

# KIC 008569819

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008569819-01	OBS	7062.01	20.849899	137.562733	305372.7	12.000	4617.4	-1.0	1.98	7355	27.32	345.76
008569819-02	OBS	No	20.849936	148.035721	134910.7	6.672	1728.9	1541.8	1.98	7355	76.31	345.76
008569819-04	OBS	No	305.866925	342.395248	3178.5	74.048	27.0	18.2	1.98	7355	19.95	9.63

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008569819-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
008569819-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008569819-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**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 008569819-01

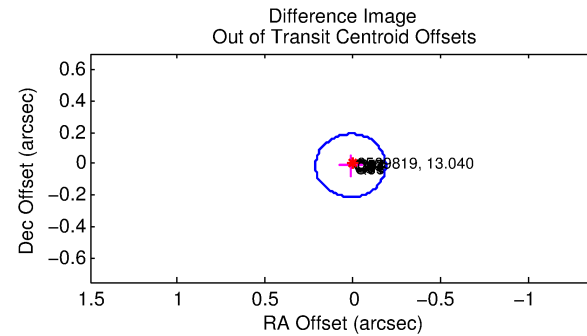
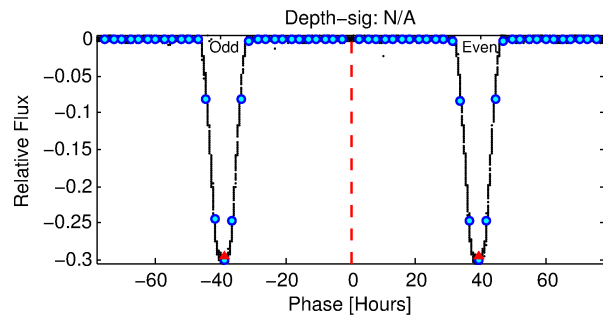
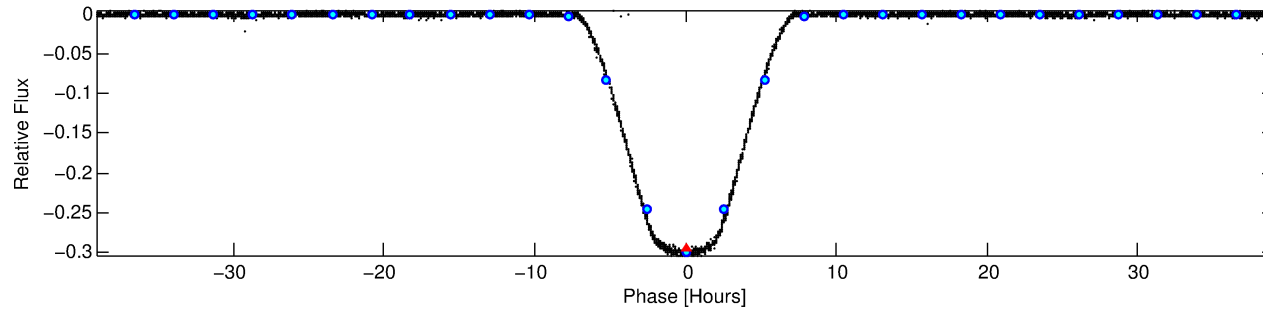
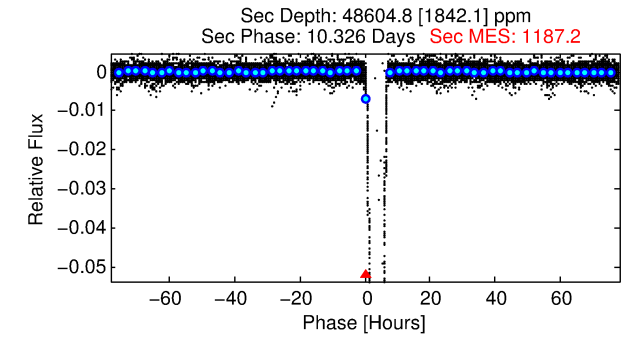
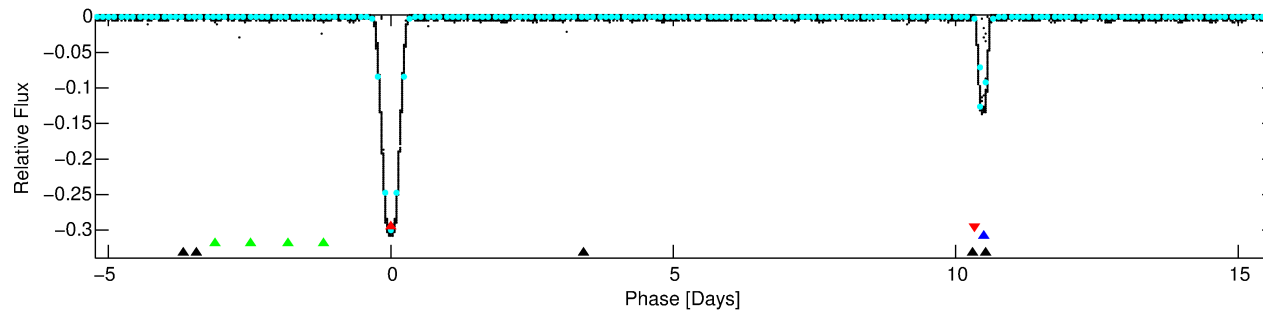
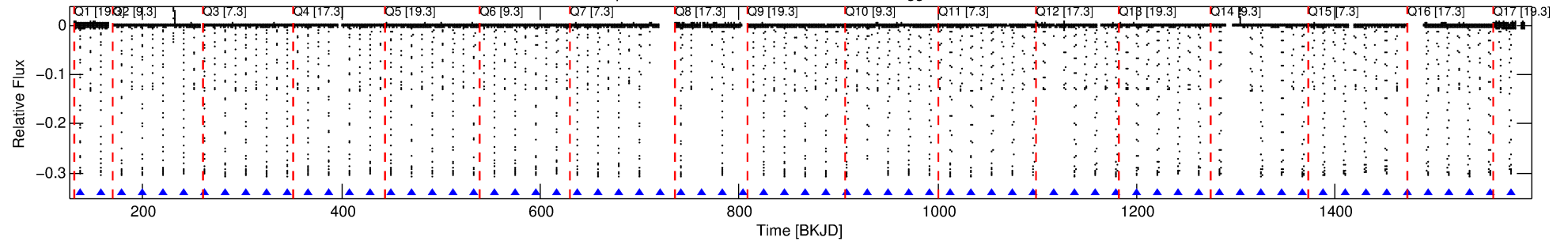
No Significant Match Found

# DV One-Page Summary

KIC: 8569819 Candidate: 1 of 4 Period: 20.850 d

KOI: K07062.01 Corr: 0.934

Kp: 13.04 R\*: 1.98 Rs Teff: 7355.0 K Logg: 4.04 Fe/H: -0.120



## TPS TCE Results:

Period = 20.84990 d  
Epoch = 137.5627 BKJD

DV fit results are unavailable

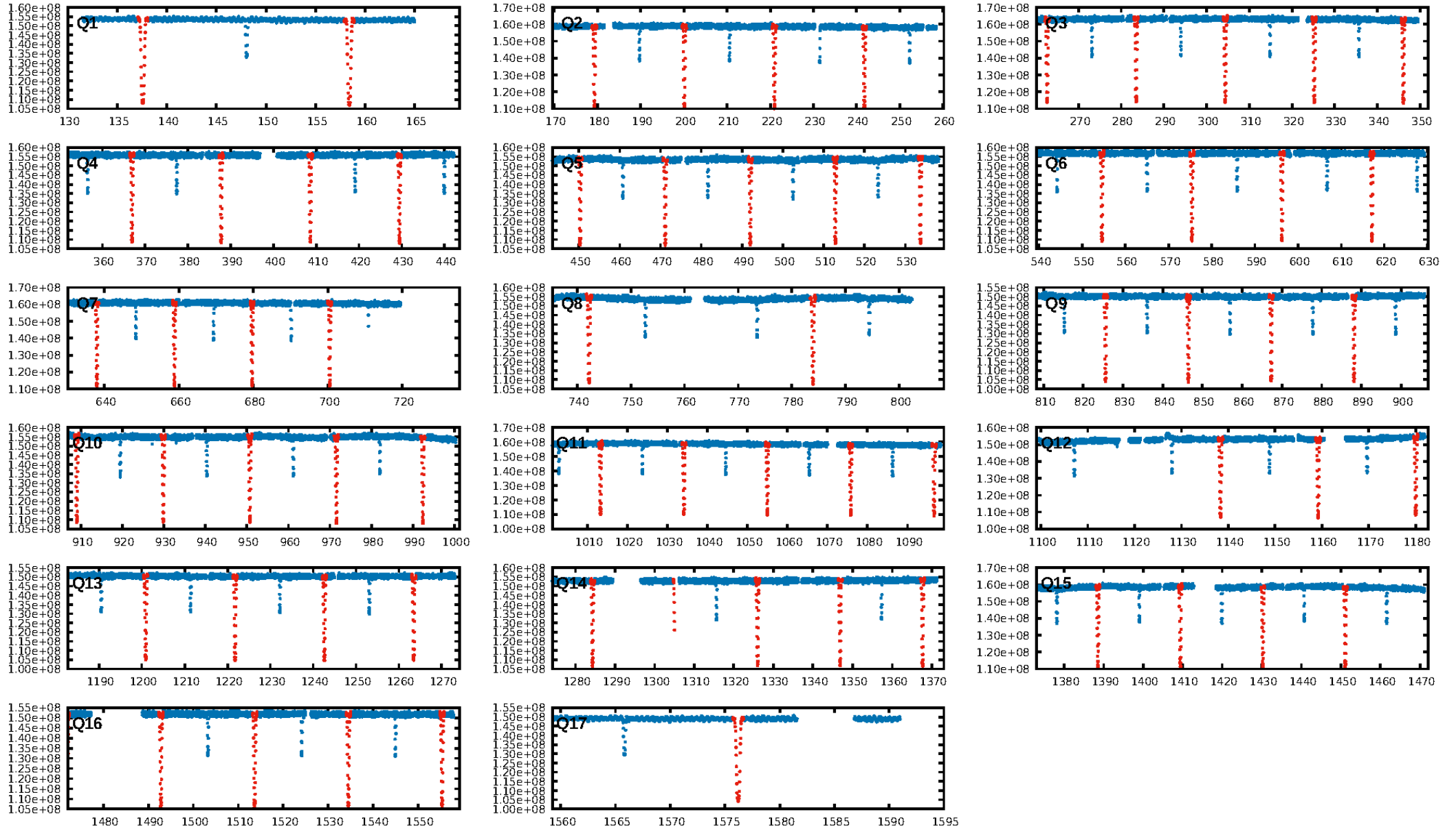
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [62/62]  
GhostDiagnostic-chr: 1.647  
Centroid-sig: N/A  
Centroid-so: 0.351 arcsec [971.54σ]  
OotOffset-rm: 0.018 arcsec [0.27σ]  
KicOffset-rm: 0.213 arcsec [2.83σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

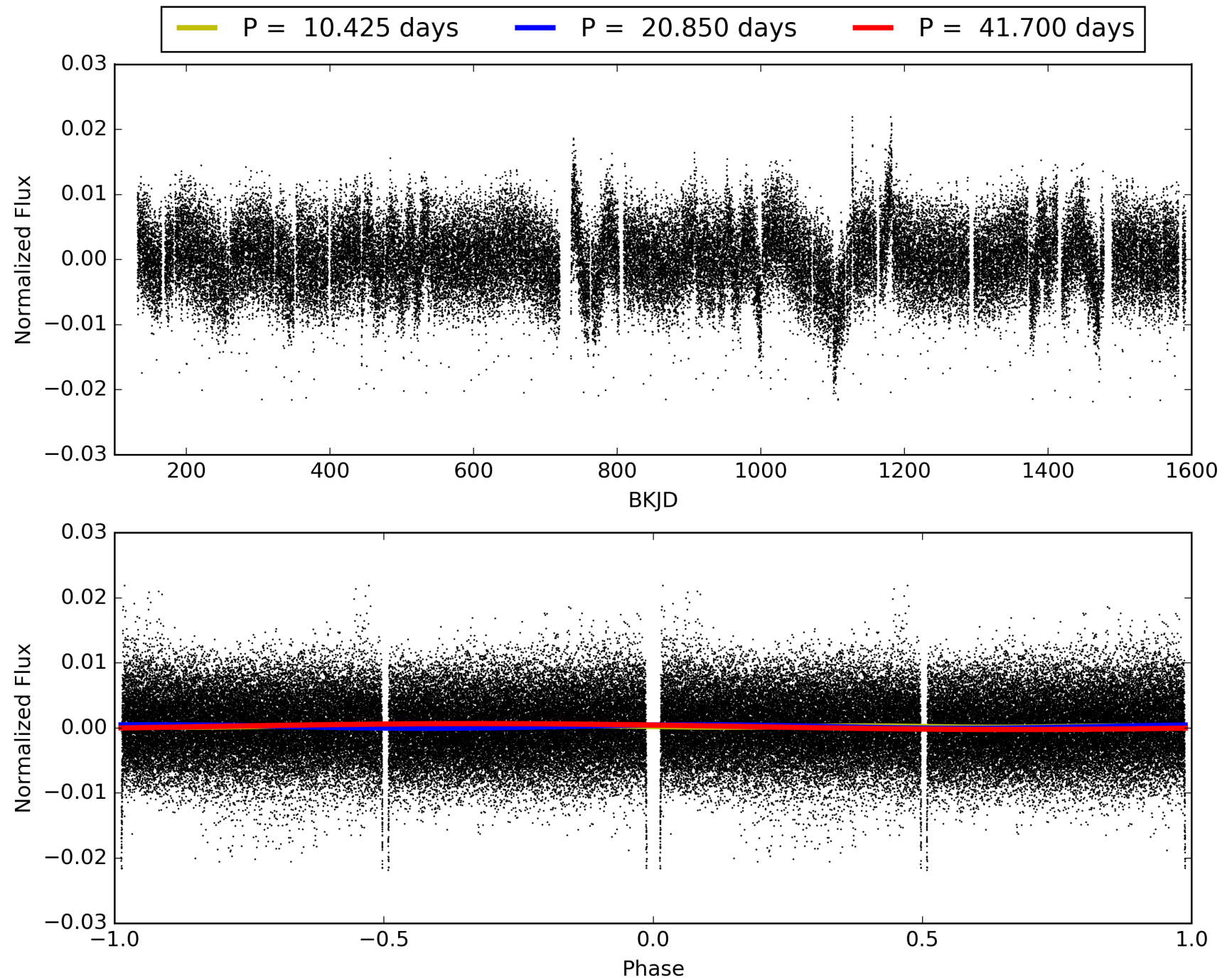
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:17:18 Z

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

# TCE 008569819-01, PDC Light Curves

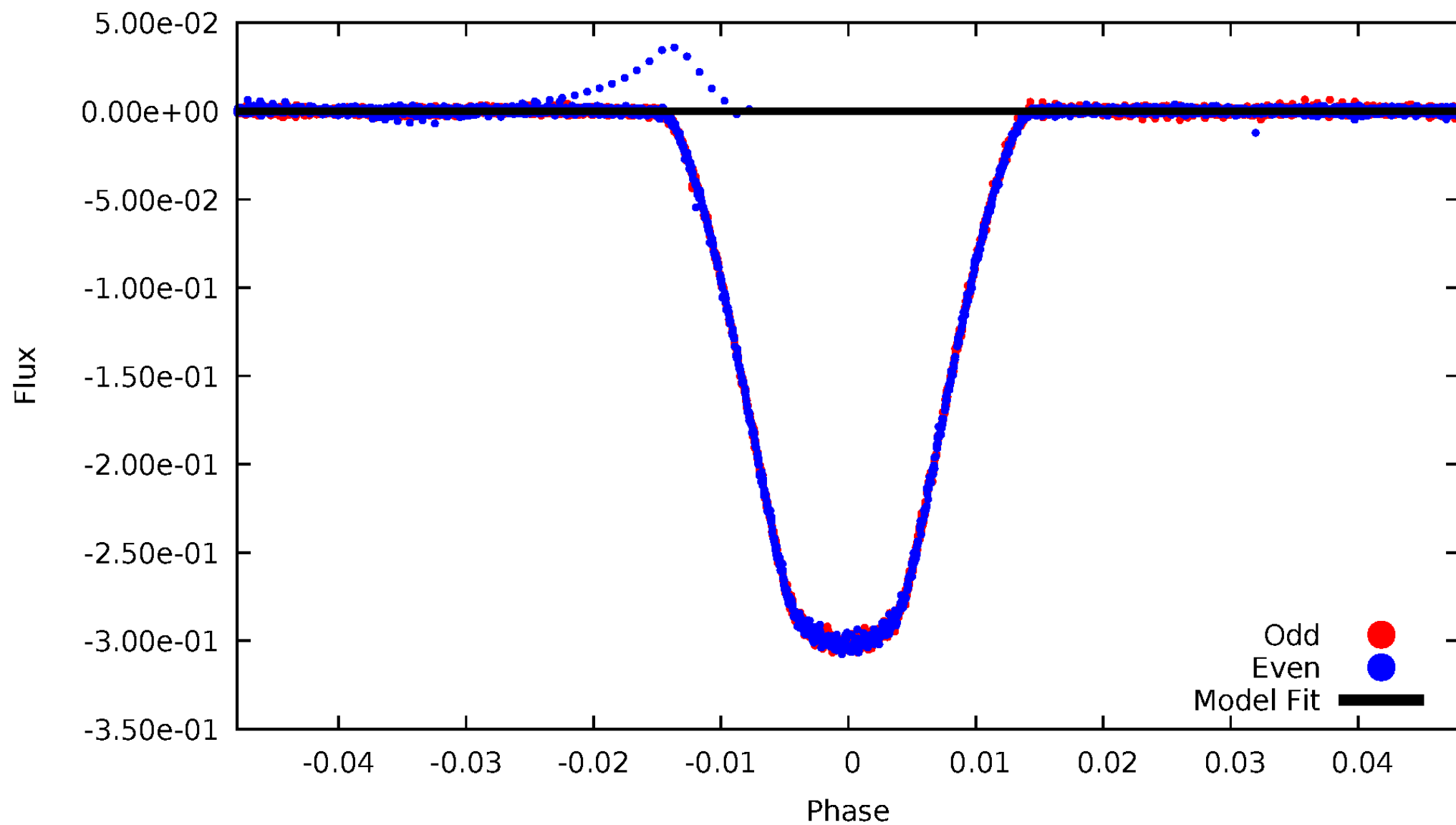


# TCE 008569819-01



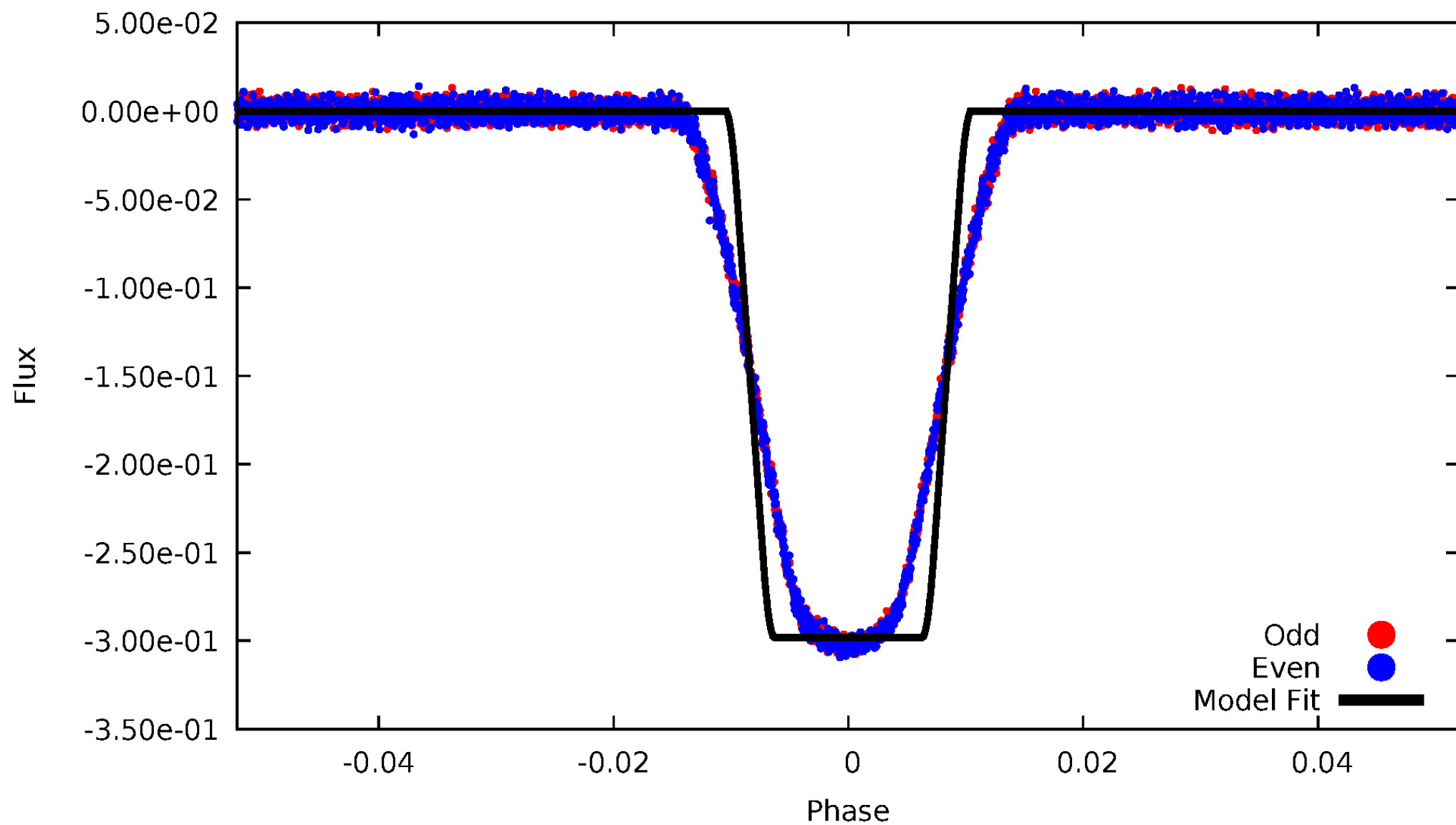
# DV Odd/Even

TCE 008569819-01



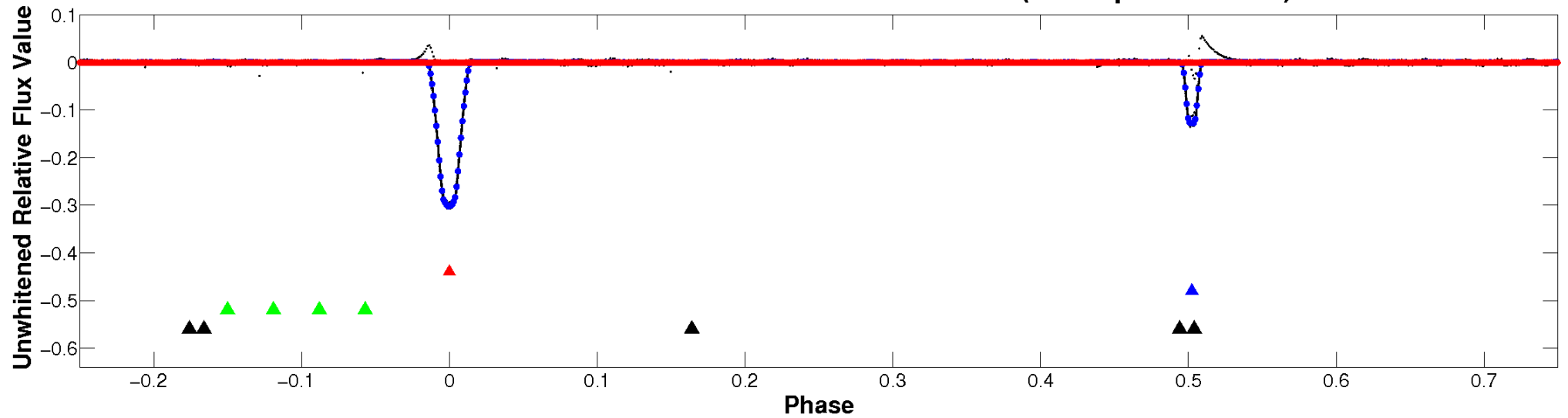
# ALT Odd/Even

TCE 008569819-01



# Non-Whitened Vs. Whitened Light Curve

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

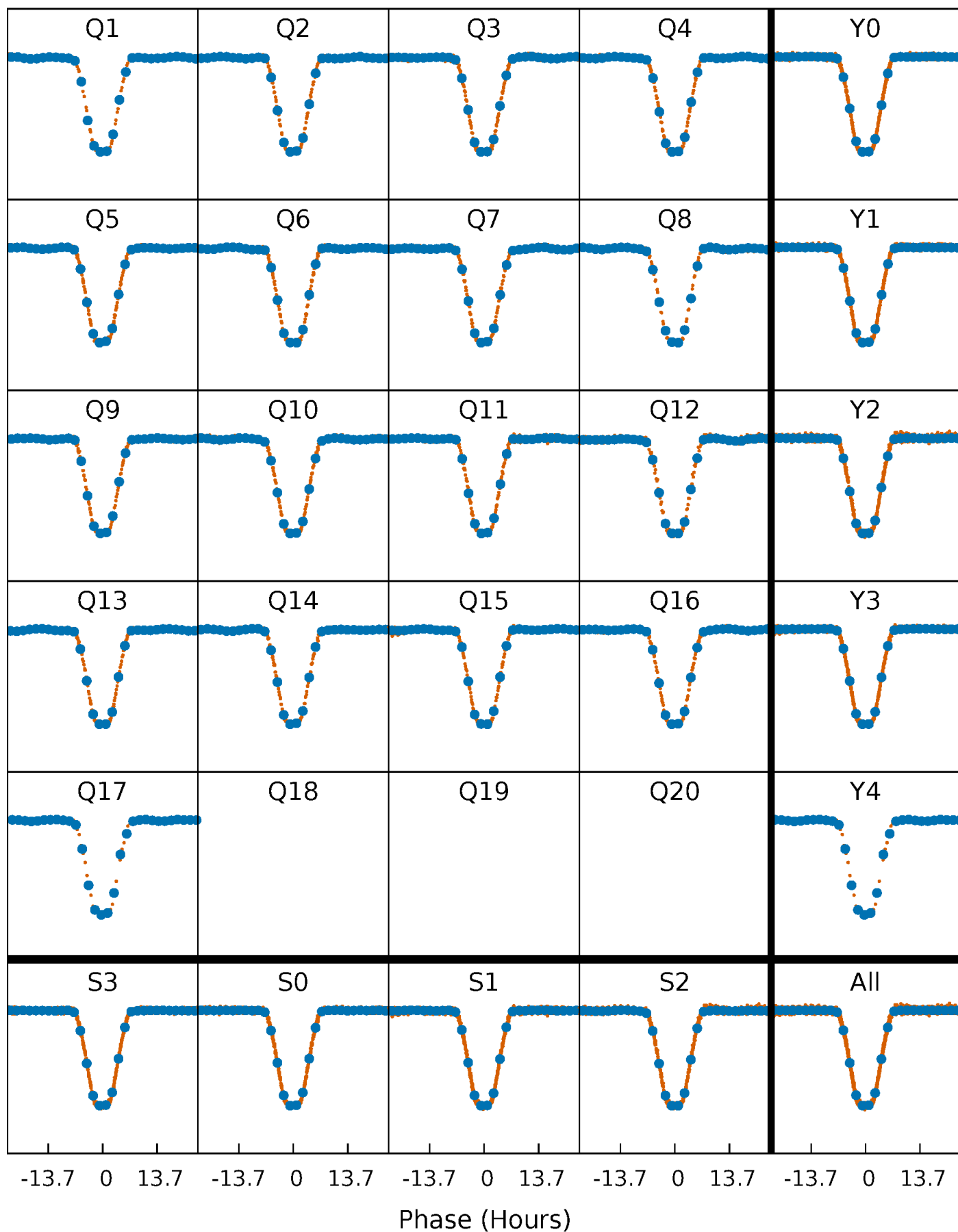


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



# PDC Quarter-Phased Transit Curves

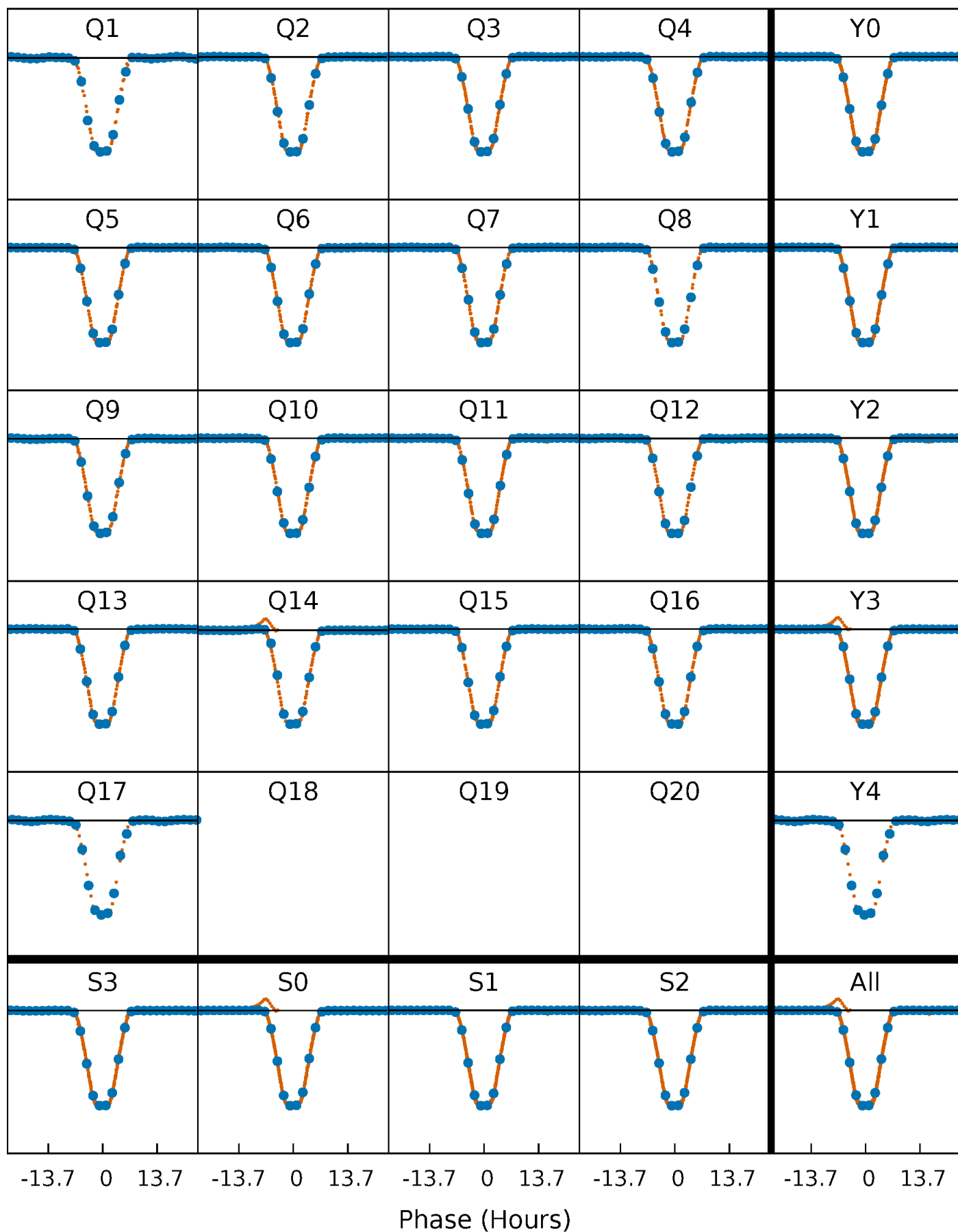
TCE 008569819-01 P= 20.849899 Days  $T_0=137.562733$  (BKJD)





