

# KIC 003459079

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003459079-01	OBS	No	1.180846	132.577345	40.3	5.000	7.3	6.6	0.77	5318	0.58	1095.20
003459079-02	OBS	No	128.668656	231.342439	254.1	1.643	18.6	3.0	0.77	5318	1.23	2.10
003459079-04	OBS	No	128.771039	230.035488	788.6	11.293	13.6	7.8	0.77	5318	2.62	2.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003459079-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
003459079-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003459079-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—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.

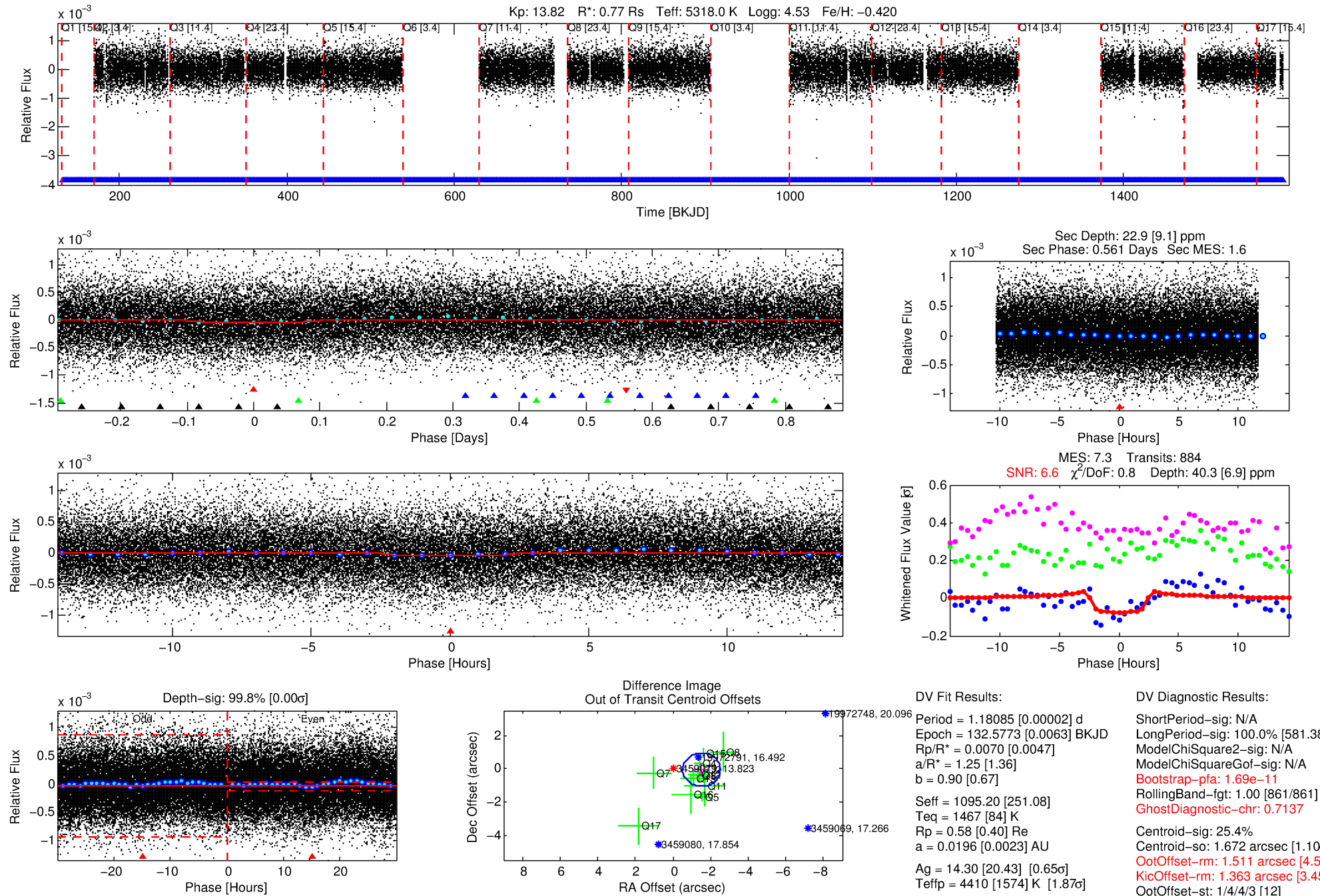
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003459079-01

No Significant Match Found

# DV One-Page Summary

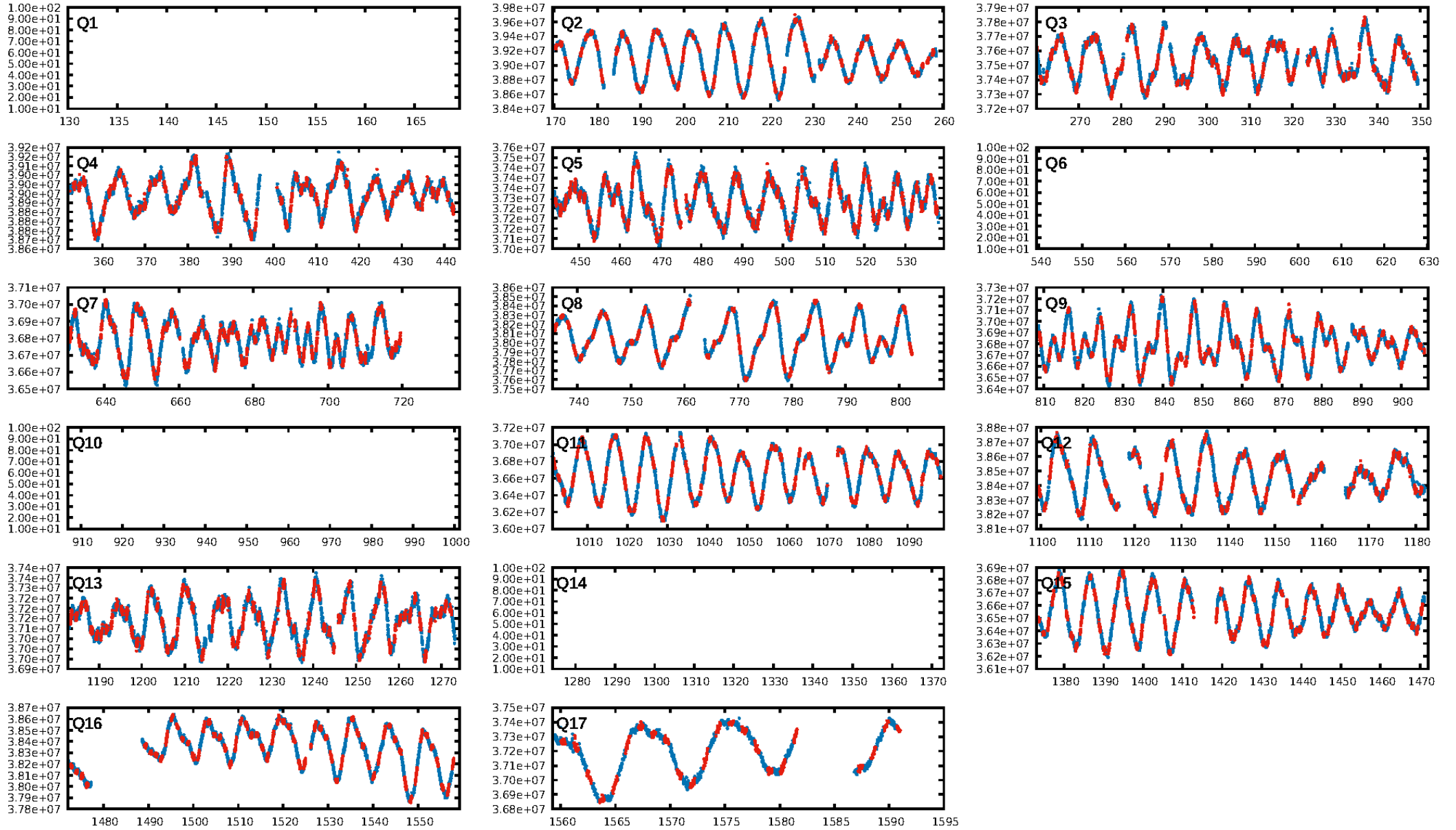
KIC: 3459079 Candidate: 1 of 4 Period: 1.181 d



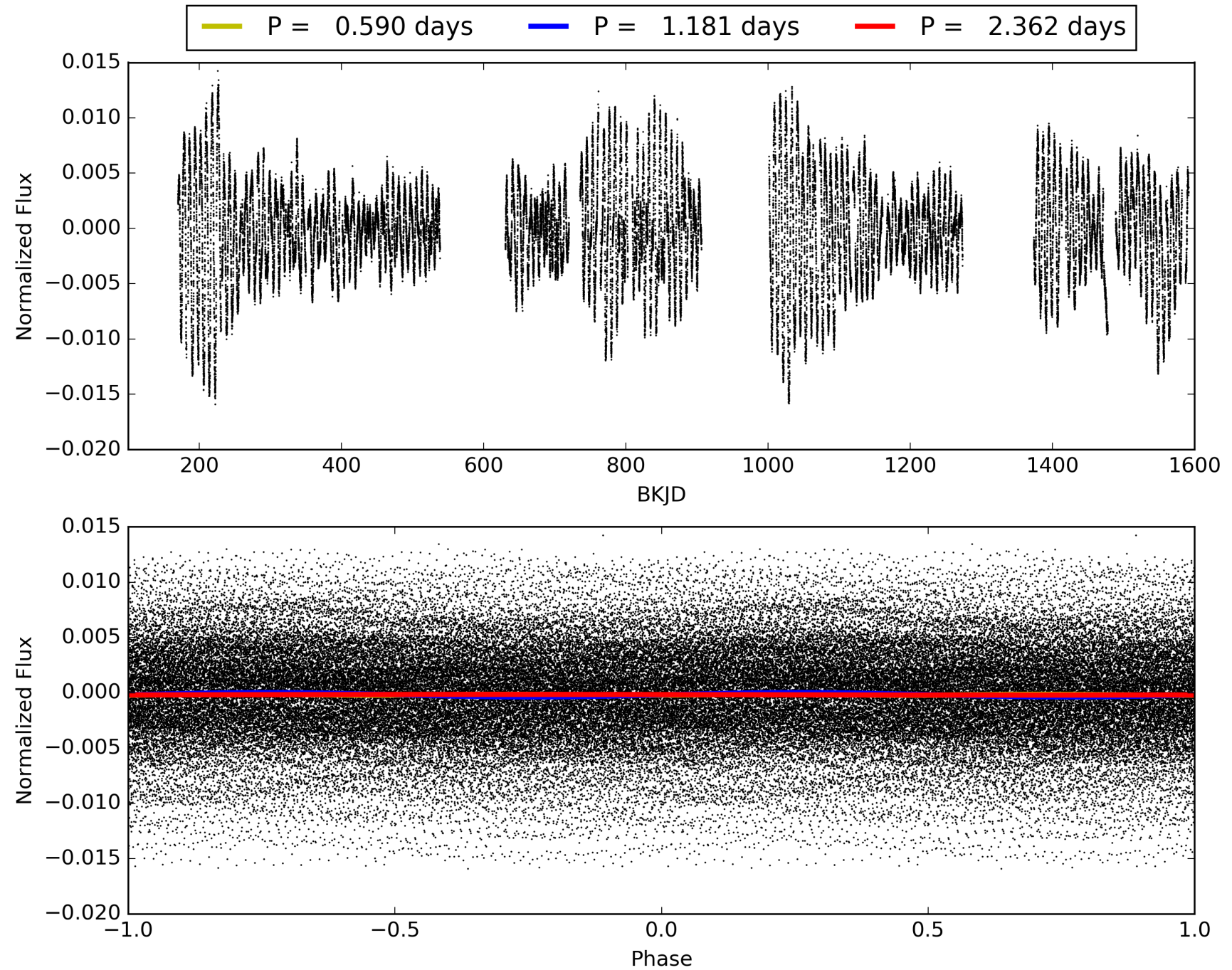
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:22:43 Z

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

# TCE 003459079-01, PDC Light Curves

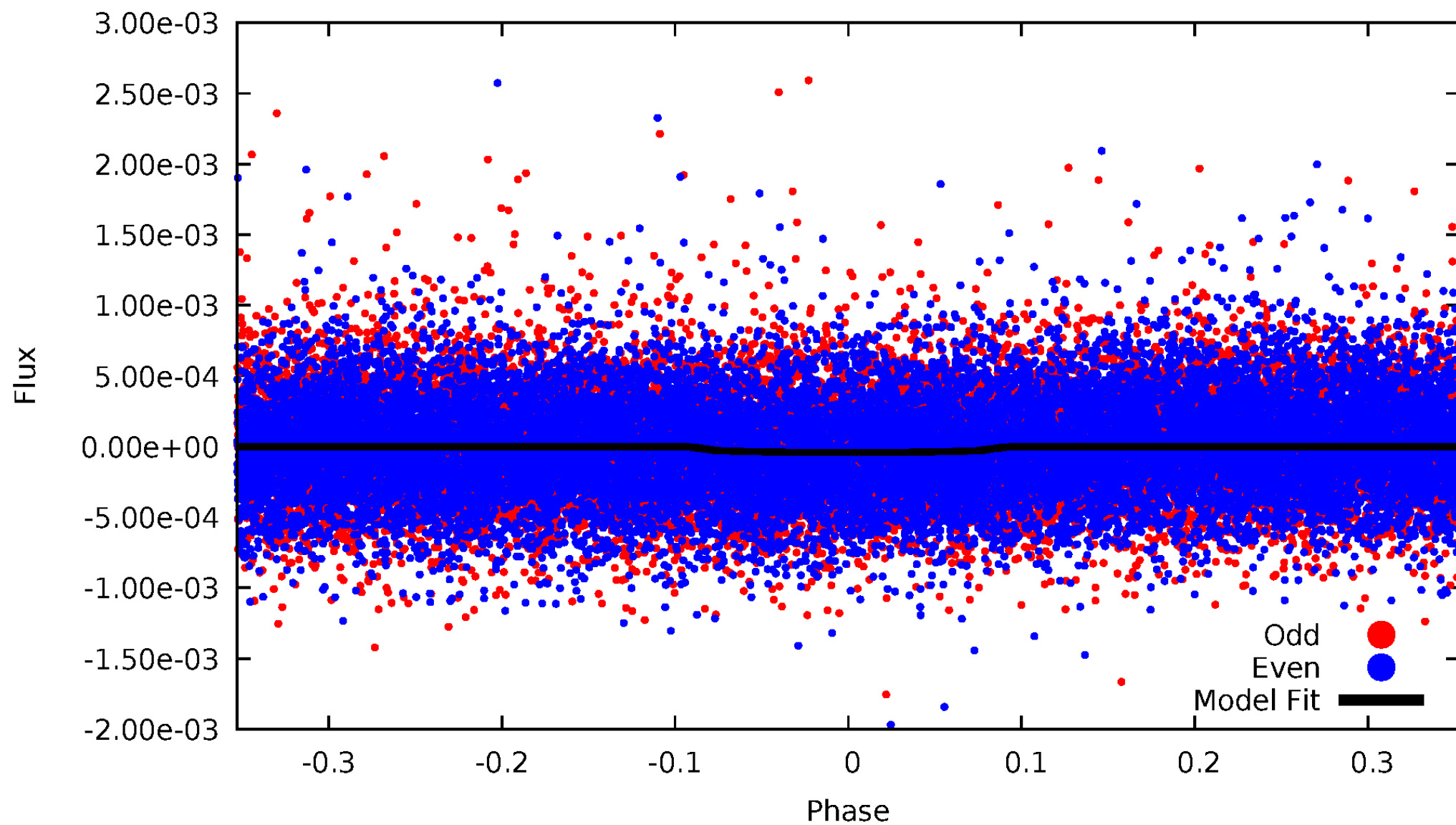


# TCE 003459079-01



# DV Odd/Even

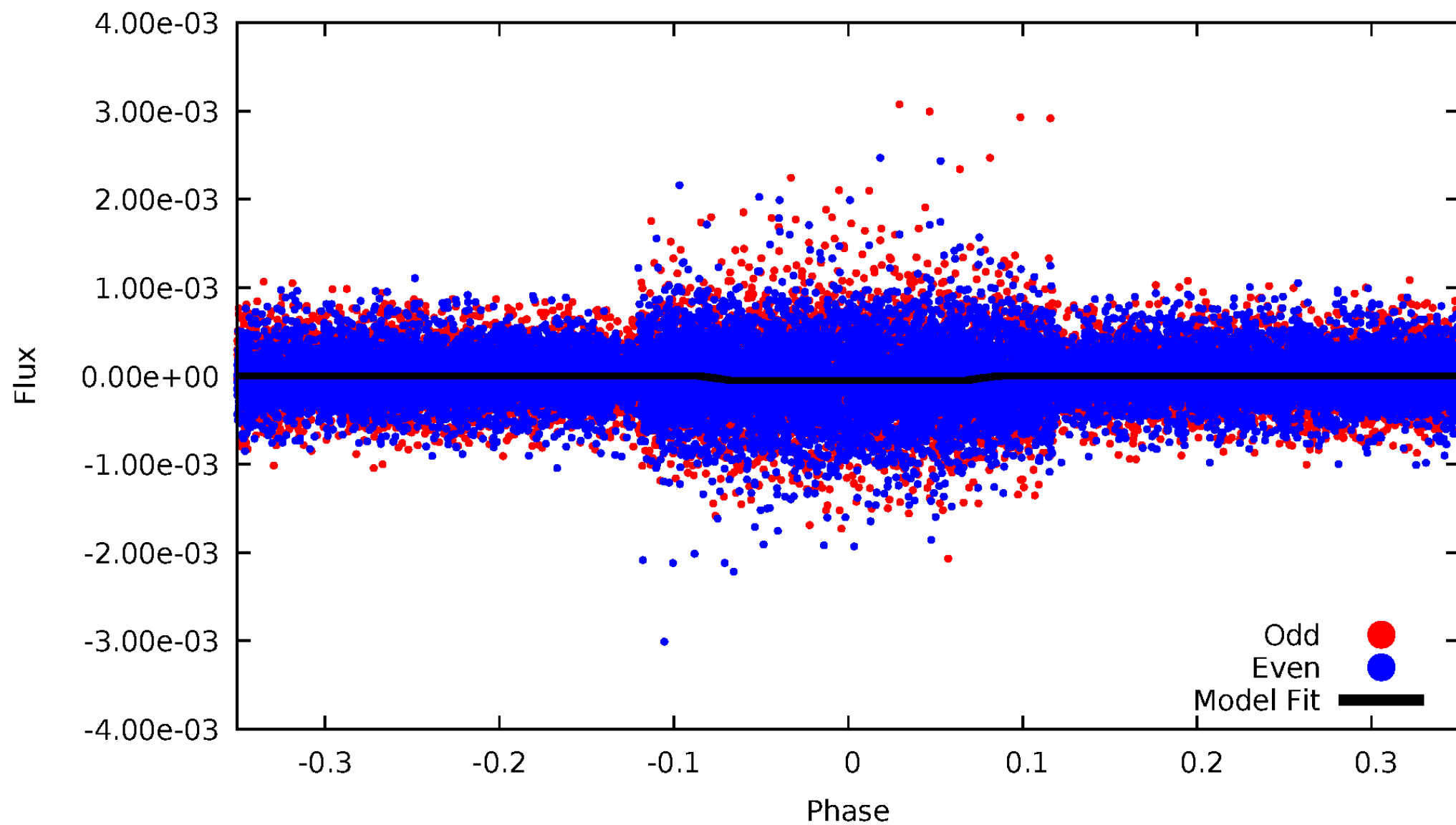
TCE 003459079-01





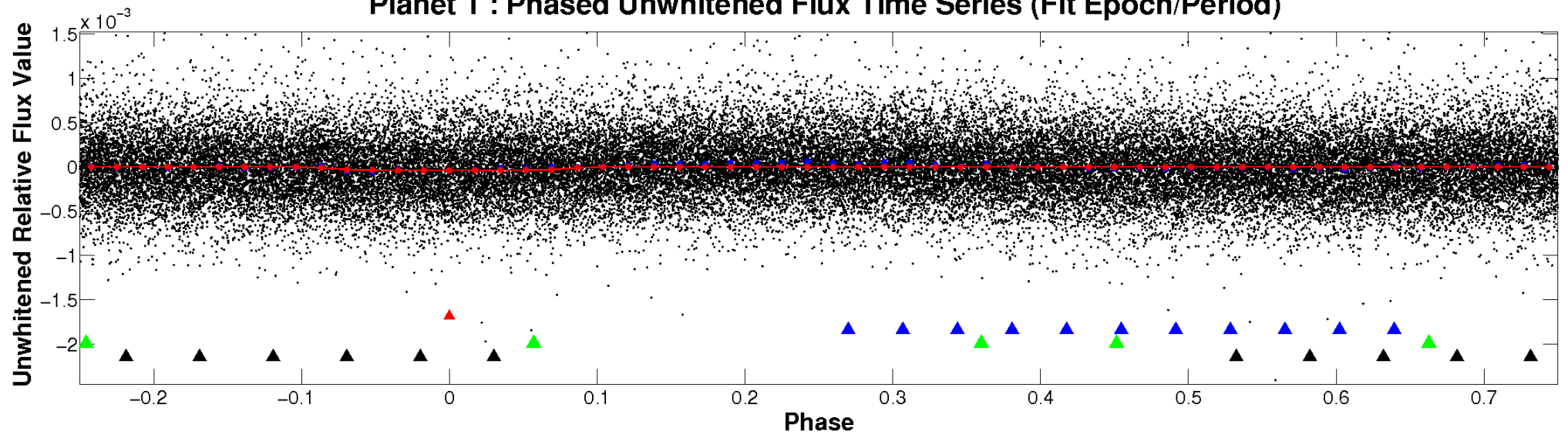
# ALT Odd/Even

TCE 003459079-01

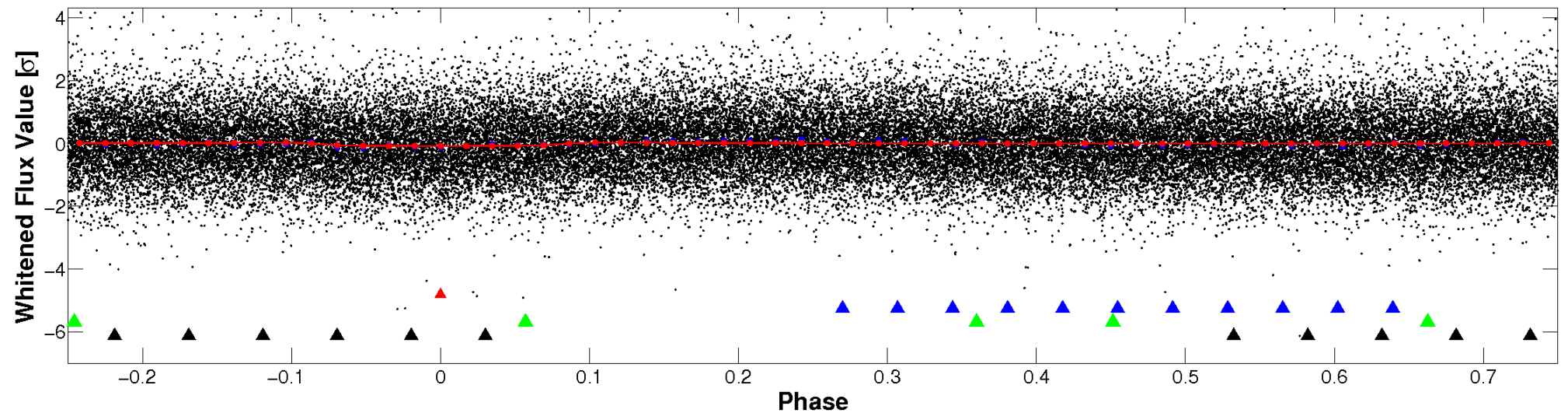


# Non-Whitened Vs. Whitened Light Curve

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

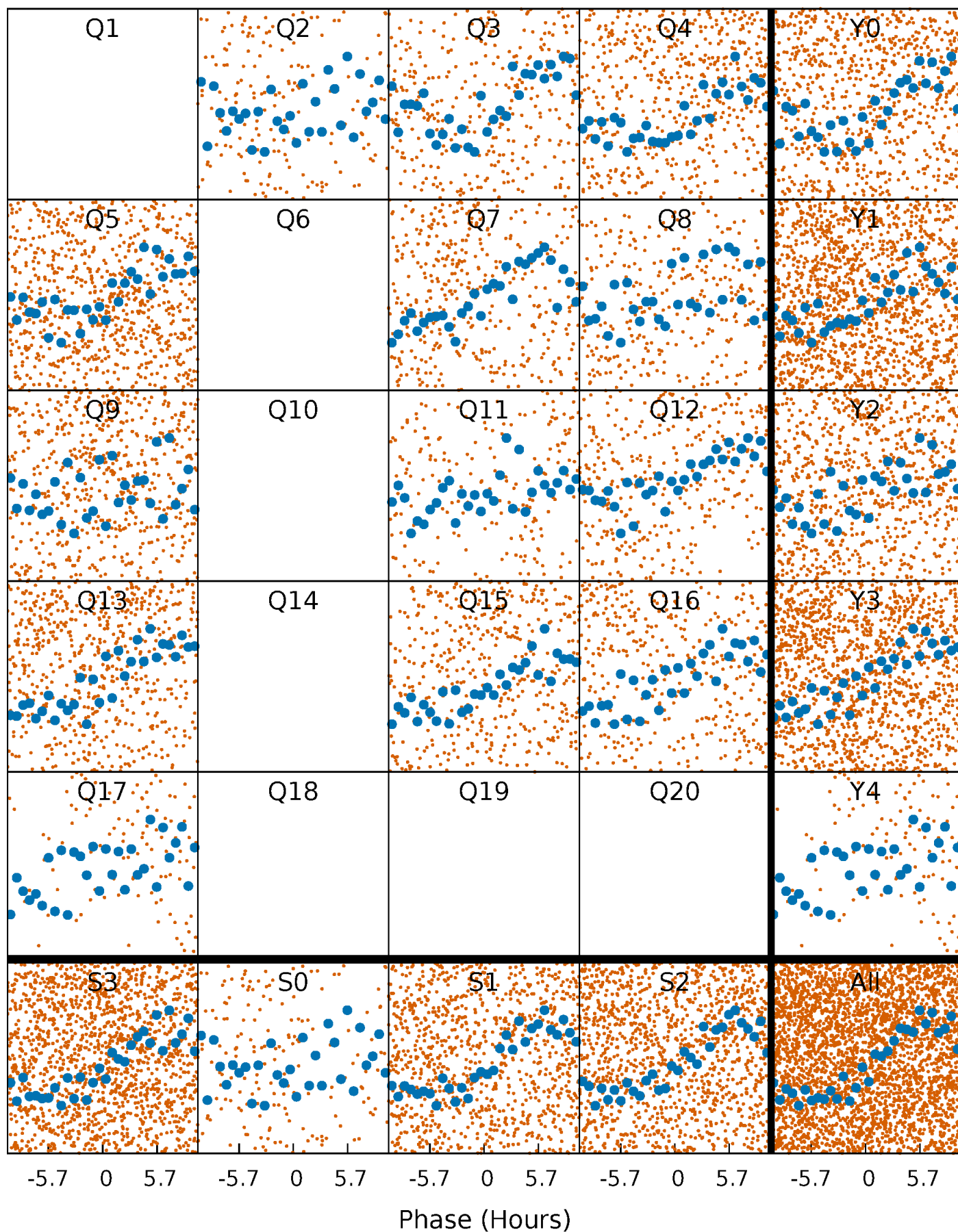


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

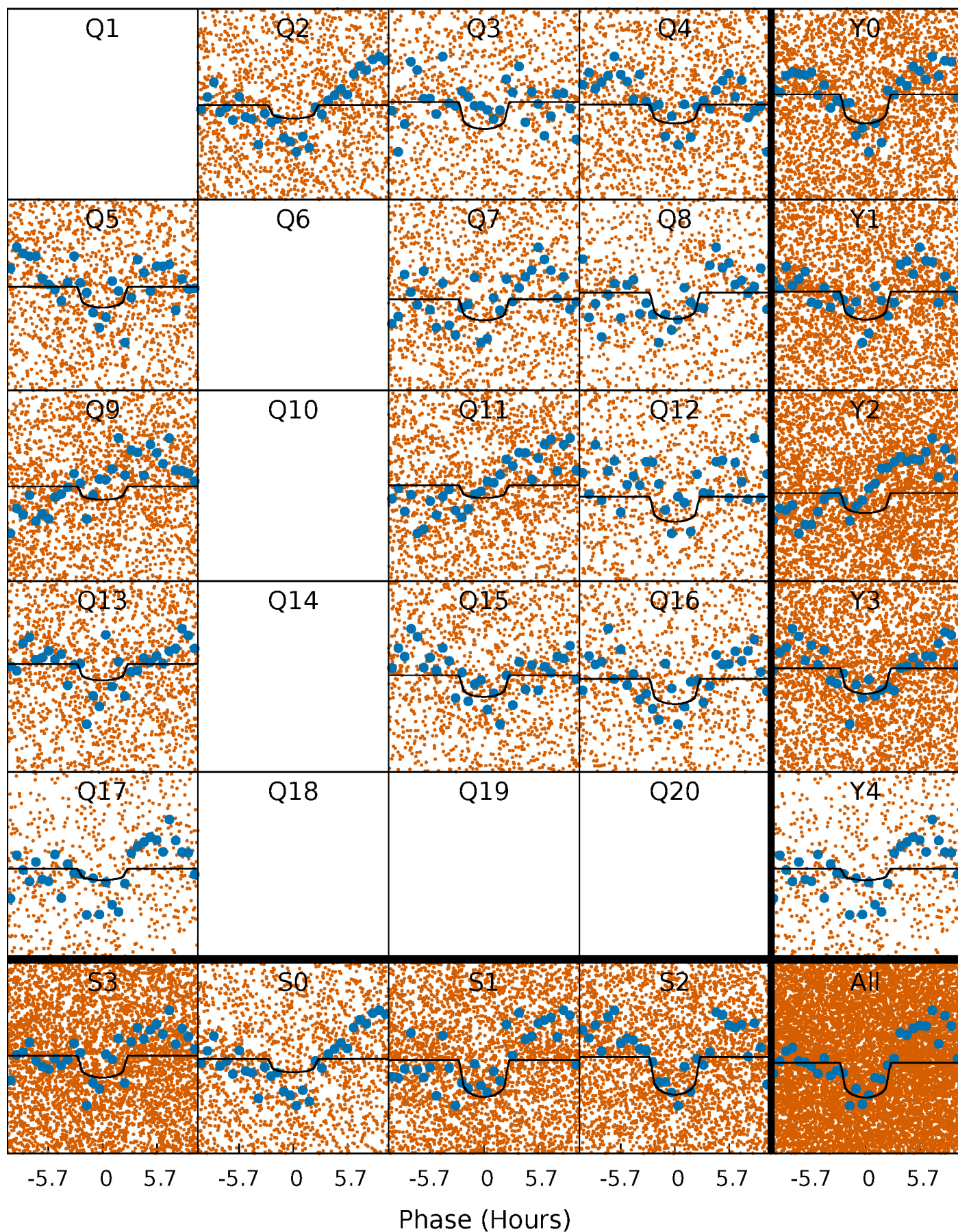
TCE 003459079-01 P= 1.180847 Days  $T_0=132.577345$  (BKJD)





