

# KIC 010395652

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010395652-01	OBS	No	1.950797	133.370014	5.2	8.616	7.4	8.4	2.98	8665	0.79	30454.30
010395652-02	OBS	No	91.599901	200.139717	35.8	10.585	8.2	4.1	2.98	8665	2.05	179.78
010395652-03	OBS	No	118.428683	143.542221	74.8	1.610	7.3	7.9	2.98	8665	2.77	127.64

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010395652-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
010395652-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010395652-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

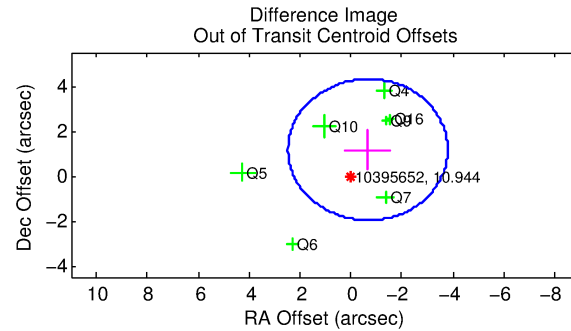
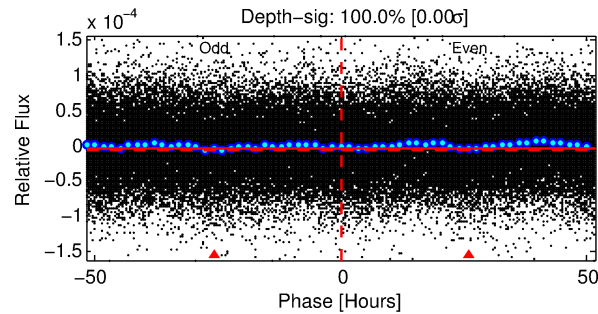
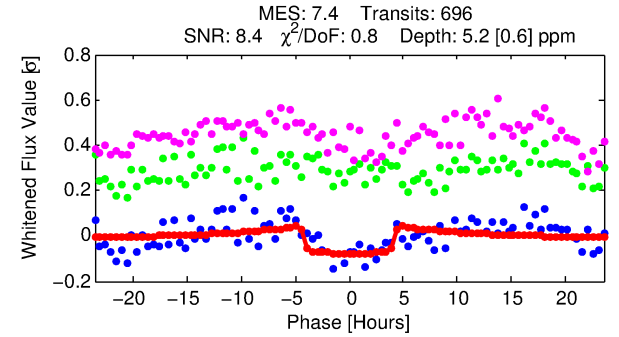
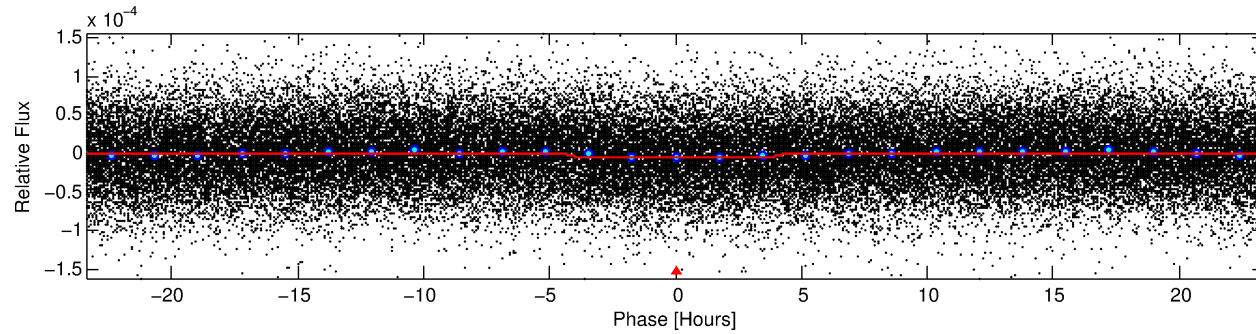
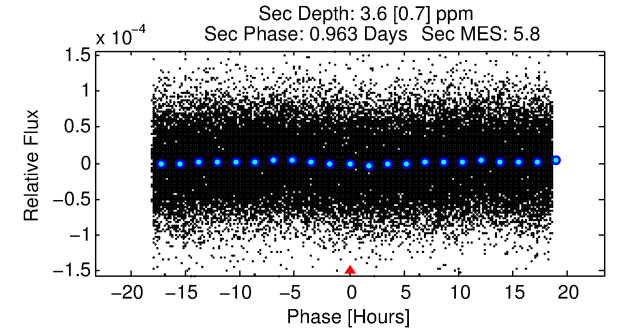
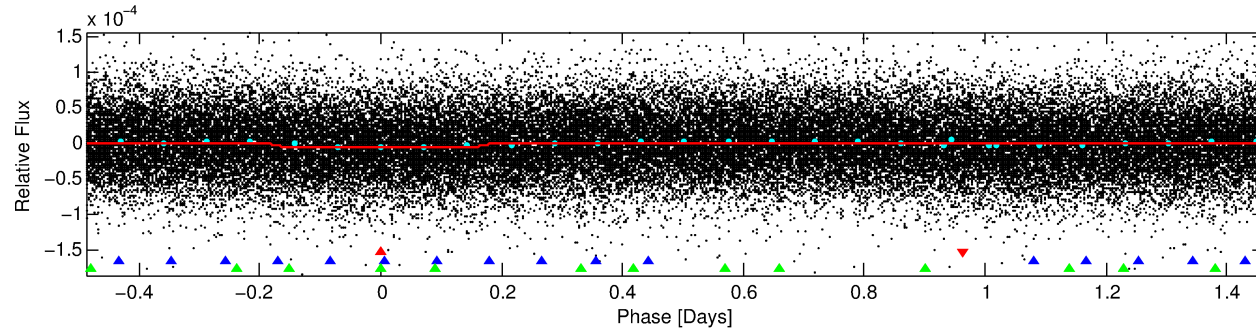
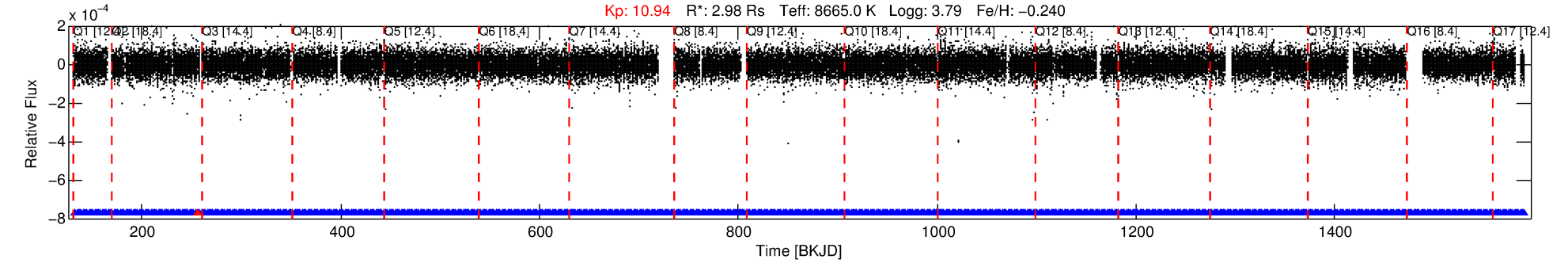
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010395652-01

No Significant Match Found

# DV One-Page Summary

KIC: 10395652 Candidate: 1 of 3 Period: 1.951 d



## DV Fit Results:

Period = 1.95080 [0.00002] d  
Epoch = 133.3700 [0.0063] BKJD  
Rp/R\* = 0.0024 [0.0003]  
a/R\* = 1.21 [0.34]  
b = 0.90 [0.19]  
Seff = 30454.30 [21316.98]  
Teq = 3369 [589] K  
Rp = 0.79 [0.36] Re  
a = 0.0384 [0.0161] AU  
Ag = 4.69 [3.56] [1.04 $\sigma$ ]  
Teffp = 7666 [758] K [4.48 $\sigma$ ]

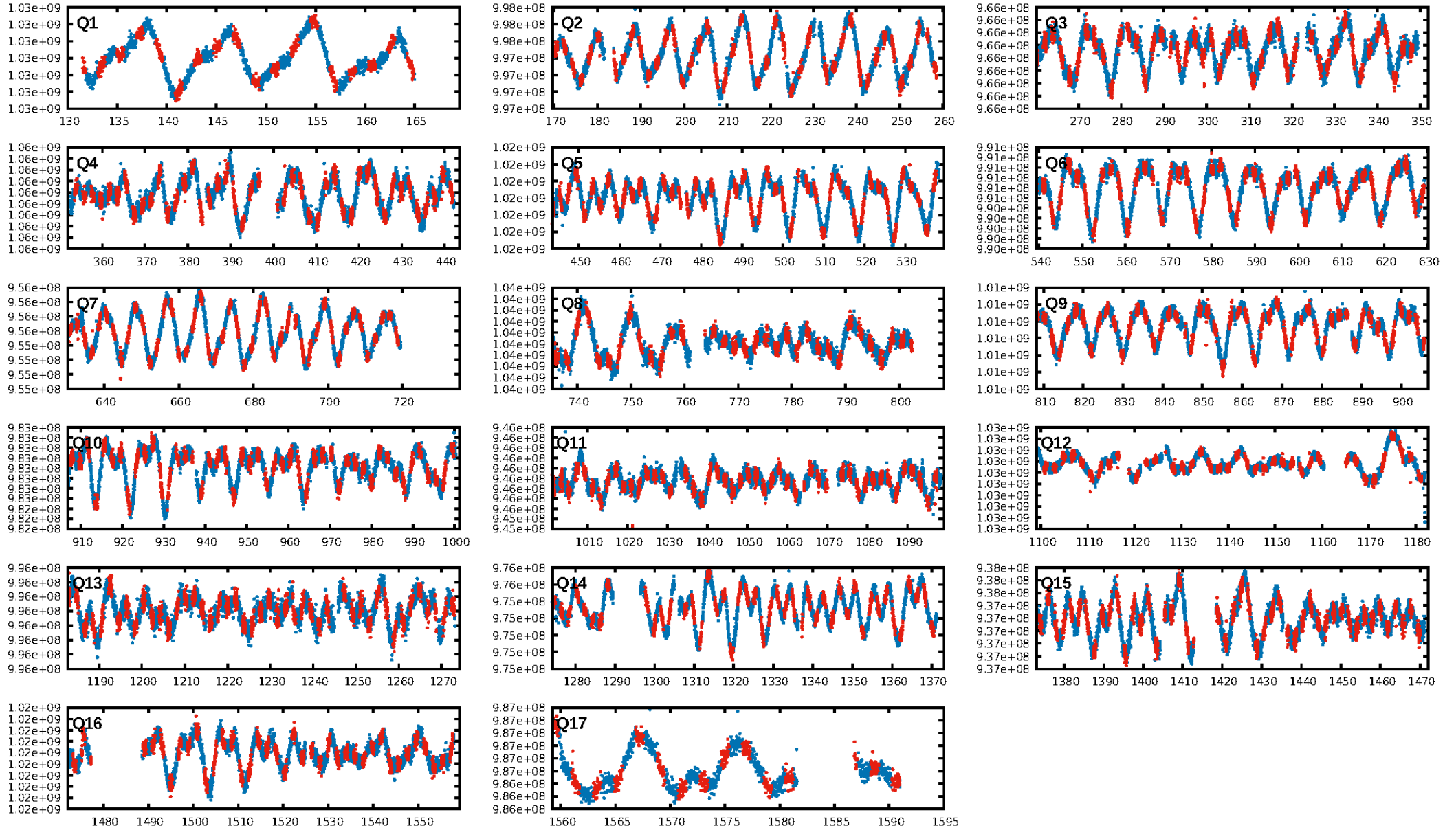
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [157.64 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 4.61e-11**  
RollingBand-fgt: 1.00 [662/663]  
GhostDiagnostic-chr: 12.42  
Centroid-sig: 52.9%  
Centroid-so: 0.866 arcsec [0.47 $\sigma$ ]  
OotOffset-rm: 1.342 arcsec [1.28 $\sigma$ ]  
KicOffset-rm: 2.021 arcsec [1.92 $\sigma$ ]  
OotOffset-st: 2/1/2/2 [7]  
KicOffset-st: 2/1/2/2 [7]  
DiffImageQuality-fgm: 0.57 [4/7]  
DiffImageOverlap-fno: 1.00 [17/17]

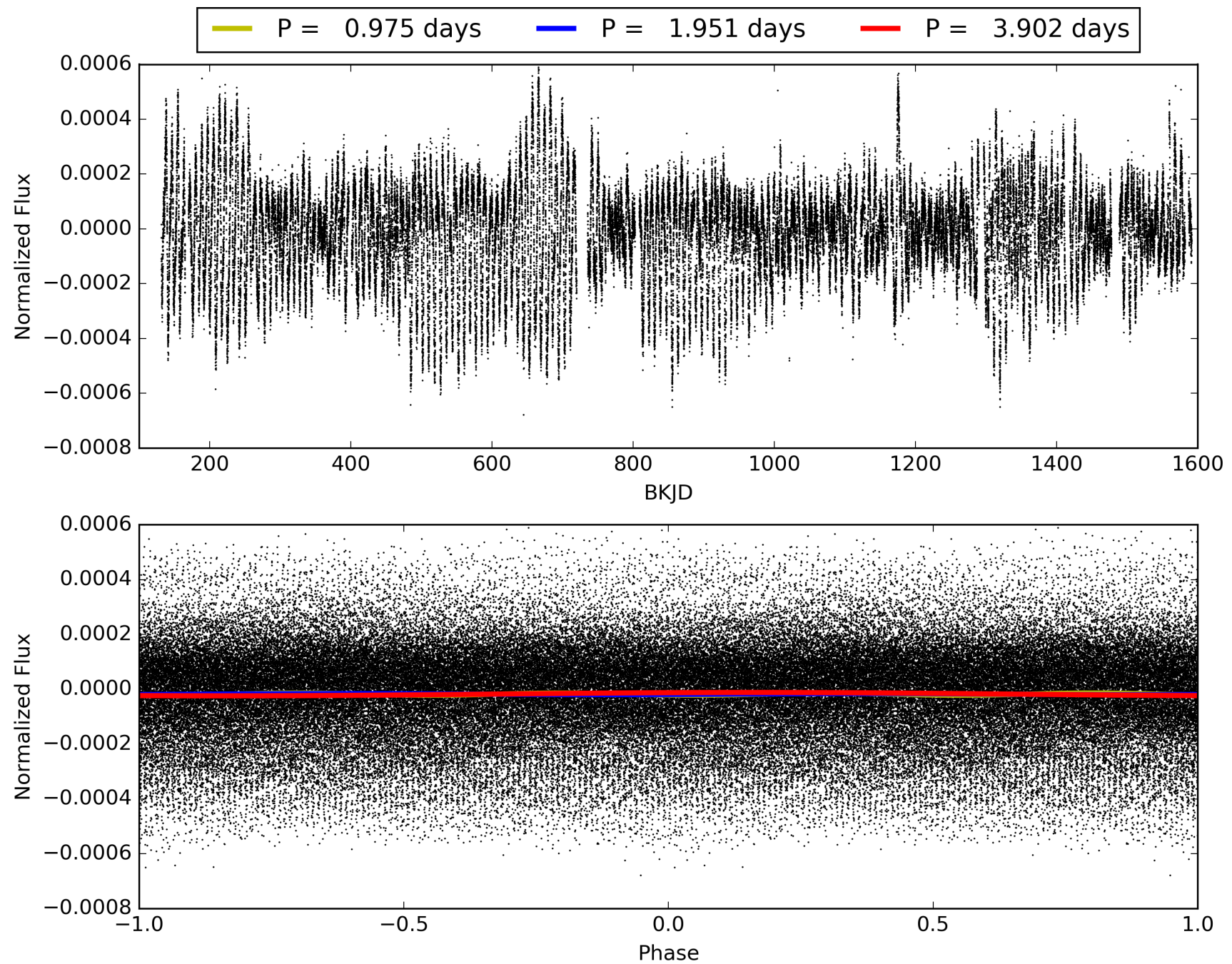
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:24:15 Z

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

# TCE 010395652-01, PDC Light Curves



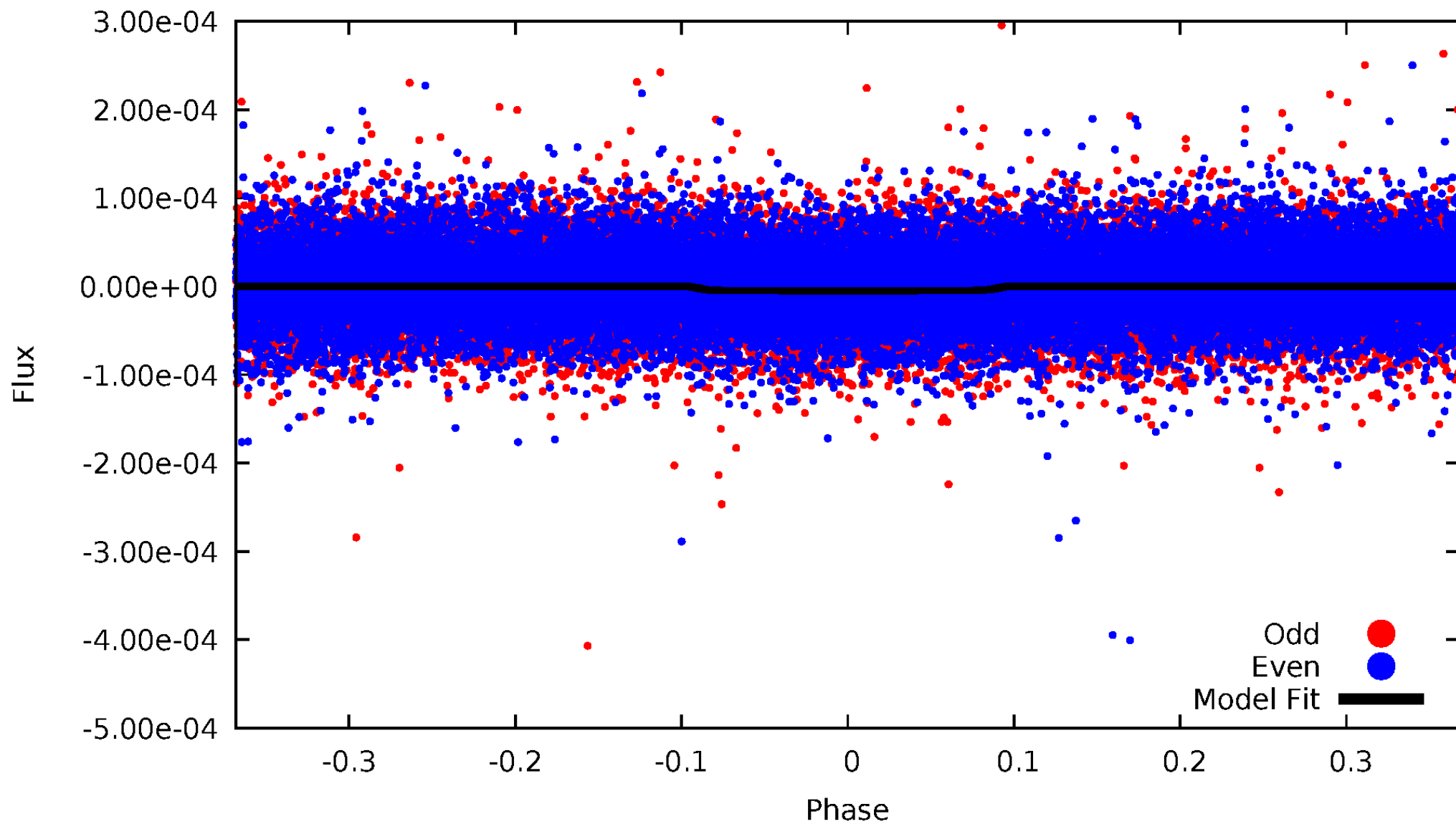
# TCE 010395652-01





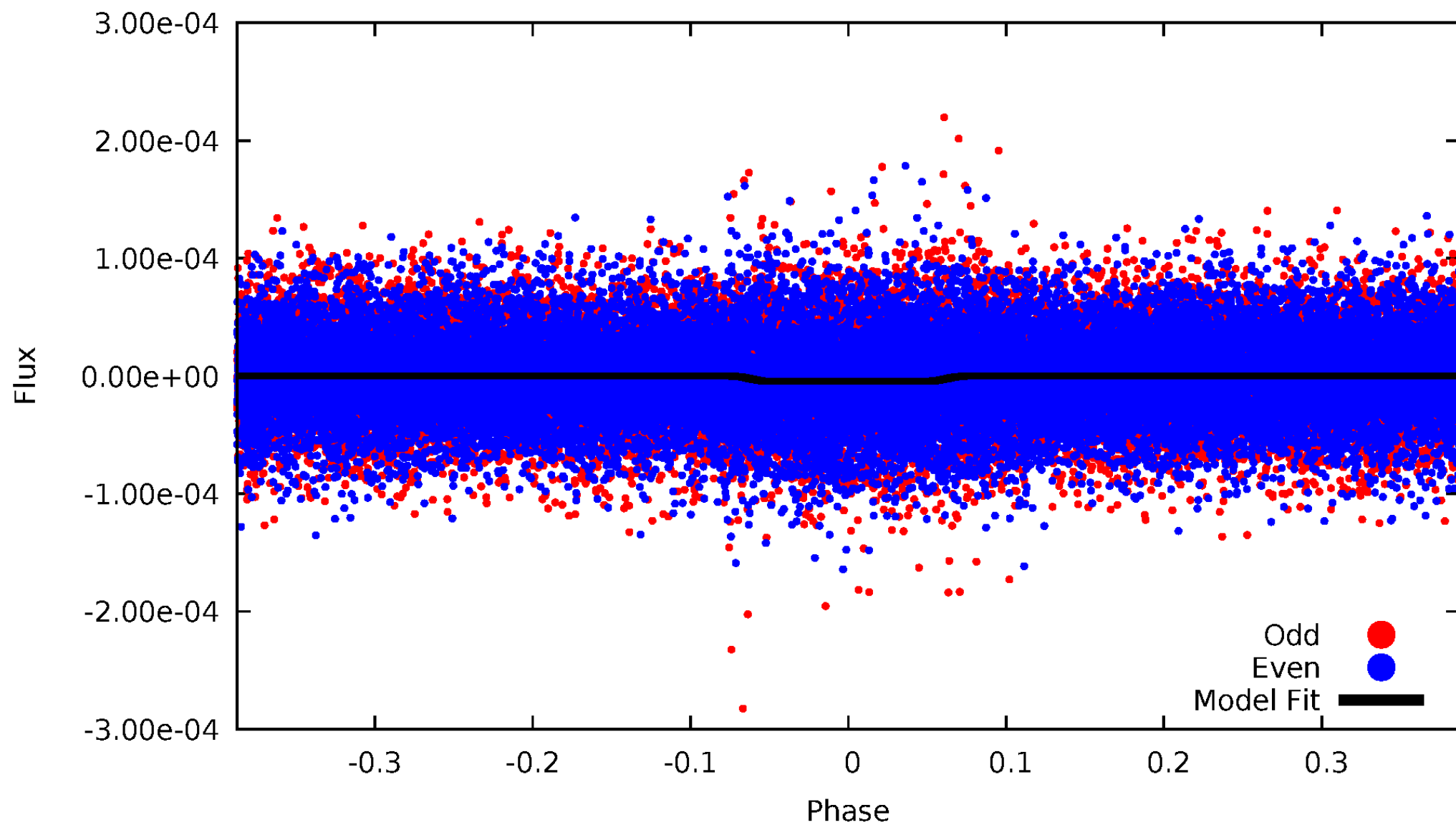
# DV Odd/Even

TCE 010395652-01



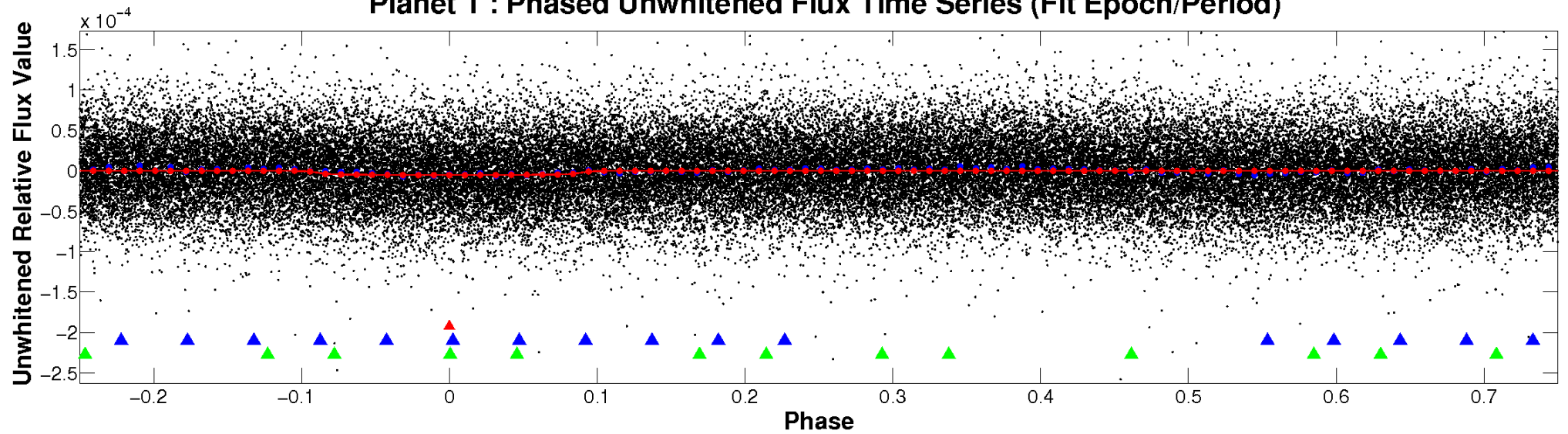
# ALT Odd/Even

TCE 010395652-01

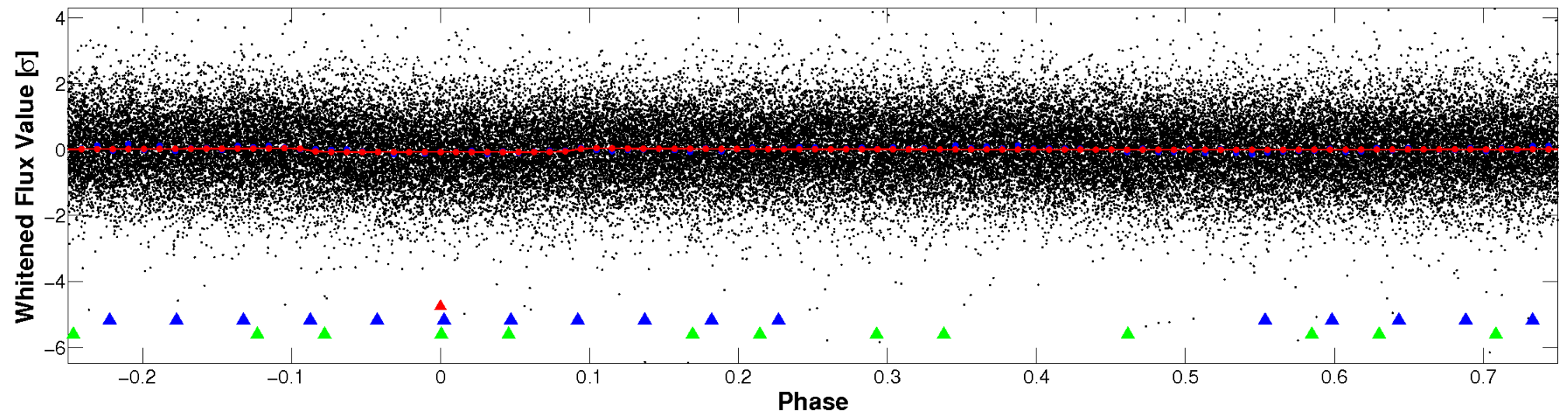


# Non-Whitened Vs. Whitened Light Curve

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

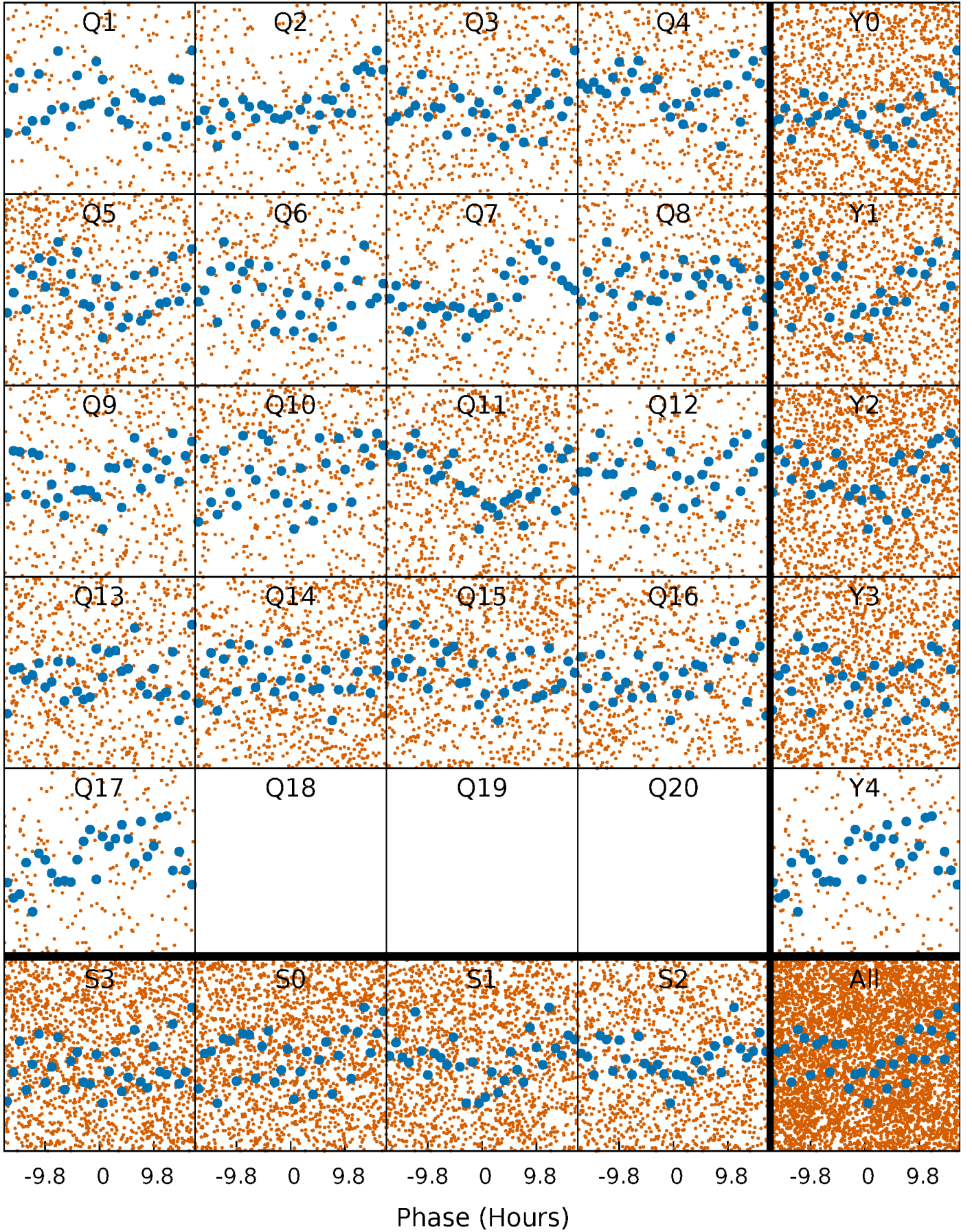


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

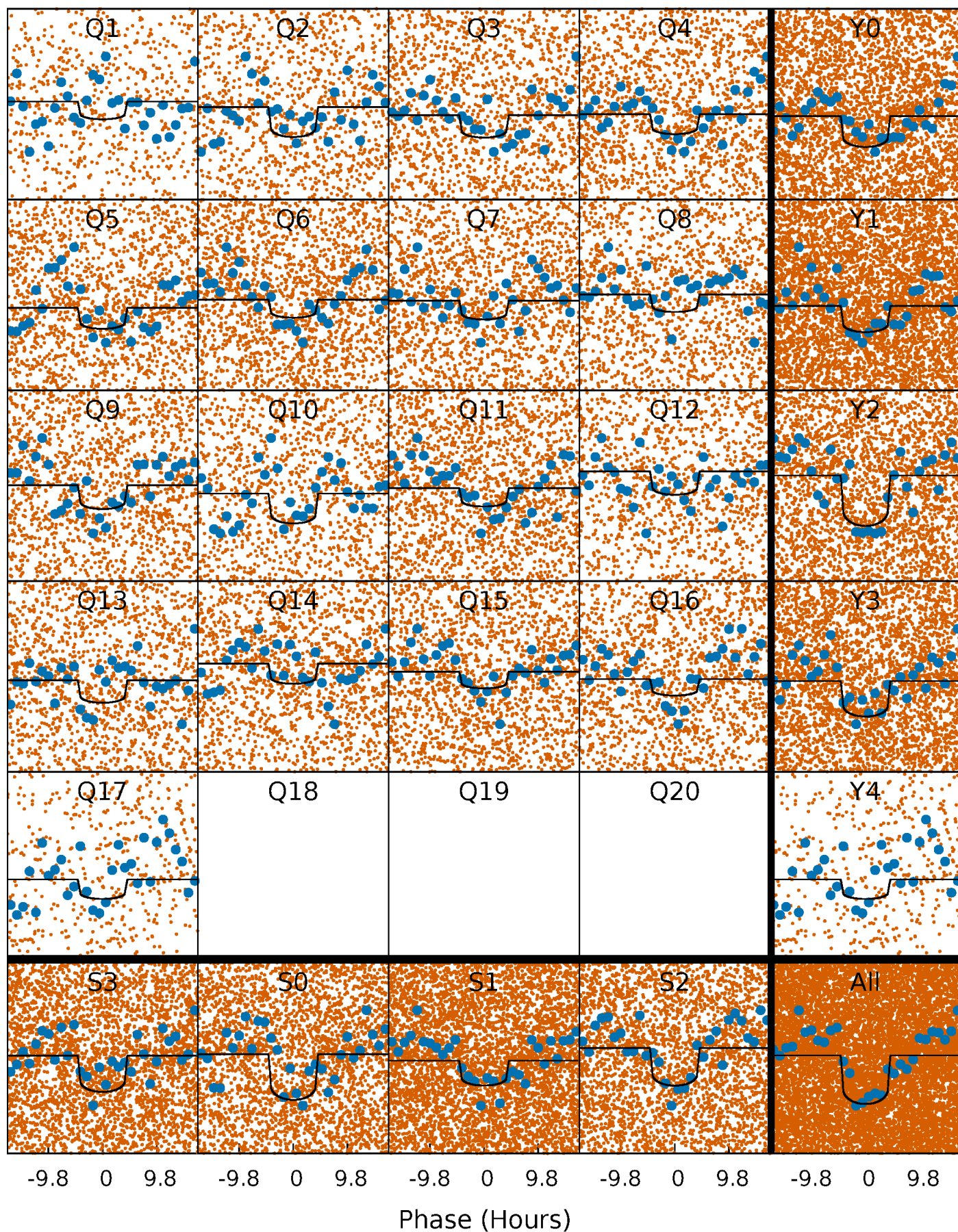
TCE 010395652-01   P= 1.950797 Days    $T_0=133.370014$  (BKJD)