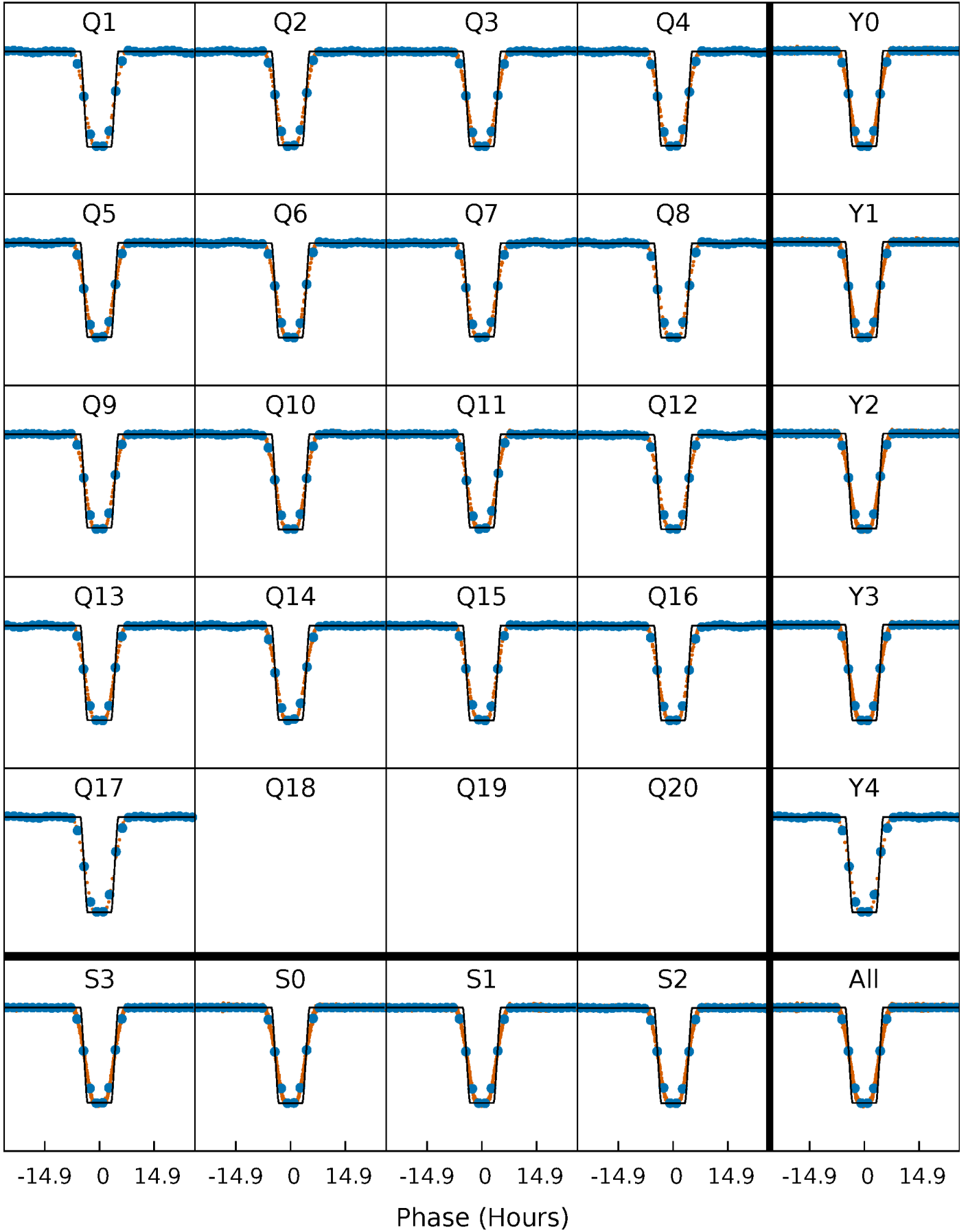
# DV Quarter-Phased Transit Curves

TCE 008569819-01 P= 20.849899 Days  $T_0=137.562733$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

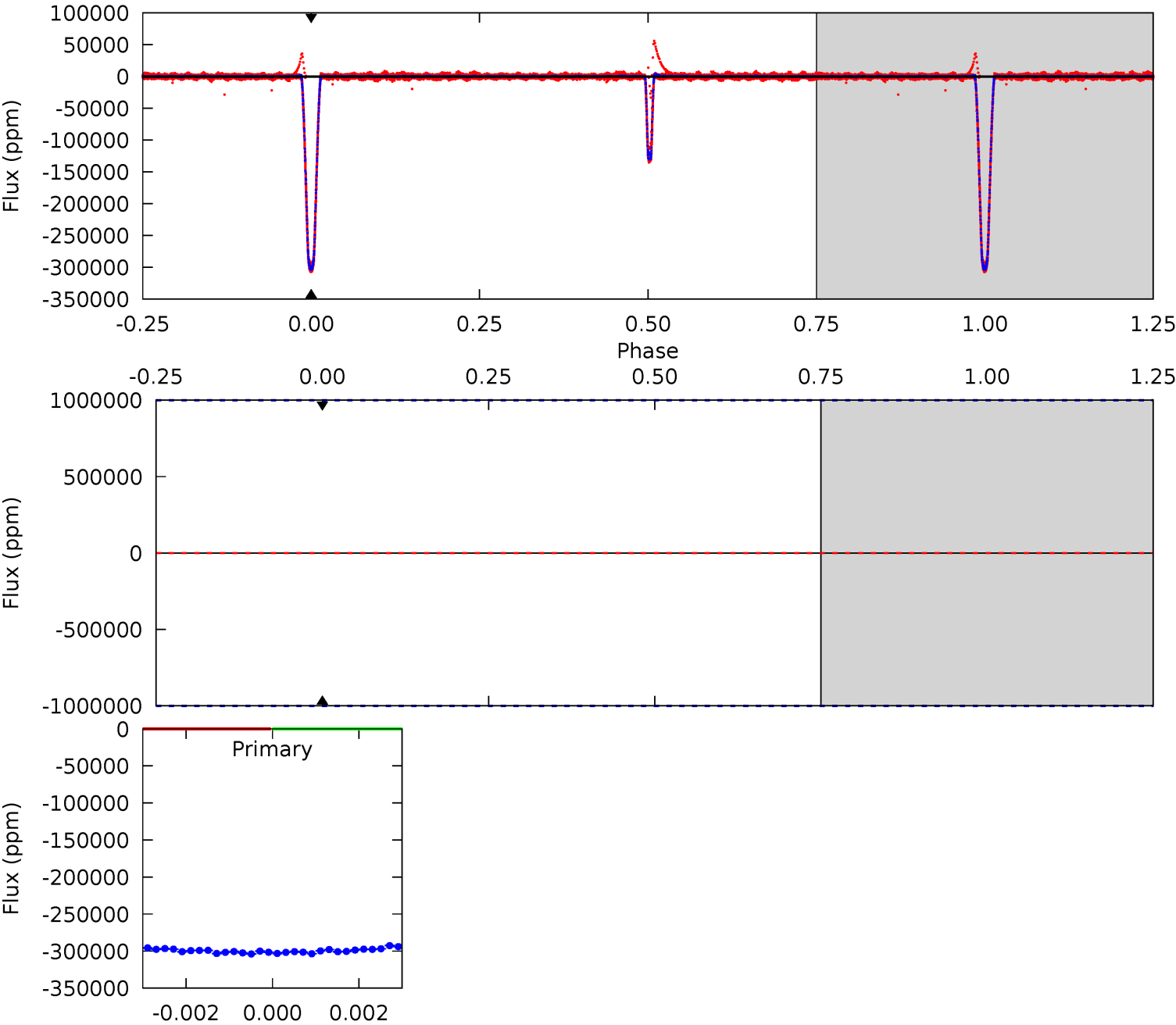
TCE 008569819-01 P= 20.849899 Days  $T_0=137.559527$  (BKJD)



DV Model-Shift Uniqueness Test

008569819-01, P = 20.849899 Days, E = 116.712834 Days

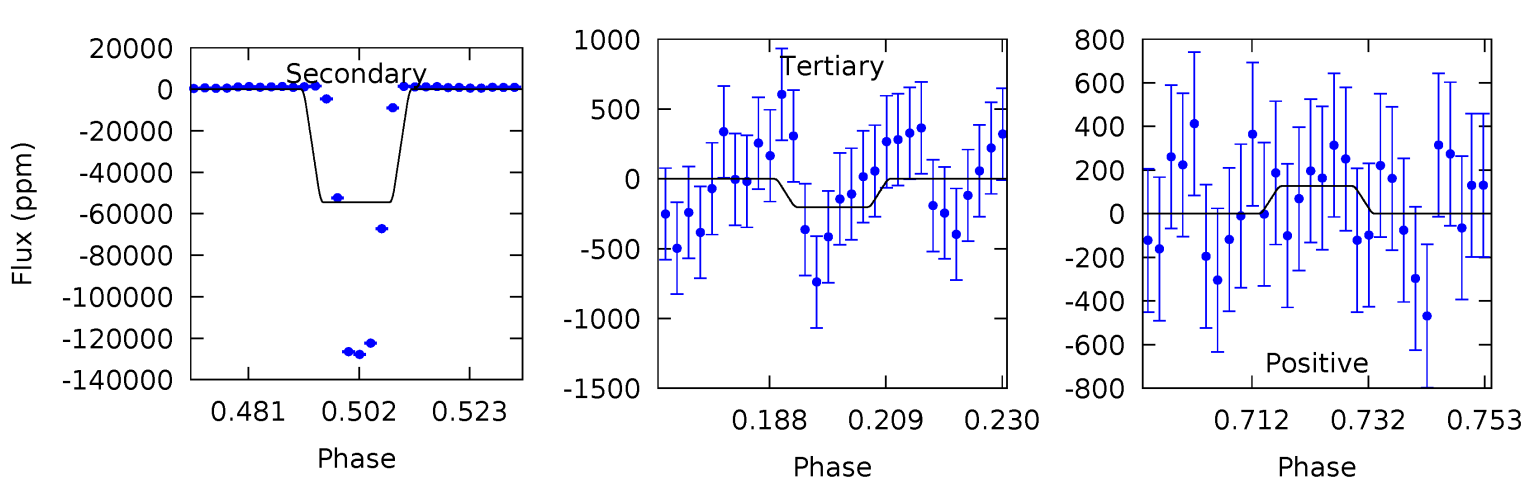
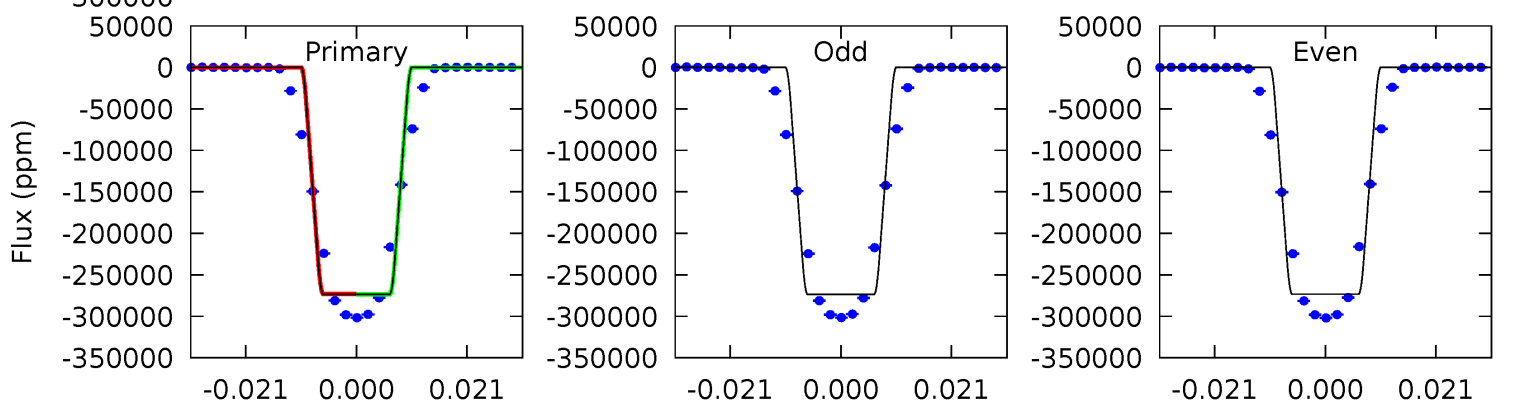
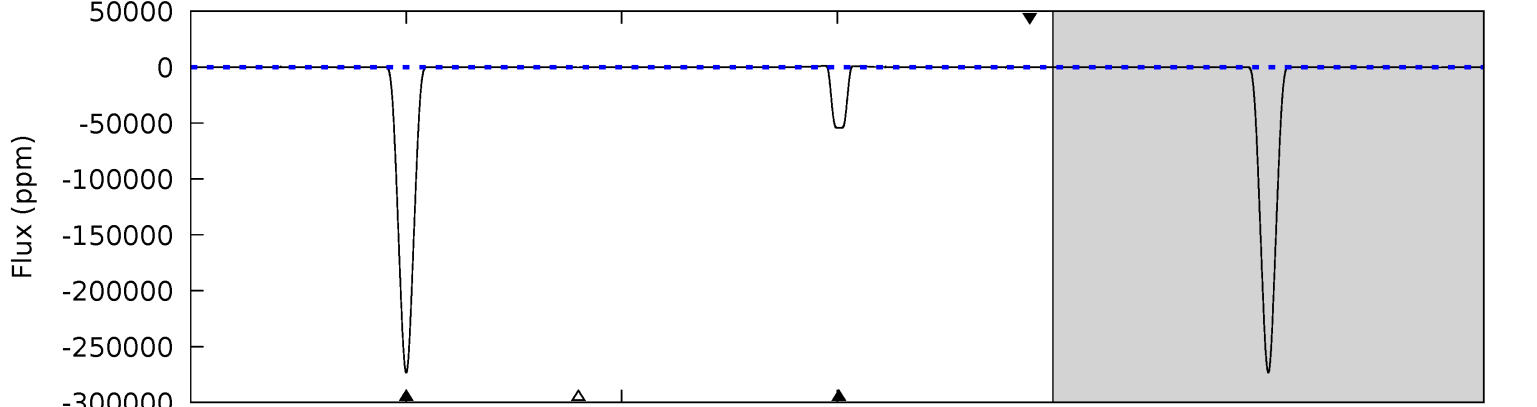
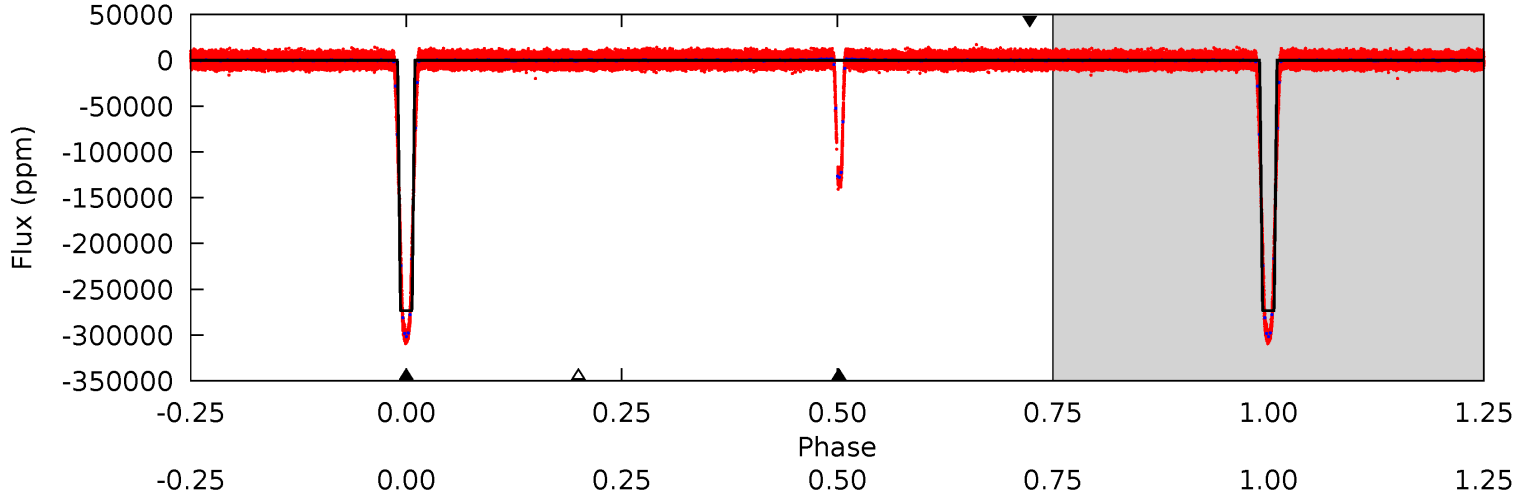
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008569819-01, P = 20.849899 Days, E = 116.709628 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
2342	466.4	1.73	1.09	4.88	2.31	1.30	2340	2340	464.7	465.3	1.22	1.00	0.00	1.95



### Stellar Parameters For KIC 008569819

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7355^{+228}_{-304}$	$4.042^{+0.198}_{-0.162}$	$-0.120^{+0.250}_{-0.350}$	$1.984^{+0.533}_{-0.480}$	$1.581^{+0.211}_{-0.257}$	$0.285^{+0.311}_{-0.130}$
	+3%/-4%	+5%/-4%	+208%/-292%	+27%/-24%	+13%/-16%	+109%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008569819-01 / KOI 7062.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$29.14^{+21.08}_{-17.32}$	$1523^{+115}_{-112}$	$4445^{+12815}_{-19077}$	$41^{+3090}_{-2420}$
Alt.	$-54443 \pm 117$	$116.64^{+29.12}_{-25.47}$	$1531^{+118}_{-112}$	$4921^{+461}_{-349}$	$69^{+43}_{-24}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

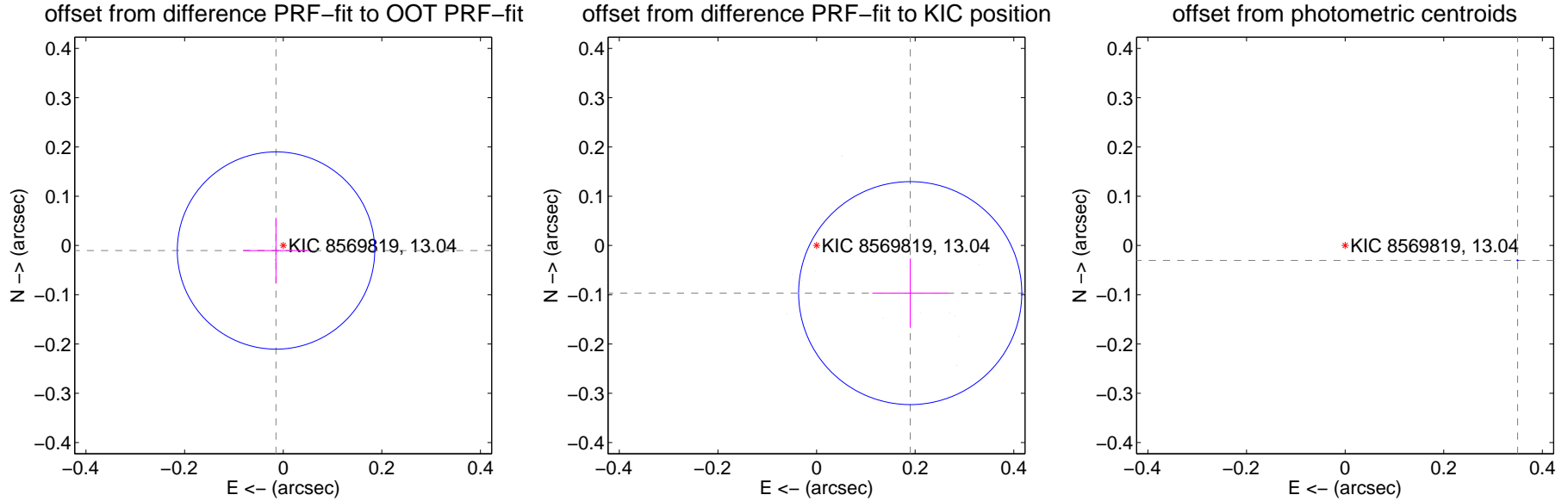
## DV Centroid Data

Supplemental centroid analysis for 008569819-01. Kepler magnitude: 13.04. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

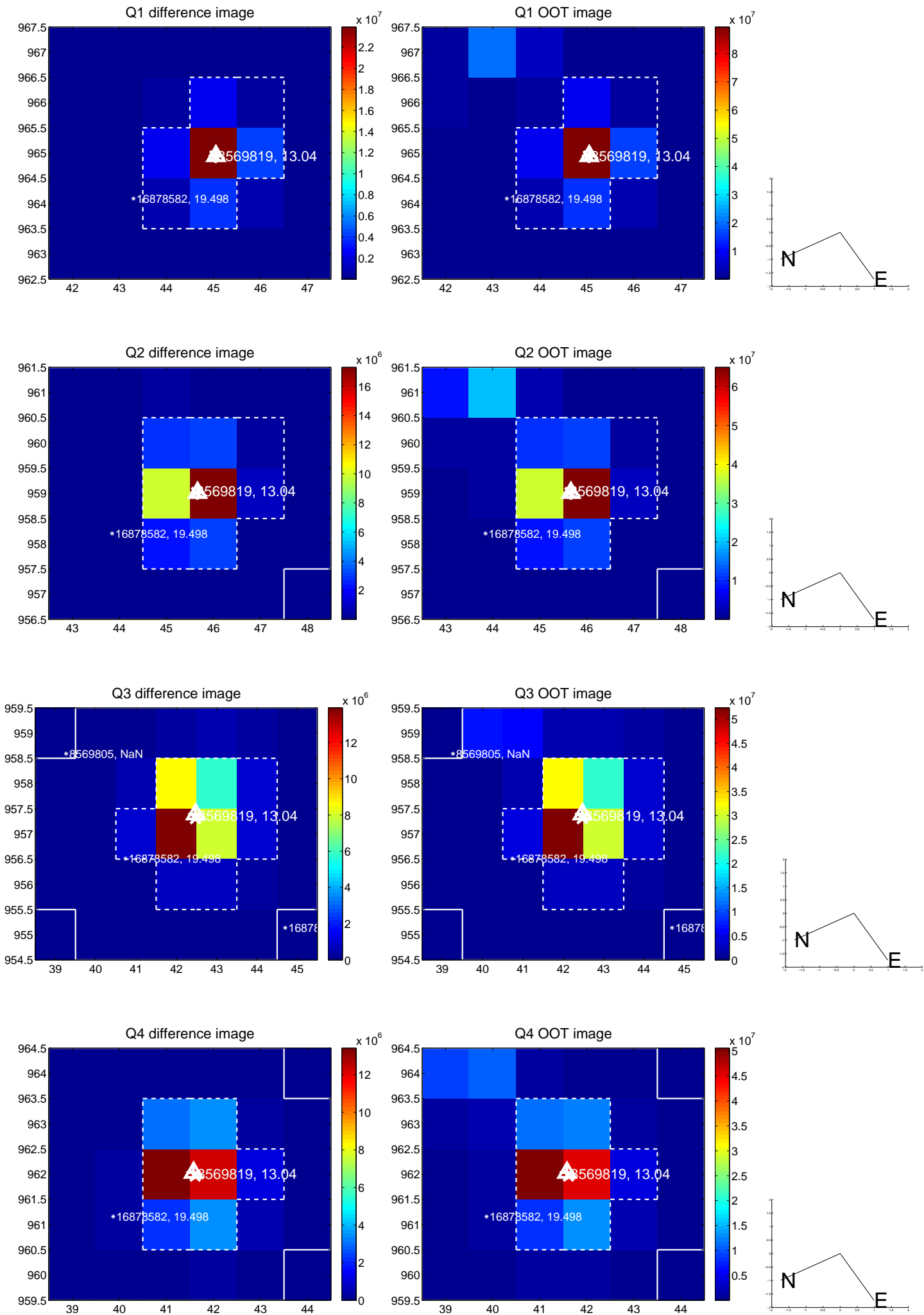
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.018 \pm 0.067$	0.27	$0.015 \pm 0.067$	$-0.010 \pm 0.067$
PRF-fit source offset from KIC position	$0.213 \pm 0.075$	2.83	$-0.190 \pm 0.077$	$-0.097 \pm 0.070$
photometric centroid source offset	$0.35 \pm 0.00$	971.54	$-0.35 \pm 0.00$	$-0.03 \pm 0.00$

