

## KIC 011232205

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011232205-01	OBS	No	289.165284	203.581787	1255.7	5.011	13.6	6.7	1.60	5367	5.92	2.83
011232205-02	OBS	No	501.114326	209.774135	2344.5	2.413	14.8	10.0	1.60	5367	8.16	1.36
011232205-03	OBS	No	268.054251	304.808016	670.8	10.500	12.2	-1.0	1.60	5367	4.06	3.13
011232205-04	OBS	No	365.053489	160.457445	1585.2	5.011	15.2	8.1	1.60	5367	6.24	2.07
011232205-05	OBS	No	425.742358	516.052223	1476.6	5.342	12.7	7.5	1.60	5367	6.70	1.69
011232205-06	OBS	No	391.007218	266.147874	830.6	9.160	14.4	4.6	1.60	5367	4.82	1.89
011232205-07	OBS	No	355.583516	172.560446	1144.2	2.845	12.5	6.7	1.60	5367	5.52	2.15
011232205-08	OBS	No	377.795857	471.462579	1947.1	25.432	11.5	6.6	1.60	5367	6.94	1.98
011232205-09	OBS	No	502.750358	190.429716	1414.1	3.497	11.0	7.0	1.60	5367	6.26	1.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011232205-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011232205-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011232205-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS
011232205-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-08	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011232205-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

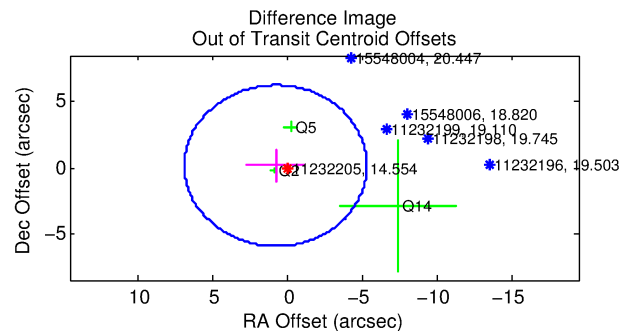
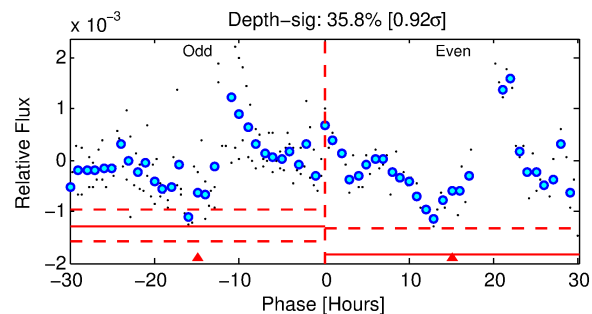
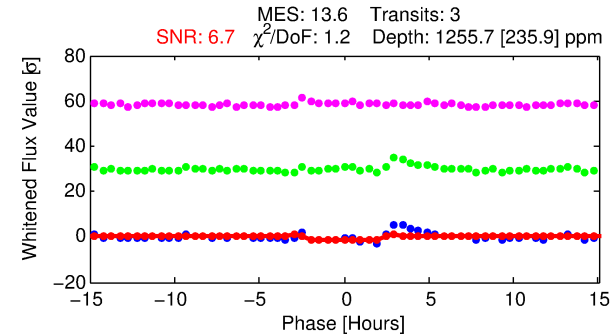
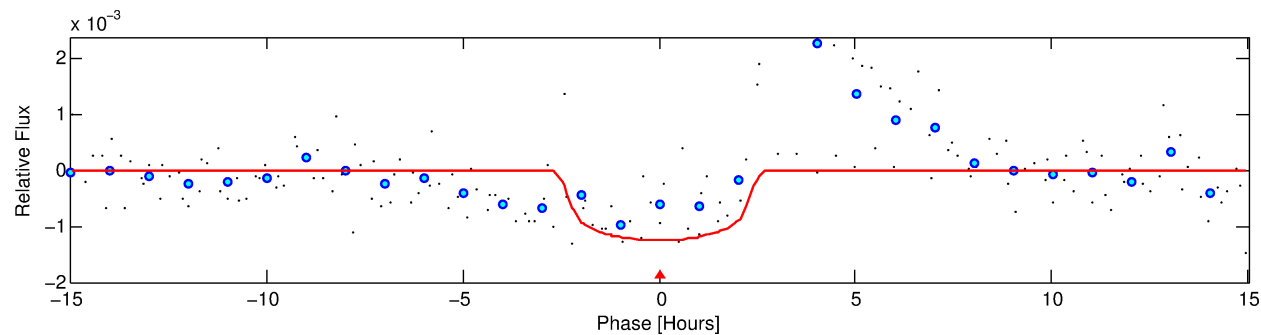
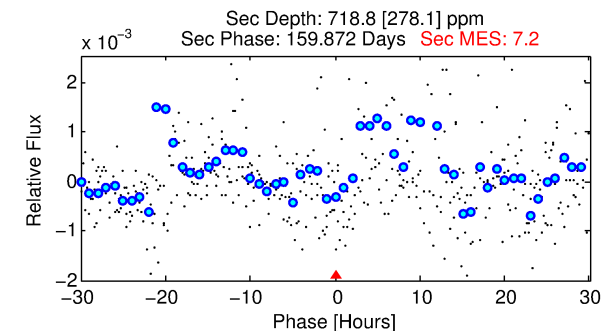
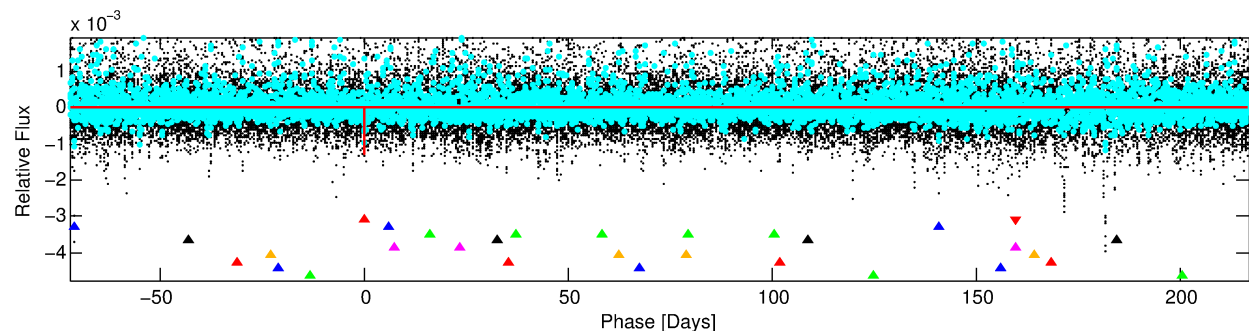
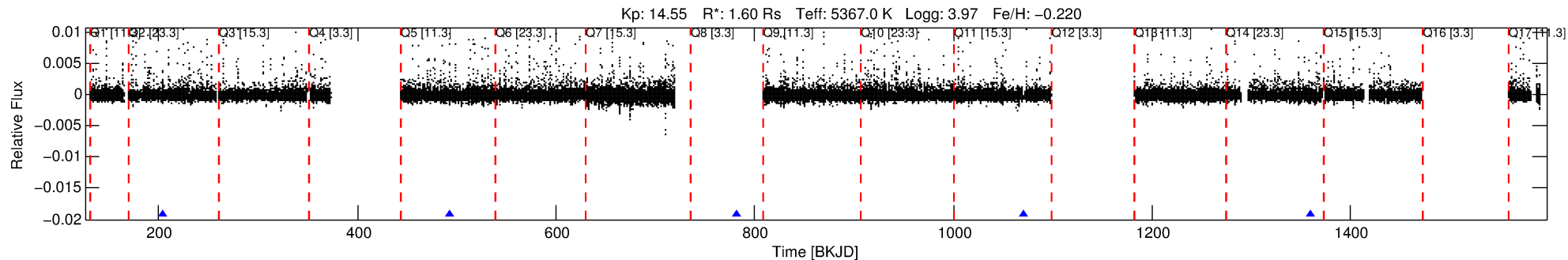
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011232205-01

No Significant Match Found

# DV One-Page Summary

KIC: 11232205 Candidate: 1 of 9 Period: 289.165 d



## DV Fit Results:

Period = 289.16528 [0.00376] d  
Epoch = 203.5818 [0.0074] BKJD  
Rp/R\* = 0.0340 [0.0400]  
a/R\* = 358.68 [1669.09]  
b = 0.64 [4.38]  
Seff = 2.83 [2.76]  
Teq = 331 [81] K  
Rp = 5.92 [7.62] Re  
a = 0.8181 [0.4673] AU  
Ag = 7544.25 [19395.18] [0.39σ]  
Teffp = 4765 [2841] K [1.56σ]

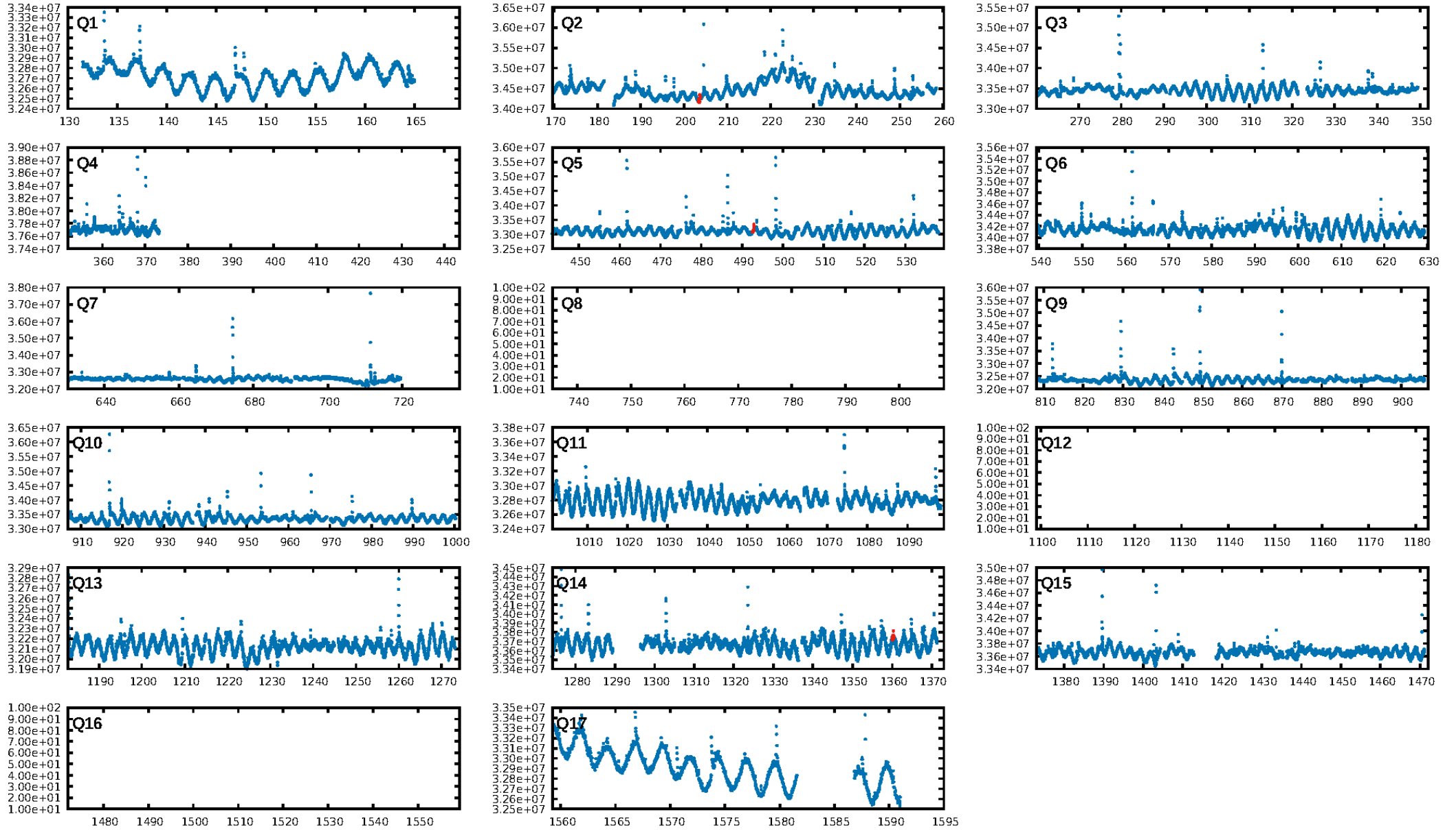
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [43.55σ]  
LongPeriod-sig: 100.0% [276.61σ]  
ModelChiSquare2-sig: 12.4%  
ModelChiSquareGof-sig: 96.1%  
Bootstrap-pfa: 5.56e-14  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.718  
Centroid-sig: 8.3%  
Centroid-so: 0.996 arcsec [1.28σ]  
OotOffset-rm: 0.754 arcsec [0.37σ]  
OotOffset-st: 2/0/0/1 [3]  
KicOffset-rm: 0.614 arcsec [0.31σ]  
KicOffset-st: 2/0/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

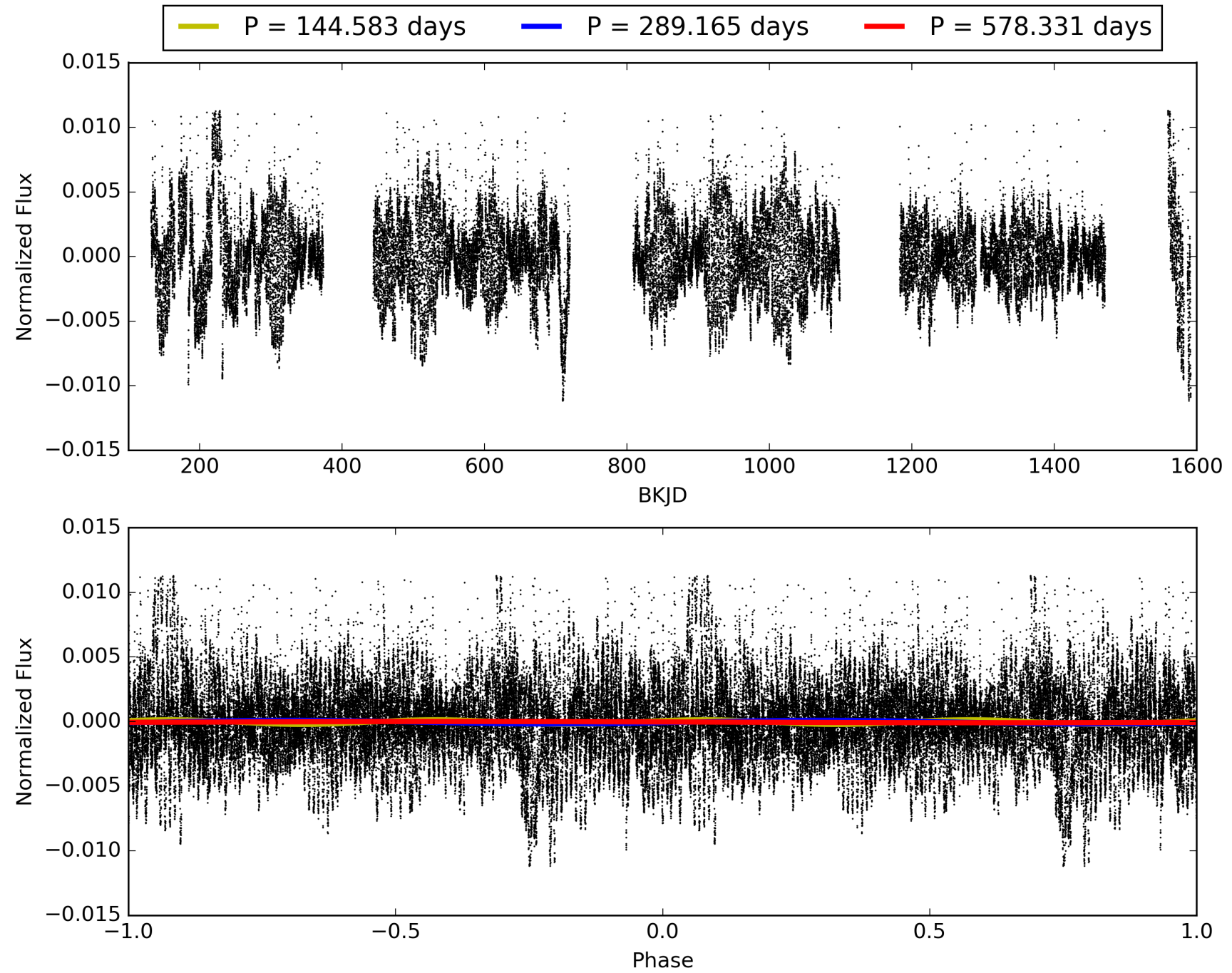
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:56:38 Z

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

# TCE 011232205-01, PDC Light Curves



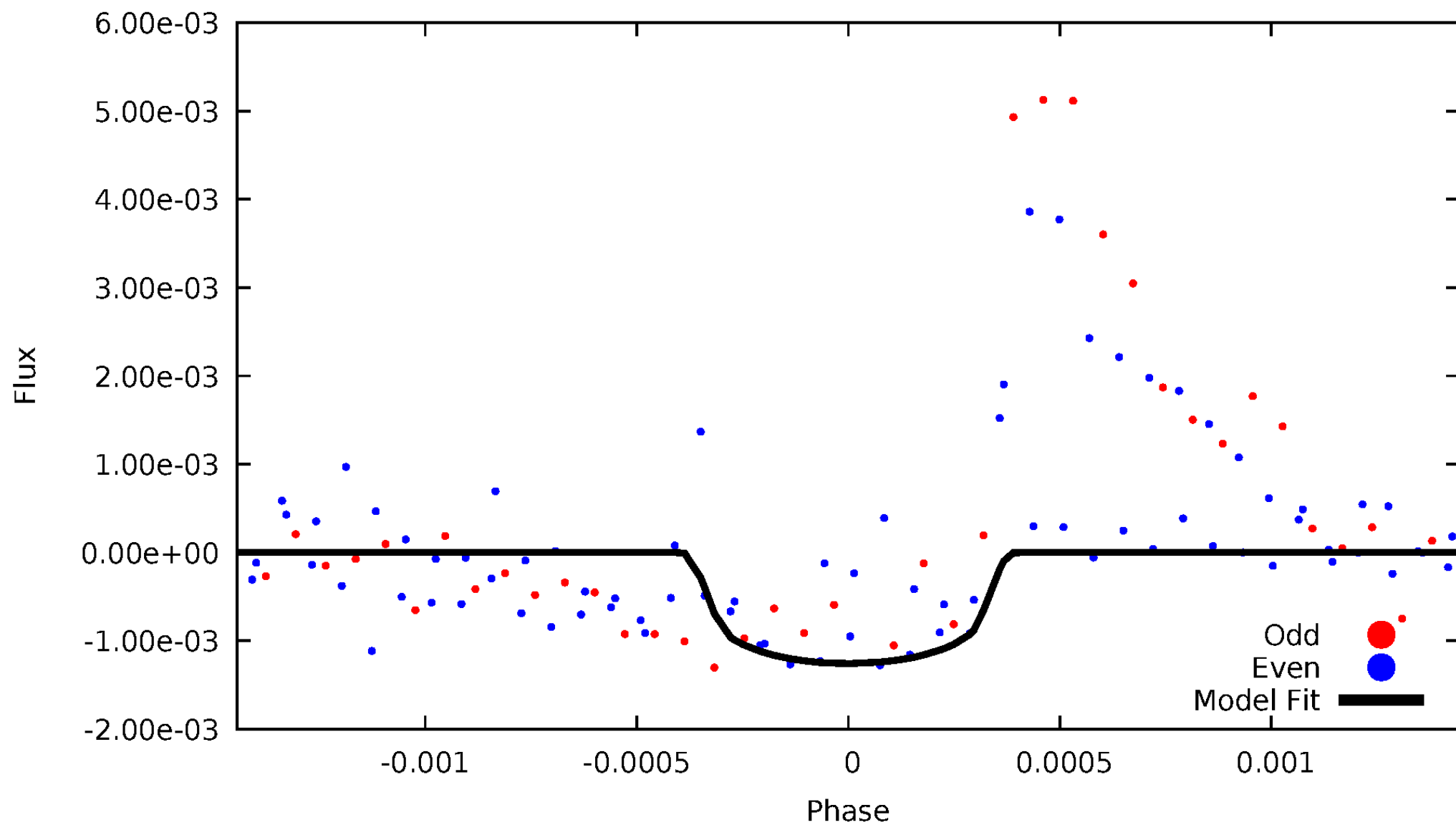
TCE 011232205-01





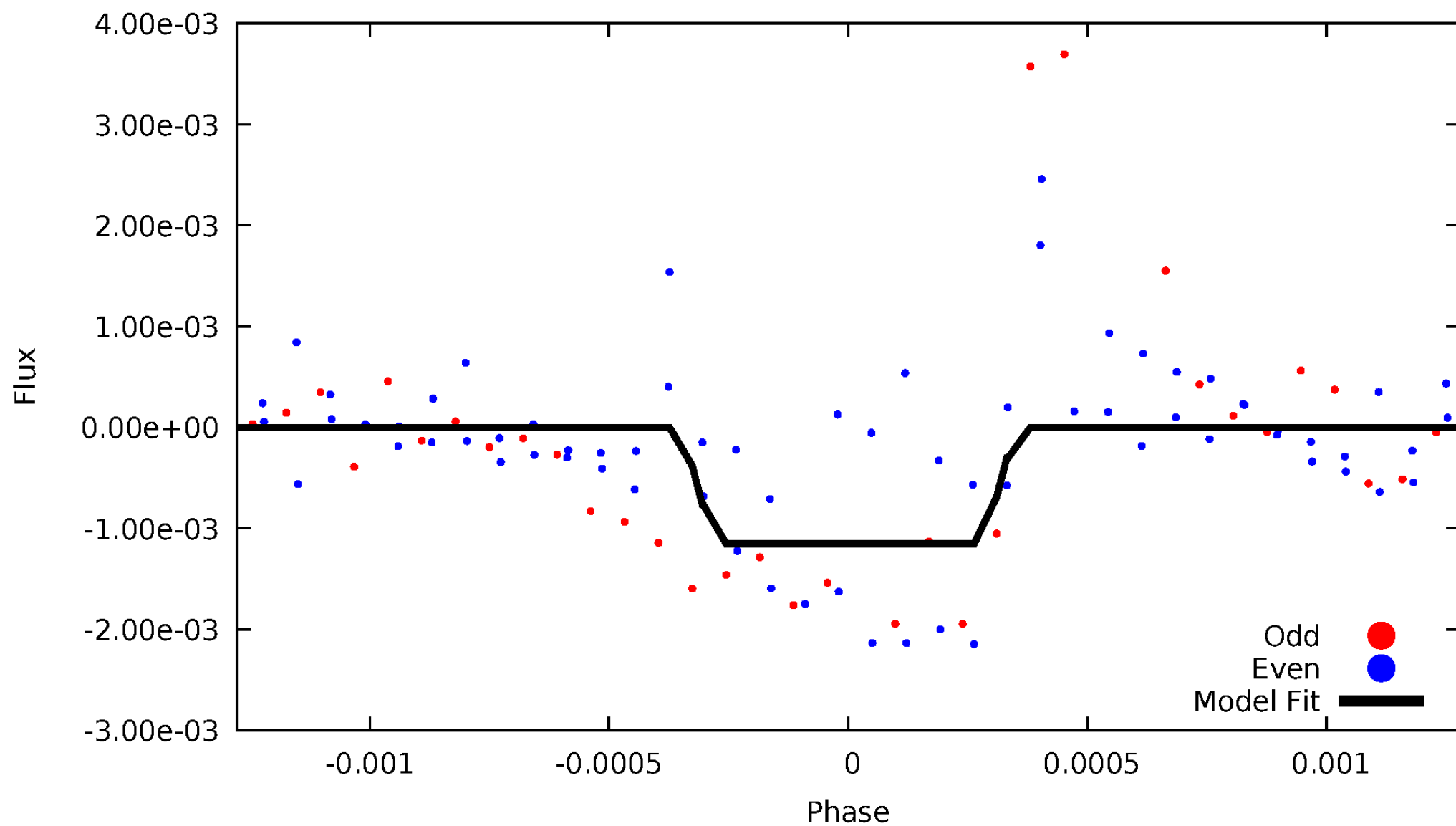
# DV Odd/Even

TCE 011232205-01



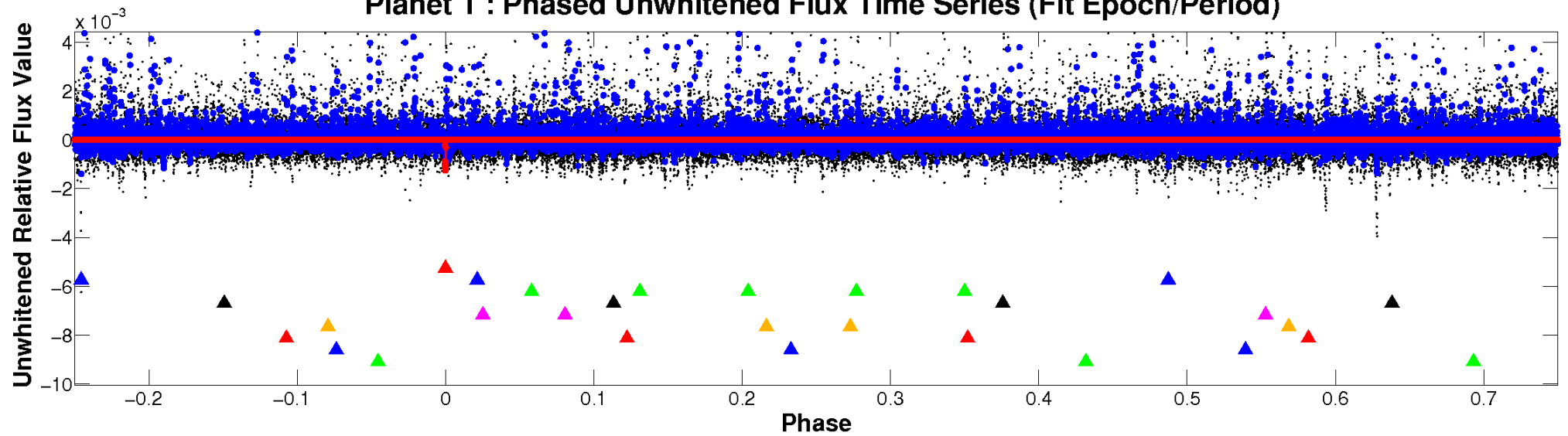
# ALT Odd/Even

TCE 011232205-01

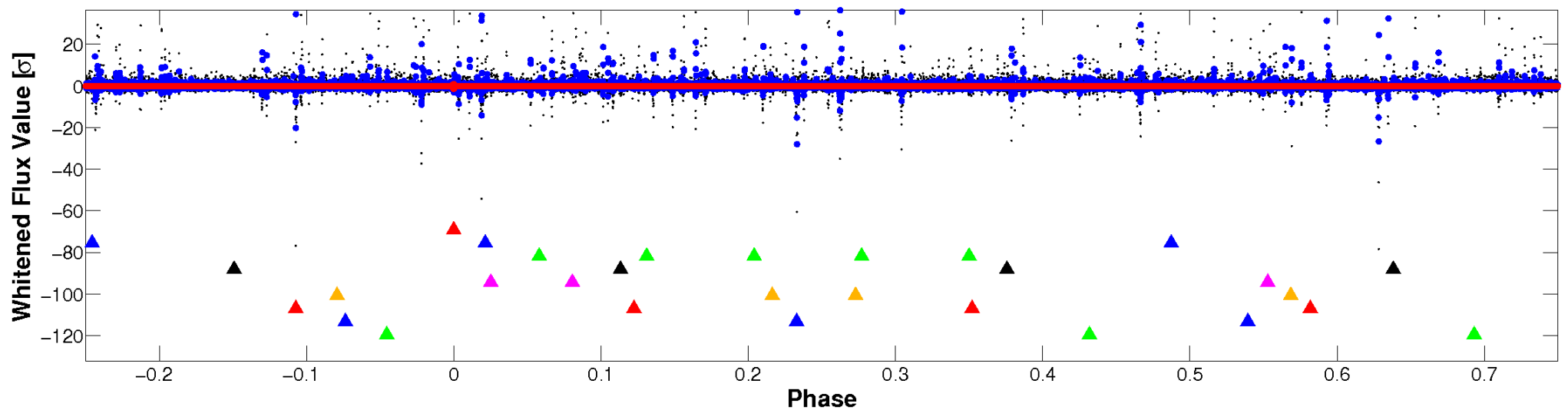


# Non-Whitened Vs. Whitened Light Curve

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

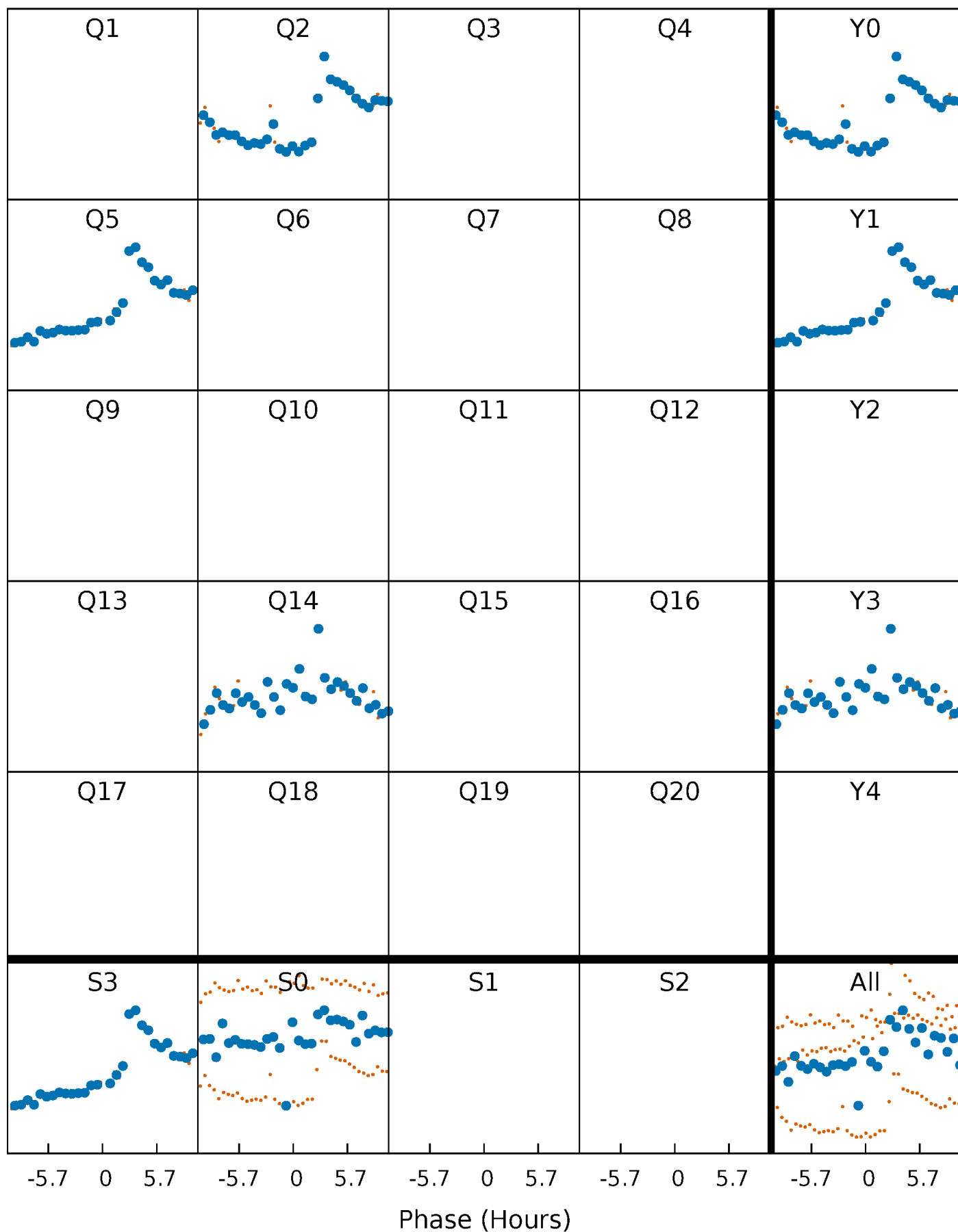


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



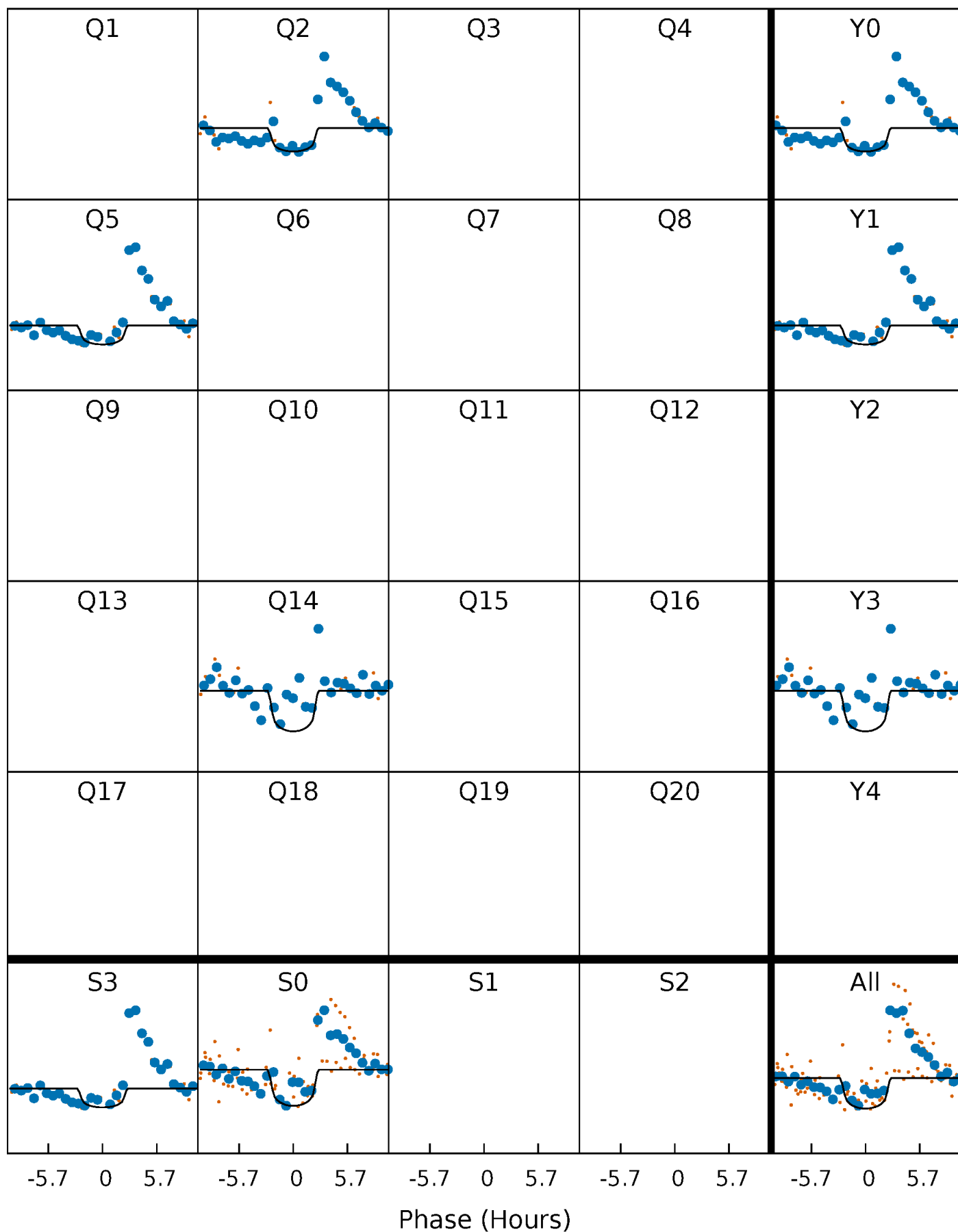
# PDC Quarter-Phased Transit Curves

TCE 011232205-01 P=289.165284 Days  $T_0=203.581787$  (BKJD)



# DV Quarter-Phased Transit Curves

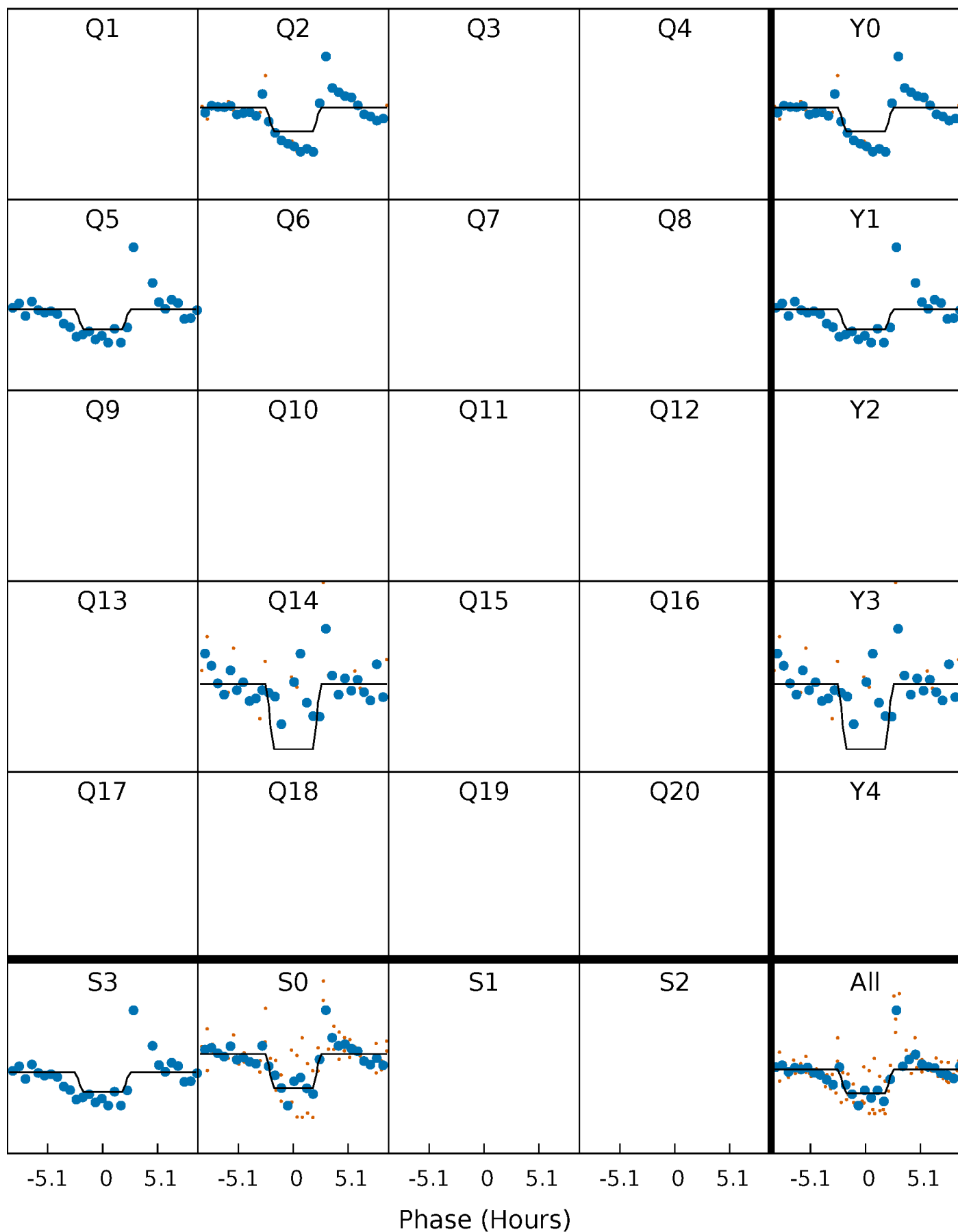
TCE 011232205-01 P=289.165284 Days  $T_0=203.581787$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

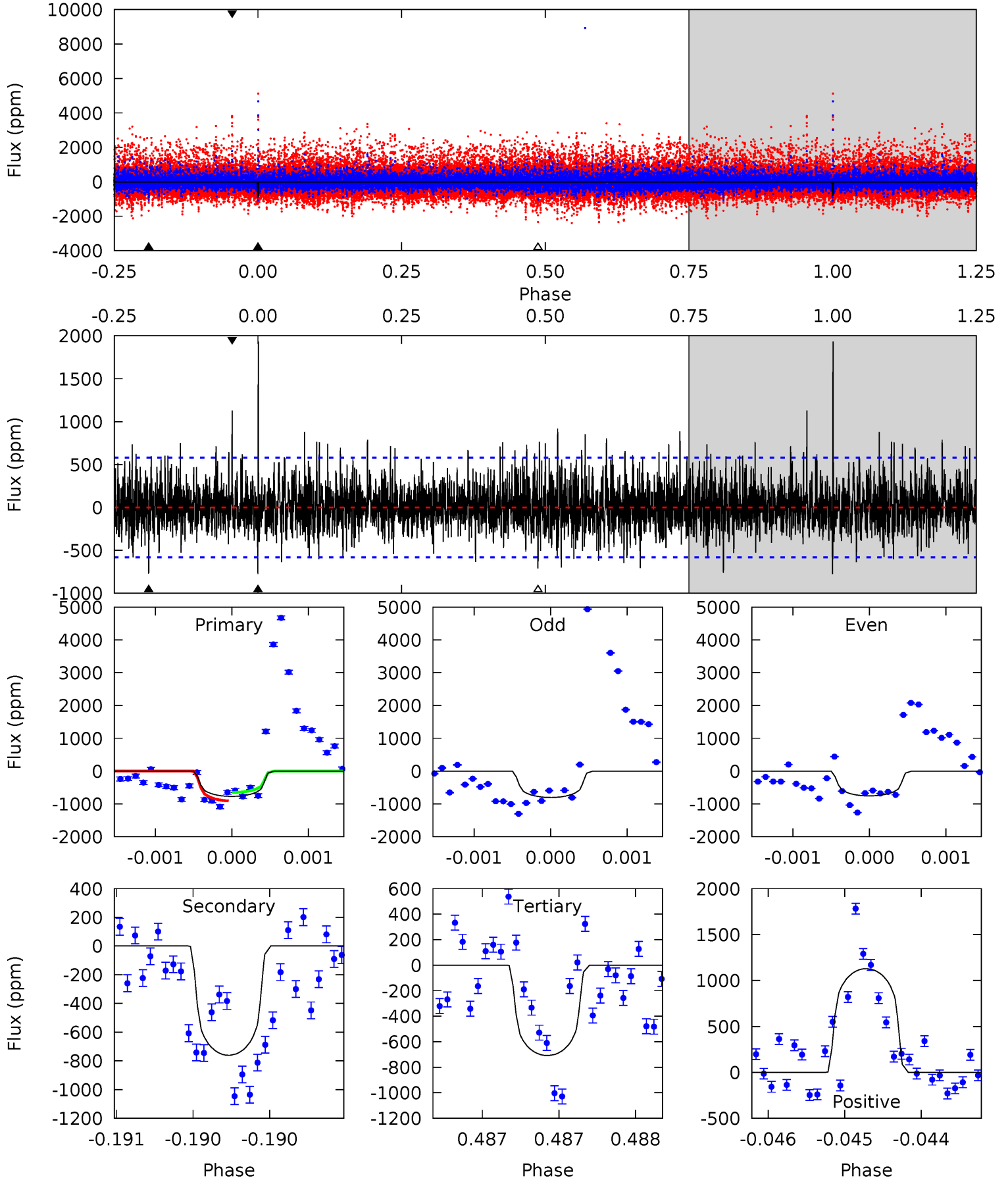
TCE 011232205-01 P=289.161055 Days  $T_0=203.588819$  (BKJD)



# DV Model-Shift Uniqueness Test

011232205-01, P = 289.165284 Days, E = 203.581787 Days

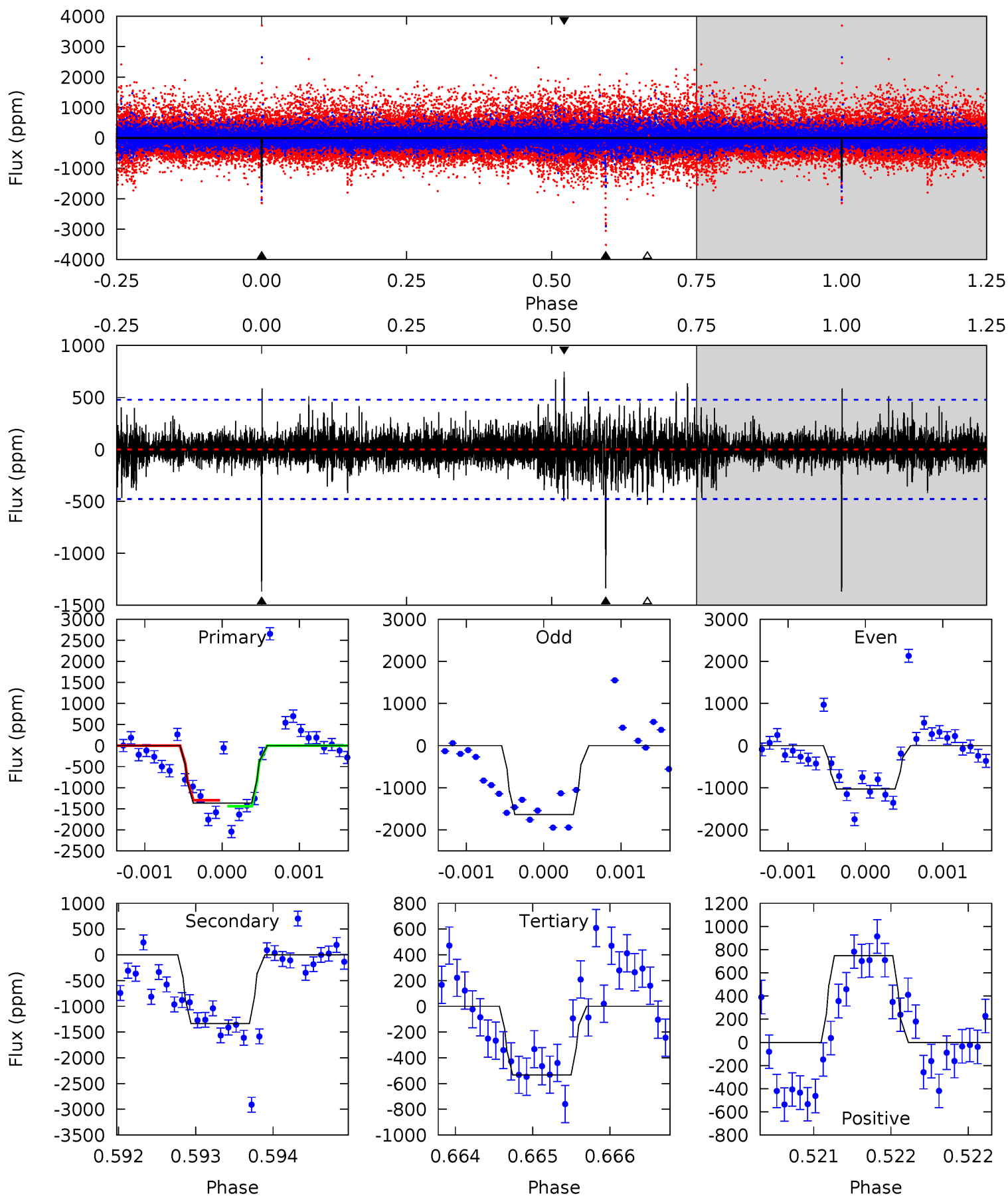
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.31	7.20	6.70	10.7	5.50	3.36	2.02	0.61	-3.36	0.50	-3.47	0.14	0.94	0.71	1.22



# Alt Model-Shift Uniqueness Test

011232205-01, P = 289.161055 Days, E = 203.588819 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
15.8	15.4	6.16	8.62	5.52	3.40	1.35	9.63	7.16	9.27	6.80	3.26	0.73	0.35	0.83



### Stellar Parameters For KIC 011232205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5367^{+159}_{-143}$	$3.973^{+0.588}_{-0.252}$	$-0.220^{+0.350}_{-0.250}$	$1.596^{+0.686}_{-0.838}$	$0.873^{+0.086}_{-0.115}$	$0.302^{+2.236}_{-0.181}$
	+3%/-3%	+15%/-6%	+159%/-114%	+43%/-53%	+10%/-13%	+739%/-60%
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 011232205-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-761 \pm 106$	$7.08^{+6.95}_{-4.58}$	$456^{+56}_{-69}$	$4318^{+2537}_{-770}$	$5678^{+35359}_{-4313}$
Alt.	$-1337 \pm 87$	$7.22^{+6.44}_{-4.82}$	$455^{+52}_{-74}$	$4850^{+3379}_{-904}$	$9545^{+72959}_{-6887}$

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

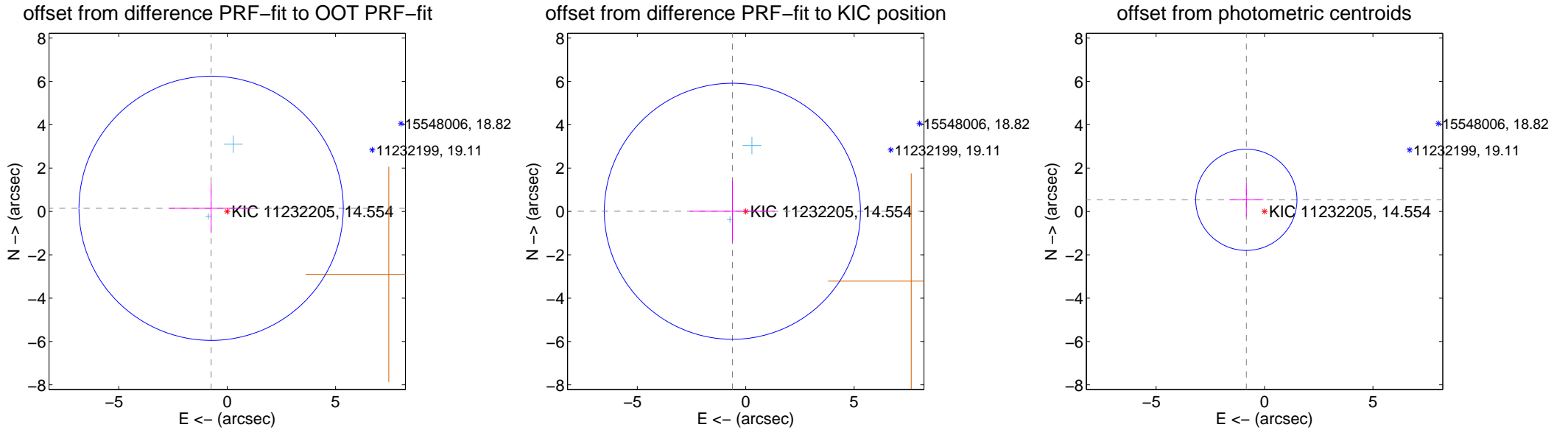
## DV Centroid Data

Supplemental centroid analysis for 011232205-01. Kepler magnitude: 14.55. Transit SNR 6.75

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.754 \pm 2.031$	0.37	$0.740 \pm 1.939$	$0.145 \pm 1.149$
PRF-fit source offset from KIC position	$0.614 \pm 1.969$	0.31	$0.614 \pm 1.958$	$0.008 \pm 1.418$
photometric centroid source offset	$1.00 \pm 0.78$	1.28	$0.84 \pm 0.78$	$0.54 \pm 0.77$



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

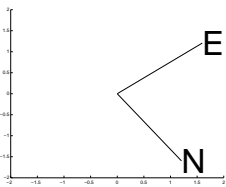
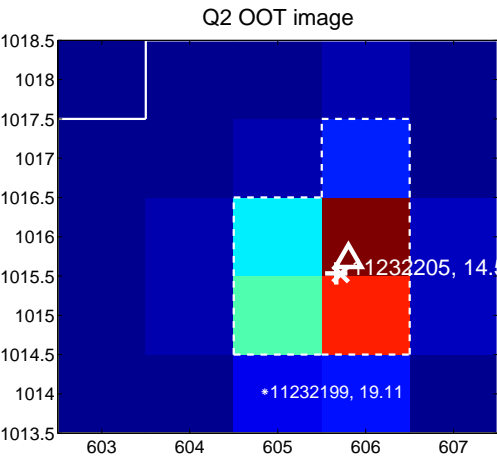
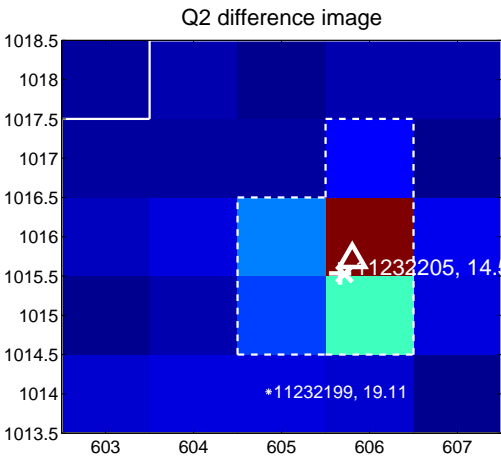


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

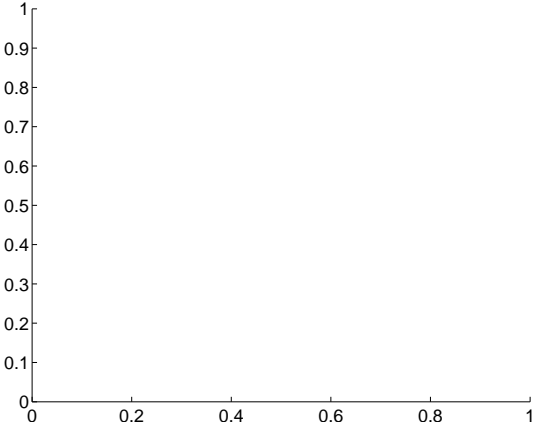
Q1 no difference image



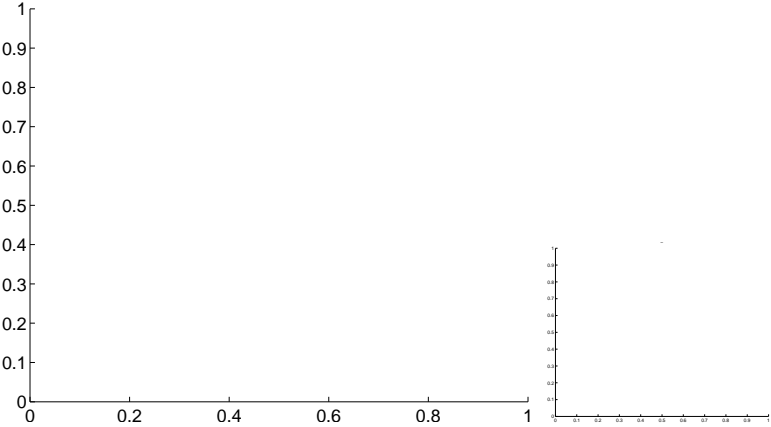
Q1 no OOT image



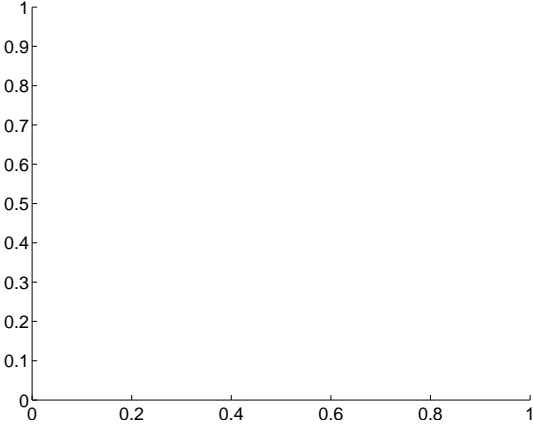
Q3 no difference image



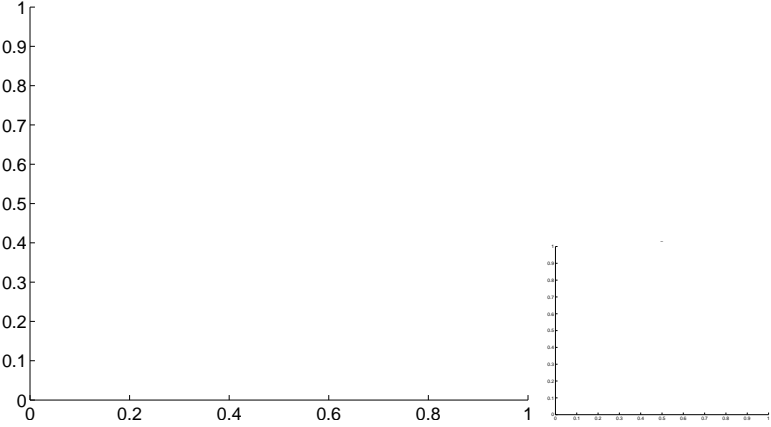
Q3 no OOT image



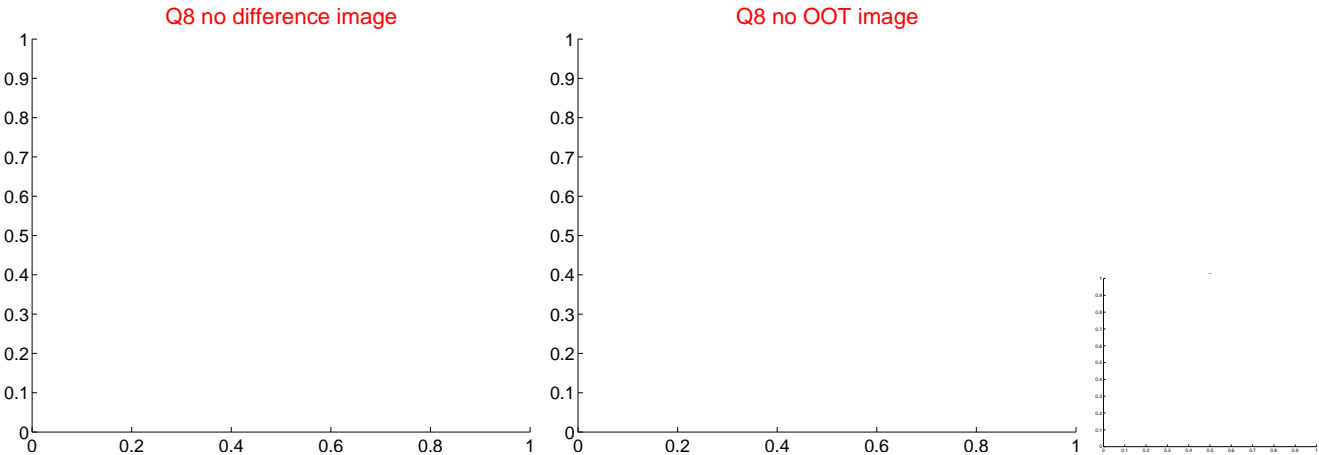
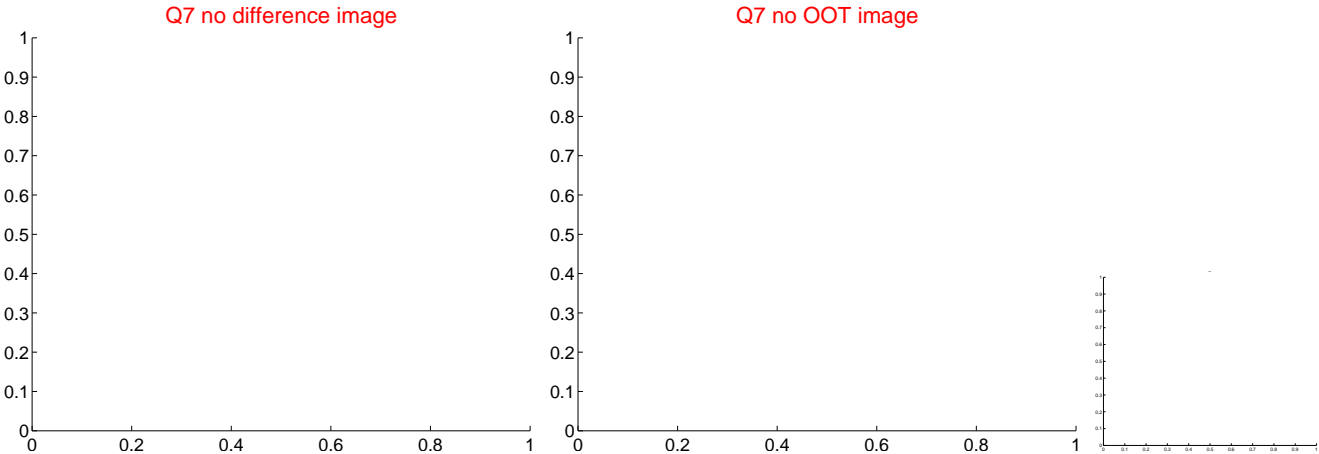
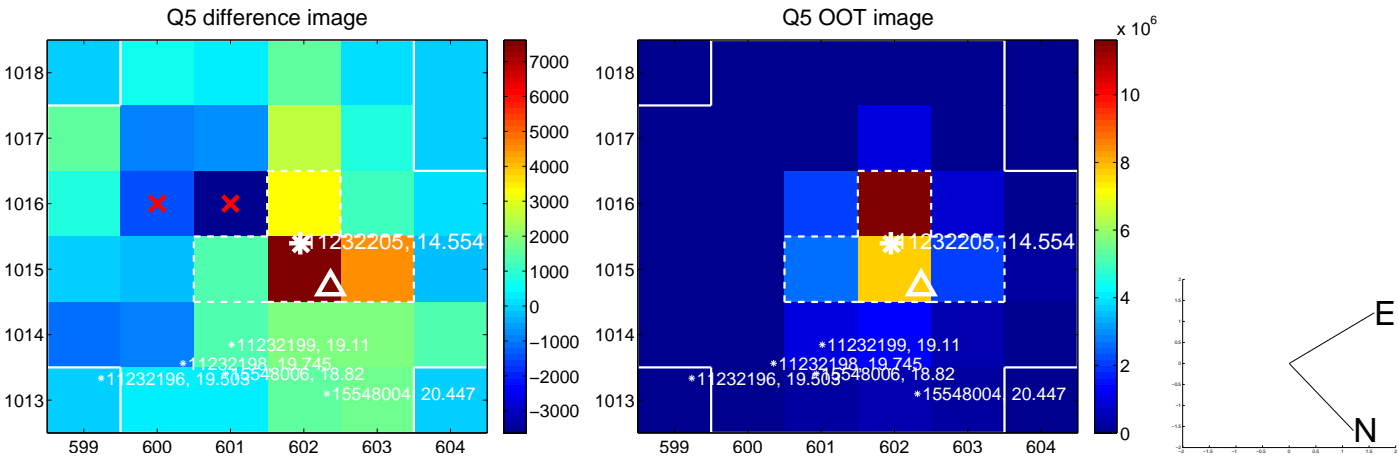
Q4 no difference image



Q4 no OOT image



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



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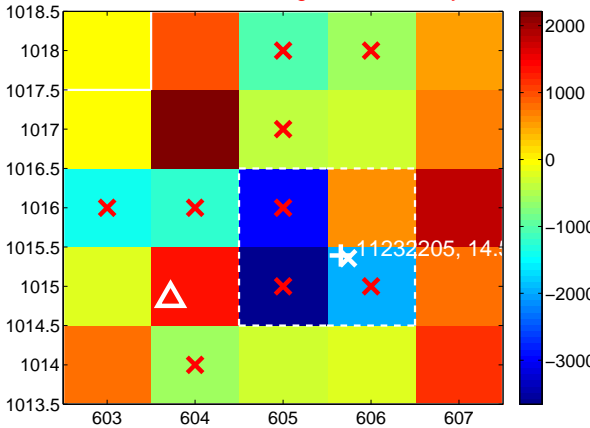
Q13 no difference image



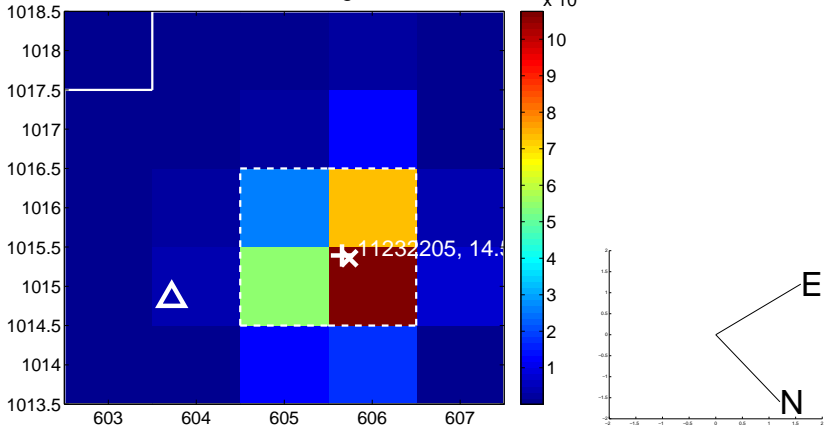
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



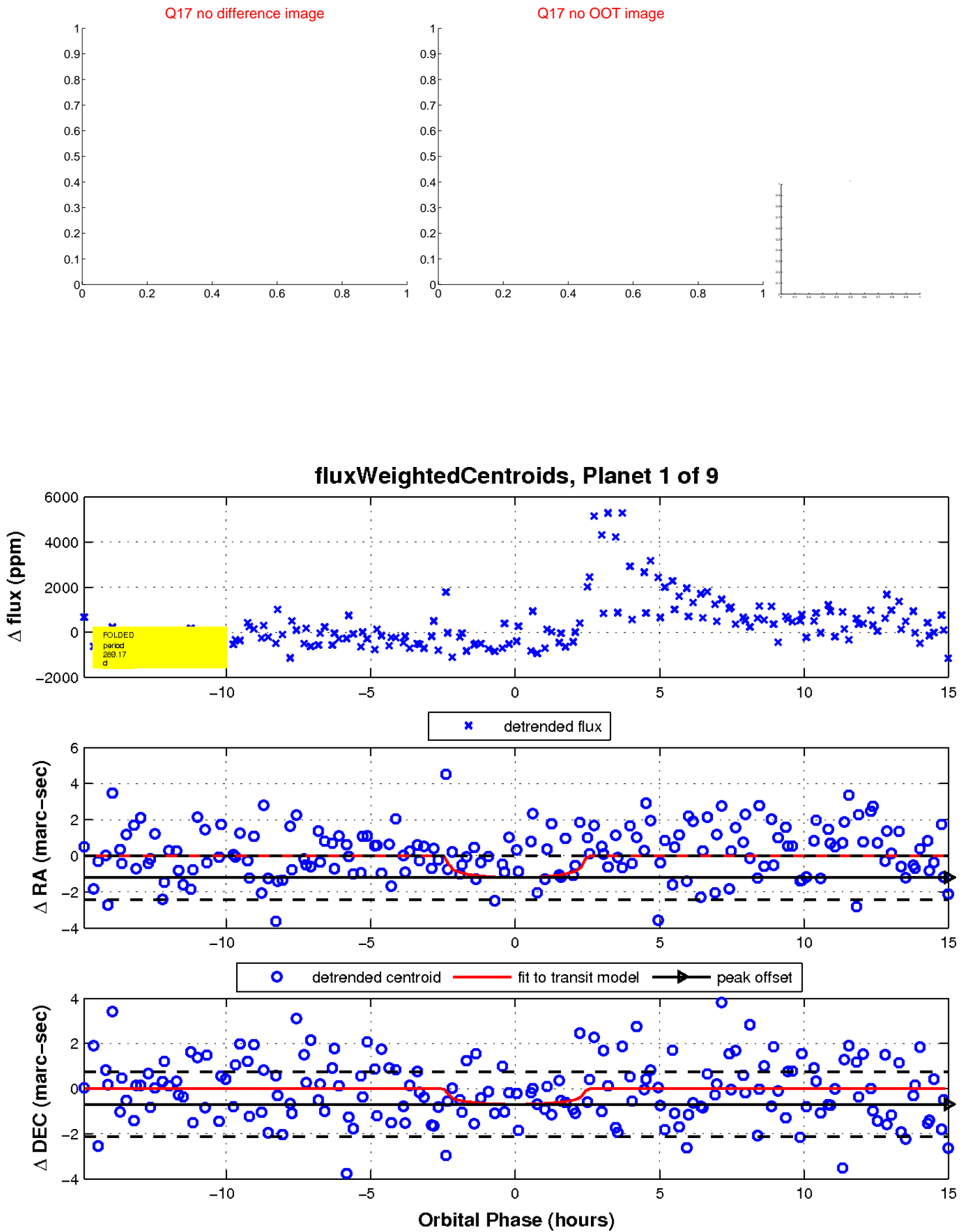
Q16 no difference image



Q16 no OOT image



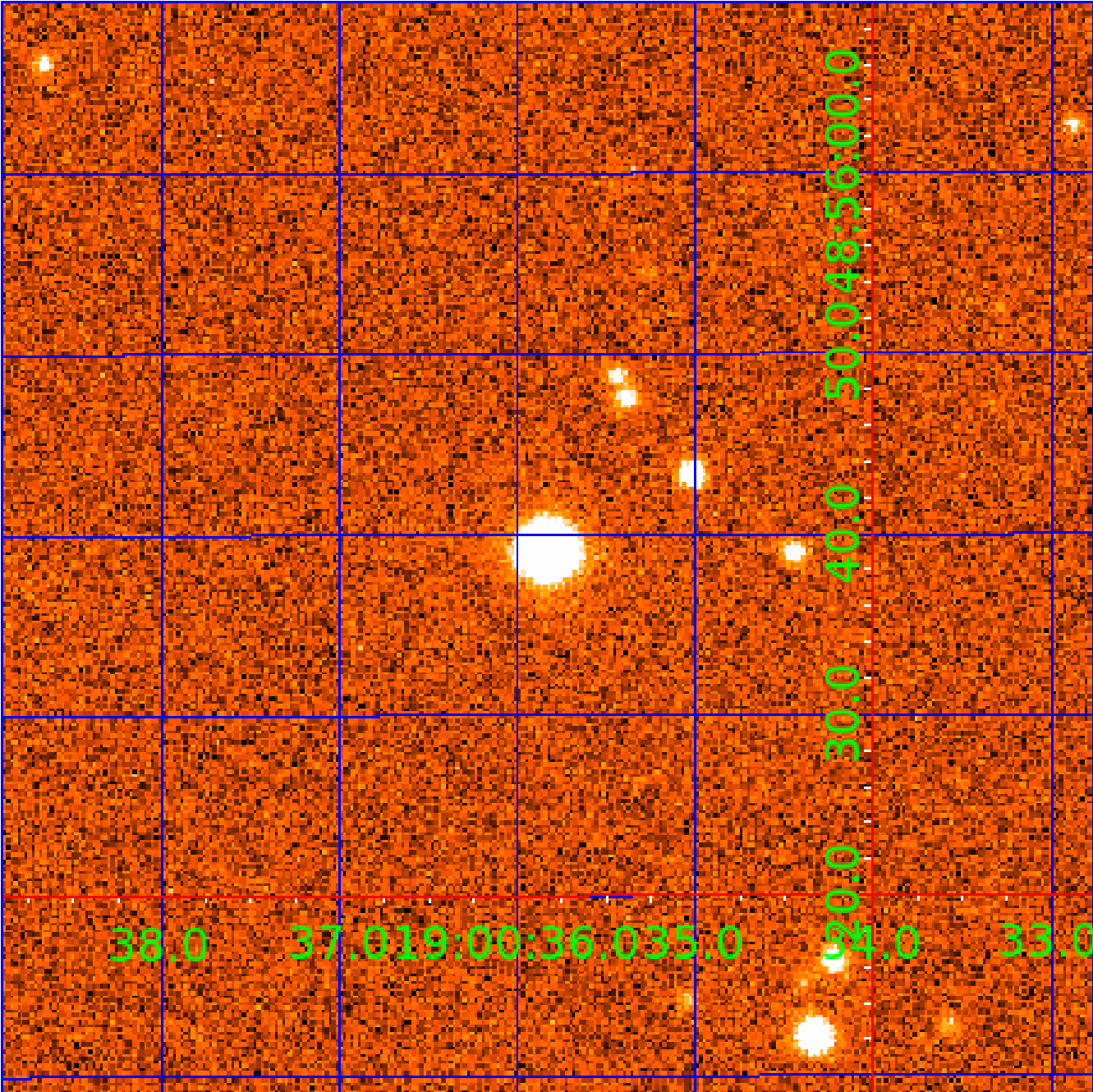
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UKIRT Image

Declination



## KIC 011232205

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011232205-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS
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N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

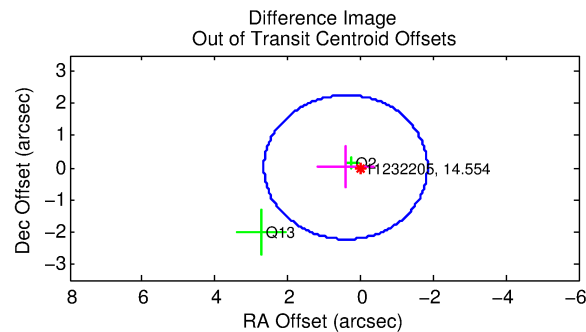
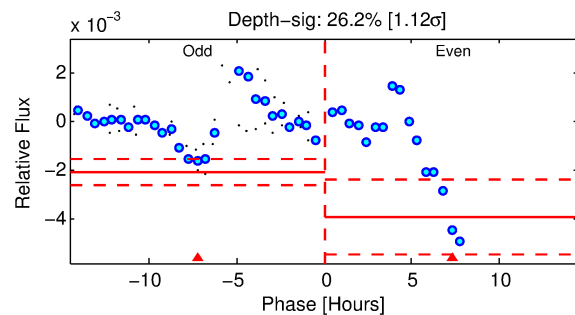
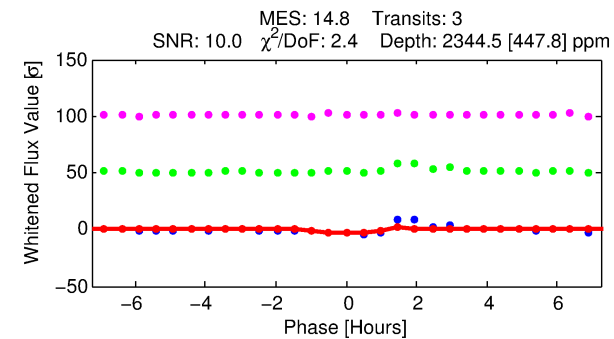
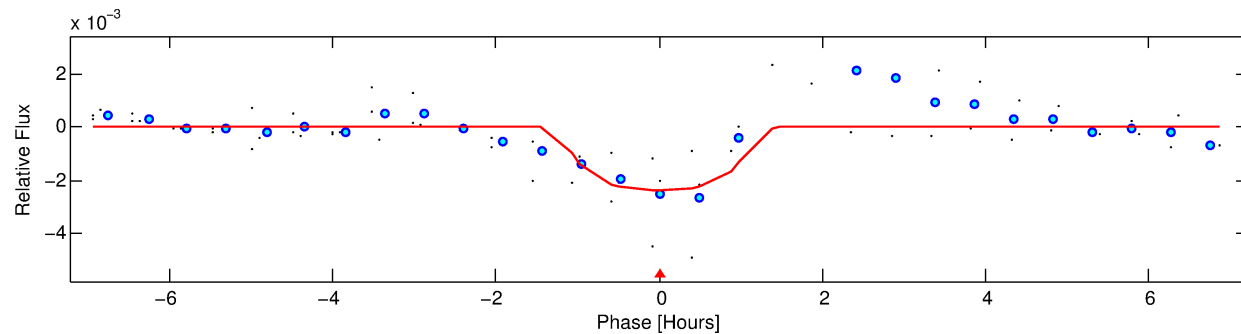
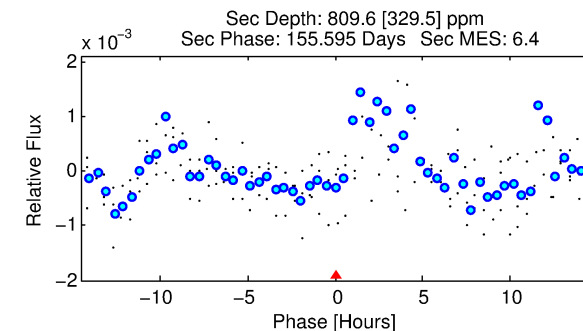
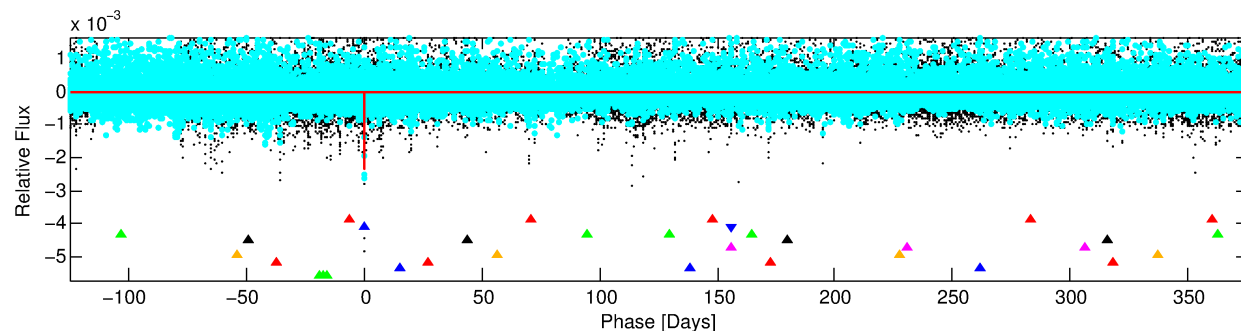
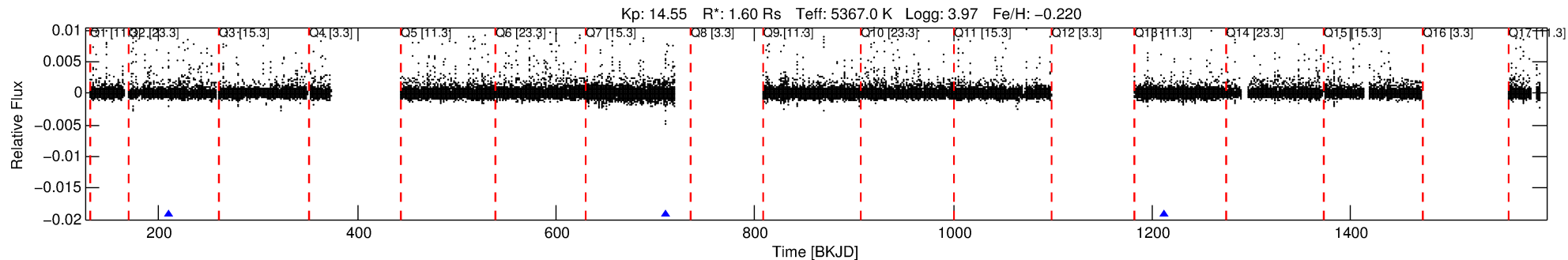
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011232205-02

No Significant Match Found

# DV One-Page Summary

KIC: 11232205 Candidate: 2 of 9 Period: 501.114 d



## DV Fit Results:

Period = 501.11433 [0.00390] d  
Epoch = 209.7741 [0.0045] BKJD  
Rp/R\* = 0.0468 [0.0646]  
a/R\* = 1288.60 [6929.71]  
b = 0.66 [4.67]  
Seff = 1.36 [1.33]  
Teq = 275 [67] K  
Rp = 8.16 [12.04] Re  
a = 1.1803 [0.6742] AU  
Ag = 9322.06 [27503.42] [0.34σ]  
Teffp = 4183 [2917] K [1.34σ]

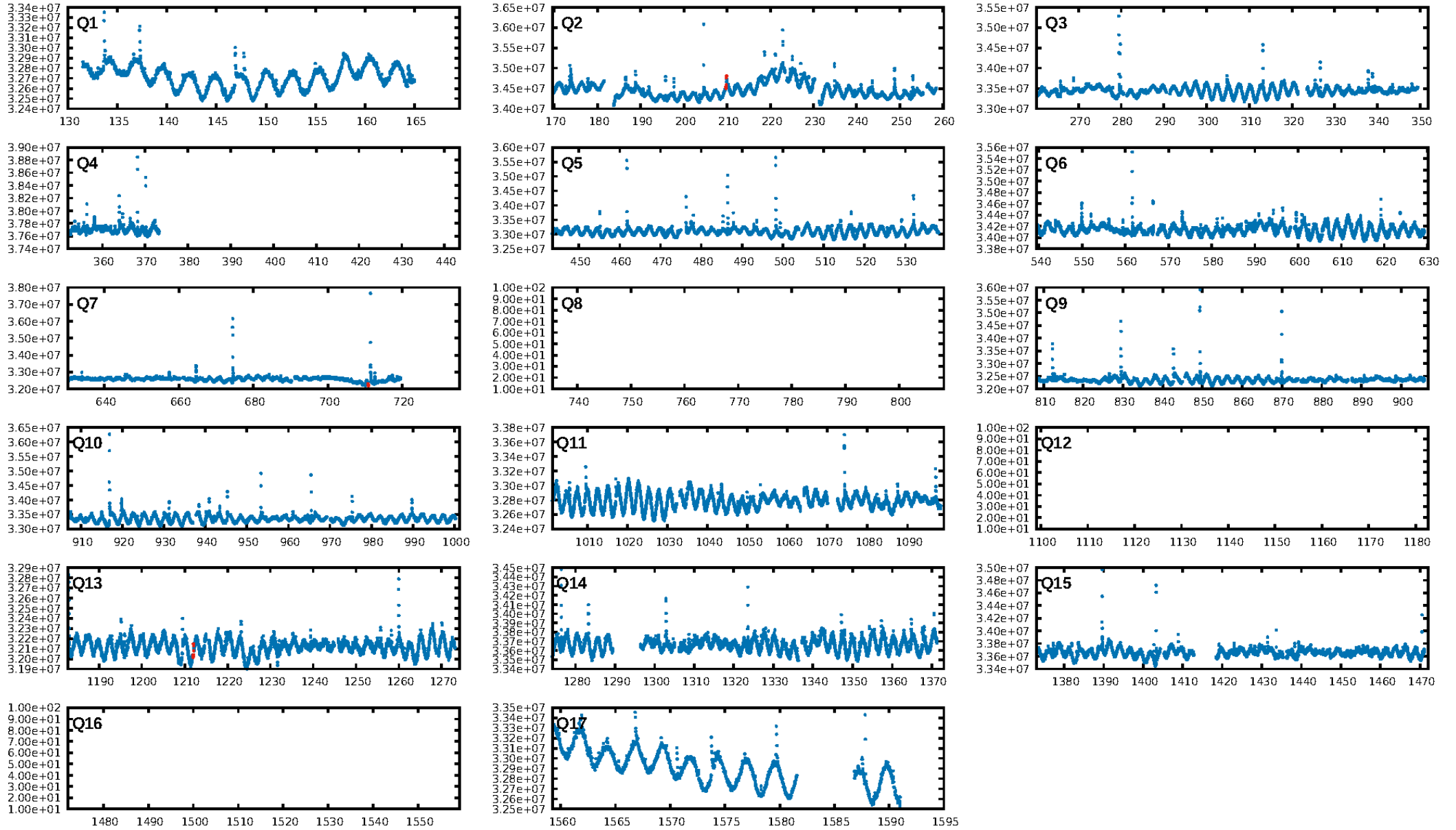
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [308.62σ]  
LongPeriod-sig: 100.0% [9.24σ]  
**ModelChiSquare2-sig: 0.0%**  
ModelChiSquareGof-sig: 6.9%  
Bootstrap-pfa: 3.11e-14  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.787  
Centroid-sig: 52.2%  
Centroid-so: 0.695 arcsec [1.07σ]  
OotOffset-rm: 0.409 arcsec [0.55σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 0.310 arcsec [0.37σ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

