

# KIC 008673358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008673358-01	OBS	No	1.028459	132.360450	67.4	4.524	11.8	2.8	0.27	3373	0.23	52.52
008673358-02	OBS	No	3.085875	132.312180	3242.3	13.300	11.6	14.4	0.27	3373	2.92	12.13
008673358-03	OBS	No	3.086586	134.257028	1176.9	3.000	11.1	-1.0	0.27	3373	0.92	12.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008673358-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008673358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008673358-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

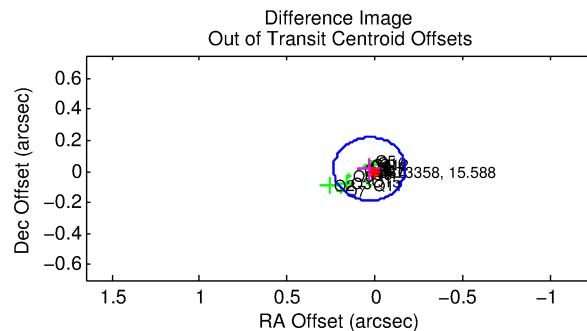
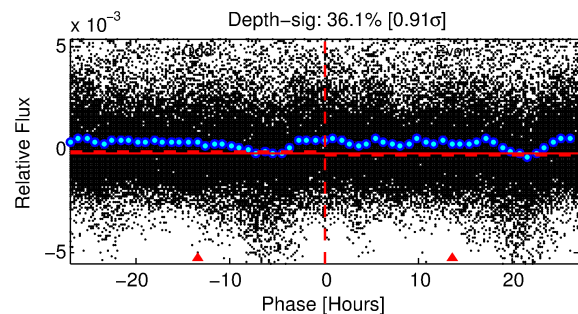
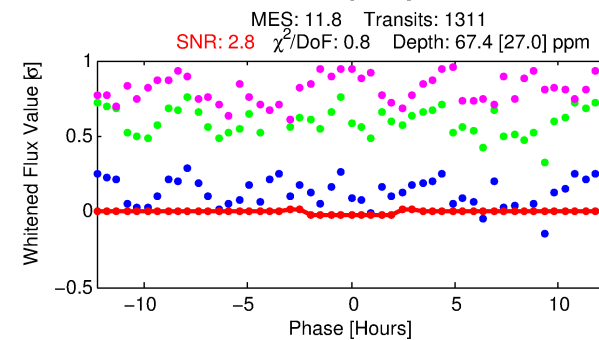
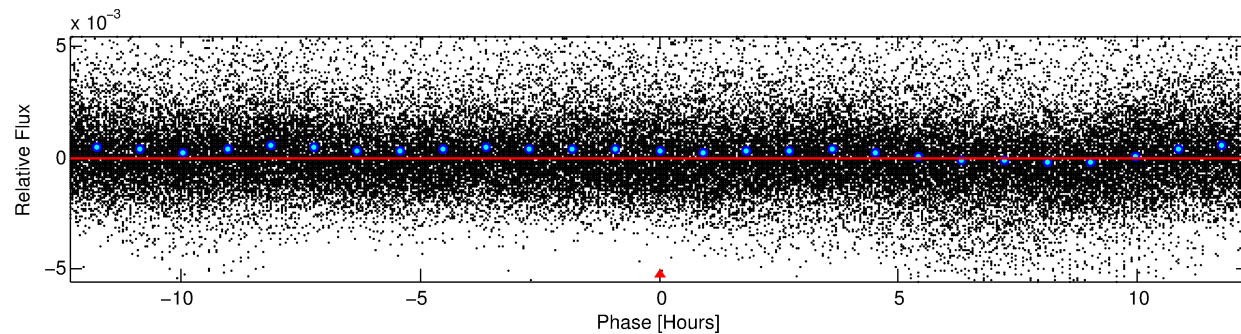
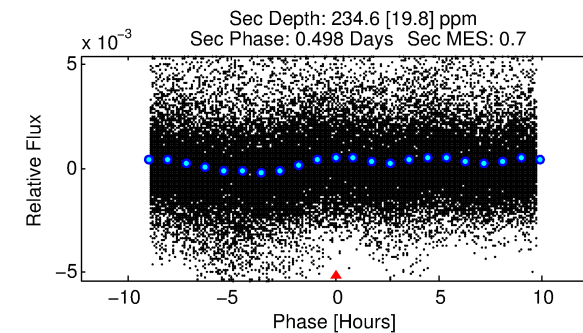
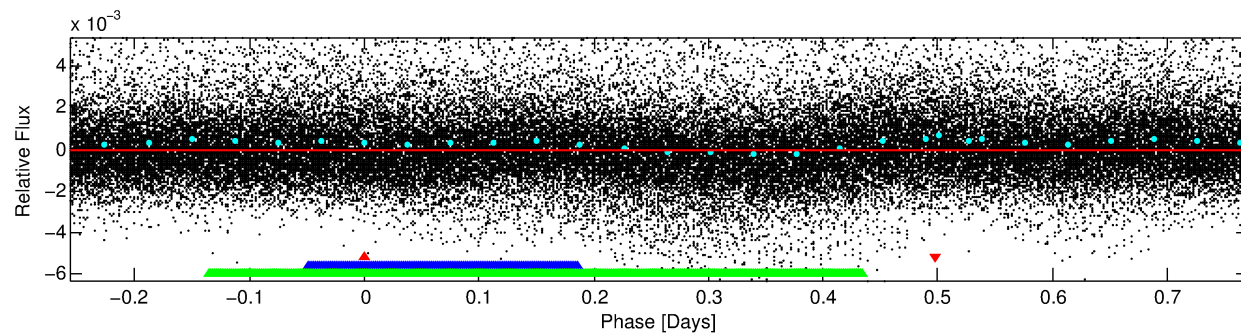
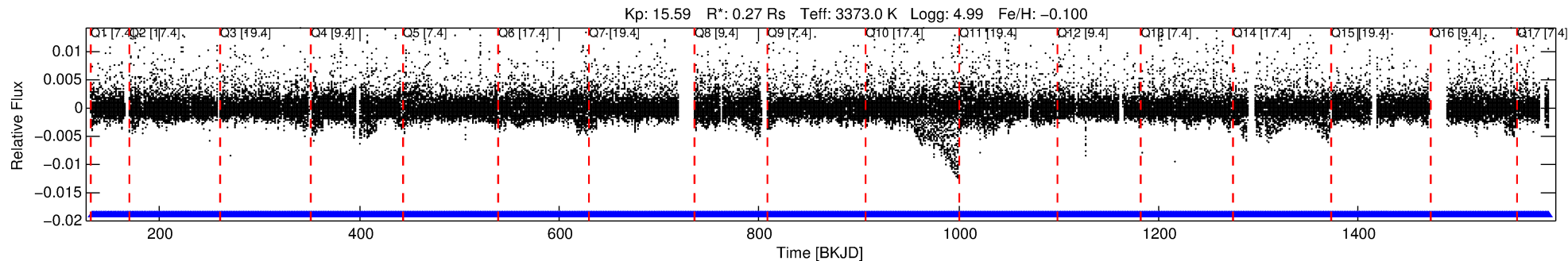
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008673358-01

No Significant Match Found

# DV One-Page Summary

KIC: 8673358 Candidate: 1 of 3 Period: 1.028 d



## DV Fit Results:

Period = 1.02846 [0.00004] d  
Epoch = 132.3604 [0.0082] BKJD  
Rp/R\* = 0.0078 [0.0119]  
a/R\* = 1.59 [6.39]  
b = 0.62 [6.74]  
Seff = 52.52 [9.83]  
Teq = 686 [32] K  
Rp = 0.23 [0.35] Re  
a = 0.0127 [0.0018] AU  
Ag = 389.12 [1182.48] [0.33σ]  
Teff = 4714 [3577] K [1.13σ]

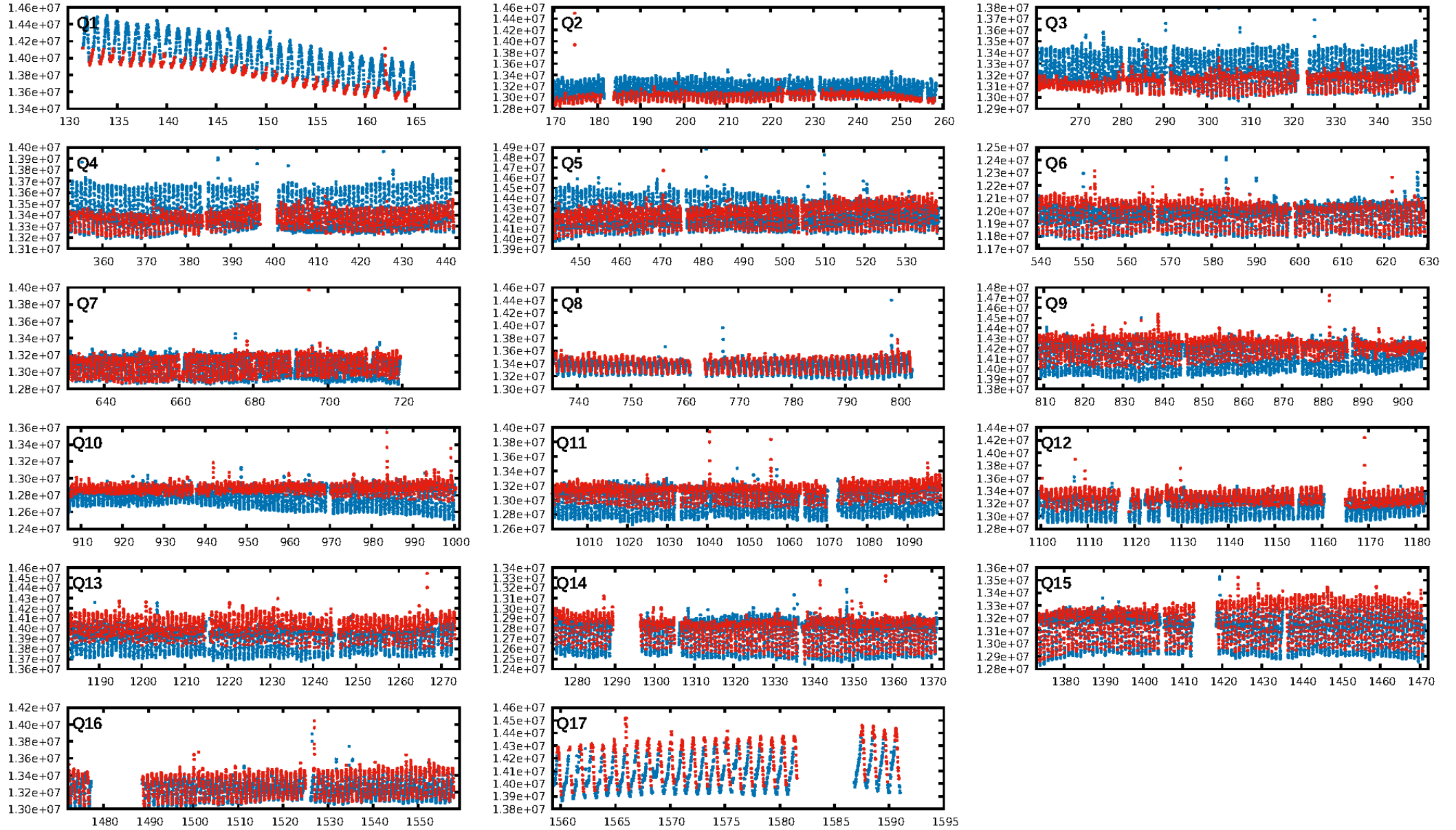
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [3.51σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1253/1253]  
GhostDiagnostic-chr: -3.076  
Centroid-sig: 16.4%  
Centroid-so: 1.543 arcsec [1.10σ]  
OotOffset-rm: 0.037 arcsec [0.55σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.176 arcsec [2.58σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.12 [2/17]  
DiffImageOverlap-fno: 1.00 [17/17]

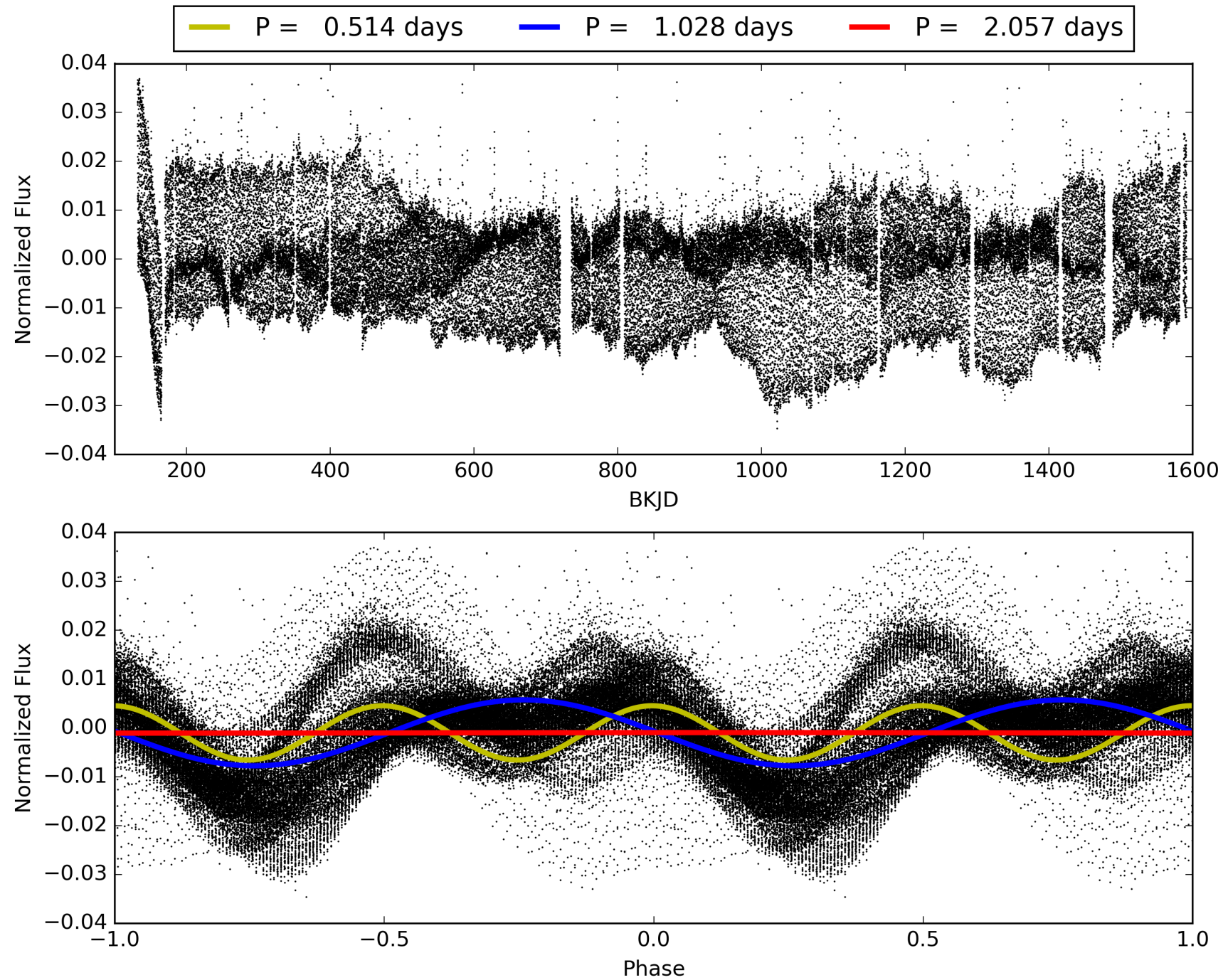
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:05:12 Z

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

# TCE 008673358-01, PDC Light Curves



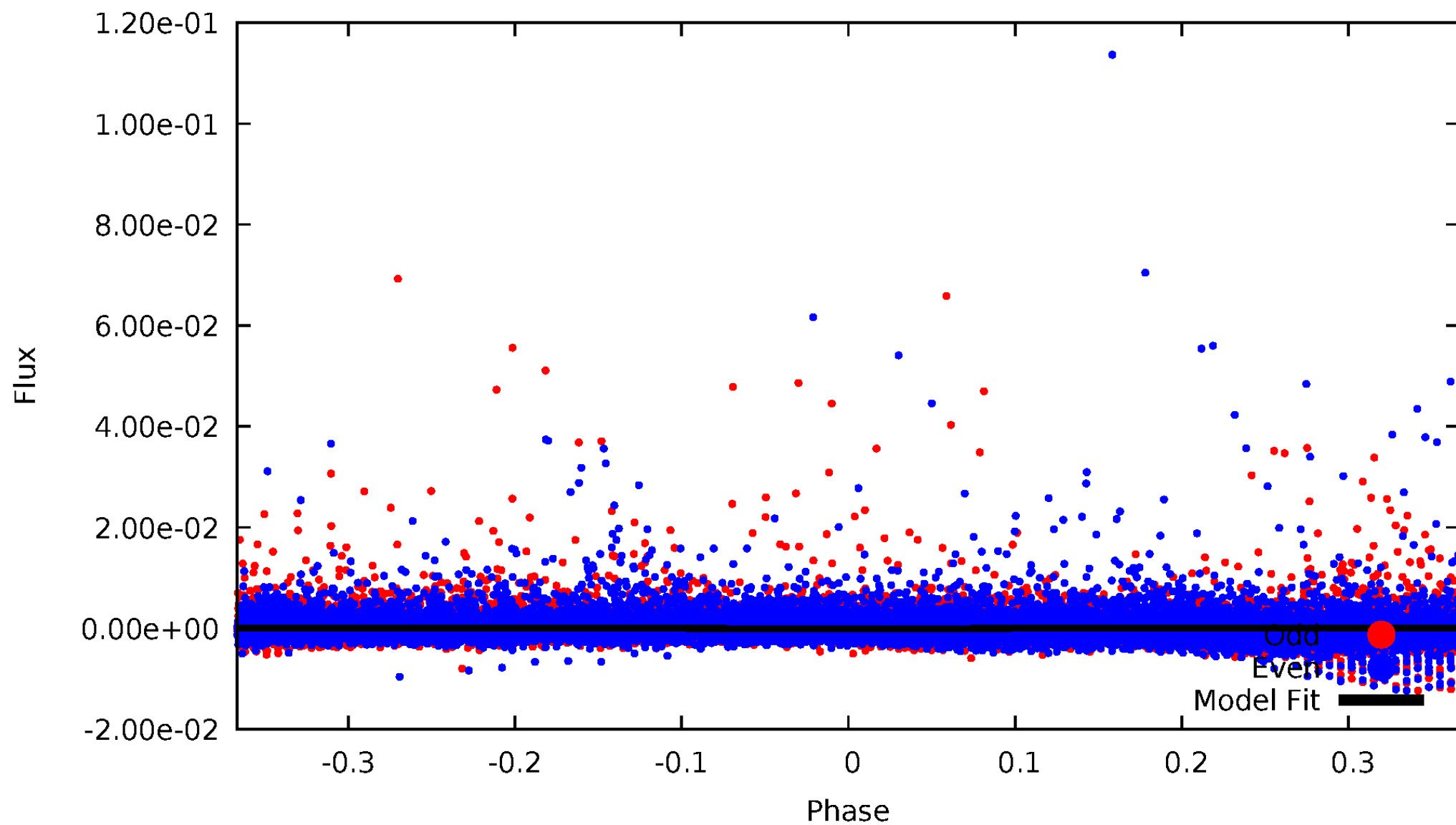
TCE 008673358-01





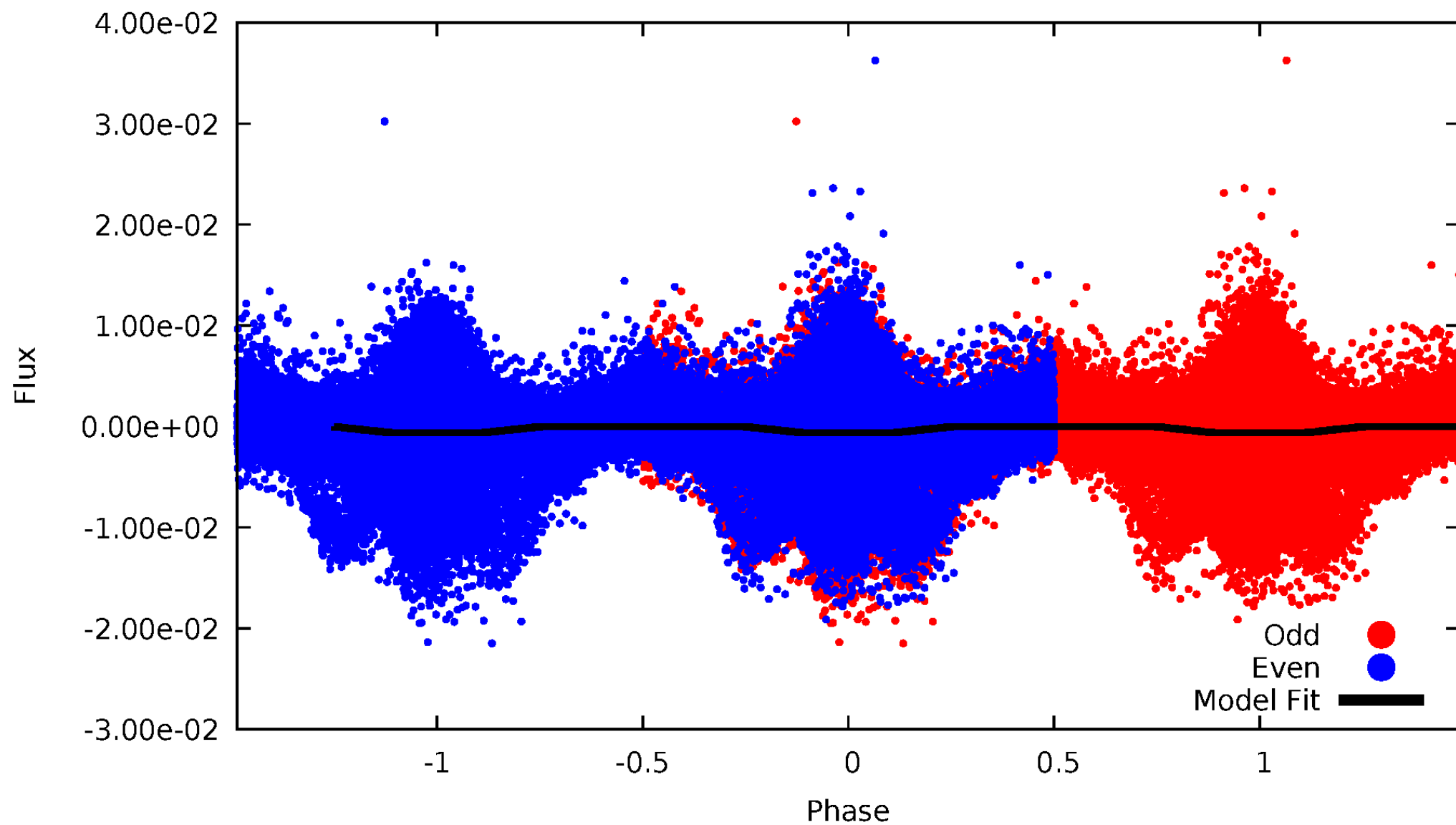
# DV Odd/Even

TCE 008673358-01



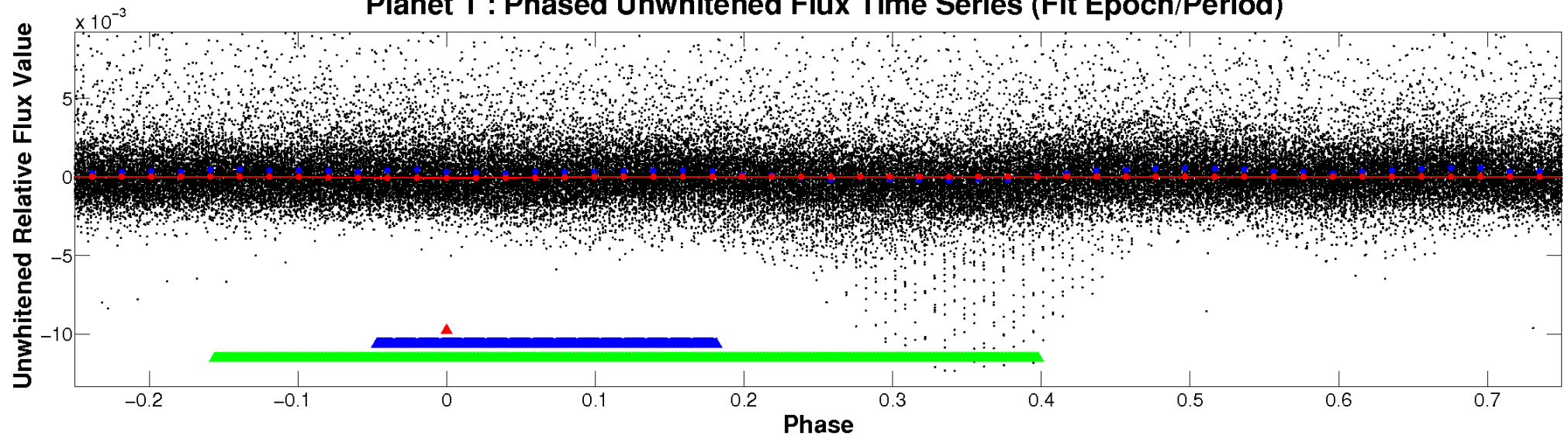
# ALT Odd/Even

TCE 008673358-01

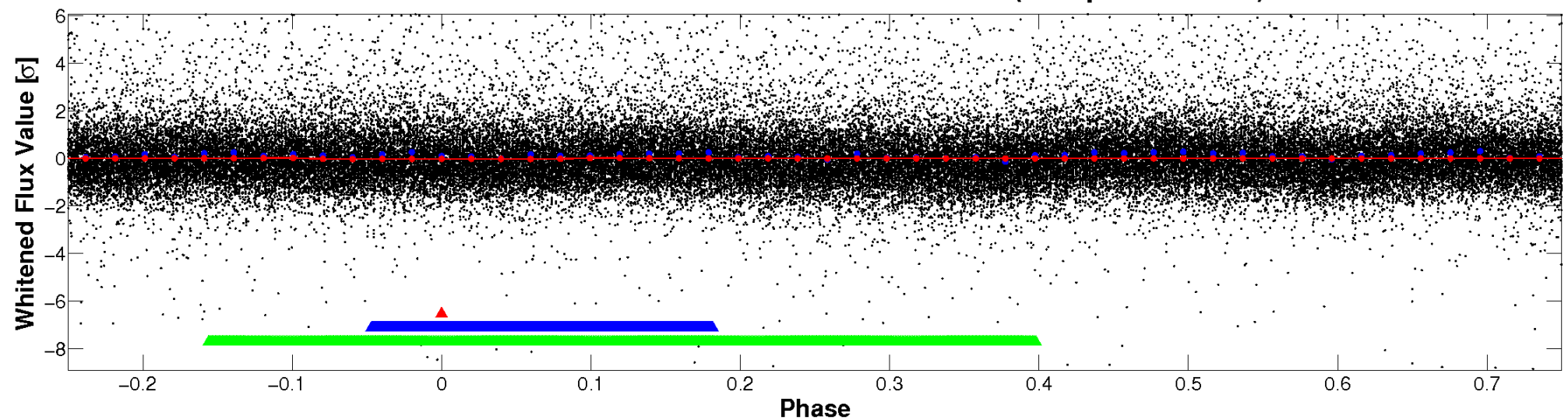


# Non-Whitened Vs. Whitened Light Curve

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

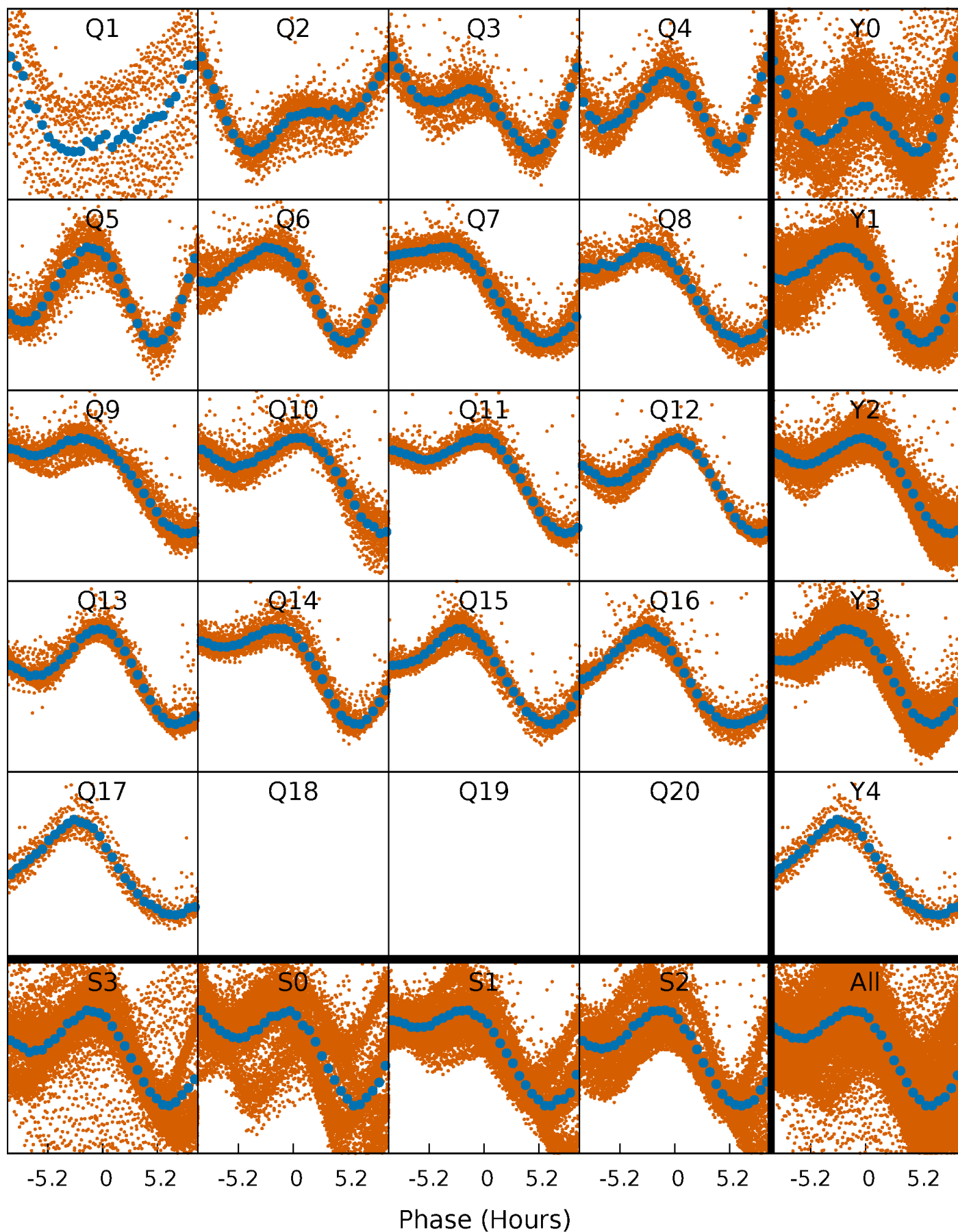


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

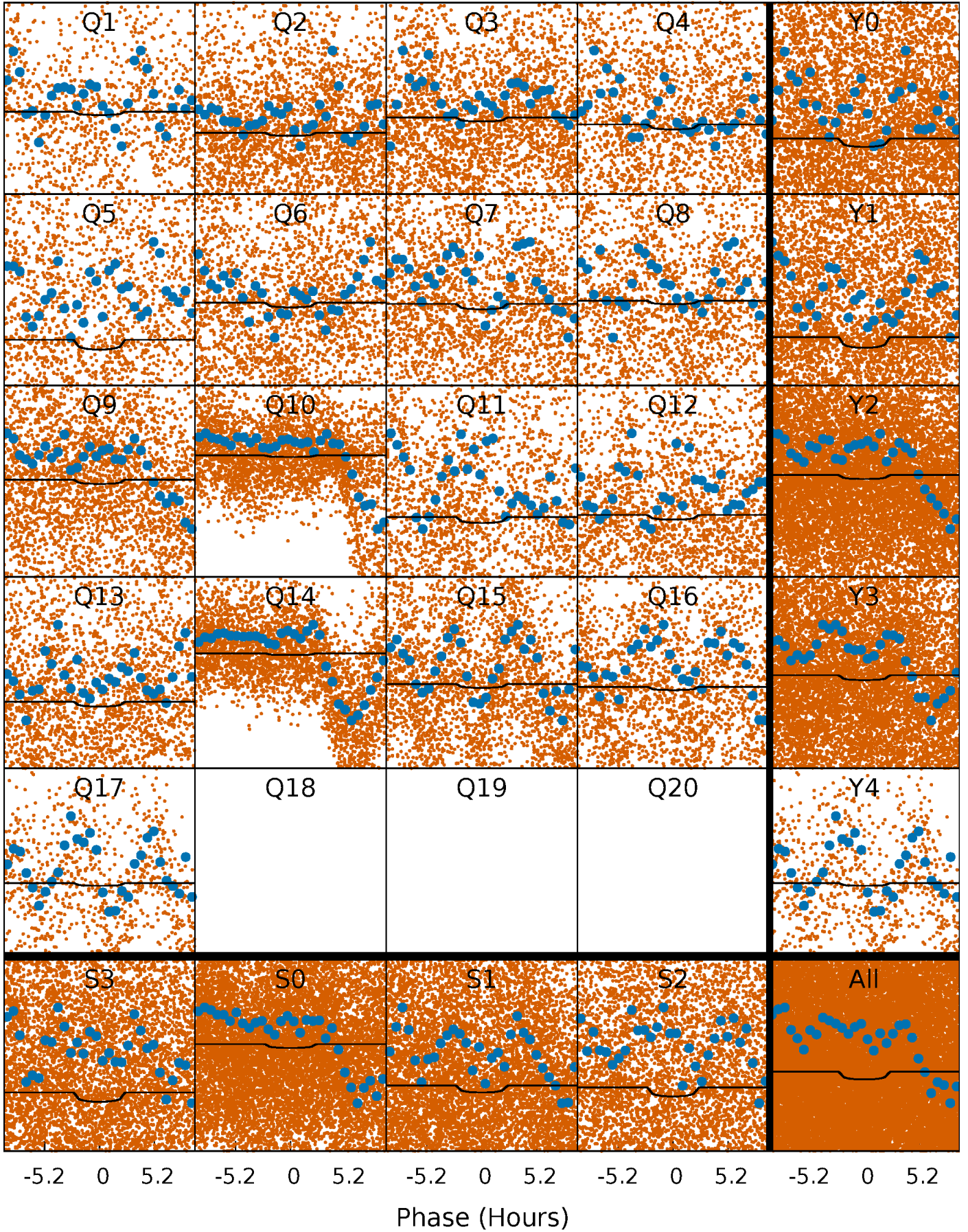
TCE 008673358-01   P= 1.028459 Days    $T_0=132.360450$  (BKJD)