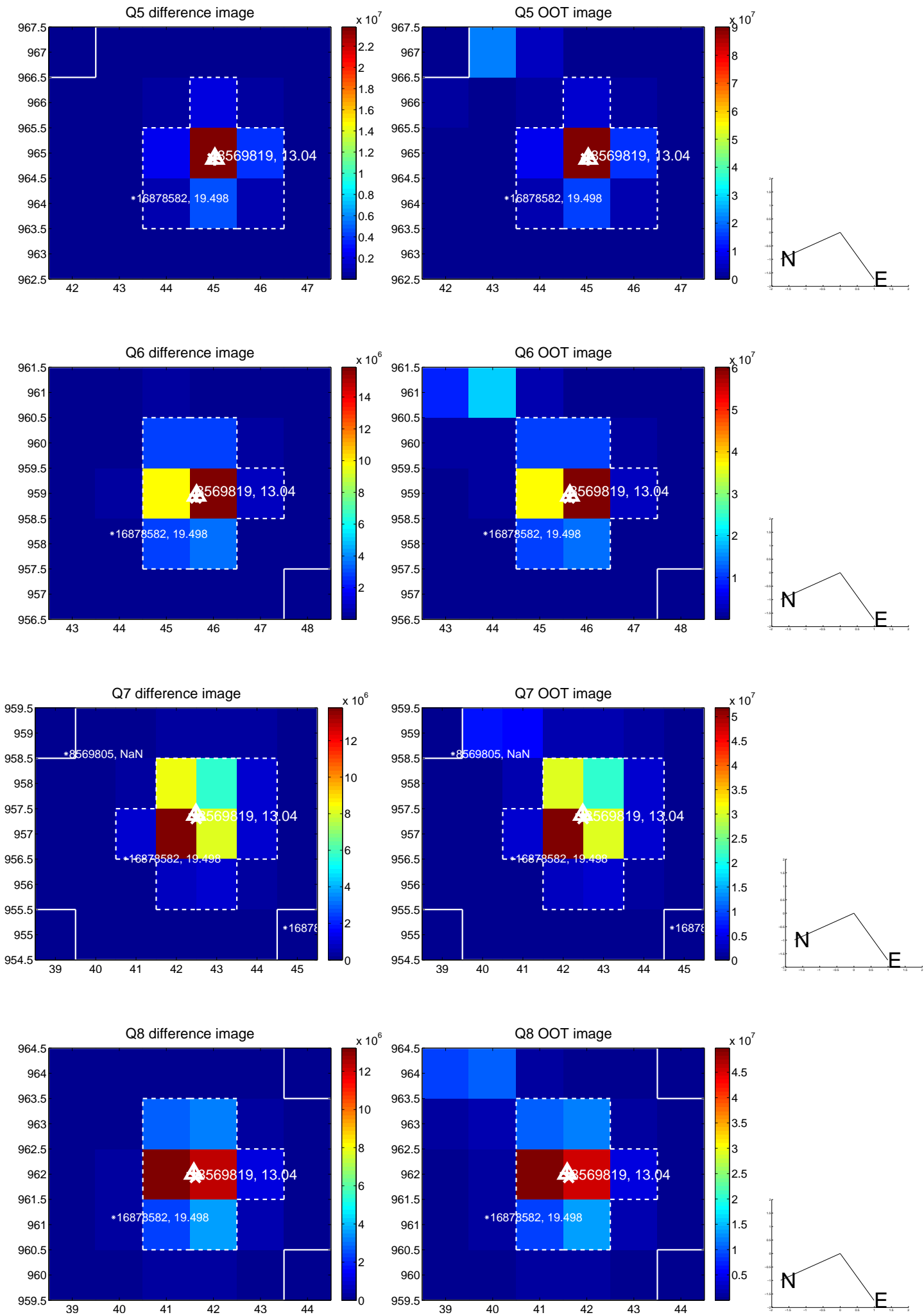


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

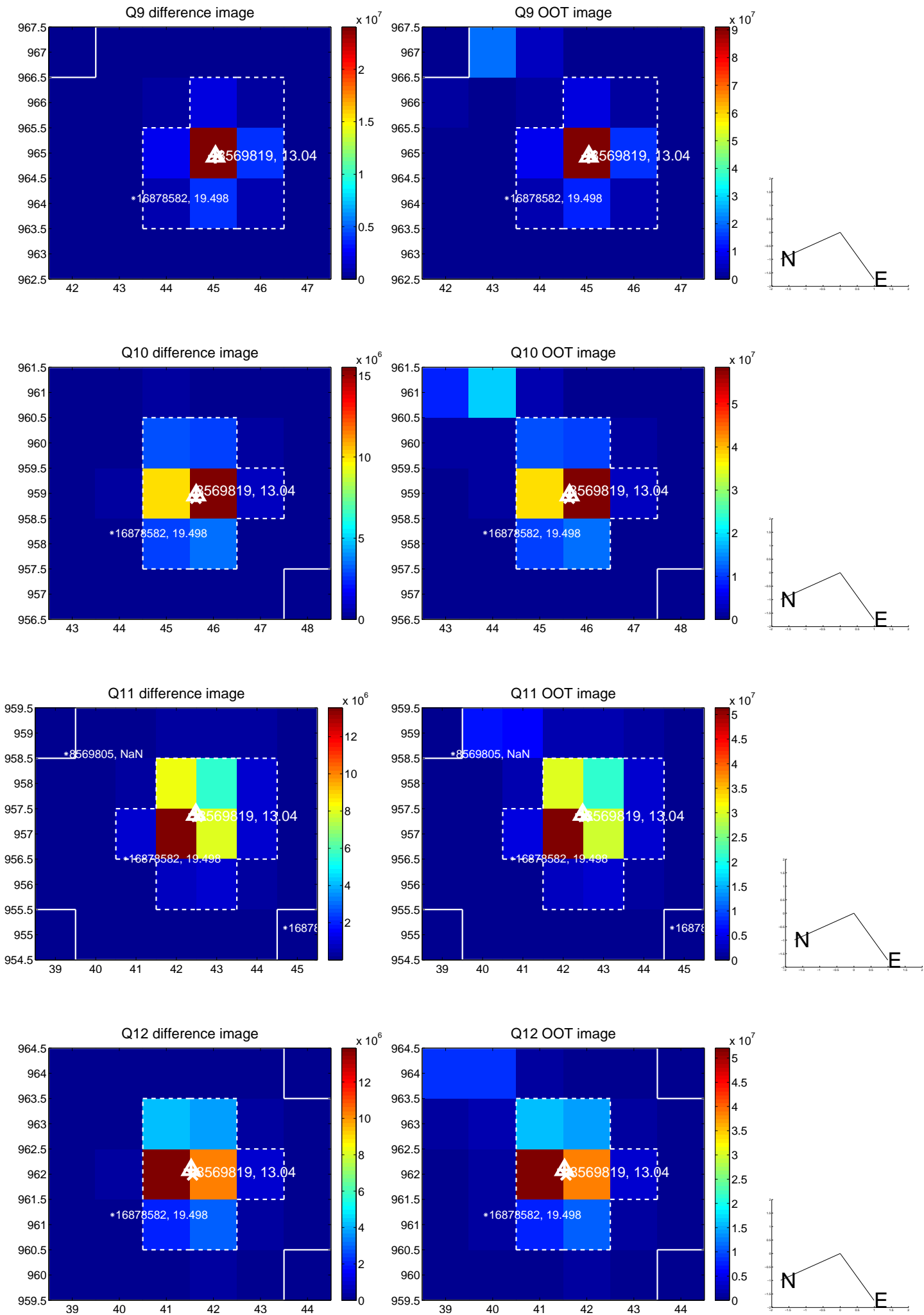


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

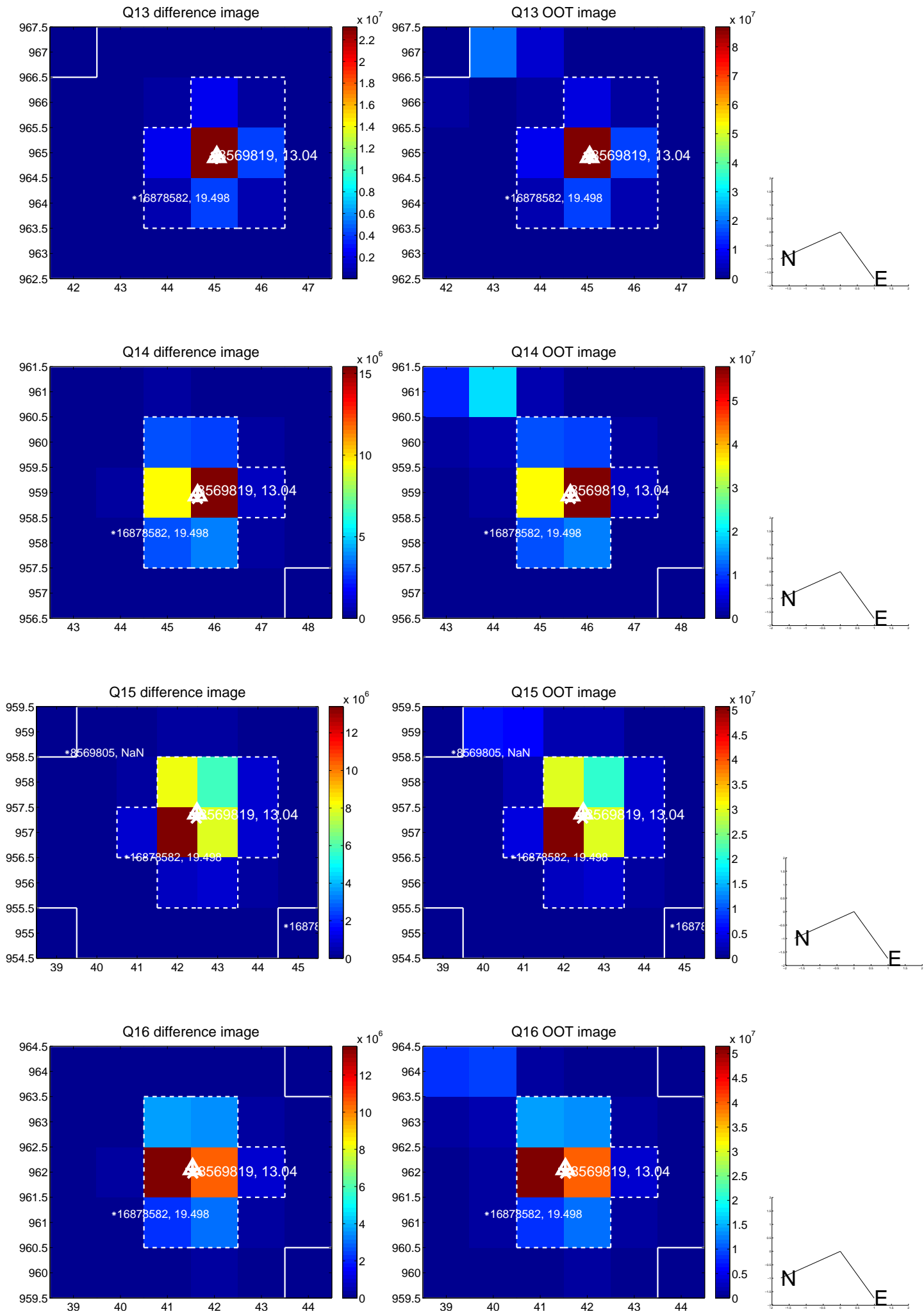




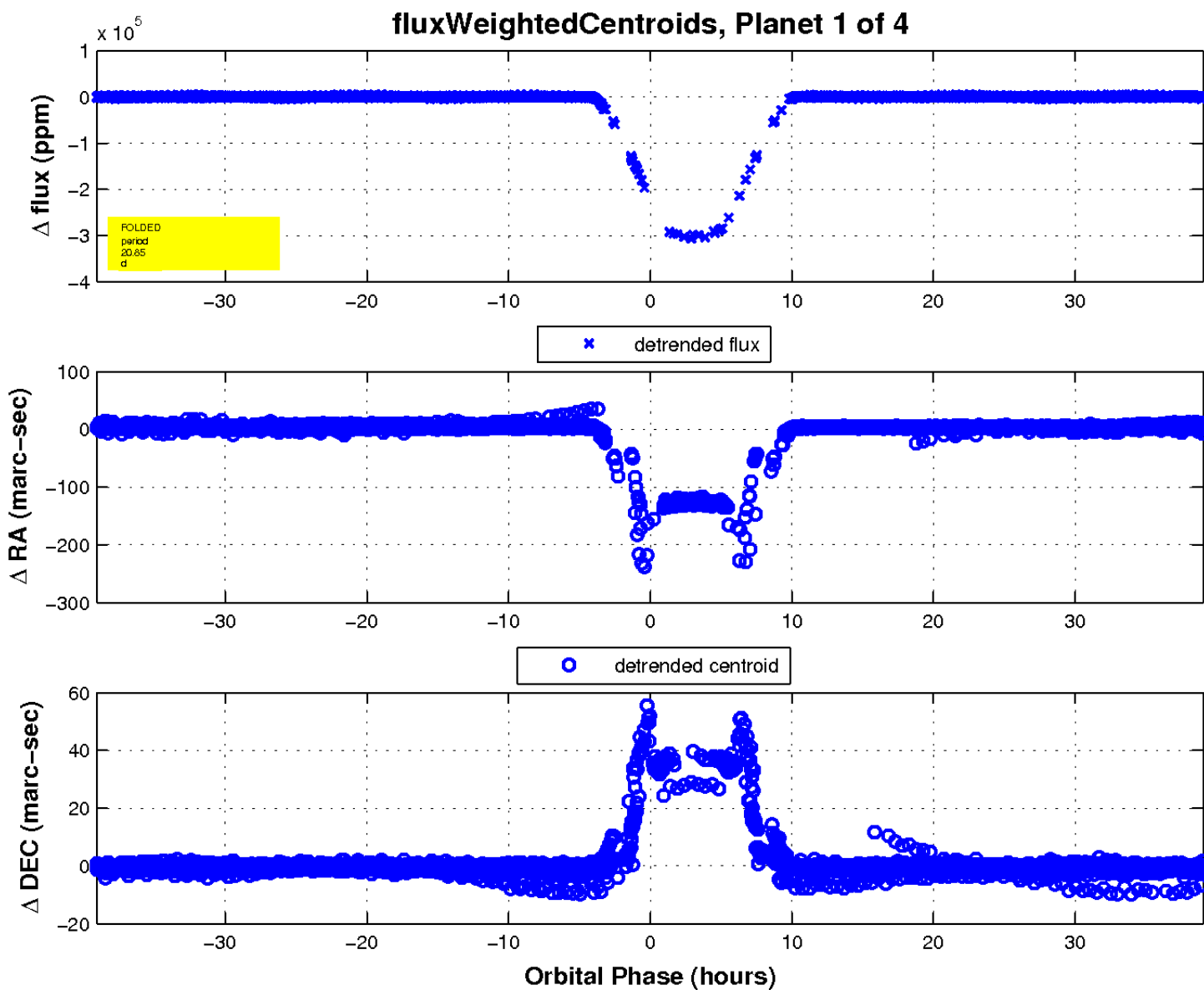
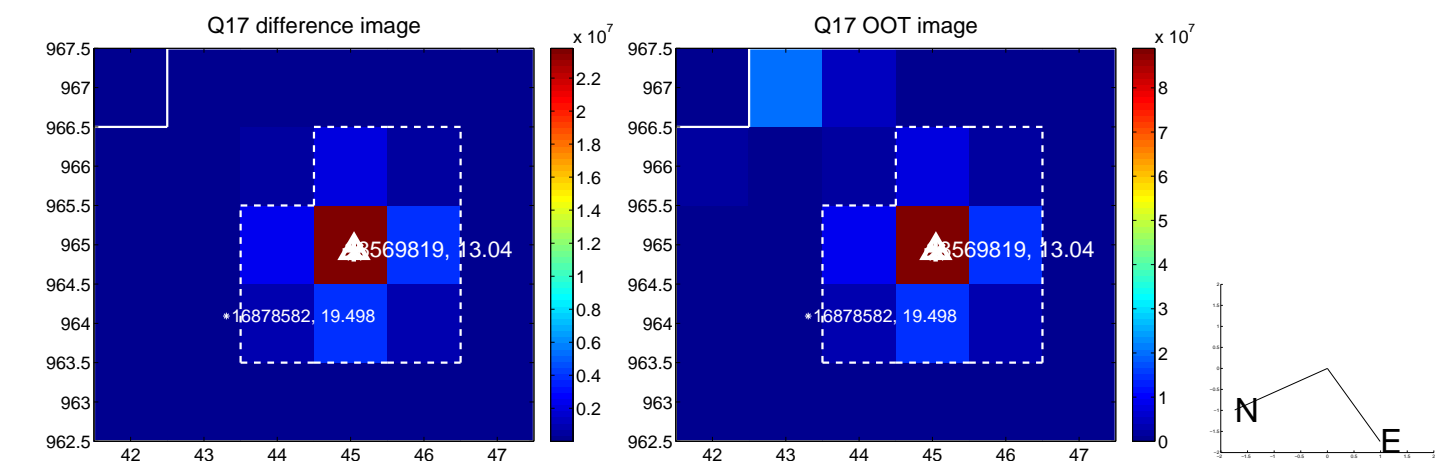
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

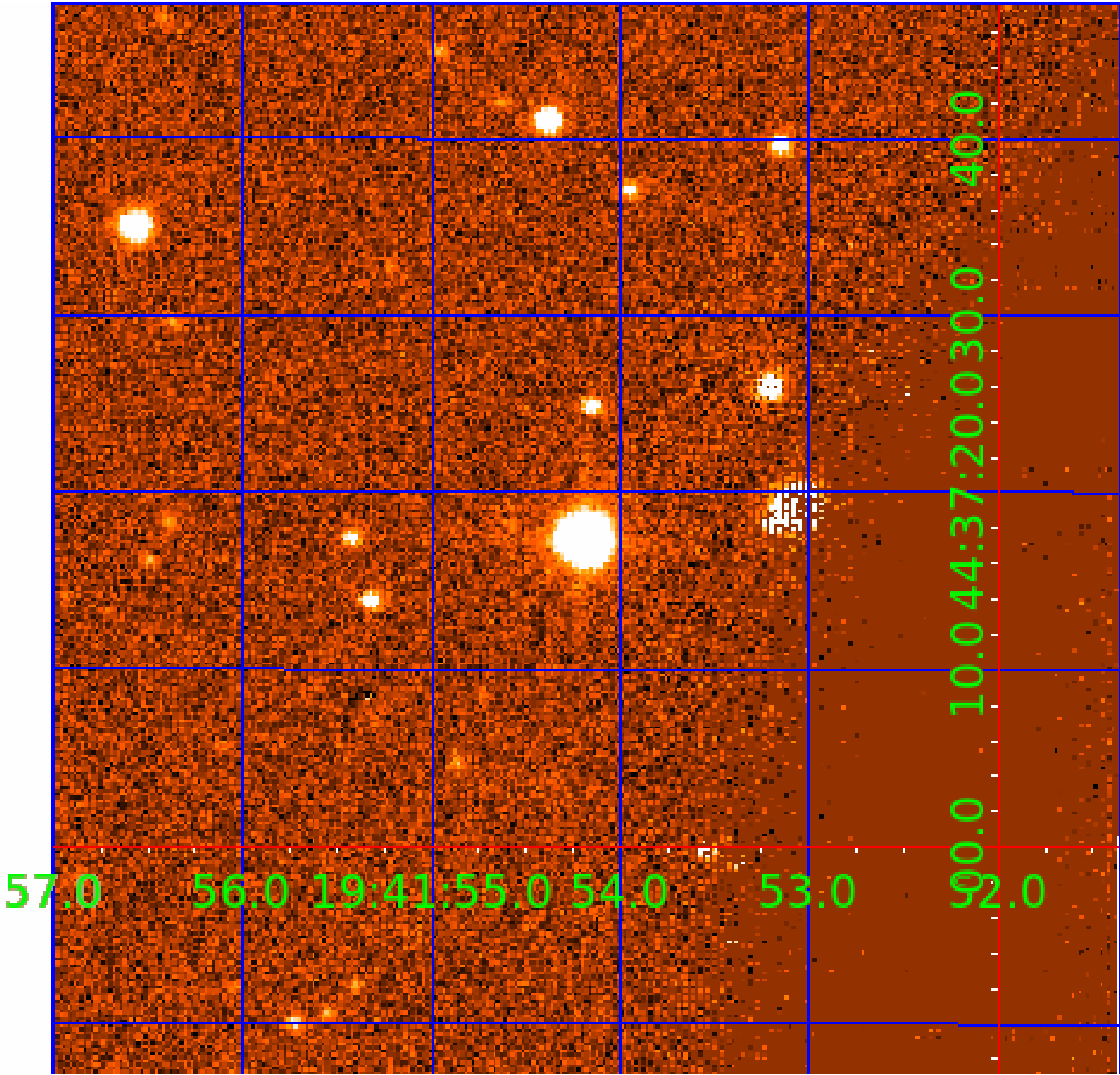


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008569819

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008569819-01	OBS	7062.01	20.849899	137.562733	305372.7	12.000	4617.4	-1.0	1.98	7355	27.32	345.76
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008569819-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
008569819-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008569819-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**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 008569819-02

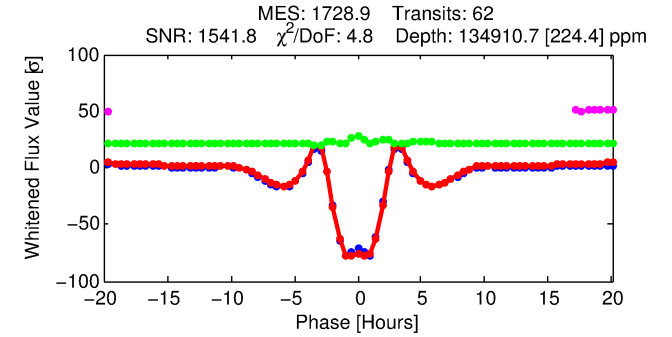
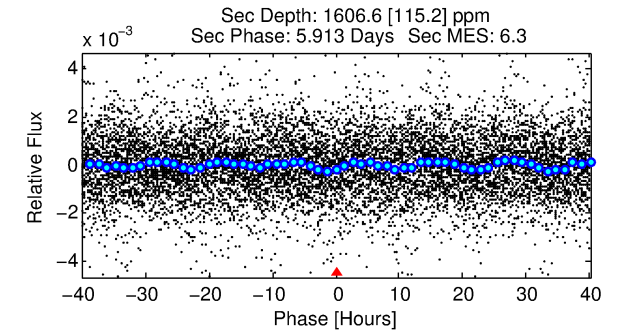
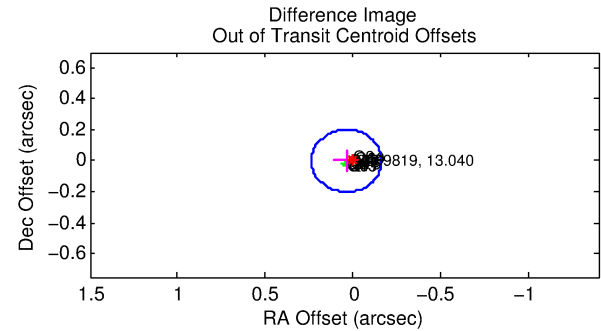
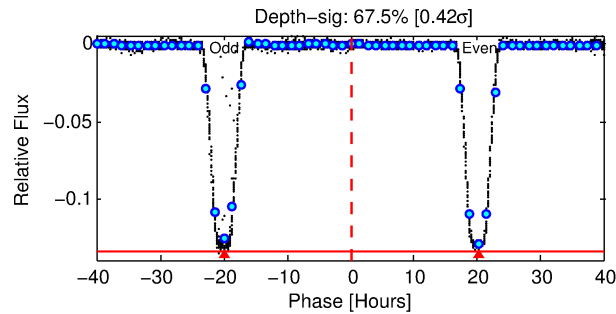
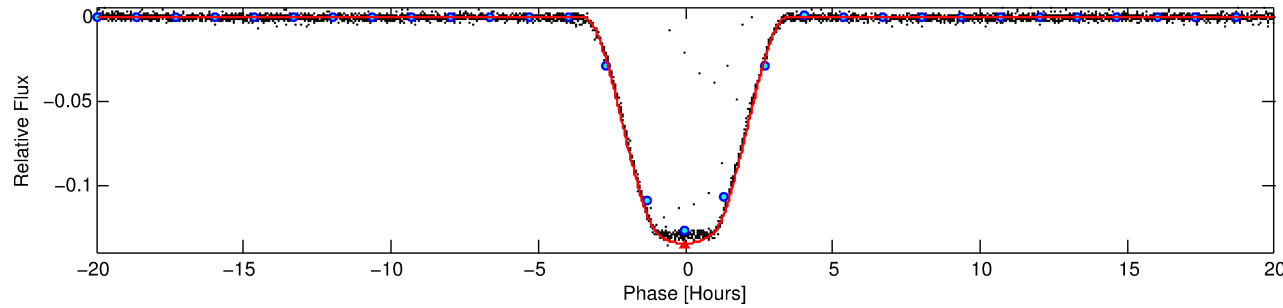
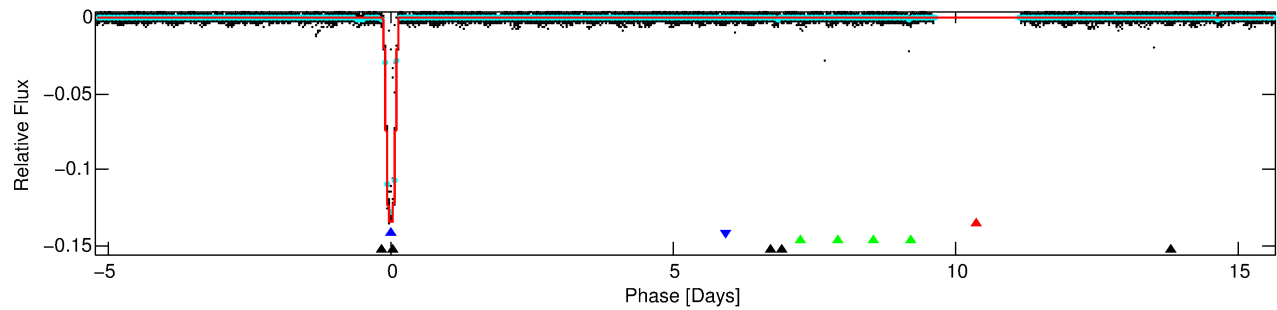
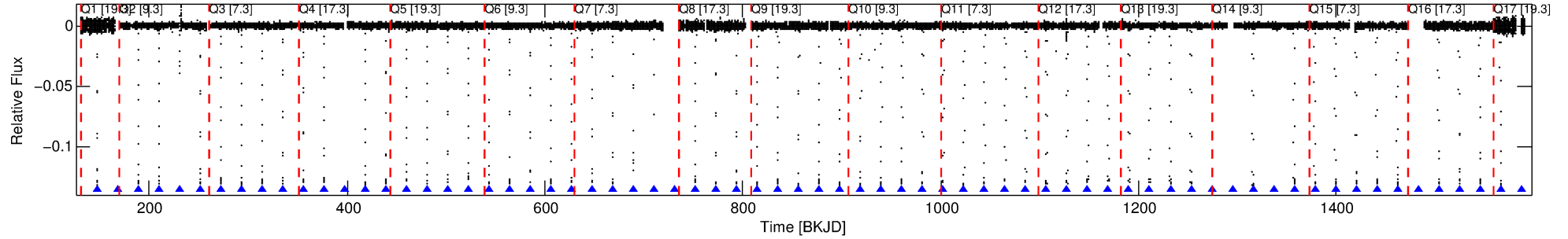
No Significant Match Found

# DV One-Page Summary

KIC: 8569819 Candidate: 2 of 4 Period: 20.850 d

KOI: K07062 Corr: No Ephemeris Match

Kp: 13.04 R\*: 1.98 Rs Teff: 7355.0 K Logg: 4.04 Fe/H: -0.120



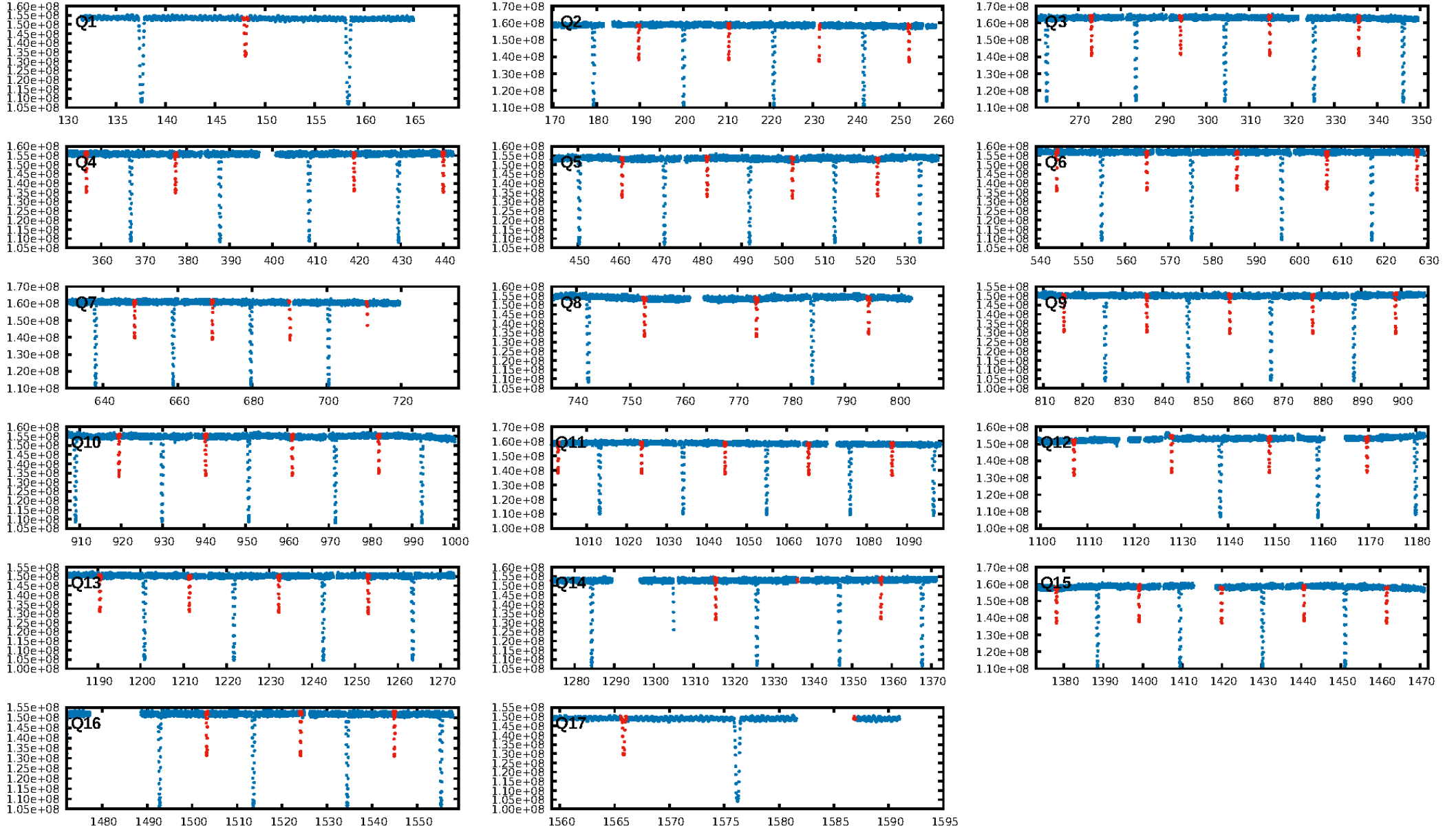
## DV Fit Results:

