

# KIC 007603200

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007603200-01	OBS	0314.01	13.781103	136.509116	722.4	2.473	112.7	108.6	0.50	3846	1.58	6.18
007603200-02	OBS	0314.02	23.088899	147.921897	610.1	2.475	59.5	54.6	0.50	3846	2.00	3.10
007603200-03	OBS	0314.03	10.313089	133.524154	108.6	3.274	14.3	16.4	0.50	3846	1.10	9.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007603200-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007603200-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007603200-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

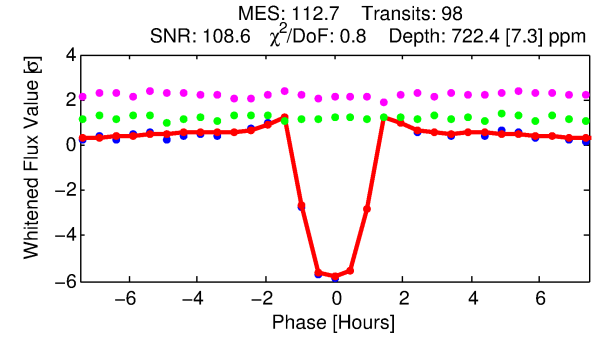
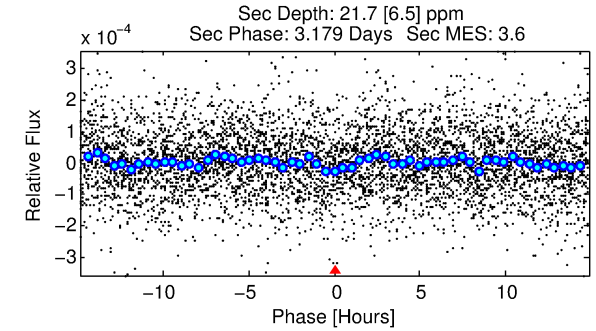
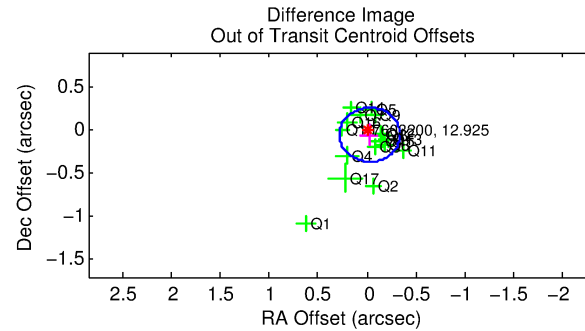
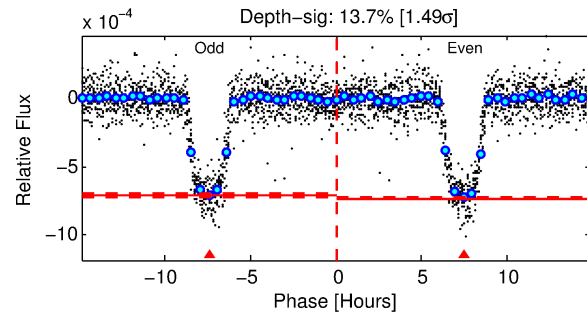
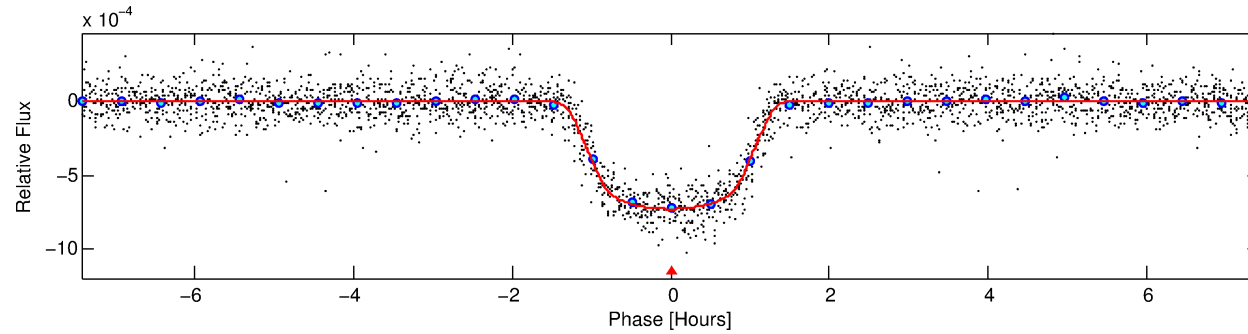
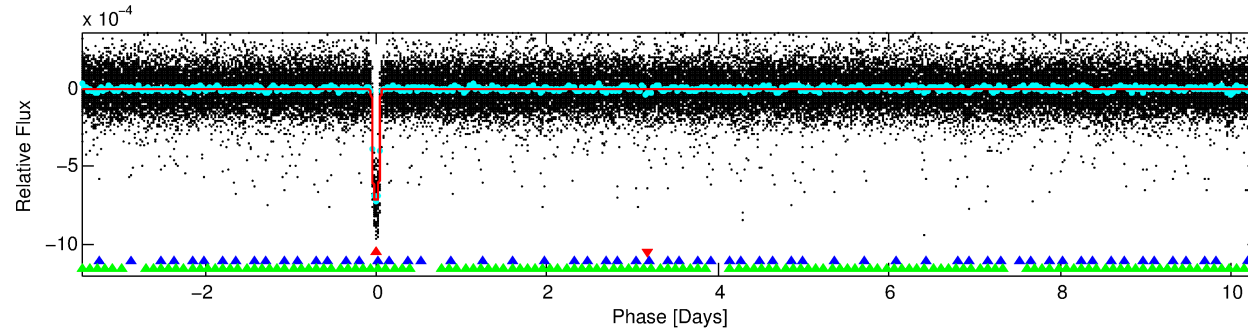
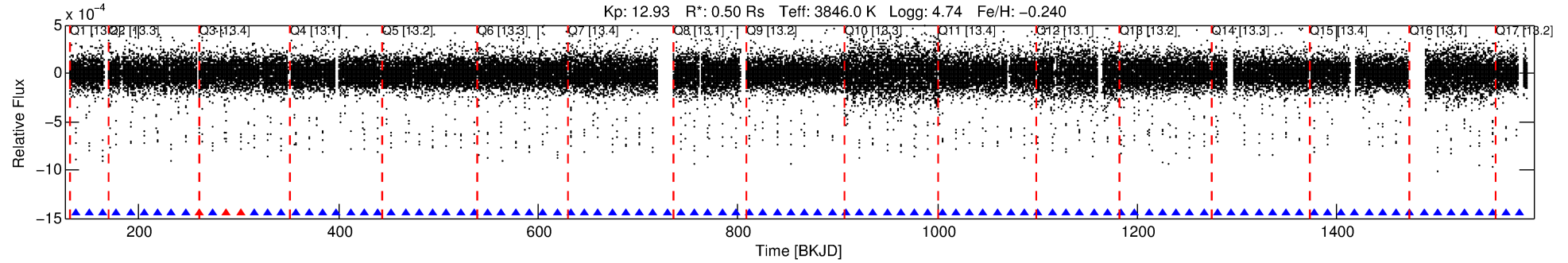
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007603200-01

No Significant Match Found

# DV One-Page Summary

KIC: 7603200 Candidate: 1 of 3 Period: 13.781 d  
KOI: K00314.01 Name: Kepler-138c Corr: 0.956



## DV Fit Results:

Period = 13.78110 [0.00001] d  
Epoch = 136.5091 [0.0004] BKJD  
Rp/R\* = 0.0287 [0.0008]  
a/R\* = 22.45 [2.70]  
b = 0.88 [0.03]  
Seff = 6.18 [0.83]  
Teq = 402 [14] K  
Rp = 1.58 [0.16] Re  
a = 0.0896 [0.0067] AU  
Ag = 38.46 [12.31] [3.04 $\sigma$ ]  
Teffp = 1548 [122] K [9.32 $\sigma$ ]

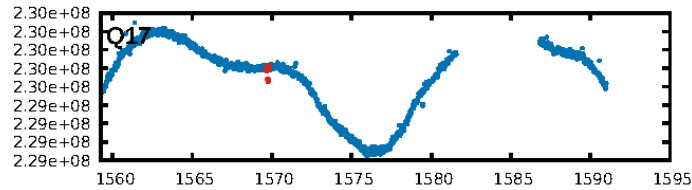
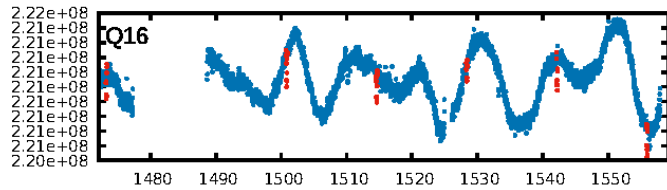
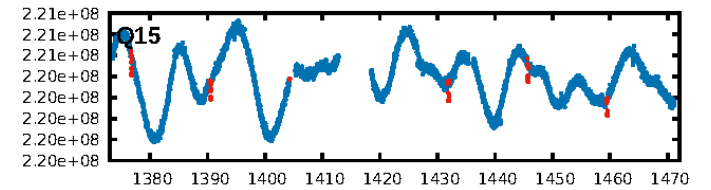
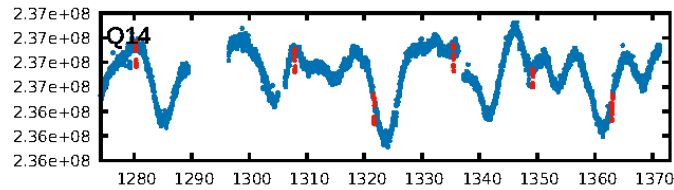
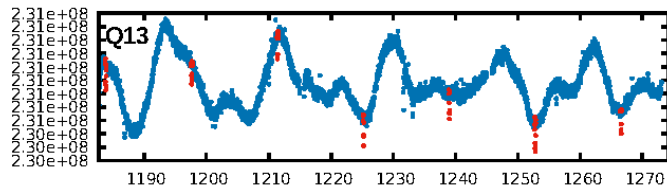
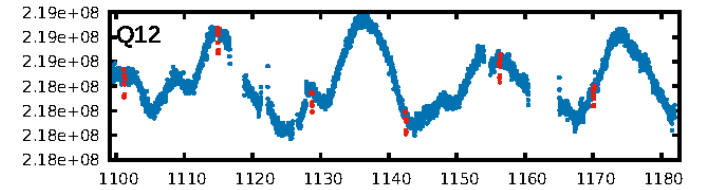
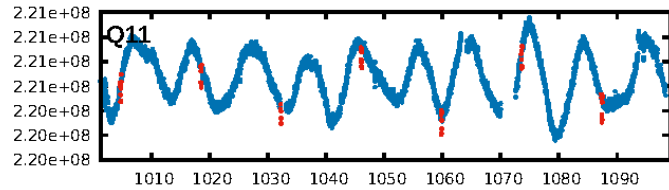
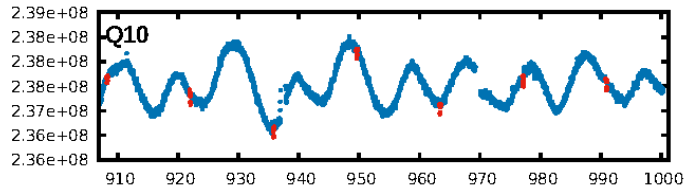
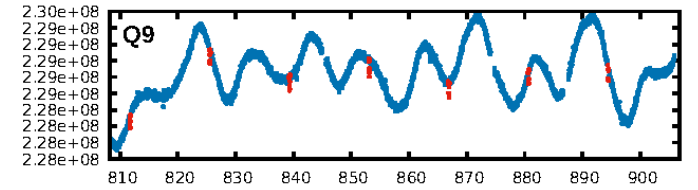
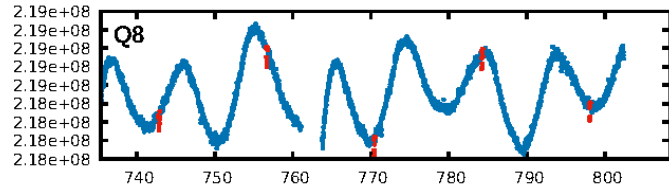
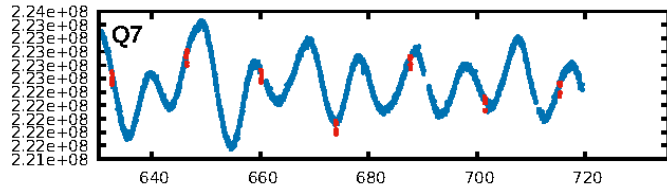
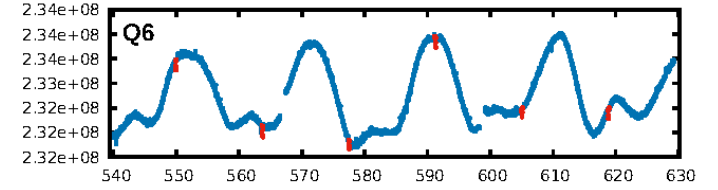
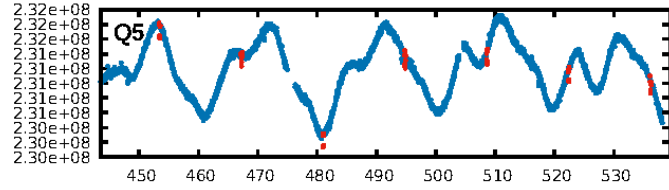
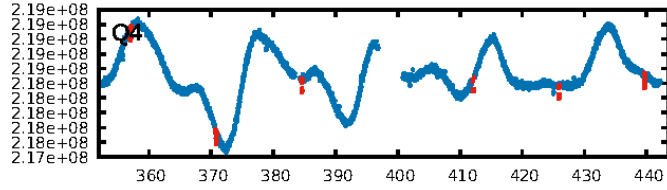
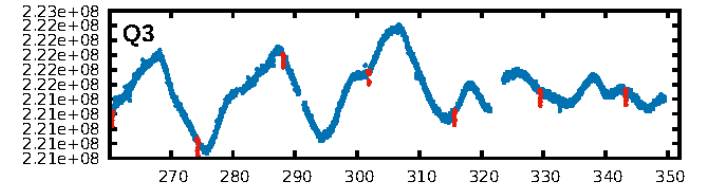
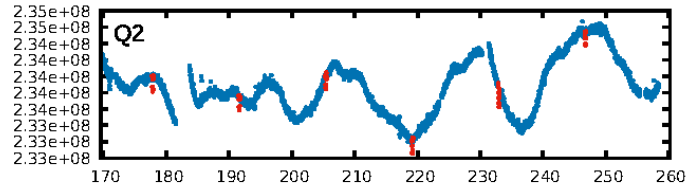
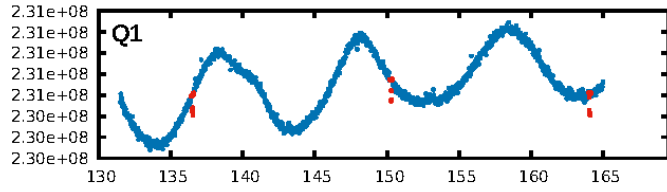
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.29 $\sigma$ ]  
LongPeriod-sig: 100.0% [63.85 $\sigma$ ]  
ModelChiSquare2-sig: 99.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.97 [91/94]  
GhostDiagnostic-chr: 4.74  
Centroid-sig: 5.8%  
Centroid-so: 0.166 arcsec [1.69 $\sigma$ ]  
OotOffset-rm: 0.059 arcsec [0.57 $\sigma$ ]  
KicOffset-rm: 0.223 arcsec [2.00 $\sigma$ ]  
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]