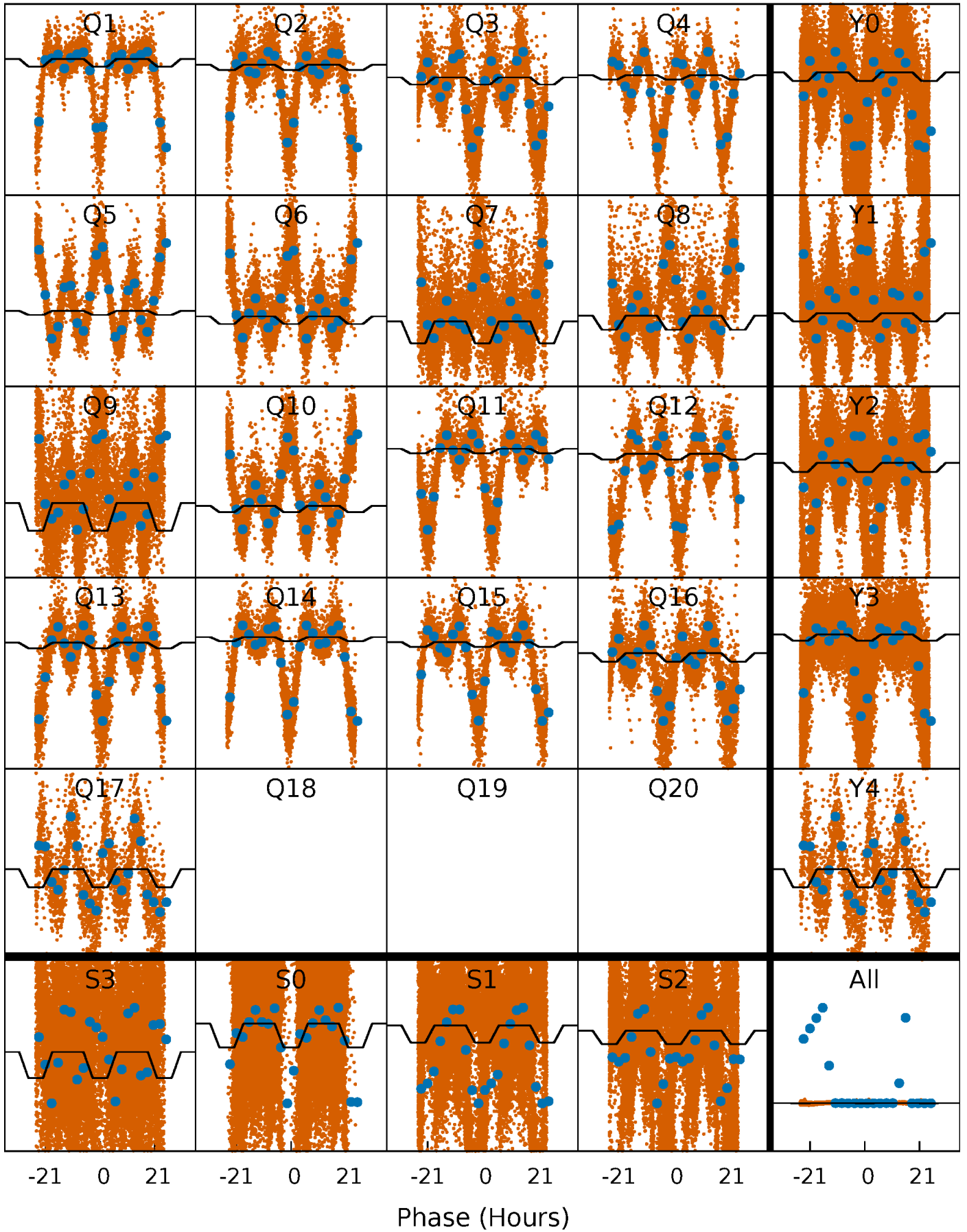
# DV Quarter-Phased Transit Curves

TCE 008673358-01 P= 1.028459 Days  $T_0=132.360450$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

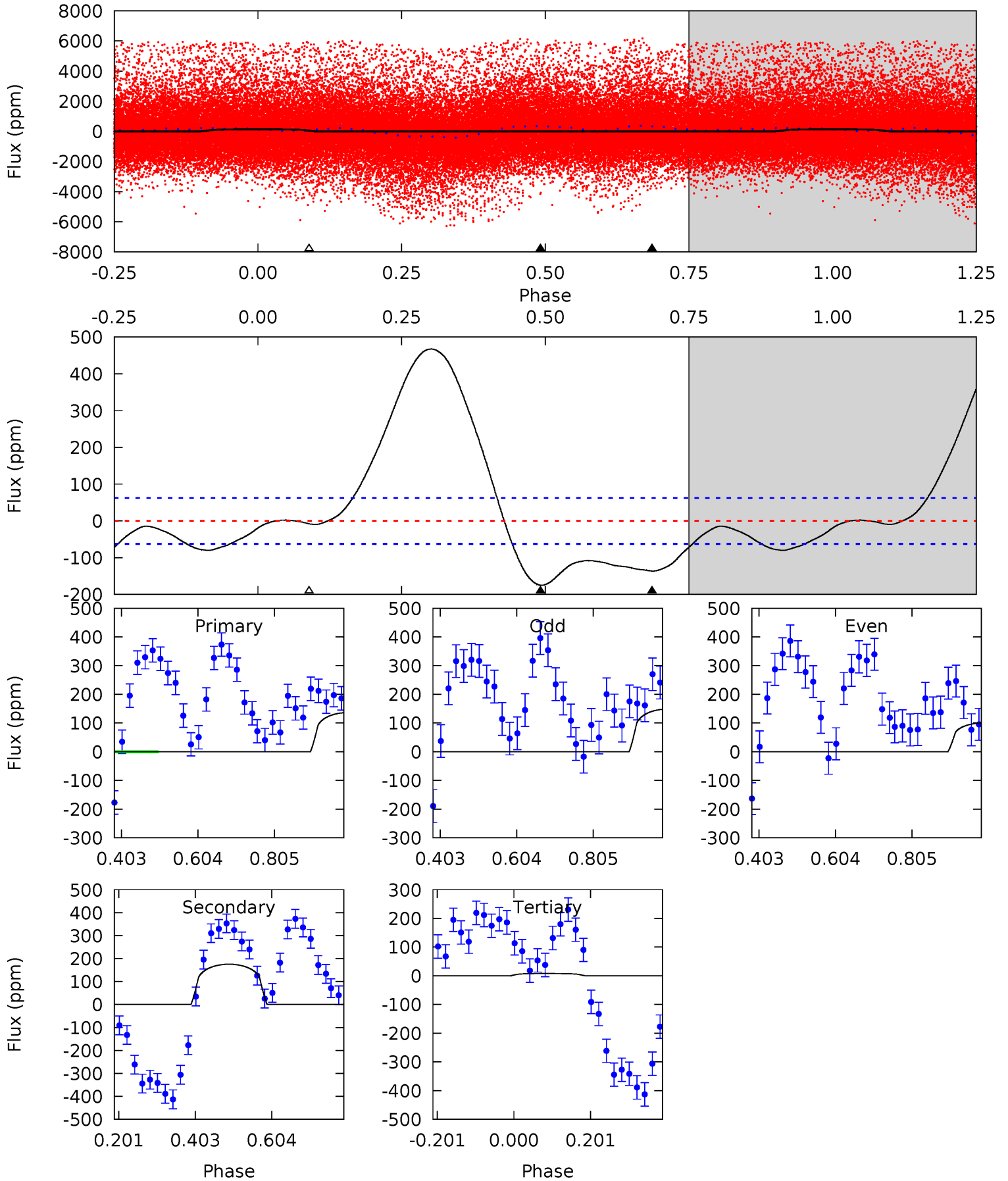
TCE 008673358-01   P= 1.028860 Days    $T_0=132.167570$  (BKJD)



# DV Model-Shift Uniqueness Test

008673358-01, P = 1.028459 Days, E = 131.331991 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
9.65	12.4	0.56	0	4.42	1.28	11.0	9.09	9.65	11.8	12.4	1.70	6.92	0.73	4.04

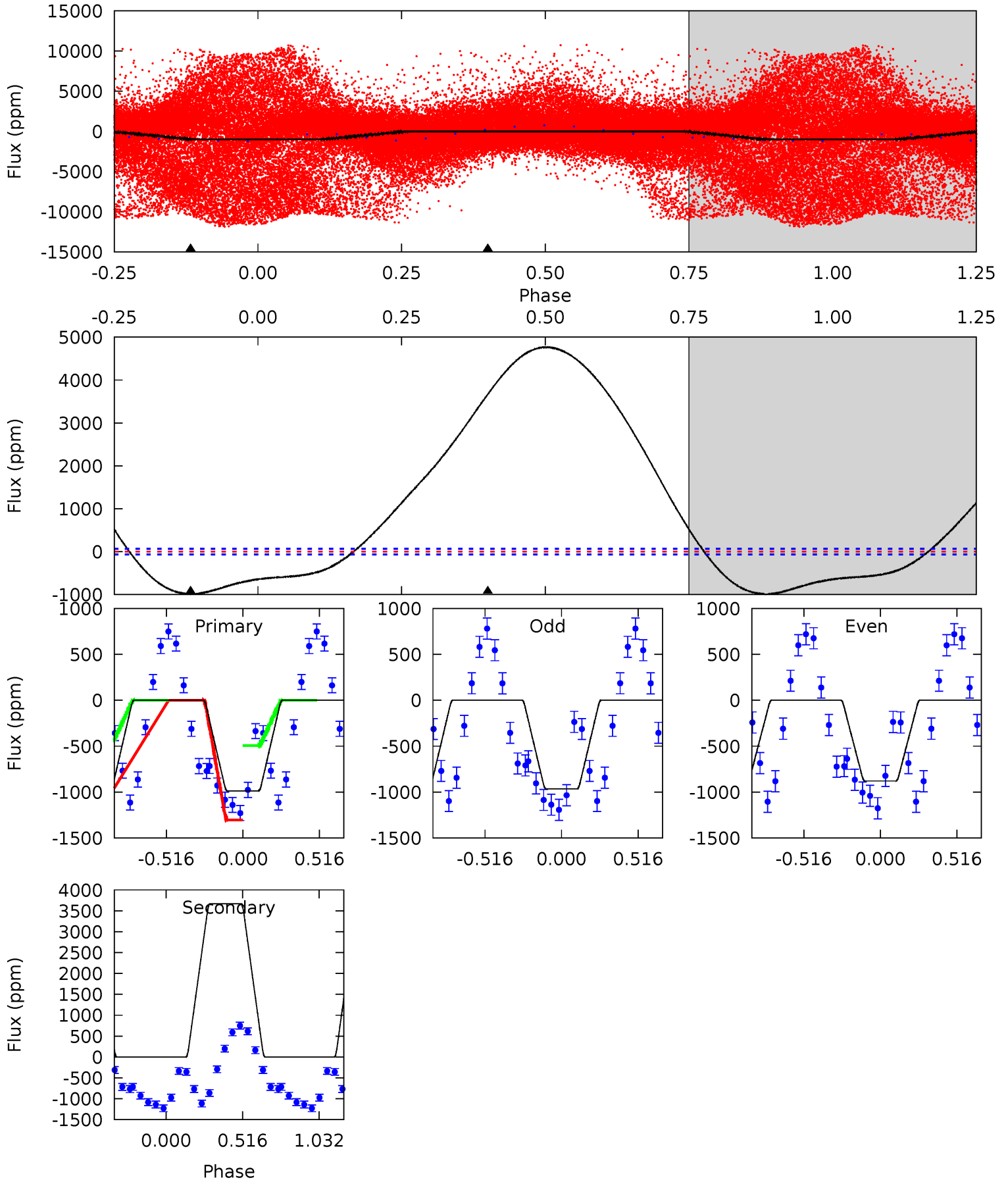




# Alt Model-Shift Uniqueness Test

008673358-01, P = 1.028860 Days, E = 131.138710 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
64.3	-239.1	0	0	4.21	0.65	94.7	64.3	64.3	-239.1	-239.1	2.80	0.78	0.83	21.9



### Stellar Parameters For KIC 008673358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3373^{+67}_{-67}$	$4.986^{+0.066}_{-0.060}$	$-0.100^{+0.100}_{-0.100}$	$0.270^{+0.055}_{-0.045}$	$0.257^{+0.066}_{-0.048}$	$18.460^{+7.091}_{-5.137}$
	+2%/-2%	+1%/-1%	+100%/-100%	+20%/-17%	+26%/-19%	+38%/-28%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008673358-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-175 \pm 14$	$0.36^{+0.34}_{-0.22}$	$960^{+34}_{-35}$	$3463^{+1420}_{-584}$	$120^{+680}_{-88}$
Alt.	$3669 \pm 15$	$0.73^{+0.35}_{-0.35}$	$958^{+35}_{-35}$	$-4631^{+631}_{-1544}$	$-608.681^{+320.986}_{-1691.960}$

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



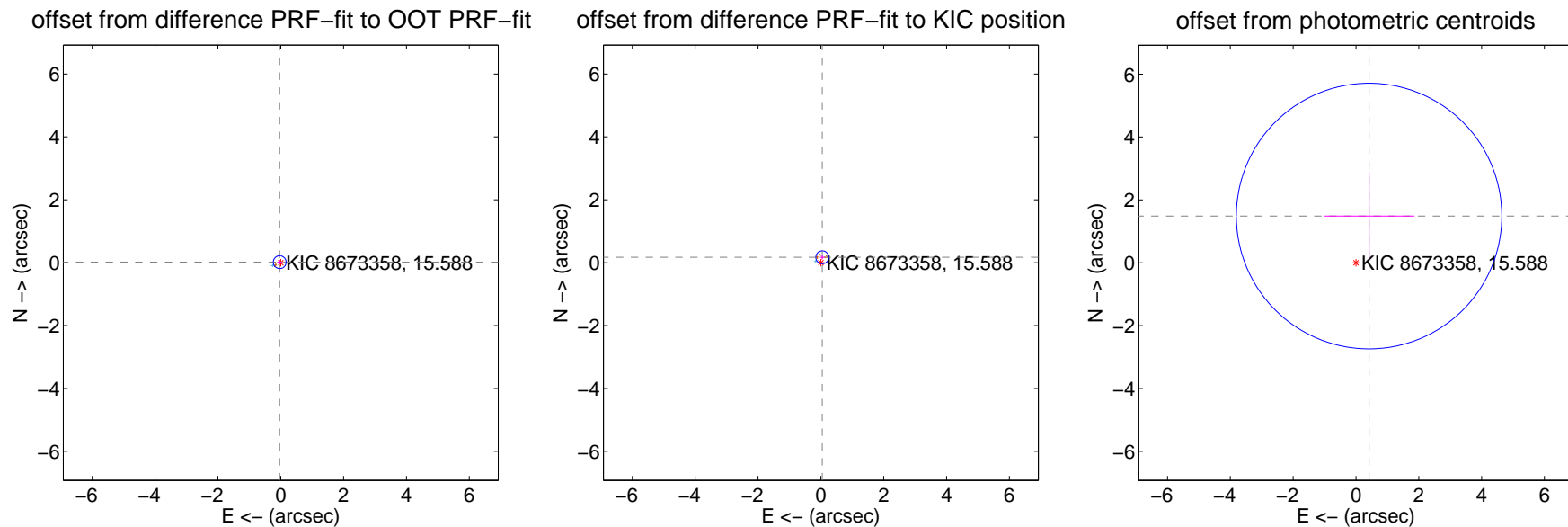
## DV Centroid Data

Supplemental centroid analysis for 008673358-01. Kepler magnitude: 15.59. Transit SNR 2.82

There are 2 quarters with good PRF difference image offsets

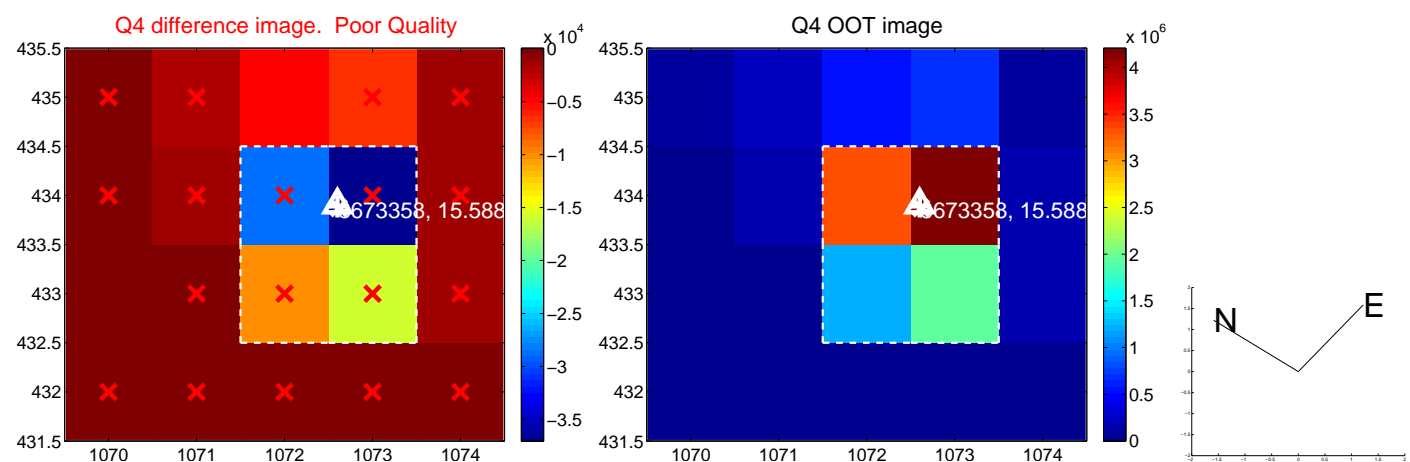
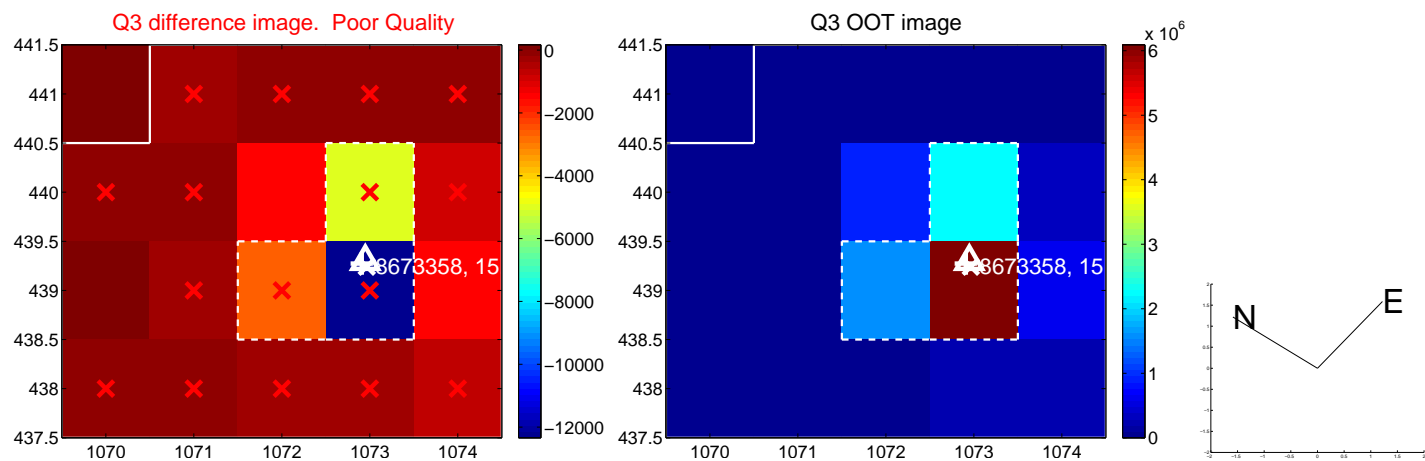
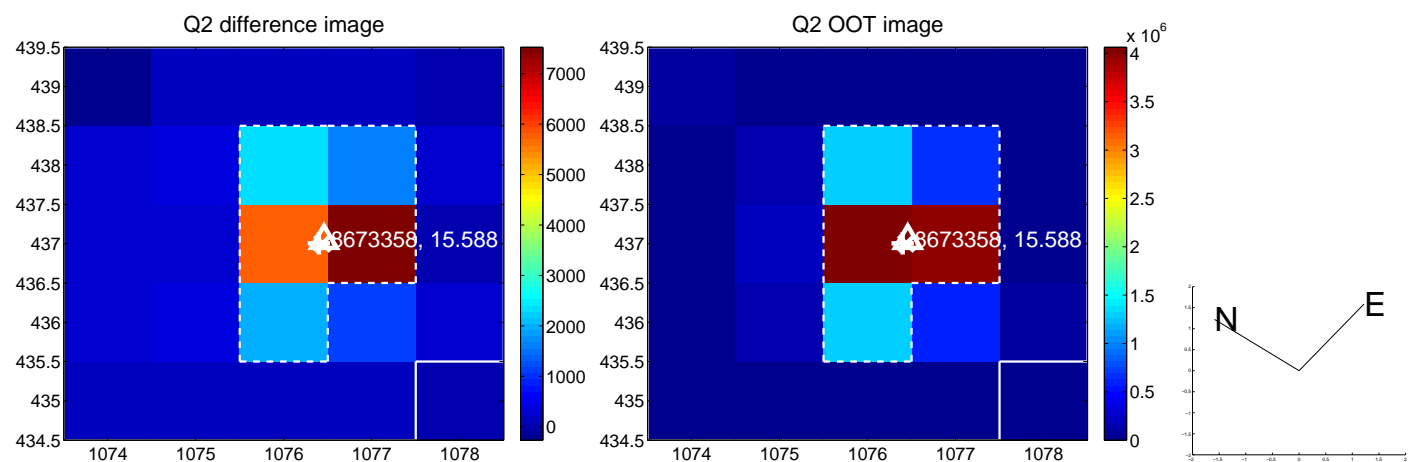
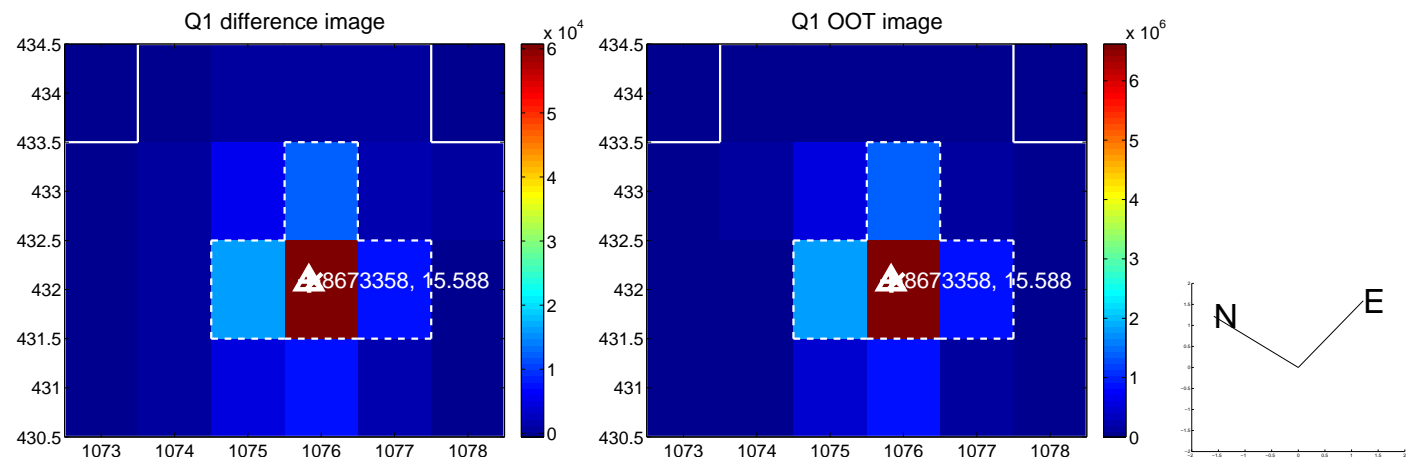
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.037 \pm 0.068$	0.55	$0.033 \pm 0.069$	$0.017 \pm 0.068$
PRF-fit source offset from KIC position	$0.176 \pm 0.068$	2.58	$-0.046 \pm 0.072$	$0.170 \pm 0.068$
photometric centroid source offset	$1.54 \pm 1.41$	1.10	$-0.42 \pm 1.45$	$1.49 \pm 1.41$