Period = 20.84994 [0.00000] d  
Epoch = 148.0357 [0.0002] BKJD  
Rp/R\* = 0.3525 [0.0004]  
a/R\* = 30.00 [0.05]  
b = 0.50 [0.00]  
Seff = 345.76 [134.71]  
Teq = 1100 [107] K  
Rp = 76.31 [20.50] Re  
a = 0.1728 [0.0406] AU  
Ag = 4.53 [1.63] [2.16σ]  
Teffp = 2480 [112] K [8.92σ]

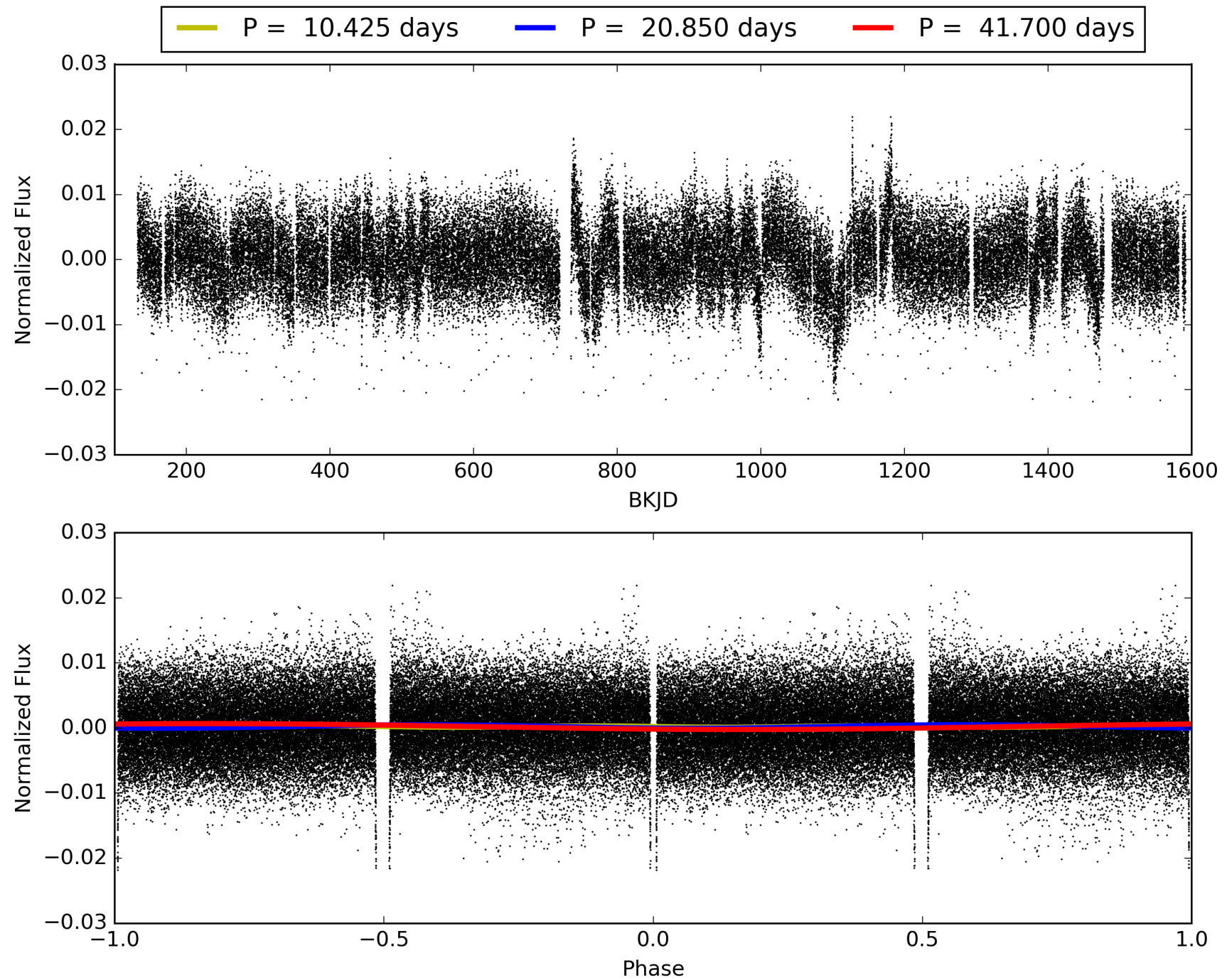
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [92.01σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [60/60]  
GhostDiagnostic-chr: 2.658  
Centroid-sig: N/A  
Centroid-so: 0.387 arcsec [394.32σ]  
OotOffset-rm: 0.039 arcsec [0.59σ]  
KicOffset-rm: 0.191 arcsec [2.53σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.94 [16/17]

# TCE 008569819-02, PDC Light Curves



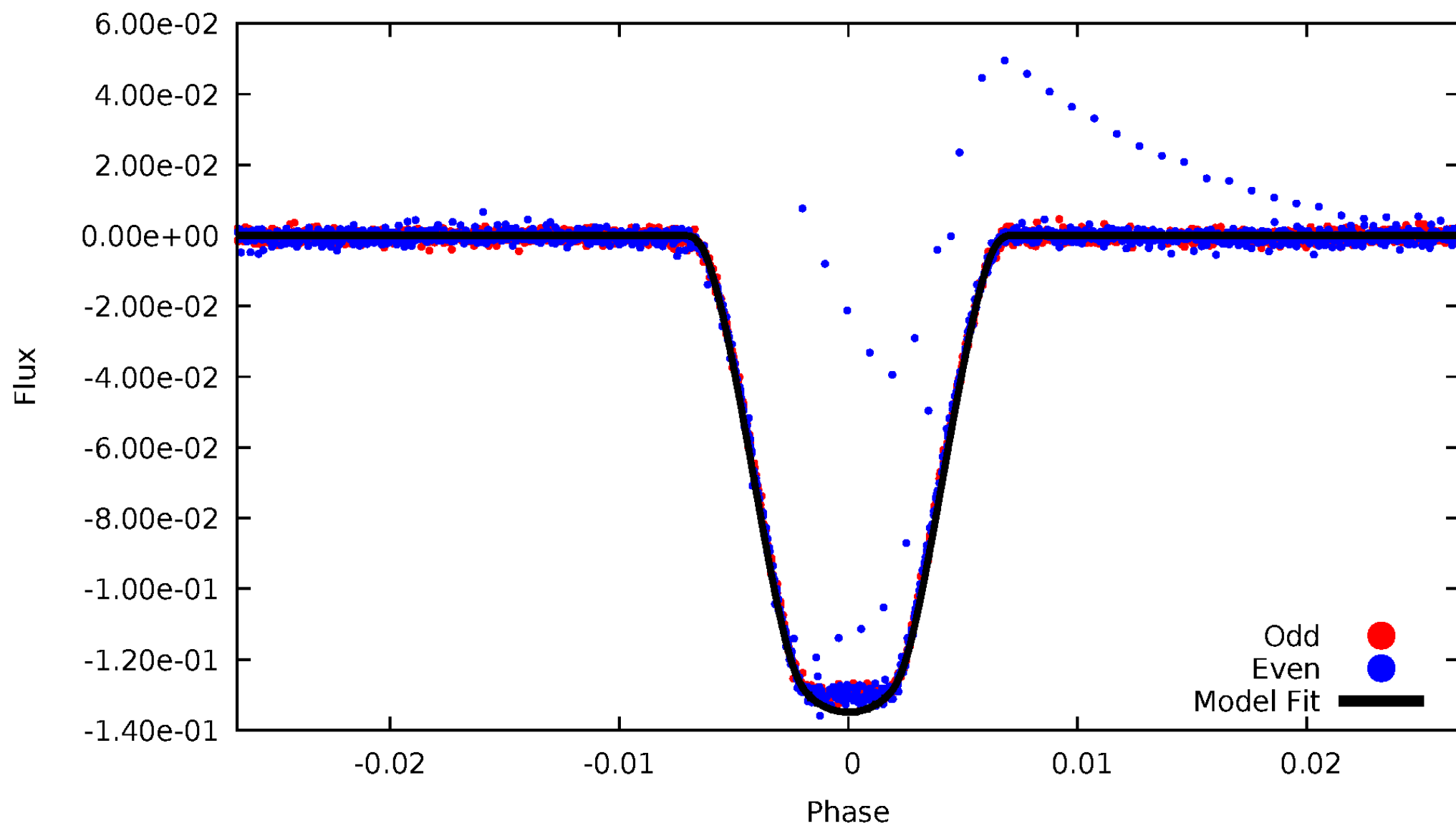
TCE 008569819-02





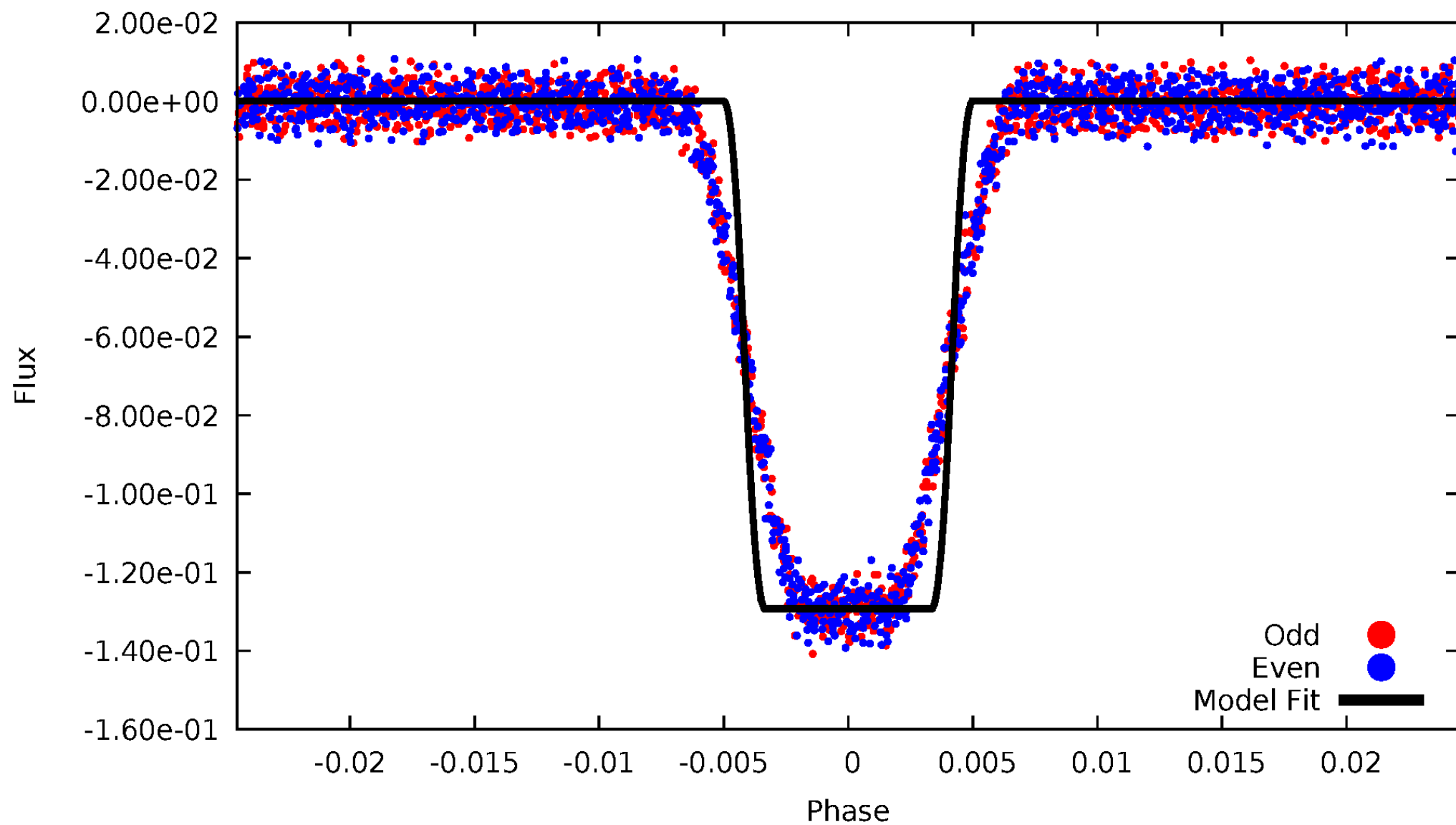
# DV Odd/Even

TCE 008569819-02



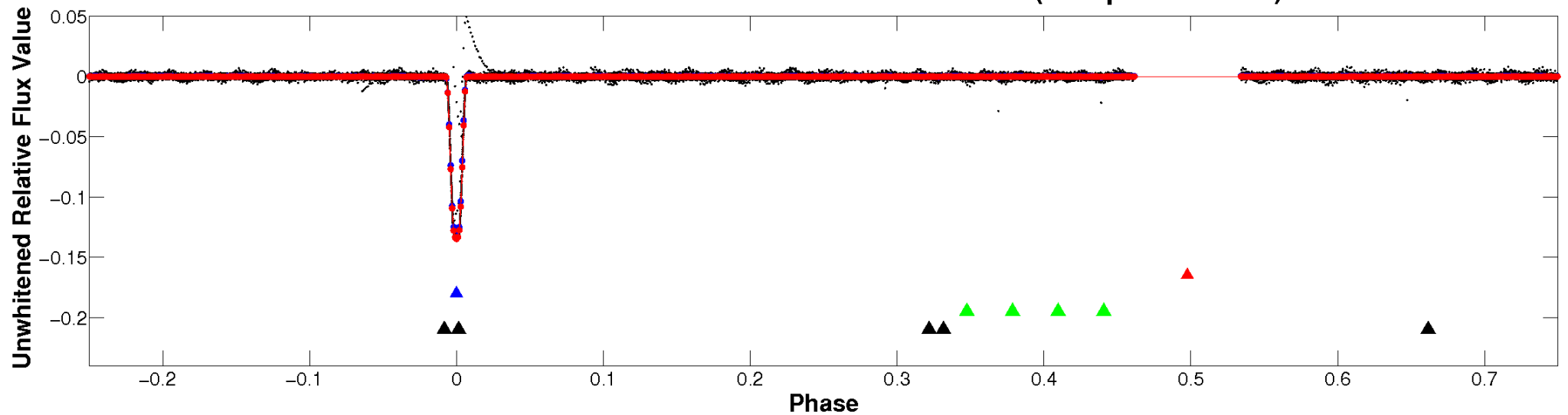
# ALT Odd/Even

TCE 008569819-02

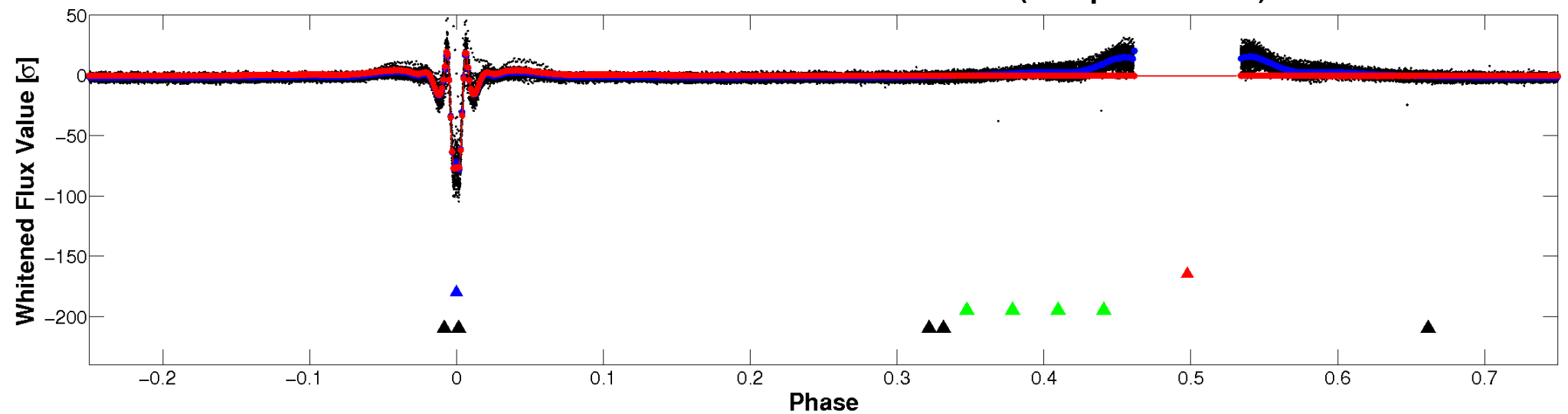


# Non-Whitened Vs. Whitened Light Curve

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

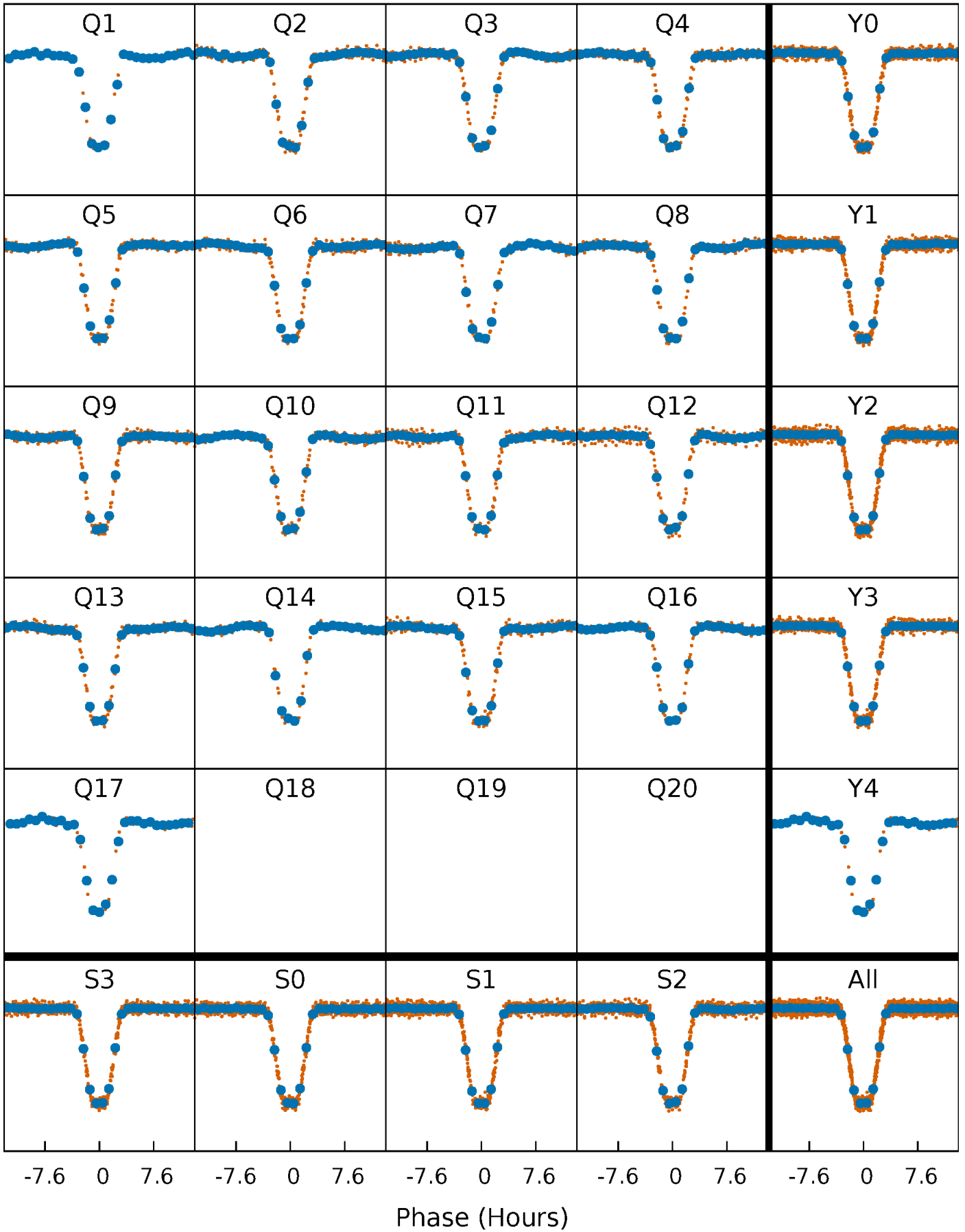


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



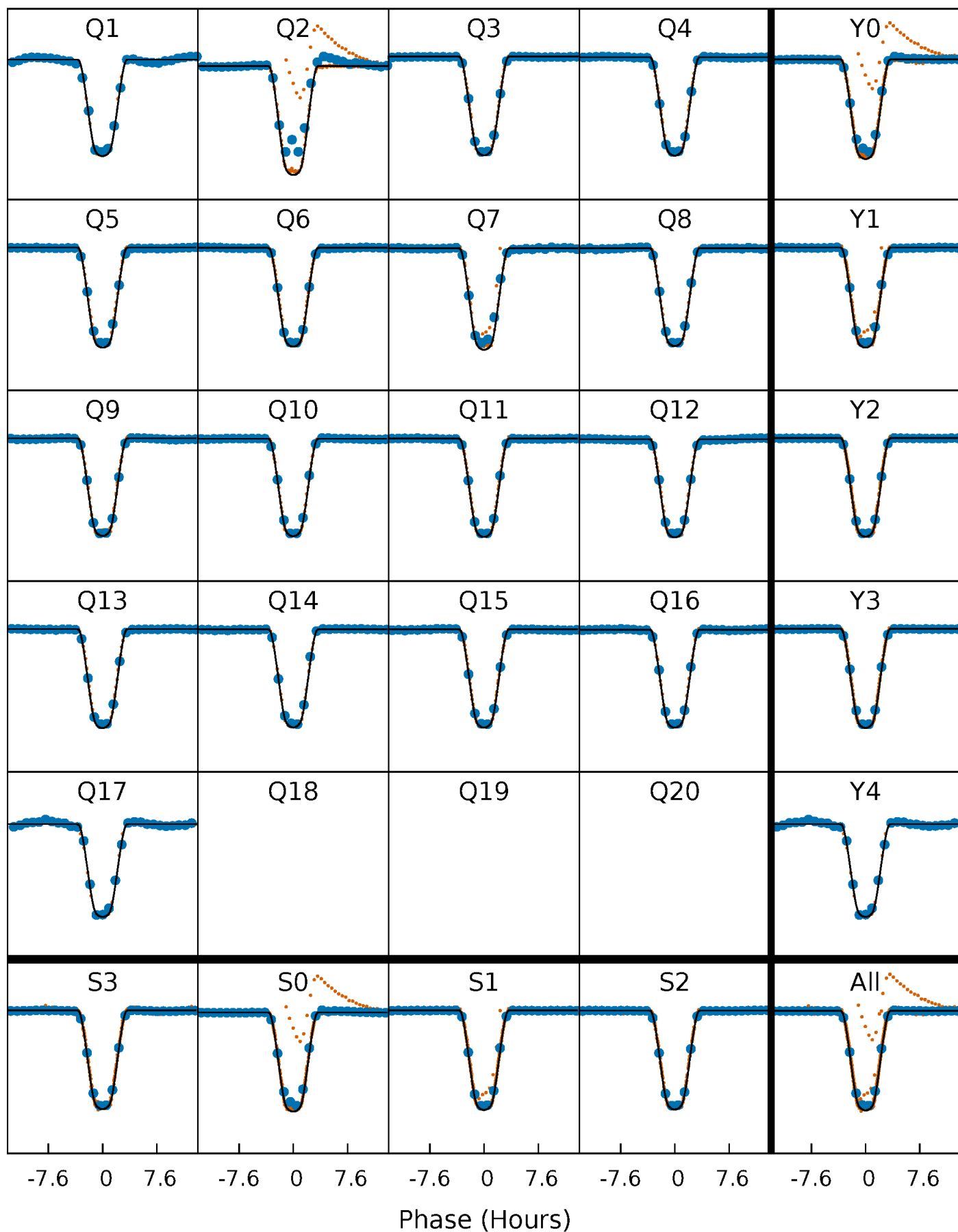
# PDC Quarter-Phased Transit Curves

TCE 008569819-02   P= 20.849936 Days    $T_0=148.035721$  (BKJD)



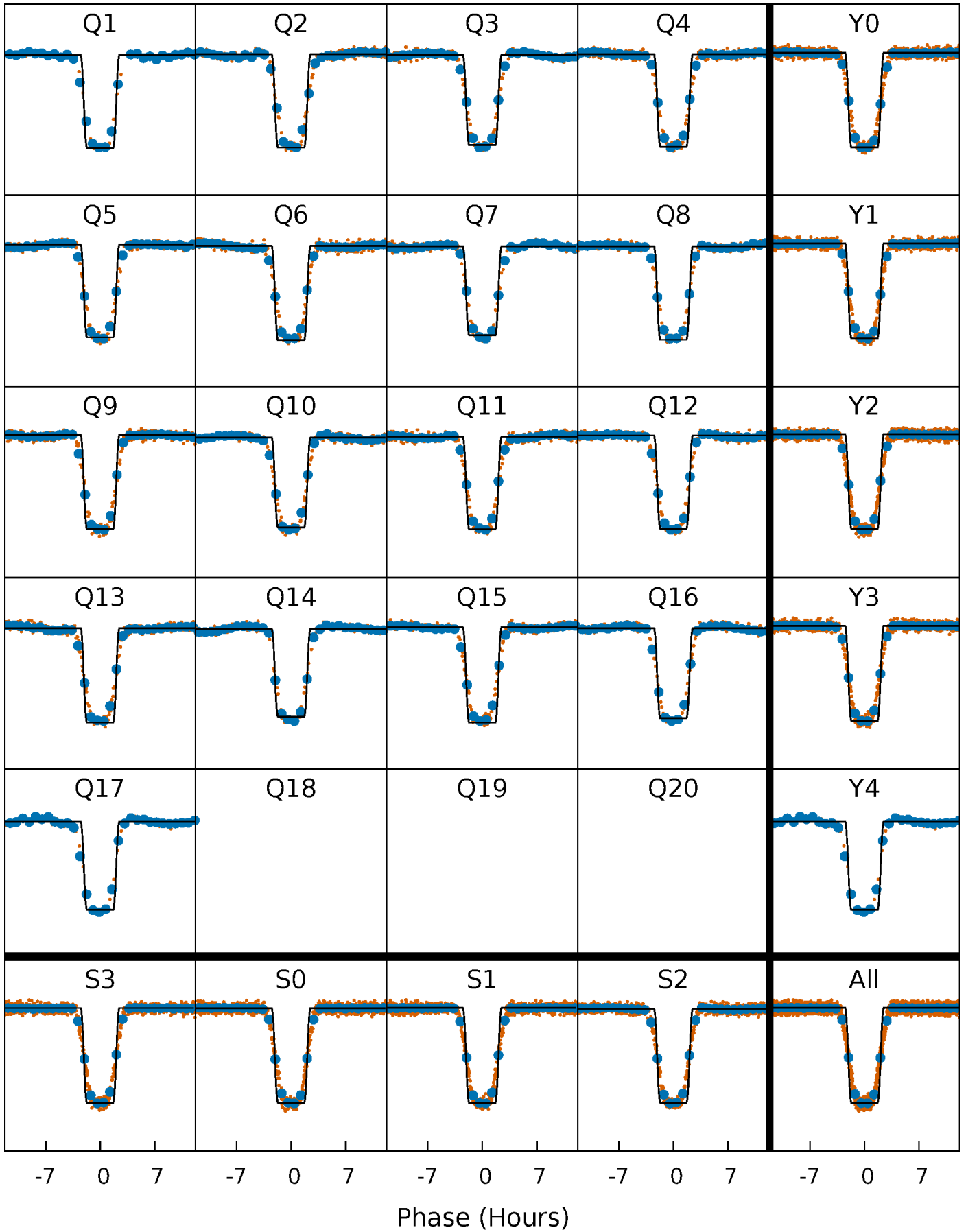
# DV Quarter-Phased Transit Curves

TCE 008569819-02   P= 20.849936 Days    $T_0=148.035721$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