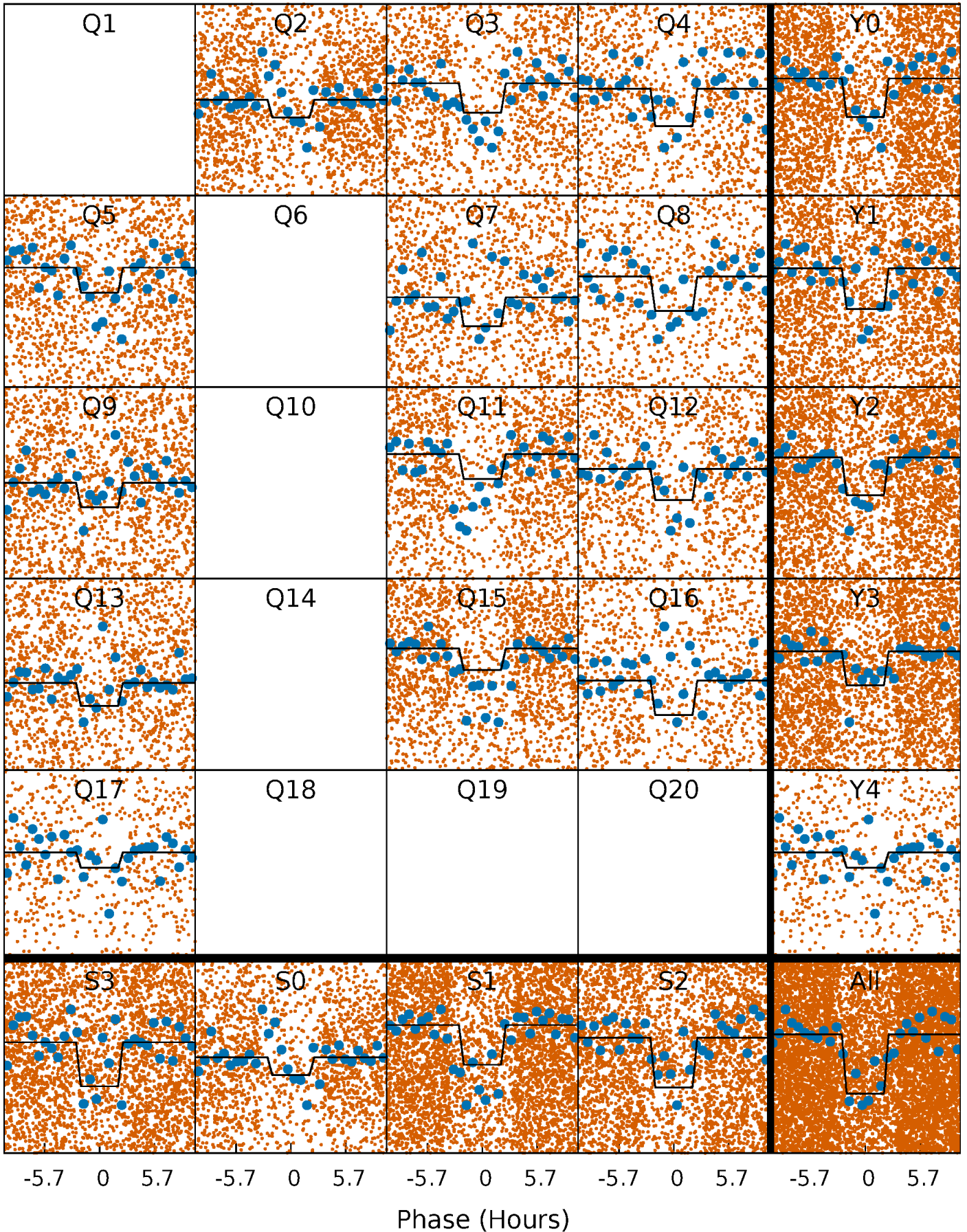
# DV Quarter-Phased Transit Curves

TCE 003459079-01 P= 1.180847 Days  $T_0=132.577345$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003459079-01 P= 1.180848 Days  $T_0=132.576999$  (BKJD)

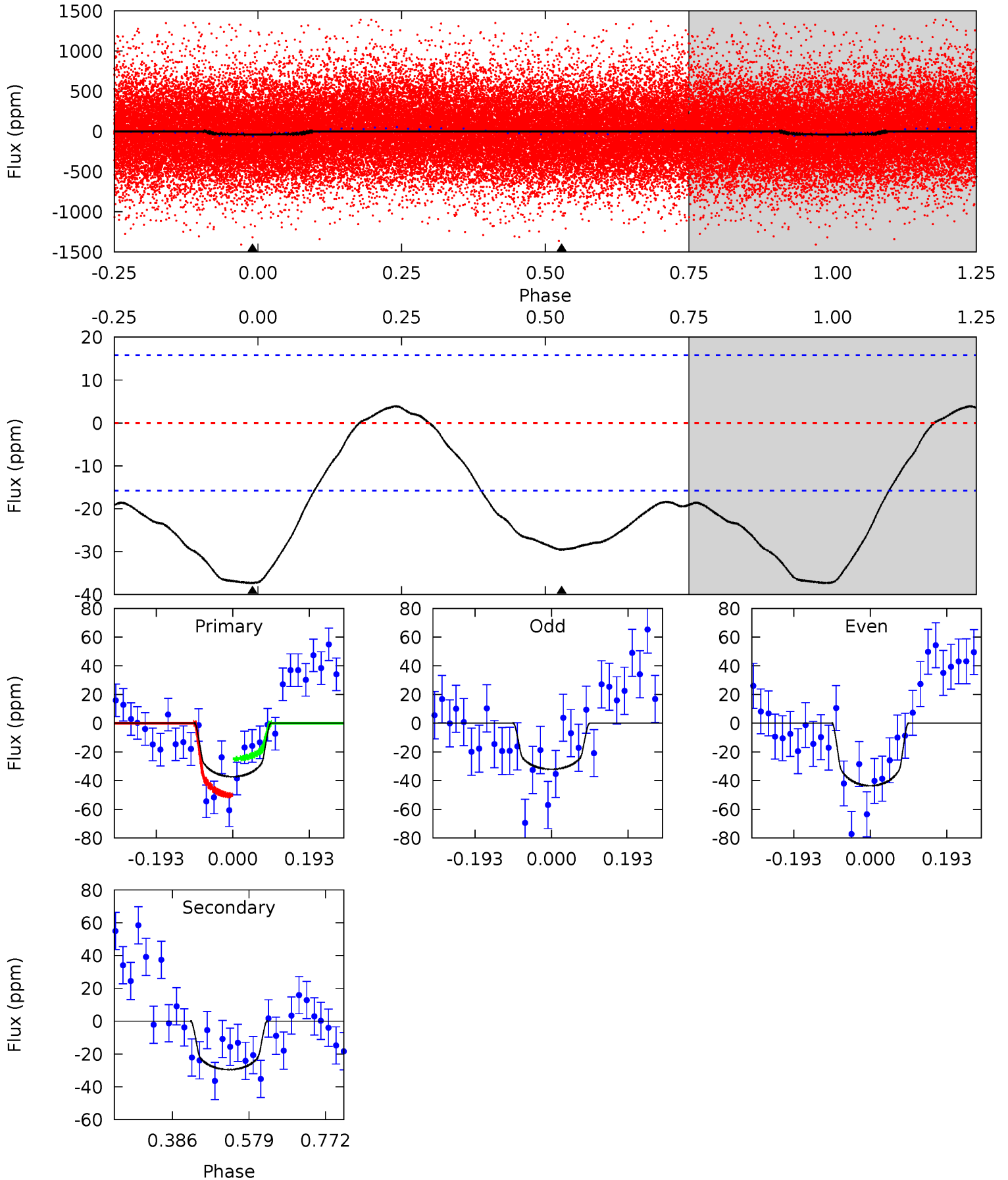




# DV Model-Shift Uniqueness Test

003459079-01, P = 1.180847 Days, E = 132.577345 Days

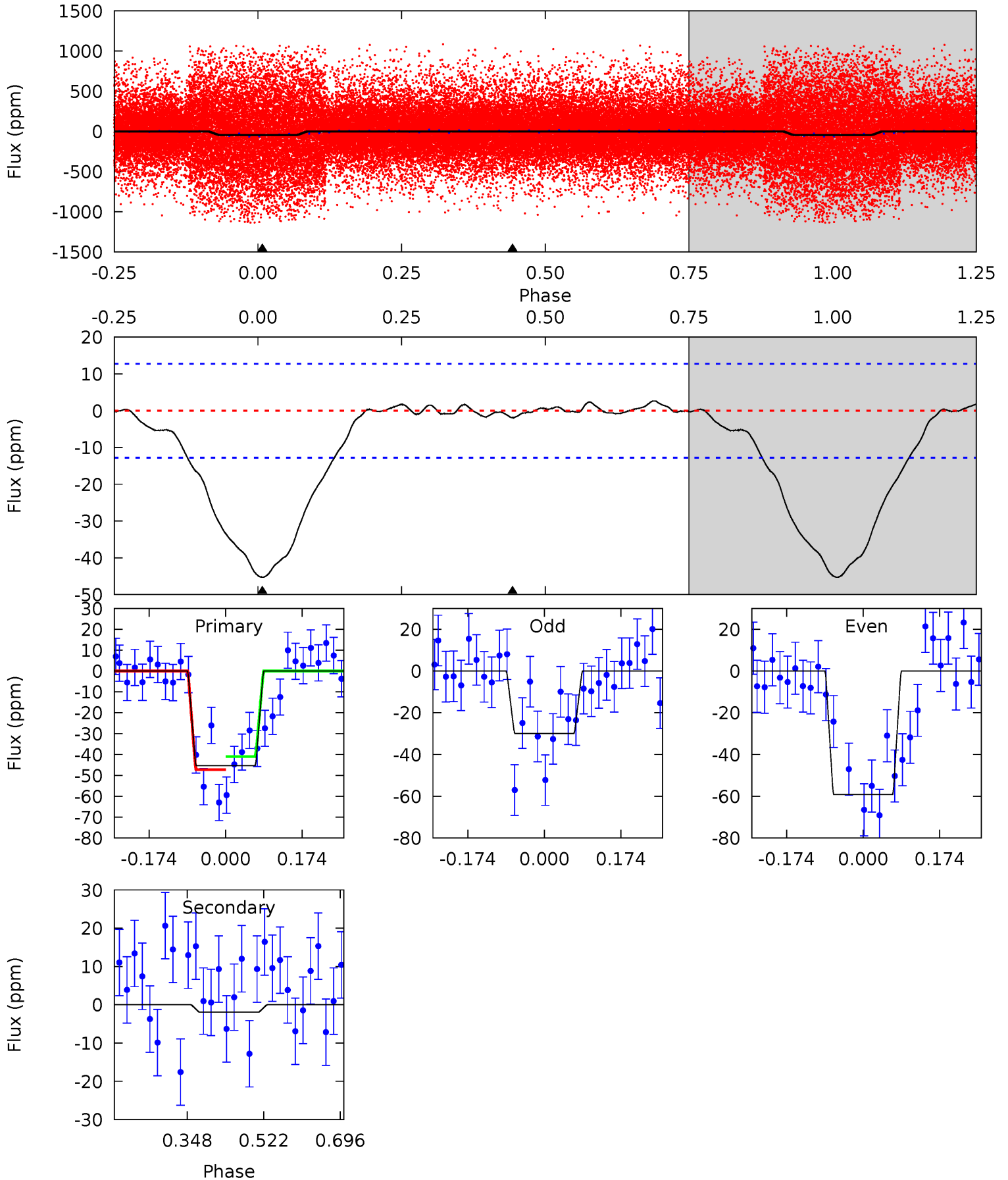
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	8.28	0	0	4.42	1.30	2.76	10.5	10.5	8.28	8.28	1.63	1.13	0.09	3.58



# Alt Model-Shift Uniqueness Test

003459079-01, P = 1.180848 Days, E = 132.576999 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
15.8	0.67	0	0	4.45	1.36	0.66	15.8	15.8	0.67	0.67	5.10	1.80	0.06	1.11



### Stellar Parameters For KIC 003459079

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5318^{+206}_{-169}$	$4.527^{+0.093}_{-0.085}$	$-0.420^{+0.350}_{-0.300}$	$0.767^{+0.104}_{-0.095}$	$0.722^{+0.107}_{-0.046}$	$2.251^{+0.865}_{-0.626}$
	+4%/-3%	+2%/-2%	+83%/-71%	+14%/-12%	+15%/-6%	+38%/-28%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003459079-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-30 \pm 4$	$0.62^{+0.38}_{-0.34}$	$2055^{+99}_{-99}$	$4709^{+2112}_{-840}$	$16^{+66}_{-10}$
Alt.	$-2 \pm 3$	$0.62^{+0.38}_{-0.36}$	$2053^{+99}_{-97}$	$2734^{+1088}_{-5580}$	$0.918^{+5.175}_{-1.404}$

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



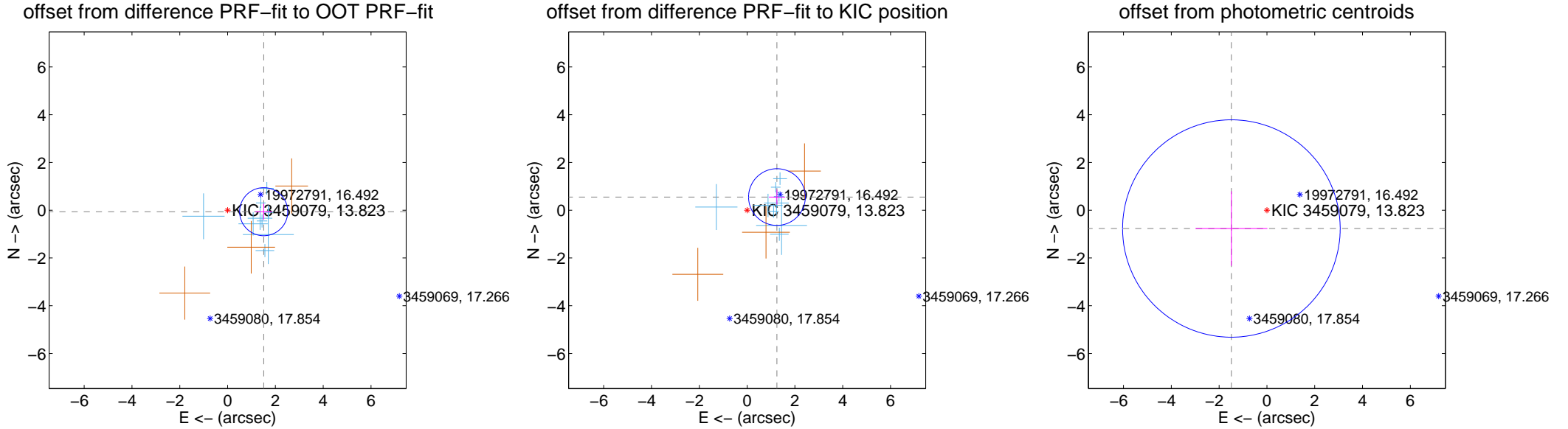
## DV Centroid Data

Supplemental centroid analysis for 003459079-01. Kepler magnitude: 13.82. Transit SNR 6.60

There are 9 quarters with good PRF difference image offsets

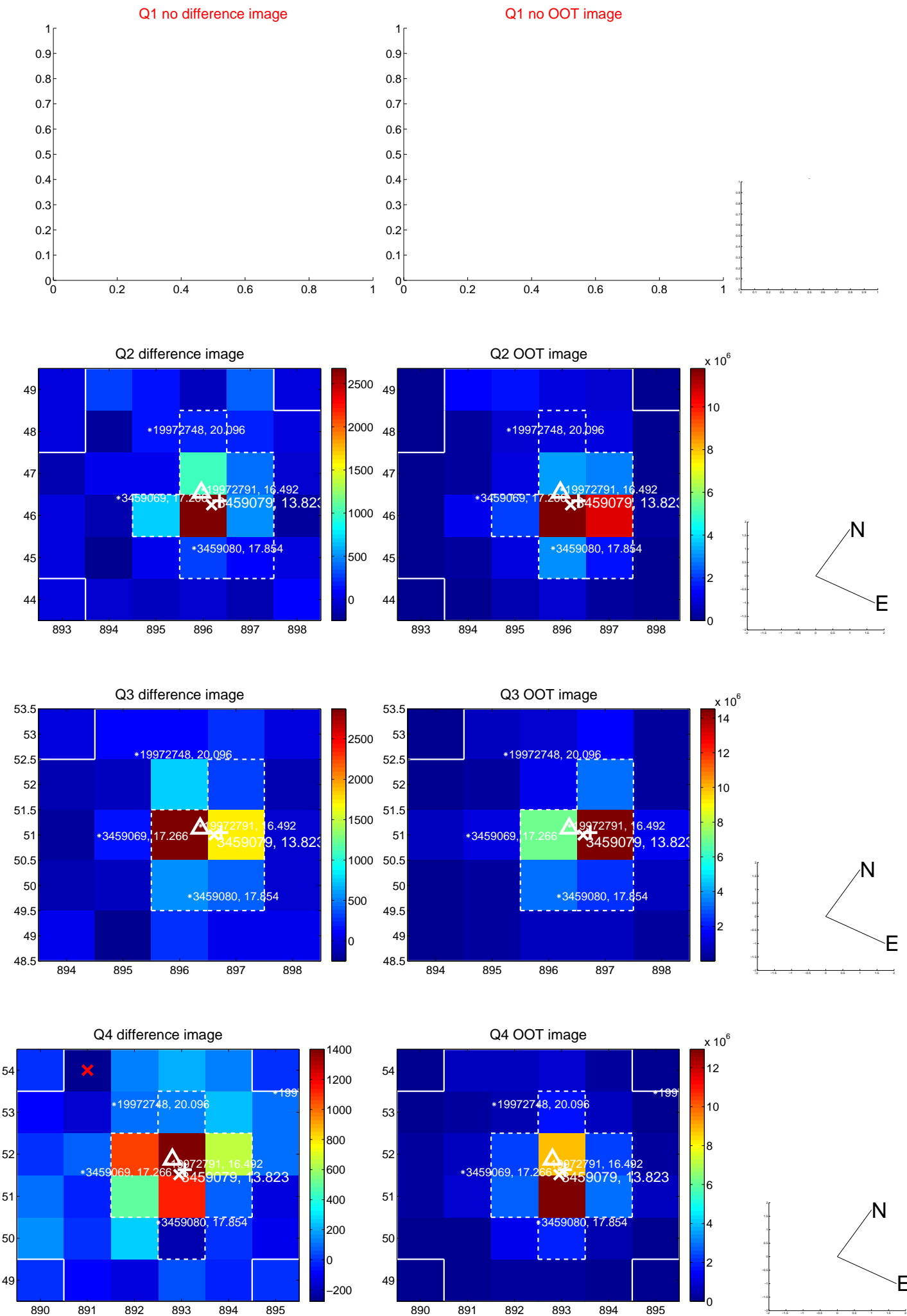
The direct PRF centroid is offset from the target star catalog position by about 0.83 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.511 \pm 0.335$	4.50	$-1.510 \pm 0.344$	$-0.063 \pm 0.339$
PRF-fit source offset from KIC position	$1.363 \pm 0.396$	3.45	$-1.247 \pm 0.338$	$0.551 \pm 0.311$
photometric centroid source offset	$1.67 \pm 1.52$	1.10	$1.49 \pm 1.51$	$-0.77 \pm 1.56$

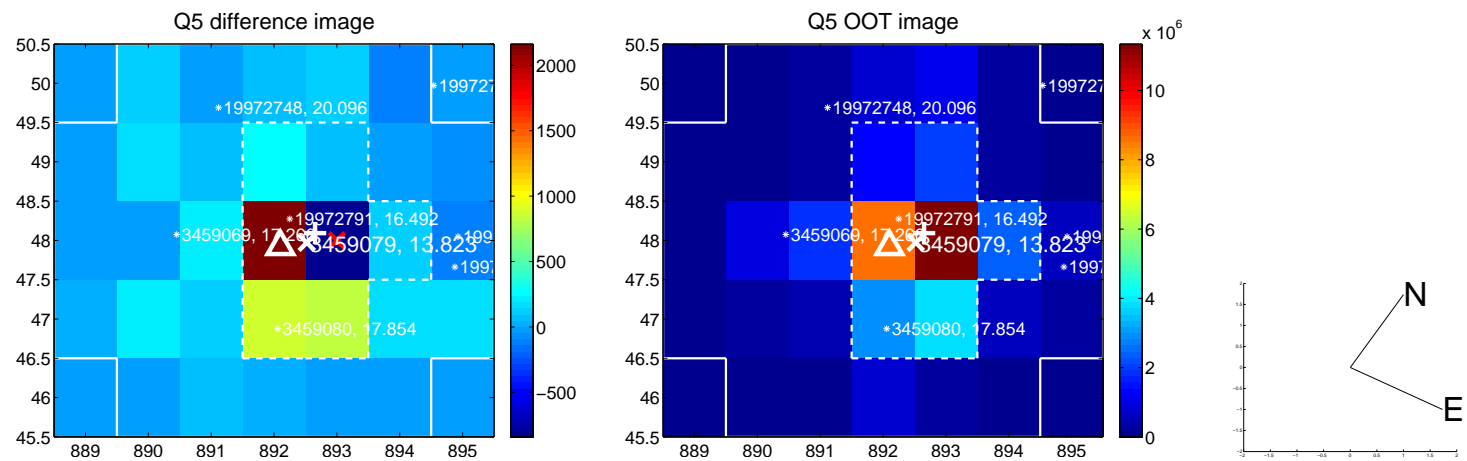


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

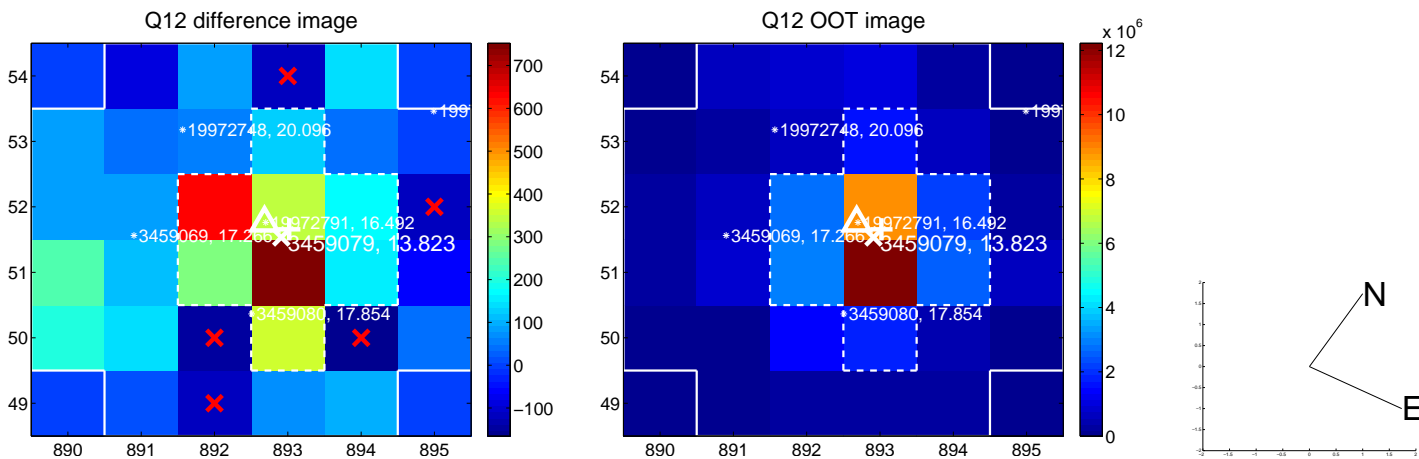
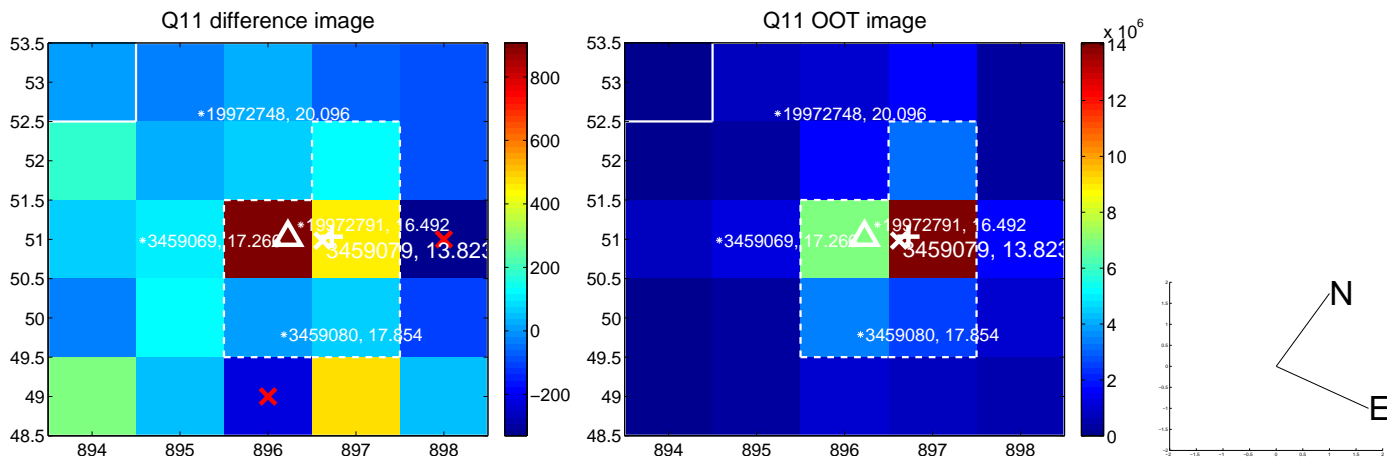
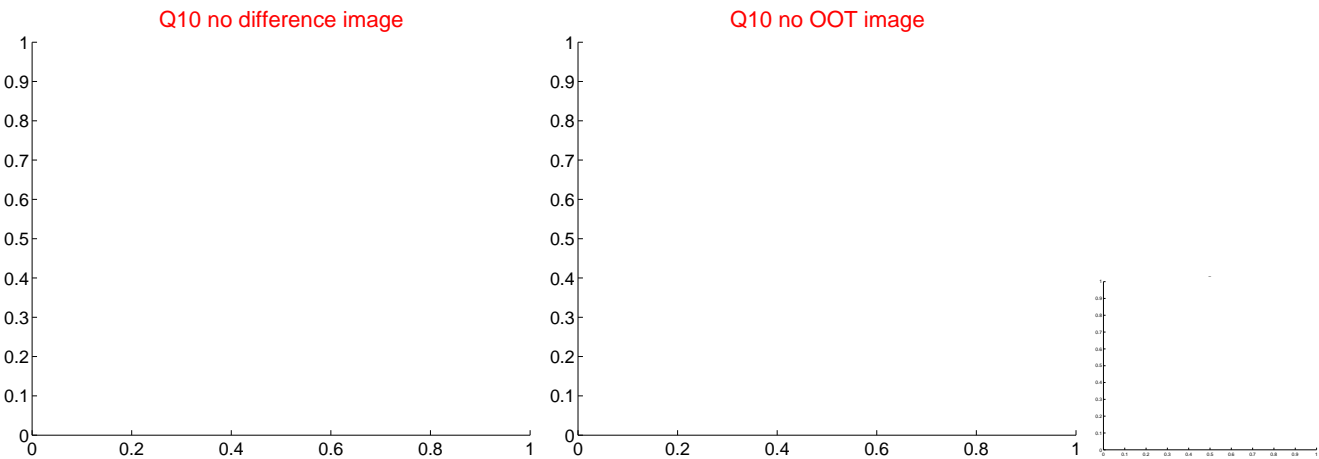
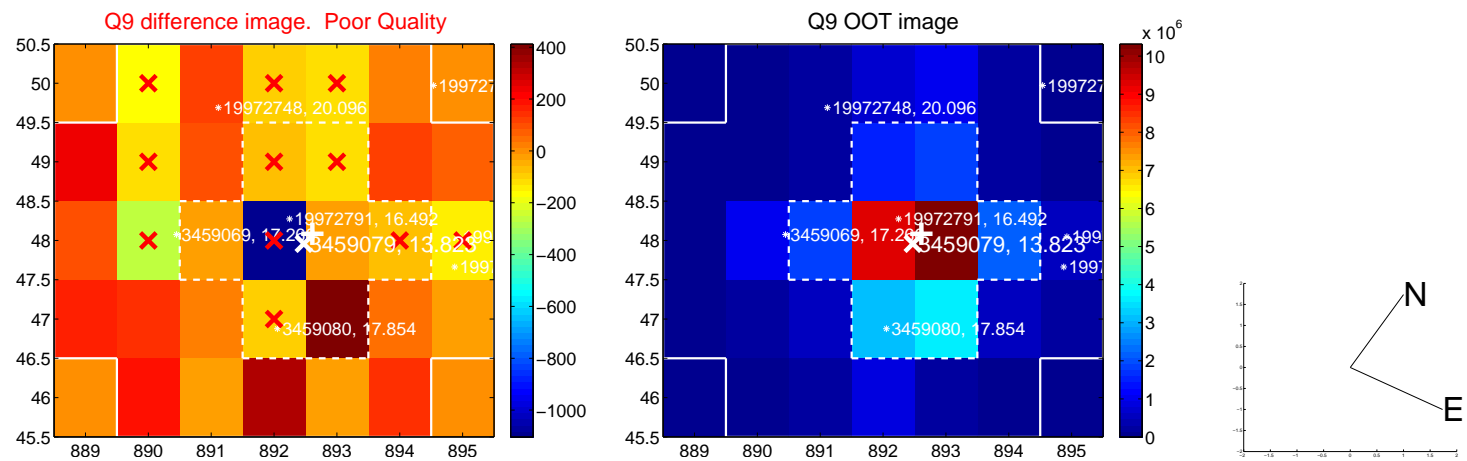
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



