

# KIC 011413380

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011413380-01	OBS	No	559.249011	448.115196	3541.1	5.794	17.9	6.5	0.65	5257	3.94	0.22
011413380-02	OBS	No	0.751749	131.867444	1376.1	2.000	9.2	-1.0	0.65	5257	2.37	1474.99
011413380-03	OBS	No	180.026072	239.130811	1693.8	2.500	9.7	-1.0	0.65	5257	2.63	0.99
011413380-04	OBS	No	0.753531	131.694242	109.2	0.894	8.5	5.3	0.65	5257	0.68	1470.34
011413380-05	OBS	No	0.754848	131.820369	889.5	1.500	8.5	-1.0	0.65	5257	1.91	1466.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011413380-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011413380-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS
011413380-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011413380-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
011413380-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

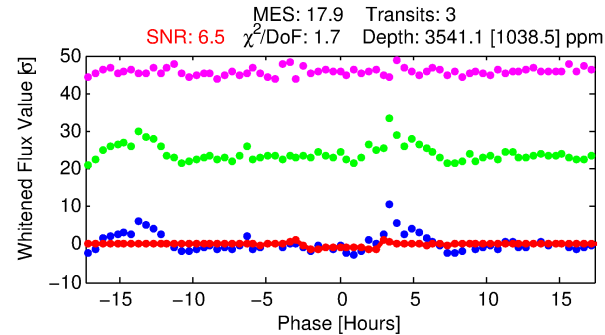
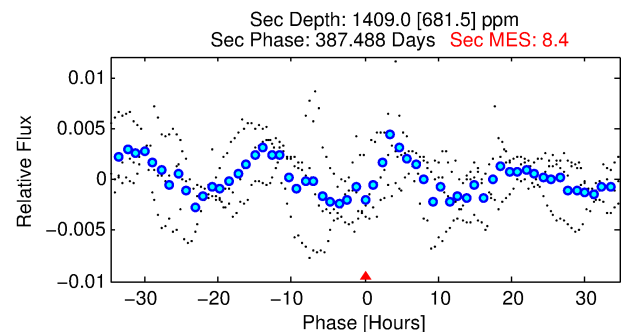
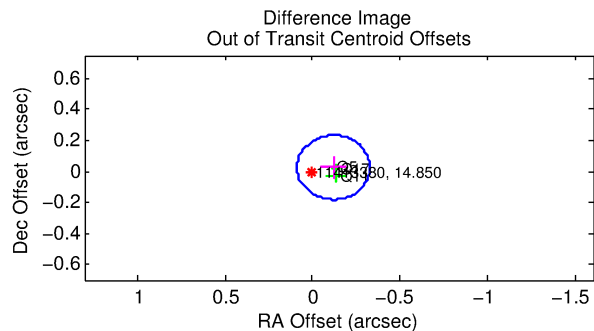
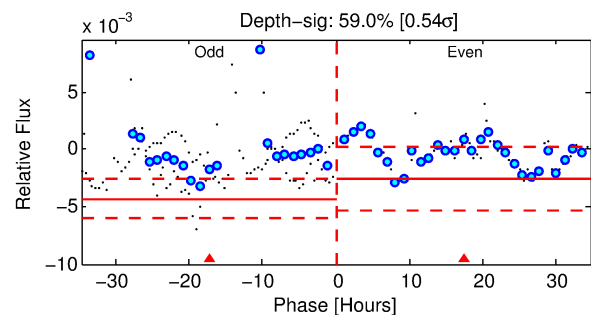
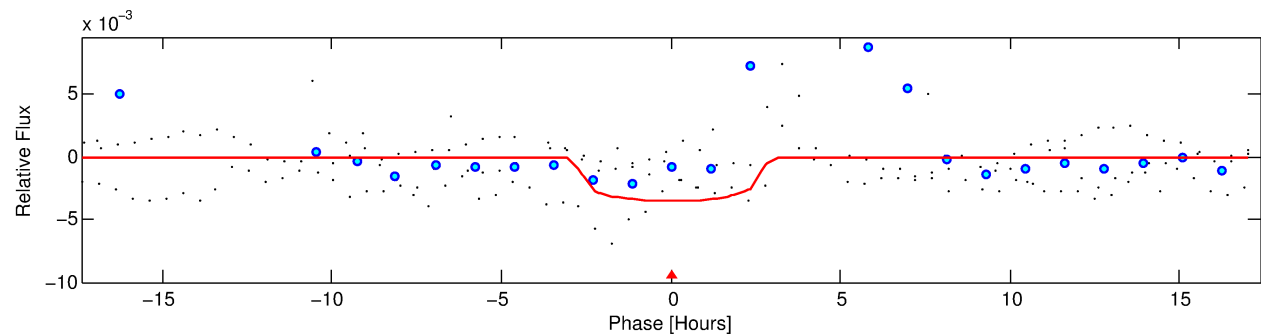
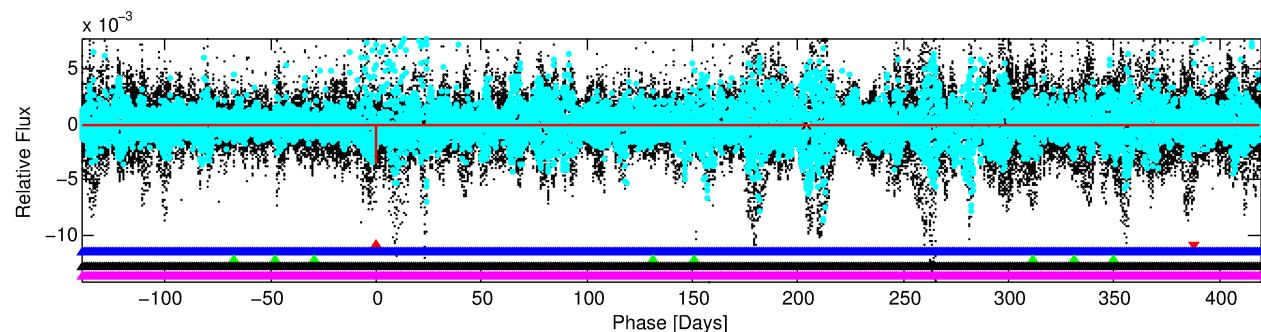
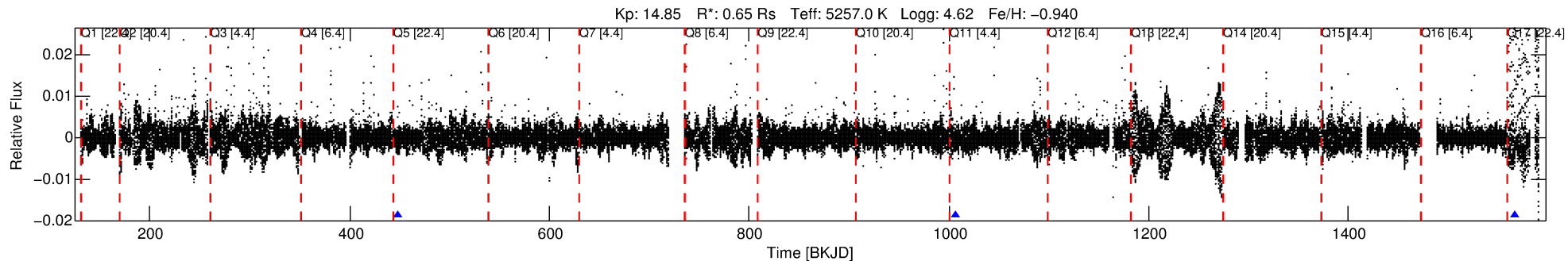
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011413380-01

No Significant Match Found

# DV One-Page Summary

KIC: 11413380 Candidate: 1 of 5 Period: 559.249 d



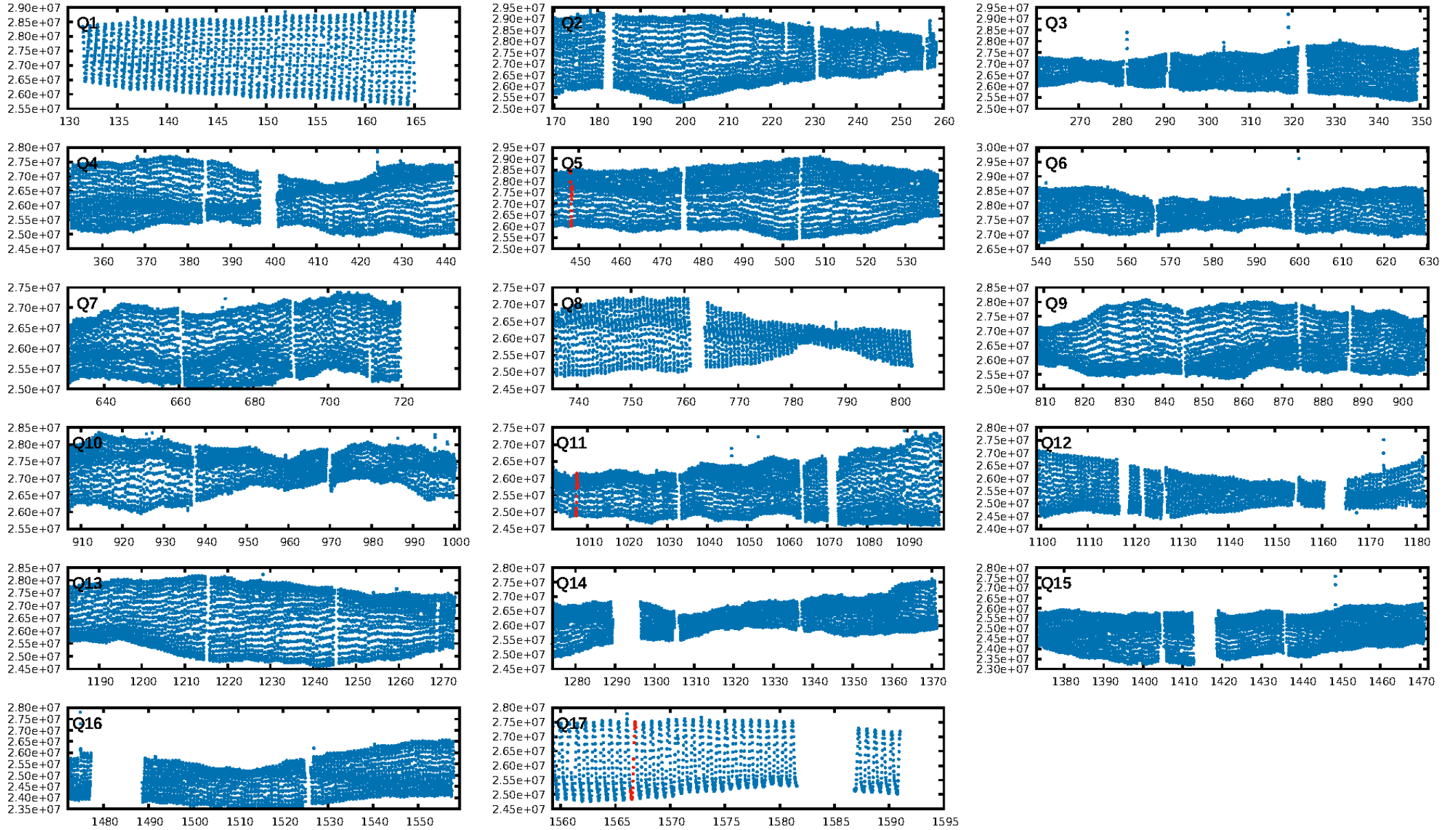
## DV Fit Results:

Period = 559.24901 [0.00600] d  
Epoch = 448.1152 [0.0063] BKJD  
Rp/R\* = 0.0560 [0.0332]  
a/R\* = 672.01 [1521.23]  
b = 0.53 [3.09]  
Seff = 0.22 [0.04]  
Teq = 174 [7] K  
Rp = 3.94 [2.36] Re  
a = 1.1406 [0.0869] AU  
Ag = 64858.51 [83408.31] [0.78 $\sigma$ ]  
Teffp = 4303 [1384] K [2.98 $\sigma$ ]

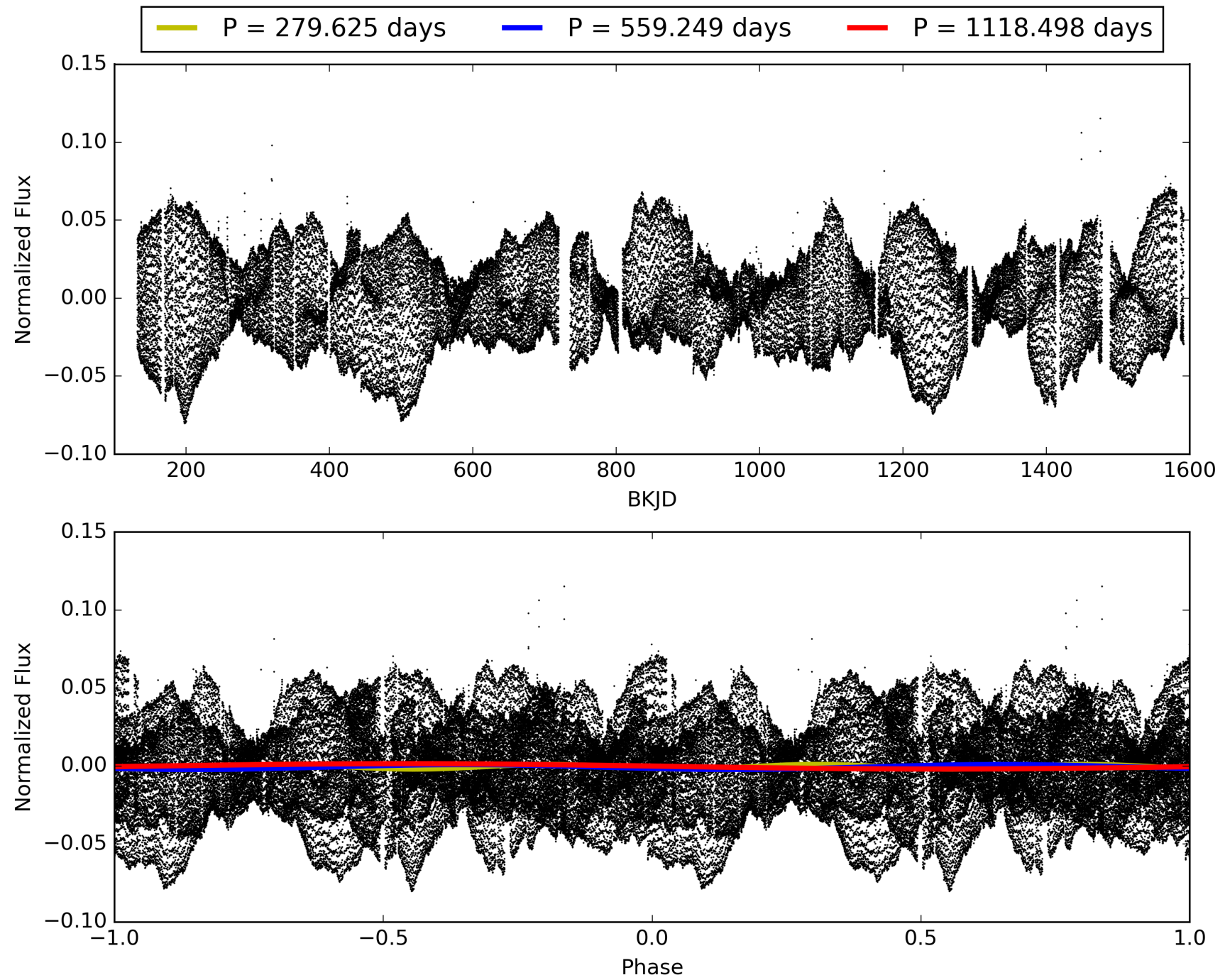
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1442.29 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGoF-sig: 14.1%  
Bootstrap-pfa: 1.14e-34  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -0.9482  
Centroid-sig: N/A  
Centroid-so: 1.042 arcsec [2.04 $\sigma$ ]  
OotOffset-rm: 0.122 arcsec [1.76 $\sigma$ ]  
KicOffset-rm: 0.041 arcsec [0.58 $\sigma$ ]  
OotOffset-st: 0/1/0/2 [3]  
KicOffset-st: 0/1/0/2 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 0.00 [0/3]

# TCE 011413380-01, PDC Light Curves



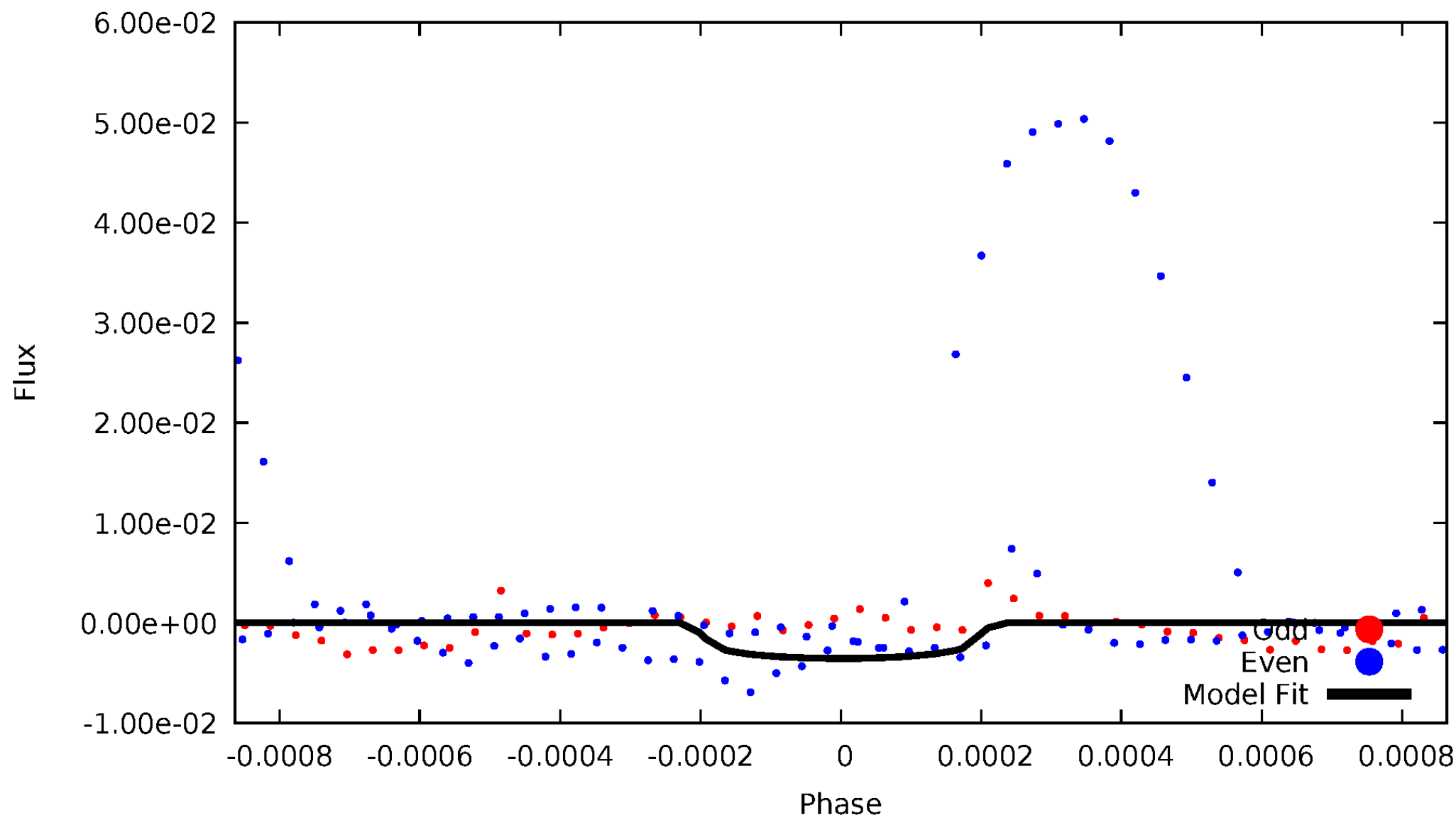
TCE 011413380-01





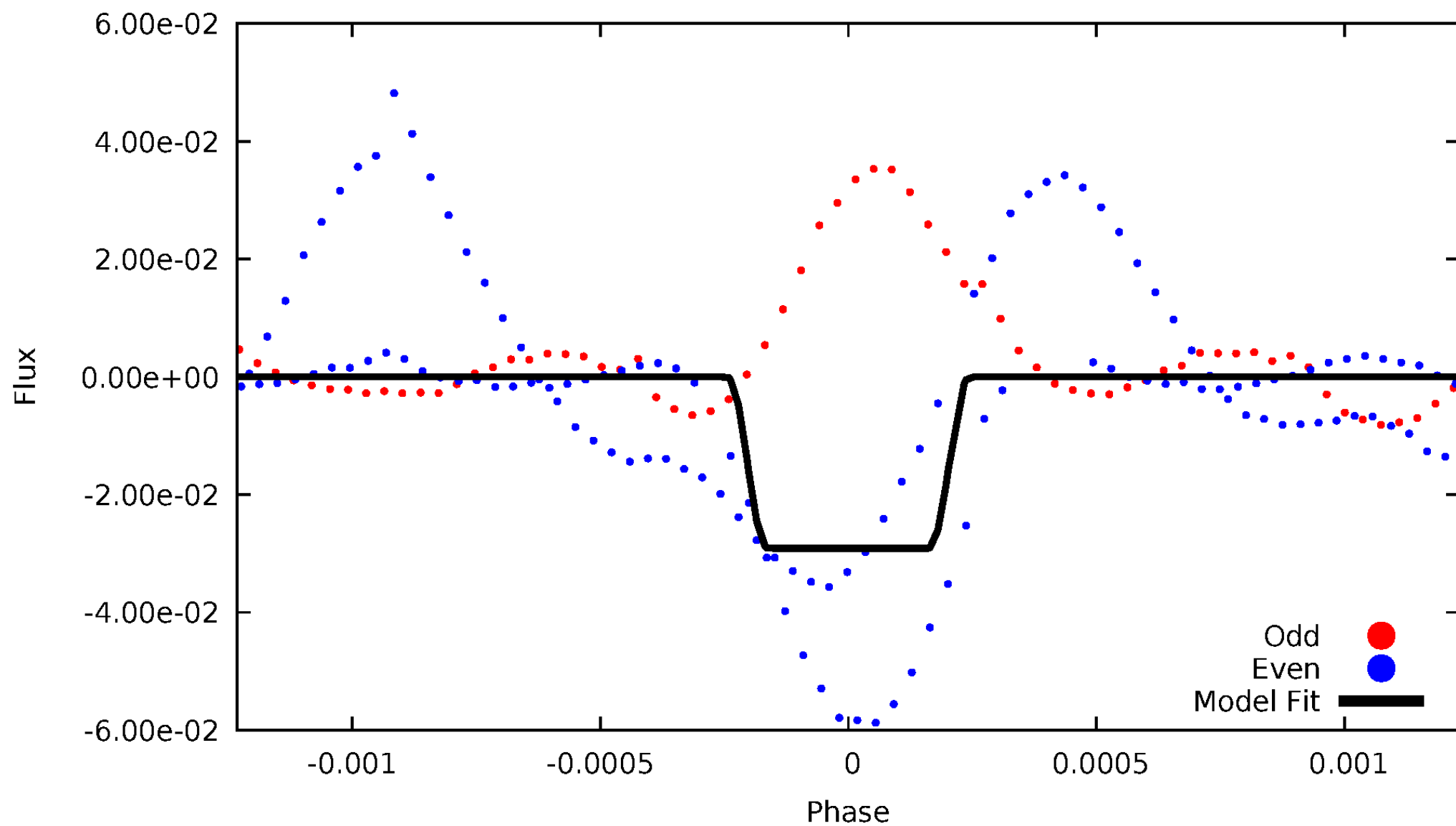
# DV Odd/Even

TCE 011413380-01



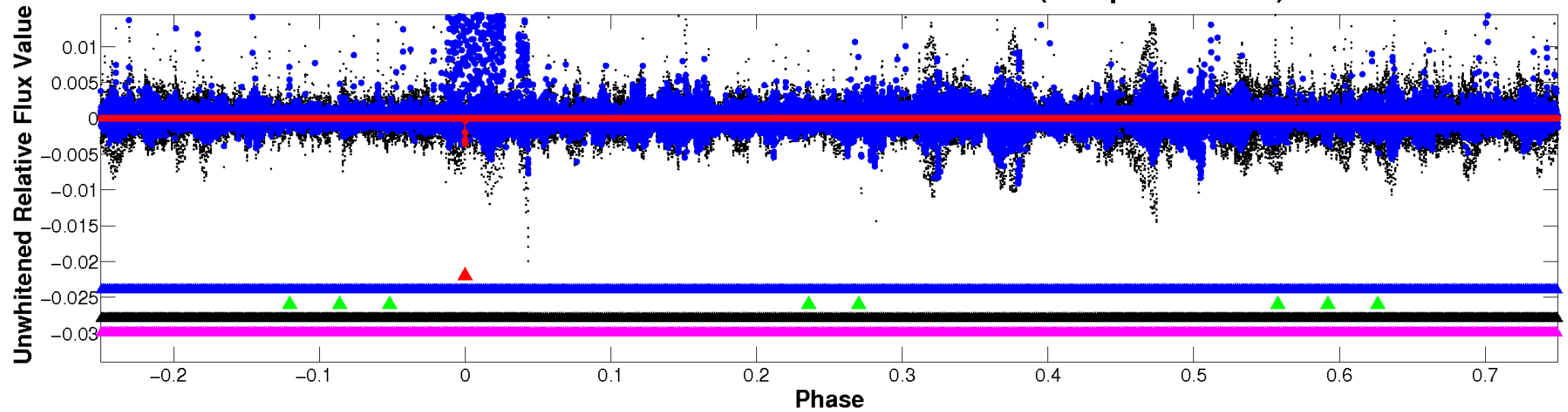
# ALT Odd/Even

TCE 011413380-01

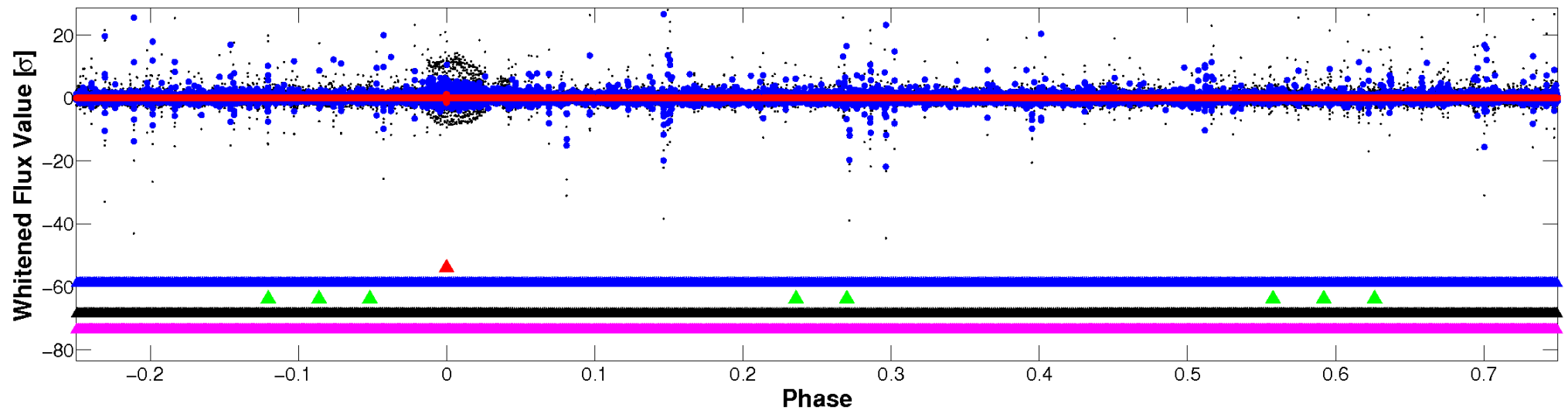


# Non-Whitened Vs. Whitened Light Curve

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

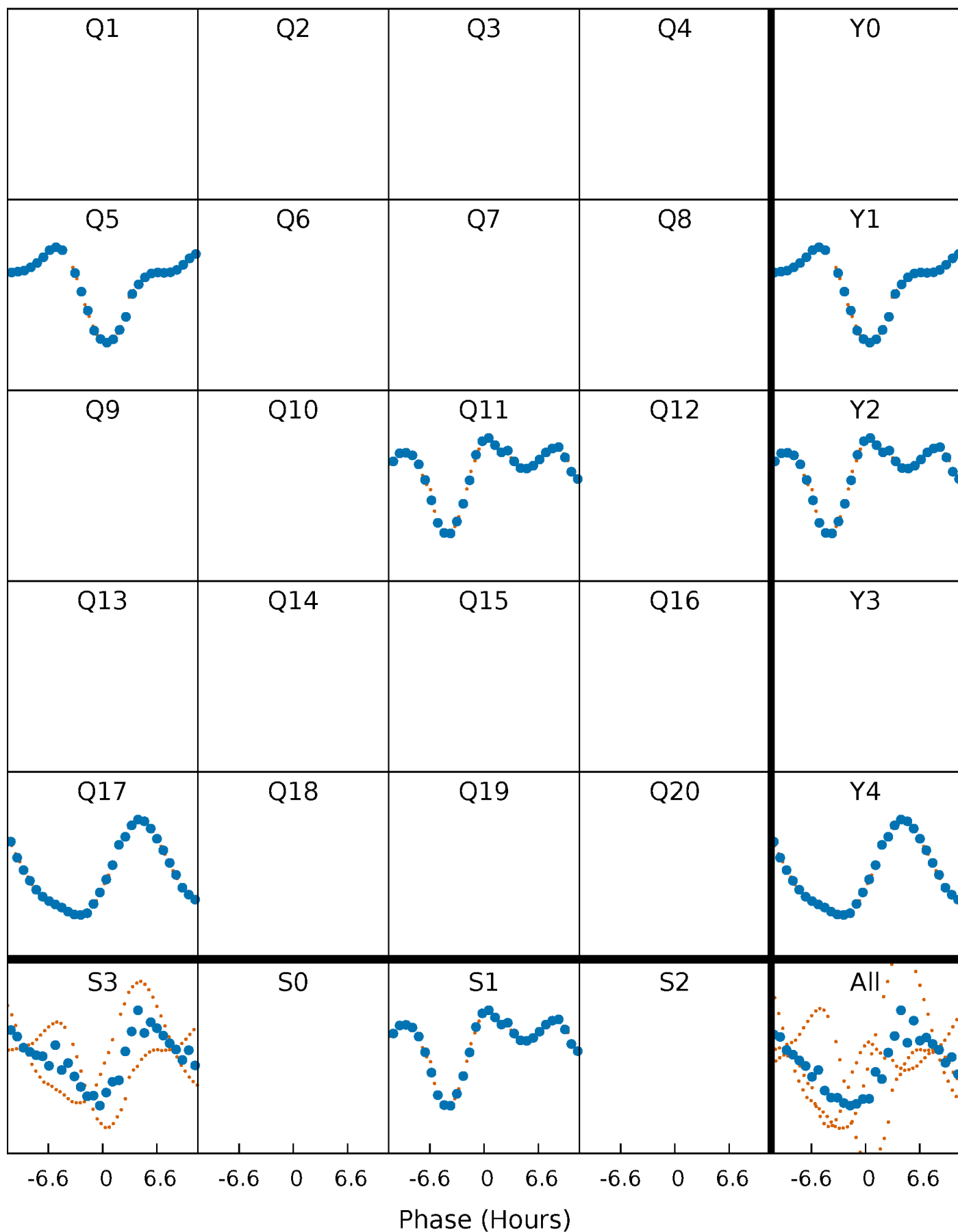


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



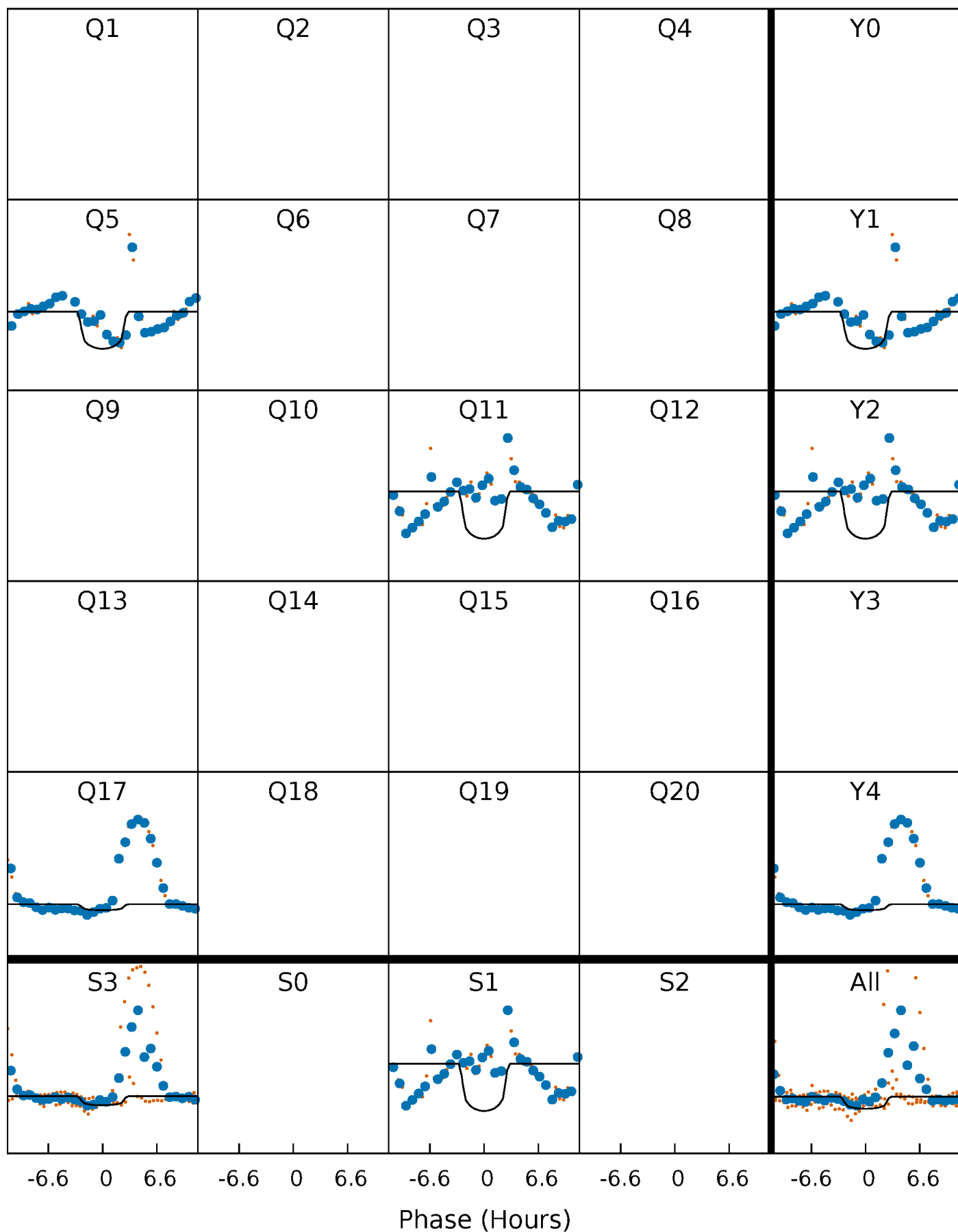
# PDC Quarter-Phased Transit Curves

TCE 011413380-01 P=559.249011 Days  $T_0=448.115196$  (BKJD)



# DV Quarter-Phased Transit Curves

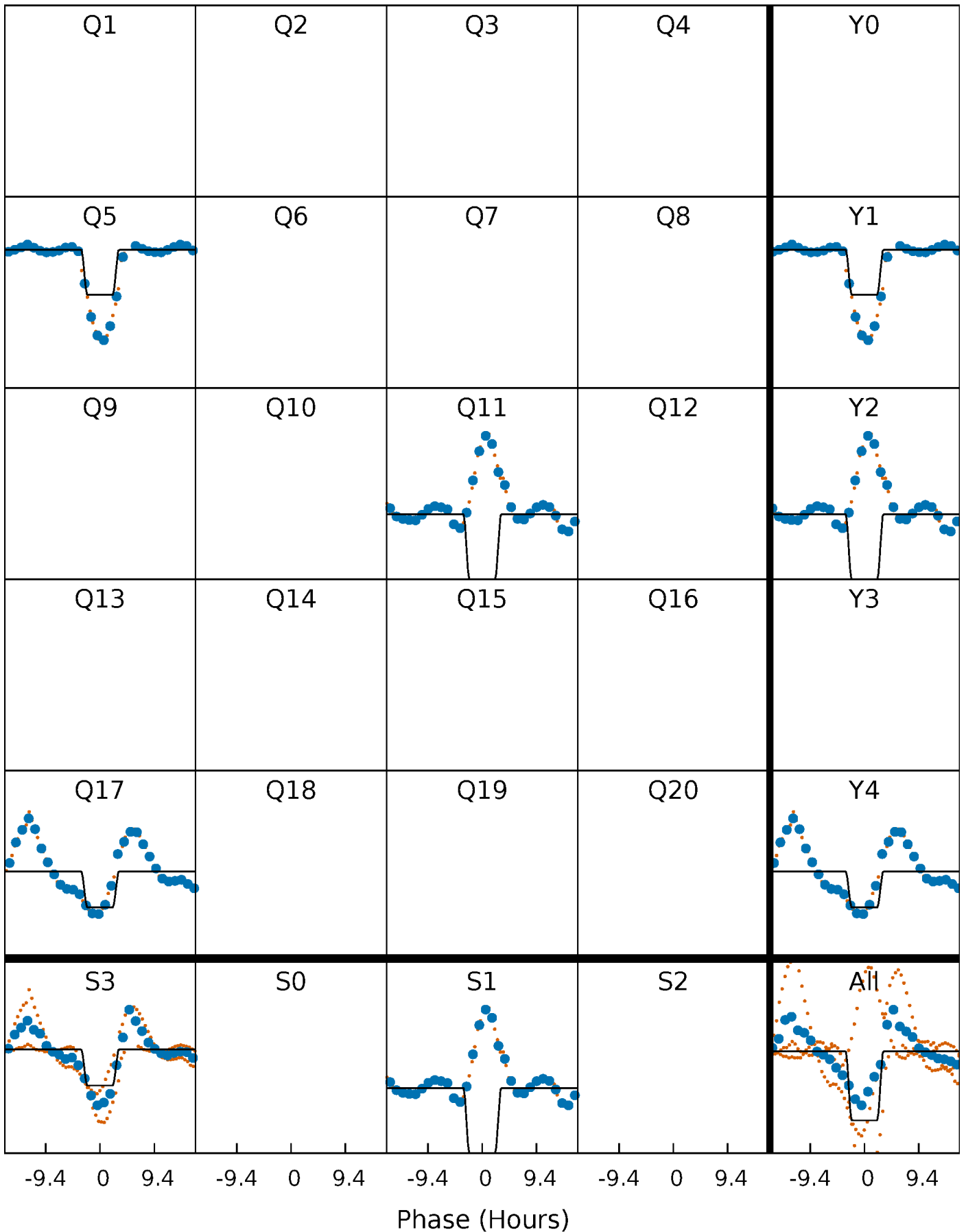
TCE 011413380-01 P=559.249011 Days  $T_0=448.115196$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

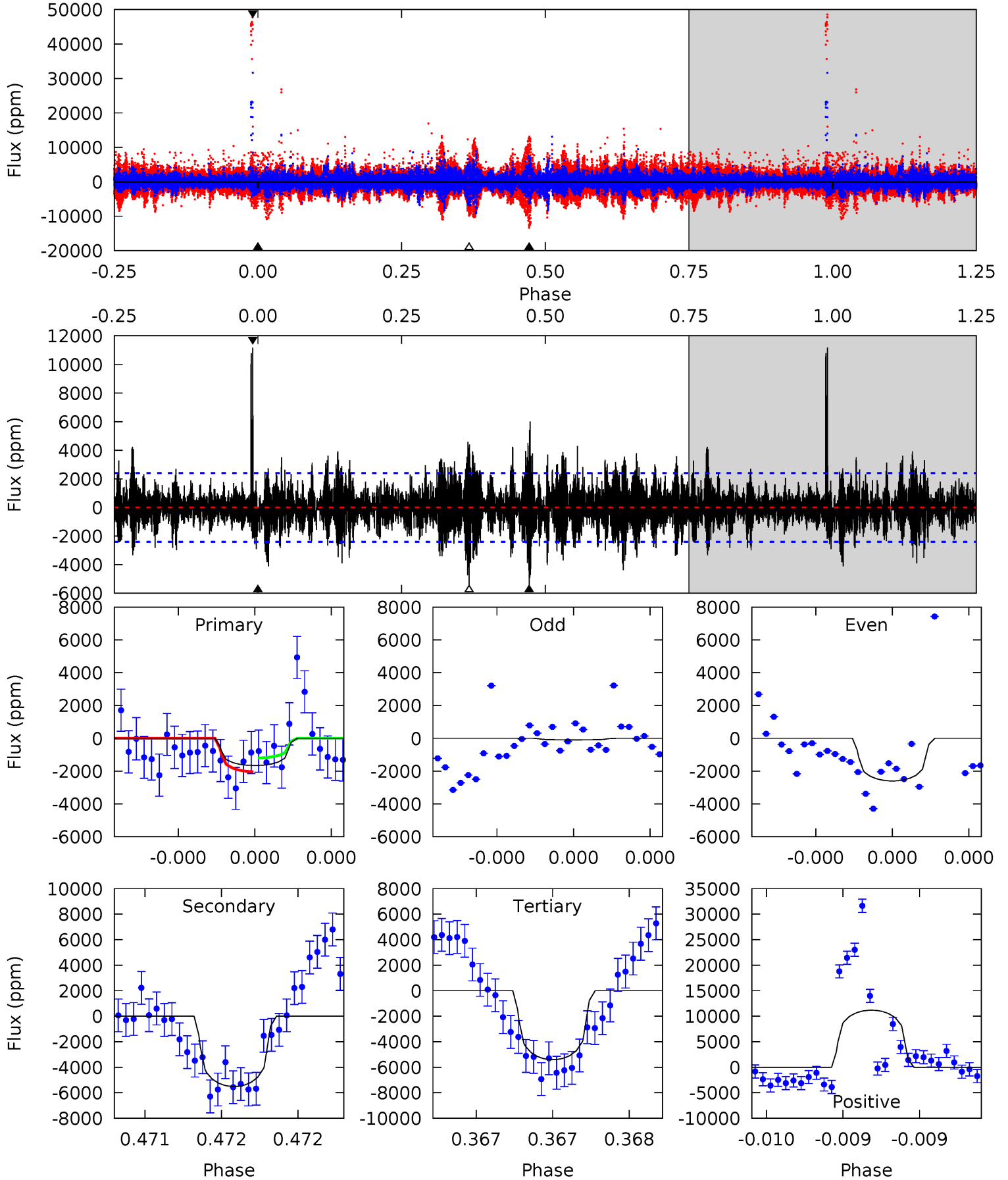
TCE 011413380-01 P=559.232481 Days  $T_0=448.097918$  (BKJD)



# DV Model-Shift Uniqueness Test

011413380-01, P = 559.249011 Days, E = 448.115196 Days

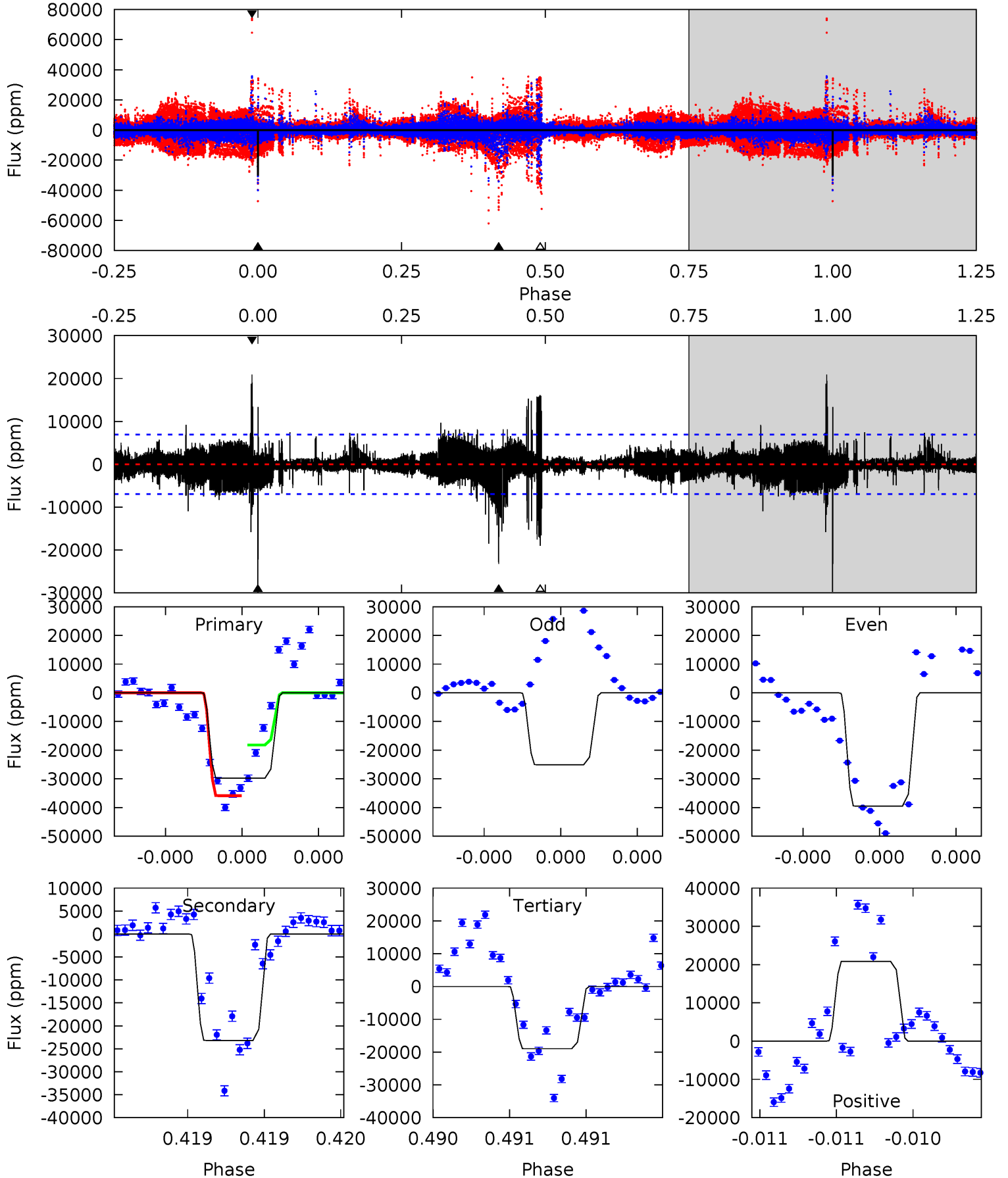
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.87	12.8	12.6	26.1	5.60	3.52	2.90	-8.74	-22.2	0.23	-13.2	2.18	-3.32	0.67	0.97



# Alt Model-Shift Uniqueness Test

011413380-01, P = 559.232481 Days, E = 448.097918 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
23.9	18.7	15.3	16.8	5.58	3.49	1.95	8.66	7.16	3.38	1.87	6.25	0.64	0.41	6.61



### Stellar Parameters For KIC 011413380

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5257^{+157}_{-157}$	$4.620^{+0.066}_{-0.044}$	$-0.940^{+0.300}_{-0.300}$	$0.645^{+0.055}_{-0.055}$	$0.632^{+0.060}_{-0.023}$	$3.317^{+0.900}_{-0.531}$
	+3%/-3%	+1%/-1%	+32%/-32%	+9%/-9%	+9%/-4%	+27%/-16%
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 011413380-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-5505 \pm 428$	$4.21^{+2.50}_{-2.30}$	$243^{+9}_{-9}$	$5864^{+3171}_{-1158}$	$232771^{+869893}_{-144538}$
Alt.	$-23192 \pm 1242$	$11.94^{+2.44}_{-2.39}$	$242^{+9}_{-9}$	$5032^{+505}_{-362}$	$120776^{+70913}_{-36727}$

$T_{\text{max}}$  = 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

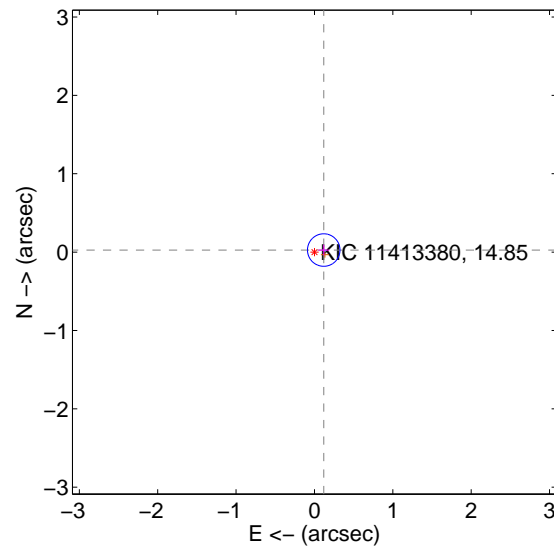
Supplemental centroid analysis for 011413380-01. Kepler magnitude: 14.85. Transit SNR 6.51

There are 2 quarters with good PRF difference image offsets

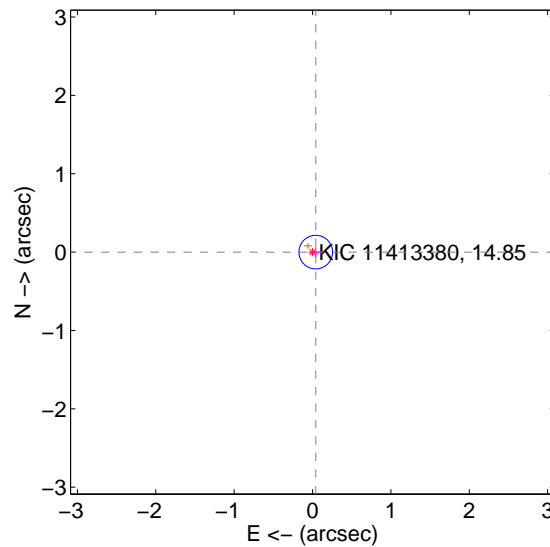
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.122 \pm 0.069$	1.76	$-0.119 \pm 0.069$	$0.026 \pm 0.068$
PRF-fit source offset from KIC position	$0.041 \pm 0.071$	0.58	$-0.041 \pm 0.071$	$-0.000 \pm 0.070$
photometric centroid source offset	$1.04 \pm 0.51$	2.04	$1.04 \pm 0.51$	$0.03 \pm 0.42$

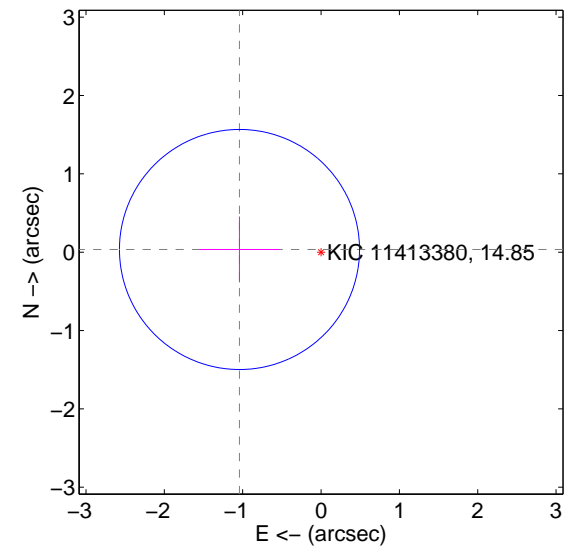
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



