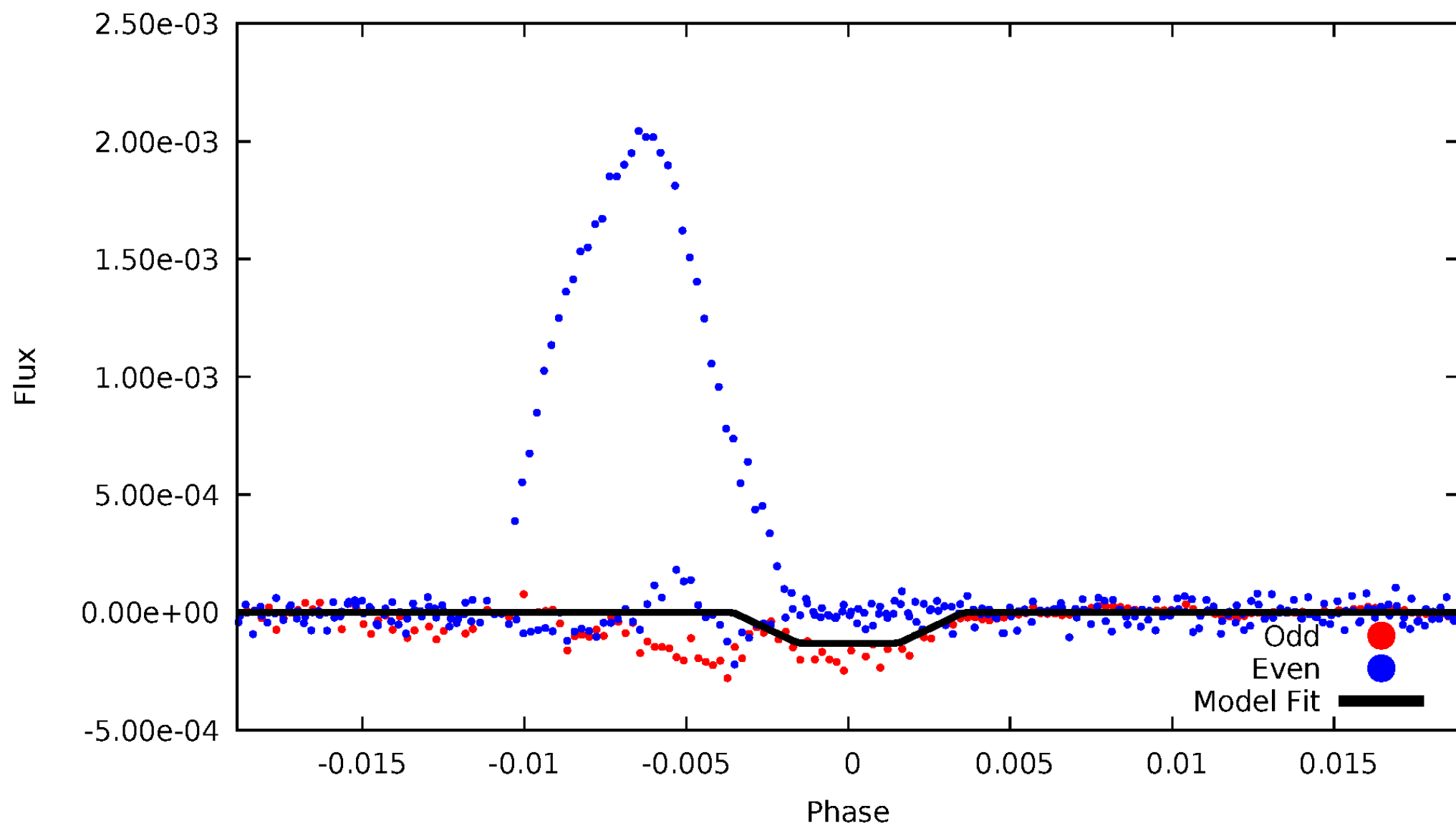
# DV Odd/Even

TCE 006125731-02



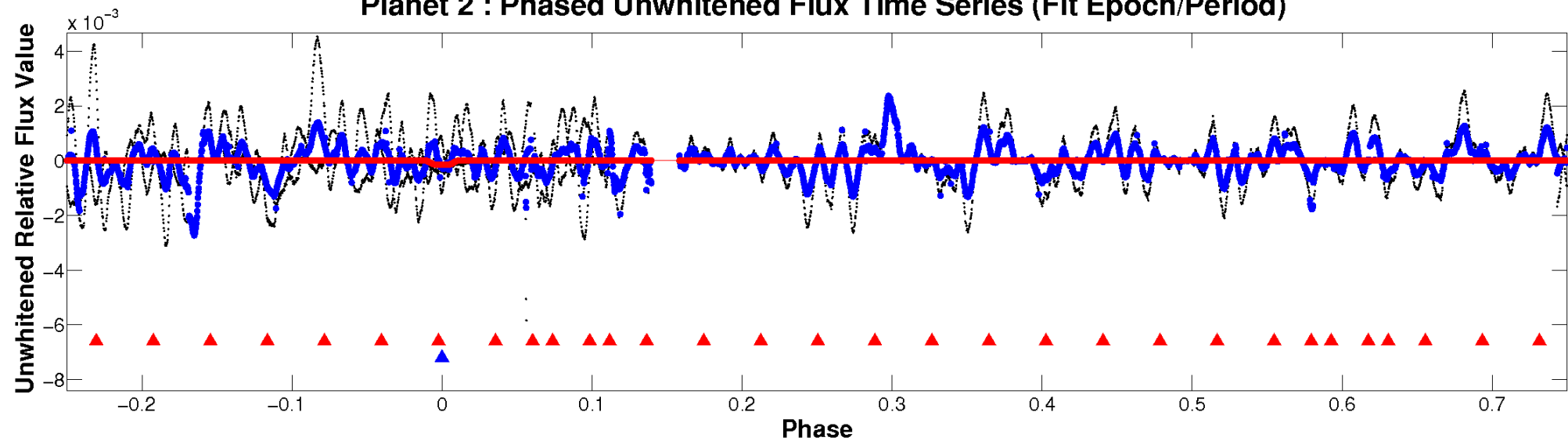
# ALT Odd/Even

TCE 006125731-02

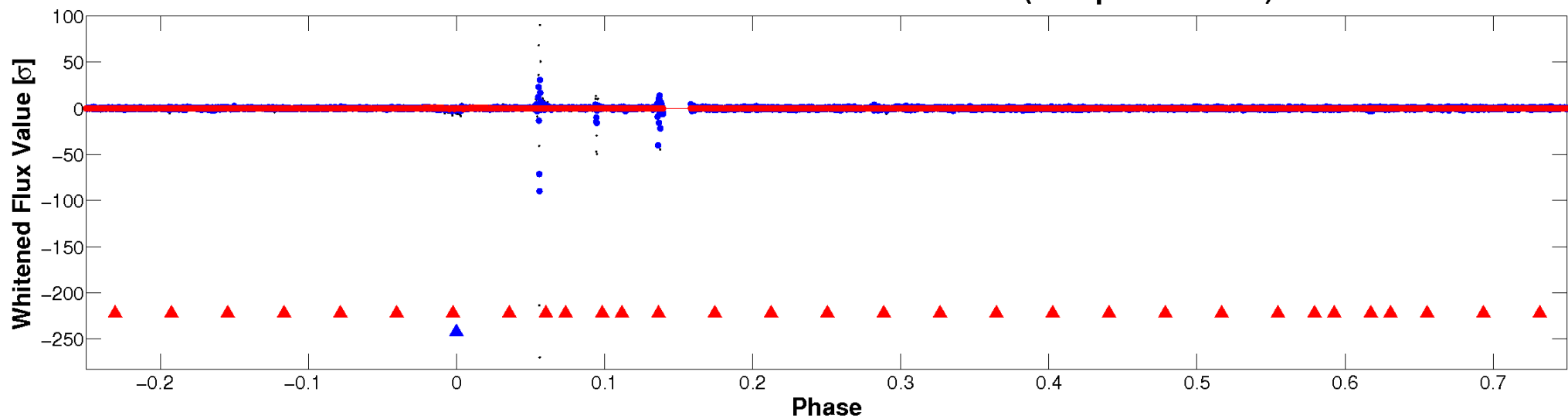


