

# KIC 011906217

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011906217-01	OBS	7490.01	37.910208	162.458594	100583.9	3.149	1997.6	1210.0	0.56	4623	28.42	3.89
011906217-02	OBS	No	37.910212	131.595009	16539.4	4.235	399.6	407.1	0.56	4623	11.96	3.89
011906217-03	OBS	No	441.573086	210.545523	1745.6	15.240	13.6	15.6	0.56	4623	4.24	0.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011906217-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
011906217-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
011906217-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

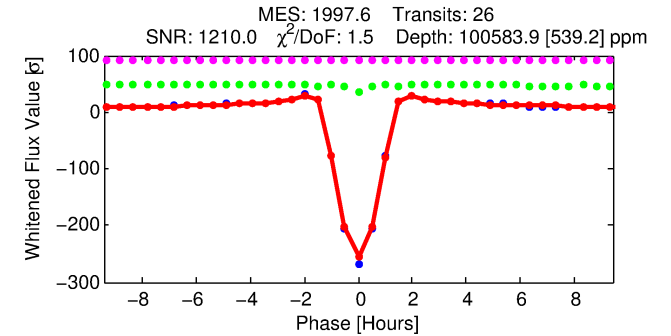
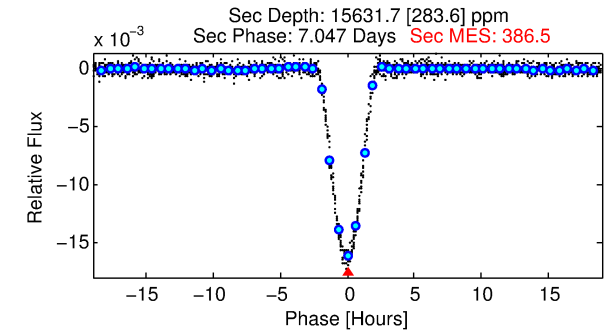
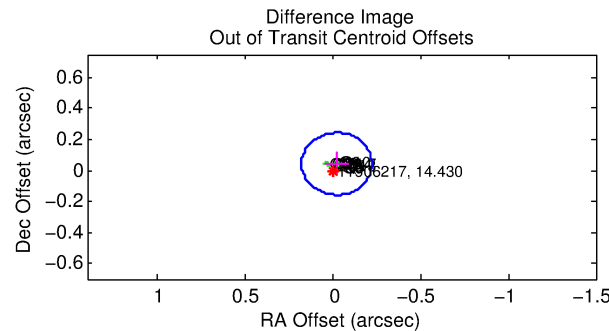
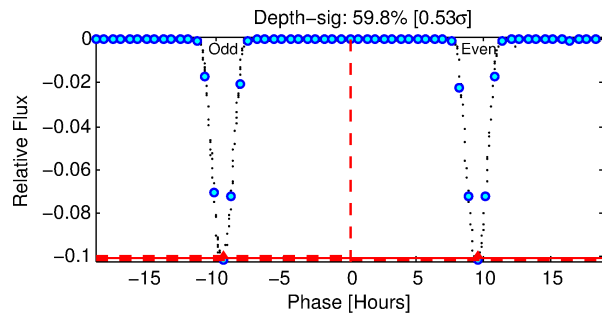
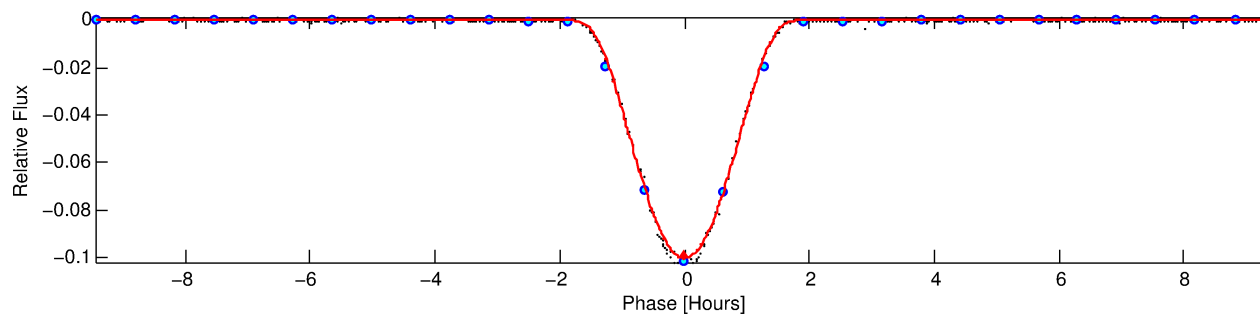
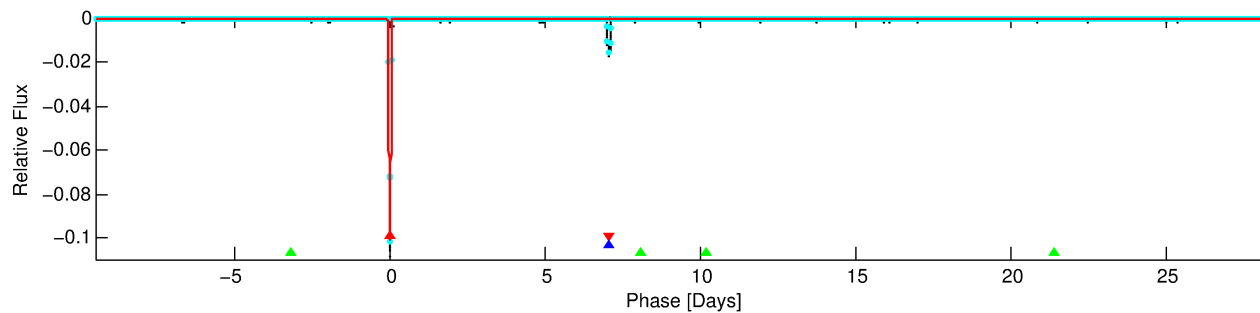
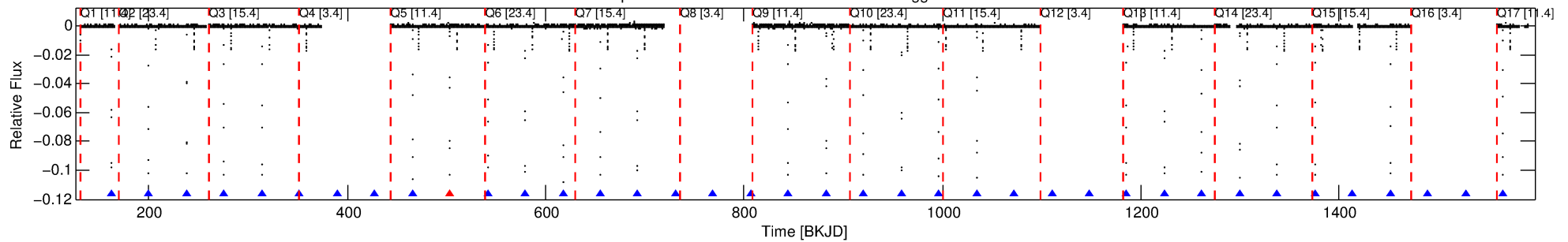
## Ephemeris Match Information For 011906217-01

No Significant Match Found

# DV One-Page Summary

KIC: 11906217 Candidate: 1 of 3 Period: 37.910 d  
KOI: K07490.01 Corr: 0.993

Kp: 14.43 R\*: 0.56 Rs Teff: 4623.0 K Logg: 4.69 Fe/H: -0.920



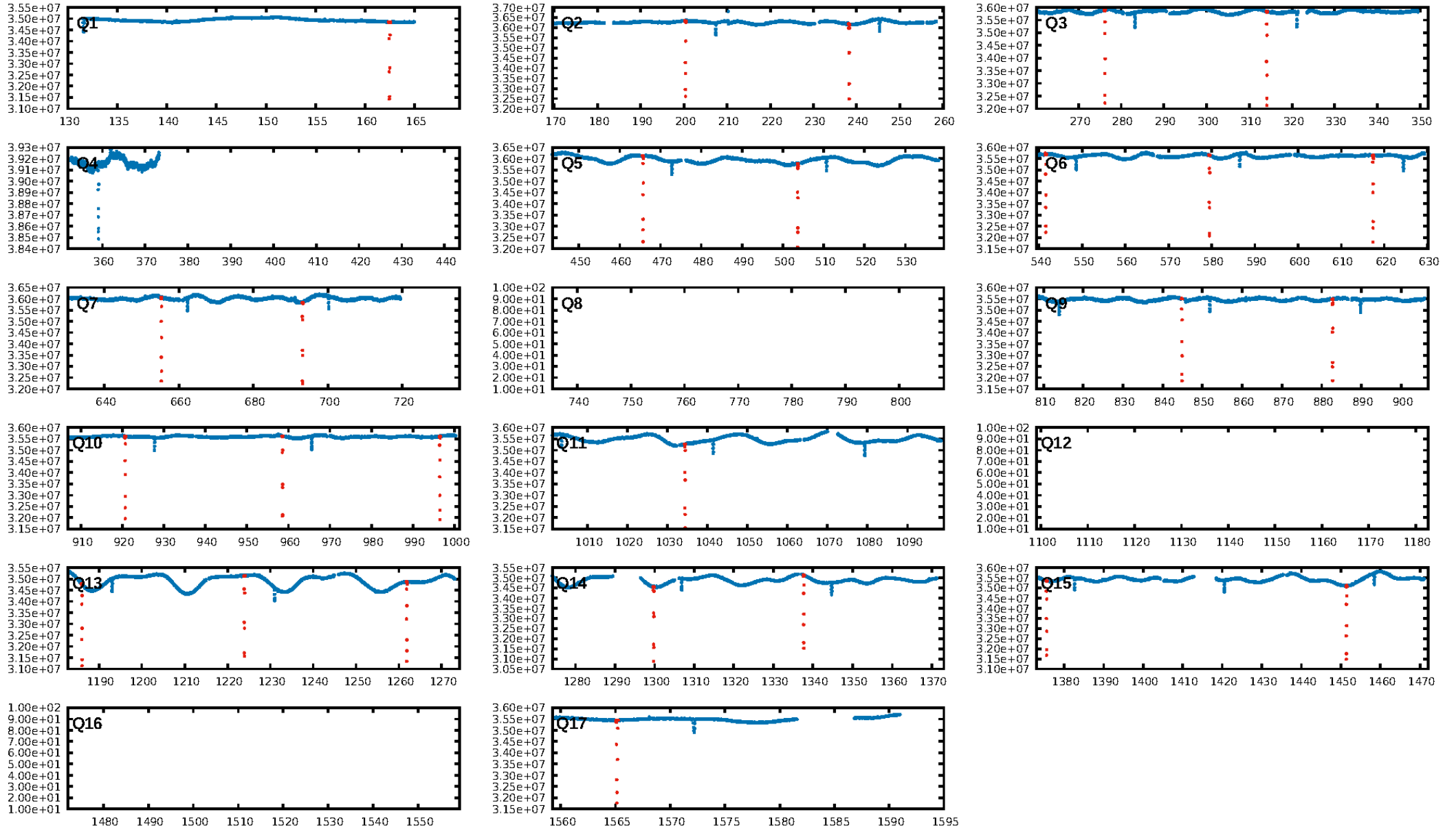
## DV Fit Results:

Period = 37.91021 [0.00000] d  
Epoch = 162.4586 [0.0000] BKJD  
Rp/R\* = 0.4651 [0.1321]  
a/R\* = 102.54 [1.92]  
b = 0.95 [0.18]  
Seff = 3.89 [0.60]  
Teq = 358 [14] K  
Rp = 28.42 [8.36] Re  
a = 0.1815 [0.0120] AU  
Ag = 350.86 [202.34] [1.73σ]  
Teffp = 2397 [348] K [5.85σ]

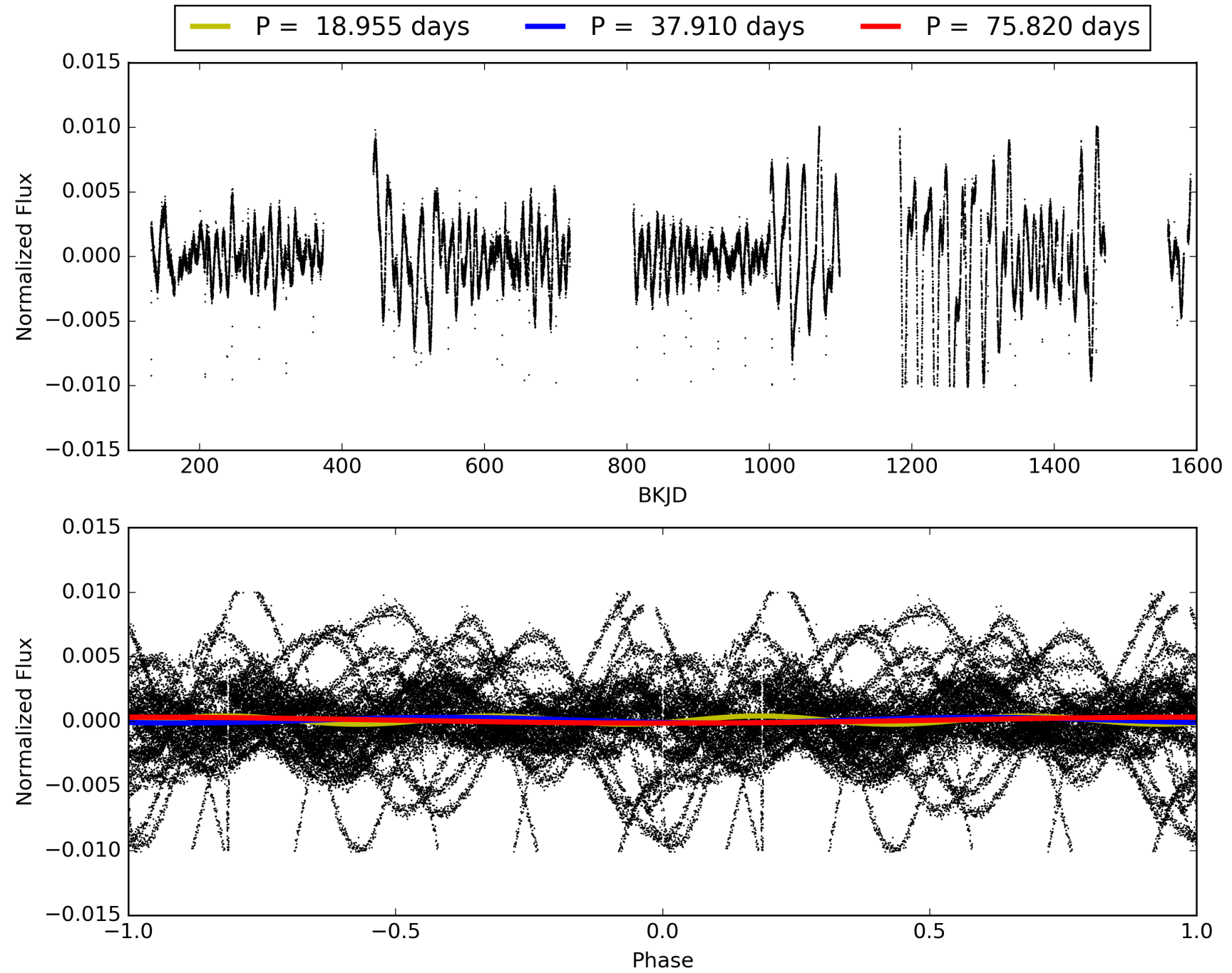
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 11.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.96 [23/24]  
GhostDiagnostic-chr: 2.346  
Centroid-sig: 0.0%  
Centroid-so: 0.179 arcsec [33.02σ]  
OotOffset-rm: 0.048 arcsec [0.72σ]  
KicOffset-rm: 0.173 arcsec [2.50σ]  
OotOffset-st: 4/4/0/5 [13]  
KicOffset-st: 4/4/0/5 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [13/13]