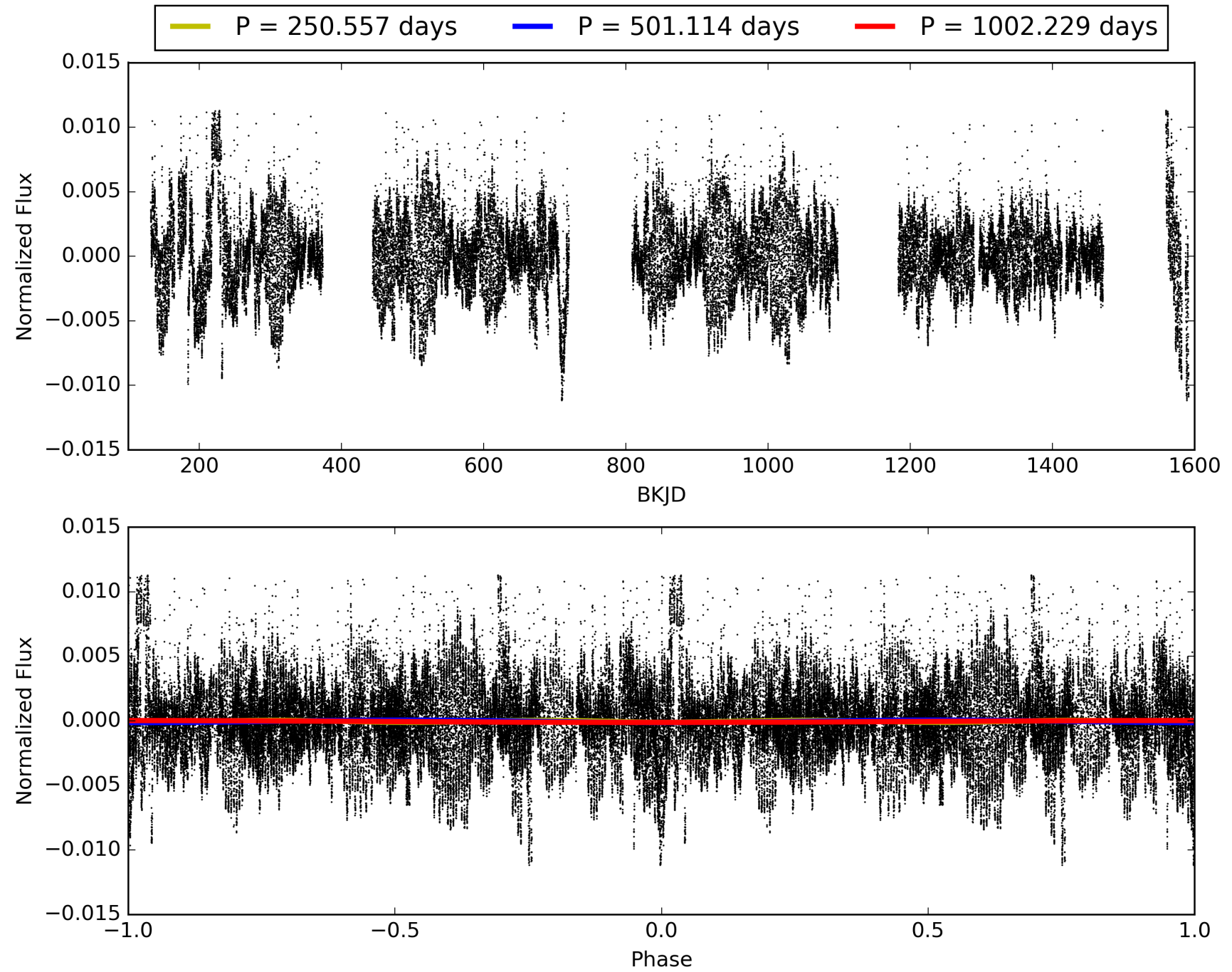
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:56:59 Z

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

# TCE 011232205-02, PDC Light Curves



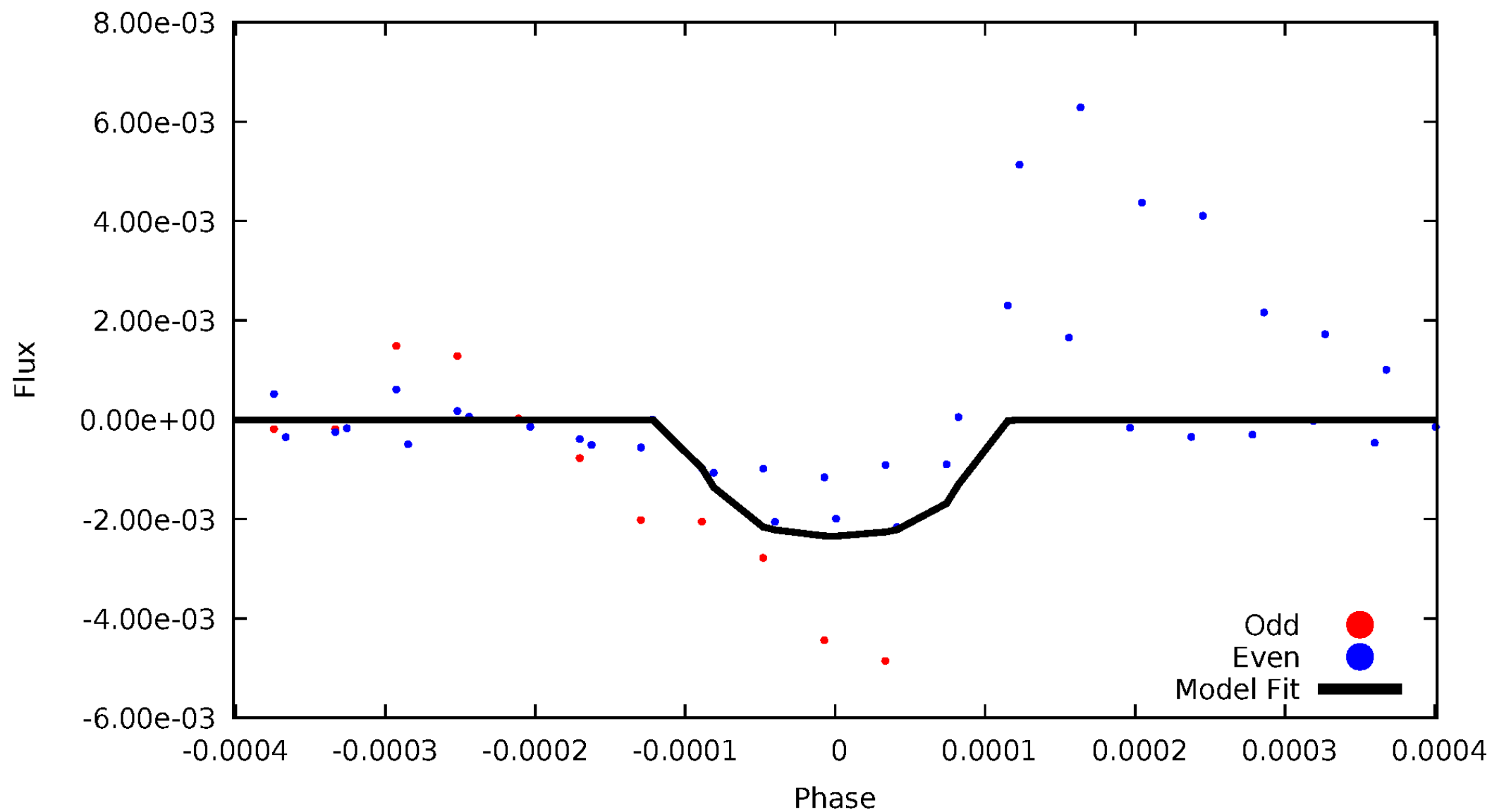
# TCE 011232205-02





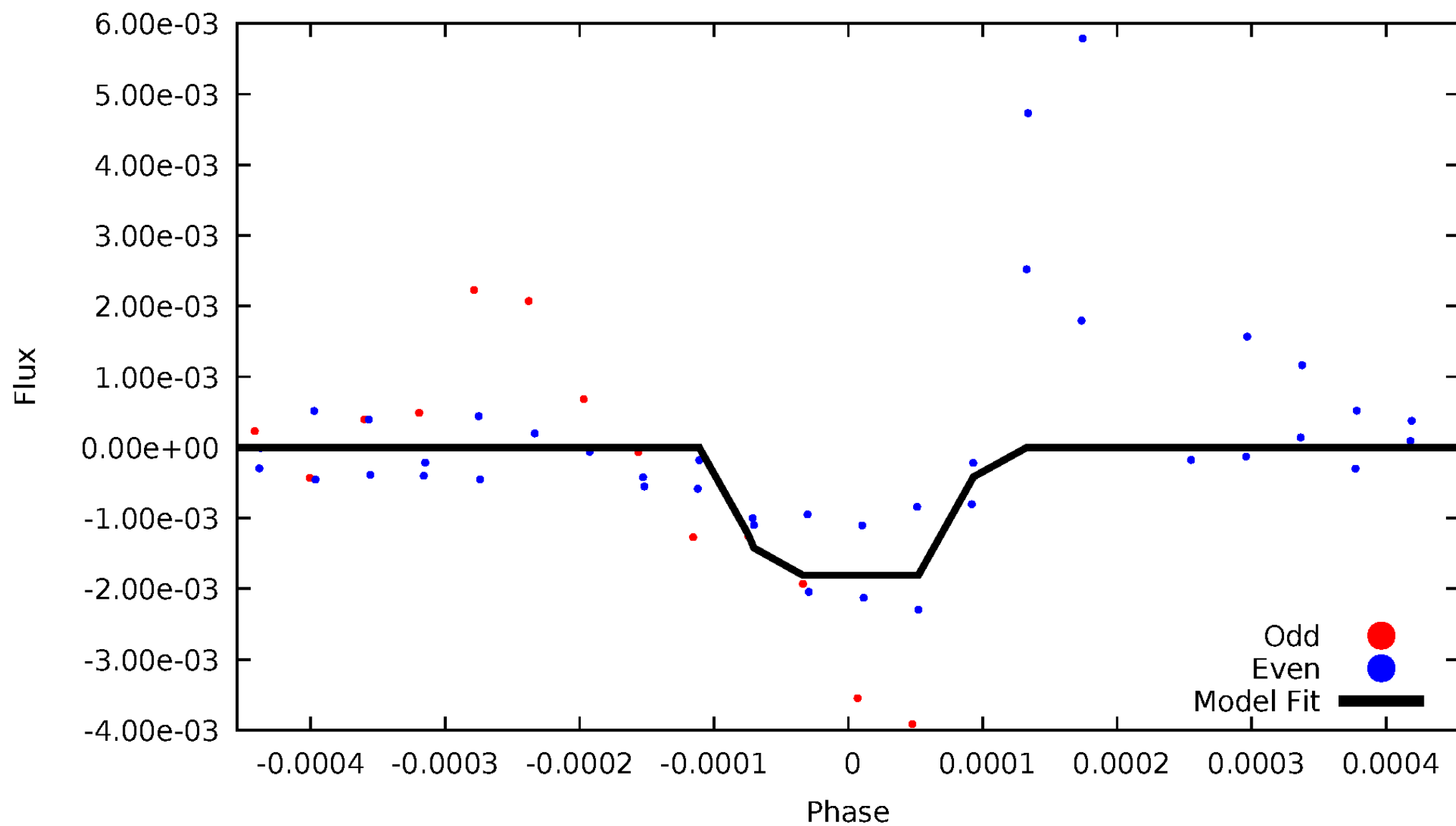
# DV Odd/Even

TCE 011232205-02



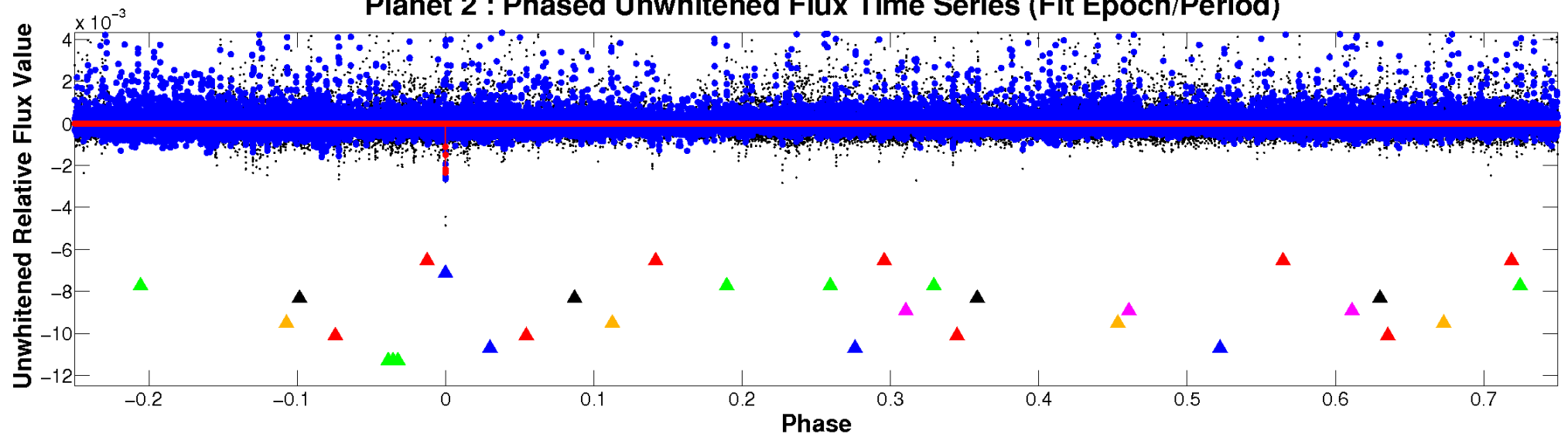
# ALT Odd/Even

TCE 011232205-02

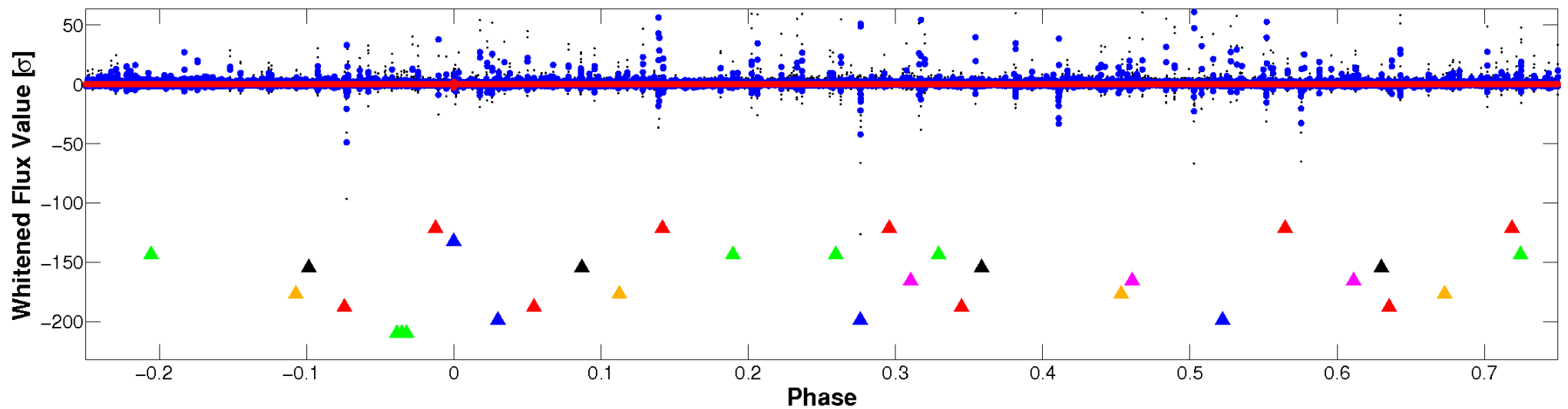


# Non-Whitened Vs. Whitened Light Curve

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

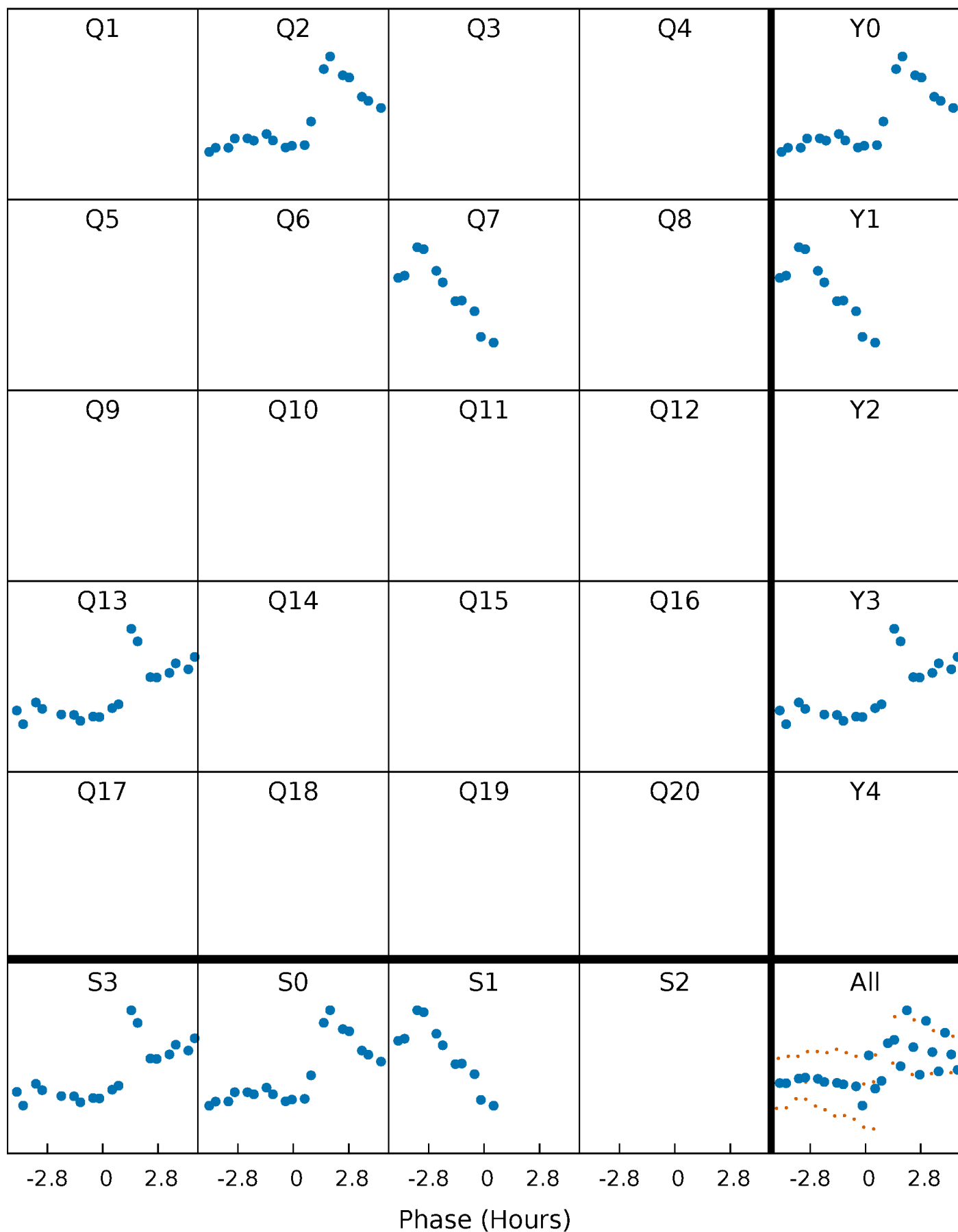


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



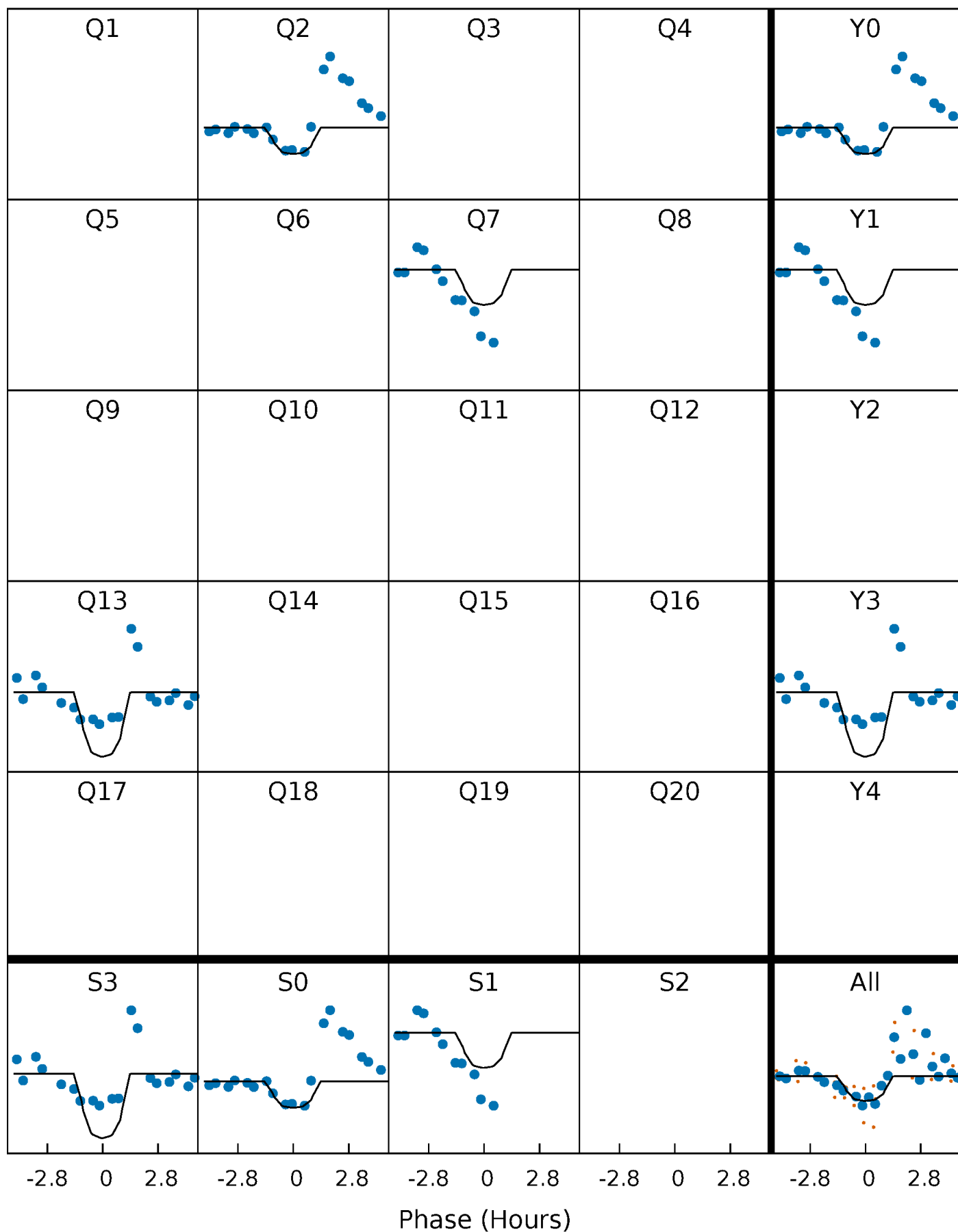
# PDC Quarter-Phased Transit Curves

TCE 011232205-02 P=501.114326 Days  $T_0=209.774135$  (BKJD)



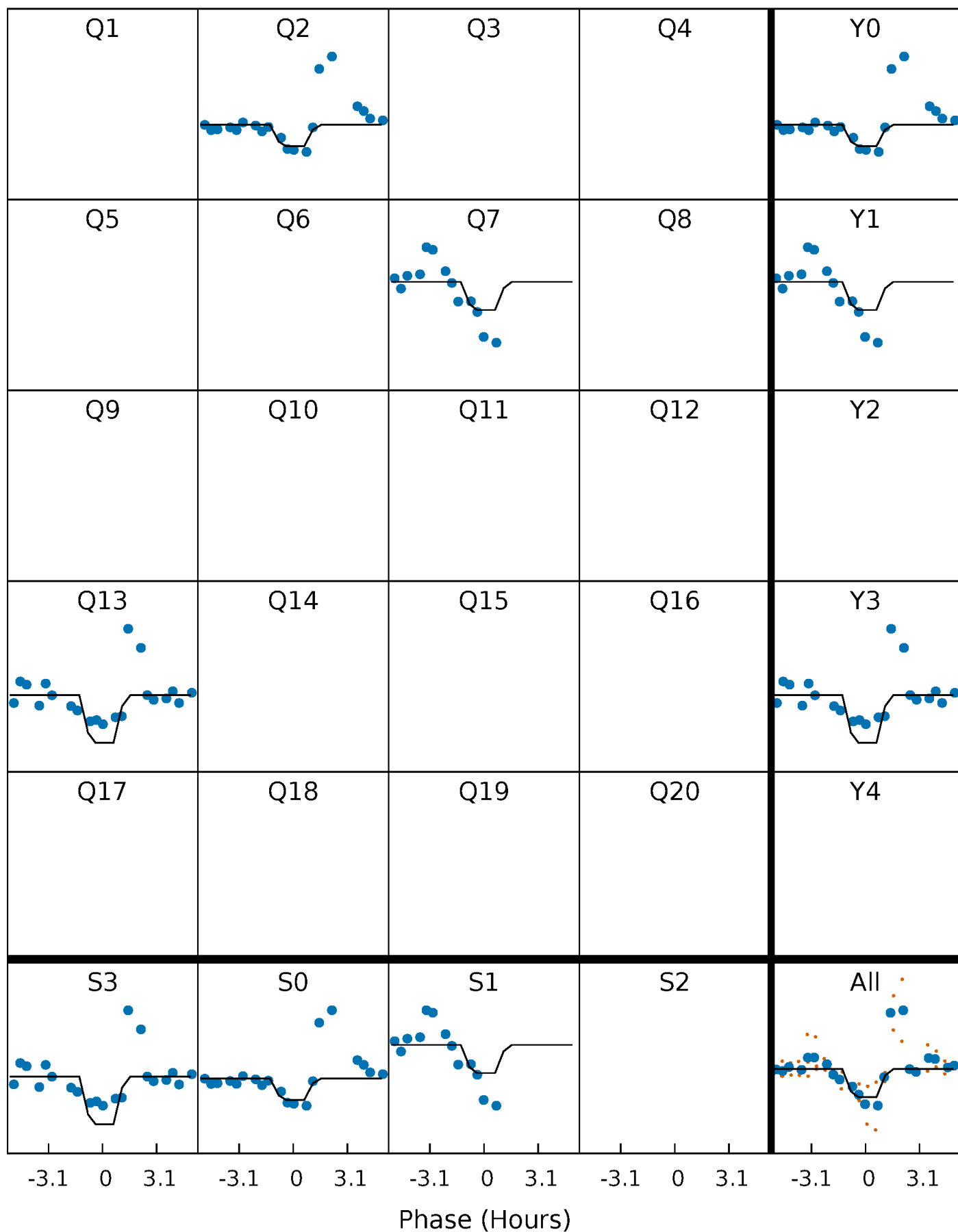
# DV Quarter-Phased Transit Curves

TCE 011232205-02 P=501.114326 Days  $T_0=209.774135$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

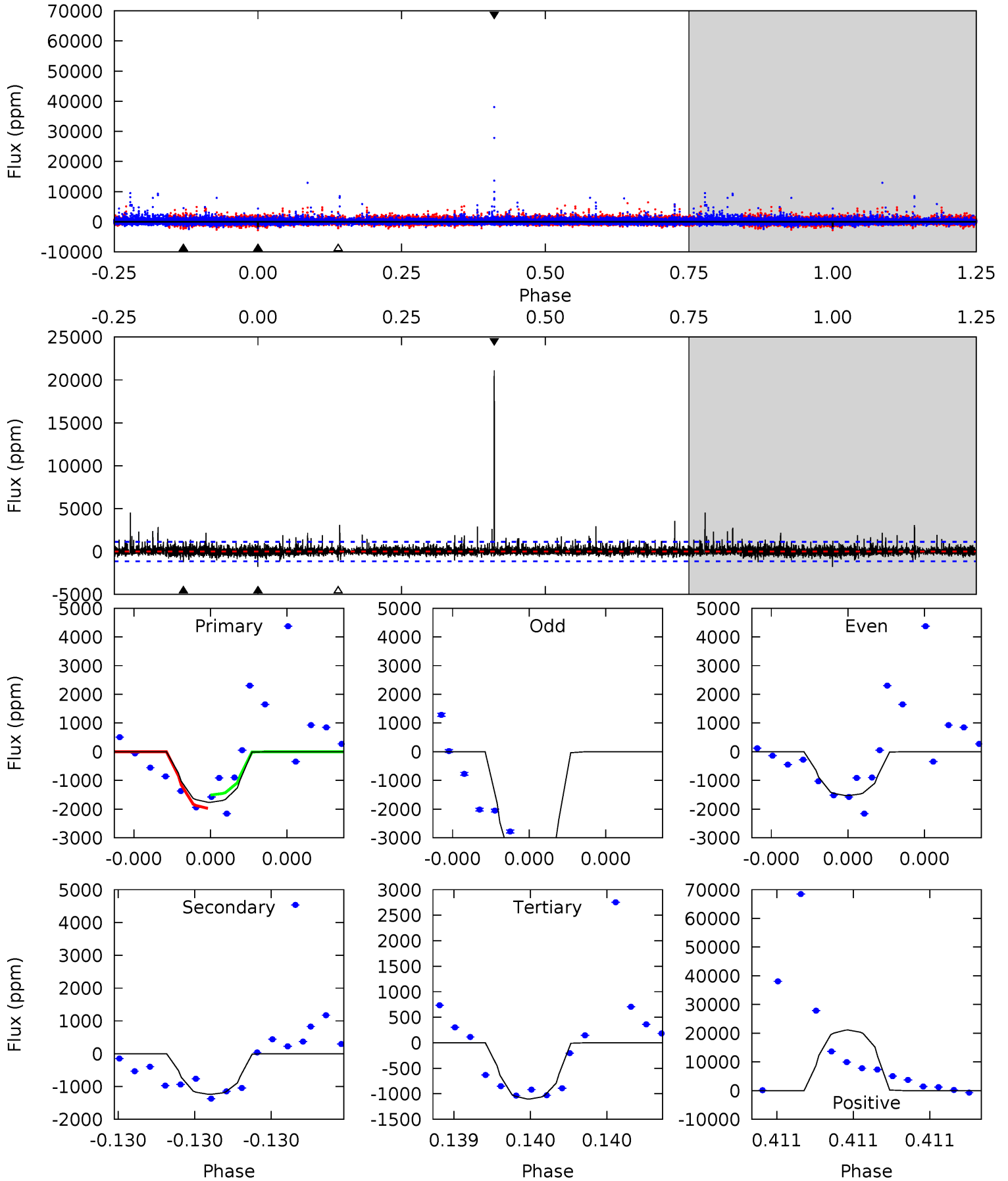
TCE 011232205-02 P=501.112625 Days  $T_0=209.768717$  (BKJD)



# DV Model-Shift Uniqueness Test

011232205-02, P = 501.114326 Days, E = 209.774135 Days

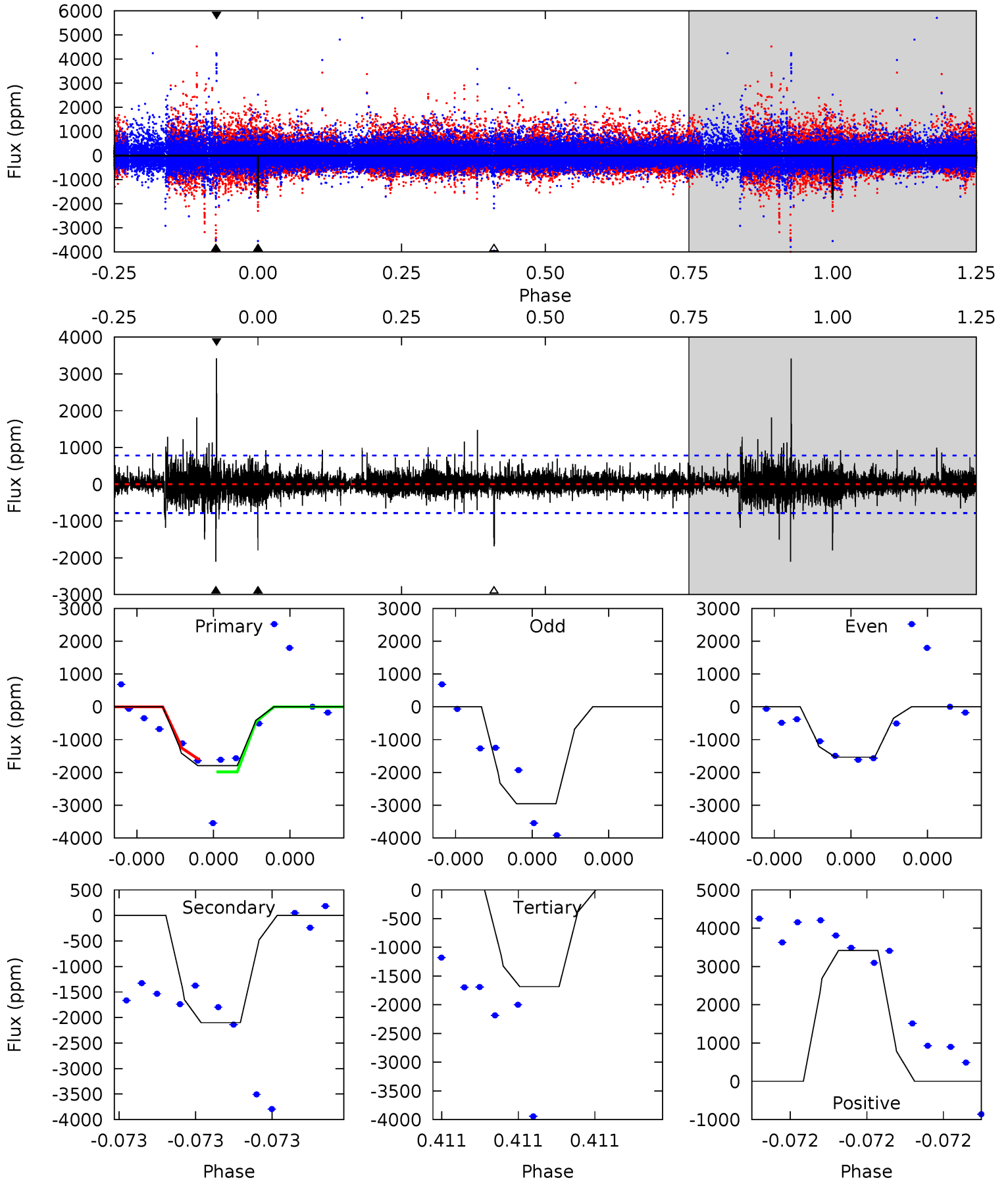
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.91	6.26	5.57	106.6	5.72	3.70	2.04	3.34	-97.7	0.69	-100.4	2.25	1.27	0.92	1.19



# Alt Model-Shift Uniqueness Test

011232205-02, P = 501.112625 Days, E = 209.768717 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
13.2	15.4	12.4	25.2	5.76	3.76	1.42	0.82	-12.0	3.06	-9.71	3.74	1.00	0.62	1.46





### Stellar Parameters For KIC 011232205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5367^{+159}_{-143}$	$3.973^{+0.588}_{-0.252}$	$-0.220^{+0.350}_{-0.250}$	$1.596^{+0.686}_{-0.838}$	$0.873^{+0.086}_{-0.115}$	$0.302^{+2.236}_{-0.181}$
	+3%/-3%	+15%/-6%	+159%/-114%	+43%/-53%	+10%/-13%	+739%/-60%
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 011232205-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1239 \pm 198$	$10.36^{+10.85}_{-7.28}$	$378^{+44}_{-57}$	$4197^{+2932}_{-827}$	$9033^{+85877}_{-6961}$
Alt.	$-2101 \pm 136$	$9.73^{+9.75}_{-6.31}$	$377^{+46}_{-56}$	$4672^{+3417}_{-912}$	$16942^{+114019}_{-12854}$

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

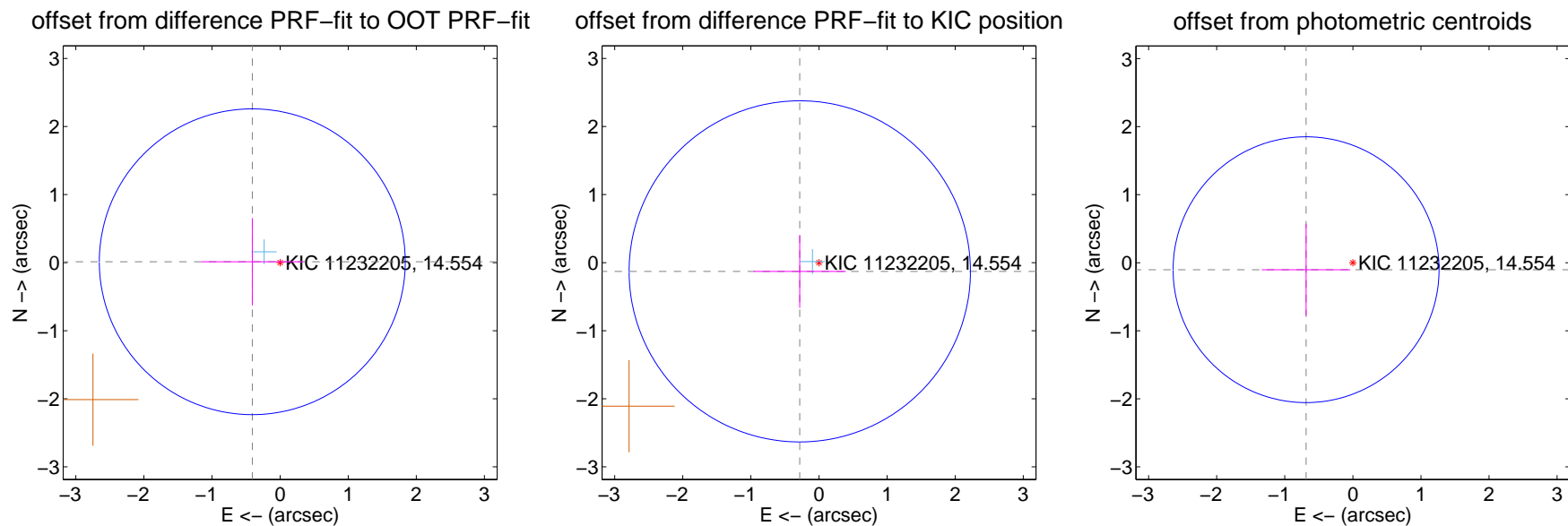
## DV Centroid Data

Supplemental centroid analysis for 011232205-02. Kepler magnitude: 14.55. Transit SNR 9.96

There are 1 quarters with good PRF difference image offsets

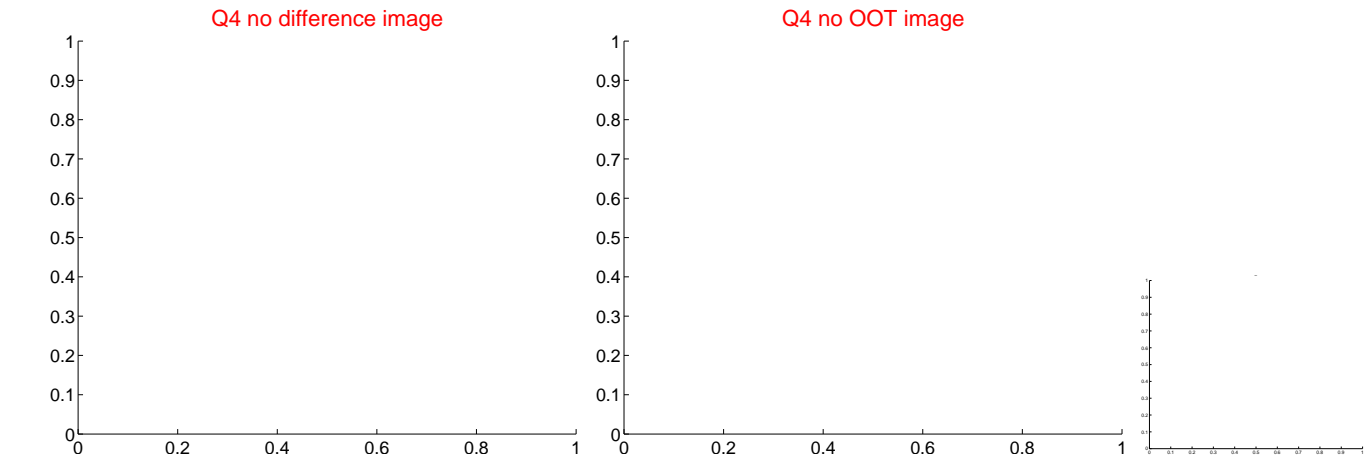
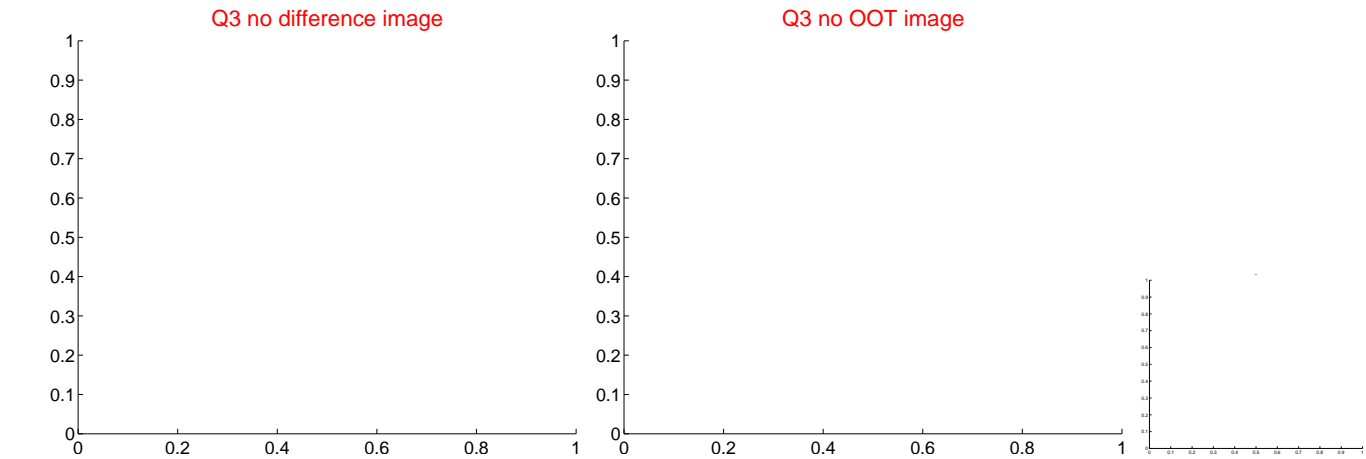
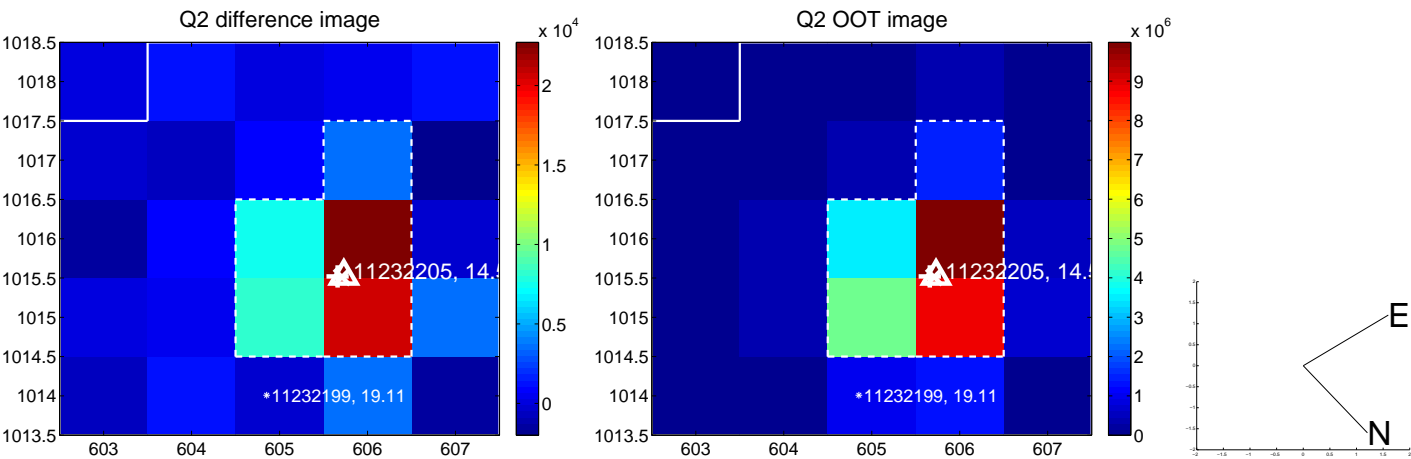
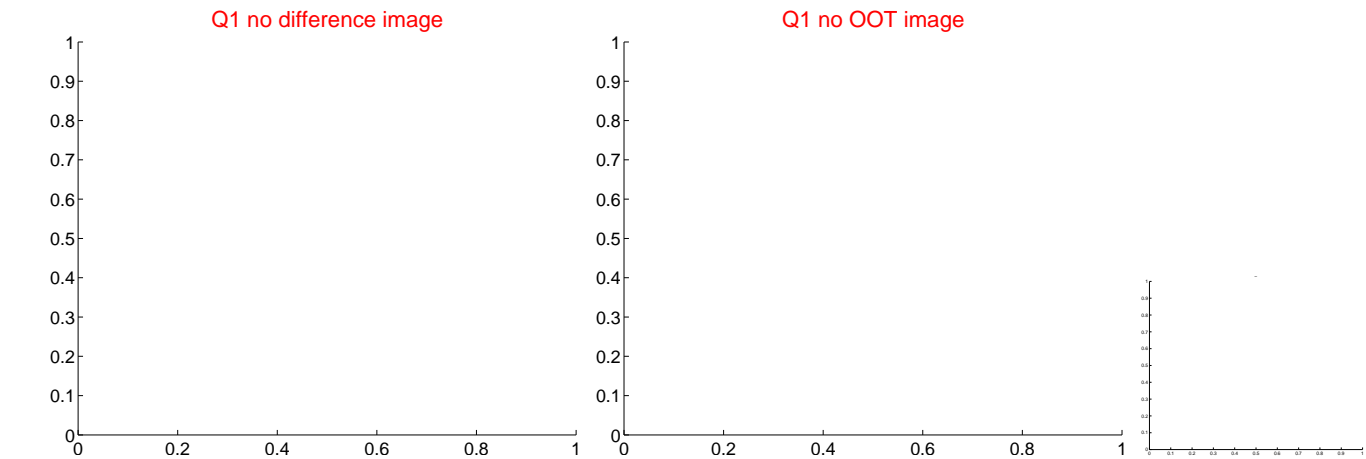
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.409 \pm 0.749$	0.55	$0.409 \pm 0.749$	$0.013 \pm 0.640$
PRF-fit source offset from KIC position	$0.310 \pm 0.835$	0.37	$0.282 \pm 0.677$	$-0.128 \pm 0.535$
photometric centroid source offset	$0.69 \pm 0.65$	1.07	$0.69 \pm 0.65$	$-0.10 \pm 0.67$



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.



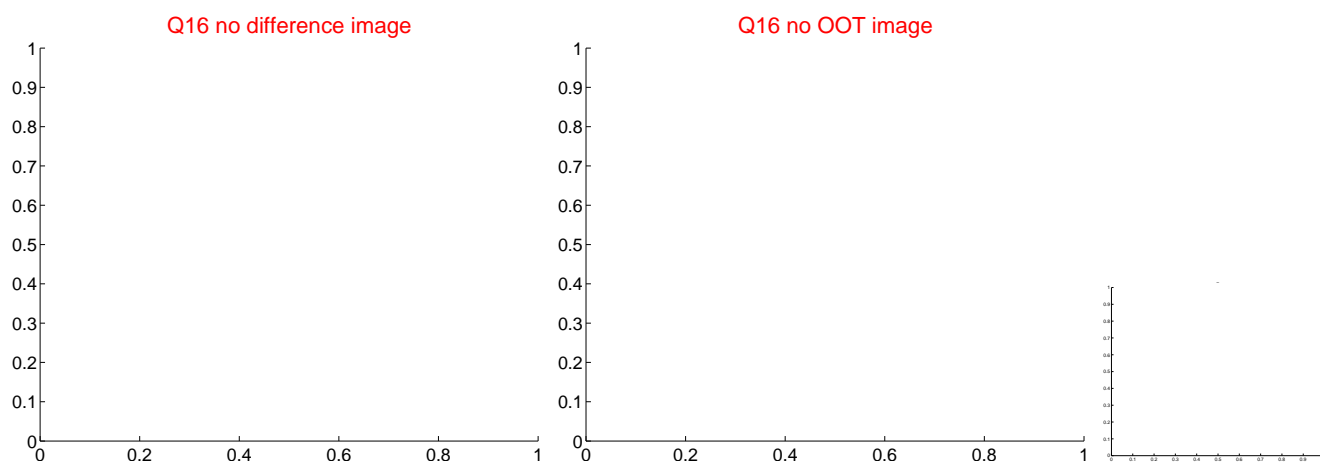
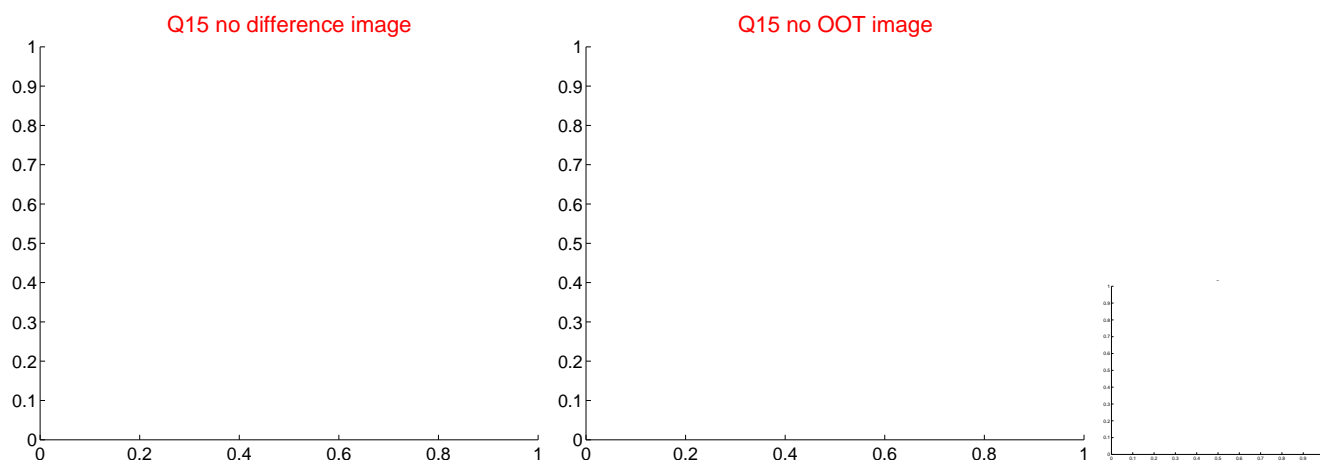
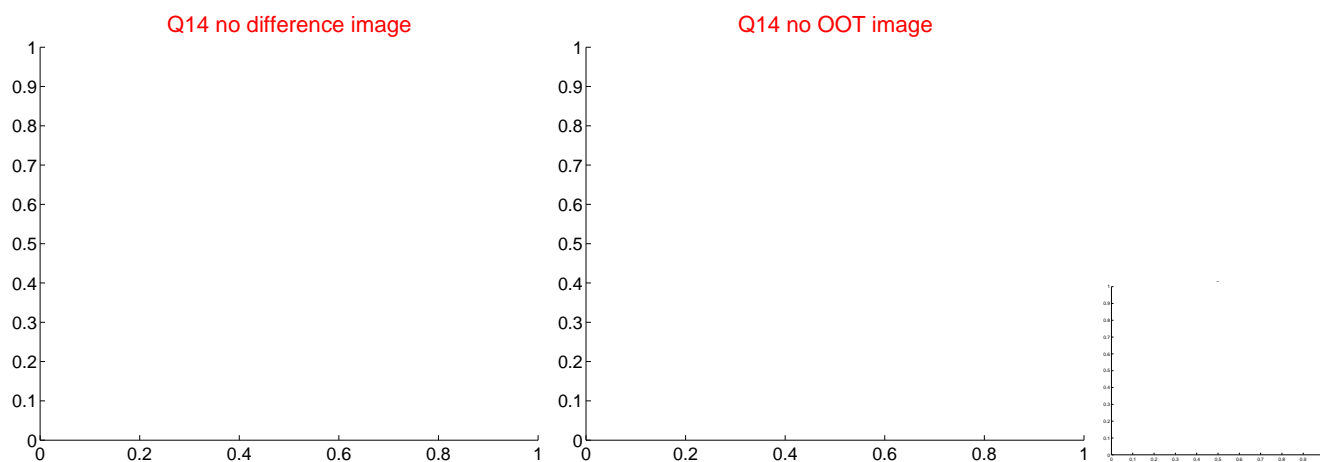
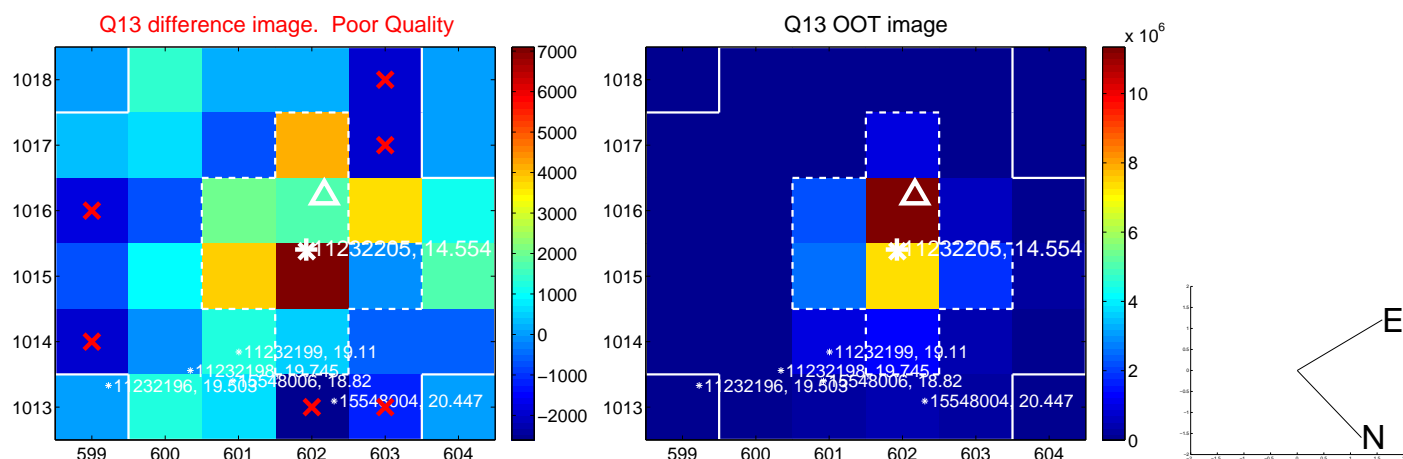
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



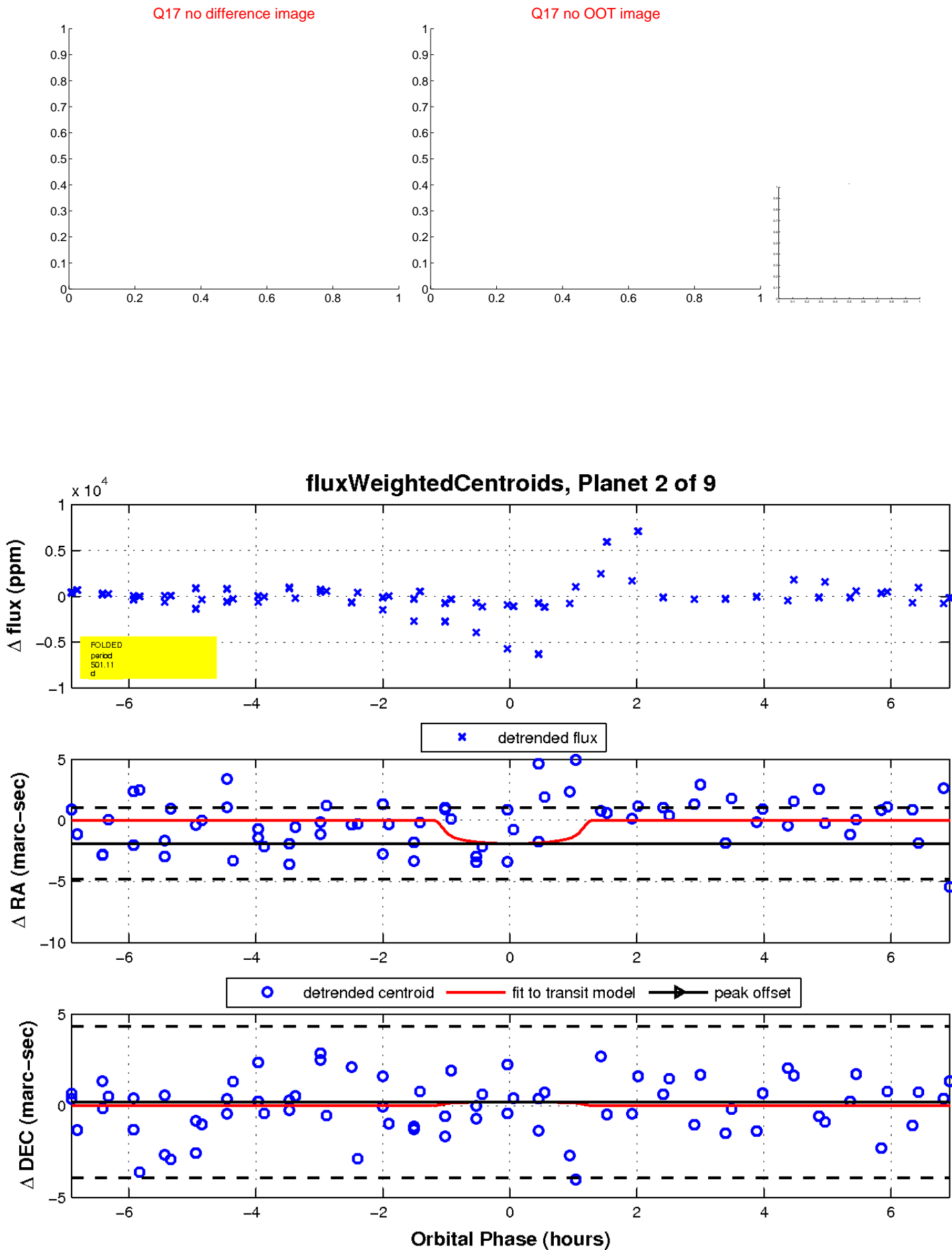
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

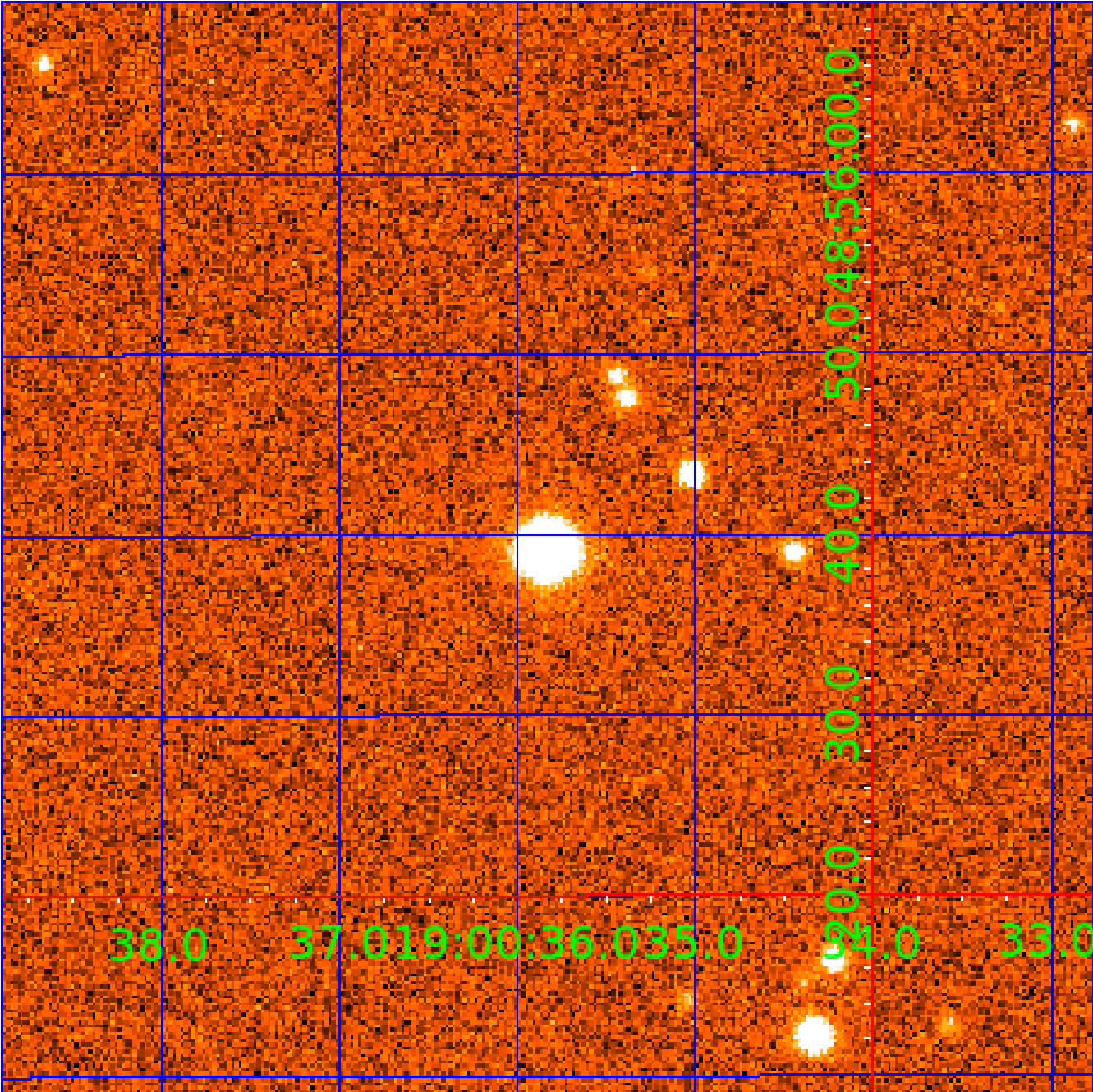


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





## KIC 011232205

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011232205-01	OBS	No	289.165284	203.581787	1255.7	5.011	13.6	6.7	1.60	5367	5.92	2.83
011232205-02	OBS	No	501.114326	209.774135	2344.5	2.413	14.8	10.0	1.60	5367	8.16	1.36
011232205-03	OBS	No	268.054251	304.808016	670.8	10.500	12.2	-1.0	1.60	5367	4.06	3.13
011232205-04	OBS	No	365.053489	160.457445	1585.2	5.011	15.2	8.1	1.60	5367	6.24	2.07
011232205-05	OBS	No	425.742358	516.052223	1476.6	5.342	12.7	7.5	1.60	5367	6.70	1.69
011232205-06	OBS	No	391.007218	266.147874	830.6	9.160	14.4	4.6	1.60	5367	4.82	1.89
011232205-07	OBS	No	355.583516	172.560446	1144.2	2.845	12.5	6.7	1.60	5367	5.52	2.15
011232205-08	OBS	No	377.795857	471.462579	1947.1	25.432	11.5	6.6	1.60	5367	6.94	1.98
011232205-09	OBS	No	502.750358	190.429716	1414.1	3.497	11.0	7.0	1.60	5367	6.26	1.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011232205-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011232205-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011232205-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS
011232205-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-08	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011232205-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

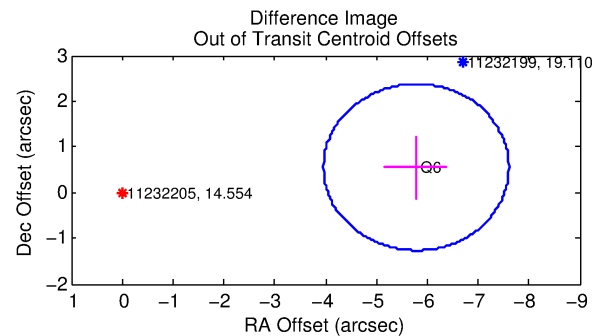
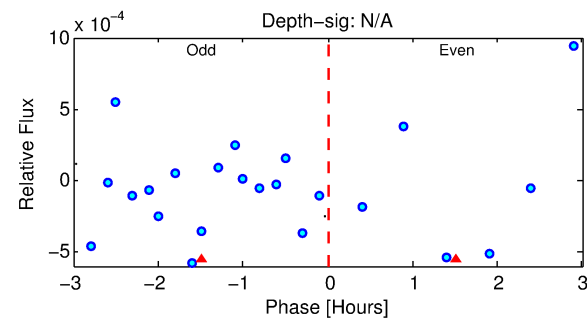
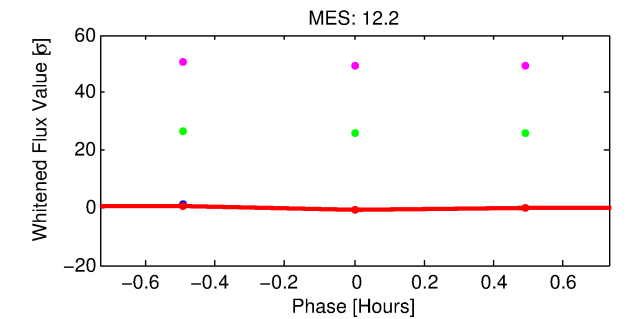
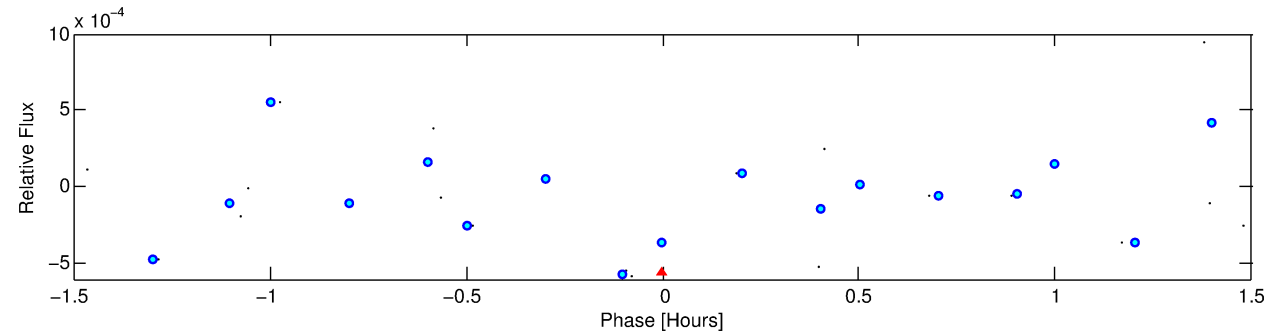
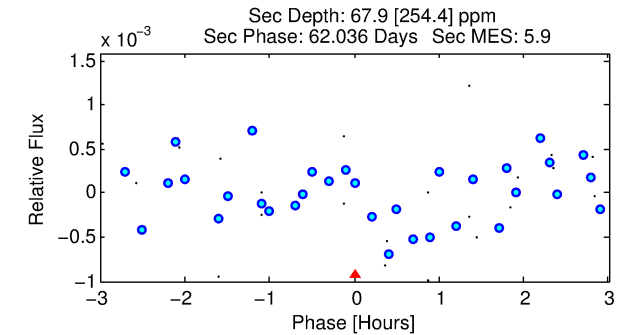
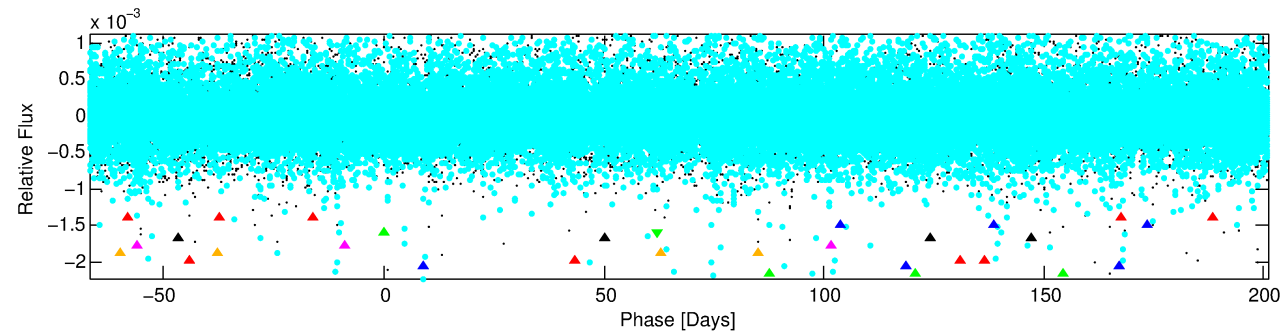
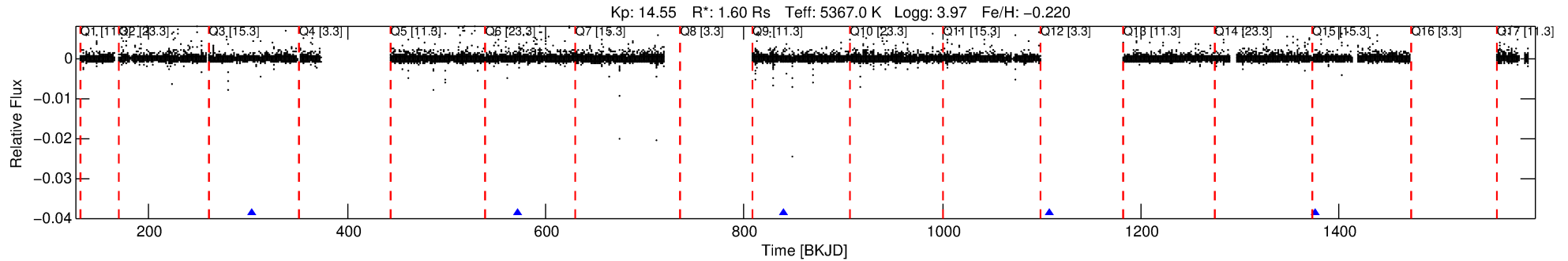
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011232205-03

No Significant Match Found

# DV One-Page Summary

KIC: 11232205 Candidate: 3 of 9 Period: 268.054 d



## TPS TCE Results:

Period = 268.05425 d  
Epoch = 304.8080 BKJD

DV fit results are unavailable

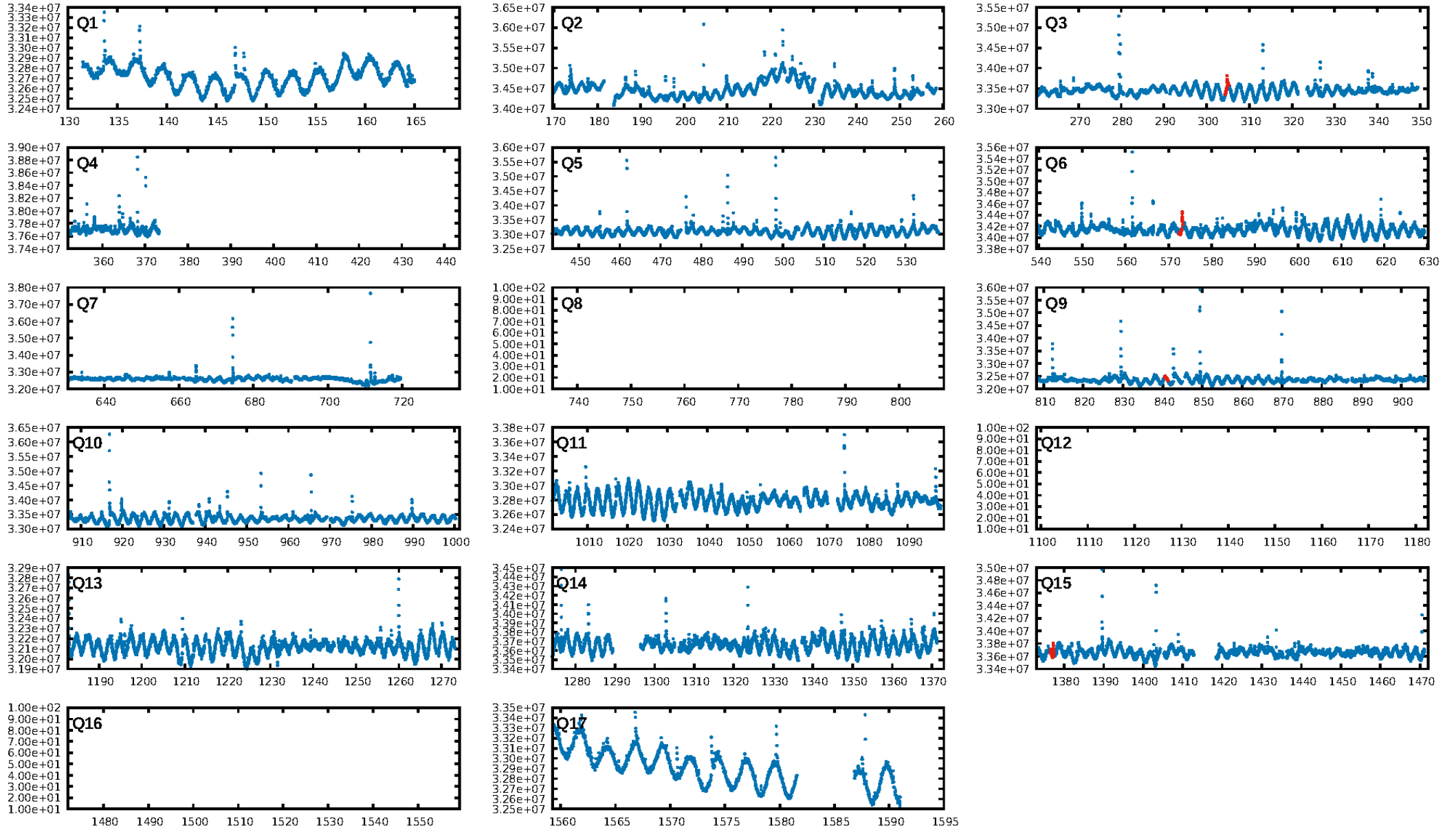
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [43.55σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.05e-11  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -10.61  
Centroid-sig: 11.4%  
Centroid-so: 10.842 arcsec [1.64σ]  
OotOffset-rm: 5.808 arcsec [9.56σ]  
KicOffset-rm: 5.881 arcsec [9.69σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [3/3]

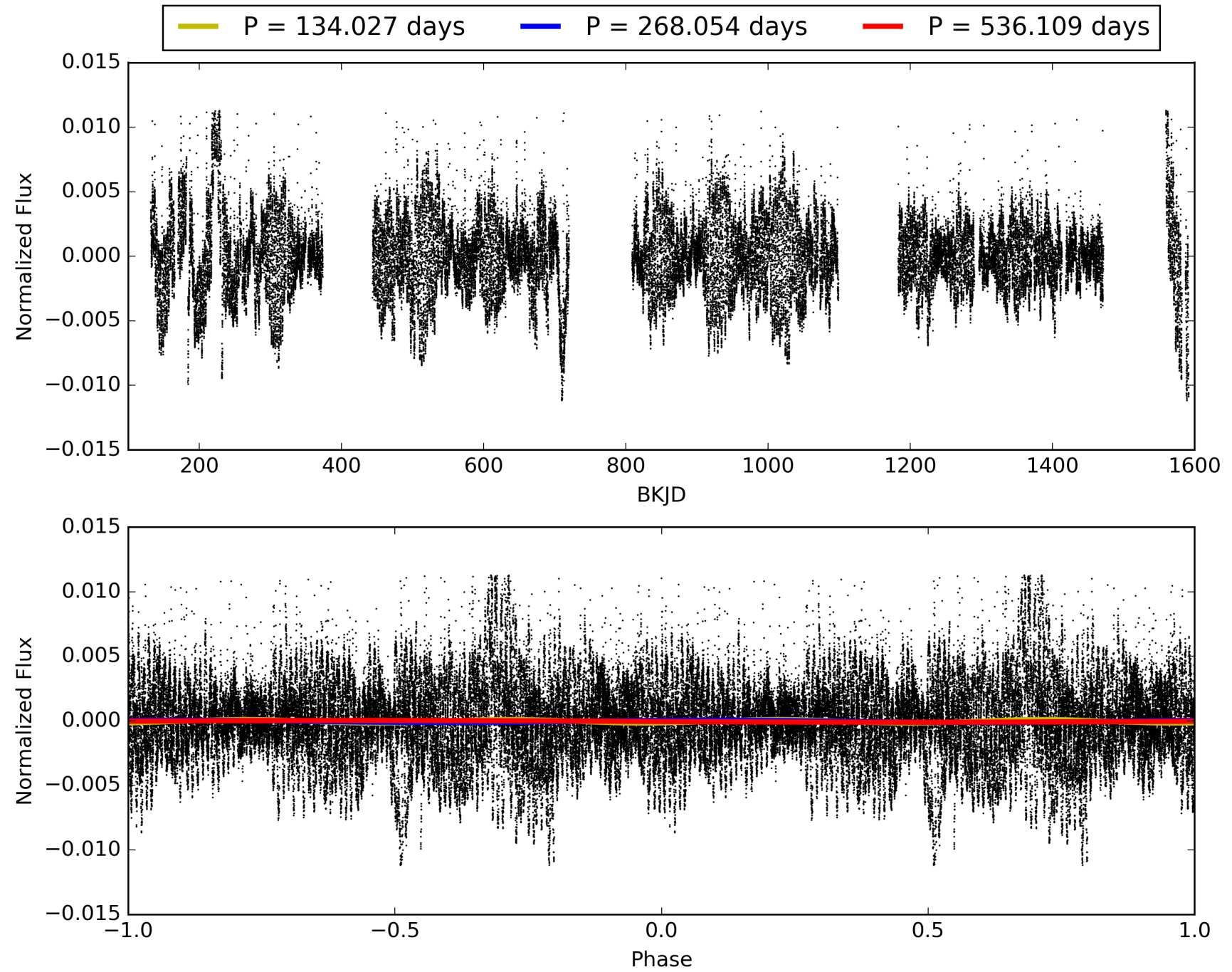
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:57:48 Z

