

# KIC 010983635

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010983635-01	OBS	No	2.548013	132.469986	44.8	9.023	7.1	6.4	0.66	4352	0.55	140.45
010983635-02	OBS	No	218.787998	312.936358	1075.7	21.448	19.4	10.0	0.66	4352	4.16	0.37
010983635-03	OBS	No	270.541497	201.548978	633.7	3.188	11.4	4.6	0.66	4352	1.85	0.28

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010983635-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010983635-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010983635-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

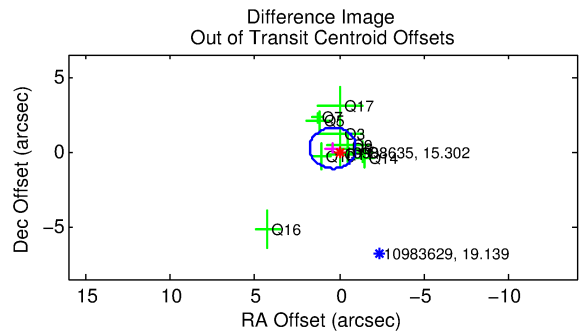
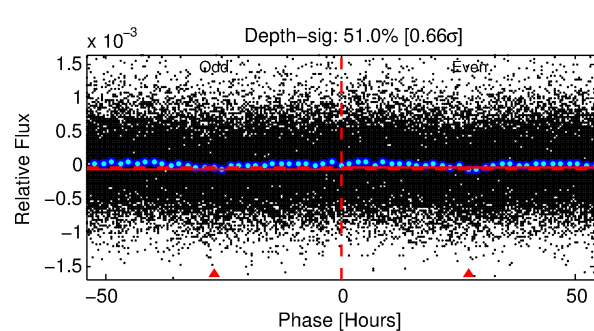
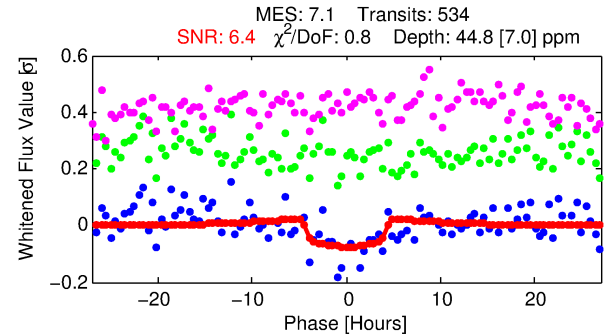
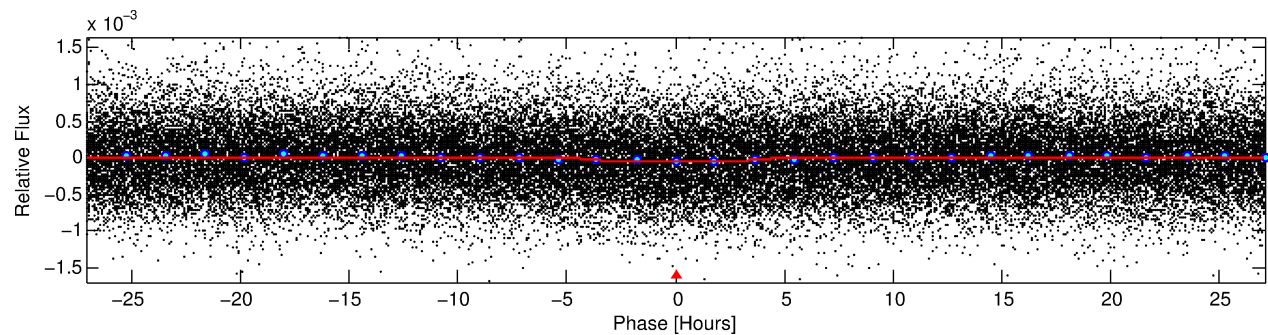
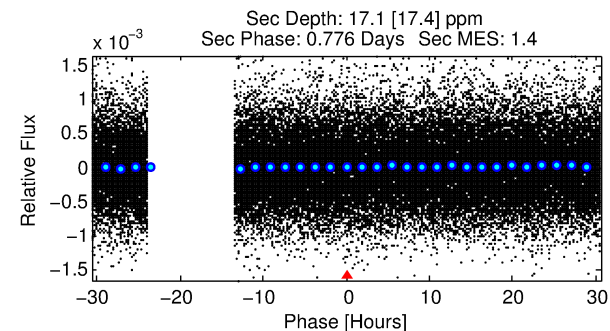
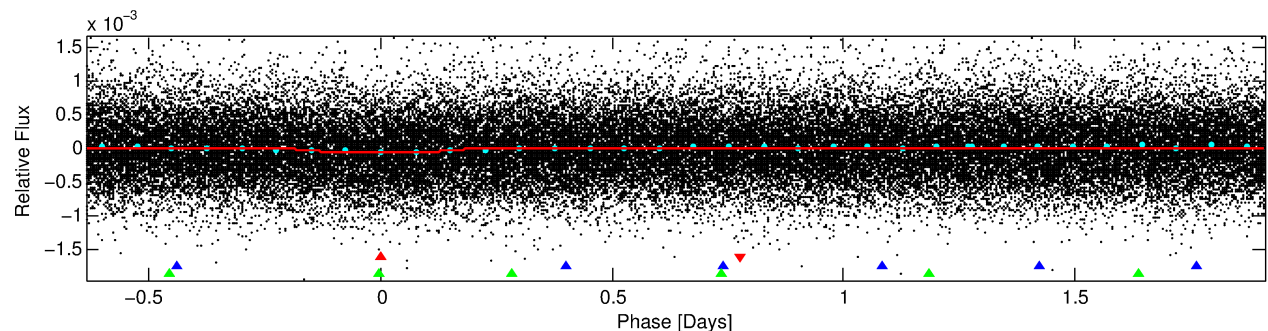
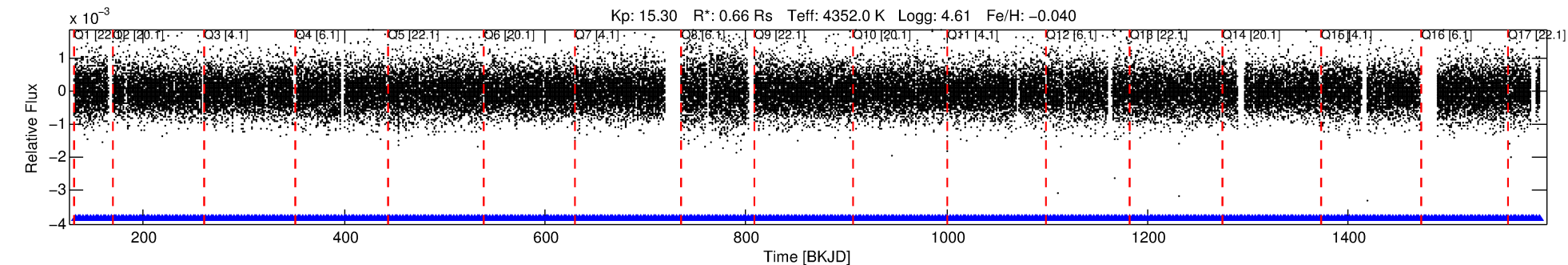
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010983635-01

No Significant Match Found

# DV One-Page Summary

KIC: 10983635 Candidate: 1 of 3 Period: 2.548 d



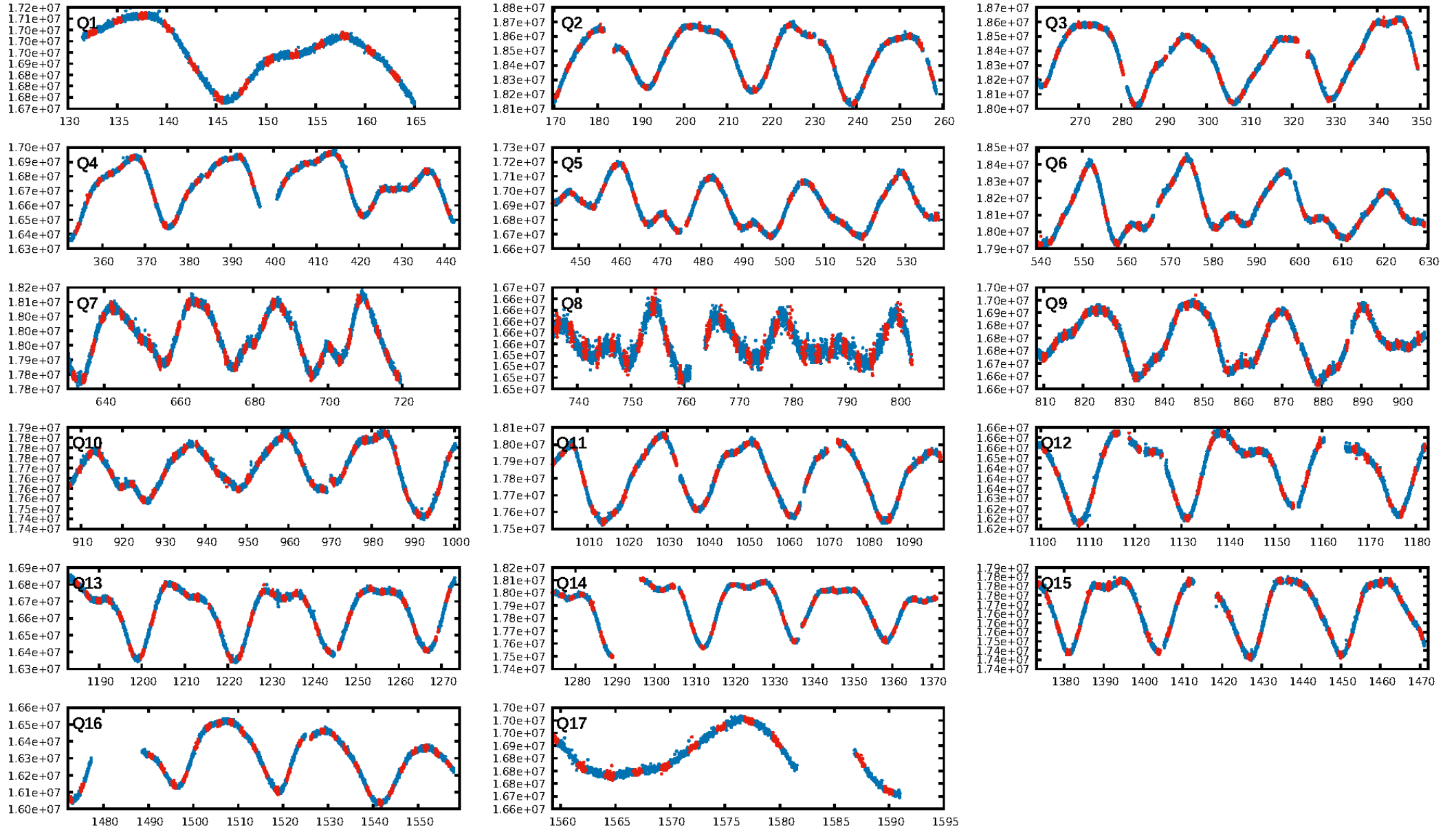
## DV Fit Results:

Period = 2.54801 [0.00005] d  
Epoch = 132.4700 [0.0129] BKJD  
Rp/R\* = 0.0076 [0.0041]  
a/R\* = 1.36 [1.28]  
b = 0.90 [0.45]  
Seff = 140.45 [22.11]  
Teq = 878 [35] K  
Rp = 0.55 [0.30] Re  
a = 0.0316 [0.0023] AU  
Ag = 31.71 [47.12] [0.65σ]  
Teffp = 3221 [1198] K [1.96σ]

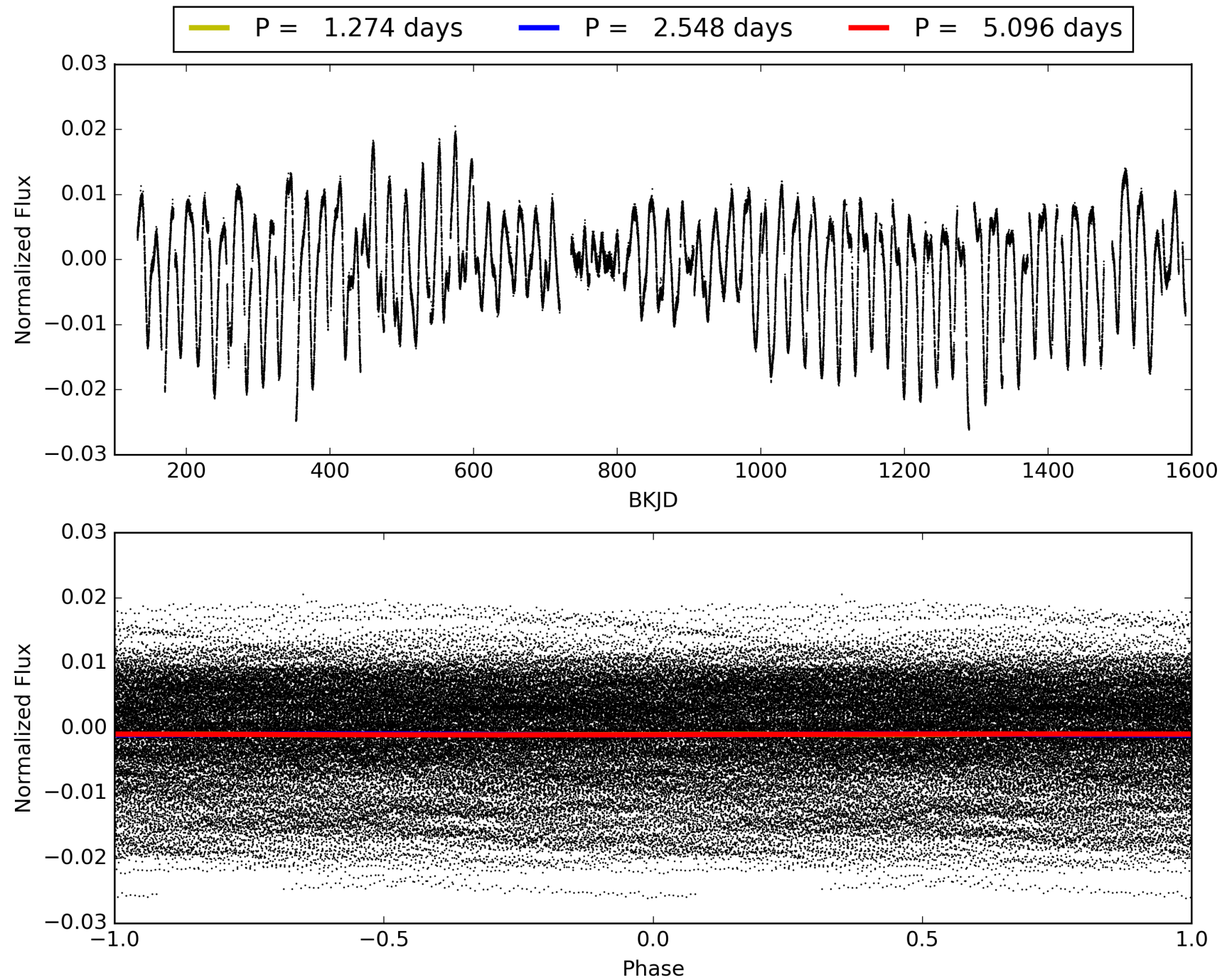
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [223.04σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 8.26e-12**  
RollingBand-fgt: 1.00 [510/510]  
GhostDiagnostic-chr: 2.139  
**Centroid-sig: 0.1%**  
Centroid-so: 3.548 arcsec [2.24σ]  
OotOffset-rm: 0.463 arcsec [1.01σ]  
KicOffset-rm: 0.468 arcsec [1.01σ]  
OotOffset-st: 3/3/2/3 [11]  
KicOffset-st: 3/3/2/3 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 010983635-01, PDC Light Curves

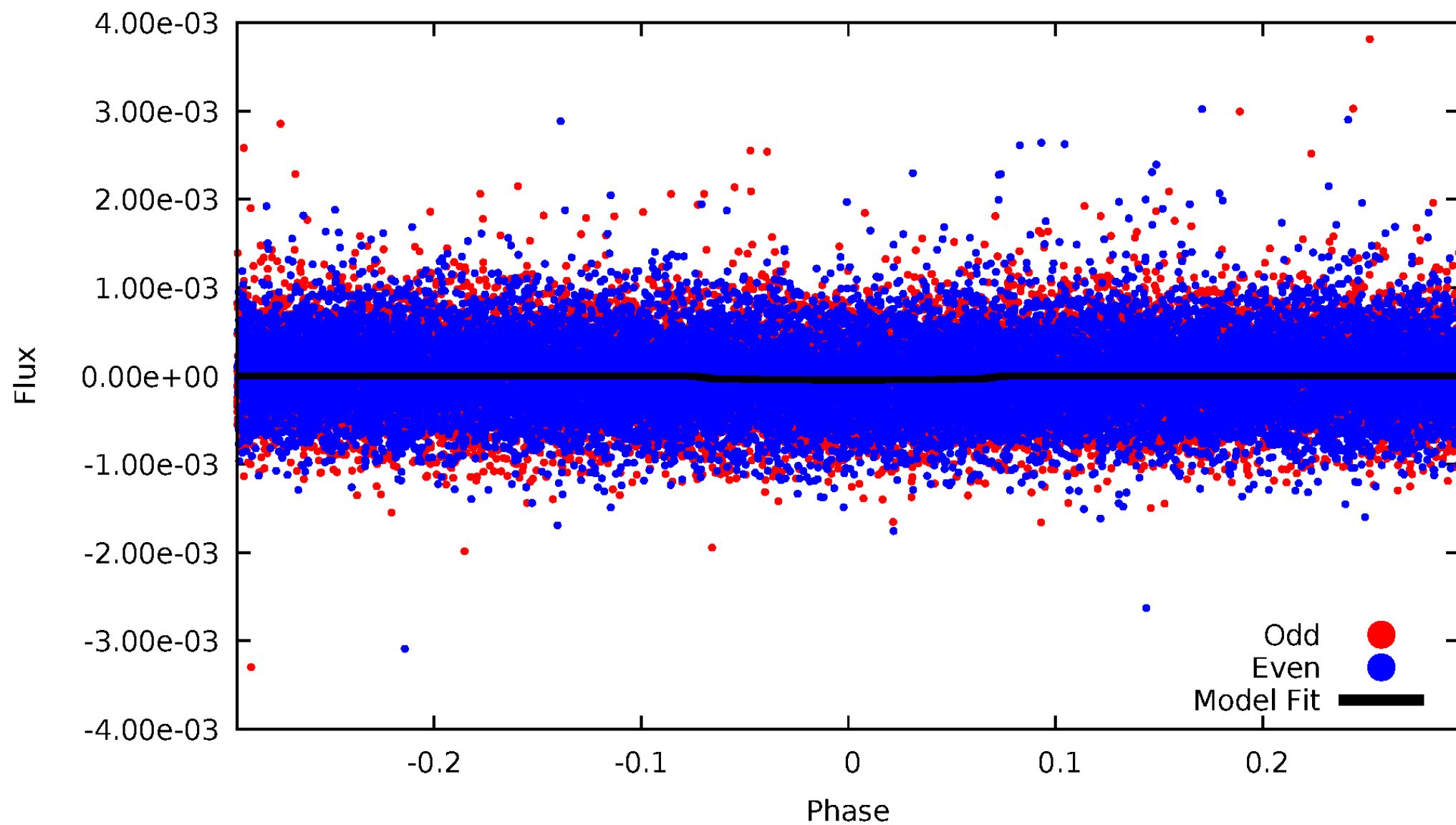


TCE 010983635-01



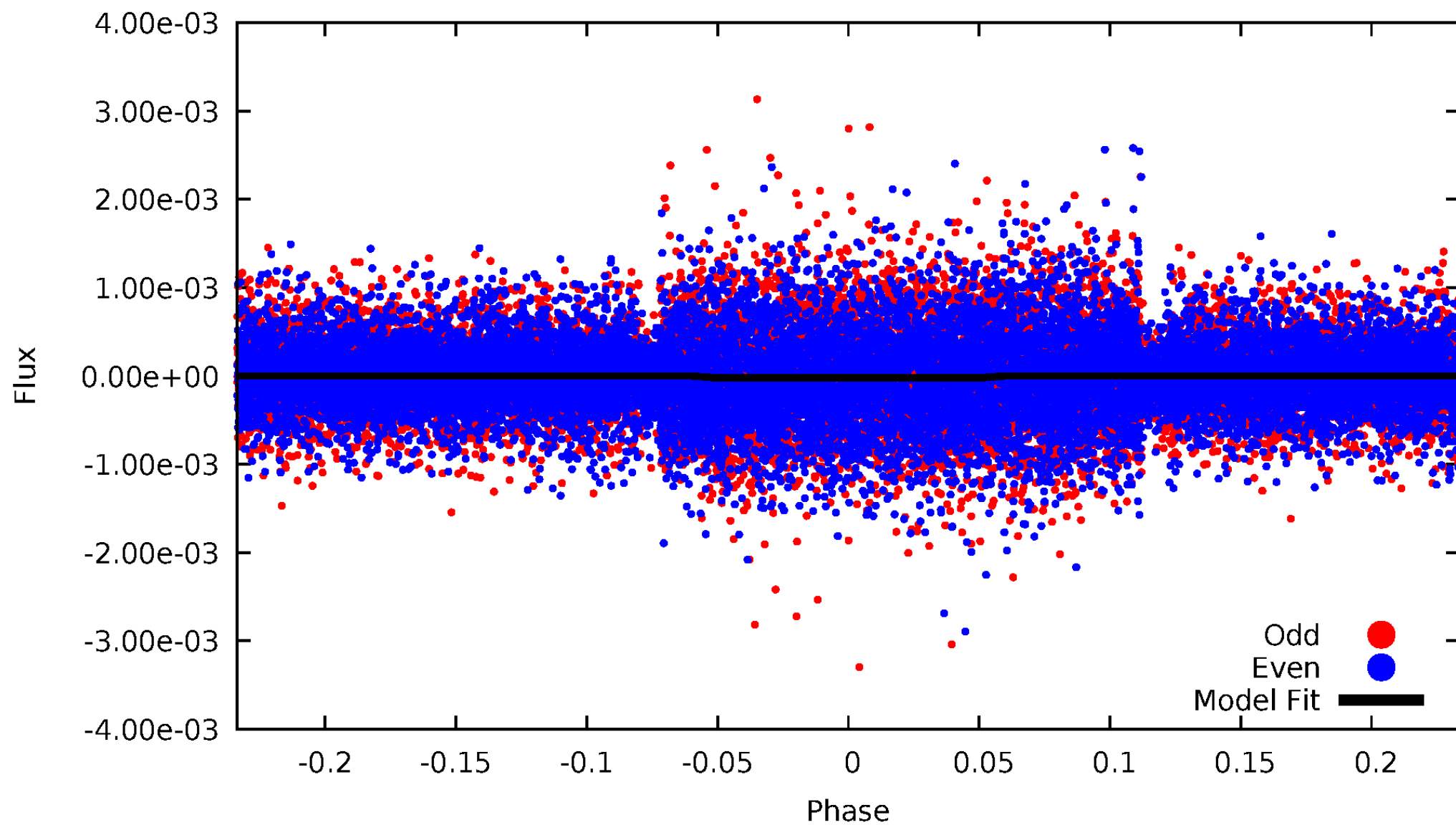
# DV Odd/Even

TCE 010983635-01



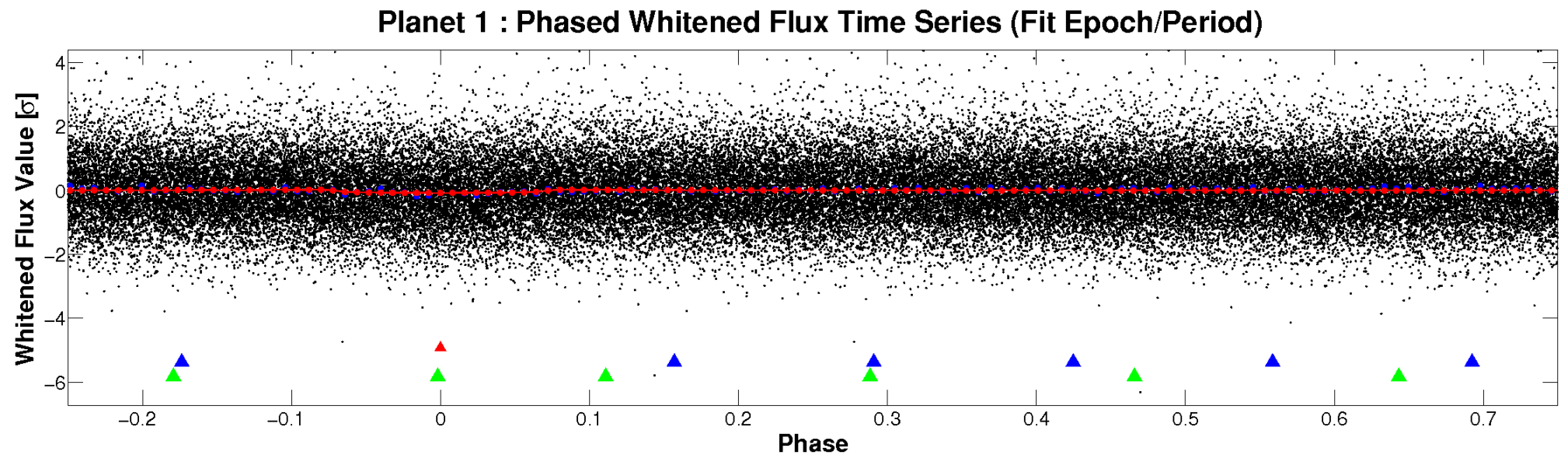
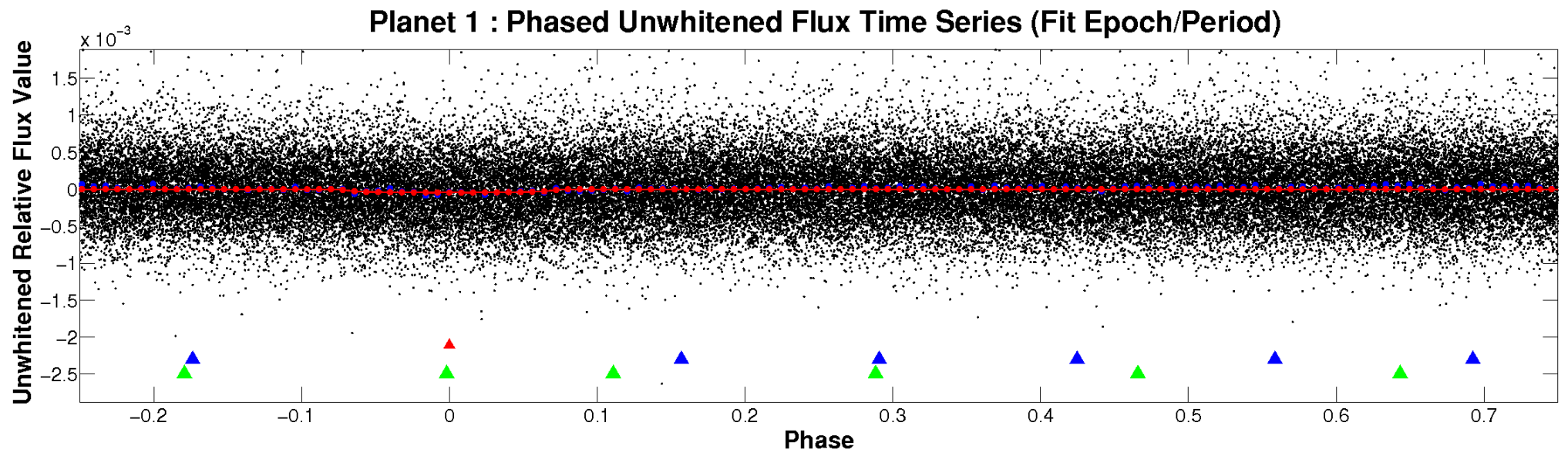
# ALT Odd/Even

TCE 010983635-01



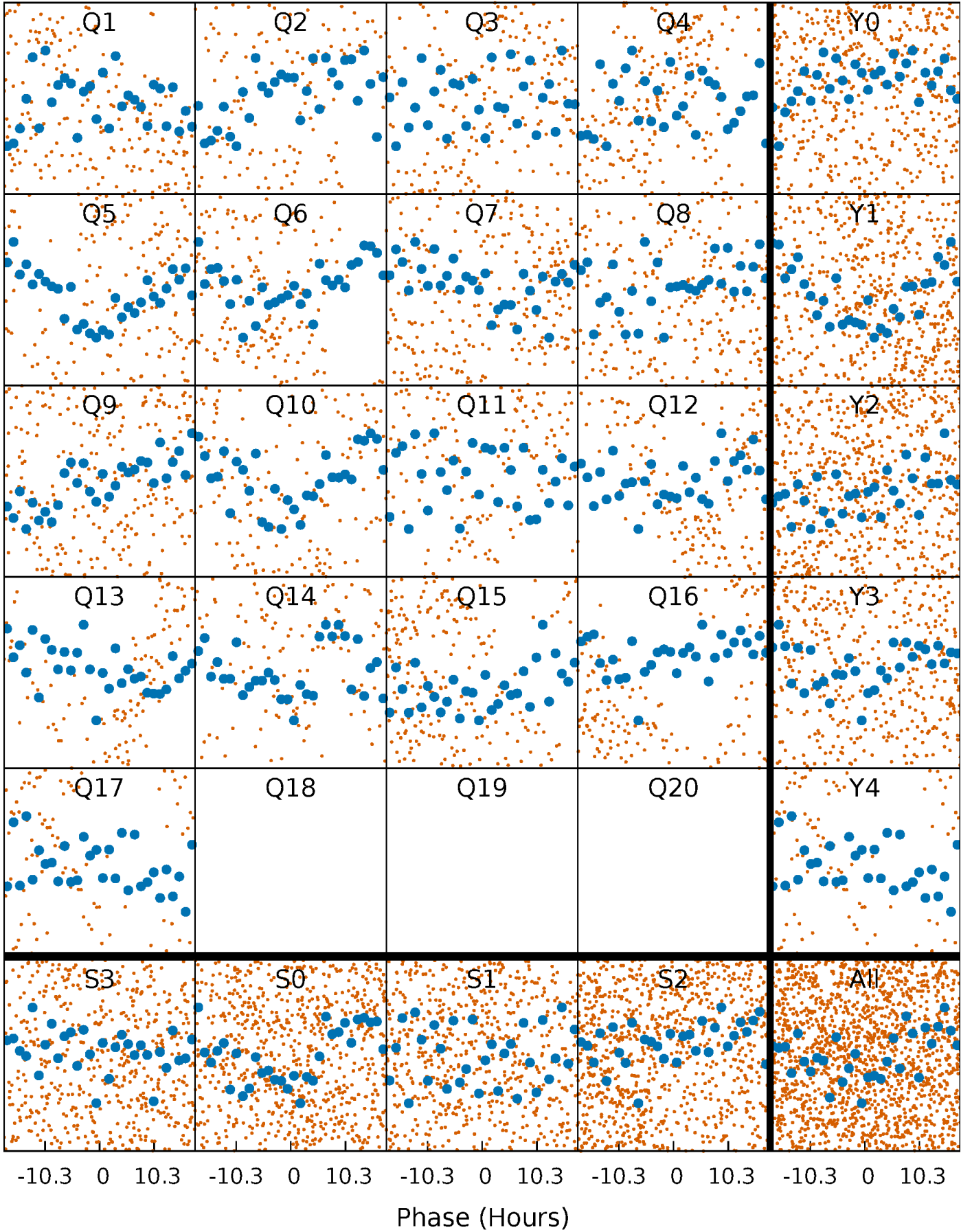


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

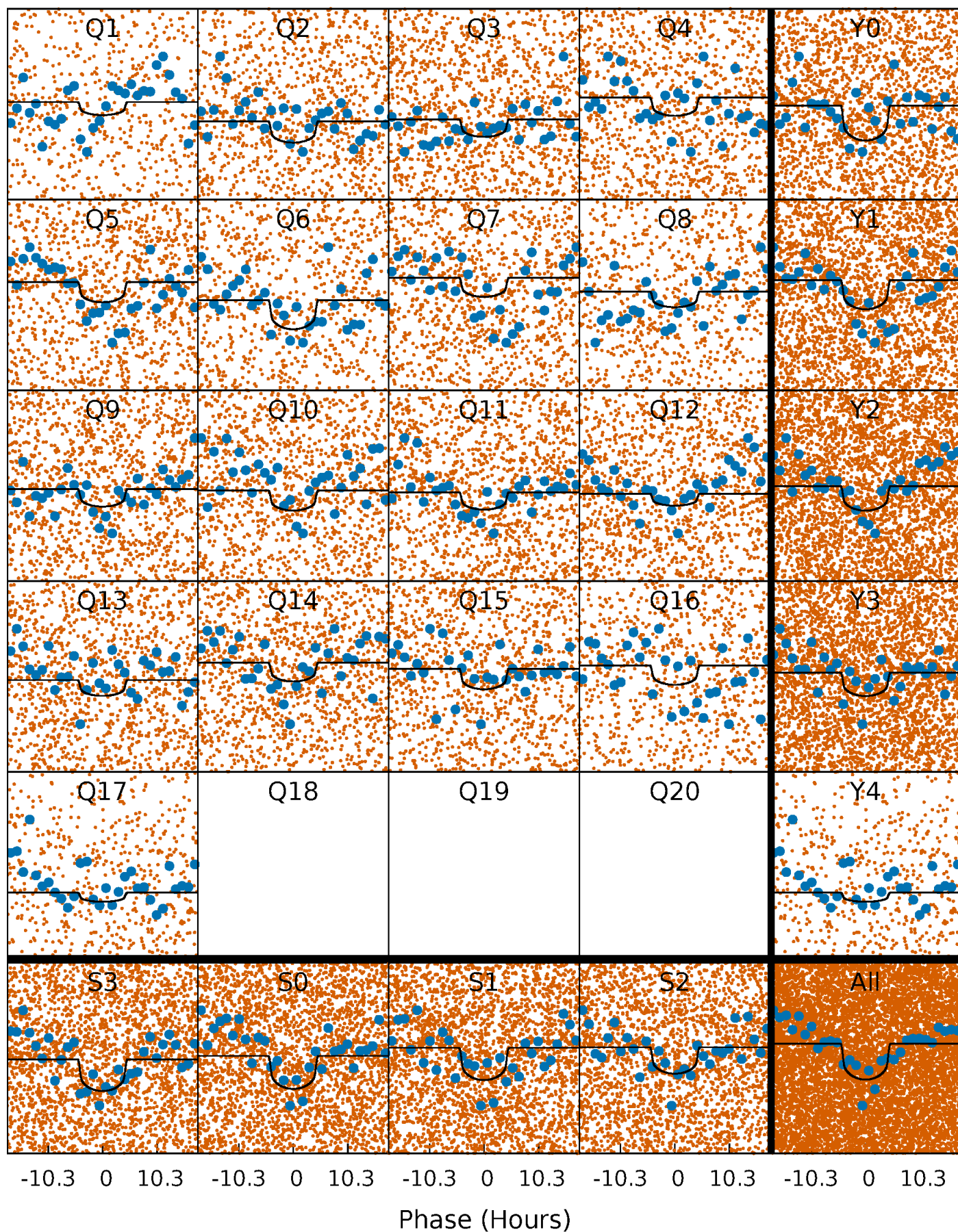
TCE 010983635-01 P= 2.548013 Days  $T_0=132.469986$  (BKJD)