# DV Quarter-Phased Transit Curves

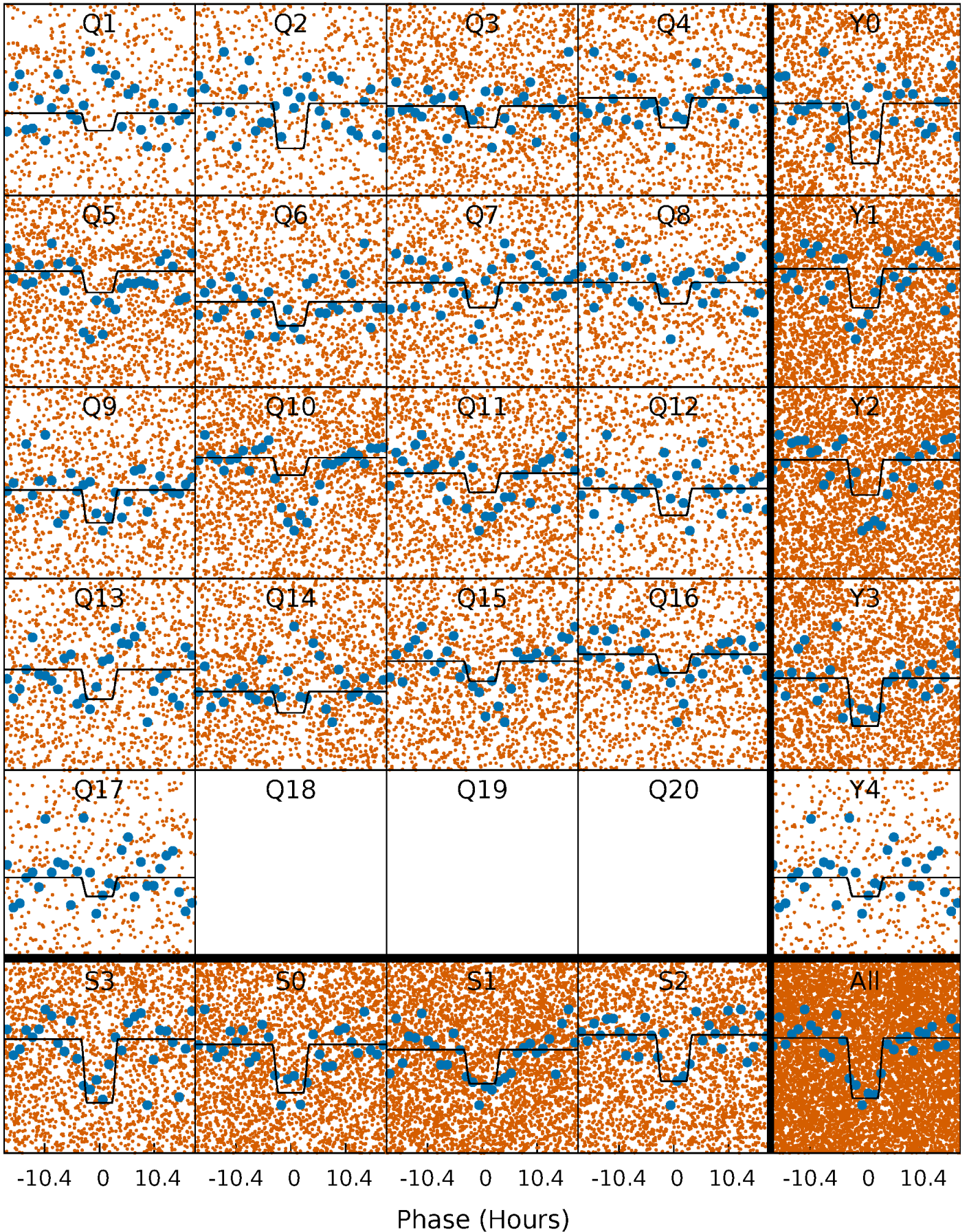
TCE 010395652-01 P= 1.950797 Days  $T_0=133.370014$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

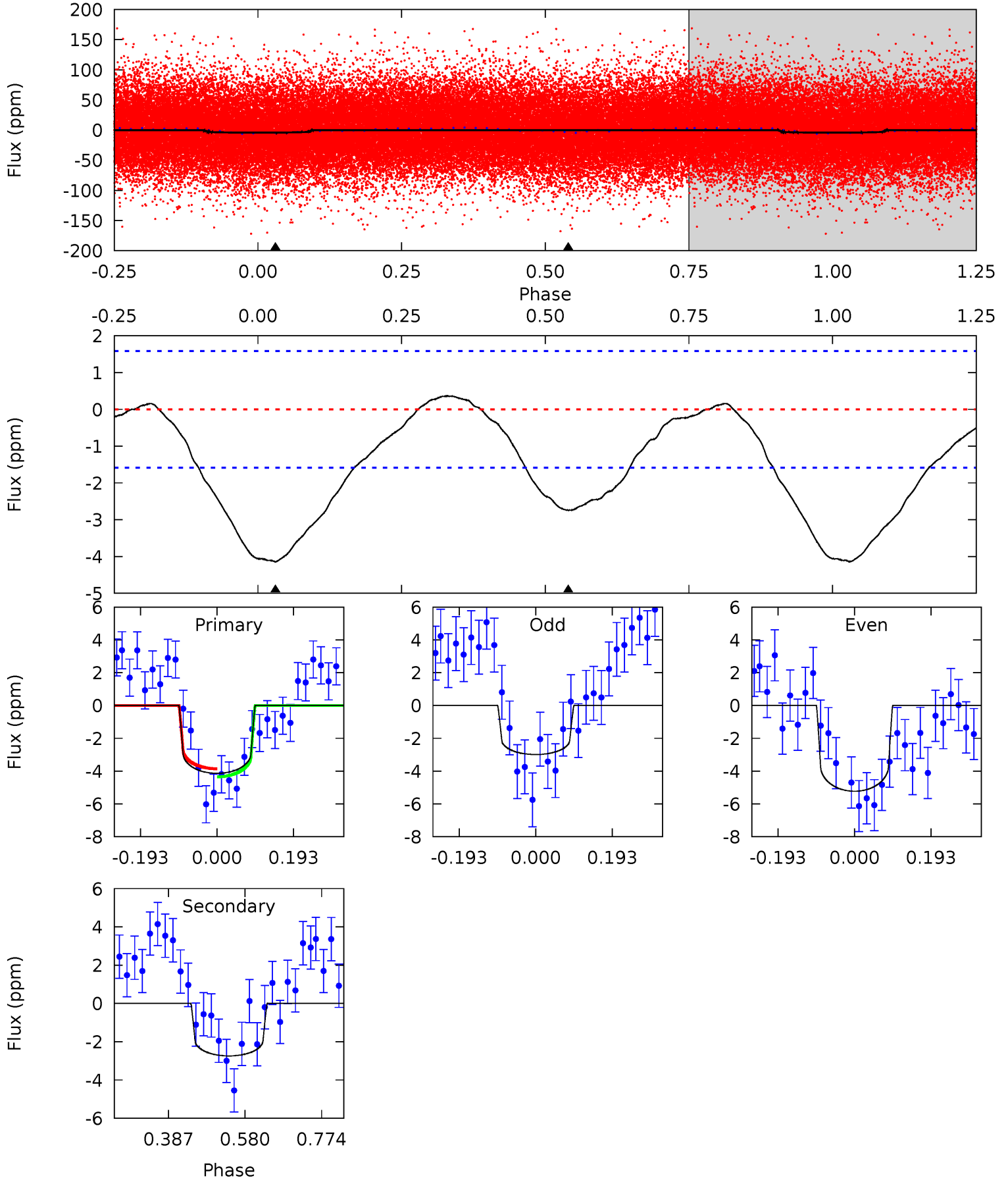
TCE 010395652-01 P= 1.950745 Days  $T_0=133.378016$  (BKJD)



# DV Model-Shift Uniqueness Test

010395652-01, P = 1.950797 Days, E = 131.419217 Days

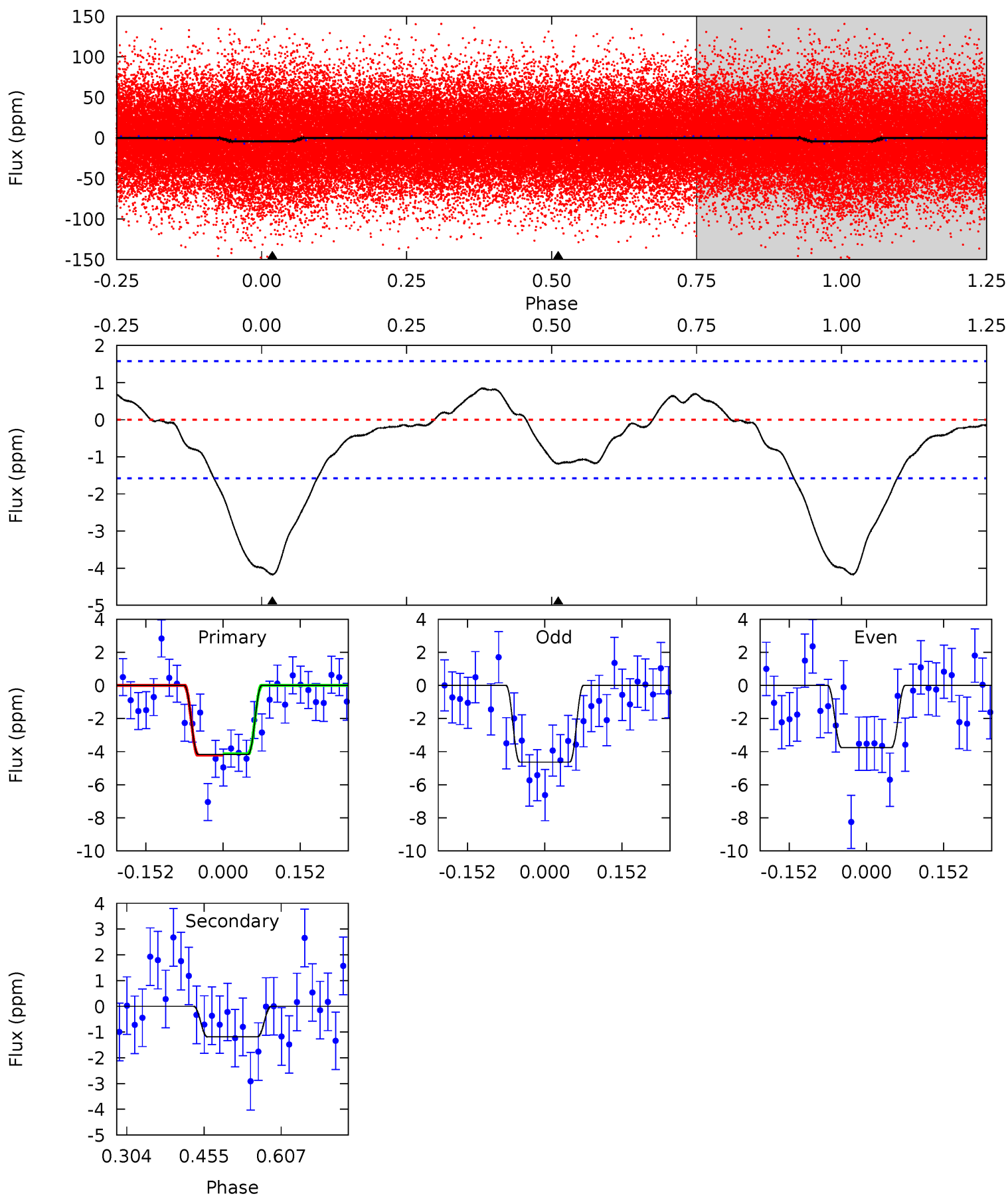
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	7.65	0	0	4.42	1.30	0.84	11.5	11.5	7.65	7.65	3.13	0.94	0.08	0.69



# Alt Model-Shift Uniqueness Test

010395652-01, P = 1.950745 Days, E = 131.427271 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
11.8	3.36	0	0	4.48	1.43	0.94	11.8	11.8	3.36	3.36	1.25	0.75	0.17	0.12





### Stellar Parameters For KIC 010395652

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8665^{+237}_{-407}$	$3.787^{+0.397}_{-0.132}$	$-0.240^{+0.400}_{-0.350}$	$2.985^{+0.861}_{-1.292}$	$1.994^{+0.440}_{-0.440}$	$0.106^{+0.369}_{-0.047}$
	+3%/-5%	+10%/-3%	+167%/-146%	+29%/-43%	+22%/-22%	+349%/-45%
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 010395652-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-3 \pm 0$	$0.74^{+0.19}_{-0.20}$	$4542^{+409}_{-508}$	$6725^{+670}_{-589}$	$4.099^{+3.109}_{-1.459}$
Alt.	$-1 \pm 0$	$0.65^{+0.17}_{-0.17}$	$4566^{+358}_{-529}$	$5734^{+705}_{-693}$	$2.253^{+1.898}_{-0.939}$

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

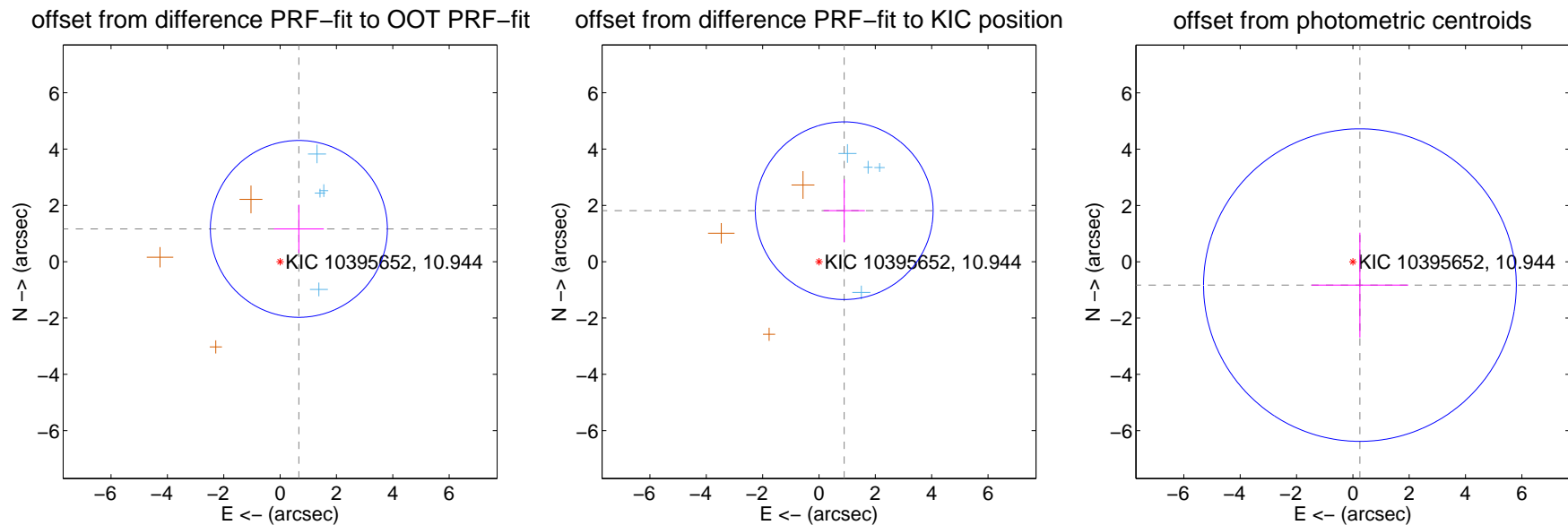
## DV Centroid Data

Supplemental centroid analysis for 010395652-01. **Kepler magnitude: 10.94.** Transit SNR 8.42

There are 4 quarters with good PRF difference image offsets

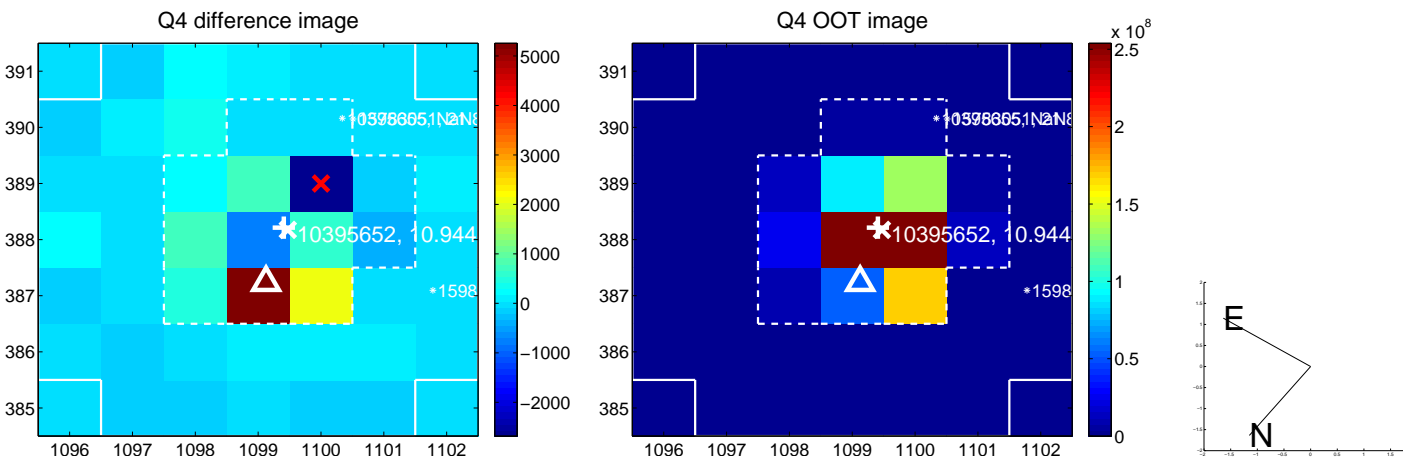
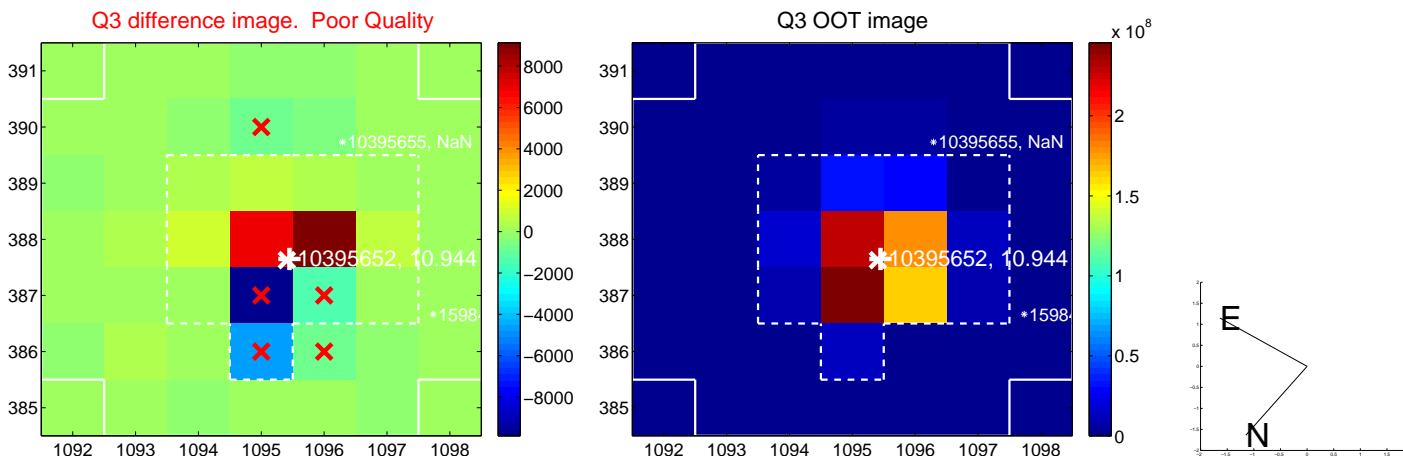
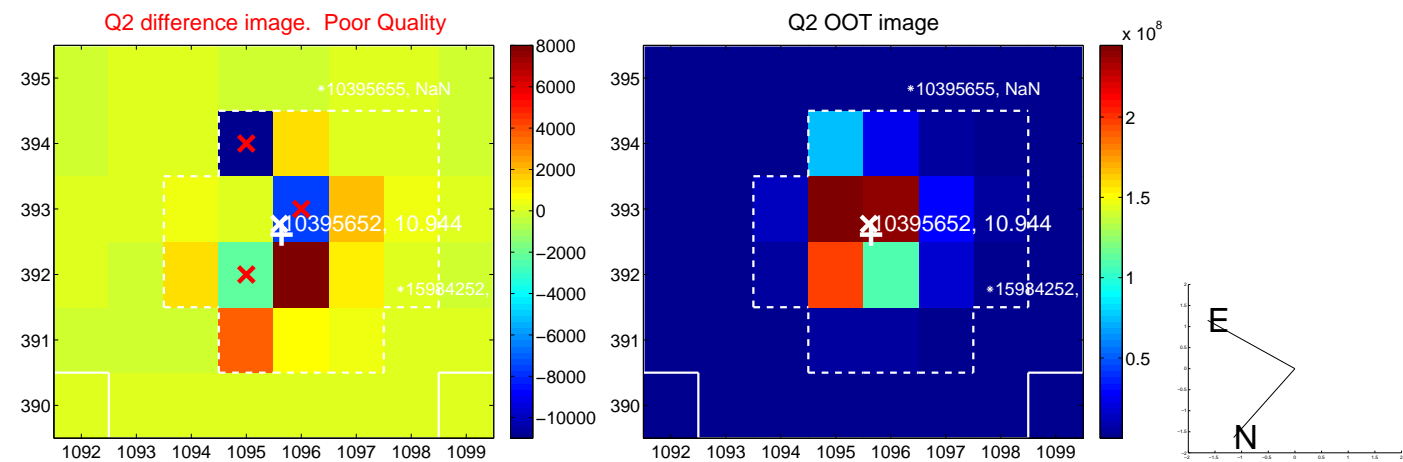
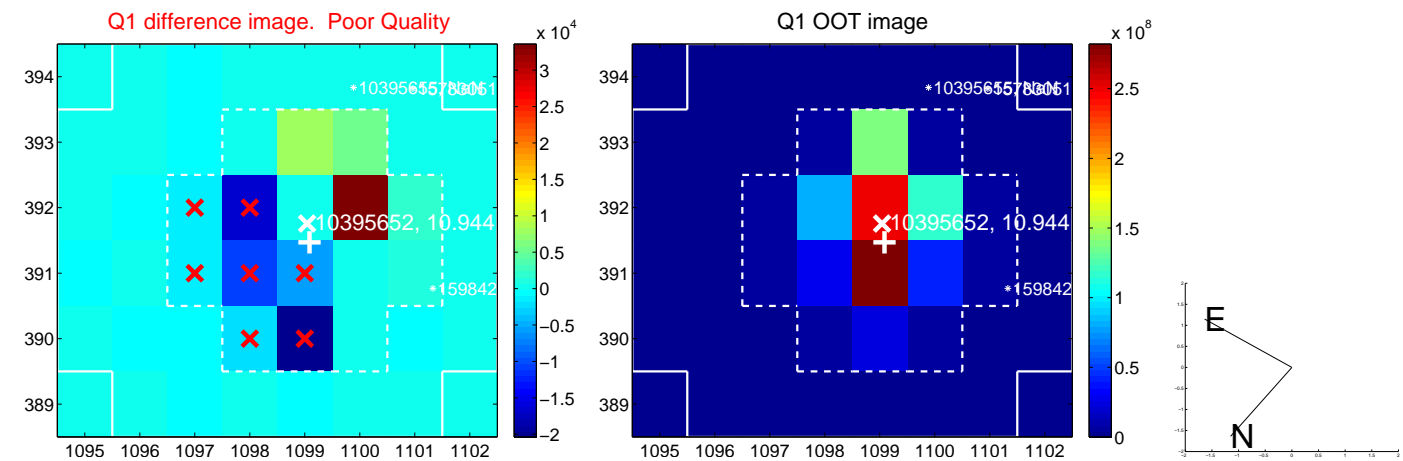
The direct PRF centroid is offset from the target star catalog position by about 0.85 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.342 \pm 1.047$	1.28	$-0.666 \pm 0.885$	$1.165 \pm 0.858$
PRF-fit source offset from KIC position	$2.021 \pm 1.052$	1.92	$-0.895 \pm 0.732$	$1.812 \pm 1.116$
photometric centroid source offset	$0.87 \pm 1.85$	0.47	$-0.25 \pm 1.72$	$-0.83 \pm 1.86$