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

# TCE 011232205-03, PDC Light Curves

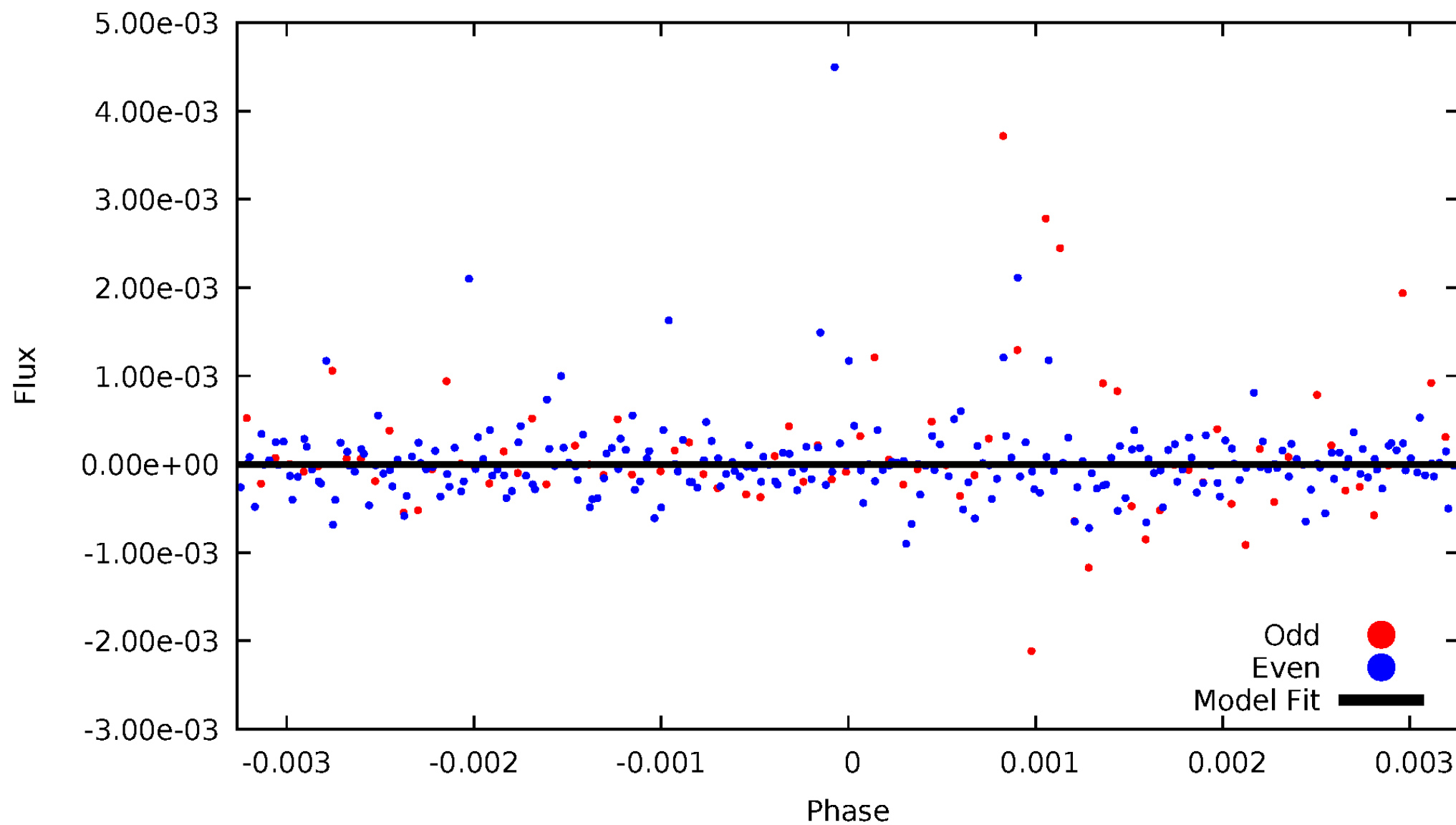


# TCE 011232205-03



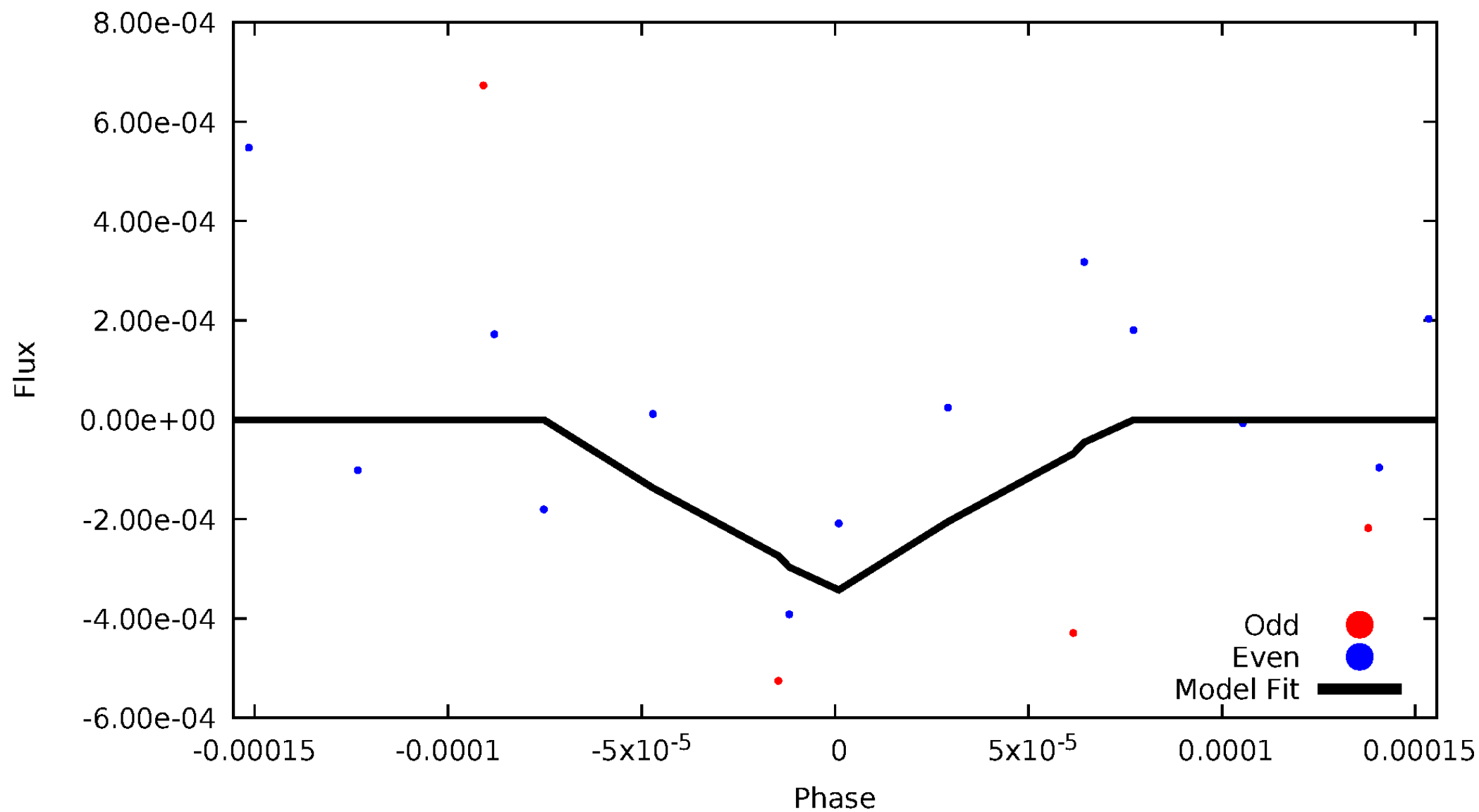
# DV Odd/Even

TCE 011232205-03

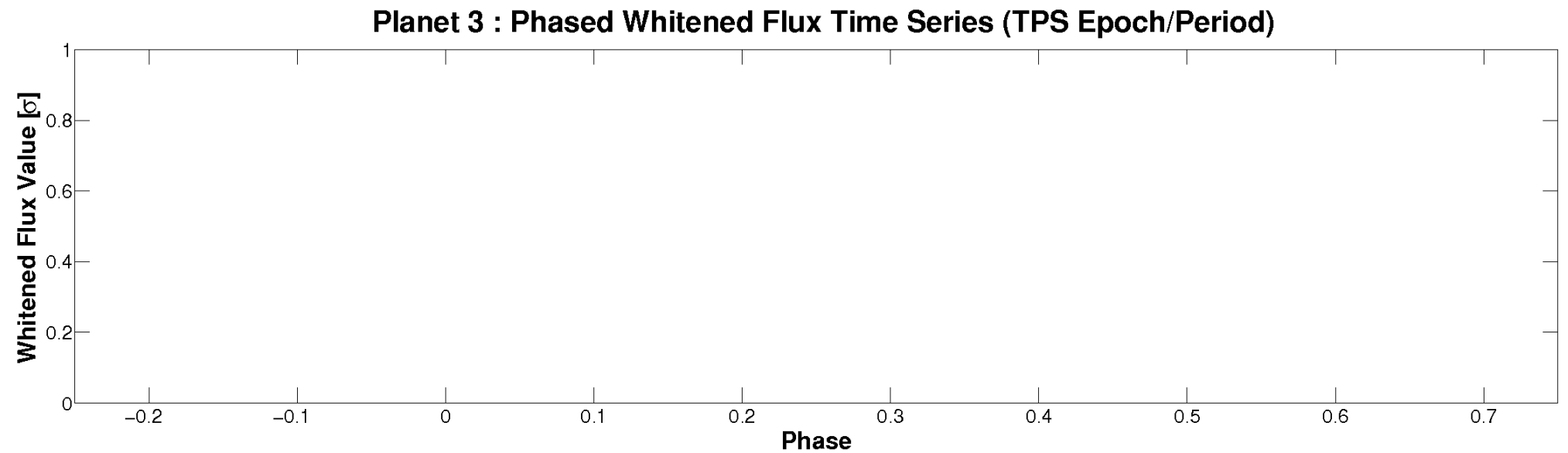
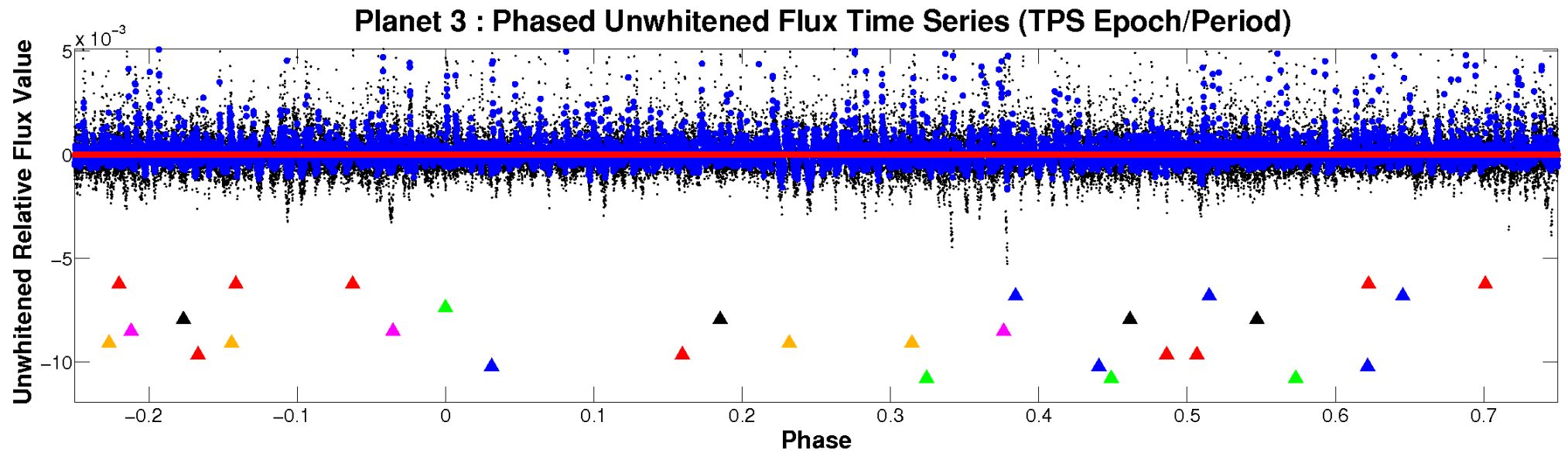


# ALT Odd/Even

TCE 011232205-03

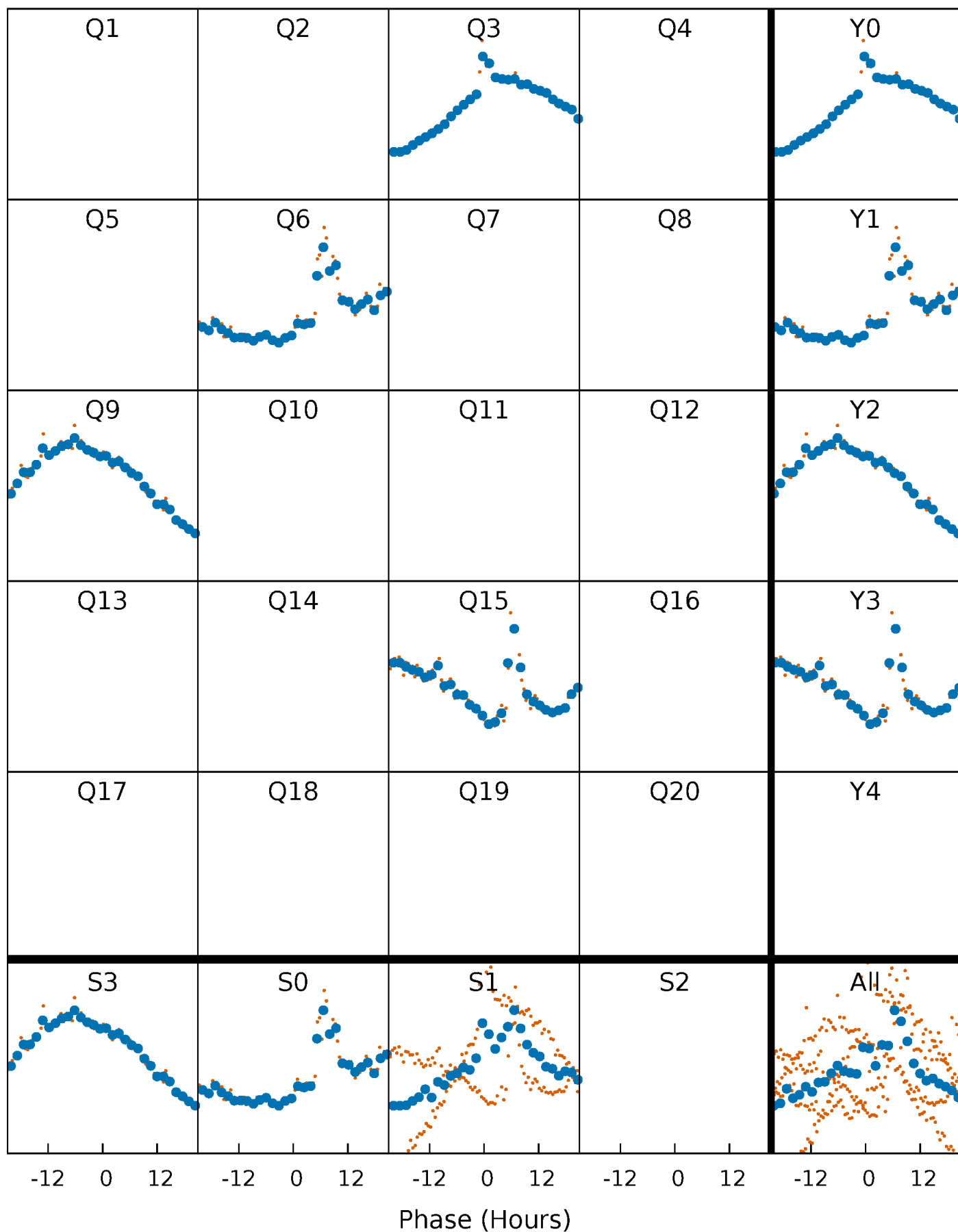


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

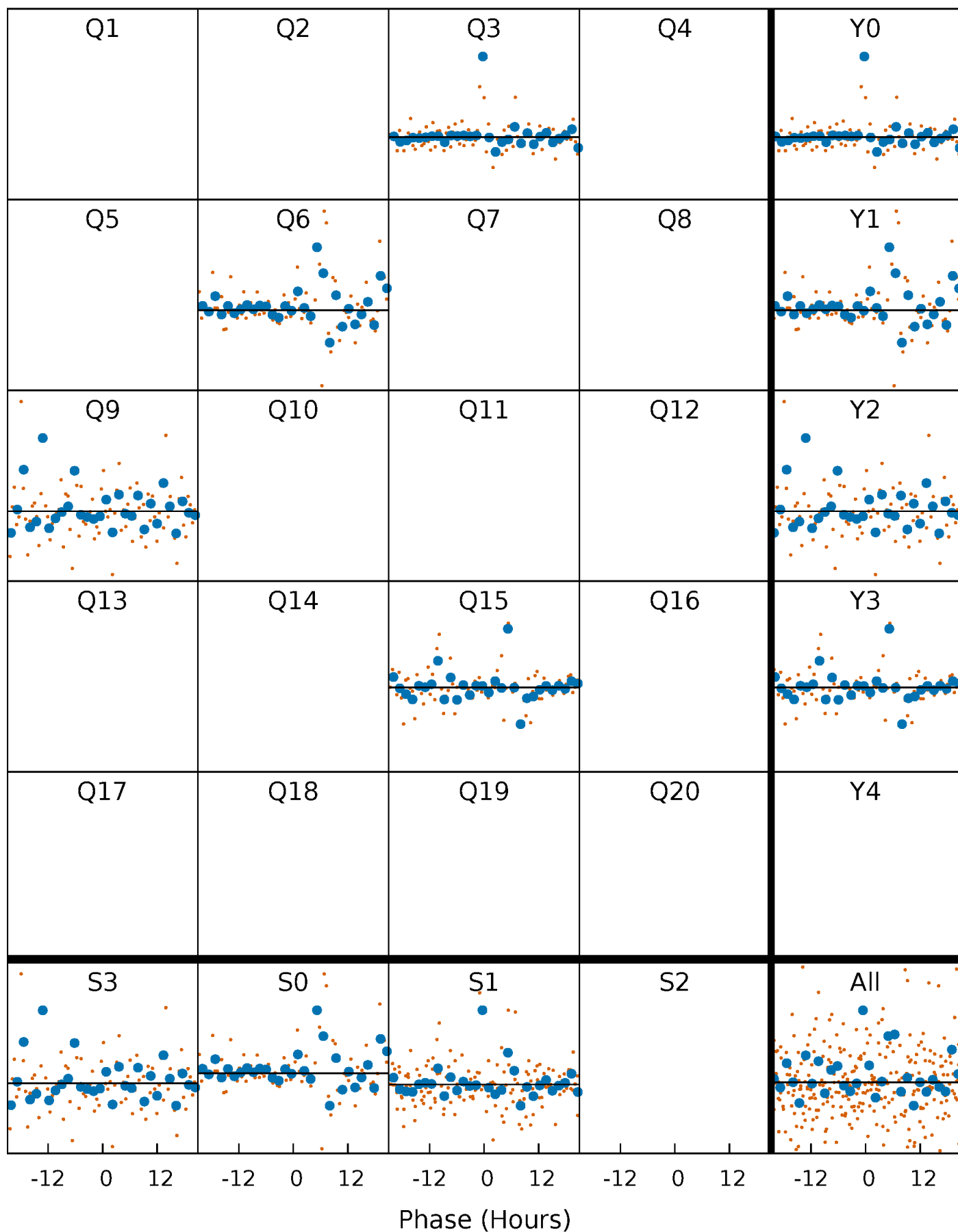
TCE 011232205-03 P=268.054251 Days  $T_0=304.808016$  (BKJD)





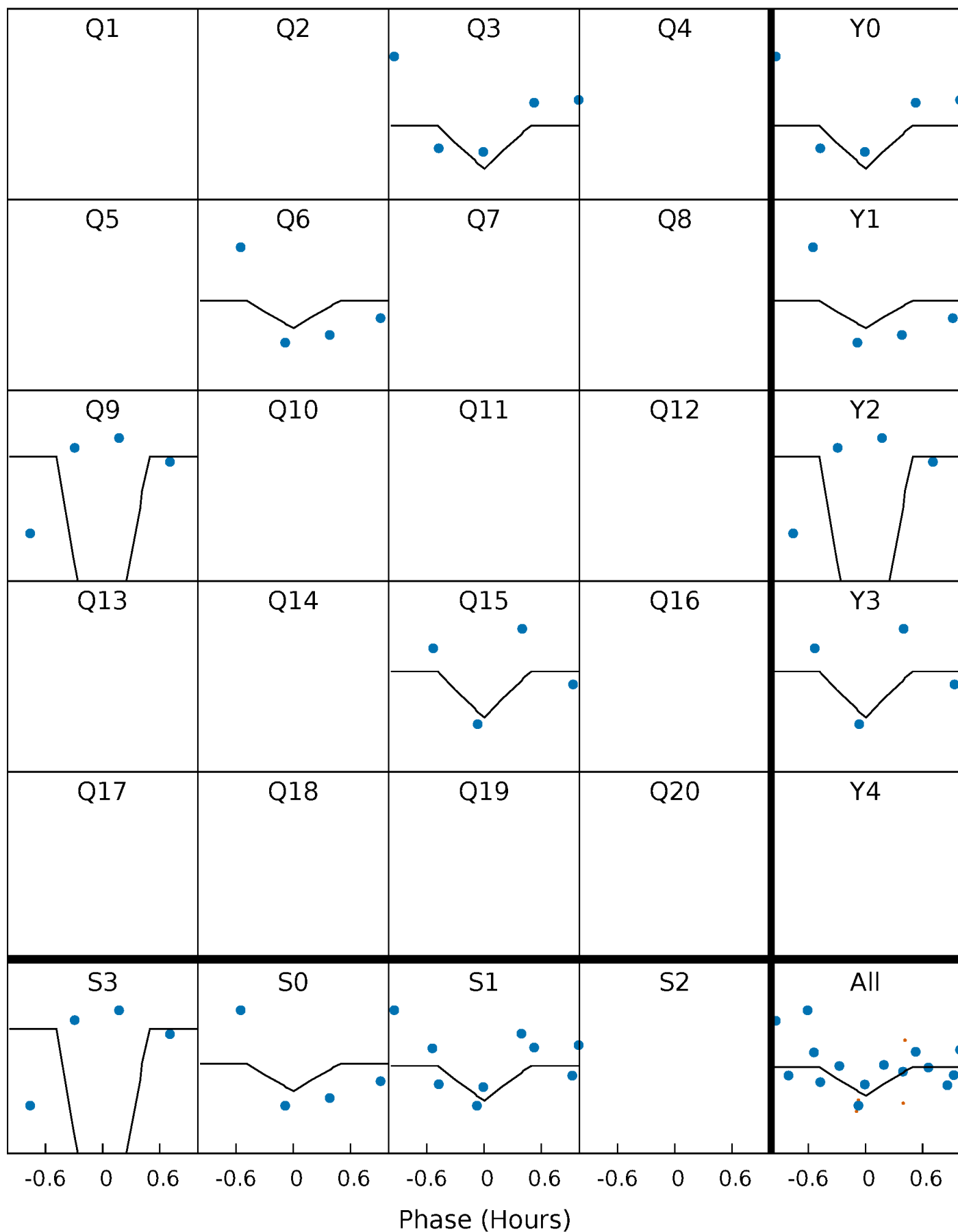
# DV Quarter-Phased Transit Curves

TCE 011232205-03     $P=268.054251$  Days     $T_0=304.808016$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

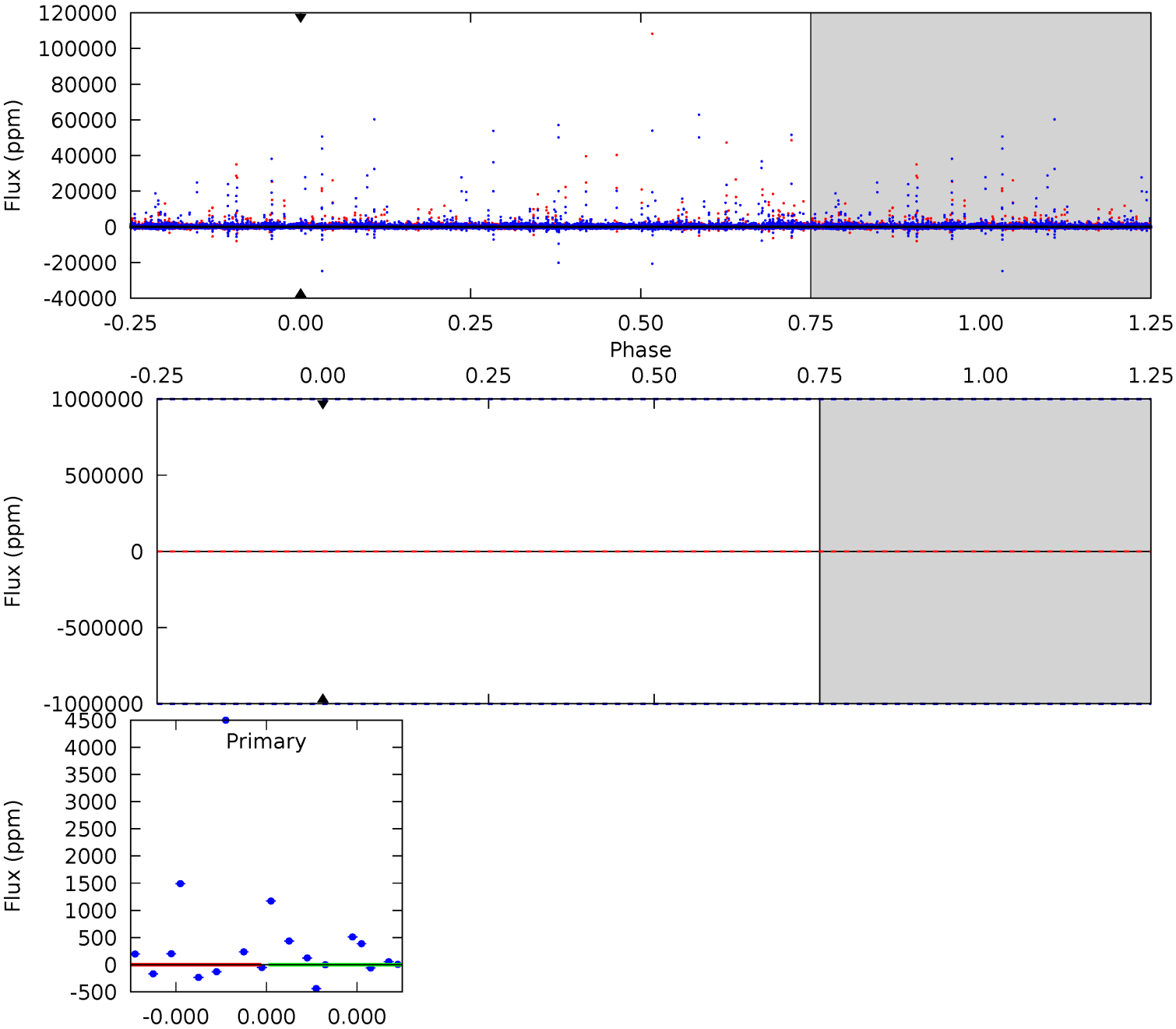
TCE 011232205-03 P=268.054251 Days  $T_0=304.175271$  (BKJD)



# DV Model-Shift Uniqueness Test

011232205-03, P = 268.054251 Days, E = 36.753765 Days

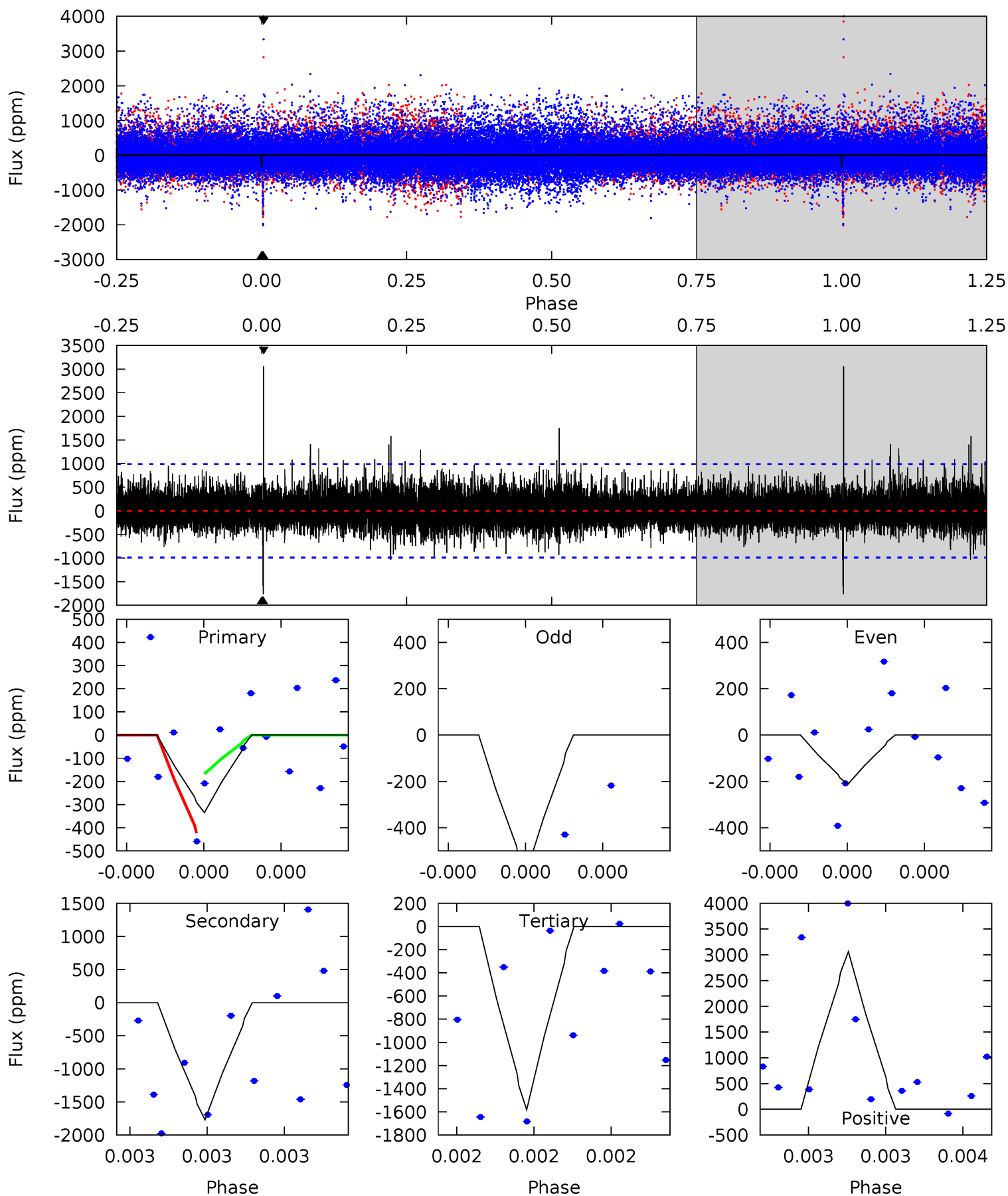
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

011232205-03, P = 268.054251 Days, E = 36.121020 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.96	10.4	9.28	18.0	5.81	3.84	1.45	-7.32	-16.0	1.09	-7.59	1.00	0.94	0.63	0.73



### Stellar Parameters For KIC 011232205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5367^{+159}_{-143}$	$3.973^{+0.588}_{-0.252}$	$-0.220^{+0.350}_{-0.250}$	$1.596^{+0.686}_{-0.838}$	$0.873^{+0.086}_{-0.115}$	$0.302^{+2.236}_{-0.181}$
	+3%/-3%	+15%/-6%	+159%/-114%	+43%/-53%	+10%/-13%	+739%/-60%
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 011232205-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$11.65^{+13.93}_{-7.81}$	$466^{+56}_{-72}$	$1981^{+16109}_{-17317}$	$13^{+489223}_{-338095}$
Alt.	$-1768 \pm 170$	$12.06^{+14.57}_{-8.14}$	$469^{+53}_{-74}$	$4210^{+2725}_{-875}$	$4094^{+34543}_{-3252}$

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

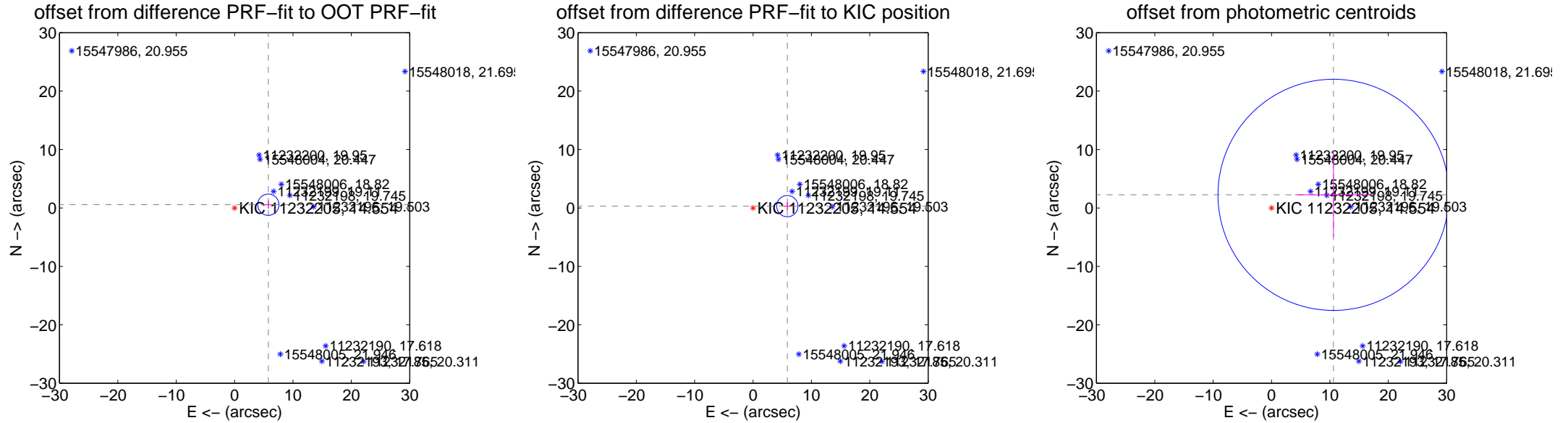
## DV Centroid Data

Supplemental centroid analysis for 011232205-03. Kepler magnitude: 14.55. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.808 \pm 0.607$	9.56	$-5.781 \pm 0.607$	$0.556 \pm 0.678$
PRF-fit source offset from KIC position	$5.881 \pm 0.607$	9.69	$-5.873 \pm 0.607$	$0.310 \pm 0.678$
photometric centroid source offset	$10.84 \pm 6.59$	1.64	$-10.61 \pm 6.57$	$2.25 \pm 7.18$



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

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

Q1 no difference image



Q1 no OOT image



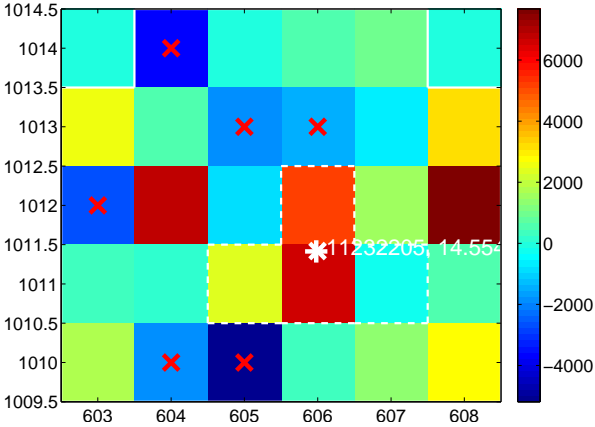
Q2 no difference image



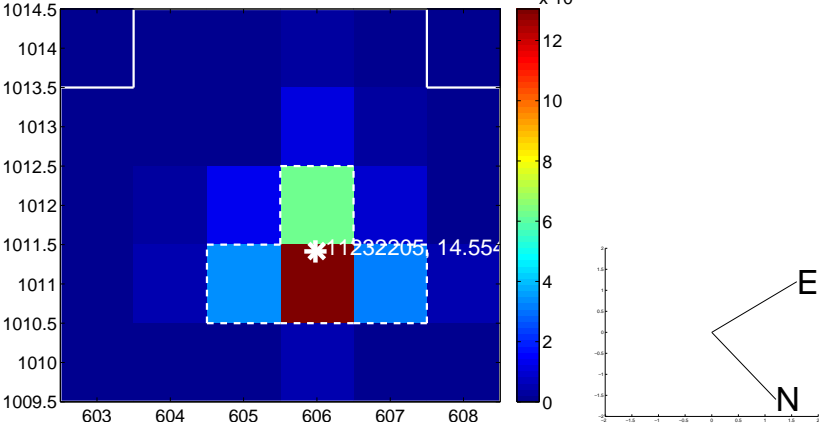
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

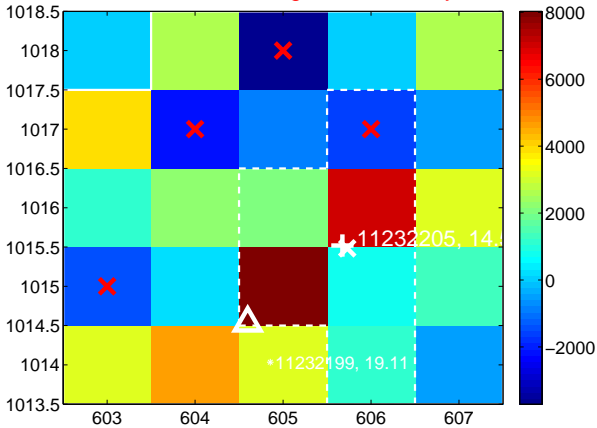
Q5 no difference image



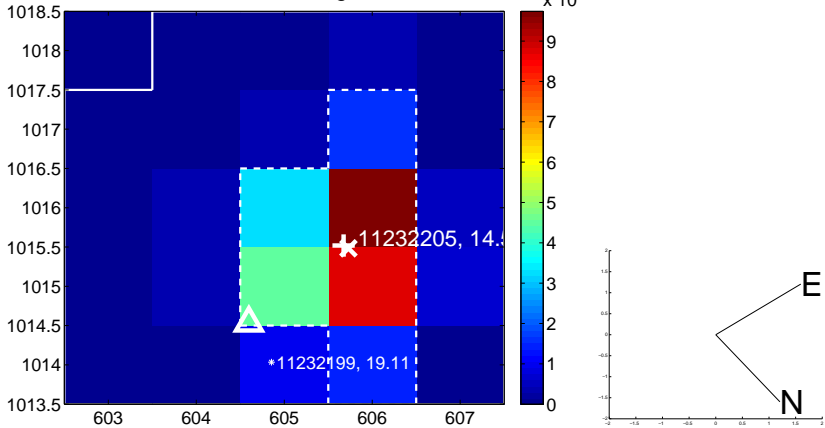
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



Q8 no difference image



Q8 no OOT image



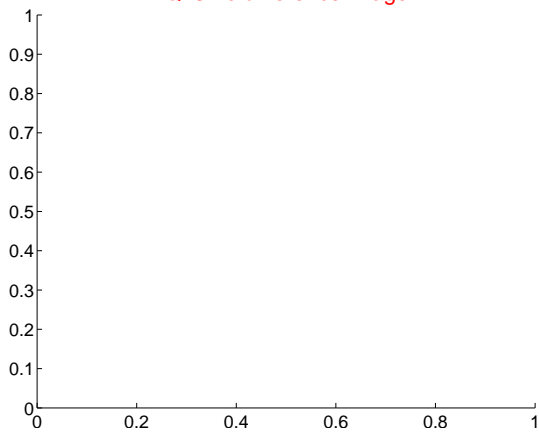


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

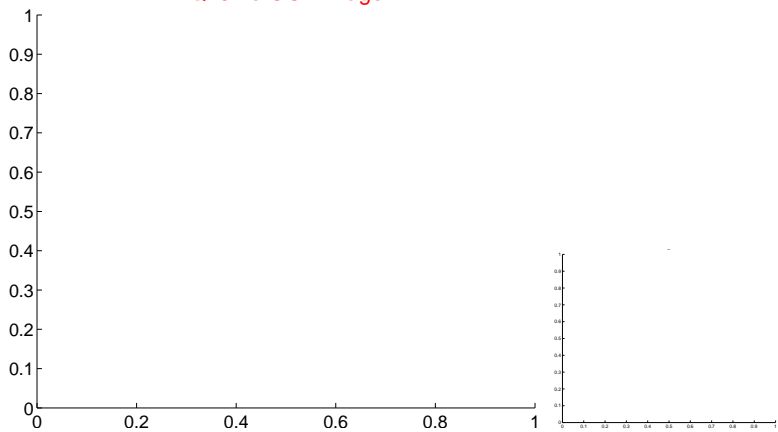


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

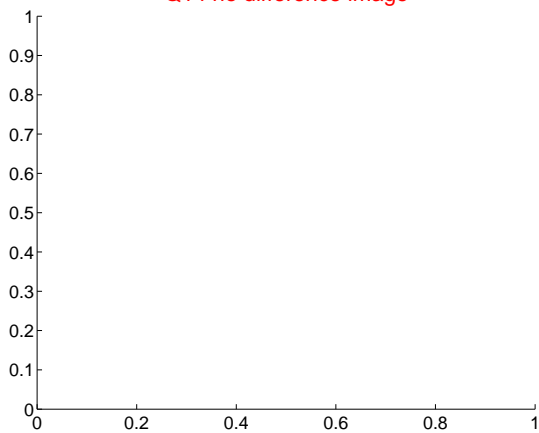
Q13 no difference image



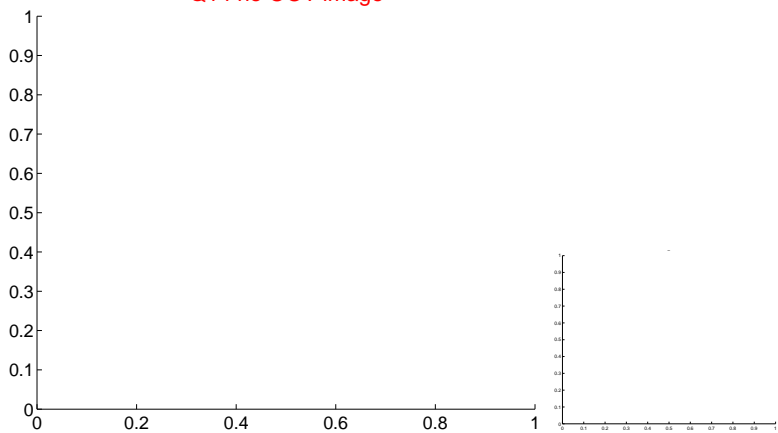
Q13 no OOT image



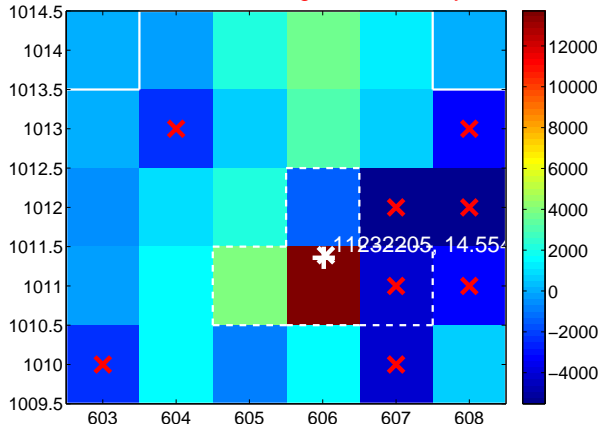
Q14 no difference image



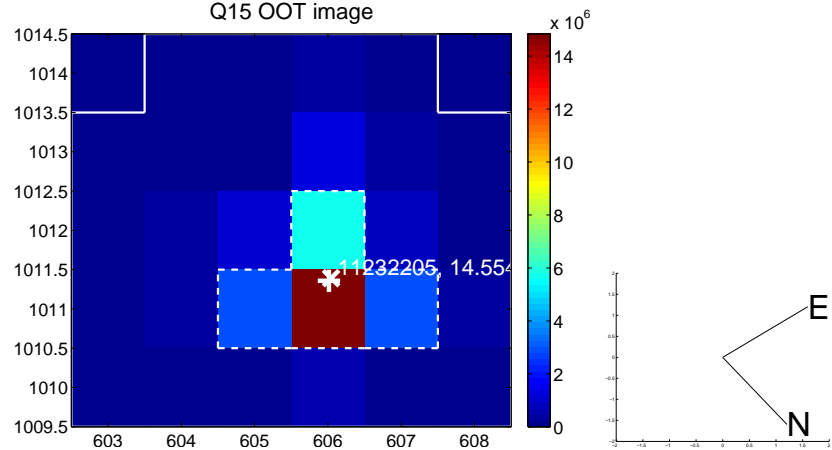
Q14 no OOT image



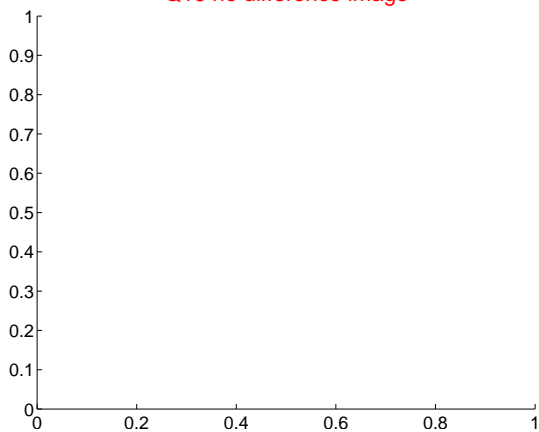
Q15 difference image. Poor Quality



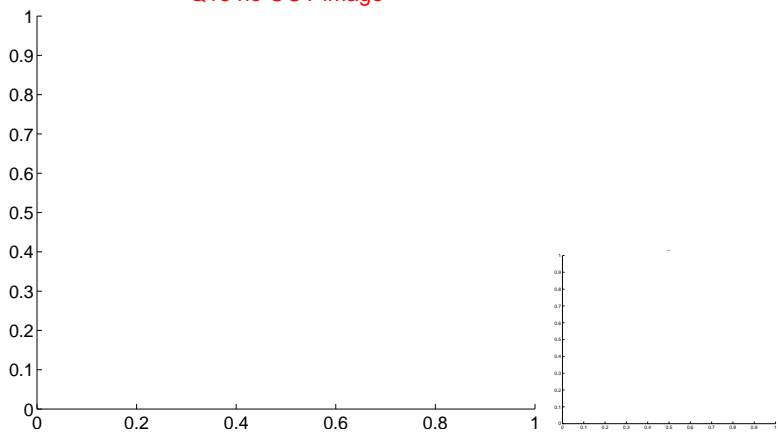
Q15 OOT image



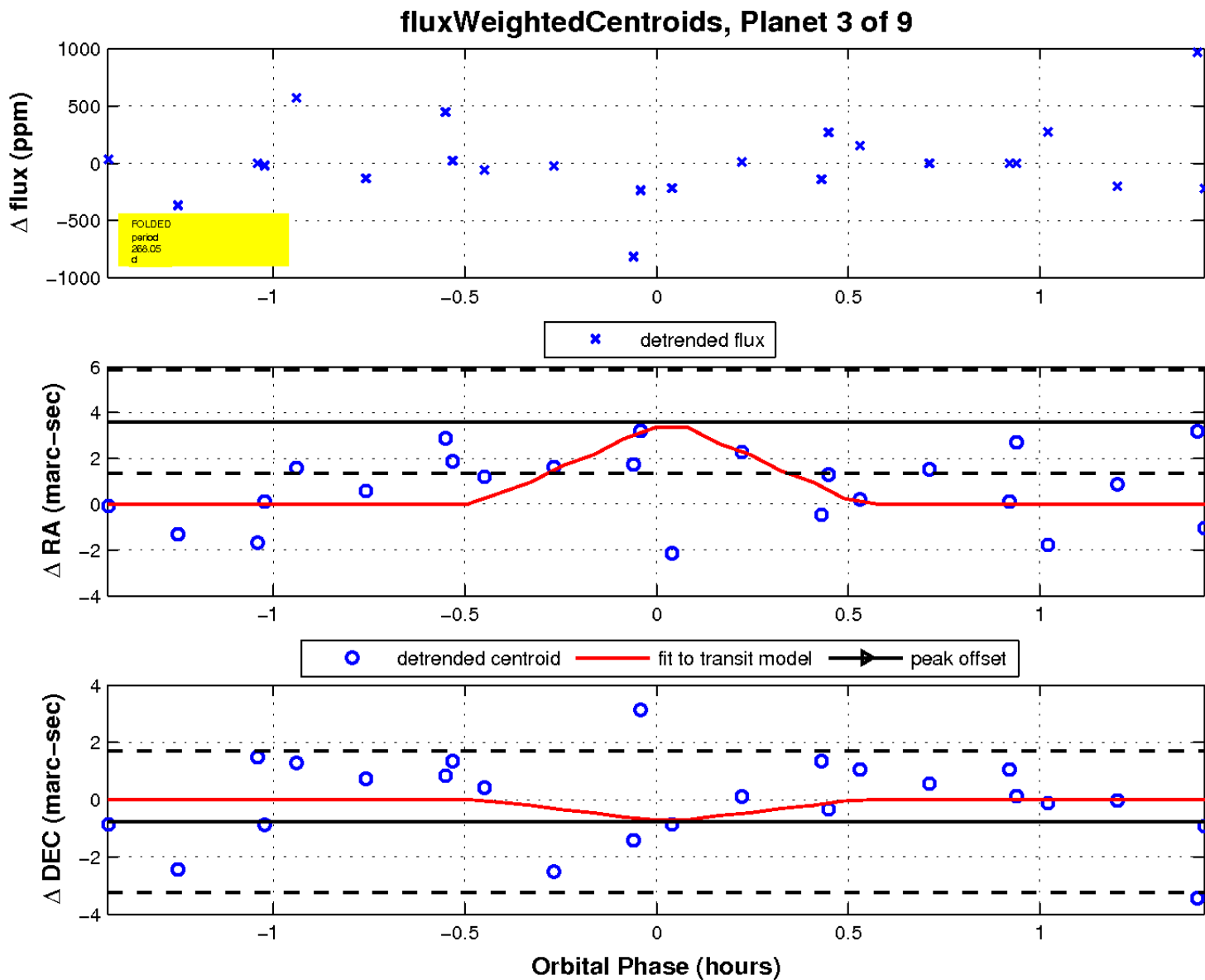
Q16 no difference image



Q16 no OOT image

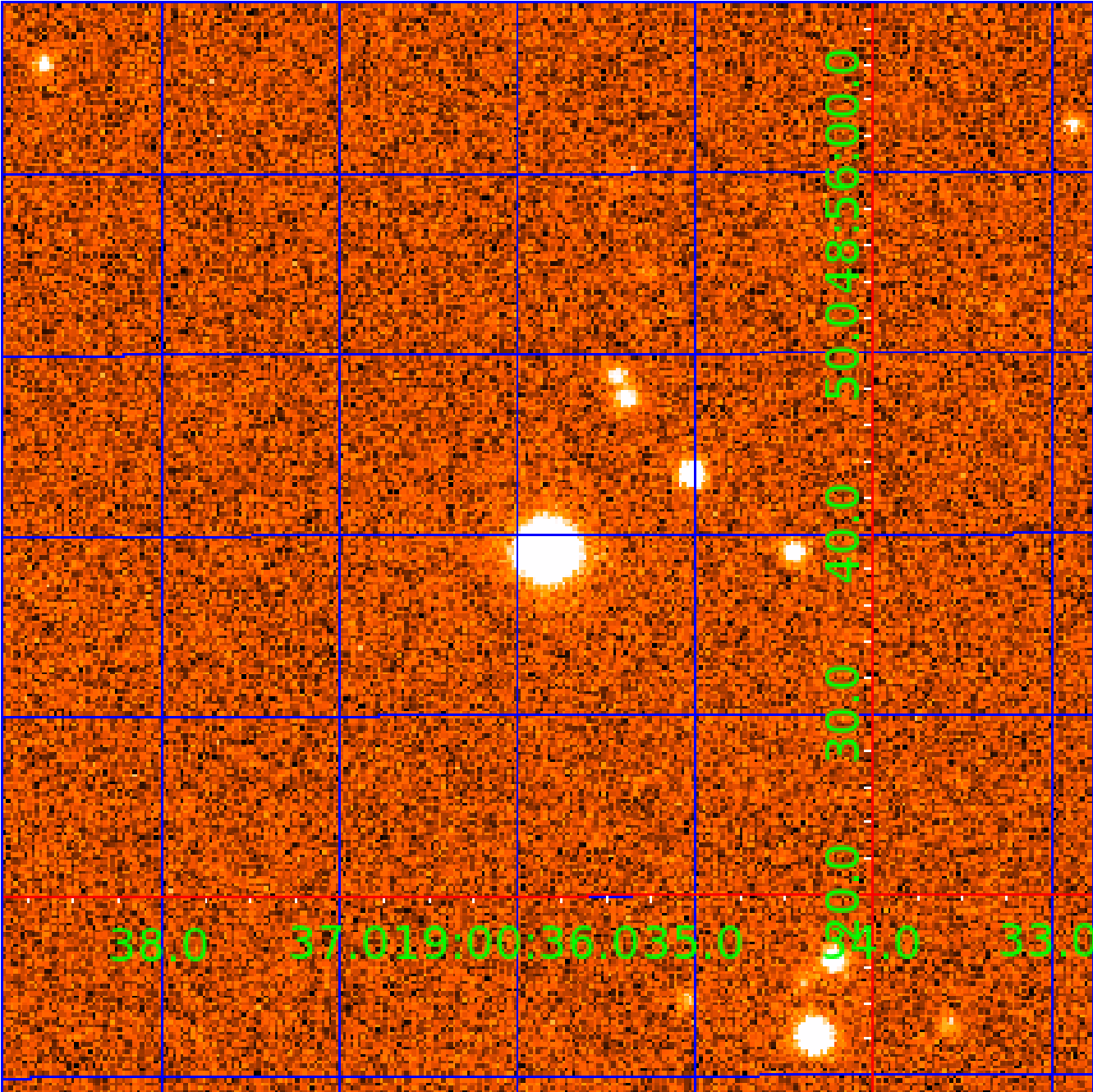


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## KIC 011232205

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011232205-01	OBS	No	289.165284	203.581787	1255.7	5.011	13.6	6.7	1.60	5367	5.92	2.83
011232205-02	OBS	No	501.114326	209.774135	2344.5	2.413	14.8	10.0	1.60	5367	8.16	1.36
011232205-03	OBS	No	268.054251	304.808016	670.8	10.500	12.2	-1.0	1.60	5367	4.06	3.13
011232205-04	OBS	No	365.053489	160.457445	1585.2	5.011	15.2	8.1	1.60	5367	6.24	2.07
011232205-05	OBS	No	425.742358	516.052223	1476.6	5.342	12.7	7.5	1.60	5367	6.70	1.69
011232205-06	OBS	No	391.007218	266.147874	830.6	9.160	14.4	4.6	1.60	5367	4.82	1.89
011232205-07	OBS	No	355.583516	172.560446	1144.2	2.845	12.5	6.7	1.60	5367	5.52	2.15
011232205-08	OBS	No	377.795857	471.462579	1947.1	25.432	11.5	6.6	1.60	5367	6.94	1.98
011232205-09	OBS	No	502.750358	190.429716	1414.1	3.497	11.0	7.0	1.60	5367	6.26	1.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011232205-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011232205-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011232205-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS
011232205-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-08	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011232205-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

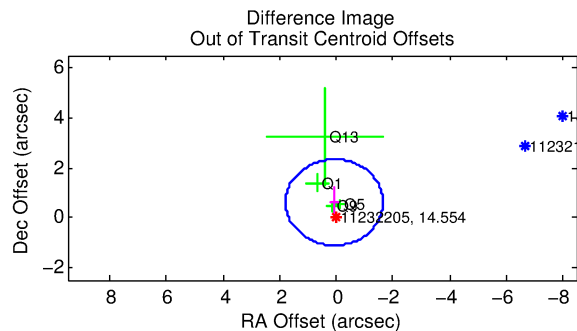
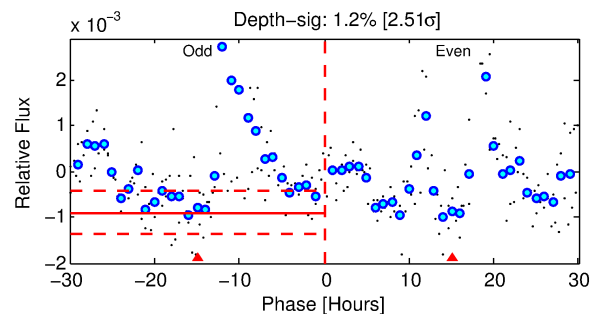
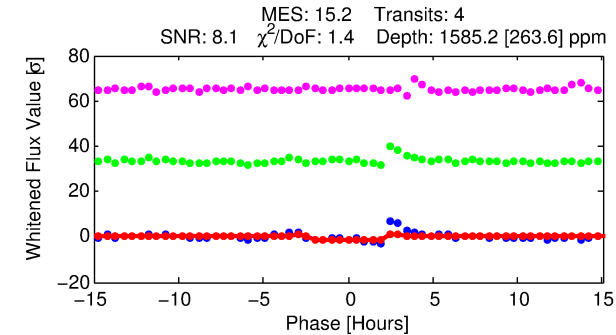
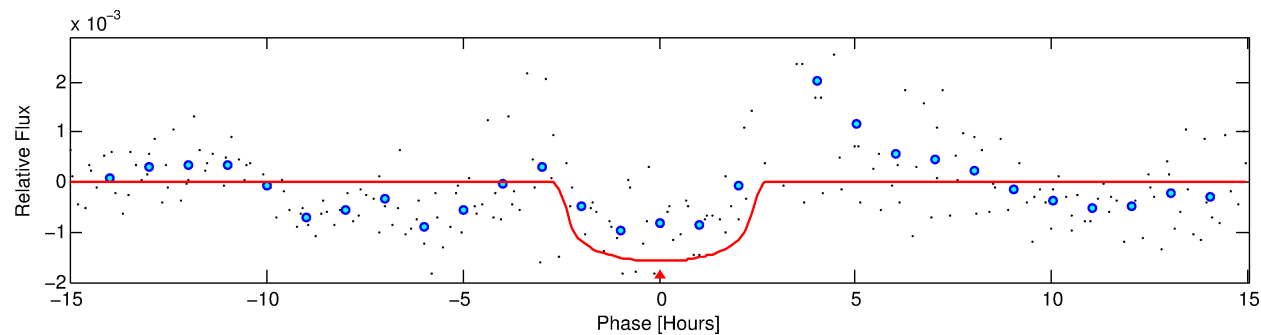
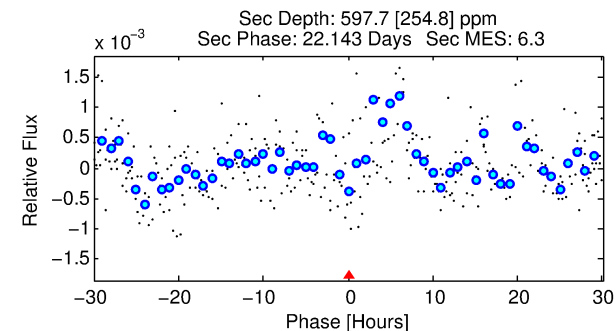
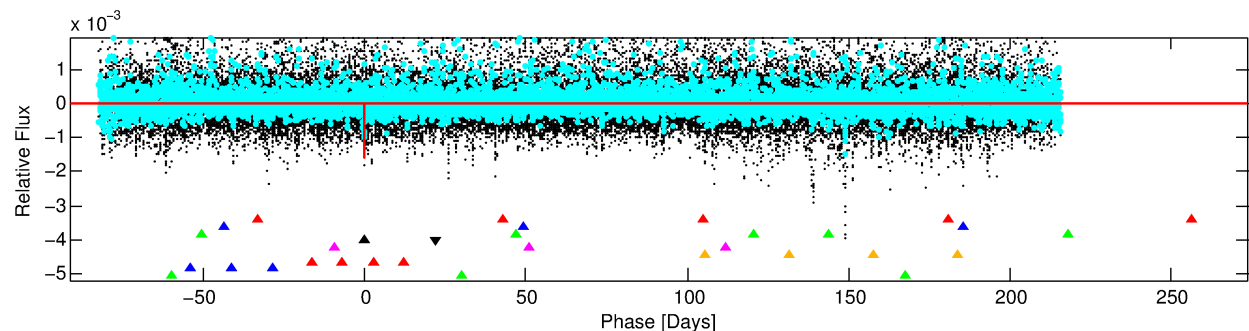
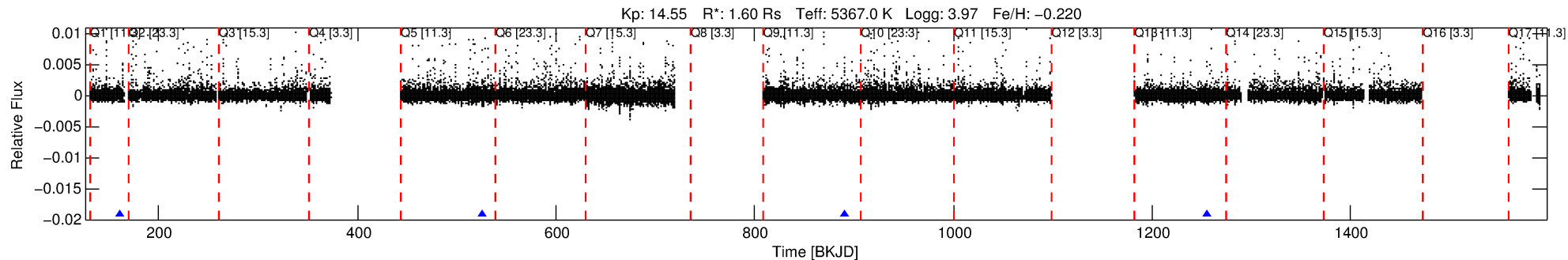
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011232205-04

No Significant Match Found

# DV One-Page Summary

KIC: 11232205 Candidate: 4 of 9 Period: 365.053 d



## DV Fit Results:

Period = 365.05349 [0.00330] d  
Epoch = 160.4574 [0.0062] BKJD  
Rp/R\* = 0.0358 [0.0388]  
a/R\* = 576.02 [2464.45]  
b = 0.04 [98.77]  
Seff = 2.07 [2.02]  
Teq = 306 [75] K  
Rp = 6.24 [7.52] Re  
a = 0.9556 [0.5458] AU  
Ag = 7716.50 [18619.05] [0.41σ]  
Teff = 4434 [2453] K [1.68σ]

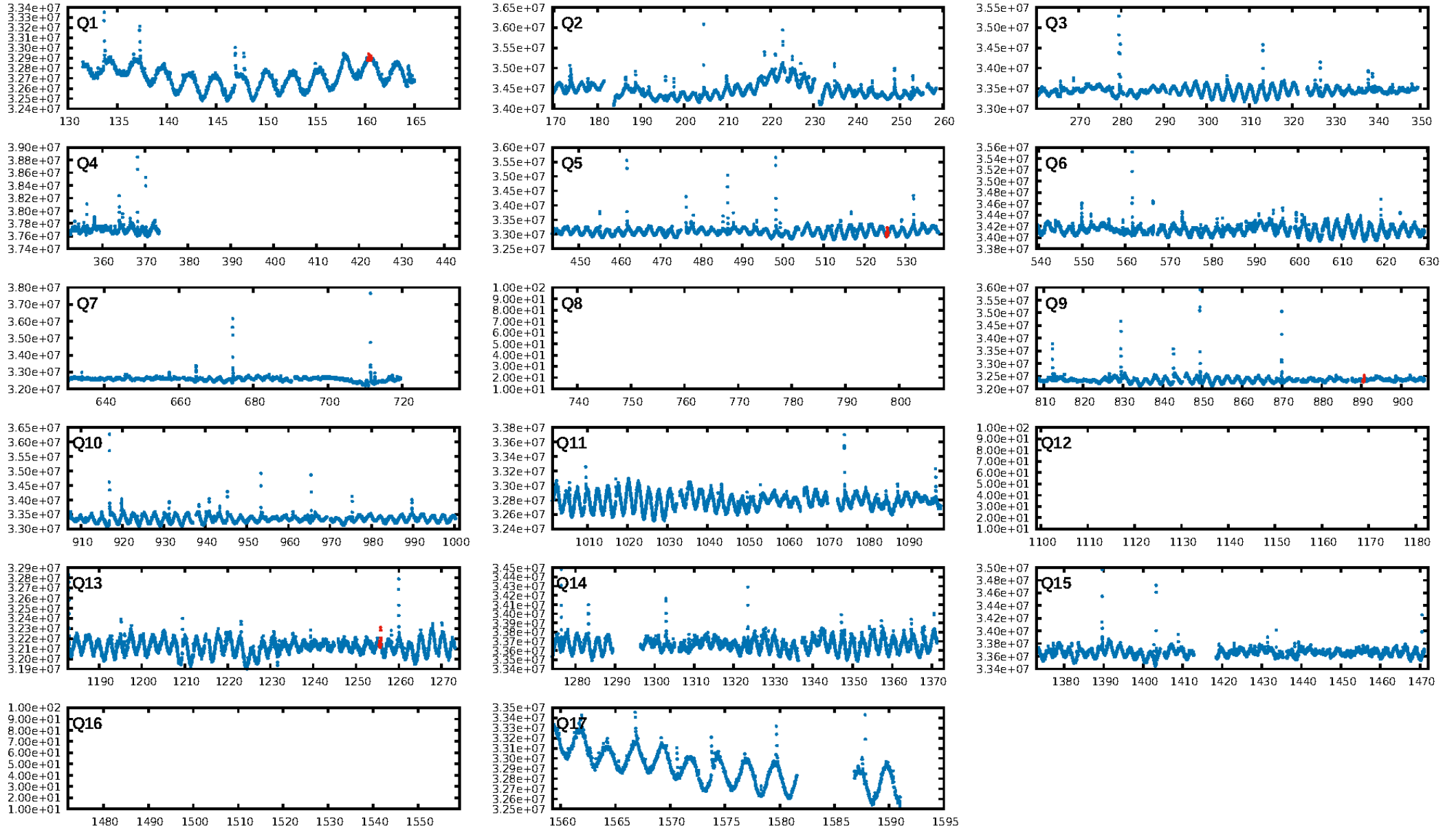
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.44σ]  
LongPeriod-sig: 100.0% [11.80σ]  
ModelChiSquare2-sig: 0.5%  
ModelChiSquareGof-sig: 43.1%  
Bootstrap-pfa: 7.03e-16  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.873  
Centroid-sig: 23.8%  
Centroid-so: 0.498 arcsec [0.90σ]  
OotOffset-rm: 0.612 arcsec [1.07σ]  
OotOffset-st: 0/0/0/4 [4]  
KicOffset-rm: 0.525 arcsec [0.77σ]  
KicOffset-st: 0/0/0/4 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 1.00 [4/4]

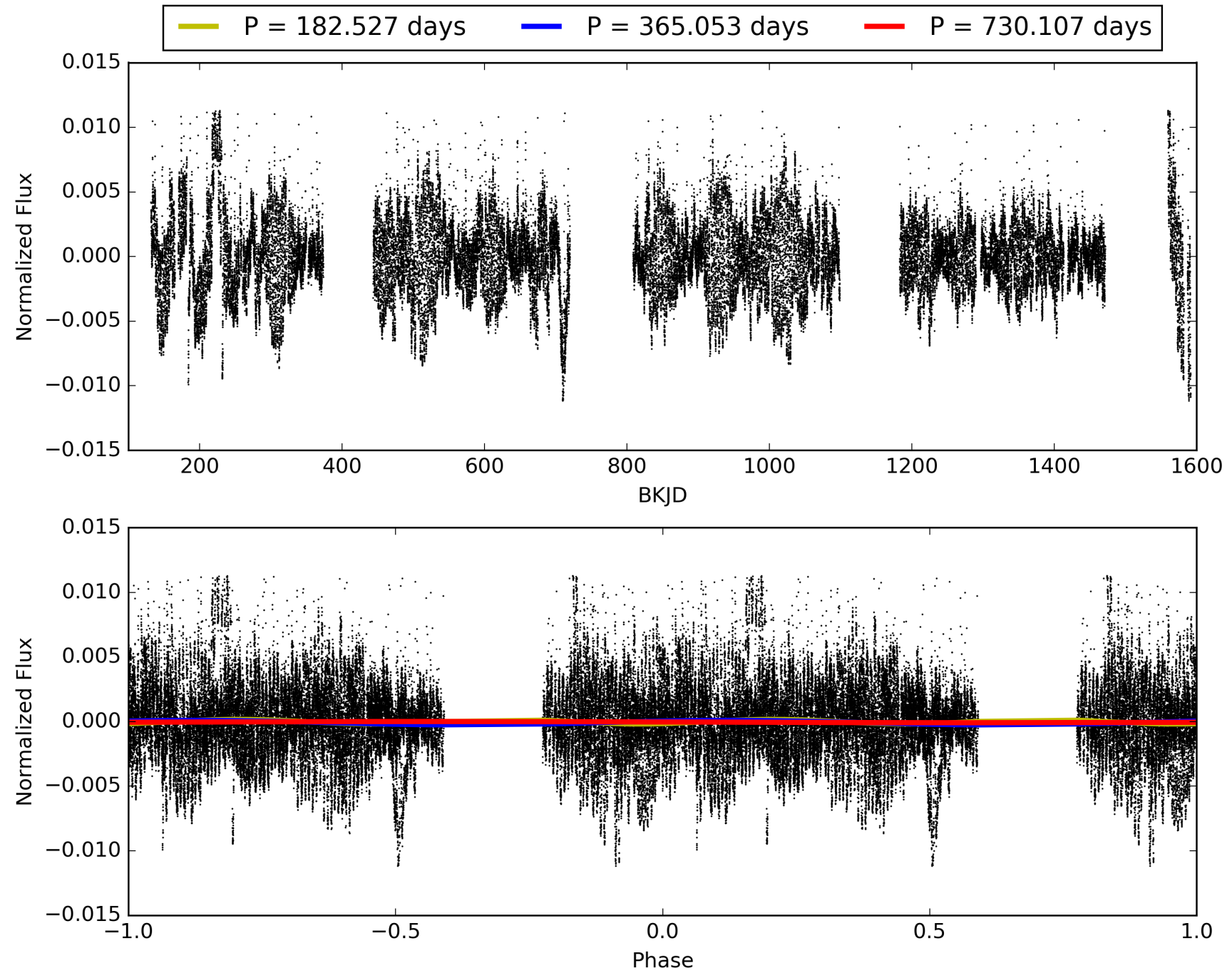
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:58:00 Z

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

# TCE 011232205-04, PDC Light Curves



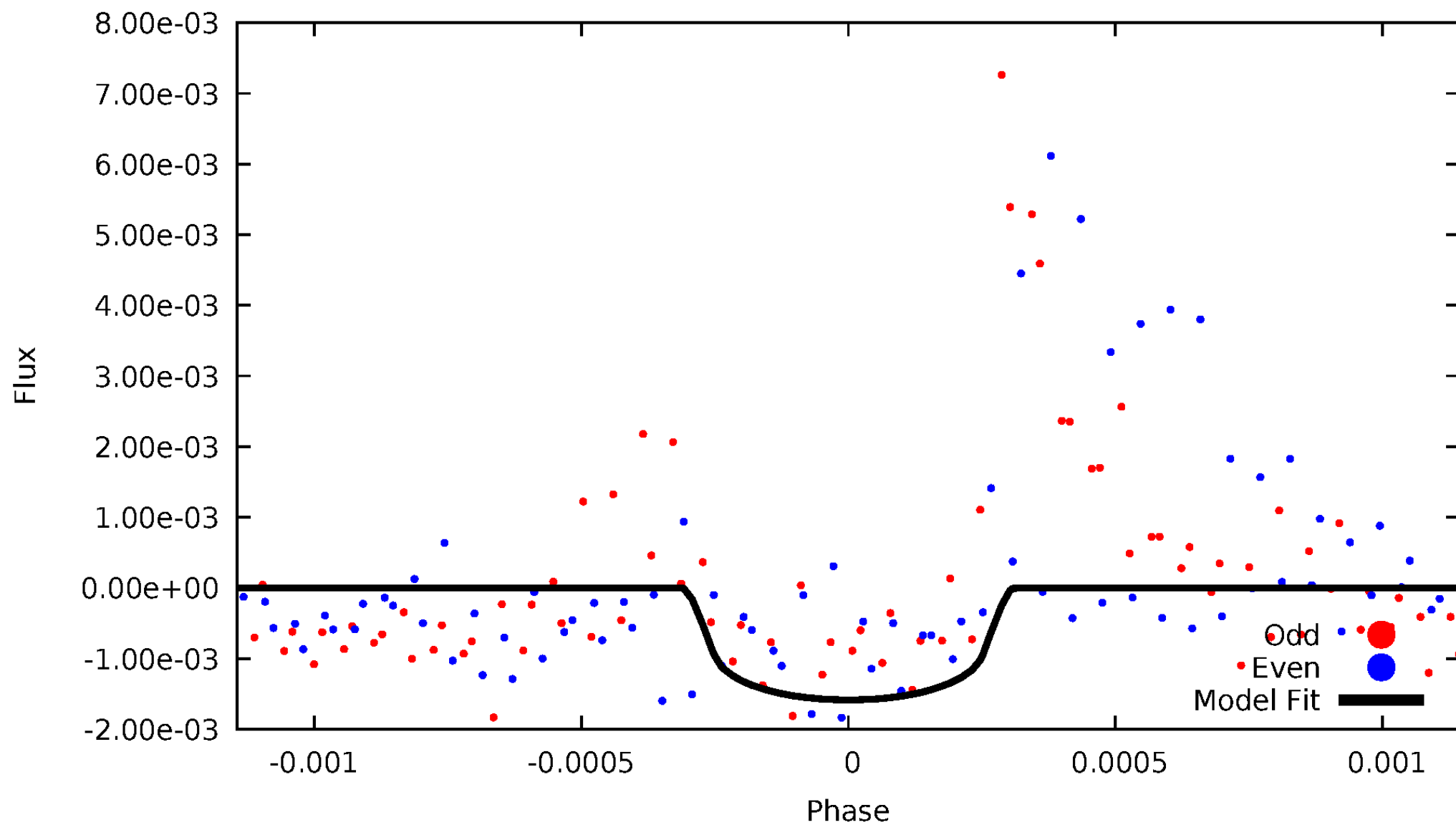
TCE 011232205-04





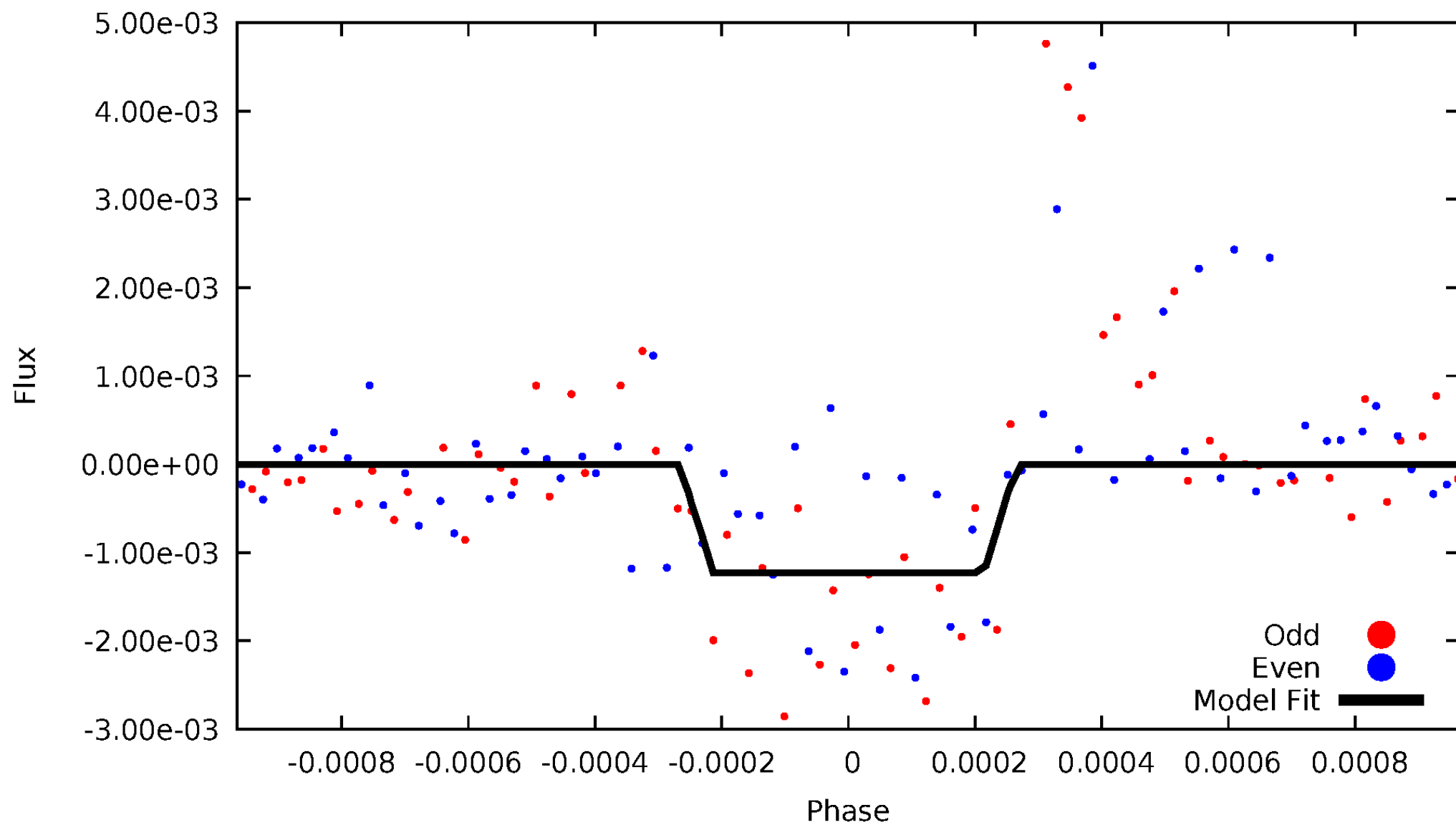
# DV Odd/Even

TCE 011232205-04



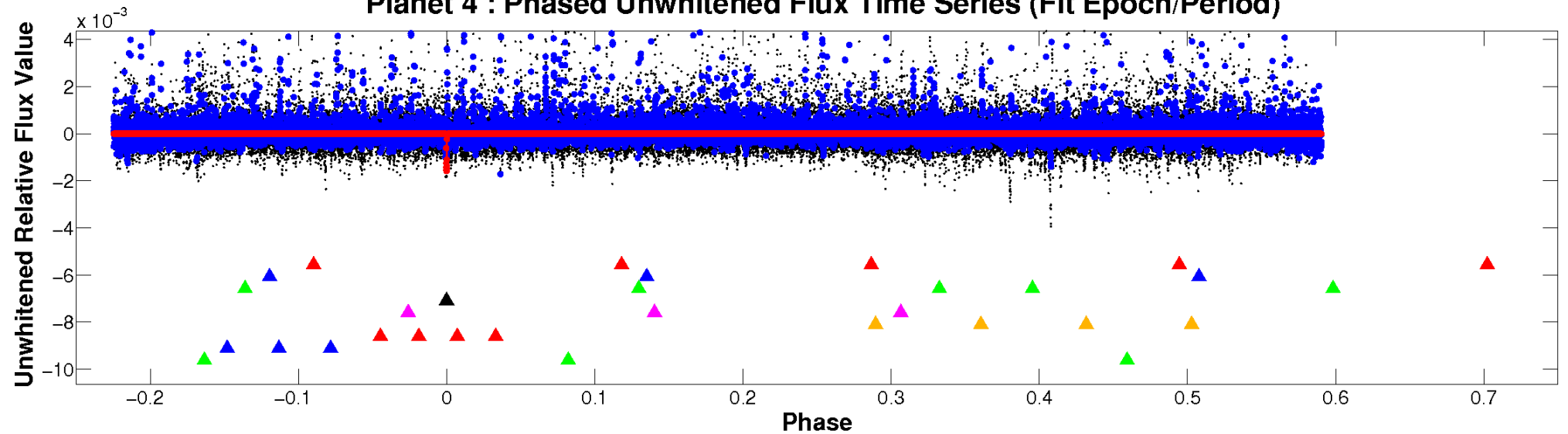
# ALT Odd/Even

TCE 011232205-04

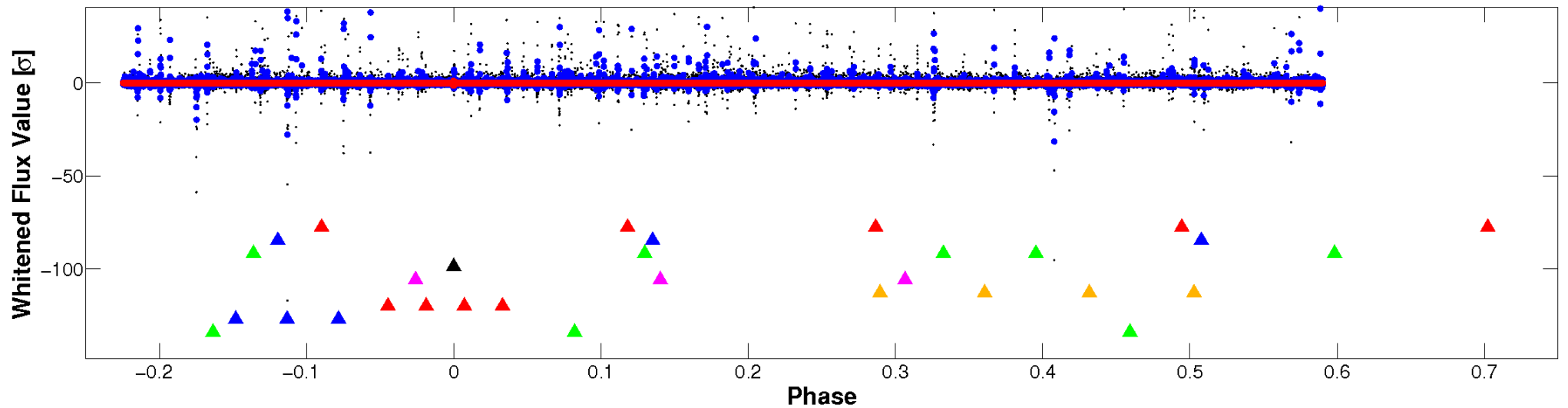


# Non-Whitened Vs. Whitened Light Curve

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

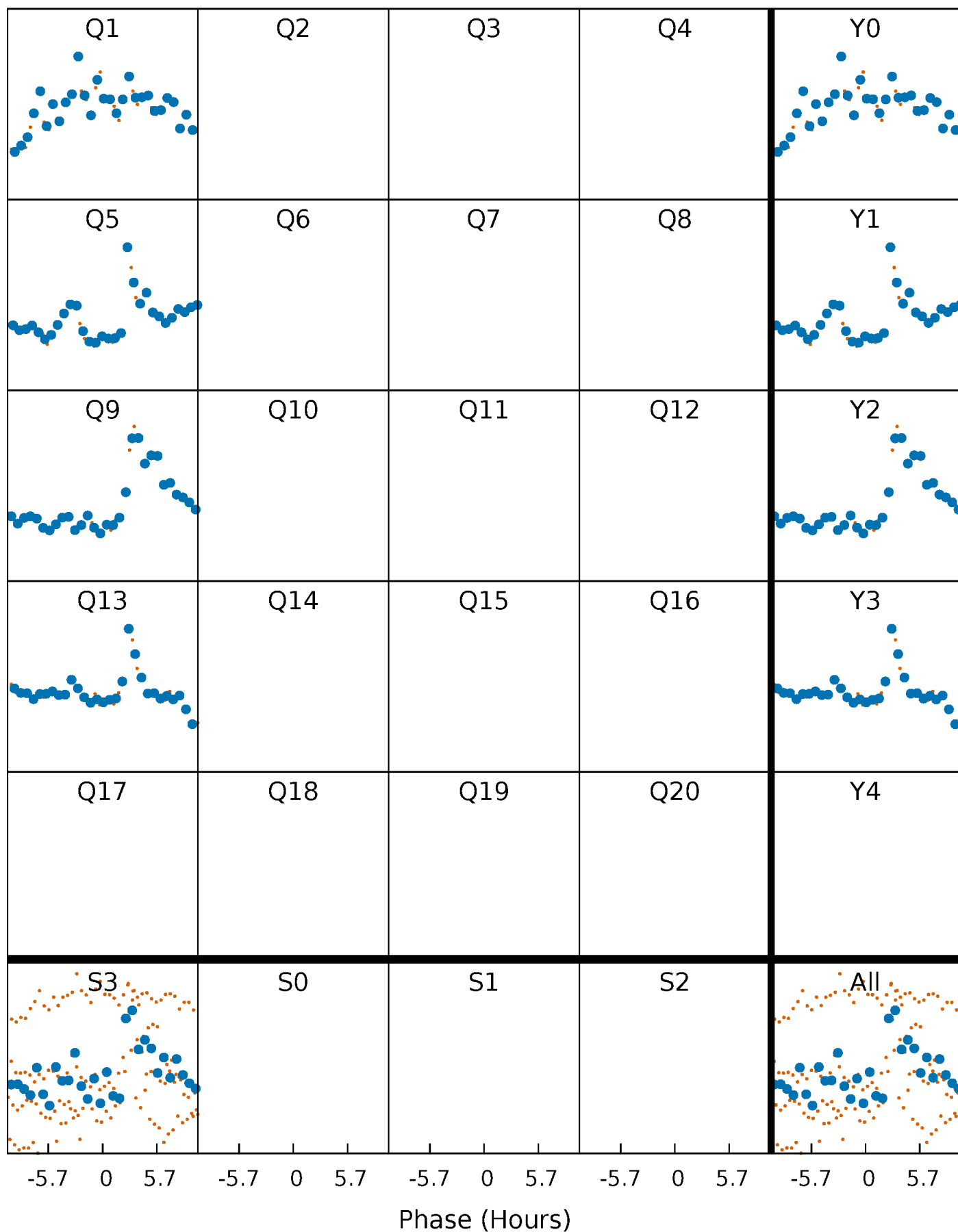


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



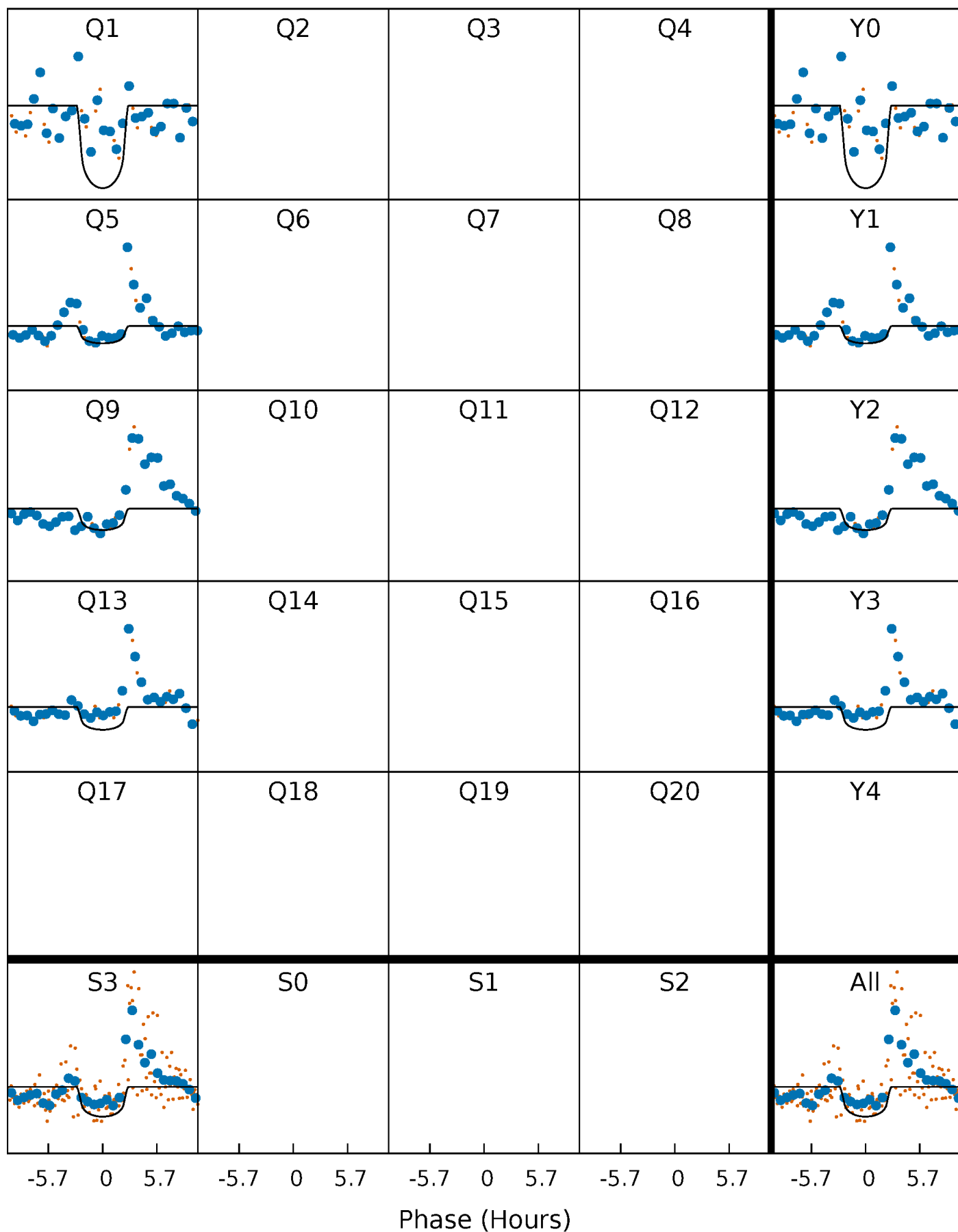
# PDC Quarter-Phased Transit Curves

TCE 011232205-04     $P=365.053490$  Days     $T_0=160.457445$  (BKJD)