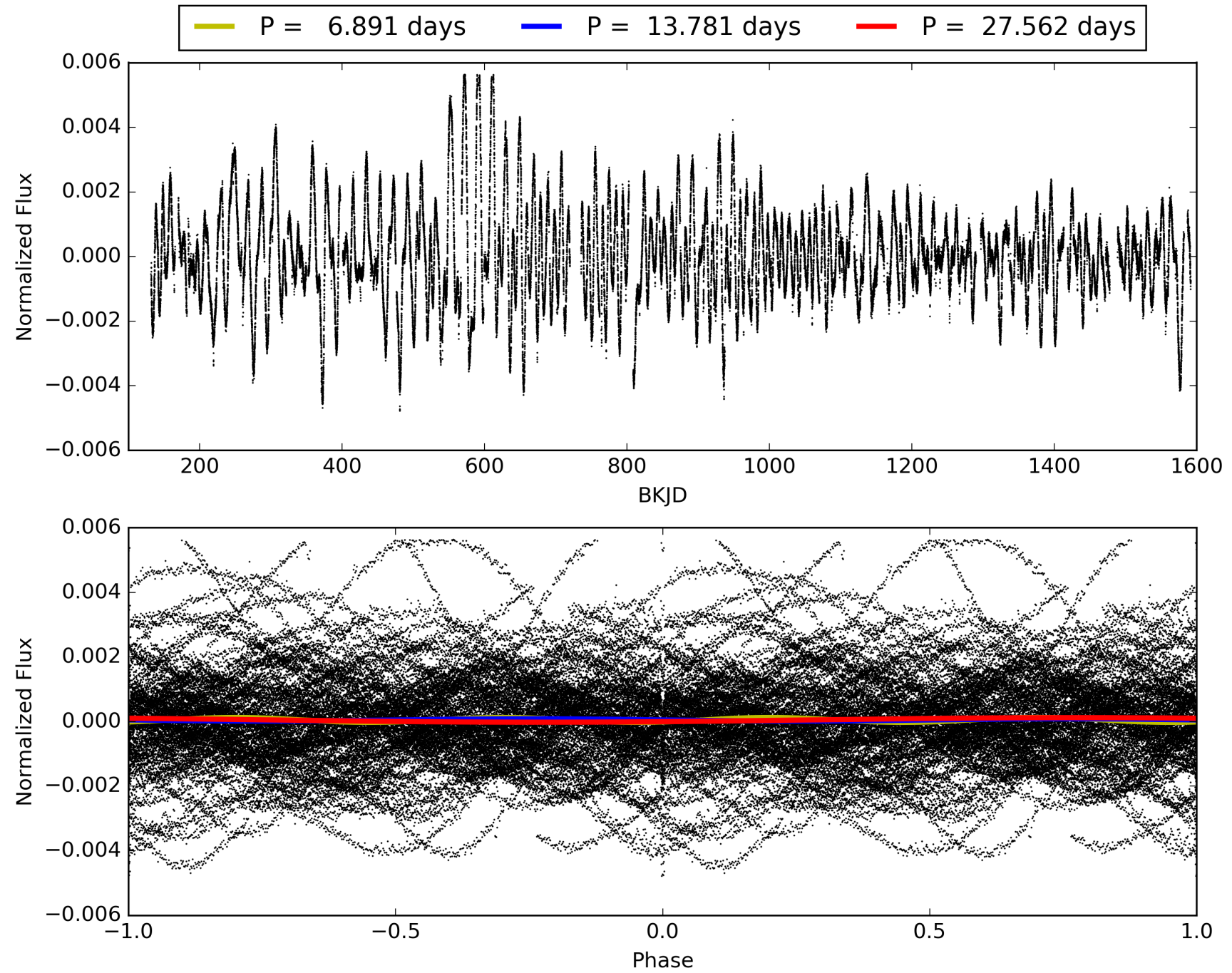
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007603200-01, PDC Light Curves