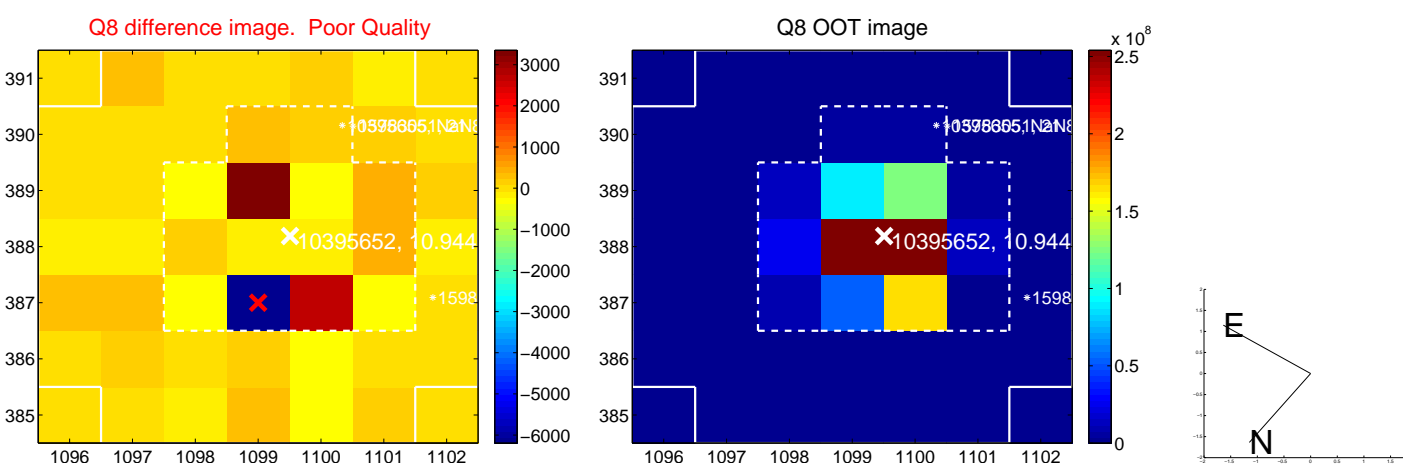
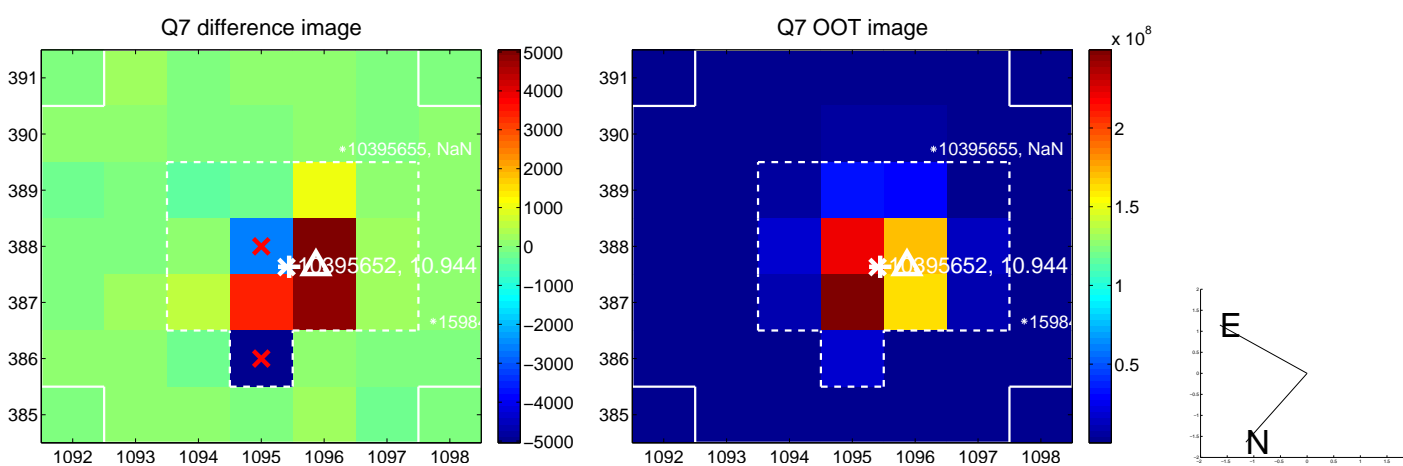
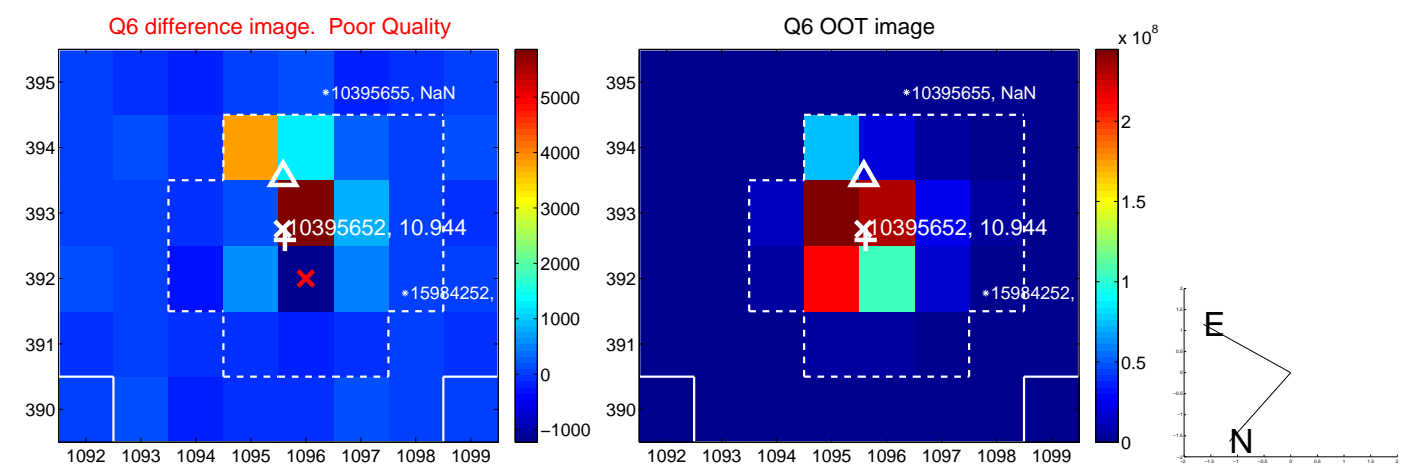
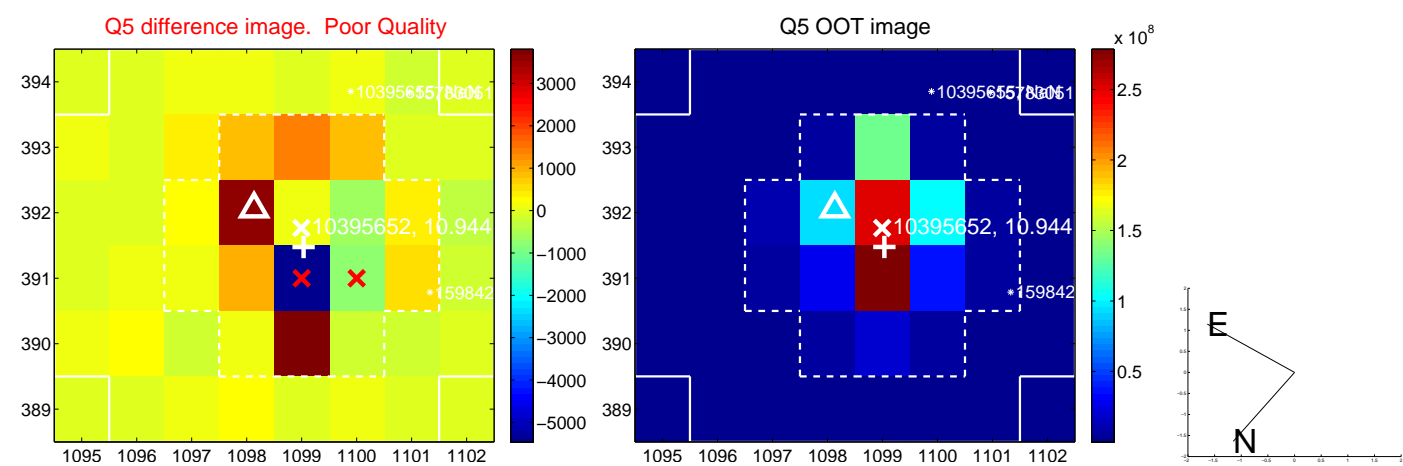


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

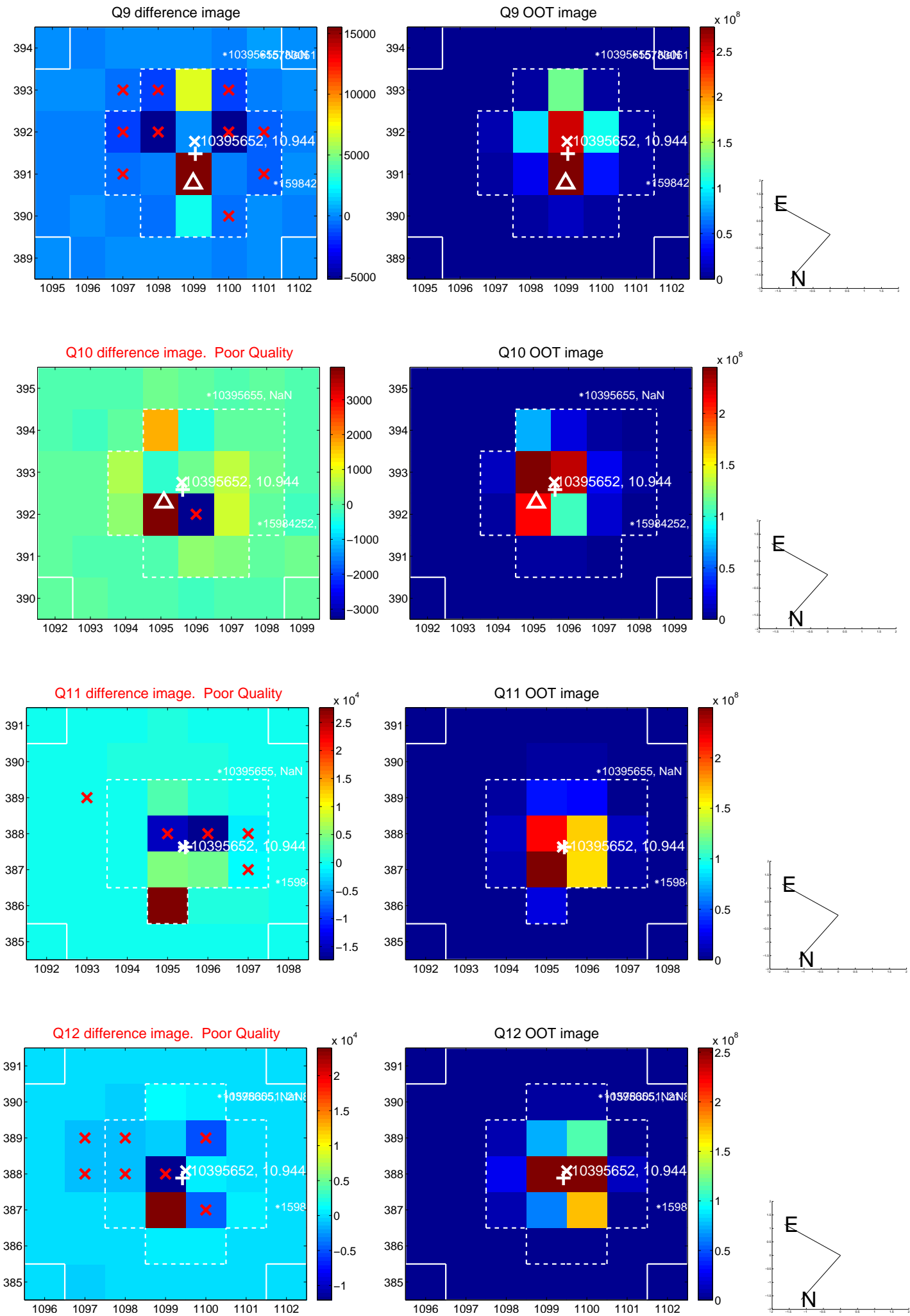


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

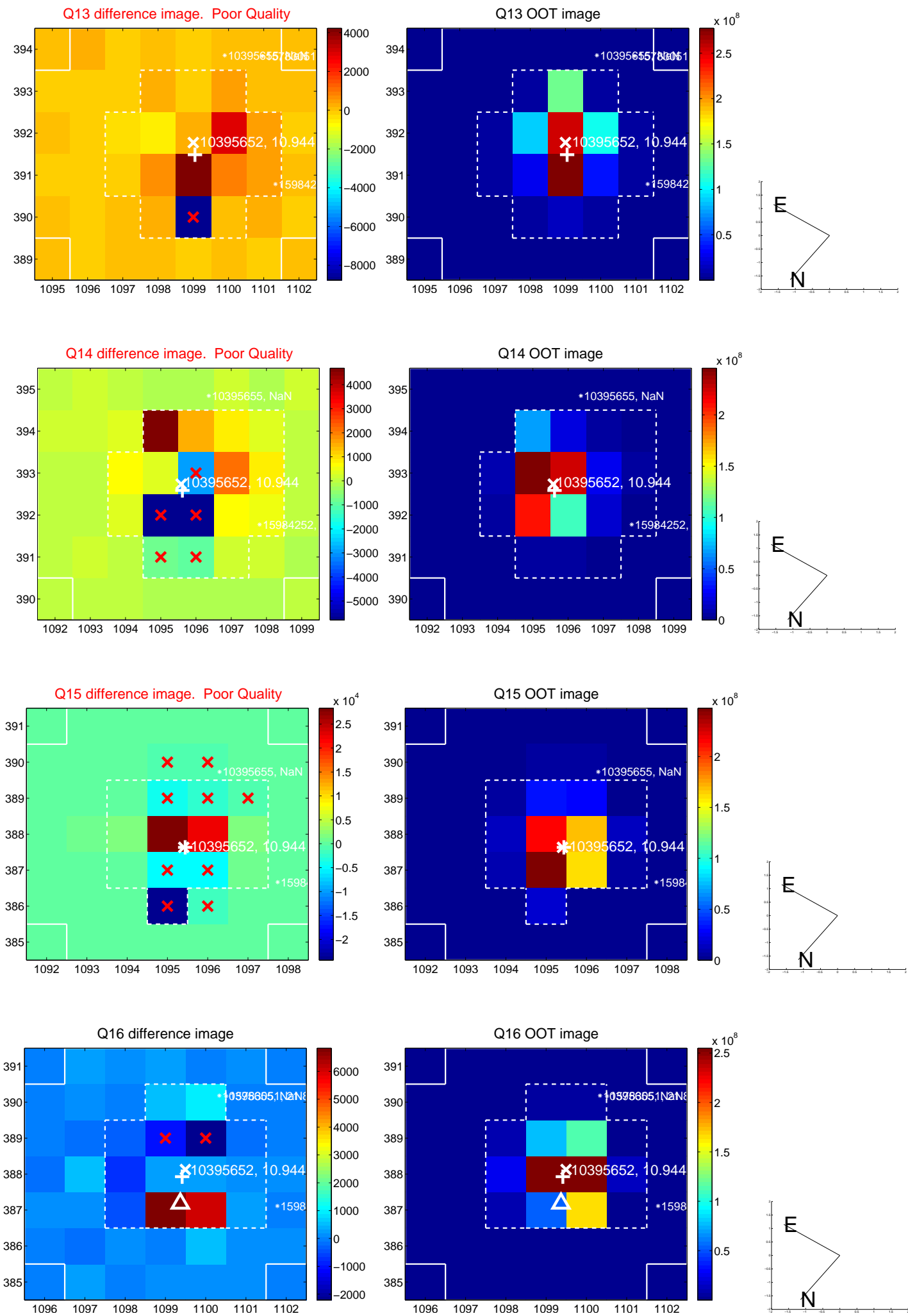




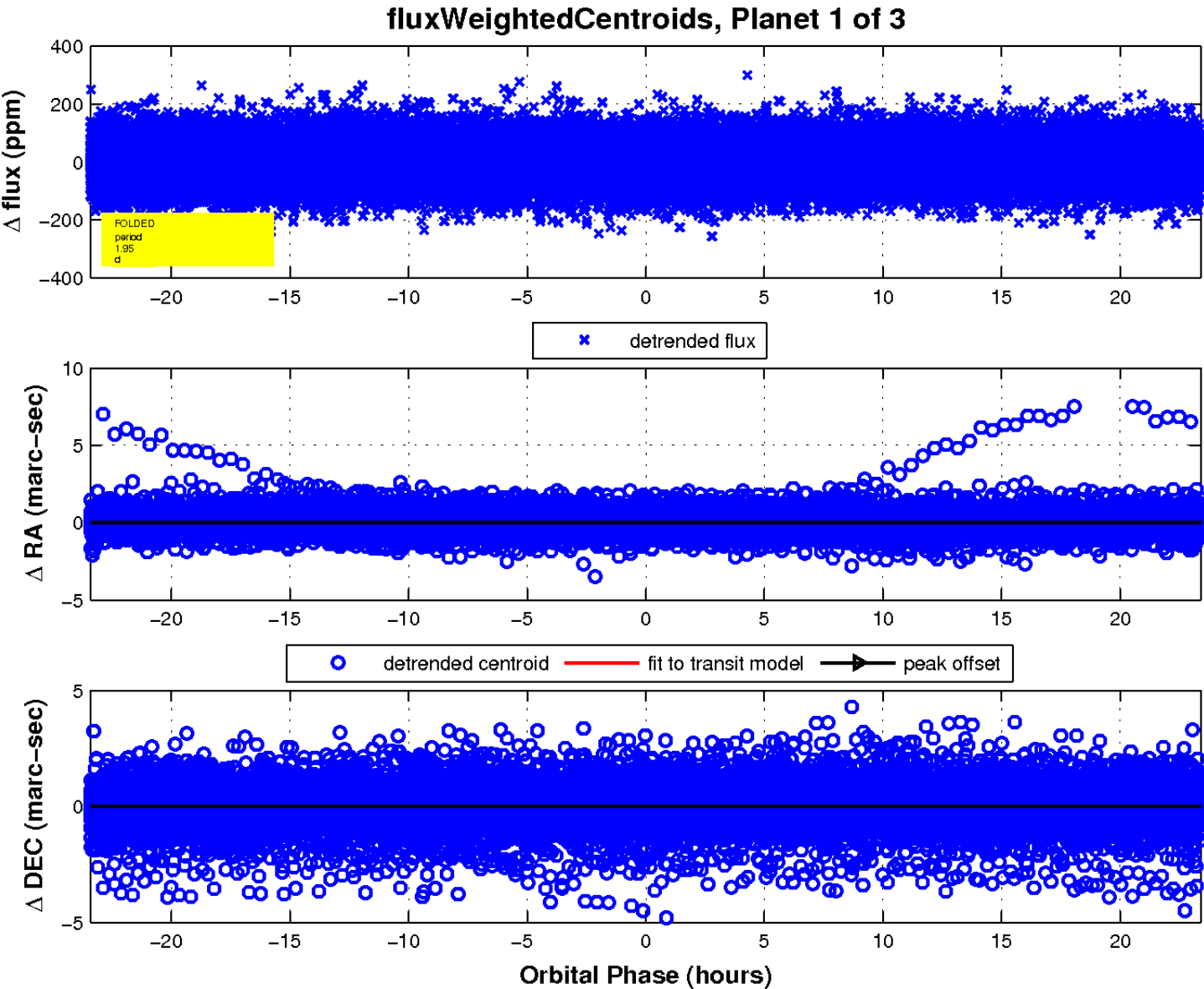
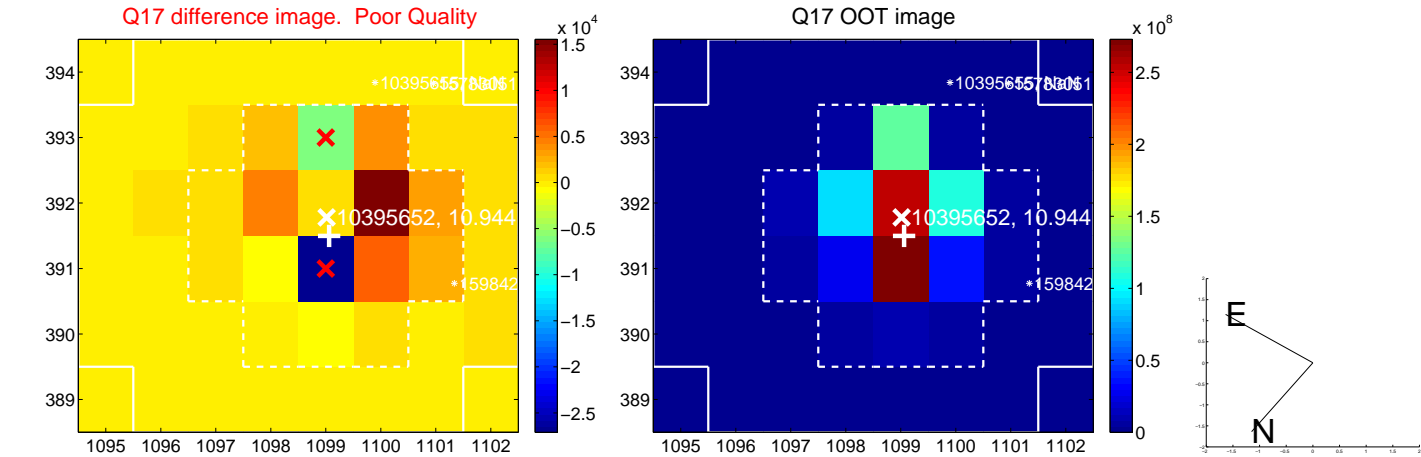
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

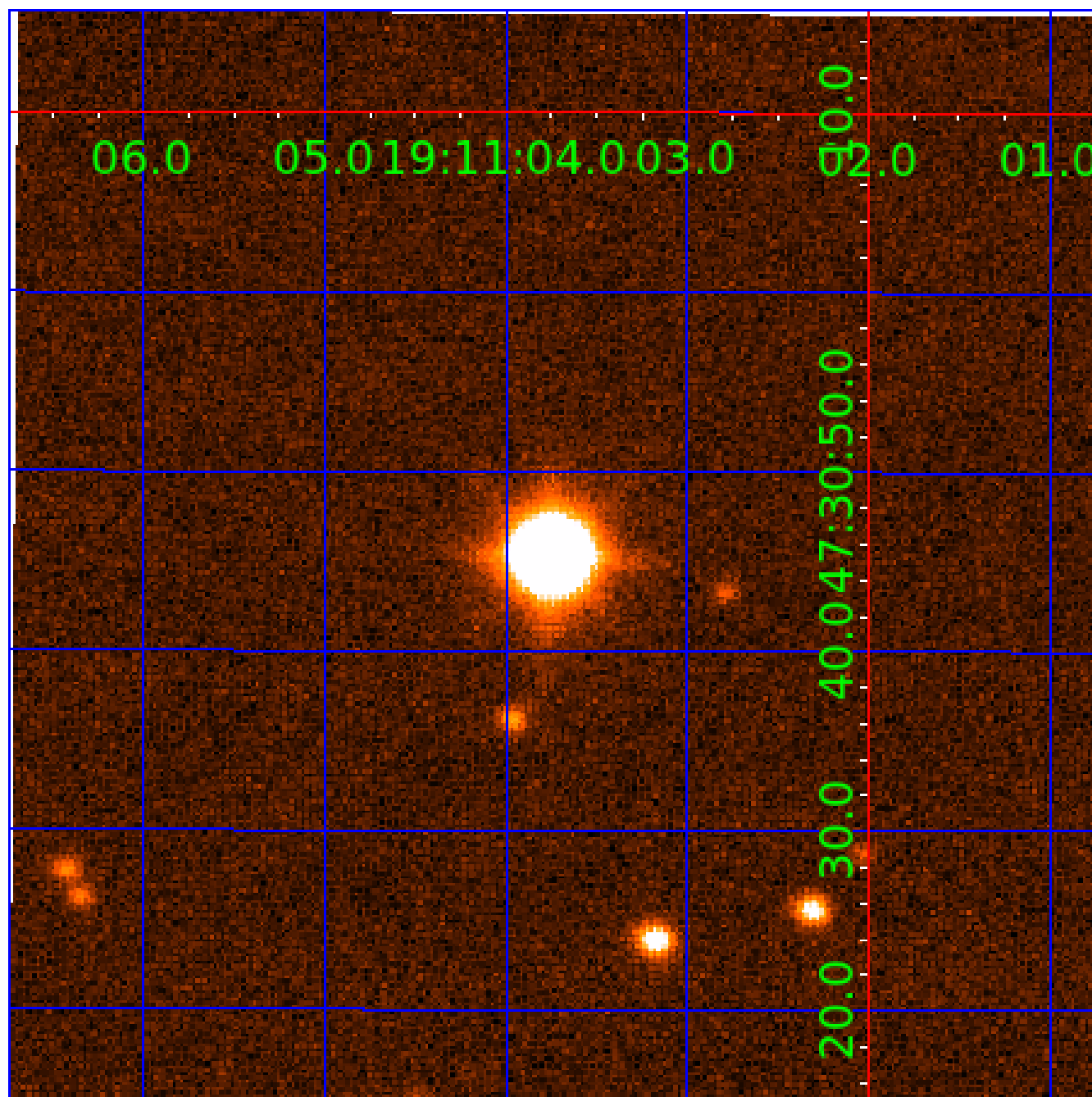


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 010395652

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010395652-01	OBS	No	1.950797	133.370014	5.2	8.616	7.4	8.4	2.98	8665	0.79	30454.30
010395652-02	OBS	No	91.599901	200.139717	35.8	10.585	8.2	4.1	2.98	8665	2.05	179.78
010395652-03	OBS	No	118.428683	143.542221	74.8	1.610	7.3	7.9	2.98	8665	2.77	127.64

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010395652-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
010395652-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010395652-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

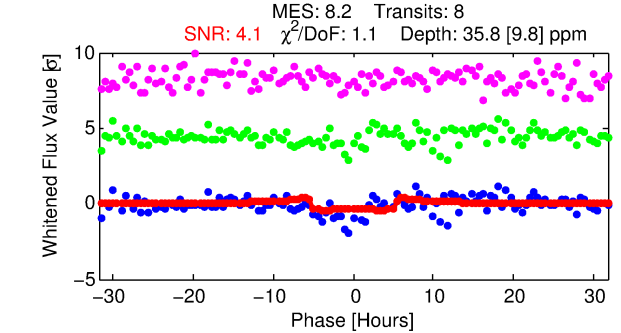
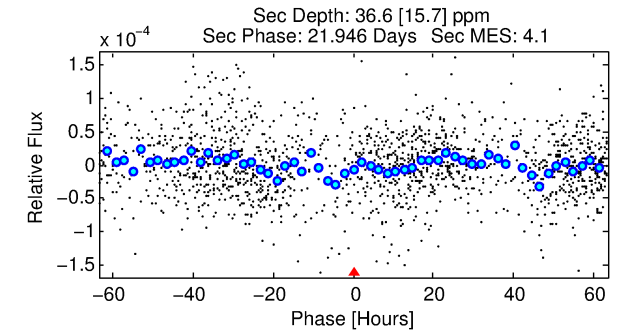
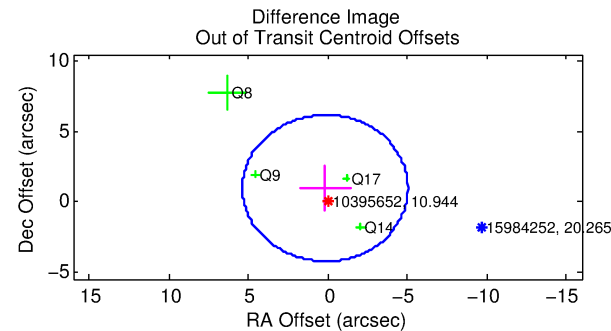
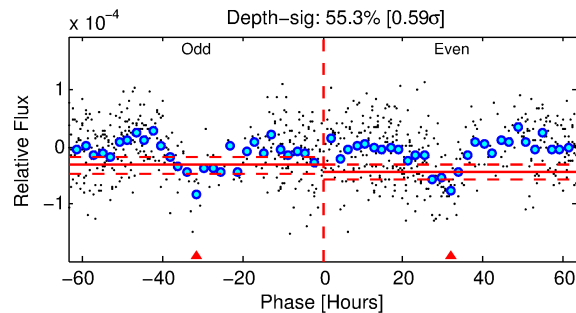
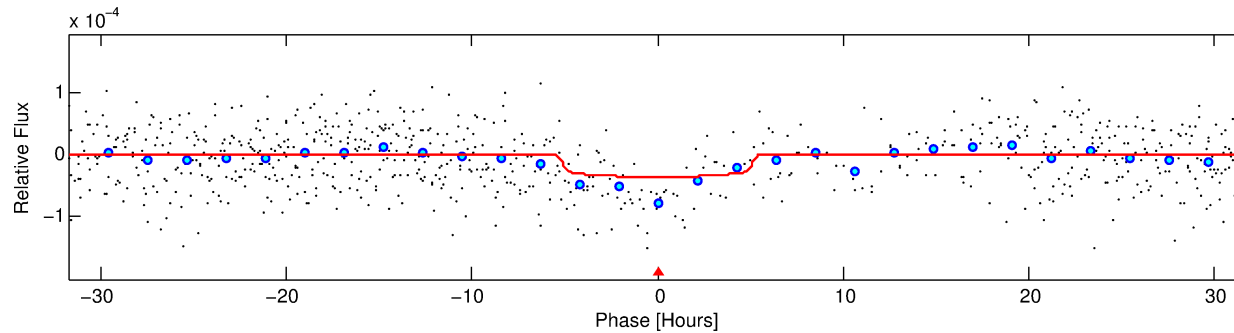
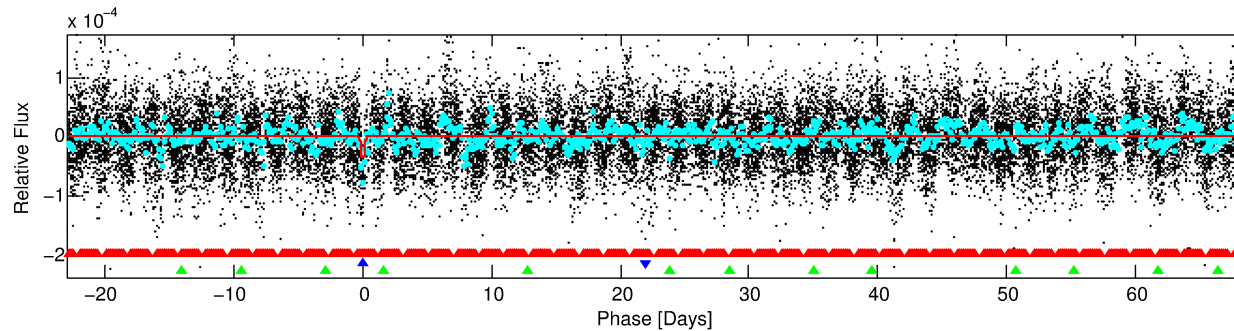
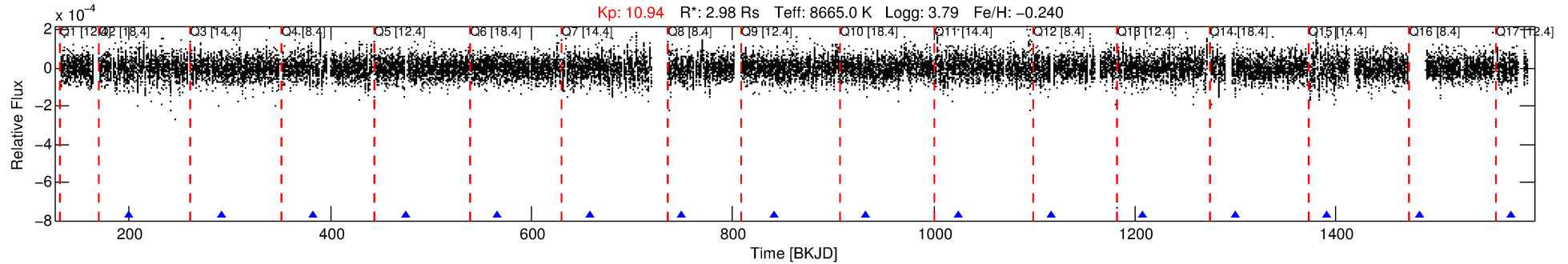
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010395652-02

No Significant Match Found

# DV One-Page Summary

KIC: 10395652 Candidate: 2 of 3 Period: 91.600 d



## DV Fit Results:

Period = 91.59990 [0.00236] d  
Epoch = 200.1397 [0.0236] BKJD  
Rp/R\* = 0.0063 [0.0025]  
a/R\* = 31.81 [77.57]  
b = 0.88 [0.61]  
Seff = 179.78 [125.84]  
Teq = 934 [163] K  
Rp = 2.05 [1.20] Re  
a = 0.5003 [0.2100] AU  
Ag = 1204.27 [1355.38] [0.89 $\sigma$ ]  
Teffp = 8504 [1957] K [3.85 $\sigma$ ]

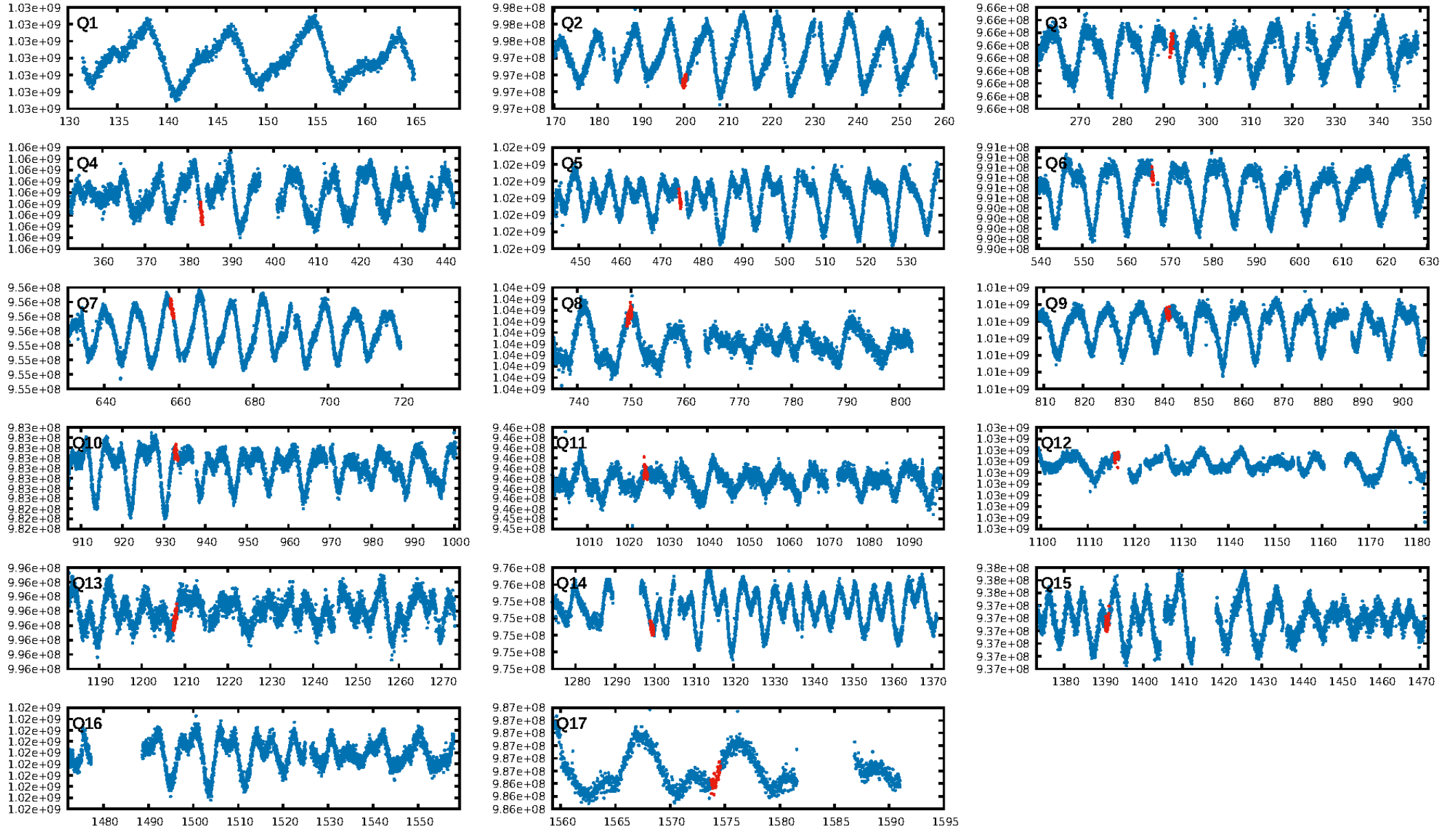
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [157.64 $\sigma$ ]  
LongPeriod-sig: 100.0% [60.14 $\sigma$ ]  
ModelChiSquare2-sig: 14.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.18e-11  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: 5.971  
Centroid-sig: 9.0%  
Centroid-so: 2.892 arcsec [1.32 $\sigma$ ]  
OotOffset-rm: 0.977 arcsec [0.56 $\sigma$ ]  
KicOffset-rm: 1.819 arcsec [1.25 $\sigma$ ]  
OotOffset-st: 1/0/1/2 [4]  
KicOffset-st: 1/0/1/2 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 0.00 [0/9]