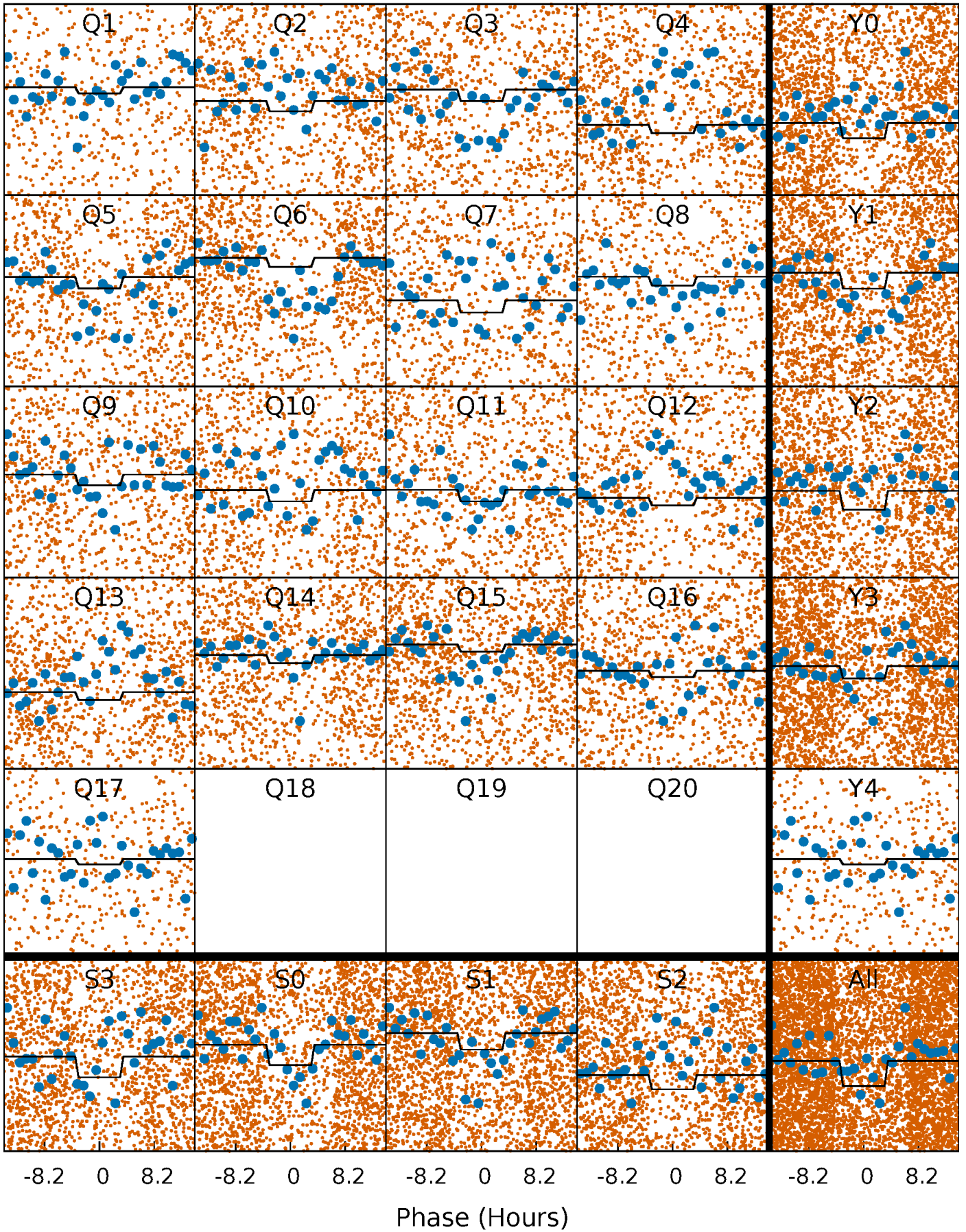
# DV Quarter-Phased Transit Curves

TCE 010983635-01 P= 2.548013 Days  $T_0=132.469986$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010983635-01 P= 2.547813 Days  $T_0=132.461995$  (BKJD)

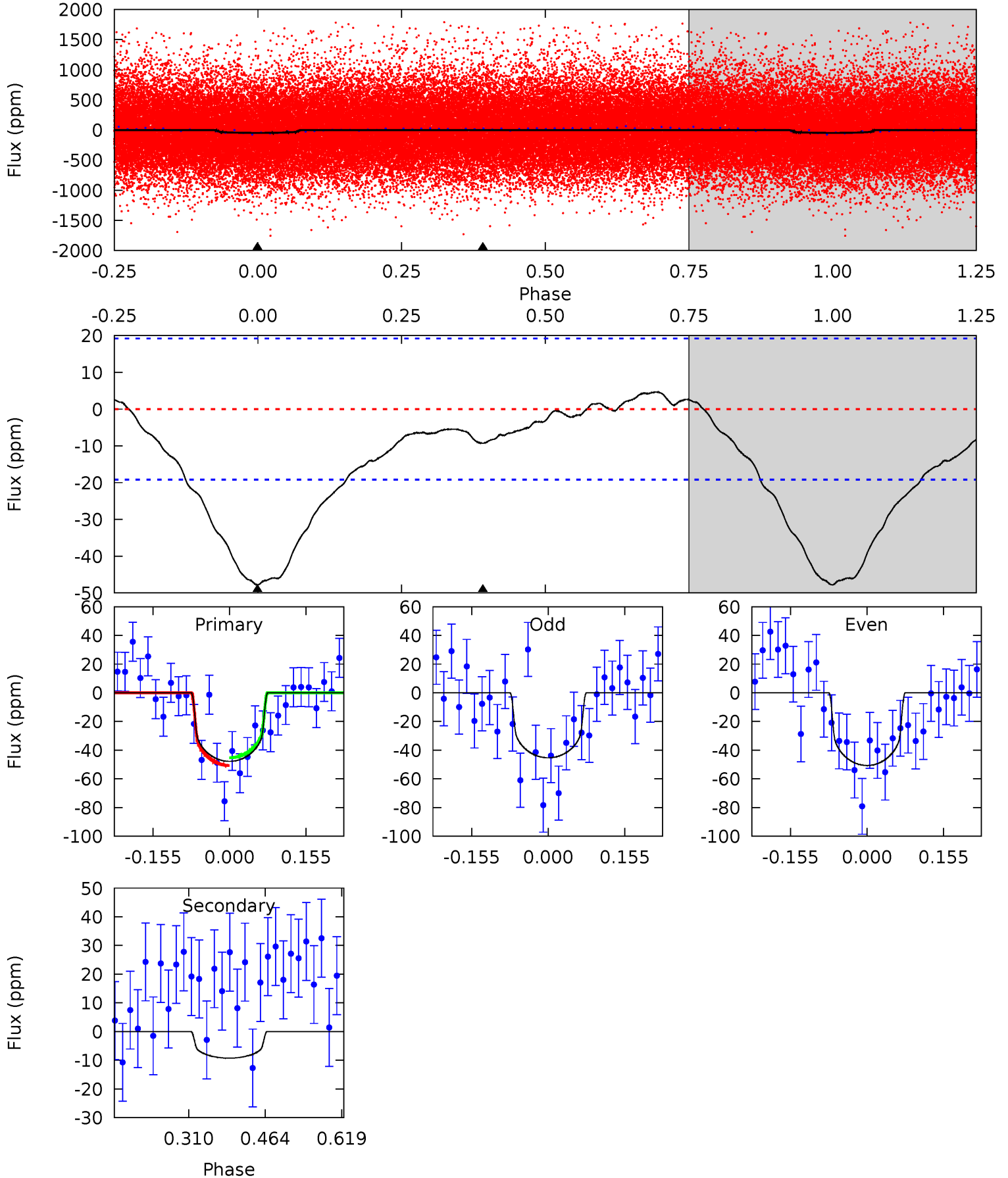




# DV Model-Shift Uniqueness Test

010983635-01, P = 2.548013 Days, E = 129.921973 Days

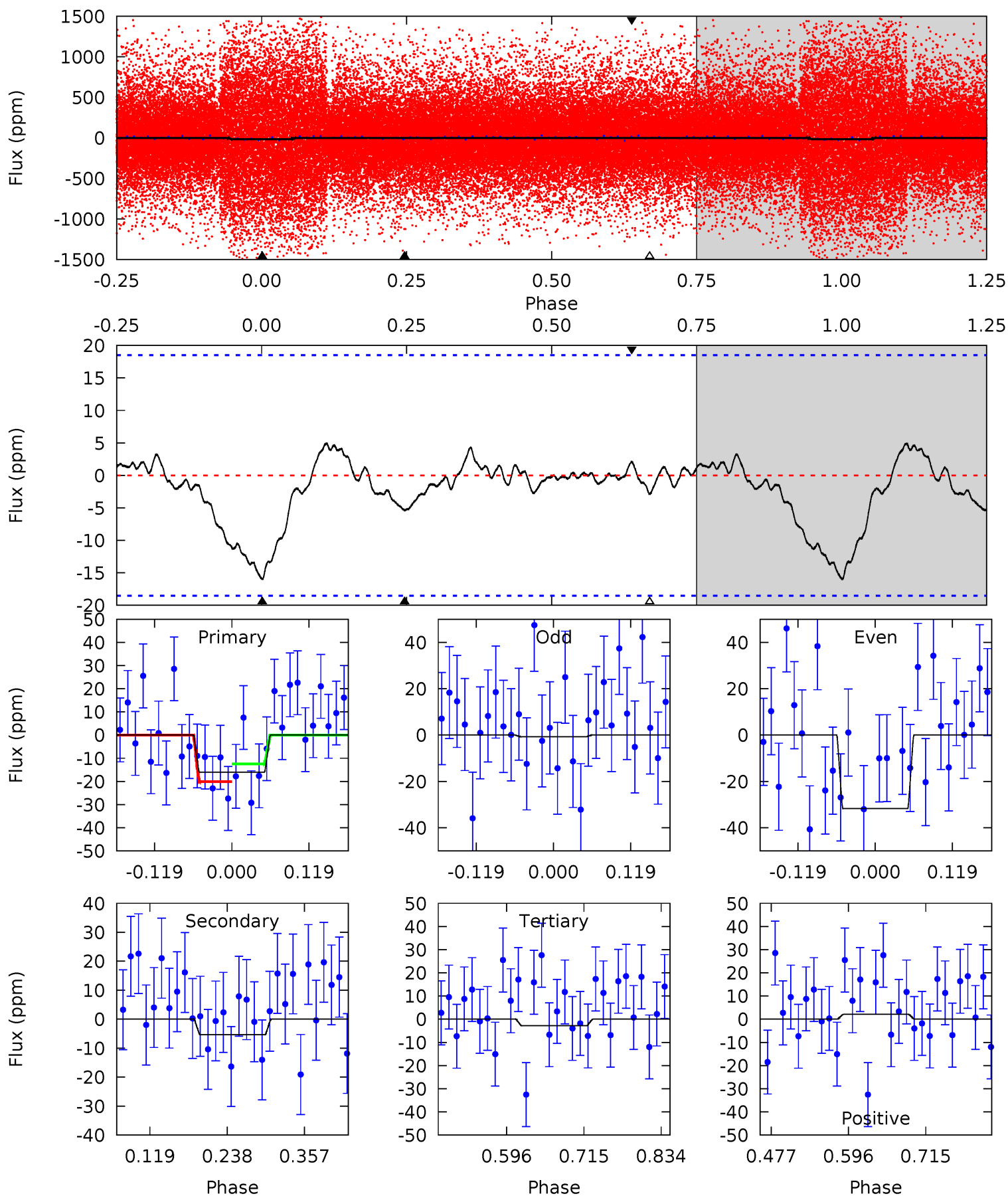
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	2.15	0	0	4.47	1.42	1.63	11.1	11.1	2.15	2.15	0.63	0.88	0.09	0.63



# Alt Model-Shift Uniqueness Test

010983635-01, P = 2.547813 Days, E = 129.914182 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
3.91	1.32	0.70	0.51	4.53	1.56	0.33	3.21	3.40	0.62	0.81	3.67	1.27	0.24	0.93



### Stellar Parameters For KIC 010983635

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4352^{+118}_{-131}$	$4.610^{+0.053}_{-0.021}$	$-0.040^{+0.300}_{-0.300}$	$0.661^{+0.037}_{-0.060}$	$0.650^{+0.065}_{-0.052}$	$3.165^{+0.681}_{-0.273}$
	+3%/-3%	+1%/-0%	+750%/-750%	+6%/-9%	+10%/-8%	+22%/-9%
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 010983635-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-9 \pm 4$	$0.54^{+0.29}_{-0.27}$	$1216^{+40}_{-39}$	$3164^{+884}_{-430}$	$16^{+61}_{-10}$
Alt.	$-5 \pm 4$	$0.38^{+0.27}_{-0.23}$	$1221^{+36}_{-41}$	$3166^{+1081}_{-754}$	$16^{+79}_{-14}$

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



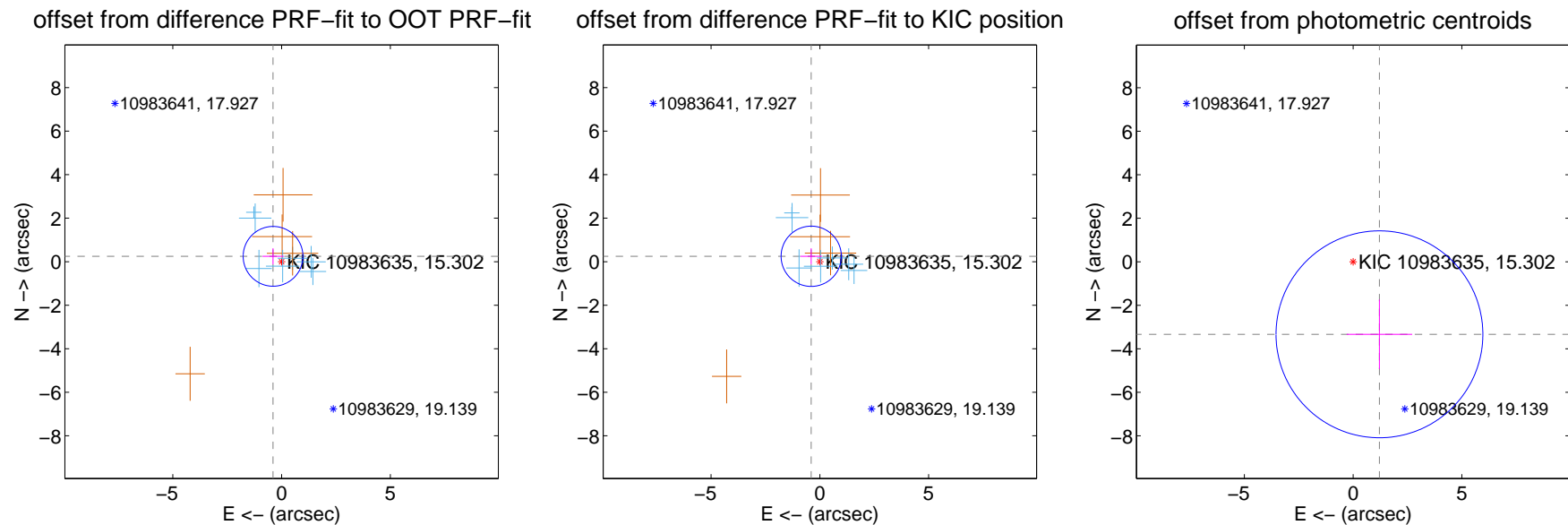
## DV Centroid Data

Supplemental centroid analysis for 010983635-01. Kepler magnitude: 15.30. Transit SNR 6.44

There are 7 quarters with good PRF difference image offsets

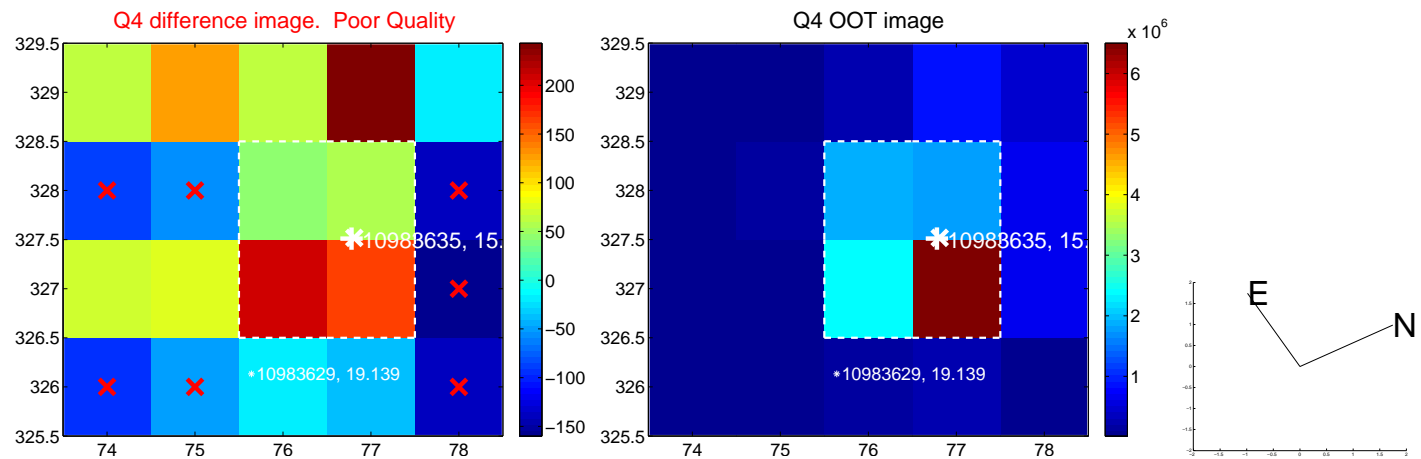
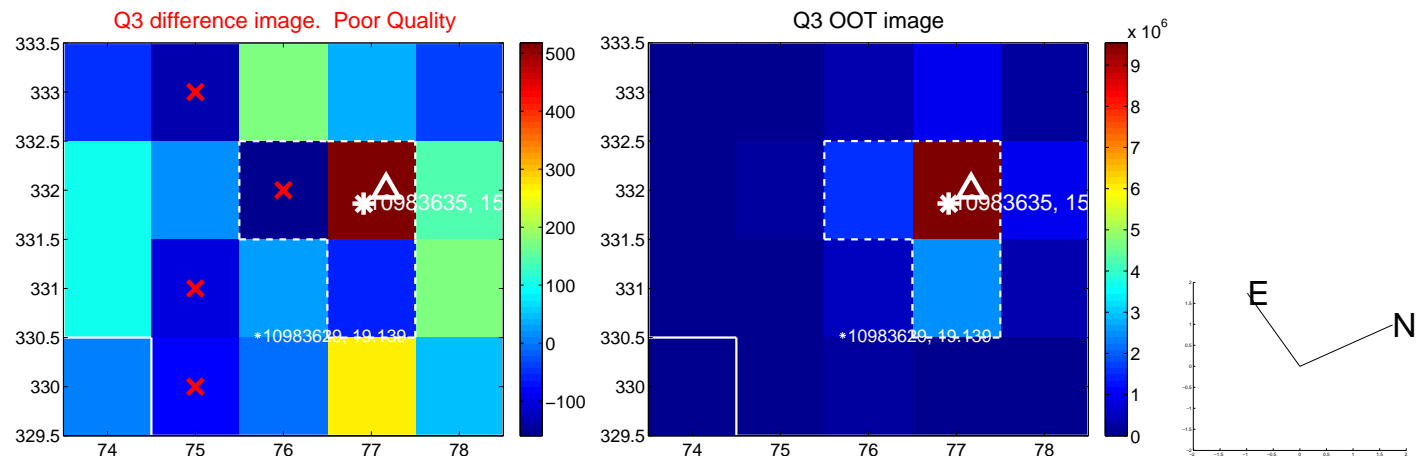
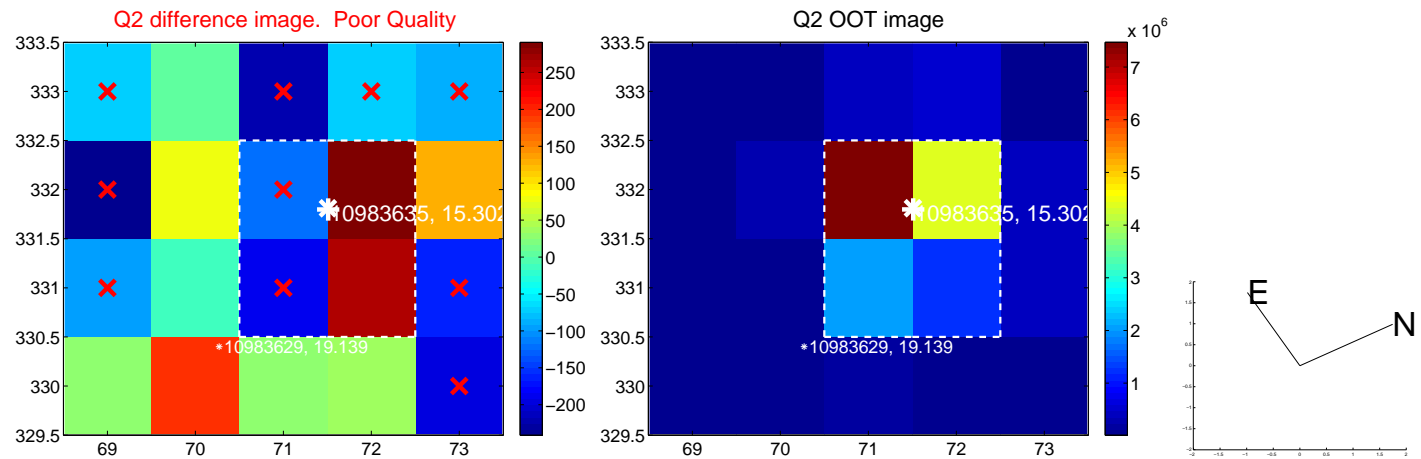
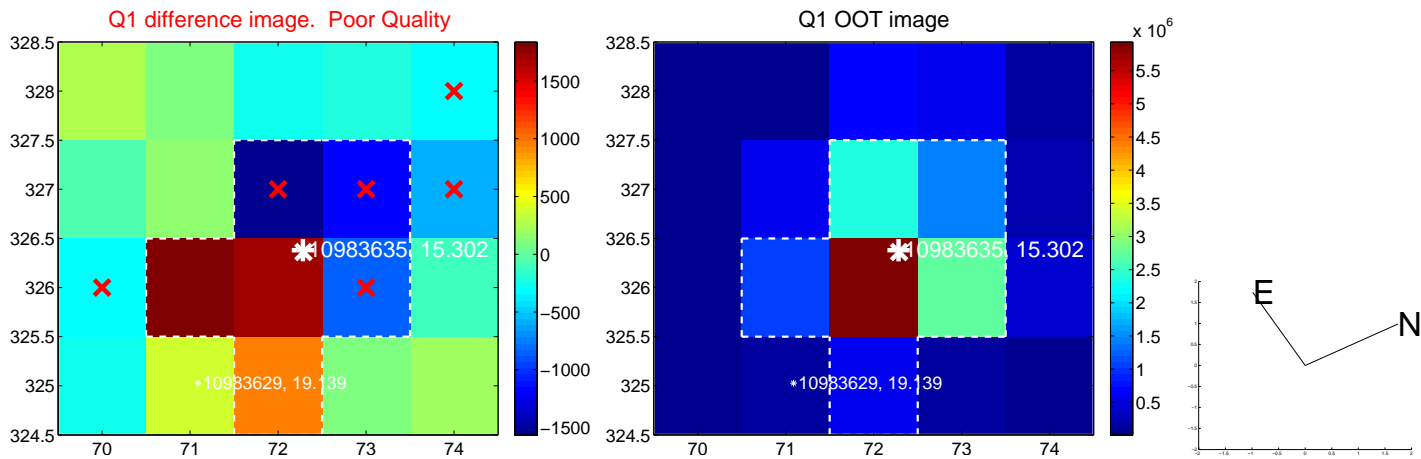
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.463 \pm 0.458$	1.01	$0.392 \pm 0.489$	$0.247 \pm 0.368$
PRF-fit source offset from KIC position	$0.468 \pm 0.462$	1.01	$0.396 \pm 0.494$	$0.249 \pm 0.366$
photometric centroid source offset	$3.55 \pm 1.59$	2.24	$-1.21 \pm 1.51$	$-3.33 \pm 1.60$