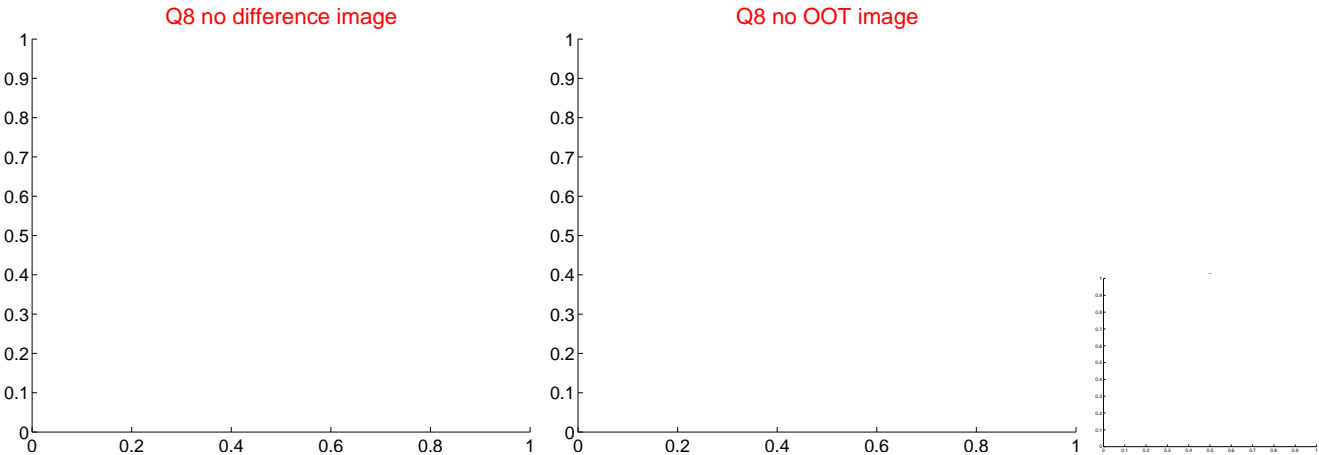
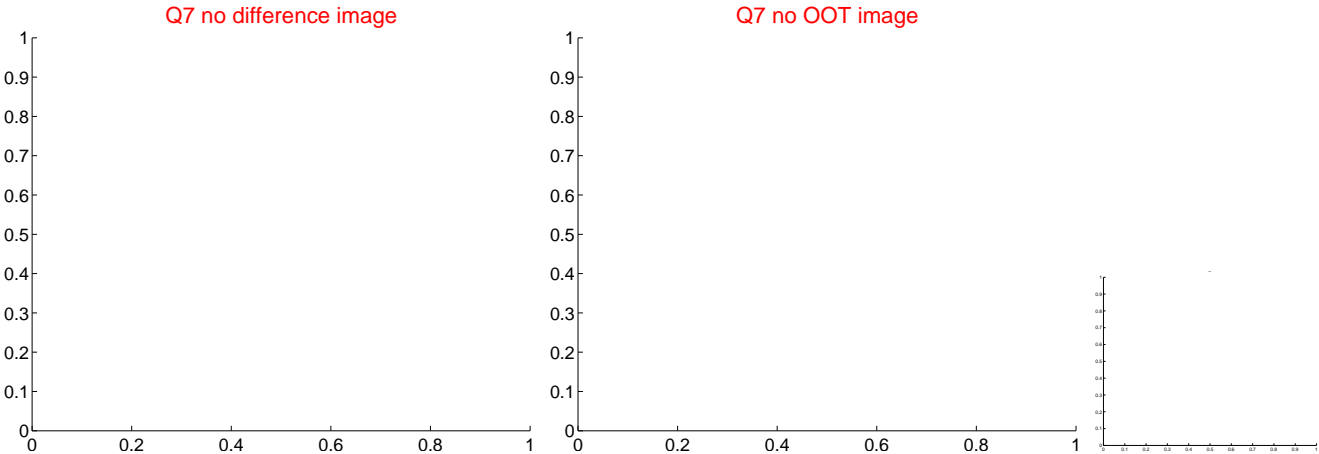
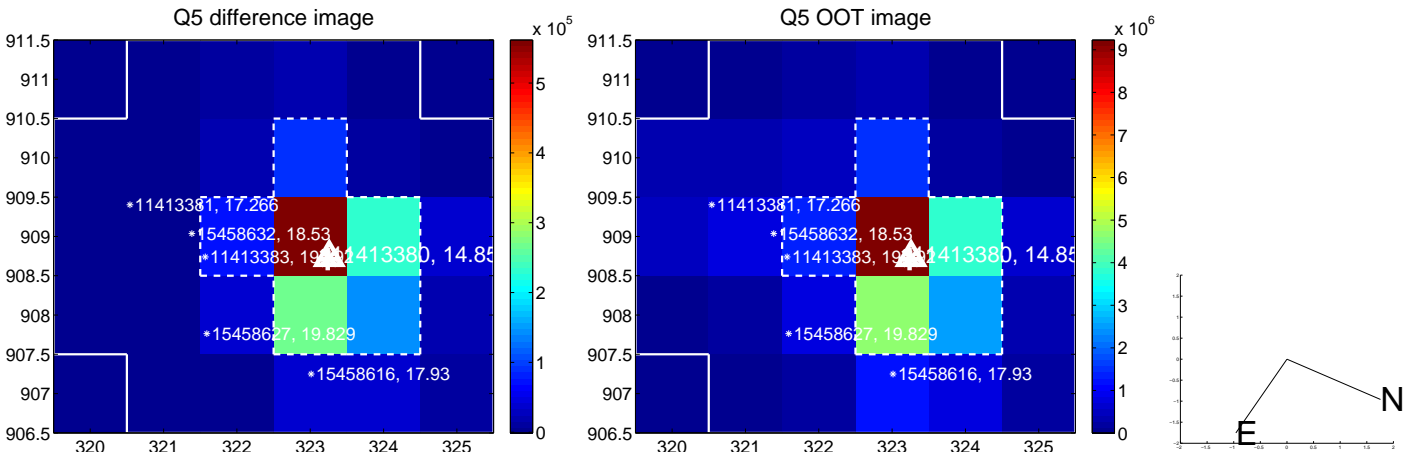
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



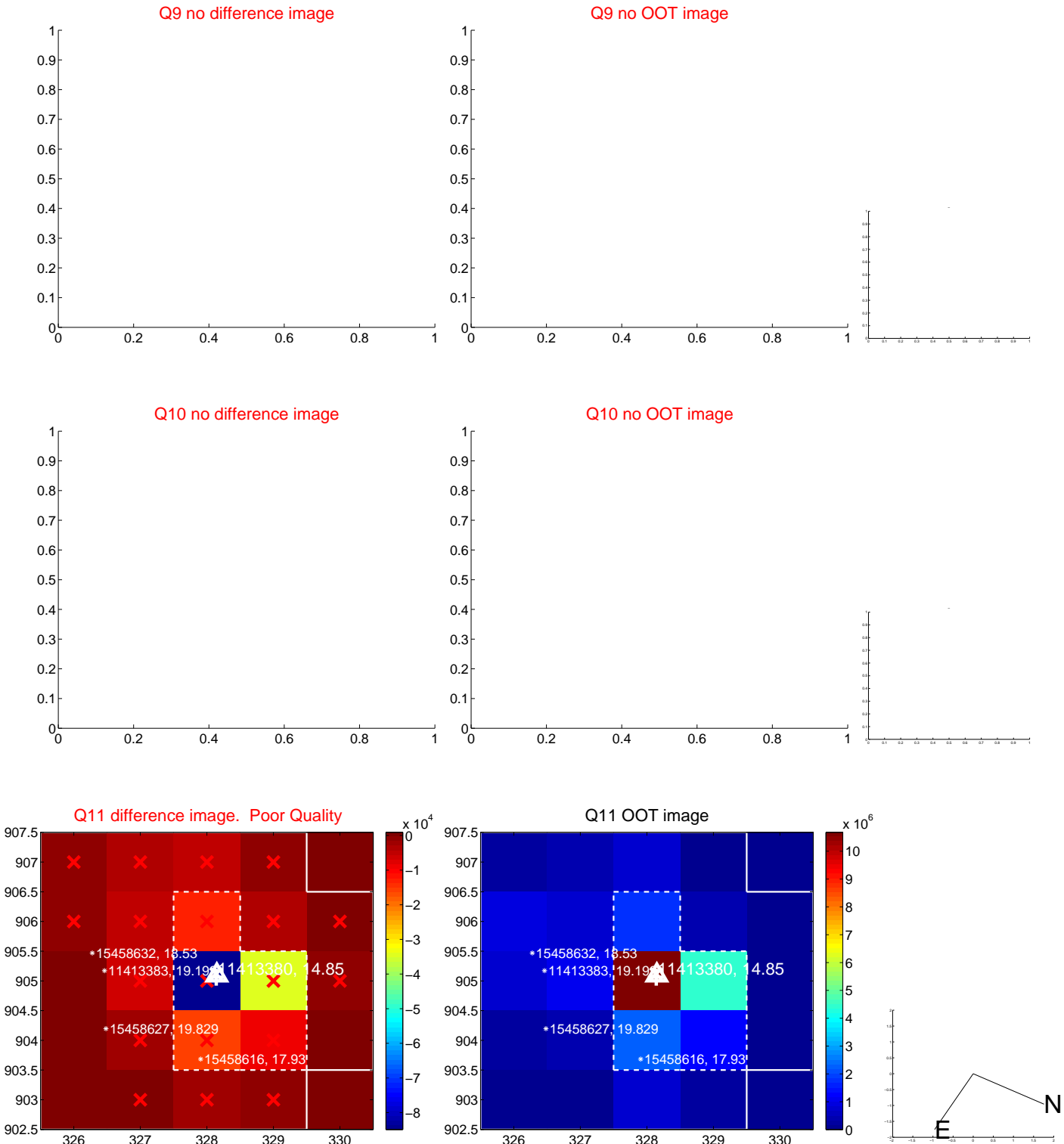
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



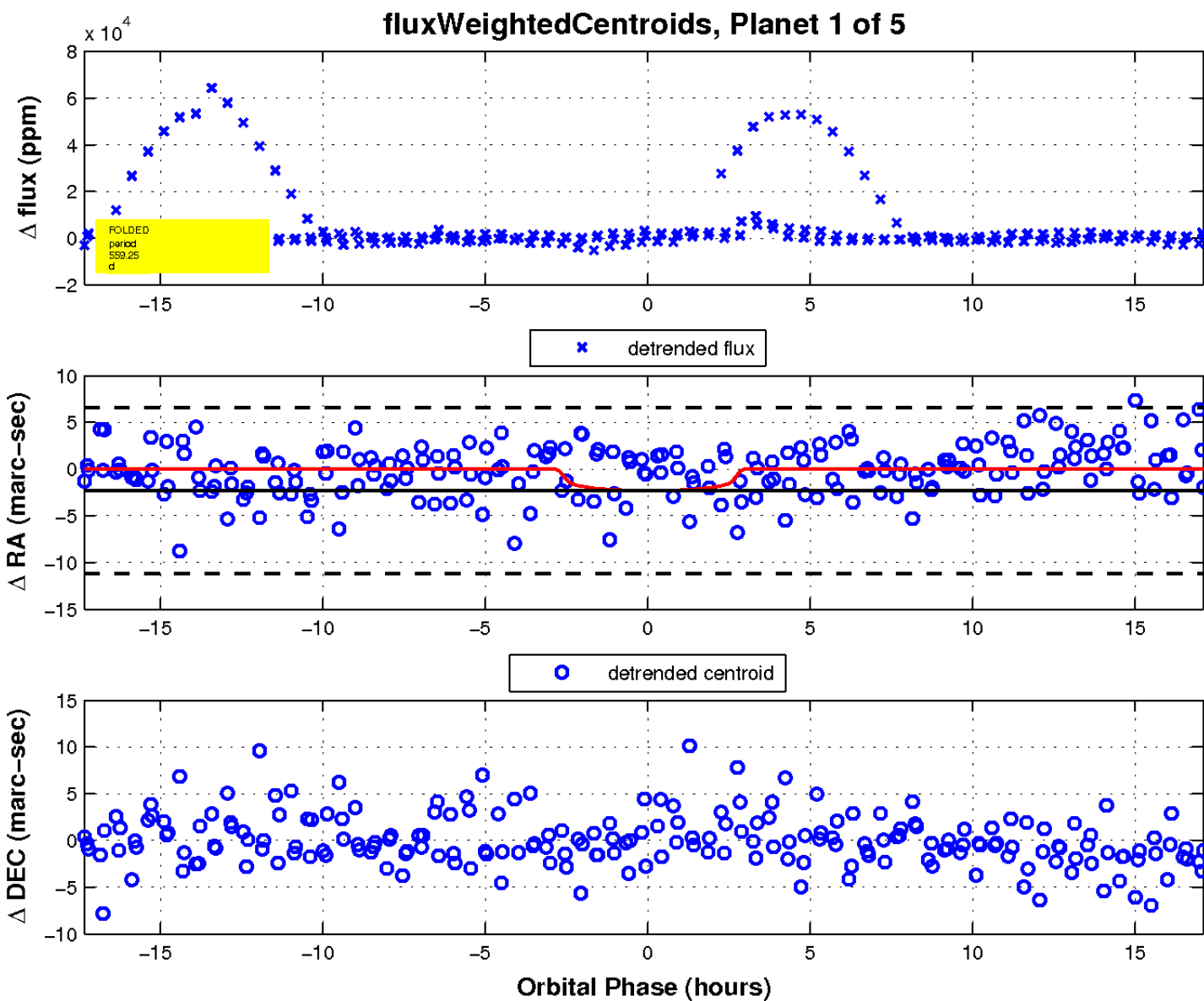
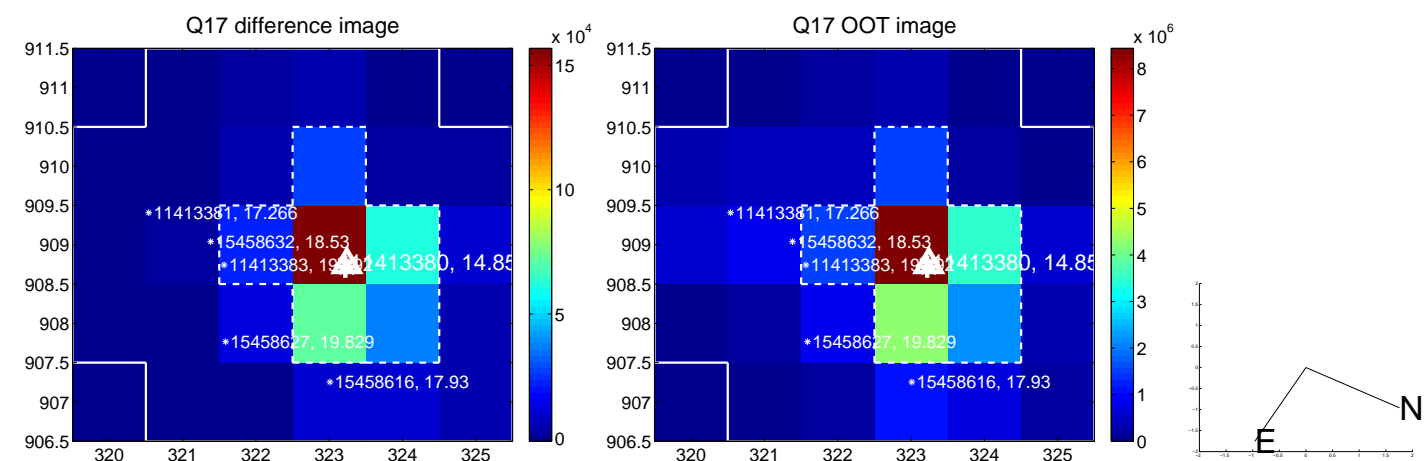
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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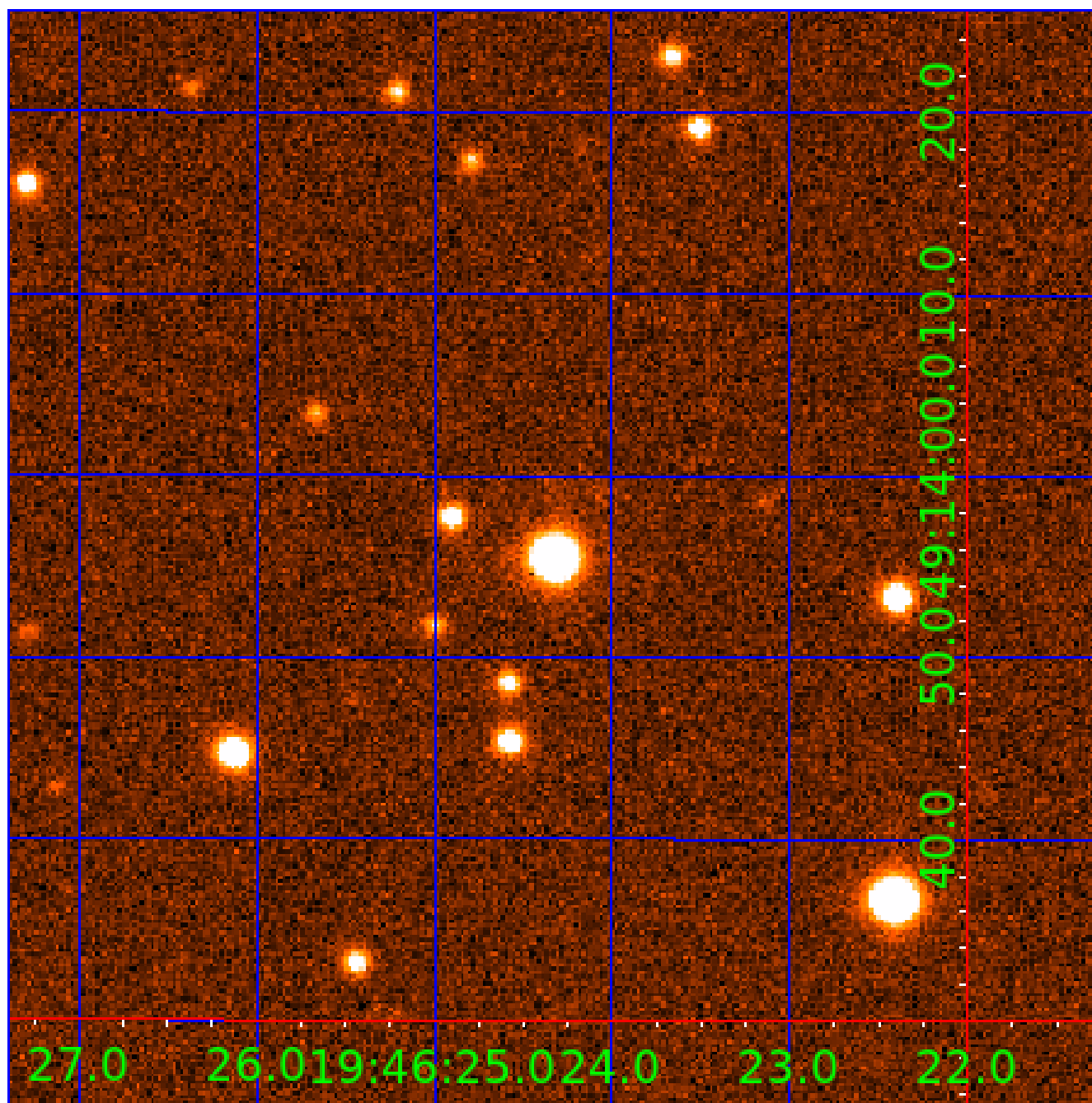
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 011413380

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011413380-01	OBS	No	559.249011	448.115196	3541.1	5.794	17.9	6.5	0.65	5257	3.94	0.22
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011413380-03	OBS	No	180.026072	239.130811	1693.8	2.500	9.7	-1.0	0.65	5257	2.63	0.99
011413380-04	OBS	No	0.753531	131.694242	109.2	0.894	8.5	5.3	0.65	5257	0.68	1470.34
011413380-05	OBS	No	0.754848	131.820369	889.5	1.500	8.5	-1.0	0.65	5257	1.91	1466.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011413380-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011413380-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS
011413380-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011413380-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
011413380-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

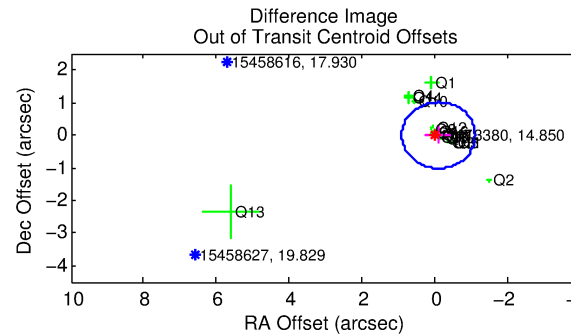
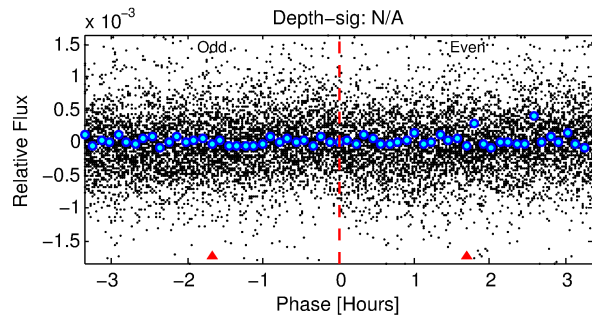
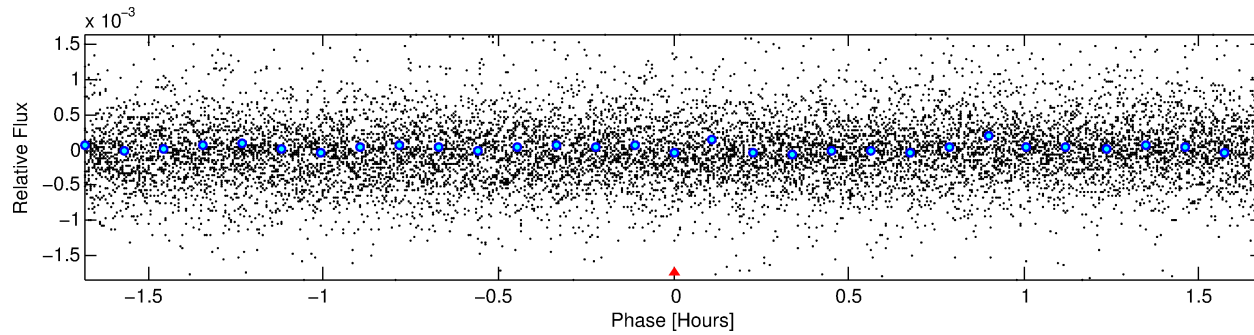
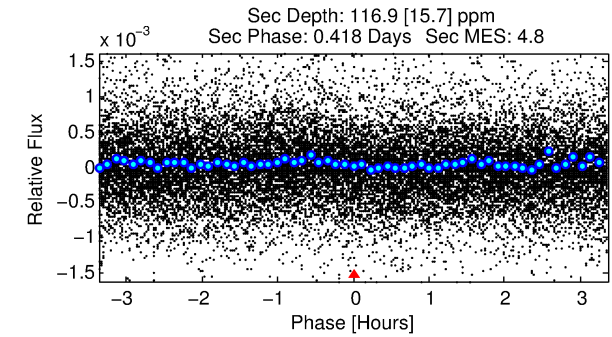
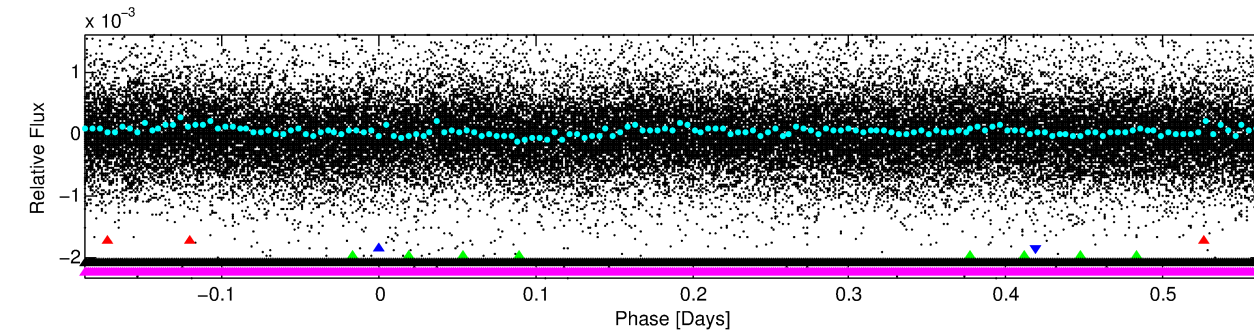
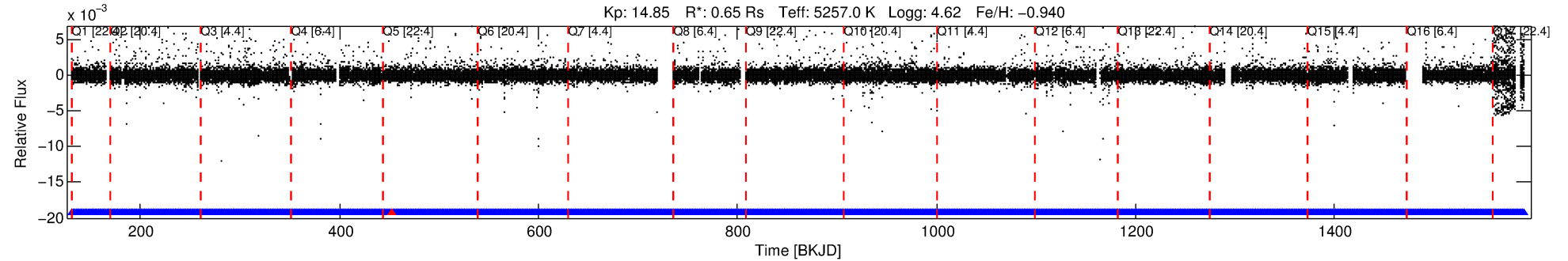
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011413380-02

No Significant Match Found

# DV One-Page Summary

KIC: 11413380 Candidate: 2 of 5 Period: 0.752 d



## TPS TCE Results:

Period = 0.75175 d  
Epoch = 131.8674 BKJD

DV fit results are unavailable

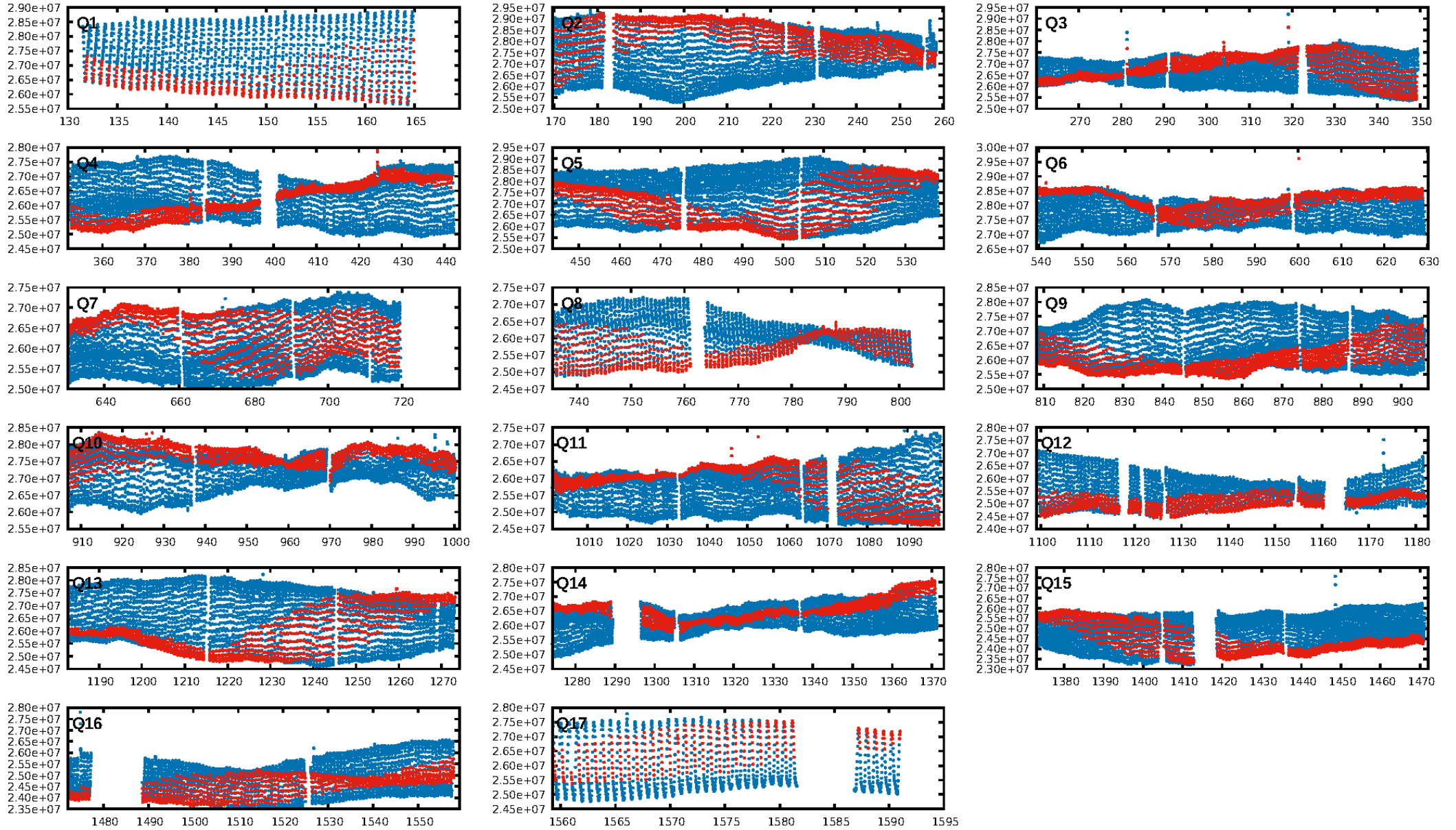
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 1.6% [0.02 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.11e-21  
RollingBand-fgt: 1.00 [1696/1697]  
GhostDiagnostic-chr: 4.273  
Centroid-sig: N/A  
Centroid-so: 1.573 arcsec [2.02 $\sigma$ ]  
OotOffset-rm: 0.107 arcsec [0.32 $\sigma$ ]  
KicOffset-rm: 0.032 arcsec [0.09 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.53 [9/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:03:50 Z

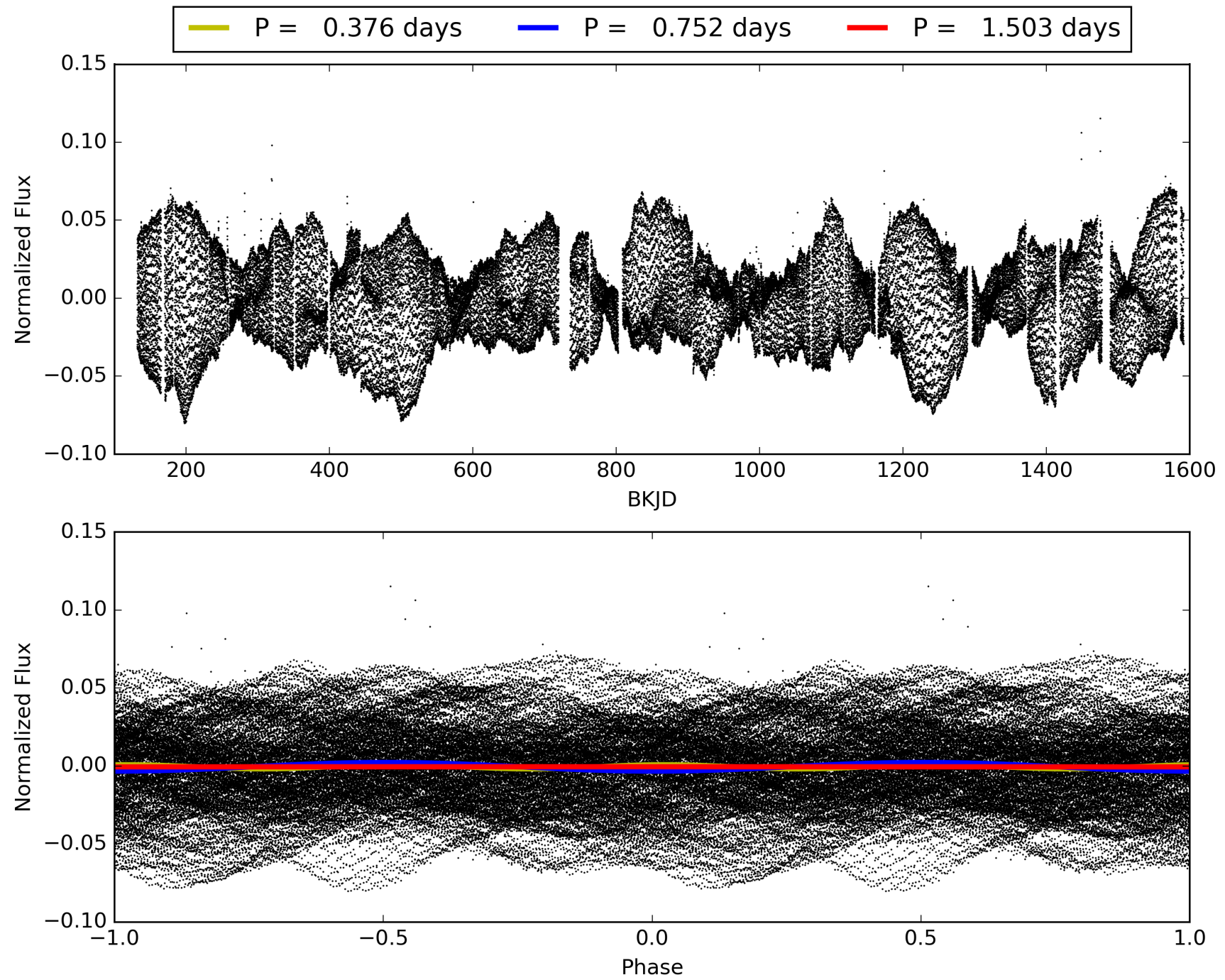
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011413380-02, PDC Light Curves





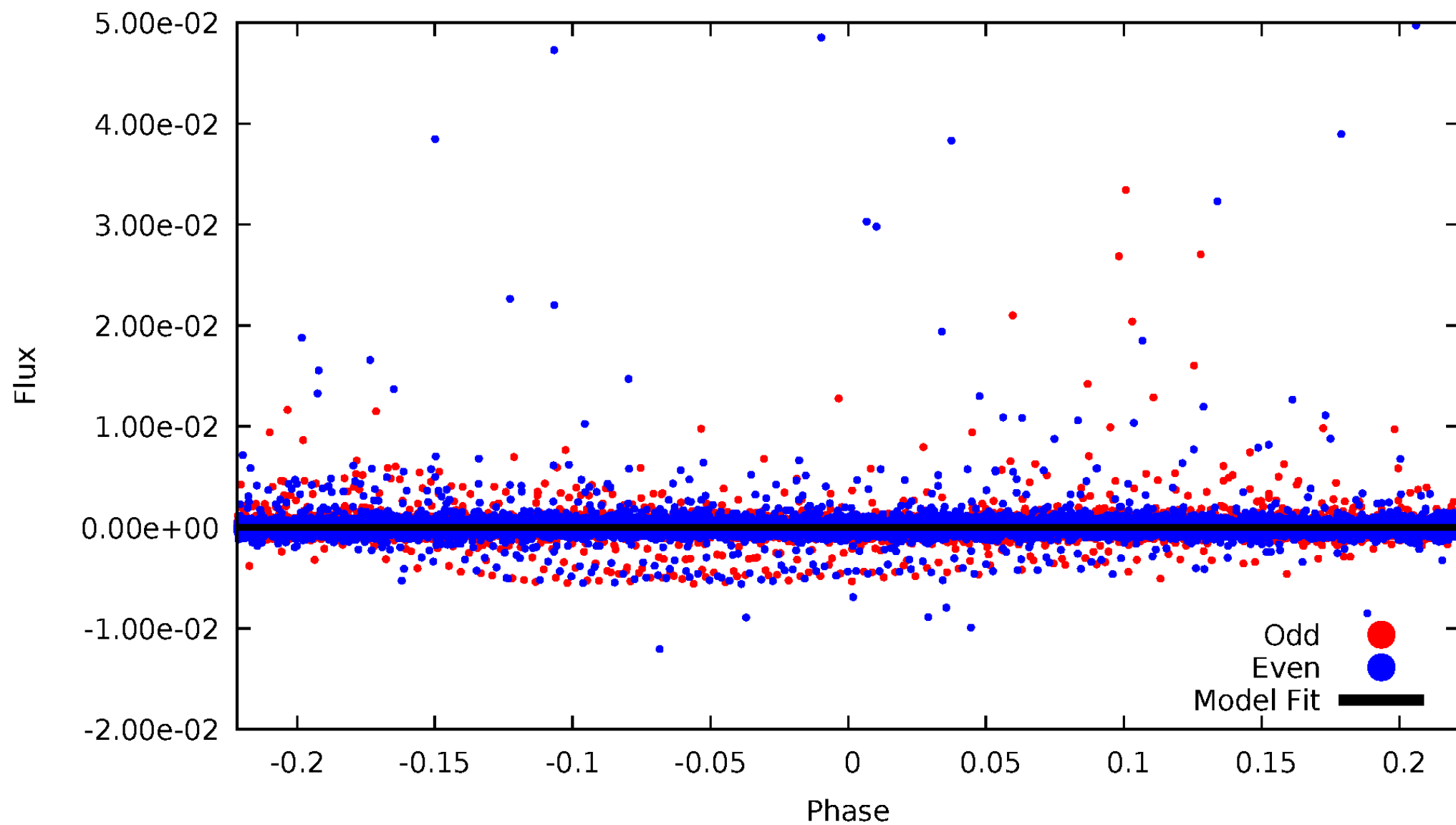
TCE 011413380-02





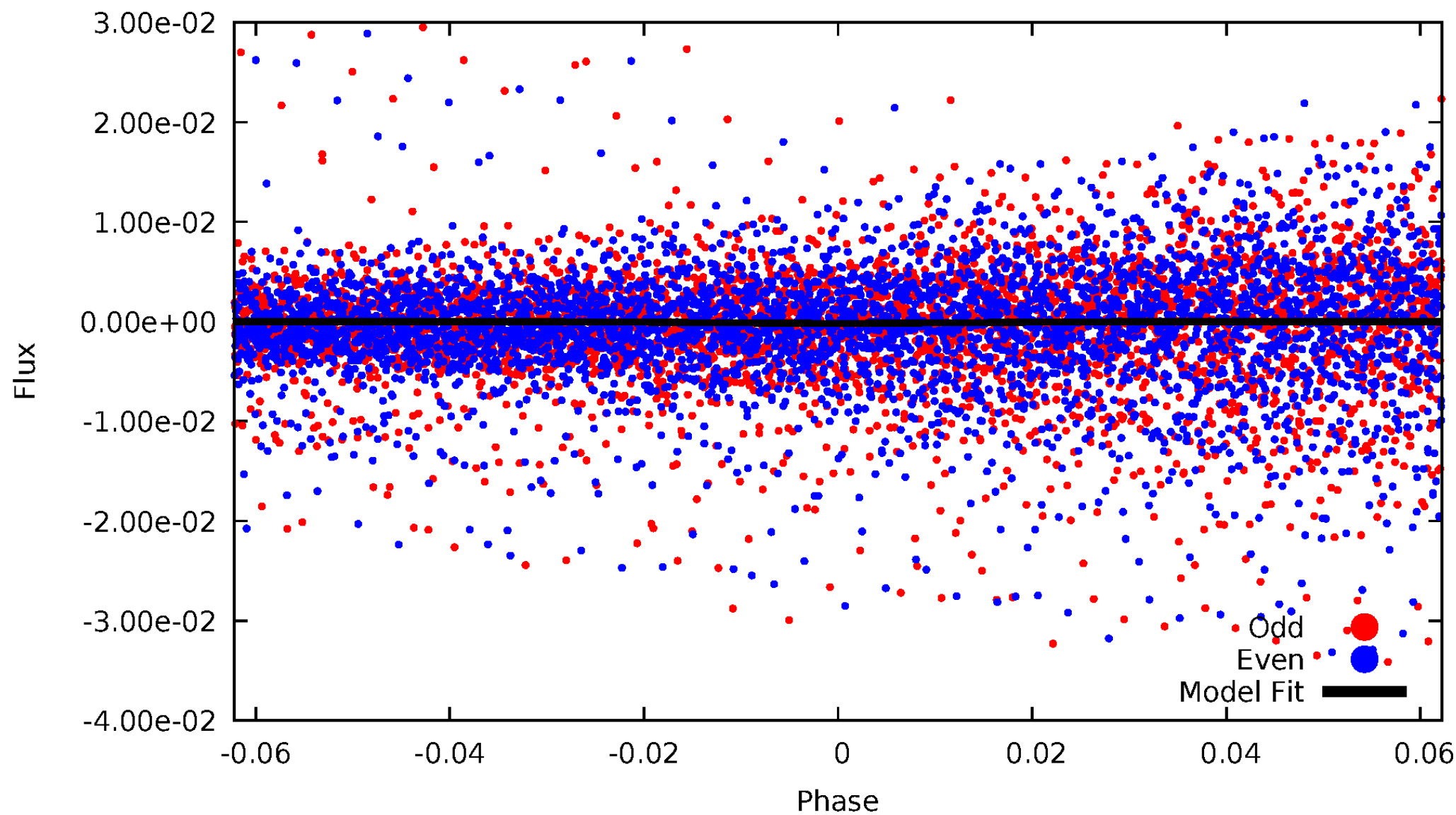
# DV Odd/Even

TCE 011413380-02



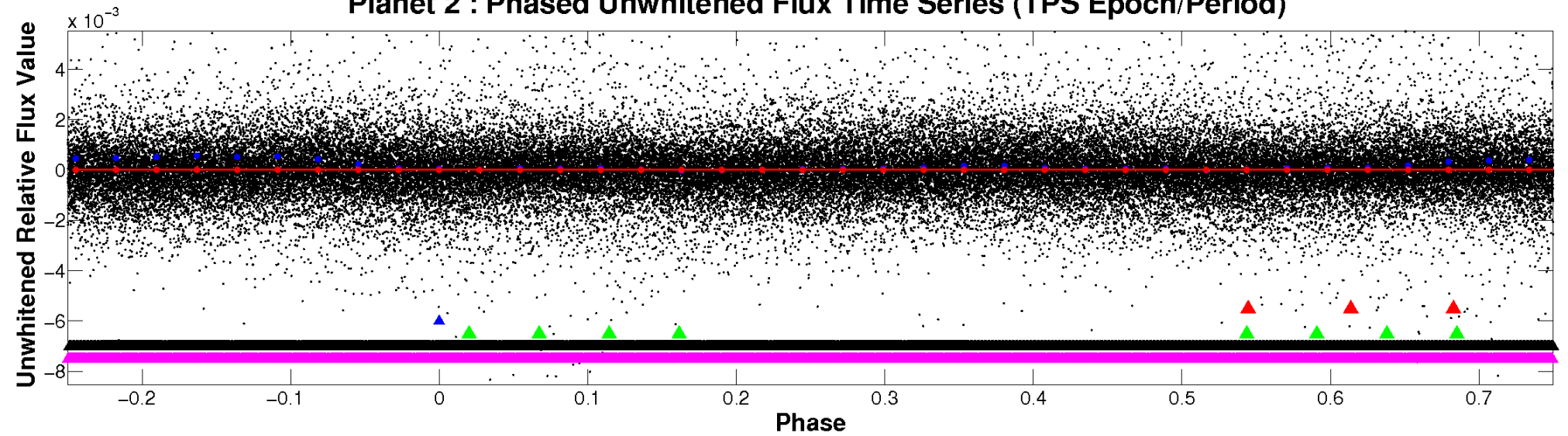
# ALT Odd/Even

TCE 011413380-02

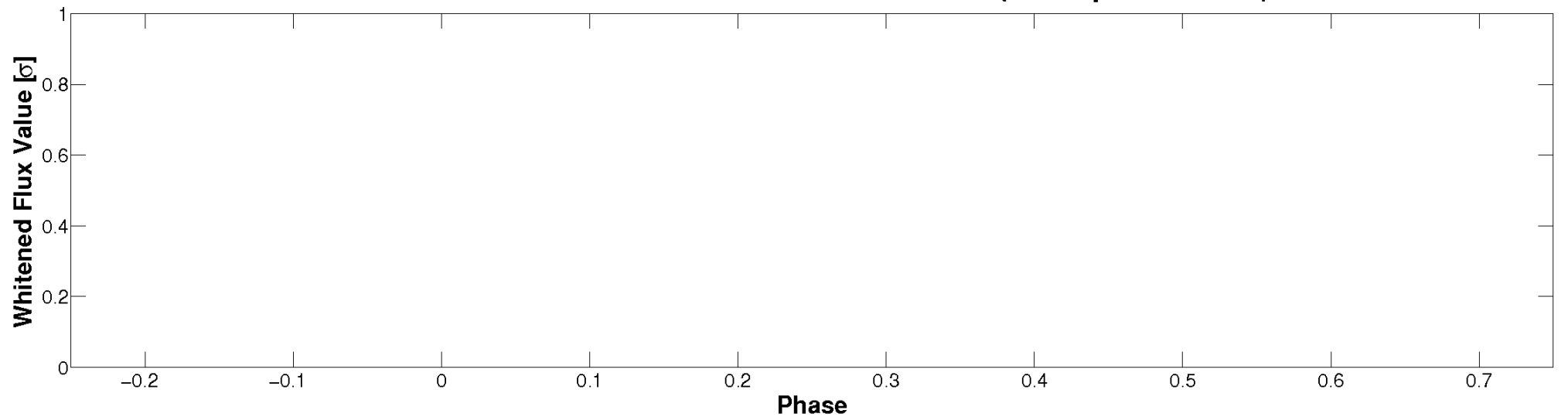


# Non-Whitened Vs. Whitened Light Curve

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

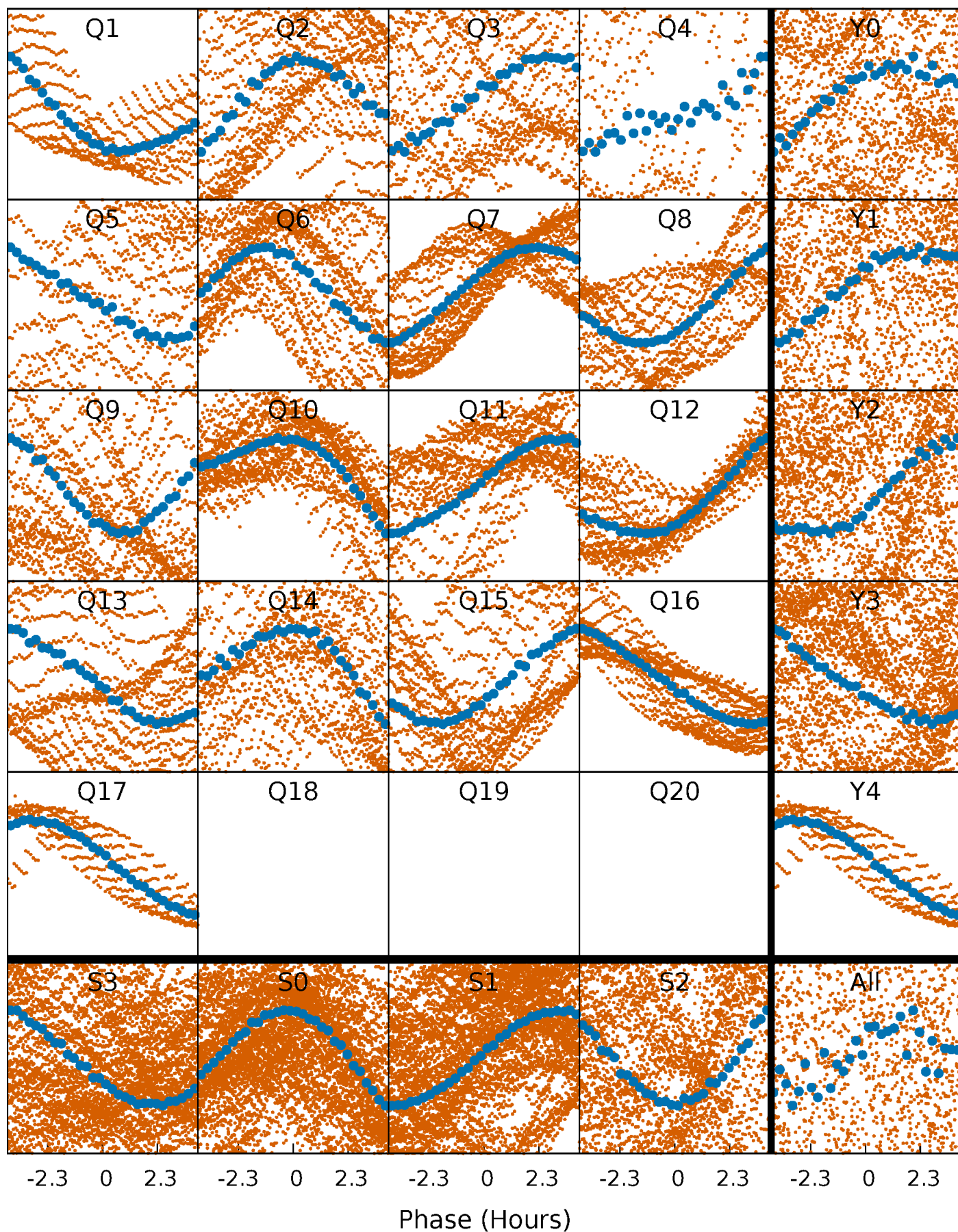


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

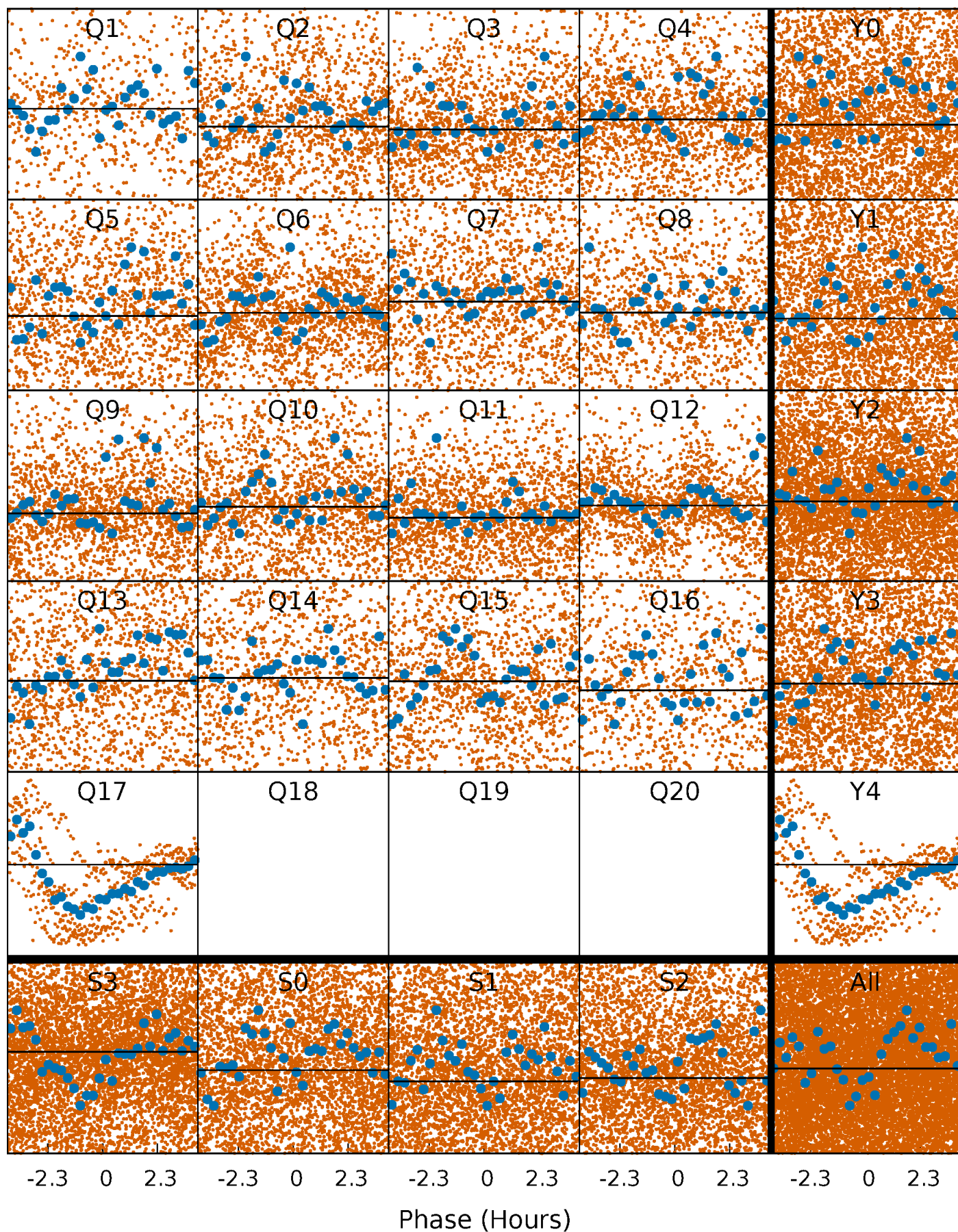
TCE 011413380-02   P= 0.751749 Days    $T_0=131.867444$  (BKJD)