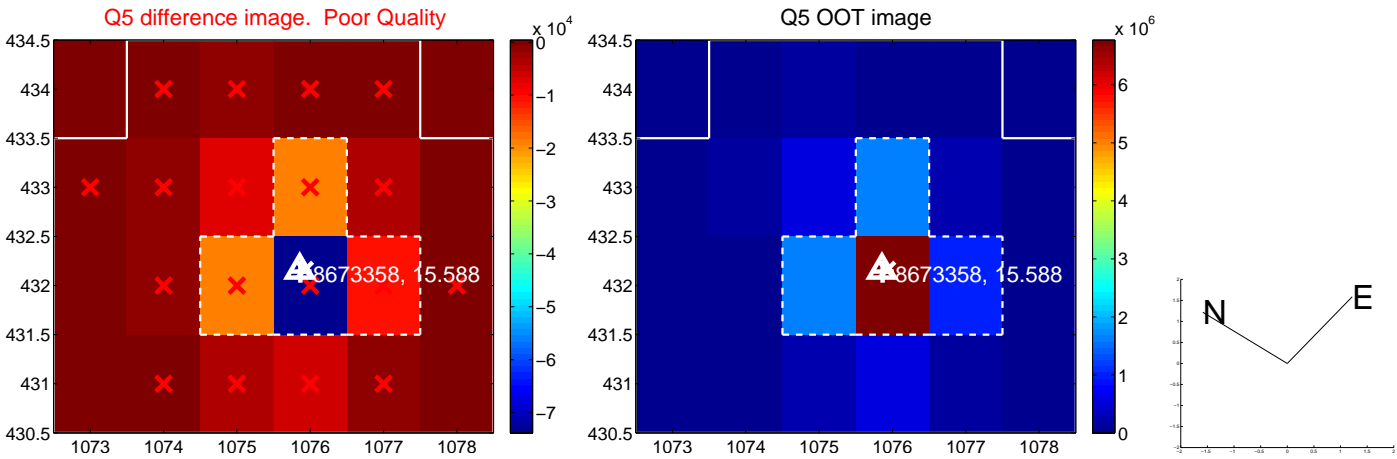


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

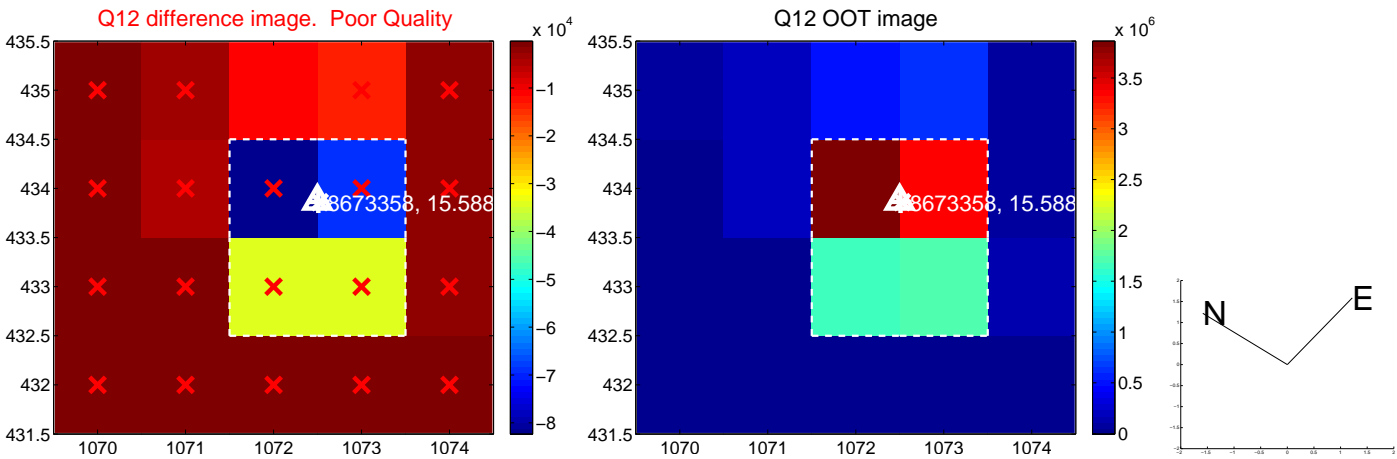
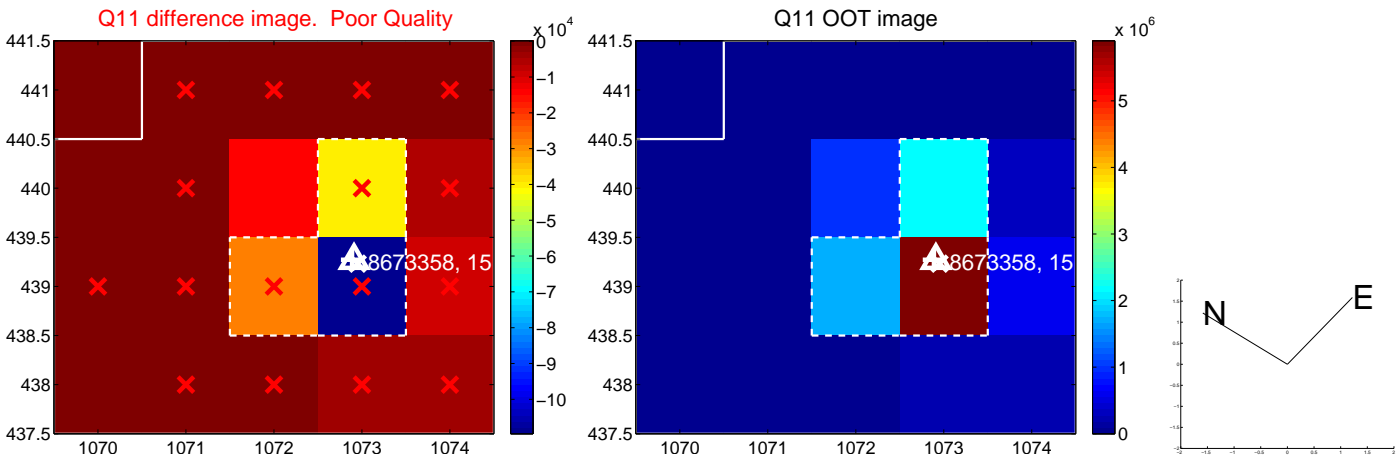
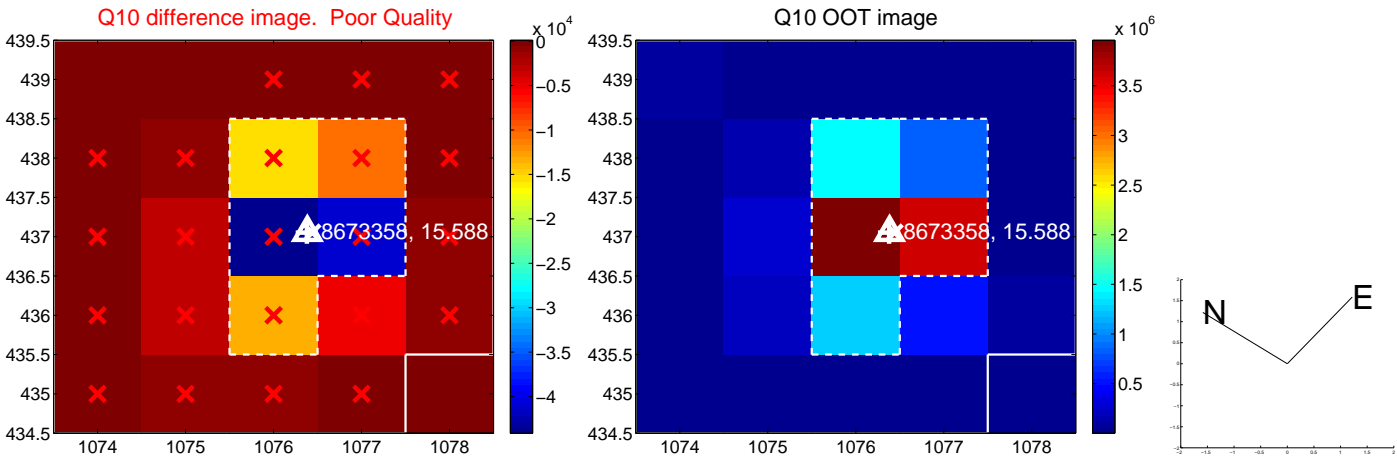
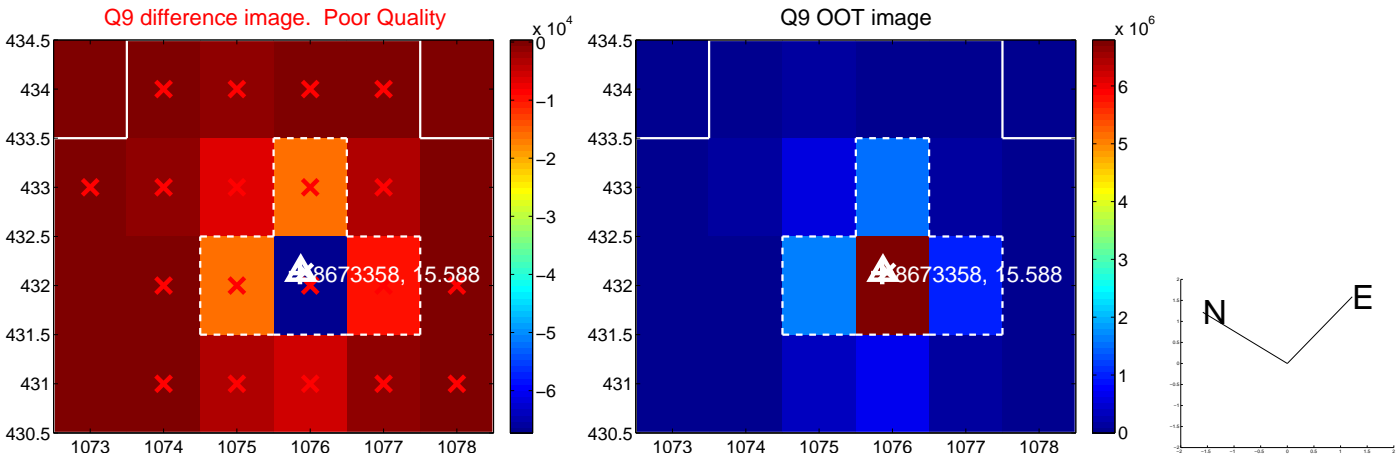
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



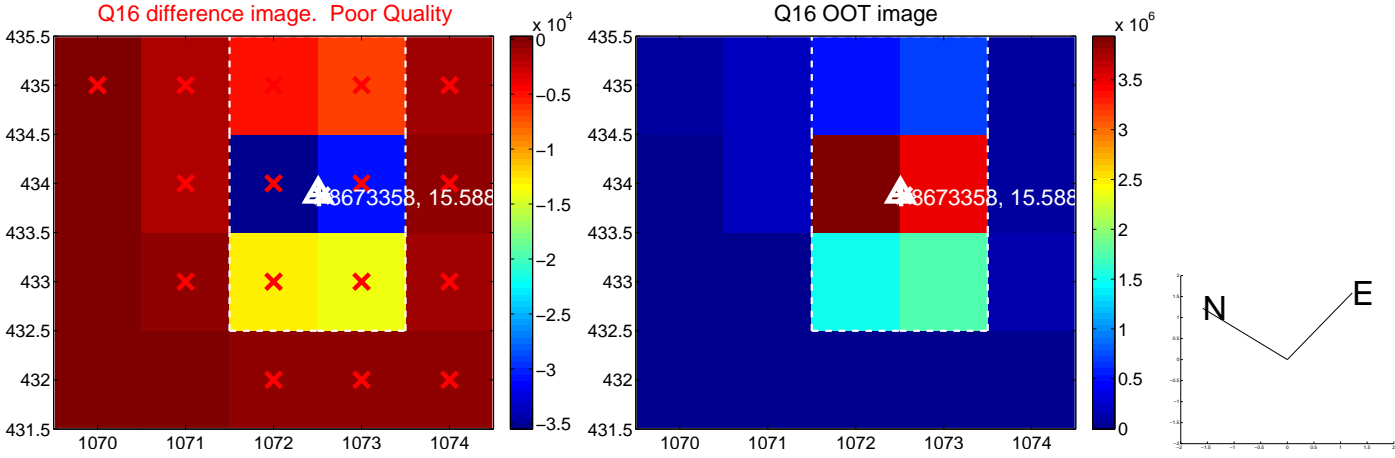
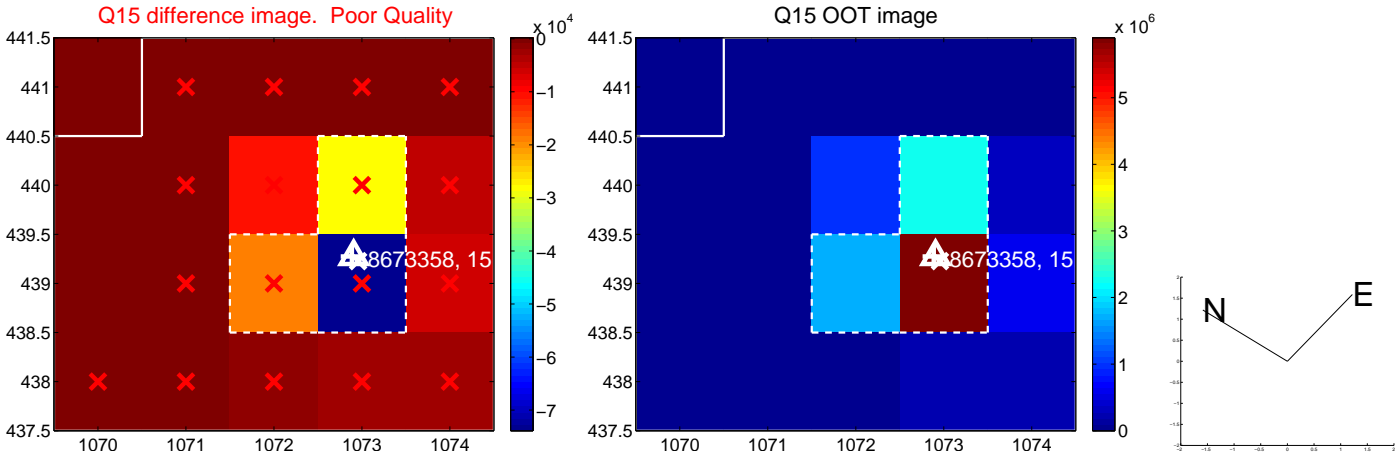
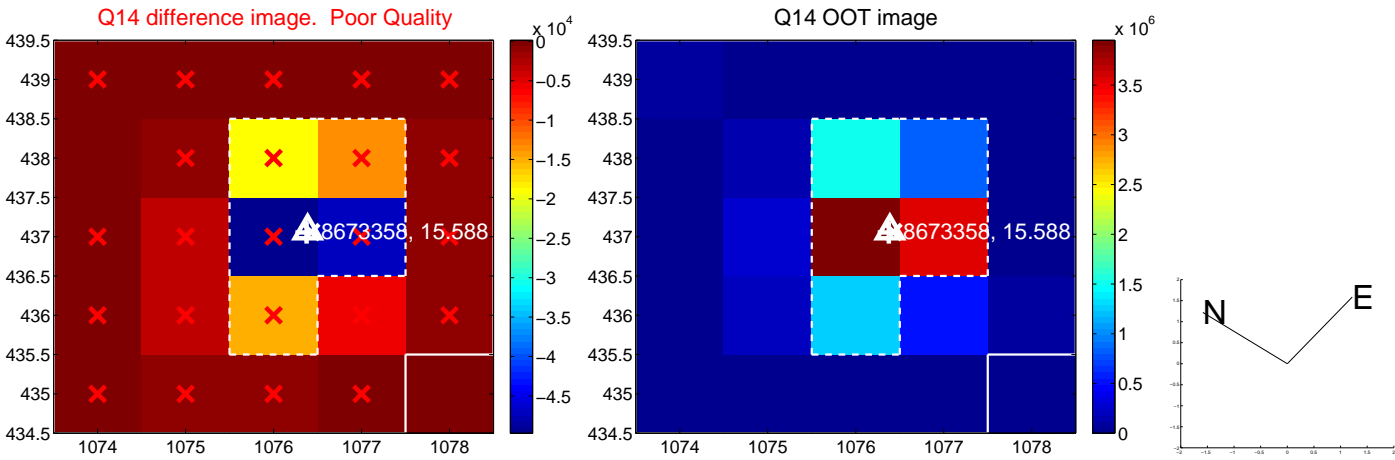
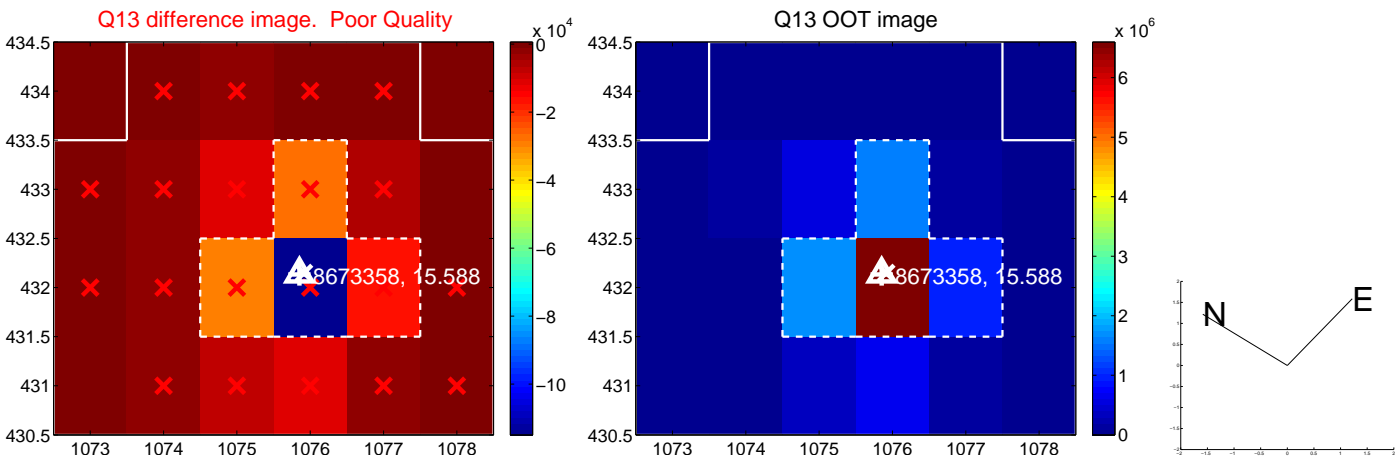
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

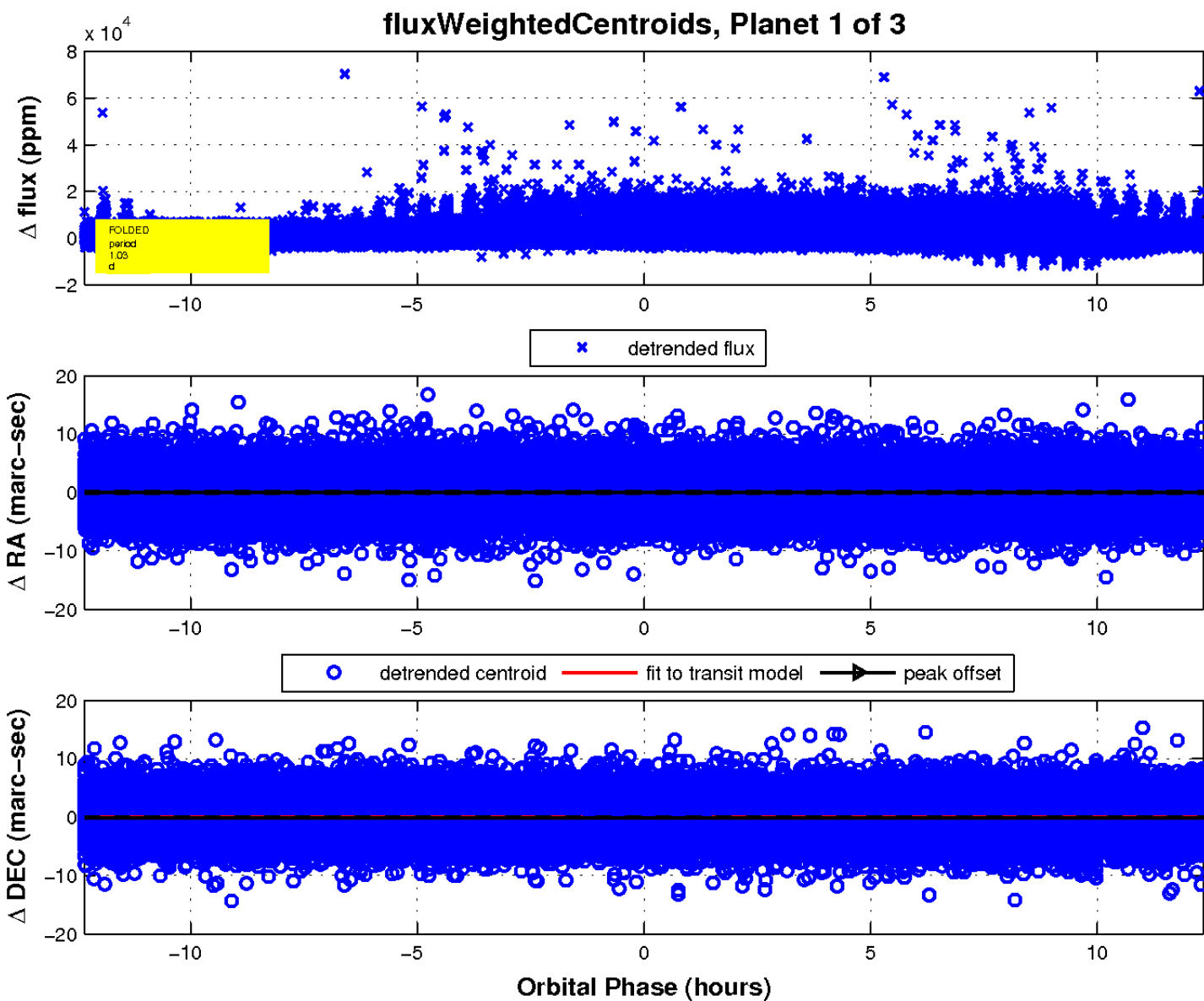
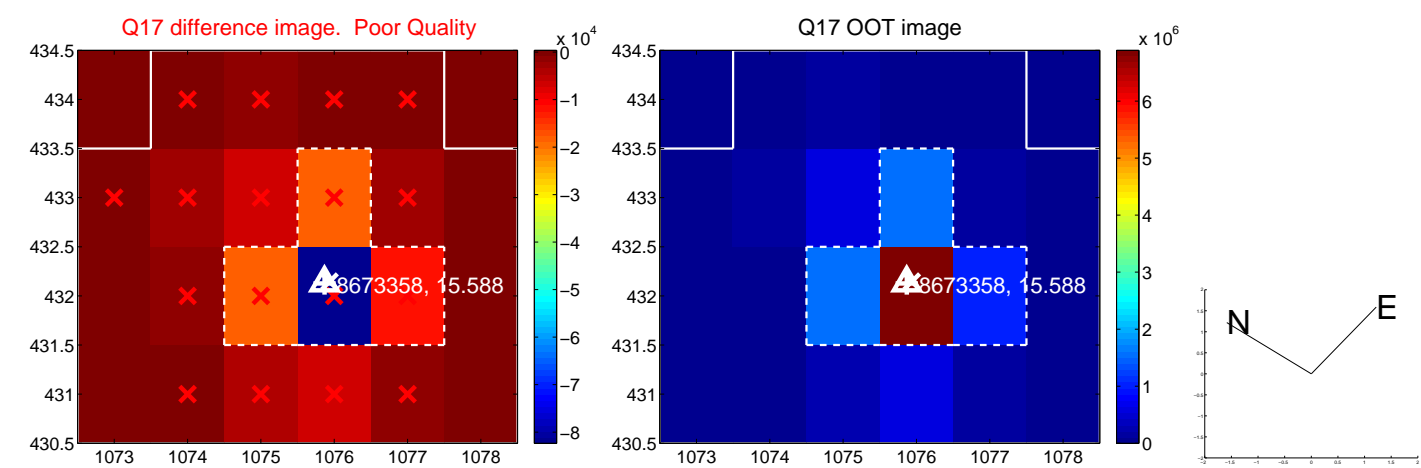


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



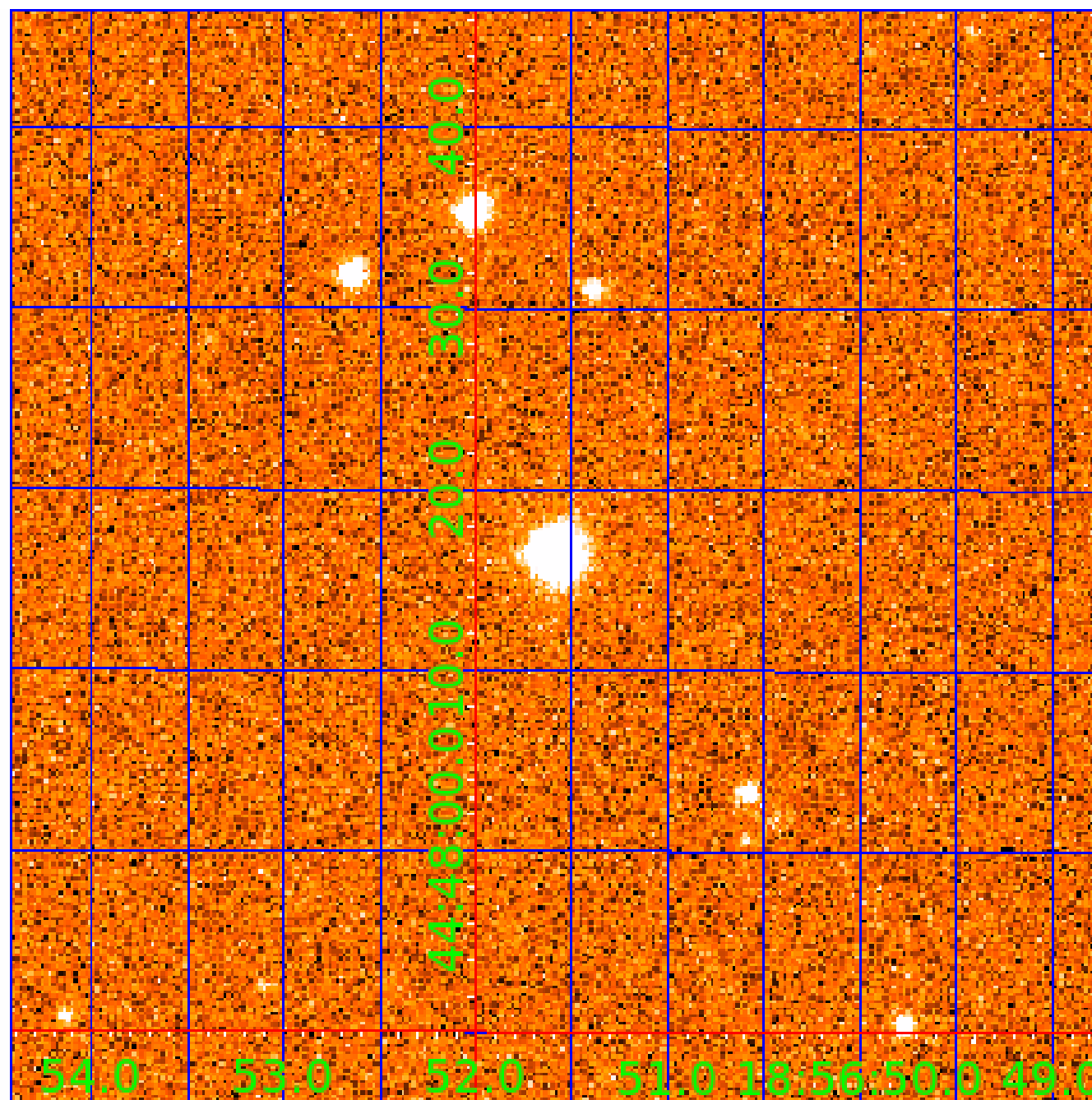


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 008673358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008673358-01	OBS	No	1.028459	132.360450	67.4	4.524	11.8	2.8	0.27	3373	0.23	52.52
008673358-02	OBS	No	3.085875	132.312180	3242.3	13.300	11.6	14.4	0.27	3373	2.92	12.13
008673358-03	OBS	No	3.086586	134.257028	1176.9	3.000	11.1	-1.0	0.27	3373	0.92	12.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008673358-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008673358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008673358-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

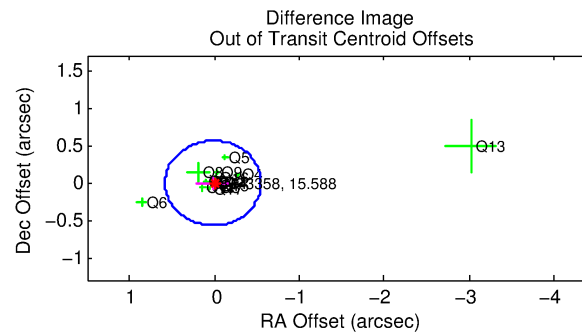
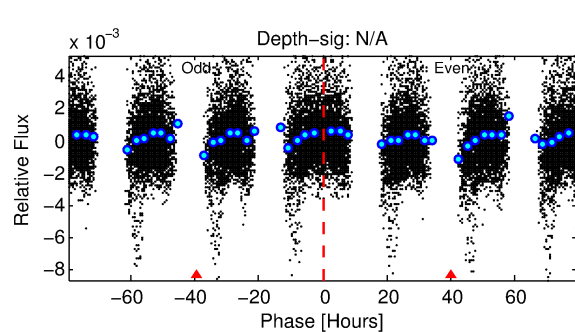
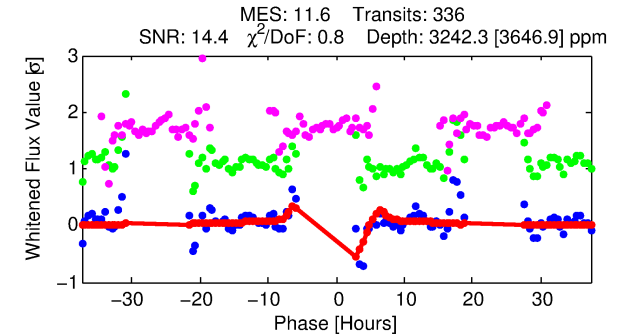
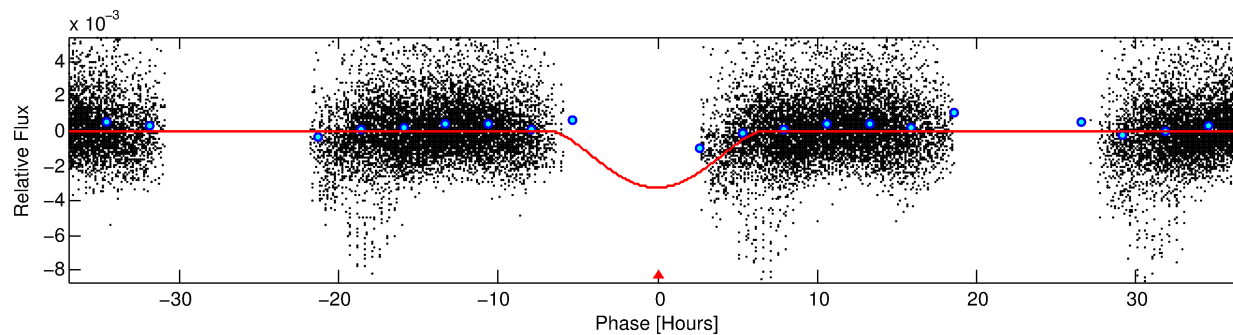
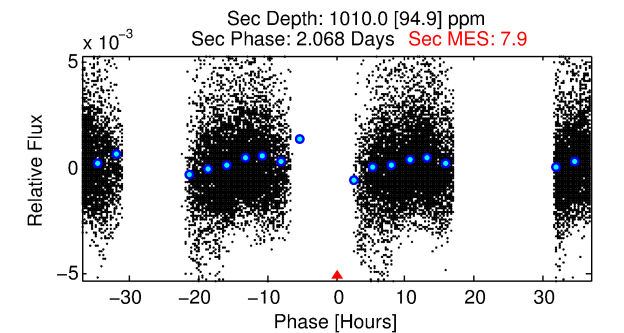
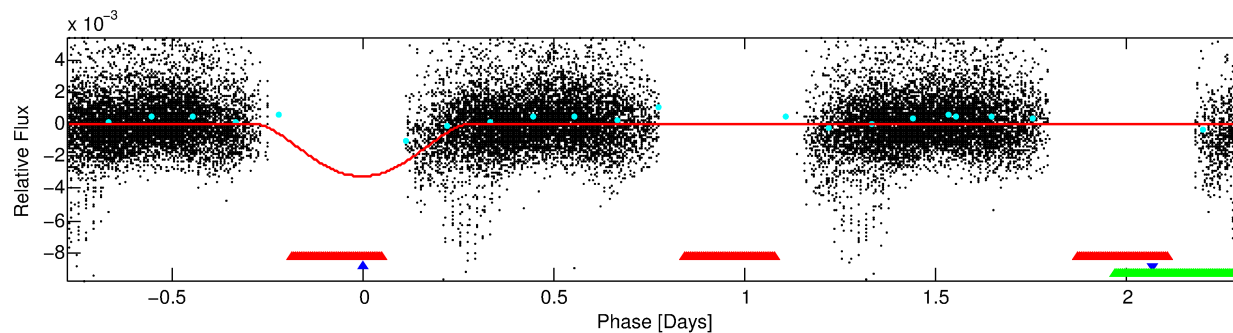
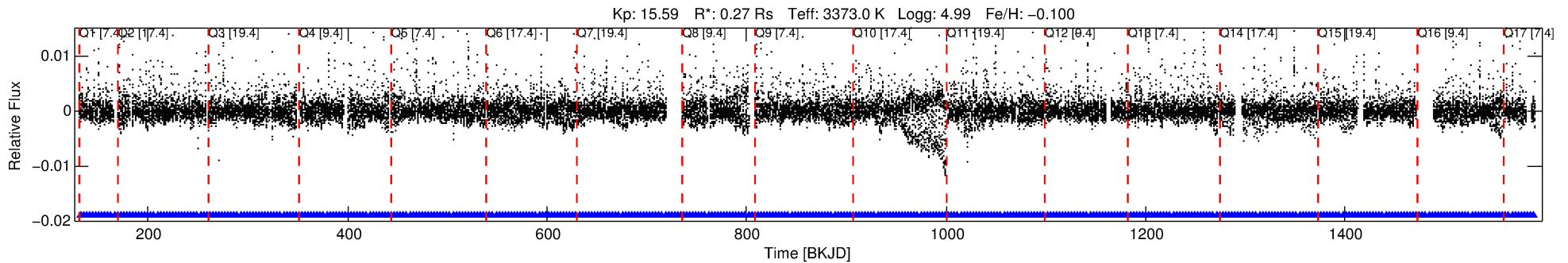
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008673358-02

No Significant Match Found

# DV One-Page Summary

KIC: 8673358 Candidate: 2 of 3 Period: 3.086 d



## DV Fit Results:

Period = 3.08587 [0.00003] d  
Epoch = 132.3122 [0.0108] BKJD  
Rp/R\* = 0.0991 [0.1230]  
a/R\* = 1.31 [0.04]  
b = 1.00 [0.24]  
Seff = 12.13 [2.27]  
Teff = 476 [22] K  
Rp = 2.92 [3.67] Re  
a = 0.0264 [0.0038] AU  
Ag = 45.39 [112.95] [0.39σ]  
Teffp = 1910 [1186] K [1.21σ]

