

# KIC 011133190

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011133190-01	OBS	No	2.037267	132.371862	137.1	4.368	11.8	12.4	2.98	7807	3.86	19802.96
011133190-02	OBS	No	0.795940	132.049129	170.7	1.002	7.4	7.9	2.98	7807	4.63	69335.11

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011133190-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011133190-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

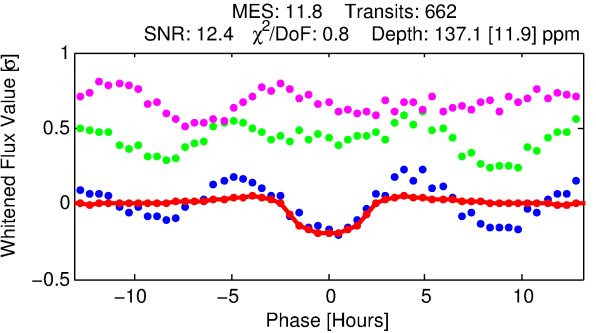
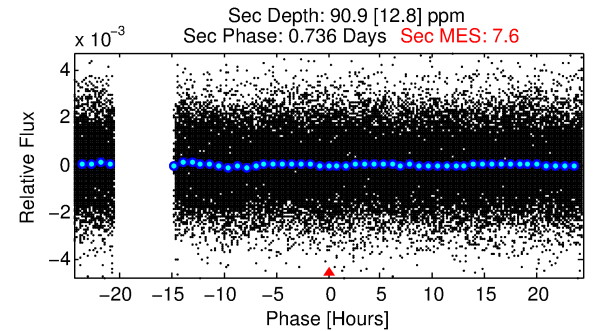
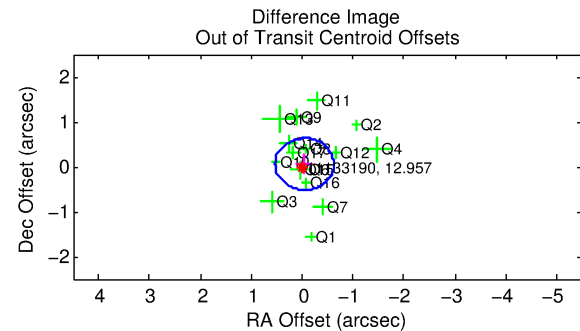
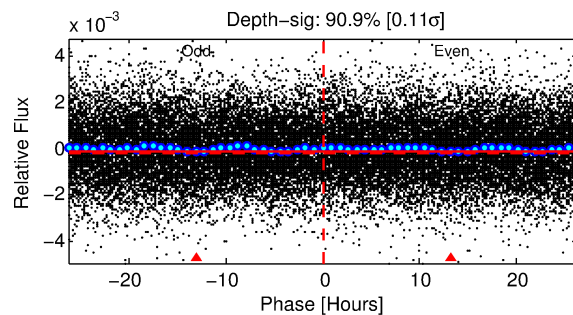
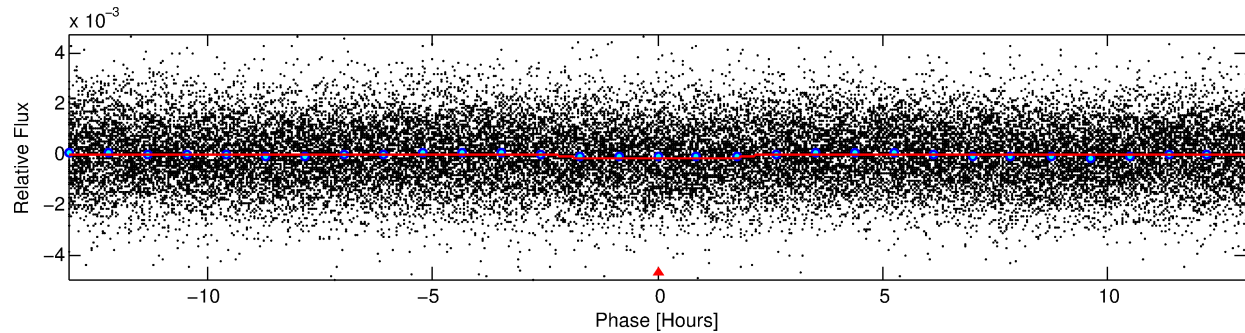
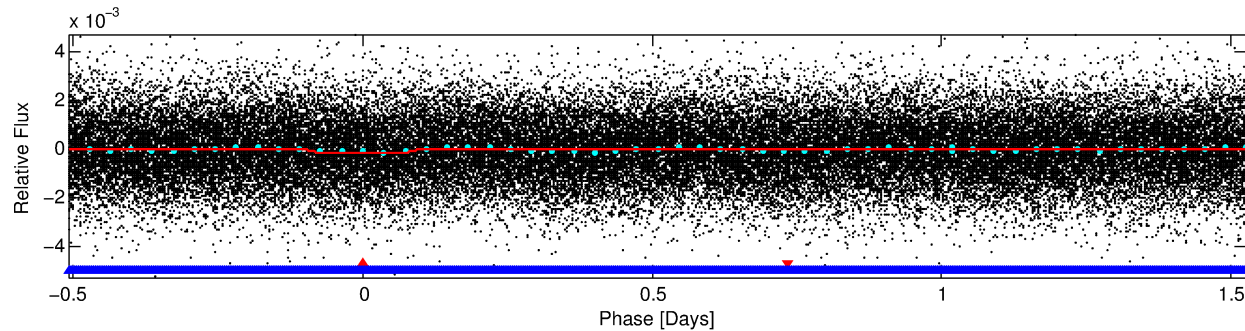
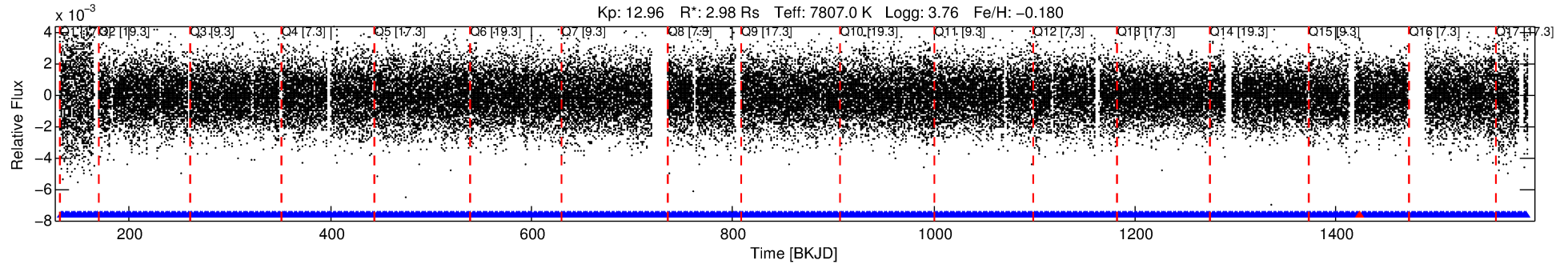
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011133190-01

No Significant Match Found

# DV One-Page Summary

KIC: 11133190 Candidate: 1 of 2 Period: 2.037 d



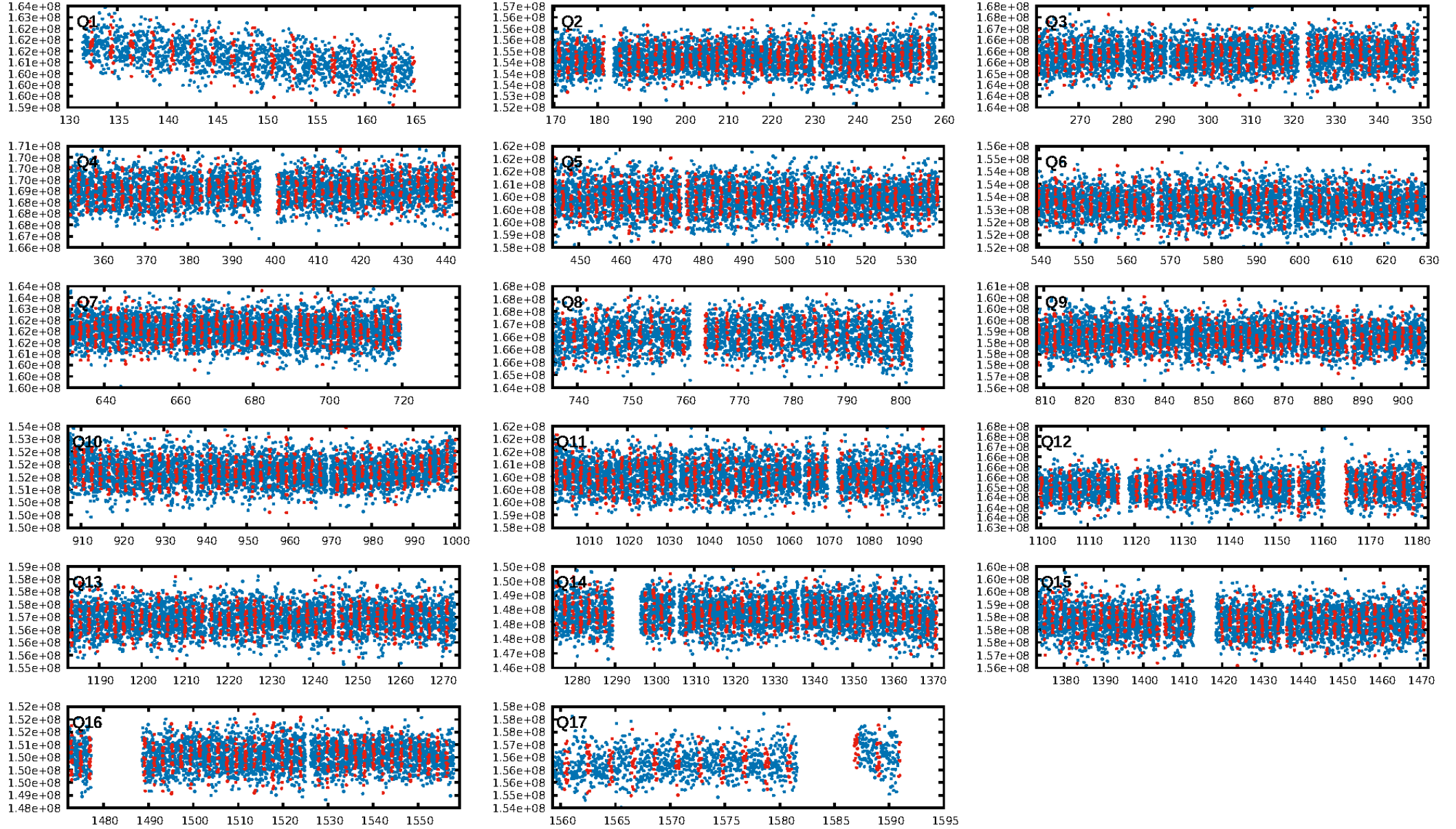
## DV Fit Results:

Period = 2.03727 [0.00002] d  
Epoch = 132.3719 [0.0064] BKJD  
Rp/R\* = 0.0118 [0.0104]  
a/R\* = 2.38 [9.53]  
b = 0.80 [2.24]  
Seff = 19802.96 [13875.78]  
Teff = 3025 [530] K  
Rp = 3.86 [3.79] Re  
a = 0.0387 [0.0165] AU  
Ag = 5.03 [9.47] [0.43 $\sigma$ ]  
Teffp = 7003 [3088] K [1.27 $\sigma$ ]

## DV Diagnostic Results:

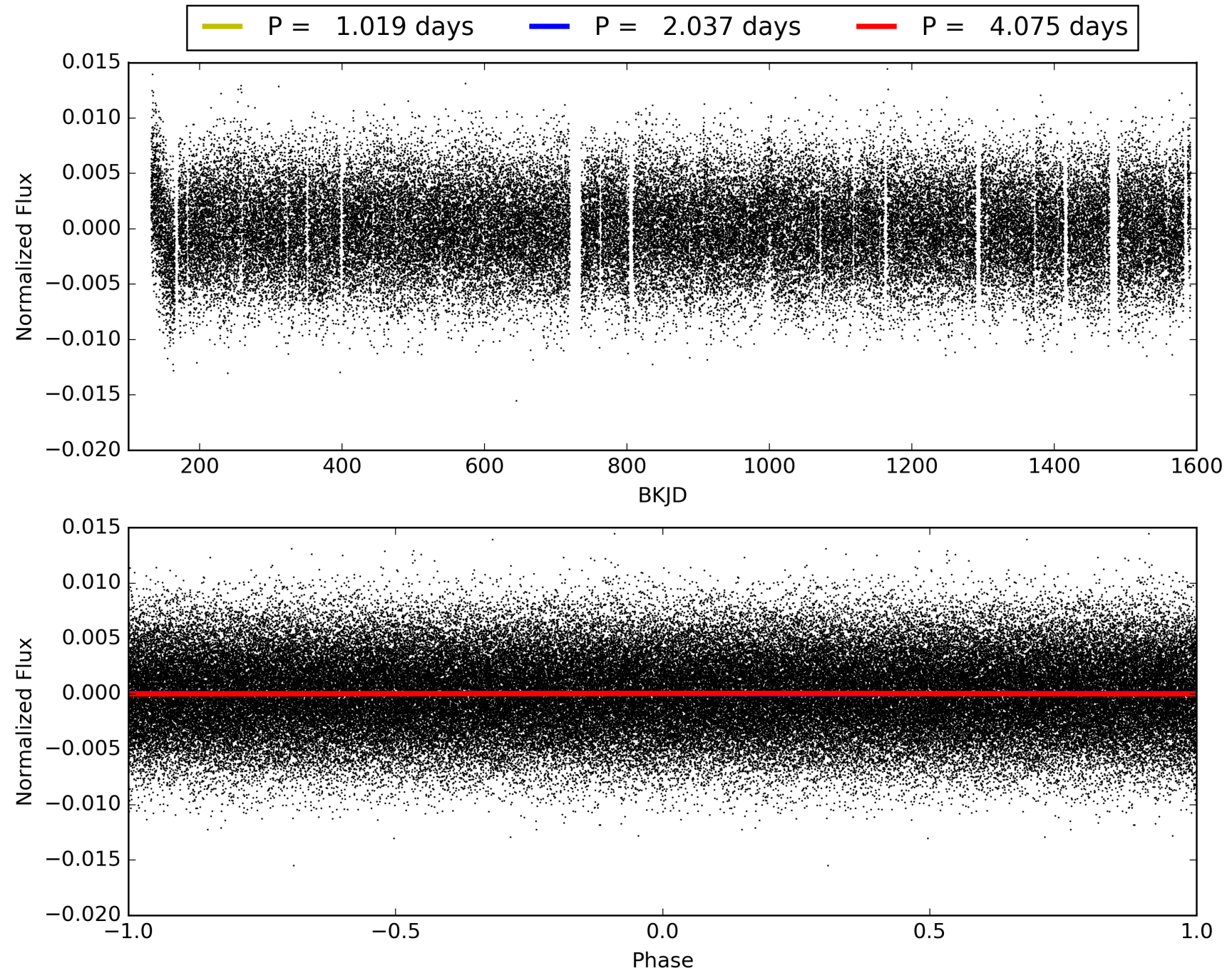
ShortPeriod-sig: 100.0% [6.65 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.79e-41  
RollingBand-fgt: 1.00 [630/631]  
GhostDiagnostic-chr: 1.356  
Centroid-sig: 0.0%  
Centroid-so: 0.321 arcsec [1.94 $\sigma$ ]  
OotOffset-rm: 0.073 arcsec [0.38 $\sigma$ ]  
KicOffset-rm: 0.394 arcsec [1.90 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.94 [15/16]  
DiffImageOverlap-fno: 0.00 [0/17]