# TCE 011906217-01, PDC Light Curves

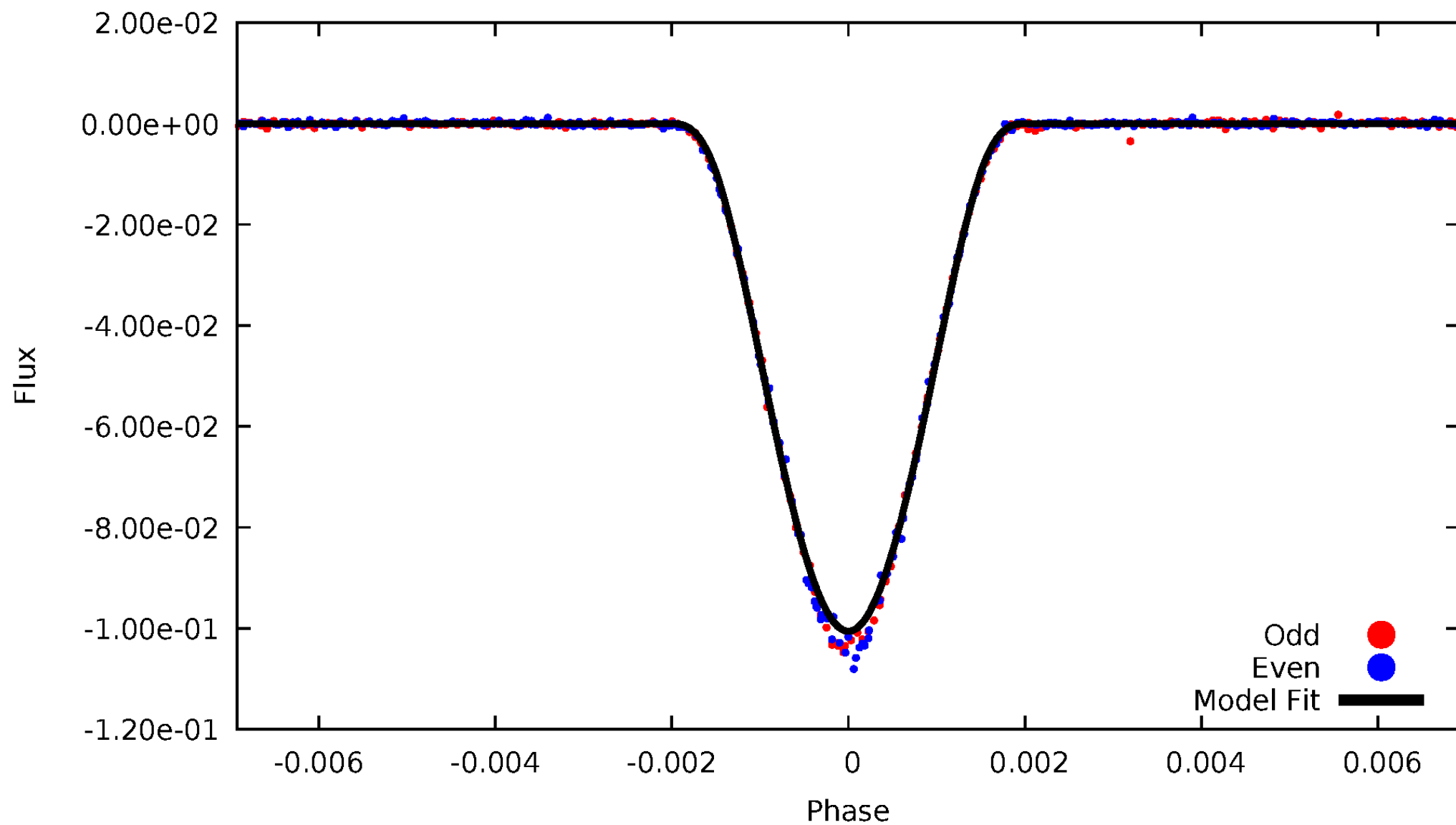


TCE 011906217-01



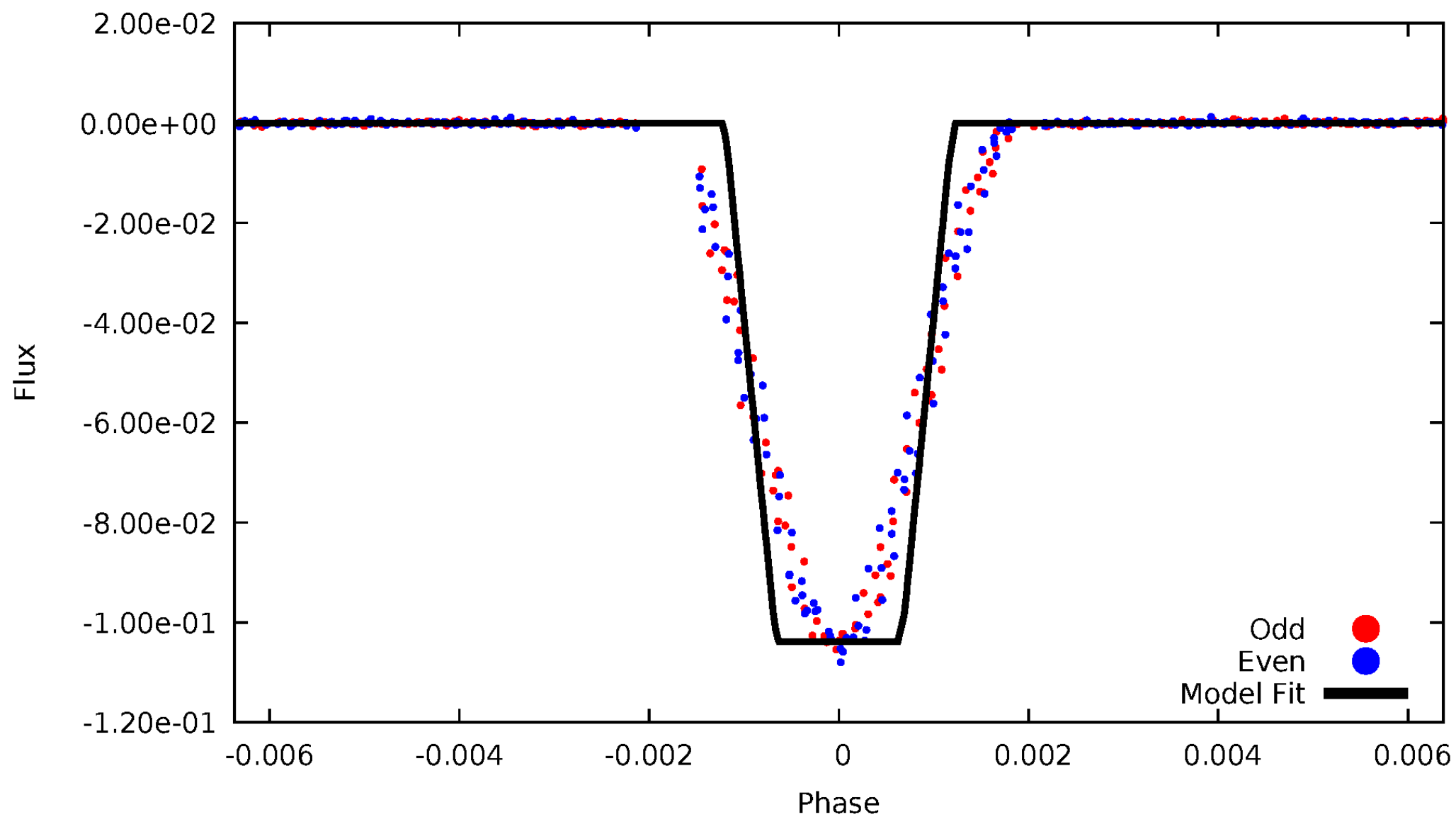
# DV Odd/Even

TCE 011906217-01



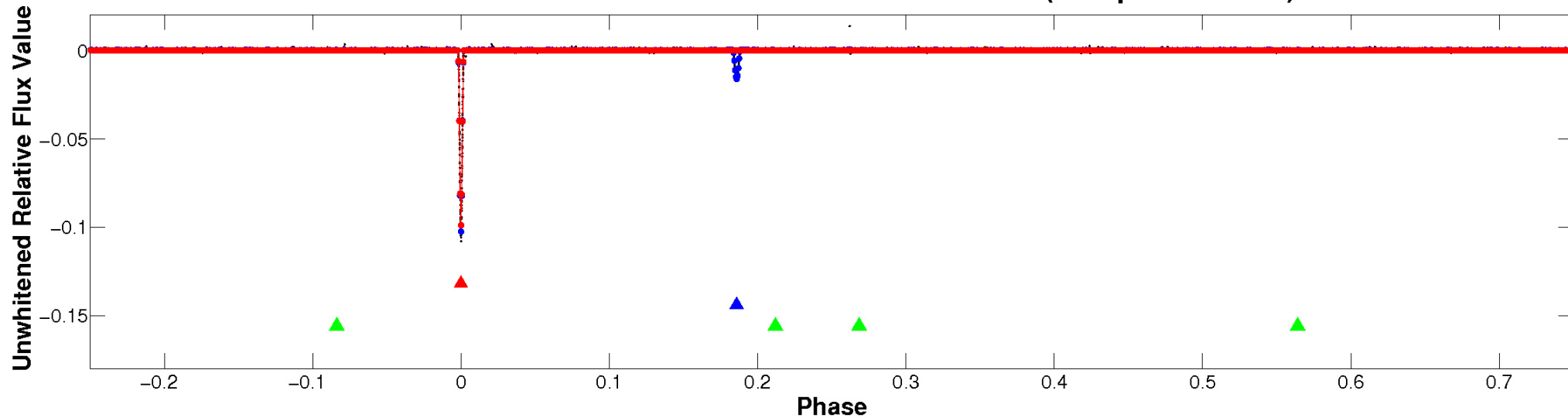
# ALT Odd/Even

TCE 011906217-01

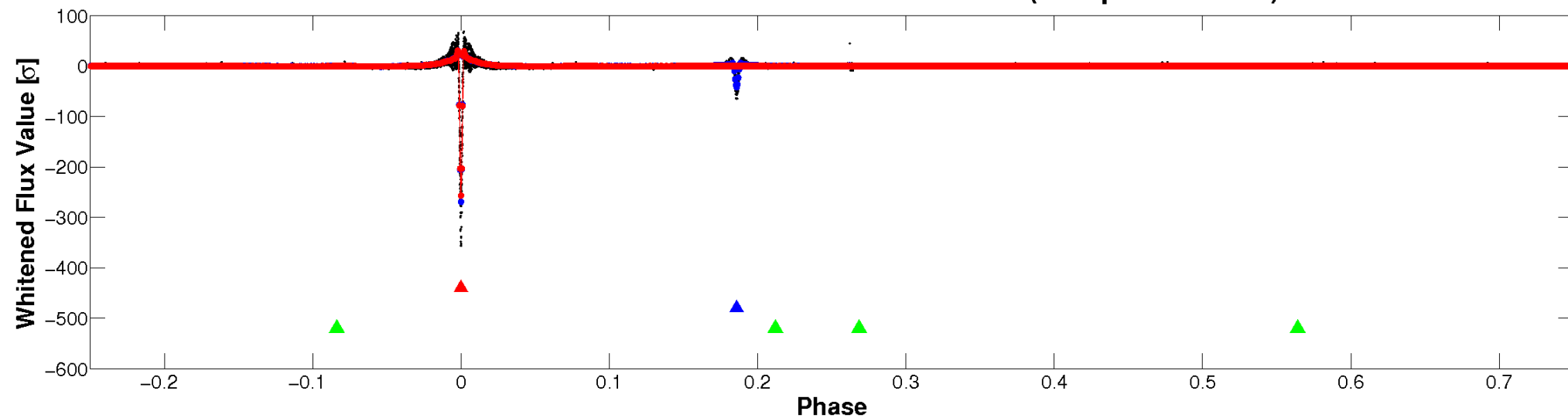


# Non-Whitened Vs. Whitened Light Curve

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

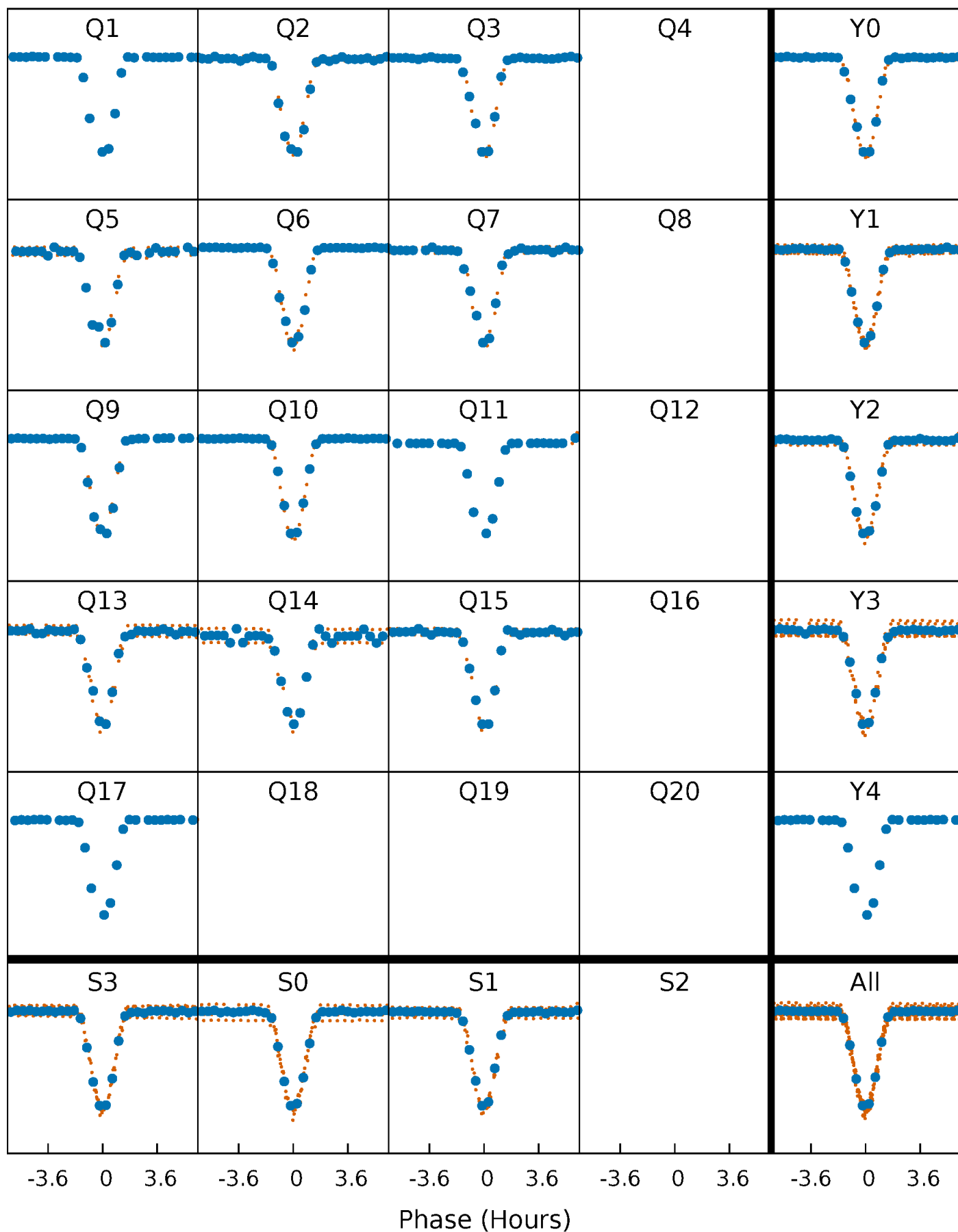


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

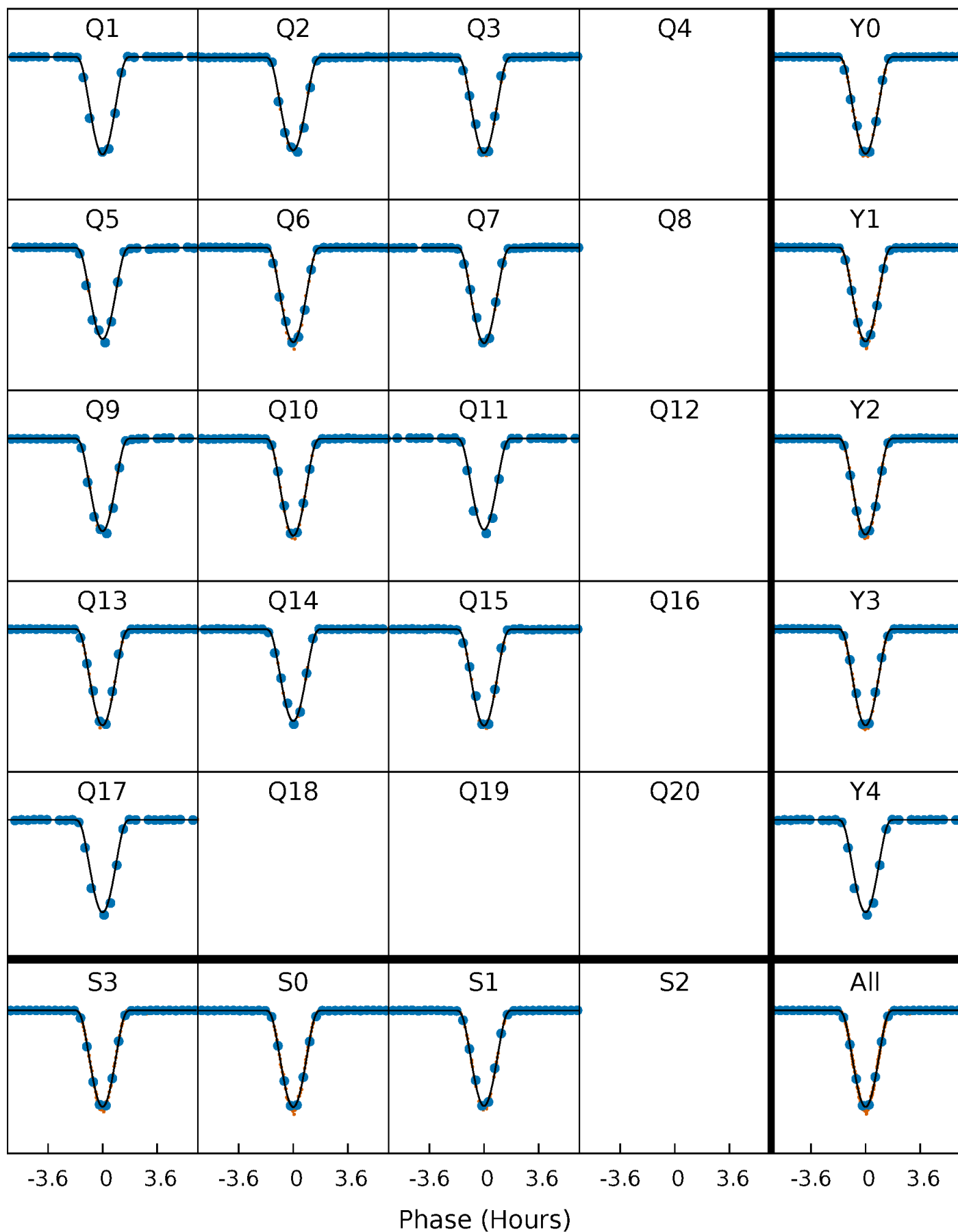
TCE 011906217-01 P= 37.910208 Days  $T_0=162.458594$  (BKJD)





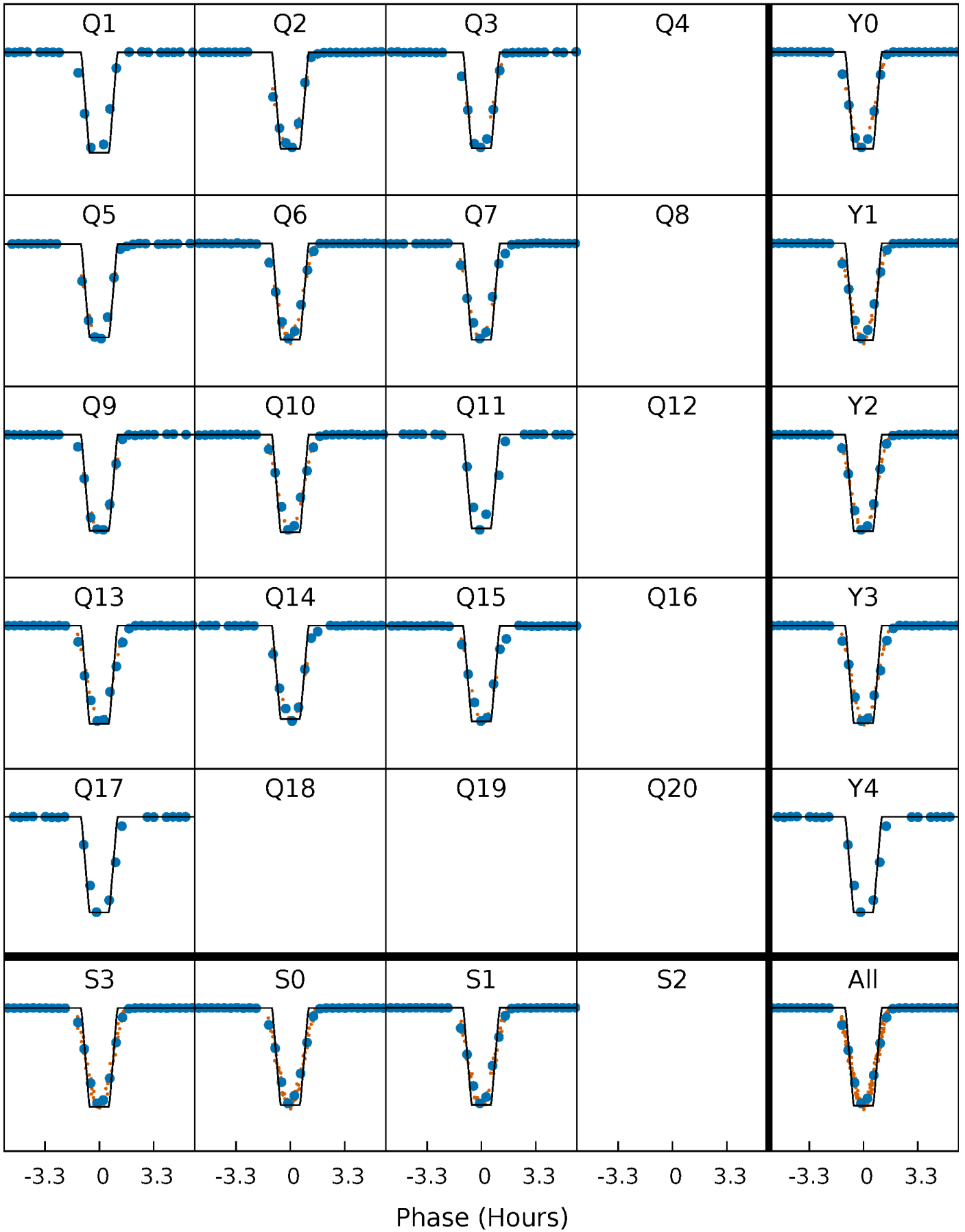
# DV Quarter-Phased Transit Curves

TCE 011906217-01 P= 37.910208 Days  $T_0=162.458594$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

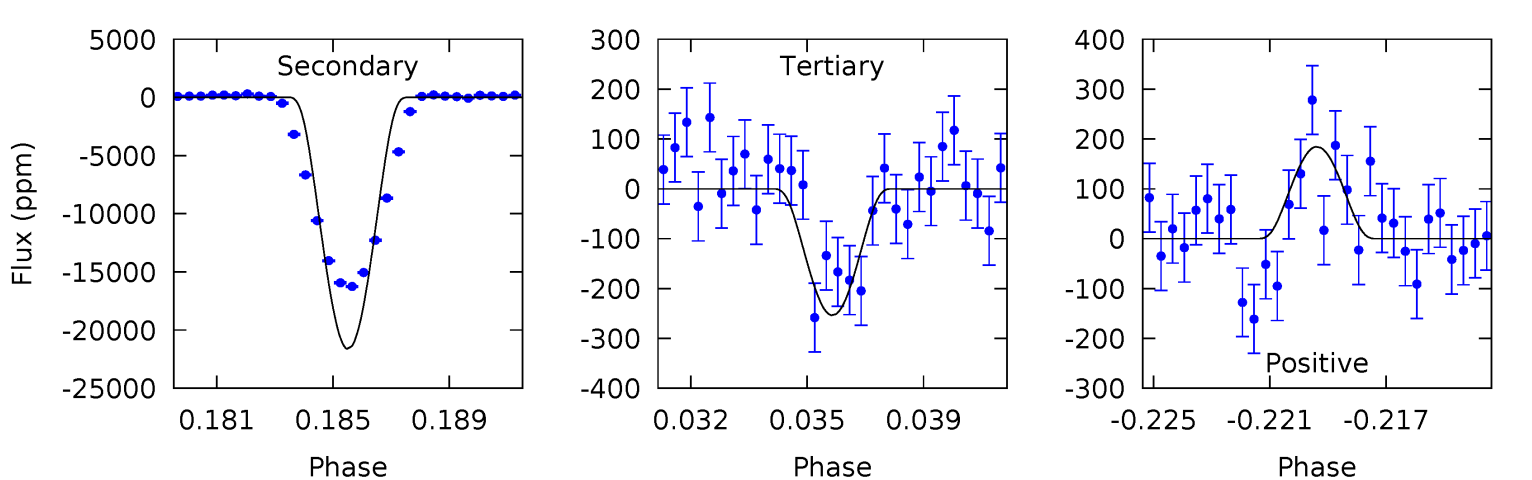
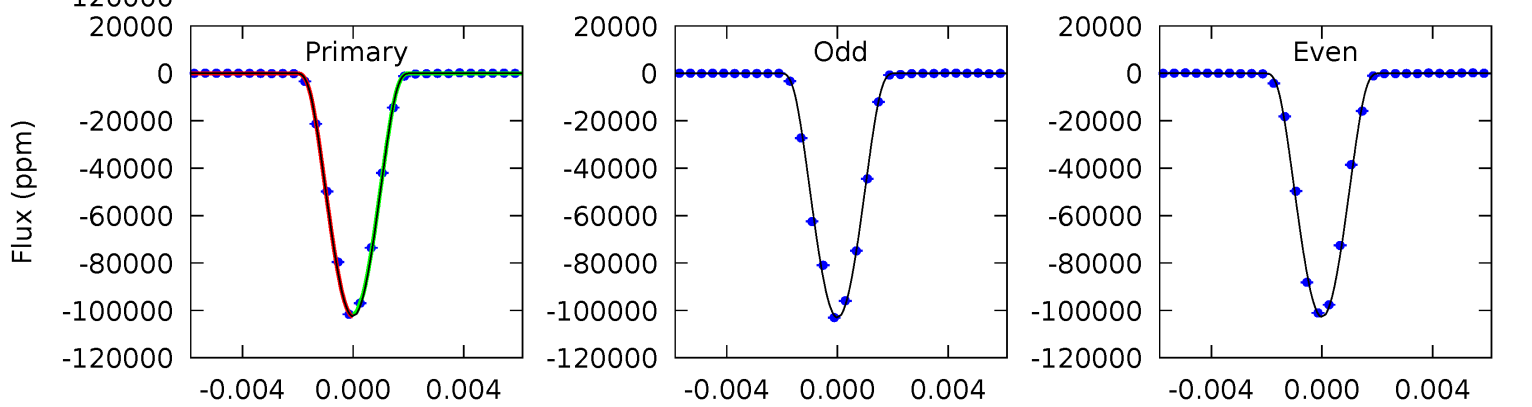
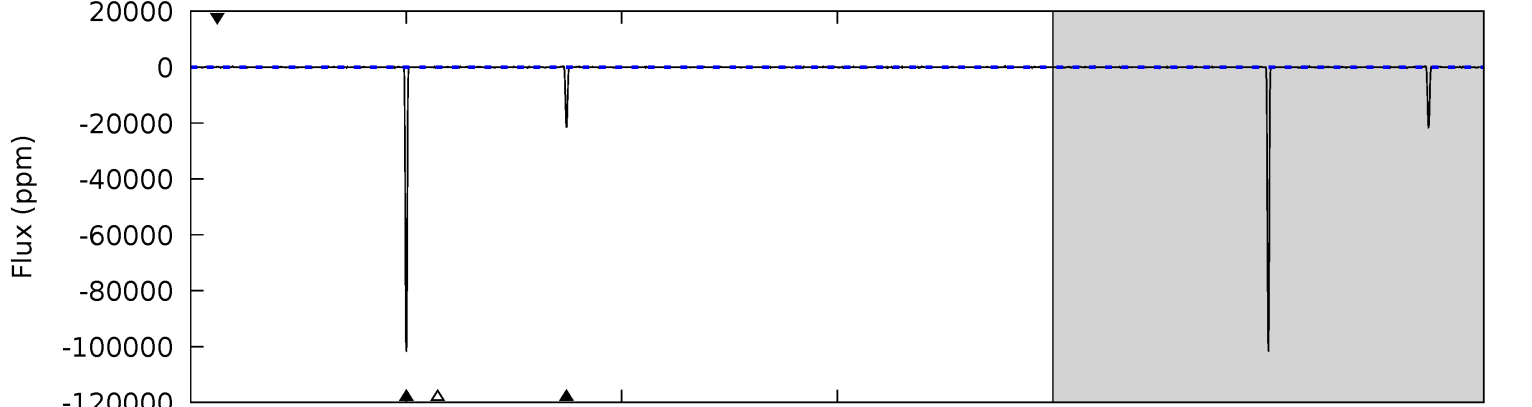
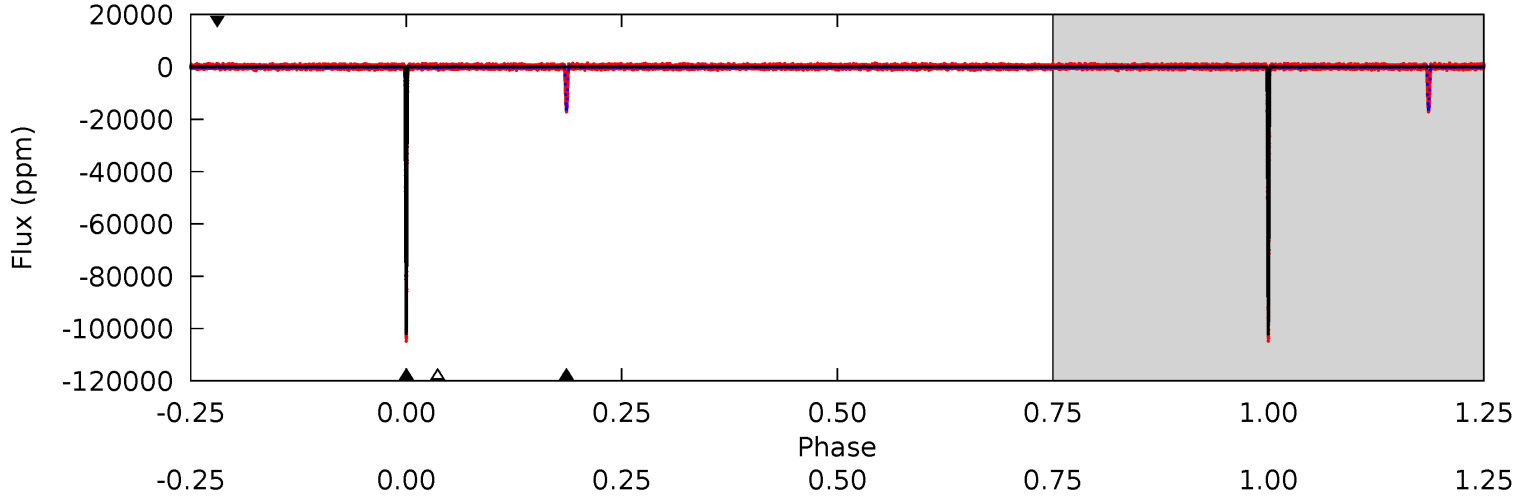
TCE 011906217-01 P= 37.909958 Days  $T_0=162.463197$  (BKJD)



# DV Model-Shift Uniqueness Test

011906217-01, P = 37.910208 Days, E = 124.548386 Days

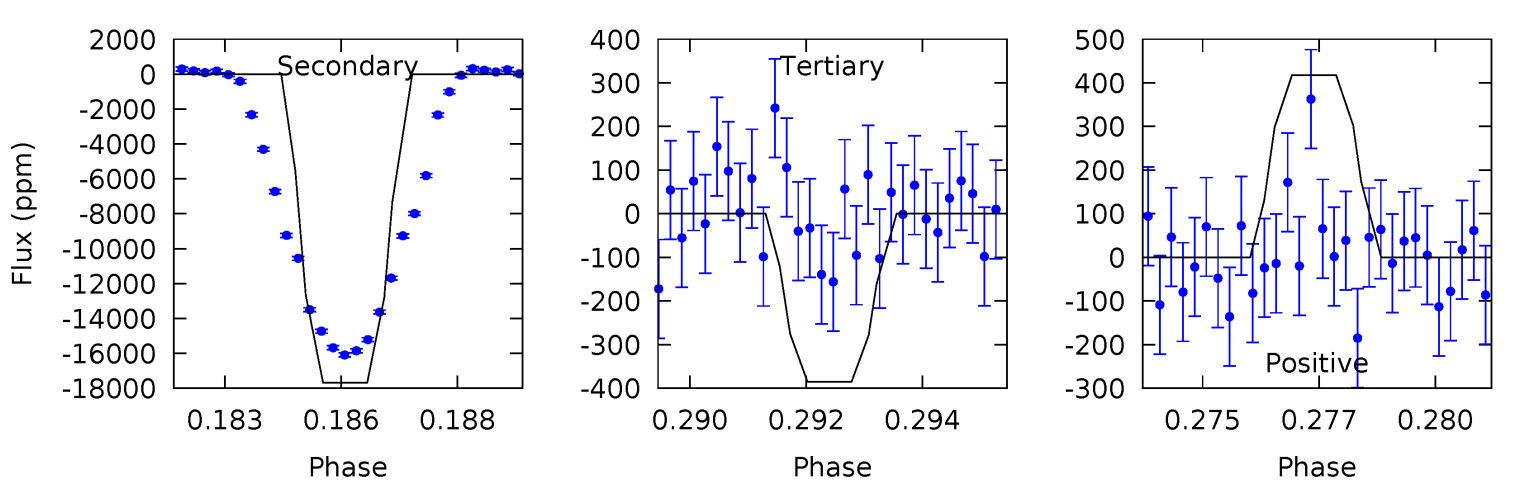
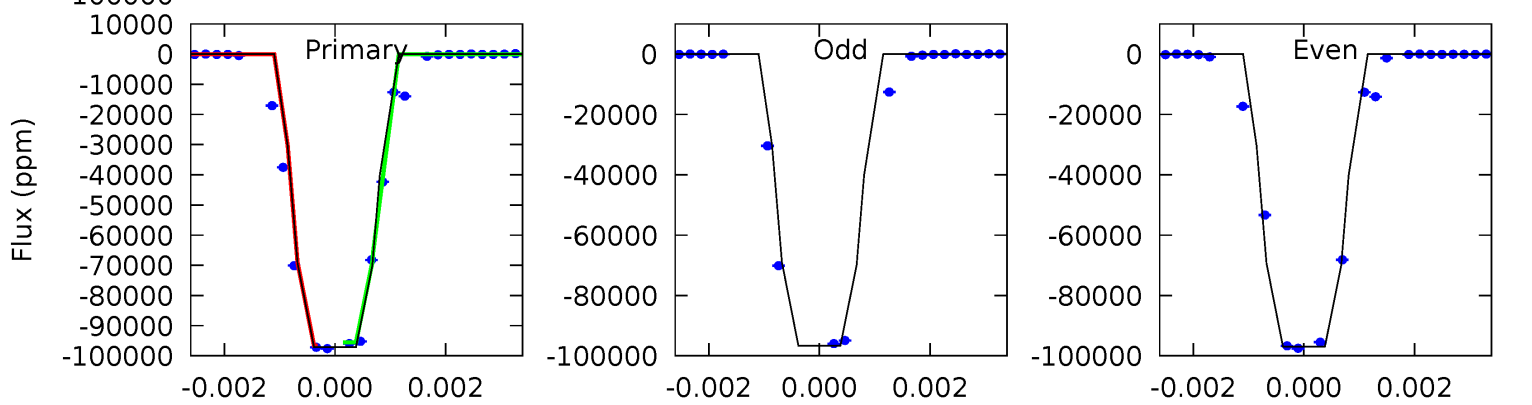
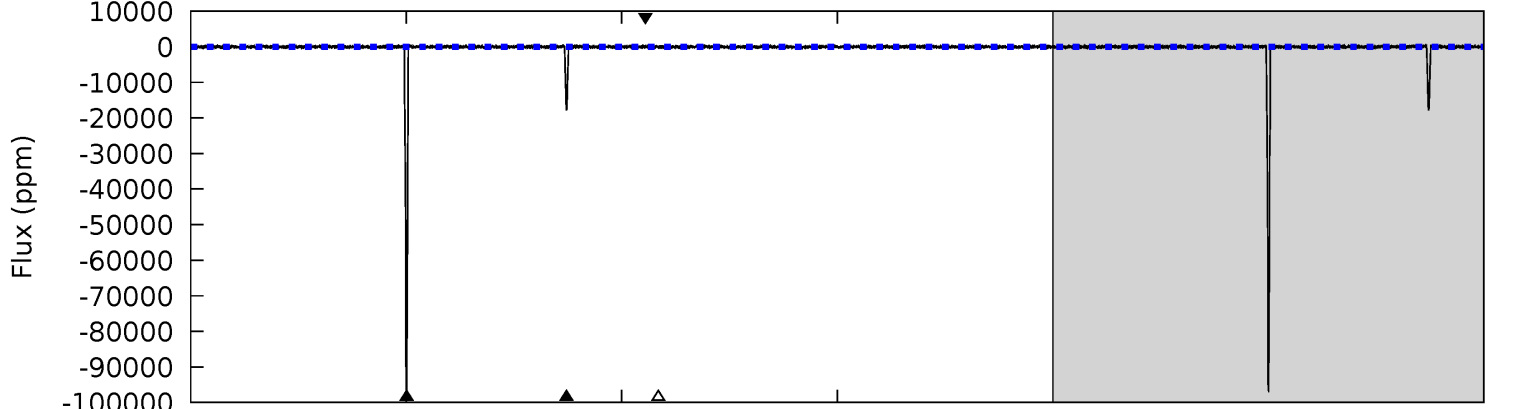
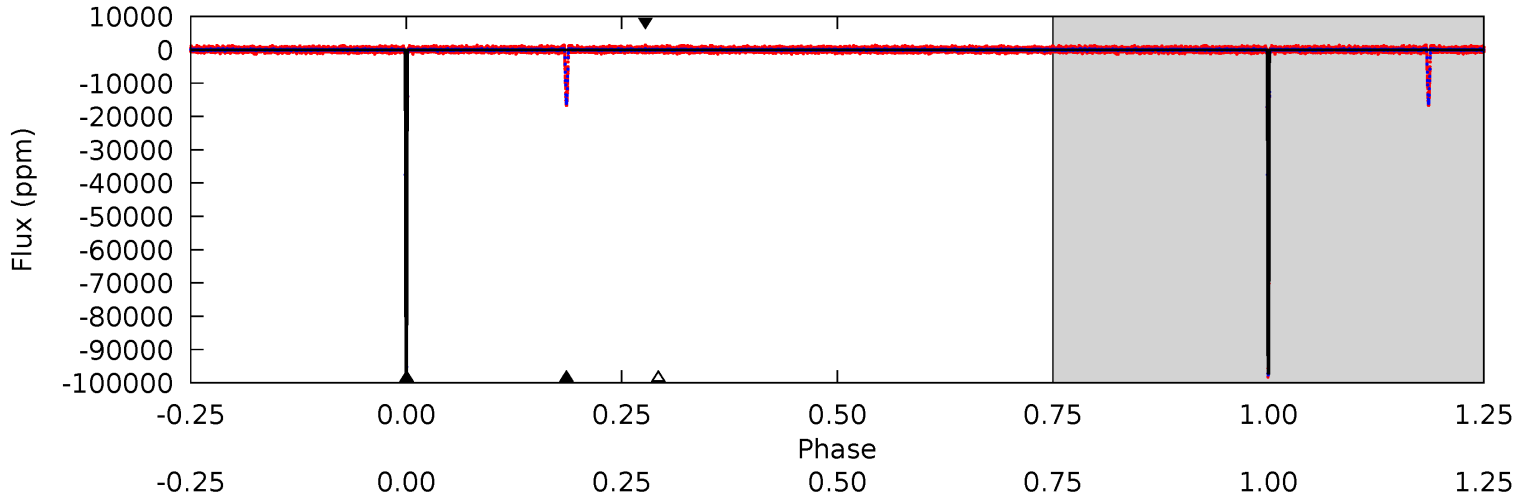
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3760	793.3	9.31	6.77	5.20	2.88	2.26	3751	3753	784.0	786.6	4.77	1.00	0.00	6.65



# Alt Model-Shift Uniqueness Test

011906217-01, P = 37.909958 Days, E = 124.553239 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
1140	207.8	4.52	4.91	5.29	3.03	1.44	1136	1135	203.3	202.9	1.61	1.00	0.00	0



### Stellar Parameters For KIC 011906217

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4623^{+125}_{-139}$	$4.686^{+0.054}_{-0.031}$	$-0.920^{+0.300}_{-0.300}$	$0.560^{+0.039}_{-0.043}$	$0.556^{+0.047}_{-0.027}$	$4.450^{+0.932}_{-0.575}$
	+3%/-3%	+1%/-1%	+33%/-33%	+7%/-8%	+8%/-5%	+21%/-13%
Source	PHO1	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 011906217-01 / KOI 7490.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-21406 \pm 27$	$27.52^{+8.32}_{-7.91}$	$499^{+15}_{-18}$	$3168^{+349}_{-245}$	$528^{+508}_{-212}$
Alt.	$-17694 \pm 85$	$20.35^{+7.74}_{-8.36}$	$497^{+17}_{-18}$	$3366^{+600}_{-323}$	$793^{+1469}_{-378}$

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

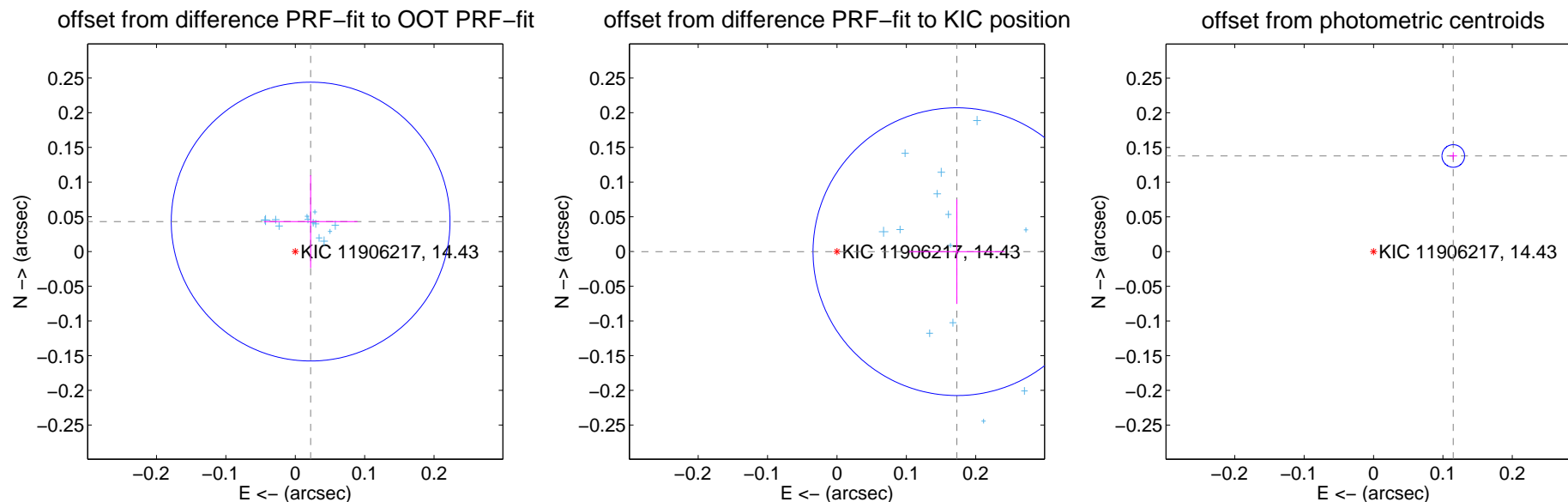
## DV Centroid Data

Supplemental centroid analysis for 011906217-01. Kepler magnitude: 14.43. Transit SNR 1210.00