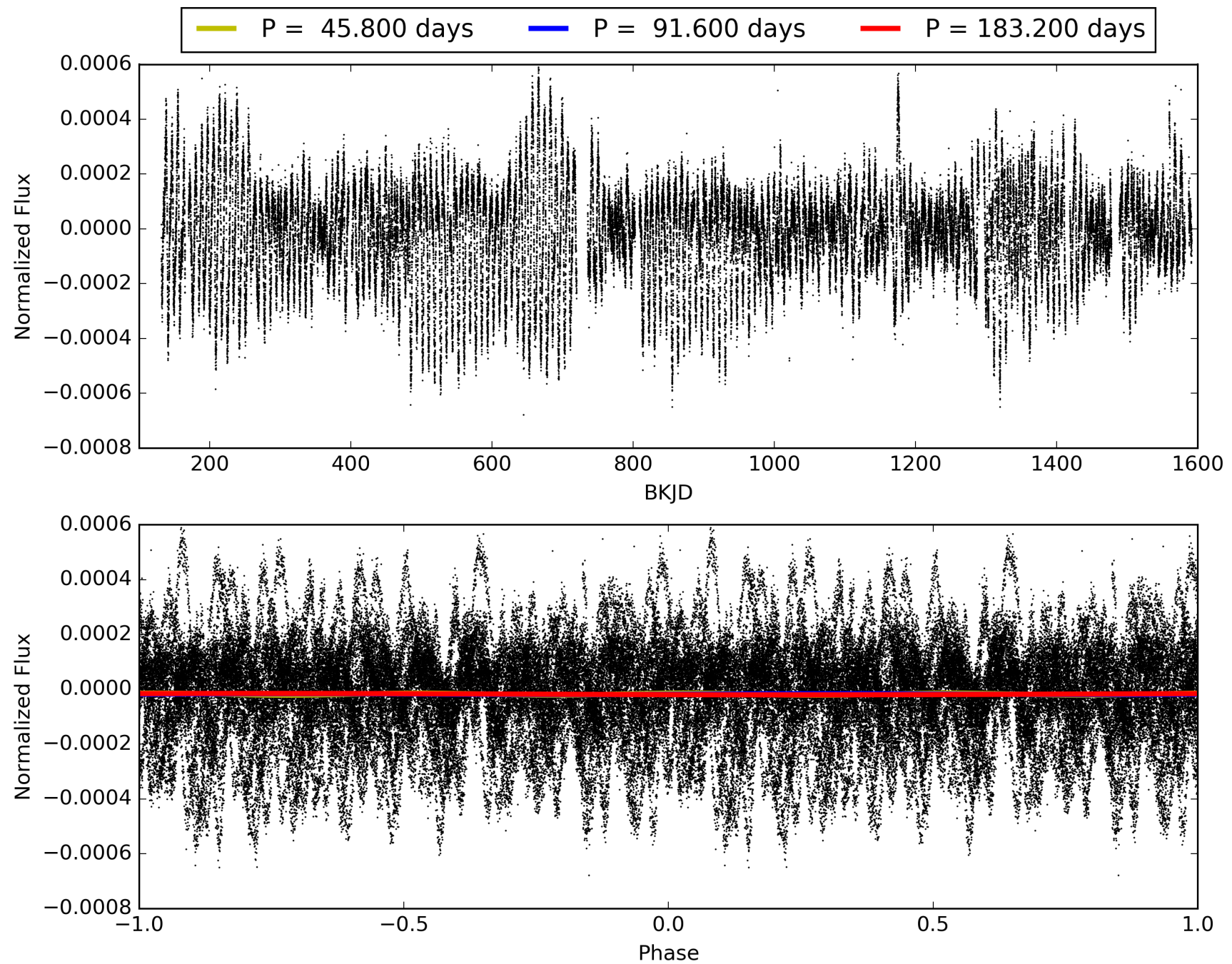
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:24:25 Z

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

# TCE 010395652-02, PDC Light Curves

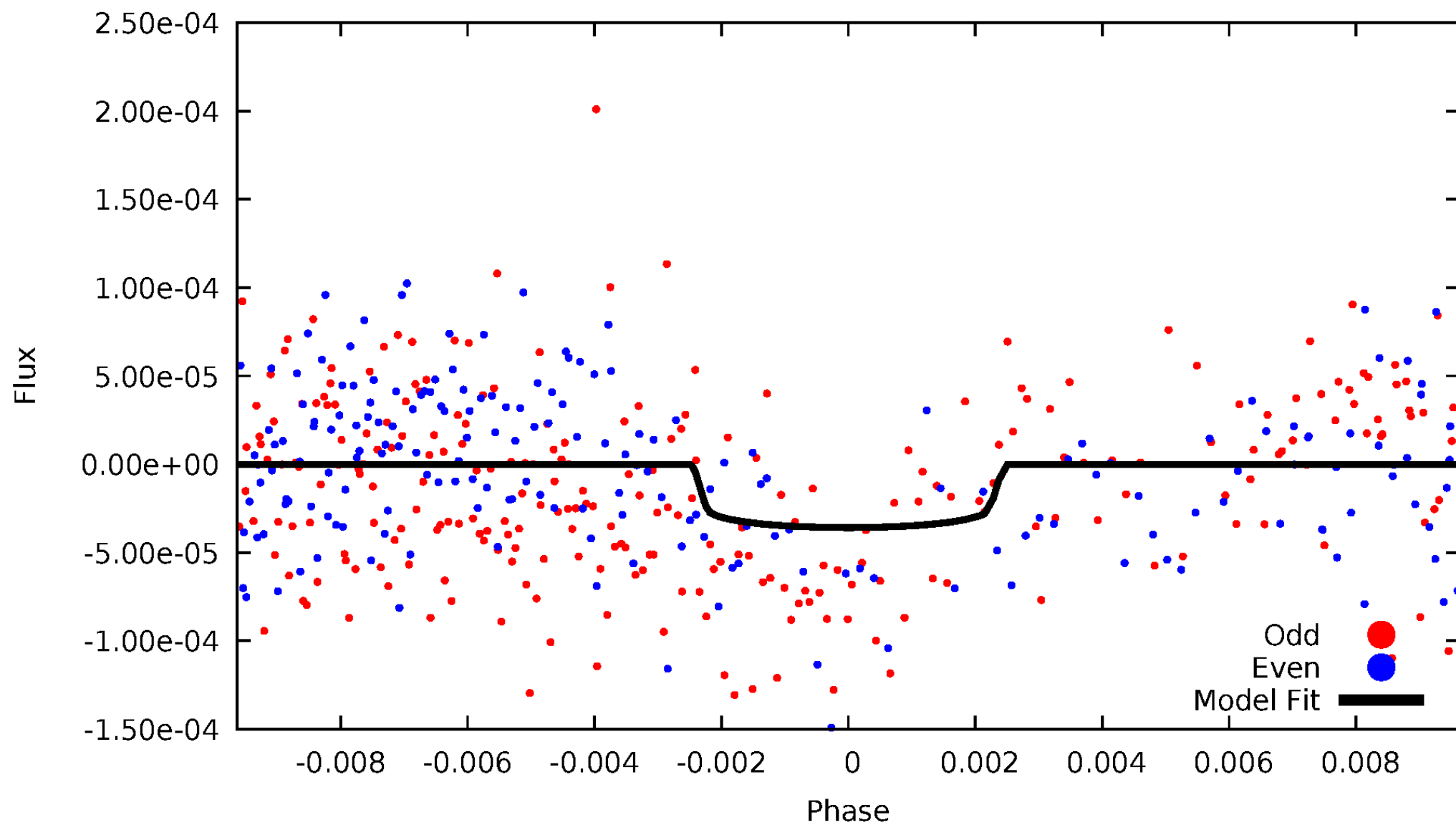


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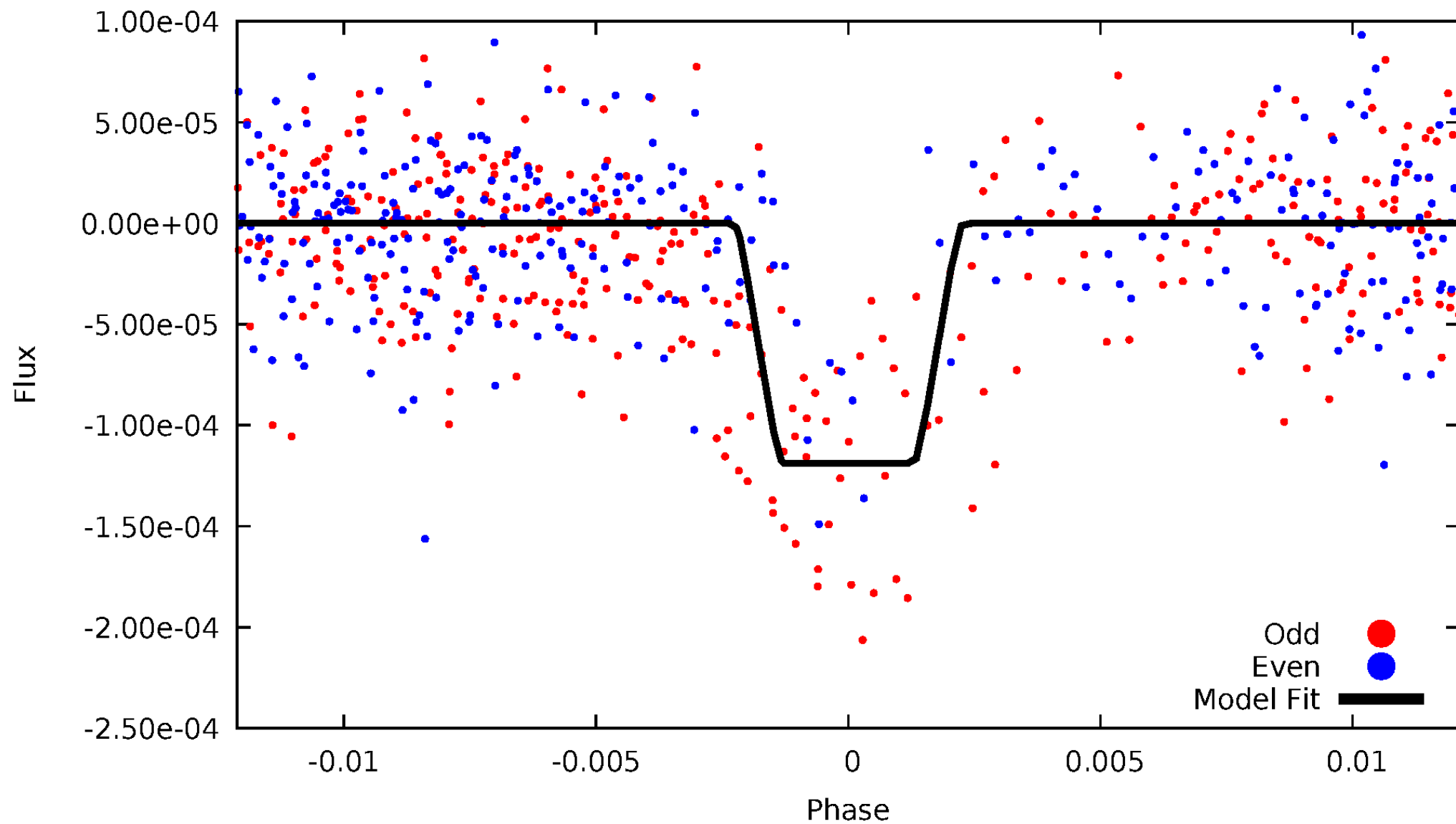
# DV Odd/Even

TCE 010395652-02



# ALT Odd/Even

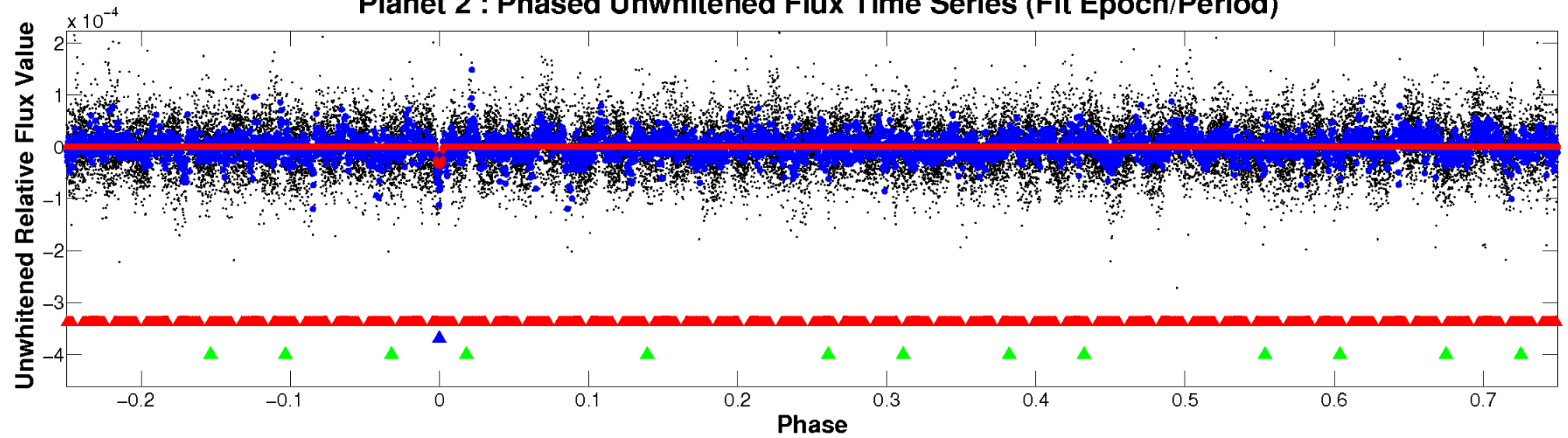
TCE 010395652-02



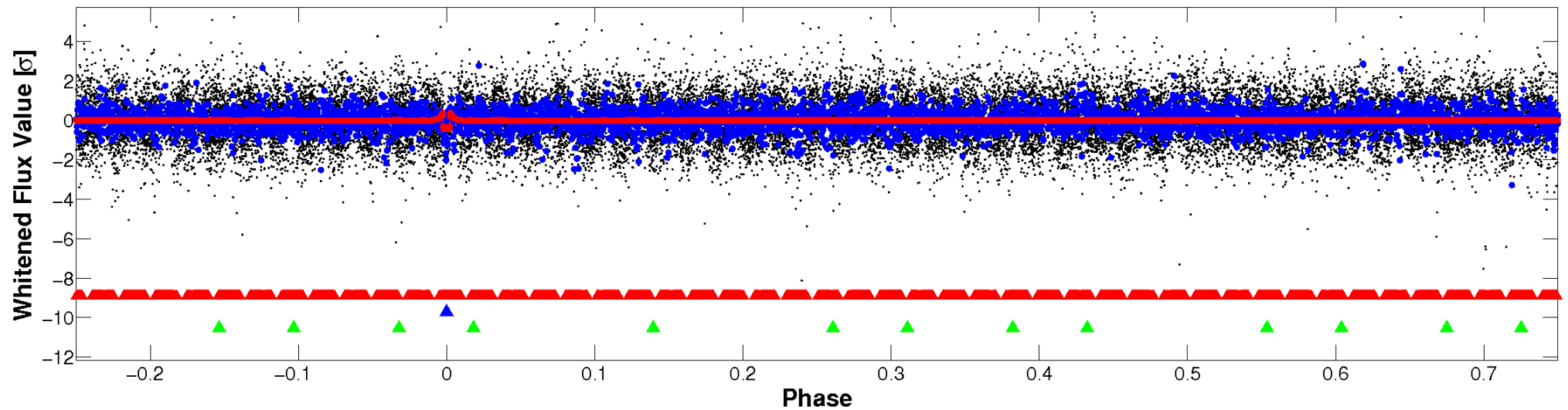


# Non-Whitened Vs. Whitened Light Curve

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

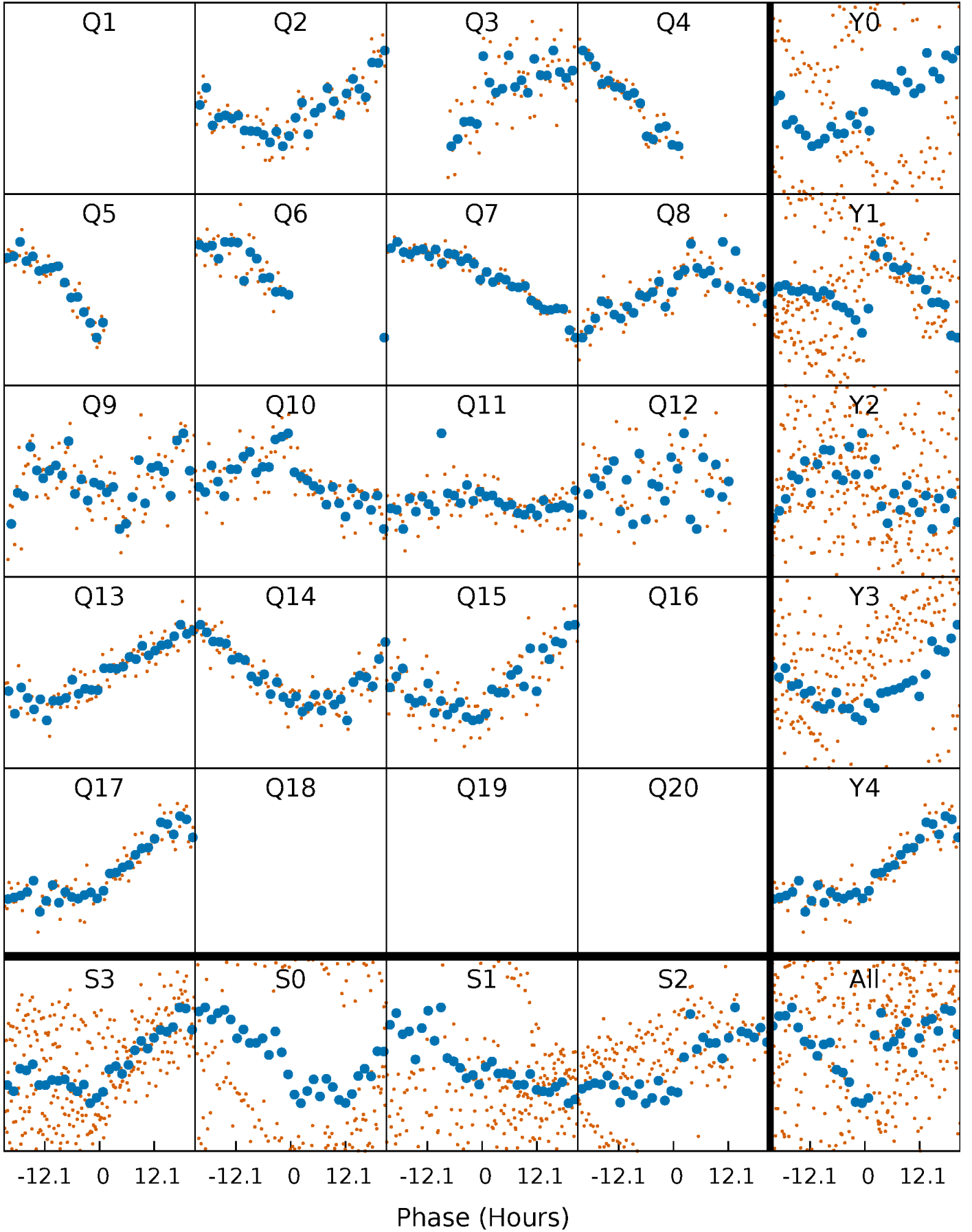


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



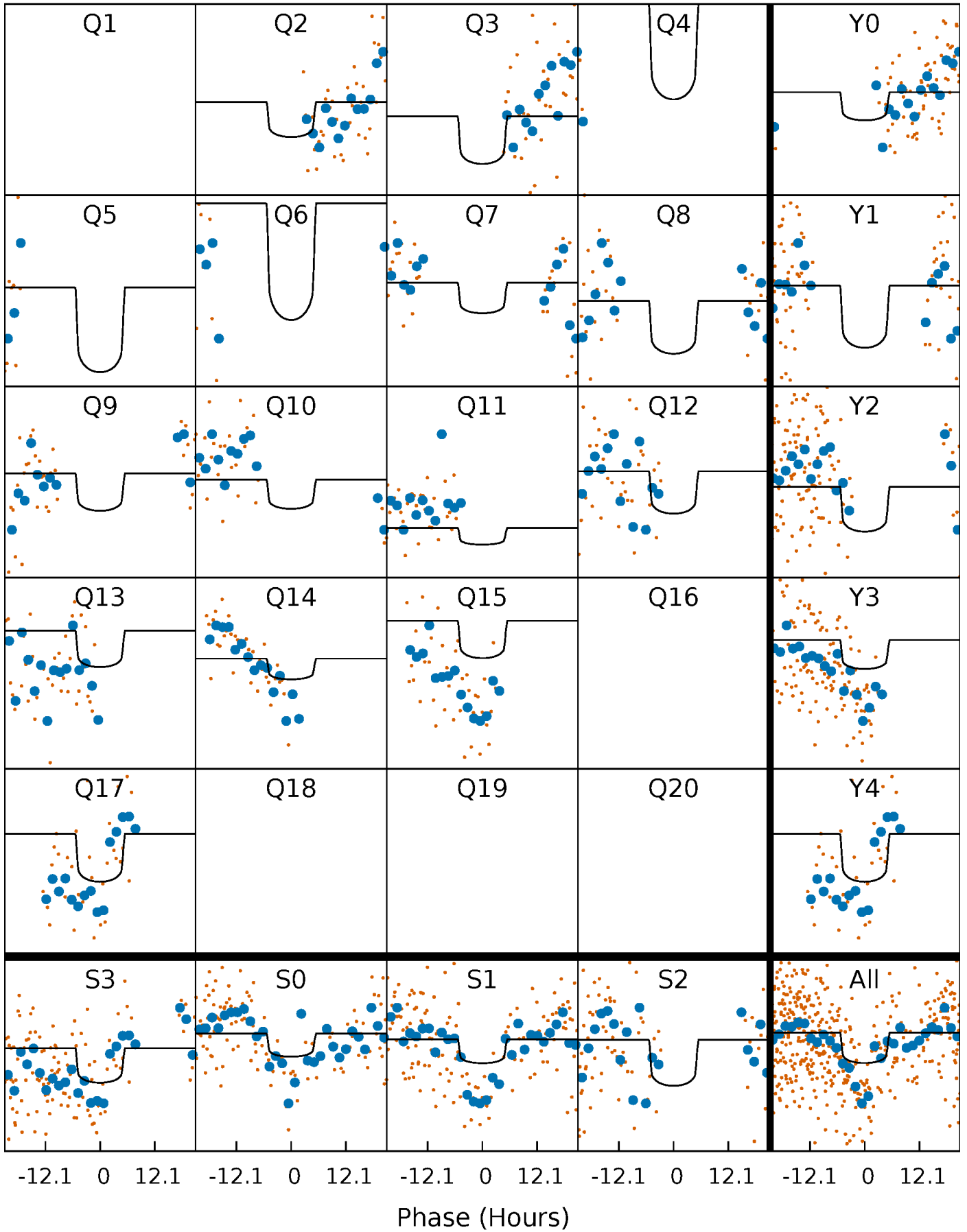
# PDC Quarter-Phased Transit Curves

TCE 010395652-02     $P = 91.599901$  Days     $T_0 = 200.139717$  (BKJD)



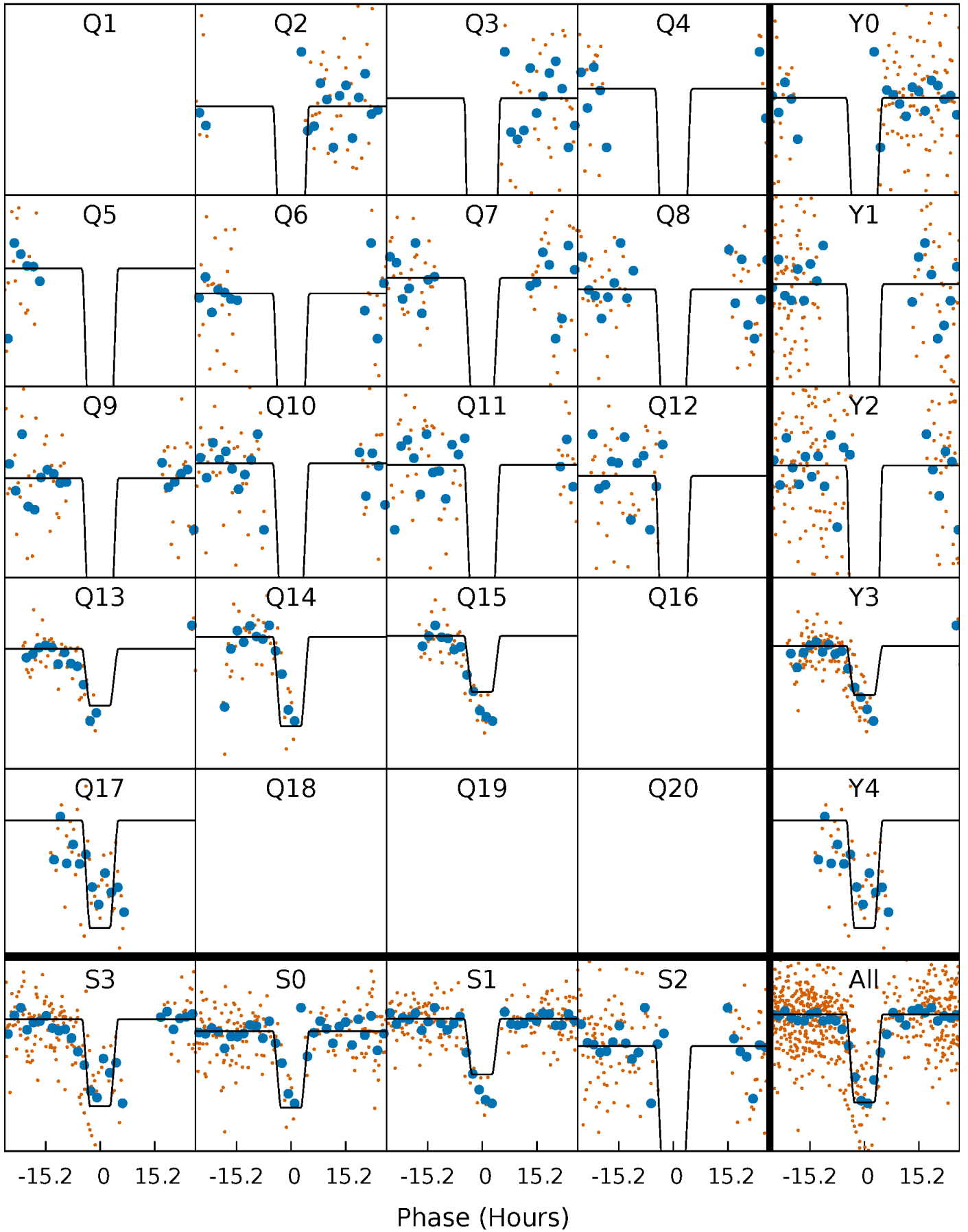
# DV Quarter-Phased Transit Curves

TCE 010395652-02 P= 91.599901 Days  $T_0=200.139717$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

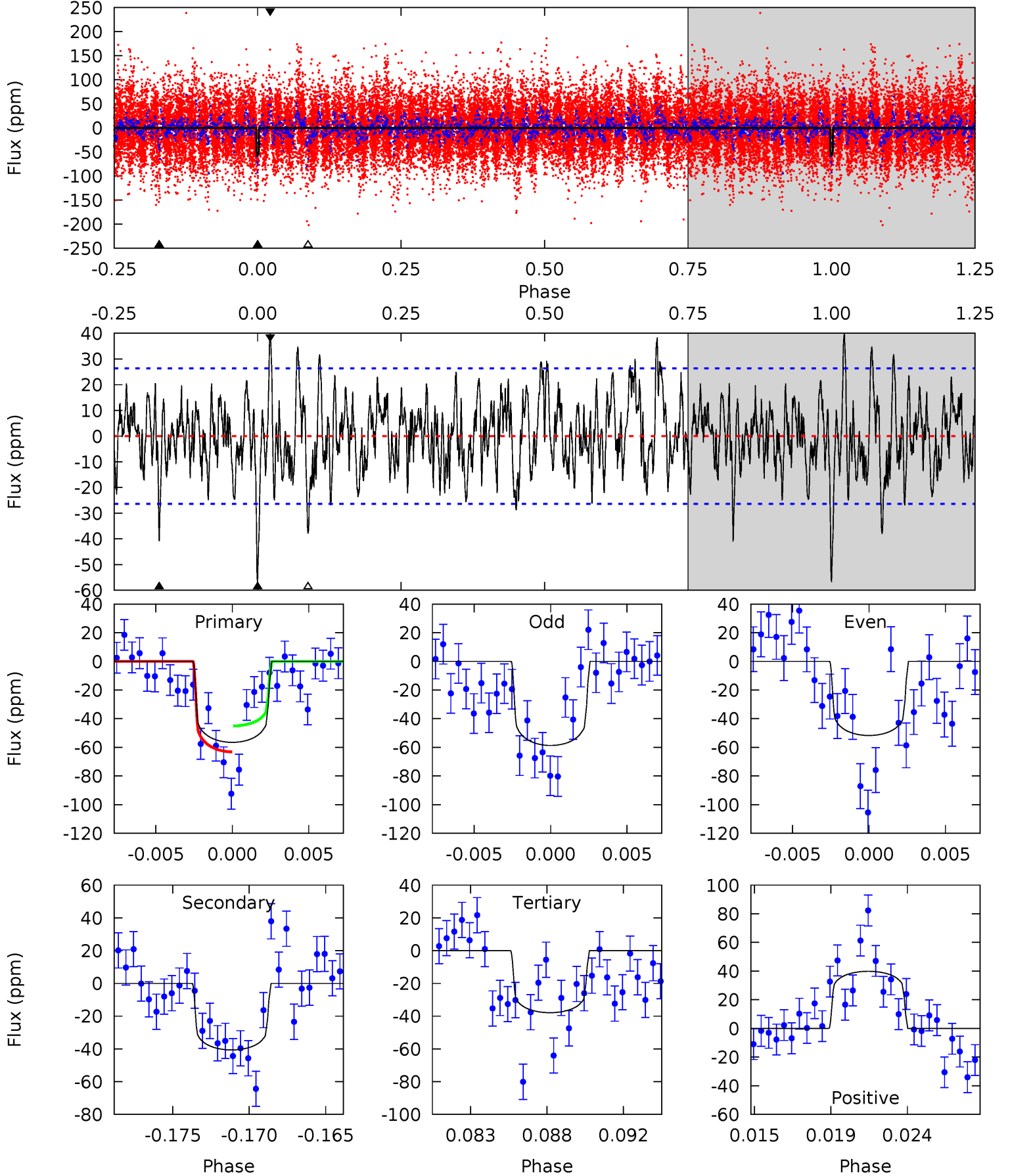
TCE 010395652-02     $P = 91.605084$  Days     $T_0 = 200.106960$  (BKJD)