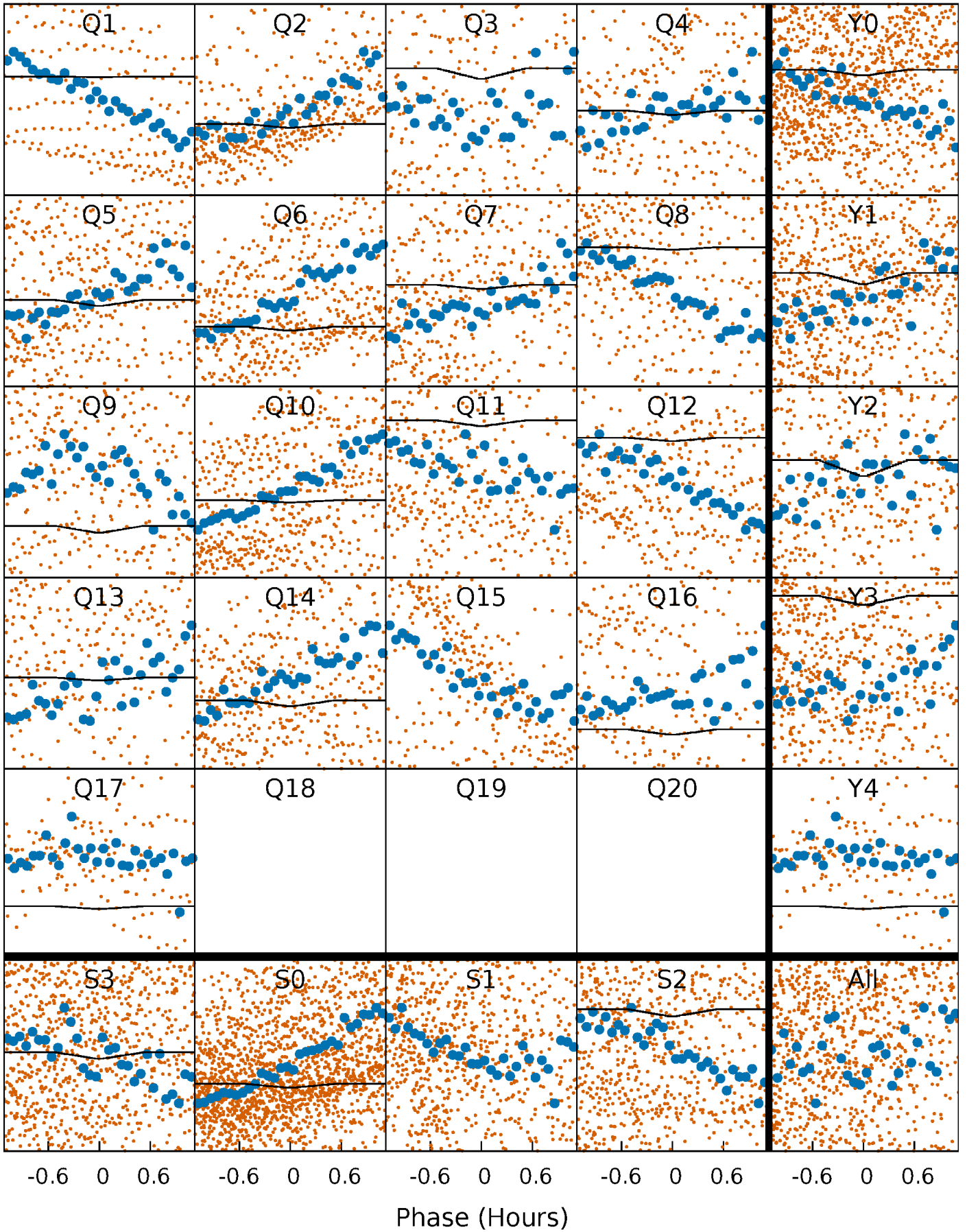
# DV Quarter-Phased Transit Curves

TCE 011413380-02 P= 0.751749 Days  $T_0=131.867444$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

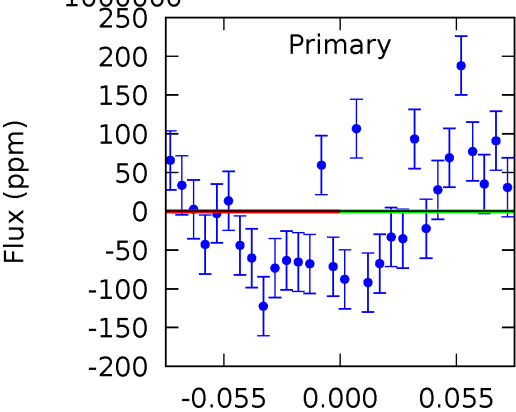
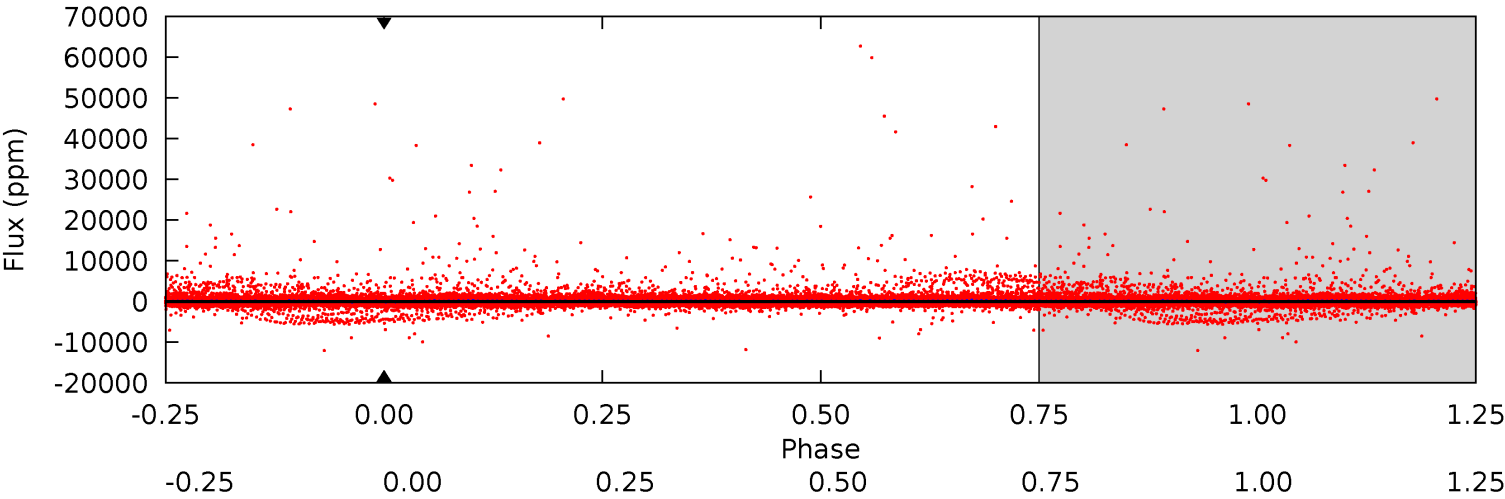
TCE 011413380-02     $P = 0.751749$  Days     $T_0 = 131.750106$  (BKJD)



DV Model-Shift Uniqueness Test

011413380-02, P = 0.751749 Days, E = 131.115695 Days

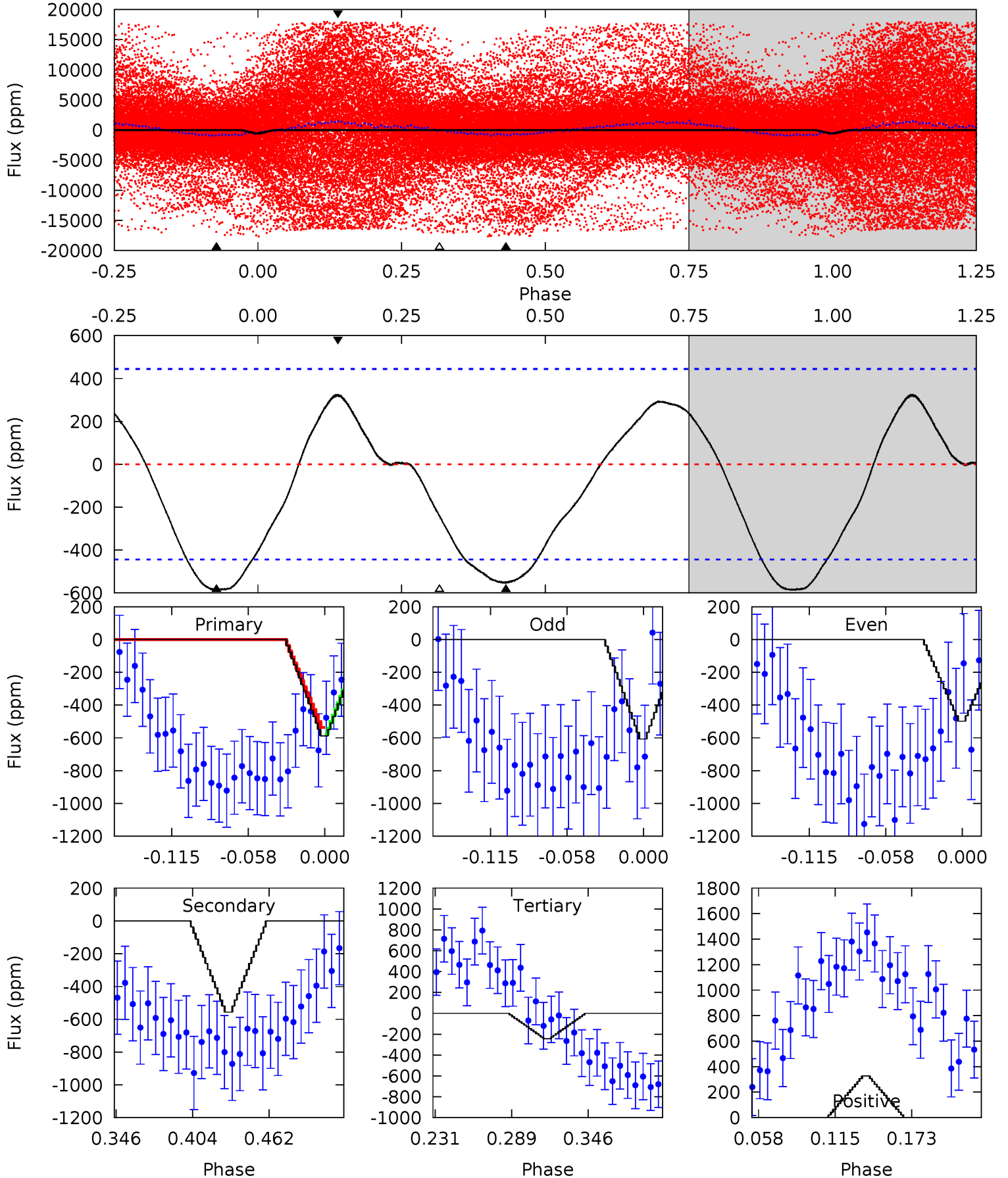
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

011413380-02, P = 0.751749 Days, E = 130.998357 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
6.19	5.86	2.57	3.45	4.68	1.90	2.43	3.62	2.74	3.29	2.41	0.59	2.72	0.36	0.20





### Stellar Parameters For KIC 011413380

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5257^{+157}_{-157}$	$4.620^{+0.066}_{-0.044}$	$-0.940^{+0.300}_{-0.300}$	$0.645^{+0.055}_{-0.055}$	$0.632^{+0.060}_{-0.023}$	$3.317^{+0.900}_{-0.531}$
	+3%/-3%	+1%/-1%	+32%/-32%	+9%/-9%	+9%/-4%	+27%/-16%
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 011413380-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$5.97^{+6.14}_{-4.09}$	$2199^{+87}_{-79}$	$-4755^{+19081}_{-9802}$	$-13.047^{+527.608}_{-535.533}$
Alt.	$-556 \pm 95$	$5.24^{+5.32}_{-3.63}$	$2199^{+76}_{-78}$	$3366^{+1826}_{-839}$	$2.166^{+18.599}_{-1.622}$

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

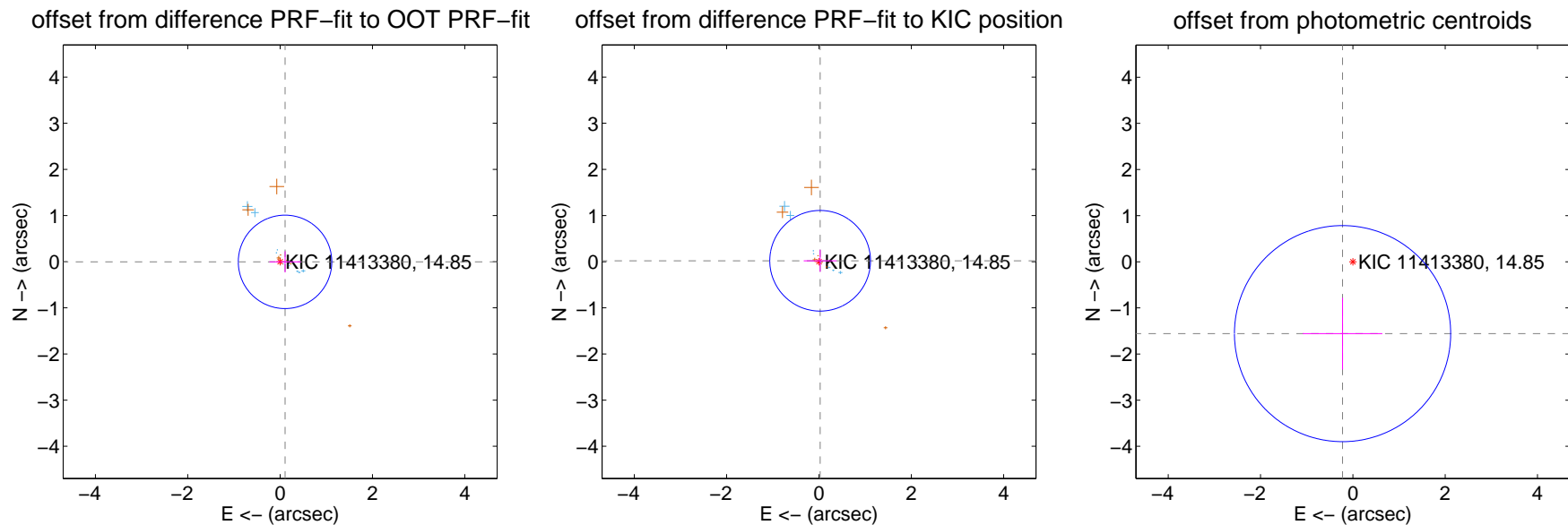
## DV Centroid Data

Supplemental centroid analysis for 011413380-02. Kepler magnitude: 14.85. Transit SNR -1.00

There are 9 quarters with good PRF difference image offsets

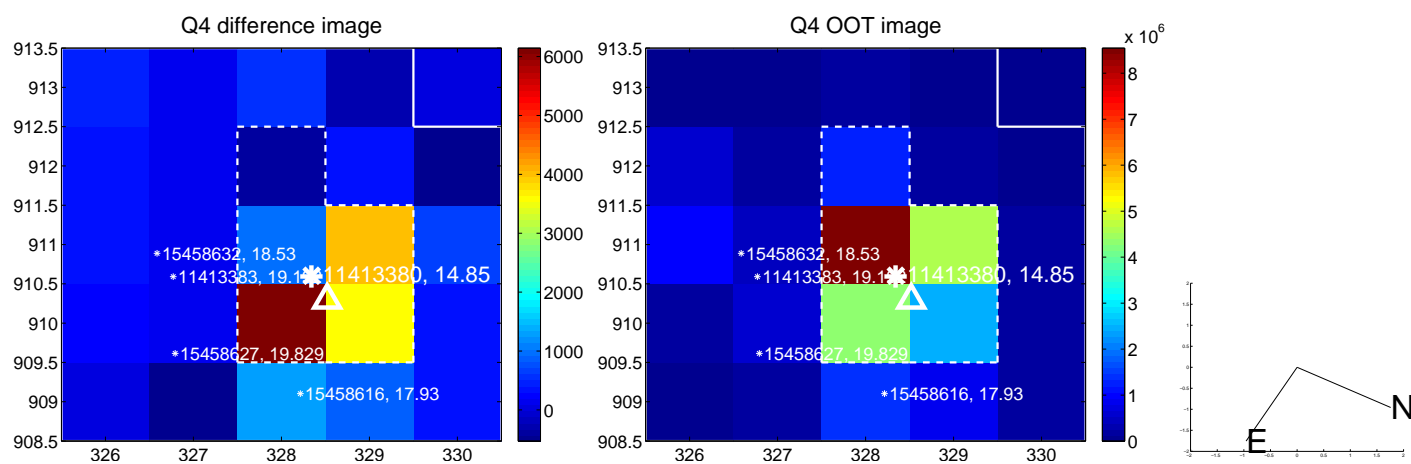
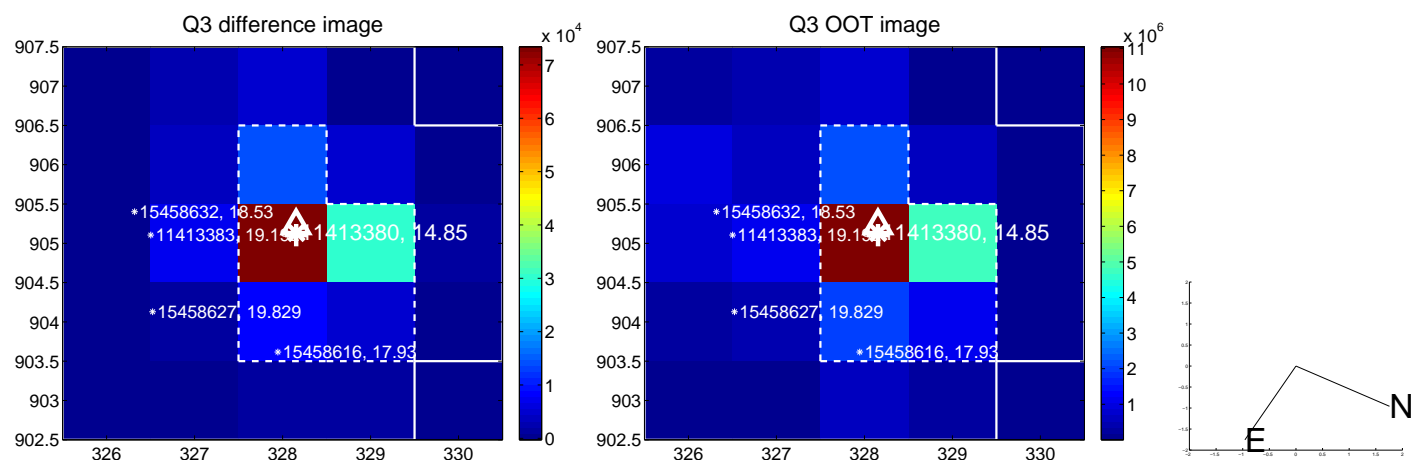
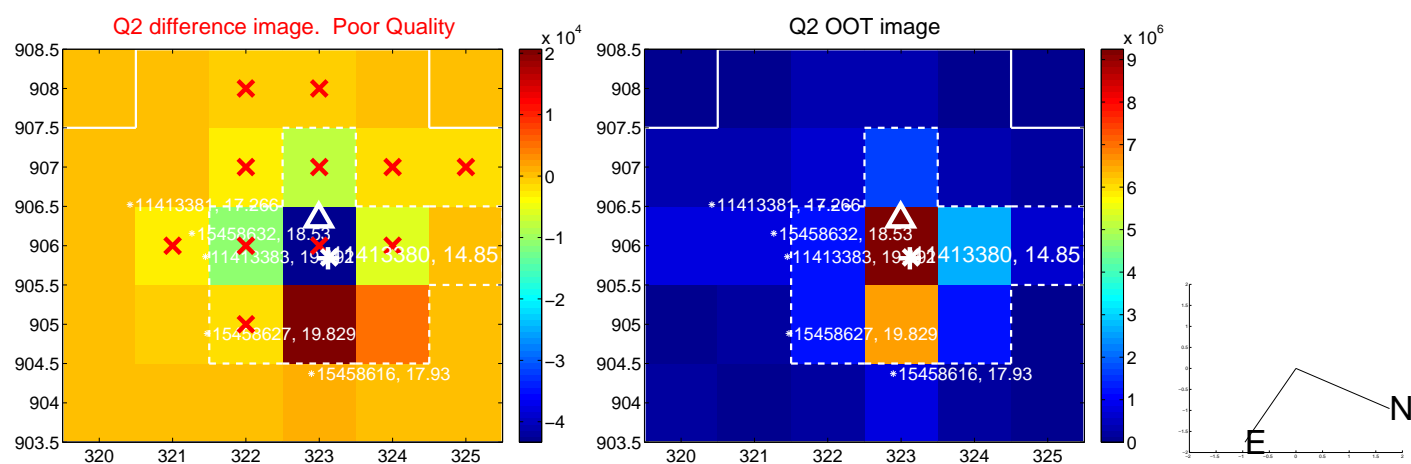
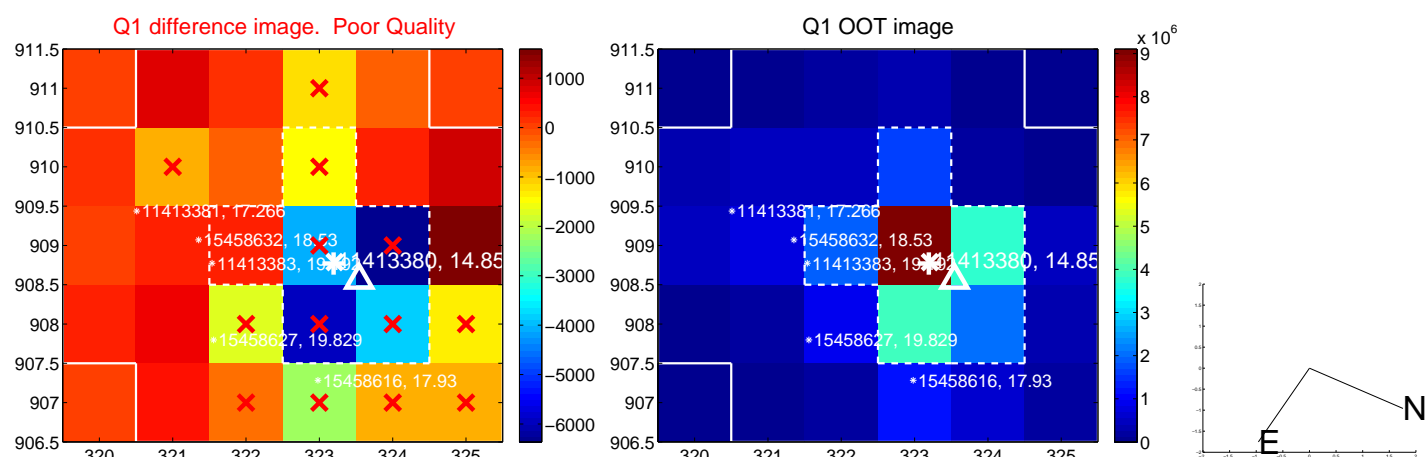
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.107 \pm 0.337$	0.32	$-0.107 \pm 0.340$	$-0.004 \pm 0.229$
PRF-fit source offset from KIC position	$0.032 \pm 0.363$	0.09	$-0.025 \pm 0.355$	$0.020 \pm 0.240$
photometric centroid source offset	$1.57 \pm 0.78$	2.02	$0.22 \pm 0.86$	$-1.56 \pm 0.78$

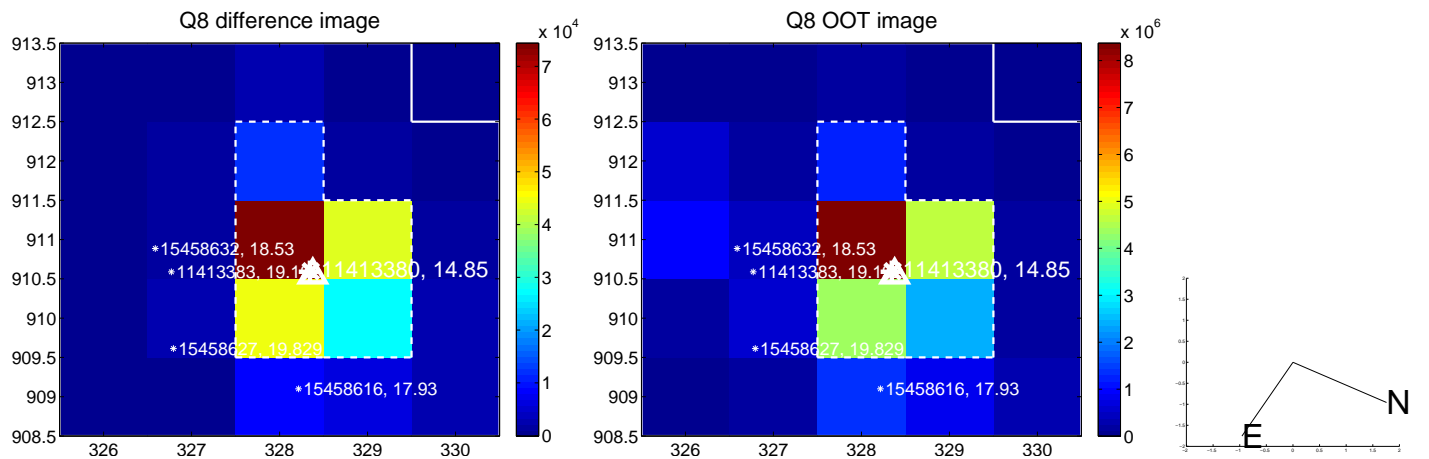
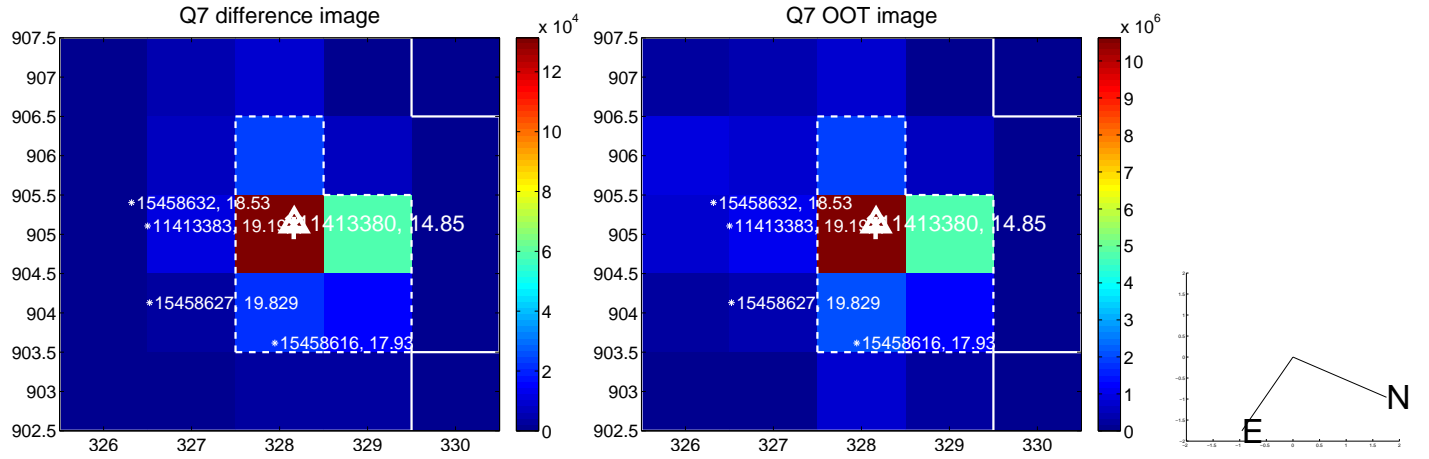
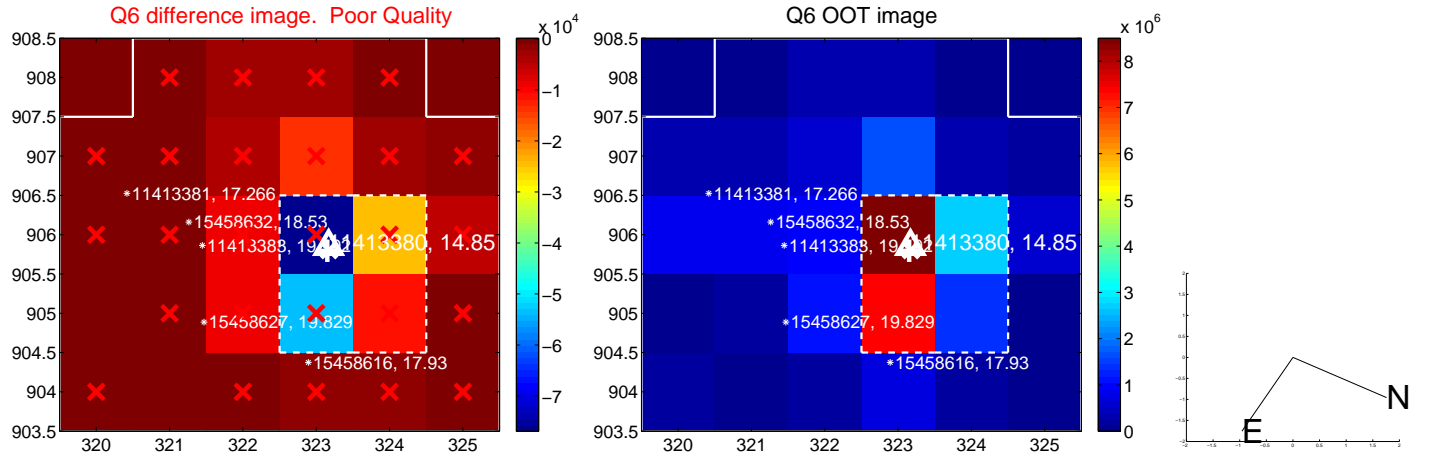
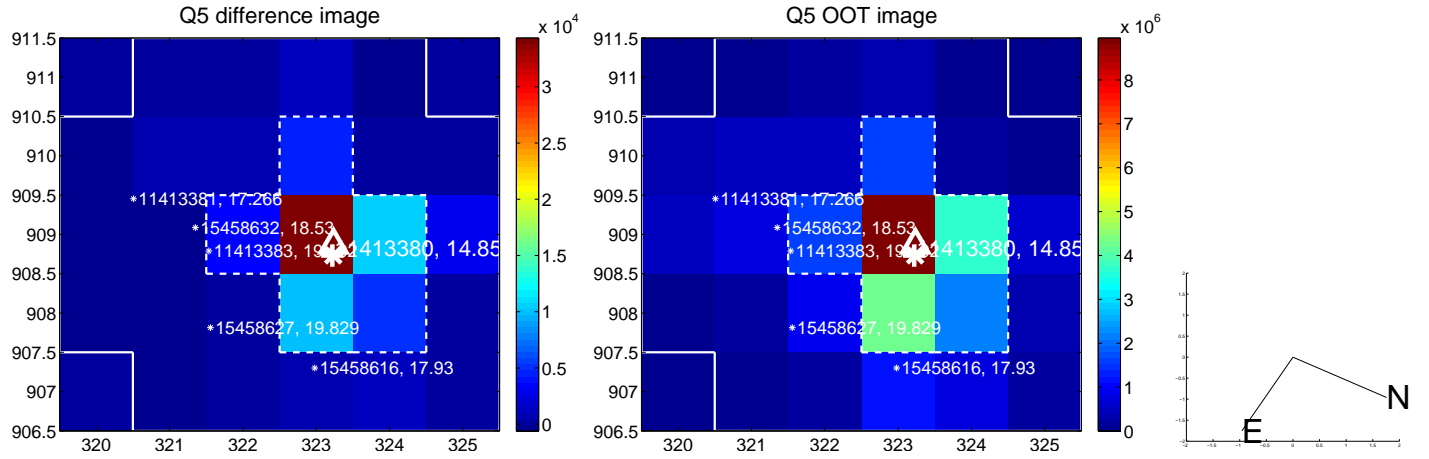


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

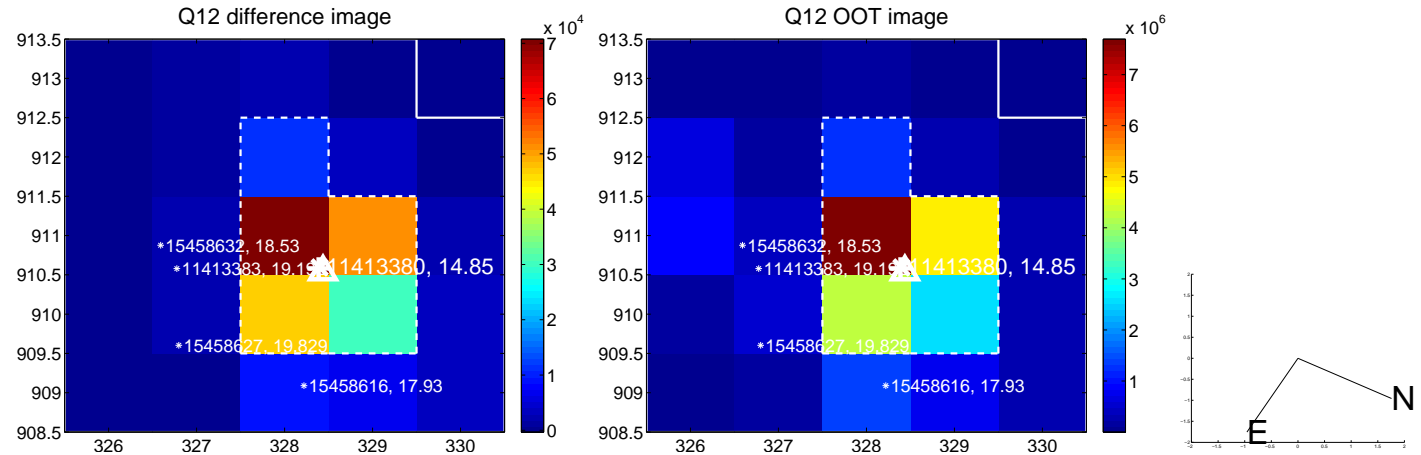
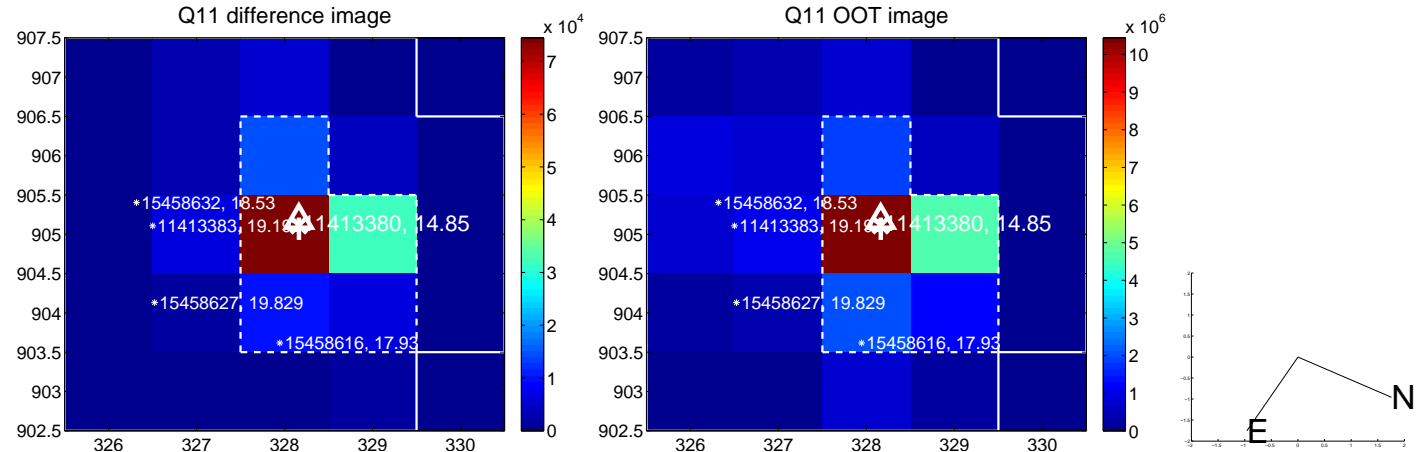
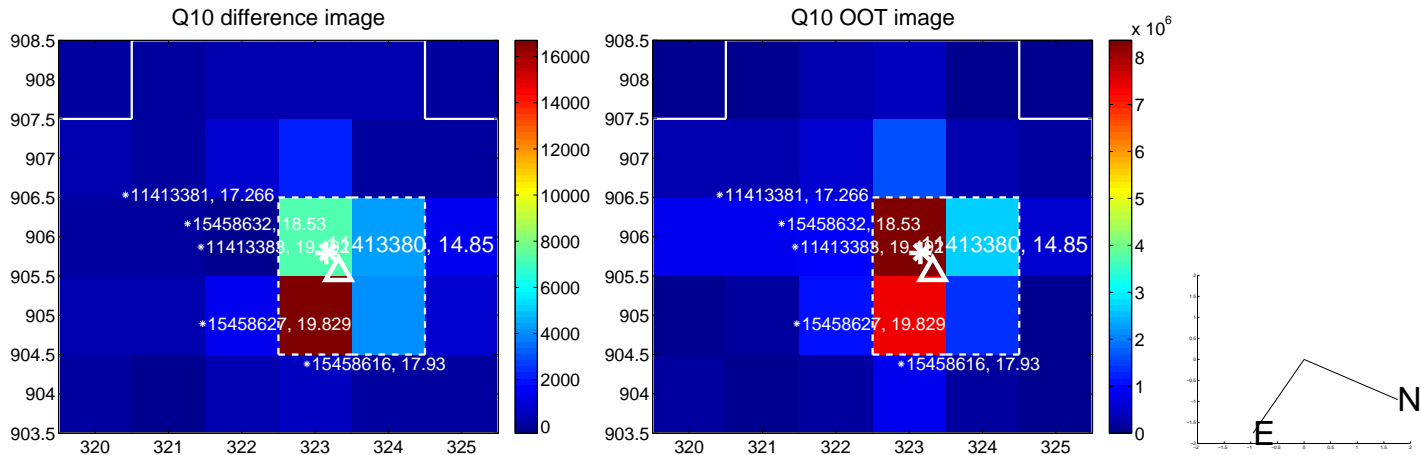
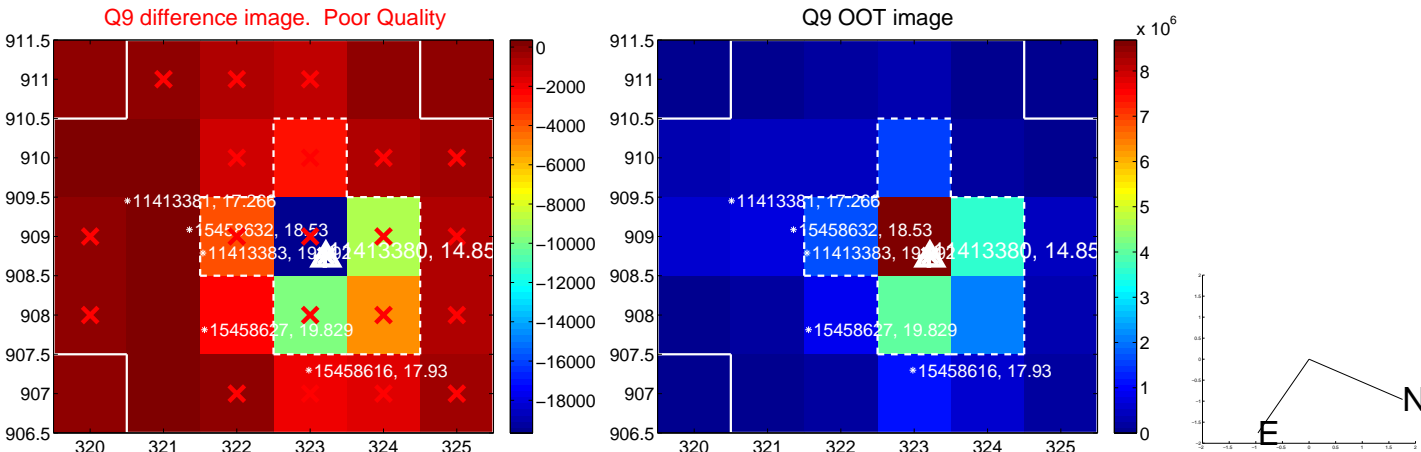
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



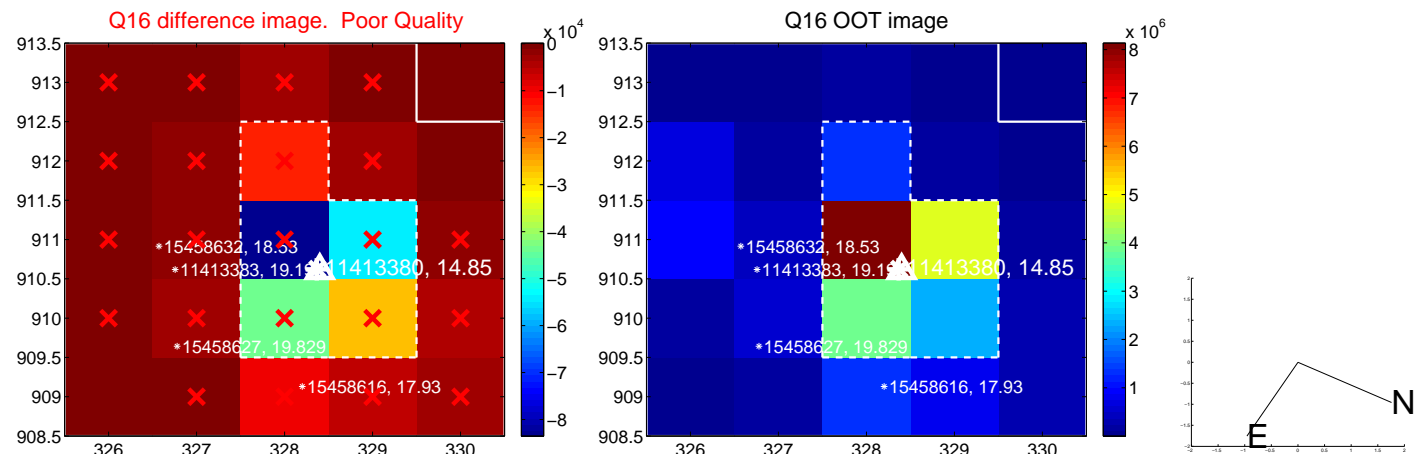
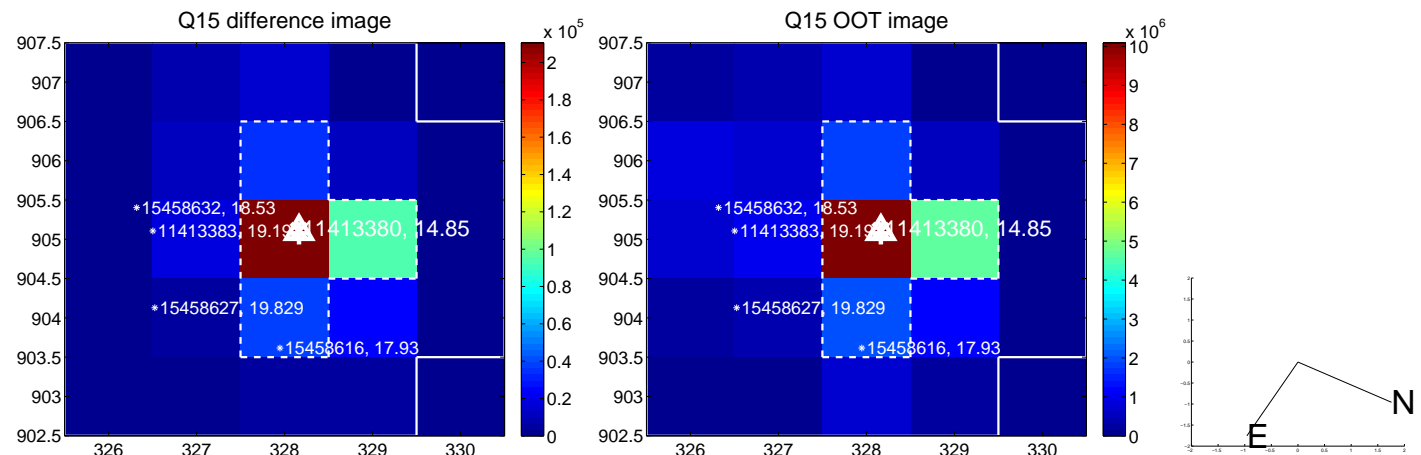
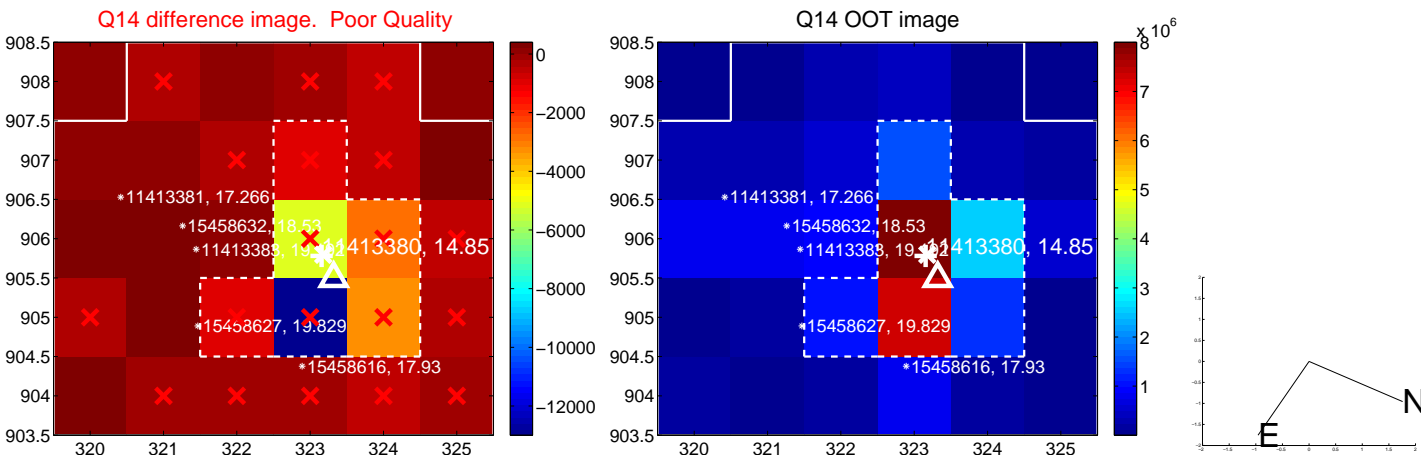
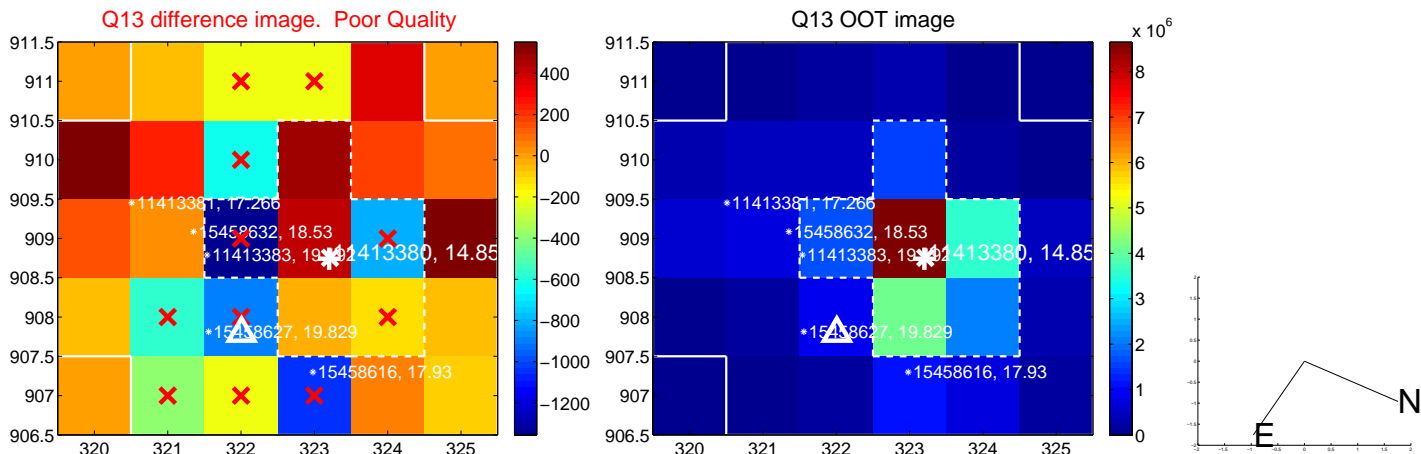
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