There are 13 quarters with good PRF difference image offsets

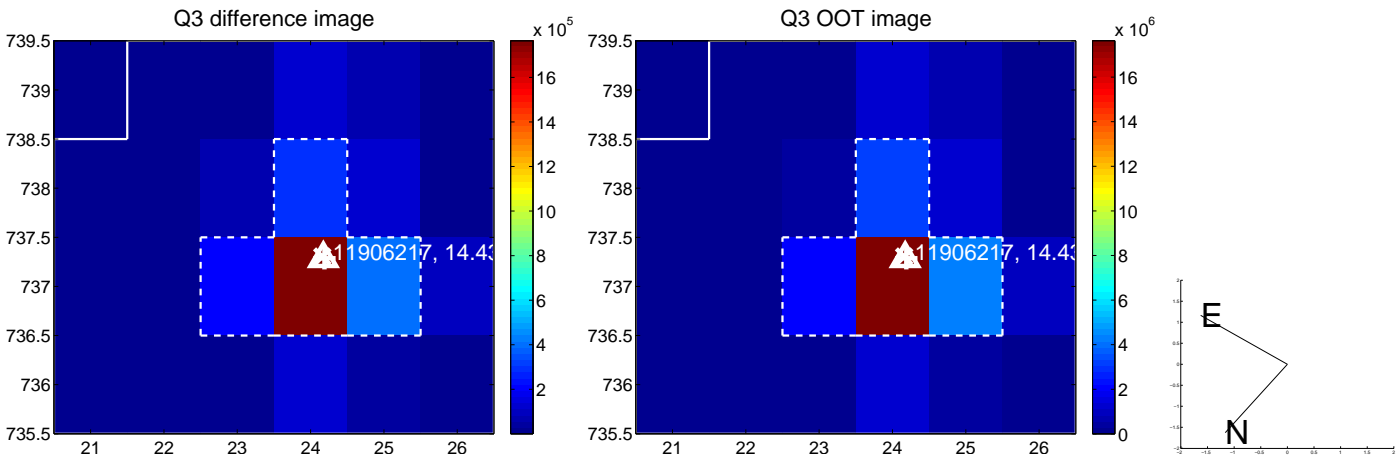
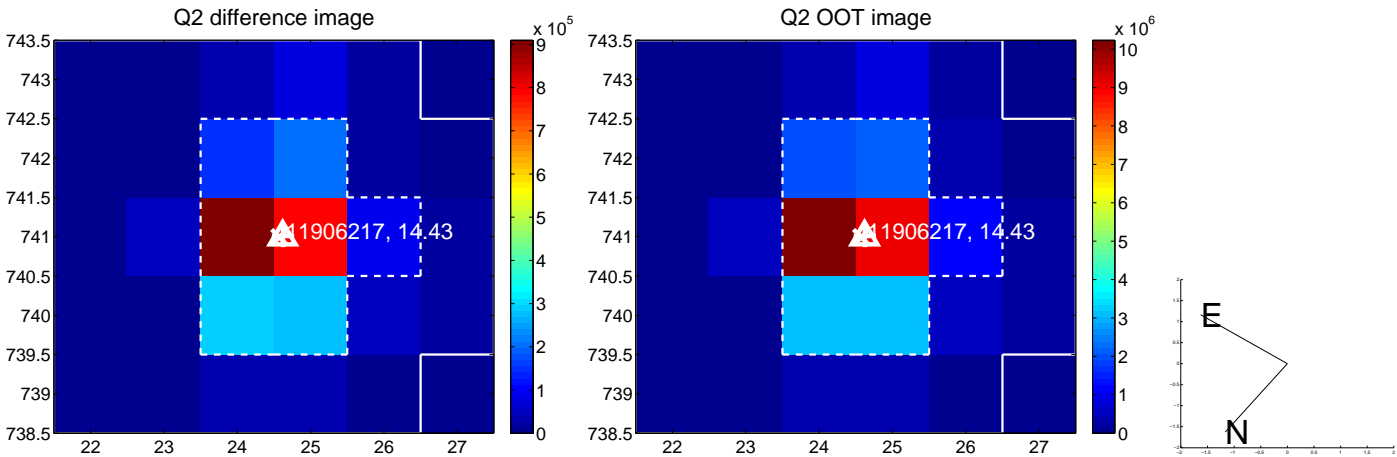
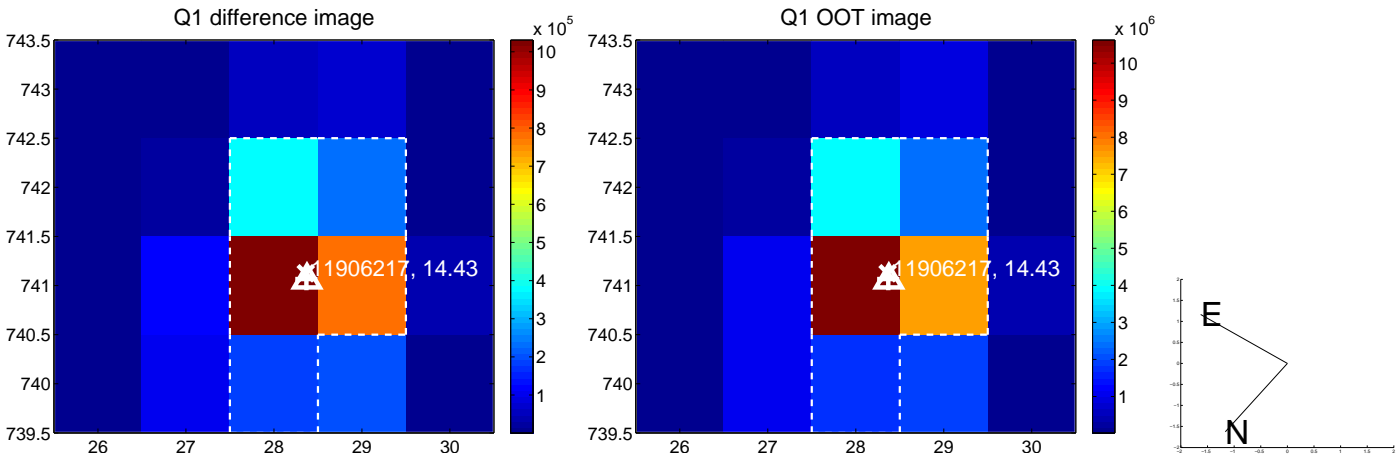
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.048 \pm 0.067$	0.72	$-0.022 \pm 0.067$	$0.043 \pm 0.067$
PRF-fit source offset from KIC position	$0.173 \pm 0.069$	2.50	$-0.173 \pm 0.069$	$-0.000 \pm 0.075$
photometric centroid source offset	$0.18 \pm 0.01$	33.02	$-0.11 \pm 0.01$	$0.14 \pm 0.01$

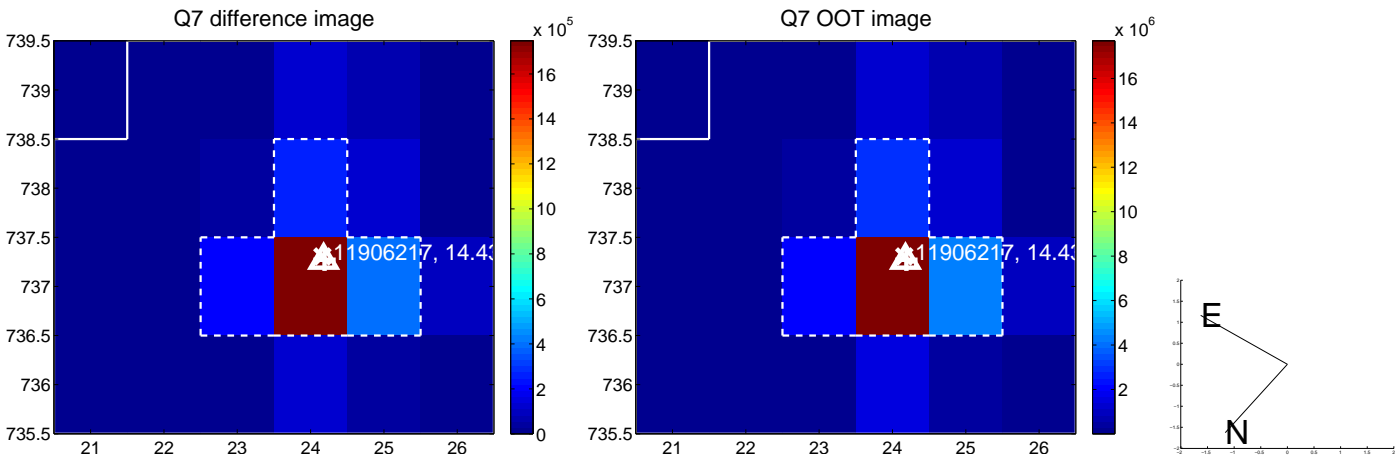
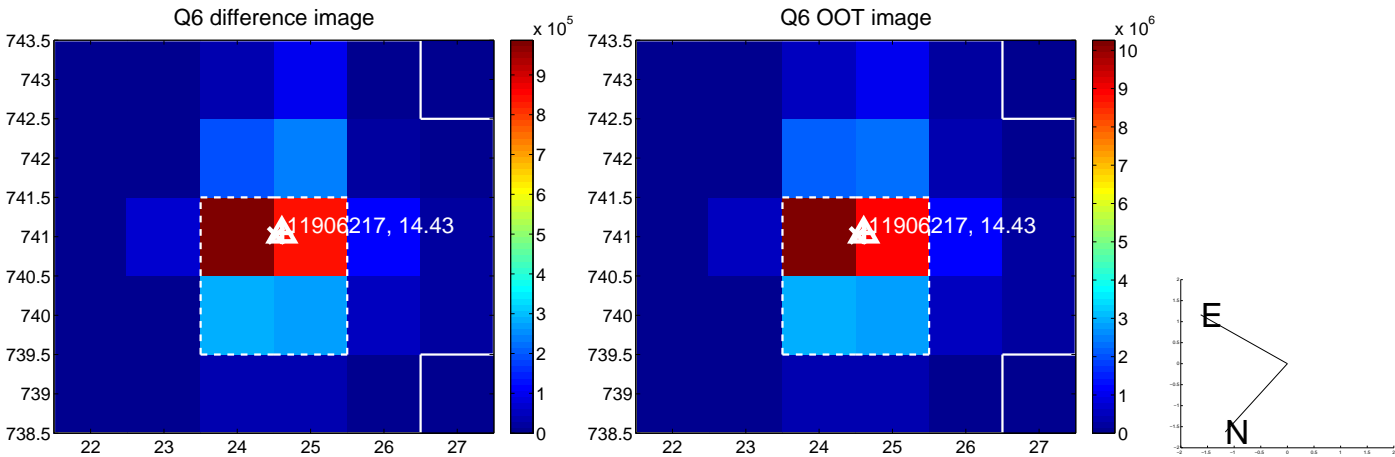
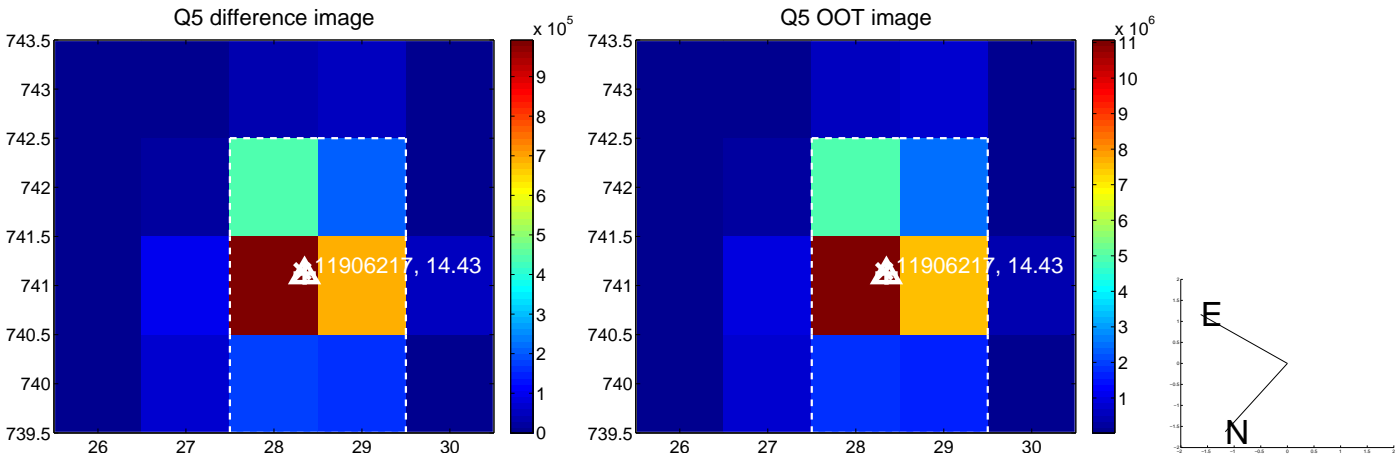


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

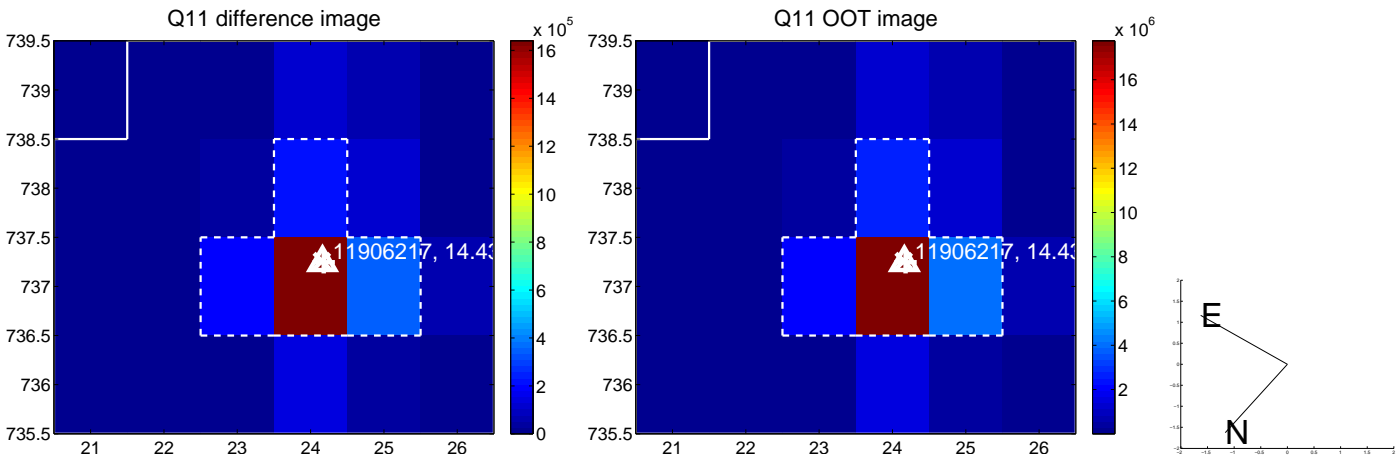
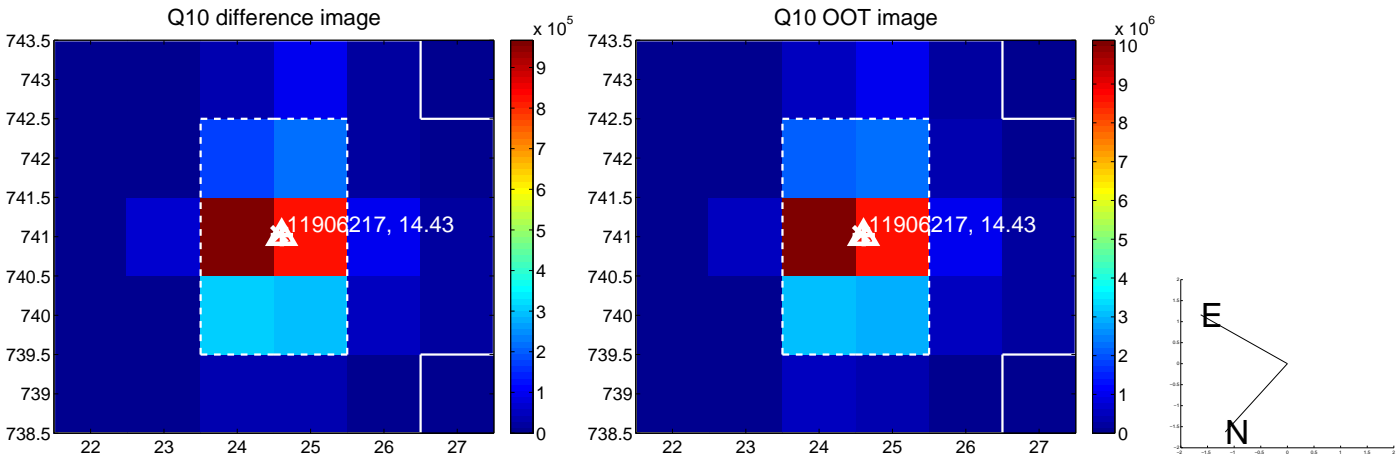
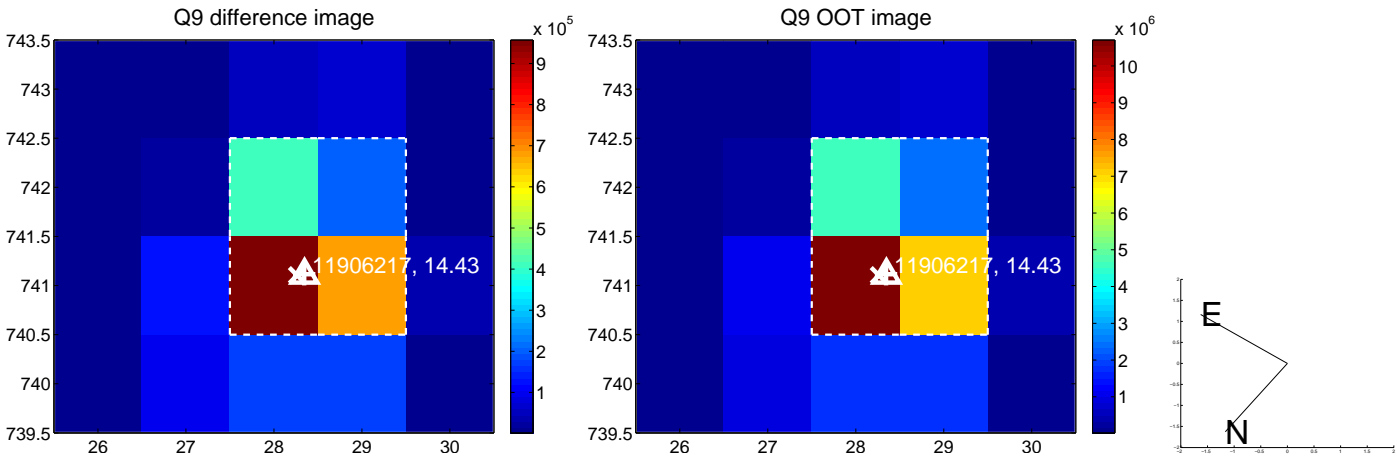


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

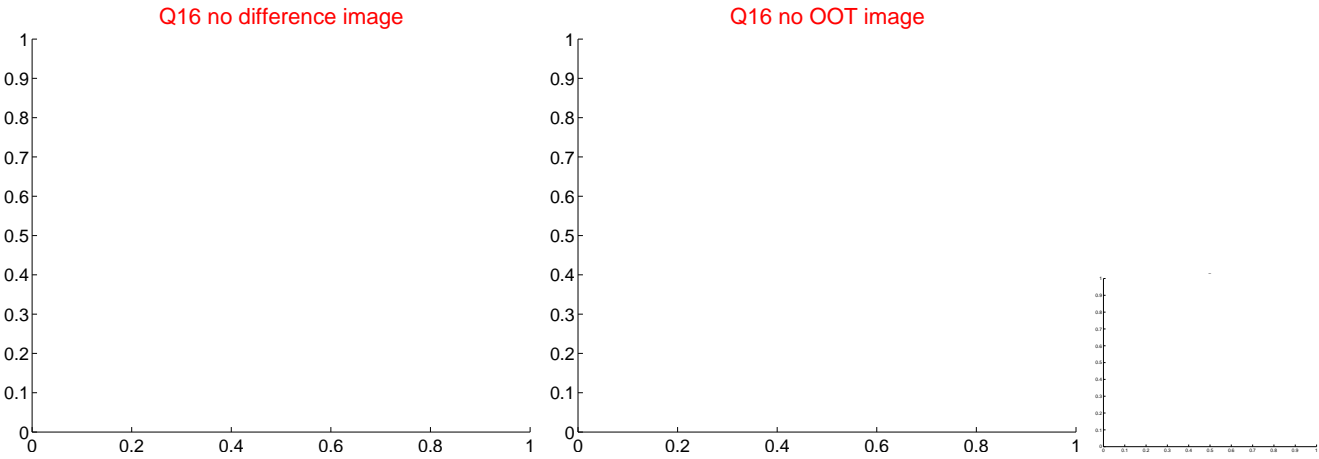
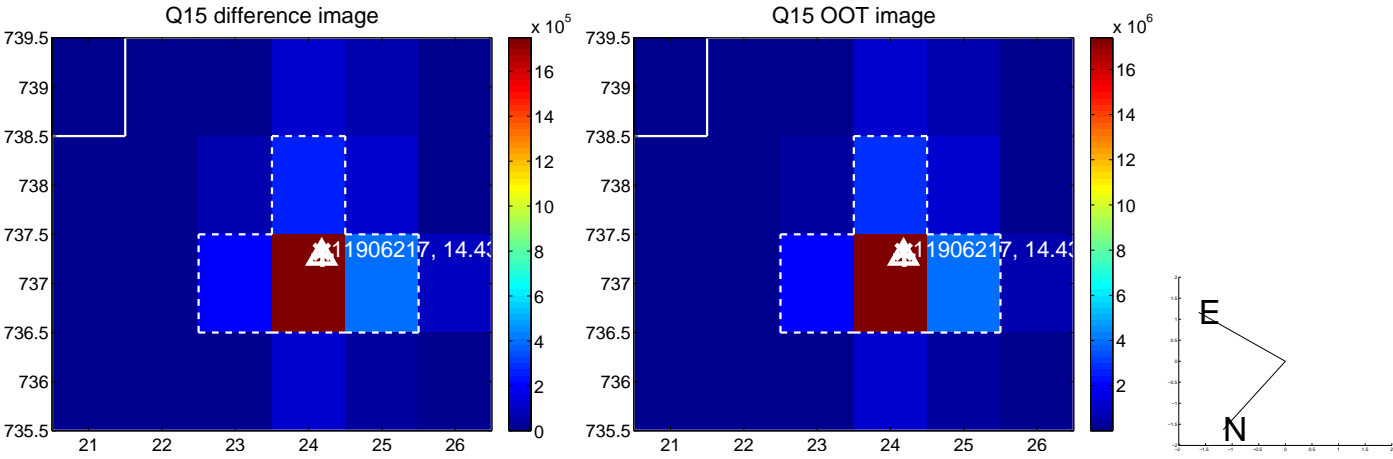
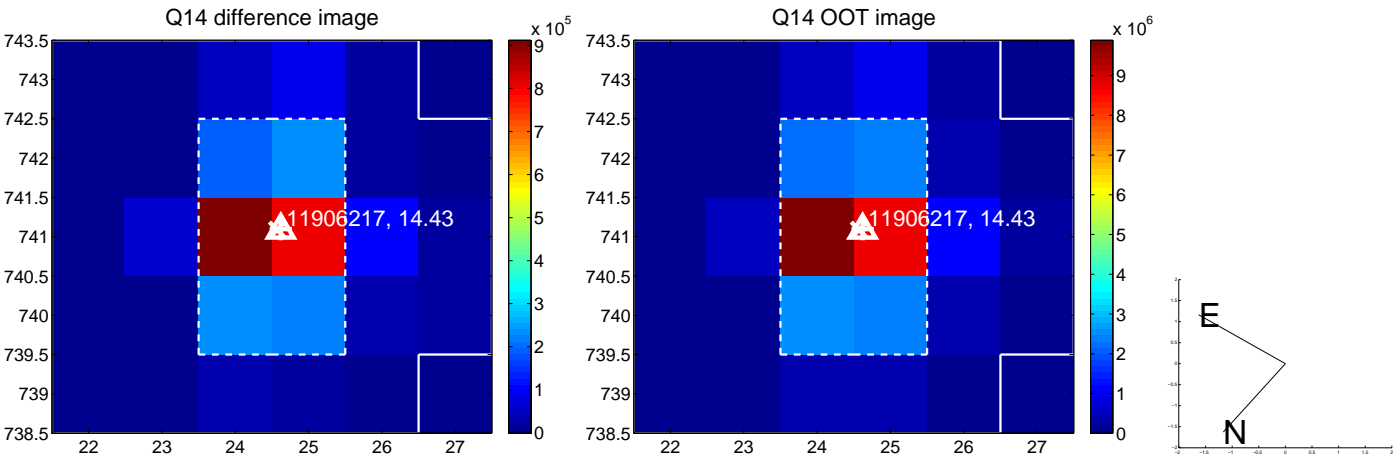
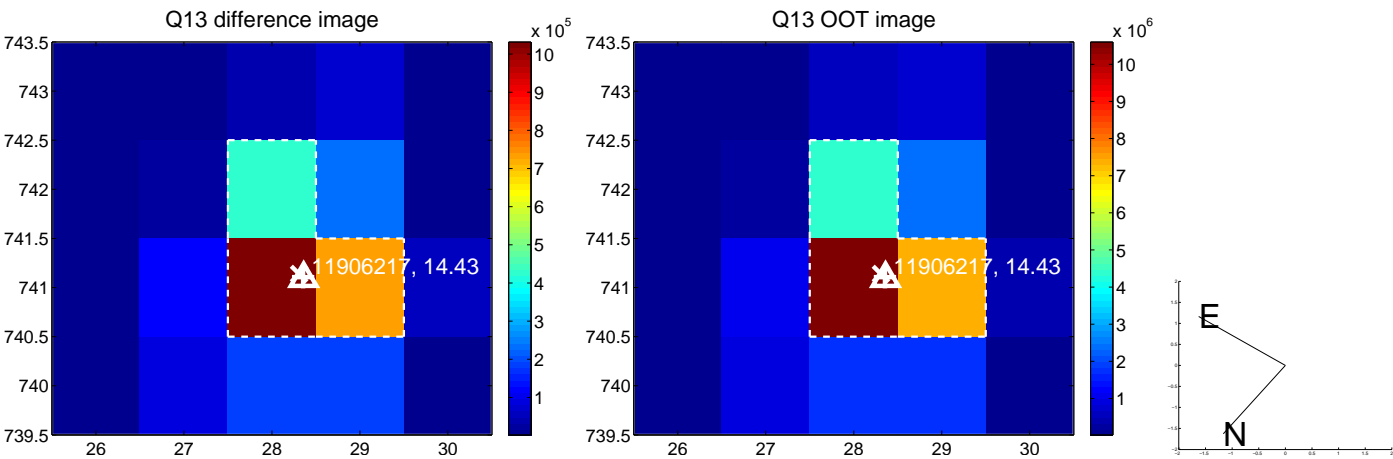




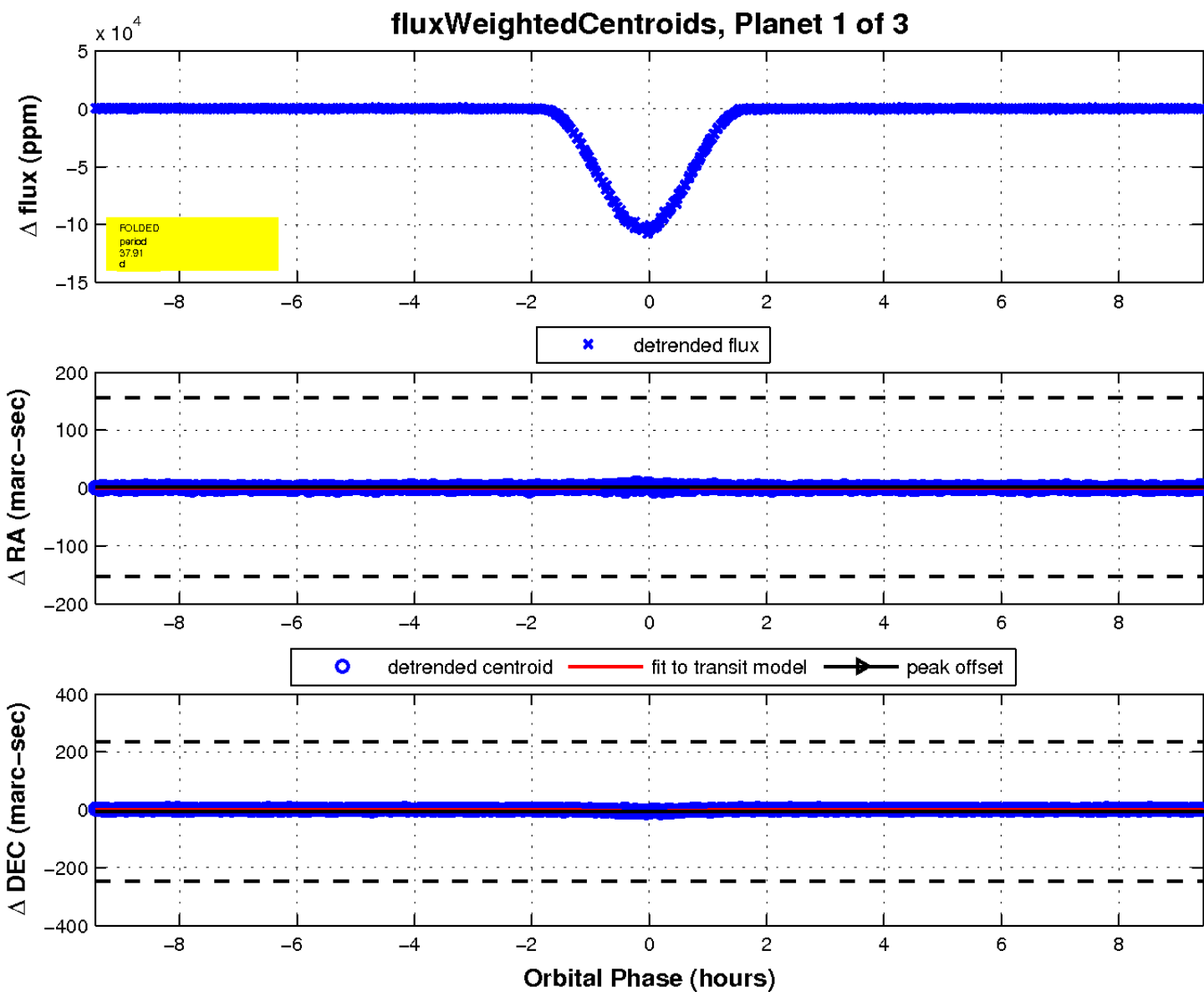
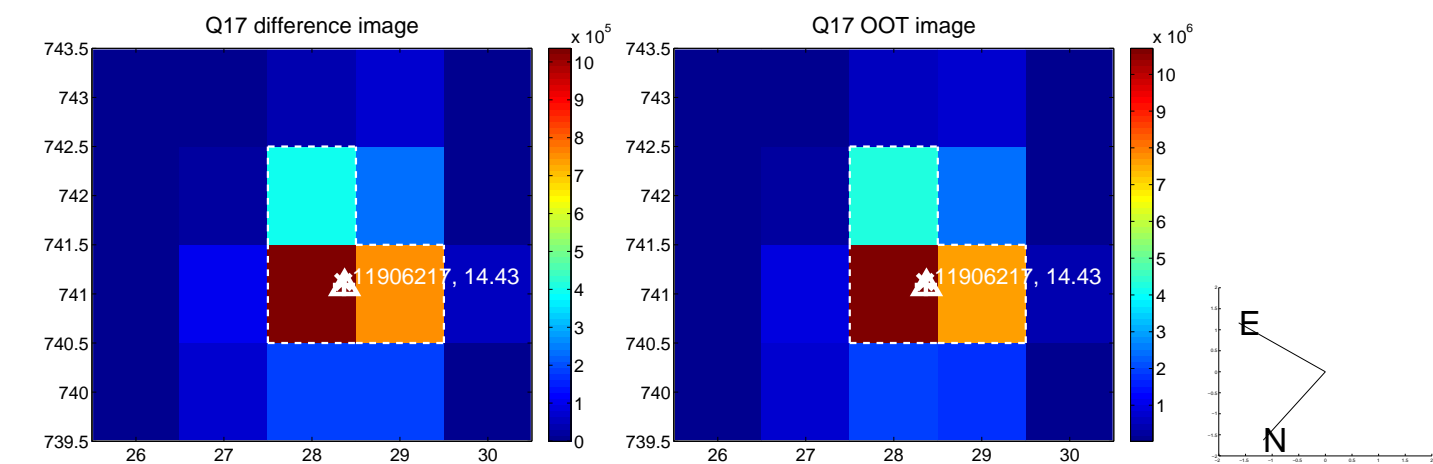
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