# TCE 011133190-01, PDC Light Curves



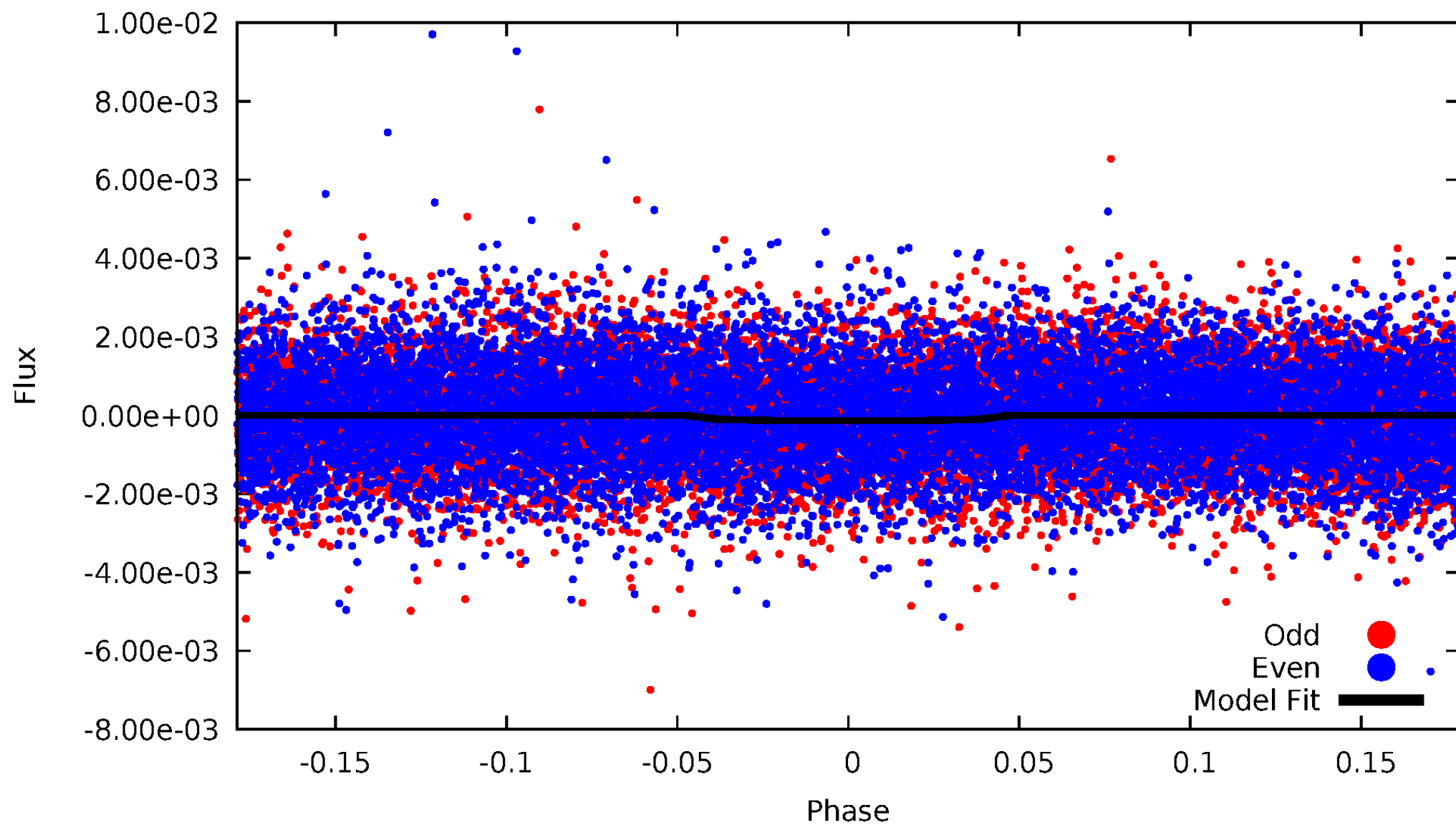


TCE 011133190-01



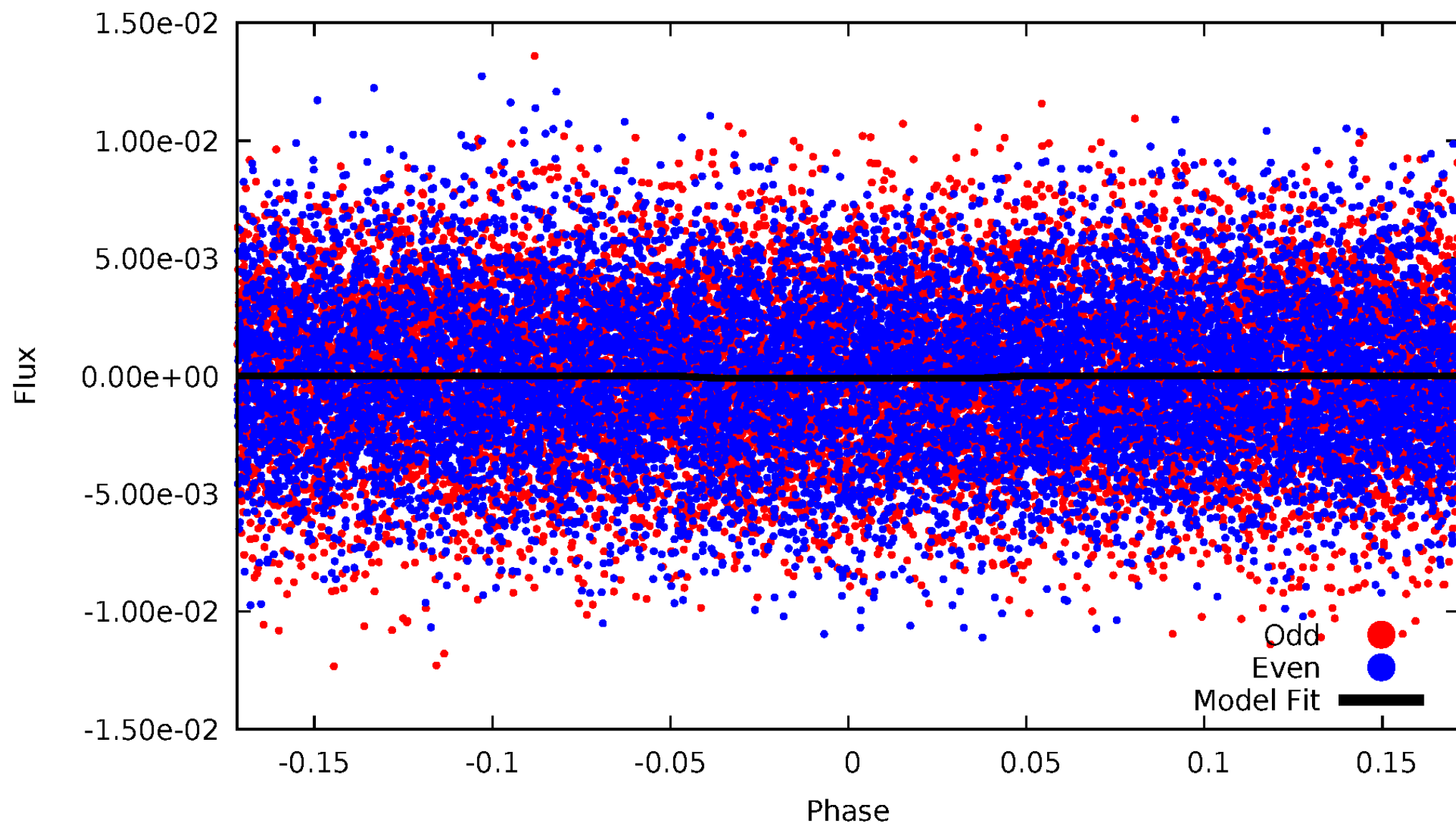
# DV Odd/Even

TCE 011133190-01



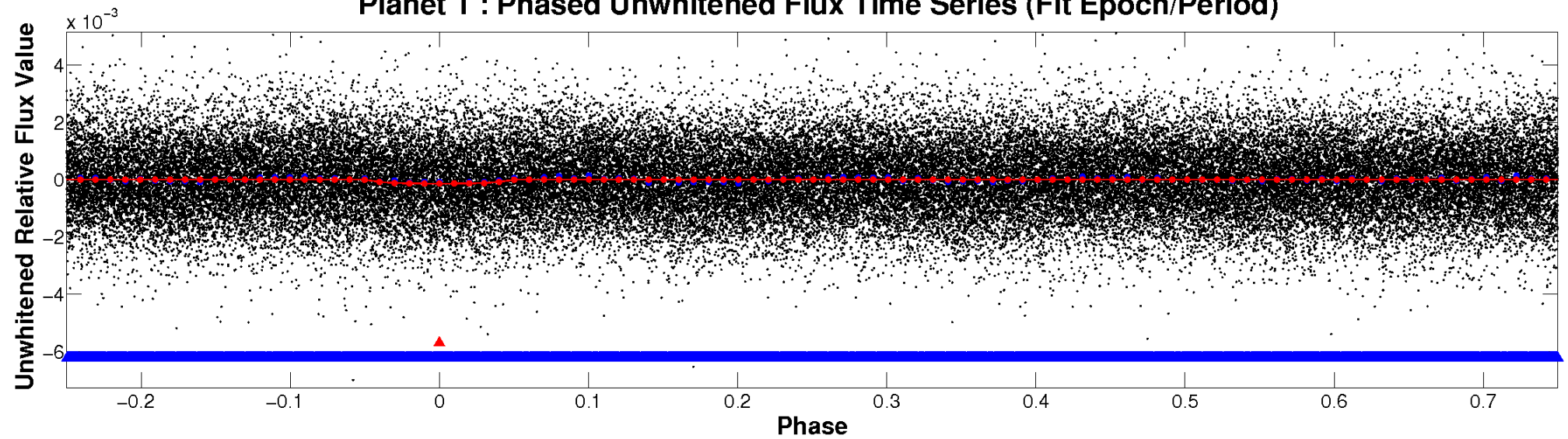
# ALT Odd/Even

TCE 011133190-01

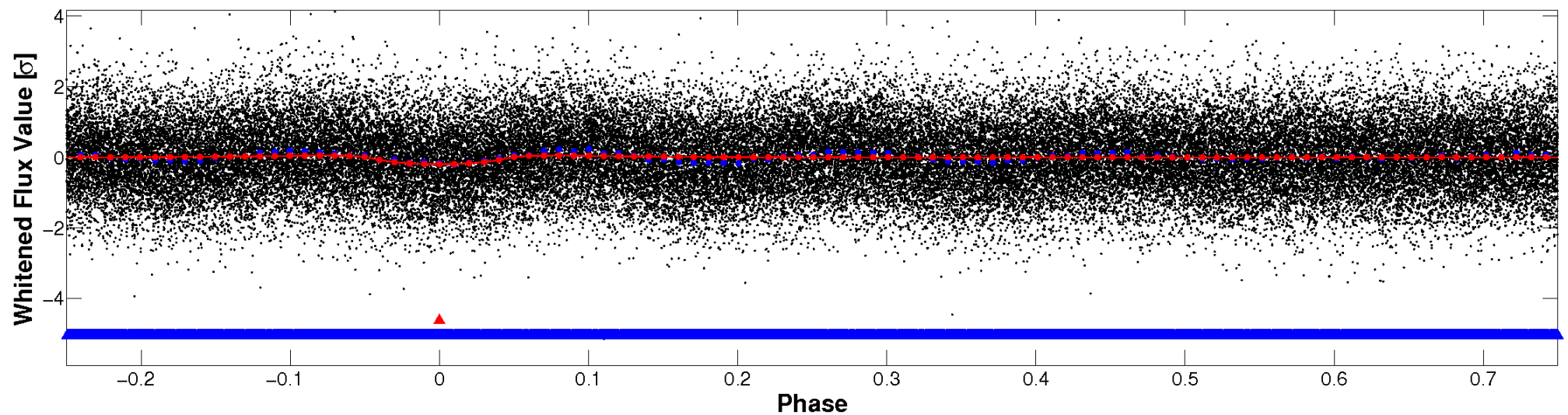


# Non-Whitened Vs. Whitened Light Curve

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



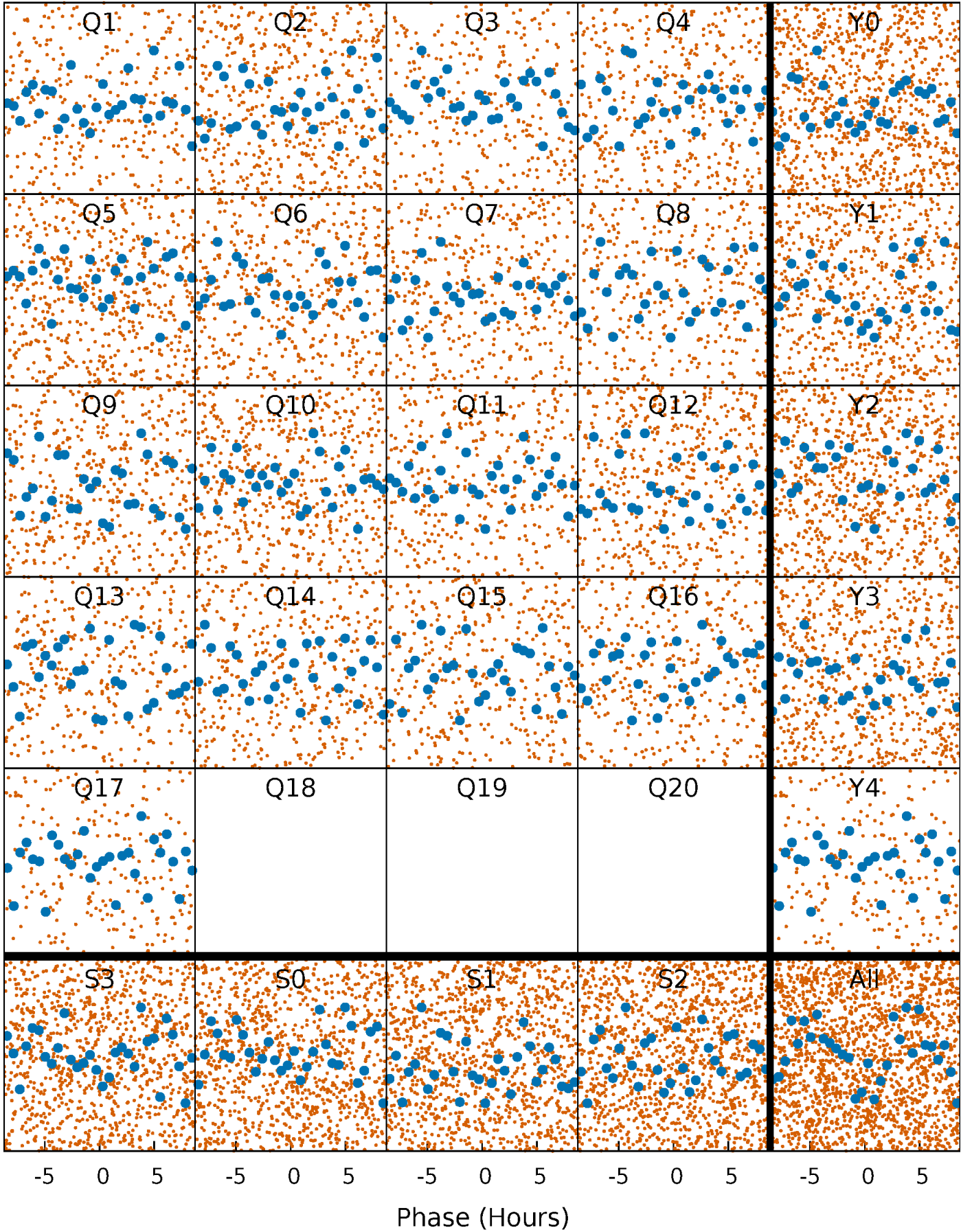
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

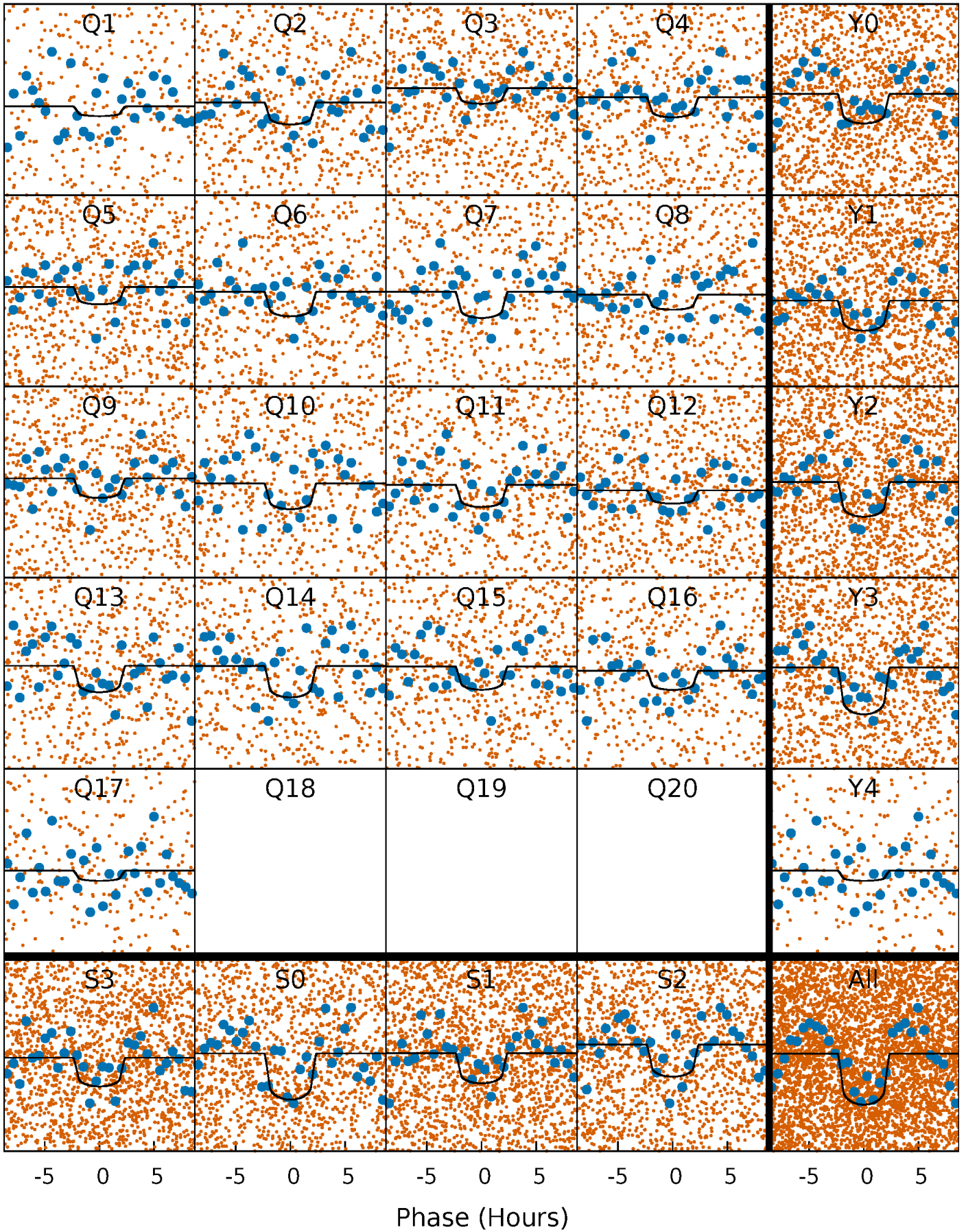
TCE 011133190-01   P= 2.037267 Days    $T_0=132.371862$  (BKJD)





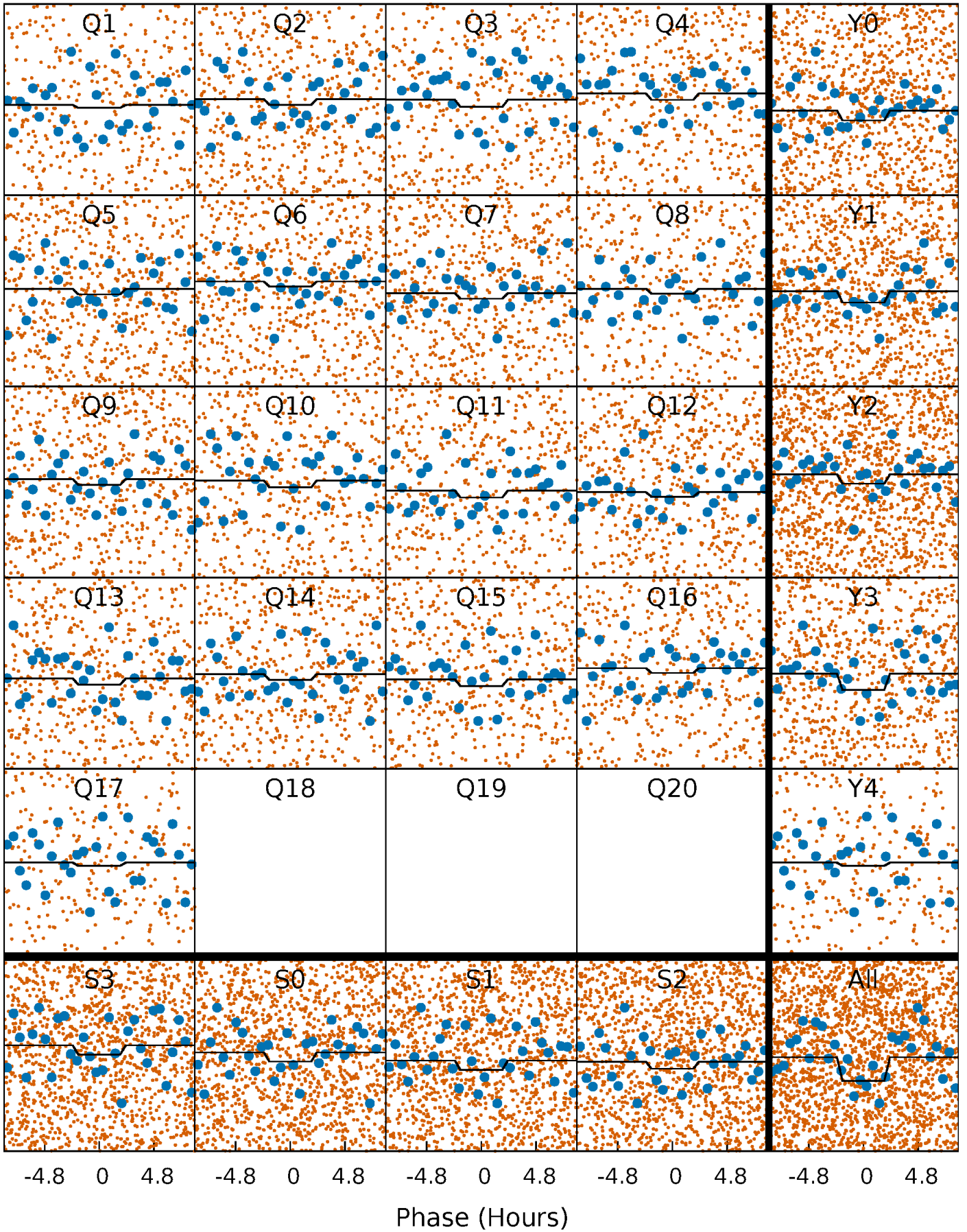
# DV Quarter-Phased Transit Curves

TCE 011133190-01 P= 2.037267 Days  $T_0=132.371862$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