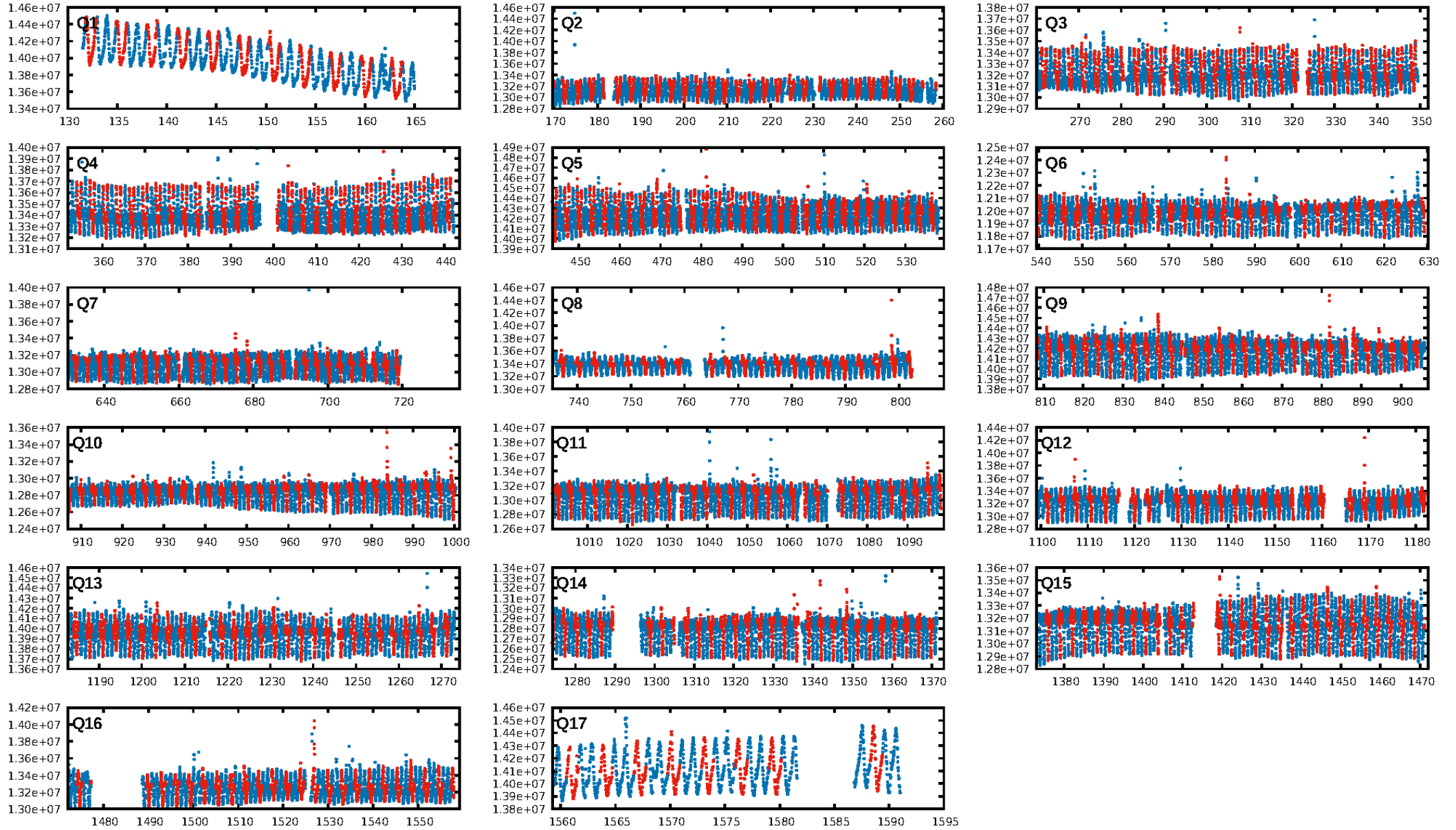
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.51σ]  
**LongPeriod-sig: 0.1% [0.00σ]**  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [317/317]  
**GhostDiagnostic-chr: 0.3667**  
Centroid-sig: 21.8%  
**Centroid-so: 0.233 arcsec [5.94σ]**  
OotOffset-rm: 0.017 arcsec [0.09σ]  
KicOffset-rm: 0.186 arcsec [1.59σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.65 [11/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:05:24 Z

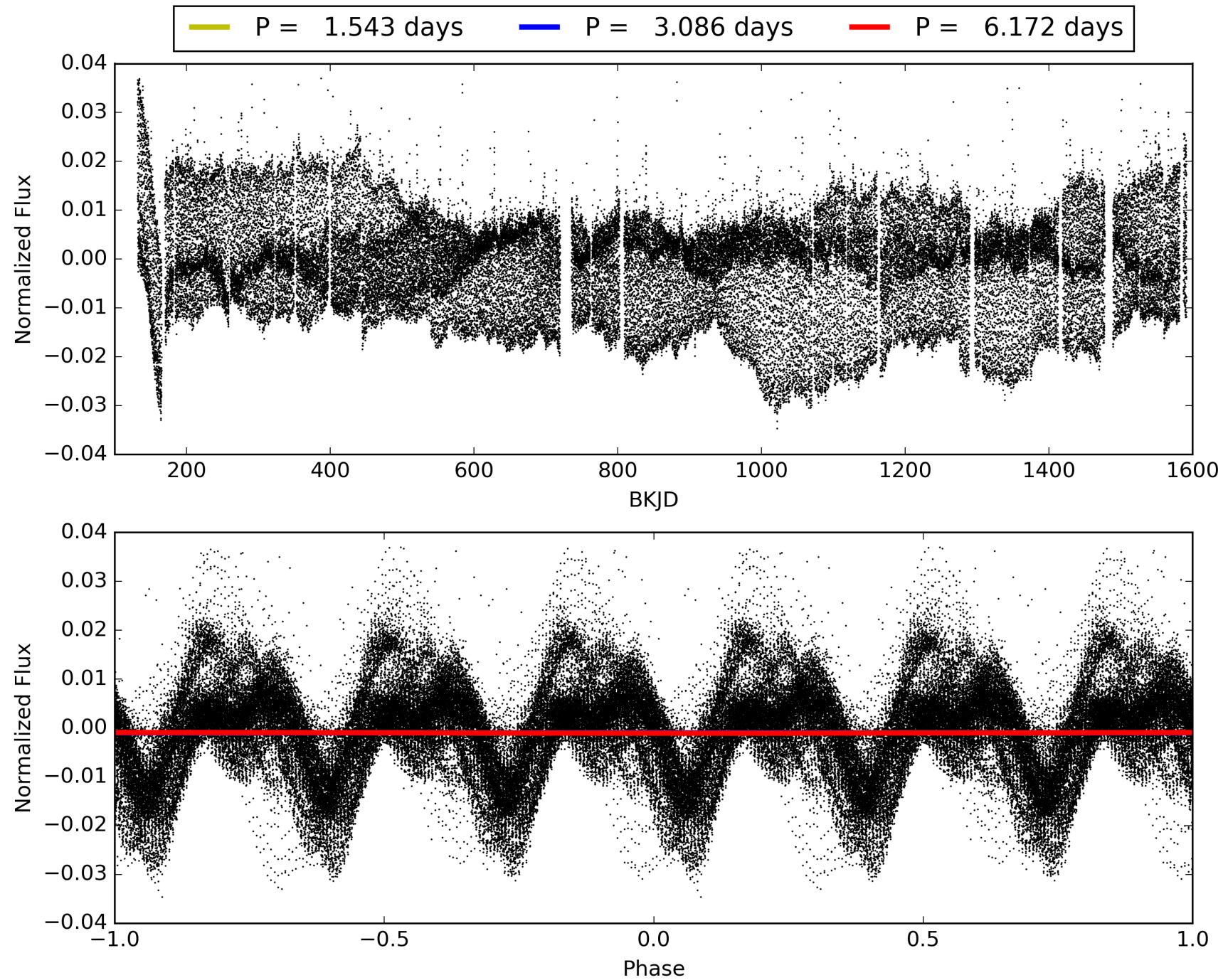
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008673358-02, PDC Light Curves



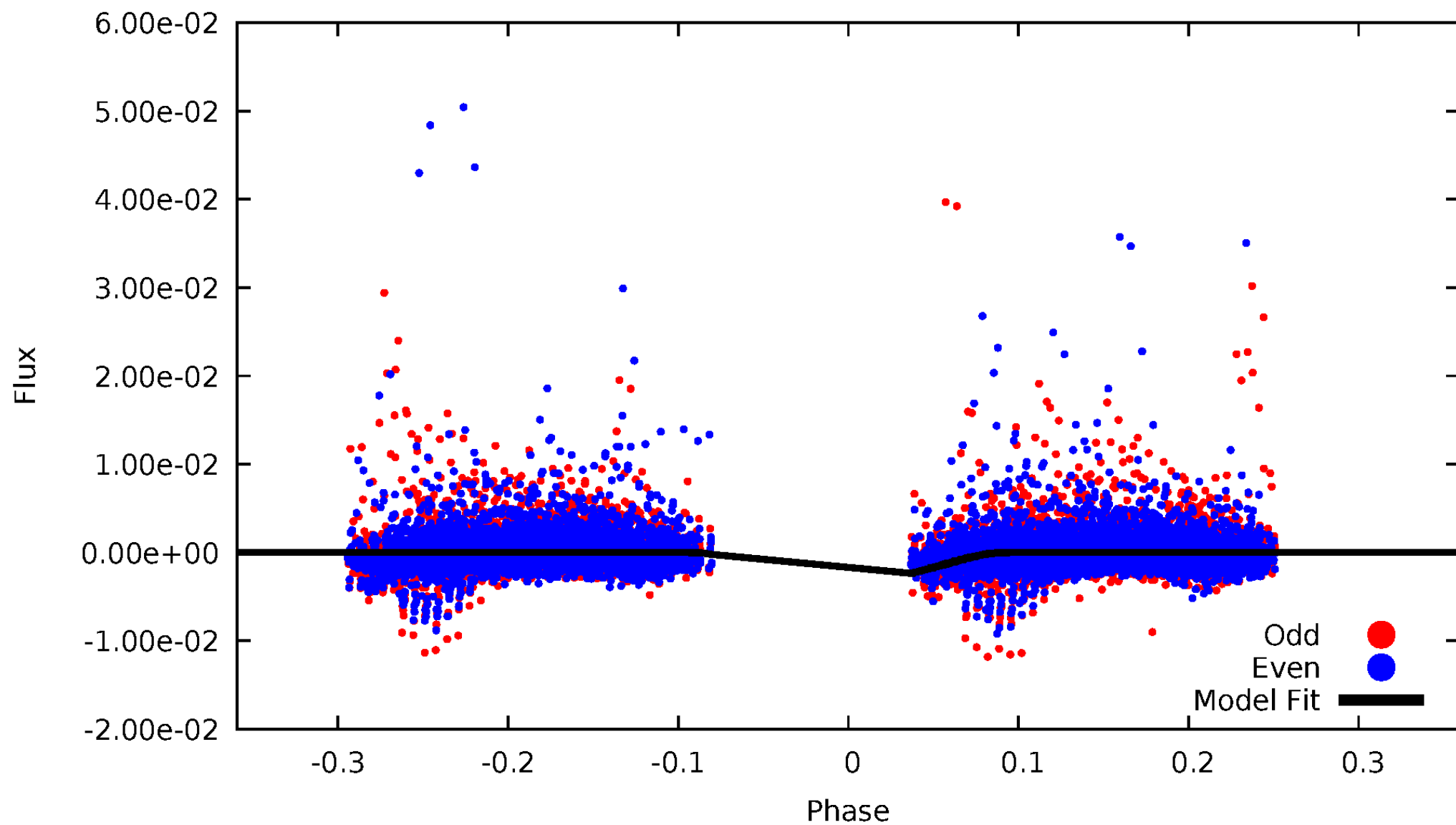


TCE 008673358-02



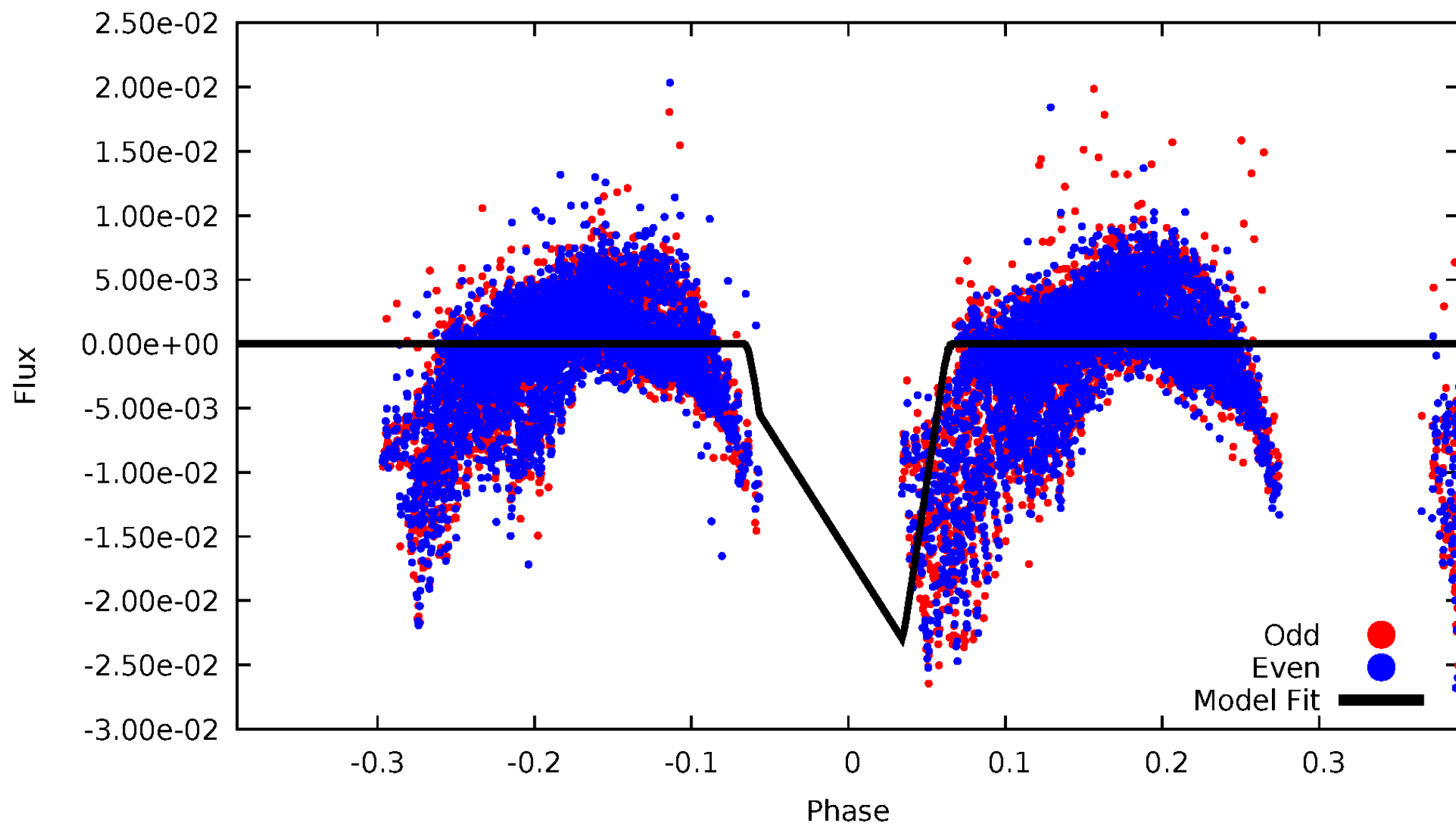
# DV Odd/Even

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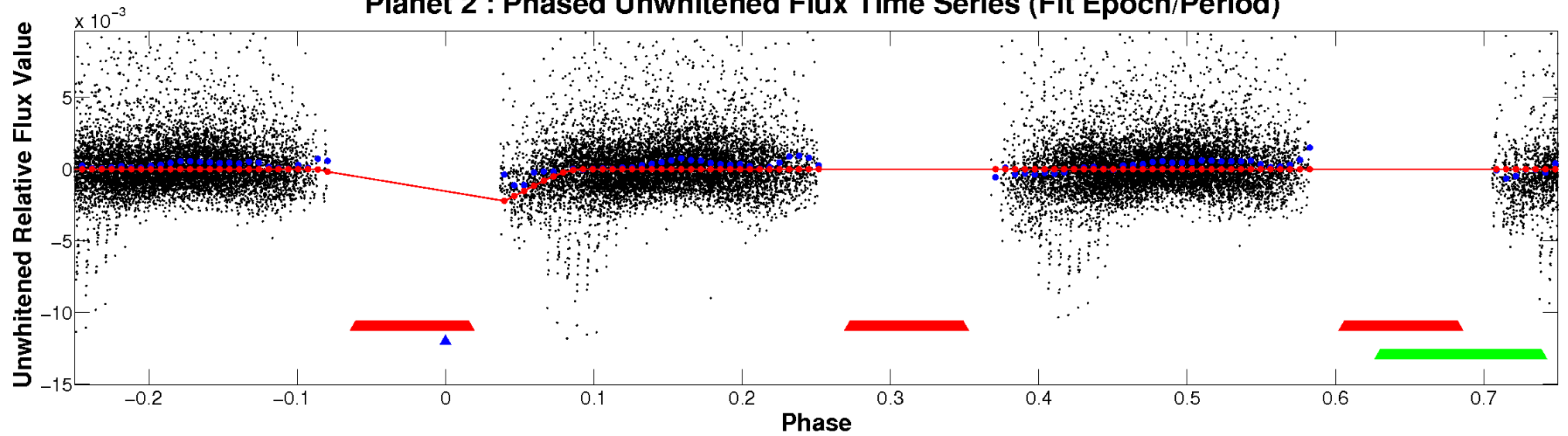
# ALT Odd/Even

TCE 008673358-02

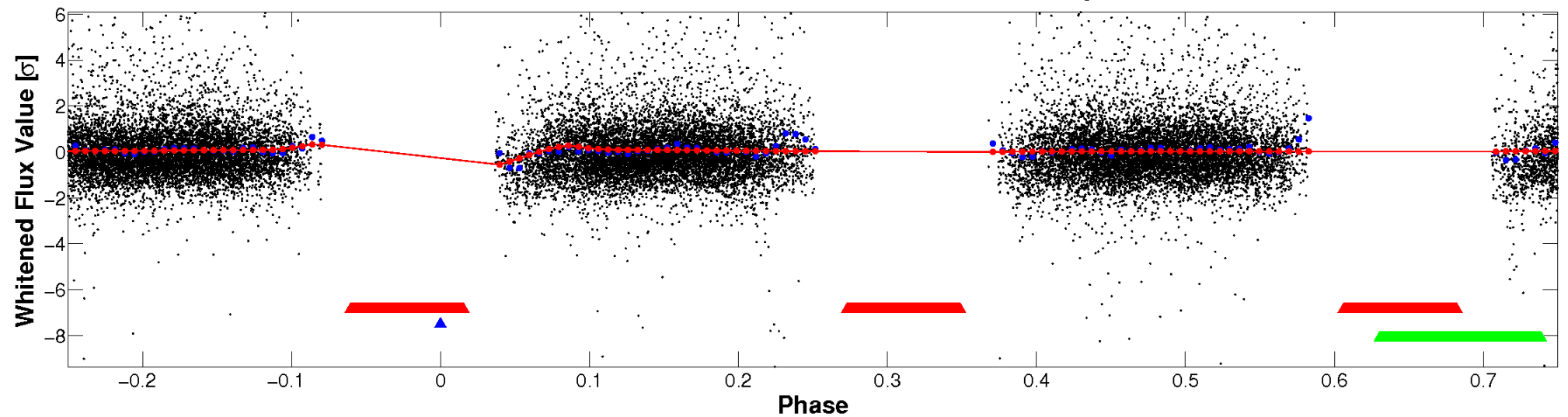


# Non-Whitened Vs. Whitened Light Curve

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

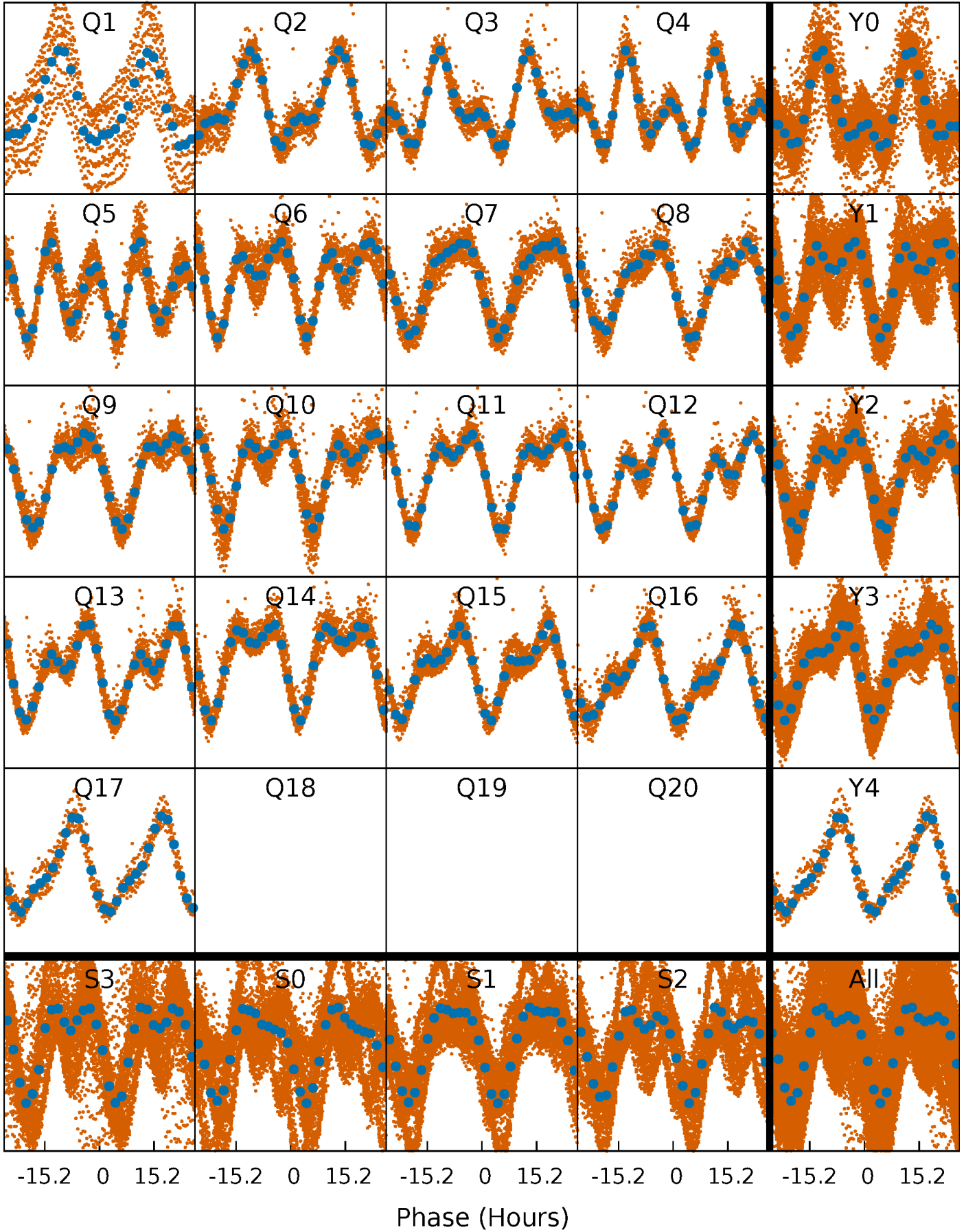


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

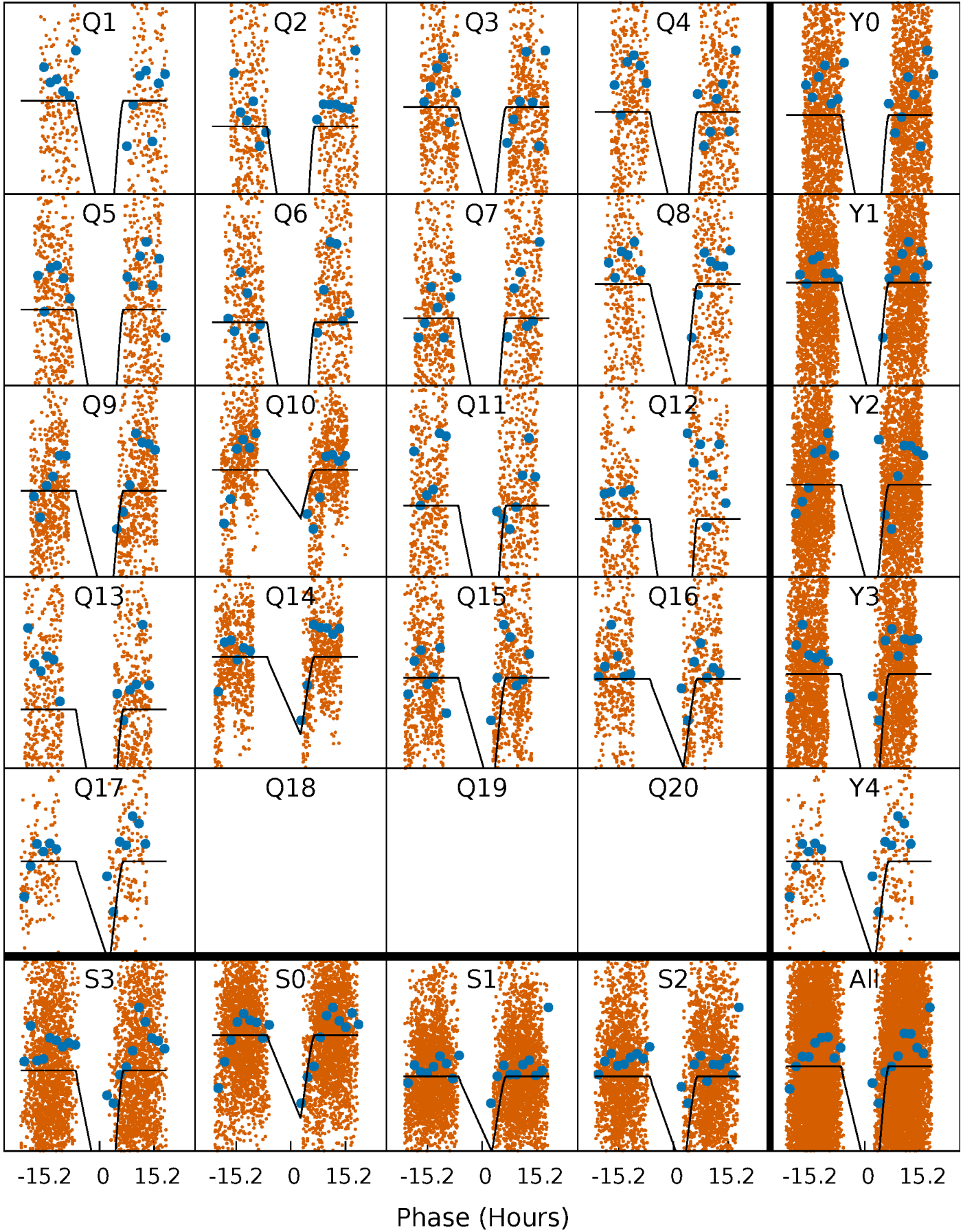
TCE 008673358-02   P= 3.085875 Days    $T_0=132.312180$  (BKJD)





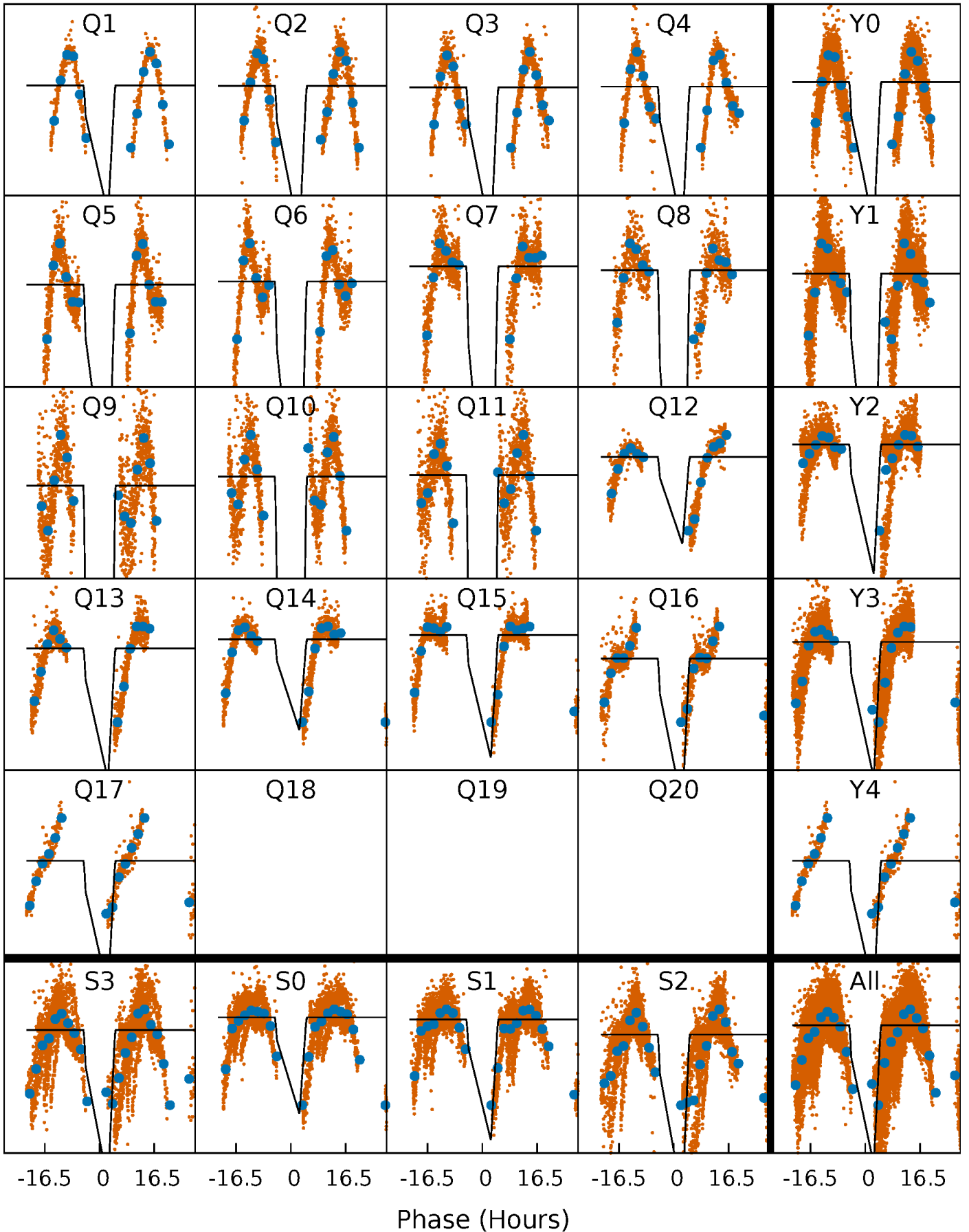
# DV Quarter-Phased Transit Curves

TCE 008673358-02   P= 3.085875 Days    $T_0=132.312180$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