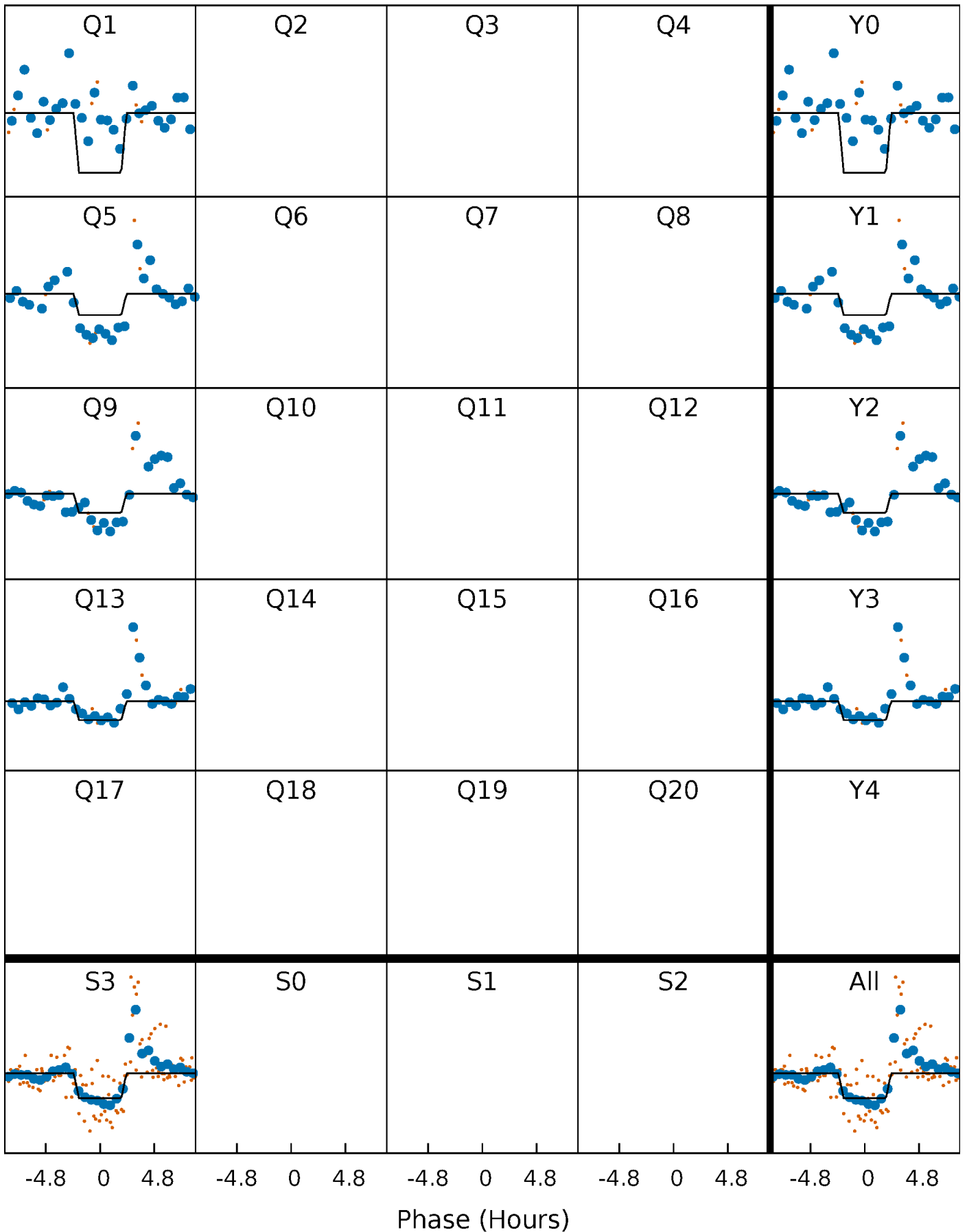
# DV Quarter-Phased Transit Curves

TCE 011232205-04     $P=365.053490$  Days     $T_0=160.457445$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

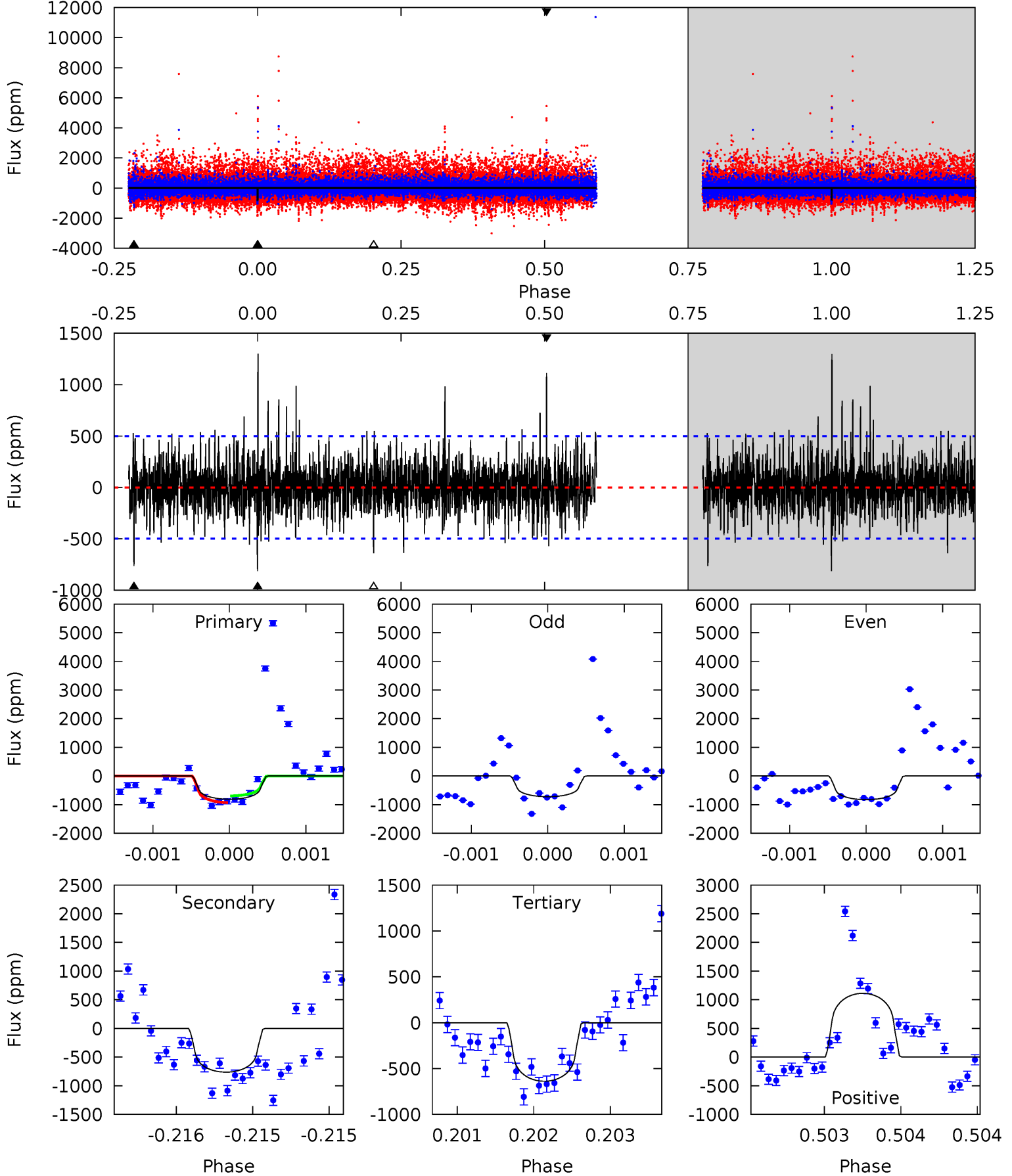
TCE 011232205-04     $P=365.052361$  Days     $T_0=160.457437$  (BKJD)



# DV Model-Shift Uniqueness Test

011232205-04, P = 365.053490 Days, E = 160.457445 Days

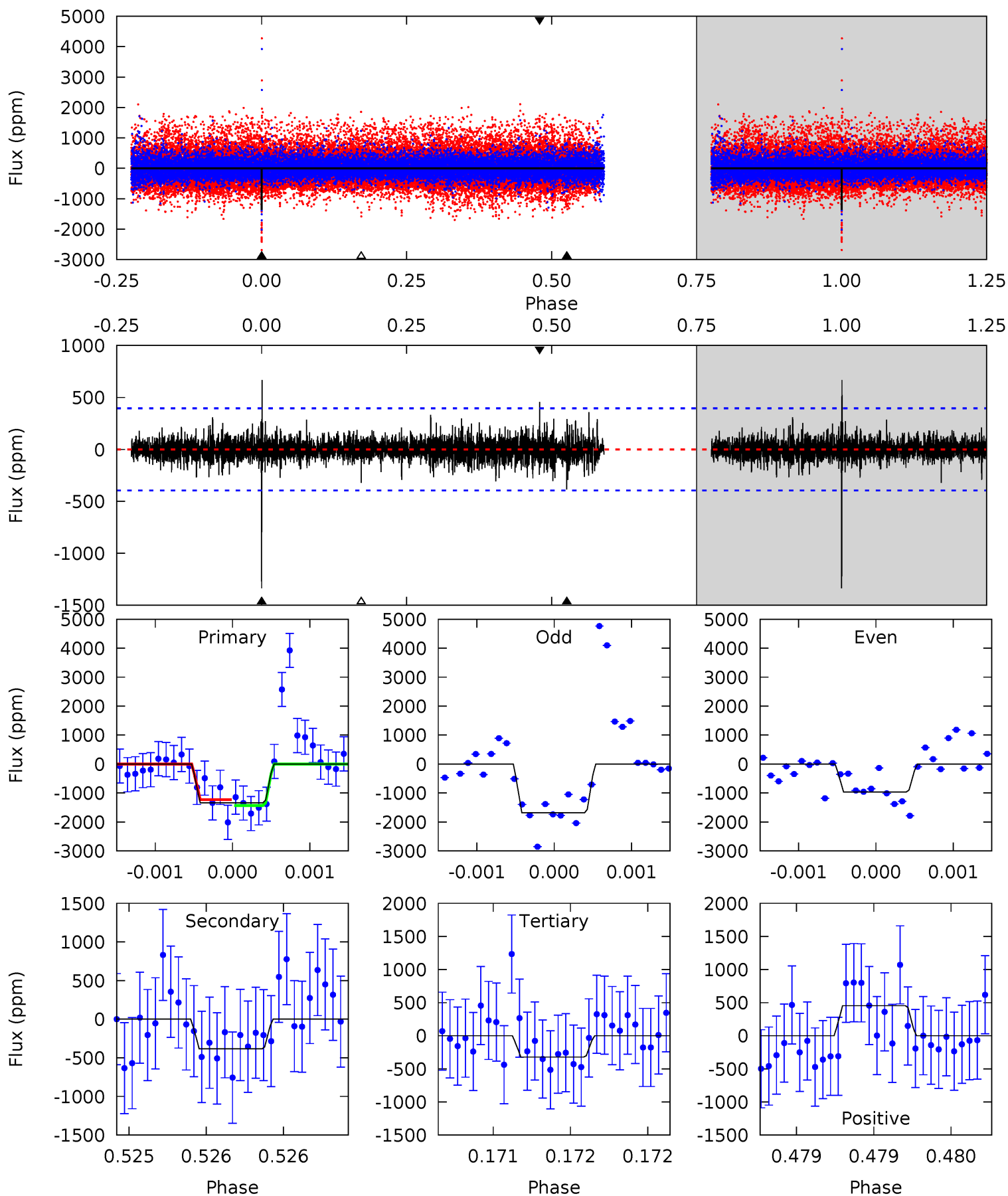
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.01	8.46	7.08	12.3	5.53	3.42	2.09	1.93	-3.33	1.38	-3.87	0.39	1.00	0.61	1.31



# Alt Model-Shift Uniqueness Test

011232205-04, P = 365.052361 Days, E = 160.457437 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
18.9	5.42	4.55	6.41	5.57	3.48	1.09	14.3	12.4	0.88	-0.99	4.95	0.95	0.33	1.42





### Stellar Parameters For KIC 011232205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5367^{+159}_{-143}$	$3.973^{+0.588}_{-0.252}$	$-0.220^{+0.350}_{-0.250}$	$1.596^{+0.686}_{-0.838}$	$0.873^{+0.086}_{-0.115}$	$0.302^{+2.236}_{-0.181}$
	+3%/-3%	+15%/-6%	+159%/-114%	+43%/-53%	+10%/-13%	+739%/-60%
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 011232205-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-762 \pm 90$	$7.13^{+6.40}_{-4.61}$	$419^{+48}_{-59}$	$4366^{+2527}_{-787}$	$7111^{+54821}_{-5137}$
Alt.	$-385 \pm 71$	$6.87^{+6.97}_{-4.52}$	$423^{+49}_{-64}$	$3914^{+2165}_{-707}$	$4011^{+30365}_{-3027}$

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

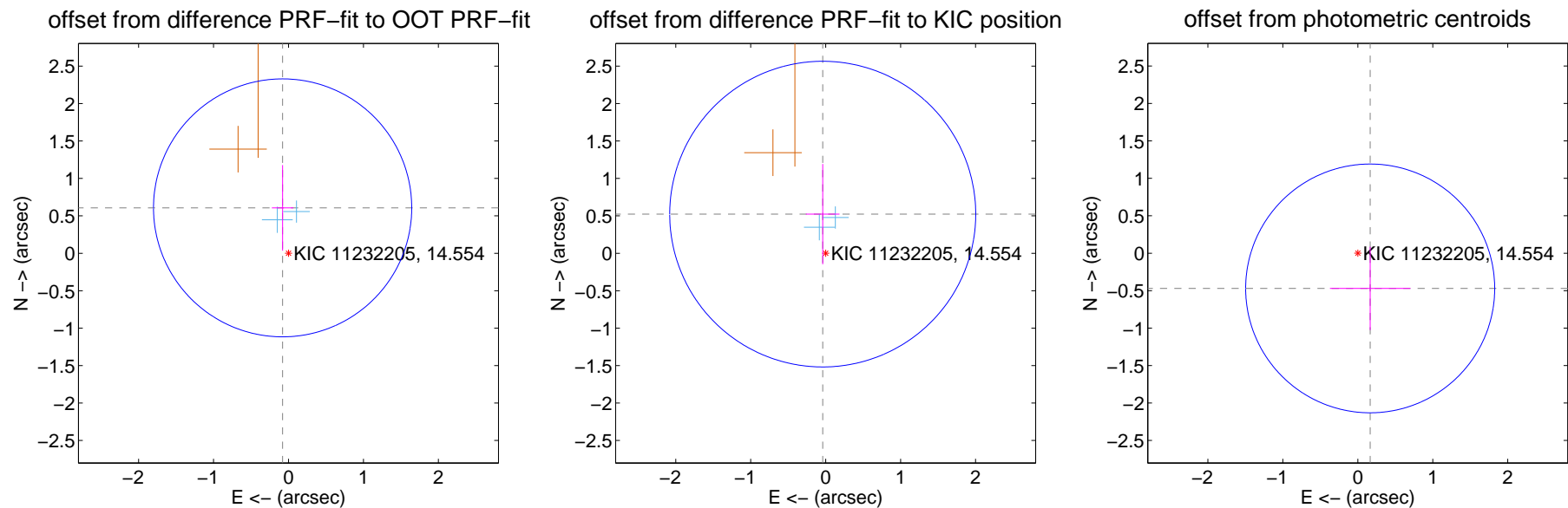
## DV Centroid Data

Supplemental centroid analysis for 011232205-04. Kepler magnitude: 14.55. Transit SNR 8.12

There are 2 quarters with good PRF difference image offsets

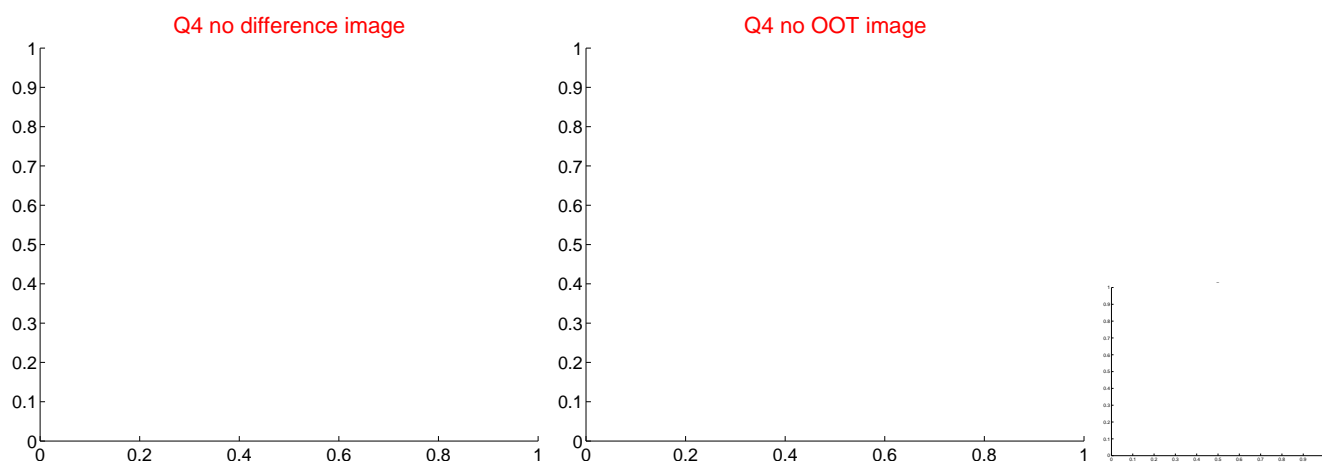
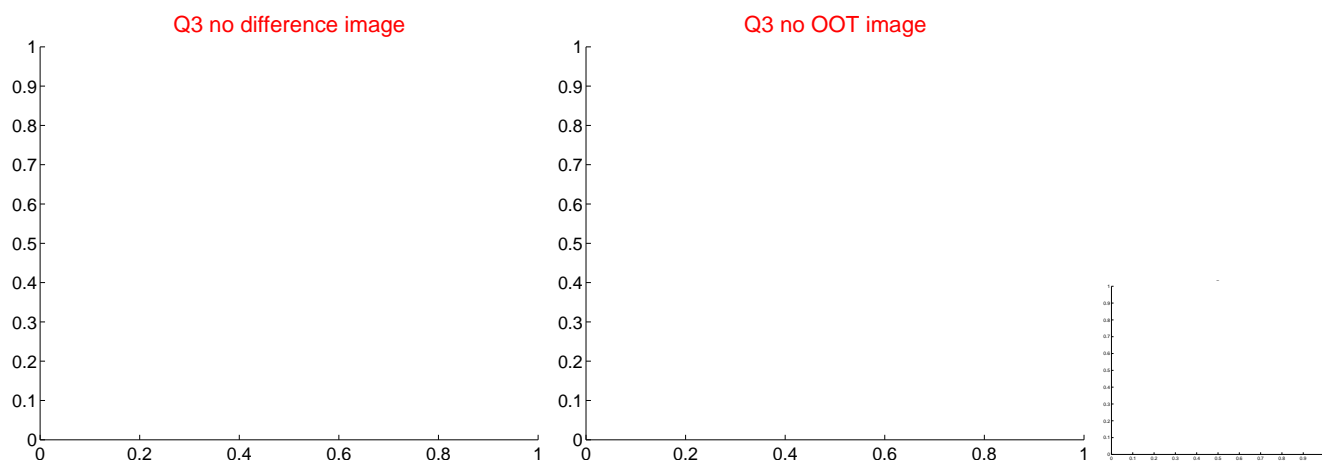
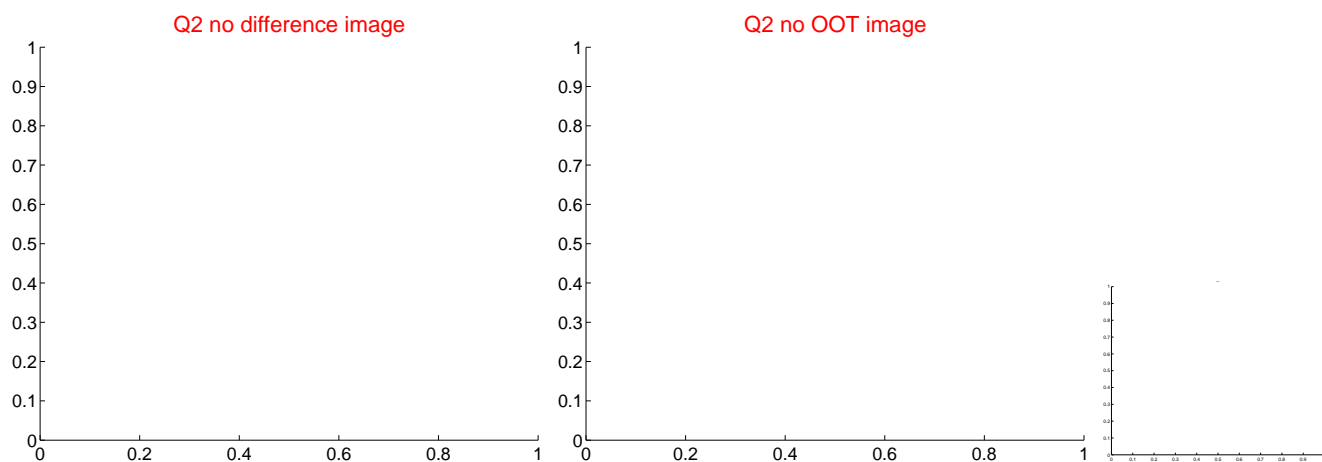
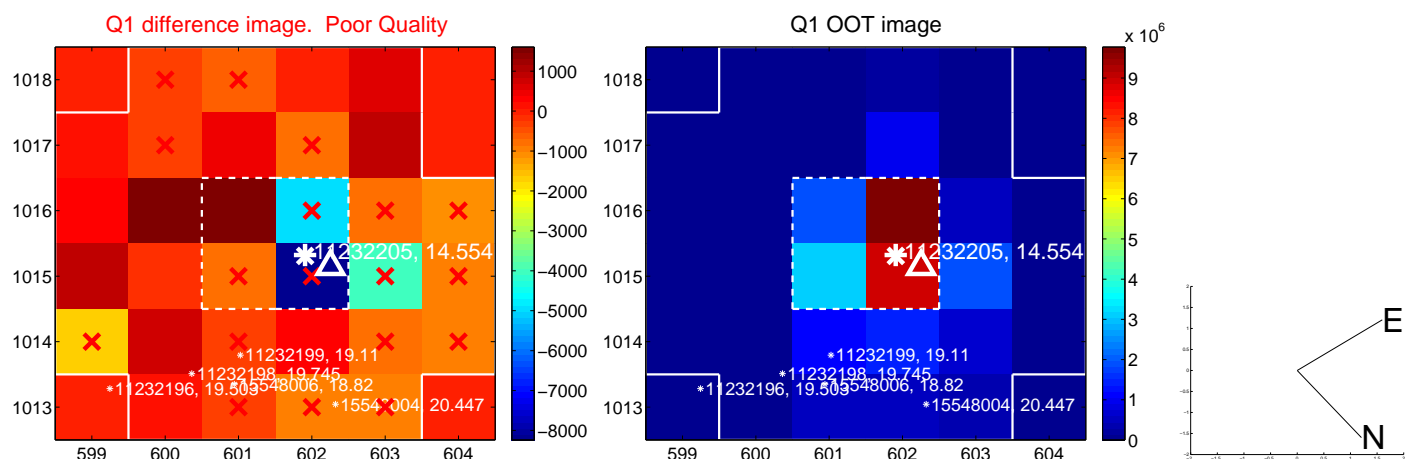
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.612 \pm 0.574$	1.07	$0.079 \pm 0.144$	$0.607 \pm 0.571$
PRF-fit source offset from KIC position	$0.525 \pm 0.681$	0.77	$0.039 \pm 0.225$	$0.523 \pm 0.669$
photometric centroid source offset	$0.50 \pm 0.55$	0.90	$-0.16 \pm 0.54$	$-0.47 \pm 0.56$

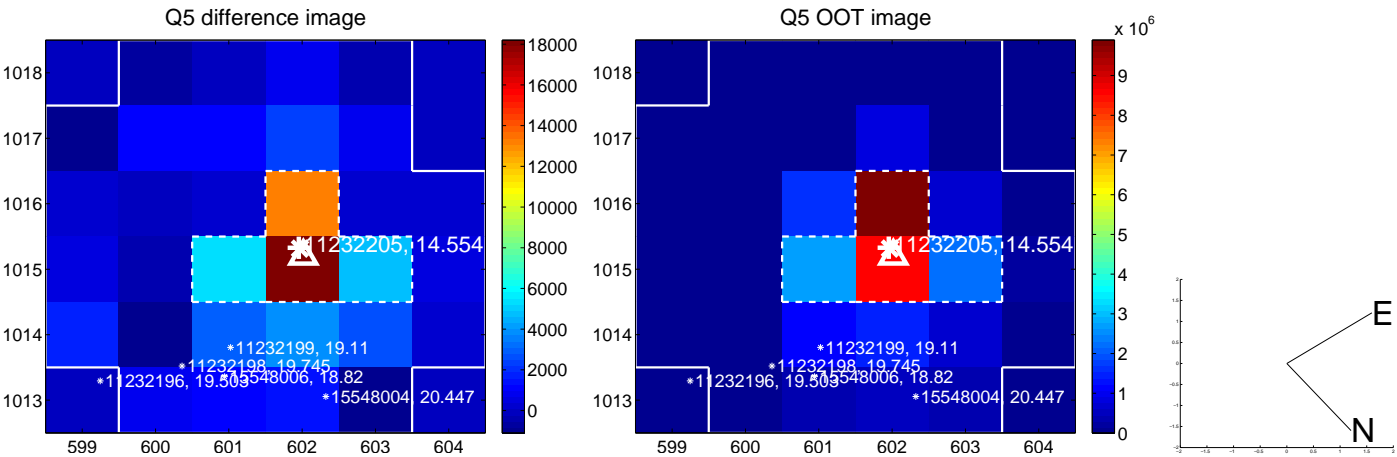


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

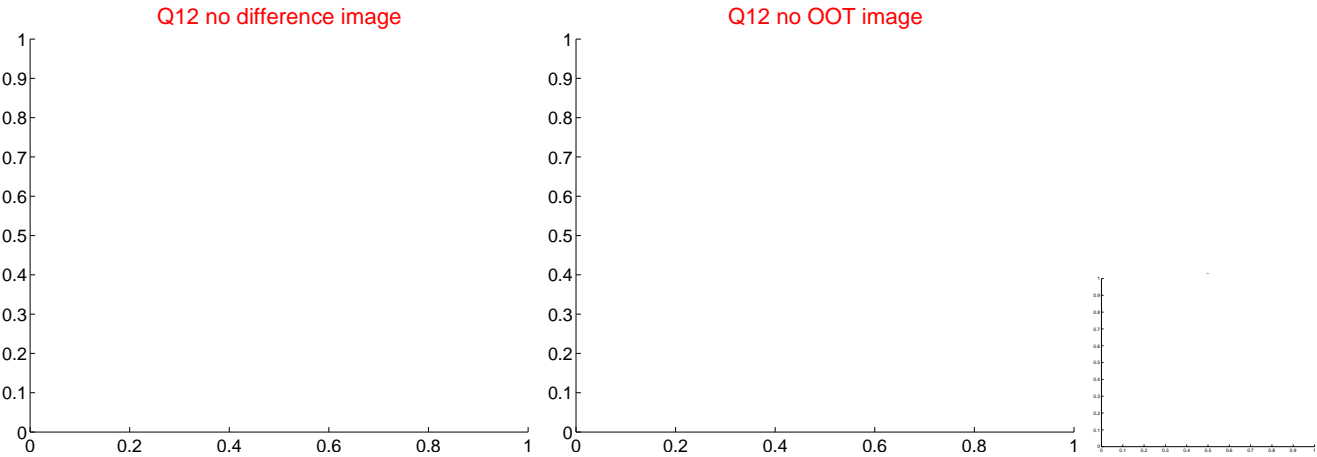
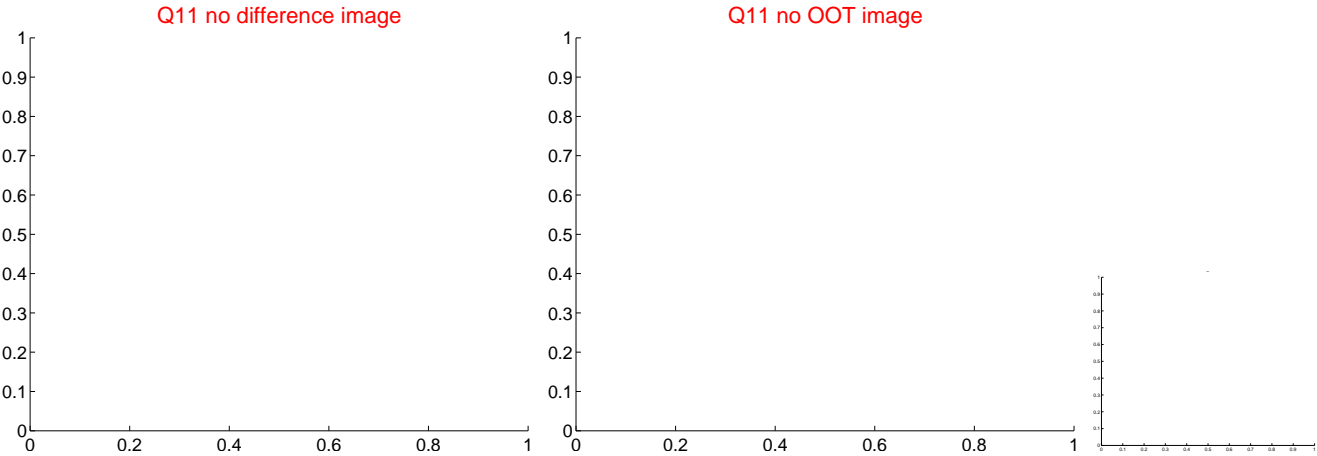
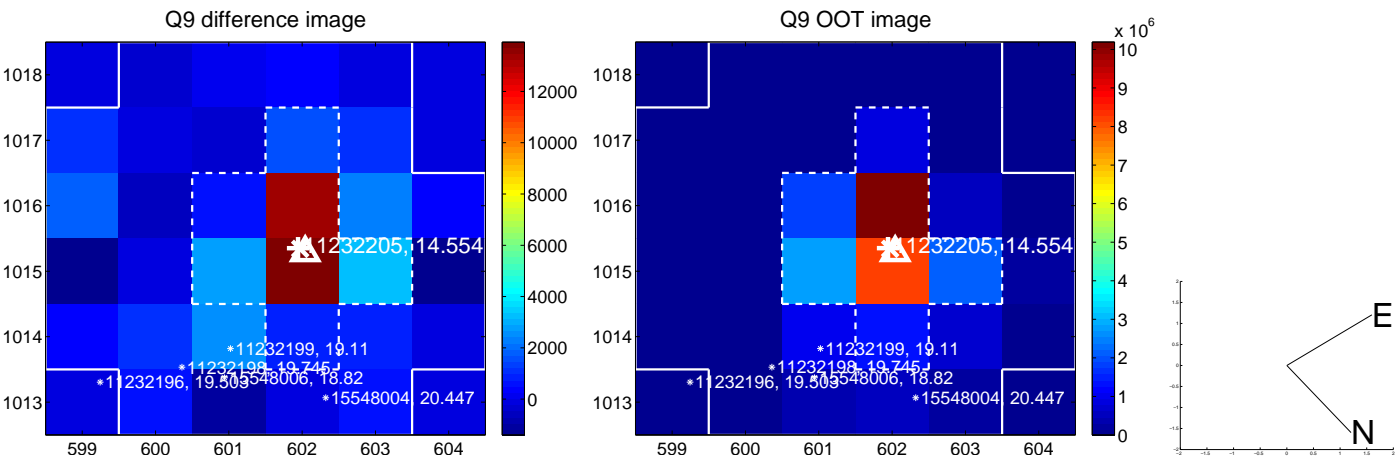
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



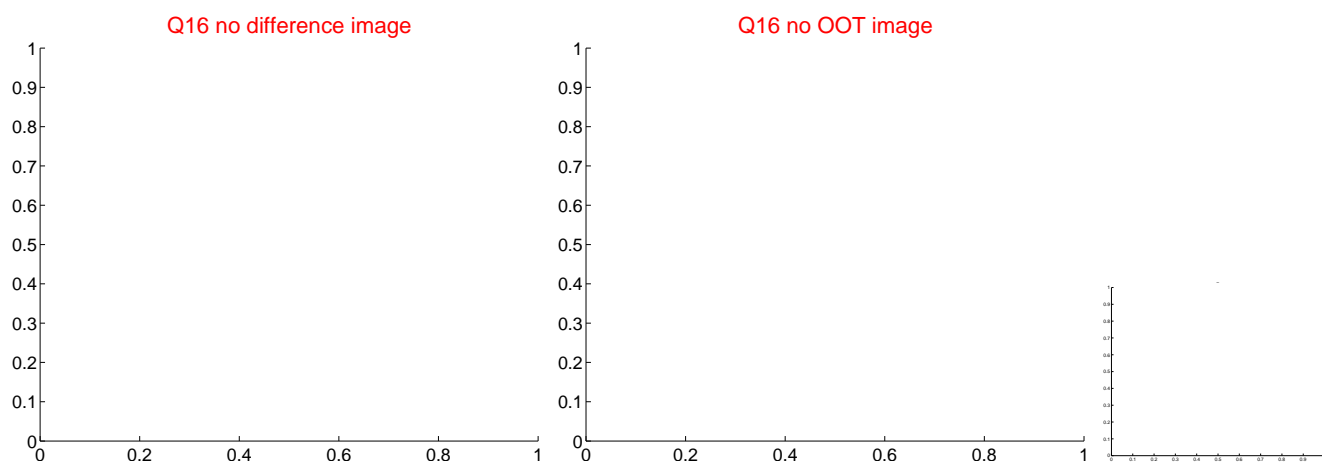
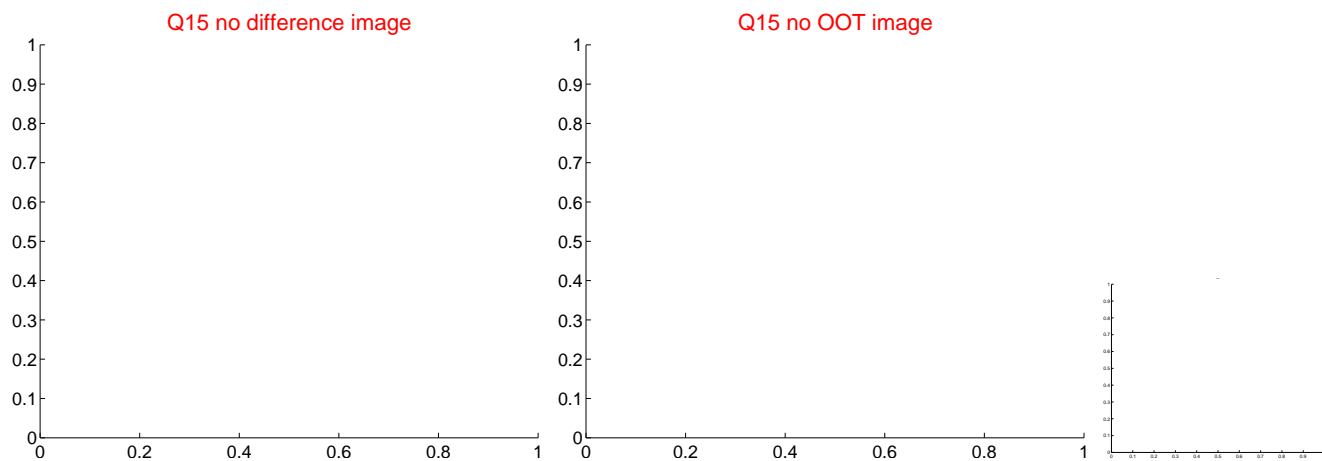
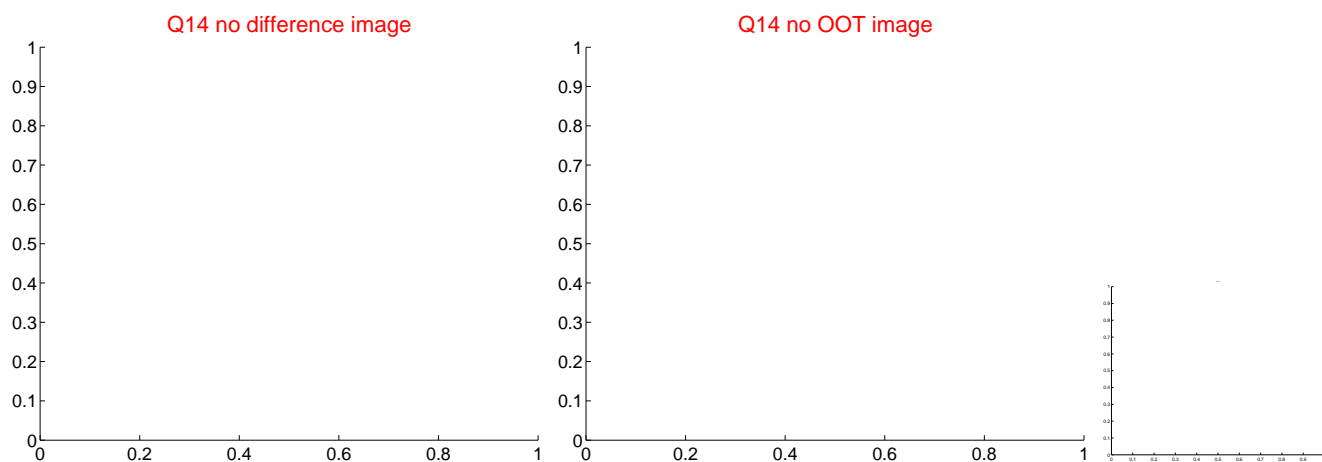
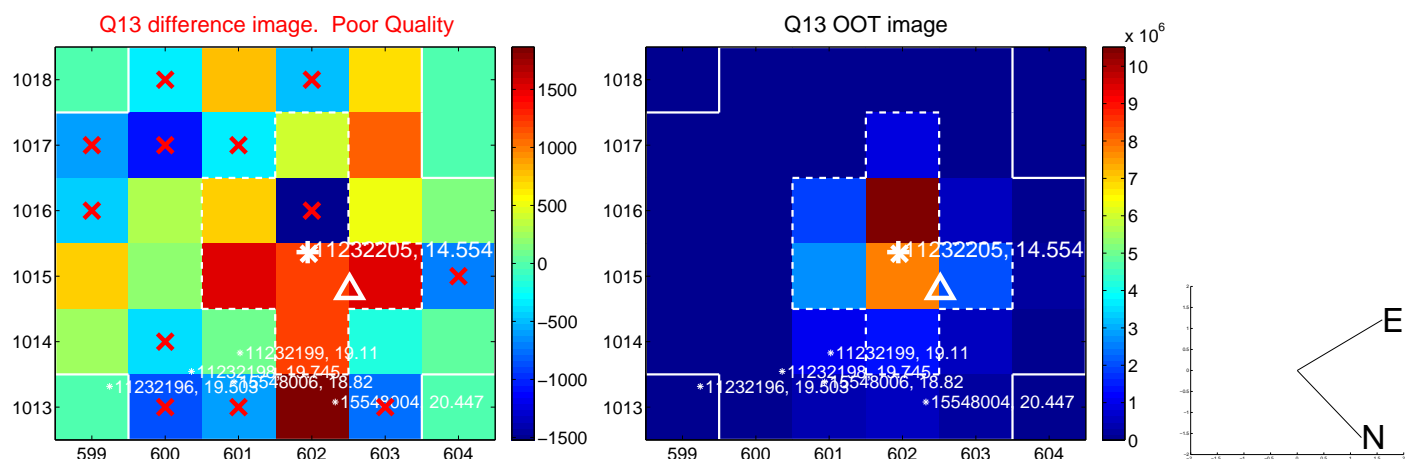
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



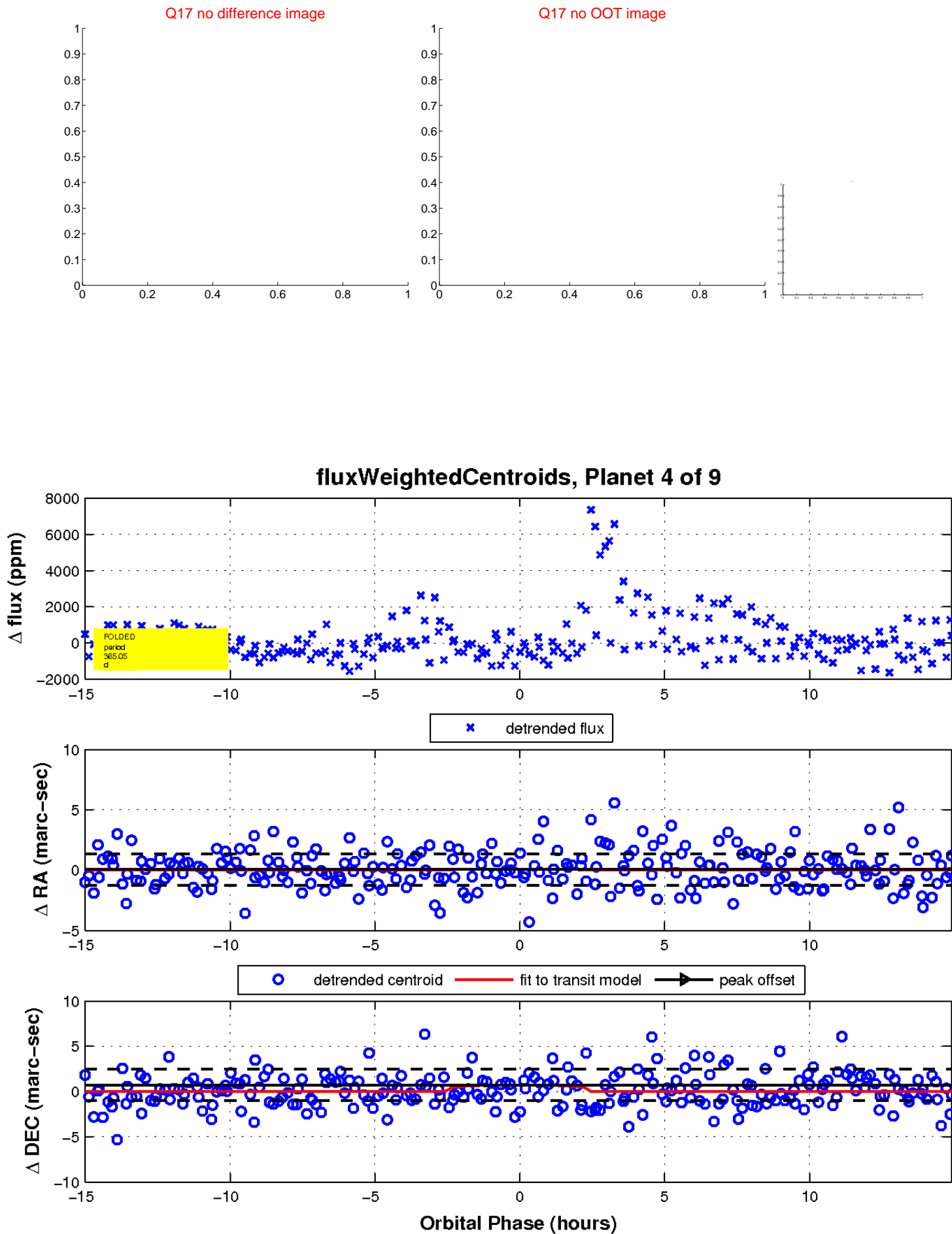
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

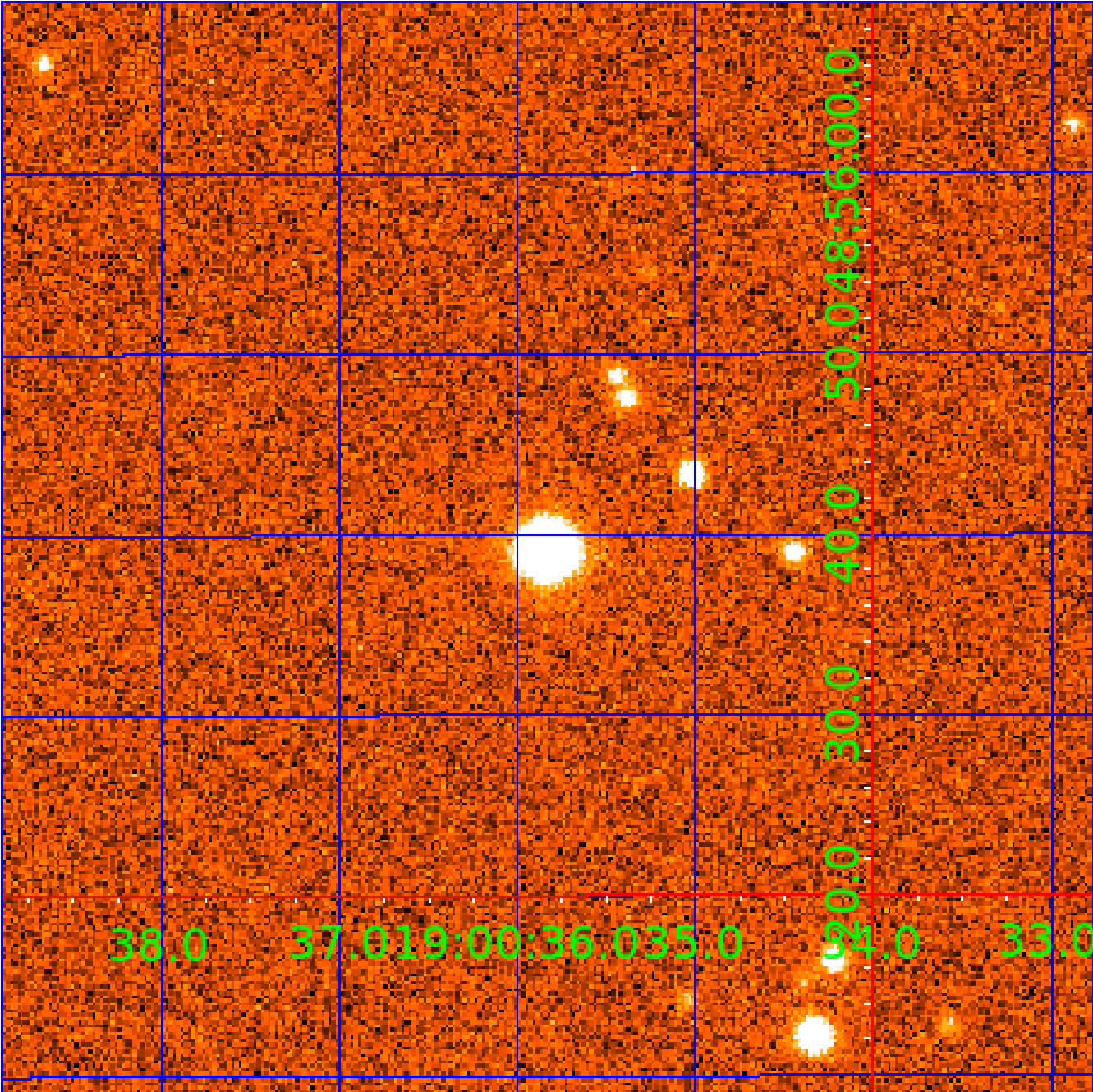


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





## KIC 011232205

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011232205-01	OBS	No	289.165284	203.581787	1255.7	5.011	13.6	6.7	1.60	5367	5.92	2.83
011232205-02	OBS	No	501.114326	209.774135	2344.5	2.413	14.8	10.0	1.60	5367	8.16	1.36
011232205-03	OBS	No	268.054251	304.808016	670.8	10.500	12.2	-1.0	1.60	5367	4.06	3.13
011232205-04	OBS	No	365.053489	160.457445	1585.2	5.011	15.2	8.1	1.60	5367	6.24	2.07
011232205-05	OBS	No	425.742358	516.052223	1476.6	5.342	12.7	7.5	1.60	5367	6.70	1.69
011232205-06	OBS	No	391.007218	266.147874	830.6	9.160	14.4	4.6	1.60	5367	4.82	1.89
011232205-07	OBS	No	355.583516	172.560446	1144.2	2.845	12.5	6.7	1.60	5367	5.52	2.15
011232205-08	OBS	No	377.795857	471.462579	1947.1	25.432	11.5	6.6	1.60	5367	6.94	1.98
011232205-09	OBS	No	502.750358	190.429716	1414.1	3.497	11.0	7.0	1.60	5367	6.26	1.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011232205-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011232205-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011232205-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS
011232205-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-08	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011232205-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

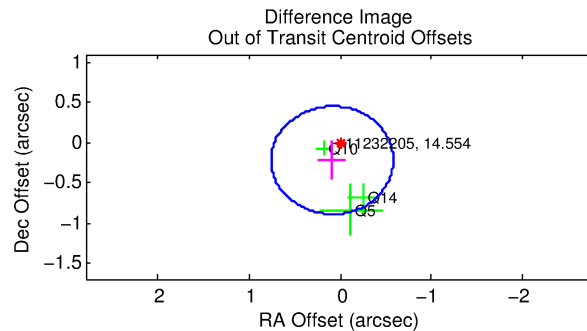
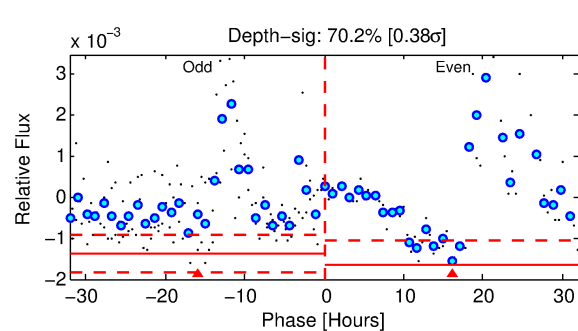
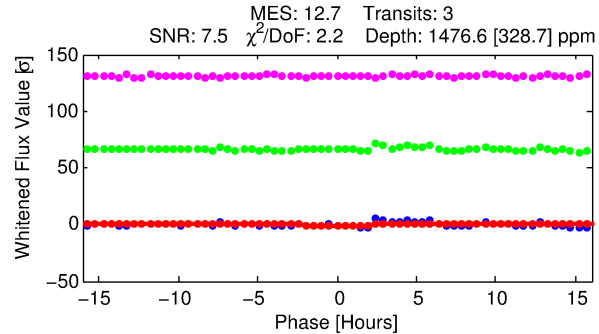
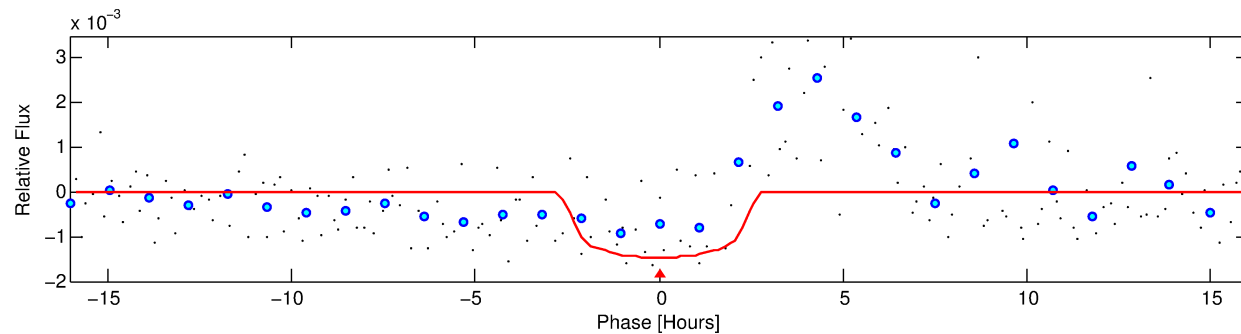
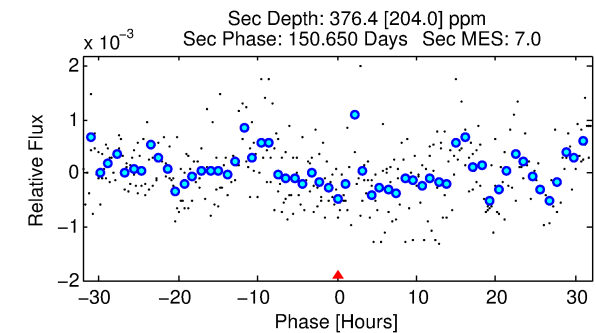
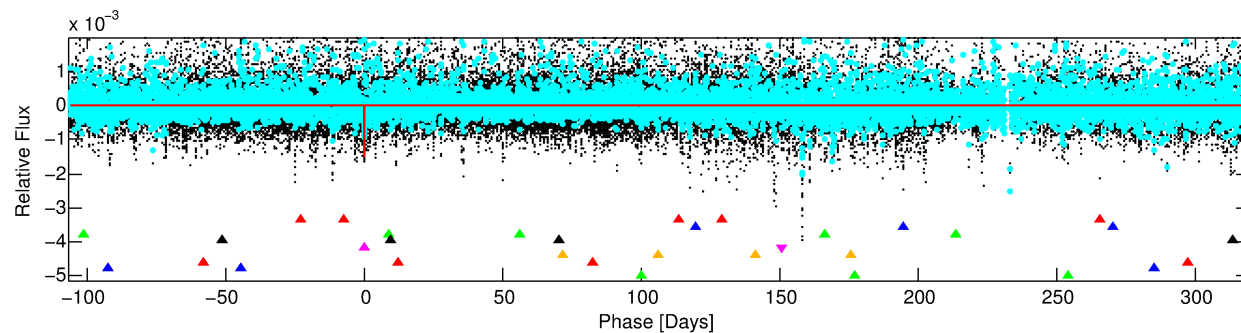
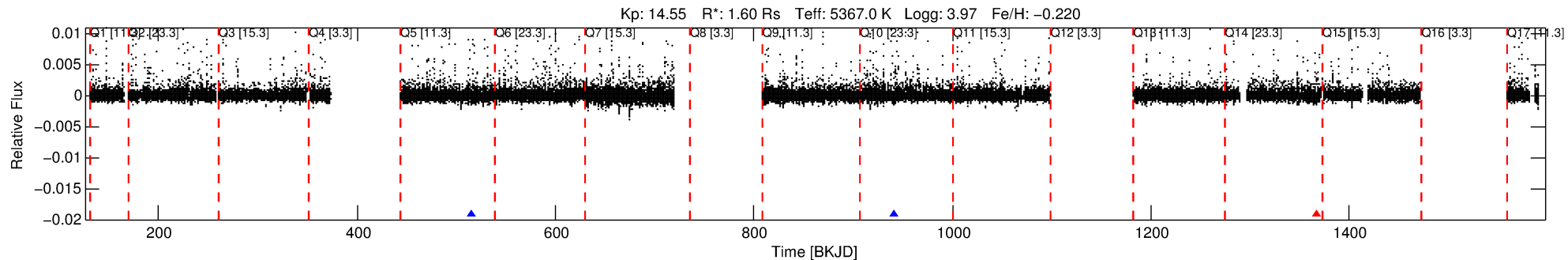
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011232205-05

No Significant Match Found

# DV One-Page Summary

KIC: 11232205 Candidate: 5 of 9 Period: 425.742 d



## DV Fit Results:

Period = 425.74236 [0.00938] d  
Epoch = 516.0522 [0.0133] BKJD  
Rp/R\* = 0.0385 [0.0175]  
a/R\* = 430.35 [724.63]  
b = 0.76 [0.95]  
Seff = 1.69 [1.65]  
Teq = 291 [71] K  
Rp = 6.70 [4.65] Re  
a = 1.0588 [0.6047] AU  
Ag = 5170.46 [7412.46] [0.70σ]  
Teffp = 3811 [1014] K [3.46σ]

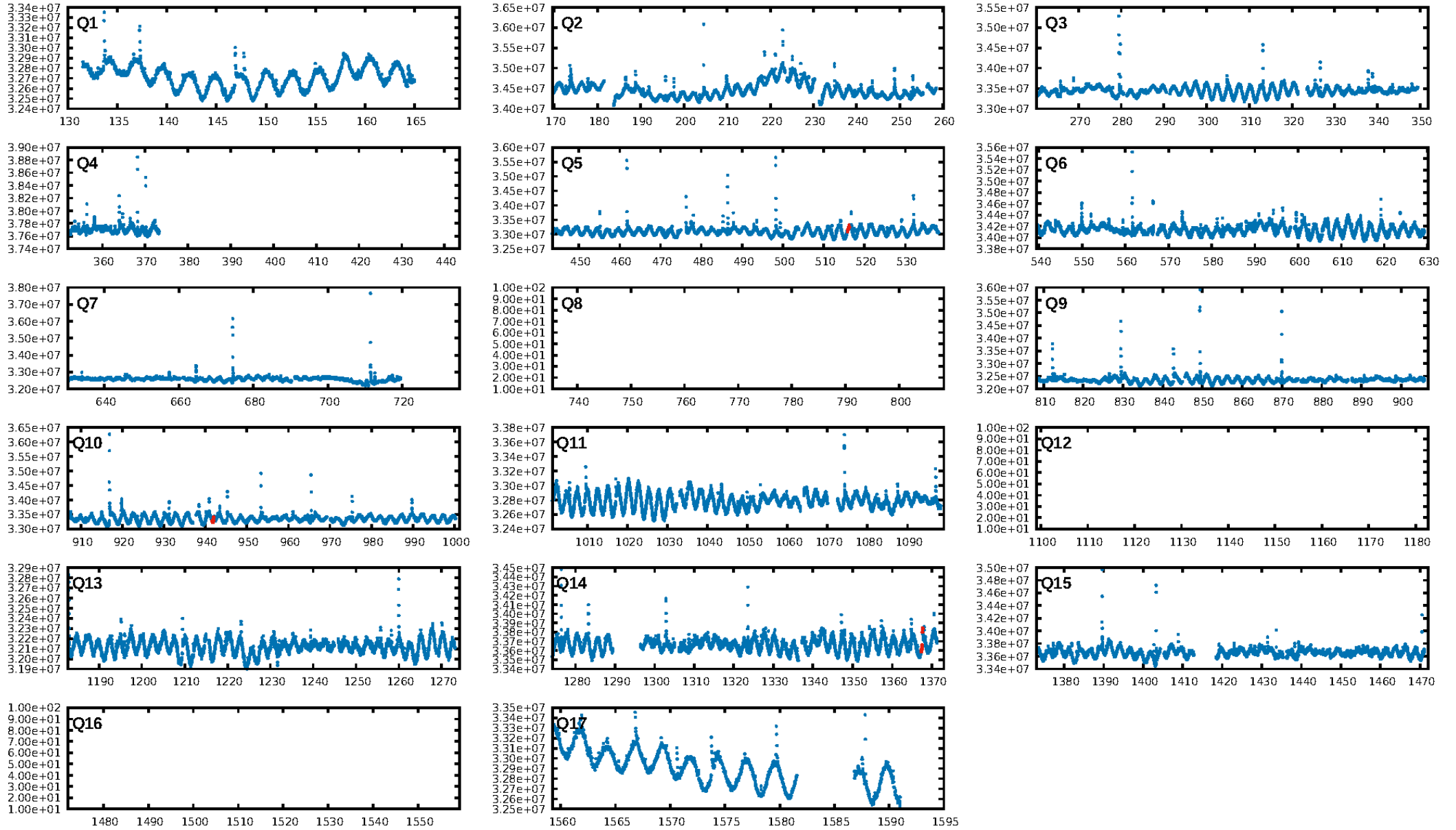
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [78.62σ]  
LongPeriod-sig: 100.0% [308.62σ]  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 8.8%  
Bootstrap-pfa: 1.23e-11  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: 1.737  
Centroid-sig: 35.7%  
Centroid-so: 0.514 arcsec [0.85σ]  
OotOffset-rm: 0.237 arcsec [1.06σ]  
KicOffset-rm: 0.457 arcsec [1.88σ]  
OotOffset-st: 2/0/0/1 [3]  
KicOffset-st: 2/0/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

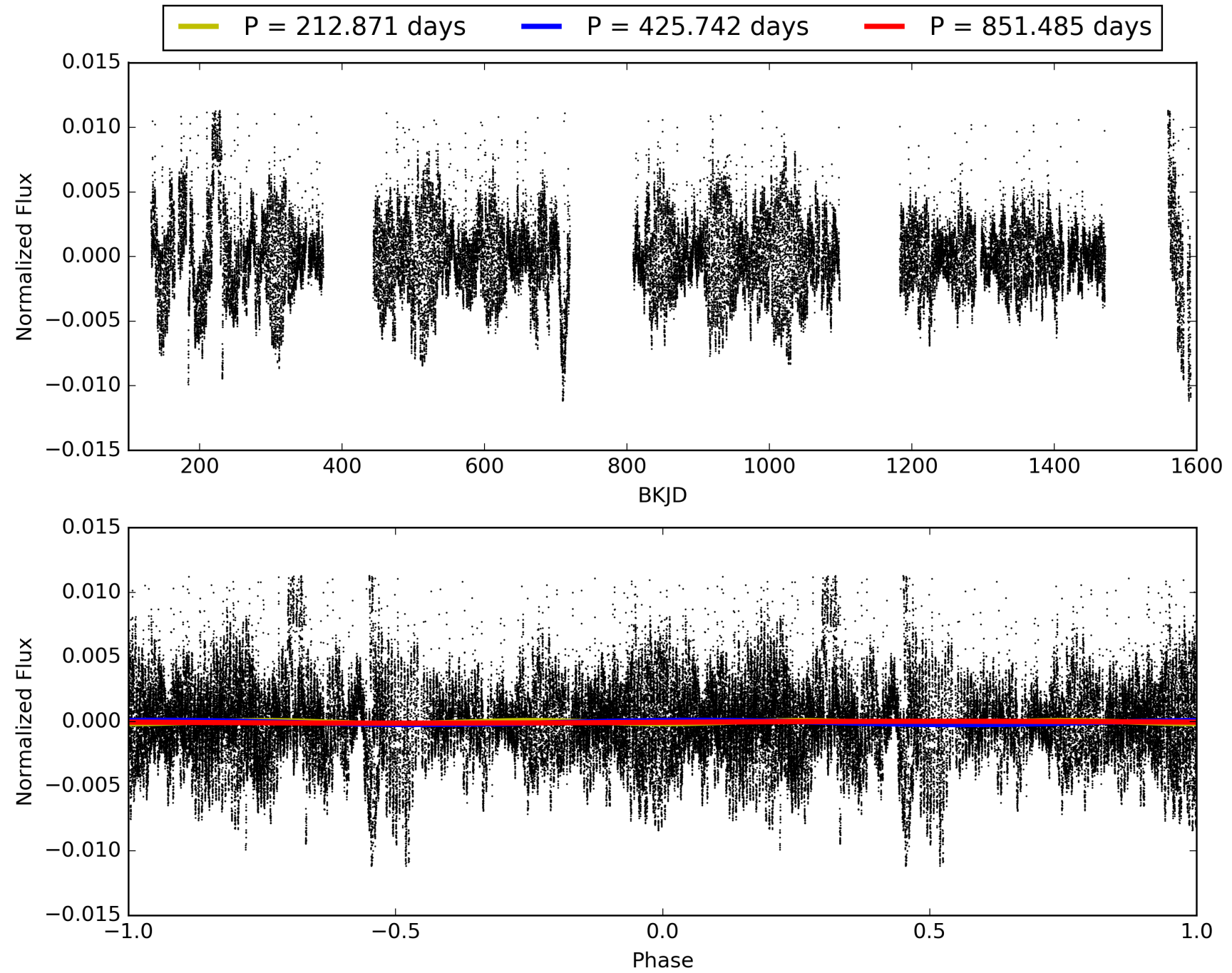
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:58:11 Z

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

# TCE 011232205-05, PDC Light Curves

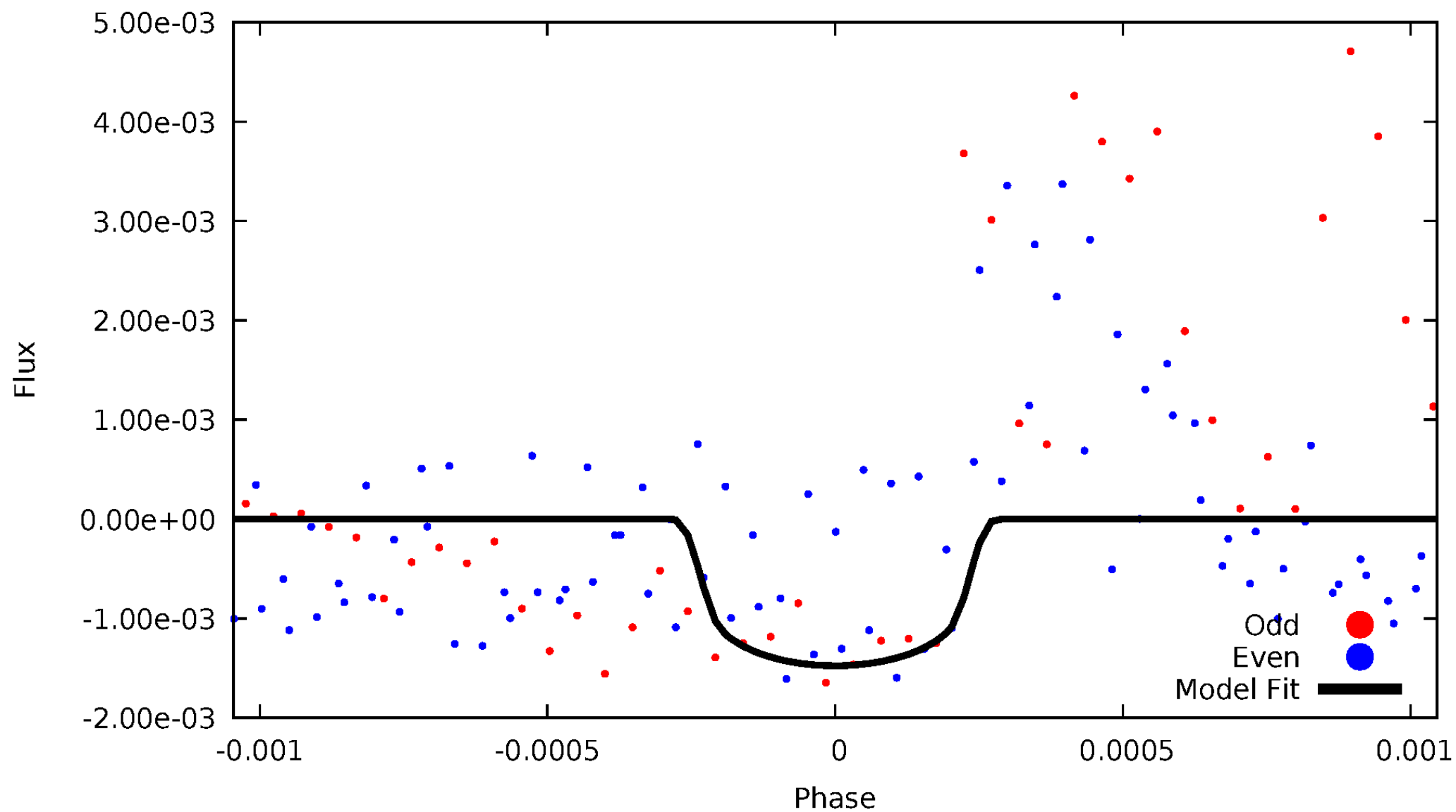


TCE 011232205-05



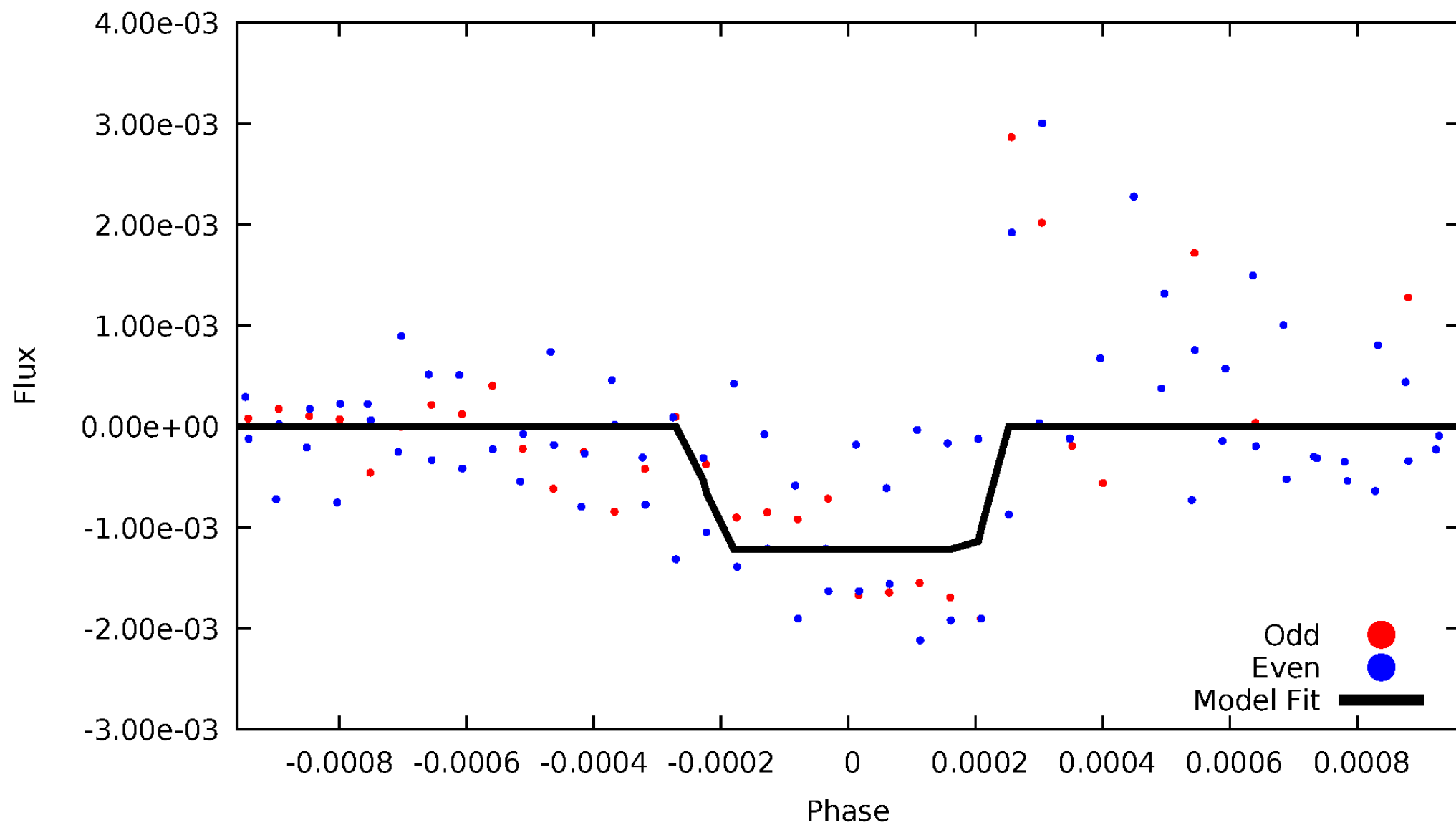
# DV Odd/Even

TCE 011232205-05



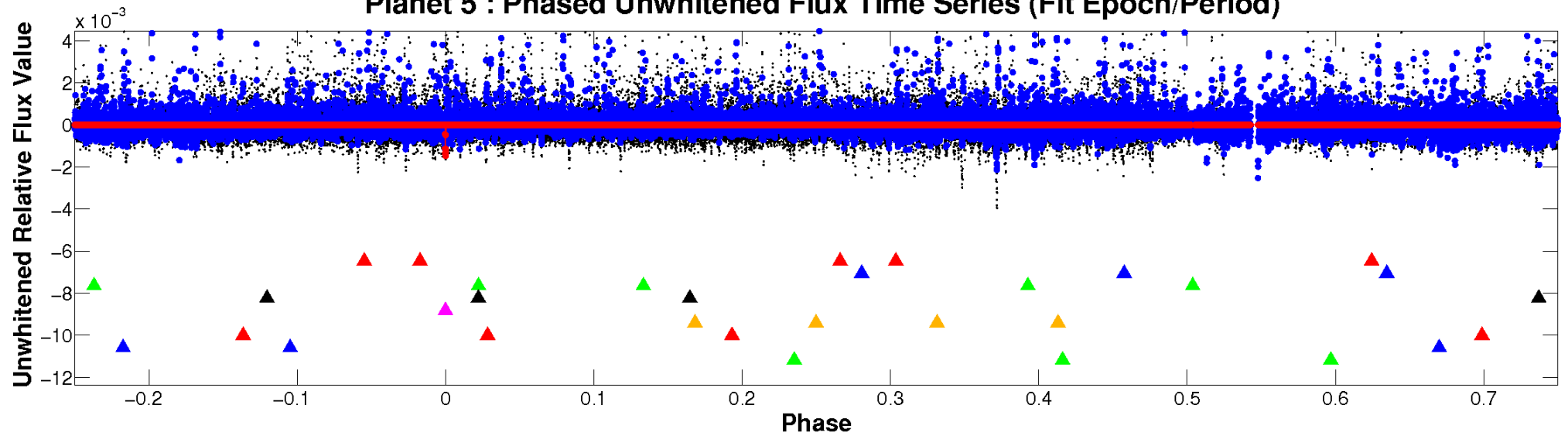
# ALT Odd/Even

TCE 011232205-05

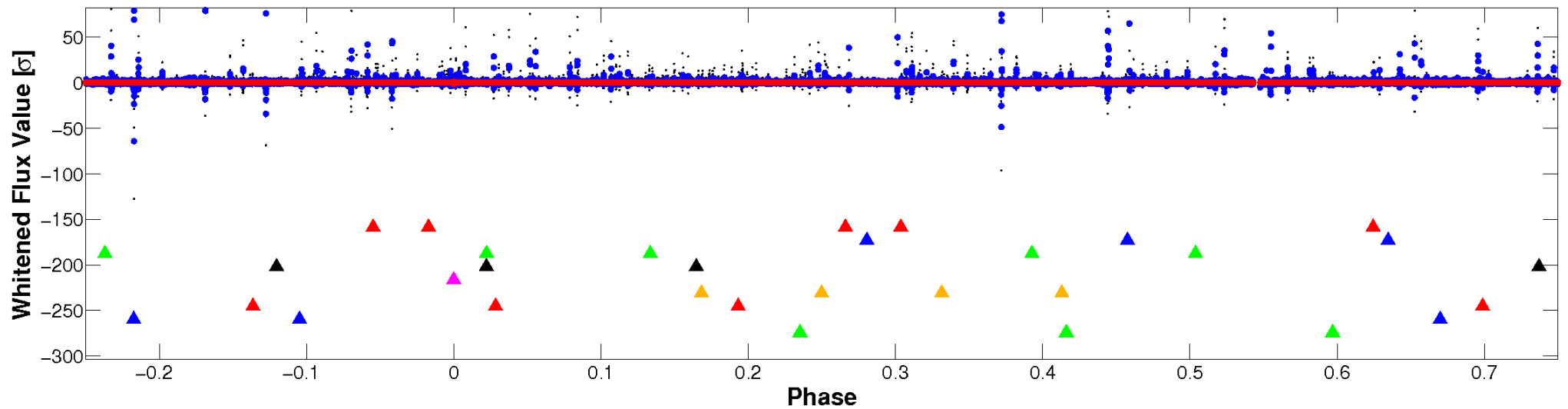


# Non-Whitened Vs. Whitened Light Curve

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

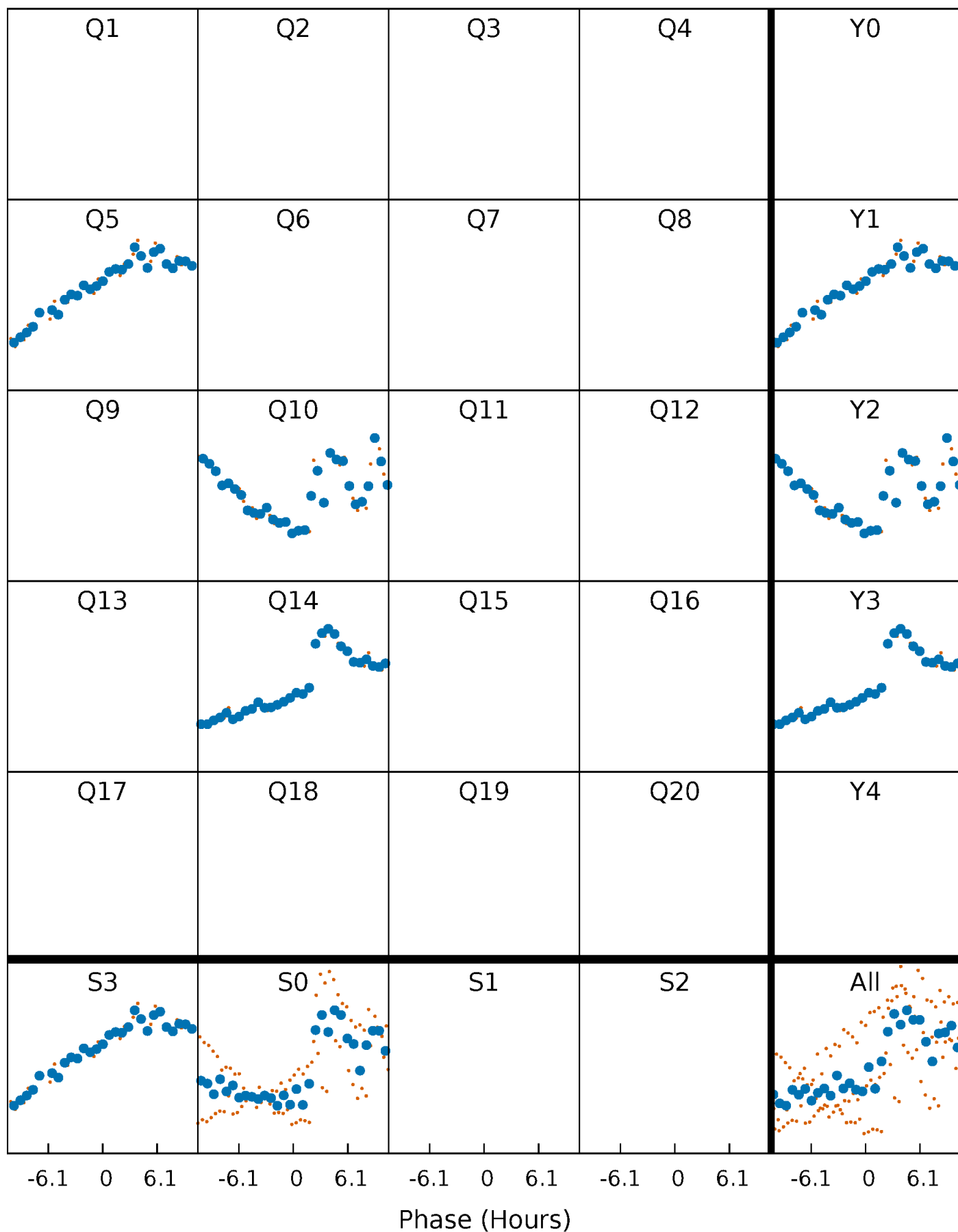


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

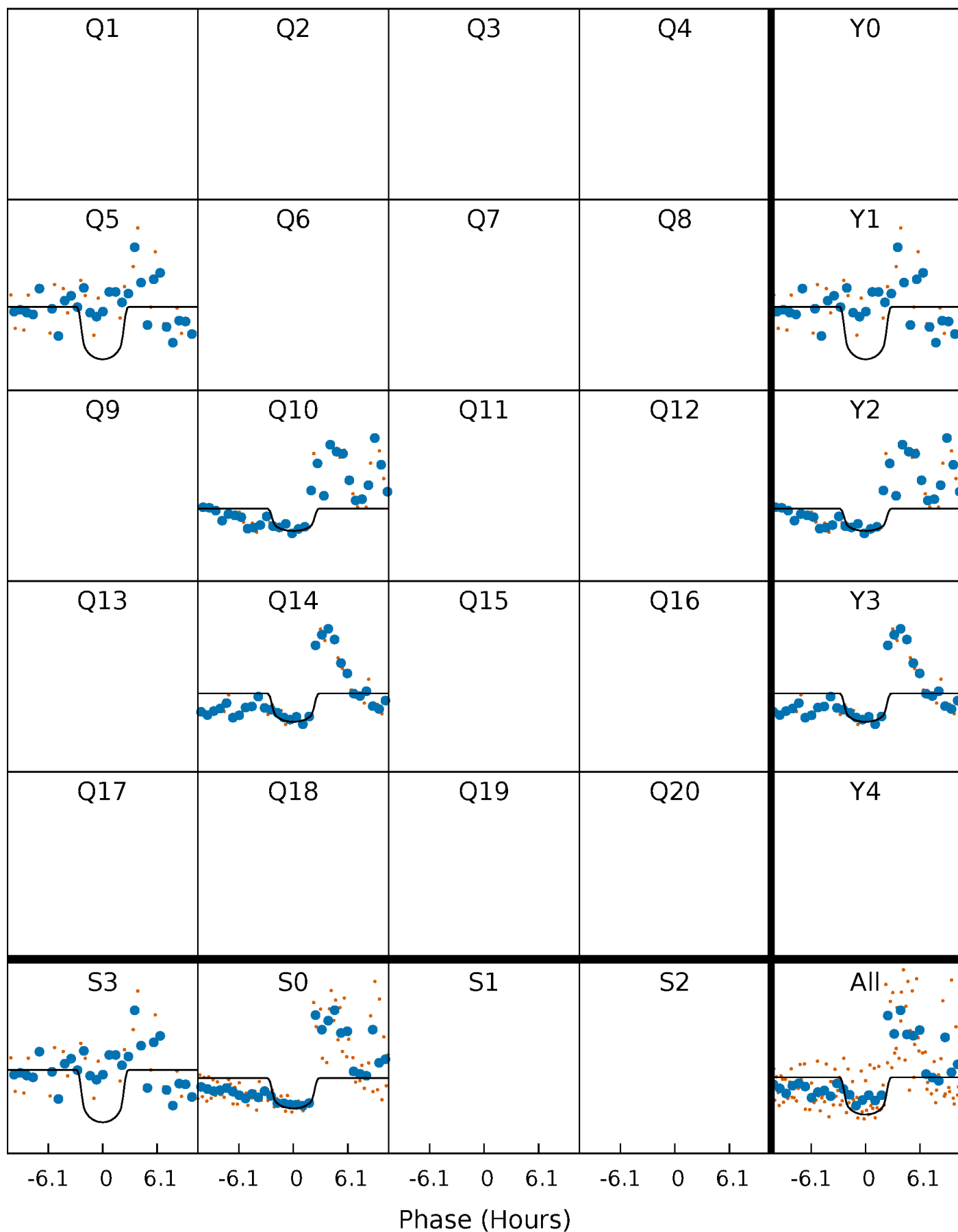
TCE 011232205-05     $P=425.742358$  Days     $T_0=516.052223$  (BKJD)