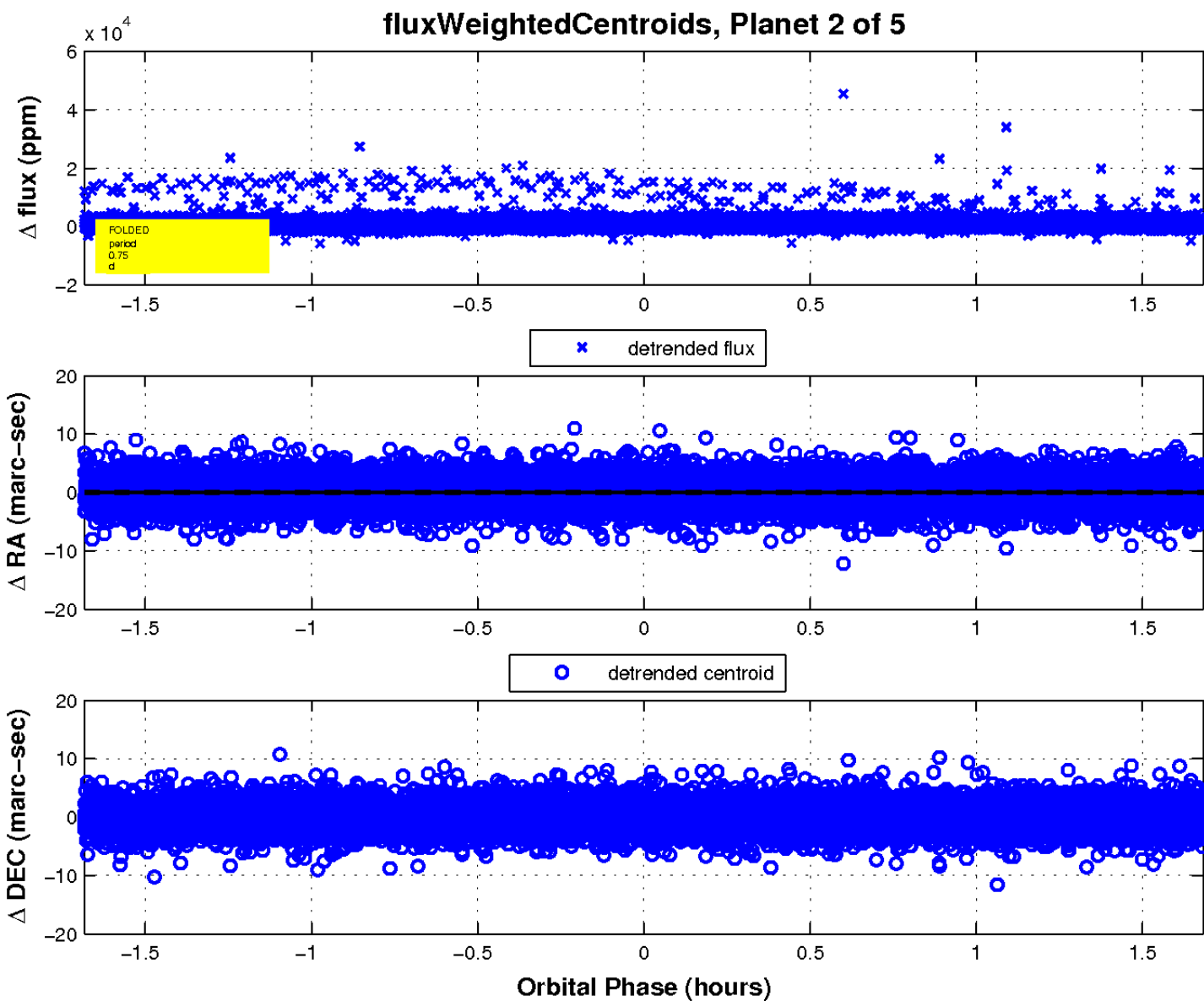
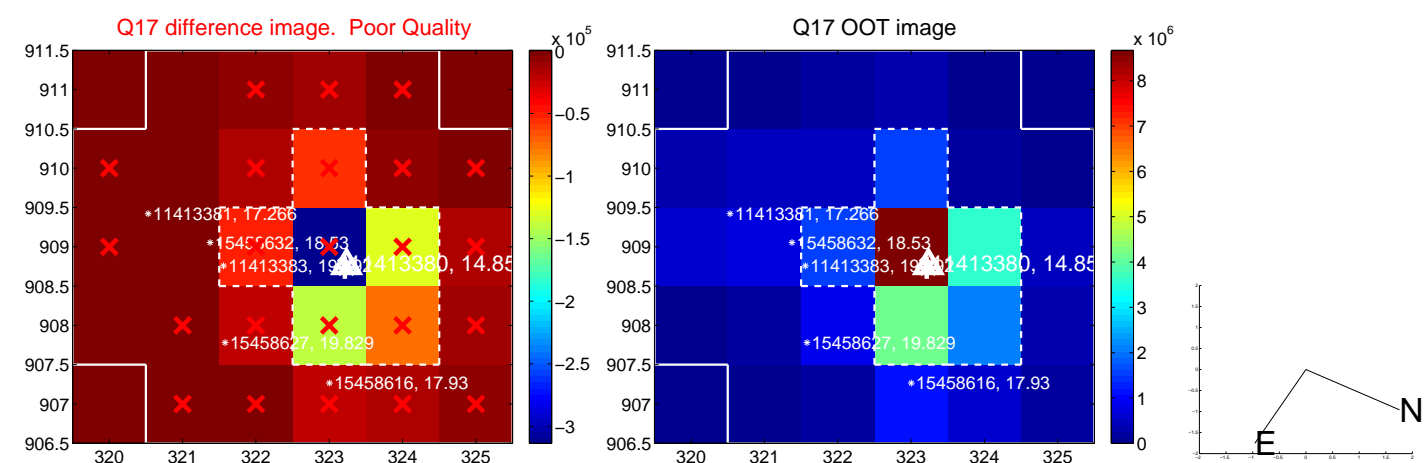
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

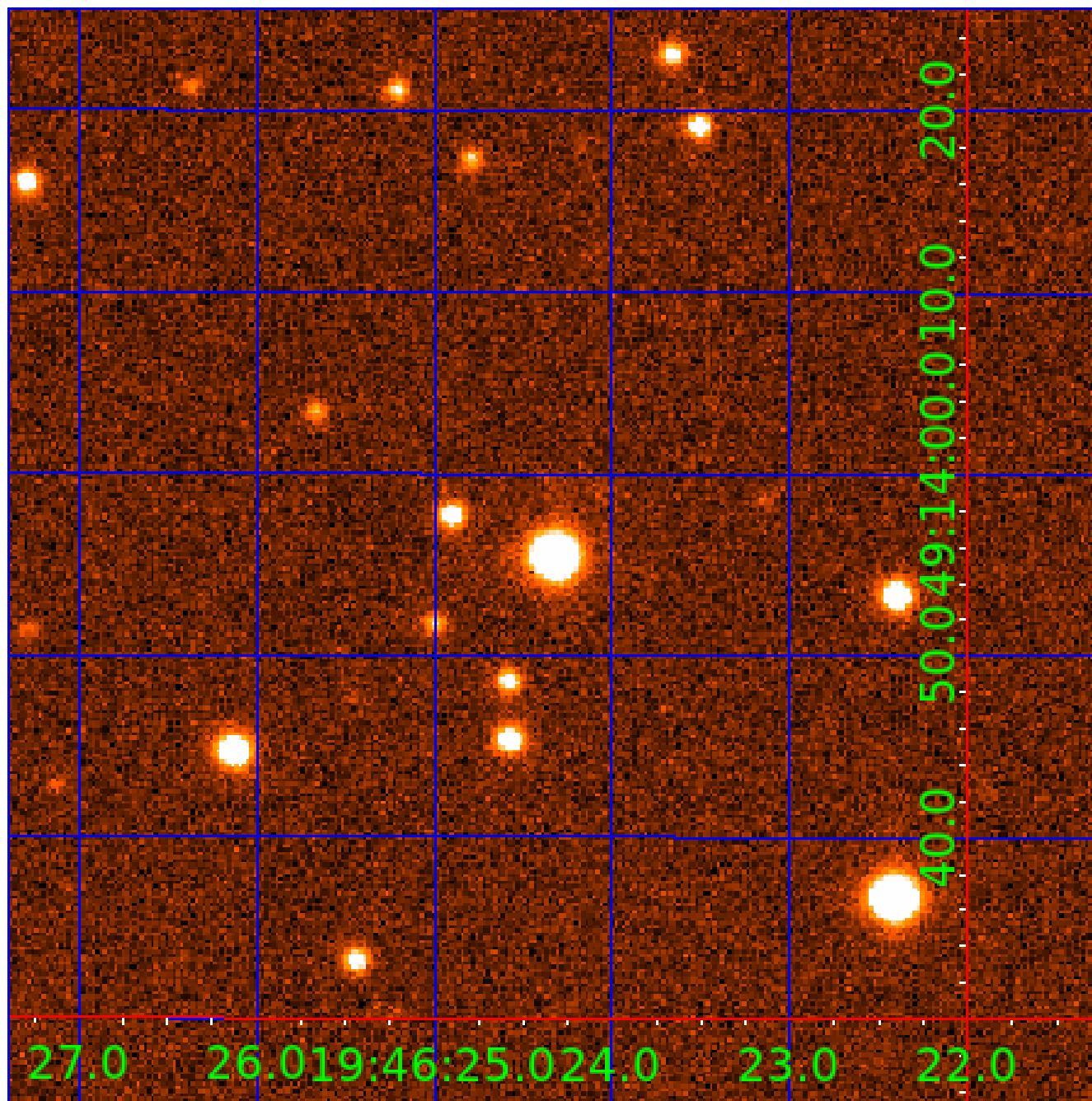


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 011413380

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011413380-01	OBS	No	559.249011	448.115196	3541.1	5.794	17.9	6.5	0.65	5257	3.94	0.22
011413380-02	OBS	No	0.751749	131.867444	1376.1	2.000	9.2	-1.0	0.65	5257	2.37	1474.99
011413380-03	OBS	No	180.026072	239.130811	1693.8	2.500	9.7	-1.0	0.65	5257	2.63	0.99
011413380-04	OBS	No	0.753531	131.694242	109.2	0.894	8.5	5.3	0.65	5257	0.68	1470.34
011413380-05	OBS	No	0.754848	131.820369	889.5	1.500	8.5	-1.0	0.65	5257	1.91	1466.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011413380-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011413380-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS
011413380-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011413380-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
011413380-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

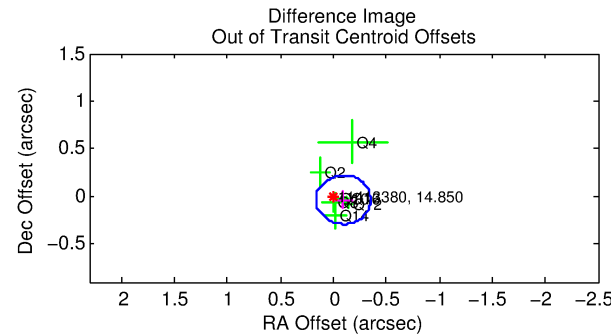
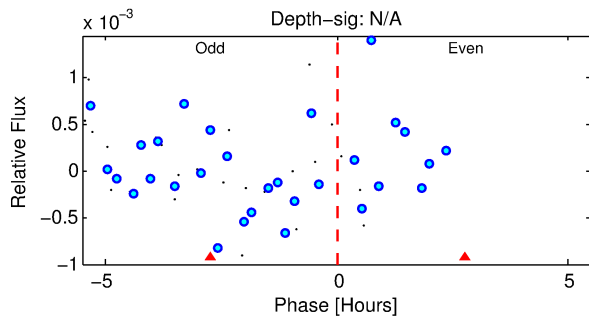
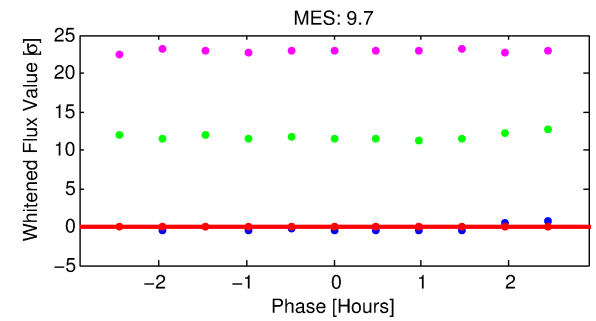
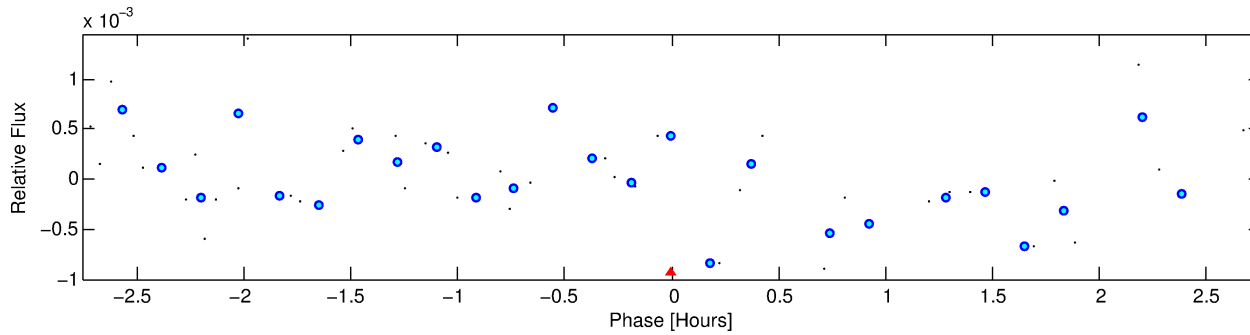
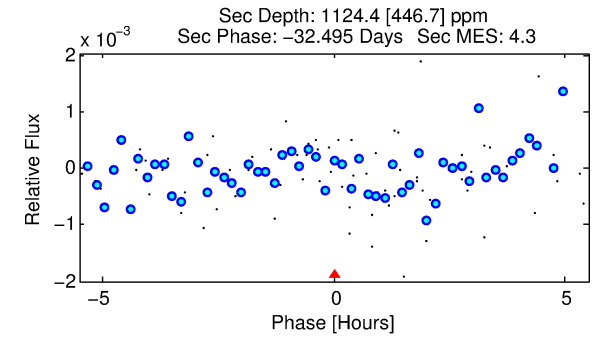
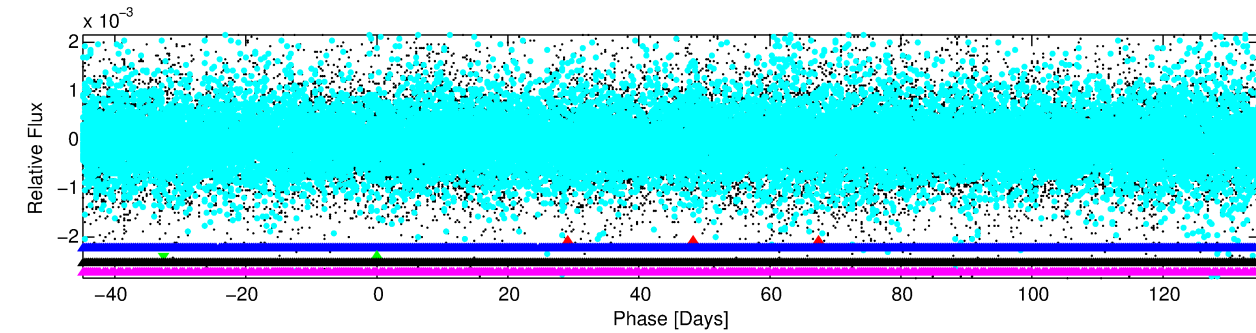
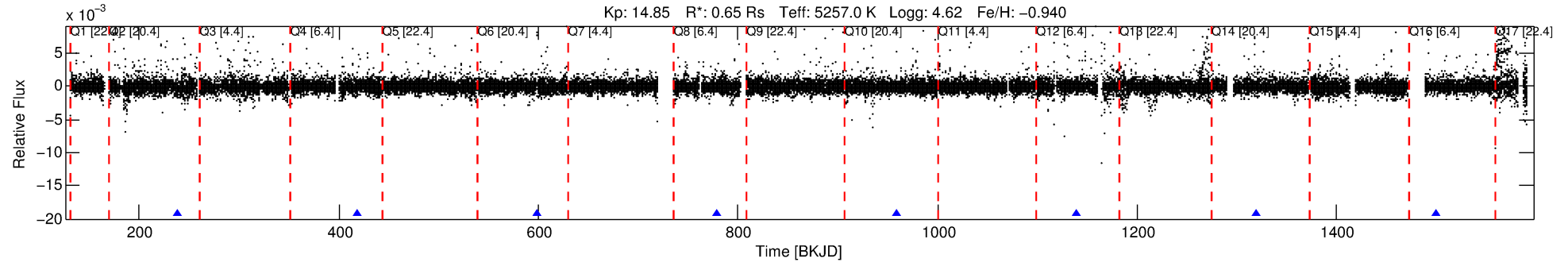
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011413380-03

No Significant Match Found

# DV One-Page Summary

KIC: 11413380 Candidate: 3 of 5 Period: 180.026 d



## TPS TCE Results:

Period = 180.02607 d  
Epoch = 239.1308 BKJD

DV fit results are unavailable

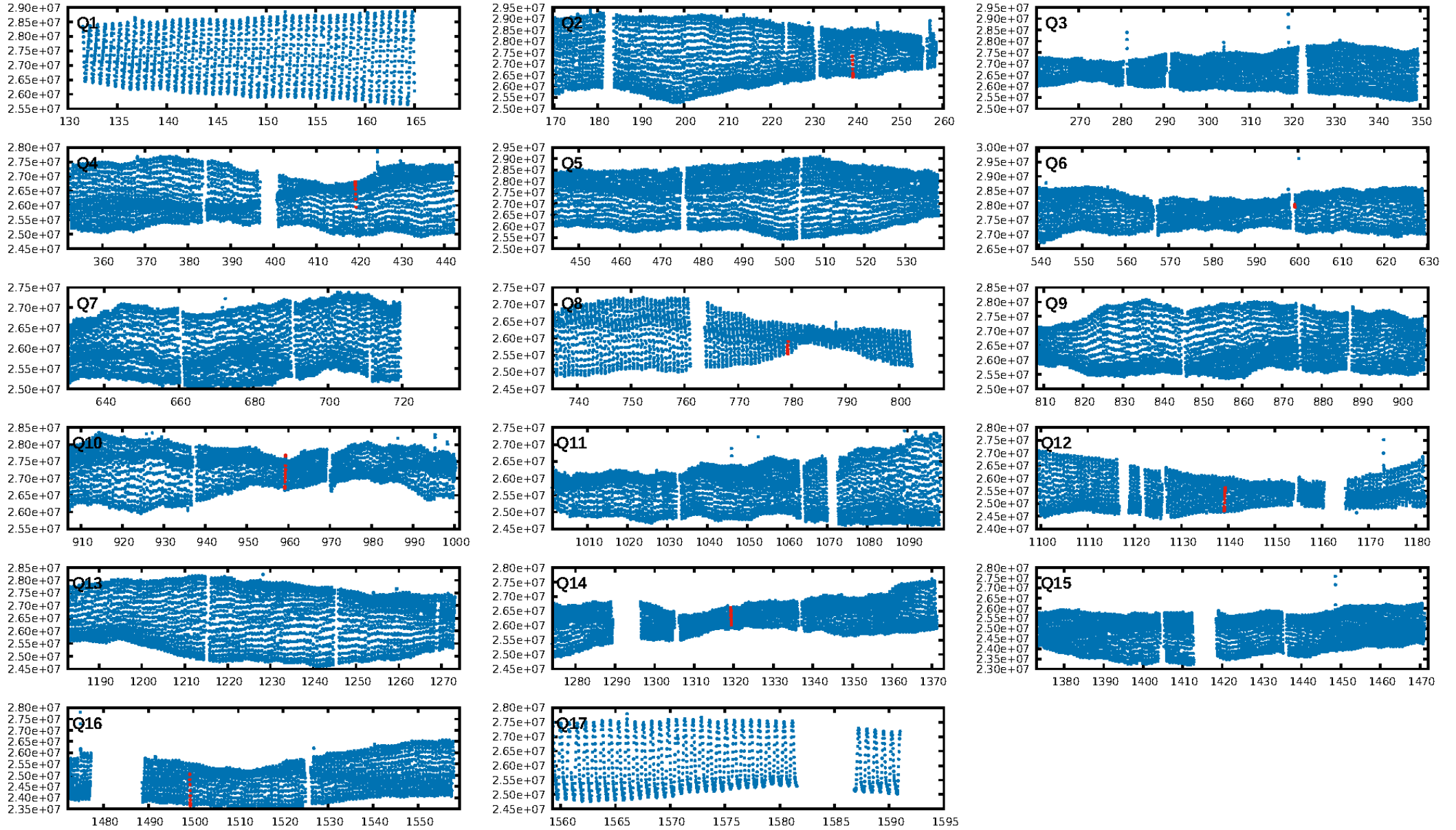
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1475.75σ]  
LongPeriod-sig: 100.0% [1442.29σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.25e-15  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.101 arcsec [1.19σ]  
KicOffset-rm: 0.079 arcsec [0.88σ]  
OotOffset-st: 3/0/4/0 [7]  
KicOffset-st: 3/0/4/0 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 0.00 [0/7]

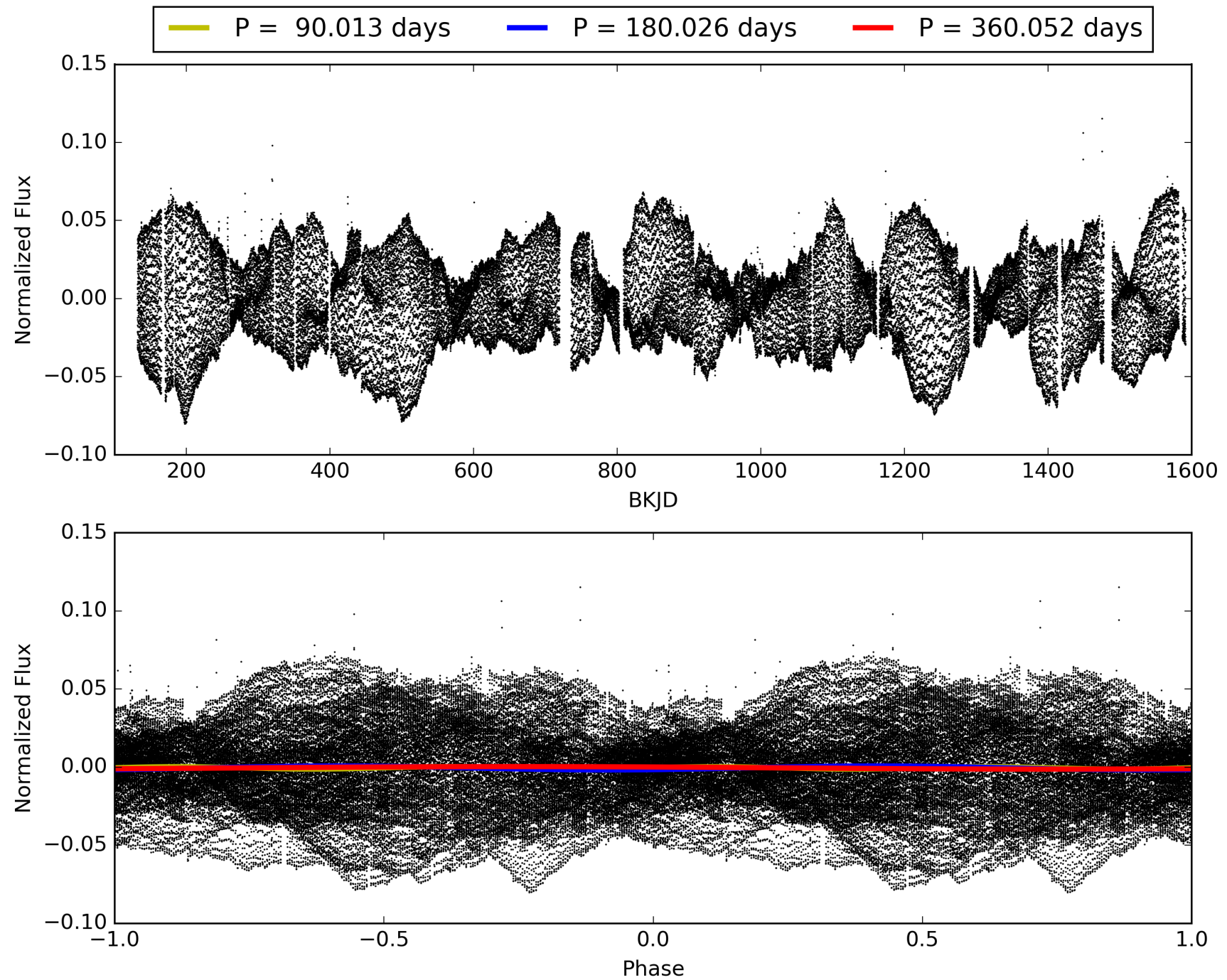
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:04:09 Z

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

# TCE 011413380-03, PDC Light Curves

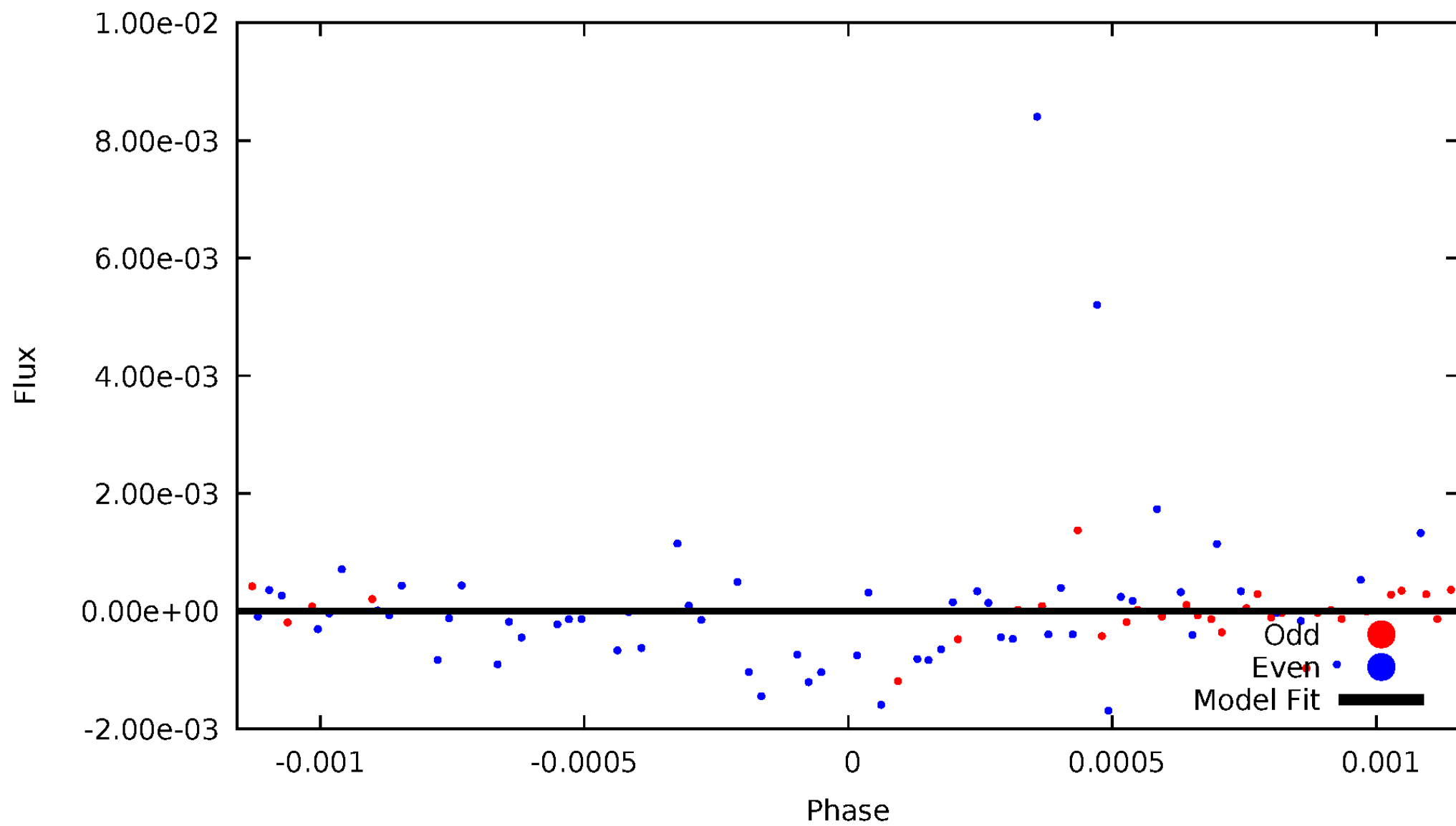


TCE 011413380-03



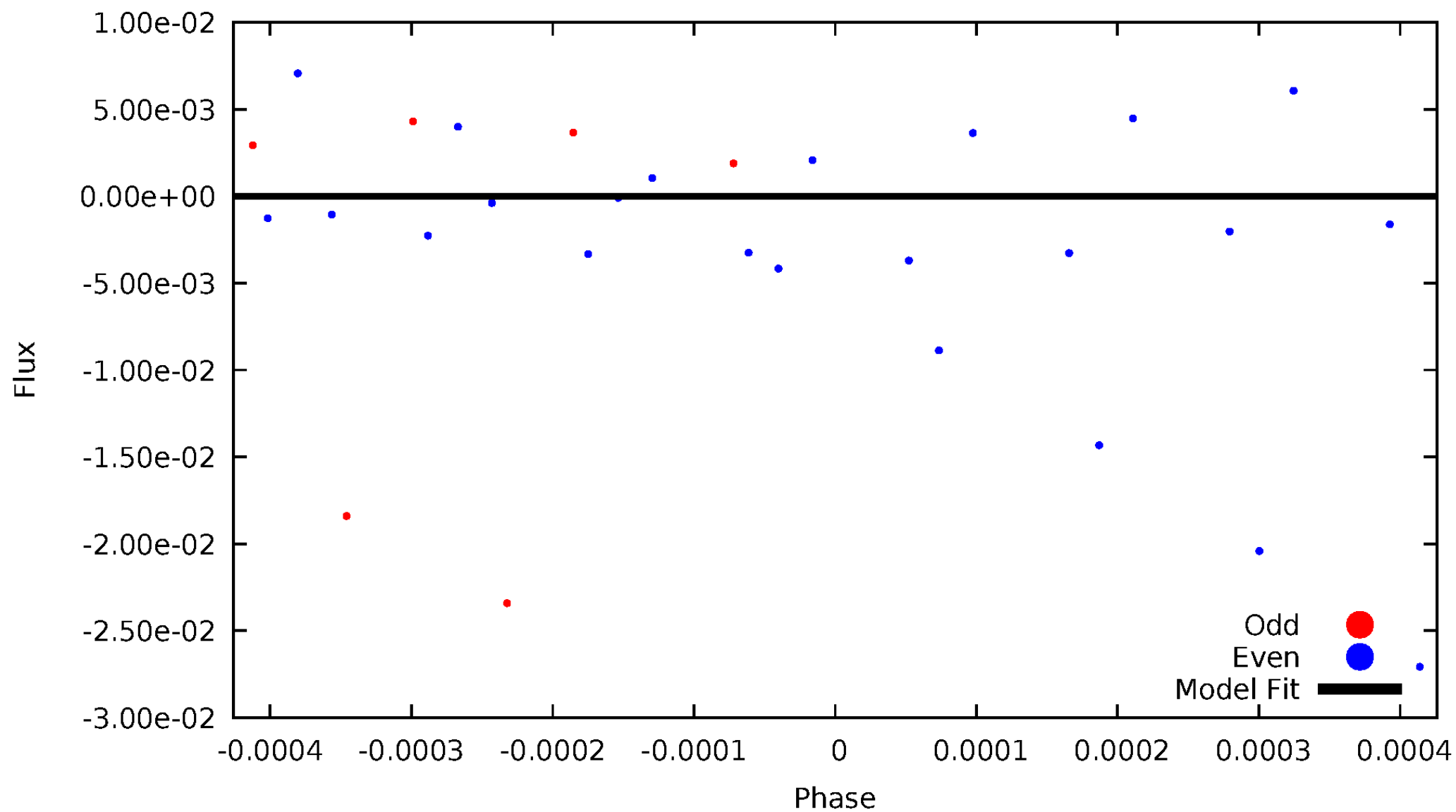
# DV Odd/Even

TCE 011413380-03



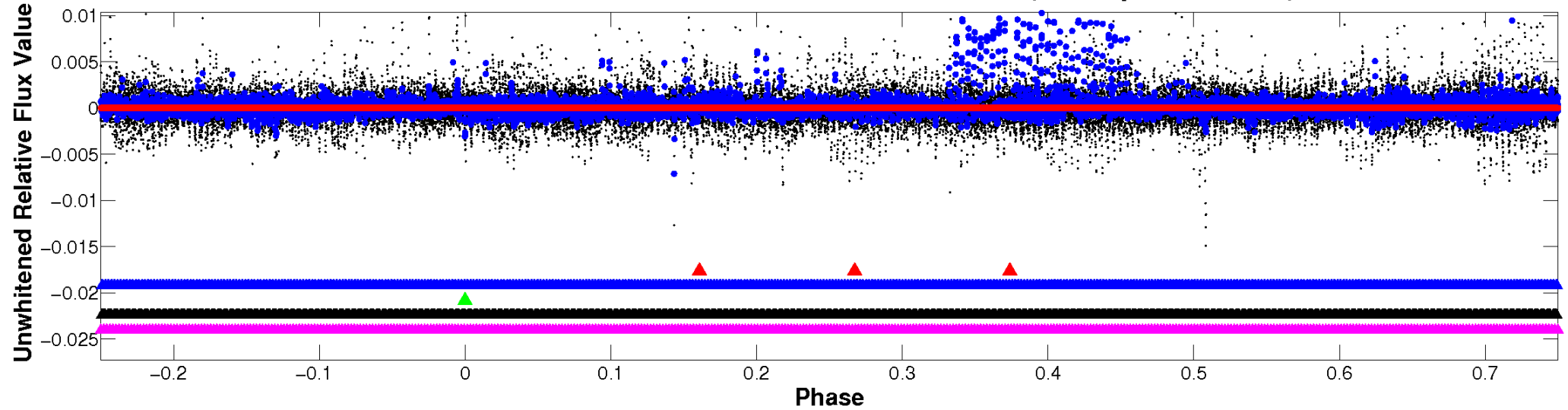
# ALT Odd/Even

TCE 011413380-03



# Non-Whitened Vs. Whitened Light Curve

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

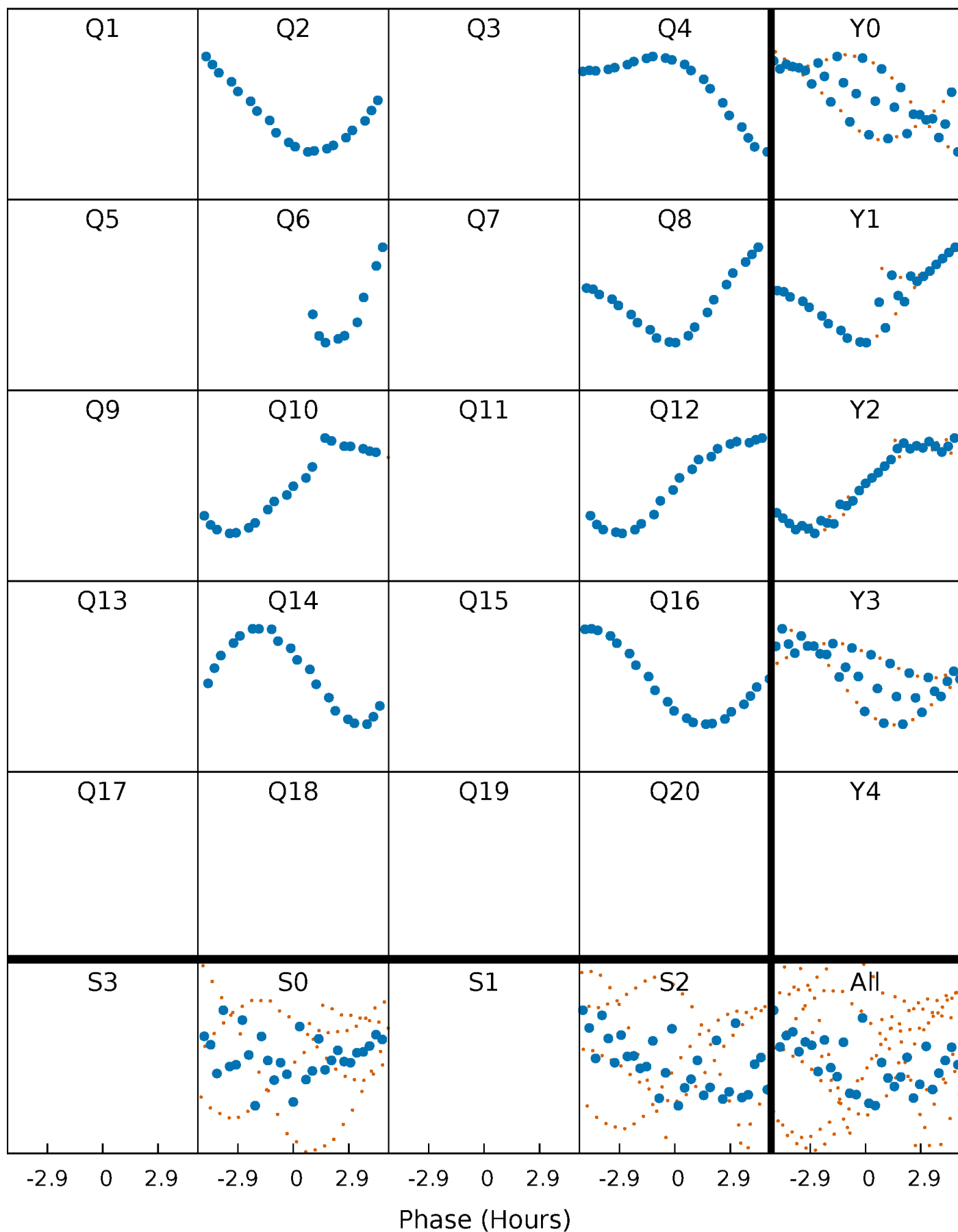


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



# PDC Quarter-Phased Transit Curves

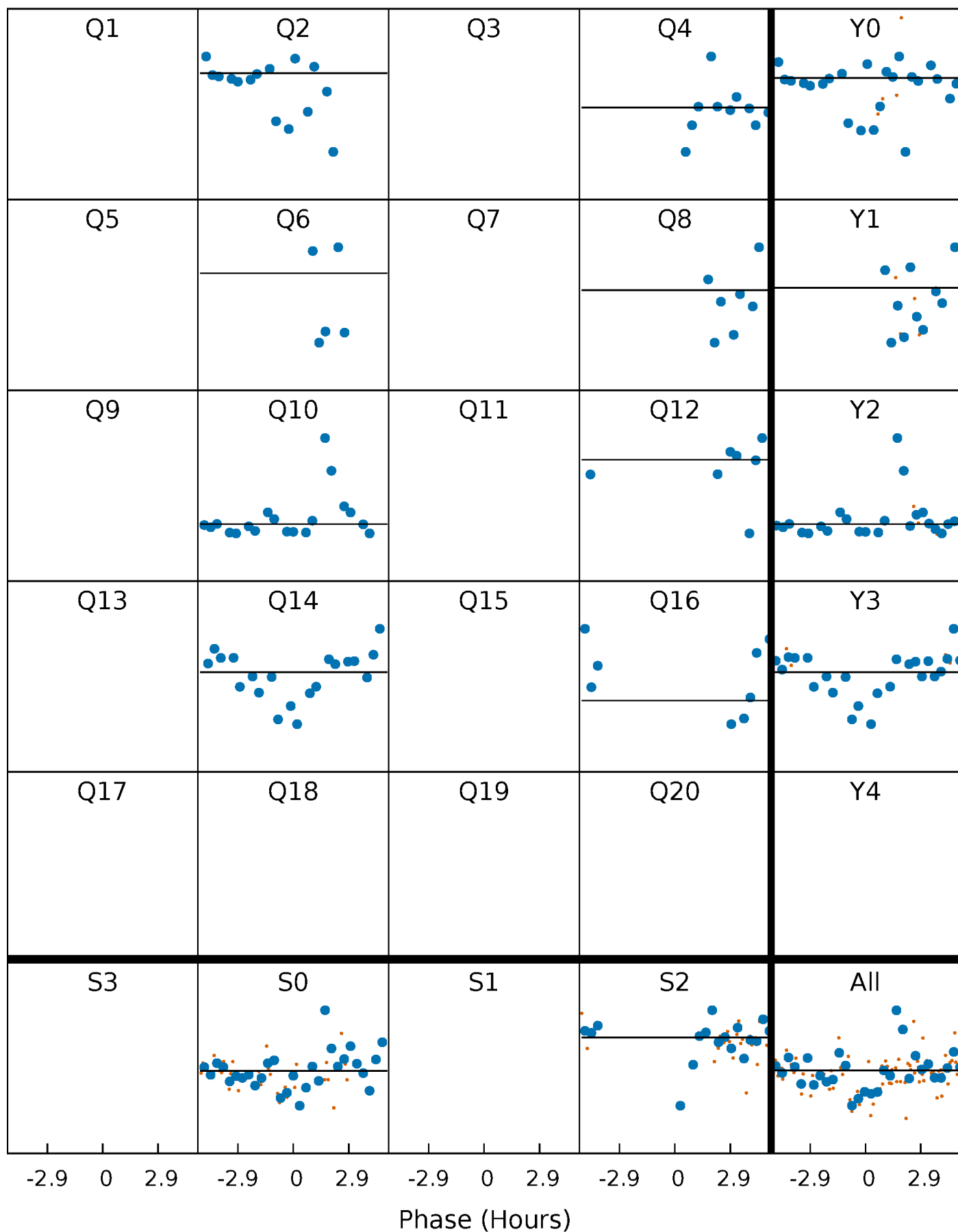
TCE 011413380-03 P=180.026072 Days  $T_0=239.130811$  (BKJD)





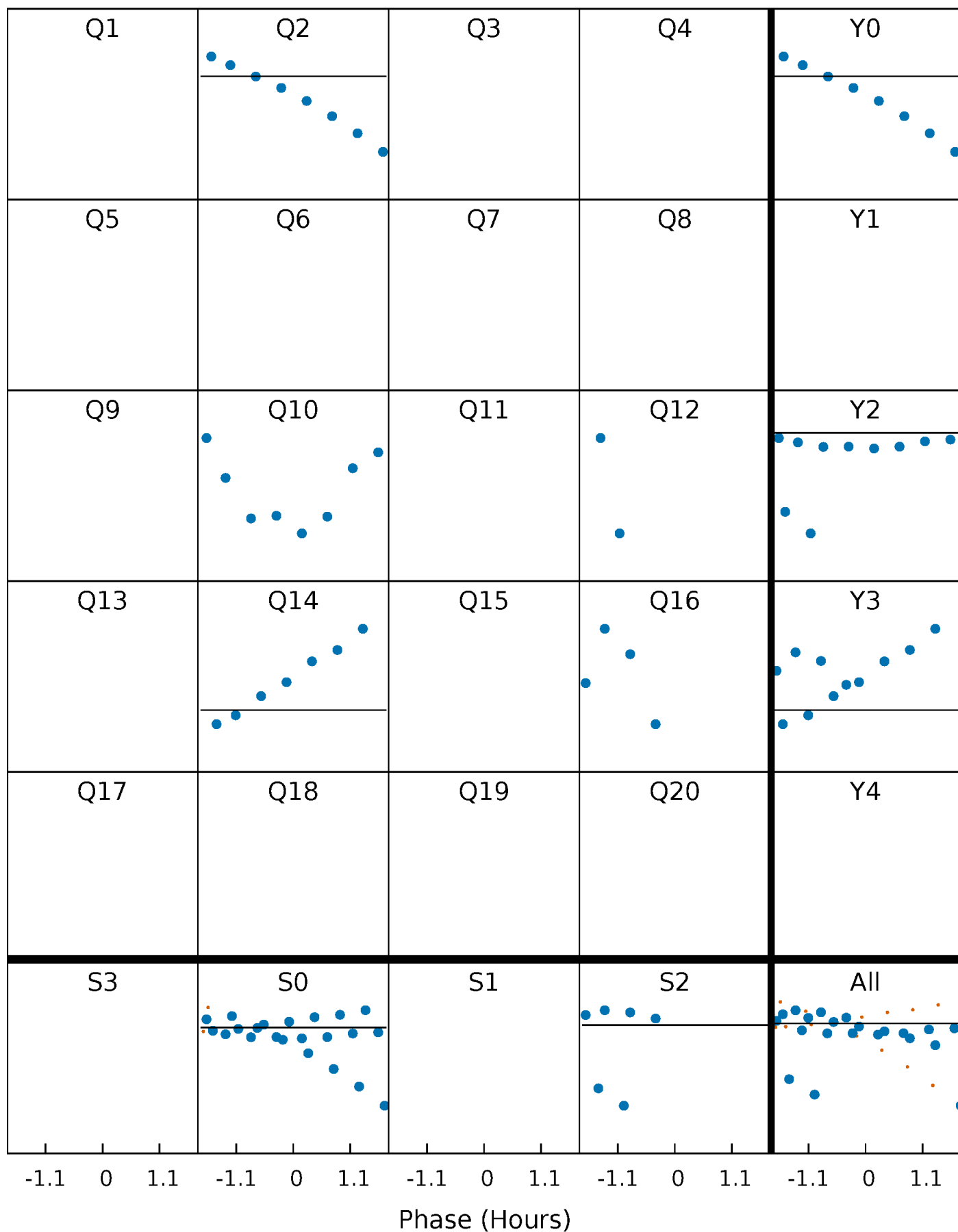
# DV Quarter-Phased Transit Curves

TCE 011413380-03 P=180.026072 Days  $T_0=239.130811$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

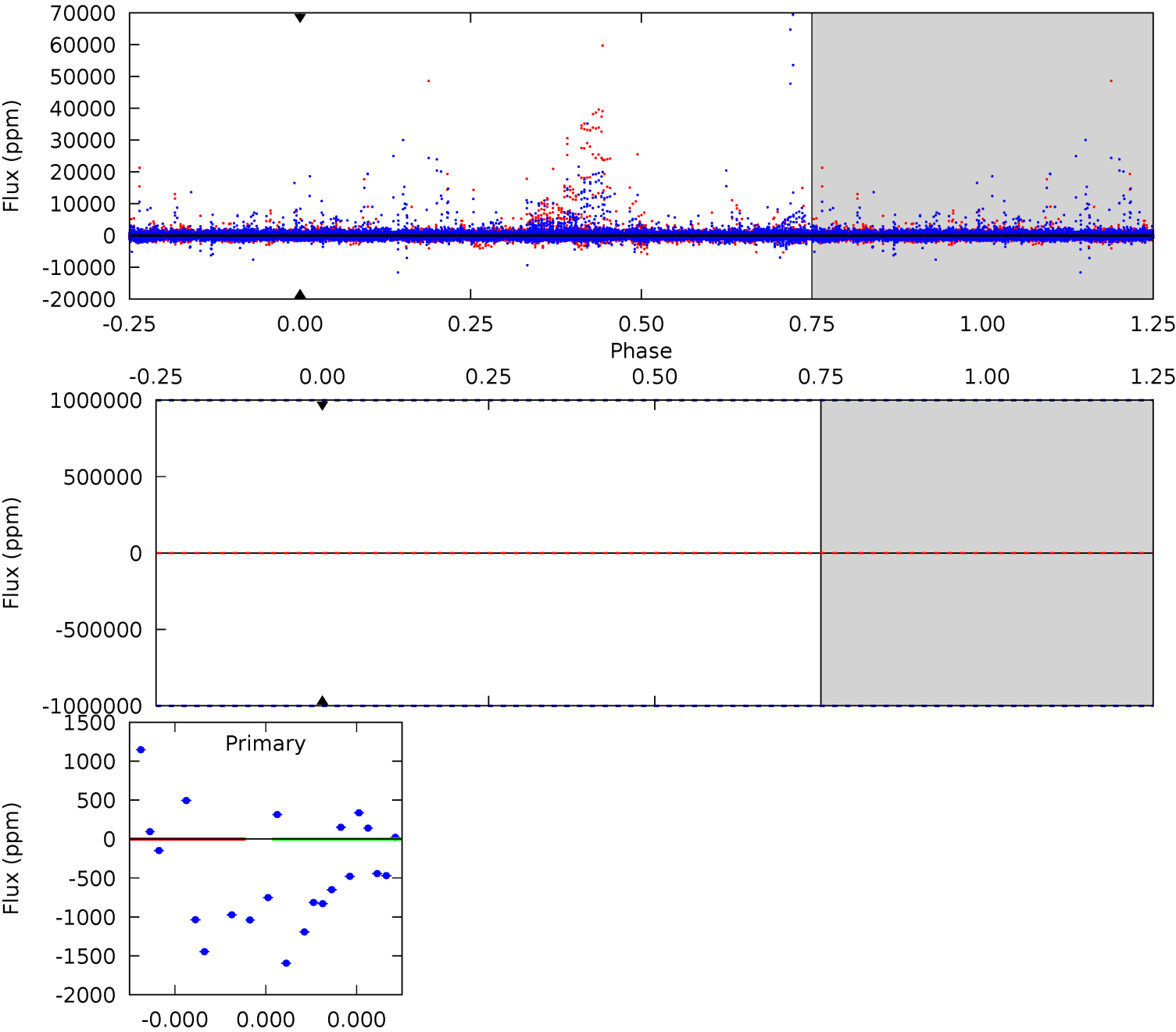
TCE 011413380-03 P=180.026072 Days  $T_0=238.981427$  (BKJD)



# DV Model-Shift Uniqueness Test

011413380-03, P = 180.026072 Days, E = 59.104739 Days

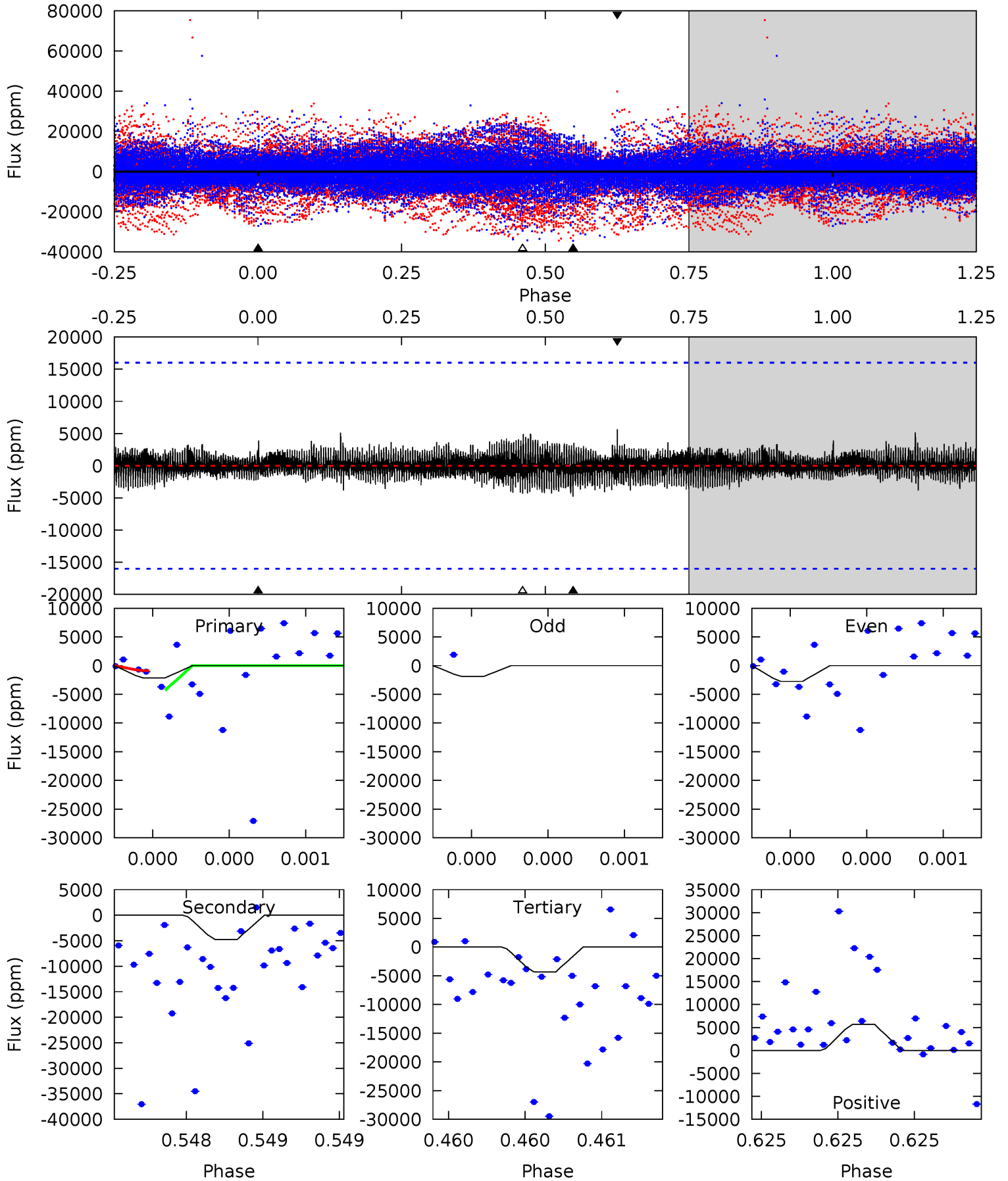
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

011413380-03, P = 180.026072 Days, E = 58.955355 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
0.76	1.68	1.52	2.01	5.65	3.60	0.44	-0.77	-1.25	0.16	-0.32	0.09	0.66	0.54	0.58



### Stellar Parameters For KIC 011413380

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5257^{+157}_{-157}$	$4.620^{+0.066}_{-0.044}$	$-0.940^{+0.300}_{-0.300}$	$0.645^{+0.055}_{-0.055}$	$0.632^{+0.060}_{-0.023}$	$3.317^{+0.900}_{-0.531}$
	+3%/-3%	+1%/-1%	+32%/-32%	+9%/-9%	+9%/-4%	+27%/-16%
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 011413380-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$5.82^{+5.51}_{-3.77}$	$354^{+13}_{-13}$	$3697^{+9998}_{-17154}$	$4856^{+636869}_{-705235}$
Alt.	$-4772 \pm 2833$	$4.29^{+5.68}_{-2.92}$	$354^{+14}_{-13}$	$5252^{+5666}_{-1634}$	$32043^{+359957}_{-27424}$

