

# KIC 001026133

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
001026133-01	OBS	No	1.346373	132.808059	21.1	6.164	9.9	9.2	1.61	7001	0.91	8092.75
001026133-02	OBS	No	186.181229	244.431831	278.0	11.016	11.0	8.2	1.61	7001	2.94	11.32

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001026133-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
001026133-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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

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

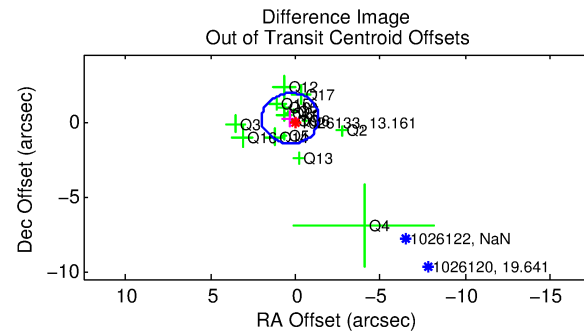
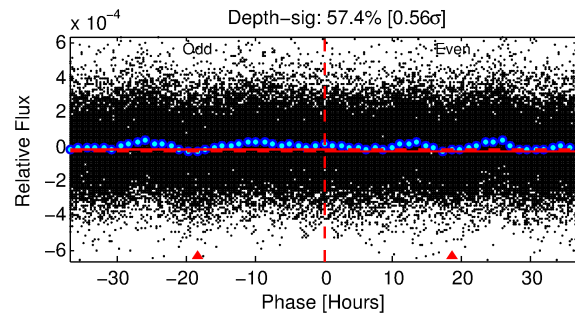
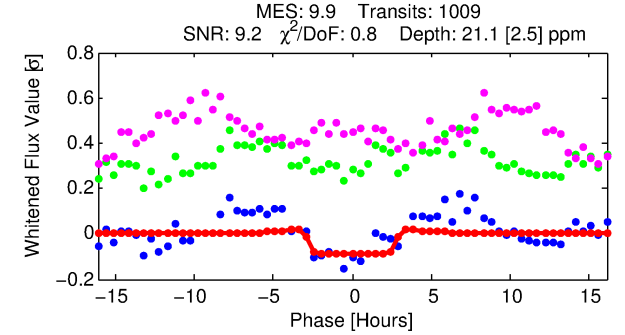
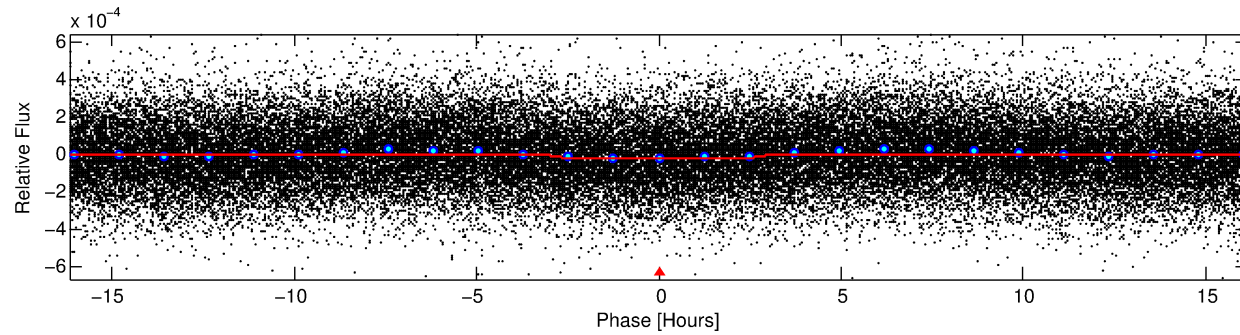
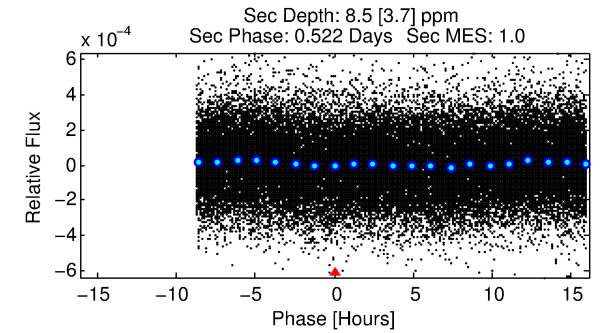
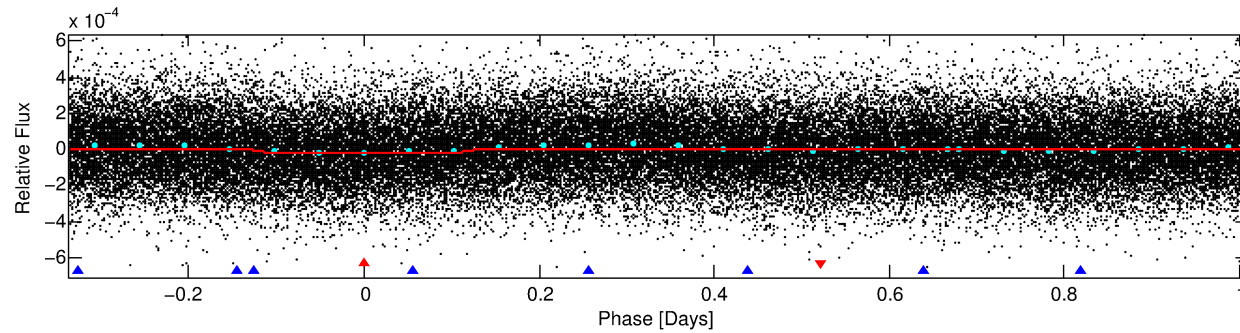
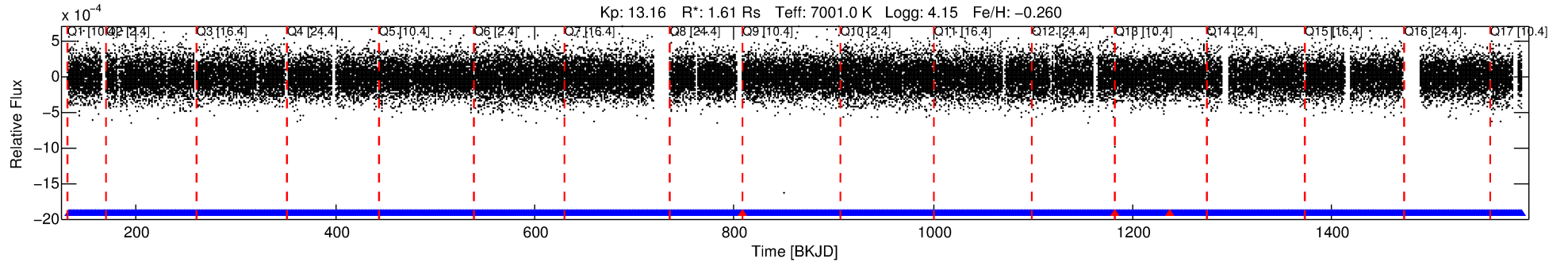
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 001026133-01

No Significant Match Found

# DV One-Page Summary

KIC: 1026133 Candidate: 1 of 2 Period: 1.346 d



## DV Fit Results:

Period = 1.34637 [0.00002] d  
Epoch = 132.8081 [0.0056] BKJD  
Rp/R\* = 0.0052 [0.0010]  
a/R\* = 1.11 [0.27]  
b = 0.95 [0.13]  
Seff = 8092.75 [3131.62]  
Teq = 2419 [234] K  
Rp = 0.91 [0.33] Re  
a = 0.0263 [0.0064] AU  
Ag = 3.94 [2.70] [1.09σ]  
Teffp = 5269 [809] K [3.39σ]

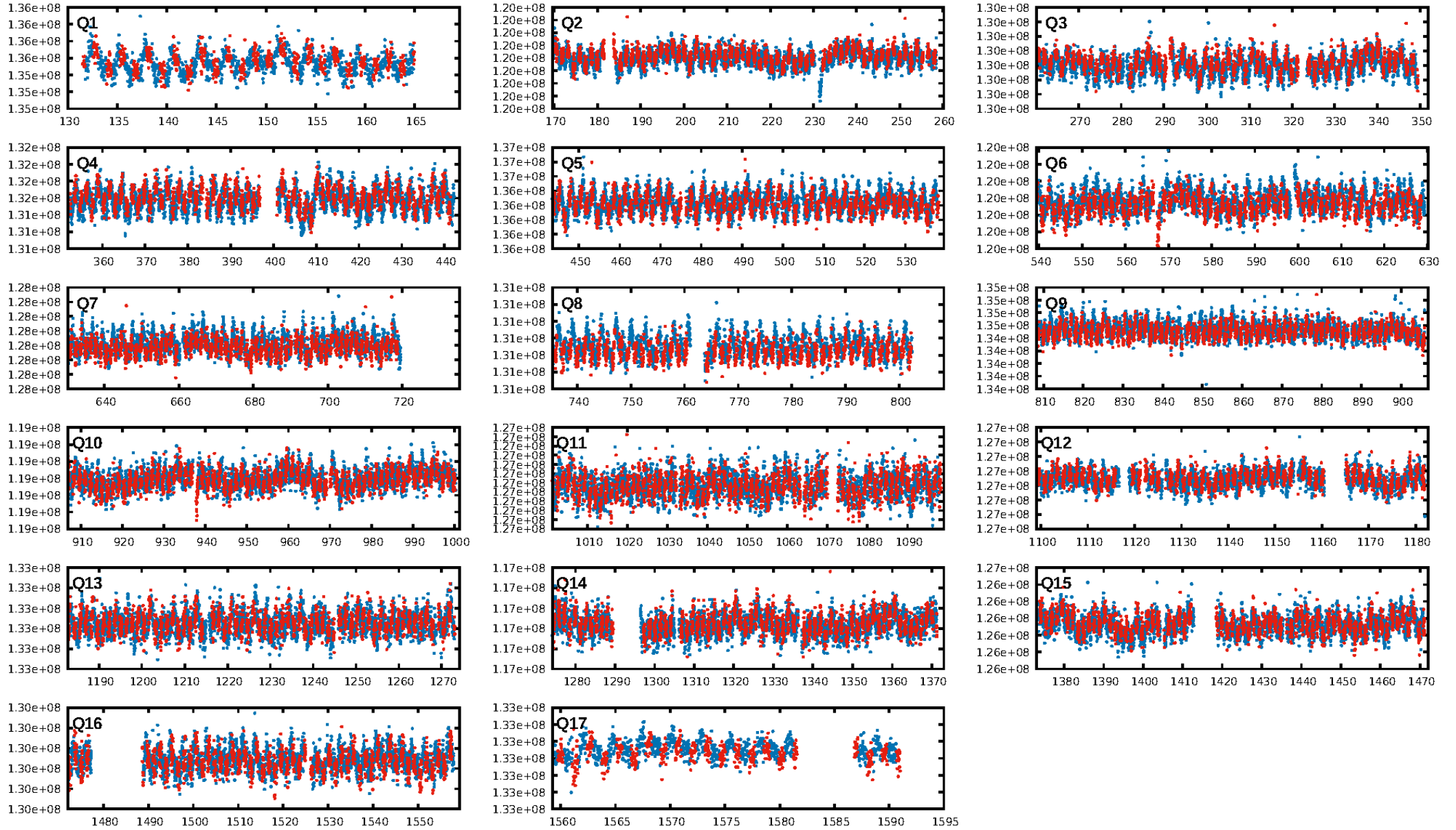
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [351.43σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.21e-18  
RollingBand-fgt: 1.00 [959/962]  
GhostDiagnostic-chr: 1.349  
Centroid-sig: 12.1%  
Centroid-so: 0.228 arcsec [0.19σ]  
OotOffset-rm: 0.376 arcsec [0.67σ]  
KicOffset-rm: 0.383 arcsec [0.72σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.81 [13/16]  
DiffImageOverlap-fno: 1.00 [17/17]

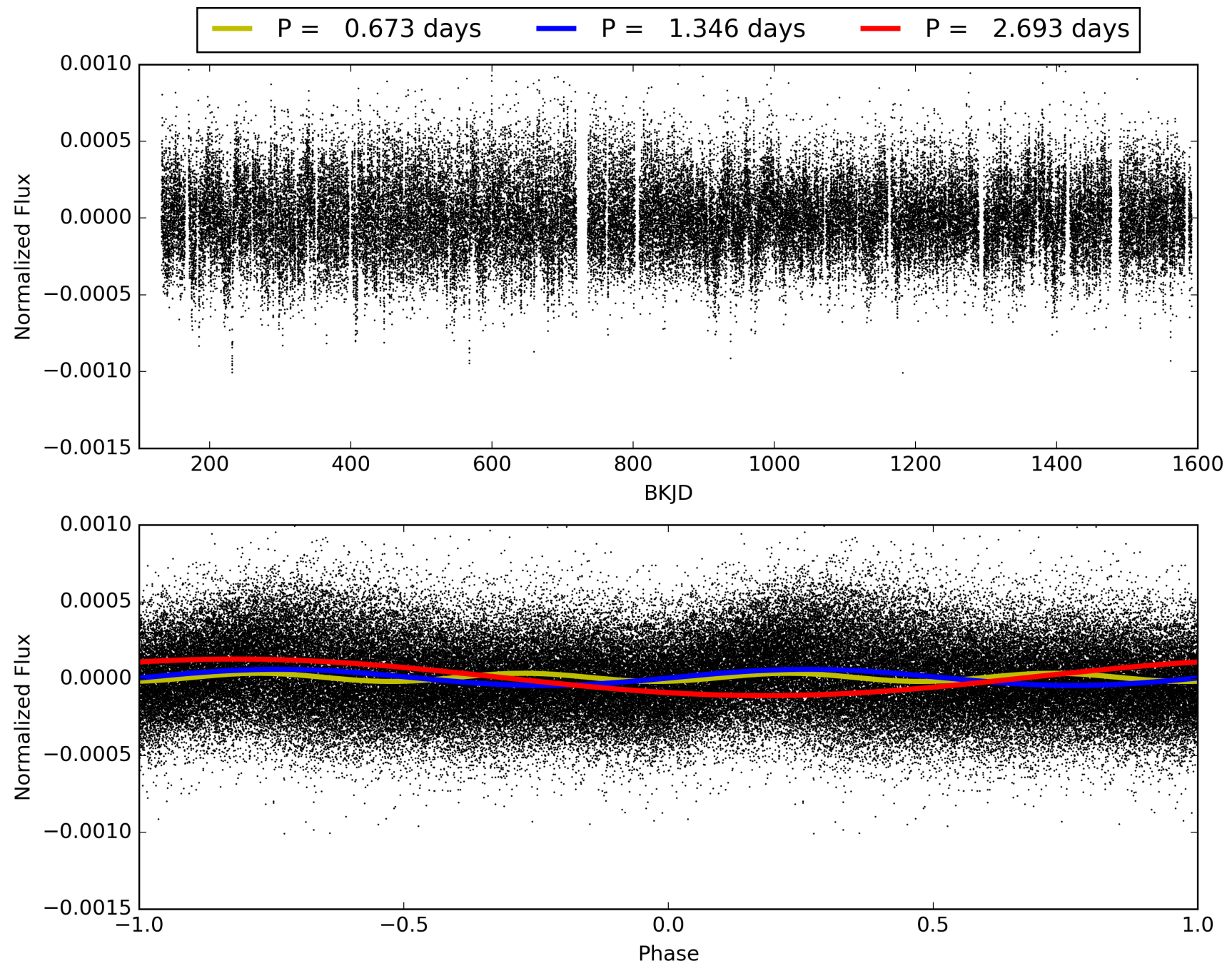
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:17:23 Z