# Non-Whitened Vs. Whitened Light Curve

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

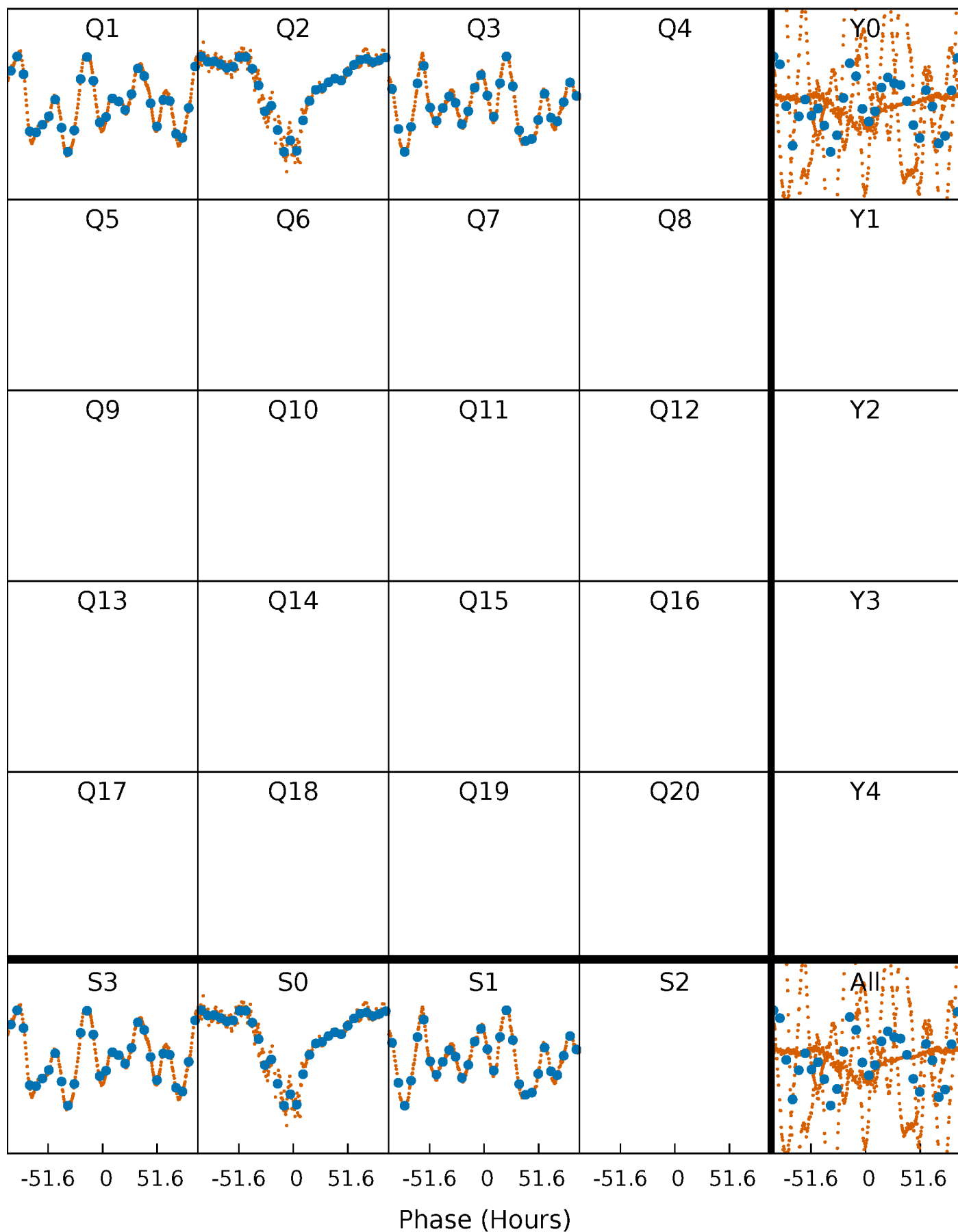


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



