

# KIC 007595928

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007595928-01	OBS	No	0.998749	132.348690	33.3	6.712	10.3	10.5	0.88	5092	0.54	1395.79
007595928-02	OBS	No	101.831528	195.885809	438.3	7.770	11.4	5.5	0.88	5092	2.00	2.93
007595928-03	OBS	No	46.769032	175.328657	393.6	7.773	13.9	7.3	0.88	5092	2.33	8.27
007595928-04	OBS	No	55.081615	165.059469	310.8	5.199	9.3	5.3	0.88	5092	1.82	6.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007595928-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
007595928-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
007595928-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007595928-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— CENT_KIC_POS

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

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

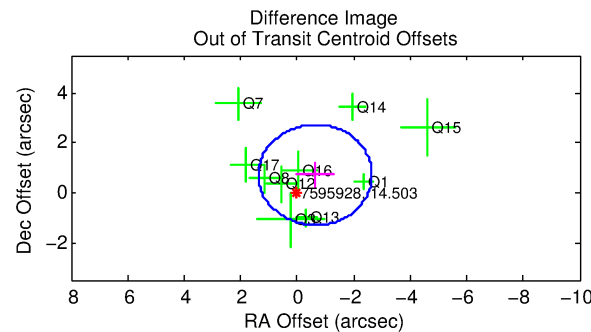
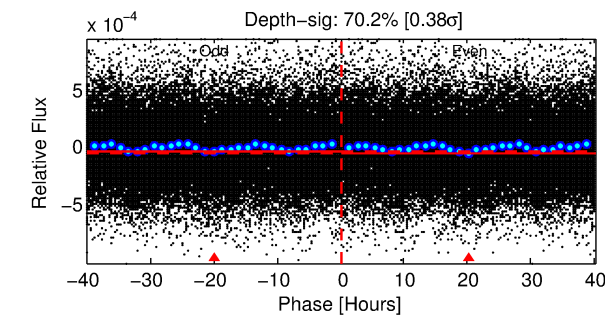
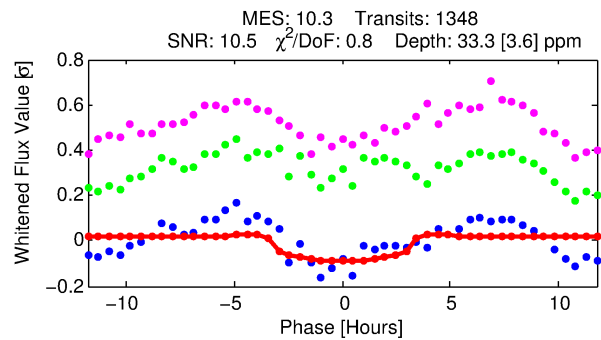
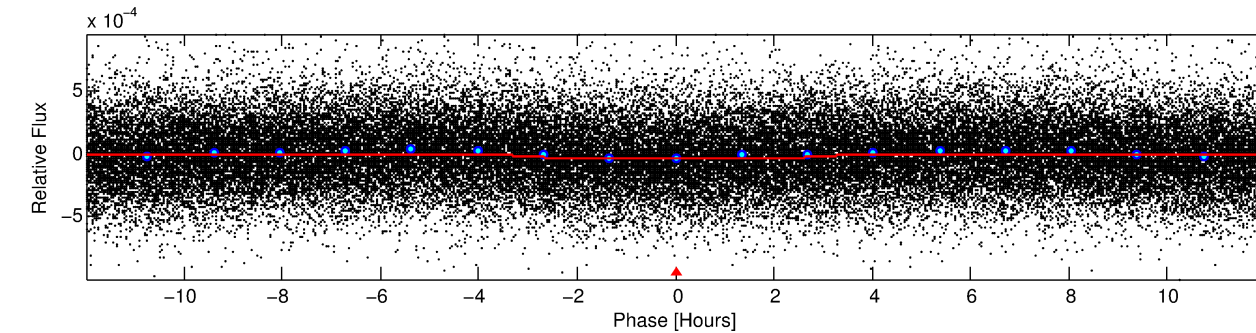
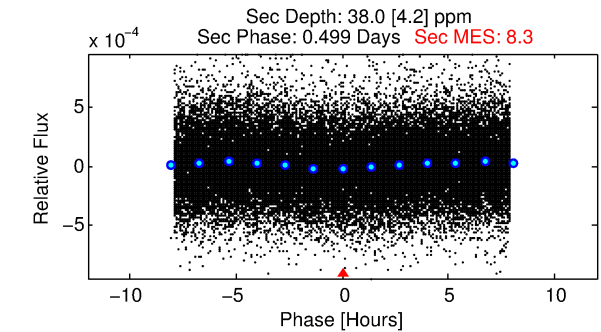
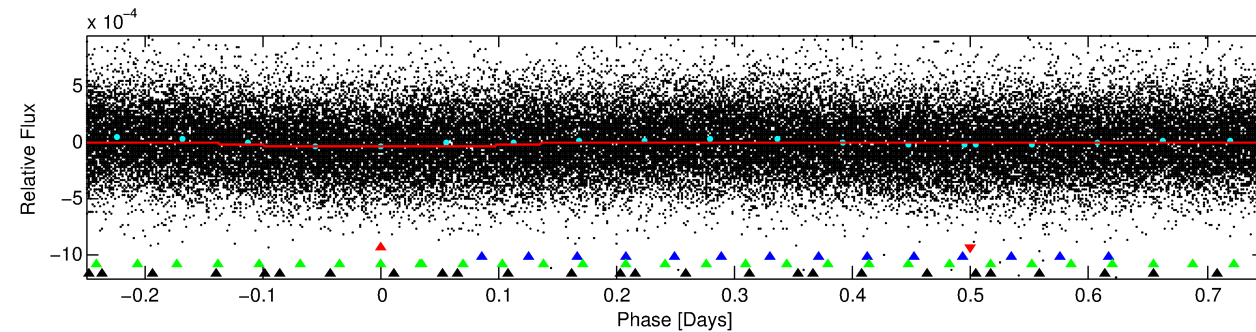
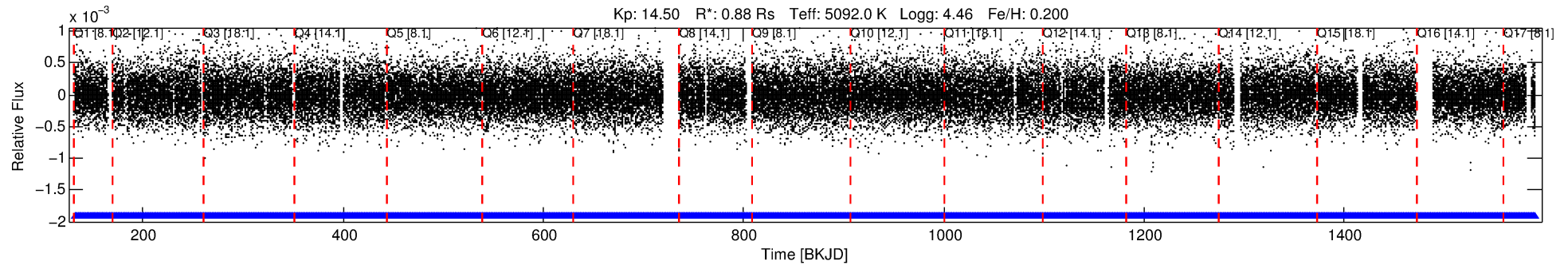
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007595928-01

No Significant Match Found

# DV One-Page Summary

KIC: 7595928 Candidate: 1 of 4 Period: 0.999 d



## DV Fit Results:

Period = 0.99875 [0.00001] d  
Epoch = 132.3487 [0.0054] BKJD  
Rp/R\* = 0.0056 [0.0030]  
a/R\* = 1.17 [0.59]  
b = 0.70 [1.42]  
Seff = 1395.79 [749.64]  
Teff = 1559 [209] K  
Rp = 0.54 [0.31] Re  
a = 0.0183 [0.0053] AU  
Ag = 23.77 [28.47] [0.80σ]  
Teffp = 5321 [1441] K [2.58σ]

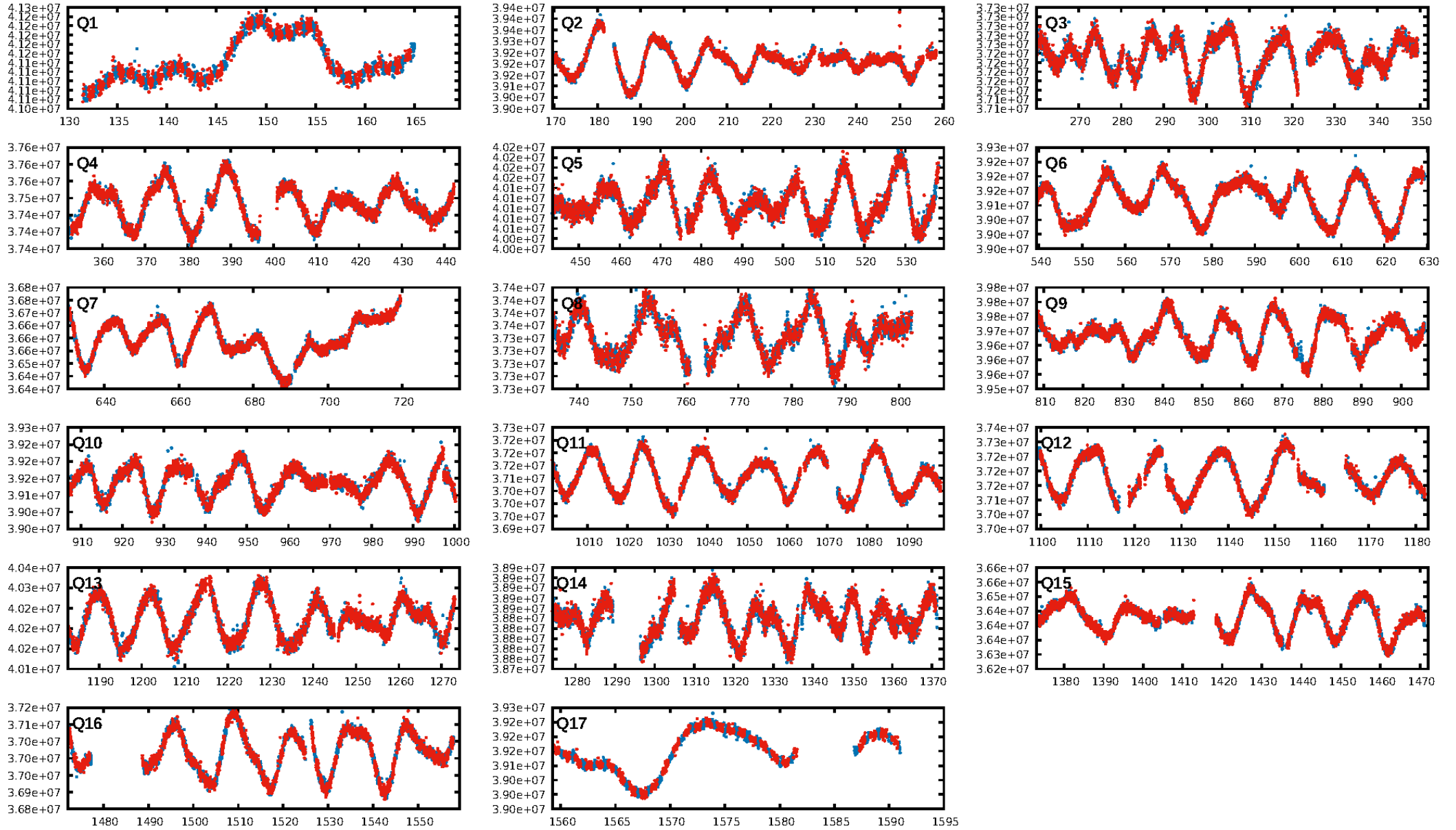
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [106.96σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.22e-13  
RollingBand-fgt: 1.00 [1288/1288]  
GhostDiagnostic-chr: 3.361  
Centroid-sig: 6.6%  
Centroid-so: 1.588 arcsec [1.80σ]  
OotOffset-rm: 0.950 arcsec [1.42σ]  
KicOffset-rm: 0.686 arcsec [1.14σ]  
OotOffset-st: 1/3/3/3 [10]  
KicOffset-st: 1/3/3/3 [10]  
DiffImageQuality-fgm: 0.60 [6/10]  
DiffImageOverlap-fno: 1.00 [17/17]

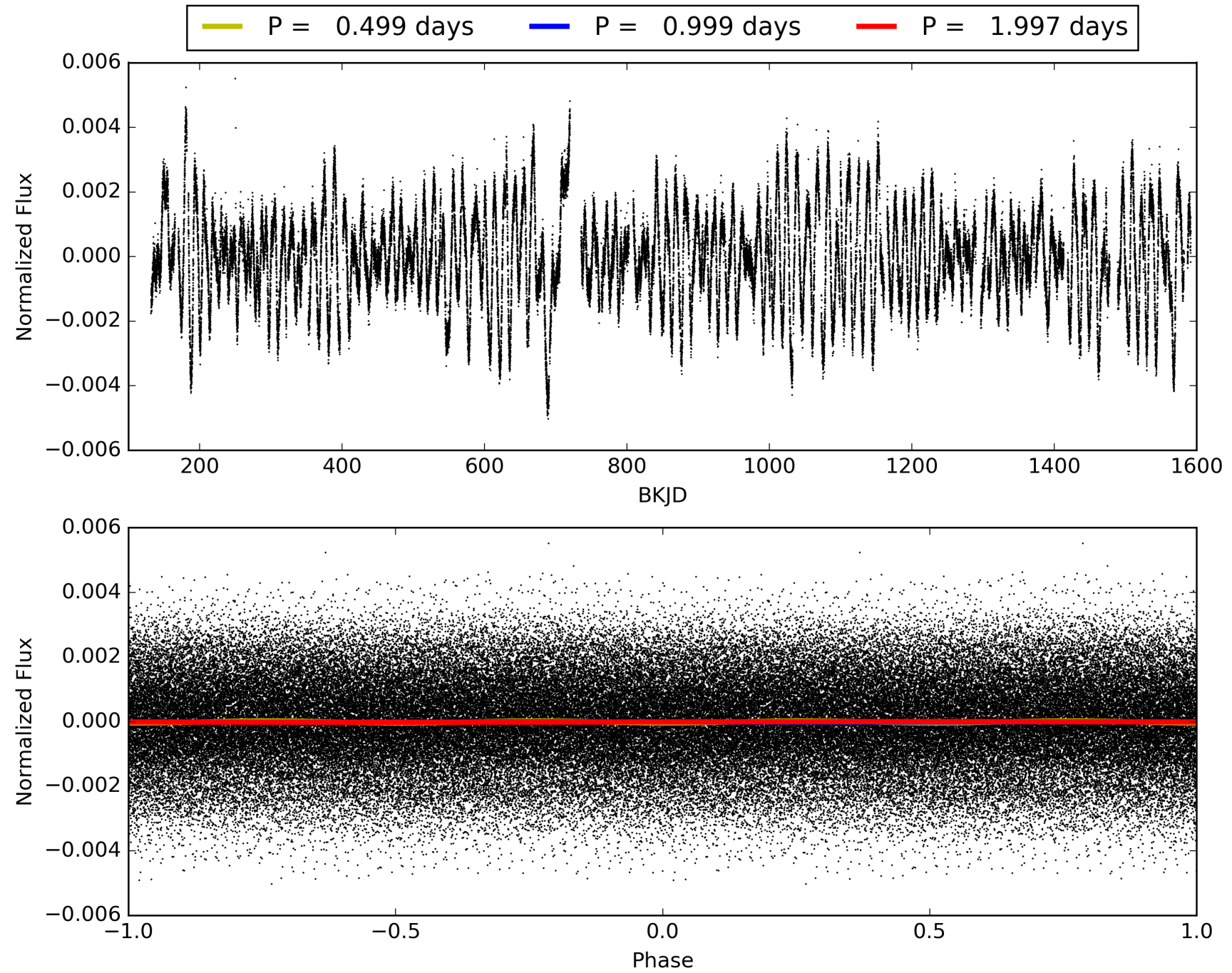
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:02:52 Z

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

# TCE 007595928-01, PDC Light Curves



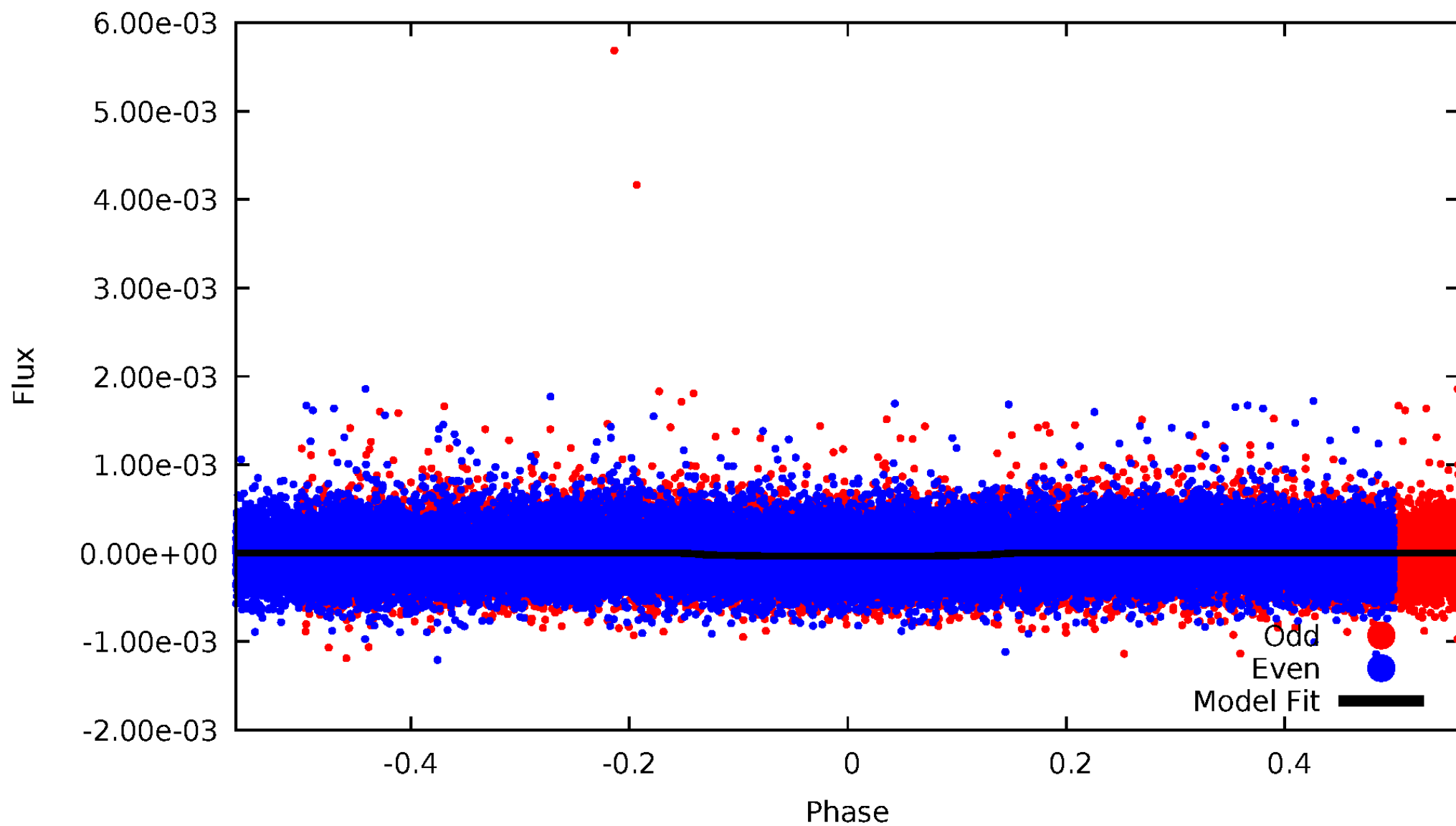
TCE 007595928-01





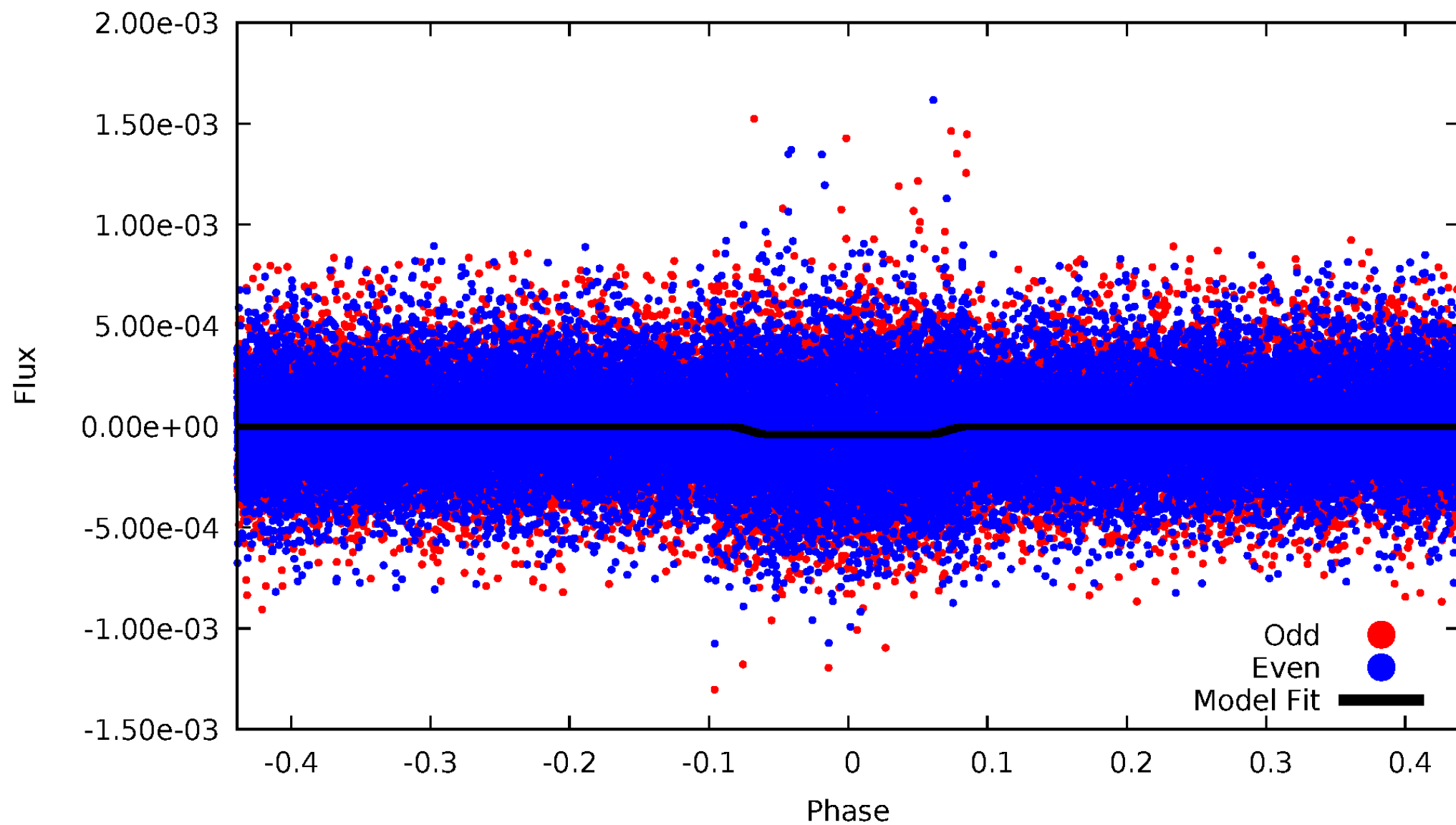
# DV Odd/Even

TCE 007595928-01

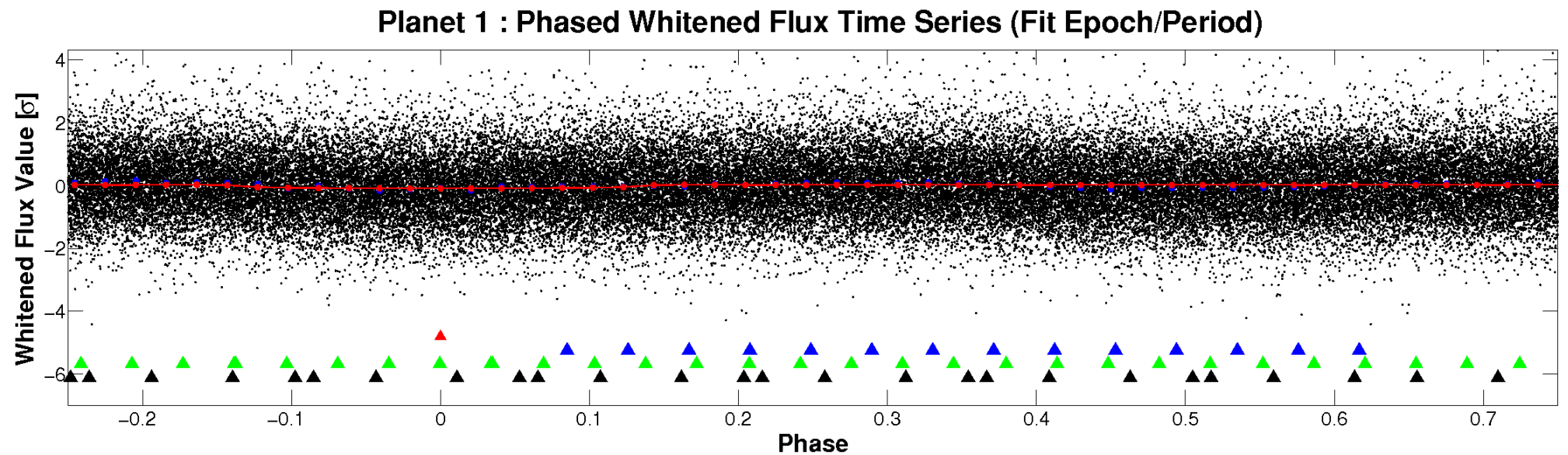
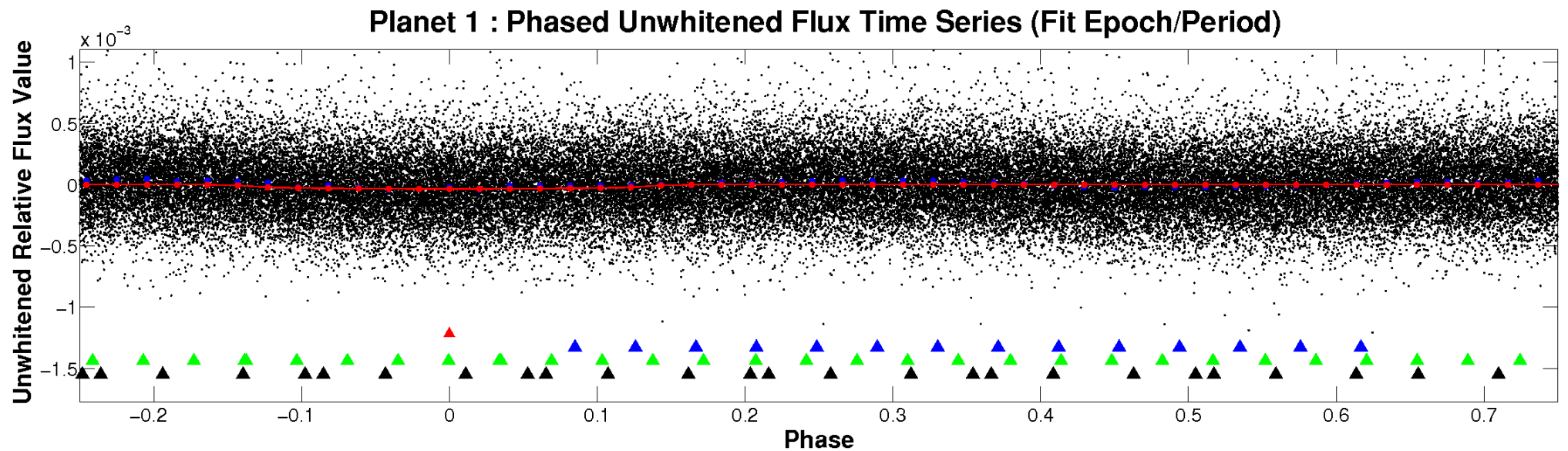


# ALT Odd/Even

TCE 007595928-01

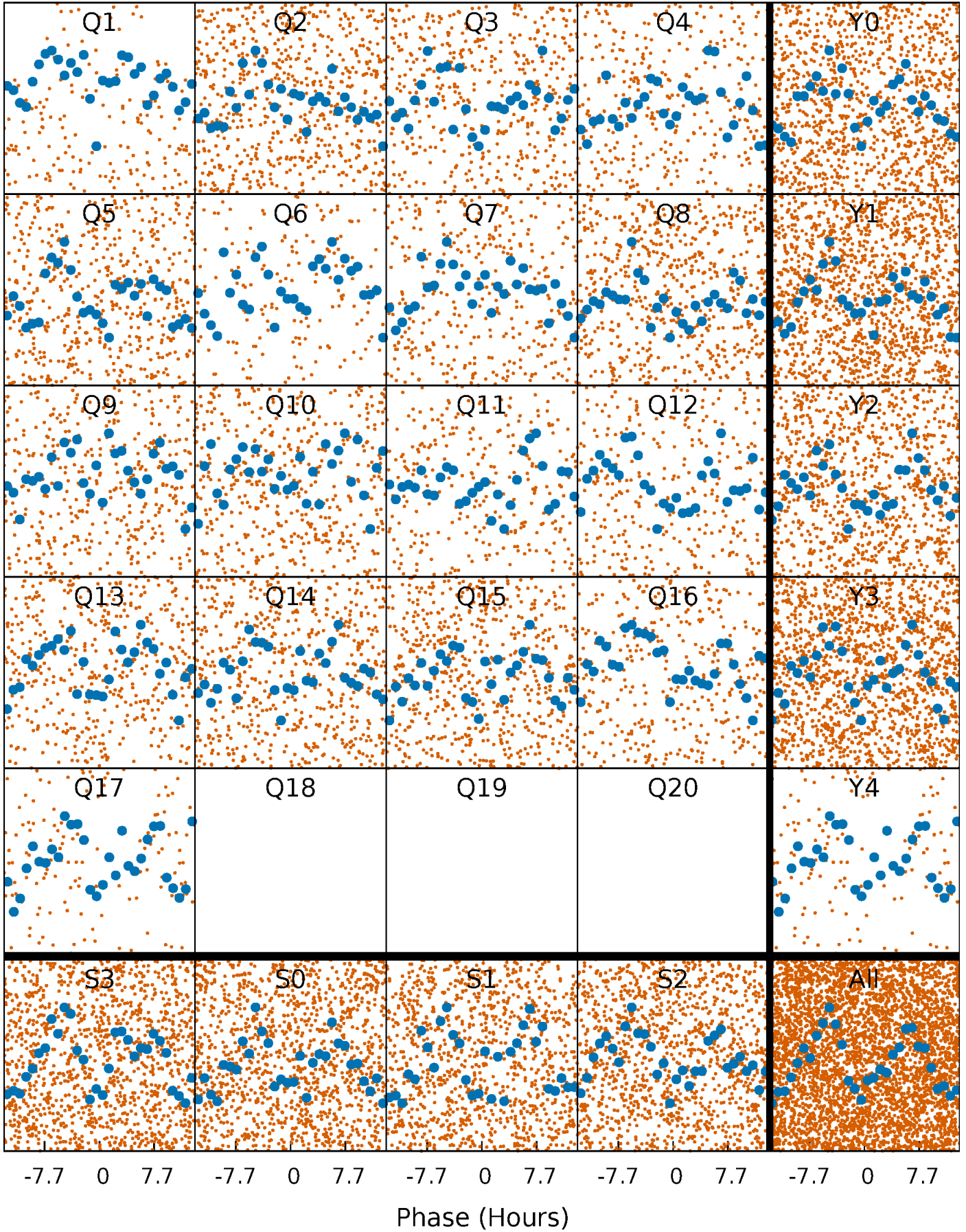


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

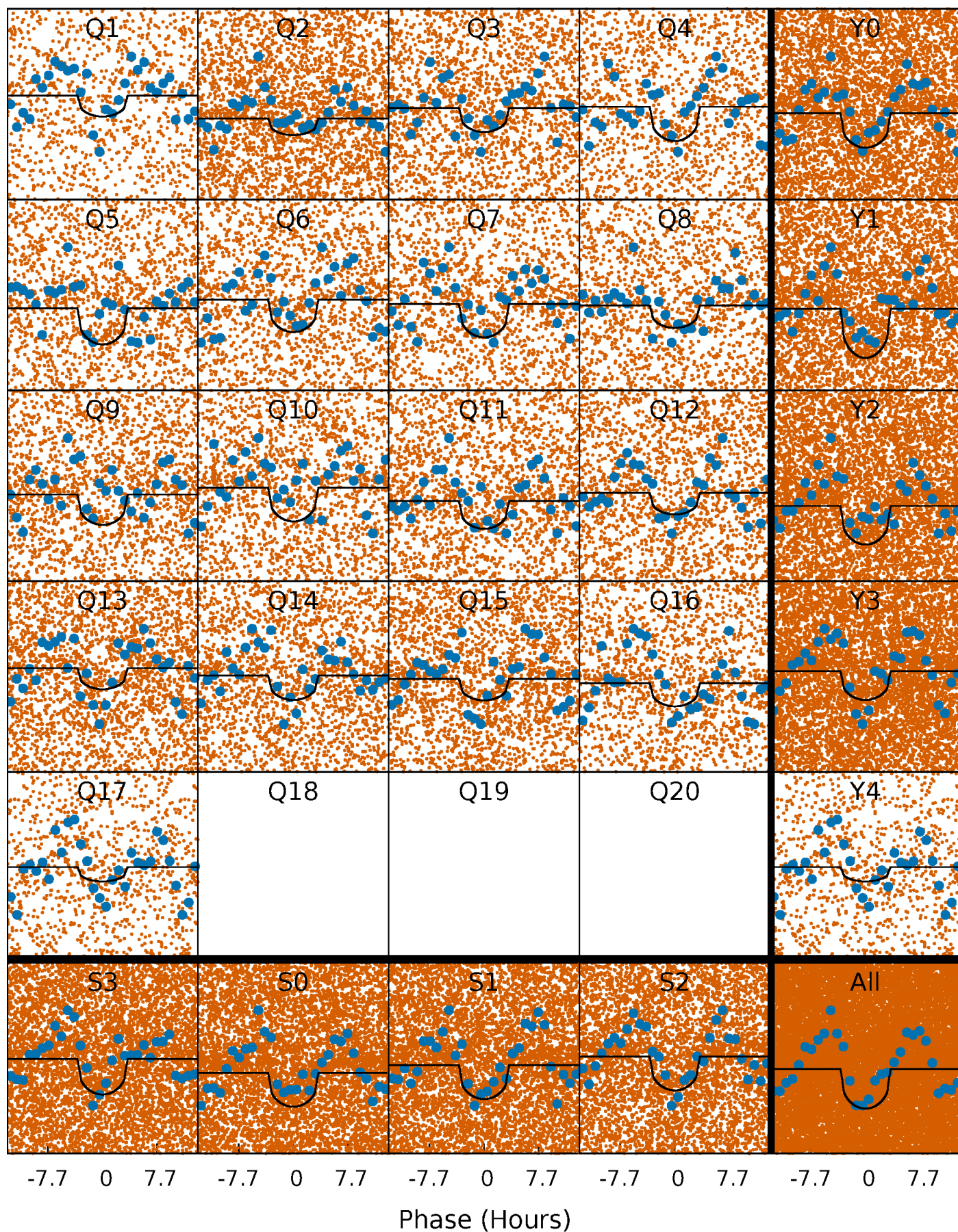
TCE 007595928-01 P= 0.998749 Days  $T_0=132.348690$  (BKJD)





# DV Quarter-Phased Transit Curves

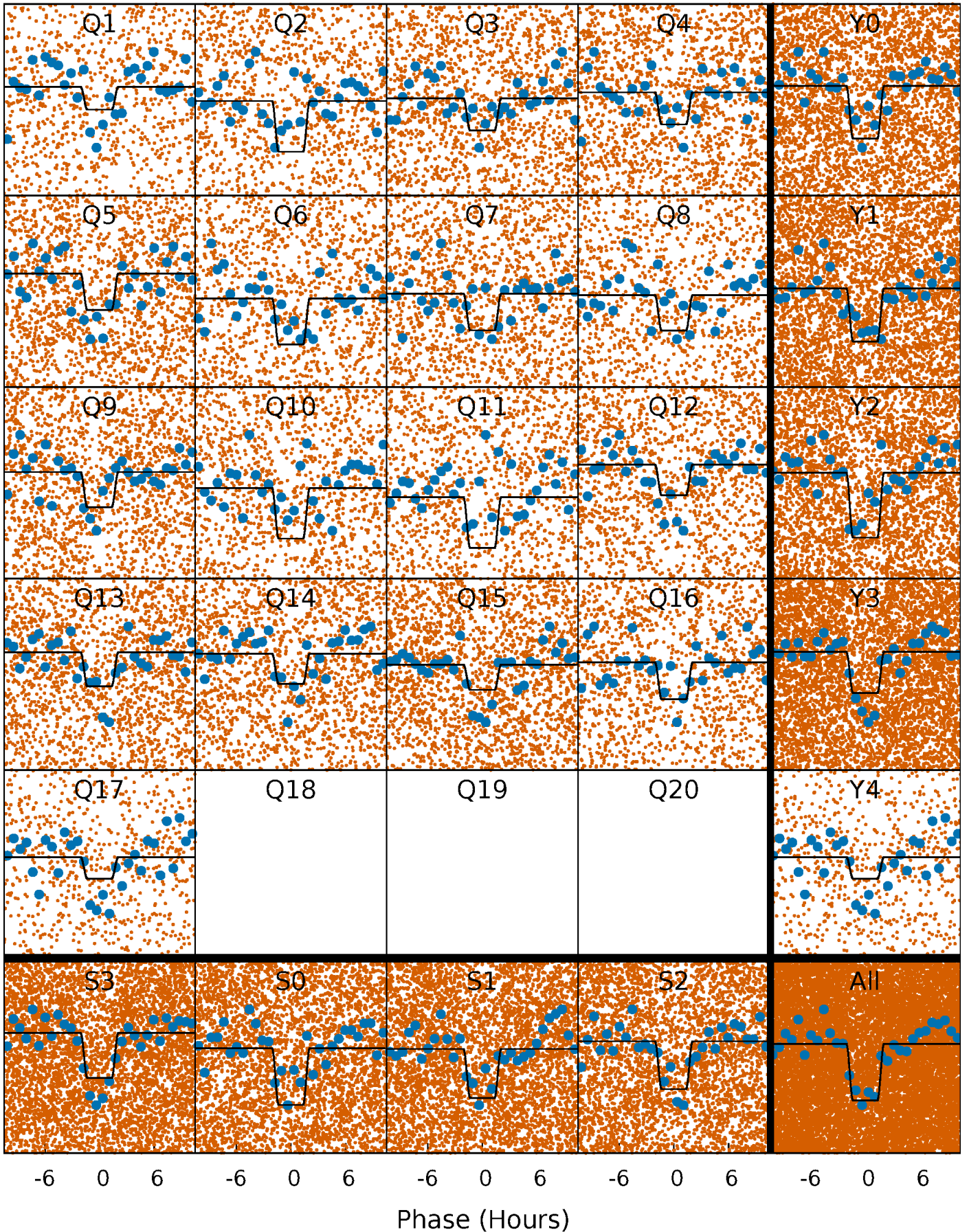
TCE 007595928-01 P= 0.998749 Days  $T_0=132.348690$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

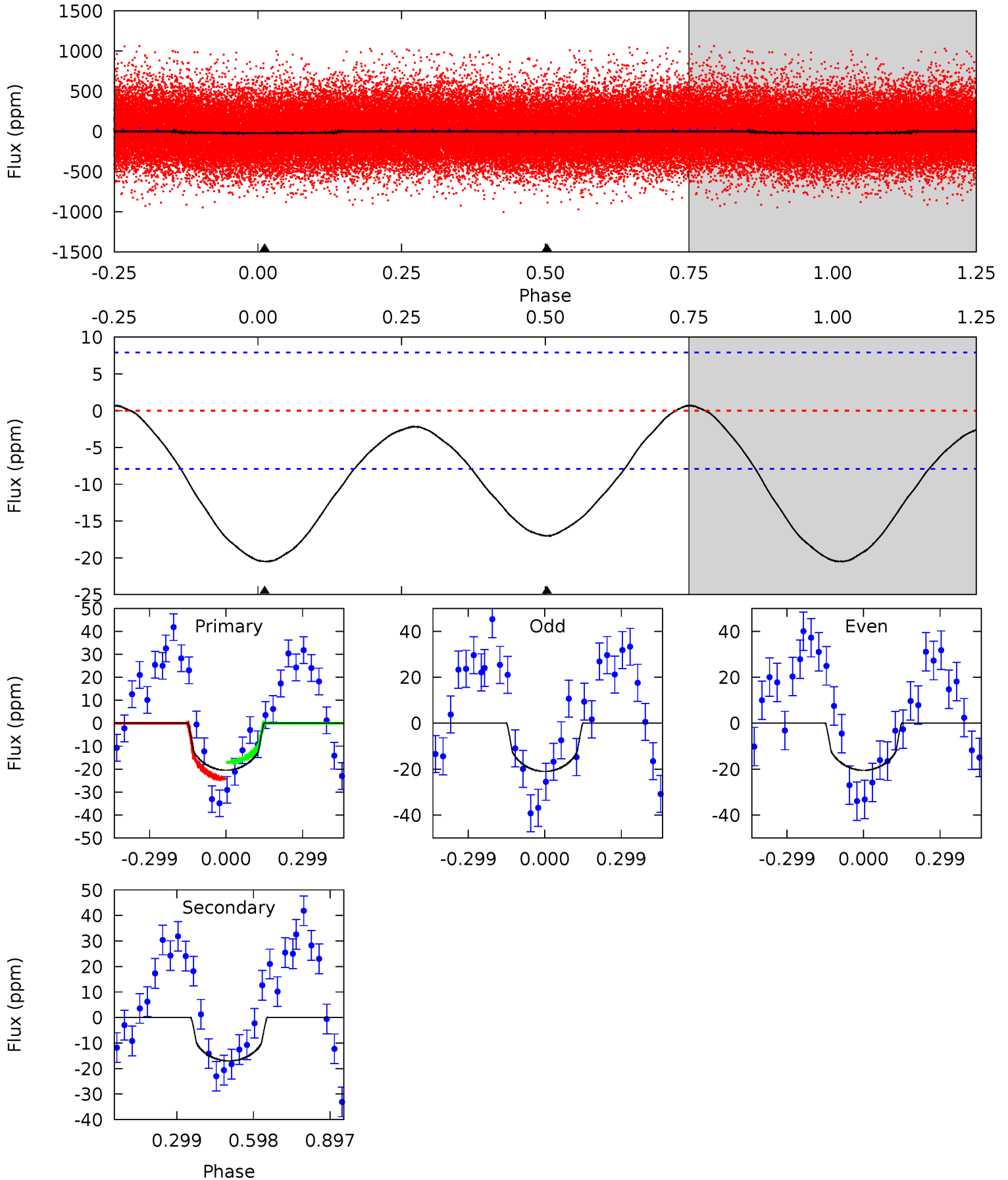
TCE 007595928-01 P= 0.998729 Days  $T_0=132.335773$  (BKJD)