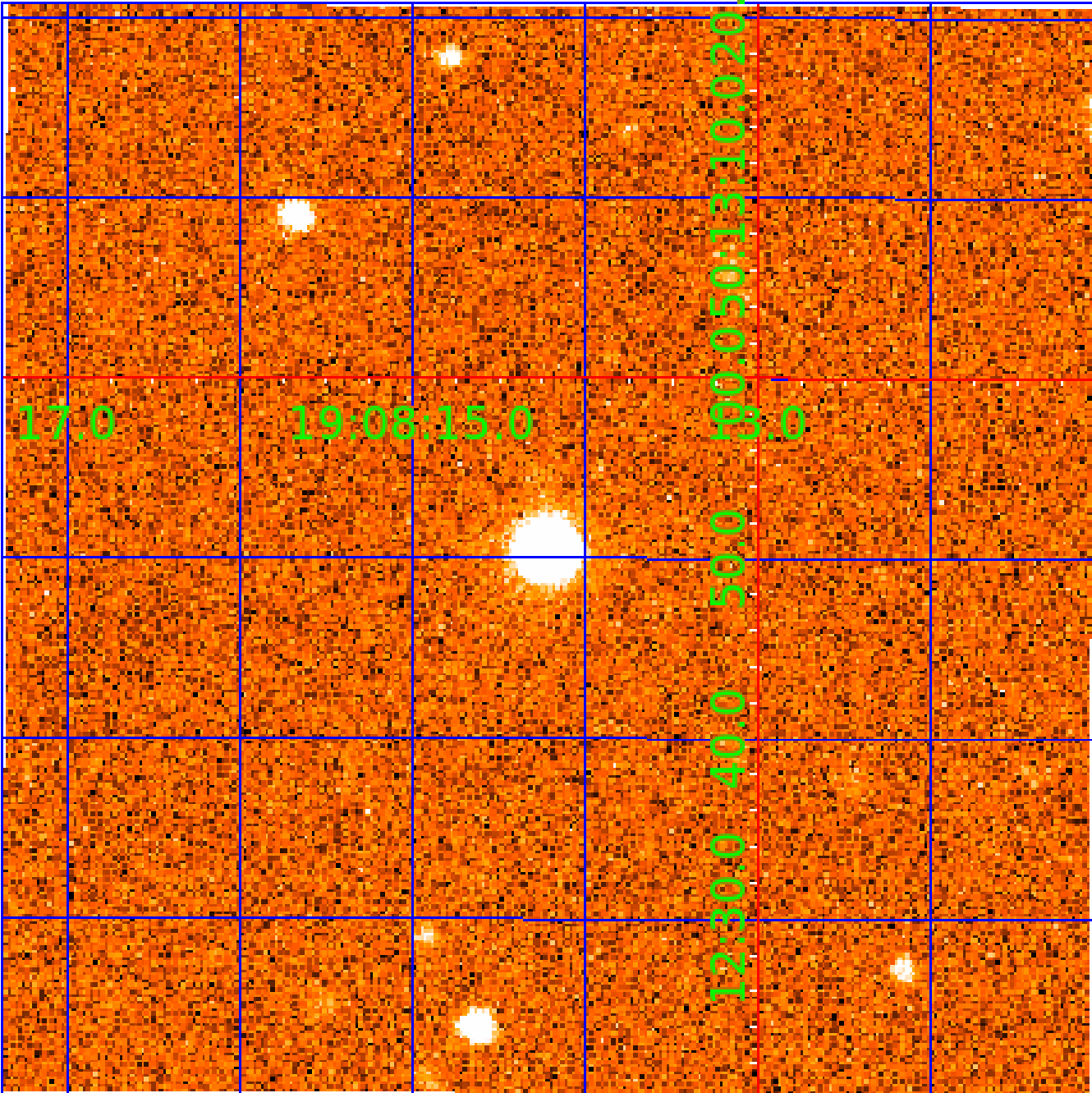


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 011906217

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011906217-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
011906217-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
011906217-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

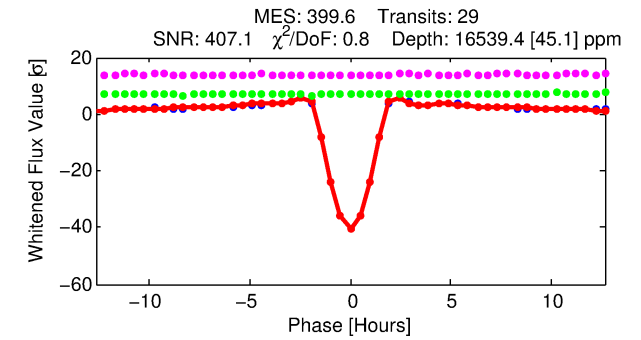
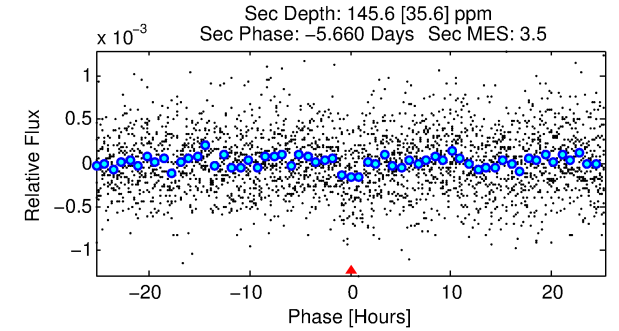
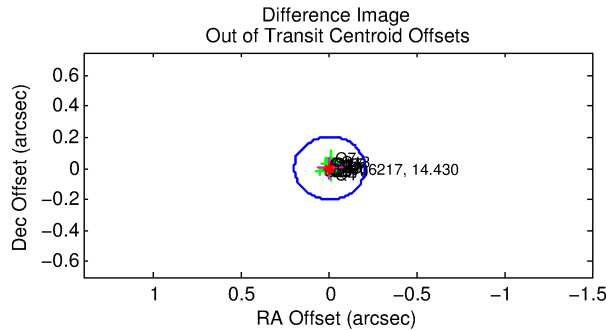
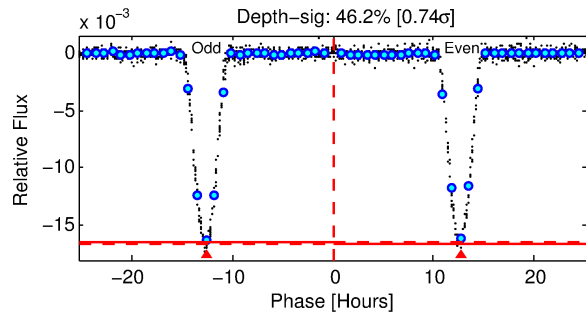
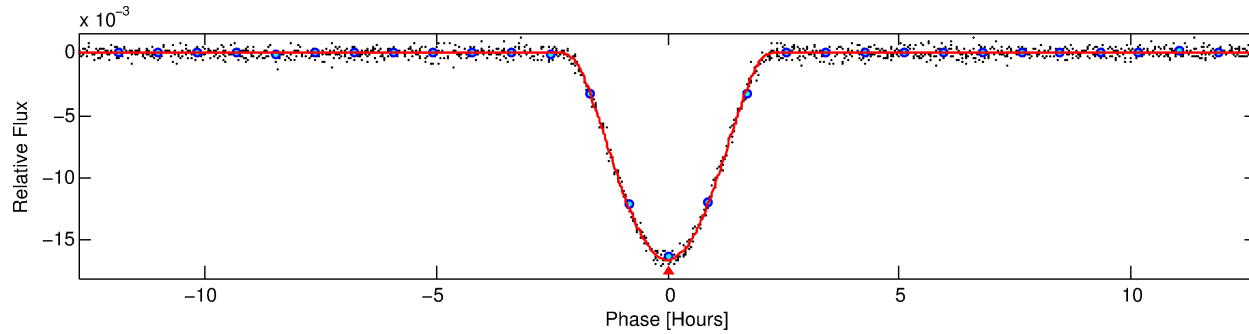
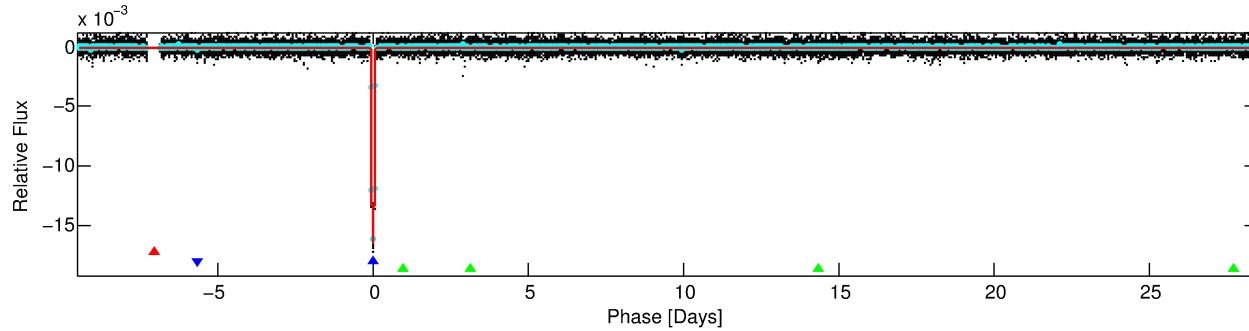
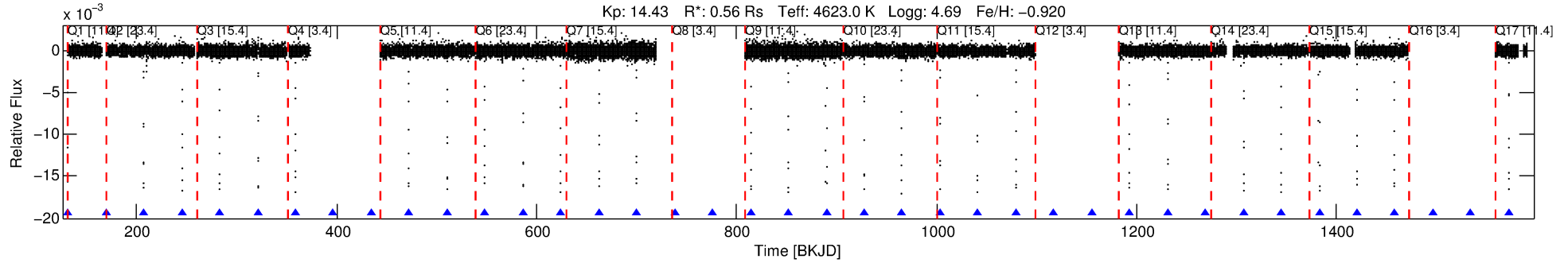
Ephemeris Match Information For 011906217-02

No Significant Match Found

# DV One-Page Summary

KIC: 11906217 Candidate: 2 of 3 Period: 37.910 d

KOI: K07490 Corr: No Ephemeris Match



## DV Fit Results:

Period = 37.91021 [0.00001] d  
 Epoch = 131.5950 [0.0002] BKJD  
 Rp/R\* = 0.1957 [0.0179]  
 a/R\* = 47.53 [0.59]  
 b = 0.97 [0.03]  
 Seff = 3.89 [0.60]  
 Teq = 358 [14] K  
 Rp = 11.96 [1.43] Re  
 a = 0.1815 [0.0120] AU  
 Ag = 18.45 [5.92] [2.95 $\sigma$ ]  
 Tefp = 1148 [94] K [8.29 $\sigma$ ]

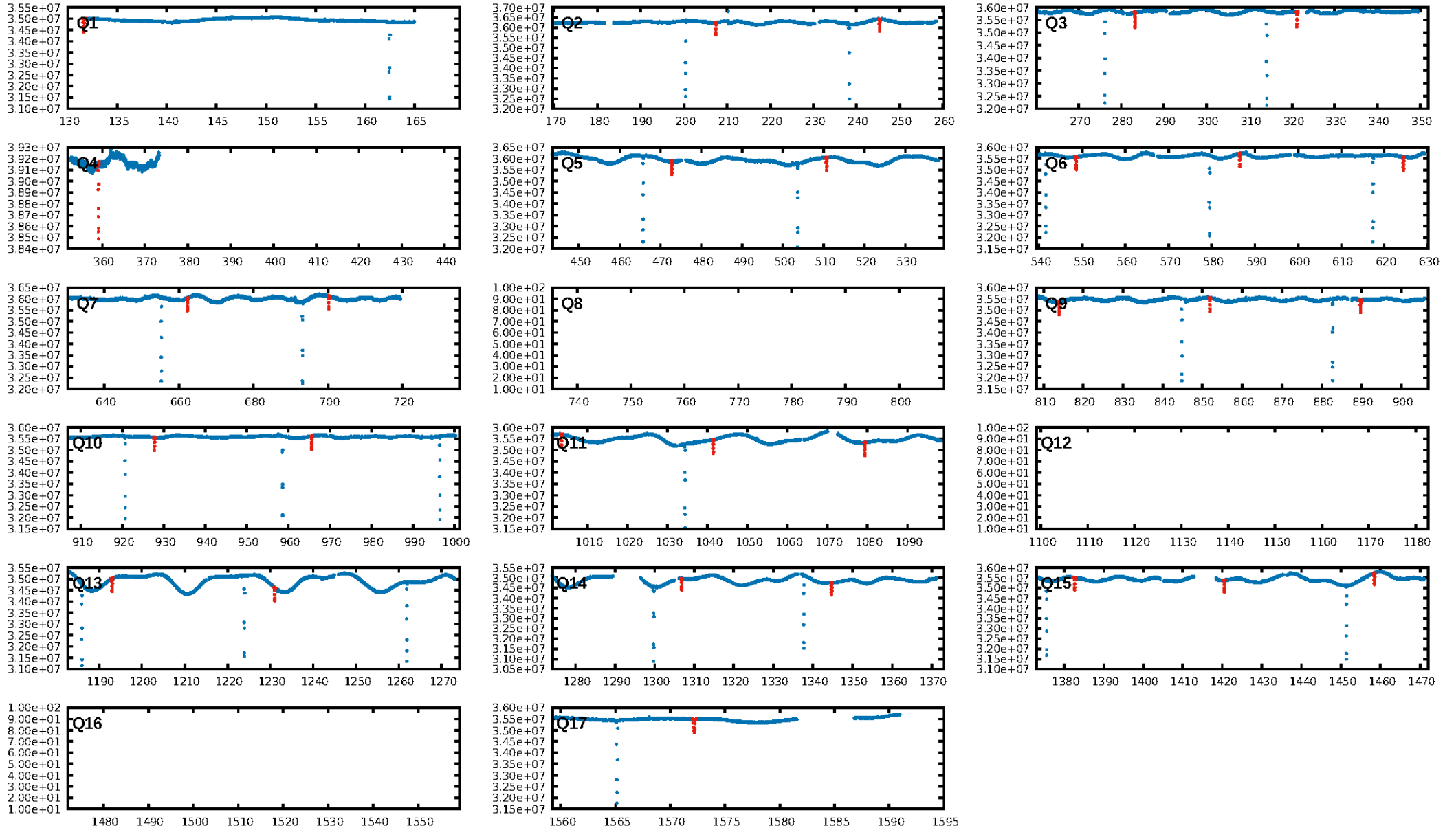
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
 LongPeriod-sig: 100.0% [612.47 $\sigma$ ]  
 ModelChiSquare2-sig: 0.0%  
 ModelChiSquareGof-sig: 89.8%  
 Bootstrap-pfa: 0.00e+00  
 RollingBand-fgt: 1.00 [26/26]  
 GhostDiagnostic-chr: 2.864  
 Centroid-sig: 20.3%  
 Centroid-so: 0.119 arcsec [4.42 $\sigma$ ]  
 OotOffset-rm: 0.005 arcsec [0.07 $\sigma$ ]  
 KicOffset-rm: 0.181 arcsec [2.52 $\sigma$ ]  
 OotOffset-st: 4/4/1/4 [13]  
 KicOffset-st: 4/4/1/4 [13]  
 DiffImageQuality-fgm: 1.00 [13/13]  
 DiffImageOverlap-fno: 1.00 [13/13]

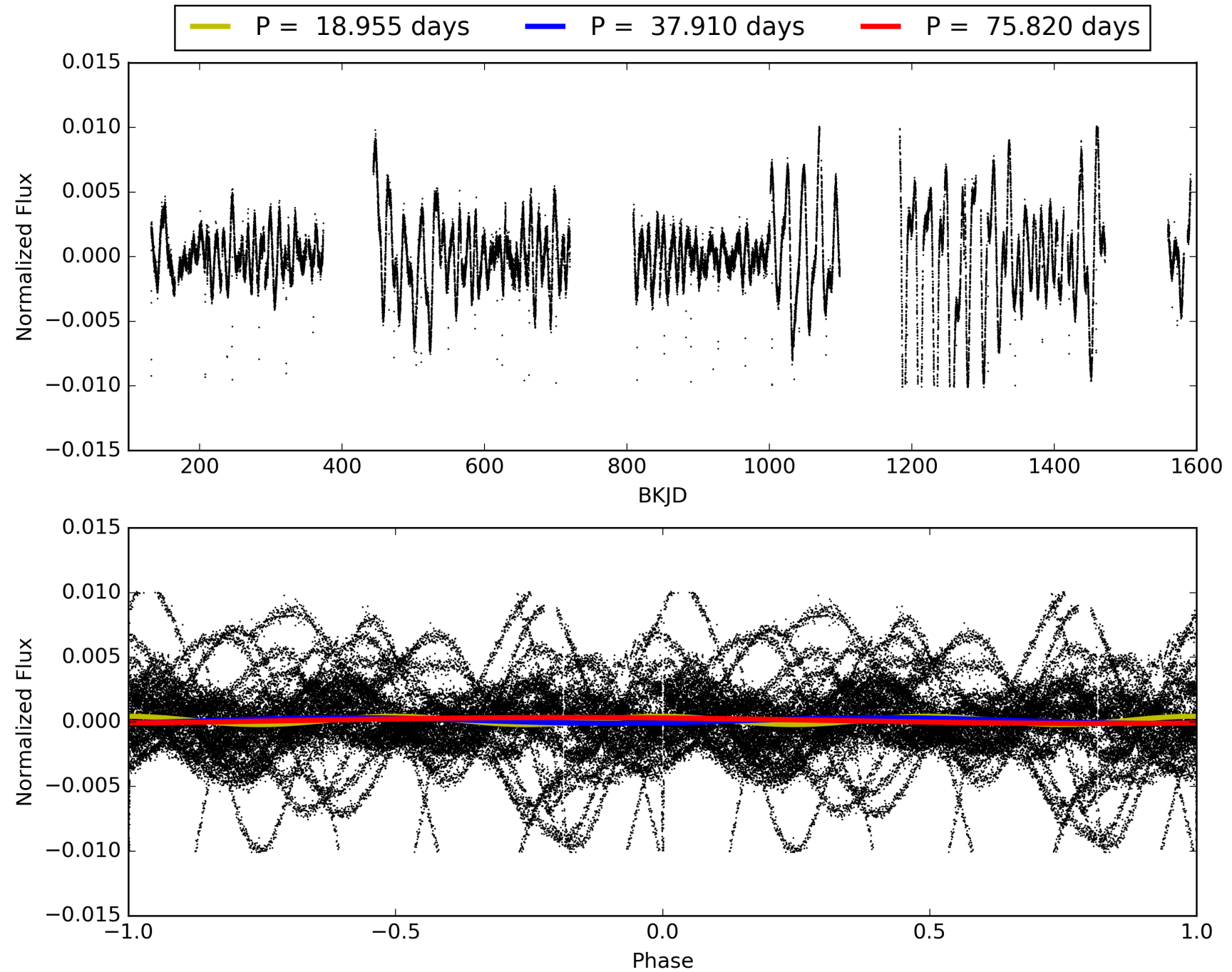
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:19:58 Z