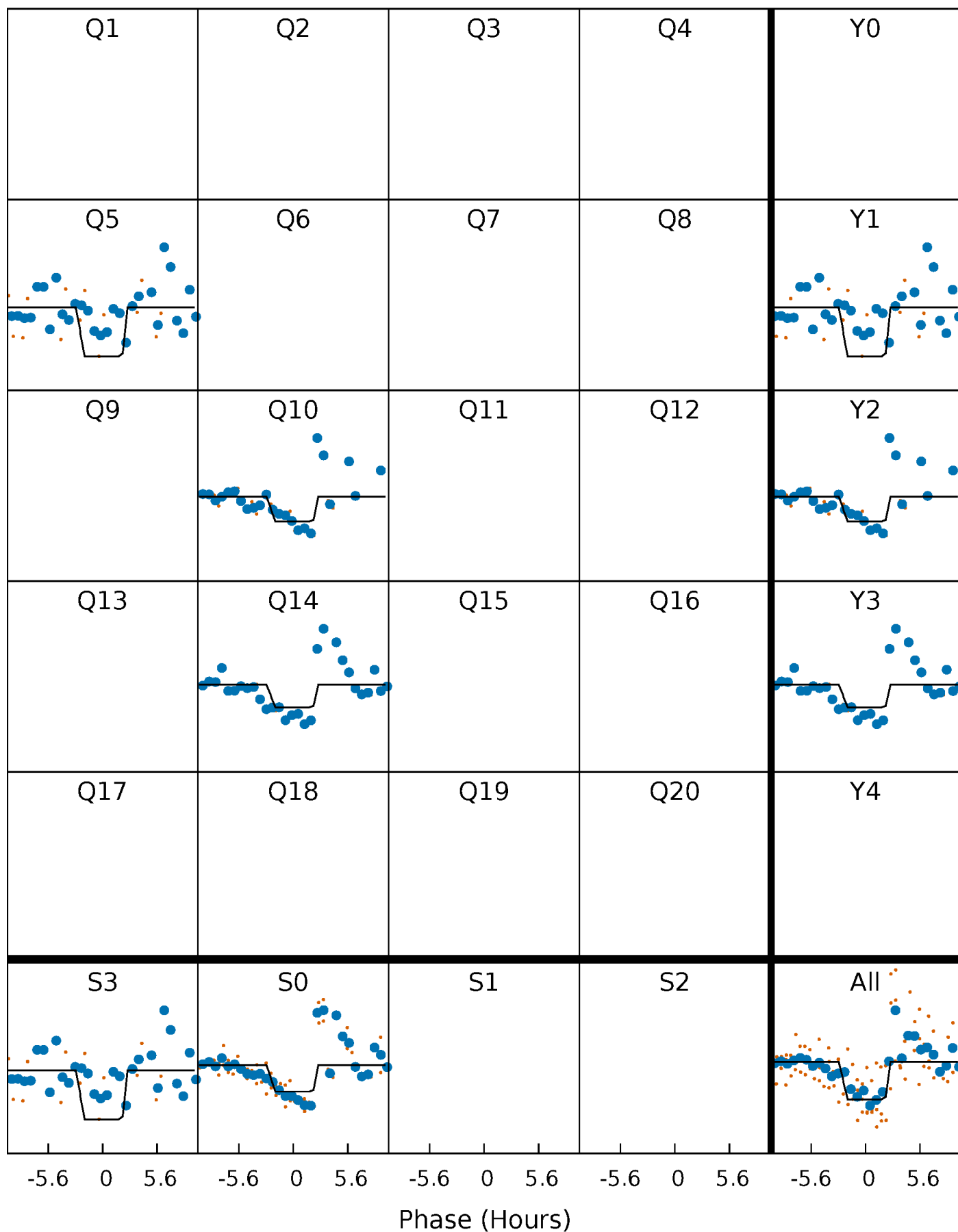
# DV Quarter-Phased Transit Curves

TCE 011232205-05     $P=425.742358$  Days     $T_0=516.052223$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

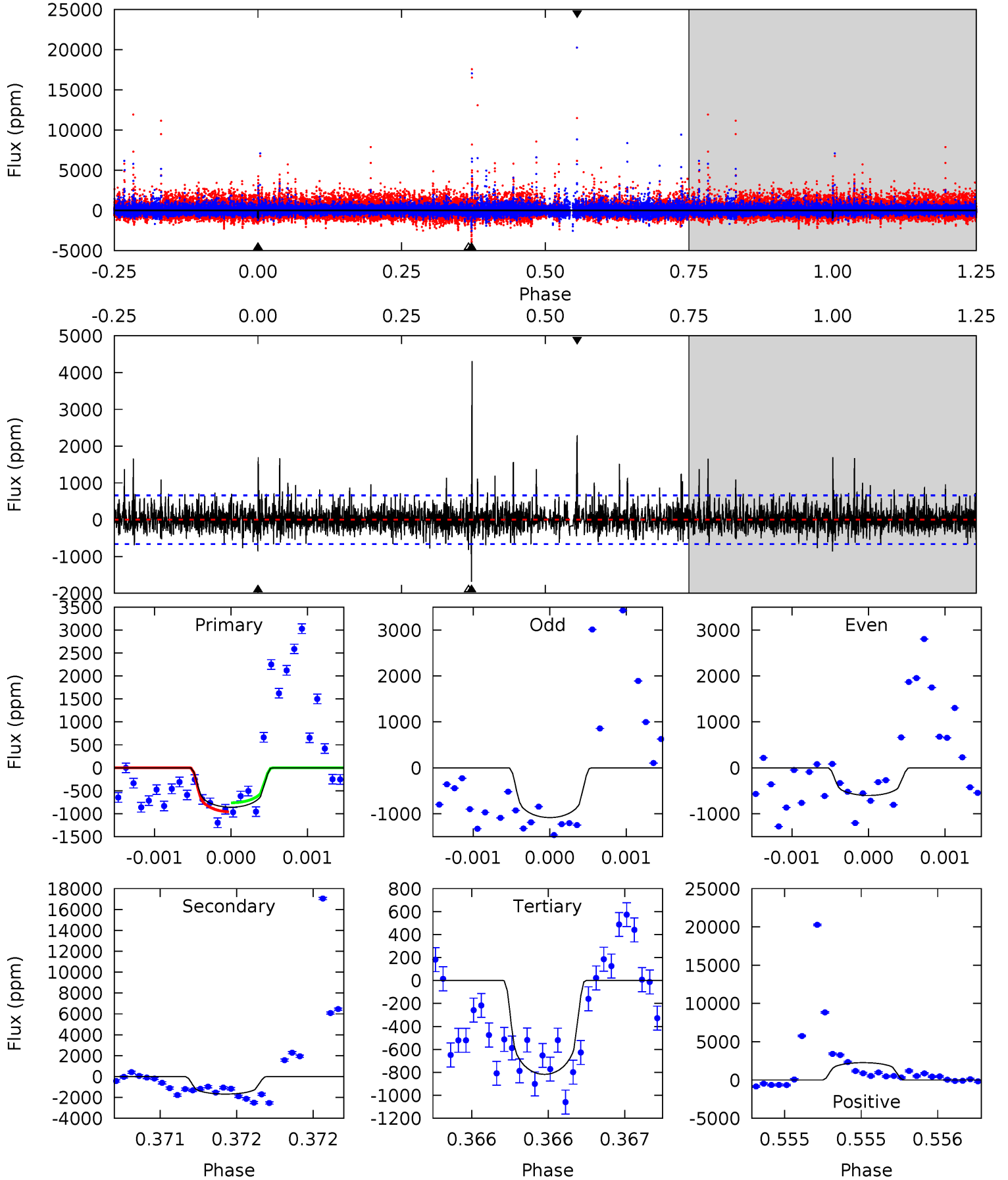
TCE 011232205-05     $P=425.753656$  Days     $T_0=516.027093$  (BKJD)



# DV Model-Shift Uniqueness Test

011232205-05, P = 425.742358 Days, E = 90.309865 Days

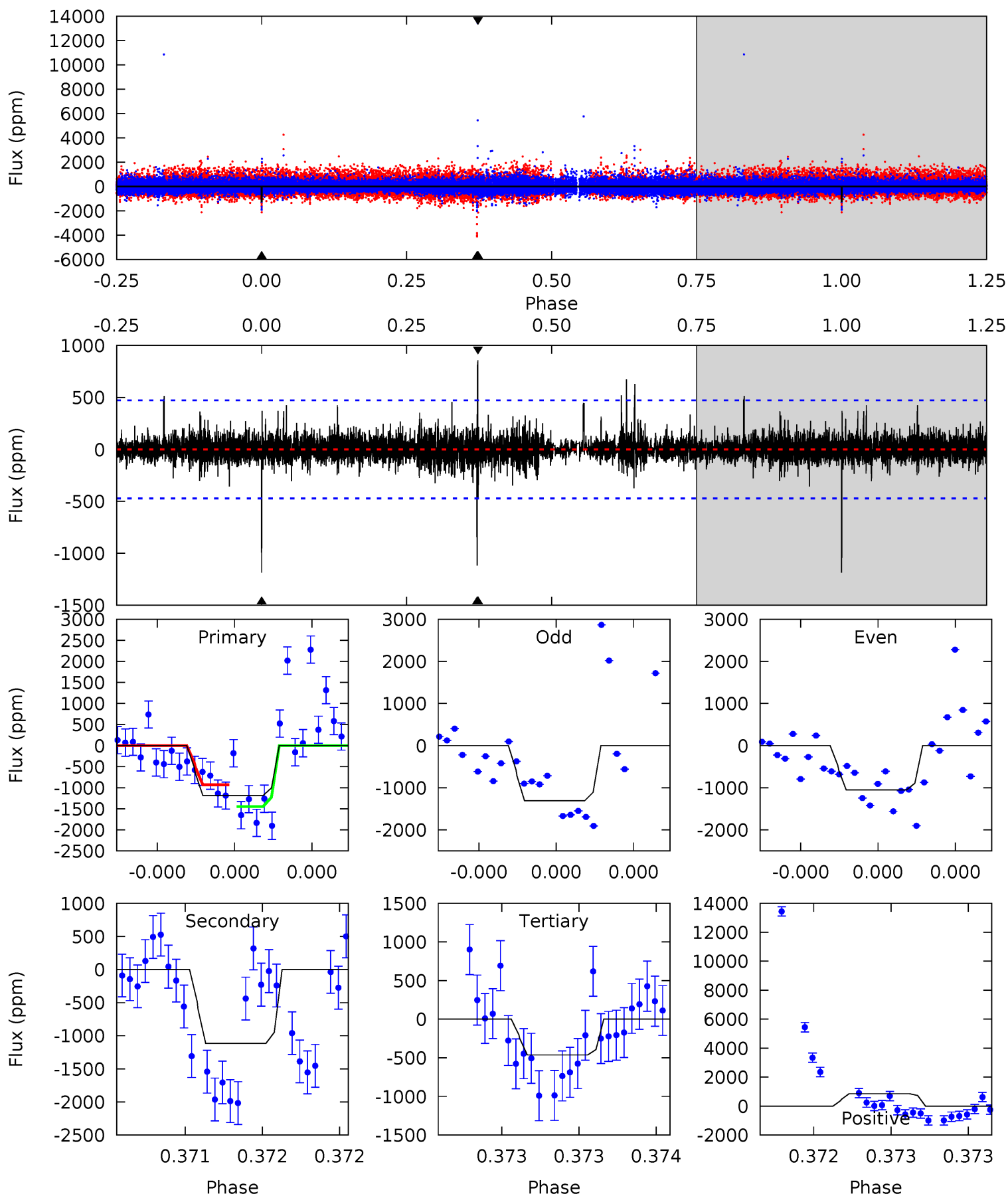
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.21	14.1	6.87	19.1	5.56	3.47	2.18	0.34	-11.9	7.27	-4.95	0.86	0.70	0.72	0.83



# Alt Model-Shift Uniqueness Test

011232205-05, P = 425.753656 Days, E = 90.273437 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
14.1	13.2	5.49	10.2	5.60	3.52	1.02	8.57	3.87	7.74	3.05	1.34	0.85	0.42	3.06



### Stellar Parameters For KIC 011232205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5367^{+159}_{-143}$	$3.973^{+0.588}_{-0.252}$	$-0.220^{+0.350}_{-0.250}$	$1.596^{+0.686}_{-0.838}$	$0.873^{+0.086}_{-0.115}$	$0.302^{+2.236}_{-0.181}$
	+3%/-3%	+15%/-6%	+159%/-114%	+43%/-53%	+10%/-13%	+739%/-60%
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 011232205-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1682 \pm 119$	$5.92^{+4.01}_{-2.76}$	$398^{+55}_{-59}$	$5585^{+1991}_{-909}$	$29151^{+71268}_{-18661}$
Alt.	$-1115 \pm 84$	$5.45^{+3.63}_{-2.61}$	$401^{+45}_{-62}$	$5253^{+1897}_{-760}$	$23007^{+59817}_{-14629}$

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

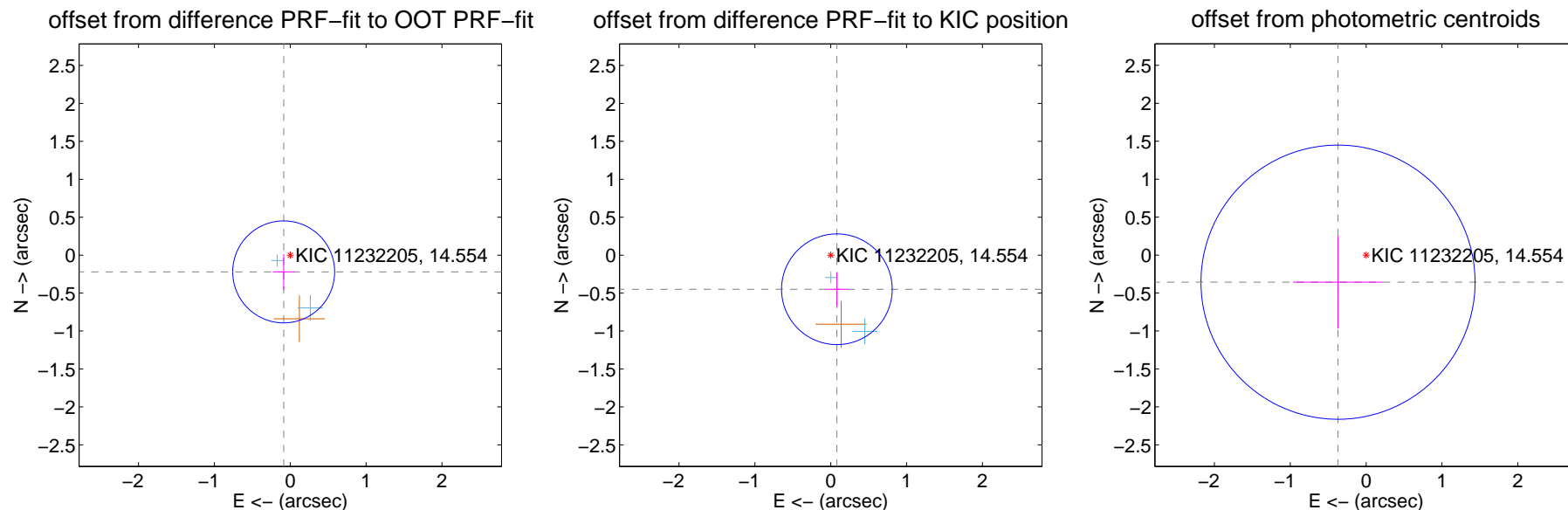
## DV Centroid Data

Supplemental centroid analysis for 011232205-05. Kepler magnitude: 14.55. Transit SNR 7.50

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.237 \pm 0.224$	1.06	$0.087 \pm 0.145$	$-0.221 \pm 0.234$
PRF-fit source offset from KIC position	$0.457 \pm 0.243$	1.88	$-0.081 \pm 0.154$	$-0.449 \pm 0.225$
photometric centroid source offset	$0.51 \pm 0.60$	0.85	$0.37 \pm 0.59$	$-0.36 \pm 0.61$

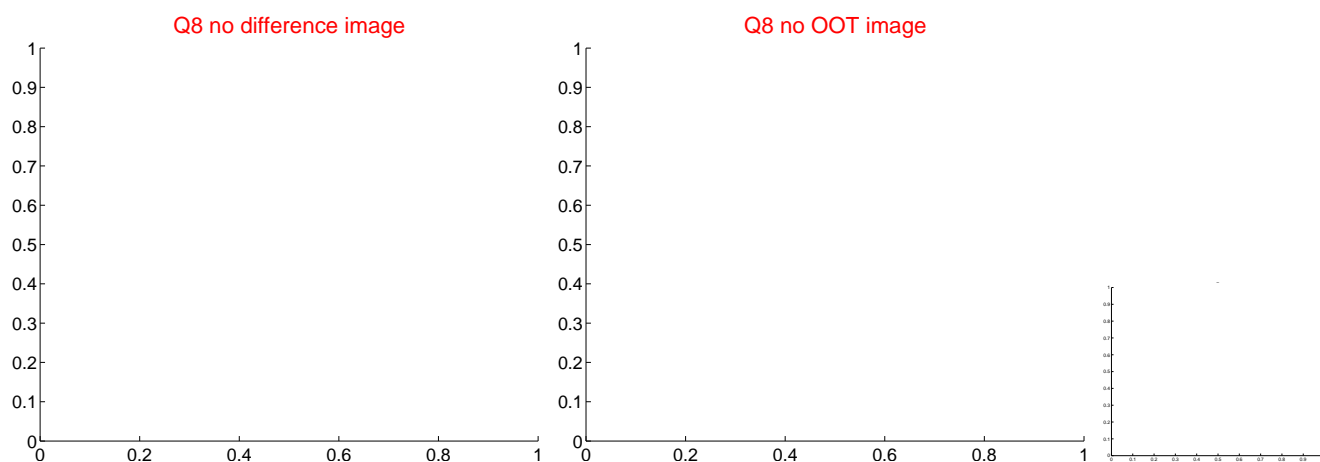
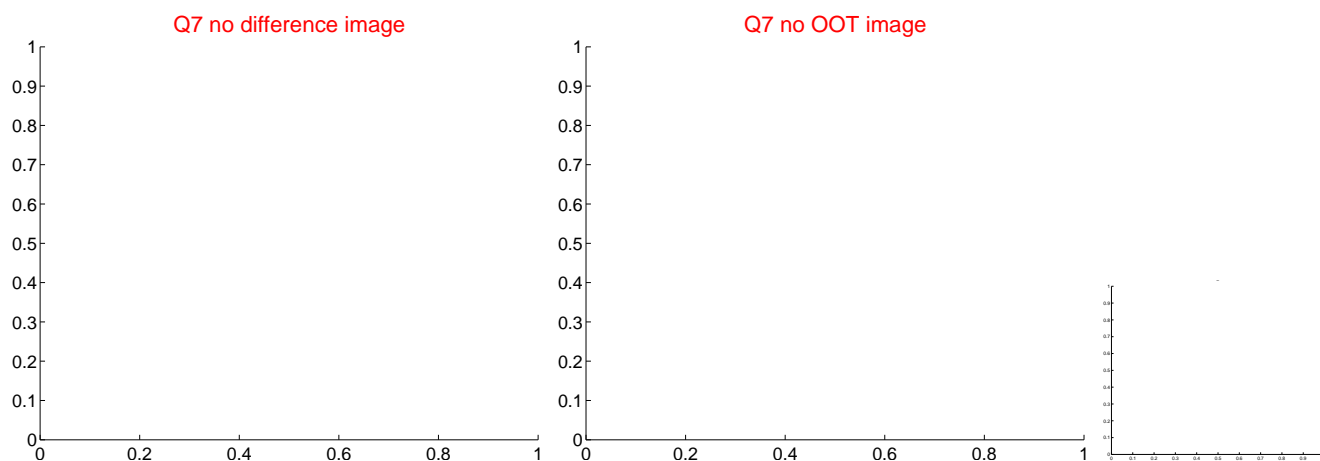
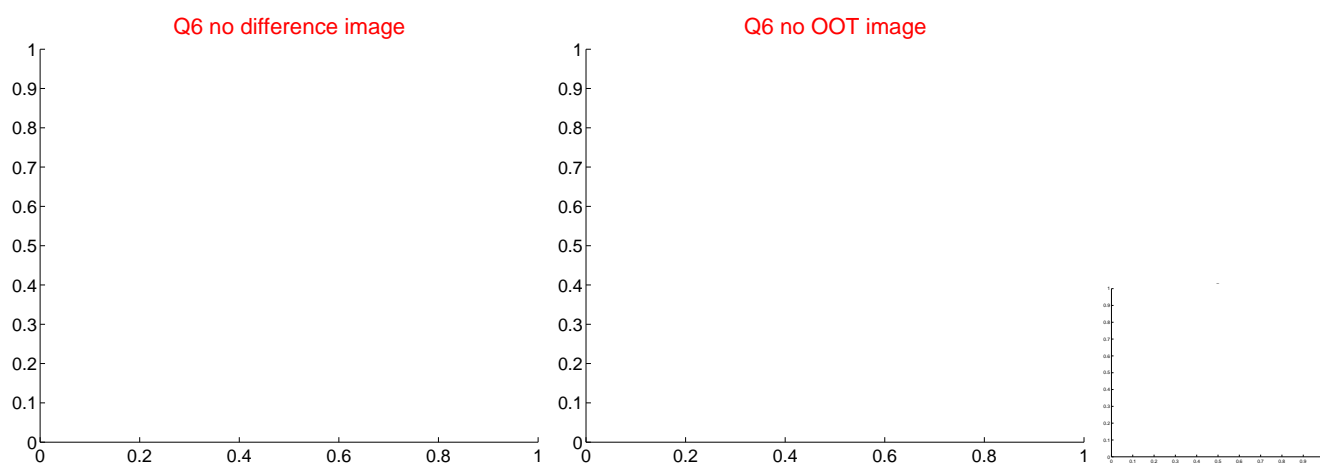
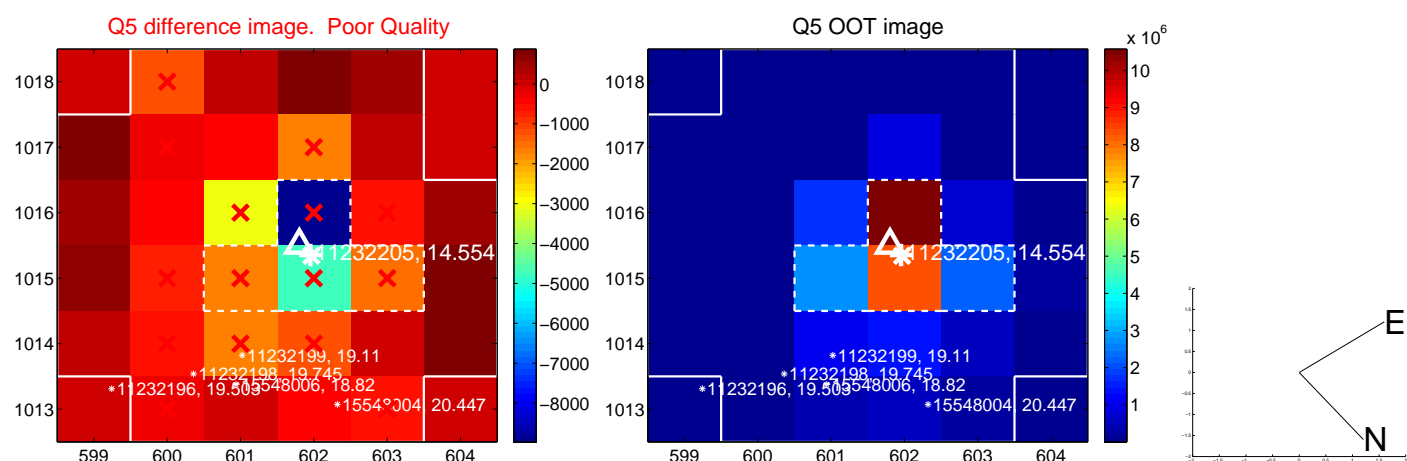


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

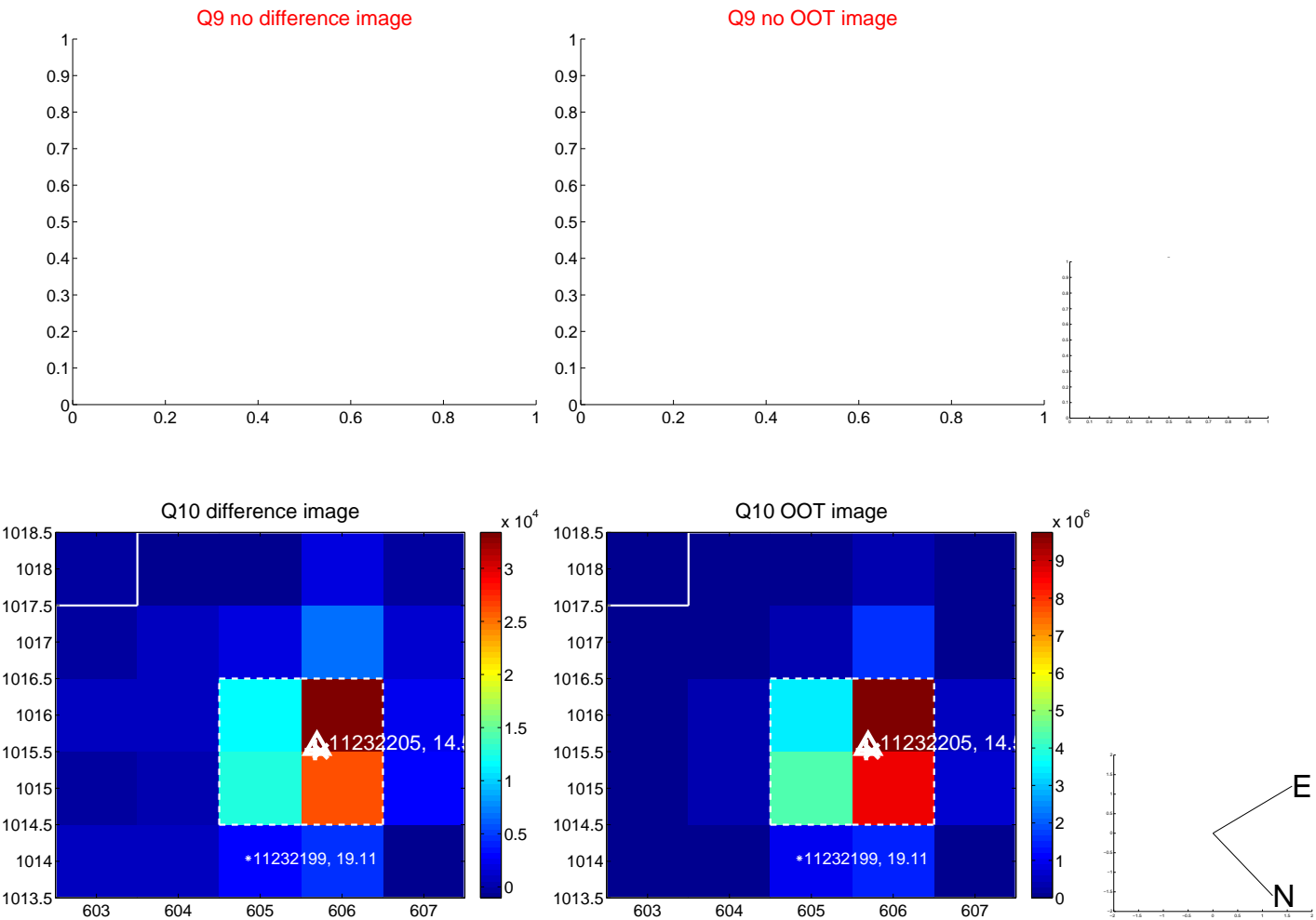


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value





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

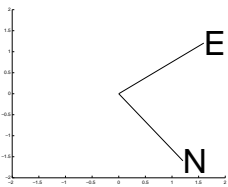
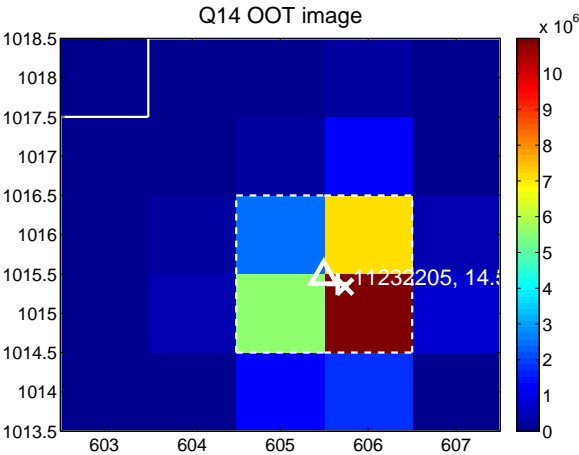
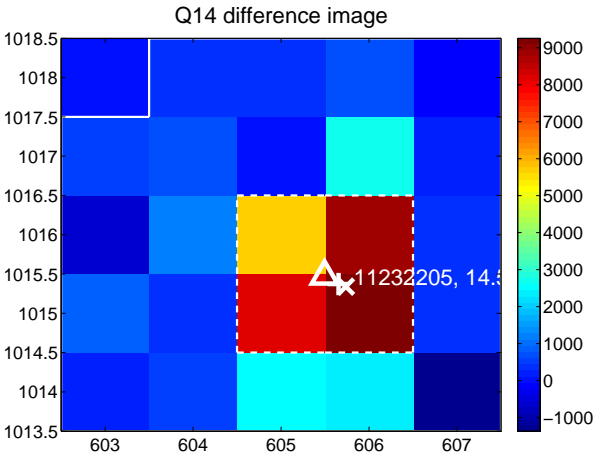


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

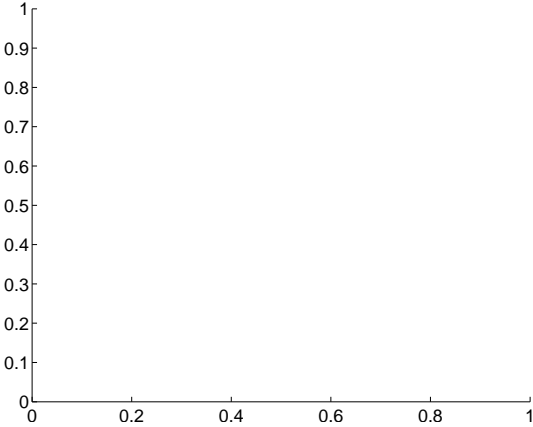
Q13 no difference image



Q13 no OOT image



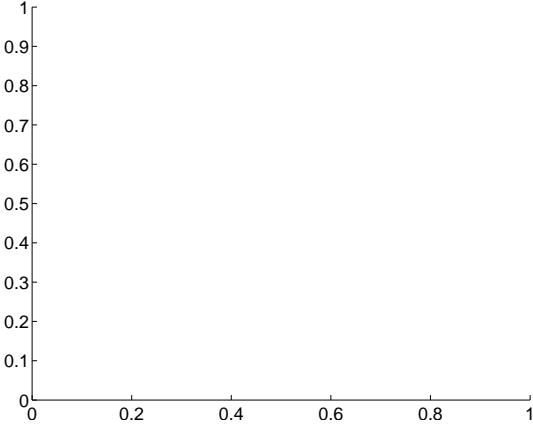
Q15 no difference image



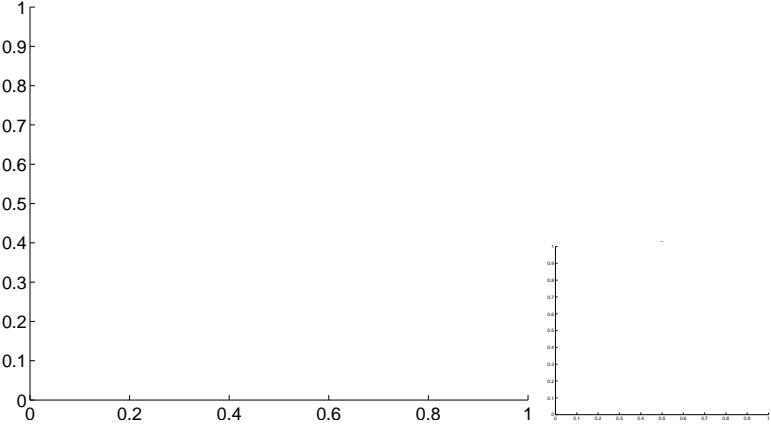
Q15 no OOT image



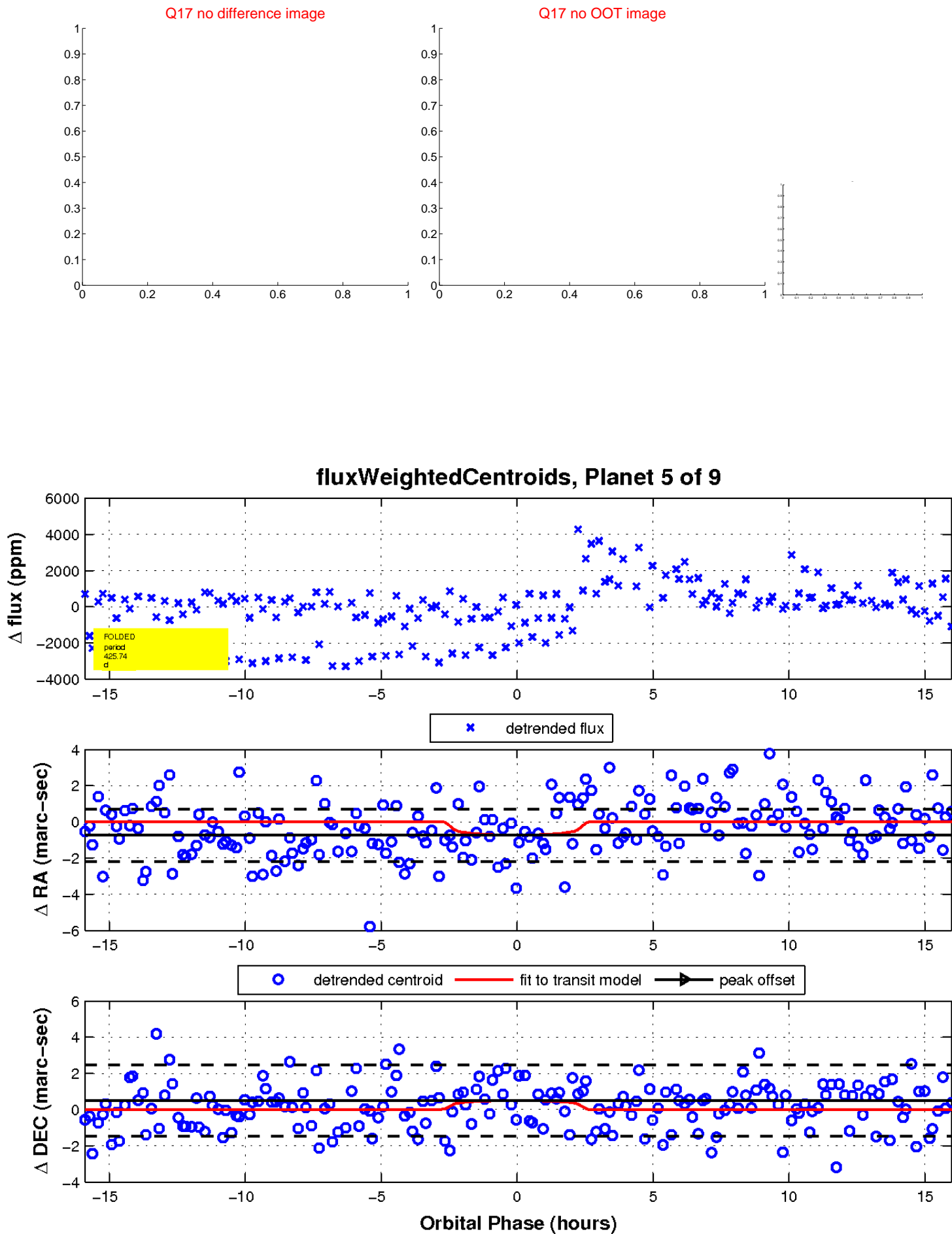
Q16 no difference image



Q16 no OOT image

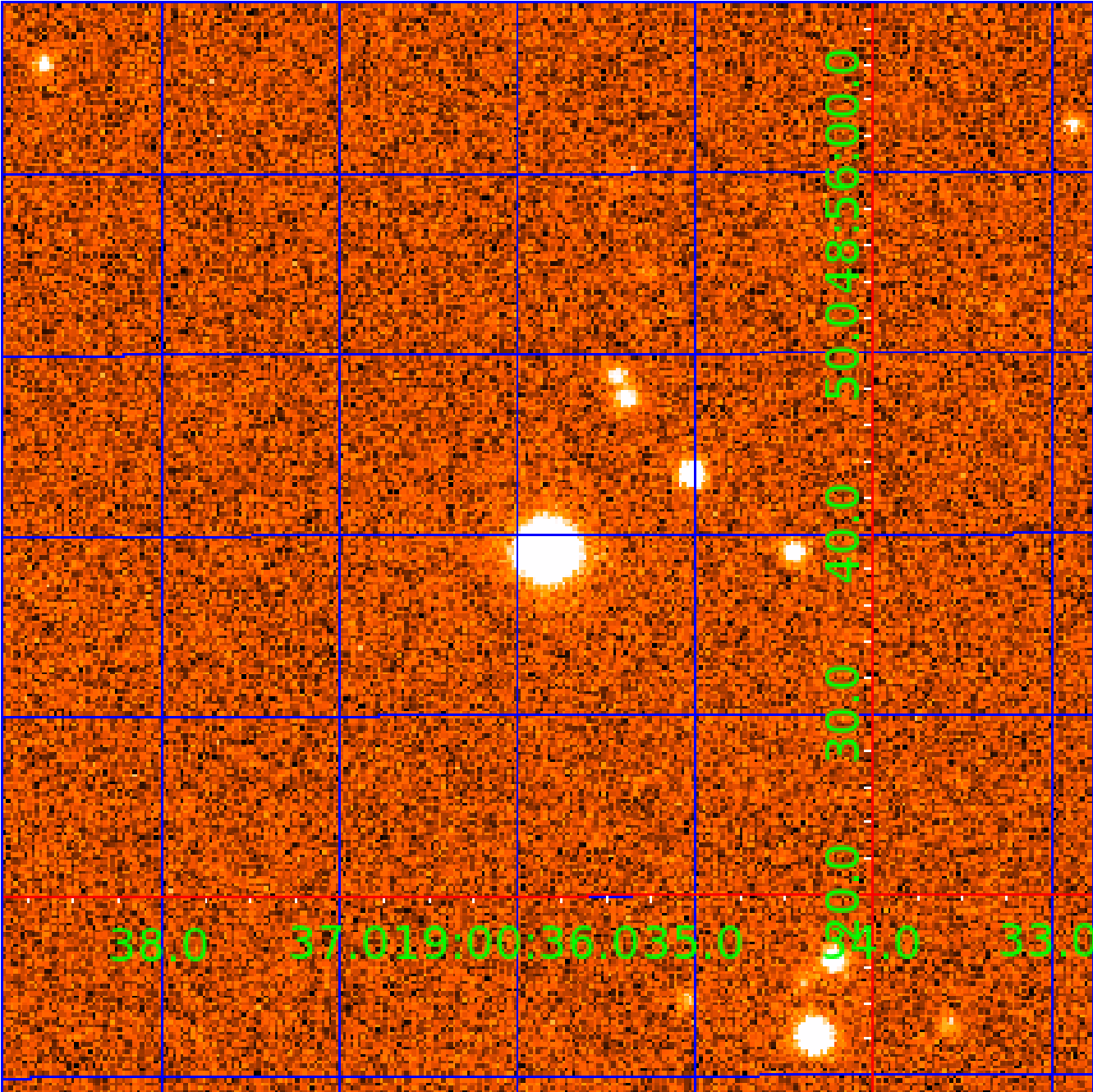


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## KIC 011232205

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011232205-01	OBS	No	289.165284	203.581787	1255.7	5.011	13.6	6.7	1.60	5367	5.92	2.83
011232205-02	OBS	No	501.114326	209.774135	2344.5	2.413	14.8	10.0	1.60	5367	8.16	1.36
011232205-03	OBS	No	268.054251	304.808016	670.8	10.500	12.2	-1.0	1.60	5367	4.06	3.13
011232205-04	OBS	No	365.053489	160.457445	1585.2	5.011	15.2	8.1	1.60	5367	6.24	2.07
011232205-05	OBS	No	425.742358	516.052223	1476.6	5.342	12.7	7.5	1.60	5367	6.70	1.69
011232205-06	OBS	No	391.007218	266.147874	830.6	9.160	14.4	4.6	1.60	5367	4.82	1.89
011232205-07	OBS	No	355.583516	172.560446	1144.2	2.845	12.5	6.7	1.60	5367	5.52	2.15
011232205-08	OBS	No	377.795857	471.462579	1947.1	25.432	11.5	6.6	1.60	5367	6.94	1.98
011232205-09	OBS	No	502.750358	190.429716	1414.1	3.497	11.0	7.0	1.60	5367	6.26	1.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011232205-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011232205-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011232205-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS
011232205-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-08	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011232205-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

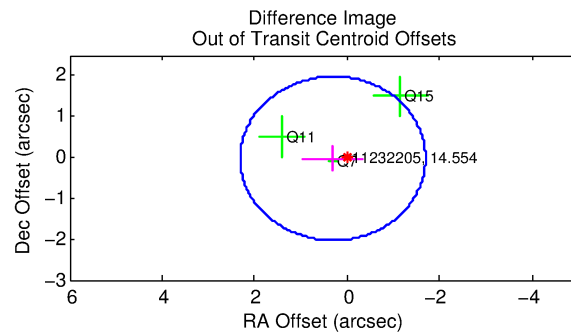
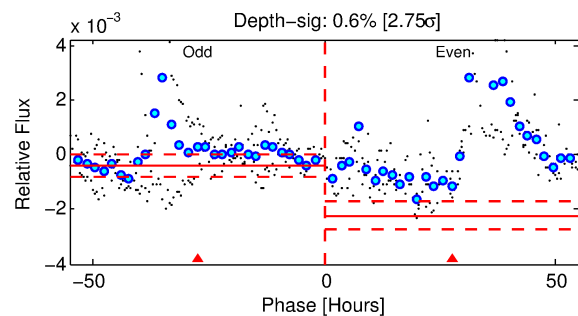
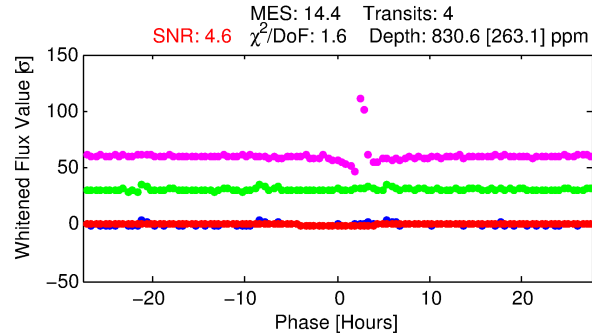
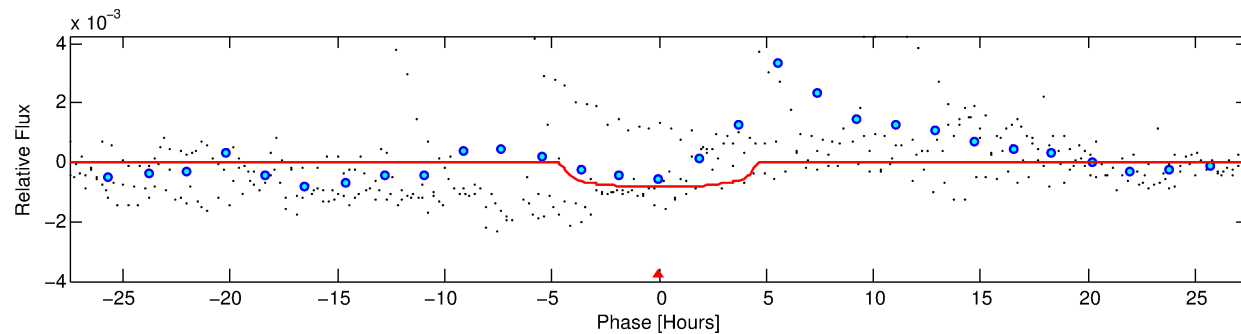
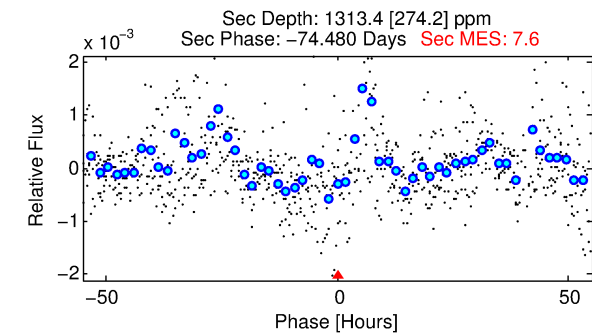
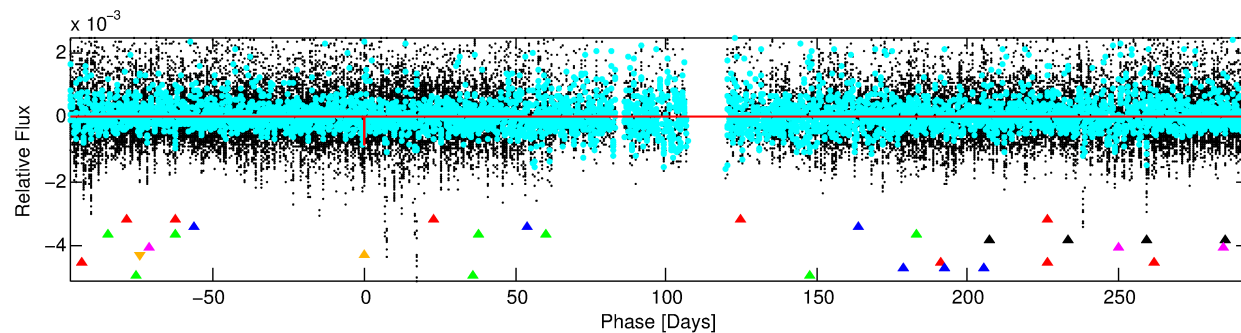
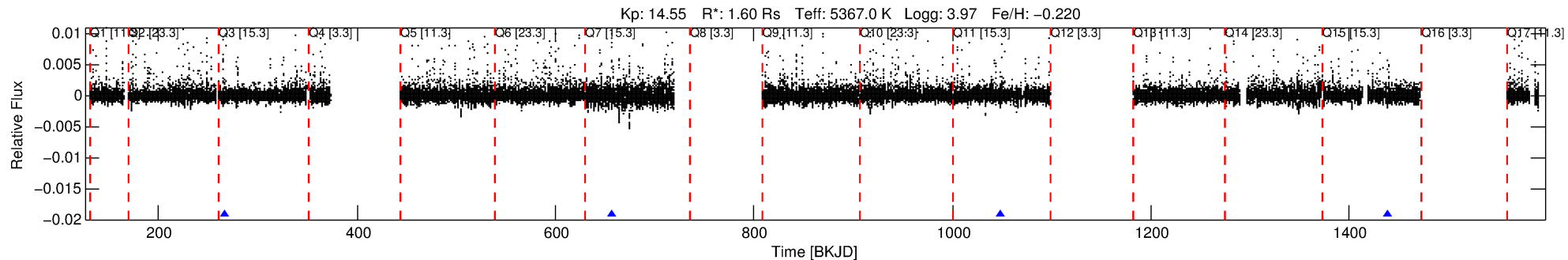
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011232205-06

No Significant Match Found

# DV One-Page Summary

KIC: 11232205 Candidate: 6 of 9 Period: 391.007 d



## DV Fit Results:

Period = 391.00722 [0.00895] d  
Epoch = 266.1479 [0.0168] BKJD  
Rp/R\* = 0.0277 [0.0184]  
a/R\* = 261.54 [655.04]  
b = 0.64 [2.31]  
Seff = 1.89 [1.85]  
Teq = 299 [73] K  
Rp = 4.82 [4.08] Re  
a = 1.0004 [0.5714] AU  
Ag = 31112.66 [51495.34] [0.60 $\sigma$ ]  
Teffp = 6141 [2069] K [2.82 $\sigma$ ]

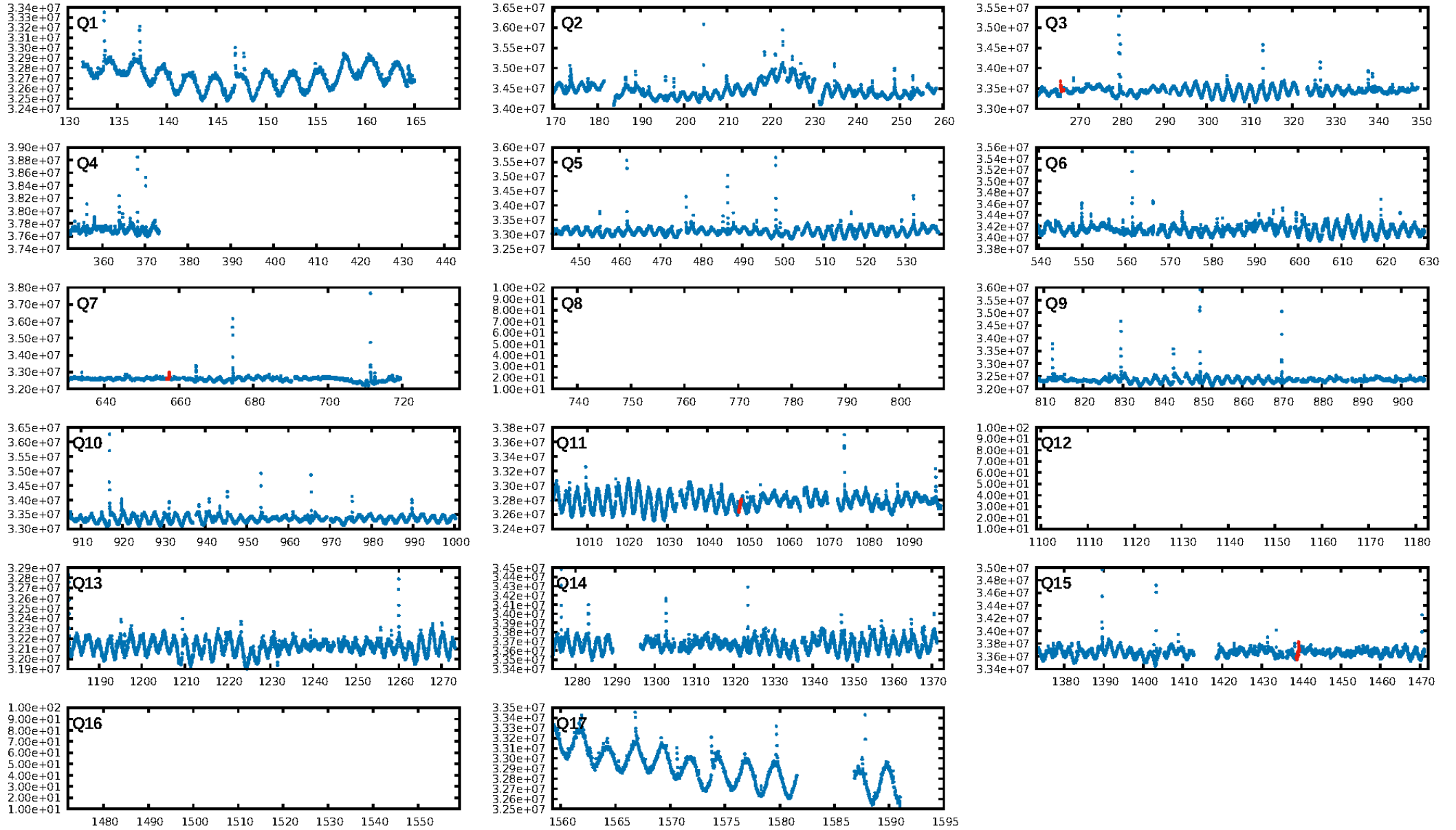
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.73 $\sigma$ ]  
LongPeriod-sig: 100.0% [78.62 $\sigma$ ]  
**ModelChiSquare2-sig: 0.2%**  
ModelChiSquareGof-sig: 88.0%  
Bootstrap-pfa: 2.22e-13  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 1.529  
**Centroid-sig: 0.0%**  
**Centroid-so: 2.347 arcsec [3.11 $\sigma$ ]**  
OotOffset-rm: 0.312 arcsec [0.47 $\sigma$ ]  
KicOffset-rm: 0.290 arcsec [0.71 $\sigma$ ]  
OotOffset-st: 0/3/0/0 [3]  
KicOffset-st: 0/3/0/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [4/4]

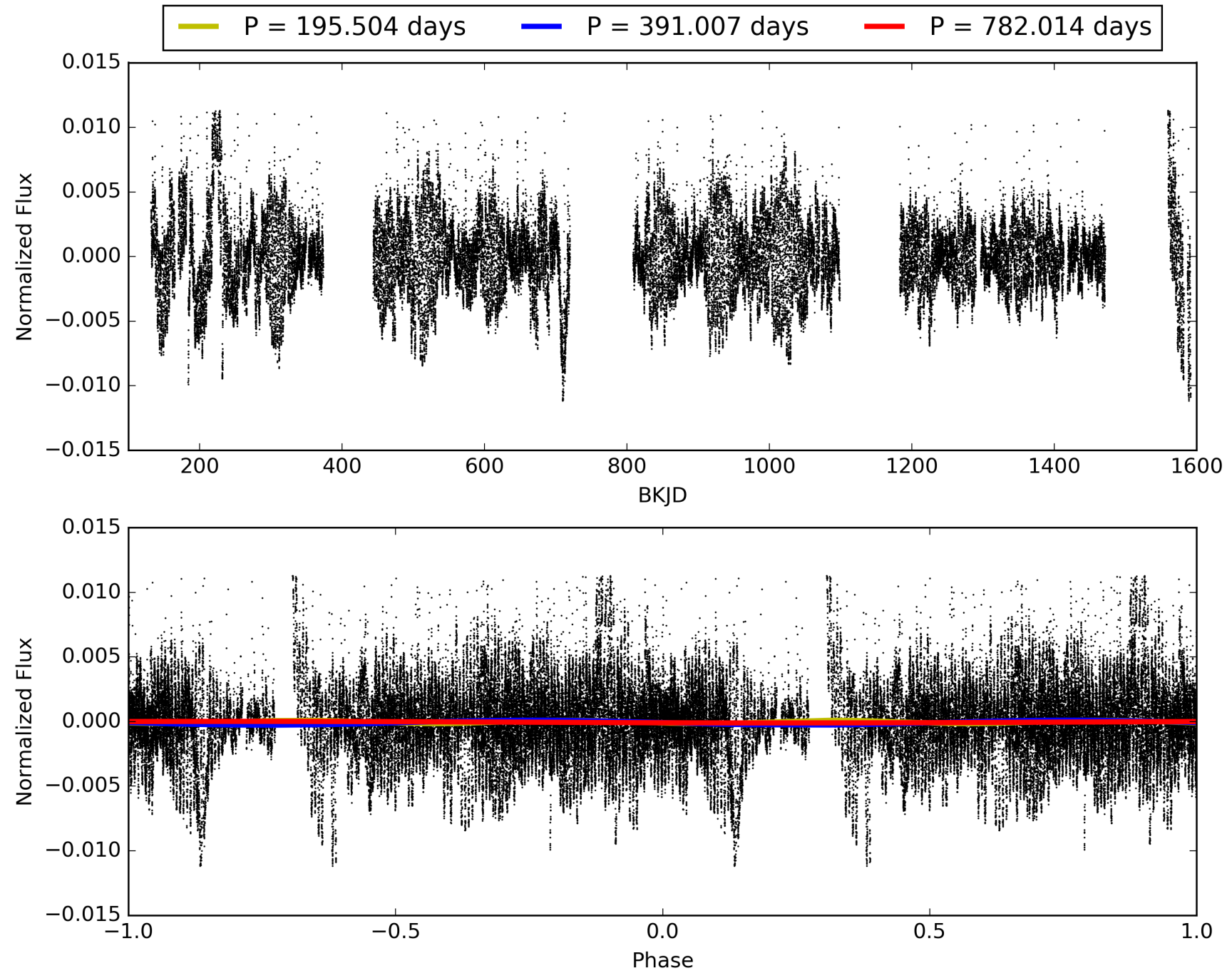
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:58:20 Z

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

# TCE 011232205-06, PDC Light Curves



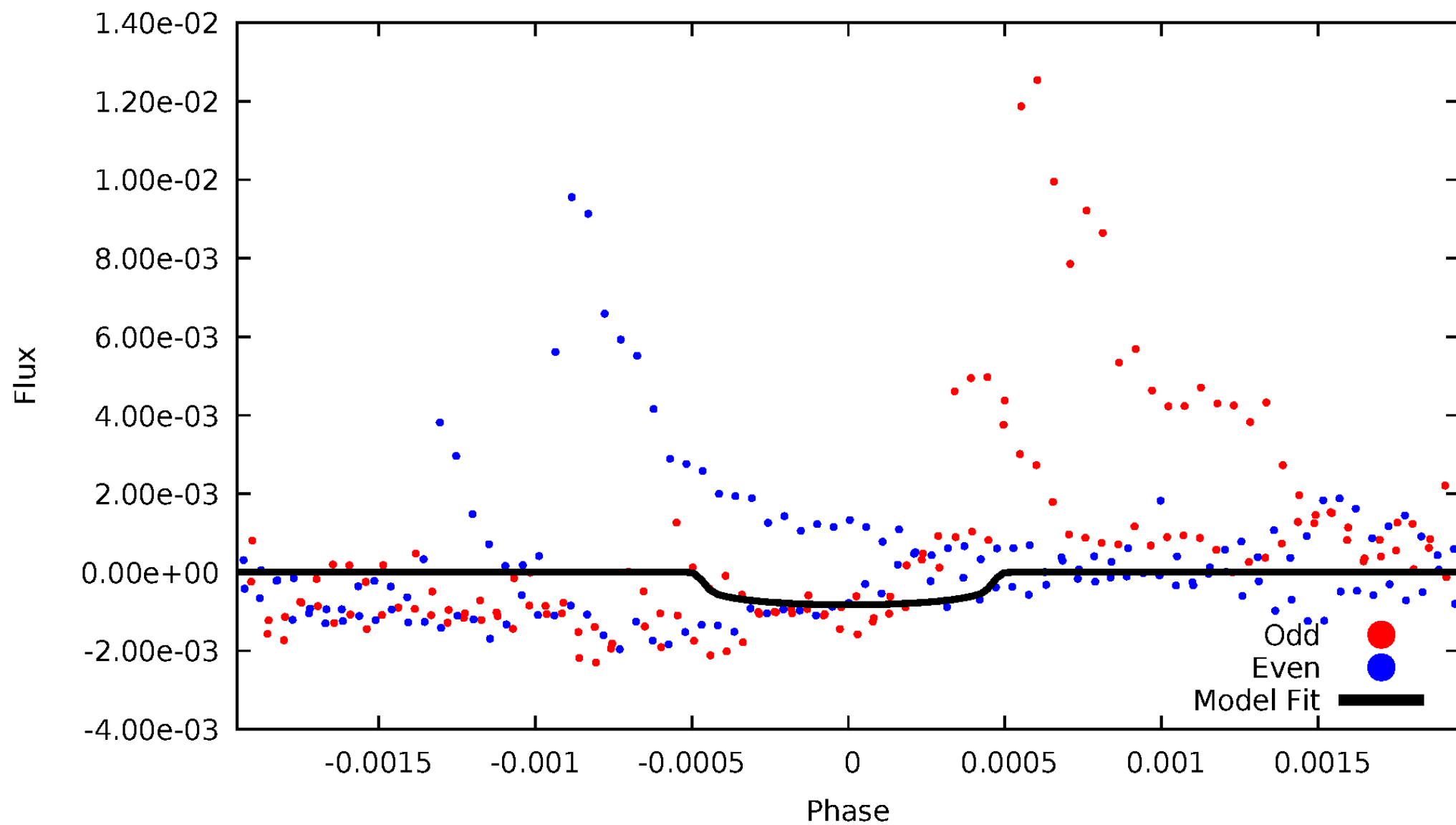
TCE 011232205-06





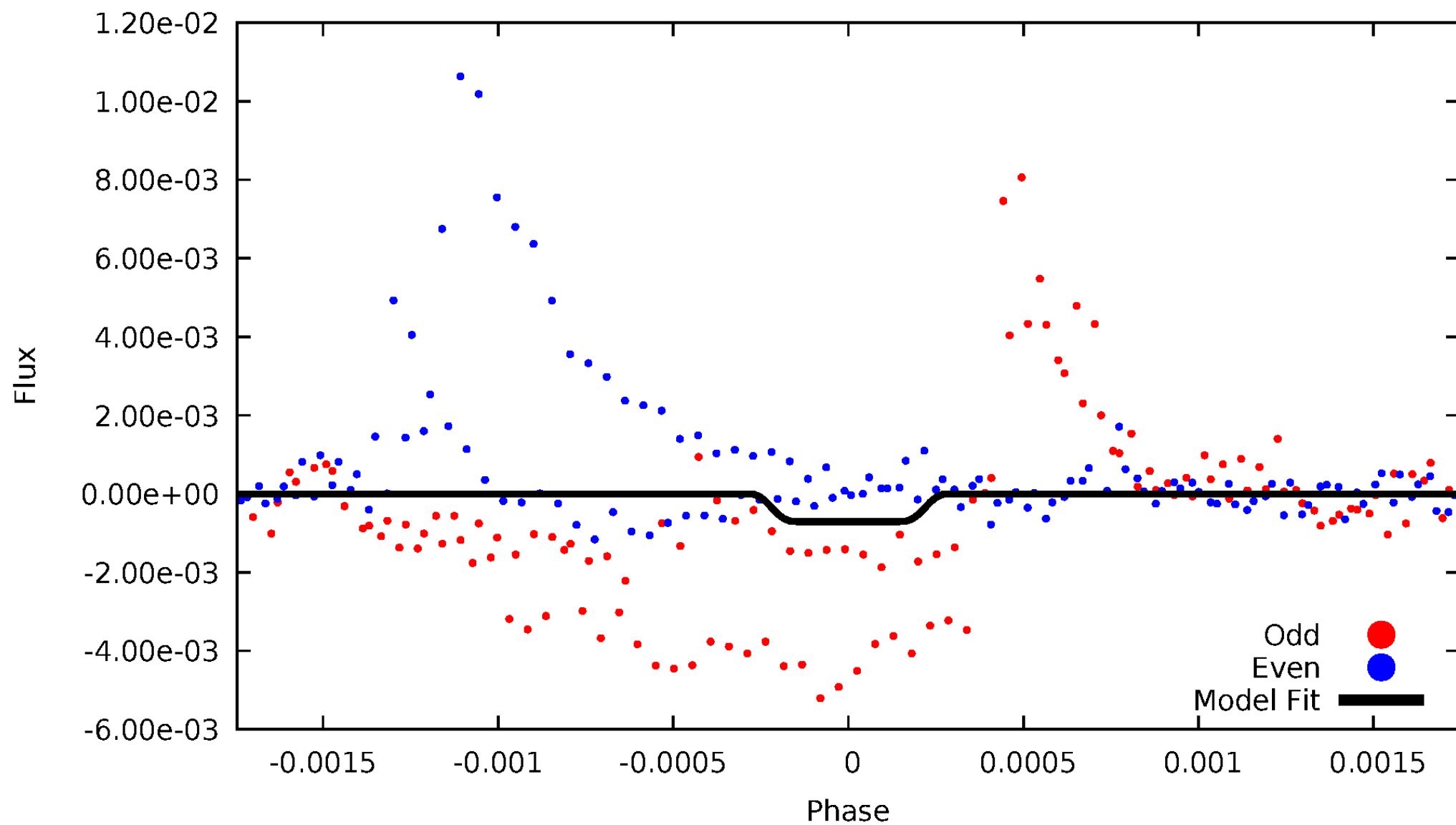
# DV Odd/Even

TCE 011232205-06



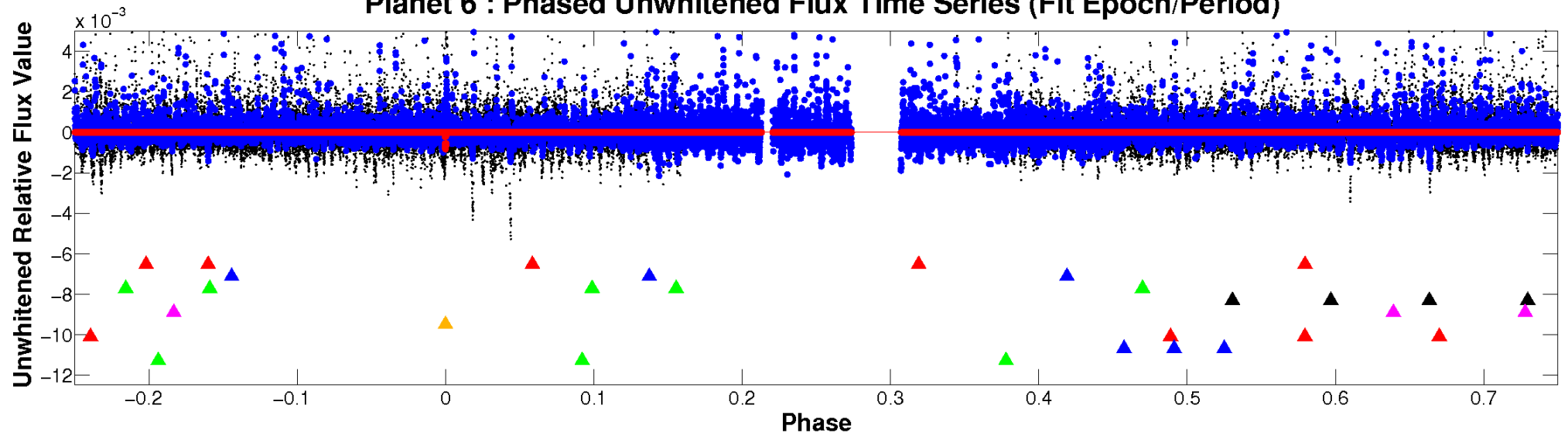
# ALT Odd/Even

TCE 011232205-06

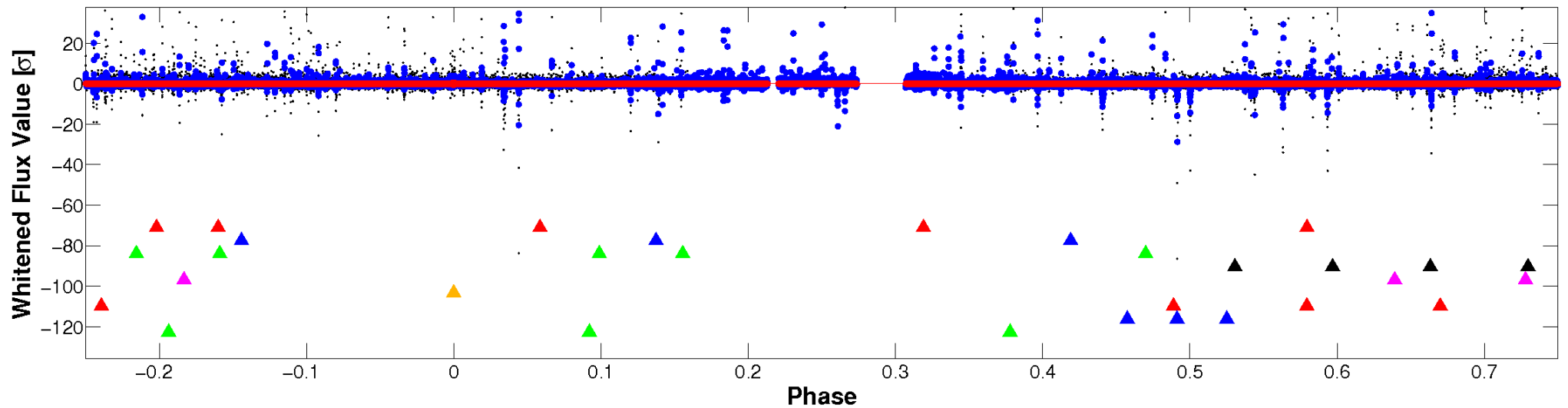


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

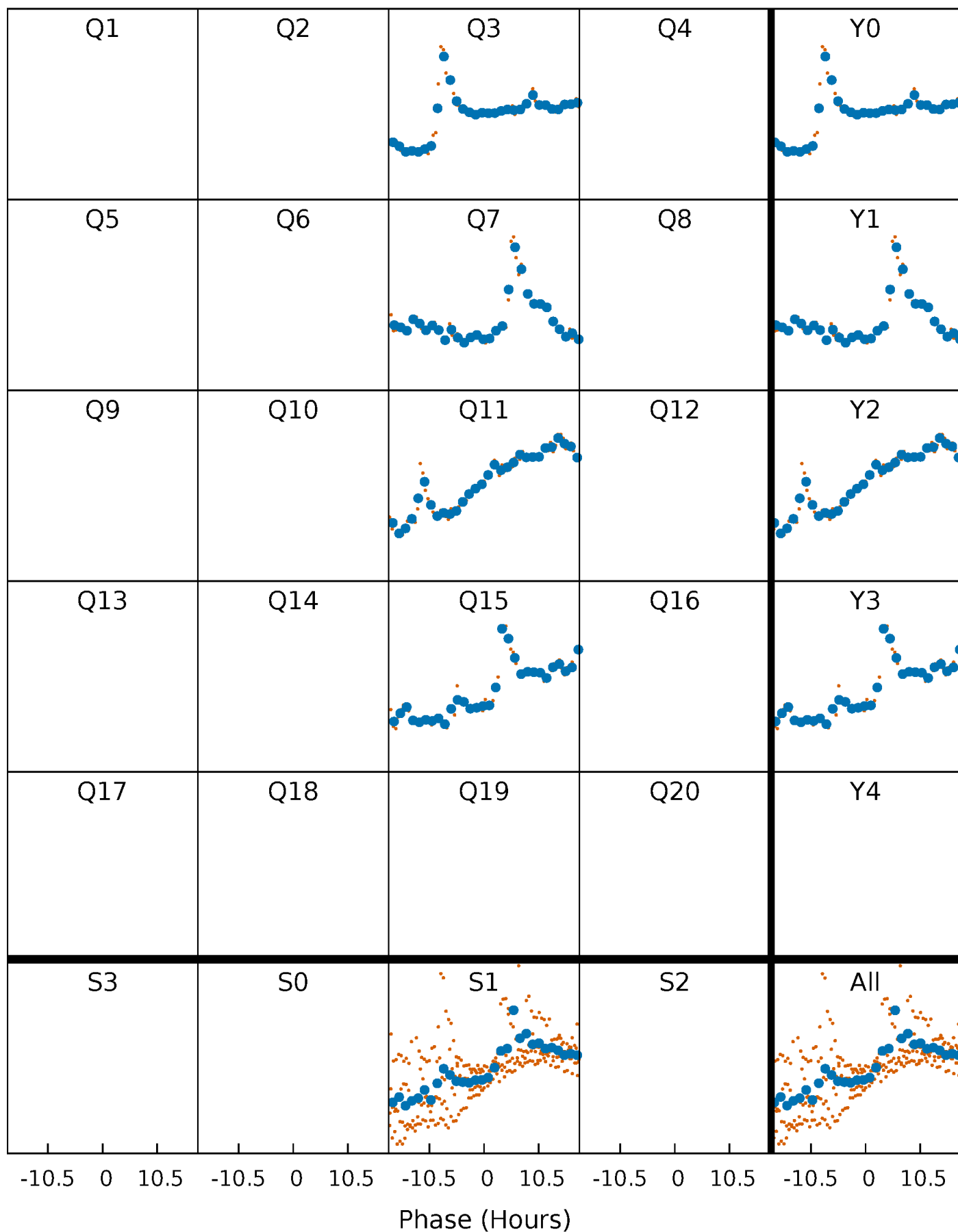


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



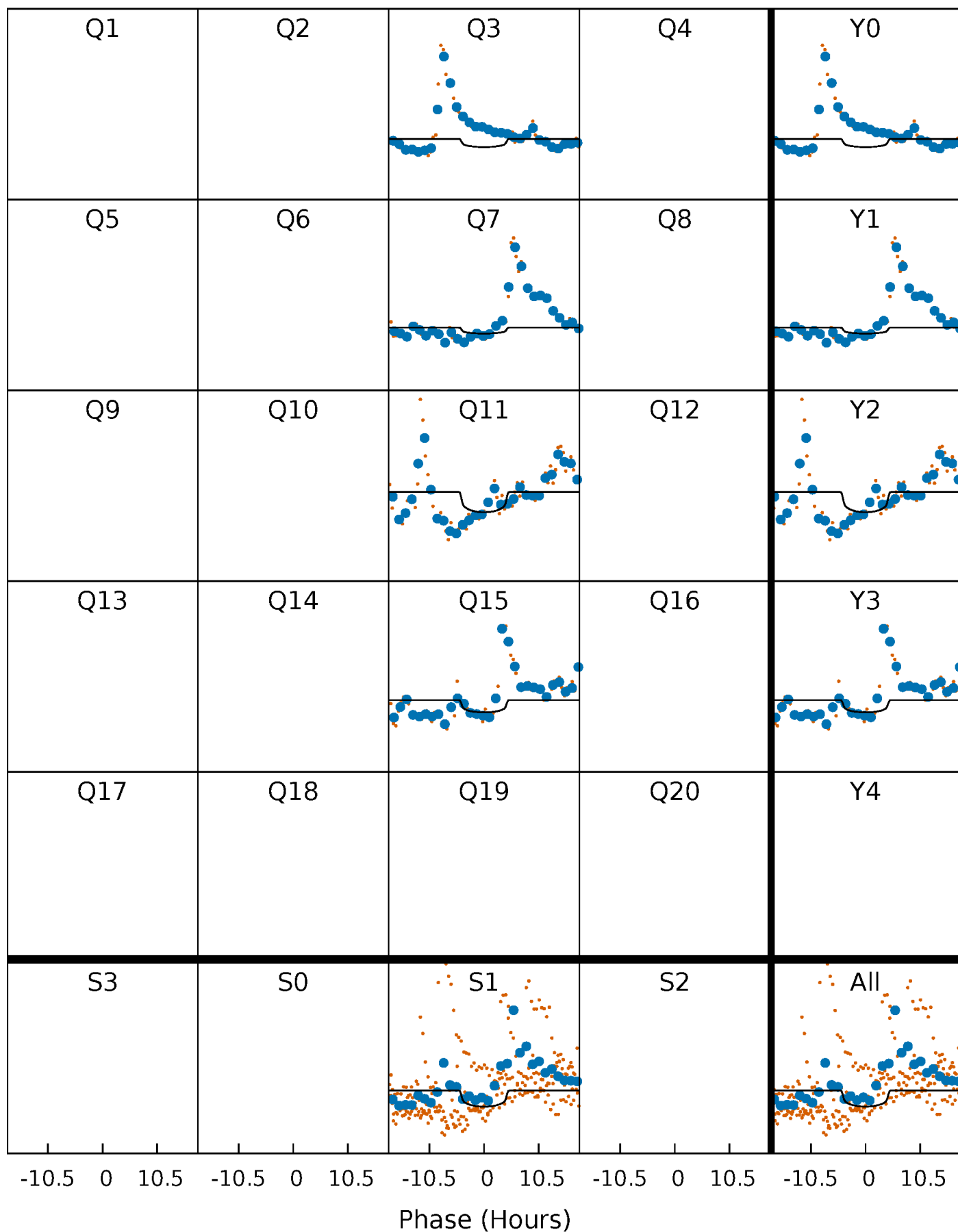
# PDC Quarter-Phased Transit Curves

TCE 011232205-06     $P=391.007218$  Days     $T_0=266.147874$  (BKJD)



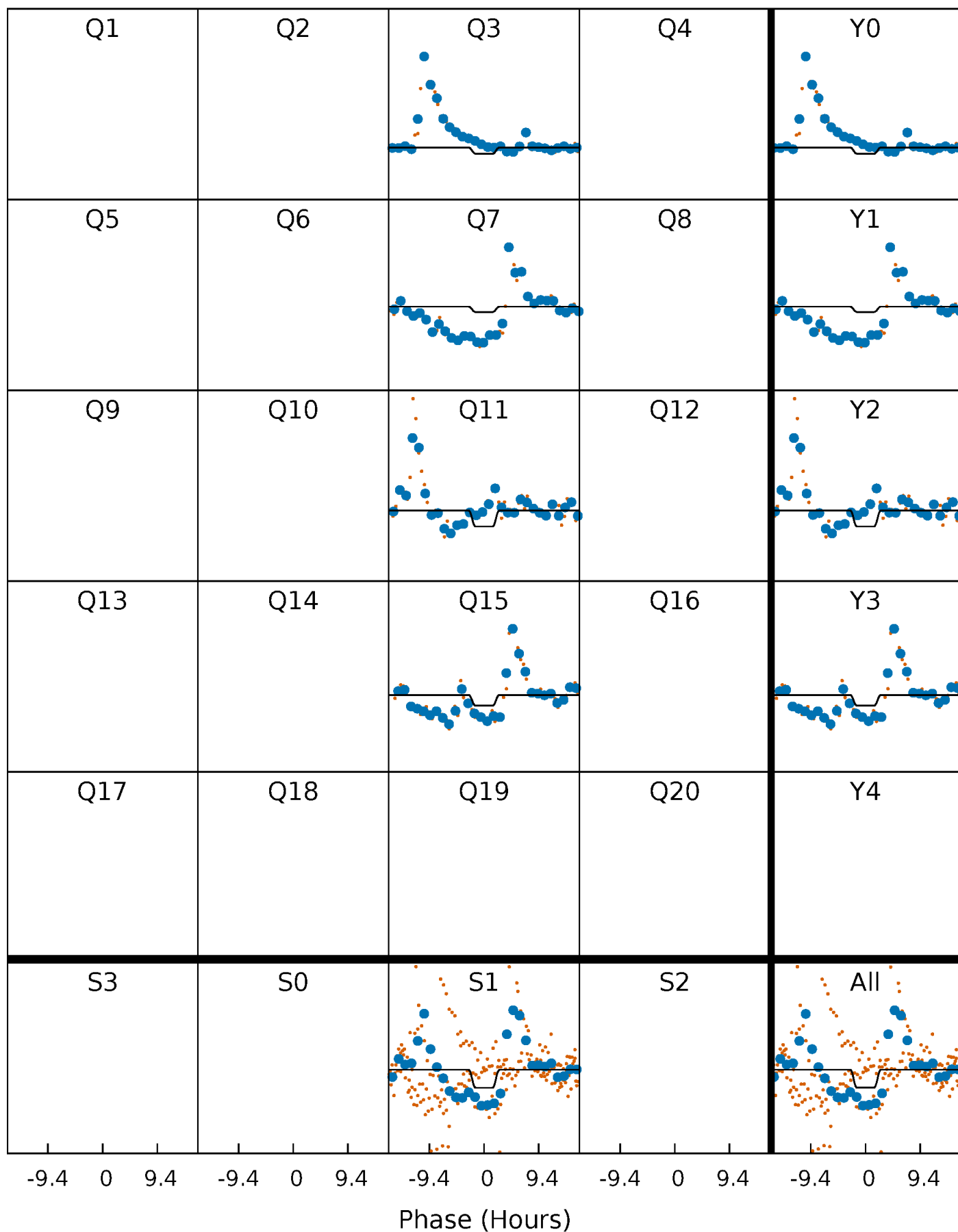
# DV Quarter-Phased Transit Curves

TCE 011232205-06     $P=391.007218$  Days     $T_0=266.147874$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