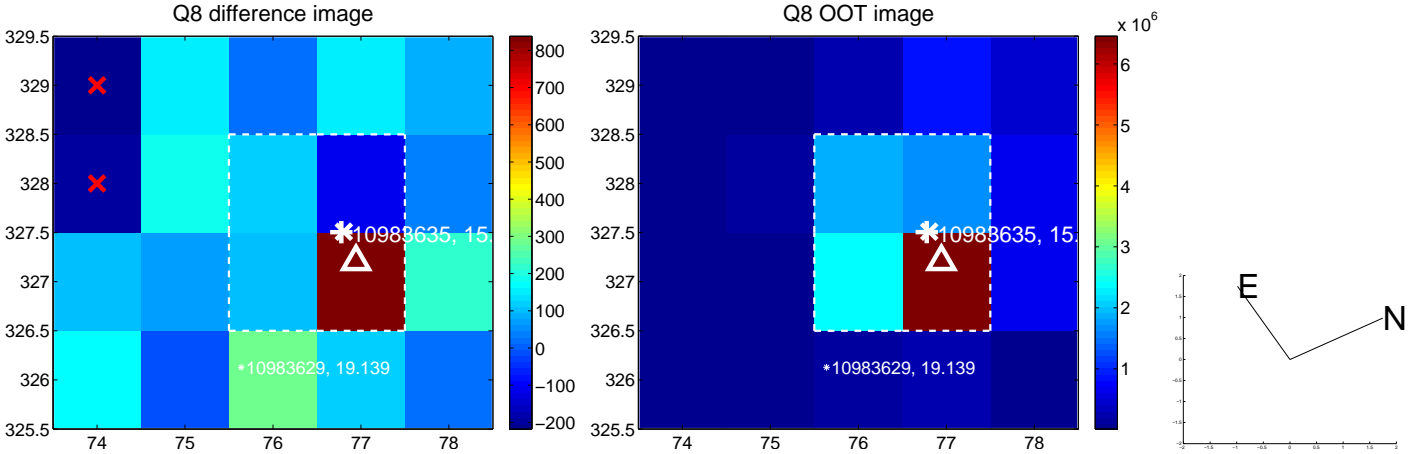
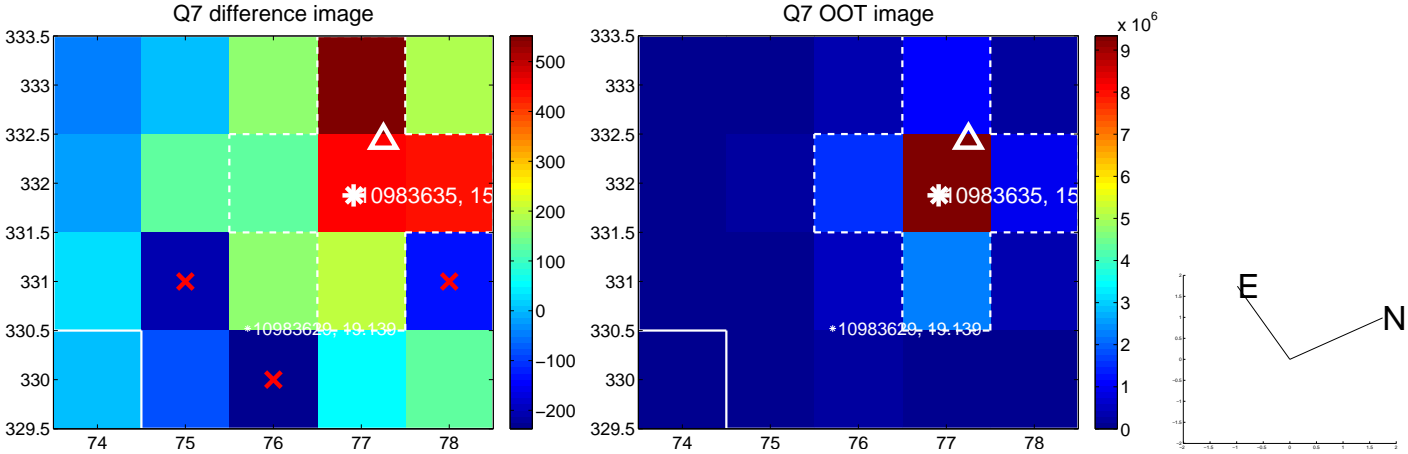
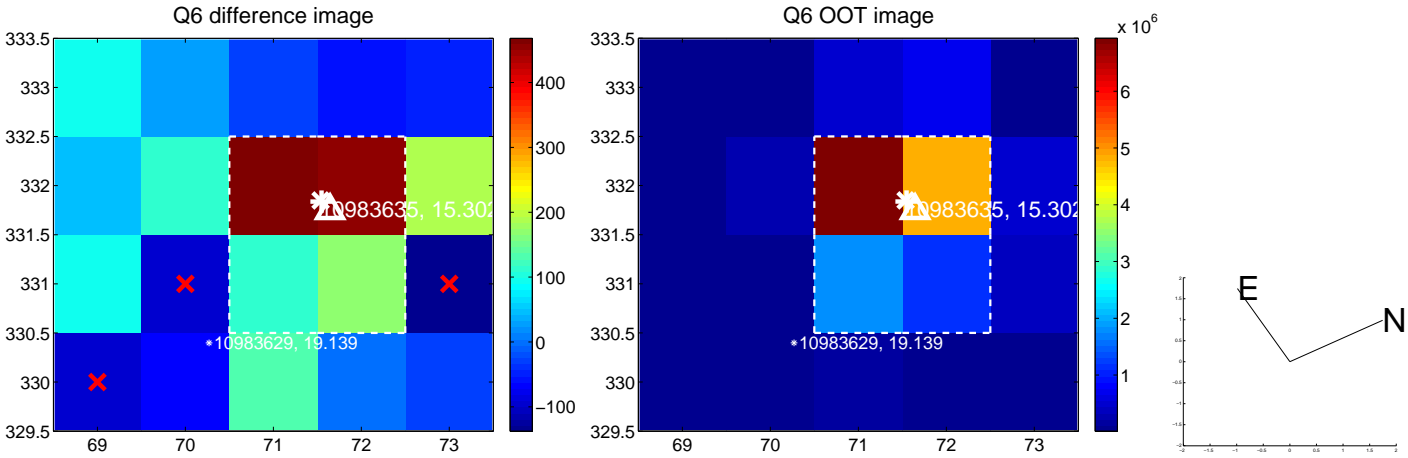
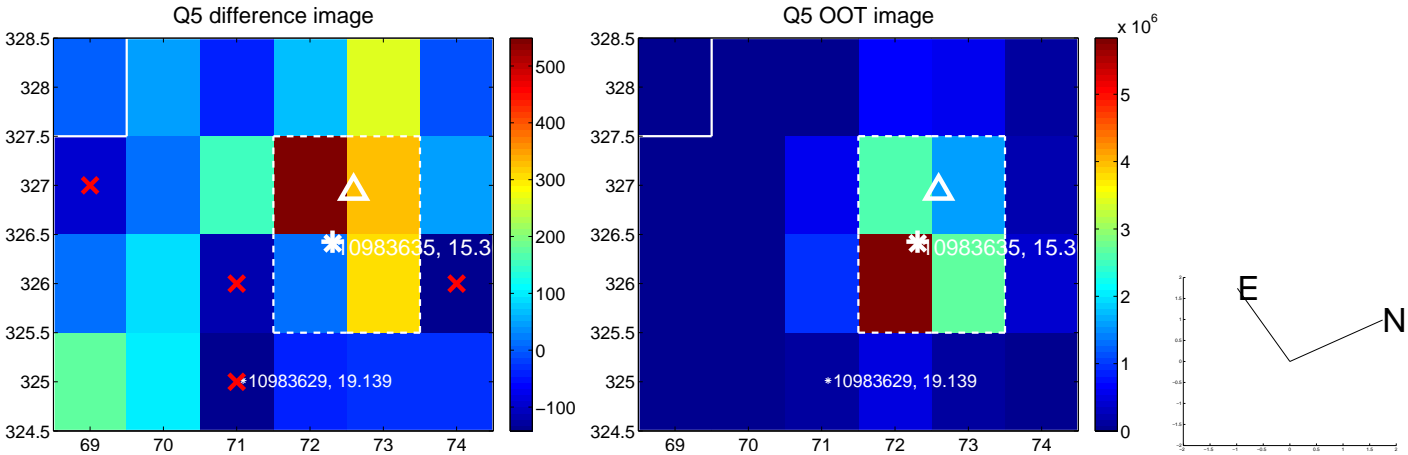


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

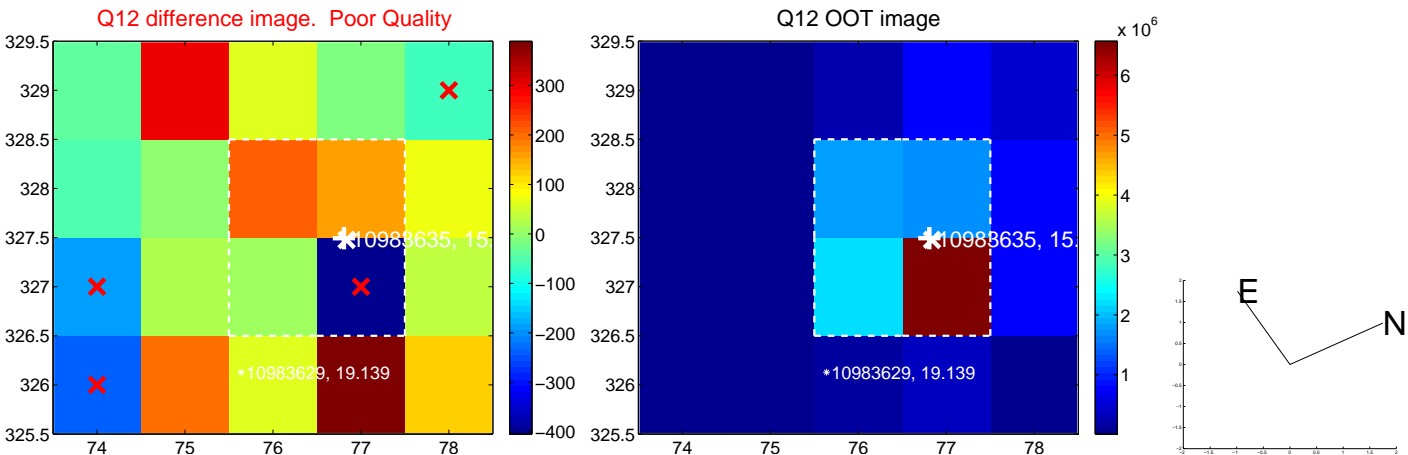
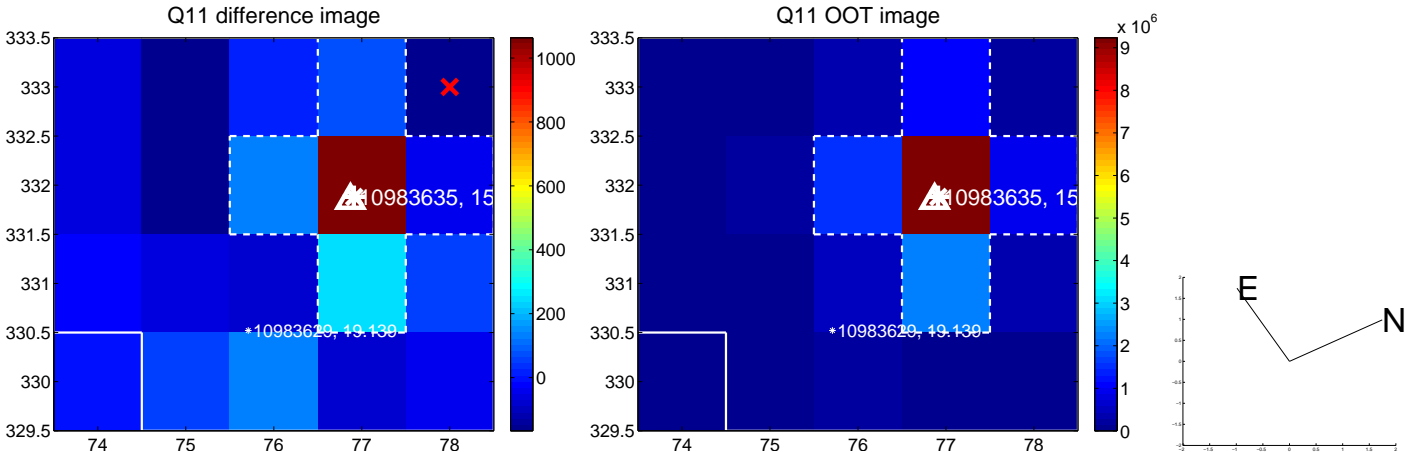
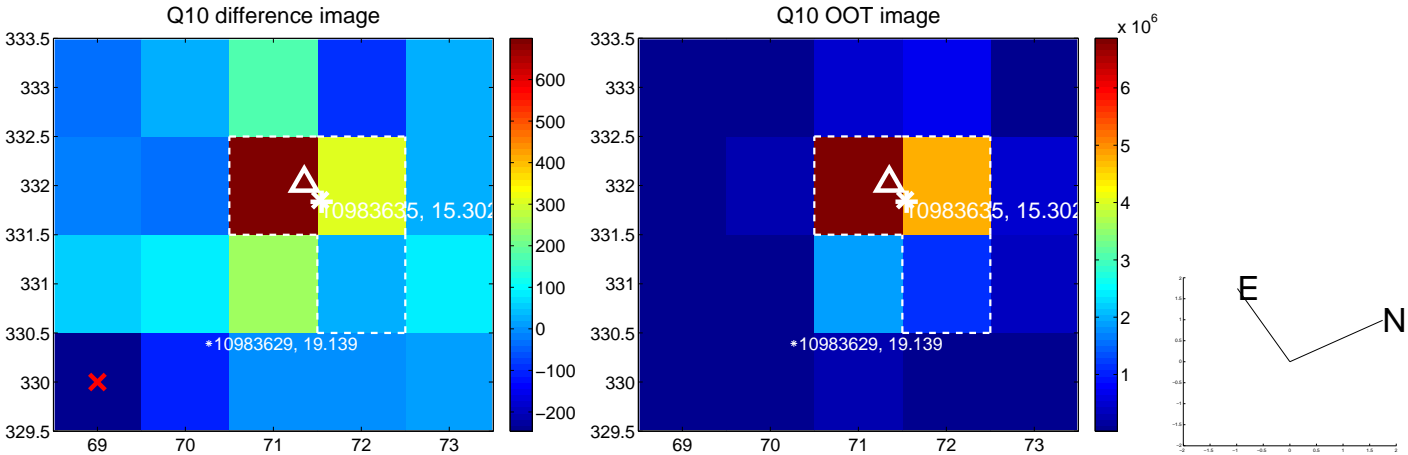
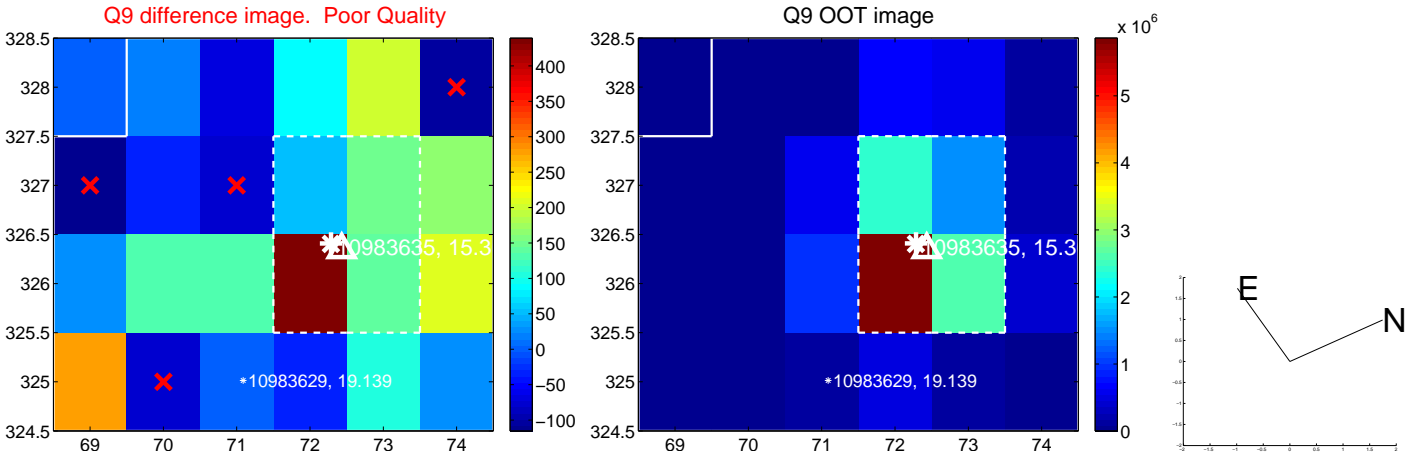
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



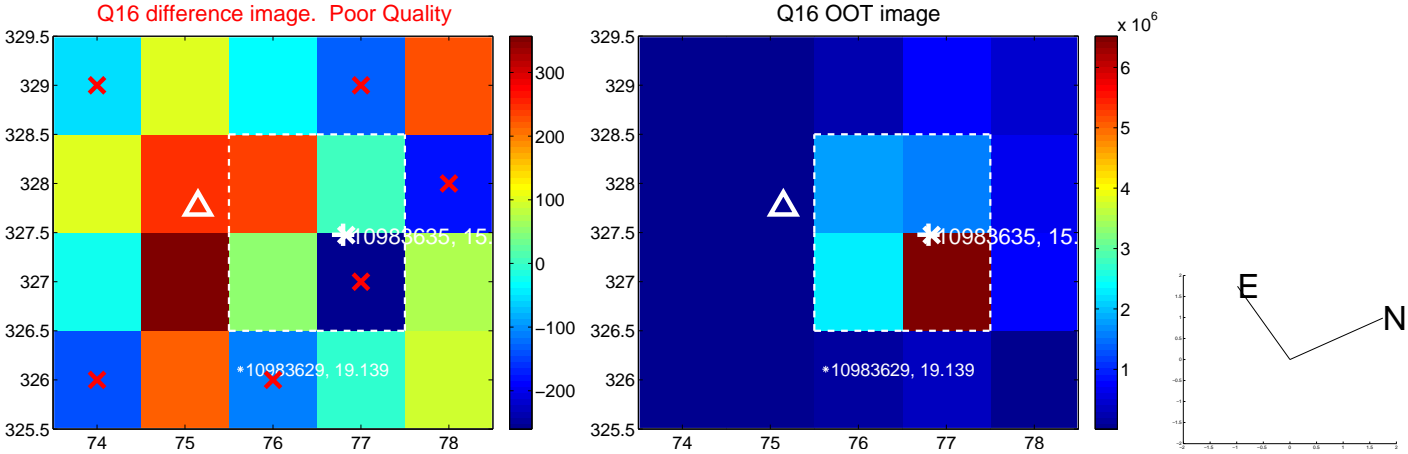
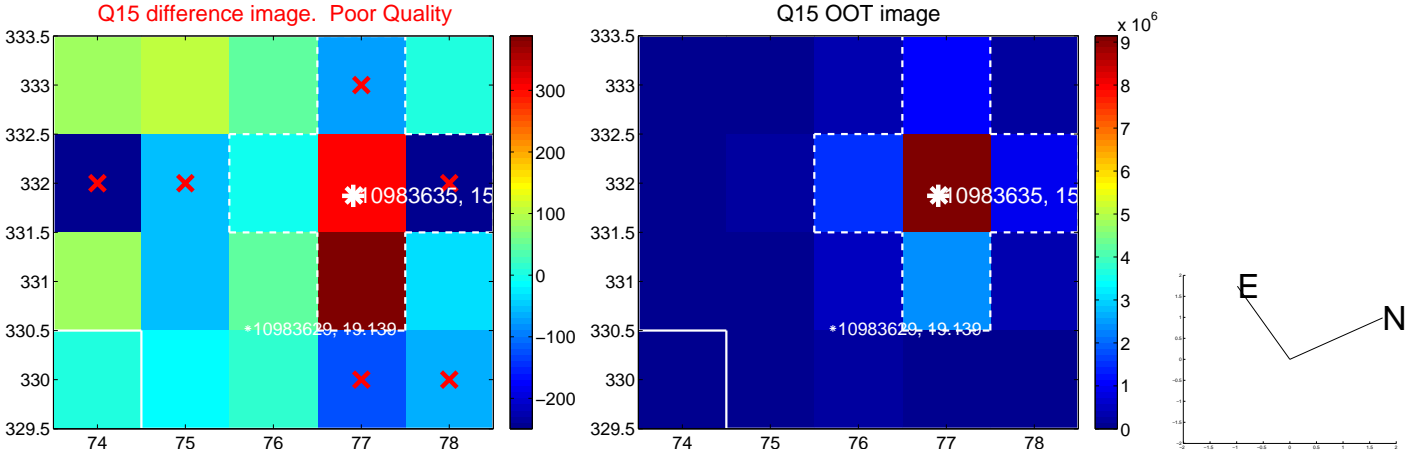
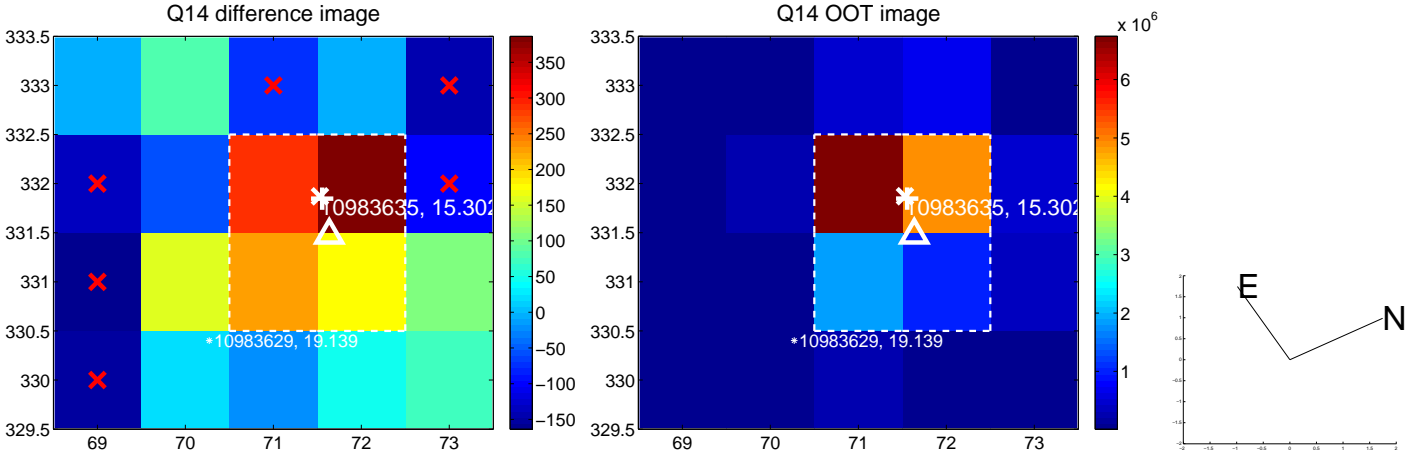
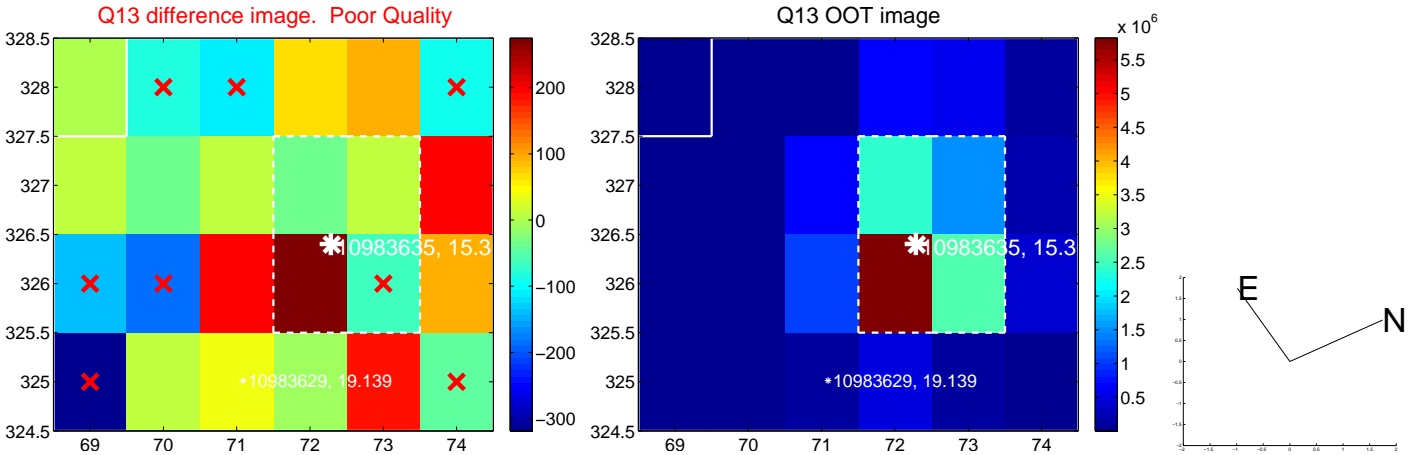
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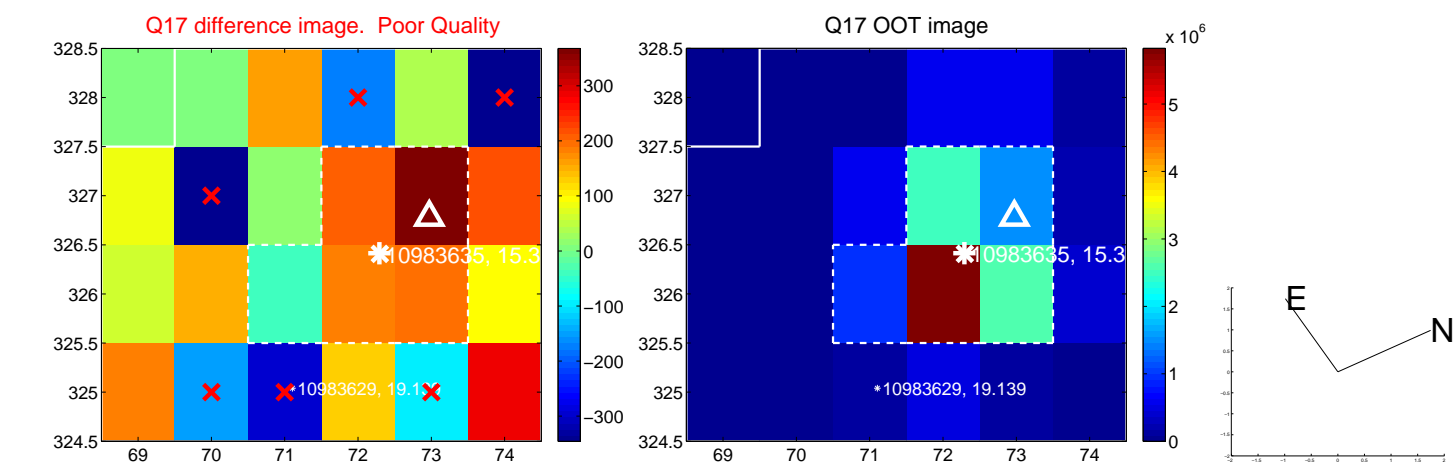


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

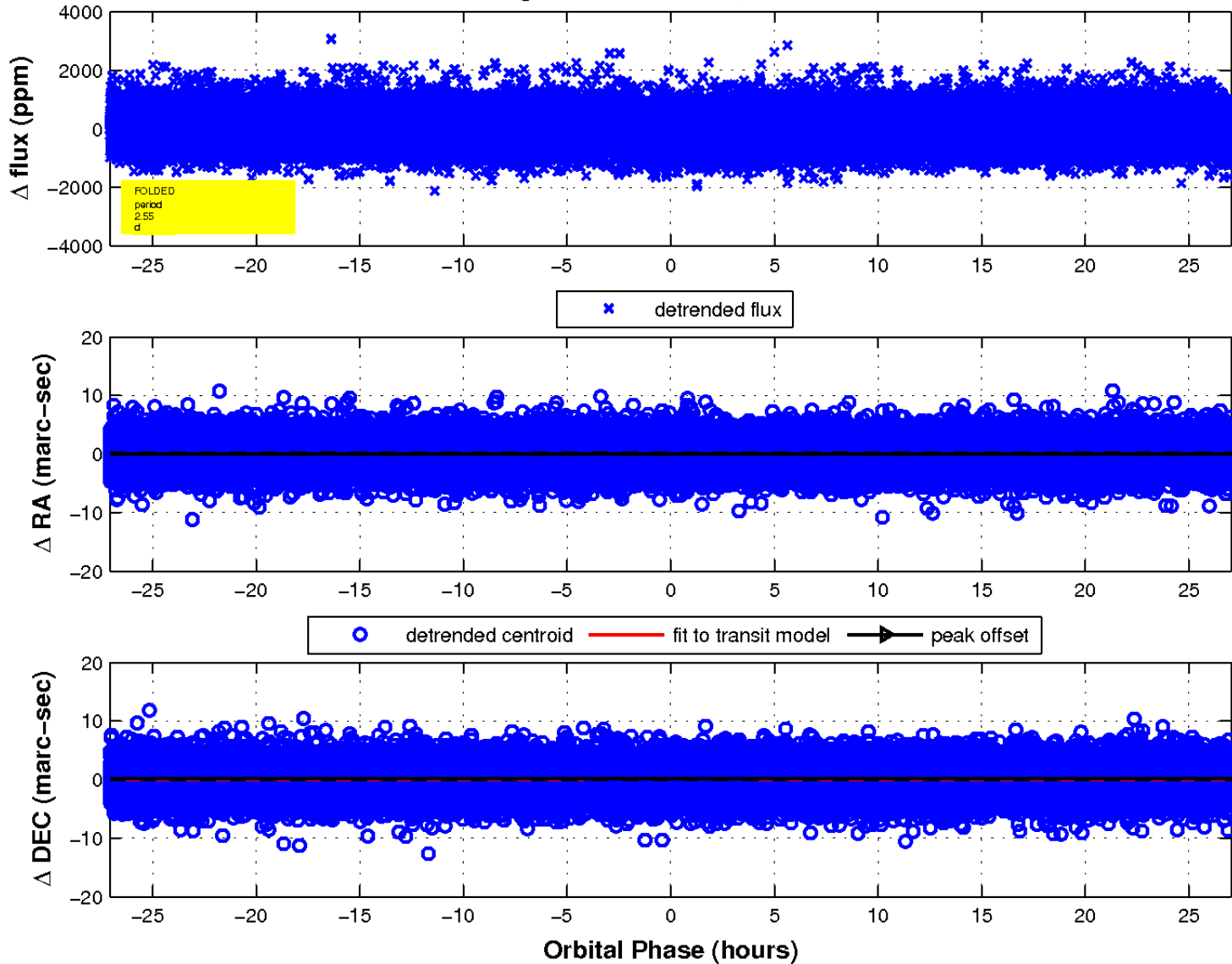




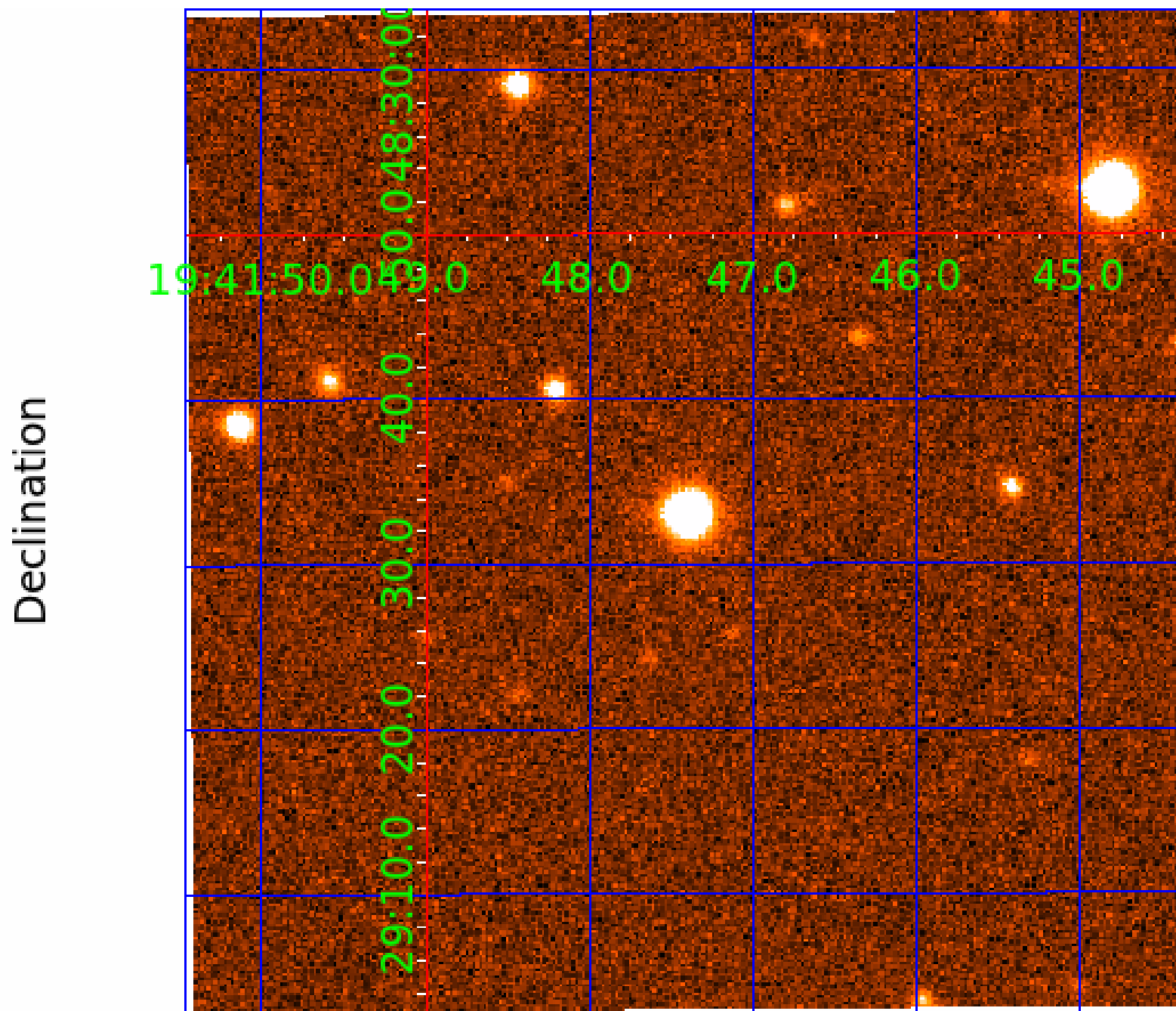
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 3



UKIRT Image



# KIC 010983635

## 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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010983635-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

