

# KIC 004917213

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004917213-01	OBS	No	0.742780	132.033303	22.4	5.158	7.4	9.0	0.77	5323	0.39	2048.71
004917213-02	OBS	No	101.816250	136.119838	1688.7	2.390	12.1	10.9	0.77	5323	3.44	2.90
004917213-03	OBS	No	34.286381	150.997590	955.1	1.554	11.6	8.0	0.77	5323	2.49	12.37

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004917213-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004917213-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
004917213-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

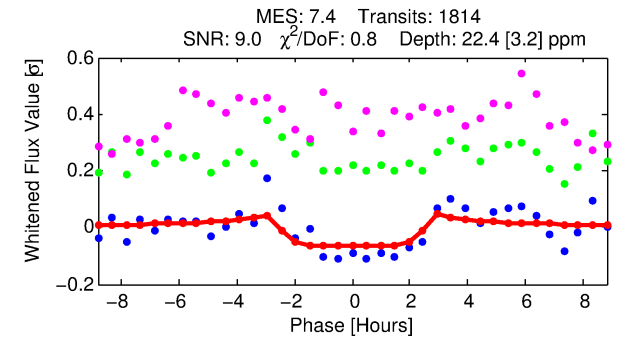
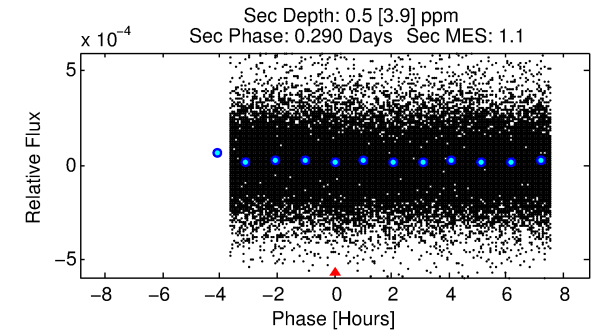
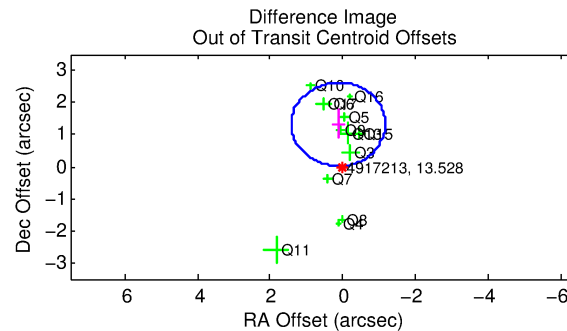
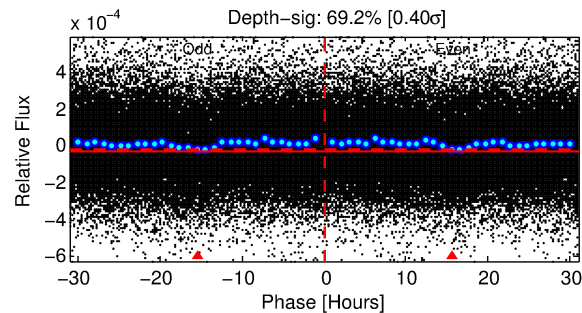
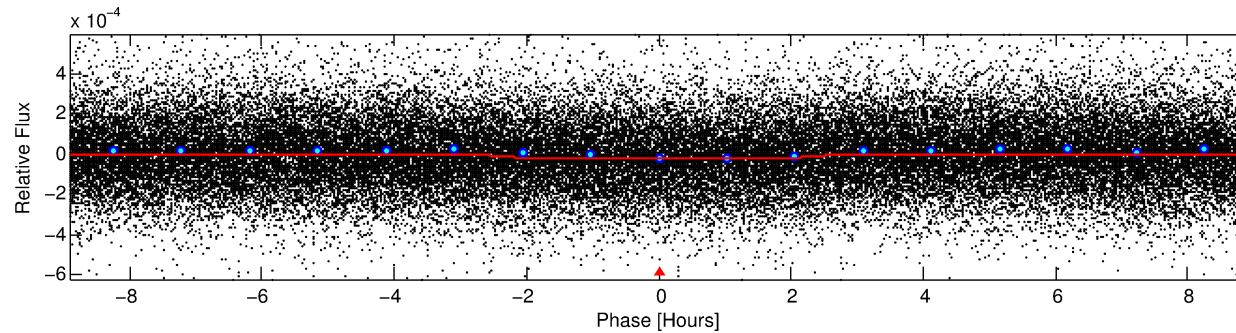
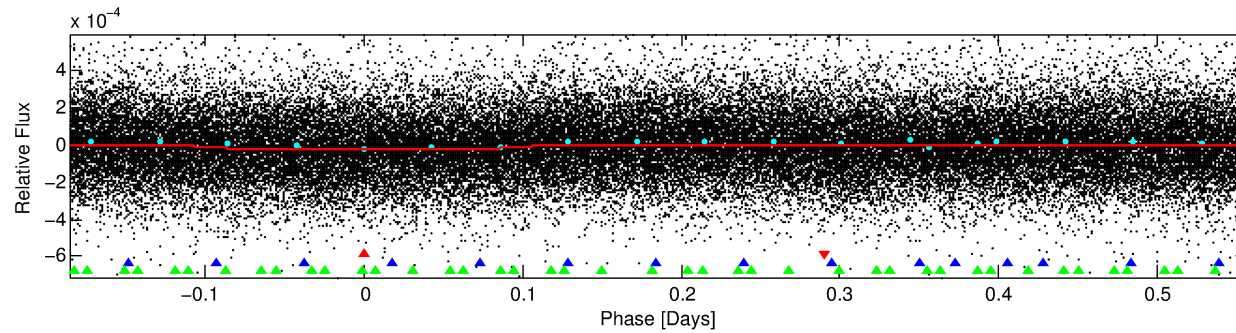
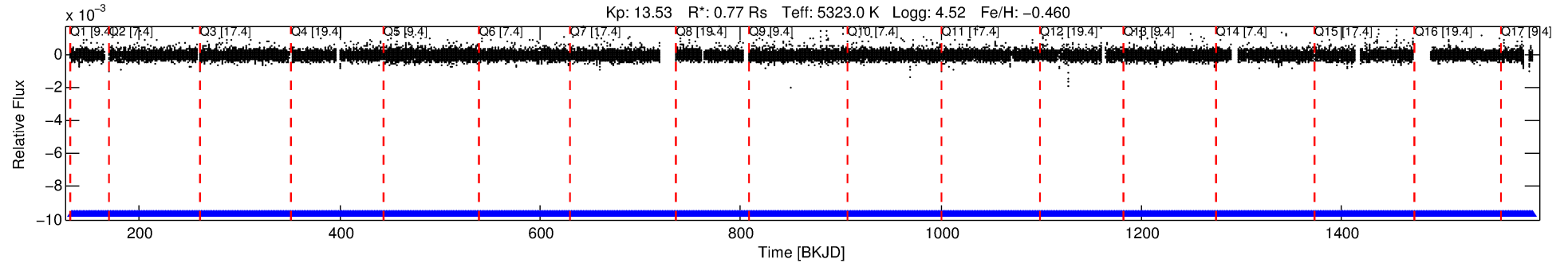
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004917213-01

No Significant Match Found

# DV One-Page Summary

KIC: 4917213 Candidate: 1 of 3 Period: 0.743 d



## DV Fit Results:

Period = 0.74278 [0.00001] d  
Epoch = 132.0333 [0.0039] BKJD  
Rp/R\* = 0.0046 [0.0028]  
a/R\* = 1.15 [0.71]  
b = 0.70 [1.89]  
Seff = 2048.71 [435.91]  
Teq = 1716 [91] K  
Rp = 0.39 [0.24] Re  
a = 0.0143 [0.0017] AU  
Ag = 0.36 [3.00] [-0.21 $\sigma$ ]  
Teffp = 2047 [4330] K [0.08 $\sigma$ ]

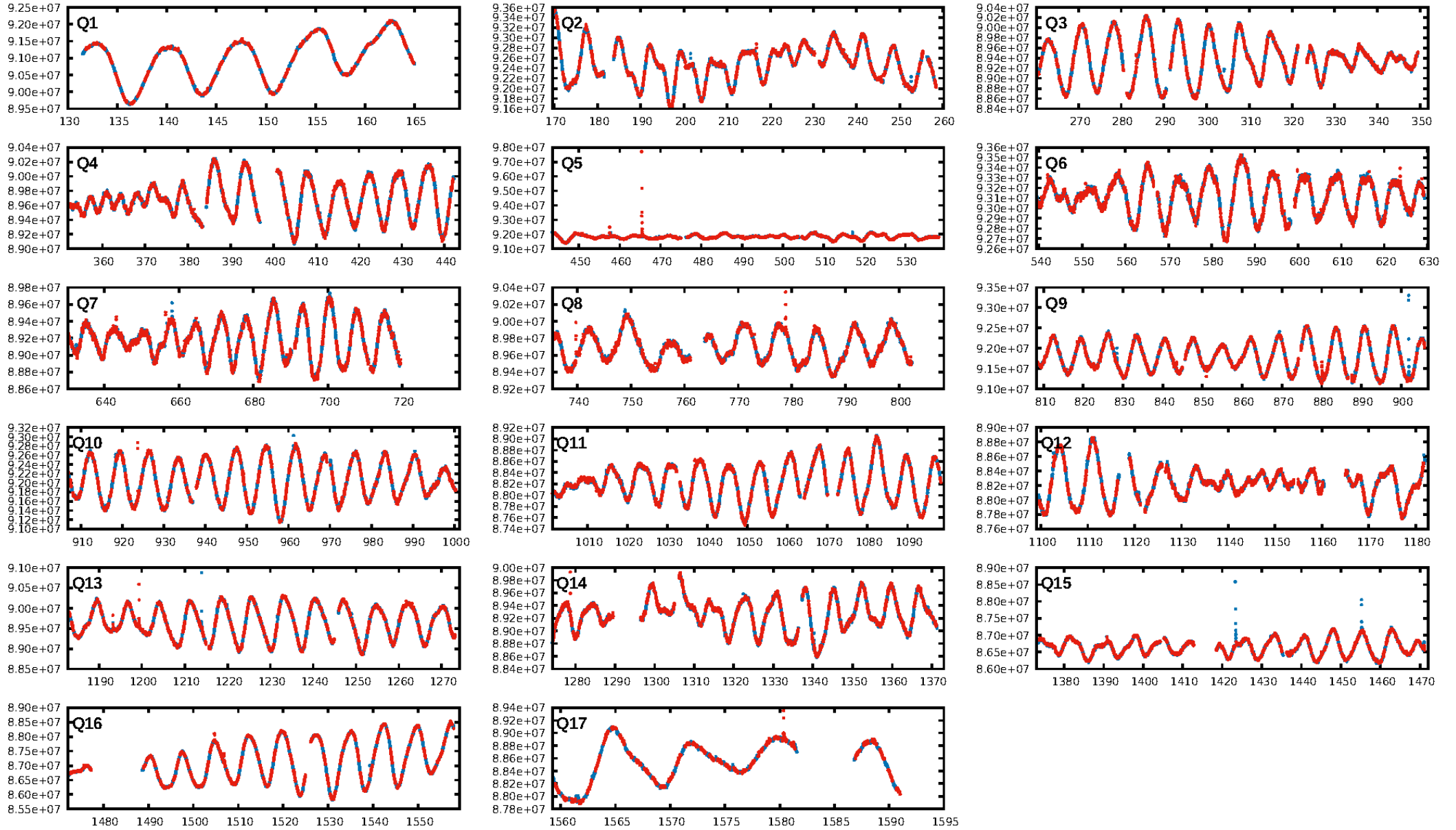
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [149.45 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 3.72e-10**  
RollingBand-fgt: 1.00 [1733/1733]  
**GhostDiagnostic-chr: 0.7388**  
Centroid-sig: 33.5%  
Centroid-so: 0.600 arcsec [0.85 $\sigma$ ]  
**OotOffset-rm: 1.324 arcsec [3.06 $\sigma$ ]**  
**KicOffset-rm: 1.327 arcsec [3.07 $\sigma$ ]**  
OotOffset-st: 2/4/3/4 [13]  
KicOffset-st: 2/4/3/4 [13]  
DiffImageQuality-fgm: 0.69 [9/13]  
DiffImageOverlap-fno: 1.00 [17/17]

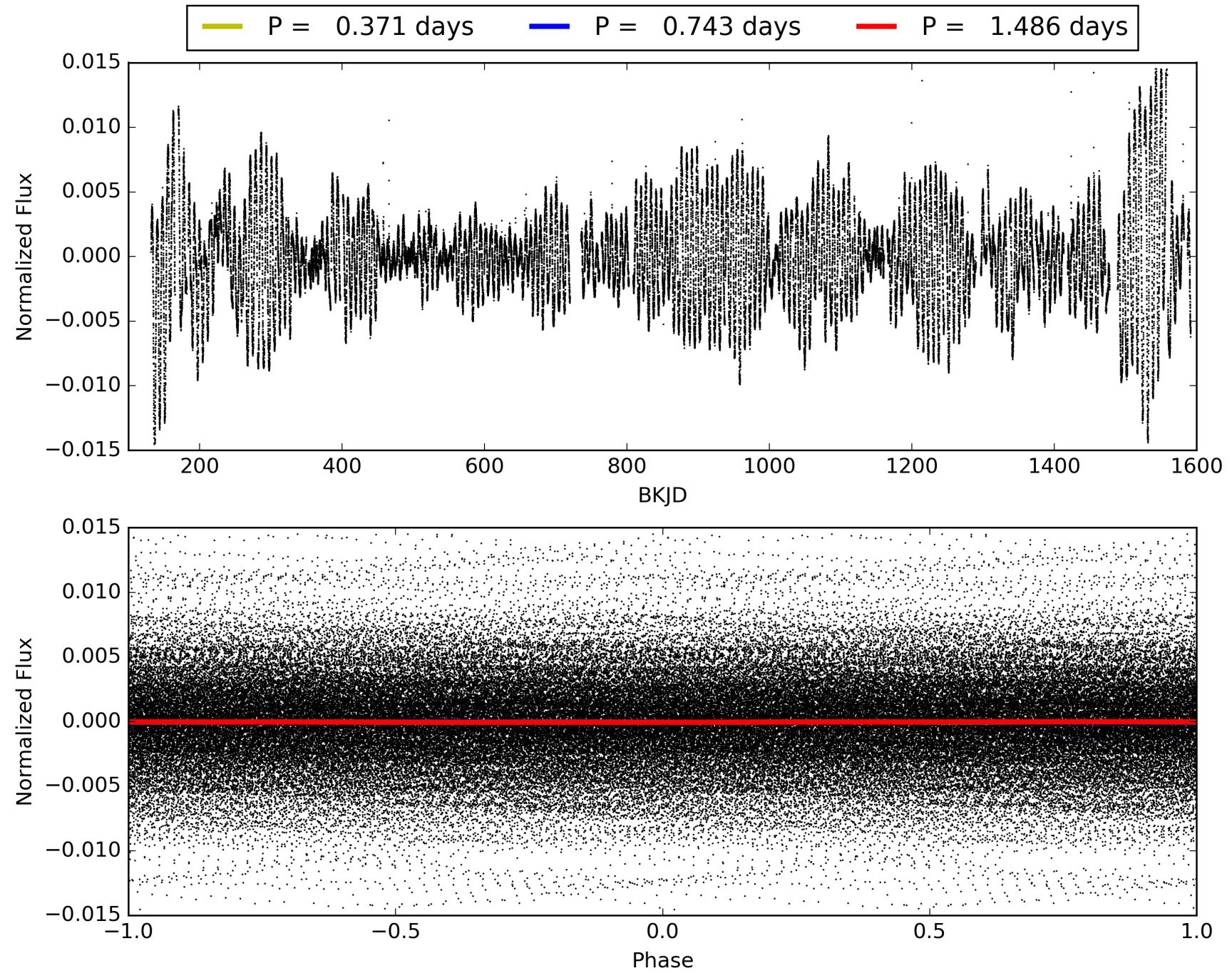
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:48:11 Z

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

# TCE 004917213-01, PDC Light Curves

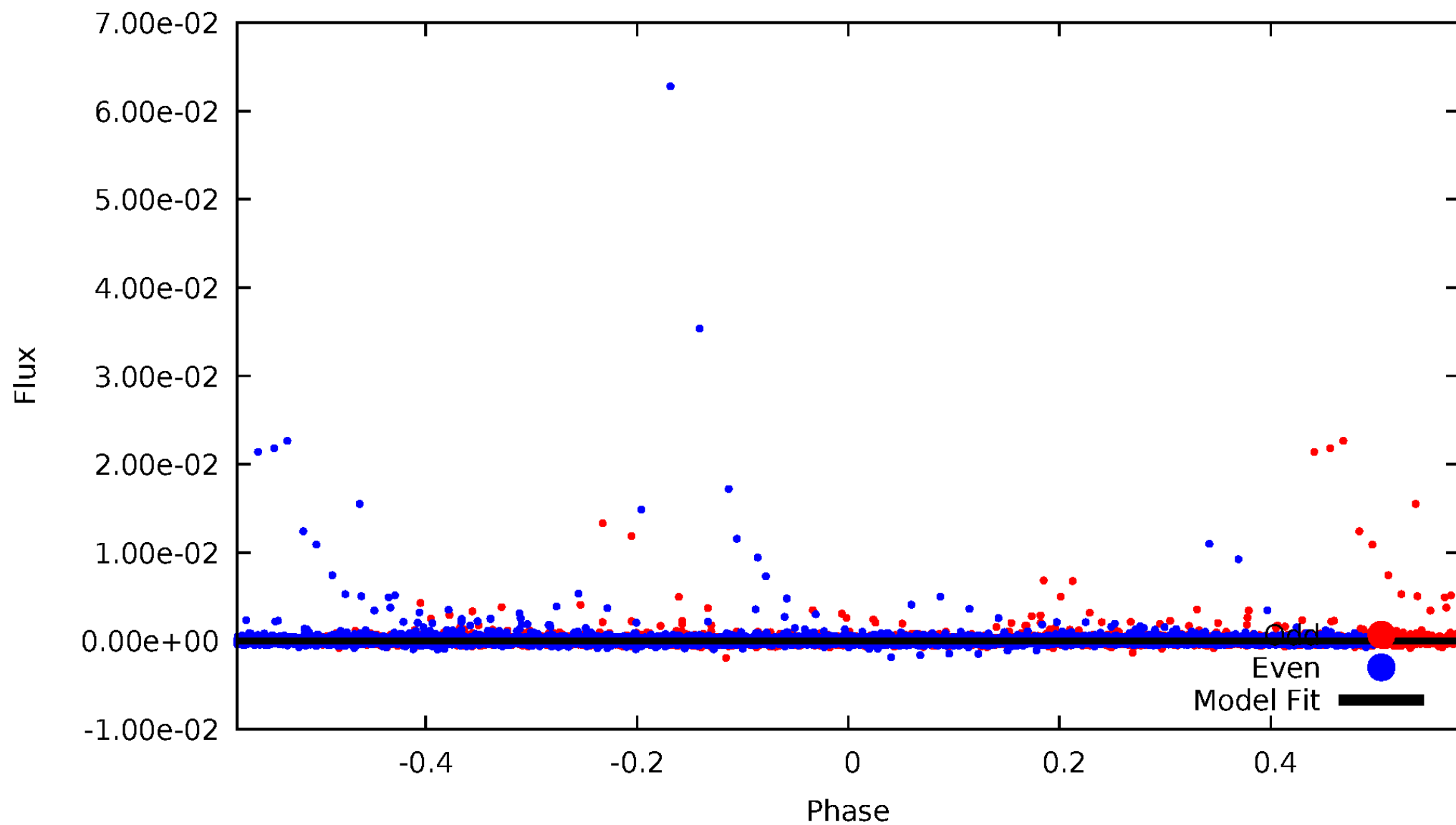


TCE 004917213-01



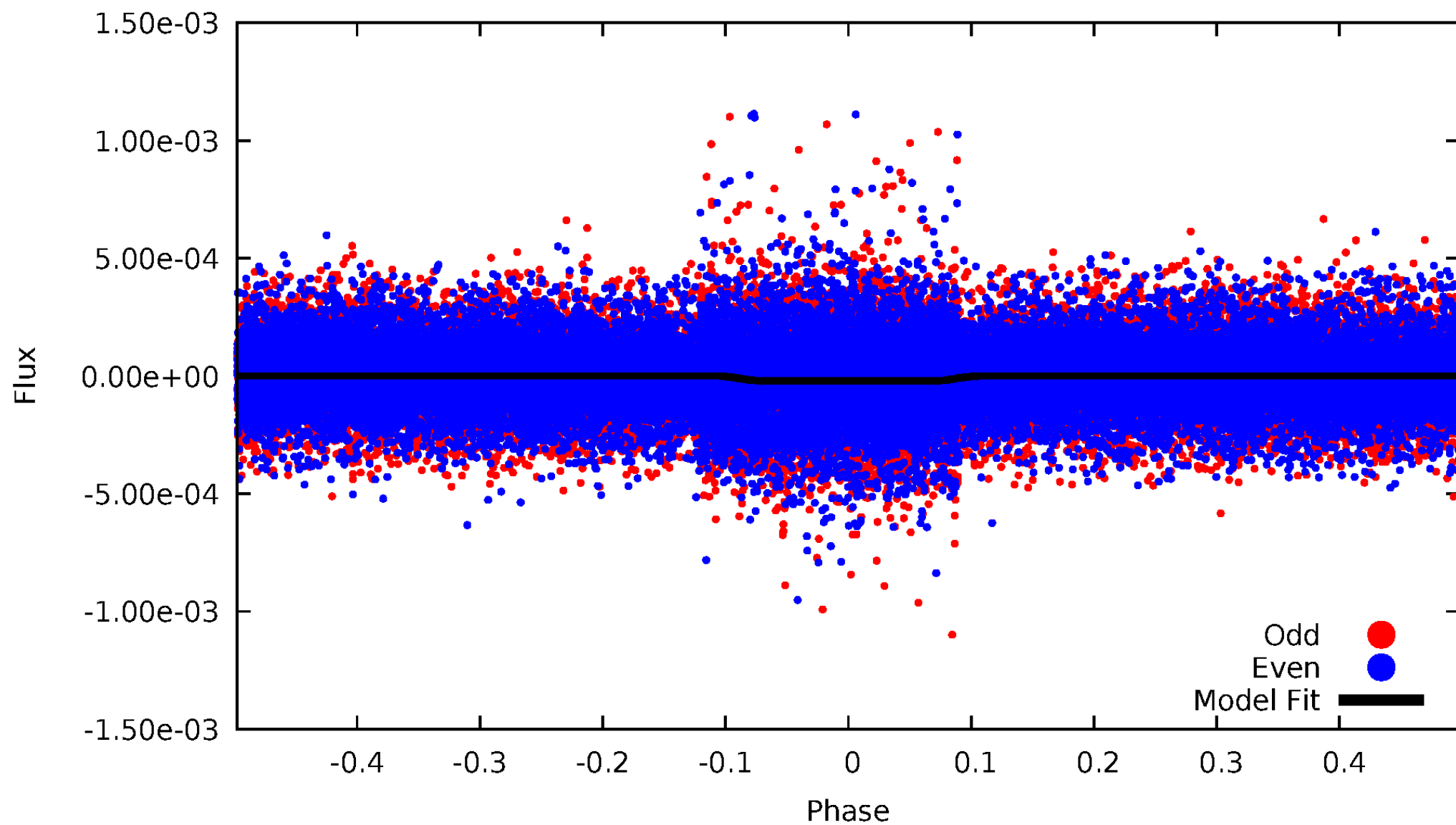
# DV Odd/Even

TCE 004917213-01



# ALT Odd/Even

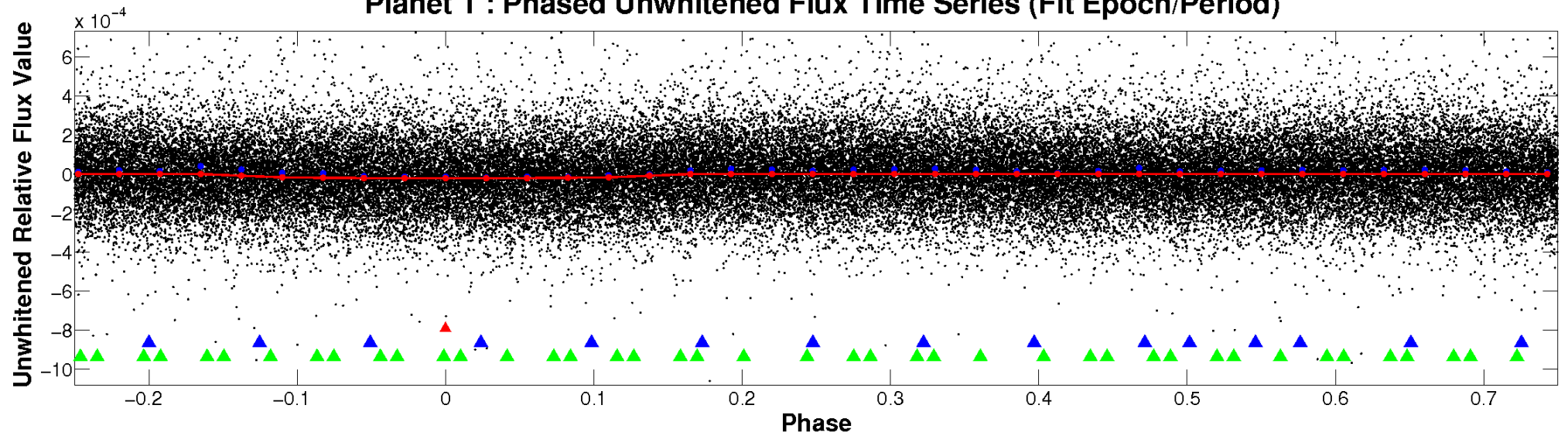
TCE 004917213-01



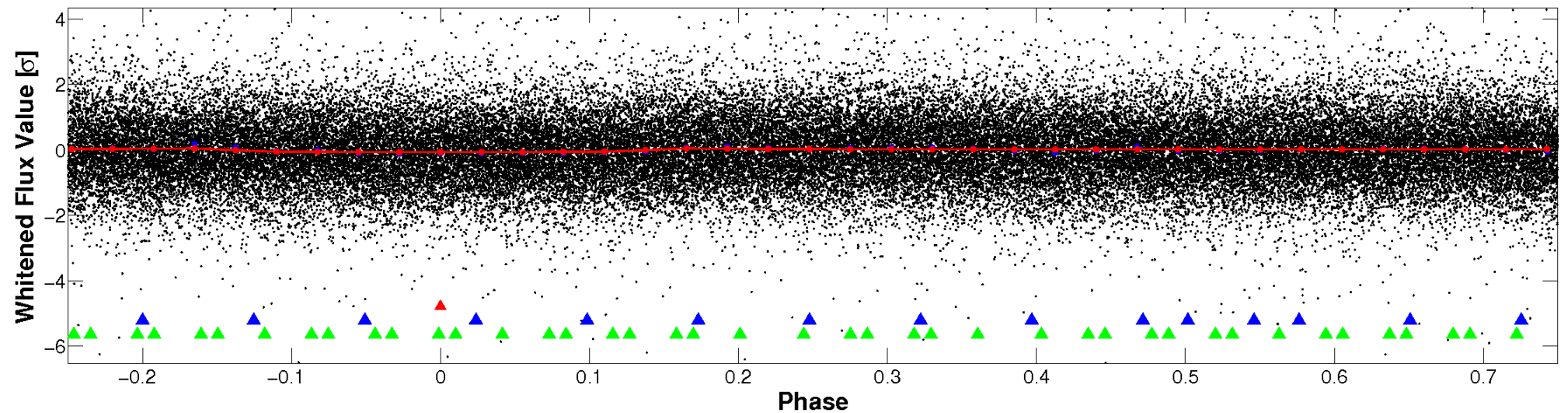


# Non-Whitened Vs. Whitened Light Curve

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

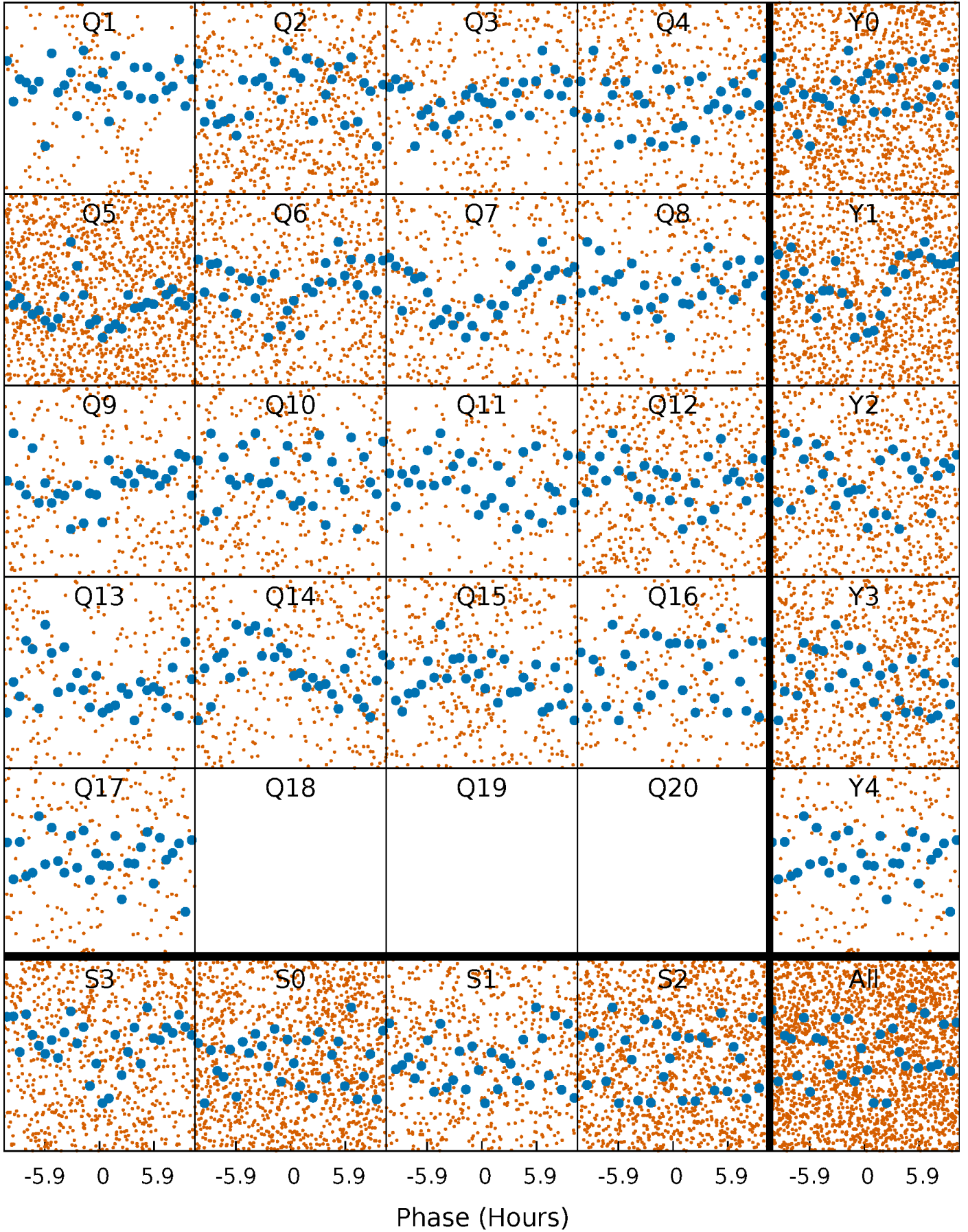


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

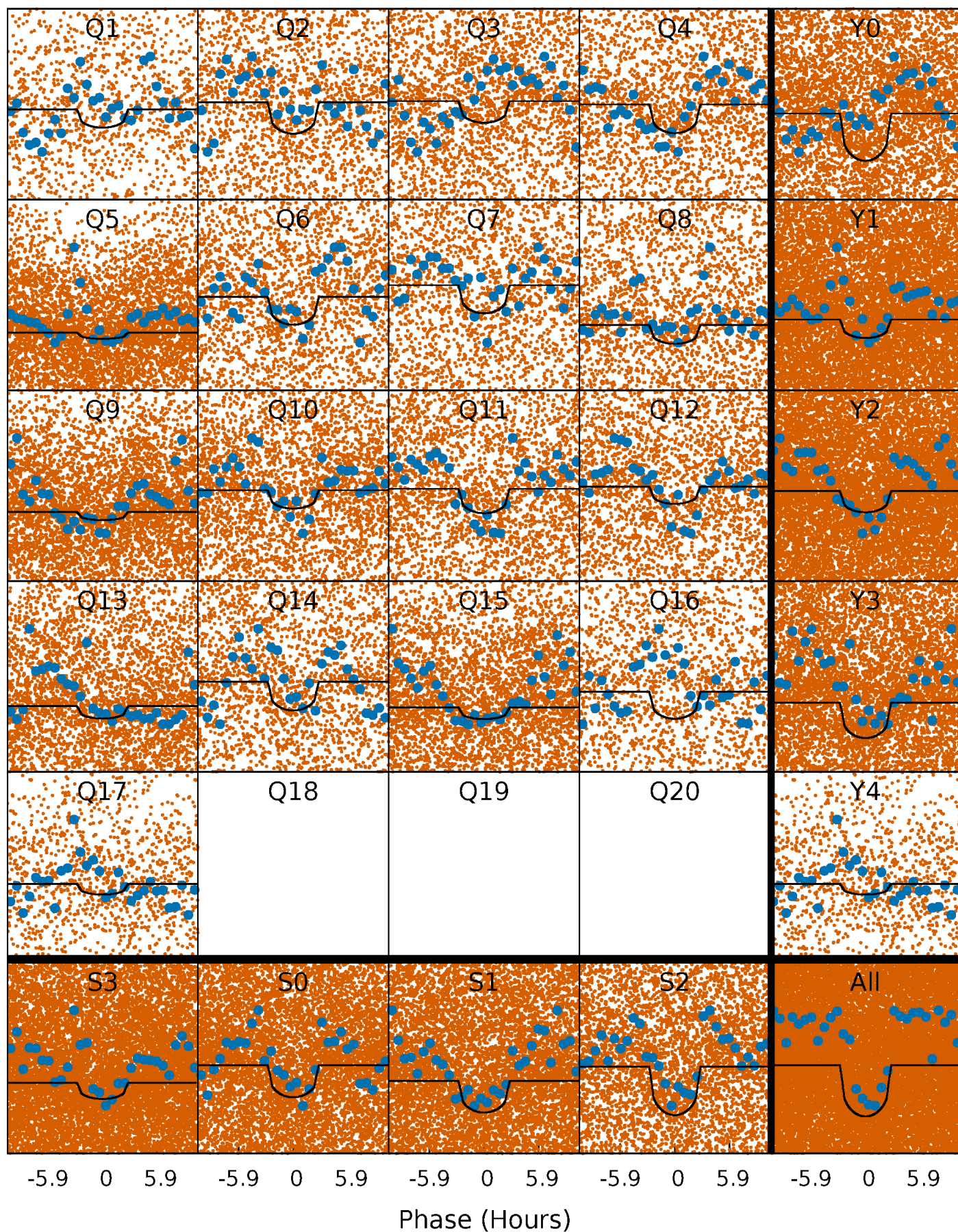
TCE 004917213-01 P= 0.742780 Days  $T_0=132.033303$  (BKJD)