# DV Model-Shift Uniqueness Test

007595928-01, P = 0.998749 Days, E = 131.349941 Days

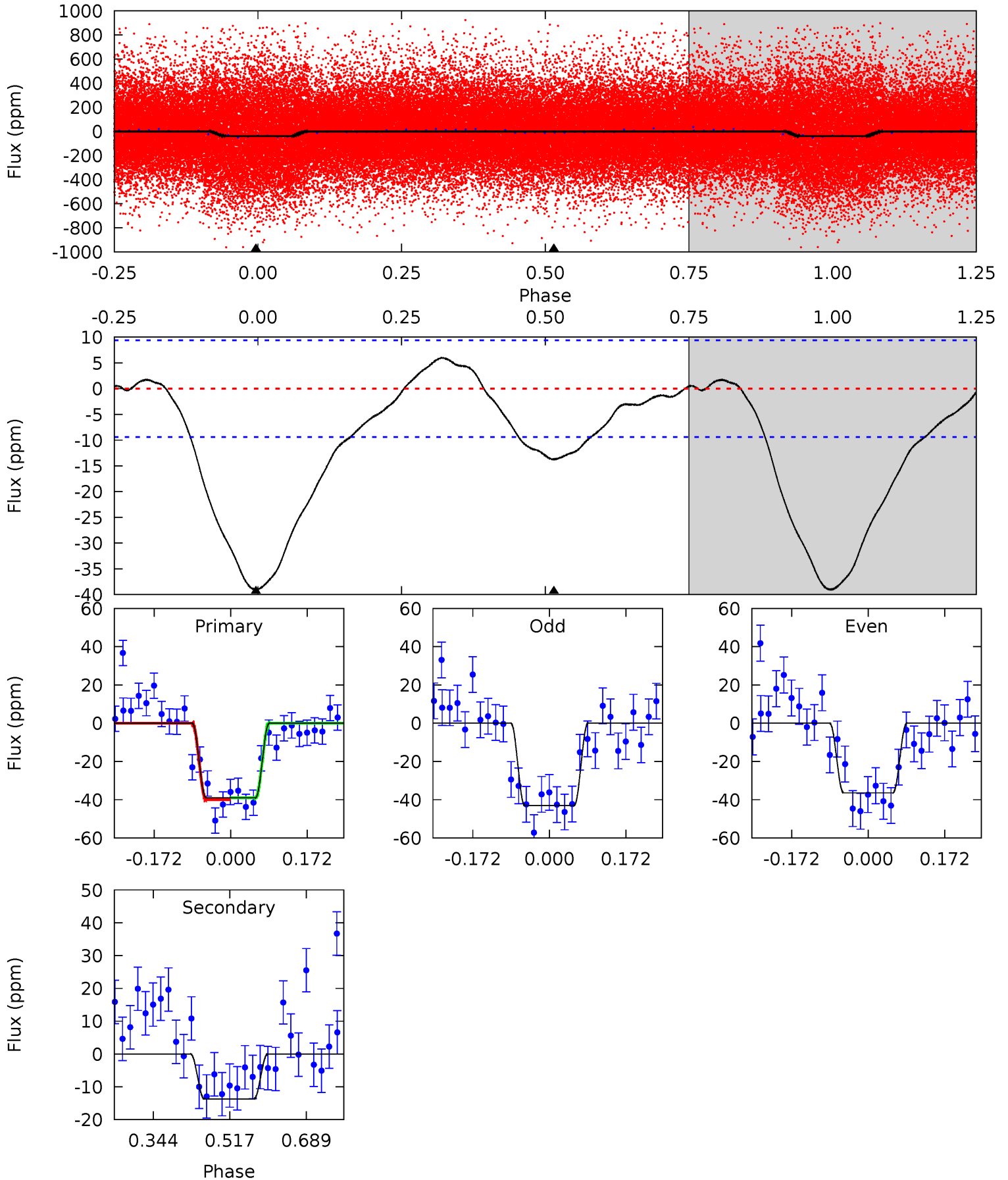
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	9.32	0	0	4.33	1.04	0.78	11.2	11.2	9.32	9.32	0.14	0.99	0.03	1.98



# Alt Model-Shift Uniqueness Test

007595928-01, P = 0.998729 Days, E = 131.337044 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	6.51	0	0	4.45	1.37	1.71	18.5	18.5	6.51	6.51	1.57	1.04	0.13	0.24





### Stellar Parameters For KIC 007595928

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5092^{+152}_{-137}$	$4.462^{+0.094}_{-0.329}$	$0.200^{+0.200}_{-0.250}$	$0.882^{+0.183}_{-0.112}$	$0.821^{+0.084}_{-0.058}$	$1.688^{+0.716}_{-1.110}$
	+3%/-3%	+2%/-7%	+100%/-125%	+21%/-13%	+10%/-7%	+42%/-66%
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 007595928-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-17 \pm 2$	$0.58^{+0.32}_{-0.28}$	$2235^{+152}_{-126}$	$4416^{+1480}_{-660}$	$9.061^{+24.005}_{-5.228}$
Alt.	$-14 \pm 2$	$0.66^{+0.32}_{-0.30}$	$2219^{+163}_{-117}$	$4053^{+1146}_{-573}$	$5.794^{+14.196}_{-3.278}$

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

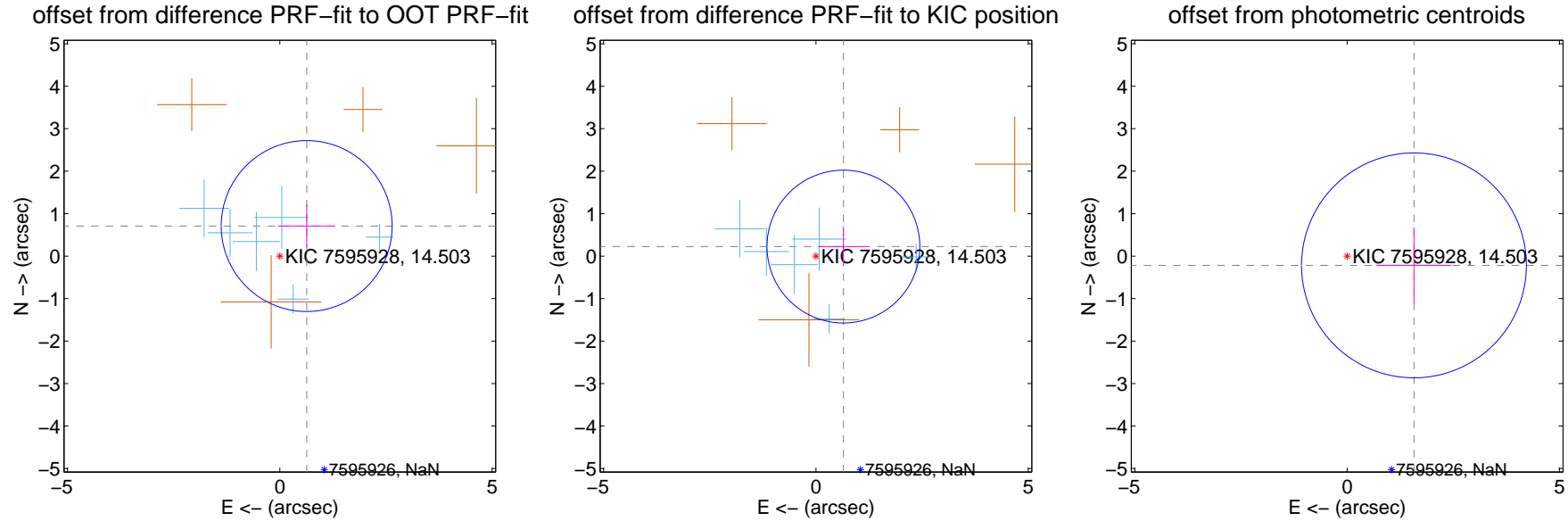
## DV Centroid Data

Supplemental centroid analysis for 007595928-01. Kepler magnitude: 14.50. Transit SNR 10.45

There are 6 quarters with good PRF difference image offsets

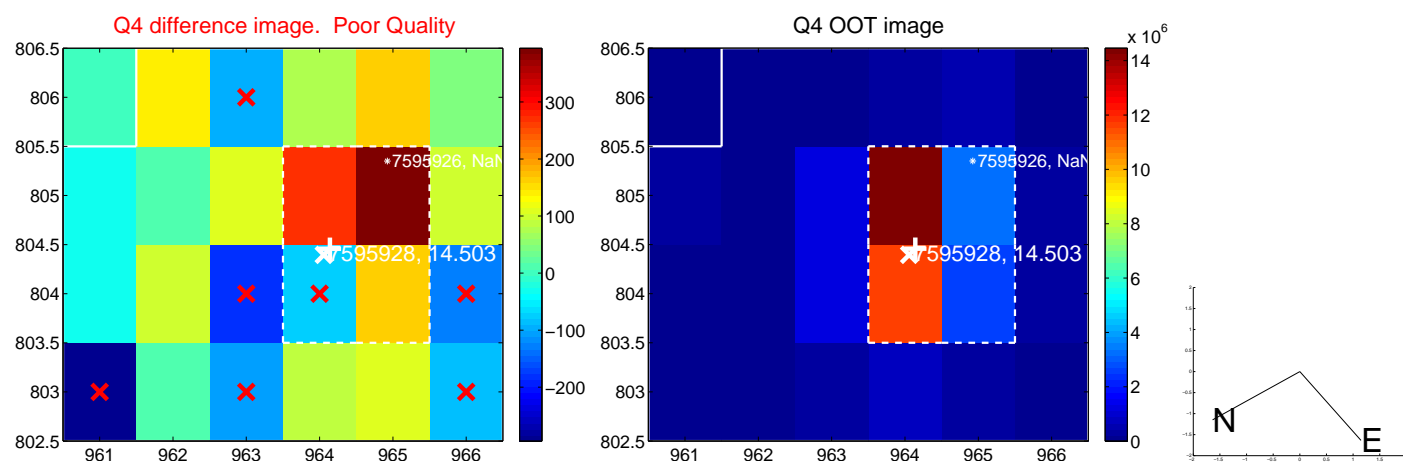
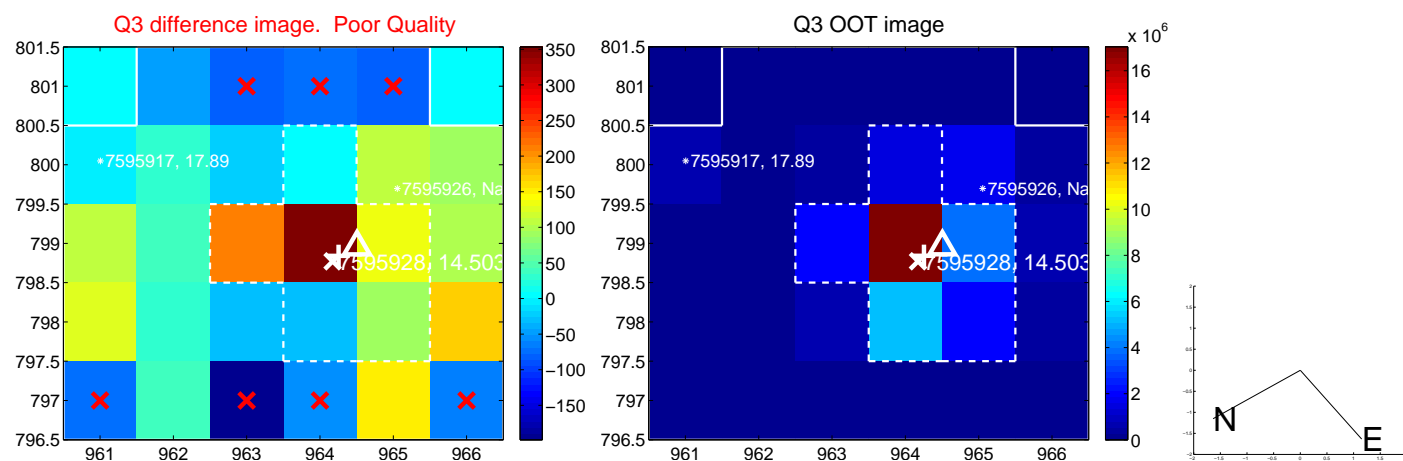
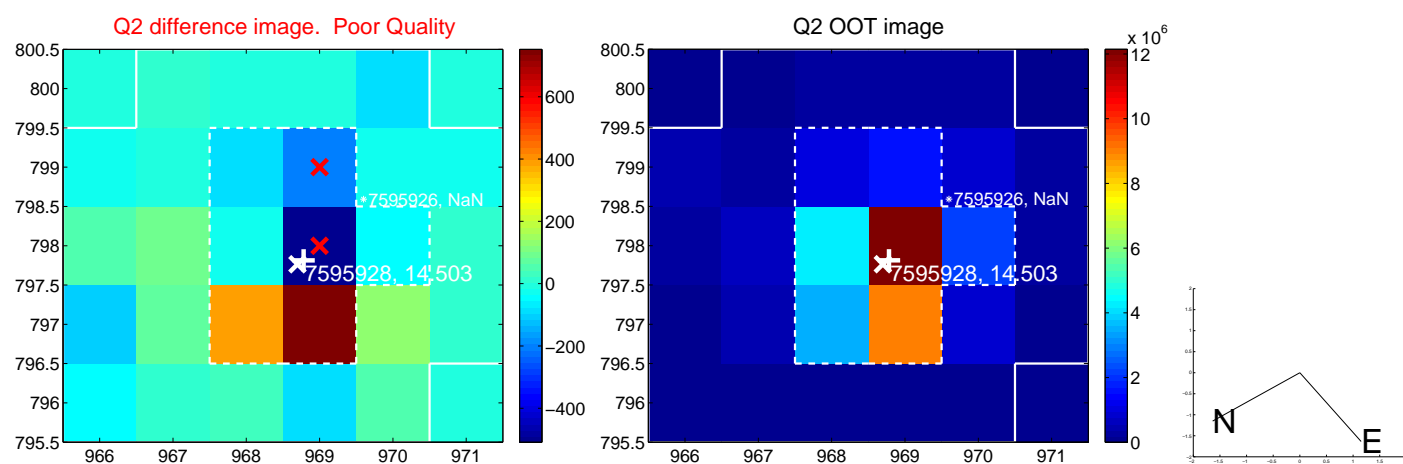
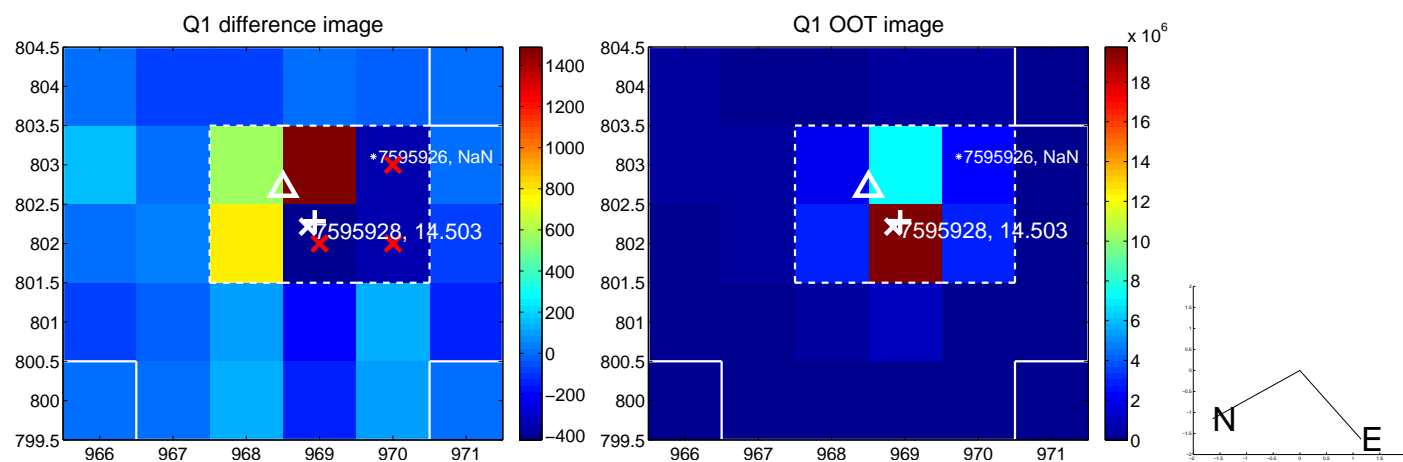
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.950 \pm 0.671$	1.42	$-0.633 \pm 0.675$	$0.708 \pm 0.511$
PRF-fit source offset from KIC position	$0.686 \pm 0.600$	1.14	$-0.648 \pm 0.598$	$0.225 \pm 0.463$
photometric centroid source offset	$1.59 \pm 0.88$	1.80	$-1.57 \pm 0.88$	$-0.22 \pm 0.90$

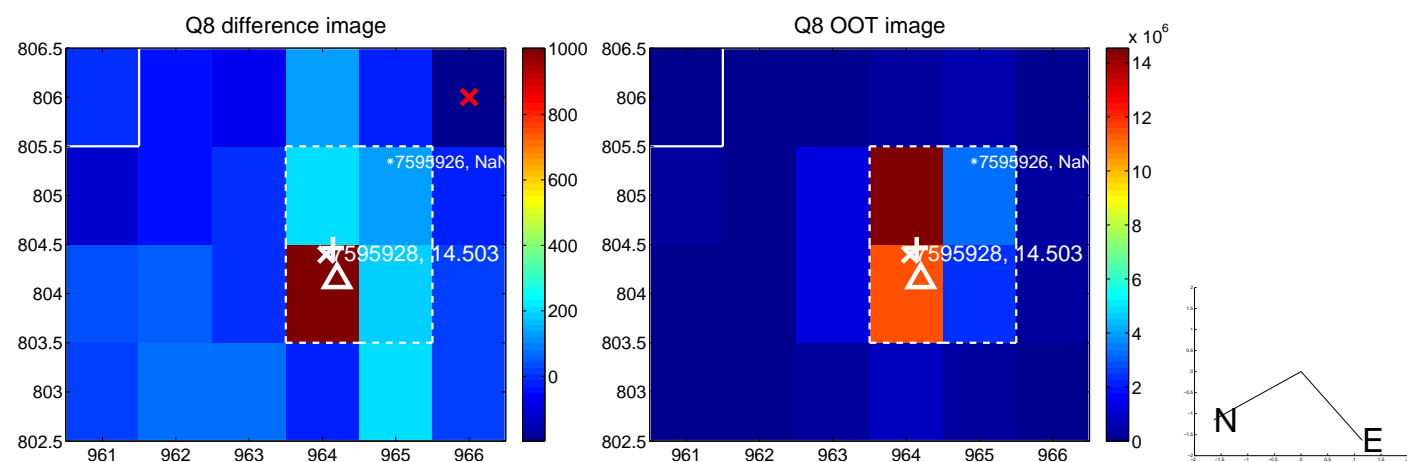
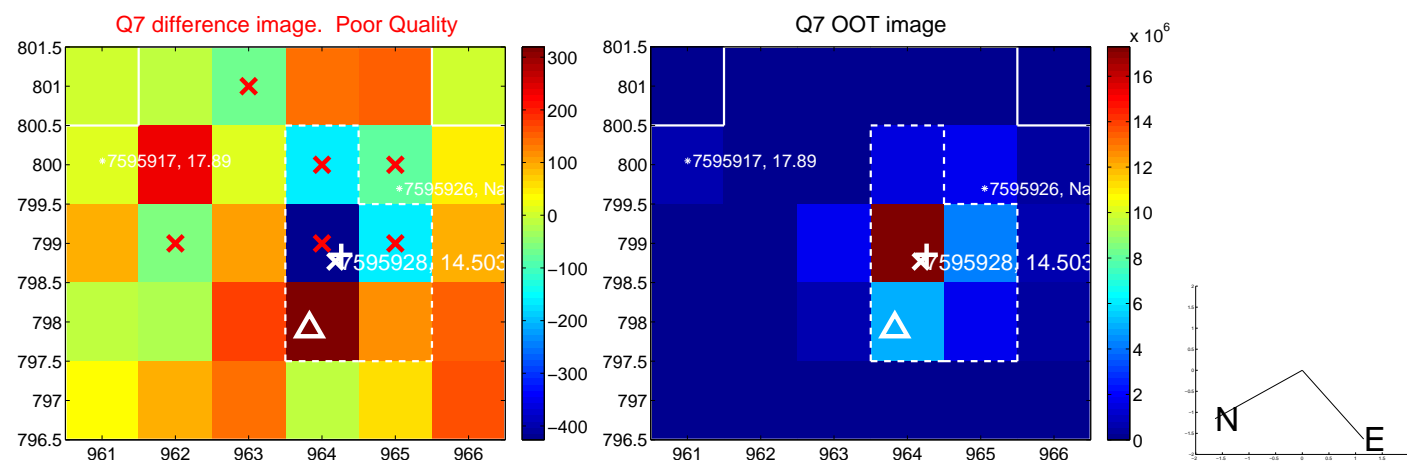
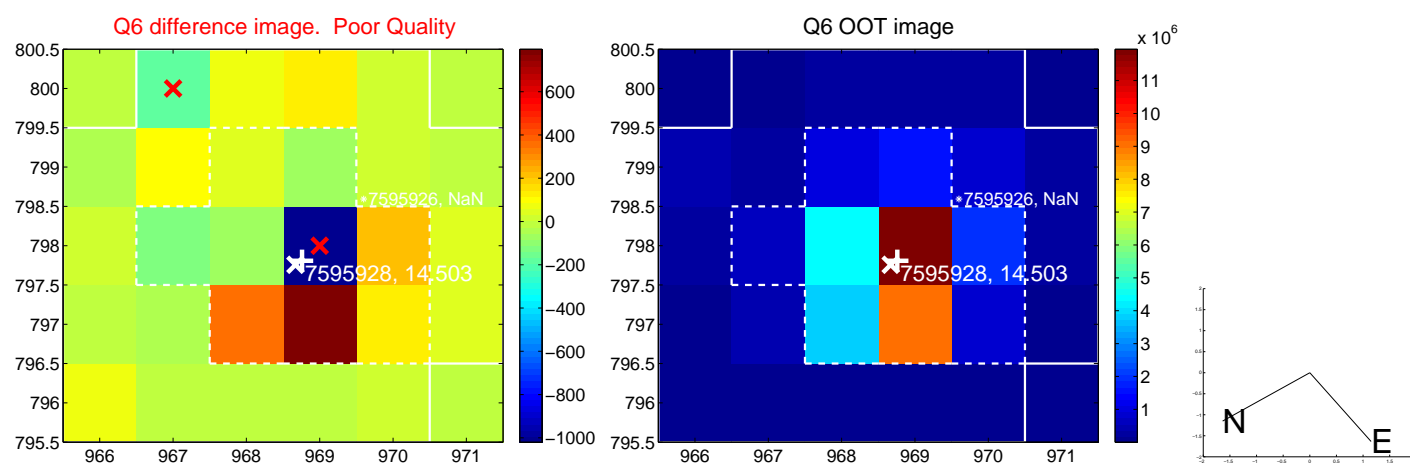
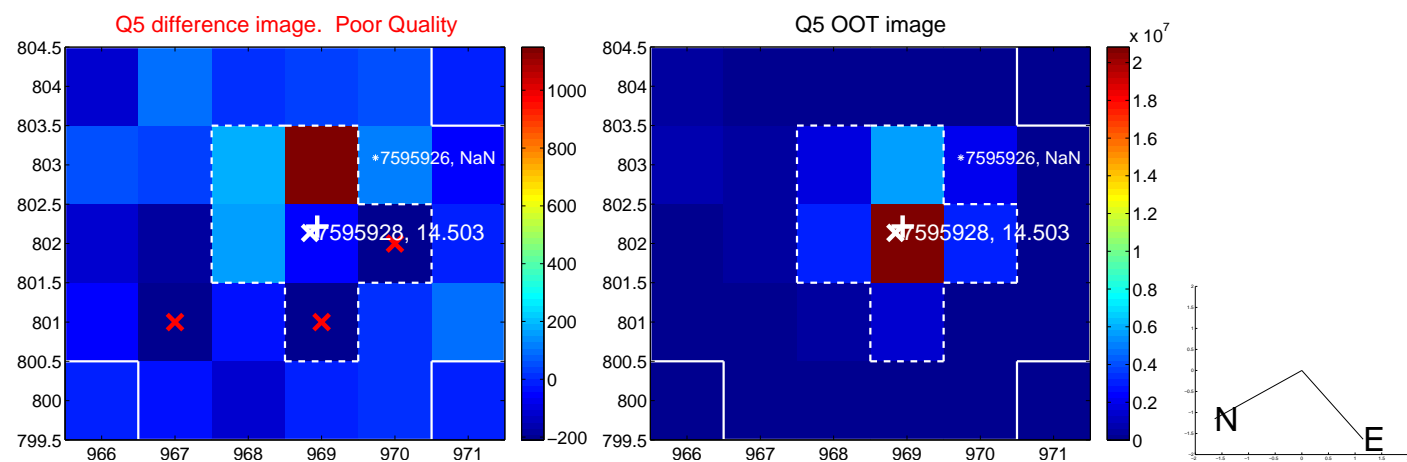


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

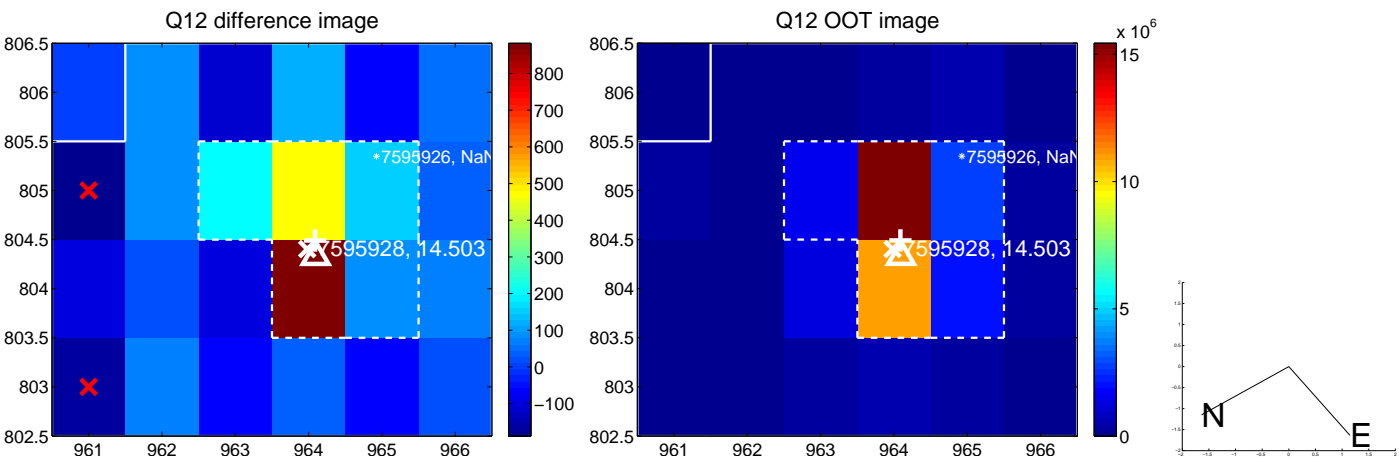
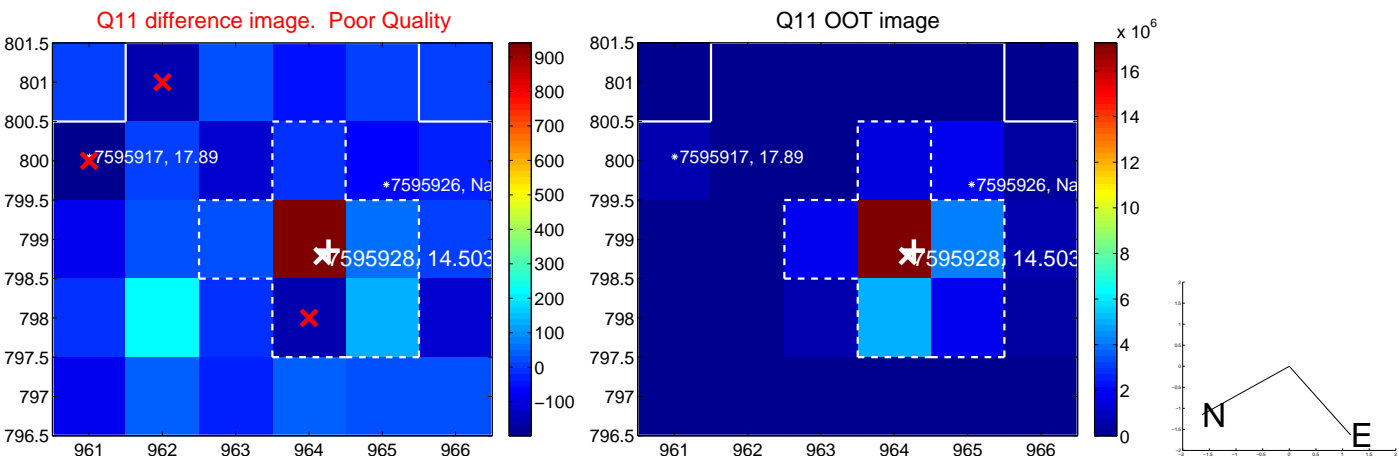
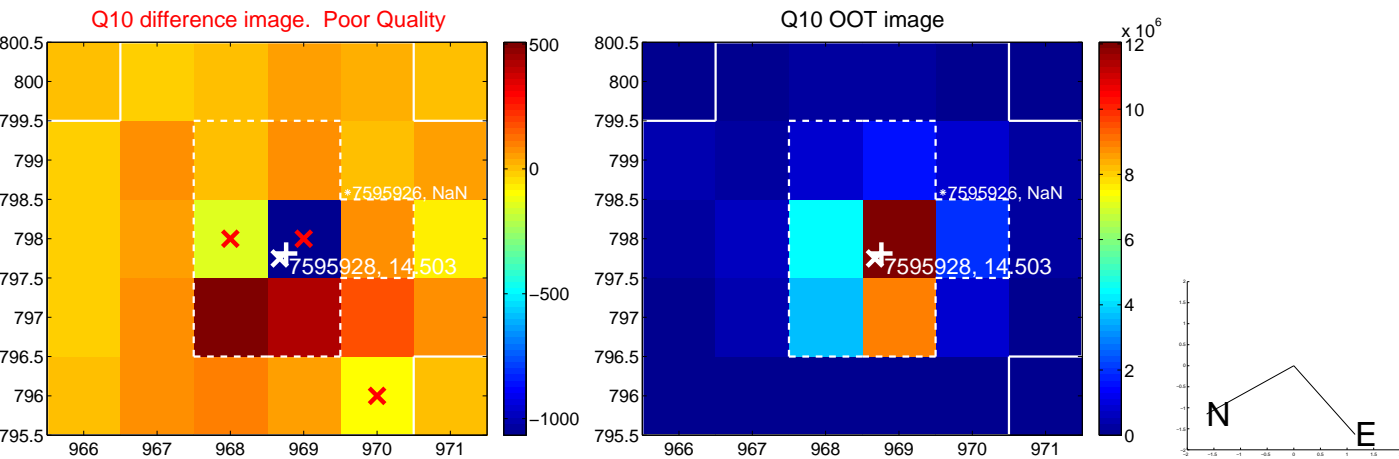
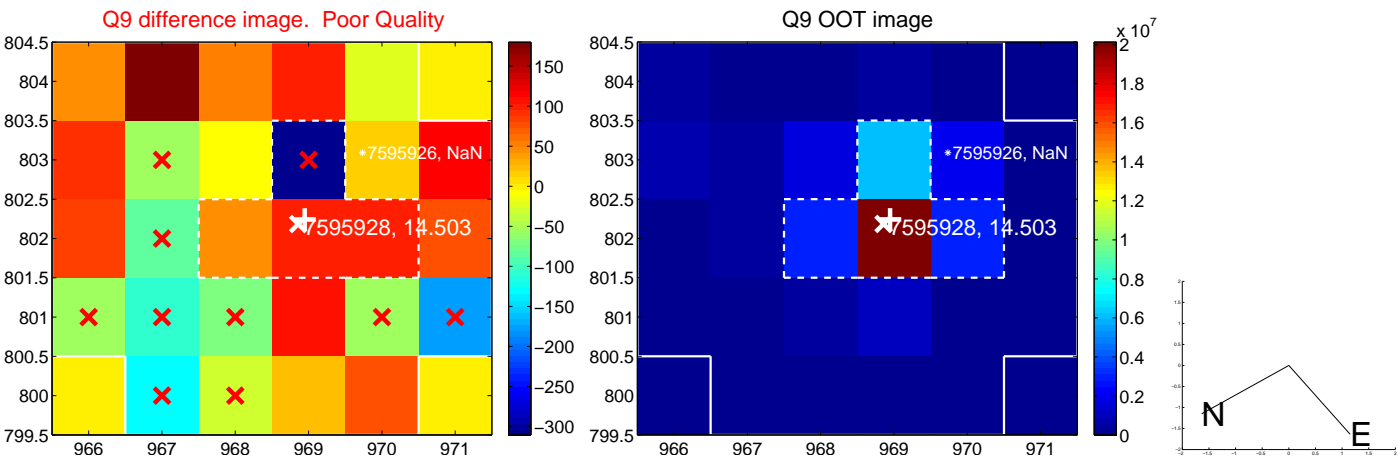


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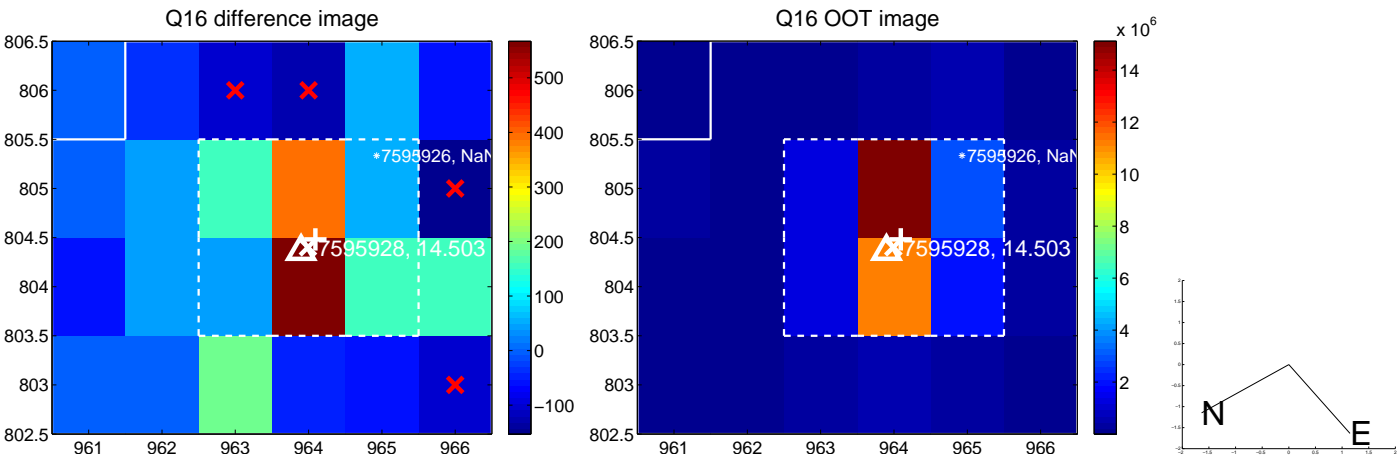
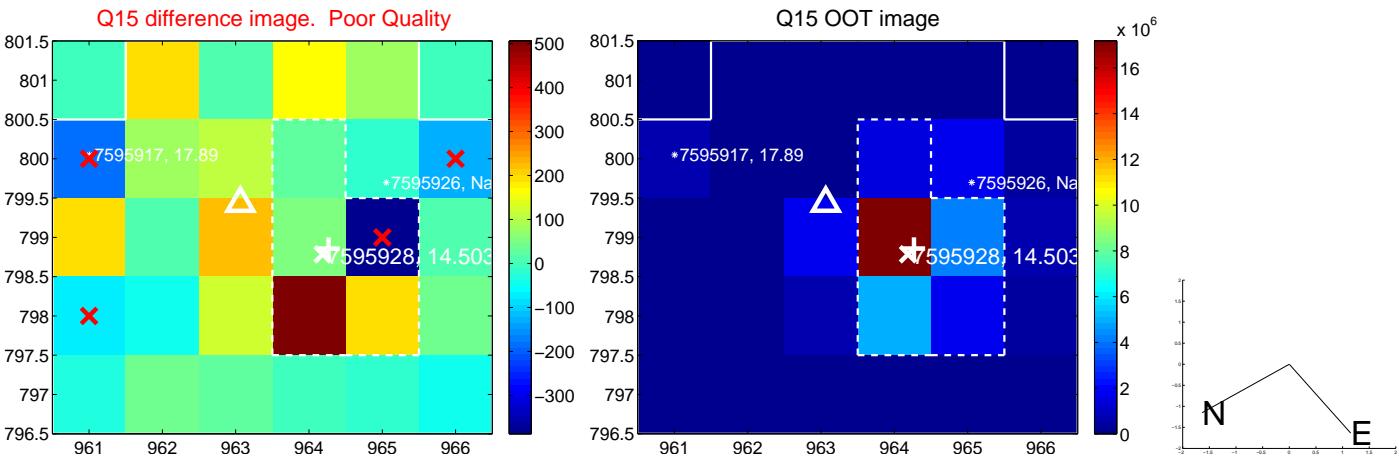
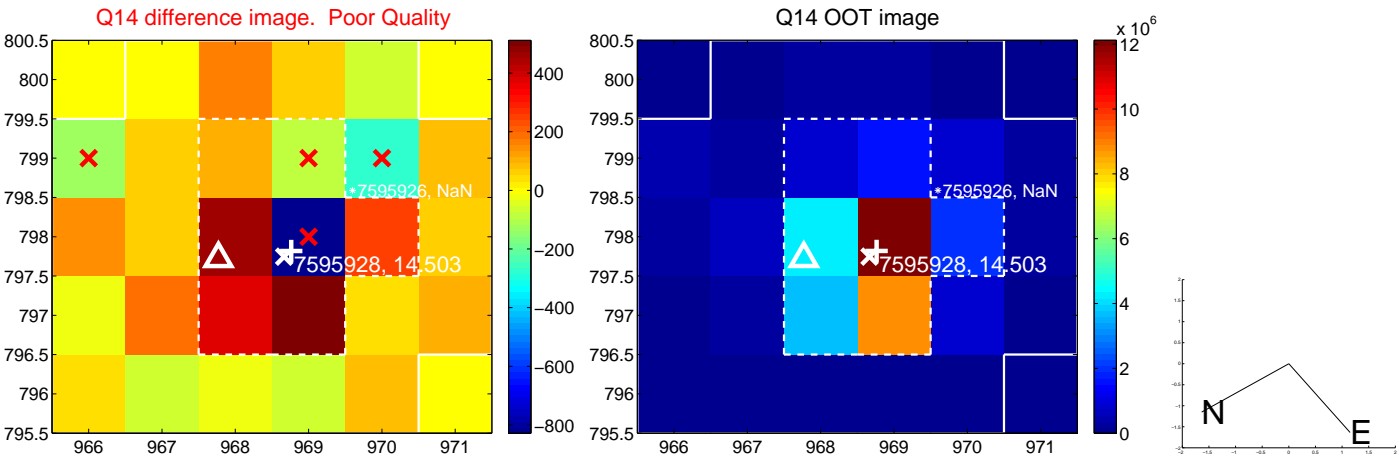
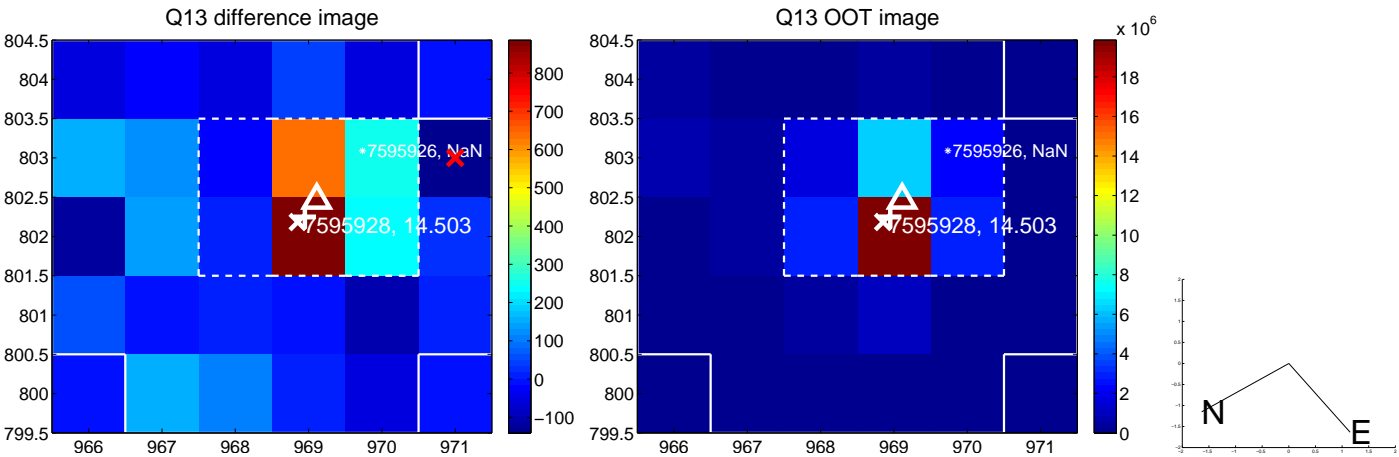