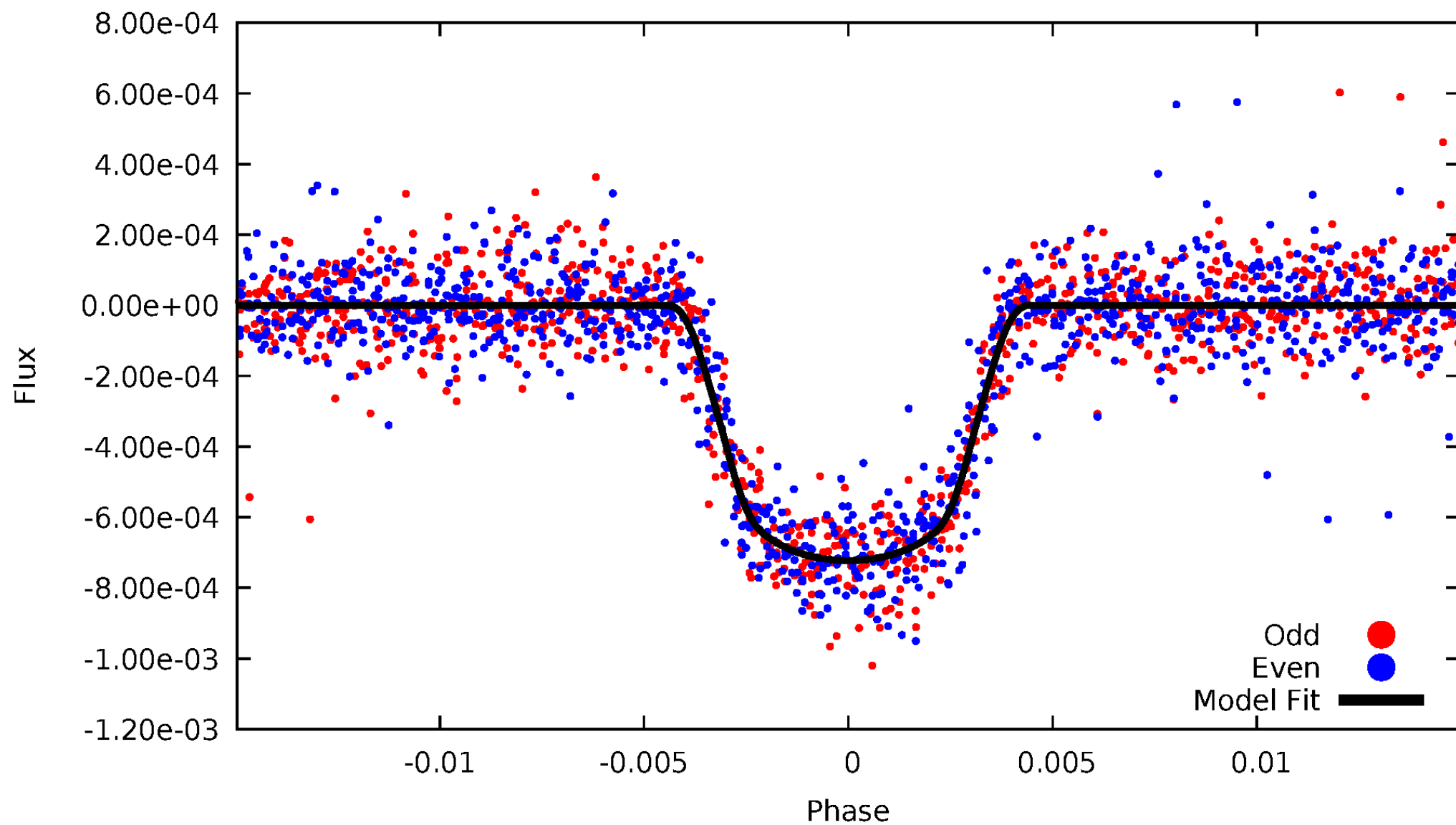


TCE 007603200-01



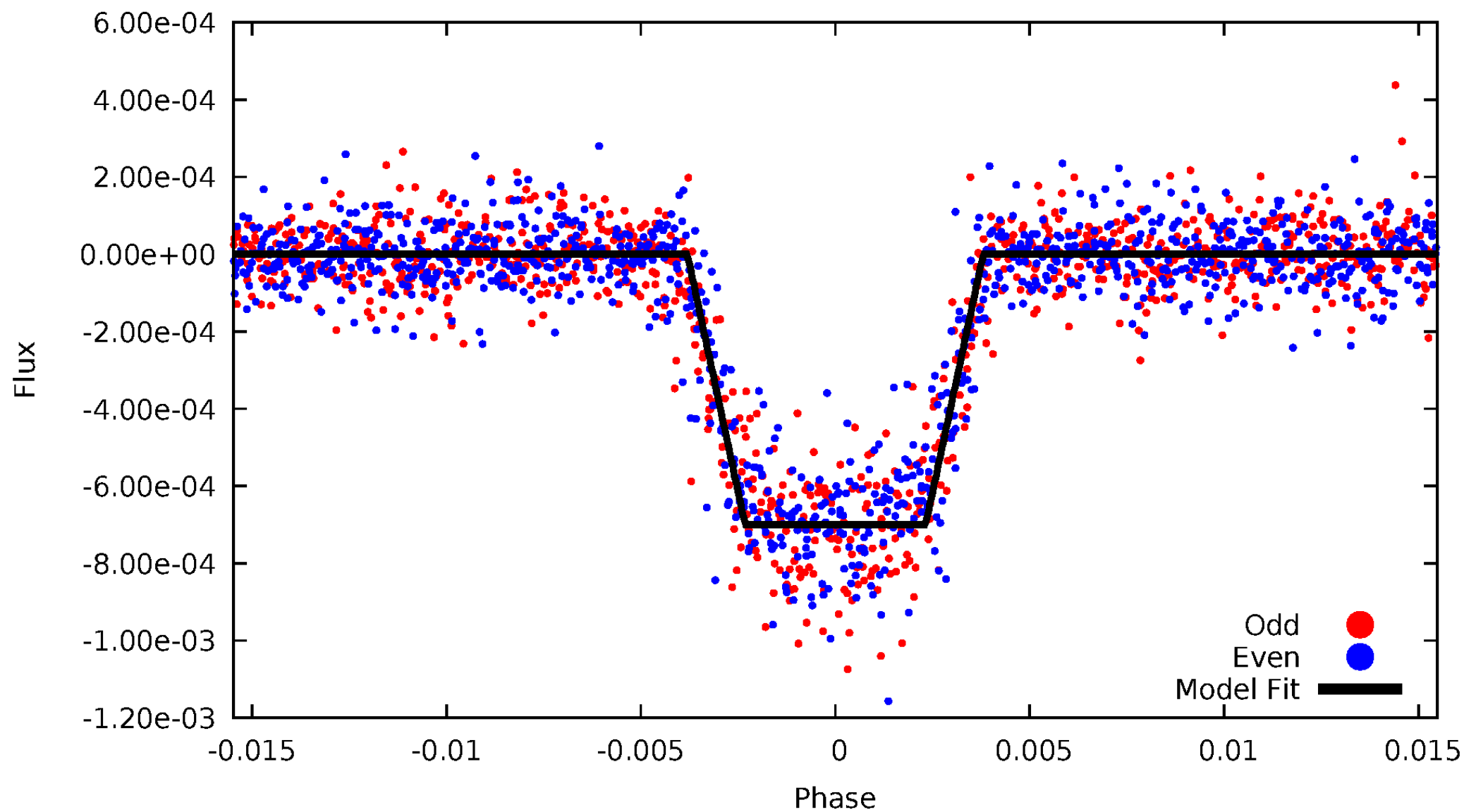
# DV Odd/Even

TCE 007603200-01



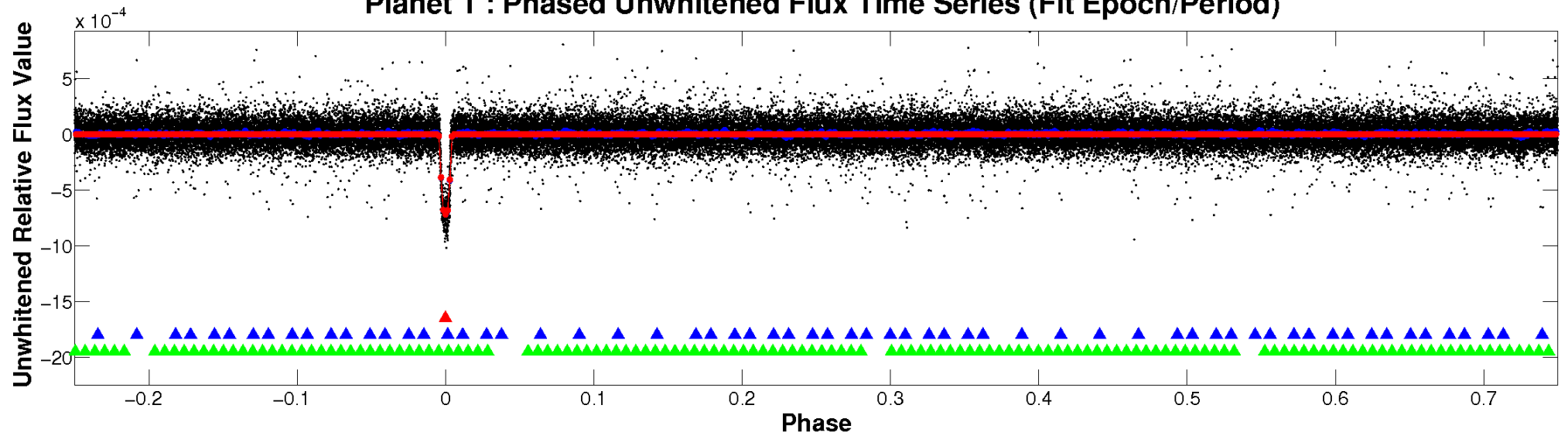
# ALT Odd/Even

TCE 007603200-01

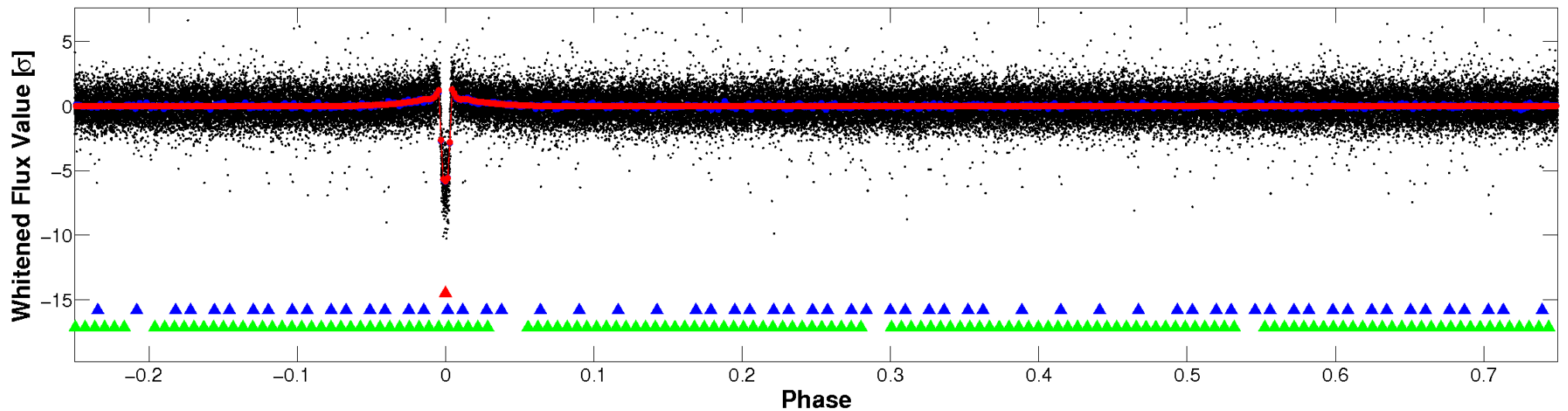


# Non-Whitened Vs. Whitened Light Curve

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



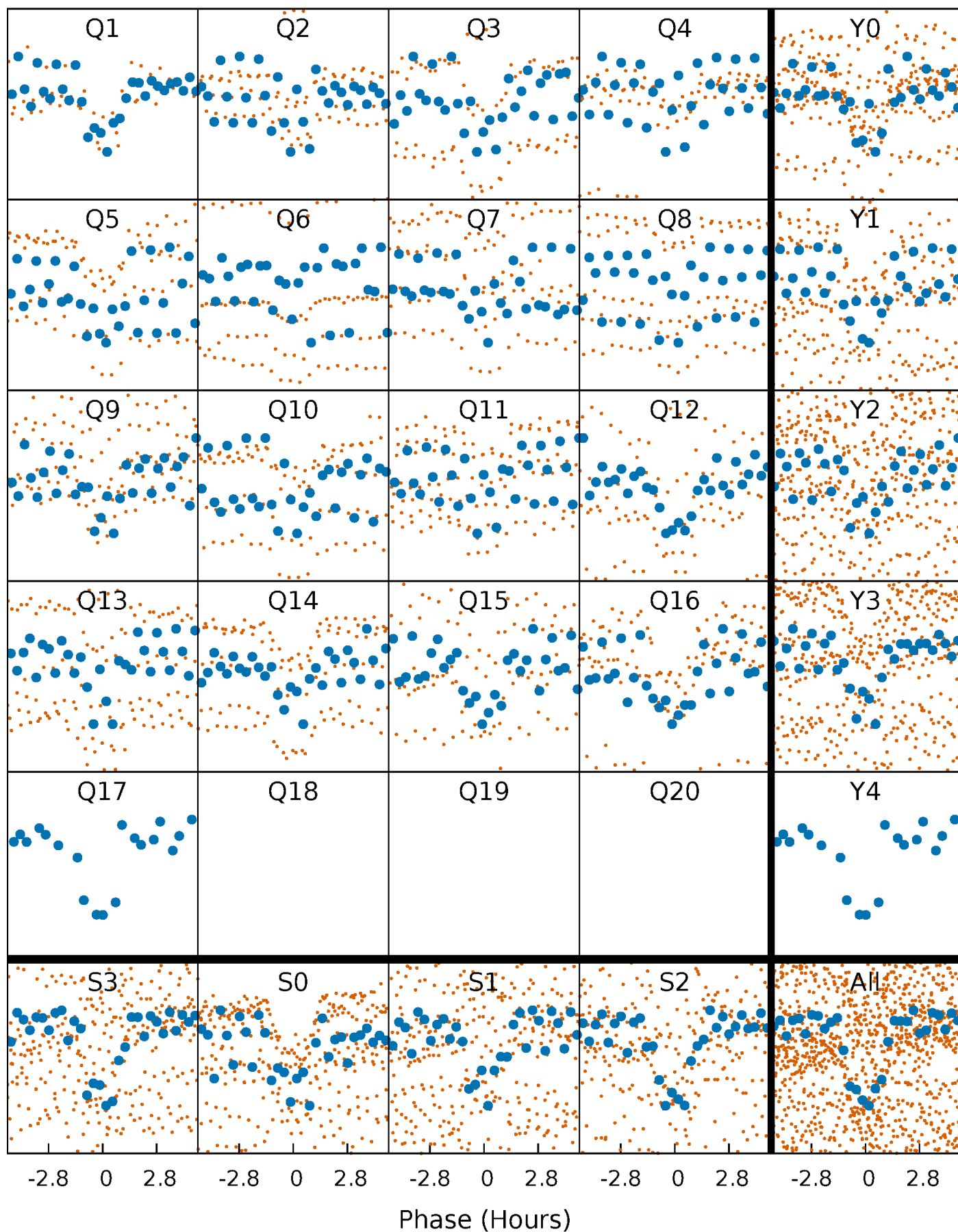
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

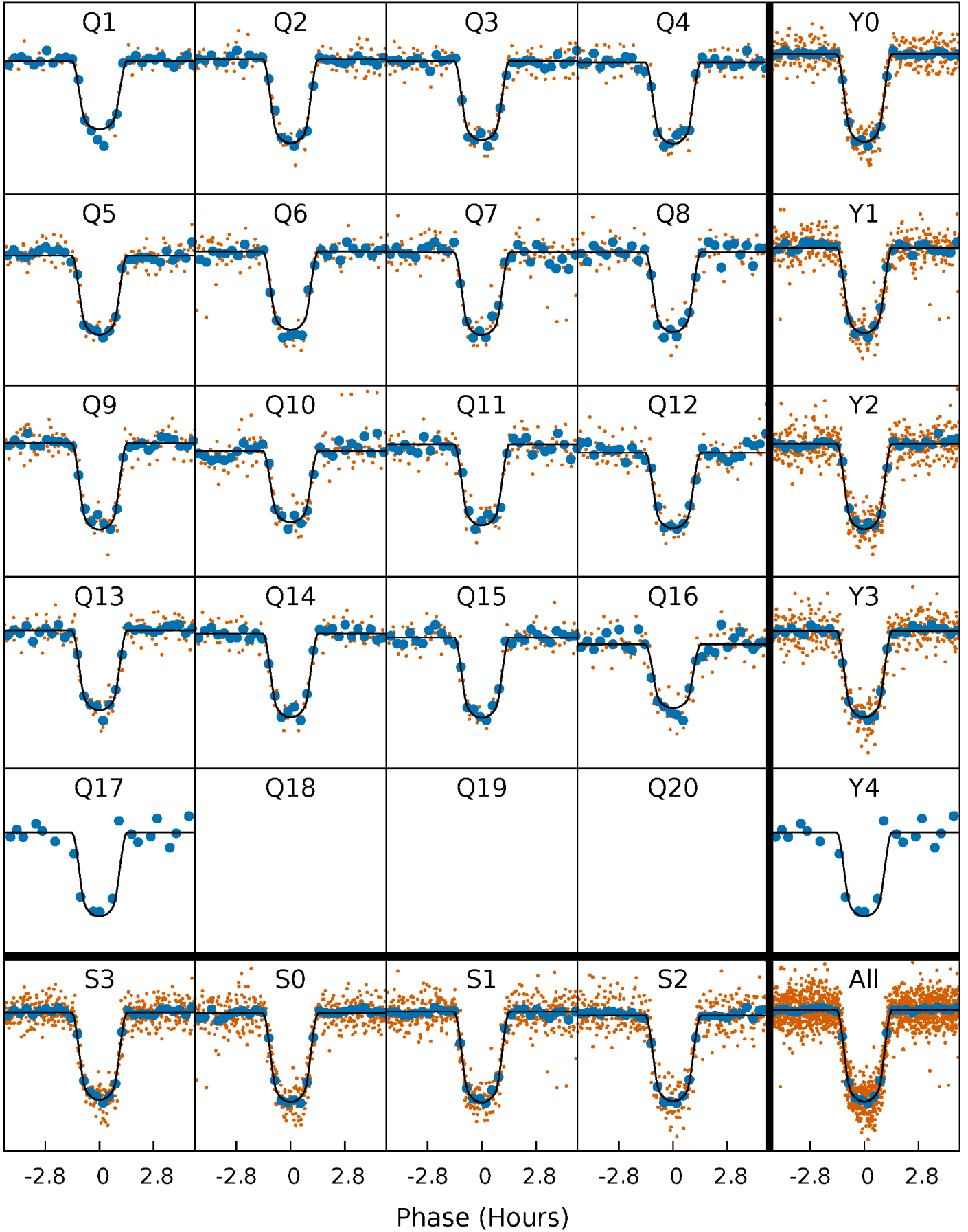
TCE 007603200-01 P= 13.781103 Days  $T_0=136.509116$  (BKJD)





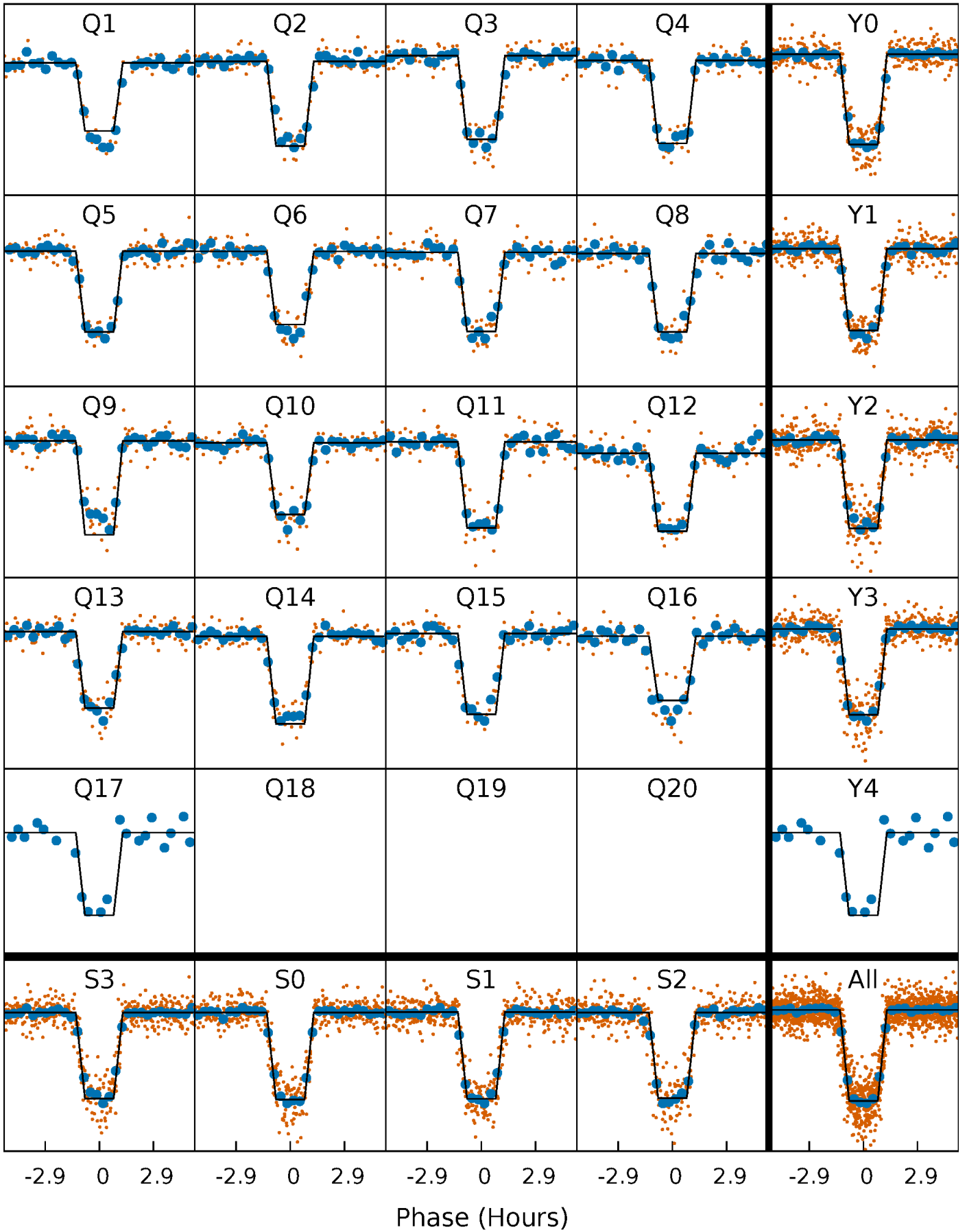
# DV Quarter-Phased Transit Curves

TCE 007603200-01 P= 13.781103 Days  $T_0=136.509116$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