# DV Quarter-Phased Transit Curves

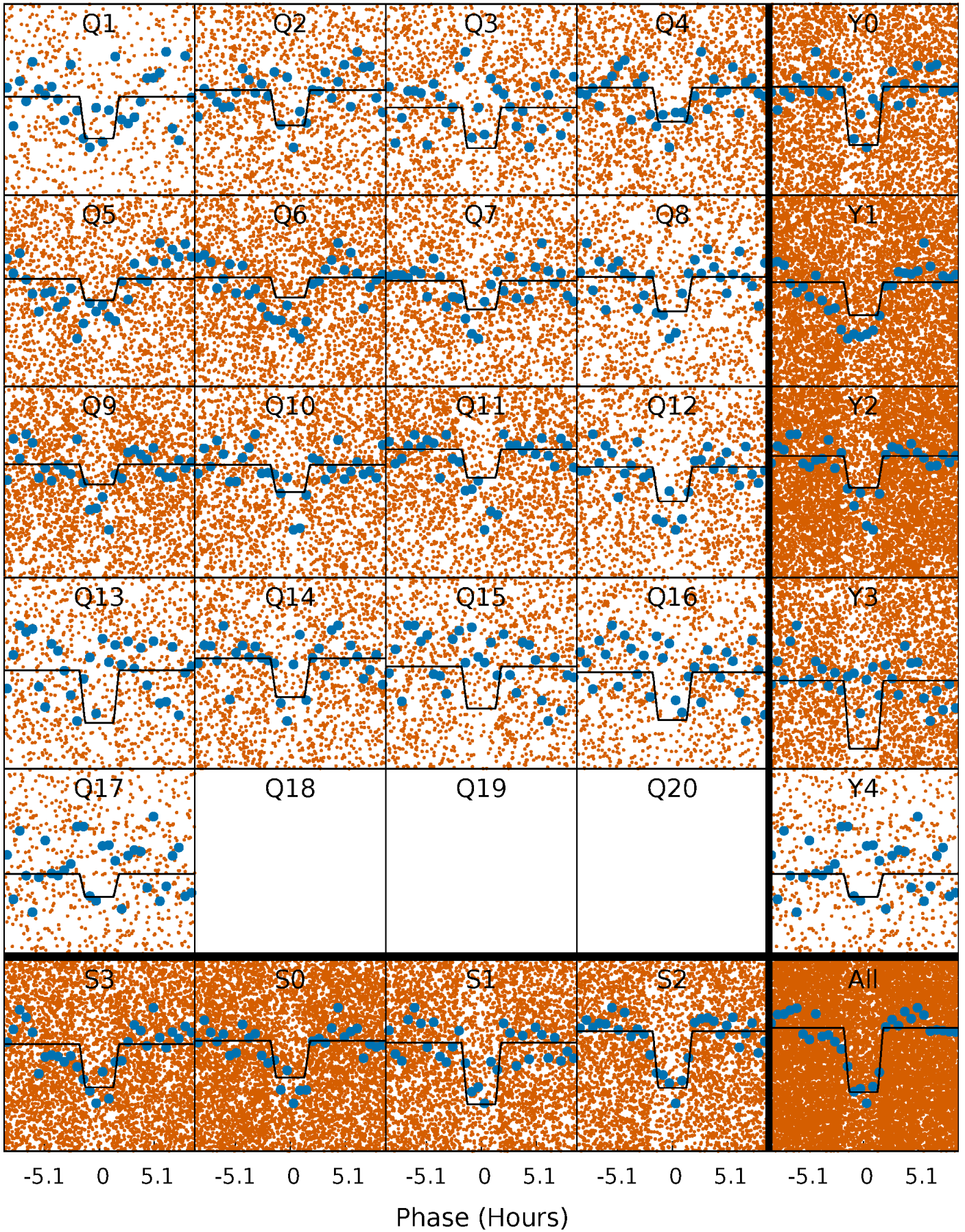
TCE 004917213-01 P= 0.742780 Days  $T_0=132.033303$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

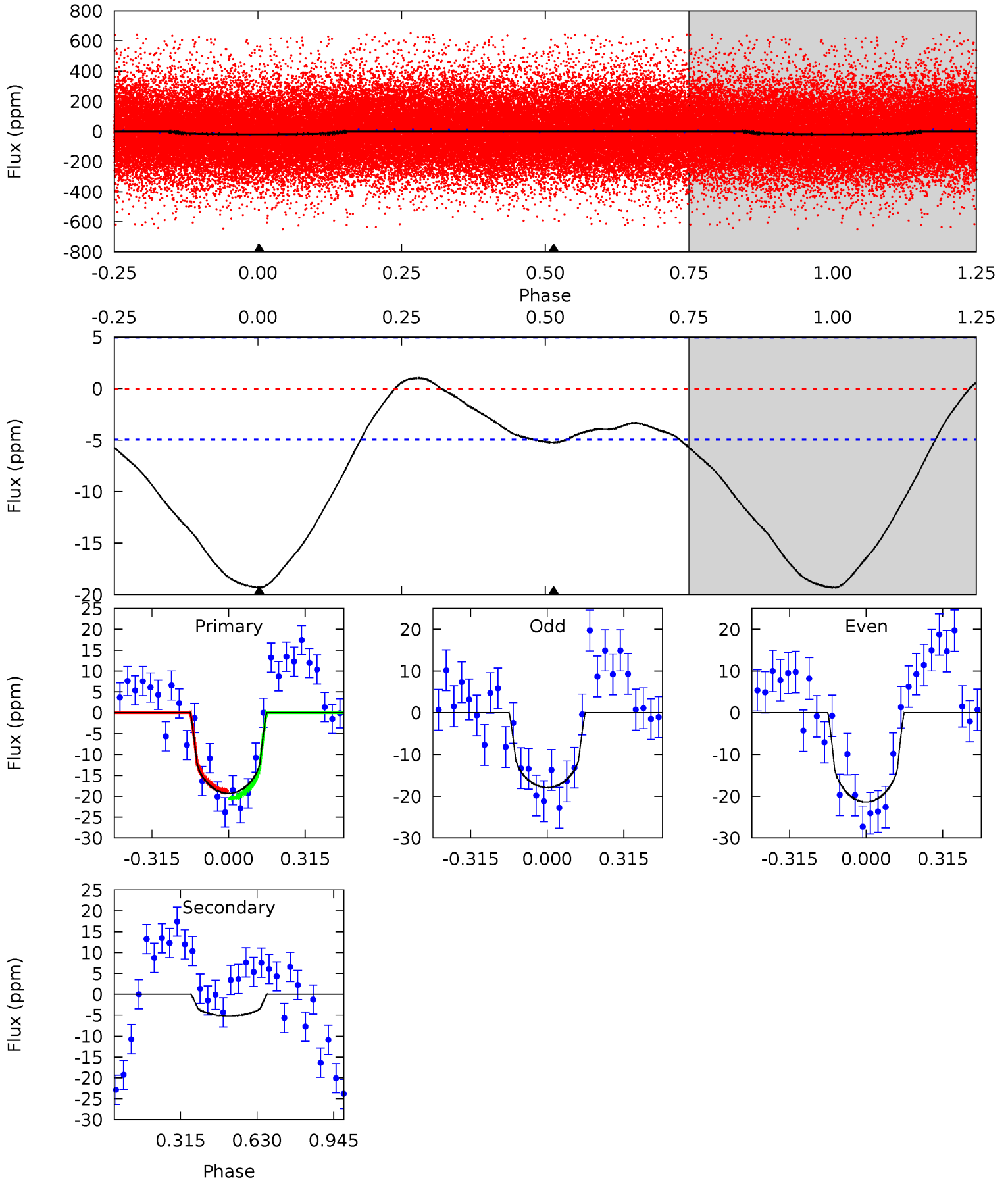
TCE 004917213-01 P= 0.742806 Days  $T_0=132.035043$  (BKJD)



# DV Model-Shift Uniqueness Test

004917213-01, P = 0.742780 Days, E = 131.290523 Days

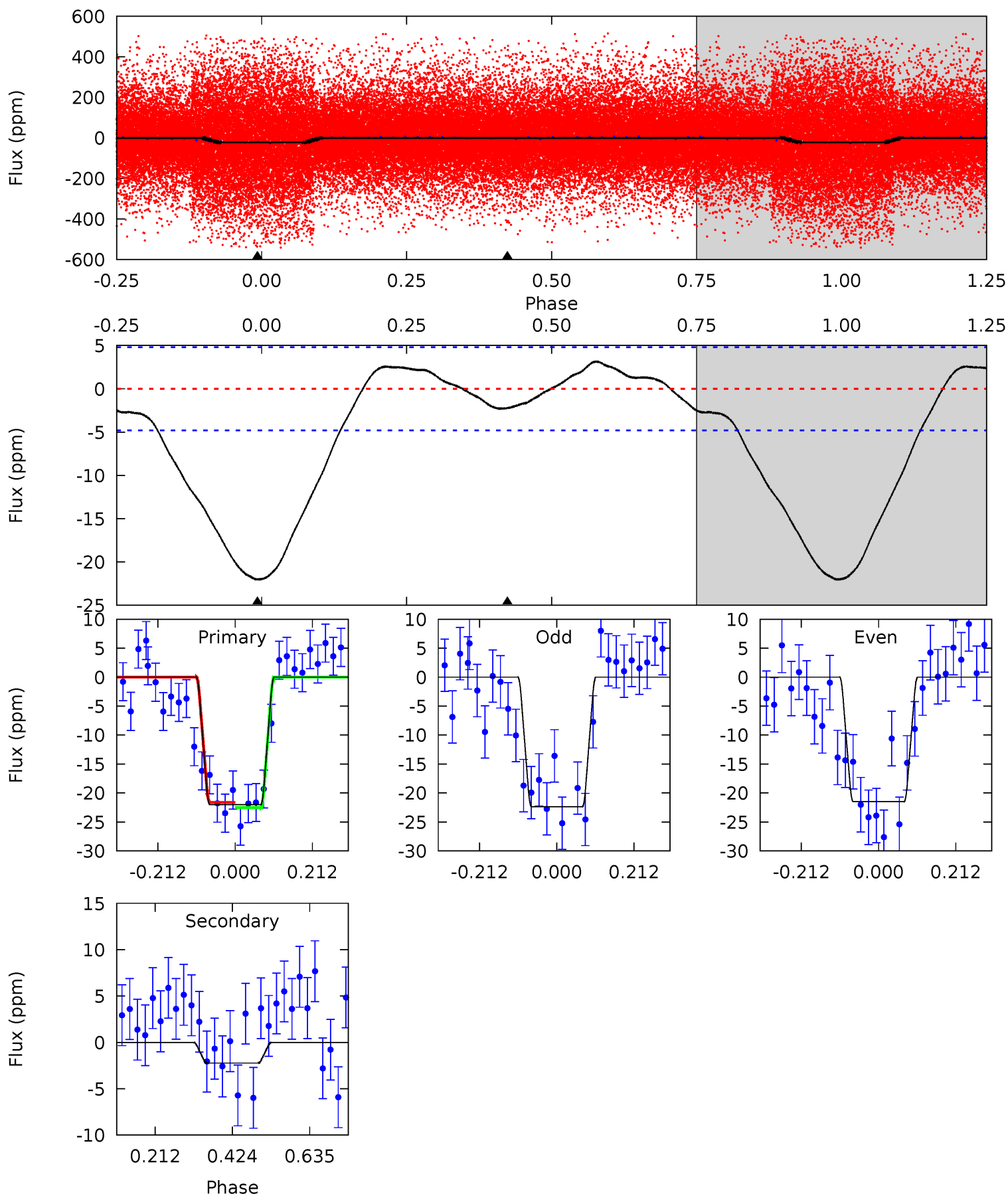
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.8	4.55	0	0	4.32	1.00	2.87	16.8	16.8	4.55	4.55	1.52	0.57	0.05	0.77



# Alt Model-Shift Uniqueness Test

004917213-01, P = 0.742806 Days, E = 131.292237 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
20.2	2.05	0	0	4.40	1.25	1.55	20.2	20.2	2.05	2.05	0.40	1.16	0.12	0.41



### Stellar Parameters For KIC 004917213

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5323^{+159}_{-143}$	$4.523^{+0.099}_{-0.081}$	$-0.460^{+0.300}_{-0.300}$	$0.765^{+0.102}_{-0.092}$	$0.711^{+0.104}_{-0.045}$	$2.239^{+0.860}_{-0.569}$
	+3%/-3%	+2%/-2%	+65%/-65%	+13%/-12%	+15%/-6%	+38%/-25%
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 004917213-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5 \pm 1$	$0.42^{+0.23}_{-0.24}$	$2393^{+107}_{-102}$	$3864^{+1429}_{-622}$	$3.520^{+12.889}_{-2.155}$
Alt.	$-2 \pm 1$	$0.41^{+0.21}_{-0.25}$	$2399^{+103}_{-110}$	$3303^{+1236}_{-704}$	$1.498^{+6.861}_{-0.983}$

$T_{max}$  = 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

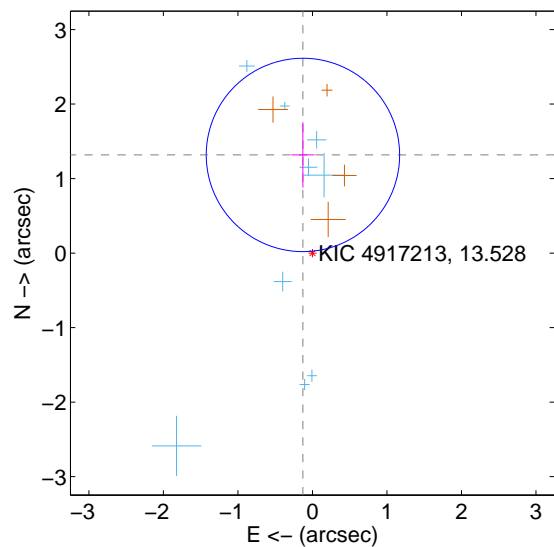
Supplemental centroid analysis for 004917213-01. Kepler magnitude: 13.53. Transit SNR 9.00

There are 9 quarters with good PRF difference image offsets

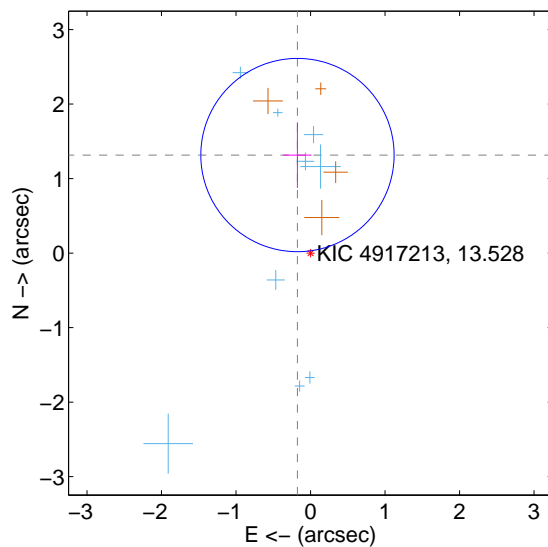
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.324 \pm 0.433$	3.06	$0.128 \pm 0.157$	$1.317 \pm 0.439$
PRF-fit source offset from KIC position	$1.327 \pm 0.432$	3.07	$0.175 \pm 0.190$	$1.316 \pm 0.441$
photometric centroid source offset	$0.60 \pm 0.70$	0.85	$-0.58 \pm 0.70$	$0.16 \pm 0.69$

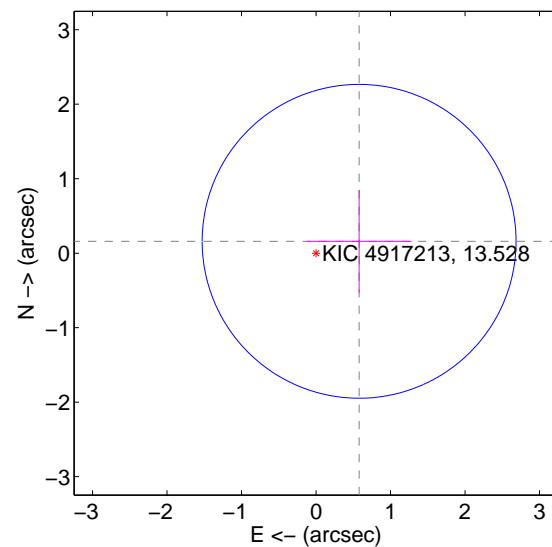
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

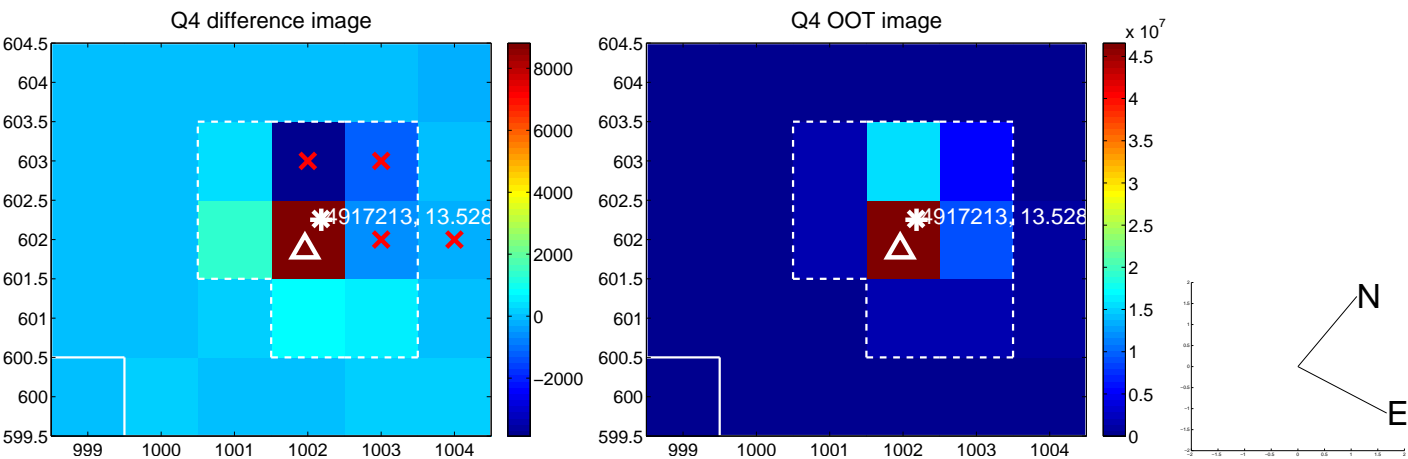
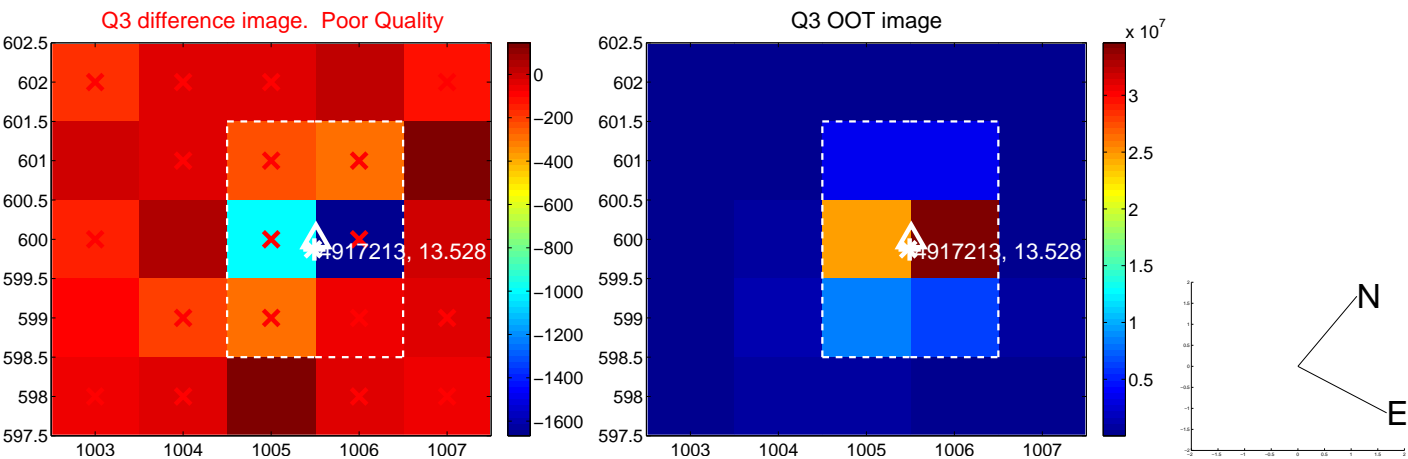
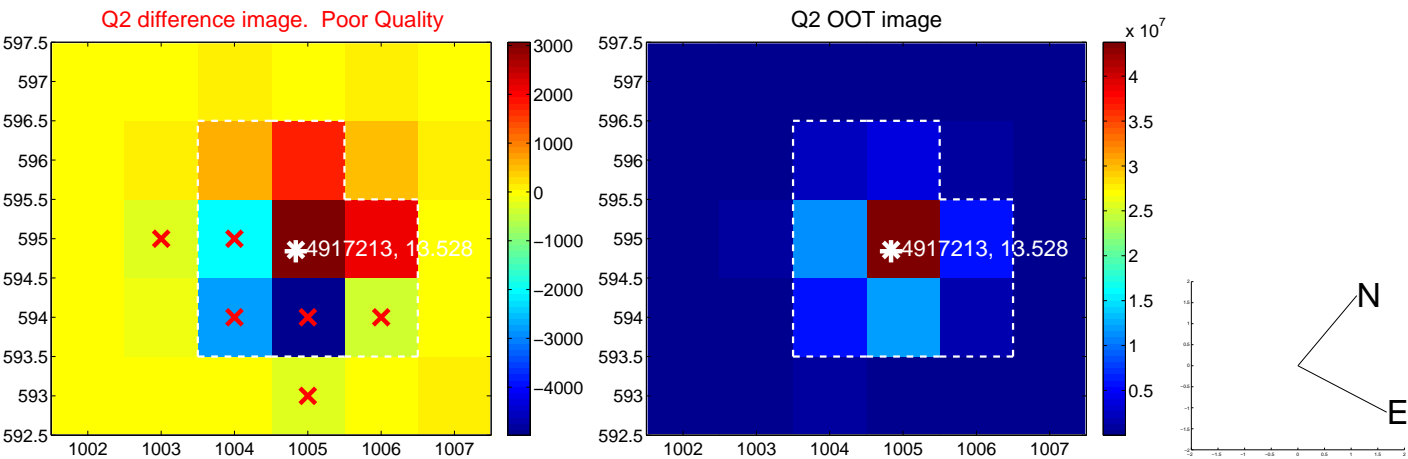
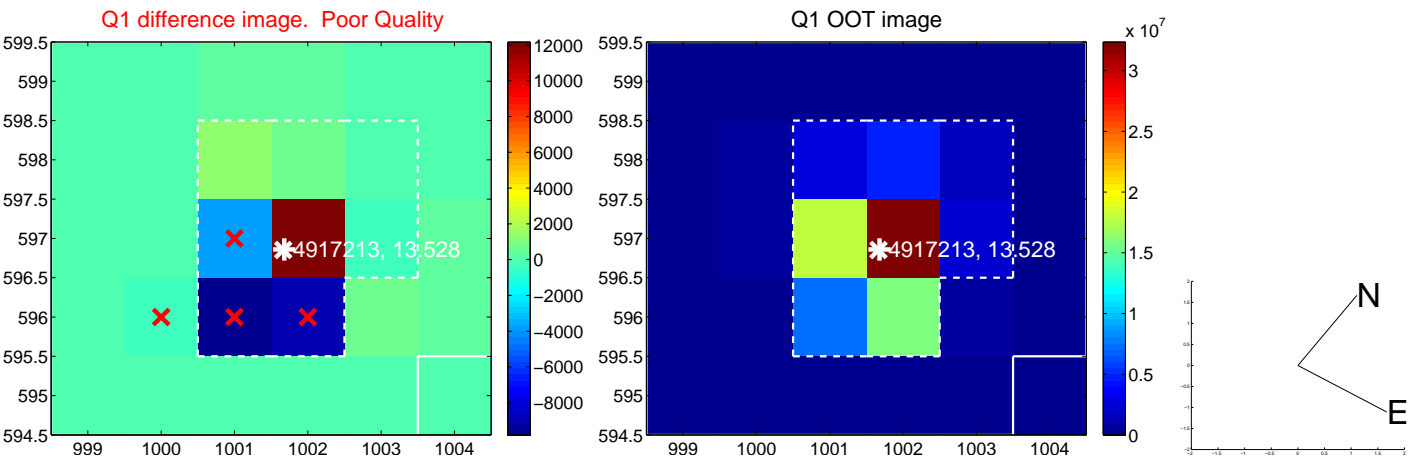


offset from photometric centroids

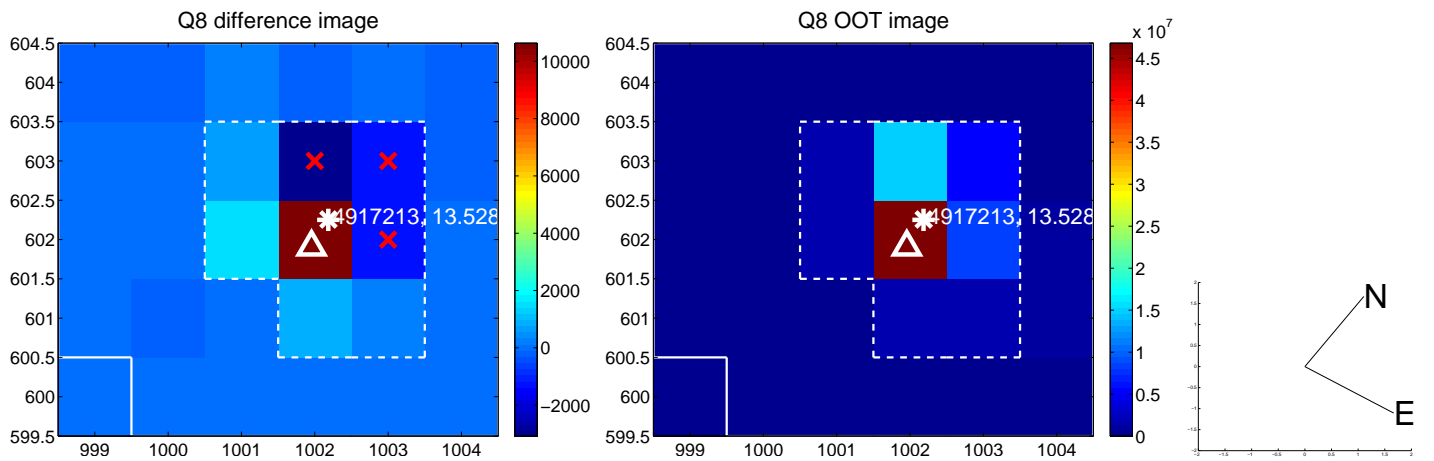
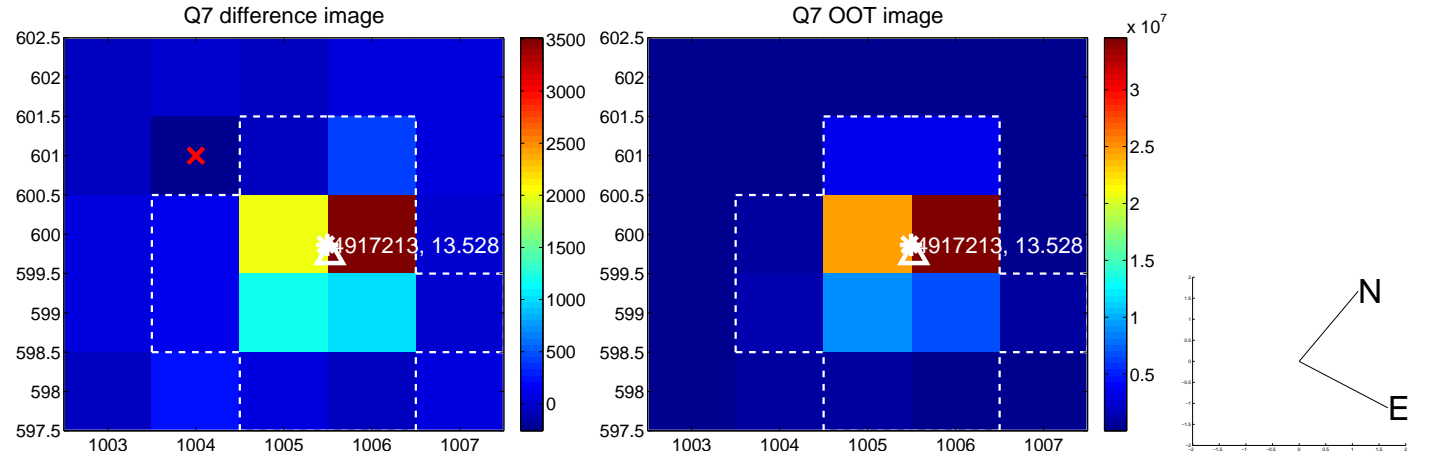
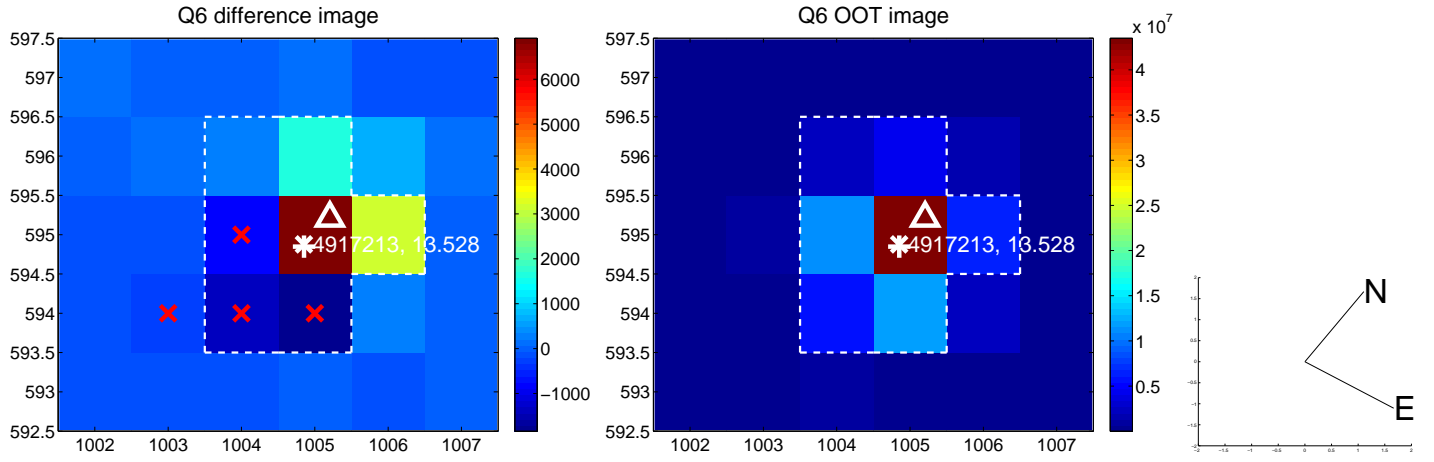
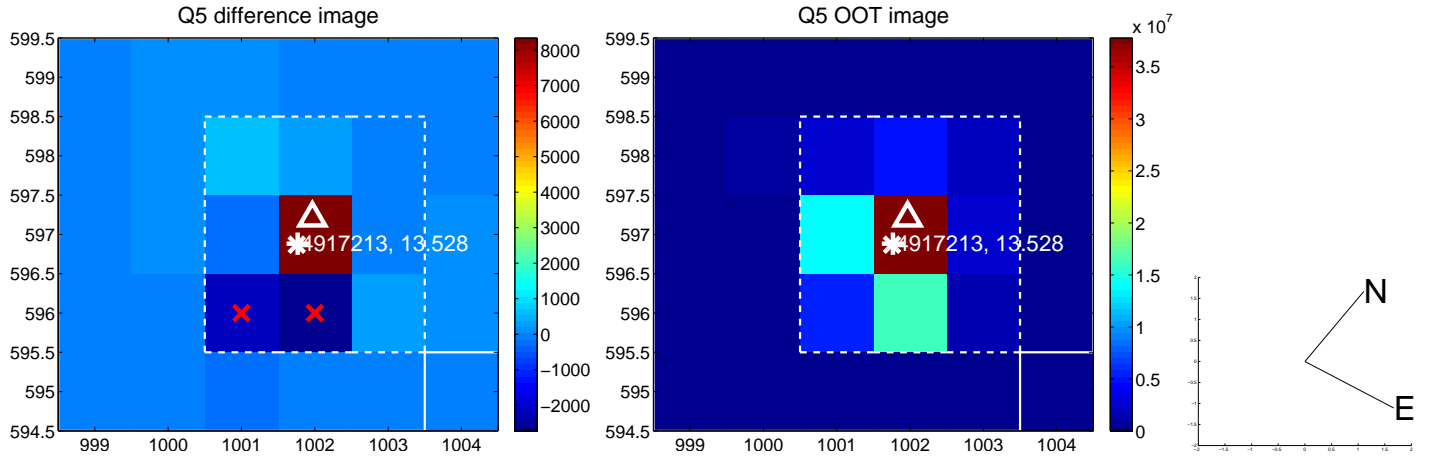