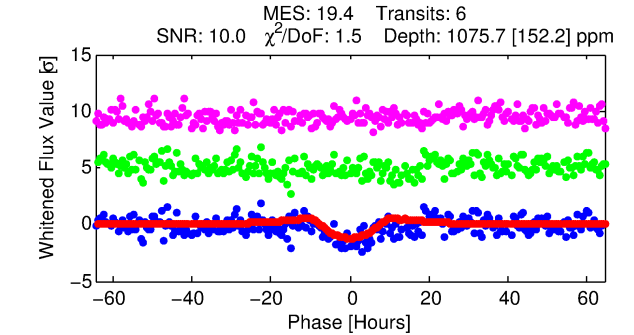
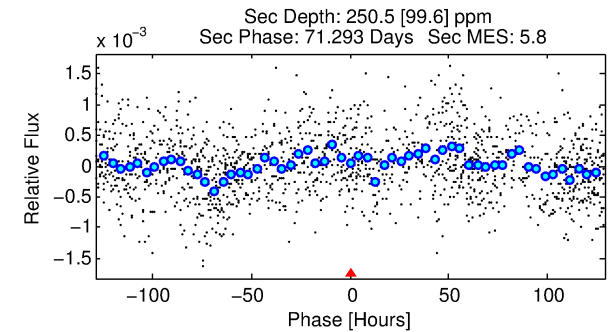
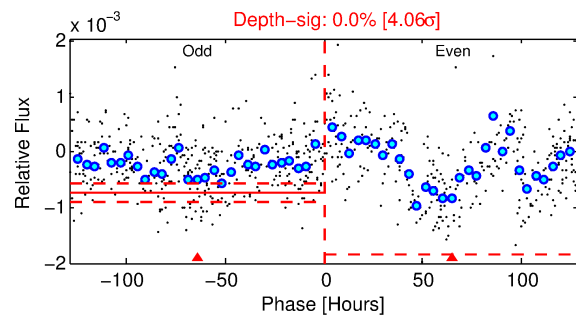
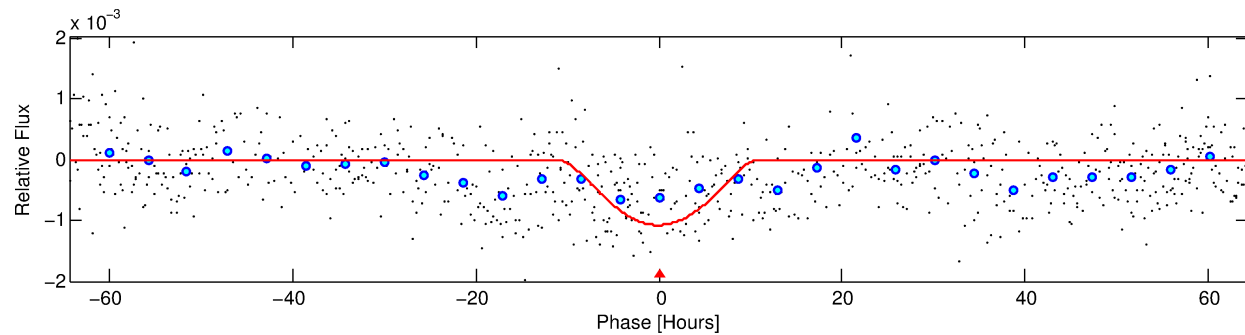
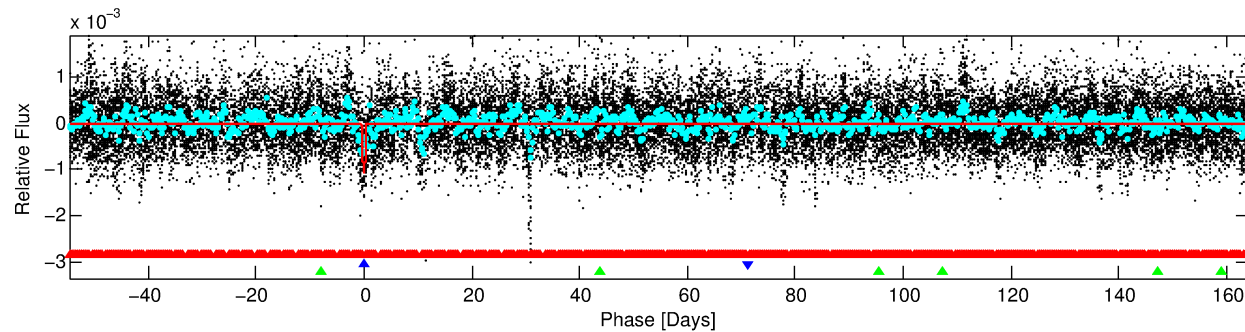
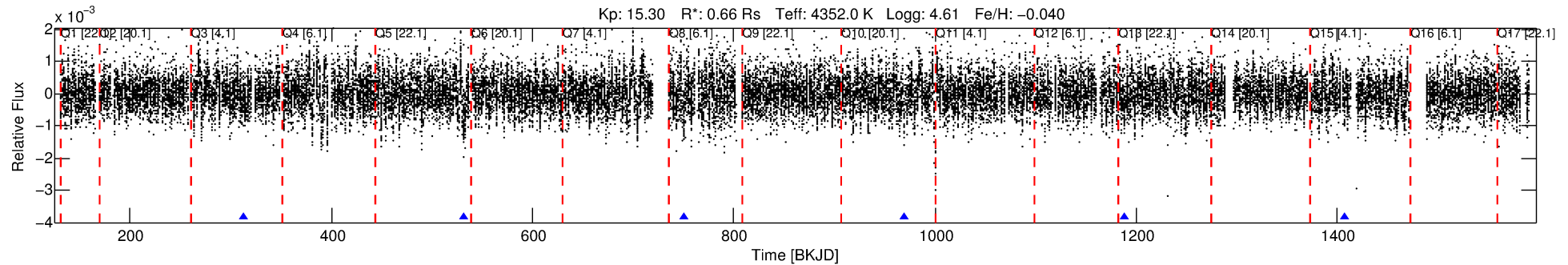
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010983635-02

No Significant Match Found

# DV One-Page Summary

KIC: 10983635 Candidate: 2 of 3 Period: 218.788 d



## DV Fit Results:

Period = 218.78800 [0.01739] d  
Epoch = 312.9364 [0.0497] BKJD  
Rp/R\* = 0.0577 [0.1392]  
a/R\* = 28.37 [16.78]  
b = 0.99 [0.21]  
Seff = 0.37 [0.06]  
Teq = 199 [8] K  
Rp = 4.16 [10.05] Re  
a = 0.6154 [0.0449] AU  
Ag = 3015.36 [14606.14] [0.21 $\sigma$ ]  
Teffp = 2280 [2761] K [0.75 $\sigma$ ]

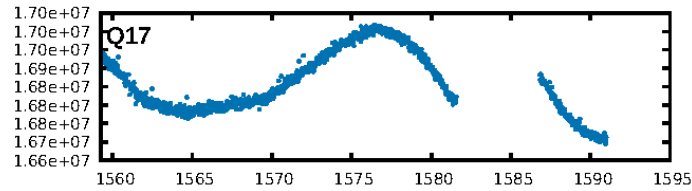
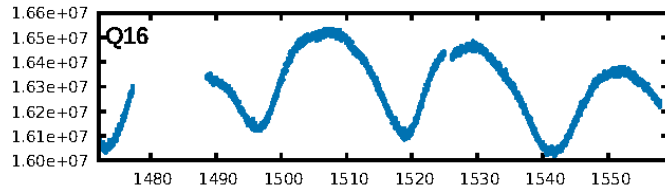
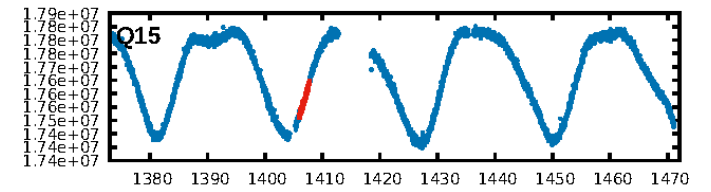
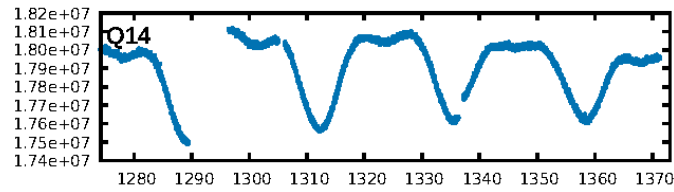
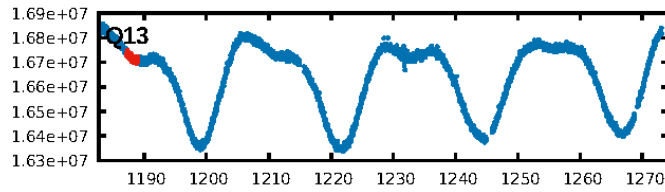
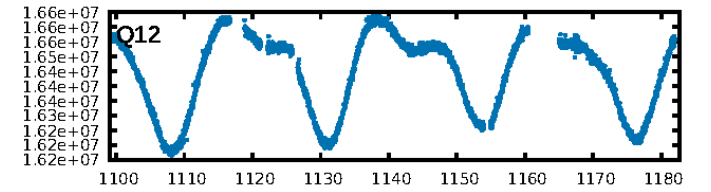
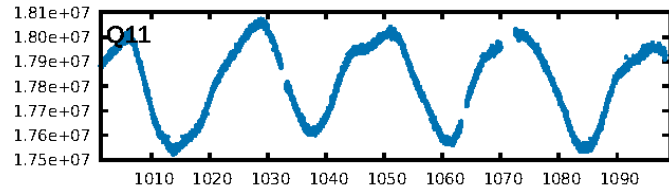
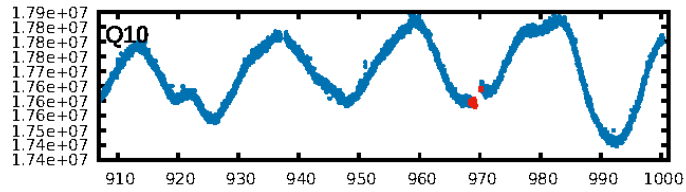
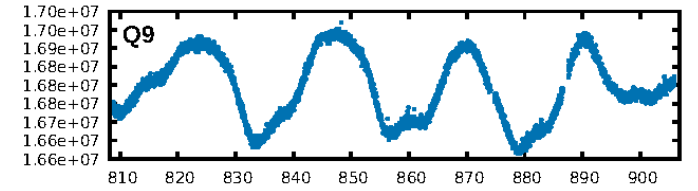
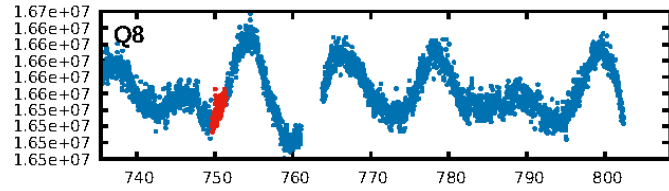
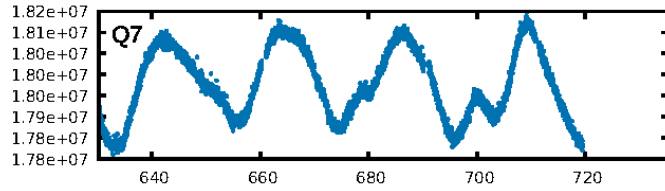
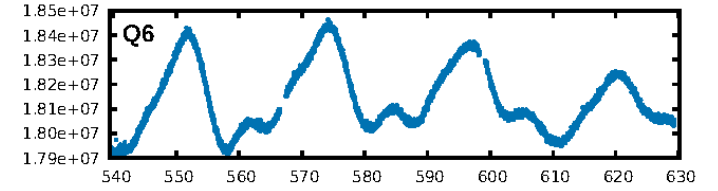
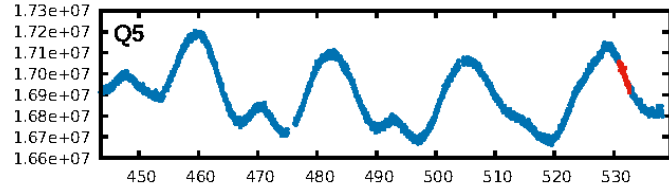
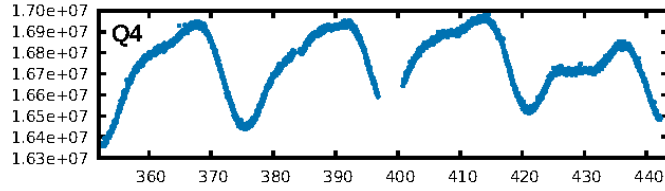
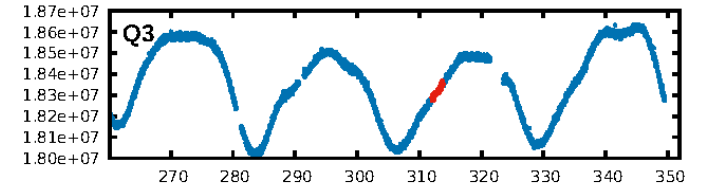
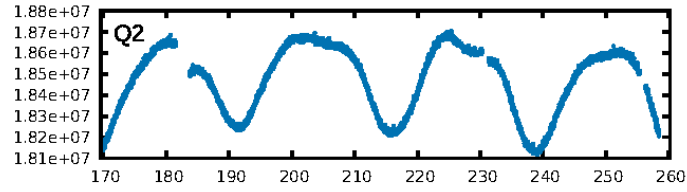
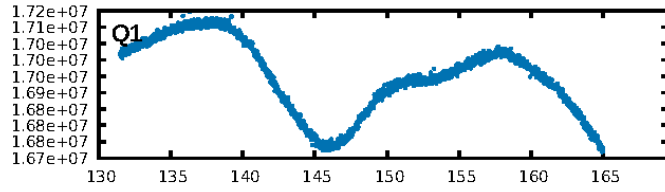
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [223.04 $\sigma$ ]  
LongPeriod-sig: 100.0% [57.28 $\sigma$ ]  
**ModelChiSquare2-sig: 0.0%**  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.83e-26  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: -0.03709  
Centroid-sig: 37.8%  
Centroid-so: 0.636 arcsec [1.18 $\sigma$ ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 0.00 [0/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:22:22 Z

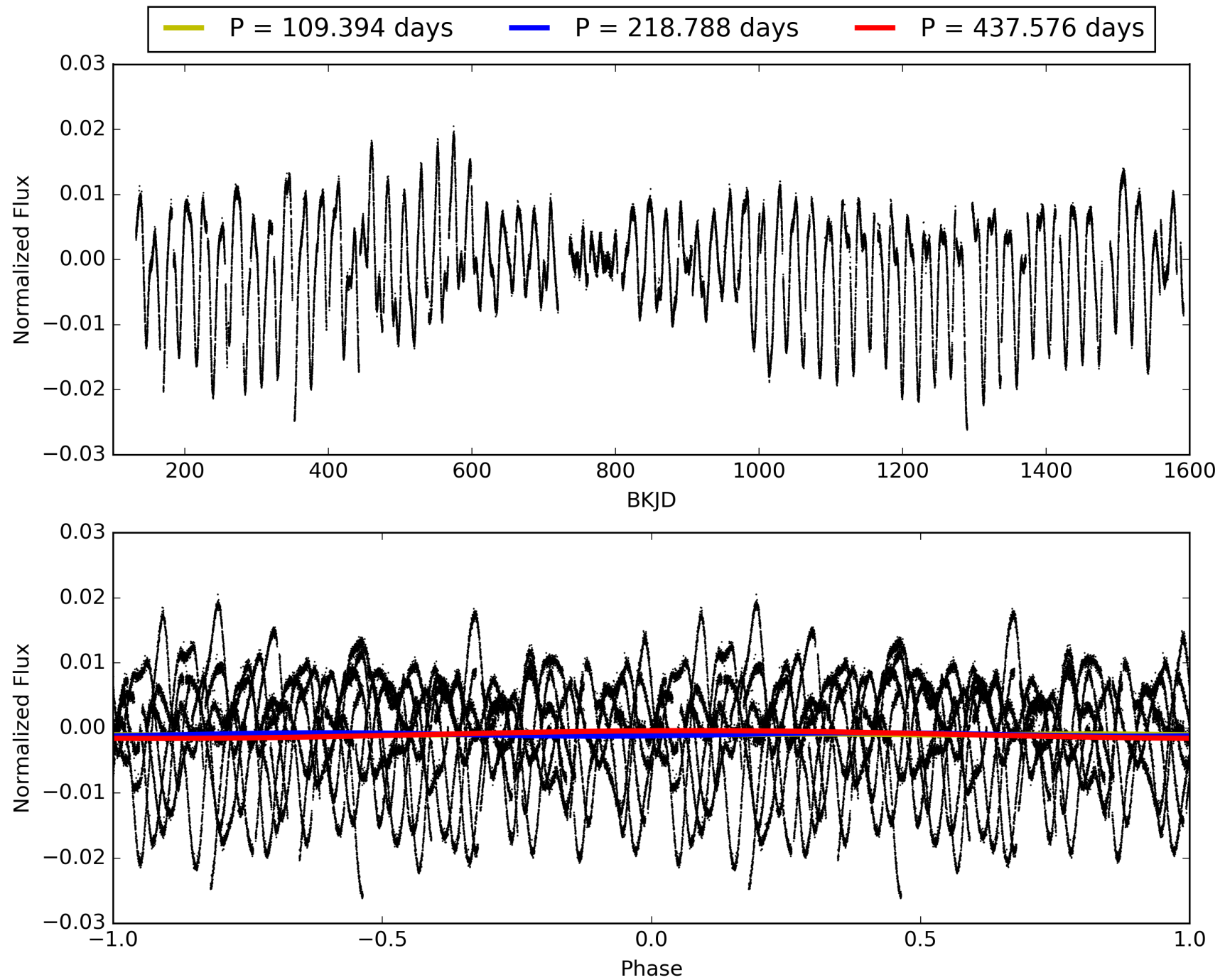
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010983635-02, PDC Light Curves



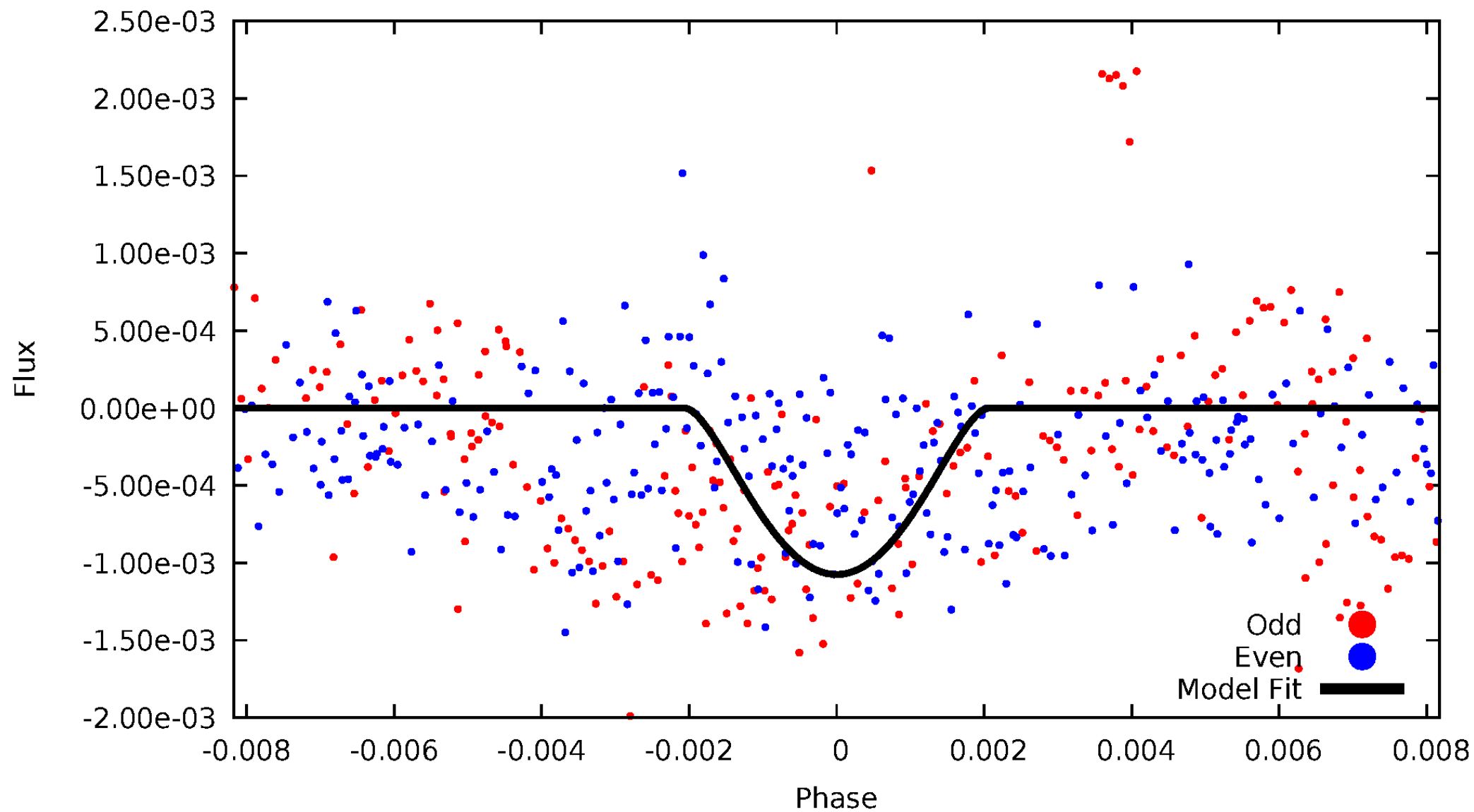


TCE 010983635-02



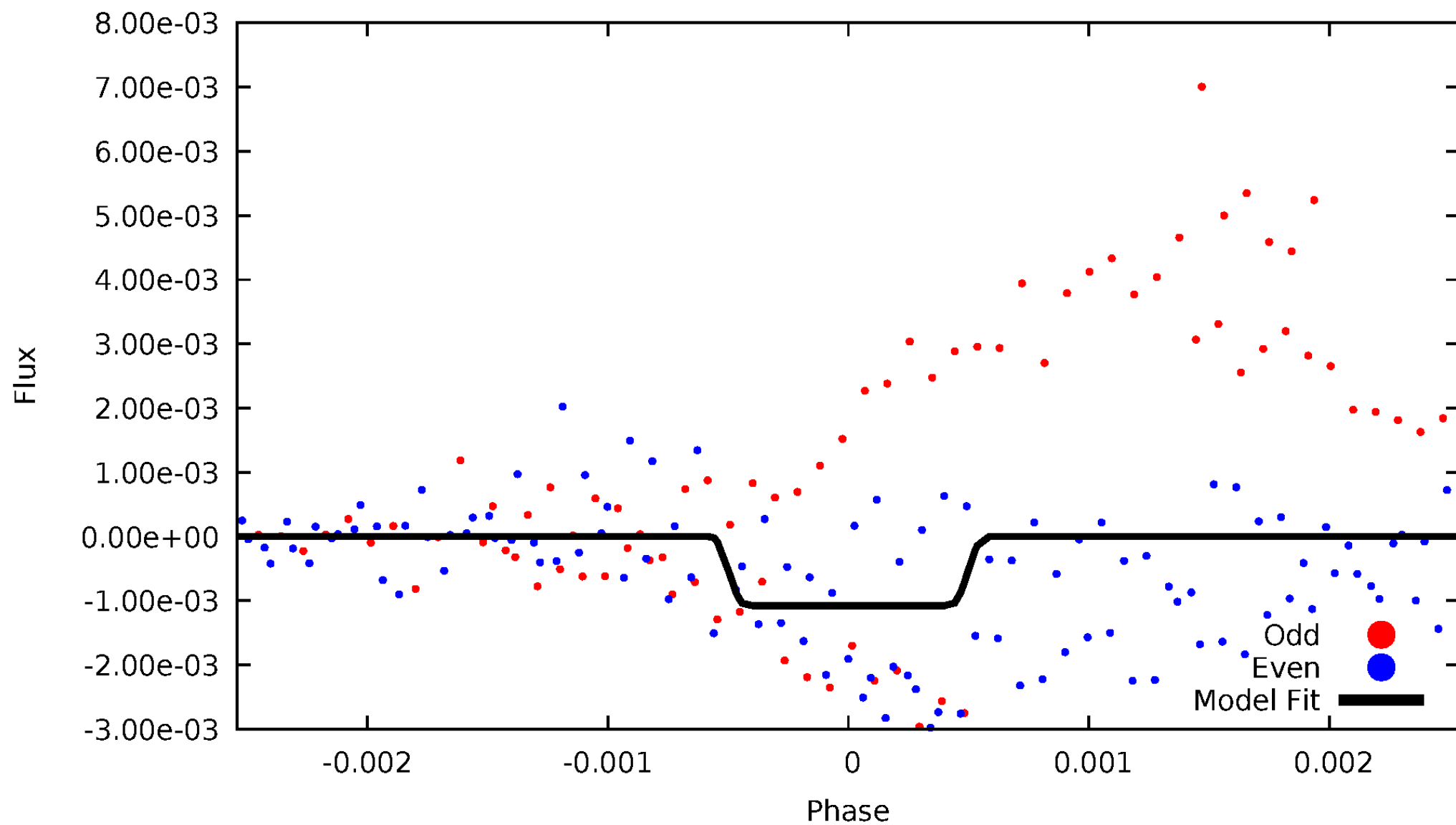
# DV Odd/Even

TCE 010983635-02



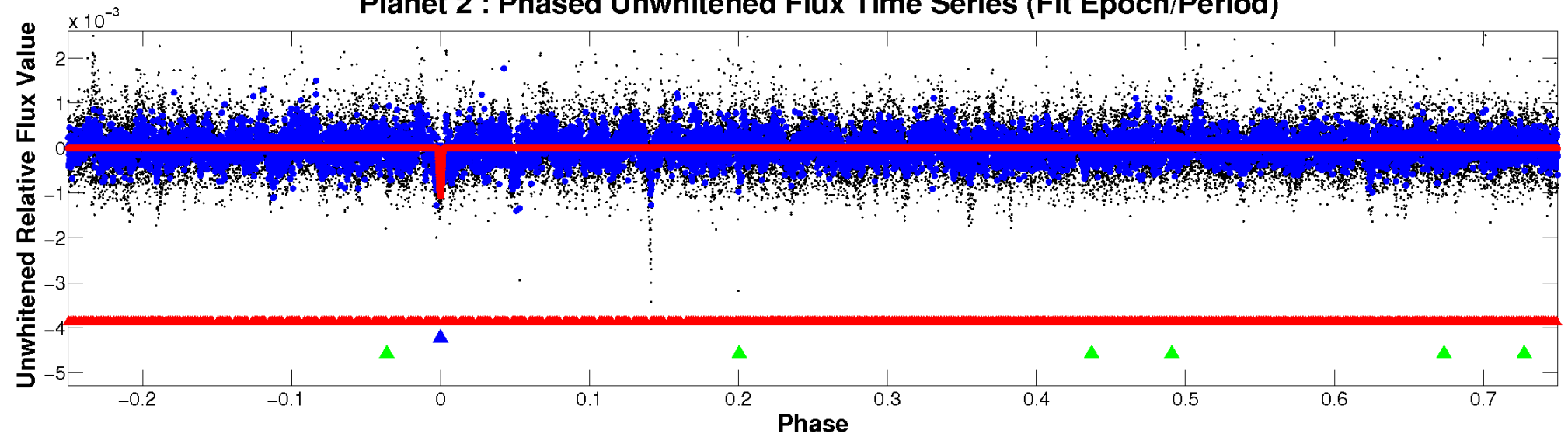
# ALT Odd/Even

TCE 010983635-02

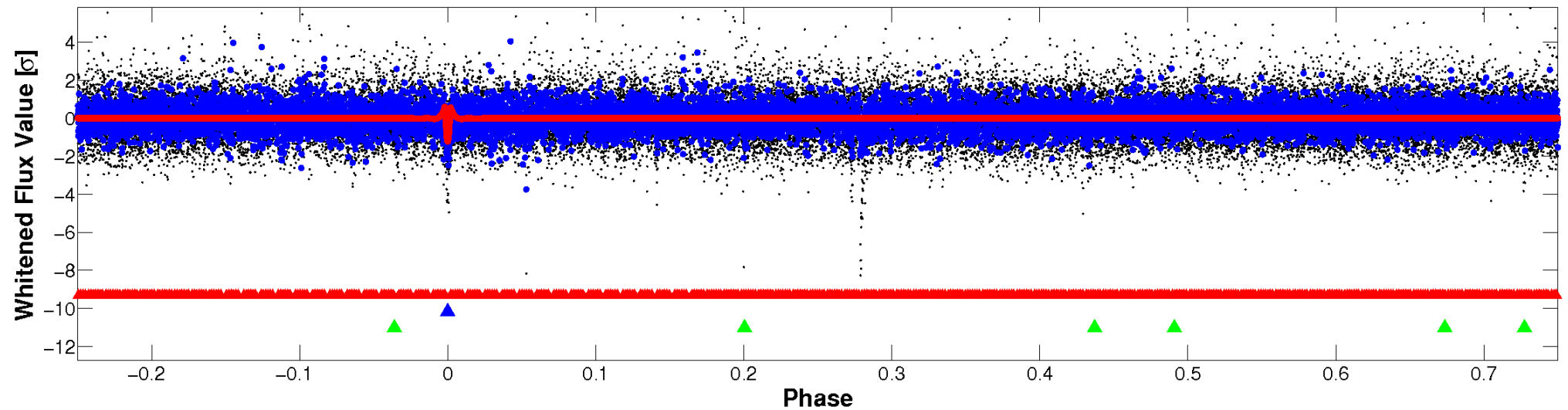


# Non-Whitened Vs. Whitened Light Curve

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

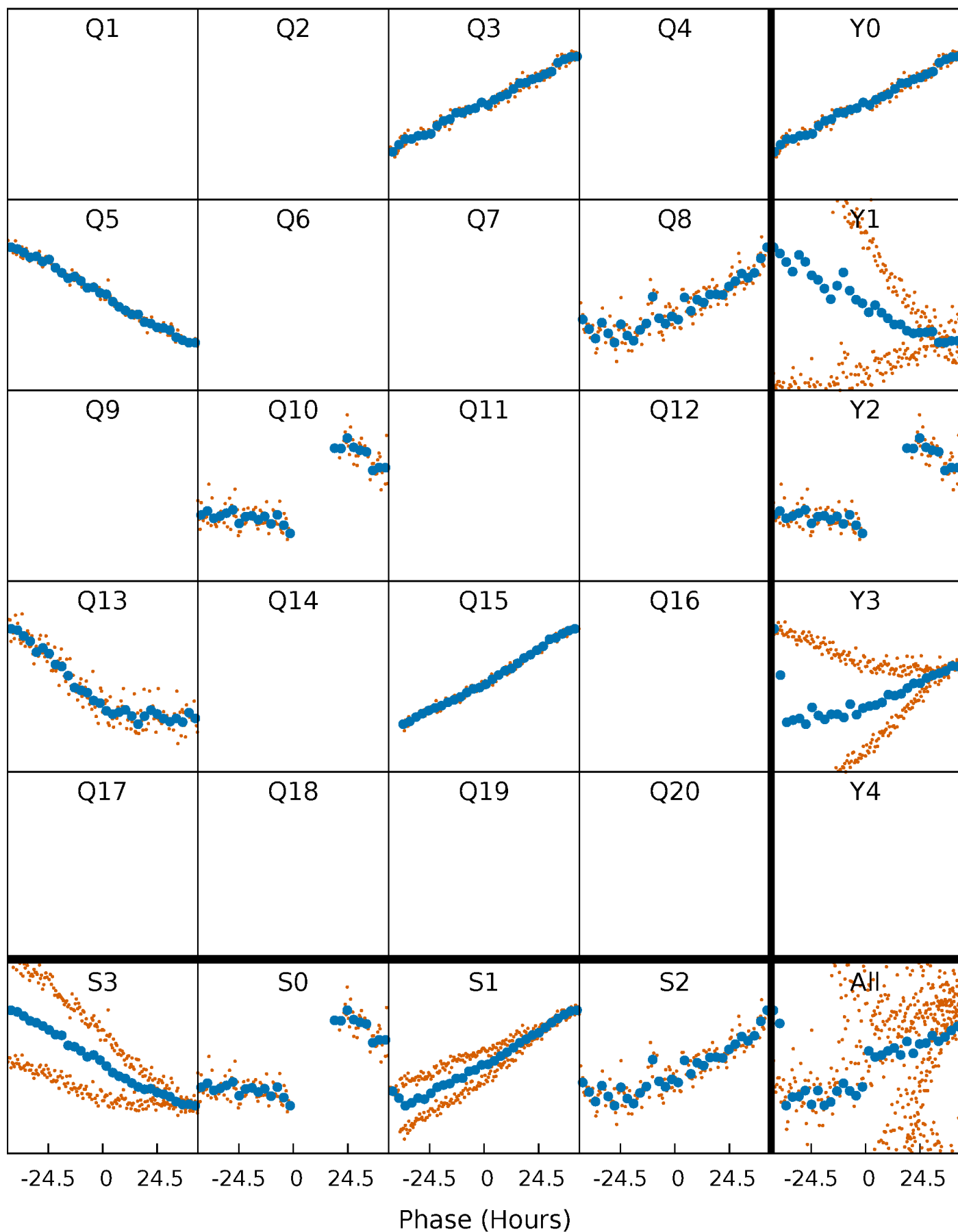


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

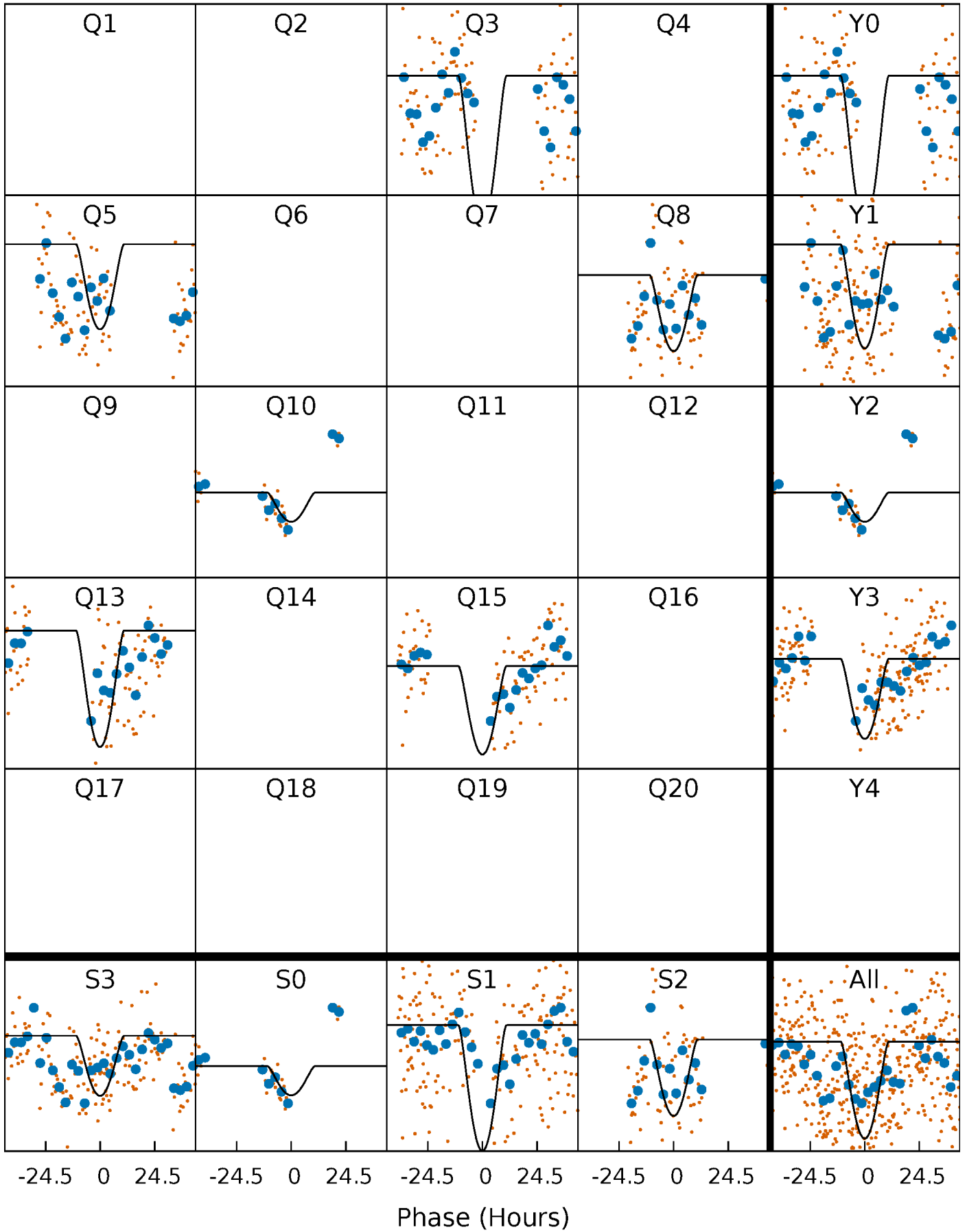
TCE 010983635-02   P=218.787998 Days    $T_0=312.936358$  (BKJD)