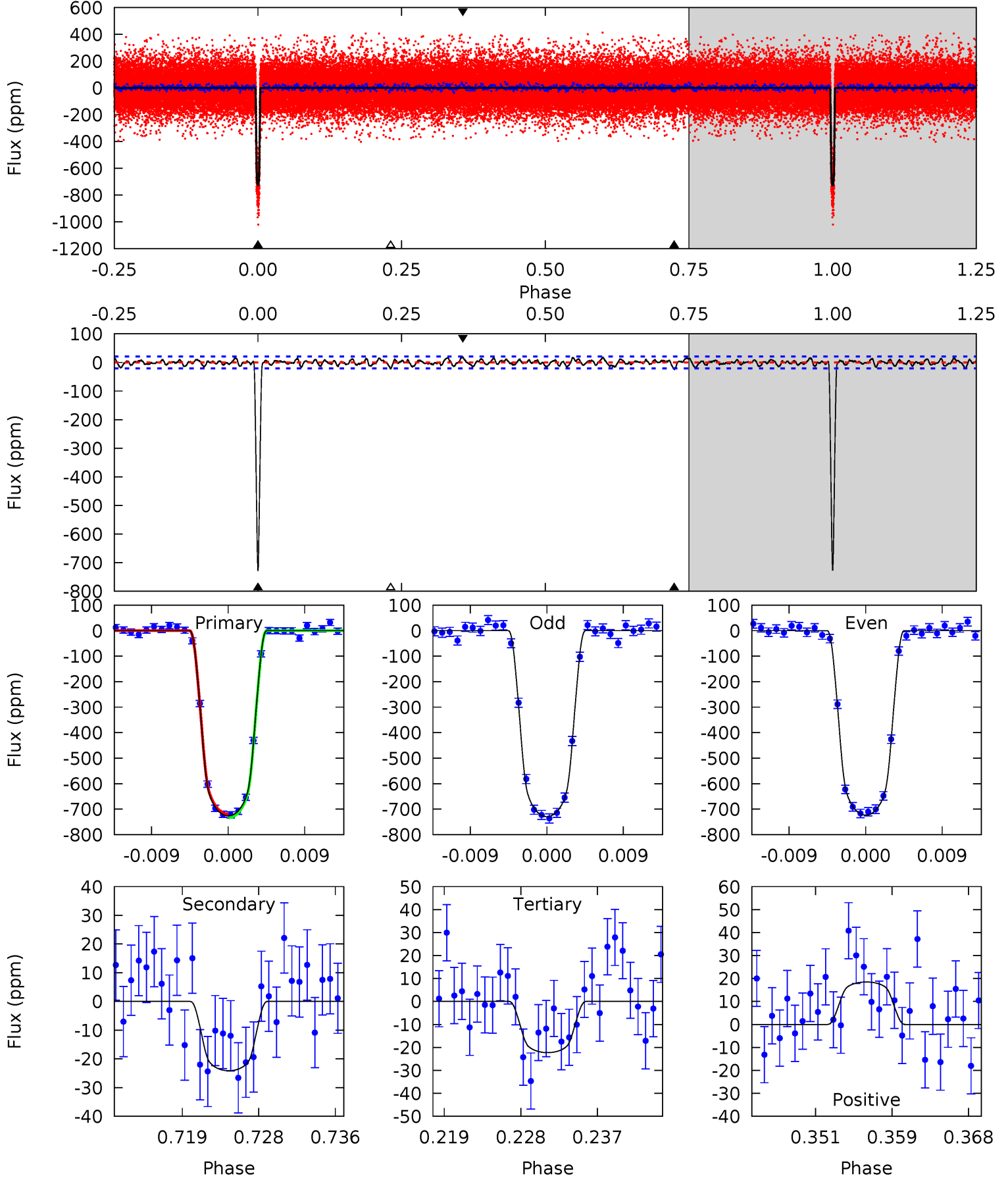
TCE 007603200-01 P= 13.781171 Days  $T_0=136.506168$  (BKJD)



# DV Model-Shift Uniqueness Test

007603200-01,  $P = 13.781103$  Days,  $E = 122.728013$  Days

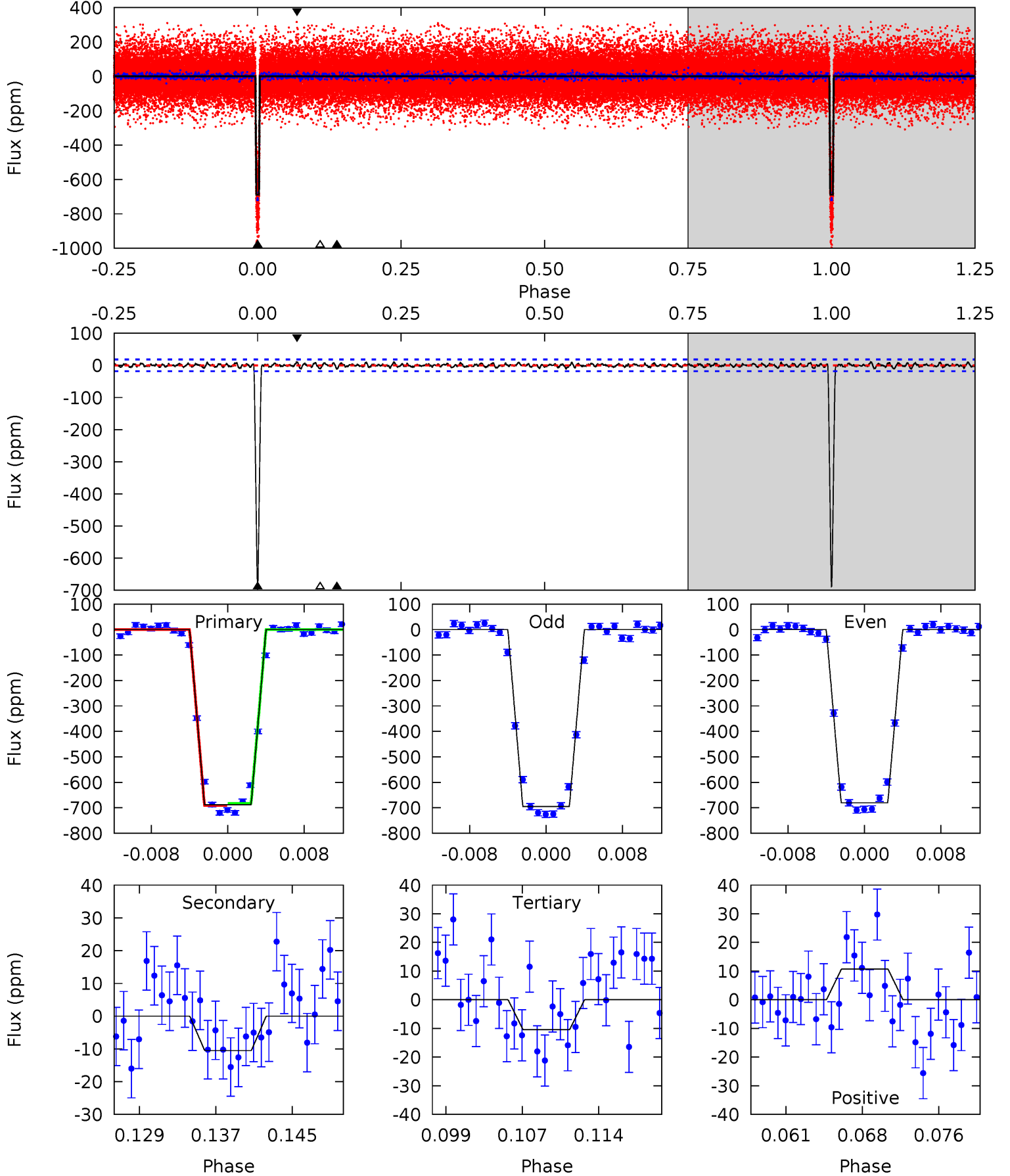
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
175.4	5.83	5.38	4.46	5.05	2.62	1.70	170.0	170.9	0.45	1.36	0.74	1.00	0.02	1.71



# Alt Model-Shift Uniqueness Test

007603200-01,  $P = 13.781171$  Days,  $E = 122.724997$  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
191.4	2.93	2.90	2.97	5.08	2.67	0.98	188.5	188.4	0.03	-0.05	2.02	1.02	0.02	1.17



### Stellar Parameters For KIC 007603200

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3846^{+77}_{-84}$	$4.738^{+0.052}_{-0.024}$	$-0.240^{+0.150}_{-0.150}$	$0.503^{+0.032}_{-0.048}$	$0.505^{+0.036}_{-0.040}$	$5.590^{+1.397}_{-0.632}$
	+2%/-2%	+1%/-1%	+62%/-62%	+6%/-10%	+7%/-8%	+25%/-11%
Source	SPE70	SPE60	SPE70	DSEP		

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

### Secondary Eclipse Parameters for KIC 007603200-01 / KOI 0314.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-24 \pm 4$	$1.56^{+0.08}_{-0.09}$	$559^{+13}_{-15}$	$2344^{+59}_{-61}$	$44^{+9}_{-8}$
Alt.	$-11 \pm 4$	$1.44^{+0.08}_{-0.08}$	$558^{+15}_{-15}$	$2168^{+85}_{-104}$	$22^{+8}_{-8}$

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

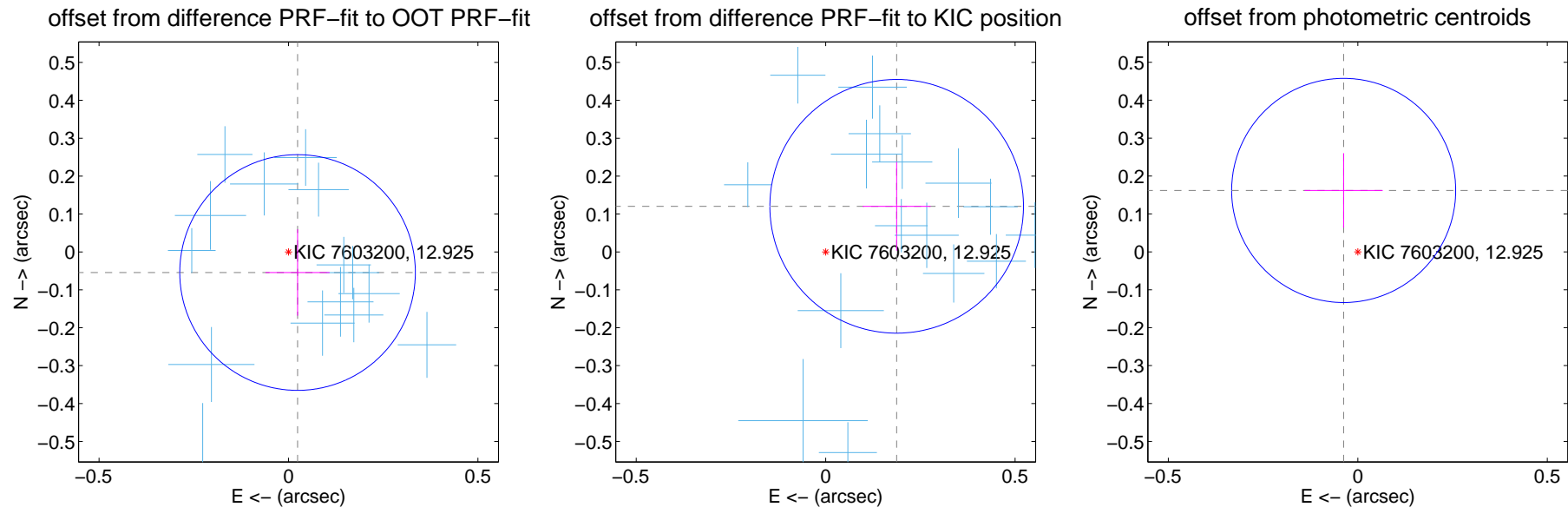
## DV Centroid Data

Supplemental centroid analysis for 007603200-01. Kepler magnitude: 12.93. Transit SNR 108.64