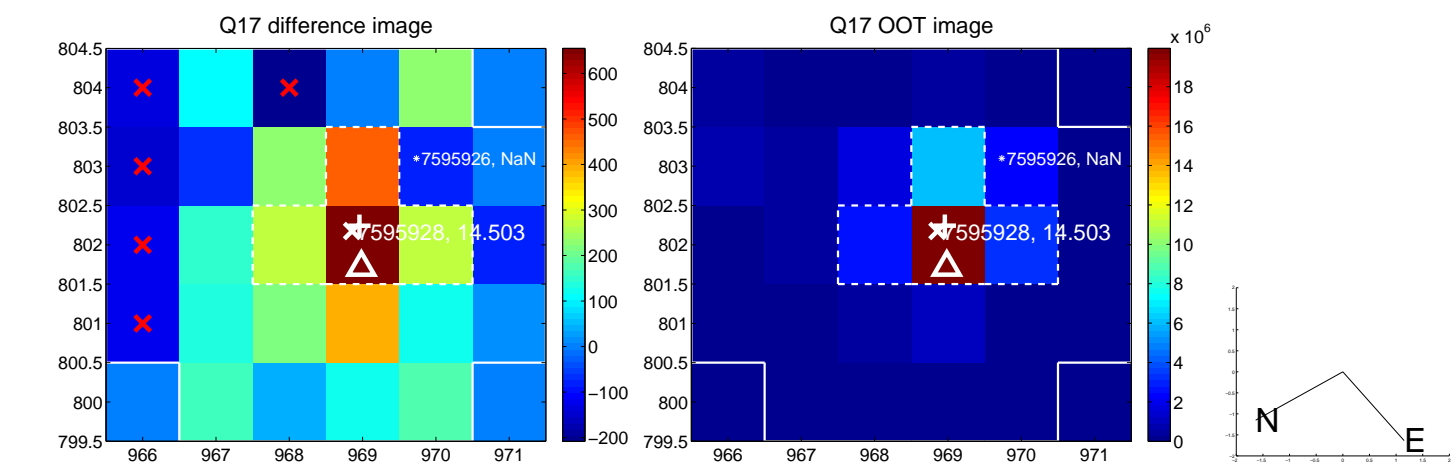
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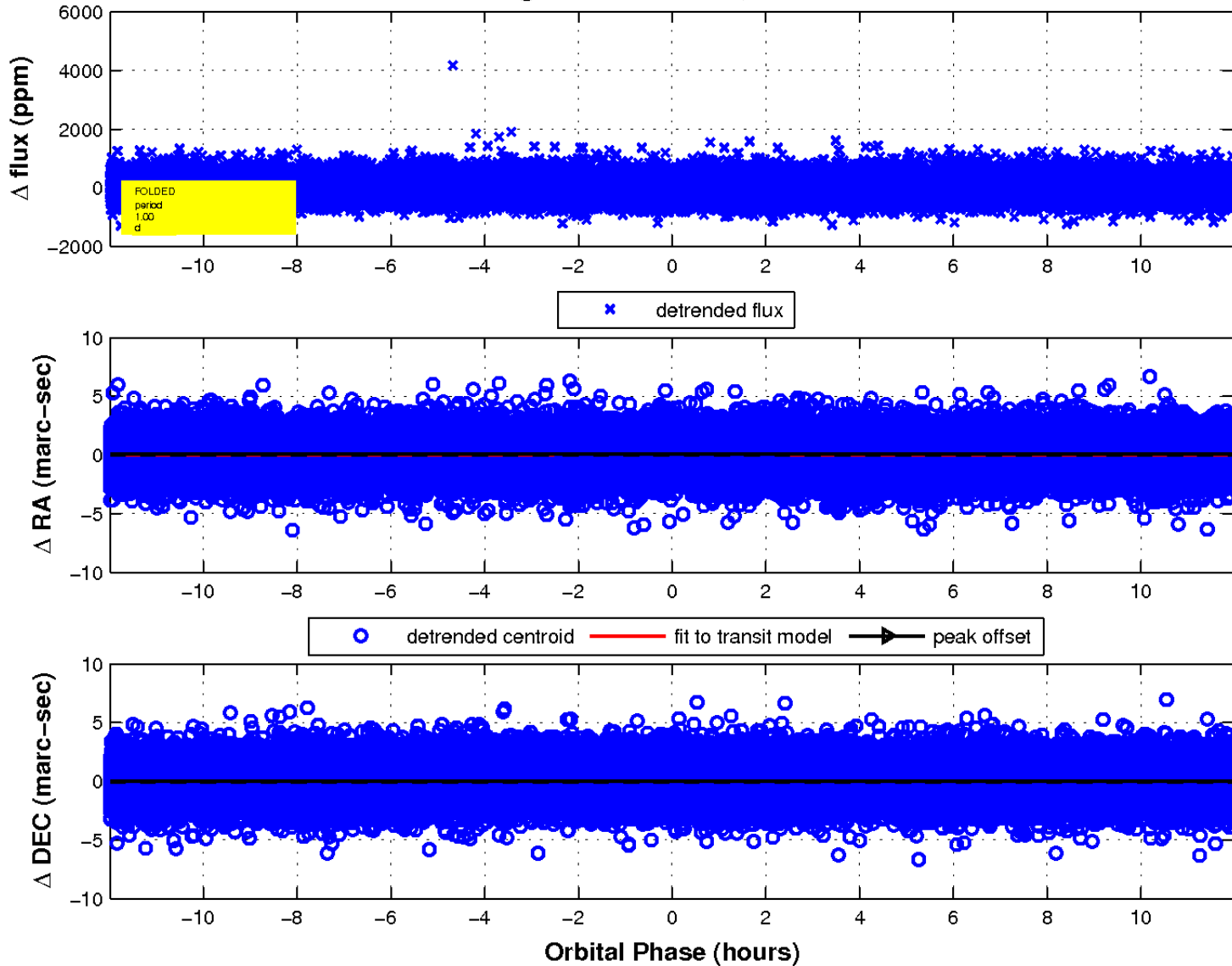
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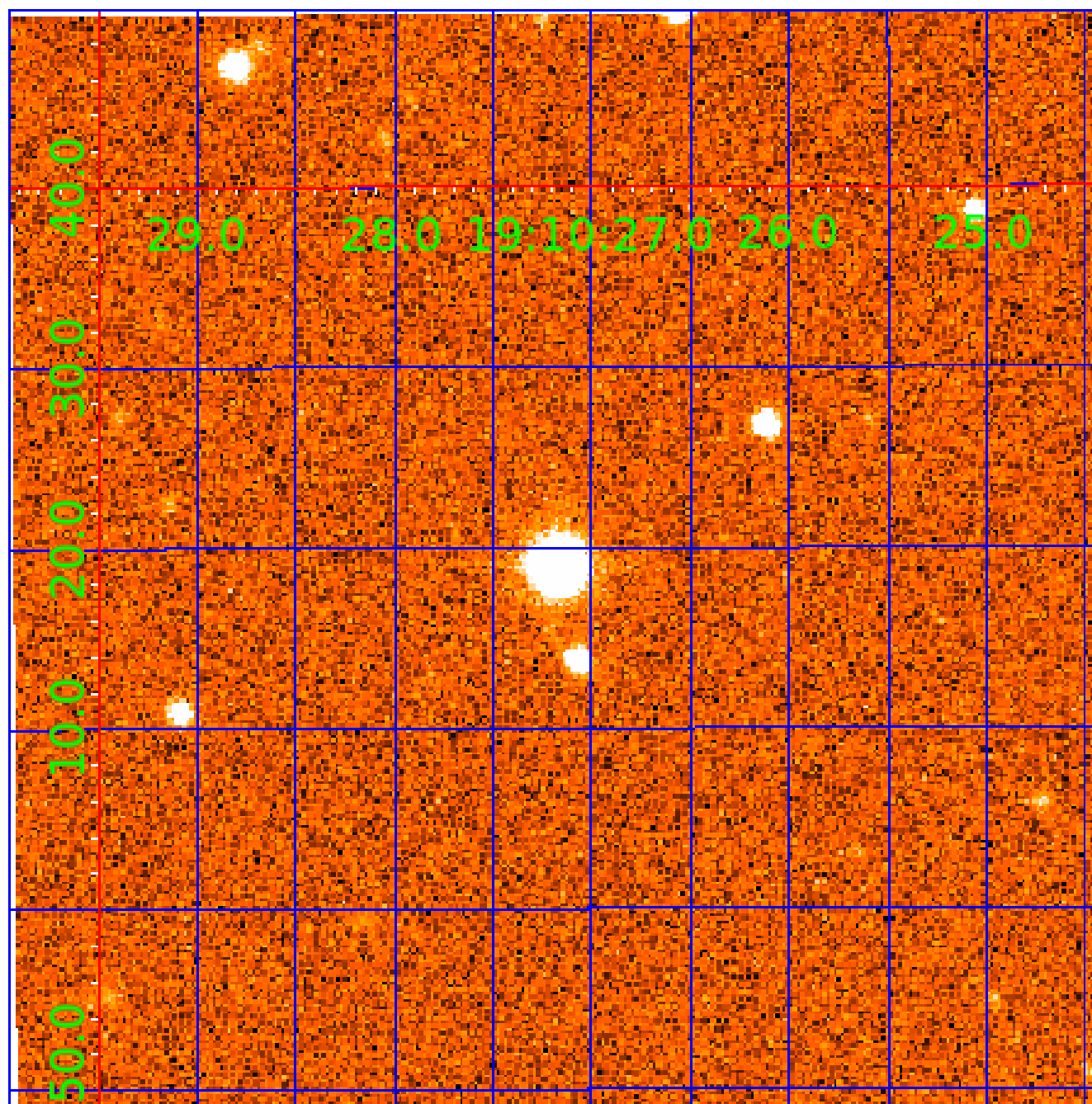


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination





# KIC 007595928

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007595928-01	OBS	No	0.998749	132.348690	33.3	6.712	10.3	10.5	0.88	5092	0.54	1395.79
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007595928-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007595928-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— CENT_KIC_POS

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

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

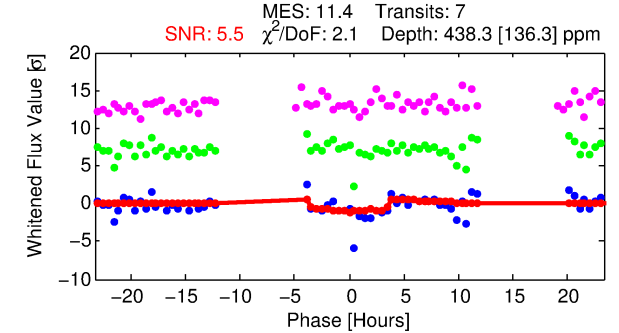
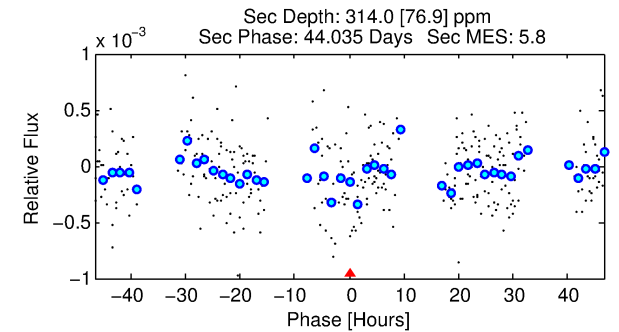
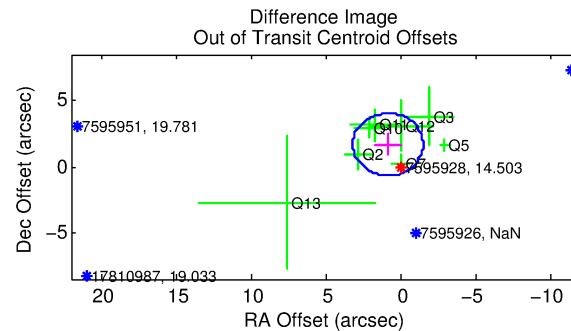
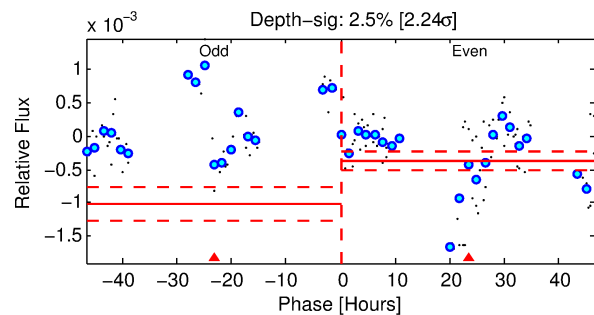
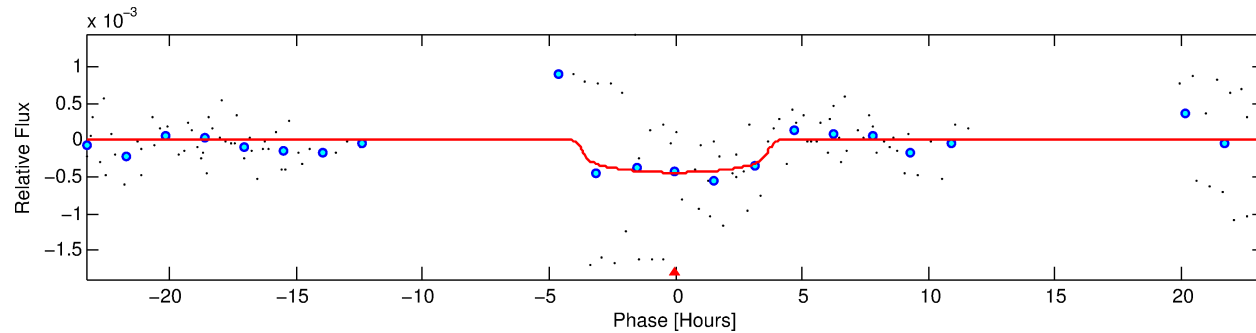
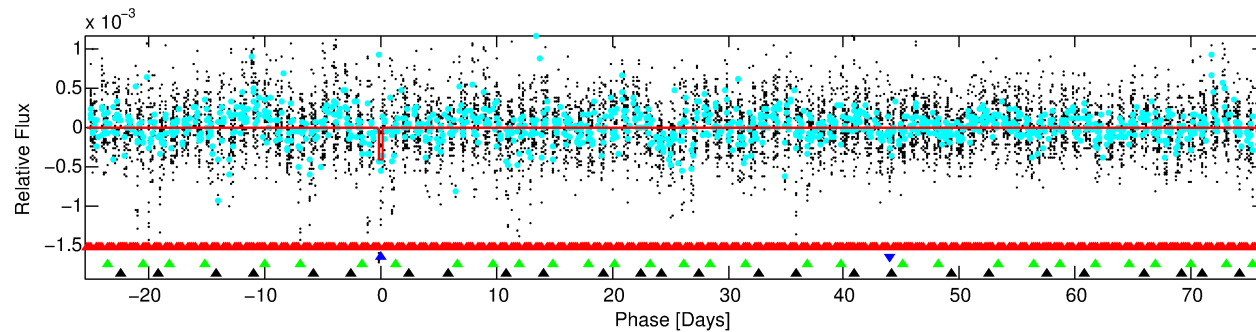
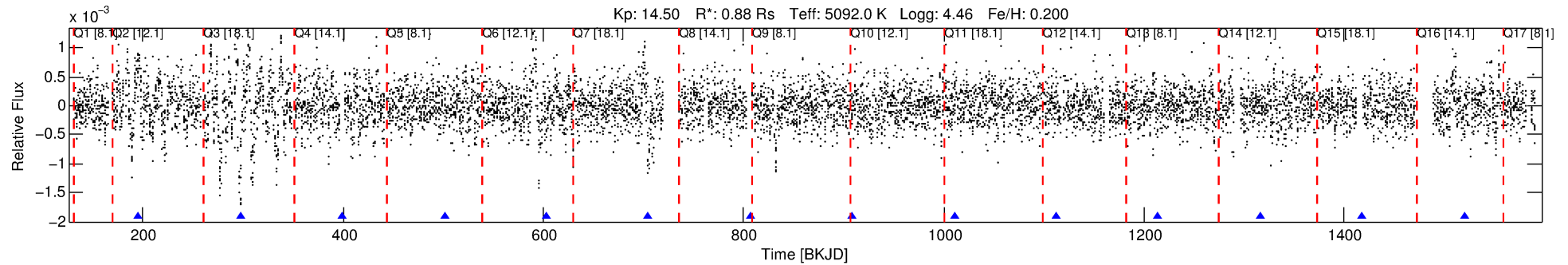
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007595928-02

No Significant Match Found

# DV One-Page Summary

KIC: 7595928 Candidate: 2 of 4 Period: 101.832 d



## DV Fit Results:

Period = 101.83153 [0.01744] d  
Epoch = 195.8858 [0.0711] BKJD  
Rp/R\* = 0.0207 [0.0330]  
a/R\* = 71.19 [394.19]  
b = 0.73 [3.68]  
Seff = 2.93 [1.57]  
Teff = 334 [45] K  
Rp = 2.00 [3.21] Re  
a = 0.3999 [0.1151] AU  
Ag = 6934.84 [22448.04] [0.31 $\sigma$ ]  
Teffp = 4707 [3762] K [1.16 $\sigma$ ]

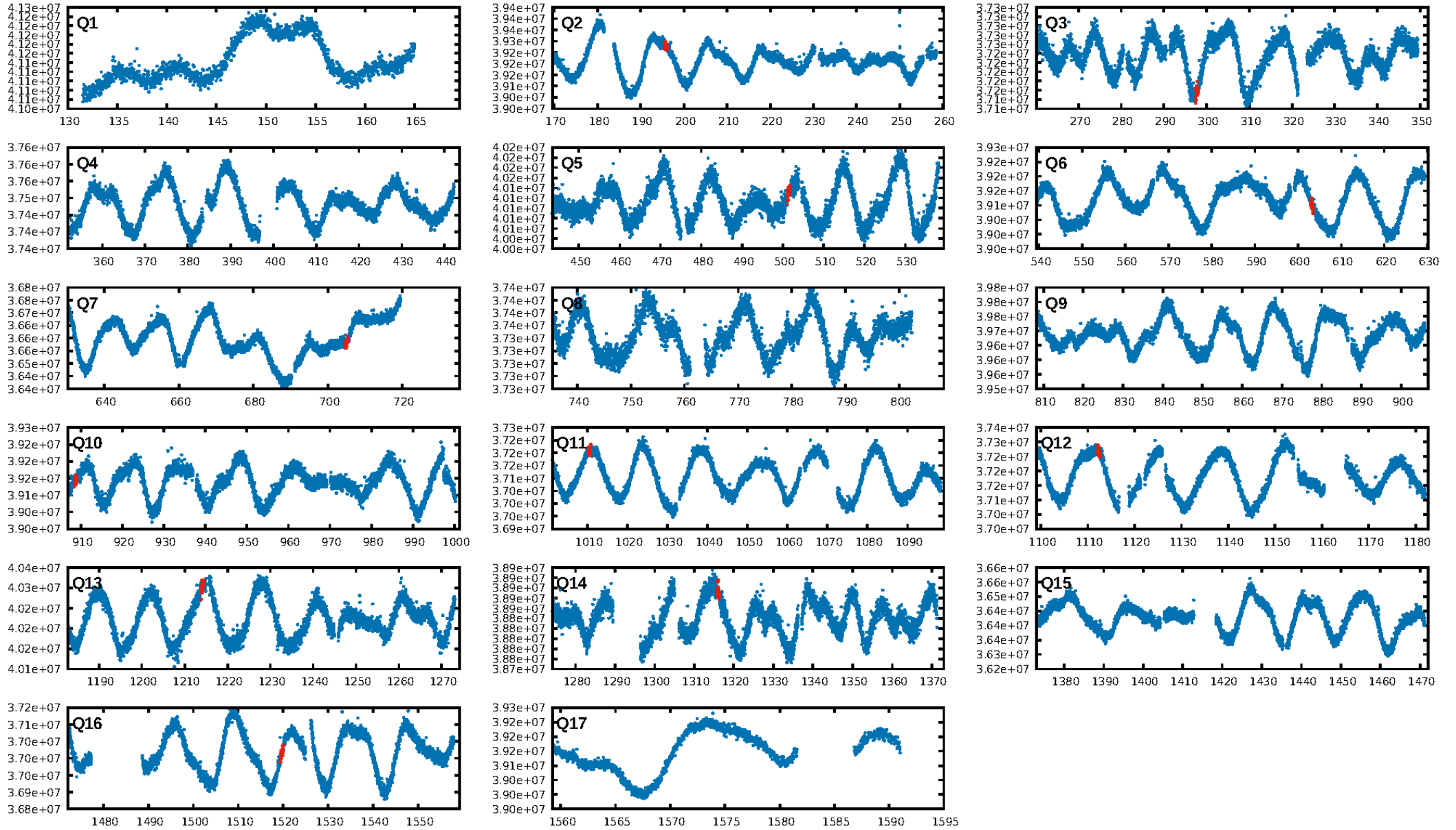
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [120.02 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 99.6%  
Bootstrap-pfa: 1.13e-16  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: 3.033  
Centroid-sig: 3.6%  
Centroid-so: 1.587 arcsec [2.12 $\sigma$ ]  
OotOffset-rm: 1.869 arcsec [2.38 $\sigma$ ]  
KicOffset-rm: 1.419 arcsec [1.79 $\sigma$ ]  
OotOffset-st: 2/3/1/2 [8]  
KicOffset-st: 2/3/1/2 [8]  
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DiffImageOverlap-fno: 0.00 [0/11]

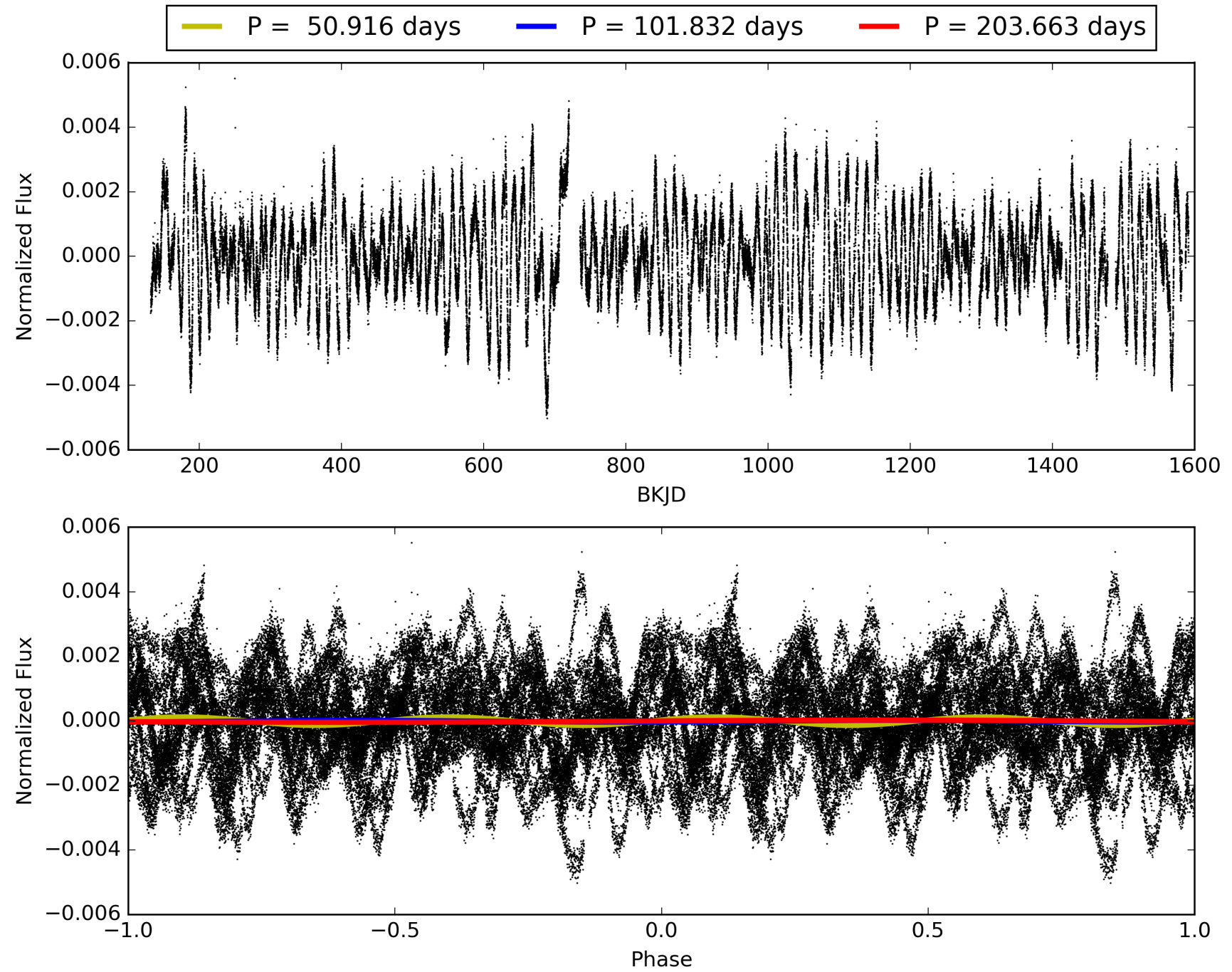
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:03:03 Z

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

# TCE 007595928-02, PDC Light Curves

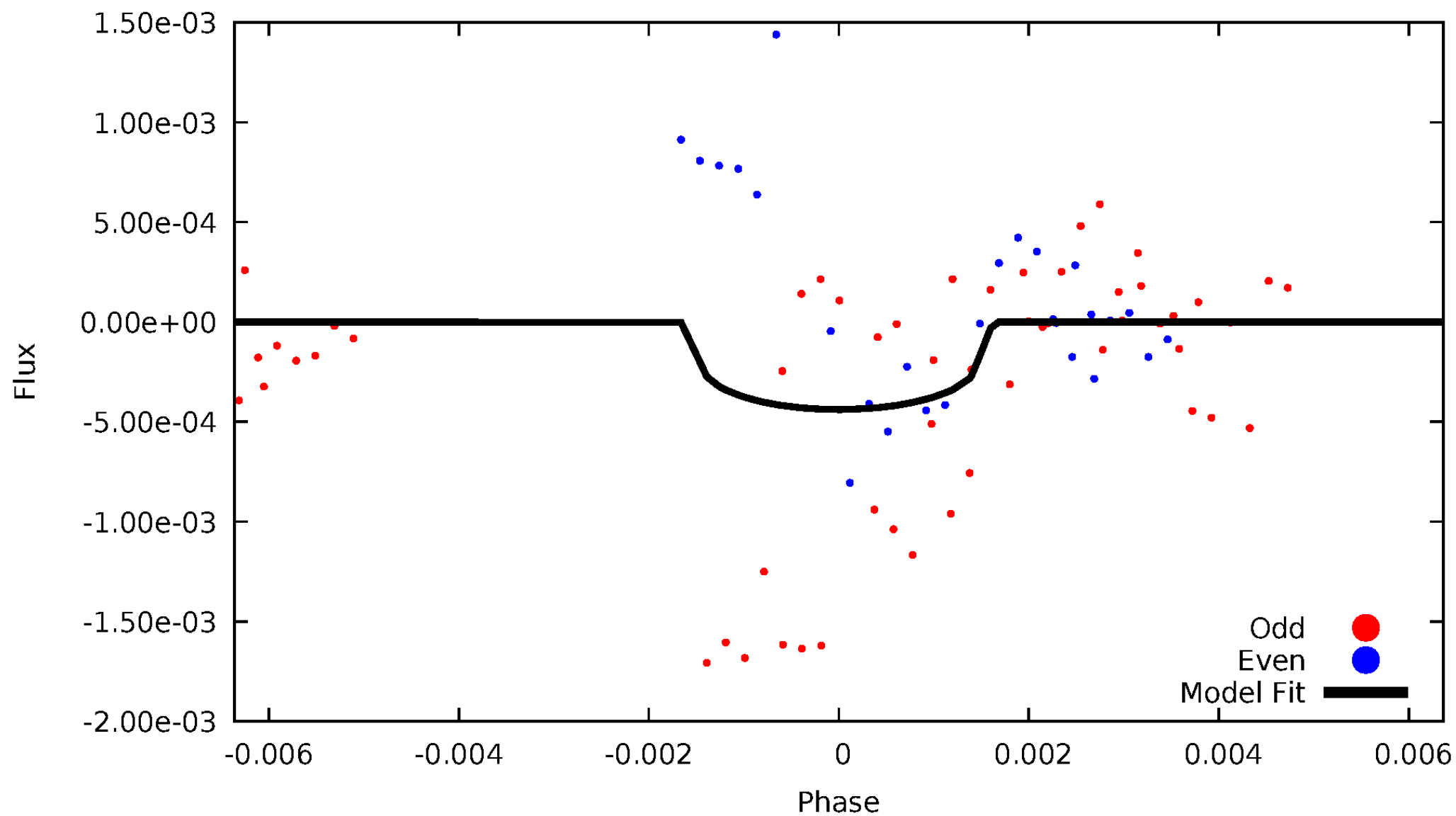


# TCE 007595928-02



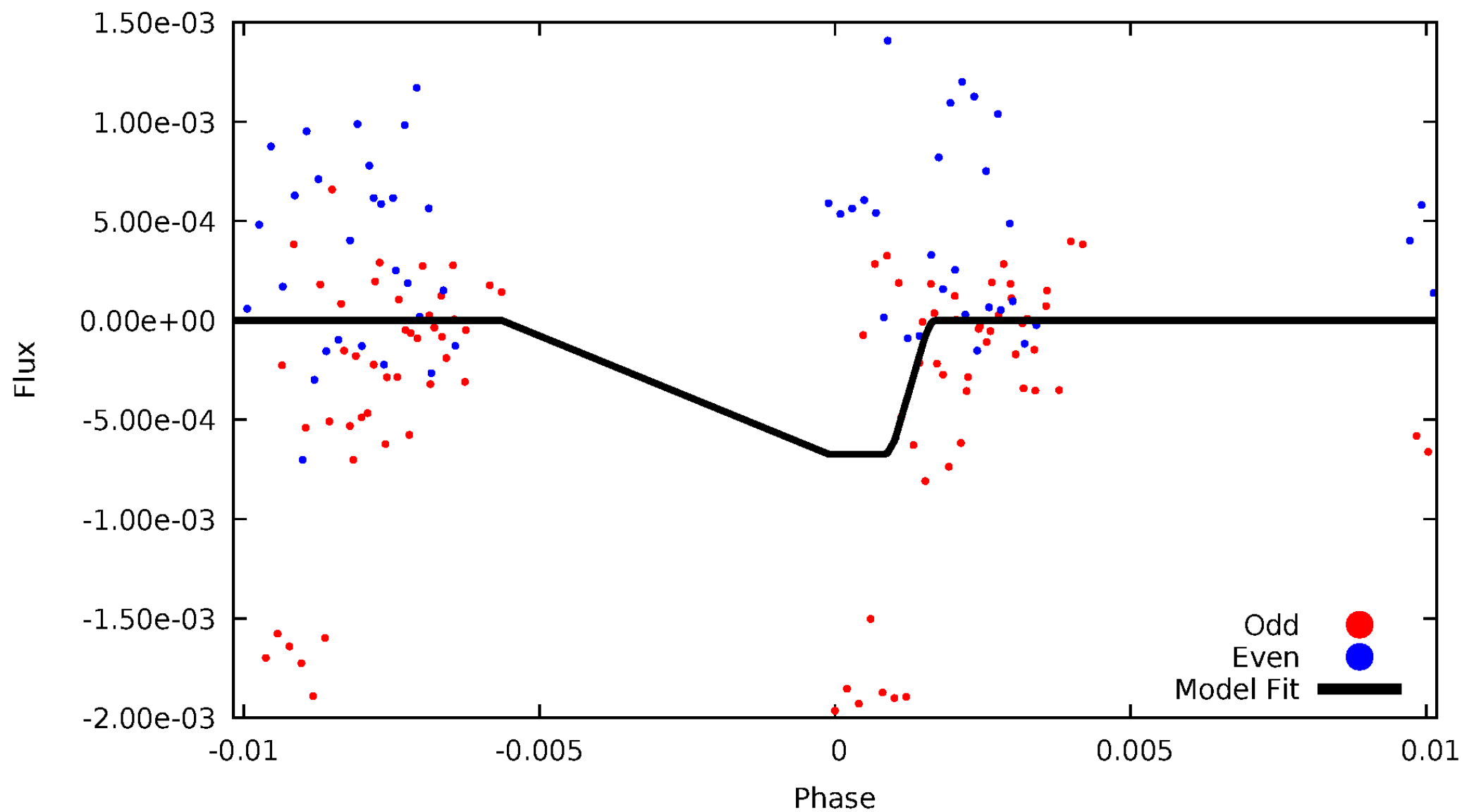
# DV Odd/Even

TCE 007595928-02



# ALT Odd/Even

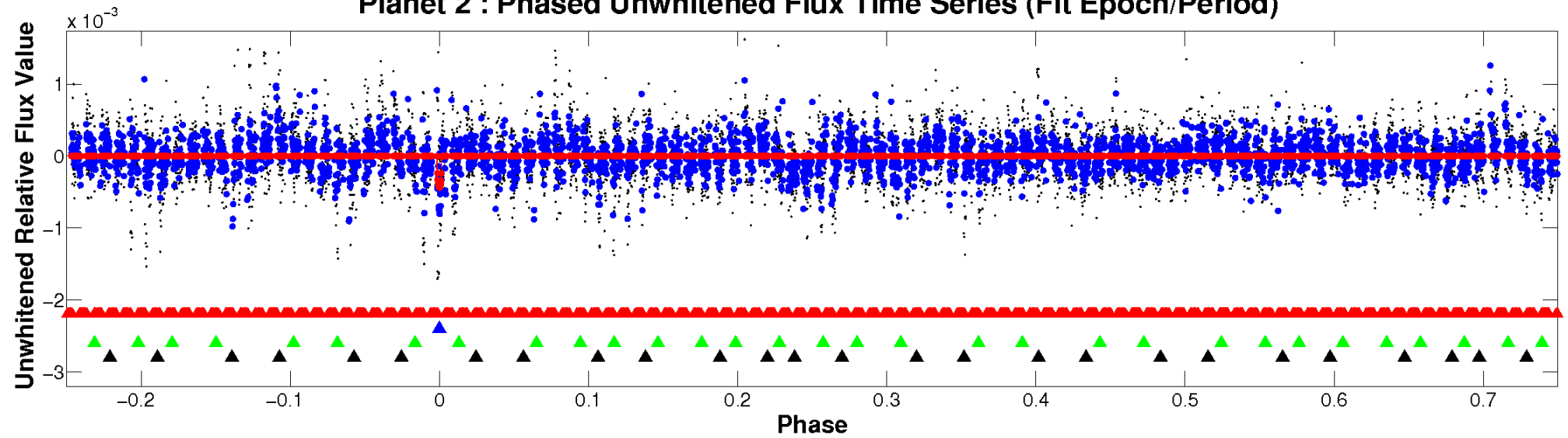
TCE 007595928-02



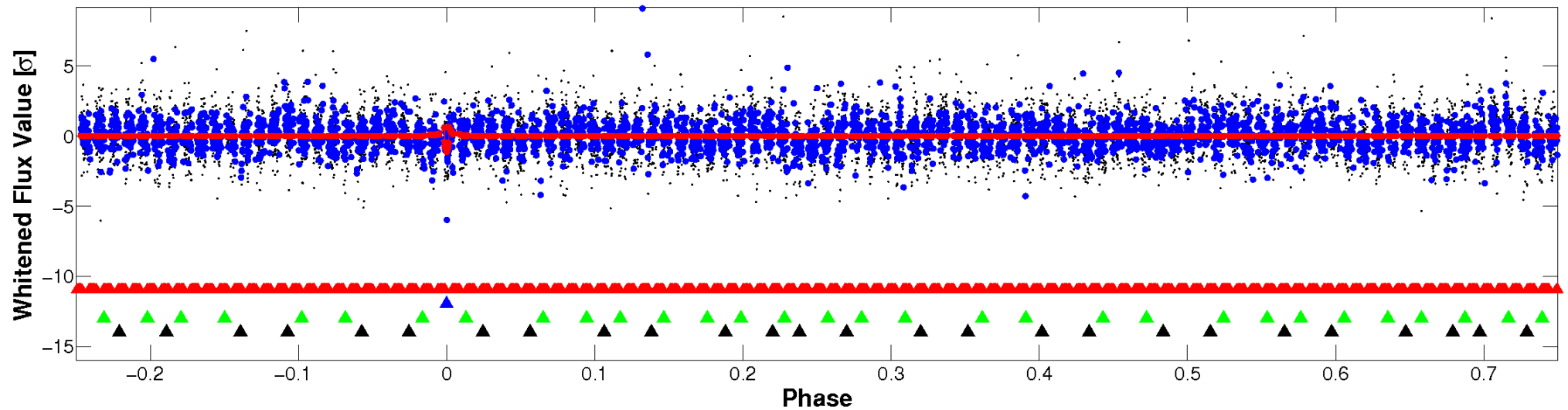


# Non-Whitened Vs. Whitened Light Curve

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

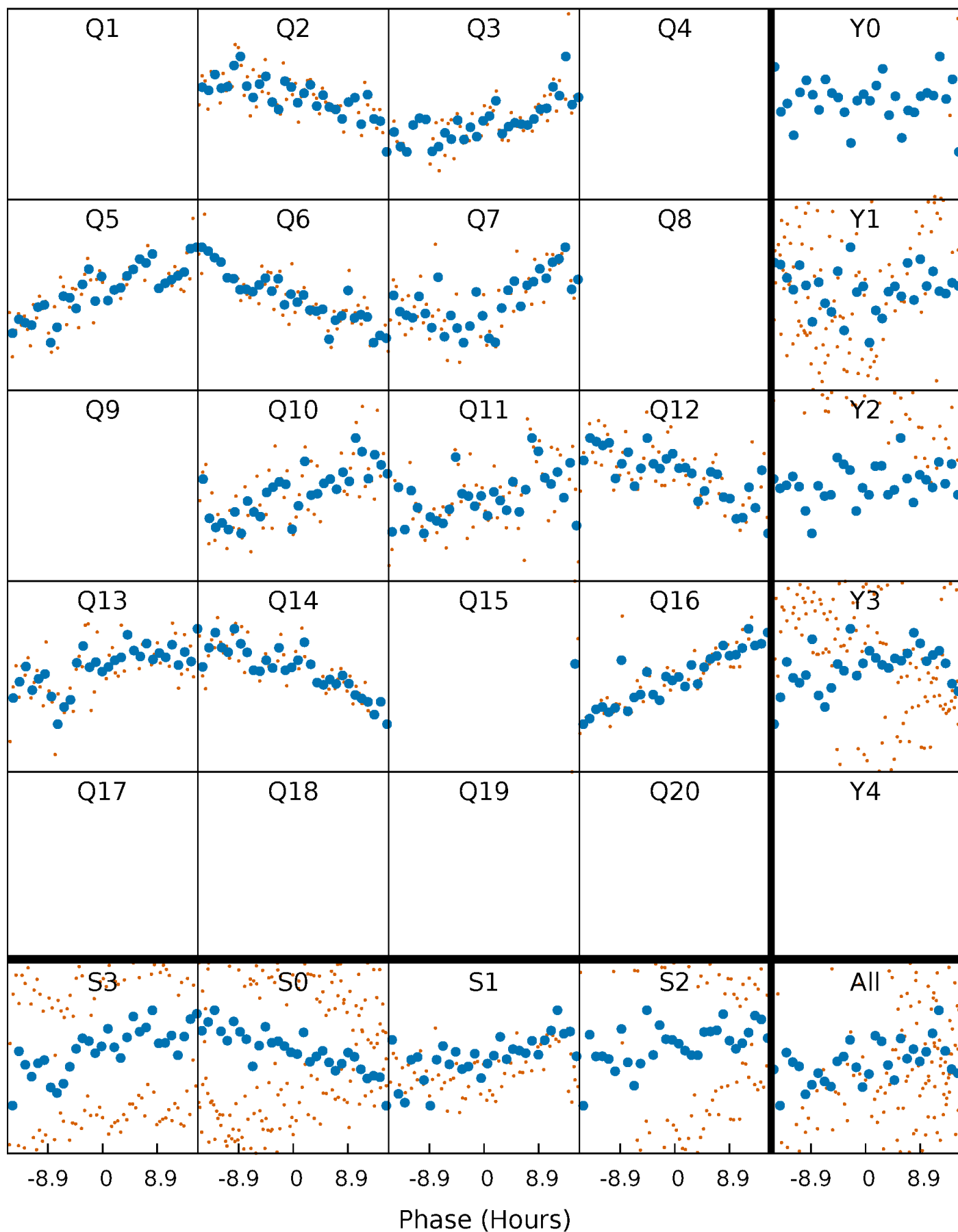


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



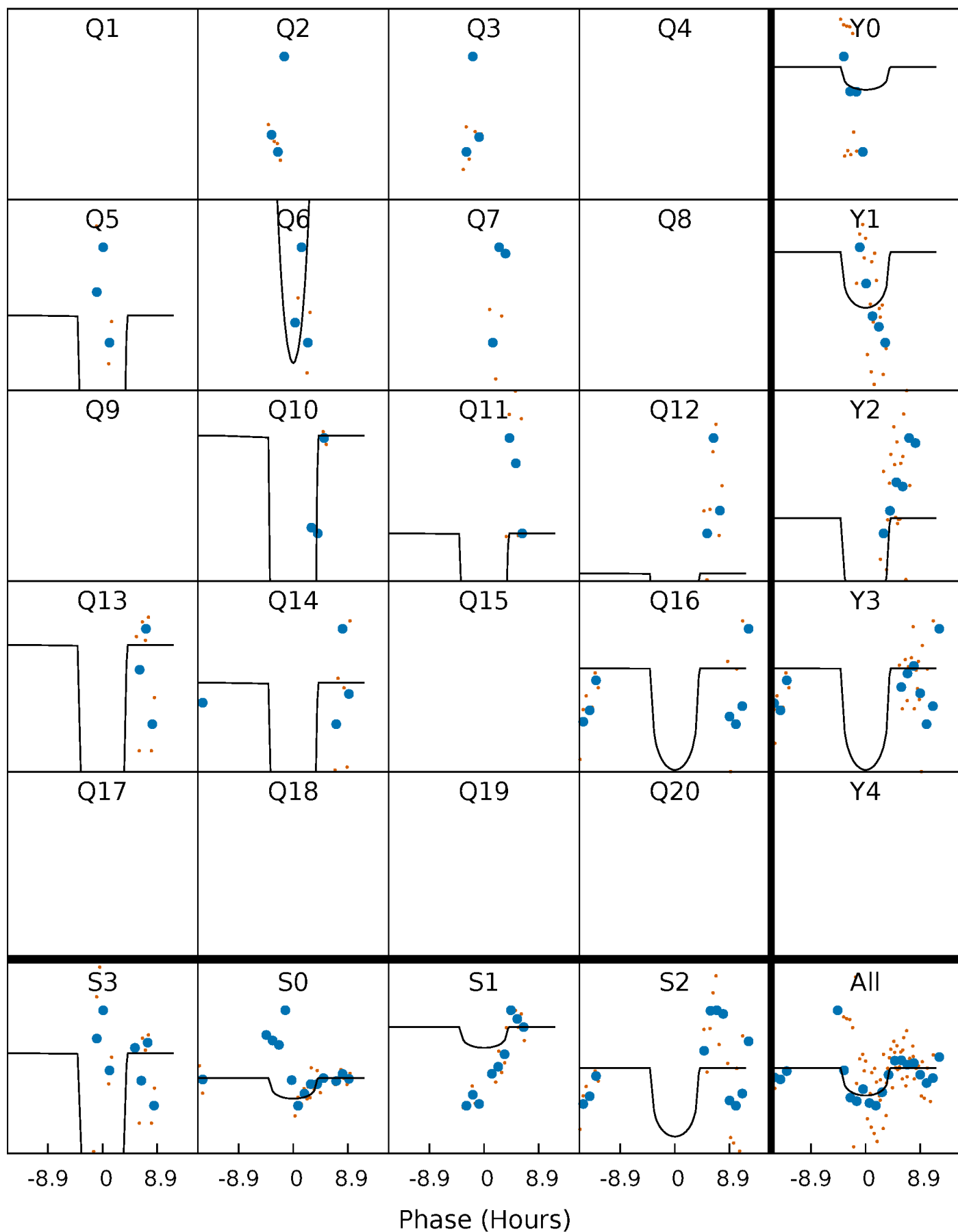
# PDC Quarter-Phased Transit Curves

TCE 007595928-02 P=101.831528 Days  $T_0=195.885809$  (BKJD)