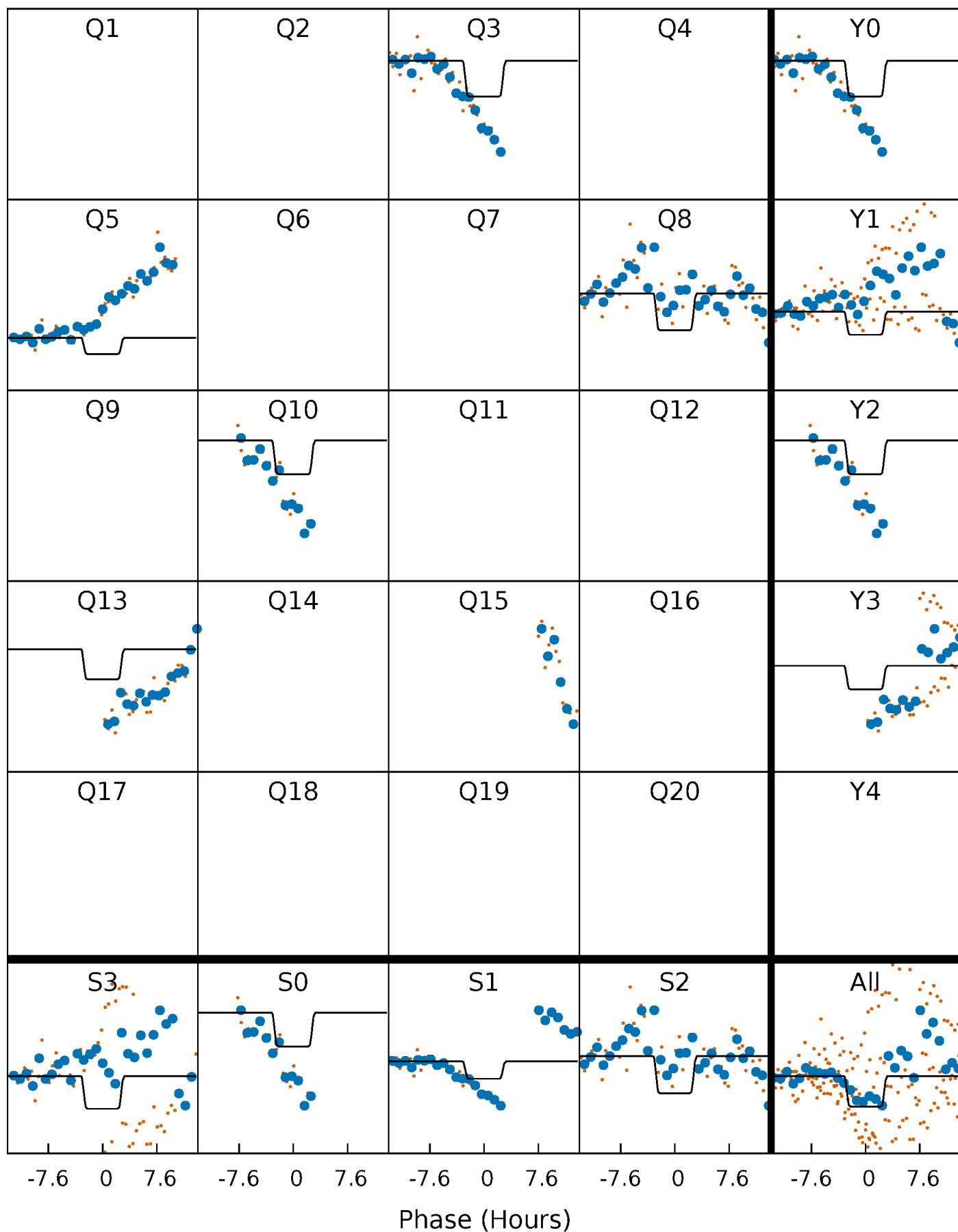
# DV Quarter-Phased Transit Curves

TCE 010983635-02     $P=218.787998$  Days     $T_0=312.936358$  (BKJD)



## Alt. Detrend Quarter-Phased Transit Curves

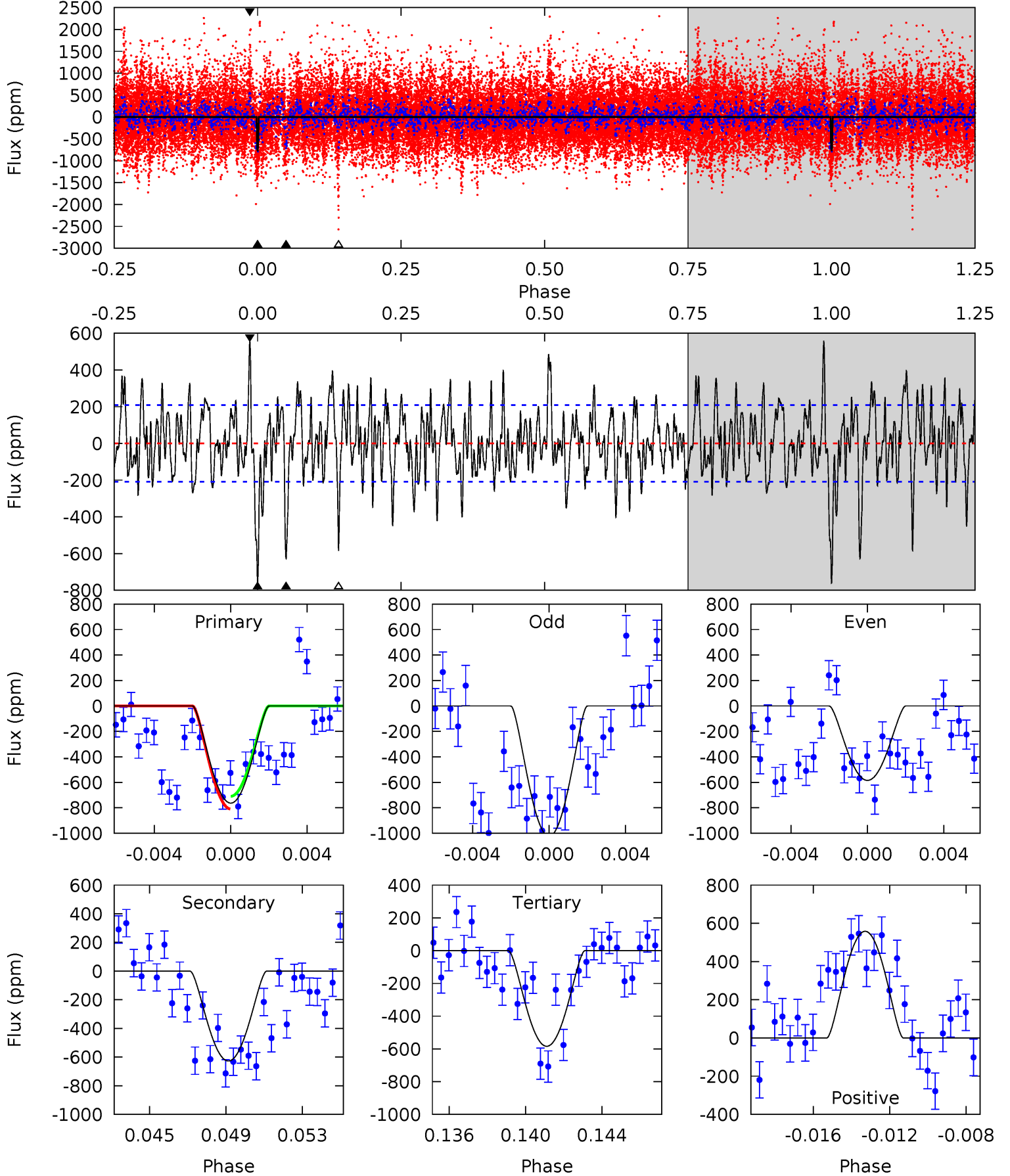
TCE 010983635-02     $P=218.809372$  Days     $T_0=312.696596$  (BKJD)



# DV Model-Shift Uniqueness Test

010983635-02, P = 218.787998 Days, E = 94.148360 Days

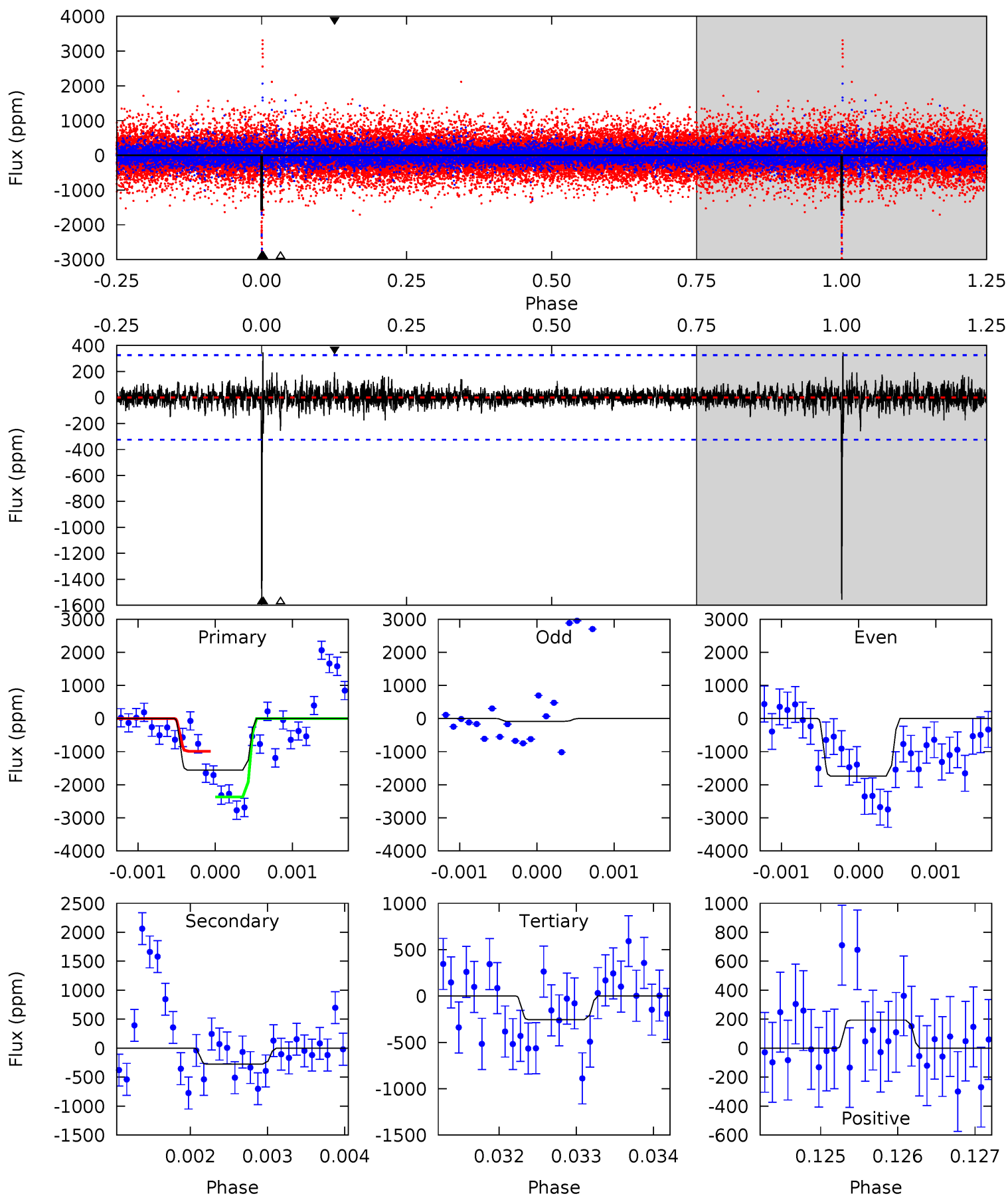
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	15.6	14.5	13.9	5.19	2.87	3.87	4.45	5.09	1.08	1.72	5.42	1.04	0.42	1.24



# Alt Model-Shift Uniqueness Test

010983635-02, P = 218.809372 Days, E = 93.887224 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
26.0	4.63	4.27	3.23	5.44	3.26	0.68	21.7	22.8	0.36	1.40	14.3	0.51	0.18	0



### Stellar Parameters For KIC 010983635

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4352^{+118}_{-131}$	$4.610^{+0.053}_{-0.021}$	$-0.040^{+0.300}_{-0.300}$	$0.661^{+0.037}_{-0.060}$	$0.650^{+0.065}_{-0.052}$	$3.165^{+0.681}_{-0.273}$
	+3%/-3%	+1%/-0%	+750%/-750%	+6%/-9%	+10%/-8%	+22%/-9%
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 010983635-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-627 \pm 40$	$8.49^{+8.23}_{-5.74}$	$276^{+8}_{-10}$	$2693^{+1027}_{-410}$	$1882^{+16025}_{-1411}$
Alt.	$-277 \pm 60$	$7.39^{+8.01}_{-5.08}$	$276^{+9}_{-9}$	$2497^{+944}_{-377}$	$1037^{+9783}_{-788}$

$T_{\text{max}}$  = 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

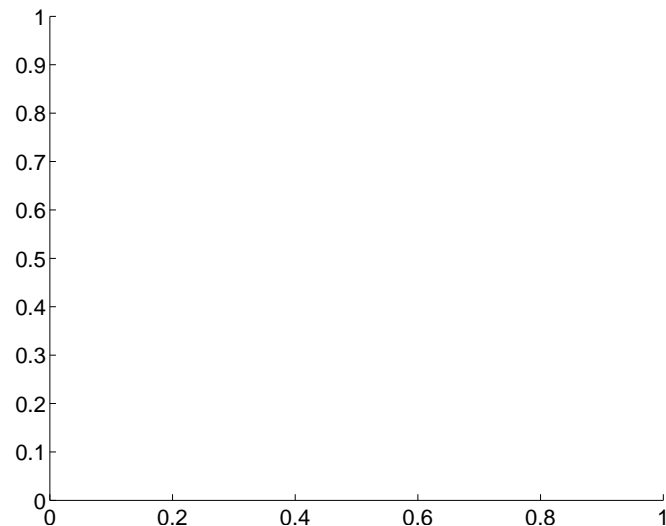
Supplemental centroid analysis for 010983635-02. Kepler magnitude: 15.30. Transit SNR 9.99

There are 0 quarters with good PRF difference image offsets

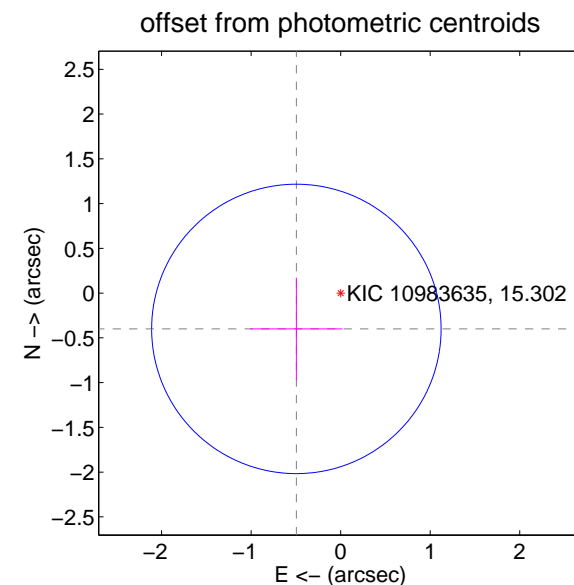
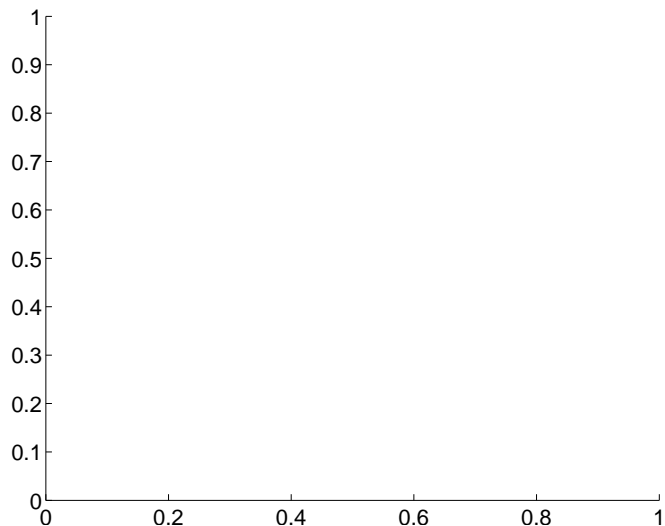
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$0.64 \pm 0.54$	1.18	$0.49 \pm 0.52$	$-0.40 \pm 0.57$

There is no PRF-fit offset from OOT-fit

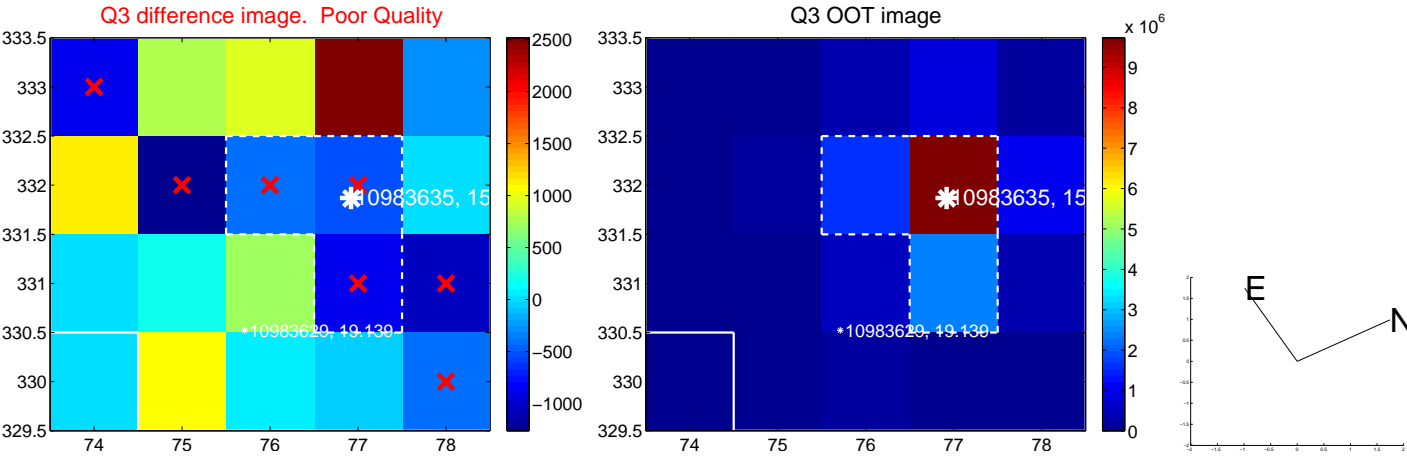


There is no PRF-fit offset from KIC



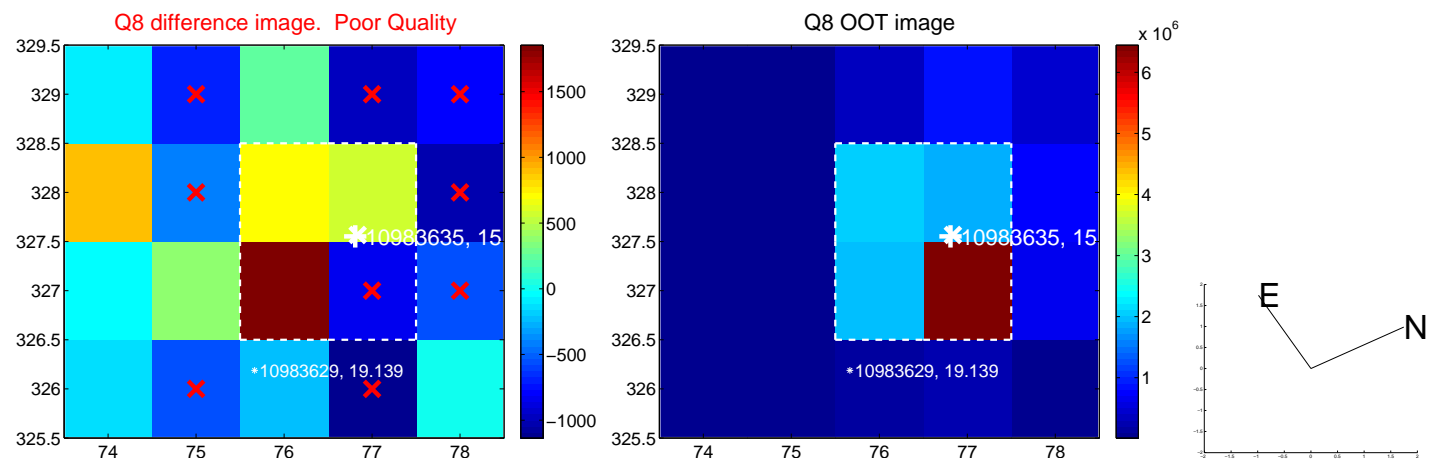
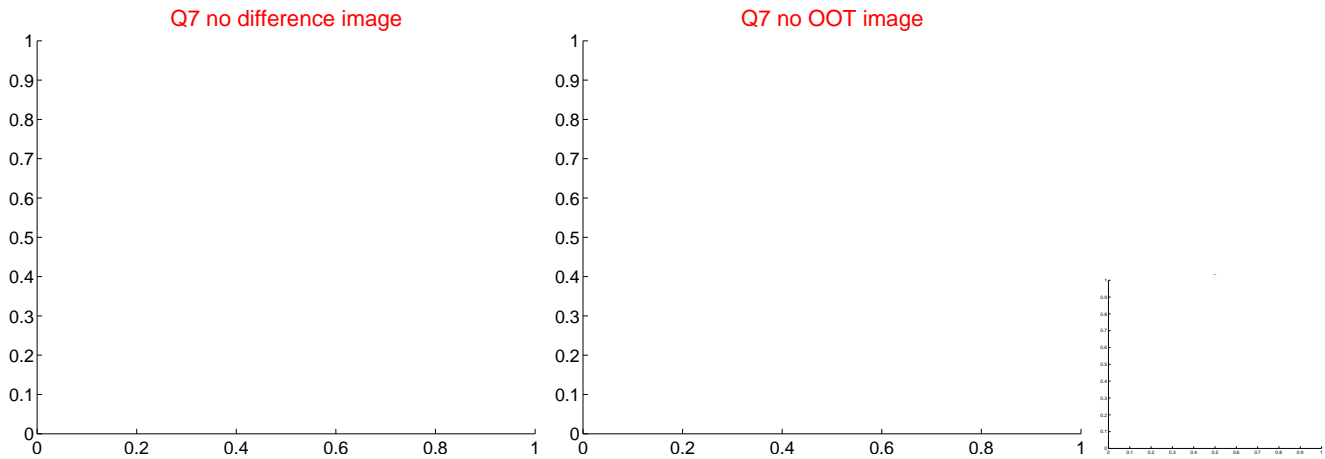
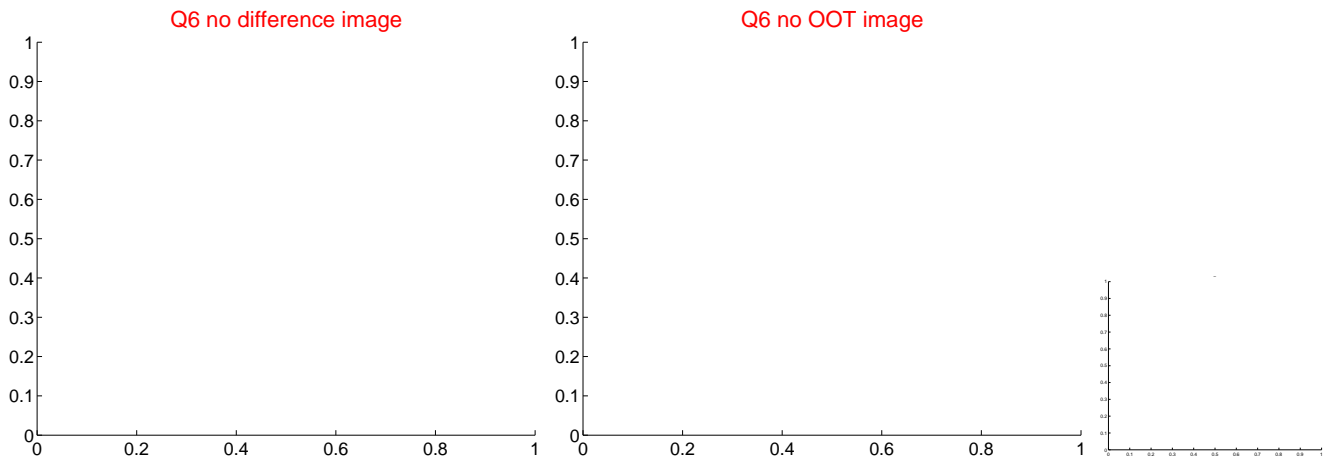
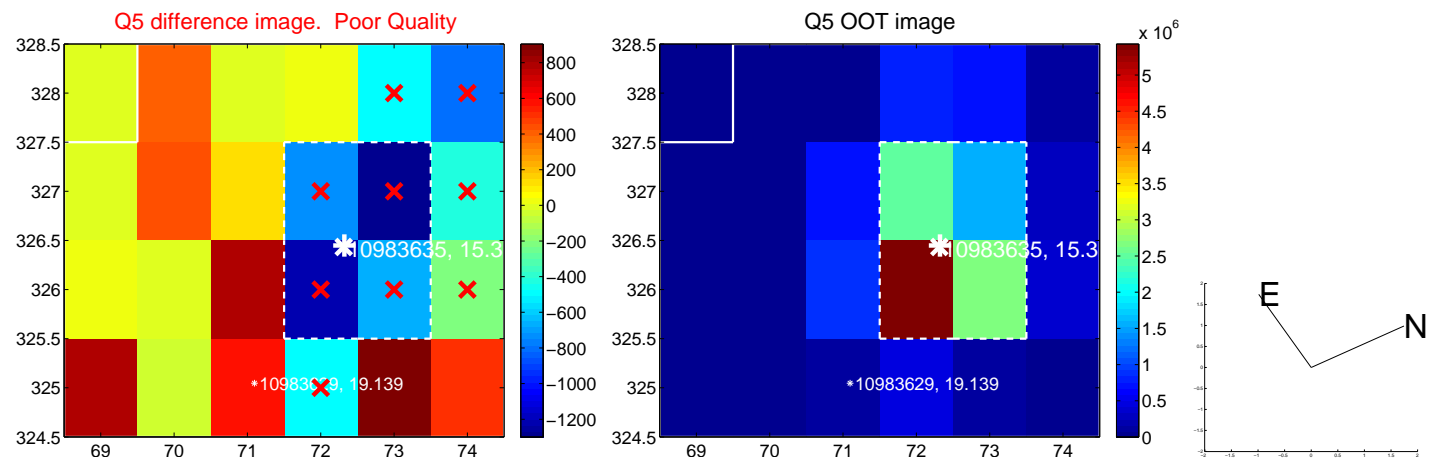
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