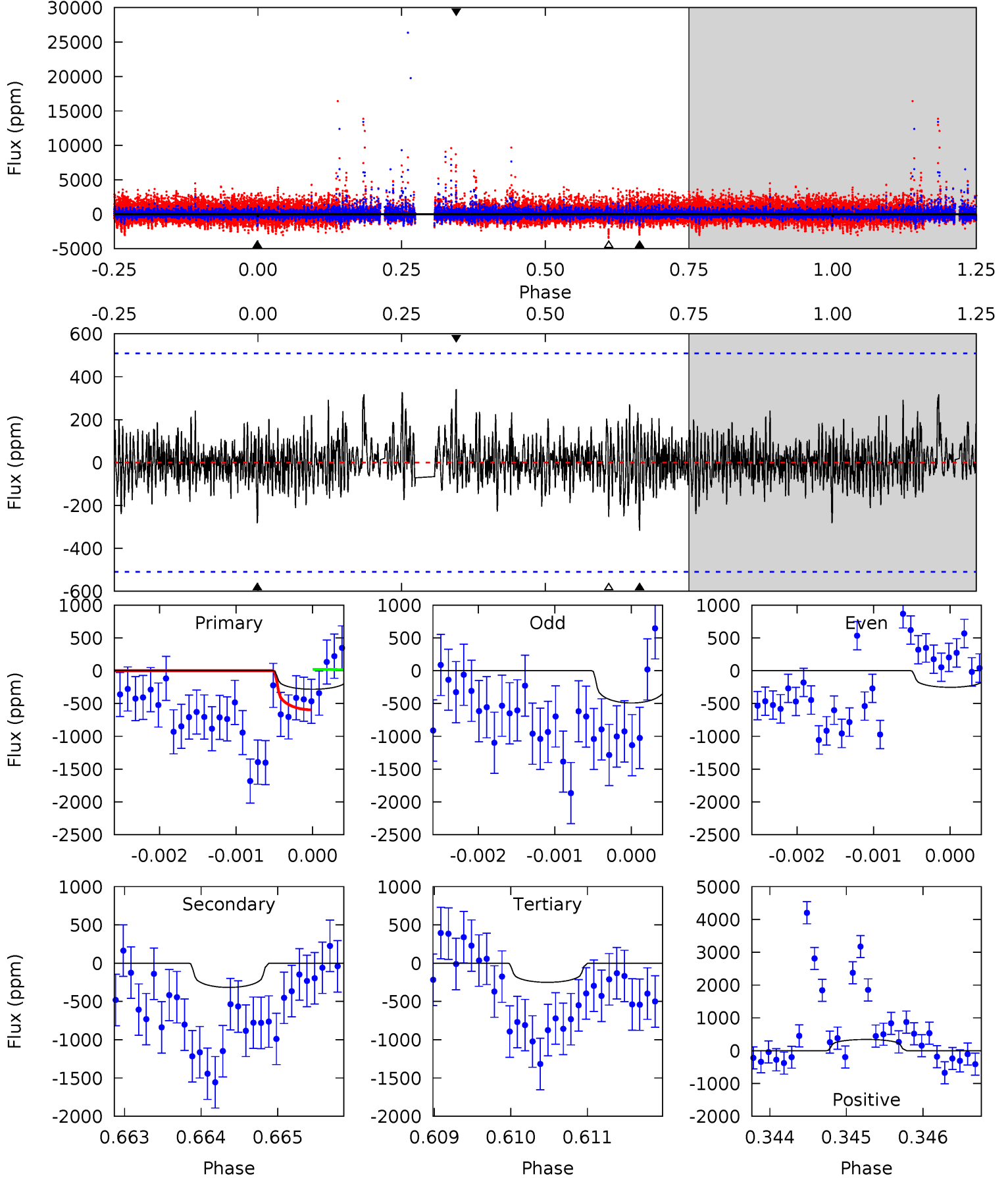
TCE 011232205-06 P=390.962115 Days  $T_0=266.235706$  (BKJD)



# DV Model-Shift Uniqueness Test

011232205-06, P = 391.007218 Days, E = 266.147874 Days

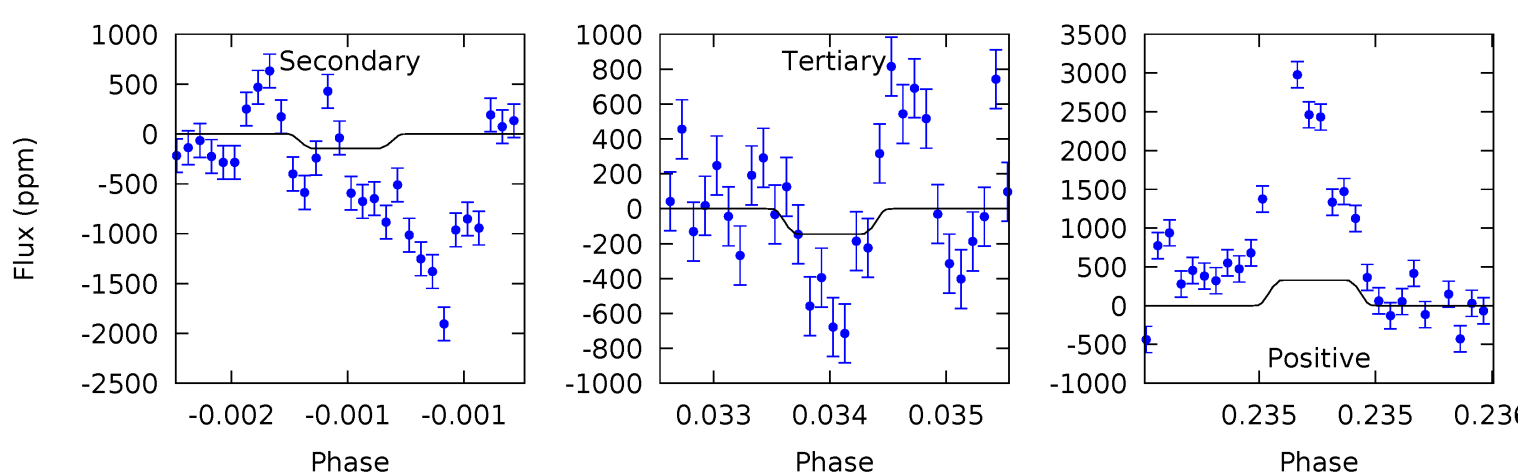
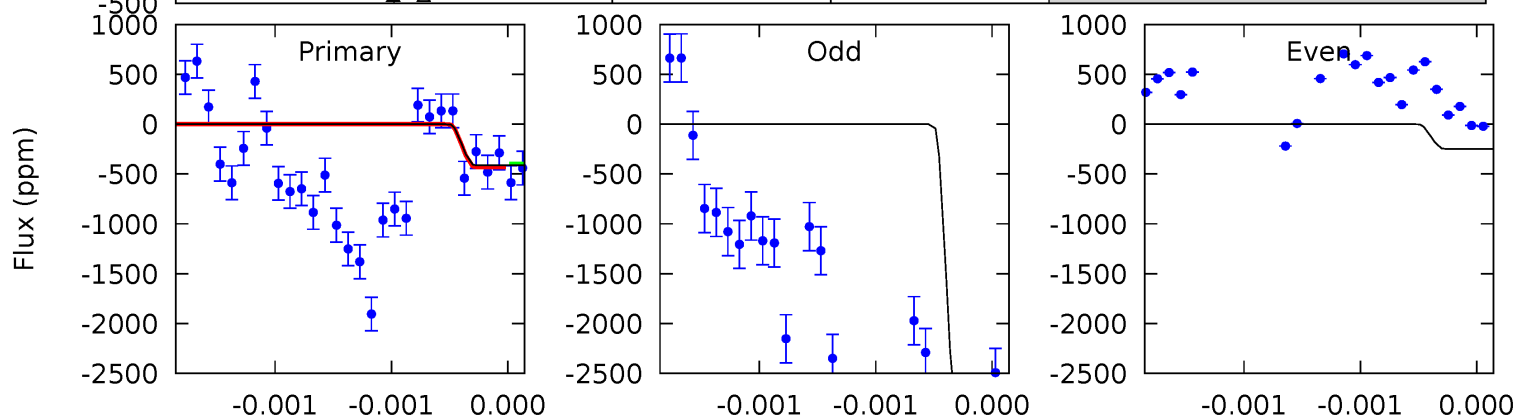
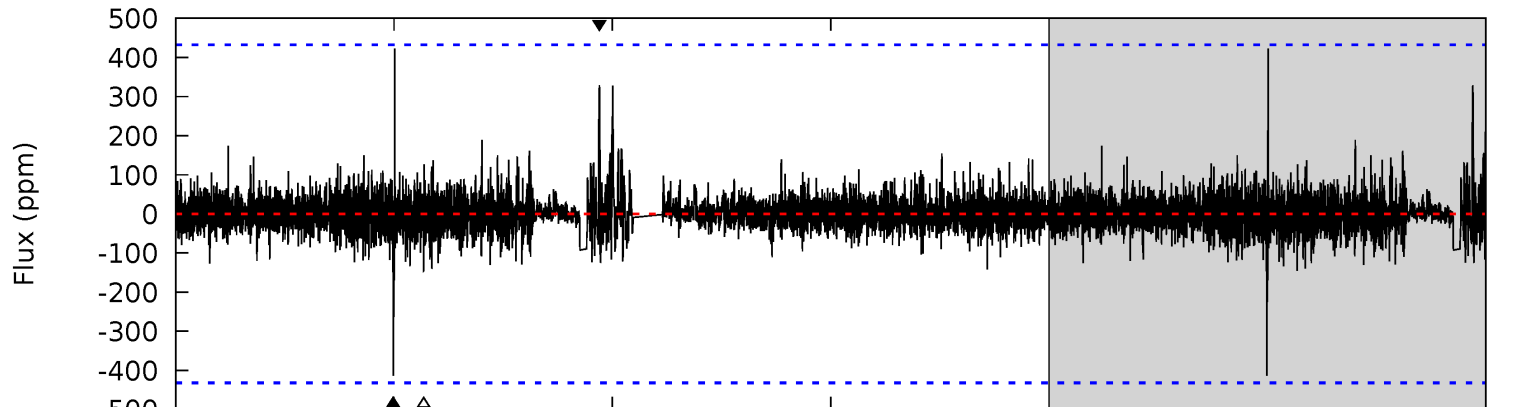
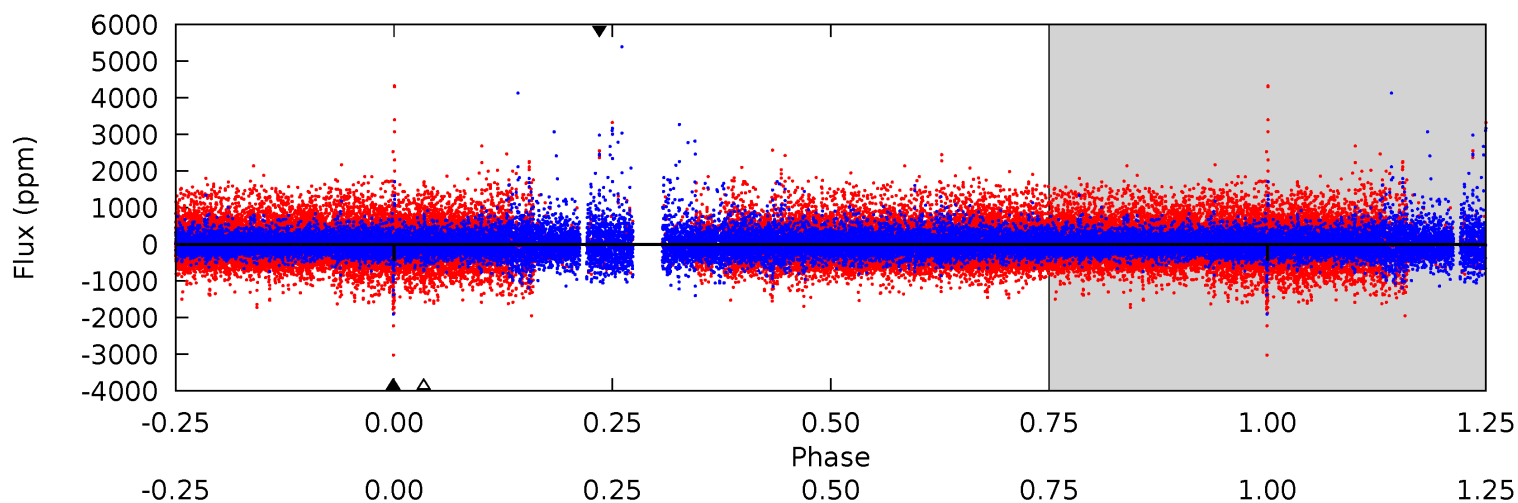
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.03	3.40	2.68	3.66	5.45	3.29	0.87	0.35	-0.63	0.72	-0.26	0.83	0.13	0.52	3.04



# Alt Model-Shift Uniqueness Test

011232205-06, P = 390.962115 Days, E = 266.235706 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
5.31	1.88	1.87	4.22	5.55	3.45	0.48	3.44	1.09	0.01	-2.34	20.4	2.02	0.51	0.23





### Stellar Parameters For KIC 011232205

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5367^{+159}_{-143}$	$3.973^{+0.588}_{-0.252}$	$-0.220^{+0.350}_{-0.250}$	$1.596^{+0.686}_{-0.838}$	$0.873^{+0.086}_{-0.115}$	$0.302^{+2.236}_{-0.181}$
	+3%/-3%	+15%/-6%	+159%/-114%	+43%/-53%	+10%/-13%	+739%/-60%
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 011232205-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-317 \pm 93$	$4.38^{+3.88}_{-2.49}$	$413^{+50}_{-63}$	$4418^{+1756}_{-750}$	$8471^{+36800}_{-6015}$
Alt.	$-146 \pm 78$	$4.29^{+3.61}_{-2.48}$	$414^{+47}_{-62}$	$3833^{+1549}_{-715}$	$3967^{+20088}_{-3144}$

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

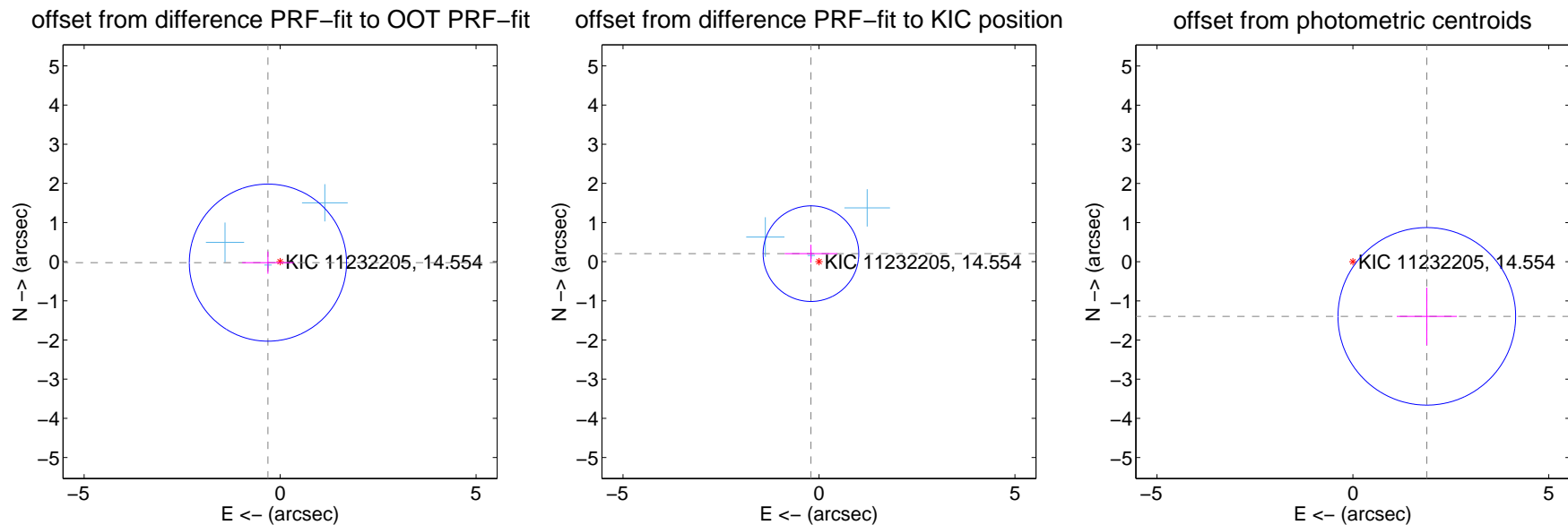
## DV Centroid Data

Supplemental centroid analysis for 011232205-06. Kepler magnitude: 14.55. Transit SNR 4.60

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.312 \pm 0.669$	0.47	$0.311 \pm 0.658$	$-0.024 \pm 0.282$
PRF-fit source offset from KIC position	$0.290 \pm 0.407$	0.71	$0.205 \pm 0.670$	$0.205 \pm 0.229$
photometric centroid source offset	$2.35 \pm 0.76$	3.11	$-1.89 \pm 0.77$	$-1.39 \pm 0.73$



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

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

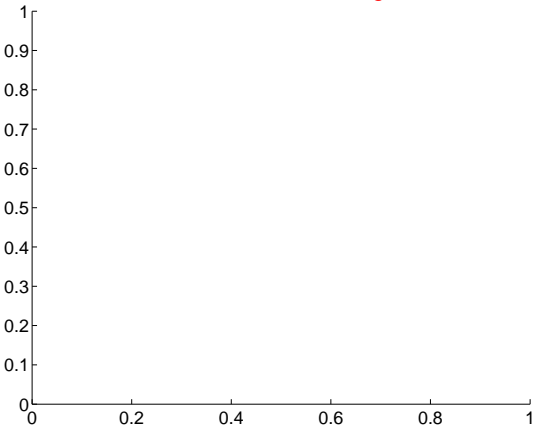
Q1 no difference image



Q1 no OOT image



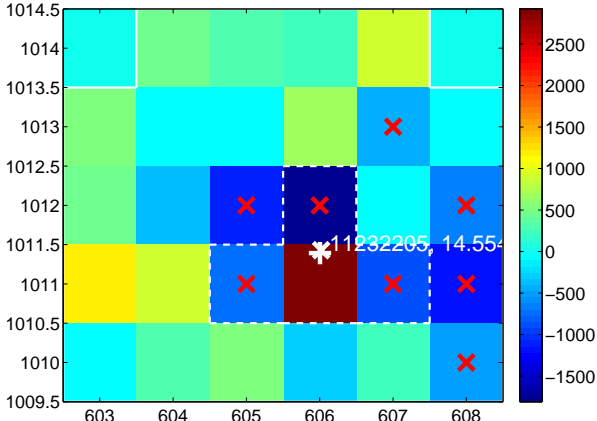
Q2 no difference image



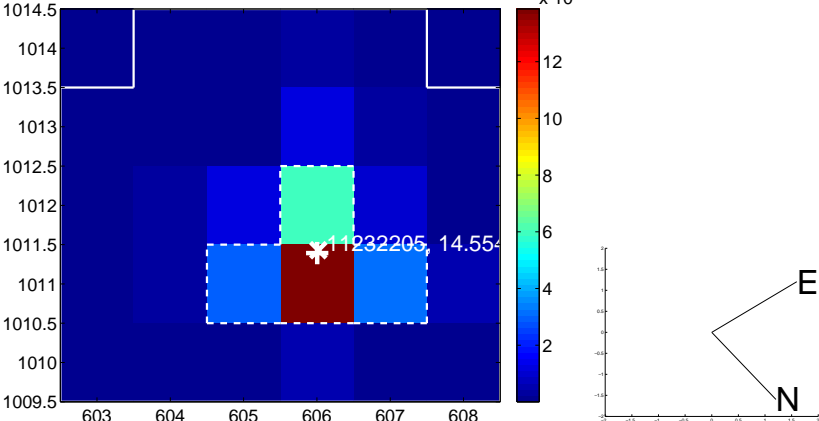
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



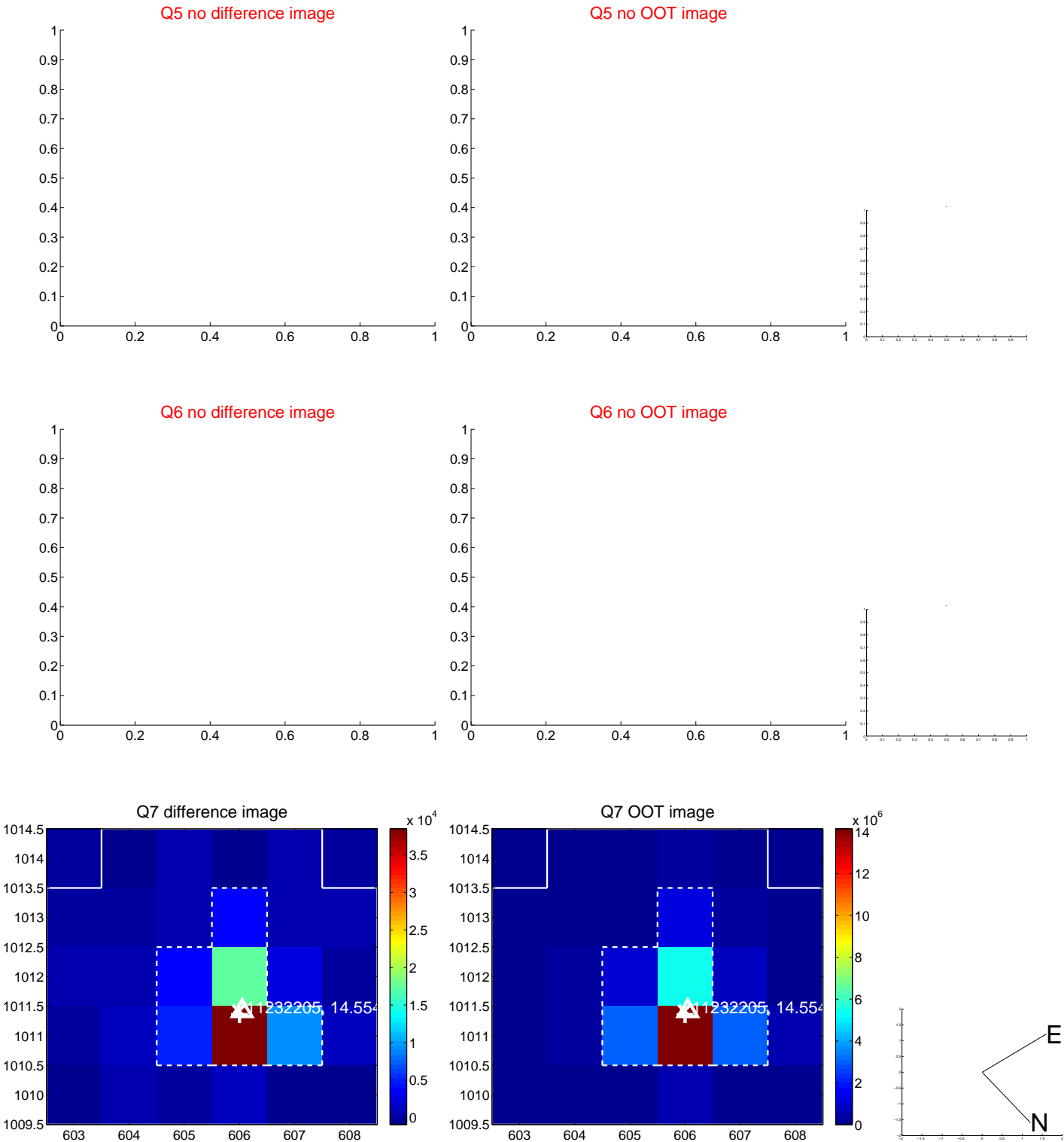
Q4 no difference image



Q4 no OOT image



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.

Q9 no difference image



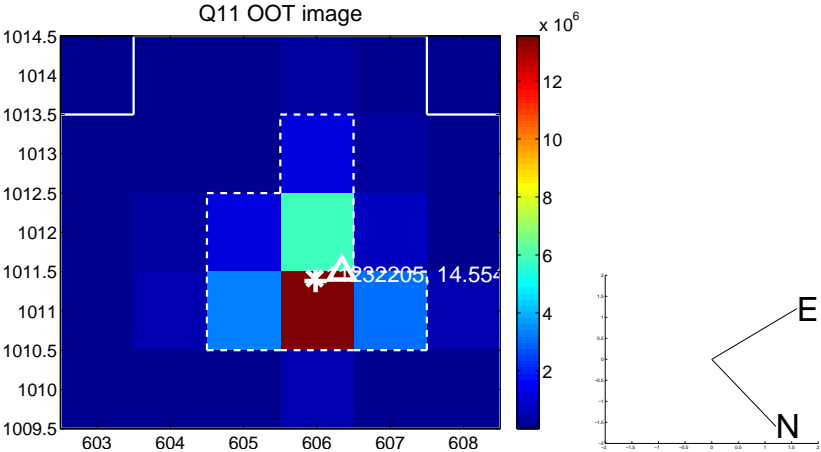
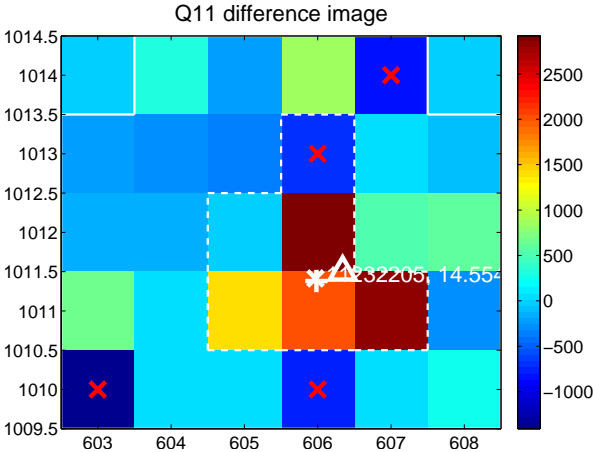
Q9 no OOT image



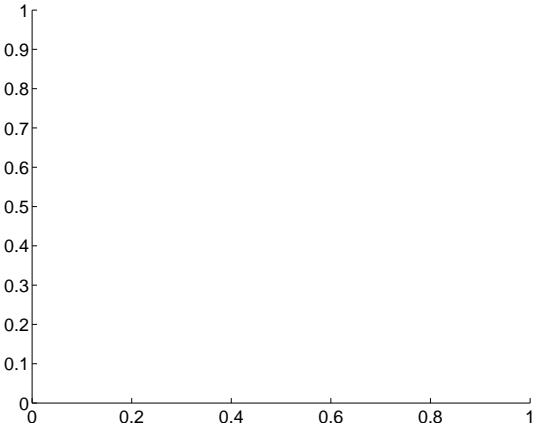
Q10 no difference image



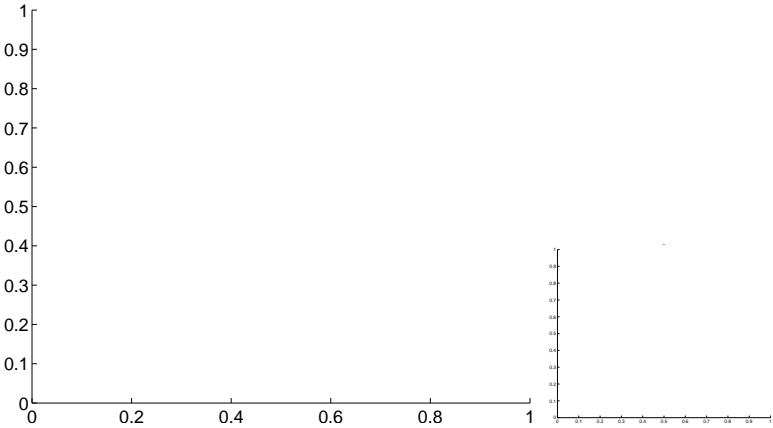
Q10 no OOT image



Q12 no difference image



Q12 no OOT image



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

Q13 no difference image



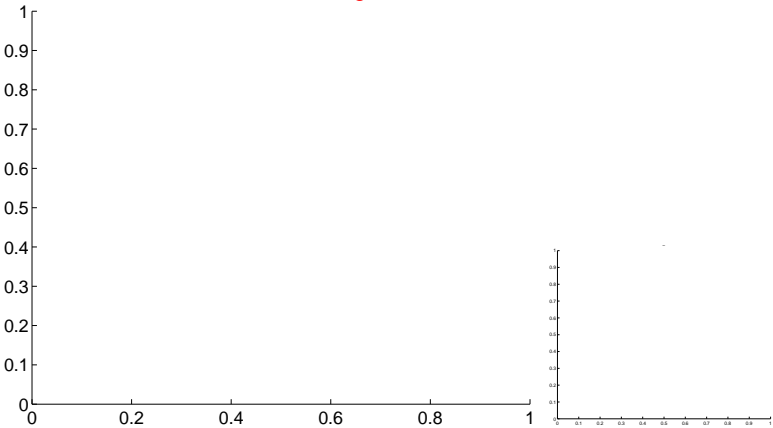
Q13 no OOT image



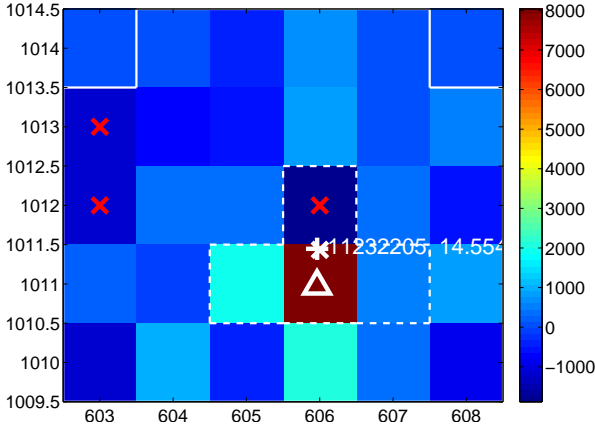
Q14 no difference image



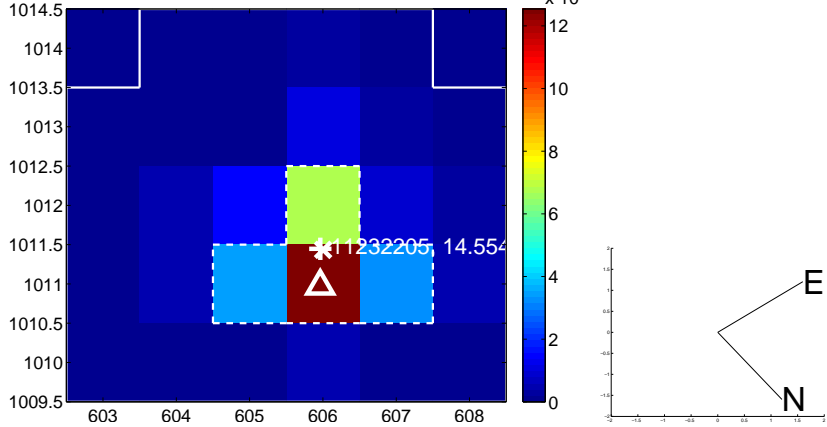
Q14 no OOT image



Q15 difference image



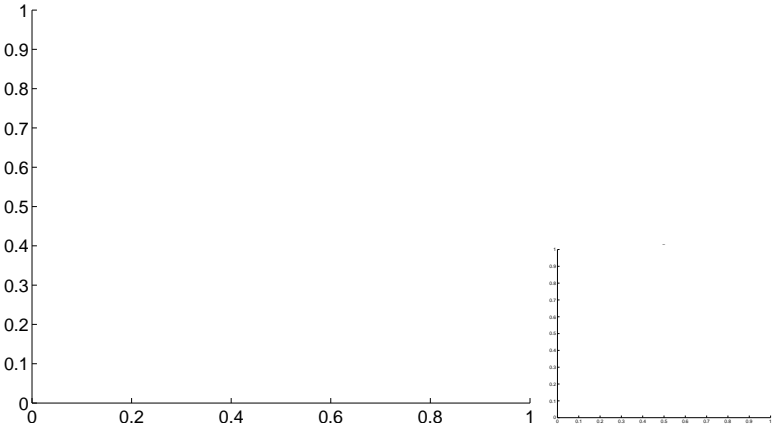
Q15 OOT image



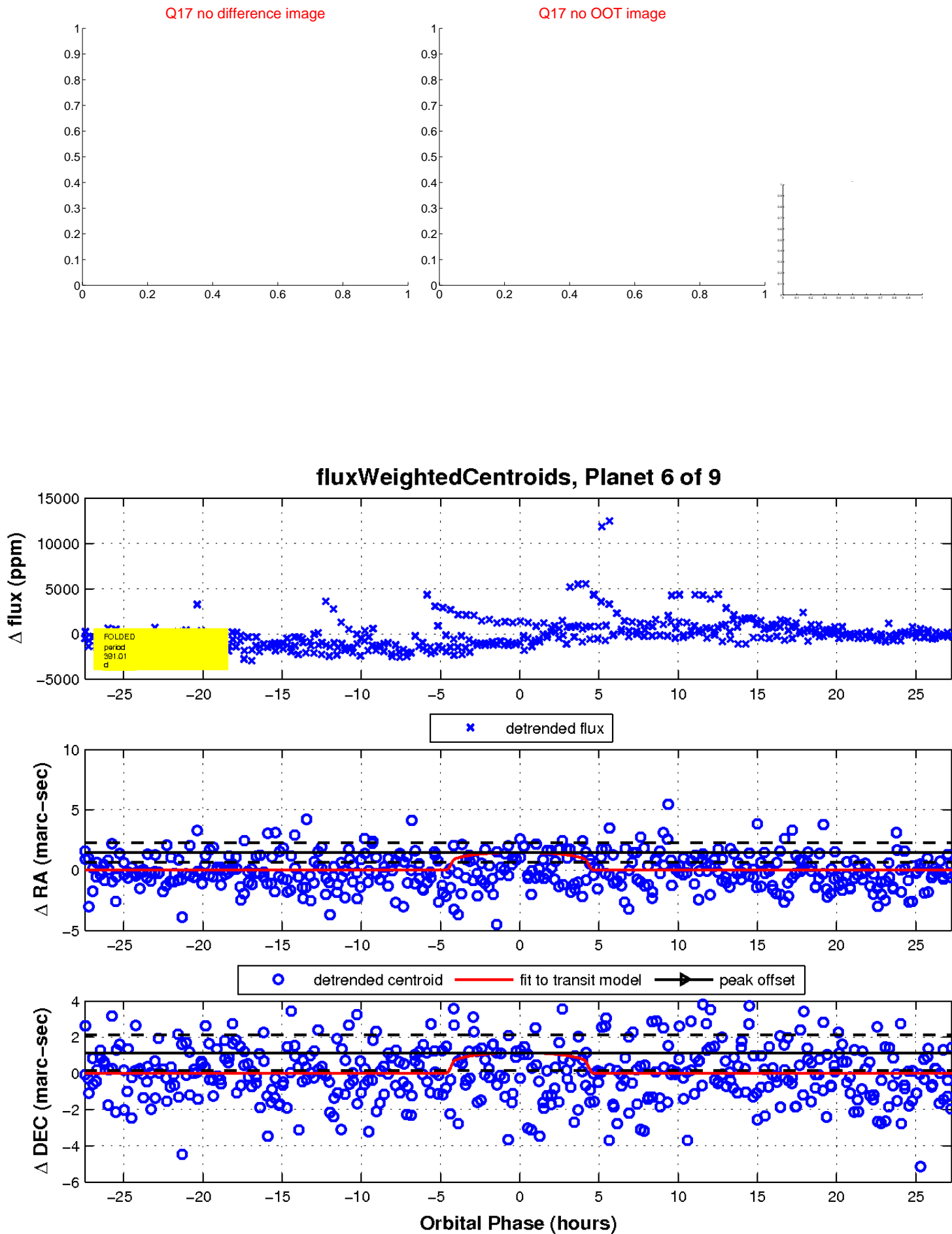
Q16 no difference image



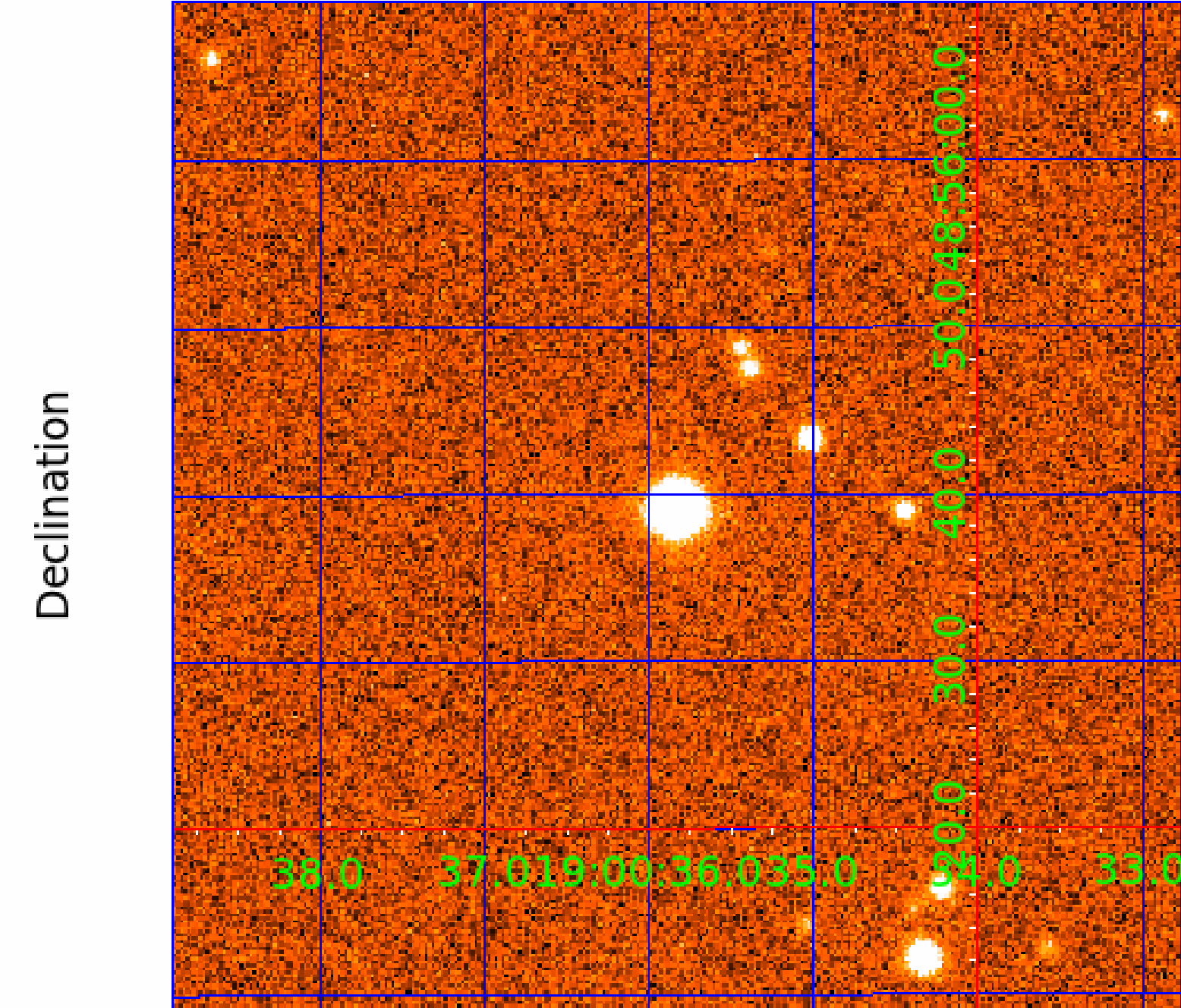
Q16 no OOT image



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



UKIRT Image





## KIC 011232205

## 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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011232205-08	OBS	No	377.795857	471.462579	1947.1	25.432	11.5	6.6	1.60	5367	6.94	1.98
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## Robovetter Results

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011232205-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011232205-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011232205-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS
011232205-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-08	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011232205-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

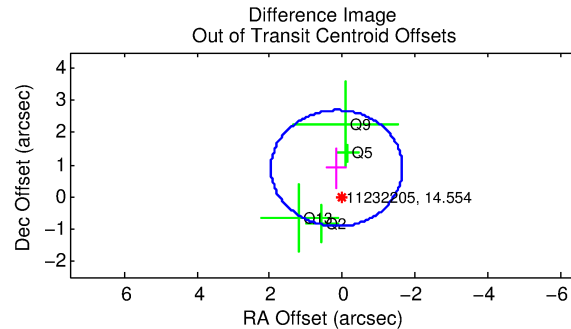
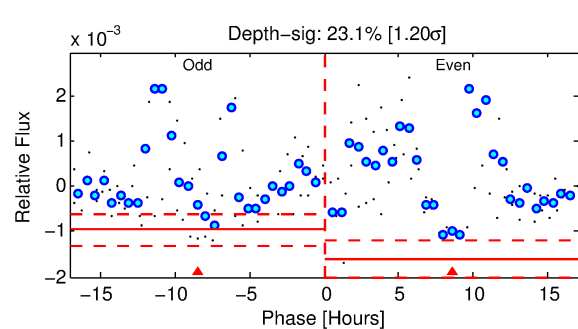
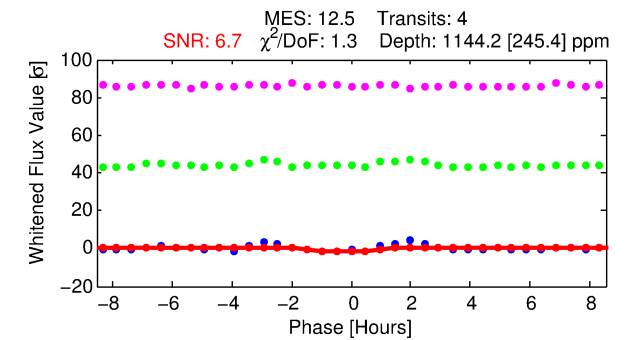
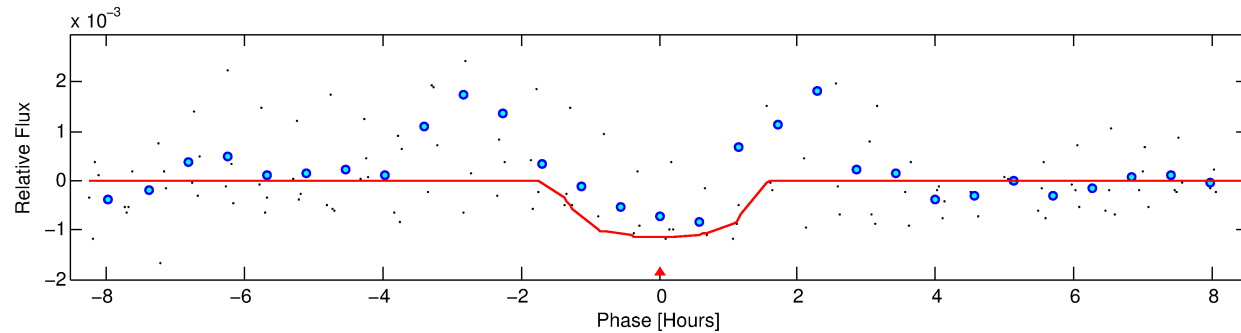
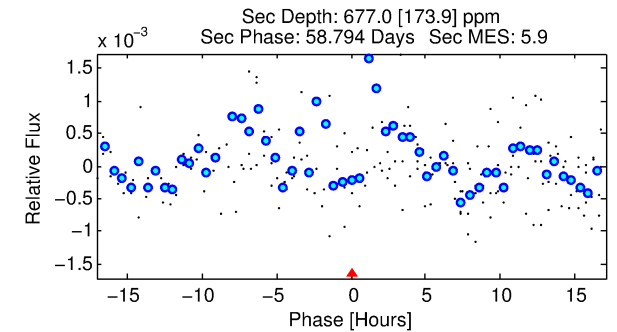
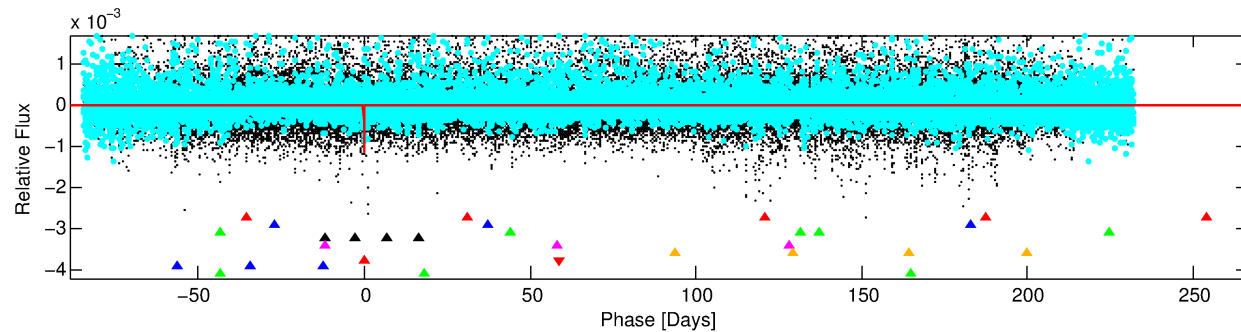
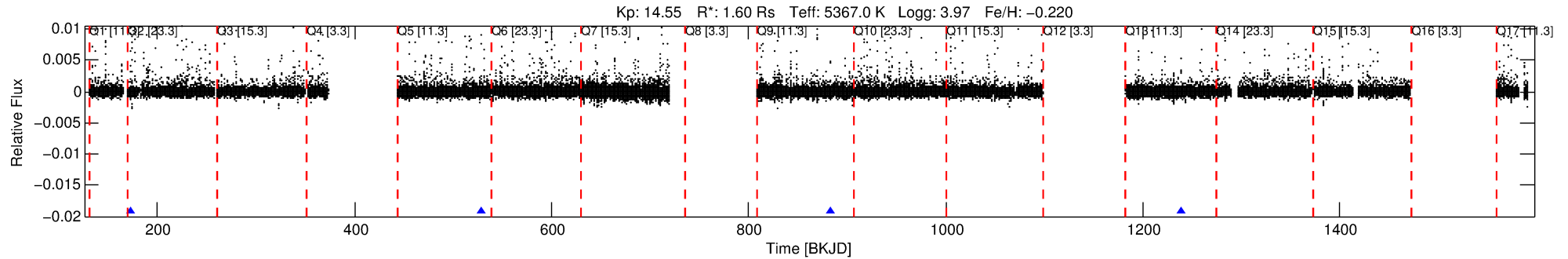
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011232205-07

No Significant Match Found

# DV One-Page Summary

KIC: 11232205 Candidate: 7 of 9 Period: 355.584 d



## DV Fit Results:

Period = 355.58352 [0.00401] d  
Epoch = 172.5604 [0.0085] BKJD  
Rp/R\* = 0.0317 [0.1128]  
a/R\* = 847.14 [11799.49]  
b = 0.53 [19.47]  
Seff = 2.15 [2.09]  
Teq = 309 [75] K  
Rp = 5.52 [19.85] Re  
a = 0.9390 [0.5363] AU  
Ag = 10760.94 [77264.30] [0.14σ]  
Teff = 4861 [8647] K [0.53σ]

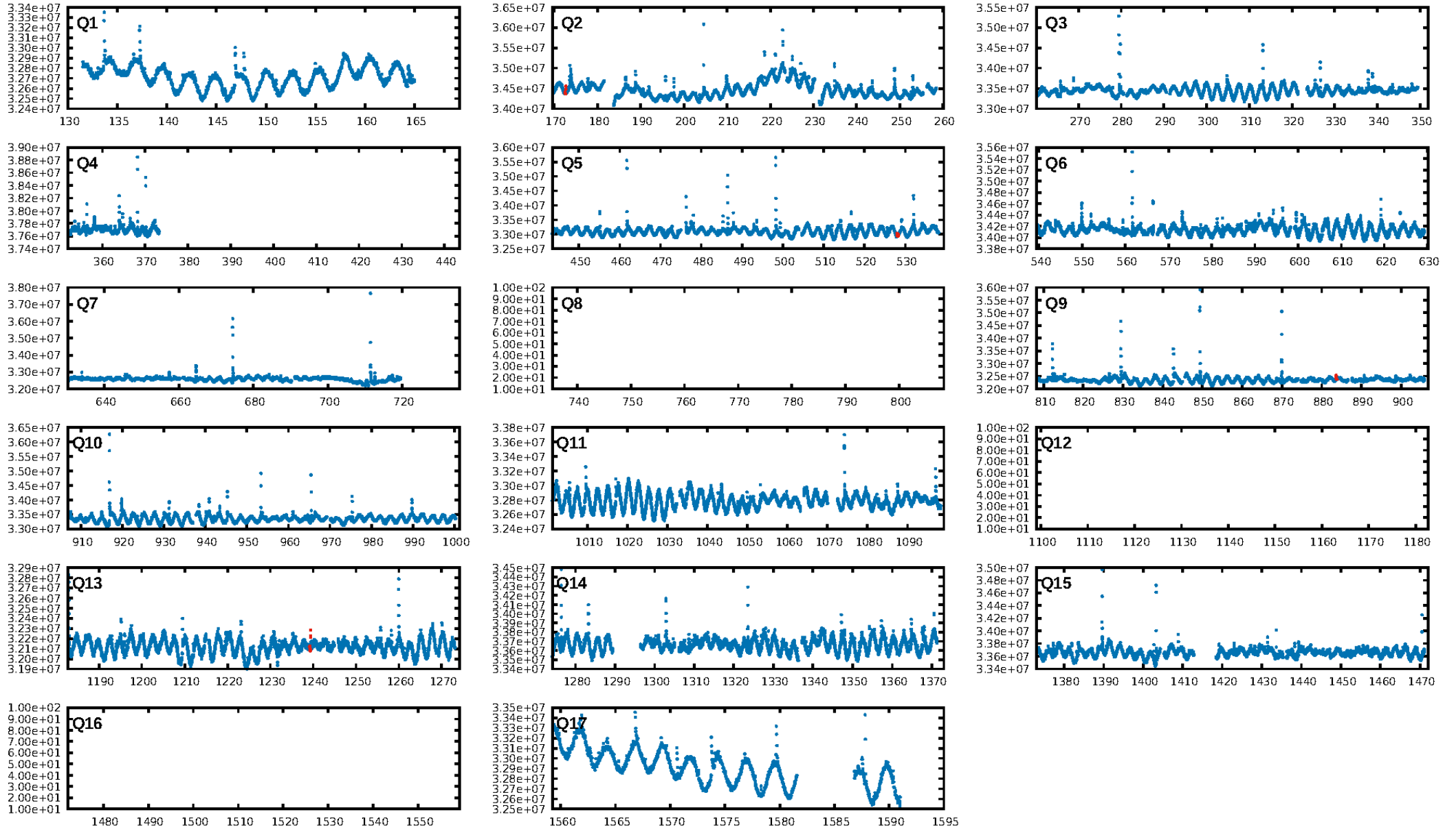
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [276.61σ]  
LongPeriod-sig: 100.0% [39.44σ]  
ModelChiSquare2-sig: 0.3%  
ModelChiSquareGof-sig: 88.4%  
**Bootstrap-pfa: 2.44e-11**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 4.906  
Centroid-sig: 9.3%  
Centroid-so: 1.163 arcsec [1.12σ]  
OotOffset-rm: 0.899 arcsec [1.49σ]  
KicOffset-st: 1/0/0/3 [4]  
KicOffset-st: 1/0/0/3 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

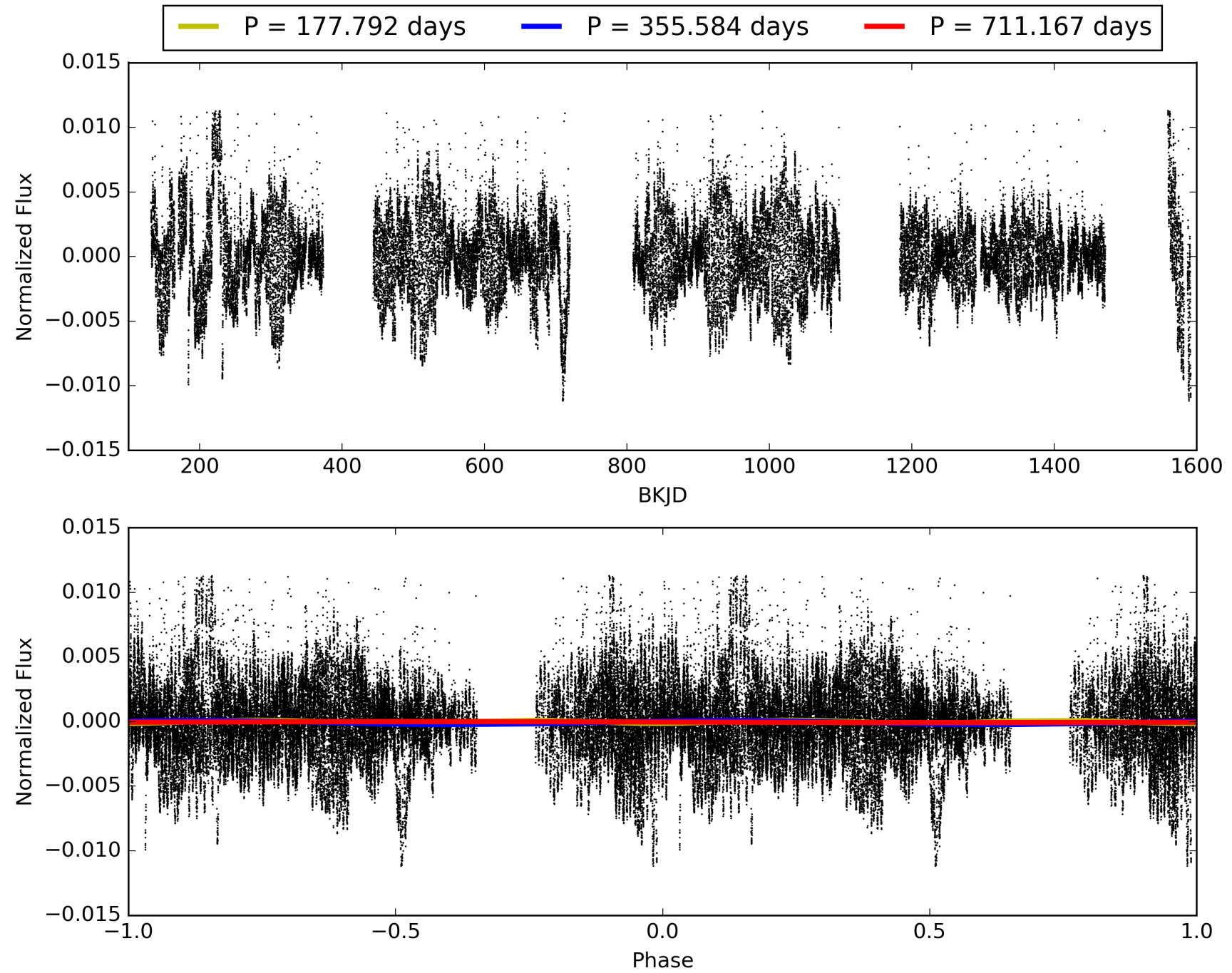
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:58:34 Z

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

# TCE 011232205-07, PDC Light Curves

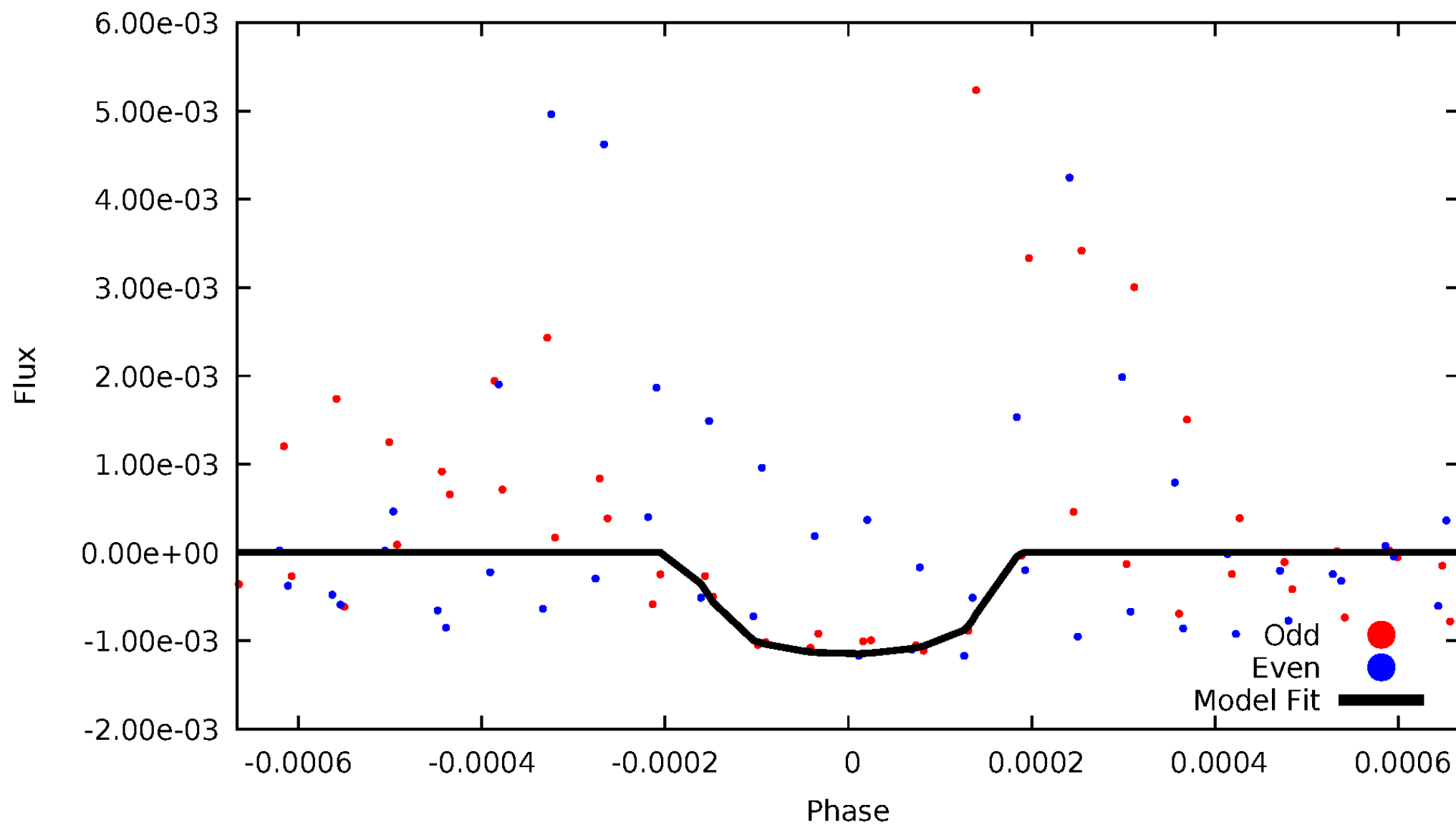


TCE 011232205-07



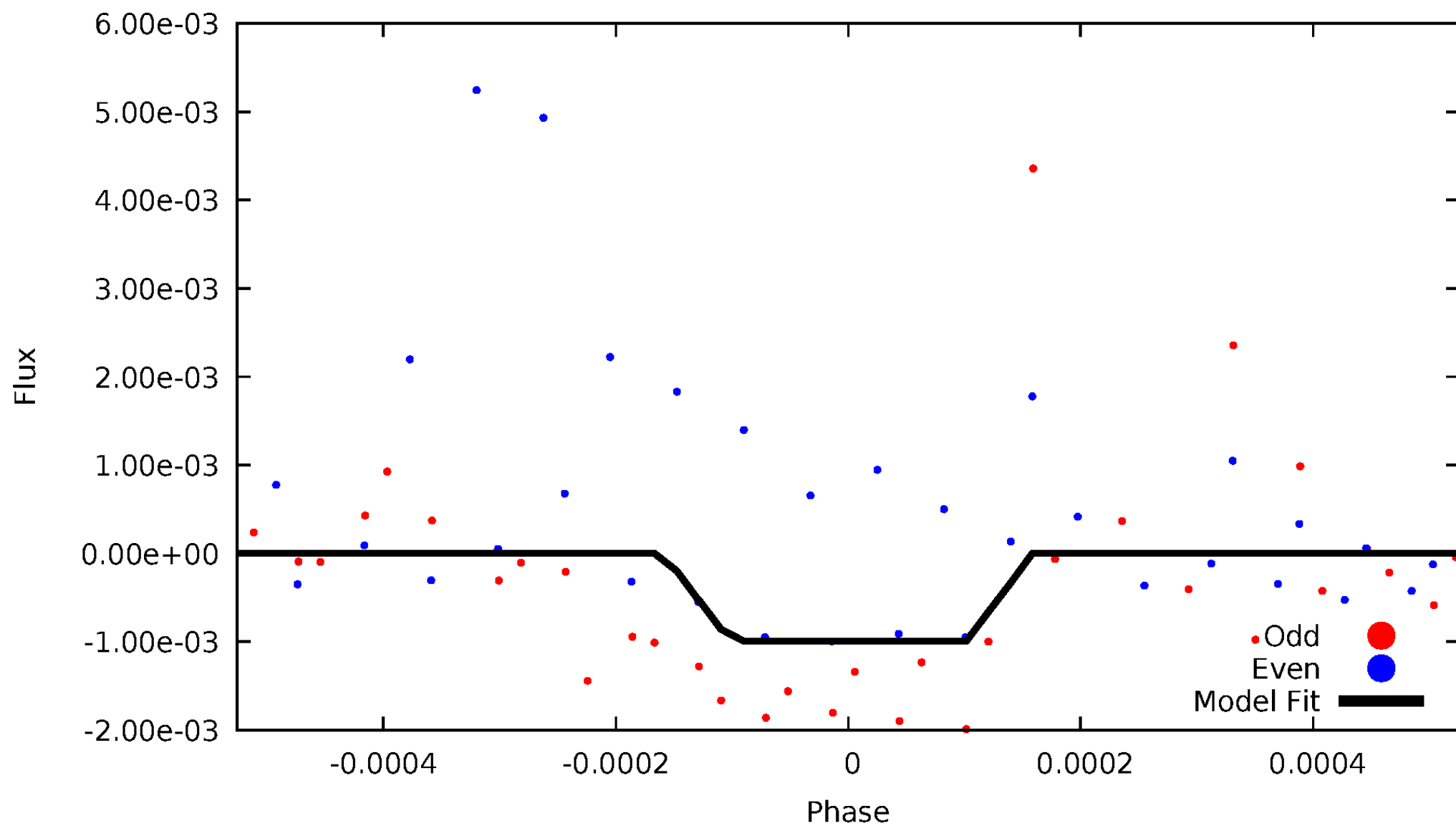
# DV Odd/Even

TCE 011232205-07



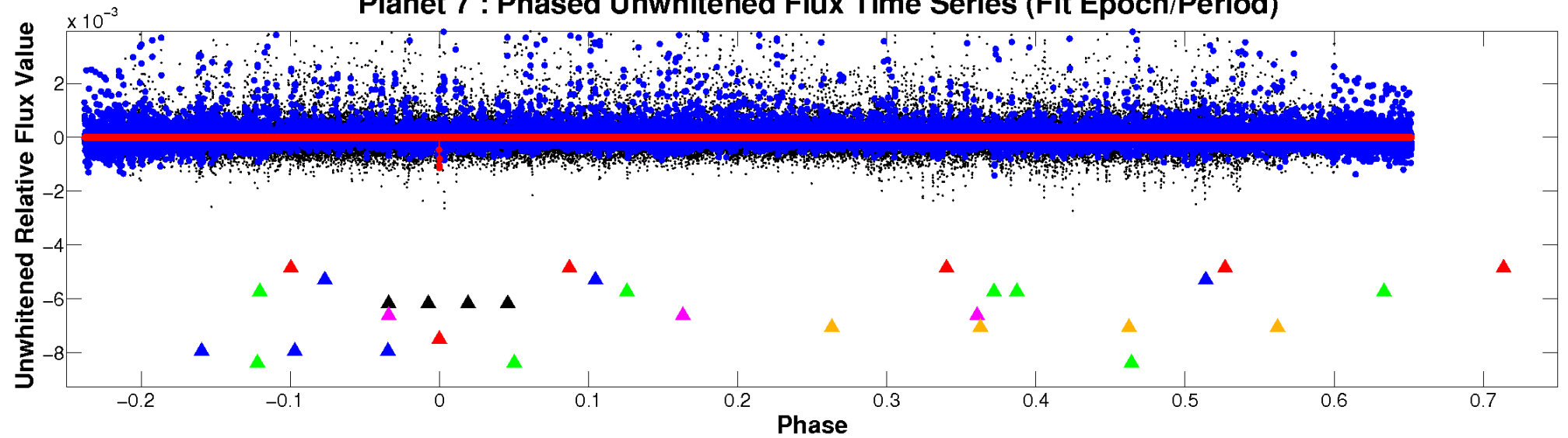
# ALT Odd/Even

TCE 011232205-07

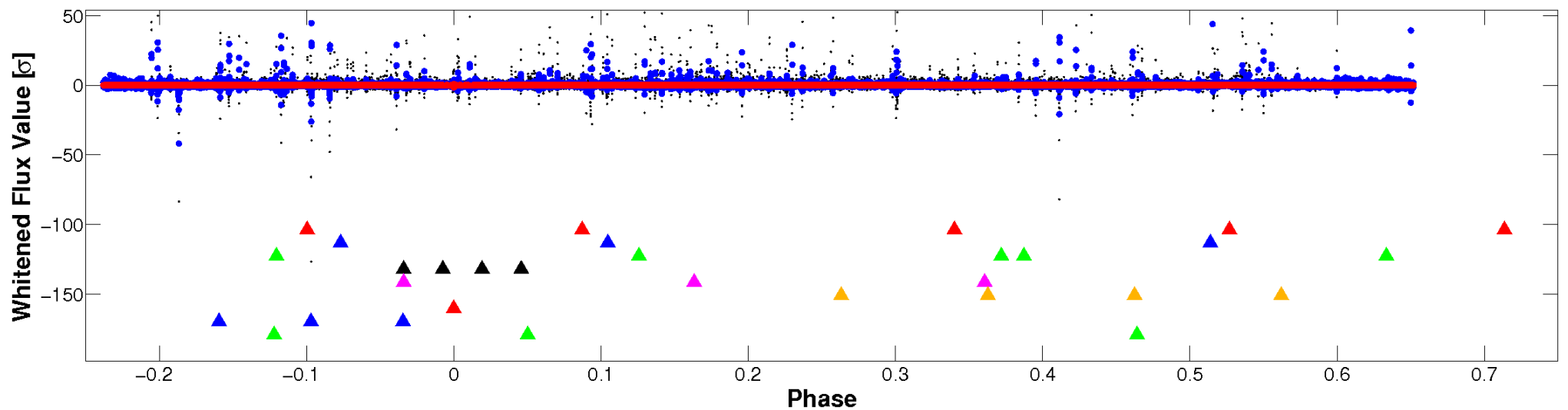


# Non-Whitened Vs. Whitened Light Curve

## Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

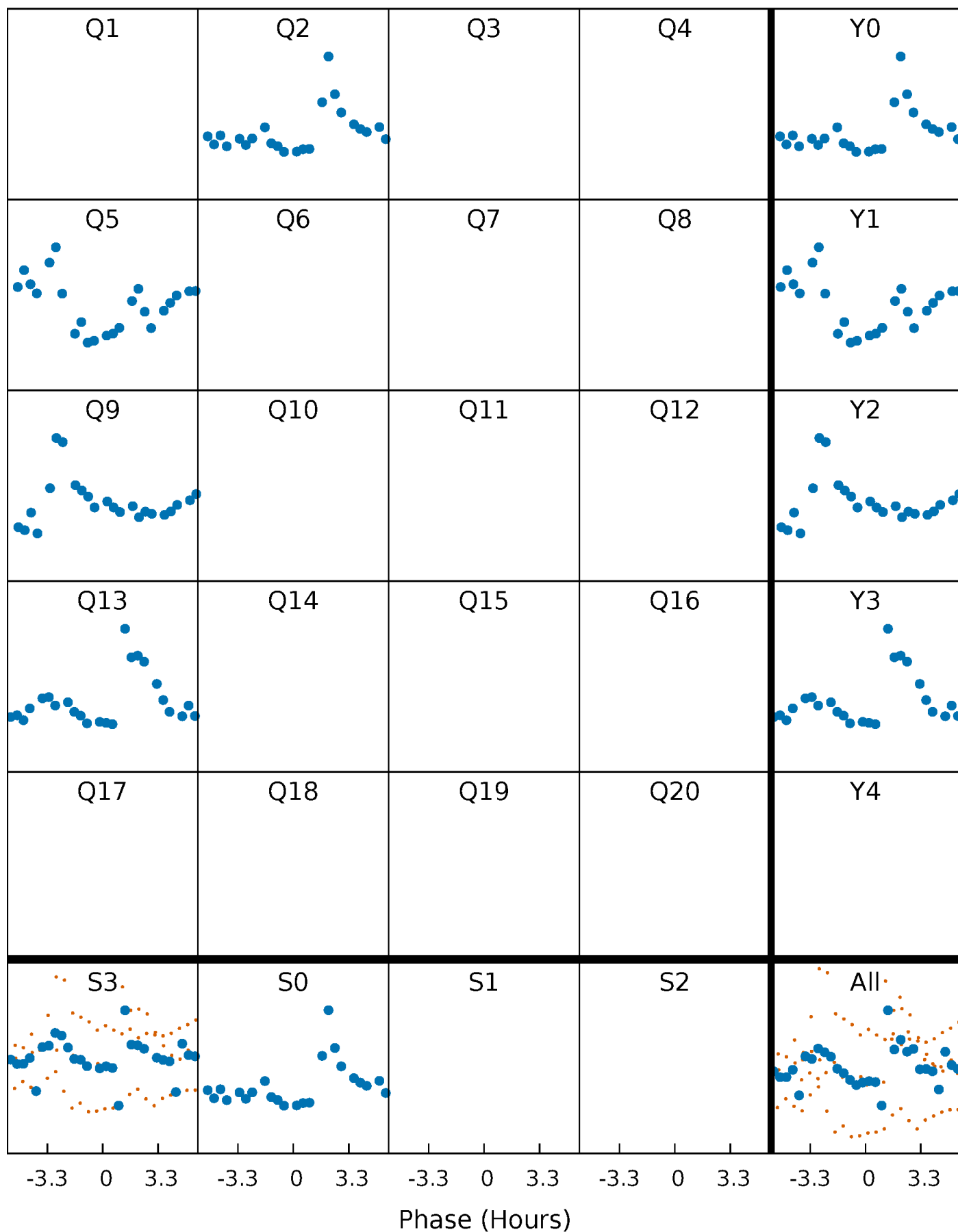


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

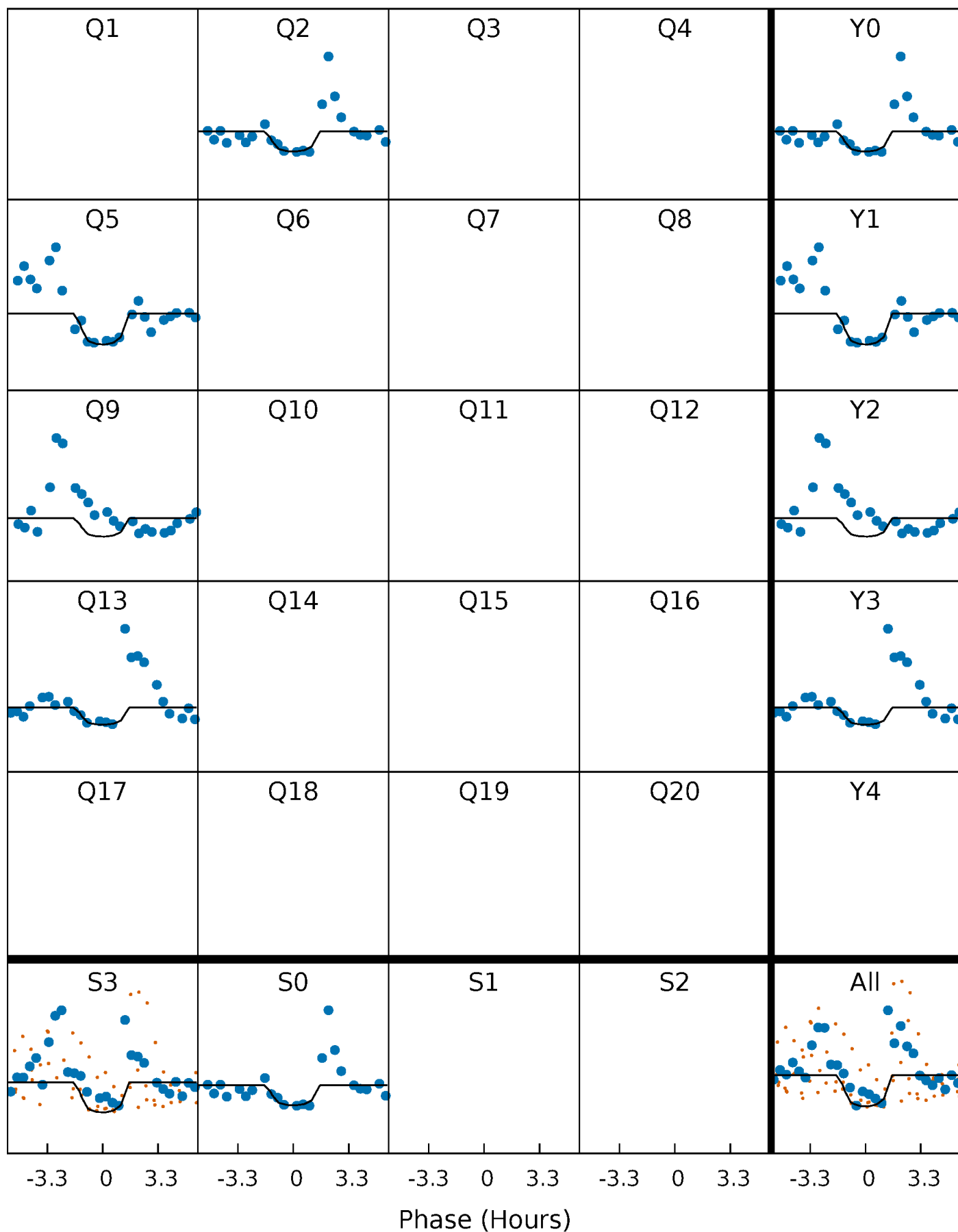
TCE 011232205-07     $P=355.583516$  Days     $T_0=172.560446$  (BKJD)





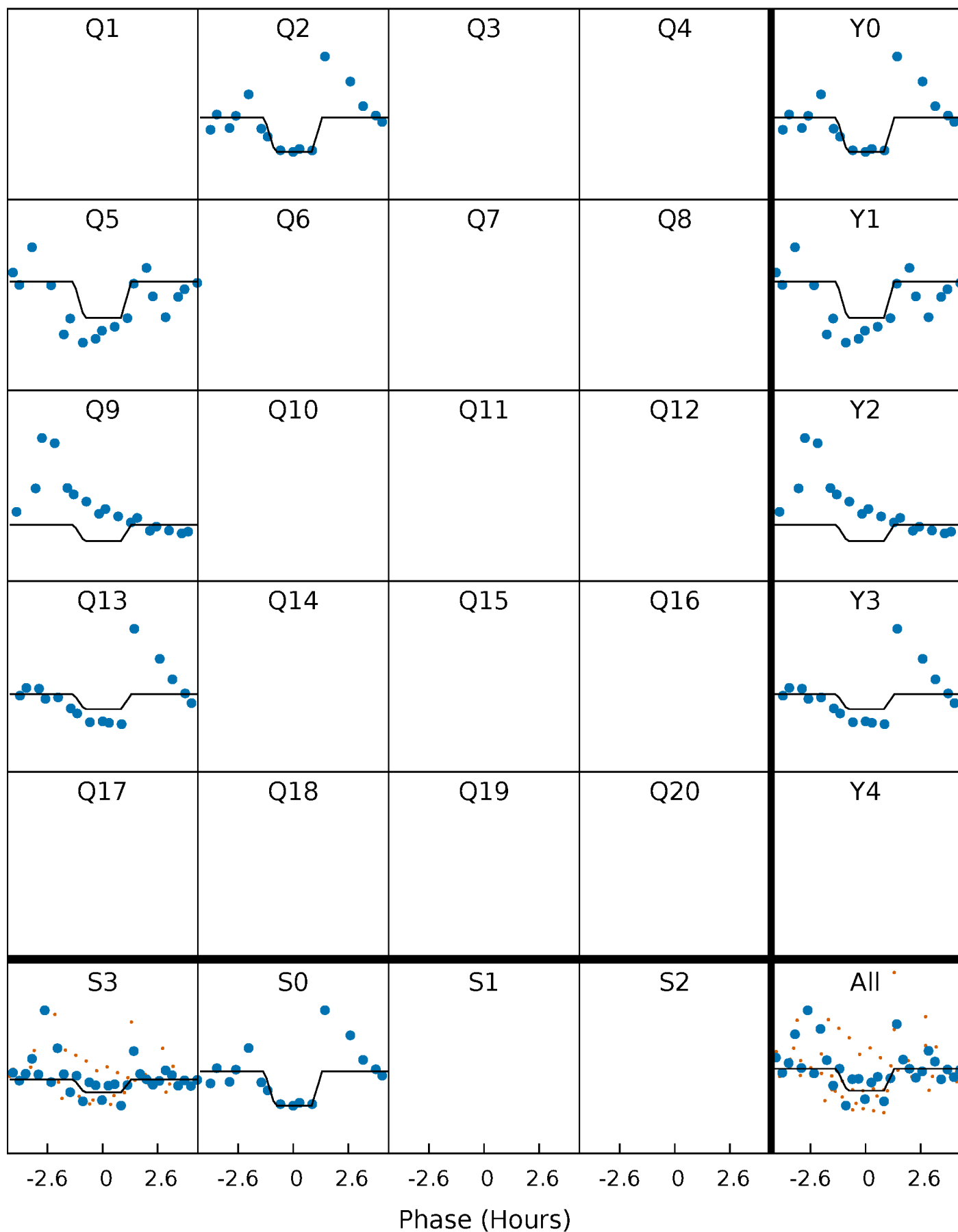
# DV Quarter-Phased Transit Curves

TCE 011232205-07     $P=355.583516$  Days     $T_0=172.560446$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

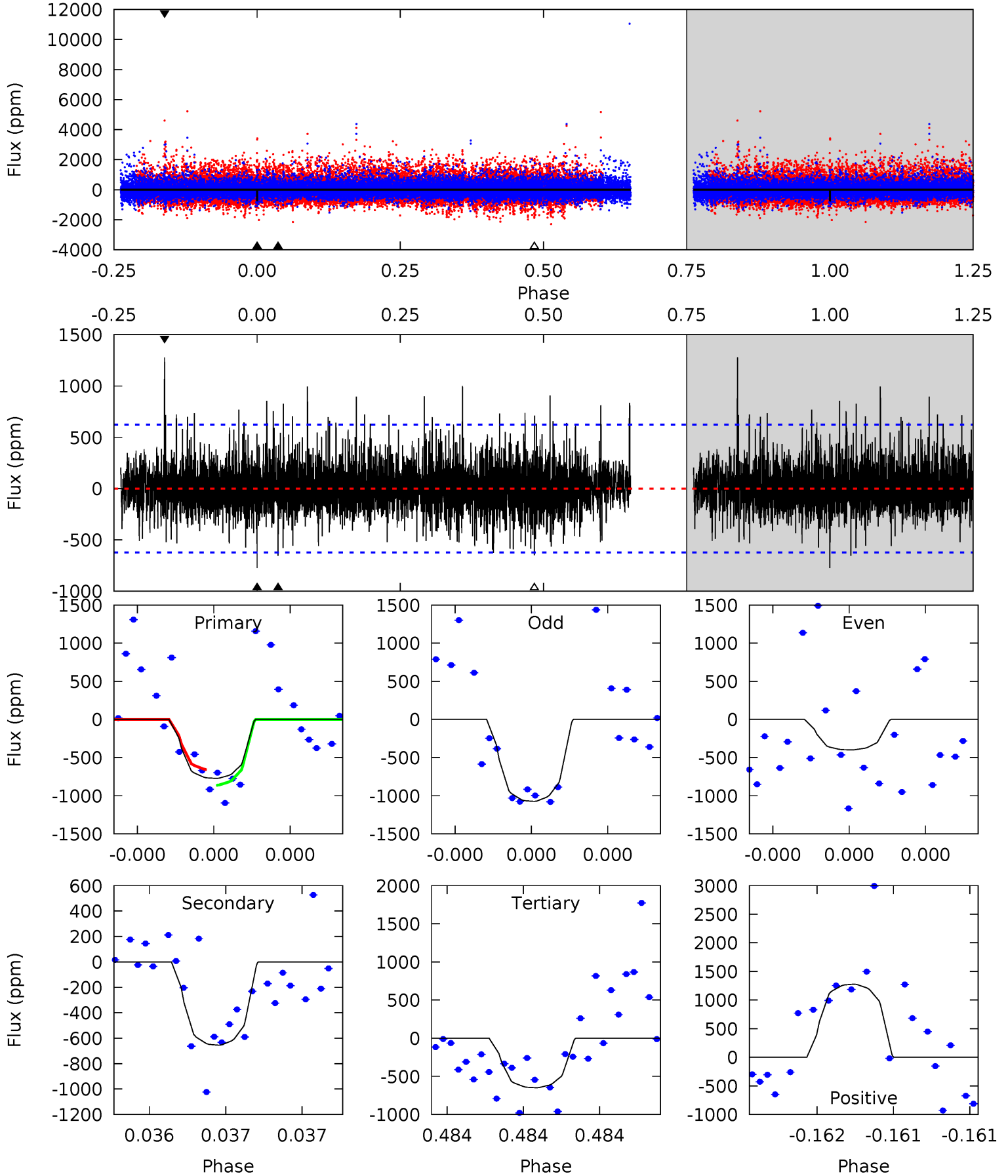
TCE 011232205-07 P=355.578185 Days  $T_0=172.569558$  (BKJD)



# DV Model-Shift Uniqueness Test

011232205-07, P = 355.583516 Days, E = 172.560446 Days

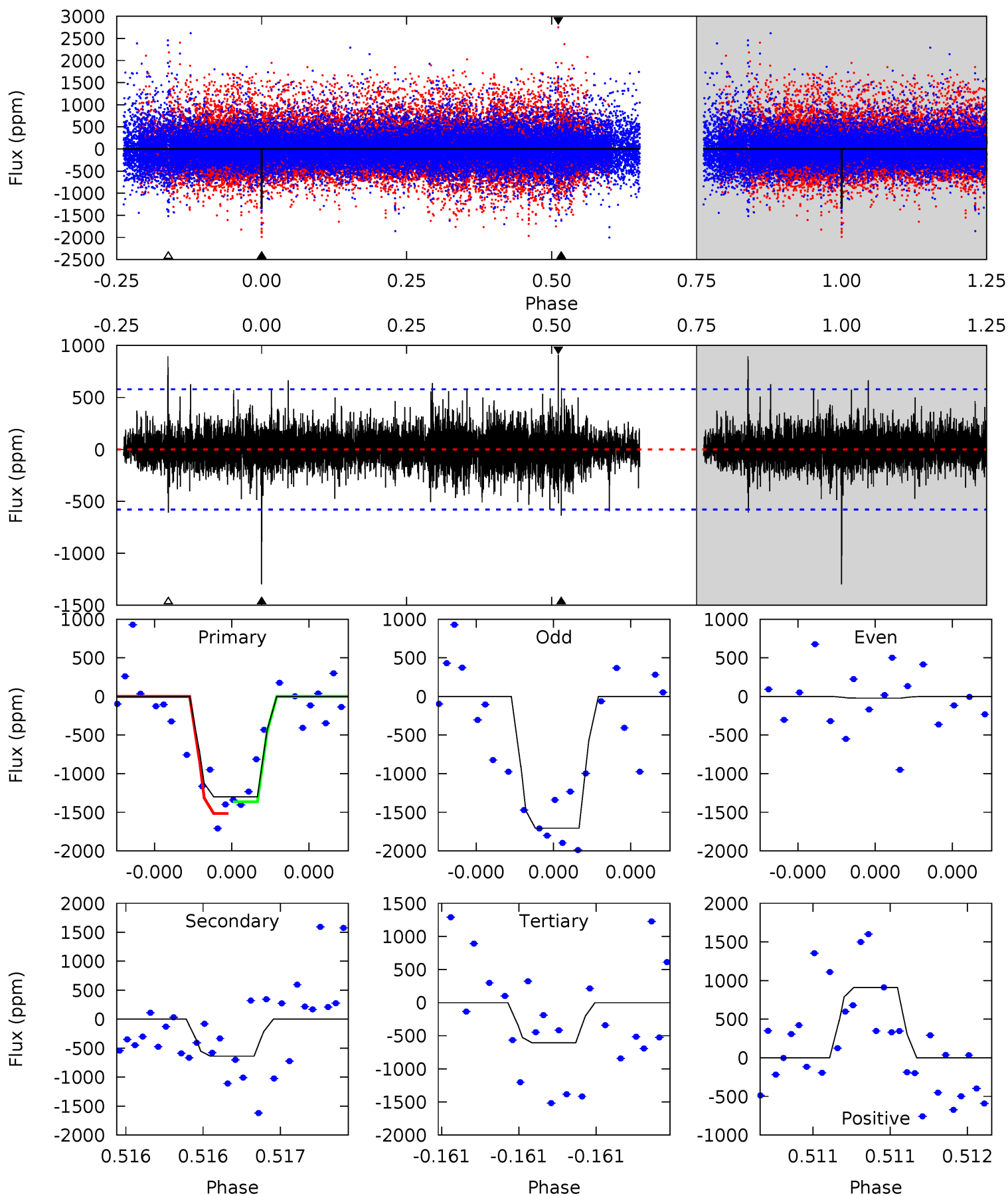
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.99	5.93	5.87	11.6	5.64	3.58	1.72	1.12	-4.56	0.06	-5.63	2.01	0.80	0.62	0.91