# DV Model-Shift Uniqueness Test

010395652-02, P = 91.599901 Days, E = 108.539816 Days

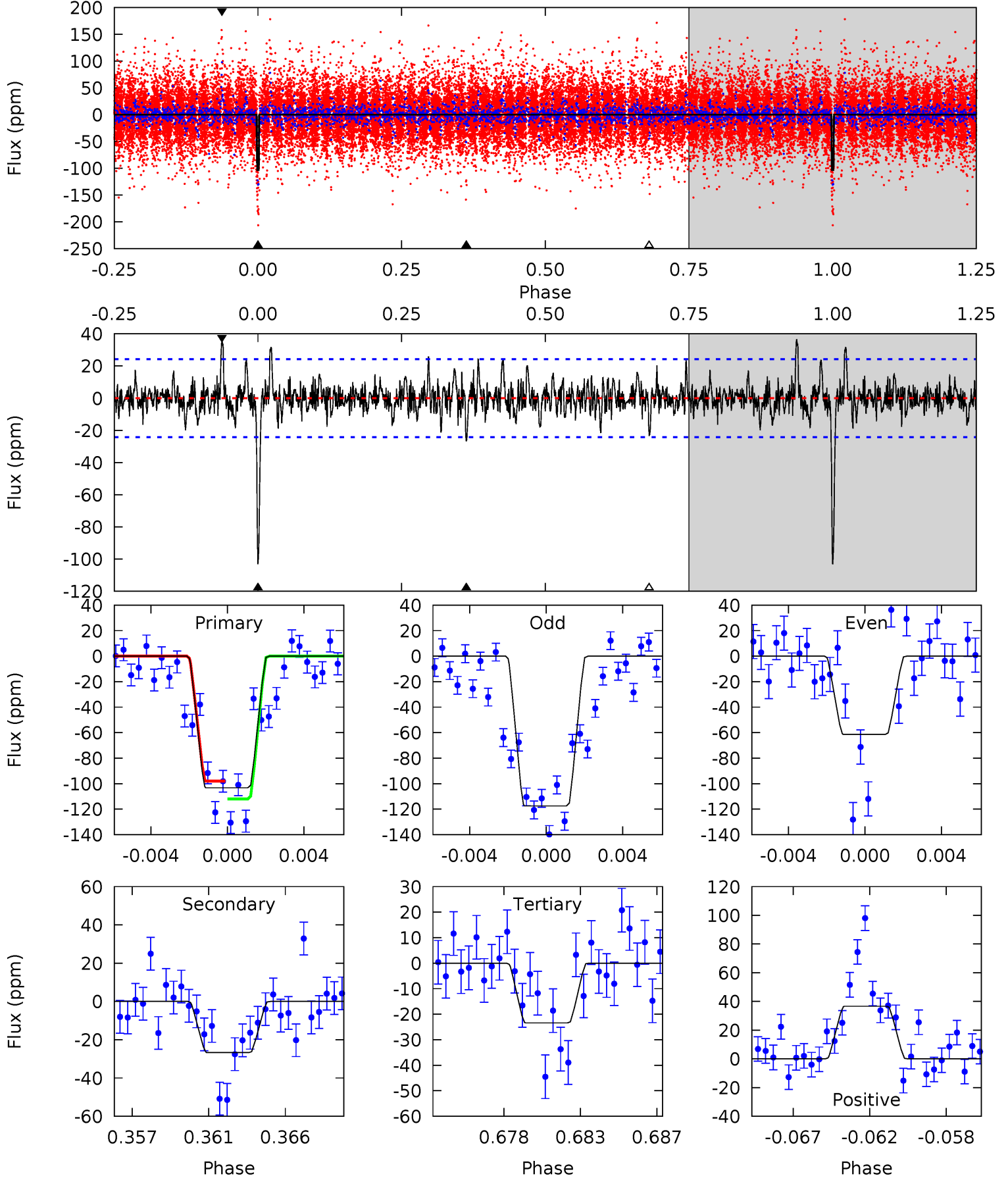
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	7.96	7.42	7.81	5.16	2.82	2.26	3.65	3.26	0.54	0.15	0.64	1.13	0.41	1.69



# Alt Model-Shift Uniqueness Test

010395652-02, P = 91.605084 Days, E = 108.501876 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
22.1	5.71	5.00	7.83	5.18	2.84	1.32	17.1	14.2	0.71	-2.12	5.55	0.95	0.26	1.42





### Stellar Parameters For KIC 010395652

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8665^{+237}_{-407}$	$3.787^{+0.397}_{-0.132}$	$-0.240^{+0.400}_{-0.350}$	$2.985^{+0.861}_{-1.292}$	$1.994^{+0.440}_{-0.440}$	$0.106^{+0.369}_{-0.047}$
	+3%/-5%	+10%/-3%	+167%/-146%	+29%/-43%	+22%/-22%	+349%/-45%
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 010395652-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-41 \pm 5$	$1.87^{+0.96}_{-0.77}$	$1270^{+106}_{-157}$	$8681^{+4031}_{-1654}$	$1650^{+2828}_{-953}$
Alt.	$-27 \pm 5$	$3.33^{+1.06}_{-0.96}$	$1266^{+106}_{-136}$	$5681^{+880}_{-556}$	$342^{+311}_{-153}$

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

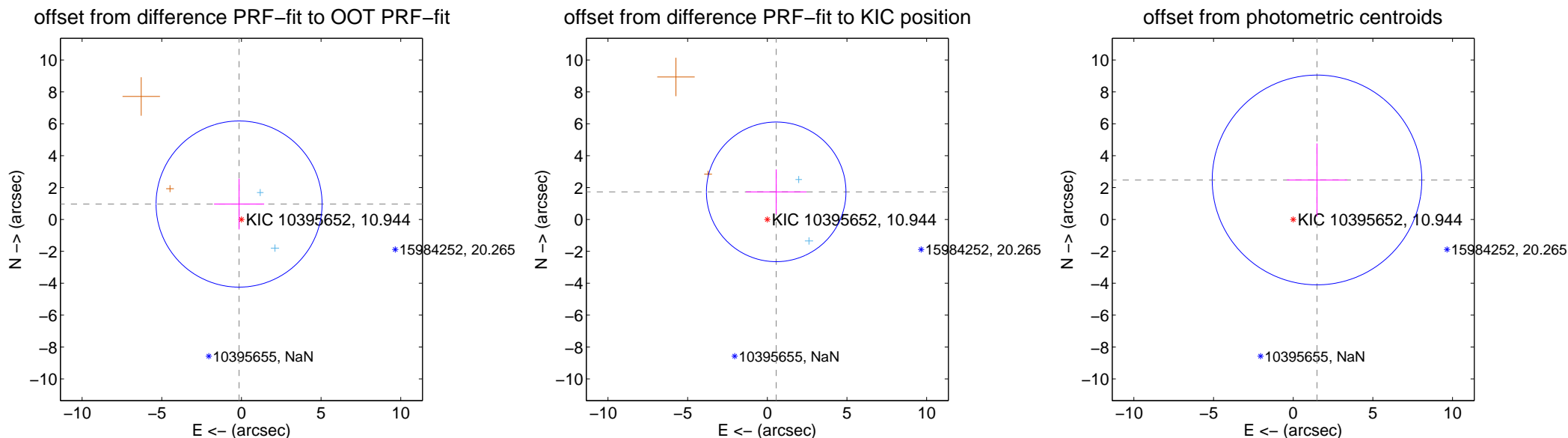
## DV Centroid Data

Supplemental centroid analysis for 010395652-02. **Kepler magnitude: 10.94.** Transit SNR 4.13

**There are 2 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 1.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.977 \pm 1.736$	0.56	$0.147 \pm 1.573$	$0.966 \pm 1.591$
PRF-fit source offset from KIC position	$1.819 \pm 1.460$	1.25	$-0.558 \pm 1.902$	$1.731 \pm 1.406$
photometric centroid source offset	$2.89 \pm 2.19$	1.32	$-1.49 \pm 1.89$	$2.48 \pm 2.29$



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.

Q5 no difference image



Q5 no OOT image



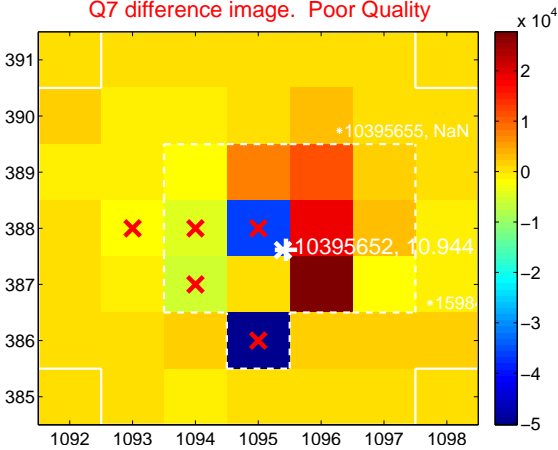
Q6 no difference image



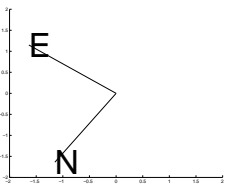
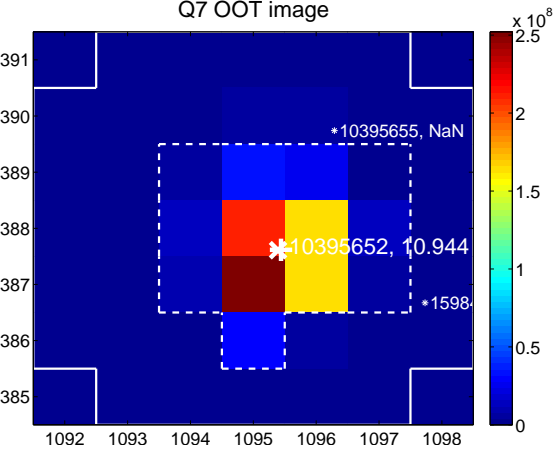
Q6 no OOT image



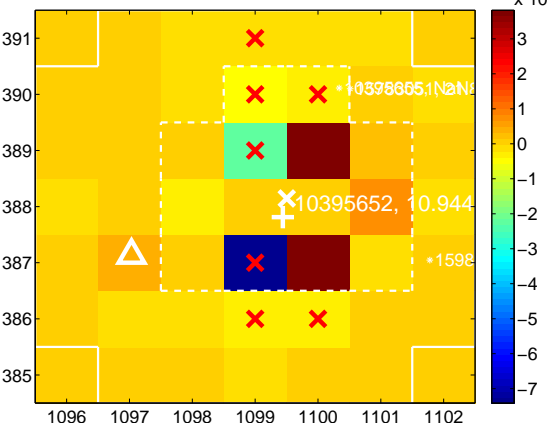
Q7 difference image. Poor Quality



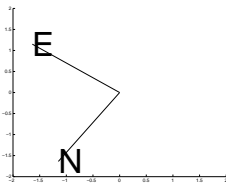
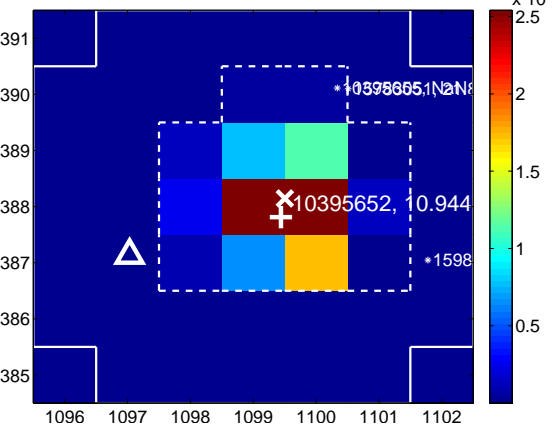
Q7 OOT image



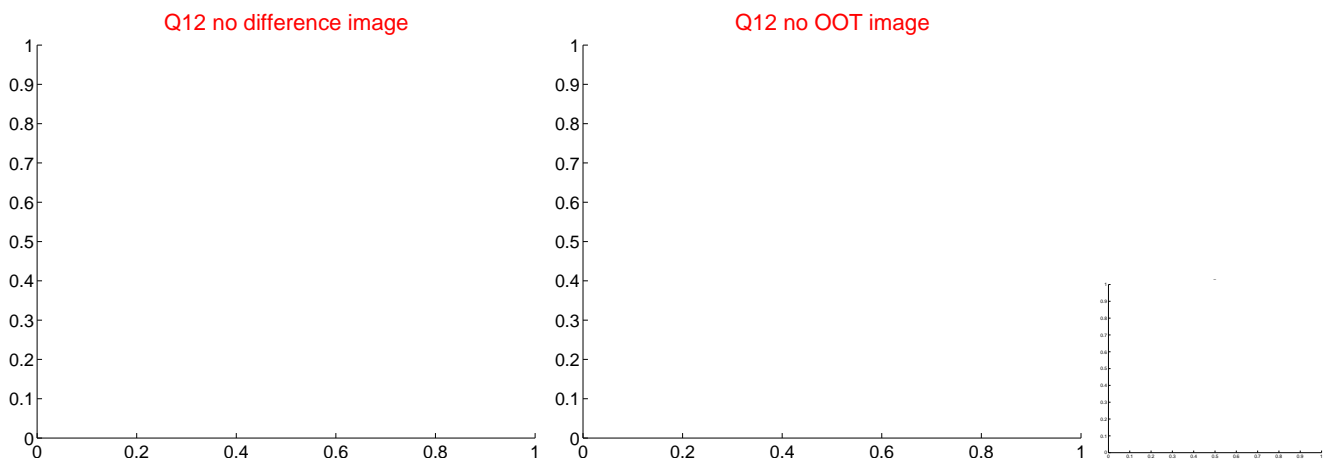
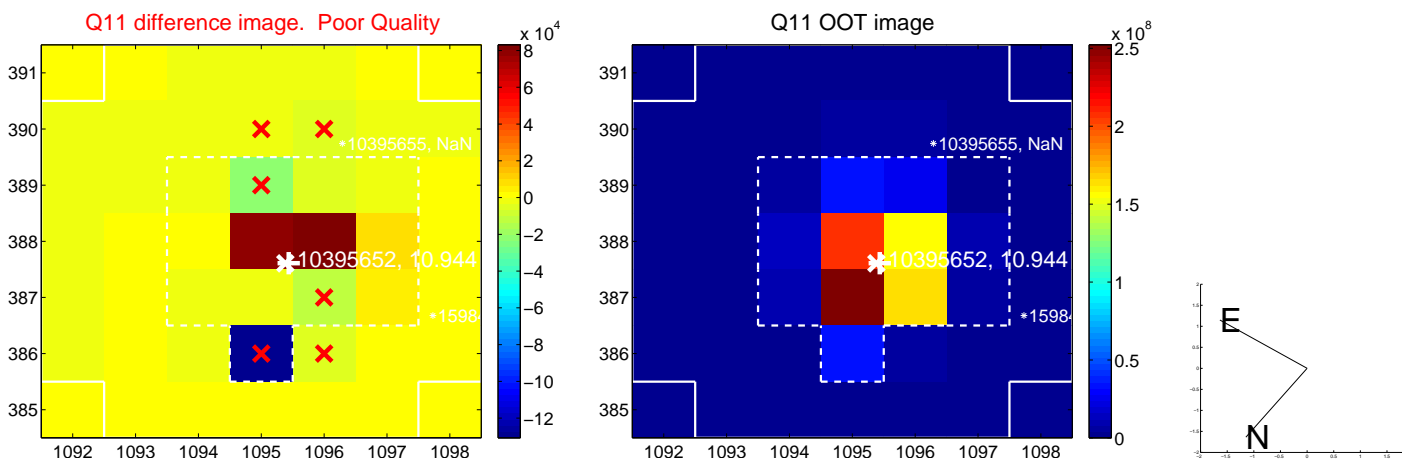
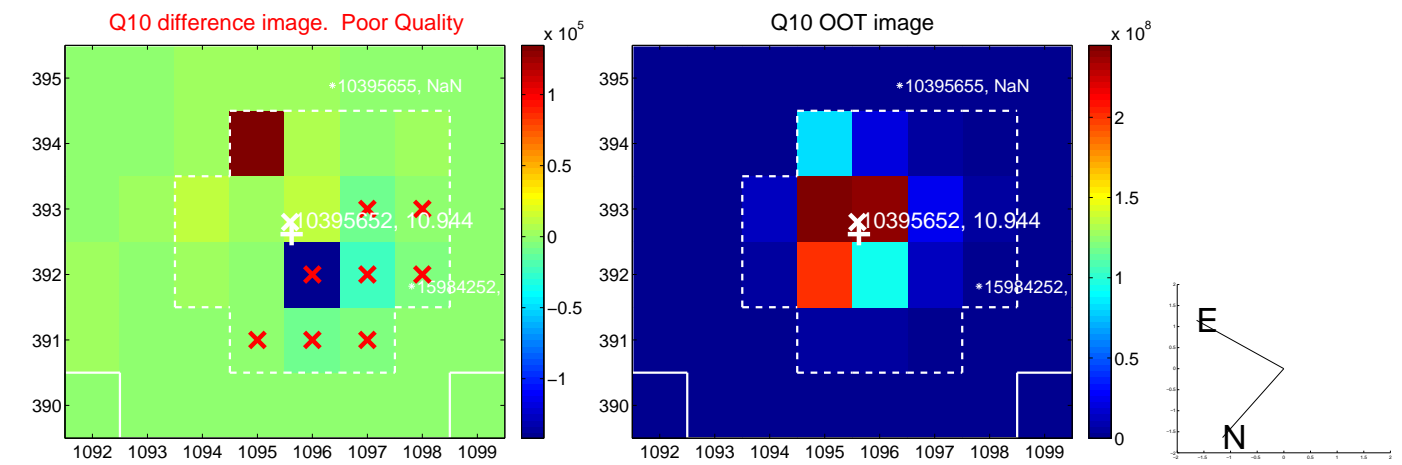
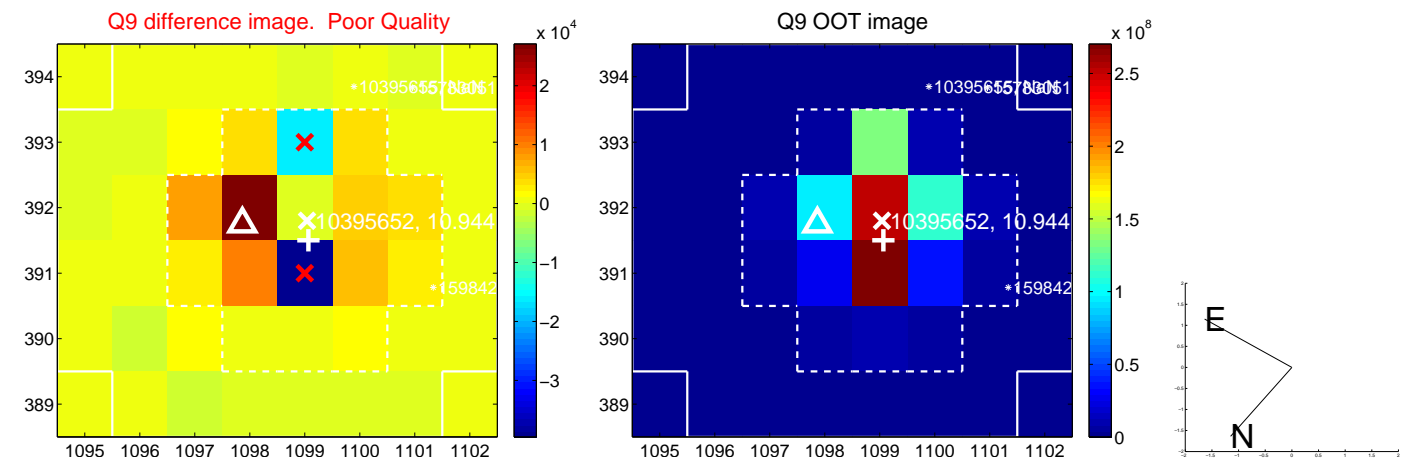
Q8 difference image. Poor Quality



Q8 OOT image

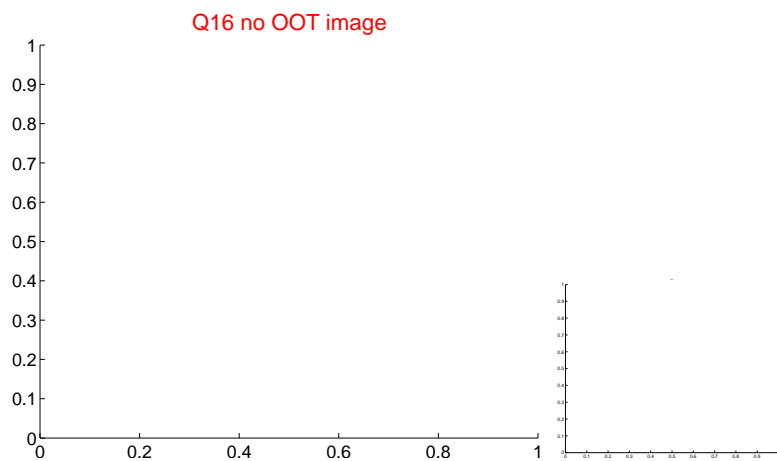
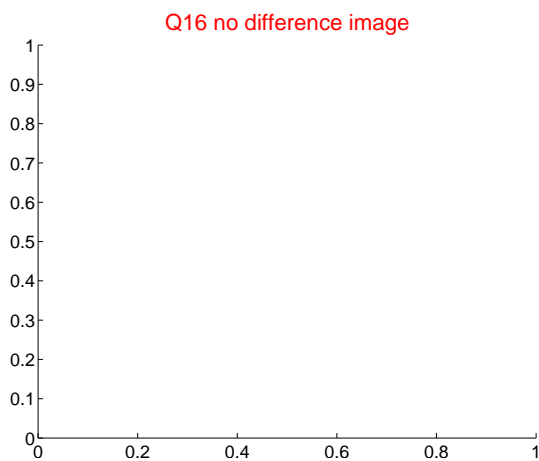
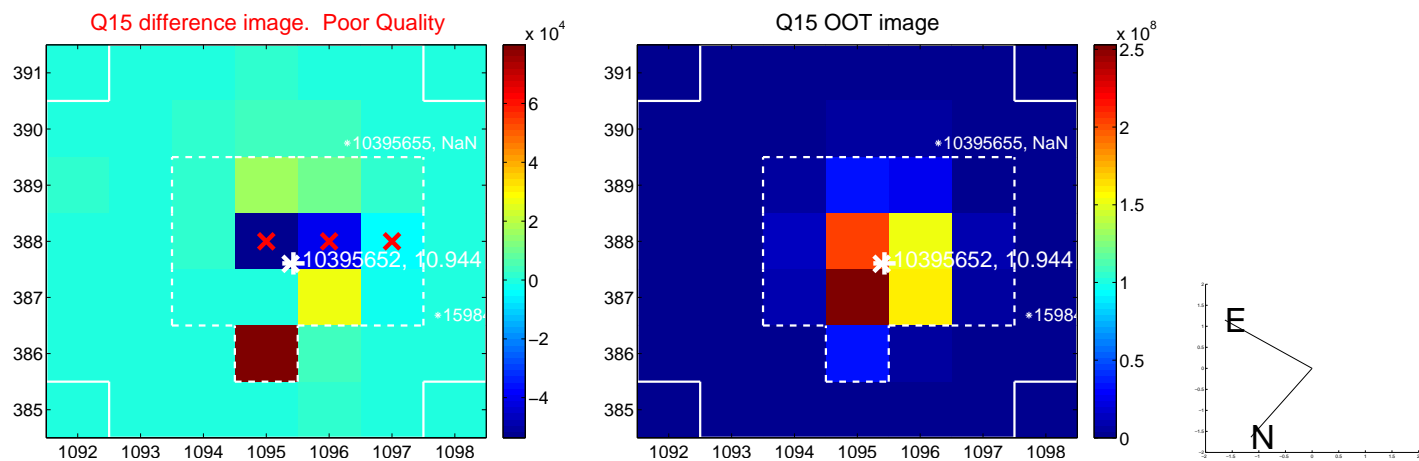
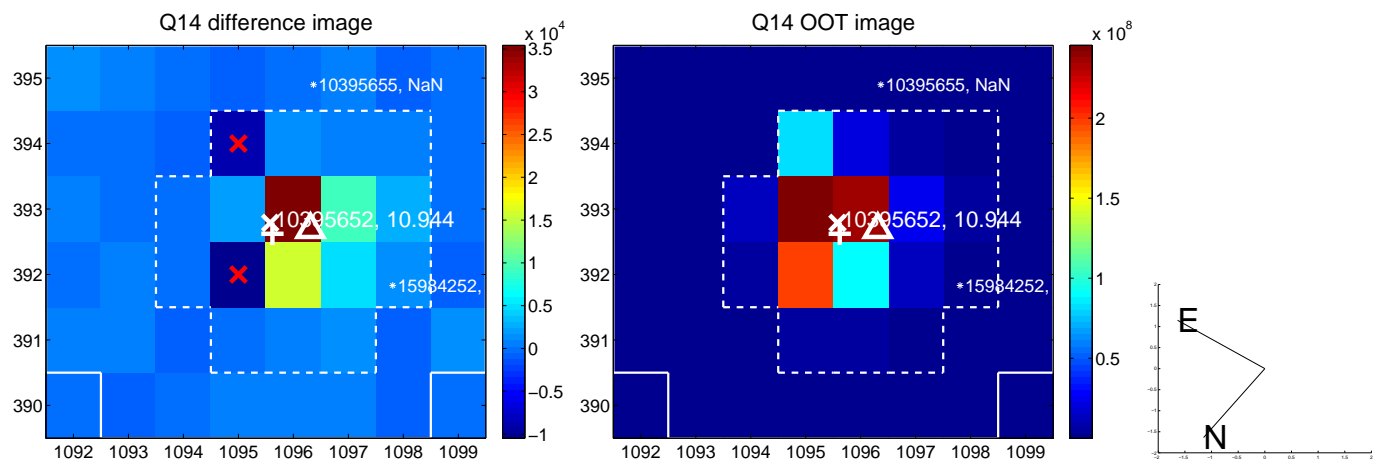
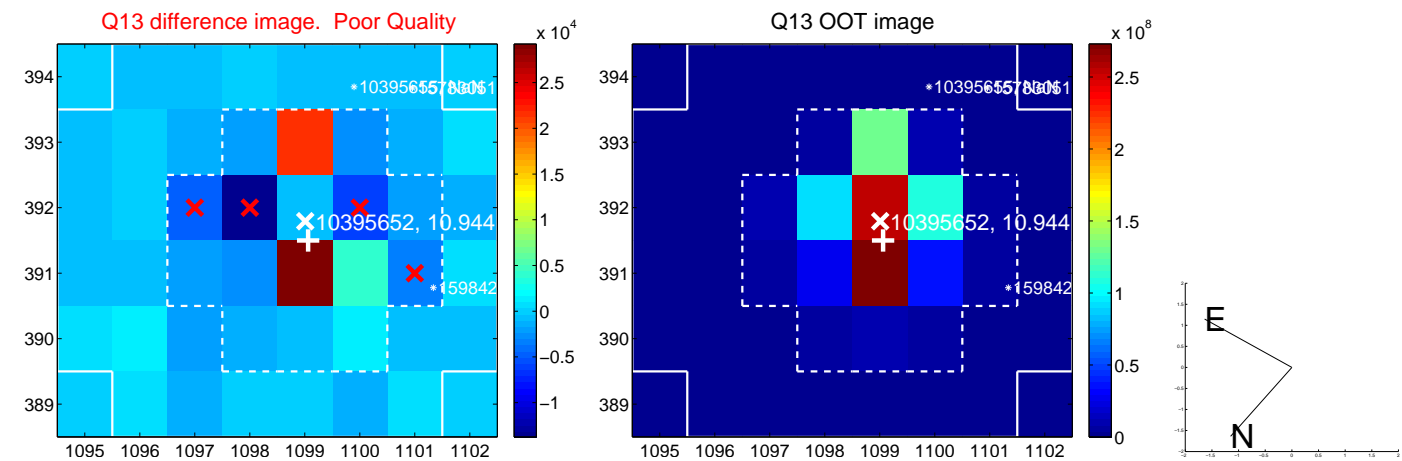