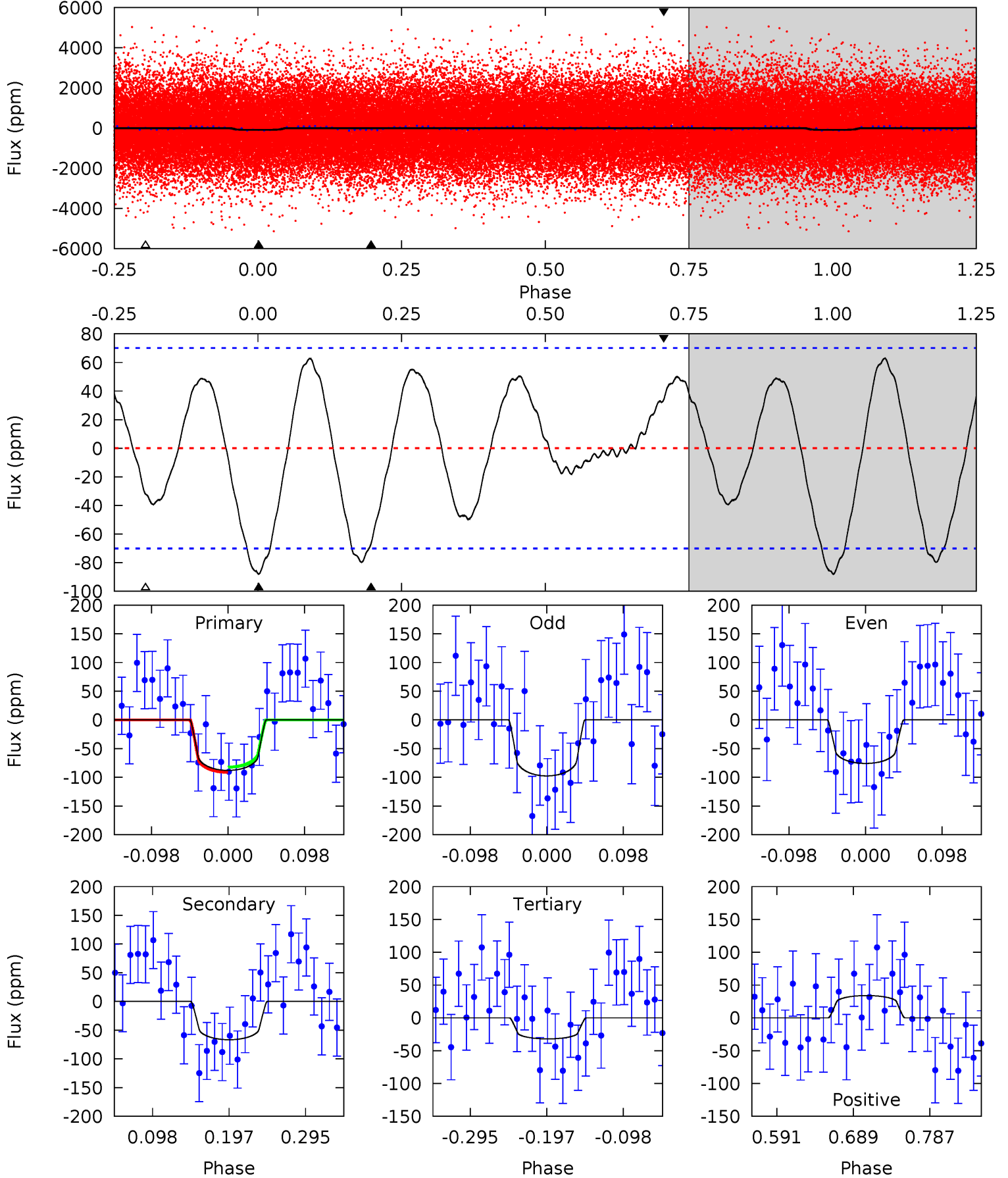
TCE 011133190-01 P= 2.037275 Days  $T_0=132.363027$  (BKJD)



# DV Model-Shift Uniqueness Test

011133190-01, P = 2.037267 Days, E = 130.334595 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
5.73	4.34	2.09	2.21	4.57	1.65	1.83	3.64	3.52	2.25	2.13	0.71	0.99	0.42	0.29

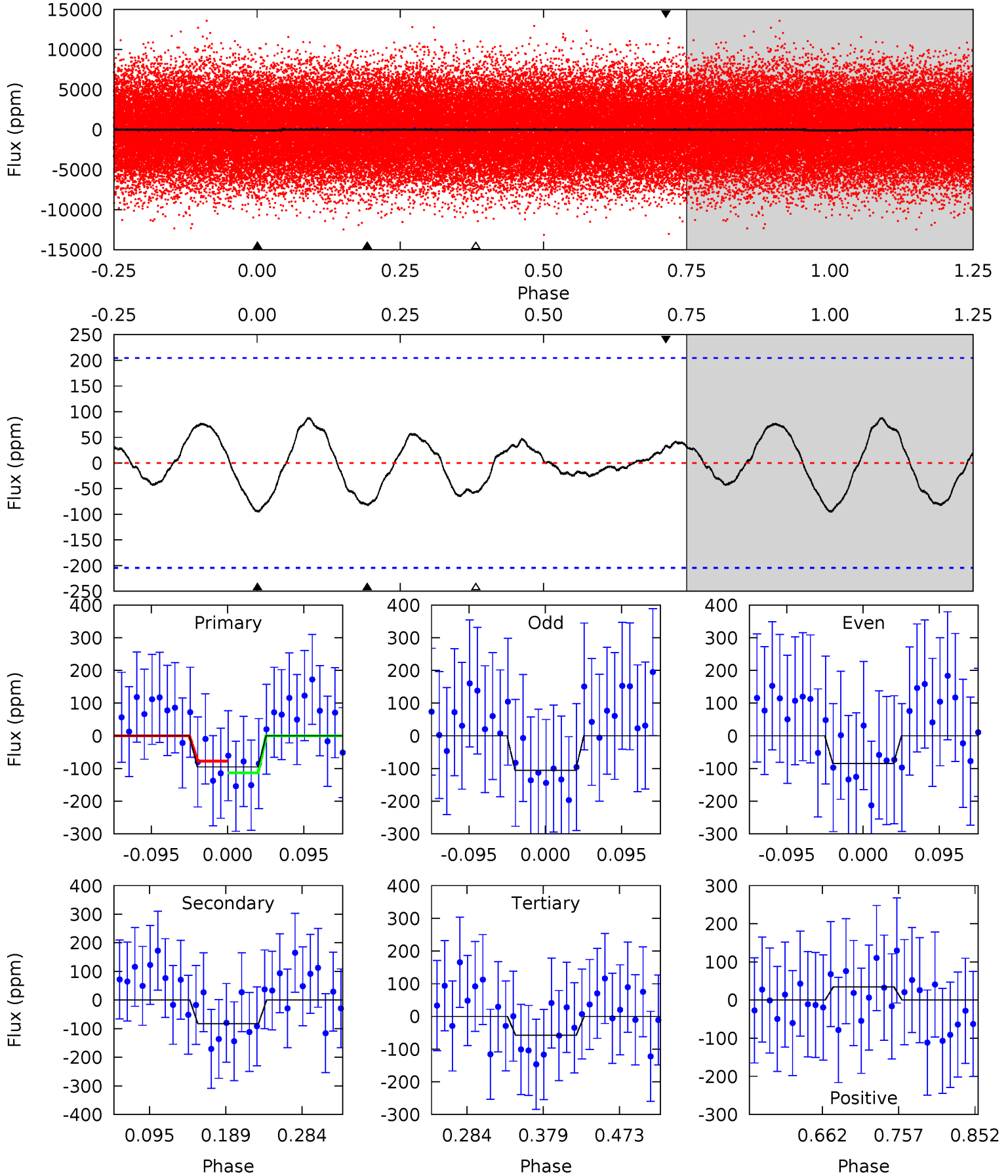




# Alt Model-Shift Uniqueness Test

011133190-01, P = 2.037275 Days, E = 130.325752 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.13	1.85	1.28	0.78	4.58	1.67	0.71	0.85	1.36	0.57	1.07	0.23	1.09	0.48	0.40





### Stellar Parameters For KIC 011133190

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7807^{+216}_{-325}$	$3.758^{+0.399}_{-0.070}$	$-0.180^{+0.200}_{-0.350}$	$2.985^{+0.332}_{-1.329}$	$1.863^{+0.104}_{-0.416}$	$0.099^{+0.343}_{-0.022}$
	+3%/-4%	+11%/-2%	+111%/-194%	+11%/-45%	+6%/-22%	+348%/-23%
Source	KIC0	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 011133190-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-67 \pm 15$	$3.78^{+3.40}_{-2.19}$	$4103^{+269}_{-430}$	$5923^{+4323}_{-1673}$	$3.866^{+17.545}_{-2.870}$
Alt.	$-83 \pm 45$	$3.48^{+2.61}_{-2.22}$	$4093^{+265}_{-446}$	$6397^{+6047}_{-1898}$	$4.848^{+35.453}_{-3.633}$

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

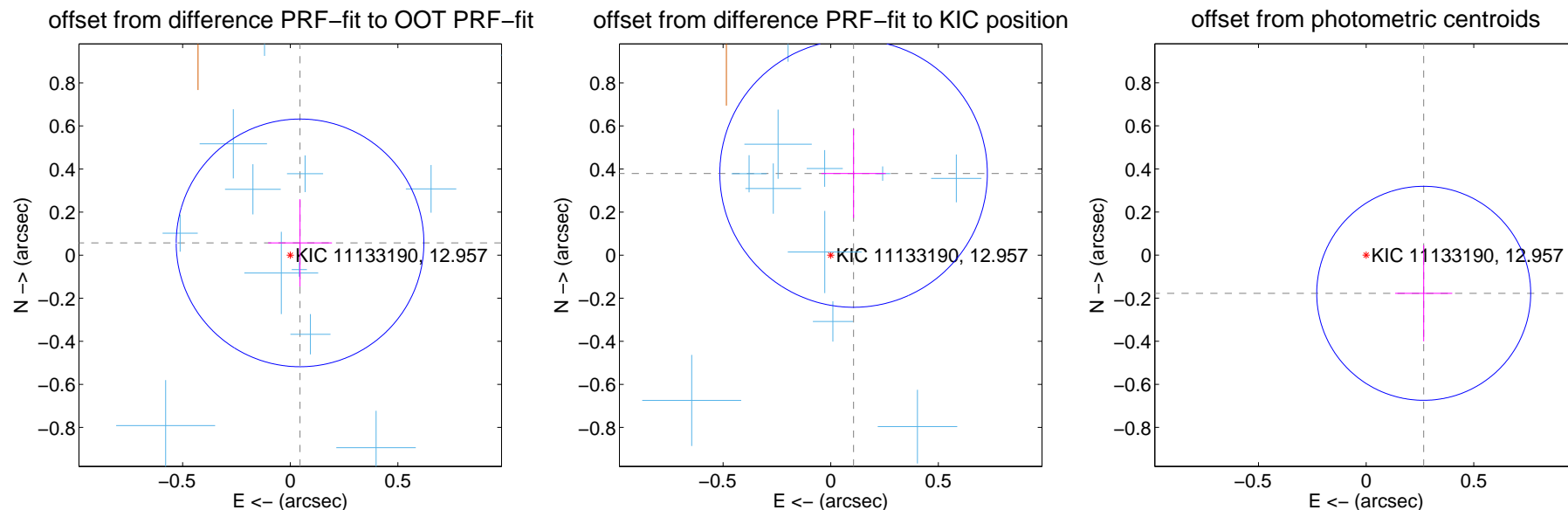
## DV Centroid Data

Supplemental centroid analysis for 011133190-01. Kepler magnitude: 12.96. Transit SNR 12.37

There are 15 quarters with good PRF difference image offsets

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

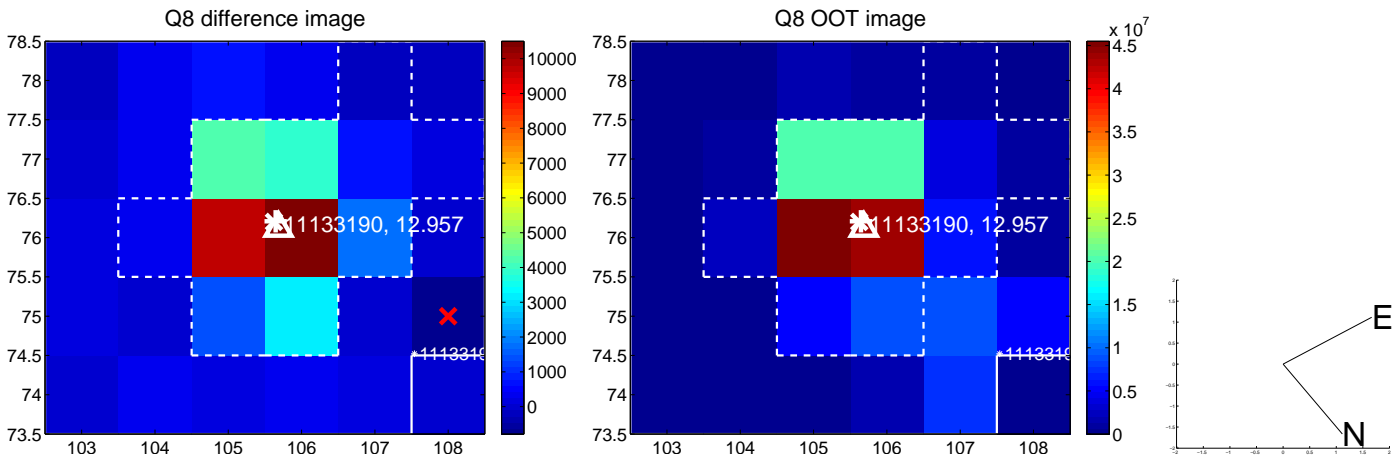
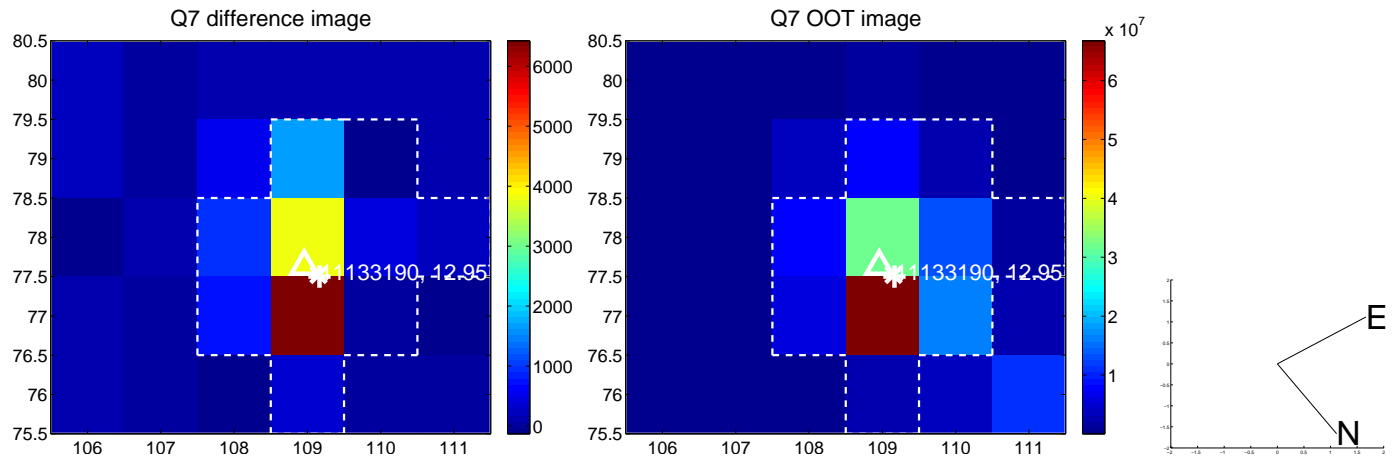
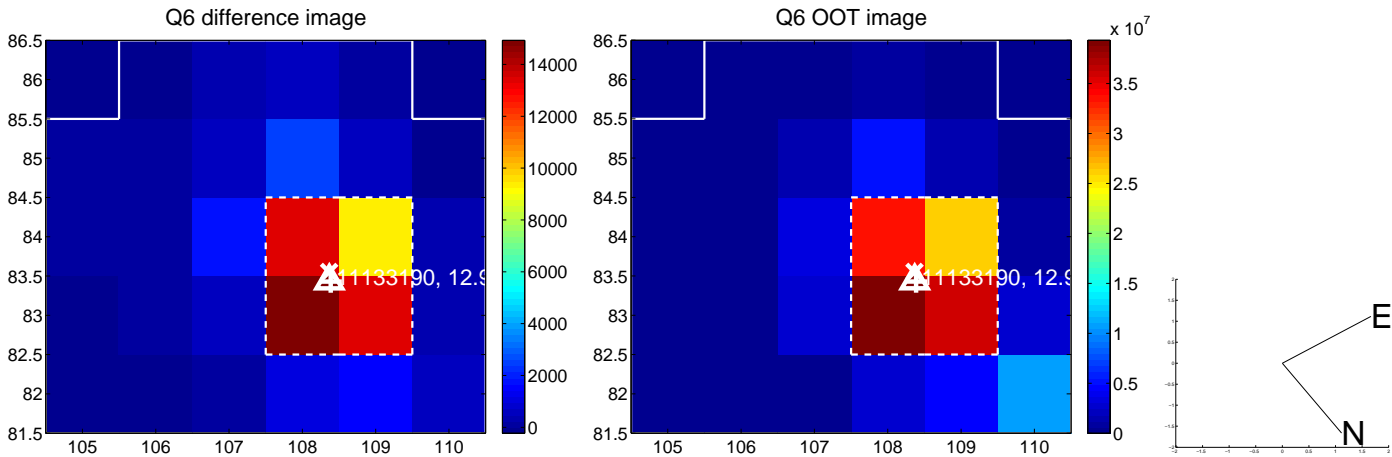
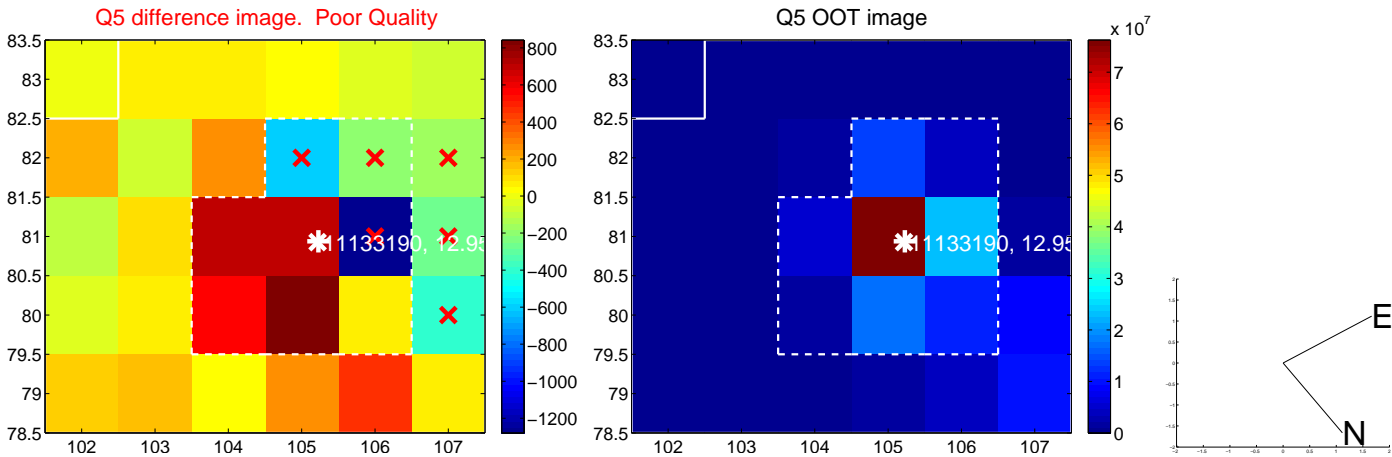
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.073 \pm 0.192$	0.38	$-0.045 \pm 0.148$	$0.057 \pm 0.203$
PRF-fit source offset from KIC position	$0.394 \pm 0.207$	1.90	$-0.106 \pm 0.150$	$0.379 \pm 0.207$
photometric centroid source offset	$0.32 \pm 0.17$	1.94	$-0.27 \pm 0.13$	$-0.18 \pm 0.22$



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.