# Alt Model-Shift Uniqueness Test

011232205-07, P = 355.578185 Days, E = 172.569558 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
12.7	6.23	5.94	8.89	5.66	3.61	1.34	6.76	3.80	0.30	-2.66	8.32	0.70	0.41	0.72



### Stellar Parameters For KIC 011232205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5367^{+159}_{-143}$	$3.973^{+0.588}_{-0.252}$	$-0.220^{+0.350}_{-0.250}$	$1.596^{+0.686}_{-0.838}$	$0.873^{+0.086}_{-0.115}$	$0.302^{+2.236}_{-0.181}$
	+3%/-3%	+15%/-6%	+159%/-114%	+43%/-53%	+10%/-13%	+739%/-60%
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 011232205-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-655 \pm 111$	$14.59^{+16.15}_{-10.65}$	$429^{+48}_{-69}$	$3381^{+1965}_{-604}$	$1505^{+17937}_{-1176}$
Alt.	$-638 \pm 102$	$14.46^{+17.98}_{-10.36}$	$426^{+54}_{-64}$	$3335^{+1901}_{-595}$	$1435^{+15024}_{-1151}$

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

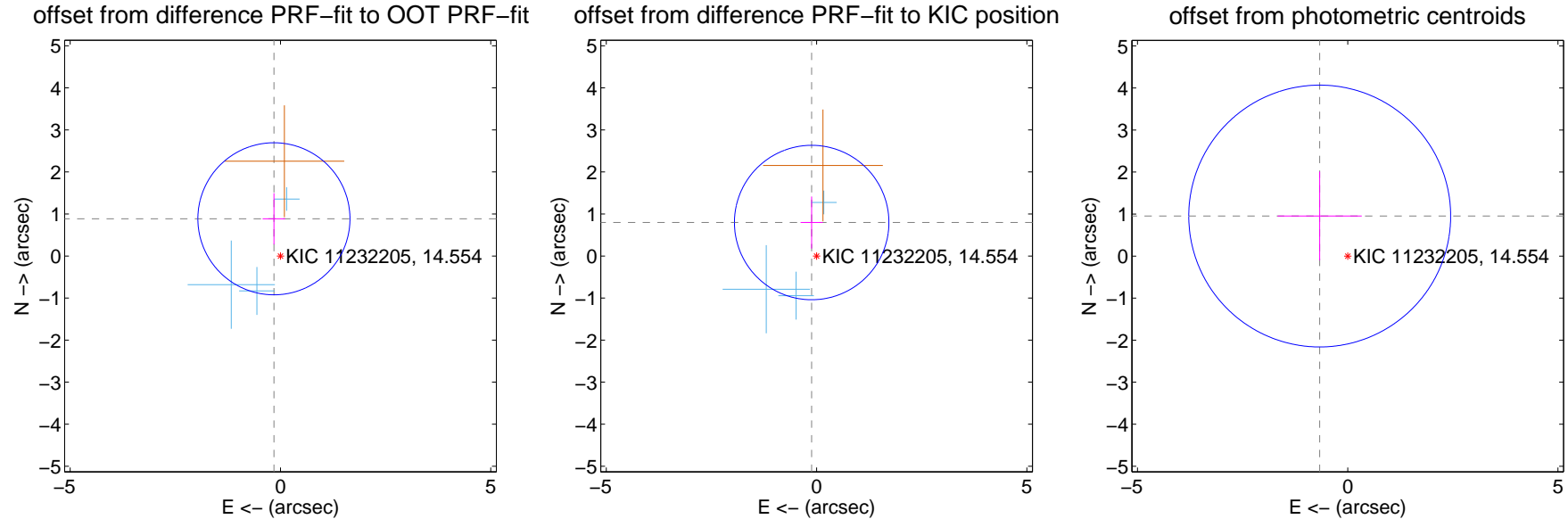
## DV Centroid Data

Supplemental centroid analysis for 011232205-07. Kepler magnitude: 14.55. Transit SNR 6.66

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.899 \pm 0.603$	1.49	$0.155 \pm 0.269$	$0.886 \pm 0.610$
PRF-fit source offset from KIC position	$0.805 \pm 0.612$	1.32	$0.117 \pm 0.264$	$0.797 \pm 0.617$
photometric centroid source offset	$1.16 \pm 1.04$	1.12	$0.67 \pm 1.00$	$0.95 \pm 1.06$



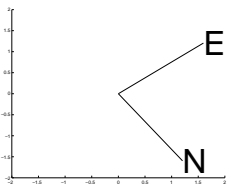
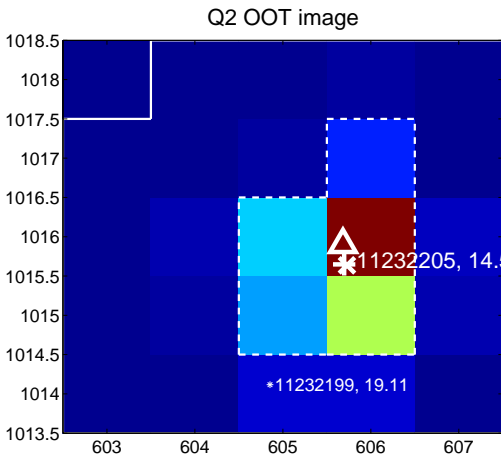
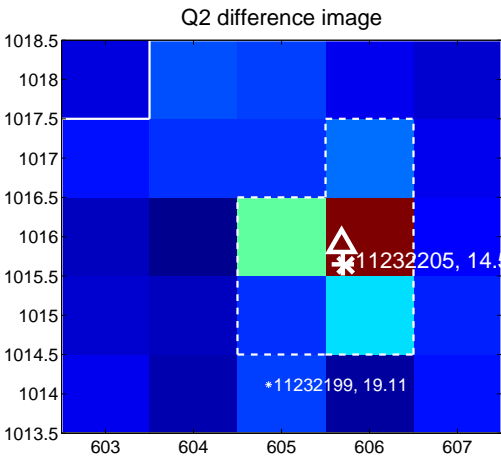
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

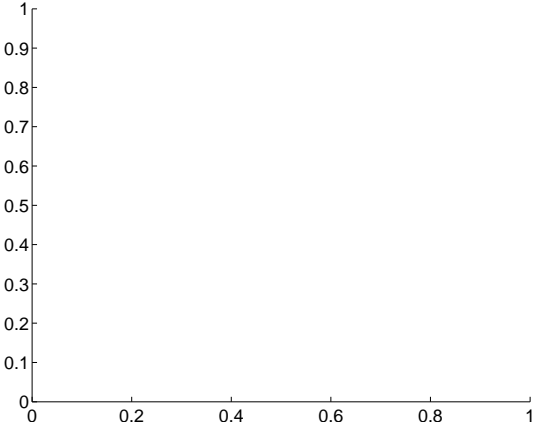
Q1 no difference image



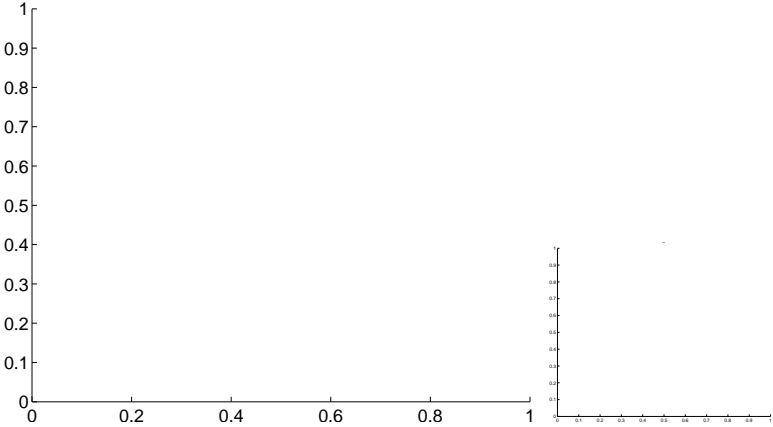
Q1 no OOT image



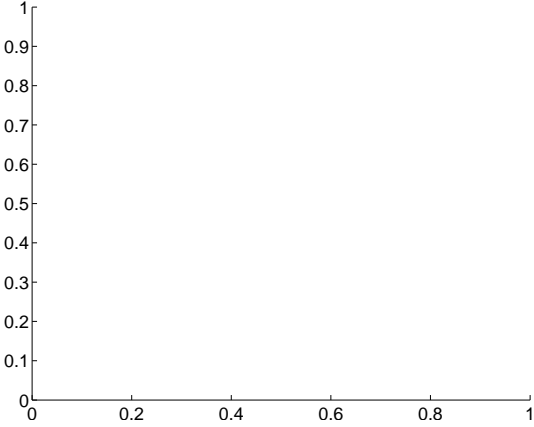
Q3 no difference image



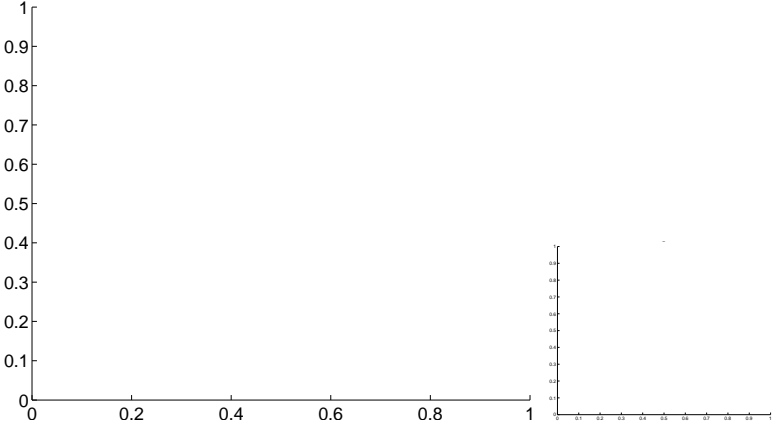
Q3 no OOT image



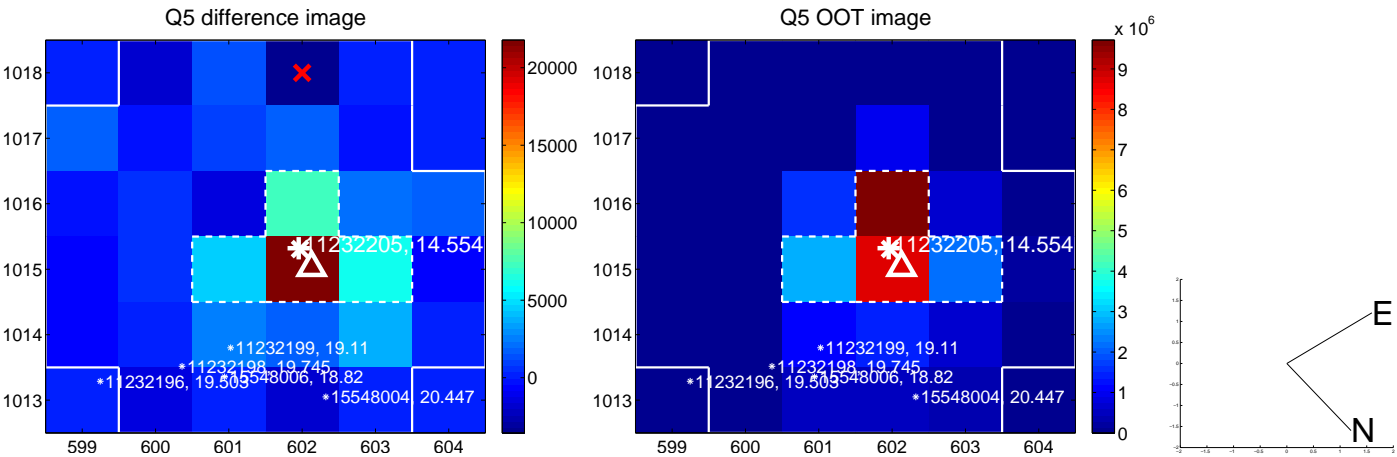
Q4 no difference image



Q4 no OOT image

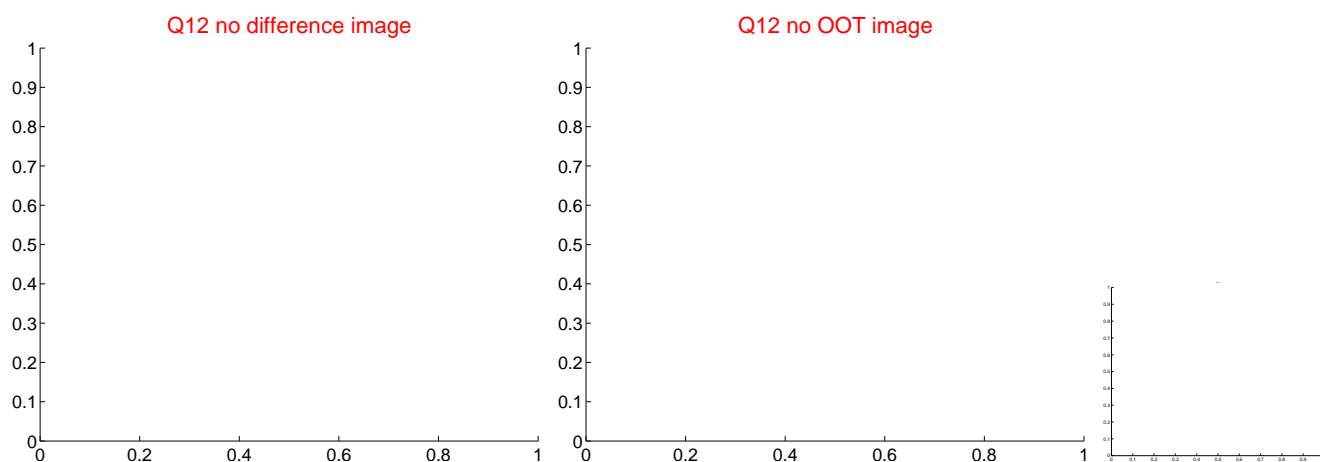
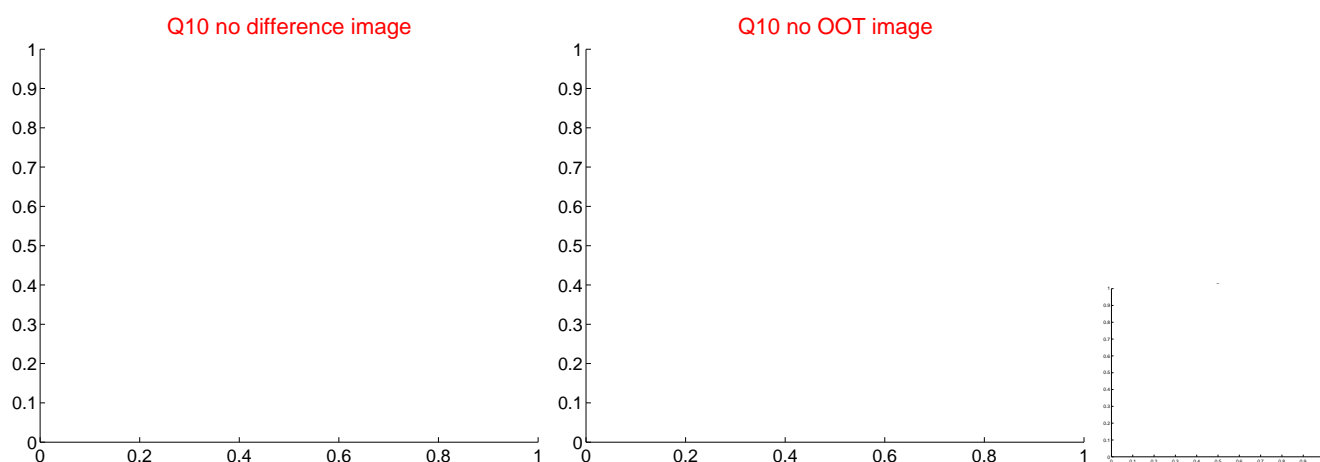
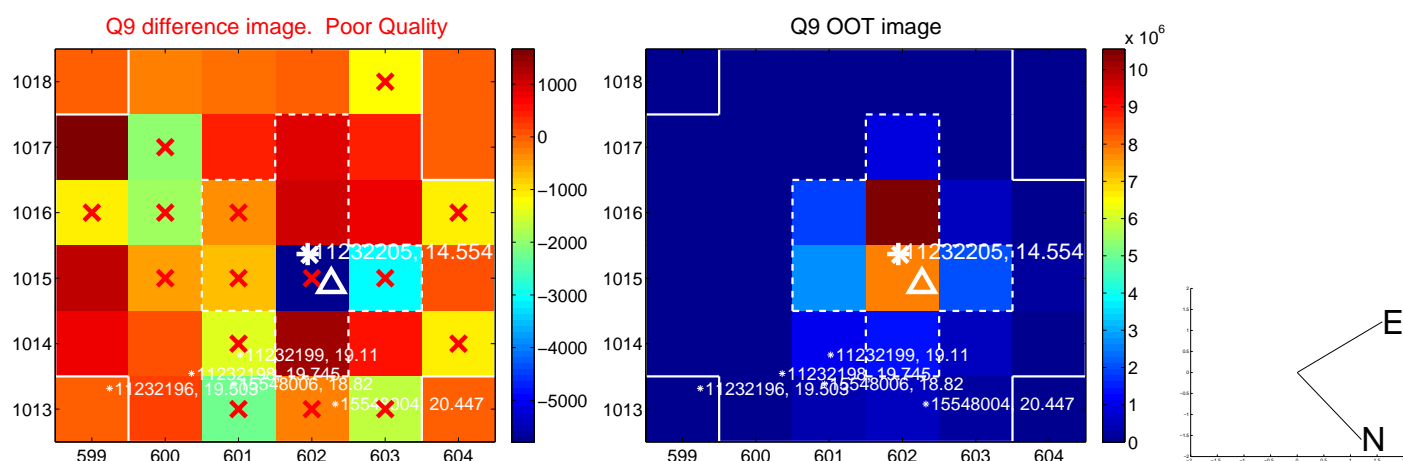


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

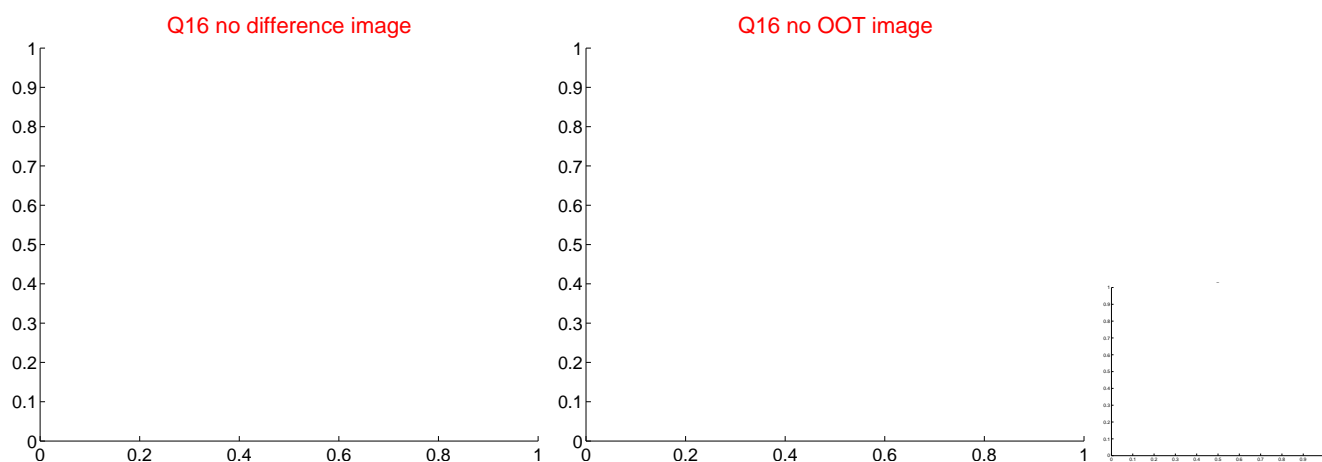
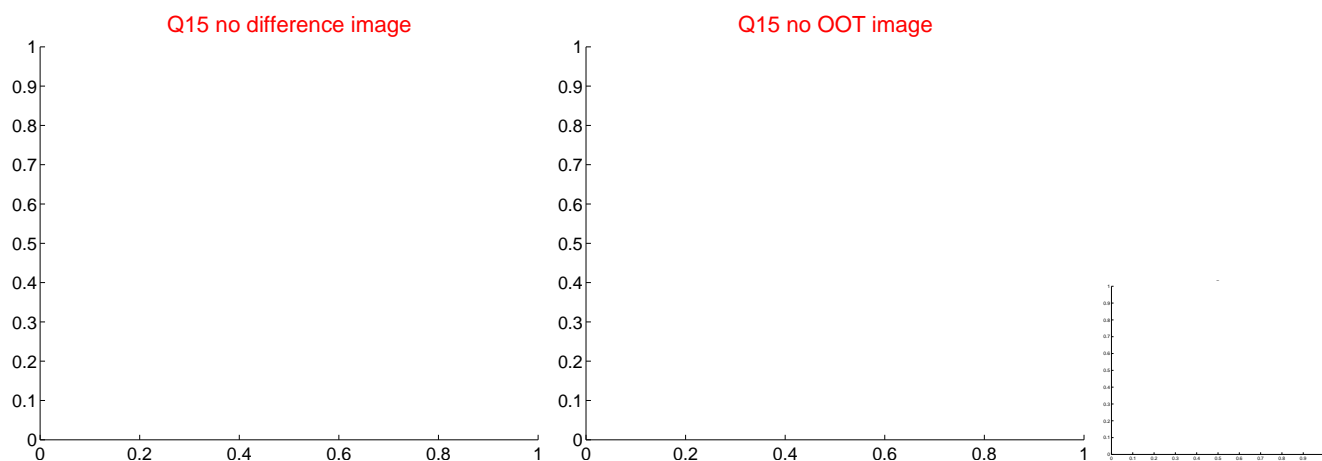
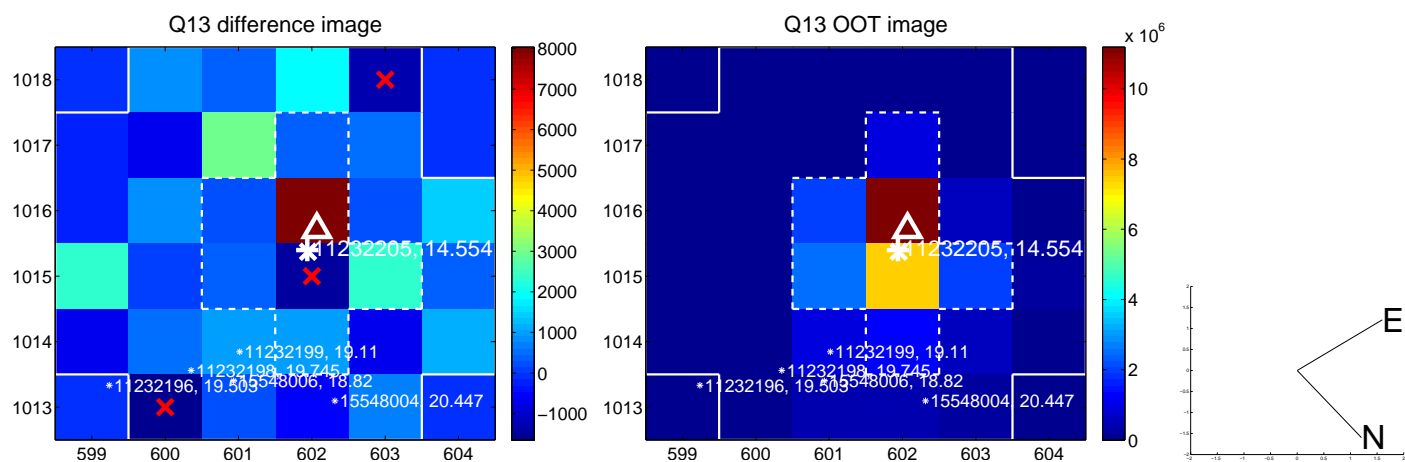




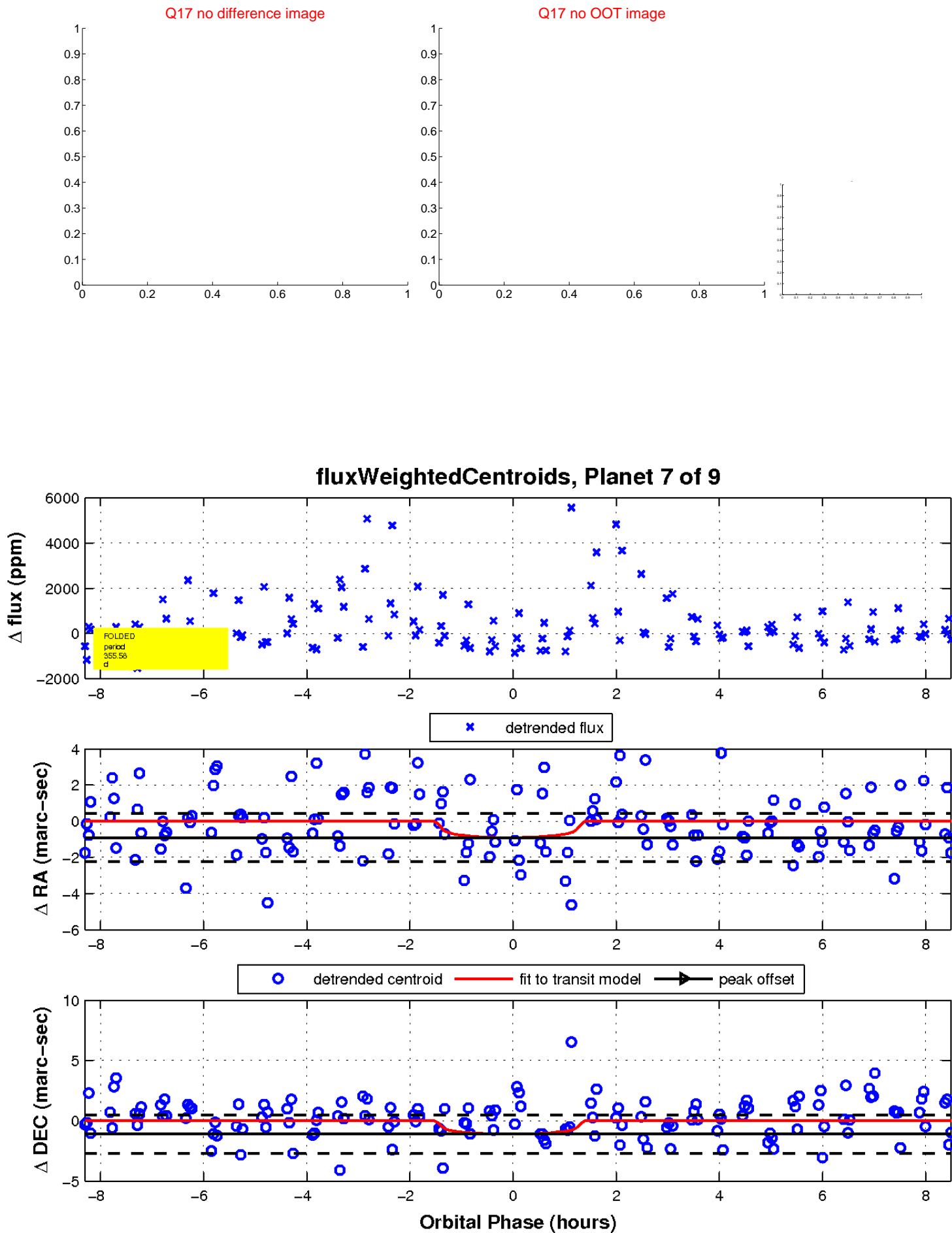
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

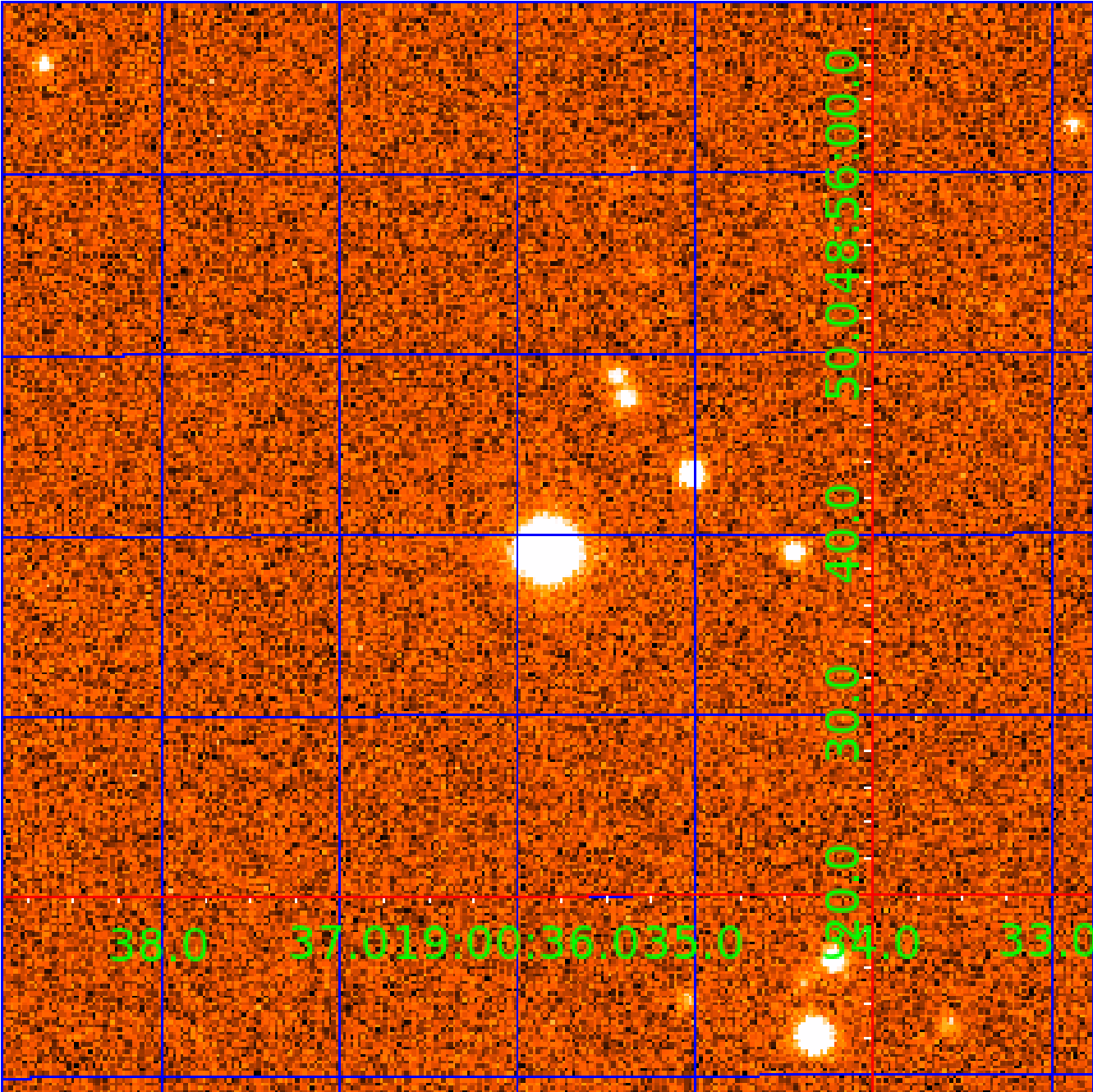


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## KIC 011232205

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011232205-01	OBS	No	289.165284	203.581787	1255.7	5.011	13.6	6.7	1.60	5367	5.92	2.83
011232205-02	OBS	No	501.114326	209.774135	2344.5	2.413	14.8	10.0	1.60	5367	8.16	1.36
011232205-03	OBS	No	268.054251	304.808016	670.8	10.500	12.2	-1.0	1.60	5367	4.06	3.13
011232205-04	OBS	No	365.053489	160.457445	1585.2	5.011	15.2	8.1	1.60	5367	6.24	2.07
011232205-05	OBS	No	425.742358	516.052223	1476.6	5.342	12.7	7.5	1.60	5367	6.70	1.69
011232205-06	OBS	No	391.007218	266.147874	830.6	9.160	14.4	4.6	1.60	5367	4.82	1.89
011232205-07	OBS	No	355.583516	172.560446	1144.2	2.845	12.5	6.7	1.60	5367	5.52	2.15
011232205-08	OBS	No	377.795857	471.462579	1947.1	25.432	11.5	6.6	1.60	5367	6.94	1.98
011232205-09	OBS	No	502.750358	190.429716	1414.1	3.497	11.0	7.0	1.60	5367	6.26	1.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011232205-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011232205-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011232205-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS
011232205-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-08	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011232205-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

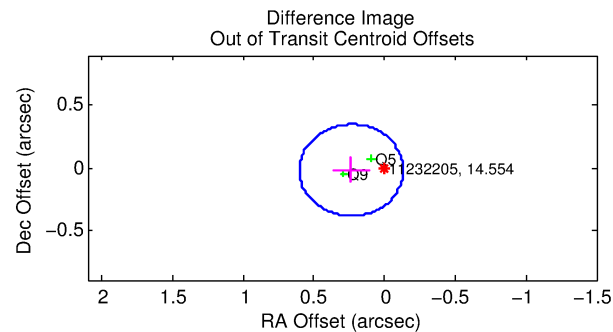
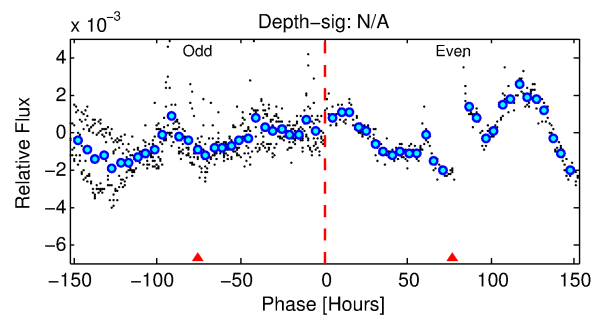
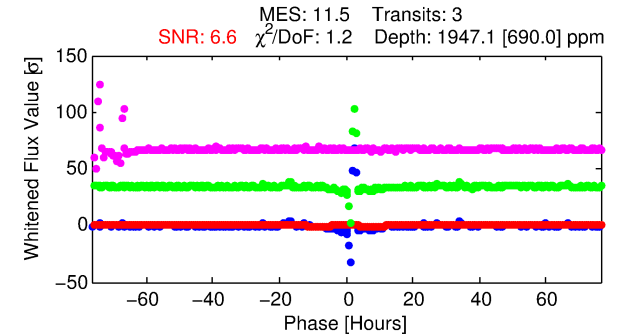
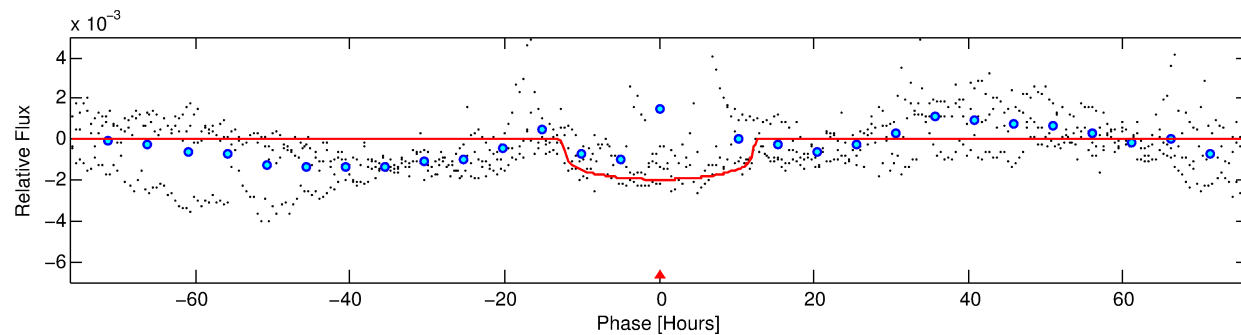
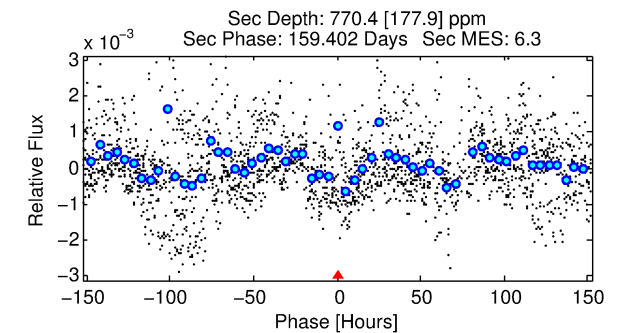
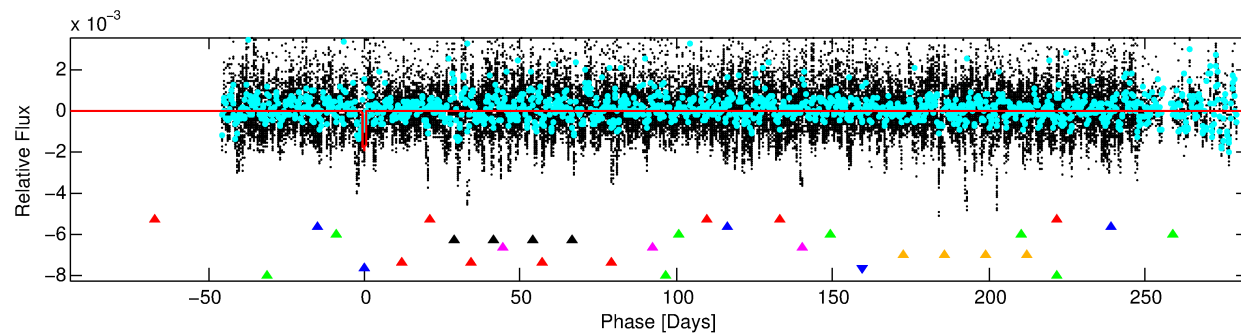
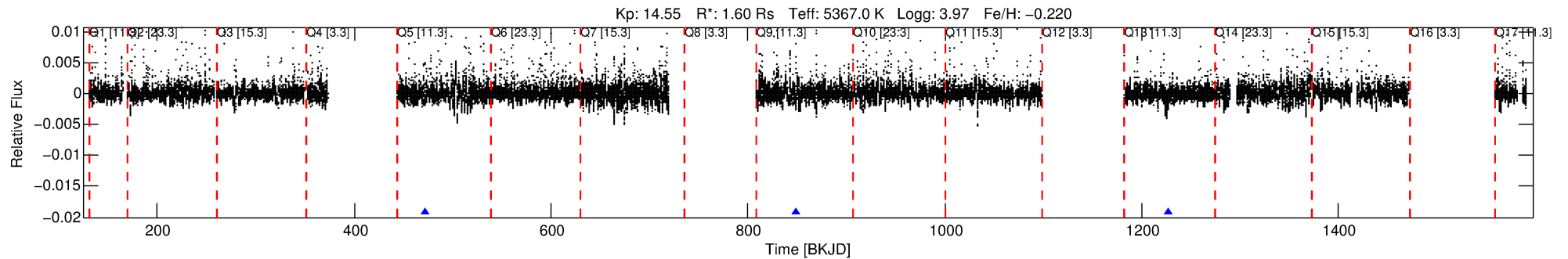
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011232205-08

No Significant Match Found

# DV One-Page Summary

KIC: 11232205 Candidate: 8 of 9 Period: 377.796 d



## DV Fit Results:

Period = 377.79586 [0.01968] d  
Epoch = 471.4626 [0.0260] BKJD  
Rp/R\* = 0.0398 [0.0116]  
a/R\* = 116.04 [95.04]  
b = 0.19 [4.20]  
Seff = 1.98 [1.93]  
Teq = 303 [74] K  
Rp = 6.94 [4.17] Re  
a = 0.9777 [0.5584] AU  
Ag = 8413.12 [9703.68] [0.87] $\sigma$   
Teffp = 4479 [715] K [5.81] $\sigma$

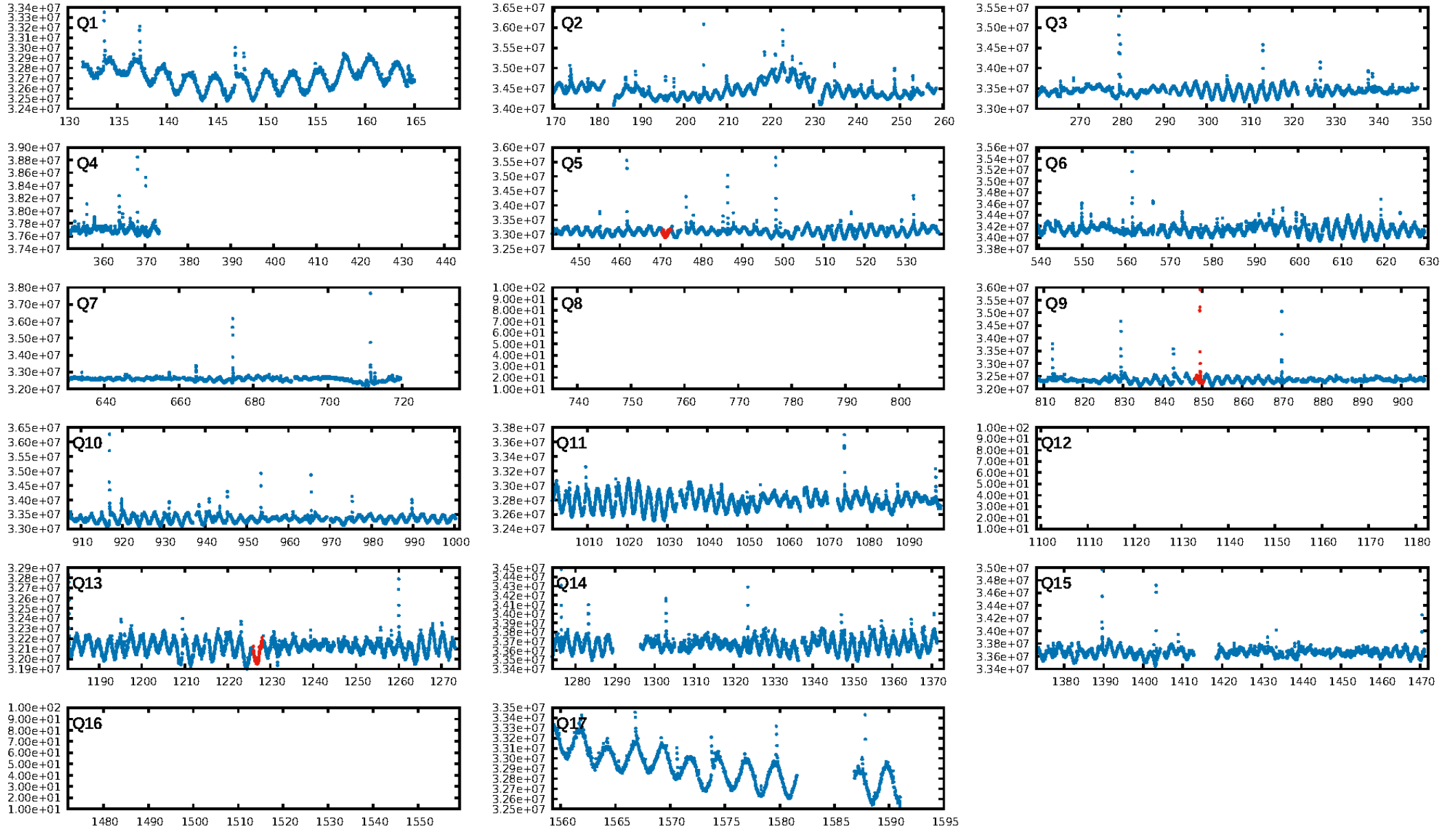
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.80] $\sigma$   
LongPeriod-sig: 100.0% [11.73] $\sigma$   
ModelChiSquare2-sig: 0.9%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.12e-09**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.3696**  
Centroid-sig: 5.1%  
Centroid-so: 0.525 arcsec [1.63] $\sigma$   
OotOffset-rm: 0.237 arcsec [1.93] $\sigma$   
OotOffset-st: 0/0/0/2 [2]  
KicOffset-rm: 0.242 arcsec [2.18] $\sigma$   
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

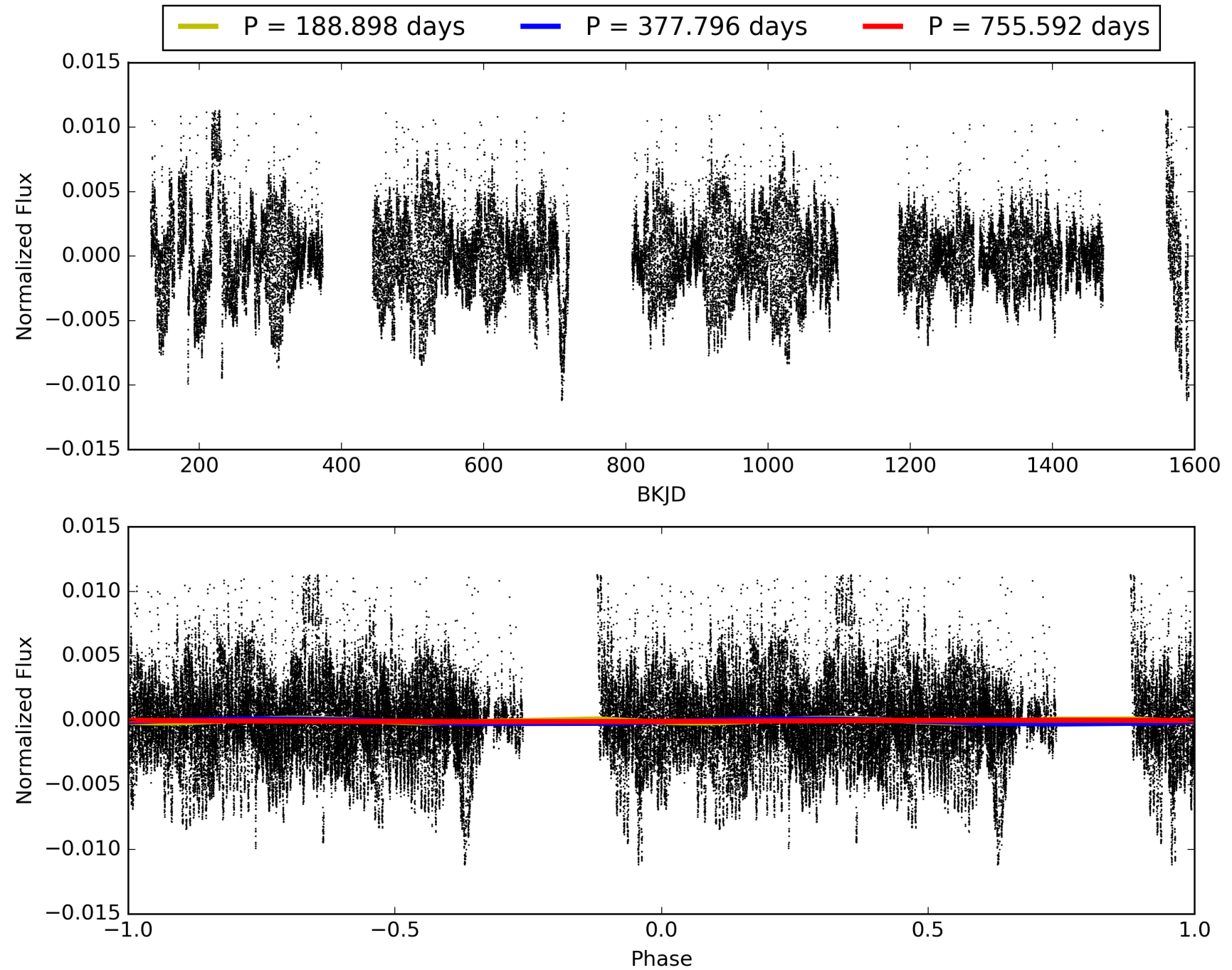
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:58:41 Z

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

# TCE 011232205-08, PDC Light Curves



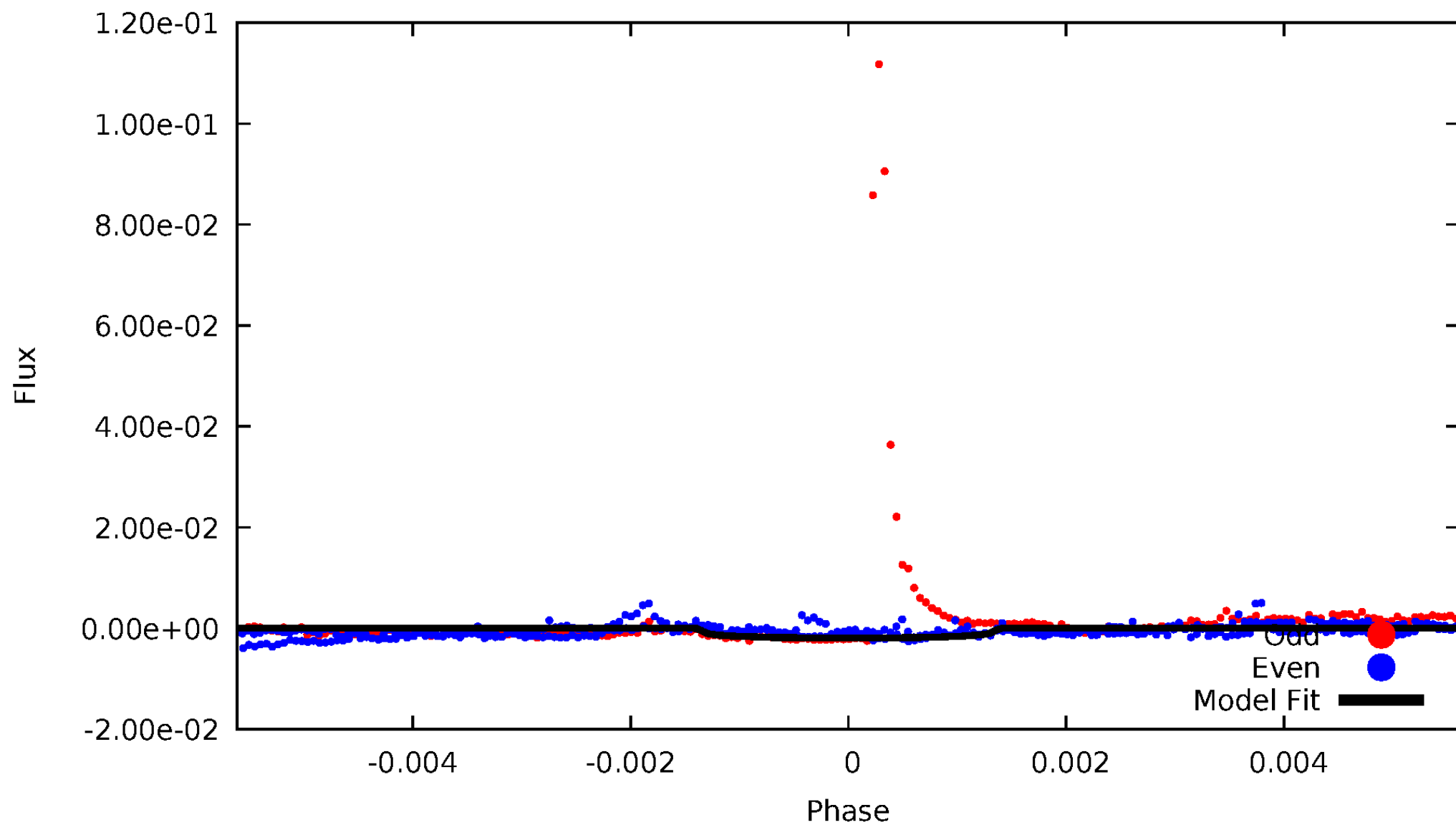
# TCE 011232205-08





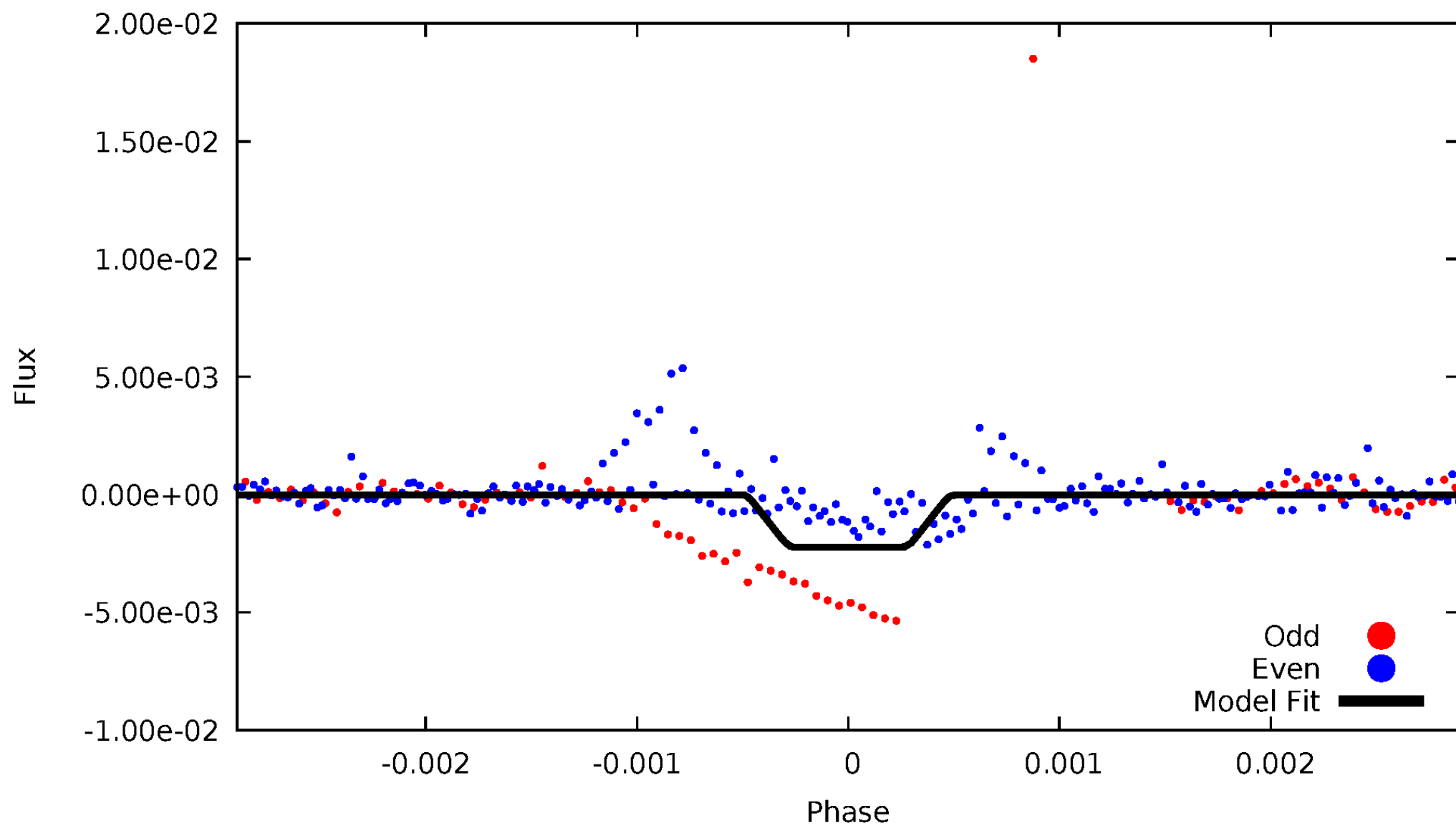
# DV Odd/Even

TCE 011232205-08



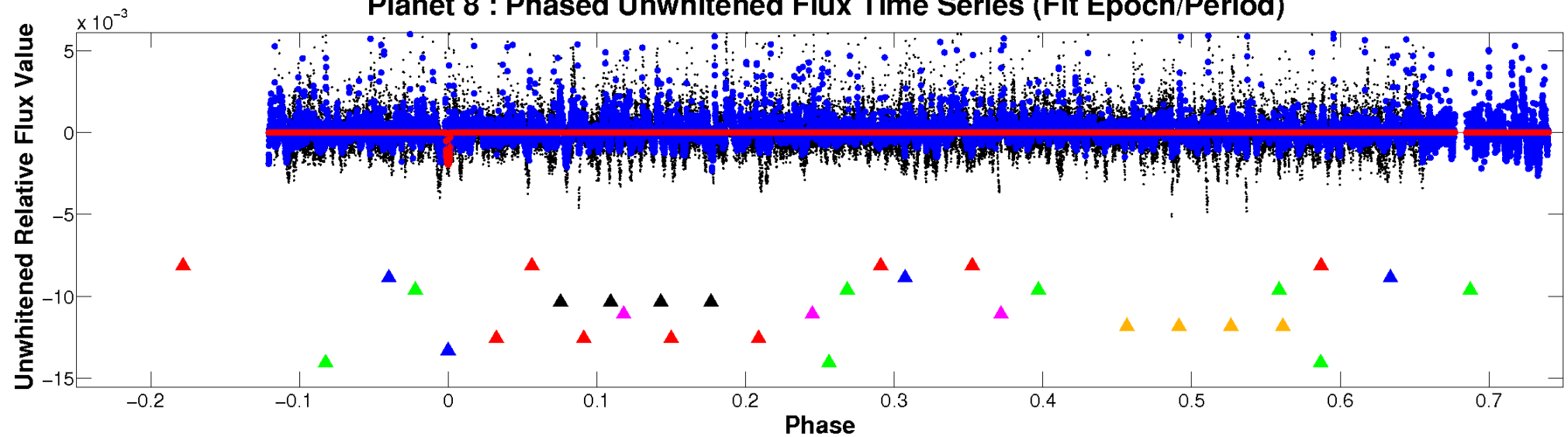
# ALT Odd/Even

TCE 011232205-08

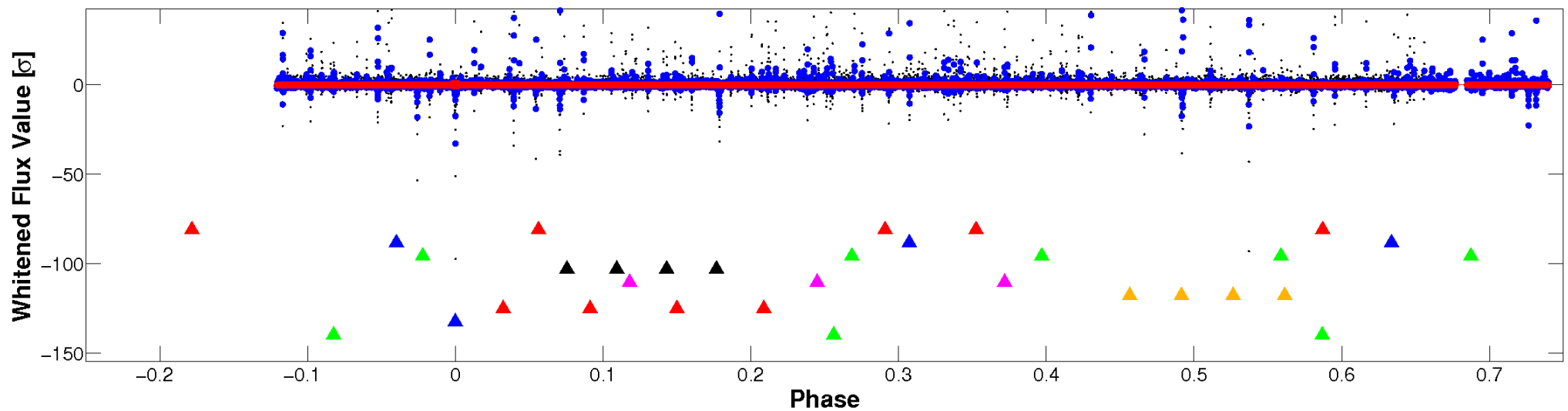


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

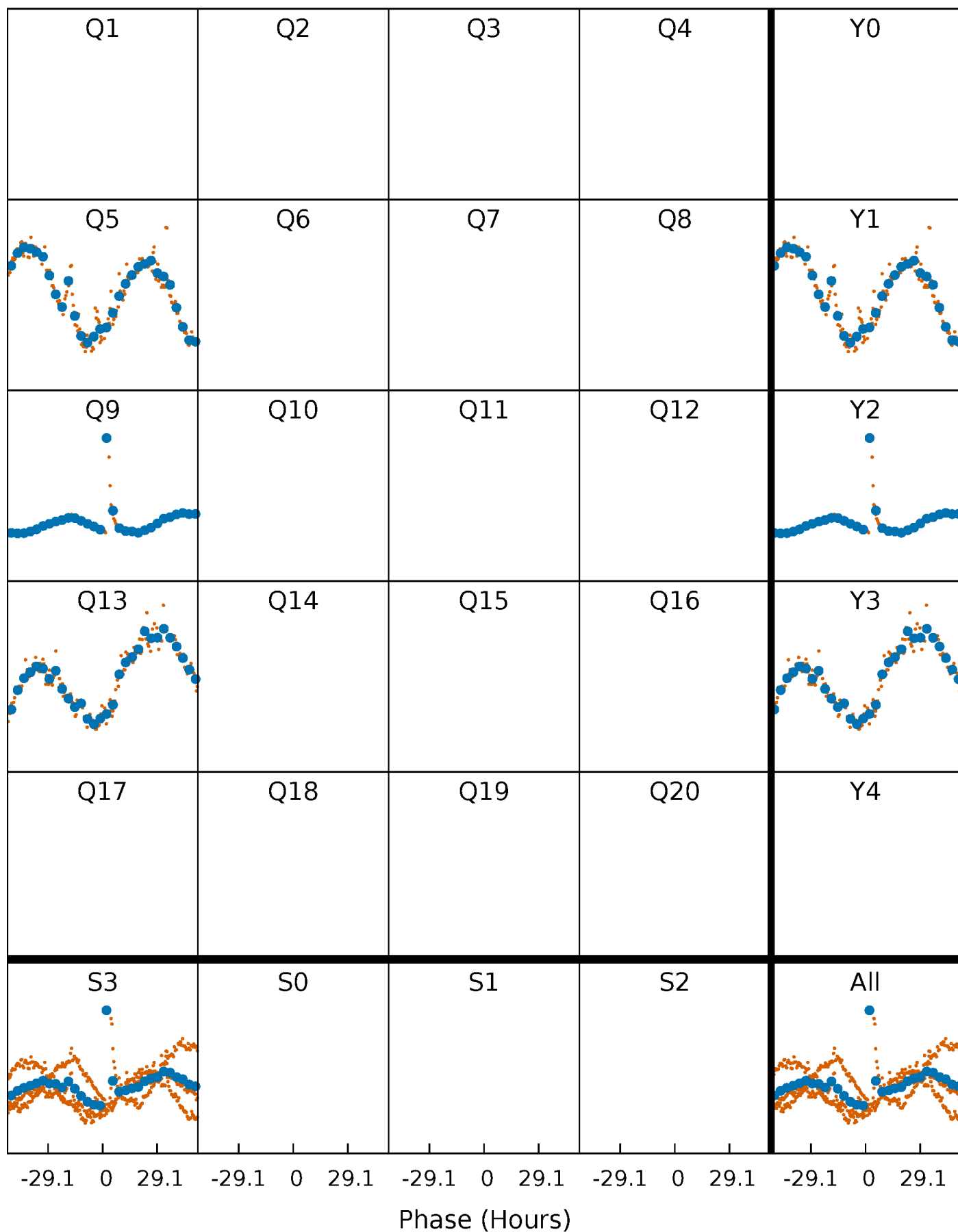


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



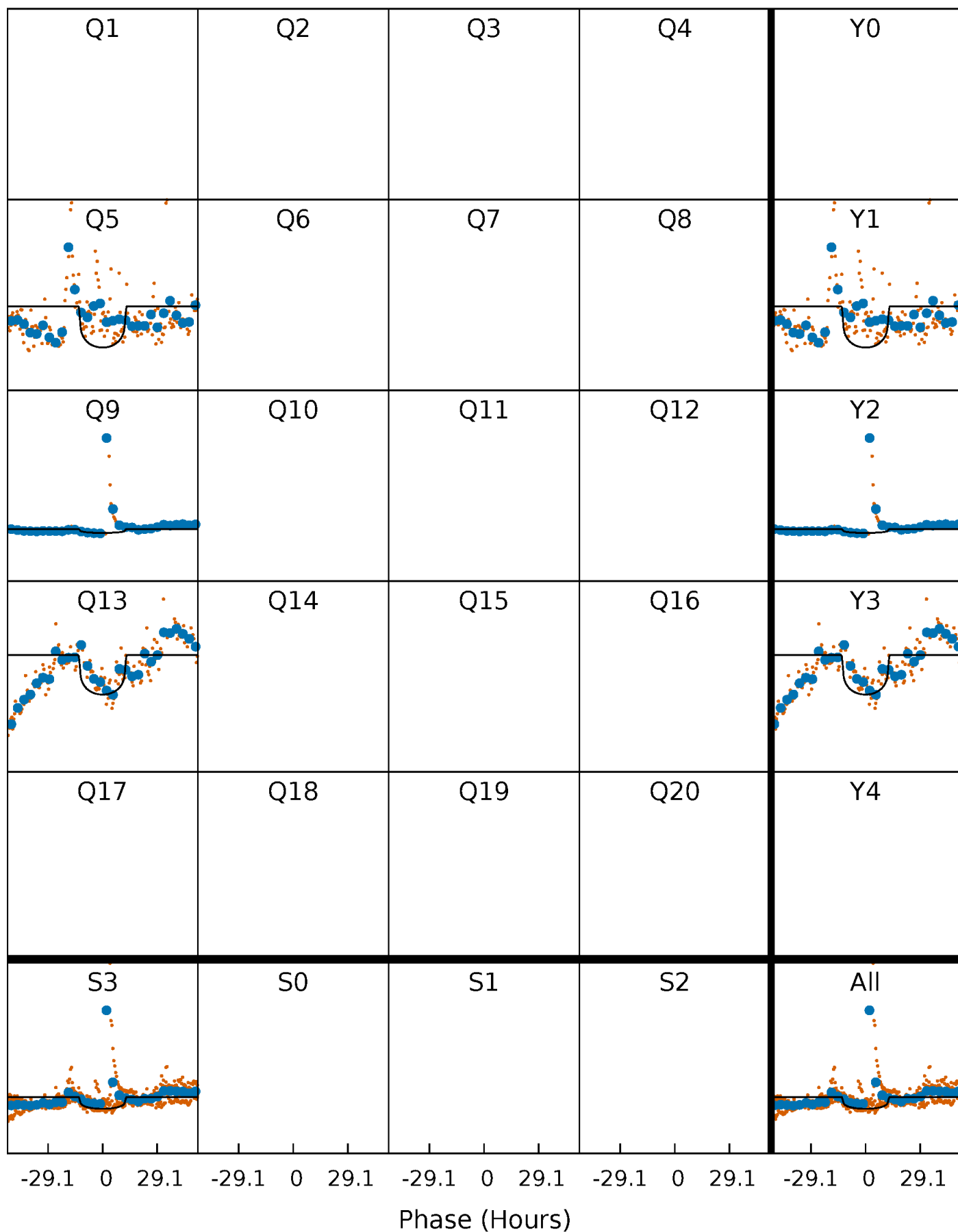
# PDC Quarter-Phased Transit Curves

TCE 011232205-08     $P=377.795857$  Days     $T_0=471.462579$  (BKJD)



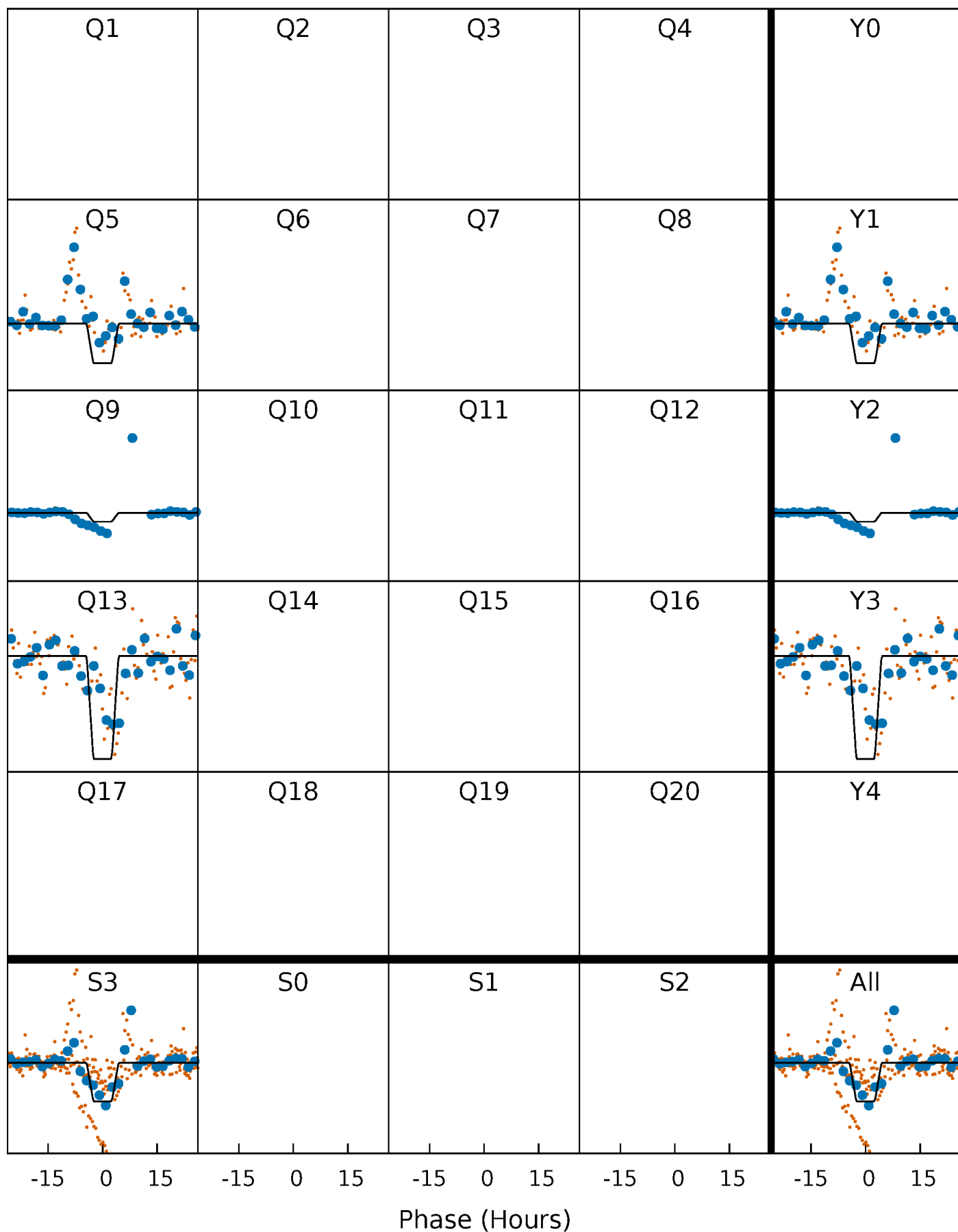
# DV Quarter-Phased Transit Curves

TCE 011232205-08     $P=377.795857$  Days     $T_0=471.462579$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

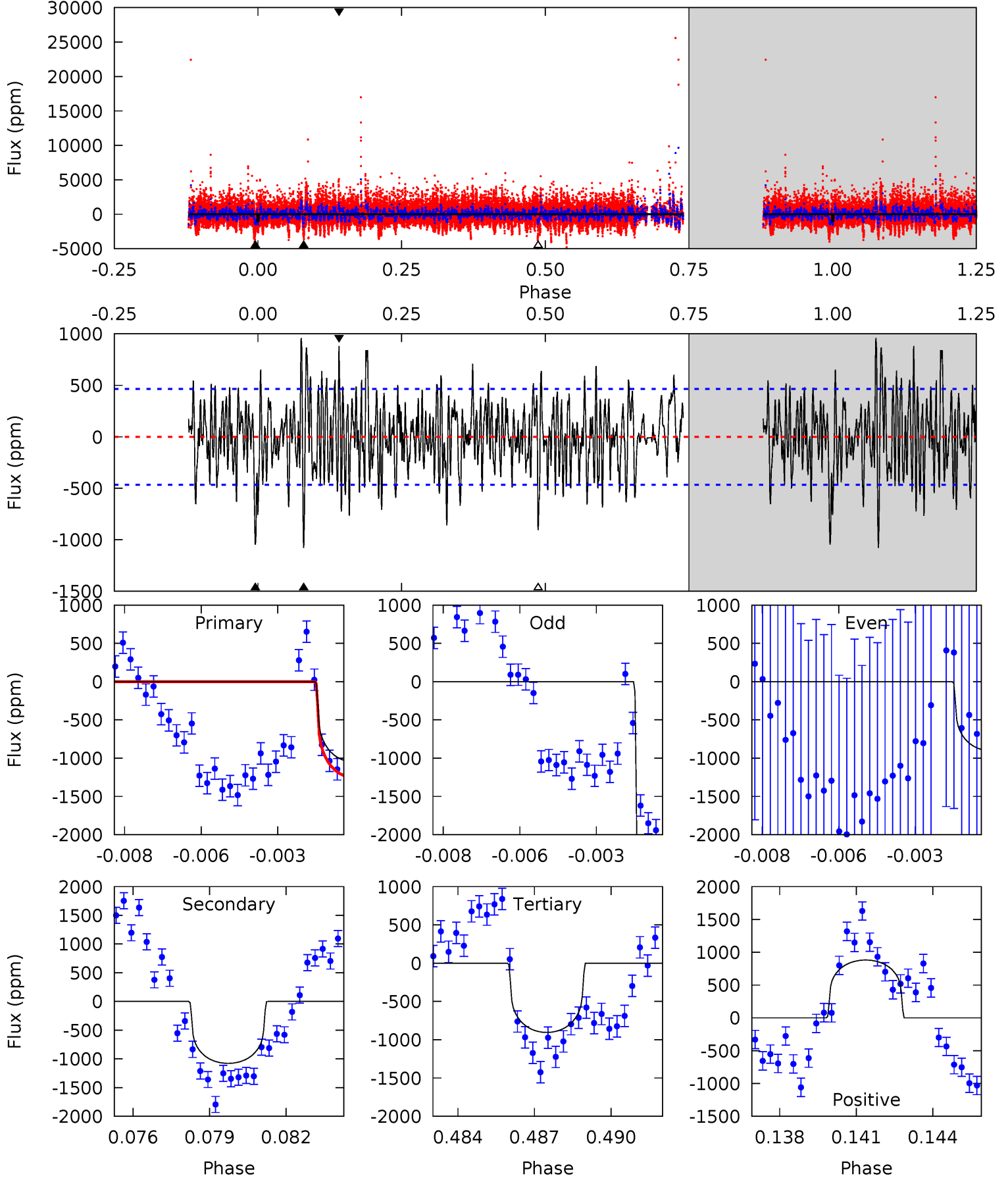
TCE 011232205-08 P=378.027671 Days  $T_0=471.067036$  (BKJD)



# DV Model-Shift Uniqueness Test

011232205-08, P = 377.795857 Days, E = 93.666722 Days

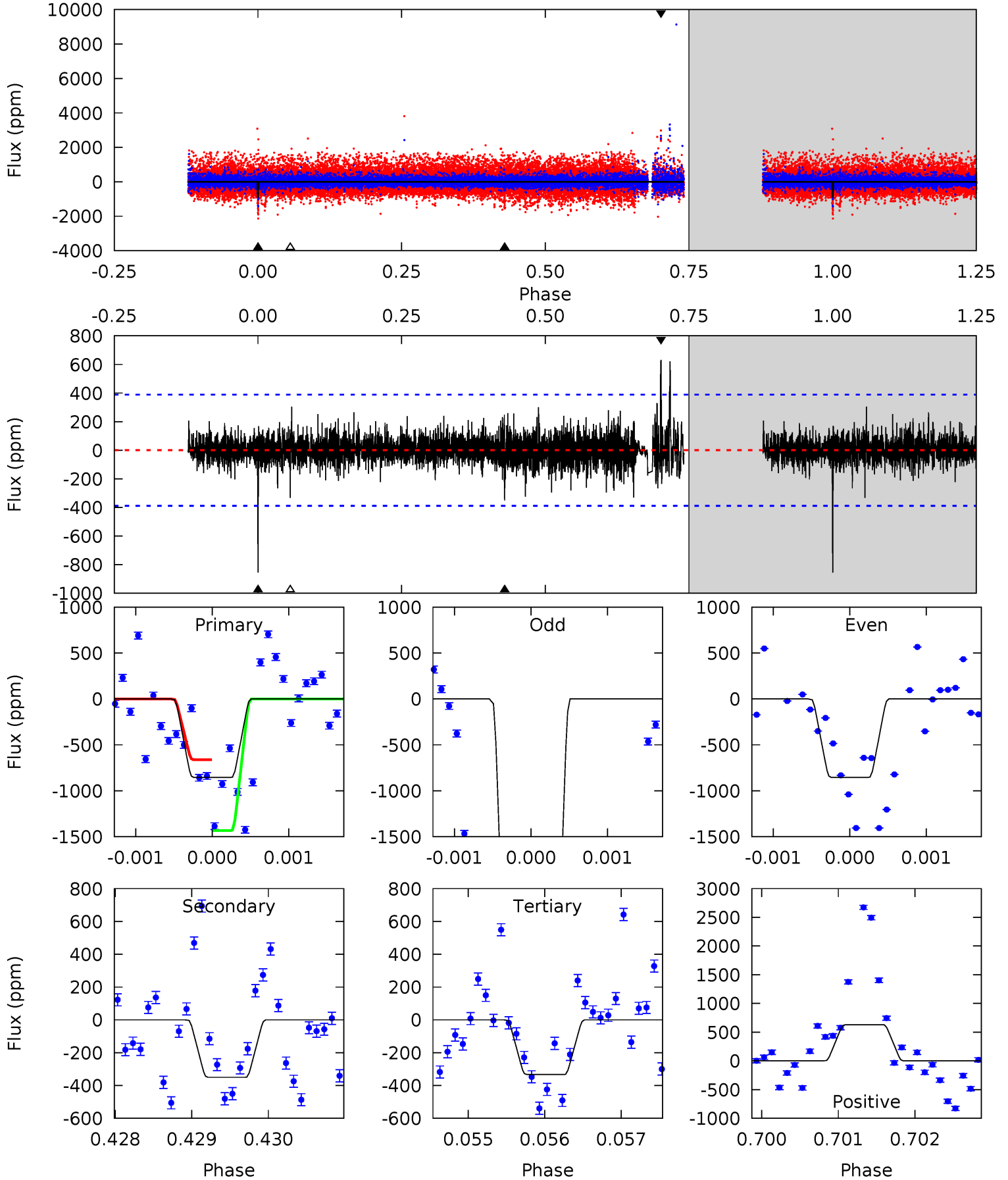
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	12.2	10.2	9.97	5.26	2.99	3.28	1.63	1.89	1.96	2.23	25.1	-4.75	0.47	2.10



# Alt Model-Shift Uniqueness Test

011232205-08, P = 378.027671 Days, E = 93.039365 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
12.0	4.91	4.67	8.83	5.45	3.29	1.05	7.31	3.15	0.24	-3.92	26.1	2.04	0.42	5.35





### Stellar Parameters For KIC 011232205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5367^{+159}_{-143}$	$3.973^{+0.588}_{-0.252}$	$-0.220^{+0.350}_{-0.250}$	$1.596^{+0.686}_{-0.838}$	$0.873^{+0.086}_{-0.115}$	$0.302^{+2.236}_{-0.181}$
	+3%/-3%	+15%/-6%	+159%/-114%	+43%/-53%	+10%/-13%	+739%/-60%
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 011232205-08 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1078 \pm 88$	$6.44^{+2.94}_{-2.61}$	$416^{+47}_{-67}$	$4916^{+858}_{-495}$	$13516^{+24263}_{-7048}$
Alt.	$-350 \pm 71$	$7.69^{+3.12}_{-2.67}$	$418^{+49}_{-64}$	$3761^{+447}_{-301}$	$3030^{+4630}_{-1502}$

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

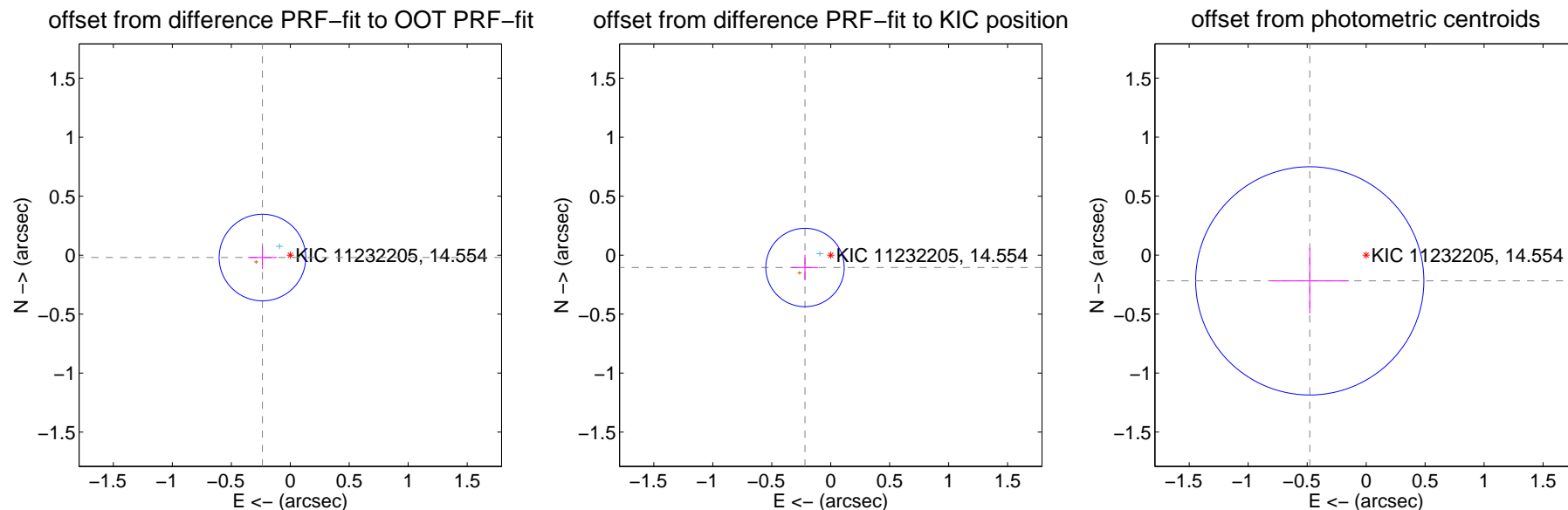
## DV Centroid Data

Supplemental centroid analysis for 011232205-08. Kepler magnitude: 14.55. Transit SNR 6.57