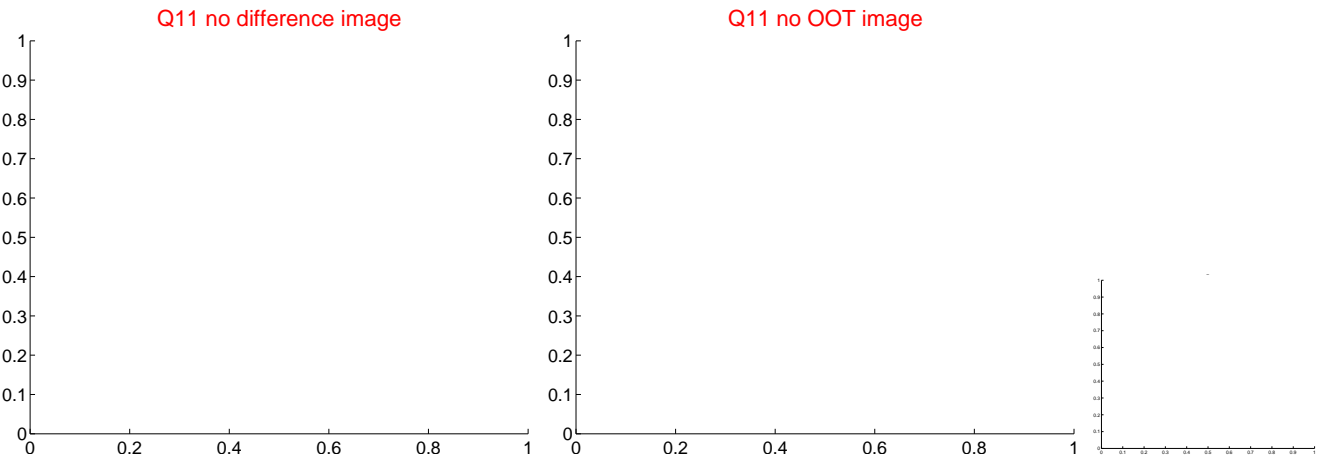




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



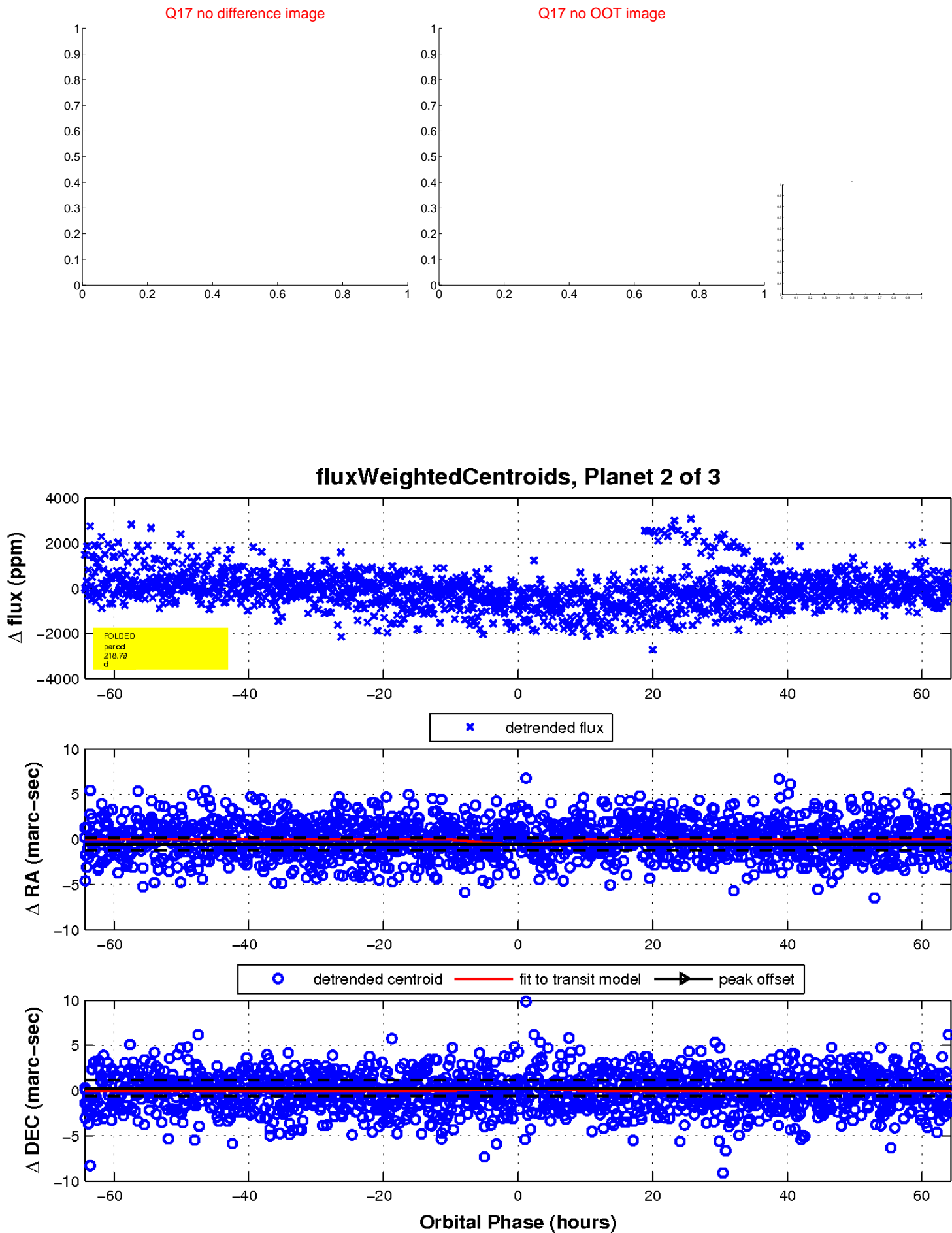
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



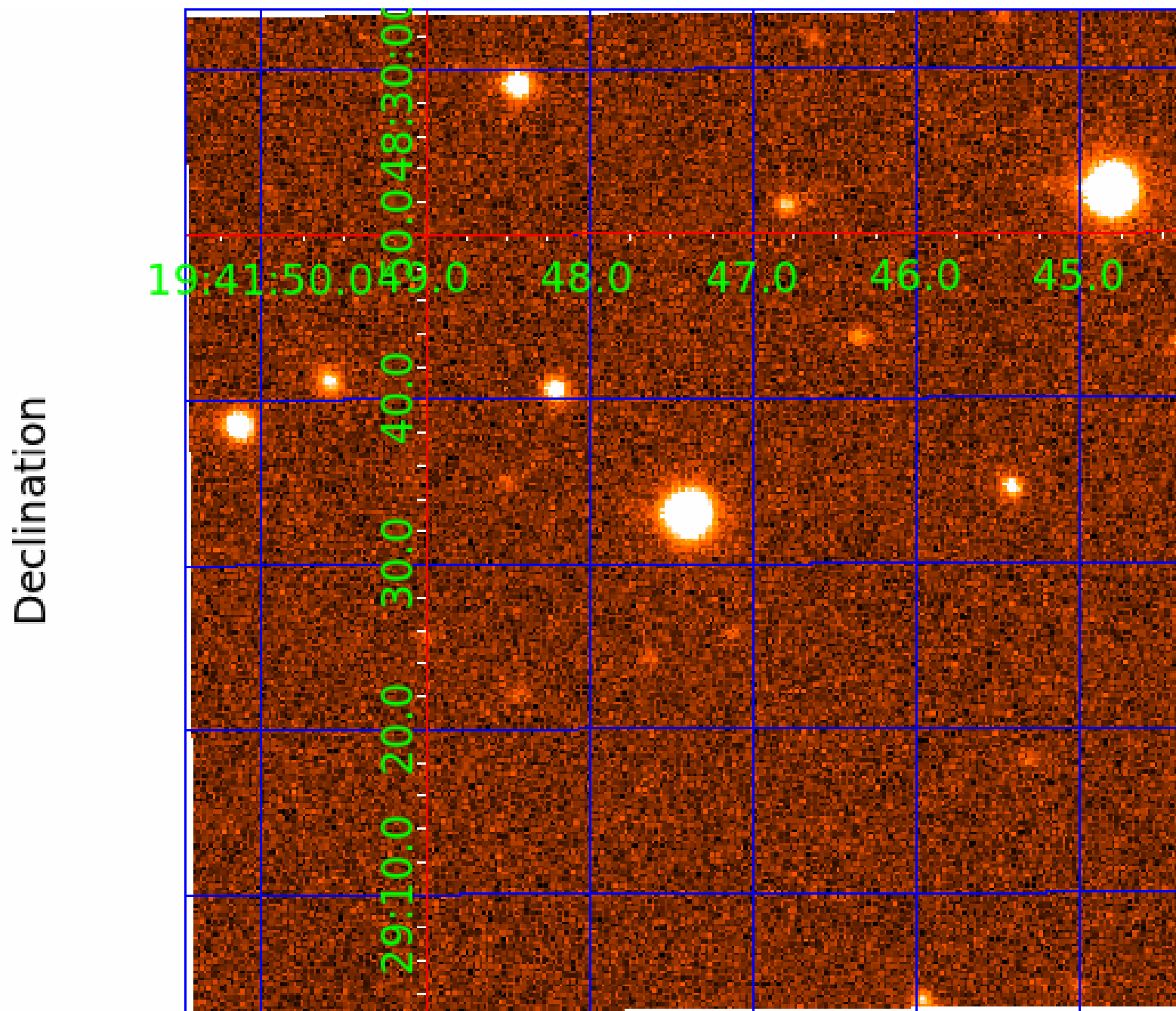
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 010983635

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010983635-01	OBS	No	2.548013	132.469986	44.8	9.023	7.1	6.4	0.66	4352	0.55	140.45
010983635-02	OBS	No	218.787998	312.936358	1075.7	21.448	19.4	10.0	0.66	4352	4.16	0.37
010983635-03	OBS	No	270.541497	201.548978	633.7	3.188	11.4	4.6	0.66	4352	1.85	0.28

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010983635-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010983635-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010983635-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

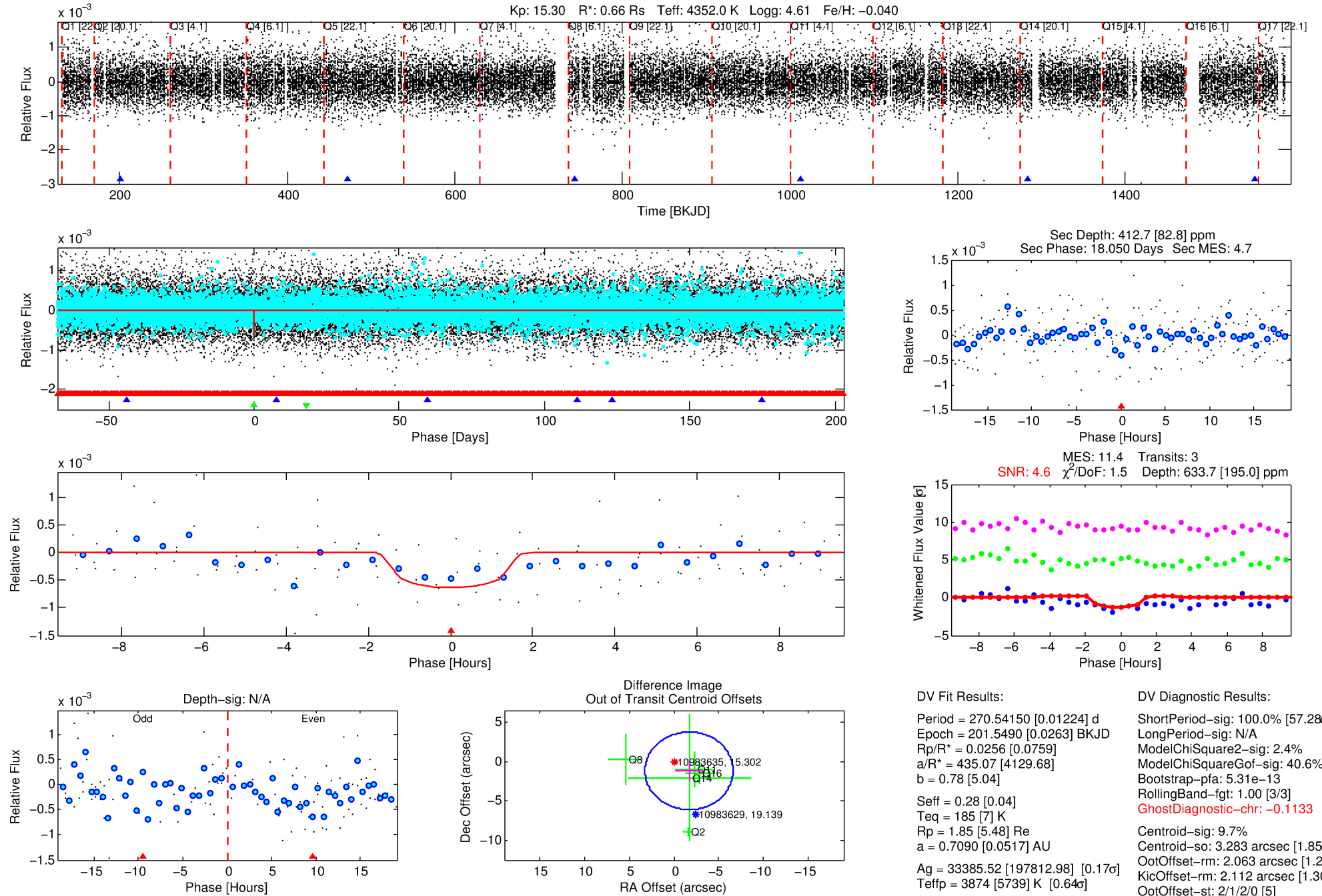
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010983635-03

No Significant Match Found

# DV One-Page Summary

KIC: 10983635 Candidate: 3 of 3 Period: 270.541 d



## DV Fit Results:

Period = 270.54150 [0.01224] d  
Epoch = 201.5490 [0.0263] BKJD  
Rp/R\* = 0.0256 [0.0759]  
a/R\* = 435.07 [4129.68]  
b = 0.78 [5.04]  
Seff = 0.28 [0.04]  
Teff = 185 [7] K  
Rp = 1.85 [5.48] Re  
a = 0.7090 [0.0517] AU  
Ag = 33385.52 [197812.98] [0.17] $\sigma$   
Teffp = 3874 [5739] K [0.64] $\sigma$

## DV Diagnostic Results:

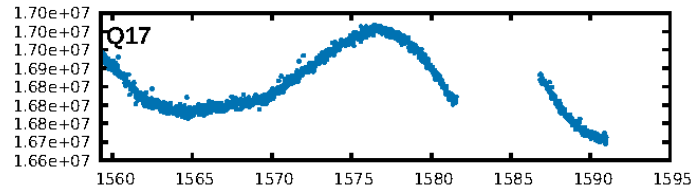
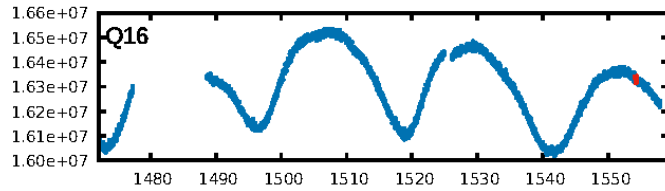
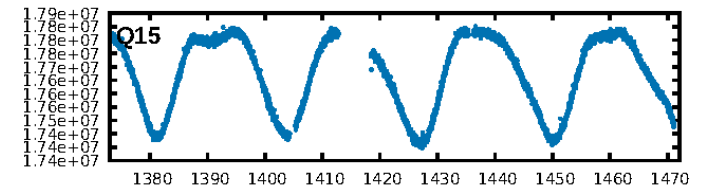
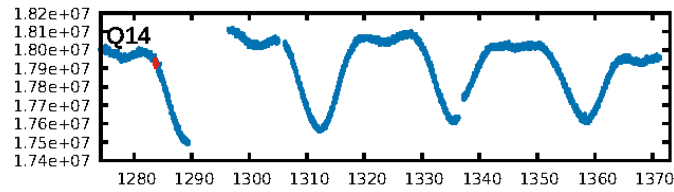
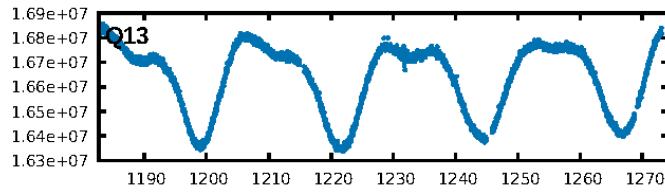
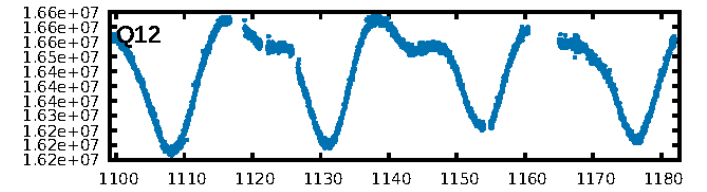
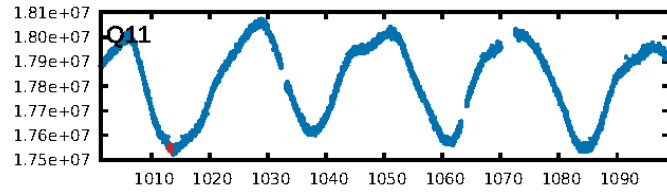
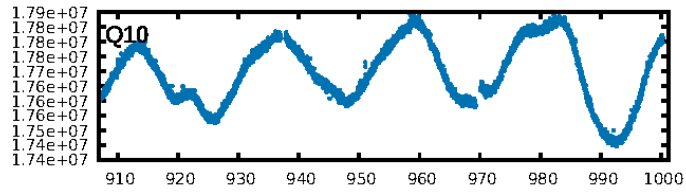
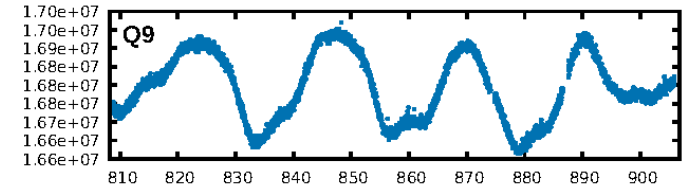
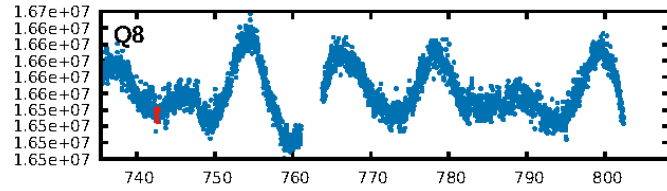
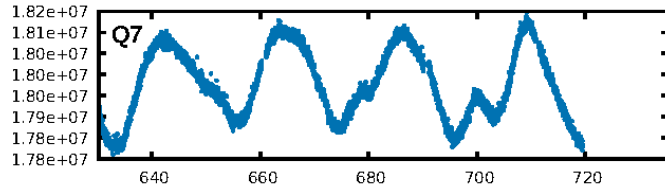
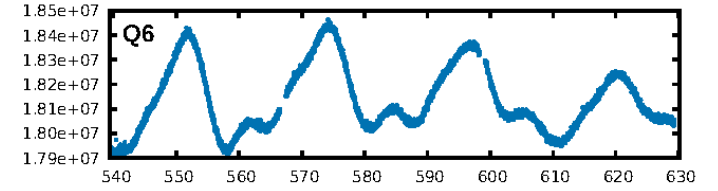
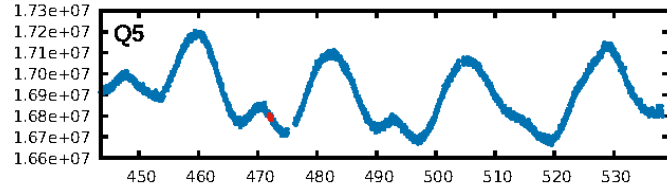
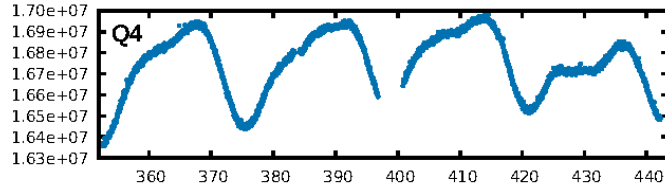
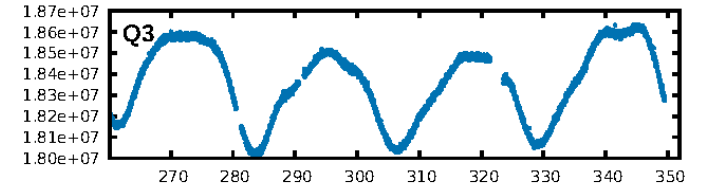
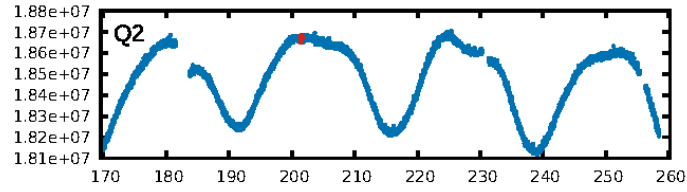
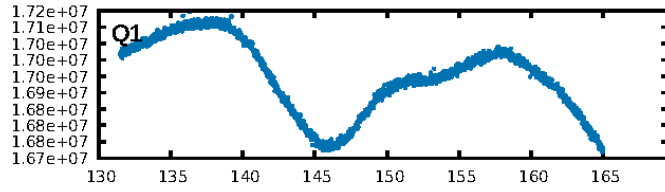
ShortPeriod-sig: 100.0% [57.28] $\sigma$   
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.4%  
ModelChiSquareGof-sig: 40.6%  
Bootstrap-pfa: 5.31e-13  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.1133  
Centroid-sig: 9.7%  
Centroid-so: 3.283 arcsec [1.85] $\sigma$   
OotOffset-rm: 2.063 arcsec [1.25] $\sigma$   
KicOffset-rm: 2.112 arcsec [1.30] $\sigma$   
OotOffset-st: 2/1/2/0 [5]  
KicOffset-st: 2/1/2/0 [5]  
DiffImageQuality-fgm: 0.00 [0/5]  
DiffImageOverlap-fno: 0.50 [3/6]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:22:31 Z

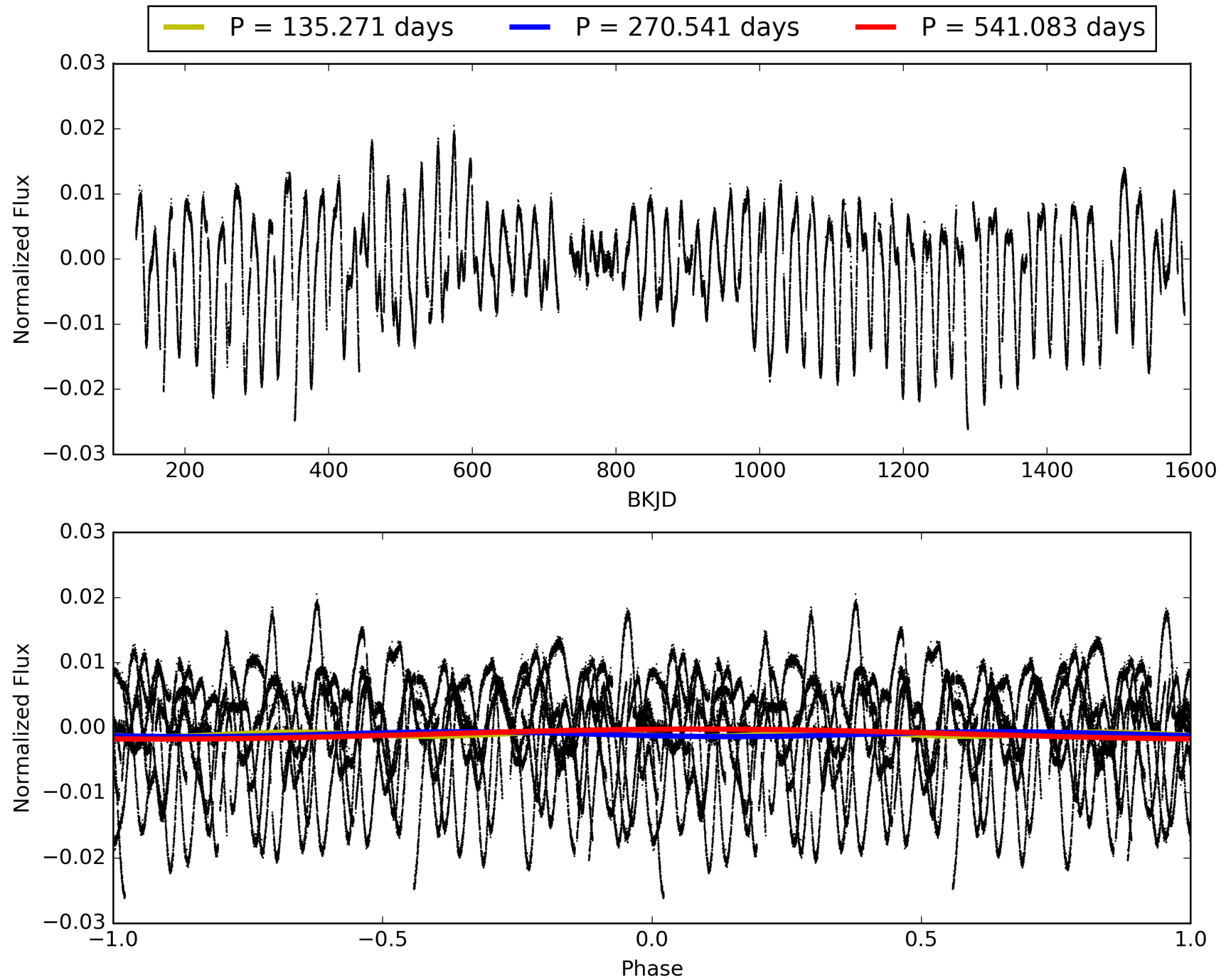
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 010983635-03, PDC Light Curves