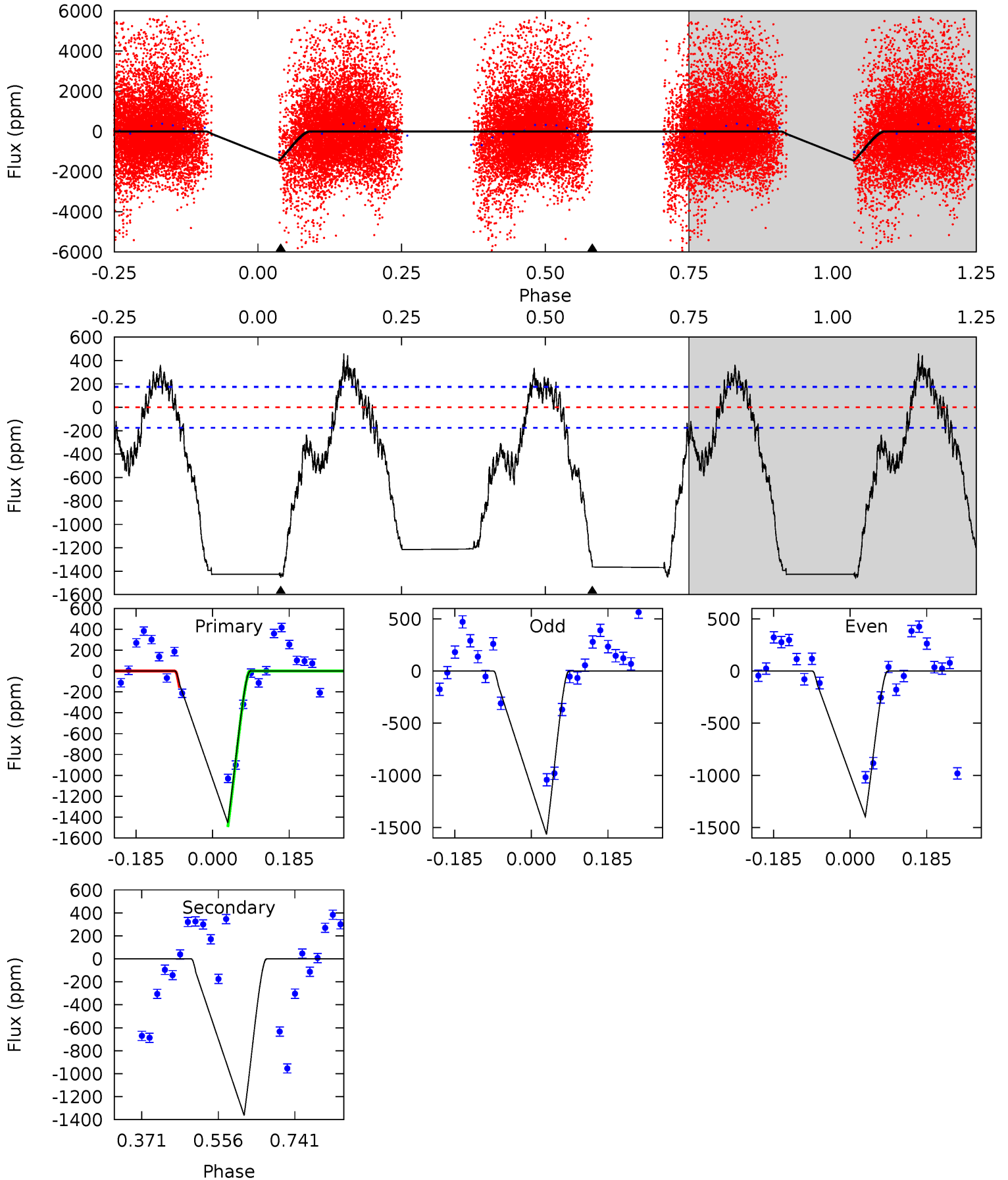
TCE 008673358-02     $P = 3.086046$  Days     $T_0 = 132.239078$  (BKJD)



# DV Model-Shift Uniqueness Test

008673358-02, P = 3.085875 Days, E = 129.226305 Days

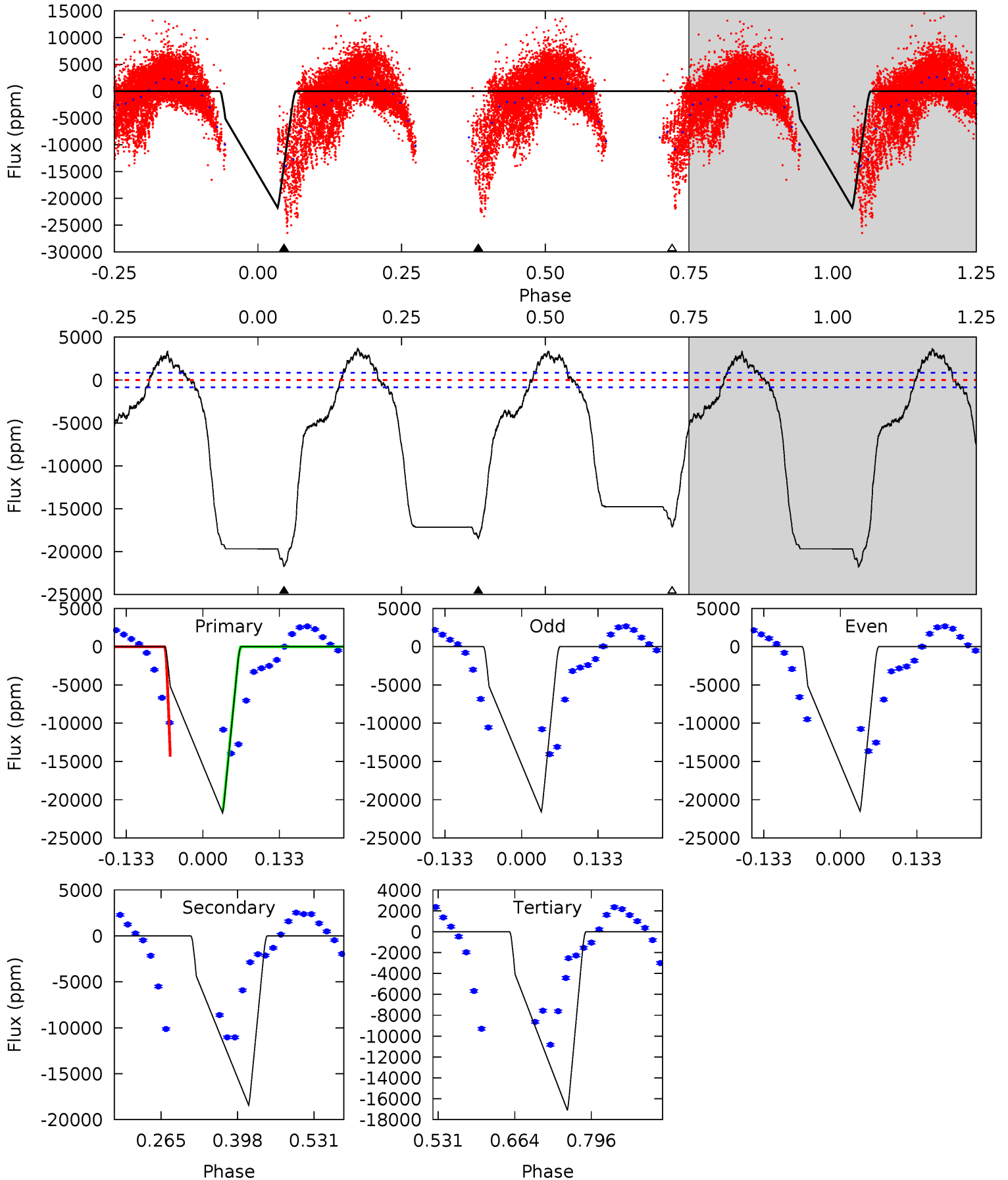
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.9	34.6	0	0	4.43	1.32	9.66	36.9	36.9	34.6	34.6	2.12	0.71	0.24	6.41



# Alt Model-Shift Uniqueness Test

008673358-02, P = 3.086046 Days, E = 129.153032 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
115.3	97.8	90.8	0	4.51	1.50	20.1	24.5	115.3	7.01	97.8	0.24	1.18	0.15	11.6



### Stellar Parameters For KIC 008673358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3373^{+67}_{-67}$	$4.986^{+0.066}_{-0.060}$	$-0.100^{+0.100}_{-0.100}$	$0.270^{+0.055}_{-0.045}$	$0.257^{+0.066}_{-0.048}$	$18.460^{+7.091}_{-5.137}$
	+2%/-2%	+1%/-1%	+100%/-100%	+20%/-17%	+26%/-19%	+38%/-28%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008673358-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1364 \pm 39$	$3.83^{+3.40}_{-2.49}$	$667^{+24}_{-25}$	$2405^{+747}_{-313}$	$36^{+259}_{-25}$
Alt.	$-18430 \pm 188$	$4.82^{+3.61}_{-2.89}$	$665^{+24}_{-25}$	$3185^{+1103}_{-445}$	$306^{+1581}_{-205}$

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

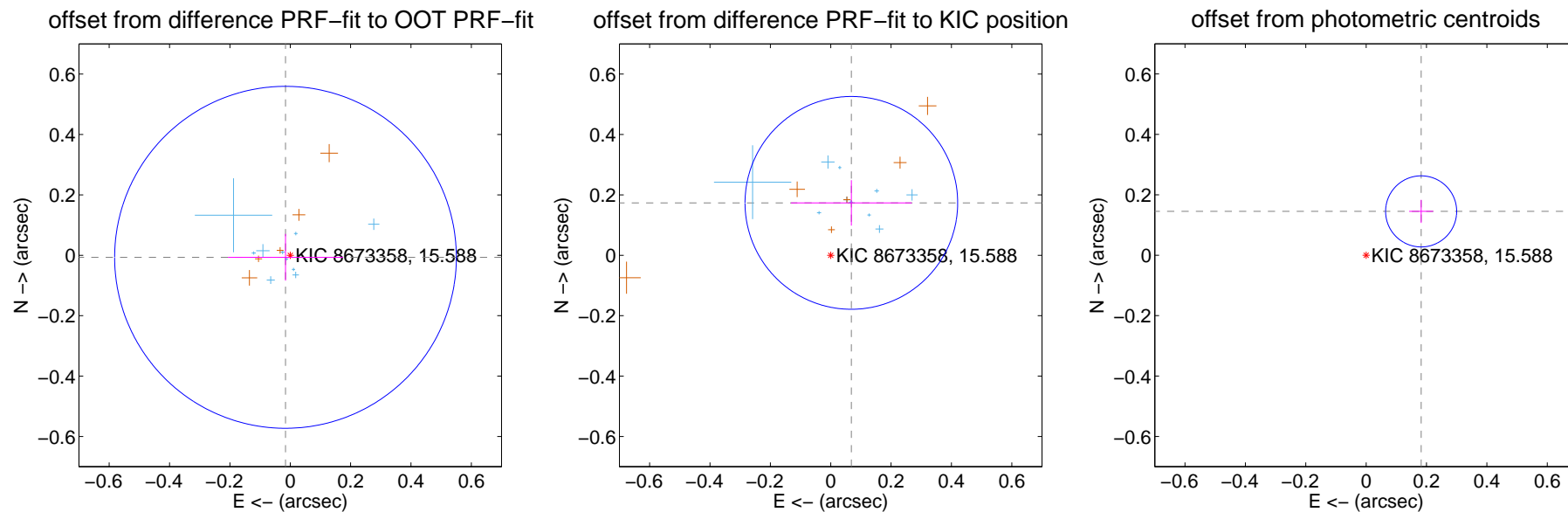
## DV Centroid Data

Supplemental centroid analysis for 008673358-02. Kepler magnitude: 15.59. Transit SNR 14.37

There are 11 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

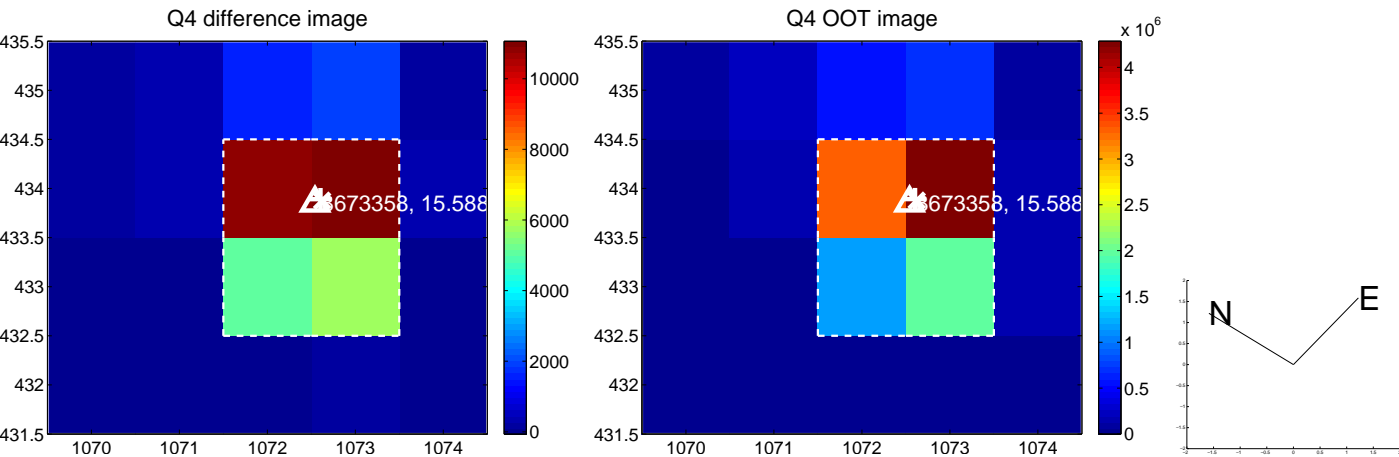
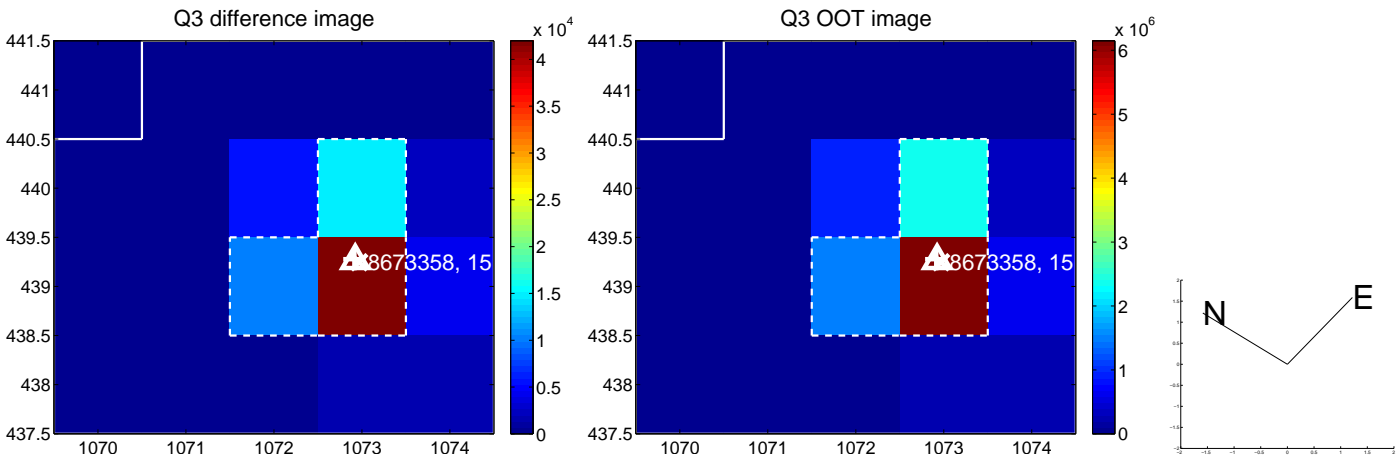
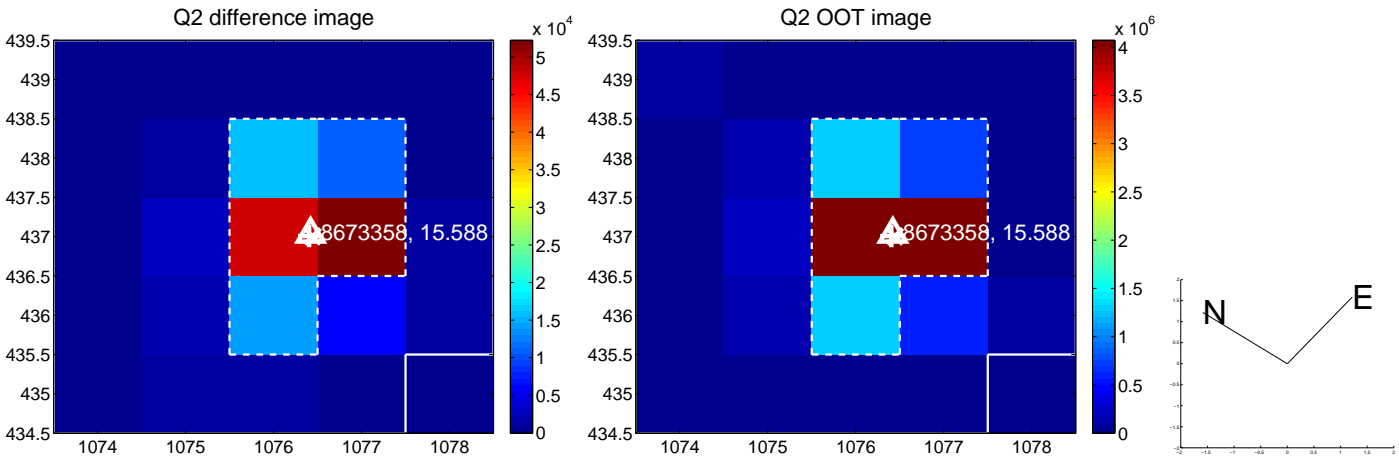
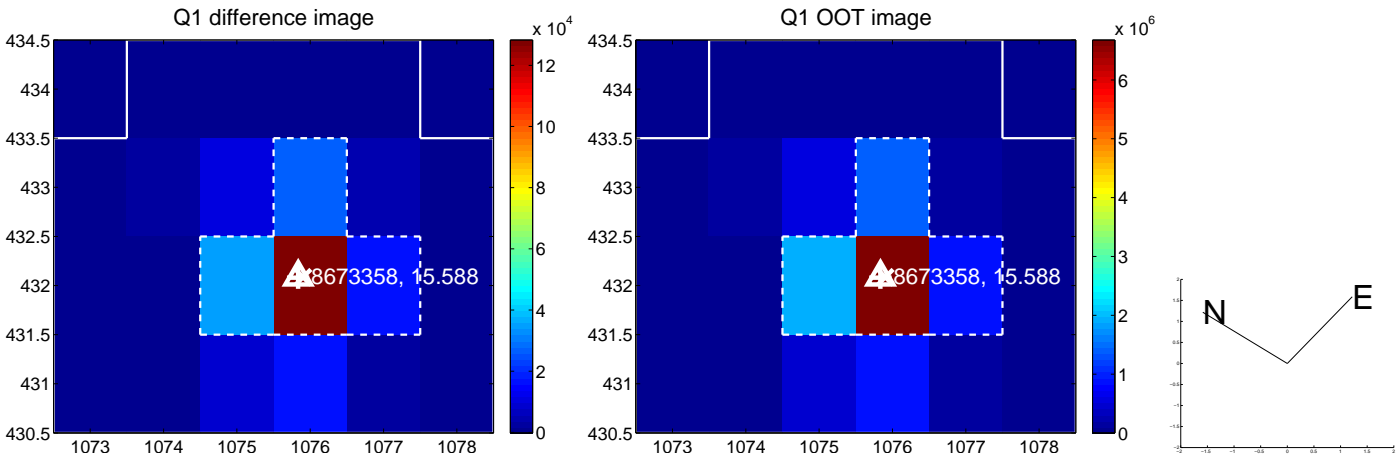
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.017 \pm 0.189$	0.09	$0.016 \pm 0.191$	$-0.007 \pm 0.077$
PRF-fit source offset from KIC position	$0.186 \pm 0.117$	1.59	$-0.068 \pm 0.200$	$0.174 \pm 0.075$
photometric centroid source offset	$0.23 \pm 0.04$	5.94	$-0.18 \pm 0.04$	$0.15 \pm 0.04$



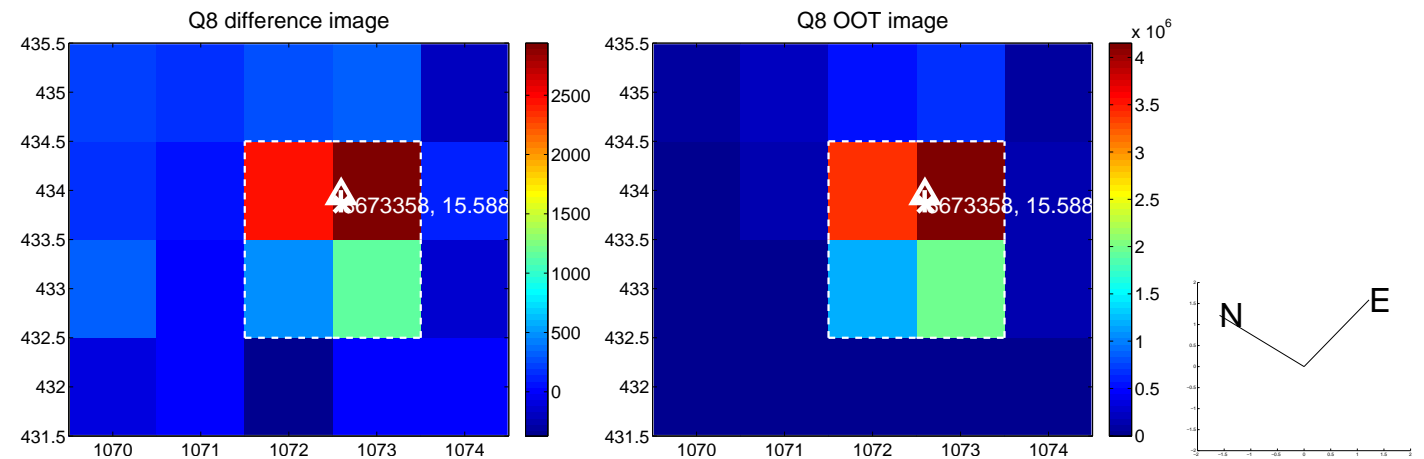
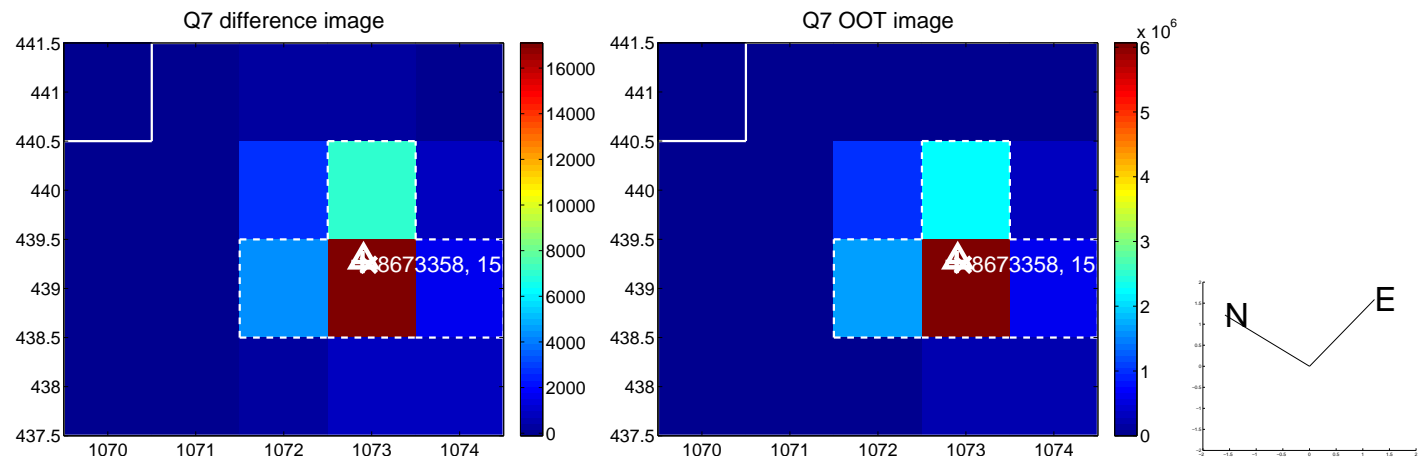
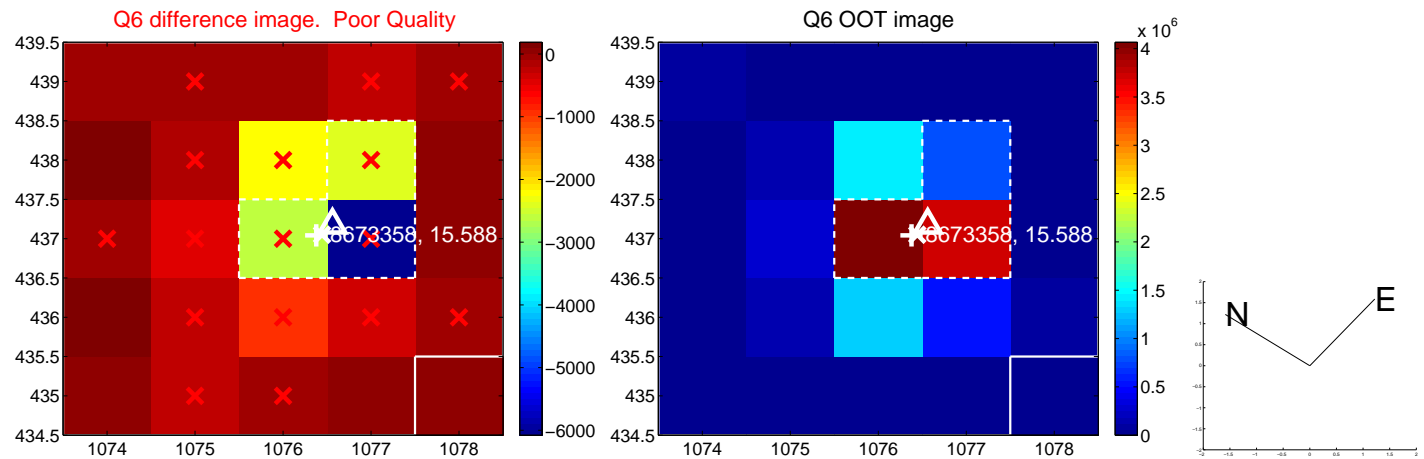
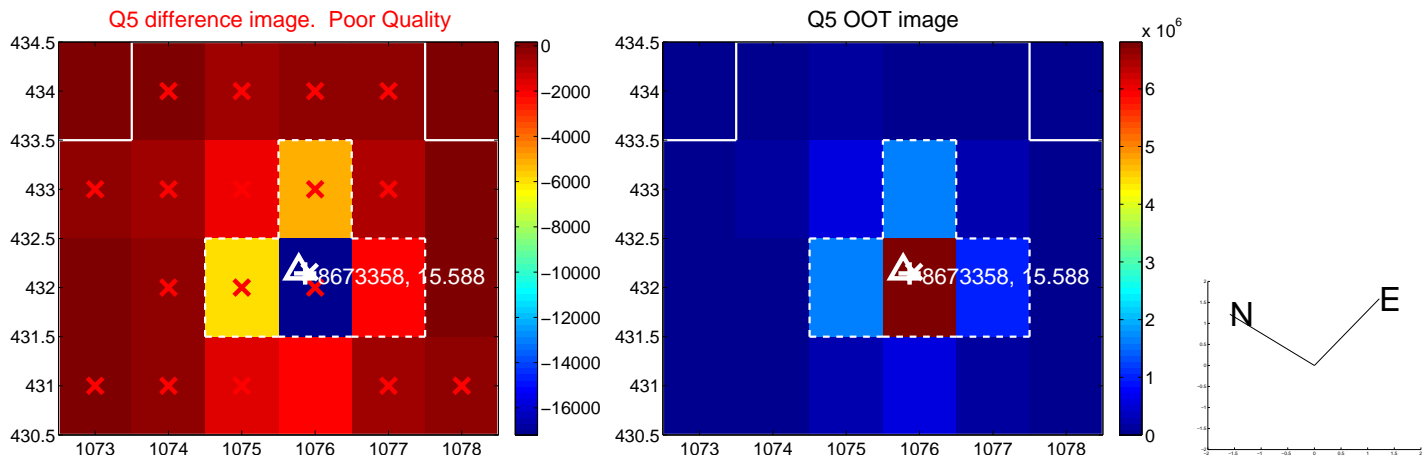
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