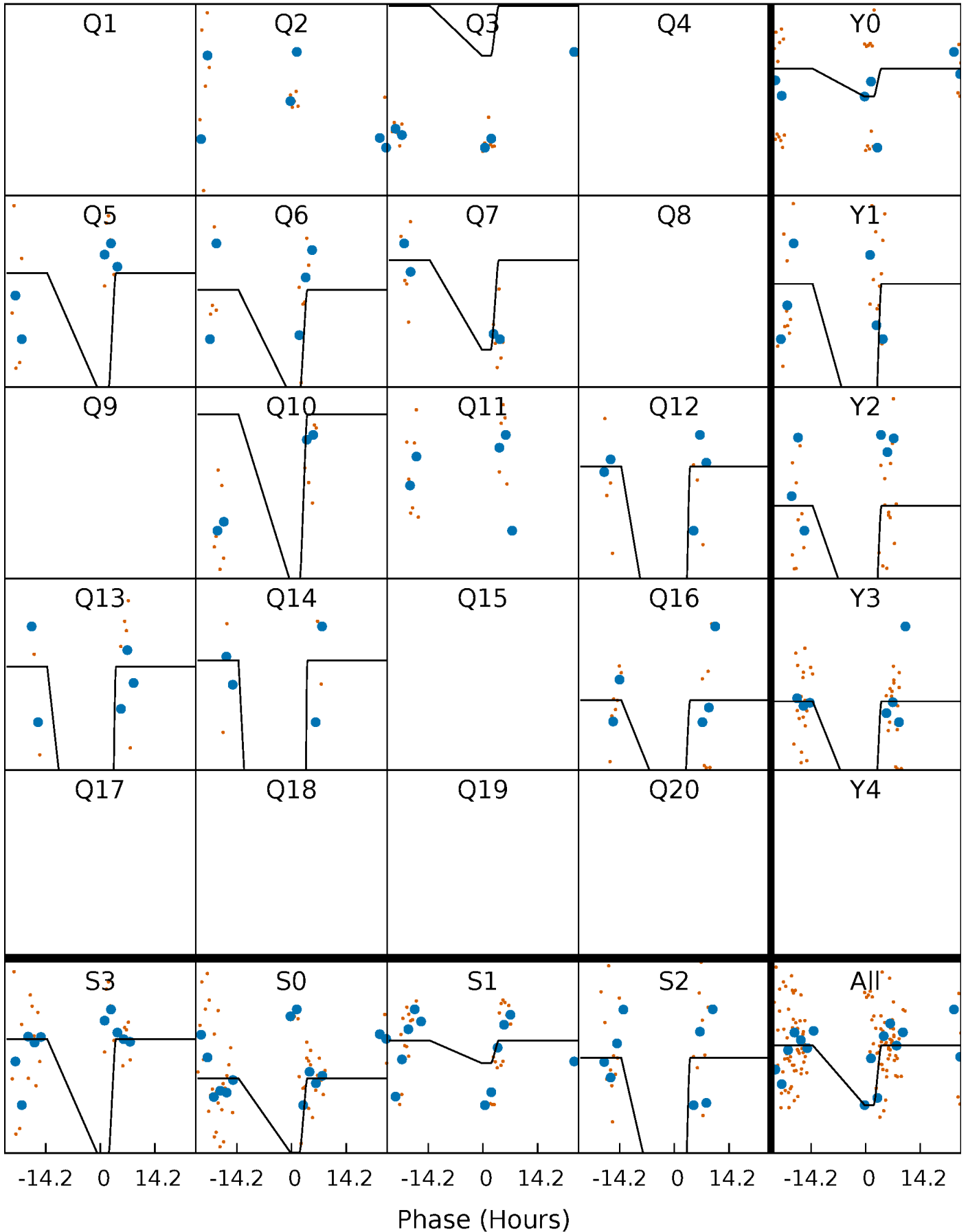
# DV Quarter-Phased Transit Curves

TCE 007595928-02 P=101.831528 Days  $T_0=195.885809$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

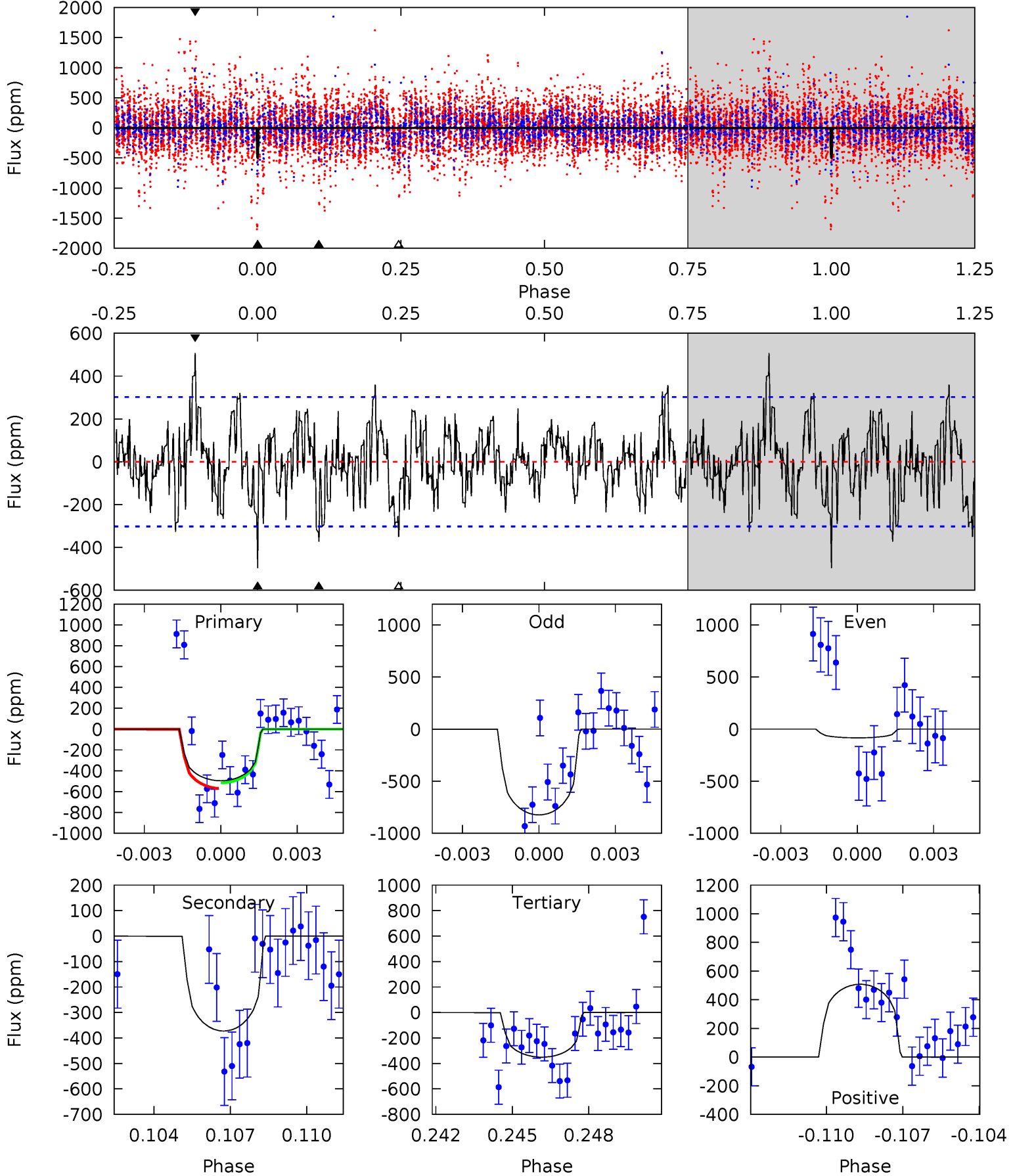
TCE 007595928-02 P=101.847856 Days  $T_0=195.727724$  (BKJD)



# DV Model-Shift Uniqueness Test

007595928-02, P = 101.831528 Days, E = 94.054281 Days

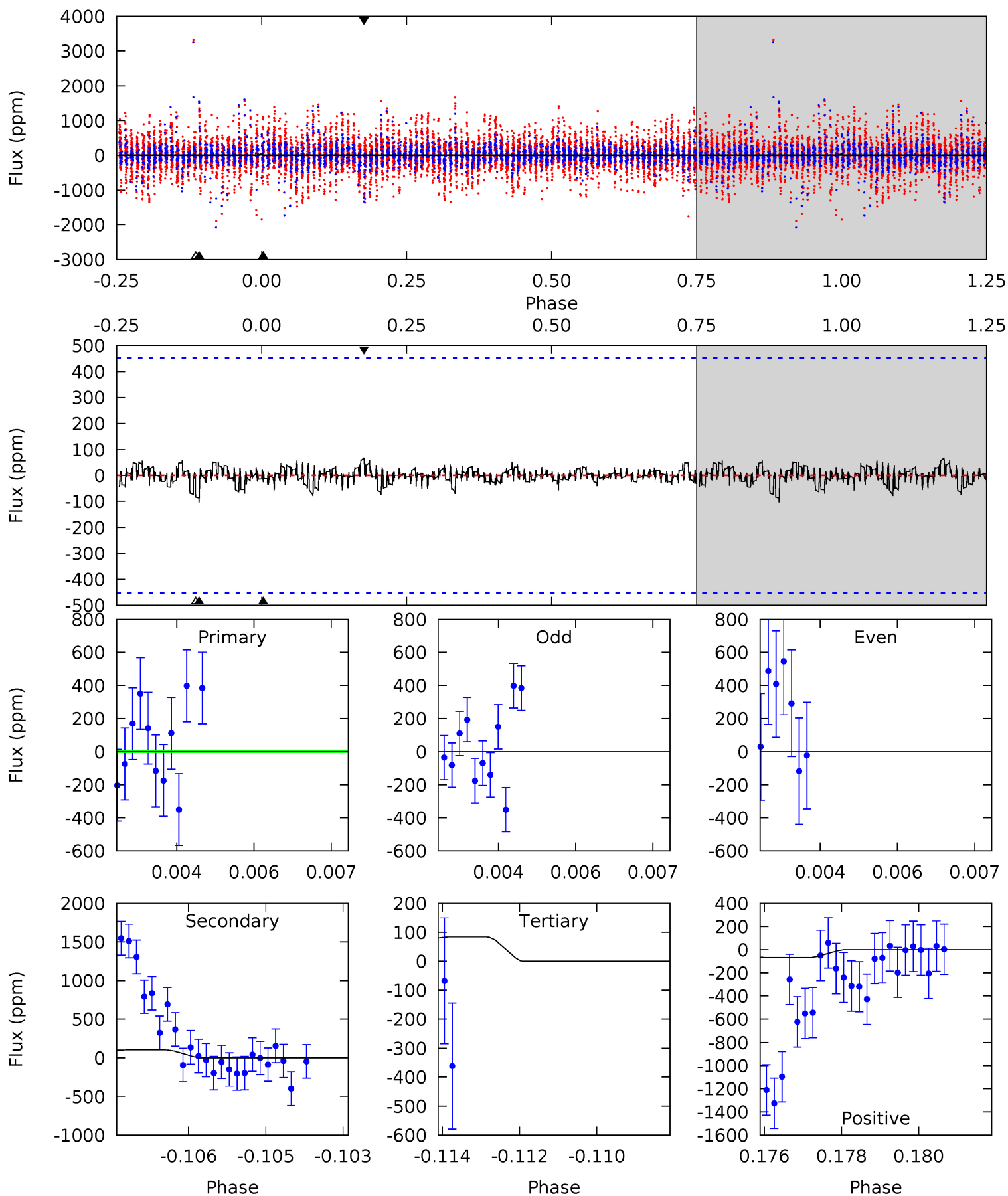
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.61	6.47	6.10	8.83	5.25	2.96	2.01	2.52	-0.22	0.38	-2.35	6.43	1.42	0.51	0.46



# Alt Model-Shift Uniqueness Test

007595928-02, P = 101.847856 Days, E = 93.879868 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.32	1.22	0.99	0.81	5.34	3.12	0.20	-0.68	-0.49	0.23	0.42	4.91	1.01	0.40	0.00



### Stellar Parameters For KIC 007595928

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5092^{+152}_{-137}$	$4.462^{+0.094}_{-0.329}$	$0.200^{+0.200}_{-0.250}$	$0.882^{+0.183}_{-0.112}$	$0.821^{+0.084}_{-0.058}$	$1.688^{+0.716}_{-1.110}$
	+3%/-3%	+2%/-7%	+100%/-125%	+21%/-13%	+10%/-7%	+42%/-66%
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 007595928-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-373 \pm 58$	$3.39^{+2.93}_{-2.06}$	$478^{+36}_{-27}$	$4073^{+2077}_{-738}$	$2814^{+16373}_{-2020}$
Alt.	$-103 \pm 84$	$3.44^{+3.00}_{-2.20}$	$475^{+39}_{-26}$	$3194^{+1265}_{-878}$	$604^{+3890}_{-550}$

$T_{max}$  = 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

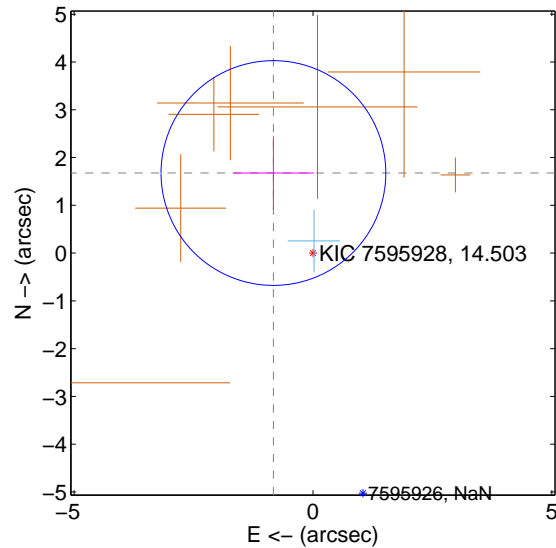
Supplemental centroid analysis for 007595928-02. Kepler magnitude: 14.50. Transit SNR 5.52

There are 1 quarters with good PRF difference image offsets

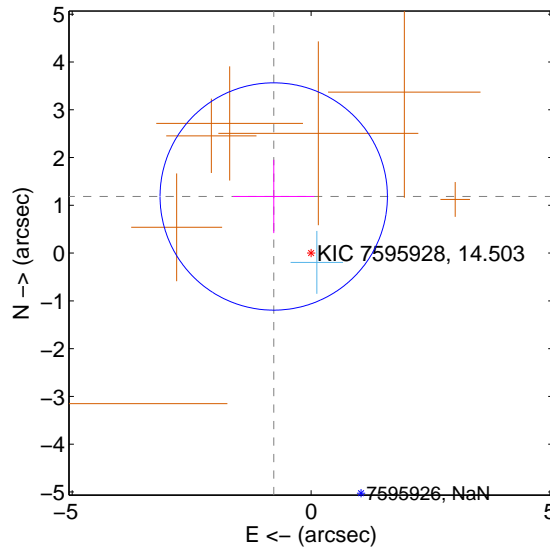
The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.869 \pm 0.784$	2.38	$0.828 \pm 0.849$	$1.676 \pm 0.767$
PRF-fit source offset from KIC position	$1.419 \pm 0.793$	1.79	$0.781 \pm 0.849$	$1.185 \pm 0.767$
photometric centroid source offset	$1.59 \pm 0.75$	2.12	$0.40 \pm 0.73$	$-1.54 \pm 0.75$

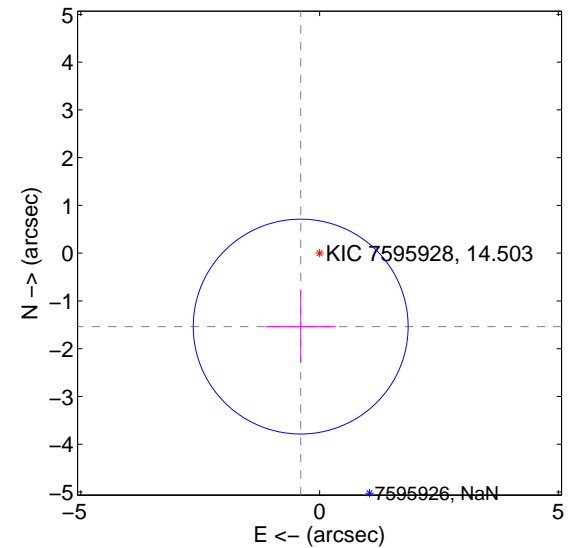
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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.

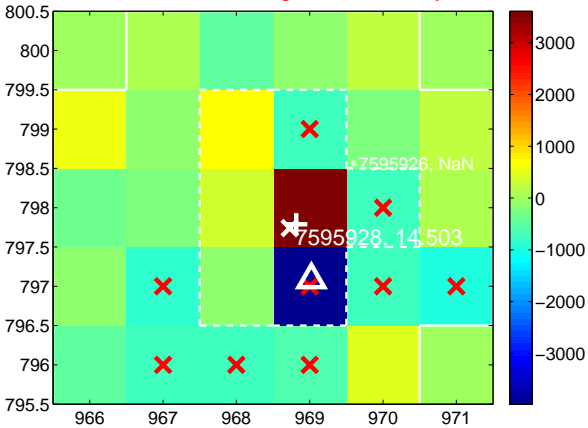
Q1 no difference image



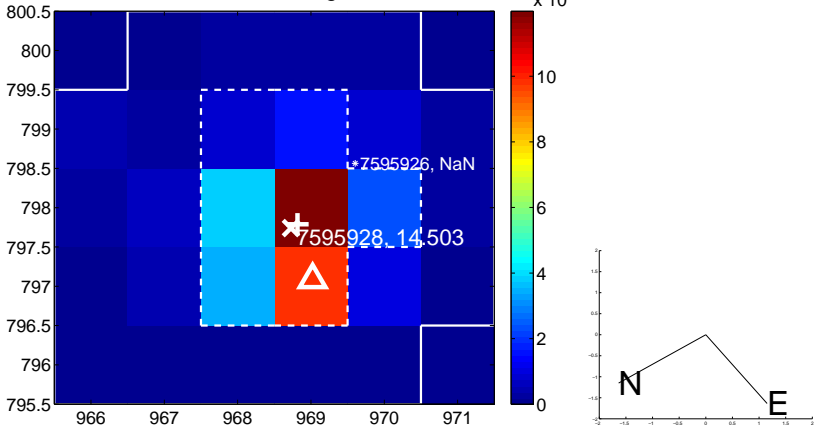
Q1 no OOT image



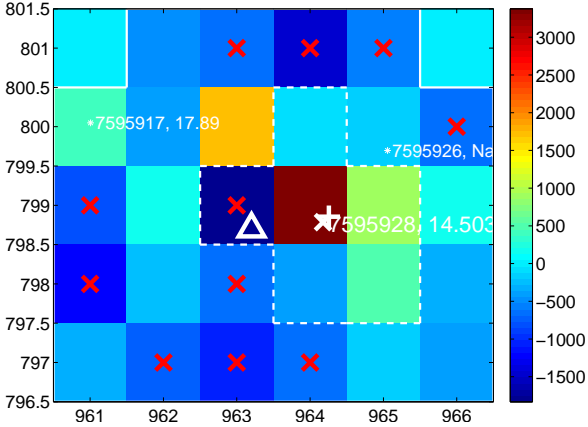
Q2 difference image. Poor Quality



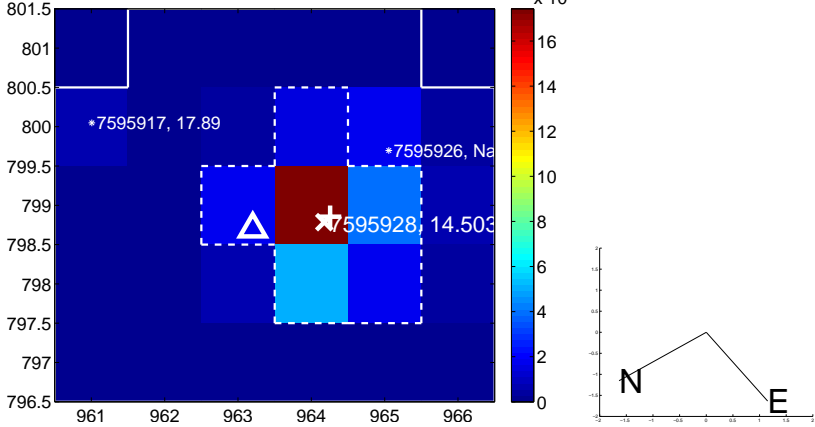
Q2 OOT image



Q3 difference image. Poor Quality



Q3 OOT image



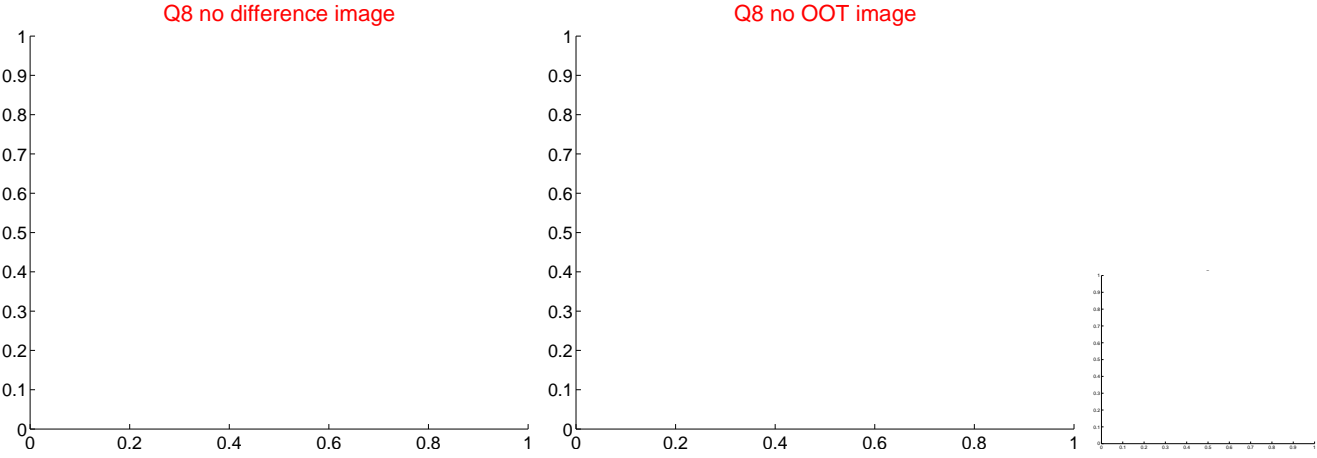
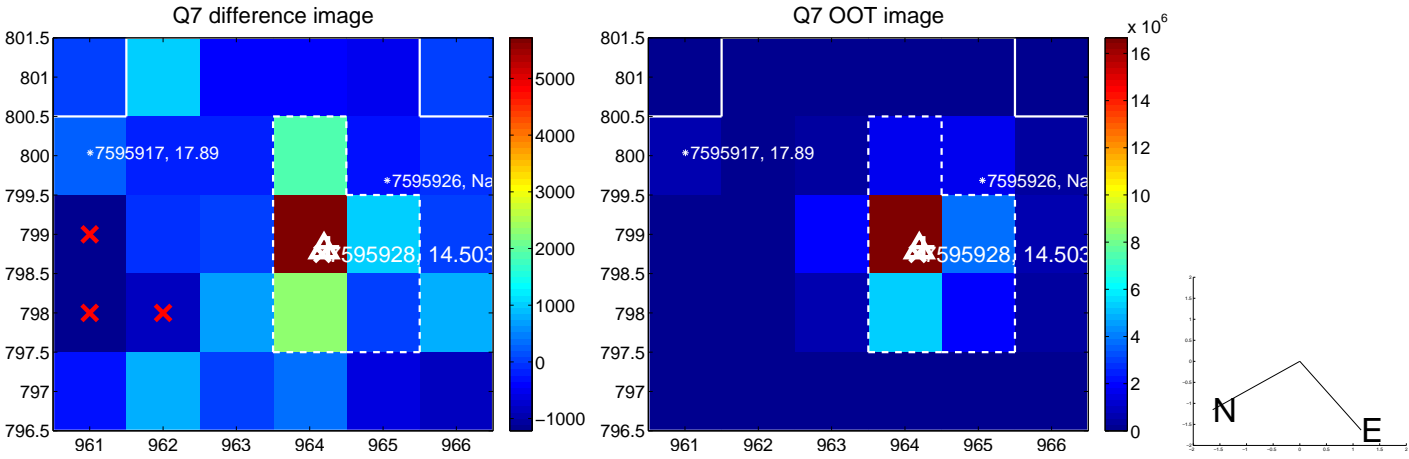
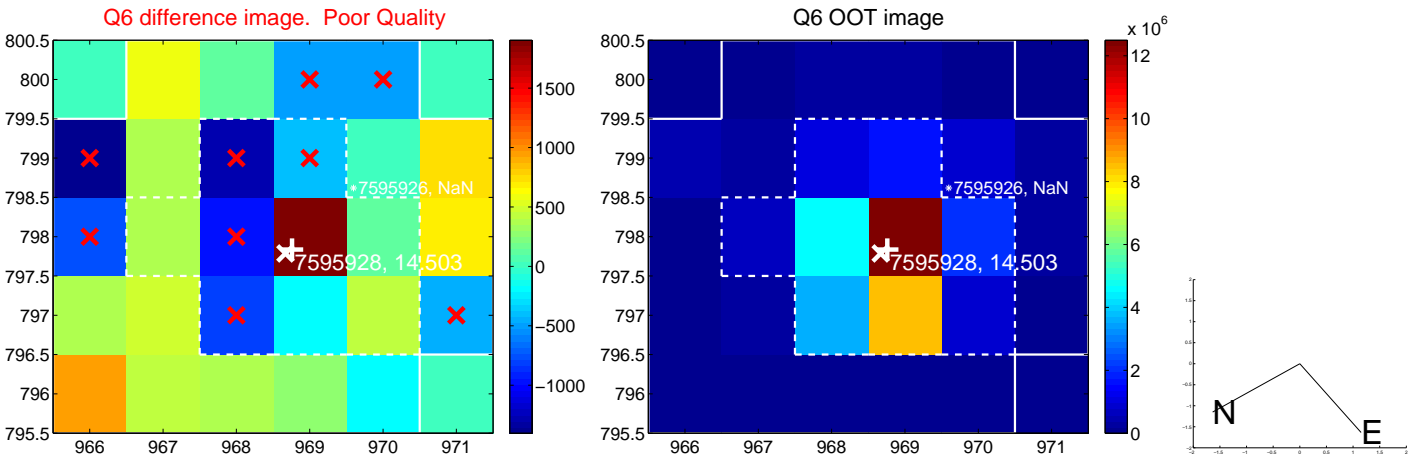
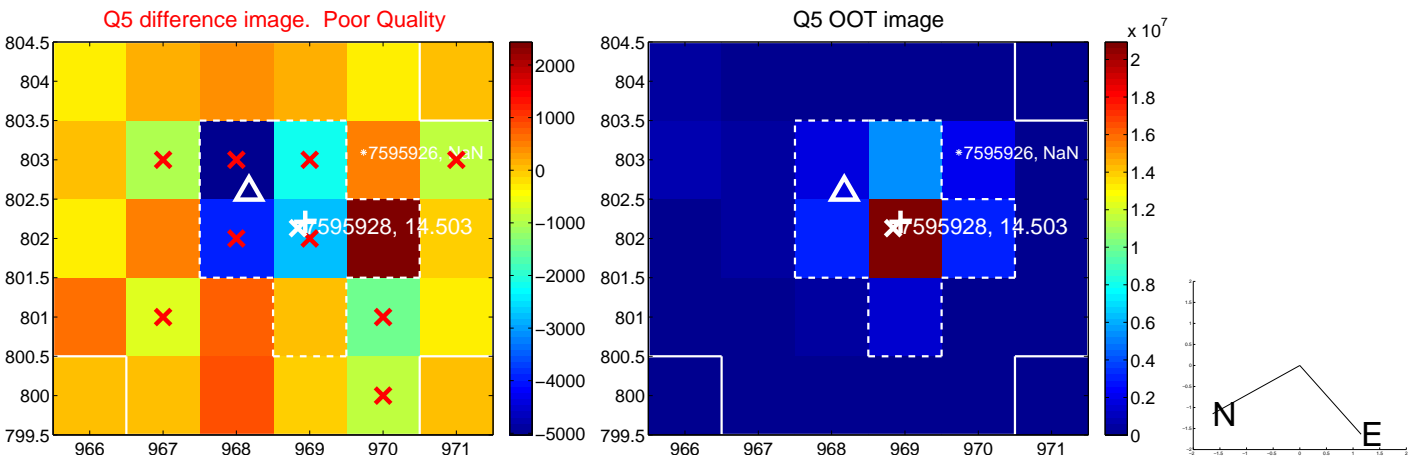
Q4 no difference image



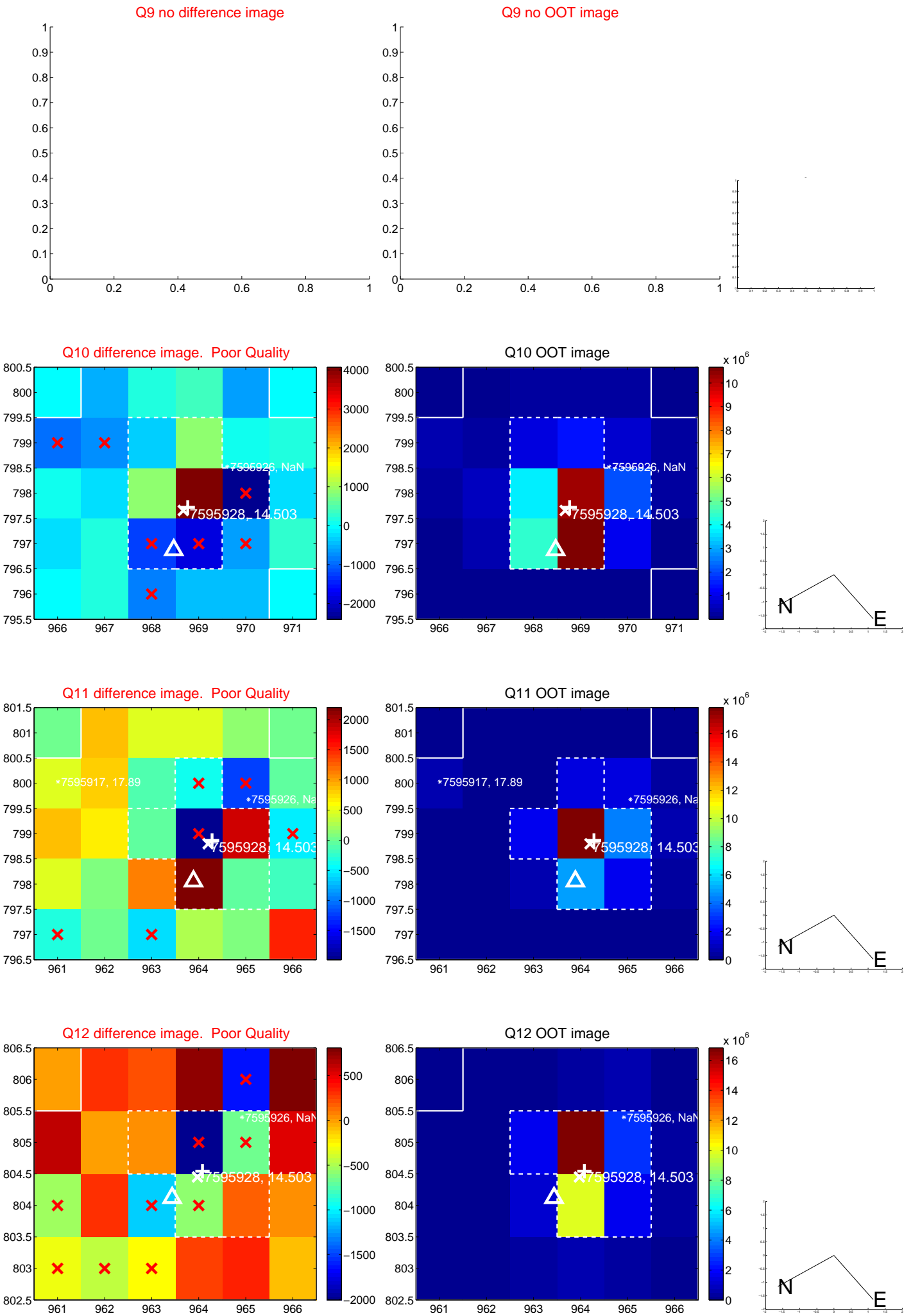
Q4 no OOT image



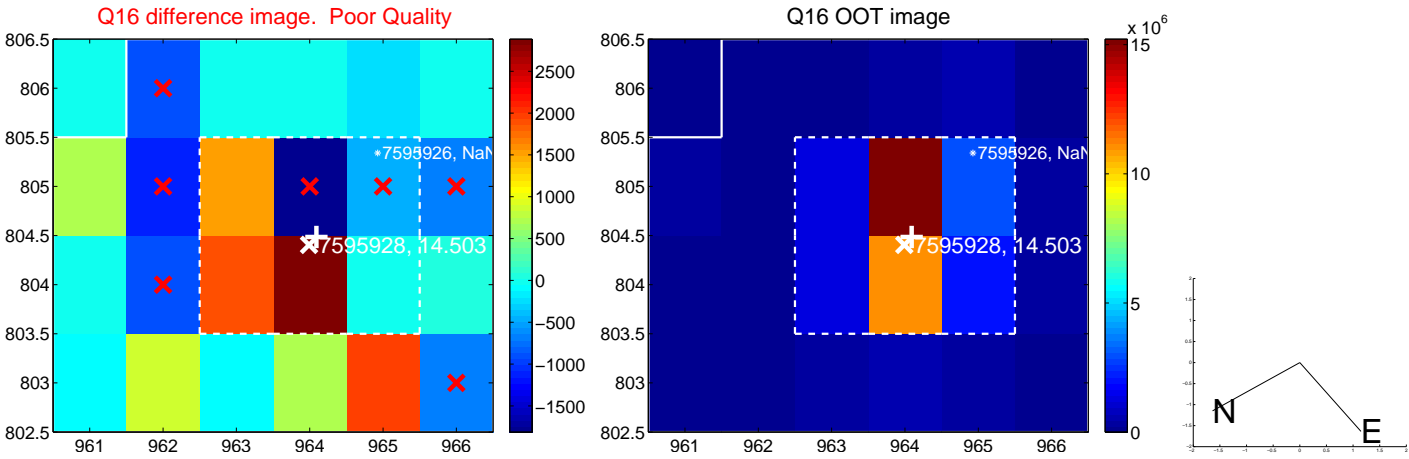
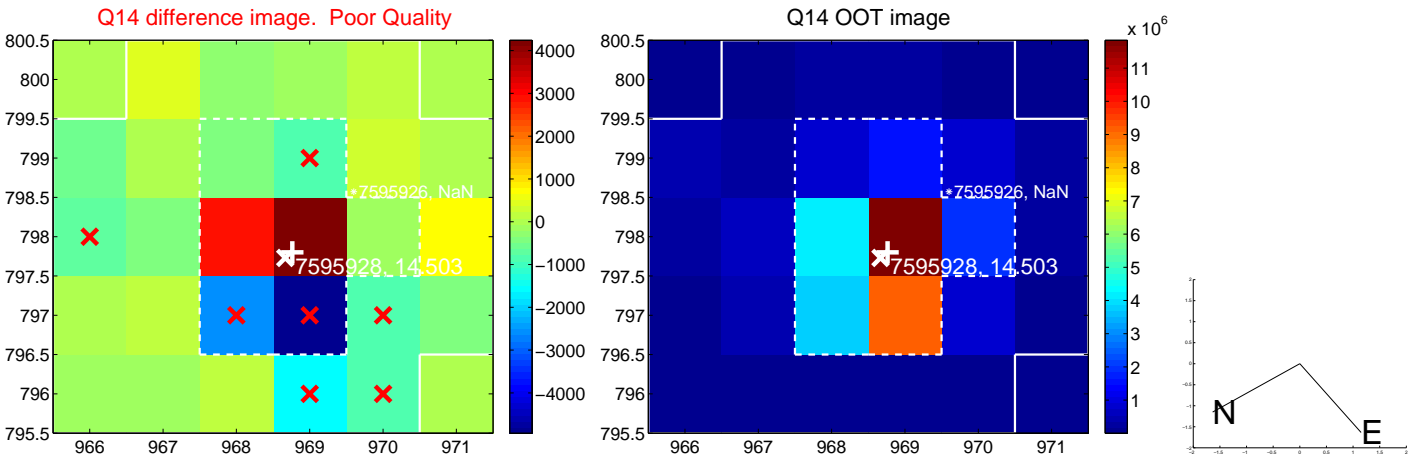
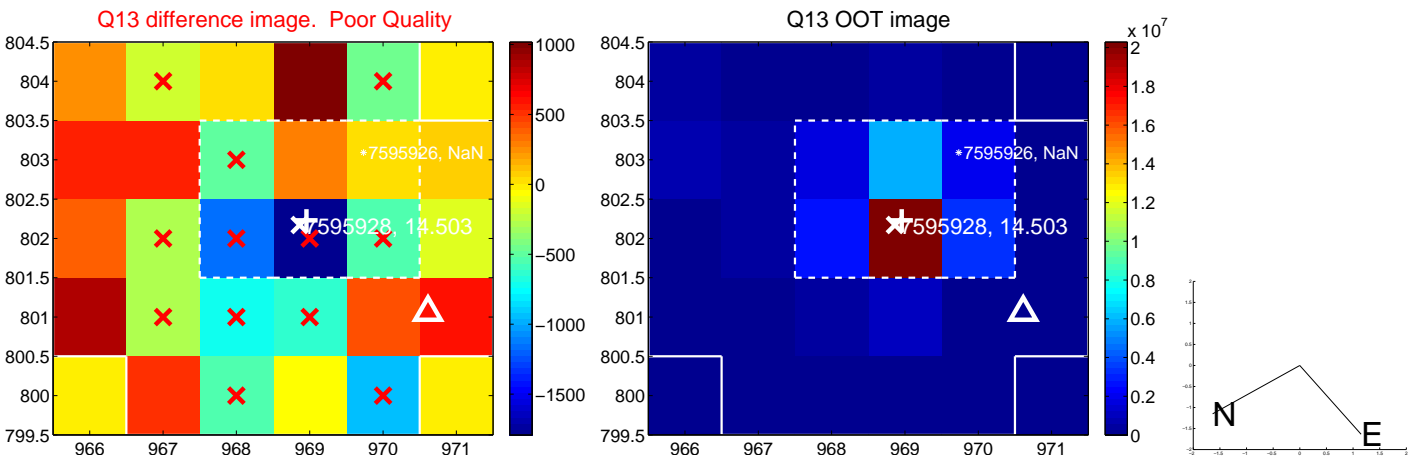
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



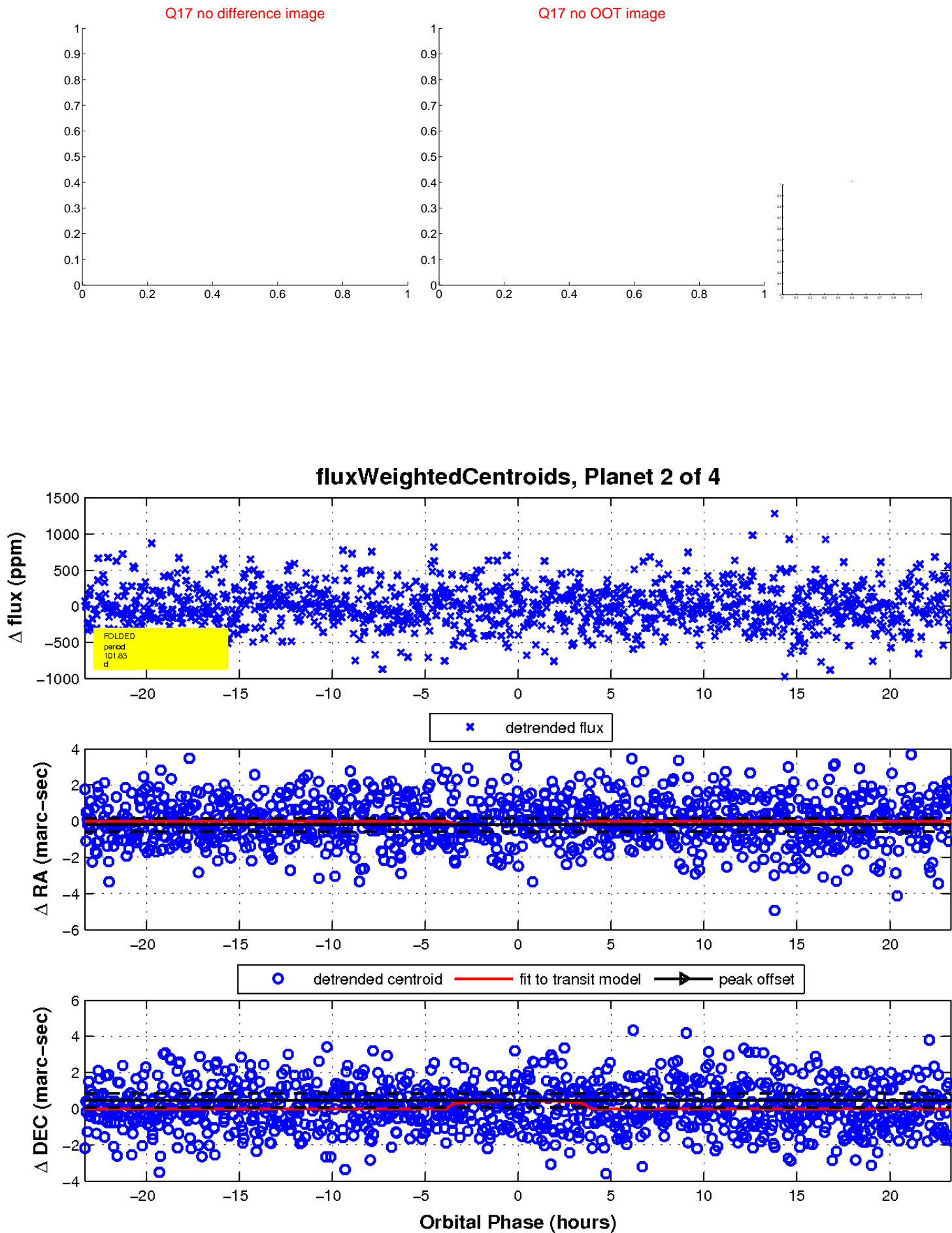
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

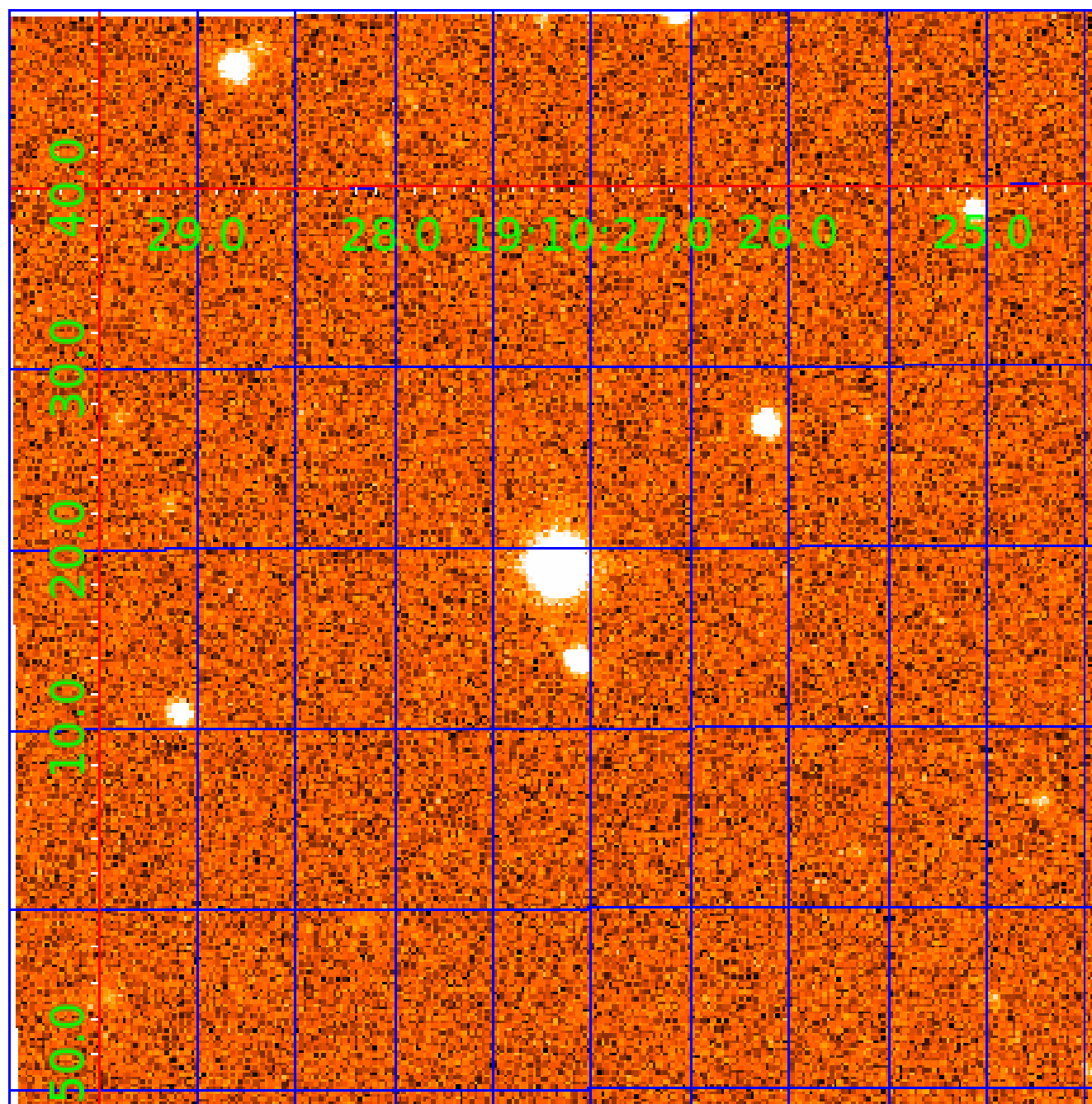


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007595928

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007595928-01	OBS	No	0.998749	132.348690	33.3	6.712	10.3	10.5	0.88	5092	0.54	1395.79
007595928-02	OBS	No	101.831528	195.885809	438.3	7.770	11.4	5.5	0.88	5092	2.00	2.93
007595928-03	OBS	No	46.769032	175.328657	393.6	7.773	13.9	7.3	0.88	5092	2.33	8.27
007595928-04	OBS	No	55.081615	165.059469	310.8	5.199	9.3	5.3	0.88	5092	1.82	6.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007595928-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
007595928-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
007595928-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007595928-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— CENT_KIC_POS