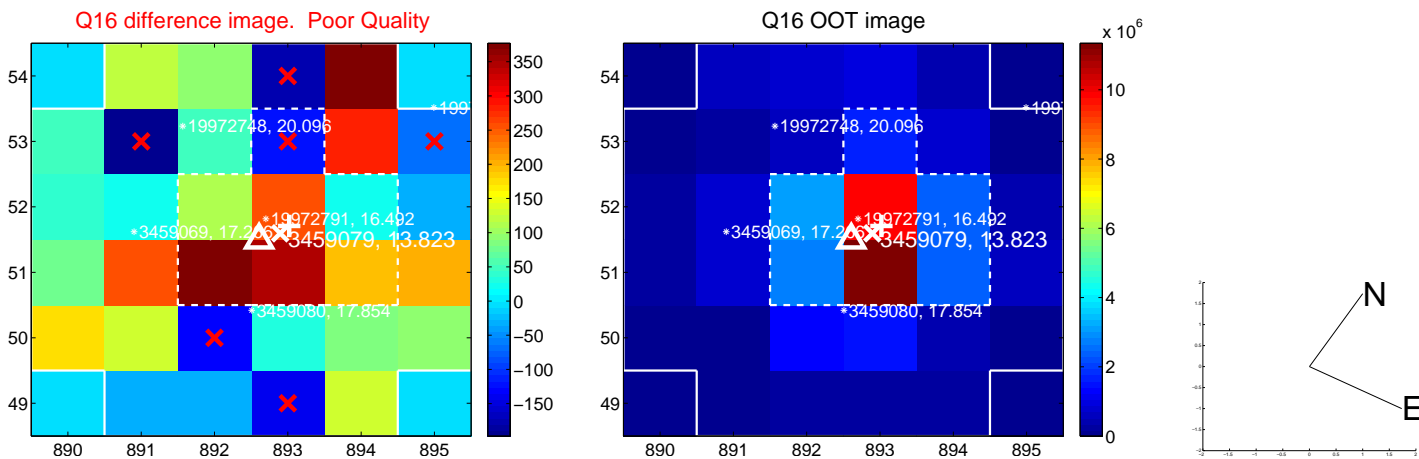
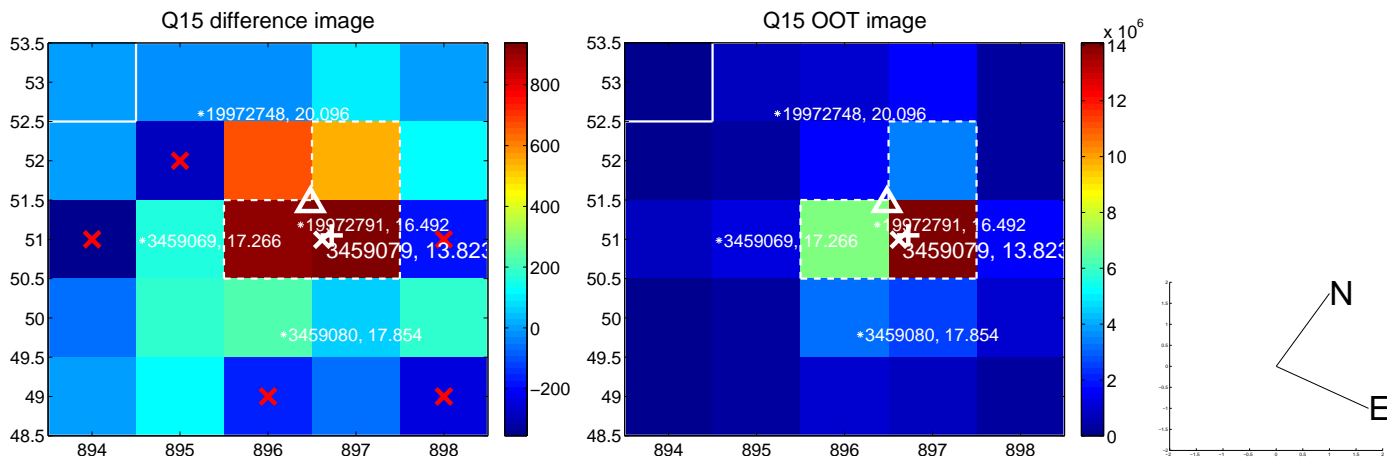
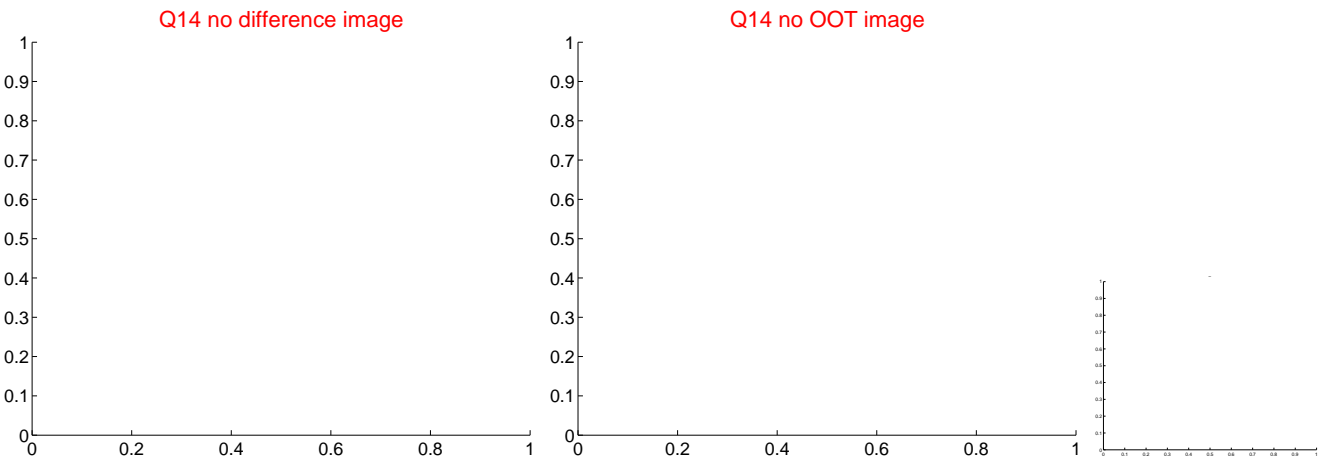
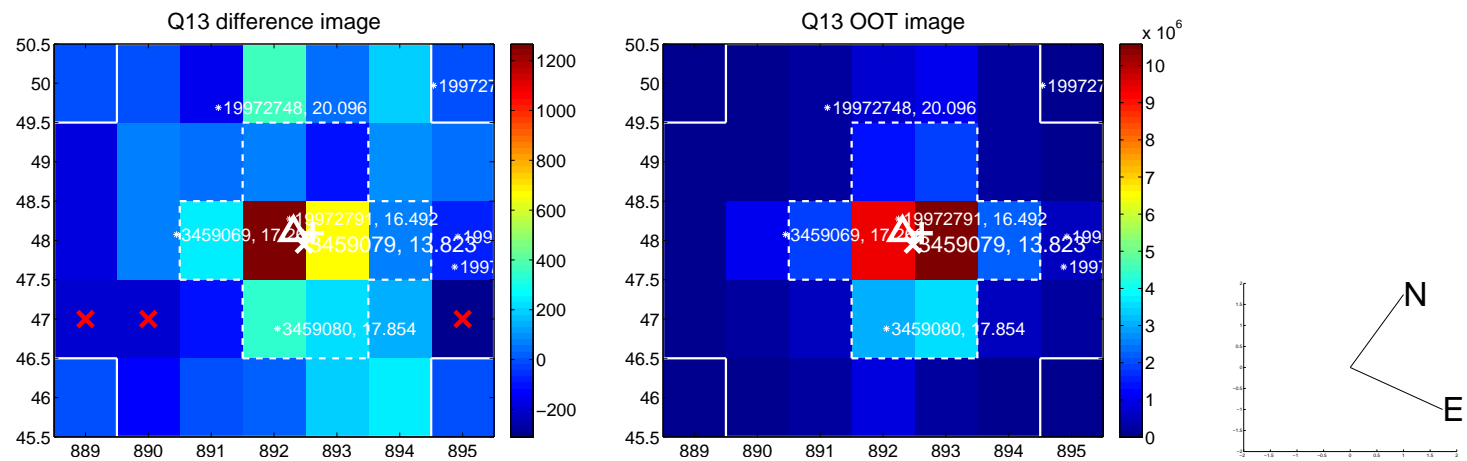
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

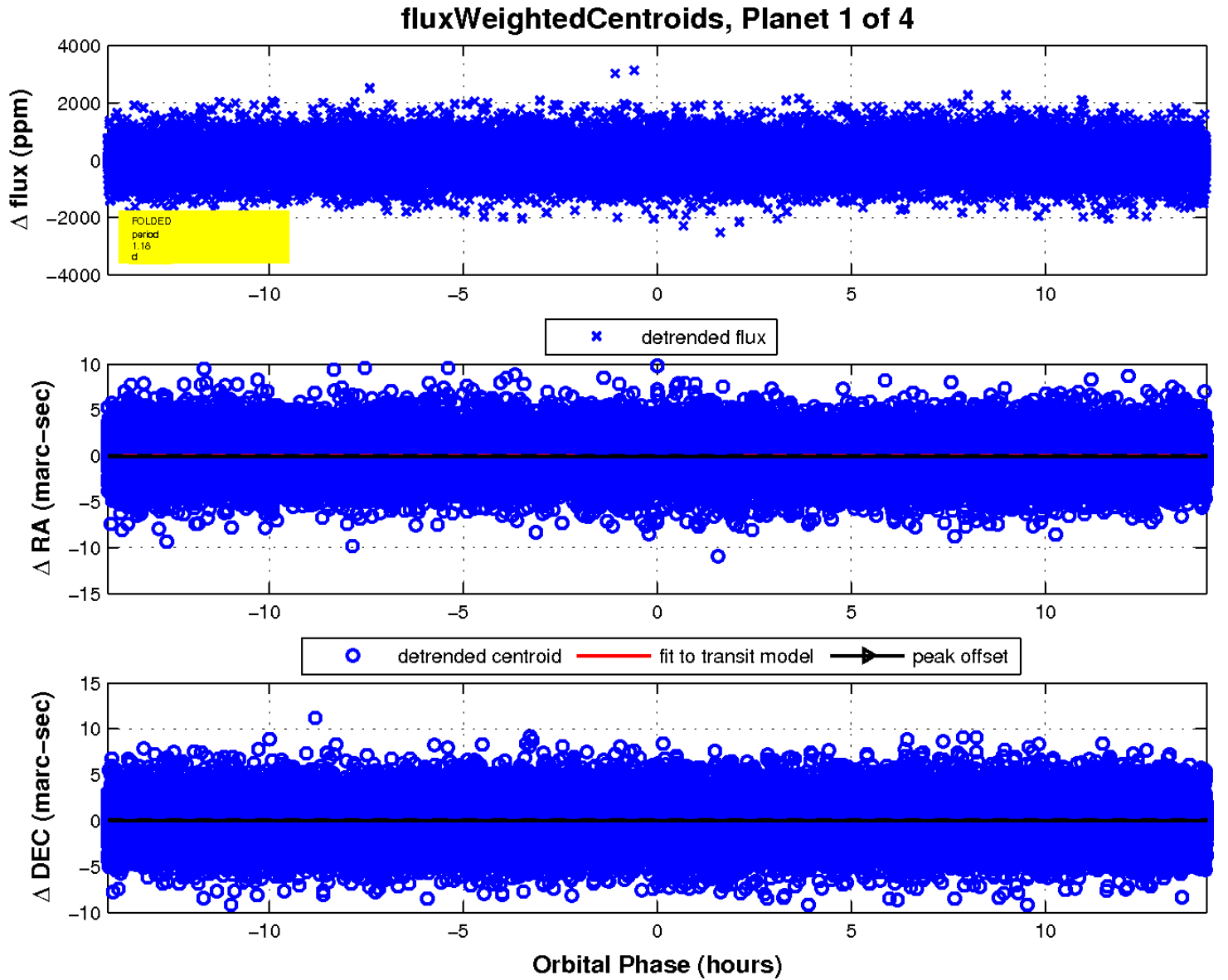
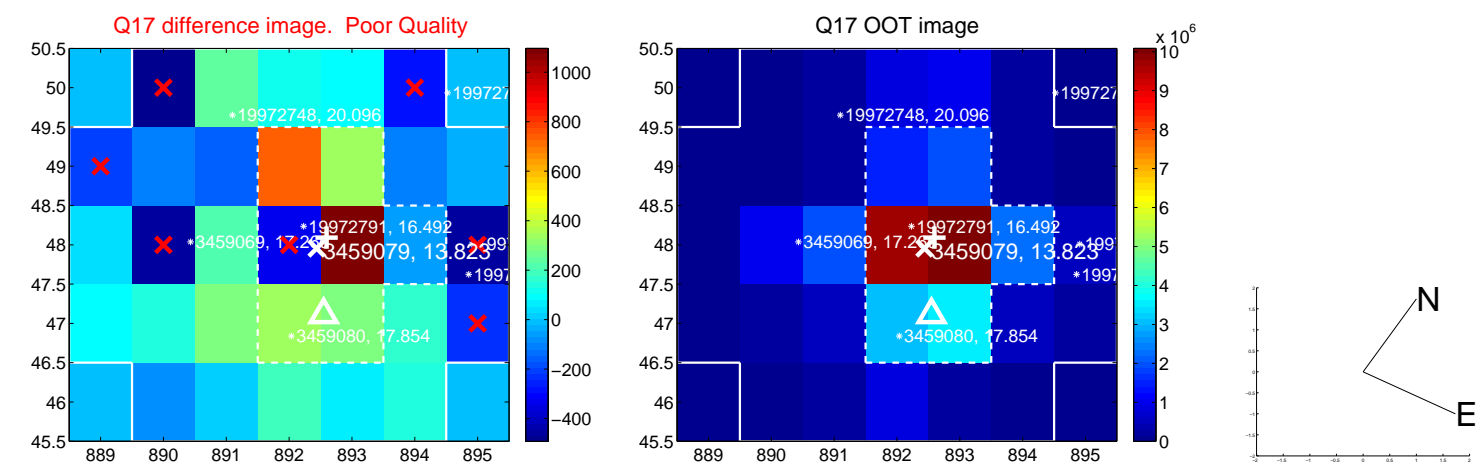


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



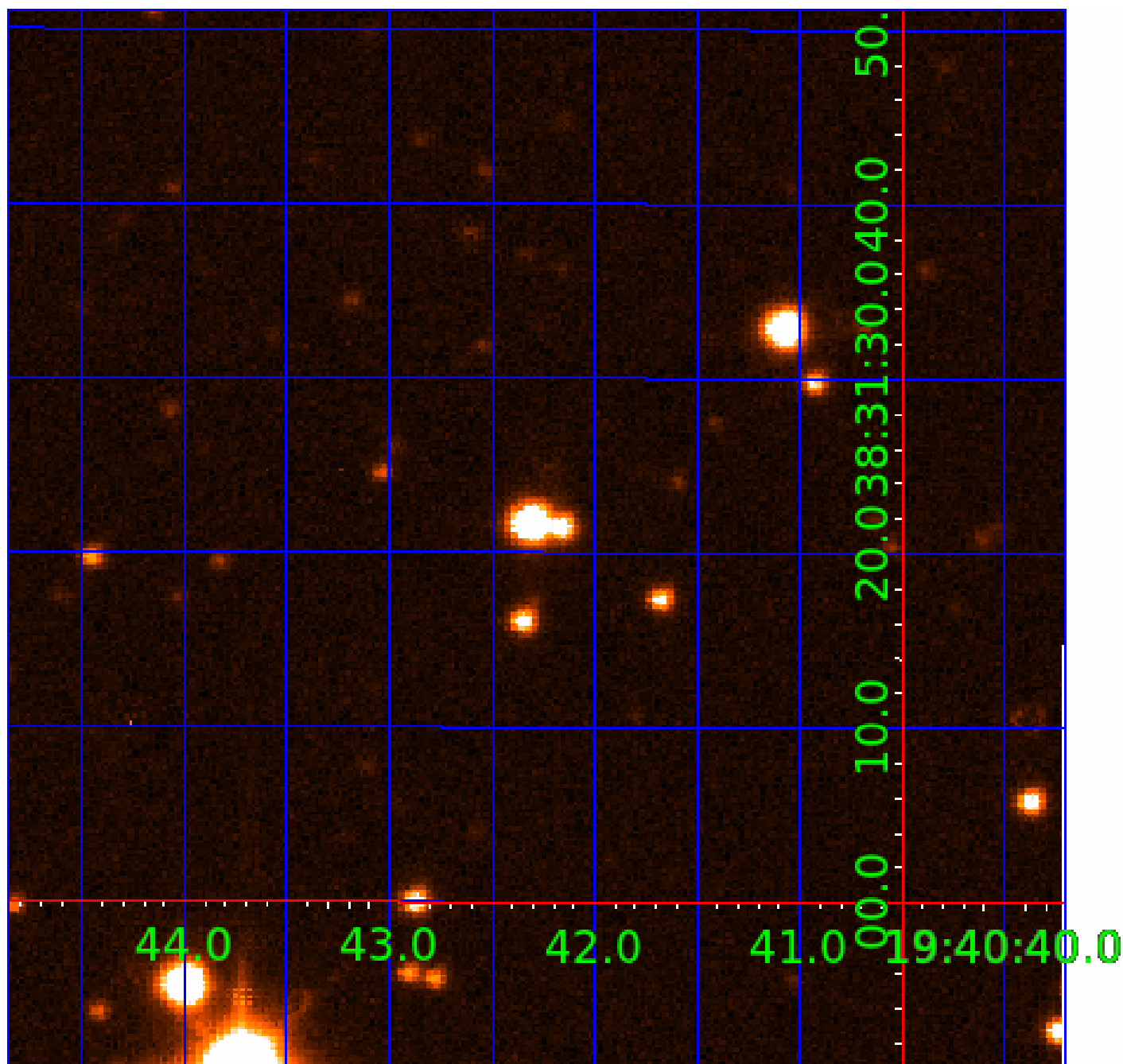


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003459079

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003459079-01	OBS	No	1.180846	132.577345	40.3	5.000	7.3	6.6	0.77	5318	0.58	1095.20
003459079-02	OBS	No	128.668656	231.342439	254.1	1.643	18.6	3.0	0.77	5318	1.23	2.10
003459079-04	OBS	No	128.771039	230.035488	788.6	11.293	13.6	7.8	0.77	5318	2.62	2.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003459079-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
003459079-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003459079-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—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.

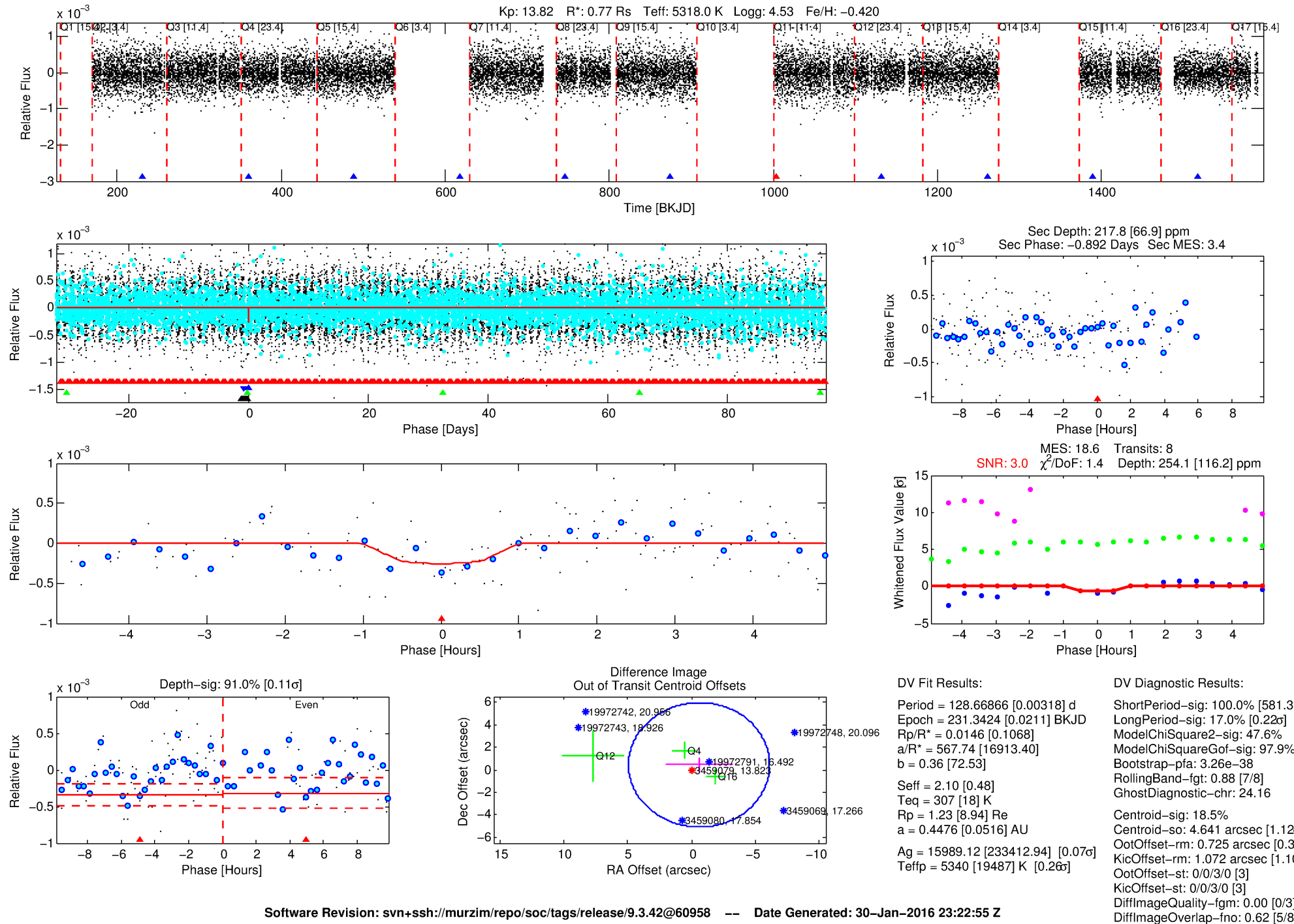
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003459079-02

No Significant Match Found

# DV One-Page Summary

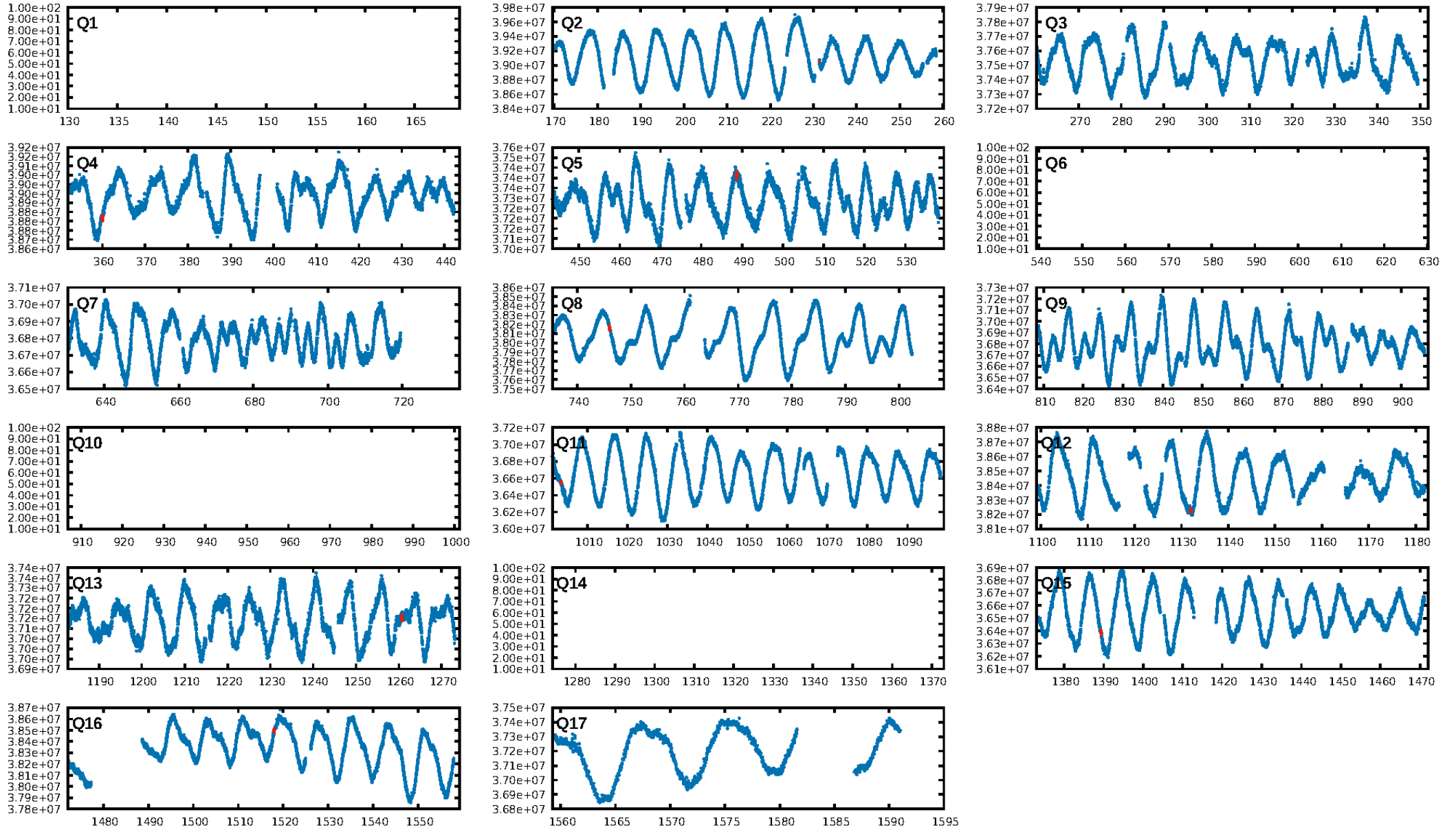
KIC: 3459079 Candidate: 2 of 4 Period: 128.669 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:22:55 Z

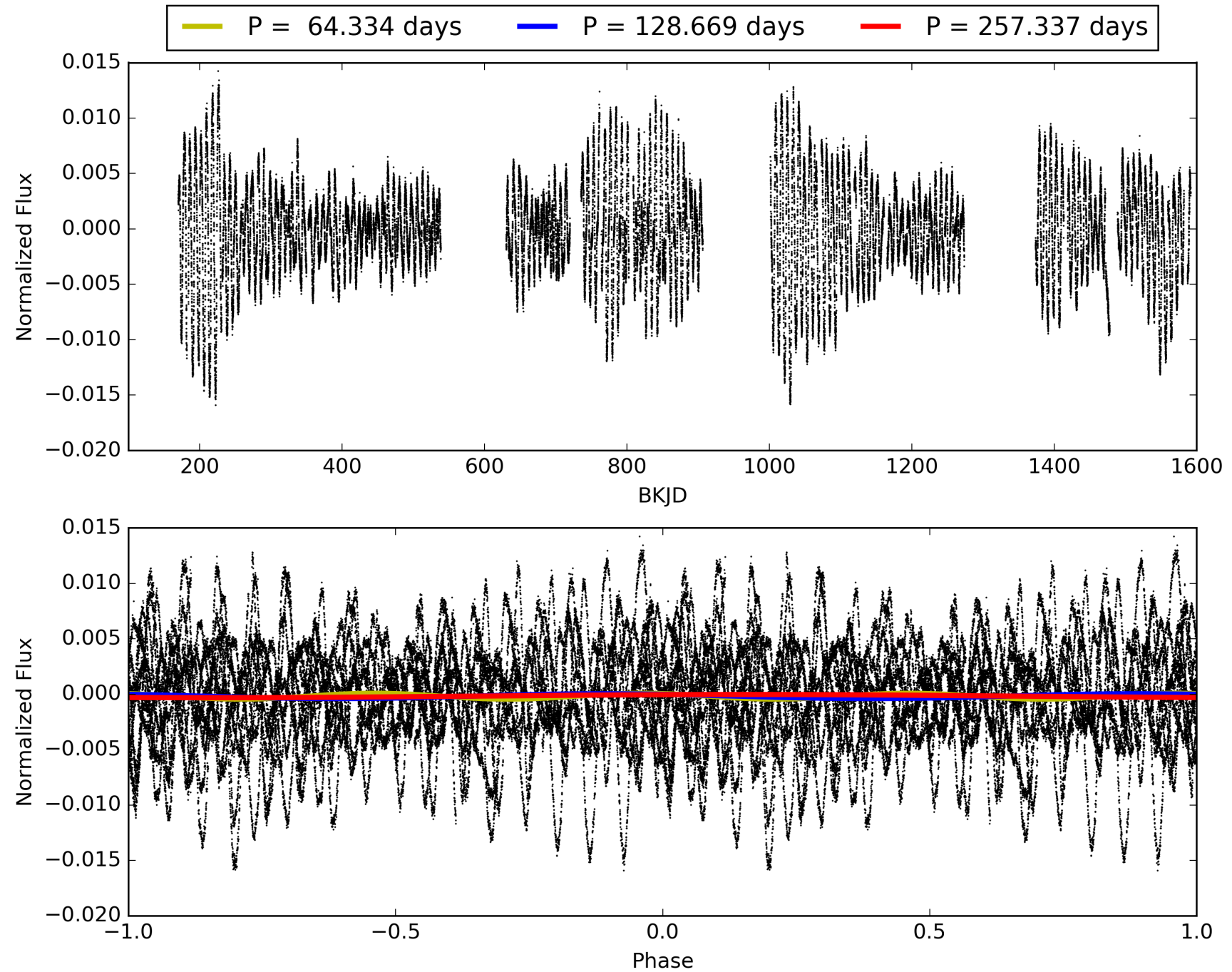
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003459079-02, PDC Light Curves