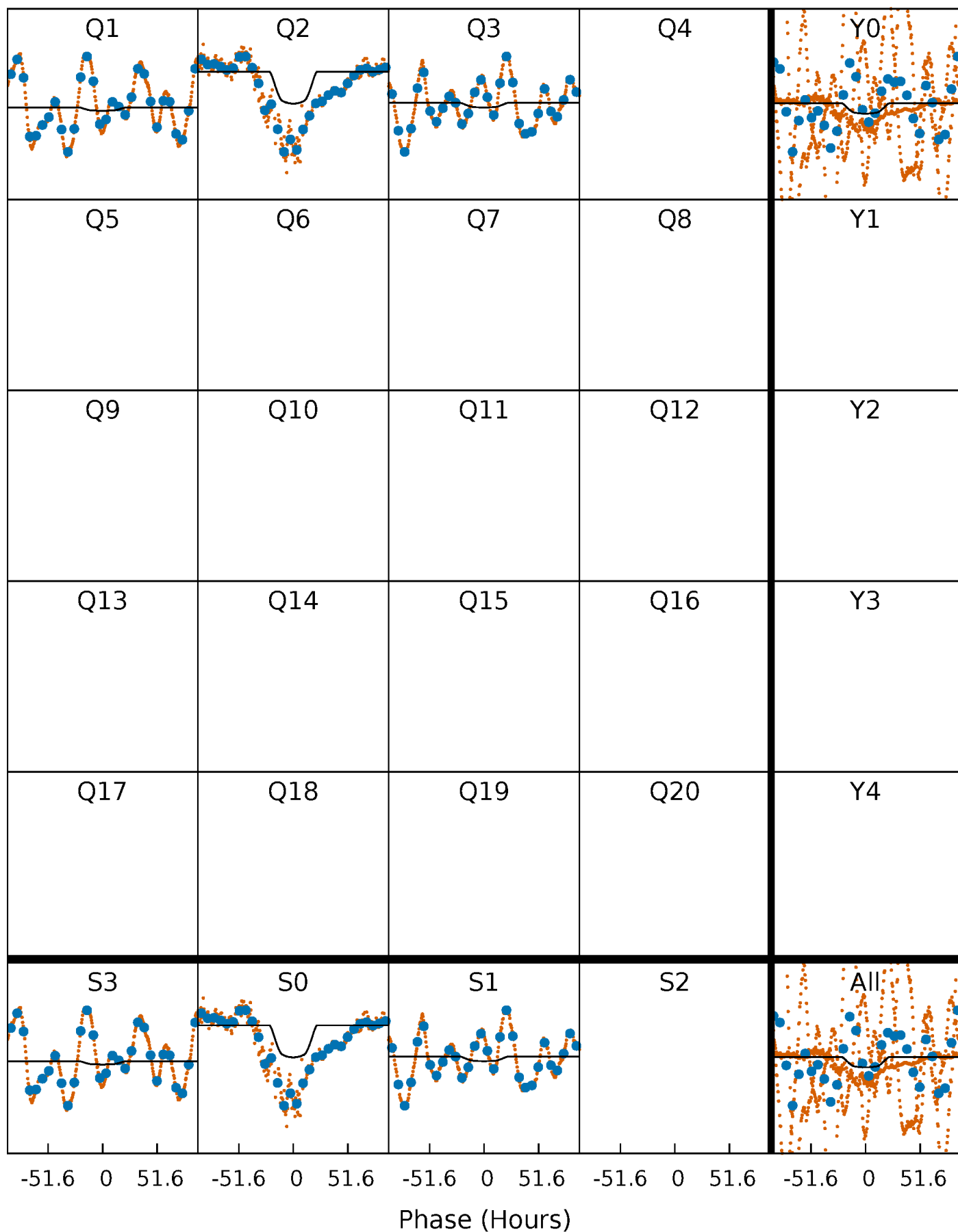
# PDC Quarter-Phased Transit Curves

TCE 006125731-02     $P = 90.974190$  Days     $T_0 = 154.858768$  (BKJD)