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

# TCE 001026133-01, PDC Light Curves



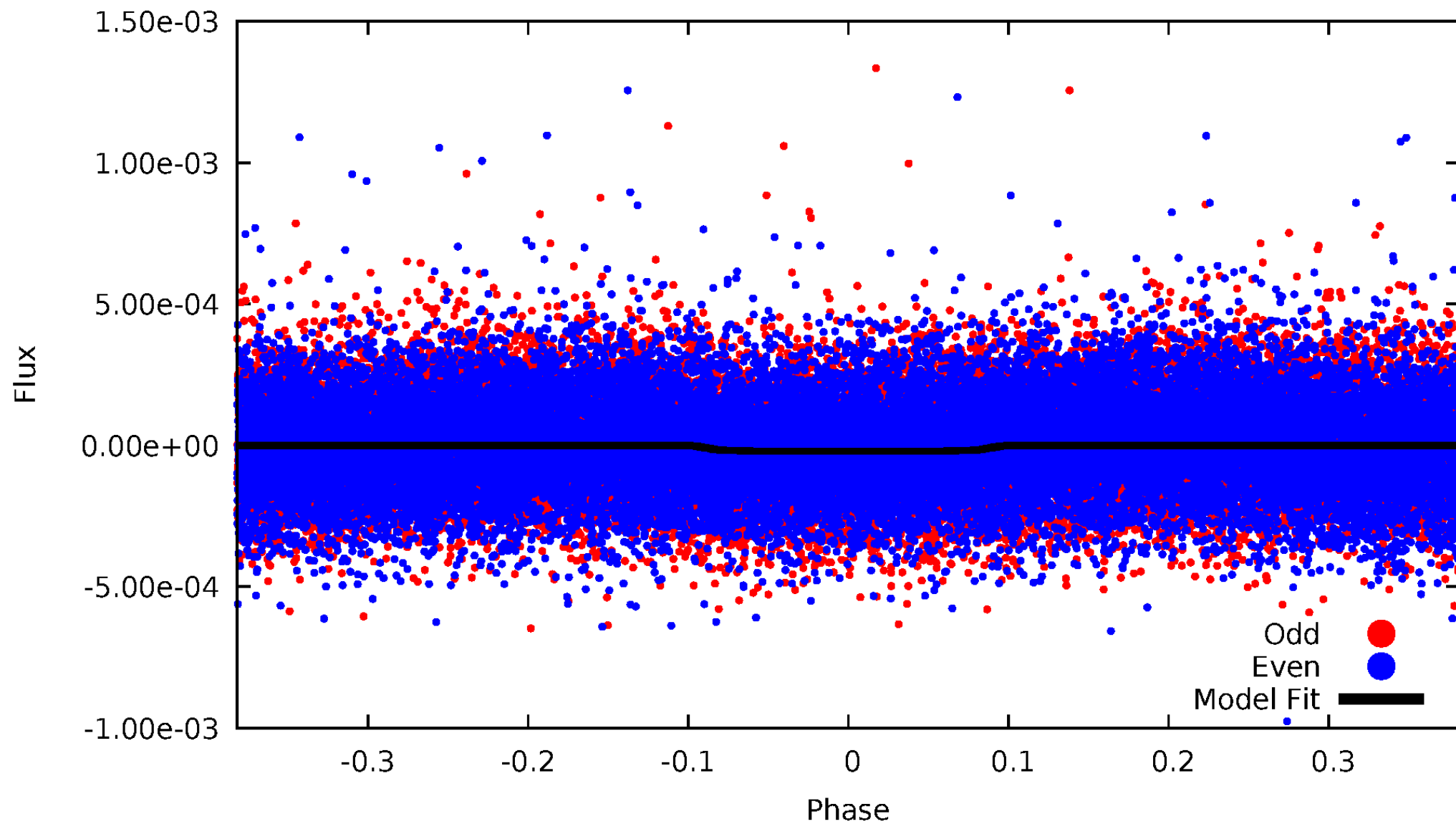
TCE 001026133-01





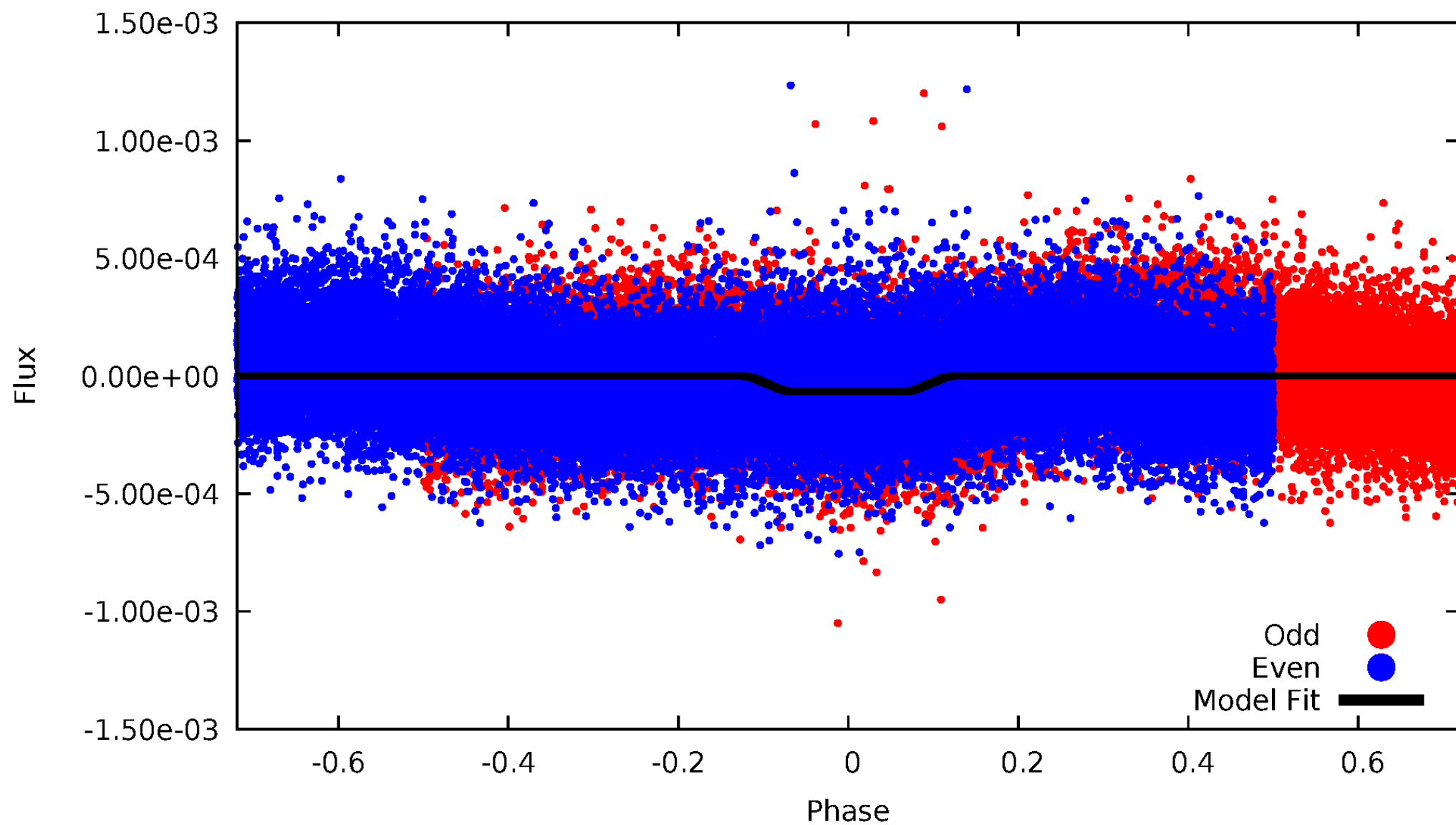
# DV Odd/Even

TCE 001026133-01



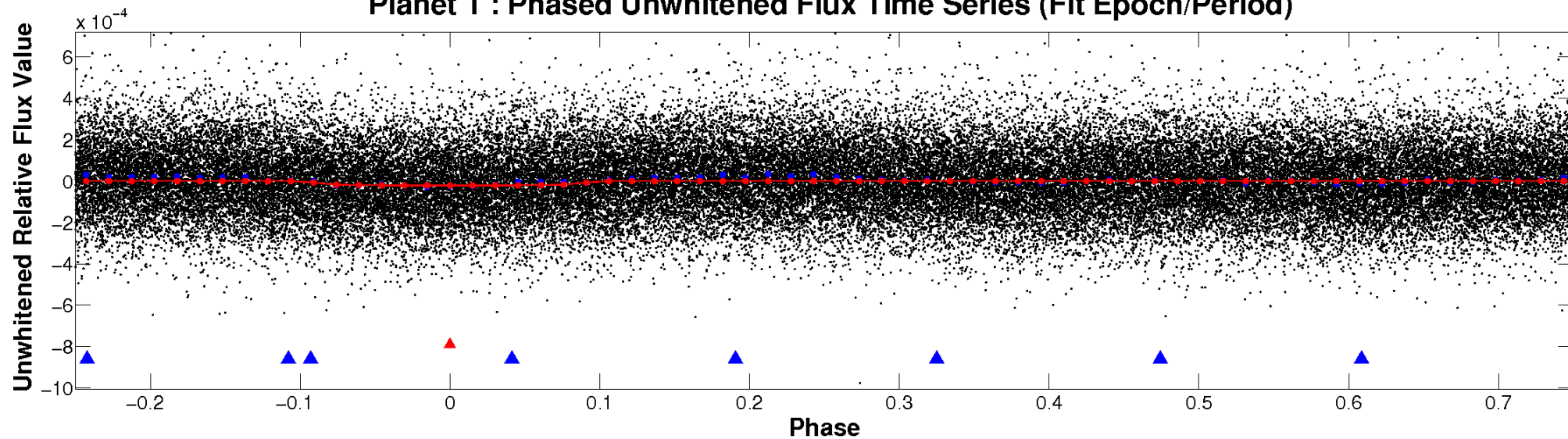
# ALT Odd/Even

TCE 001026133-01

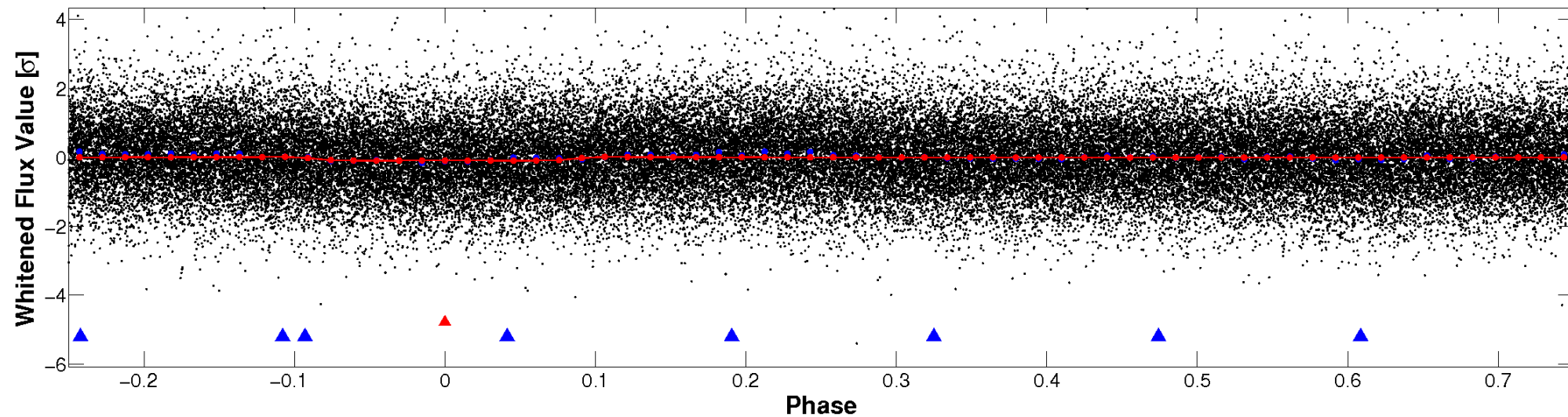


# Non-Whitened Vs. Whitened Light Curve

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

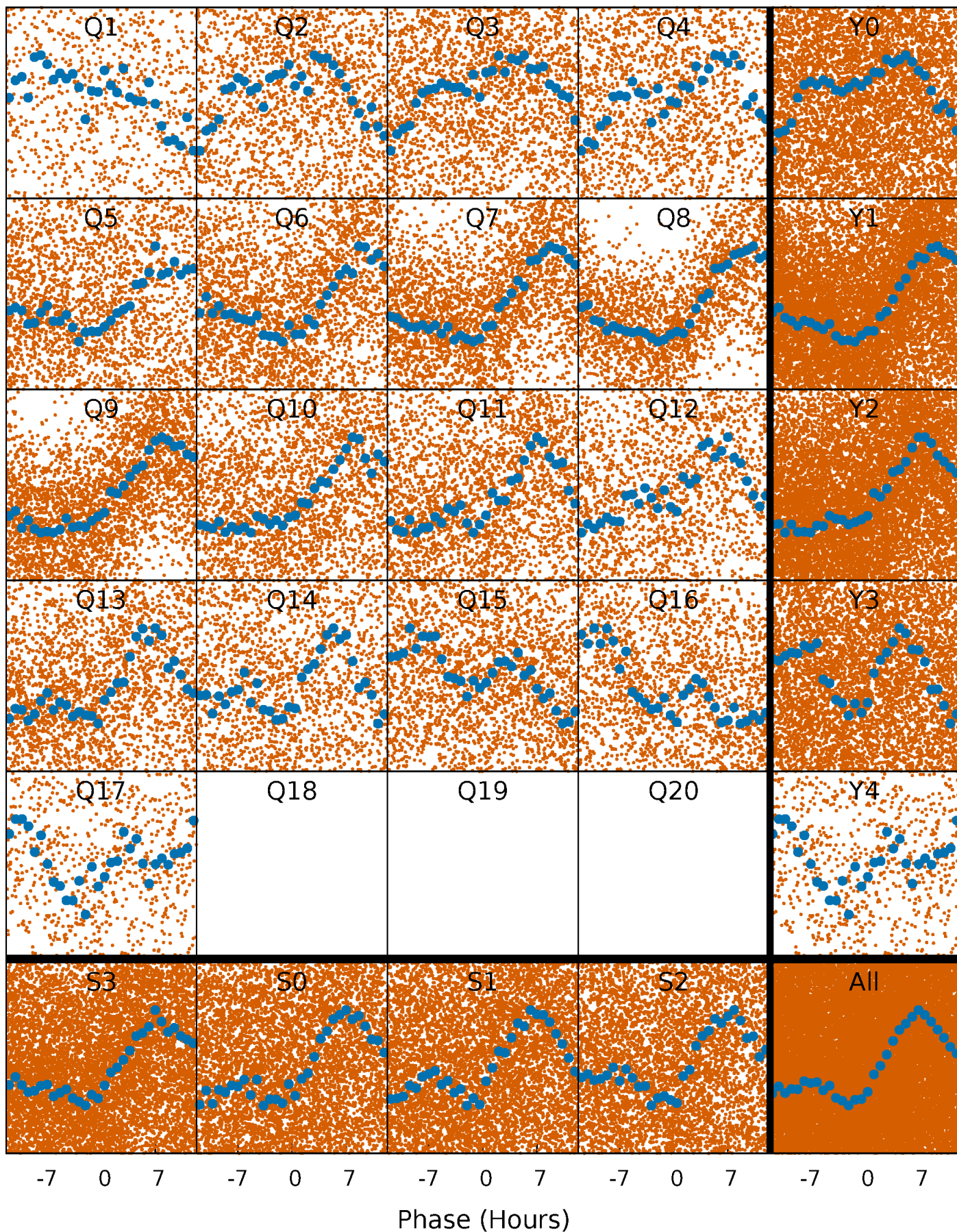


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

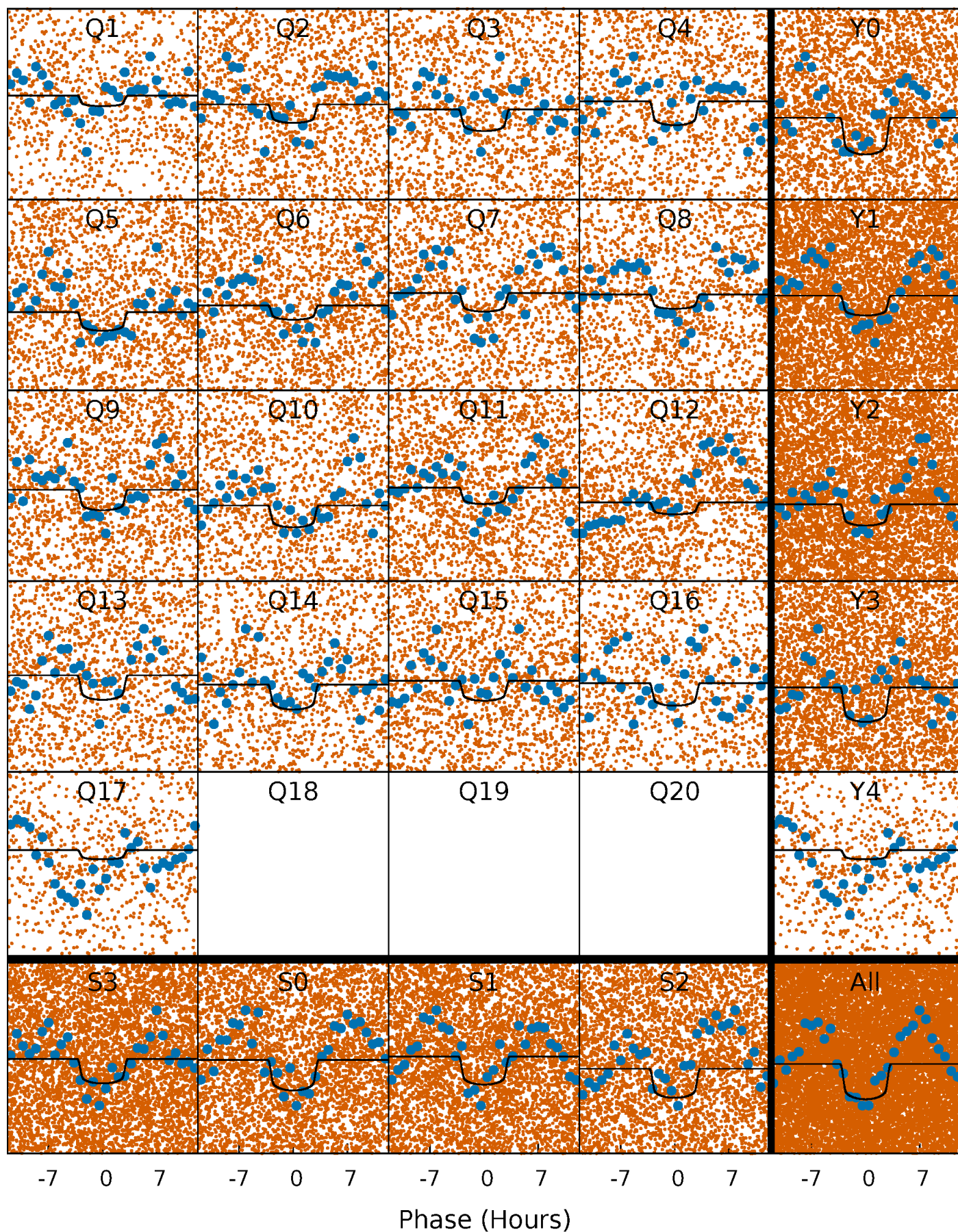
TCE 001026133-01 P= 1.346373 Days  $T_0=132.808059$  (BKJD)





# DV Quarter-Phased Transit Curves

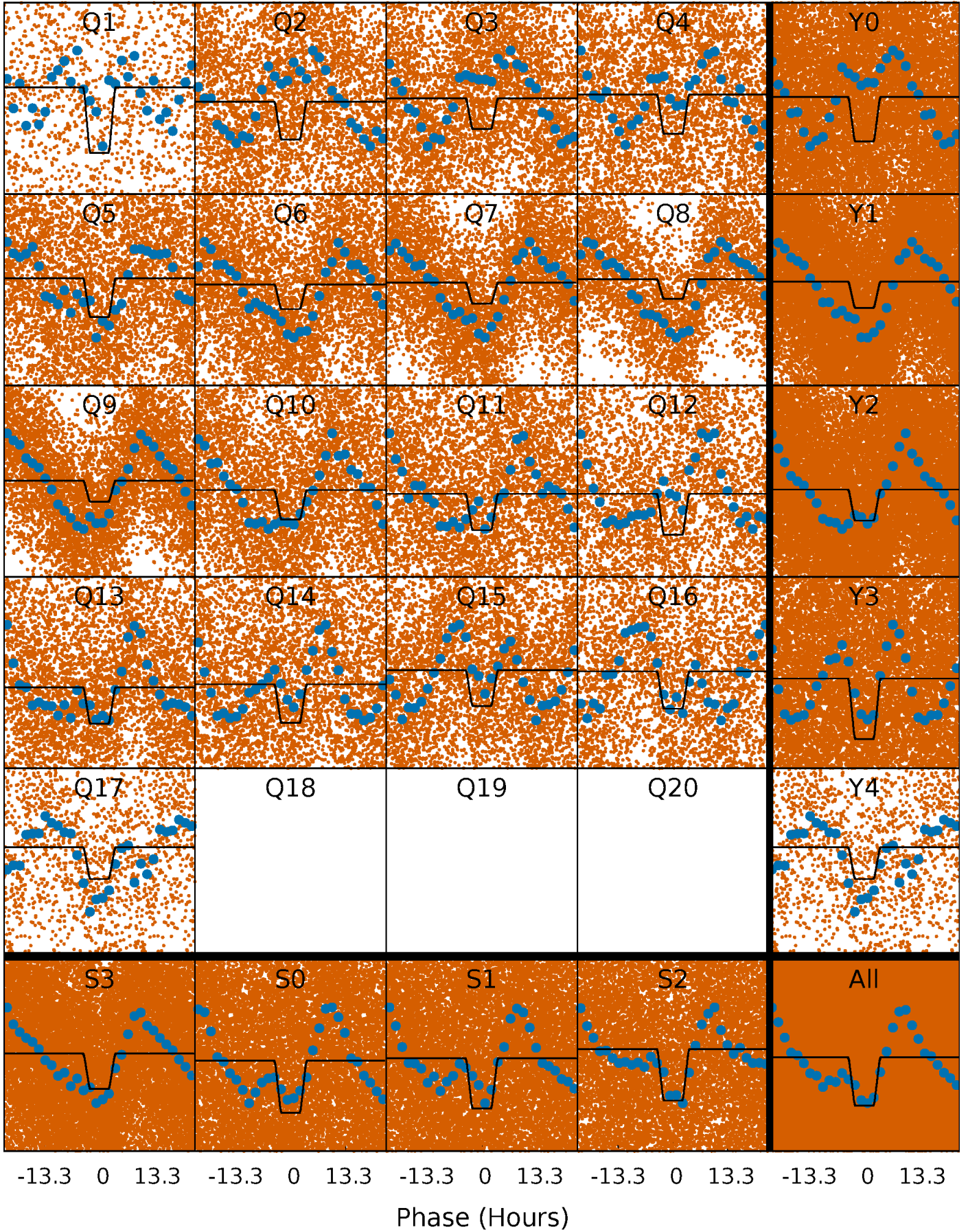
TCE 001026133-01 P= 1.346373 Days  $T_0=132.808059$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

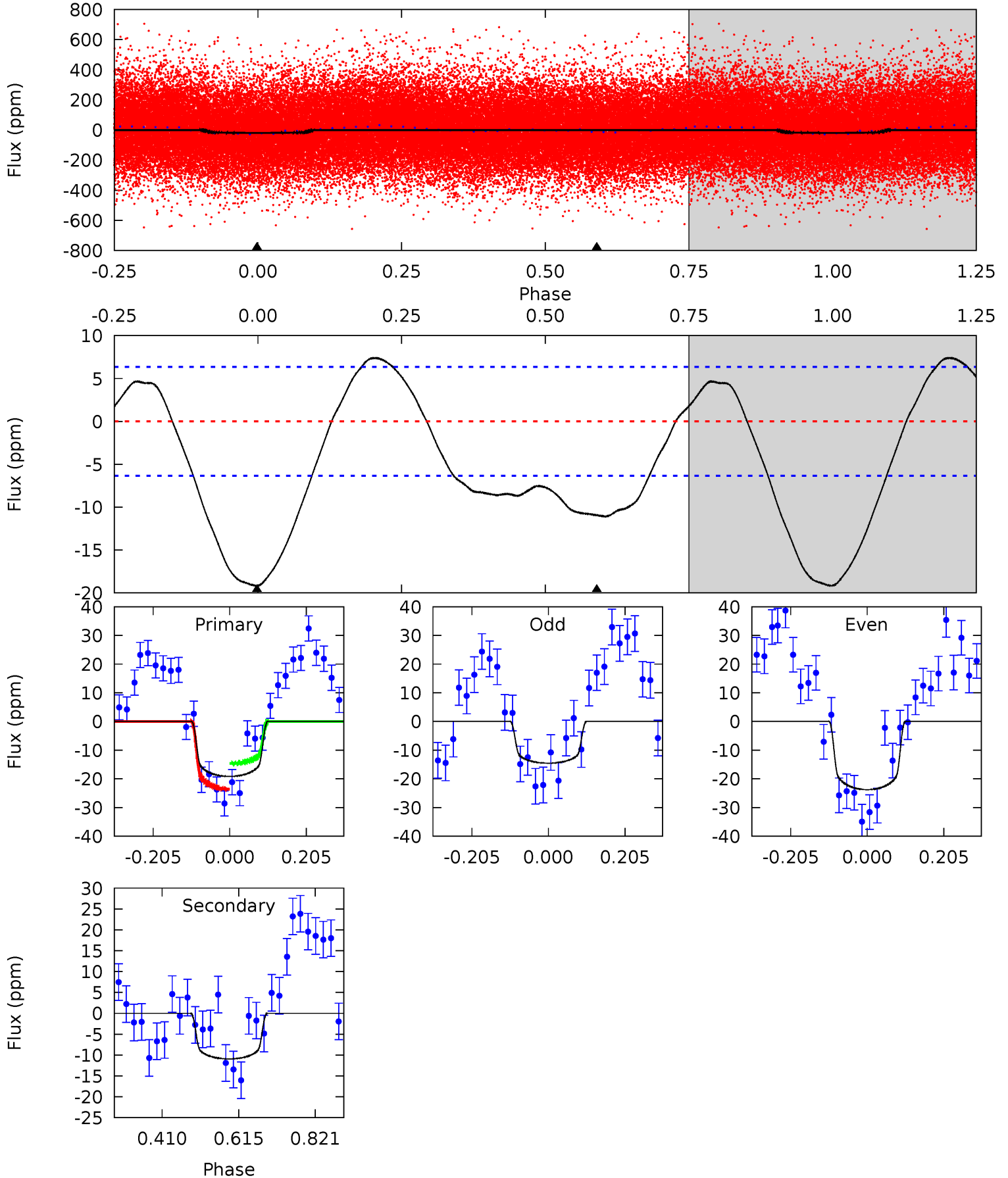
TCE 001026133-01 P= 1.346365 Days  $T_0=132.714947$  (BKJD)