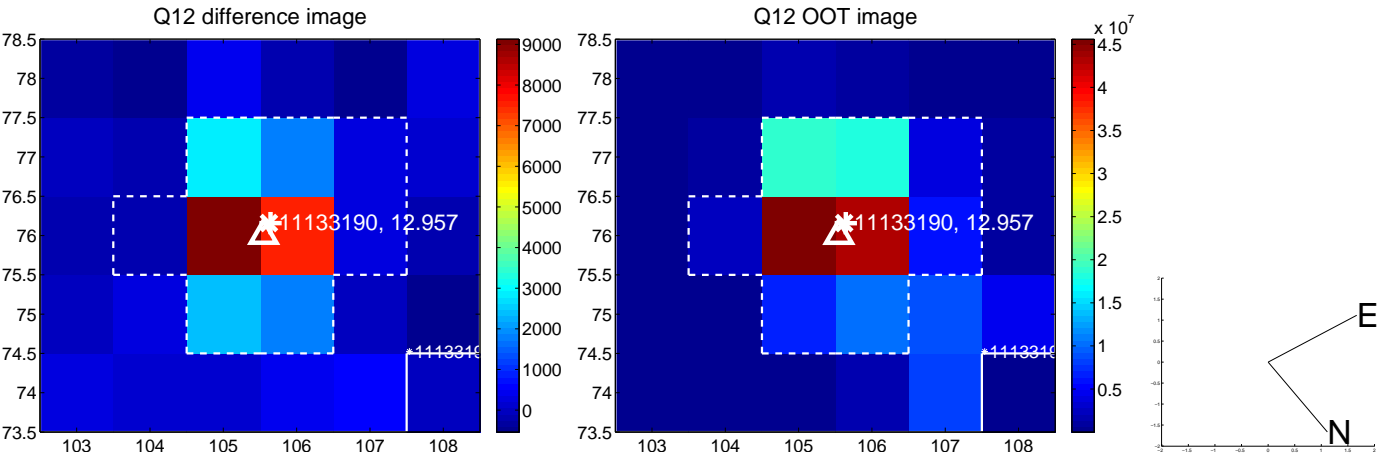
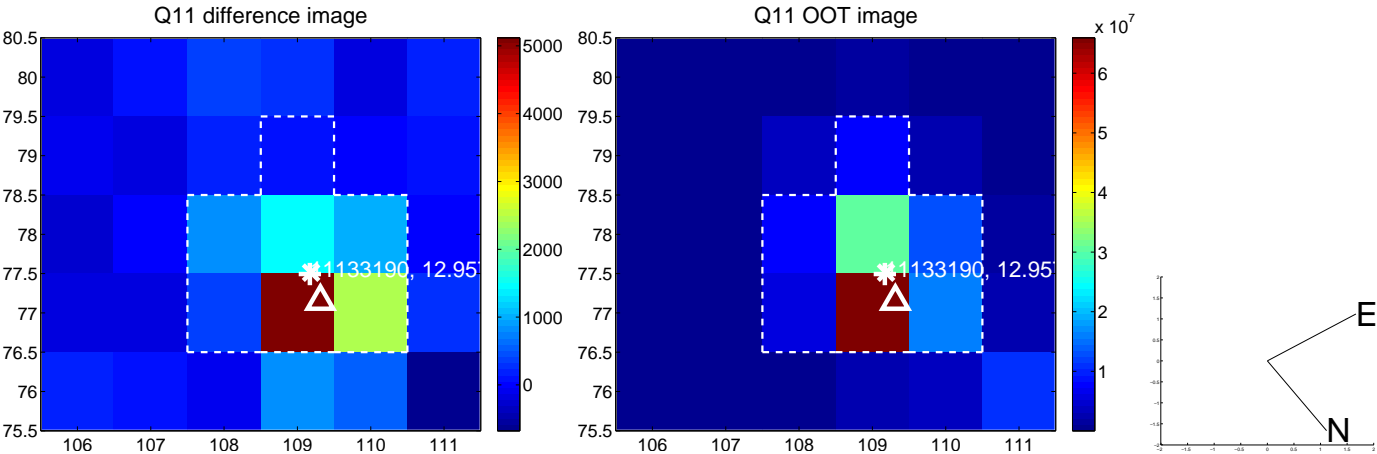
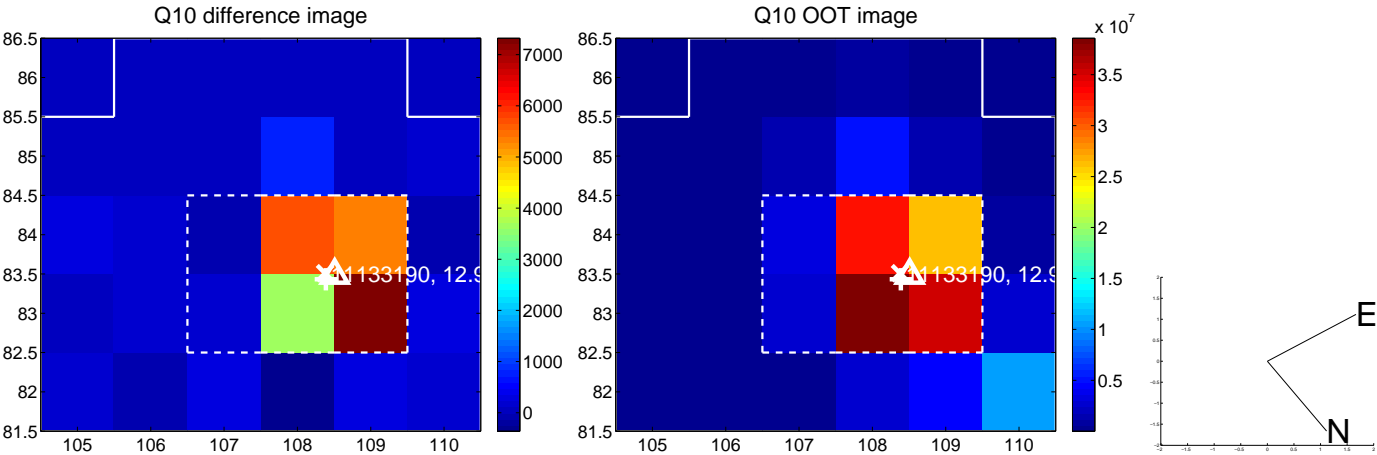
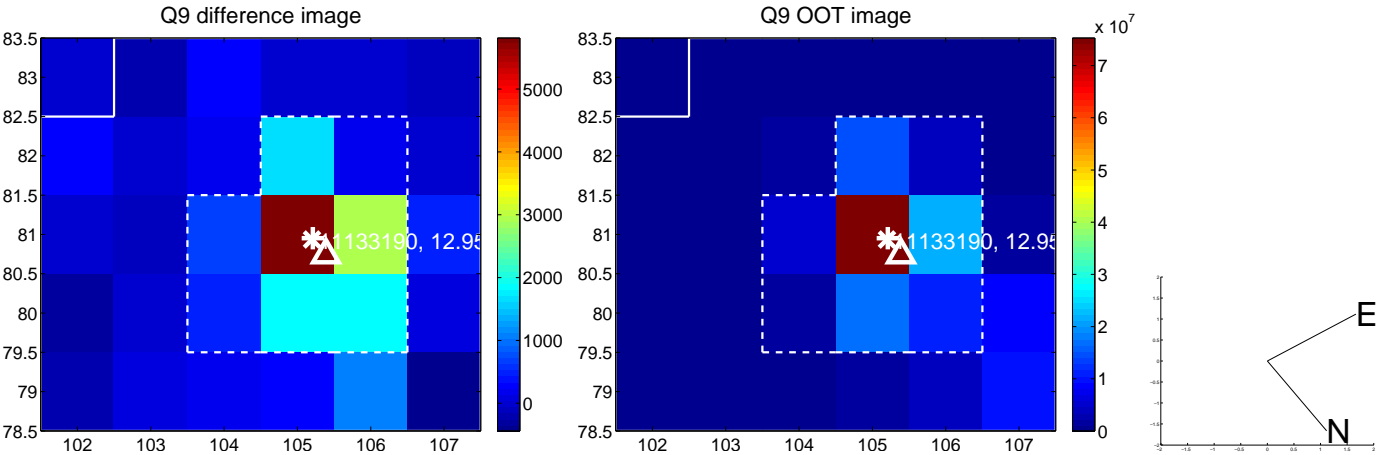


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

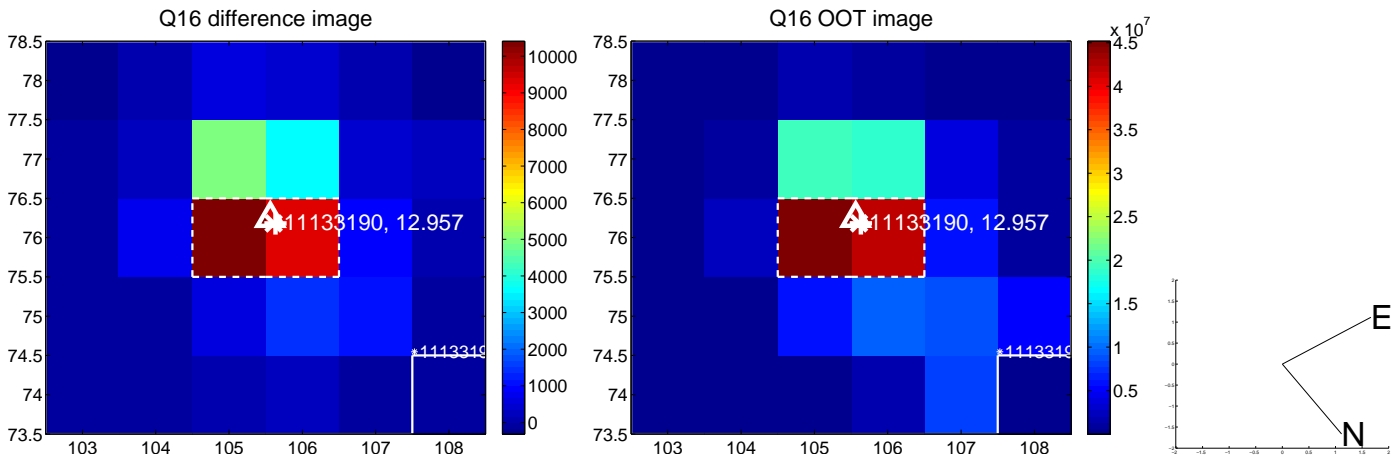
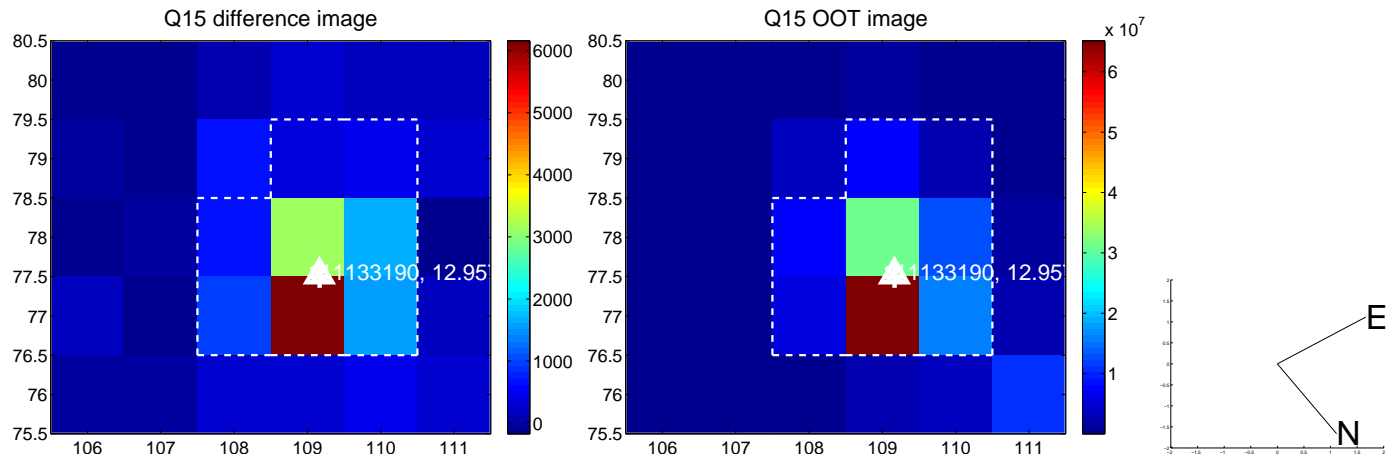
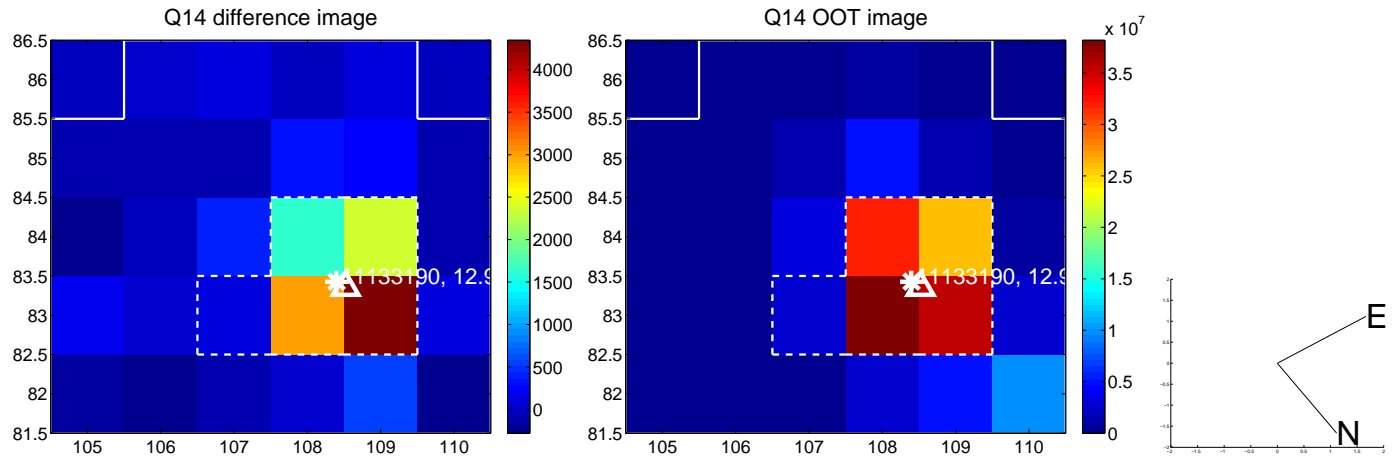
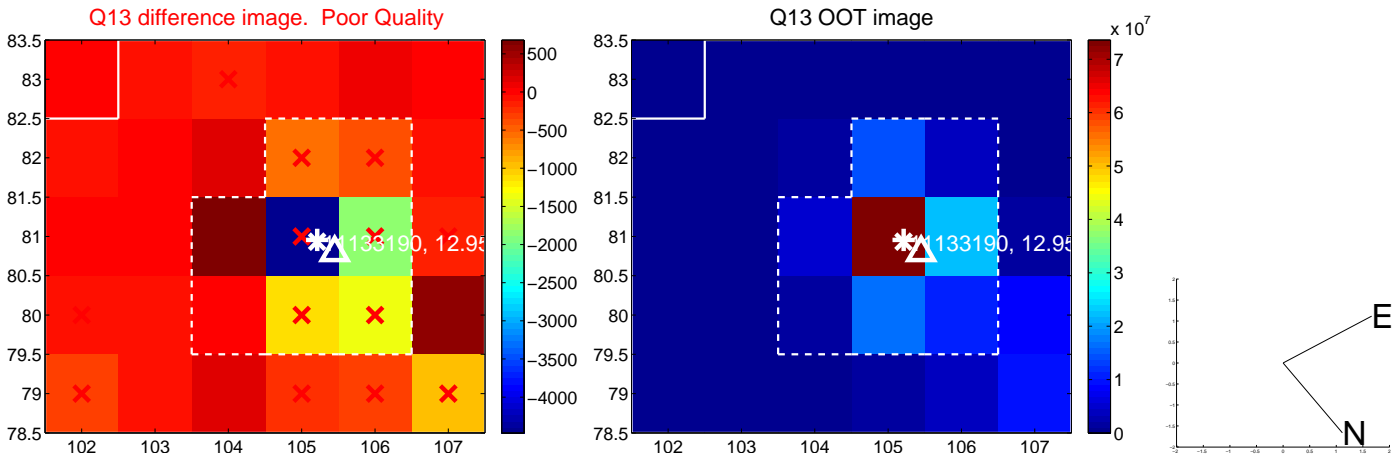




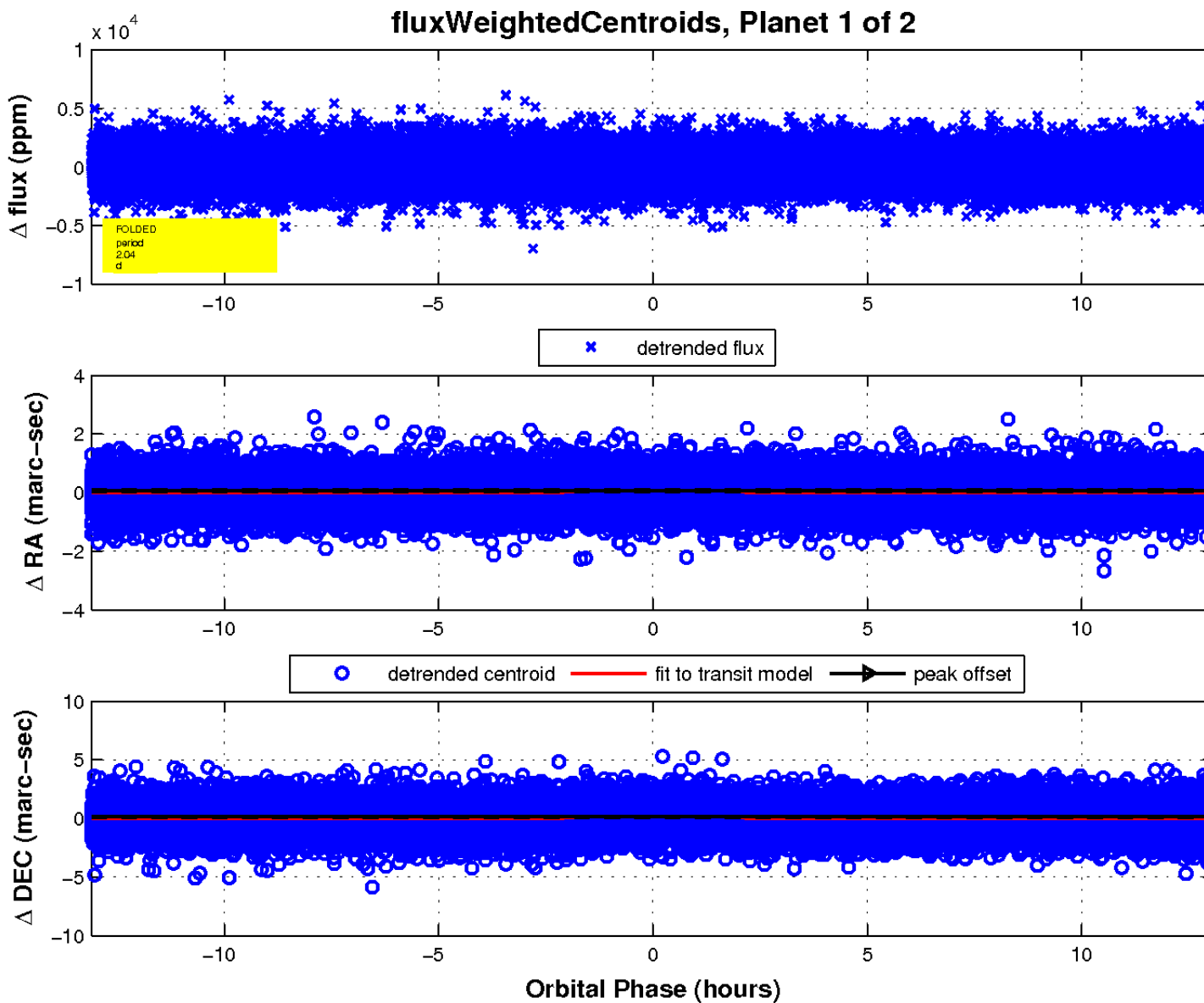
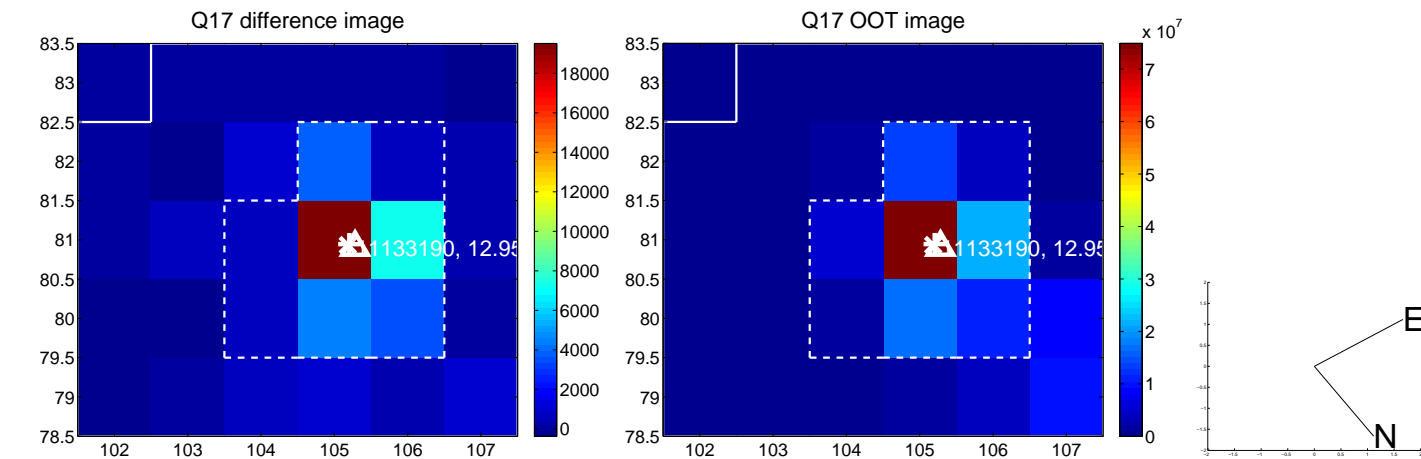
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