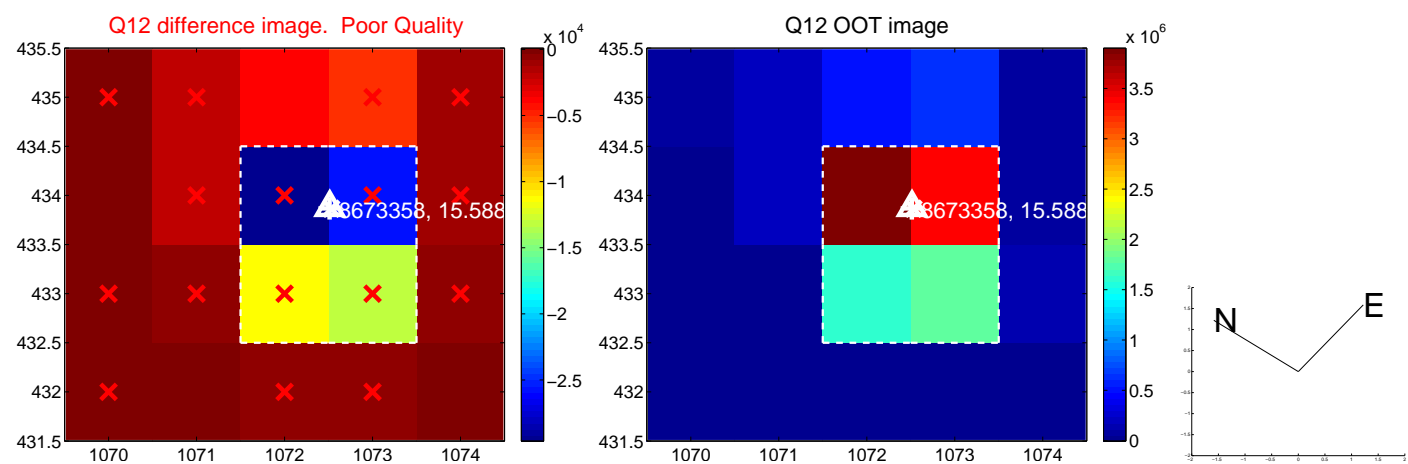
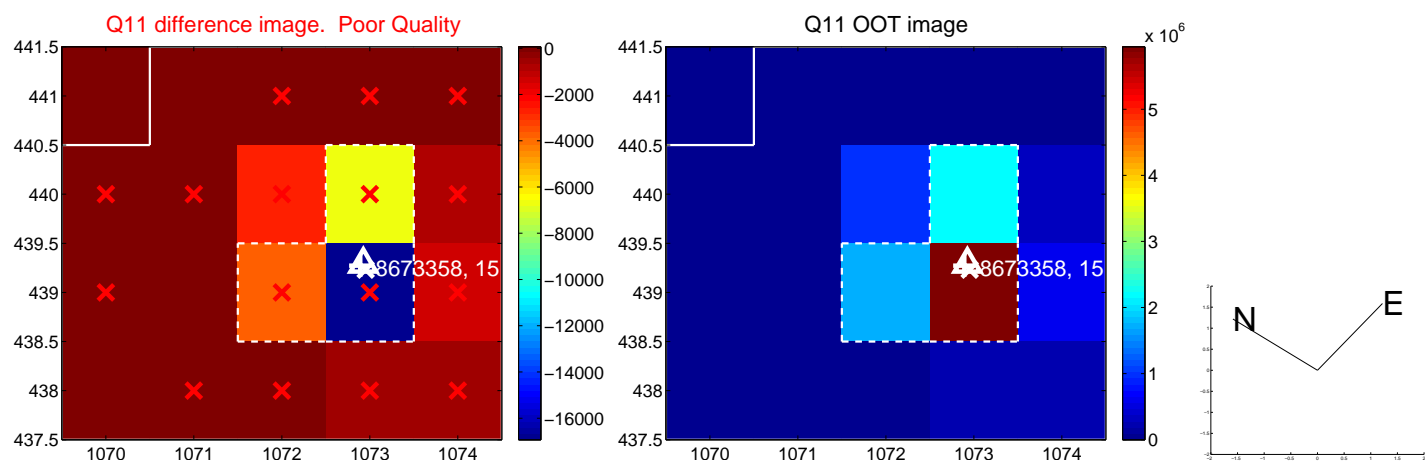
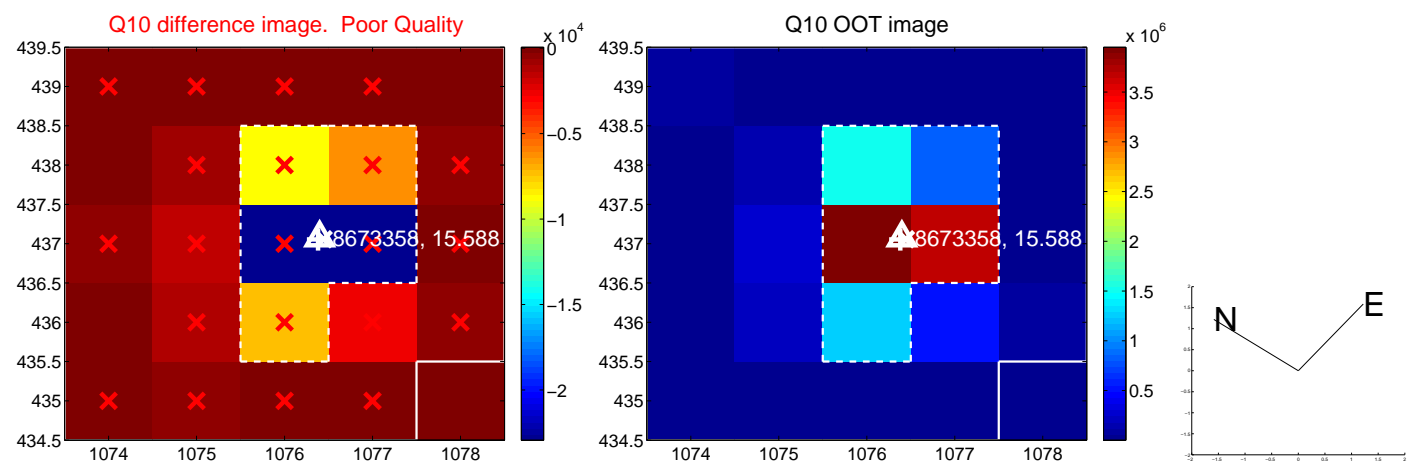
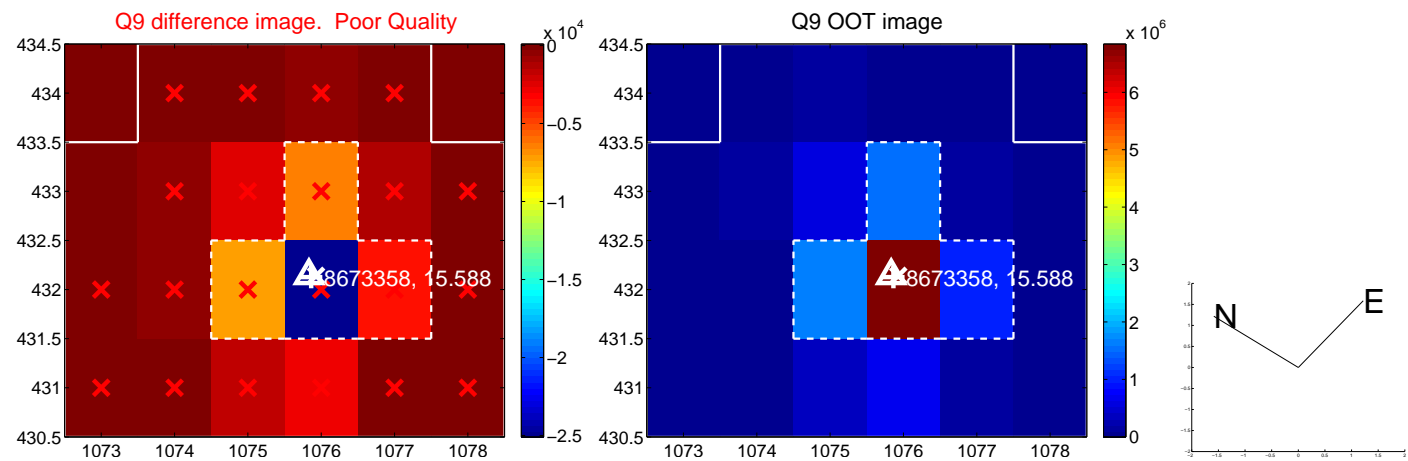
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



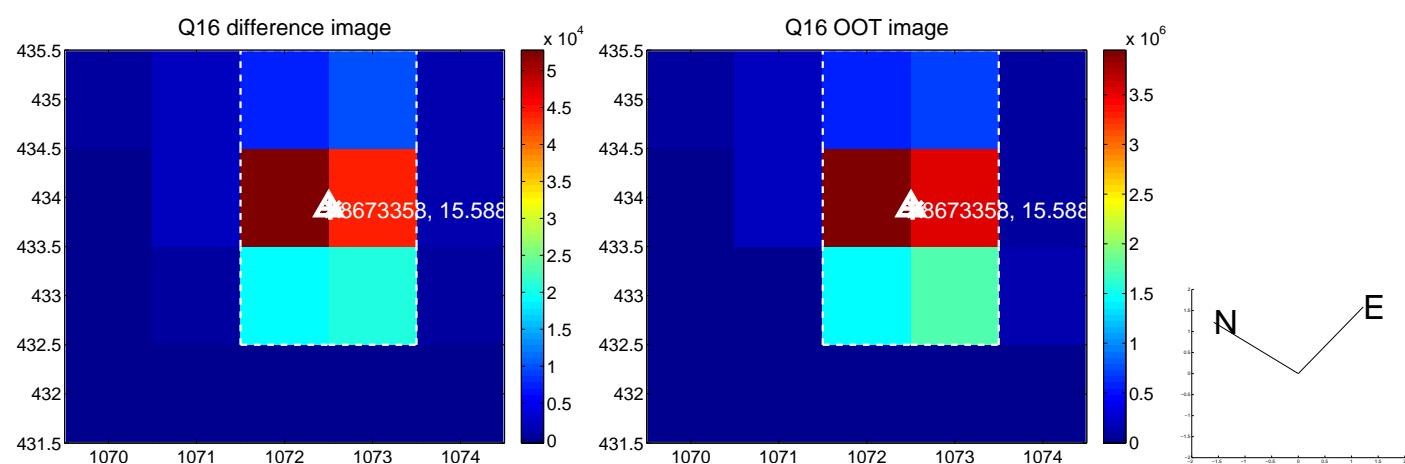
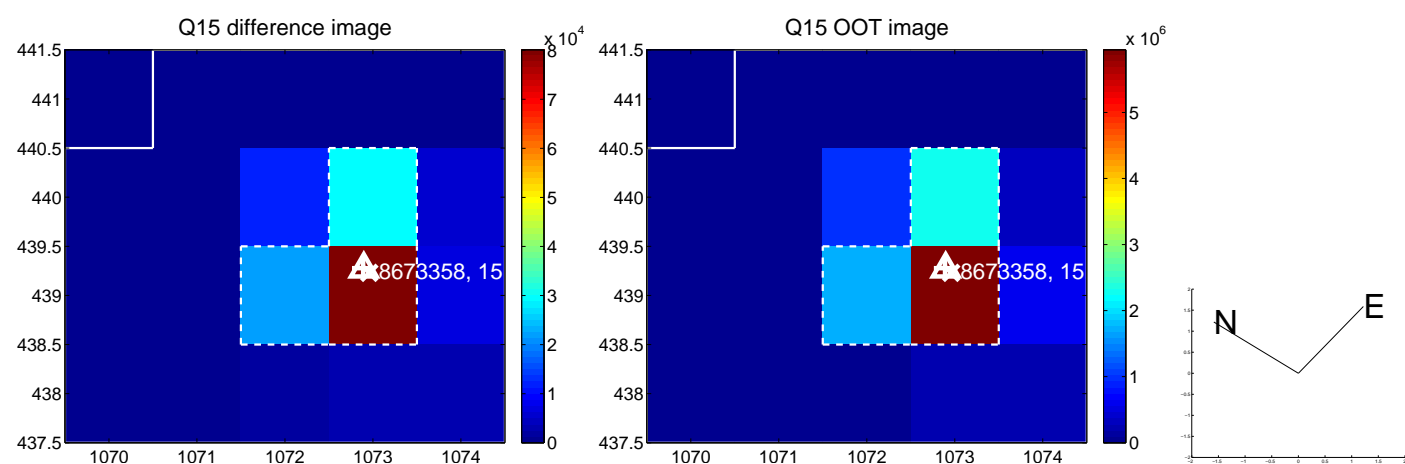
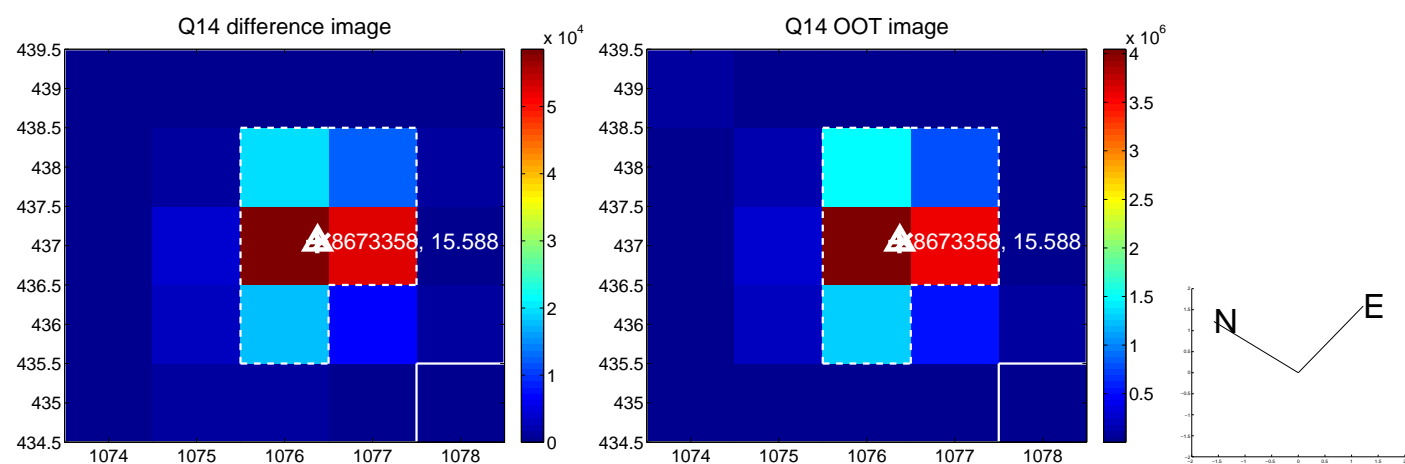
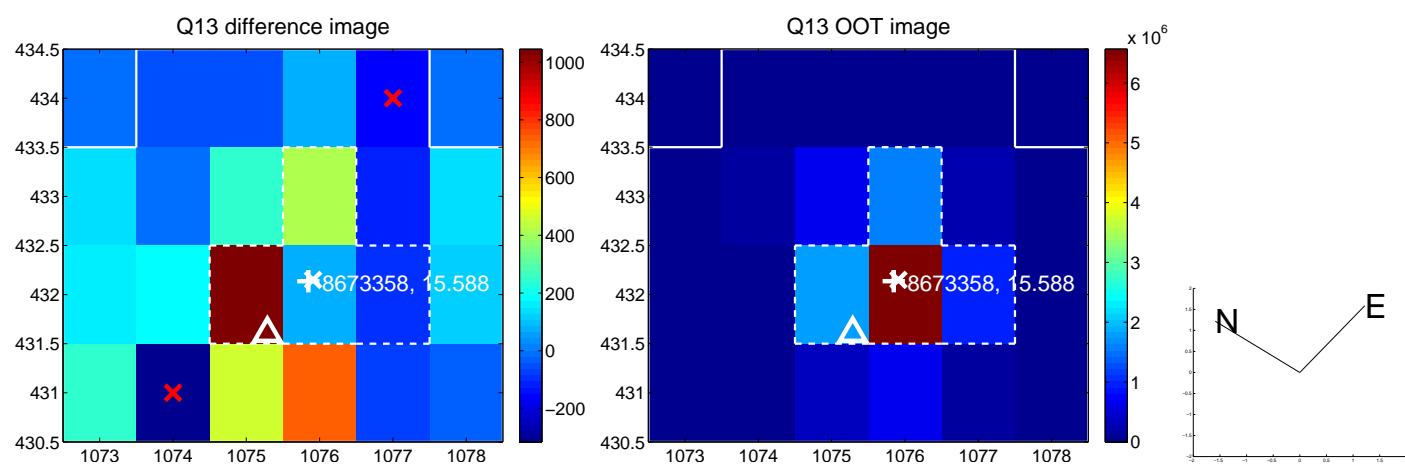
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



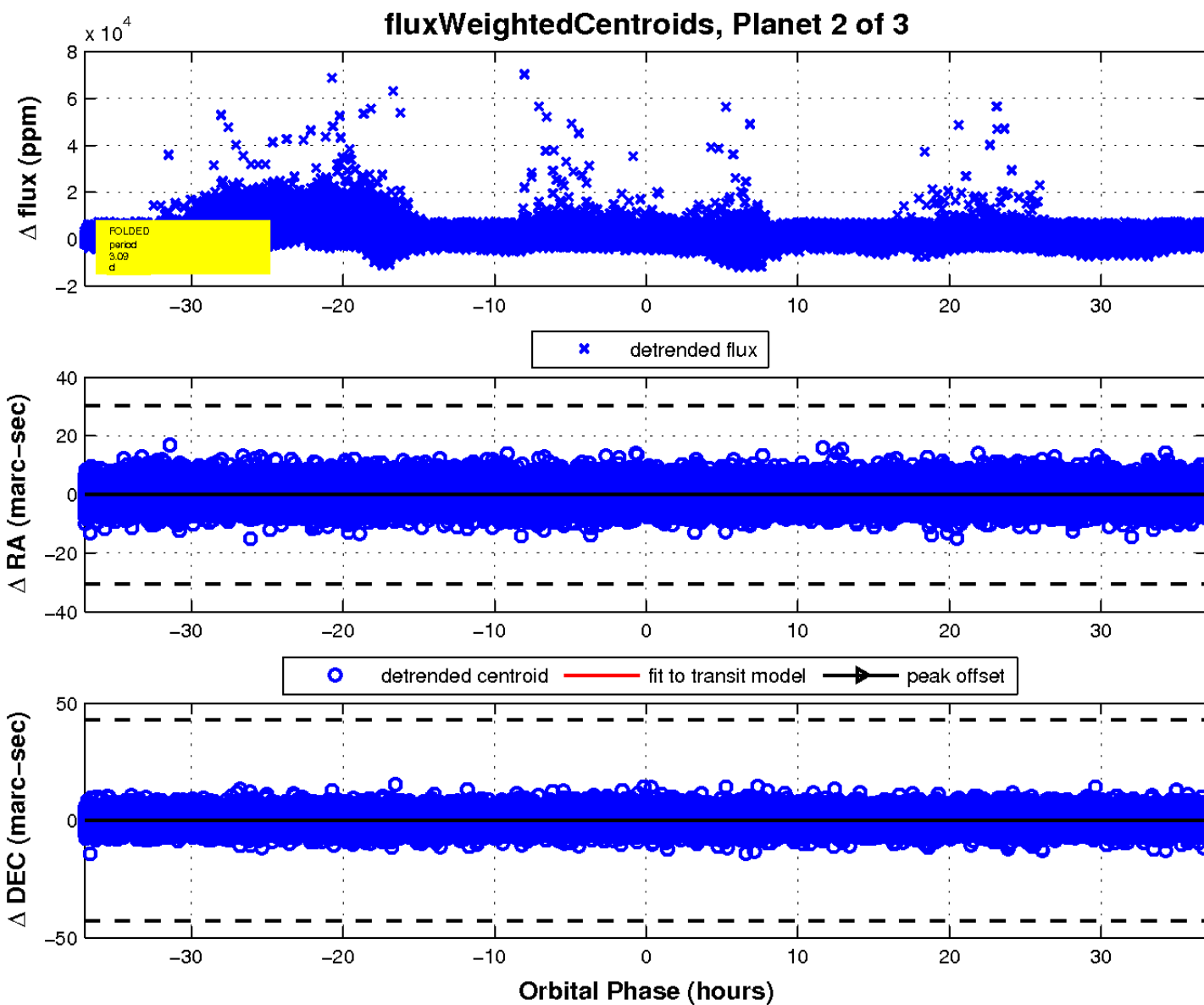
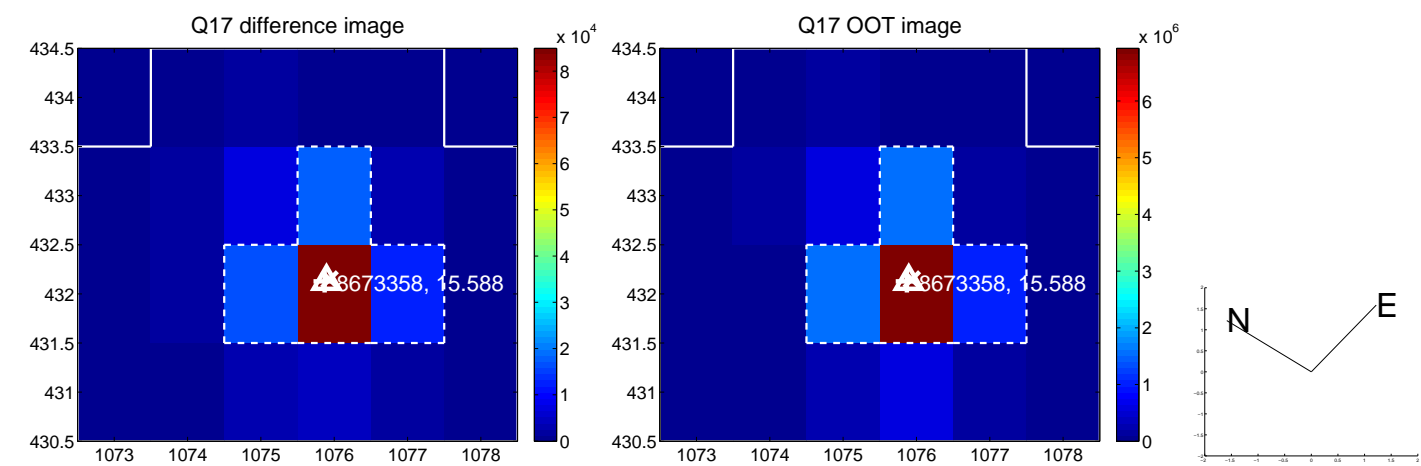
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

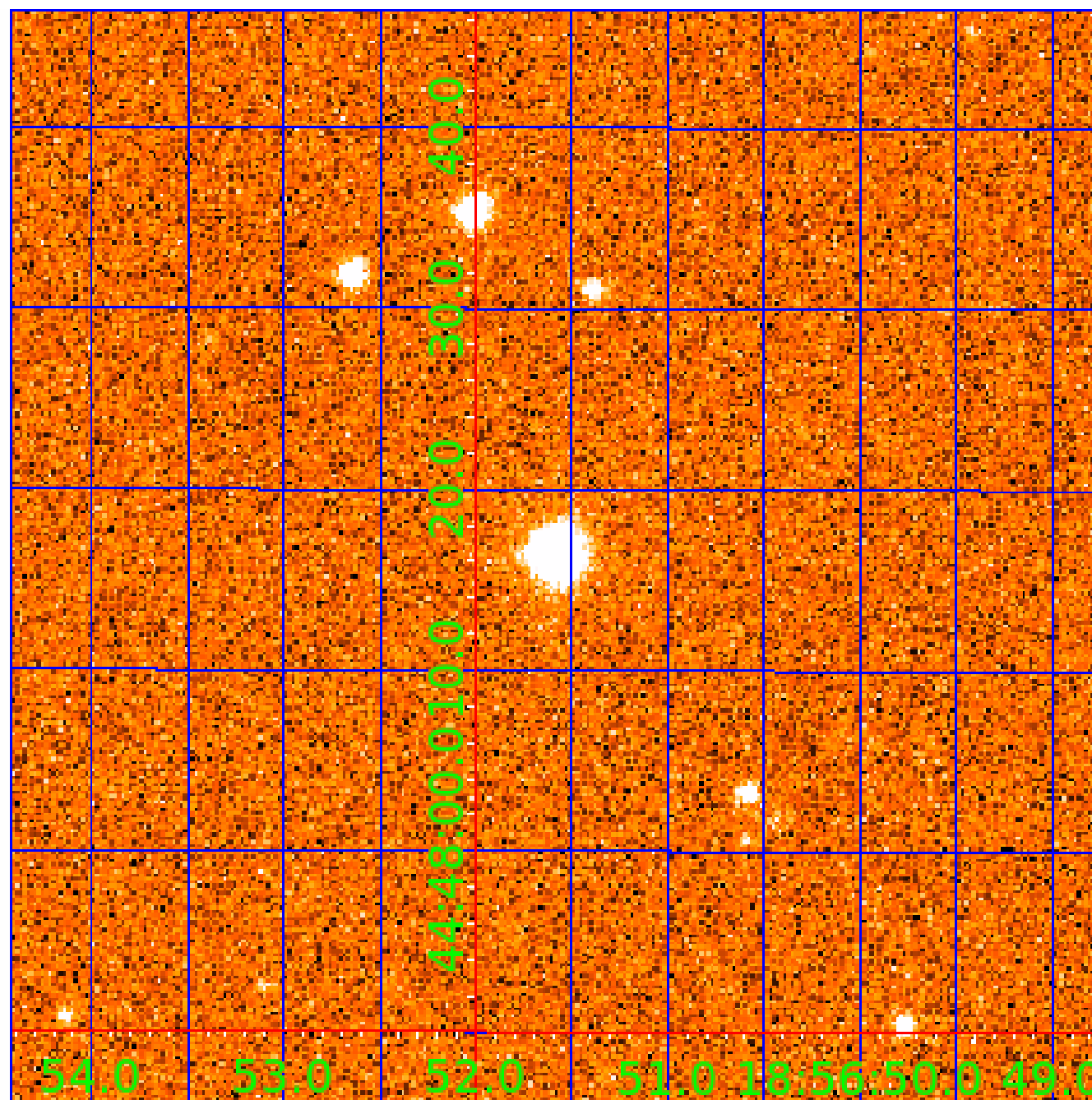


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination





# KIC 008673358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008673358-01	OBS	No	1.028459	132.360450	67.4	4.524	11.8	2.8	0.27	3373	0.23	52.52
008673358-02	OBS	No	3.085875	132.312180	3242.3	13.300	11.6	14.4	0.27	3373	2.92	12.13
008673358-03	OBS	No	3.086586	134.257028	1176.9	3.000	11.1	-1.0	0.27	3373	0.92	12.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008673358-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008673358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008673358-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

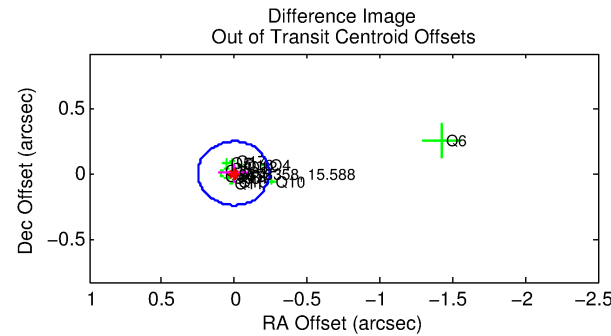
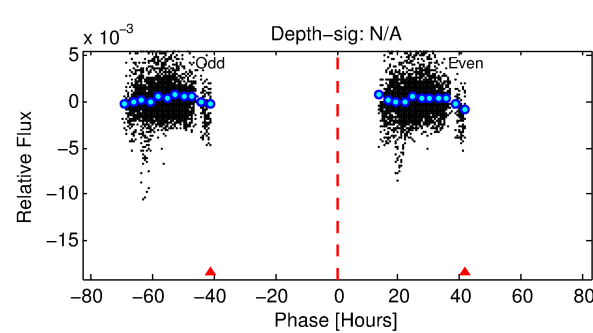
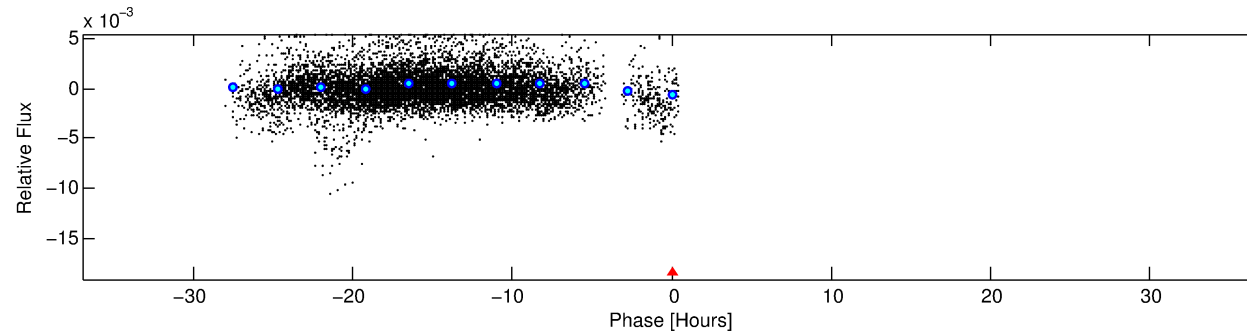
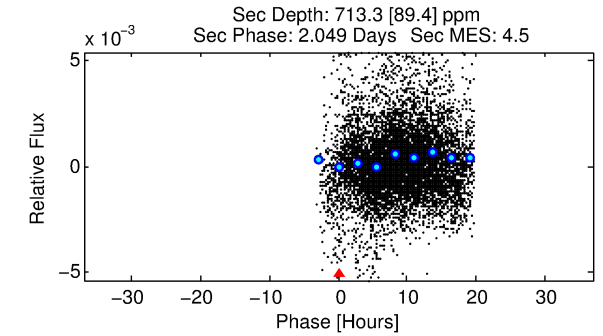
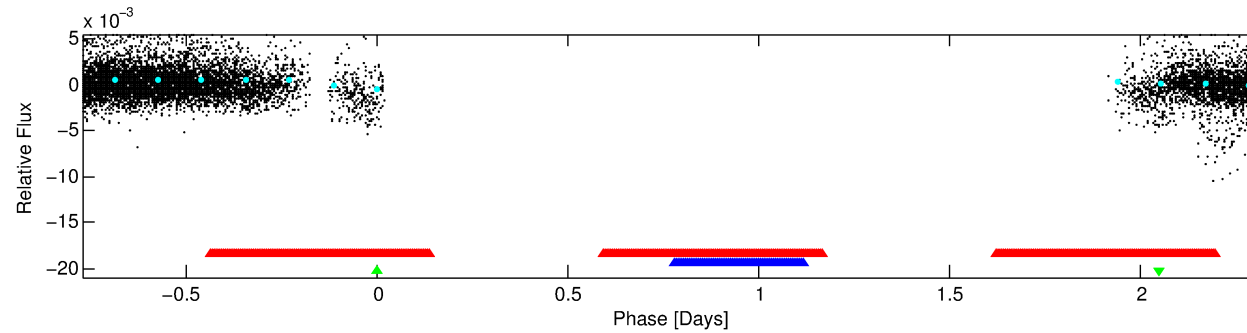
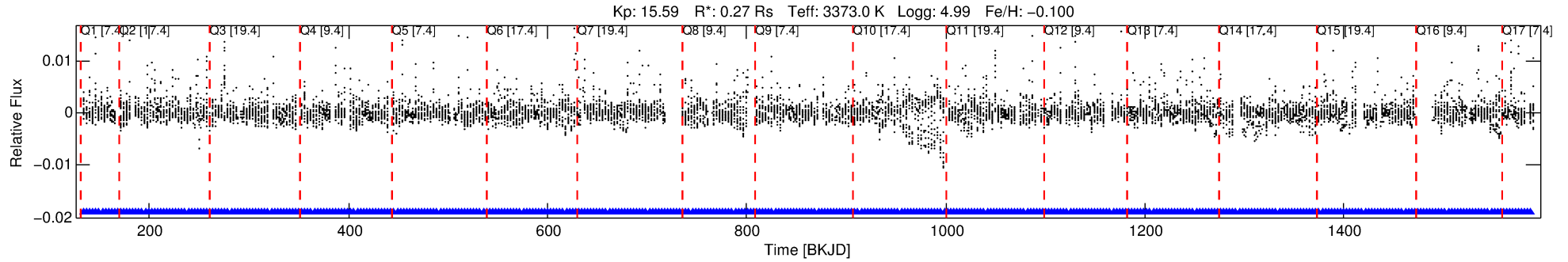
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008673358-03

No Significant Match Found

# DV One-Page Summary

KIC: 8673358 Candidate: 3 of 3 Period: 3.087 d



## TPS TCE Results:

Period = 3.08659 d  
Epoch = 134.2570 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]

LongPeriod-sig: N/A

ModelChiSquare2-sig: N/A

ModelChiSquareGof-sig: N/A

Bootstrap-pfa: N/A

RollingBand-fgt: 1.00 [200/200]

GhostDiagnostic-chr: 4.121

Centroid-sig: 13.3%

Centroid-so: 0.255 arcsec [30.17σ]

OotOffset-rm: 0.010 arcsec [0.12σ]

KicOffset-rm: 0.179 arcsec [2.25σ]

OotOffset-st: 4/4/4/5 [17]

KicOffset-st: 4/4/4/5 [17]