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

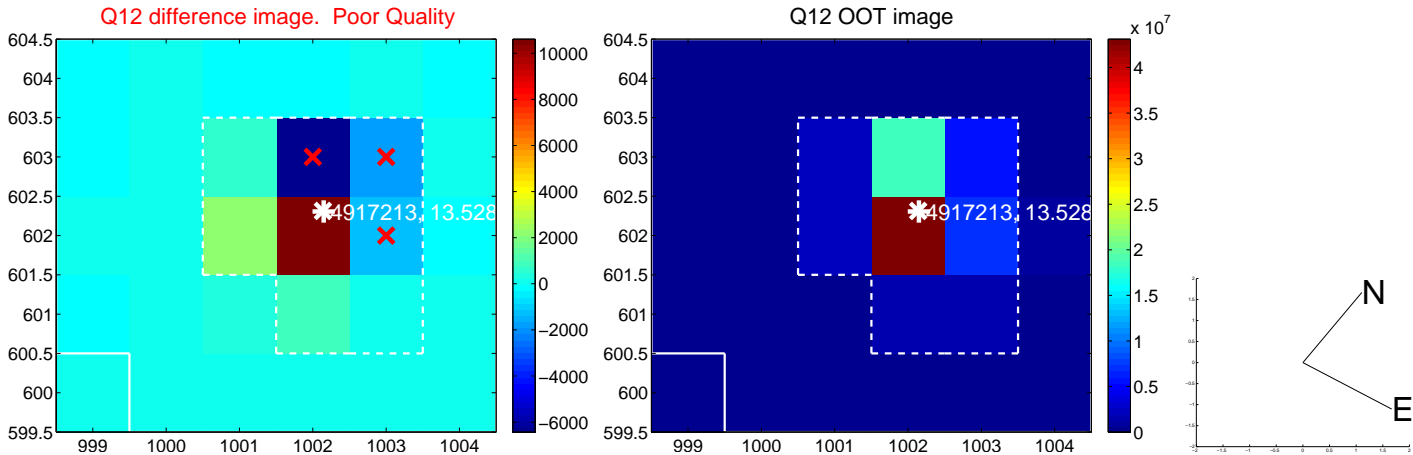
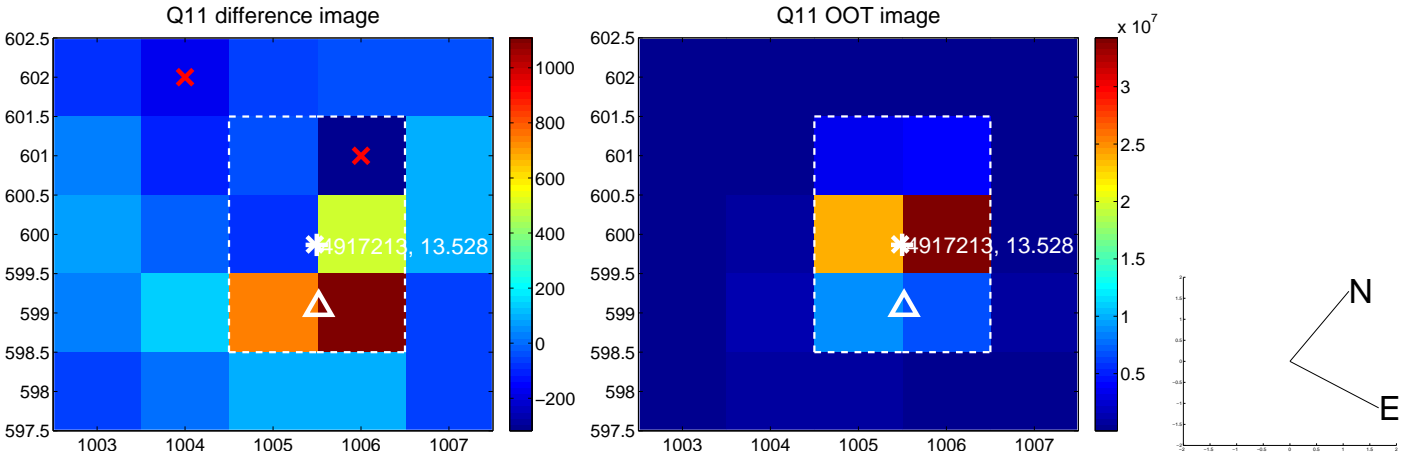
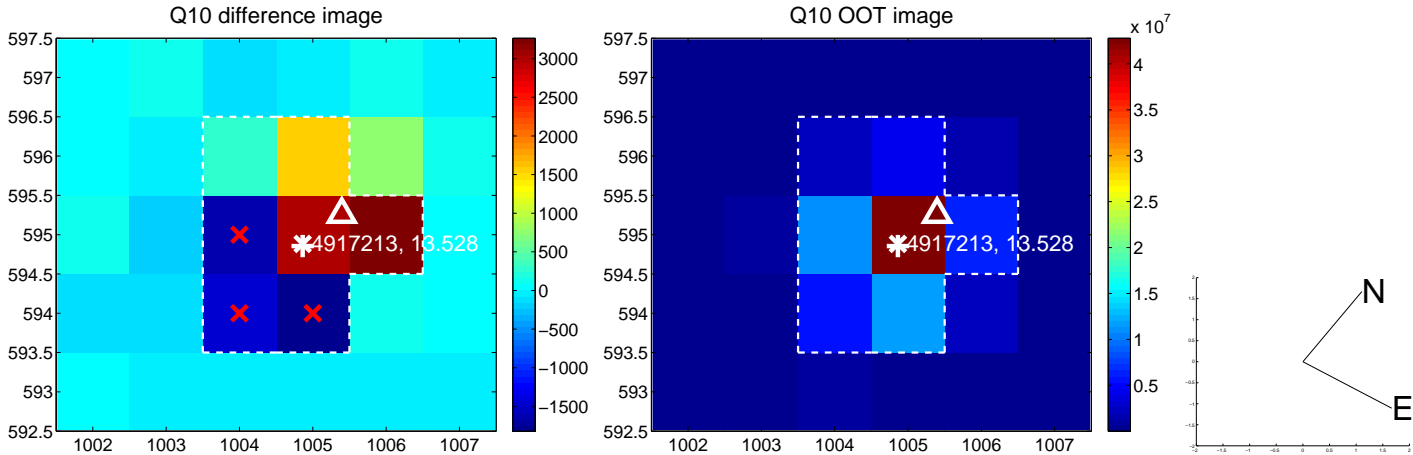
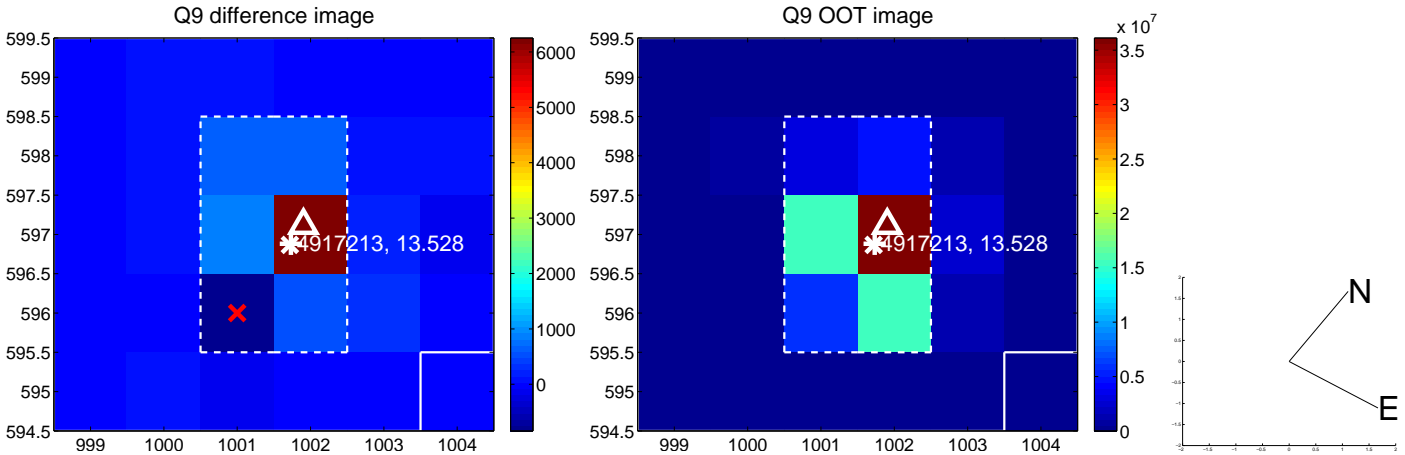
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



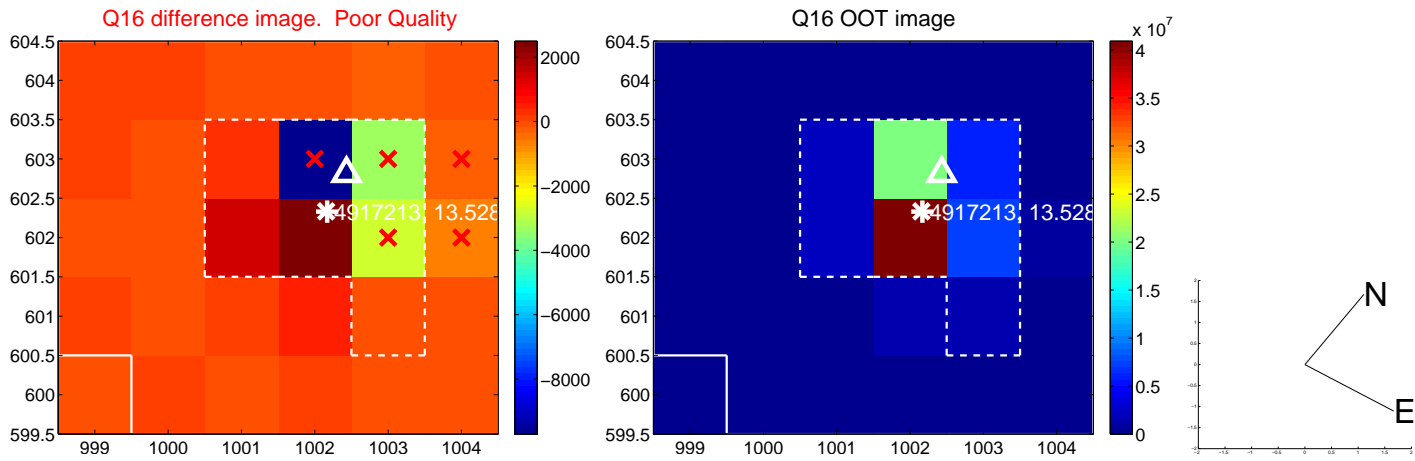
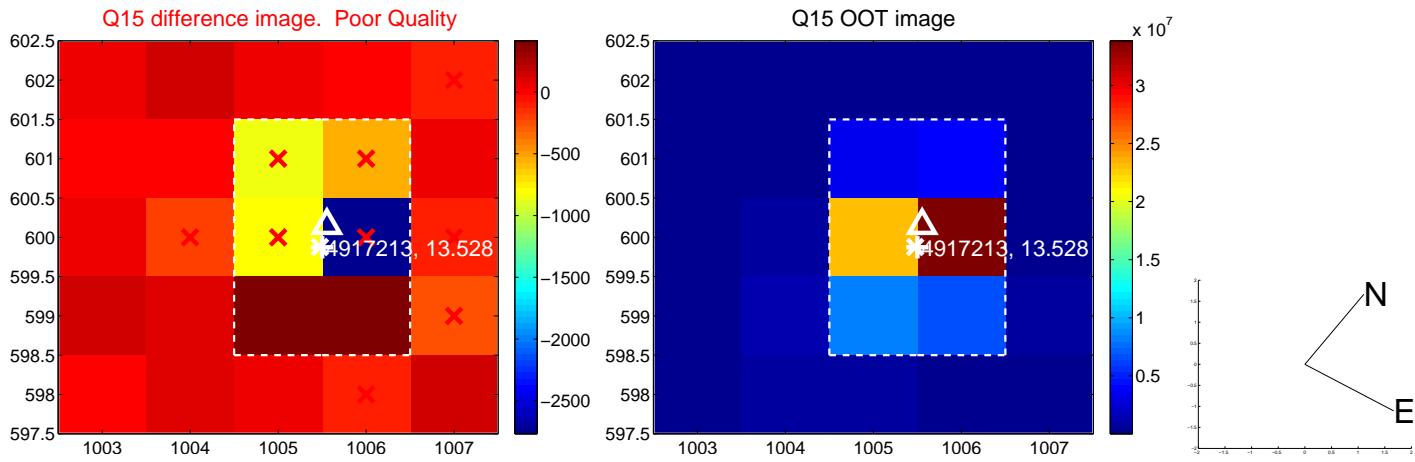
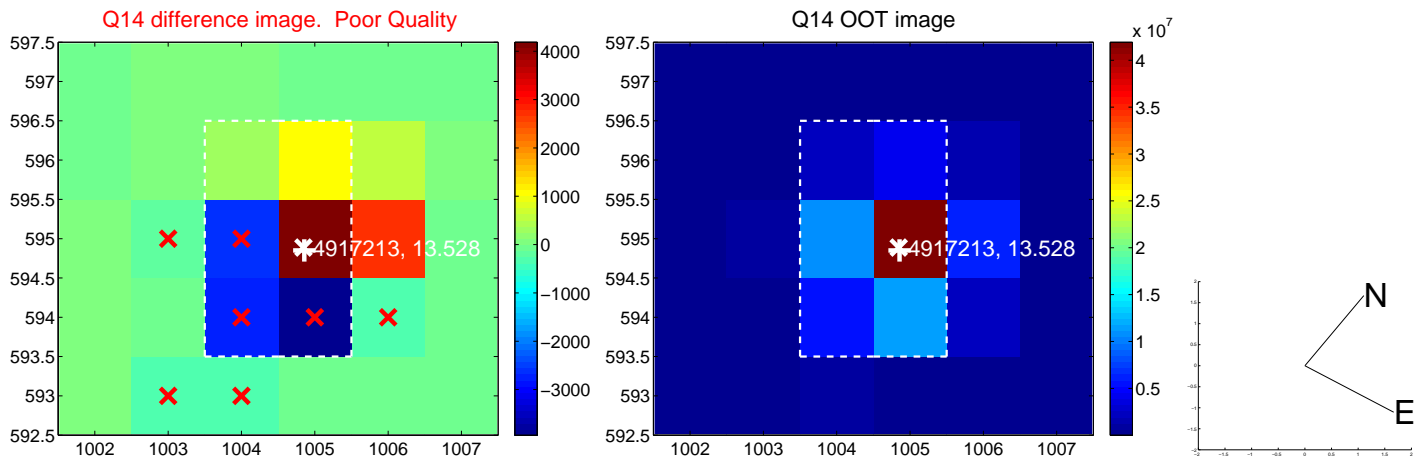
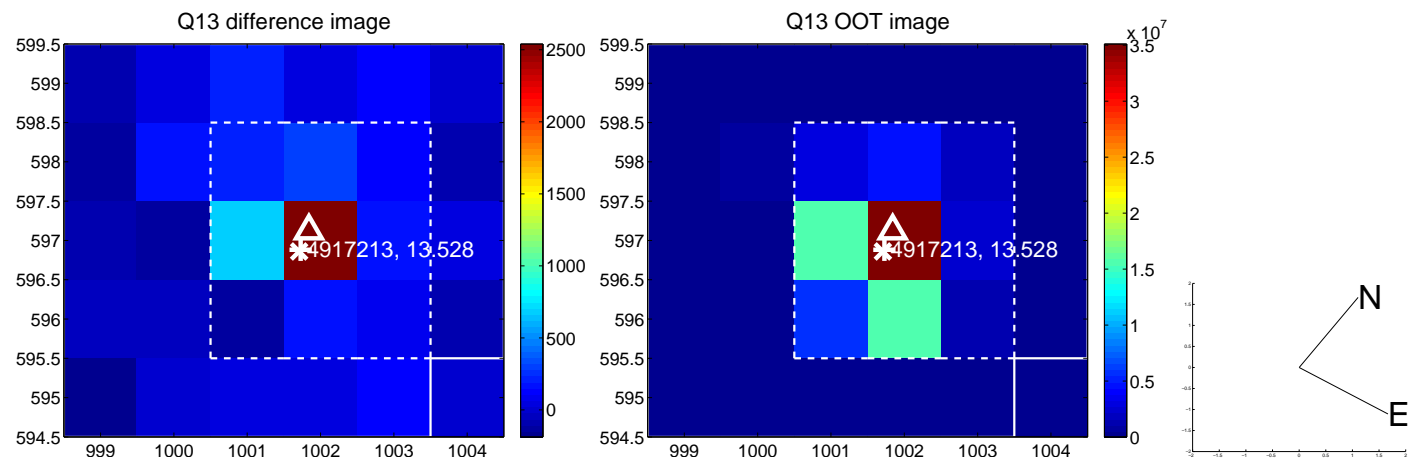
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white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

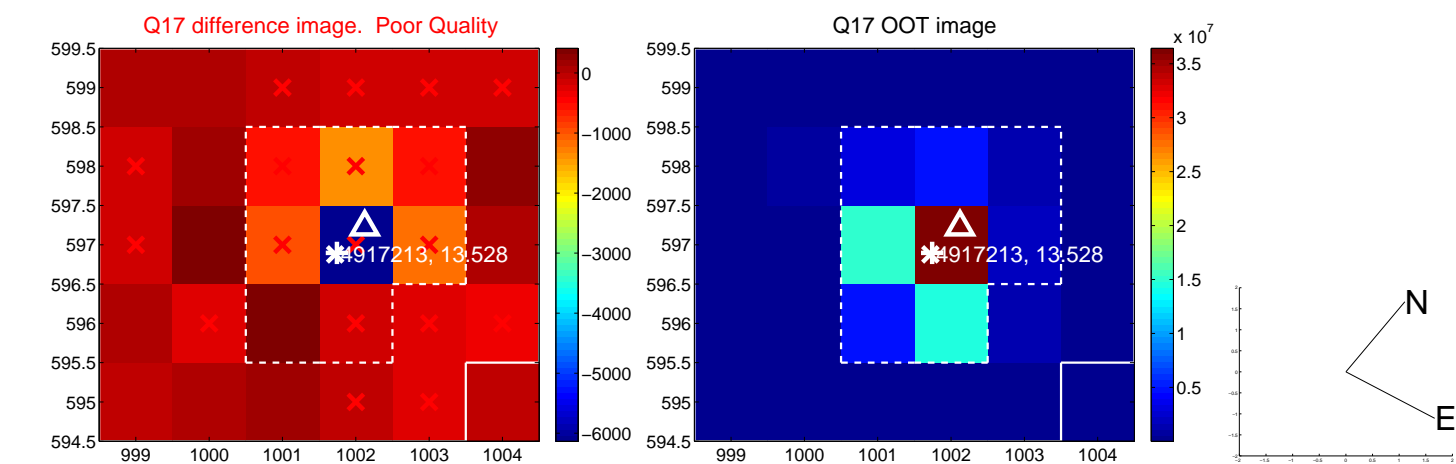


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

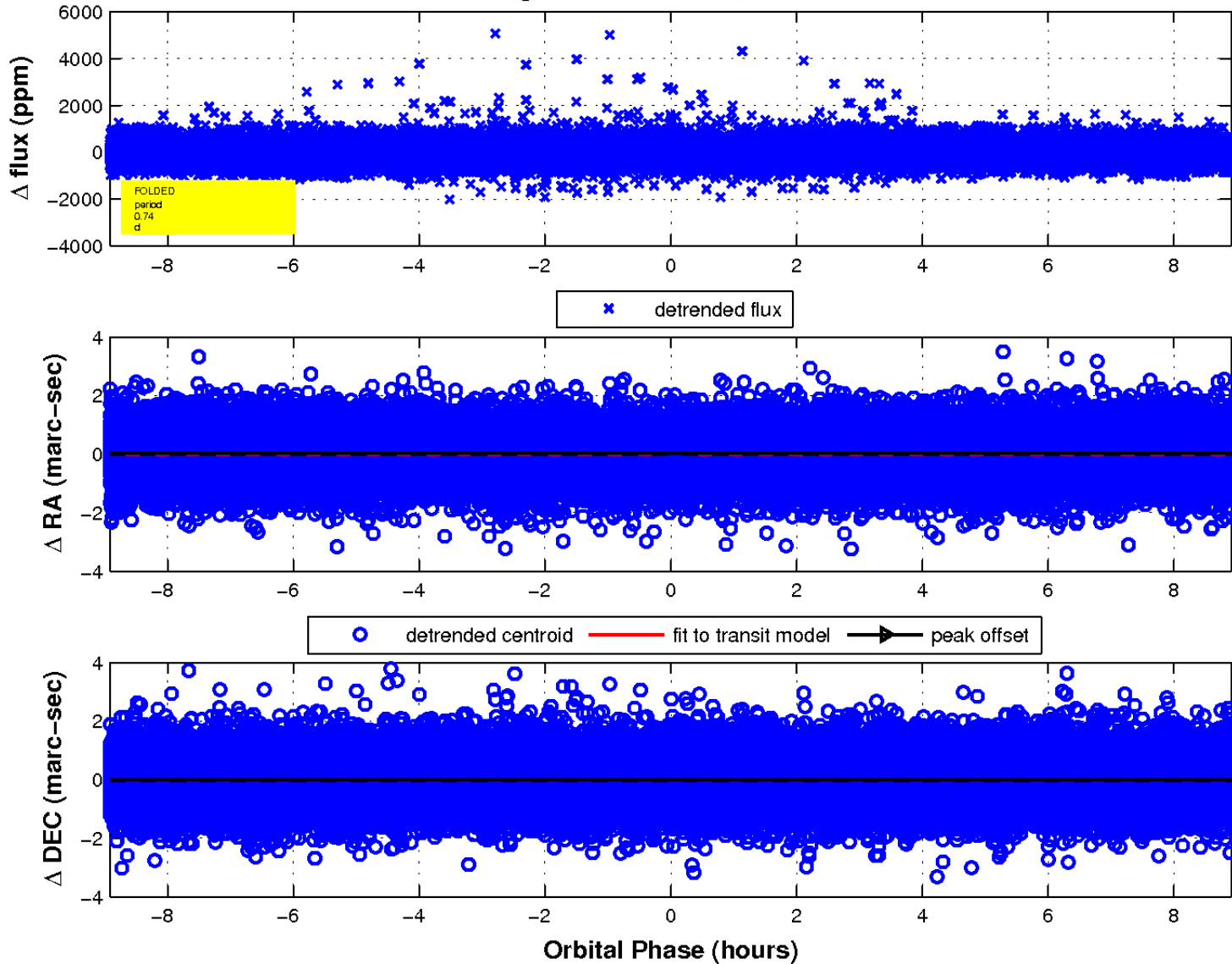




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

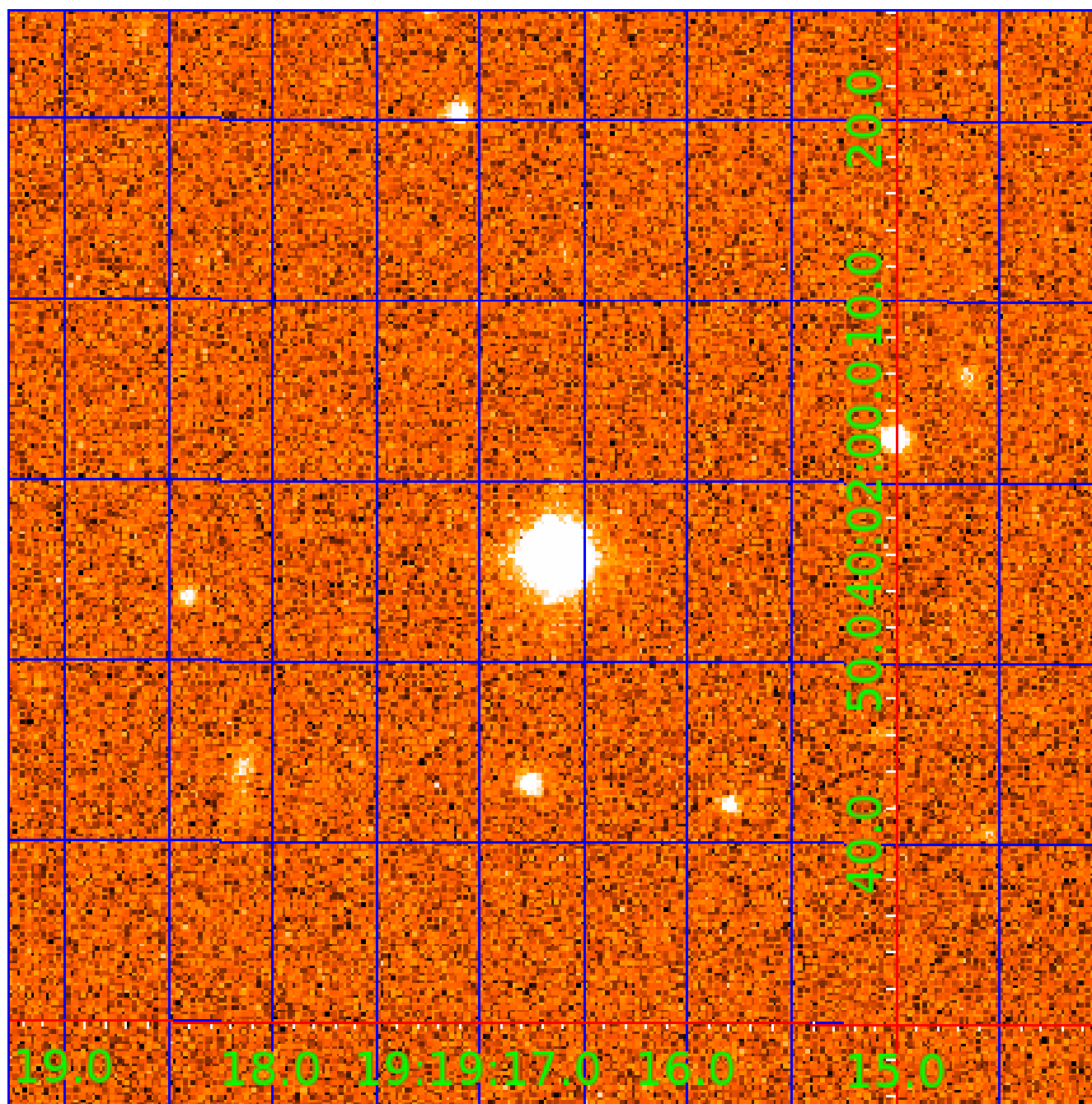


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



# KIC 004917213

## 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
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004917213-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
004917213-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

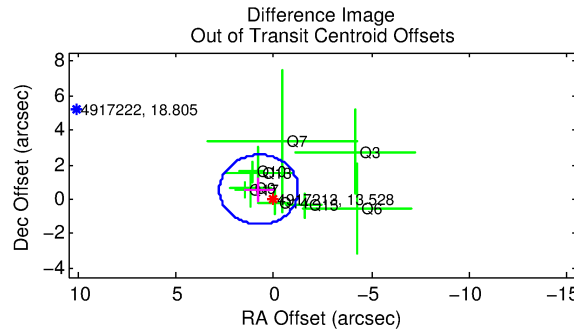
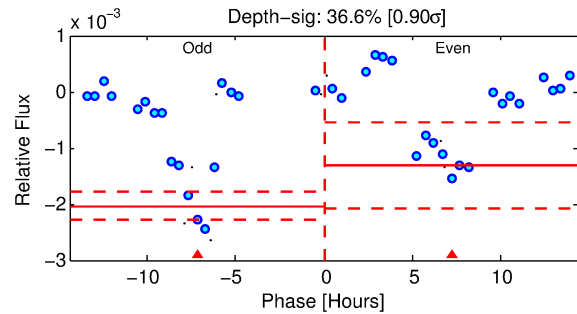
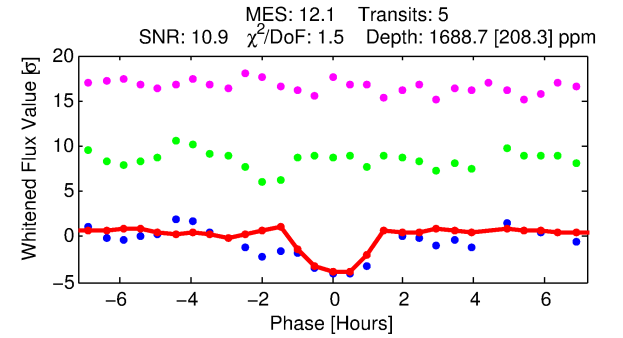
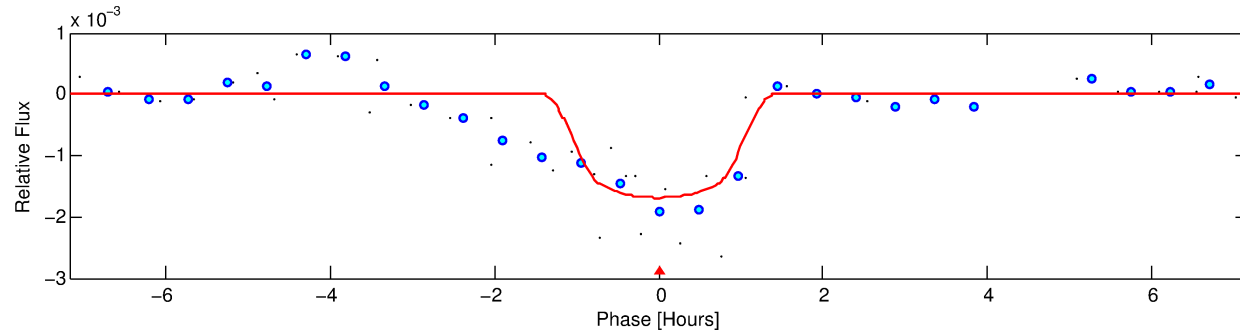
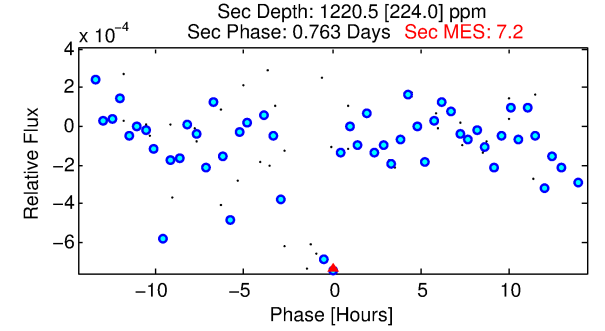
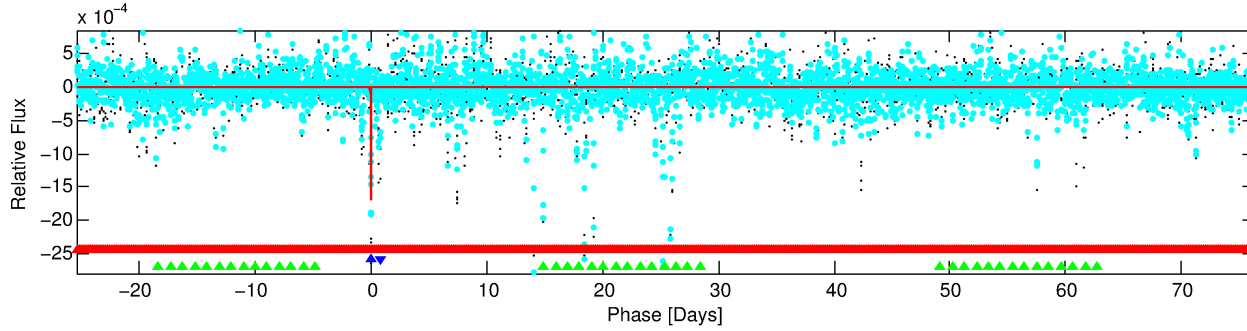
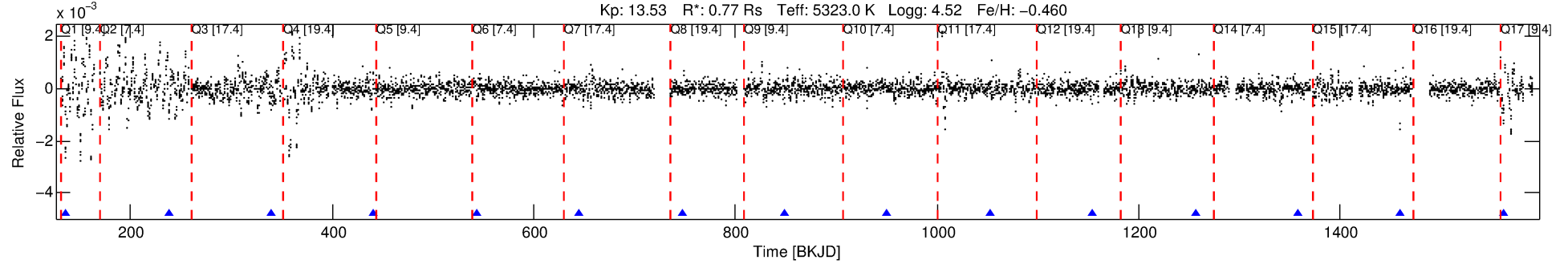
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004917213-02

No Significant Match Found

# DV One-Page Summary

KIC: 4917213 Candidate: 2 of 3 Period: 101.816 d



## DV Fit Results:

Period = 101.81625 [0.00086] d  
Epoch = 136.1198 [0.0072] BKJD  
Rp/R\* = 0.0412 [0.0507]  
a/R\* = 232.13 [1151.56]  
b = 0.76 [2.86]  
Seff = 2.90 [0.62]  
Teq = 333 [18] K  
Rp = 3.44 [4.26] Re  
a = 0.3811 [0.0446] AU  
Ag = 8262.29 [20458.60] [0.40σ]  
Teffp = 4904 [3032] K [1.51σ]