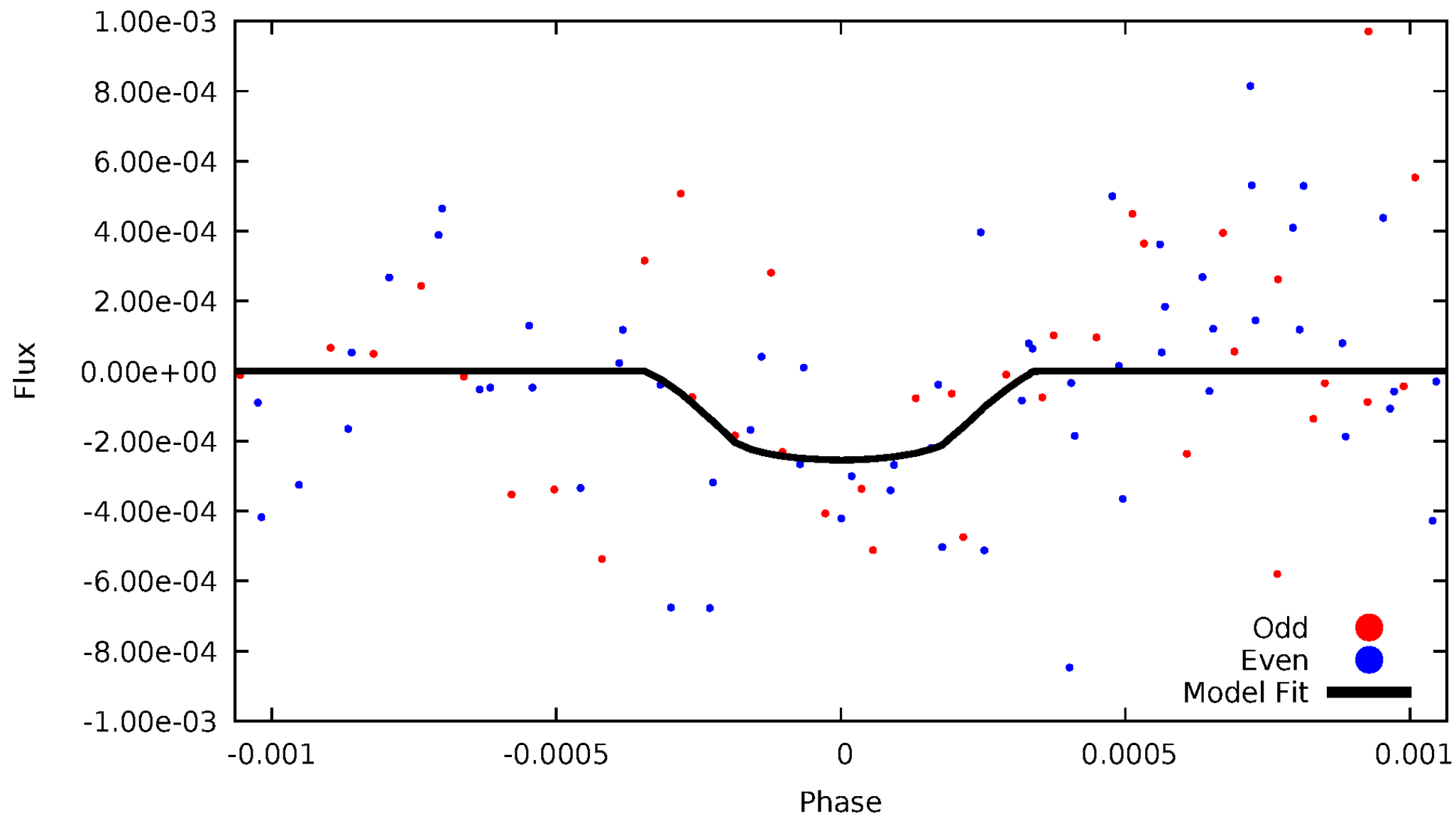


# TCE 003459079-02



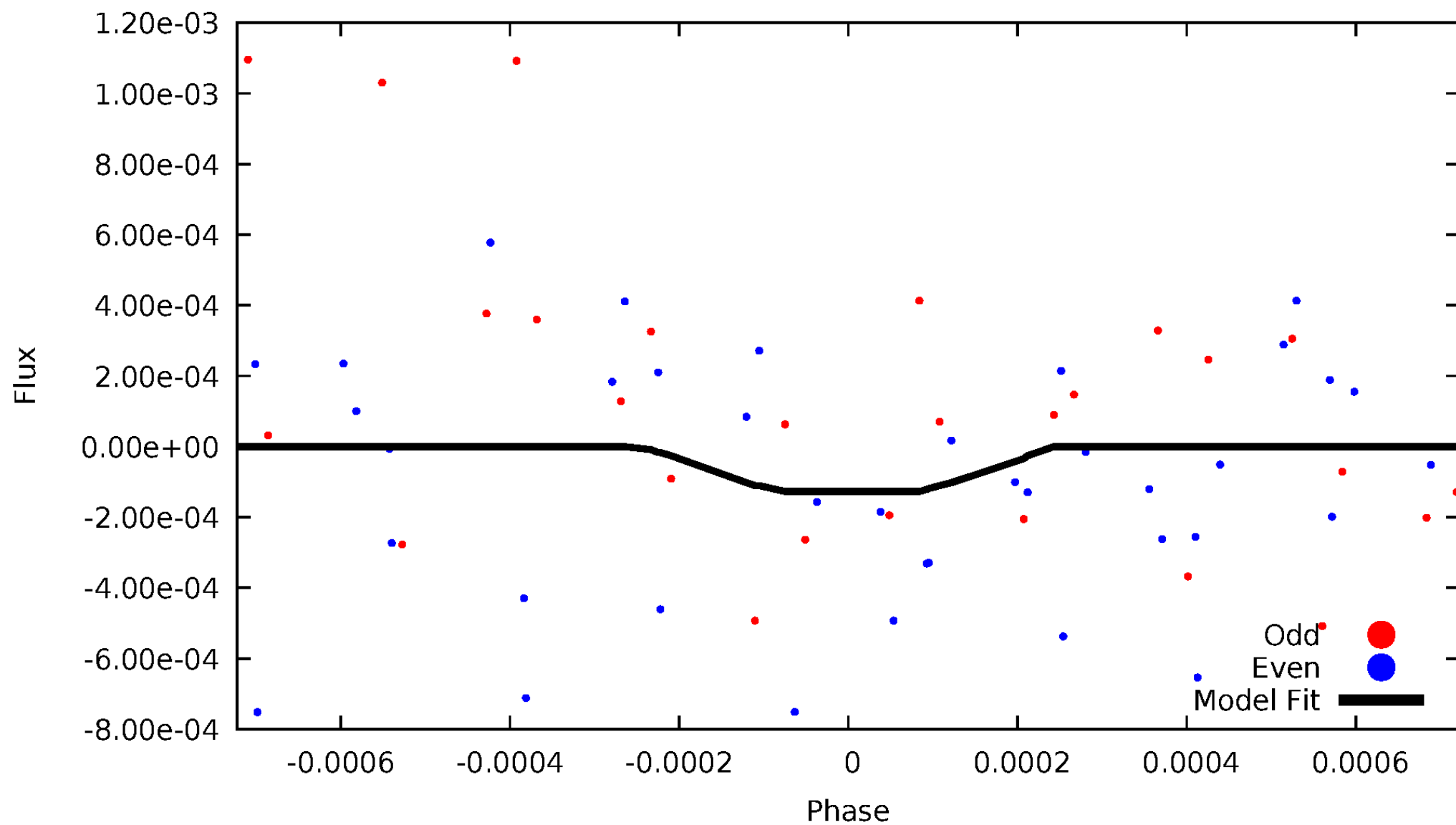
# DV Odd/Even

TCE 003459079-02



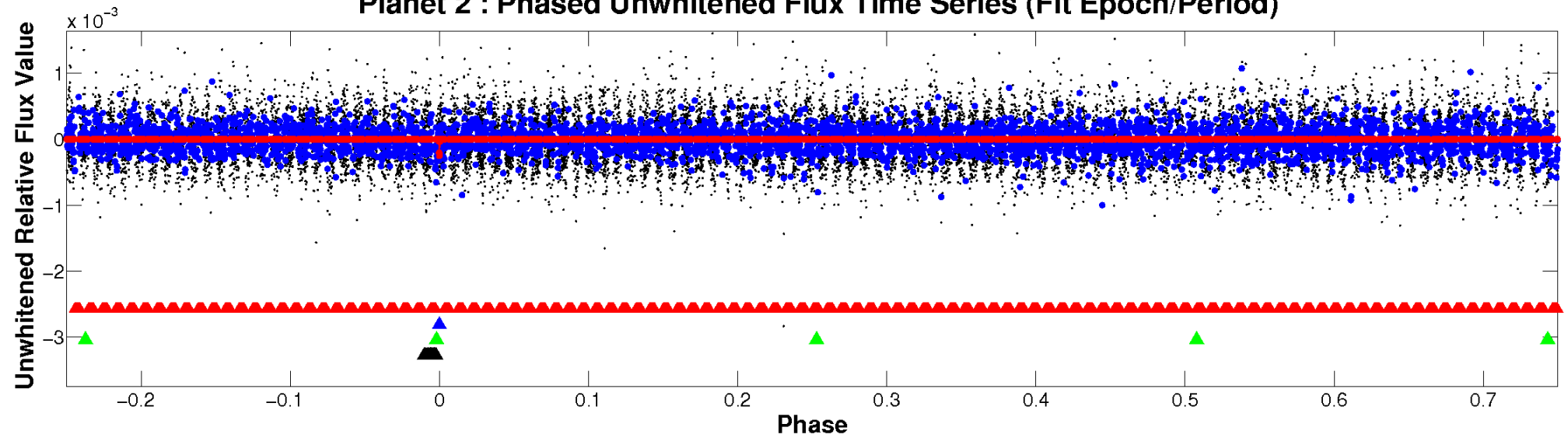
# ALT Odd/Even

TCE 003459079-02

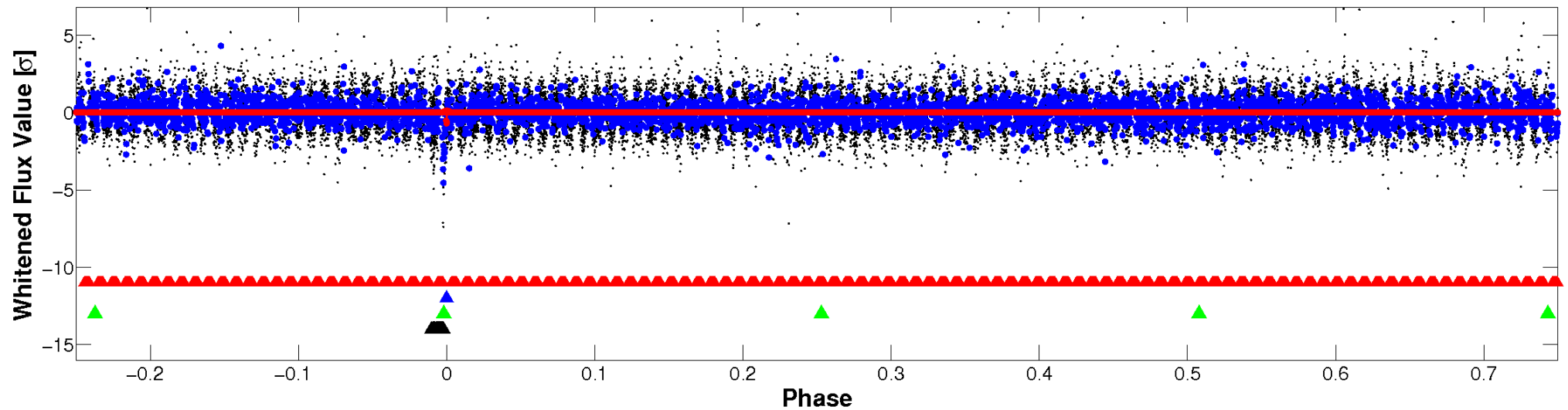


# Non-Whitened Vs. Whitened Light Curve

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

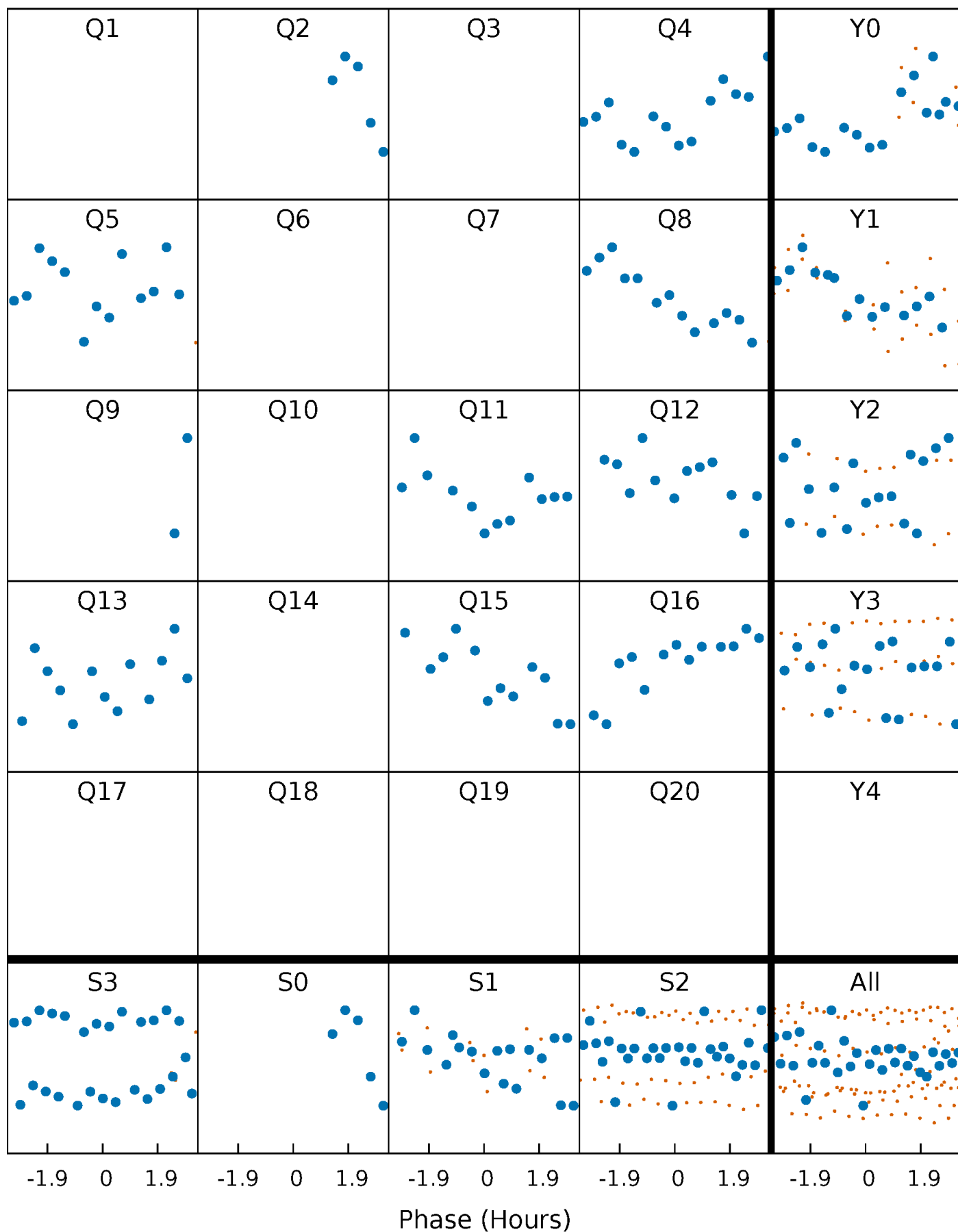


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

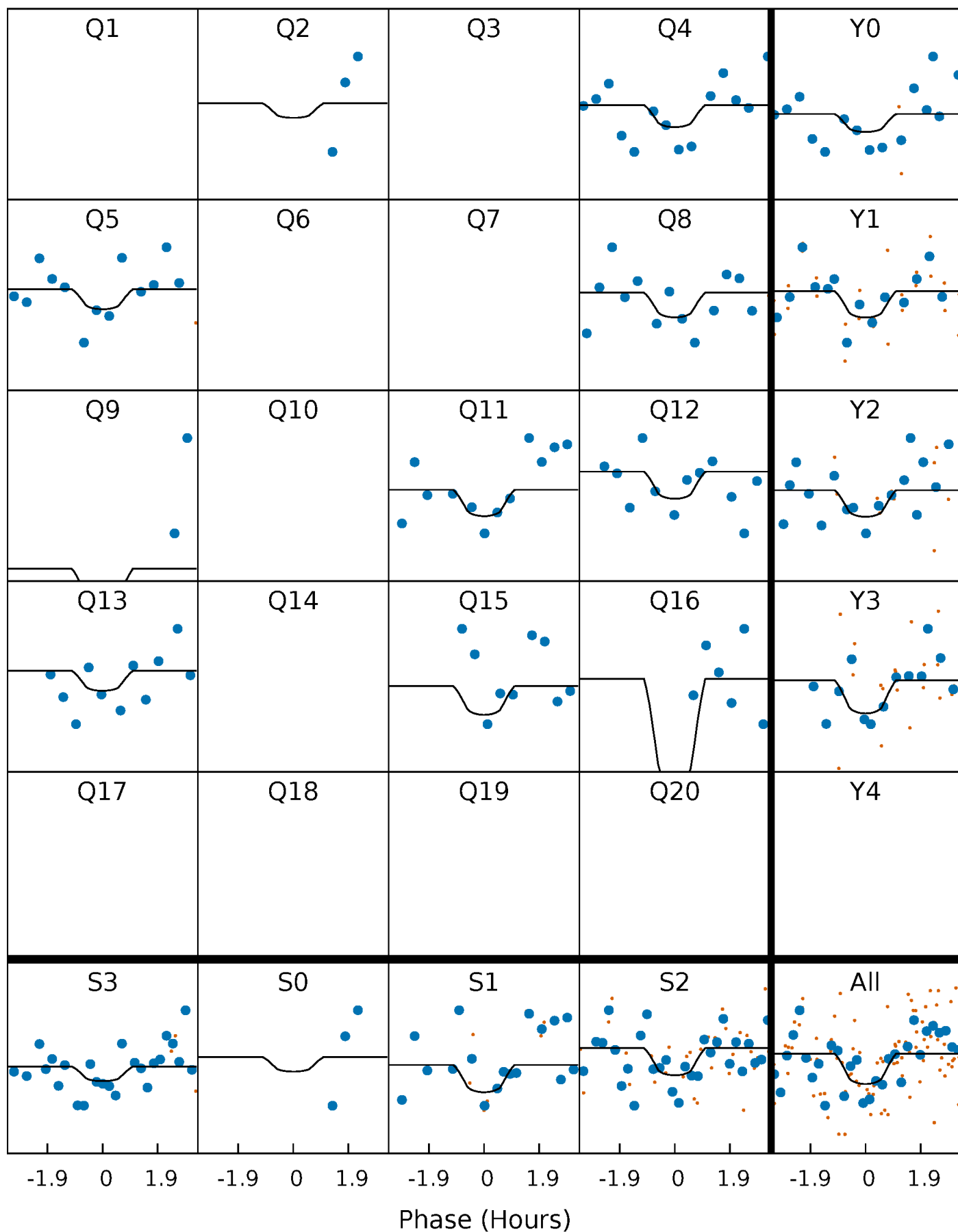
TCE 003459079-02     $P=128.668656$  Days     $T_0=231.342439$  (BKJD)





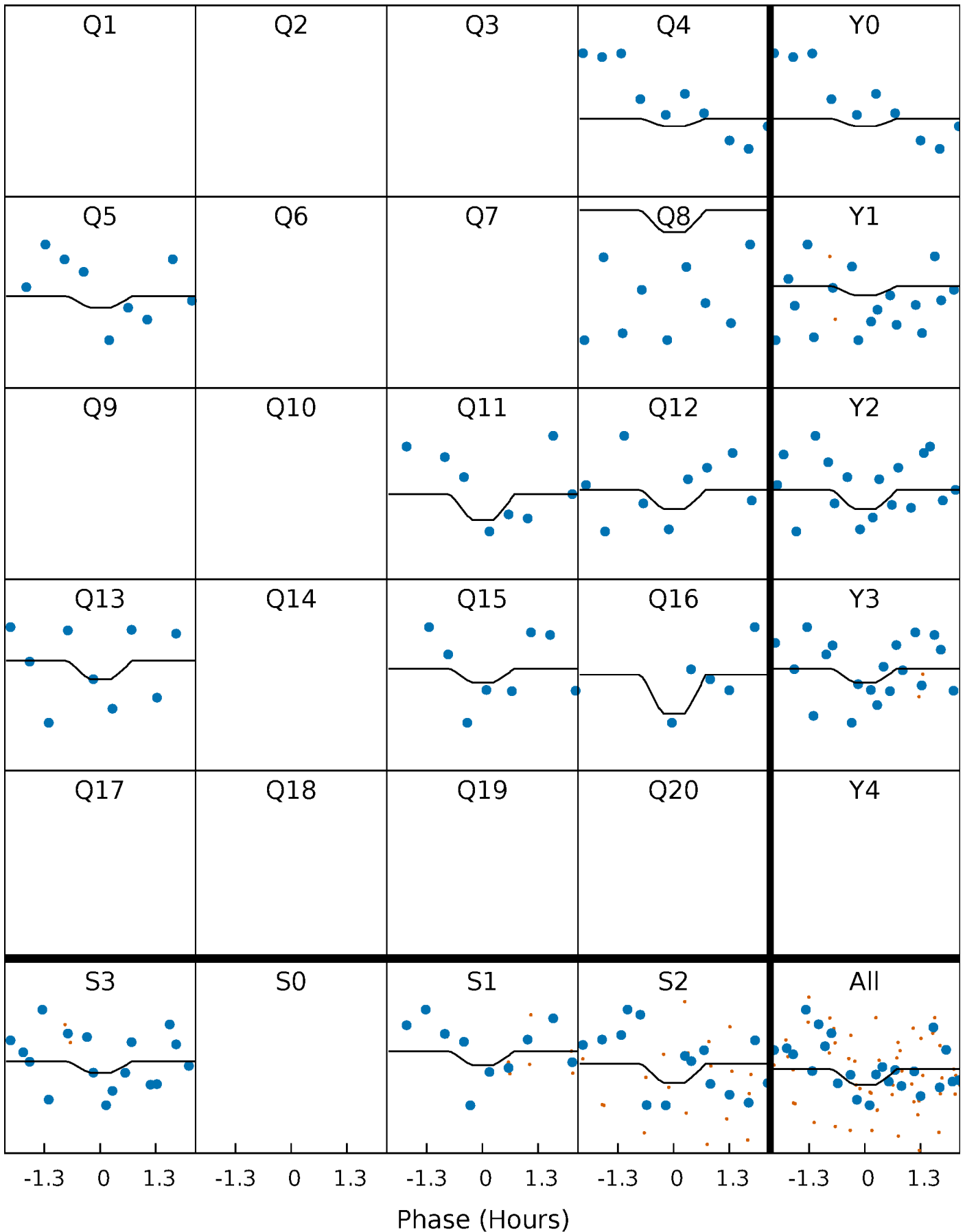
# DV Quarter-Phased Transit Curves

TCE 003459079-02     $P=128.668656$  Days     $T_0=231.342439$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

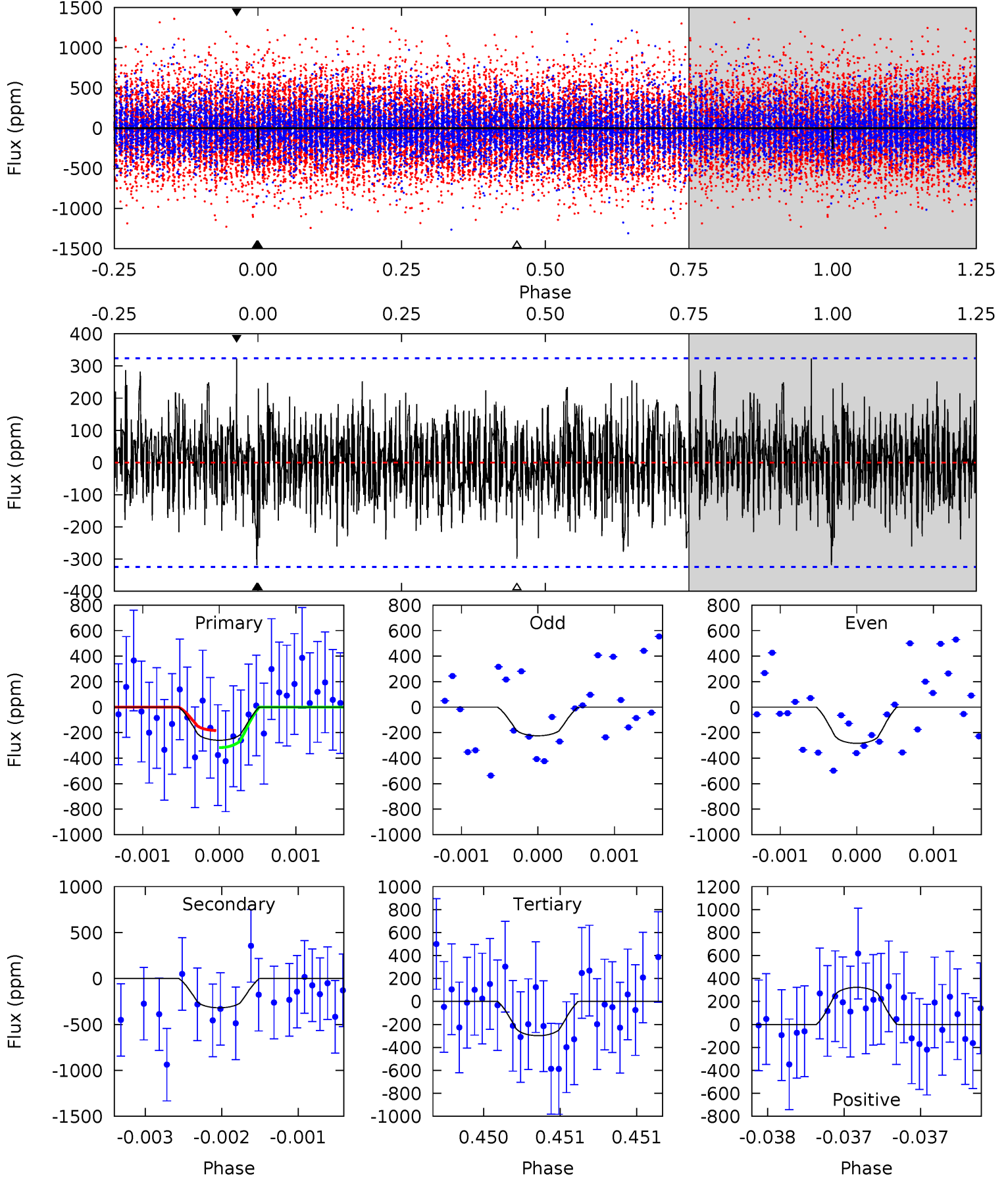
TCE 003459079-02 P=128.676567 Days  $T_0=231.290098$  (BKJD)



# DV Model-Shift Uniqueness Test

003459079-02, P = 128.668656 Days, E = 102.673783 Days

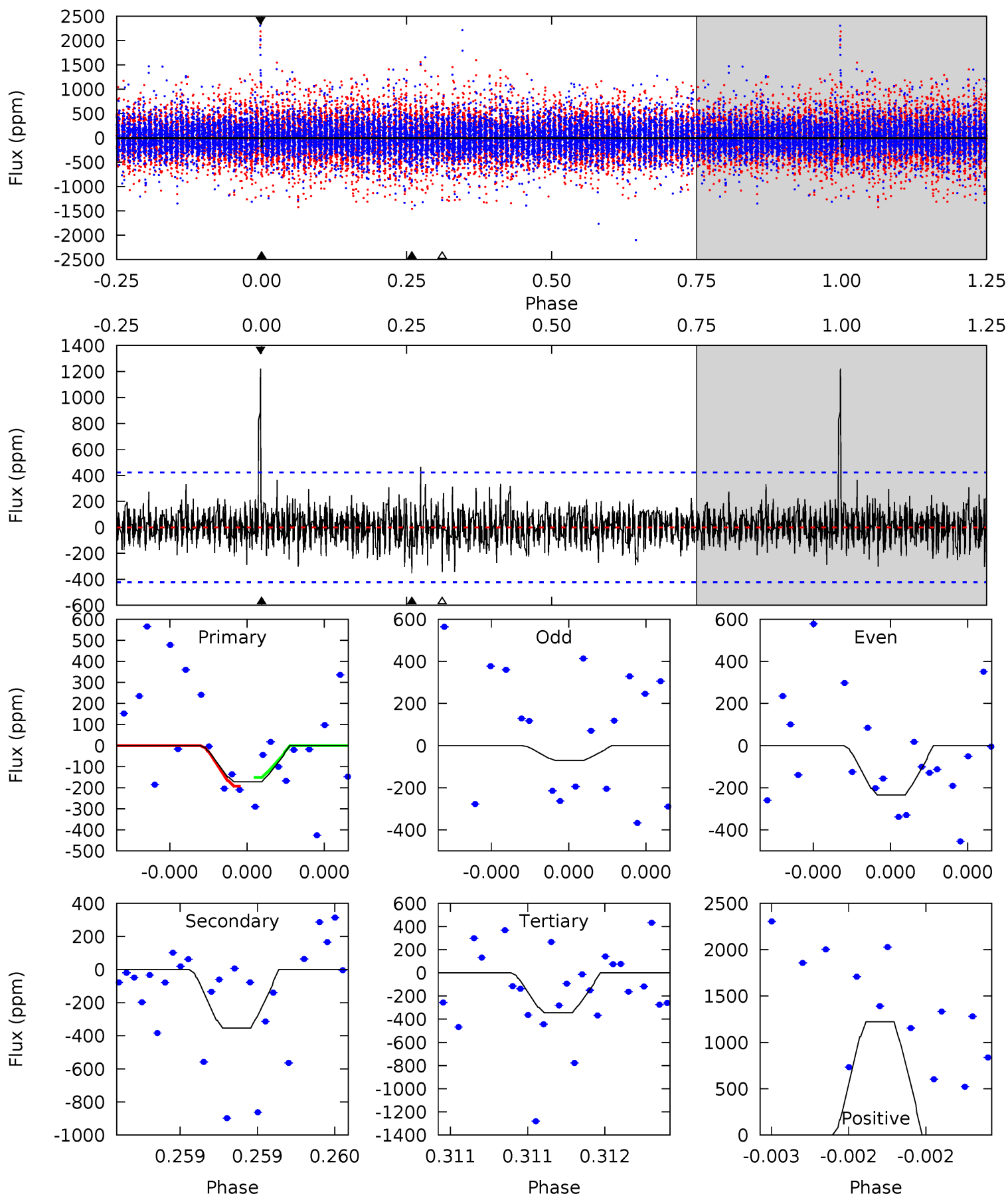
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.43	5.44	5.08	5.51	5.53	3.41	1.42	-0.65	-1.08	0.36	-0.07	0.50	0.85	0.50	1.12



# Alt Model-Shift Uniqueness Test

003459079-02, P = 128.676567 Days, E = 102.613531 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.28	4.68	4.56	16.2	5.60	3.52	1.18	-2.28	-13.9	0.13	-11.5	1.04	1.23	0.78	0.27



### Stellar Parameters For KIC 003459079

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5318^{+206}_{-169}$	$4.527^{+0.093}_{-0.085}$	$-0.420^{+0.350}_{-0.300}$	$0.767^{+0.104}_{-0.095}$	$0.722^{+0.107}_{-0.046}$	$2.251^{+0.865}_{-0.626}$
	+4%/-3%	+2%/-2%	+83%/-71%	+14%/-12%	+15%/-6%	+38%/-28%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003459079-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-319 \pm 59$	$6.79^{+6.17}_{-4.93}$	$429^{+22}_{-20}$	$3100^{+1702}_{-494}$	$783^{+9326}_{-577}$
Alt.	$-353 \pm 75$	$6.43^{+6.96}_{-4.38}$	$429^{+22}_{-19}$	$3222^{+1491}_{-591}$	$974^{+7548}_{-753}$

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

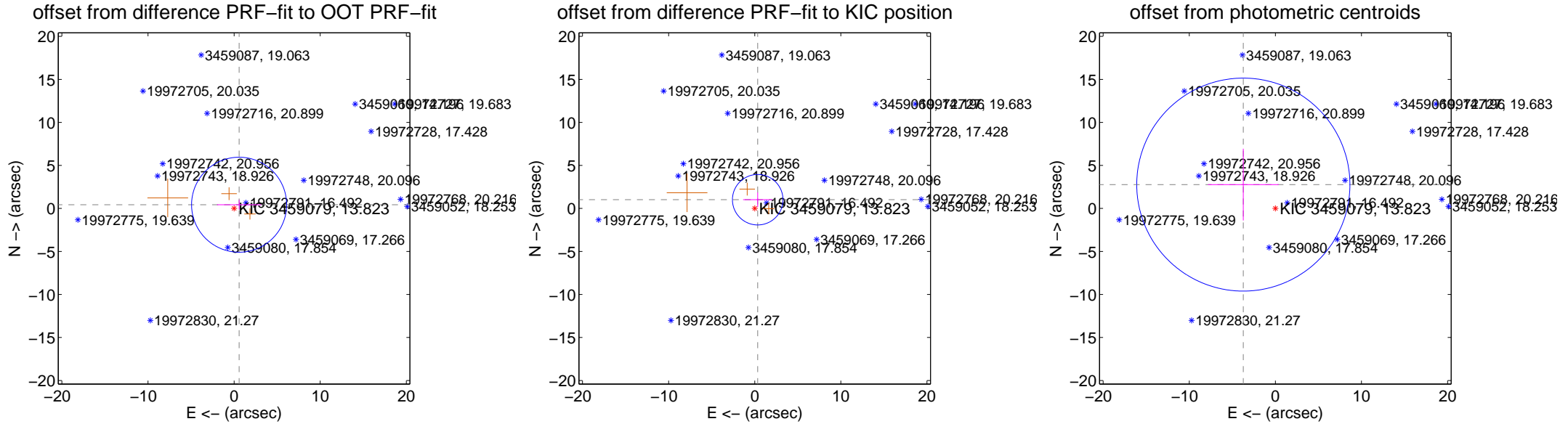
## DV Centroid Data

Supplemental centroid analysis for 003459079-02. Kepler magnitude: 13.82. Transit SNR 3.02

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.65 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.725 \pm 1.840$	0.39	$-0.581 \pm 2.570$	$0.434 \pm 0.569$
PRF-fit source offset from KIC position	$1.072 \pm 0.978$	1.10	$-0.345 \pm 1.697$	$1.015 \pm 0.857$
photometric centroid source offset	$4.64 \pm 4.13$	1.12	$3.72 \pm 4.10$	$2.77 \pm 4.17$



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.