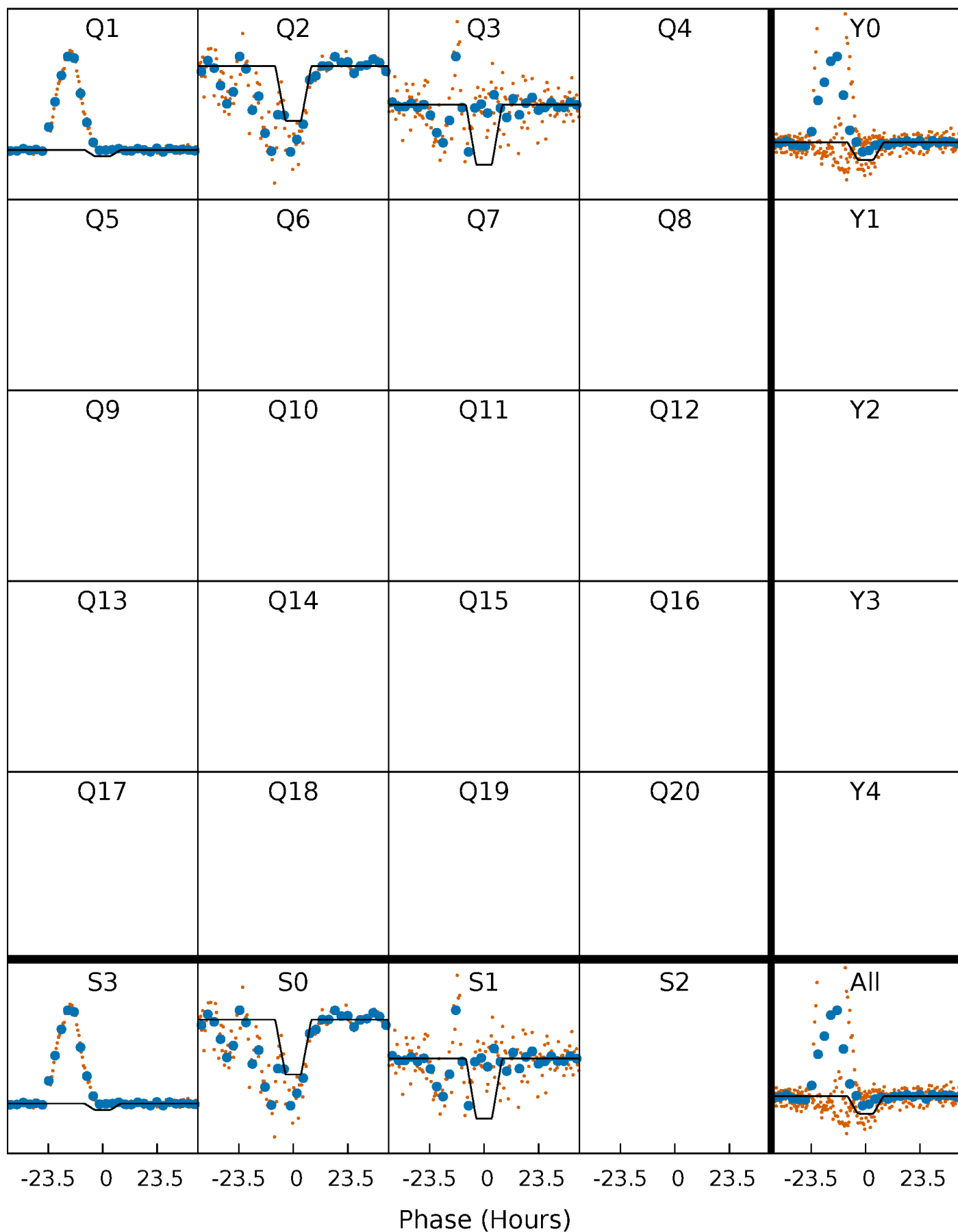
# DV Quarter-Phased Transit Curves

TCE 006125731-02 P= 90.974190 Days  $T_0=154.858768$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

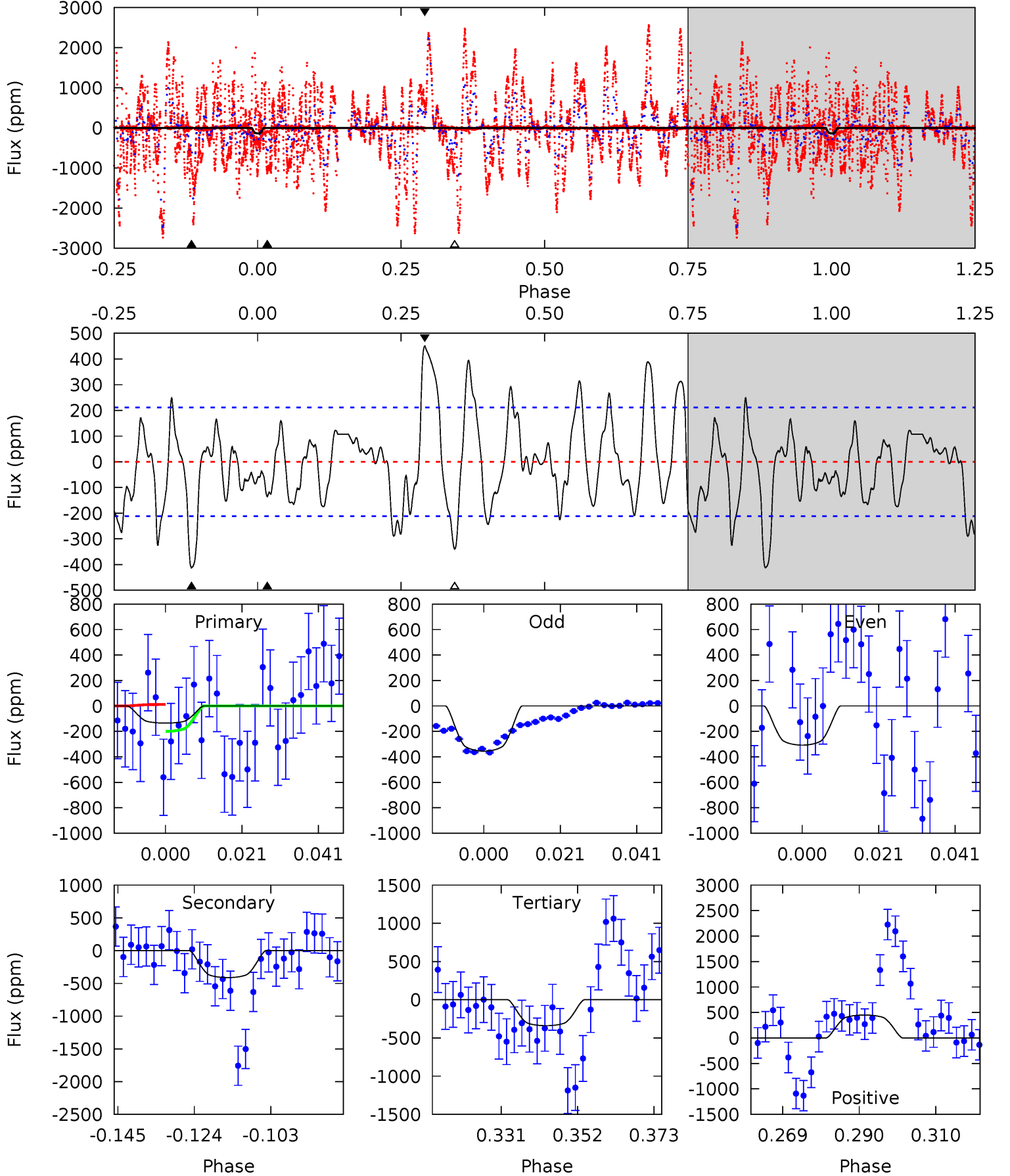
TCE 006125731-02     $P = 90.967169$  Days     $T_0 = 154.946604$  (BKJD)