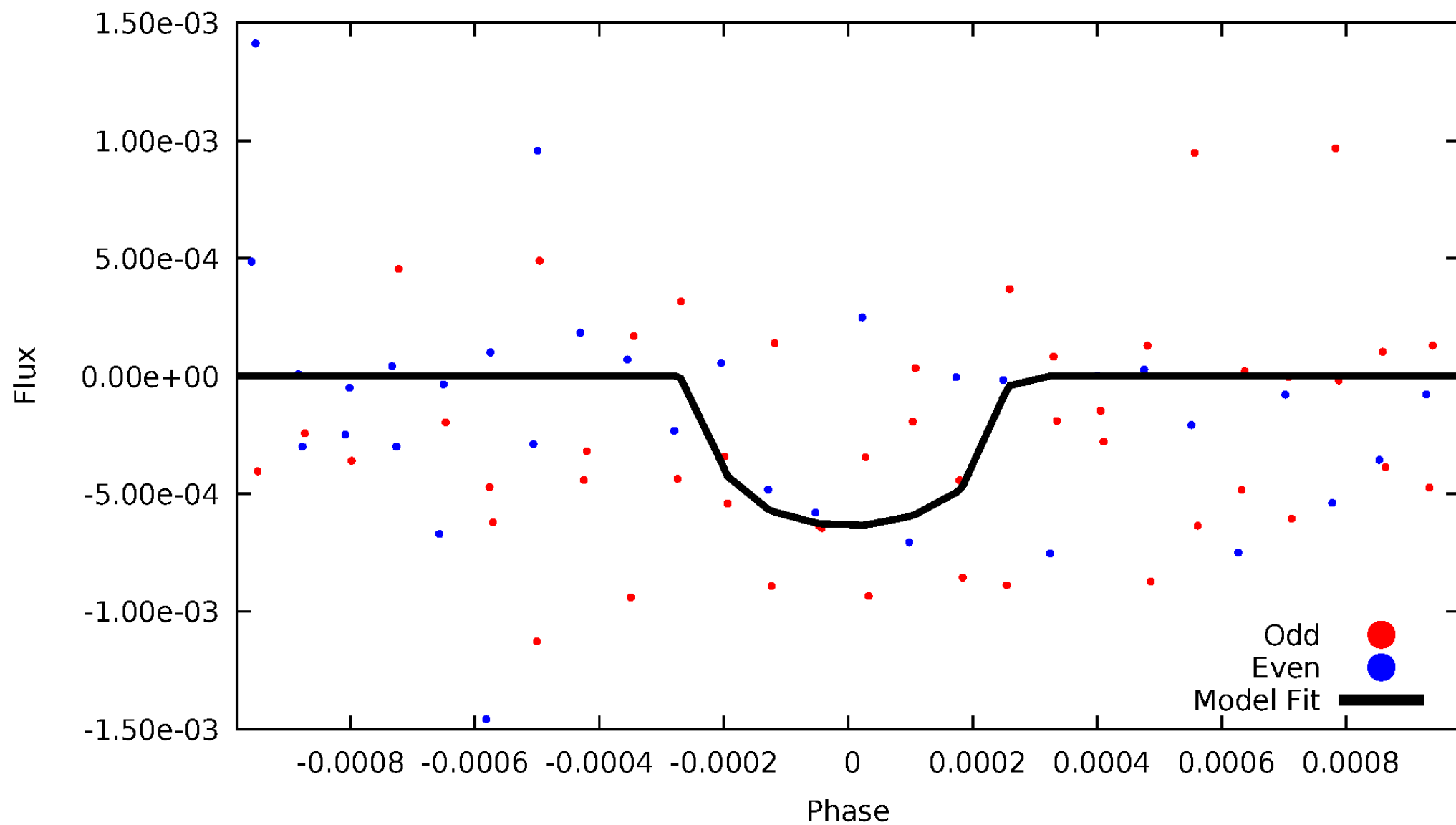


# TCE 010983635-03



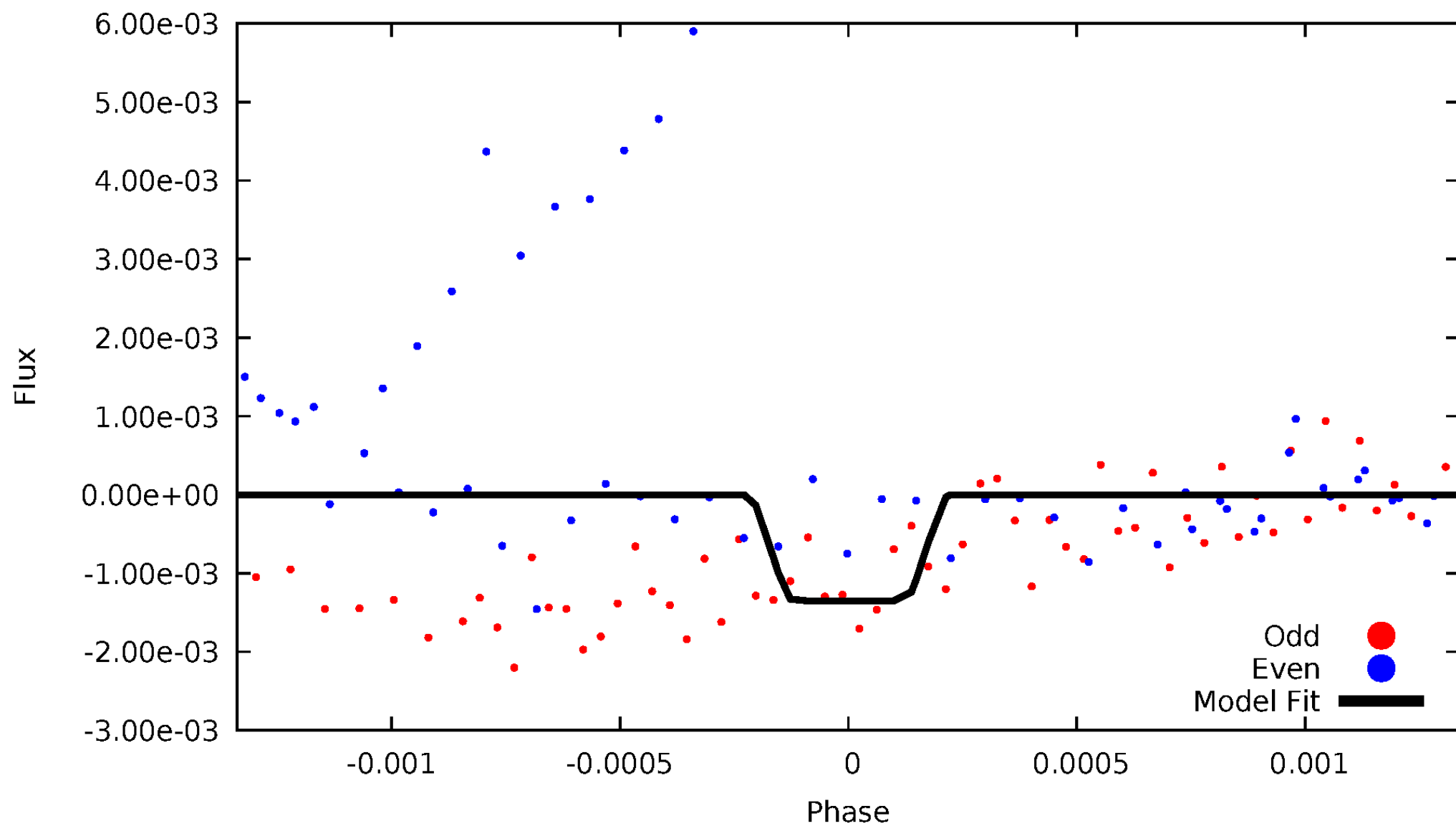
# DV Odd/Even

TCE 010983635-03



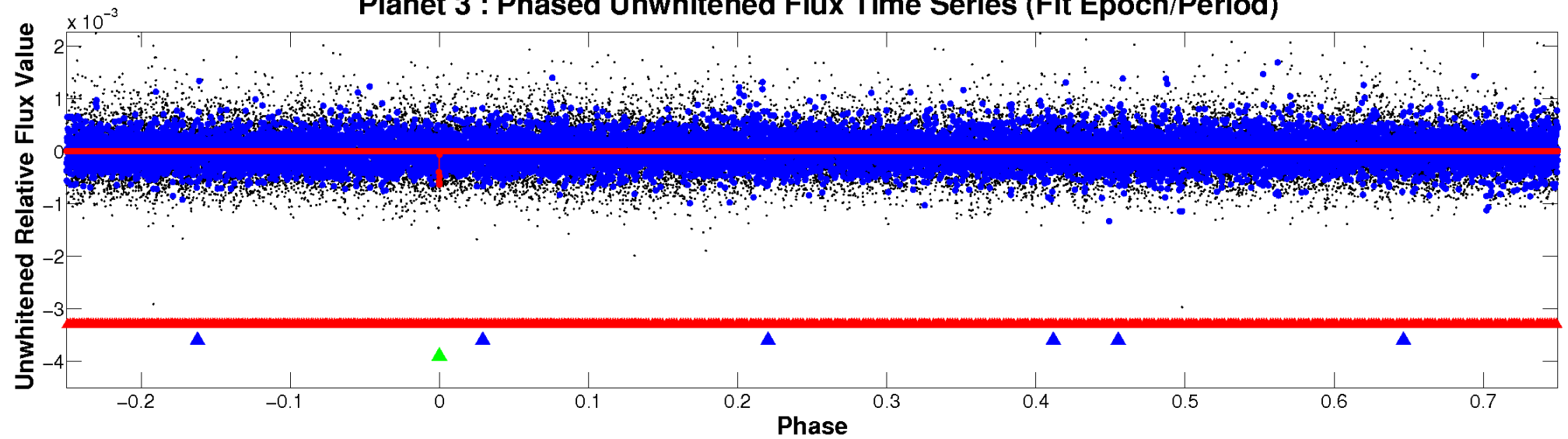
# ALT Odd/Even

TCE 010983635-03

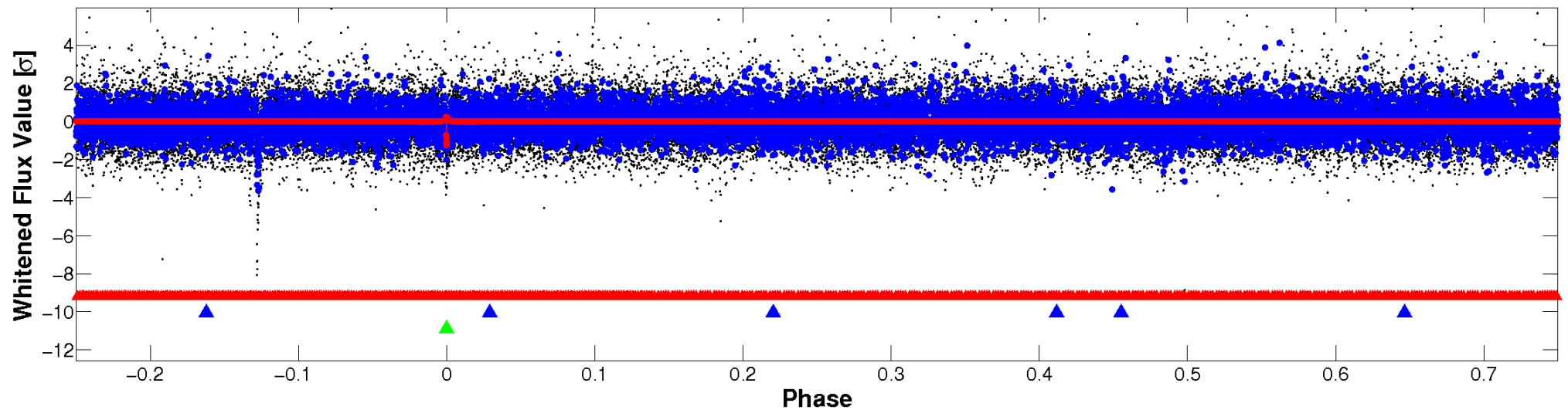


# Non-Whitened Vs. Whitened Light Curve

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

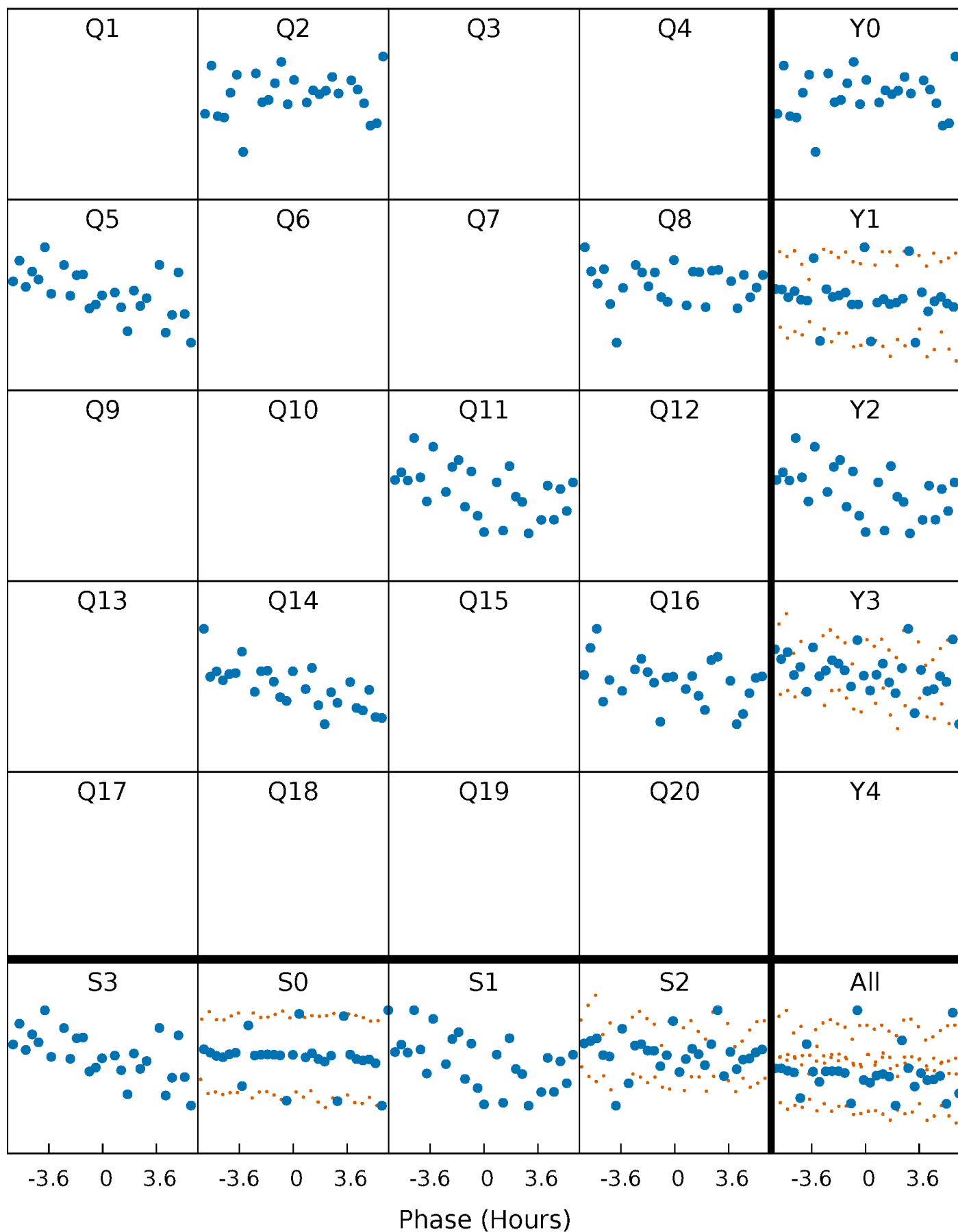


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

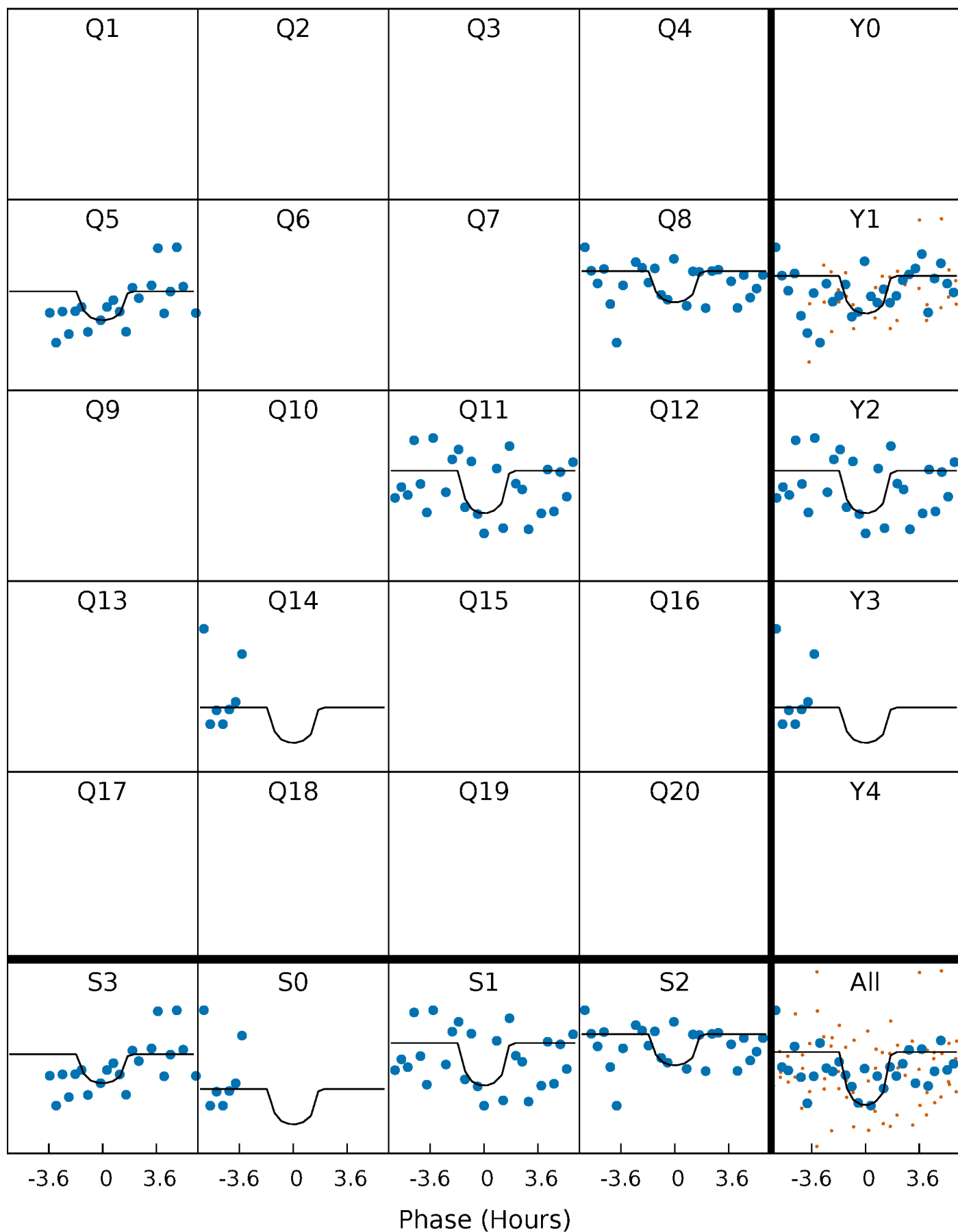
TCE 010983635-03 P=270.541497 Days  $T_0=201.548978$  (BKJD)





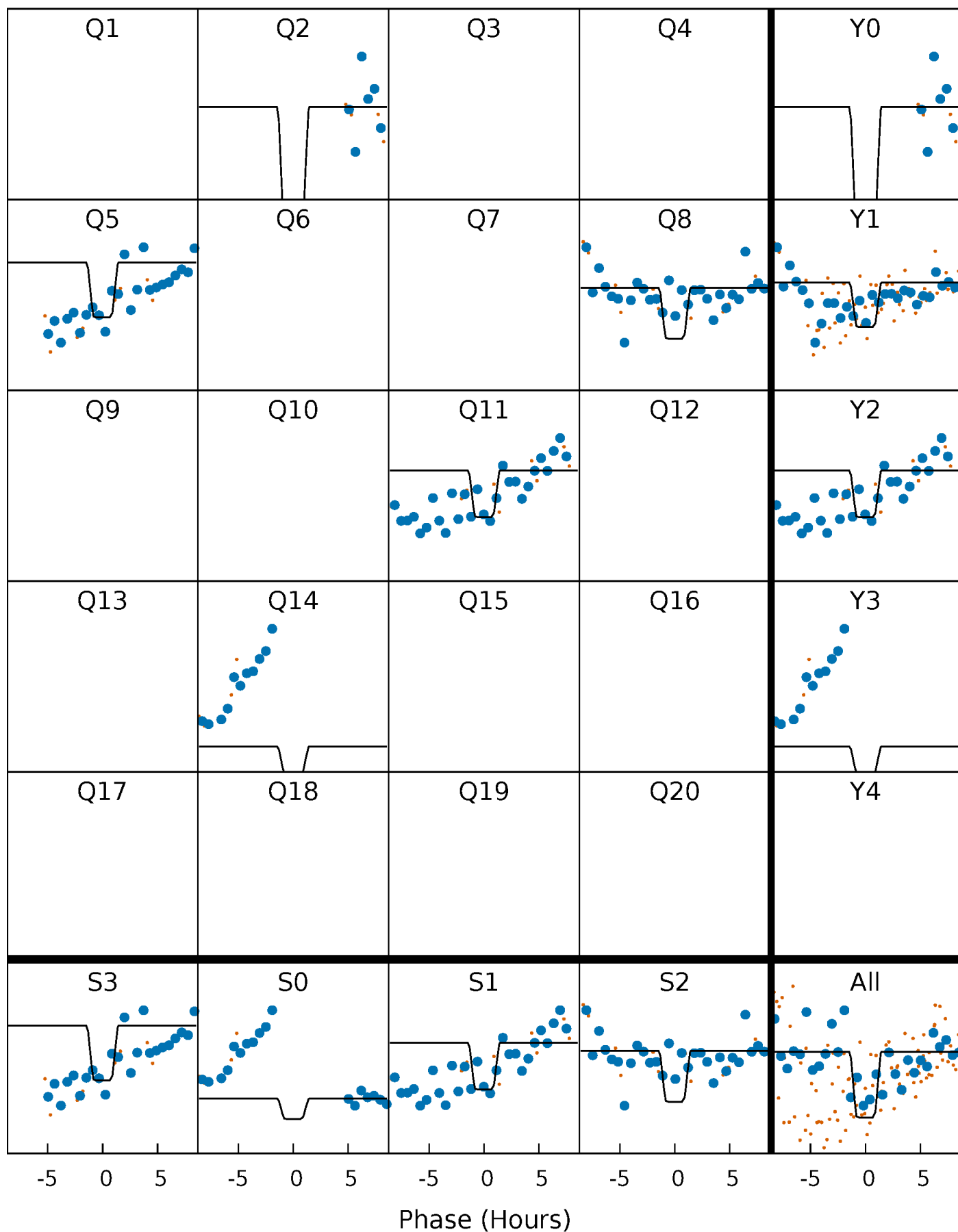
# DV Quarter-Phased Transit Curves

TCE 010983635-03     $P=270.541497$  Days     $T_0=201.548978$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

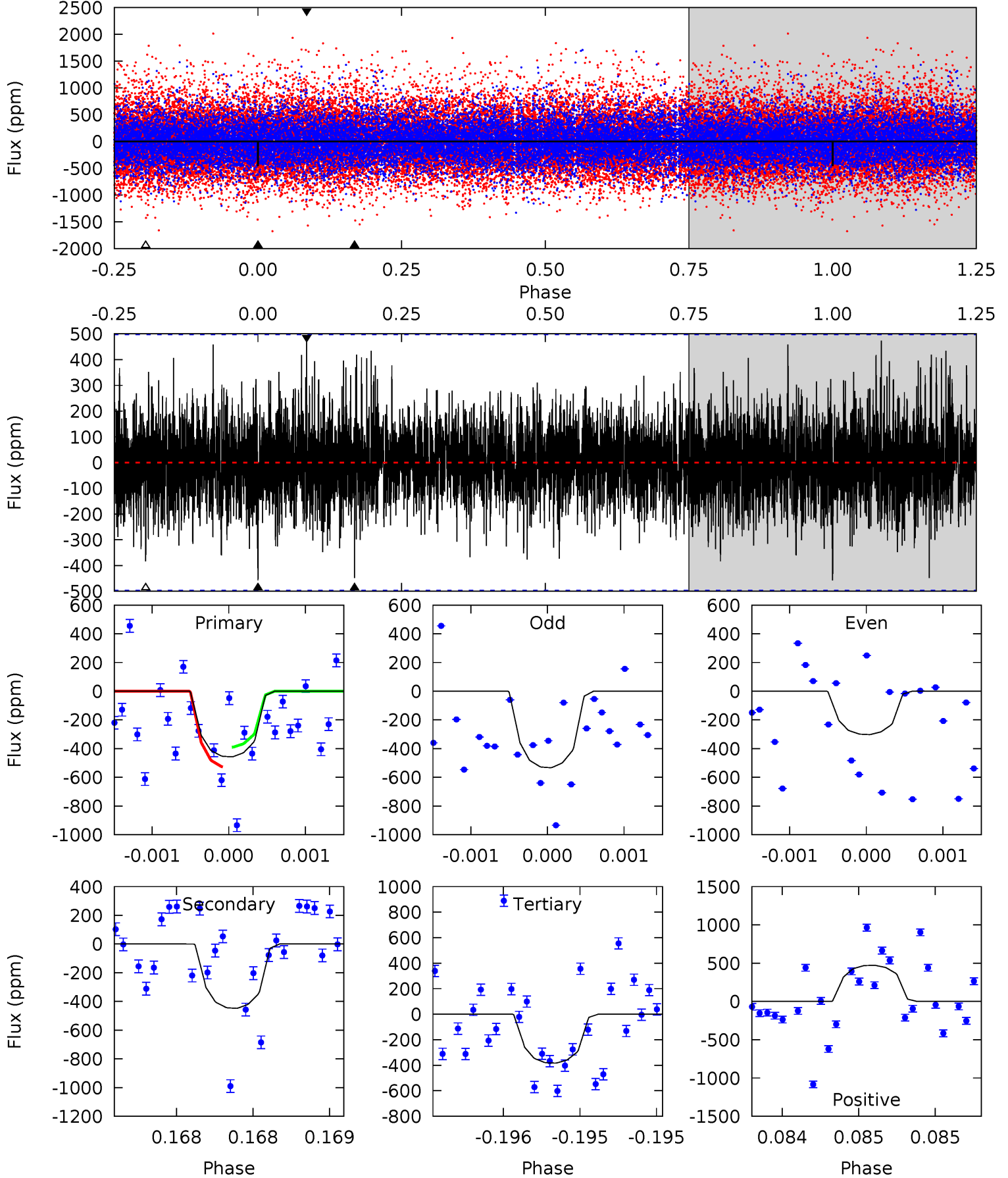
TCE 010983635-03 P=270.506279 Days  $T_0=201.646550$  (BKJD)



# DV Model-Shift Uniqueness Test

010983635-03, P = 270.541497 Days, E = 201.548978 Days

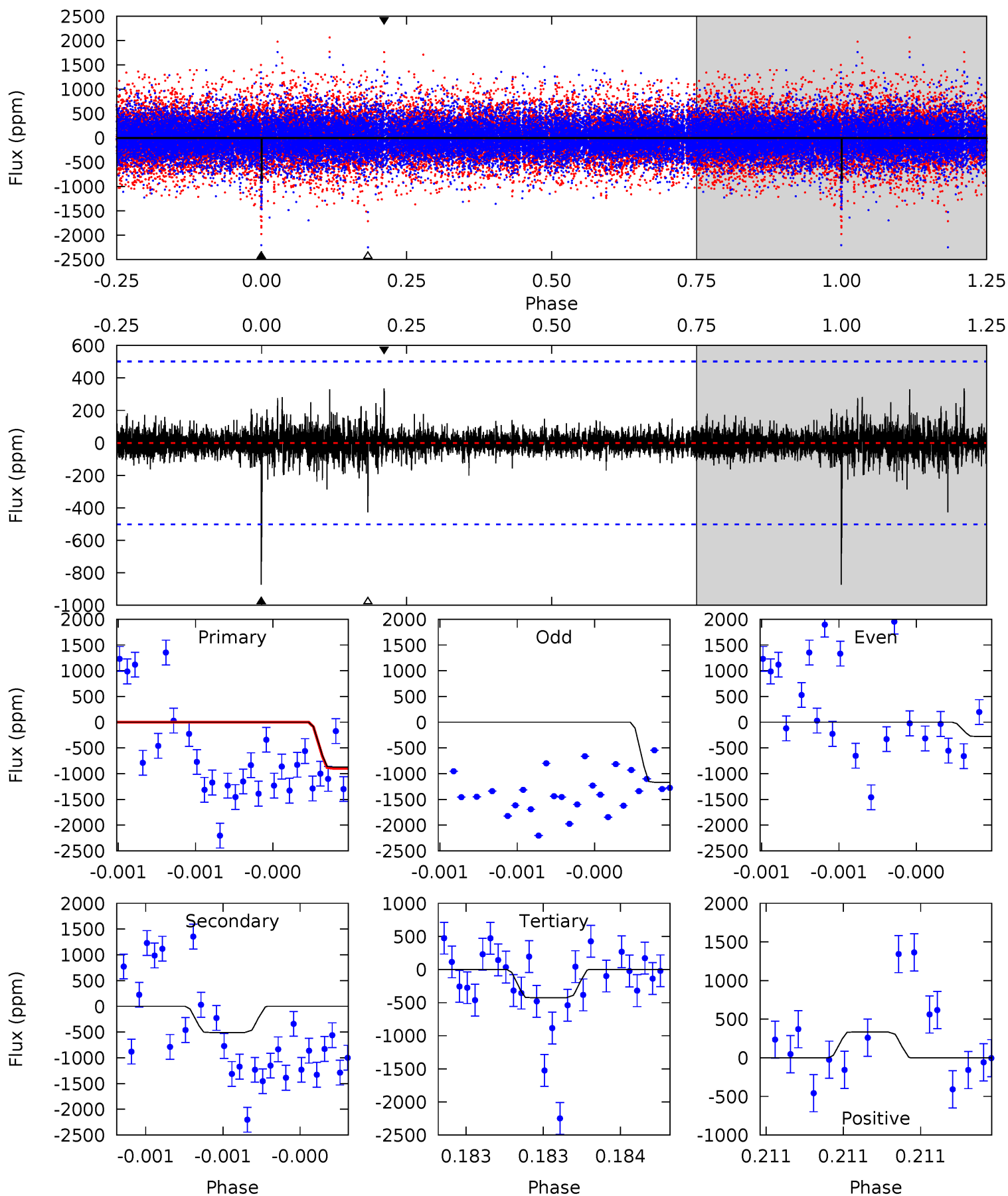
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.10	5.00	4.28	5.28	5.56	3.46	1.24	0.83	-0.17	0.72	-0.28	1.20	0.90	0.51	0.77



# Alt Model-Shift Uniqueness Test

010983635-03, P = 270.506279 Days, E = 201.646550 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
9.76	5.70	4.77	3.74	5.60	3.52	0.57	4.99	6.01	0.93	1.96	4.50	0.82	0.28	0.30



### Stellar Parameters For KIC 010983635

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4352^{+118}_{-131}$	$4.610^{+0.053}_{-0.021}$	$-0.040^{+0.300}_{-0.300}$	$0.661^{+0.037}_{-0.060}$	$0.650^{+0.065}_{-0.052}$	$3.165^{+0.681}_{-0.273}$
	+3%/-3%	+1%/-0%	+750%/-750%	+6%/-9%	+10%/-8%	+22%/-9%
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 010983635-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-448 \pm 90$	$4.21^{+4.49}_{-2.92}$	$257^{+8}_{-8}$	$3072^{+1573}_{-541}$	$6499^{+71738}_{-4920}$
Alt.	$-510 \pm 90$	$5.20^{+4.39}_{-3.45}$	$258^{+8}_{-9}$	$2976^{+1207}_{-455}$	$5114^{+40970}_{-3584}$

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

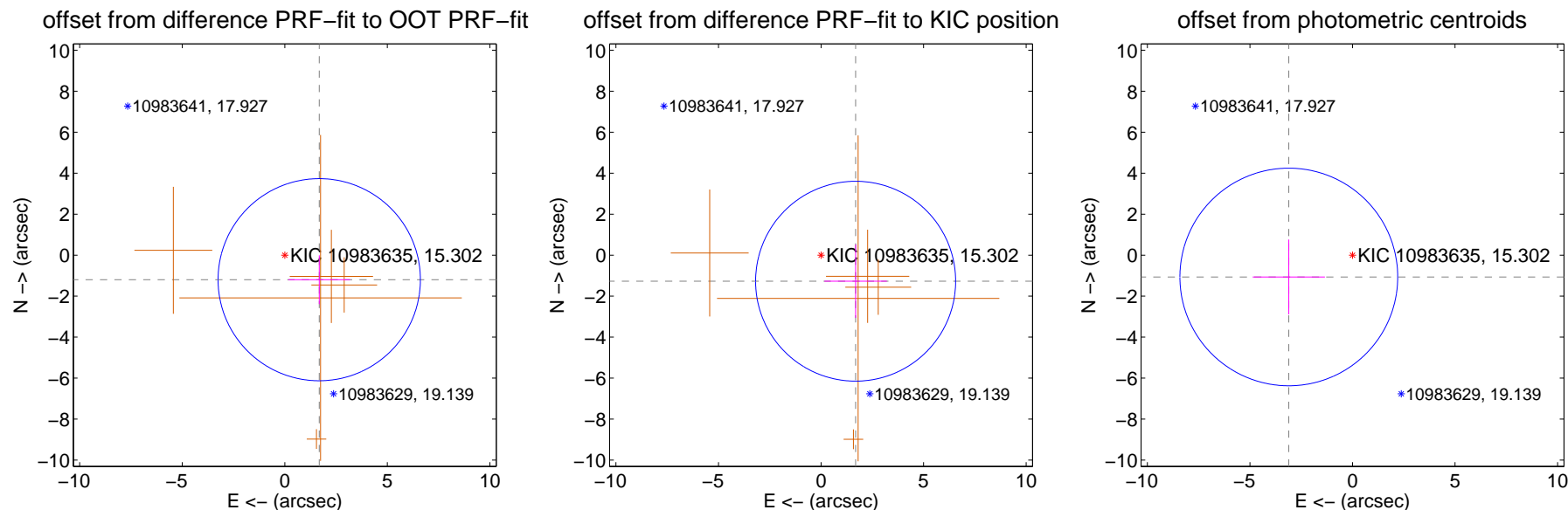
## DV Centroid Data

Supplemental centroid analysis for 010983635-03. Kepler magnitude: 15.30. Transit SNR 4.61

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.063 \pm 1.644$	1.25	$-1.679 \pm 1.506$	$-1.198 \pm 1.189$
PRF-fit source offset from KIC position	$2.112 \pm 1.626$	1.30	$-1.686 \pm 1.524$	$-1.272 \pm 1.791$
photometric centroid source offset	$3.28 \pm 1.77$	1.85	$3.11 \pm 1.76$	$-1.06 \pm 1.83$