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

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

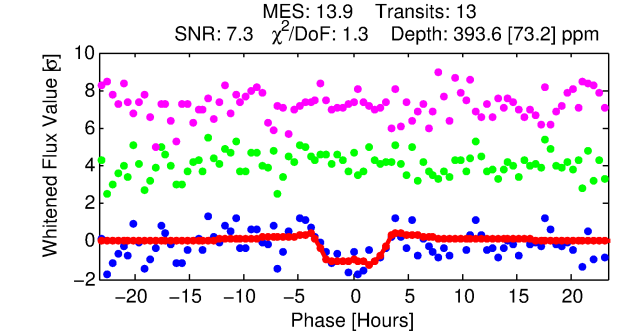
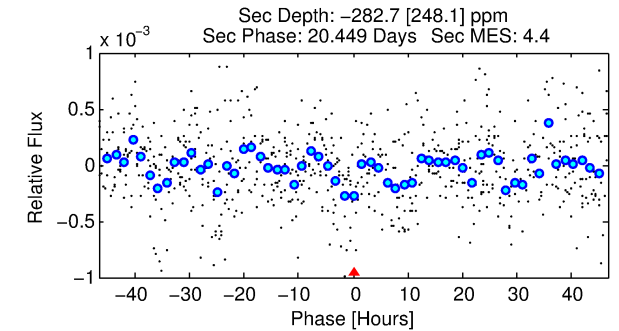
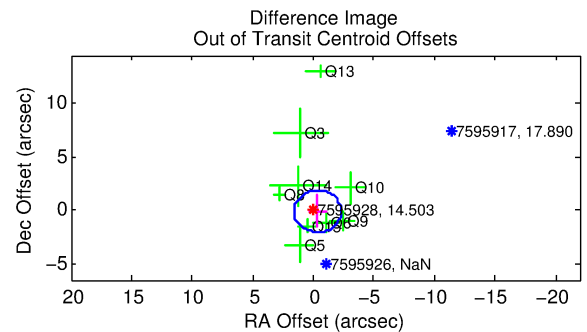
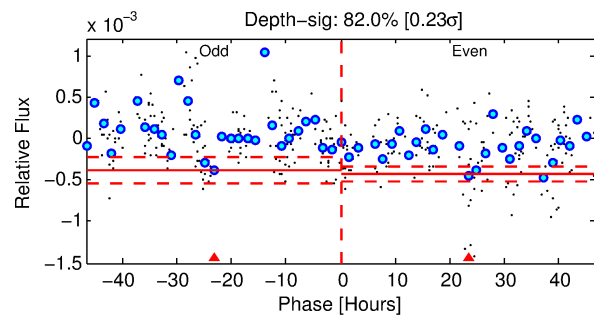
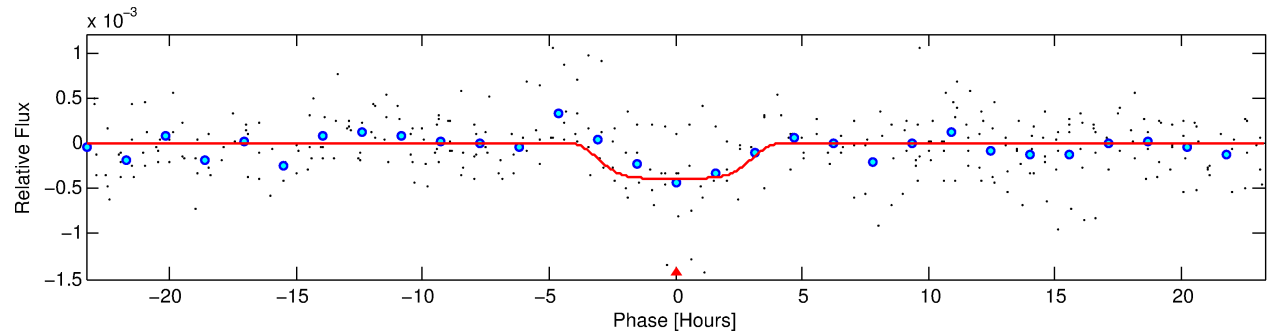
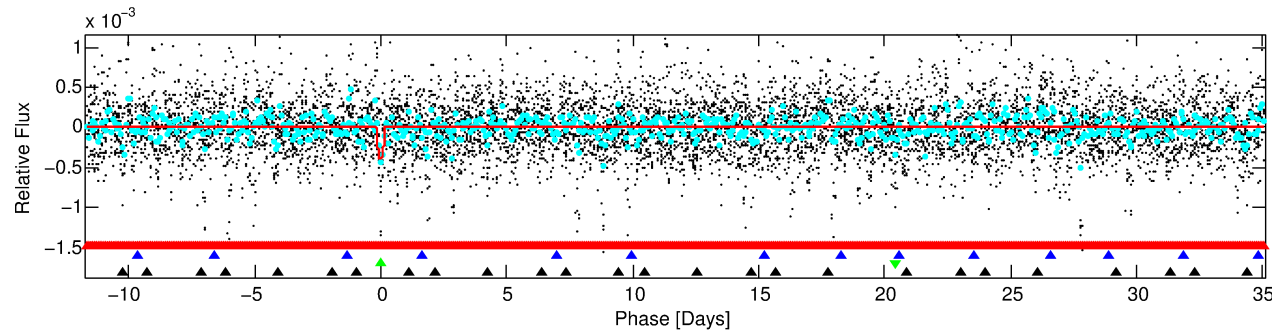
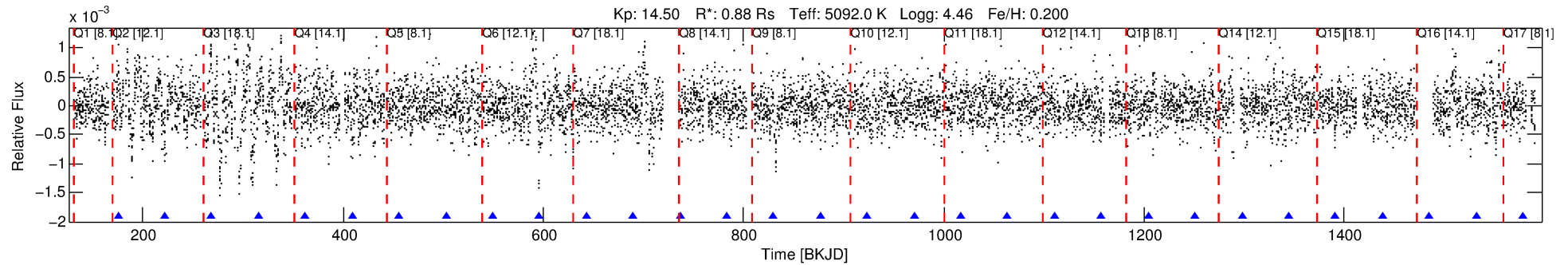
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007595928-03

No Significant Match Found

# DV One-Page Summary

KIC: 7595928 Candidate: 3 of 4 Period: 46.769 d



## DV Fit Results:

Period = 46.76903 [0.00135] d  
Epoch = 175.3287 [0.0243] BKJD  
Rp/R\* = 0.0242 [0.0034]  
a/R\* = 16.99 [6.04]  
b = 0.96 [0.03]  
Seff = 8.27 [4.44]  
Teff = 432 [58] K  
Rp = 2.33 [0.58] Re  
a = 0.2380 [0.0685] AU  
Ag = N/A  
Teffp = N/A

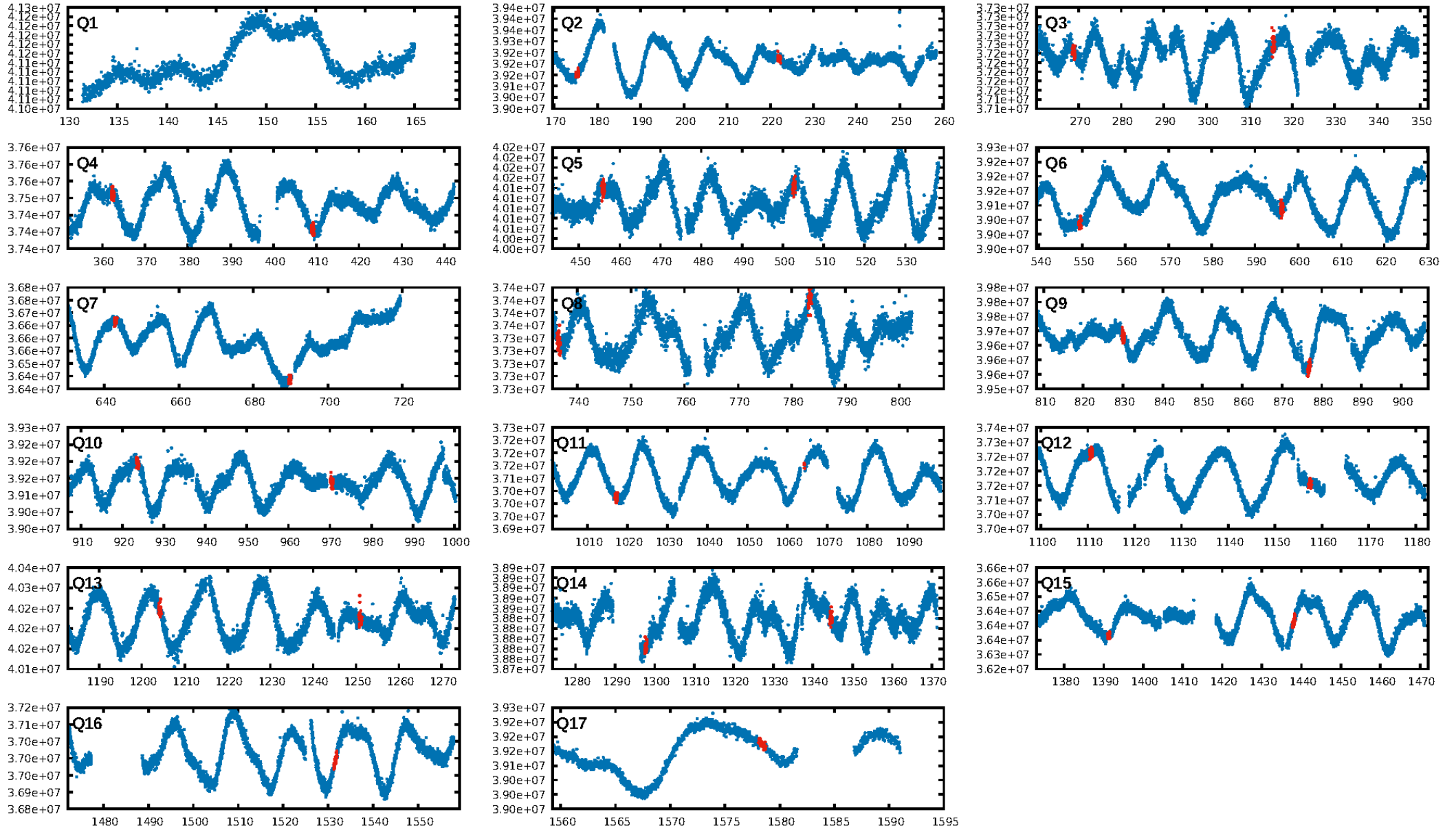
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [106.96 $\sigma$ ]  
LongPeriod-sig: 100.0% [21.33 $\sigma$ ]  
ModelChiSquare2-sig: 19.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 7.57e-36  
RollingBand-fgt: 1.00 [13/13]  
GhostDiagnostic-chr: 5.677  
Centroid-sig: 1.3%  
Centroid-so: 0.417 arcsec [0.78 $\sigma$ ]  
OotOffset-rm: 0.364 arcsec [0.56 $\sigma$ ]  
KicOffset-rm: 0.692 arcsec [0.55 $\sigma$ ]  
OotOffset-st: 3/2/1/3 [9]  
KicOffset-st: 3/2/1/3 [9]  
DiffImageQuality-fgm: 0.33 [3/9]  
DiffImageOverlap-fno: 0.00 [0/16]

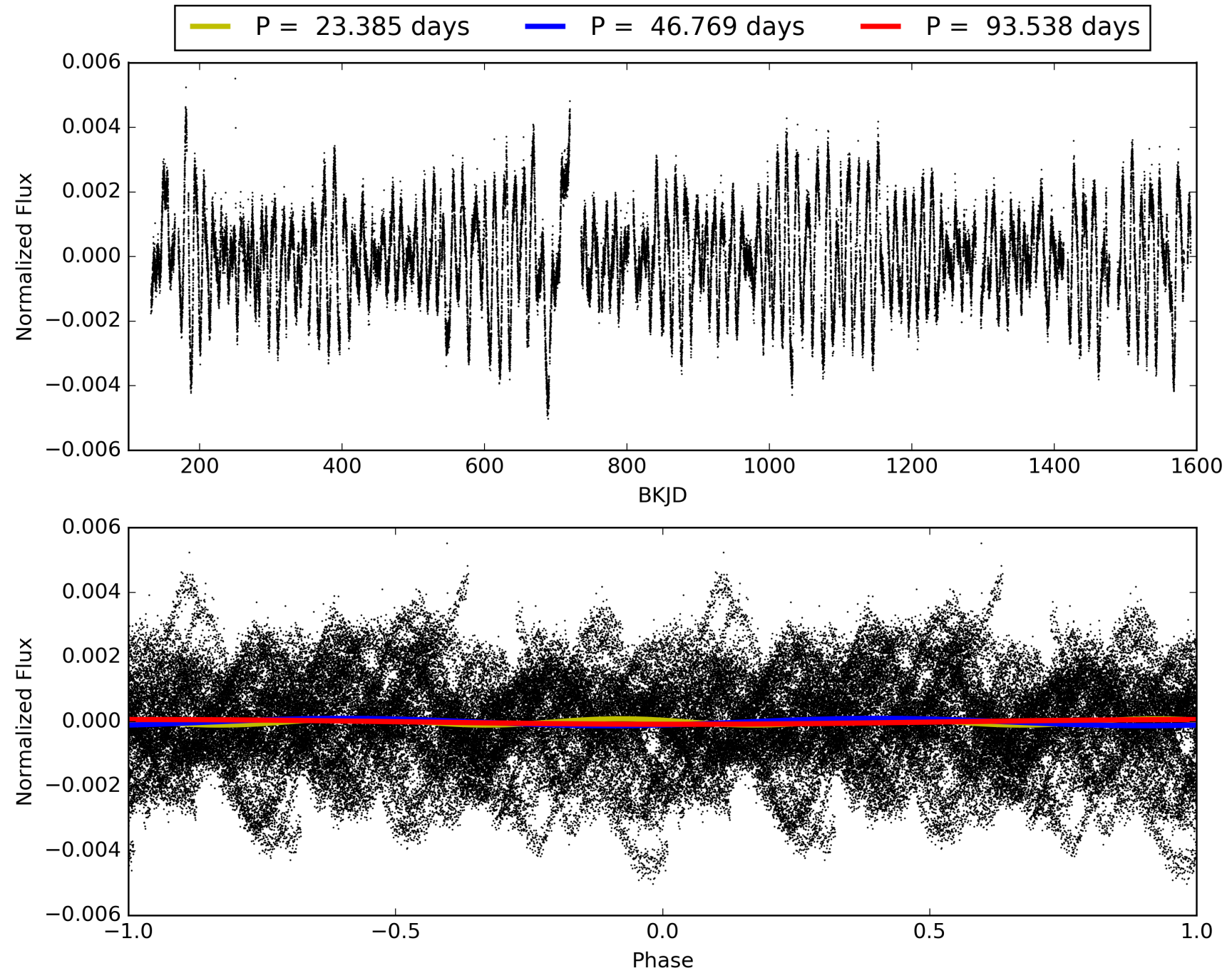
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:03:07 Z

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

# TCE 007595928-03, PDC Light Curves

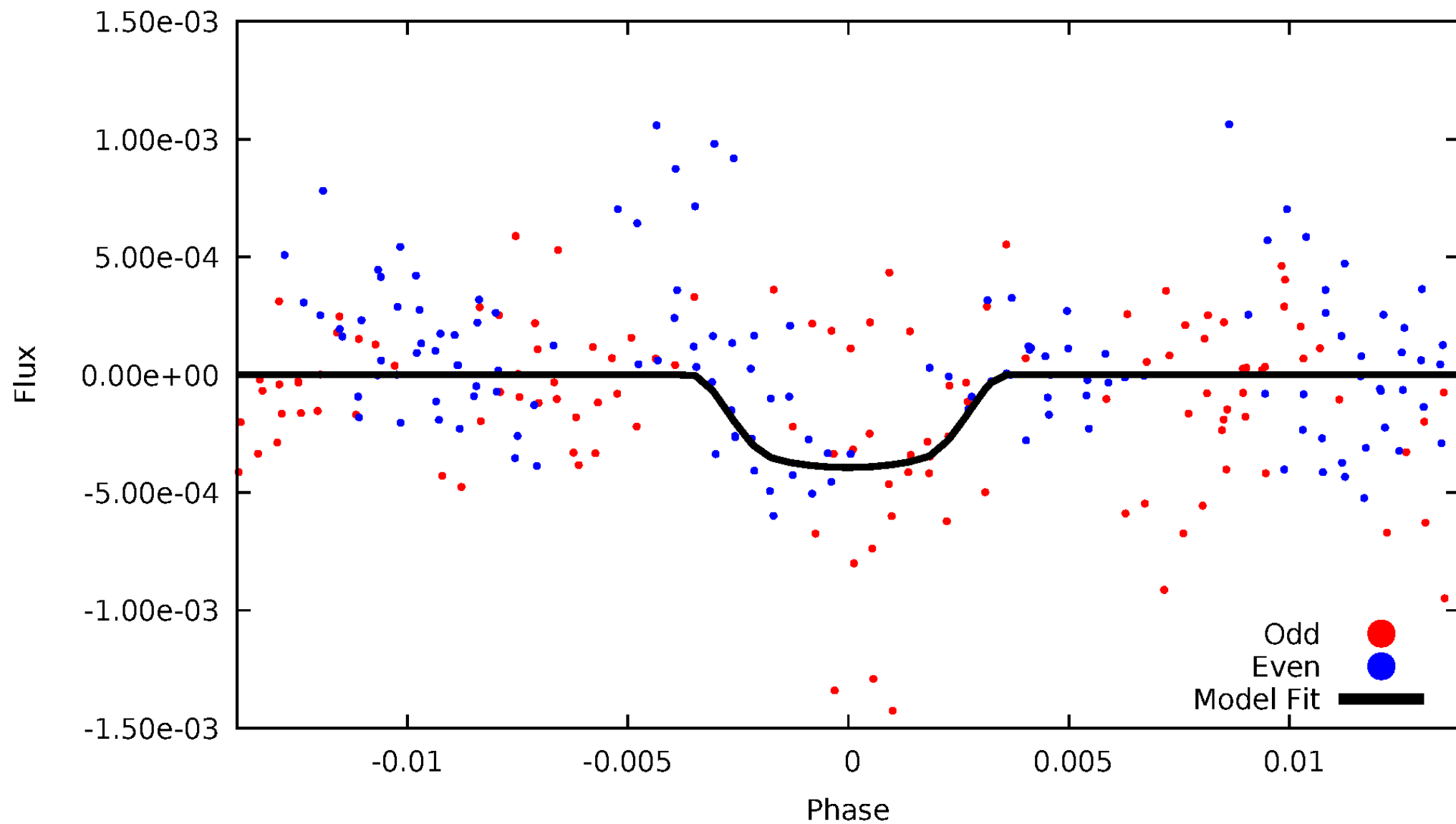


TCE 007595928-03



# DV Odd/Even

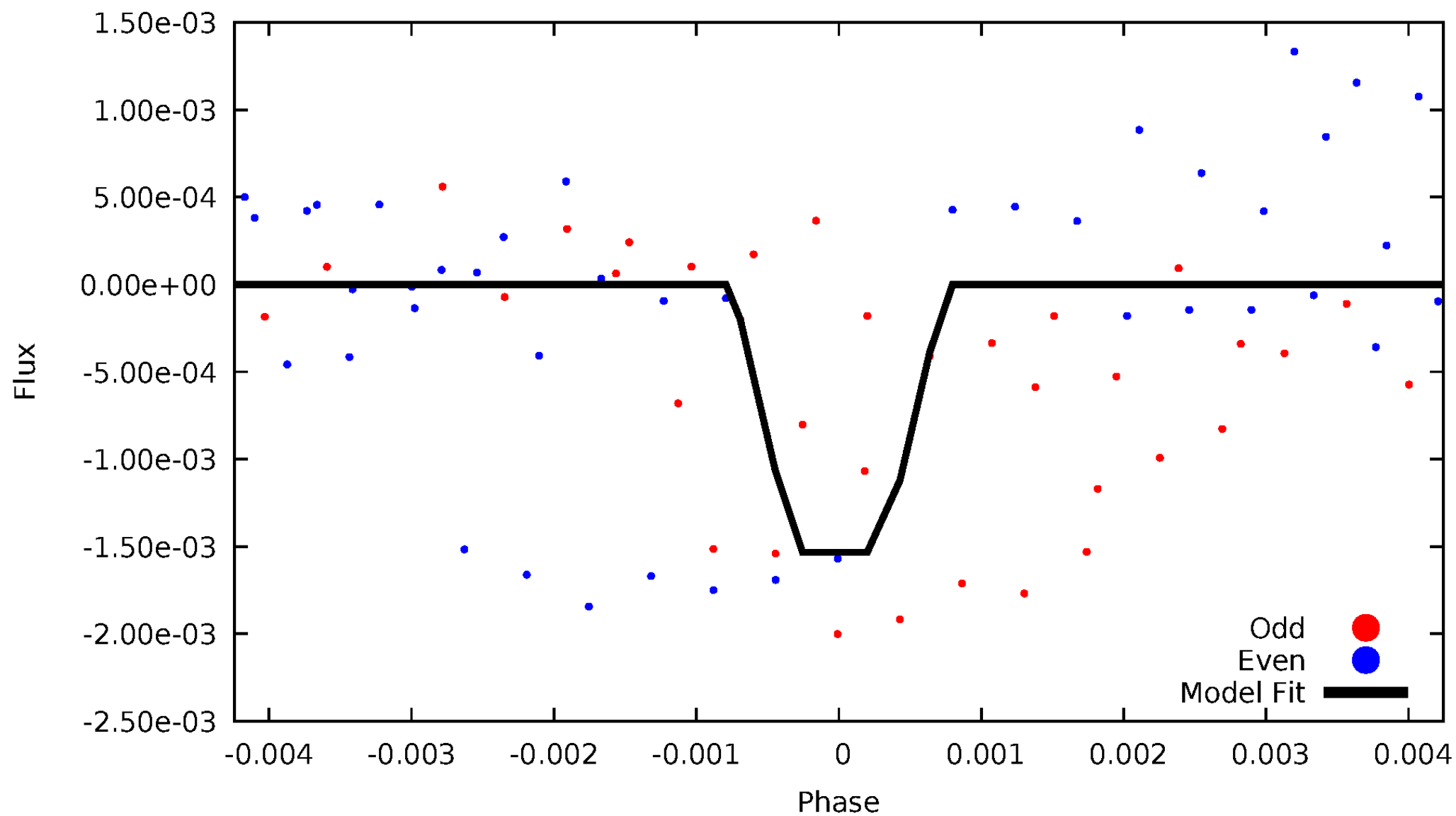
TCE 007595928-03





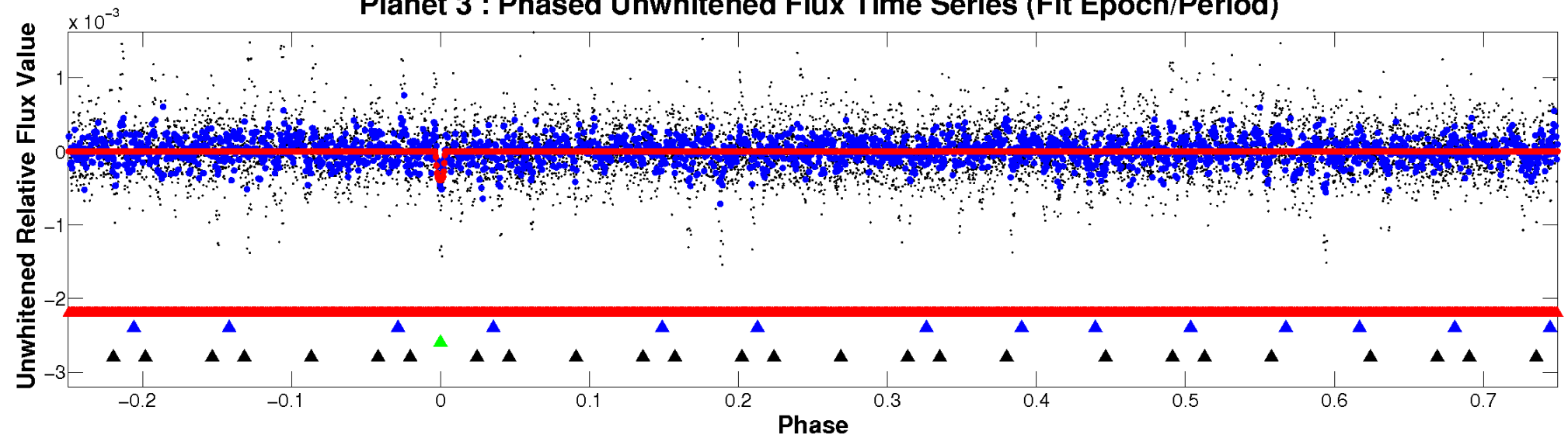
# ALT Odd/Even

TCE 007595928-03

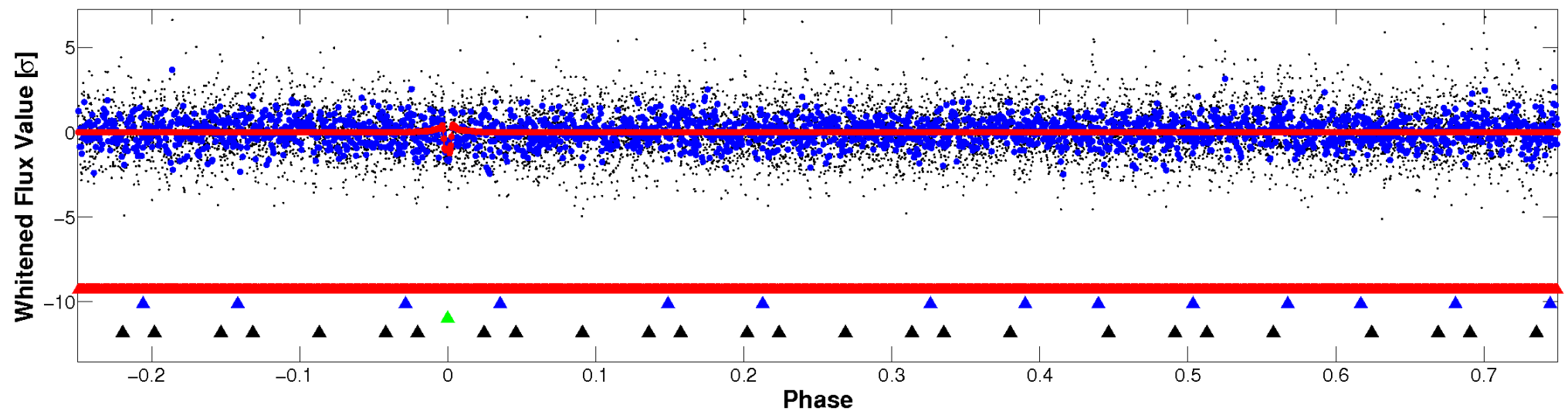


# Non-Whitened Vs. Whitened Light Curve

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

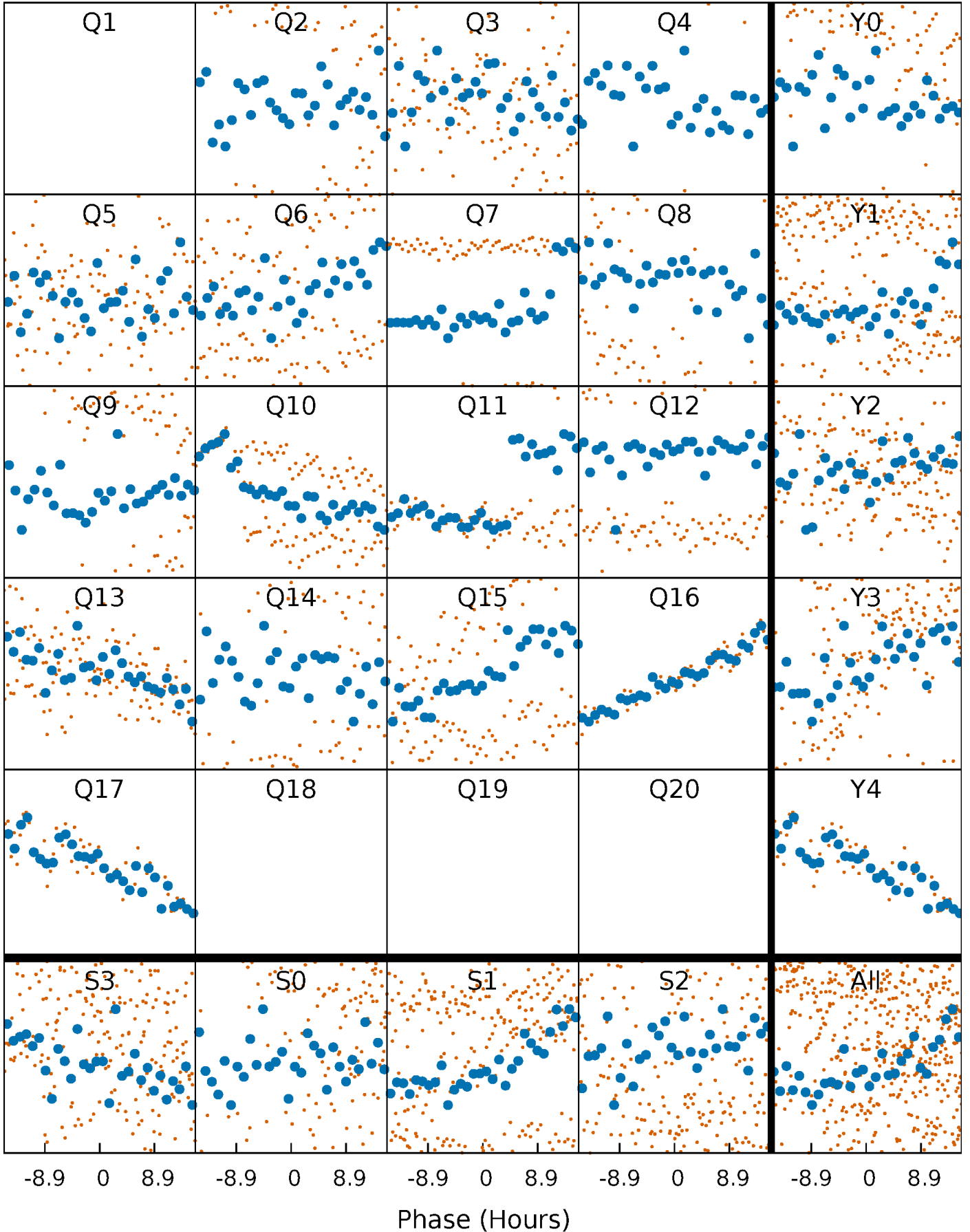


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



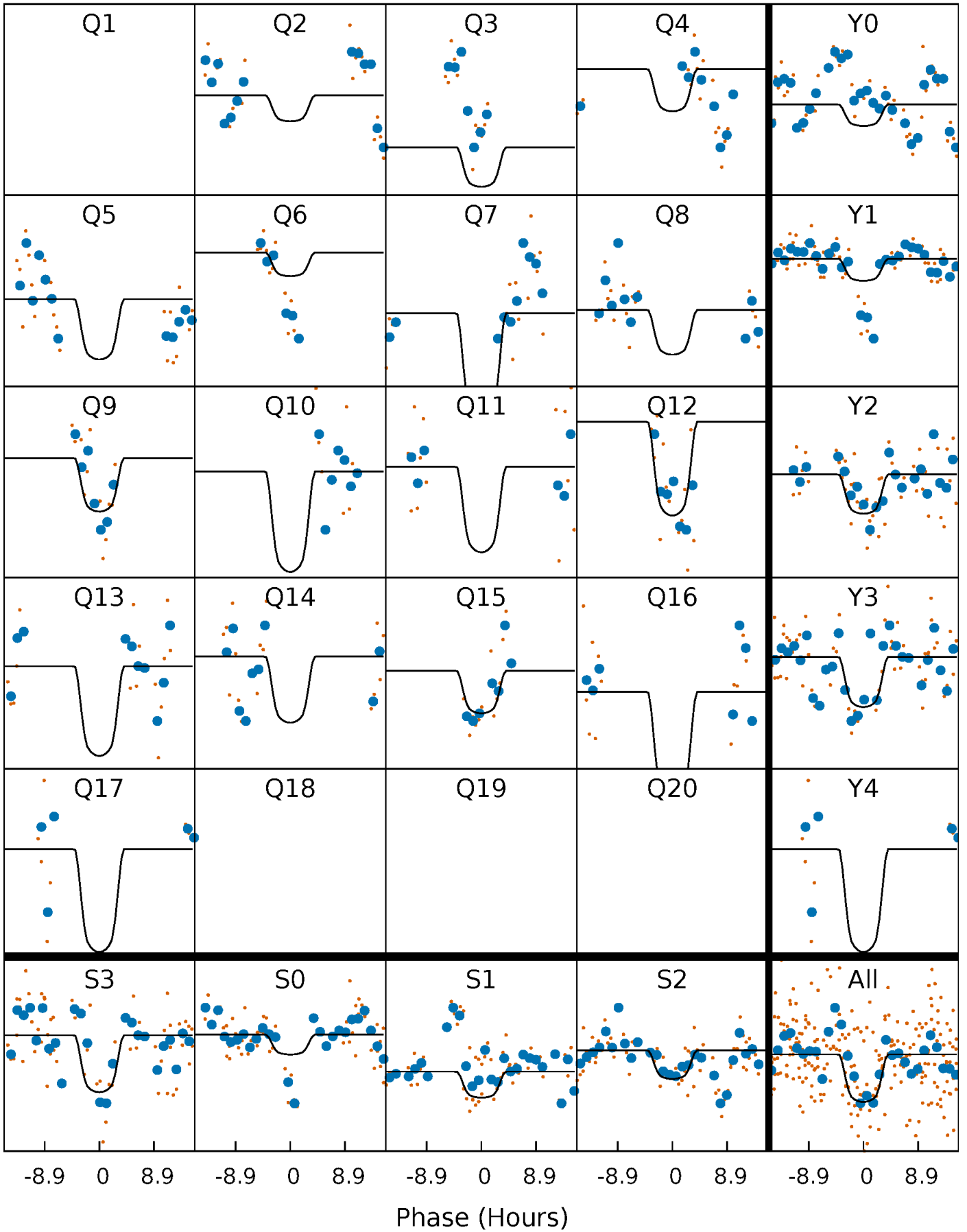
# PDC Quarter-Phased Transit Curves

TCE 007595928-03 P= 46.769032 Days  $T_0=175.328657$  (BKJD)



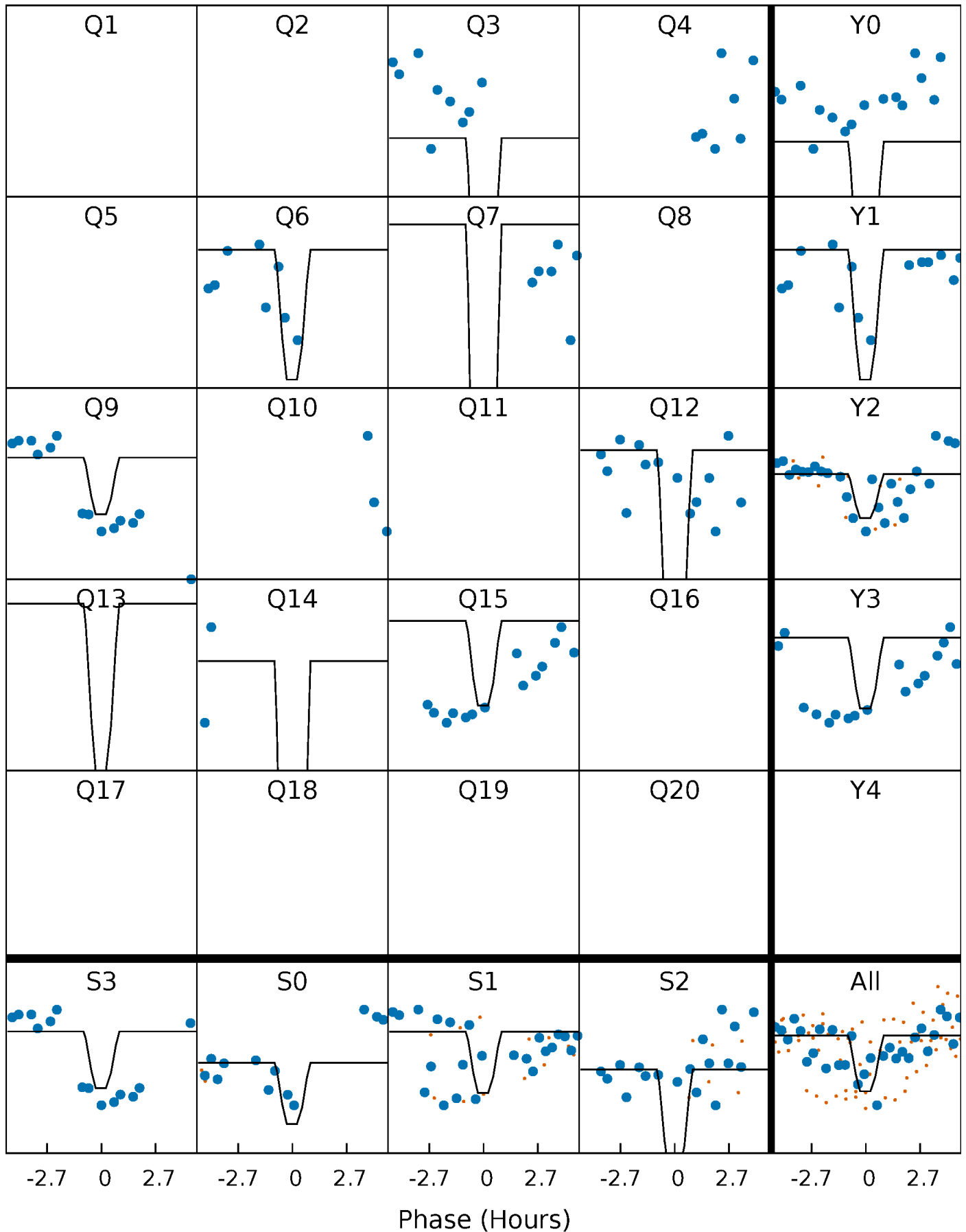
# DV Quarter-Phased Transit Curves

TCE 007595928-03   P= 46.769032 Days    $T_0=175.328657$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

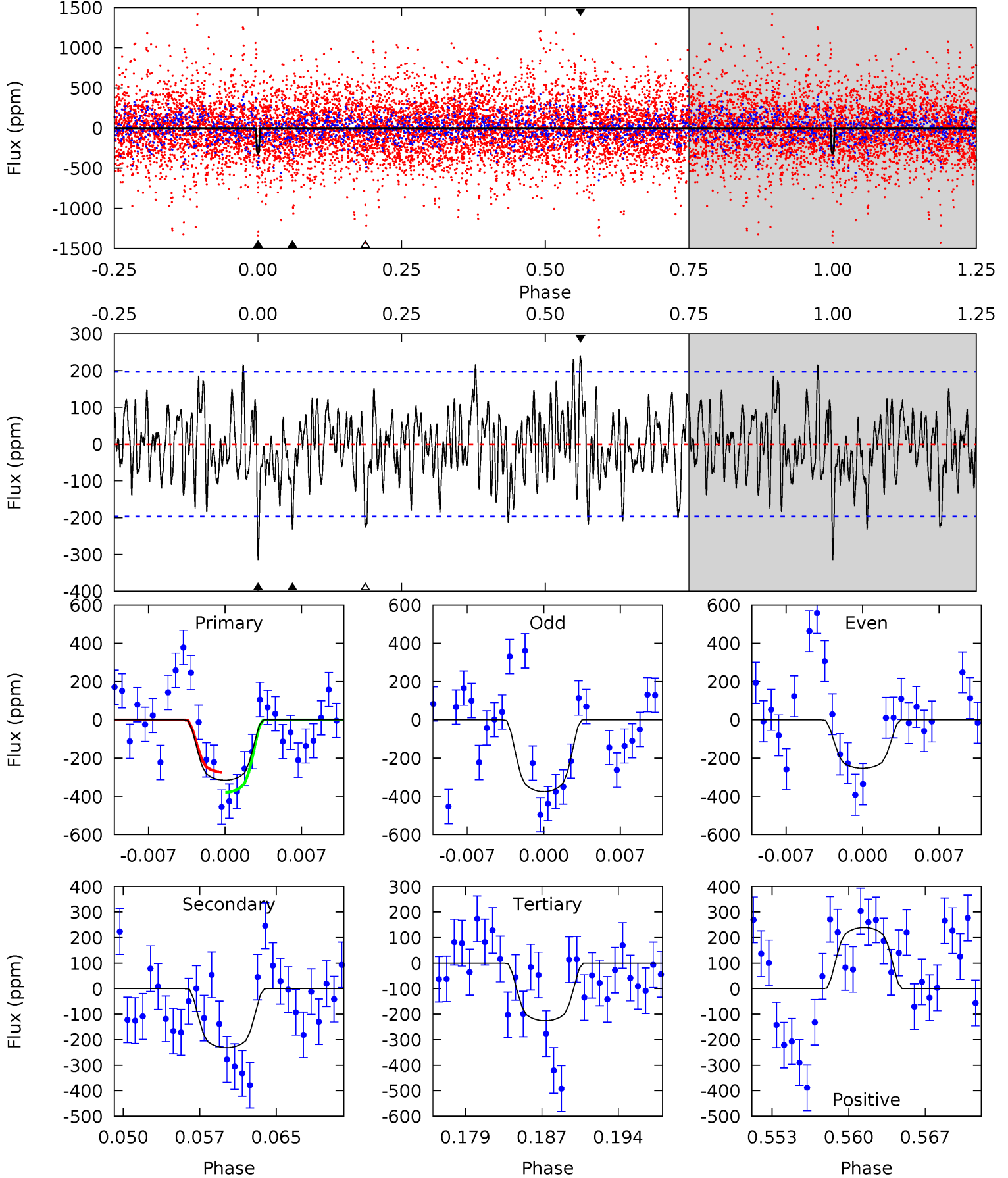
TCE 007595928-03   P= 46.766938 Days    $T_0=175.385856$  (BKJD)