# DV Model-Shift Uniqueness Test

001026133-01, P = 1.346373 Days, E = 131.461686 Days

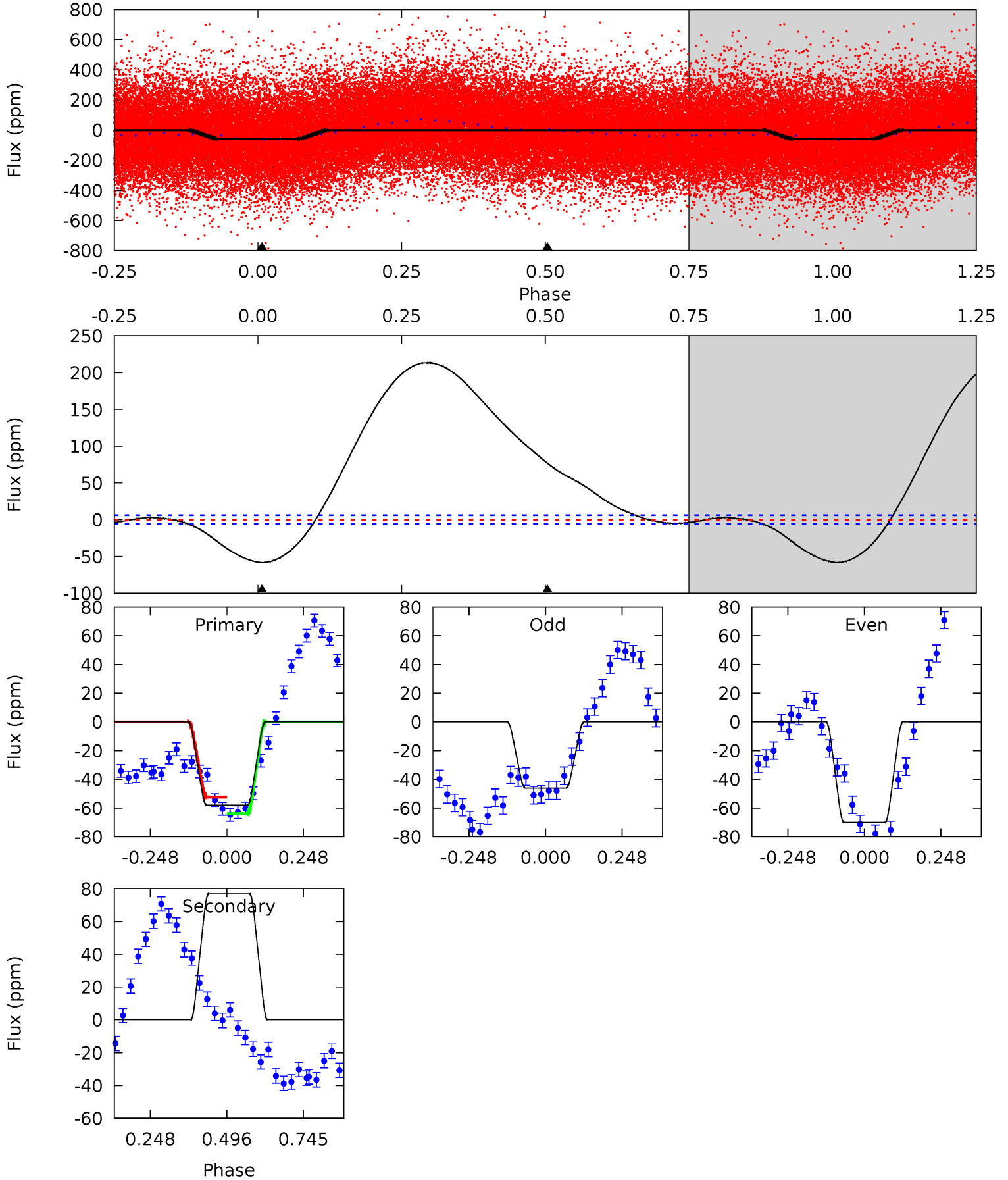
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	7.60	0	0	4.41	1.27	3.88	13.3	13.3	7.60	7.60	3.22	0.80	0.28	3.12



# Alt Model-Shift Uniqueness Test

001026133-01, P = 1.346365 Days, E = 131.368582 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
41.8	-55.4	0	0	4.37	1.15	73.0	41.8	41.8	-55.4	-55.4	8.58	1.01	0.79	4.16





### Stellar Parameters For KIC 001026133

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7001^{+196}_{-295}$	$4.150^{+0.170}_{-0.187}$	$-0.260^{+0.250}_{-0.300}$	$1.615^{+0.478}_{-0.347}$	$1.350^{+0.192}_{-0.235}$	$0.451^{+0.405}_{-0.210}$
	+3%/-4%	+4%/-5%	+96%/-115%	+30%/-21%	+14%/-17%	+90%/-47%
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 001026133-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-11 \pm 1$	$0.92^{+0.23}_{-0.24}$	$3381^{+254}_{-248}$	$5499^{+738}_{-540}$	$4.992^{+3.957}_{-1.845}$
Alt.	$77 \pm 1$	$1.44^{+0.28}_{-0.29}$	$3378^{+270}_{-246}$	$-7363^{+579}_{-732}$	$-14.137^{+4.130}_{-7.458}$

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

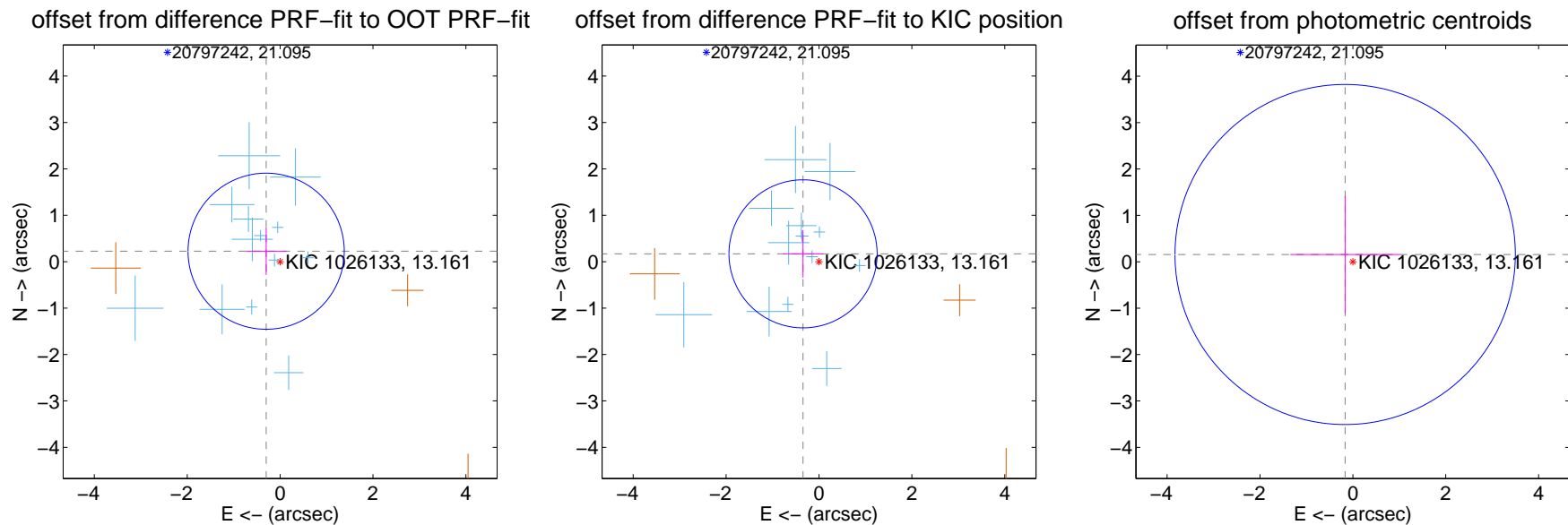
## DV Centroid Data

Supplemental centroid analysis for 001026133-01. Kepler magnitude: 13.16. Transit SNR 9.19

There are 13 quarters with good PRF difference image offsets

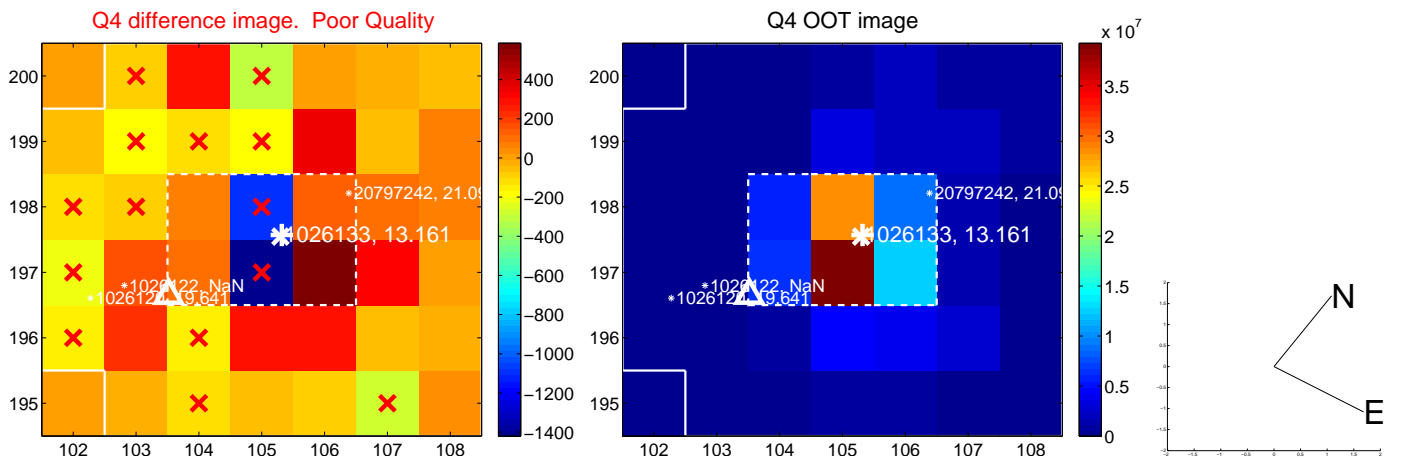
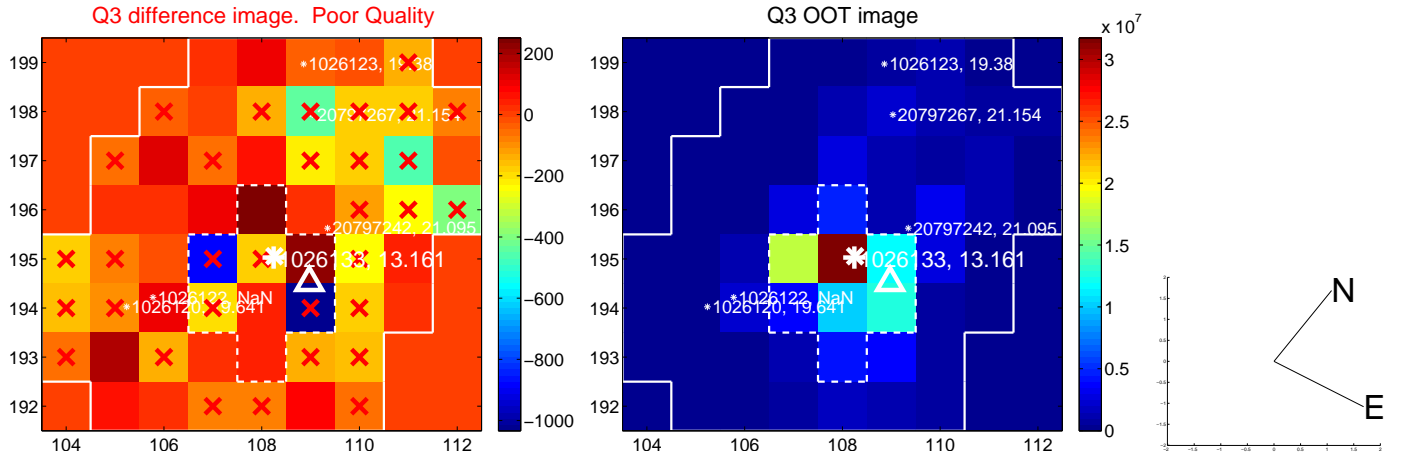
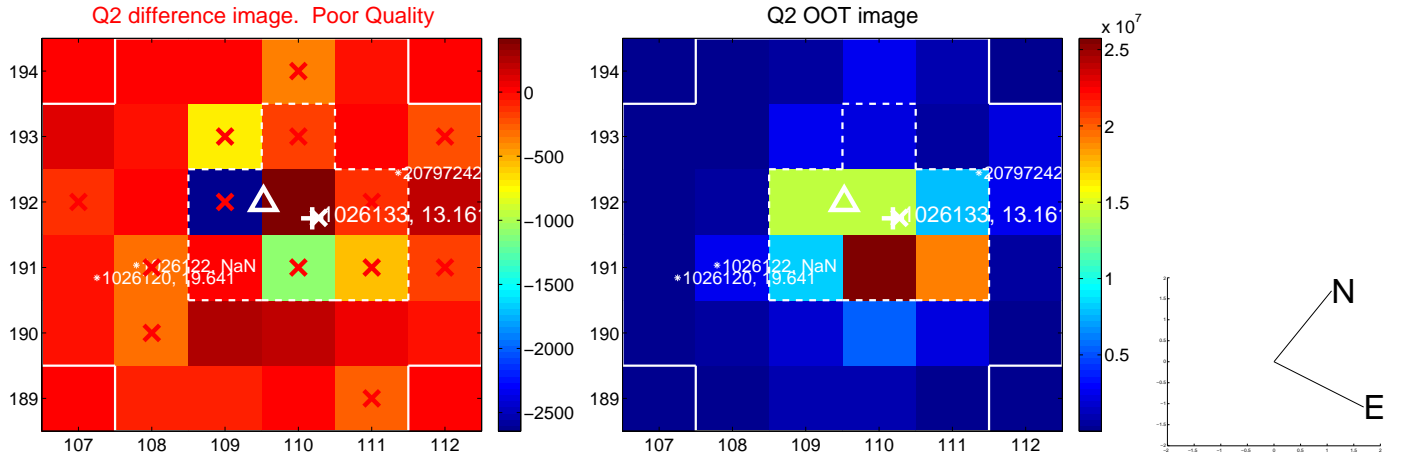
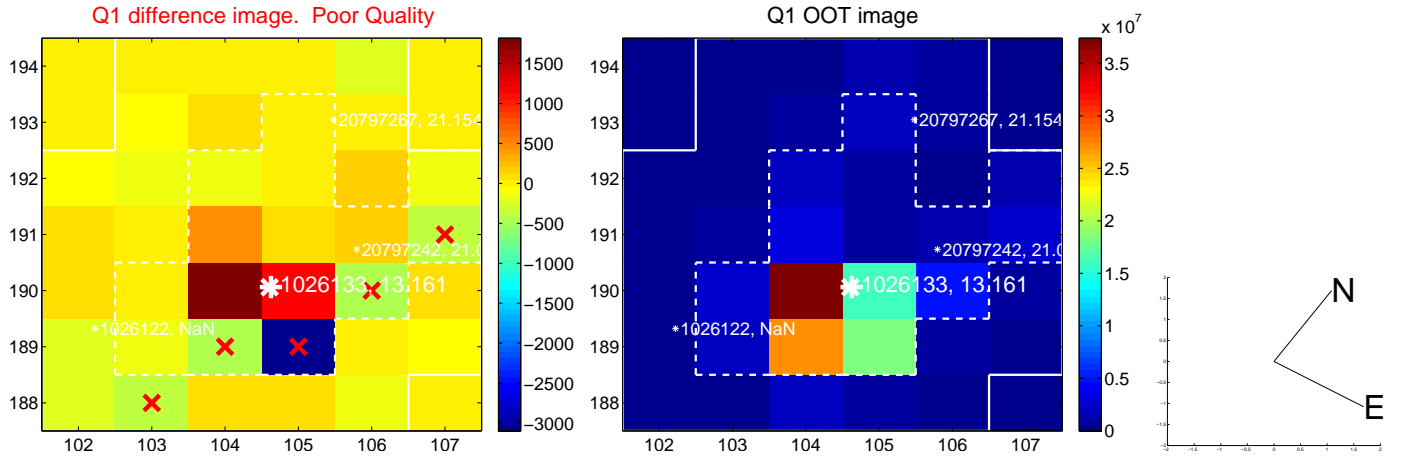
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.376 \pm 0.561$	0.67	$0.301 \pm 0.434$	$0.226 \pm 0.512$
PRF-fit source offset from KIC position	$0.383 \pm 0.532$	0.72	$0.343 \pm 0.430$	$0.169 \pm 0.512$
photometric centroid source offset	$0.23 \pm 1.22$	0.19	$0.17 \pm 1.18$	$0.16 \pm 1.27$