# DV Model-Shift Uniqueness Test

006125731-02, P = 90.974190 Days, E = 63.884578 Days

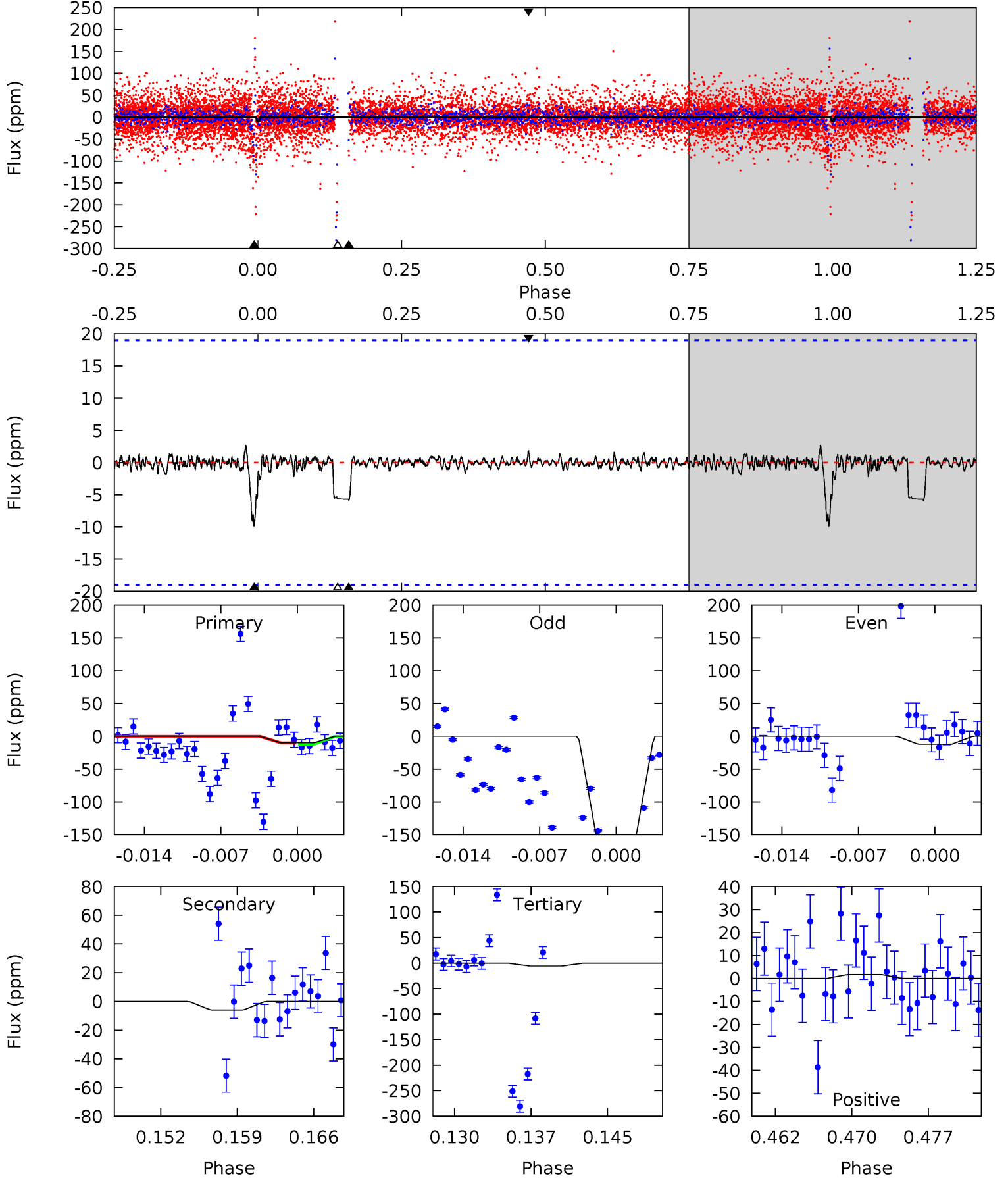
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.11	9.51	7.83	10.4	4.88	2.31	3.66	-4.72	-7.27	1.68	-0.87	0.53	0.36	0.52	2.17