# DV Model-Shift Uniqueness Test

007595928-03, P = 46.769032 Days, E = 128.559625 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
8.15	5.99	5.84	6.21	5.09	2.69	2.03	2.30	1.94	0.15	-0.21	1.55	0.29	0.43	1.35

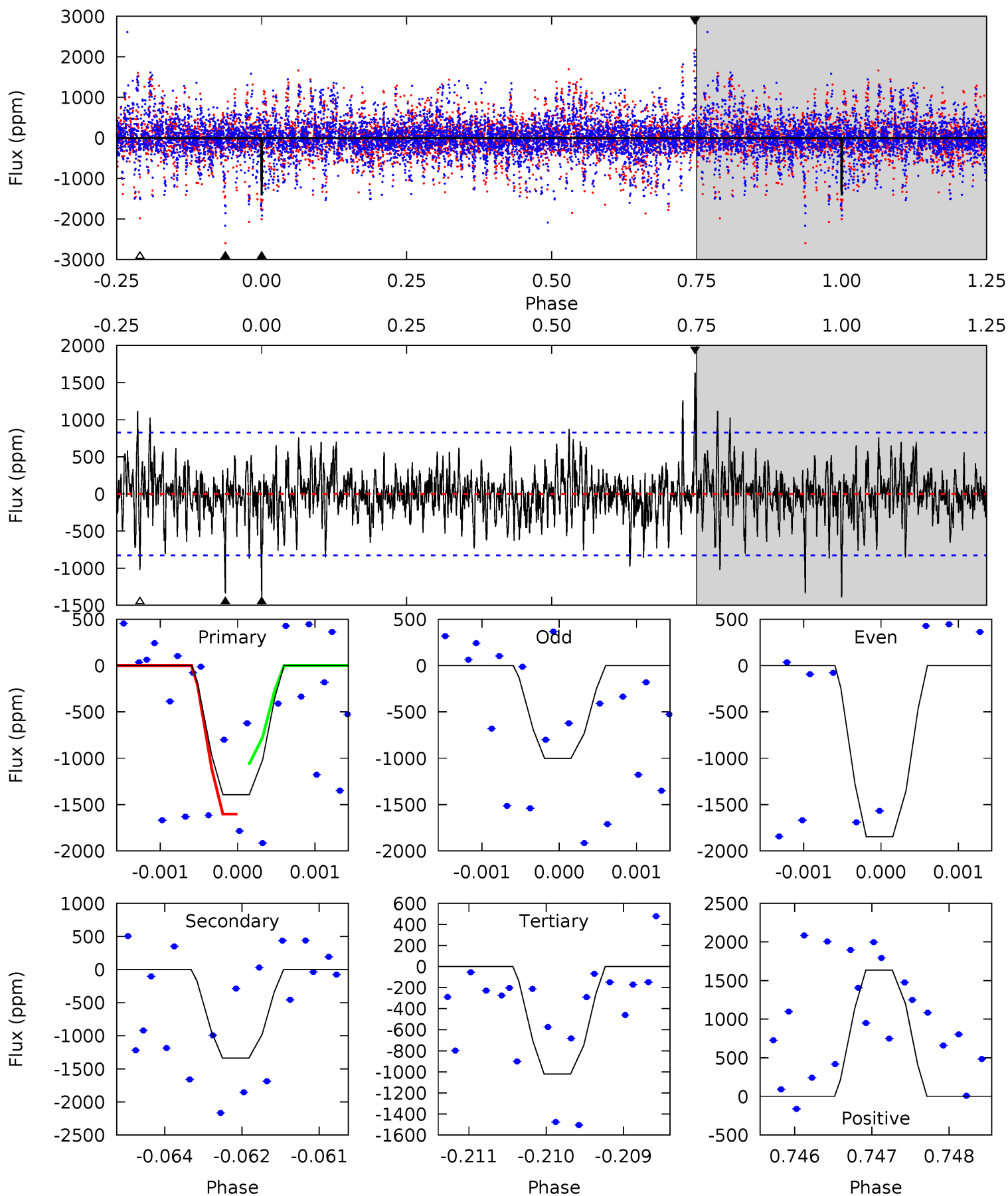




# Alt Model-Shift Uniqueness Test

007595928-03, P = 46.766938 Days, E = 128.618918 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
9.09	8.73	6.66	10.7	5.40	3.21	1.75	2.43	-1.58	2.06	-1.94	2.12	1.04	0.54	1.73



### Stellar Parameters For KIC 007595928

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5092^{+152}_{-137}$	$4.462^{+0.094}_{-0.329}$	$0.200^{+0.200}_{-0.250}$	$0.882^{+0.183}_{-0.112}$	$0.821^{+0.084}_{-0.058}$	$1.688^{+0.716}_{-1.110}$
	+3%/-3%	+2%/-7%	+100%/-125%	+21%/-13%	+10%/-7%	+42%/-66%
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 007595928-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-232 \pm 39$	$2.42^{+0.44}_{-0.41}$	$618^{+43}_{-34}$	$4246^{+303}_{-265}$	$1230^{+577}_{-399}$
Alt.	$-1337 \pm 153$	$3.99^{+0.64}_{-0.50}$	$620^{+45}_{-34}$	$4939^{+269}_{-254}$	$2612^{+878}_{-677}$

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

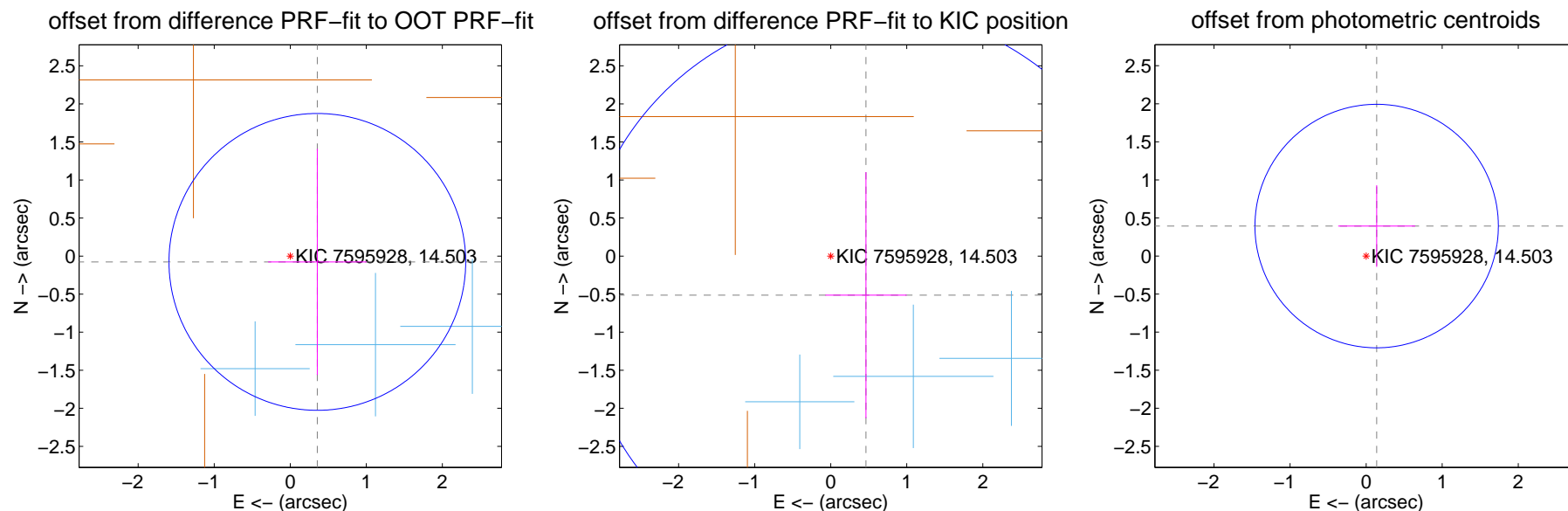
## DV Centroid Data

Supplemental centroid analysis for 007595928-03. Kepler magnitude: 14.50. Transit SNR 7.34

There are 3 quarters with good PRF difference image offsets

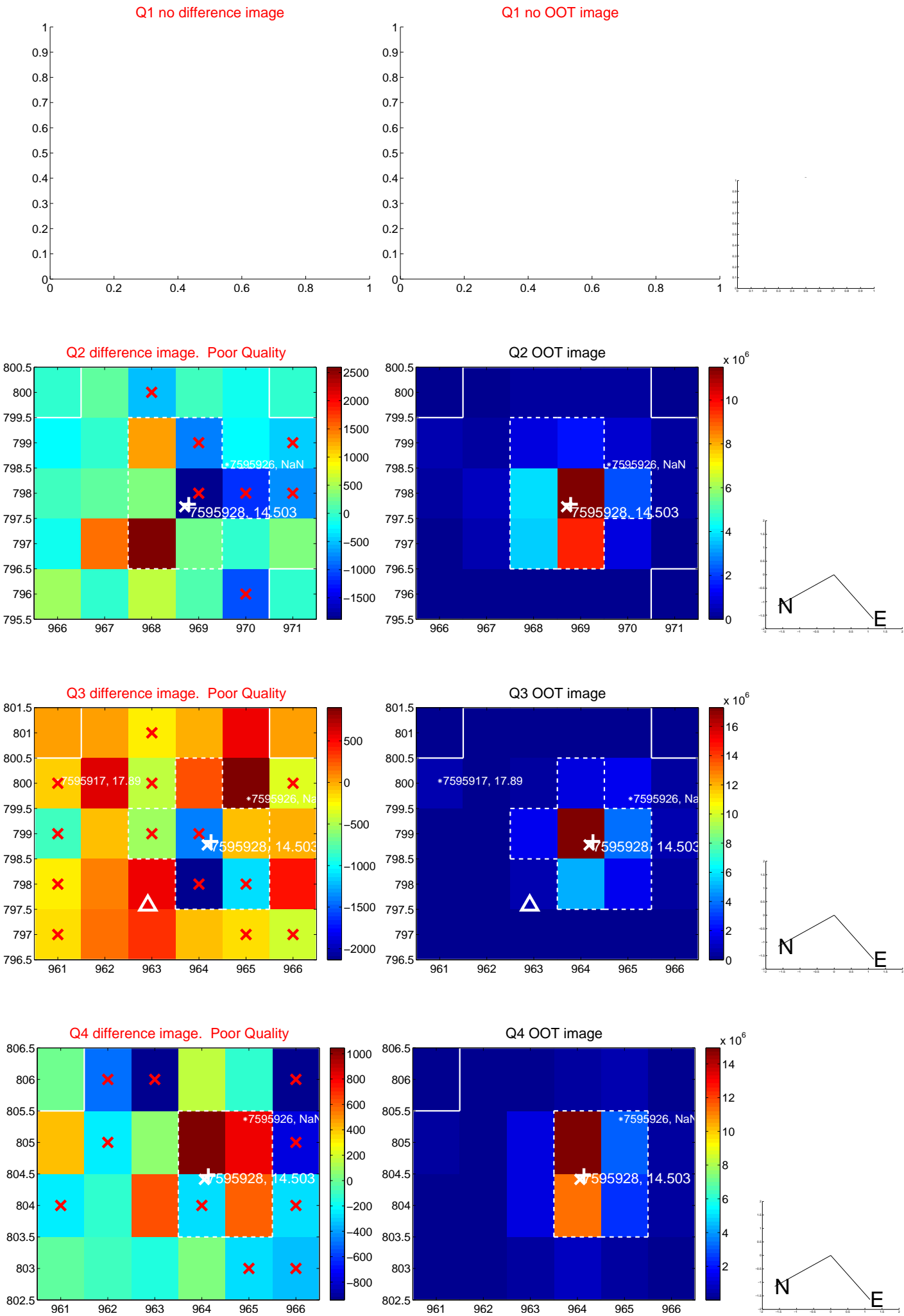
The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.364 \pm 0.650$	0.56	$-0.356 \pm 0.647$	$-0.076 \pm 1.486$
PRF-fit source offset from KIC position	$0.692 \pm 1.254$	0.55	$-0.463 \pm 0.534$	$-0.513 \pm 1.617$
photometric centroid source offset	$0.42 \pm 0.53$	0.78	$-0.14 \pm 0.51$	$0.39 \pm 0.54$

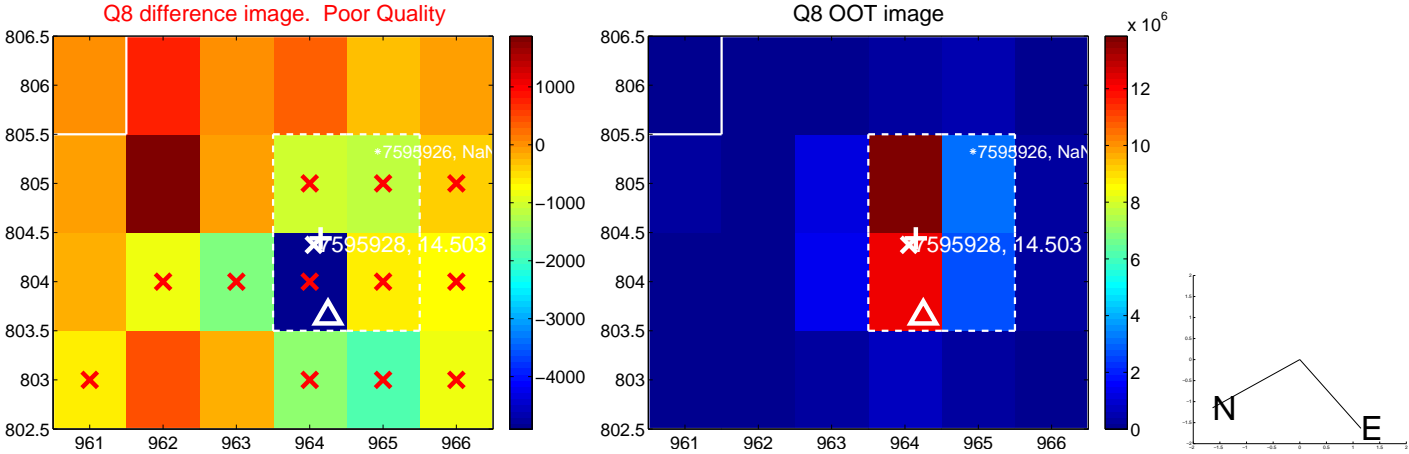
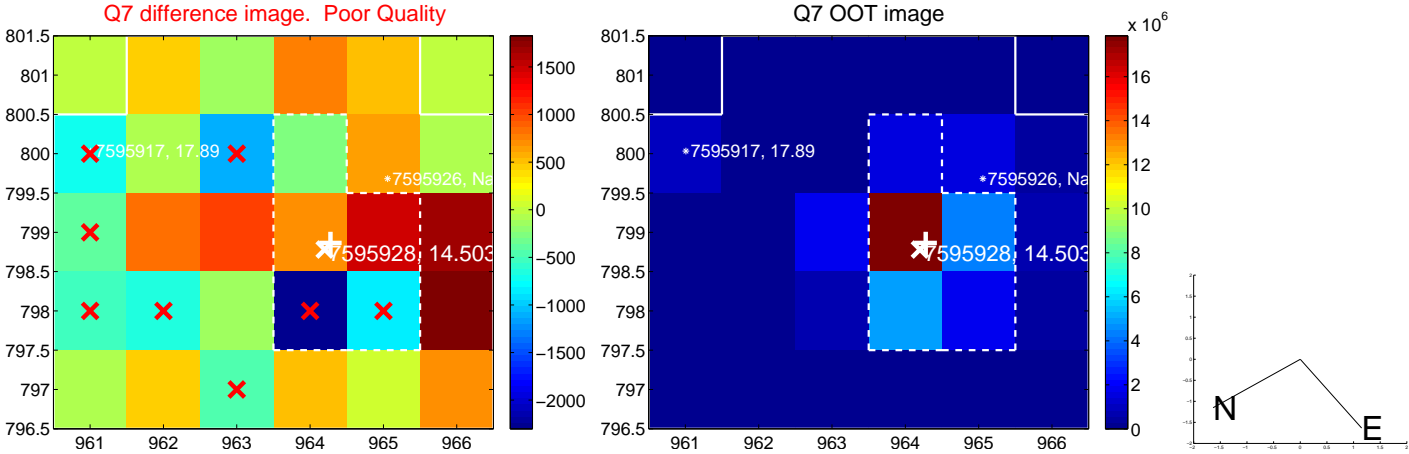
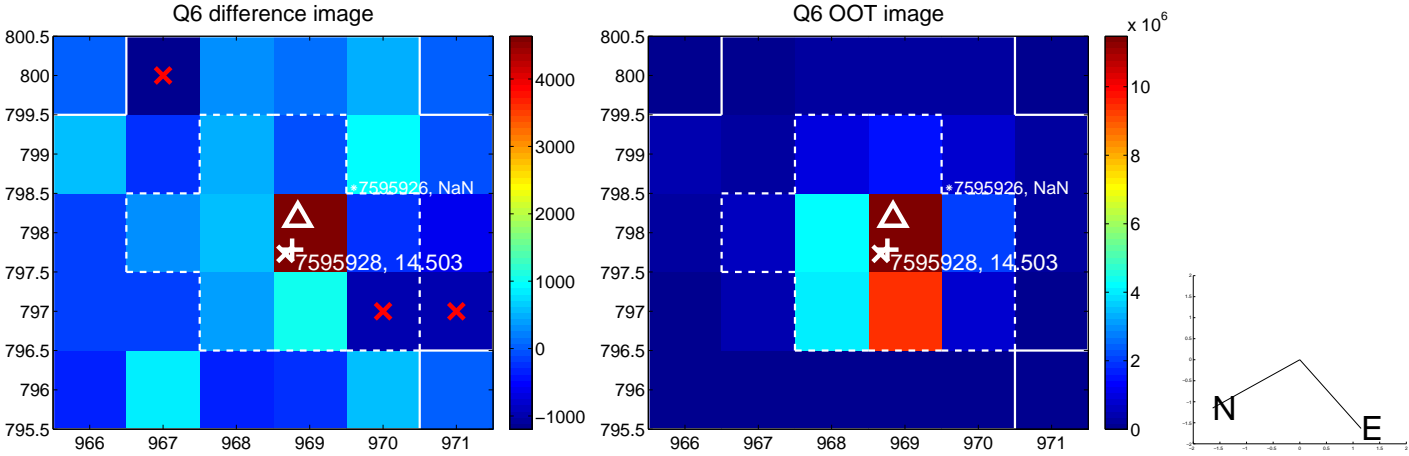
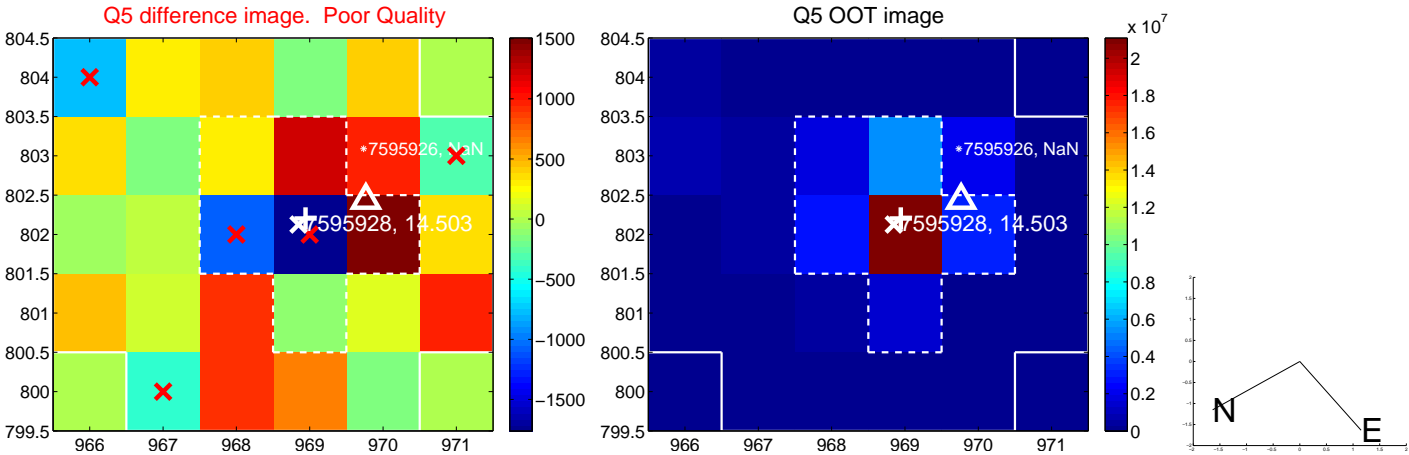


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

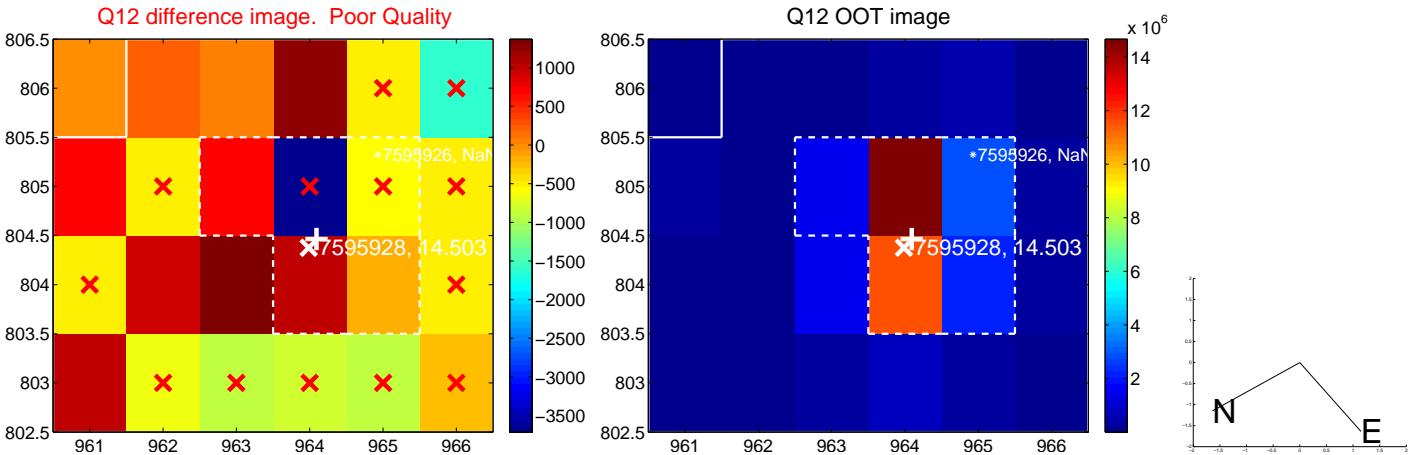
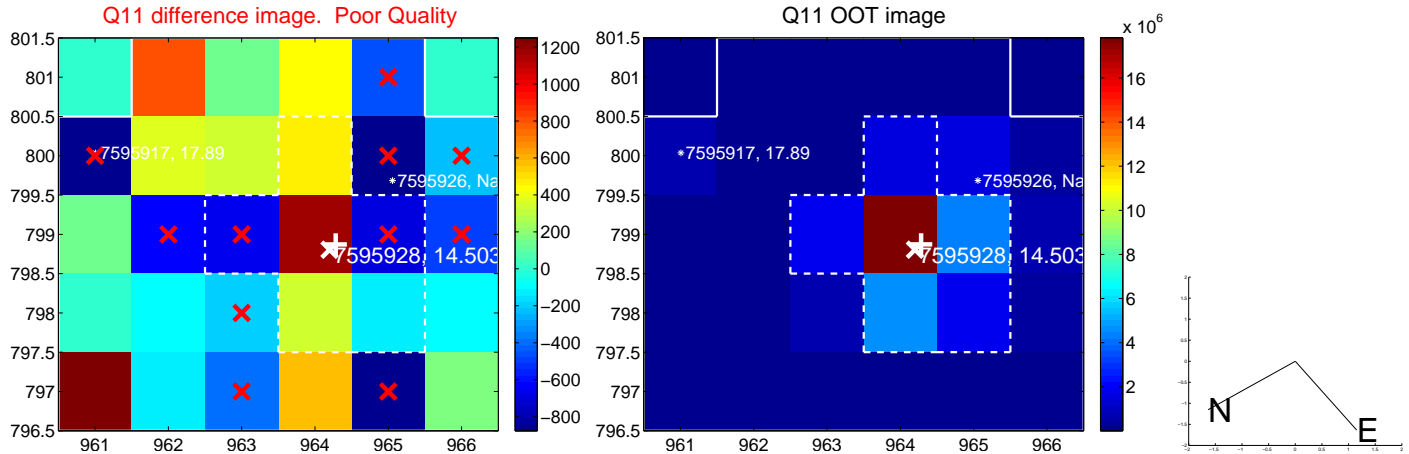
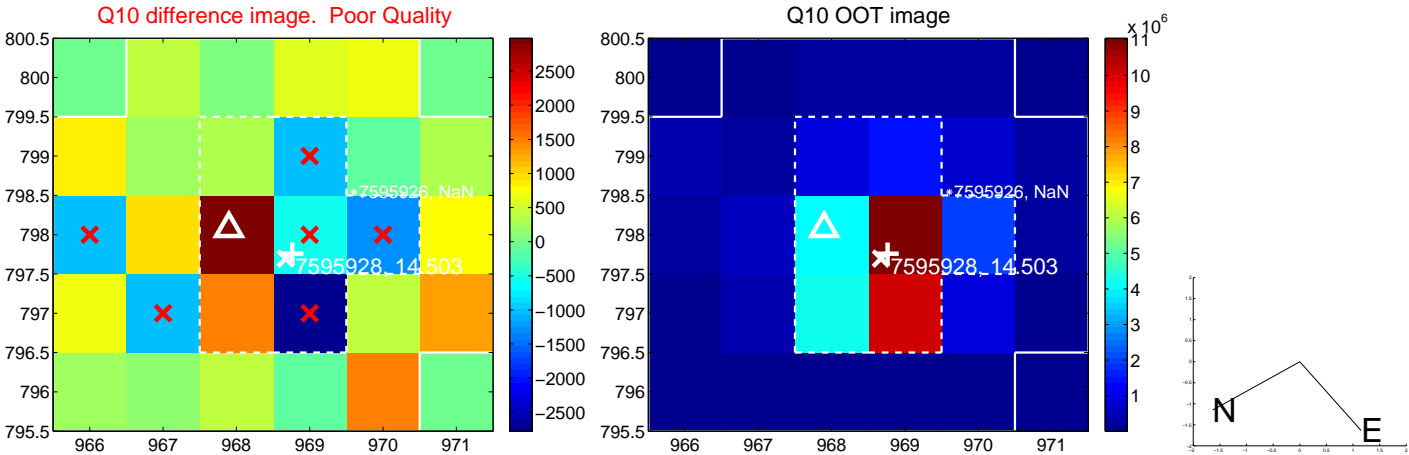
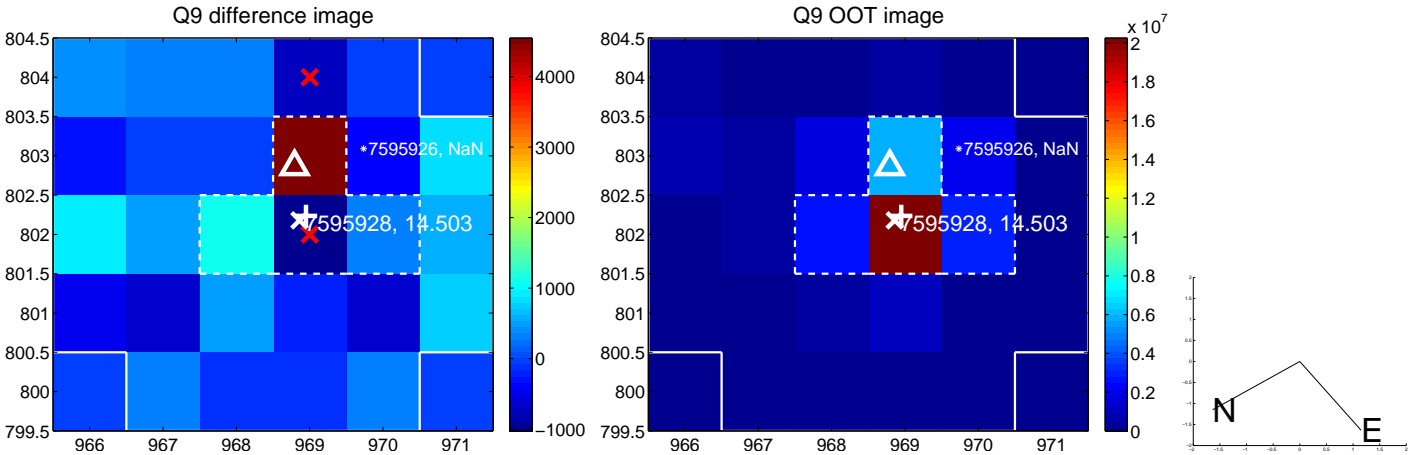
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

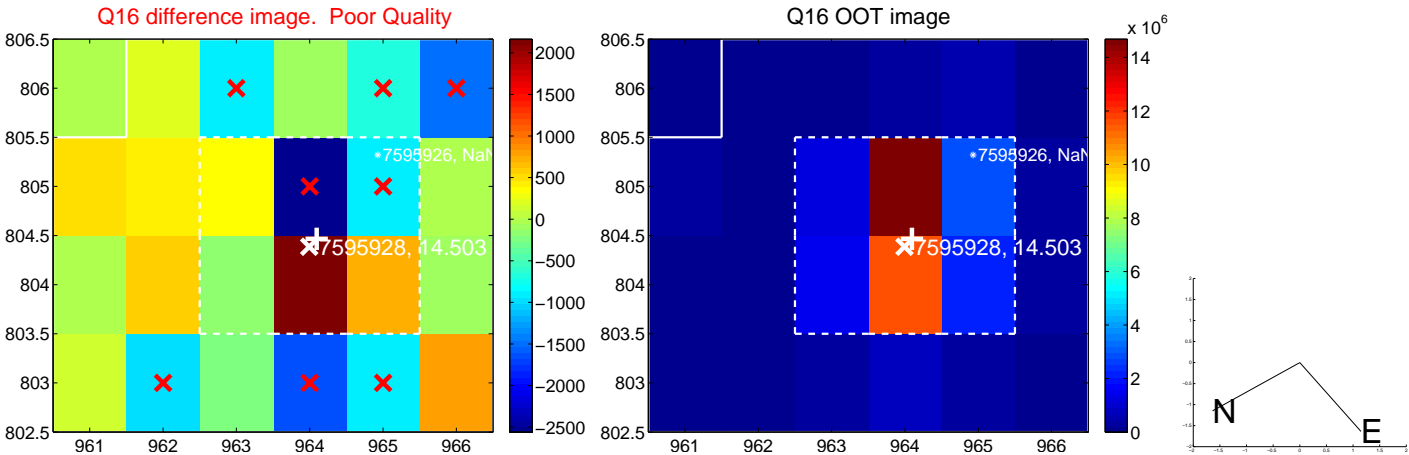
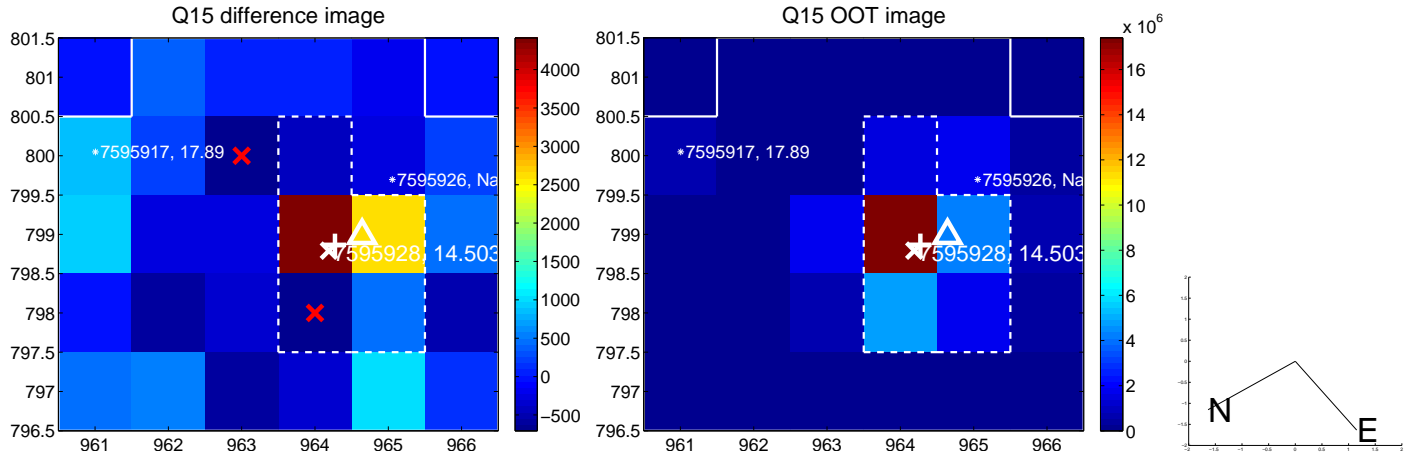
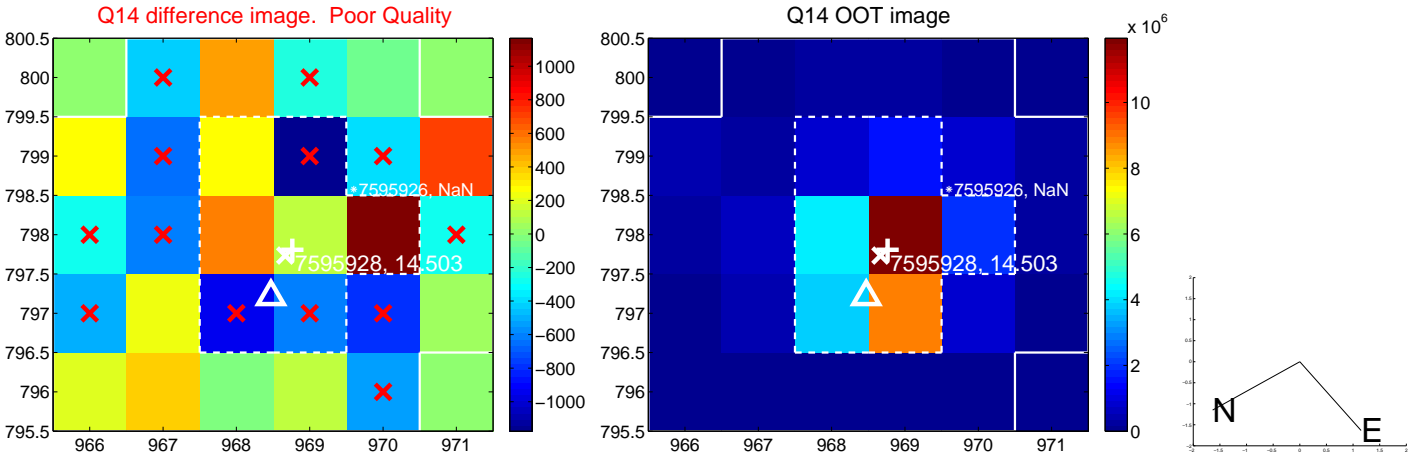
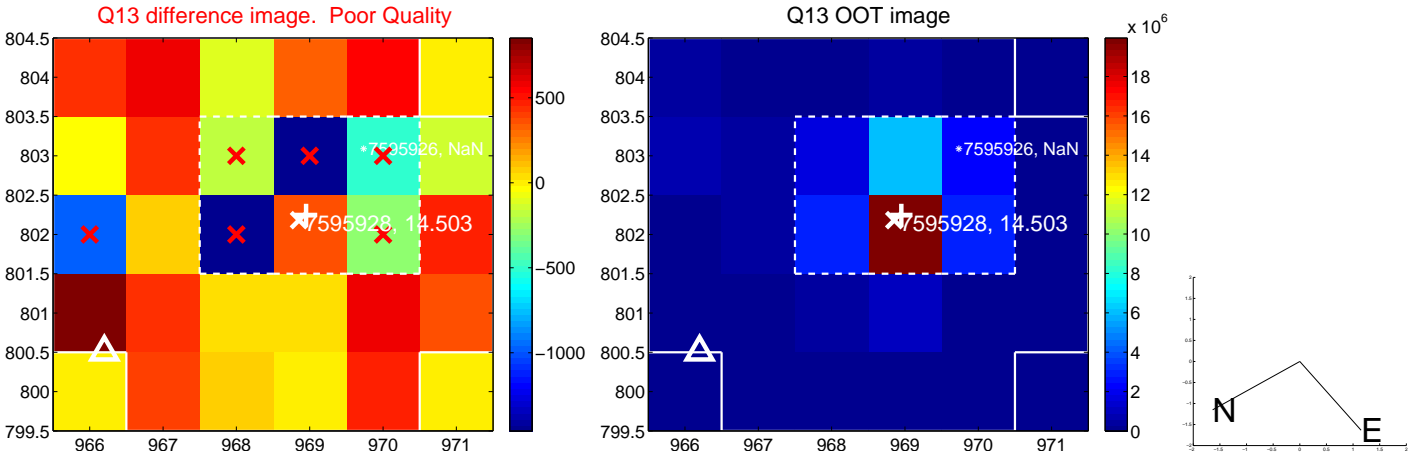


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

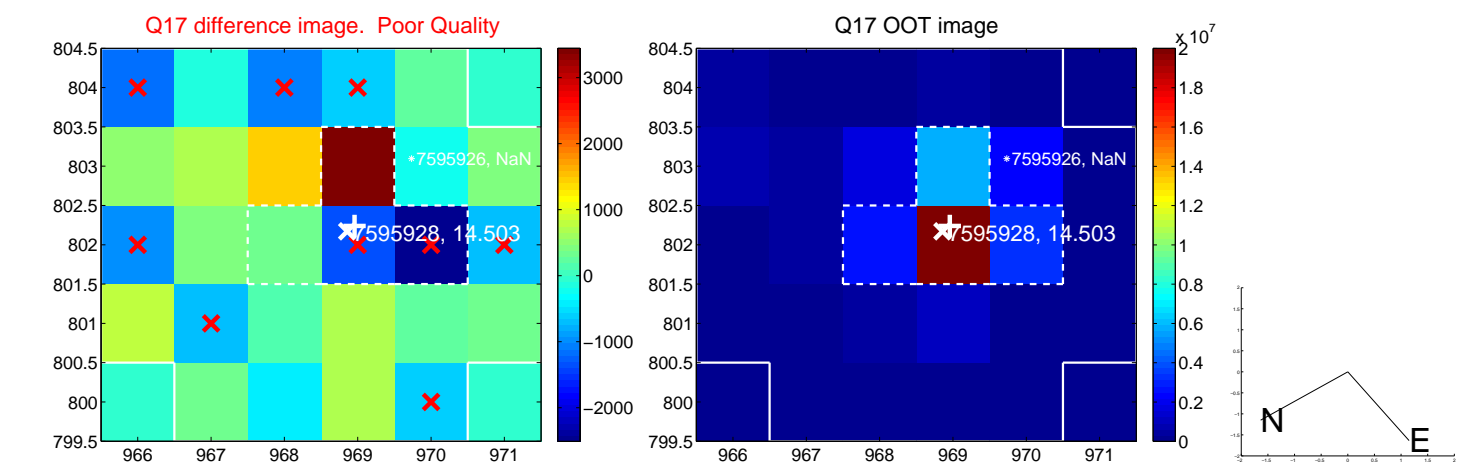




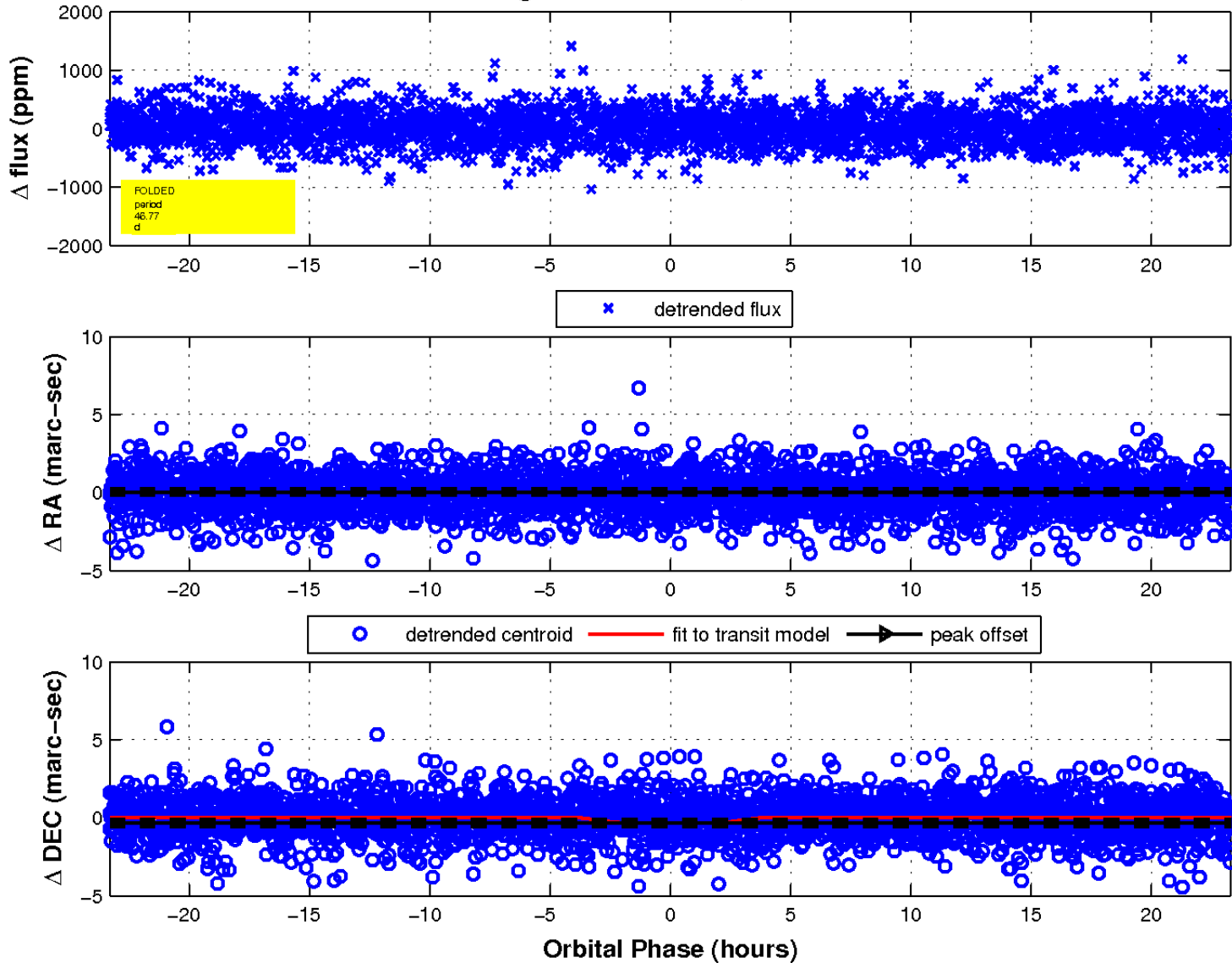
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