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

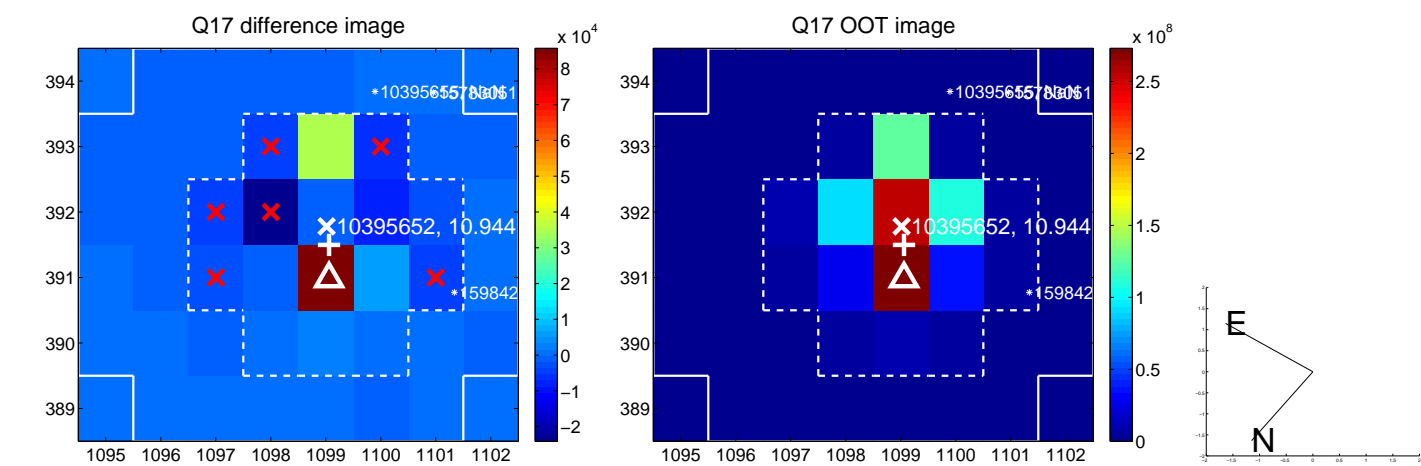




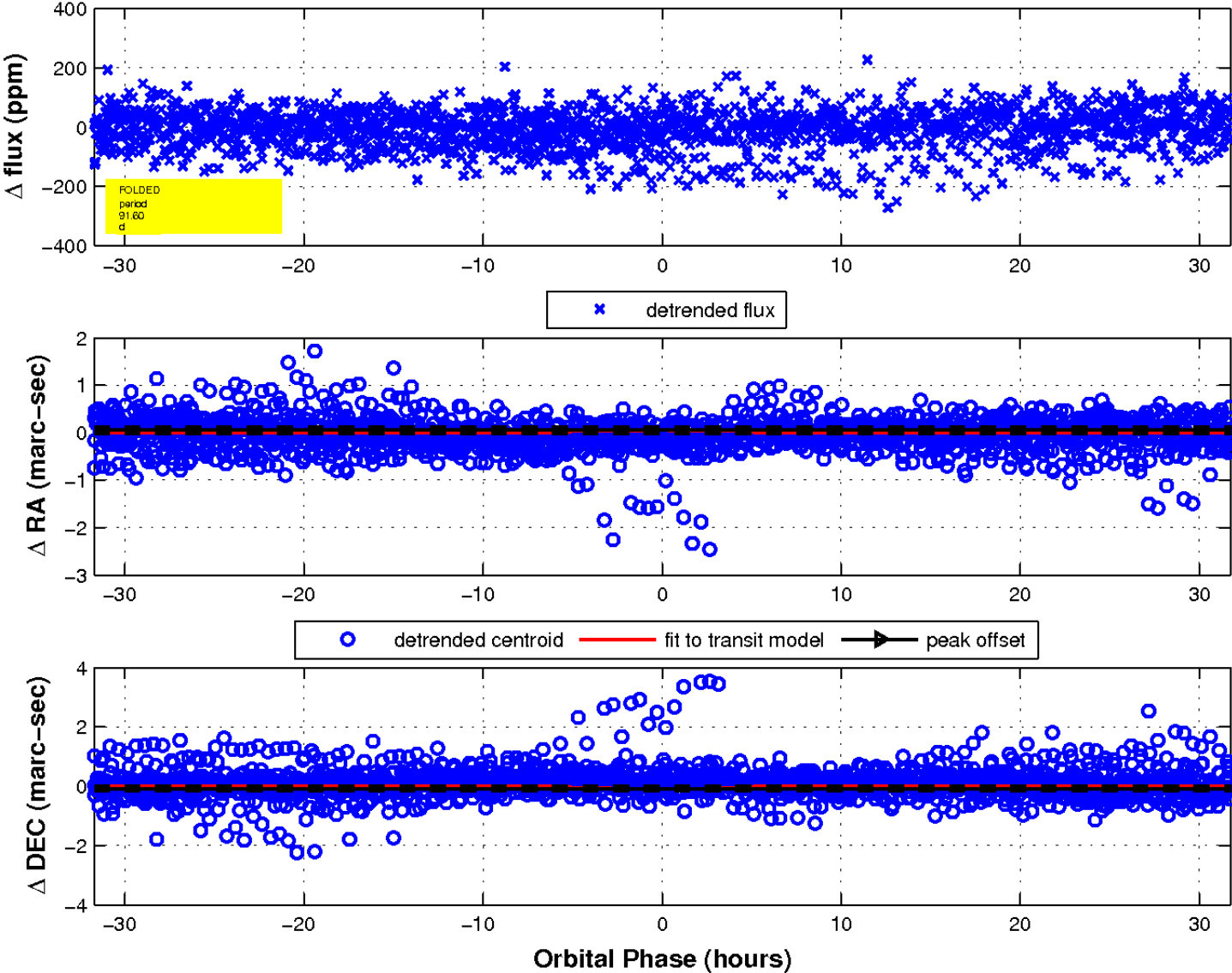
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

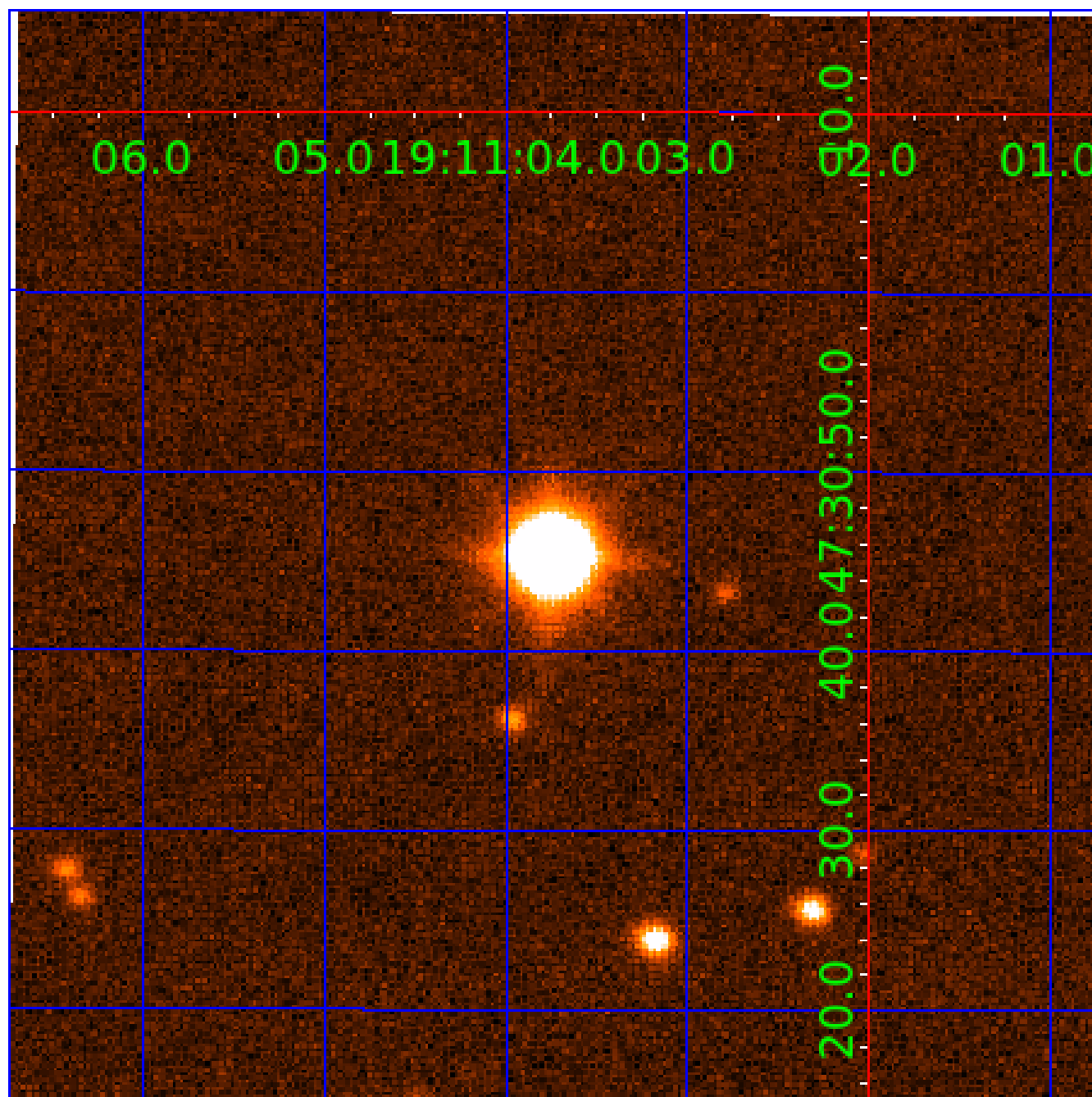


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



# KIC 010395652

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010395652-01	OBS	No	1.950797	133.370014	5.2	8.616	7.4	8.4	2.98	8665	0.79	30454.30
010395652-02	OBS	No	91.599901	200.139717	35.8	10.585	8.2	4.1	2.98	8665	2.05	179.78
010395652-03	OBS	No	118.428683	143.542221	74.8	1.610	7.3	7.9	2.98	8665	2.77	127.64

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010395652-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
010395652-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010395652-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

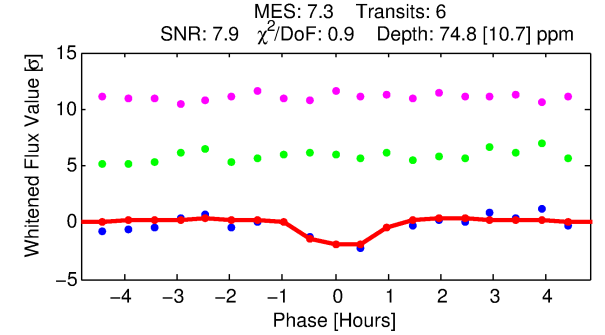
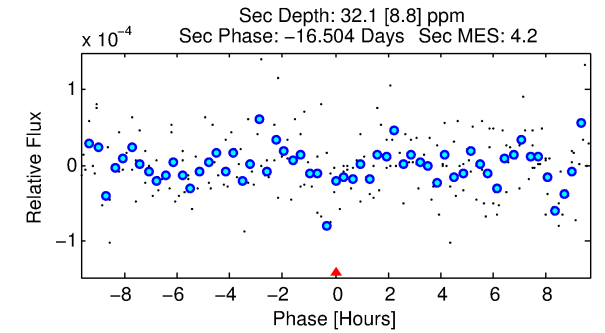
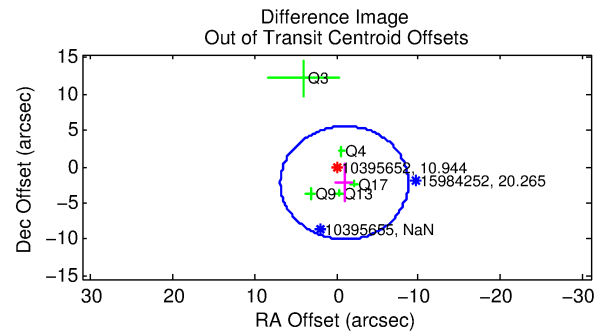
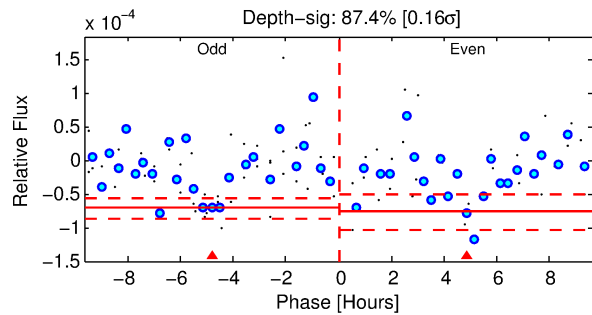
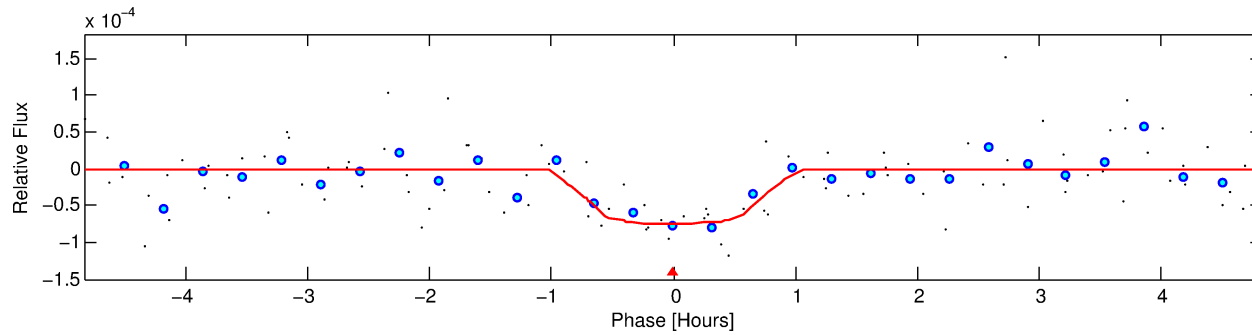
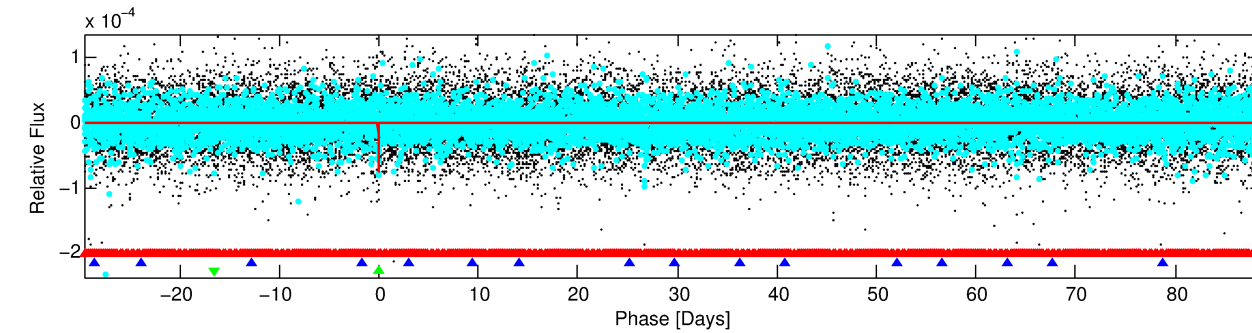
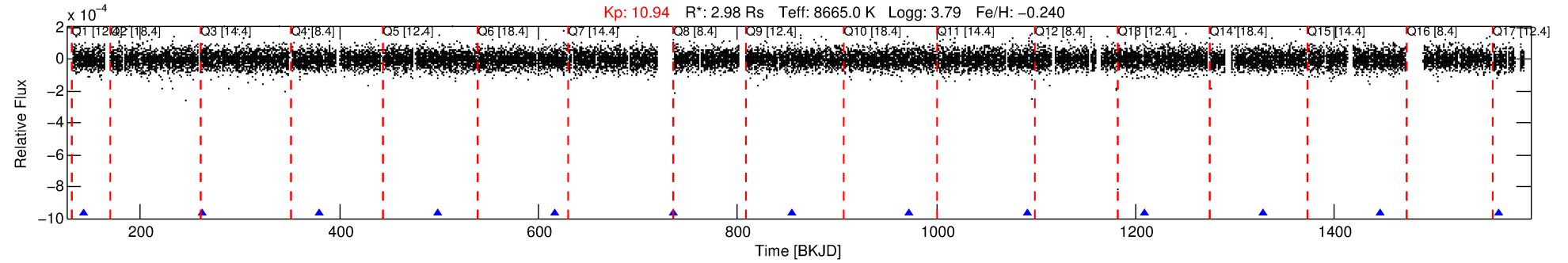
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010395652-03

No Significant Match Found

# DV One-Page Summary

KIC: 10395652 Candidate: 3 of 3 Period: 118.429 d



## DV Fit Results:

Period = 118.42868 [0.00071] d  
Epoch = 143.5422 [0.0054] BKJD  
Rp/R\* = 0.0085 [0.0054]  
a/R\* = 411.37 [1619.02]  
b = 0.69 [3.01]  
Seff = 127.64 [89.34]  
Teq = 857 [150] K  
Rp = 2.77 [2.14] Re  
a = 0.5938 [0.2492] AU  
Ag = 810.40 [1190.11] [0.68 $\sigma$ ]  
Teffp = 7070 [2330] K [2.66 $\sigma$ ]

## DV Diagnostic Results:

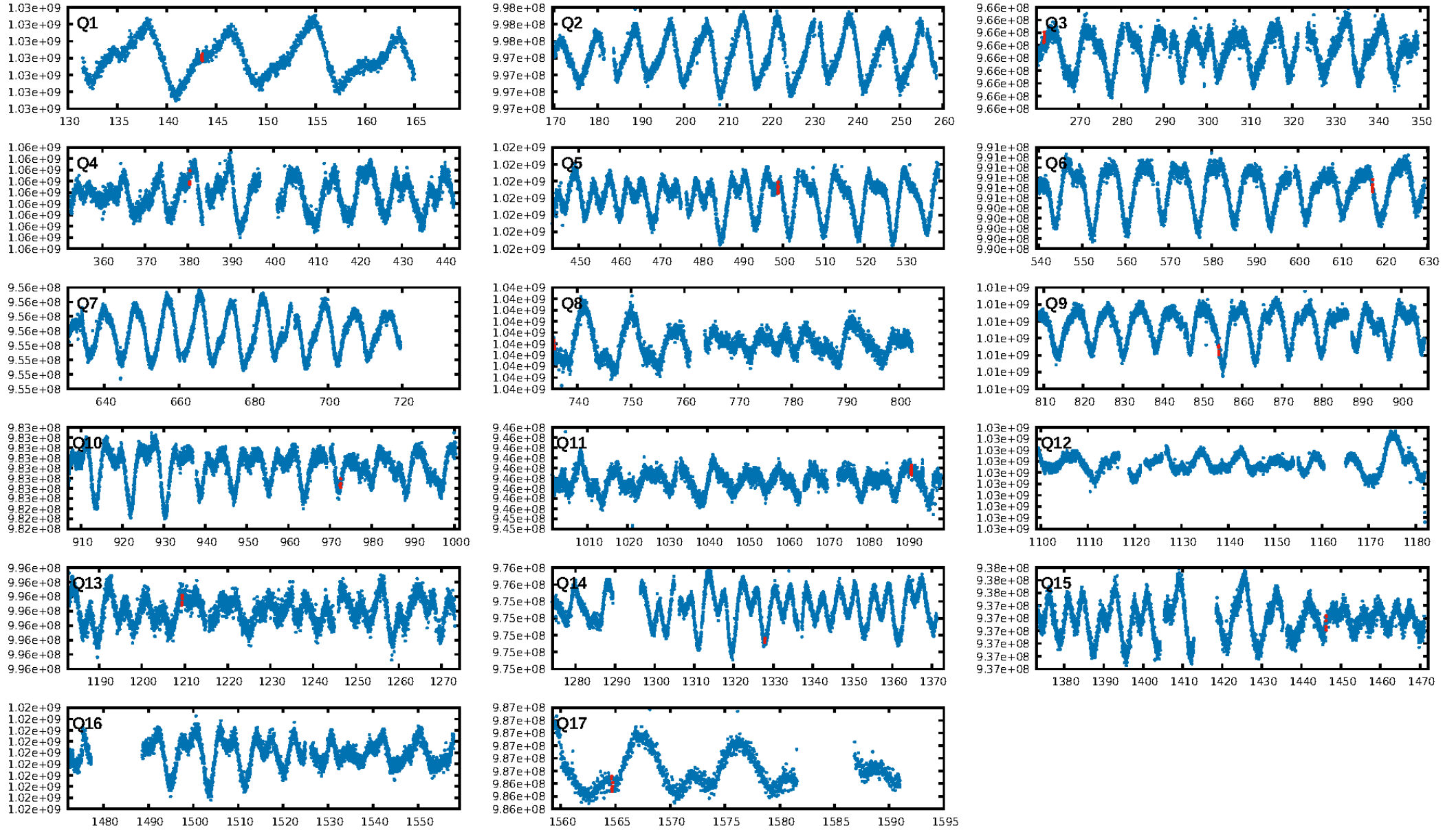
ShortPeriod-sig: 100.0% [60.14 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 69.6%  
ModelChiSquareGof-sig: 99.7%  
**Bootstrap-pfa: 4.73e-10**  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 3.241  
Centroid-sig: 32.7%  
Centroid-so: 1.103 arcsec [0.78 $\sigma$ ]  
OotOffset-rm: 2.431 arcsec [0.93 $\sigma$ ]  
KicOffset-rm: 2.161 arcsec [0.97 $\sigma$ ]  
OotOffset-st: 0/1/1/3 [5]  
KicOffset-st: 0/1/1/3 [5]  
DiffImageQuality-fgm: 0.40 [2/5]  
DiffImageOverlap-fno: 0.58 [7/12]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:24:33 Z

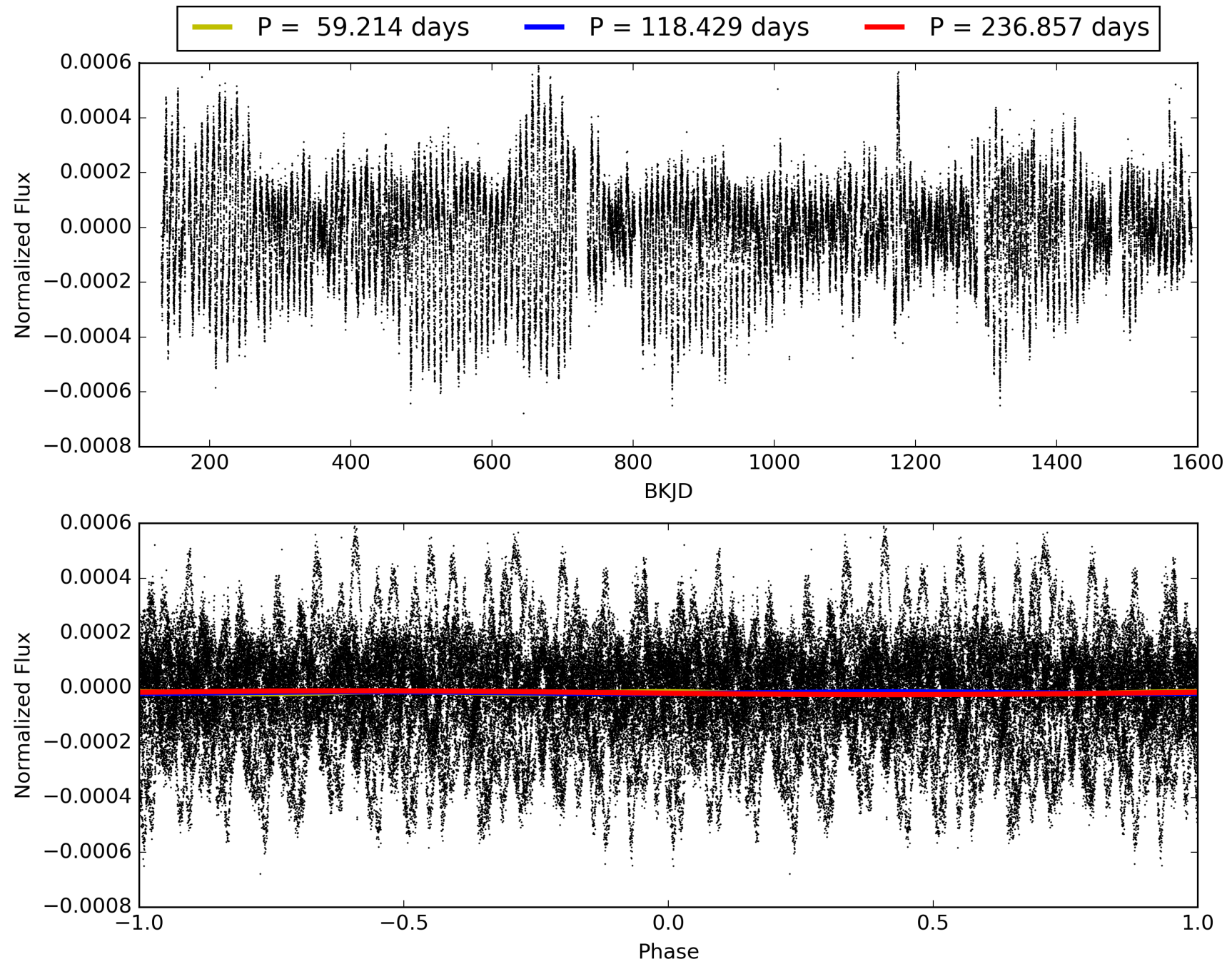
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 010395652-03, PDC Light Curves