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

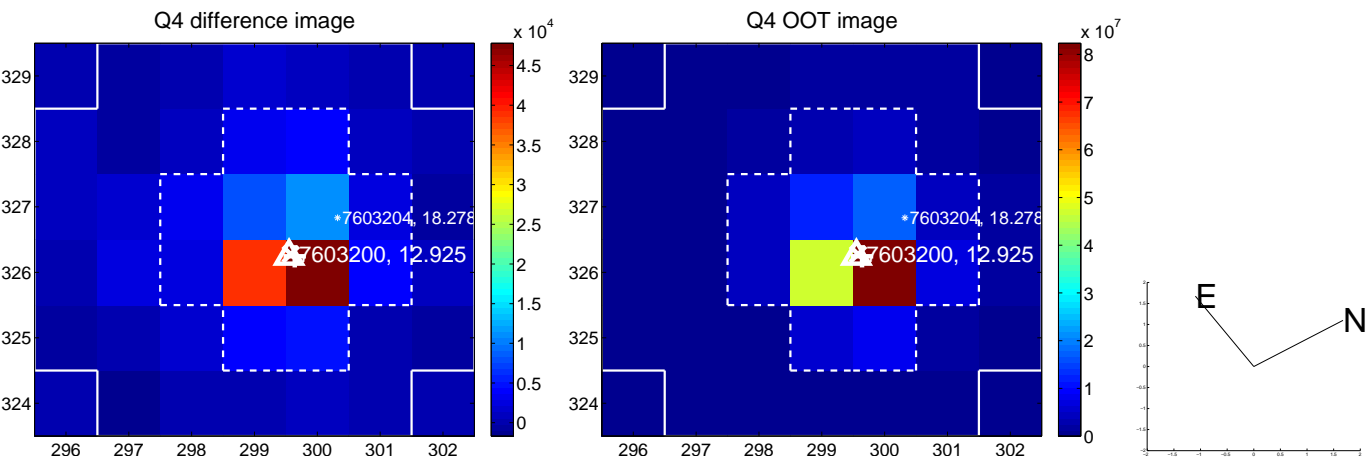
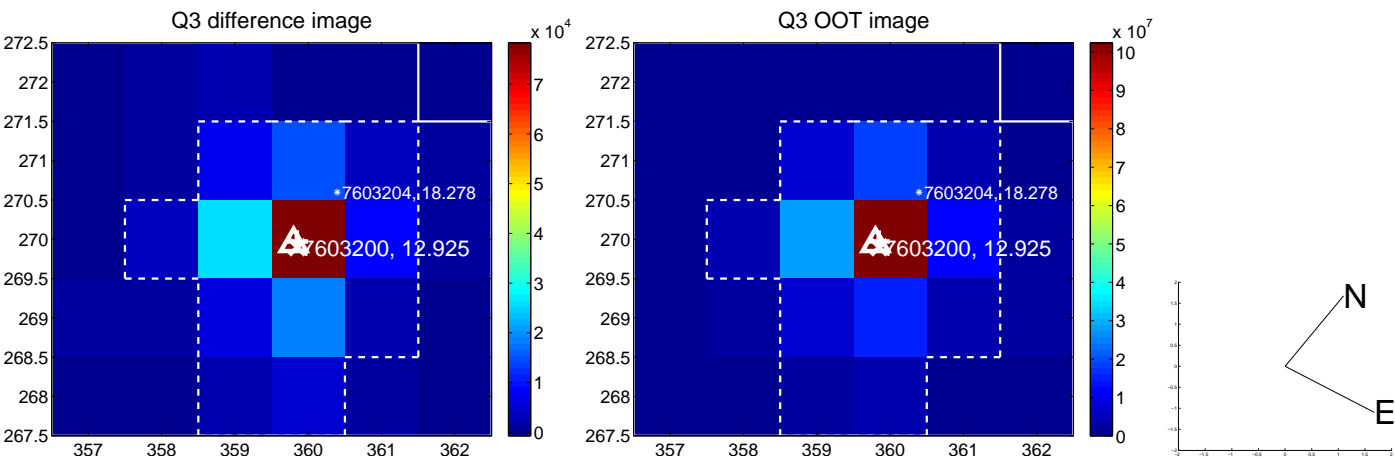
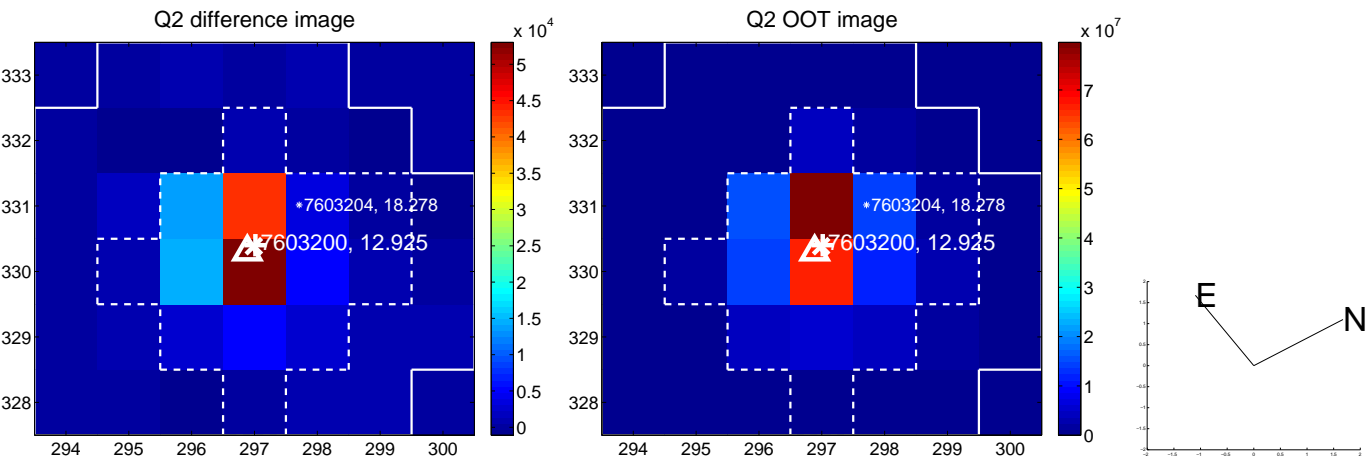
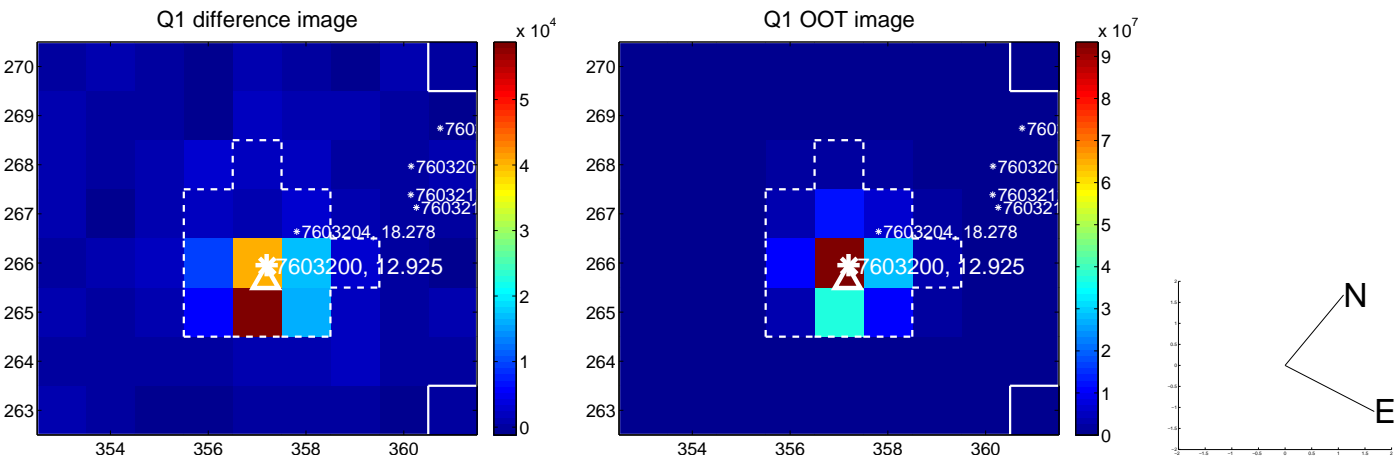
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.059 \pm 0.104$	0.57	$-0.024 \pm 0.085$	$-0.054 \pm 0.114$
PRF-fit source offset from KIC position	$0.223 \pm 0.112$	2.00	$-0.187 \pm 0.090$	$0.120 \pm 0.117$
photometric centroid source offset	$0.17 \pm 0.10$	1.69	$0.04 \pm 0.10$	$0.16 \pm 0.10$



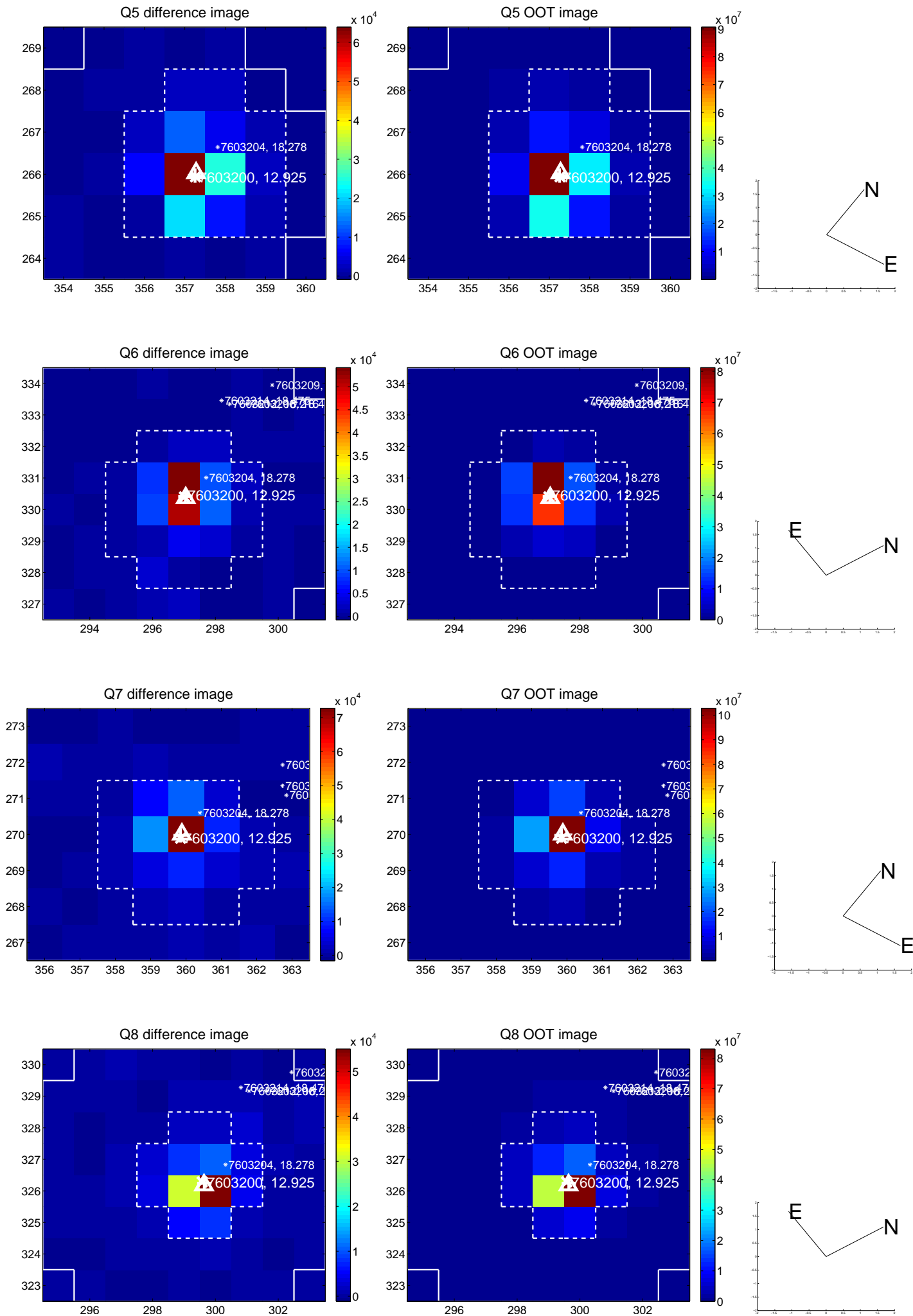
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