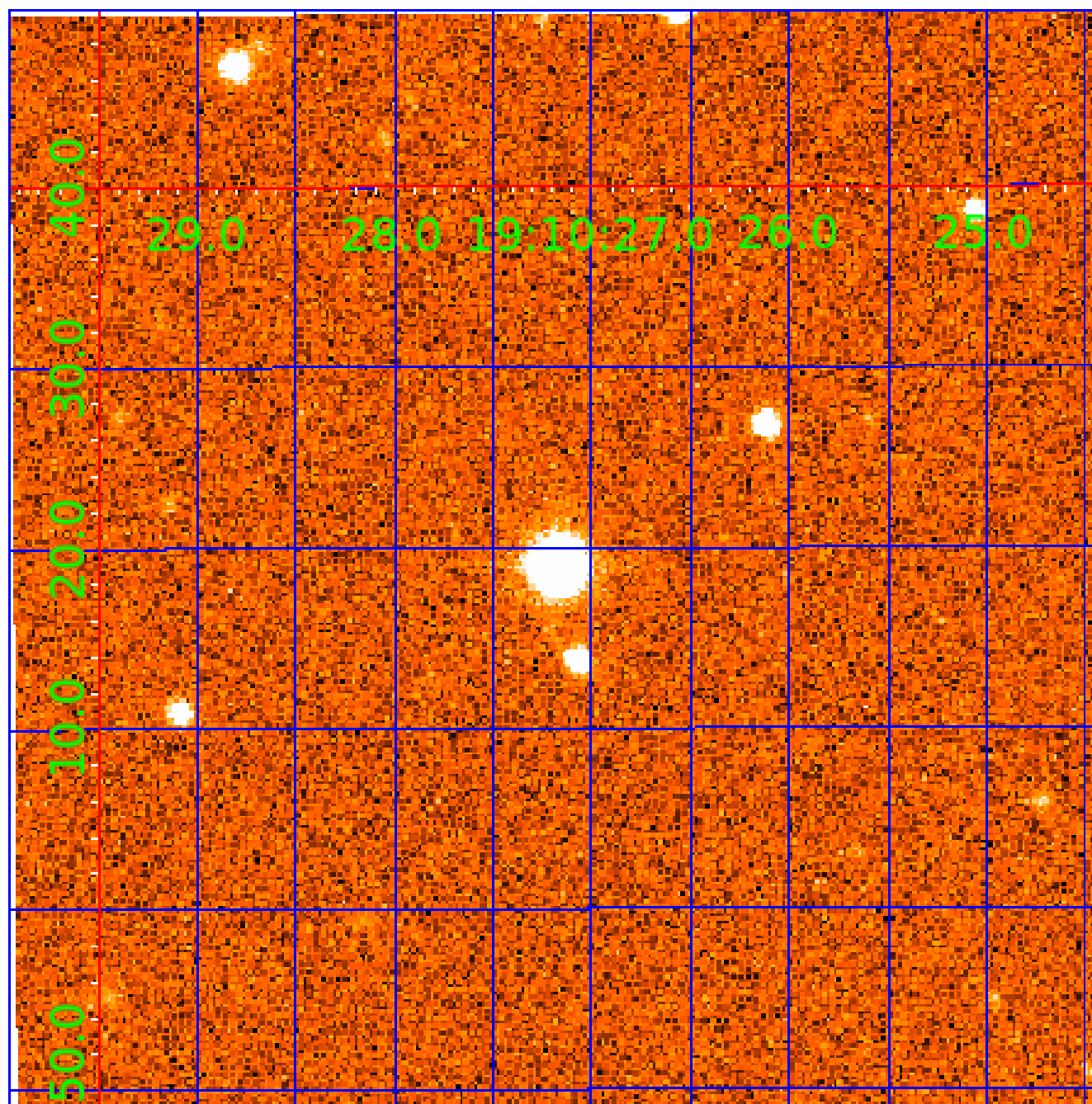


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



# KIC 007595928

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007595928-01	OBS	No	0.998749	132.348690	33.3	6.712	10.3	10.5	0.88	5092	0.54	1395.79
007595928-02	OBS	No	101.831528	195.885809	438.3	7.770	11.4	5.5	0.88	5092	2.00	2.93
007595928-03	OBS	No	46.769032	175.328657	393.6	7.773	13.9	7.3	0.88	5092	2.33	8.27
007595928-04	OBS	No	55.081615	165.059469	310.8	5.199	9.3	5.3	0.88	5092	1.82	6.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007595928-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
007595928-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
007595928-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007595928-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— CENT_KIC_POS

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

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

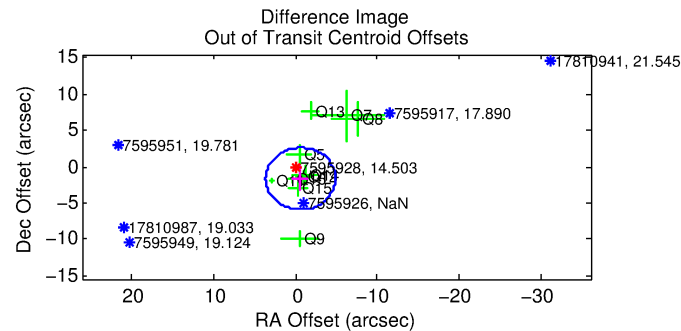
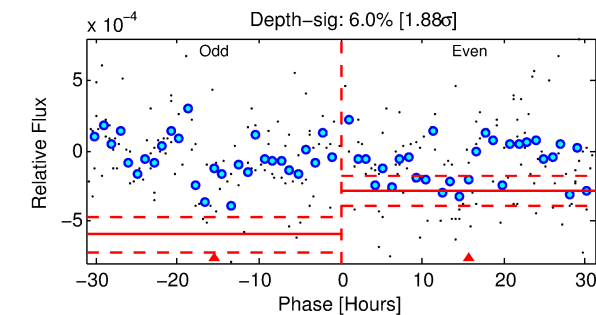
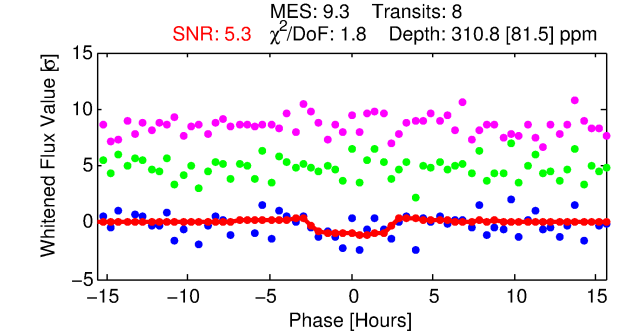
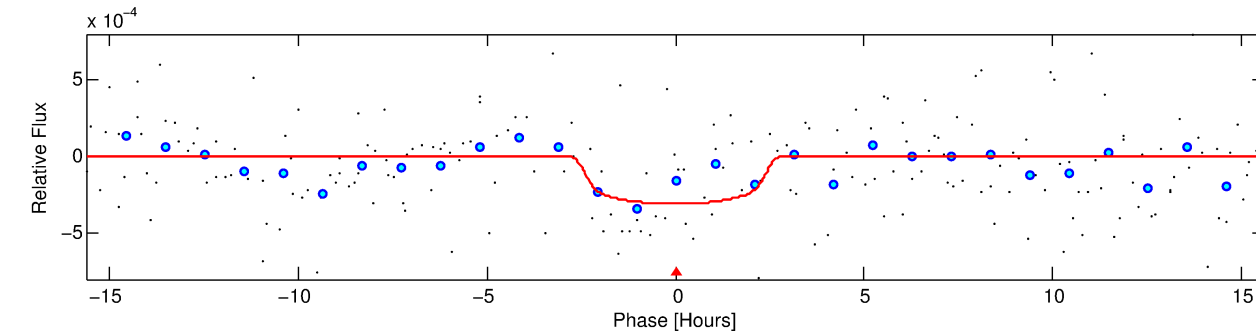
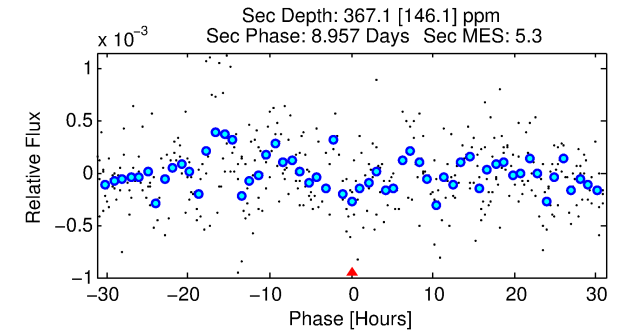
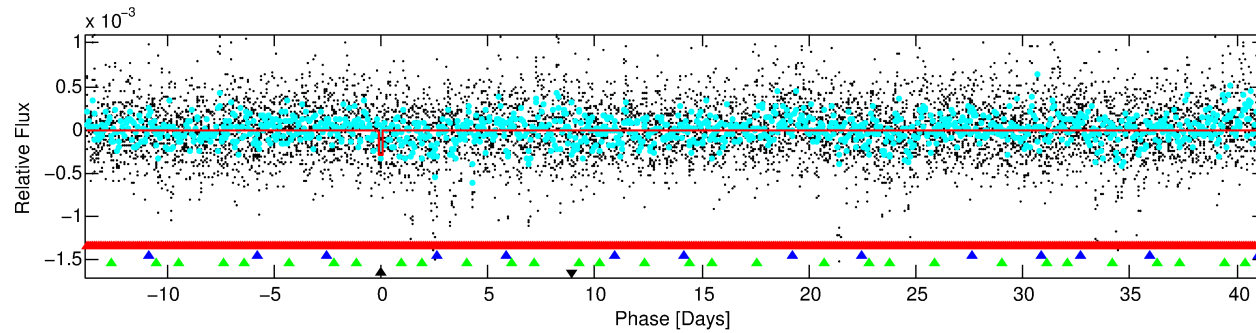
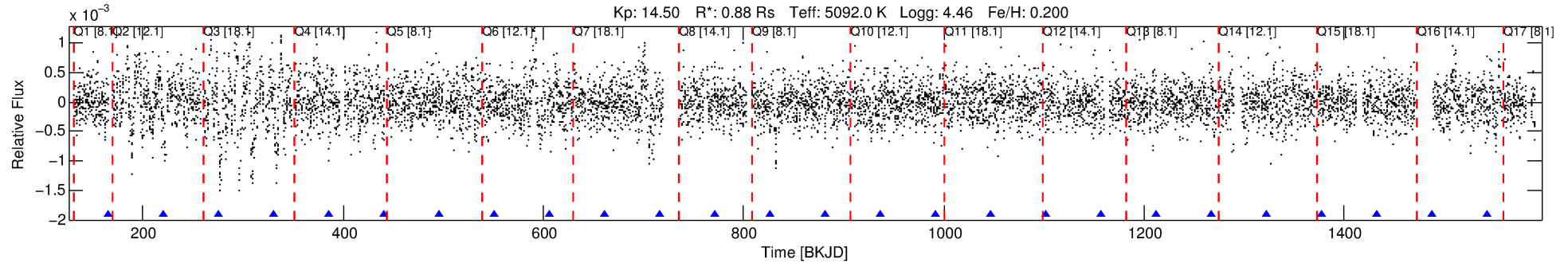
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007595928-04

No Significant Match Found

# DV One-Page Summary

KIC: 7595928 Candidate: 4 of 4 Period: 55.082 d



## DV Fit Results:

Period = 55.08161 [0.00212] d  
Epoch = 165.0595 [0.0296] BKJD  
Rp/R\* = 0.0189 [0.0231]  
a/R\* = 44.34 [209.50]  
b = 0.86 [1.46]  
Seff = 6.65 [3.57]  
Teq = 409 [55] K  
Rp = 1.82 [2.26] Re  
a = 0.2655 [0.0764] AU  
Ag = 4312.34 [10945.78] [0.39 $\sigma$ ]  
Teff = 5130 [3189] K [1.48 $\sigma$ ]

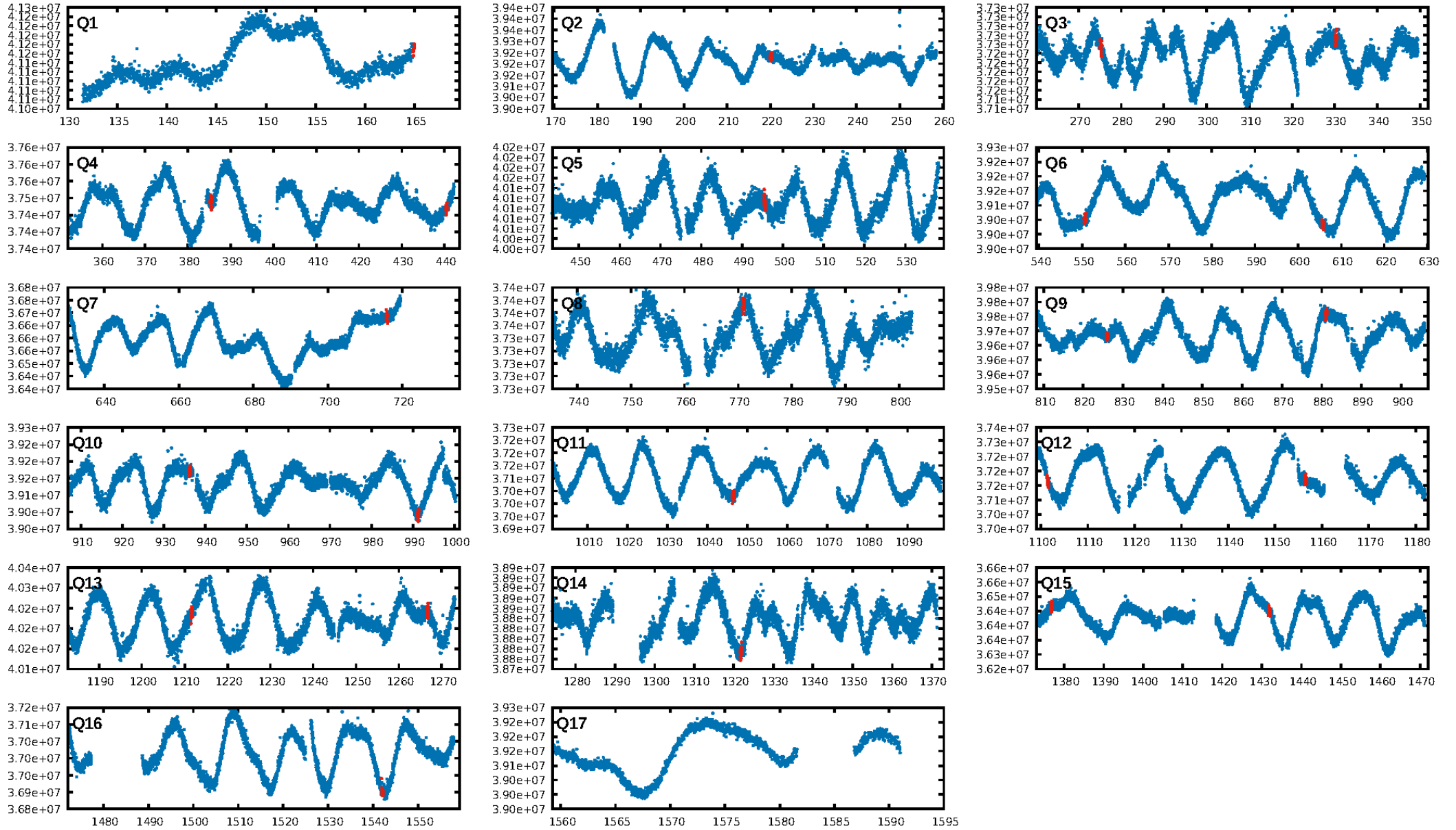
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.33 $\sigma$ ]  
LongPeriod-sig: 100.0% [120.02 $\sigma$ ]  
ModelChiSquare2-sig: 2.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.66e-16  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 8.326  
Centroid-sig: 5.8%  
Centroid-so: 1.638 arcsec [1.99 $\sigma$ ]  
OotOffset-rm: 1.773 arcsec [1.24 $\sigma$ ]  
KicOffset-rm: 2.219 arcsec [1.64 $\sigma$ ]  
OotOffset-st: 1/3/3/3 [10]  
KicOffset-st: 1/3/3/3 [10]  
DiffImageQuality-fgm: 0.40 [4/10]  
DiffImageOverlap-fno: 0.00 [0/15]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:03:10 Z

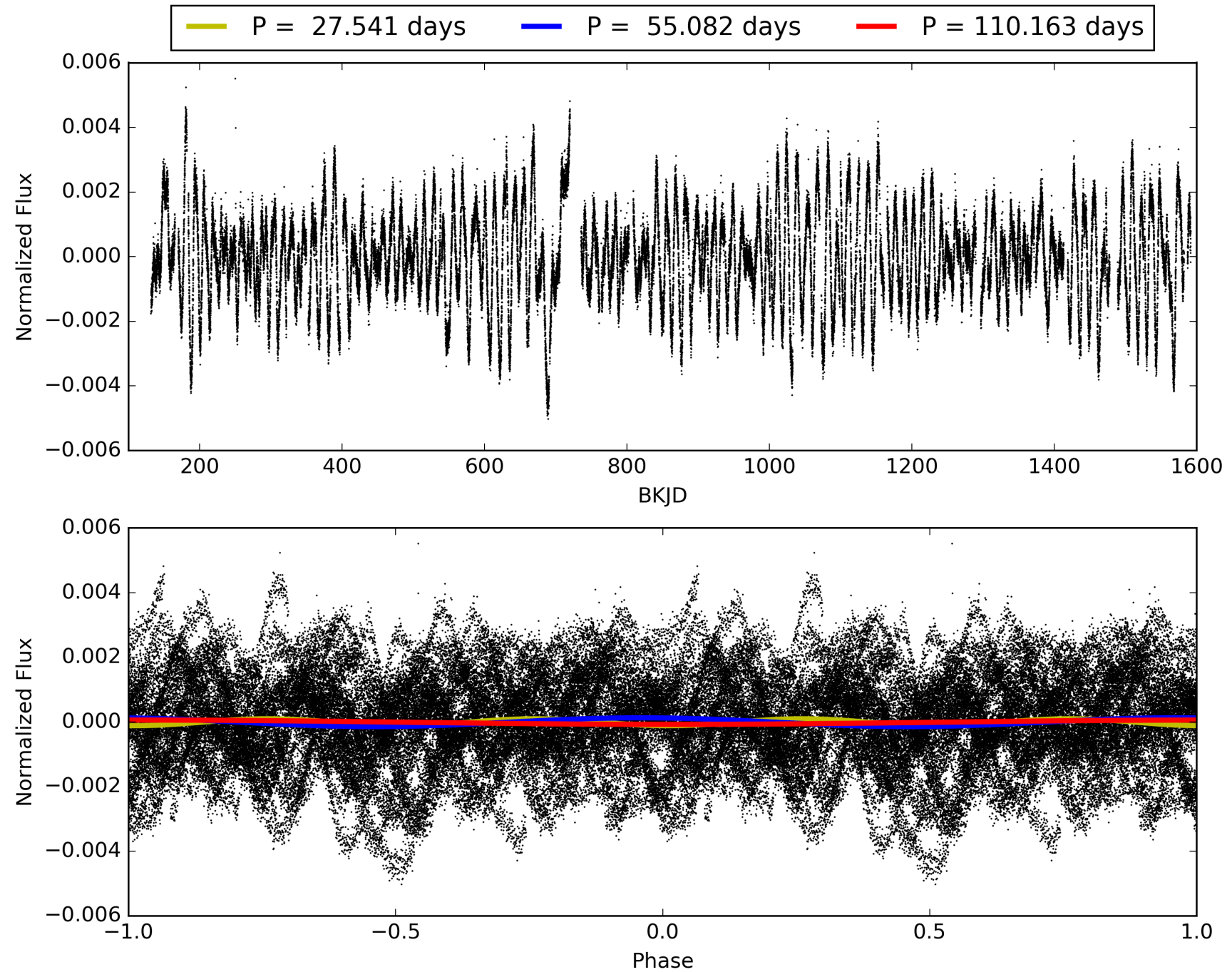
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007595928-04, PDC Light Curves





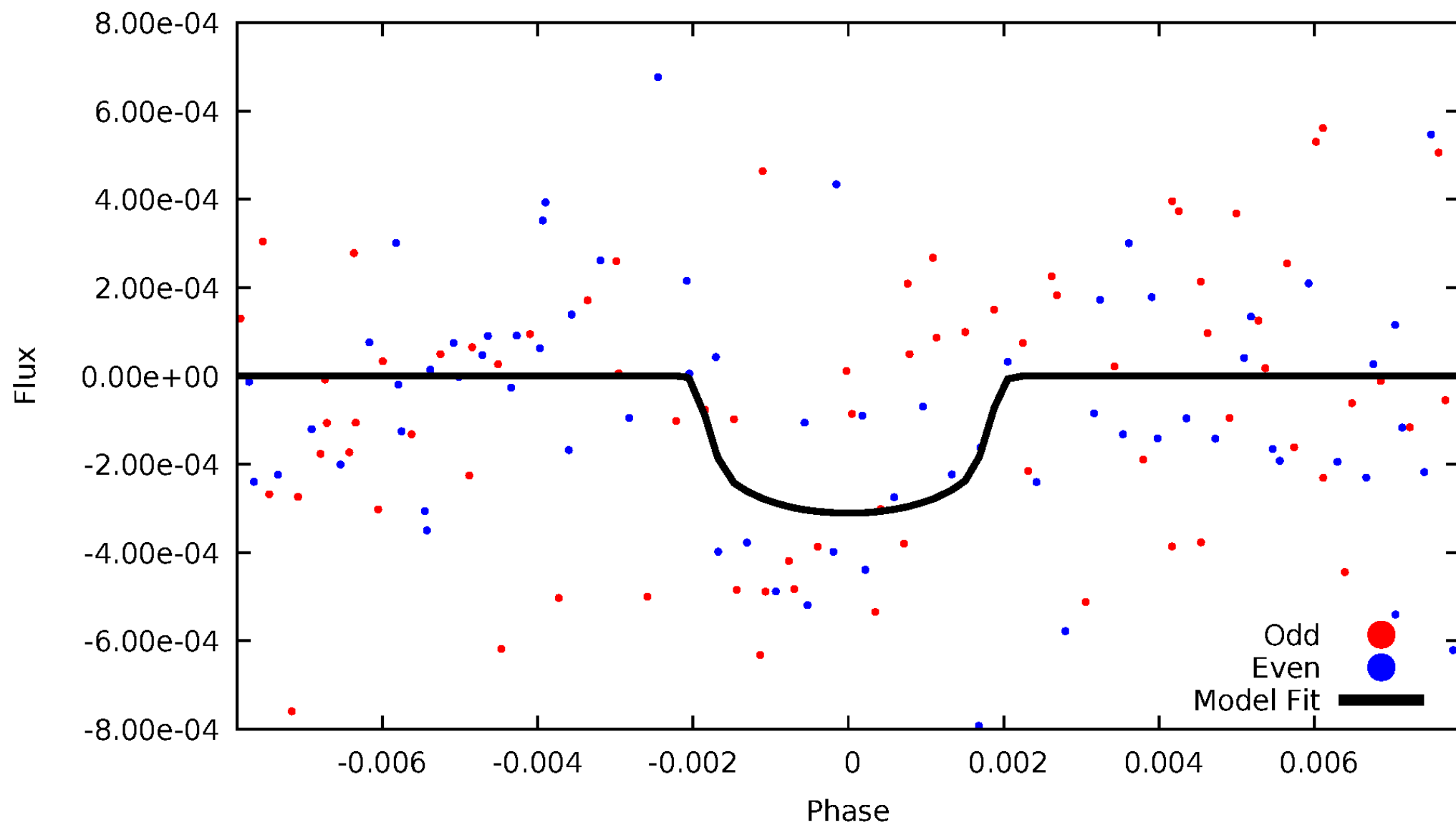
TCE 007595928-04





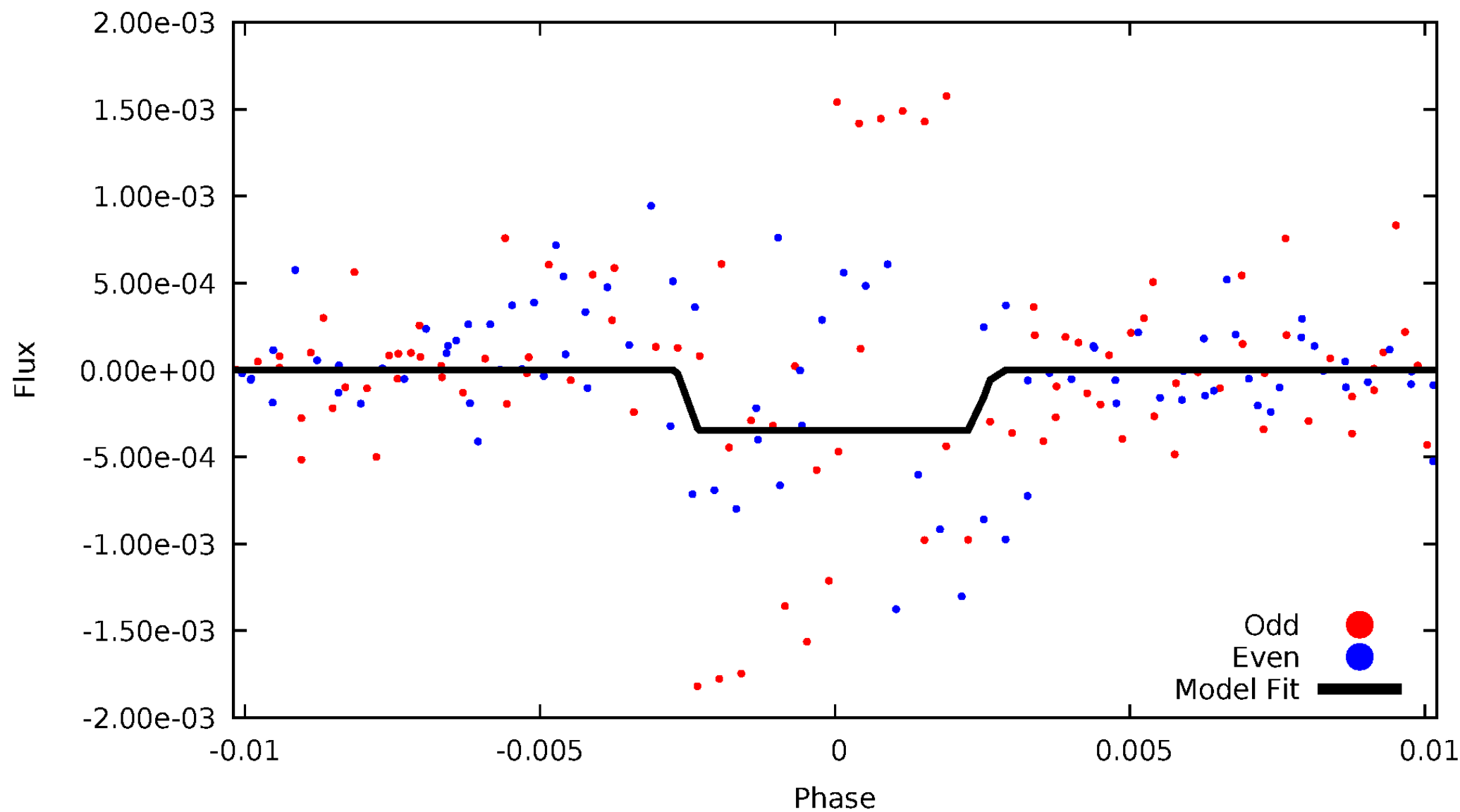
# DV Odd/Even

TCE 007595928-04



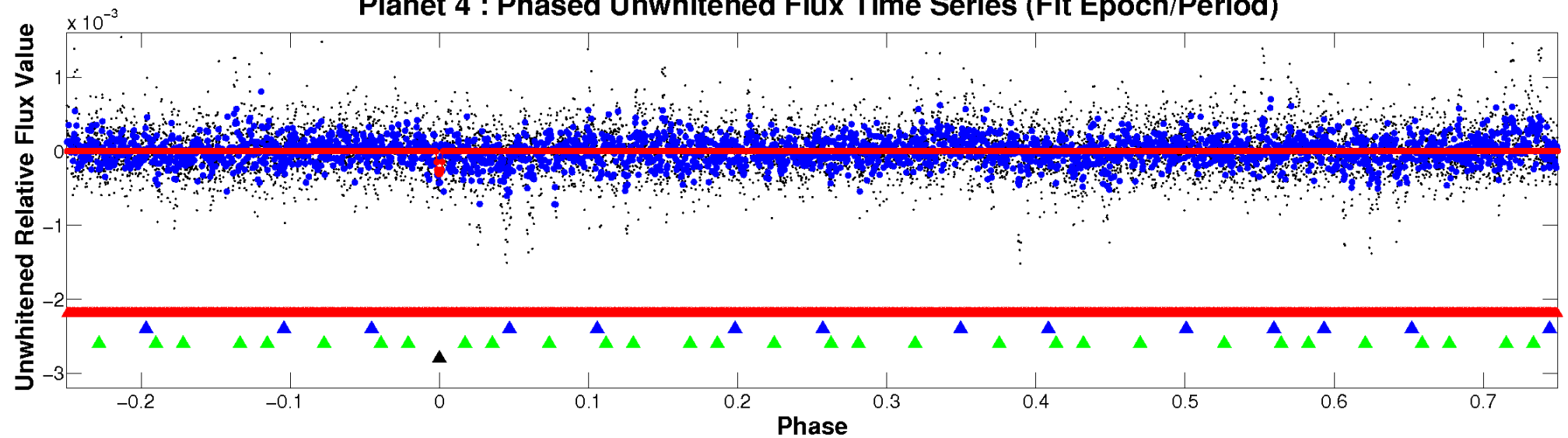
# ALT Odd/Even

TCE 007595928-04

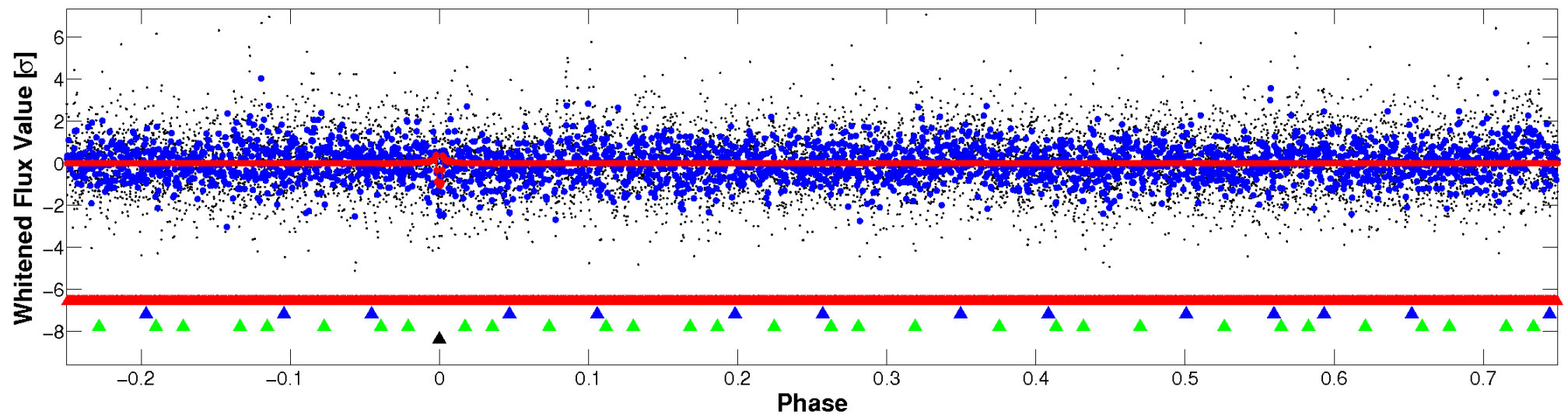


# Non-Whitened Vs. Whitened Light Curve

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

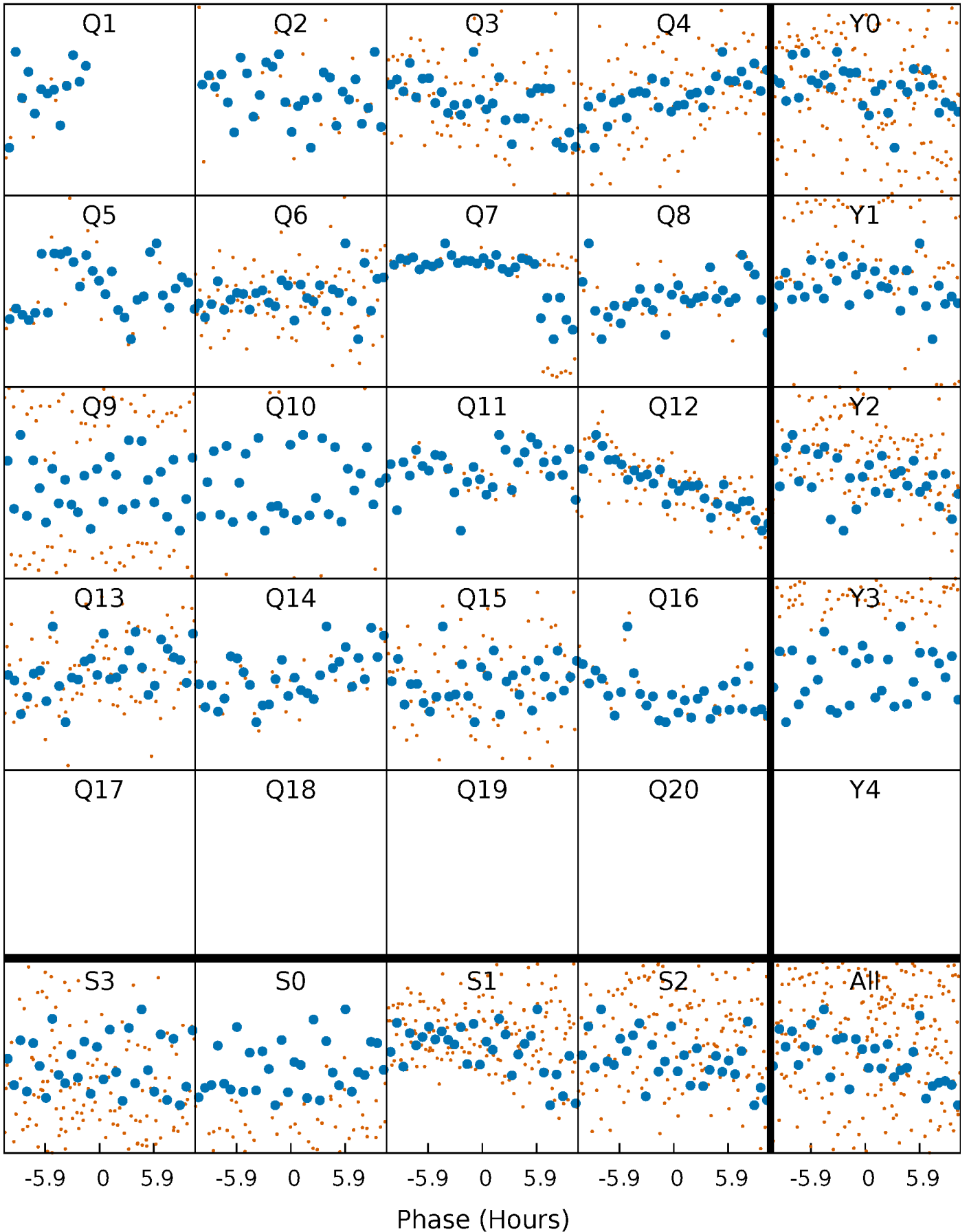


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



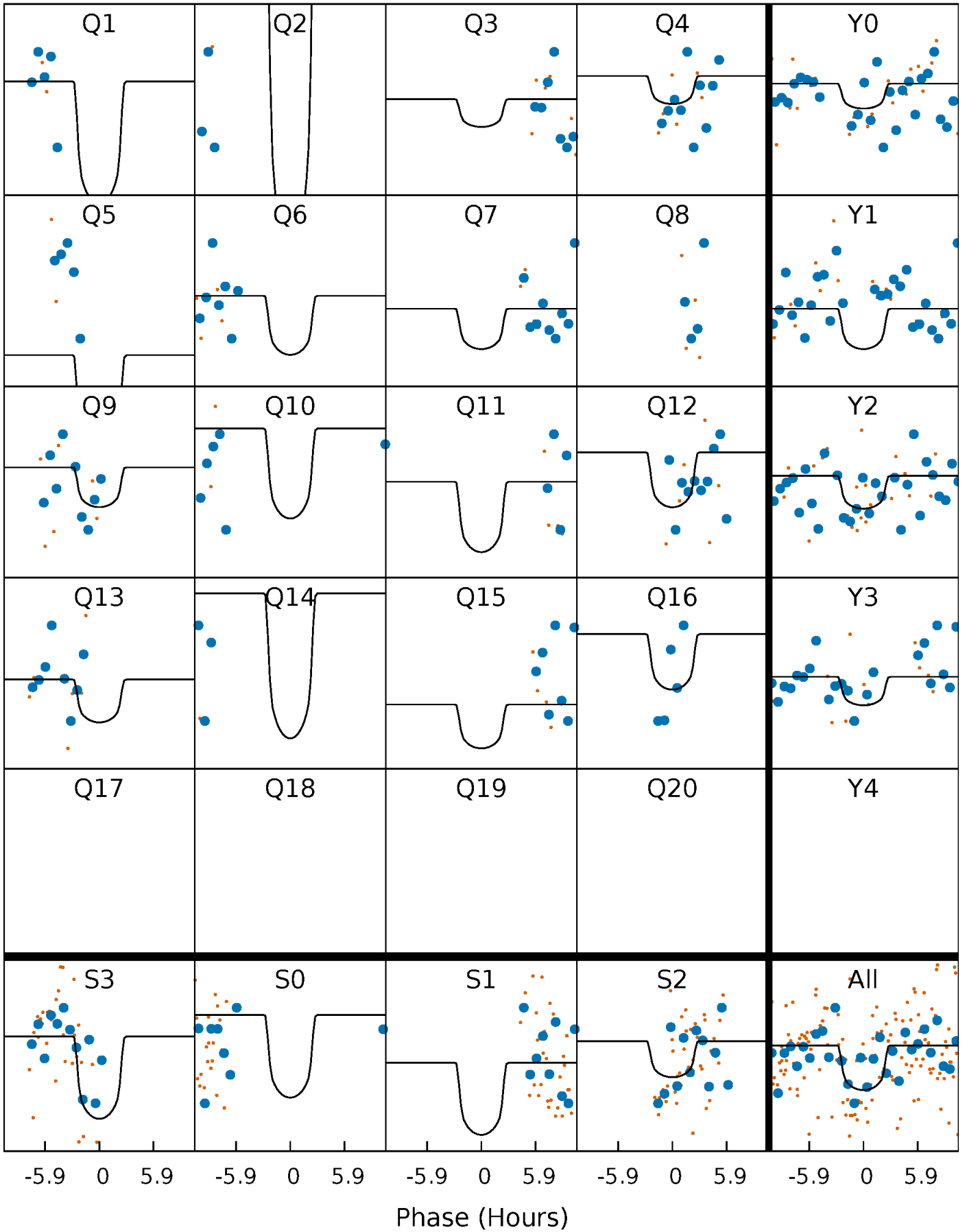
# PDC Quarter-Phased Transit Curves

TCE 007595928-04 P= 55.081615 Days  $T_0=165.059469$  (BKJD)



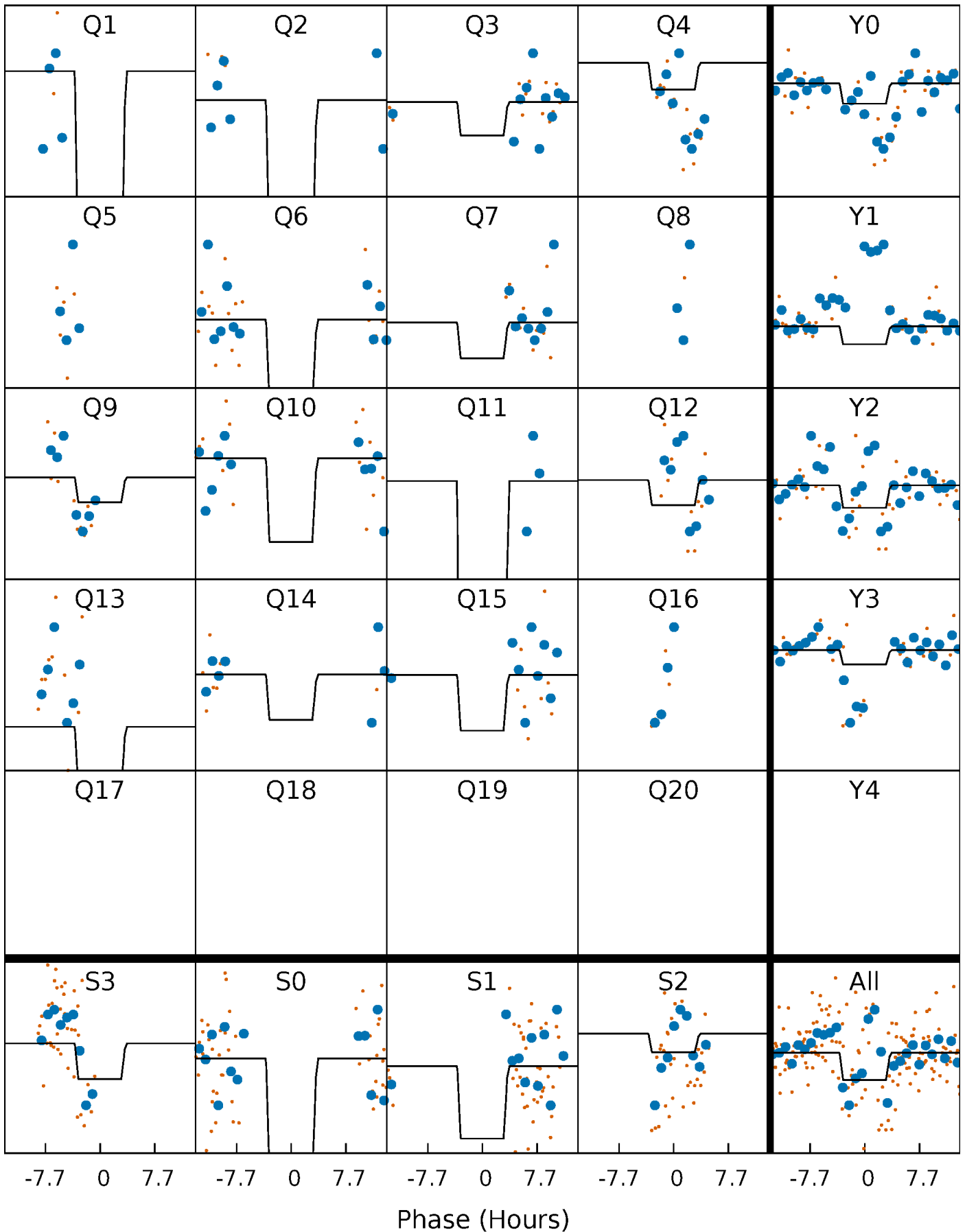
# DV Quarter-Phased Transit Curves

TCE 007595928-04   P= 55.081615 Days    $T_0=165.059469$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