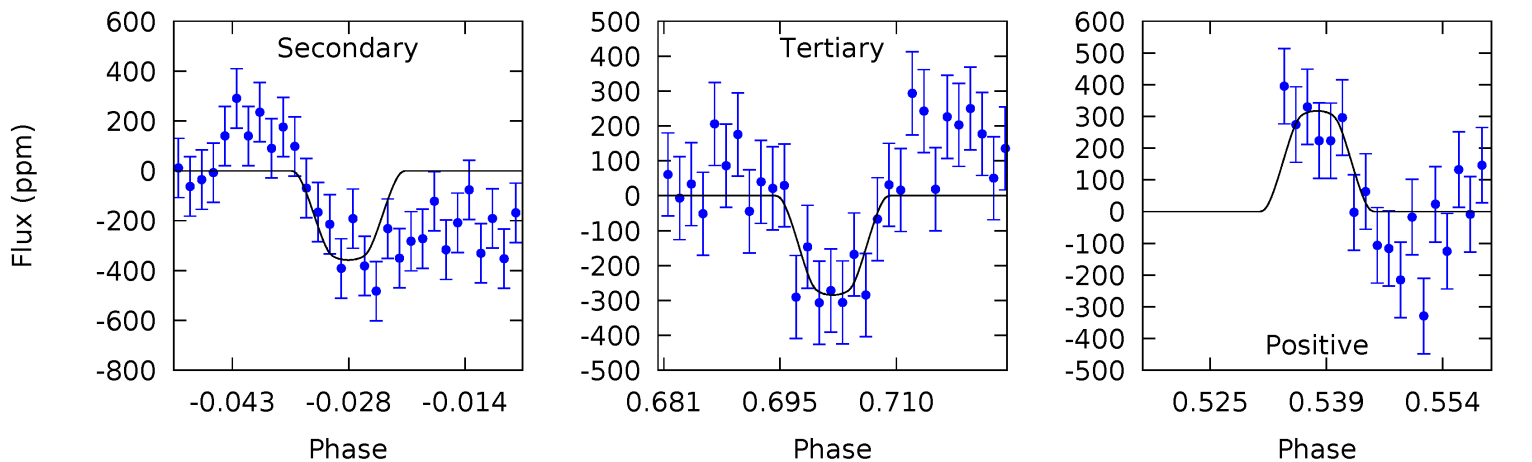
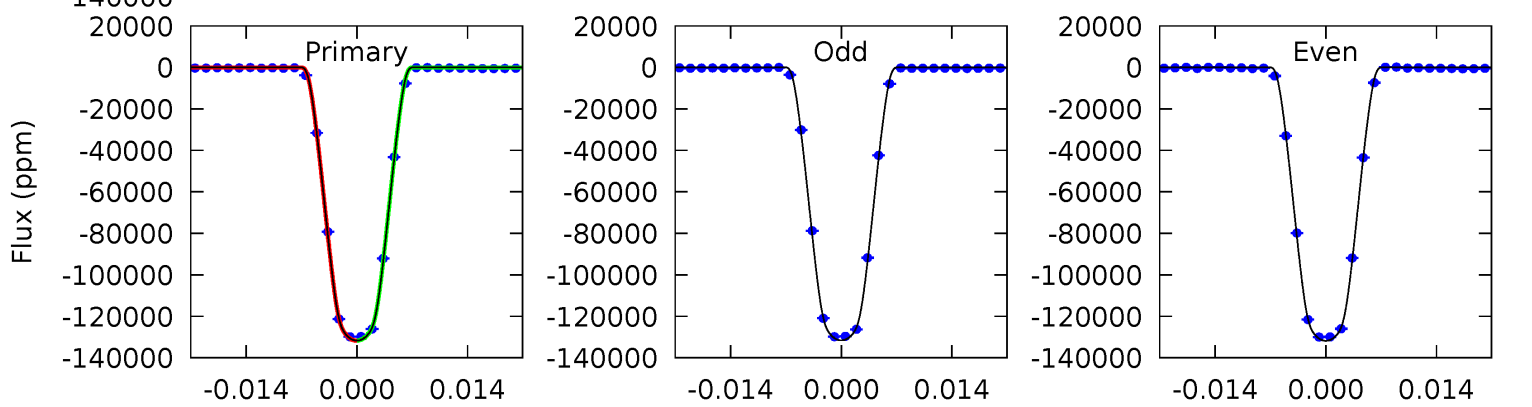
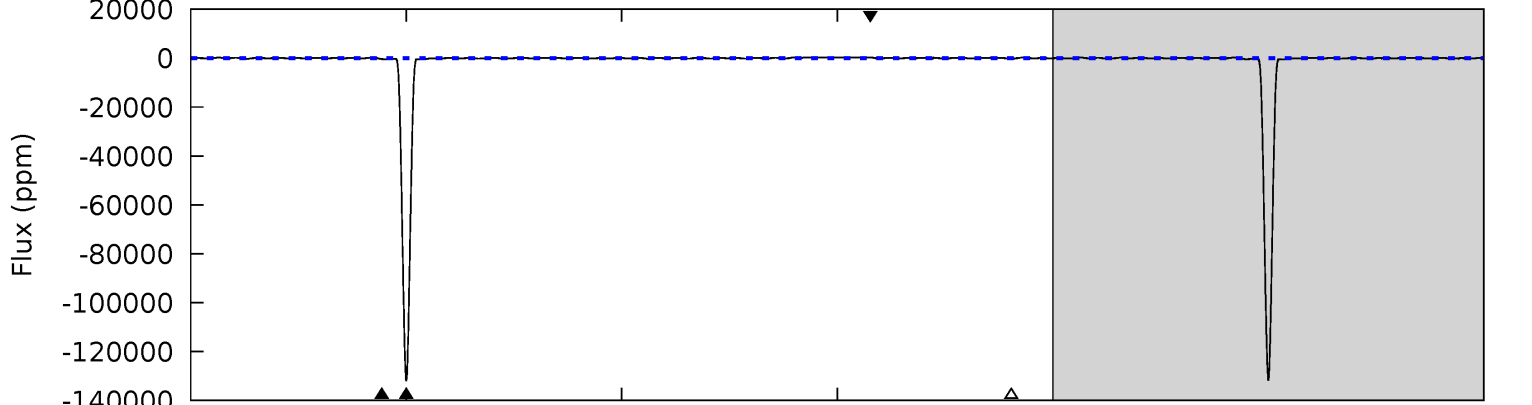
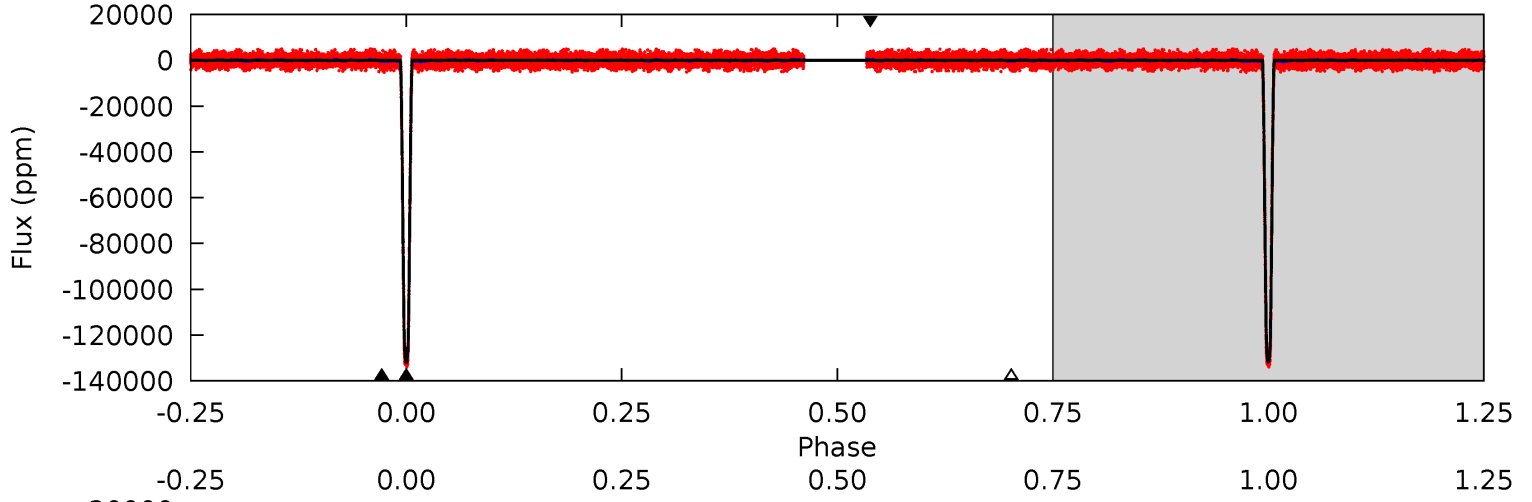
TCE 008569819-02   P= 20.850021 Days    $T_0=148.032739$  (BKJD)



# DV Model-Shift Uniqueness Test

008569819-02, P = 20.849936 Days, E = 127.185785 Days

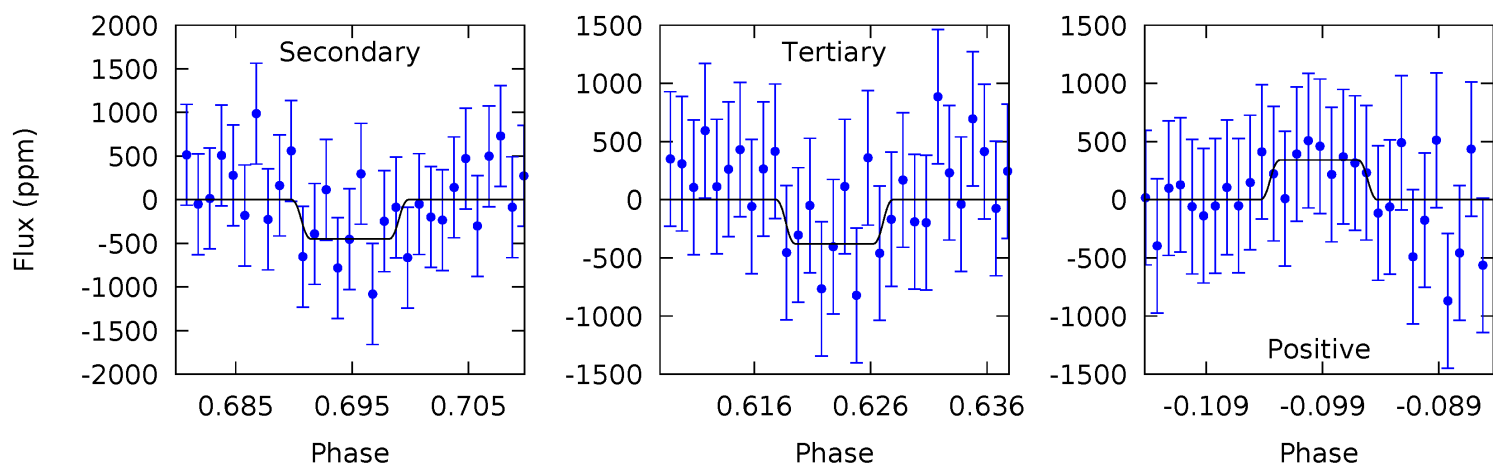
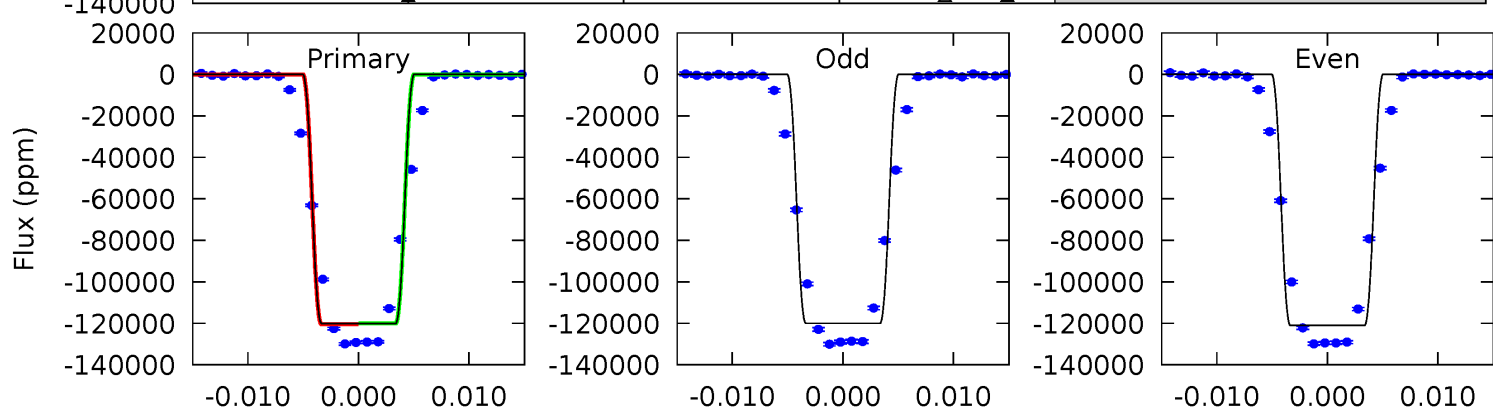
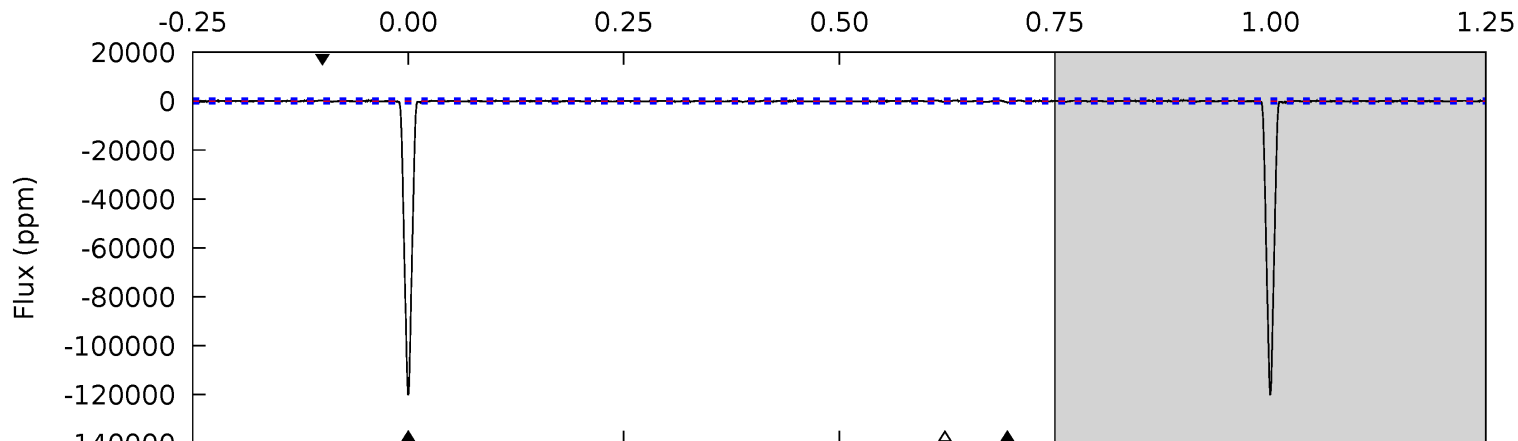
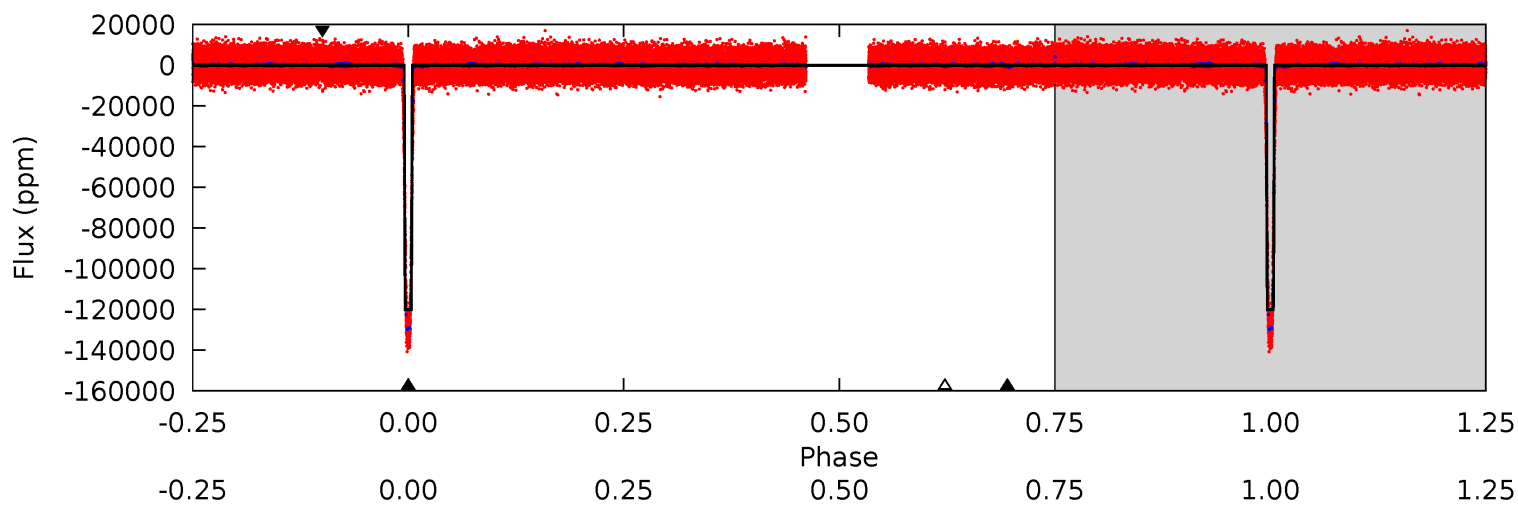
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3104	8.43	6.71	7.48	4.96	2.45	2.63	3097	3097	1.73	0.95	2.45	0.98	0.00	1.33



# Alt Model-Shift Uniqueness Test

008569819-02, P = 20.850021 Days, E = 127.182718 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
683.6	2.56	2.16	1.94	5.03	2.58	0.66	681.4	681.7	0.40	0.62	2.98	1.01	0.00	1.26





### Stellar Parameters For KIC 008569819

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7355^{+228}_{-304}$	$4.042^{+0.198}_{-0.162}$	$-0.120^{+0.250}_{-0.350}$	$1.984^{+0.533}_{-0.480}$	$1.581^{+0.211}_{-0.257}$	$0.285^{+0.311}_{-0.130}$
	+3%/-4%	+5%/-4%	+208%/-292%	+27%/-24%	+13%/-16%	+109%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008569819-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-358 \pm 42$	$75.40^{+11.81}_{-9.18}$	$1526^{+111}_{-102}$	$2419^{+63}_{-77}$	$1.033^{+0.309}_{-0.266}$
Alt.	$-449 \pm 176$	$77.37^{+11.13}_{-9.84}$	$1533^{+103}_{-112}$	$2499^{+125}_{-217}$	$1.199^{+0.623}_{-0.512}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

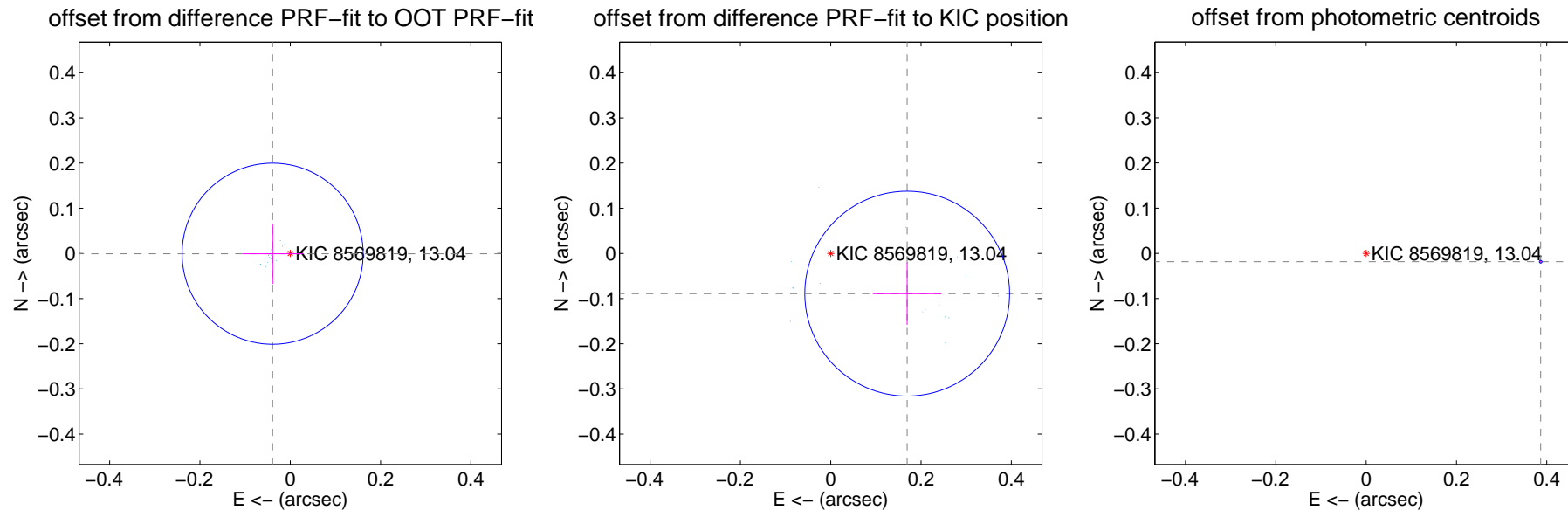
## DV Centroid Data

Supplemental centroid analysis for 008569819-02. Kepler magnitude: 13.04. Transit SNR 1541.83

There are 17 quarters with good PRF difference image offsets

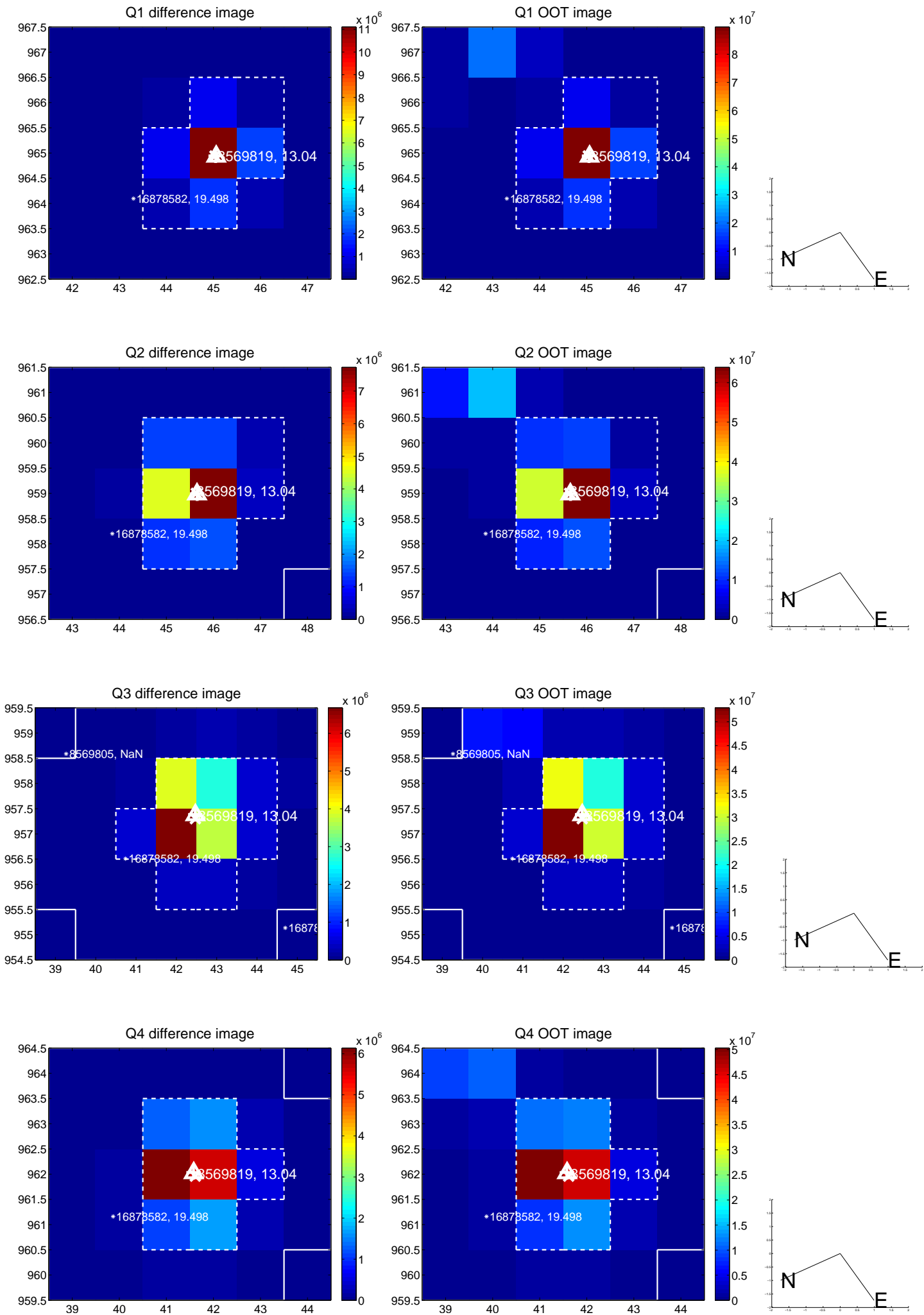
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.039 \pm 0.067$	0.59	$0.039 \pm 0.067$	$-0.001 \pm 0.067$
PRF-fit source offset from KIC position	$0.191 \pm 0.076$	2.53	$-0.169 \pm 0.076$	$-0.089 \pm 0.069$
photometric centroid source offset	$0.39 \pm 0.00$	394.32	$-0.39 \pm 0.00$	$-0.02 \pm 0.00$