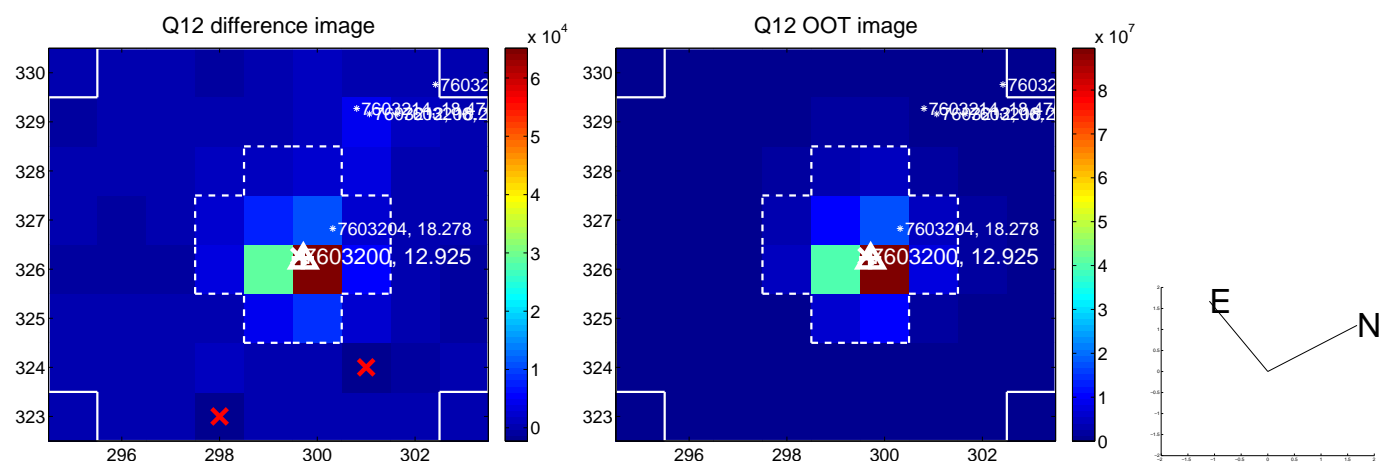
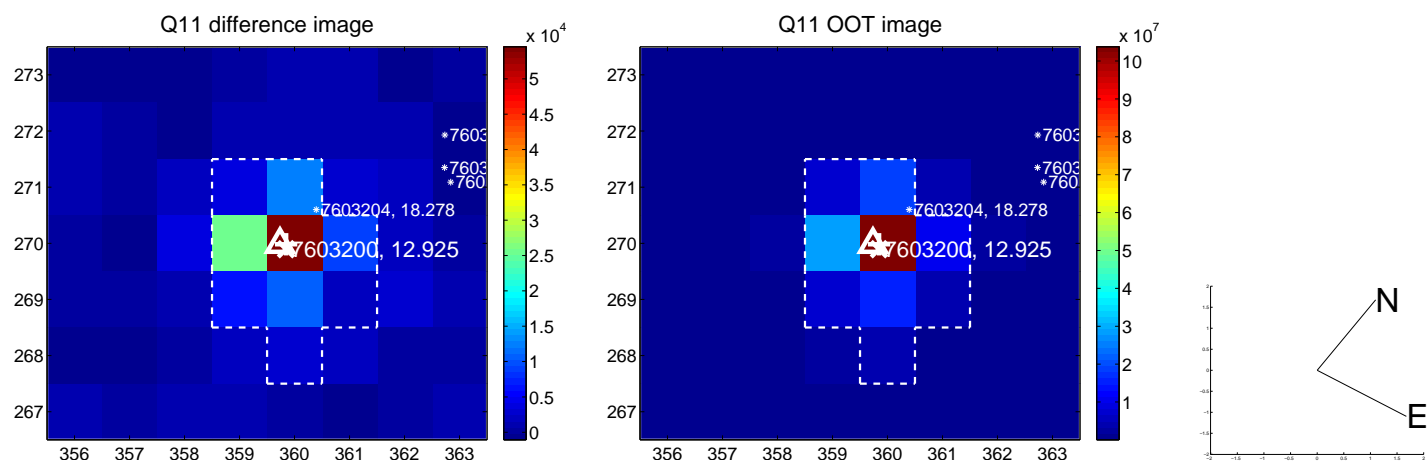
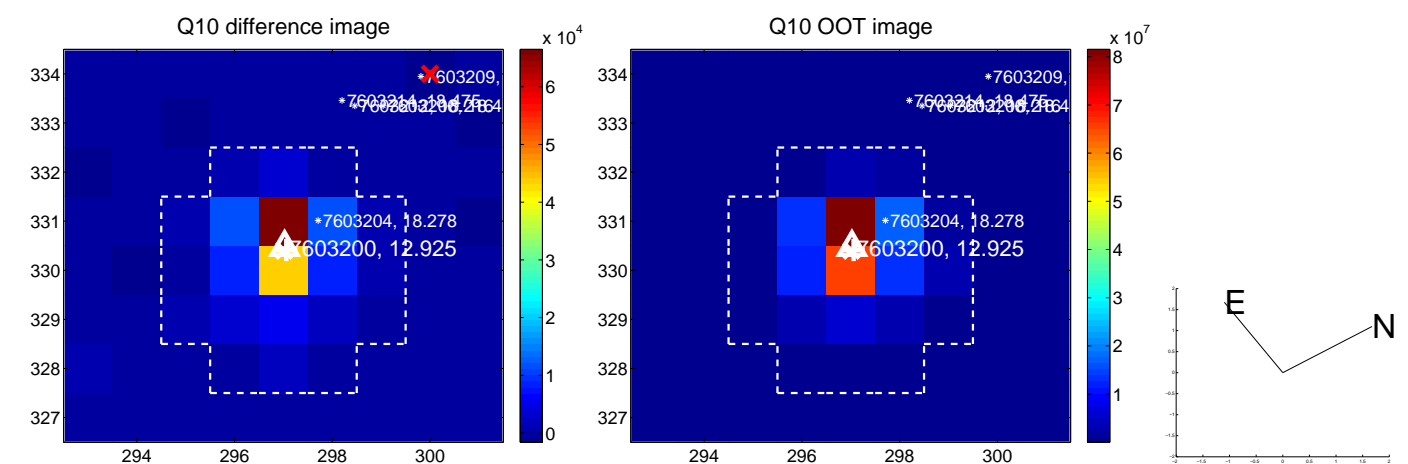
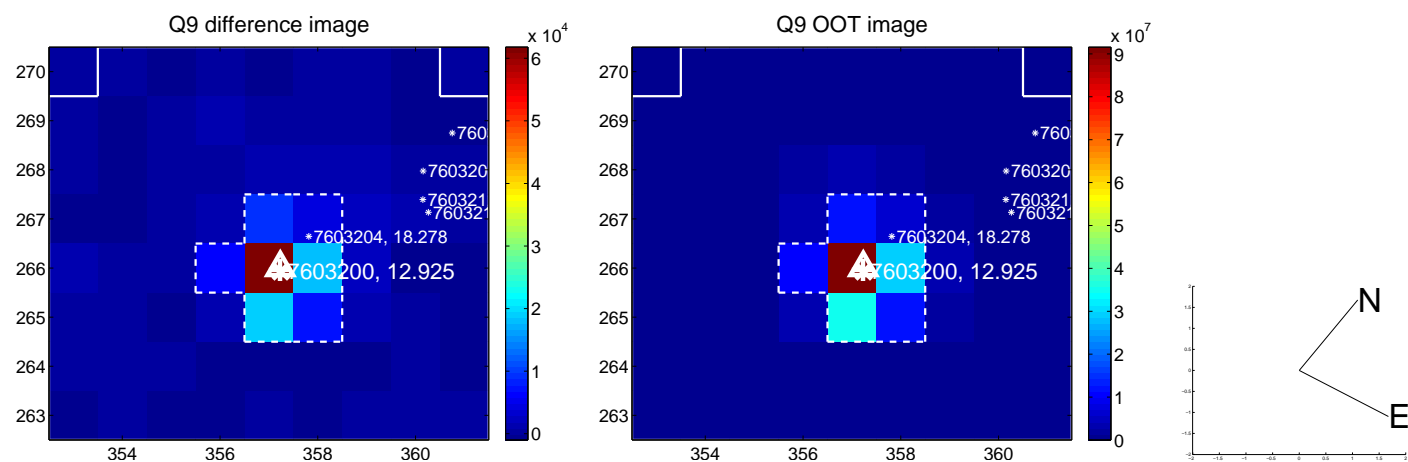
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