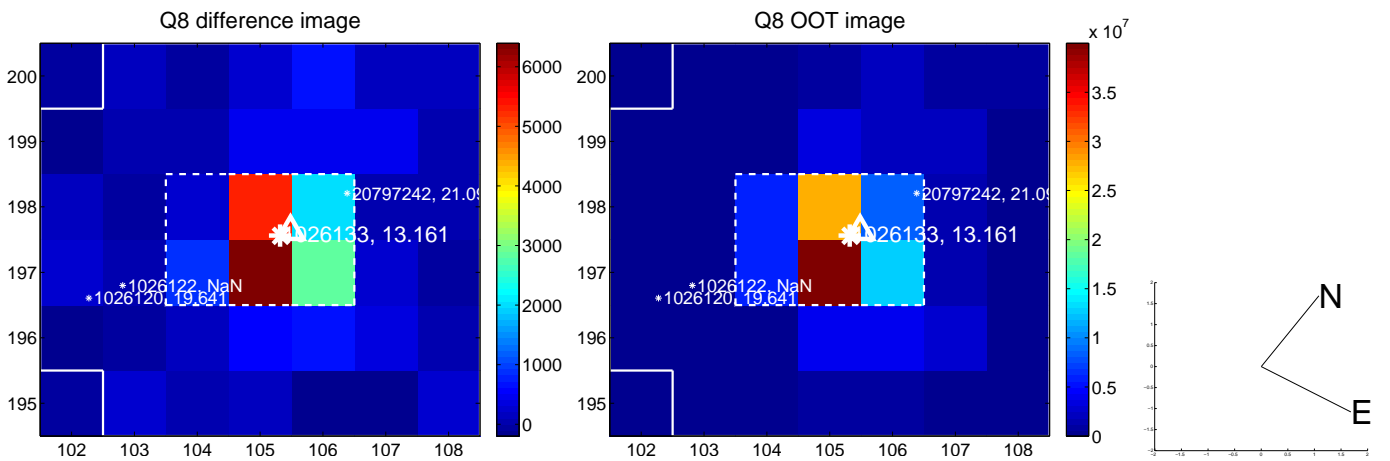
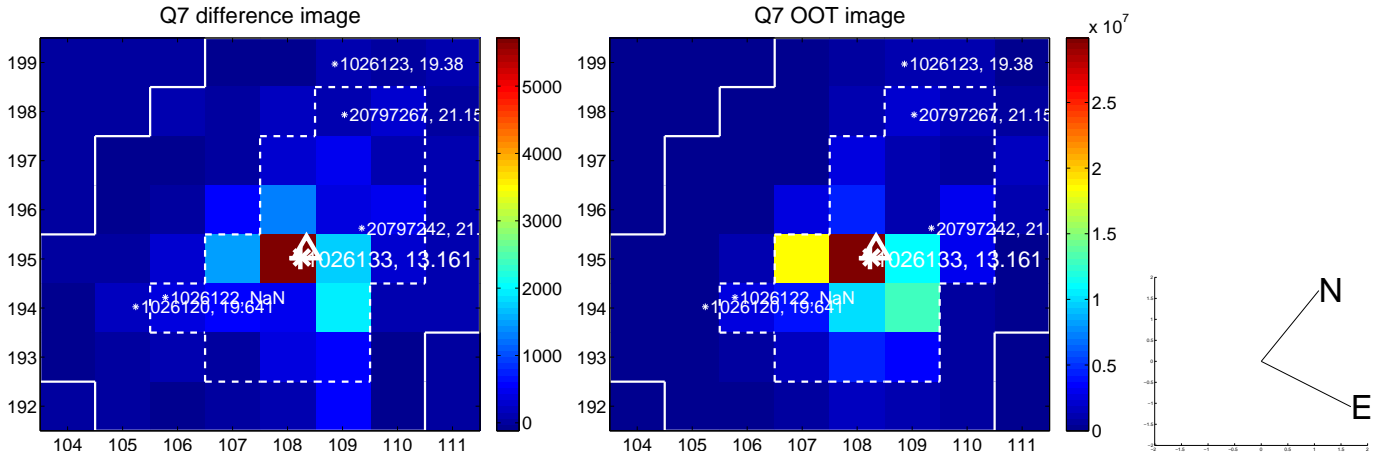
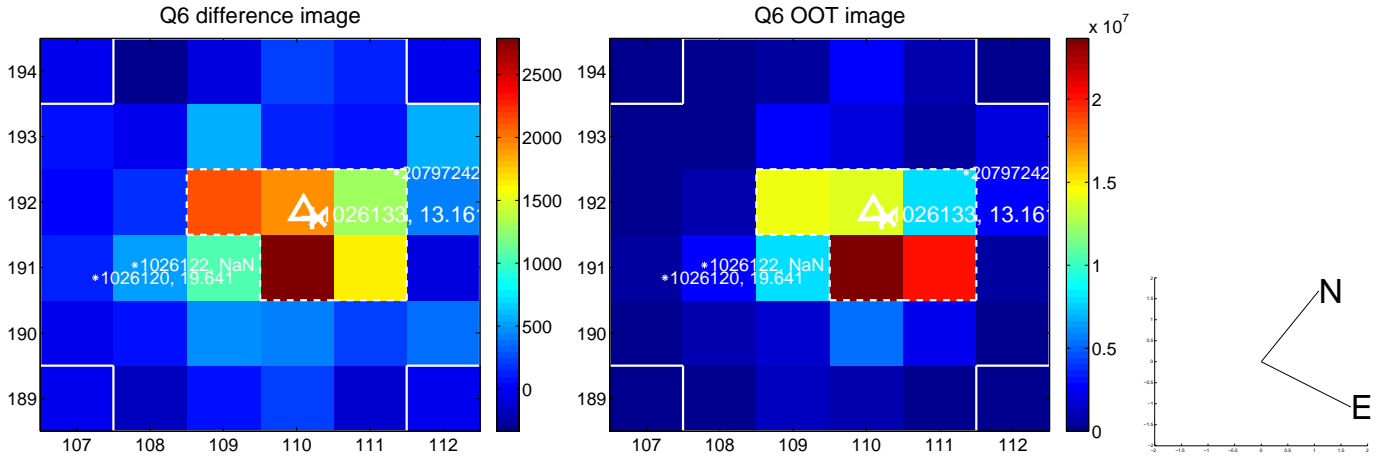
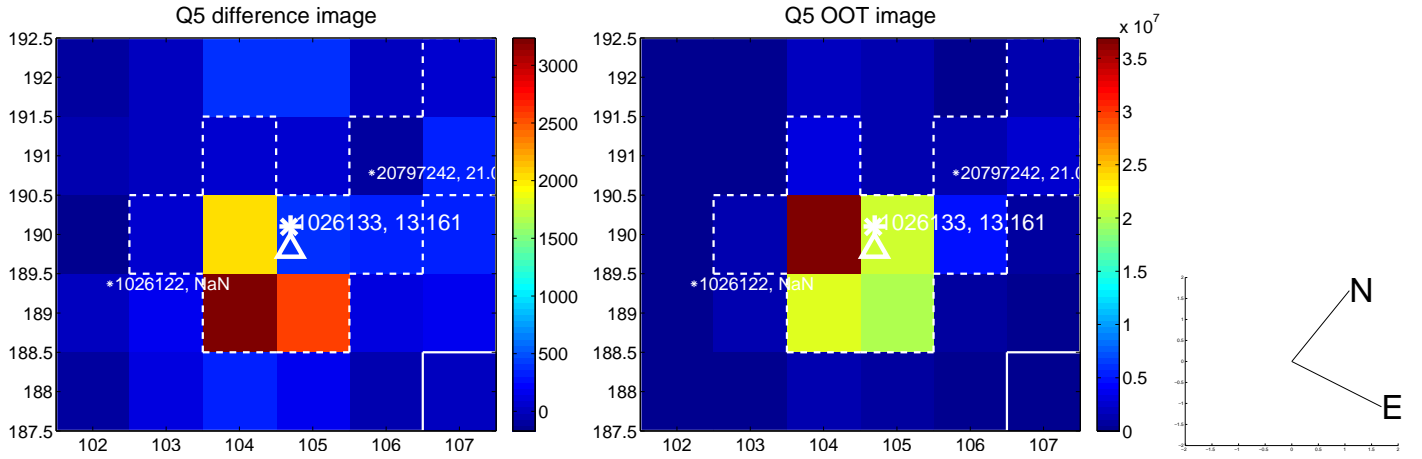


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

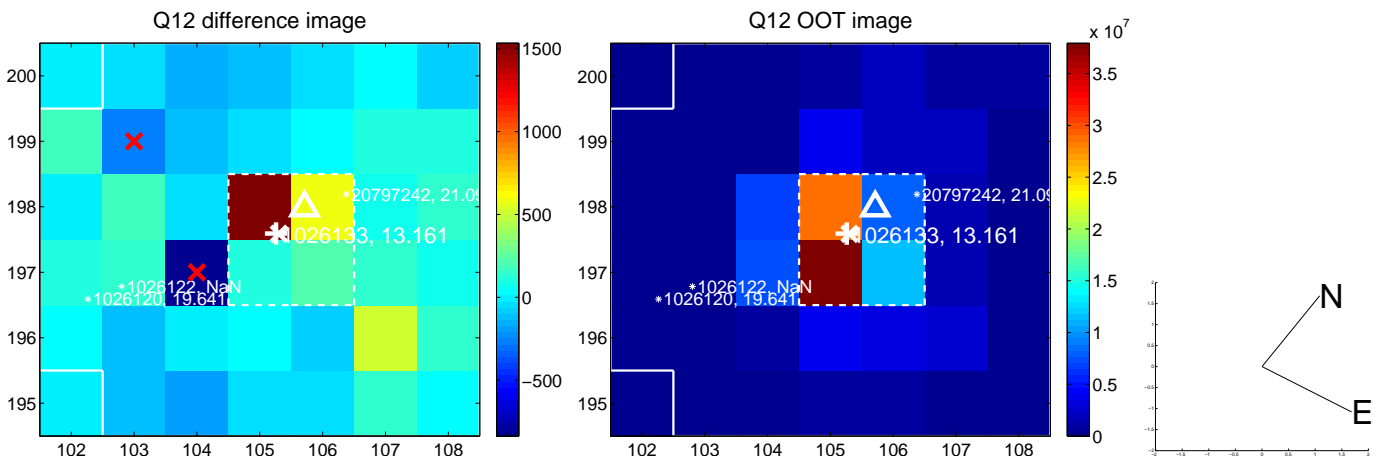
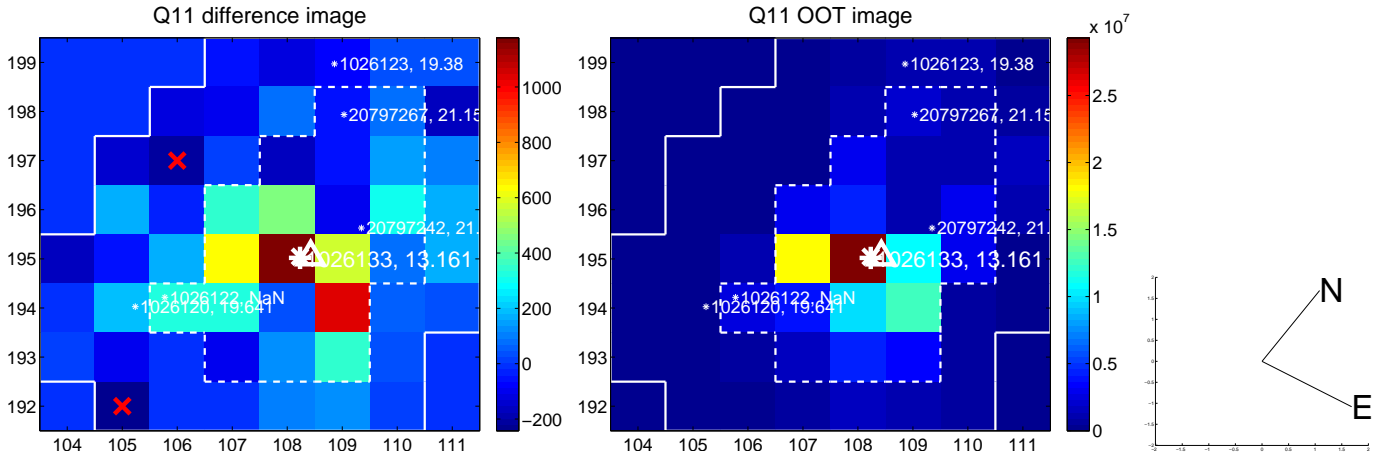
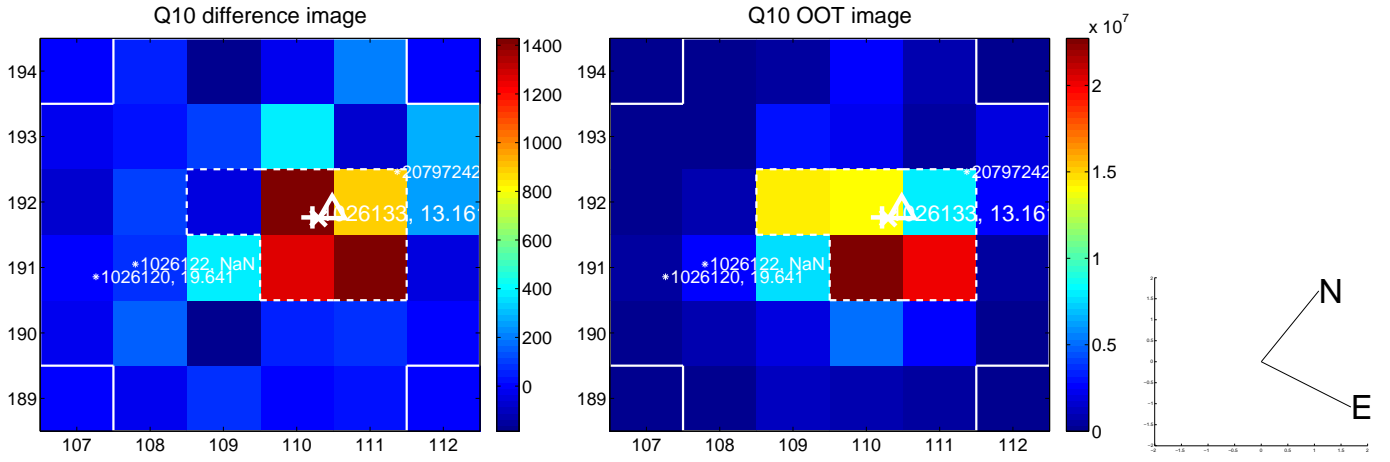
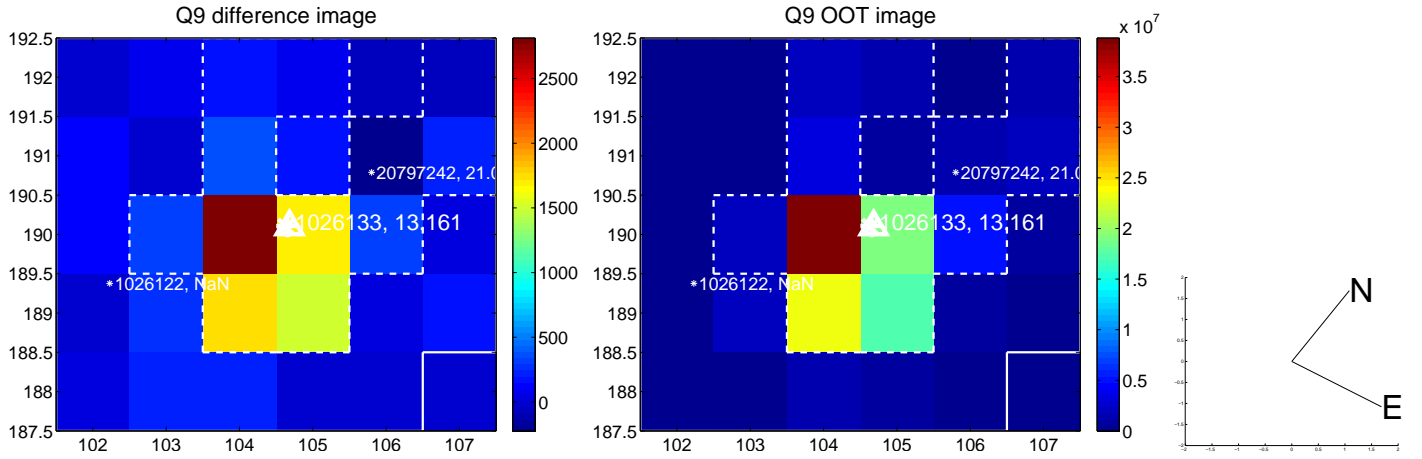


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

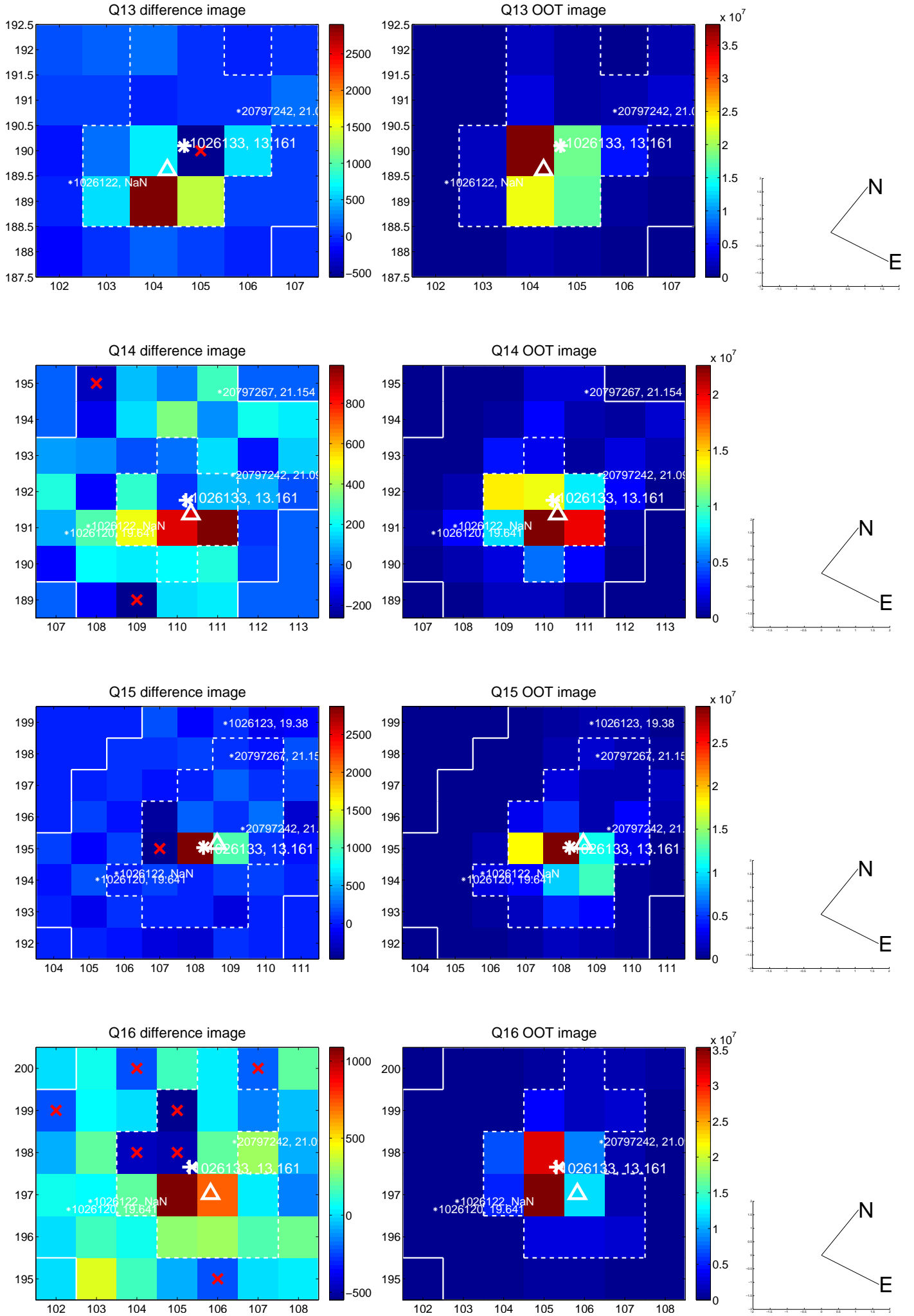




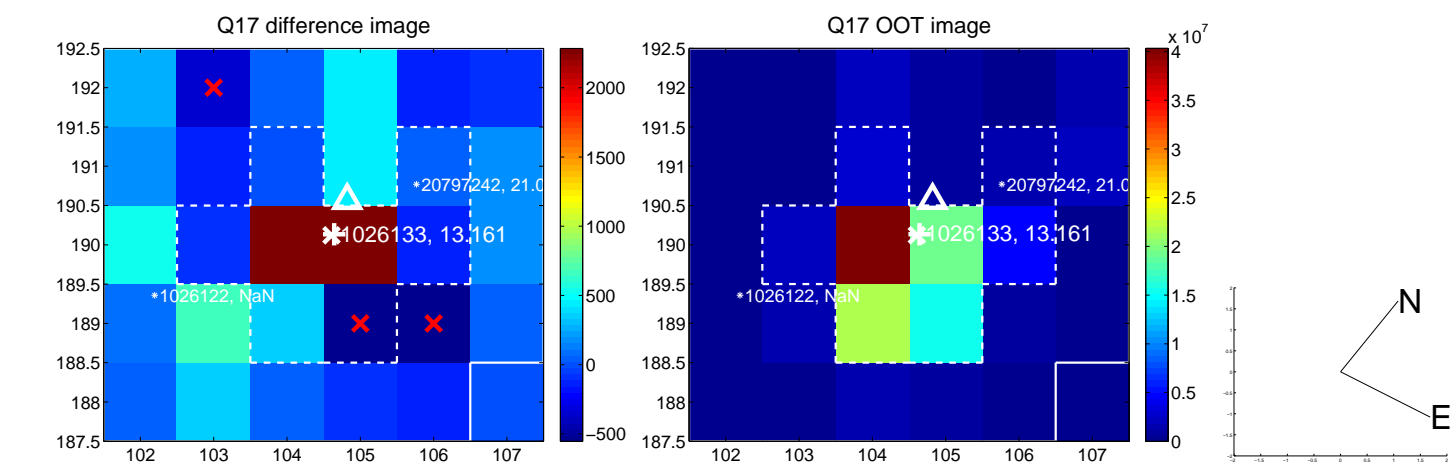
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