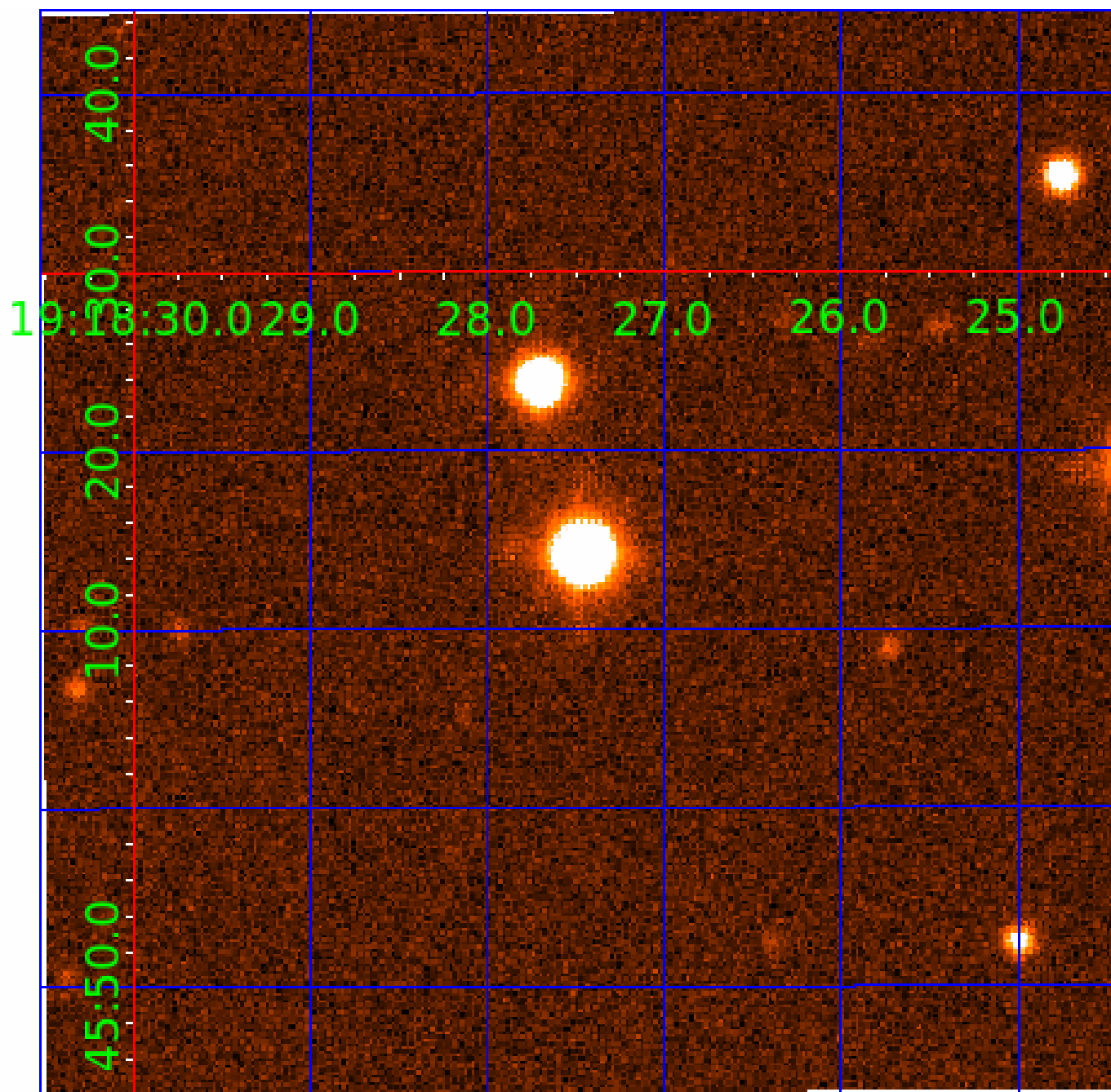


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 011133190

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011133190-01	OBS	No	2.037267	132.371862	137.1	4.368	11.8	12.4	2.98	7807	3.86	19802.96
011133190-02	OBS	No	0.795940	132.049129	170.7	1.002	7.4	7.9	2.98	7807	4.63	69335.11

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011133190-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011133190-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

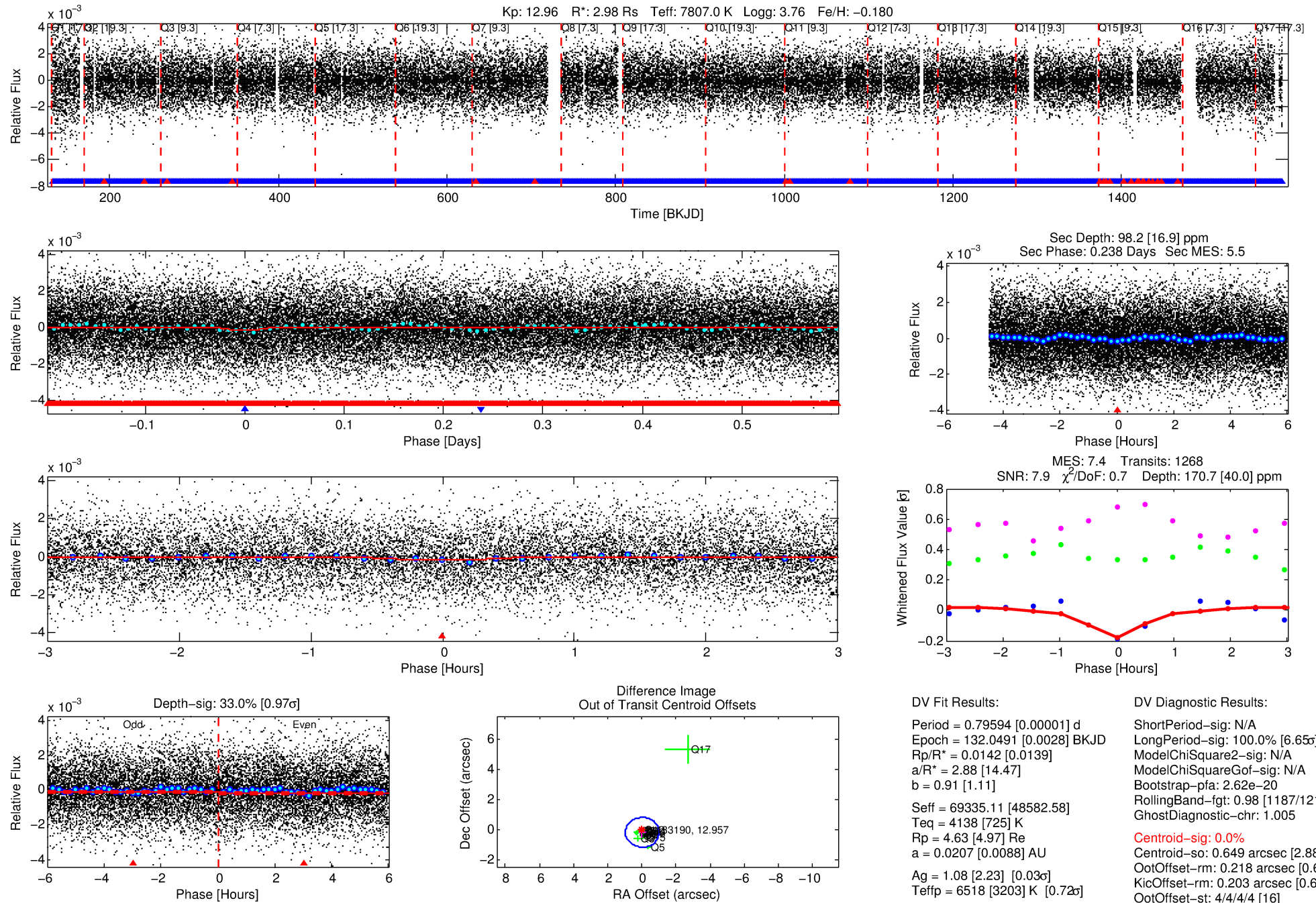
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011133190-02

No Significant Match Found

# DV One-Page Summary

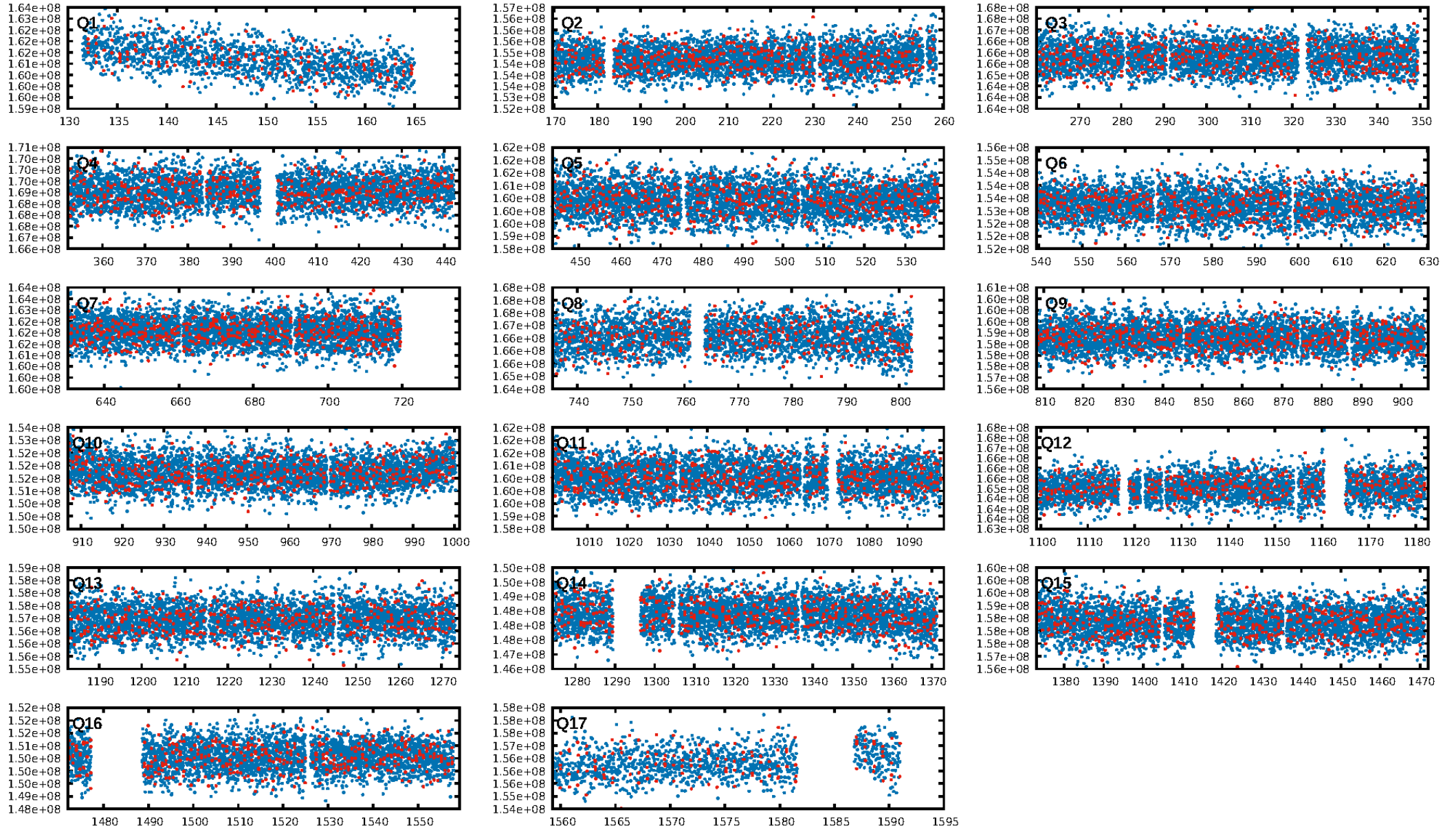
KIC: 11133190 Candidate: 2 of 2 Period: 0.796 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:32:54 Z

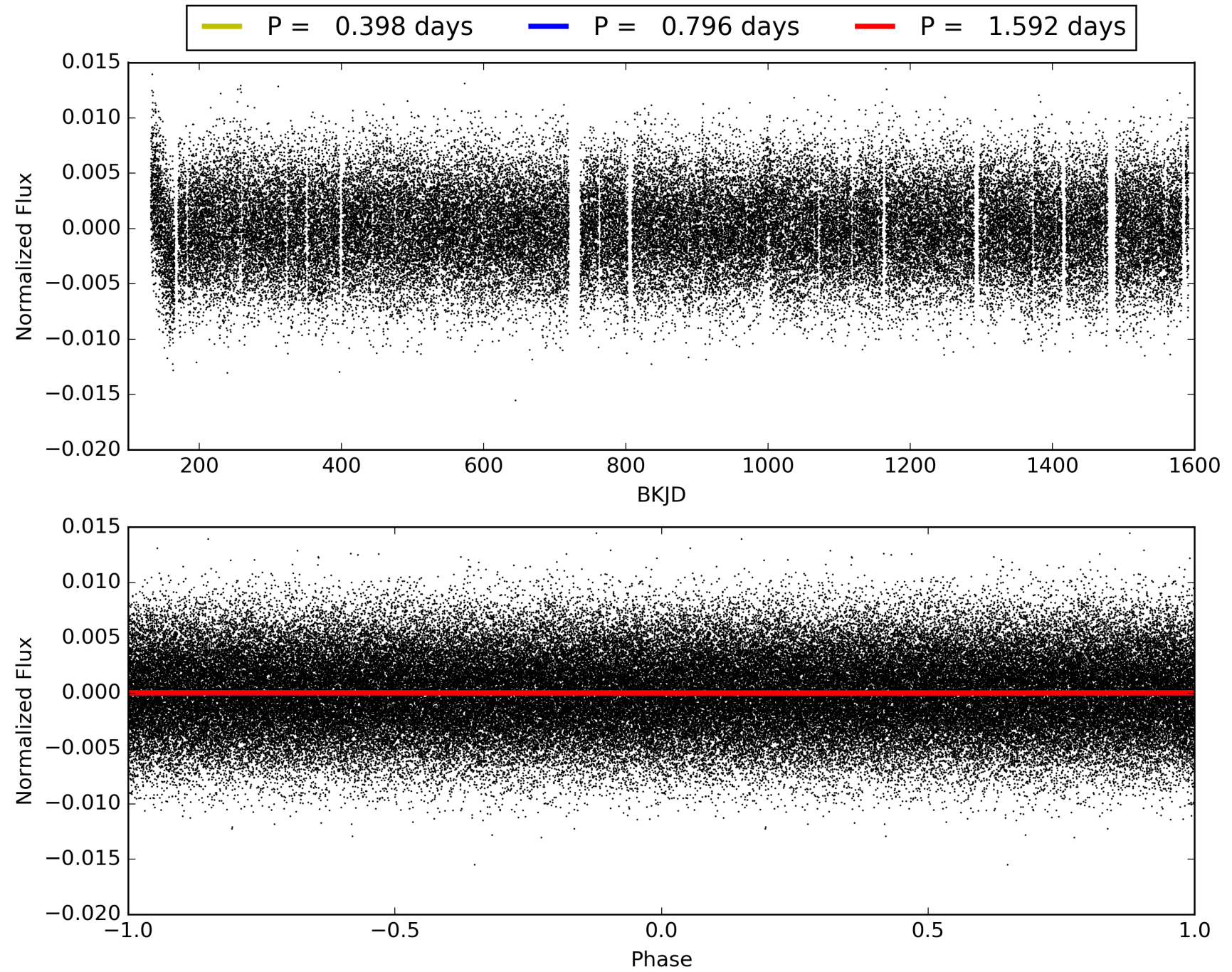
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011133190-02, PDC Light Curves