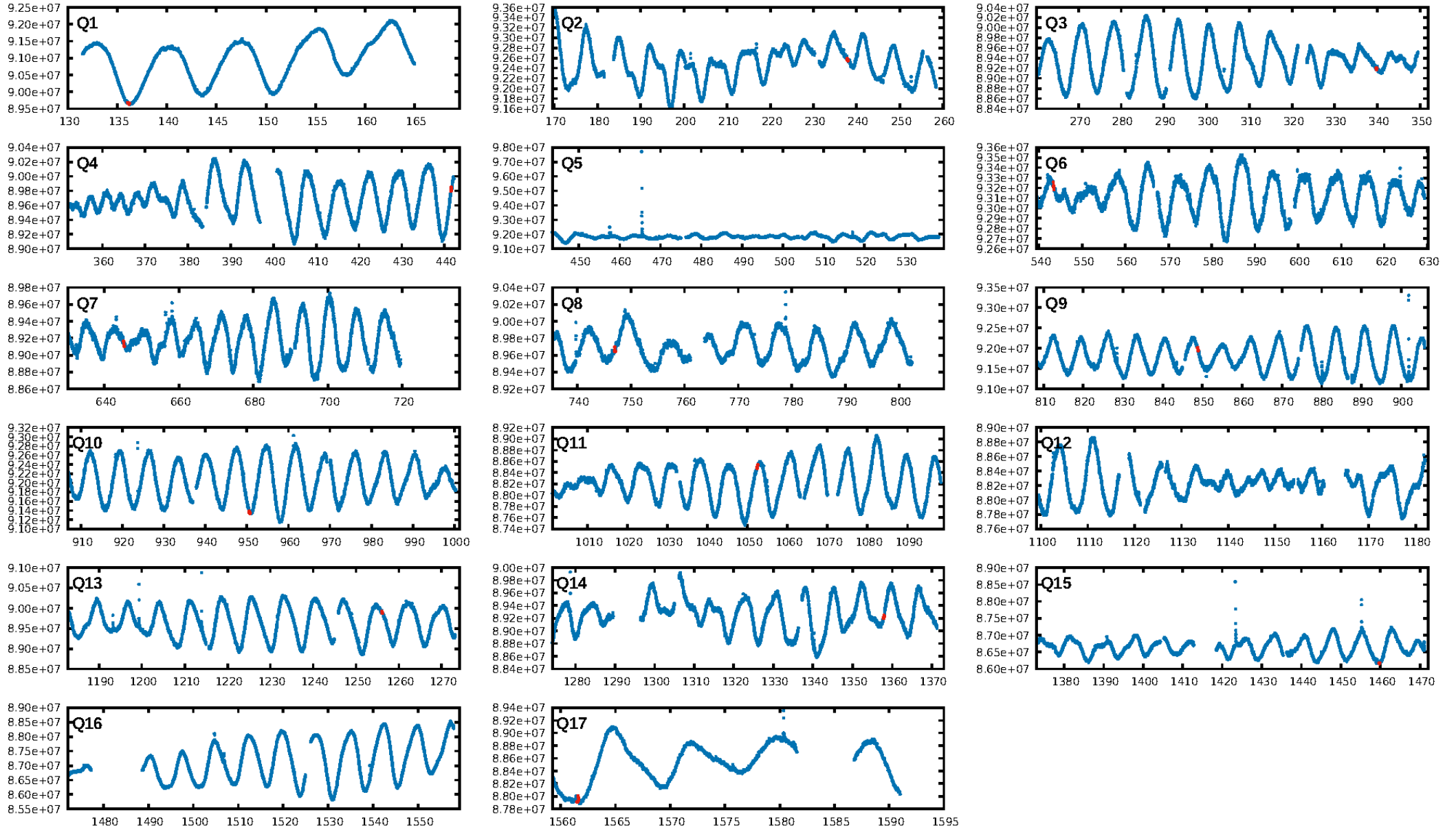
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [568.51σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.0%  
ModelChiSquareGof-sig: 98.7%  
Bootstrap-pfa: 2.40e-24  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: -1.305**  
Centroid-sig: 0.0%  
Centroid-so: 0.541 arcsec [3.50σ]  
OotOffset-rm: 0.943 arcsec [1.40σ]  
KicOffset-rm: 1.016 arcsec [1.51σ]  
OotOffset-st: 3/3/0/3 [9]  
KicOffset-st: 3/3/0/3 [9]  
DiffImageQuality-fgm: 0.44 [4/9]  
DiffImageOverlap-fno: 0.00 [0/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:48:22 Z

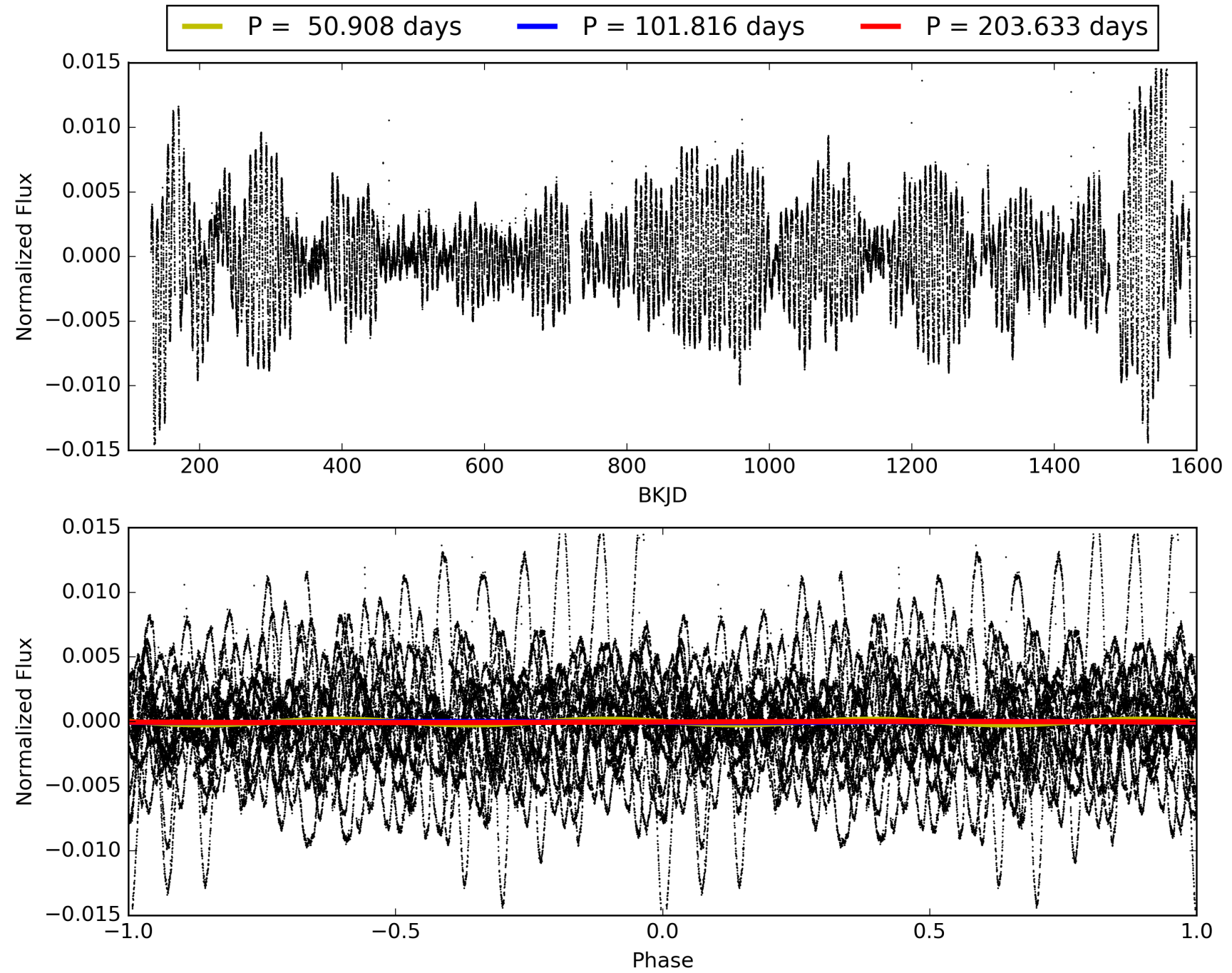
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004917213-02, PDC Light Curves



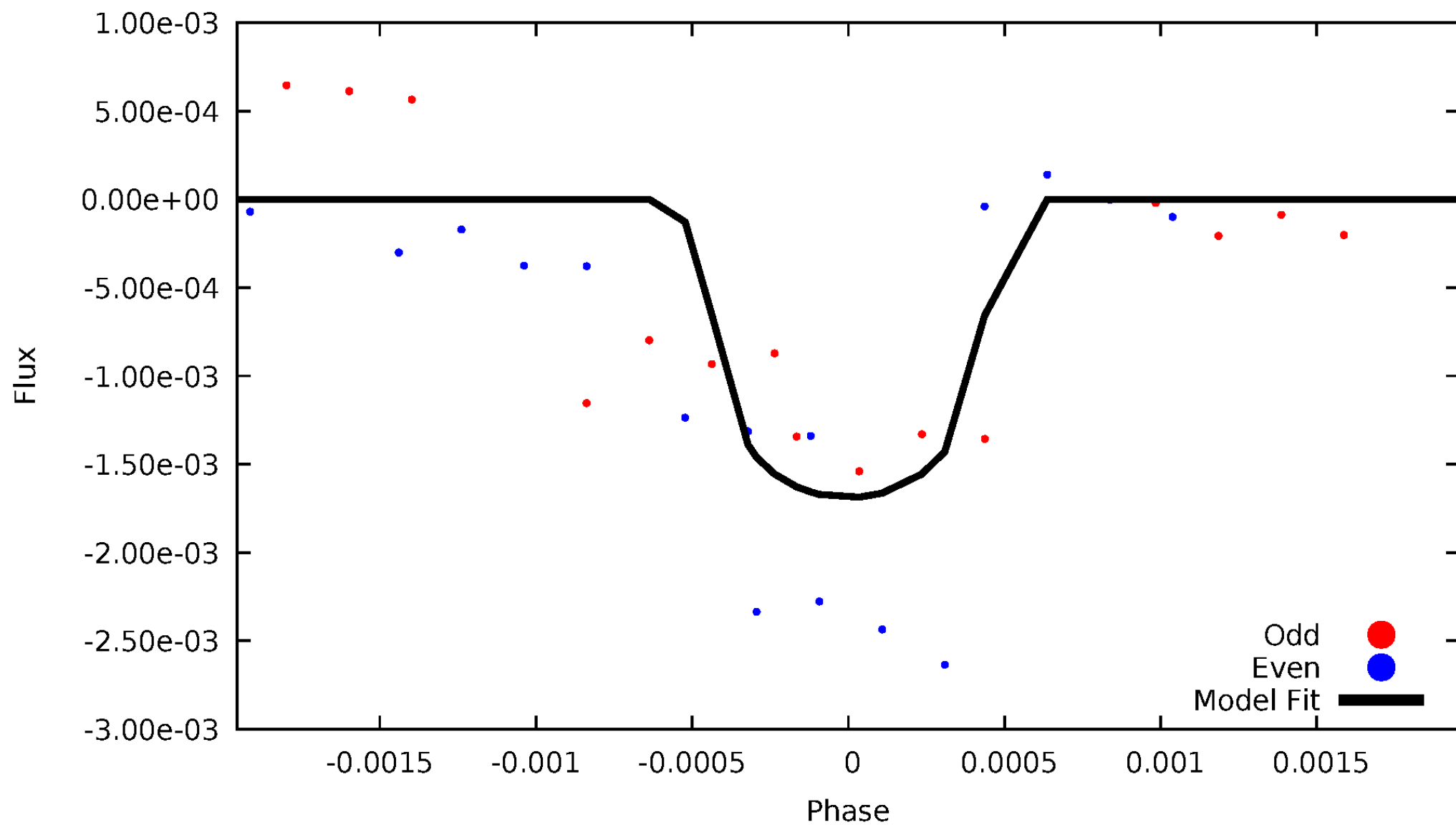


TCE 004917213-02



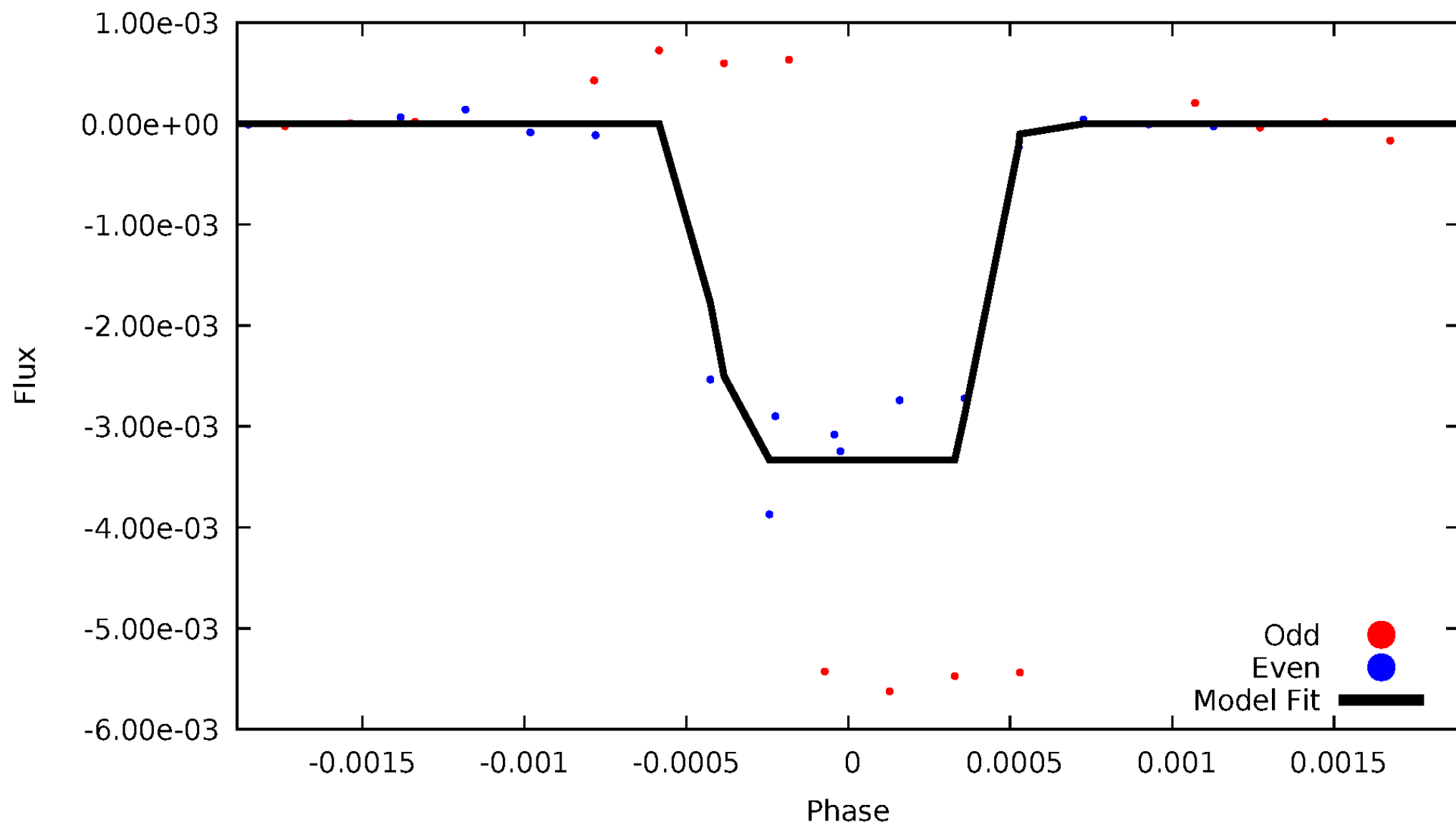
# DV Odd/Even

TCE 004917213-02



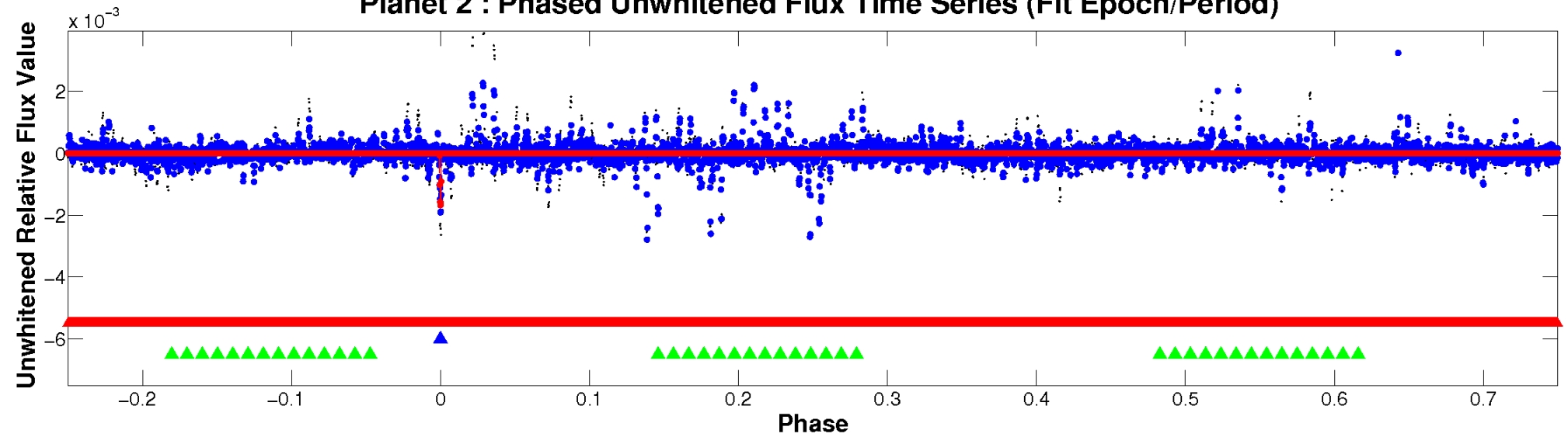
# ALT Odd/Even

TCE 004917213-02

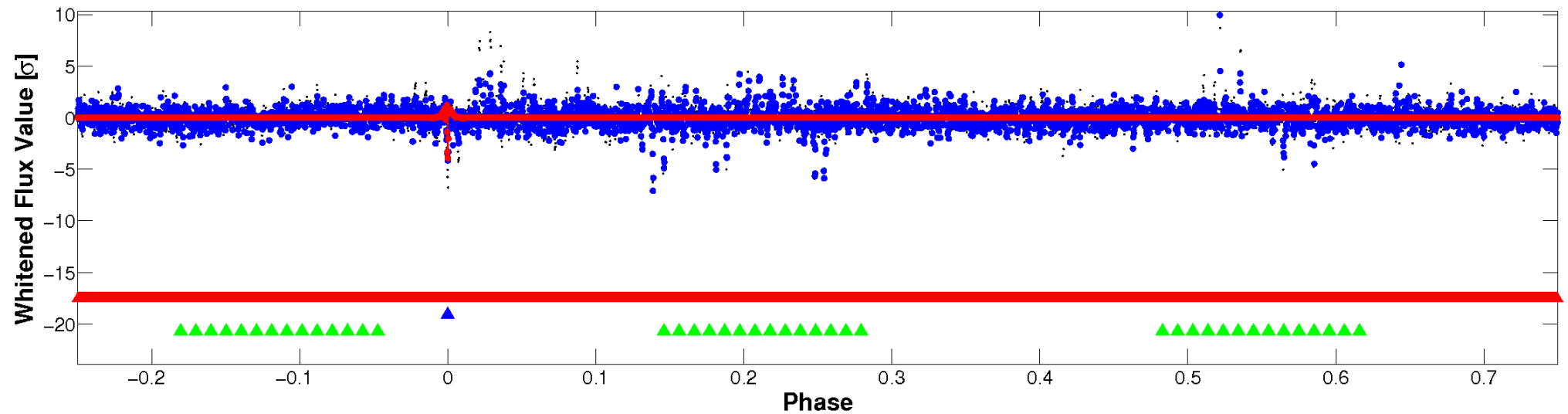


# Non-Whitened Vs. Whitened Light Curve

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

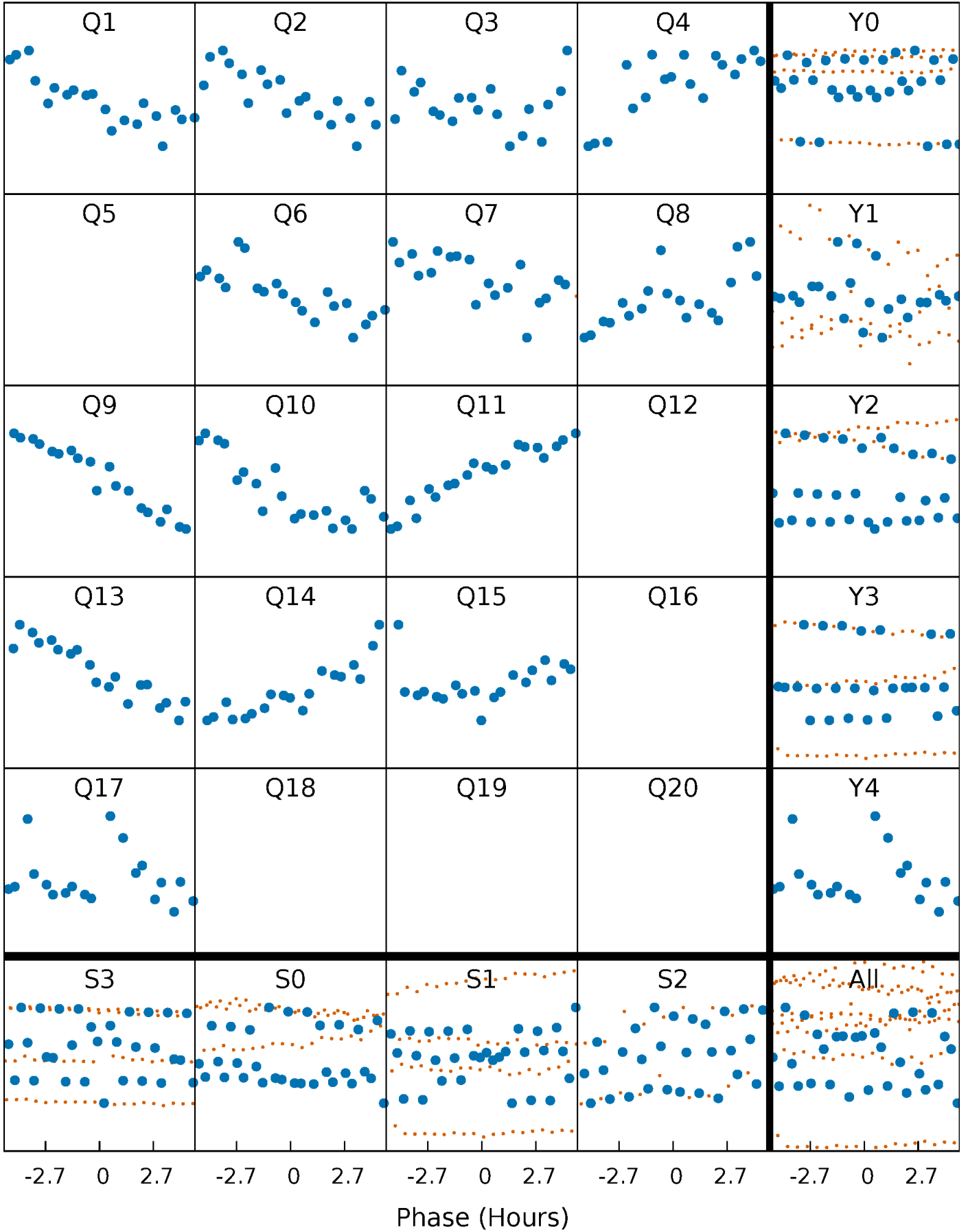


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

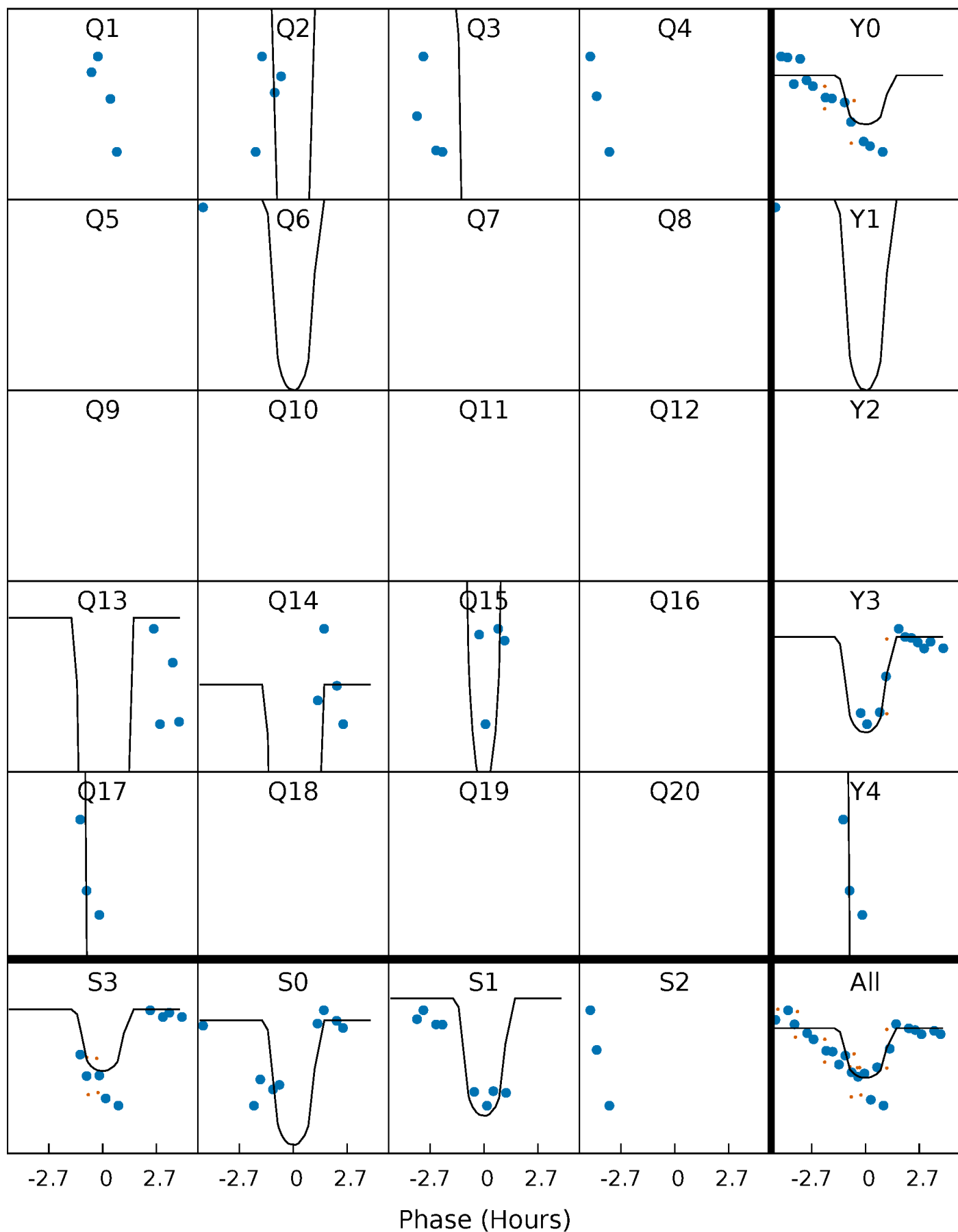
TCE 004917213-02     $P=101.816250$  Days     $T_0=136.119837$  (BKJD)





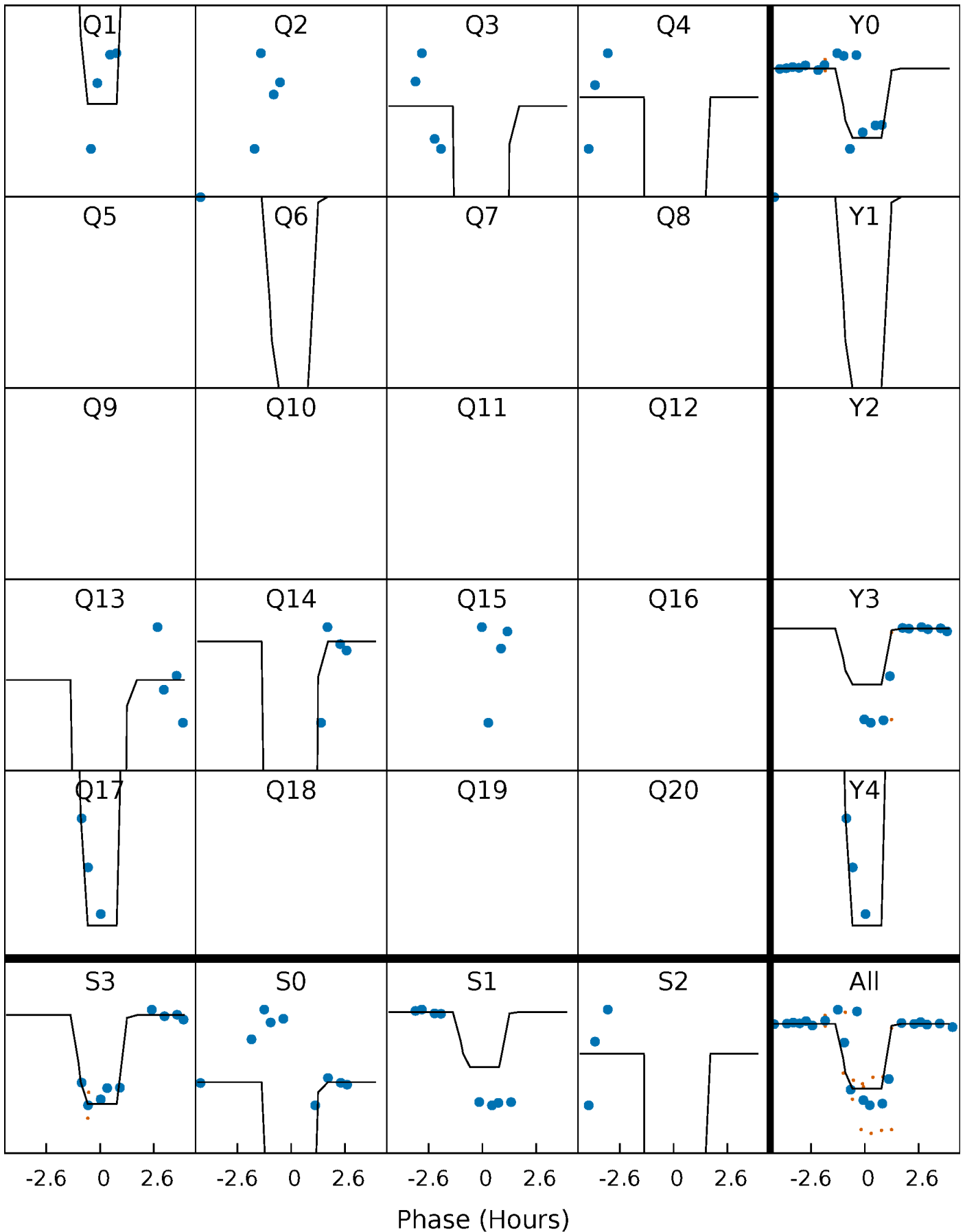
# DV Quarter-Phased Transit Curves

TCE 004917213-02 P=101.816250 Days  $T_0=136.119837$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

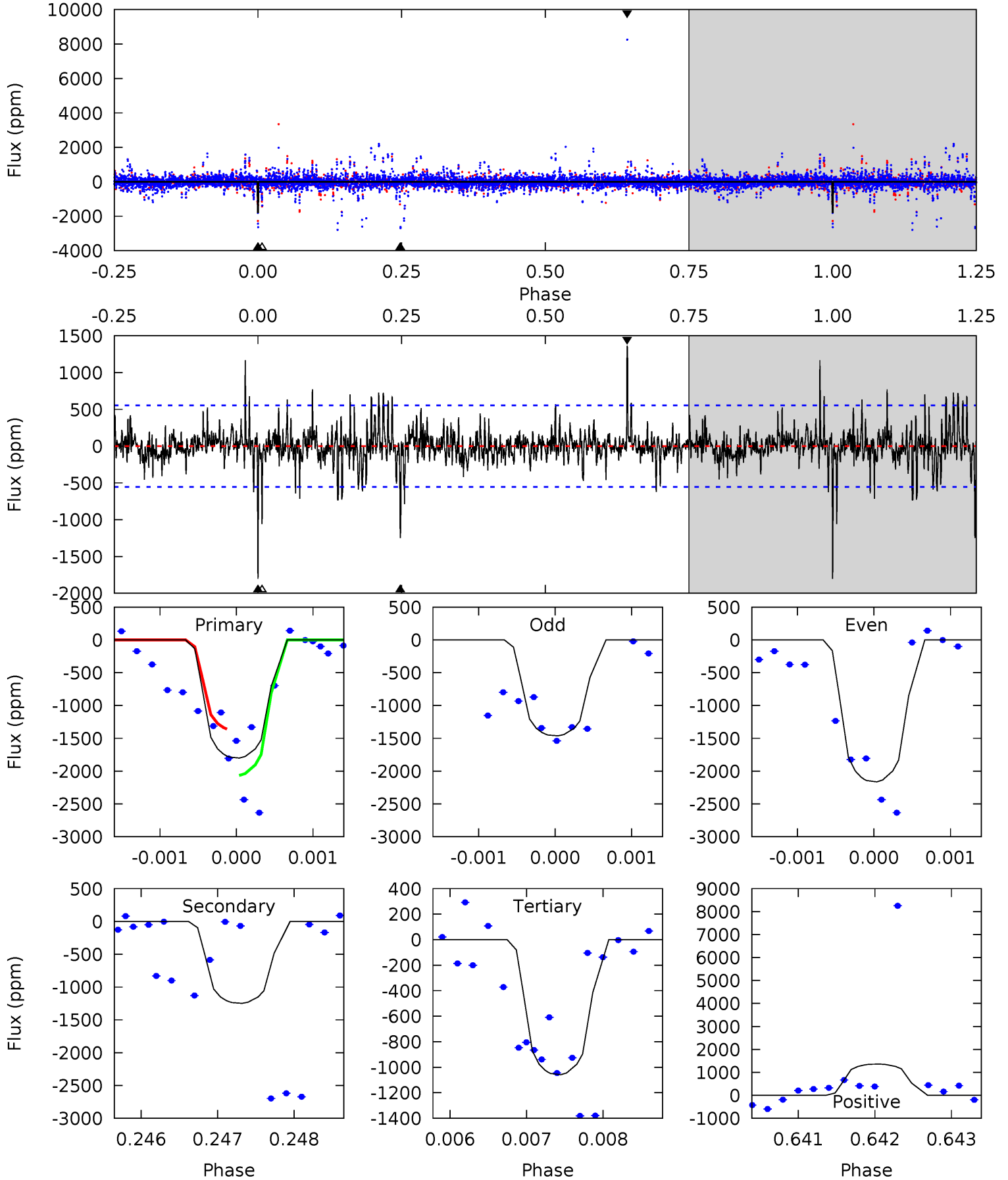
TCE 004917213-02 P=101.815916 Days  $T_0=136.114745$  (BKJD)