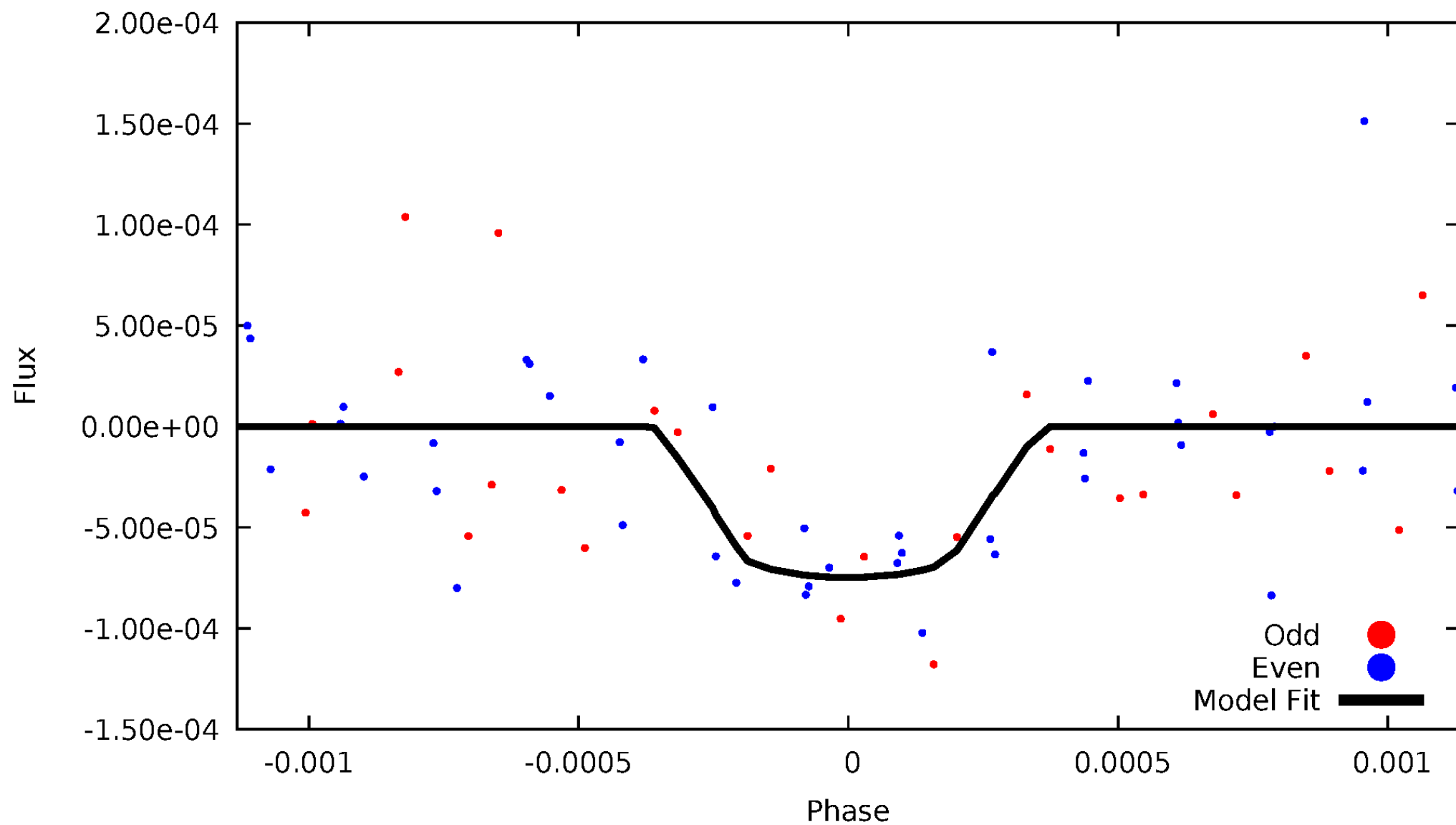


TCE 010395652-03



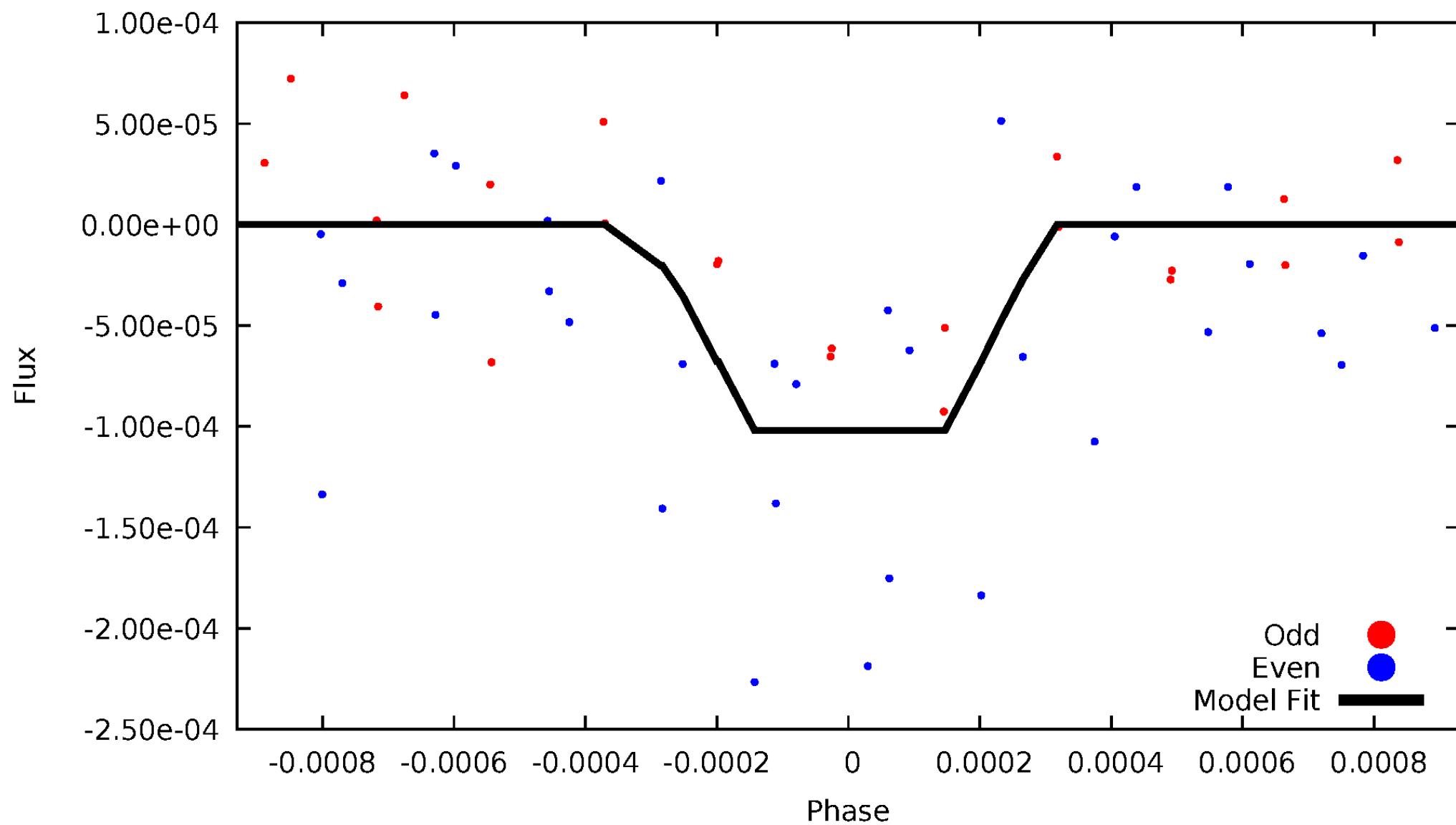
# DV Odd/Even

TCE 010395652-03



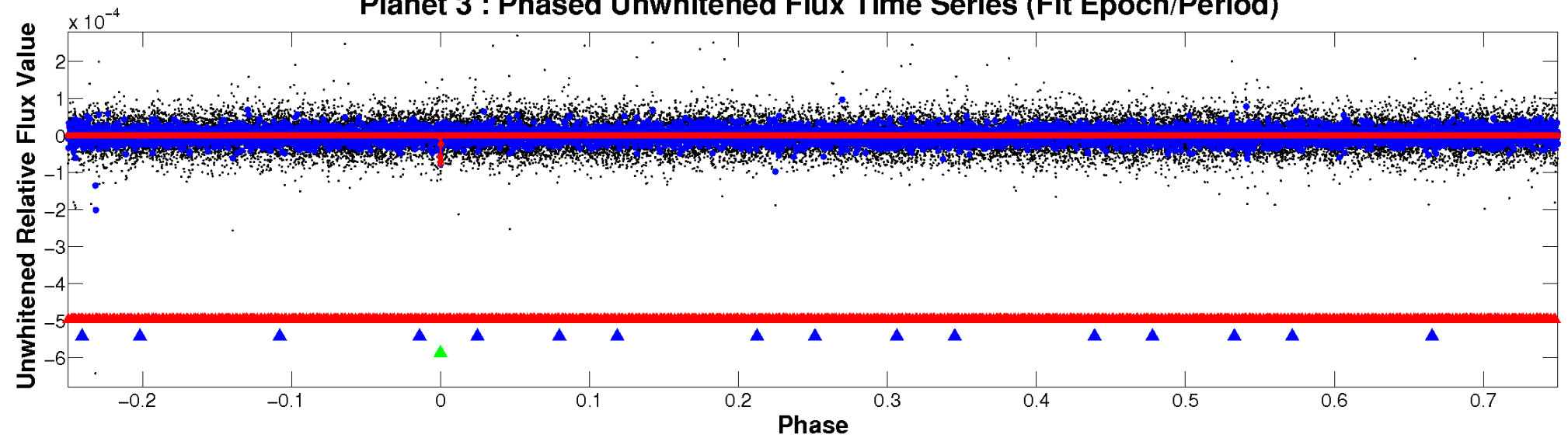
# ALT Odd/Even

TCE 010395652-03

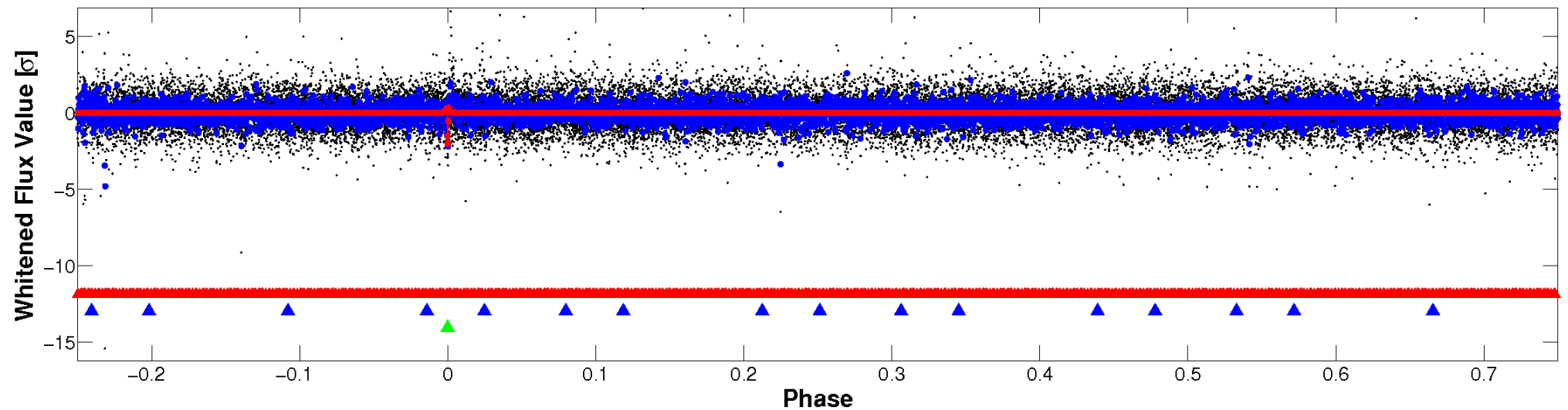


# Non-Whitened Vs. Whitened Light Curve

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

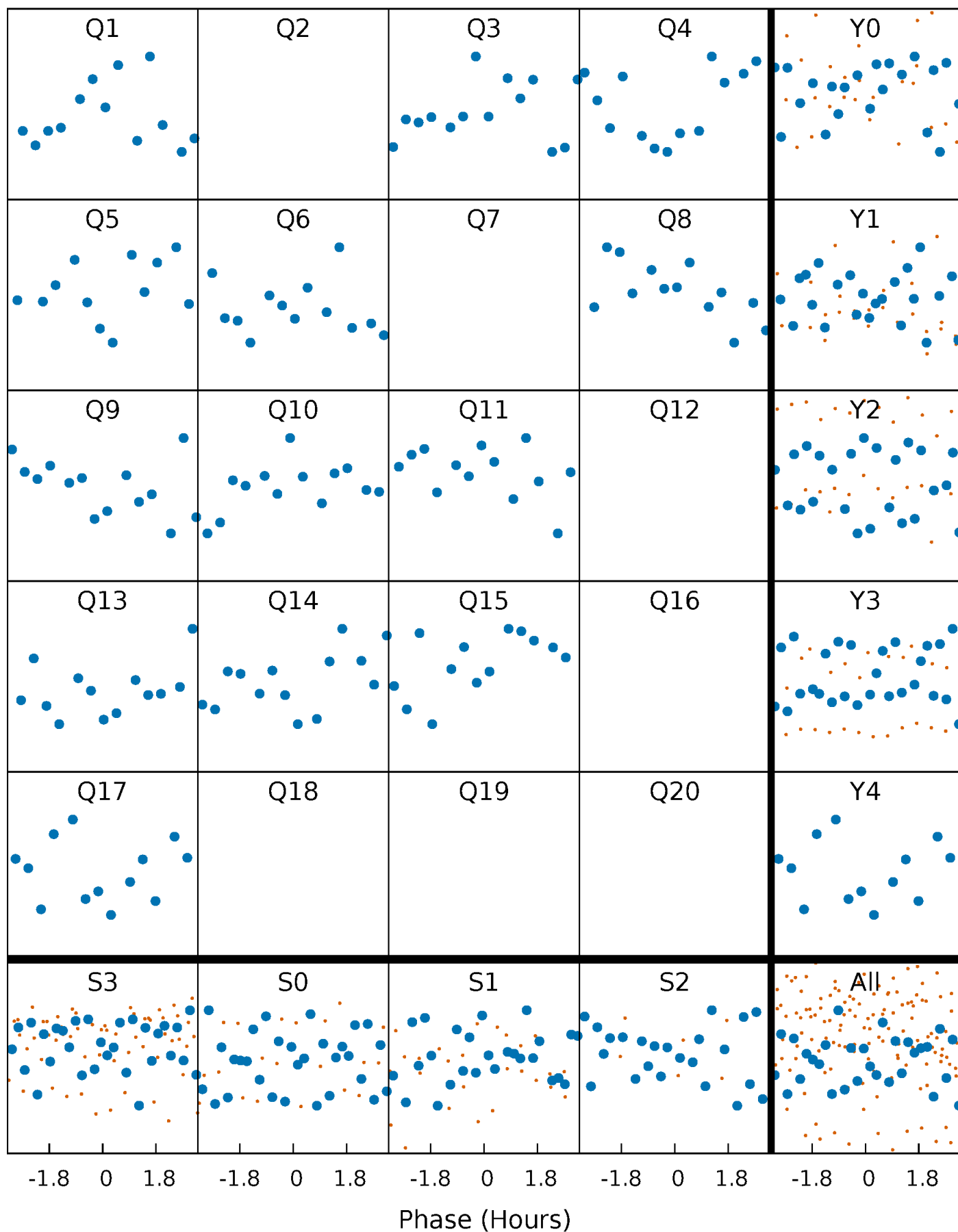


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

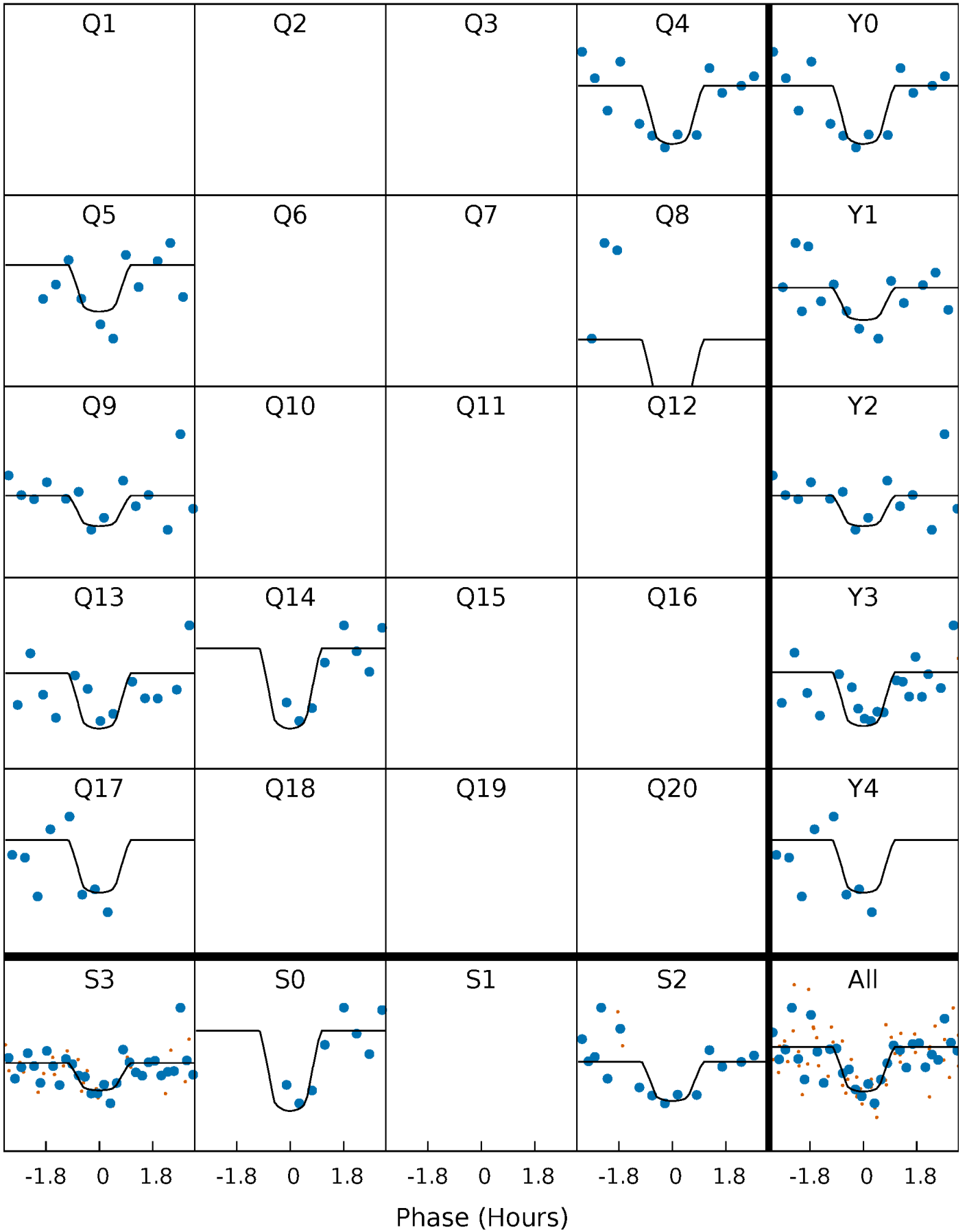
TCE 010395652-03 P=118.428683 Days  $T_0=143.542221$  (BKJD)





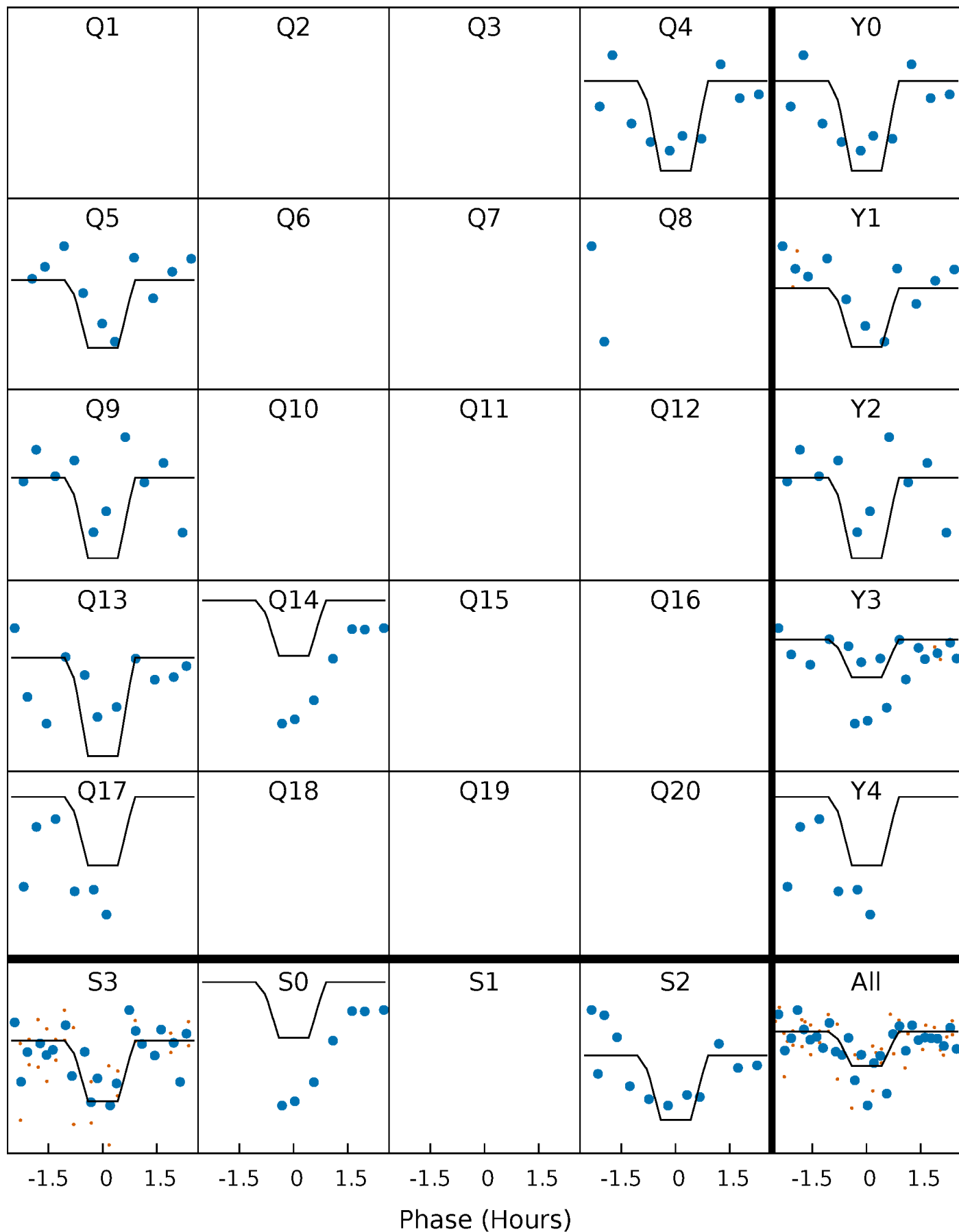
# DV Quarter-Phased Transit Curves

TCE 010395652-03     $P=118.428683$  Days     $T_0=143.542221$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

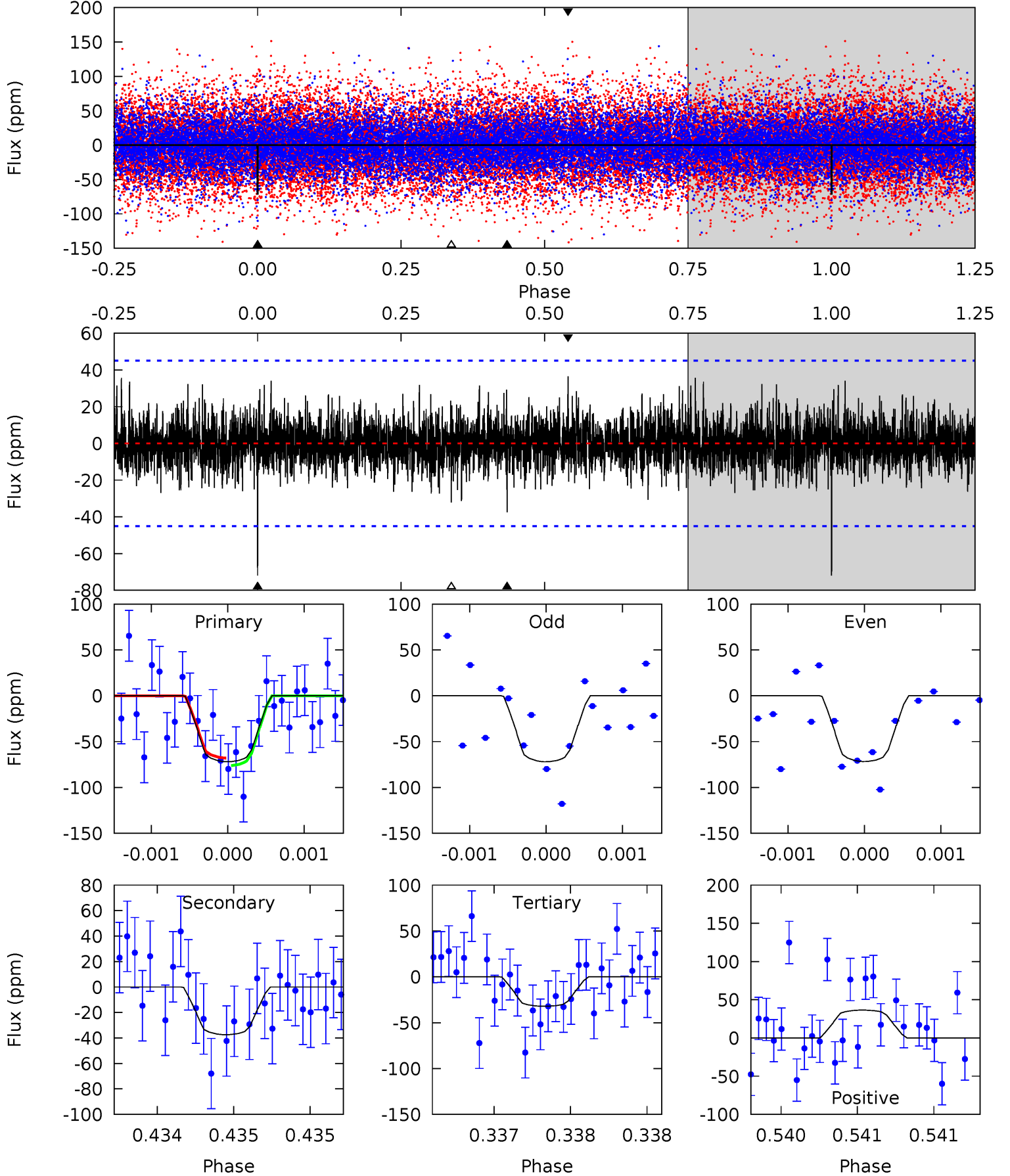
TCE 010395652-03 P=118.429497 Days  $T_0=143.541334$  (BKJD)



# DV Model-Shift Uniqueness Test

010395652-03,  $P = 118.428683$  Days,  $E = 25.113538$  Days

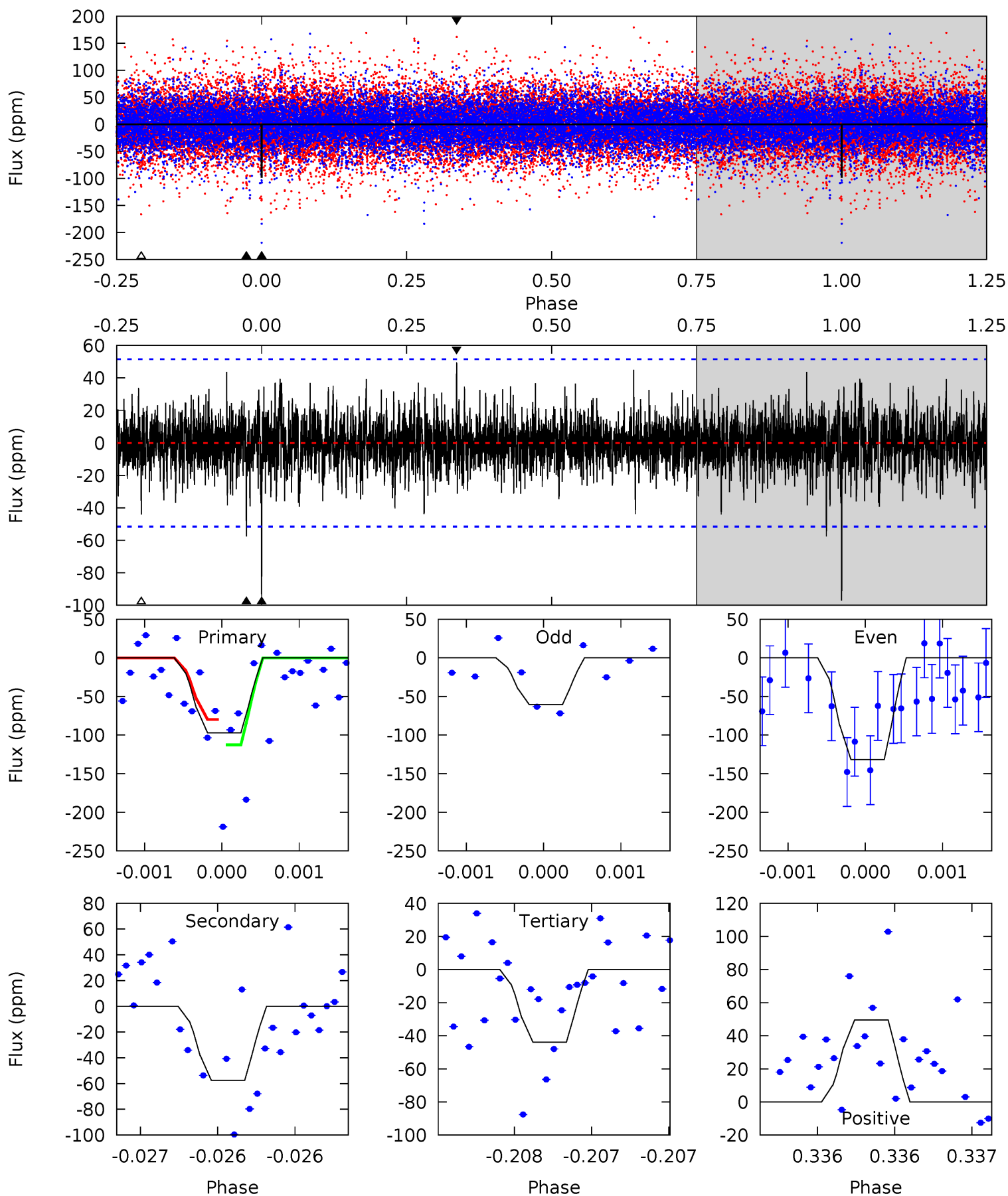
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.82	4.59	3.94	4.48	5.53	3.41	1.13	4.88	4.35	0.65	0.11	0.01	0.96	0.34	0.51



# Alt Model-Shift Uniqueness Test

010395652-03, P = 118.429497 Days, E = 25.111837 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
10.4	6.17	4.72	5.33	5.54	3.43	1.24	5.71	5.10	1.46	0.85	3.70	1.39	0.34	1.78



### Stellar Parameters For KIC 010395652

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8665^{+237}_{-407}$	$3.787^{+0.397}_{-0.132}$	$-0.240^{+0.400}_{-0.350}$	$2.985^{+0.861}_{-1.292}$	$1.994^{+0.440}_{-0.440}$	$0.106^{+0.369}_{-0.047}$
	+3%/-5%	+10%/-3%	+167%/-146%	+29%/-43%	+22%/-22%	+349%/-45%
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 010395652-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-37 \pm 8$	$2.59^{+1.85}_{-1.46}$	$1154^{+106}_{-127}$	$6971^{+5022}_{-1558}$	$1077^{+4401}_{-709}$
Alt.	$-57 \pm 9$	$3.01^{+1.79}_{-1.48}$	$1161^{+94}_{-134}$	$7240^{+3957}_{-1505}$	$1253^{+3574}_{-759}$

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

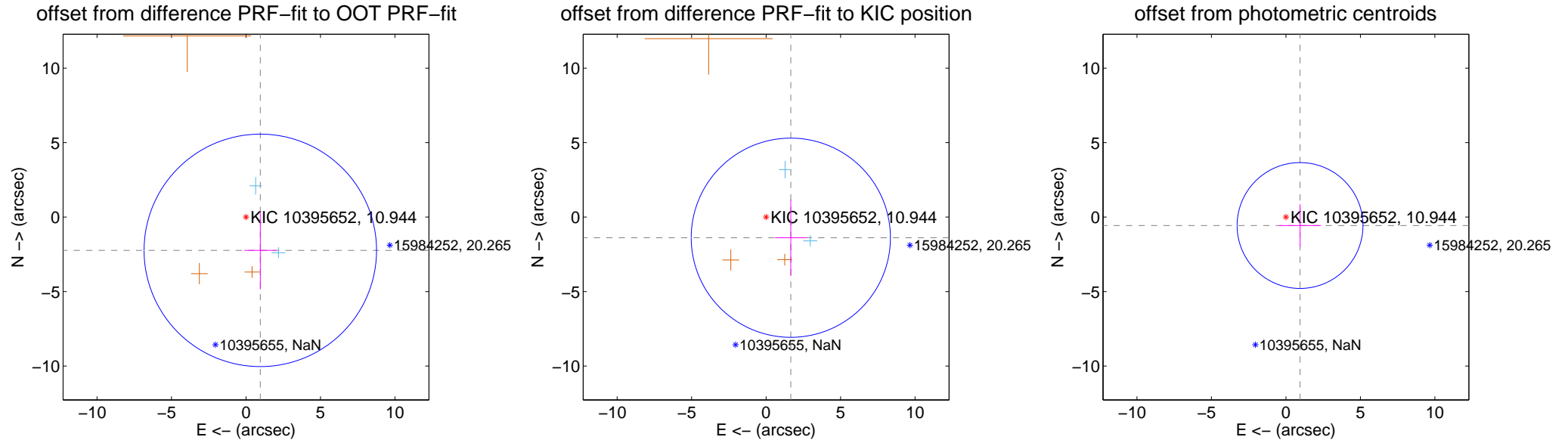
## DV Centroid Data

Supplemental centroid analysis for 010395652-03. **Kepler magnitude: 10.94.** Transit SNR 7.87

**There are 2 quarters with good PRF difference image offsets**

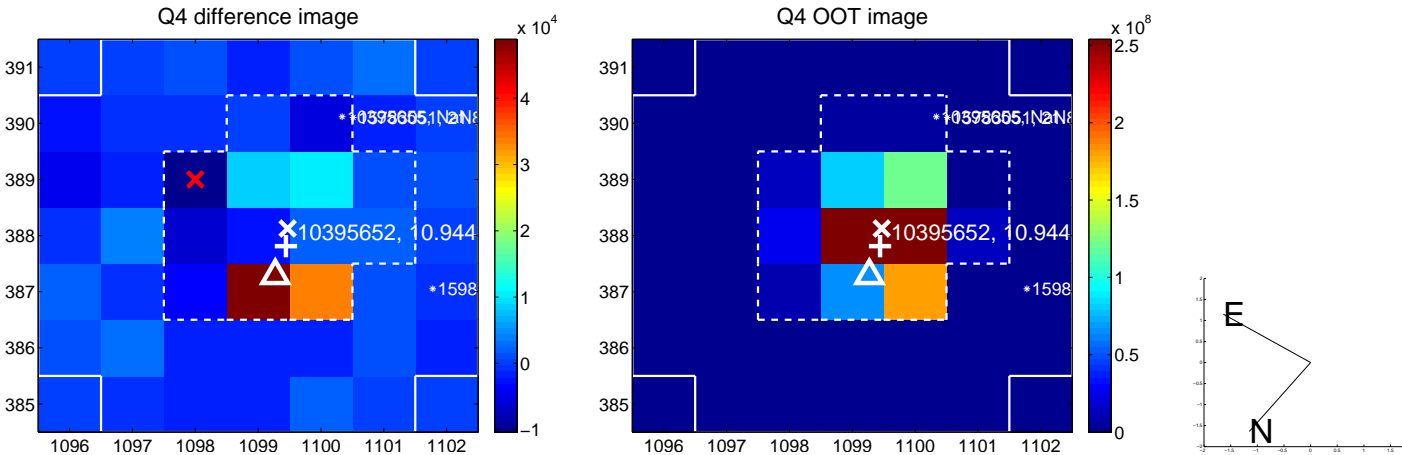
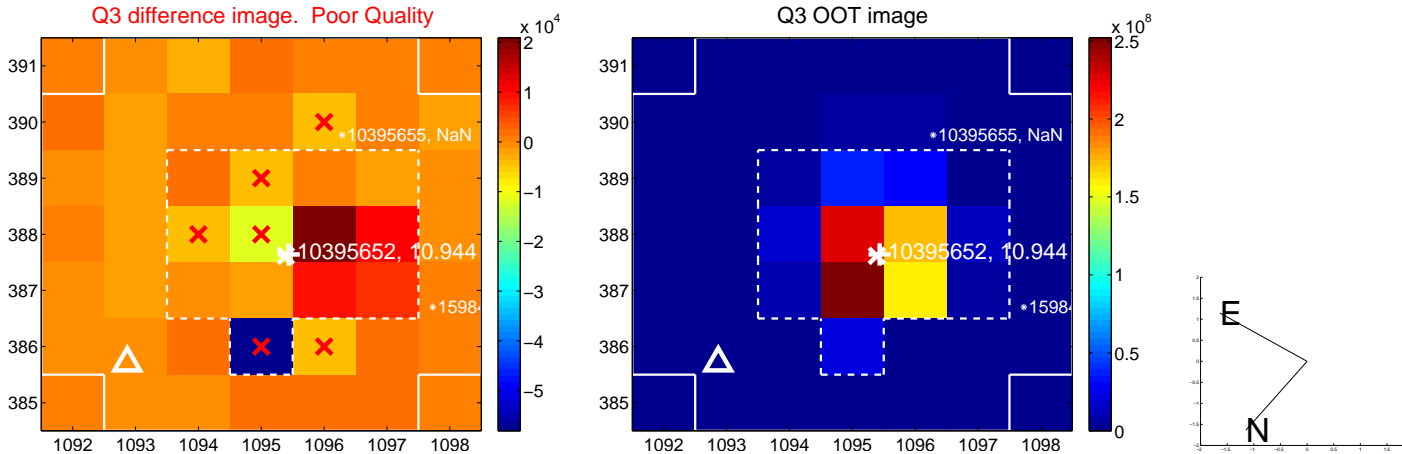
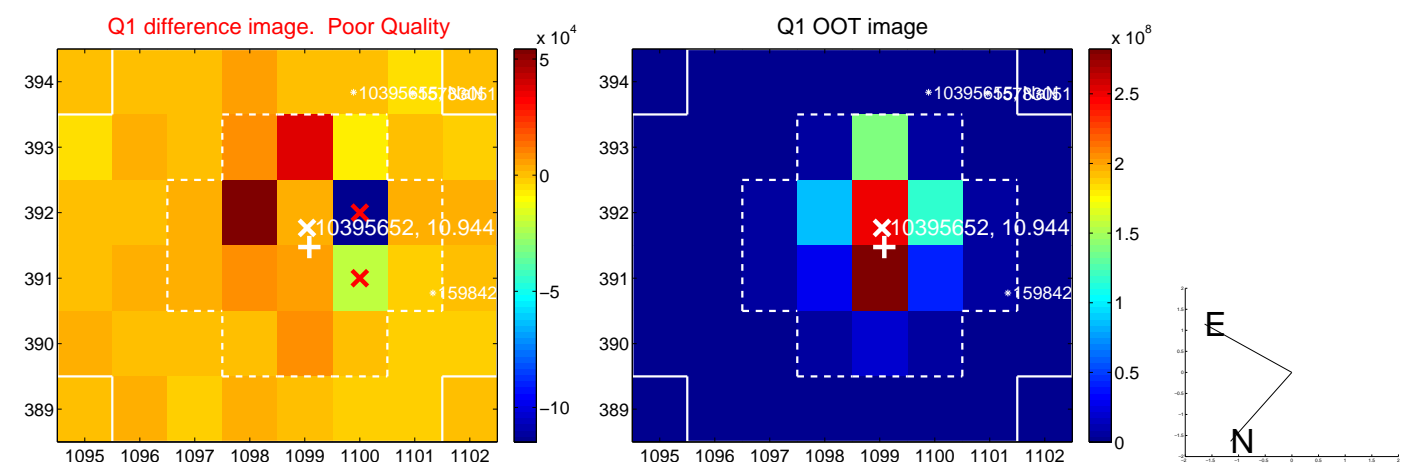
The direct PRF centroid is offset from the target star catalog position by about 1.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.431 \pm 2.601$	0.93	$-0.961 \pm 1.072$	$-2.233 \pm 2.625$
PRF-fit source offset from KIC position	$2.161 \pm 2.229$	0.97	$-1.659 \pm 1.059$	$-1.385 \pm 2.560$
photometric centroid source offset	$1.10 \pm 1.41$	0.78	$-0.95 \pm 1.40$	$-0.56 \pm 1.43$