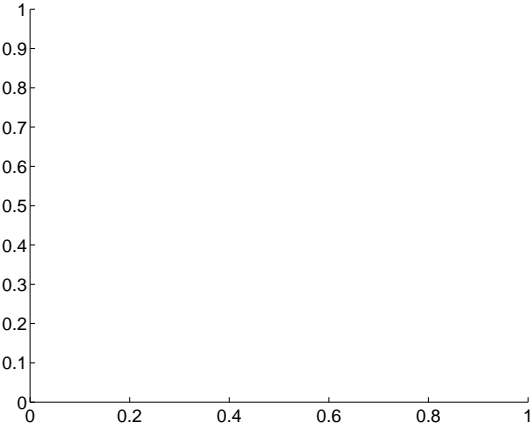
Q1 no difference image



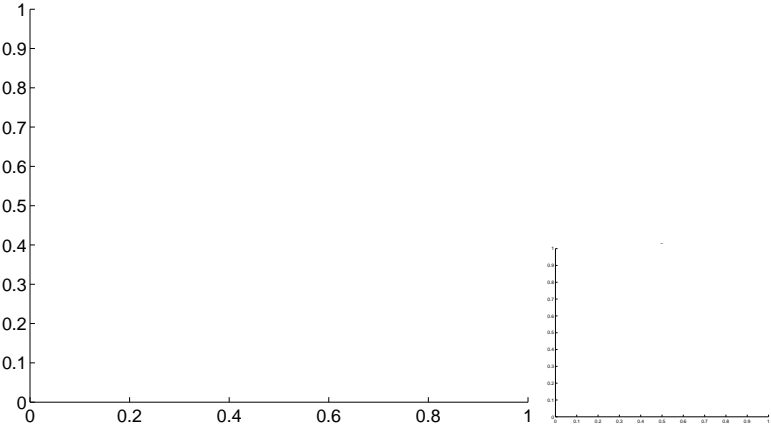
Q1 no OOT image



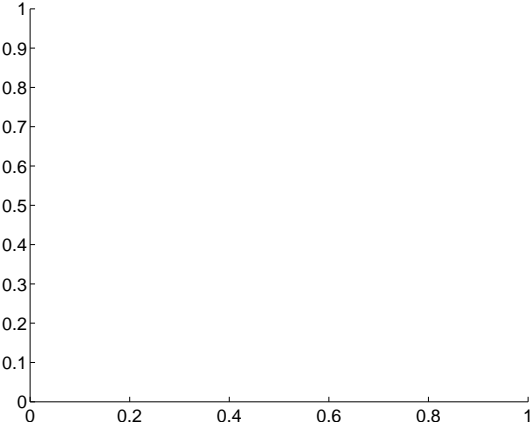
Q2 no difference image



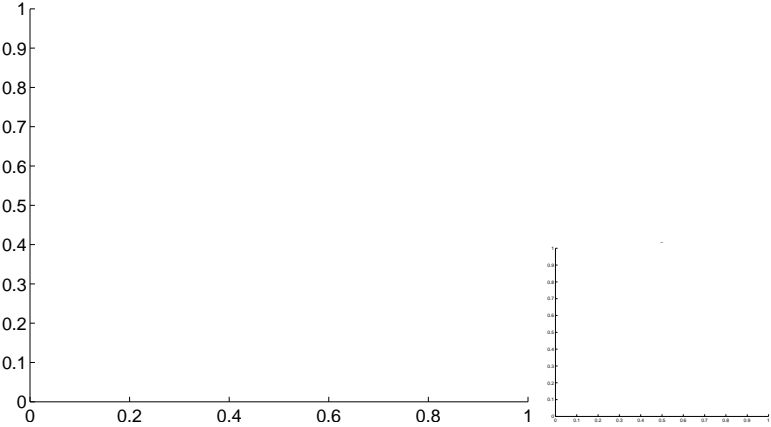
Q2 no OOT image



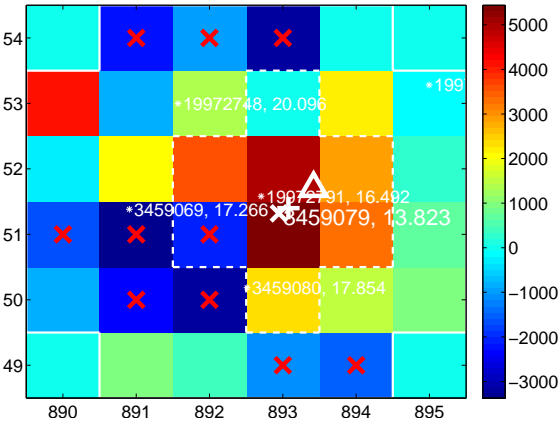
Q3 no difference image



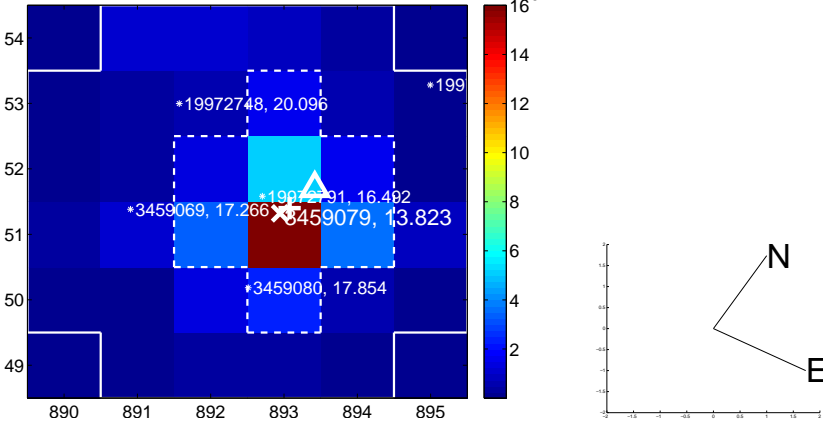
Q3 no OOT image



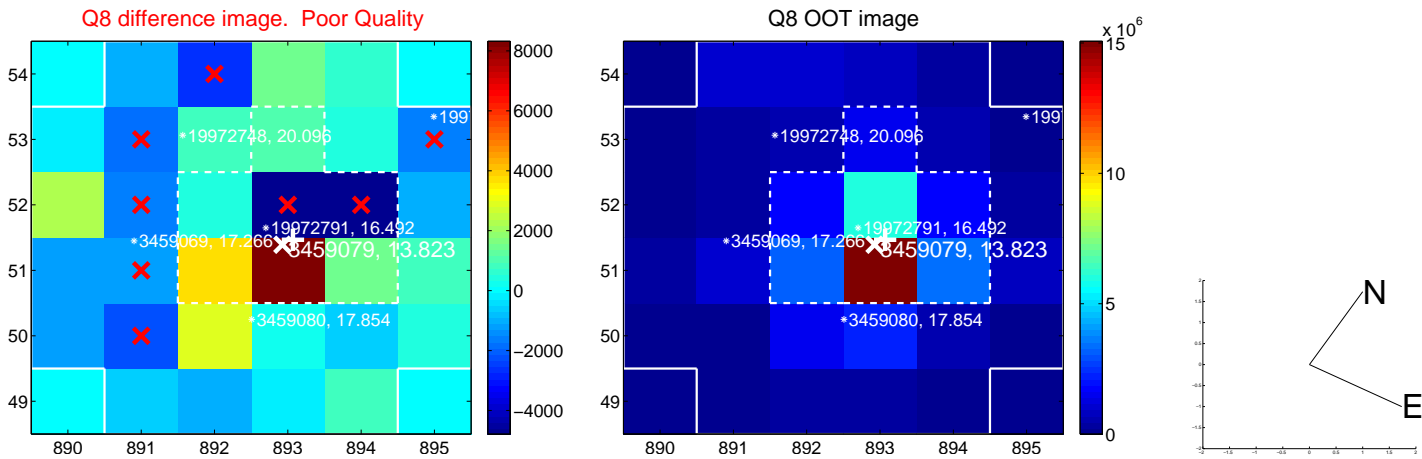
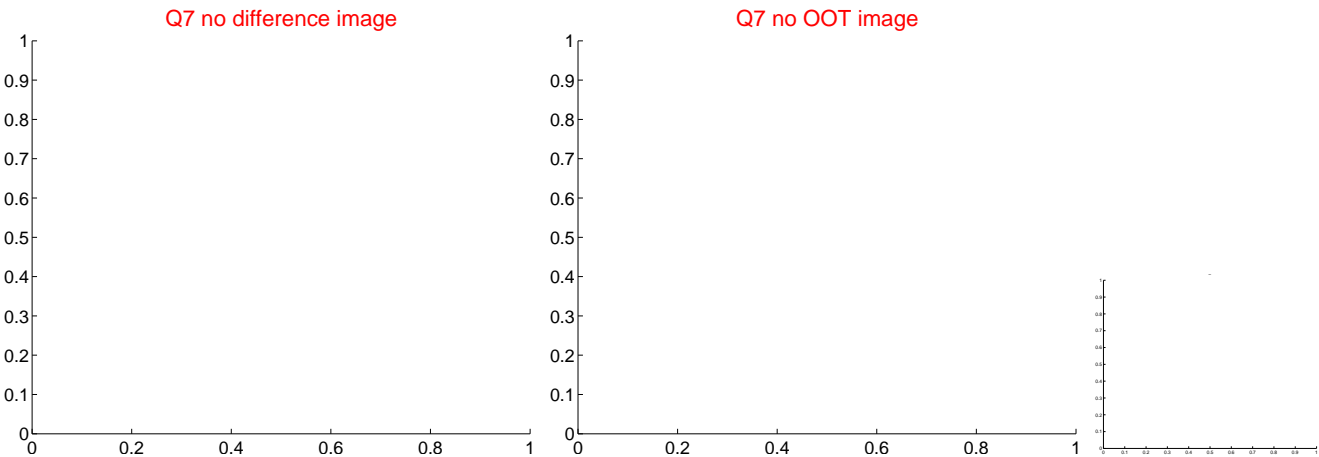
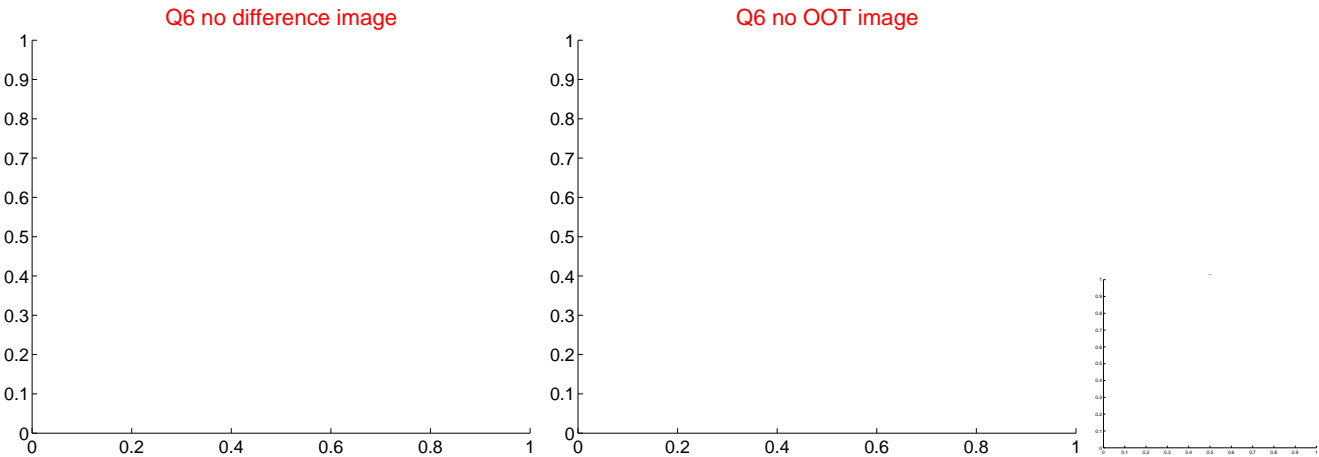
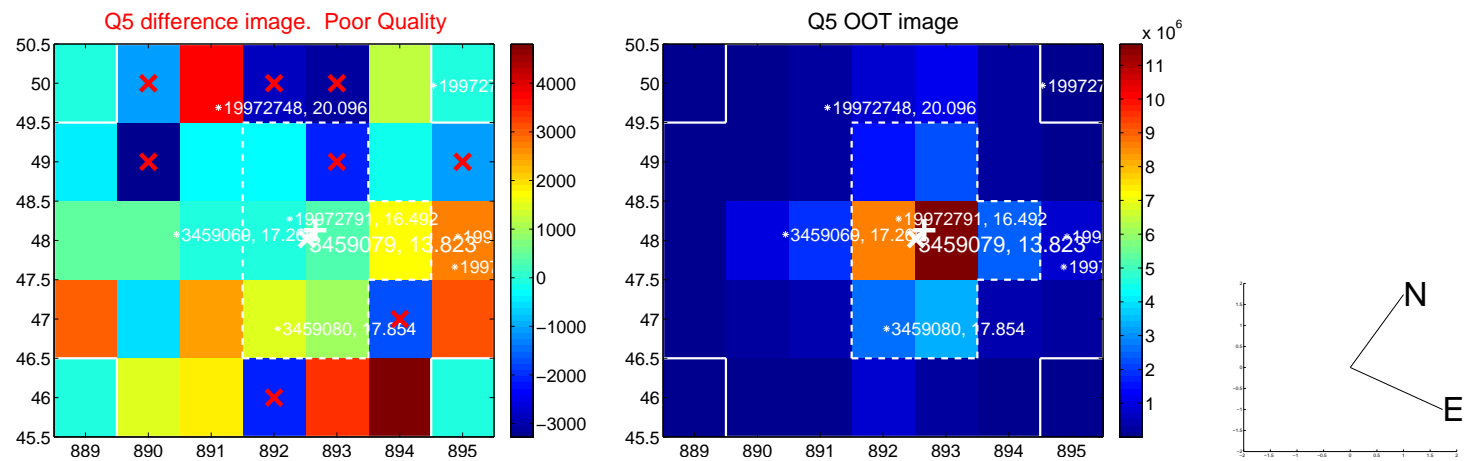
Q4 difference image. Poor Quality



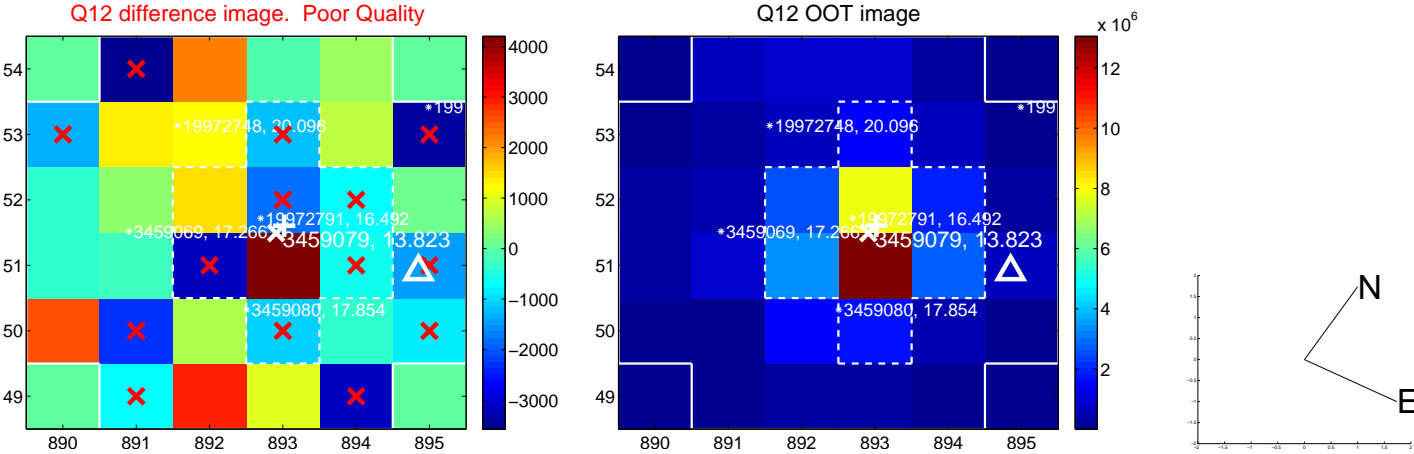
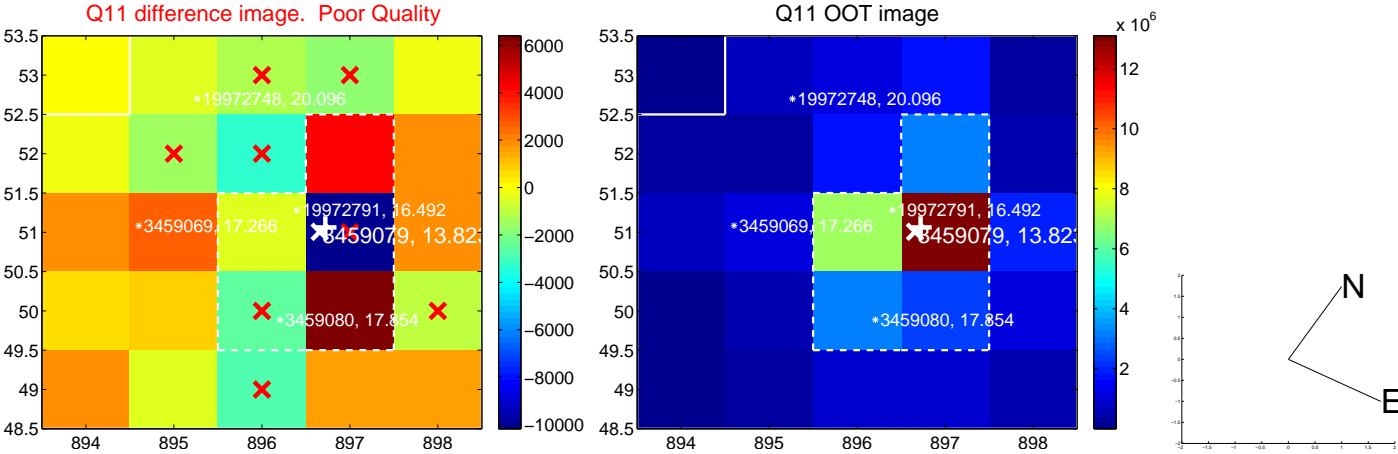
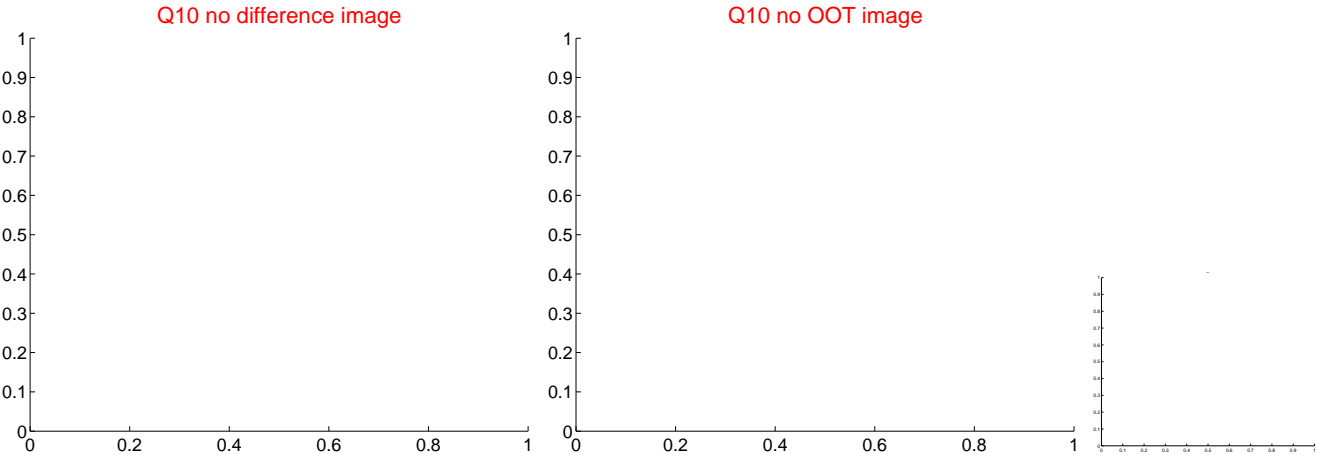
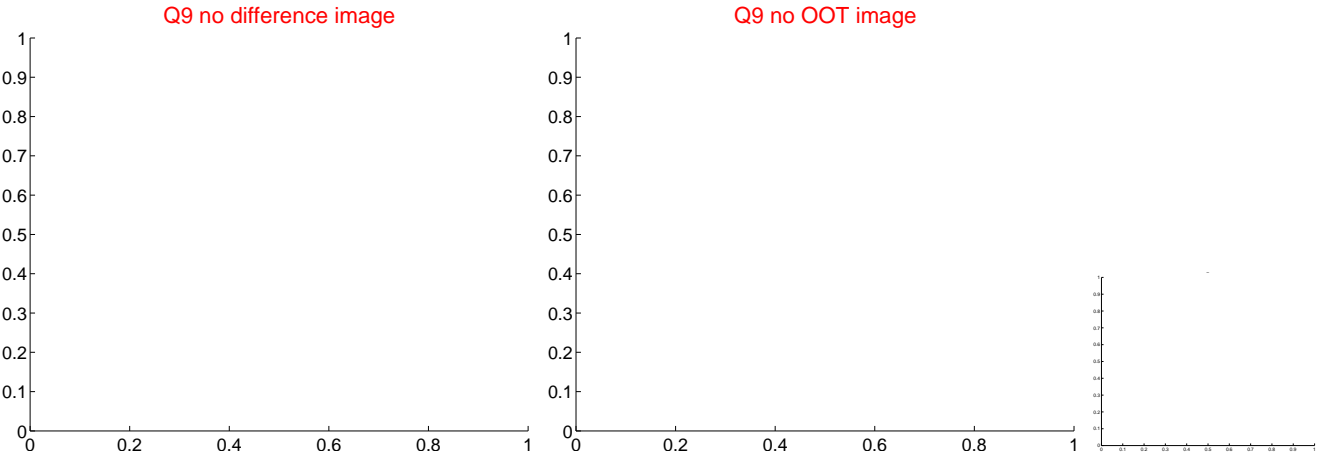
Q4 OOT image



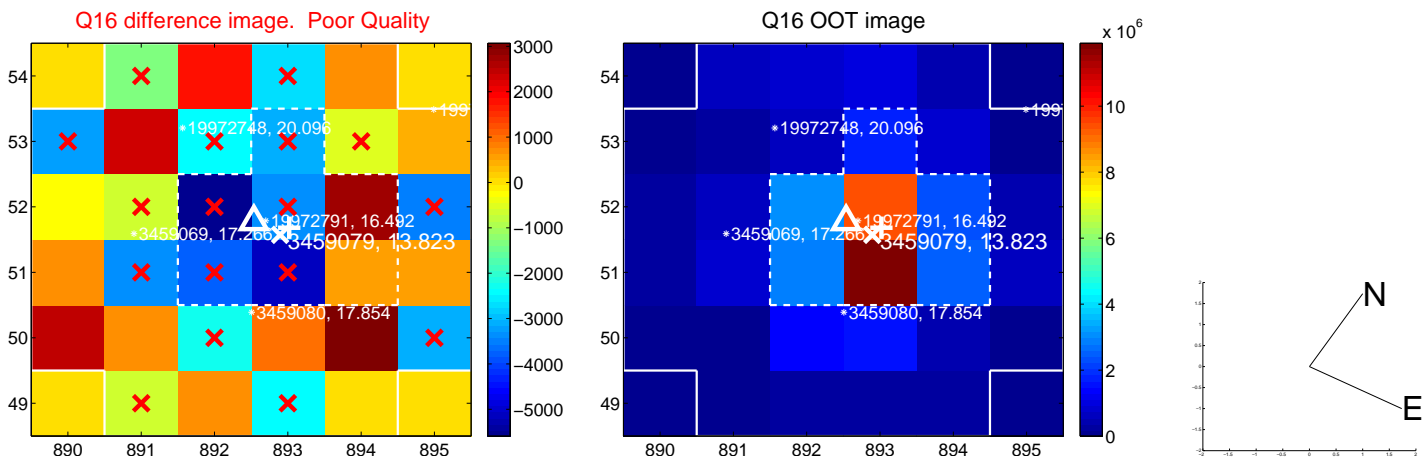
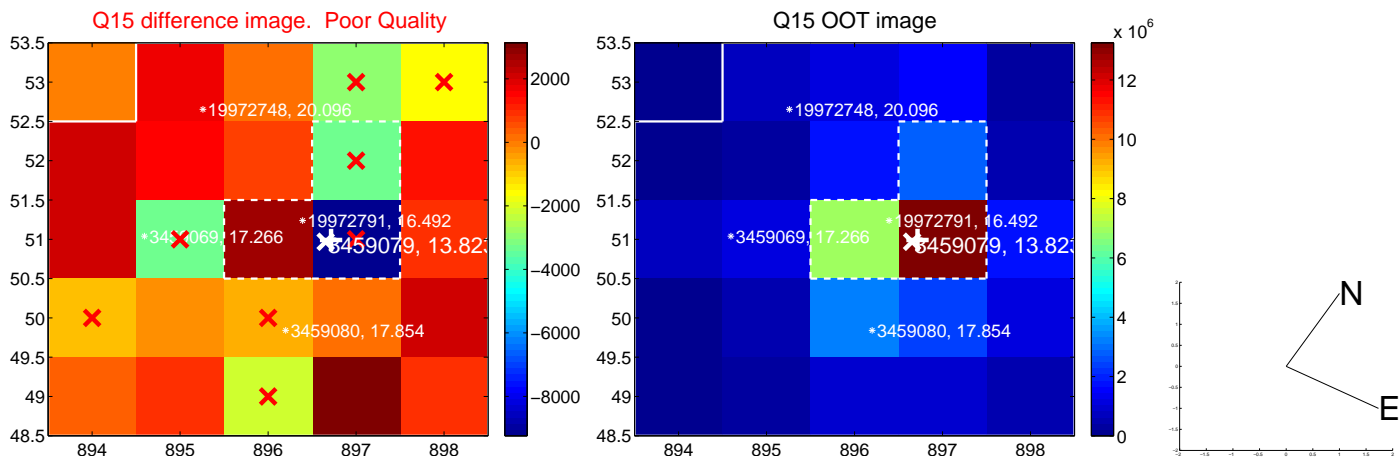
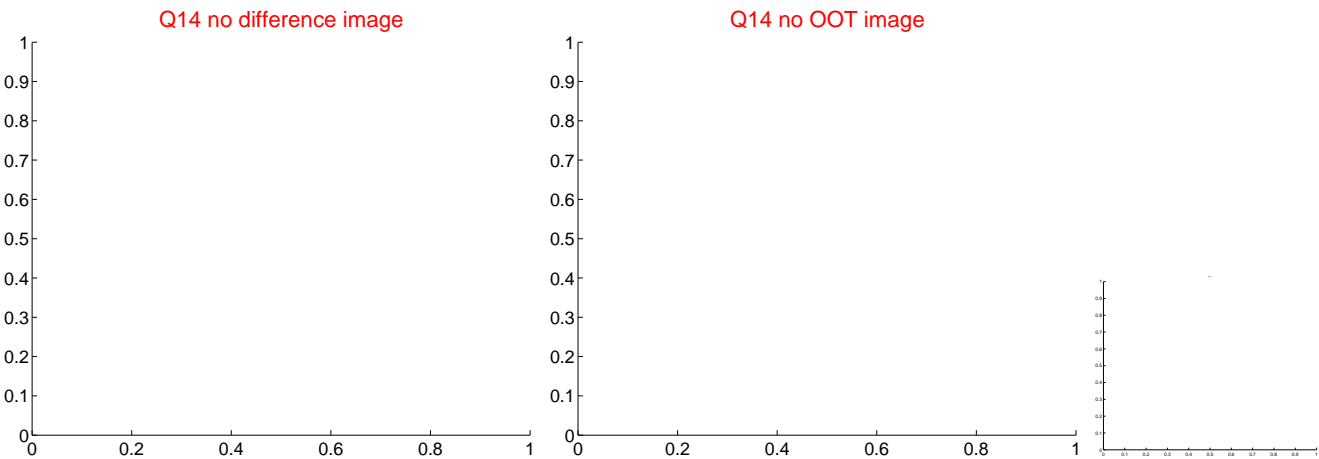
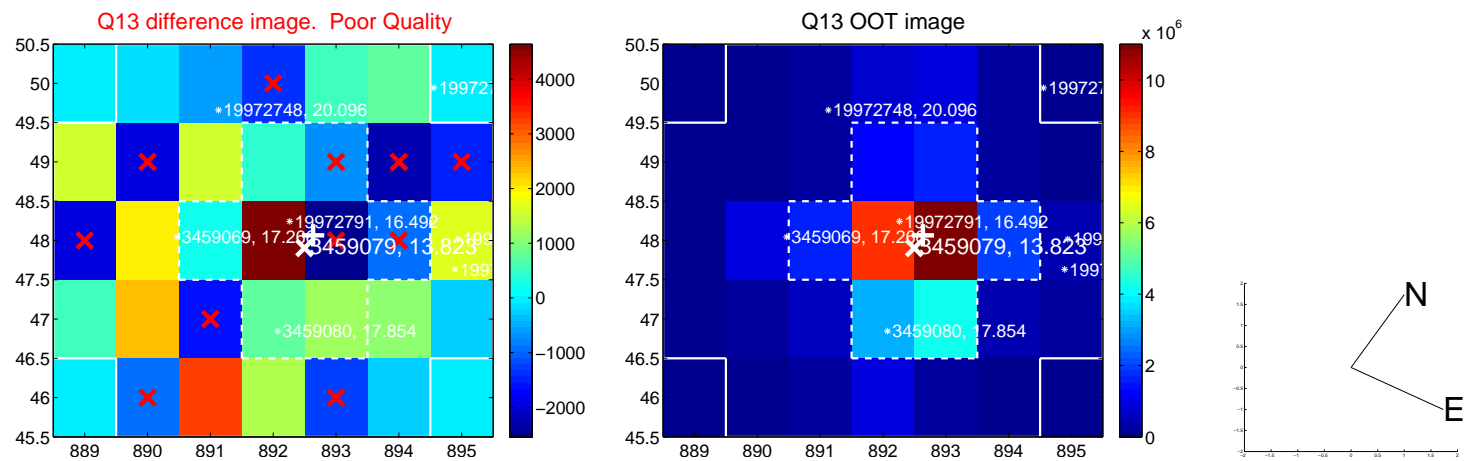
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