# Alt Model-Shift Uniqueness Test

006125731-02, P = 90.967169 Days, E = 63.979435 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
2.67	1.58	1.51	0.47	5.09	2.69	0.19	1.16	2.20	0.07	1.11	25.0	8.06	0.21	0





### Stellar Parameters For KIC 006125731

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4307^{+77}_{-58}$	$2.024^{+0.125}_{-0.125}$	$-0.040^{+0.150}_{-0.100}$	$15.494^{+5.302}_{-1.767}$	$0.925^{+0.455}_{-0.024}$	$0.000^{+0.000}_{-0.000}$
	+2%/-1%	+6%/-6%	+375%/-250%	+34%/-11%	+49%/-3%	+46%/-44%
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 006125731-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-412 \pm 43$	$28.21^{+5.00}_{-2.89}$	$1678^{+93}_{-69}$	$4673^{+186}_{-166}$	$44^{+12}_{-10}$
Alt.	$-6 \pm 4$	$19.72^{+3.48}_{-2.68}$	$1681^{+91}_{-76}$	$2579^{+238}_{-516}$	$1.264^{+1.013}_{-0.825}$

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

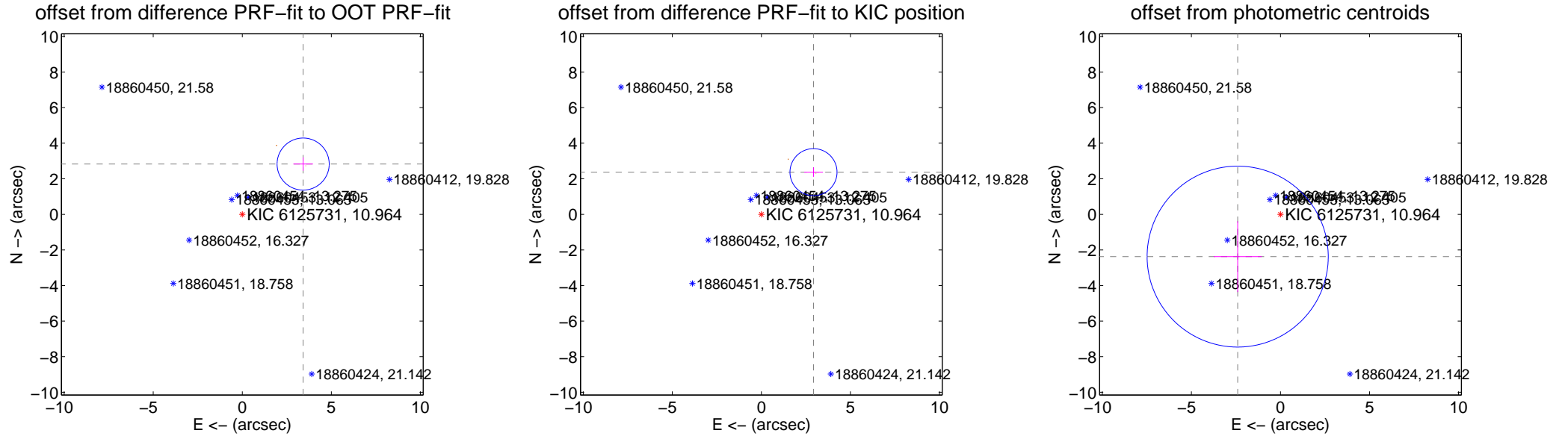
## DV Centroid Data

Supplemental centroid analysis for 006125731-02. **Kepler magnitude: 10.96.** Transit SNR 8.86