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

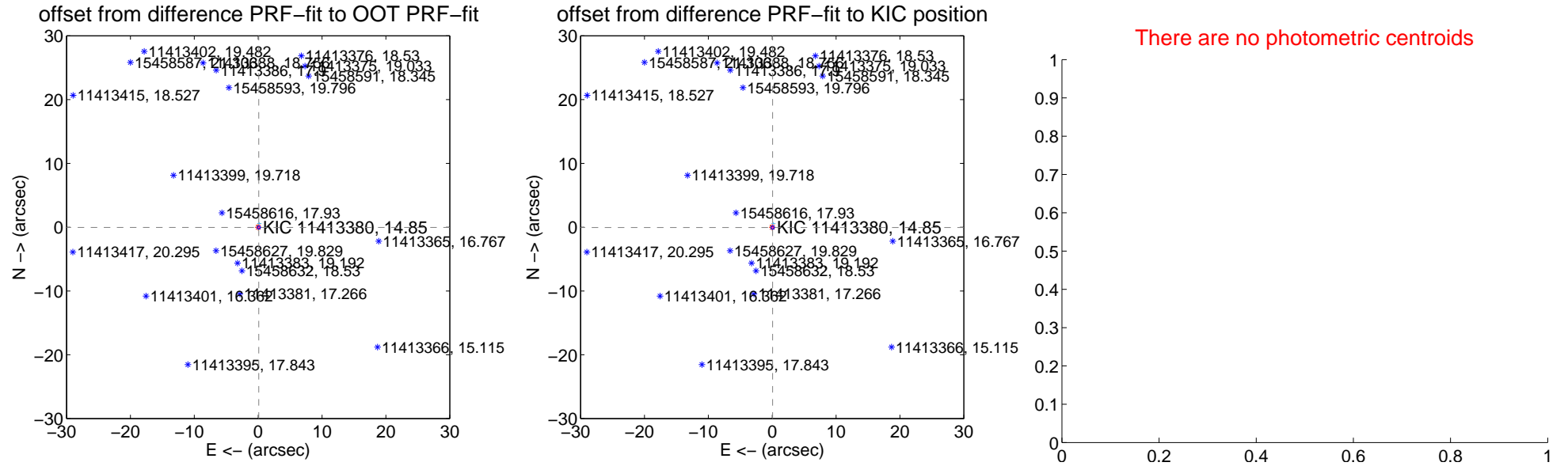
## DV Centroid Data

Supplemental centroid analysis for 011413380-03. Kepler magnitude: 14.85. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

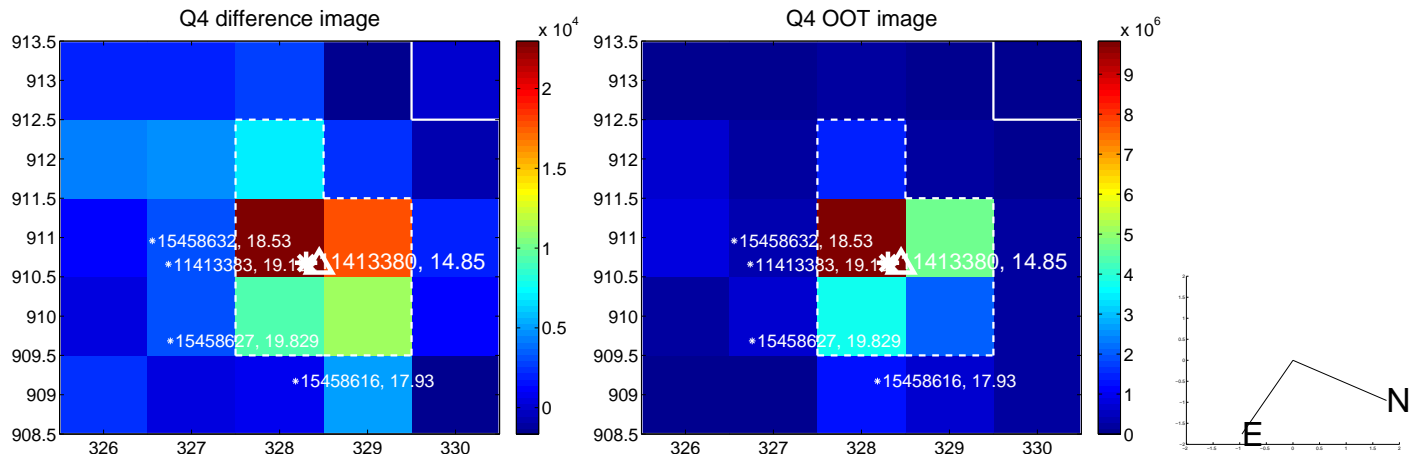
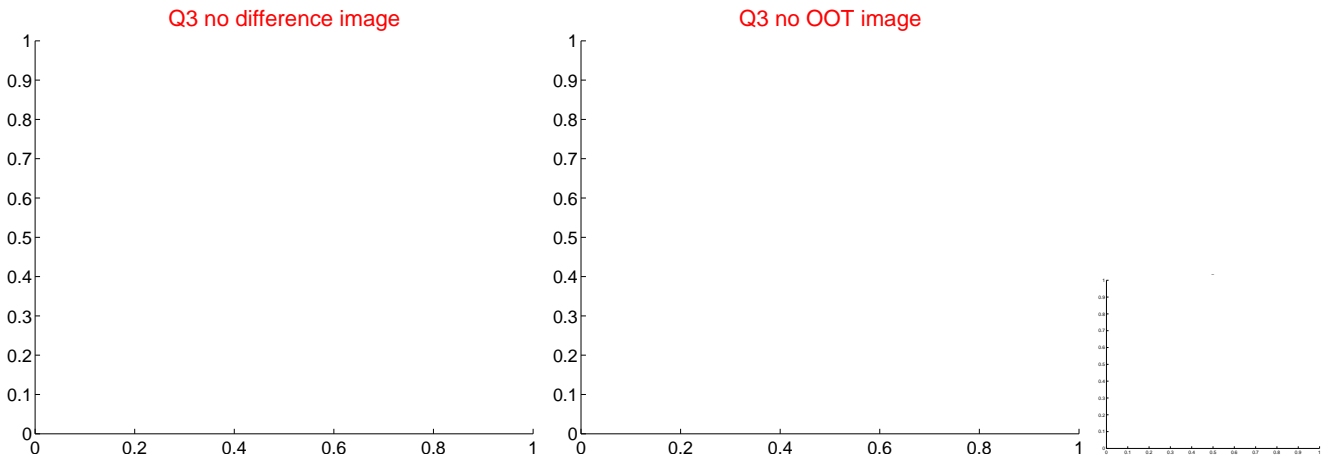
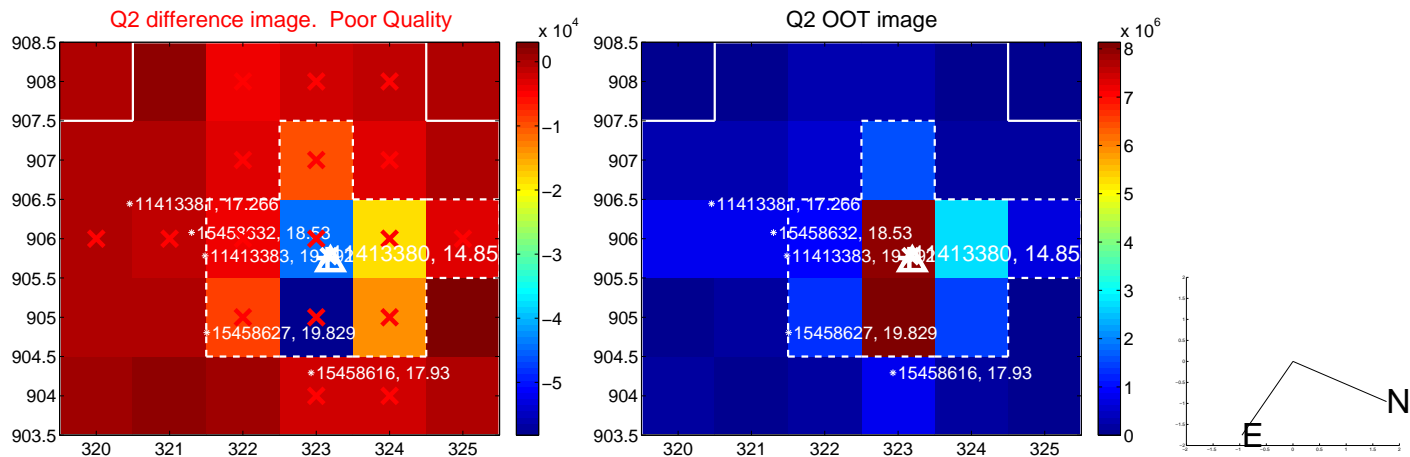
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.101 \pm 0.085$	1.19	$-0.095 \pm 0.086$	$-0.036 \pm 0.082$
PRF-fit source offset from KIC position	$0.079 \pm 0.090$	0.88	$-0.059 \pm 0.084$	$-0.053 \pm 0.110$
photometric centroid source offset	—	—	—	—

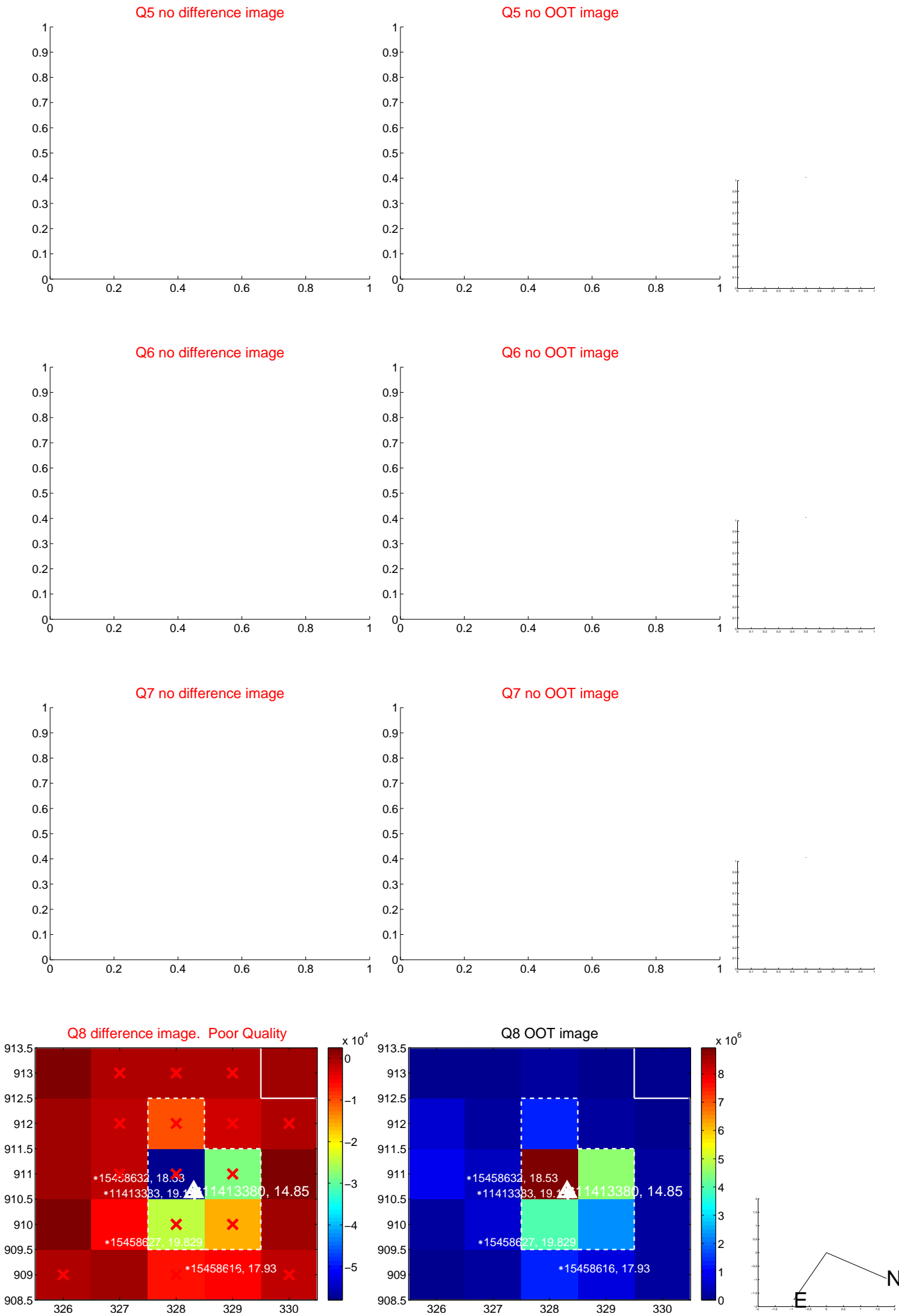


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

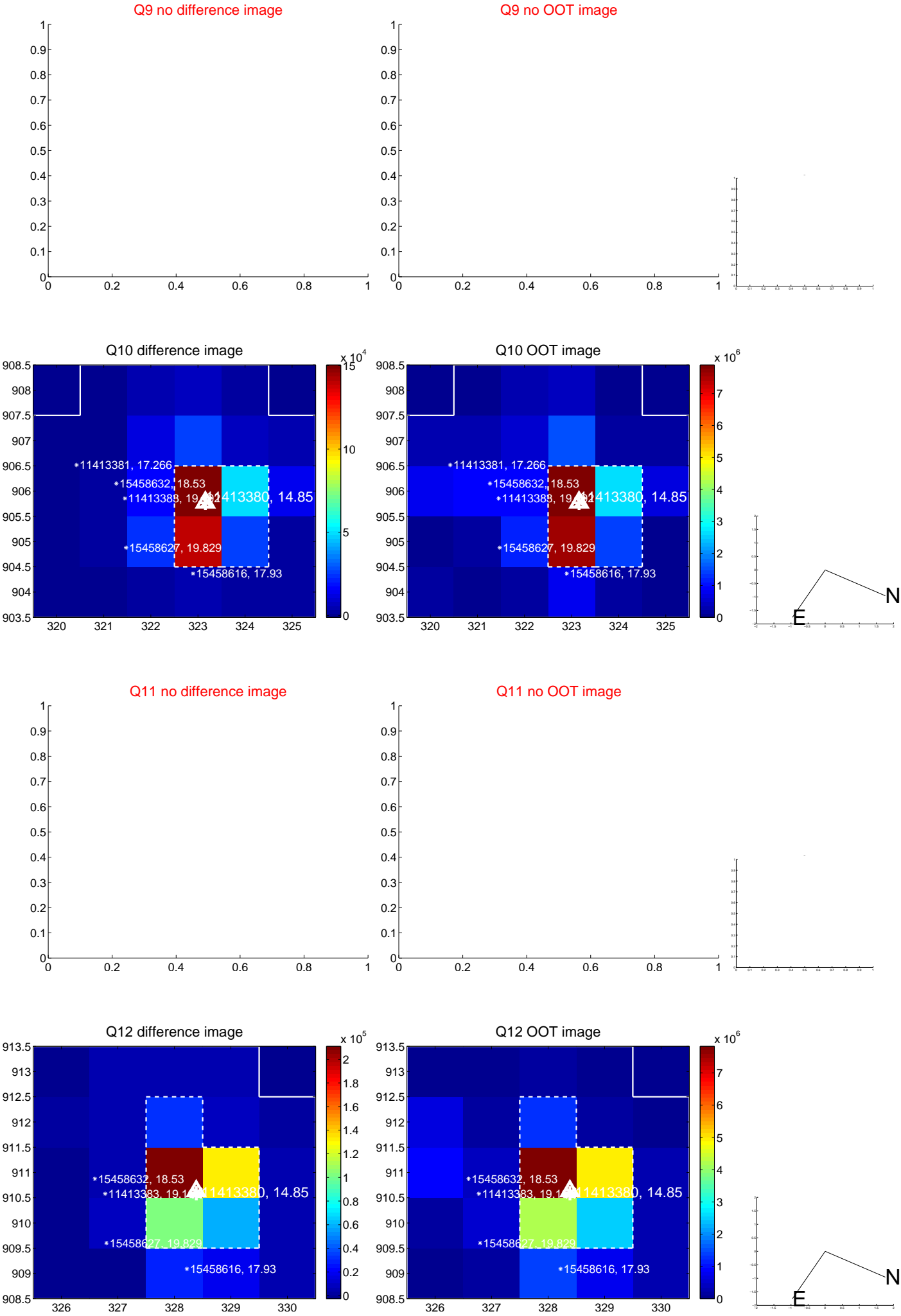


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

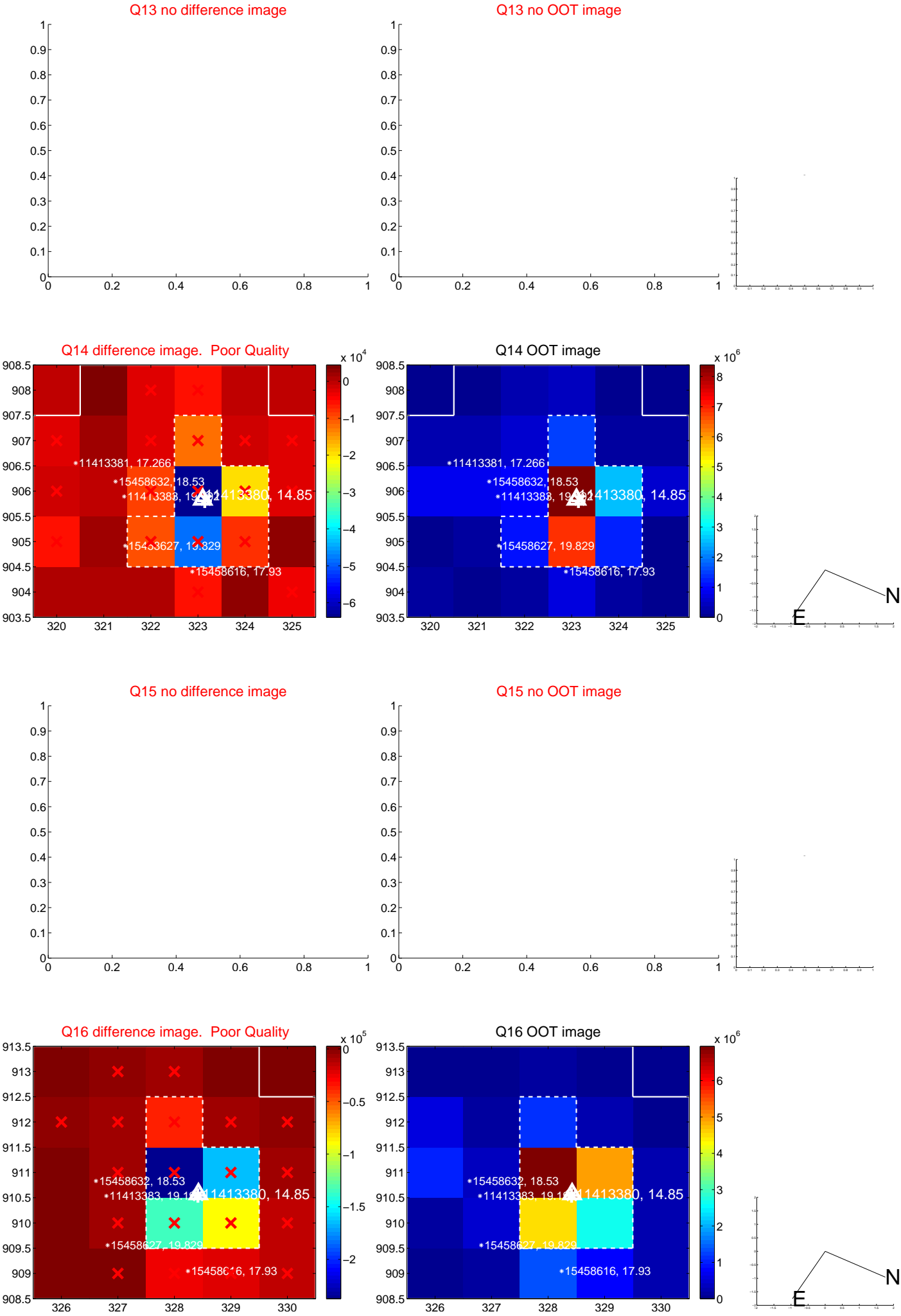




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



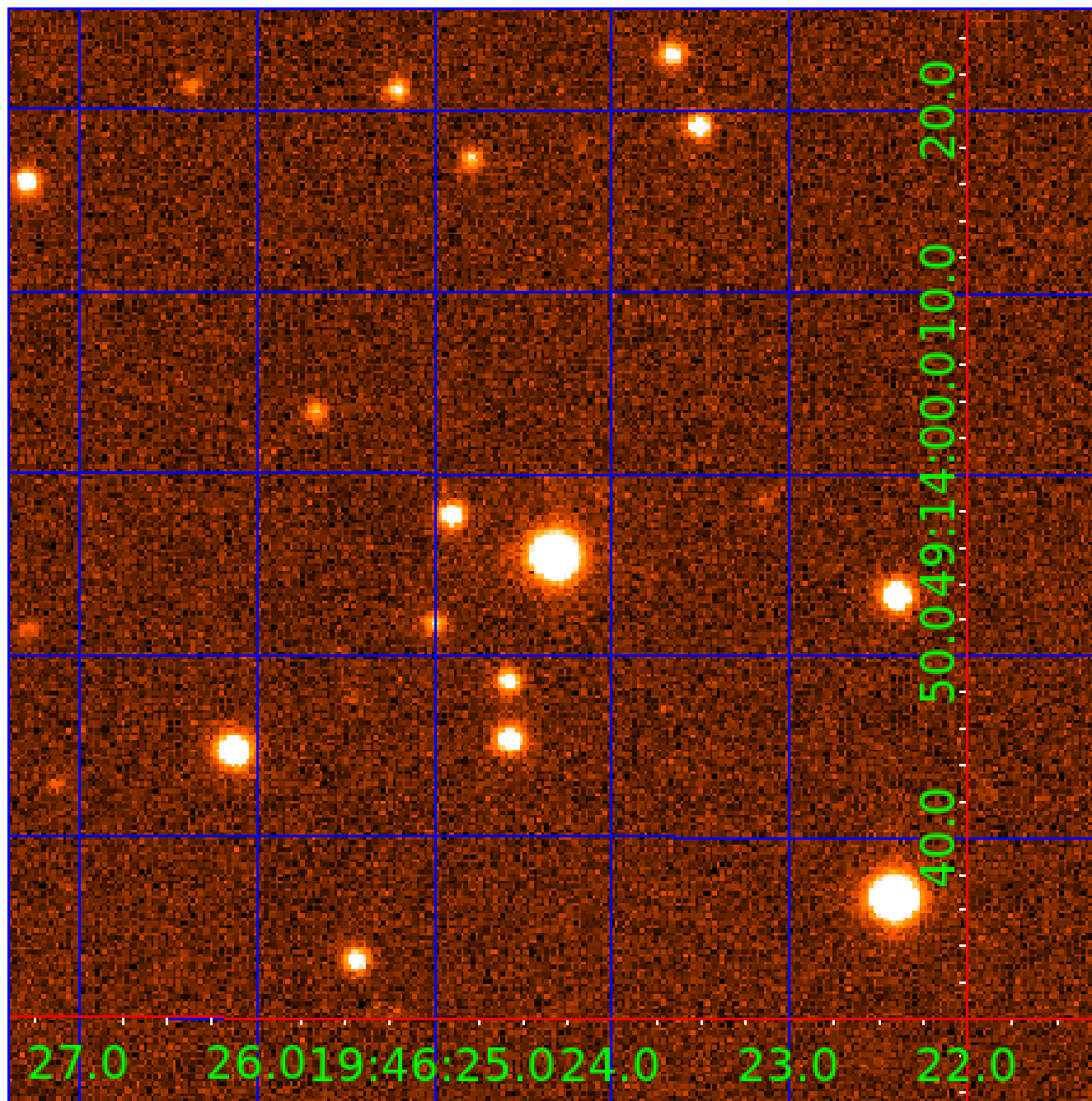
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



# KIC 011413380

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011413380-01	OBS	No	559.249011	448.115196	3541.1	5.794	17.9	6.5	0.65	5257	3.94	0.22
011413380-02	OBS	No	0.751749	131.867444	1376.1	2.000	9.2	-1.0	0.65	5257	2.37	1474.99
011413380-03	OBS	No	180.026072	239.130811	1693.8	2.500	9.7	-1.0	0.65	5257	2.63	0.99
011413380-04	OBS	No	0.753531	131.694242	109.2	0.894	8.5	5.3	0.65	5257	0.68	1470.34
011413380-05	OBS	No	0.754848	131.820369	889.5	1.500	8.5	-1.0	0.65	5257	1.91	1466.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011413380-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011413380-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS
011413380-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011413380-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
011413380-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

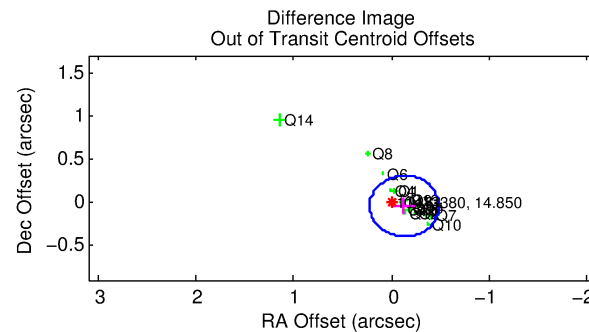
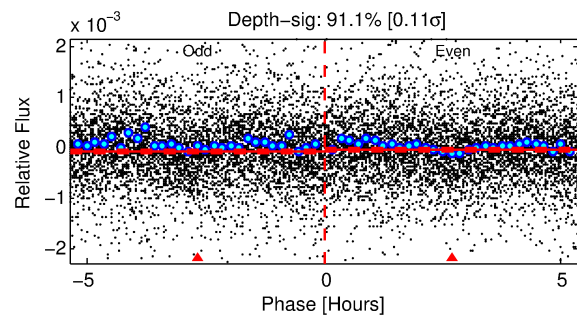
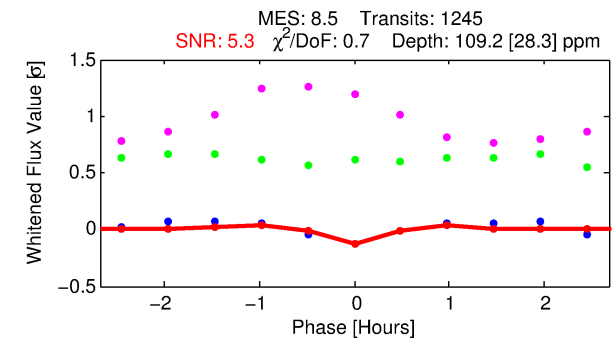
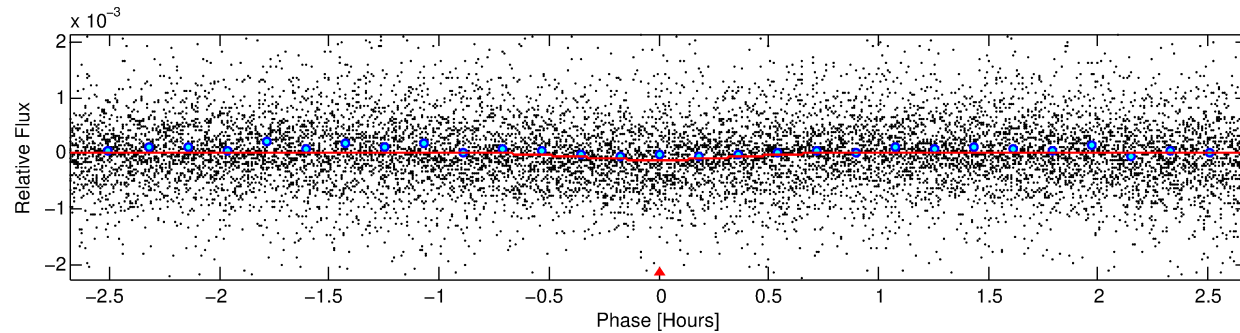
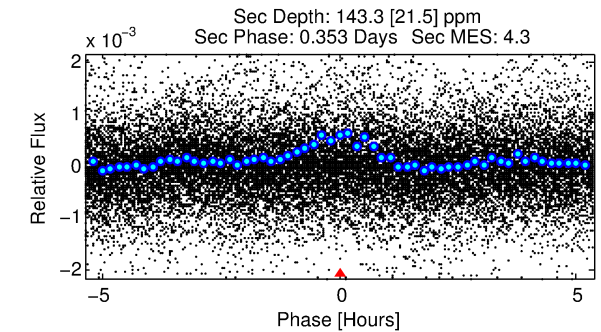
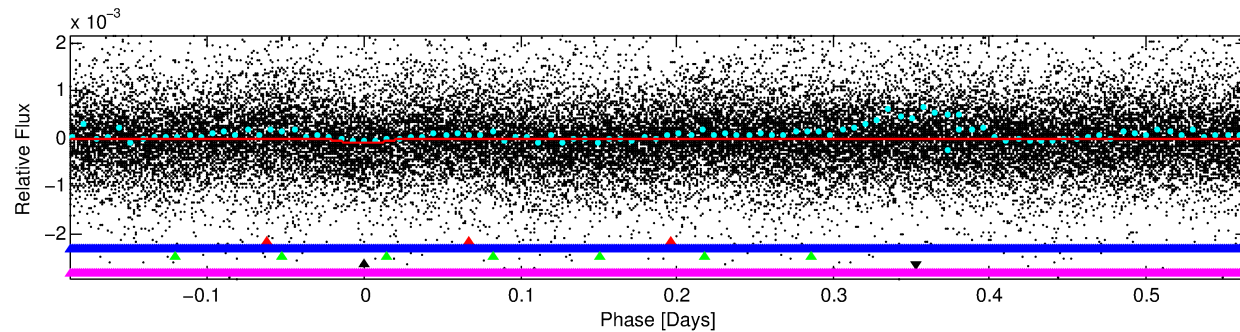
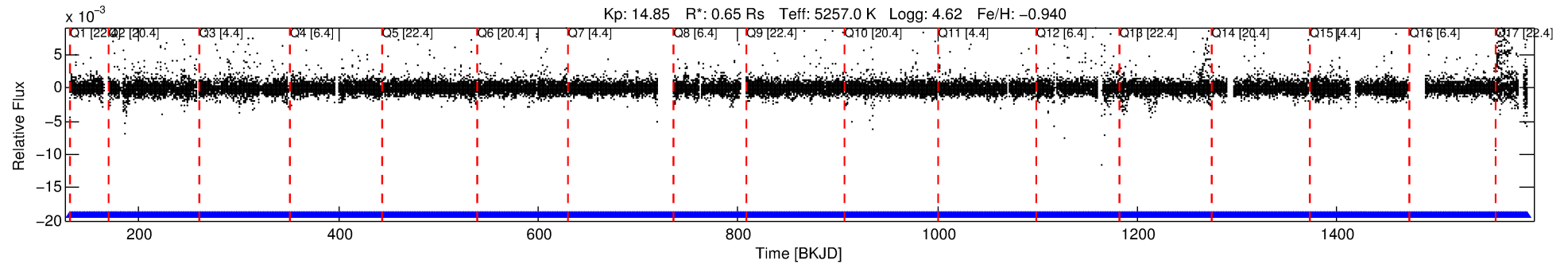
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011413380-04

No Significant Match Found

# DV One-Page Summary

KIC: 11413380 Candidate: 4 of 5 Period: 0.754 d



## DV Fit Results:

Period = 0.75353 [0.00002] d  
Epoch = 131.6942 [0.0021] BKJD  
Rp/R\* = 0.0096 [0.0318]  
a/R\* = 6.51 [93.57]  
b = 0.07 [202.73]  
Seff = 1470.34 [245.01]  
Teq = 1579 [66] K  
Rp = 0.68 [2.24] Re  
a = 0.0139 [0.0011] AU  
Ag = 33.47 [221.69] [0.15σ]  
Teffp = 5872 [9723] K [0.44σ]

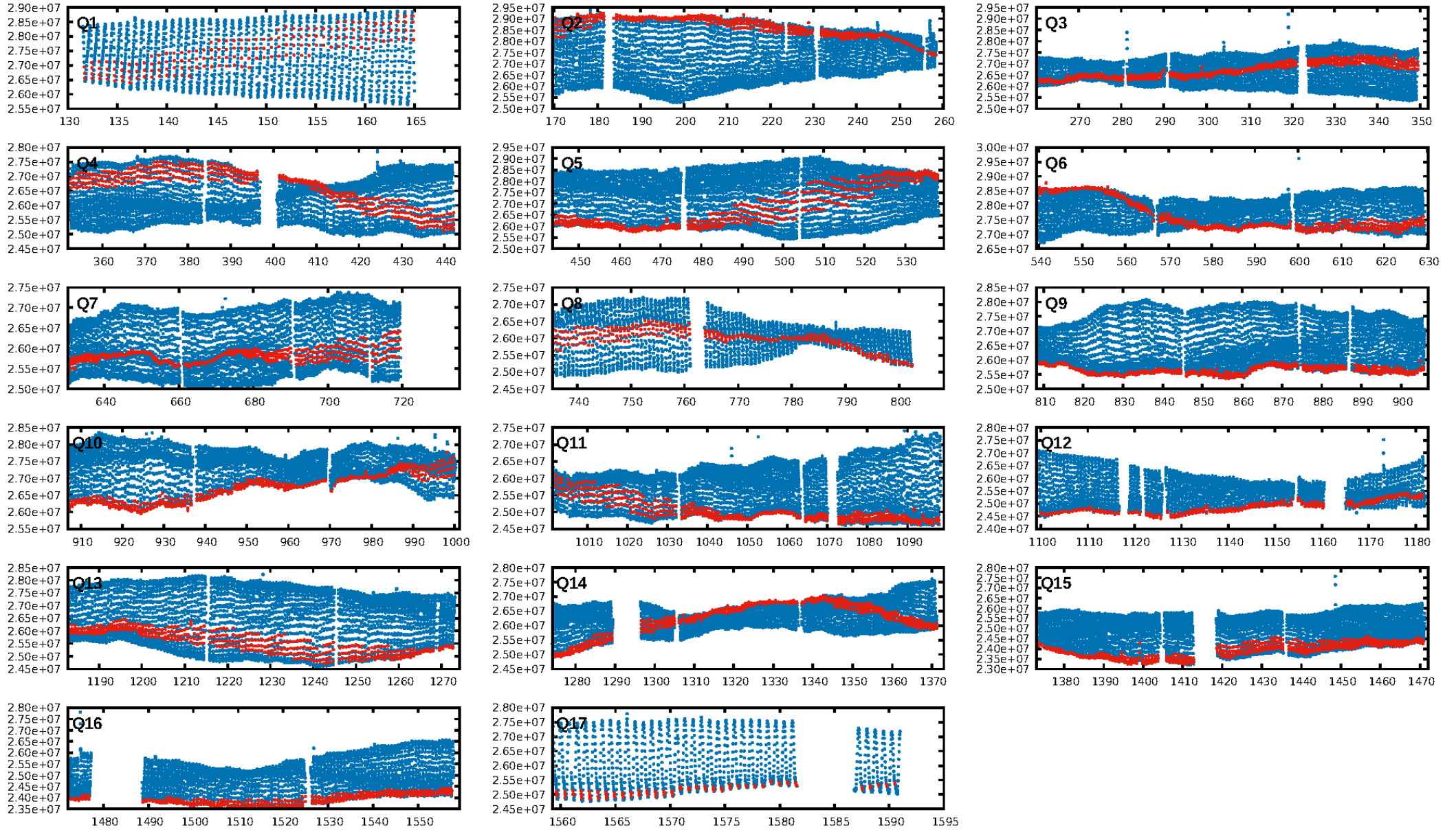
## DV Diagnostic Results:

ShortPeriod-sig: 1.6% [0.02σ]  
LongPeriod-sig: 1.4% [0.02σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.99e-19  
RollingBand-fgt: 1.00 [1172/1172]  
GhostDiagnostic-chr: -0.5784  
Centroid-sig: N/A  
Centroid-so: 1.426 arcsec [1.33σ]  
OotOffset-rm: 0.138 arcsec [1.17σ]  
KicOffset-rm: 0.065 arcsec [0.53σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.65 [11/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:04:16 Z

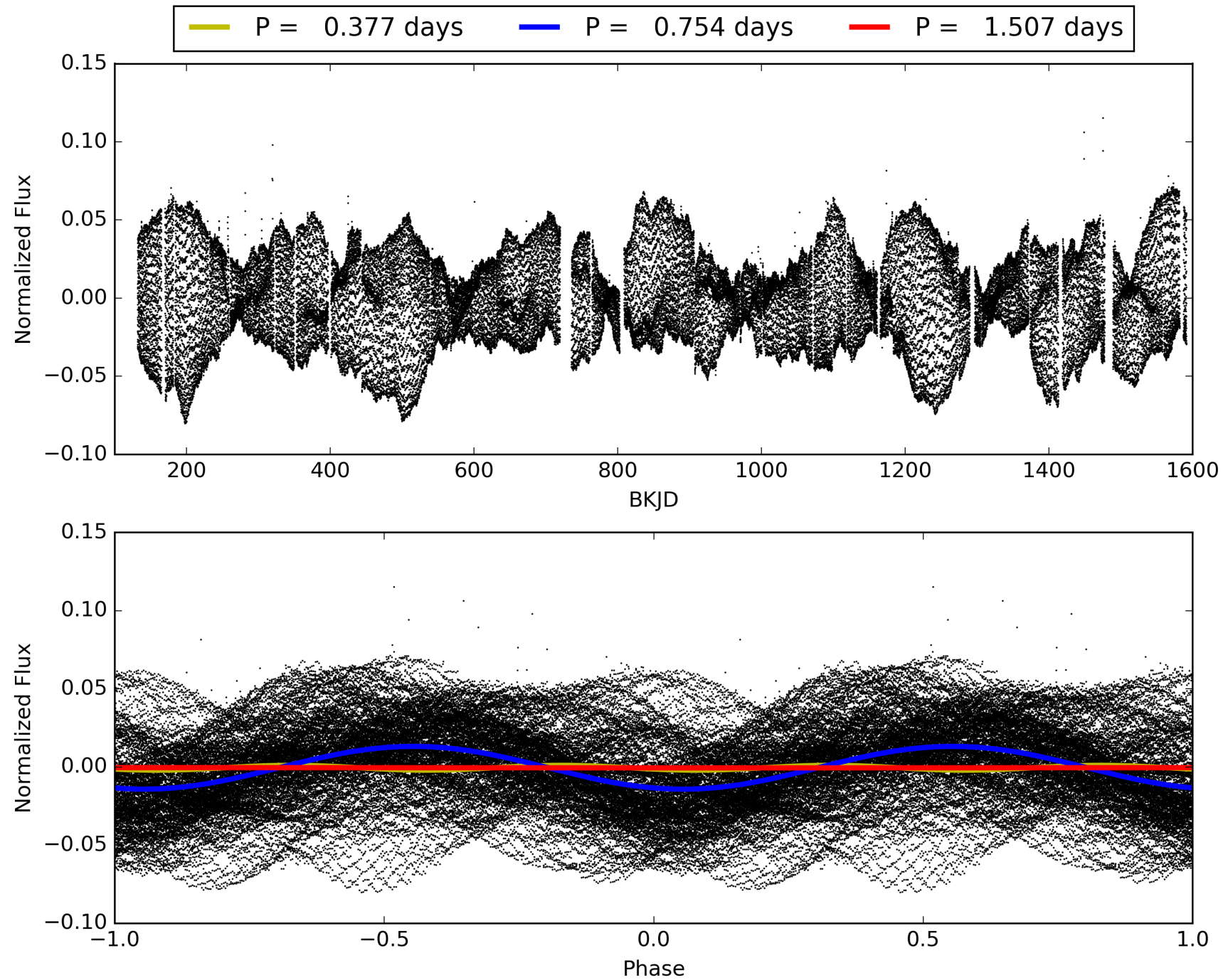
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011413380-04, PDC Light Curves





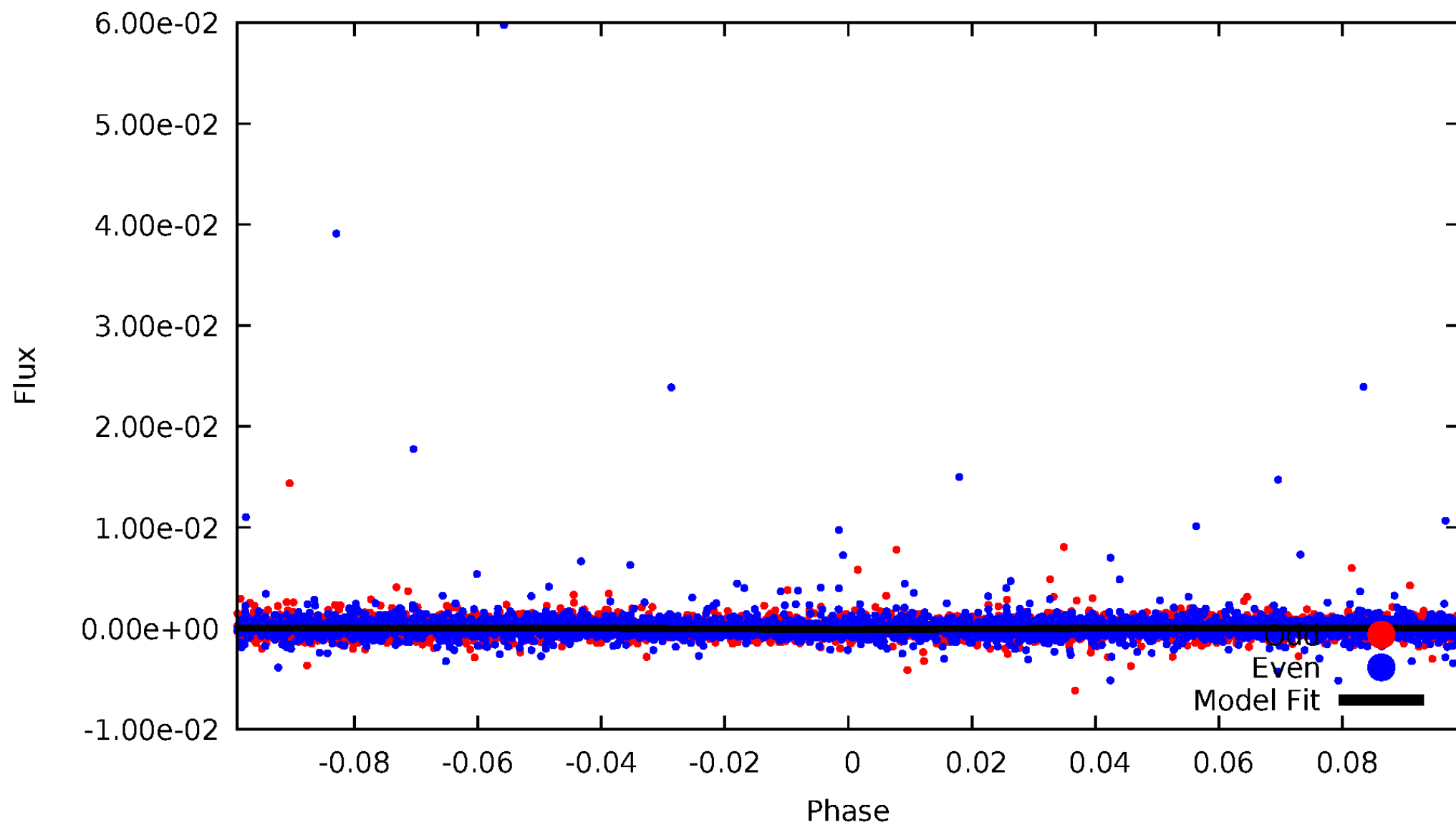
TCE 011413380-04





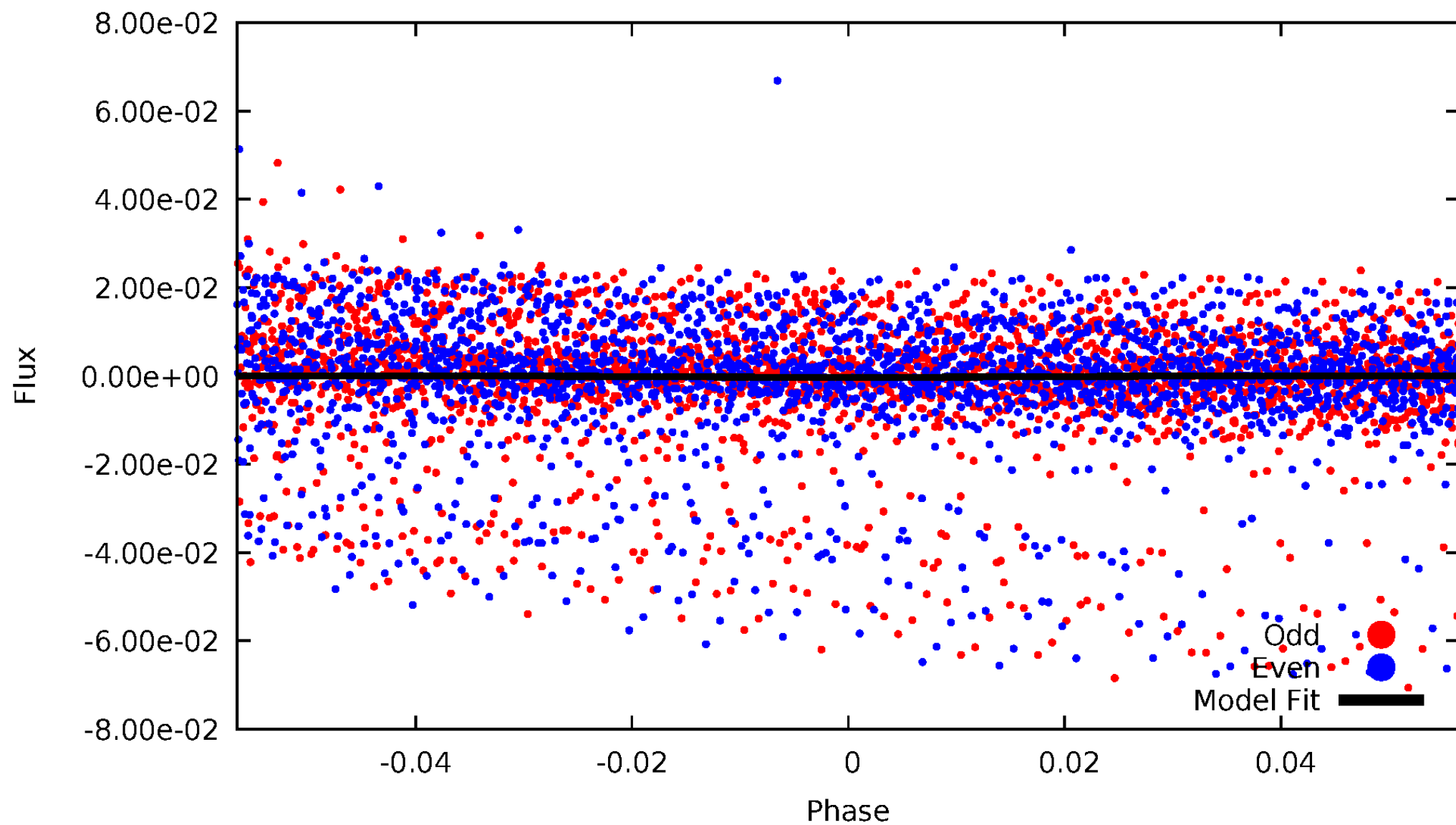
# DV Odd/Even

TCE 011413380-04



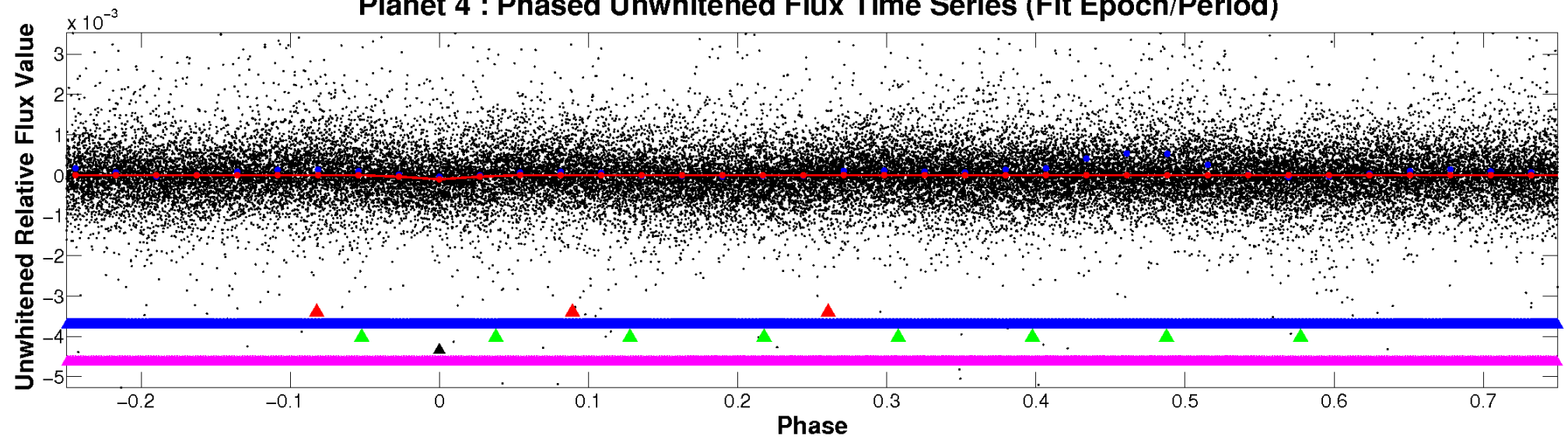
# ALT Odd/Even

TCE 011413380-04

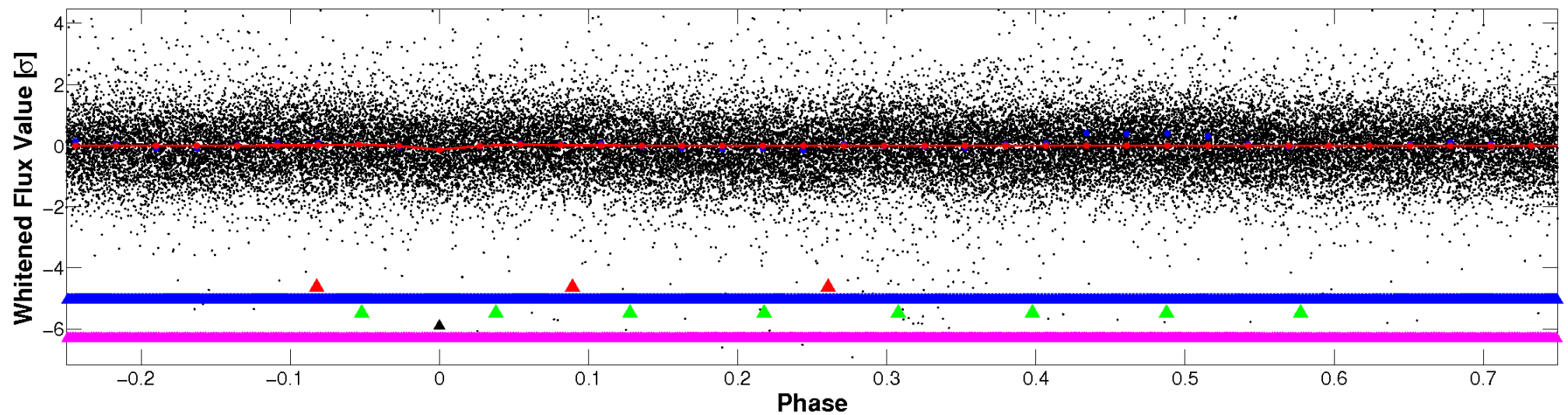


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

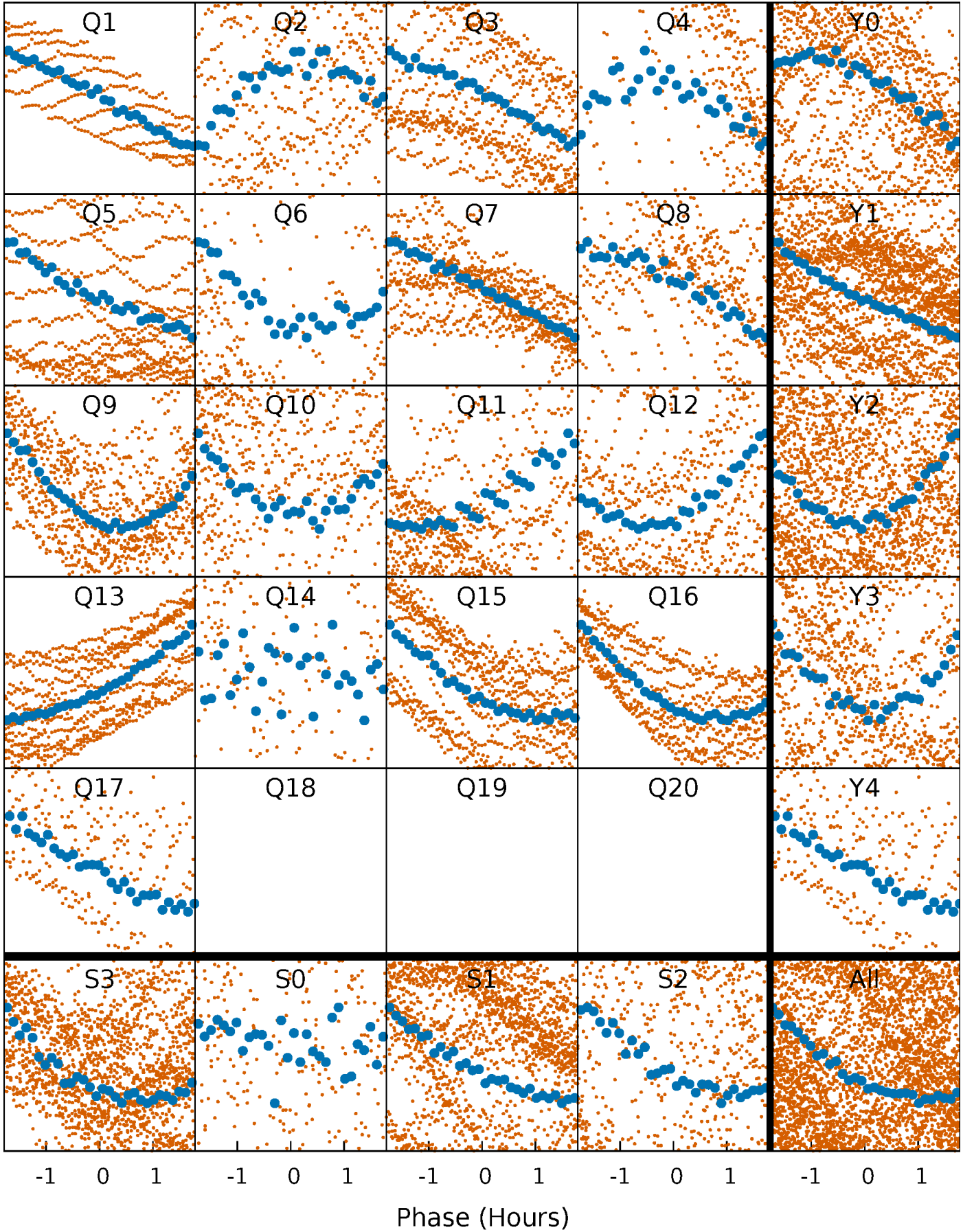


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



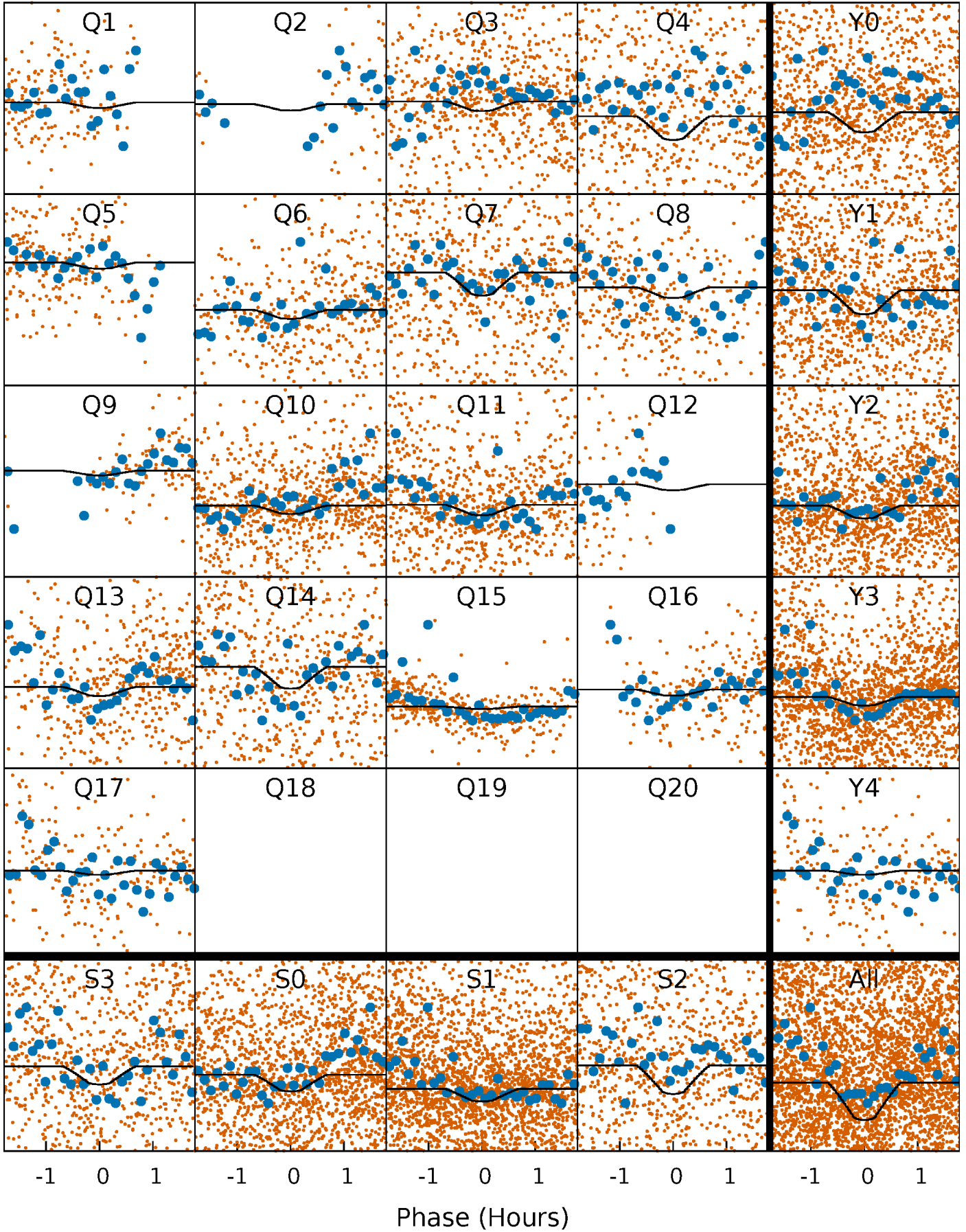
# PDC Quarter-Phased Transit Curves

TCE 011413380-04 P= 0.753531 Days  $T_0=131.694242$  (BKJD)