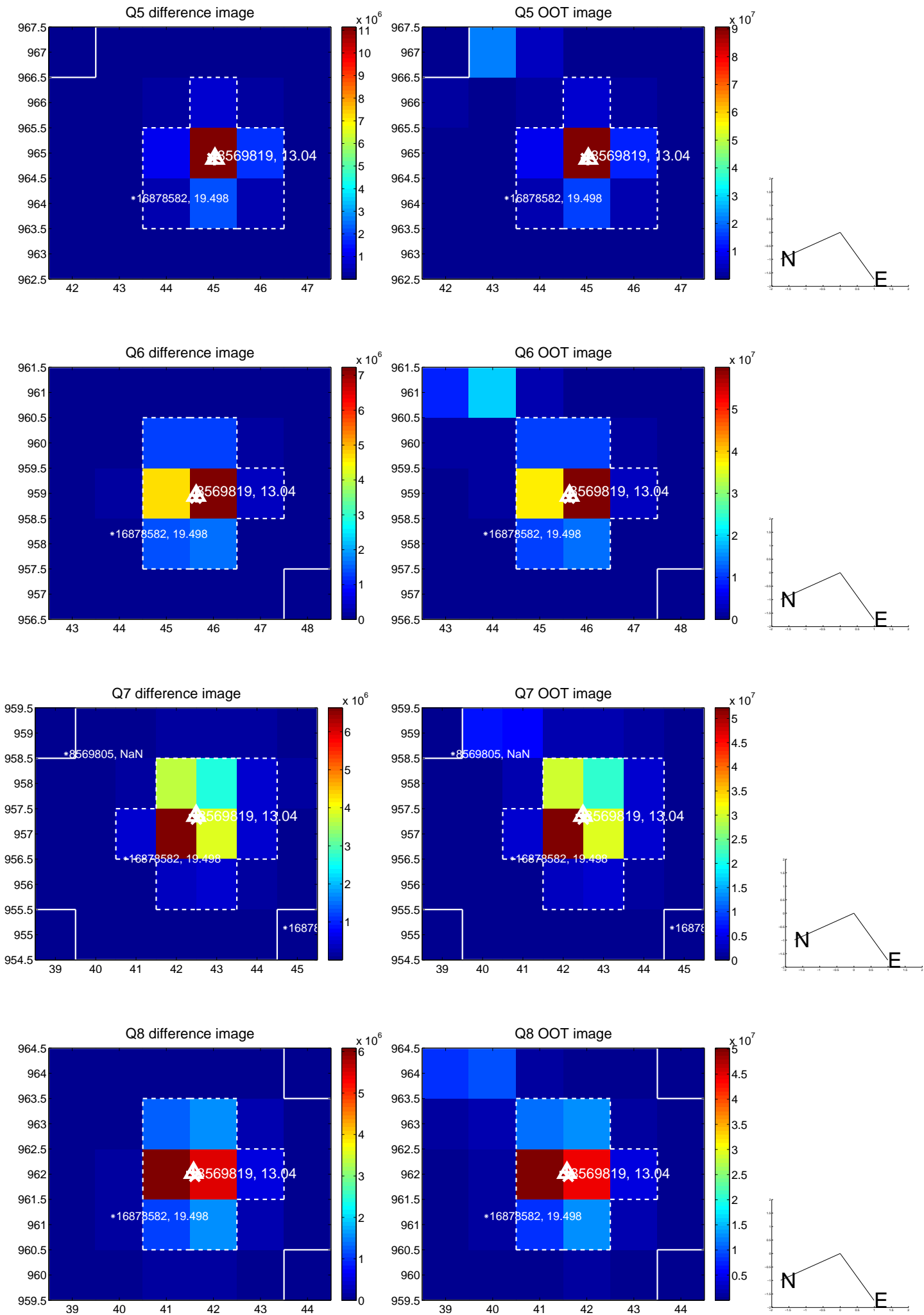


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

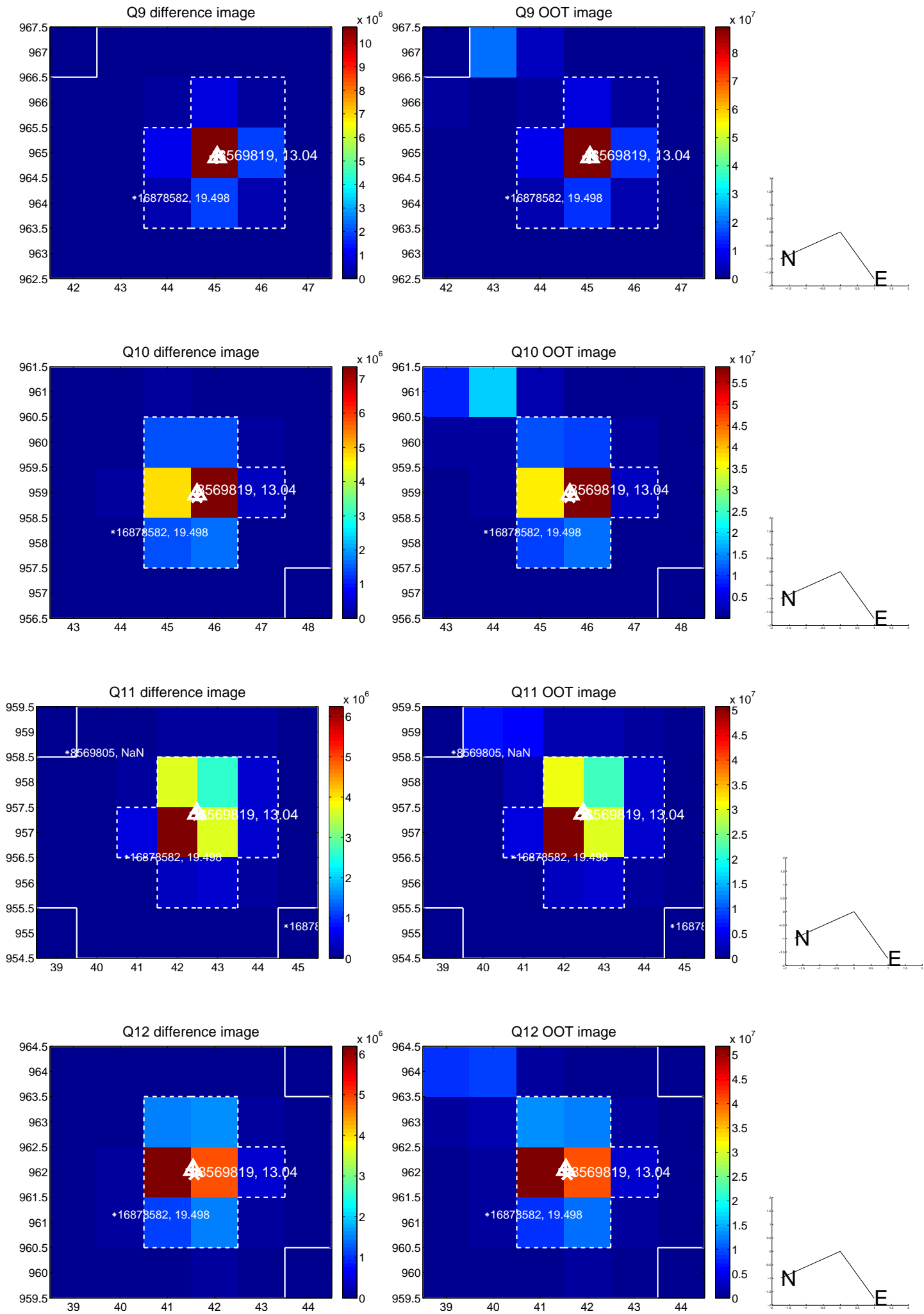
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



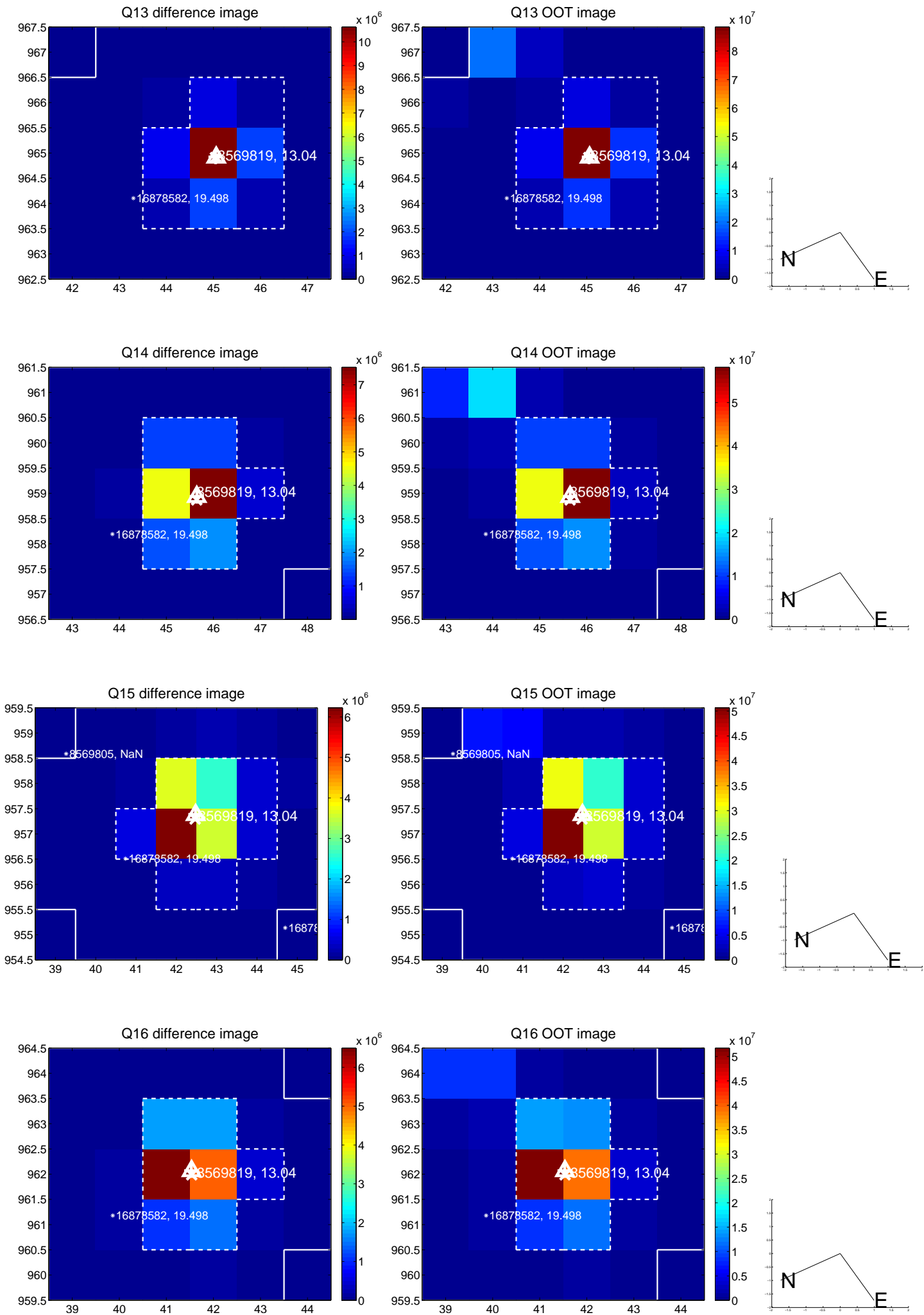
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



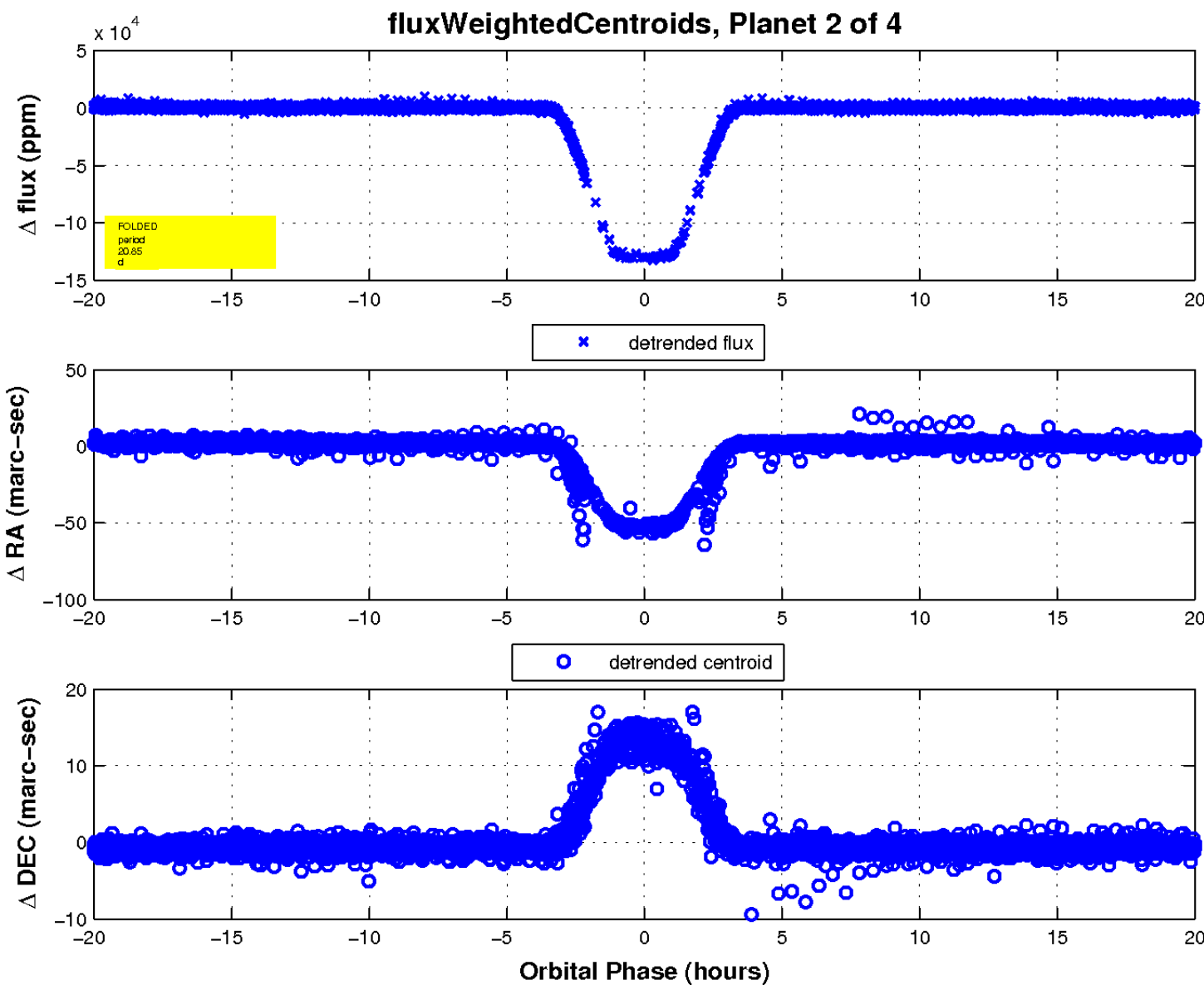
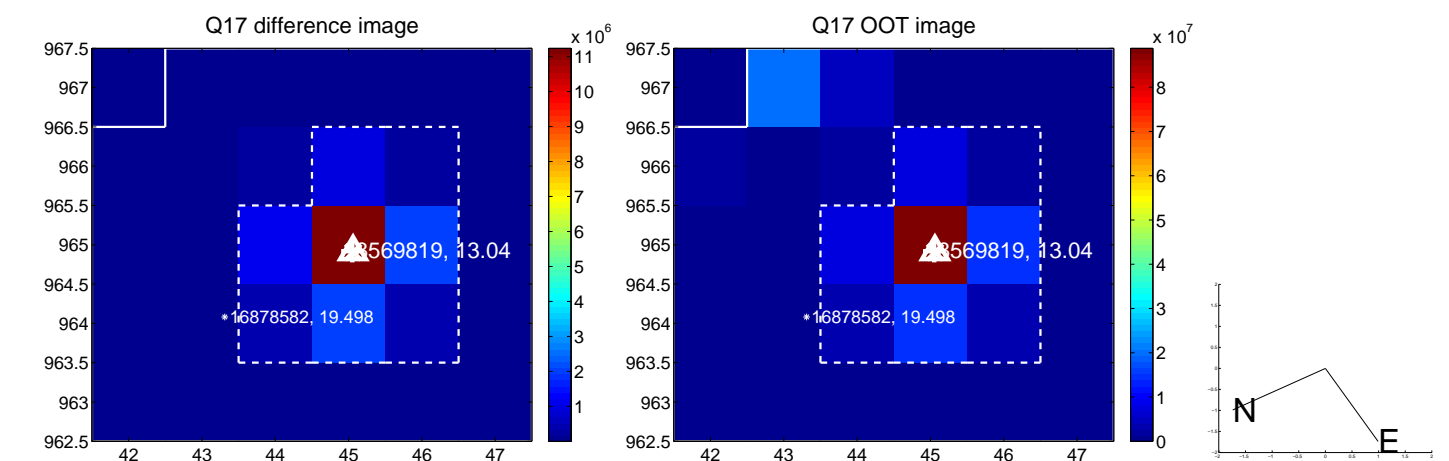
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

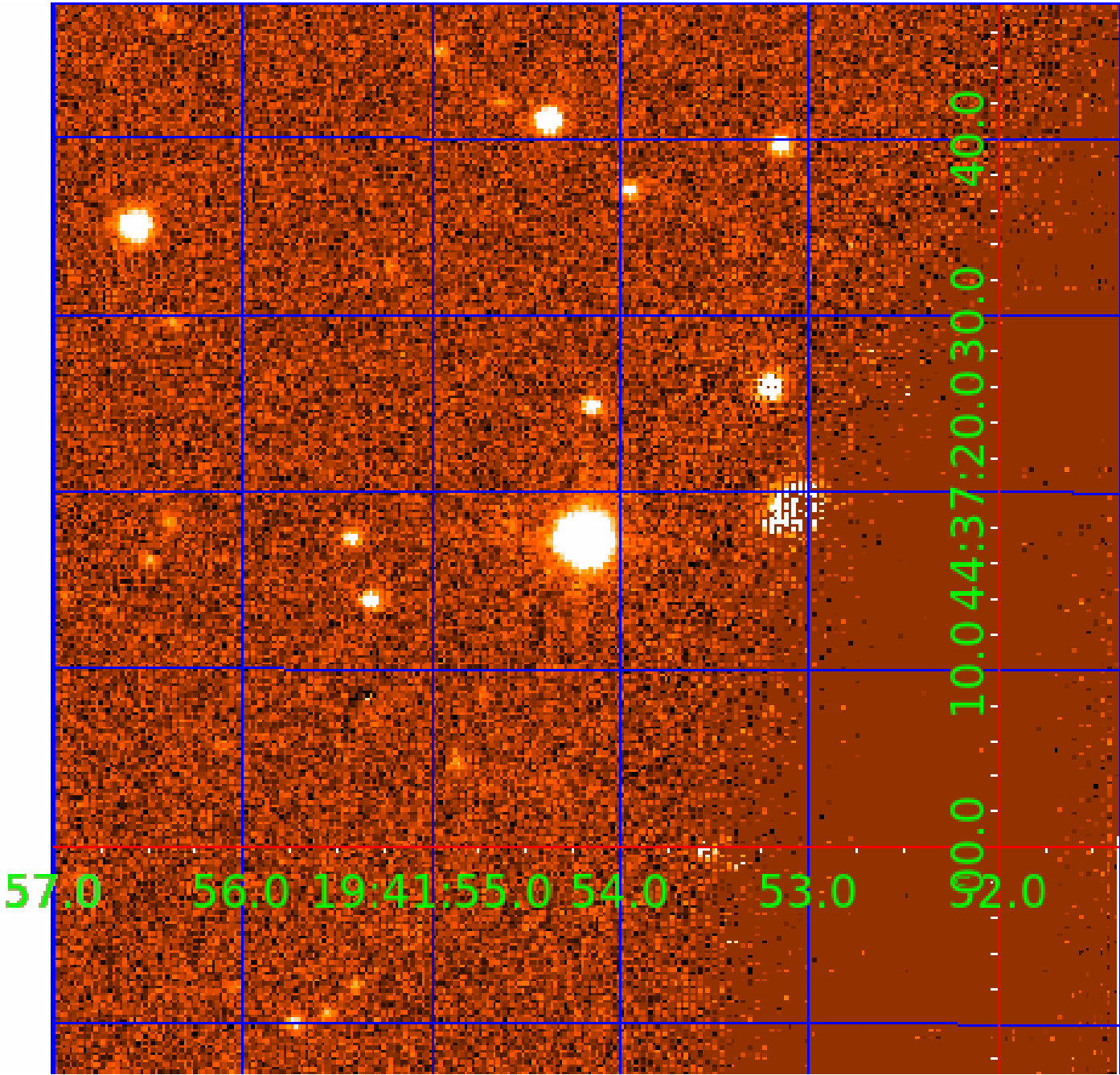


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008569819

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008569819-01	OBS	7062.01	20.849899	137.562733	305372.7	12.000	4617.4	-1.0	1.98	7355	27.32	345.76
008569819-02	OBS	No	20.849936	148.035721	134910.7	6.672	1728.9	1541.8	1.98	7355	76.31	345.76
008569819-04	OBS	No	305.866925	342.395248	3178.5	74.048	27.0	18.2	1.98	7355	19.95	9.63

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008569819-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
008569819-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008569819-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**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 008569819-04

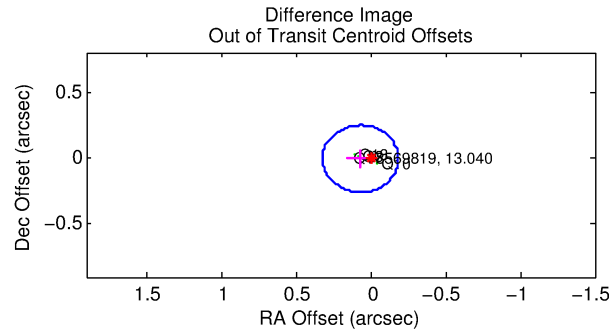
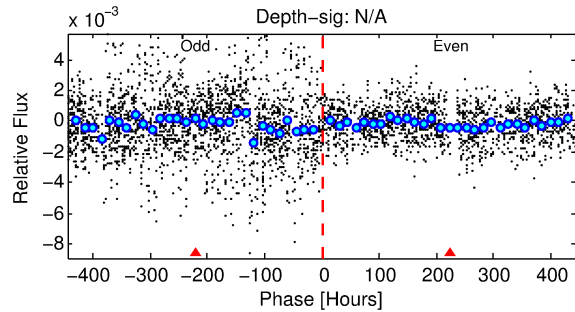
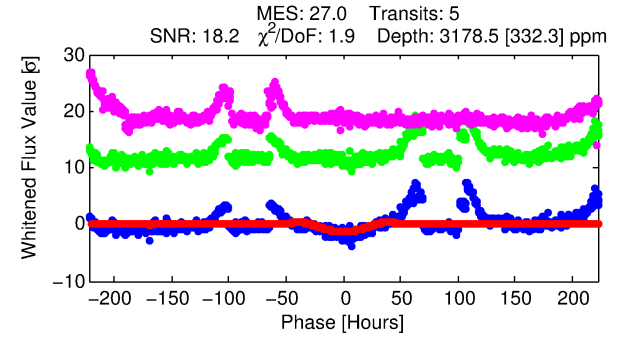
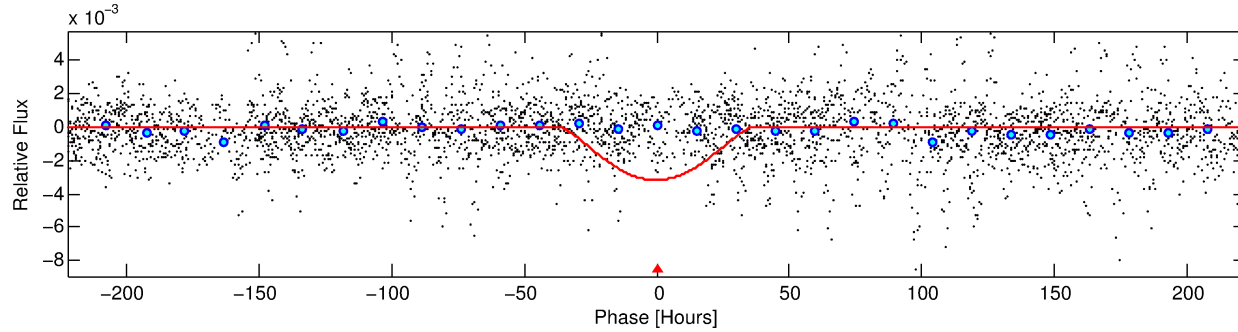
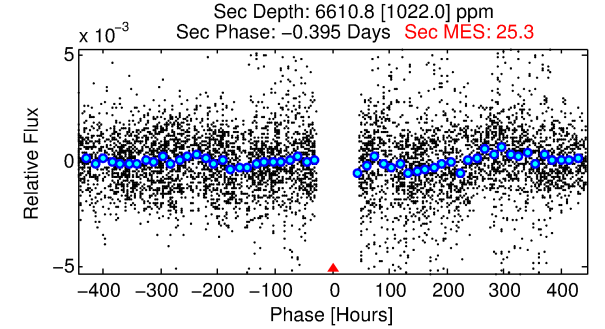
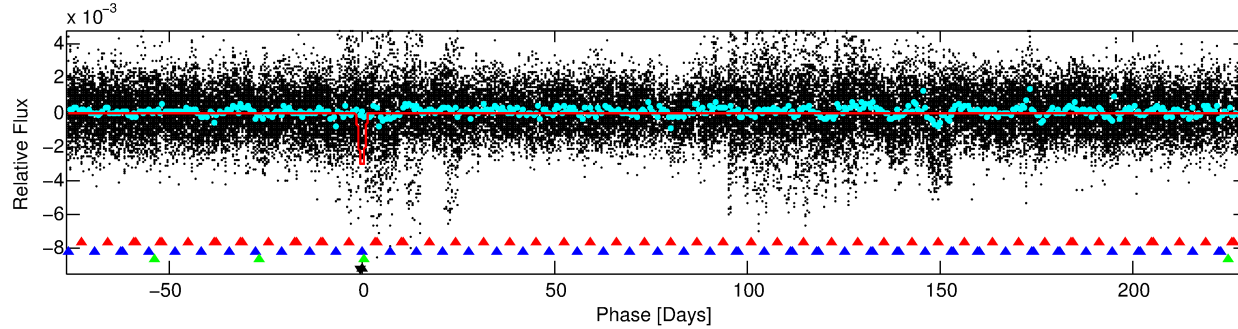
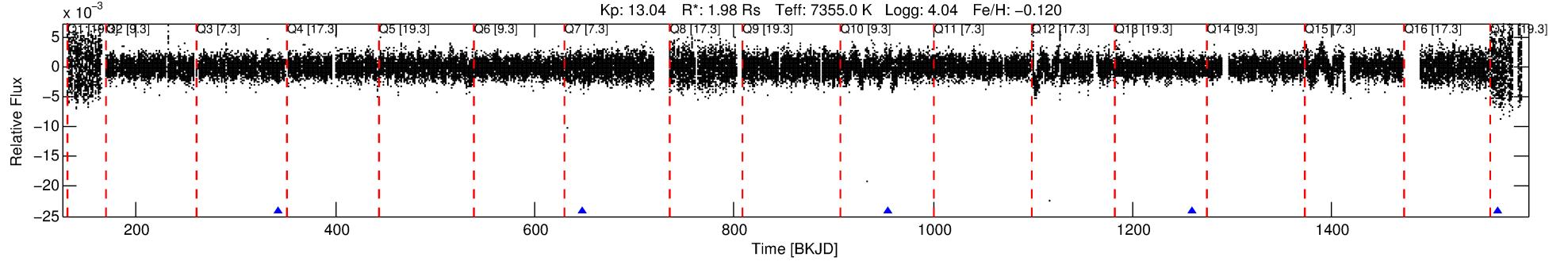
No Significant Match Found

# DV One-Page Summary

KIC: 8569819 Candidate: 4 of 4 Period: 305.867 d

KOI: K07062 Corr: No Ephemeris Match

Kp: 13.04 R\*: 1.98 Rs Teff: 7355.0 K Logg: 4.04 Fe/H: -0.120



## DV Fit Results:

Period = 305.86693 [0.03340] d  
Epoch = 342.3952 [0.0791] BKJD  
Rp/R\* = 0.0921 [0.2138]  
a/R\* = 14.00 [6.85]  
b = 1.00 [0.31]  
Seff = 9.63 [3.75]  
Teq = 449 [44] K  
Rp = 19.95 [46.59] Re  
a = 1.0353 [0.2432] AU  
Ag = 9795.92 [45609.95] [0.21] $\sigma$   
Teffp = 6909 [8024] K [0.81] $\sigma$

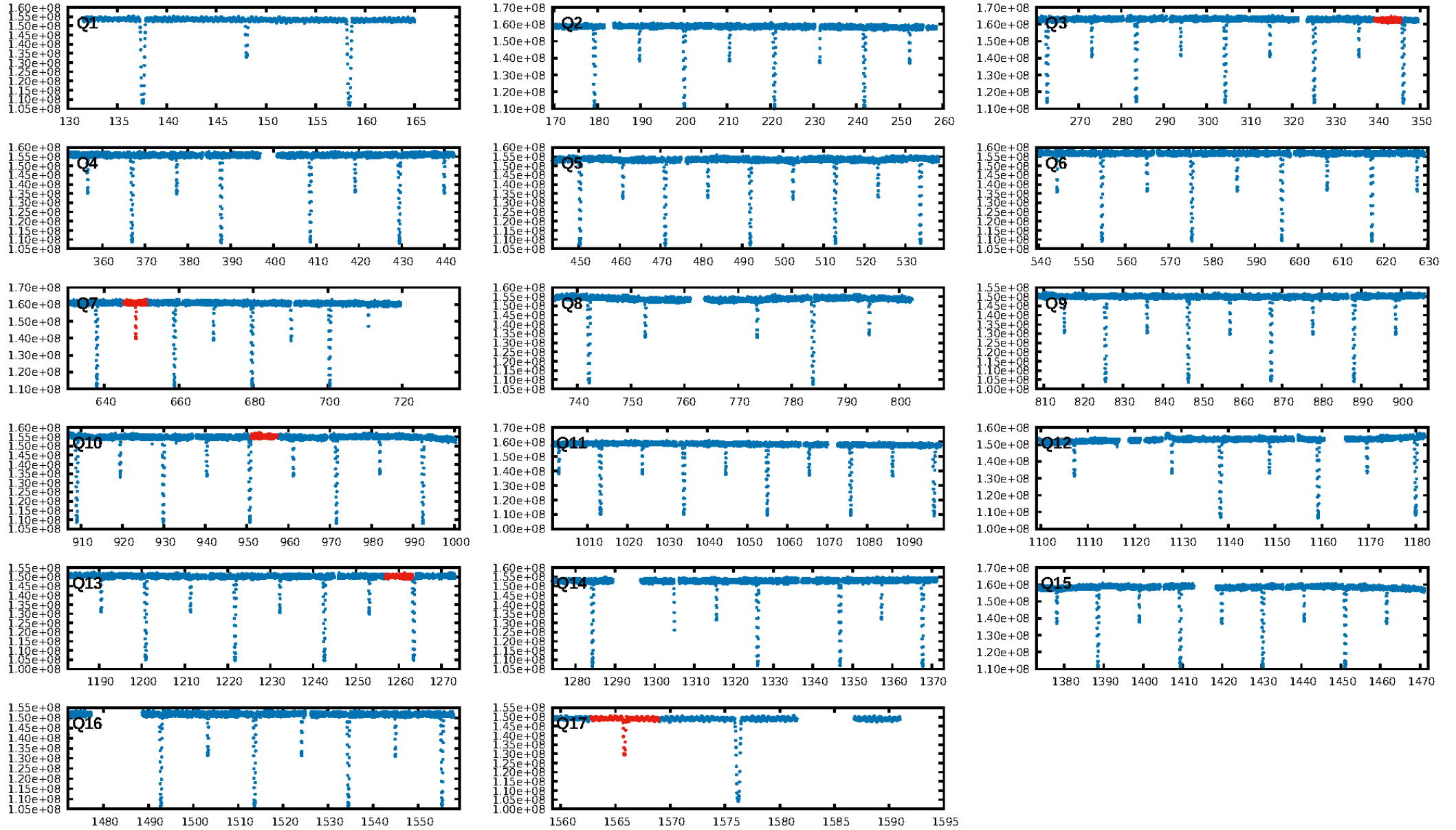
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [92.01] $\sigma$   
LongPeriod-sig: 100.0% [8.76] $\sigma$   
**ModelChiSquare2-sig: 0.0%**  
**ModelChiSquareGof-sig: 0.0%**  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 2.651  
Centroid-sig: N/A  
**Centroid-so: 0.793 arcsec [10.31] $\sigma$**   
OotOffset-rm: 0.069 arcsec [0.81] $\sigma$   
KicOffset-rm: 0.122 arcsec [1.18] $\sigma$   
OotOffset-st: 1/1/0/2 [4]  
KicOffset-st: 1/1/0/2 [4]  
DiffImageQuality-fgm: 0.25 [1/4]  
DiffImageOverlap-fno: 0.00 [0/4]