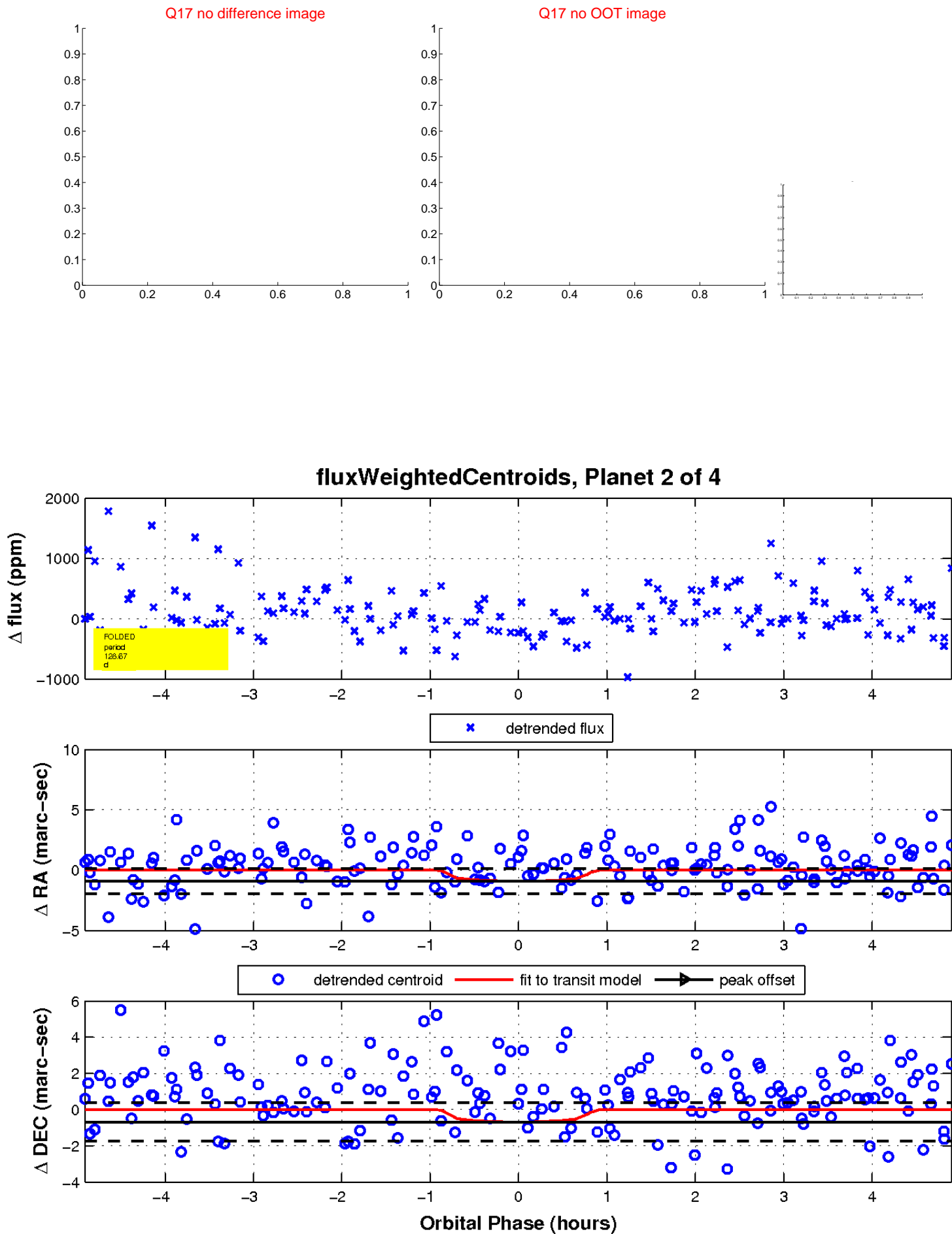
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

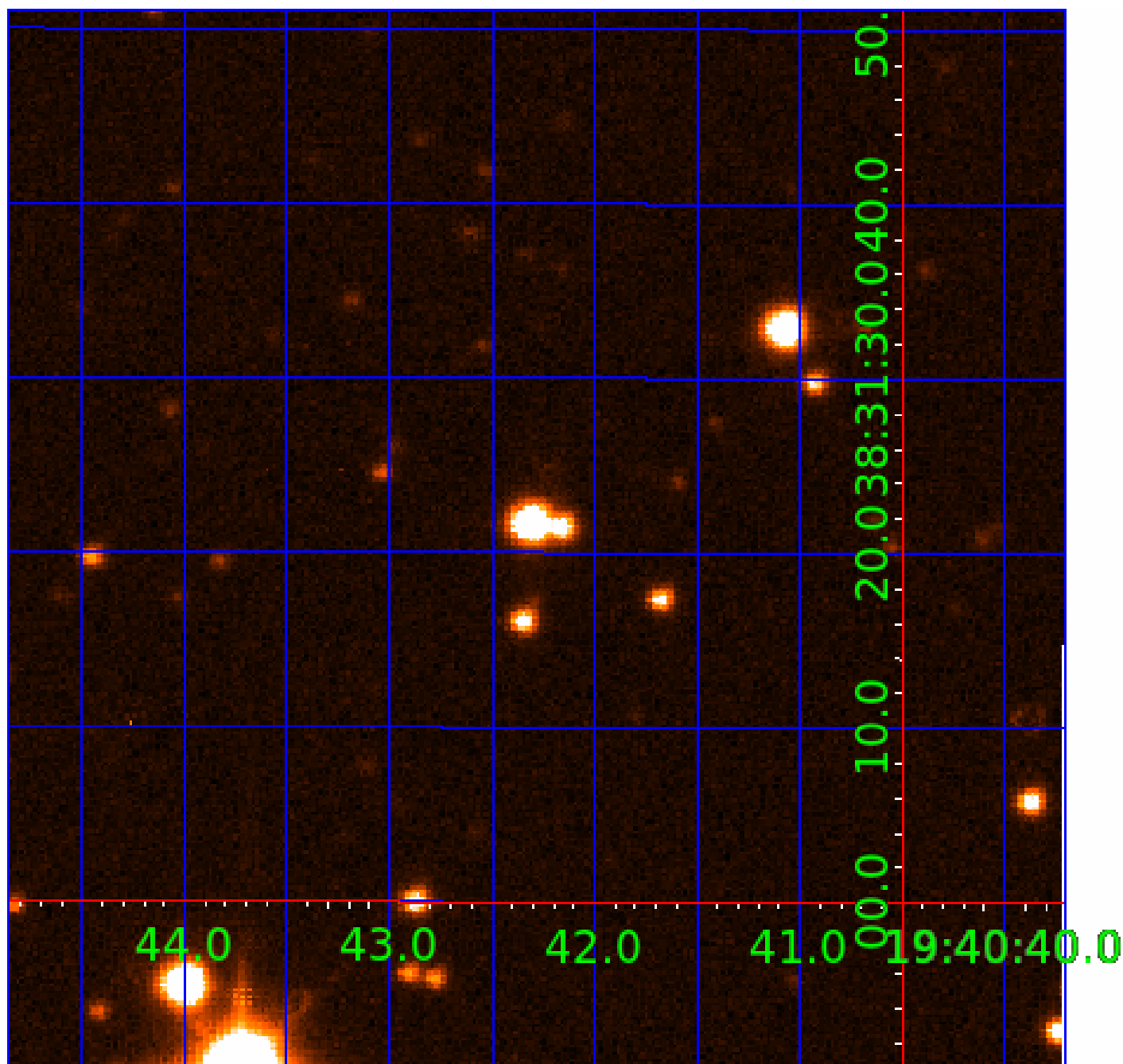


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003459079

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003459079-01	OBS	No	1.180846	132.577345	40.3	5.000	7.3	6.6	0.77	5318	0.58	1095.20
003459079-02	OBS	No	128.668656	231.342439	254.1	1.643	18.6	3.0	0.77	5318	1.23	2.10
003459079-04	OBS	No	128.771039	230.035488	788.6	11.293	13.6	7.8	0.77	5318	2.62	2.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003459079-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
003459079-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003459079-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—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.

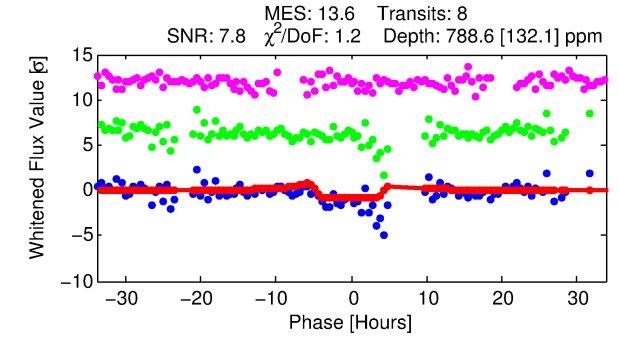
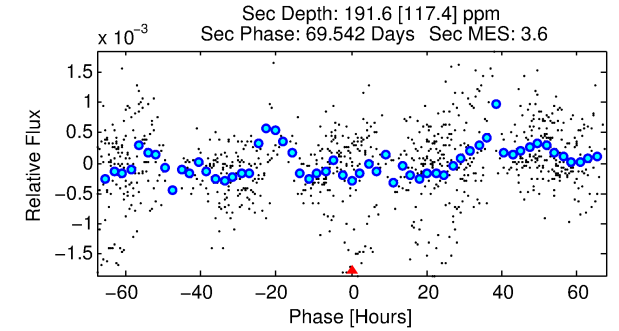
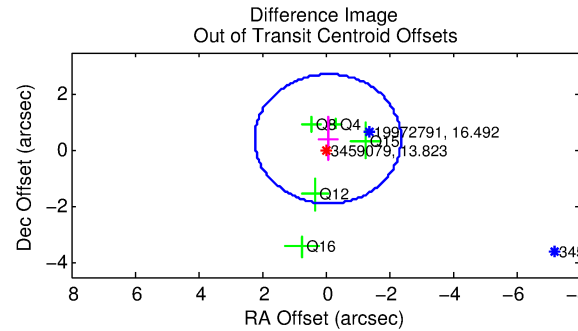
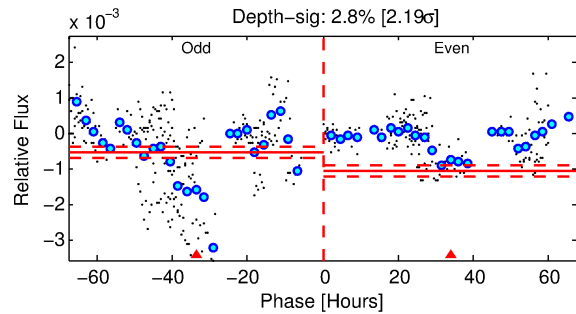
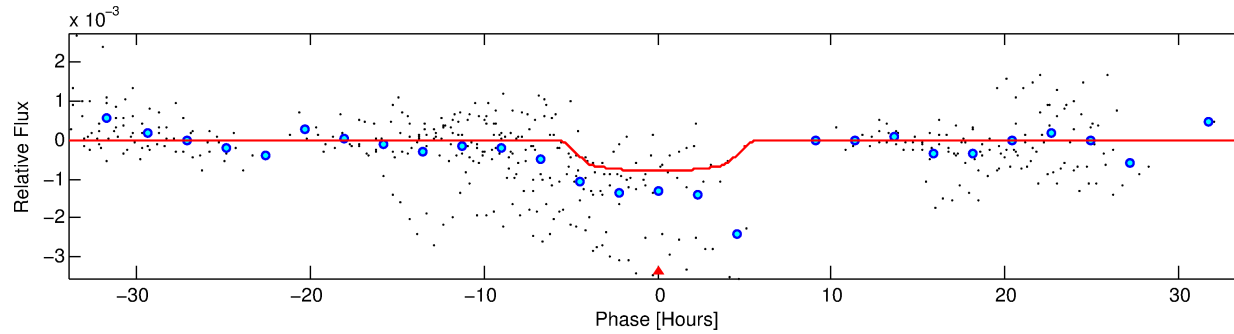
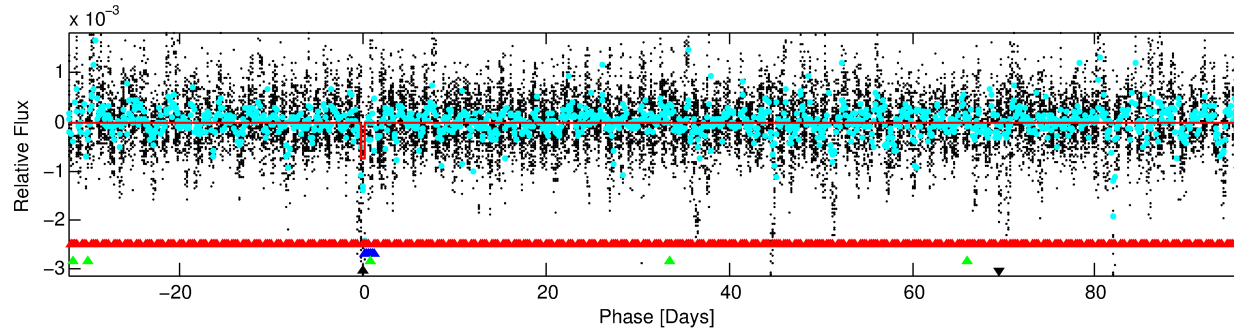
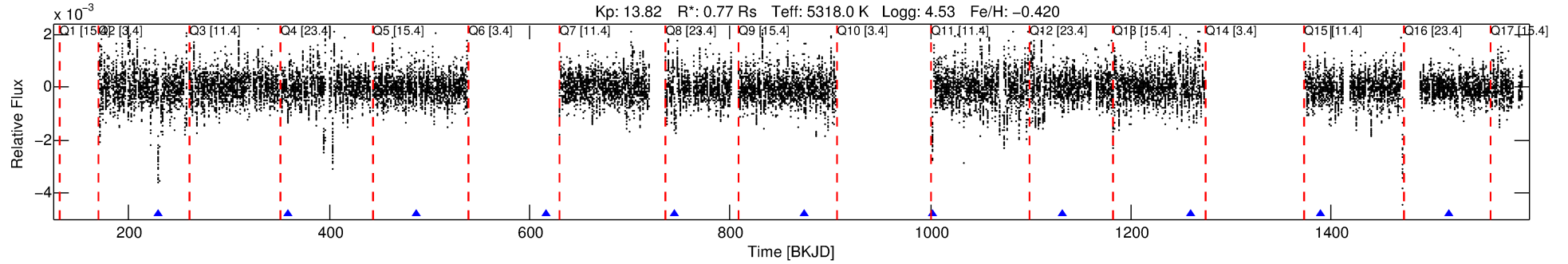
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003459079-04

No Significant Match Found

# DV One-Page Summary

KIC: 3459079 Candidate: 4 of 4 Period: 128.771 d



## DV Fit Results:

Period = 128.77104 [0.00456] d  
Epoch = 230.0355 [0.0182] BKJD  
Rp/R\* = 0.0313 [0.0038]  
a/R\* = 41.87 [13.63]  
b = 0.91 [0.06]  
Seff = 2.10 [0.48]  
Teff = 307 [18] K  
Rp = 2.62 [0.47] Re  
a = 0.4478 [0.0516] AU  
Ag = 3084.27 [2096.73] [1.47 $\sigma$ ]  
Teffp = 3538 [598] K [5.40 $\sigma$ ]

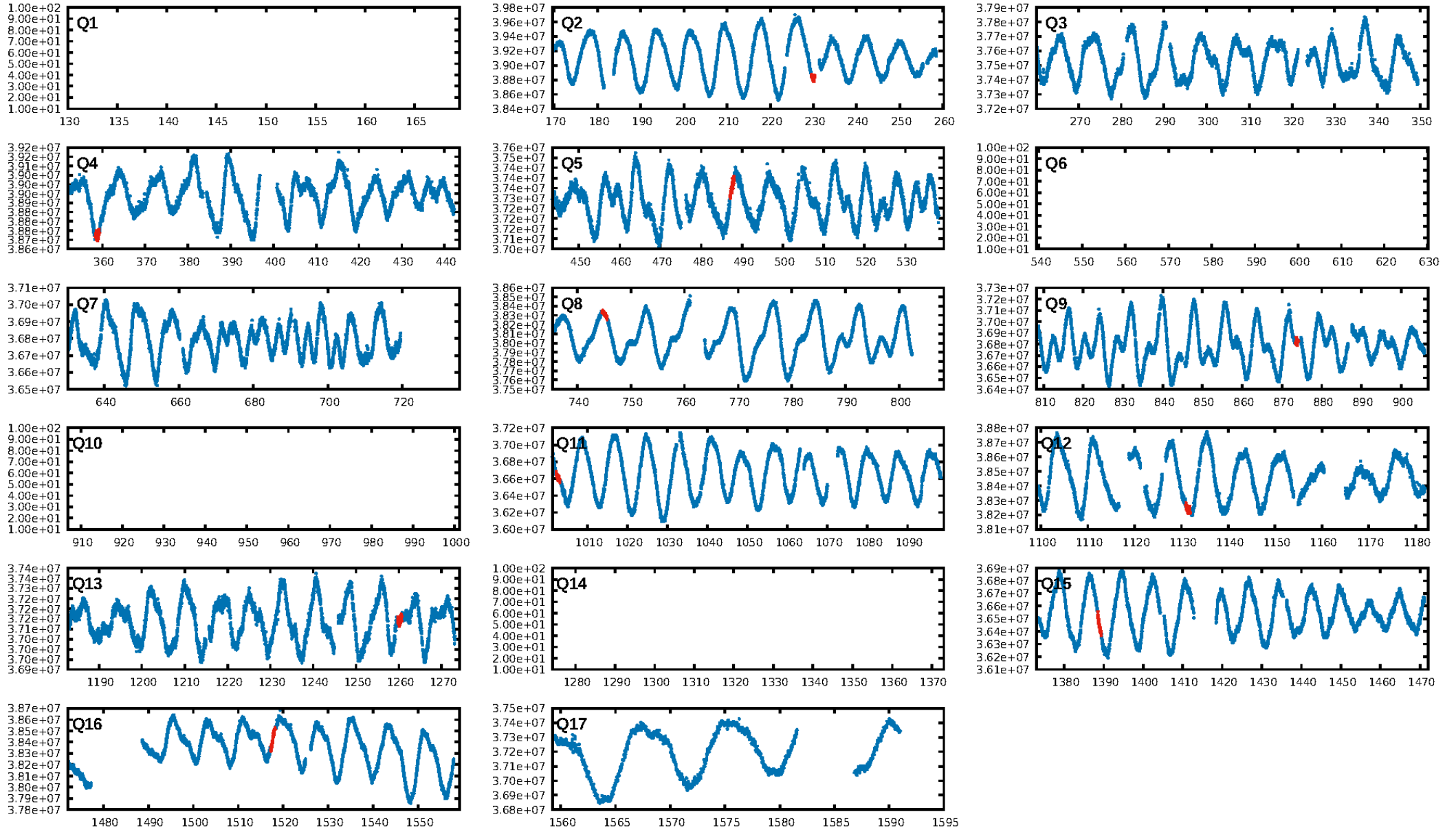
## DV Diagnostic Results:

ShortPeriod-sig: 17.0% [0.22 $\sigma$ ]  
LongPeriod-sig: 100.0% [287.31 $\sigma$ ]  
ModelChiSquare2-sig: 1.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.78e-22  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: -1.626  
Centroid-sig: 13.7%  
Centroid-so: 0.838 arcsec [1.20 $\sigma$ ]  
OotOffset-rm: 0.423 arcsec [0.55 $\sigma$ ]  
KicOffset-rm: 0.966 arcsec [1.28 $\sigma$ ]  
OotOffset-st: 0/1/4/0 [5]  
KicOffset-st: 0/1/4/0 [5]  
DiffImageQuality-fgm: 0.60 [3/5]  
DiffImageOverlap-fno: 0.00 [0/7]

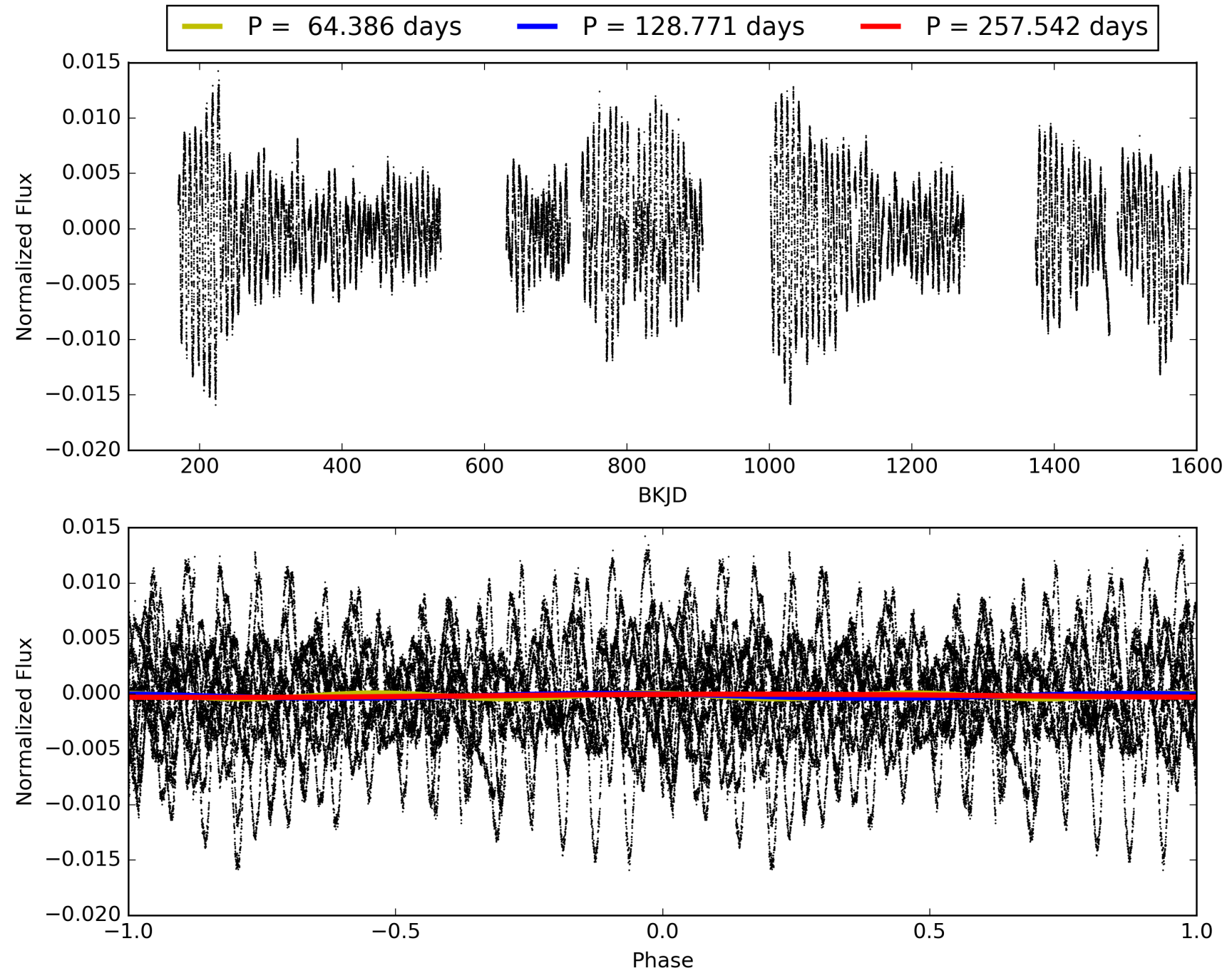
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:23:05 Z