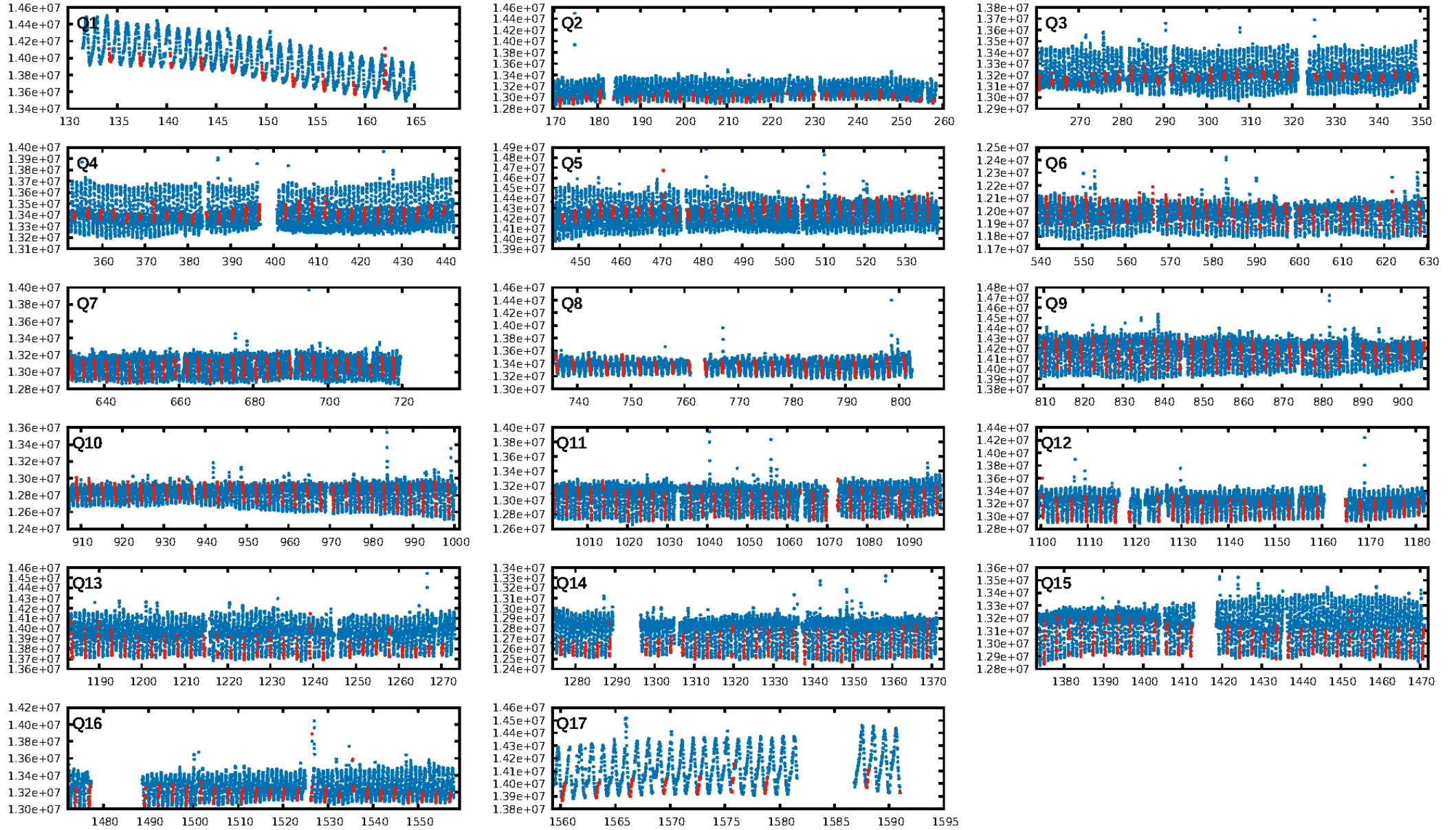
DiffImageQuality-fgm: 0.94 [16/17]

DiffImageOverlap-fno: 0.00 [0/17]

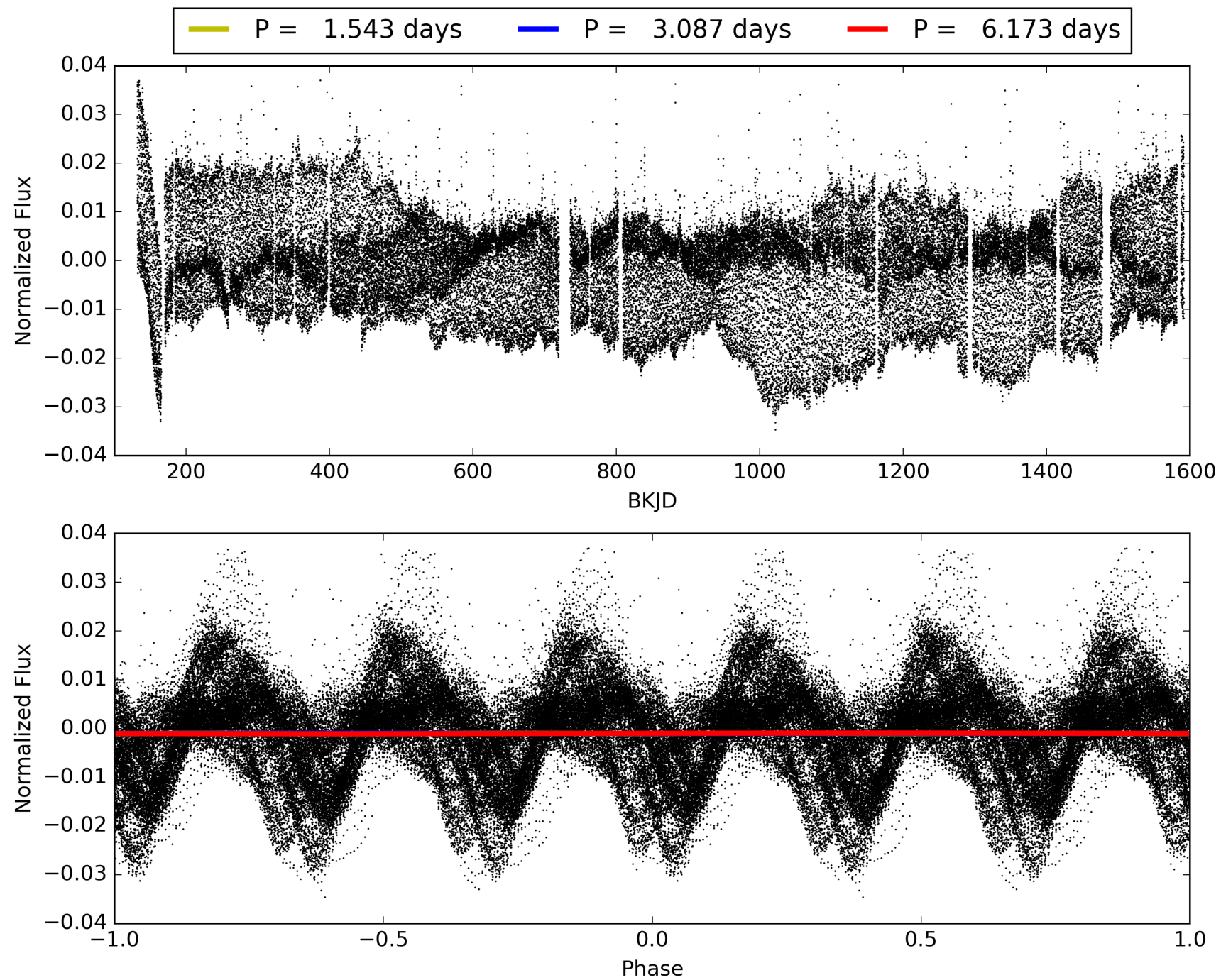
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:05:33 Z

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

# TCE 008673358-03, PDC Light Curves

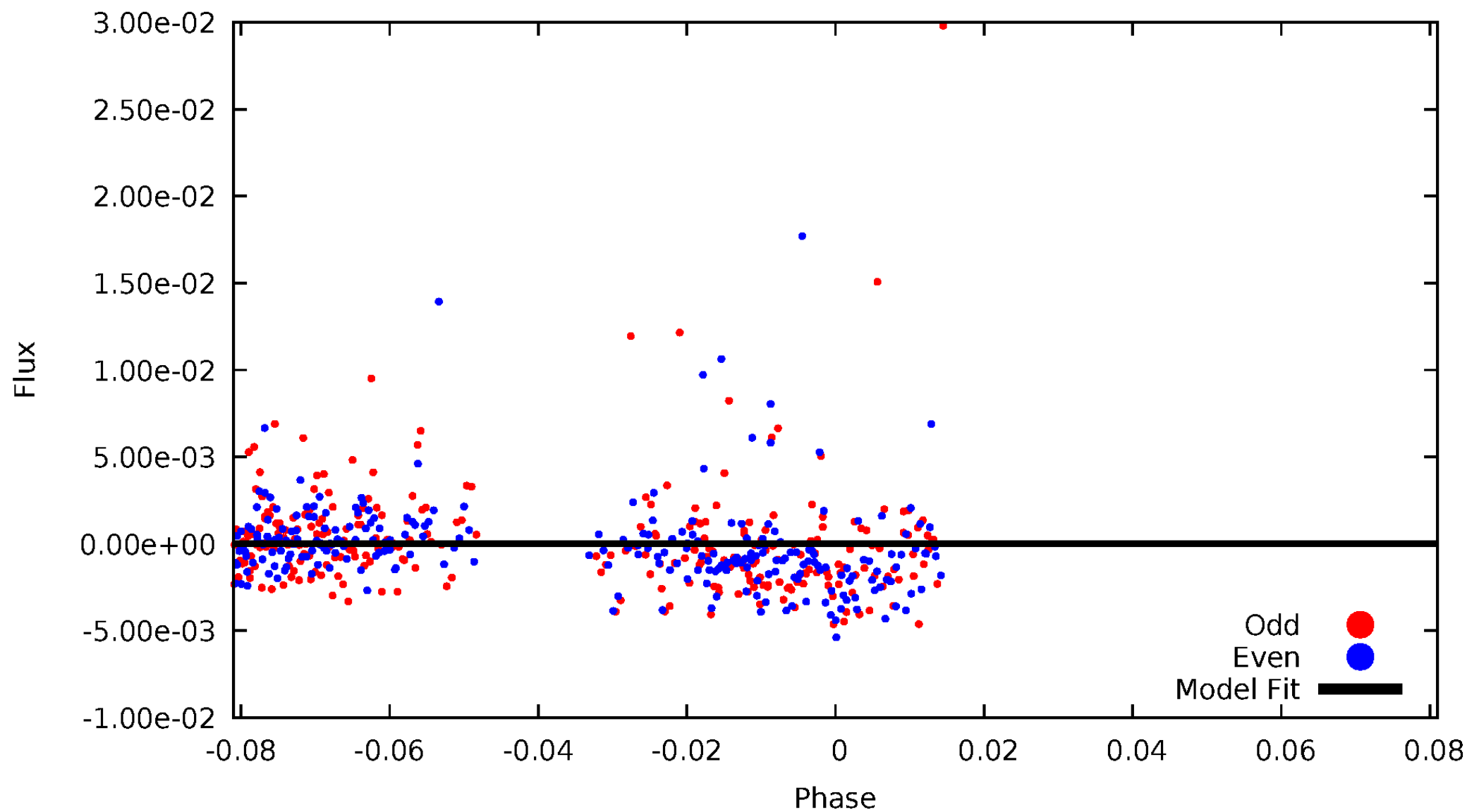


TCE 008673358-03



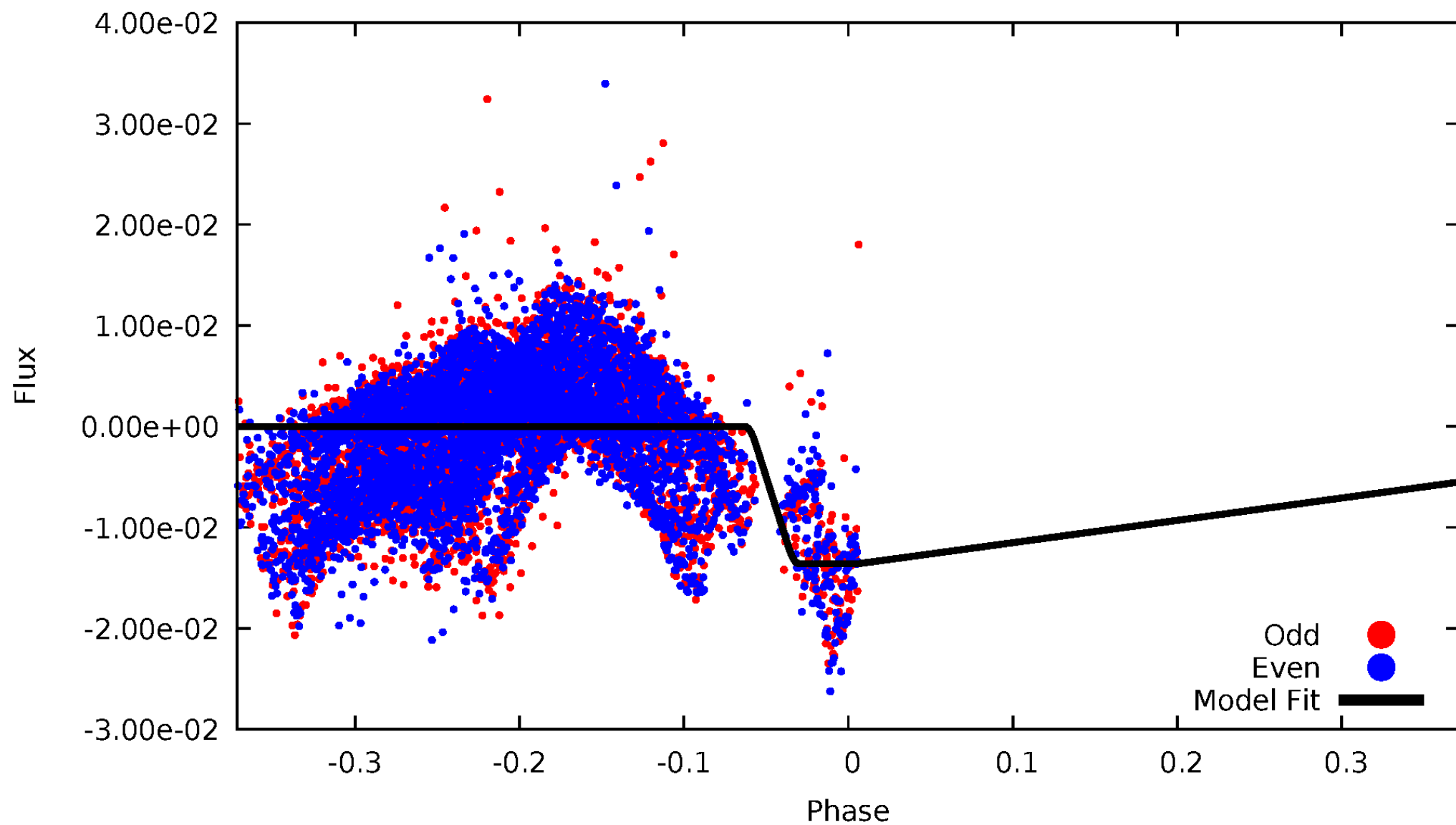
# DV Odd/Even

TCE 008673358-03



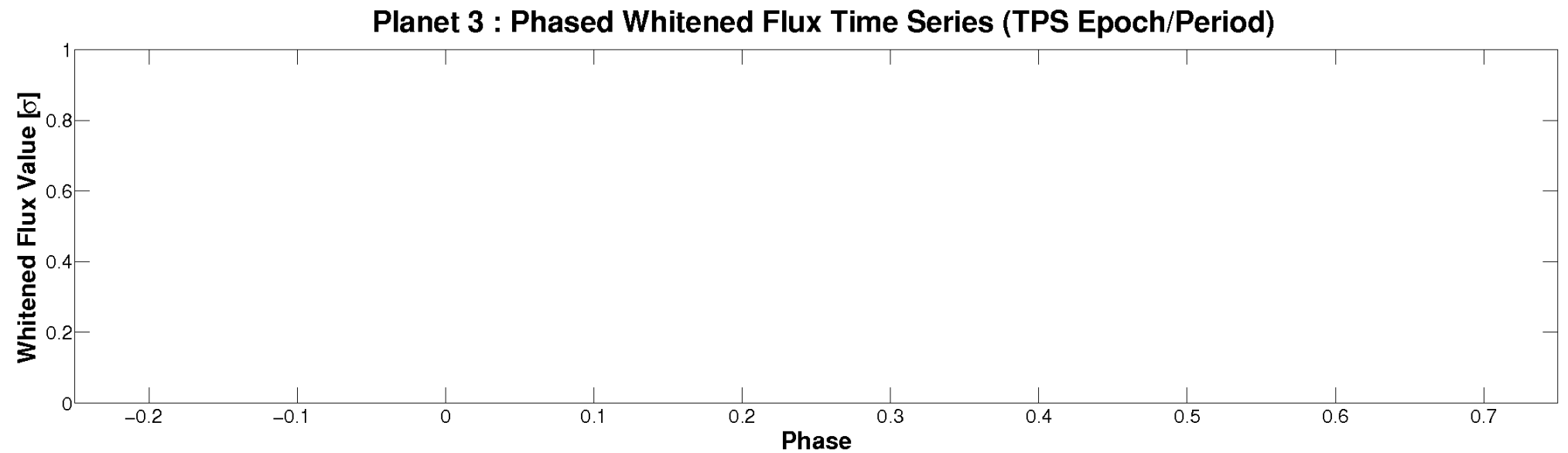
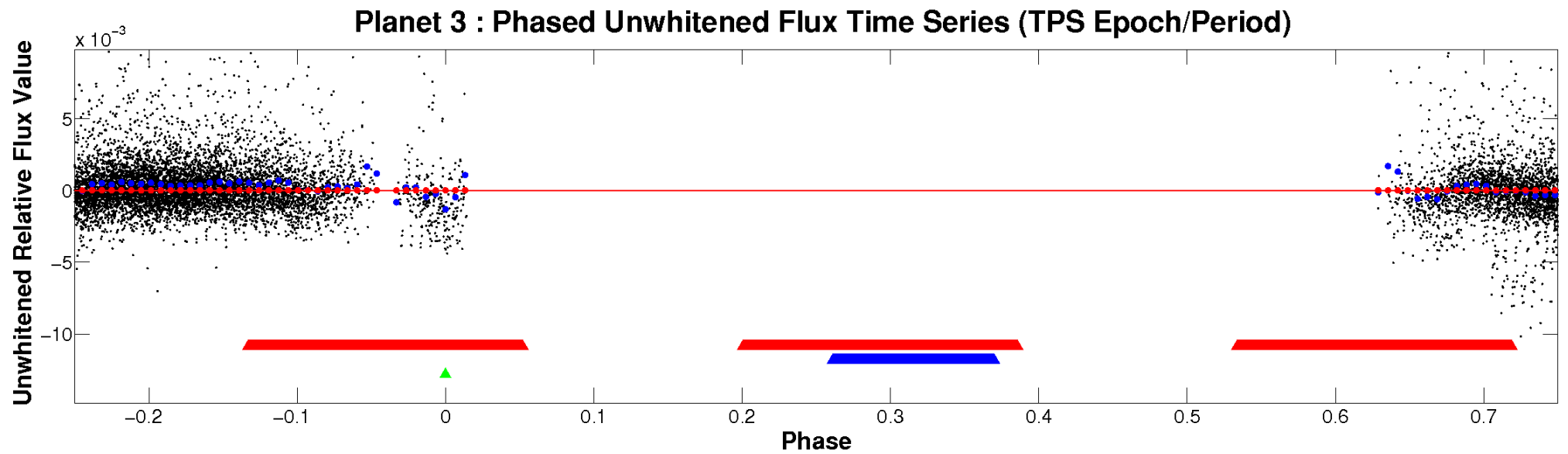
ALT Odd/Even

TCE 008673358-03



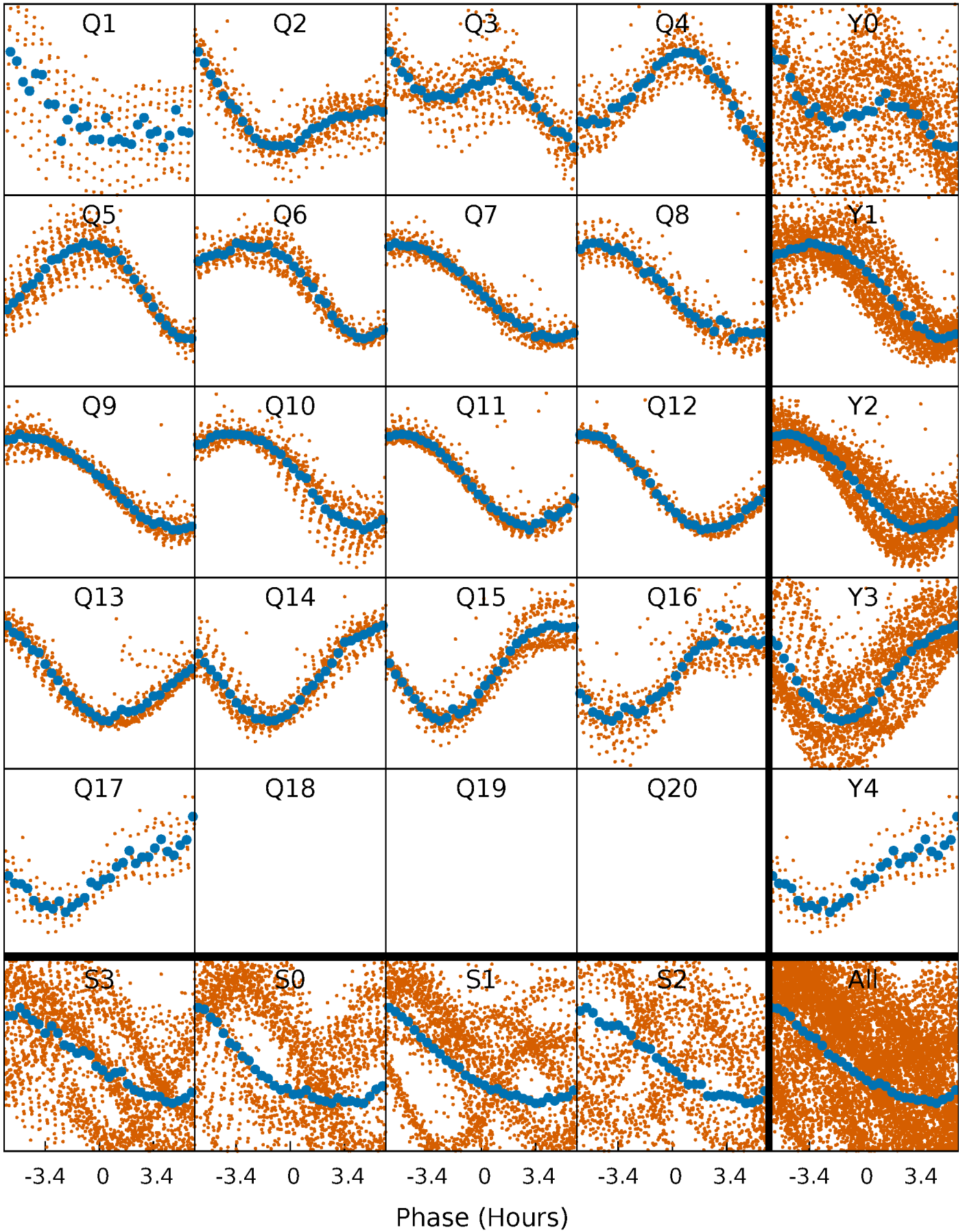


# Non-Whitened Vs. Whitened Light Curve



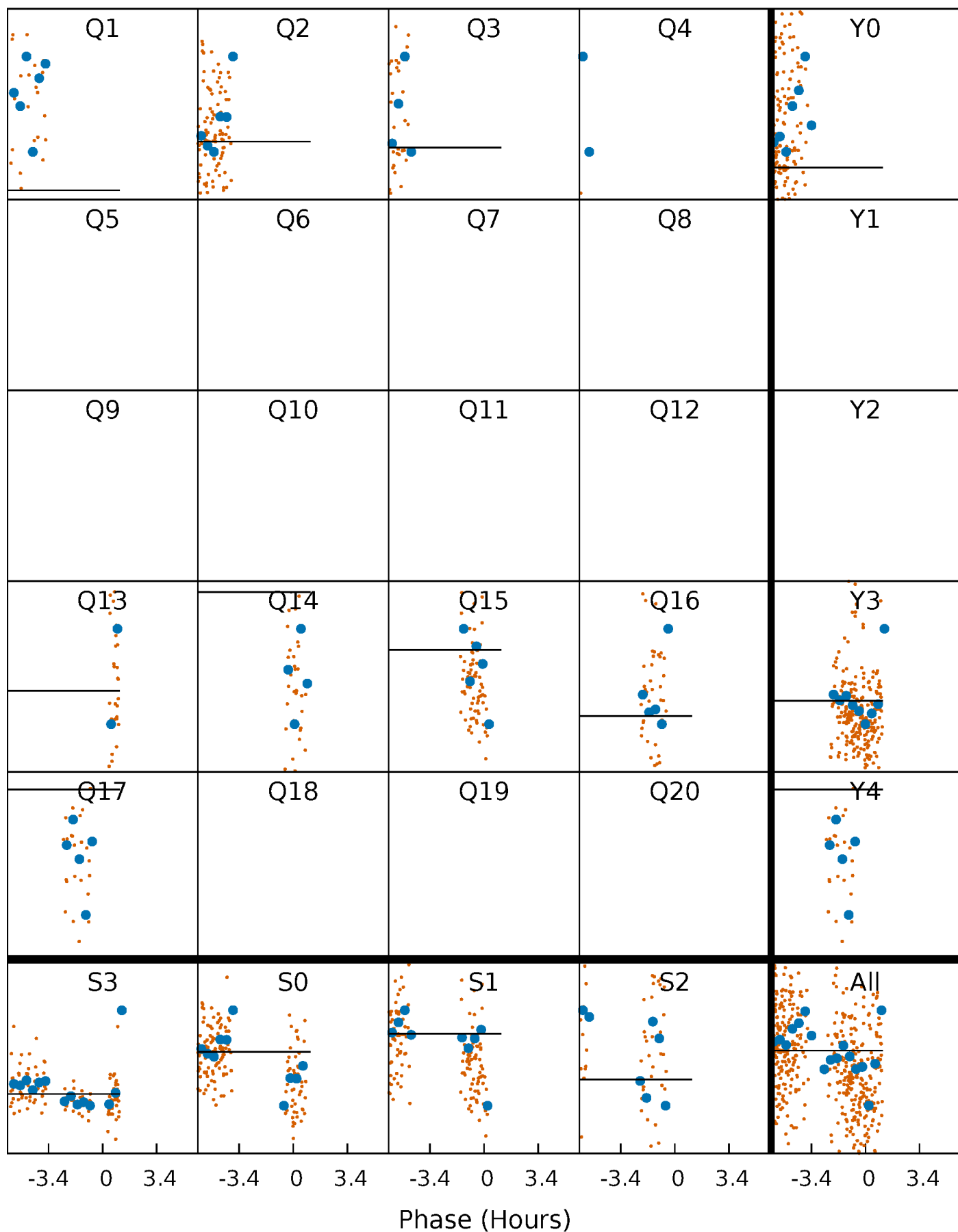
# PDC Quarter-Phased Transit Curves

TCE 008673358-03   P= 3.086586 Days    $T_0=134.257028$  (BKJD)



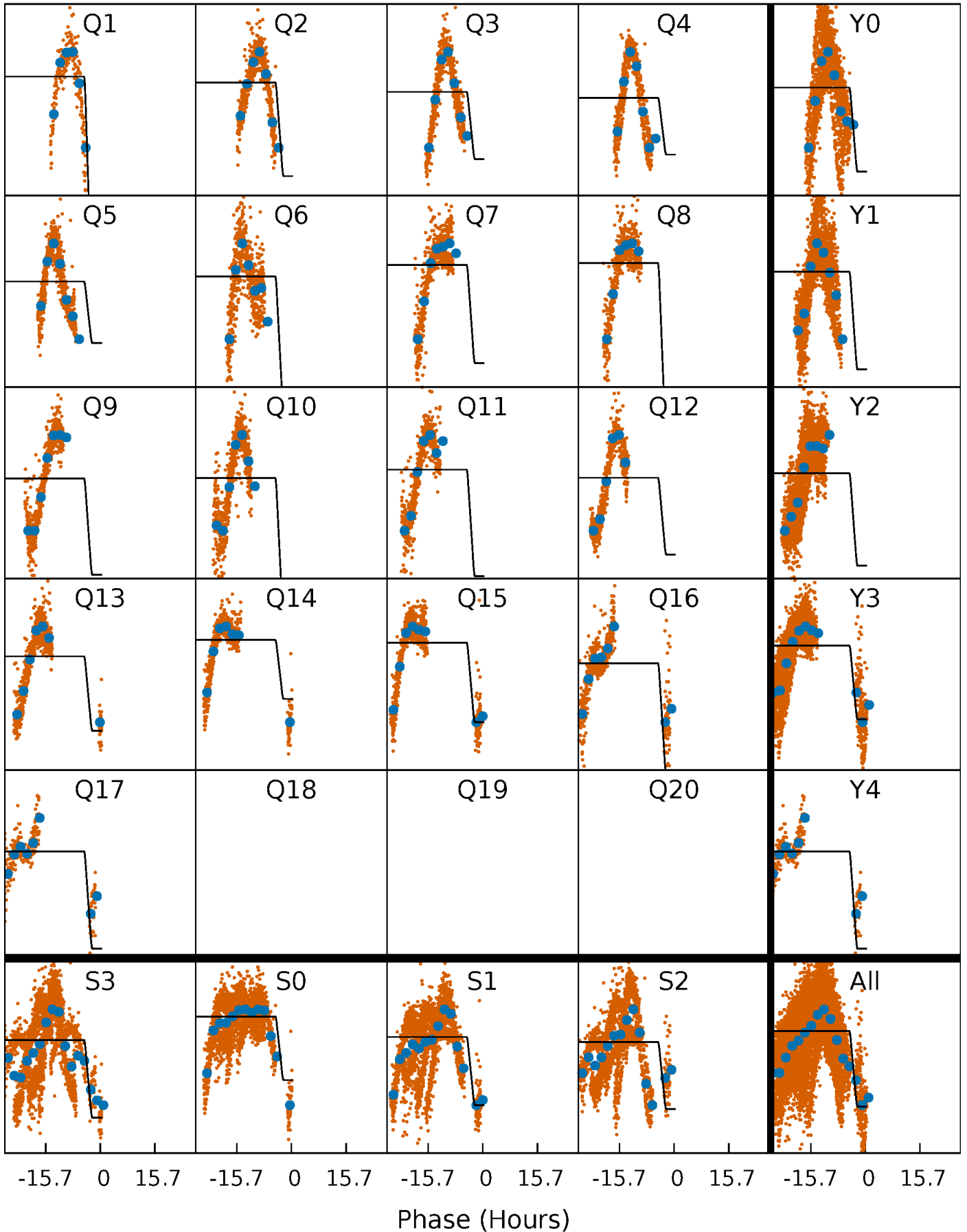
# DV Quarter-Phased Transit Curves

TCE 008673358-03 P= 3.086586 Days  $T_0=134.257028$  (BKJD)