**There are 0 quarters with good PRF difference image offsets**

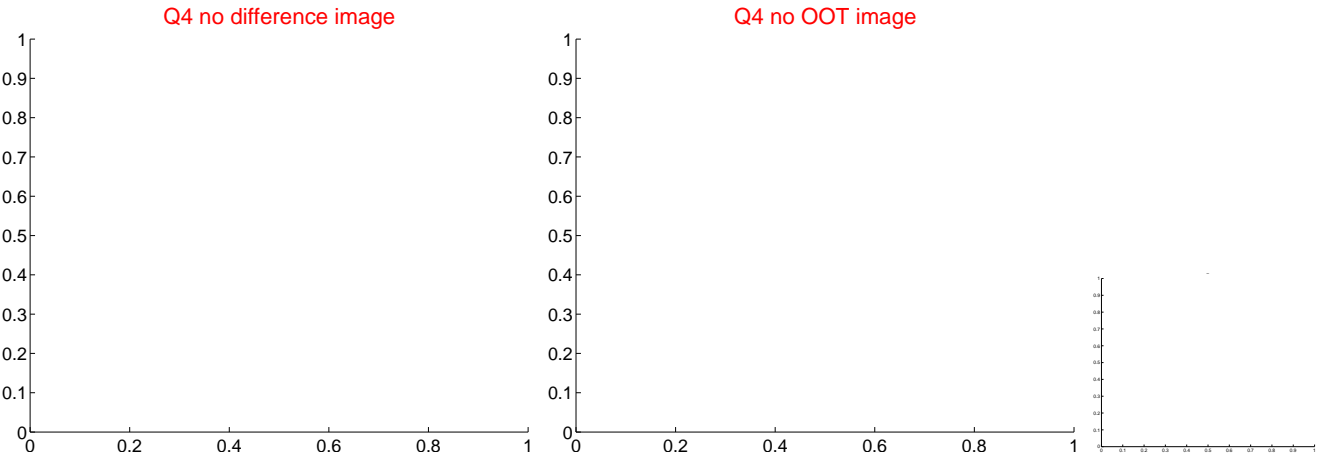
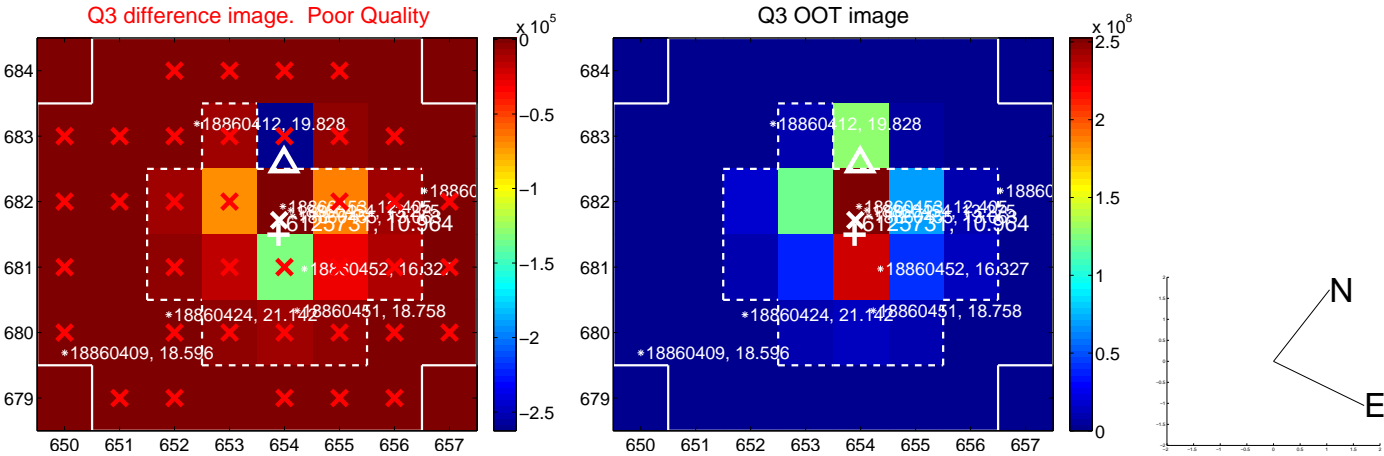
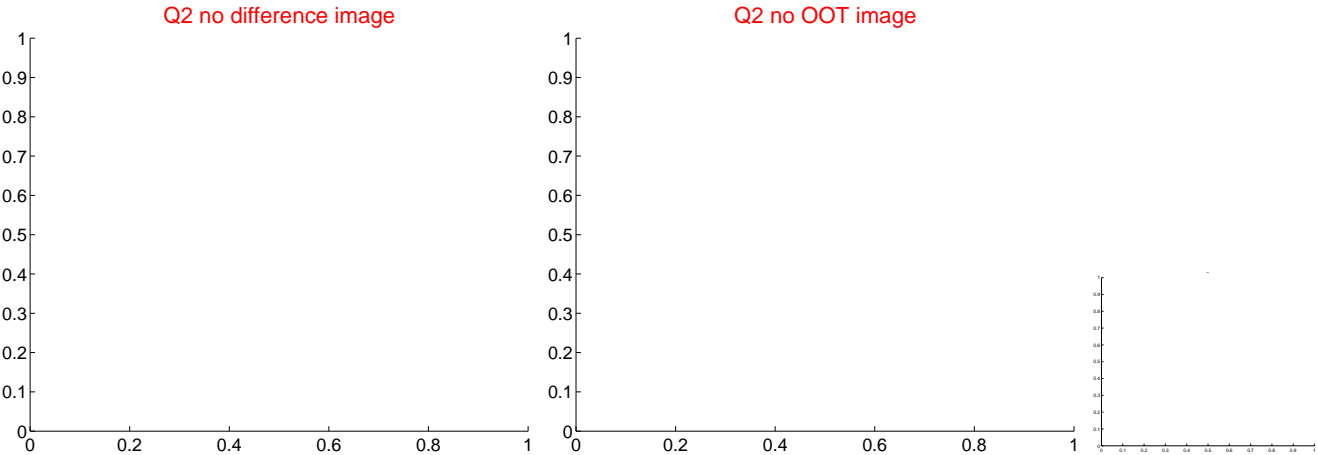
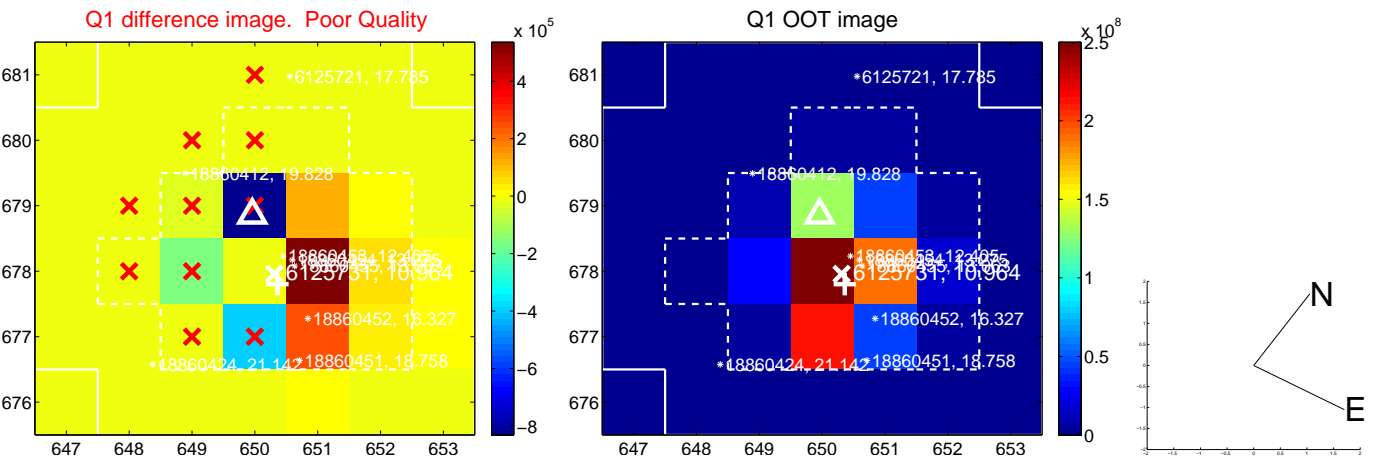
The direct PRF centroid is offset from the target star catalog position by about 0.88 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>4.435 <math>\pm</math> 0.488</b>	<b>9.09</b>	-3.417 $\pm$ 0.551	2.826 $\pm$ 0.377
PRF-fit source offset from KIC position	<b>3.768 <math>\pm</math> 0.440</b>	<b>8.56</b>	-2.927 $\pm$ 0.525	2.373 $\pm$ 0.265
photometric centroid source offset	3.38 $\pm$ 1.70	1.99	2.40 $\pm$ 1.35	-2.38 $\pm$ 1.99