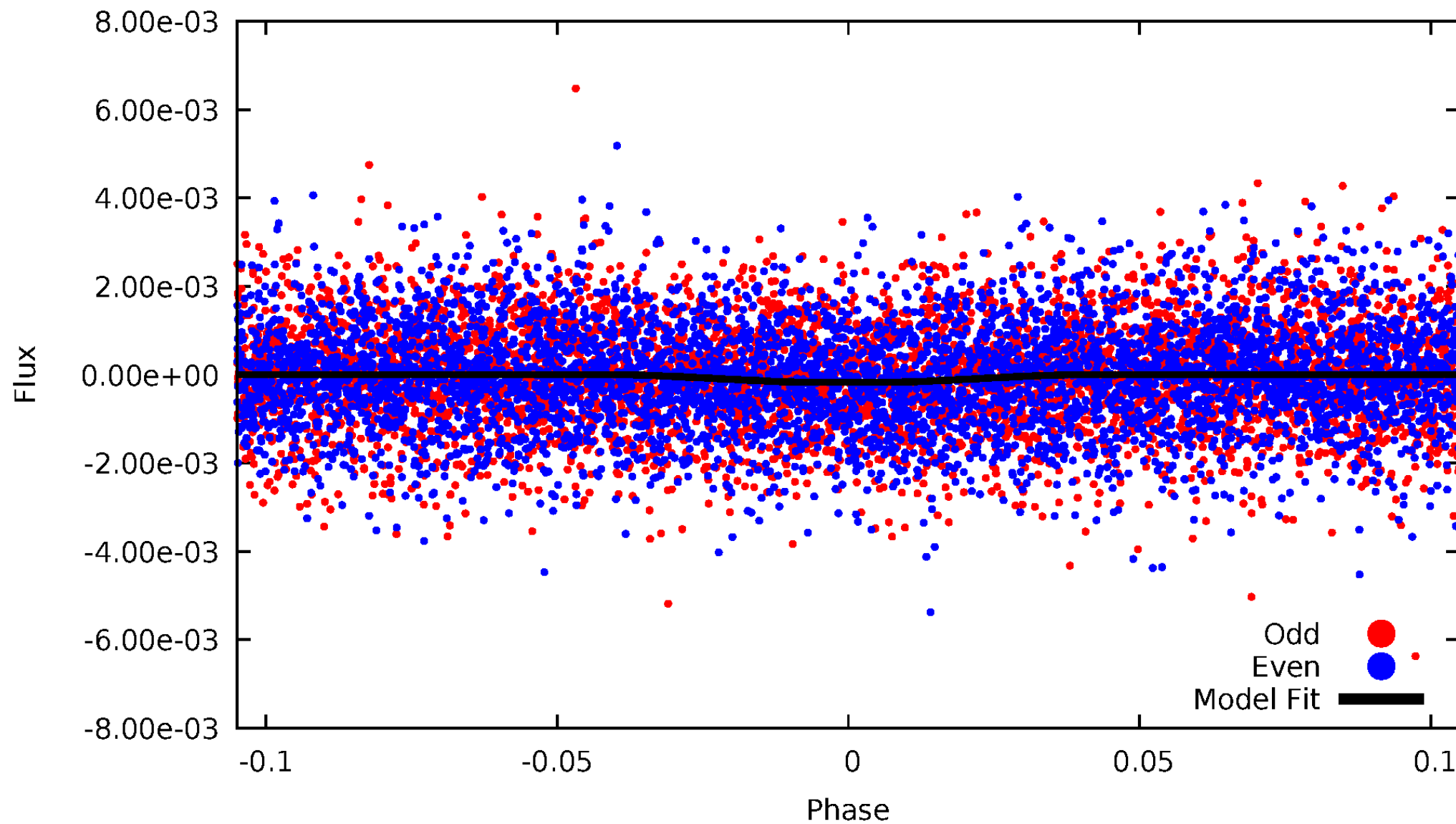
# TCE 011133190-02





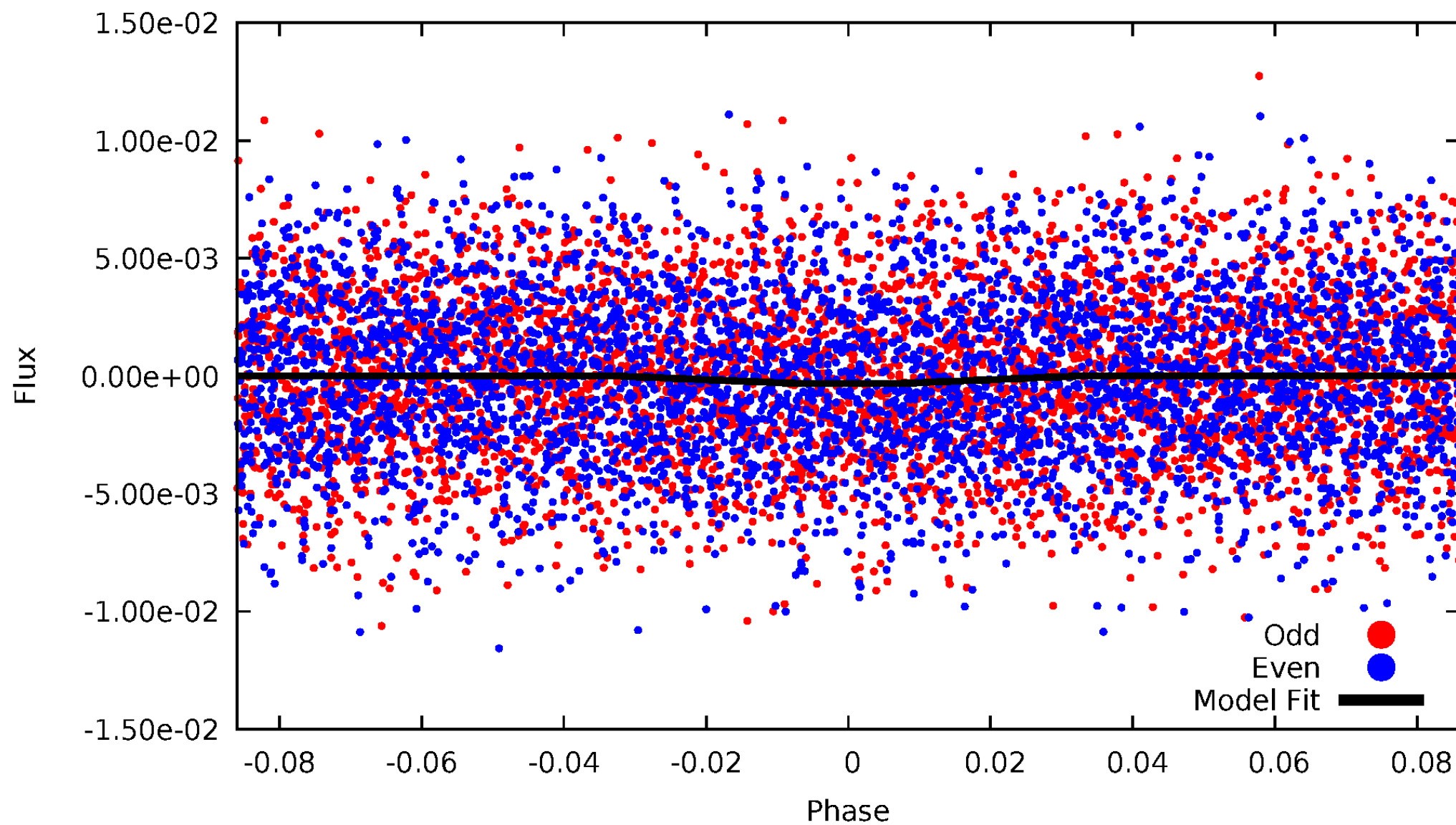
DV Odd/Even

TCE 011133190-02



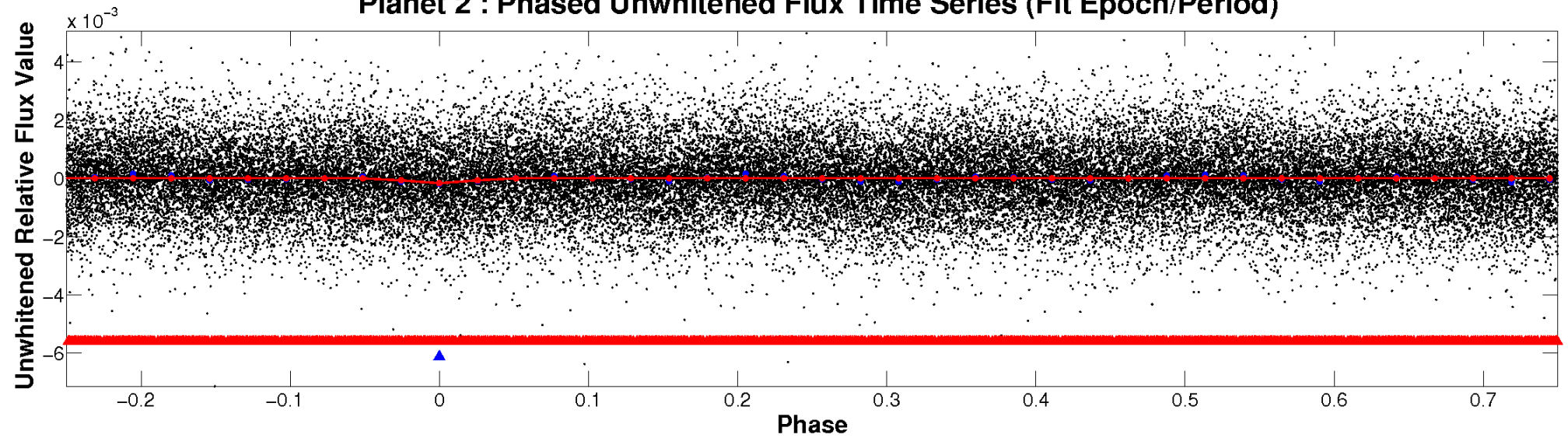
# ALT Odd/Even

TCE 011133190-02

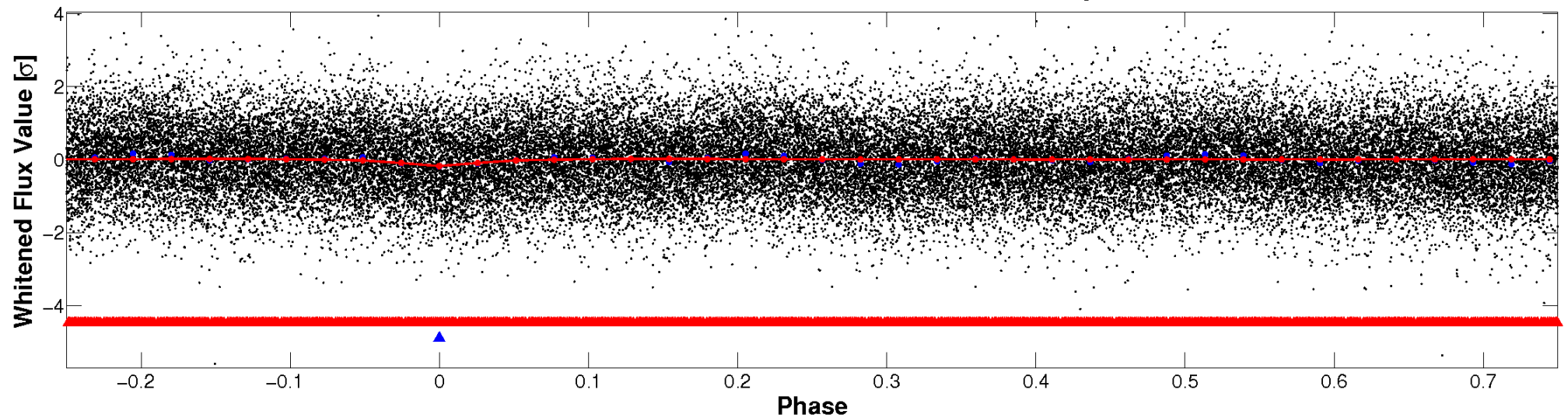


# Non-Whitened Vs. Whitened Light Curve

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

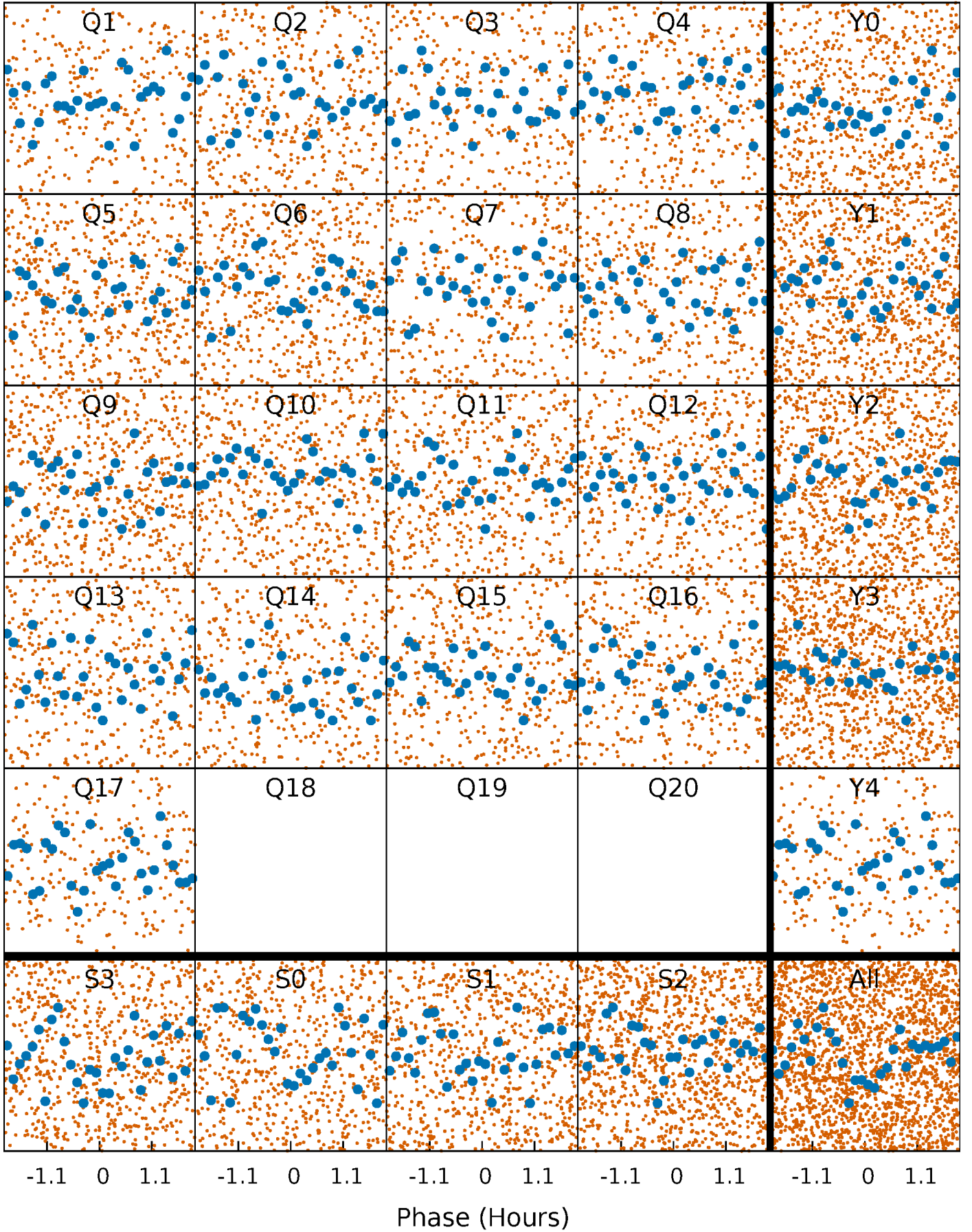


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

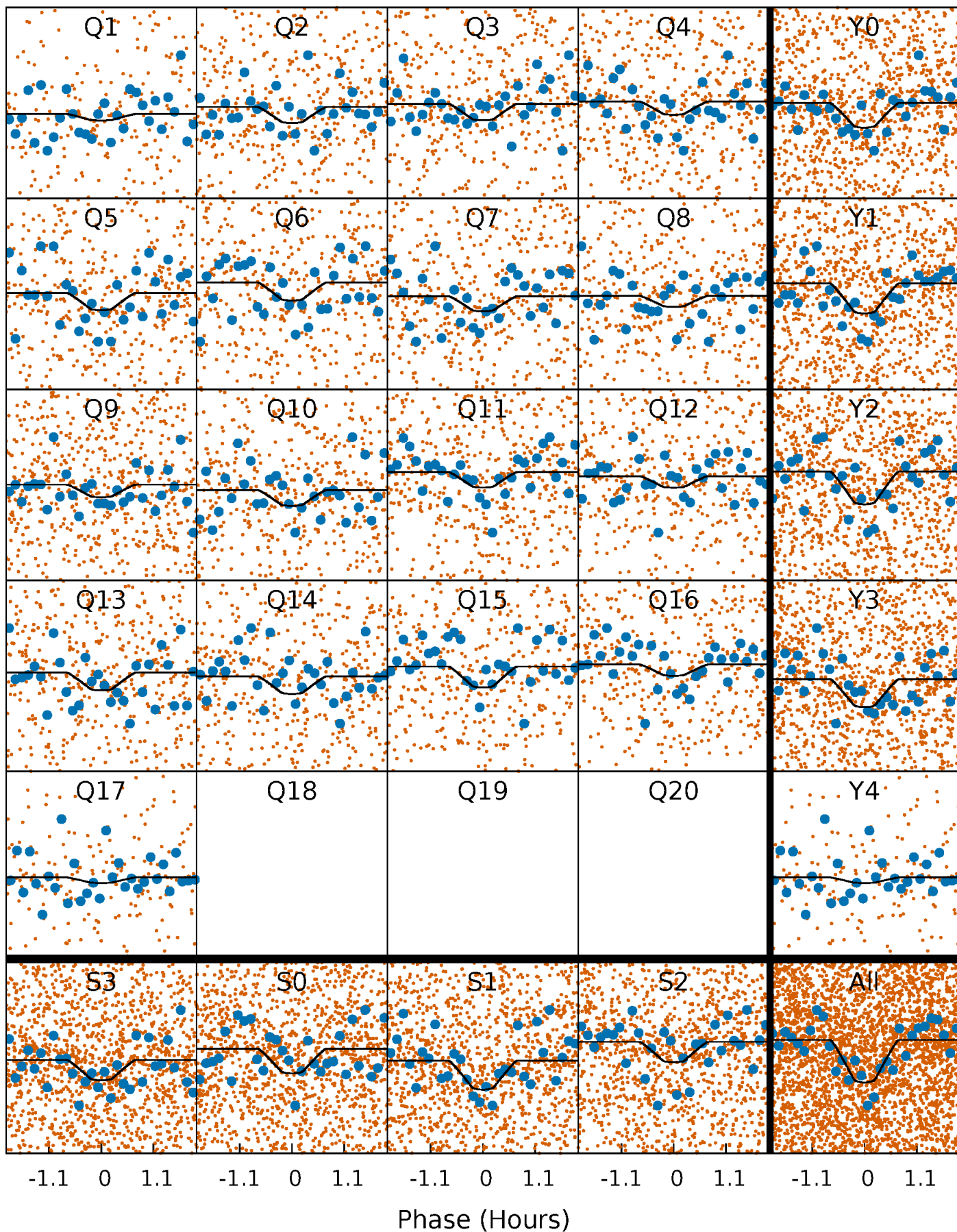
TCE 011133190-02 P= 0.795940 Days  $T_0=132.049129$  (BKJD)





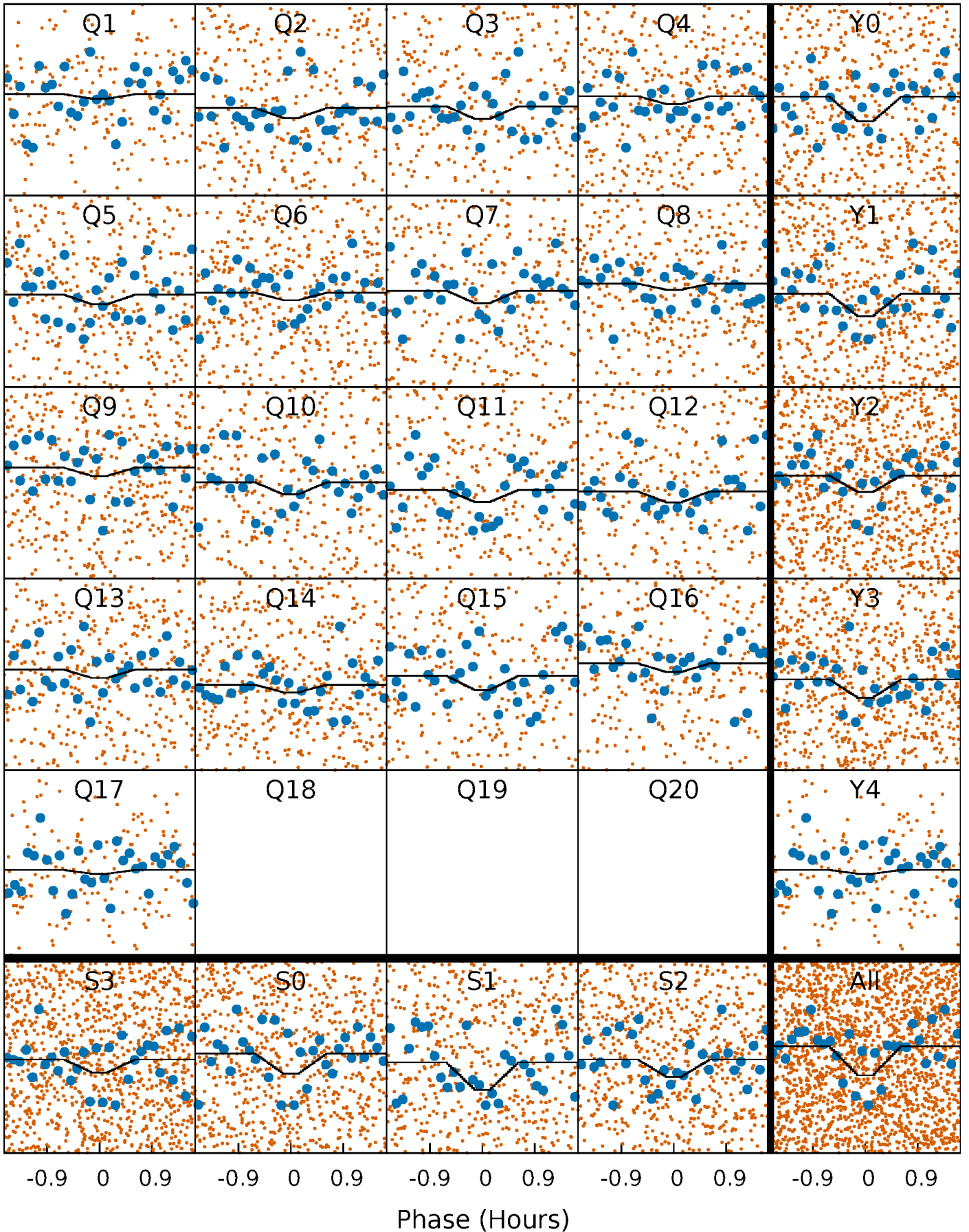
# DV Quarter-Phased Transit Curves

TCE 011133190-02 P= 0.795940 Days  $T_0=132.049129$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 011133190-02   P= 0.795947 Days    $T_0=132.042067$  (BKJD)