# DV Model-Shift Uniqueness Test

004917213-02, P = 101.816250 Days, E = 34.303587 Days

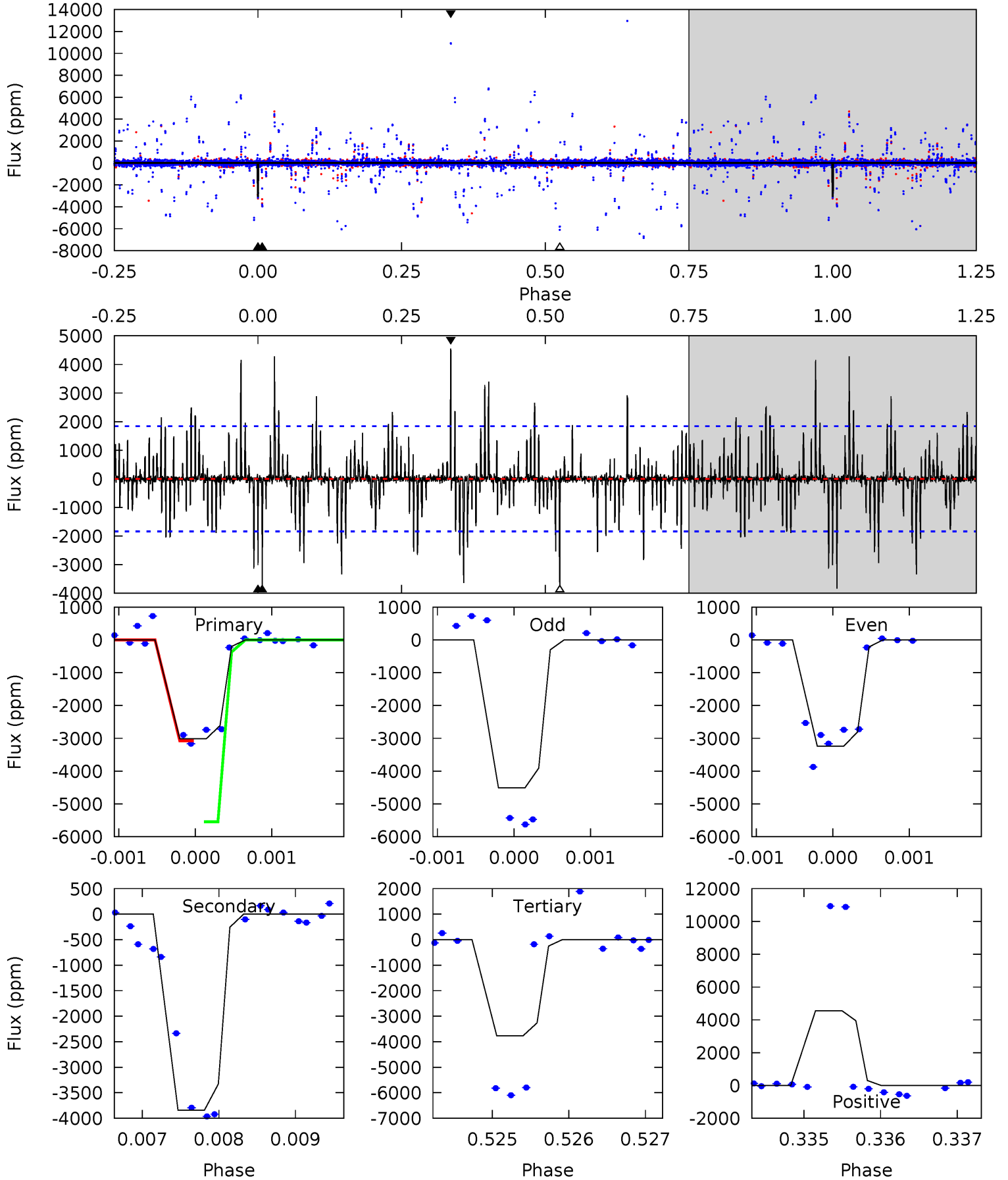
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	12.3	10.4	13.4	5.46	3.30	1.84	7.32	4.33	1.87	-1.13	2.99	1.11	0.43	0



# Alt Model-Shift Uniqueness Test

004917213-02, P = 101.815916 Days, E = 34.298829 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
8.92	11.3	11.1	13.5	5.43	3.26	1.60	-2.21	-4.55	0.22	-2.12	1.48	0.87	0.54	3.71



### Stellar Parameters For KIC 004917213

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5323^{+159}_{-143}$	$4.523^{+0.099}_{-0.081}$	$-0.460^{+0.300}_{-0.300}$	$0.765^{+0.102}_{-0.092}$	$0.711^{+0.104}_{-0.045}$	$2.239^{+0.860}_{-0.569}$
	+3%/-3%	+2%/-2%	+65%/-65%	+13%/-12%	+15%/-6%	+38%/-25%
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 004917213-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1248 \pm 102$	$4.37^{+3.70}_{-2.84}$	$464^{+22}_{-21}$	$4509^{+2763}_{-869}$	$5258^{+35305}_{-3717}$
Alt.	$-3839 \pm 338$	$5.57^{+4.15}_{-3.37}$	$465^{+21}_{-20}$	$5208^{+3254}_{-1077}$	$9837^{+54901}_{-6627}$

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

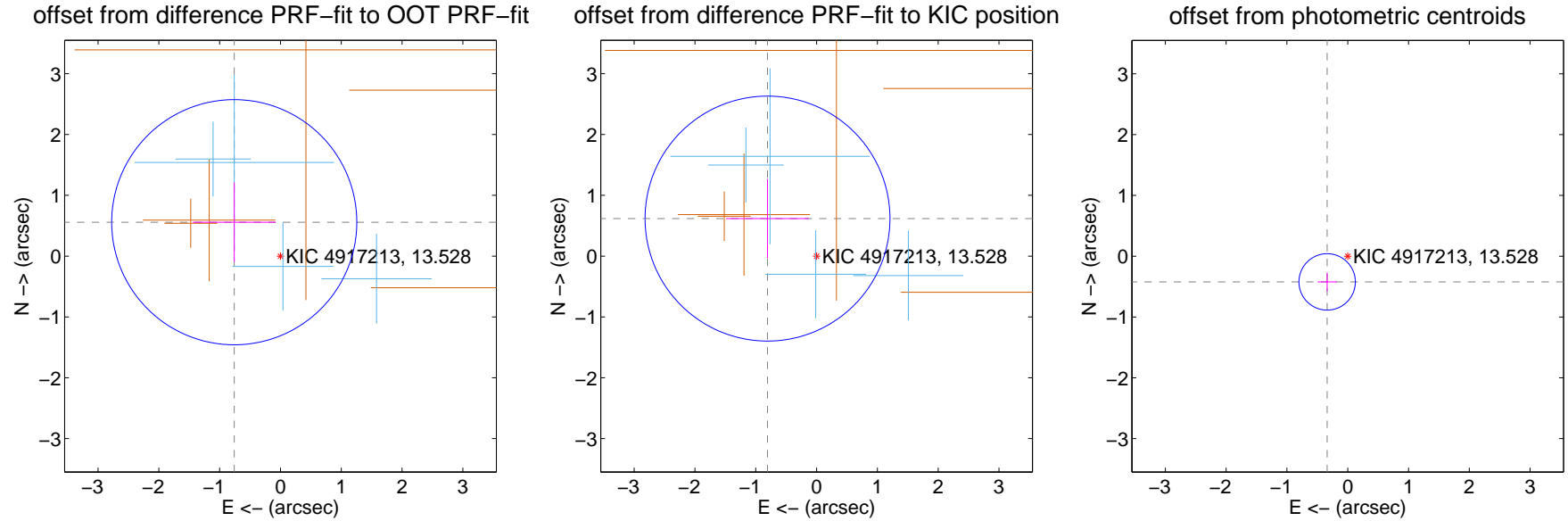
## DV Centroid Data

Supplemental centroid analysis for 004917213-02. Kepler magnitude: 13.53. Transit SNR 10.92

There are 4 quarters with good PRF difference image offsets

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

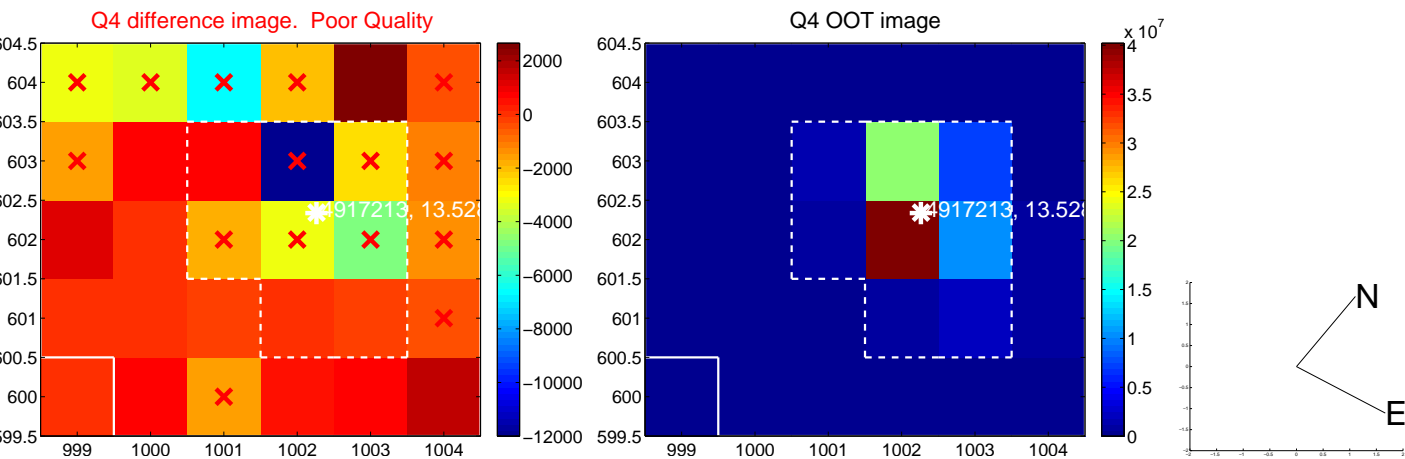
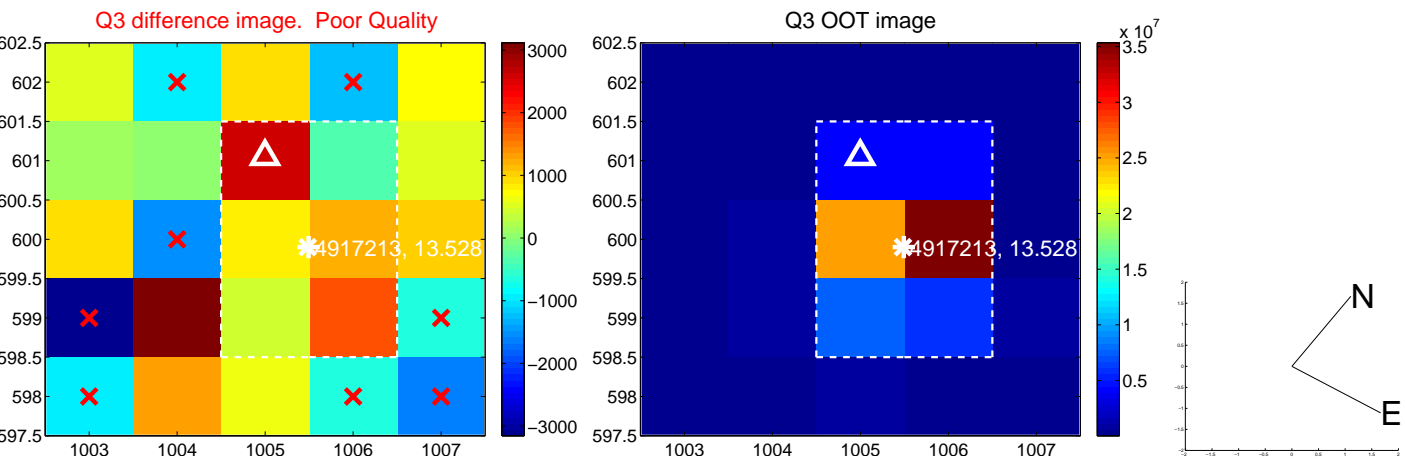
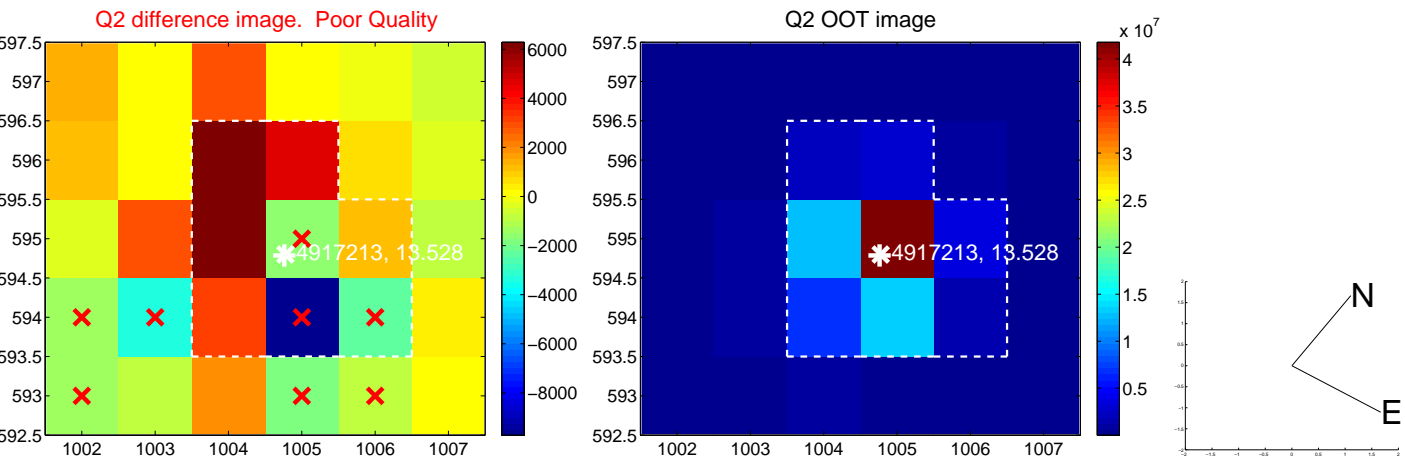
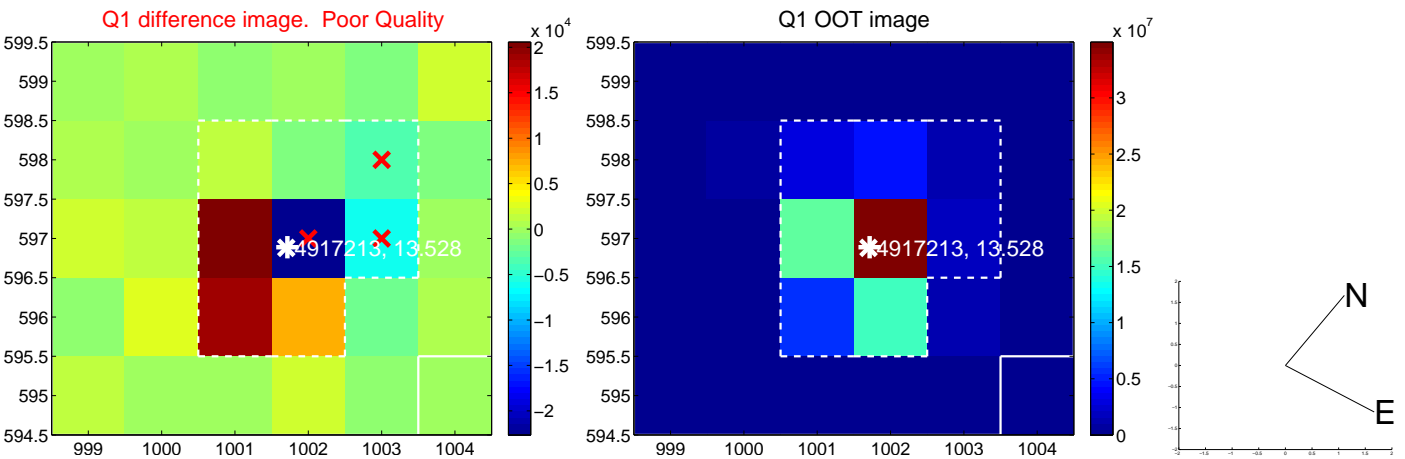
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.943 \pm 0.672$	1.40	$0.760 \pm 0.682$	$0.558 \pm 0.652$
PRF-fit source offset from KIC position	$1.016 \pm 0.671$	1.51	$0.807 \pm 0.682$	$0.617 \pm 0.652$
photometric centroid source offset	$0.54 \pm 0.15$	3.50	$0.34 \pm 0.16$	$-0.42 \pm 0.15$



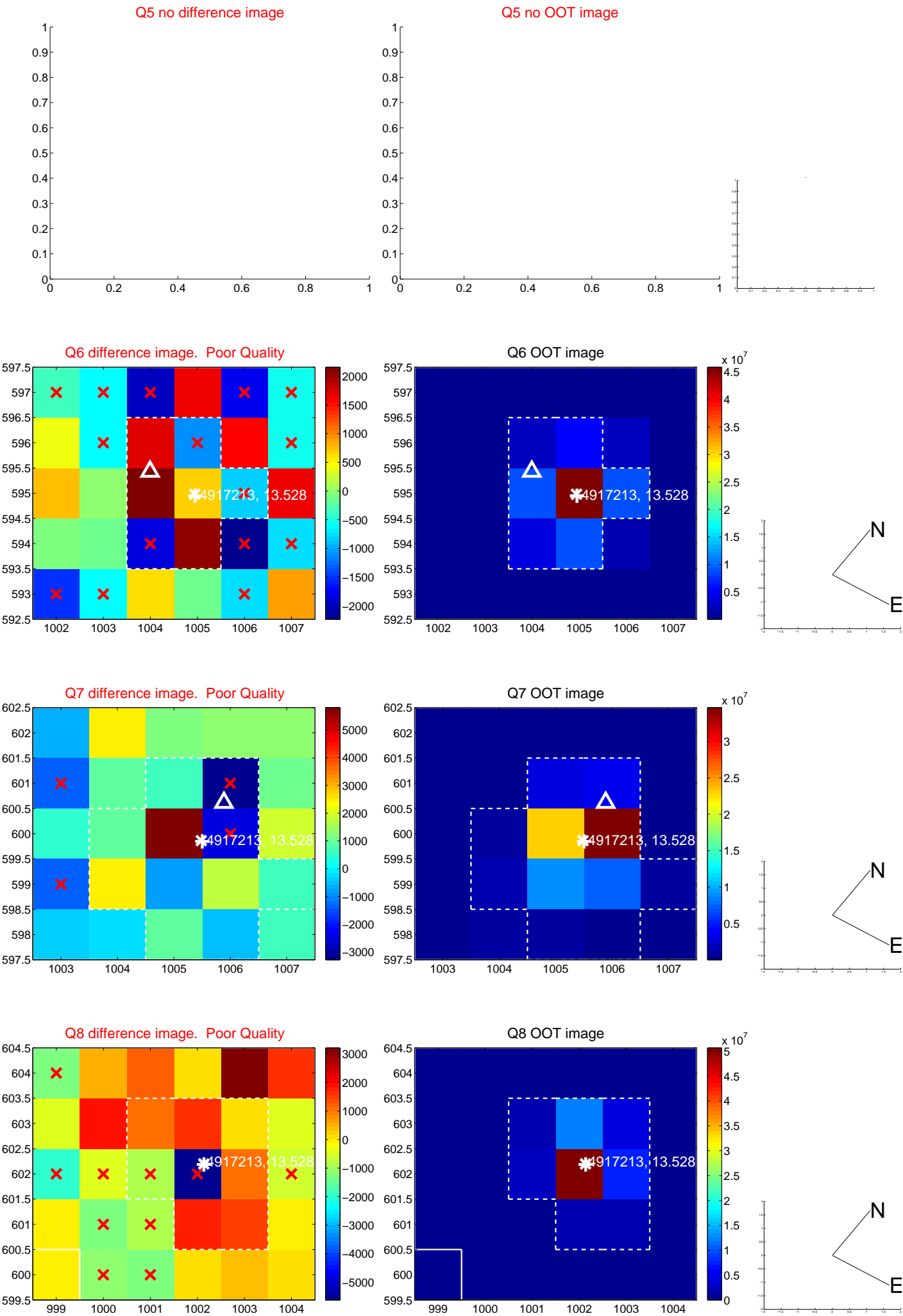
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



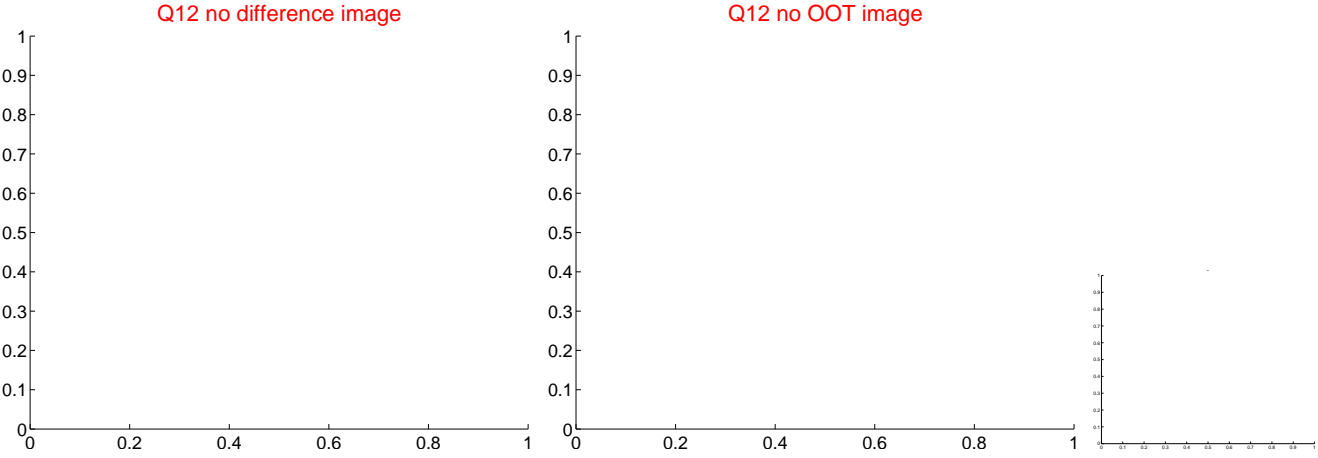
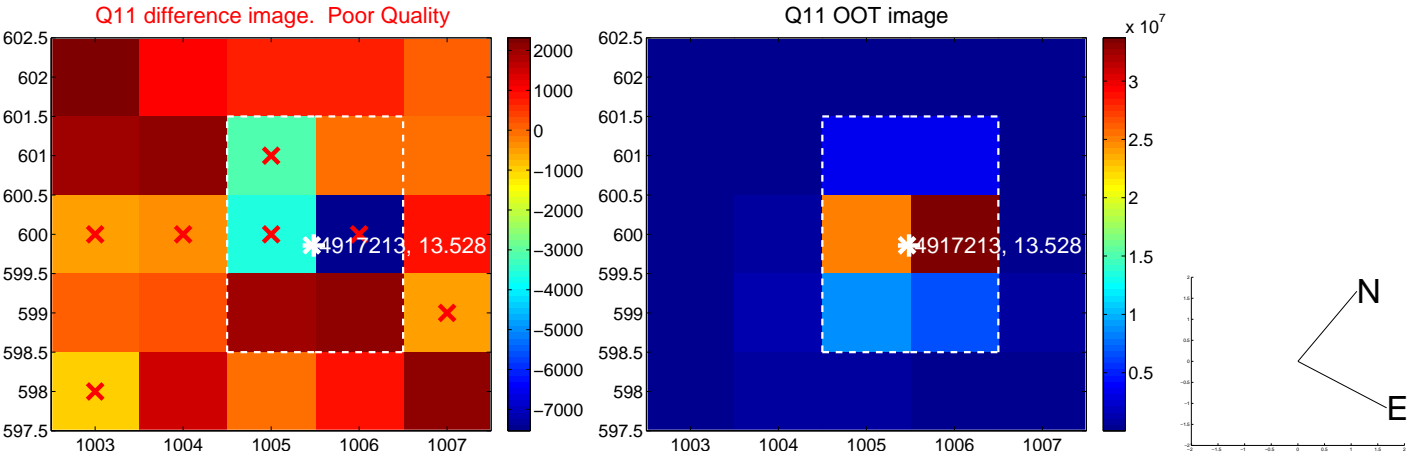
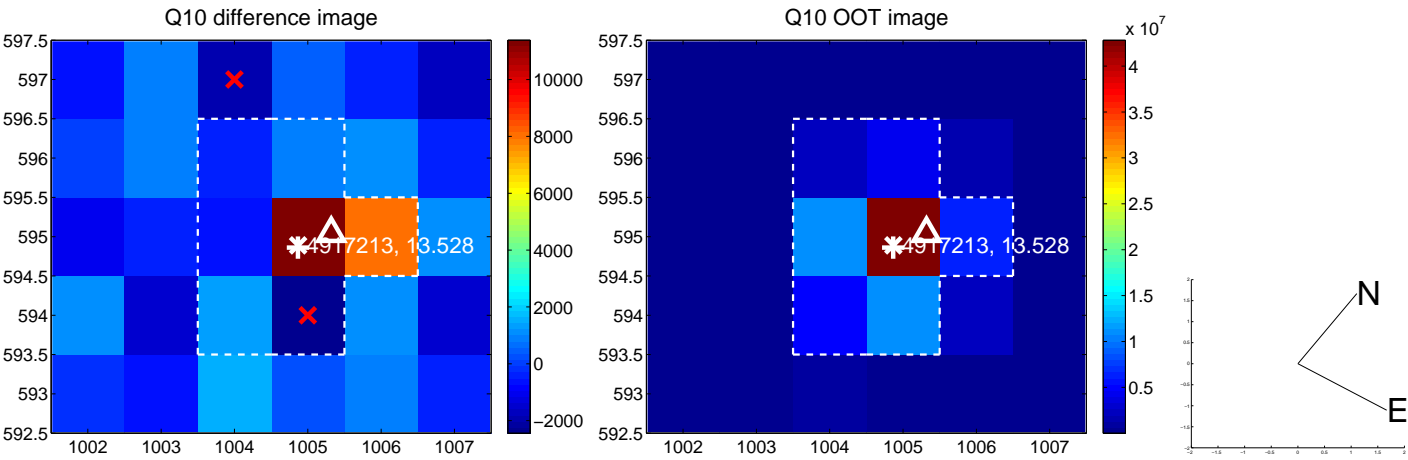
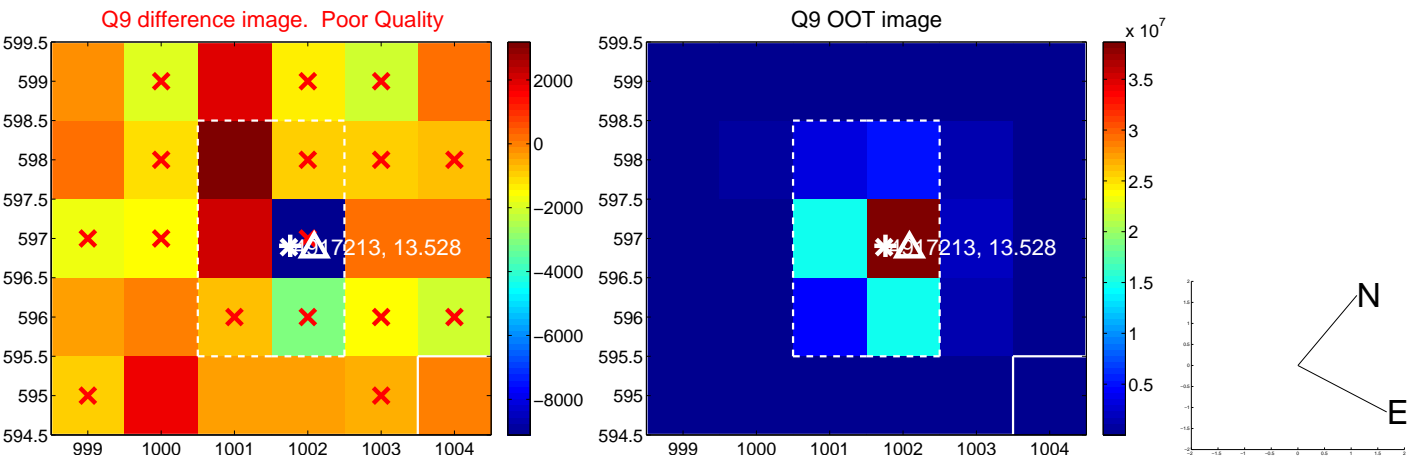
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



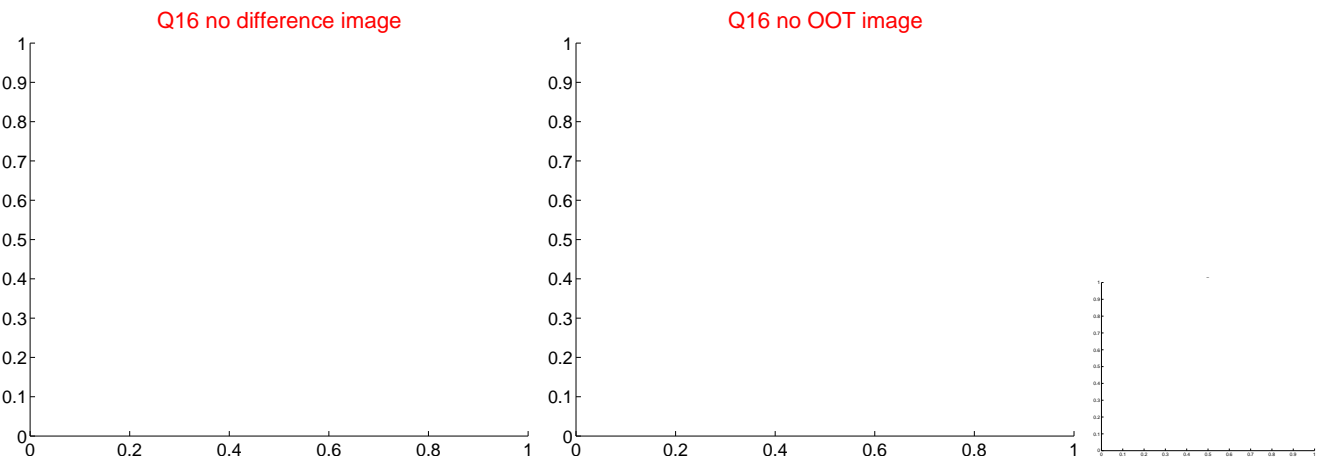
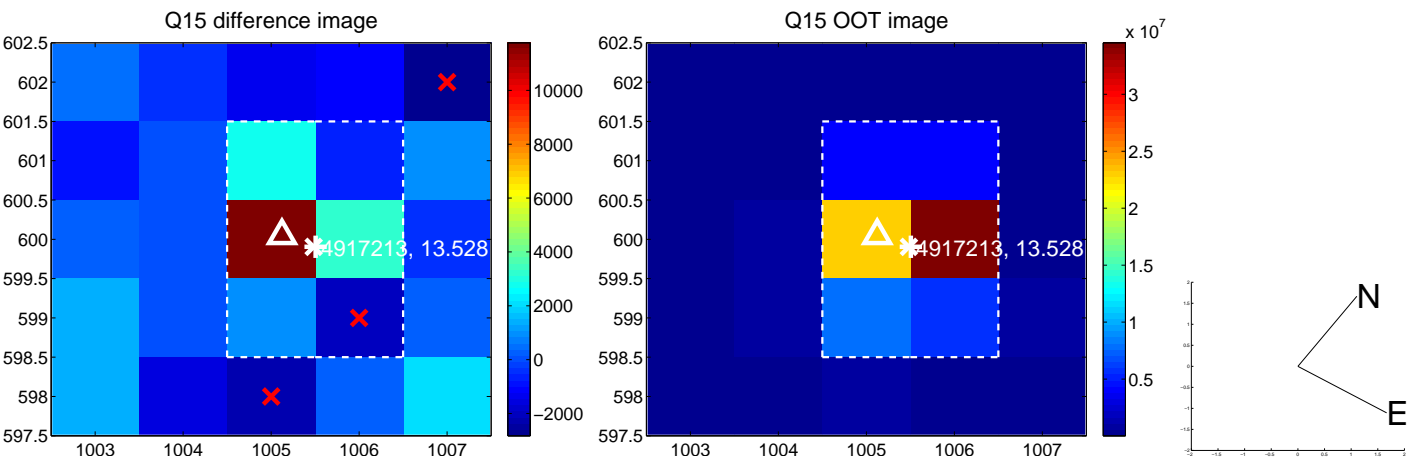
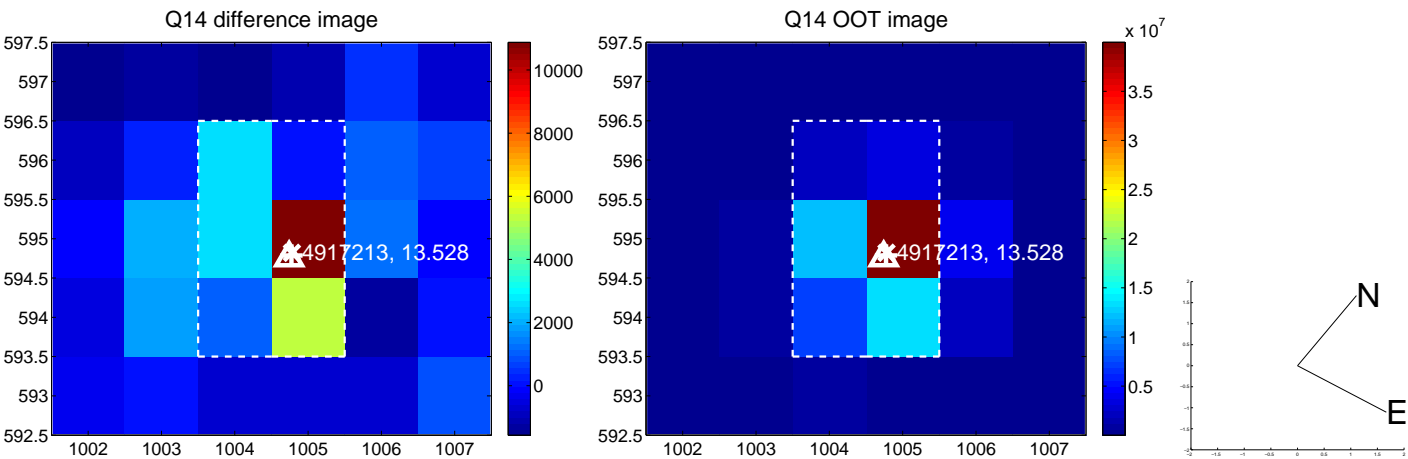
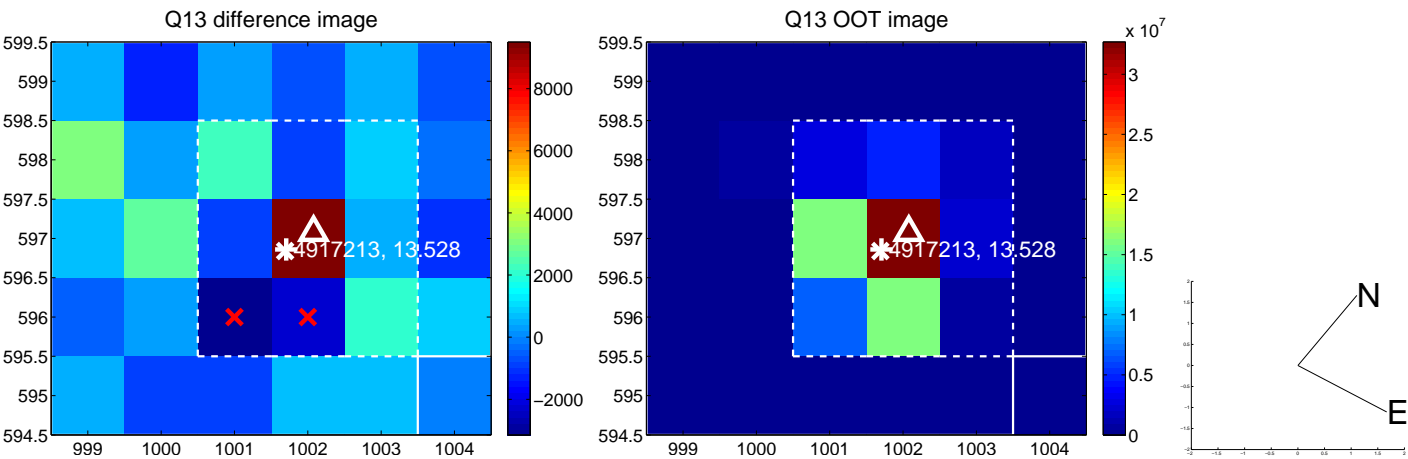
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