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

# TCE 011906217-02, PDC Light Curves



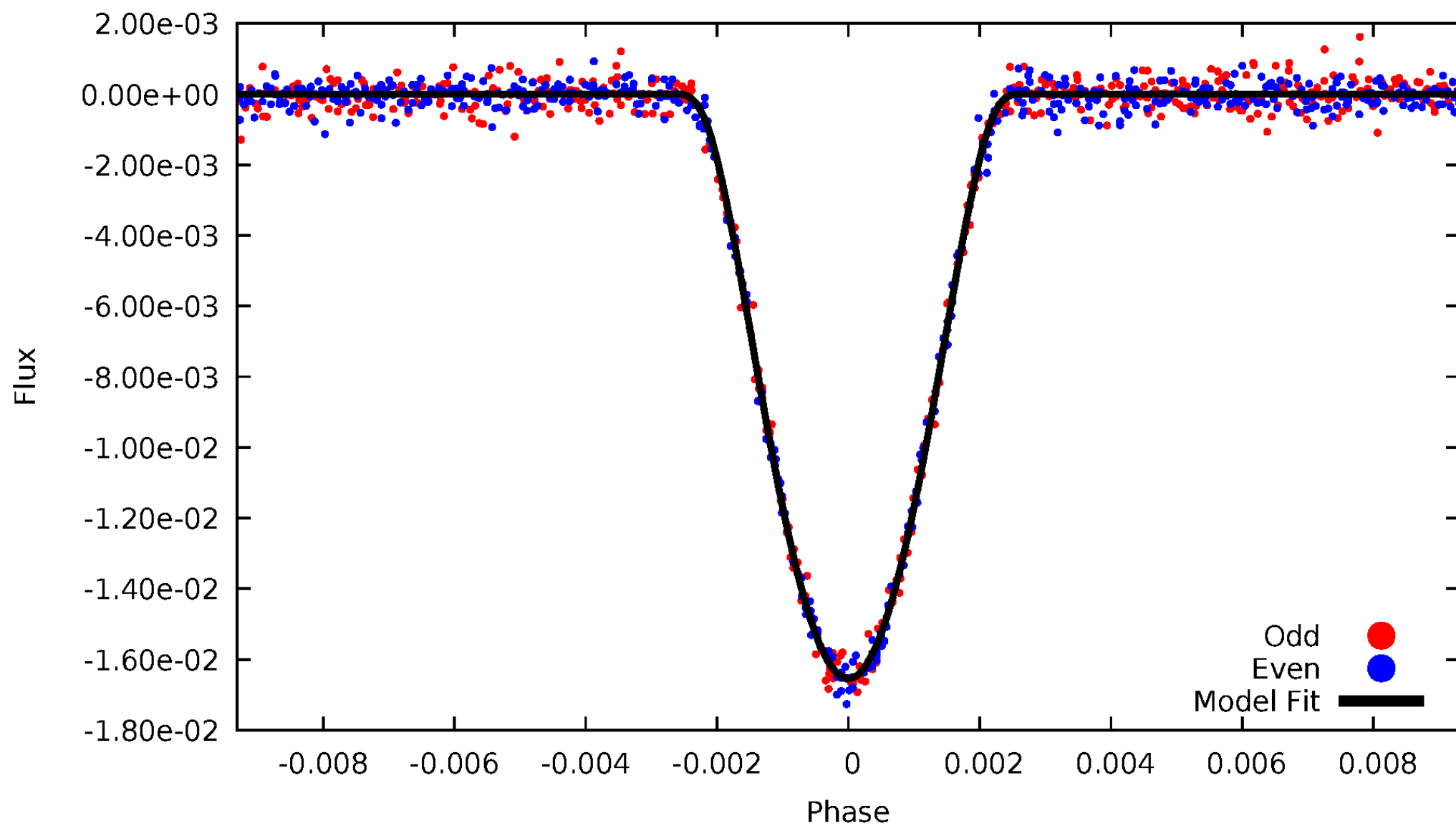
# TCE 011906217-02





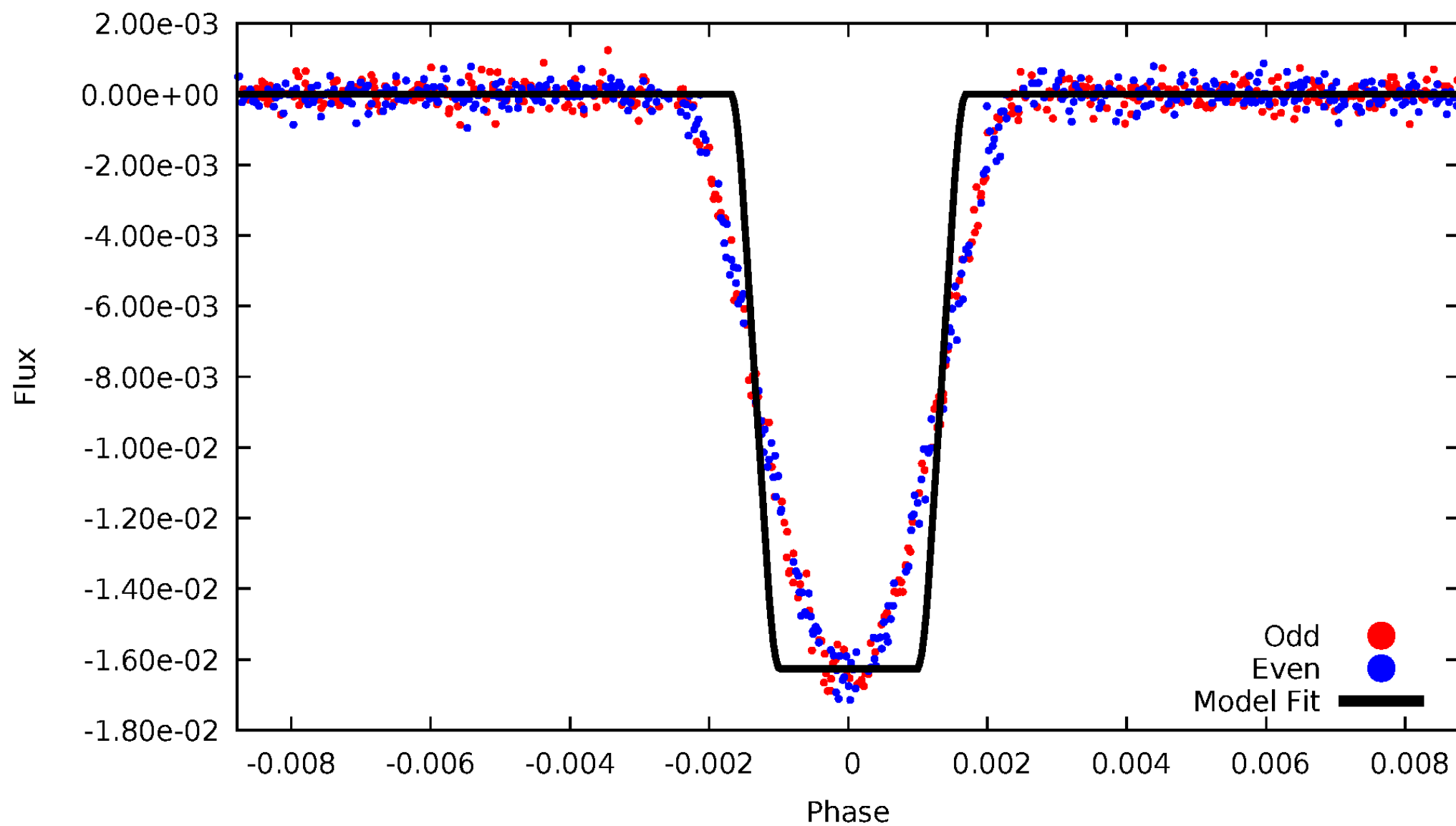
DV Odd/Even

TCE 011906217-02



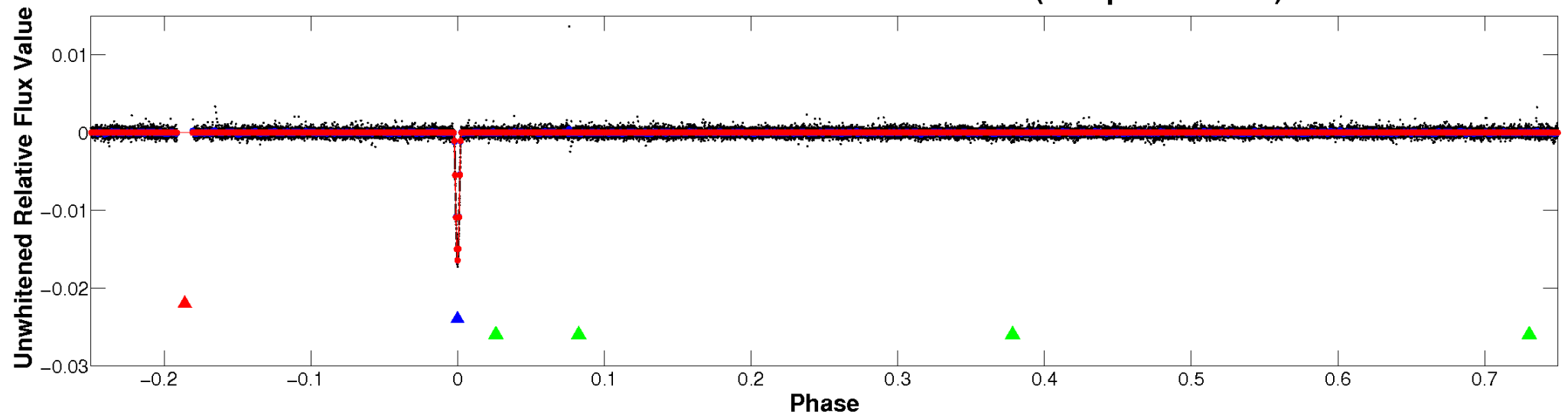
# ALT Odd/Even

TCE 011906217-02

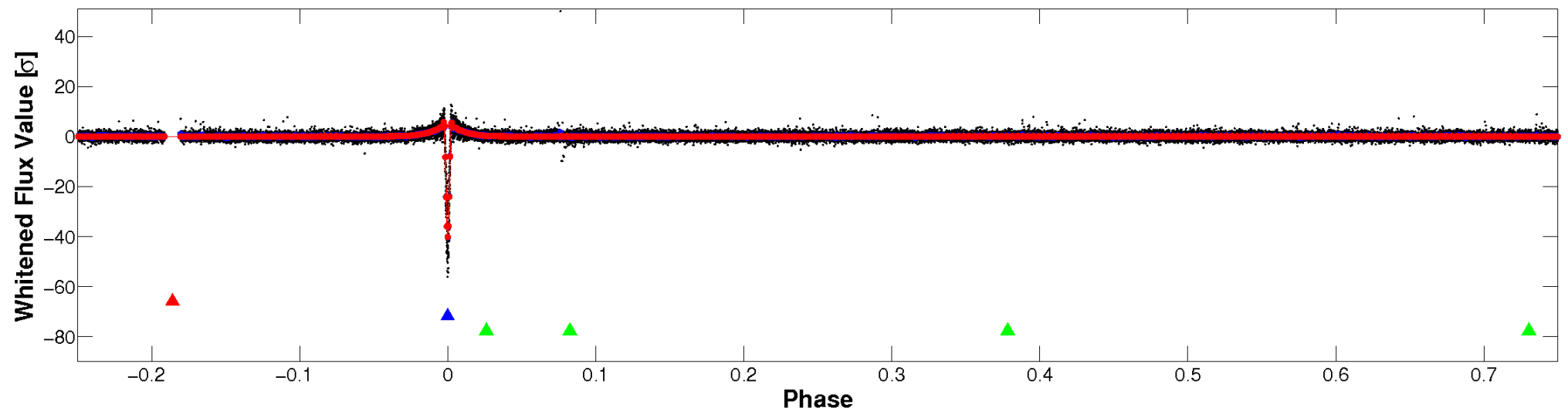


# Non-Whitened Vs. Whitened Light Curve

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

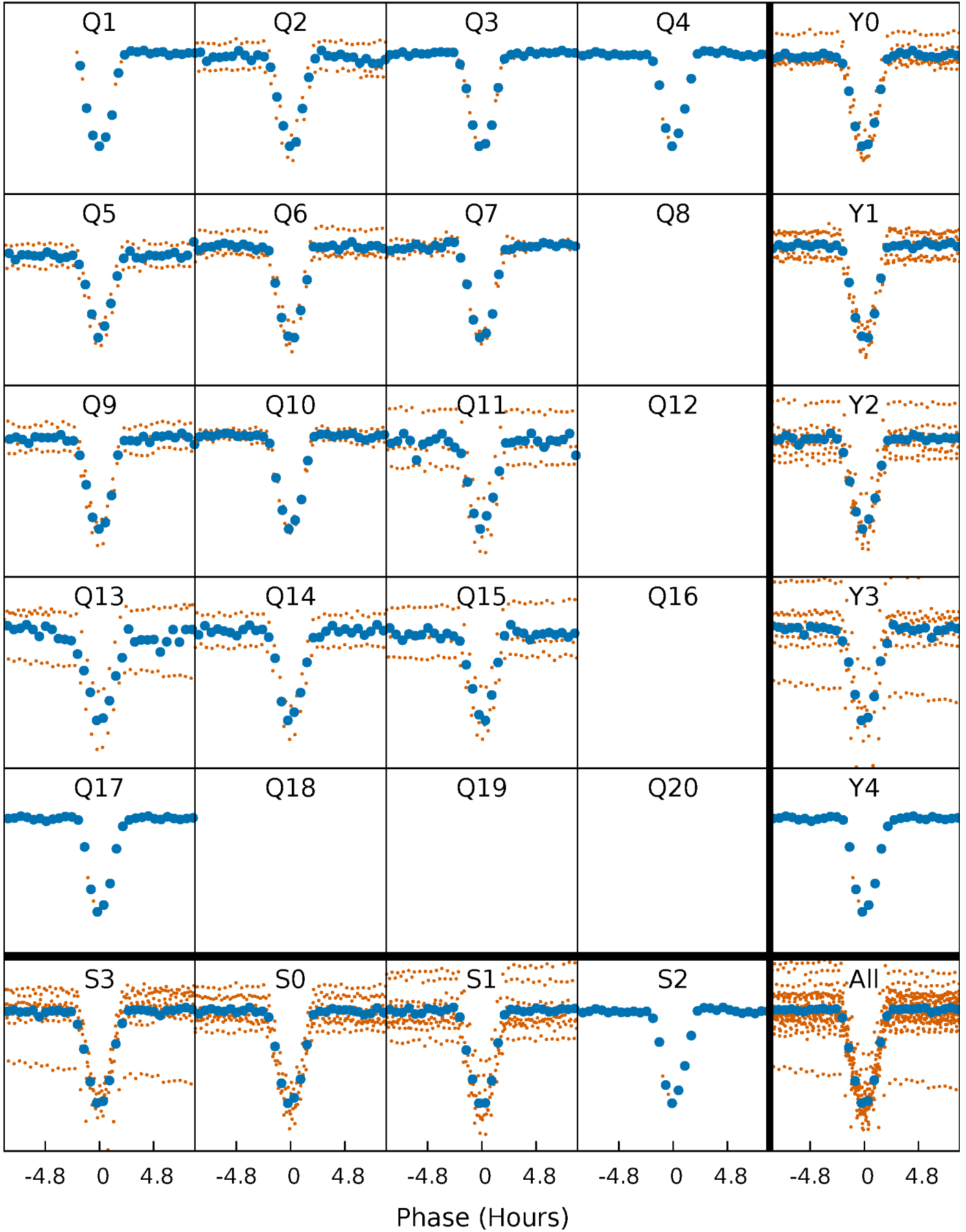


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



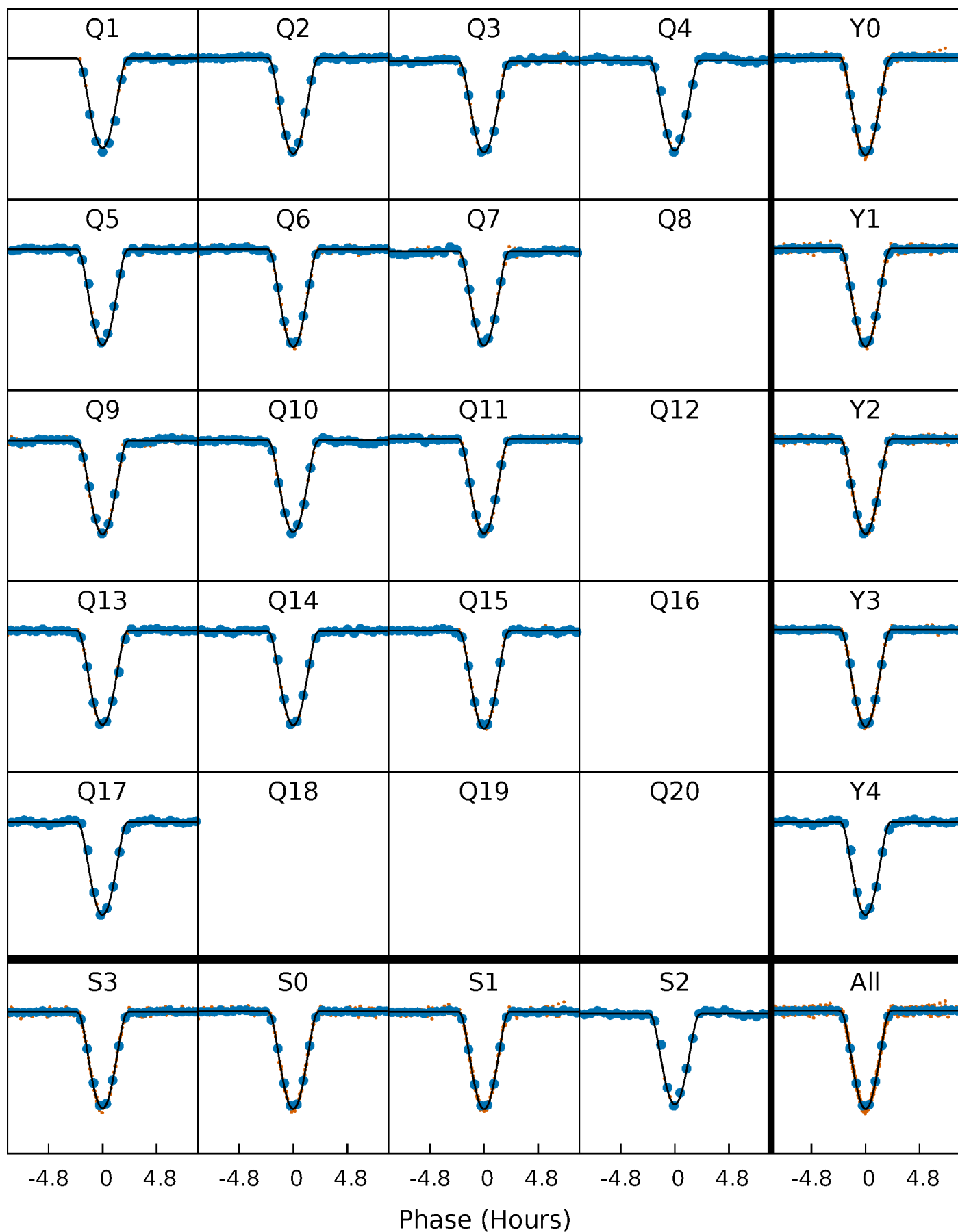
# PDC Quarter-Phased Transit Curves

TCE 011906217-02 P= 37.910212 Days  $T_0=131.595009$  (BKJD)



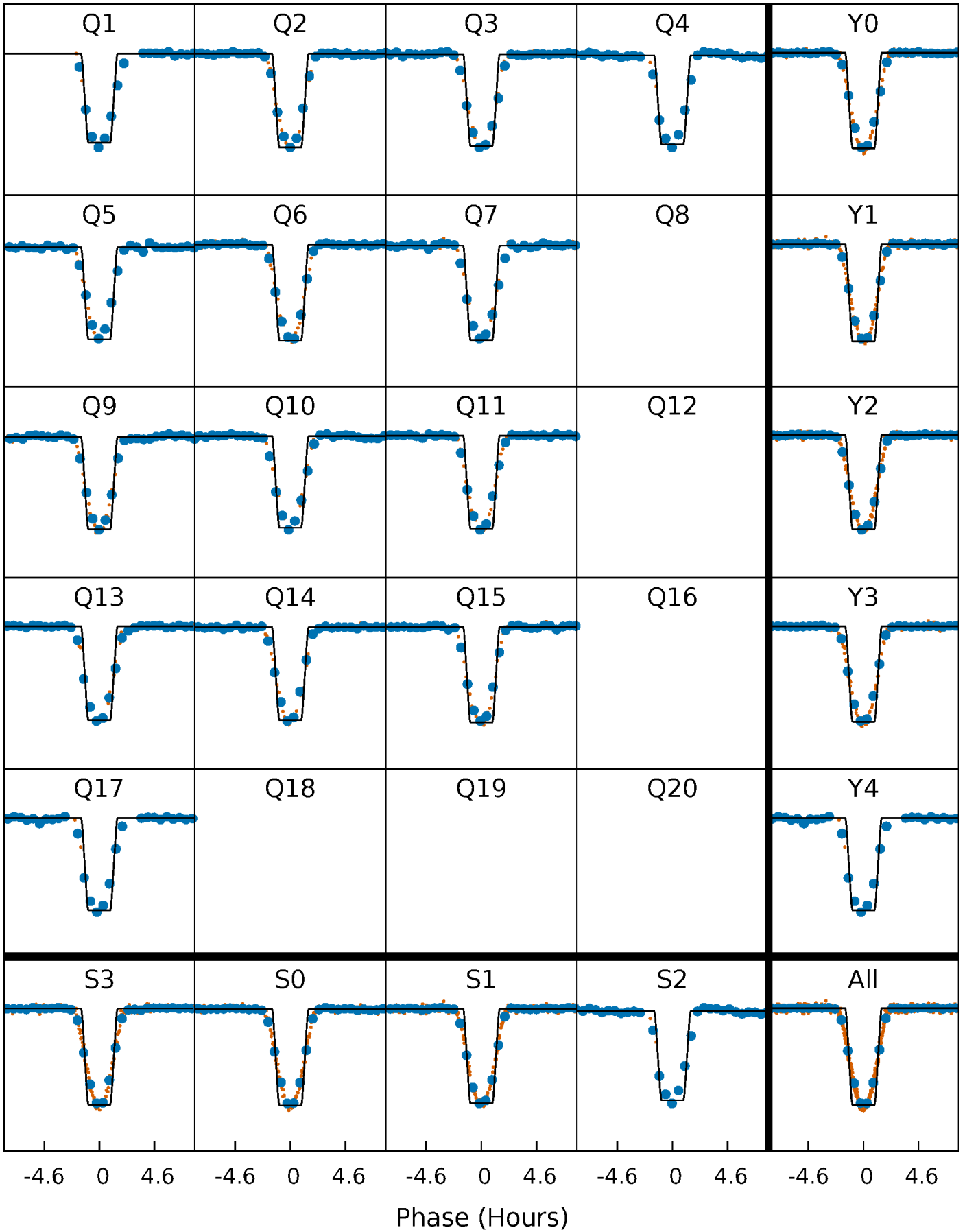
# DV Quarter-Phased Transit Curves

TCE 011906217-02 P= 37.910212 Days  $T_0=131.595009$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

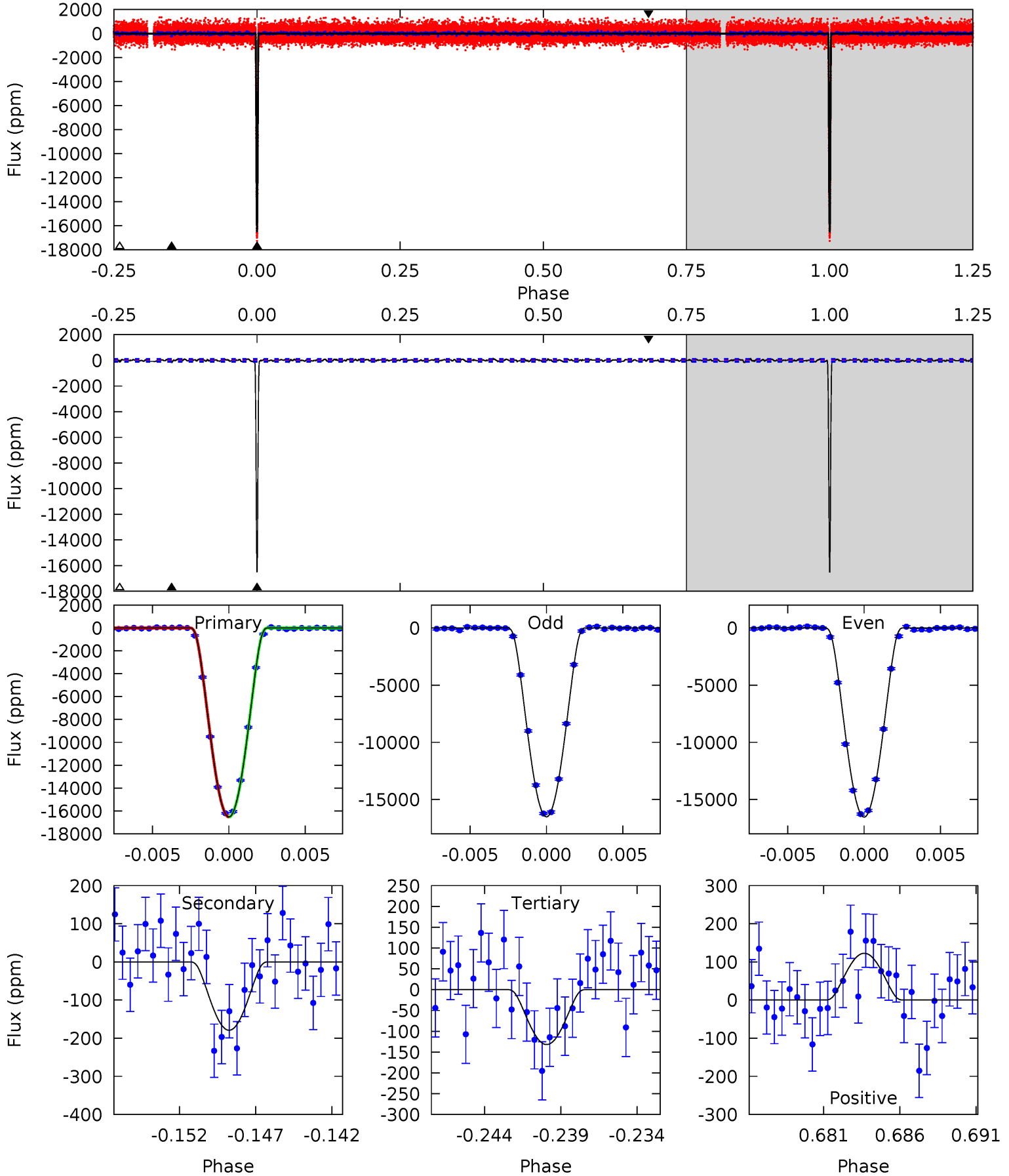
TCE 011906217-02   P= 37.910313 Days    $T_0=131.592901$  (BKJD)



# DV Model-Shift Uniqueness Test

011906217-02, P = 37.910212 Days, E = 93.684797 Days

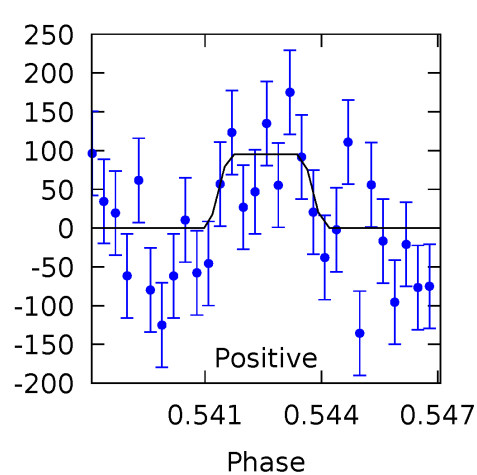
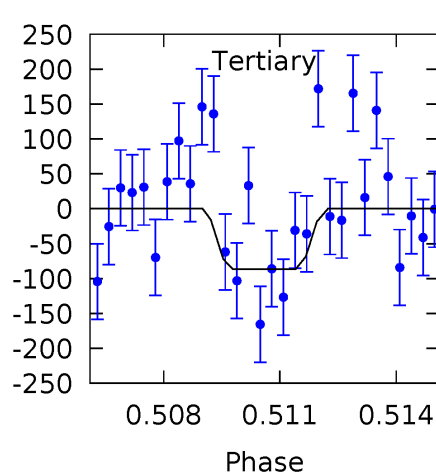
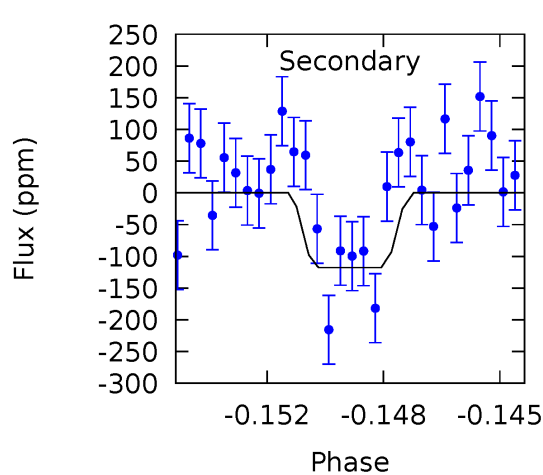
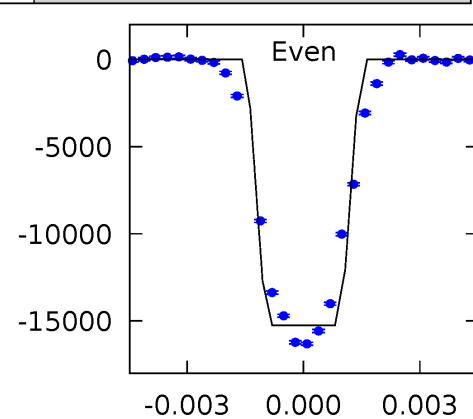
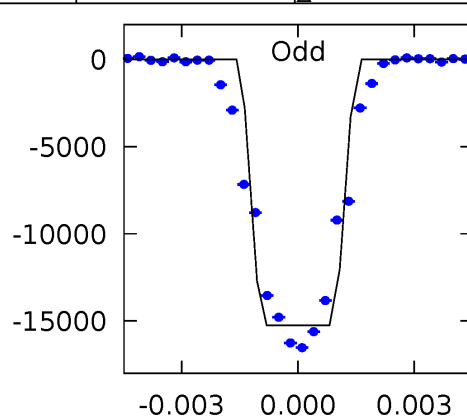
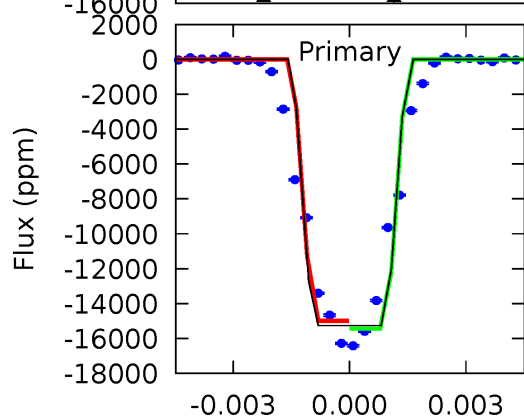
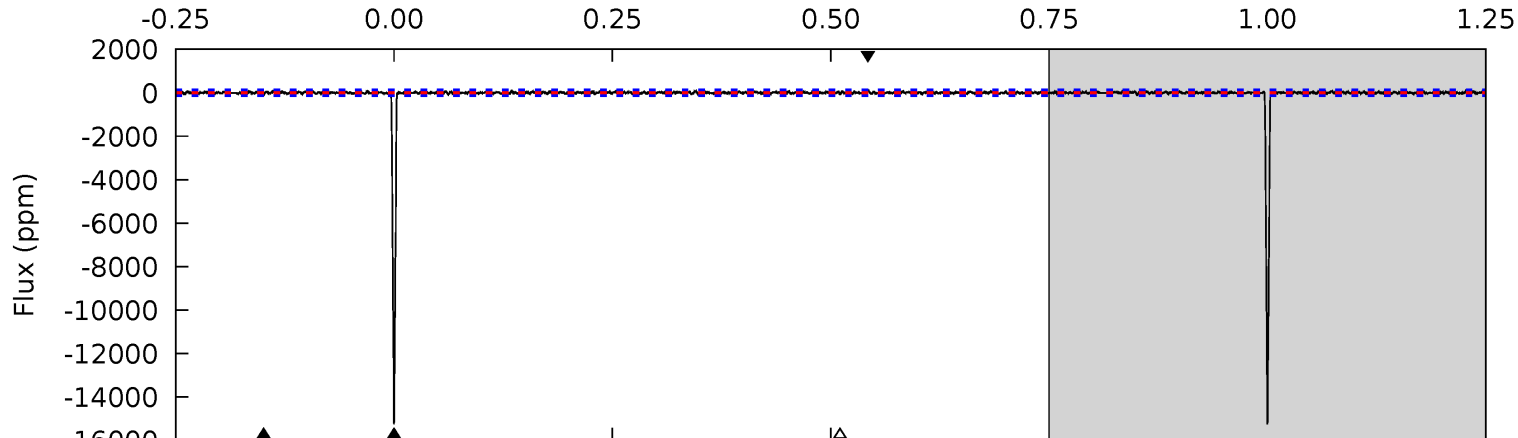
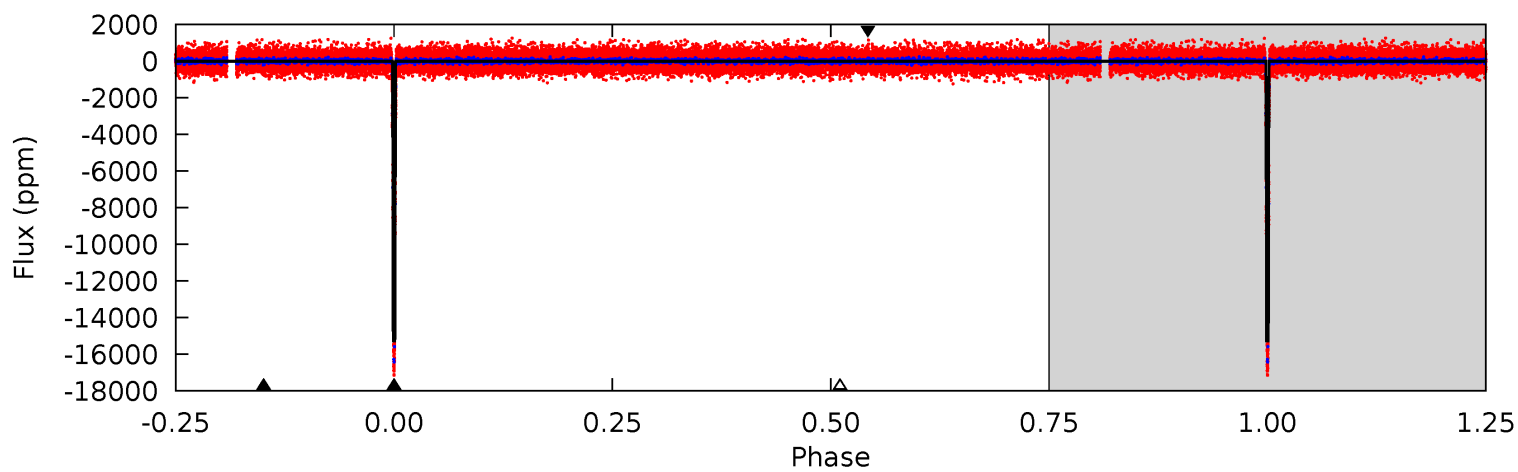
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
809.1	8.77	6.46	6.01	5.15	2.80	2.15	802.6	803.1	2.32	2.77	0.56	1.00	0.01	0.47



# Alt Model-Shift Uniqueness Test

011906217-02, P = 37.910313 Days, E = 93.682588 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
600.6	4.63	3.41	3.75	5.24	2.94	1.07	597.2	596.9	1.22	0.88	0.15	1.01	0.01	8.52





### Stellar Parameters For KIC 011906217

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4623^{+125}_{-139}$	$4.686^{+0.054}_{-0.031}$	$-0.920^{+0.300}_{-0.300}$	$0.560^{+0.039}_{-0.043}$	$0.556^{+0.047}_{-0.027}$	$4.450^{+0.932}_{-0.575}$
	+3%/-3%	+1%/-1%	+33%/-33%	+7%/-8%	+8%/-5%	+21%/-13%
Source	PHO1	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 011906217-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-179 \pm 20$	$11.91^{+1.20}_{-1.19}$	$498^{+16}_{-17}$	$2135^{+57}_{-60}$	$23^{+6}_{-4}$
Alt.	$-118 \pm 25$	$7.72^{+1.14}_{-1.17}$	$498^{+17}_{-16}$	$2239^{+101}_{-101}$	$36^{+16}_{-12}$