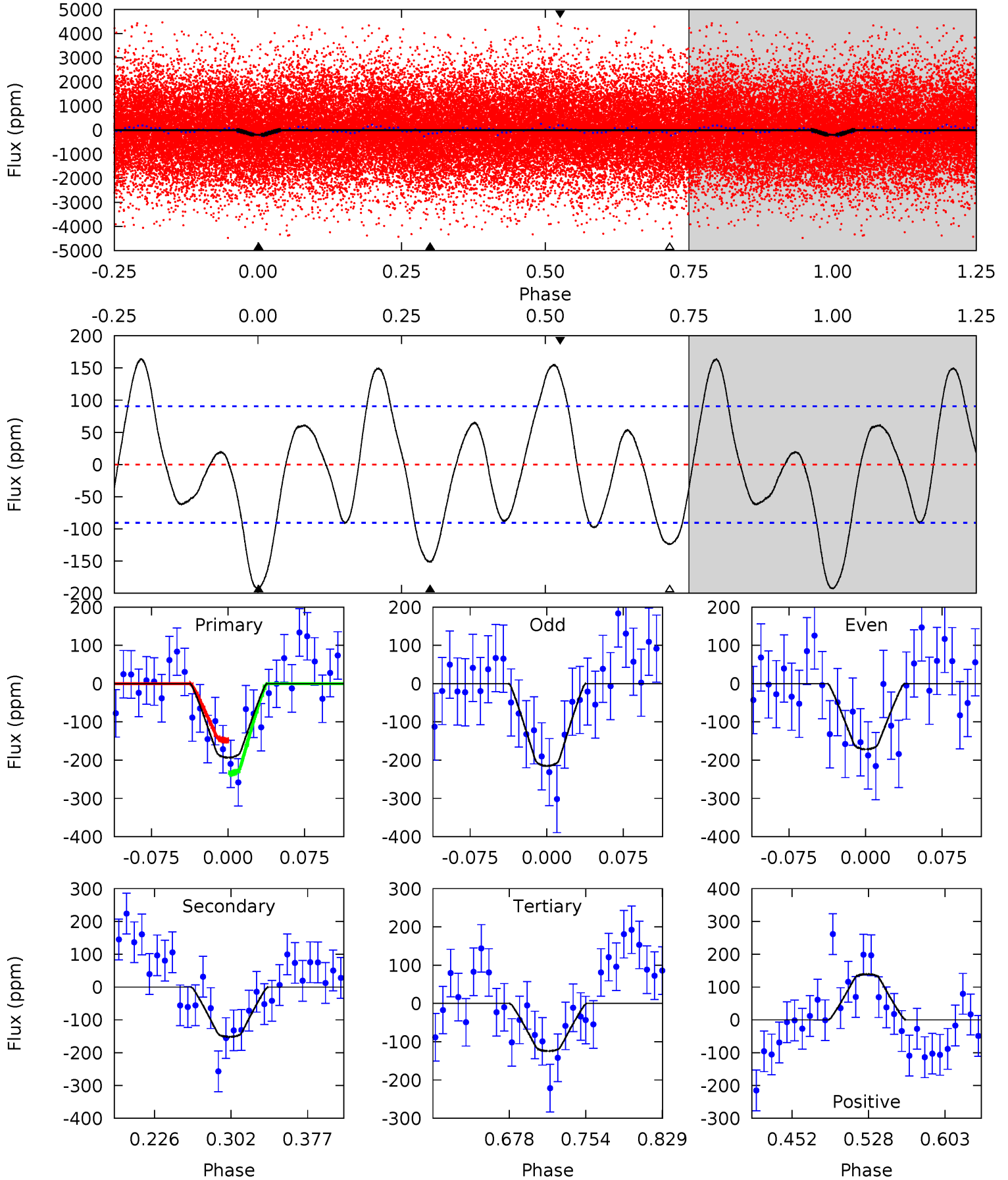




# DV Model-Shift Uniqueness Test

011133190-02, P = 0.795940 Days, E = 131.253189 Days

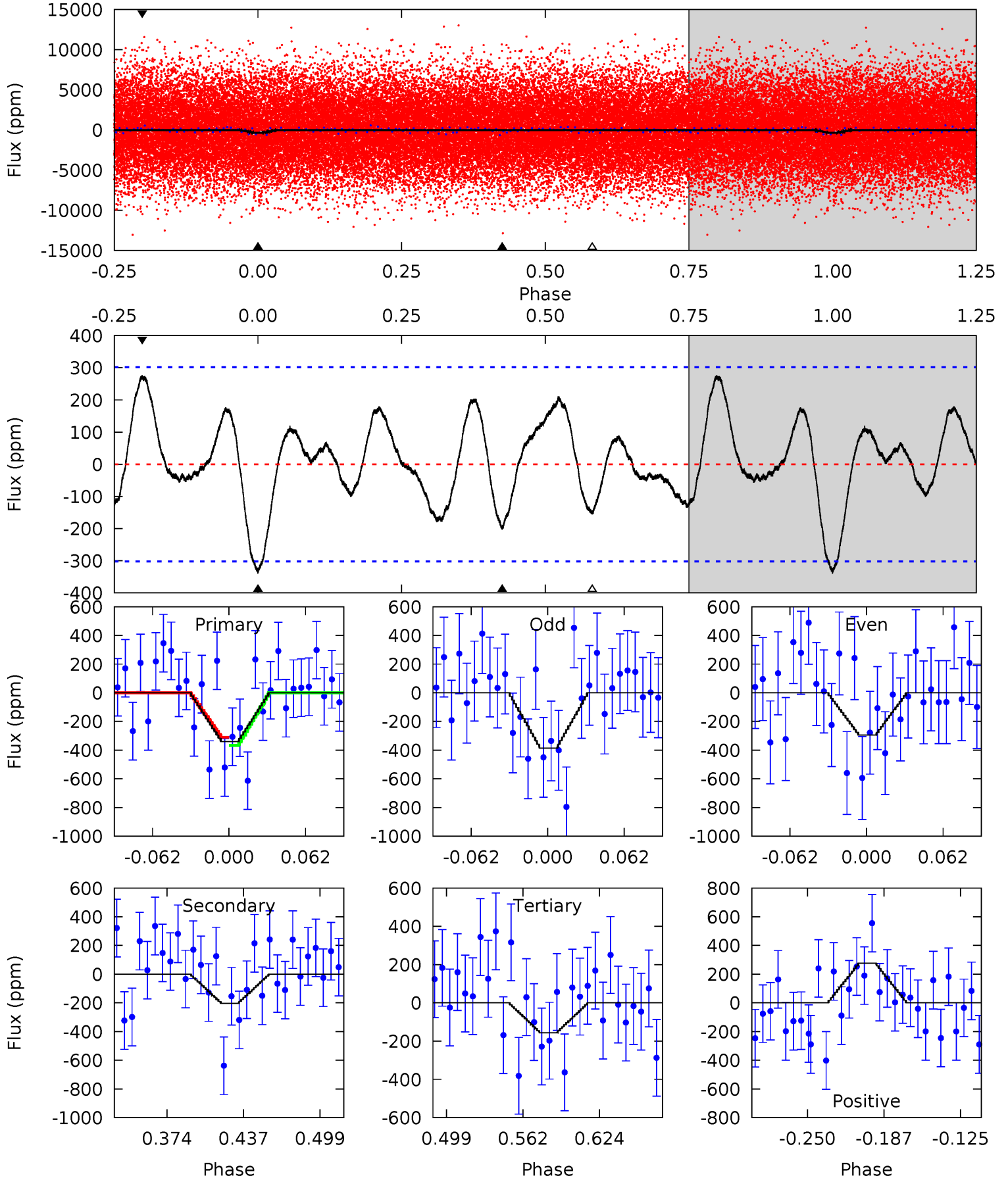
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.87	7.76	6.35	7.12	4.62	1.78	4.07	3.52	2.76	1.41	0.64	1.11	1.01	0.46	2.22



# Alt Model-Shift Uniqueness Test

011133190-02, P = 0.795947 Days, E = 131.246120 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
5.25	3.14	2.41	4.27	4.66	1.86	1.56	2.84	0.97	0.73	-1.13	0.69	0.76	0.45	0.45



### Stellar Parameters For KIC 011133190

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7807^{+216}_{-325}$	$3.758^{+0.399}_{-0.070}$	$-0.180^{+0.200}_{-0.350}$	$2.985^{+0.332}_{-1.329}$	$1.863^{+0.104}_{-0.416}$	$0.099^{+0.343}_{-0.022}$
	+3%/-4%	+11%/-2%	+111%/-194%	+11%/-45%	+6%/-22%	+348%/-23%
Source	KIC0	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 011133190-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-152 \pm 20$	$4.84^{+4.10}_{-3.08}$	$5596^{+380}_{-603}$	$6072^{+5979}_{-2110}$	$1.459^{+9.481}_{-1.025}$
Alt.	$-203 \pm 65$	$5.47^{+4.07}_{-3.24}$	$5590^{+364}_{-647}$	$6102^{+5527}_{-1979}$	$1.494^{+7.485}_{-1.022}$

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

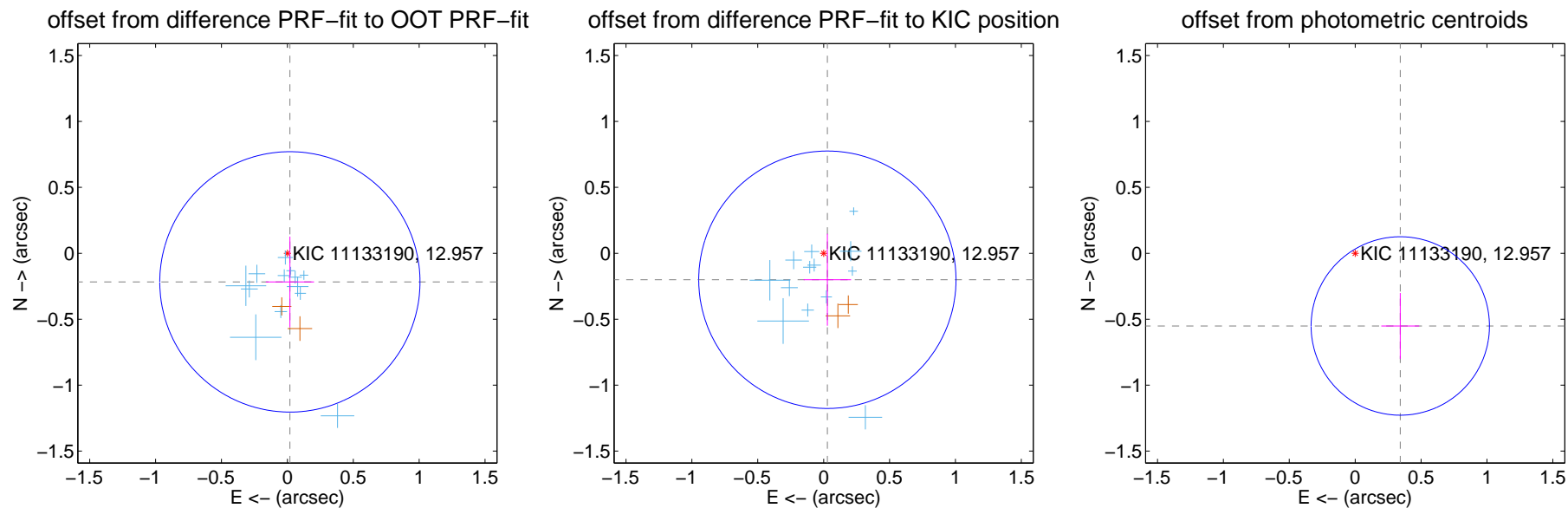
## DV Centroid Data

Supplemental centroid analysis for 011133190-02. Kepler magnitude: 12.96. Transit SNR 7.90

There are 13 quarters with good PRF difference image offsets

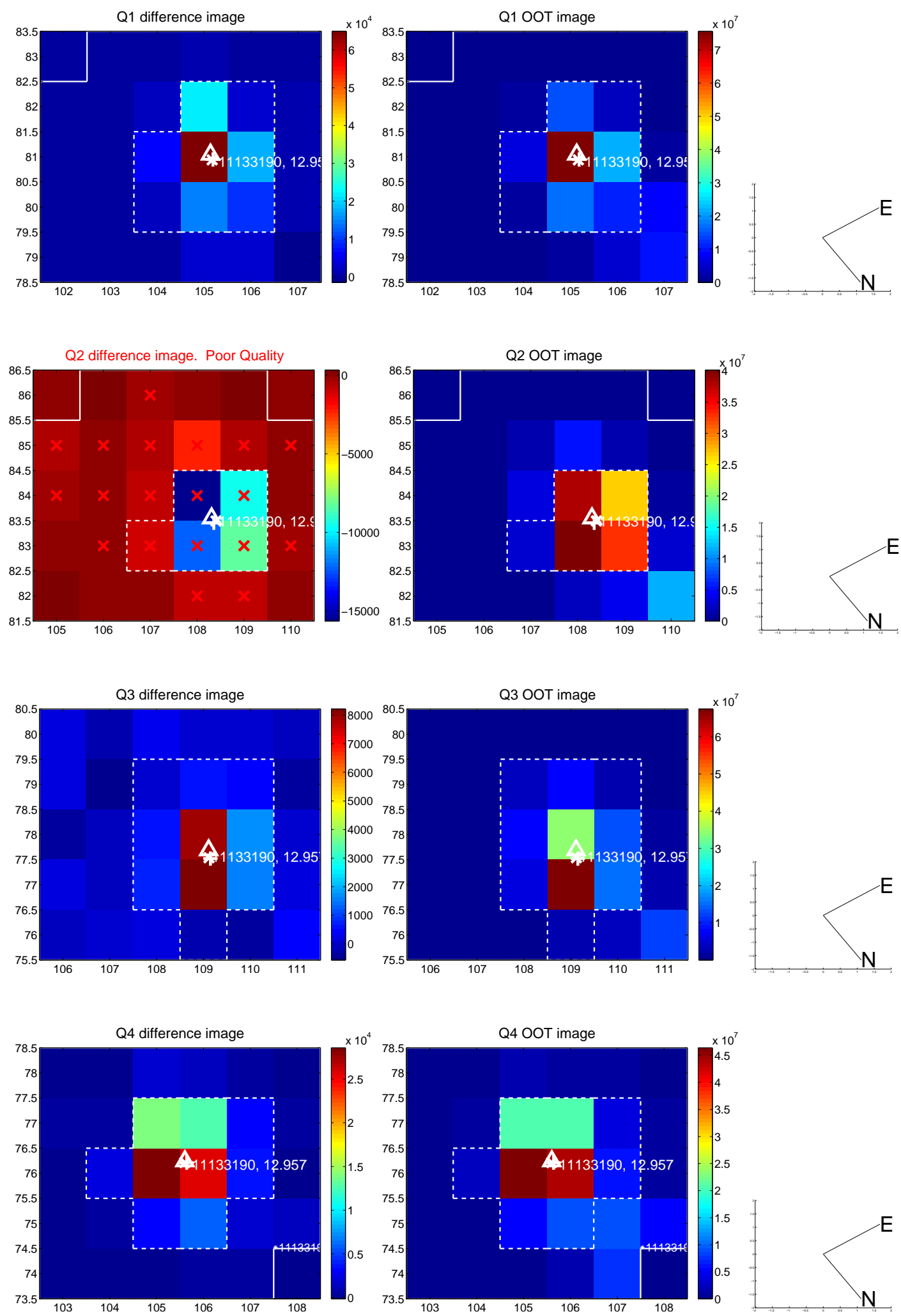
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.218 \pm 0.329$	0.66	$-0.019 \pm 0.183$	$-0.217 \pm 0.344$
PRF-fit source offset from KIC position	$0.203 \pm 0.325$	0.62	$-0.028 \pm 0.180$	$-0.201 \pm 0.349$
photometric centroid source offset	$0.65 \pm 0.23$	2.88	$-0.34 \pm 0.14$	$-0.55 \pm 0.25$

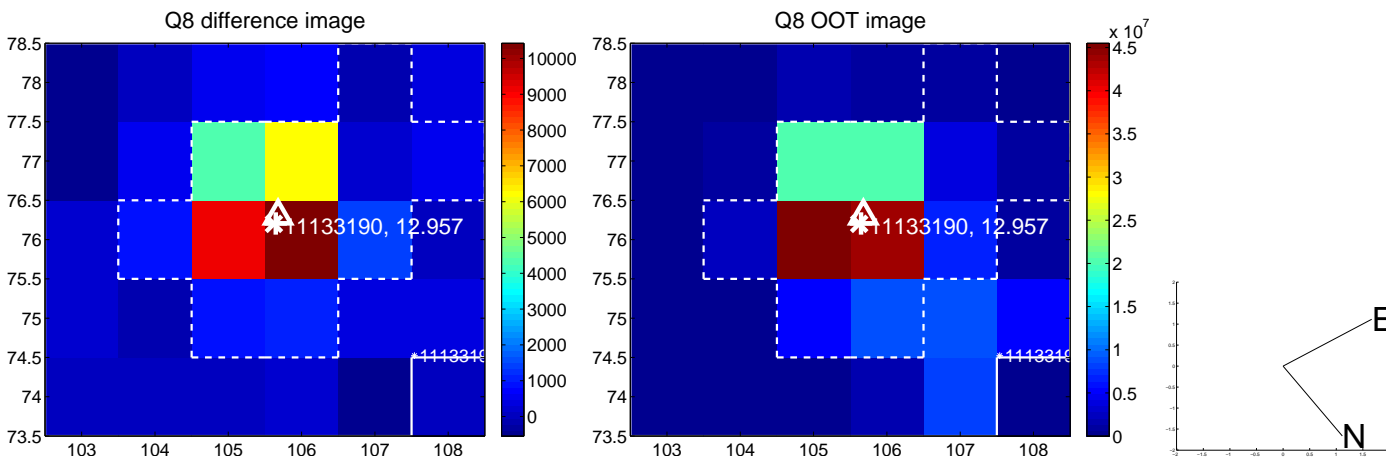
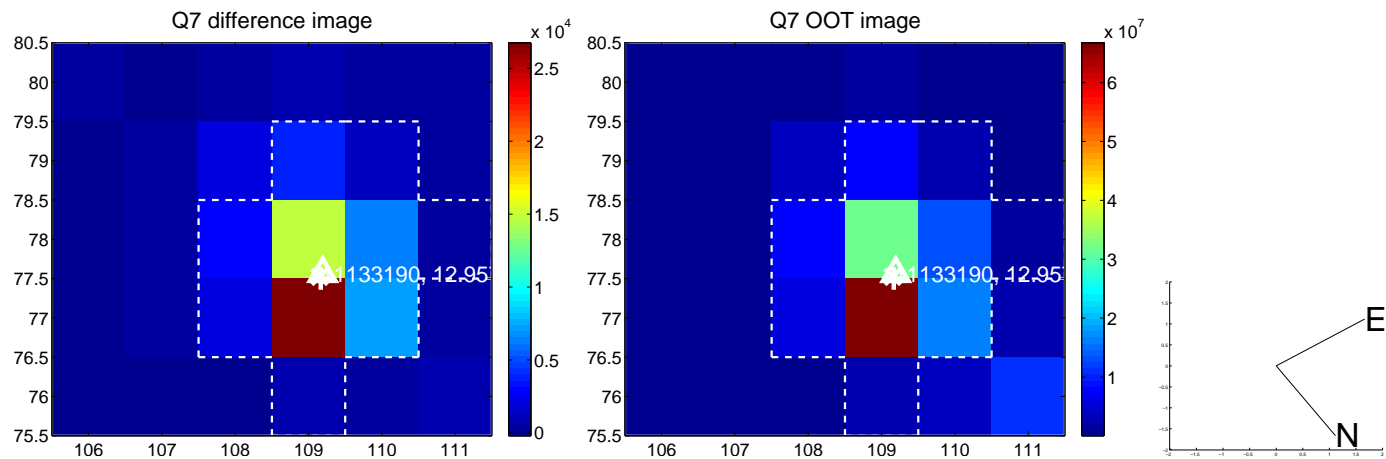
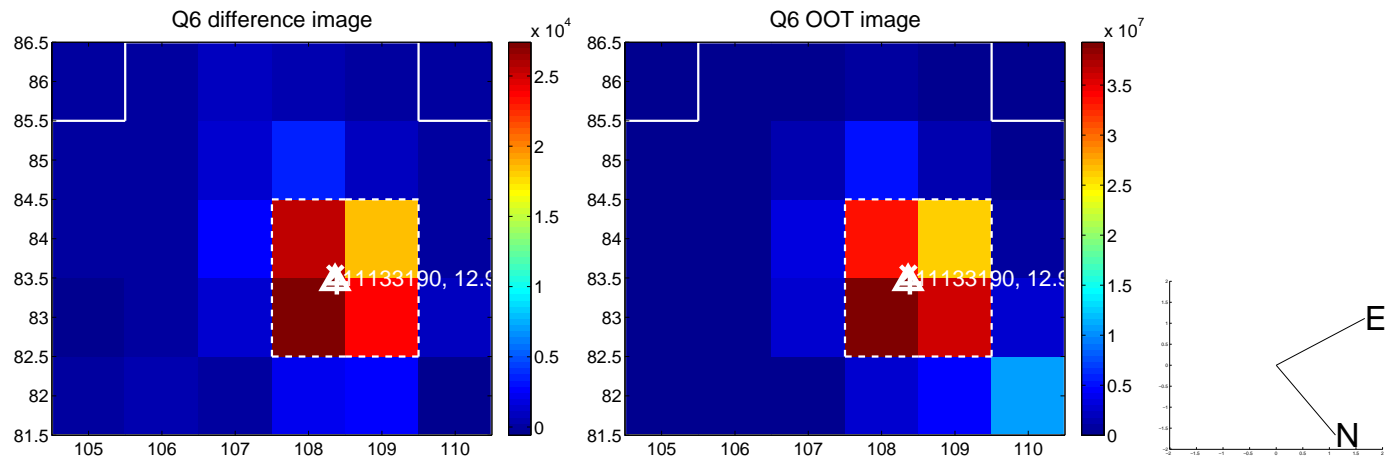
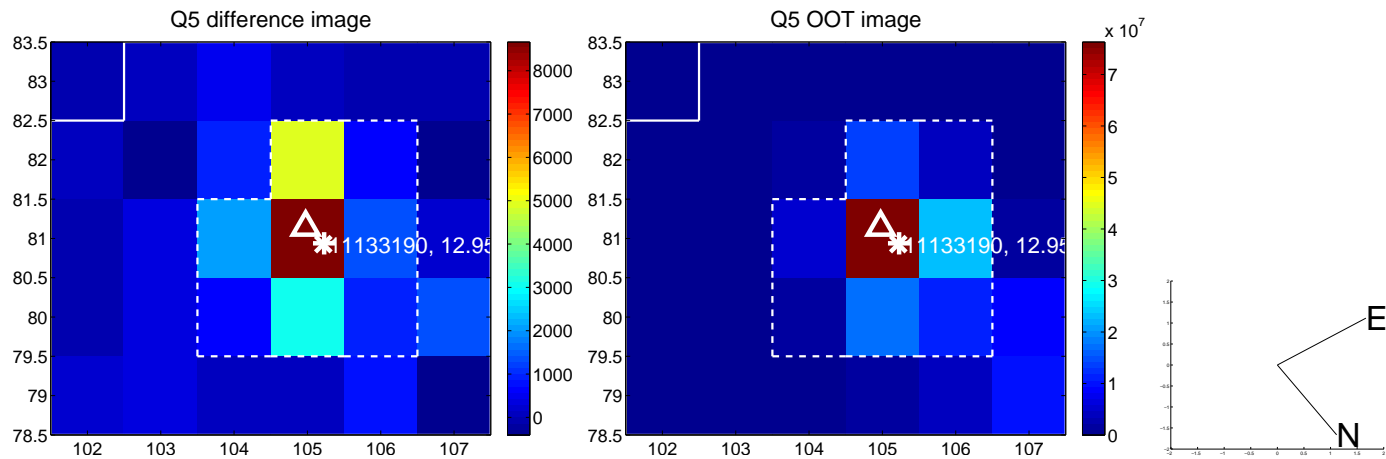