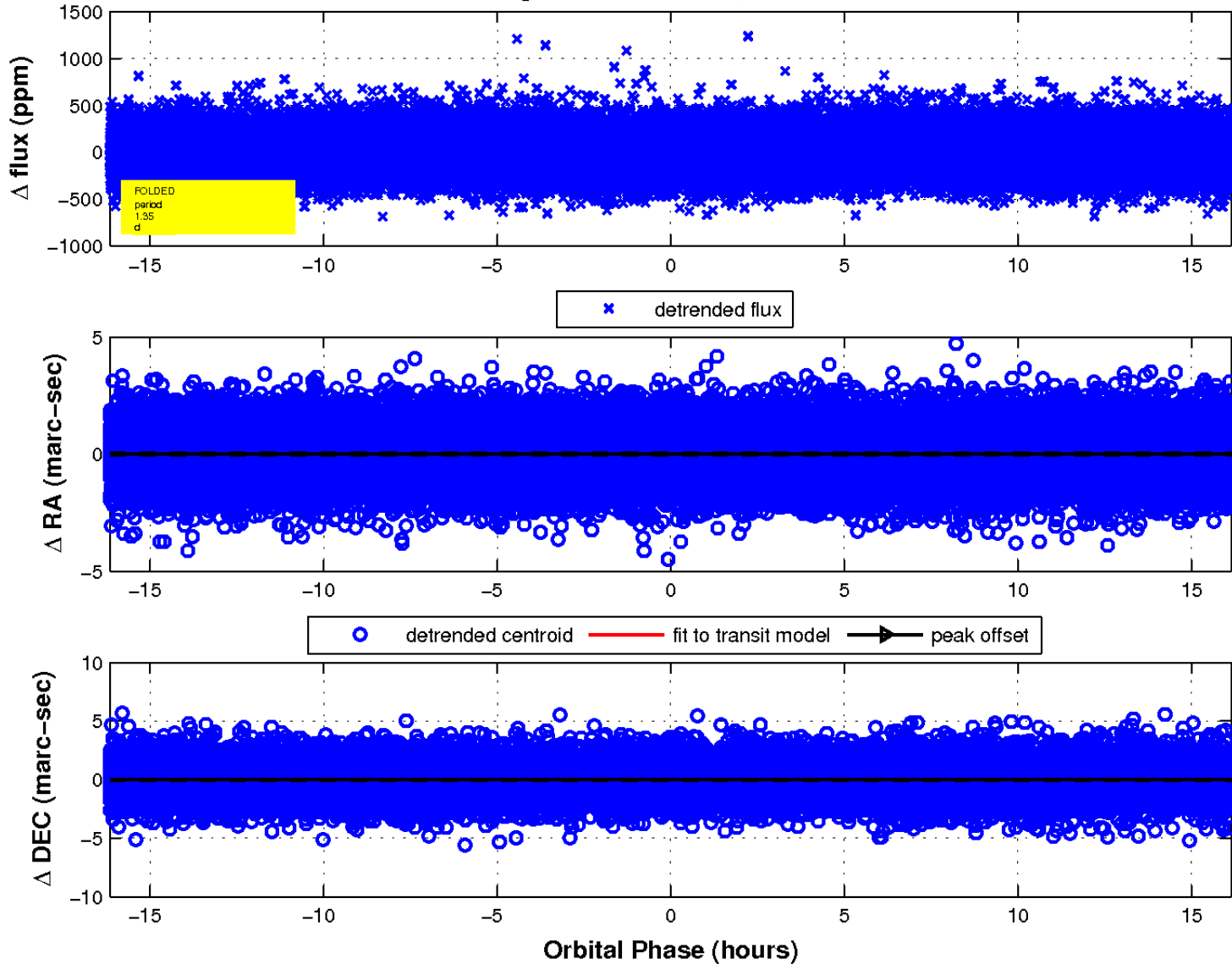
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

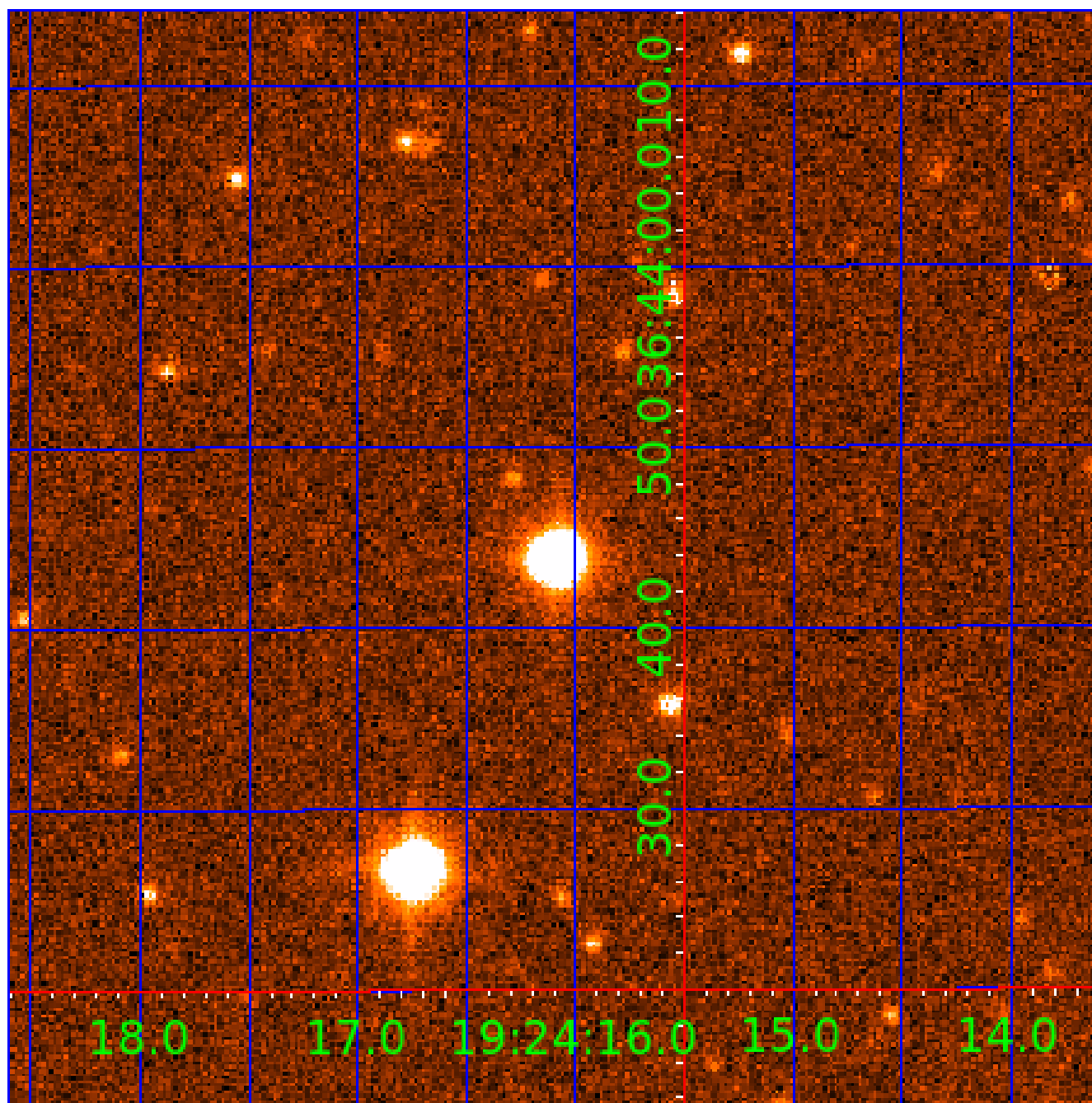


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination





# KIC 001026133

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
001026133-01	OBS	No	1.346373	132.808059	21.1	6.164	9.9	9.2	1.61	7001	0.91	8092.75
001026133-02	OBS	No	186.181229	244.431831	278.0	11.016	11.0	8.2	1.61	7001	2.94	11.32

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001026133-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
001026133-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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

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

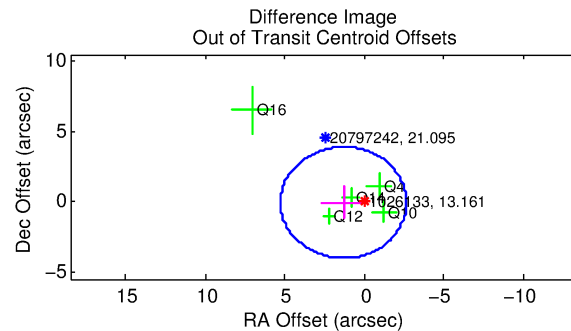
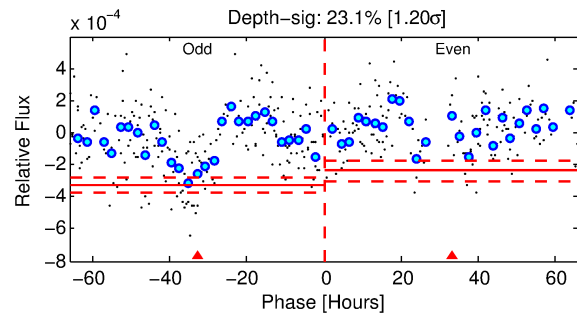
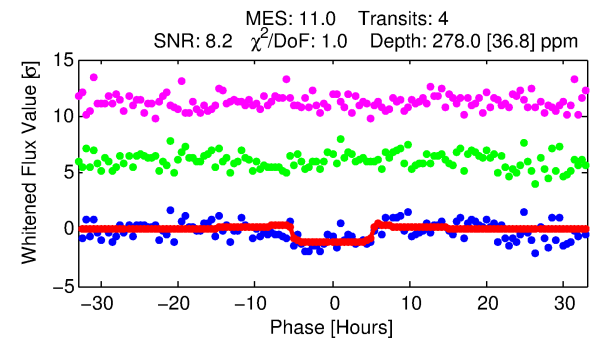
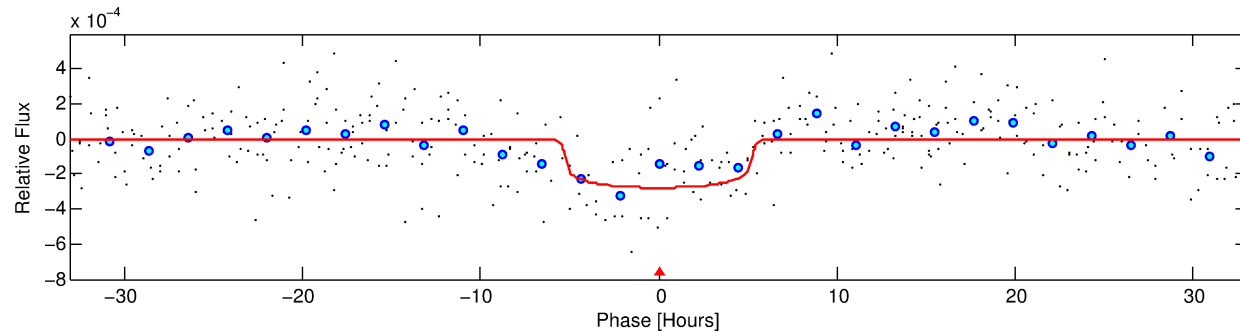
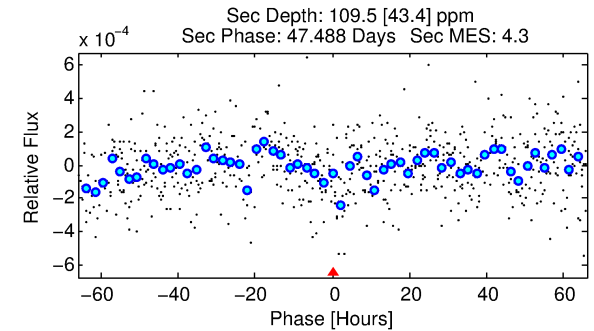
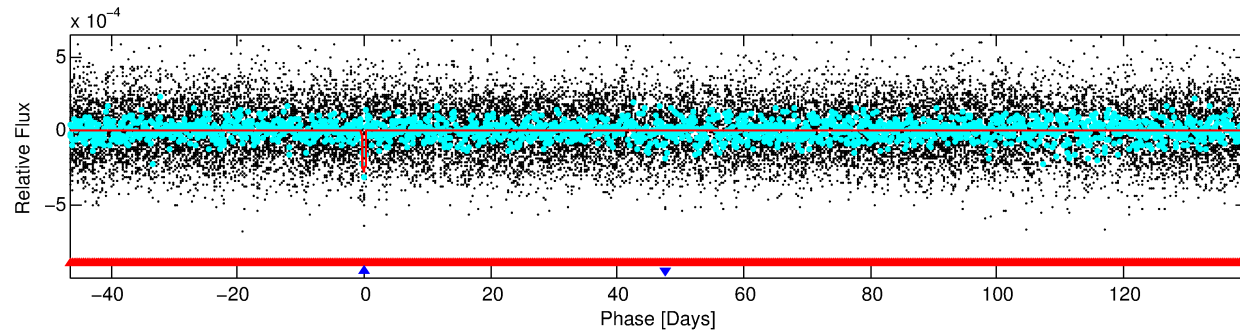
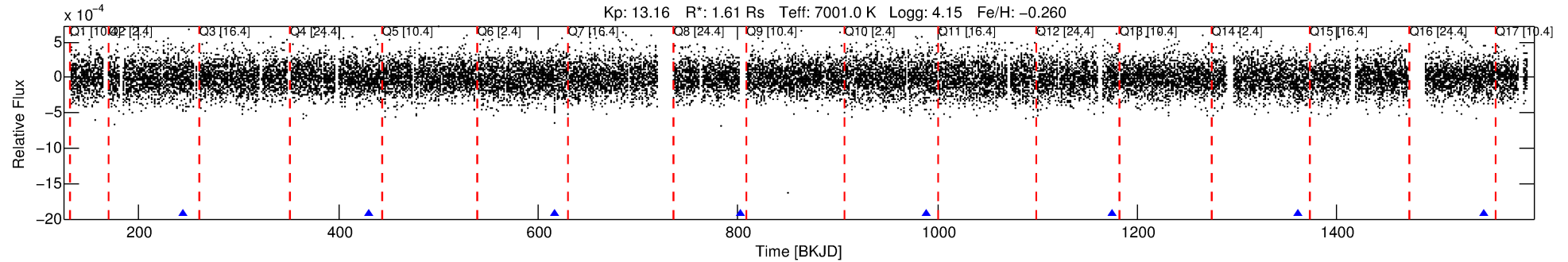
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 001026133-02

No Significant Match Found

# DV One-Page Summary

KIC: 1026133 Candidate: 2 of 2 Period: 186.181 d



## DV Fit Results:

Period = 186.18123 [0.00558] d  
Epoch = 244.4318 [0.0193] BKJD  
Rp/R\* = 0.0167 [0.0040]  
a/R\* = 85.67 [115.31]  
b = 0.77 [0.72]  
Seff = 11.32 [4.38]  
Teq = 468 [45] K  
Rp = 2.94 [1.12] Re  
a = 0.7043 [0.1719] AU  
Ag = 3458.07 [2478.11] [1.40σ]  
Teffp = 5545 [899] K [5.64σ]

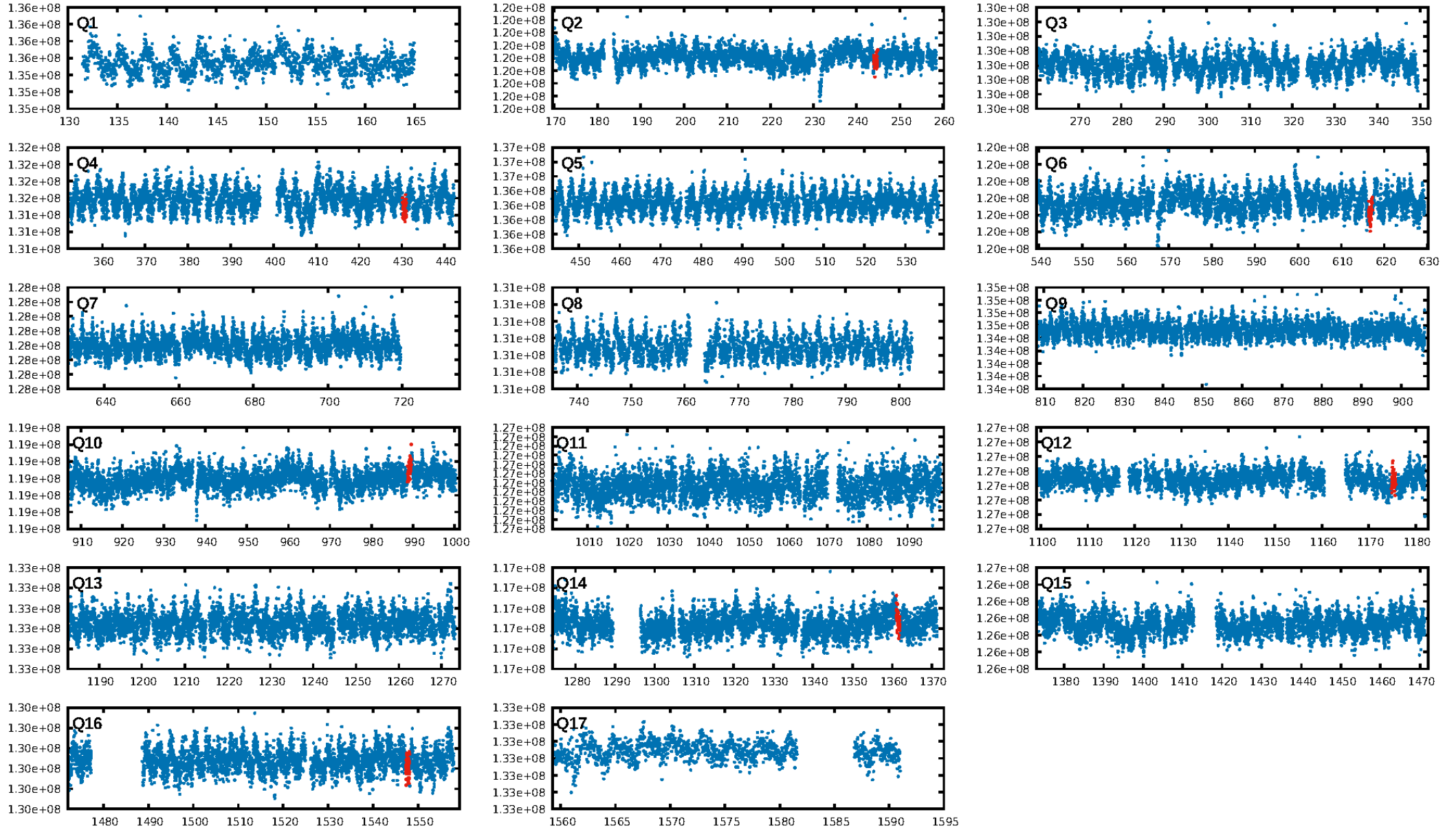
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [351.43σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 12.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.52e-19  
RollingBand-fgt: 1.00 [4/4]  
**GhostDiagnostic-chr: -1.497**  
Centroid-sig: 2.9%  
Centroid-so: 2.253 arcsec [2.33σ]  
OotOffset-rm: 1.323 arcsec [1.00σ]  
OotOffset-st: 2/0/3/0 [5]  
KicOffset-rm: 1.267 arcsec [0.95σ]  
KicOffset-st: 2/0/3/0 [5]  
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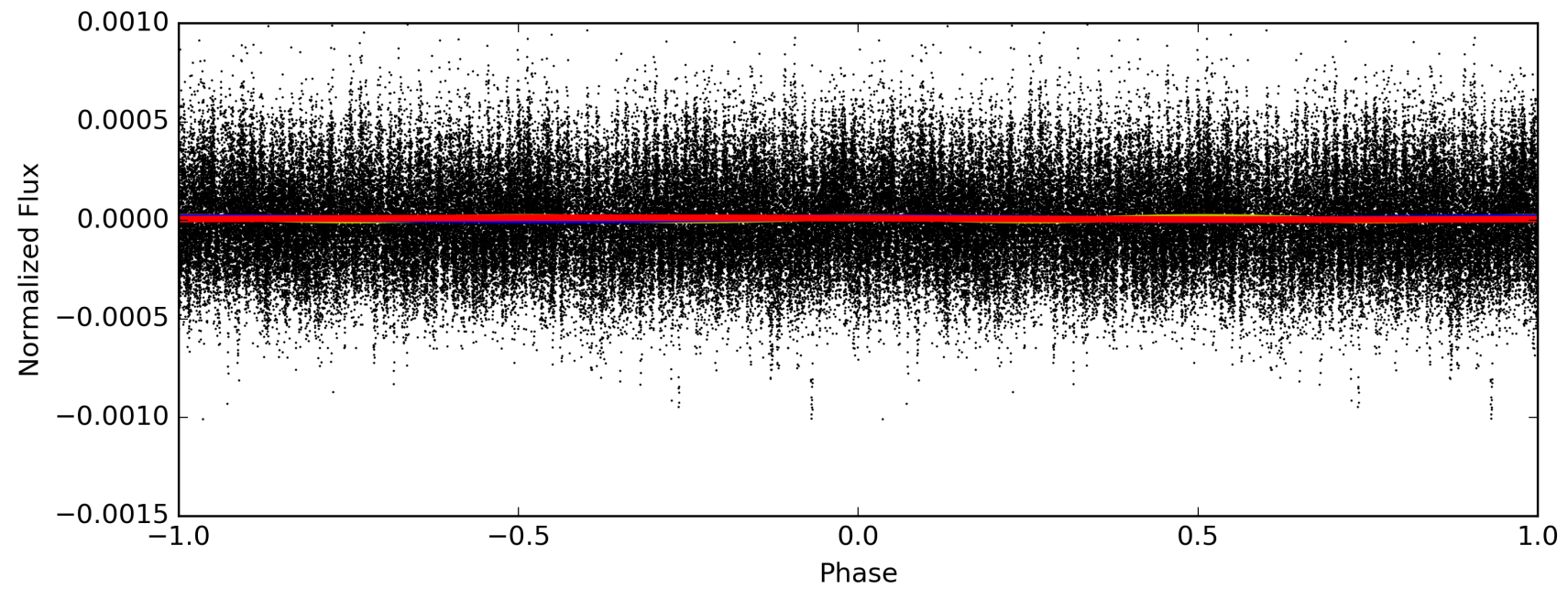
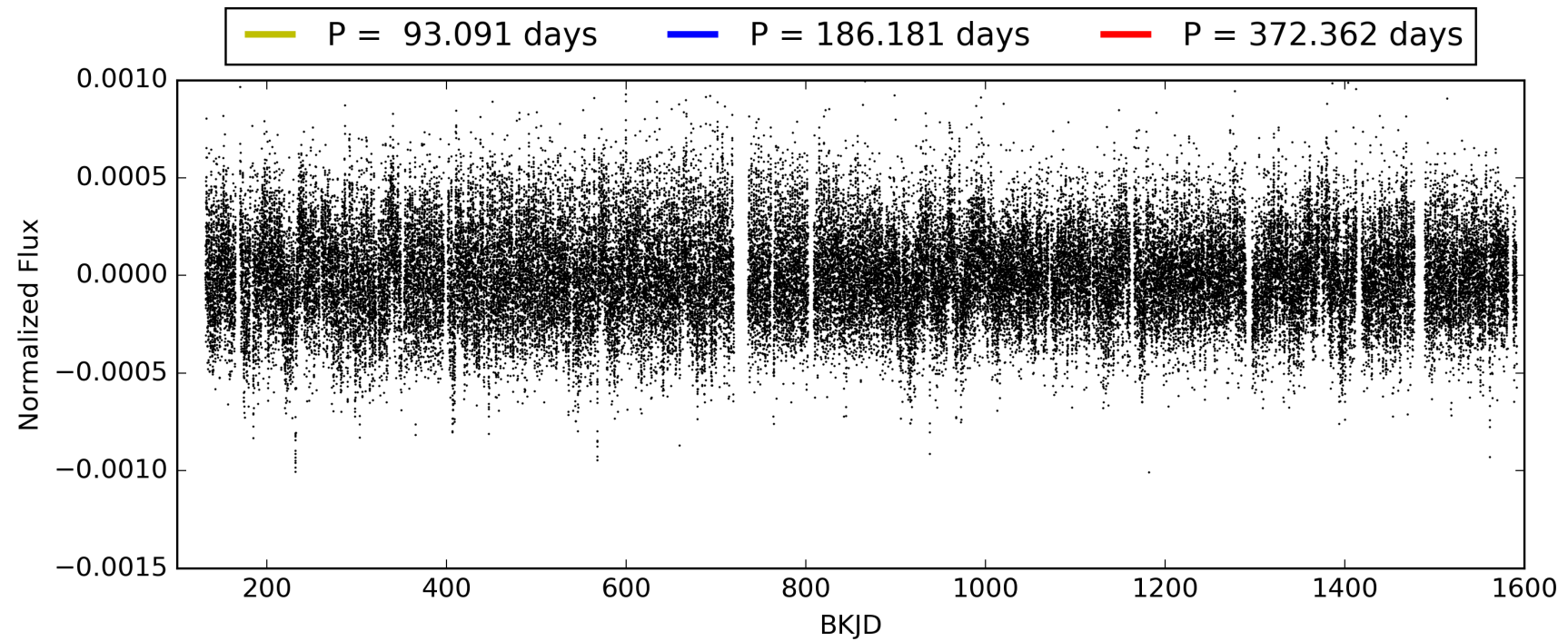
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:17:34 Z