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

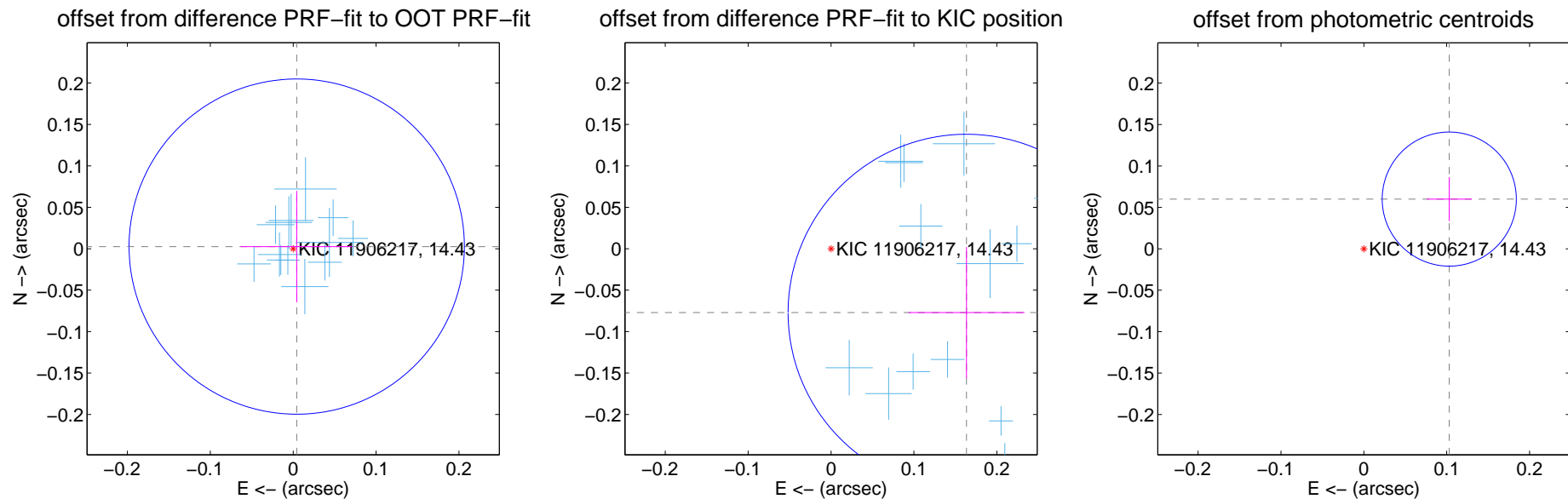
## DV Centroid Data

Supplemental centroid analysis for 011906217-02. Kepler magnitude: 14.43. Transit SNR 407.07

There are 13 quarters with good PRF difference image offsets

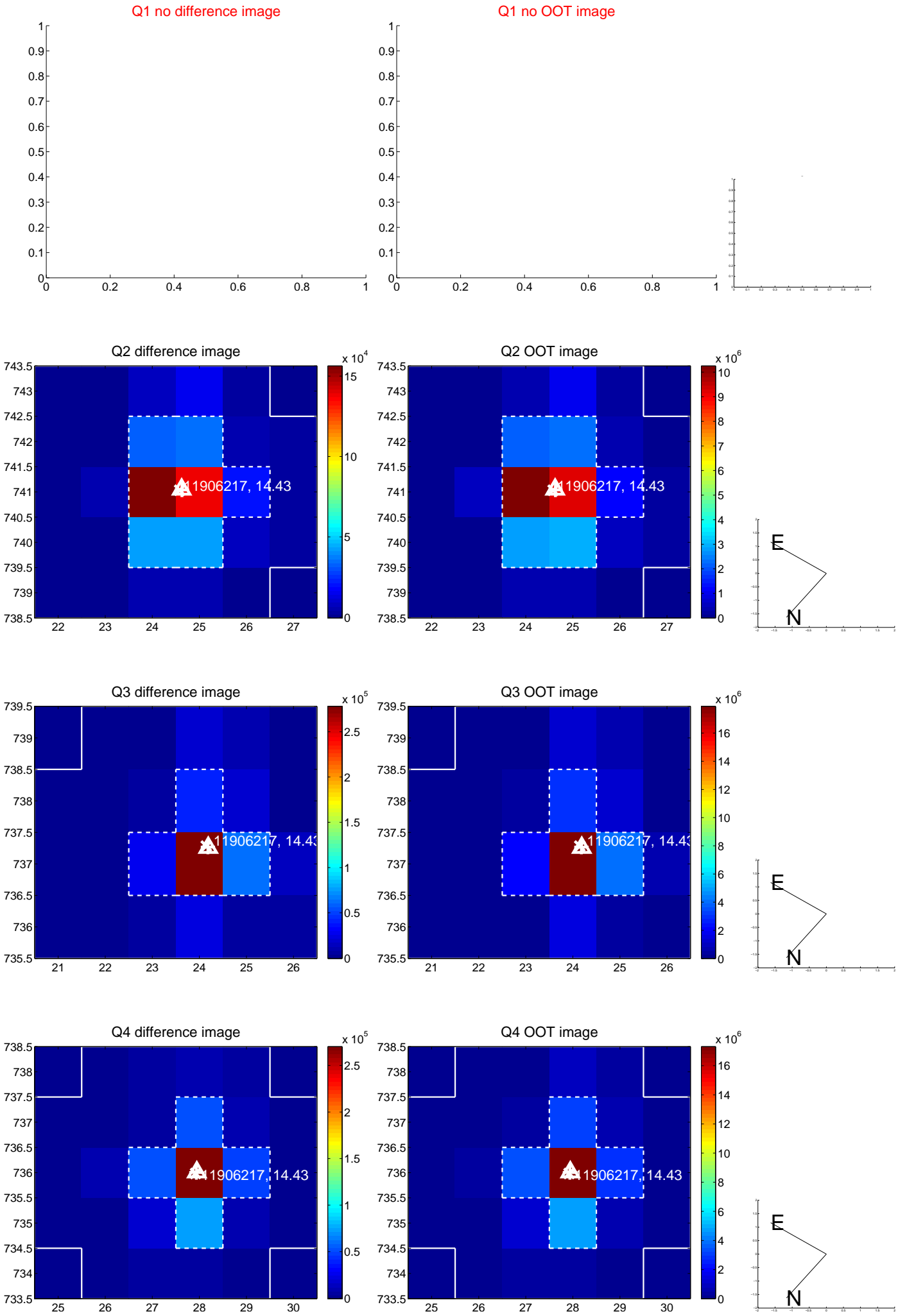
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.005 \pm 0.067$	0.07	$-0.004 \pm 0.068$	$0.003 \pm 0.067$
PRF-fit source offset from KIC position	$0.181 \pm 0.072$	2.52	$-0.163 \pm 0.070$	$-0.077 \pm 0.079$
photometric centroid source offset	$0.12 \pm 0.03$	4.42	$-0.10 \pm 0.03$	$0.06 \pm 0.03$

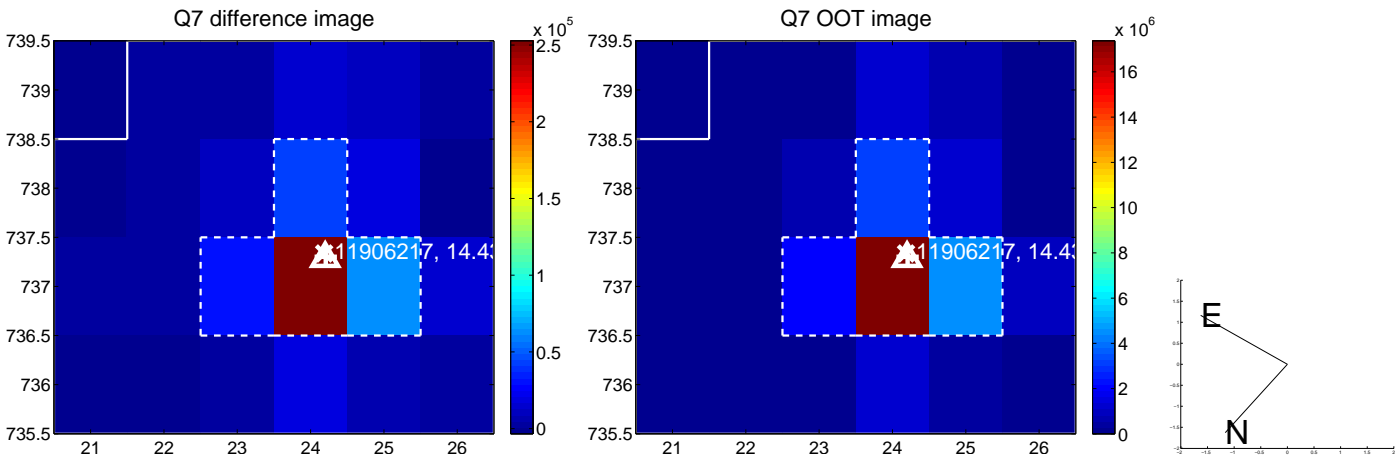
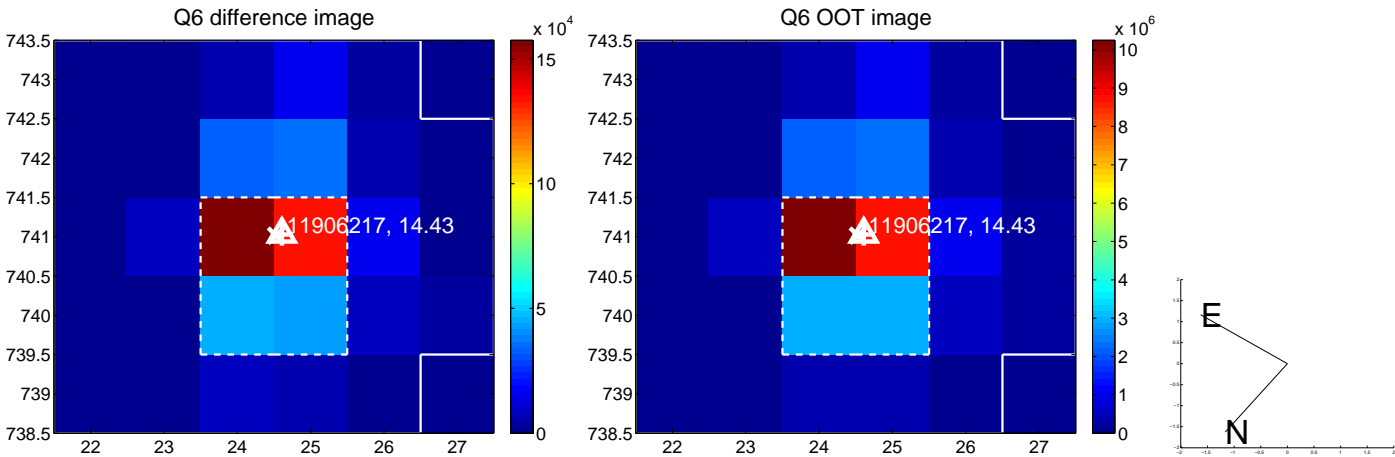
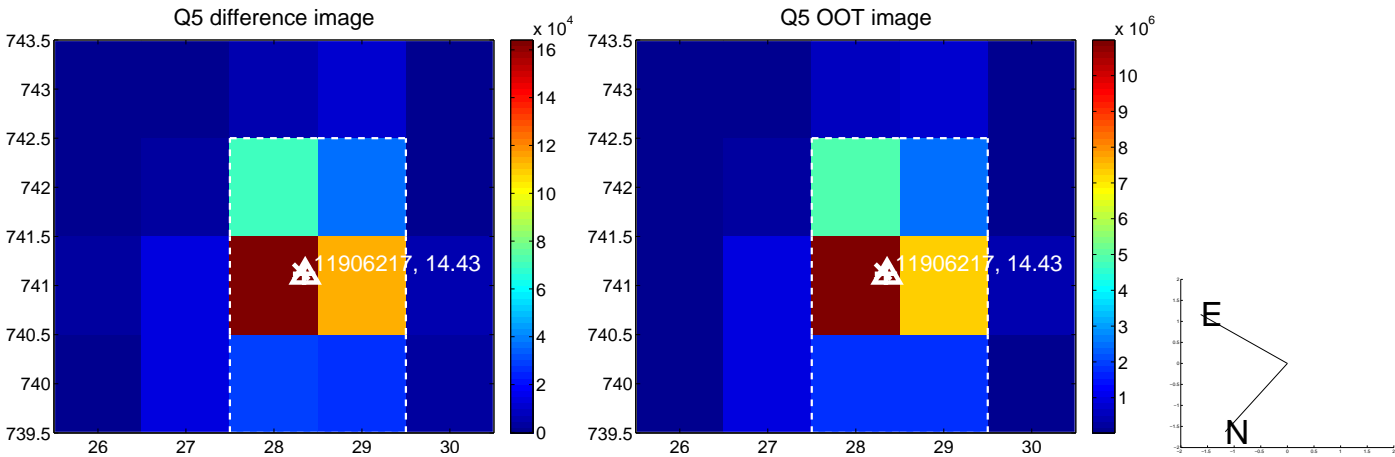


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

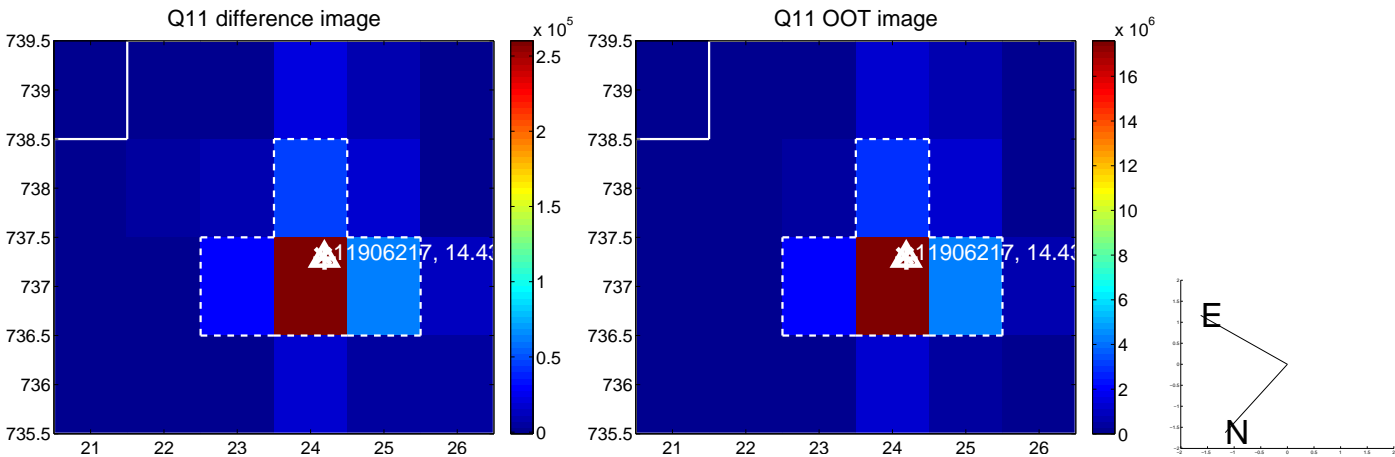
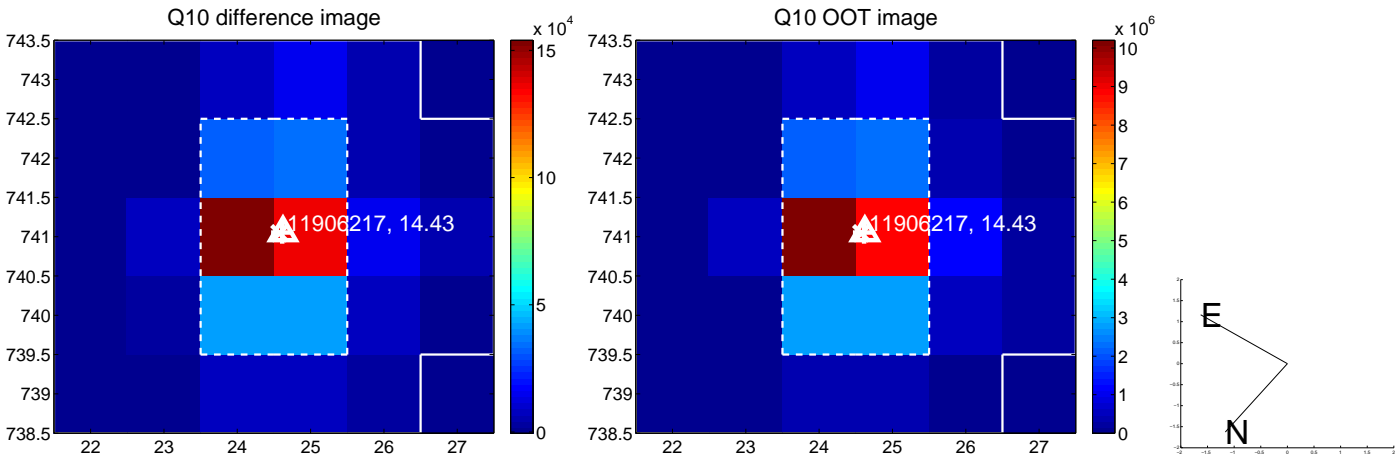
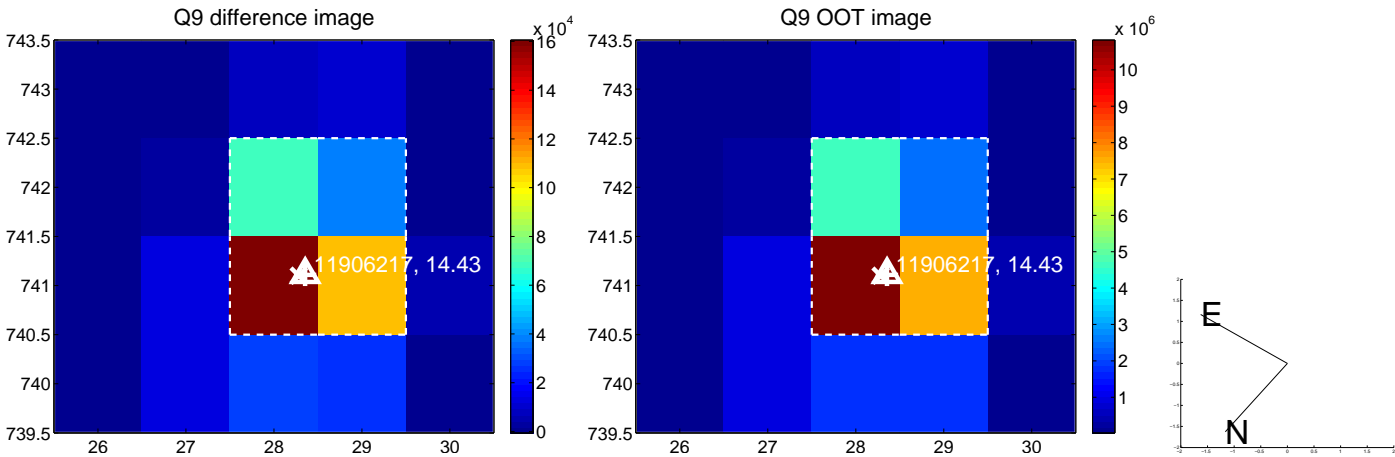
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



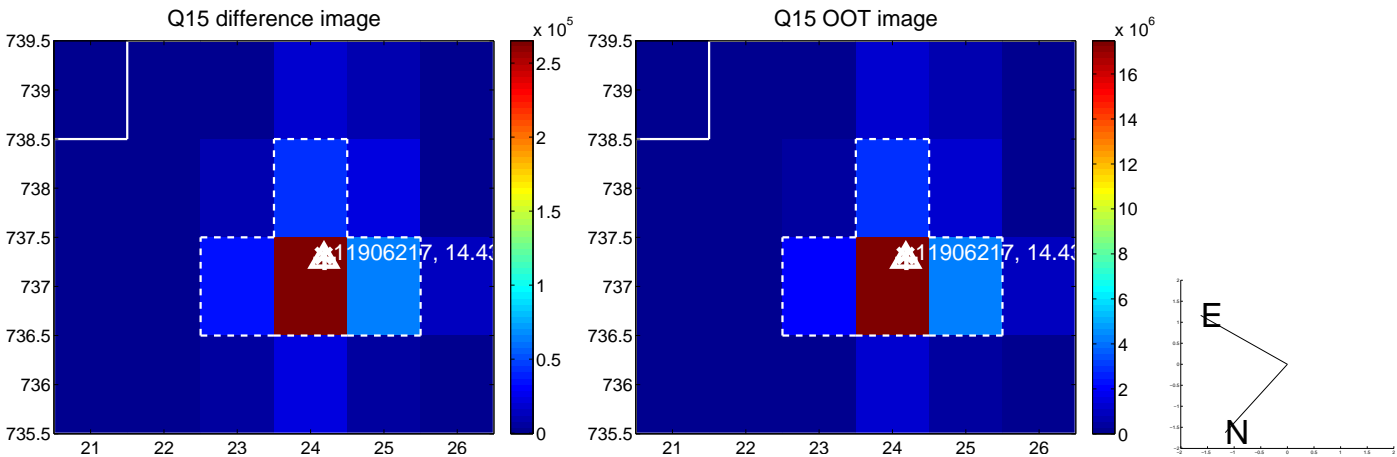
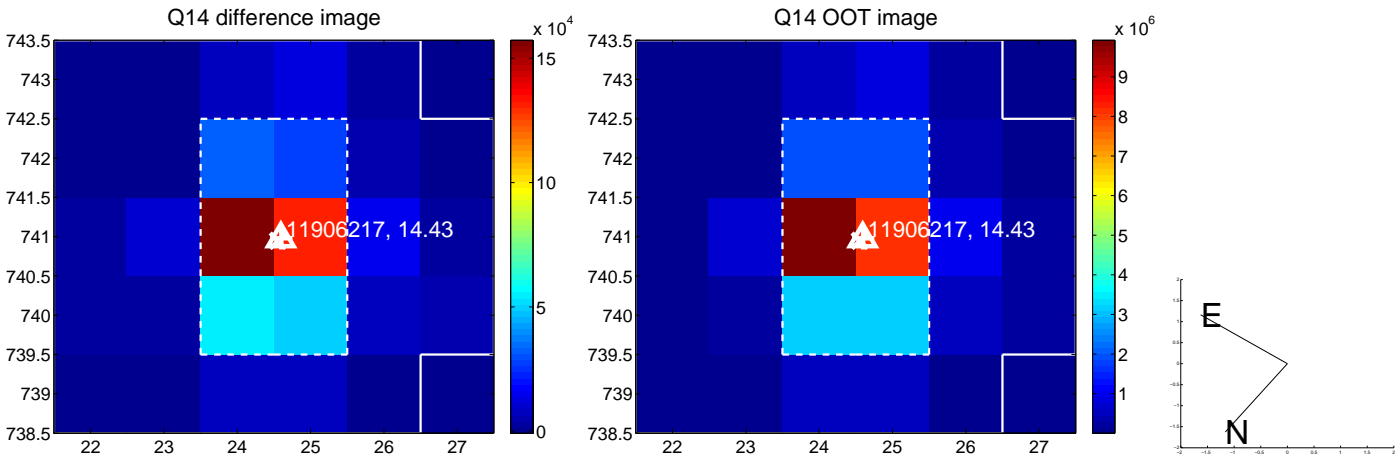
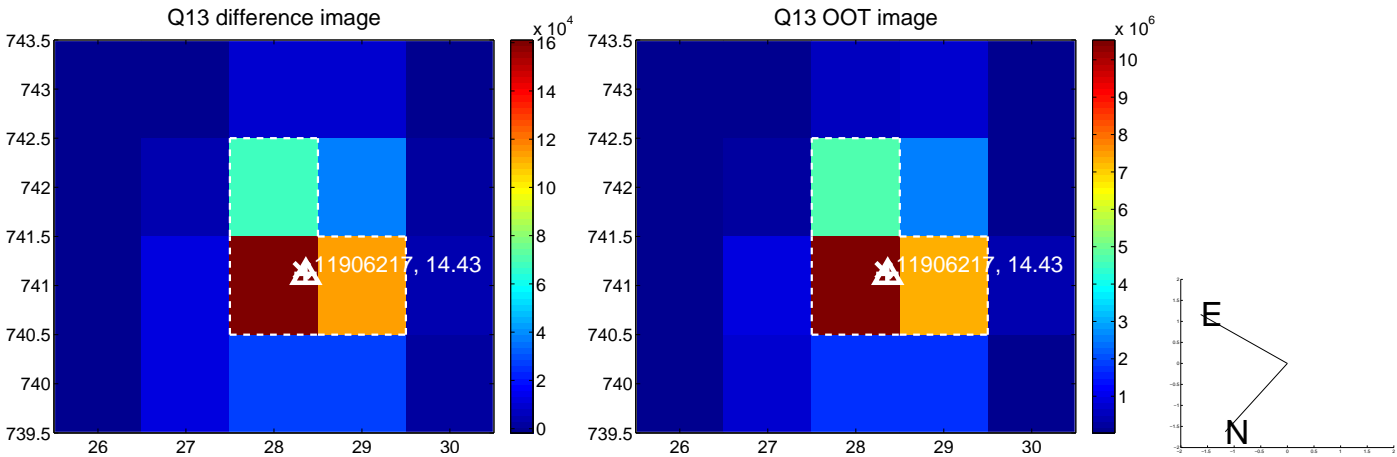
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



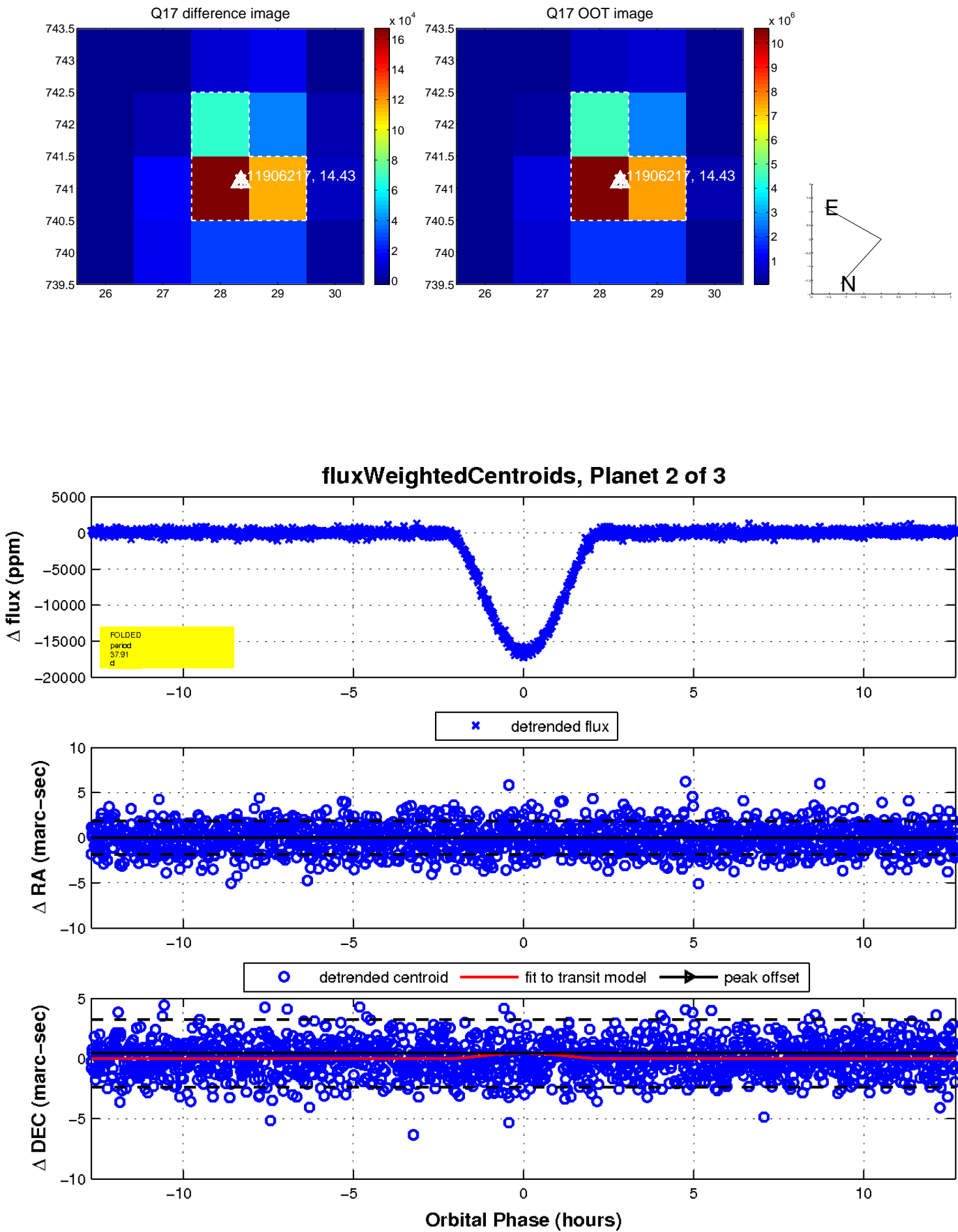
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

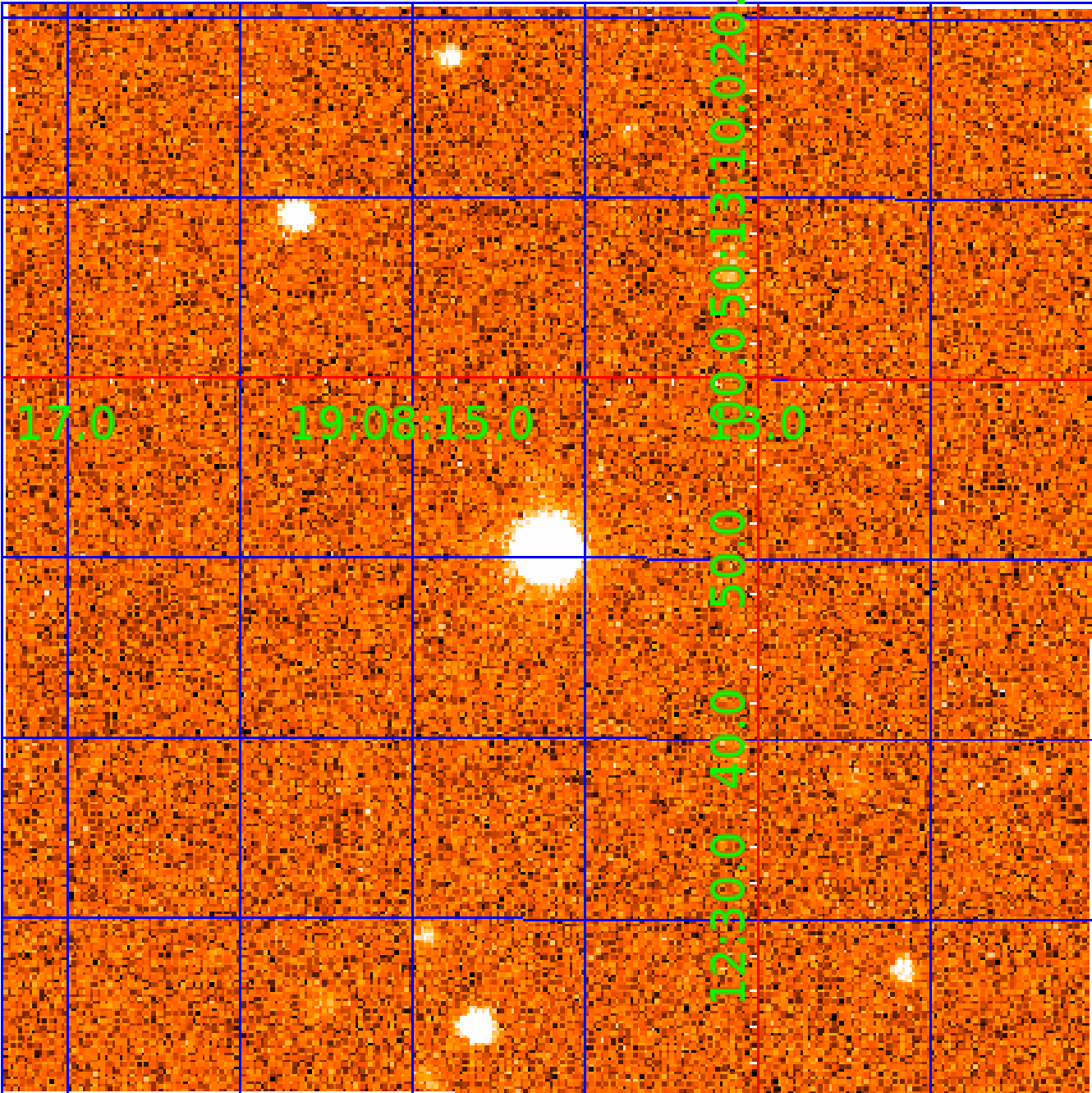


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 011906217

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011906217-01	OBS	7490.01	37.910208	162.458594	100583.9	3.149	1997.6	1210.0	0.56	4623	28.42	3.89
011906217-02	OBS	No	37.910212	131.595009	16539.4	4.235	399.6	407.1	0.56	4623	11.96	3.89
011906217-03	OBS	No	441.573086	210.545523	1745.6	15.240	13.6	15.6	0.56	4623	4.24	0.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011906217-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
011906217-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
011906217-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