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

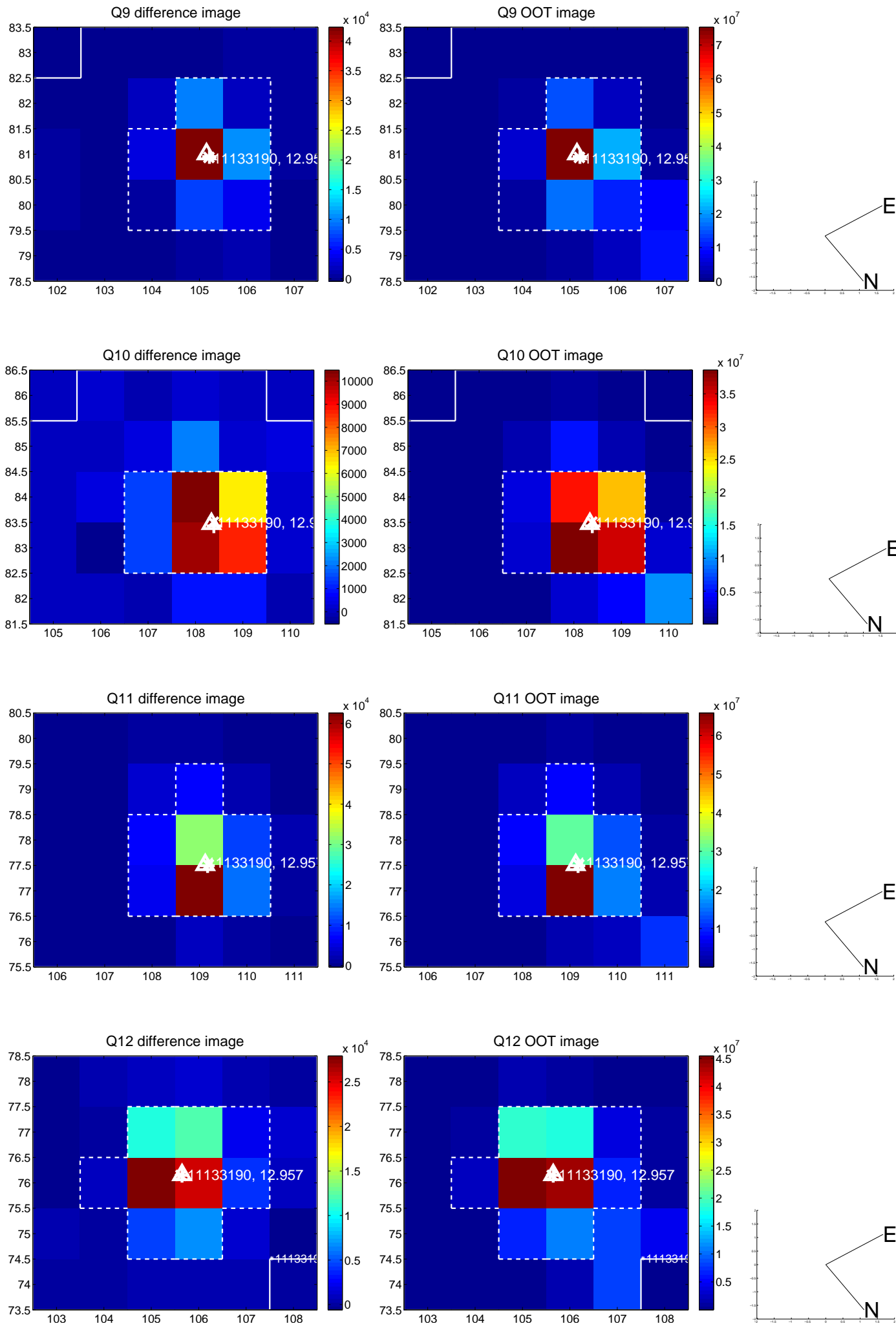


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

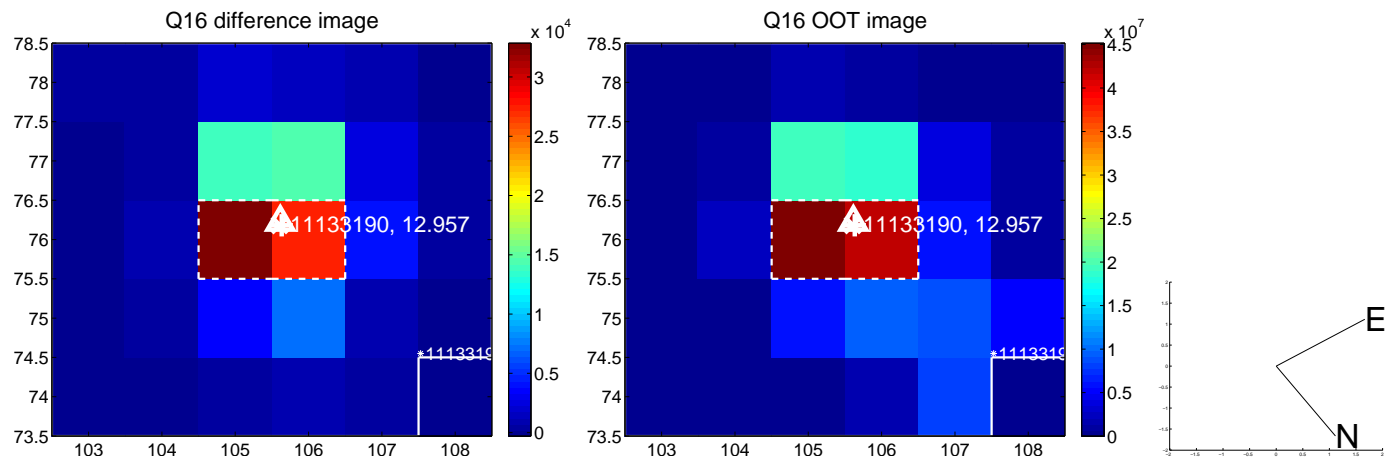
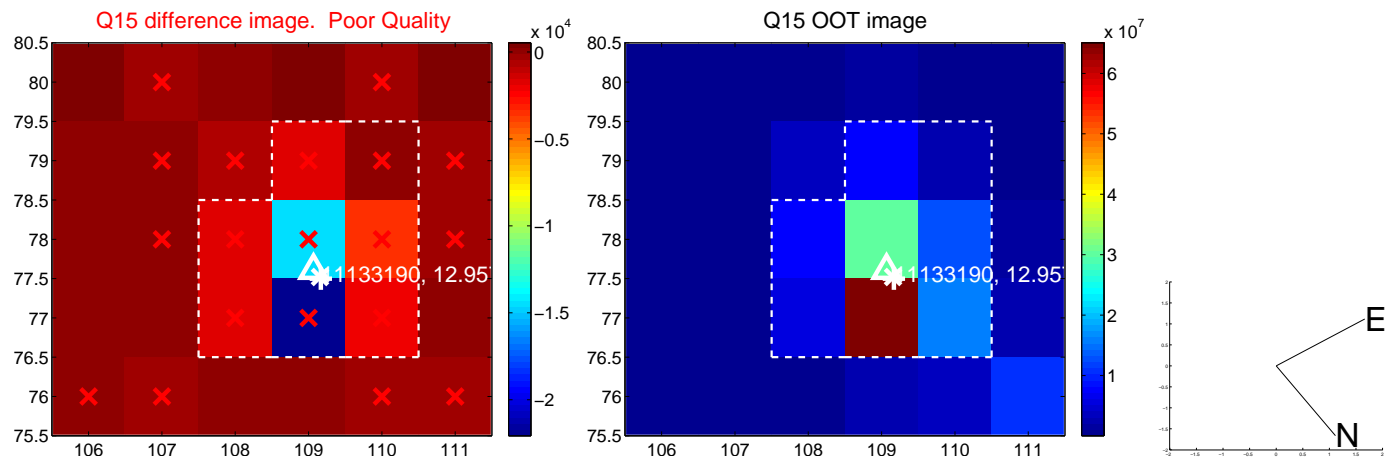
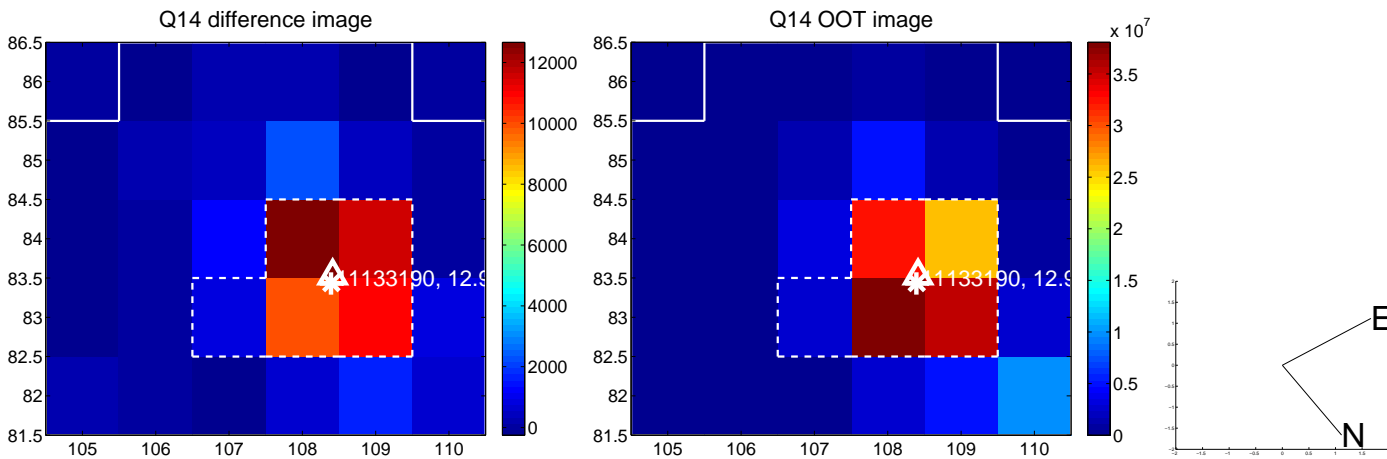
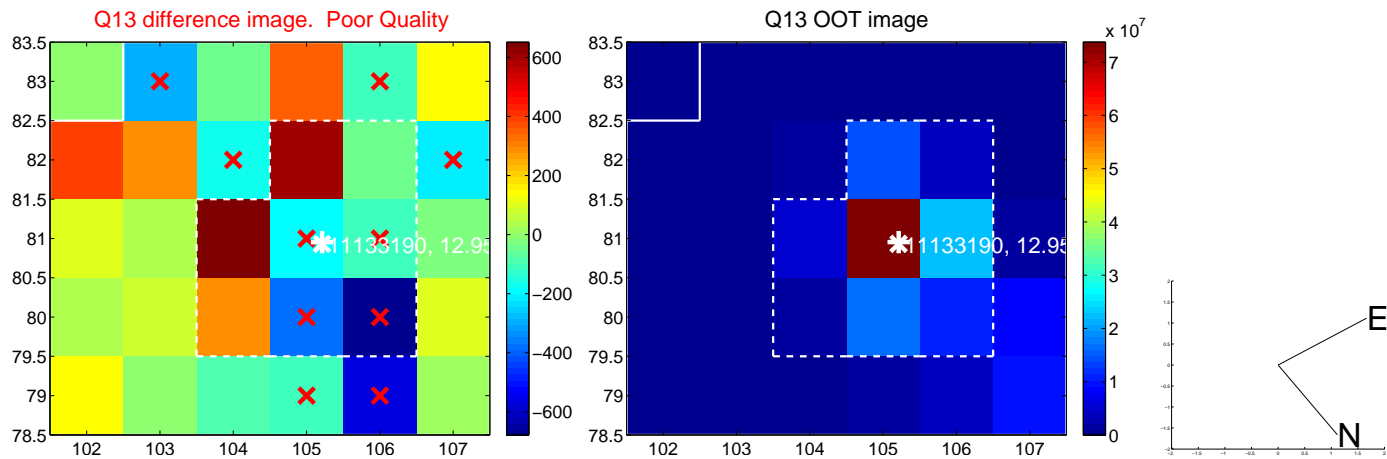




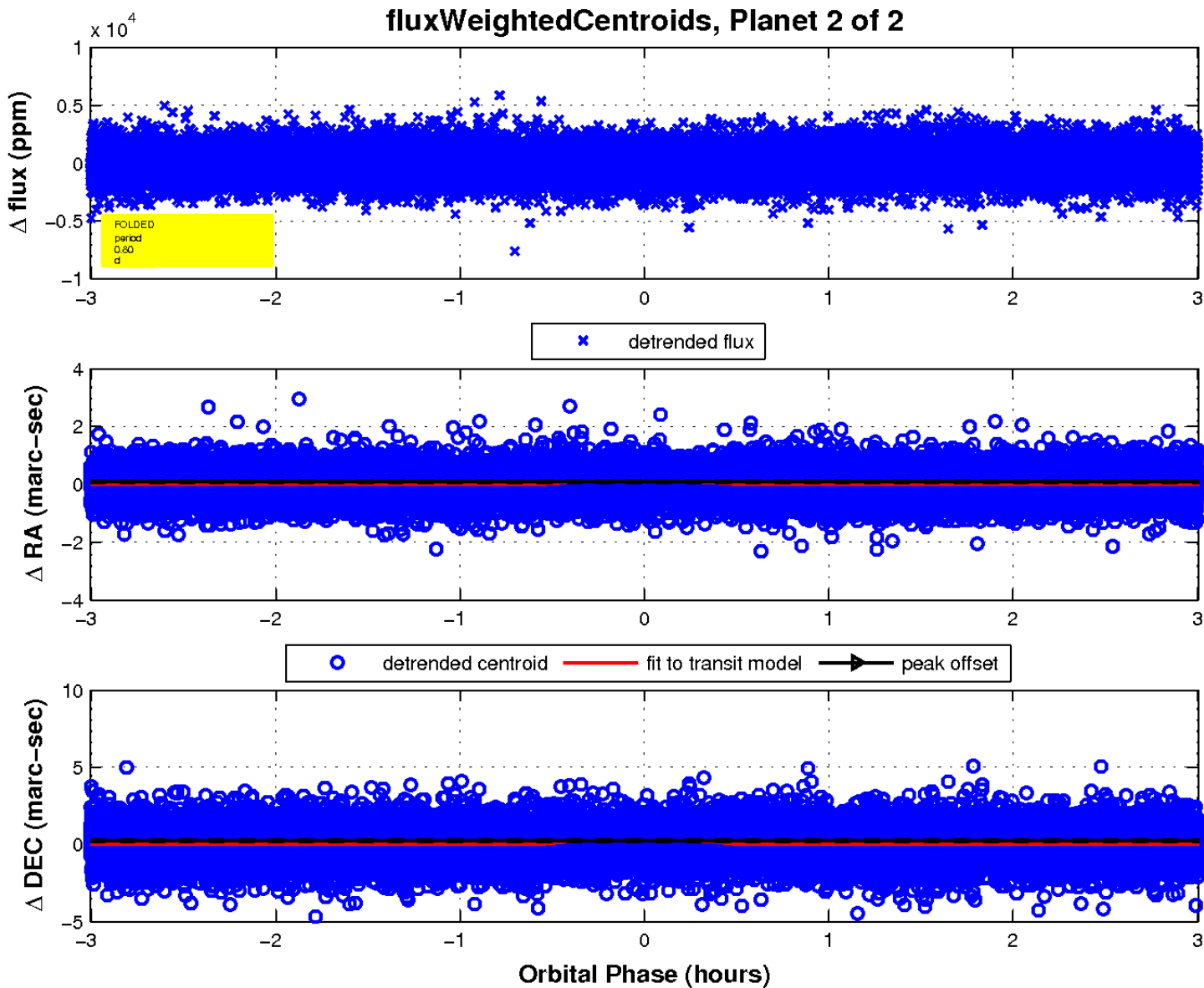
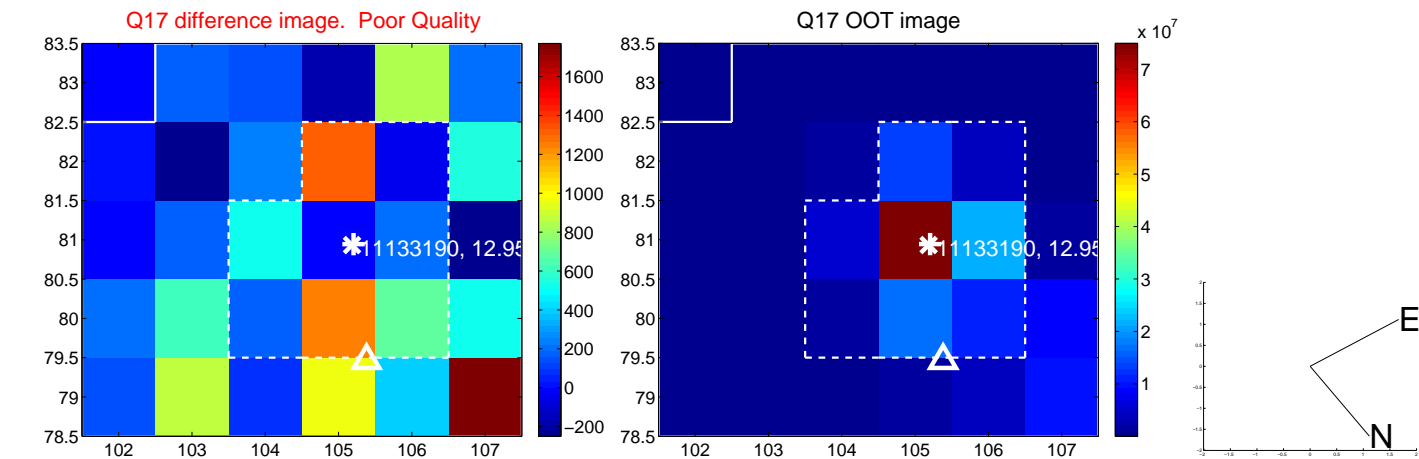
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