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

# TCE 001026133-02, PDC Light Curves

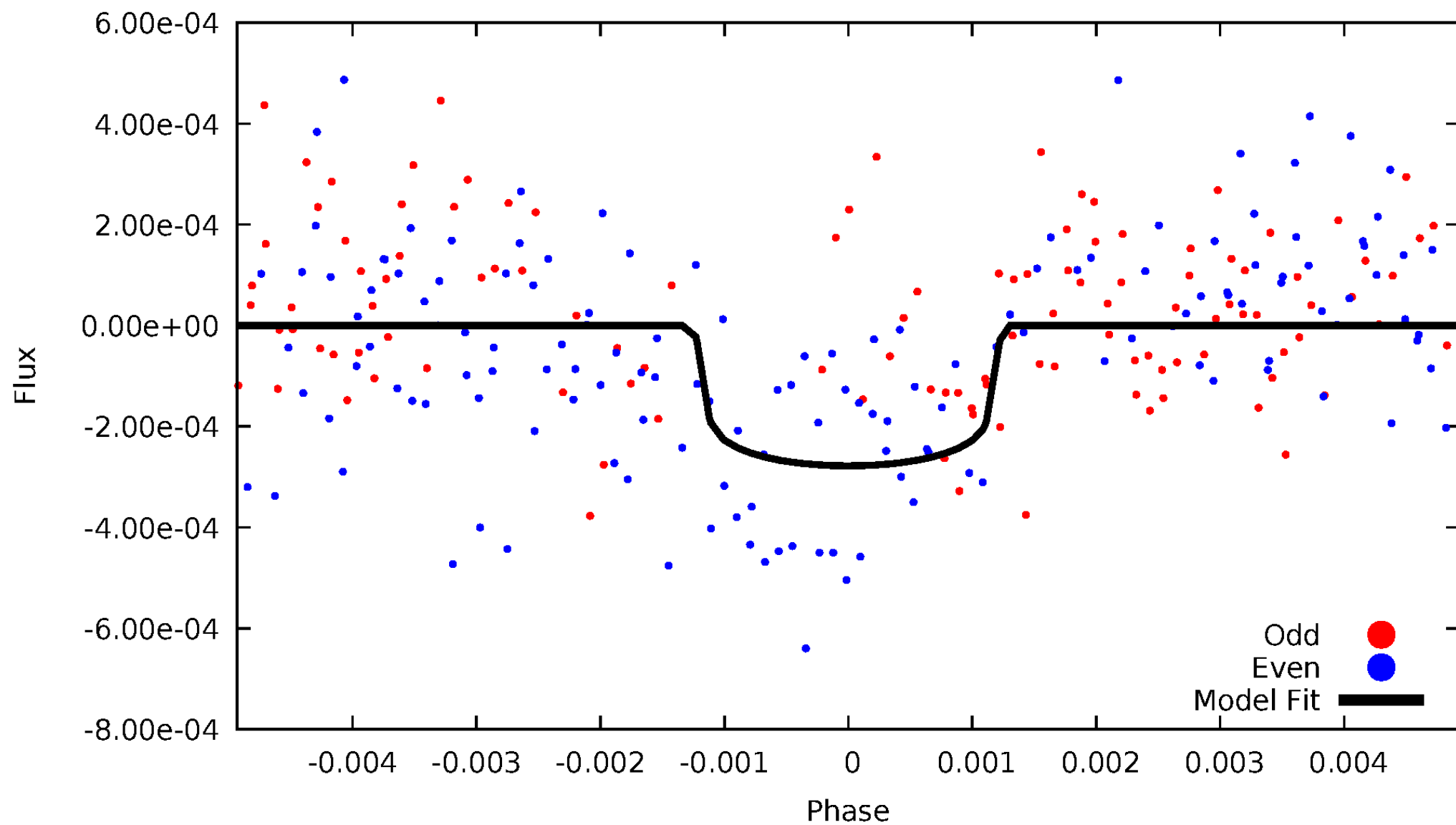


TCE 001026133-02



# DV Odd/Even

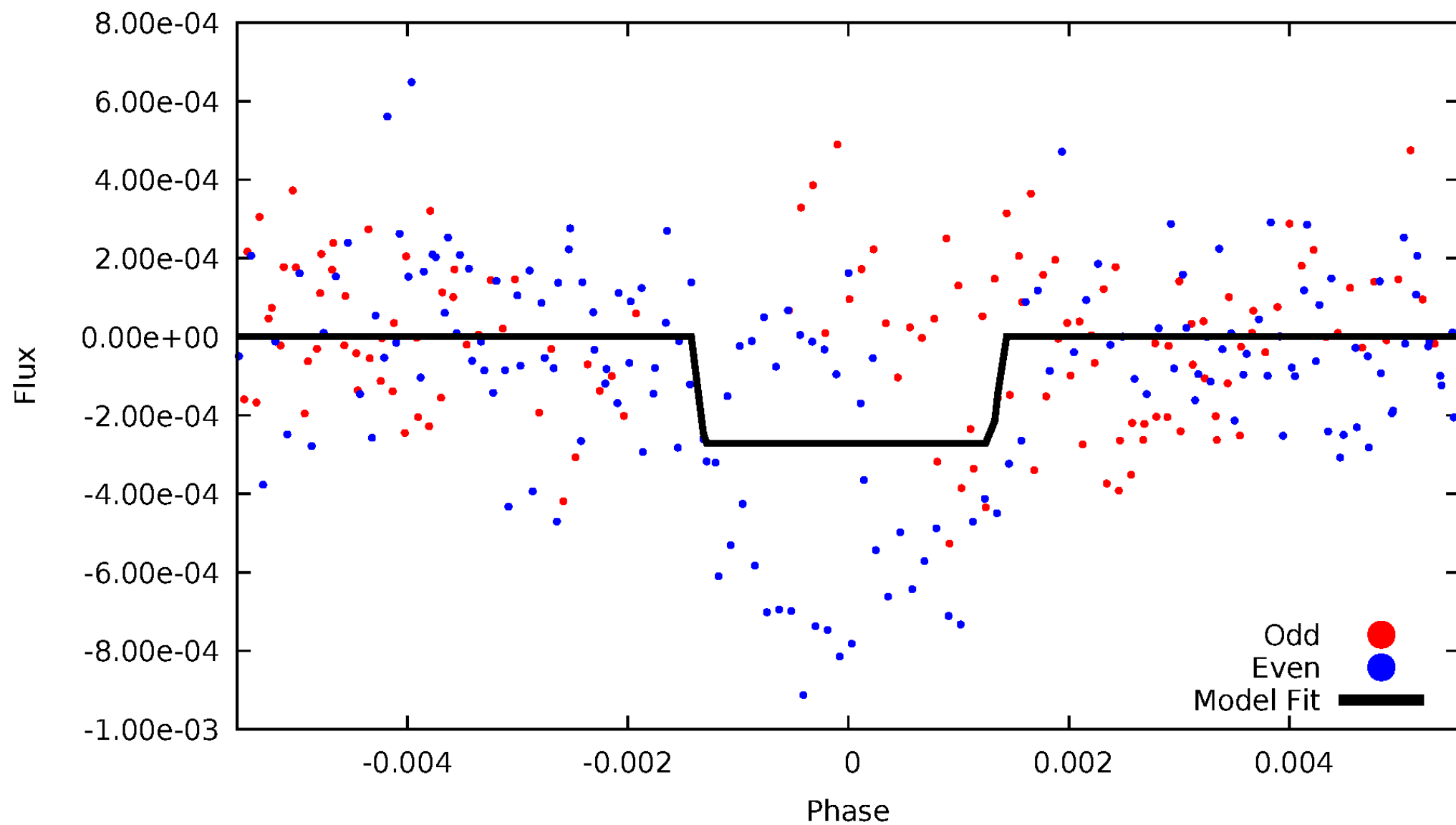
TCE 001026133-02





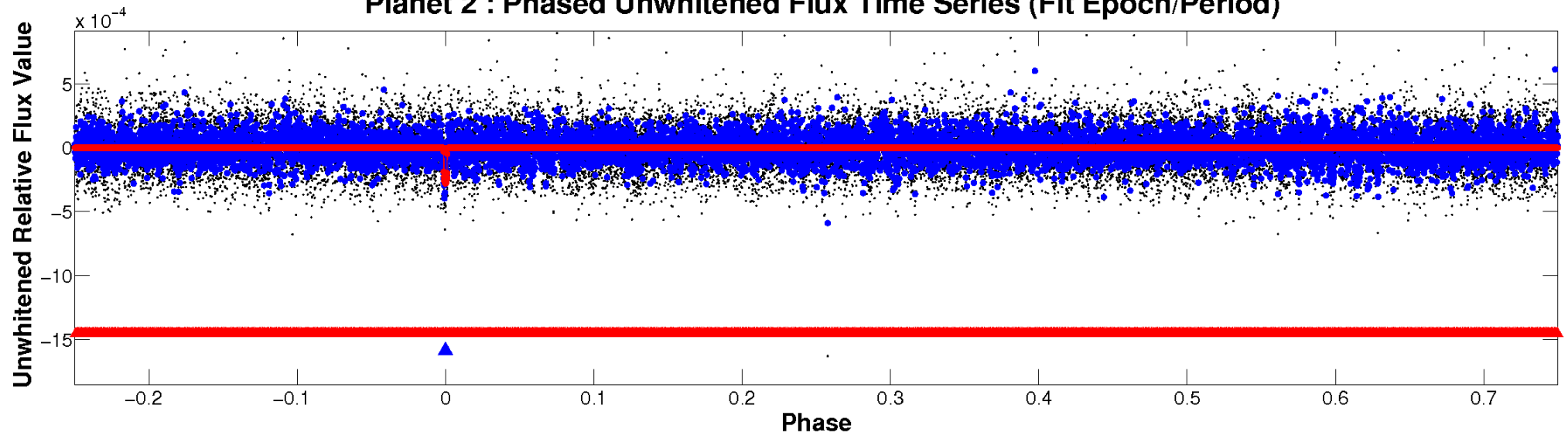
# ALT Odd/Even

TCE 001026133-02

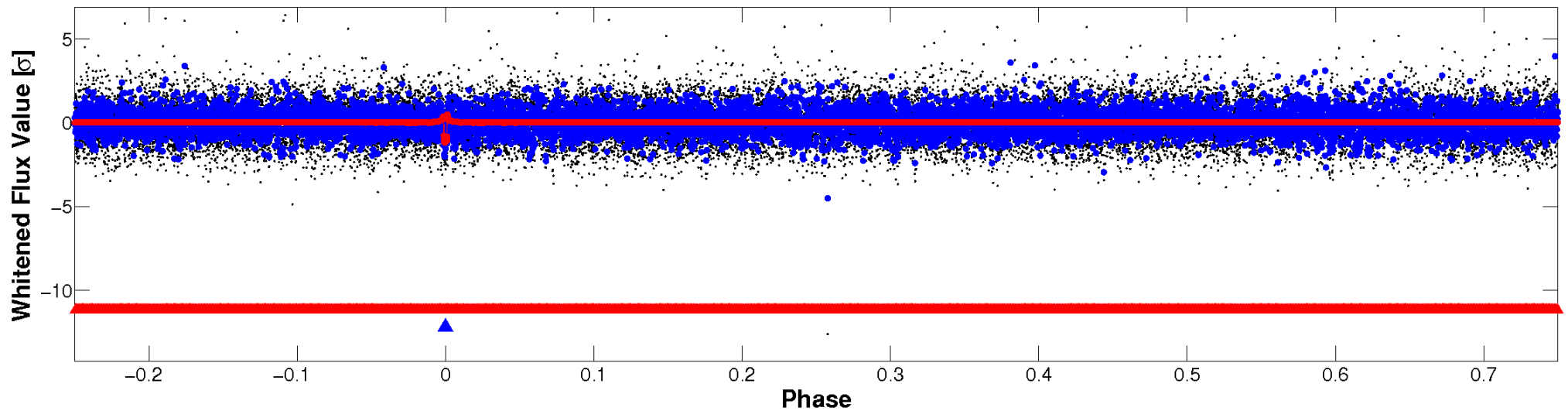


# Non-Whitened Vs. Whitened Light Curve

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



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



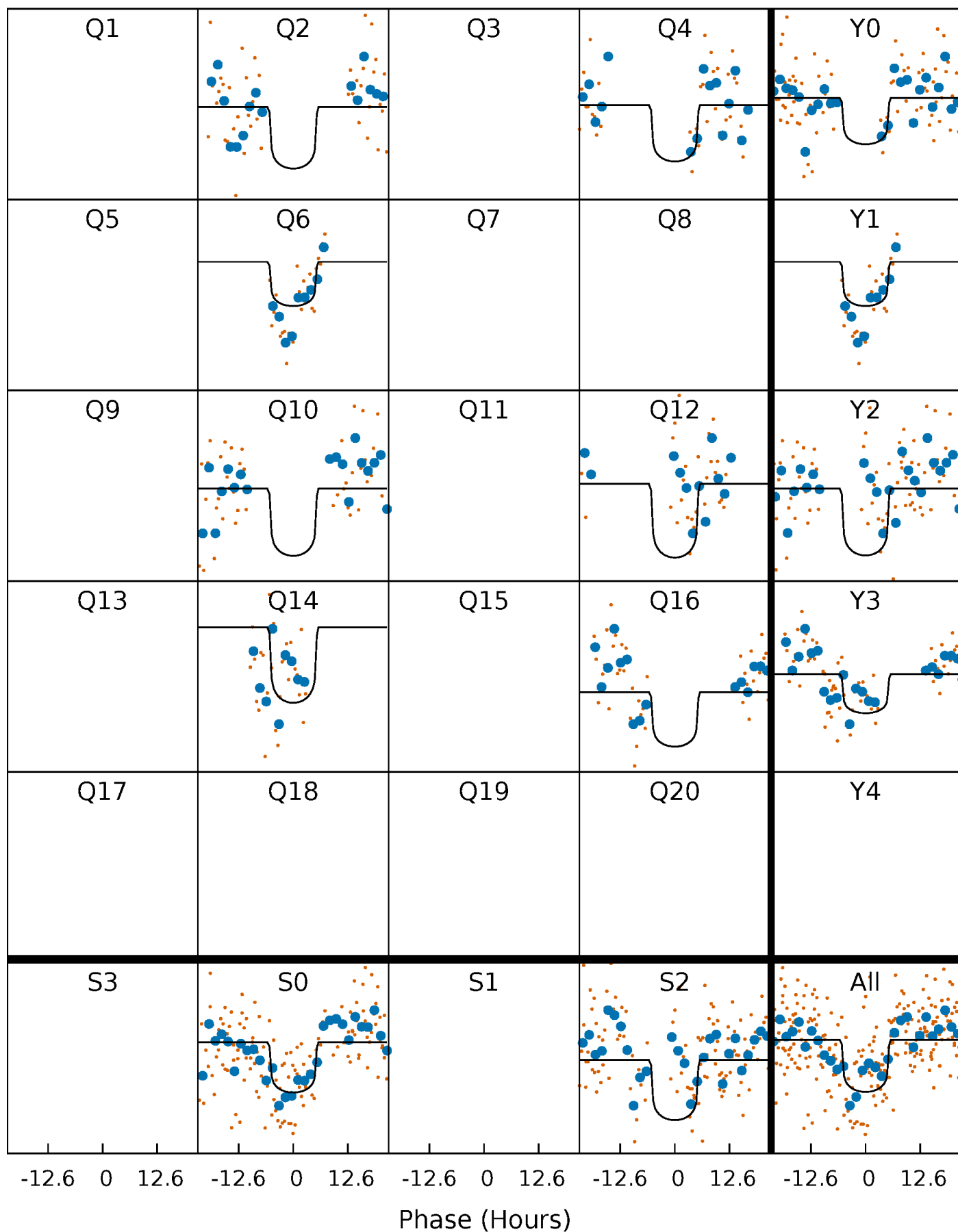
# PDC Quarter-Phased Transit Curves

TCE 001026133-02 P=186.181229 Days  $T_0=244.431831$  (BKJD)