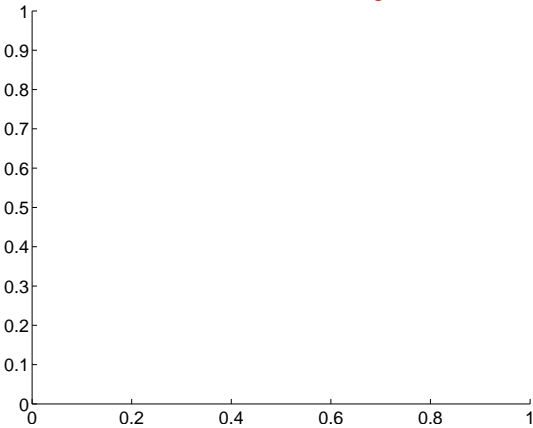


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

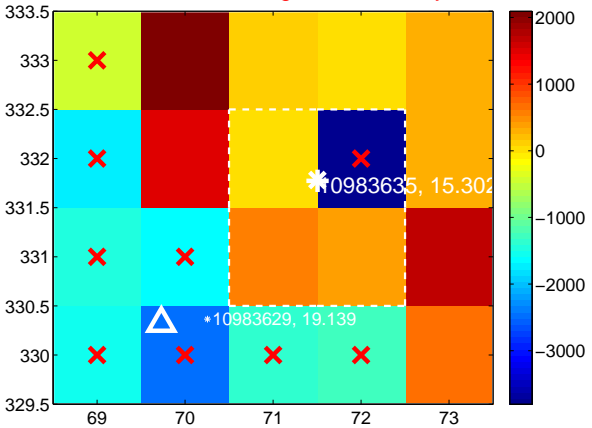
Q1 no difference image



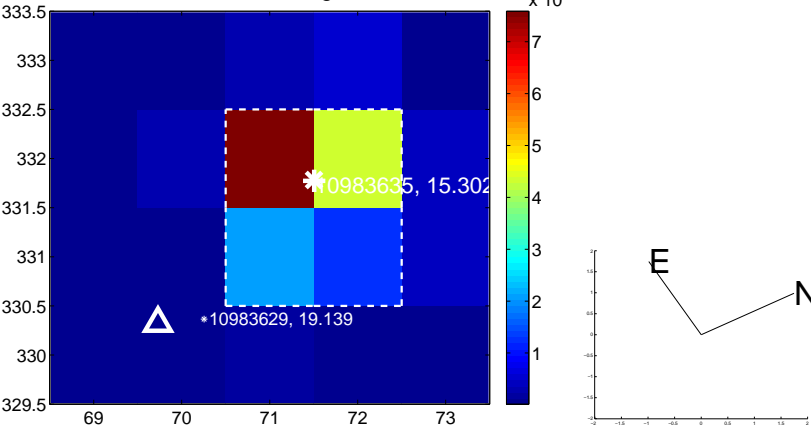
Q1 no OOT image



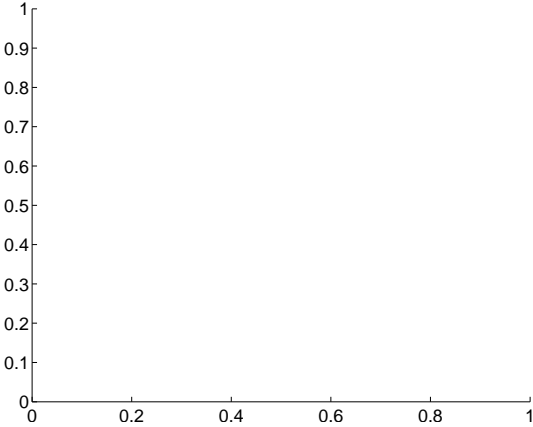
Q2 difference image. Poor Quality



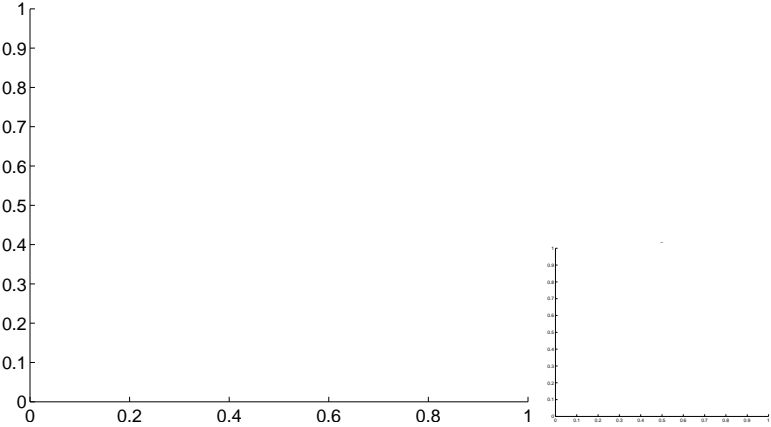
Q2 OOT image



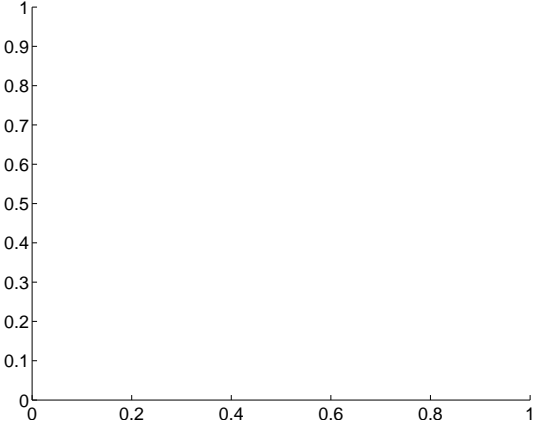
Q3 no difference image



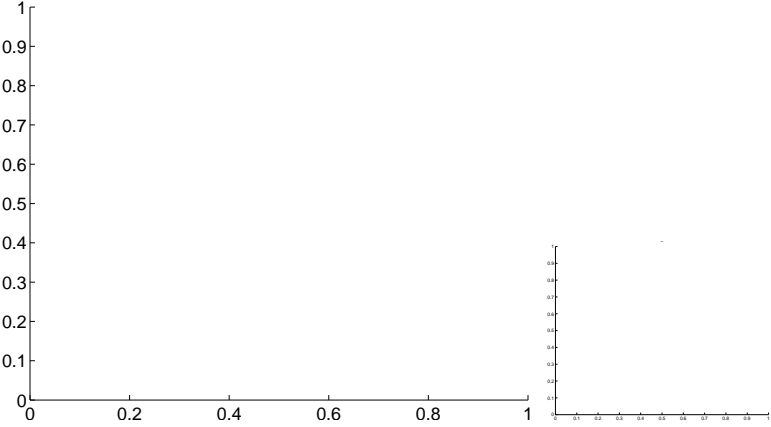
Q3 no OOT image



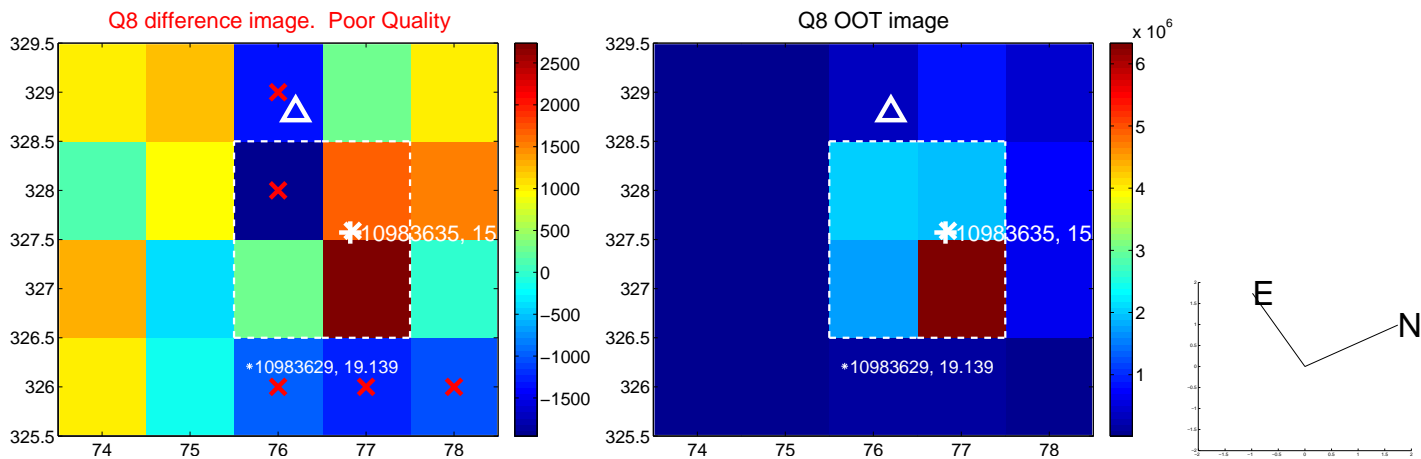
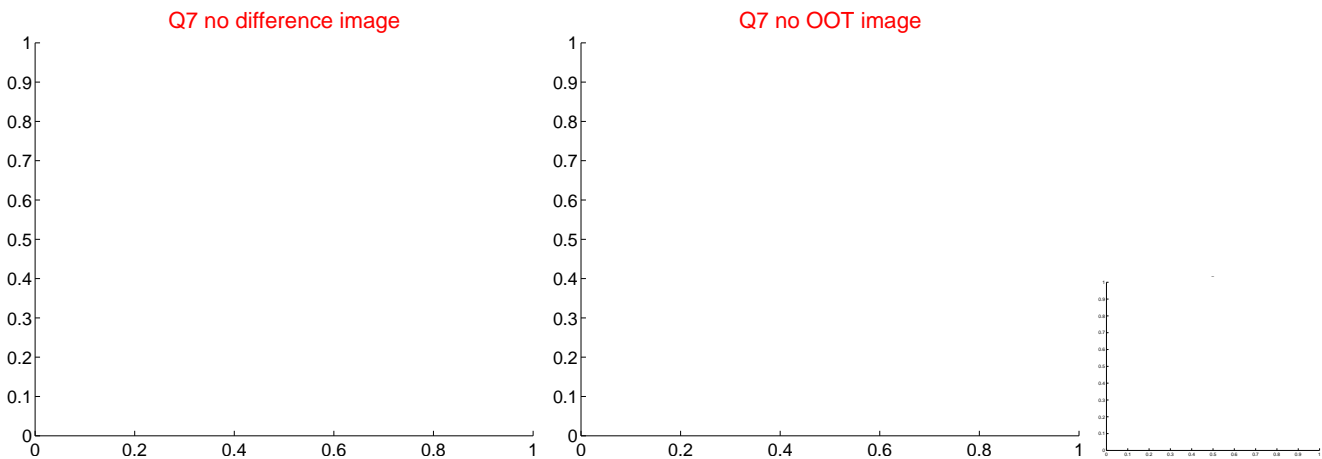
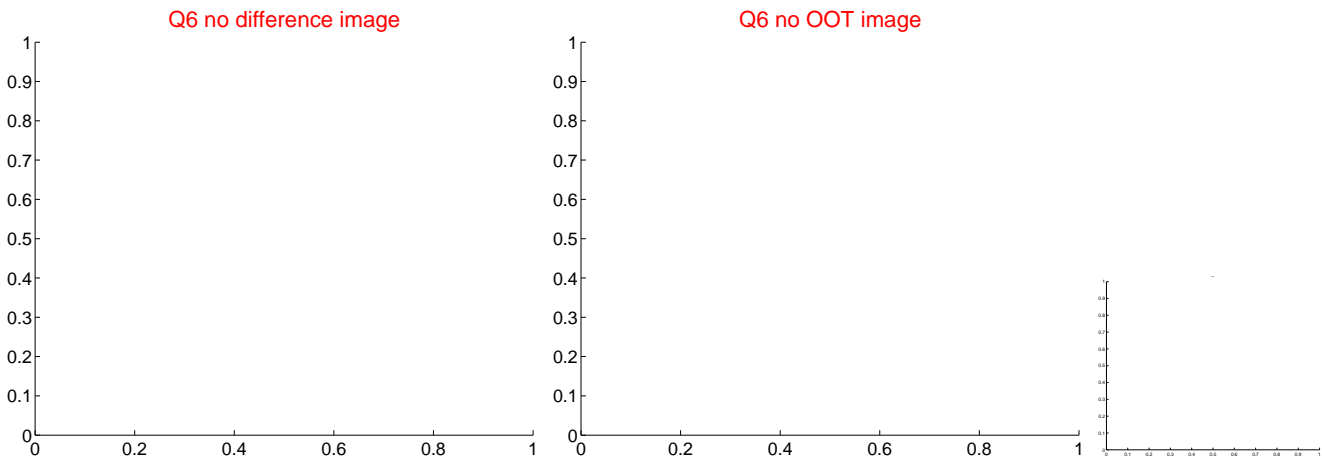
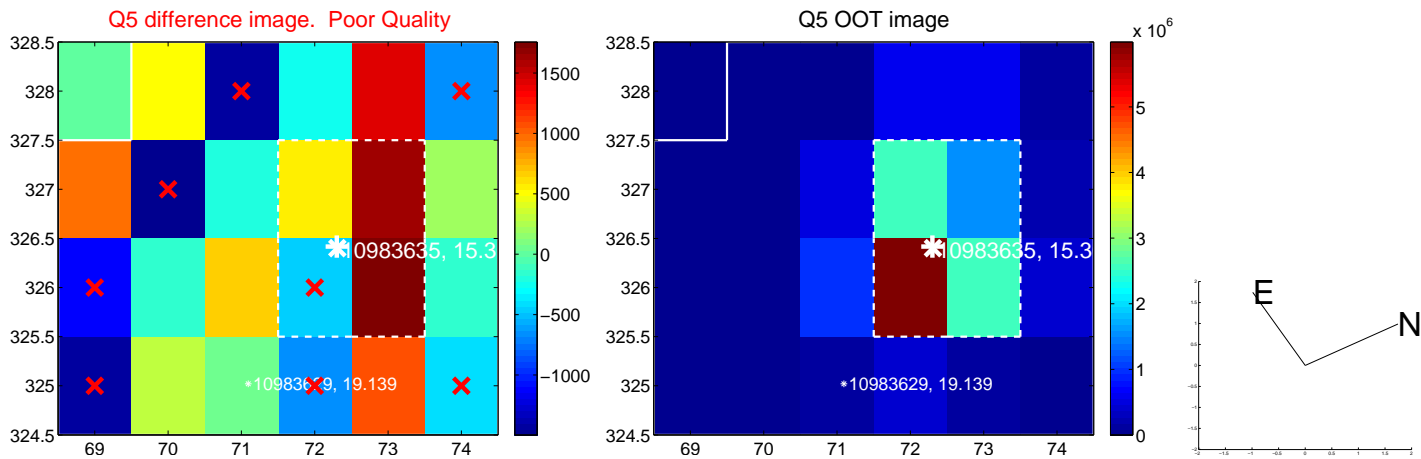
Q4 no difference image



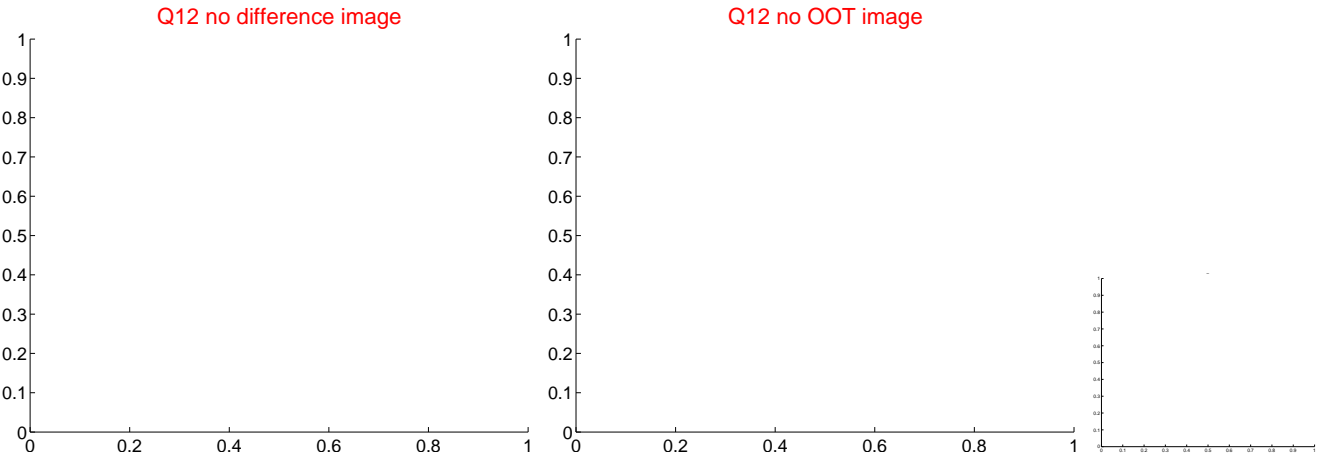
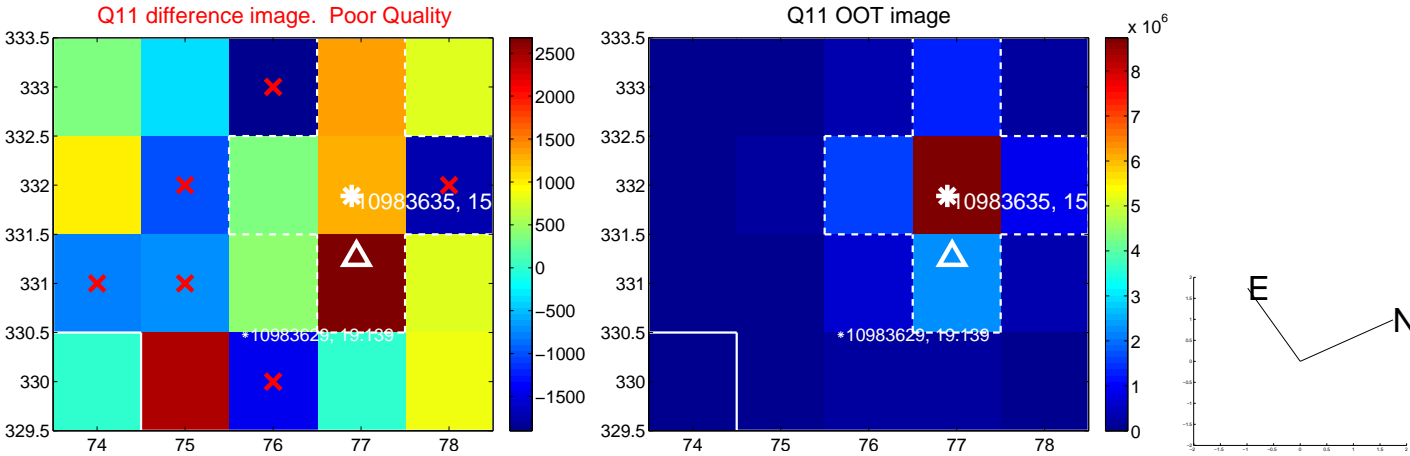
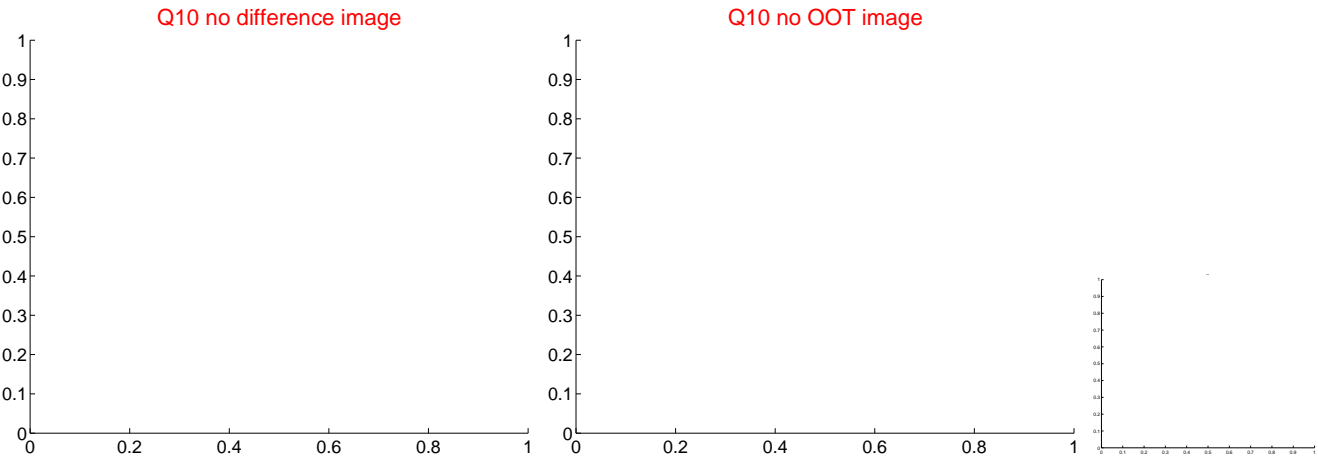
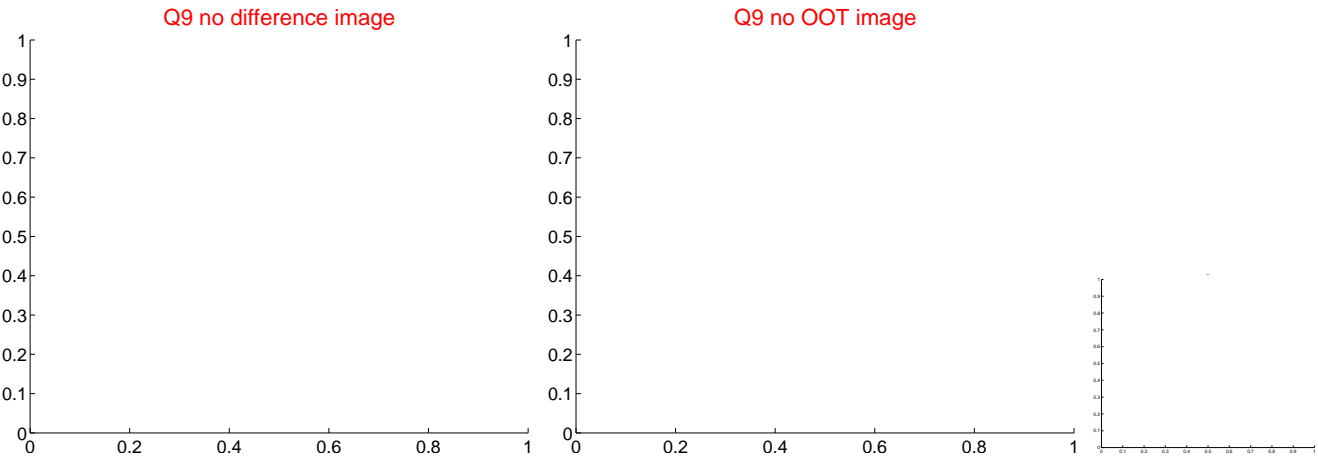
Q4 no OOT image



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

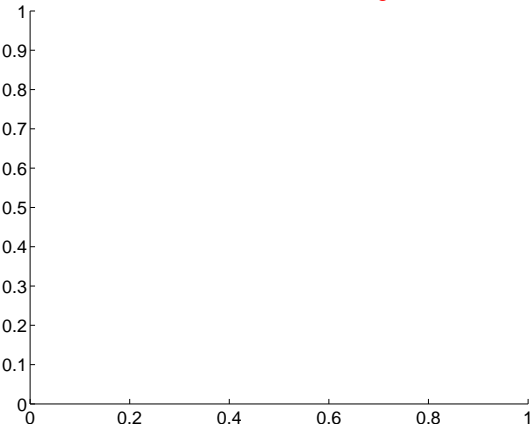


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

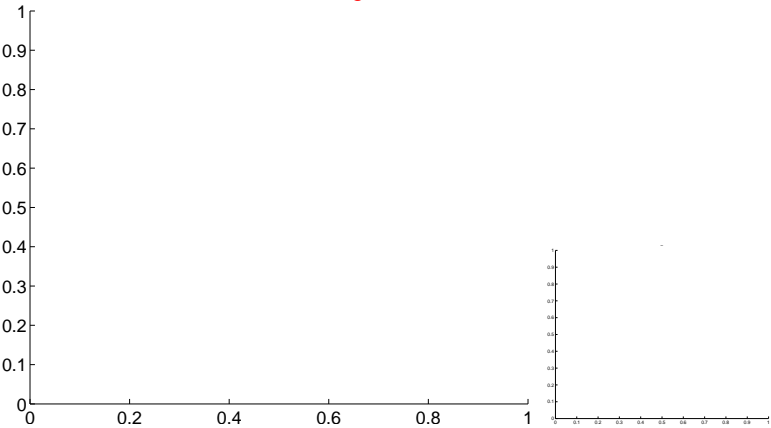


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

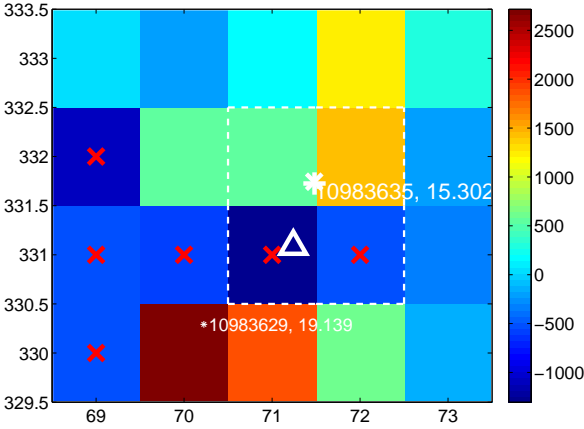
Q13 no difference image



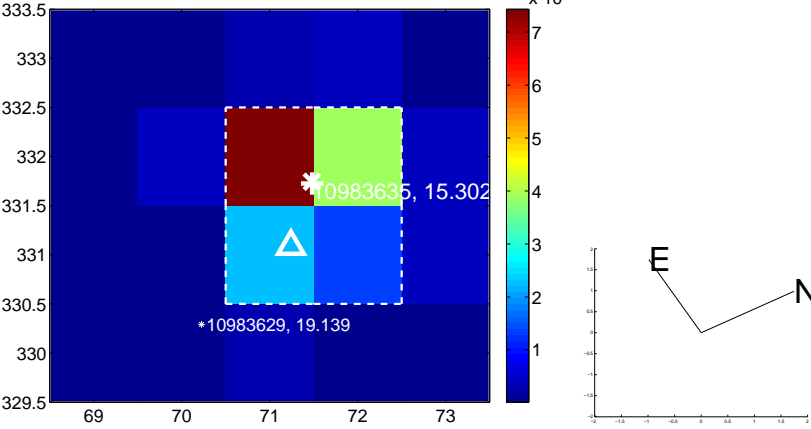
Q13 no OOT image



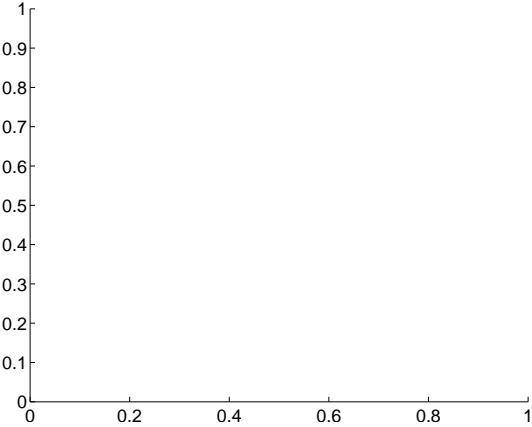
Q14 difference image. Poor Quality



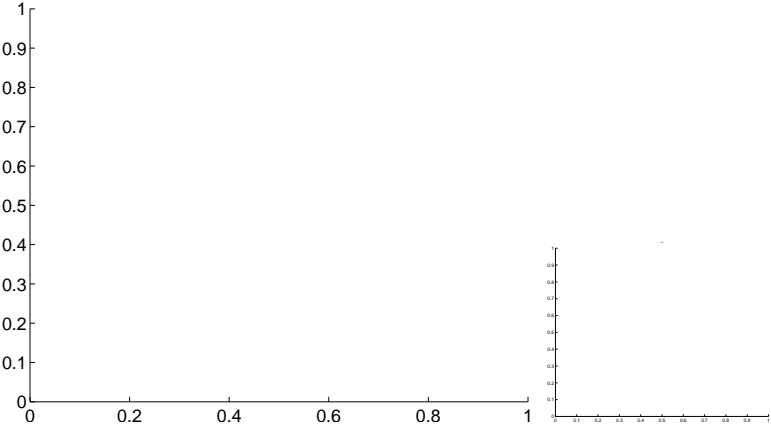
Q14 OOT image



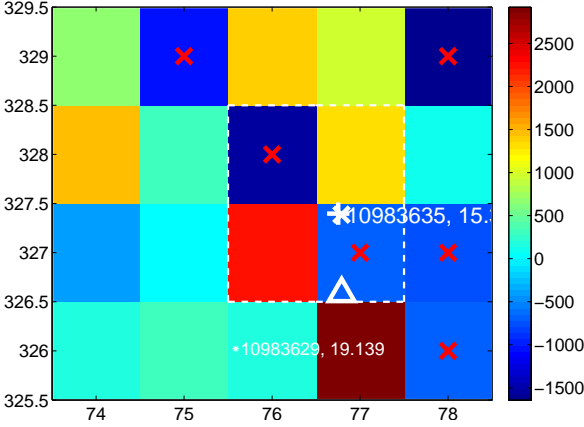
Q15 no difference image



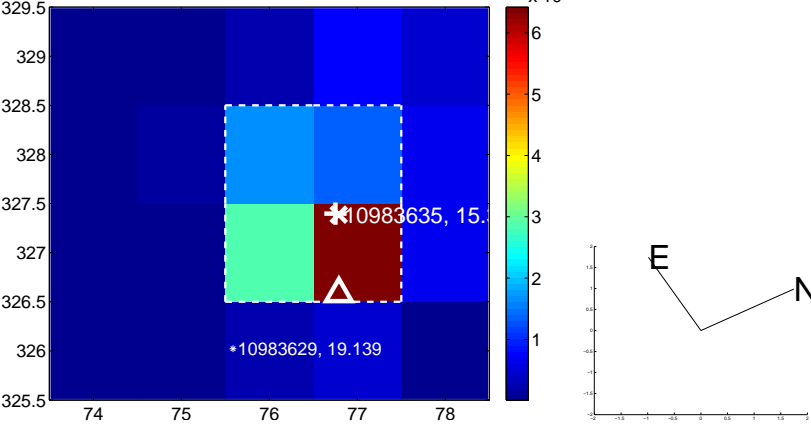
Q15 no OOT image



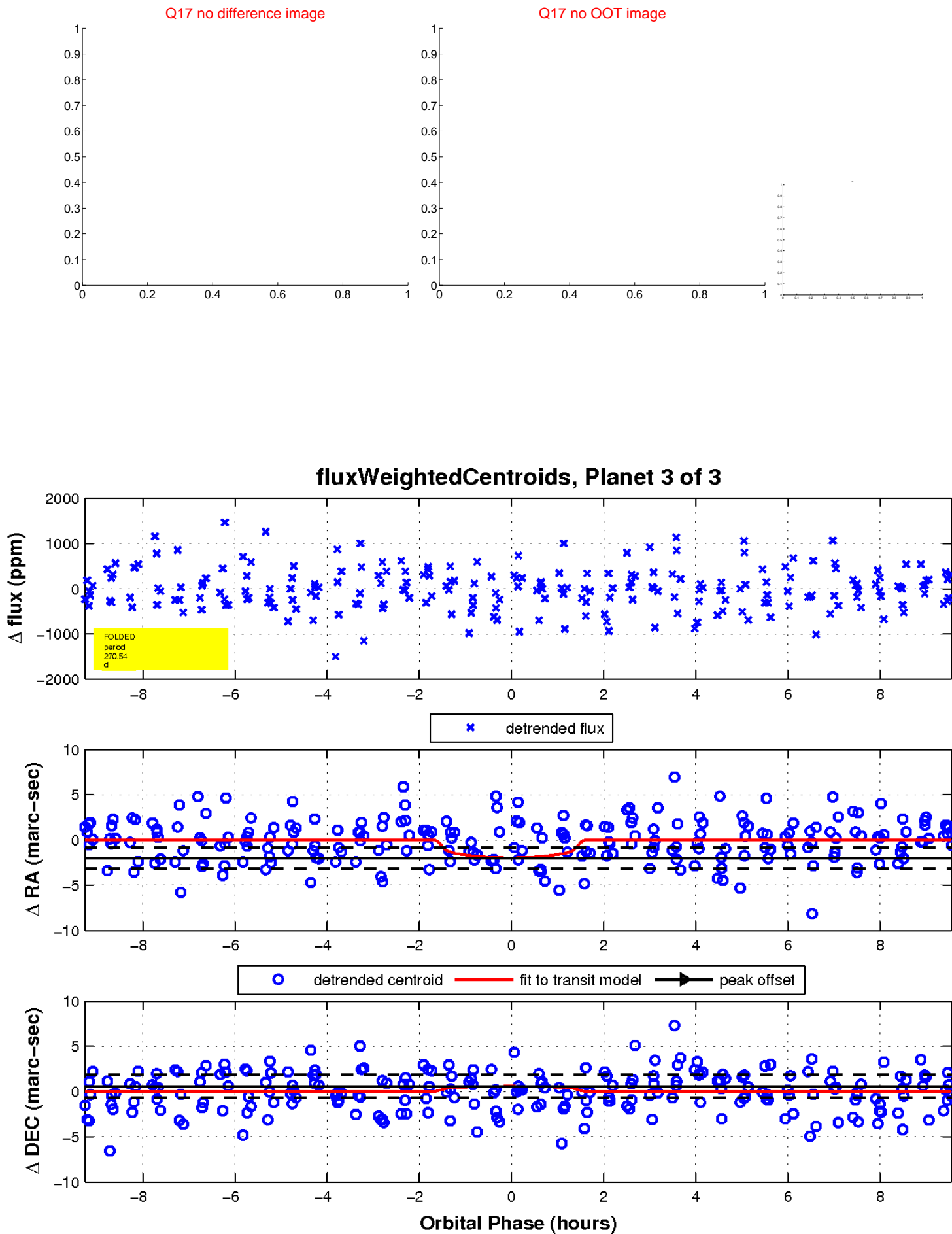
Q16 difference image. Poor Quality



Q16 OOT image



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



UKIRT Image