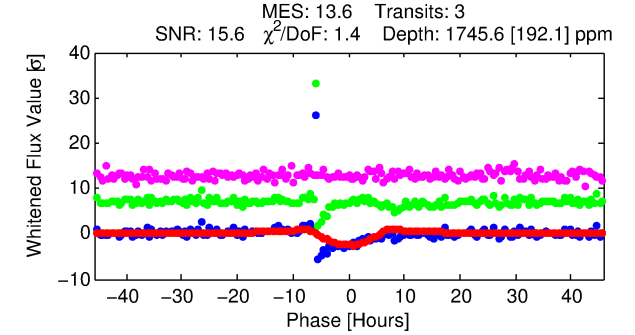
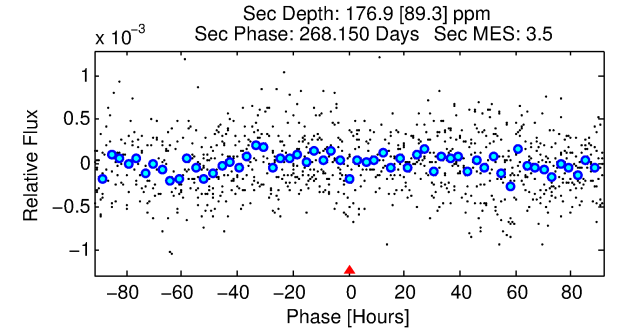
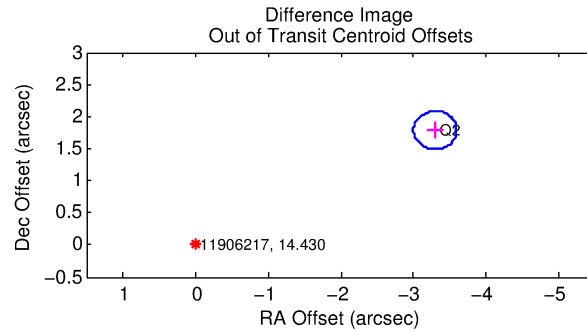
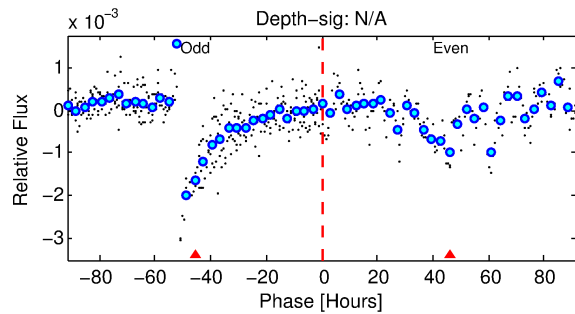
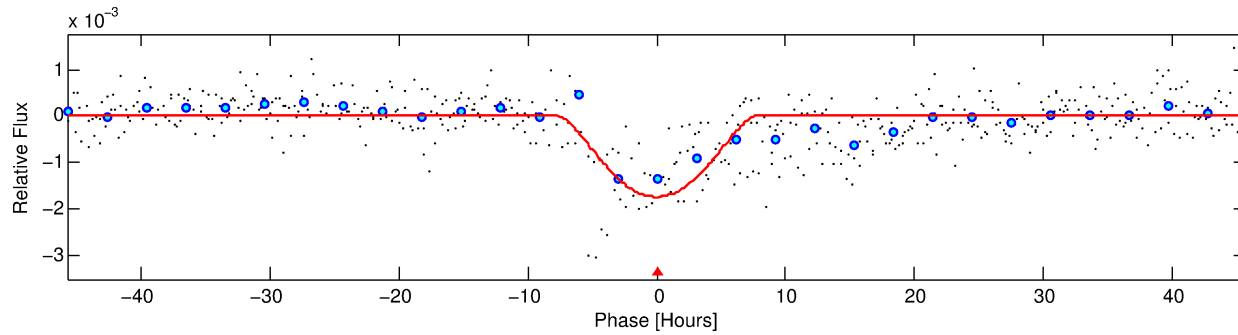
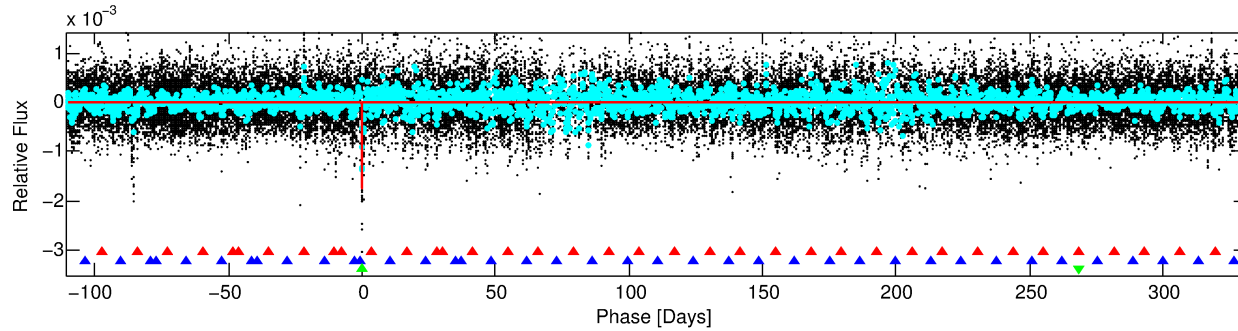
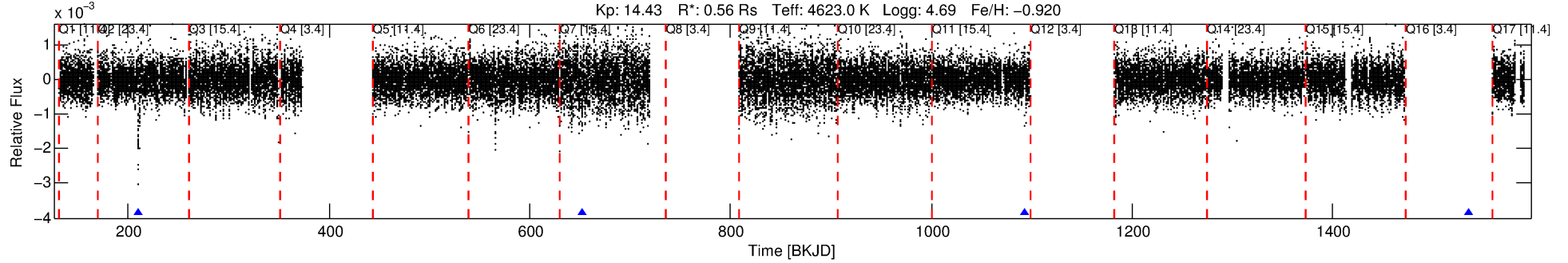
Ephemeris Match Information For 011906217-03

No Significant Match Found

# DV One-Page Summary

KIC: 11906217 Candidate: 3 of 3 Period: 441.573 d  
KOI: K07490 Corr: No Ephemeris Match

Kp: 14.43 R\*: 0.56 Rs Teff: 4623.0 K Logg: 4.69 Fe/H: -0.920



## DV Fit Results:

Period = 441.57309 [0.01854] d  
Epoch = 210.5455 [0.0178] BKJD  
Rp/R\* = 0.0694 [0.1503]  
a/R\* = 89.35 [46.98]  
b = 0.99 [0.23]  
Seff = 0.15 [0.02]  
Teq = 158 [6] K  
Rp = 4.24 [9.19] Re  
a = 0.9329 [0.0614] AU  
Ag = 4705.63 [20517.01] [0.23σ]  
Teff = 2023 [2206] K [0.85σ]

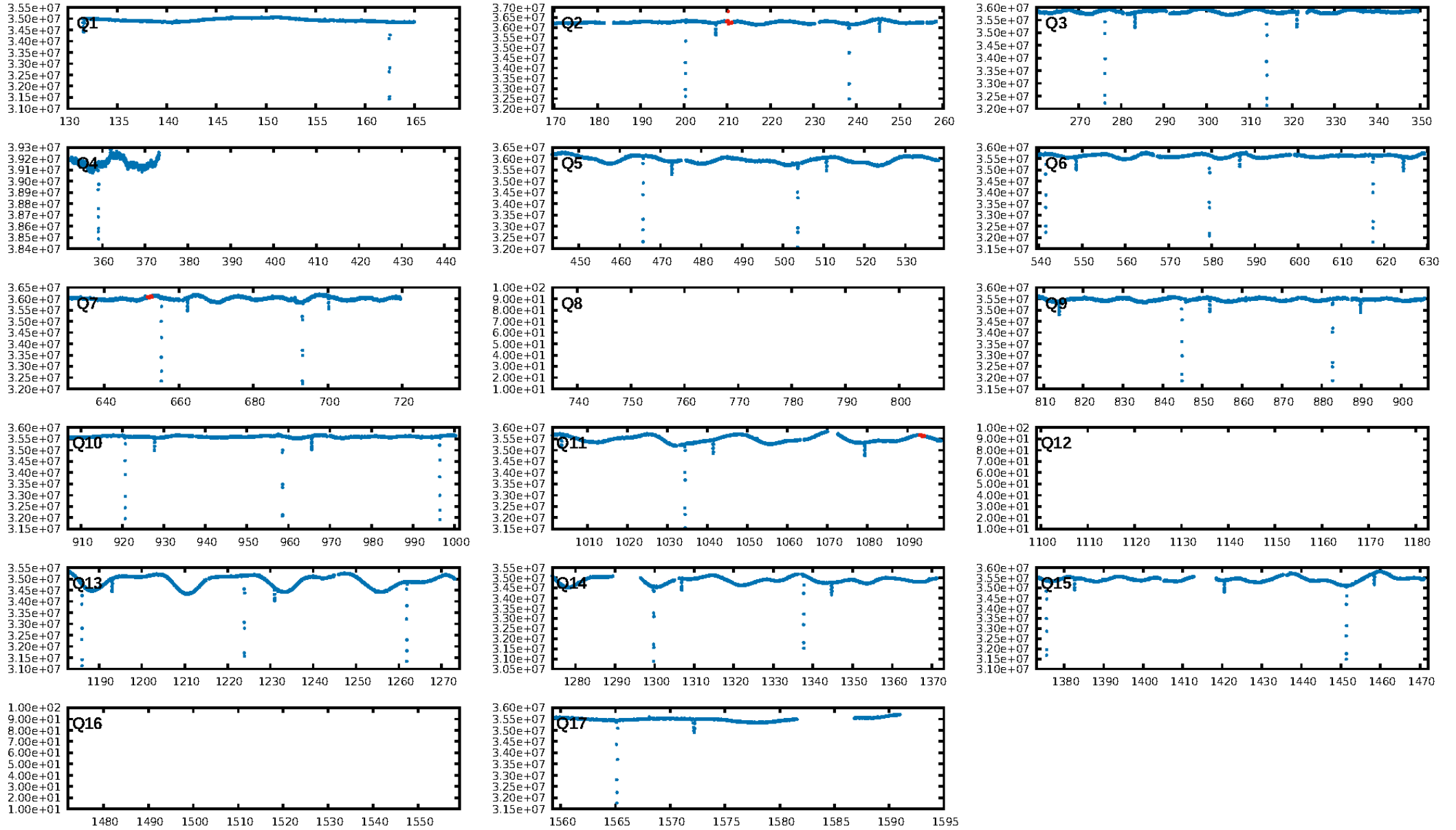
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [612.47σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGoF-sig: 84.0%  
Bootstrap-pfa: 2.66e-28  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -33.46  
Centroid-sig: 0.0%  
Centroid-so: 1.918 arcsec [3.08σ]  
OotOffset-rm: 3.750 arcsec [37.89σ]  
KicOffset-rm: 3.806 arcsec [38.76σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

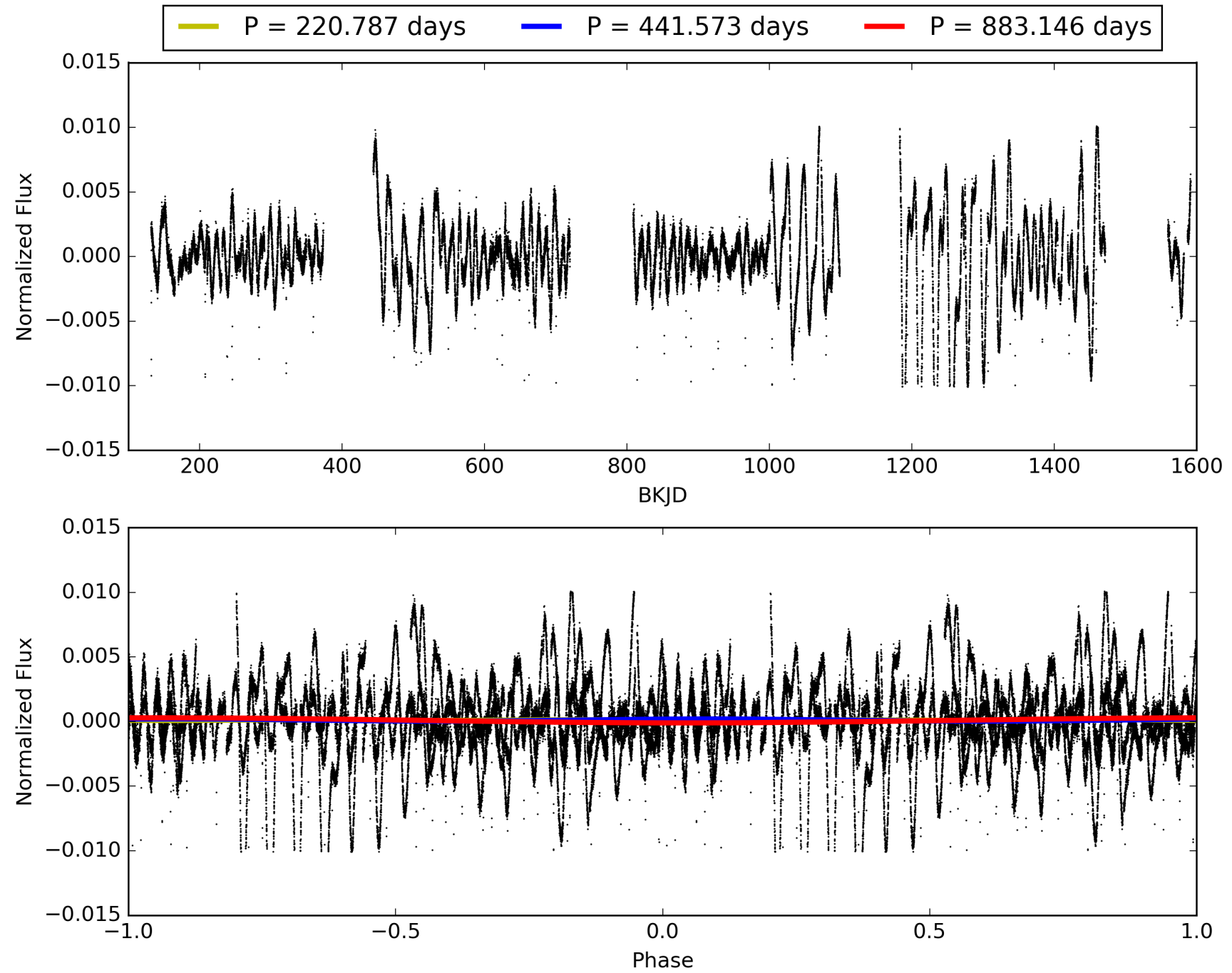
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:20:05 Z

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

# TCE 011906217-03, PDC Light Curves

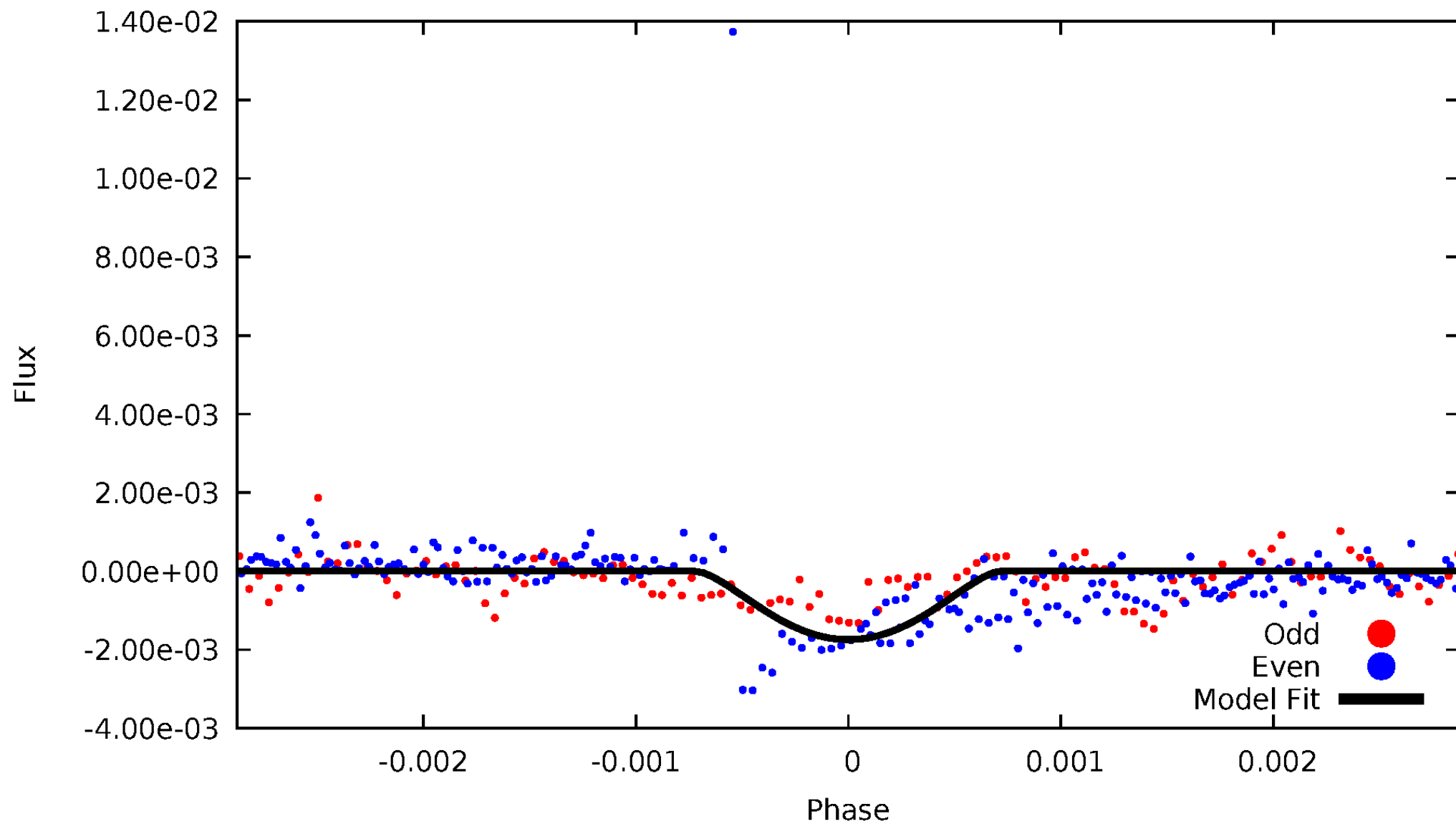


TCE 011906217-03



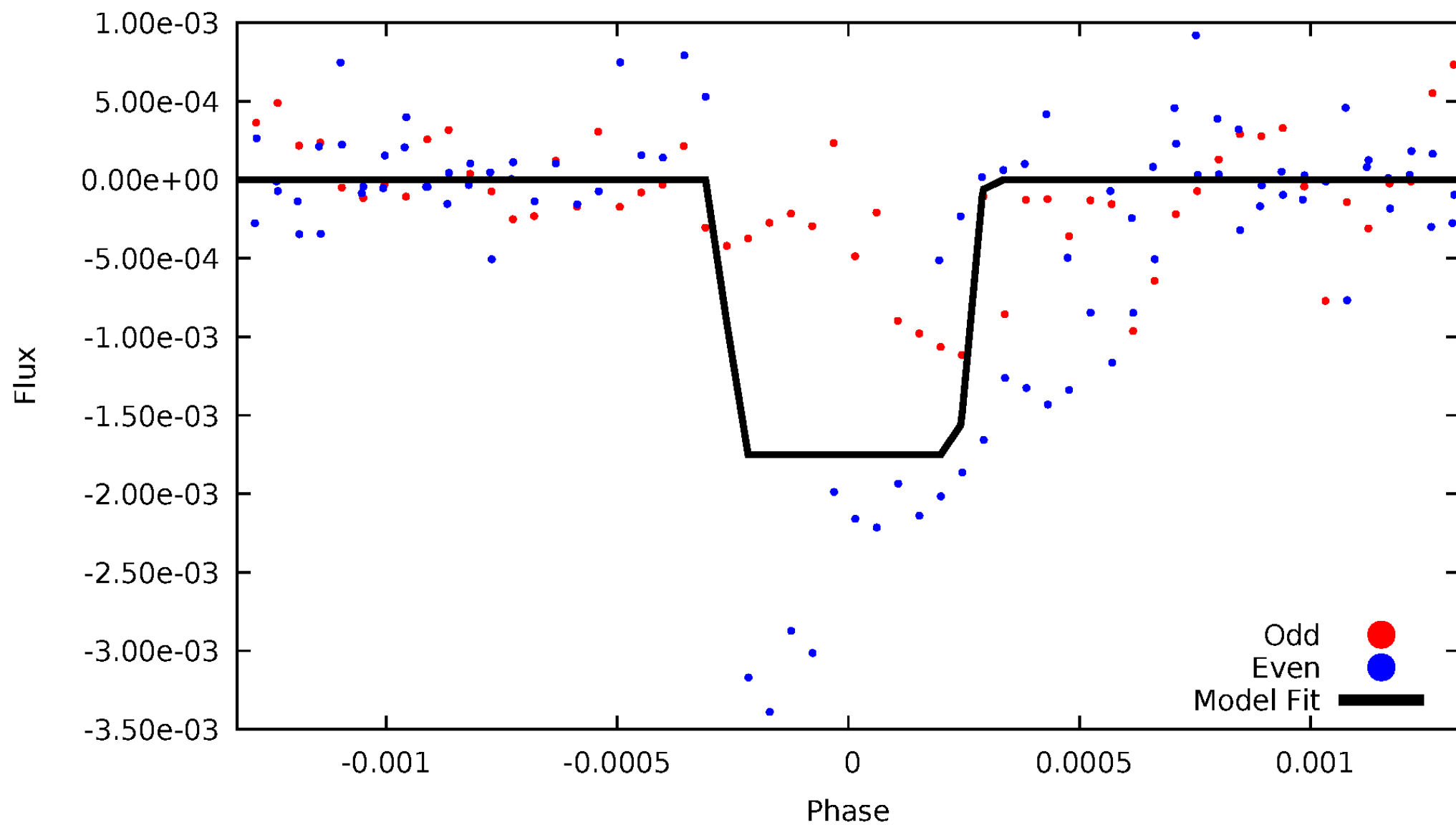
# DV Odd/Even

TCE 011906217-03



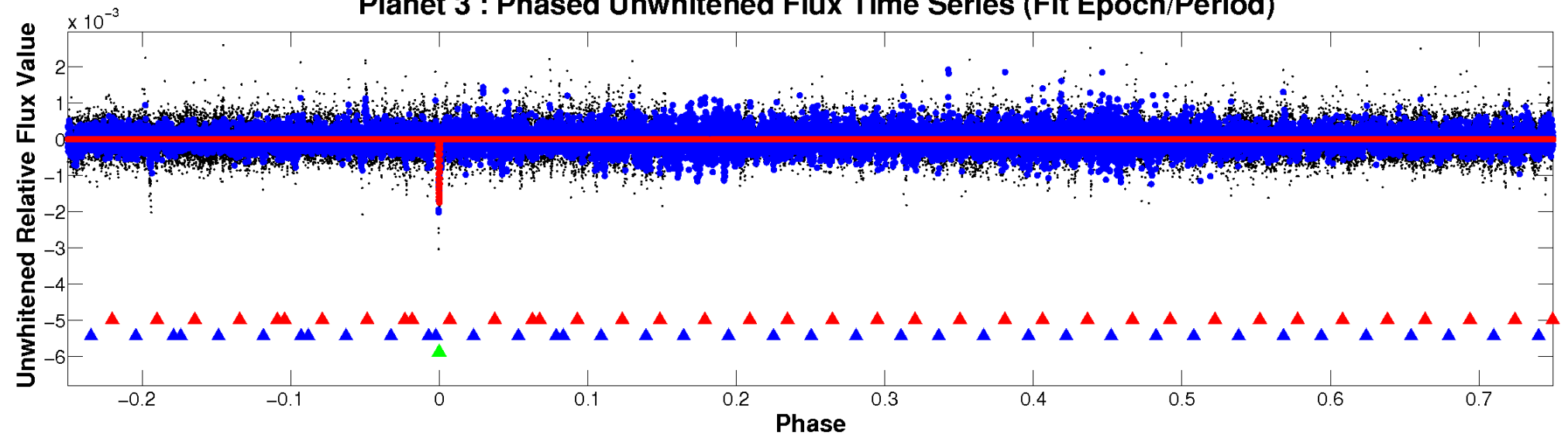
# ALT Odd/Even

TCE 011906217-03

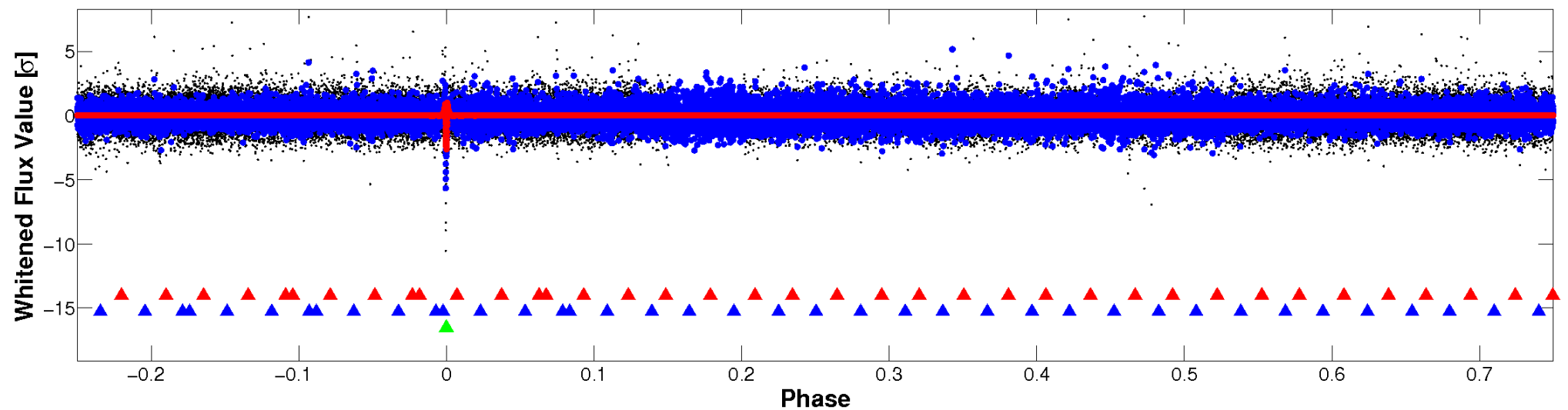


# Non-Whitened Vs. Whitened Light Curve

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

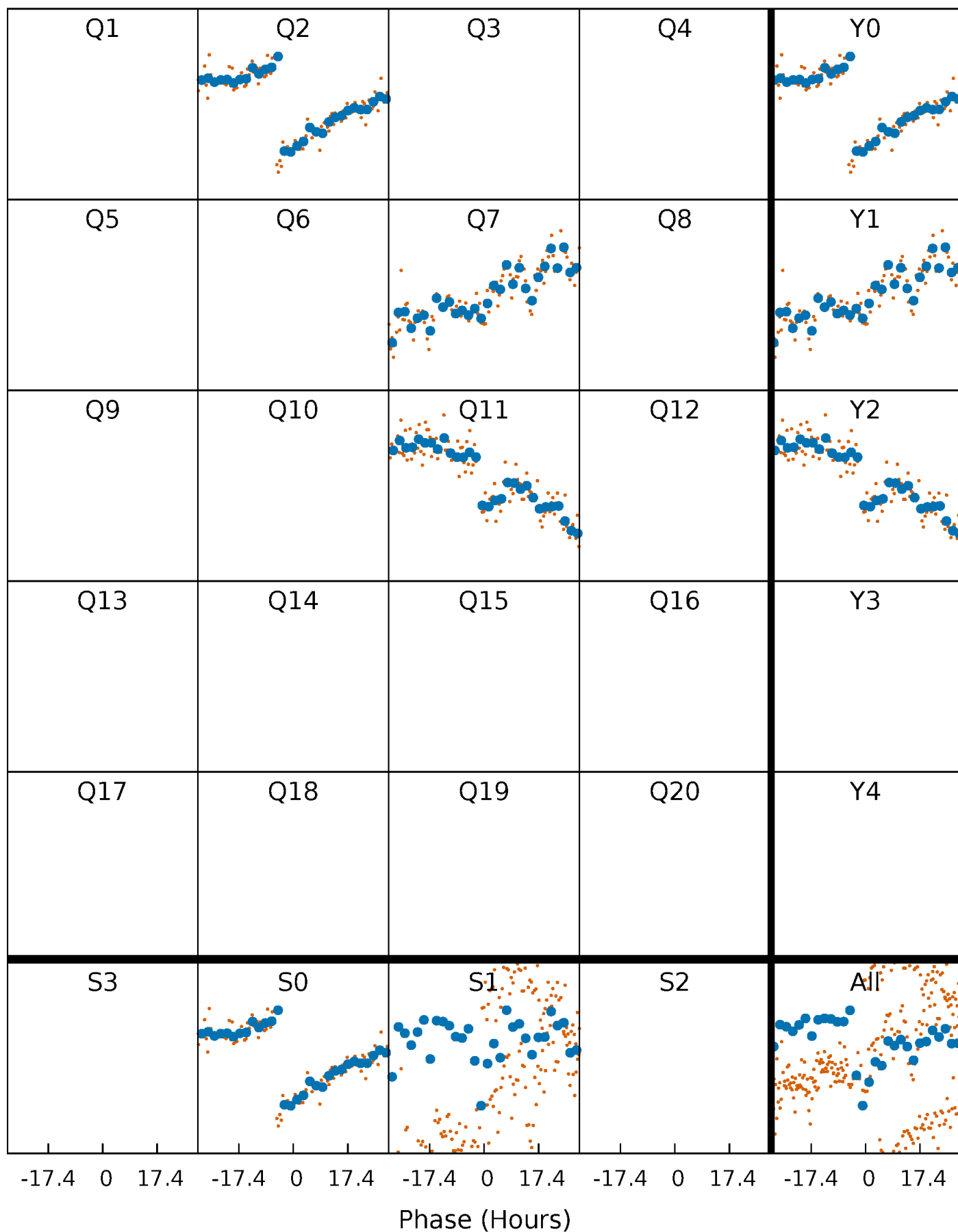


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

TCE 011906217-03 P=441.573086 Days  $T_0=210.545523$  (BKJD)