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

# TCE 003459079-04, PDC Light Curves

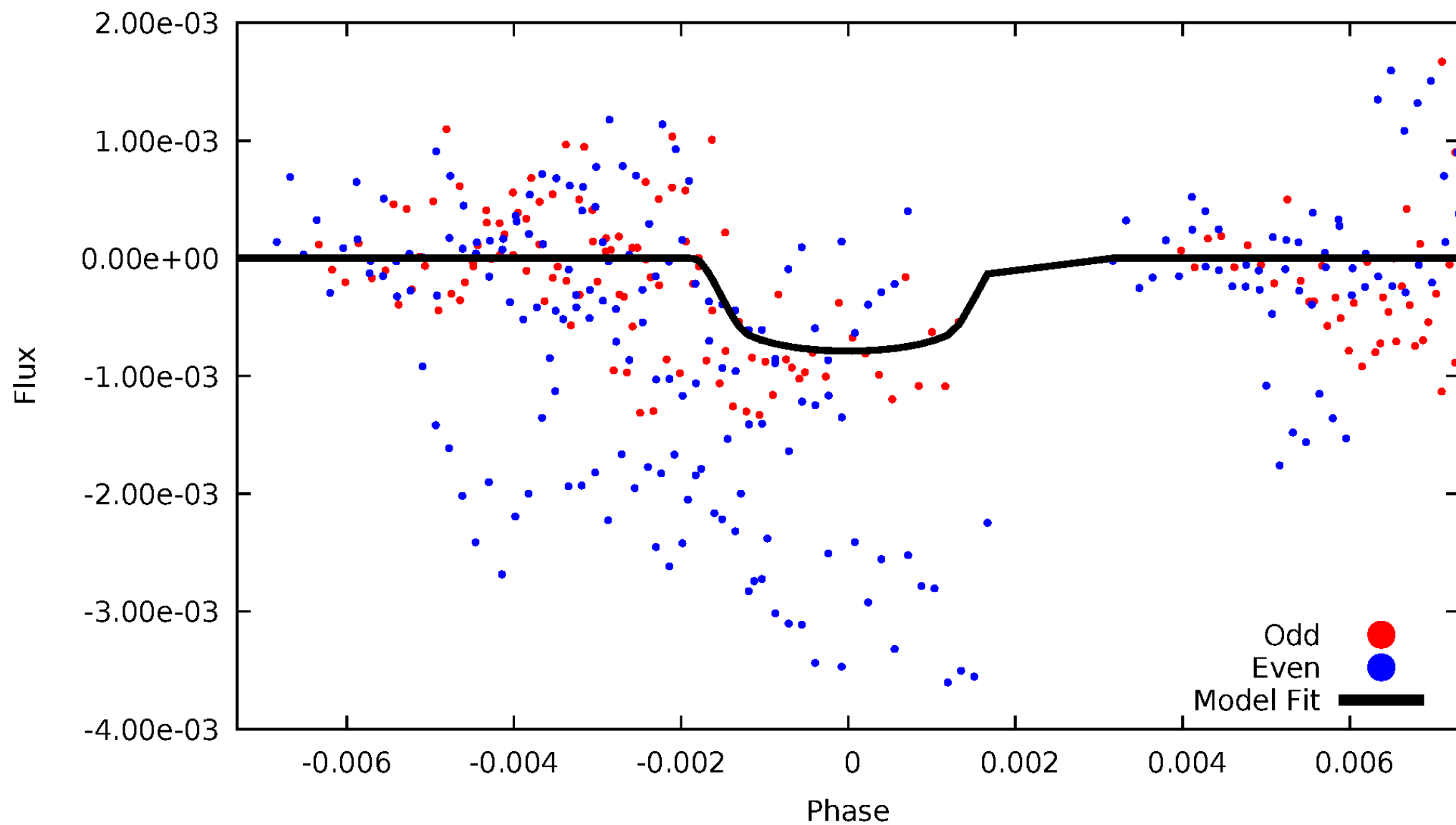


# TCE 003459079-04



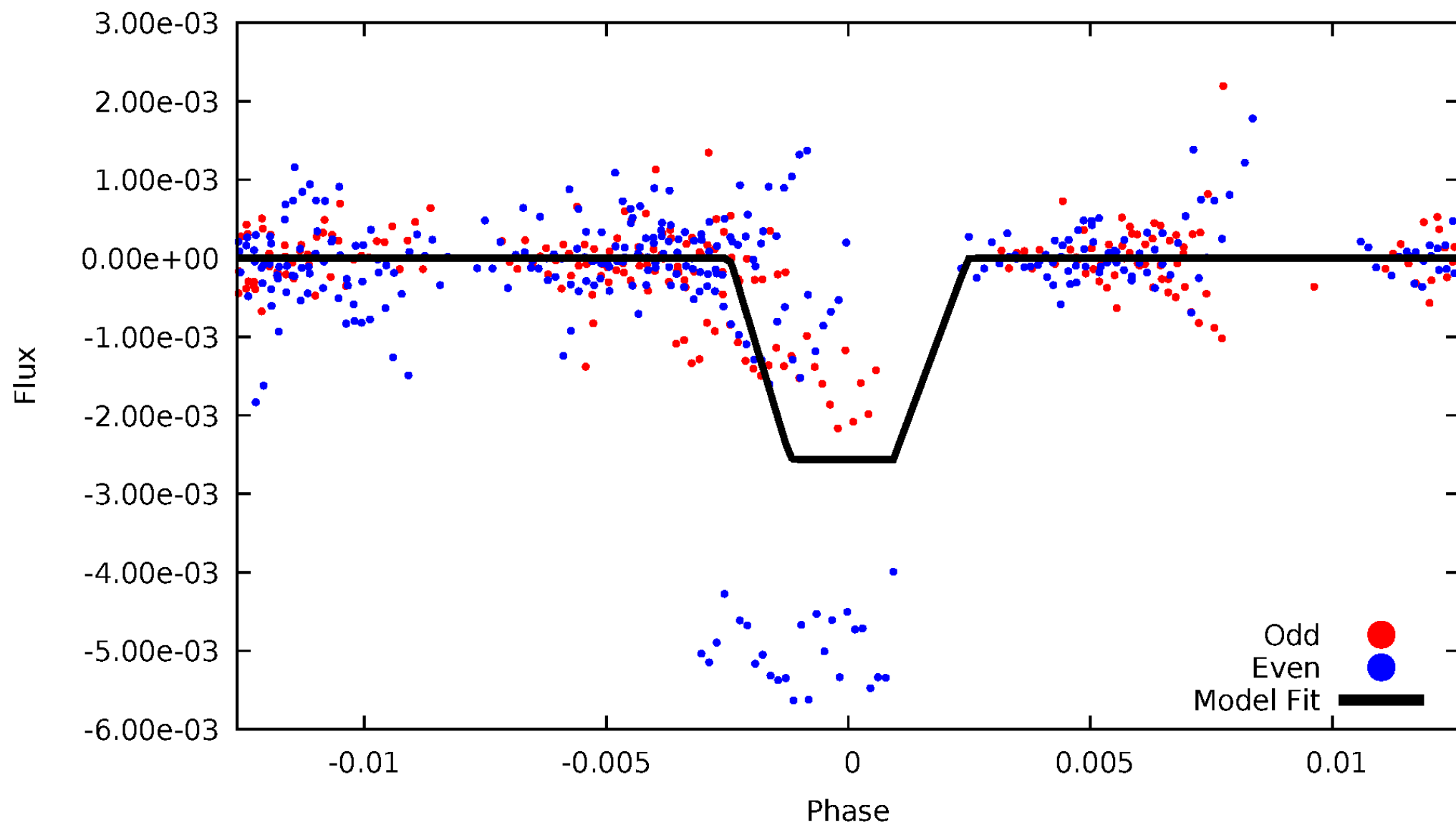
# DV Odd/Even

TCE 003459079-04



# ALT Odd/Even

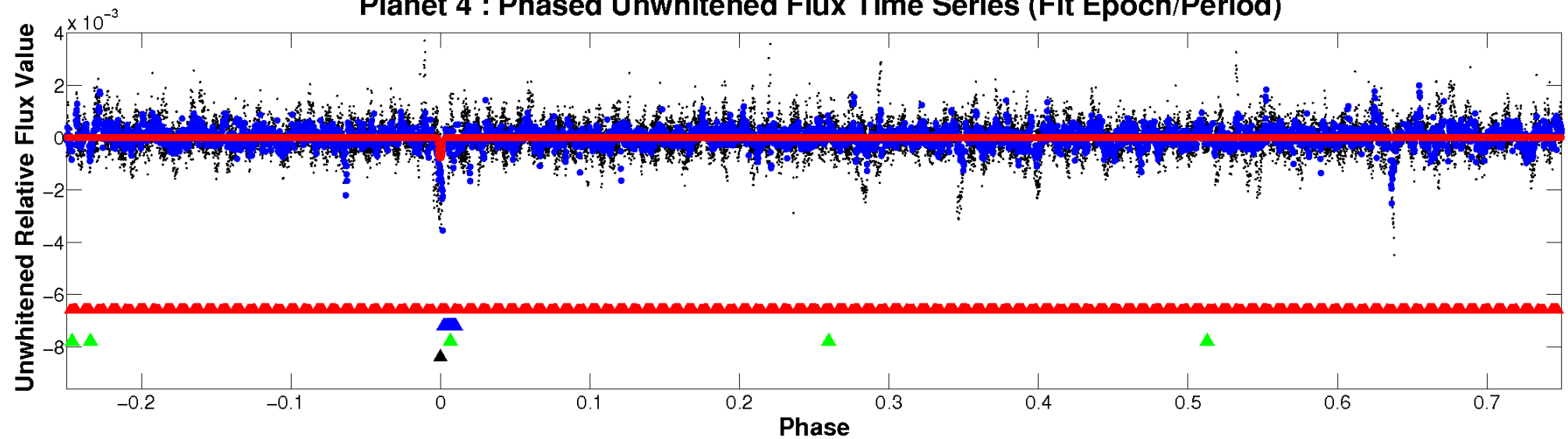
TCE 003459079-04



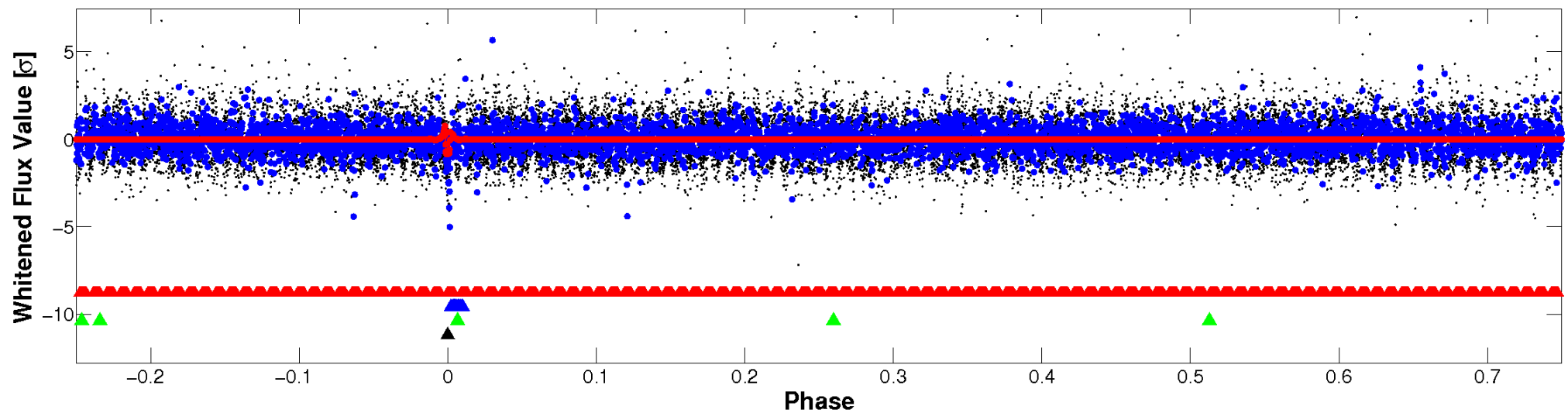


# Non-Whitened Vs. Whitened Light Curve

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

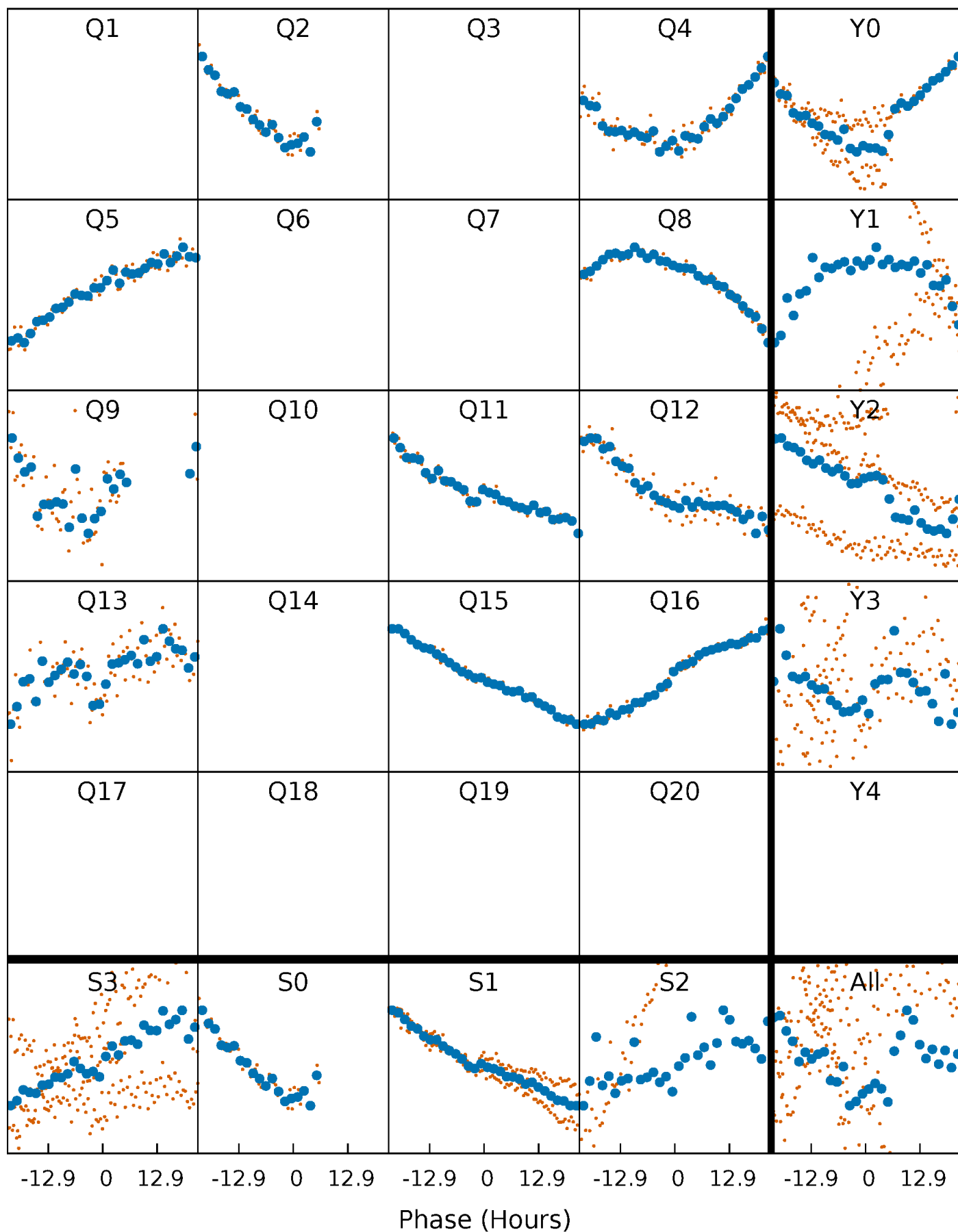


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



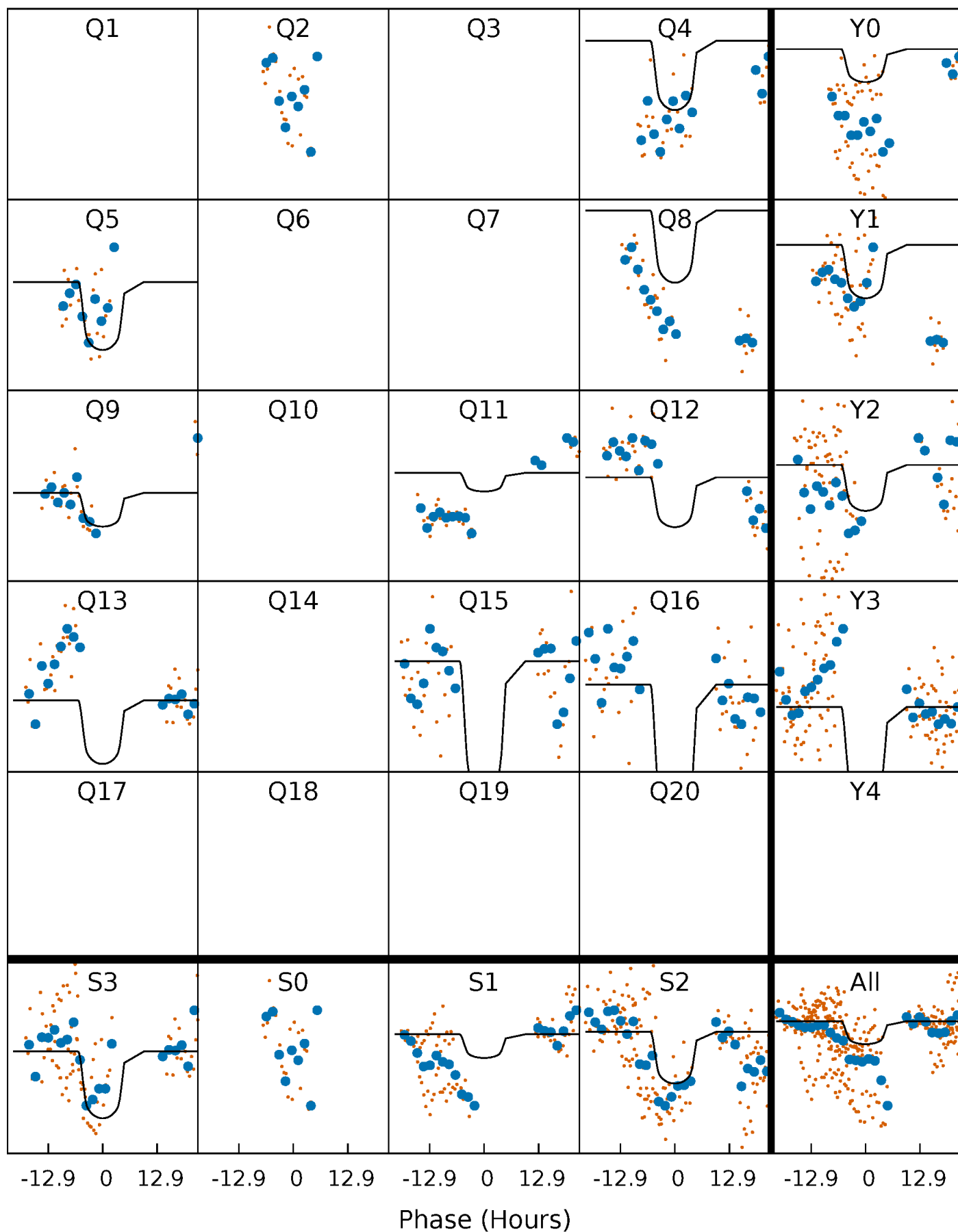
# PDC Quarter-Phased Transit Curves

TCE 003459079-04 P=128.771039 Days  $T_0=230.035488$  (BKJD)



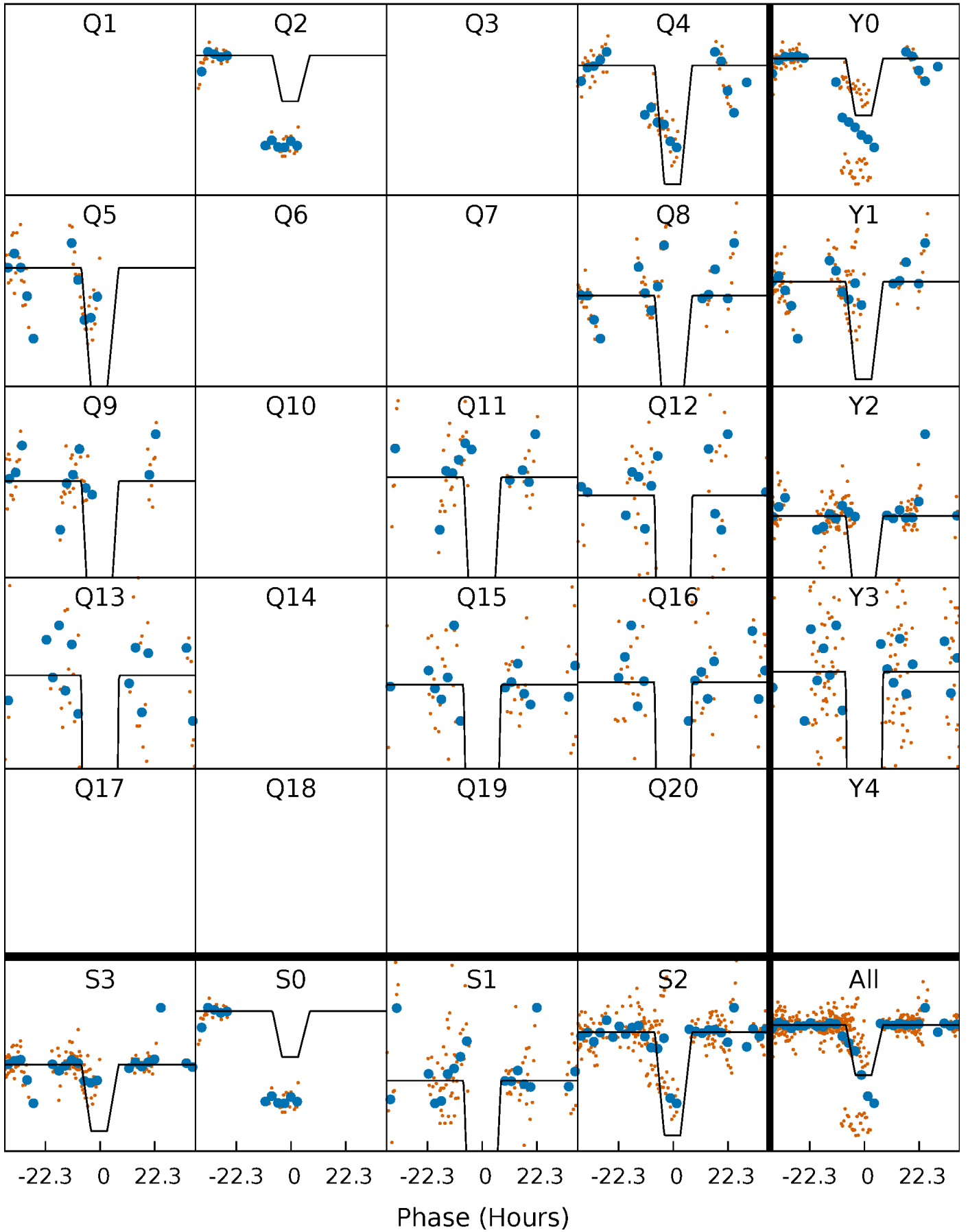
# DV Quarter-Phased Transit Curves

TCE 003459079-04     $P=128.771039$  Days     $T_0=230.035488$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

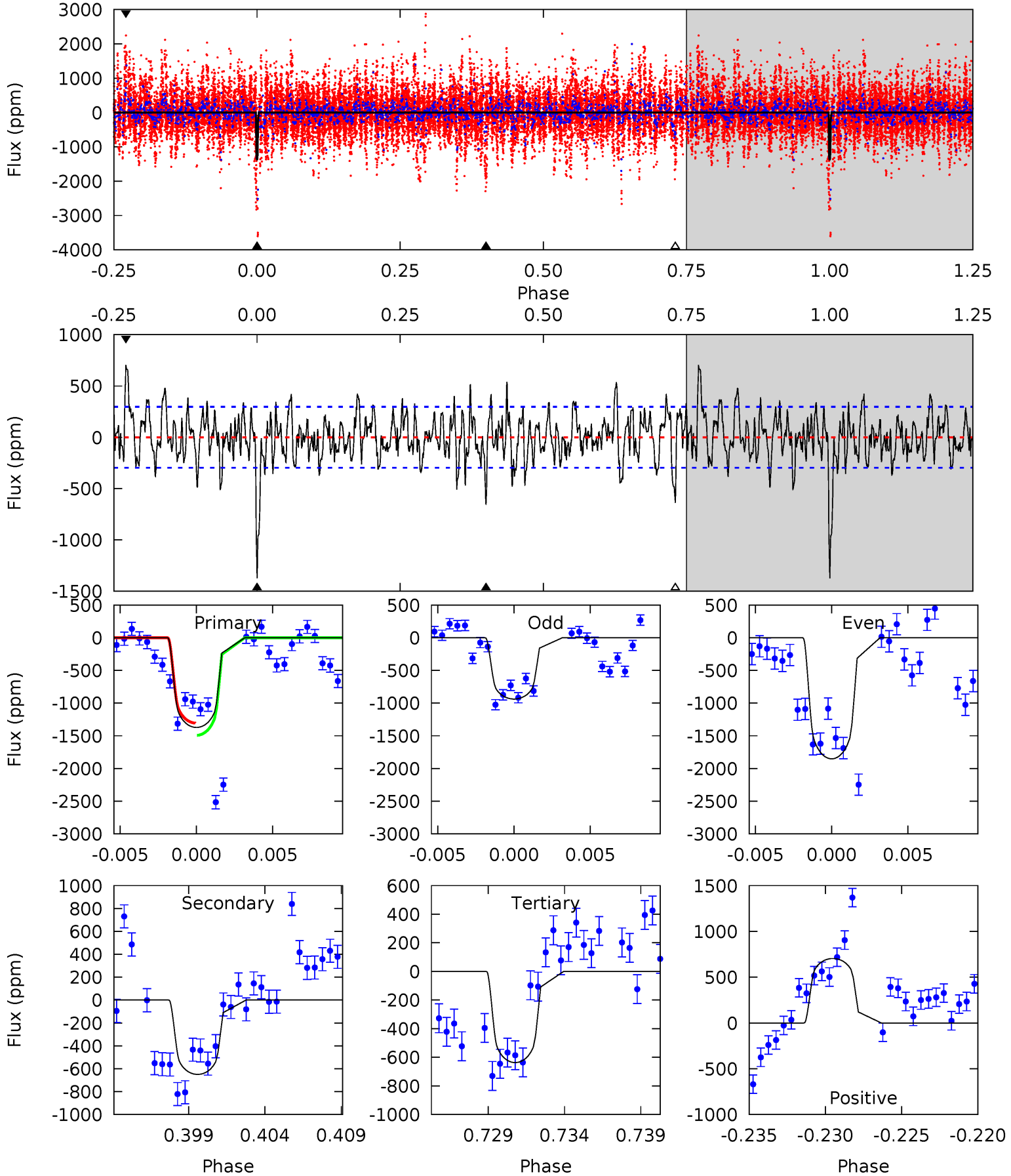
TCE 003459079-04 P=128.772295 Days  $T_0=230.130018$  (BKJD)



# DV Model-Shift Uniqueness Test

003459079-04, P = 128.771039 Days, E = 101.264449 Days

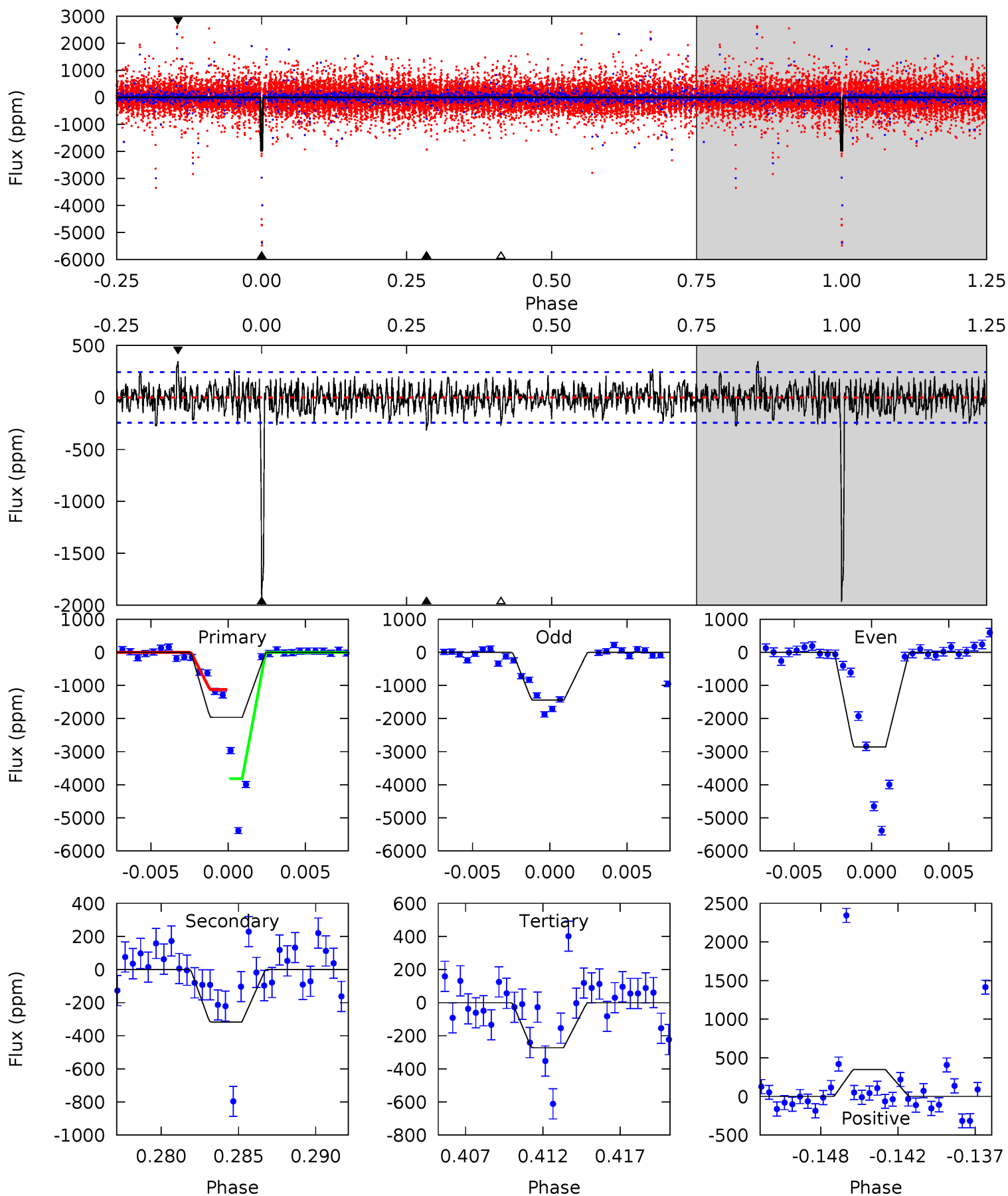
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.8	11.3	11.0	12.2	5.16	2.81	3.14	12.7	11.6	0.22	-0.94	7.67	1.27	0.34	1.46



# Alt Model-Shift Uniqueness Test

003459079-04, P = 128.772295 Days, E = 101.357723 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.7	6.72	5.77	7.41	5.15	2.80	1.76	35.9	34.3	0.95	-0.69	14.5	1.00	0.15	0





### Stellar Parameters For KIC 003459079

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5318^{+206}_{-169}$	$4.527^{+0.093}_{-0.085}$	$-0.420^{+0.350}_{-0.300}$	$0.767^{+0.104}_{-0.095}$	$0.722^{+0.107}_{-0.046}$	$2.251^{+0.865}_{-0.626}$
	+4%/-3%	+2%/-2%	+83%/-71%	+14%/-12%	+15%/-6%	+38%/-28%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003459079-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-650 \pm 58$	$2.65^{+0.37}_{-0.38}$	$430^{+21}_{-21}$	$4881^{+322}_{-282}$	$10541^{+3550}_{-2696}$
Alt.	$-317 \pm 47$	$4.25^{+0.47}_{-0.41}$	$430^{+22}_{-21}$	$3589^{+159}_{-151}$	$1939^{+578}_{-417}$

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

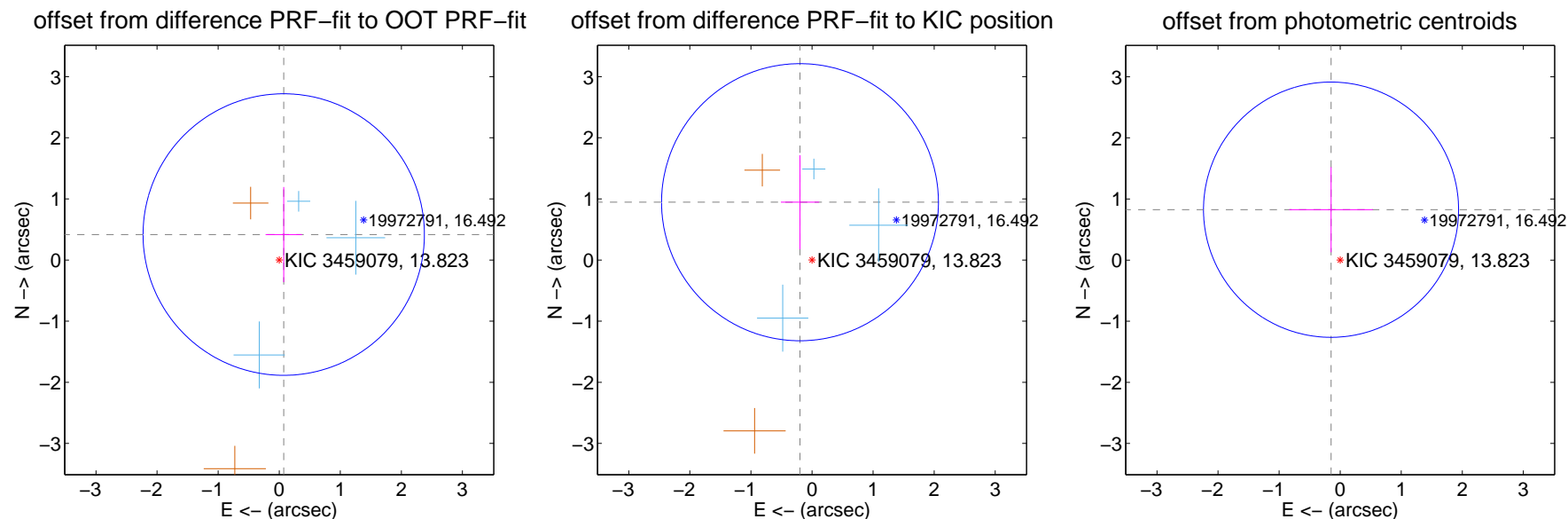
## DV Centroid Data

Supplemental centroid analysis for 003459079-04. Kepler magnitude: 13.82. Transit SNR 7.77

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.65 arcsec

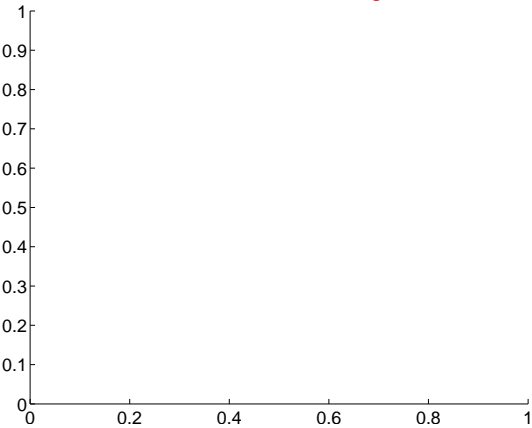
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.423 \pm 0.768$	0.55	$-0.074 \pm 0.297$	$0.417 \pm 0.778$
PRF-fit source offset from KIC position	$0.966 \pm 0.756$	1.28	$0.197 \pm 0.313$	$0.946 \pm 0.769$
photometric centroid source offset	$0.84 \pm 0.70$	1.20	$0.15 \pm 0.68$	$0.82 \pm 0.70$



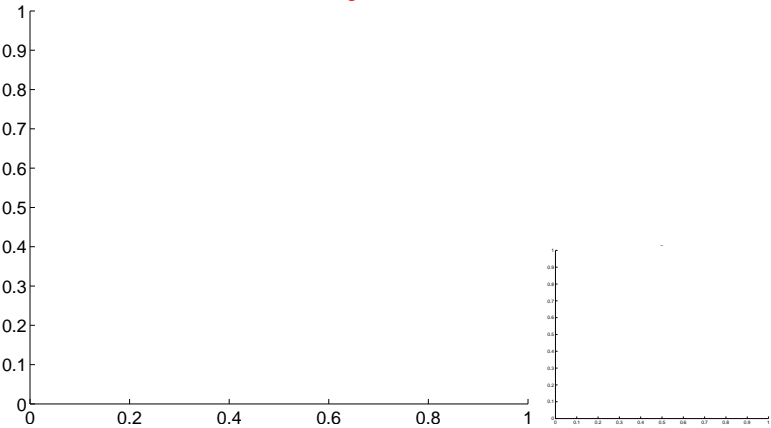
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