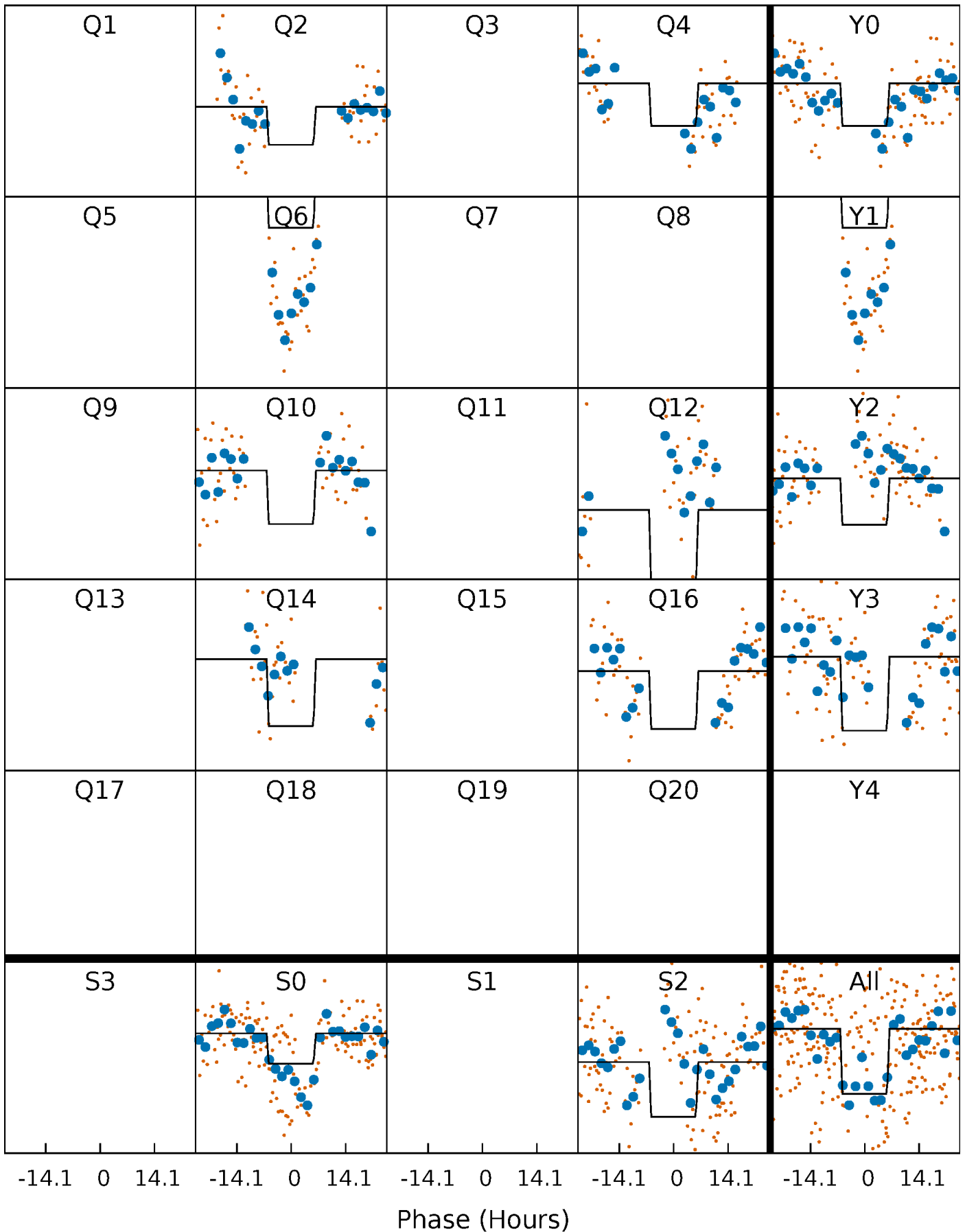
# DV Quarter-Phased Transit Curves

TCE 001026133-02 P=186.181229 Days  $T_0=244.431831$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 001026133-02 P=186.197410 Days  $T_0=244.411774$  (BKJD)

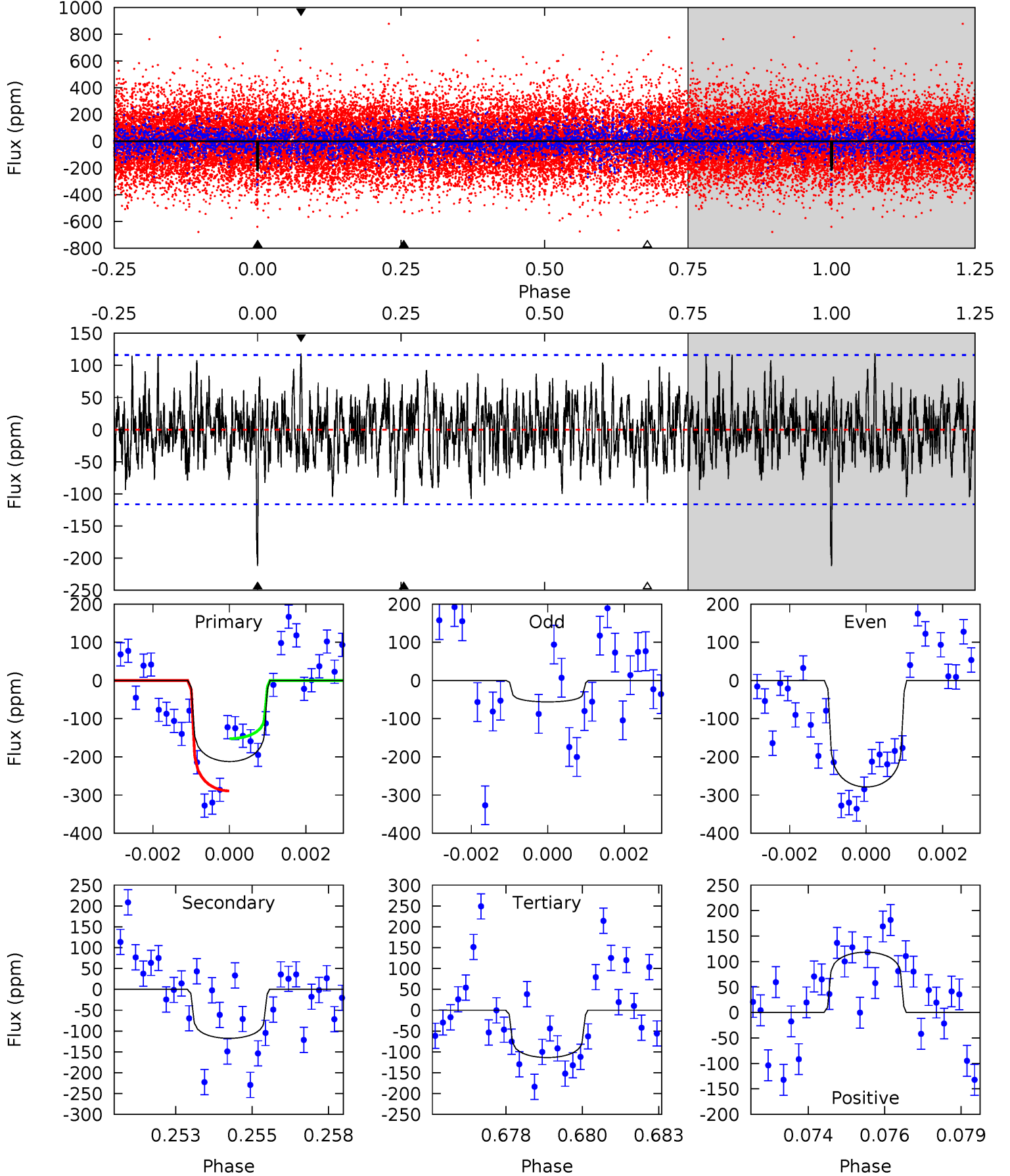




# DV Model-Shift Uniqueness Test

001026133-02,  $P = 186.181229$  Days,  $E = 58.250602$  Days

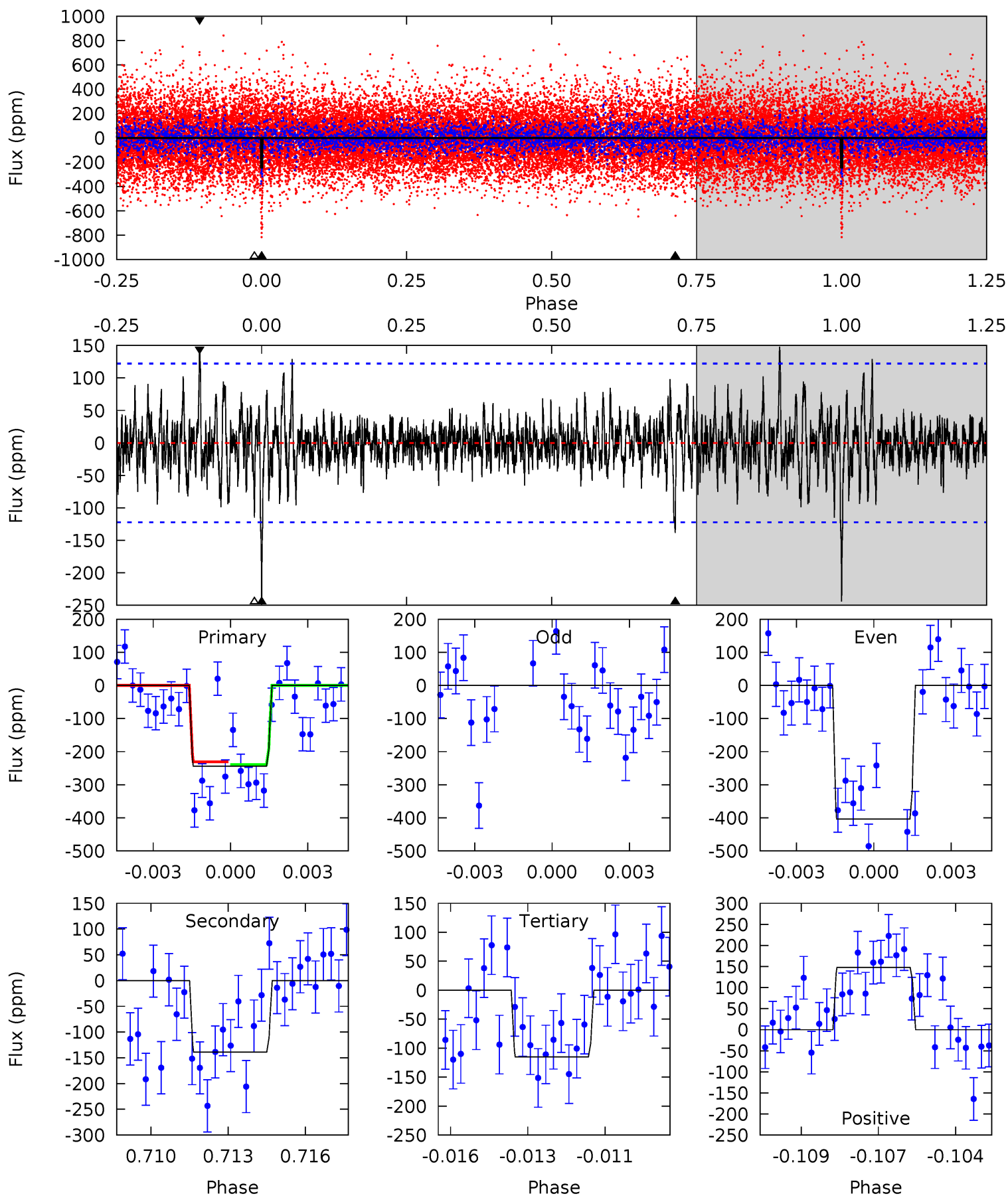
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.66	5.35	5.17	5.38	5.29	3.03	1.66	4.48	4.27	0.18	-0.03	4.76	0.93	0.36	3.08



# Alt Model-Shift Uniqueness Test

001026133-02, P = 186.197410 Days, E = 58.214364 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
10.5	5.98	4.96	6.38	5.27	3.00	1.28	5.57	4.15	1.03	-0.40	8.46	1.04	0.38	0.17



### Stellar Parameters For KIC 001026133

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7001^{+196}_{-295}$	$4.150^{+0.170}_{-0.187}$	$-0.260^{+0.250}_{-0.300}$	$1.615^{+0.478}_{-0.347}$	$1.350^{+0.192}_{-0.235}$	$0.451^{+0.405}_{-0.210}$
	+3%/-4%	+4%/-5%	+96%/-115%	+30%/-21%	+14%/-17%	+90%/-47%
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 001026133-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-118 \pm 22$	$2.92^{+0.85}_{-0.77}$	$650^{+55}_{-44}$	$5597^{+824}_{-587}$	$3618^{+3223}_{-1498}$
Alt.	$-139 \pm 23$	$2.89^{+0.83}_{-0.78}$	$651^{+54}_{-44}$	$5851^{+893}_{-621}$	$4377^{+3884}_{-1777}$

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

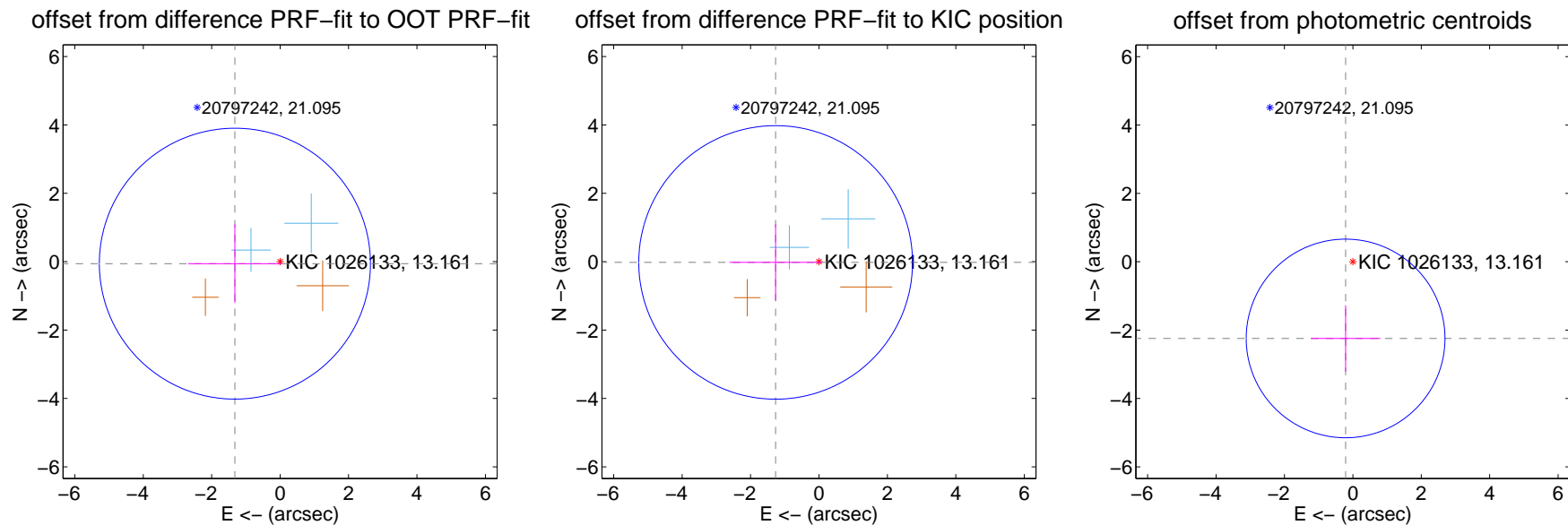
## DV Centroid Data

Supplemental centroid analysis for 001026133-02. Kepler magnitude: 13.16. Transit SNR 8.24

There are 2 quarters with good PRF difference image offsets

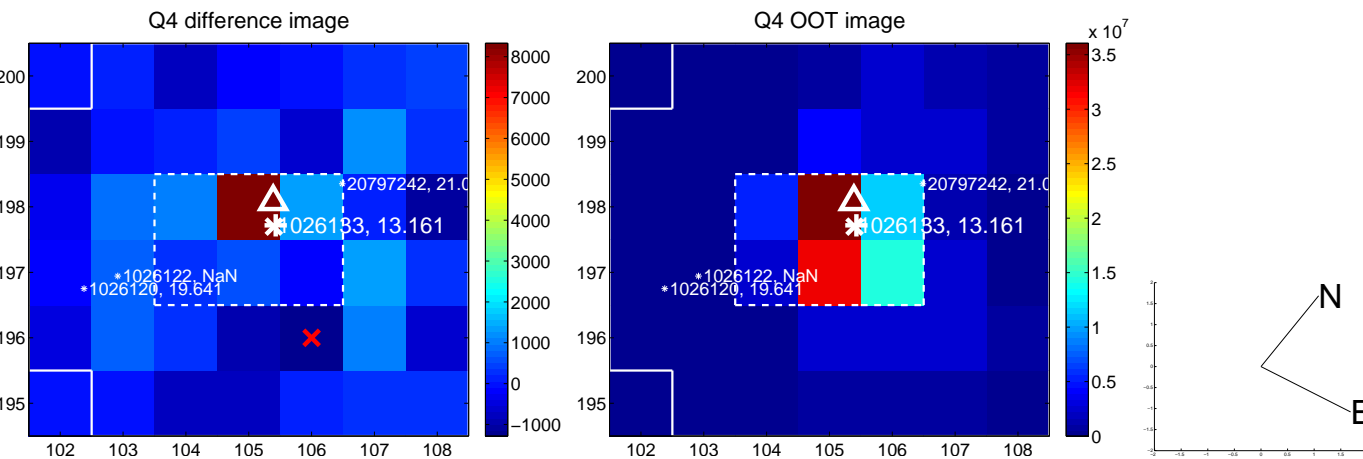
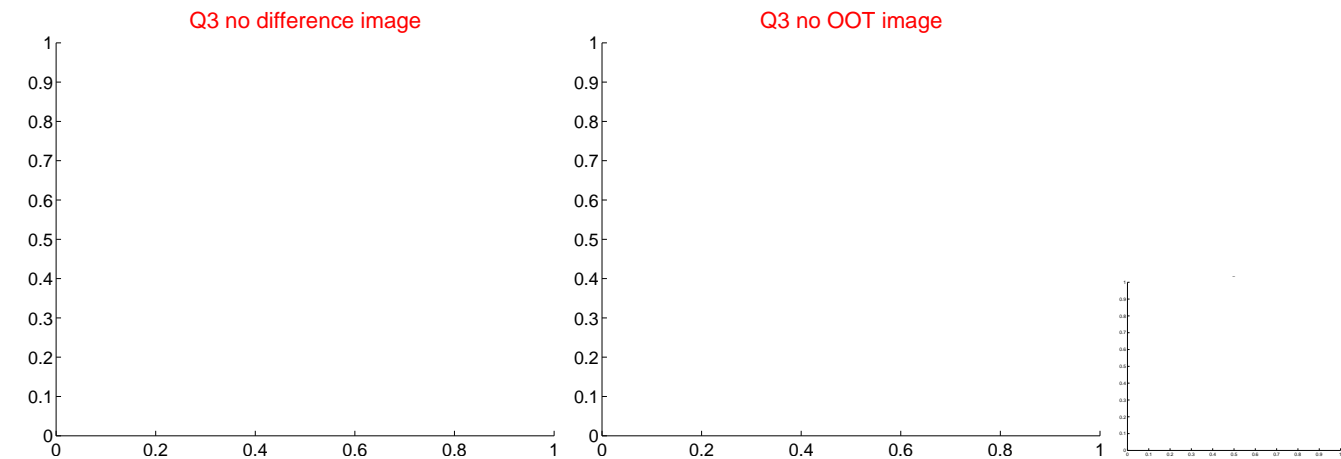
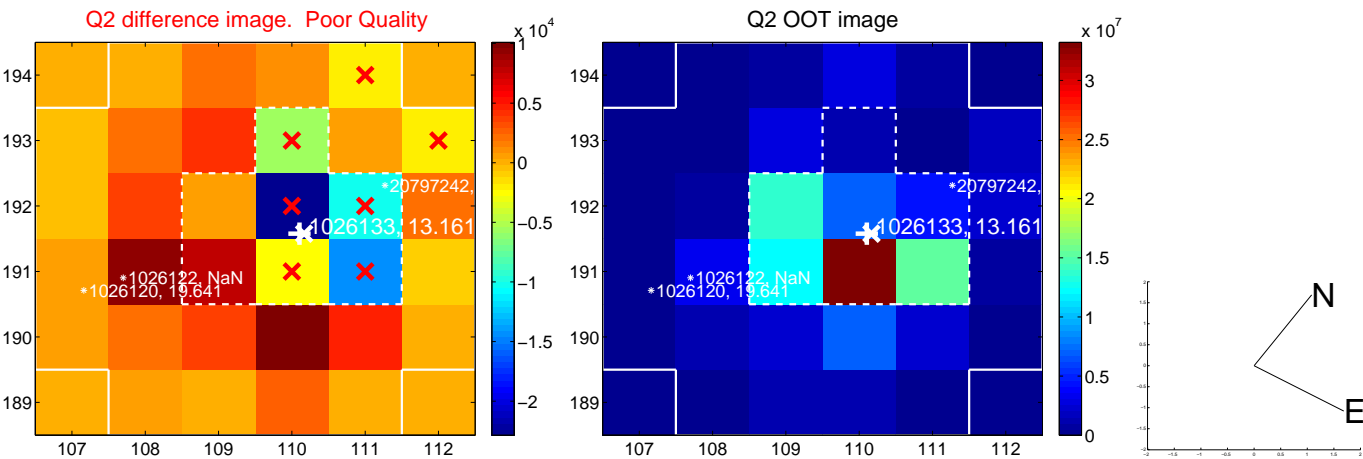
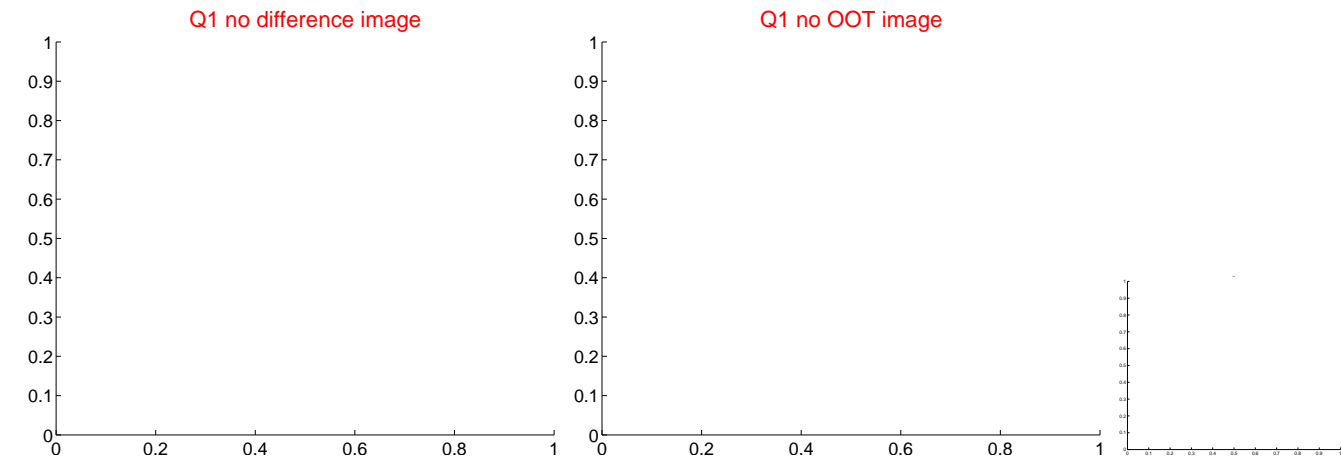
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.323 \pm 1.320$	1.00	$1.321 \pm 1.362$	$-0.057 \pm 1.149$
PRF-fit source offset from KIC position	$1.267 \pm 1.333$	0.95	$1.267 \pm 1.350$	$-0.021 \pm 1.115$
photometric centroid source offset	$2.25 \pm 0.97$	2.33	$0.21 \pm 1.02$	$-2.24 \pm 0.97$