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.237 \pm 0.122$	1.93	$0.236 \pm 0.123$	$-0.020 \pm 0.096$
PRF-fit source offset from KIC position	$0.242 \pm 0.111$	2.18	$0.218 \pm 0.111$	$-0.105 \pm 0.108$
photometric centroid source offset	$0.53 \pm 0.32$	1.63	$0.48 \pm 0.33$	$-0.22 \pm 0.28$

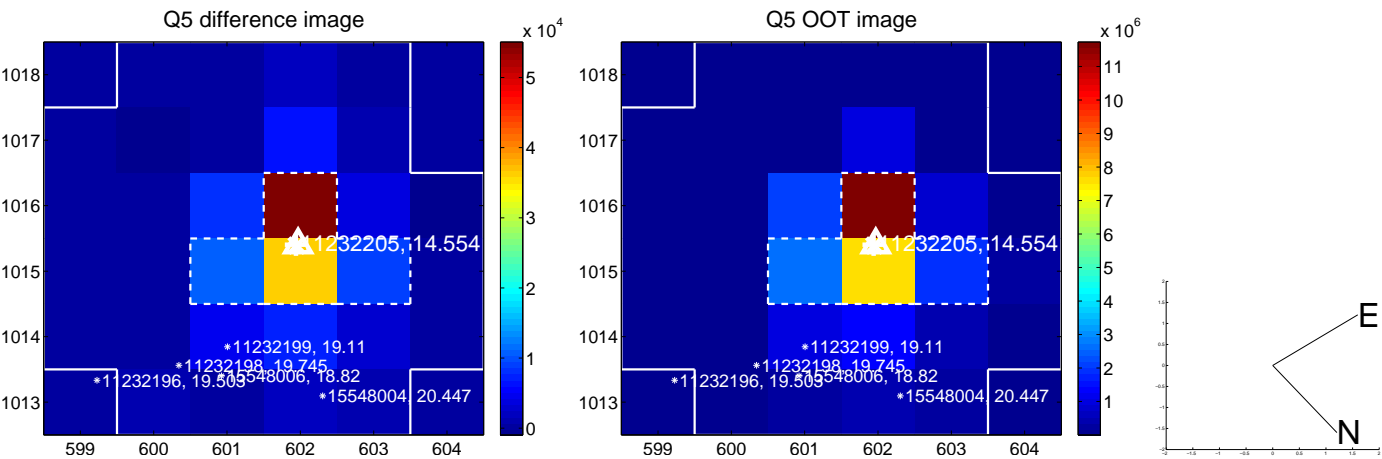


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

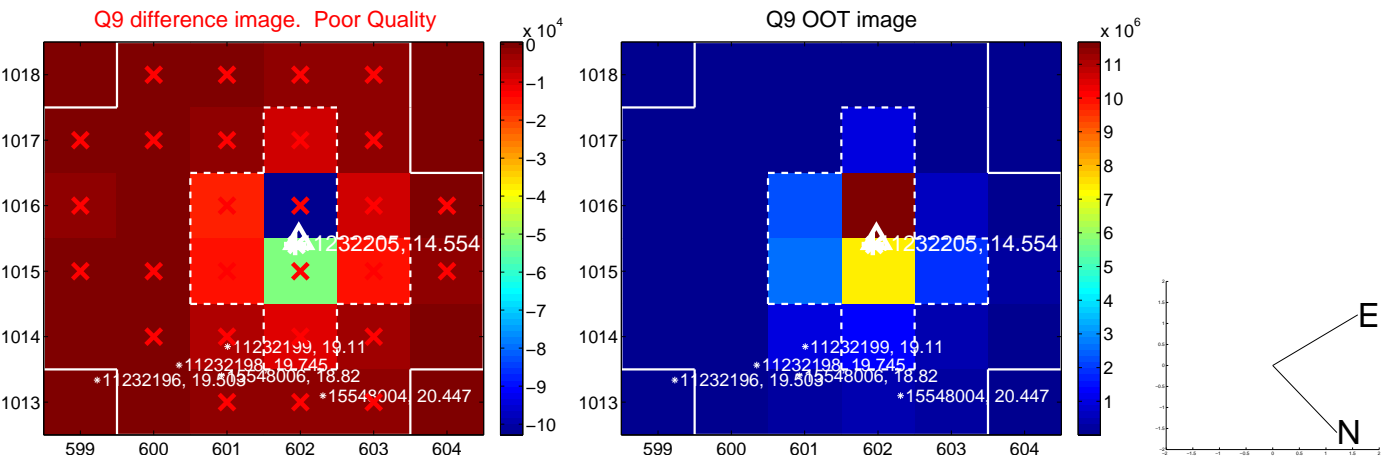
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



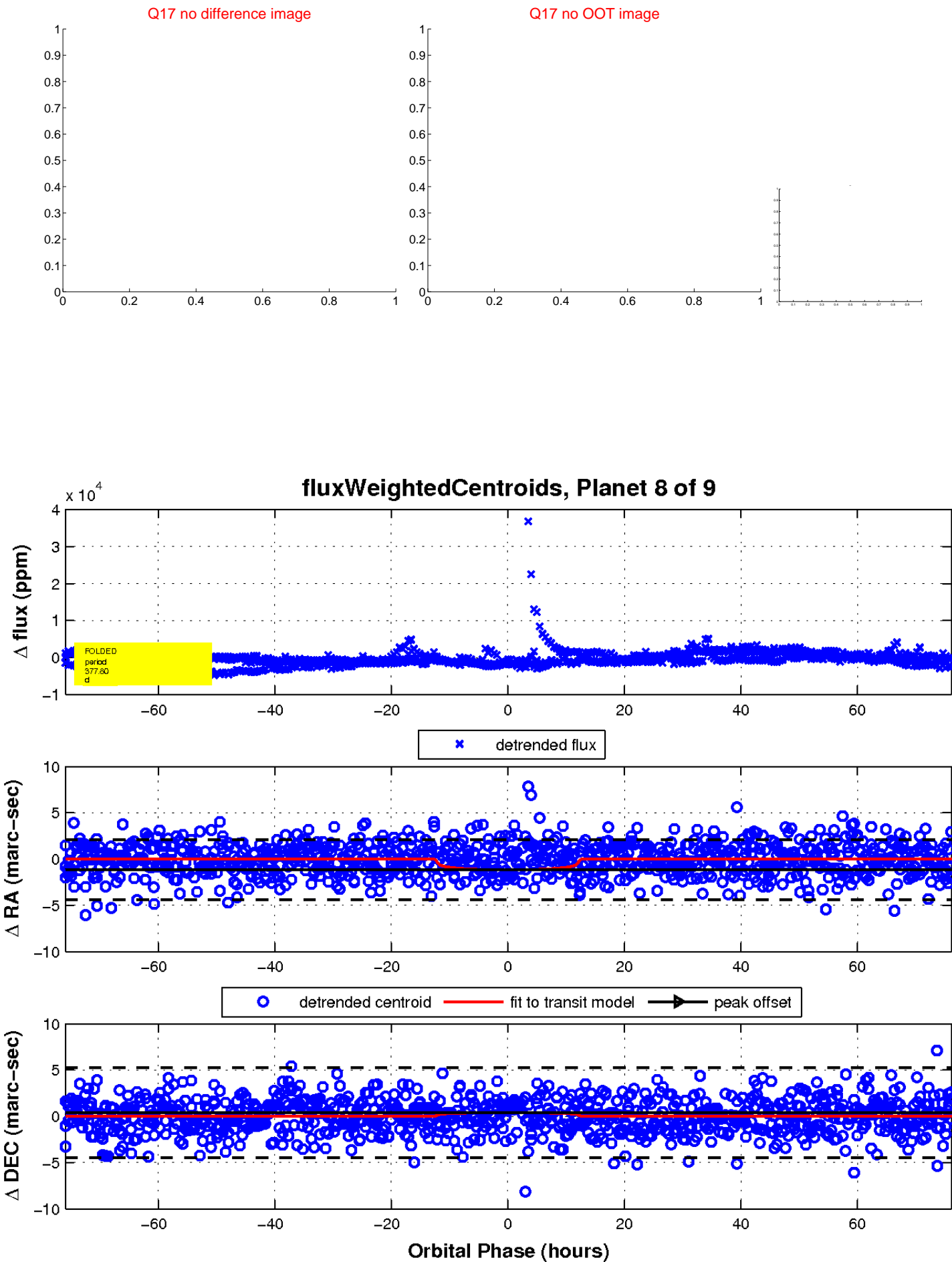
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

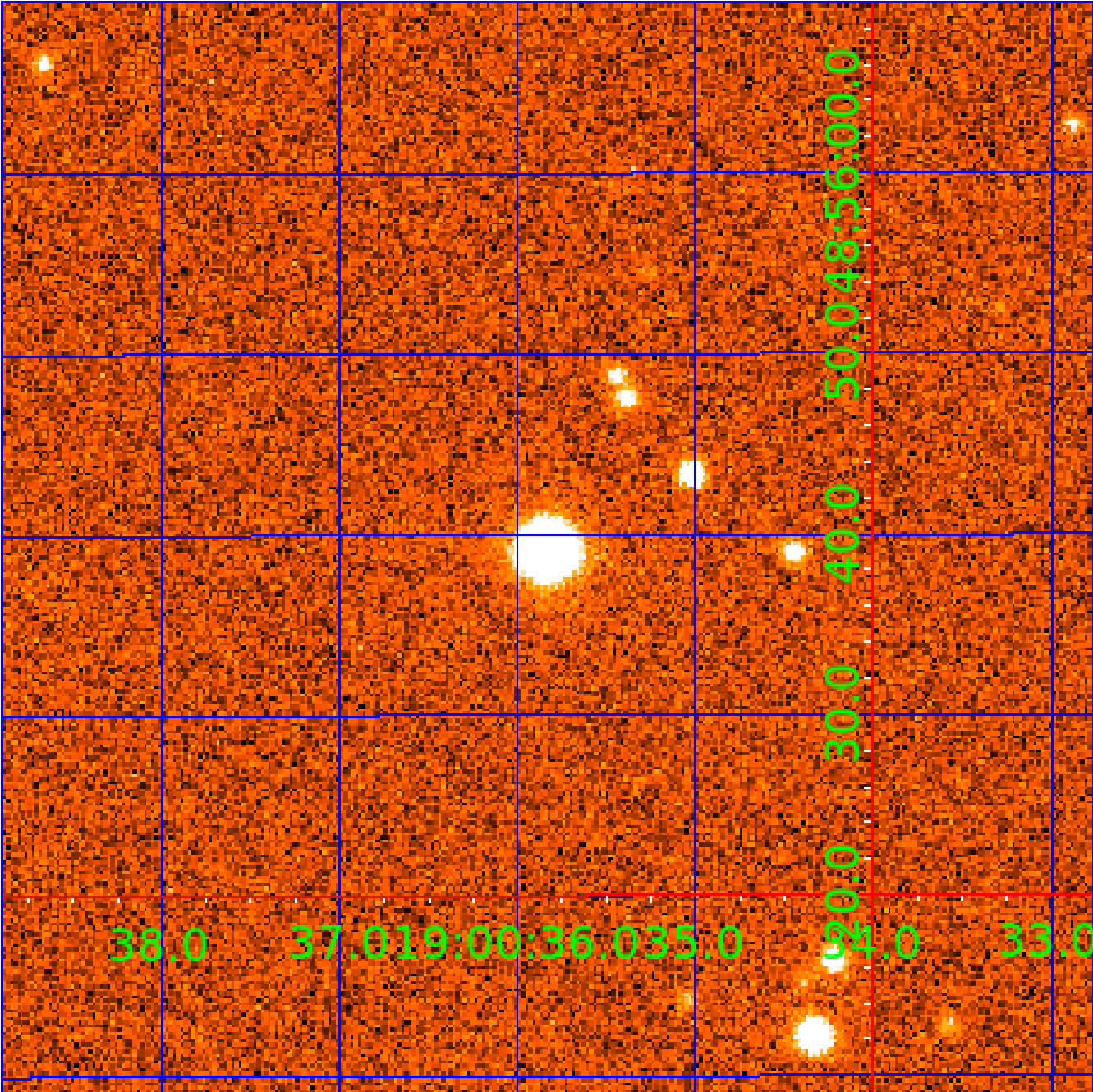


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





## KIC 011232205

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011232205-01	OBS	No	289.165284	203.581787	1255.7	5.011	13.6	6.7	1.60	5367	5.92	2.83
011232205-02	OBS	No	501.114326	209.774135	2344.5	2.413	14.8	10.0	1.60	5367	8.16	1.36
011232205-03	OBS	No	268.054251	304.808016	670.8	10.500	12.2	-1.0	1.60	5367	4.06	3.13
011232205-04	OBS	No	365.053489	160.457445	1585.2	5.011	15.2	8.1	1.60	5367	6.24	2.07
011232205-05	OBS	No	425.742358	516.052223	1476.6	5.342	12.7	7.5	1.60	5367	6.70	1.69
011232205-06	OBS	No	391.007218	266.147874	830.6	9.160	14.4	4.6	1.60	5367	4.82	1.89
011232205-07	OBS	No	355.583516	172.560446	1144.2	2.845	12.5	6.7	1.60	5367	5.52	2.15
011232205-08	OBS	No	377.795857	471.462579	1947.1	25.432	11.5	6.6	1.60	5367	6.94	1.98
011232205-09	OBS	No	502.750358	190.429716	1414.1	3.497	11.0	7.0	1.60	5367	6.26	1.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011232205-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011232205-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011232205-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011232205-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS
011232205-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011232205-08	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011232205-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

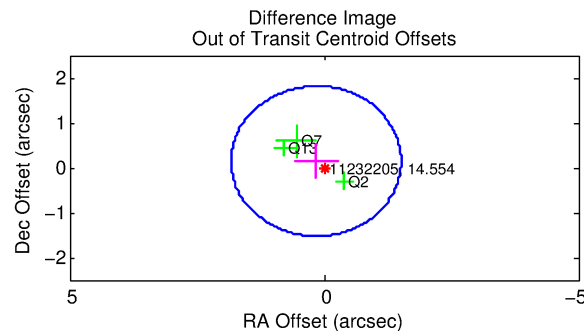
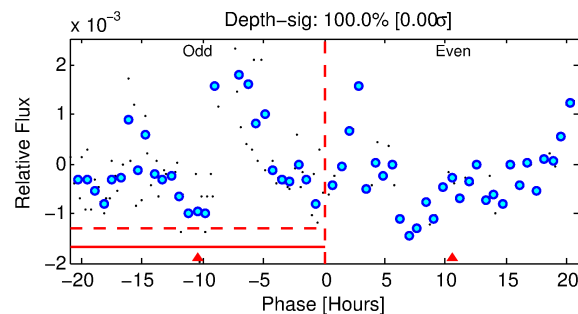
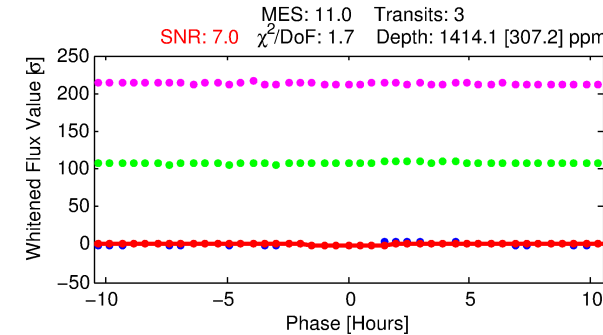
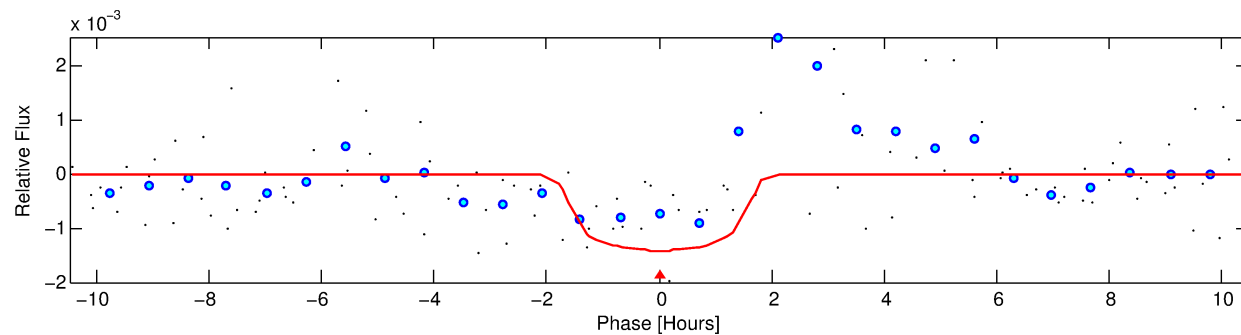
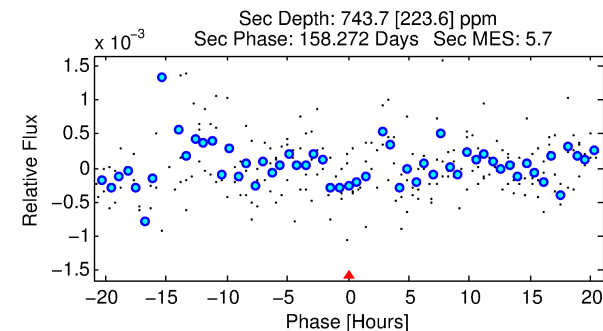
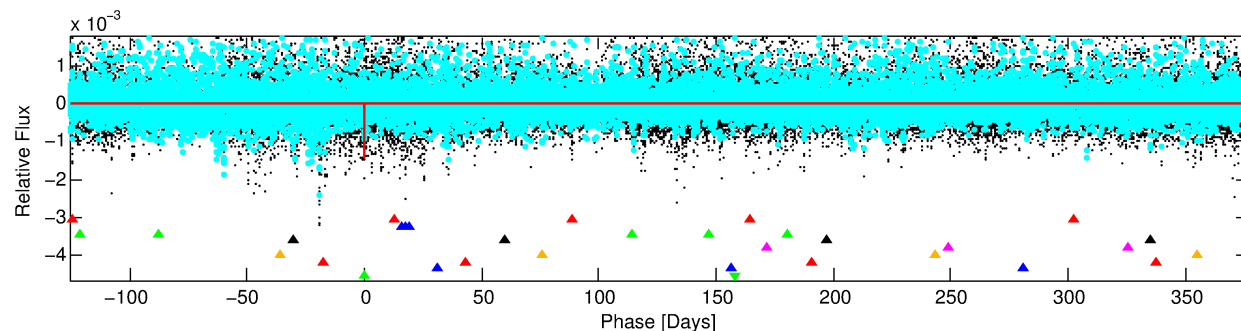
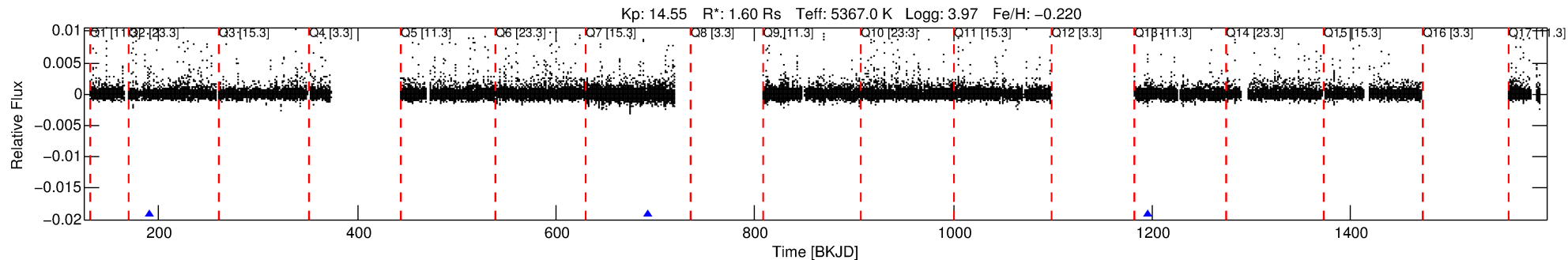
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011232205-09

No Significant Match Found

# DV One-Page Summary

KIC: 11232205 Candidate: 9 of 9 Period: 502.750 d



## DV Fit Results:

Period = 502.75036 [0.00669] d  
Epoch = 190.4297 [0.0086] BKJD  
Rp/R\* = 0.0360 [0.1156]  
a/R\* = 911.59 [11691.57]  
b = 0.62 [12.94]  
Seff = 1.35 [1.32]  
Teq = 275 [67] K  
Rp = 6.27 [20.41] Re  
a = 1.1829 [0.6756] AU  
Ag = 14584.69 [94927.99] [0.15 $\sigma$ ]  
Teff = 4673 [7520] K [0.58 $\sigma$ ]

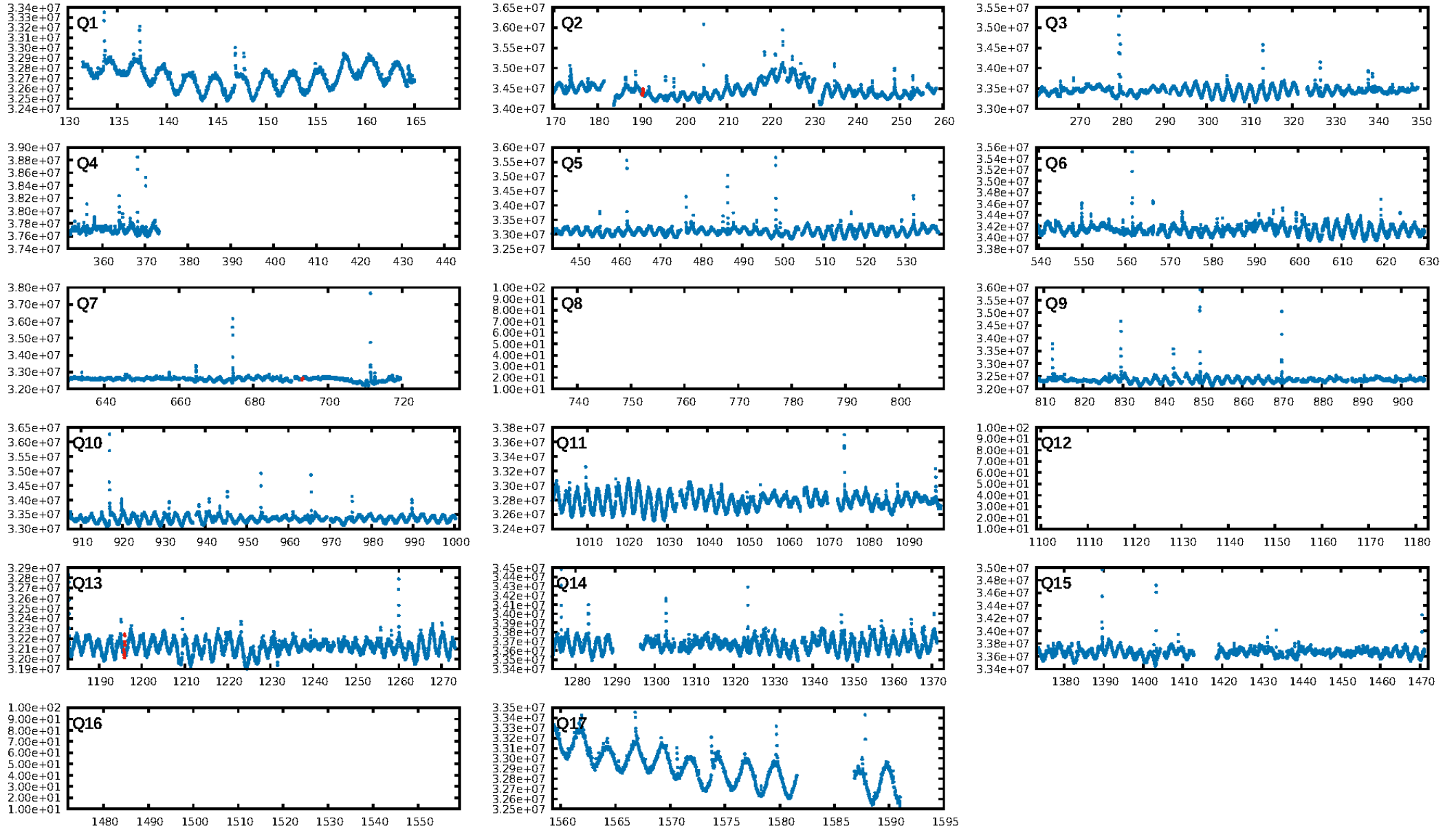
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.24 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.5%  
ModelChiSquareGof-sig: 44.6%  
**Bootstrap-pfa: 1.85e-09**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.296  
Centroid-sig: 17.8%  
Centroid-so: 1.193 arcsec [1.37 $\sigma$ ]  
OotOffset-rm: 0.214 arcsec [0.38 $\sigma$ ]  
KicOffset-rm: 0.120 arcsec [0.22 $\sigma$ ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

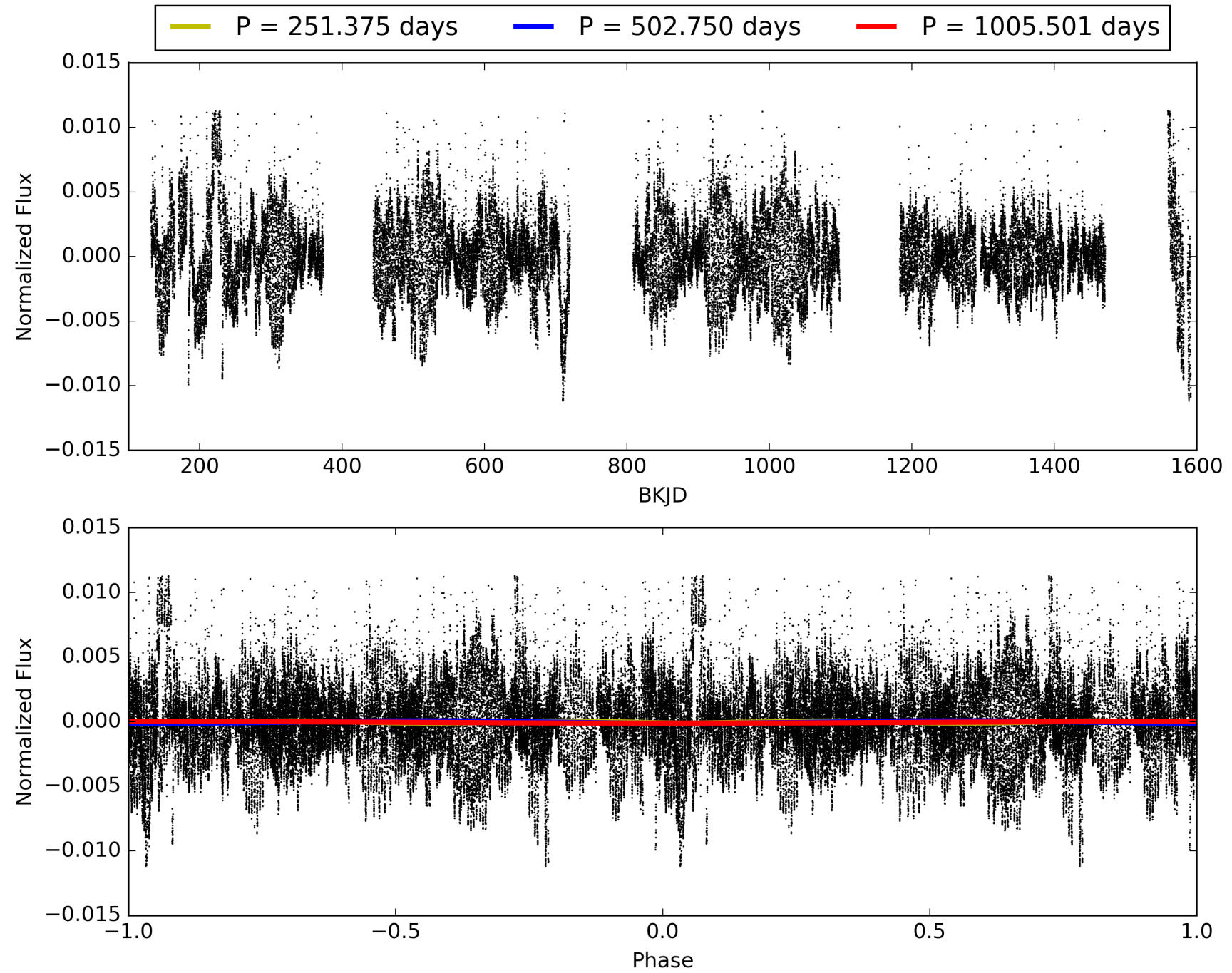
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:58:58 Z

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

# TCE 011232205-09, PDC Light Curves

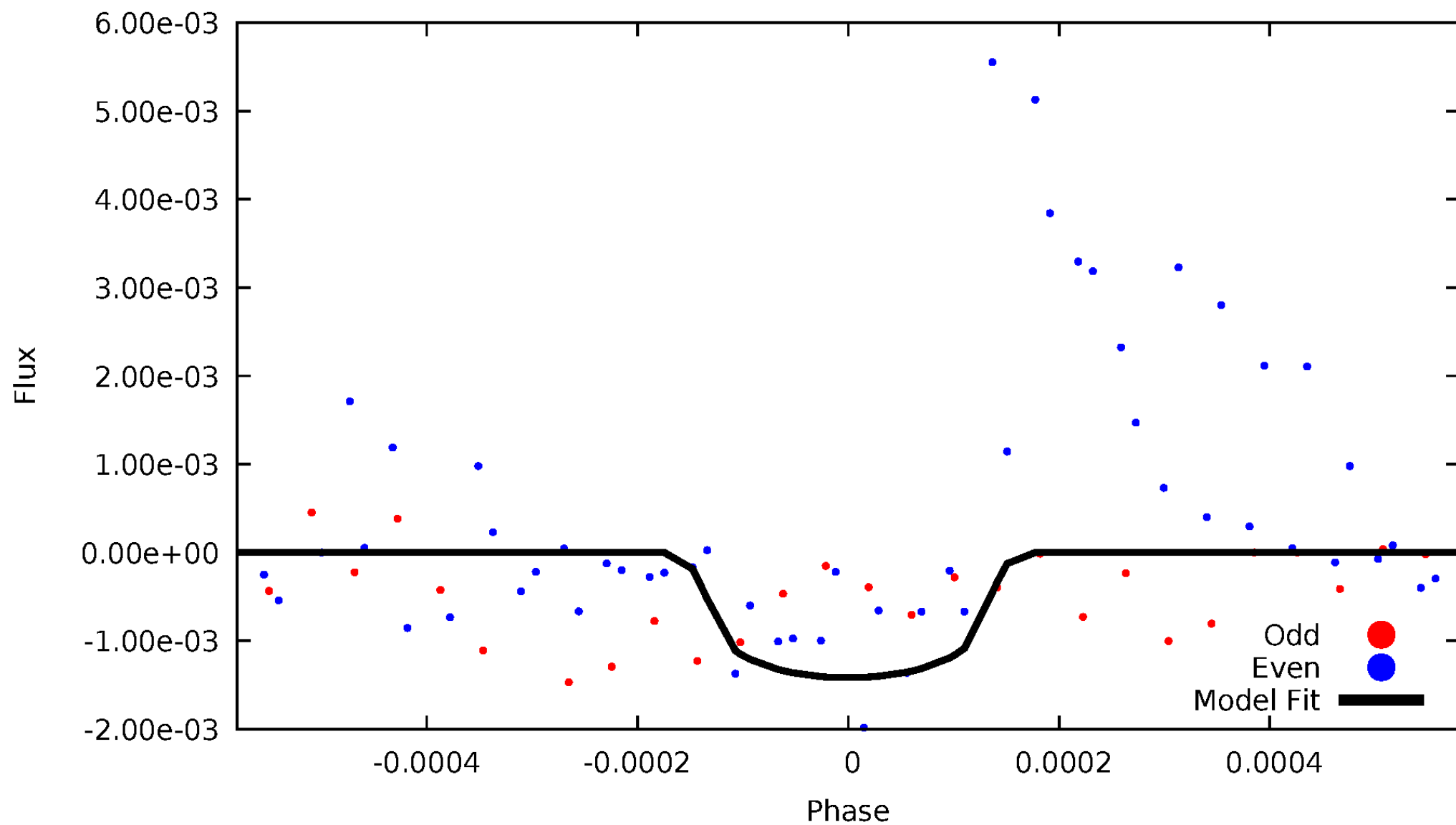


TCE 011232205-09



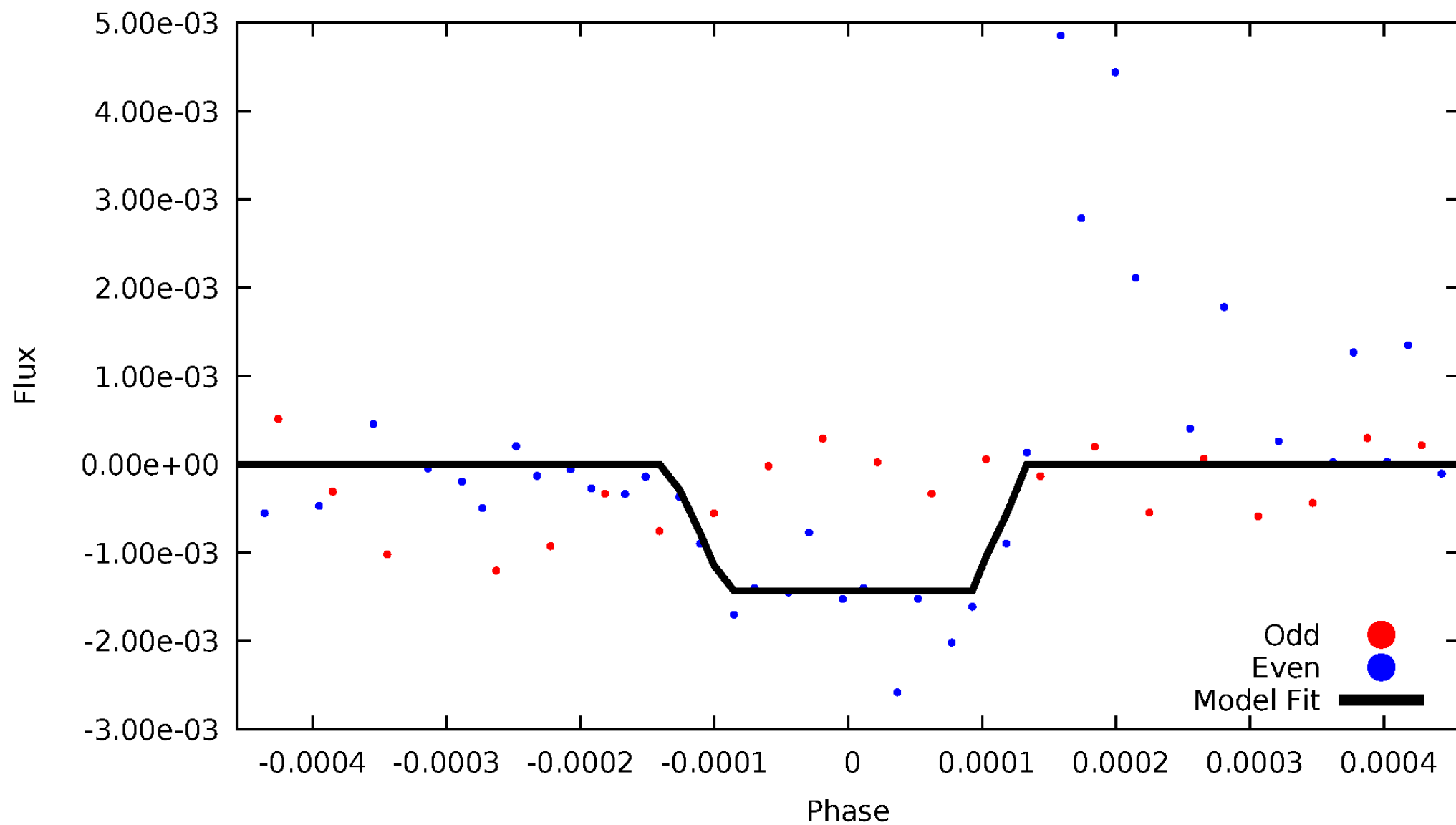
# DV Odd/Even

TCE 011232205-09



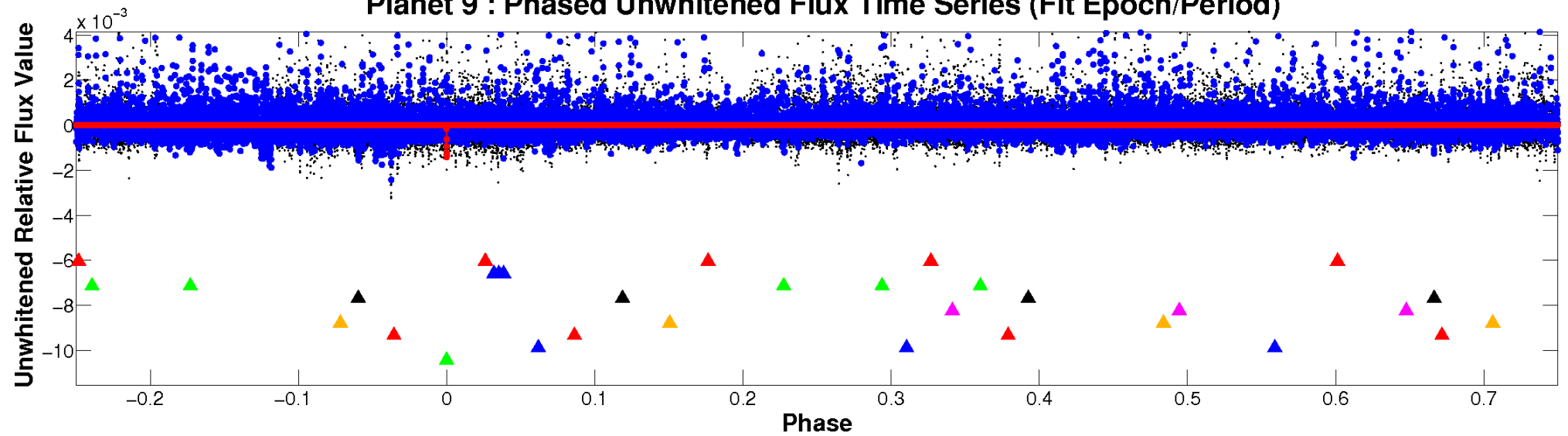
# ALT Odd/Even

TCE 011232205-09

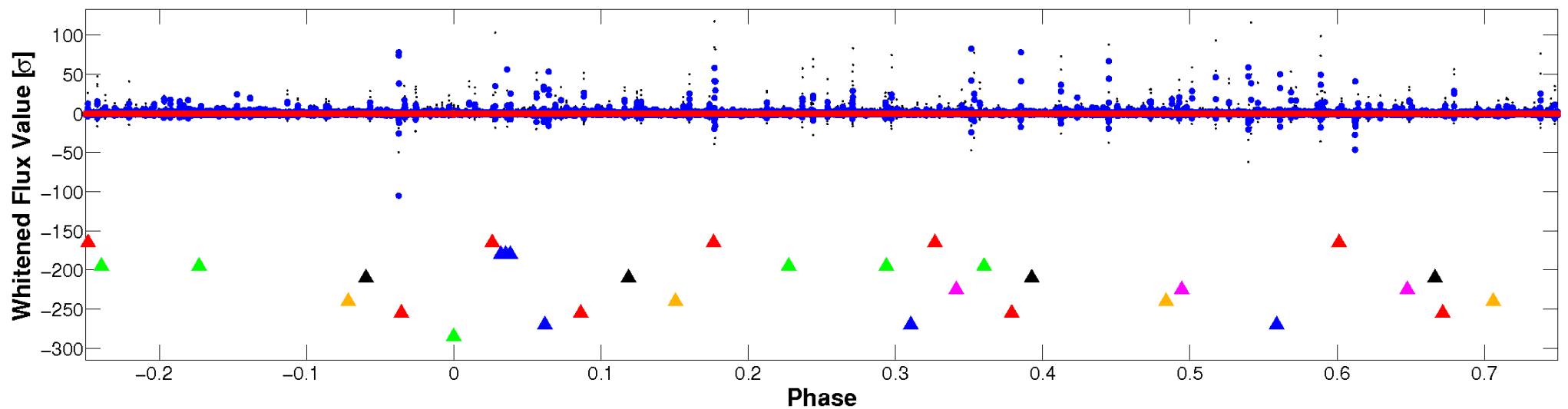


# Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

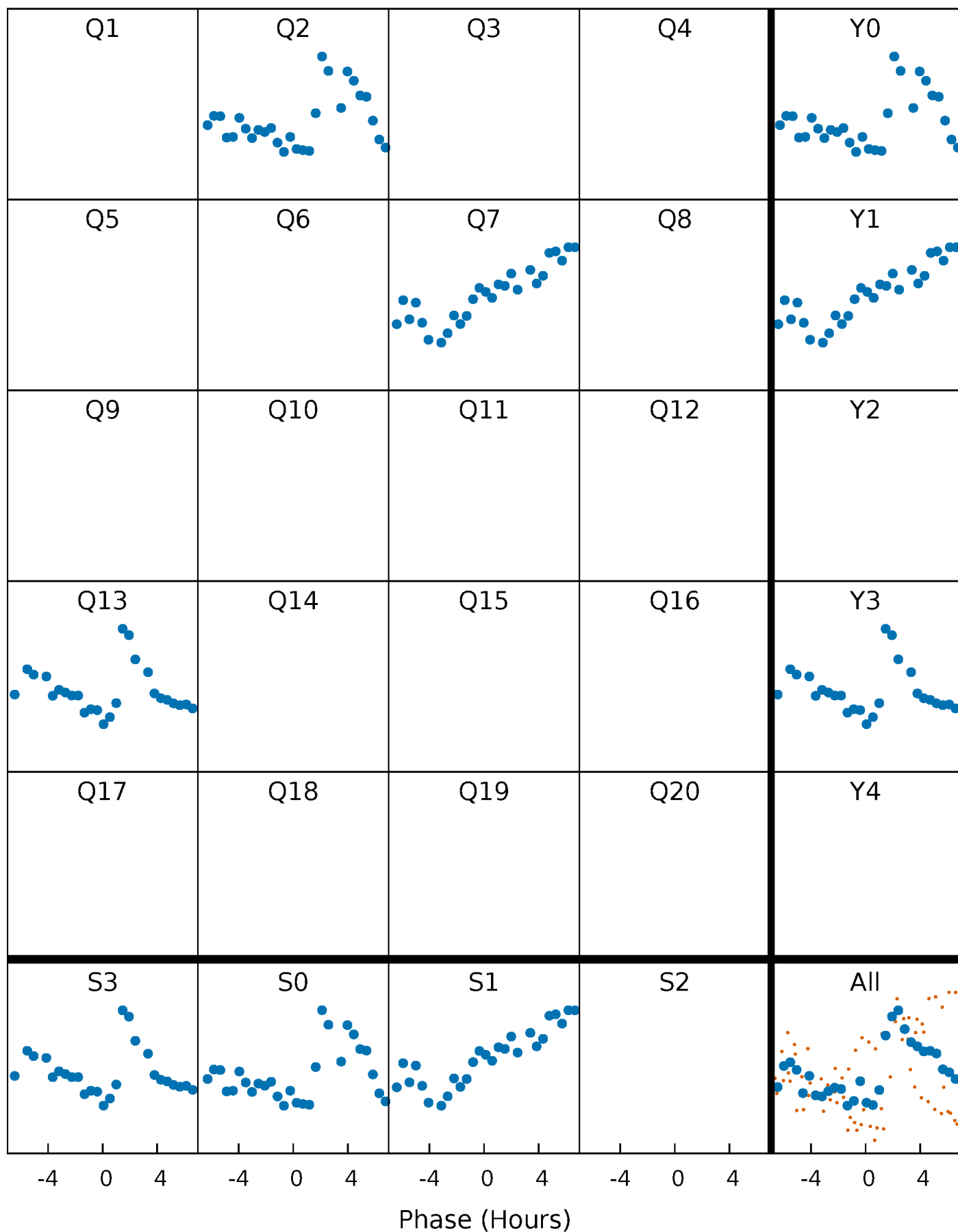


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

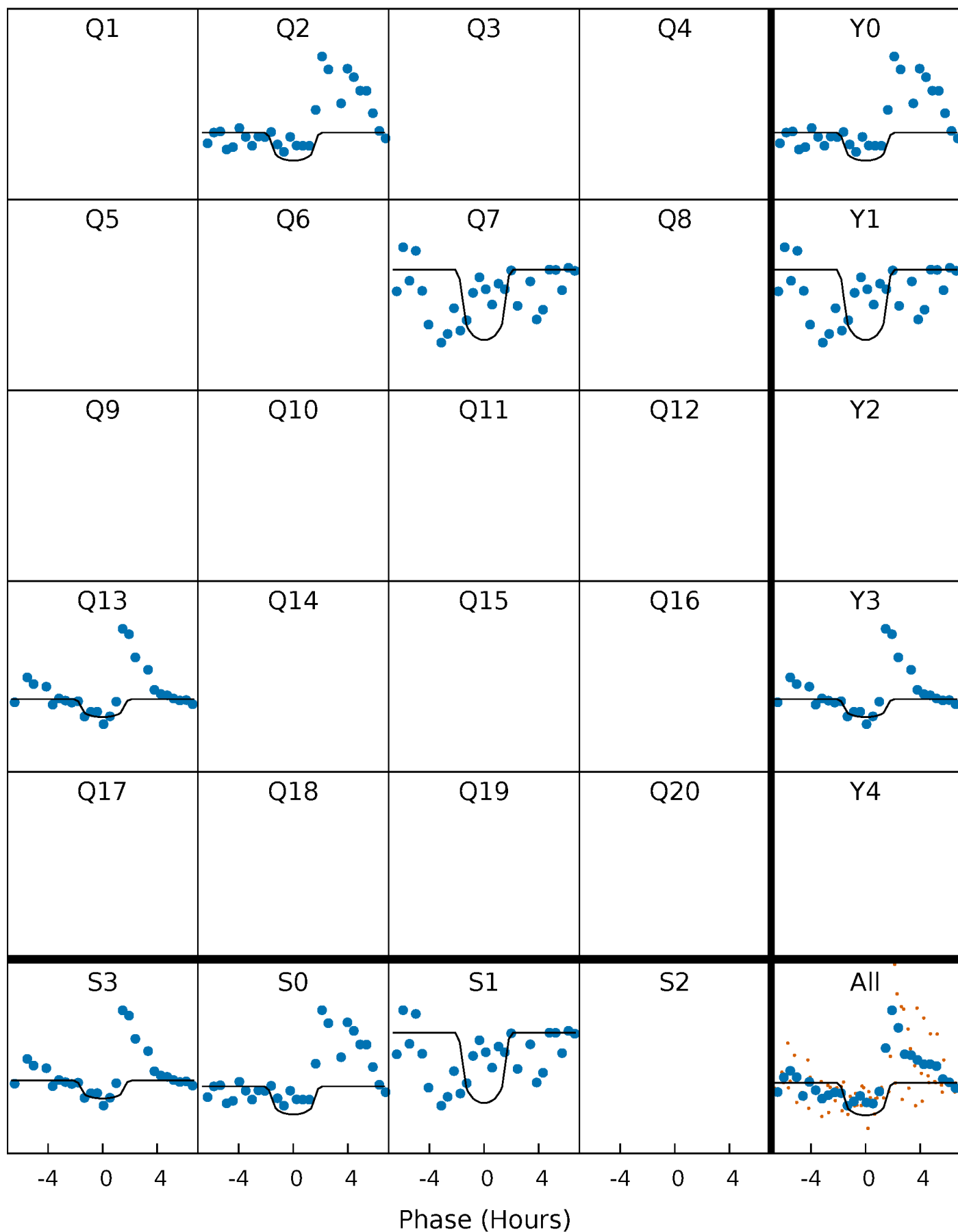
TCE 011232205-09     $P=502.750358$  Days     $T_0=190.429716$  (BKJD)





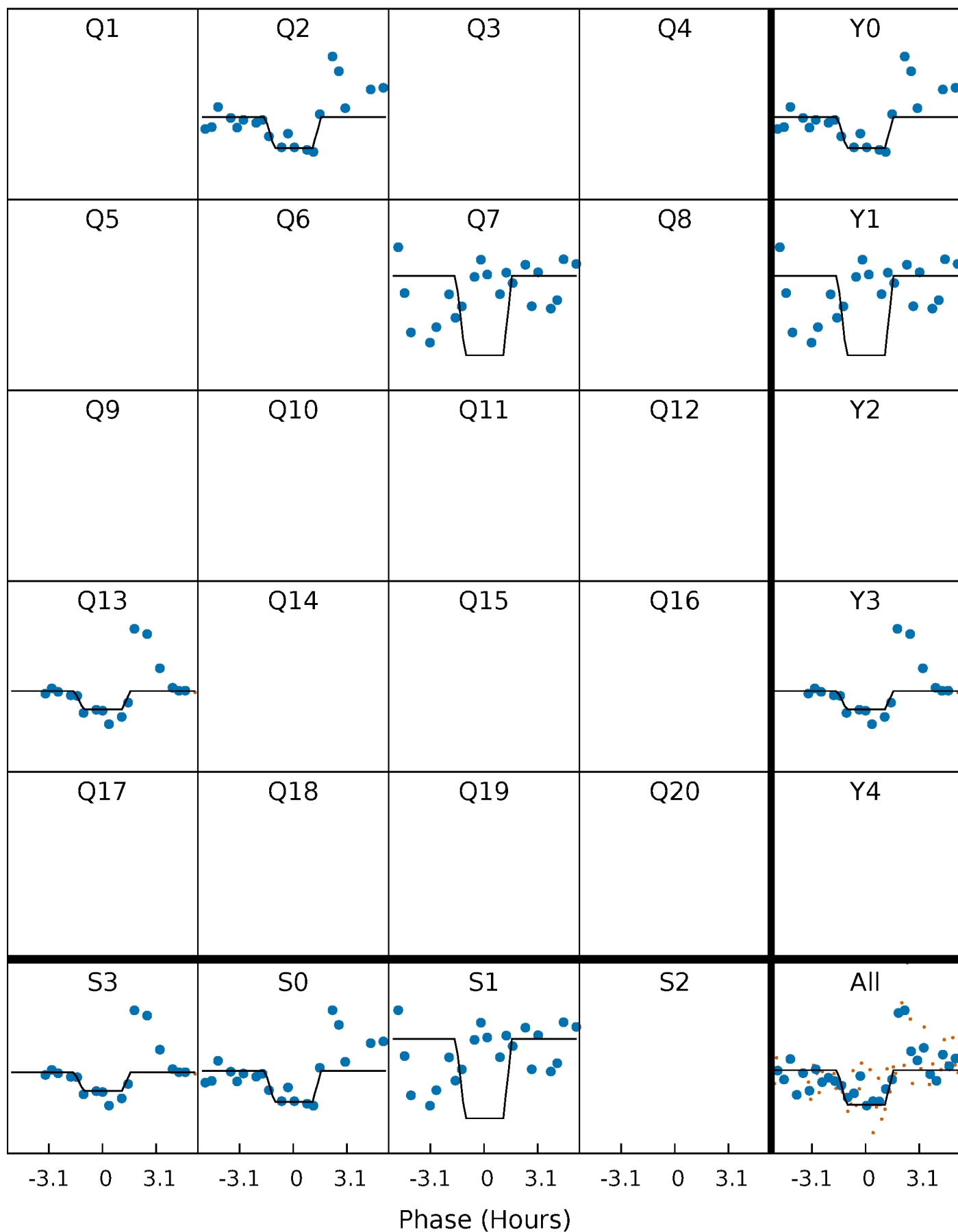
# DV Quarter-Phased Transit Curves

TCE 011232205-09     $P=502.750358$  Days     $T_0=190.429716$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

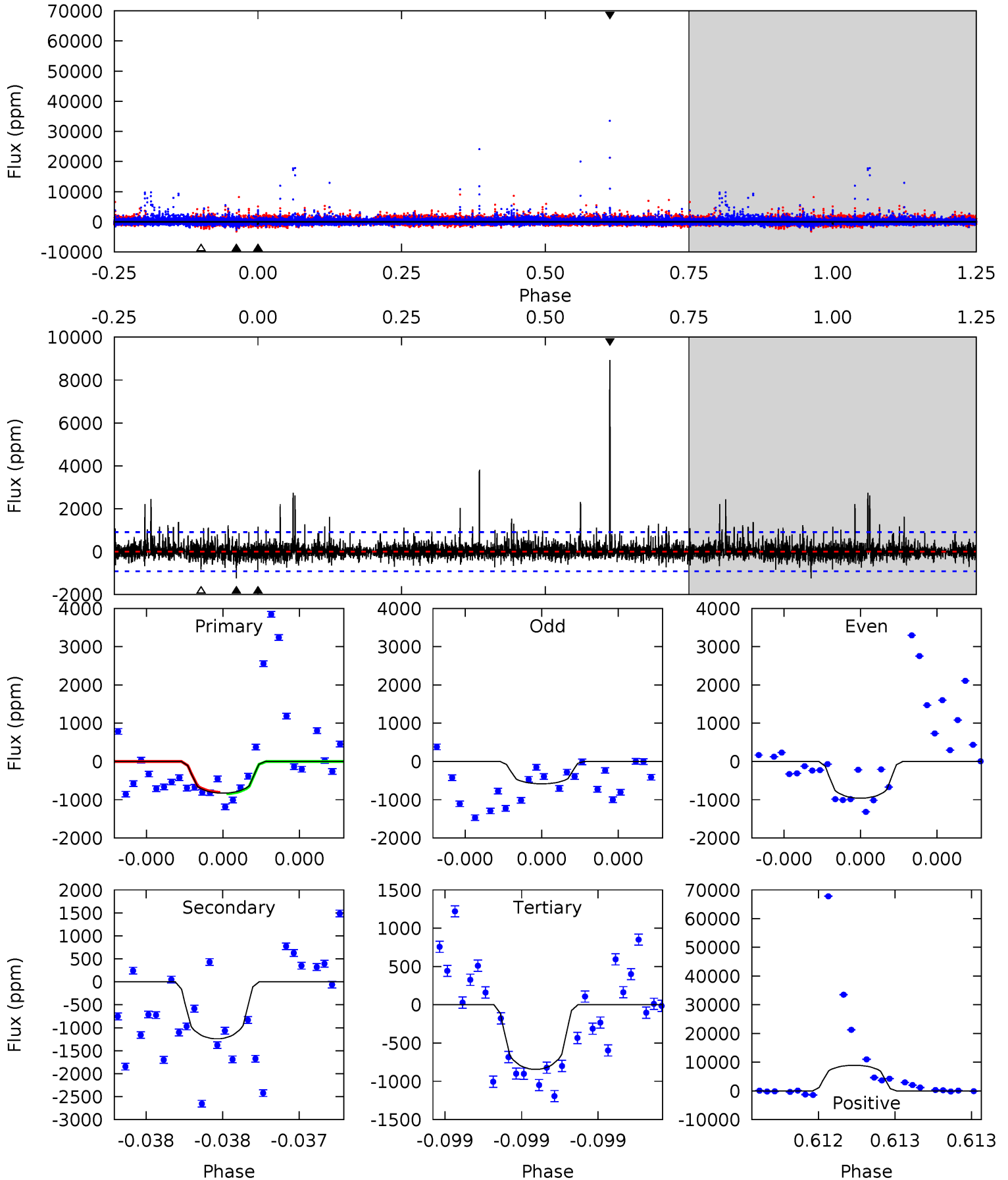
TCE 011232205-09 P=502.740499 Days  $T_0=190.438466$  (BKJD)



# DV Model-Shift Uniqueness Test

011232205-09, P = 502.750358 Days, E = 190.429716 Days

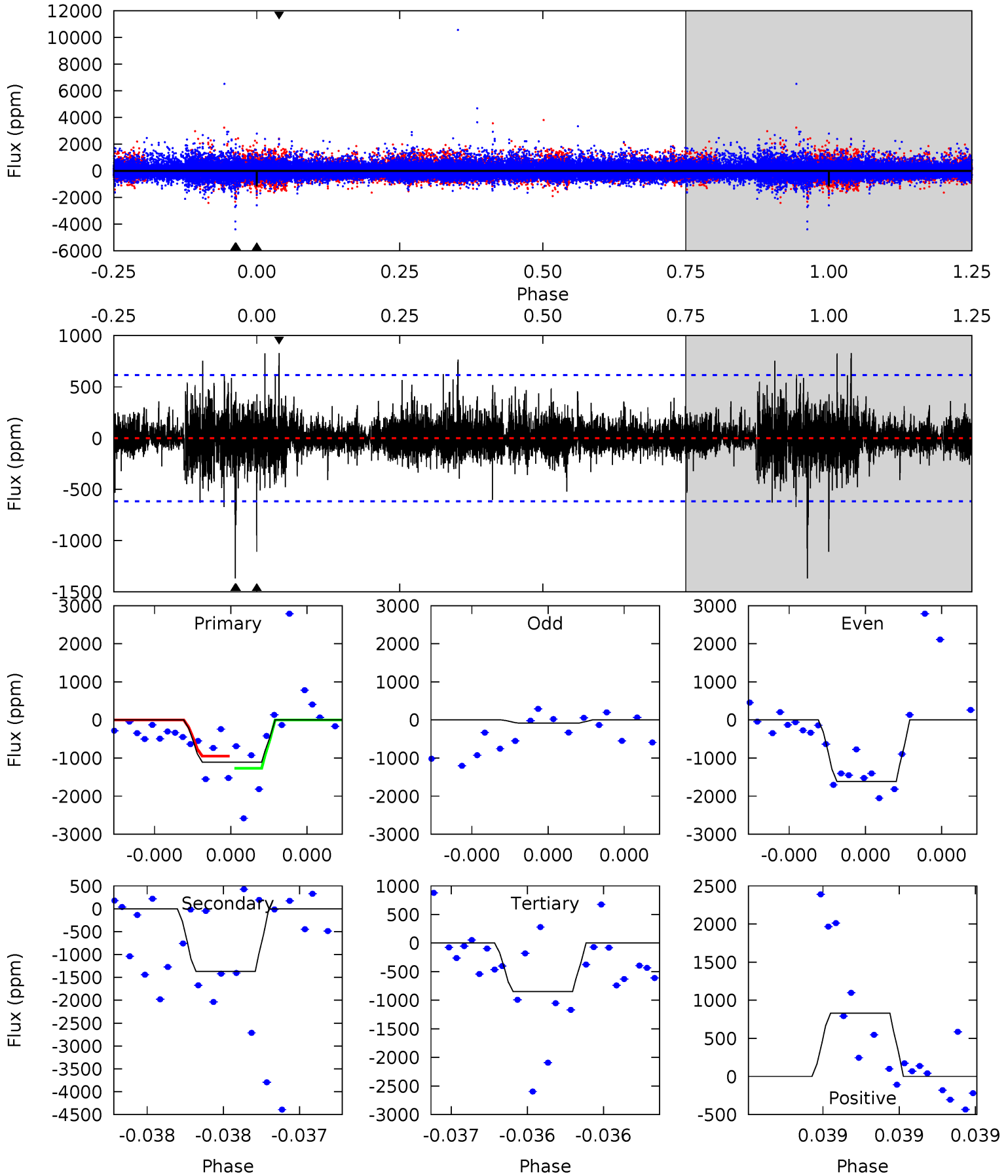
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.12	7.68	5.22	55.3	5.65	3.60	1.89	-0.10	-50.1	2.46	-47.6	0.57	1.11	0.88	0.12



# Alt Model-Shift Uniqueness Test

011232205-09, P = 502.740499 Days, E = 190.438466 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
10.3	12.7	7.87	7.69	5.71	3.69	1.16	2.40	2.58	4.82	5.00	5.96	0.81	0.38	1.48



### Stellar Parameters For KIC 011232205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5367^{+159}_{-143}$	$3.973^{+0.588}_{-0.252}$	$-0.220^{+0.350}_{-0.250}$	$1.596^{+0.686}_{-0.838}$	$0.873^{+0.086}_{-0.115}$	$0.302^{+2.236}_{-0.181}$
	+3%/-3%	+15%/-6%	+159%/-114%	+43%/-53%	+10%/-13%	+739%/-60%
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 011232205-09 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1240 \pm 162$	$14.21^{+16.69}_{-9.62}$	$380^{+45}_{-55}$	$3717^{+2189}_{-700}$	$4560^{+41966}_{-3613}$
Alt.	$-1368 \pm 108$	$14.86^{+17.54}_{-10.02}$	$378^{+46}_{-57}$	$3797^{+1918}_{-764}$	$4788^{+38604}_{-3778}$

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

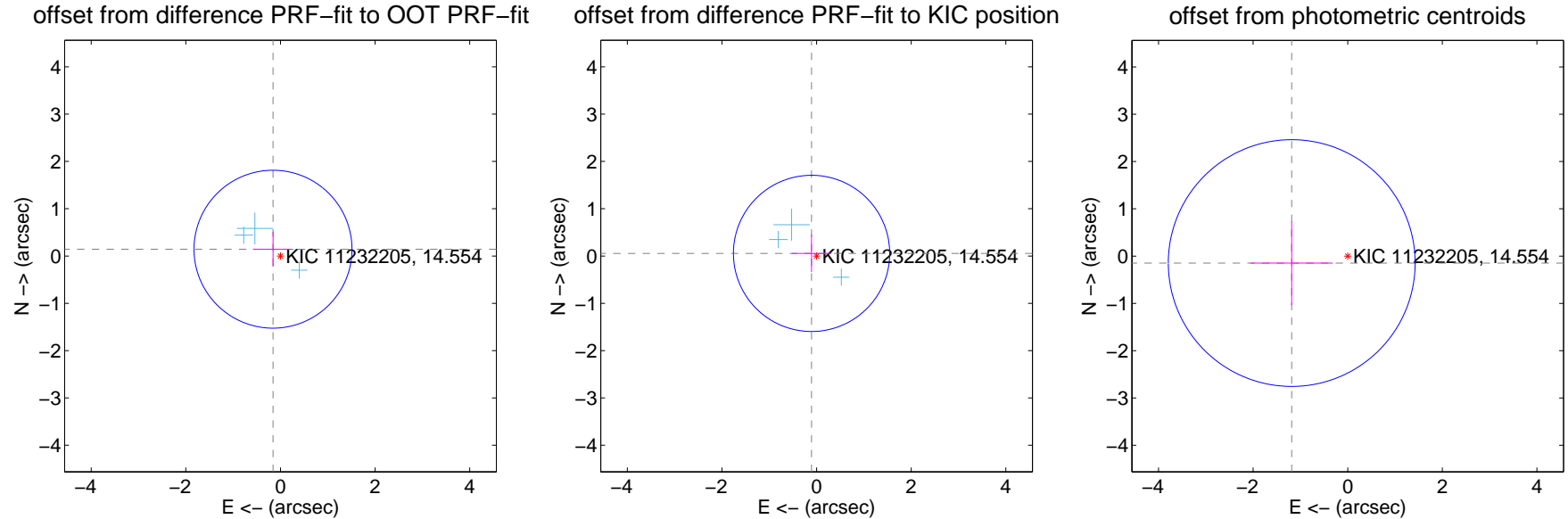
## DV Centroid Data

Supplemental centroid analysis for 011232205-09. Kepler magnitude: 14.55. Transit SNR 7.04

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.214 \pm 0.557$	0.38	$0.158 \pm 0.425$	$0.144 \pm 0.368$
PRF-fit source offset from KIC position	$0.120 \pm 0.551$	0.22	$0.106 \pm 0.419$	$0.056 \pm 0.397$
photometric centroid source offset	$1.19 \pm 0.87$	1.37	$1.18 \pm 0.87$	$-0.15 \pm 0.89$



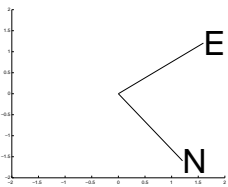
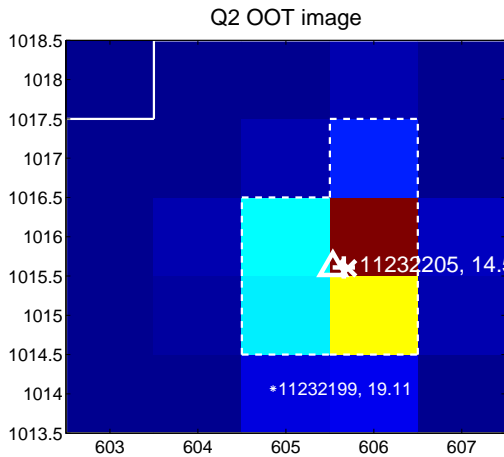
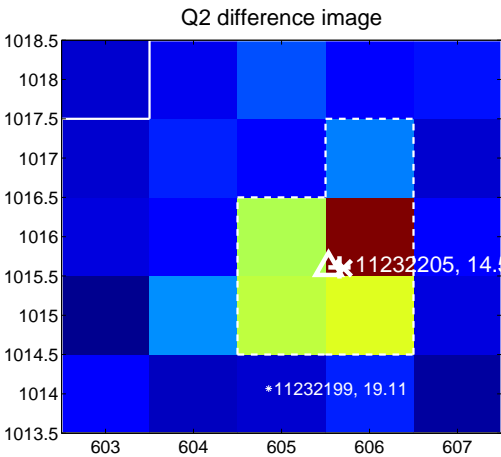
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

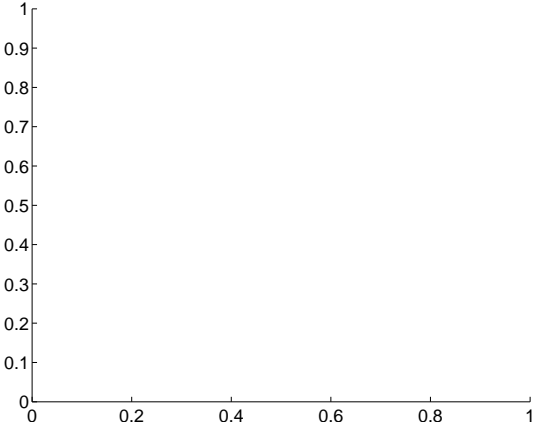
Q1 no difference image



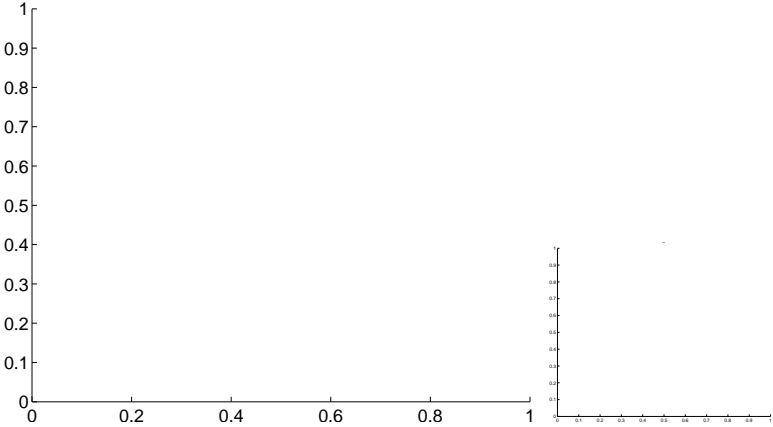
Q1 no OOT image



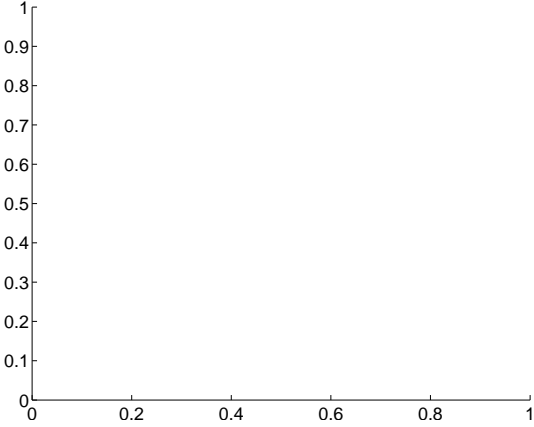
Q3 no difference image



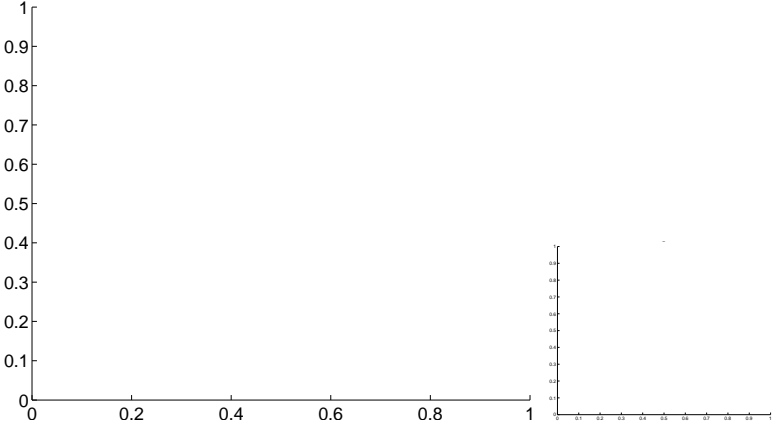
Q3 no OOT image



Q4 no difference image

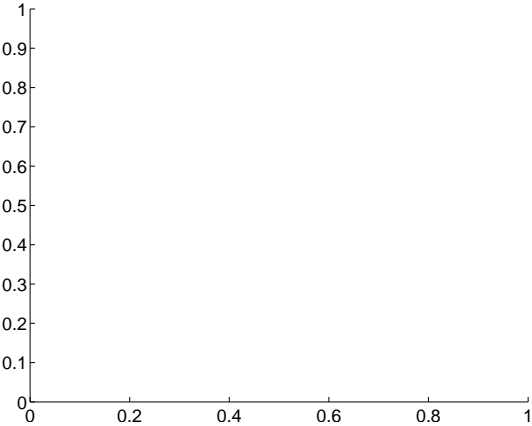


Q4 no OOT image

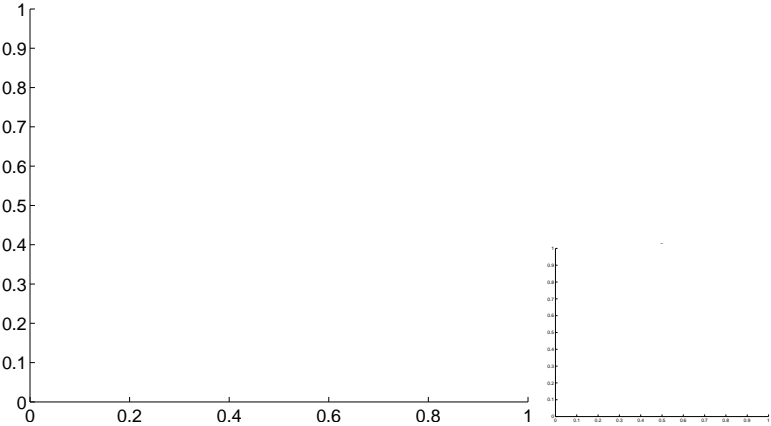


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

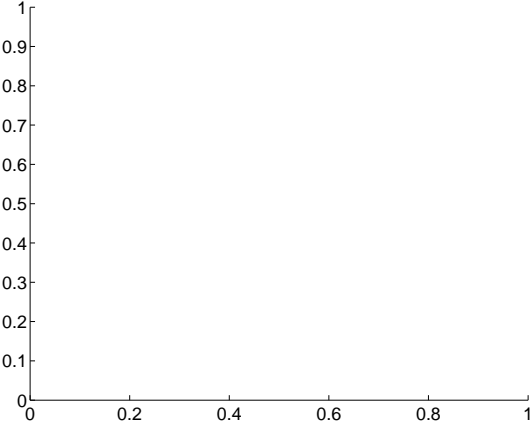
Q5 no difference image



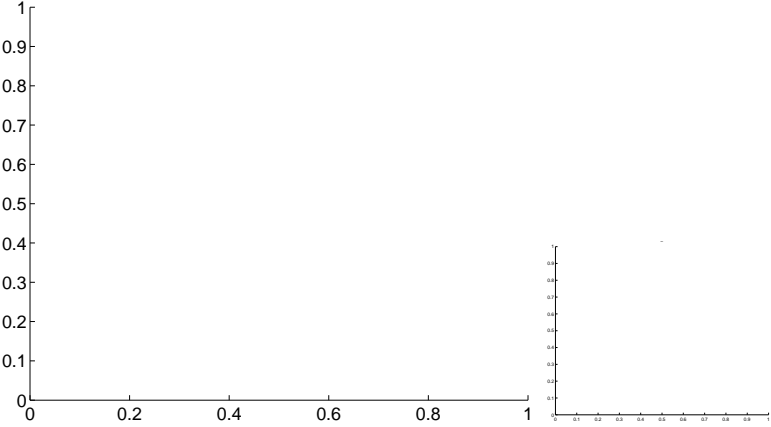
Q5 no OOT image



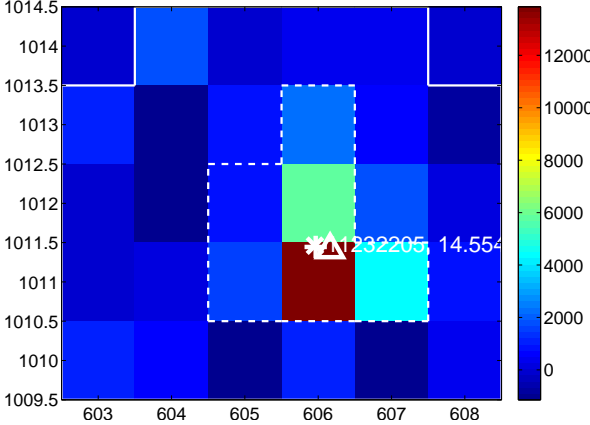
Q6 no difference image



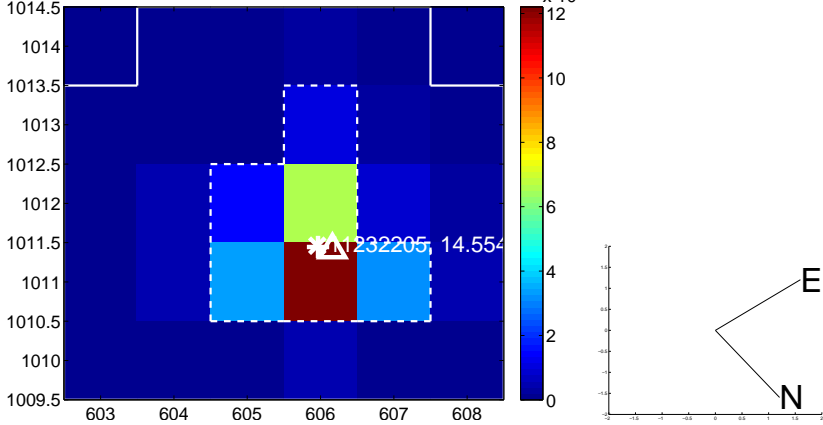
Q6 no OOT image



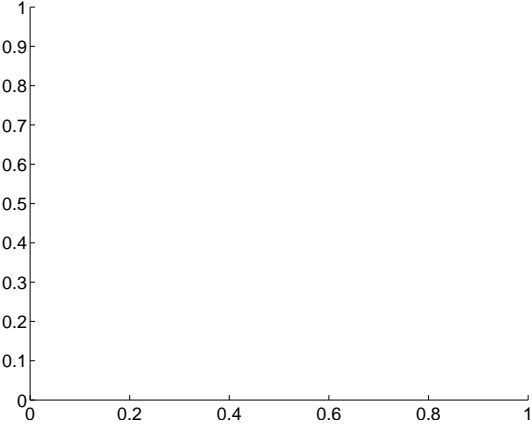
Q7 difference image



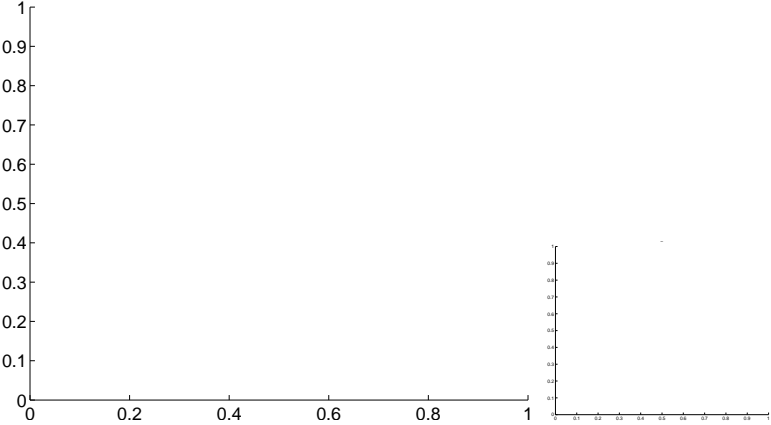
Q7 OOT image



Q8 no difference image



Q8 no OOT image

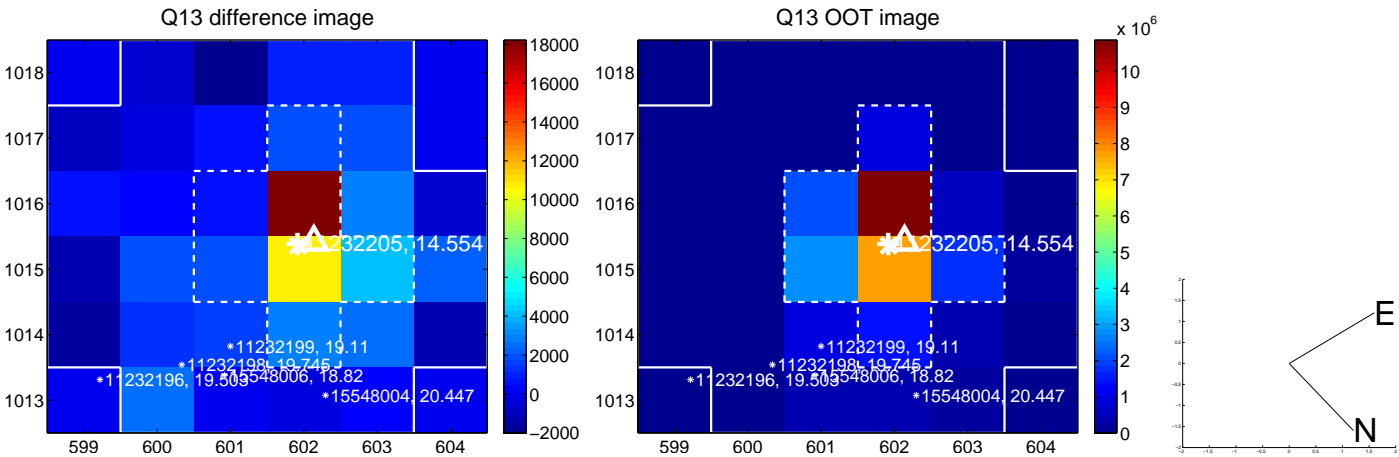




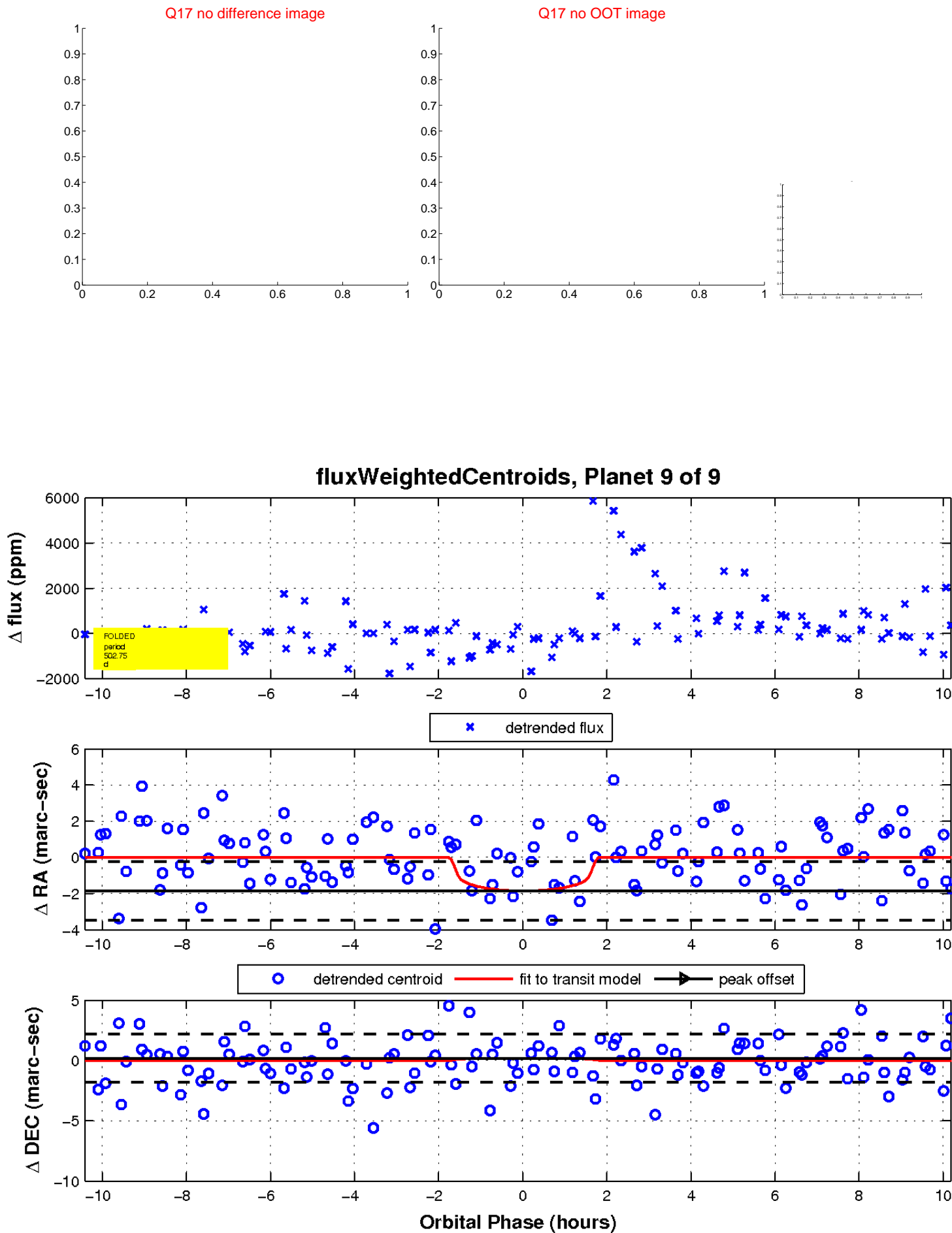
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