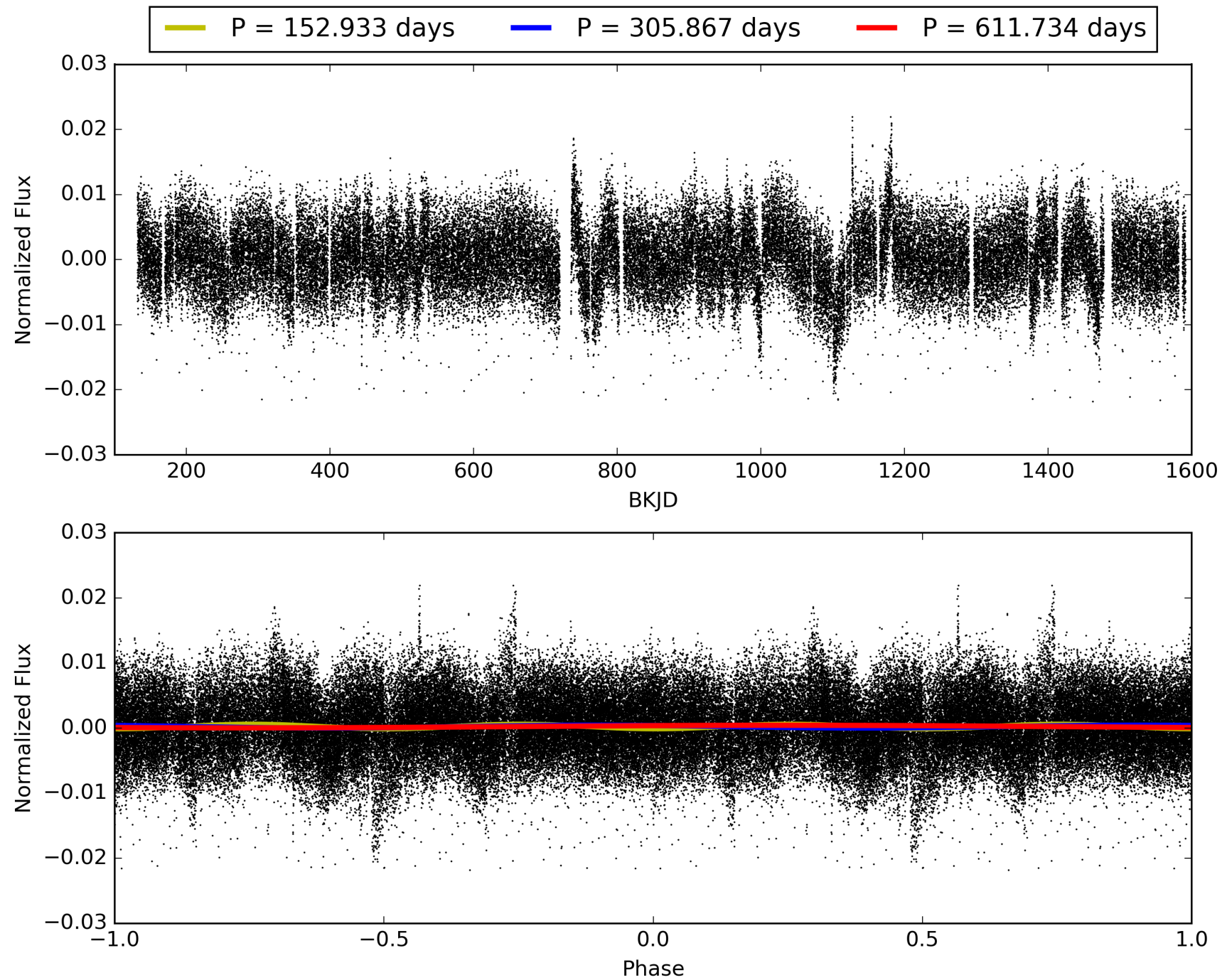
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:17:41 Z

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

# TCE 008569819-04, PDC Light Curves

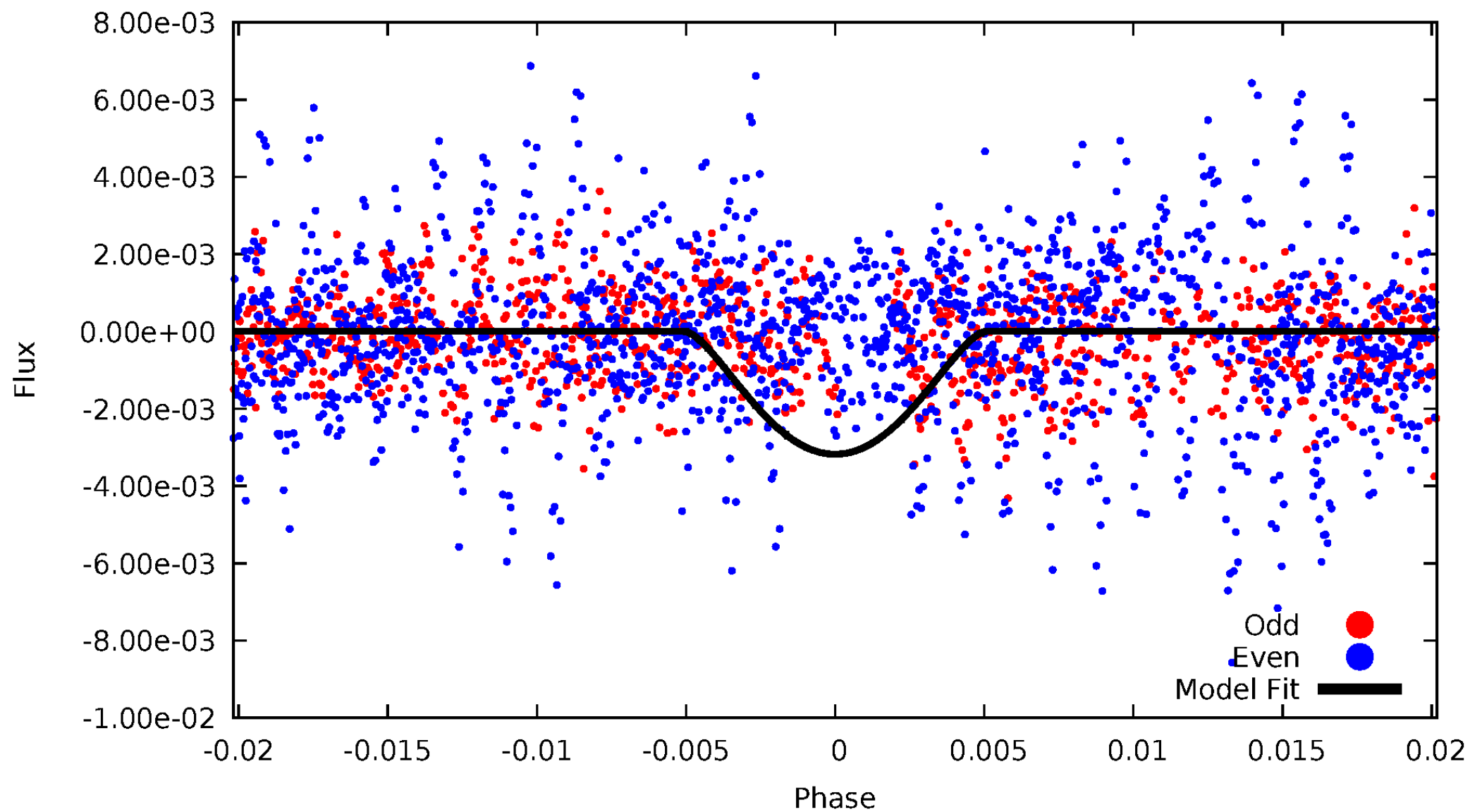


TCE 008569819-04



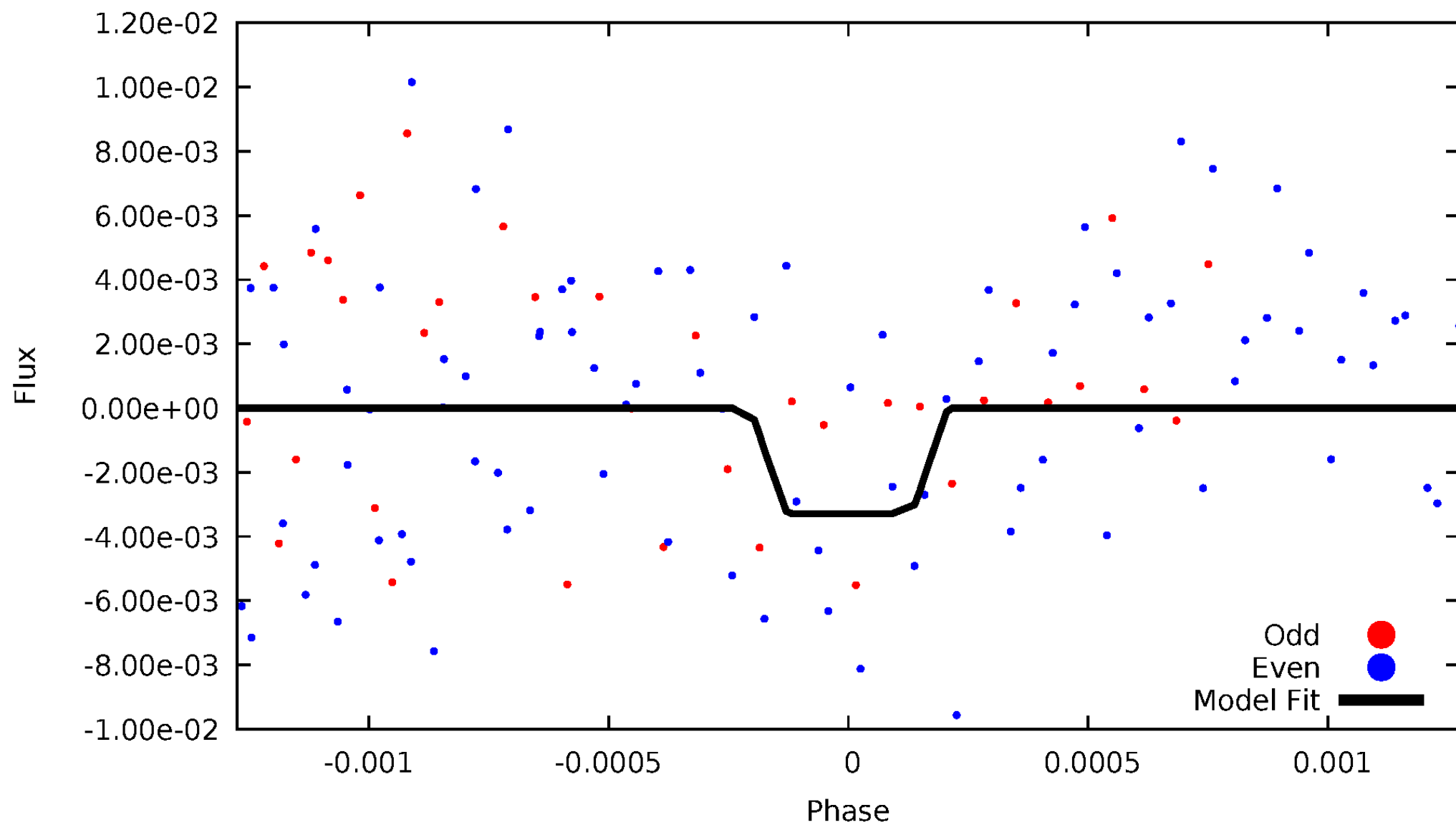
# DV Odd/Even

TCE 008569819-04



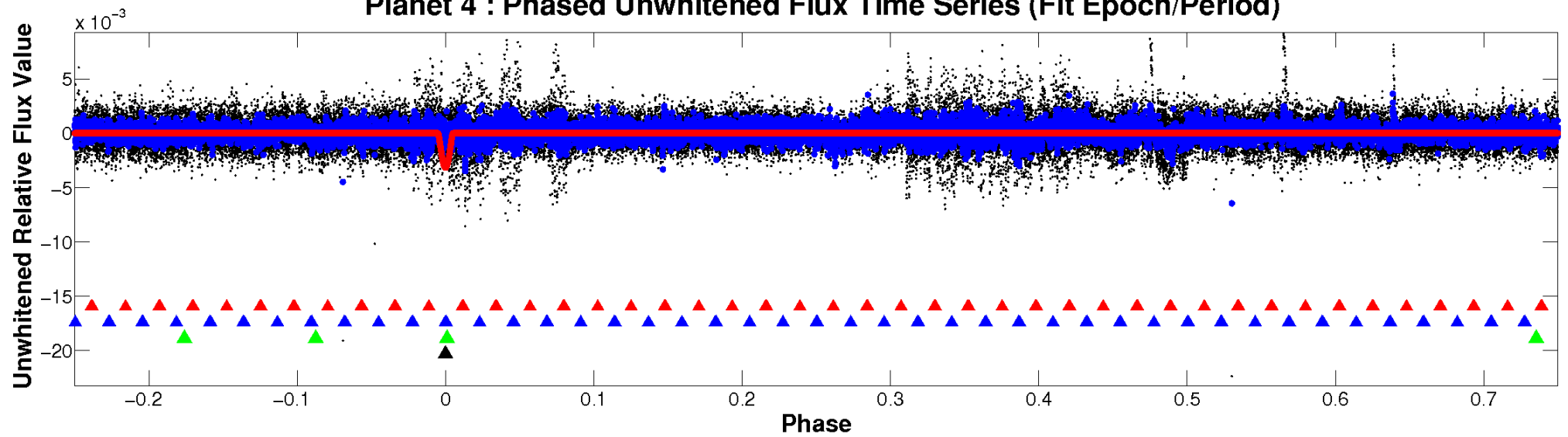
# ALT Odd/Even

TCE 008569819-04

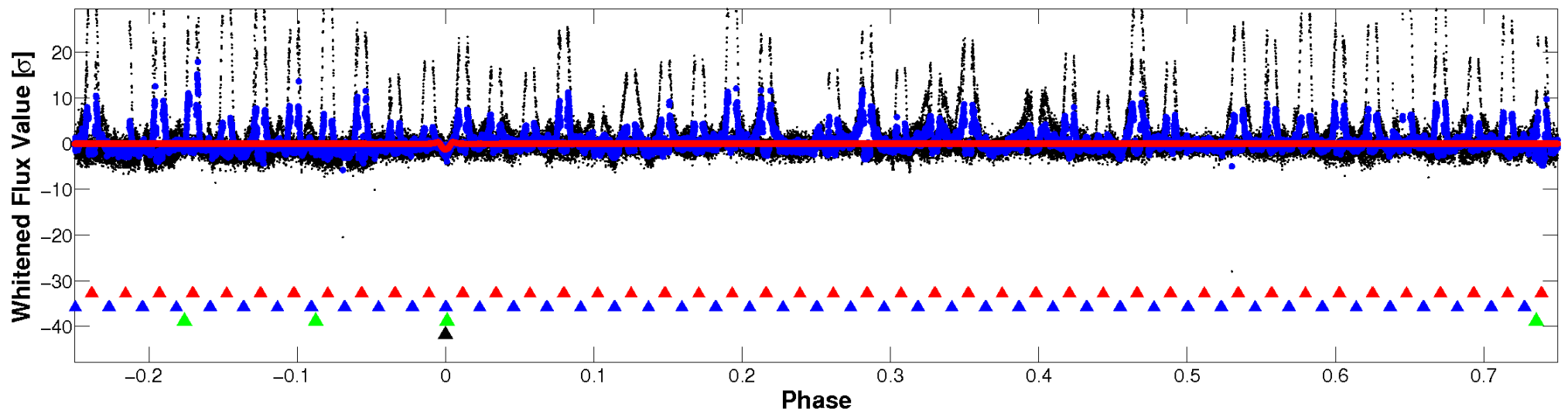


# Non-Whitened Vs. Whitened Light Curve

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



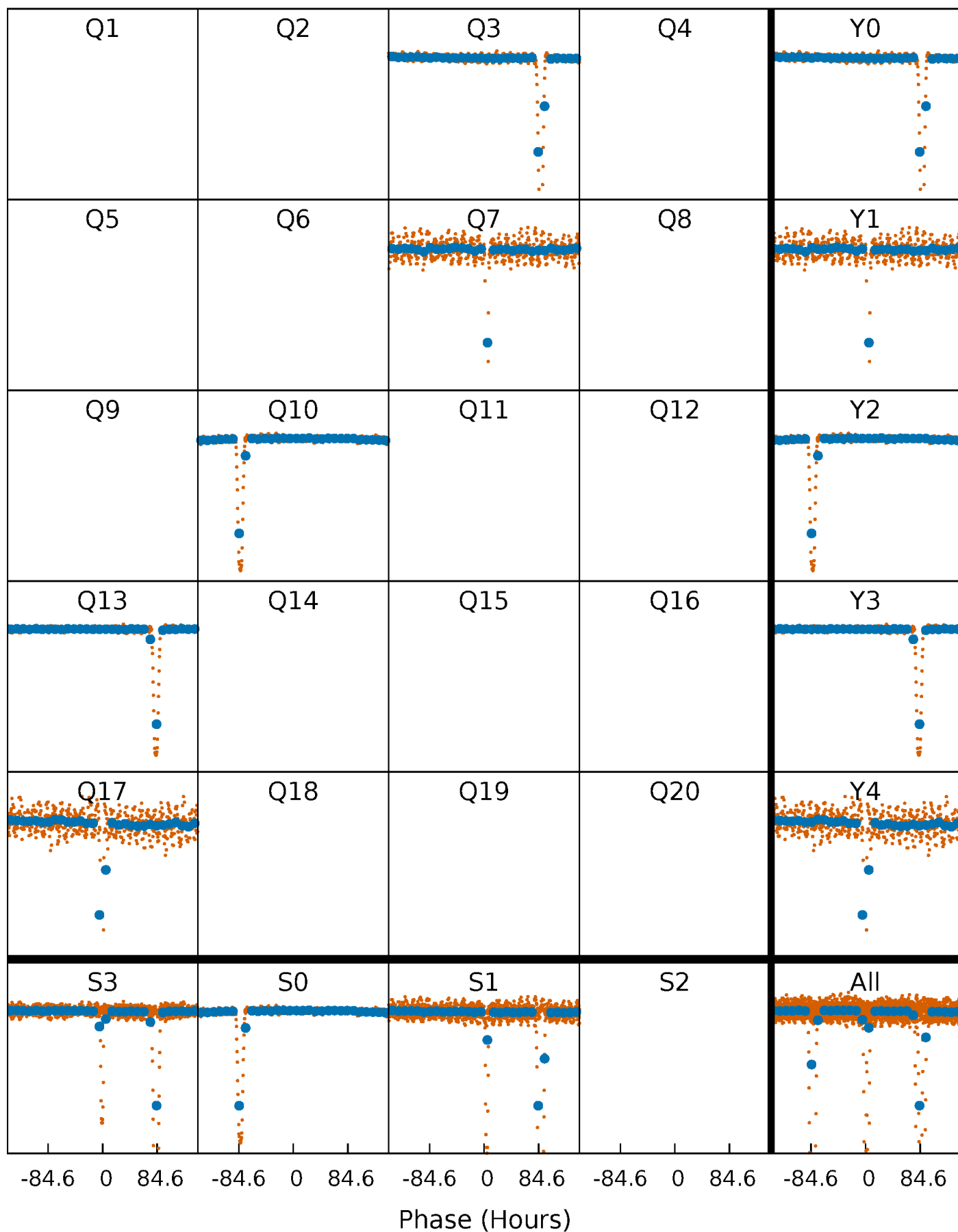
## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

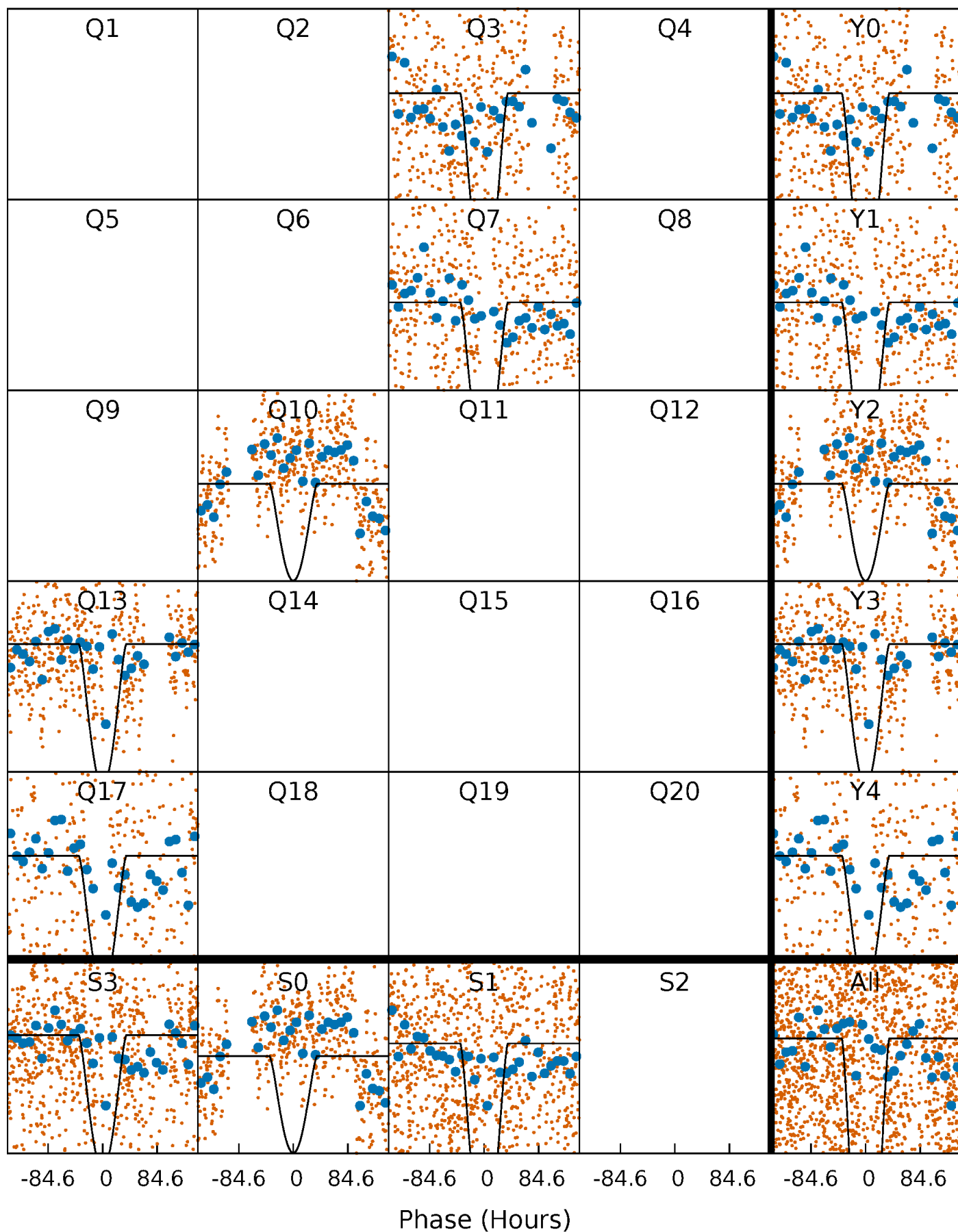
TCE 008569819-04 P=305.866925 Days  $T_0=342.395248$  (BKJD)





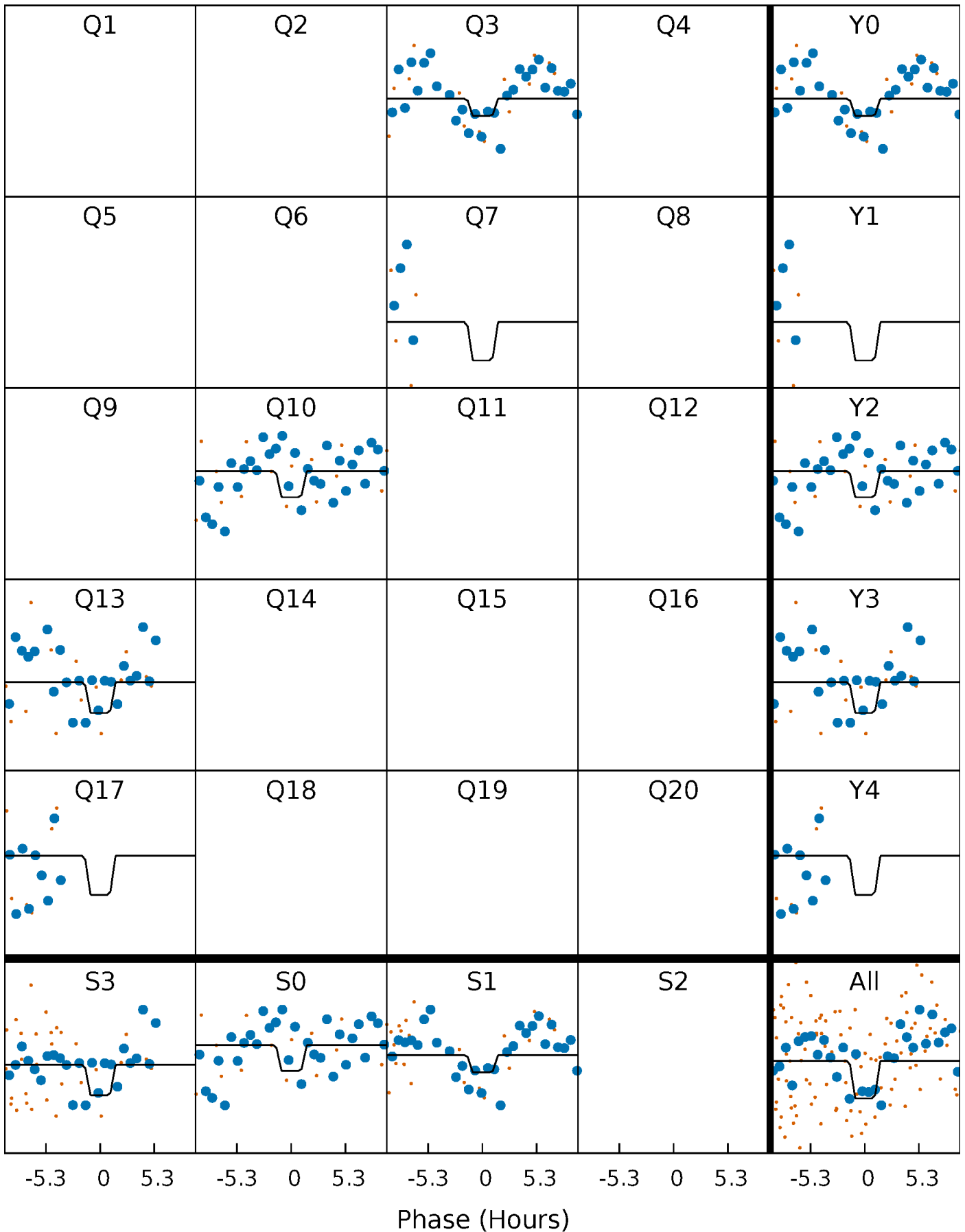
# DV Quarter-Phased Transit Curves

TCE 008569819-04 P=305.866925 Days  $T_0=342.395248$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