# DV Quarter-Phased Transit Curves

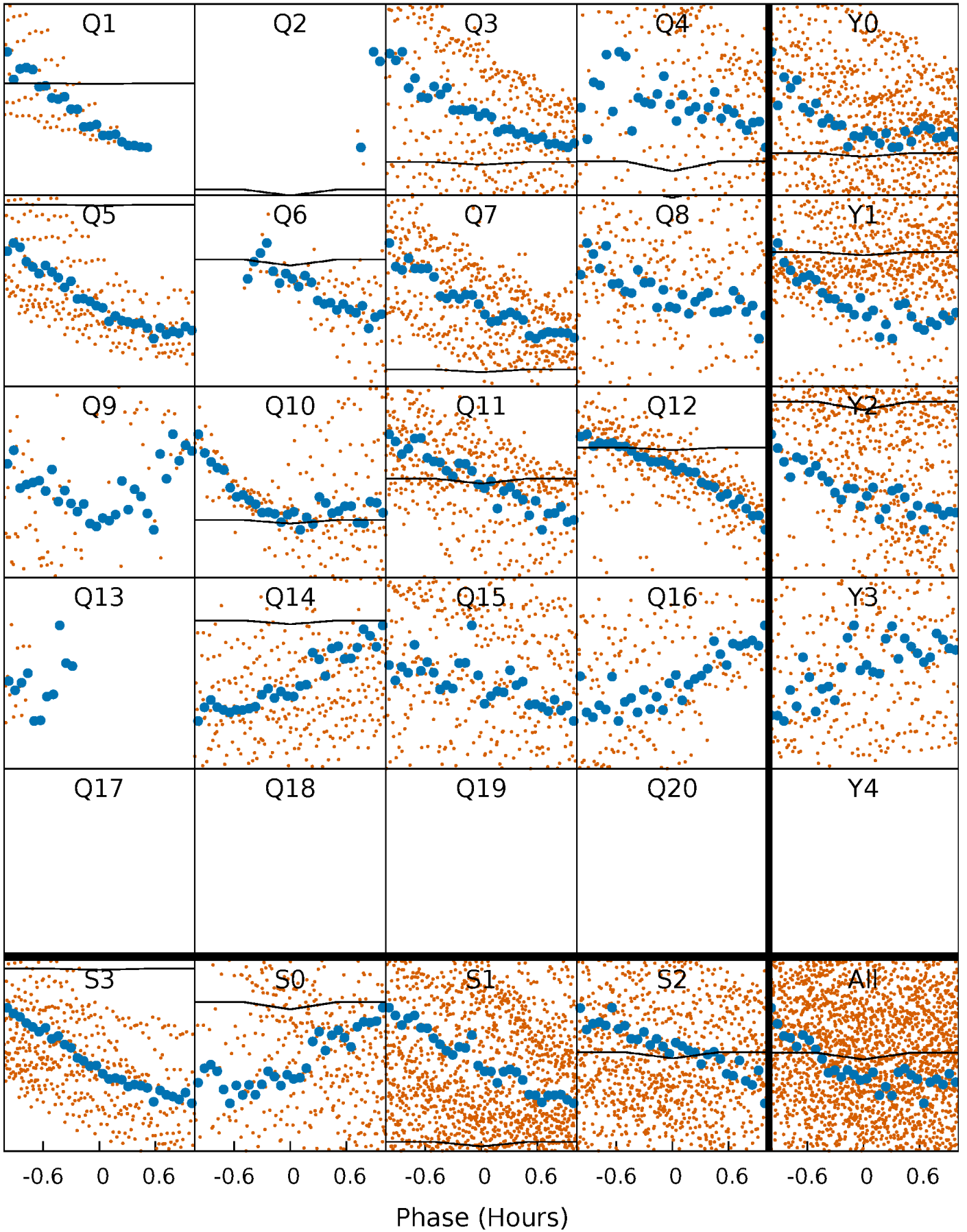
TCE 011413380-04 P= 0.753531 Days  $T_0=131.694242$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

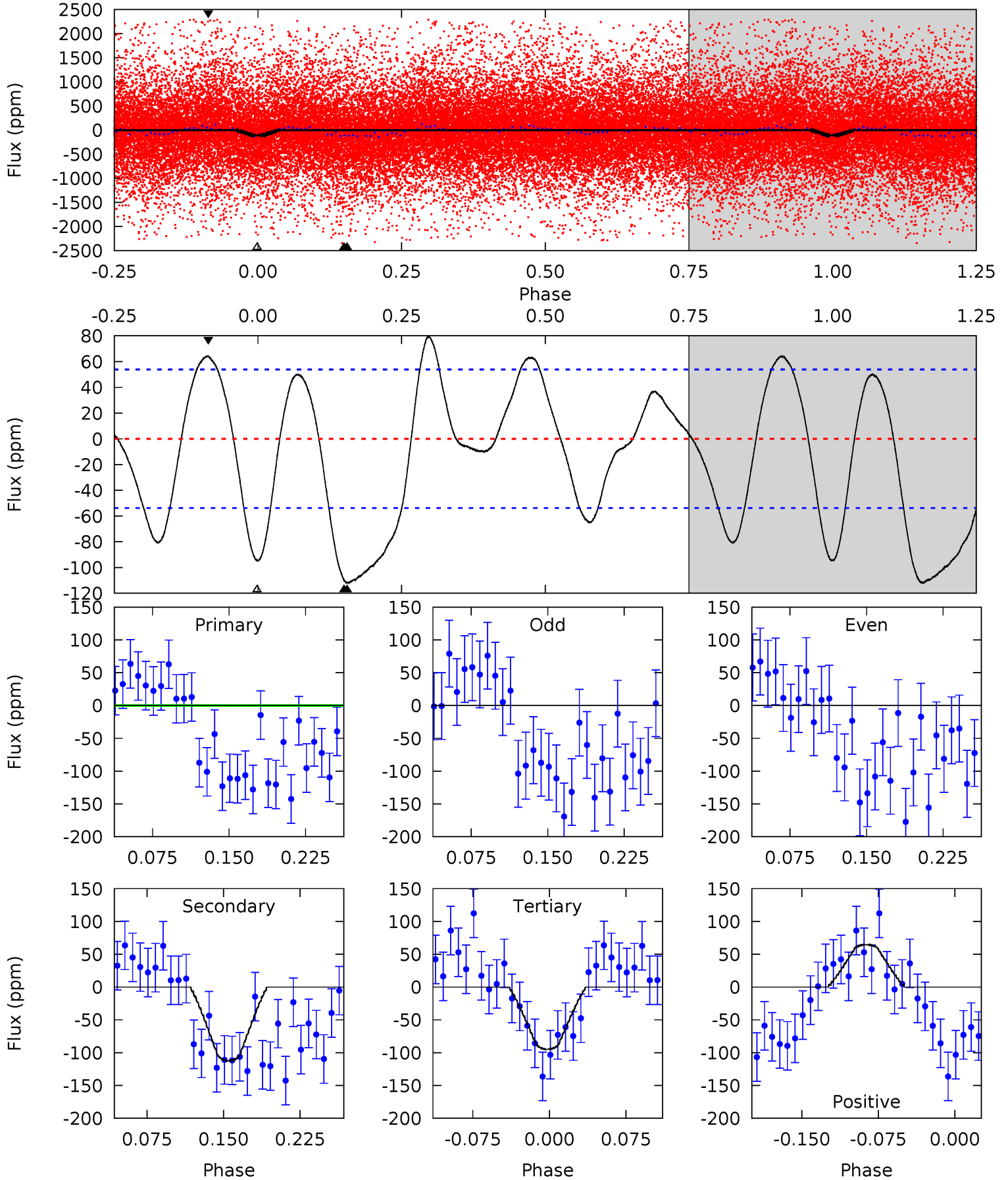
TCE 011413380-04 P= 0.753388 Days  $T_0=131.702263$  (BKJD)



# DV Model-Shift Uniqueness Test

011413380-04, P = 0.753531 Days, E = 130.940711 Days

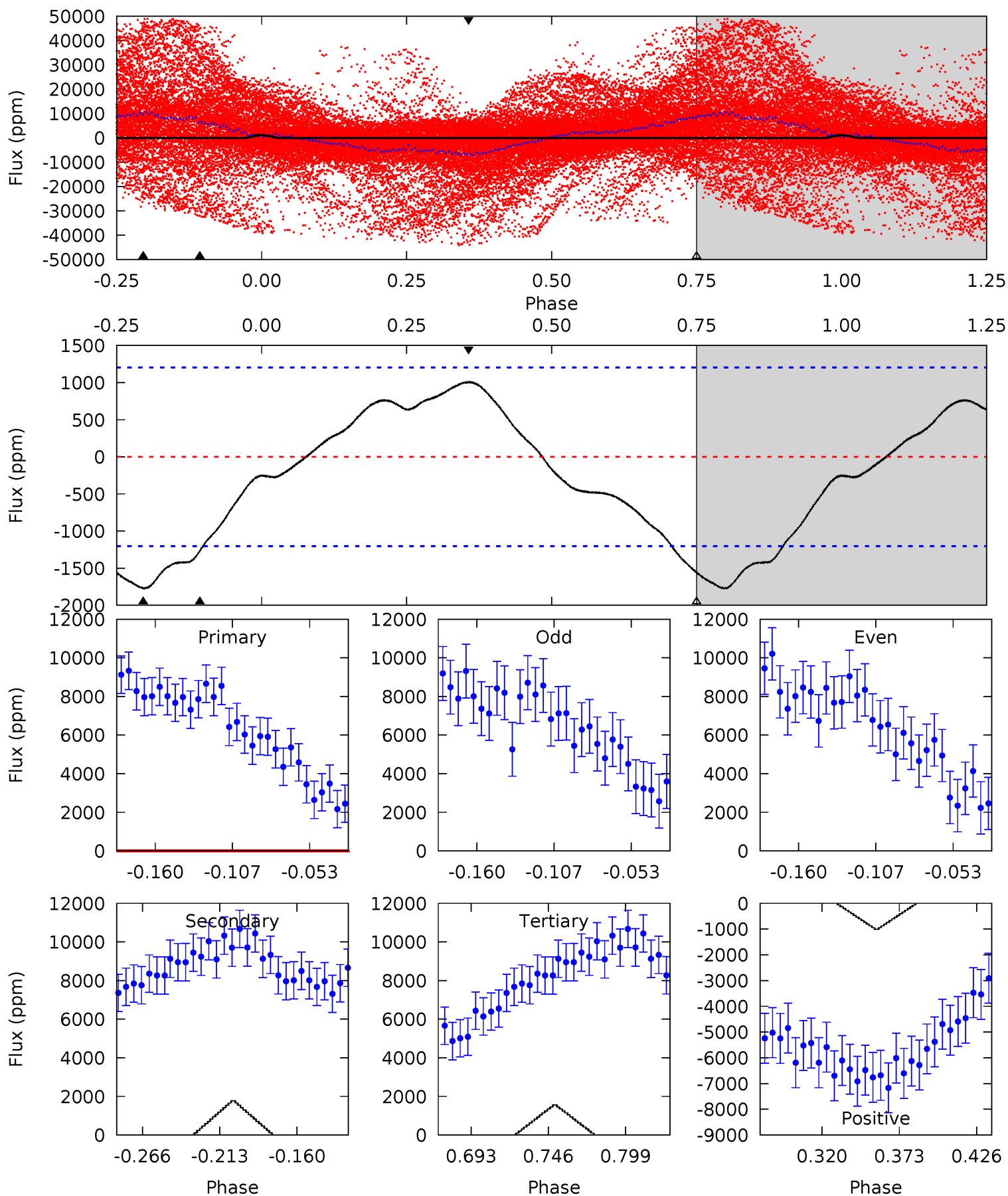
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.43	9.65	8.15	5.55	4.63	1.78	3.76	1.28	3.88	1.50	4.10	0.54	0.31	0.42	1.88



# Alt Model-Shift Uniqueness Test

011413380-04, P = 0.753388 Days, E = 130.948875 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.96	6.93	6.08	3.94	4.70	1.93	2.65	-1.12	1.02	0.85	2.99	0.11	-1.27	0.36	4.26





### Stellar Parameters For KIC 011413380

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5257^{+157}_{-157}$	$4.620^{+0.066}_{-0.044}$	$-0.940^{+0.300}_{-0.300}$	$0.645^{+0.055}_{-0.055}$	$0.632^{+0.060}_{-0.023}$	$3.317^{+0.900}_{-0.531}$
	+3%/-3%	+1%/-1%	+32%/-32%	+9%/-9%	+9%/-4%	+27%/-16%
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 011413380-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-112 \pm 12$	$1.76^{+1.90}_{-1.15}$	$2204^{+81}_{-86}$	$3720^{+2140}_{-870}$	$3.982^{+28.633}_{-3.089}$
Alt.	$-1775 \pm 256$	$2.16^{+1.97}_{-1.42}$	$2195^{+85}_{-79}$	$6042^{+5816}_{-1504}$	$41^{+307}_{-30}$

$T_{\text{max}}$  = 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

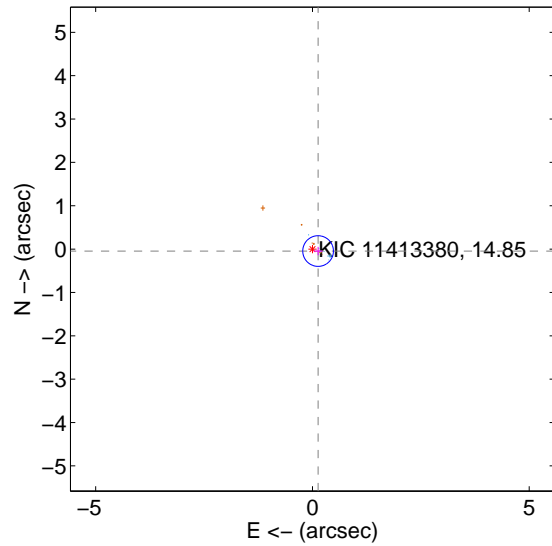
Supplemental centroid analysis for 011413380-04. Kepler magnitude: 14.85. Transit SNR 5.29

There are 11 quarters with good PRF difference image offsets

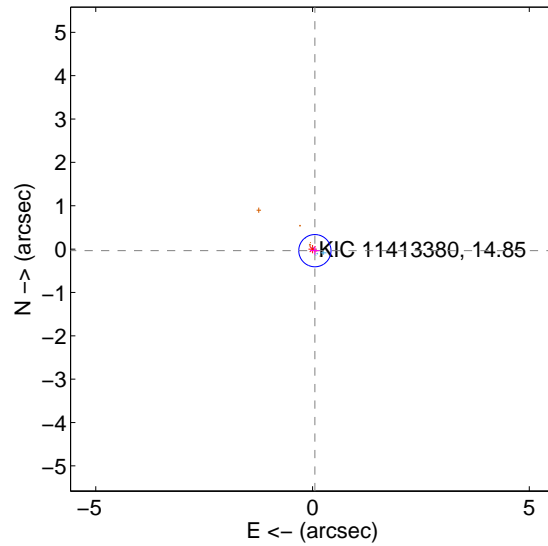
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.138 \pm 0.118$	1.17	$-0.130 \pm 0.104$	$-0.045 \pm 0.096$
PRF-fit source offset from KIC position	$0.065 \pm 0.124$	0.53	$-0.054 \pm 0.105$	$-0.036 \pm 0.096$
photometric centroid source offset	$1.43 \pm 1.08$	1.33	$1.04 \pm 1.13$	$0.98 \pm 1.01$

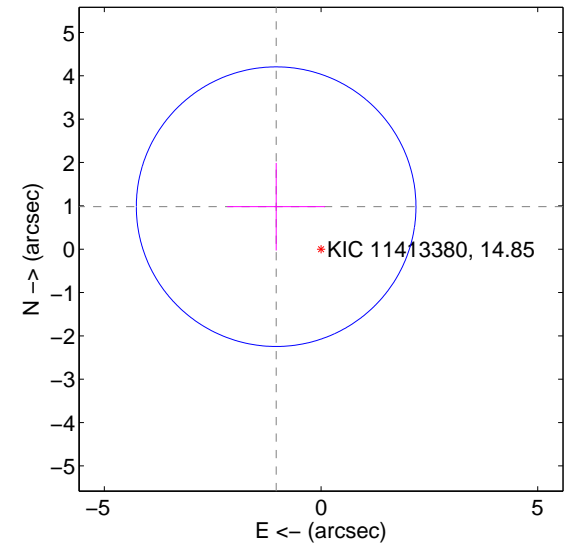
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

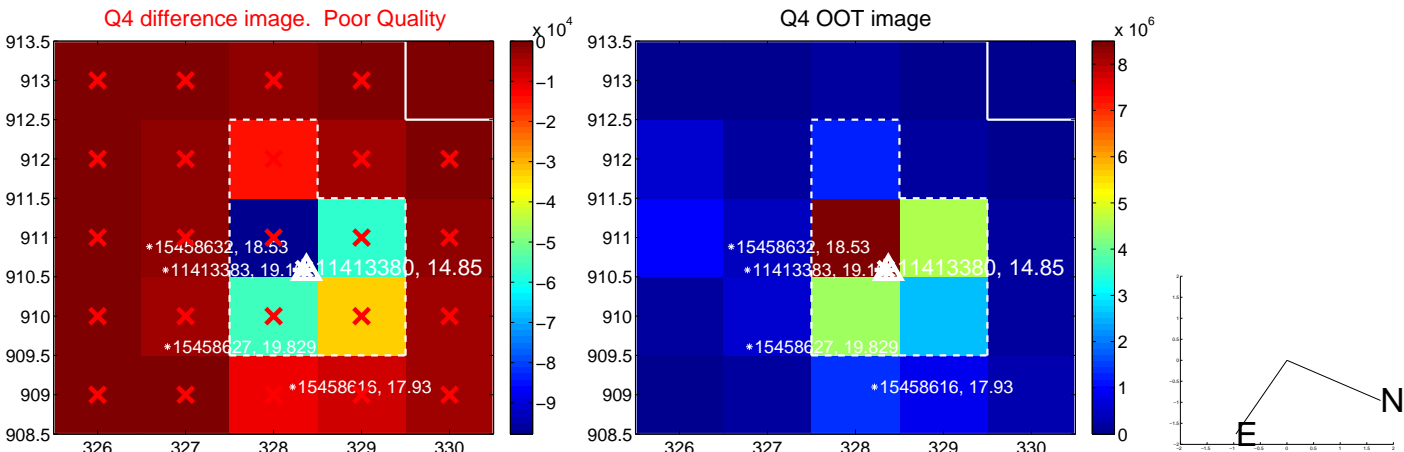
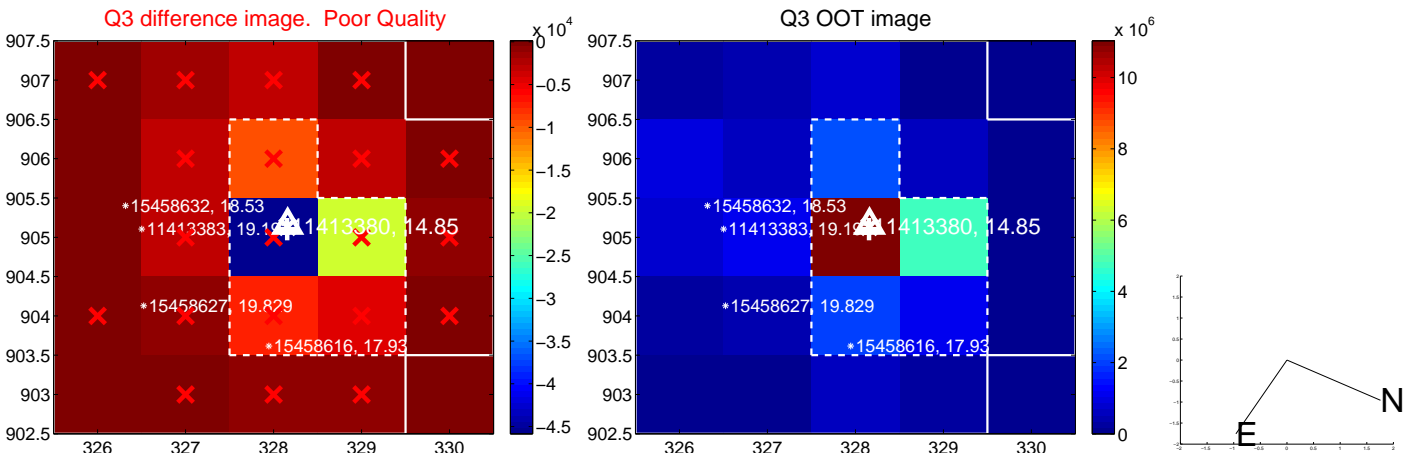
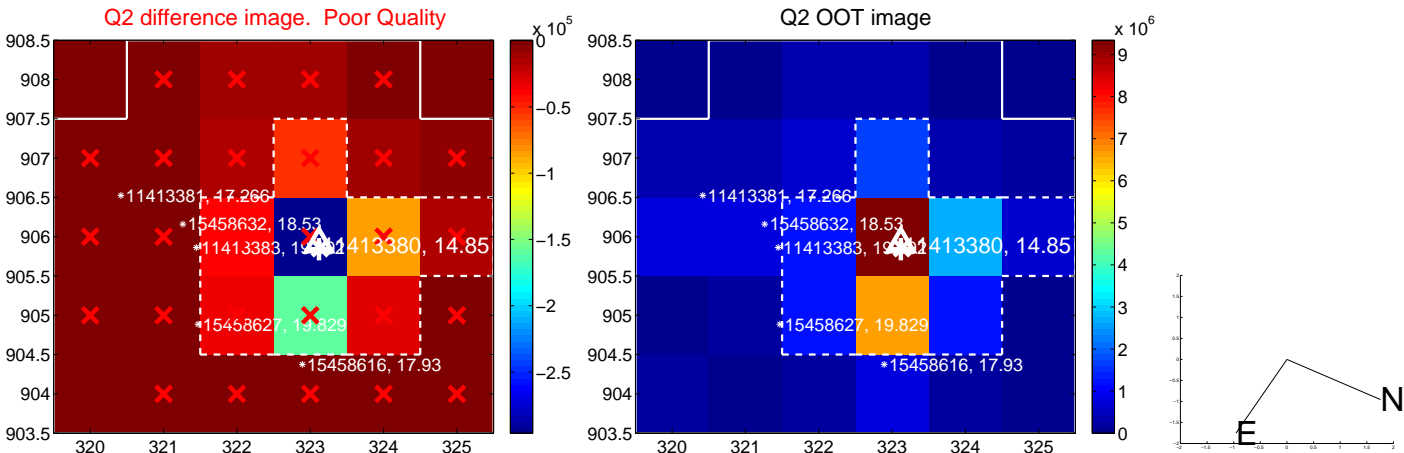
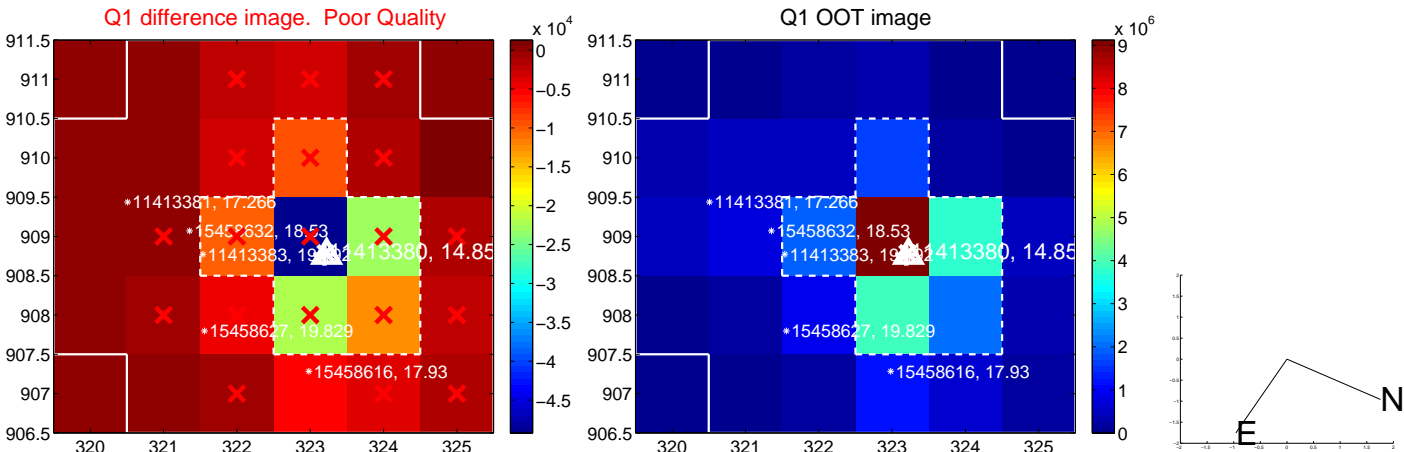


offset from photometric centroids

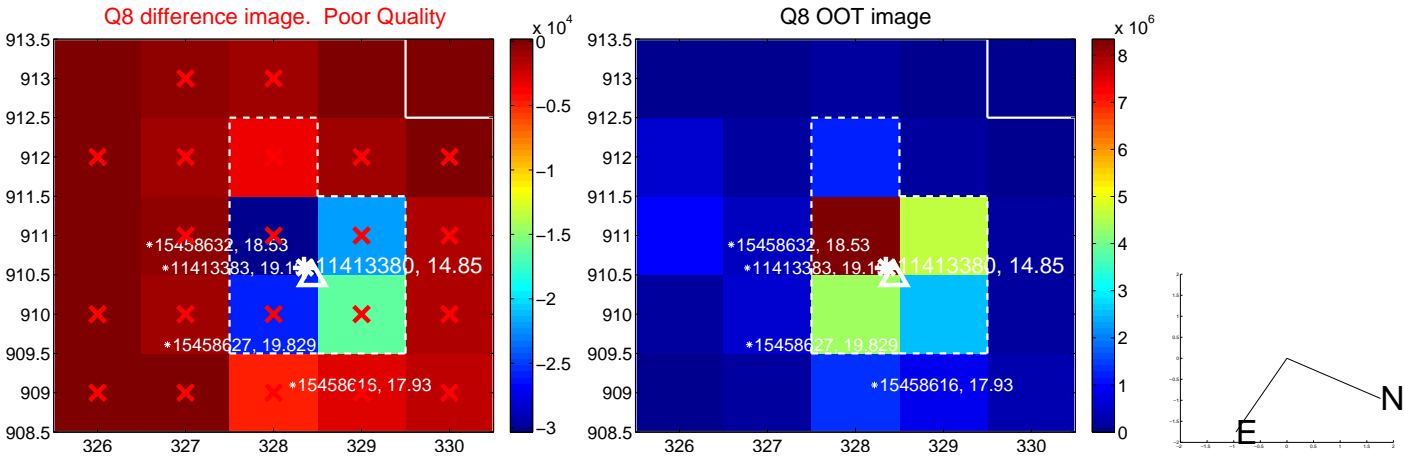
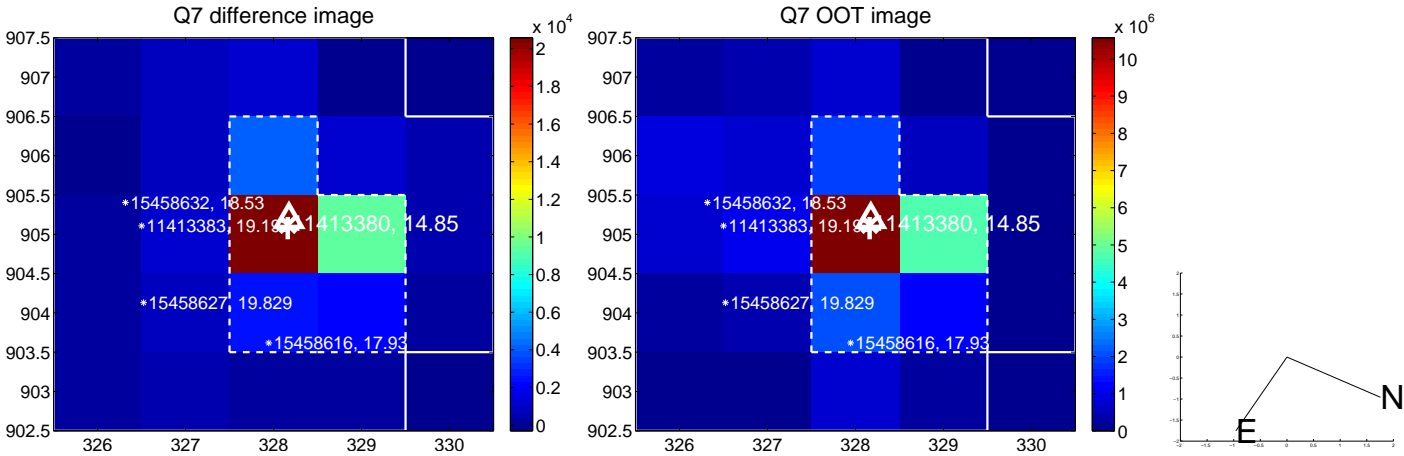
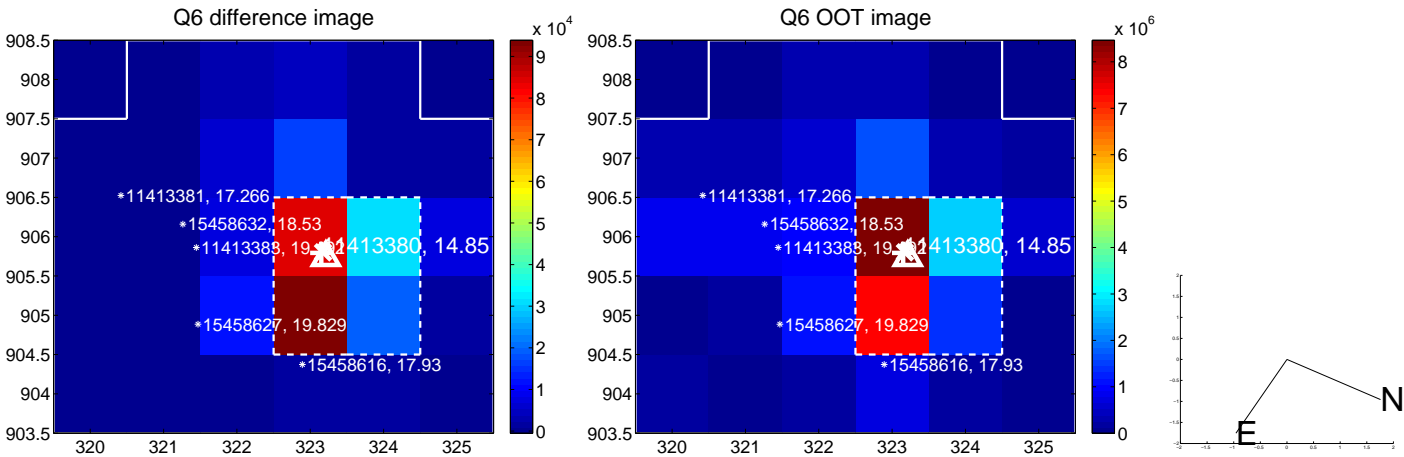
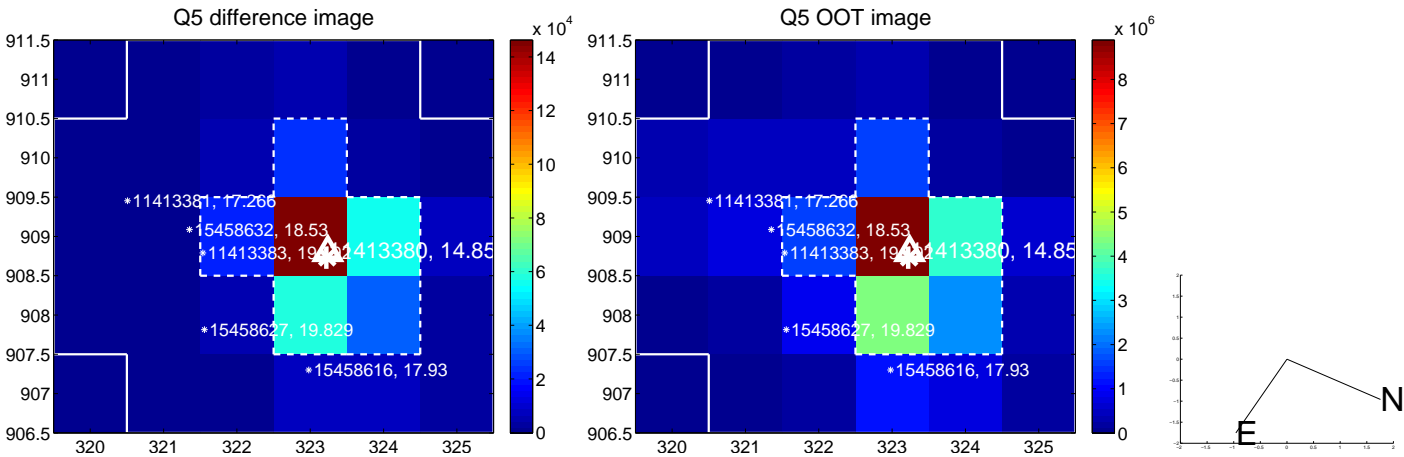


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

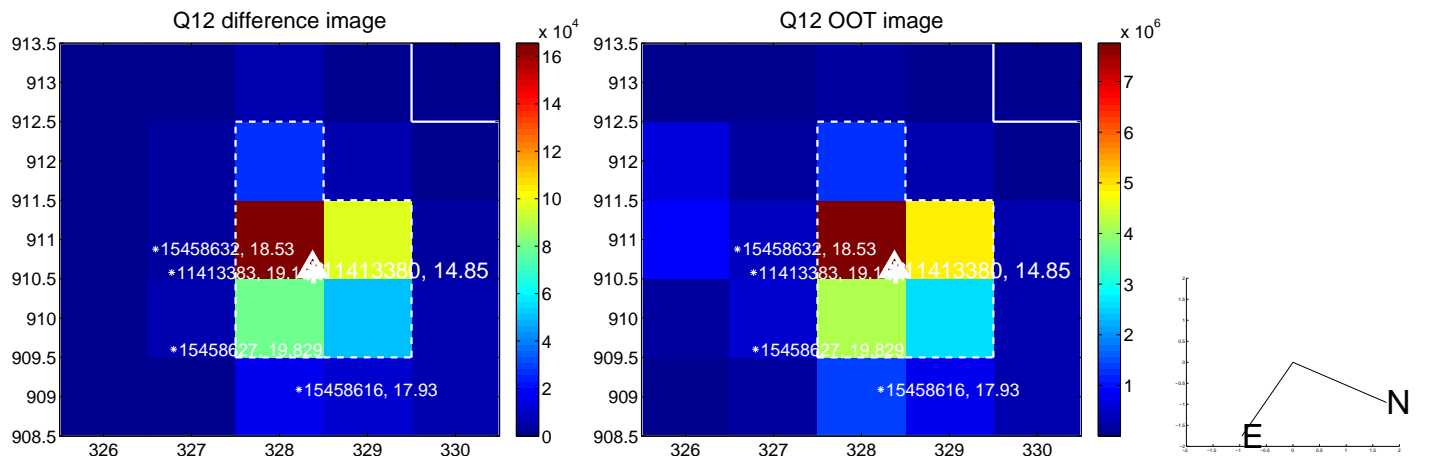
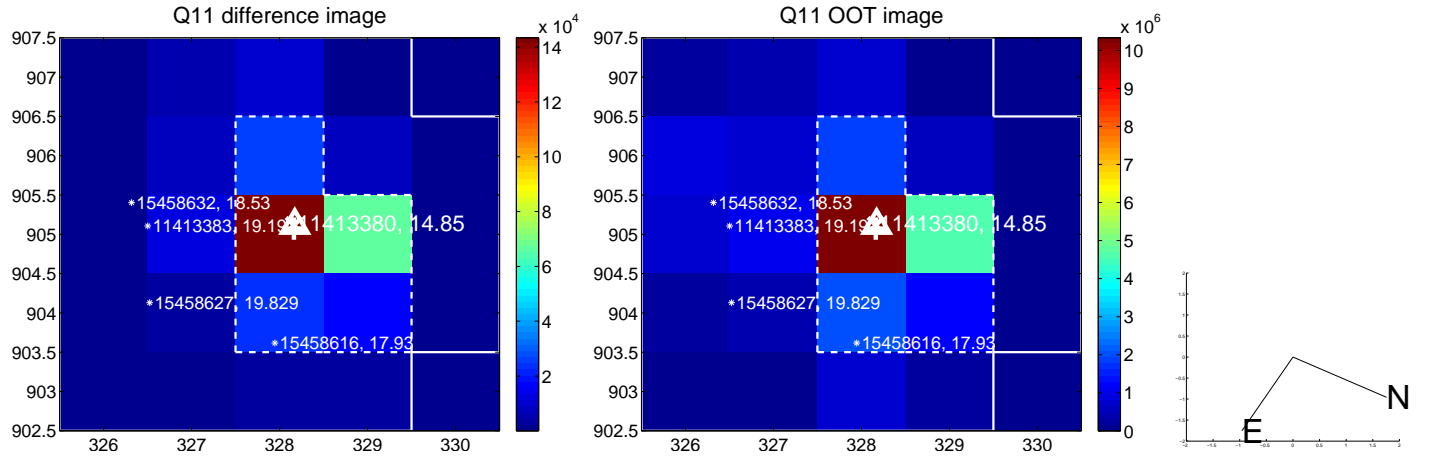
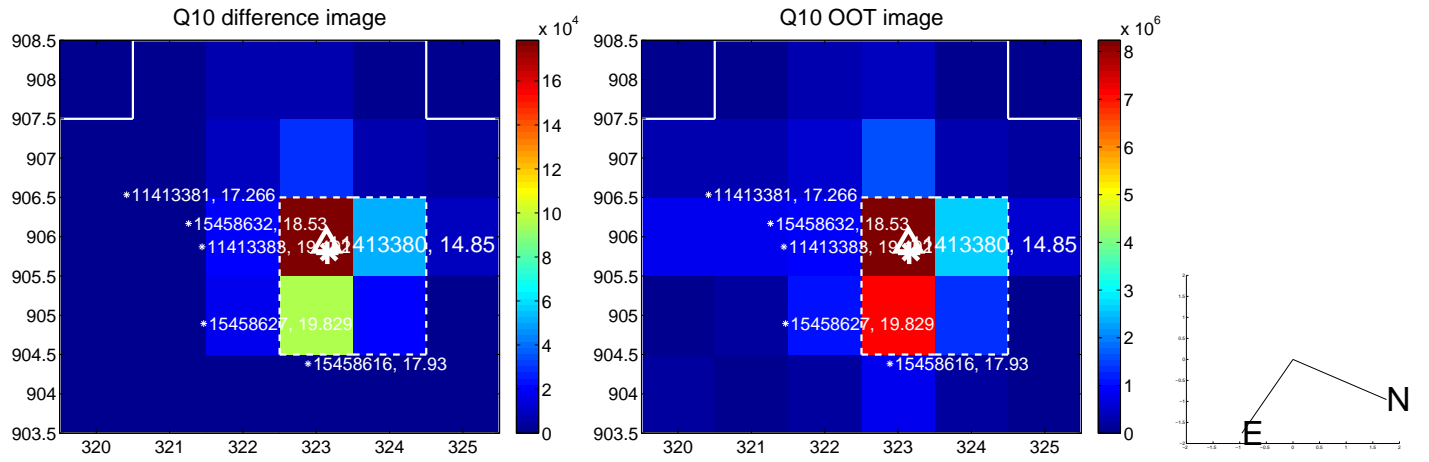
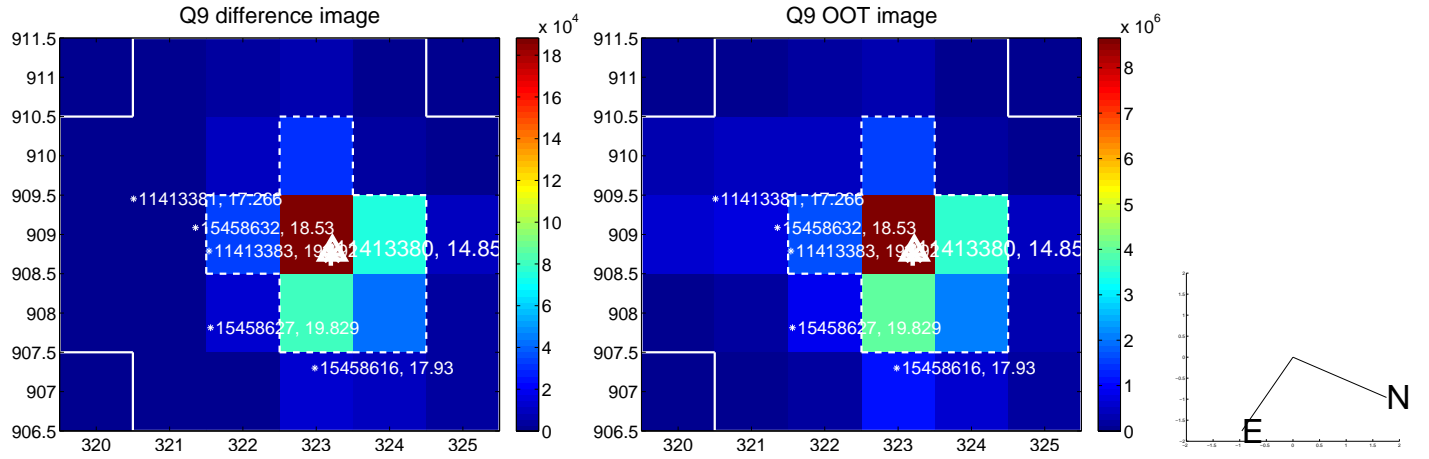
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