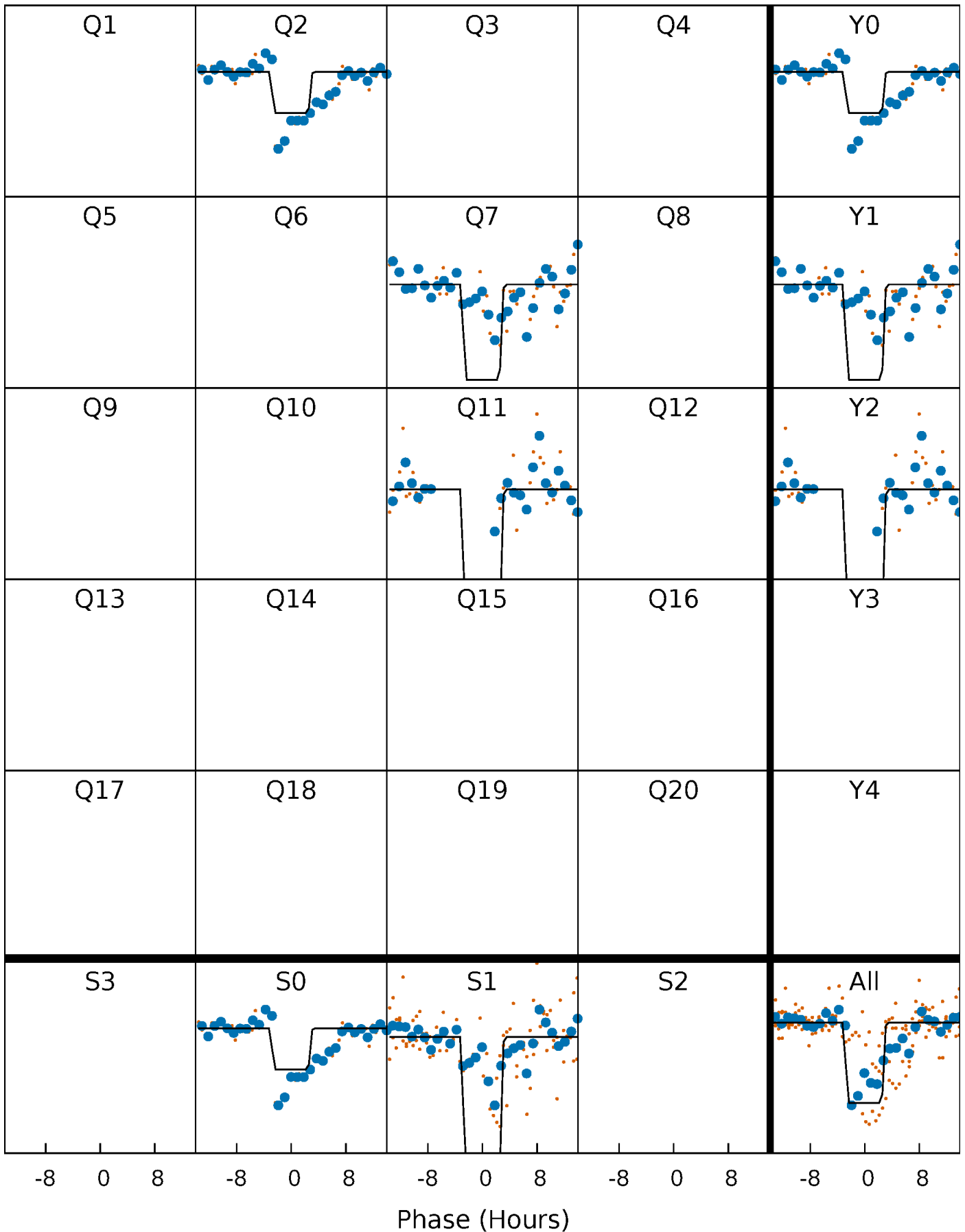
# DV Quarter-Phased Transit Curves

TCE 011906217-03     $P=441.573086$  Days     $T_0=210.545523$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

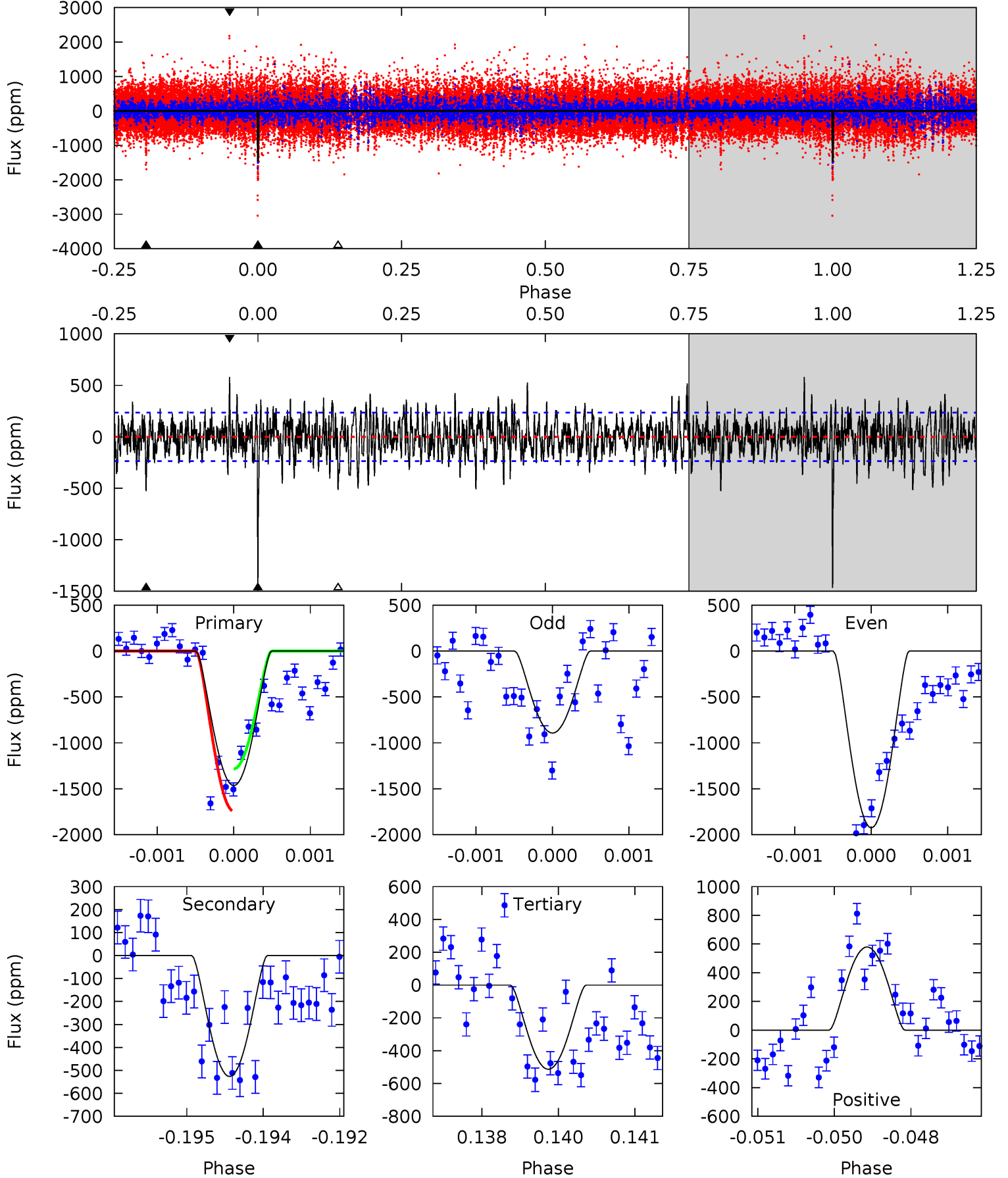
TCE 011906217-03 P=441.610099 Days  $T_0=210.421519$  (BKJD)



# DV Model-Shift Uniqueness Test

011906217-03, P = 441.573086 Days, E = 210.545523 Days

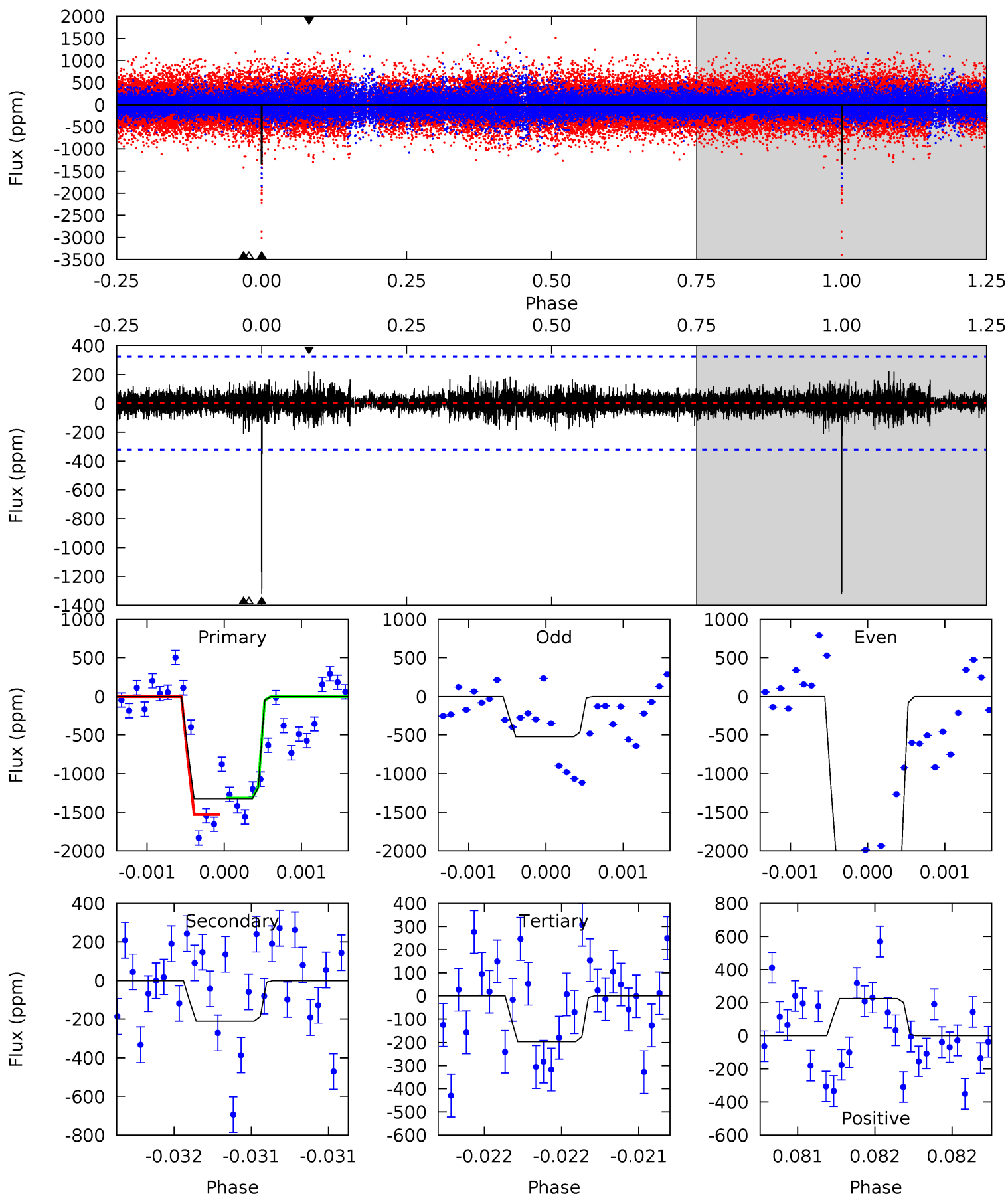
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.5	12.0	11.7	13.2	5.38	3.18	3.25	21.7	20.2	0.31	-1.21	11.5	1.17	0.28	5.08



# Alt Model-Shift Uniqueness Test

011906217-03, P = 441.610099 Days, E = 210.421519 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
22.8	3.62	3.39	3.85	5.55	3.45	0.75	19.4	18.9	0.24	-0.23	15.2	2.17	0.14	1.73



### Stellar Parameters For KIC 011906217

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4623^{+125}_{-139}$	$4.686^{+0.054}_{-0.031}$	$-0.920^{+0.300}_{-0.300}$	$0.560^{+0.039}_{-0.043}$	$0.556^{+0.047}_{-0.027}$	$4.450^{+0.932}_{-0.575}$
	+3%/-3%	+1%/-1%	+33%/-33%	+7%/-8%	+8%/-5%	+21%/-13%
Source	PHO1	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 011906217-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-527 \pm 44$	$7.59^{+8.18}_{-5.21}$	$219^{+8}_{-8}$	$2699^{+1082}_{-444}$	$4546^{+38126}_{-3543}$
Alt.	$-210 \pm 58$	$7.70^{+7.57}_{-5.29}$	$220^{+7}_{-7}$	$2408^{+868}_{-361}$	$1719^{+16207}_{-1318}$

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

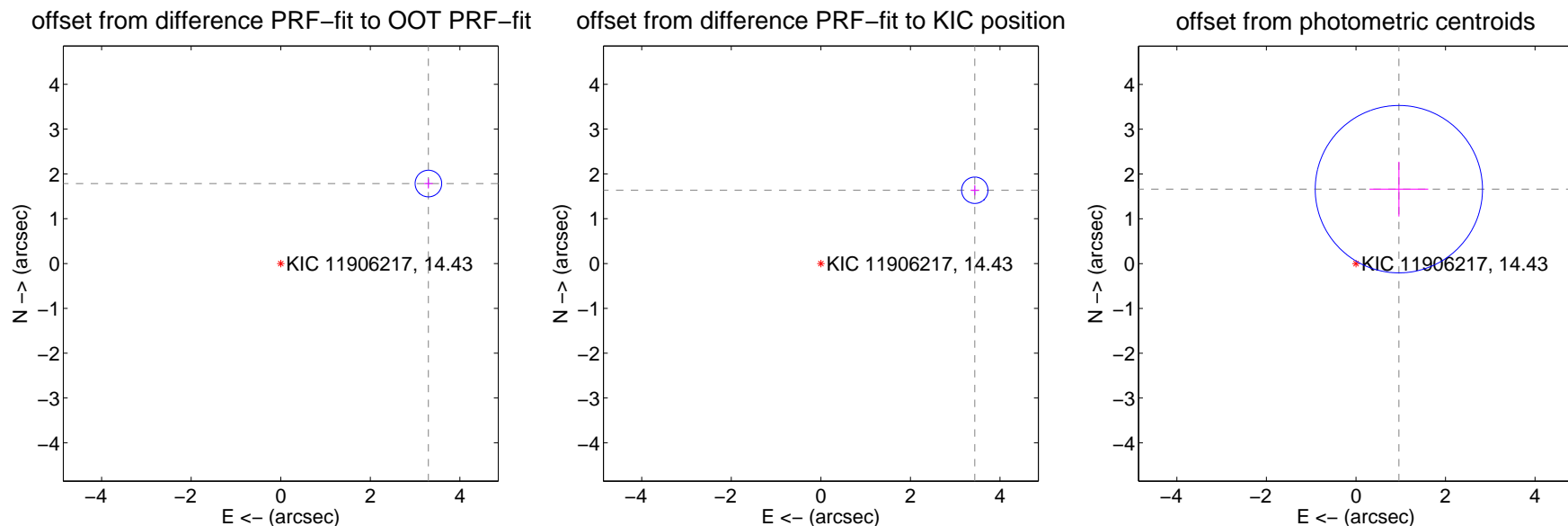
## DV Centroid Data

Supplemental centroid analysis for 011906217-03. Kepler magnitude: 14.43. Transit SNR 15.56

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.750 \pm 0.099$	37.89	$-3.297 \pm 0.095$	$1.786 \pm 0.112$
PRF-fit source offset from KIC position	$3.806 \pm 0.098$	38.76	$-3.437 \pm 0.095$	$1.636 \pm 0.112$
photometric centroid source offset	$1.92 \pm 0.62$	3.08	$-0.96 \pm 0.66$	$1.66 \pm 0.61$



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.

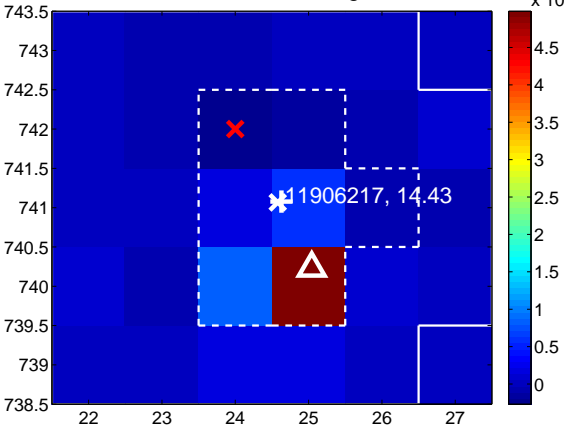
Q1 no difference image



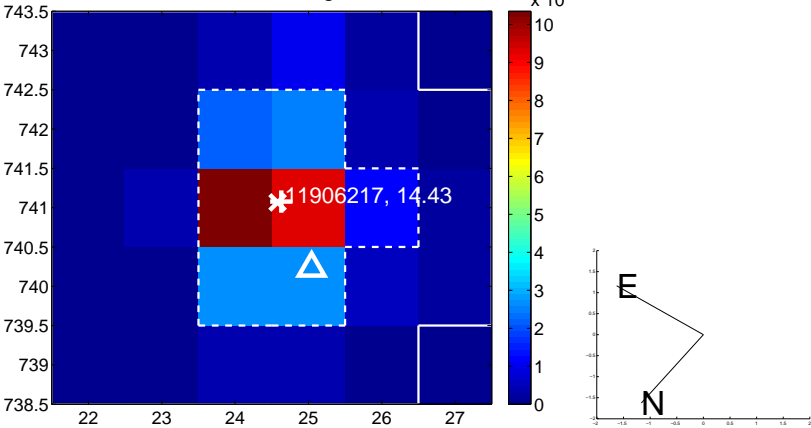
Q1 no OOT image



Q2 difference image



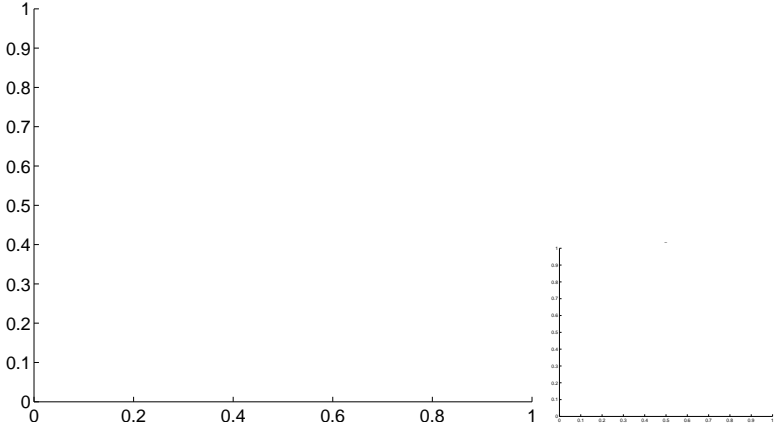
Q2 OOT image



Q3 no difference image



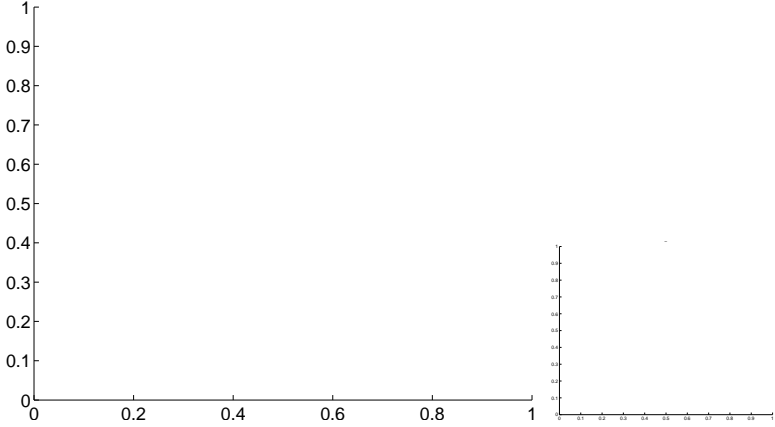
Q3 no OOT image



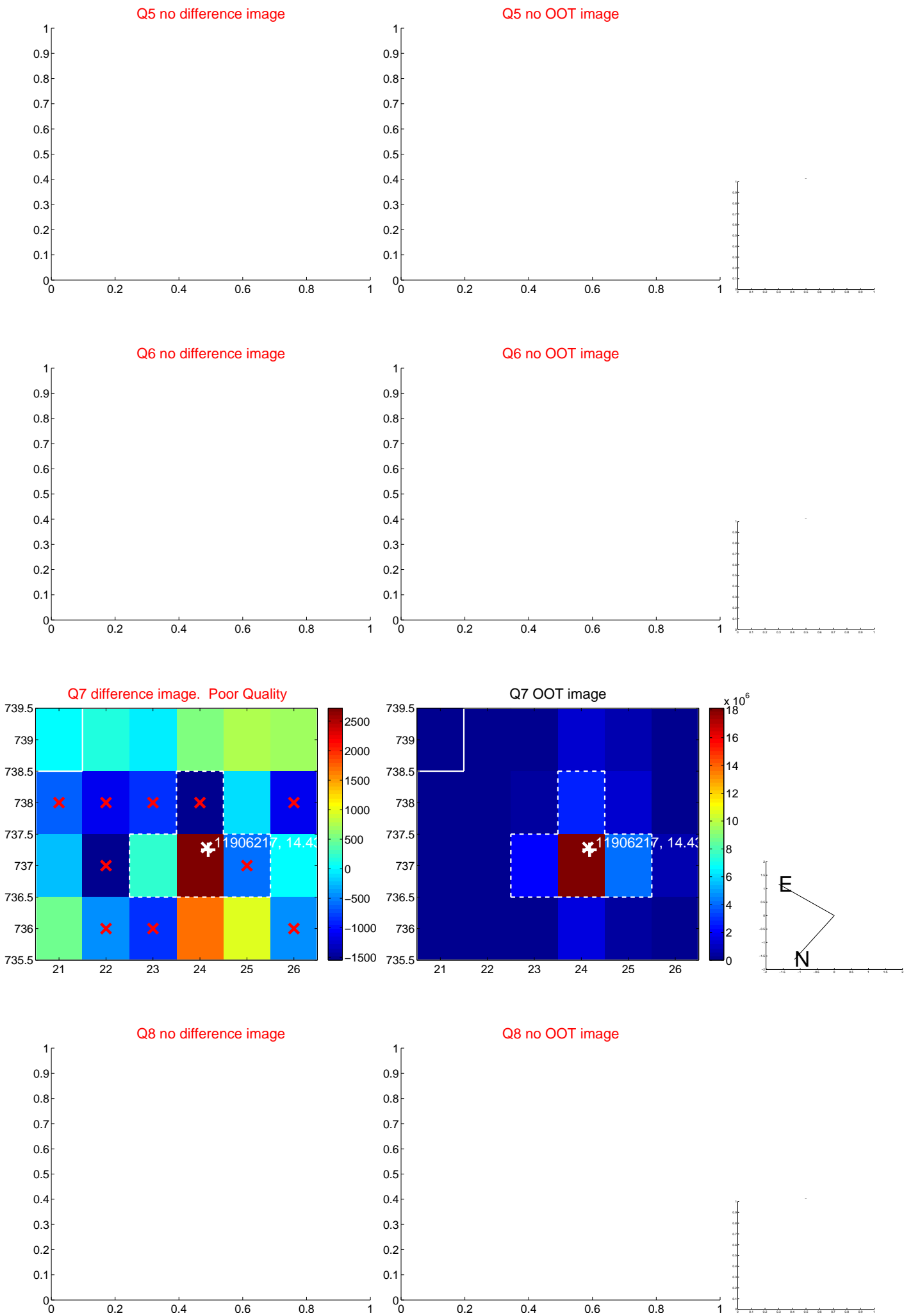
Q4 no difference image



Q4 no OOT image



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





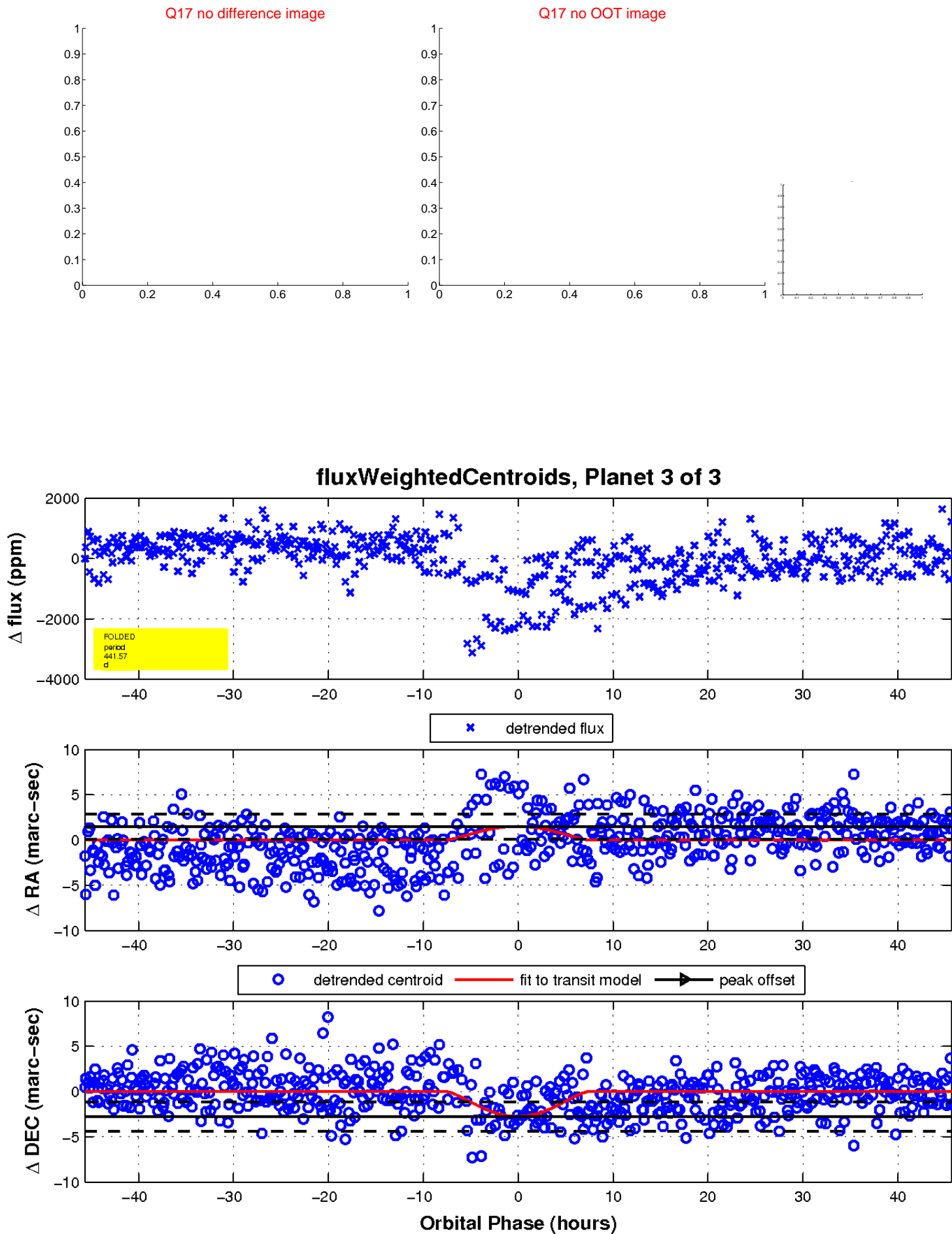
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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