## Alt. Detrend Quarter-Phased Transit Curves

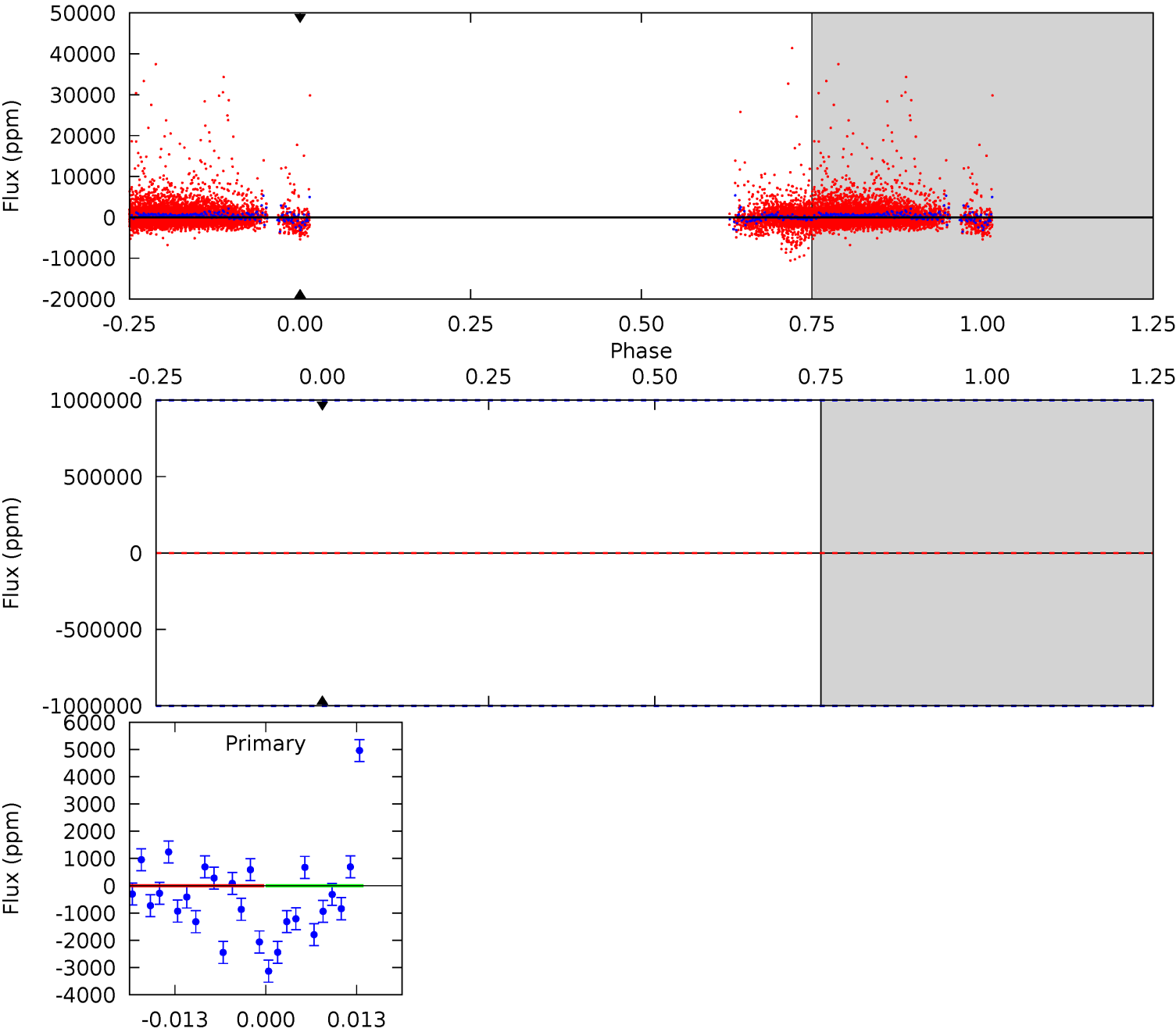
TCE 008673358-03   P= 3.086586 Days    $T_0=134.282414$  (BKJD)



# DV Model-Shift Uniqueness Test

008673358-03, P = 3.086586 Days, E = 131.170442 Days

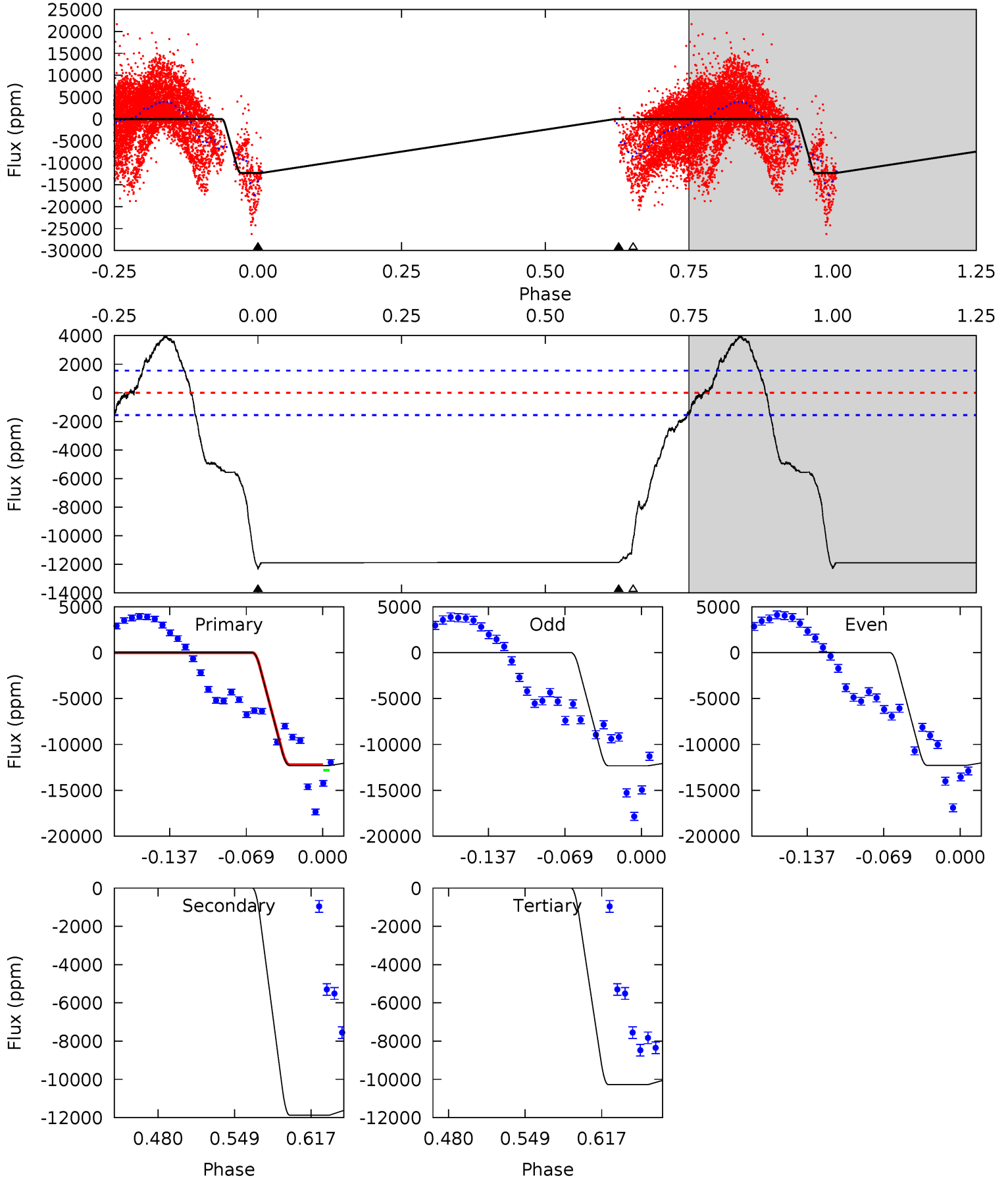
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008673358-03, P = 3.086586 Days, E = 131.195828 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
36.8	35.5	30.7	0	4.64	1.82	9.92	6.08	36.8	4.78	35.5	0.08	0.98	0.24	1.61





### Stellar Parameters For KIC 008673358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3373^{+67}_{-67}$	$4.986^{+0.066}_{-0.060}$	$-0.100^{+0.100}_{-0.100}$	$0.270^{+0.055}_{-0.045}$	$0.257^{+0.066}_{-0.048}$	$18.460^{+7.091}_{-5.137}$
	+2%/-2%	+1%/-1%	+100%/-100%	+20%/-17%	+26%/-19%	+38%/-28%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008673358-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$2.30^{+2.35}_{-1.57}$	$664^{+24}_{-21}$	$2524^{+3950}_{-9278}$	$58^{+11863}_{-13057}$
Alt.	$-11869 \pm 335$	$3.83^{+2.74}_{-2.13}$	$664^{+24}_{-23}$	$3197^{+1053}_{-437}$	$315^{+1339}_{-208}$

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

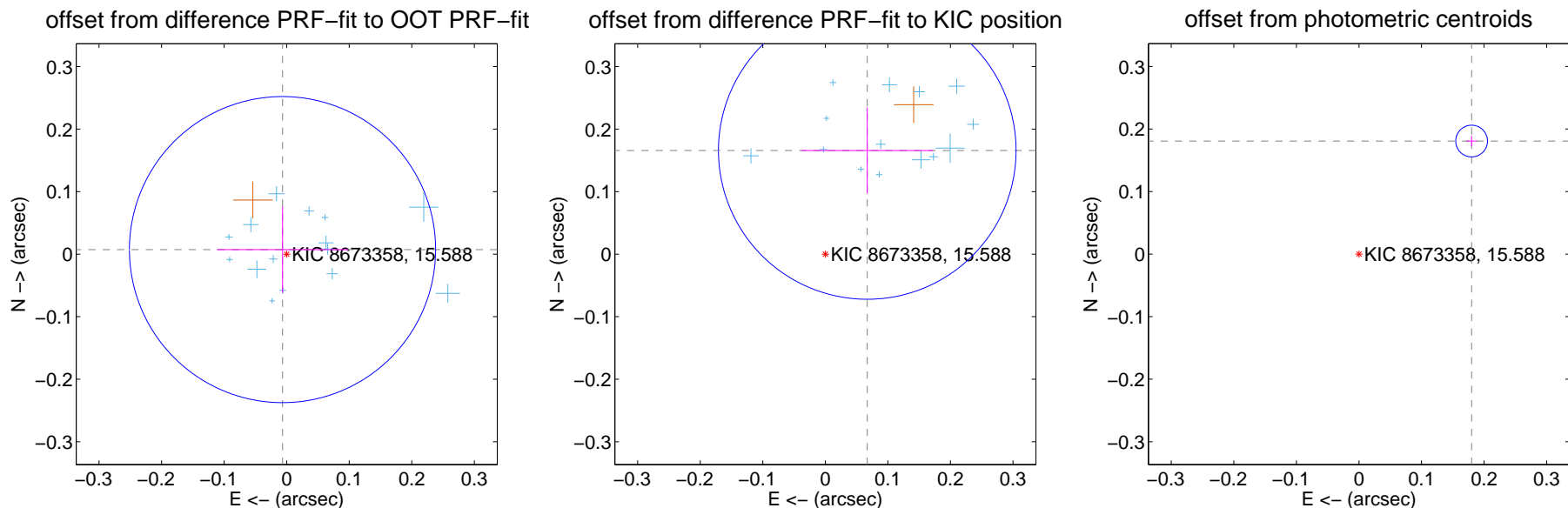
## DV Centroid Data

Supplemental centroid analysis for 008673358-03. Kepler magnitude: 15.59. Transit SNR -1.00

There are 16 quarters with good PRF difference image offsets

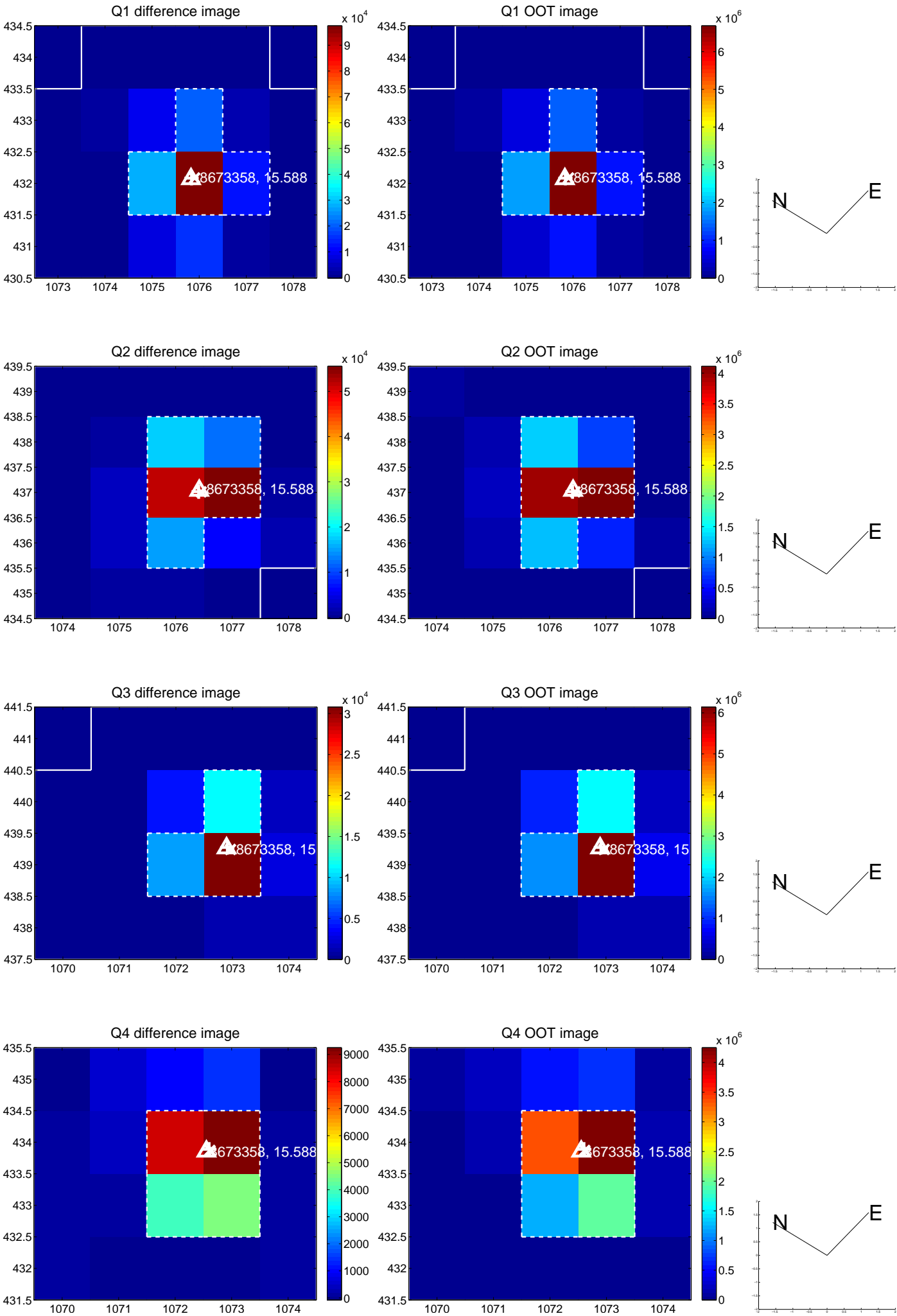
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.010 \pm 0.082$	0.12	$0.007 \pm 0.105$	$0.007 \pm 0.069$
PRF-fit source offset from KIC position	$0.179 \pm 0.079$	2.25	$-0.067 \pm 0.105$	$0.166 \pm 0.069$
photometric centroid source offset	$0.26 \pm 0.01$	30.17	$-0.18 \pm 0.01$	$0.18 \pm 0.01$



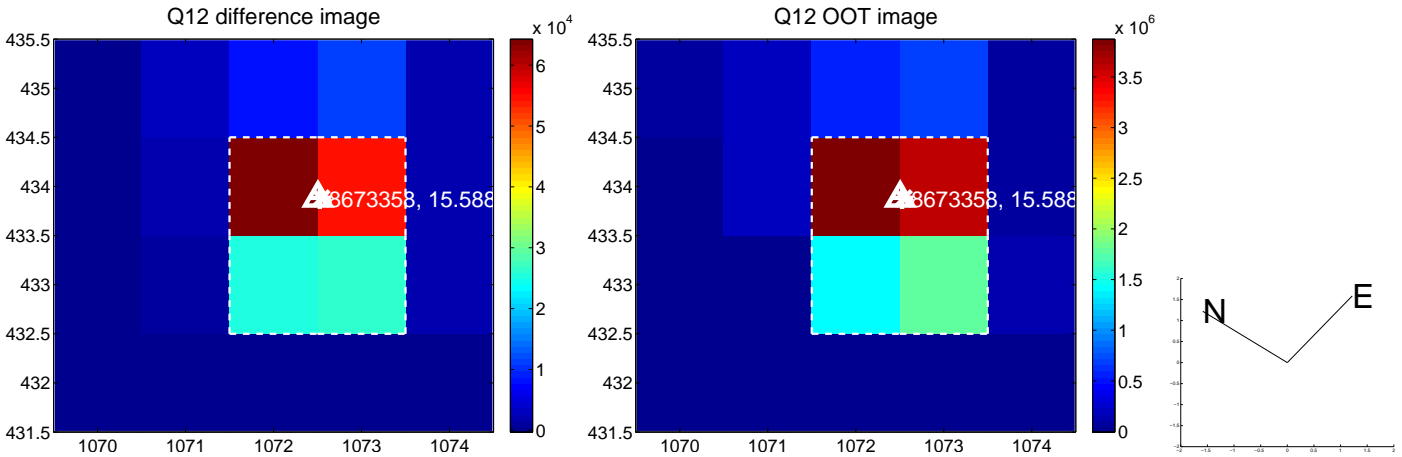
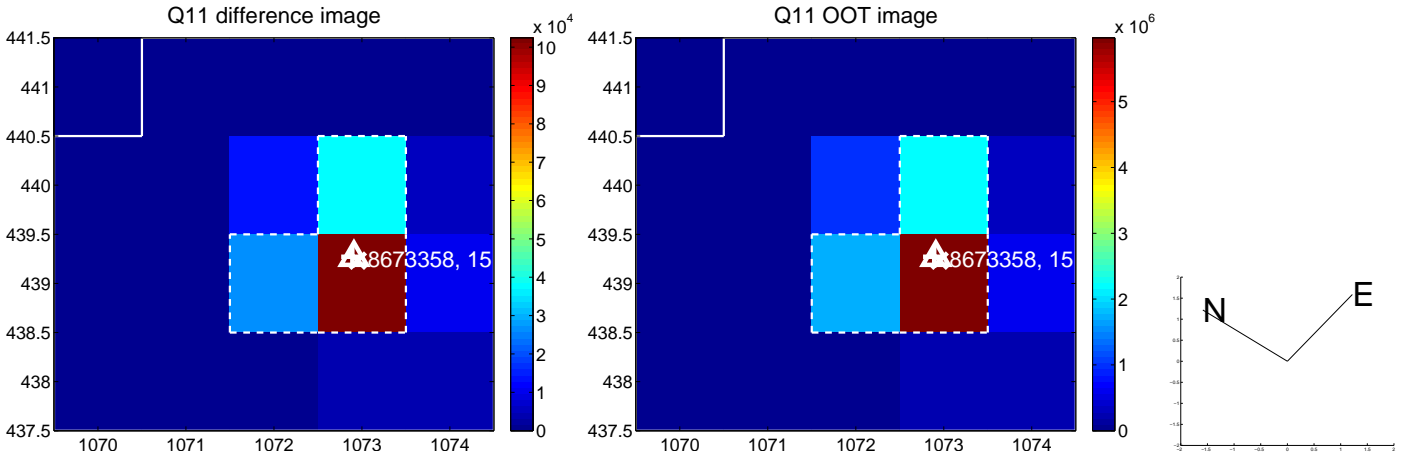
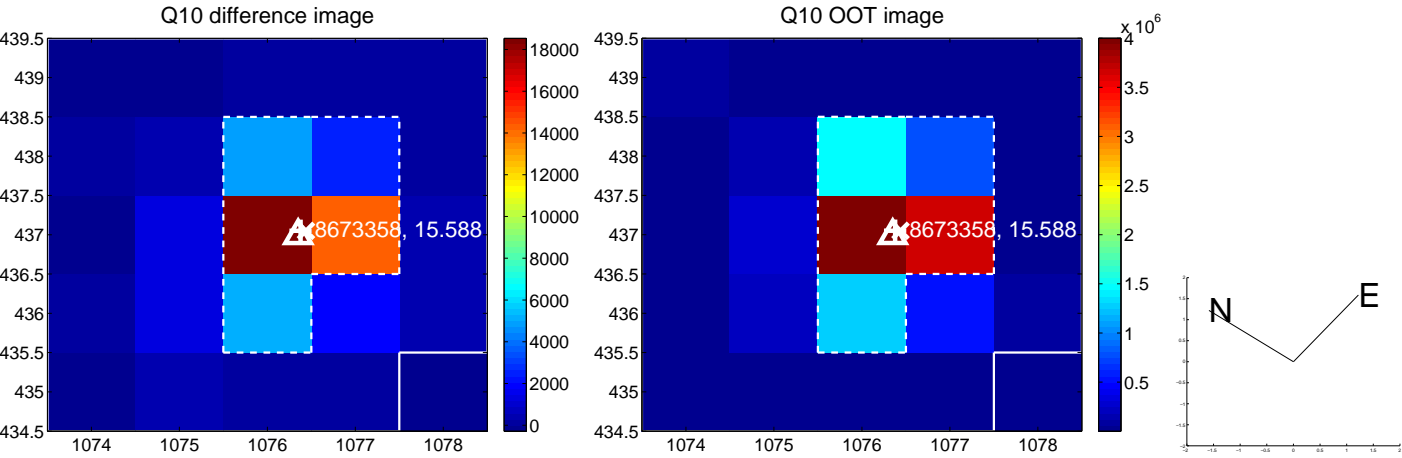
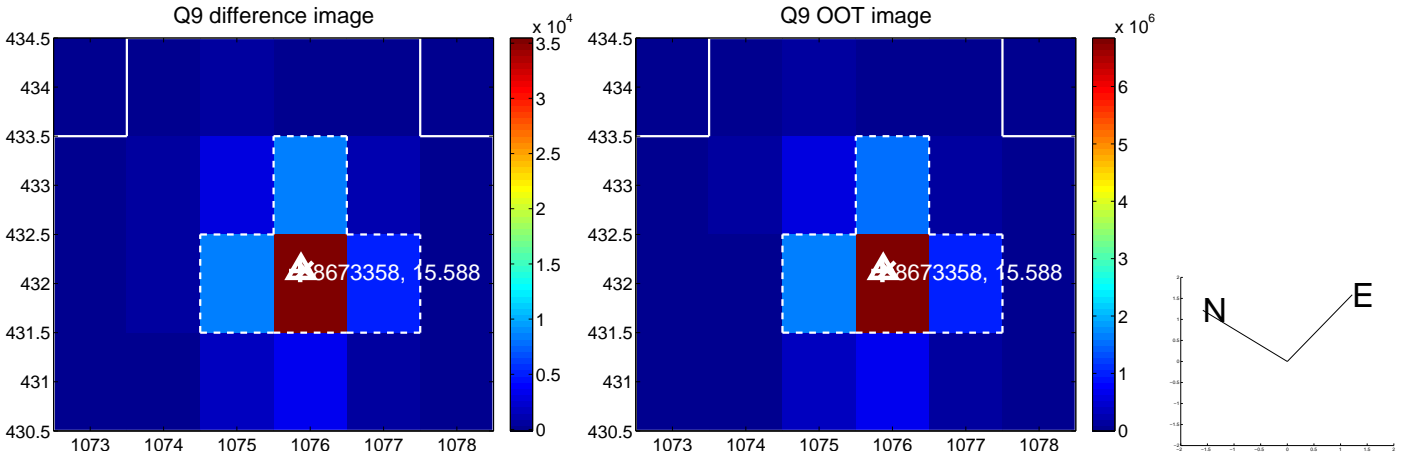
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

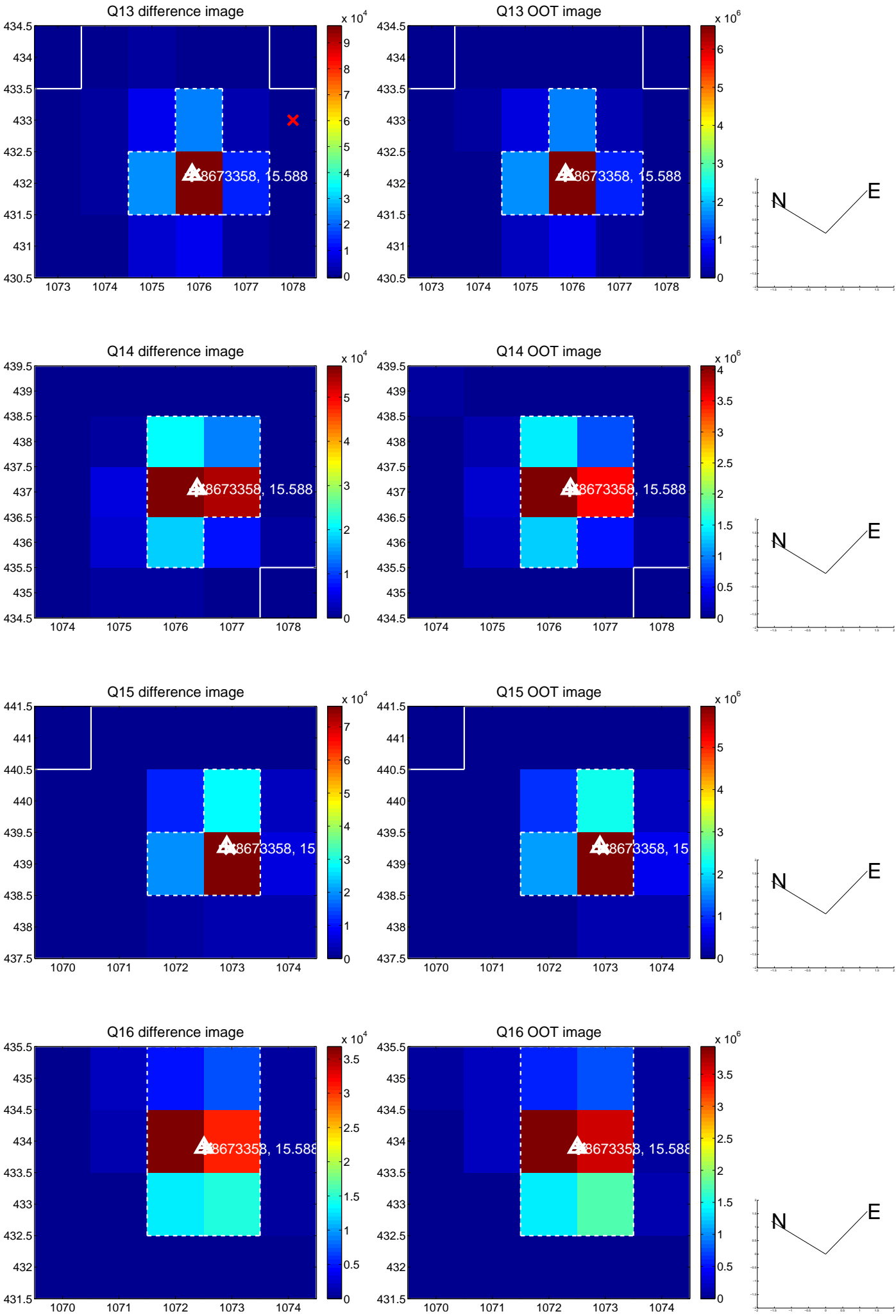




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

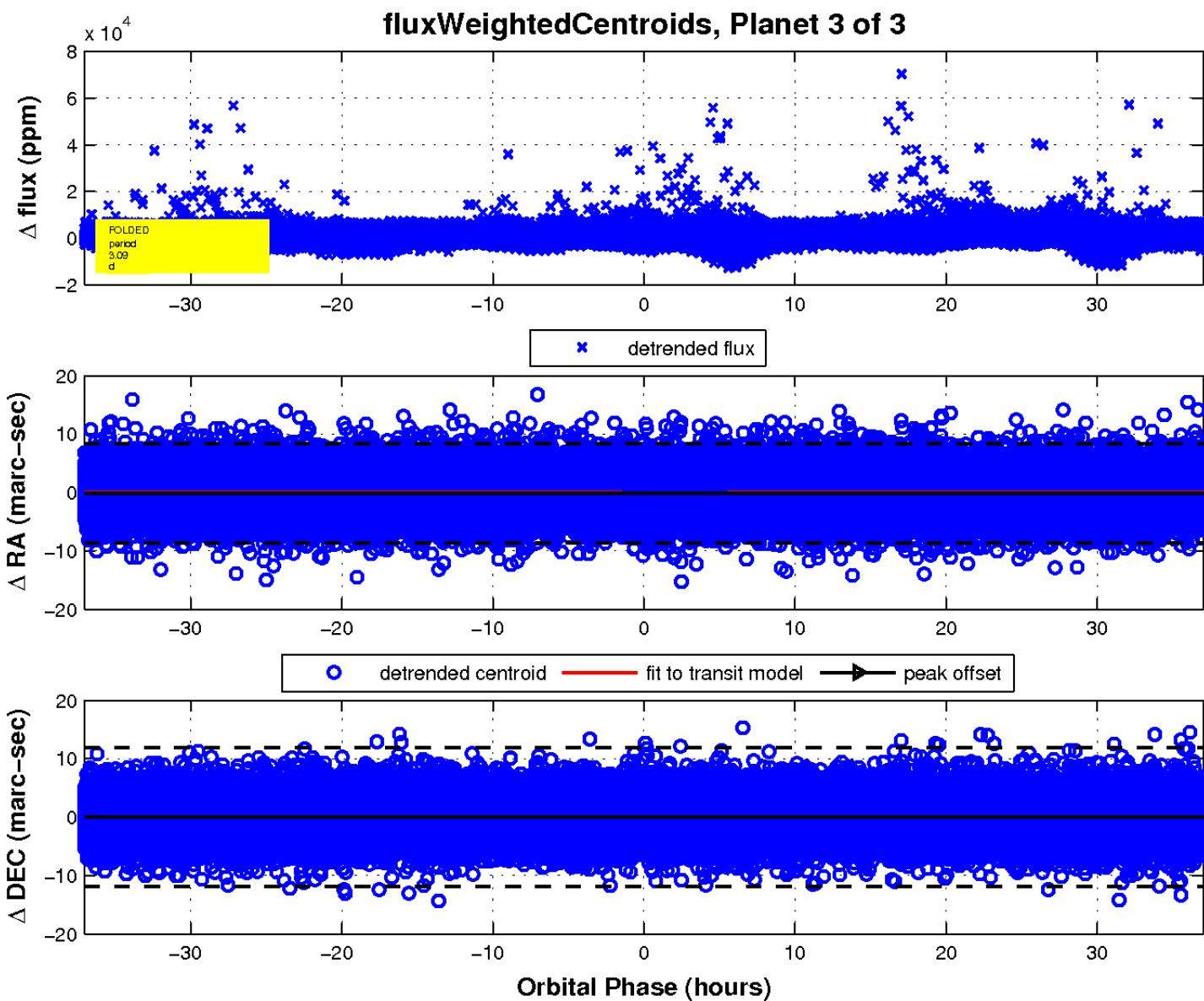
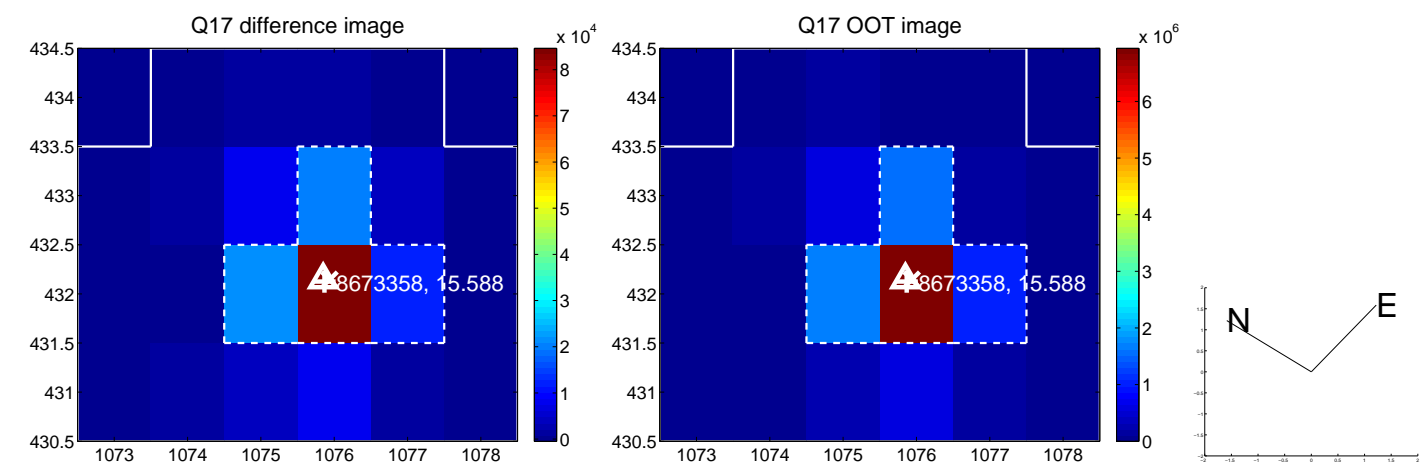


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



# UKIRT Image

Declination