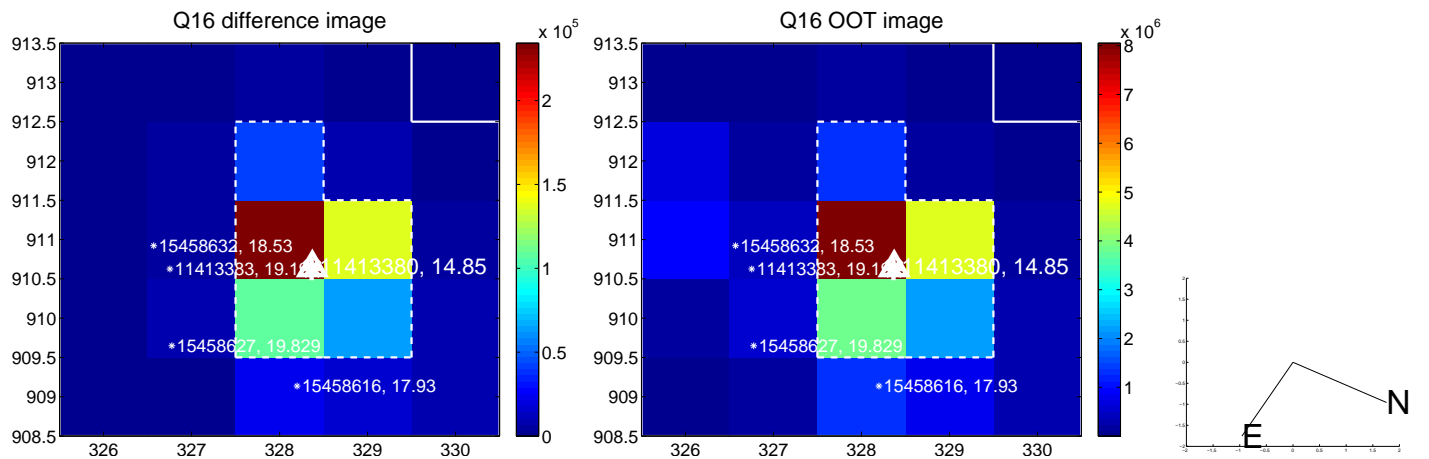
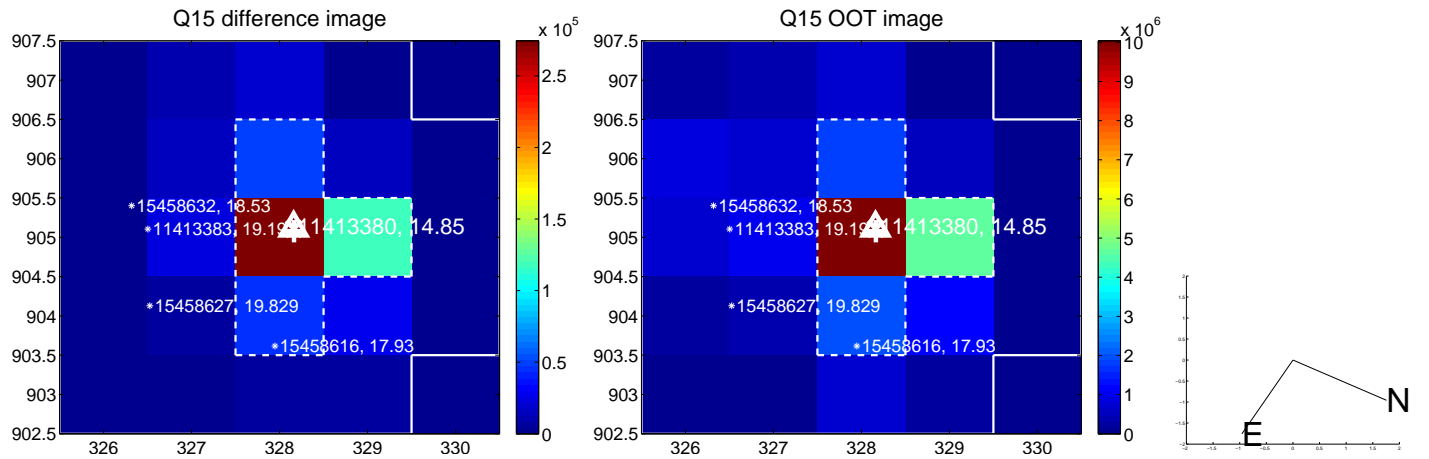
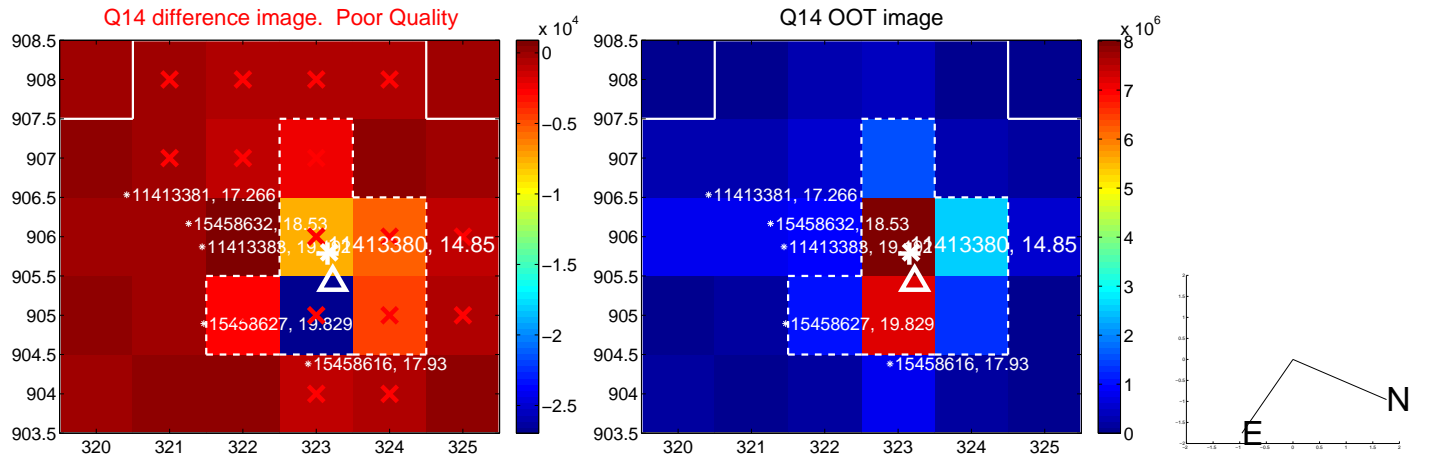
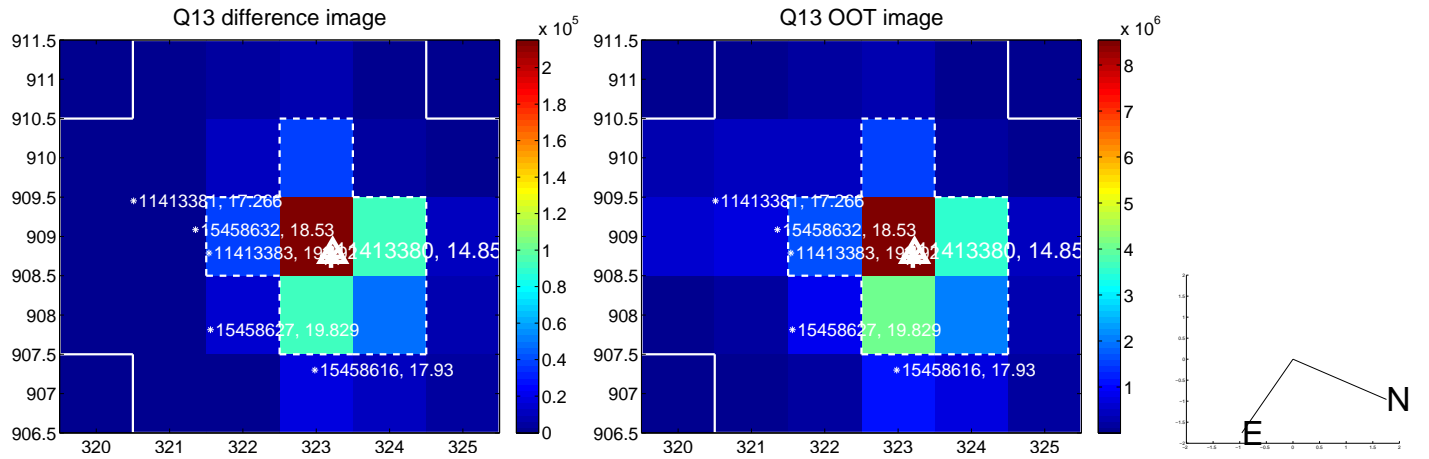
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



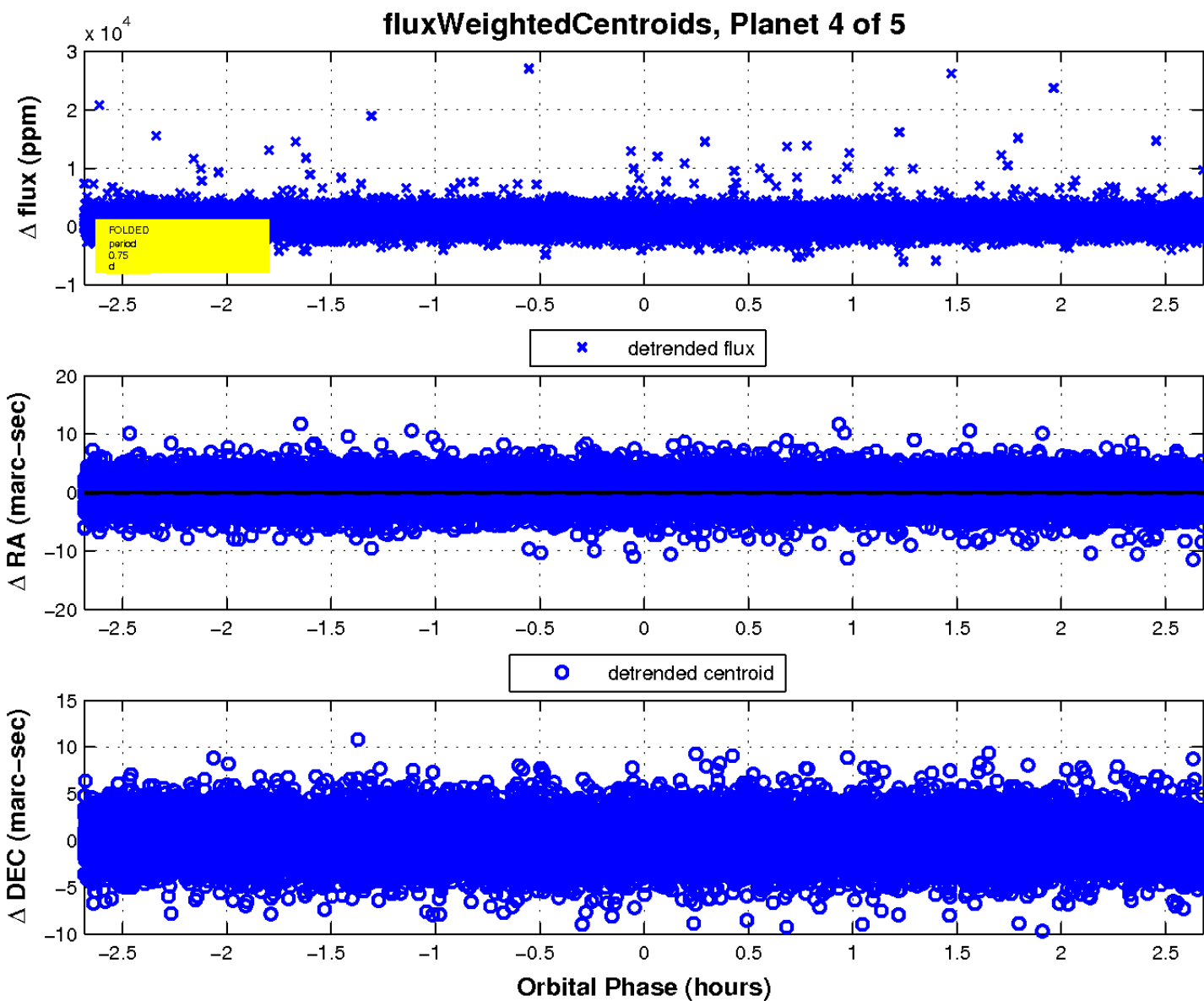
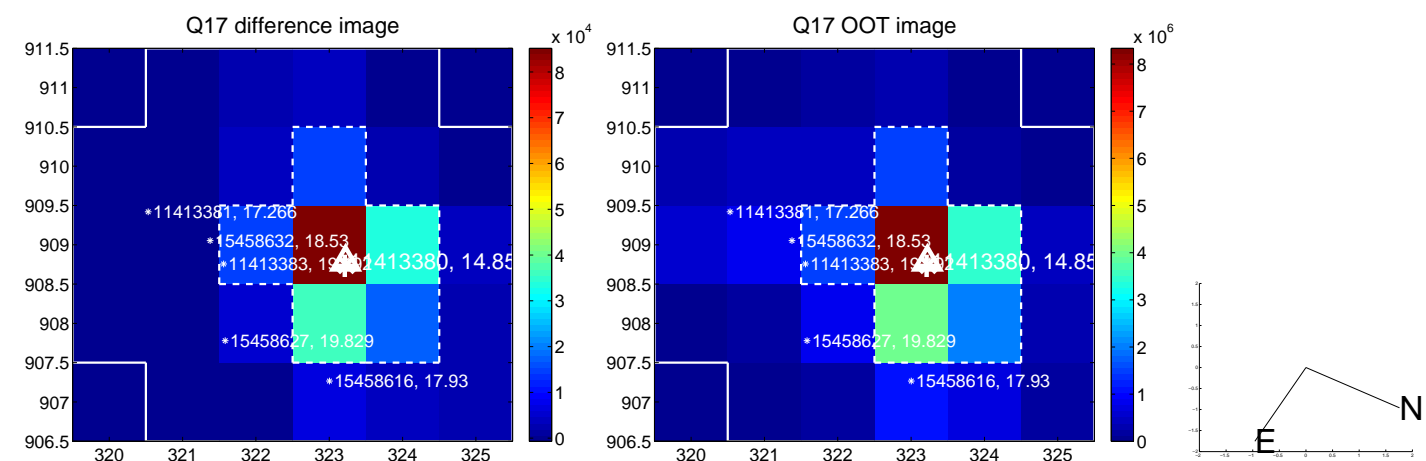
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

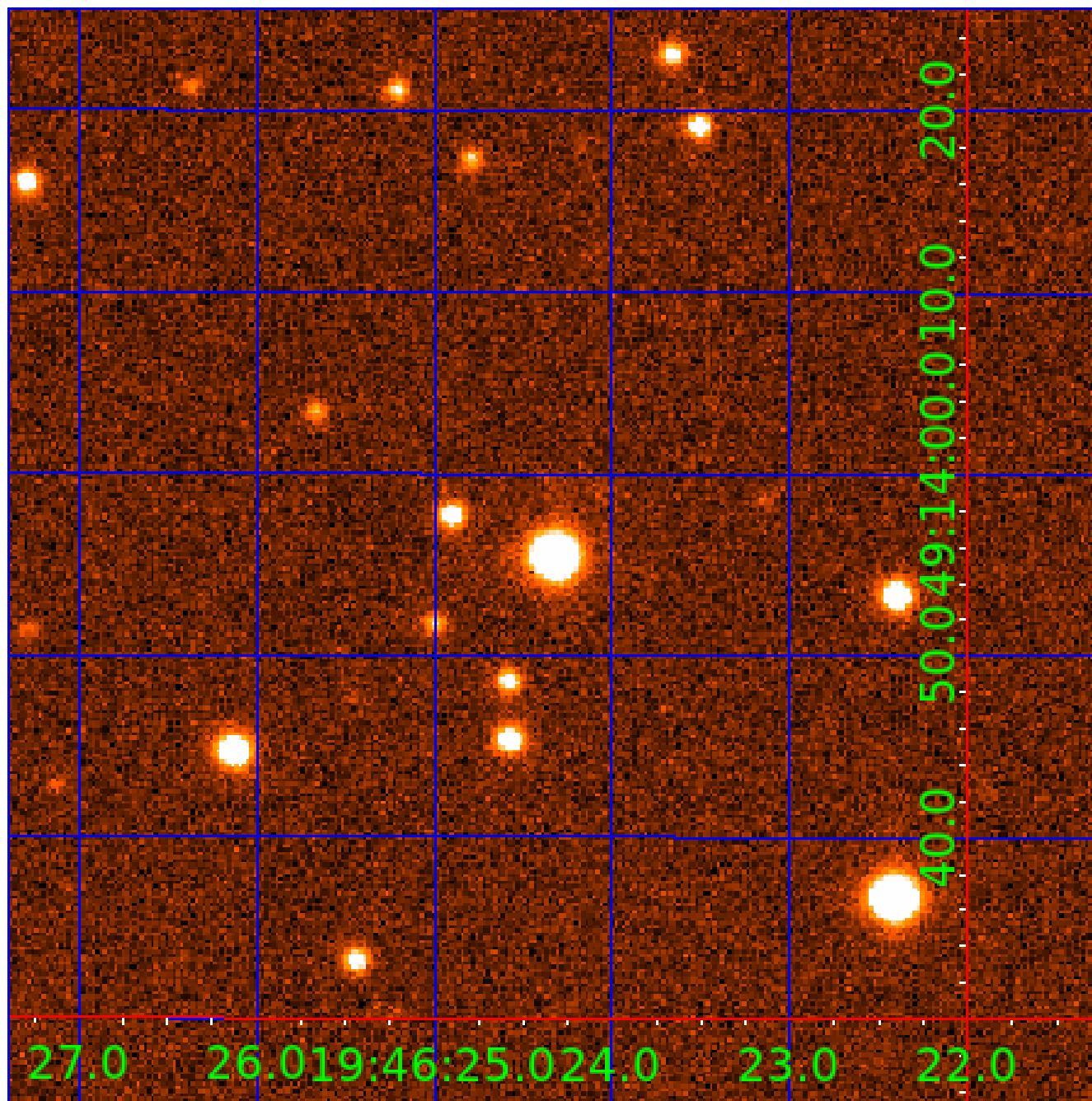


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 011413380

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011413380-01	OBS	No	559.249011	448.115196	3541.1	5.794	17.9	6.5	0.65	5257	3.94	0.22
011413380-02	OBS	No	0.751749	131.867444	1376.1	2.000	9.2	-1.0	0.65	5257	2.37	1474.99
011413380-03	OBS	No	180.026072	239.130811	1693.8	2.500	9.7	-1.0	0.65	5257	2.63	0.99
011413380-04	OBS	No	0.753531	131.694242	109.2	0.894	8.5	5.3	0.65	5257	0.68	1470.34
011413380-05	OBS	No	0.754848	131.820369	889.5	1.500	8.5	-1.0	0.65	5257	1.91	1466.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011413380-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011413380-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS
011413380-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011413380-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
011413380-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

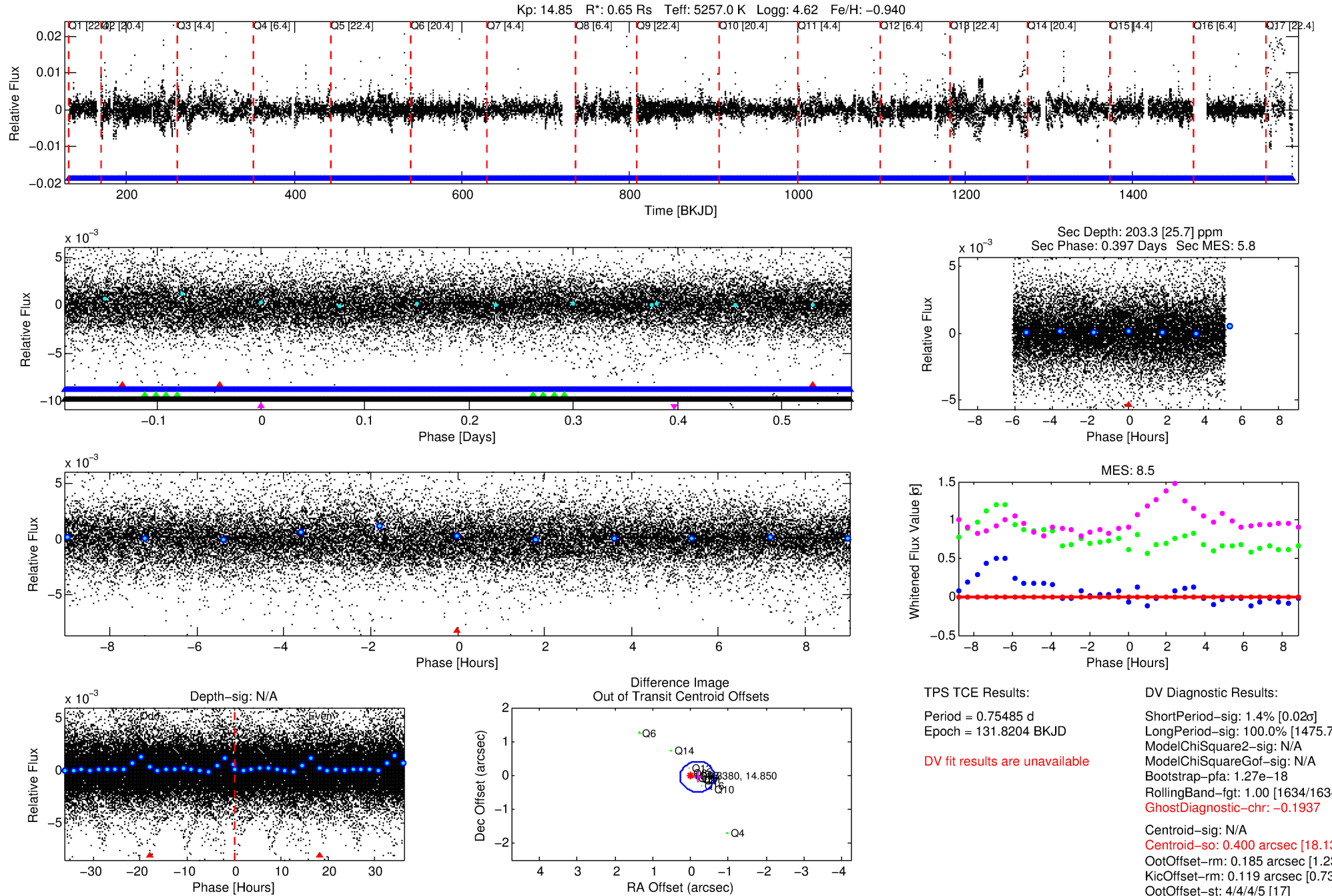
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011413380-05

No Significant Match Found

# DV One-Page Summary

KIC: 11413380 Candidate: 5 of 5 Period: 0.755 d



## TPS TCE Results:

Period = 0.75485 d  
Epoch = 131.8204 BKJD

DV fit results are unavailable

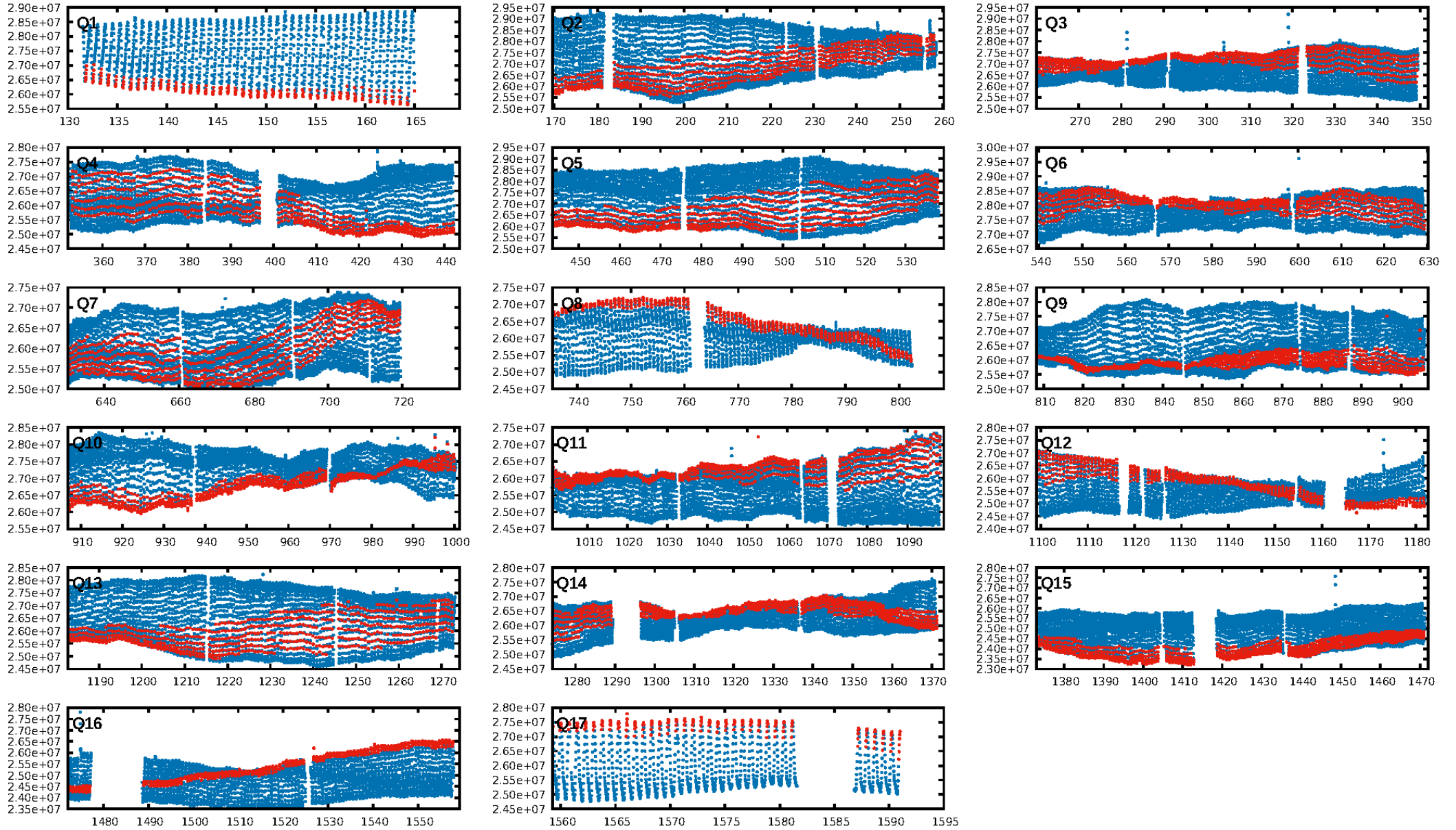
## DV Diagnostic Results:

ShortPeriod-sig: 1.4% [0.02 $\sigma$ ]  
LongPeriod-sig: 100.0% [1475.75 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 1.27e-18  
RollingBand-fgt: 1.00 [1634/1634]  
GhostDiagnostic-chr: -0.1937  
Centroid-sig: N/A  
Centroid-so: 0.400 arcsec [18.13 $\sigma$ ]  
OotOffset-rm: 0.185 arcsec [1.23 $\sigma$ ]  
KicOffset-rm: 0.119 arcsec [0.73 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.47 [8/17]  
DiffImageOverlap-fno: 0.00 [0/17]

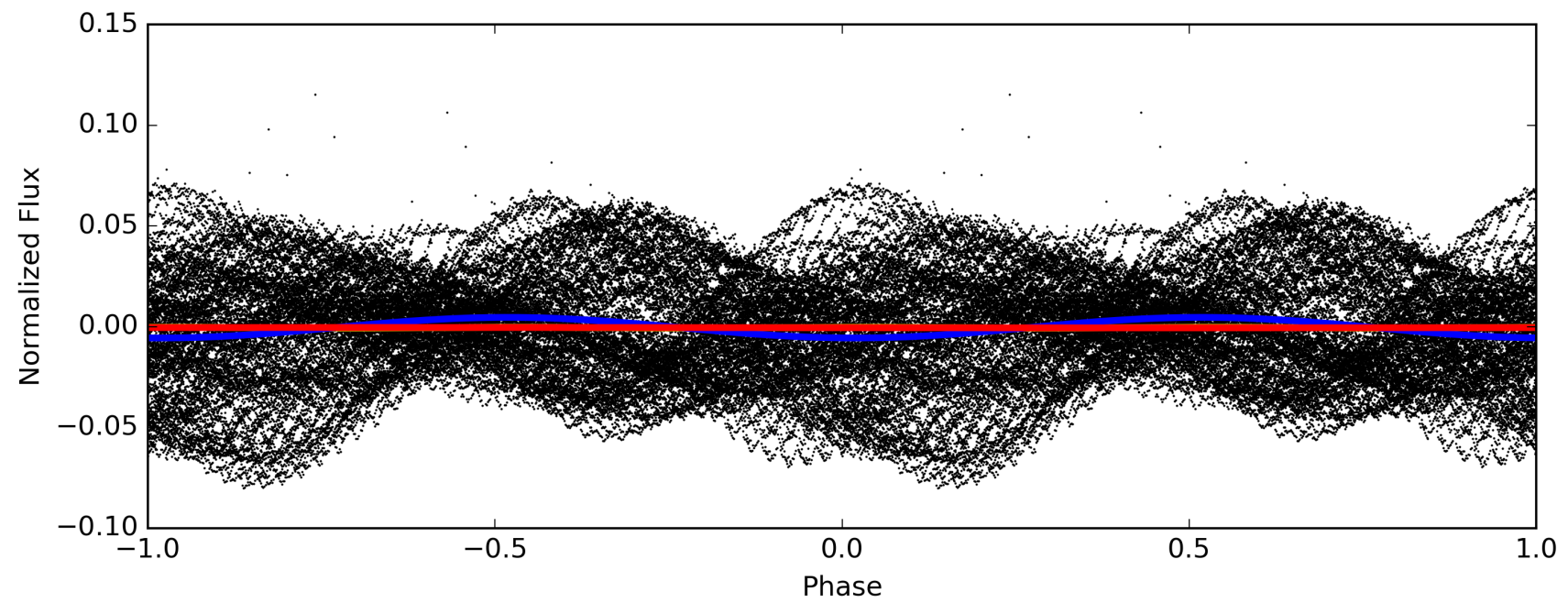
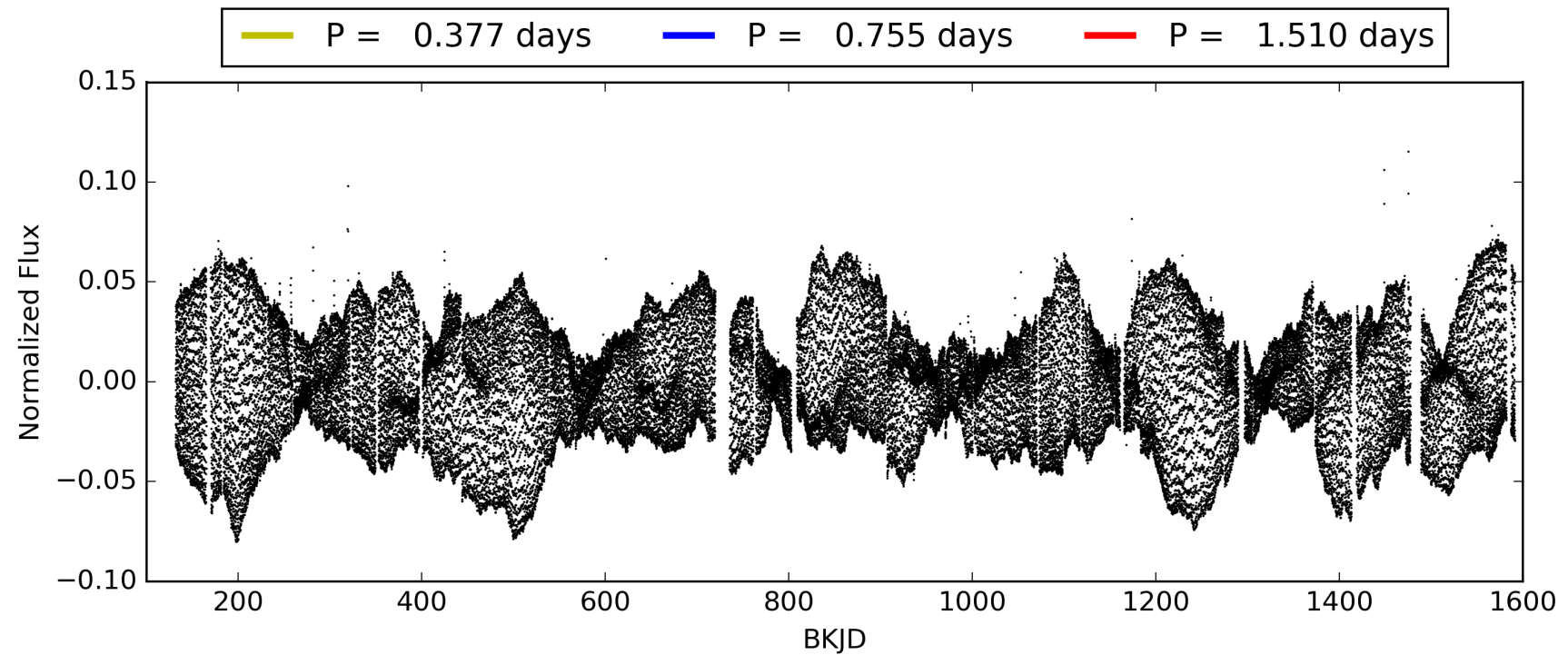
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:04:26 Z

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

# TCE 011413380-05, PDC Light Curves

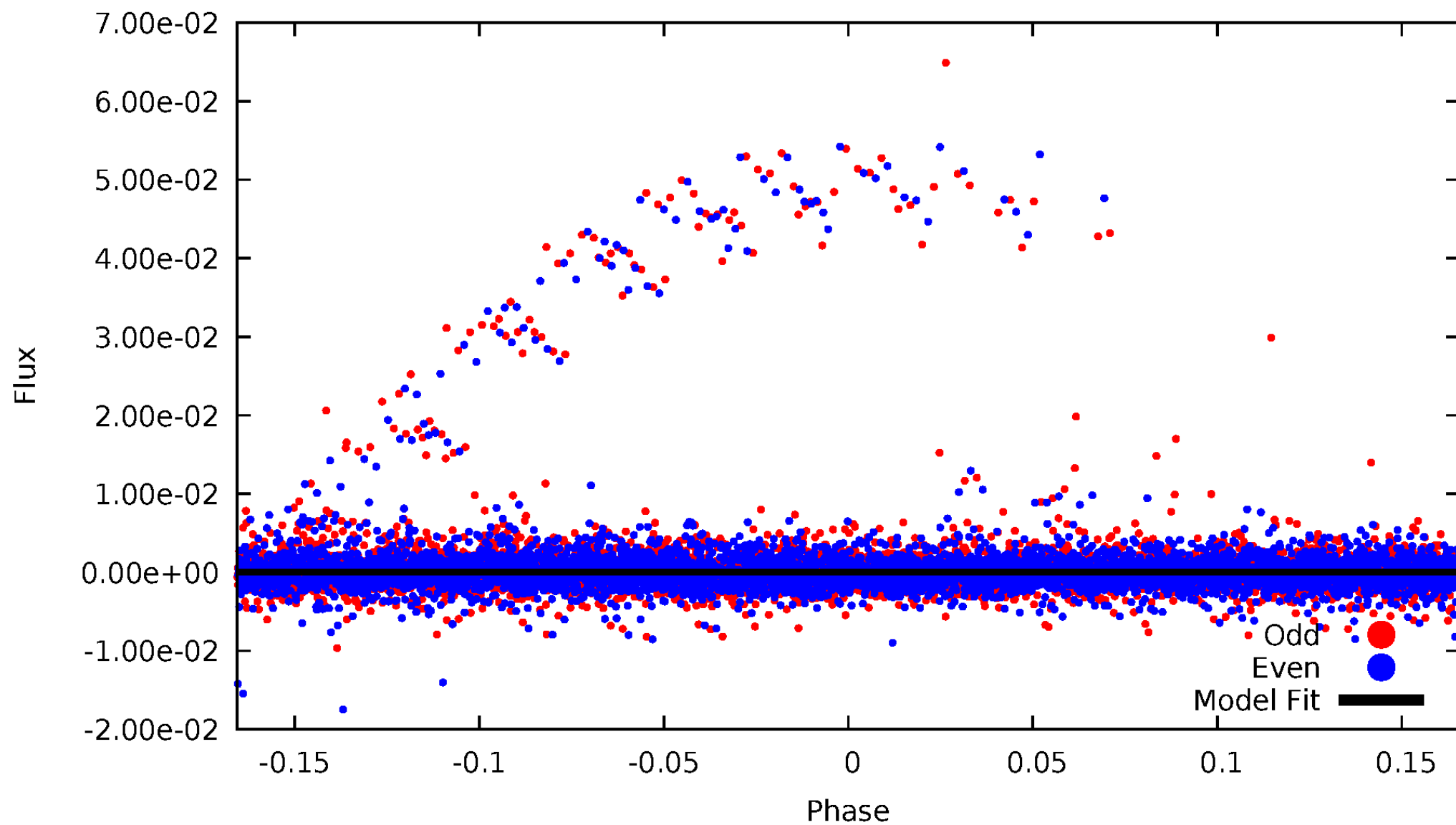


TCE 011413380-05



# DV Odd/Even

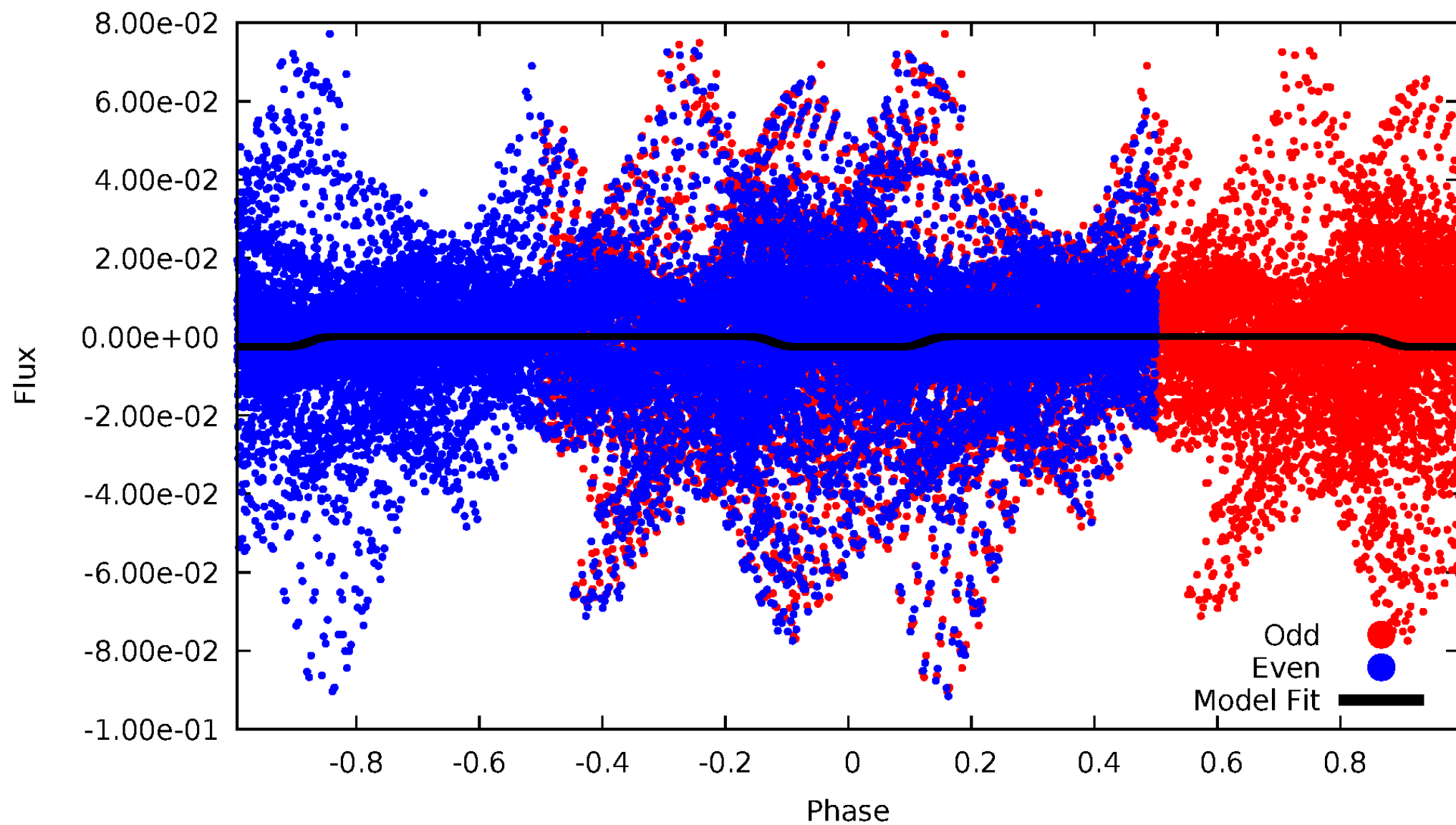
TCE 011413380-05





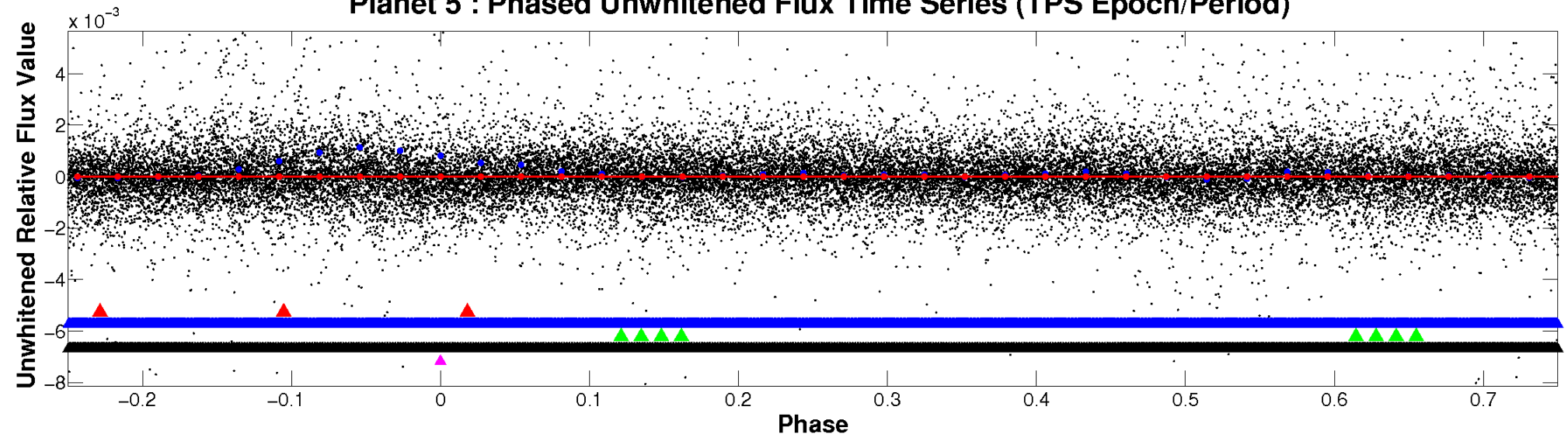
# ALT Odd/Even

TCE 011413380-05

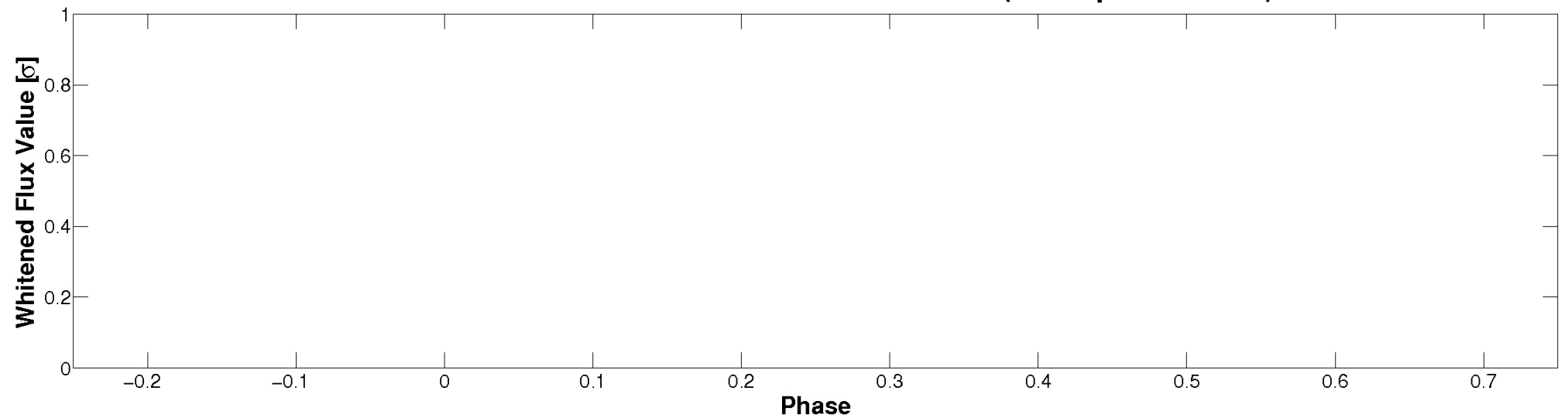


# Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

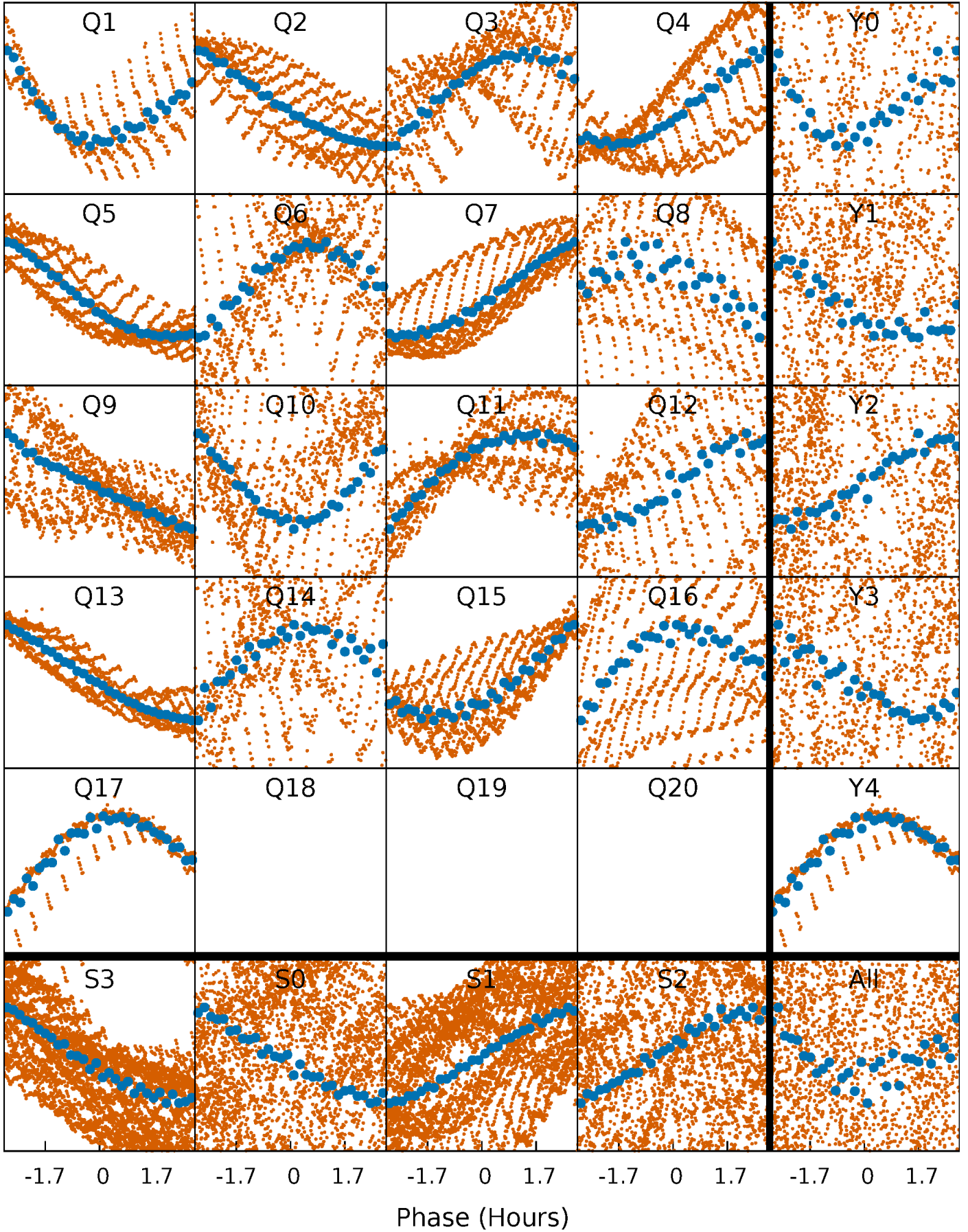


Planet 5 : Phased Whitened Flux Time Series (TPS Epoch/Period)



# PDC Quarter-Phased Transit Curves

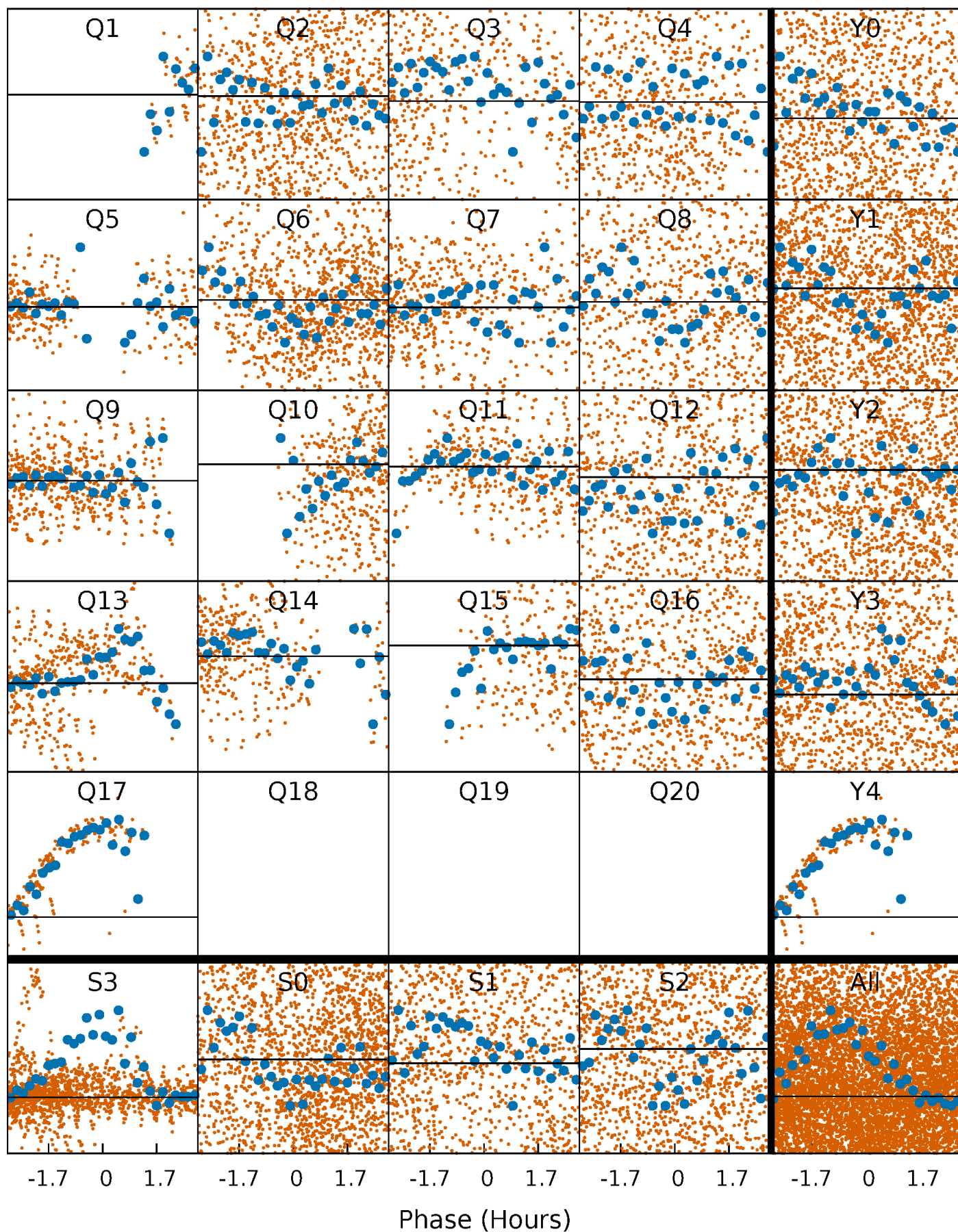
TCE 011413380-05     $P = 0.754848$  Days     $T_0 = 131.820369$  (BKJD)





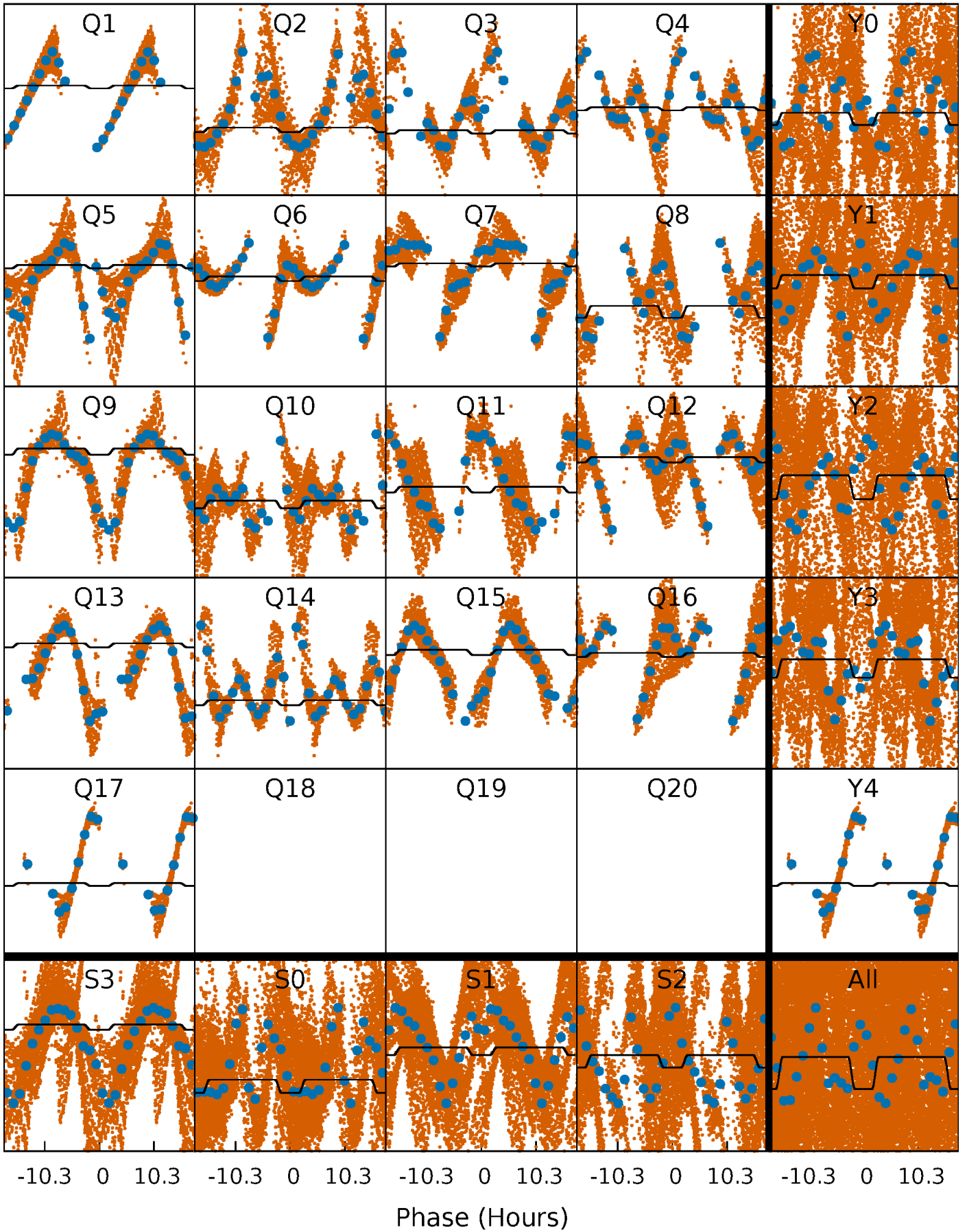
# DV Quarter-Phased Transit Curves

TCE 011413380-05   P= 0.754848 Days    $T_0=131.820369$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