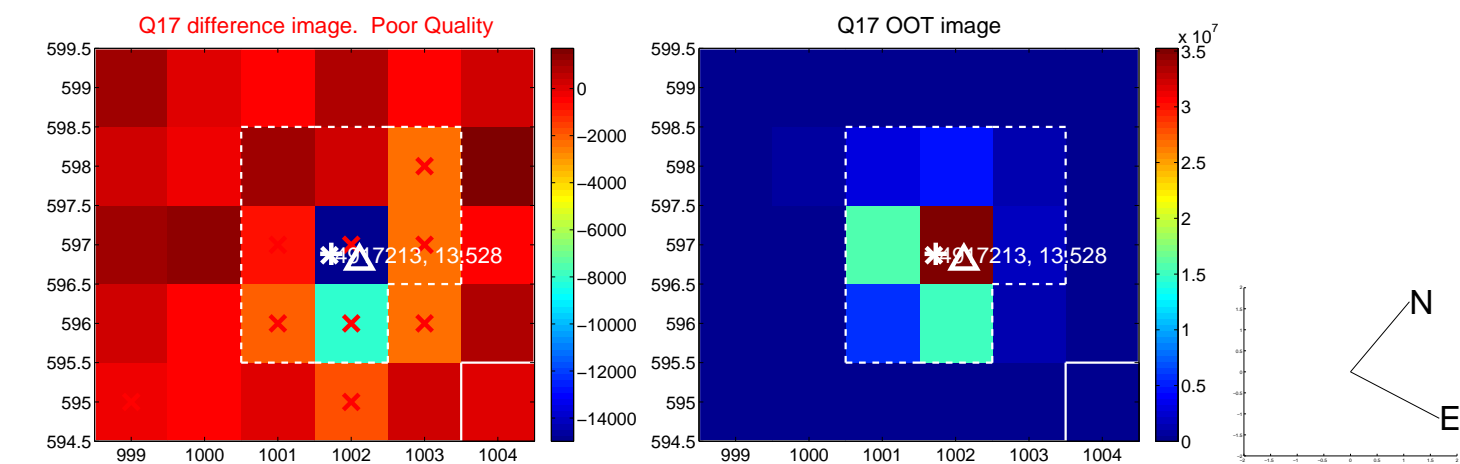
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



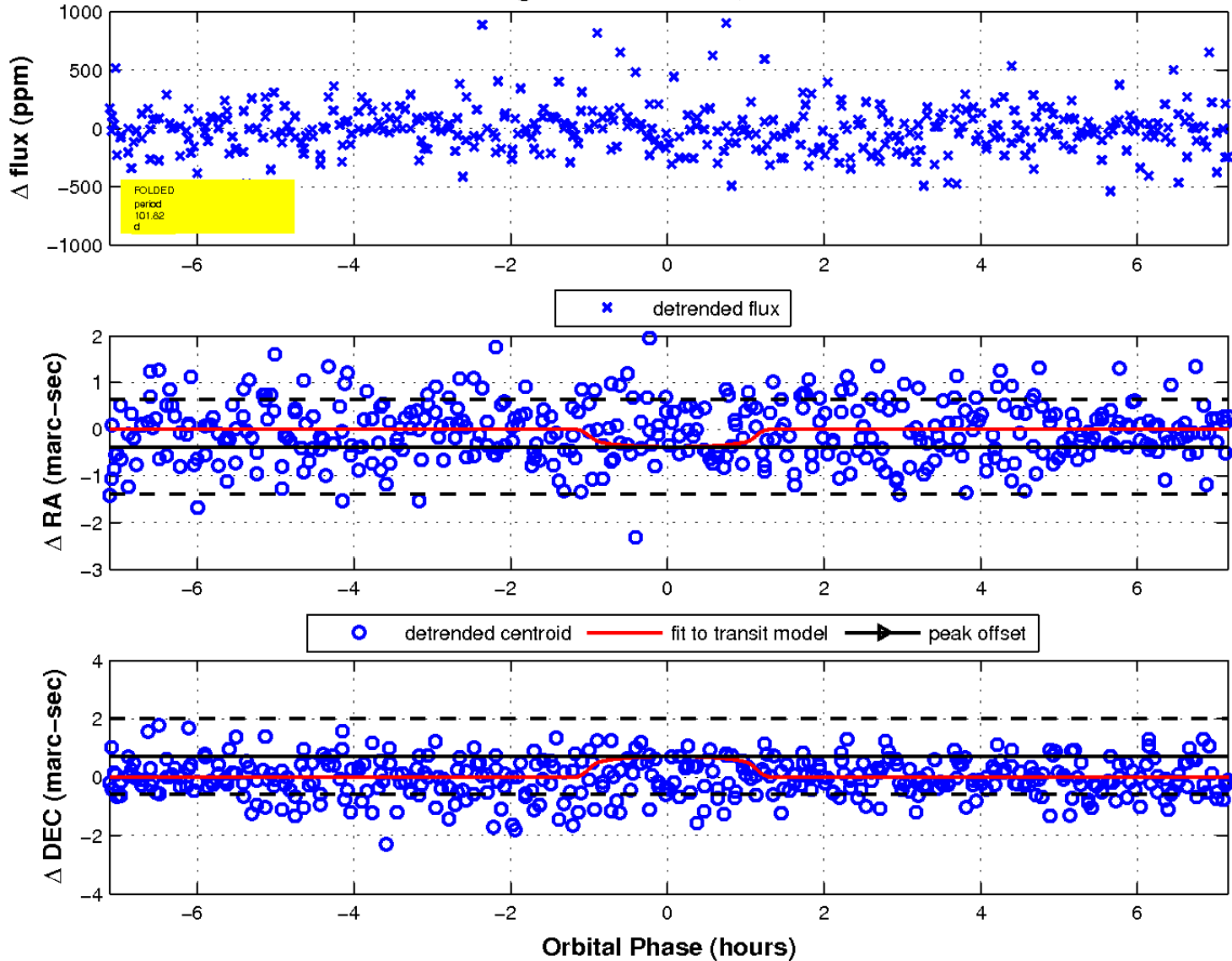
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

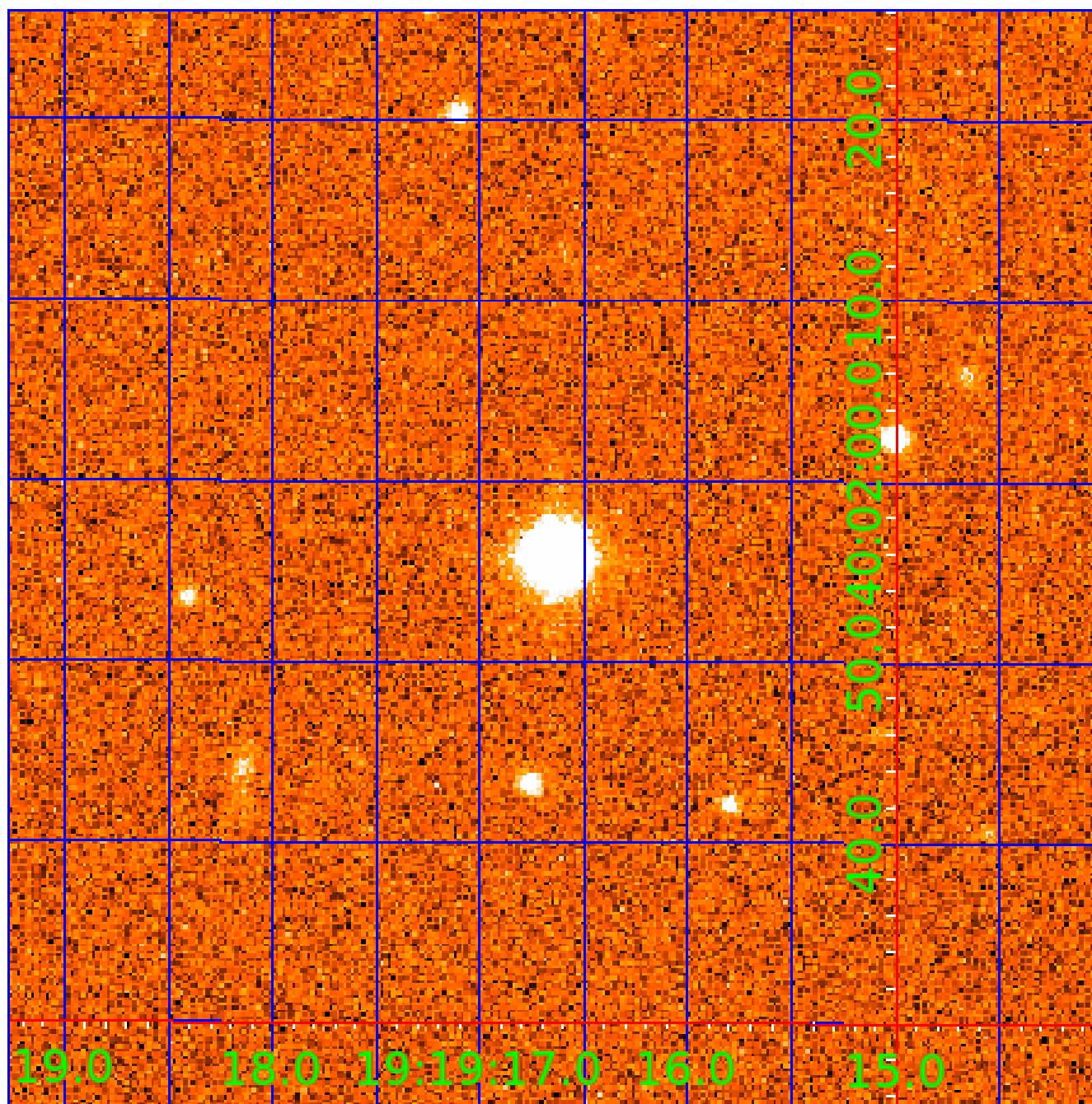


fluxWeightedCentroids, Planet 2 of 3



# UKIRT Image

Declination





# KIC 004917213

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004917213-01	OBS	No	0.742780	132.033303	22.4	5.158	7.4	9.0	0.77	5323	0.39	2048.71
004917213-02	OBS	No	101.816250	136.119838	1688.7	2.390	12.1	10.9	0.77	5323	3.44	2.90
004917213-03	OBS	No	34.286381	150.997590	955.1	1.554	11.6	8.0	0.77	5323	2.49	12.37

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004917213-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004917213-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
004917213-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

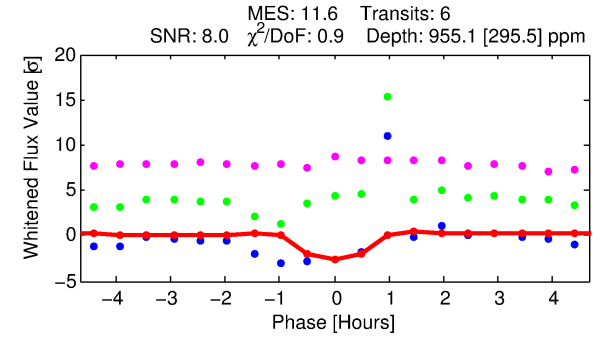
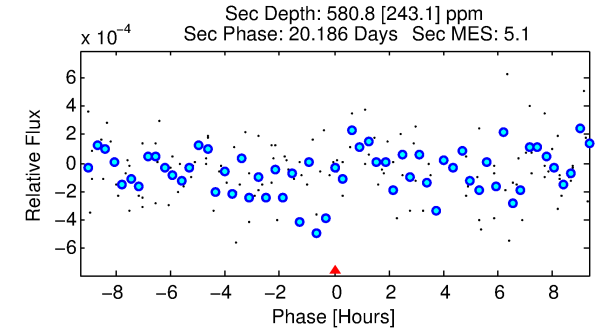
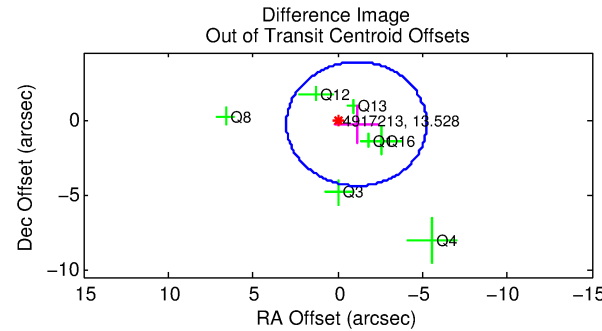
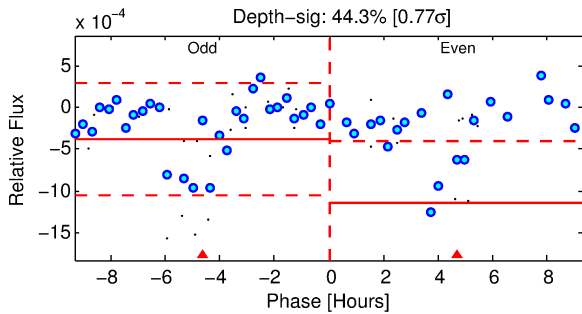
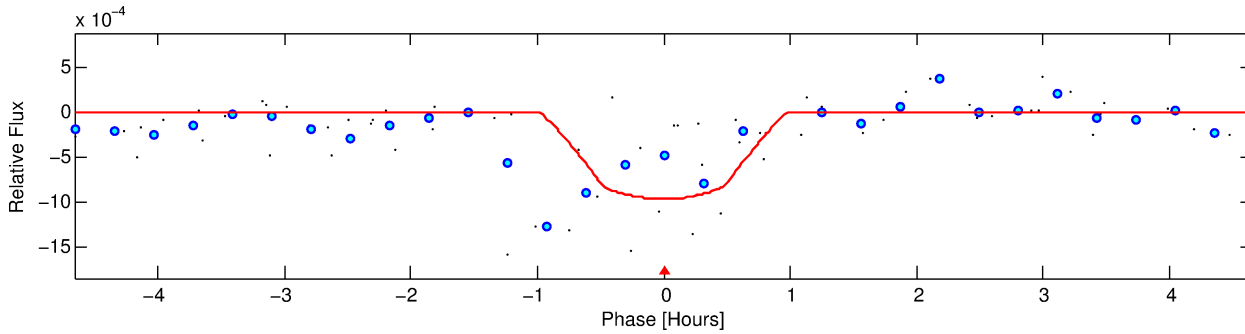
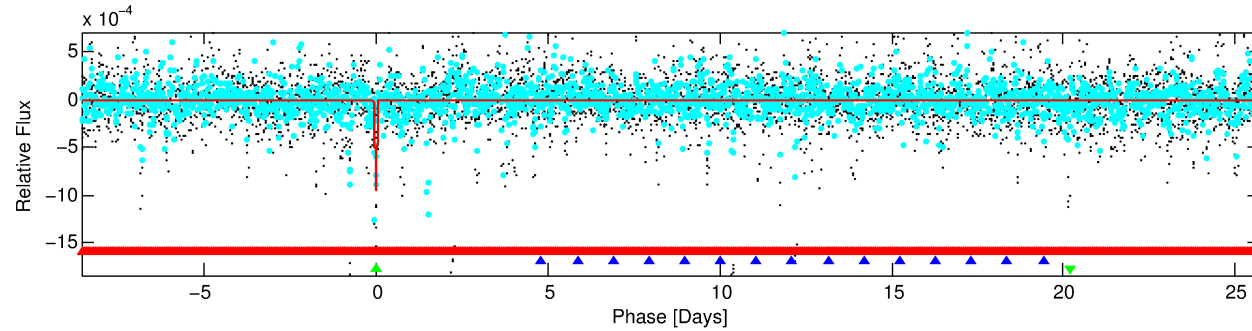
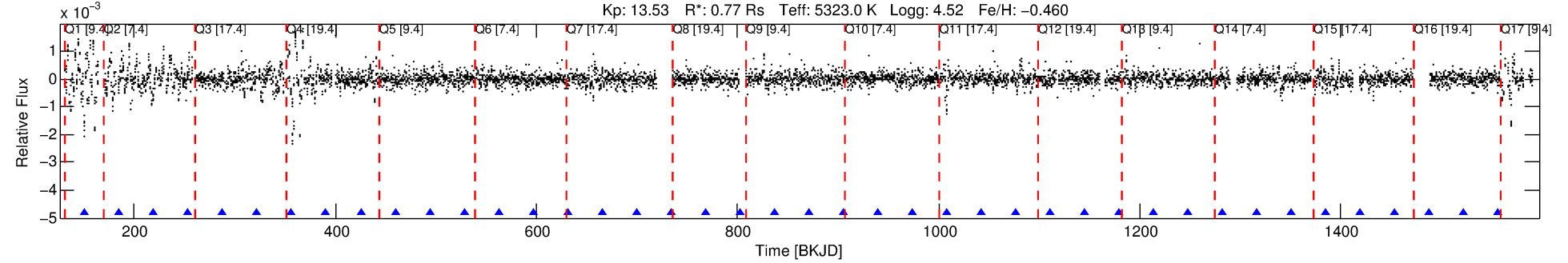
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004917213-03

No Significant Match Found

# DV One-Page Summary

KIC: 4917213 Candidate: 3 of 3 Period: 34.286 d



## DV Fit Results:

Period = 34.28638 [0.00067] d  
Epoch = 150.9976 [0.0134] BKJD  
Rp/R\* = 0.0298 [0.2442]  
a/R\* = 136.30 [4567.82]  
b = 0.64 [31.42]  
Seff = 12.37 [2.63]  
Teq = 478 [25] K  
Rp = 2.49 [20.39] Re  
a = 0.1845 [0.0216] AU  
Ag = 1758.44 [28848.24] [0.06σ]  
Teffp = 4788 [19637] K [0.22σ]

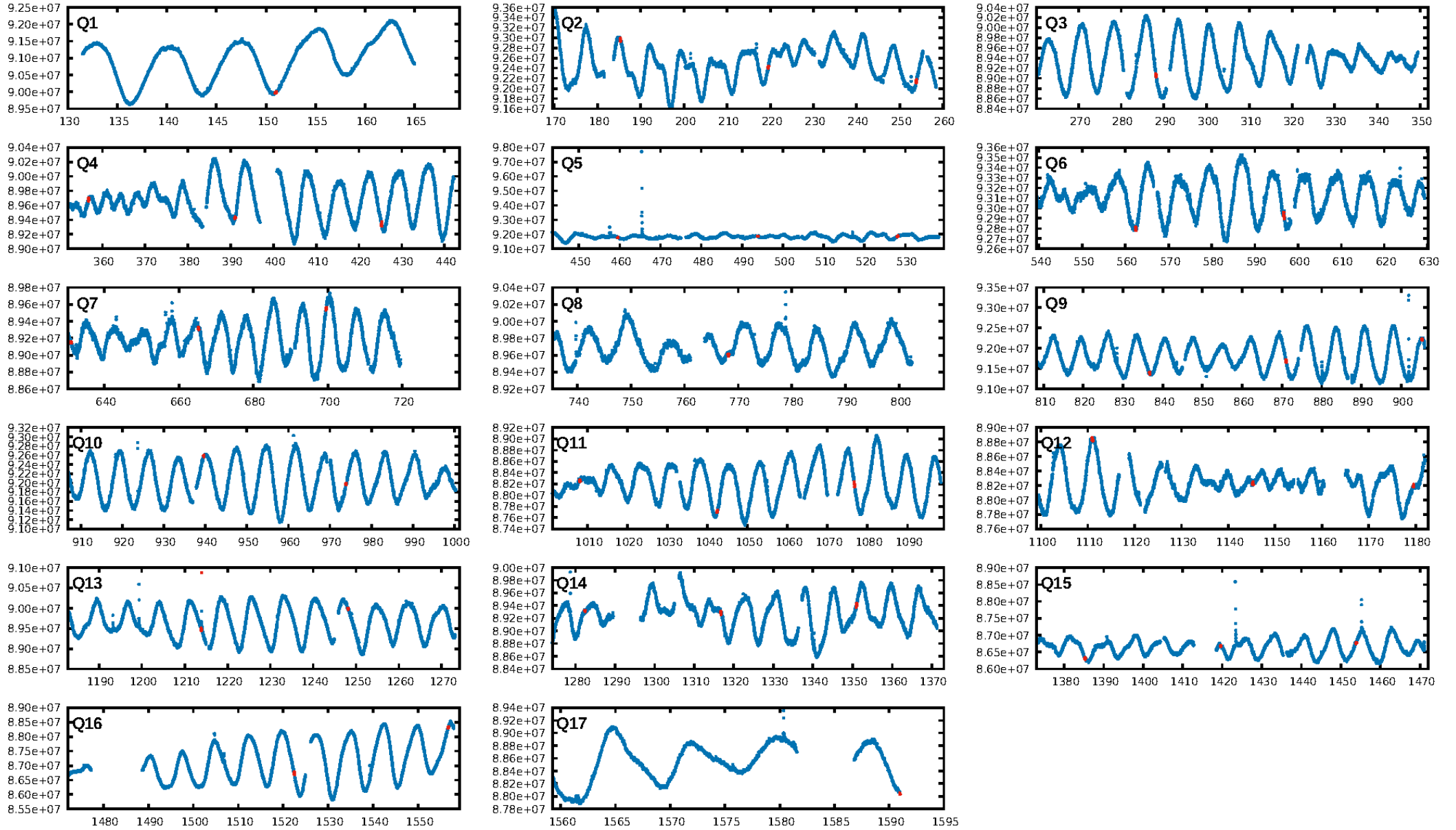
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [149.45σ]  
LongPeriod-sig: 100.0% [568.51σ]  
ModelChiSquare2-sig: 0.4%  
ModelChiSquareGof-sig: 92.5%  
Bootstrap-pfa: 1.38e-21  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -0.2319  
Centroid-sig: 3.7%  
Centroid-so: 0.374 arcsec [1.87σ]  
OotOffset-rm: 1.150 arcsec [0.84σ]  
KicOffset-rm: 1.105 arcsec [0.77σ]  
OotOffset-st: 0/1/4/2 [7]  
KicOffset-st: 0/1/4/2 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 0.19 [3/16]

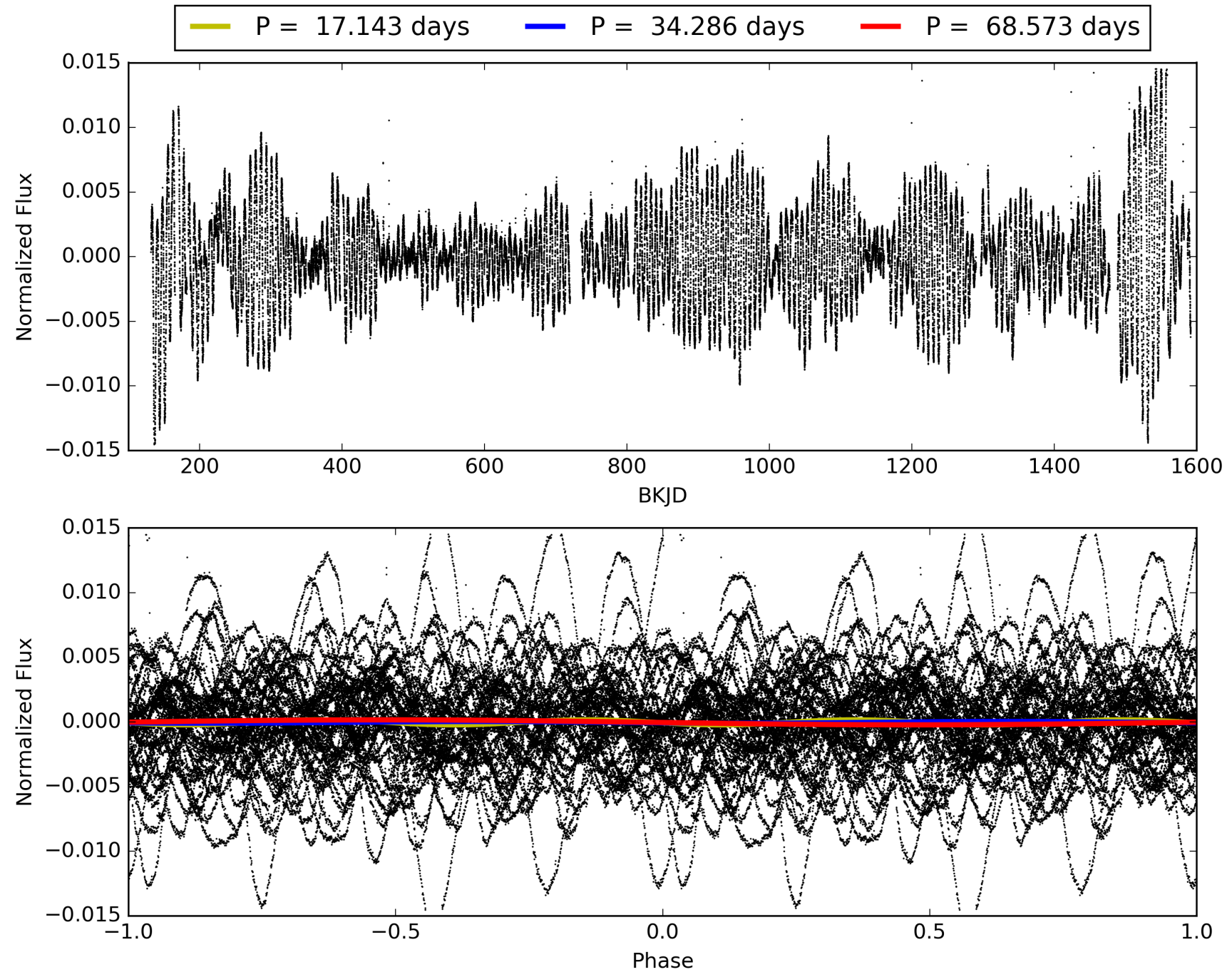
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:48:26 Z

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# TCE 004917213-03, PDC Light Curves