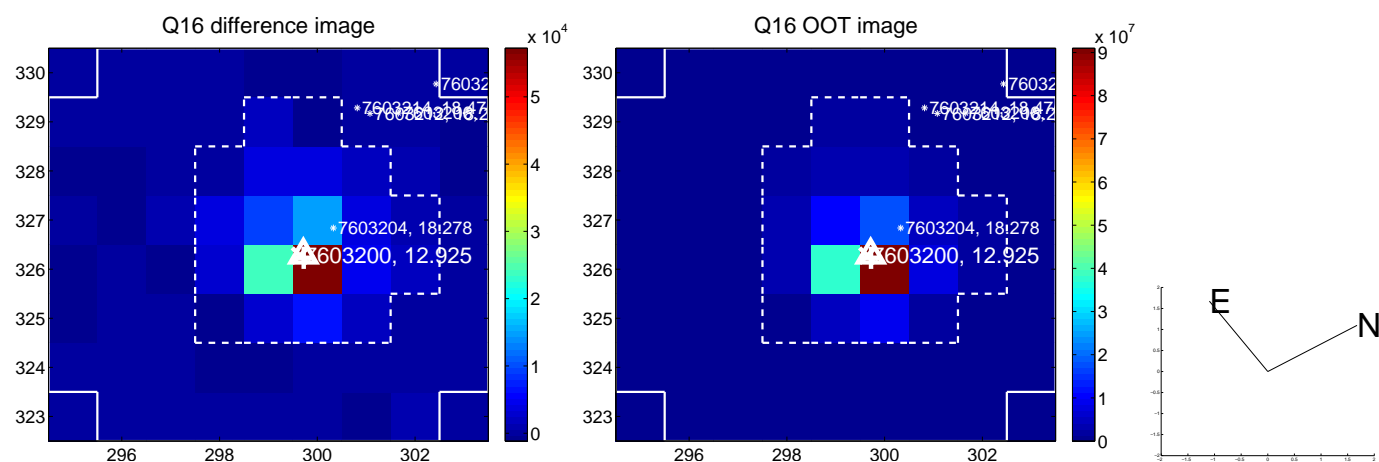
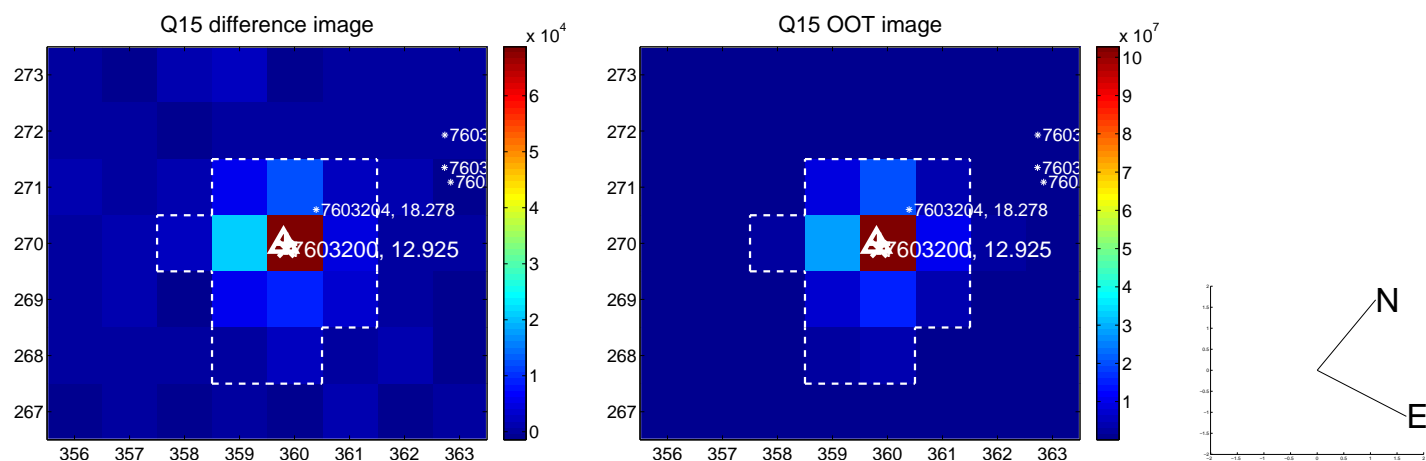
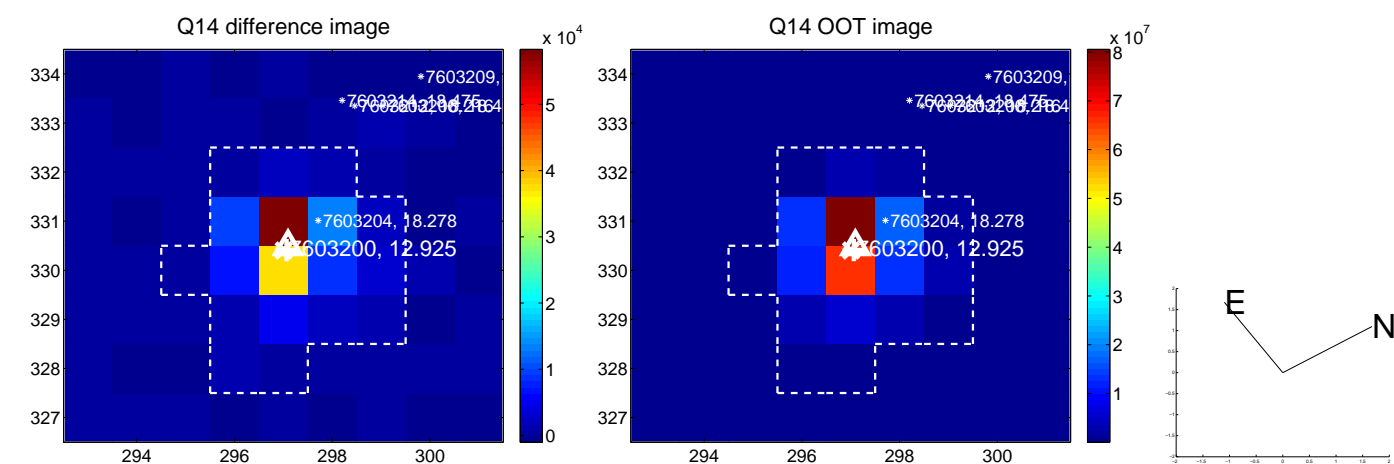
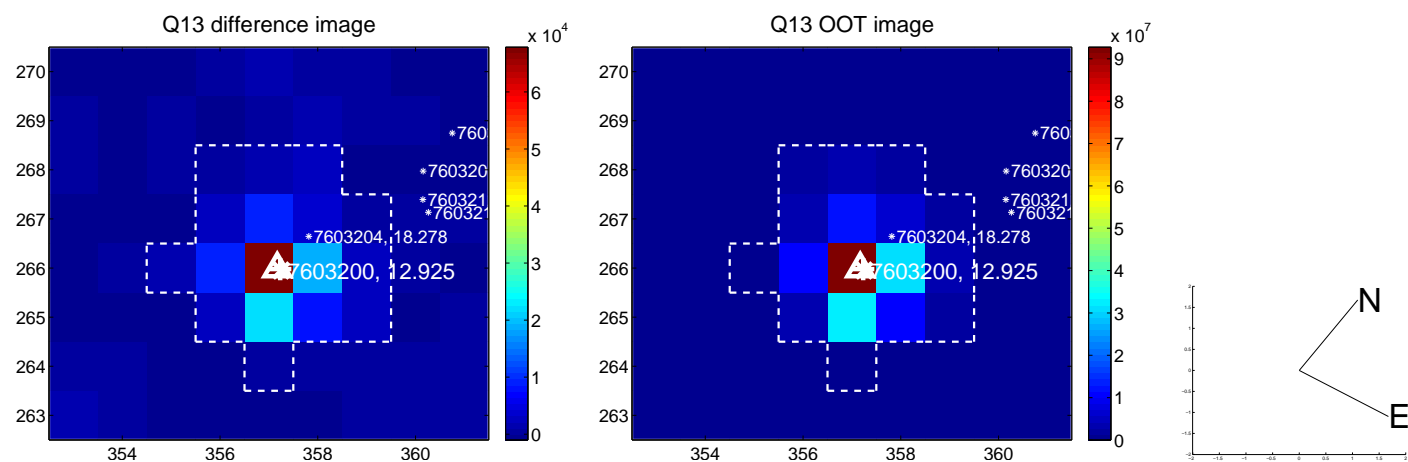
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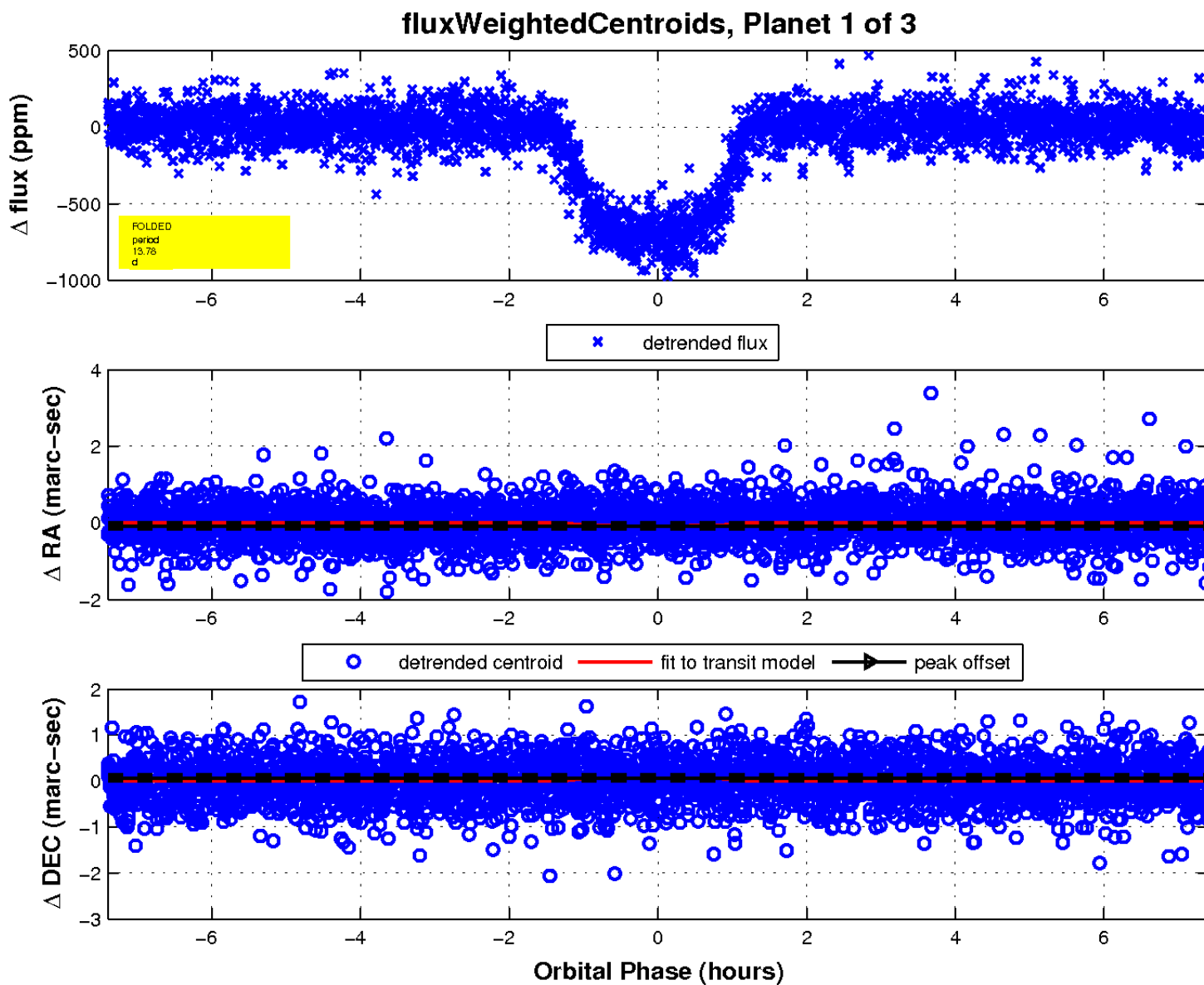
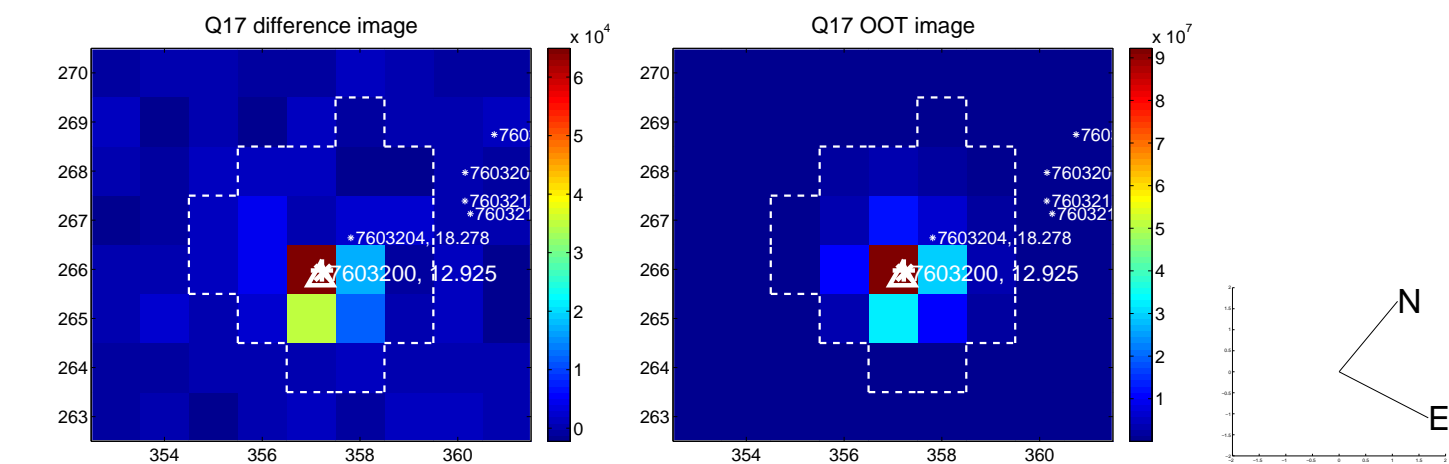
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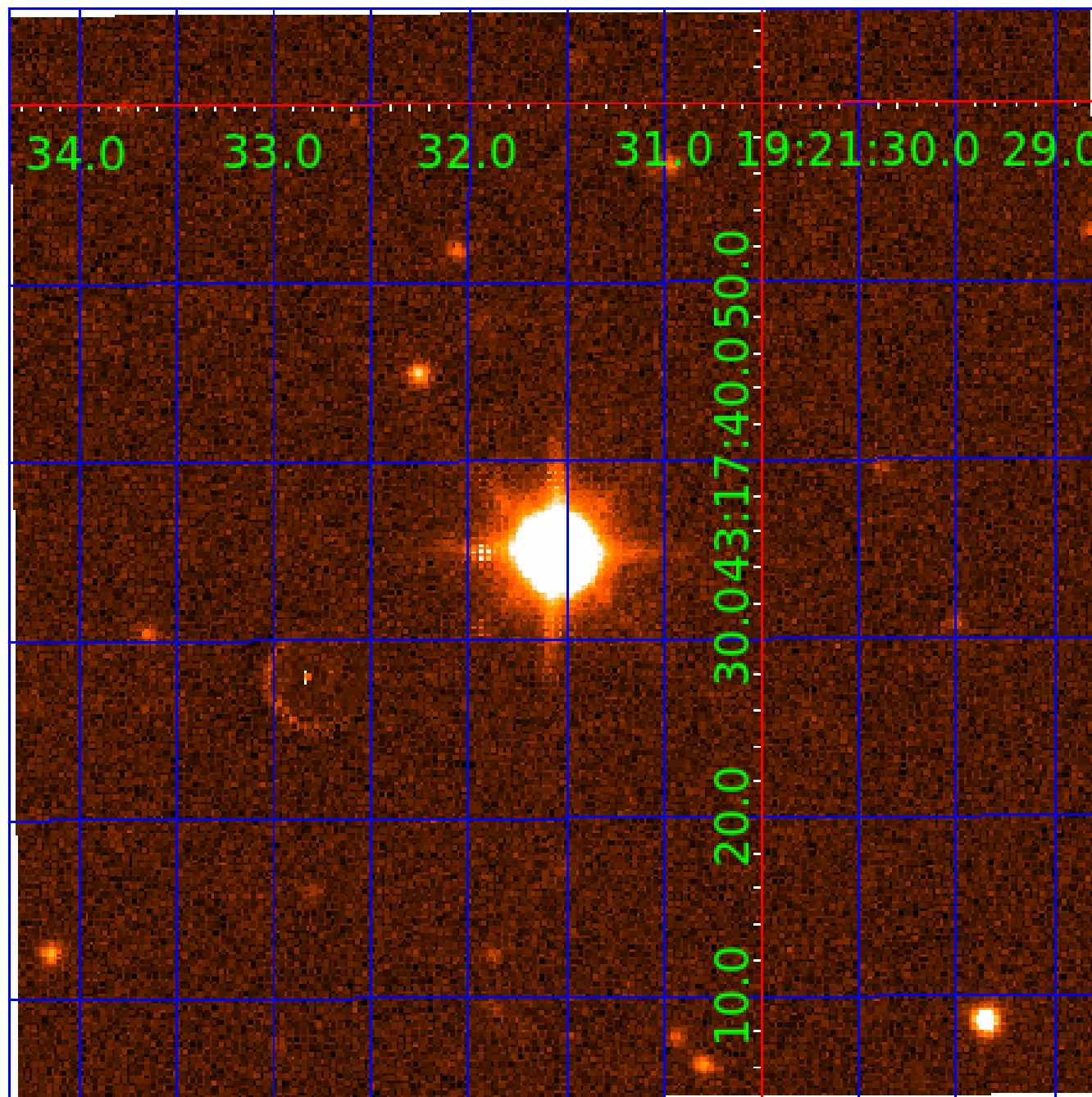


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007603200

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007603200-01	OBS	0314.01	13.781103	136.509116	722.4	2.473	112.7	108.6	0.50	3846	1.58	6.18
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007603200-03	OBS	0314.03	10.313089	133.524154	108.6	3.274	14.3	16.4	0.50	3846	1.10	9.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007603200-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007603200-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007603200-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