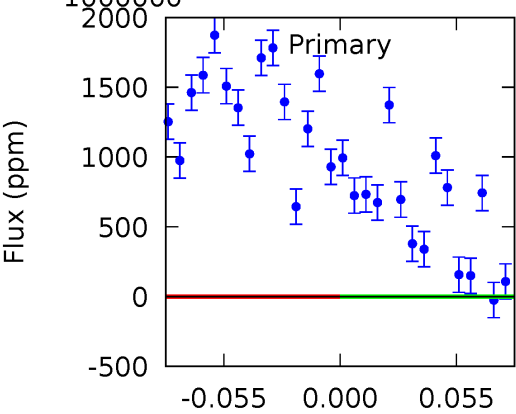
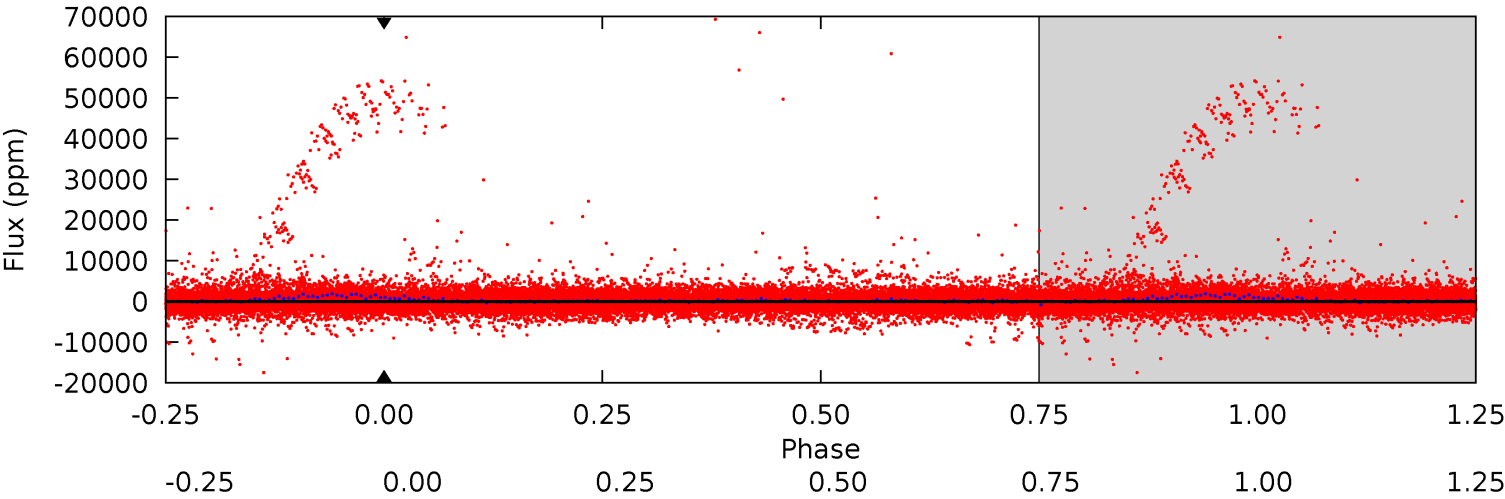
TCE 011413380-05     $P = 0.754848$  Days     $T_0 = 131.873716$  (BKJD)



# DV Model-Shift Uniqueness Test

011413380-05, P = 0.754848 Days, E = 131.065521 Days

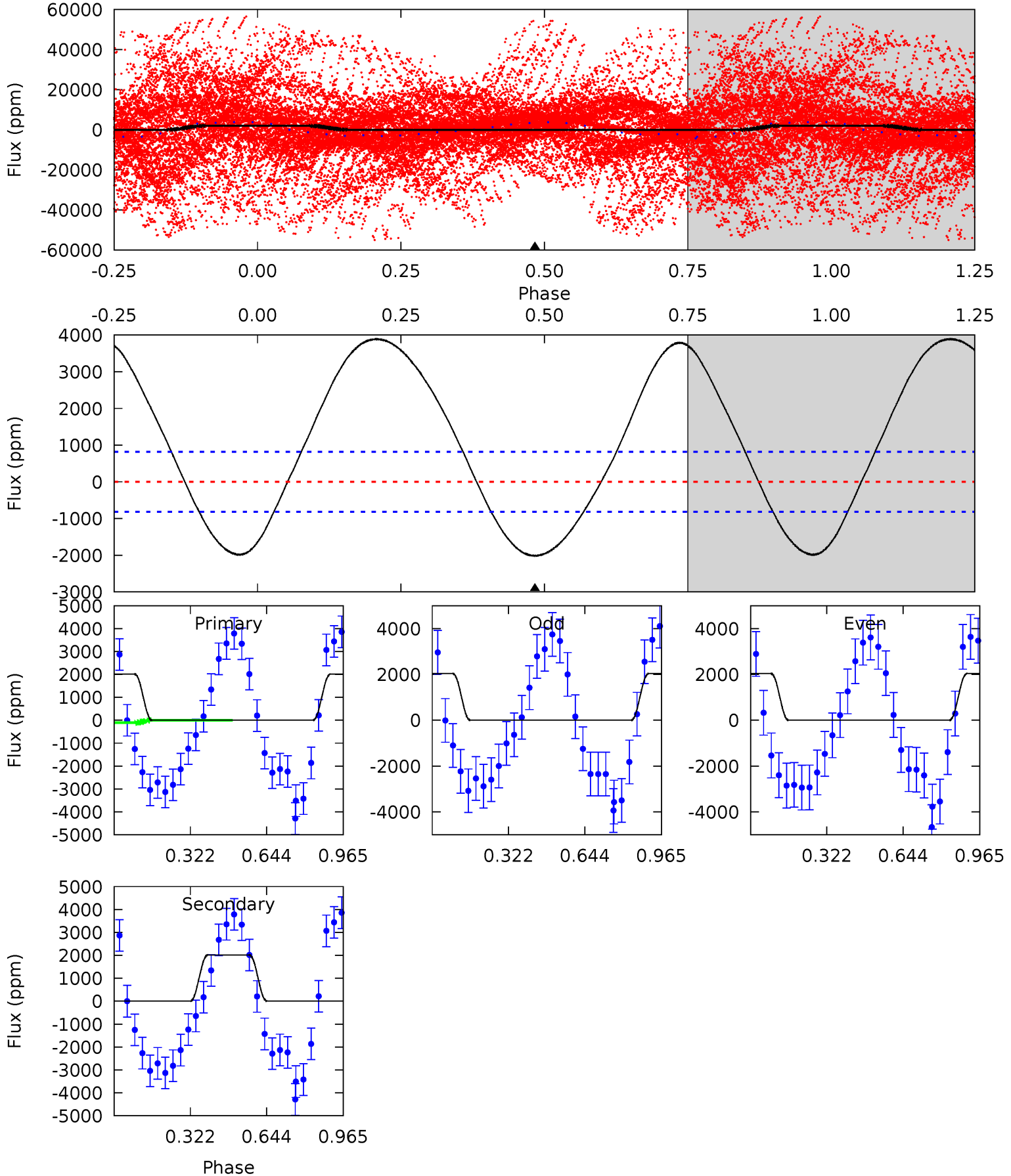
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

011413380-05, P = 0.754848 Days, E = 131.118868 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
10.6	10.6	0	0	4.31	0.99	8.65	10.6	10.6	10.6	10.6	0.00	-0.23	0.66	10.2



### Stellar Parameters For KIC 011413380

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5257^{+157}_{-157}$	$4.620^{+0.066}_{-0.044}$	$-0.940^{+0.300}_{-0.300}$	$0.645^{+0.055}_{-0.055}$	$0.632^{+0.060}_{-0.023}$	$3.317^{+0.900}_{-0.531}$
	+3%/-3%	+1%/-1%	+32%/-32%	+9%/-9%	+9%/-4%	+27%/-16%
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 011413380-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$5.69^{+5.88}_{-4.06}$	$2196^{+85}_{-80}$	$-4046^{+18311}_{-10463}$	$-5.218^{+580.093}_{-562.004}$
Alt.	$-2016 \pm 189$	$6.66^{+5.53}_{-4.50}$	$2196^{+77}_{-78}$	$3893^{+2437}_{-783}$	$4.883^{+42.880}_{-3.457}$

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

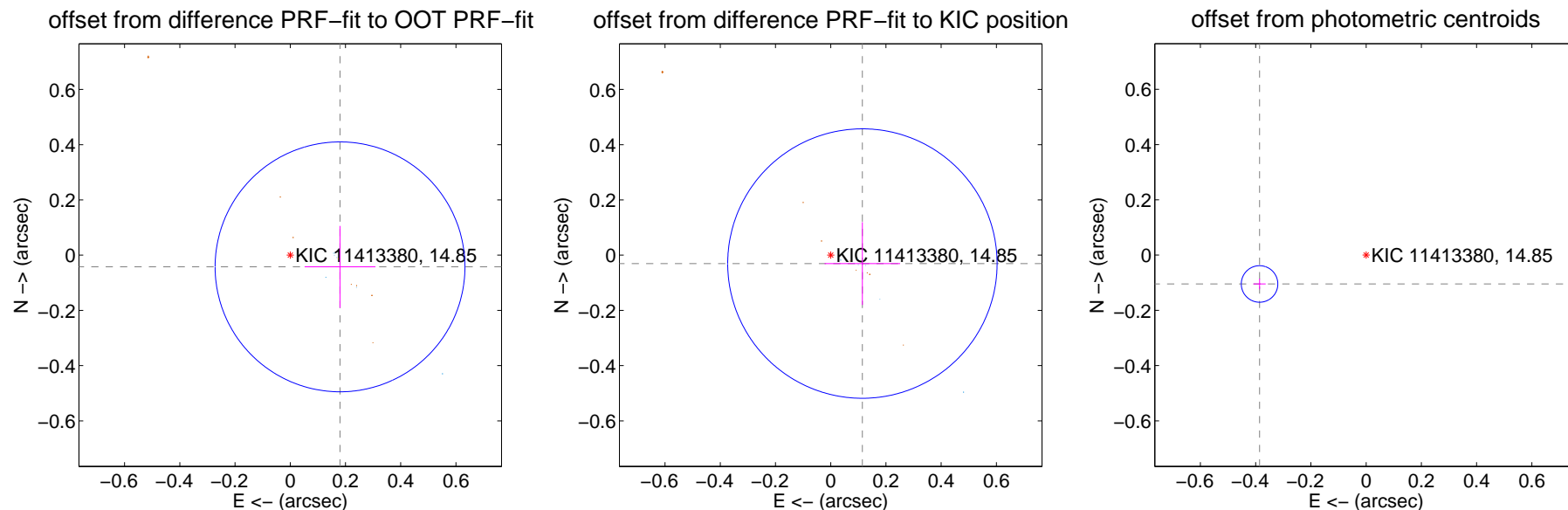
## DV Centroid Data

Supplemental centroid analysis for 011413380-05. Kepler magnitude: 14.85. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

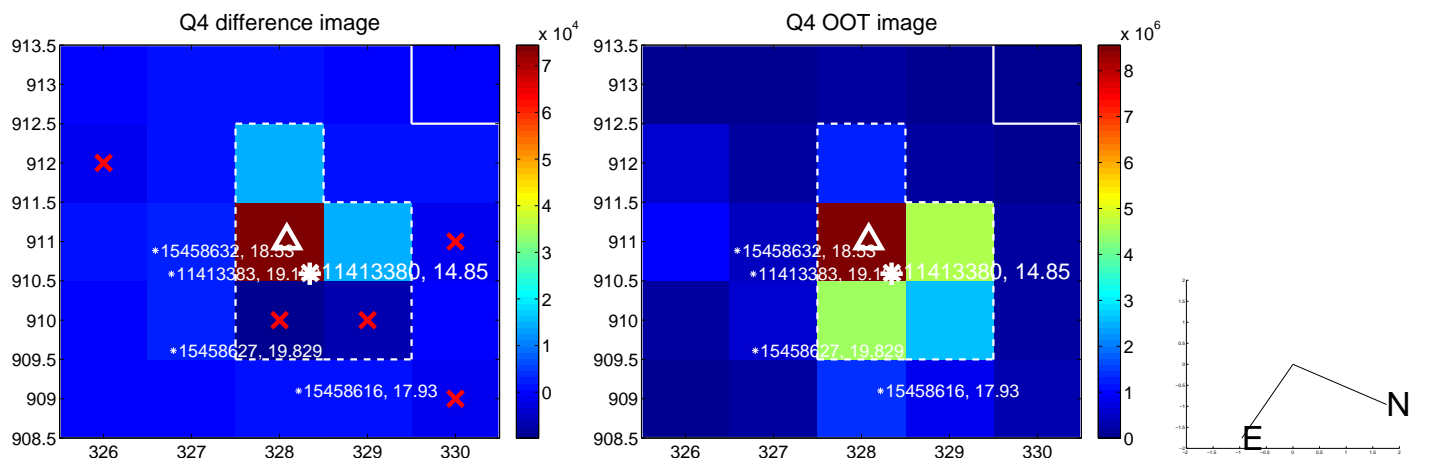
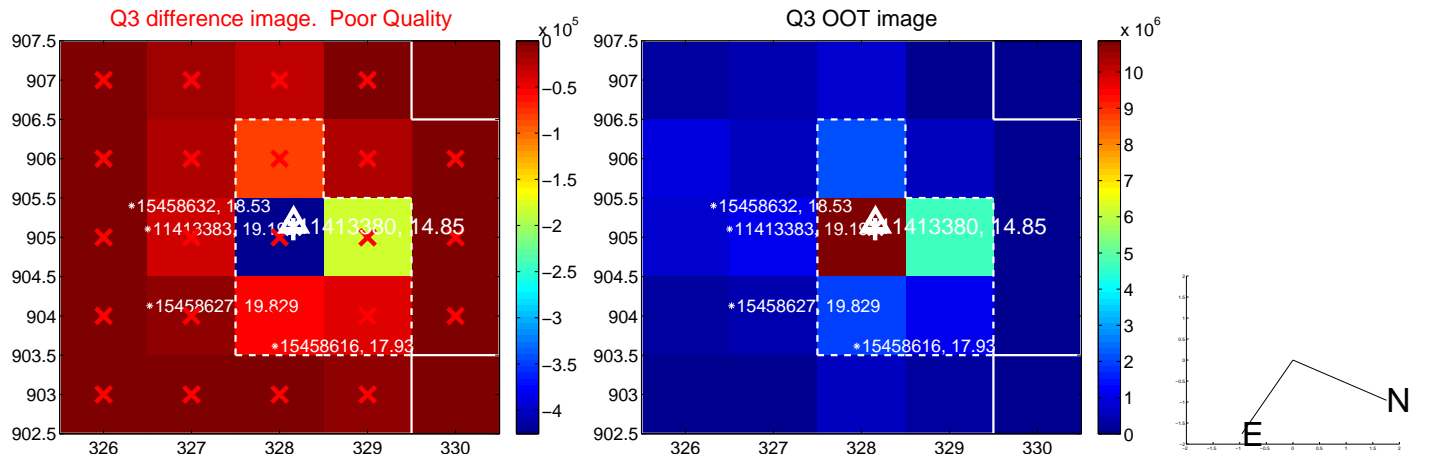
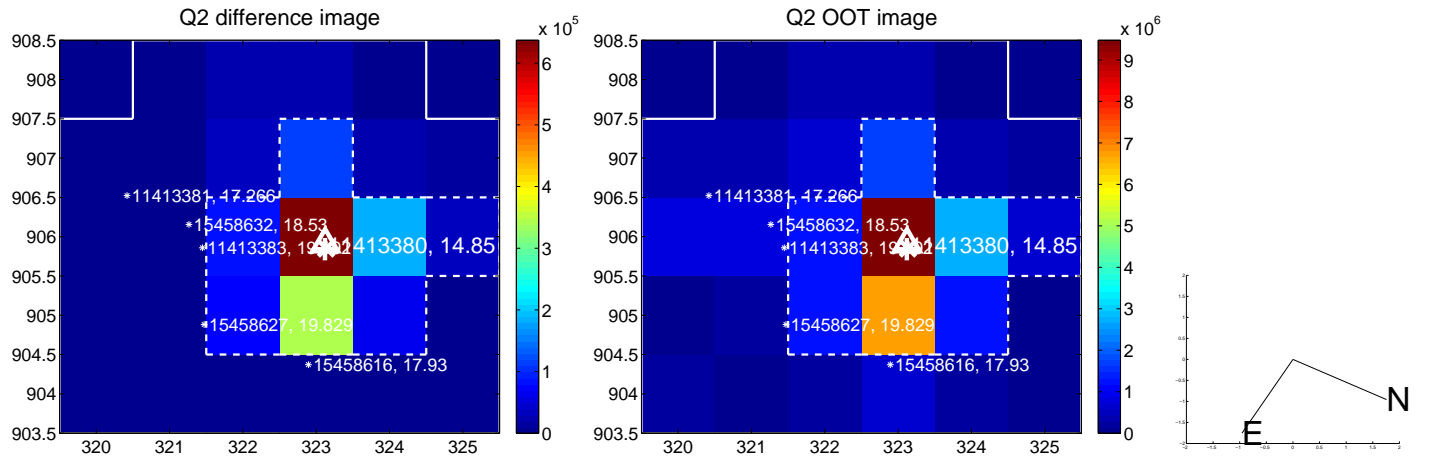
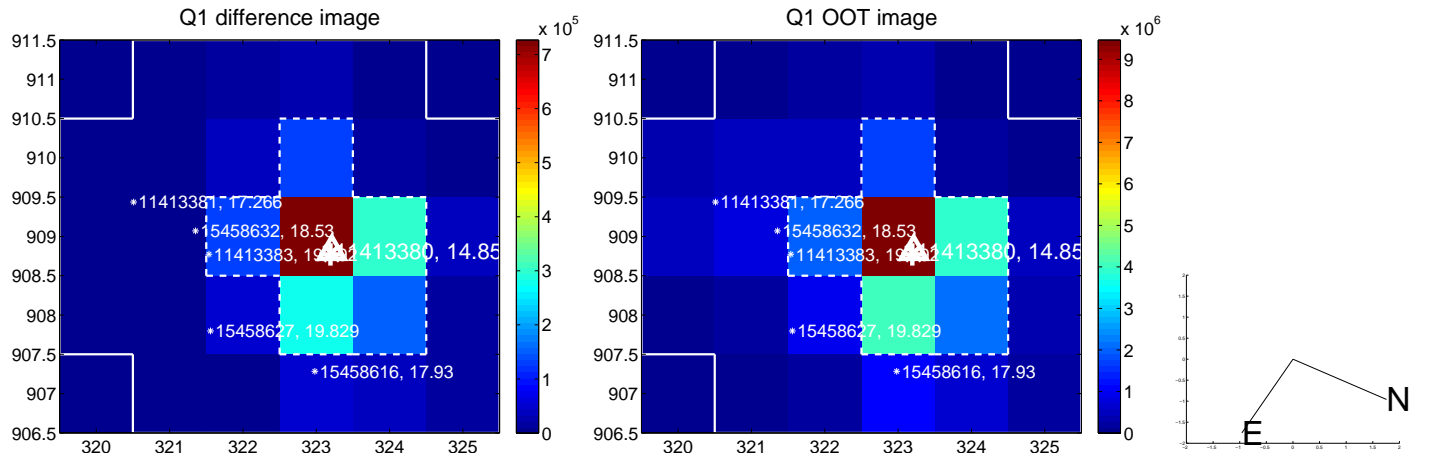
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.185 \pm 0.151$	1.23	$-0.180 \pm 0.128$	$-0.042 \pm 0.148$
PRF-fit source offset from KIC position	$0.119 \pm 0.163$	0.73	$-0.115 \pm 0.137$	$-0.030 \pm 0.150$
photometric centroid source offset	$0.40 \pm 0.02$	18.13	$0.39 \pm 0.02$	$-0.10 \pm 0.02$



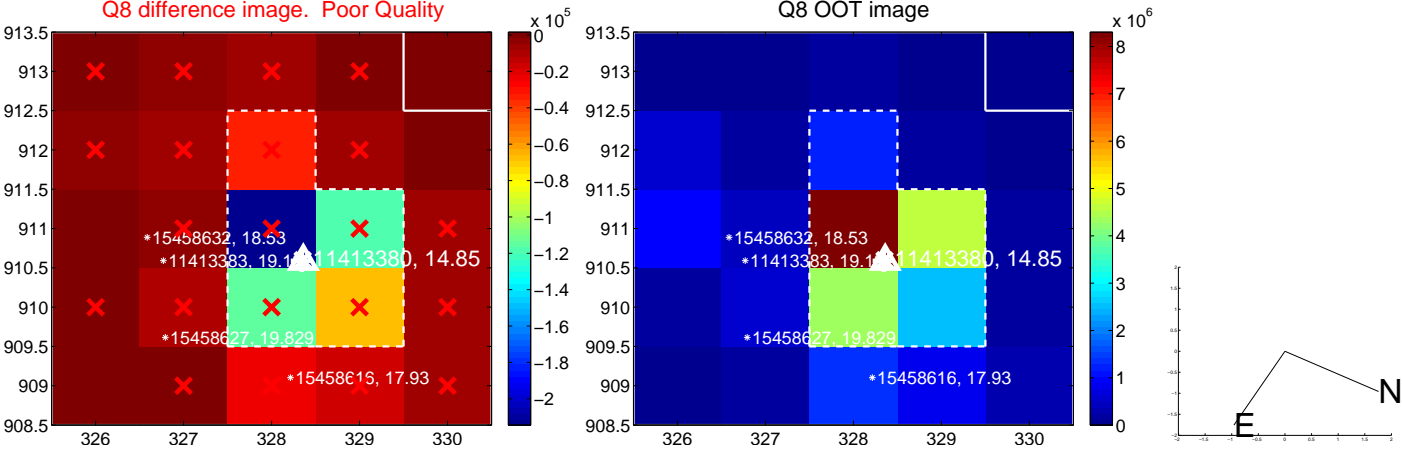
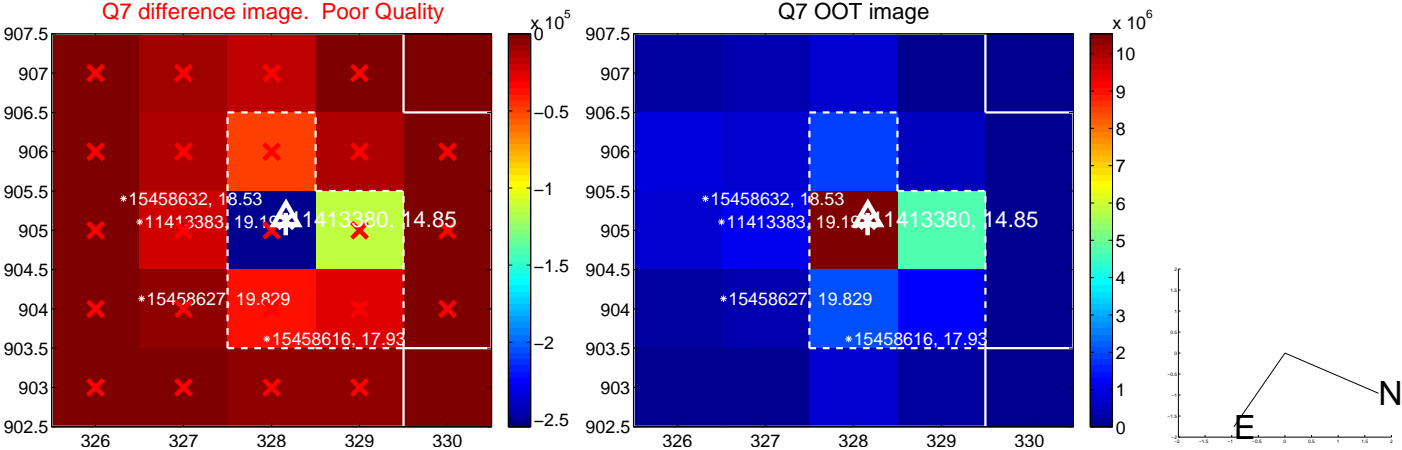
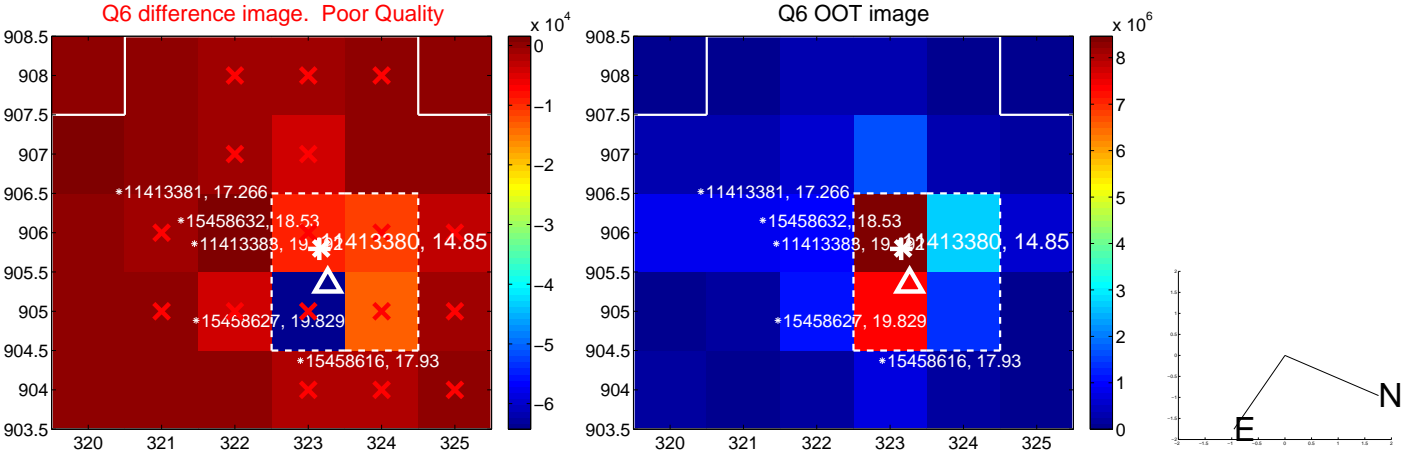
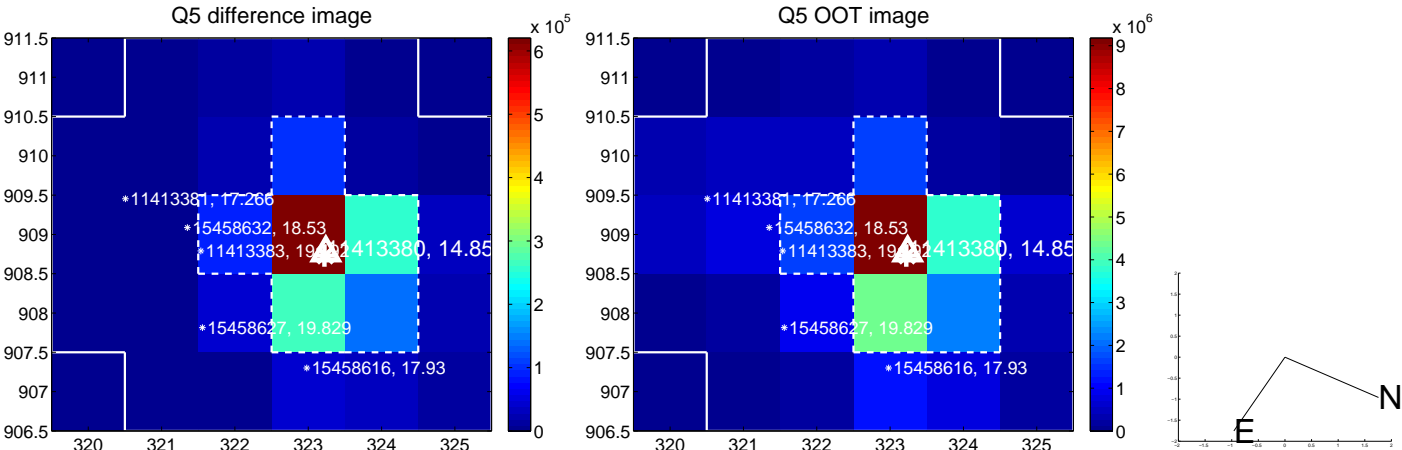
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



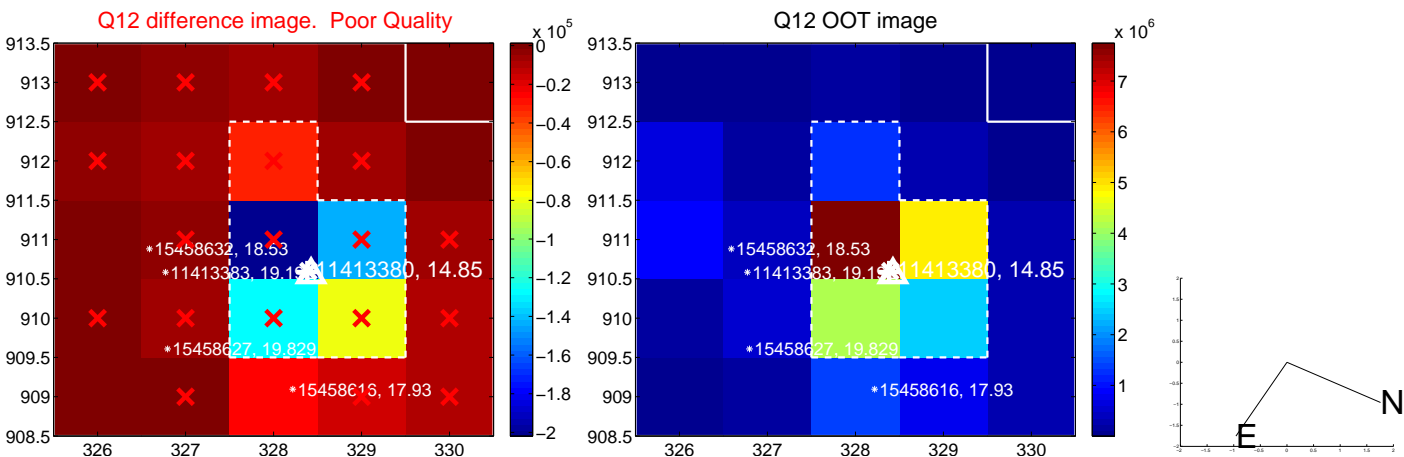
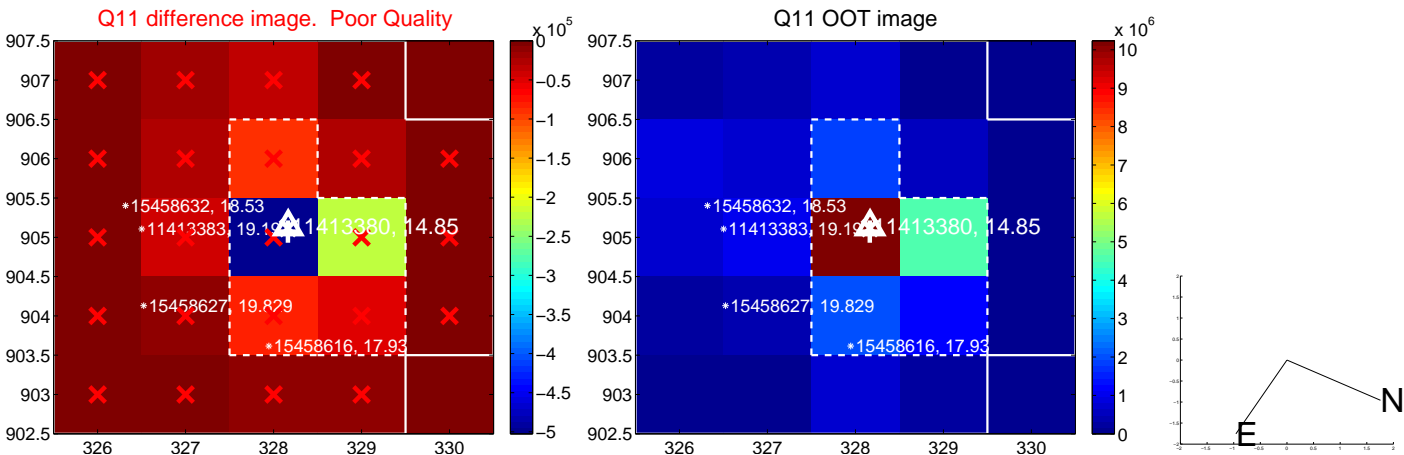
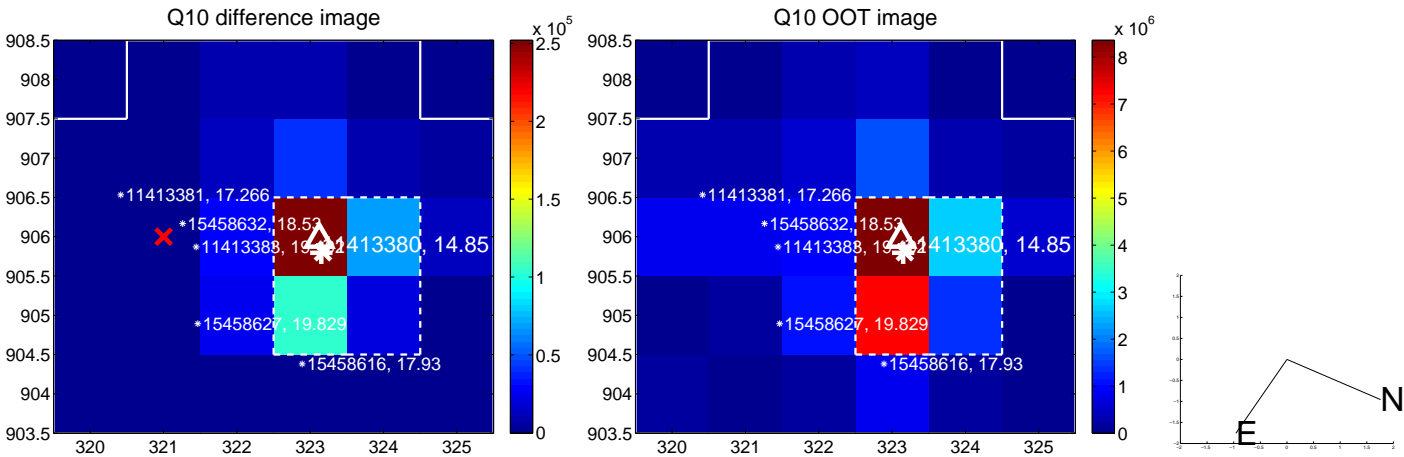
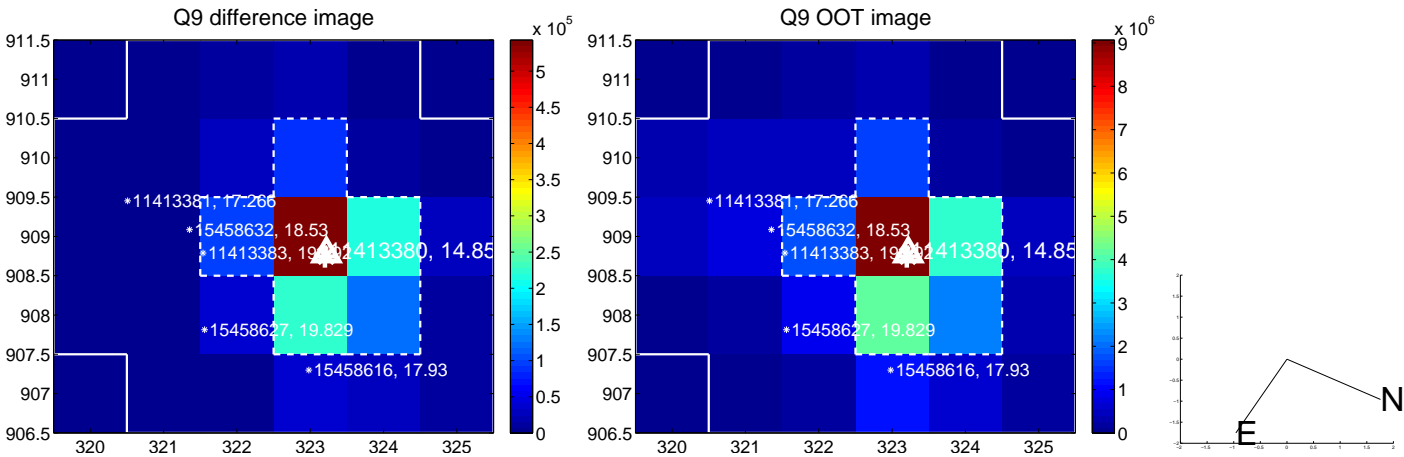


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

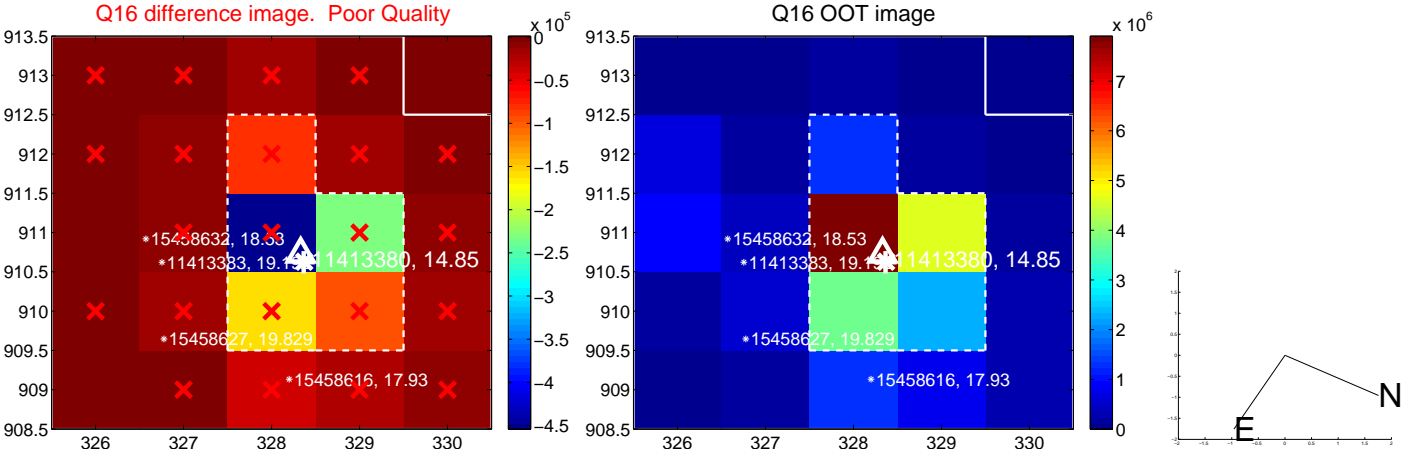
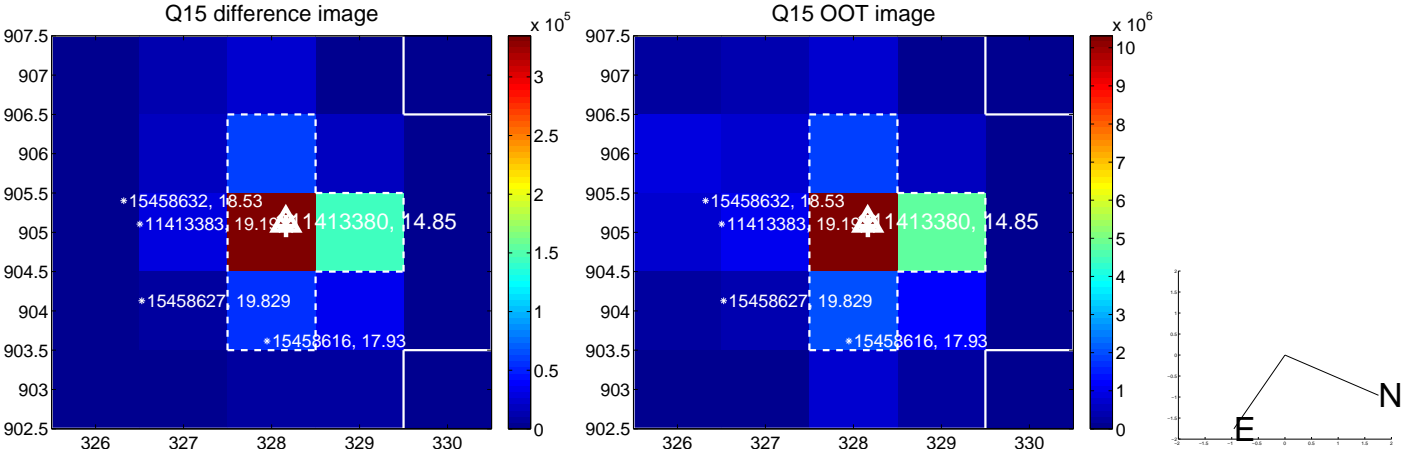
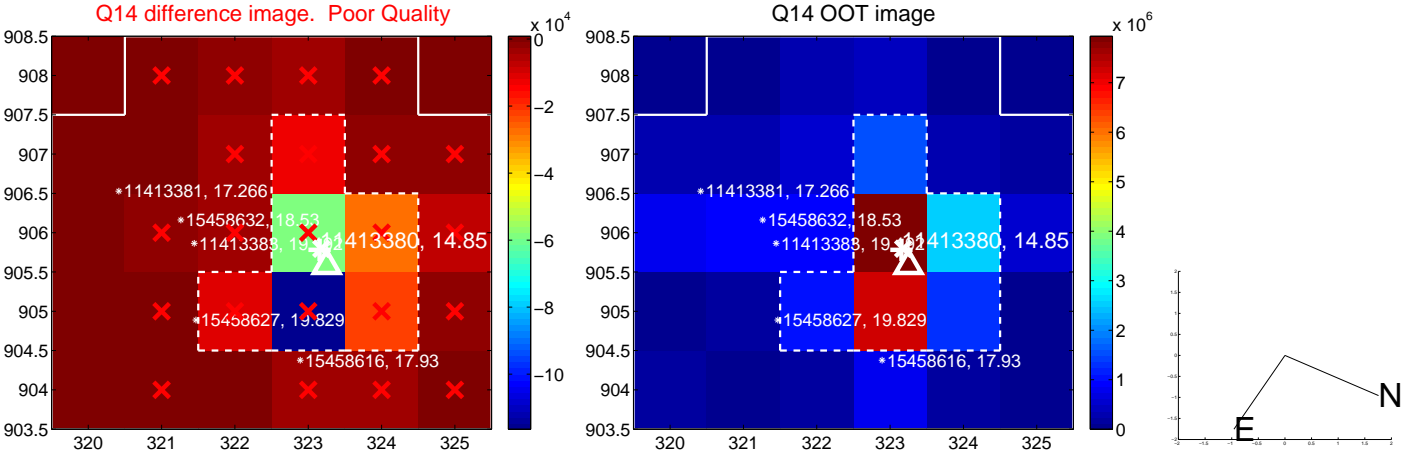
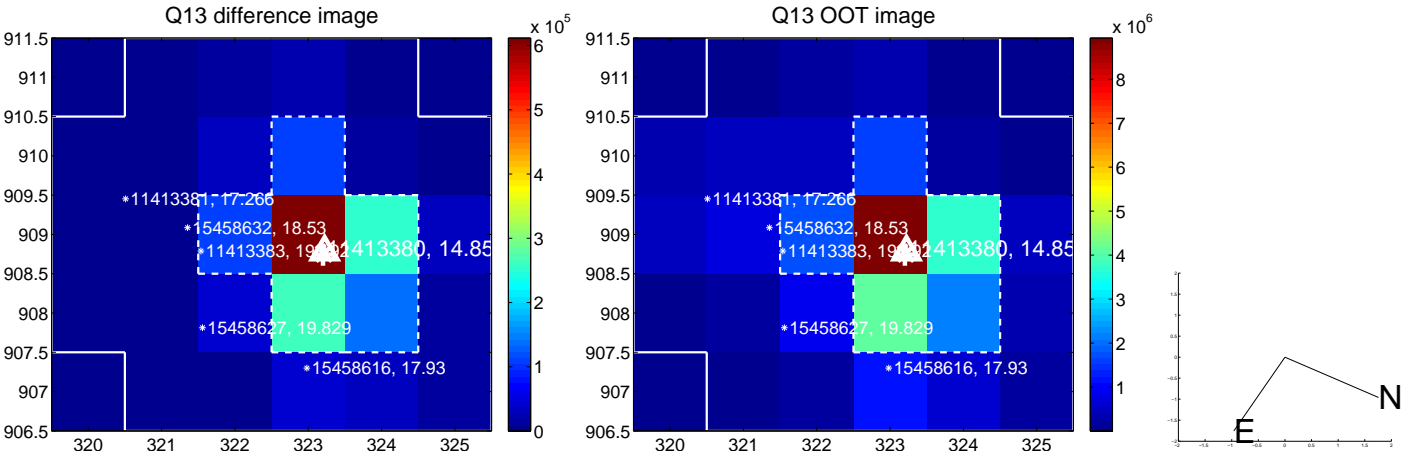




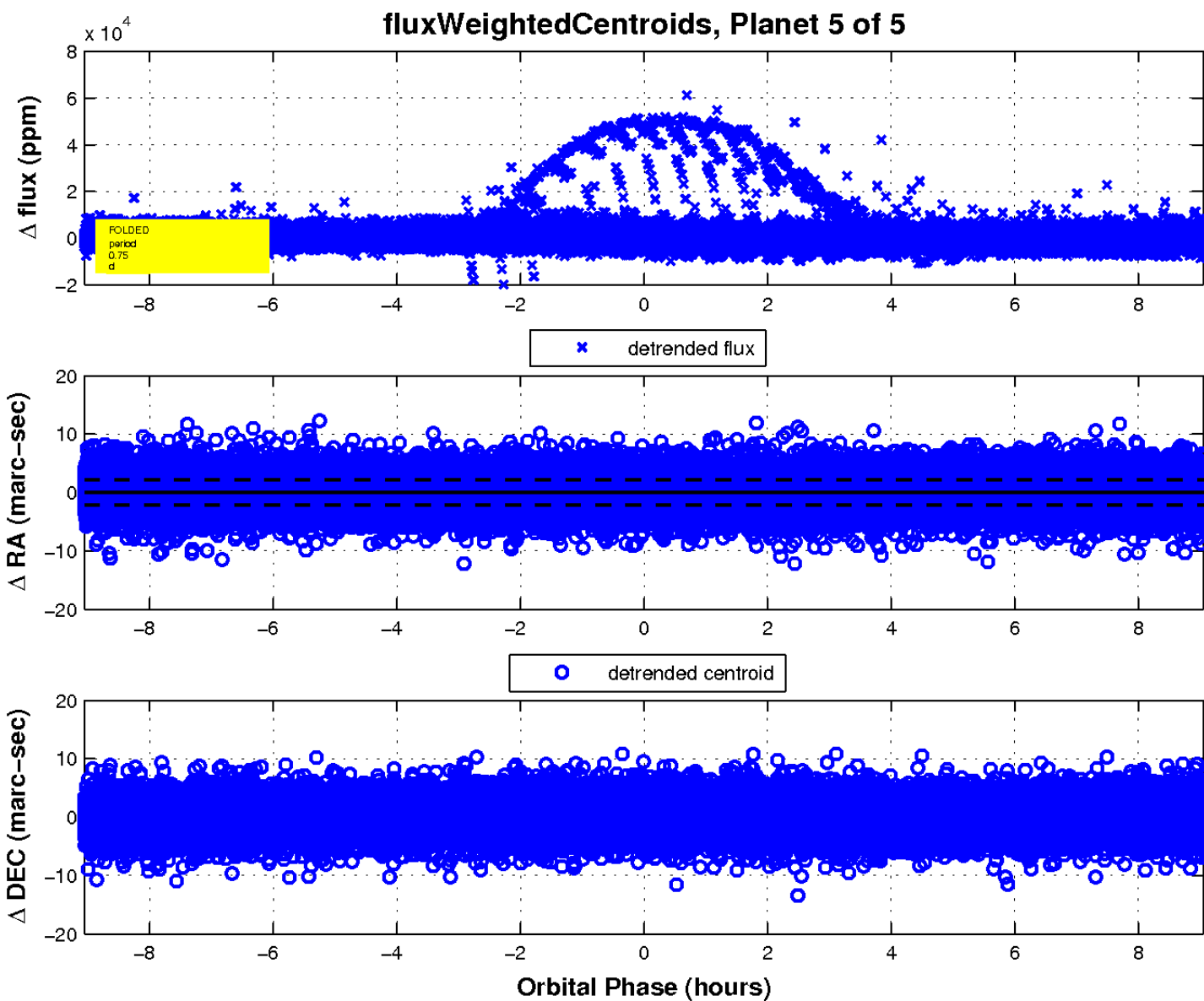
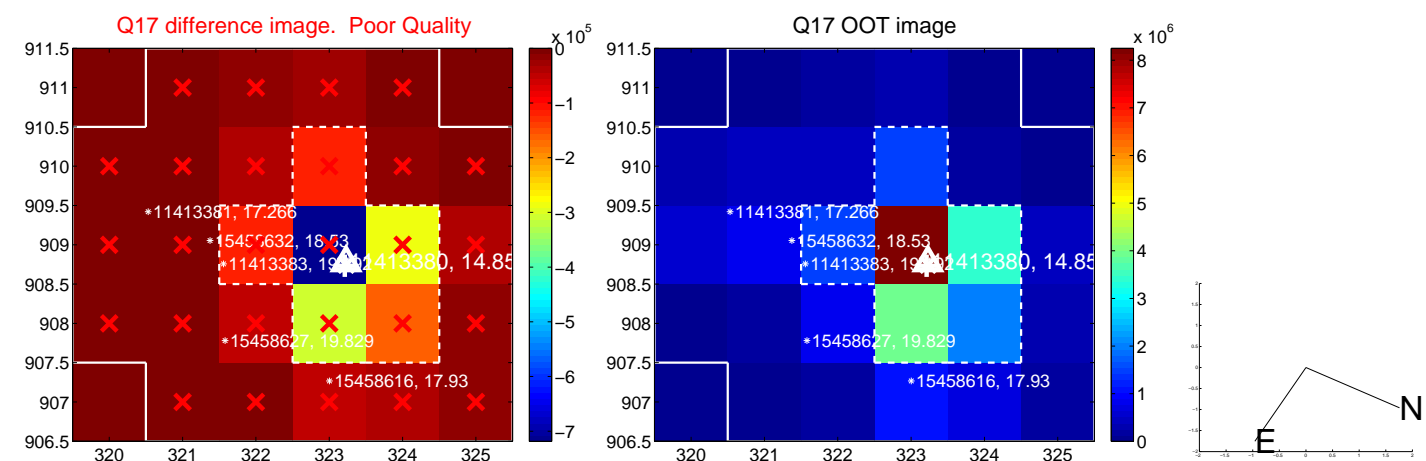
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