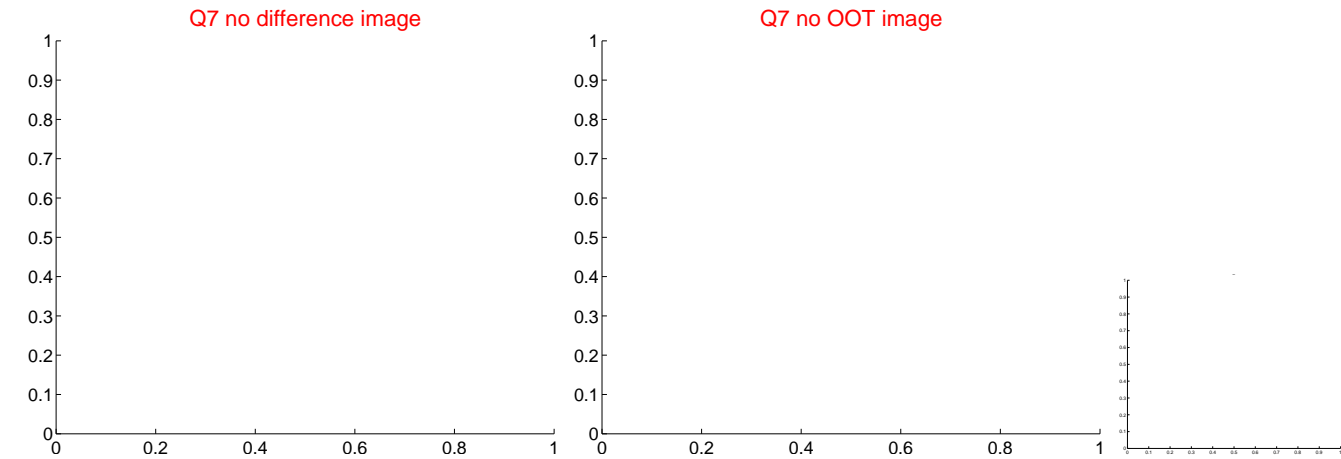
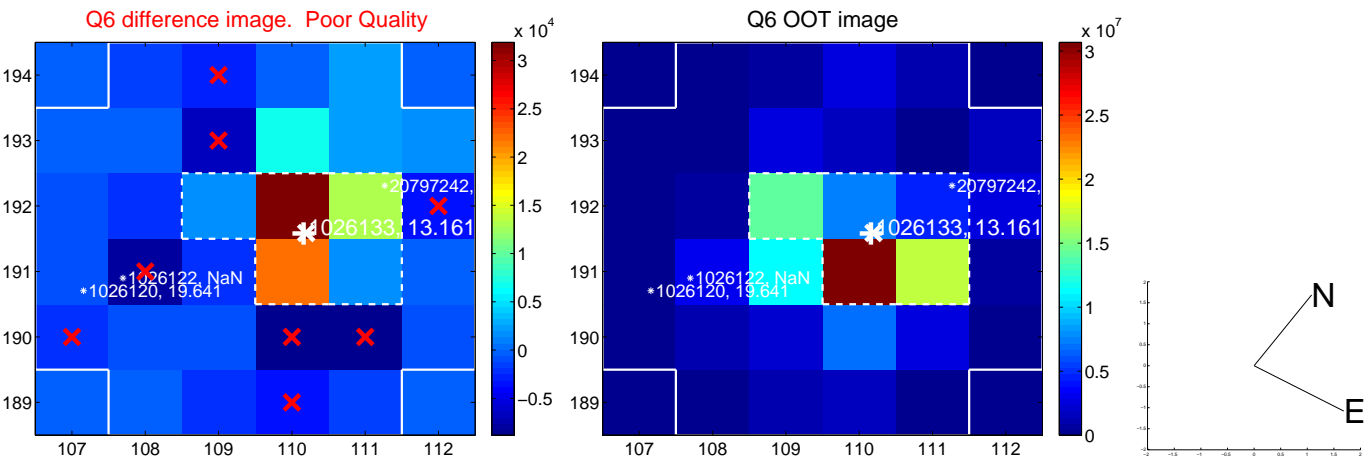
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

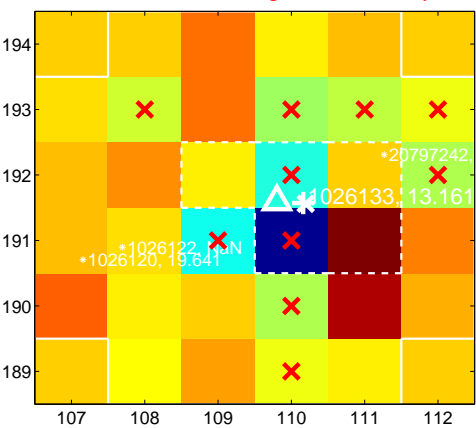
Q9 no difference image



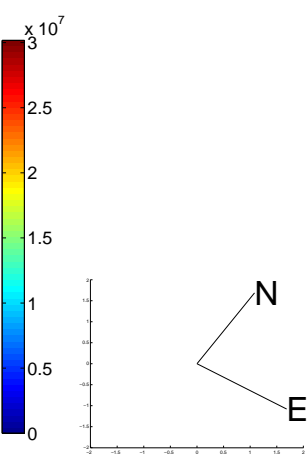
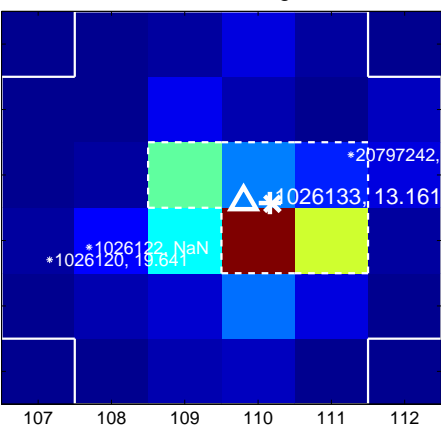
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



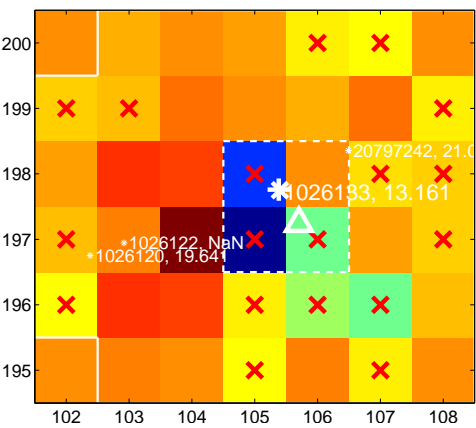
Q11 no difference image



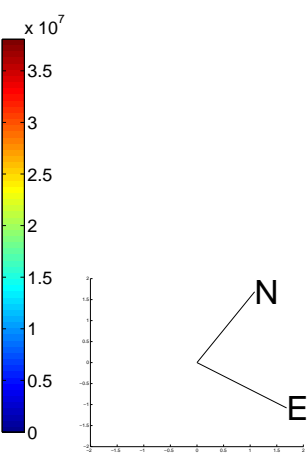
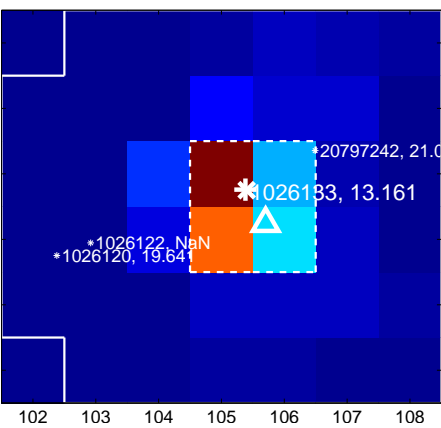
Q11 no OOT image



Q12 difference image. Poor Quality



Q12 OOT image

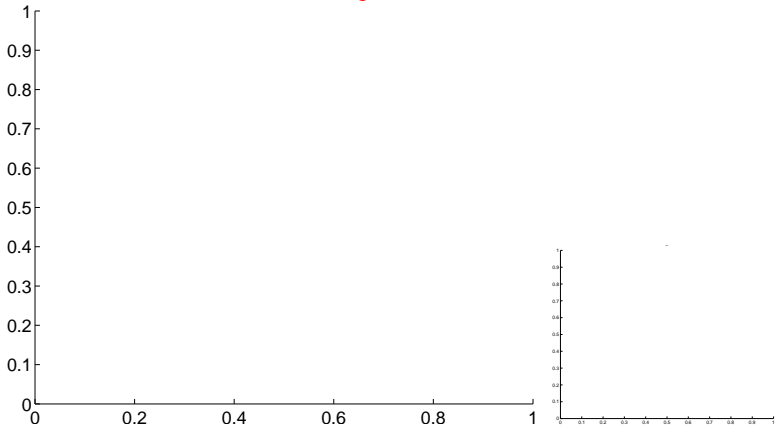


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

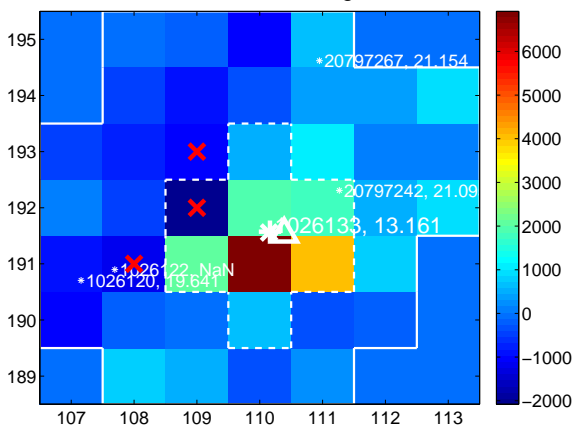
Q13 no difference image



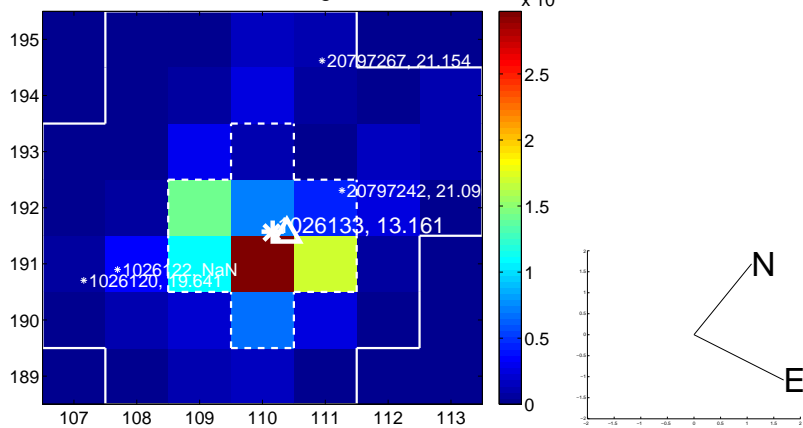
Q13 no OOT image



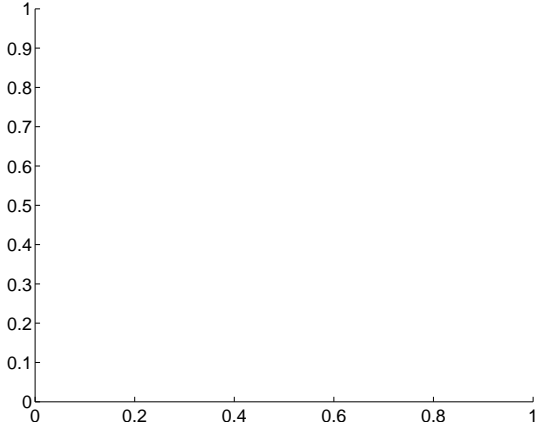
Q14 difference image



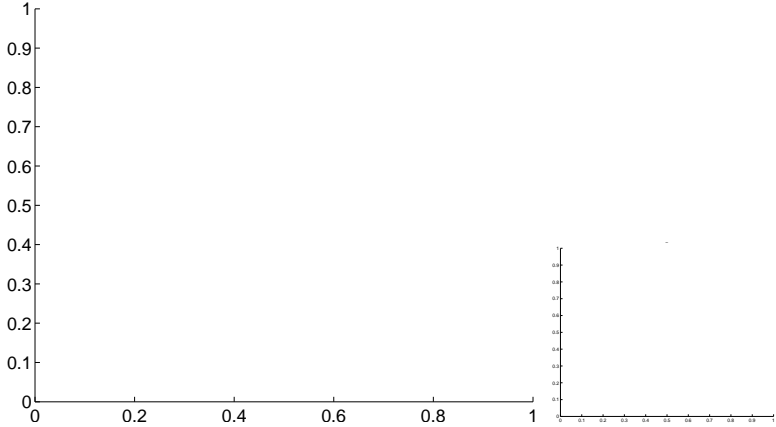
Q14 OOT image



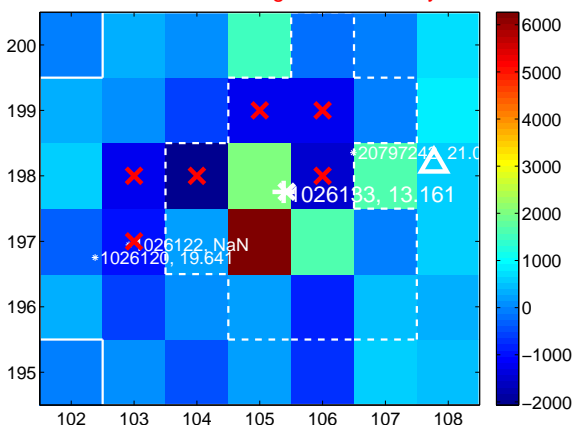
Q15 no difference image



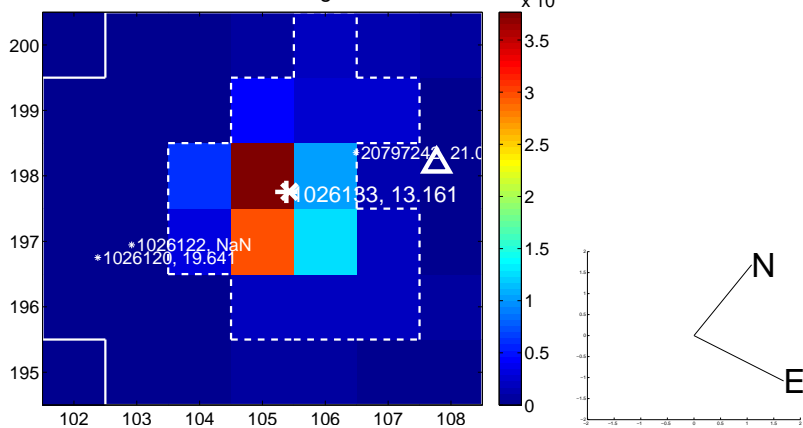
Q15 no OOT image



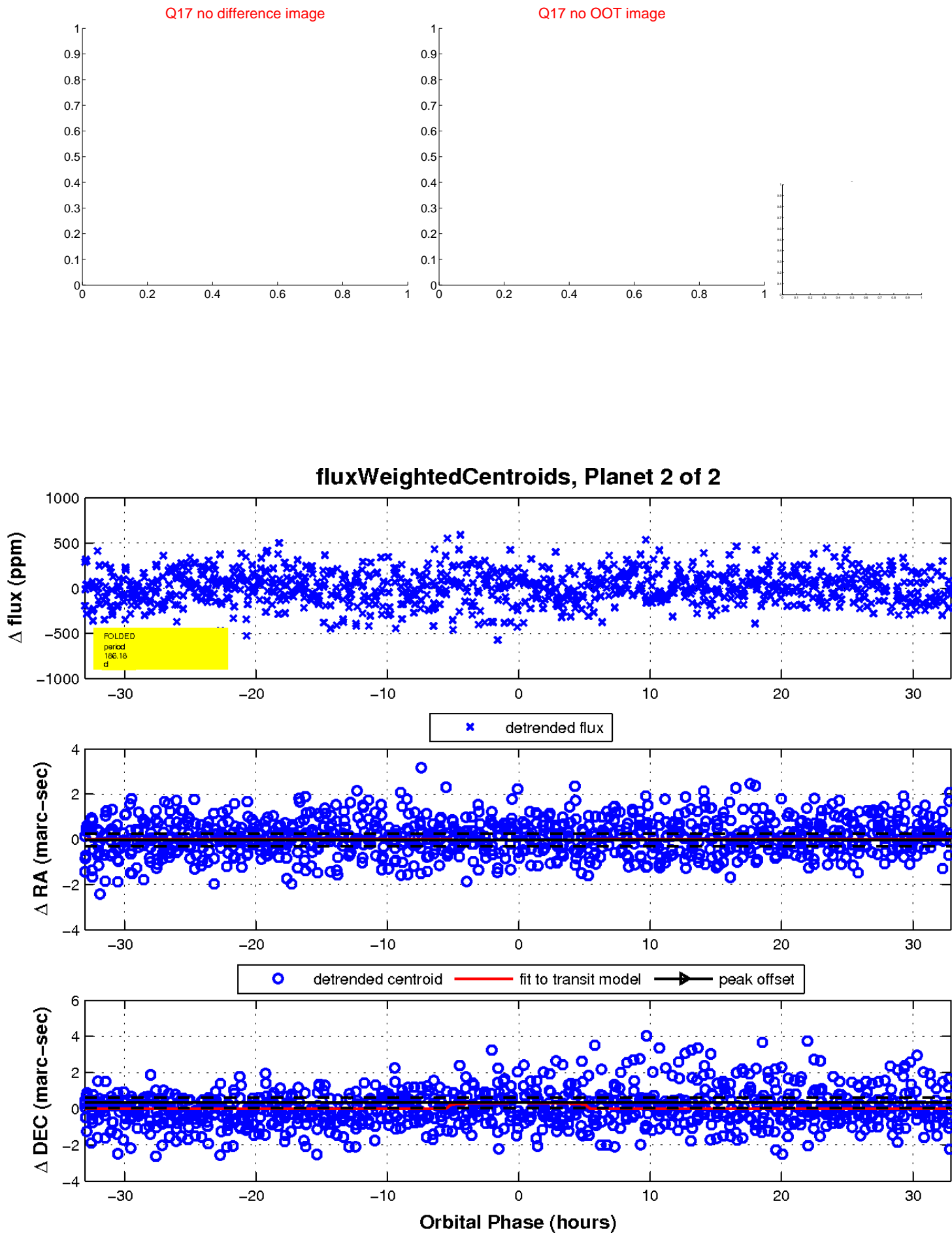
Q16 difference image. Poor Quality



Q16 OOT image



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



UKIRT Image

Declination