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.



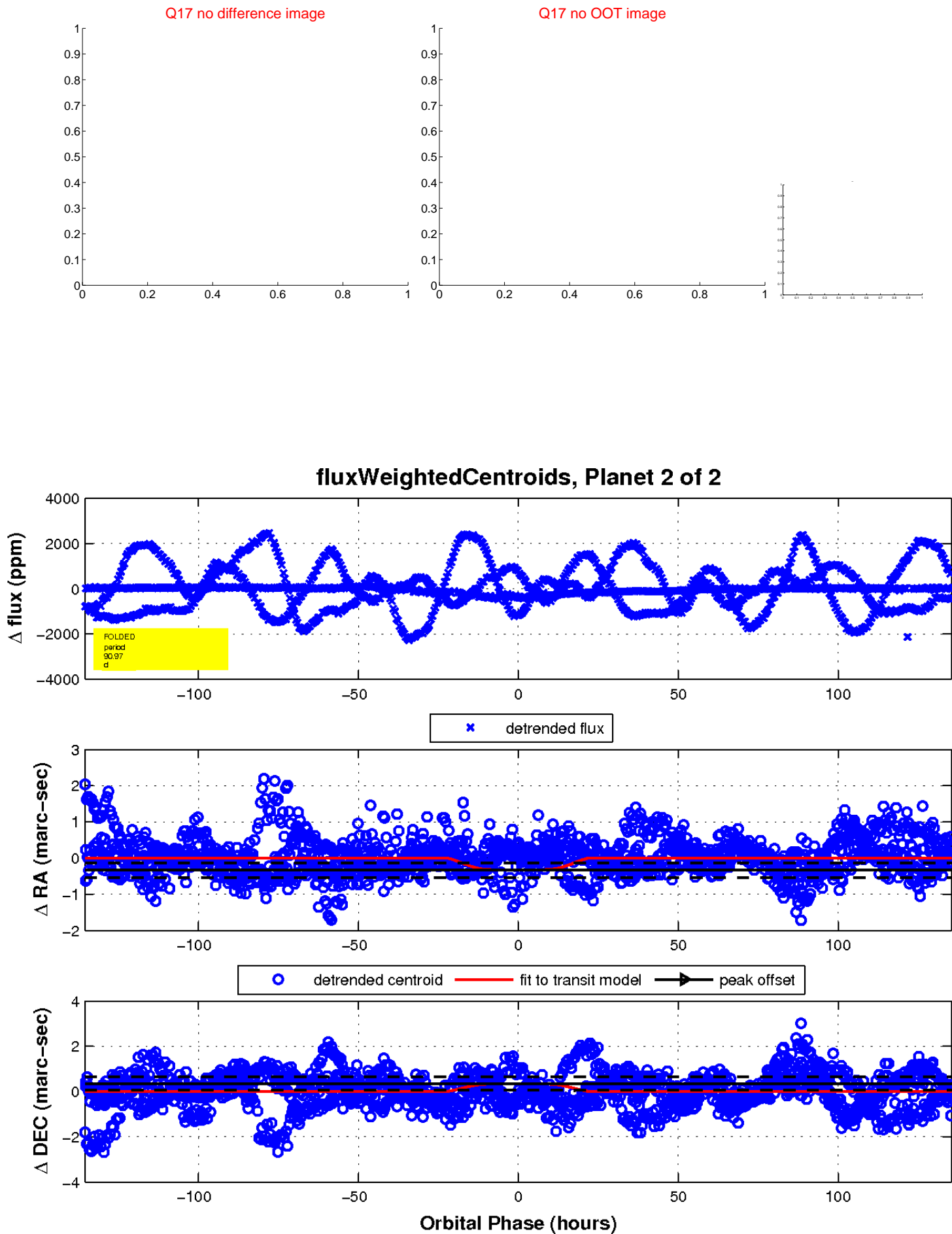
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