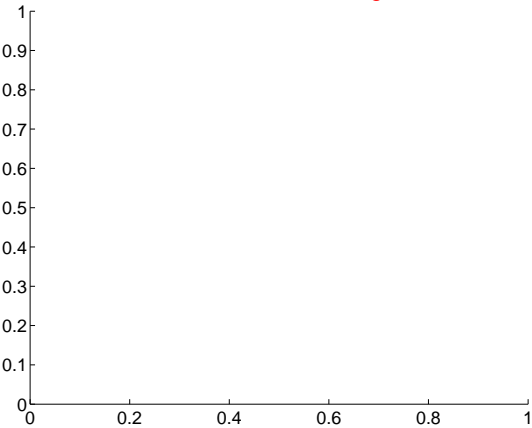
Q1 no difference image



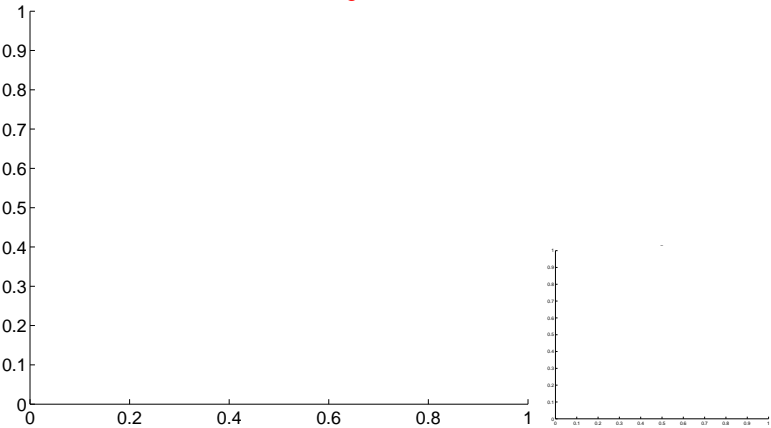
Q1 no OOT image



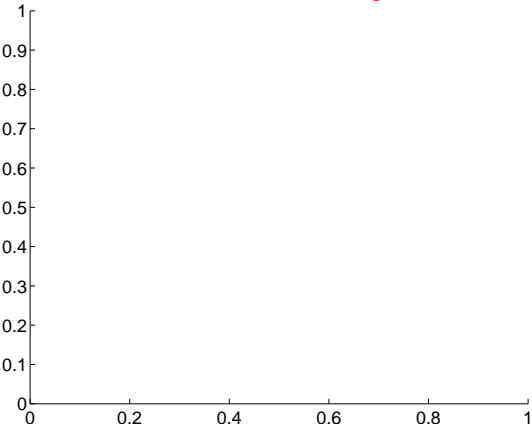
Q2 no difference image



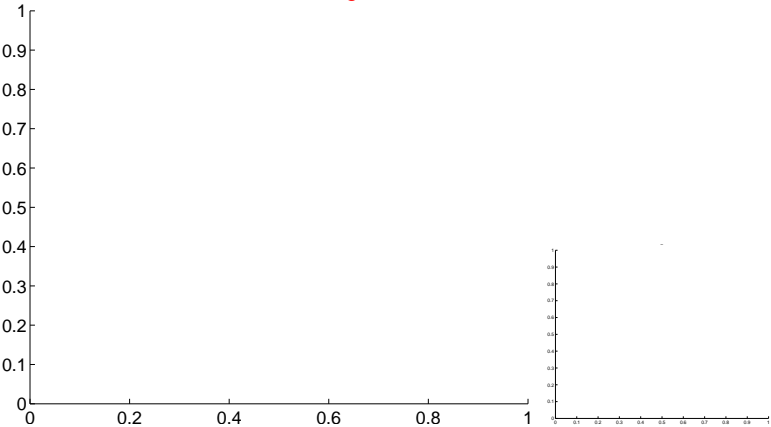
Q2 no OOT image



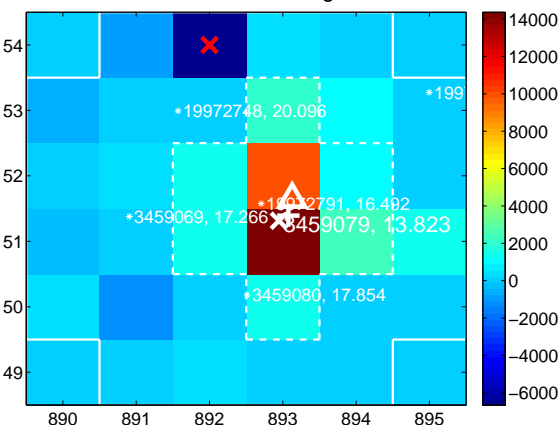
Q3 no difference image



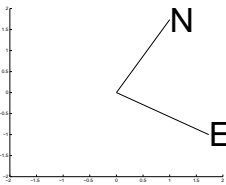
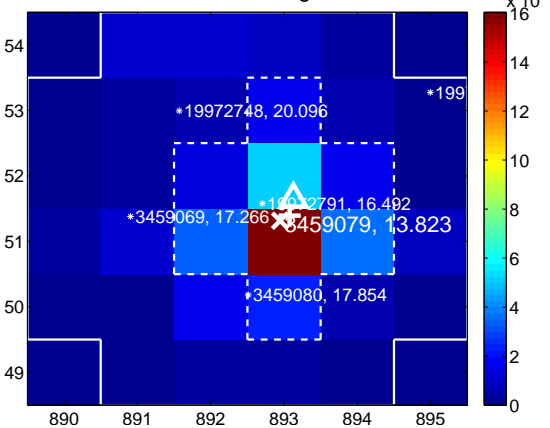
Q3 no OOT image



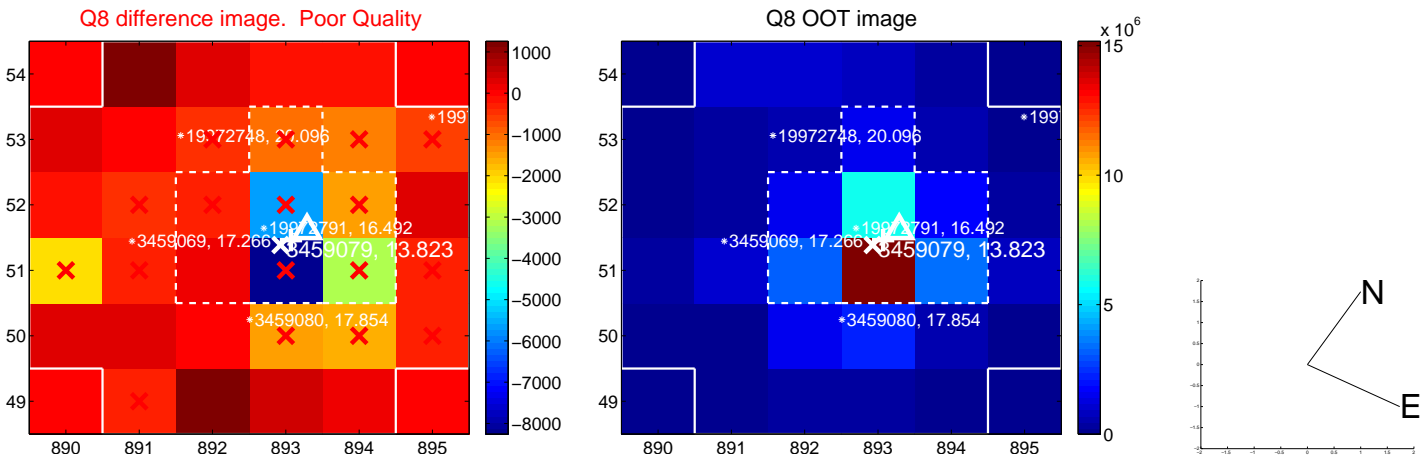
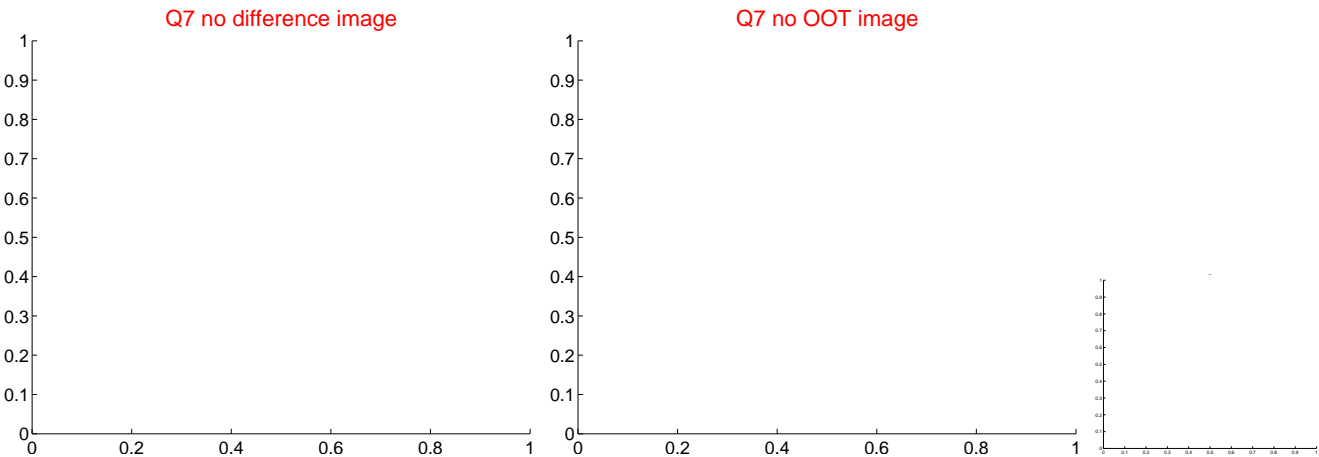
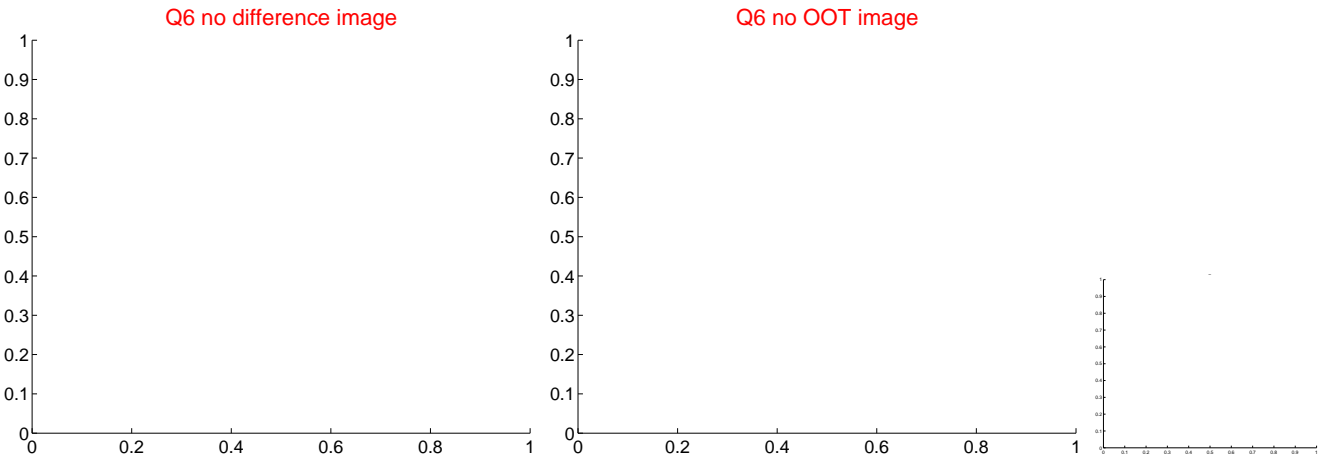
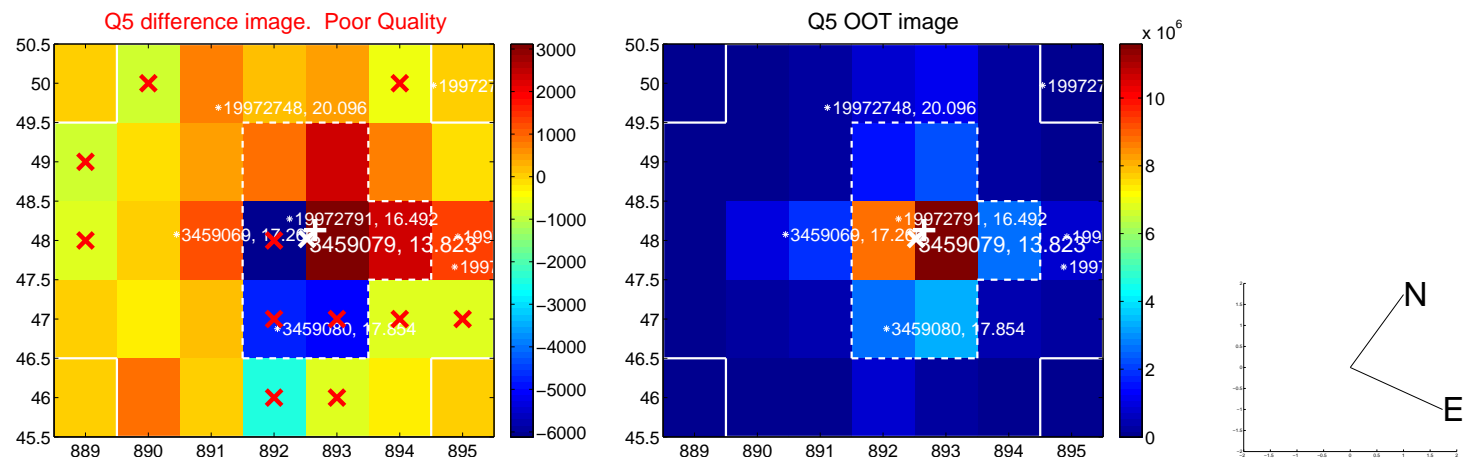
Q4 difference image



Q4 OOT image

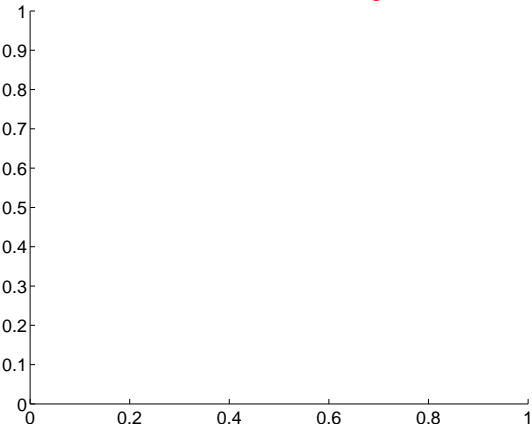


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

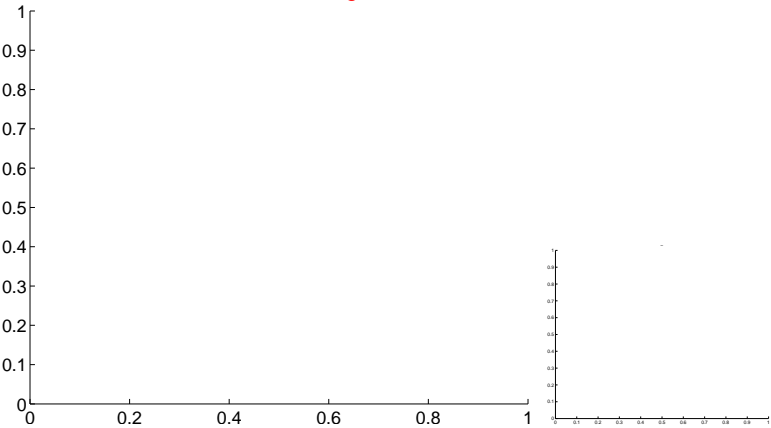


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

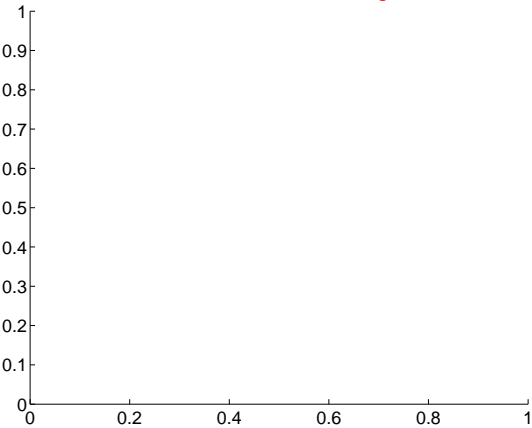
Q9 no difference image



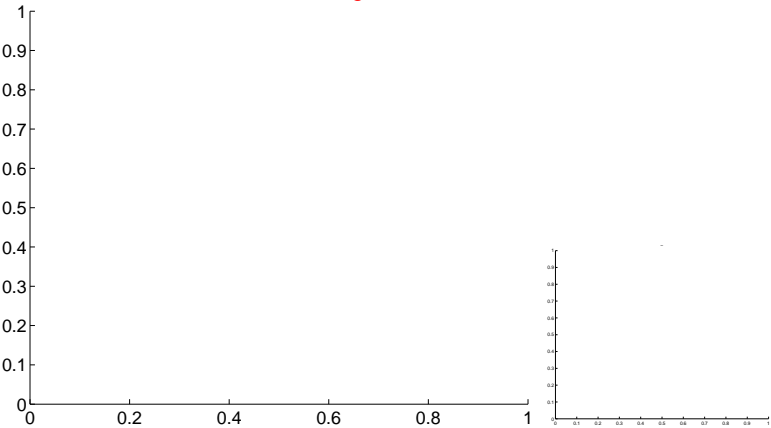
Q9 no OOT image



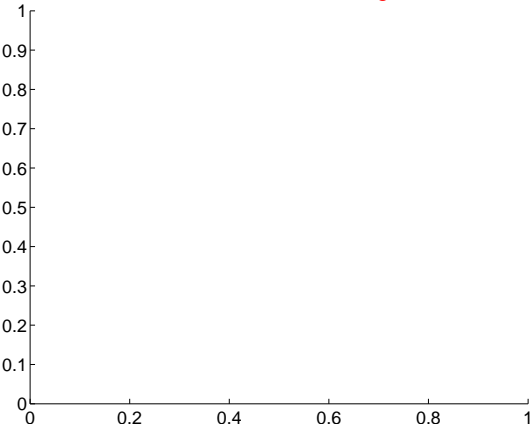
Q10 no difference image



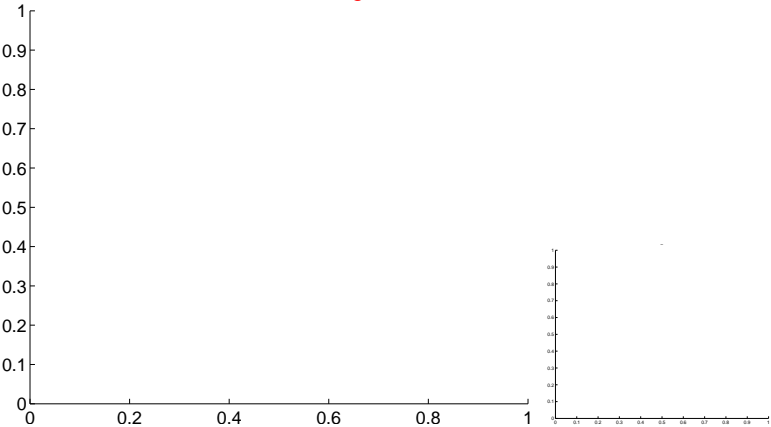
Q10 no OOT image



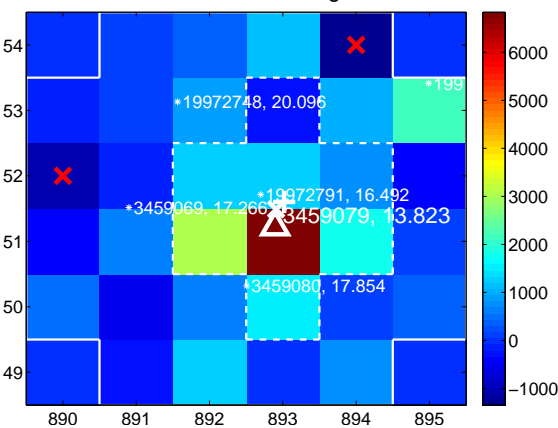
Q11 no difference image



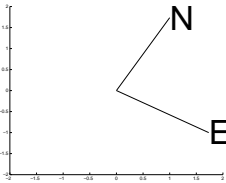
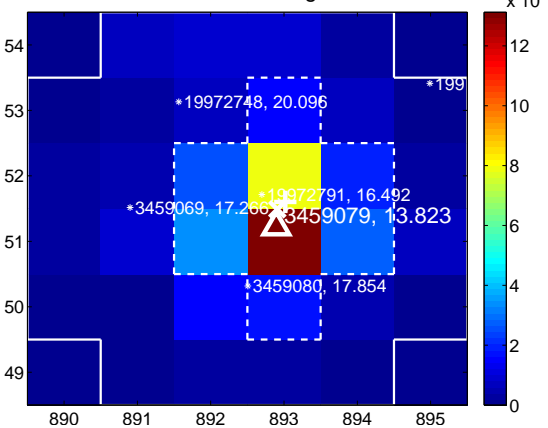
Q11 no OOT image



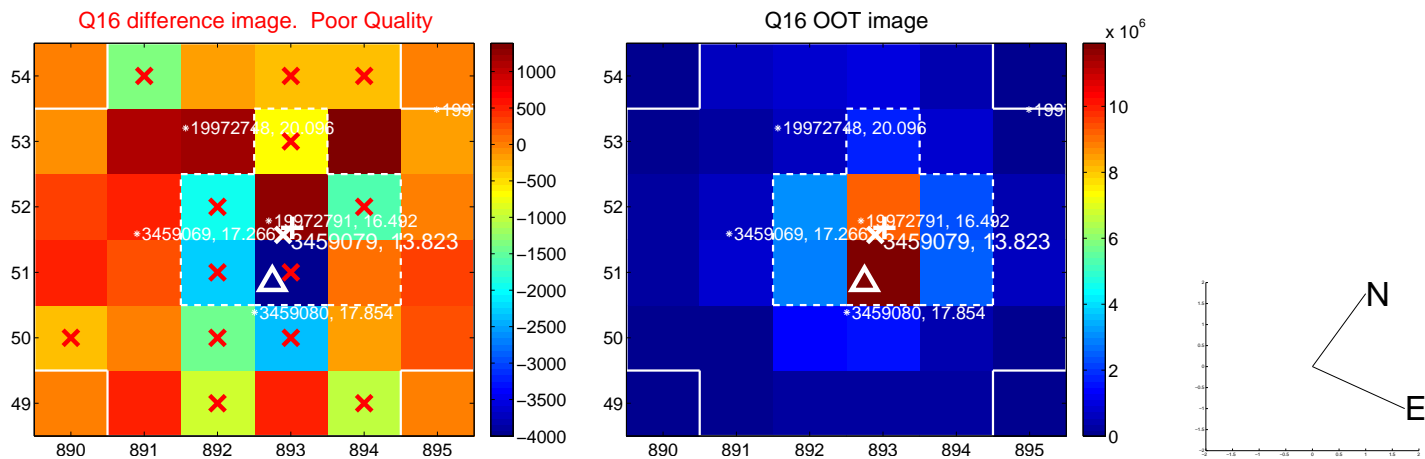
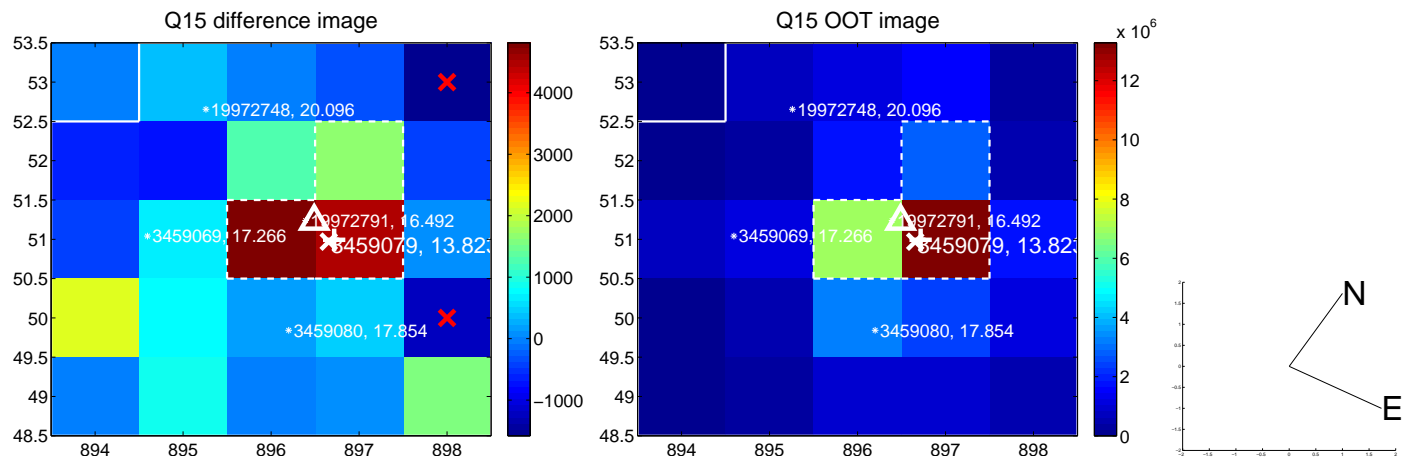
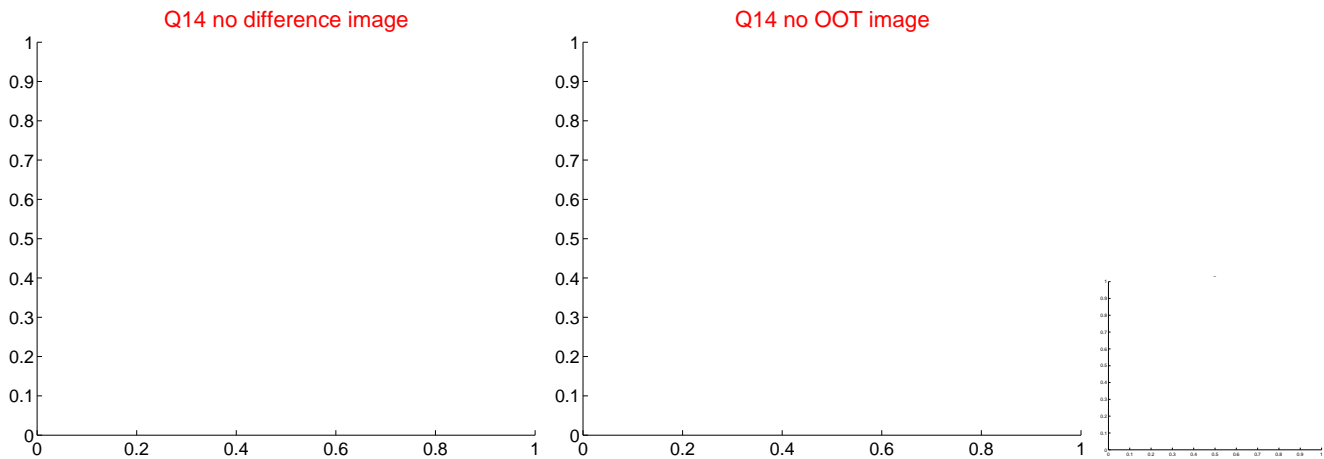
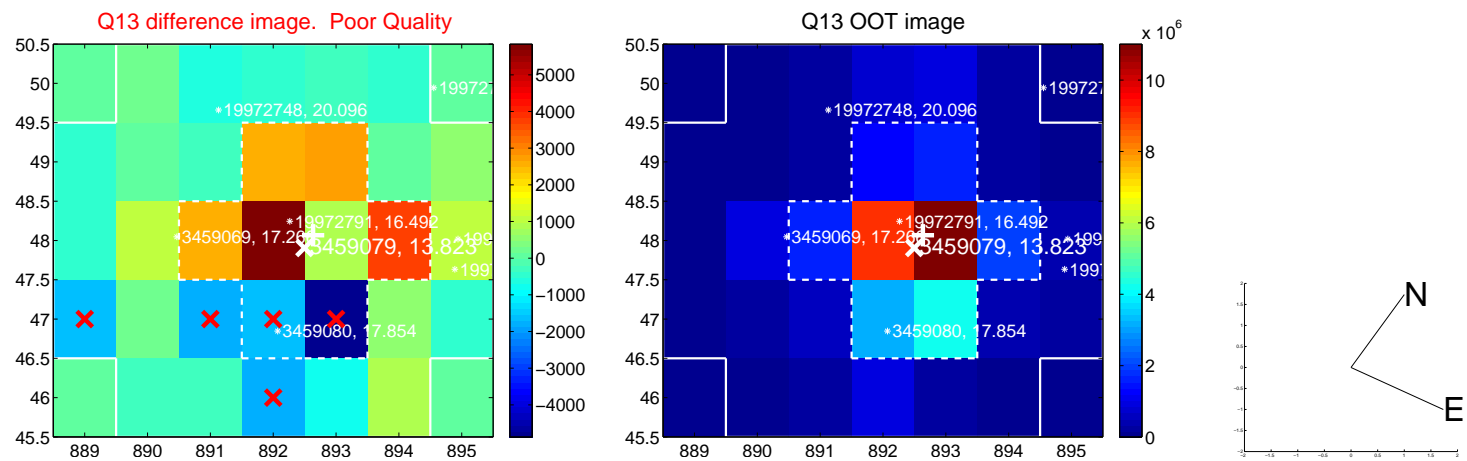
Q12 difference image



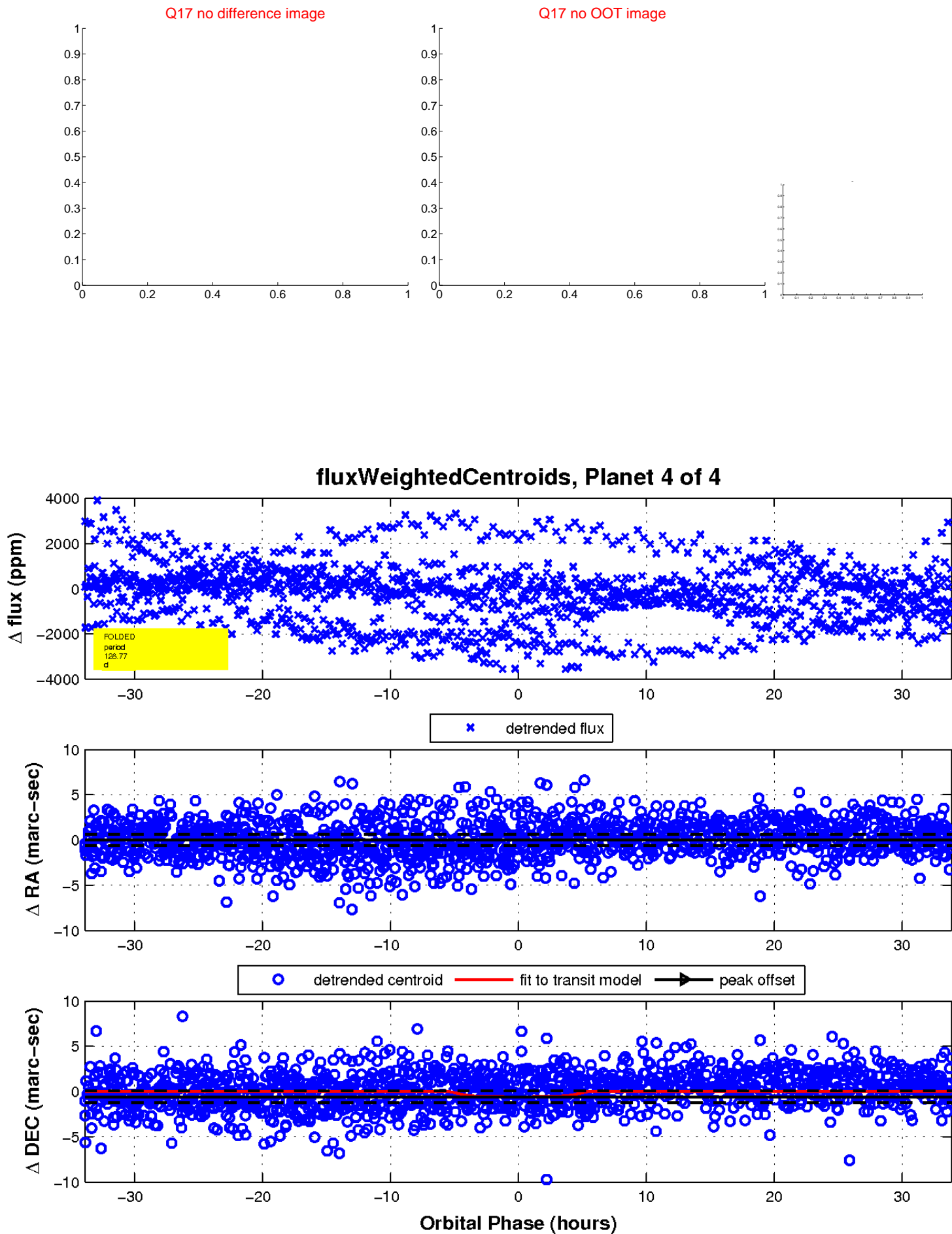
Q12 OOT image



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.





UKIRT Image

Declination