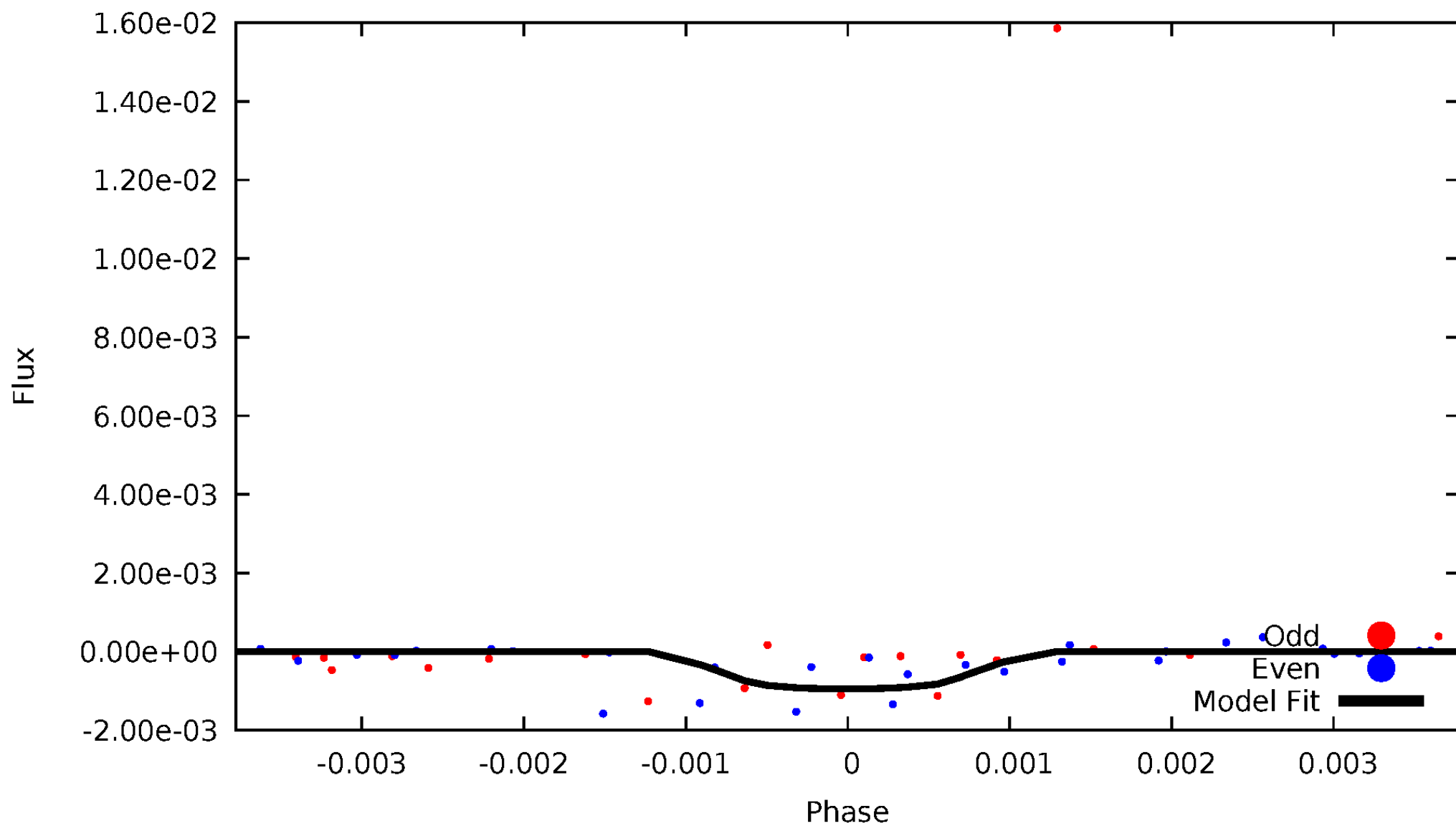


TCE 004917213-03



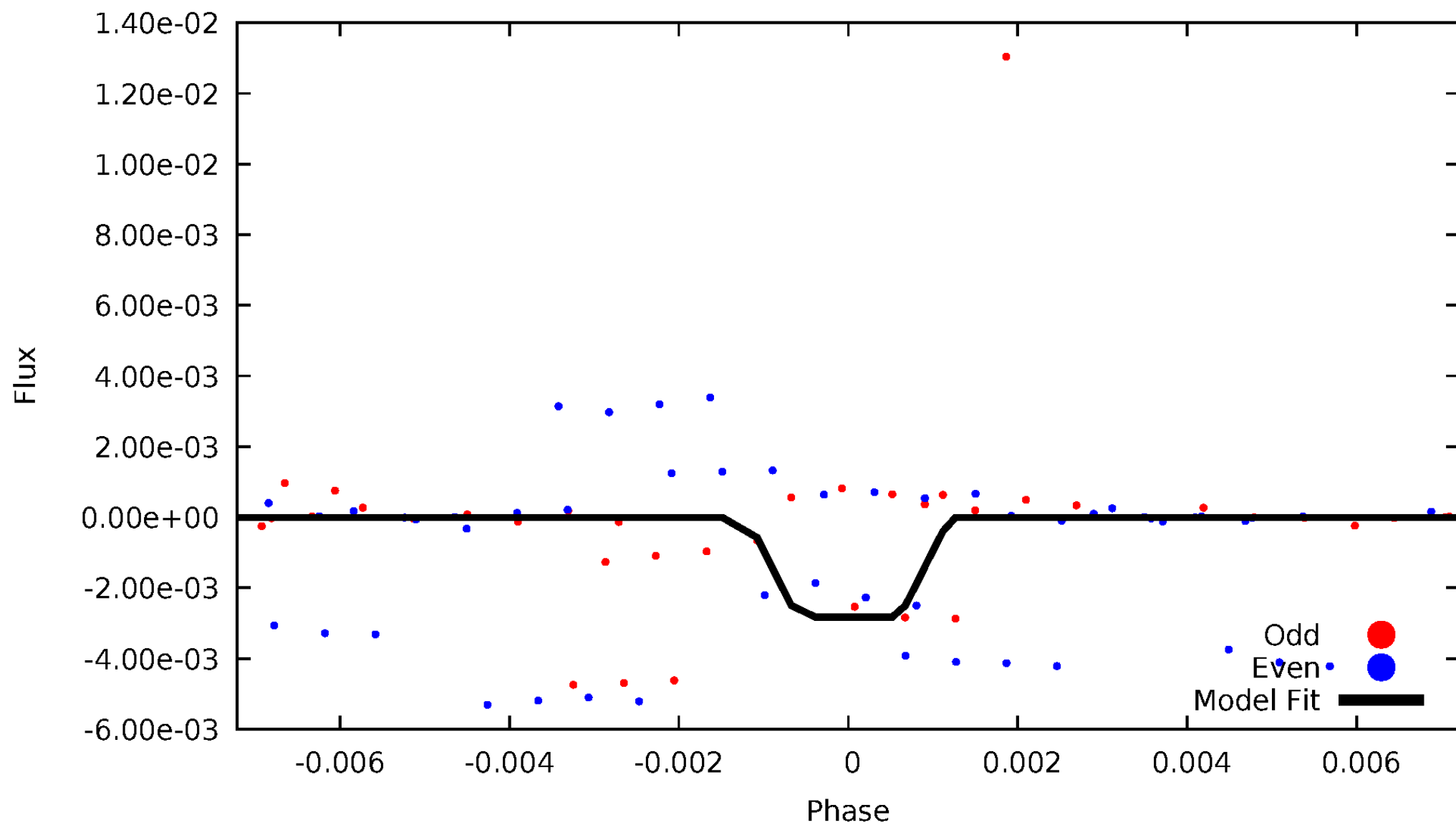
# DV Odd/Even

TCE 004917213-03



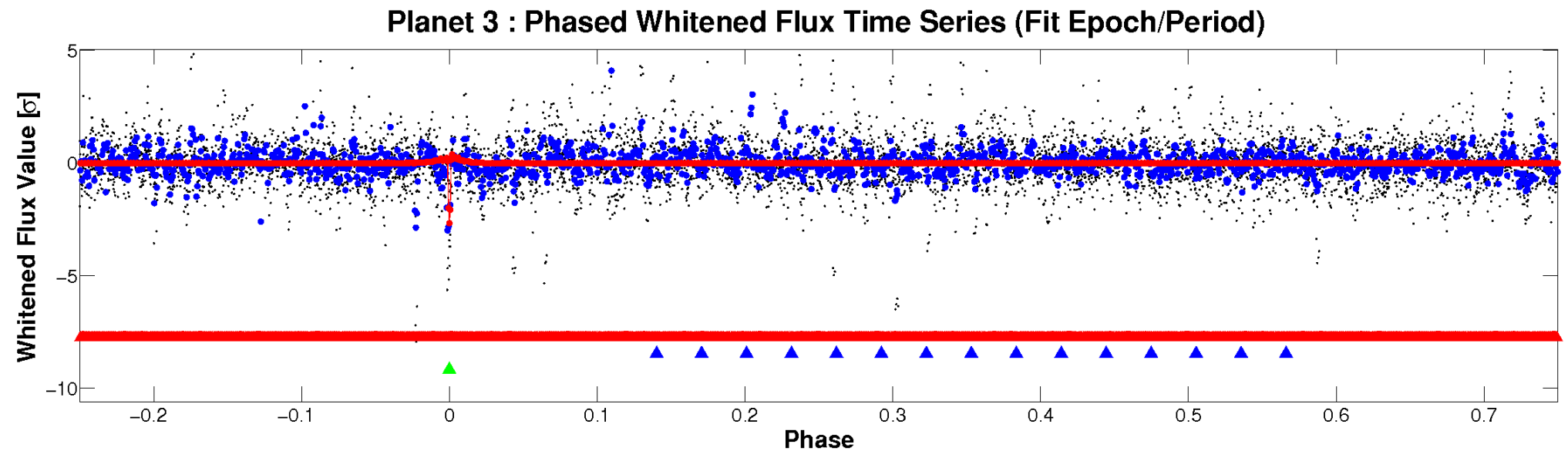
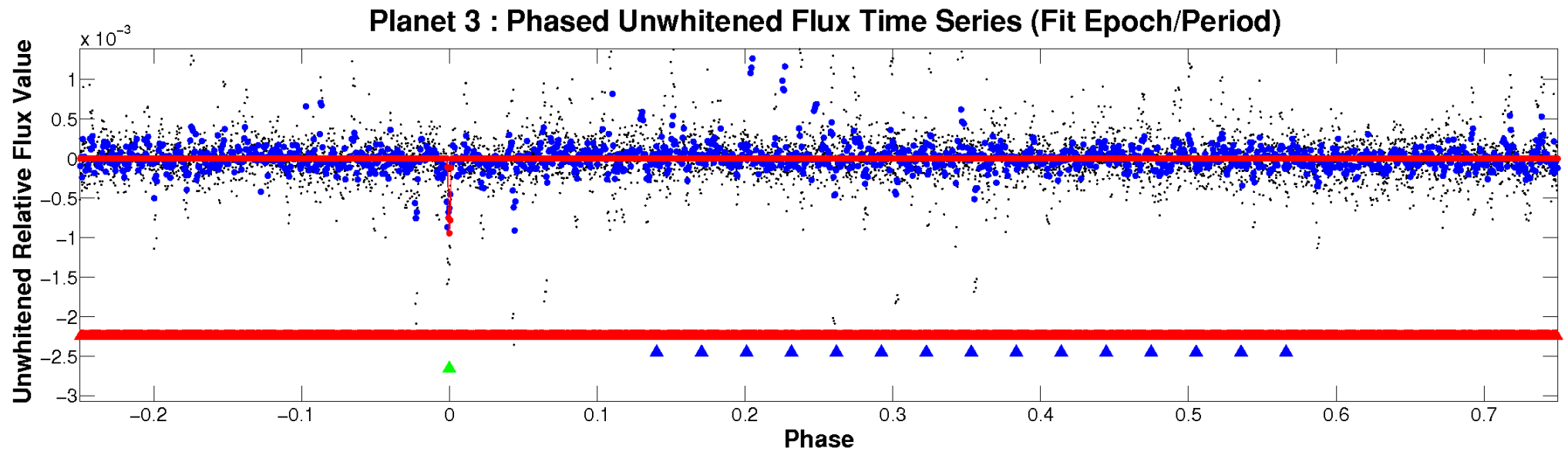
# ALT Odd/Even

TCE 004917213-03



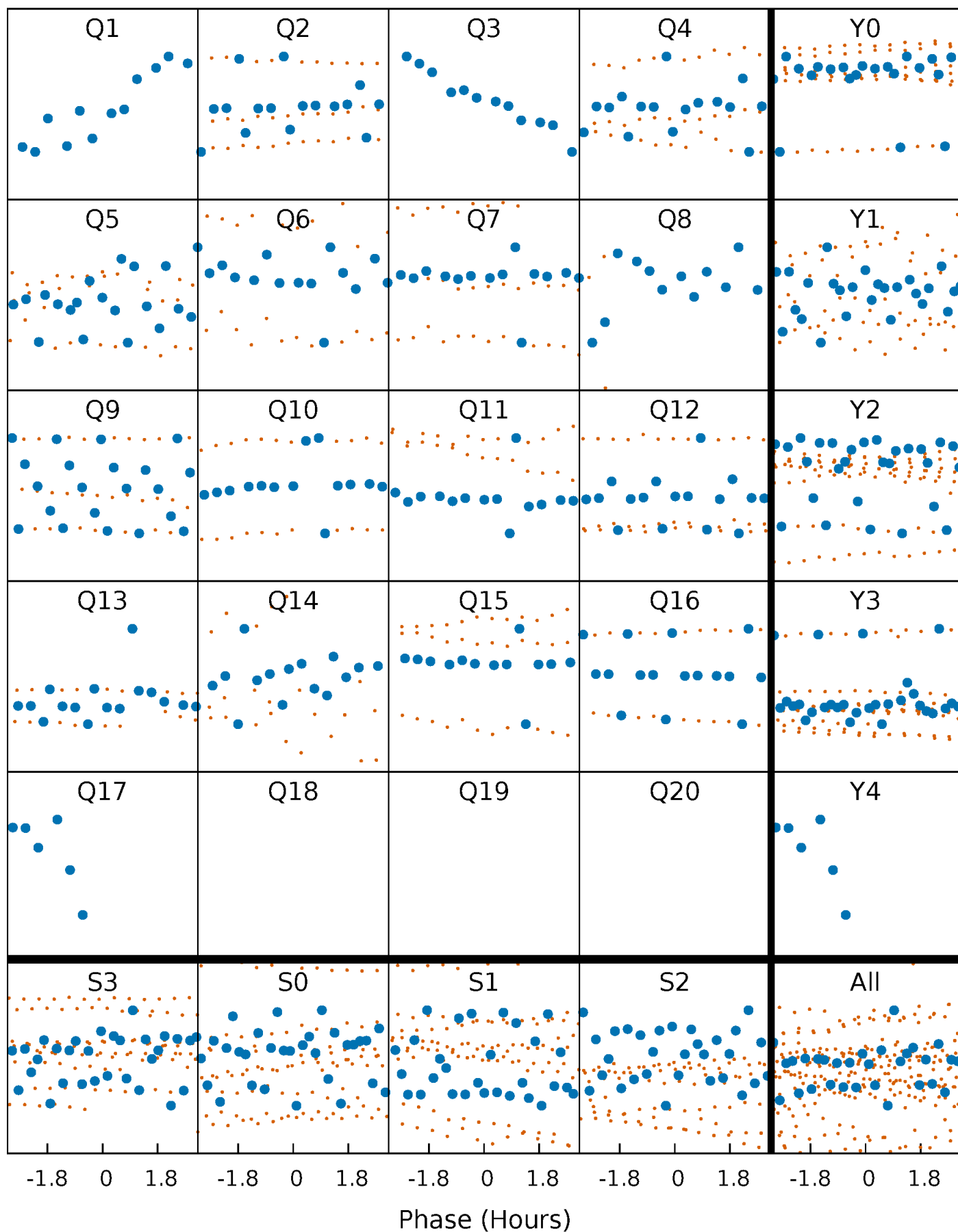


# Non-Whitened Vs. Whitened Light Curve



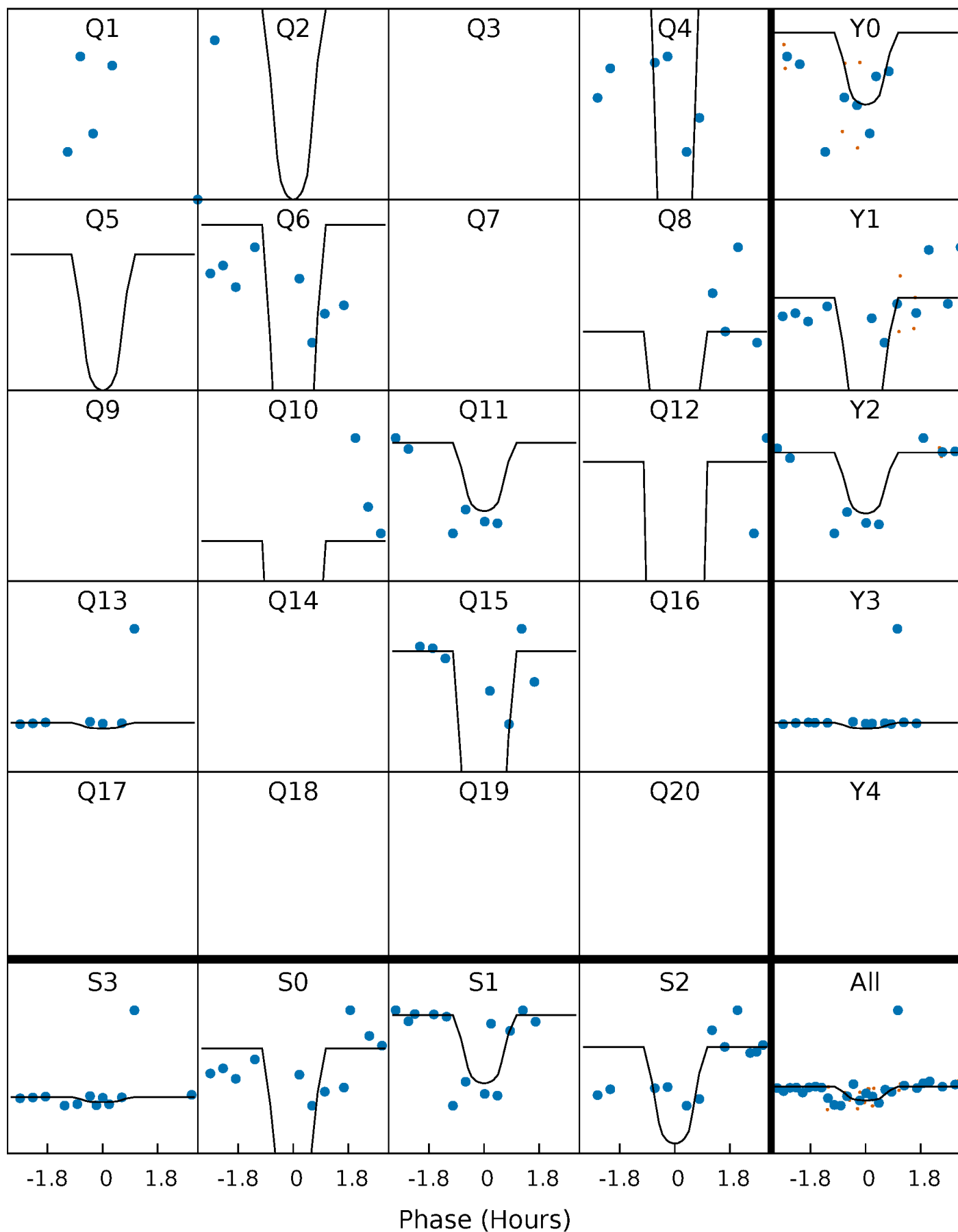
# PDC Quarter-Phased Transit Curves

TCE 004917213-03 P= 34.286381 Days  $T_0=150.997590$  (BKJD)



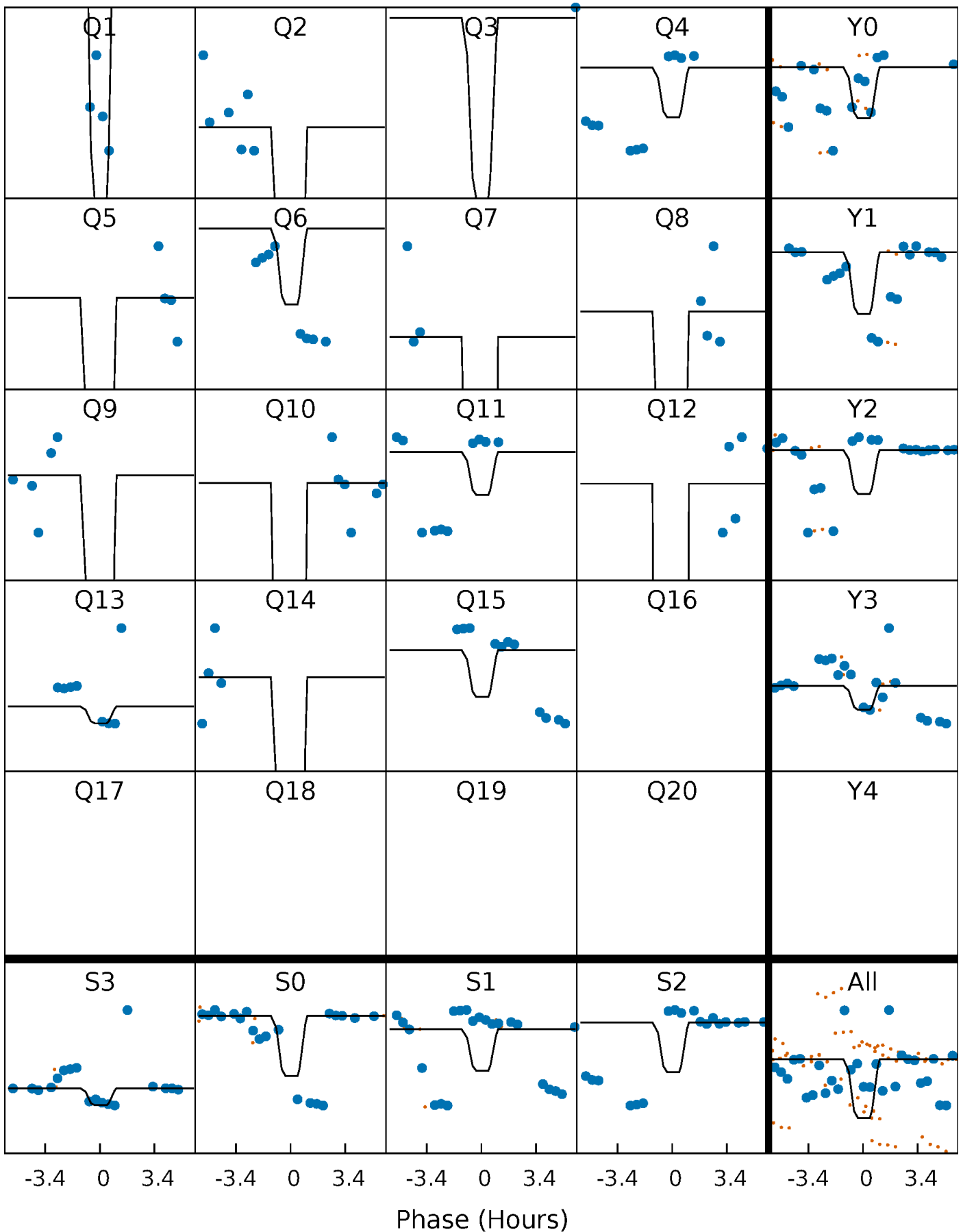
# DV Quarter-Phased Transit Curves

TCE 004917213-03 P= 34.286381 Days  $T_0=150.997590$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

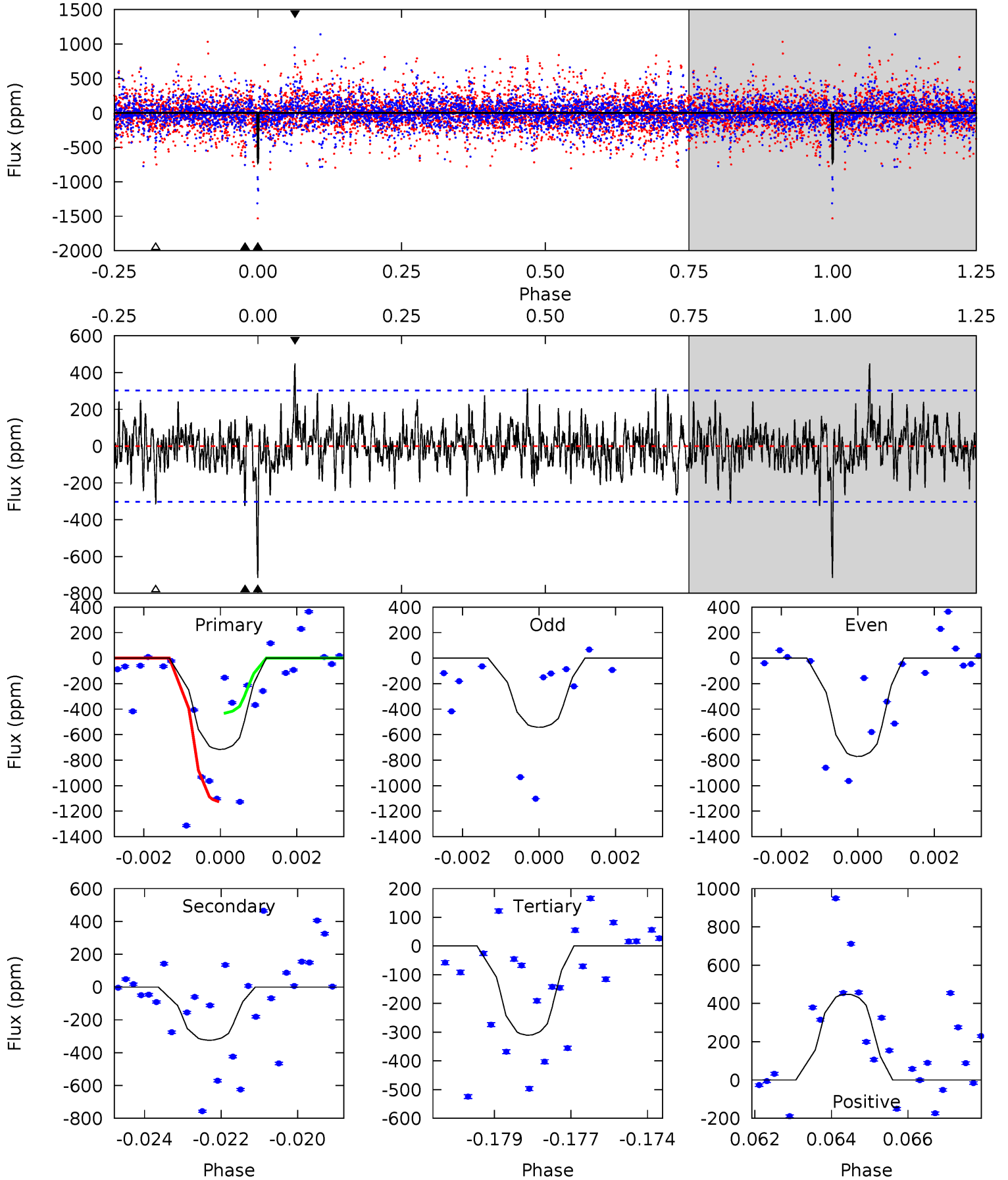
TCE 004917213-03 P= 34.286333 Days  $T_0=150.979586$  (BKJD)



# DV Model-Shift Uniqueness Test

004917213-03, P = 34.286381 Days, E = 116.711209 Days

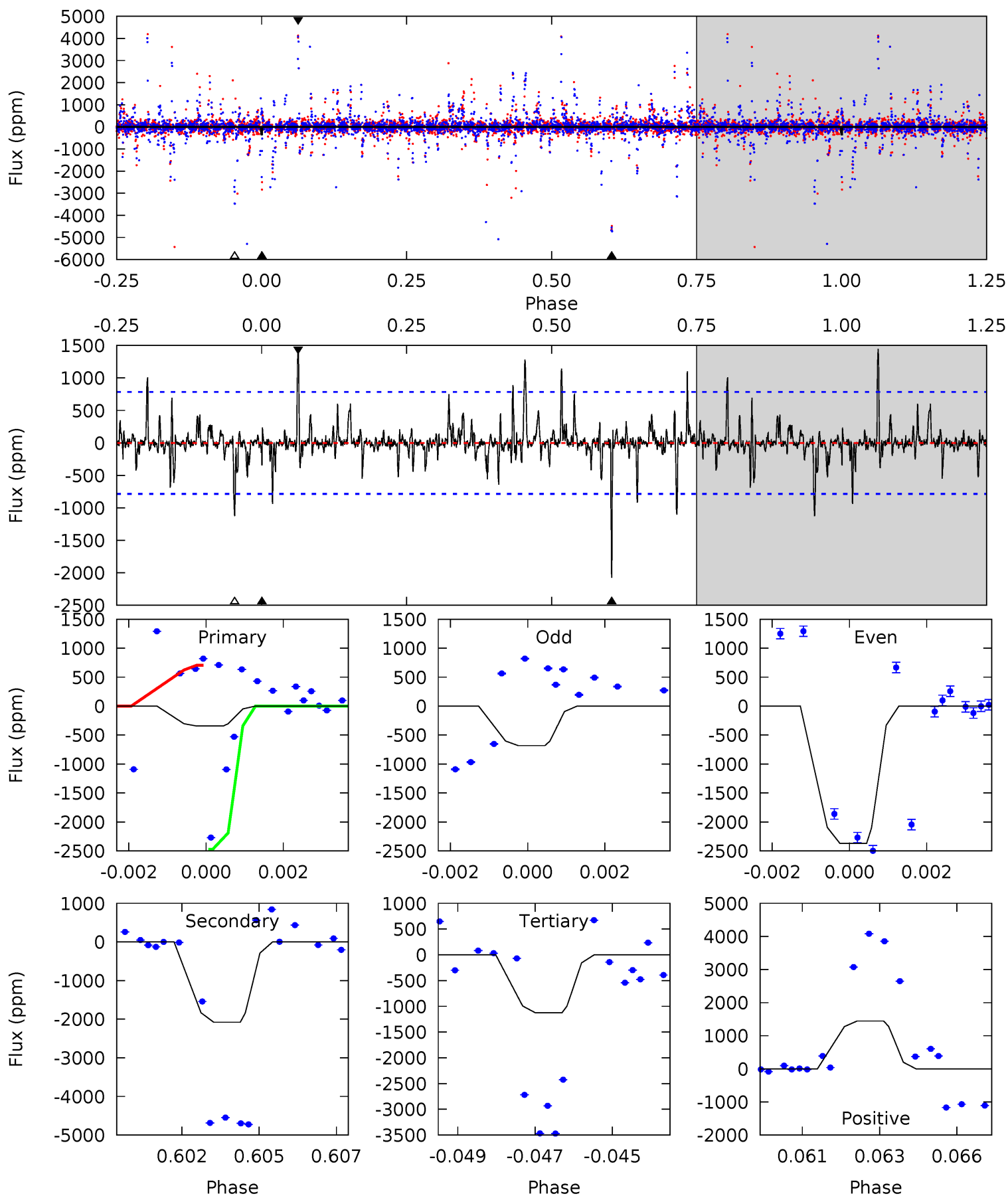
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	5.68	5.44	7.86	5.31	3.06	1.62	7.10	4.69	0.23	-2.18	1.59	1.51	0.39	5.91



# Alt Model-Shift Uniqueness Test

004917213-03, P = 34.286333 Days, E = 116.693253 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
2.32	14.0	7.59	9.74	5.30	3.04	1.21	-5.27	-7.42	6.41	4.26	2.09	1.07	0.41	5.03





### Stellar Parameters For KIC 004917213

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5323^{+159}_{-143}$	$4.523^{+0.099}_{-0.081}$	$-0.460^{+0.300}_{-0.300}$	$0.765^{+0.102}_{-0.092}$	$0.711^{+0.104}_{-0.045}$	$2.239^{+0.860}_{-0.569}$
	+3%/-3%	+2%/-2%	+65%/-65%	+13%/-12%	+15%/-6%	+38%/-25%
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 004917213-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-324 \pm 57$	$15.31^{+15.93}_{-10.99}$	$667^{+28}_{-30}$	$2504^{+1034}_{-390}$	$27^{+283}_{-21}$
Alt.	$-2077 \pm 148$	$15.66^{+15.44}_{-11.01}$	$667^{+27}_{-28}$	$3203^{+1702}_{-556}$	$161^{+1742}_{-120}$

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

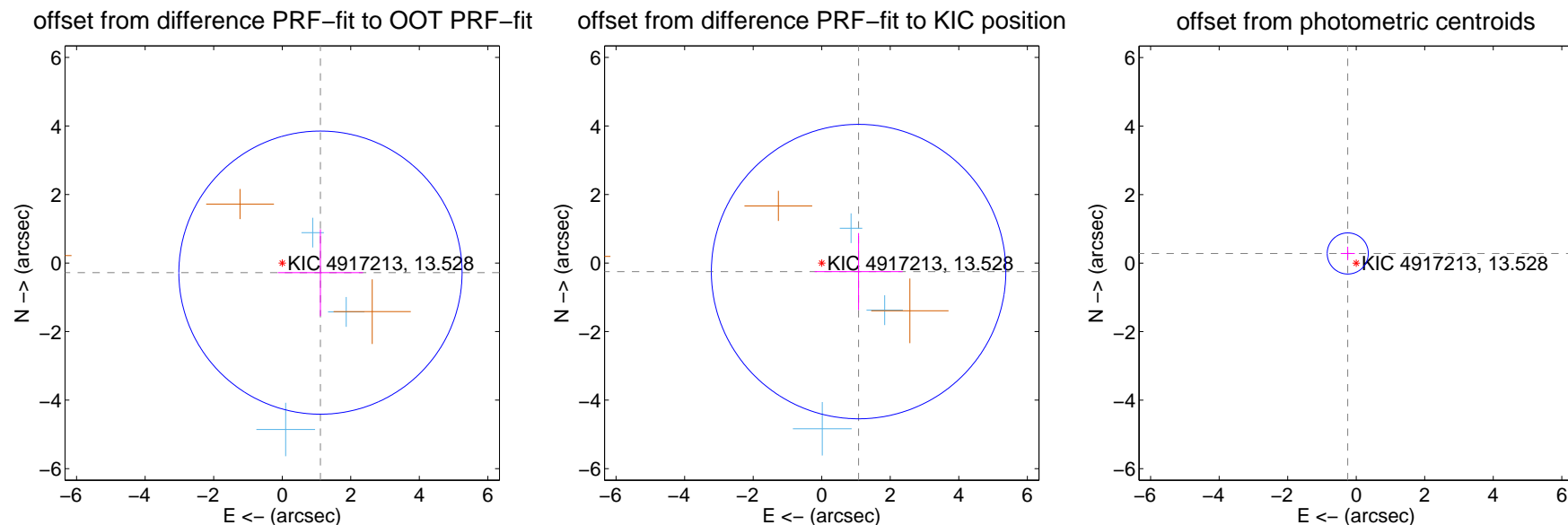
## DV Centroid Data

Supplemental centroid analysis for 004917213-03. Kepler magnitude: 13.53. Transit SNR 8.03