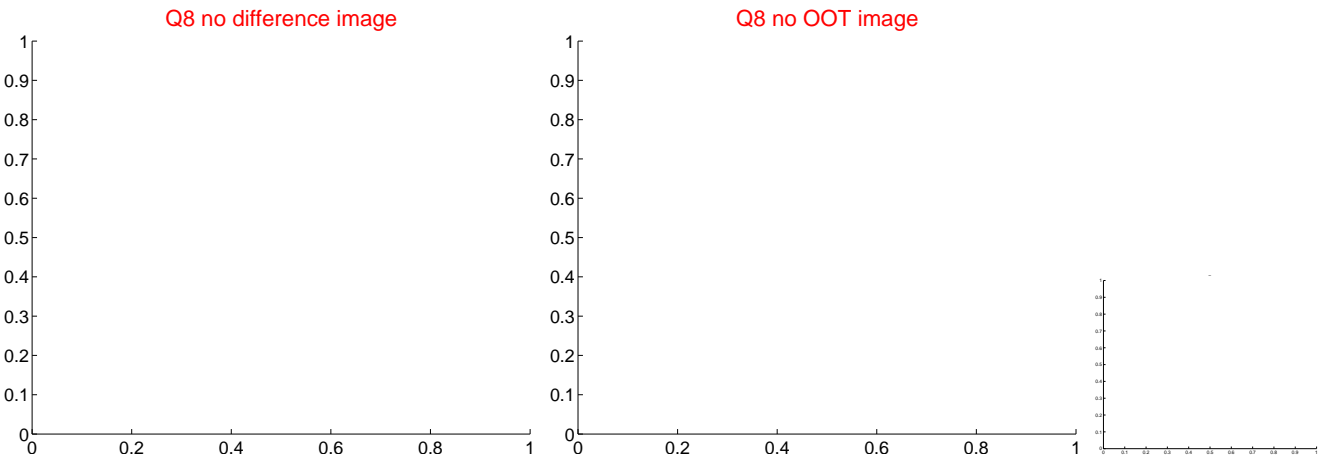
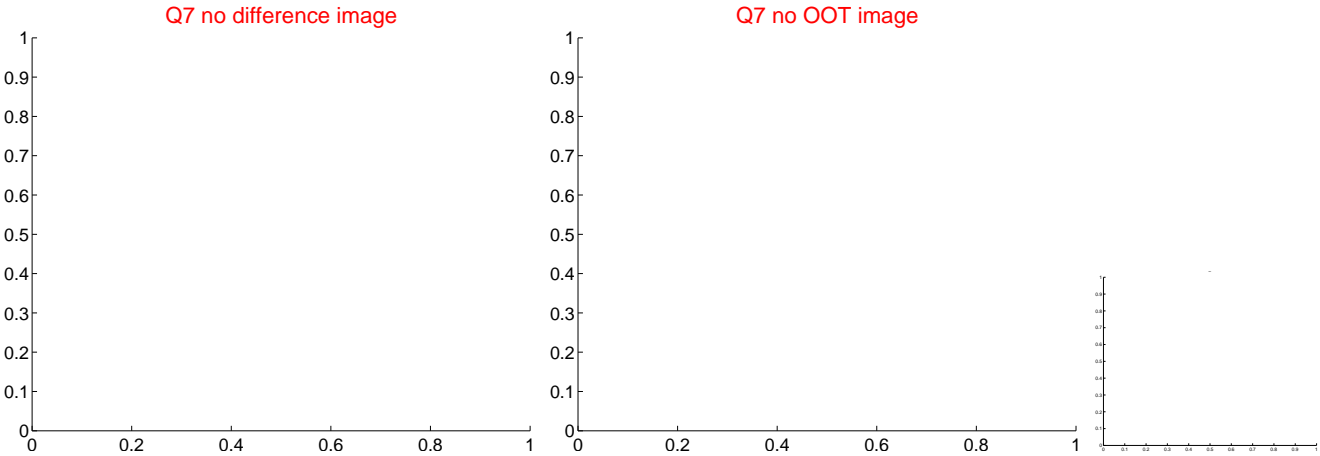
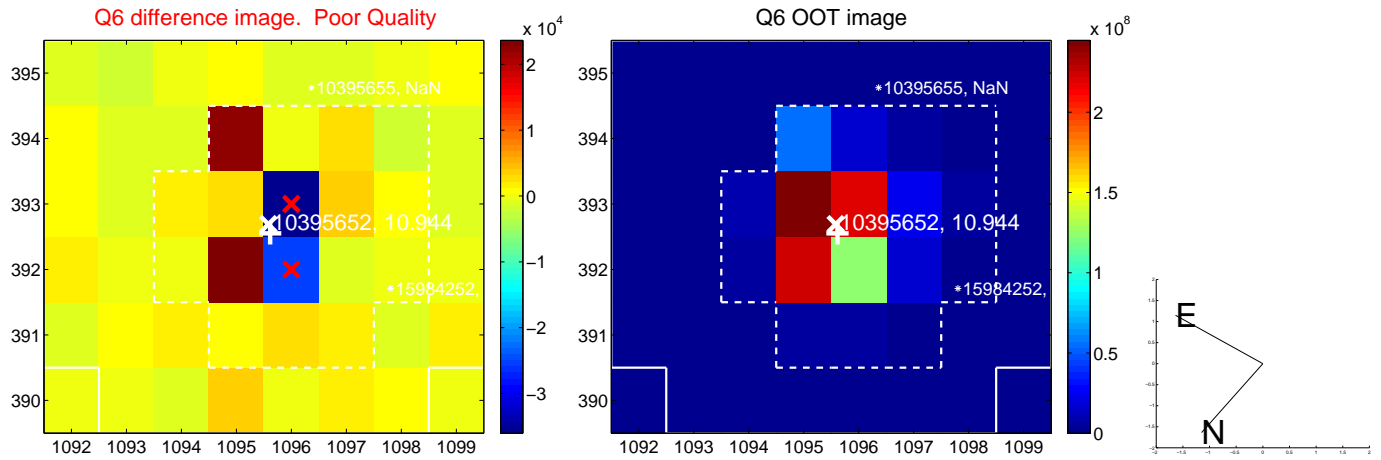
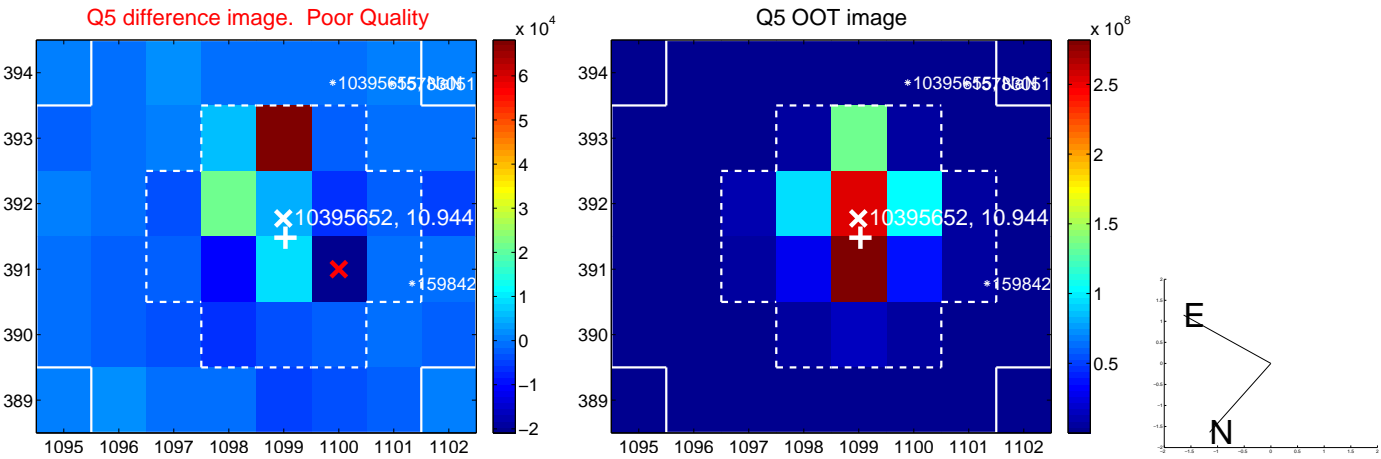
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

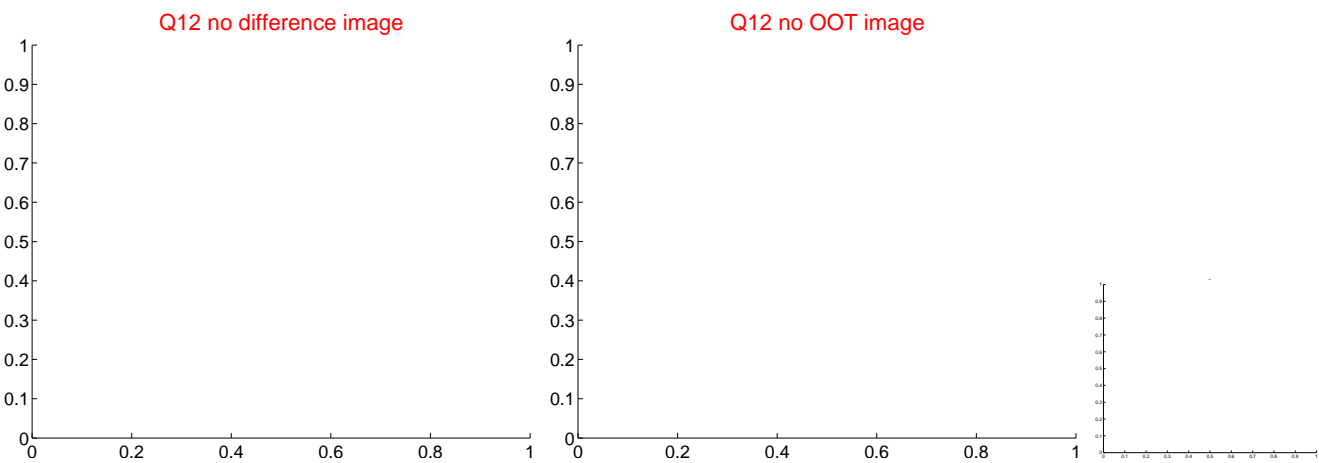
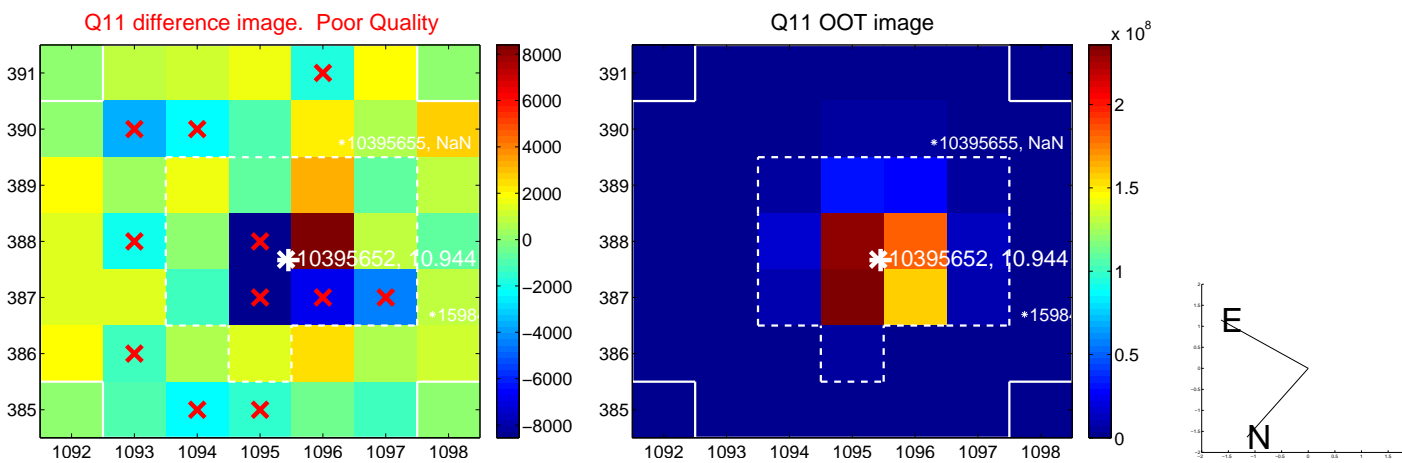
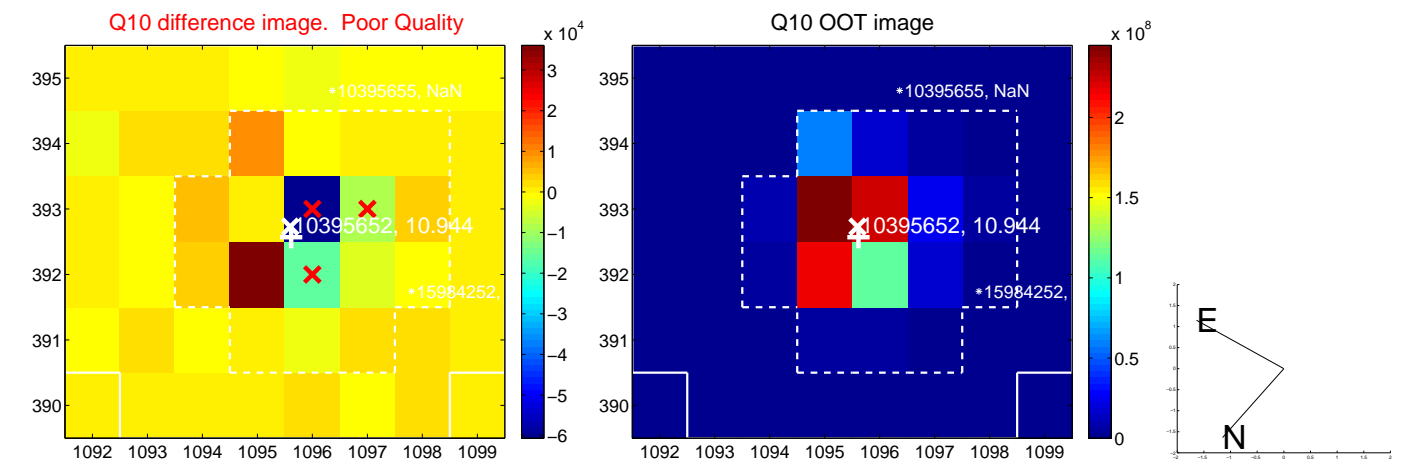
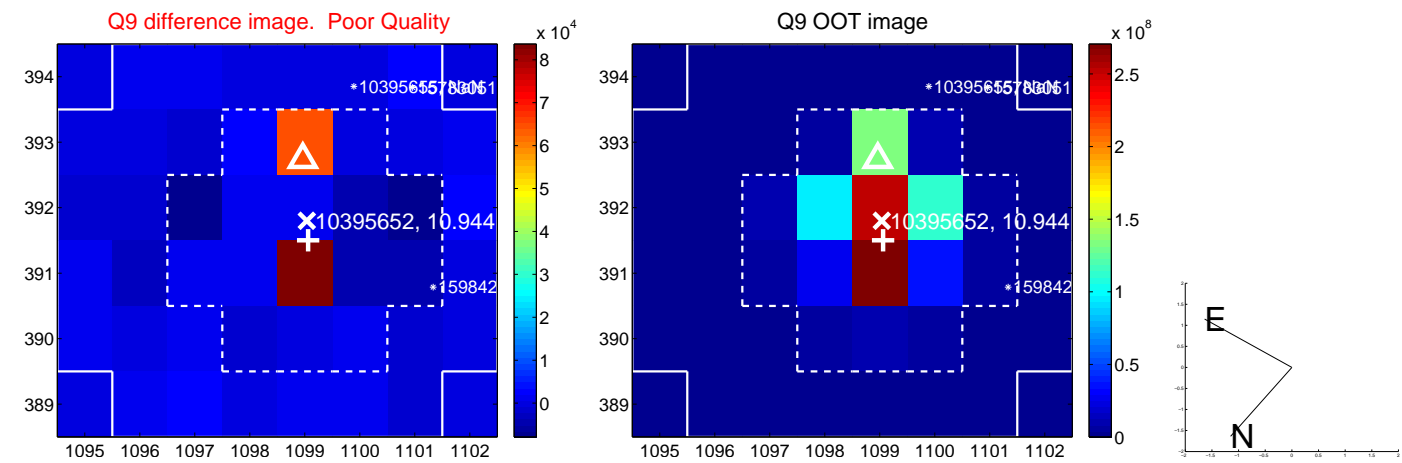




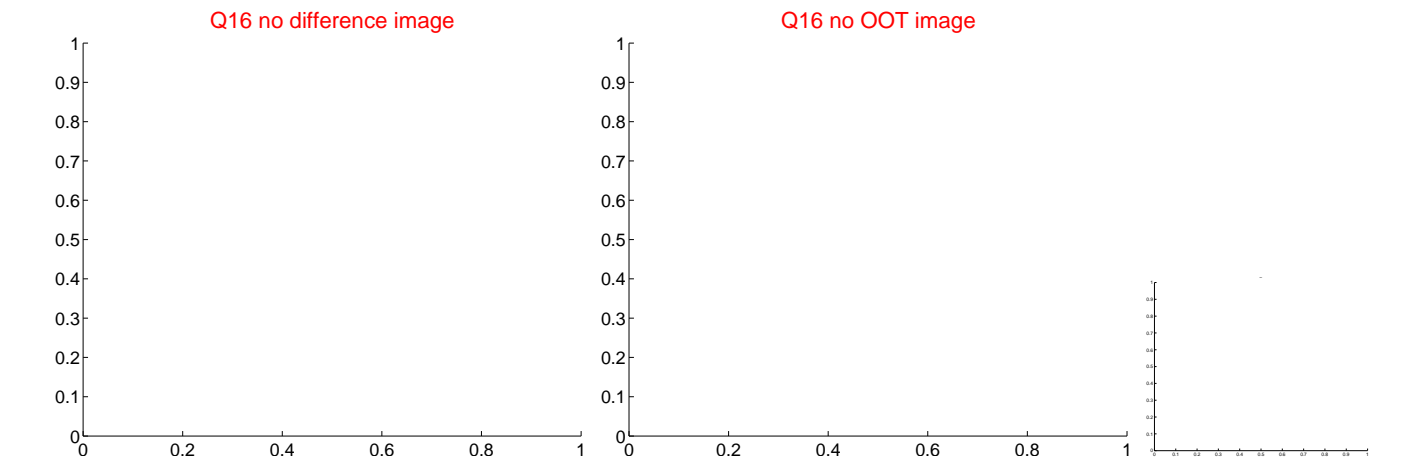
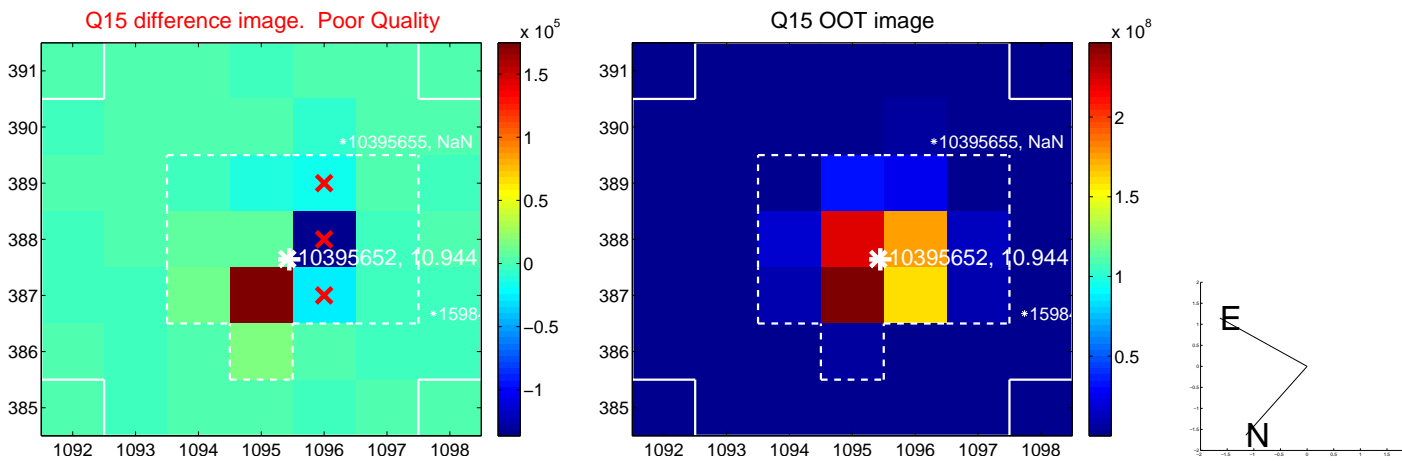
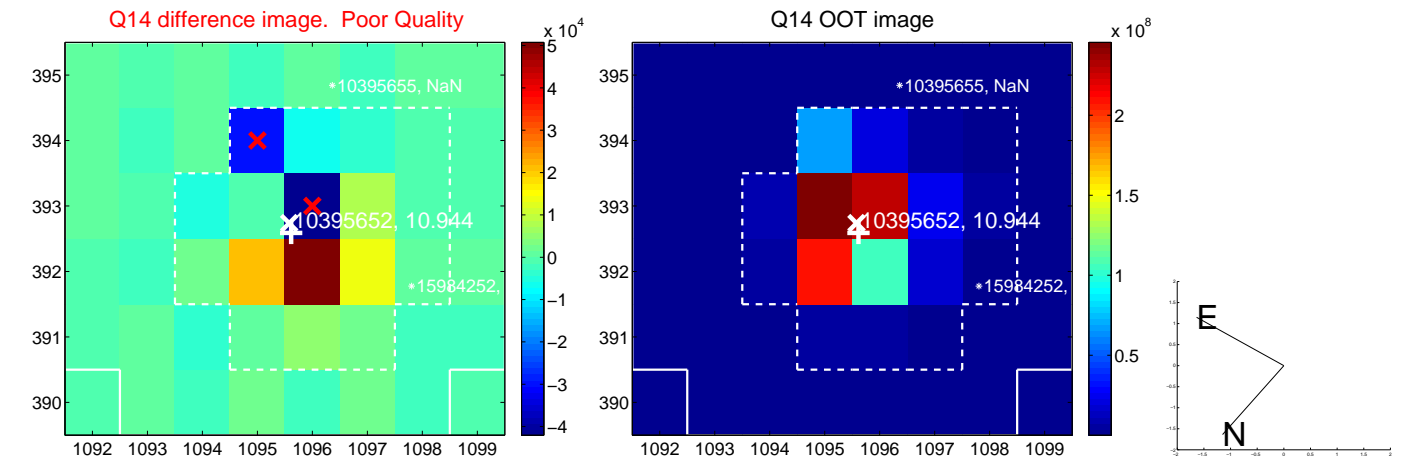
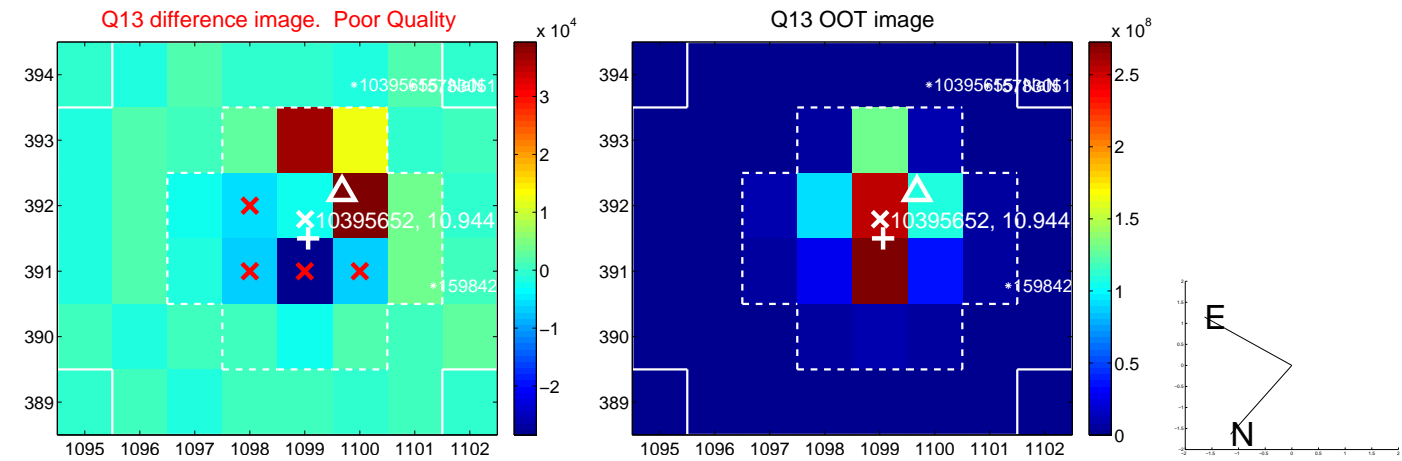
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



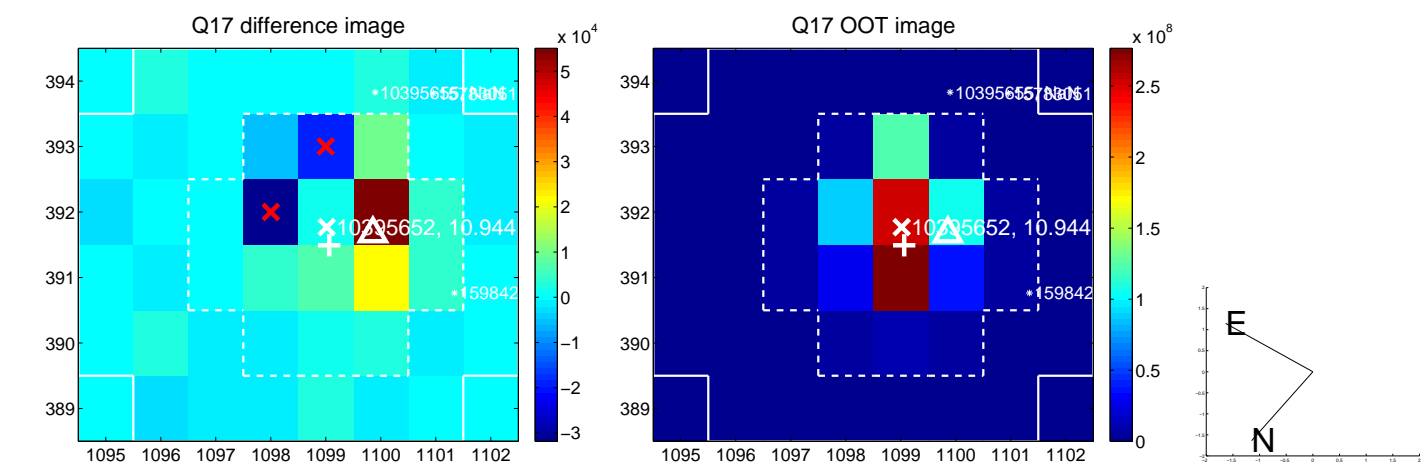
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



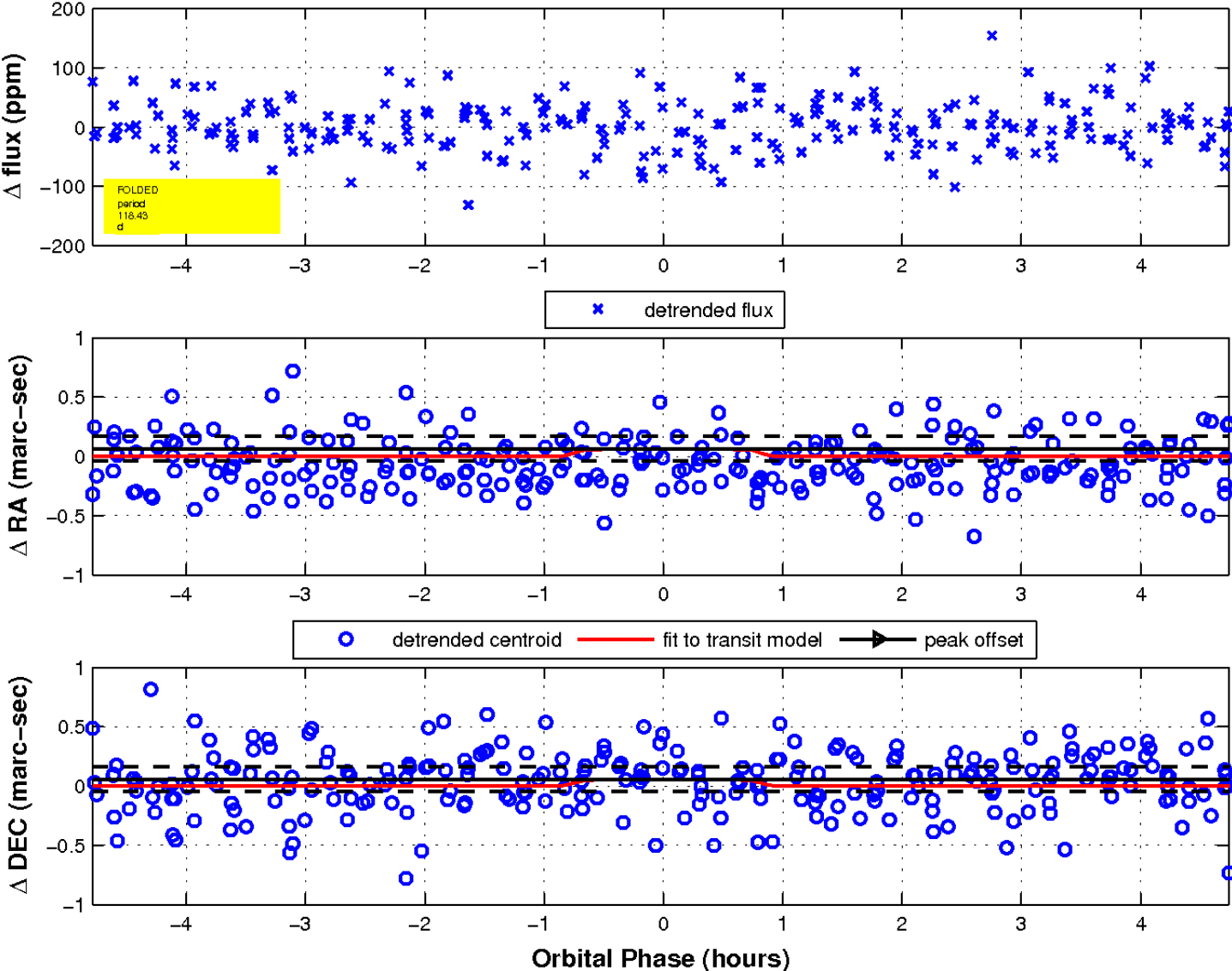
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