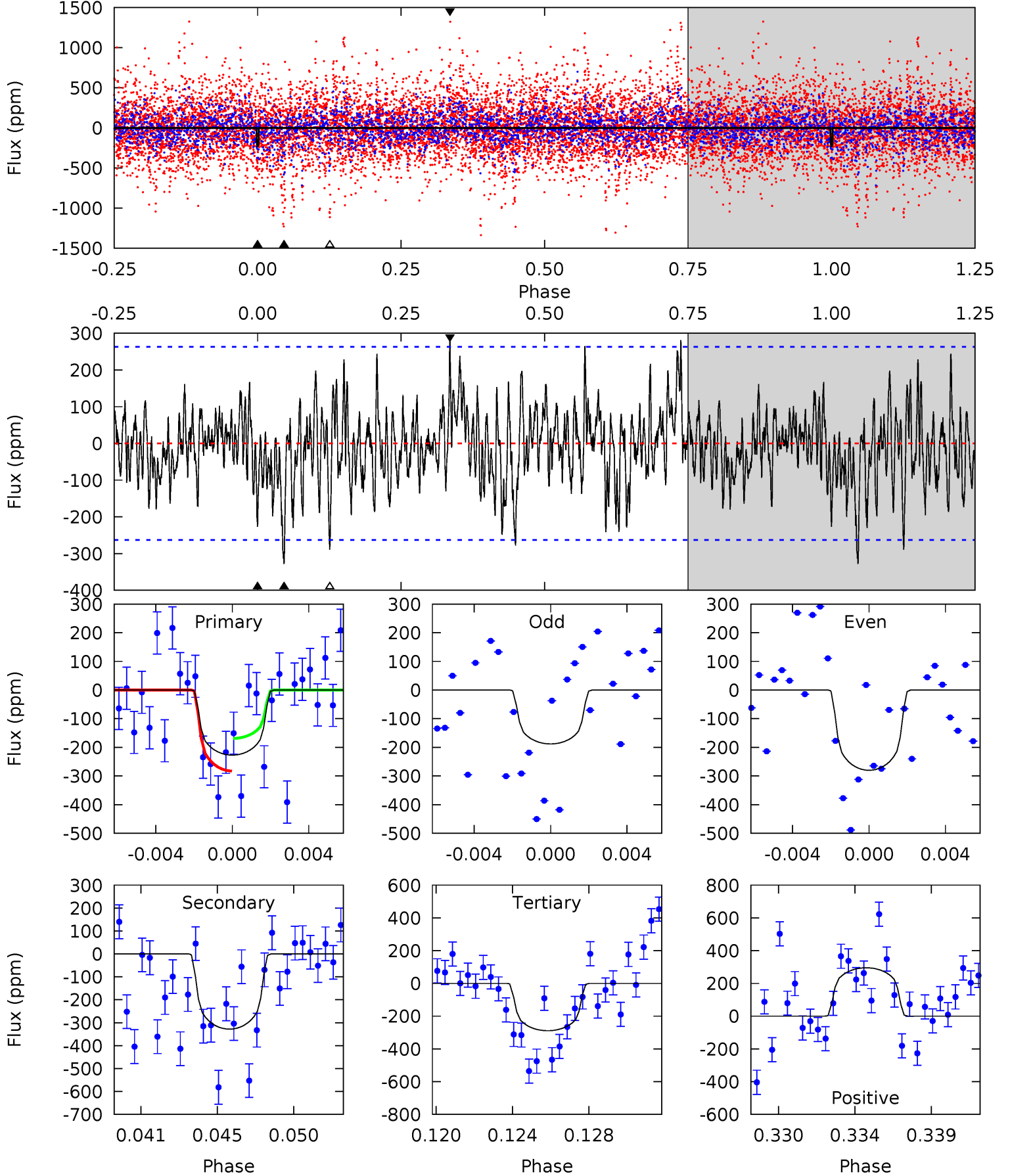
TCE 007595928-04   P= 55.082267 Days    $T_0=165.092399$  (BKJD)



# DV Model-Shift Uniqueness Test

007595928-04, P = 55.081615 Days, E = 109.977854 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
4.49	6.48	5.71	5.84	5.19	2.87	1.75	-1.22	-1.35	0.77	0.65	0.90	1.00	0.47	1.13

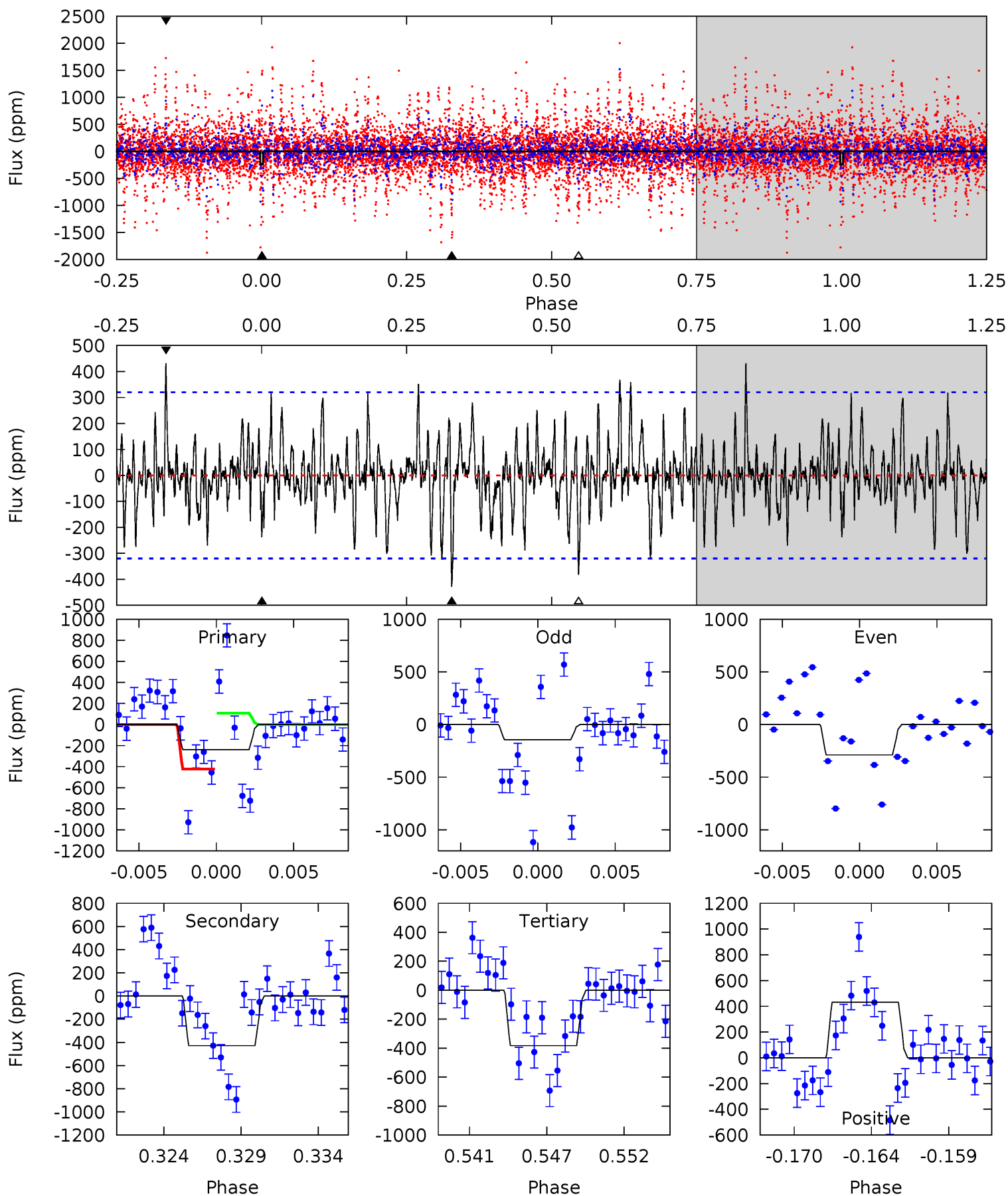




# Alt Model-Shift Uniqueness Test

007595928-04, P = 55.082267 Days, E = 110.010132 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
3.82	6.89	6.15	6.94	5.15	2.79	1.69	-2.33	-3.12	0.73	-0.05	1.19	0.61	0.50	2.57



### Stellar Parameters For KIC 007595928

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5092^{+152}_{-137}$	$4.462^{+0.094}_{-0.329}$	$0.200^{+0.200}_{-0.250}$	$0.882^{+0.183}_{-0.112}$	$0.821^{+0.084}_{-0.058}$	$1.688^{+0.716}_{-1.110}$
	+3%/-3%	+2%/-7%	+100%/-125%	+21%/-13%	+10%/-7%	+42%/-66%
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 007595928-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-328 \pm 51$	$2.40^{+2.12}_{-1.52}$	$585^{+42}_{-33}$	$4563^{+2920}_{-924}$	$2297^{+13992}_{-1693}$
Alt.	$-428 \pm 62$	$2.51^{+2.26}_{-1.65}$	$587^{+42}_{-32}$	$4794^{+3378}_{-1039}$	$2653^{+20272}_{-1922}$

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

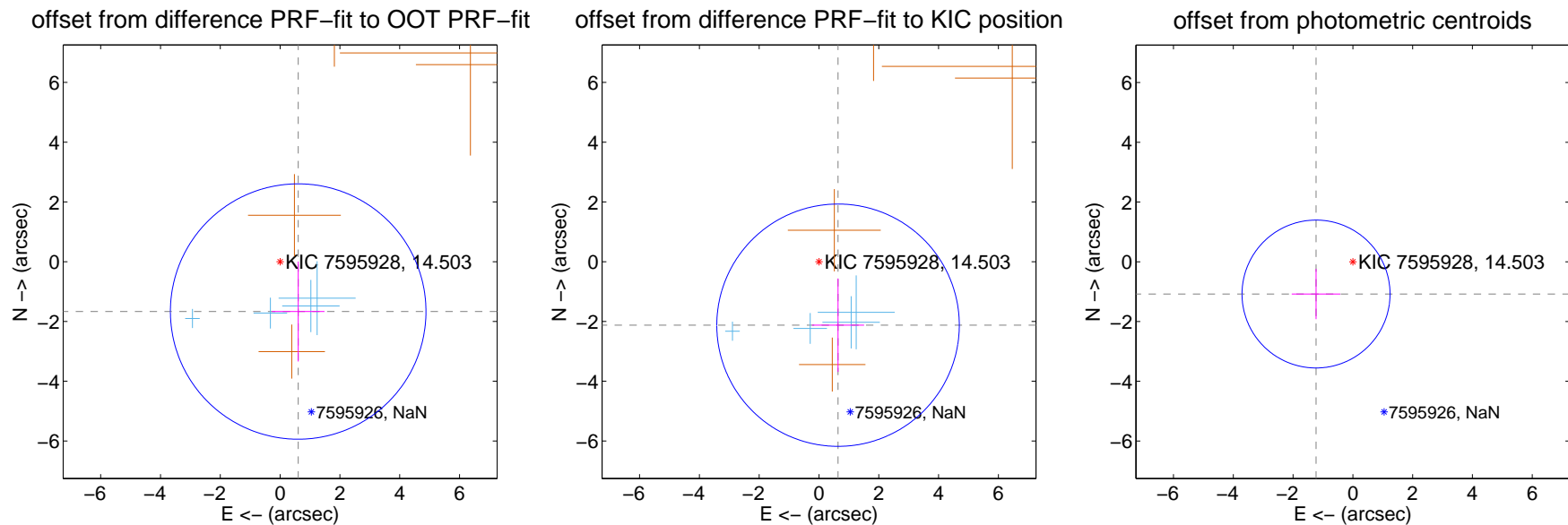
## DV Centroid Data

Supplemental centroid analysis for 007595928-04. Kepler magnitude: 14.50. Transit SNR 5.28

There are 4 quarters with good PRF difference image offsets

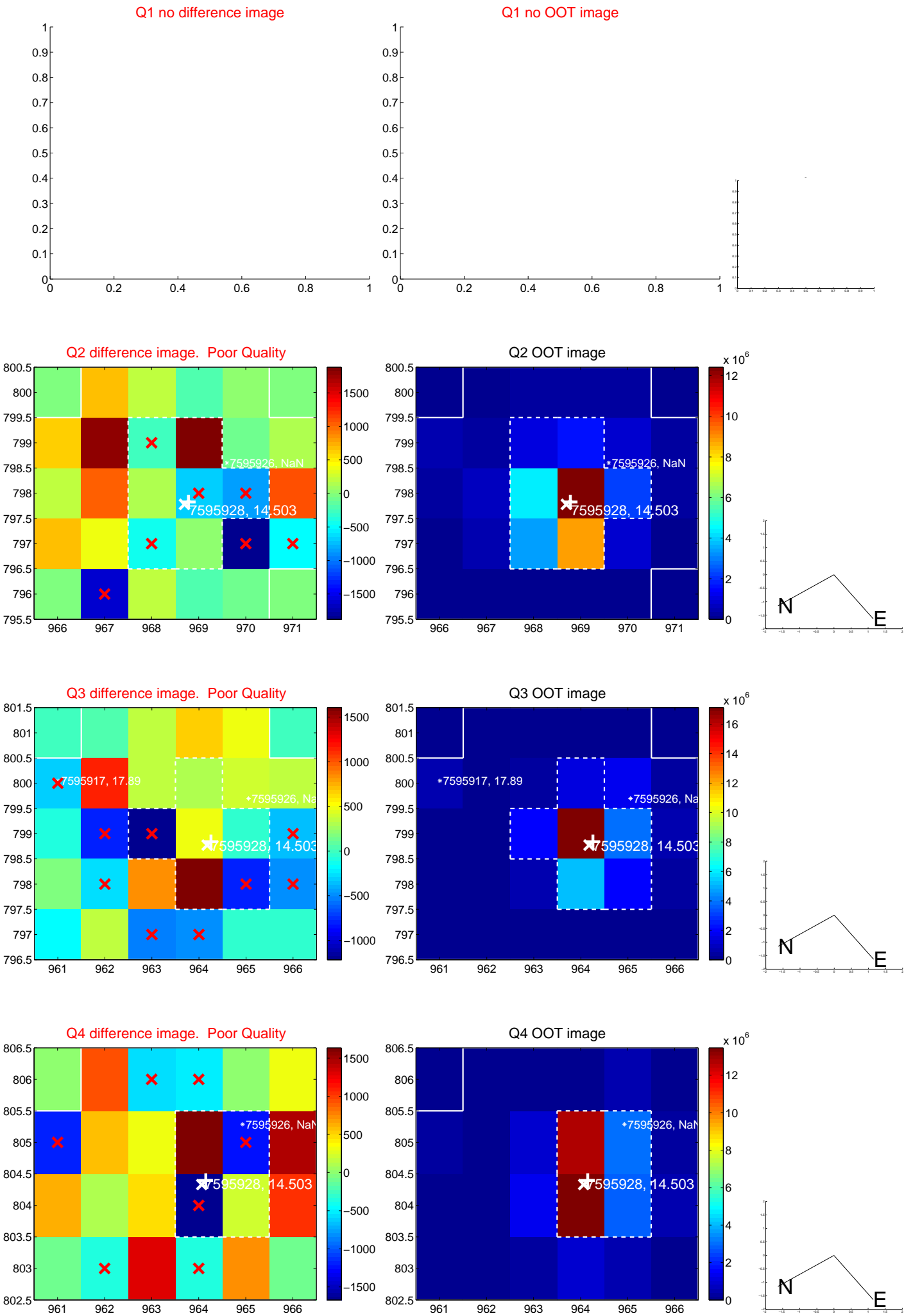
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.773 \pm 1.424$	1.24	$-0.605 \pm 0.880$	$-1.667 \pm 1.674$
PRF-fit source offset from KIC position	$2.219 \pm 1.352$	1.64	$-0.638 \pm 0.870$	$-2.125 \pm 1.563$
photometric centroid source offset	$1.64 \pm 0.83$	1.99	$1.23 \pm 0.81$	$-1.08 \pm 0.84$

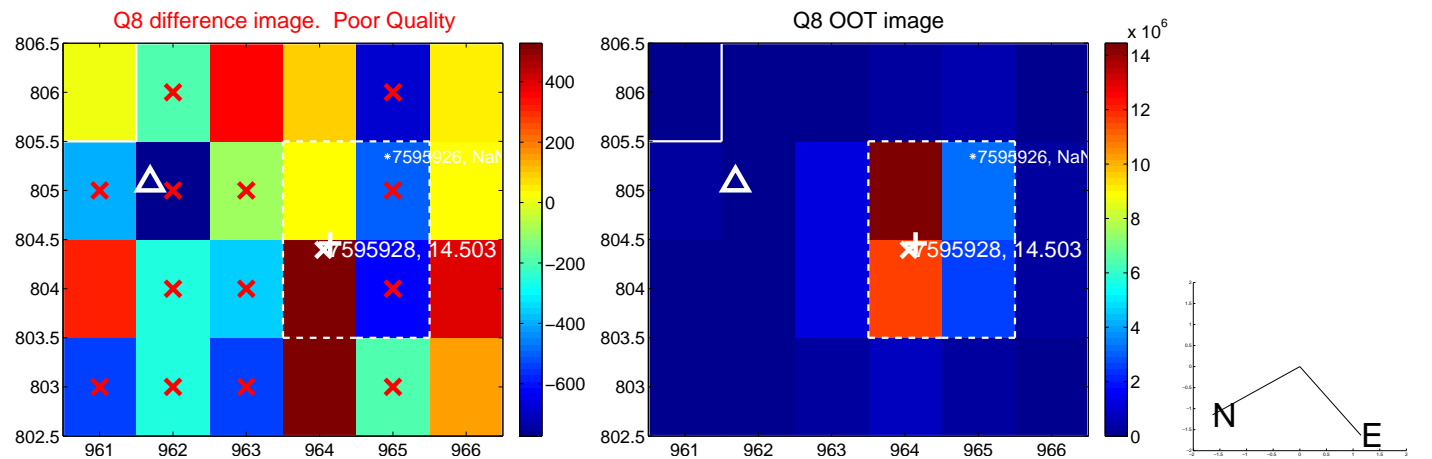
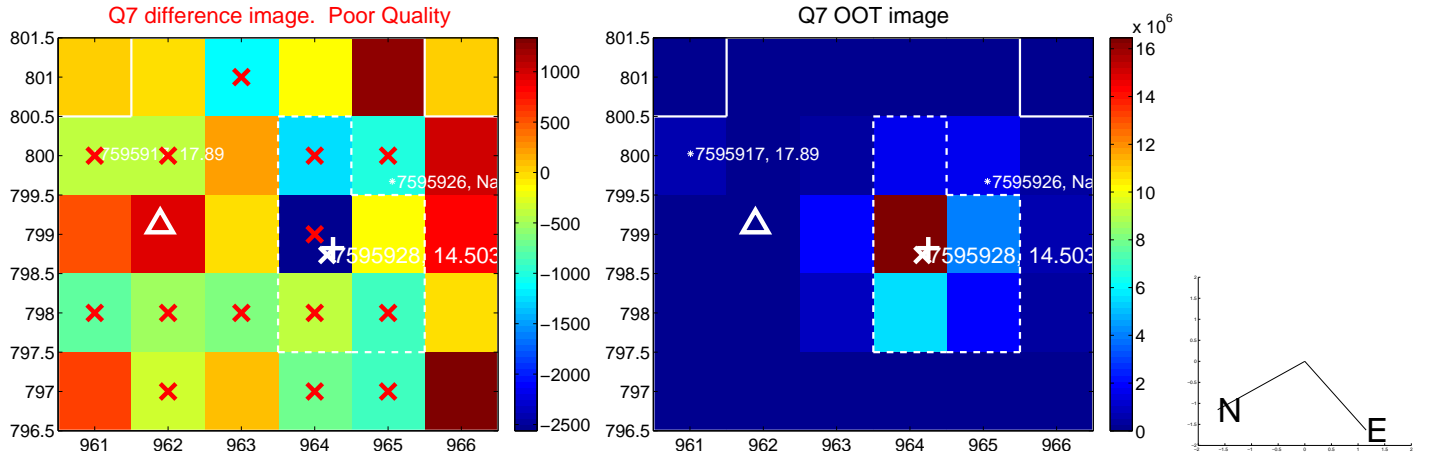
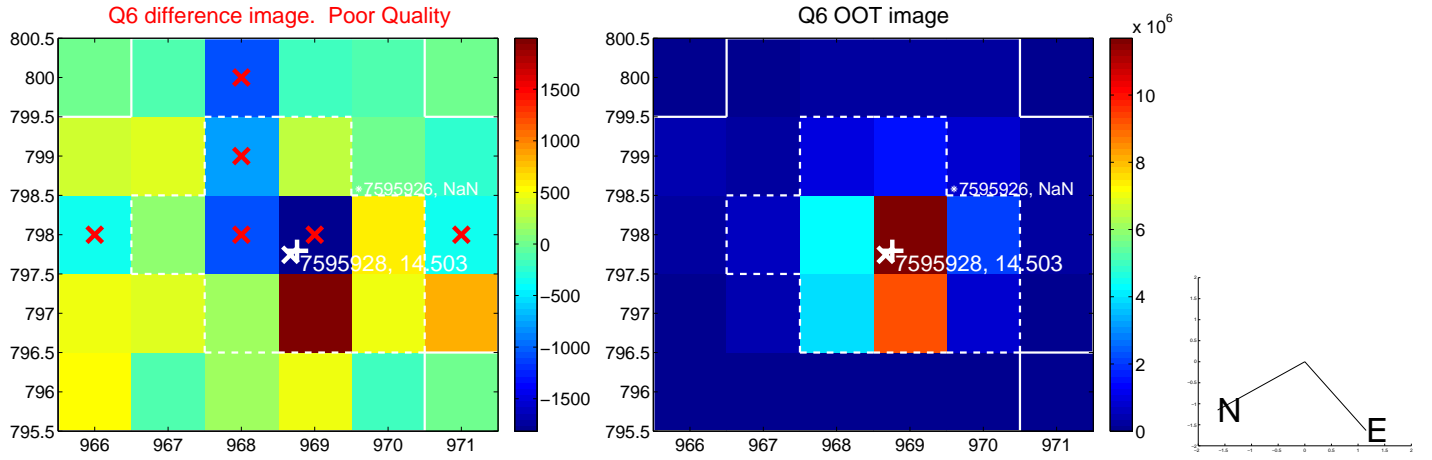
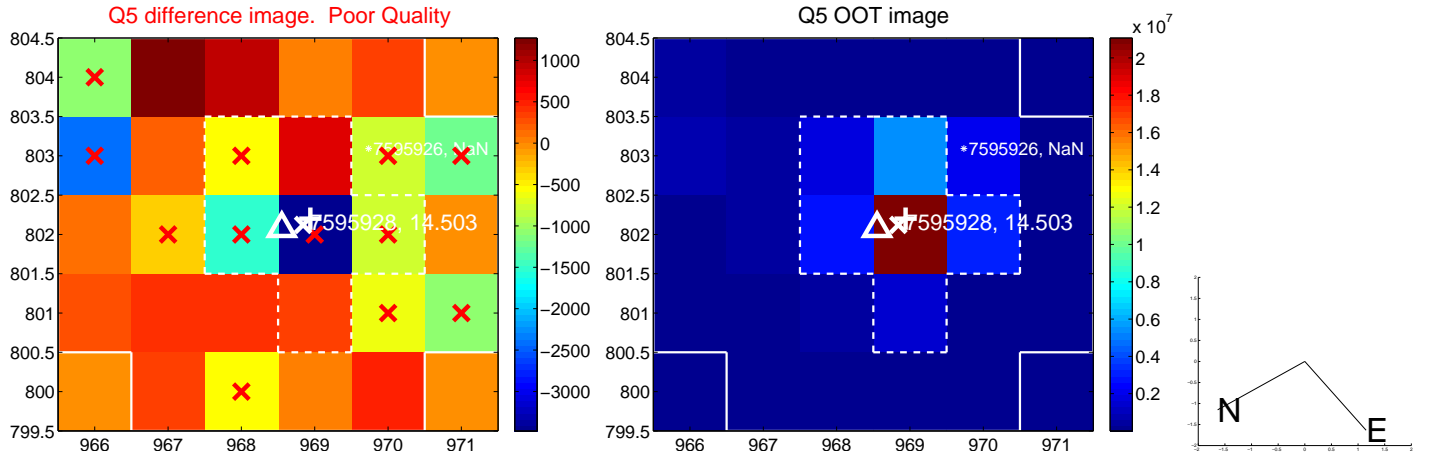


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

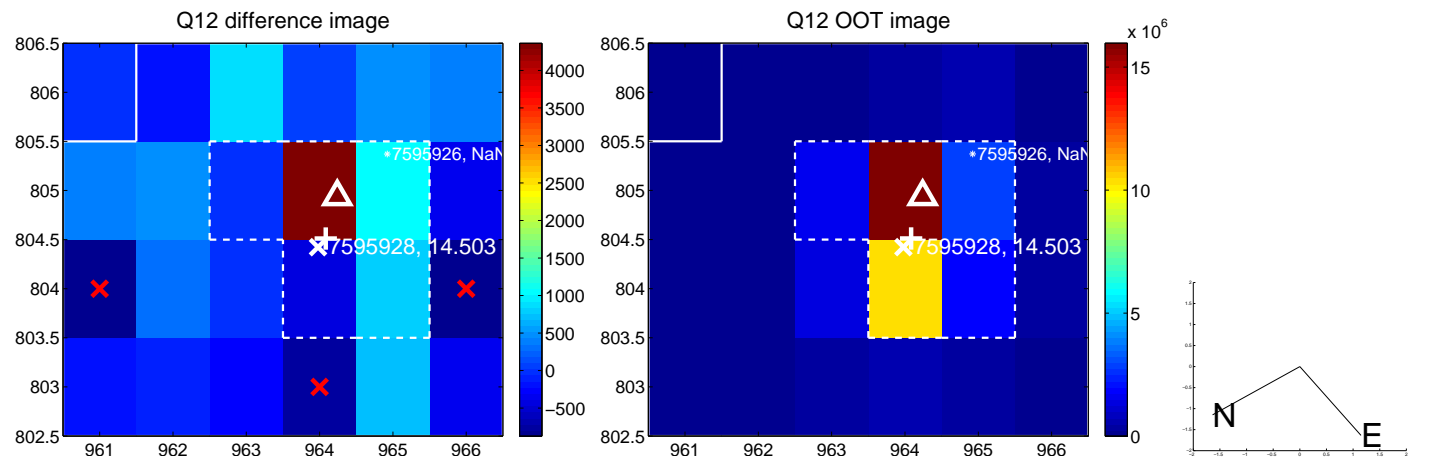
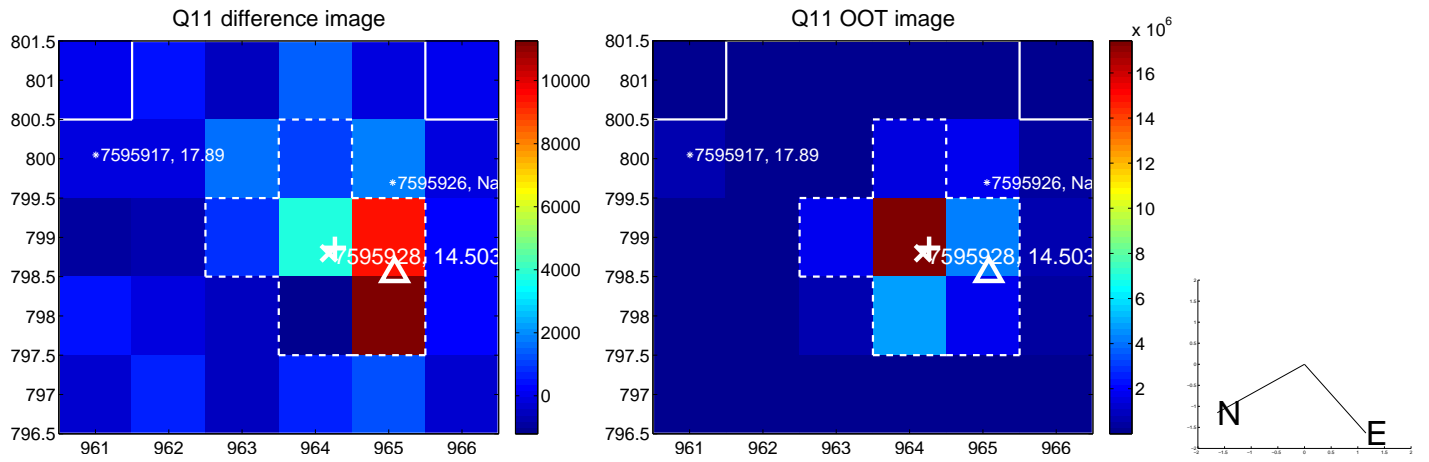
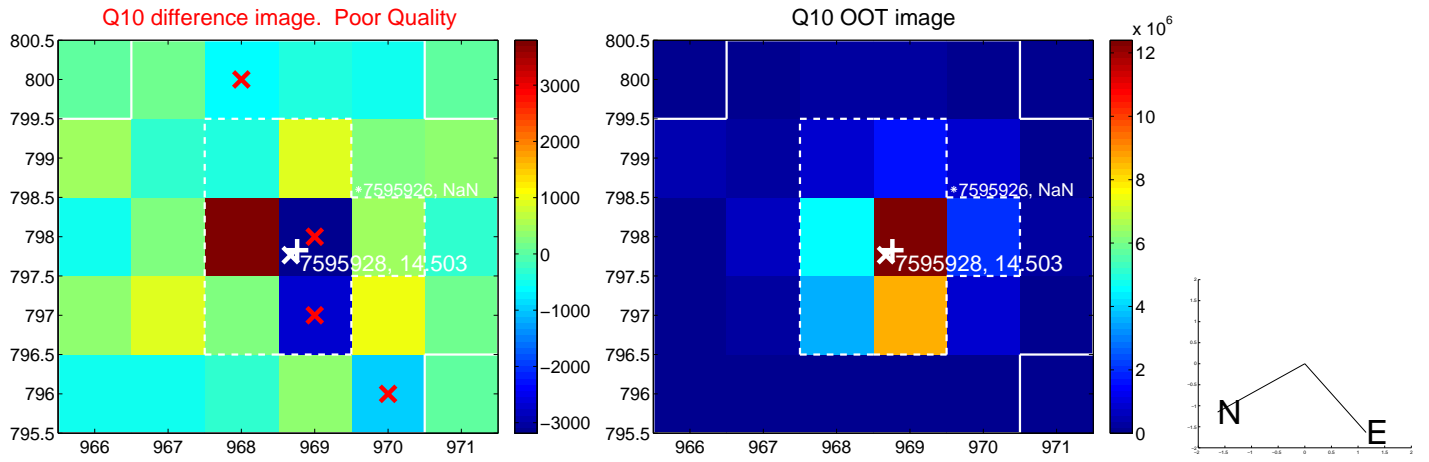
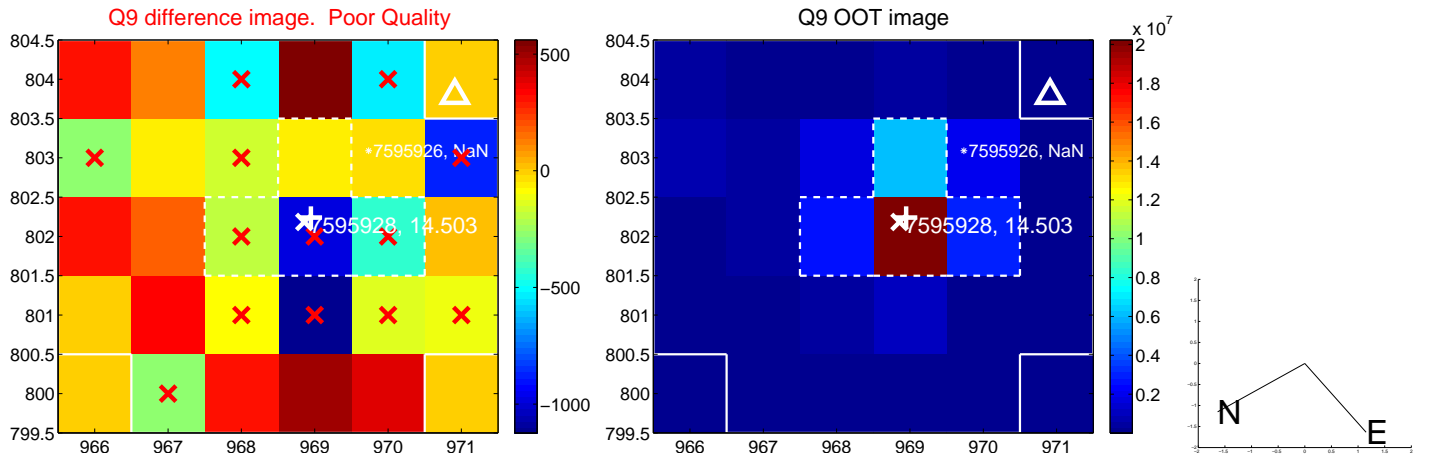
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



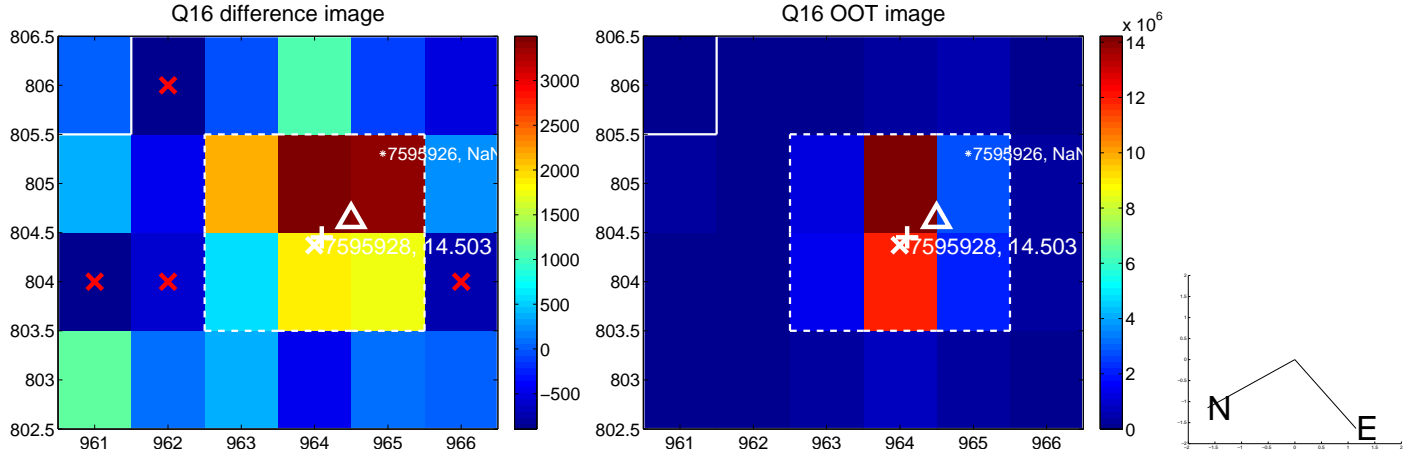
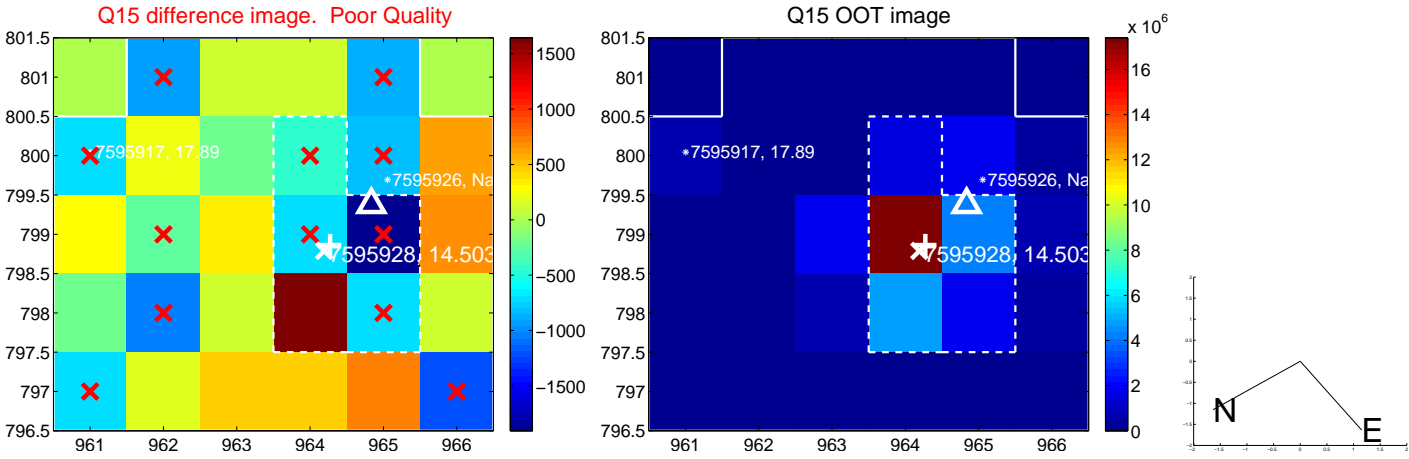
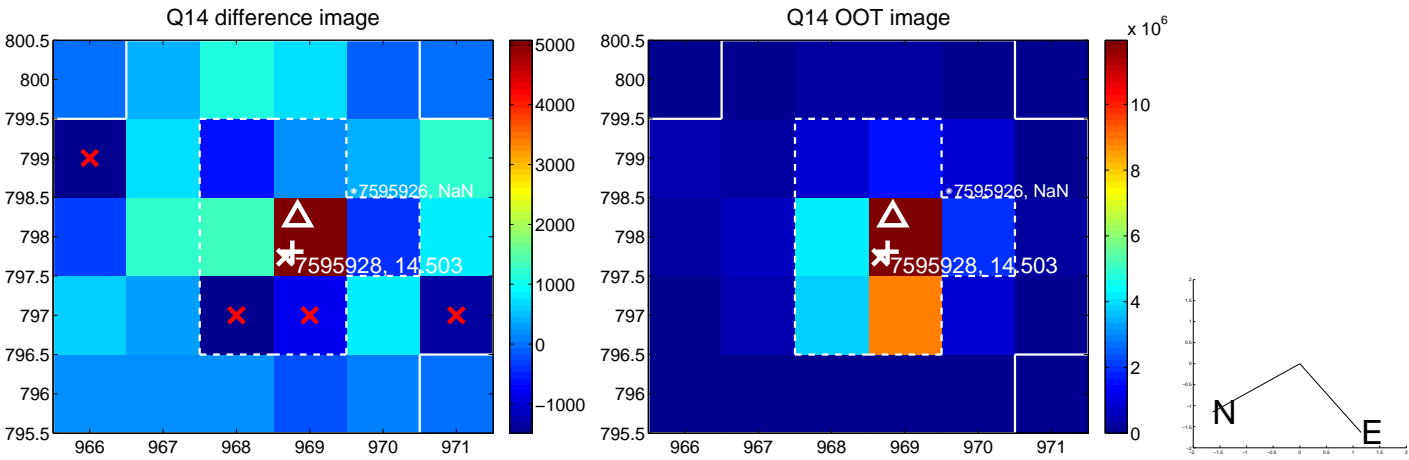
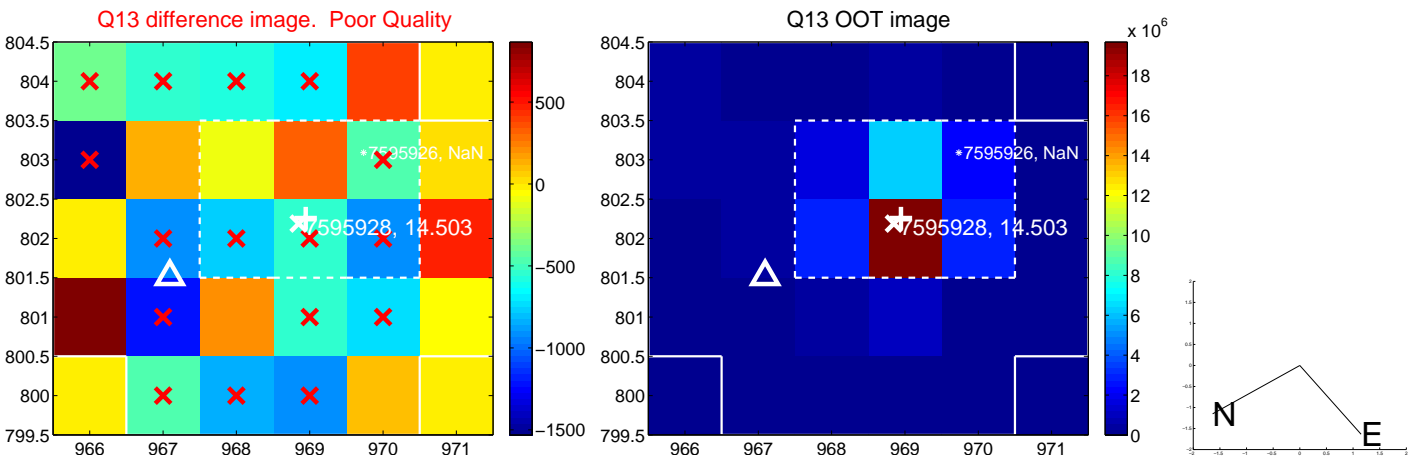
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

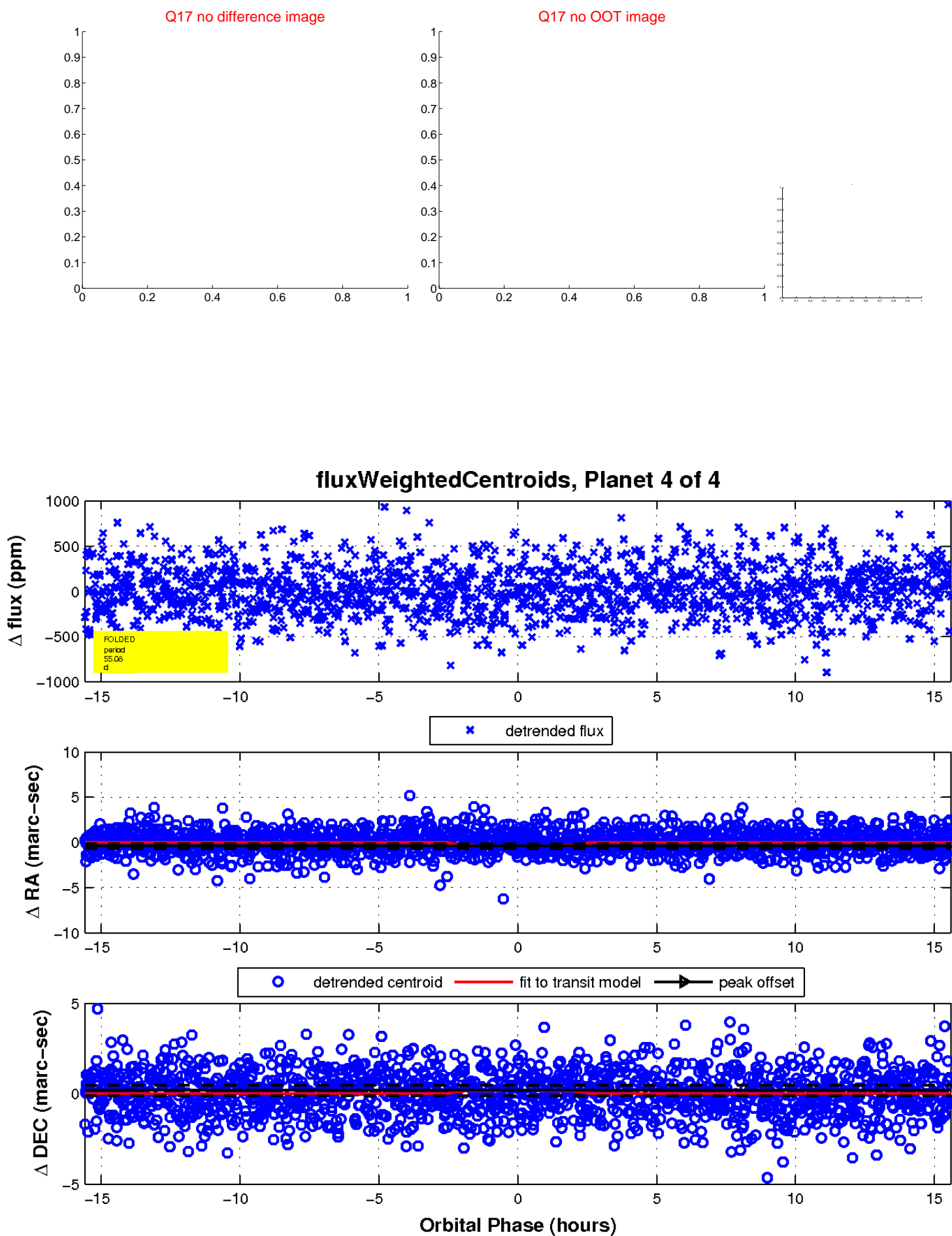


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