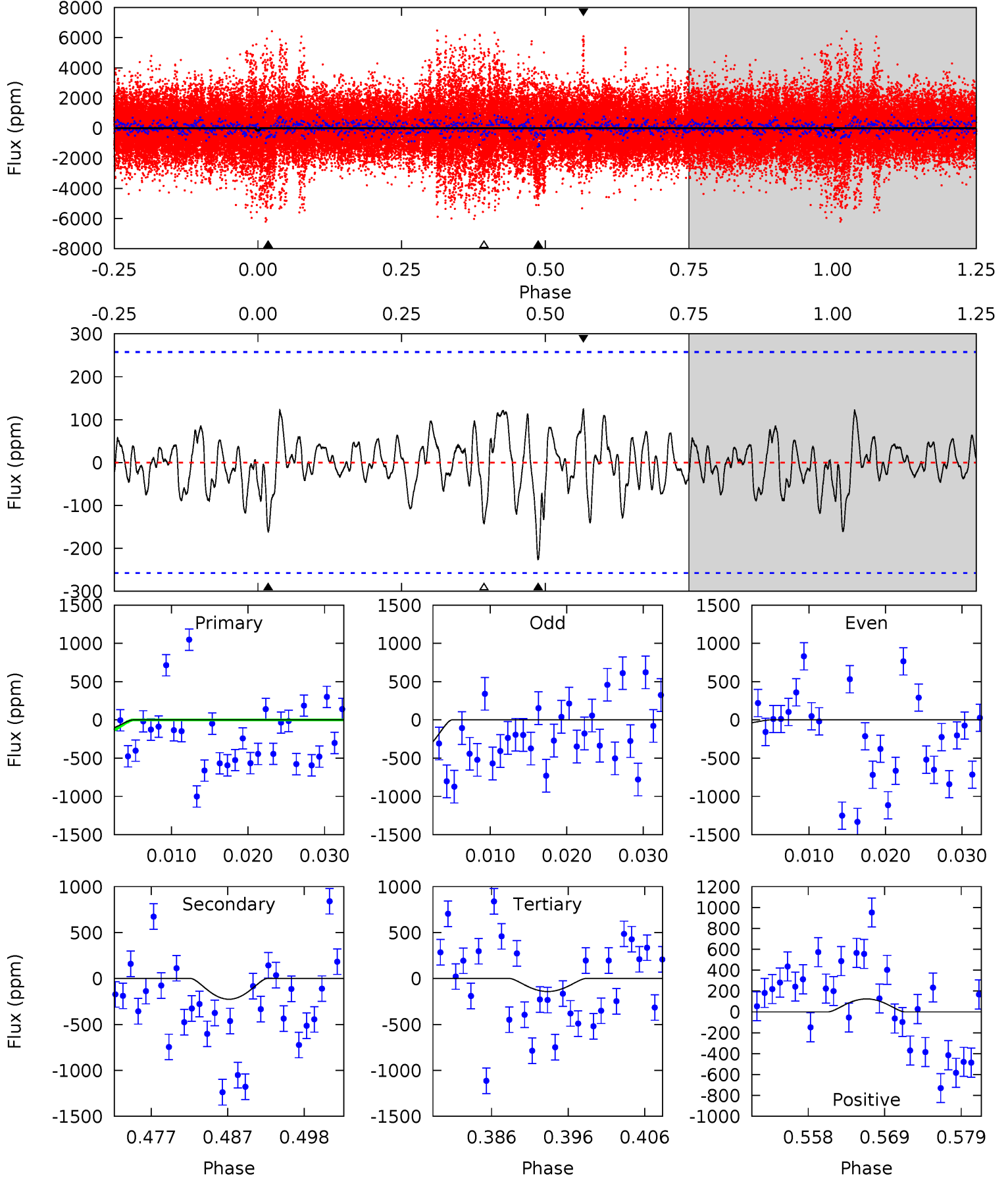
TCE 008569819-04   P=305.763233 Days    $T_0=342.500132$  (BKJD)



# DV Model-Shift Uniqueness Test

008569819-04, P = 305.866925 Days, E = 36.528323 Days

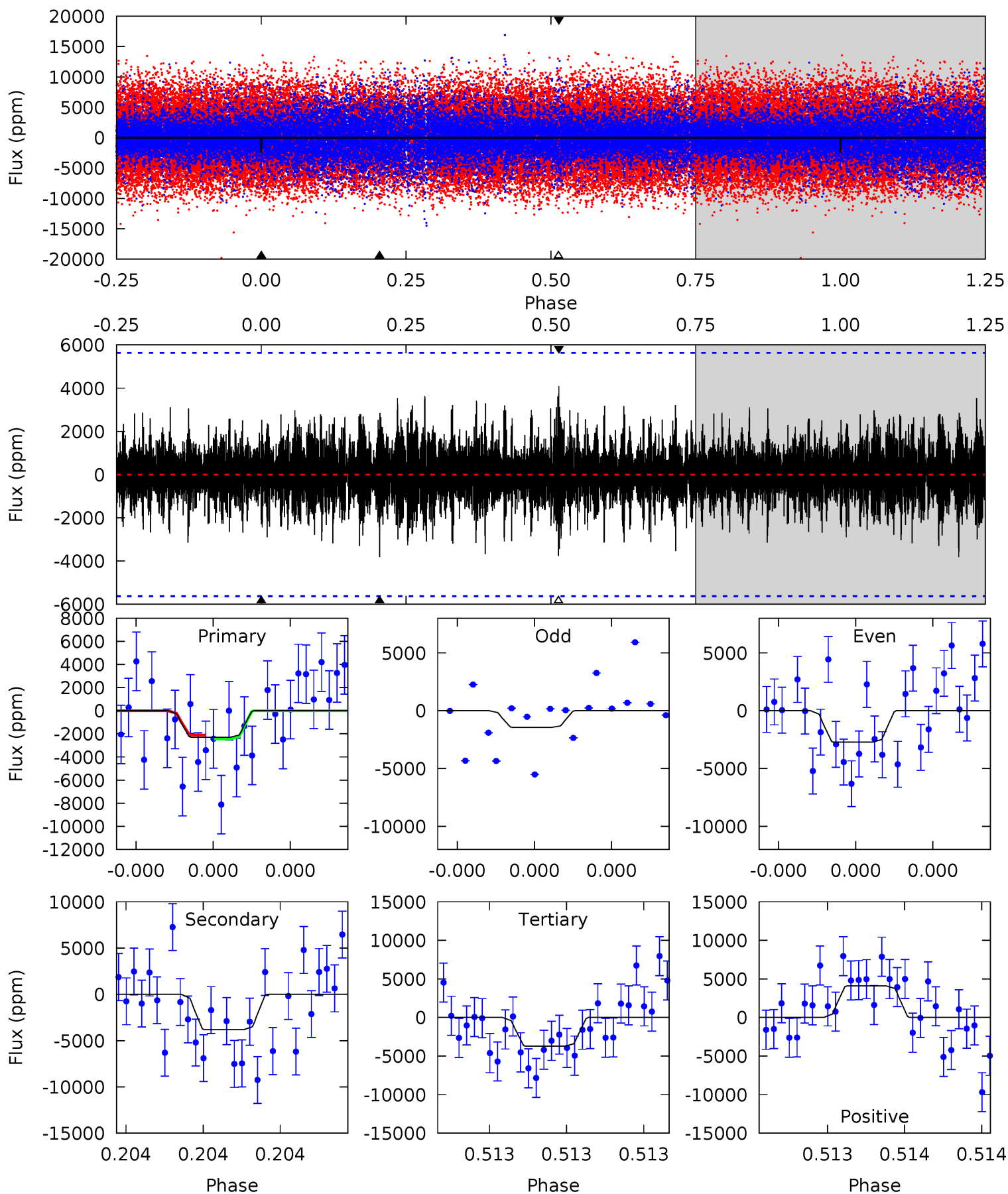
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.14	4.41	2.77	2.43	5.02	2.57	1.01	0.38	0.72	1.64	1.98	3.57	0.58	0.36	0.62



# Alt Model-Shift Uniqueness Test

008569819-04, P = 305.763233 Days, E = 36.736899 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	3.80	3.71	4.08	5.61	3.53	0.96	-1.43	-1.79	0.09	-0.28	0.61	1.62	0.52	0.16



### Stellar Parameters For KIC 008569819

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7355^{+228}_{-304}$	$4.042^{+0.198}_{-0.162}$	$-0.120^{+0.250}_{-0.350}$	$1.984^{+0.533}_{-0.480}$	$1.581^{+0.211}_{-0.257}$	$0.285^{+0.311}_{-0.130}$
	+3%/-4%	+5%/-4%	+208%/-292%	+27%/-24%	+13%/-16%	+109%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008569819-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-226 \pm 51$	$38.16^{+39.25}_{-26.87}$	$625^{+47}_{-52}$	$2824^{+1282}_{-451}$	$89^{+877}_{-67}$
Alt.	$-3814 \pm 1004$	$36.62^{+36.07}_{-25.45}$	$624^{+47}_{-48}$	$4488^{+3776}_{-948}$	$1573^{+18988}_{-1159}$

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

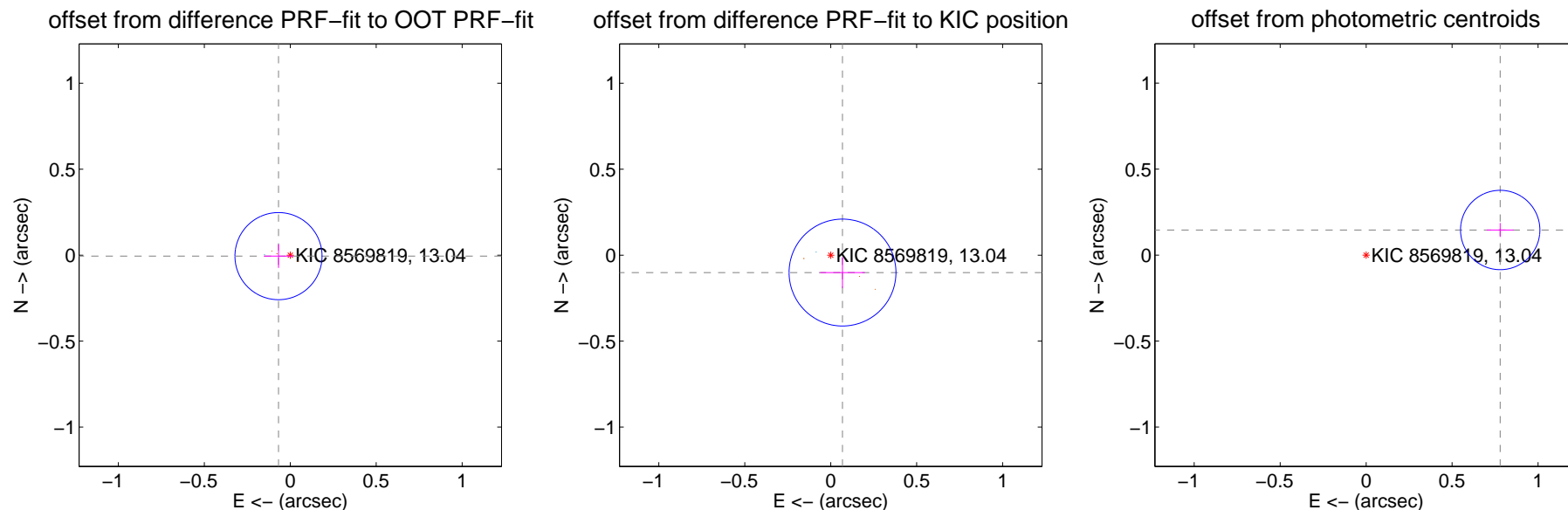
## DV Centroid Data

Supplemental centroid analysis for 008569819-04. Kepler magnitude: 13.04. Transit SNR 18.24

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.069 \pm 0.084$	0.81	$0.068 \pm 0.085$	$-0.006 \pm 0.069$
PRF-fit source offset from KIC position	$0.122 \pm 0.104$	1.18	$-0.069 \pm 0.130$	$-0.101 \pm 0.089$
photometric centroid source offset	$0.79 \pm 0.08$	10.31	$-0.78 \pm 0.08$	$0.15 \pm 0.04$



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



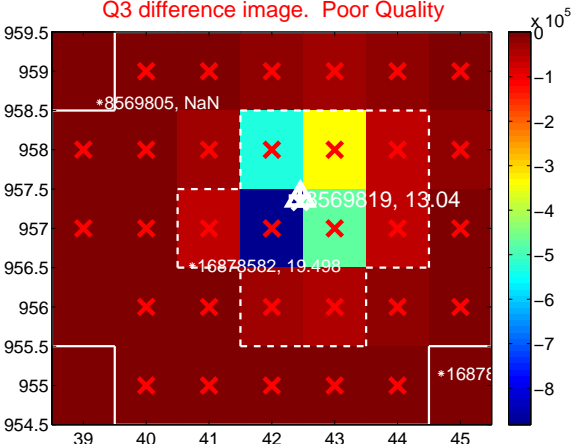
Q2 no difference image



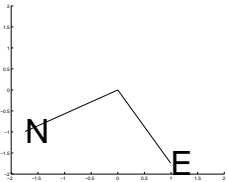
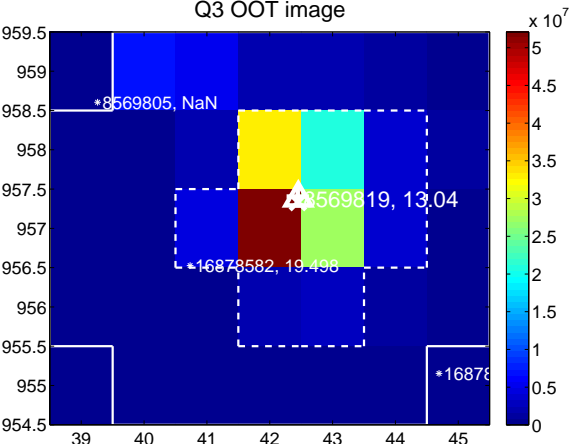
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image

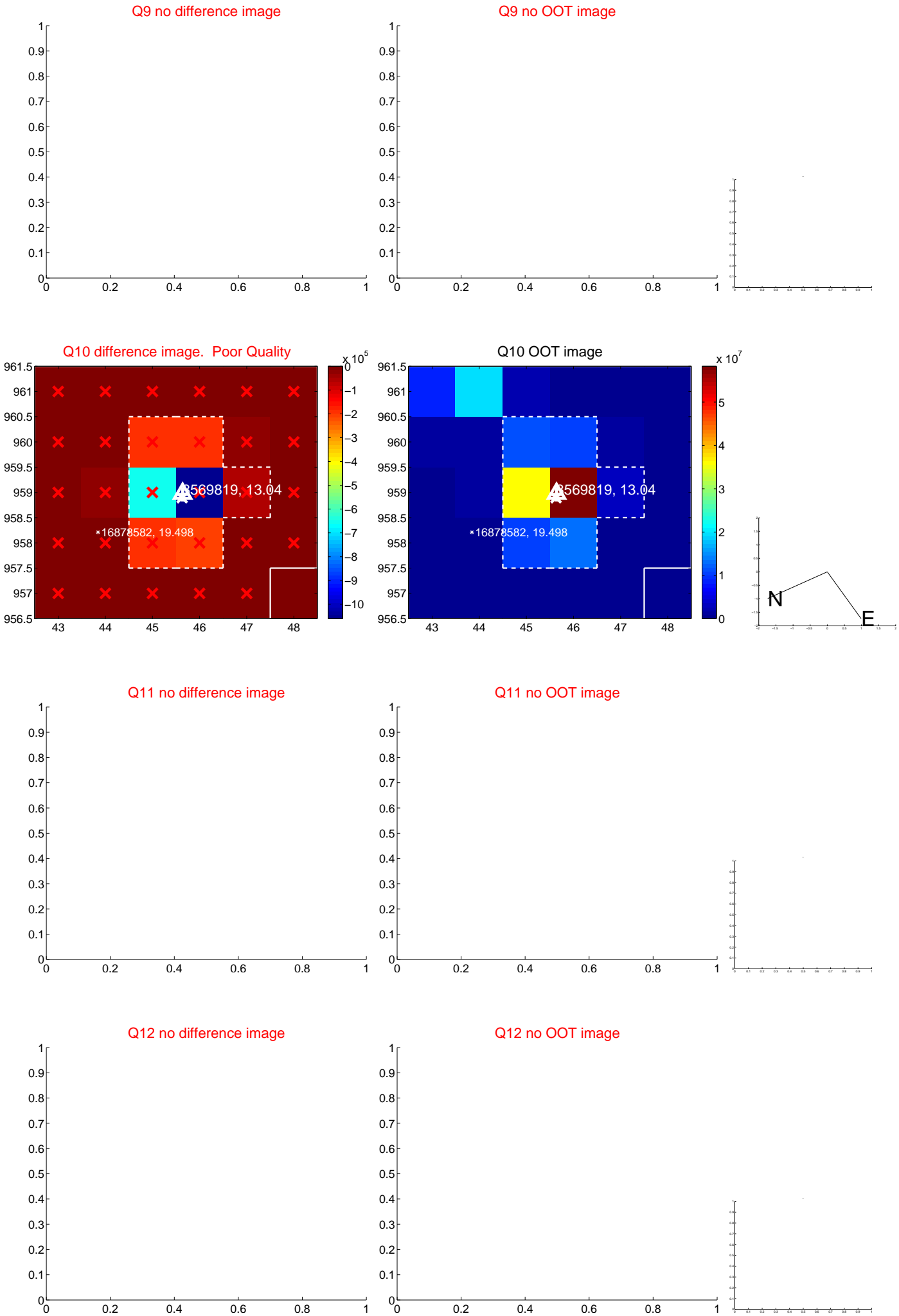


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

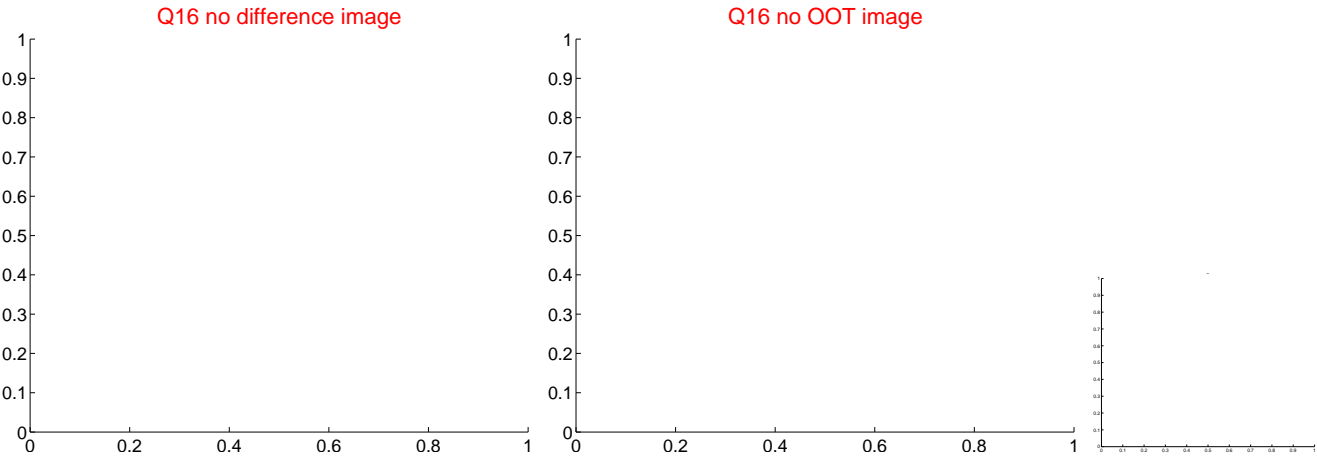
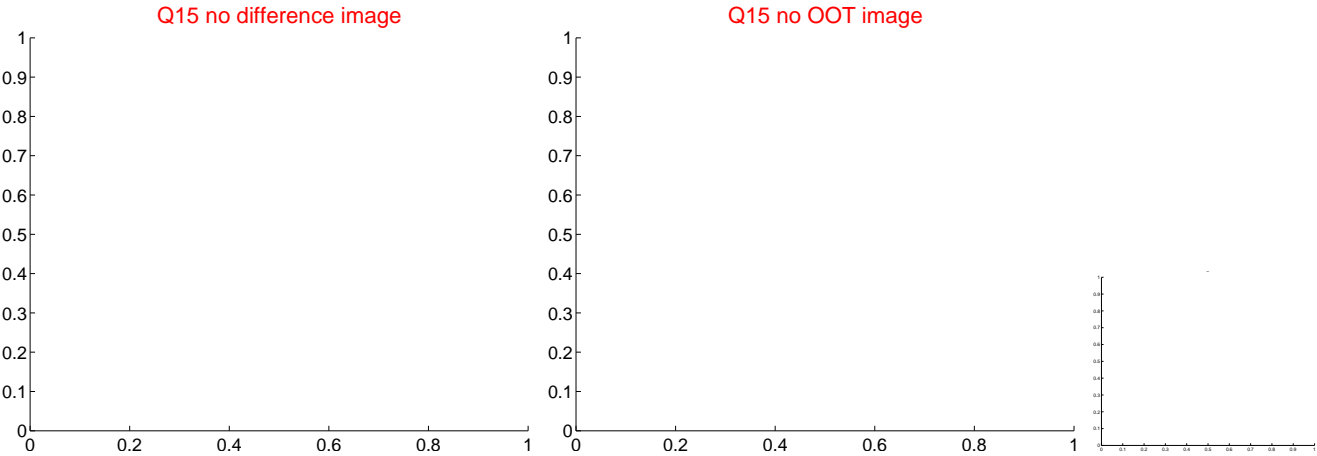
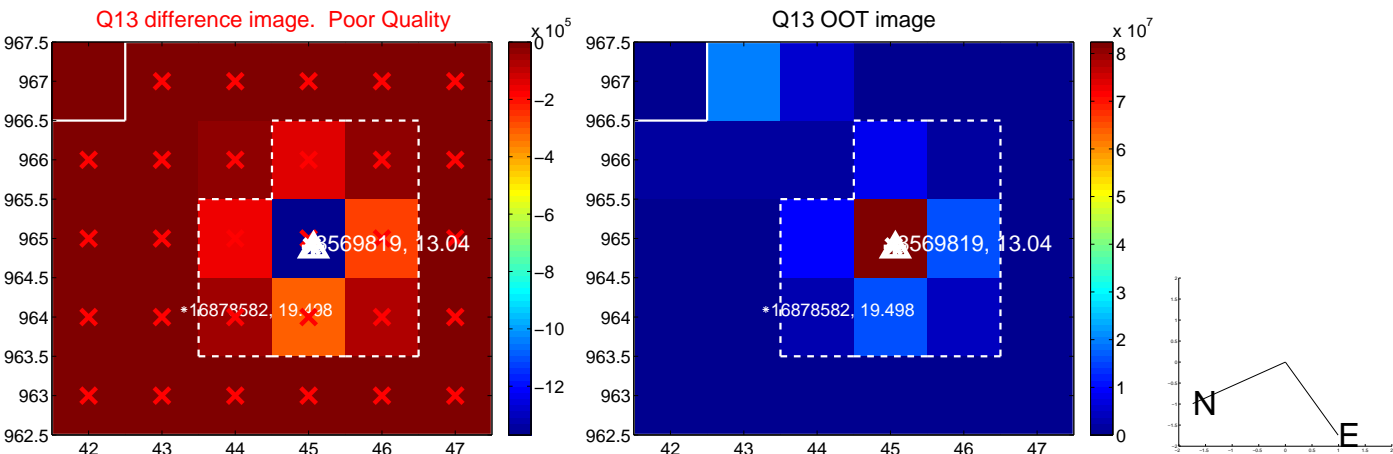




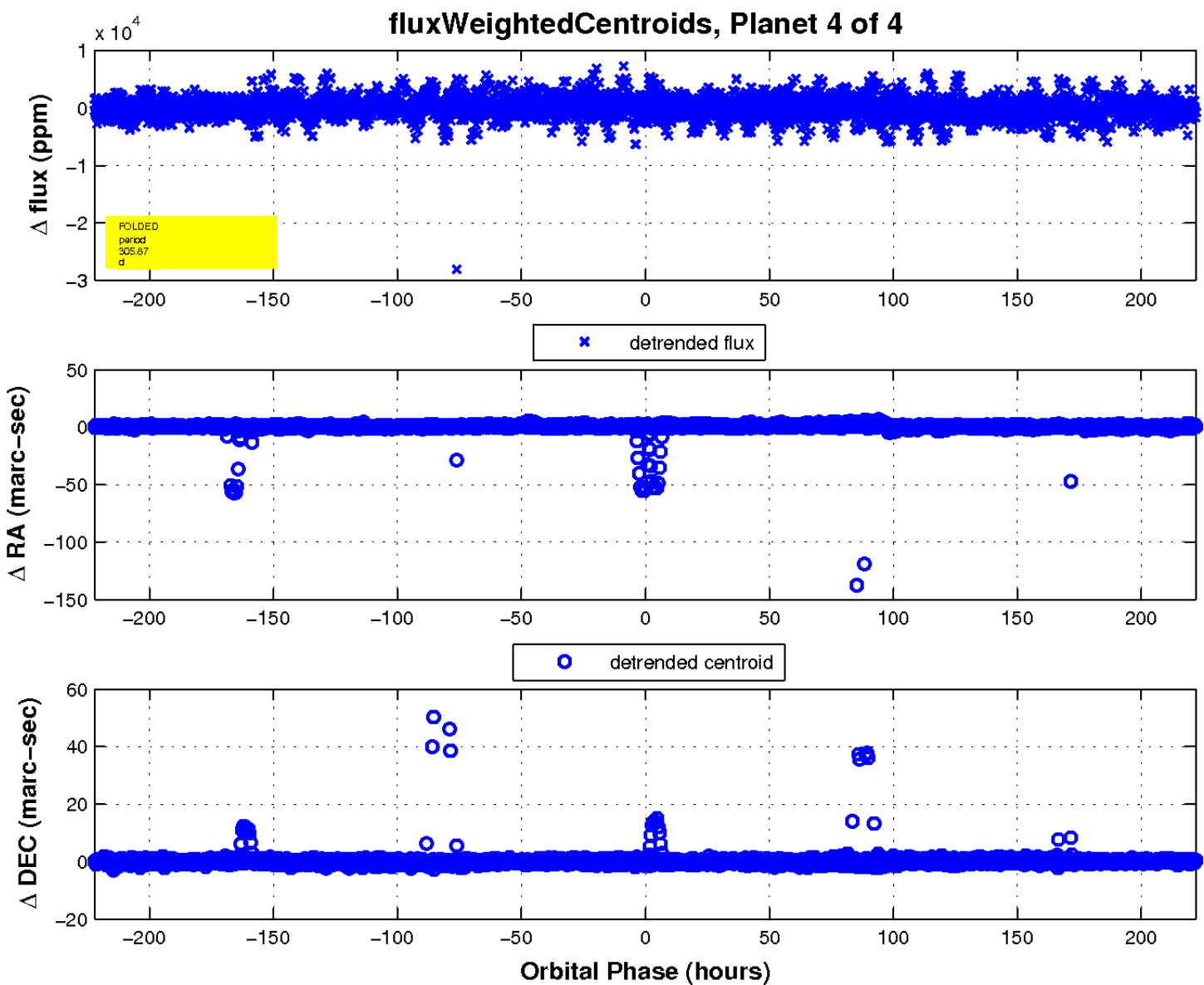
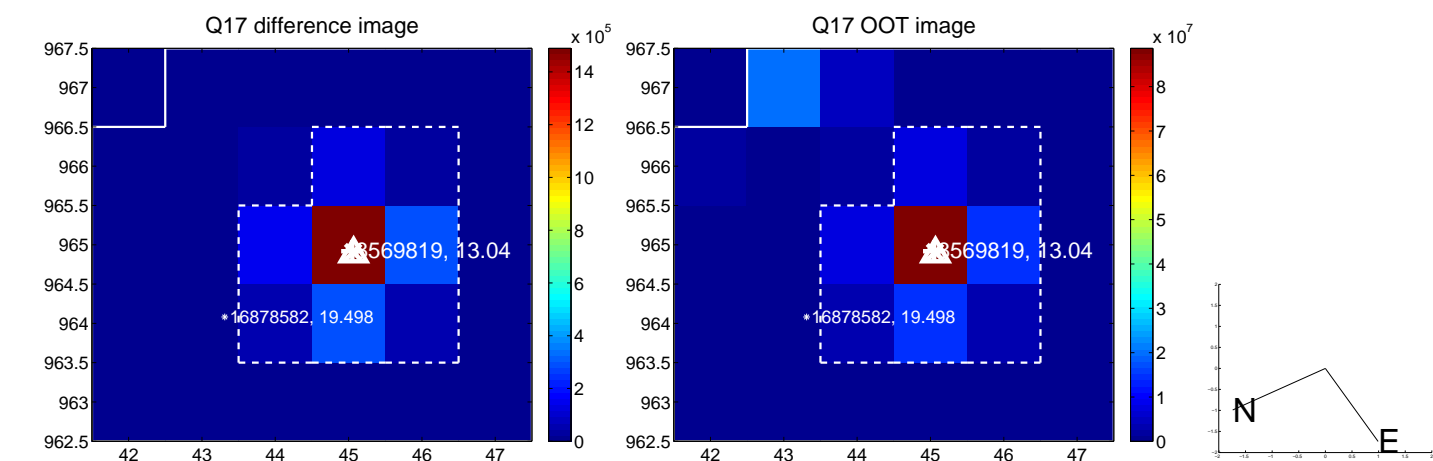
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