There are 3 quarters with good PRF difference image offsets

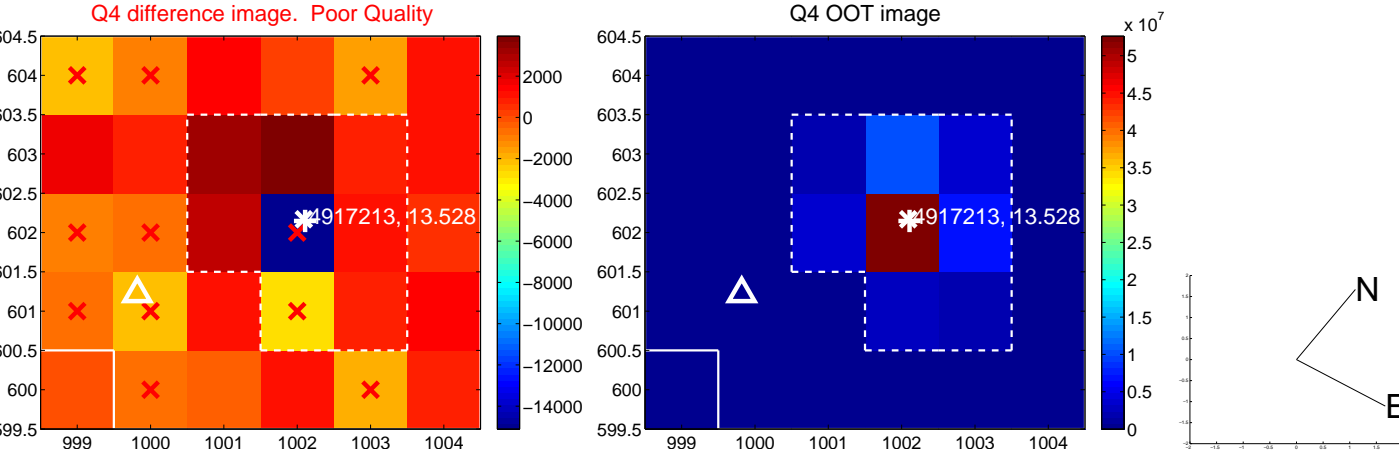
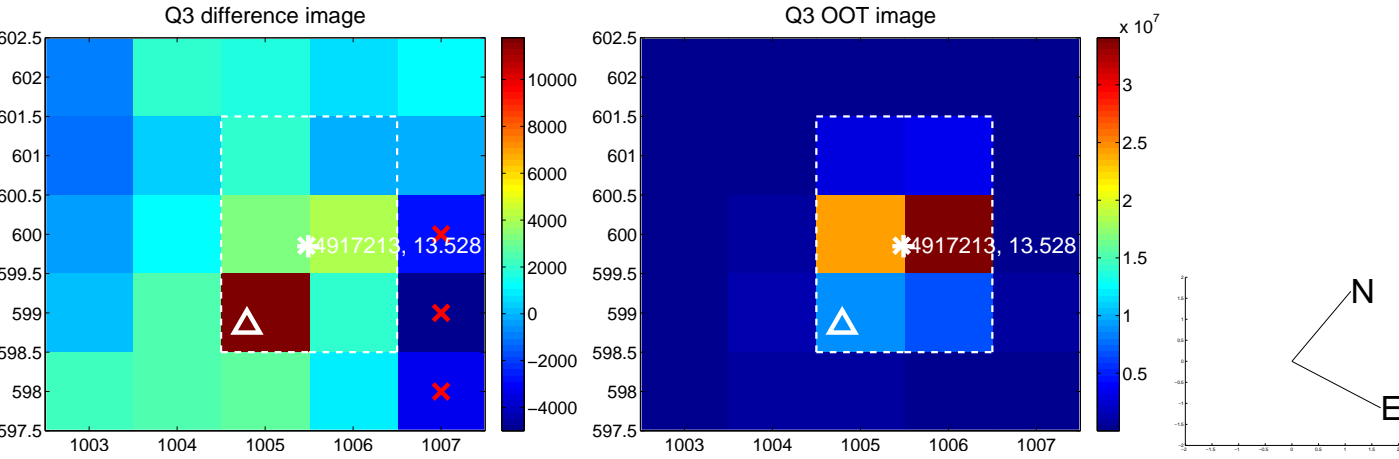
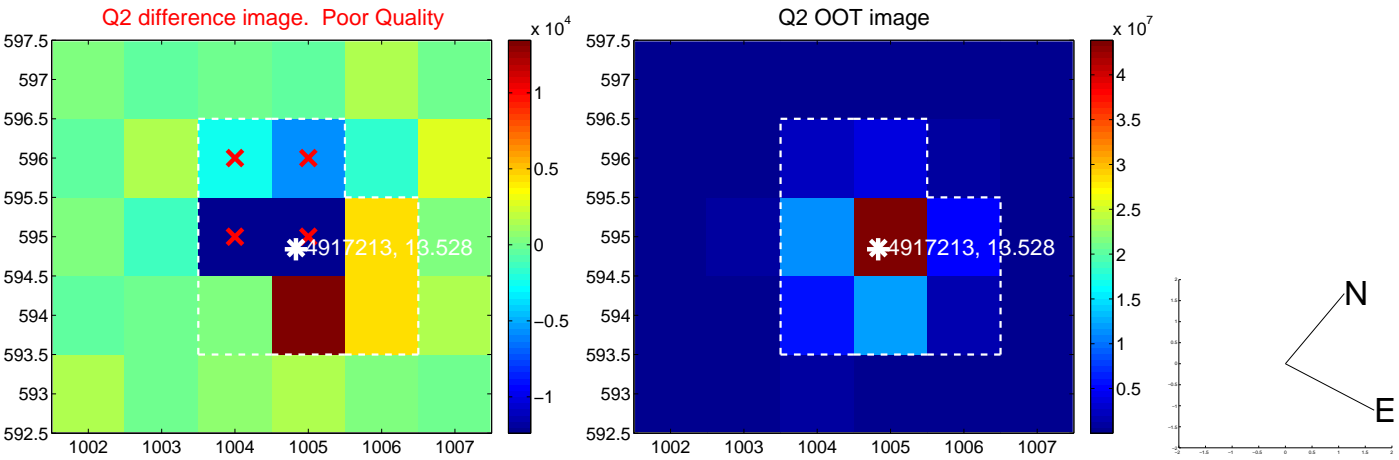
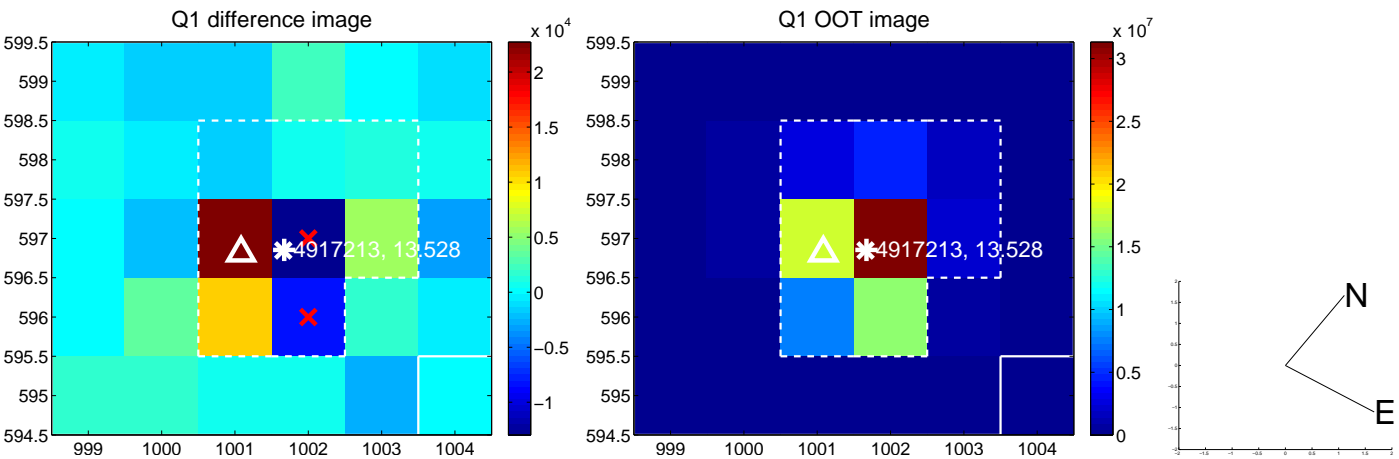
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.150 \pm 1.377$	0.84	$-1.116 \pm 1.243$	$-0.280 \pm 1.269$
PRF-fit source offset from KIC position	$1.105 \pm 1.432$	0.77	$-1.076 \pm 1.286$	$-0.249 \pm 1.123$
photometric centroid source offset	$0.37 \pm 0.20$	1.87	$0.25 \pm 0.21$	$0.28 \pm 0.20$

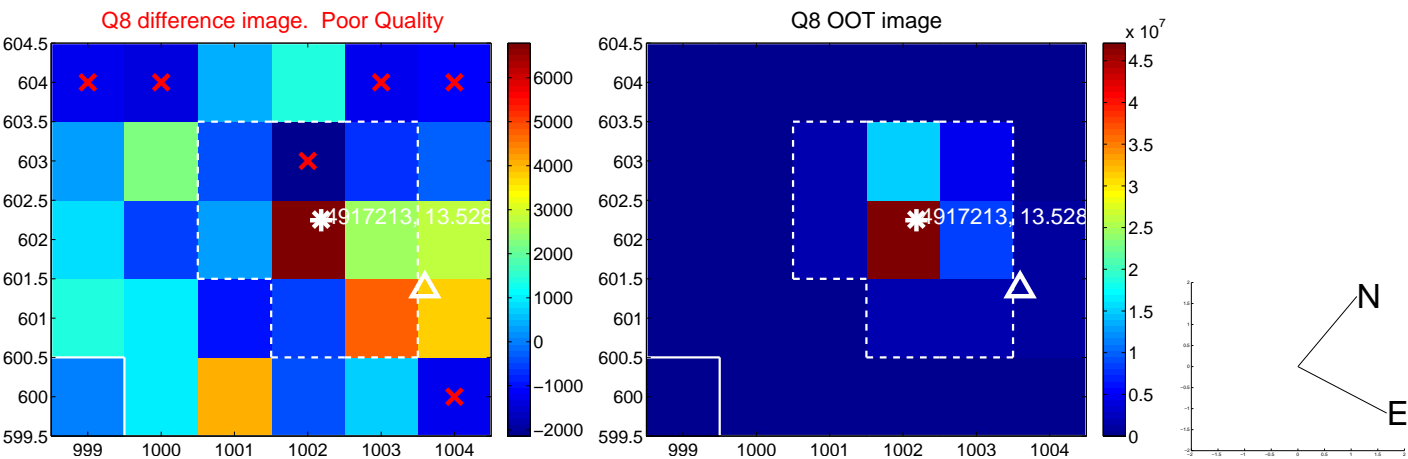
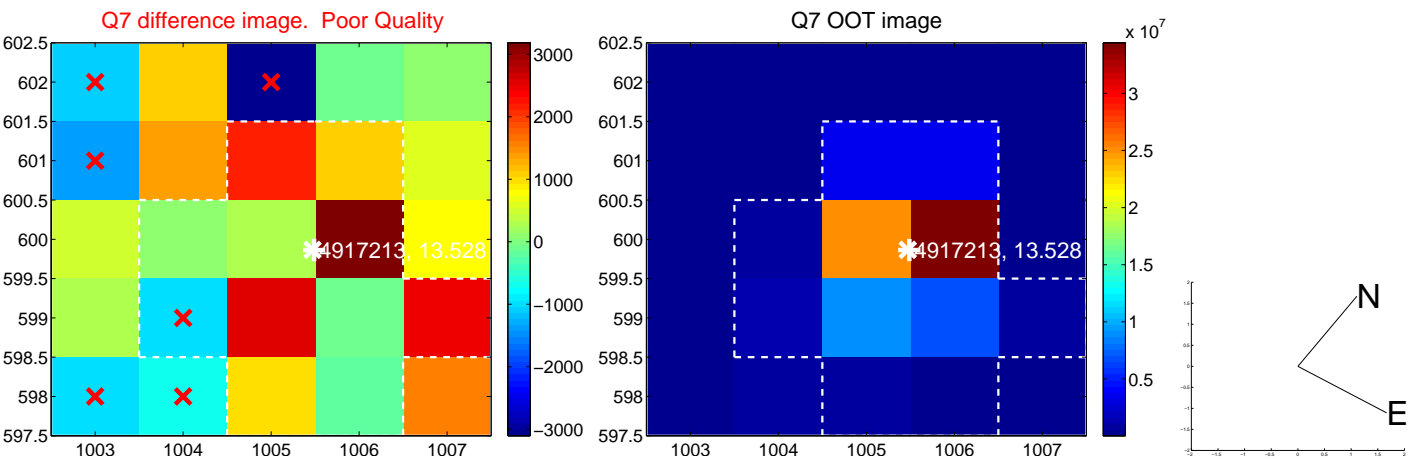
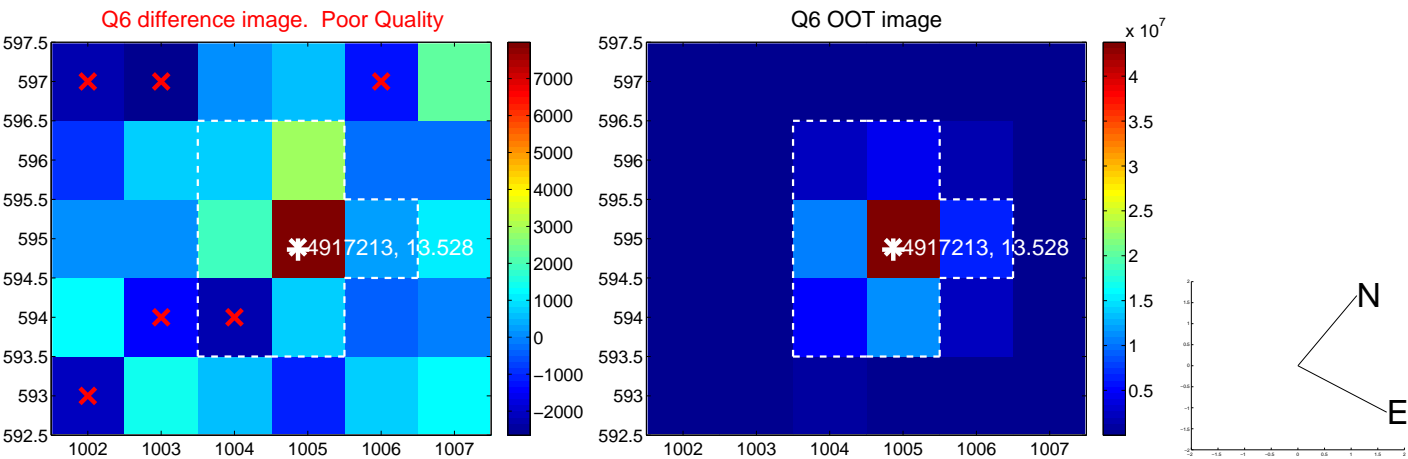
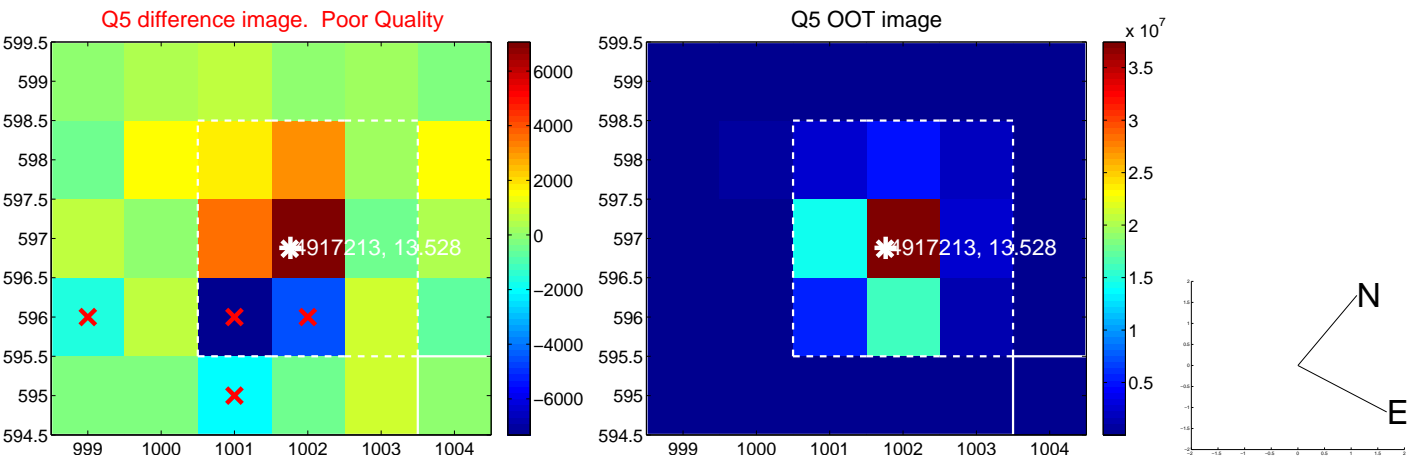


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

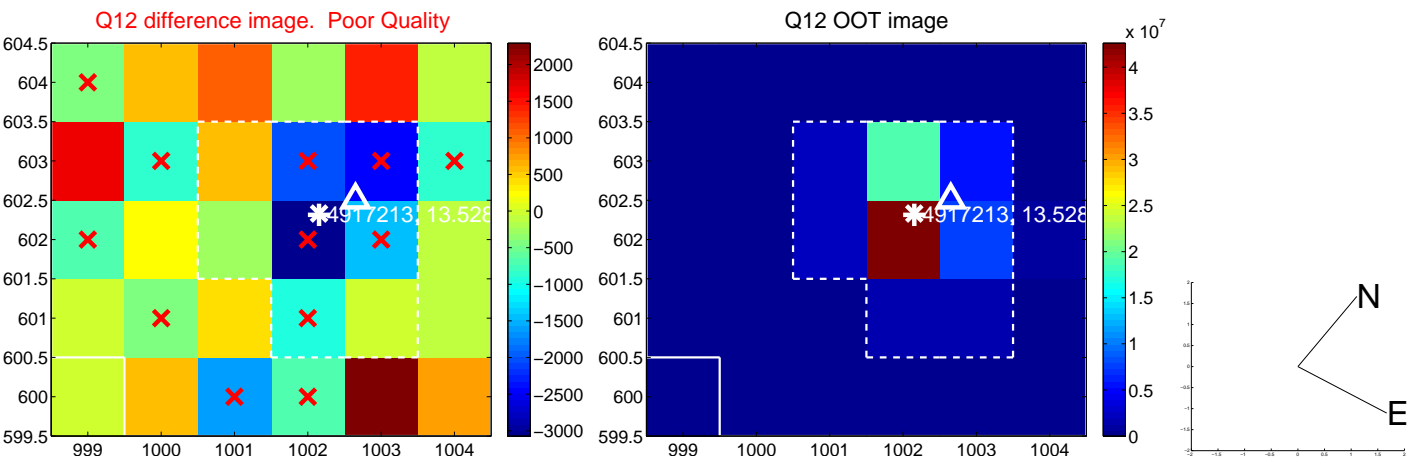
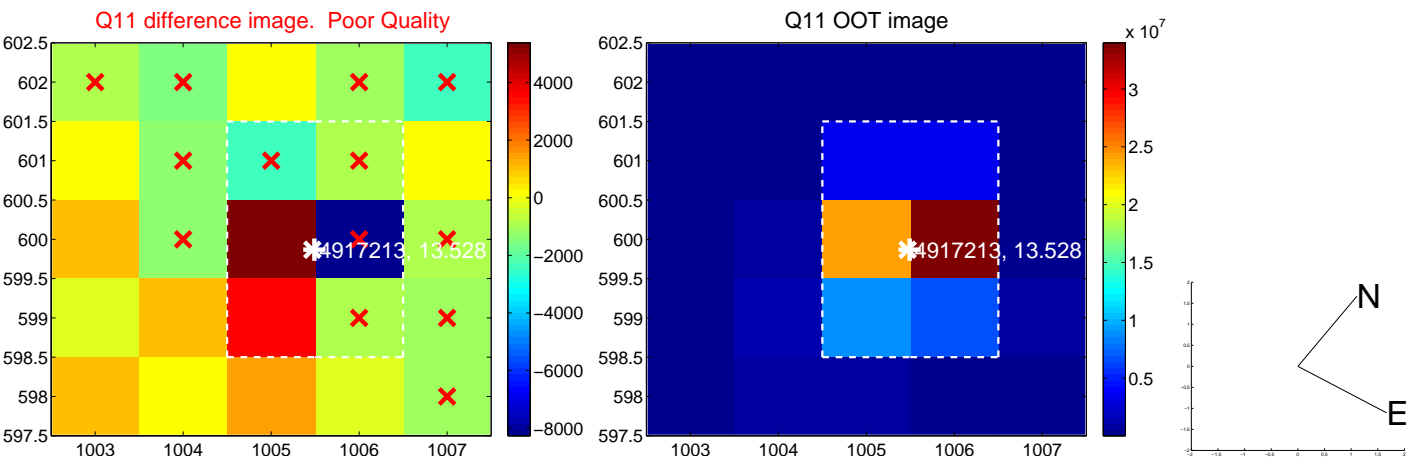
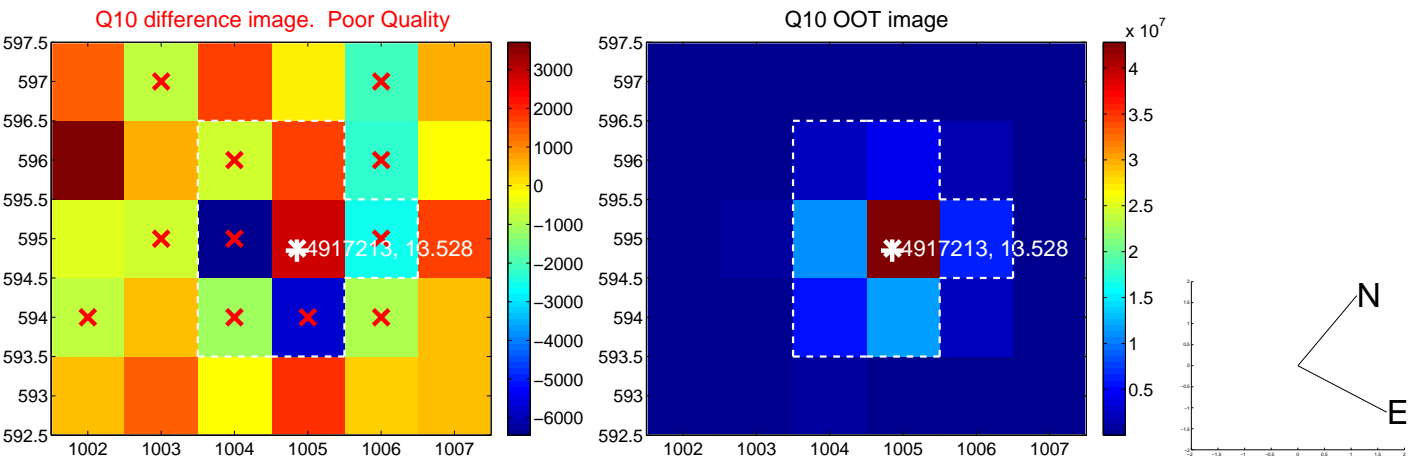
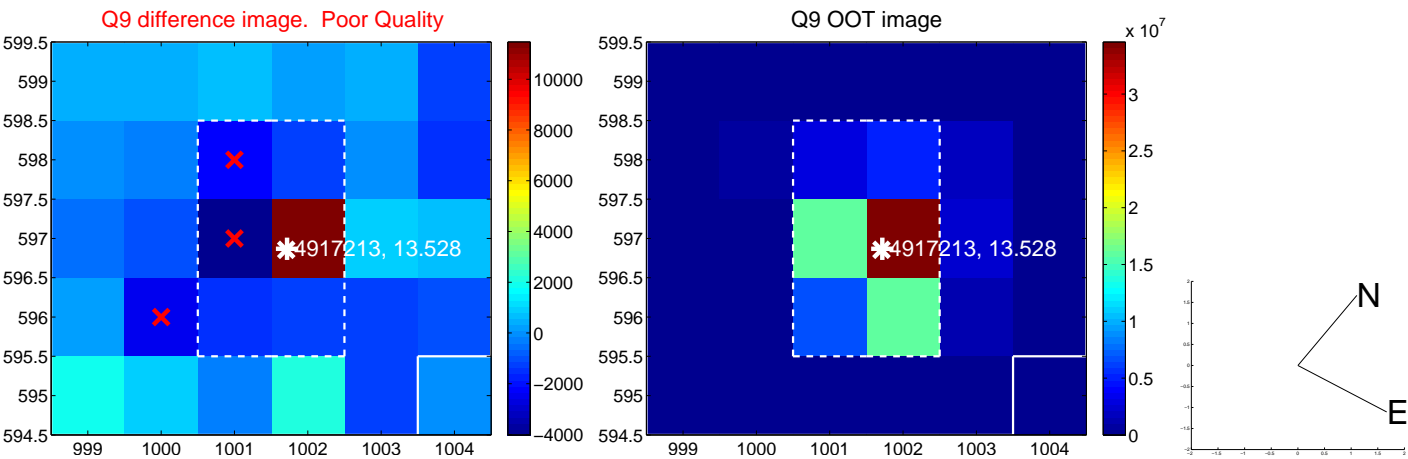
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



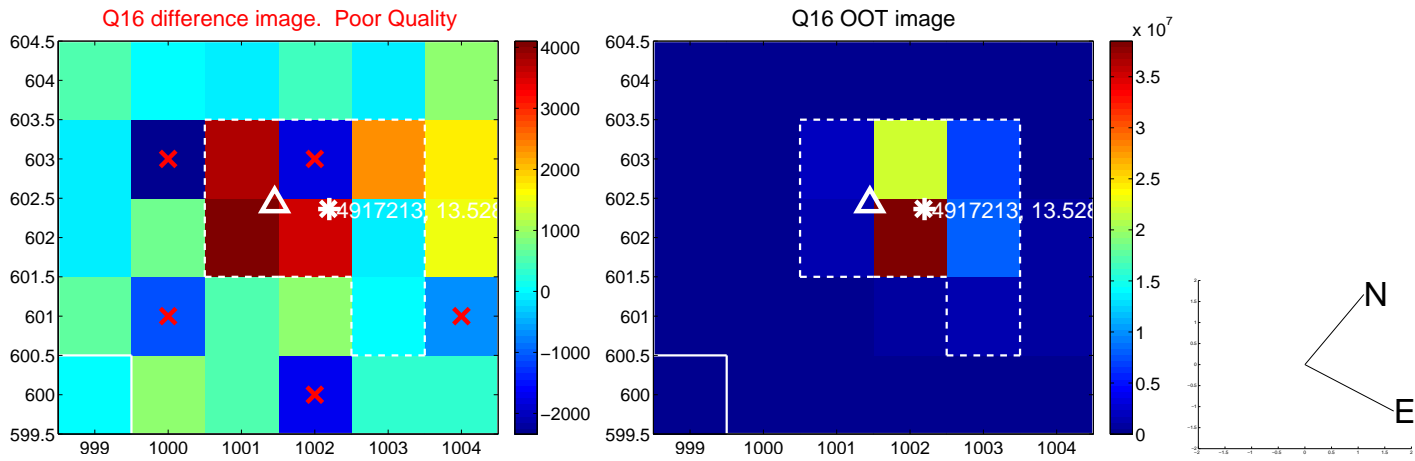
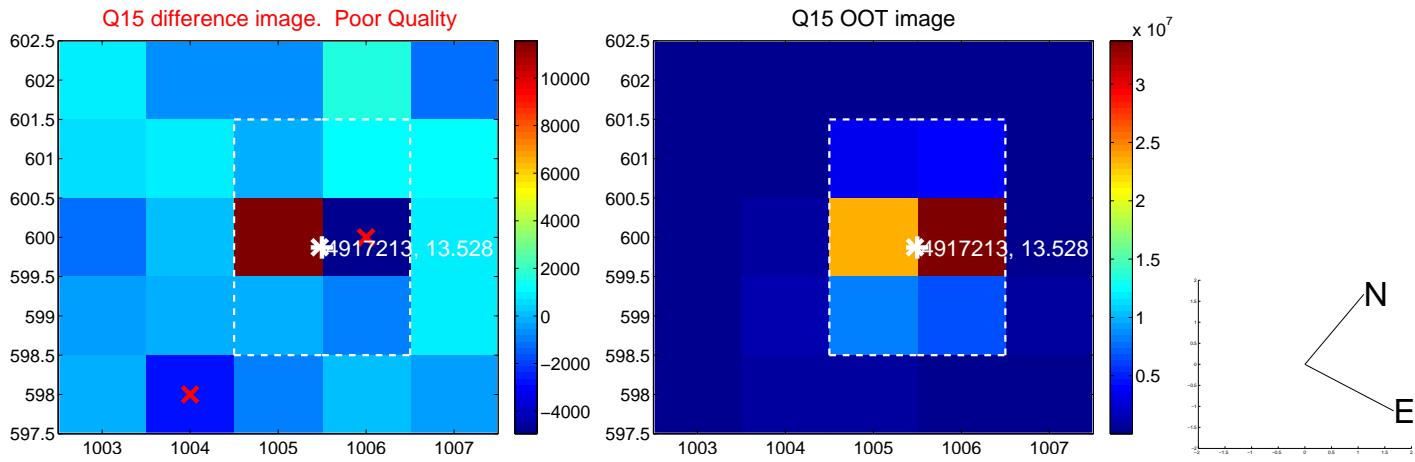
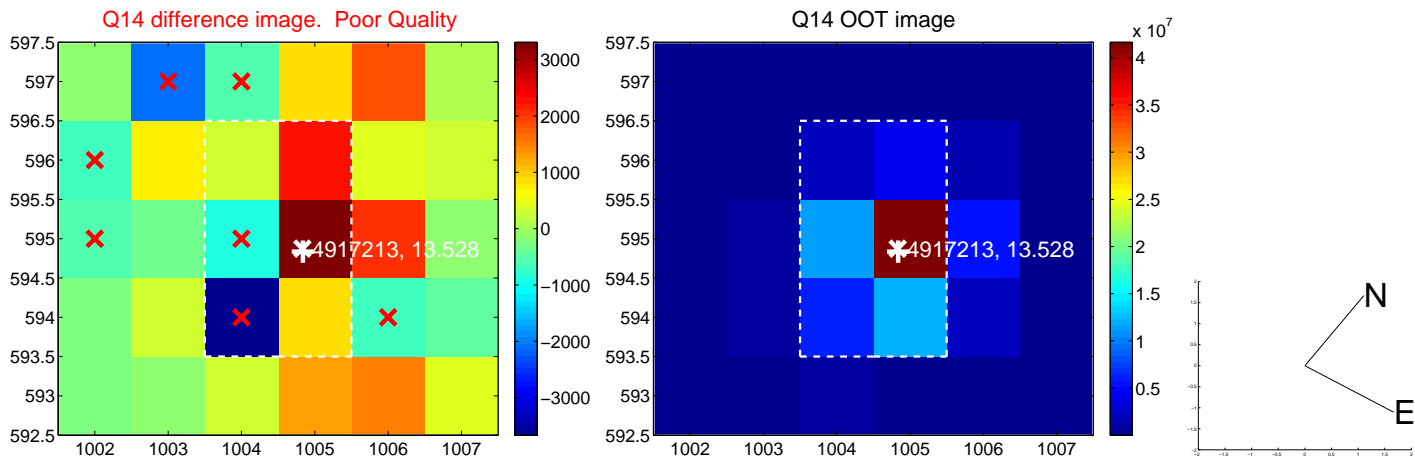
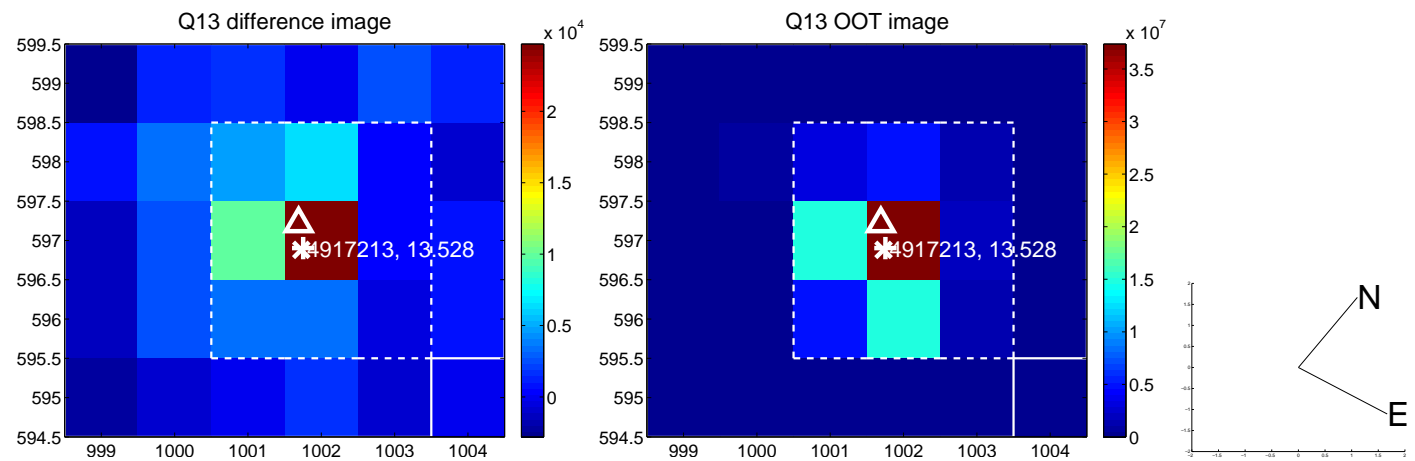
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



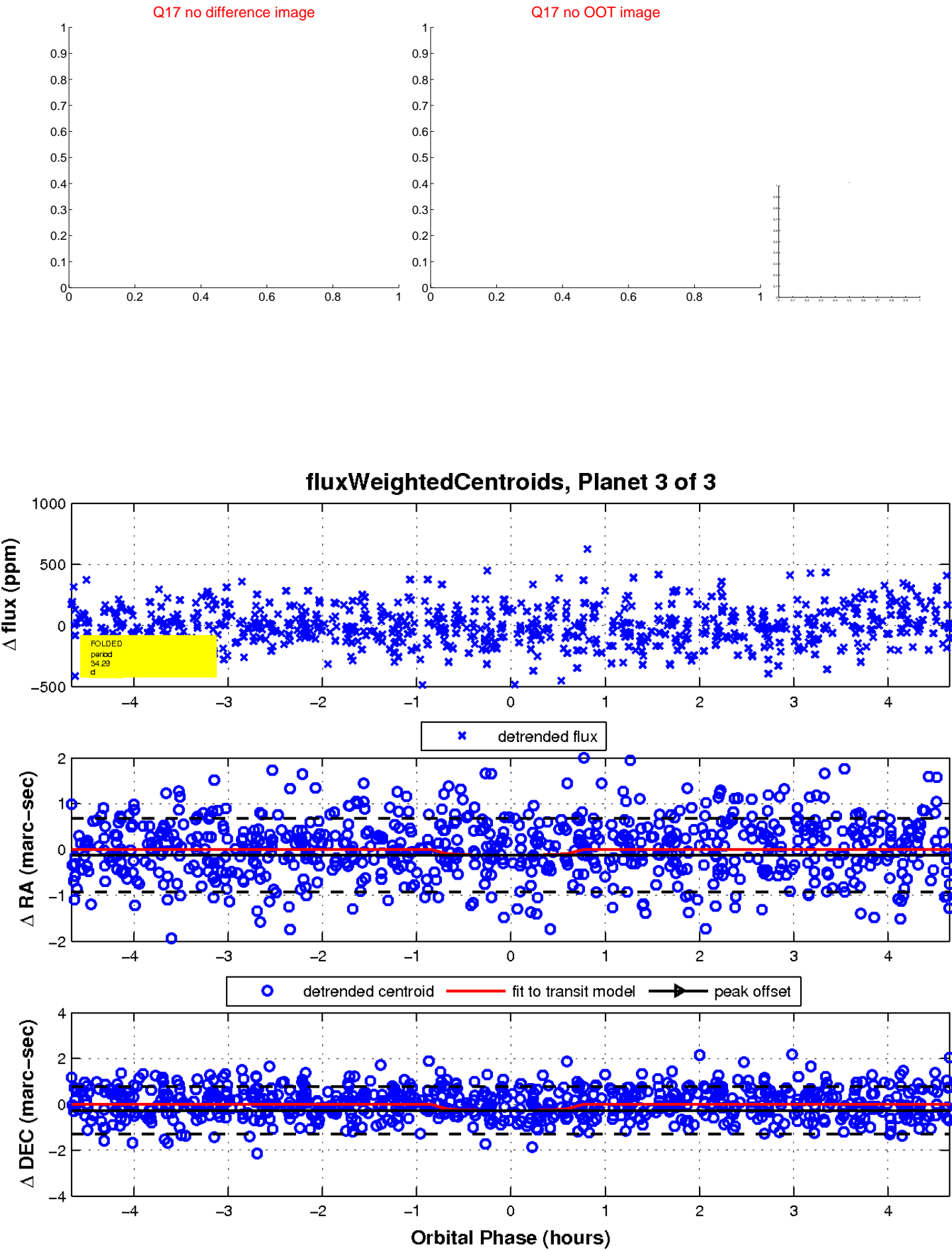
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