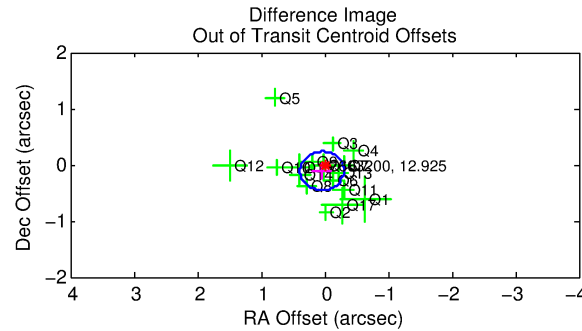
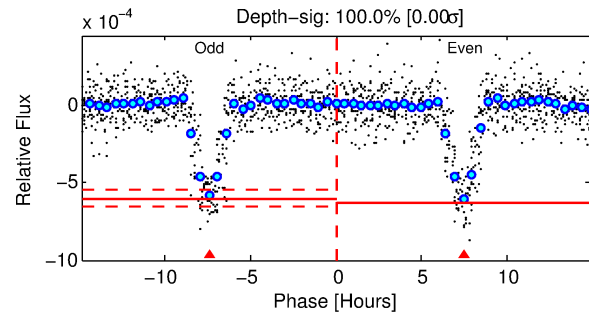
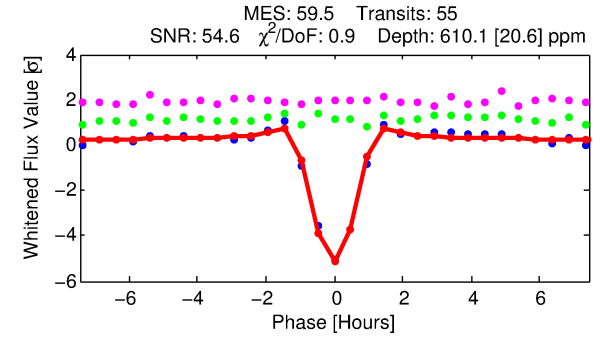
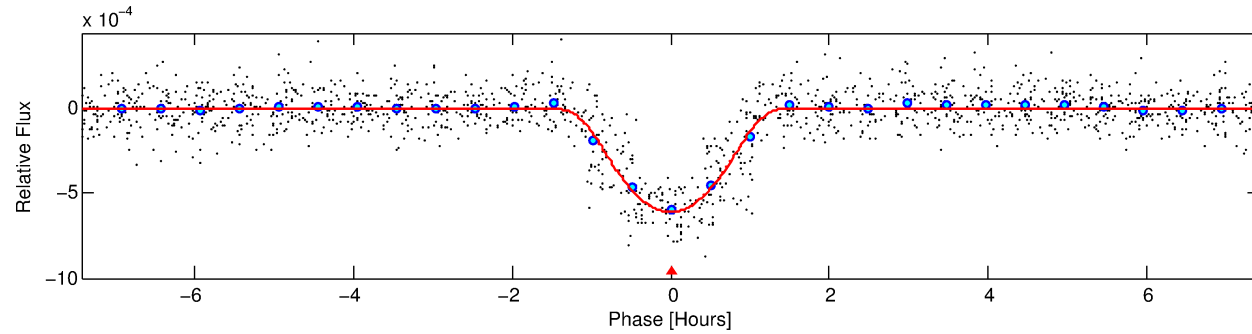
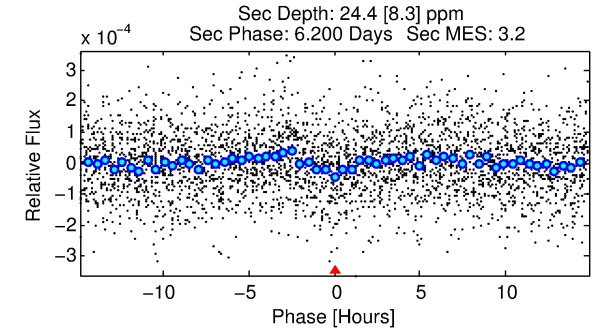
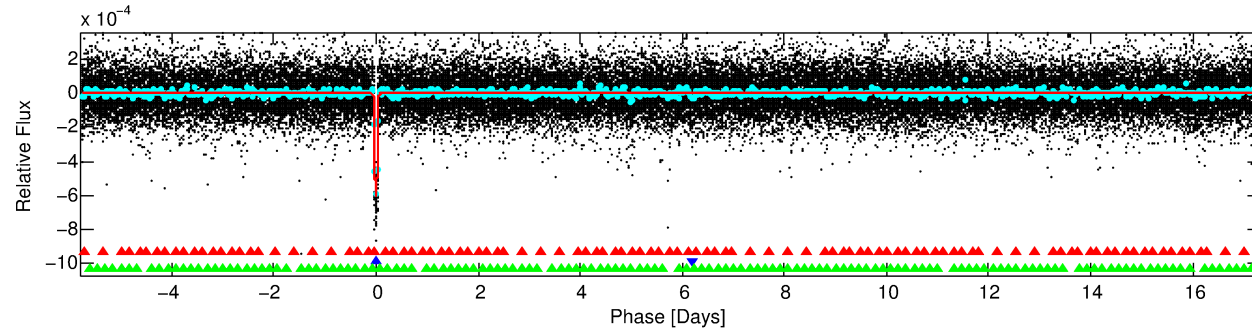
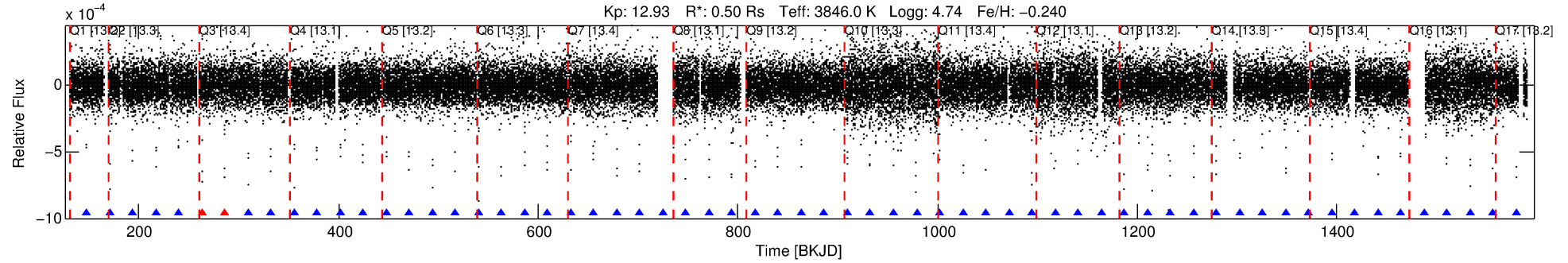
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007603200-02

No Significant Match Found

# DV One-Page Summary

KIC: 7603200 Candidate: 2 of 3 Period: 23.089 d  
KOI: K00314.02 Name: Kepler-138d Corr: 0.886



## DV Fit Results:

Period = 23.08890 [0.00003] d  
Epoch = 147.9219 [0.0009] BKJD  
Rp/R\* = 0.0364 [0.0115]  
a/R\* = 23.01 [2.73]  
b = 0.98 [0.02]  
Seff = 3.11 [0.42]  
Teq = 338 [11] K  
Rp = 2.00 [0.66] Re  
a = 0.1264 [0.0095] AU  
Ag = 53.68 [38.91] [1.35σ]  
Teffp = 1417 [256] K [4.21σ]

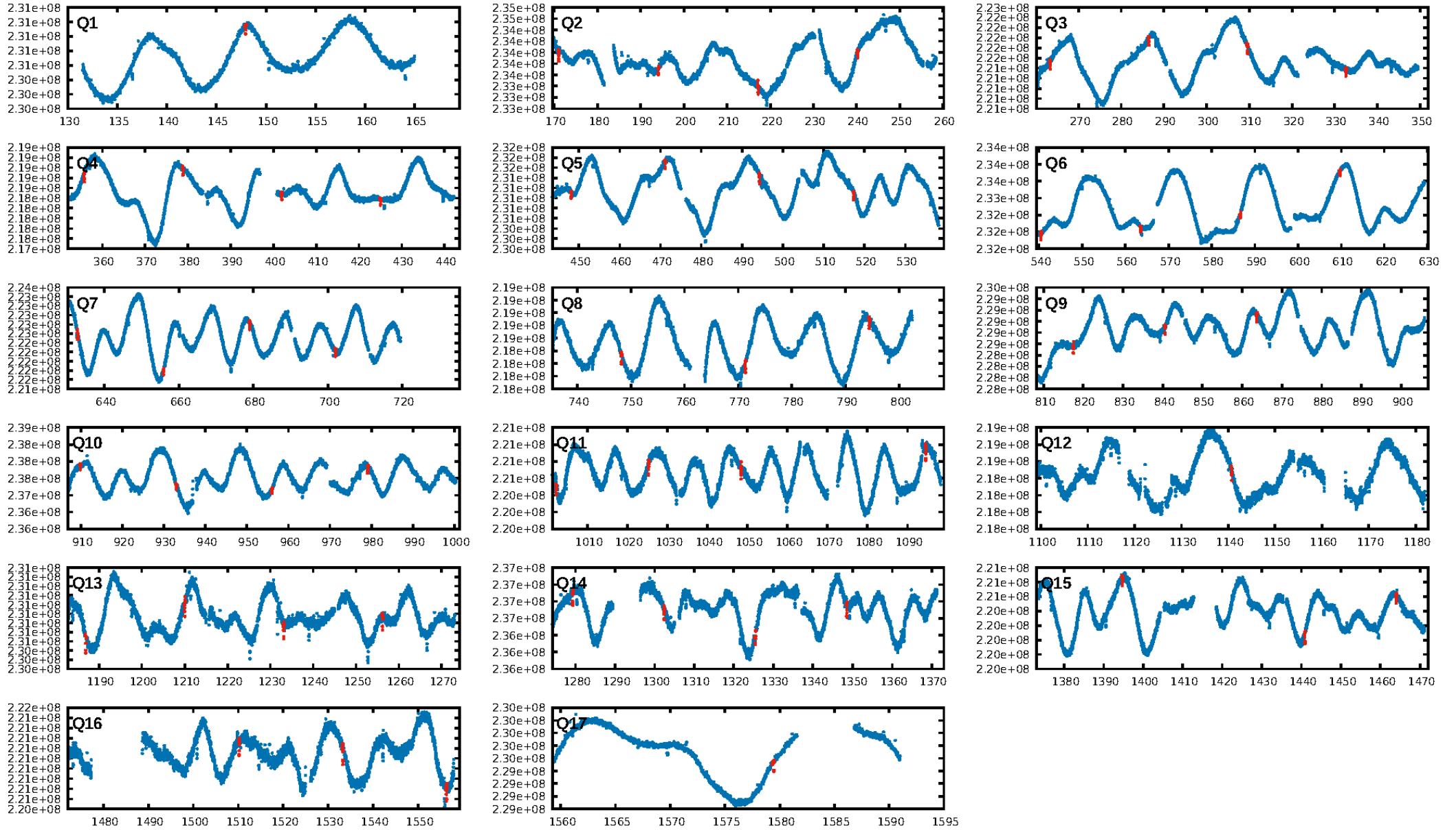
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [63.85σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 95.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.96 [51/53]  
GhostDiagnostic-chr: 4.128  
Centroid-sig: 35.2%  
Centroid-so: 0.174 arcsec [0.89σ]  
OotOffset-rm: 0.120 arcsec [1.04σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.111 arcsec [0.83σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

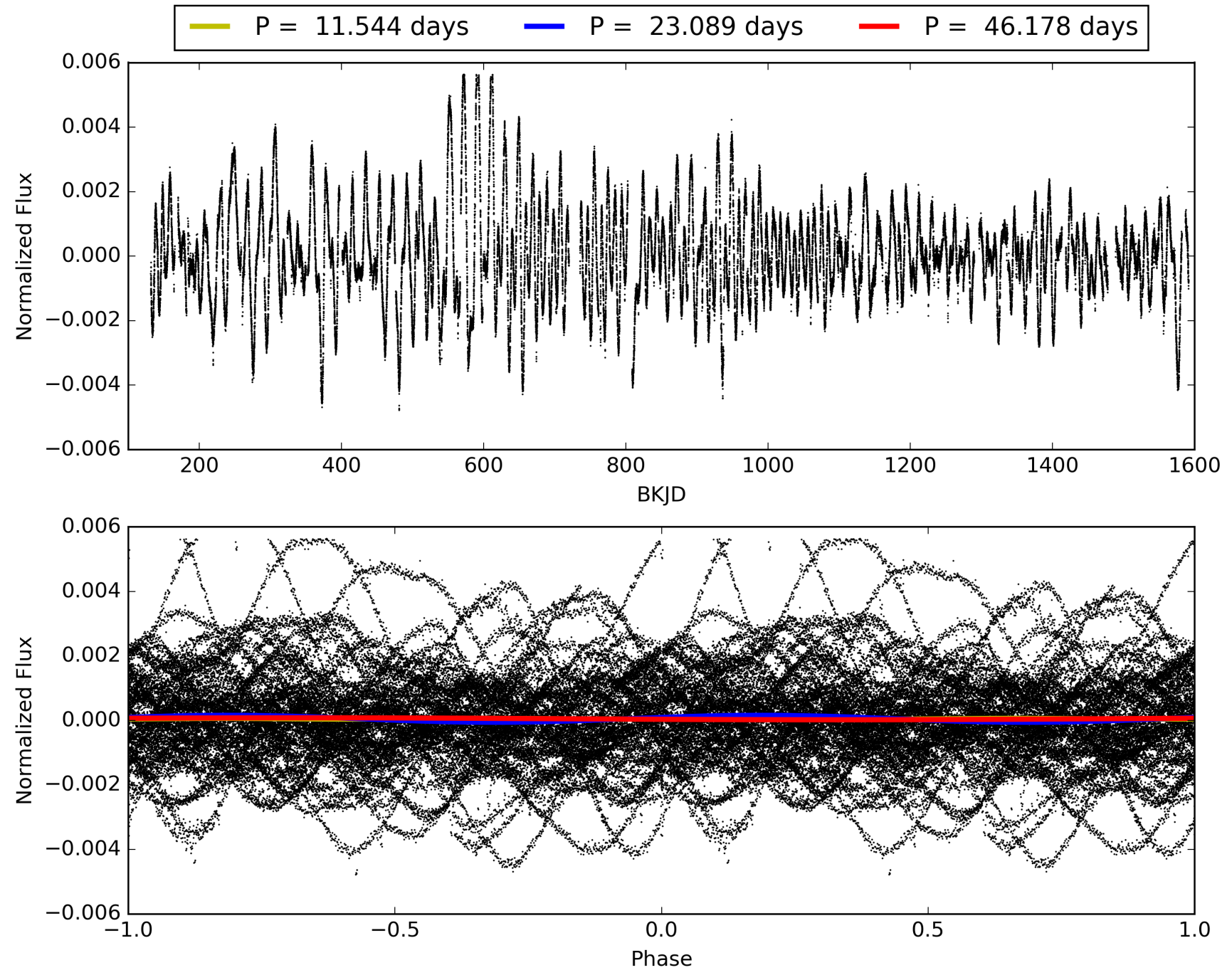
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:26:49 Z

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

# TCE 007603200-02, PDC Light Curves

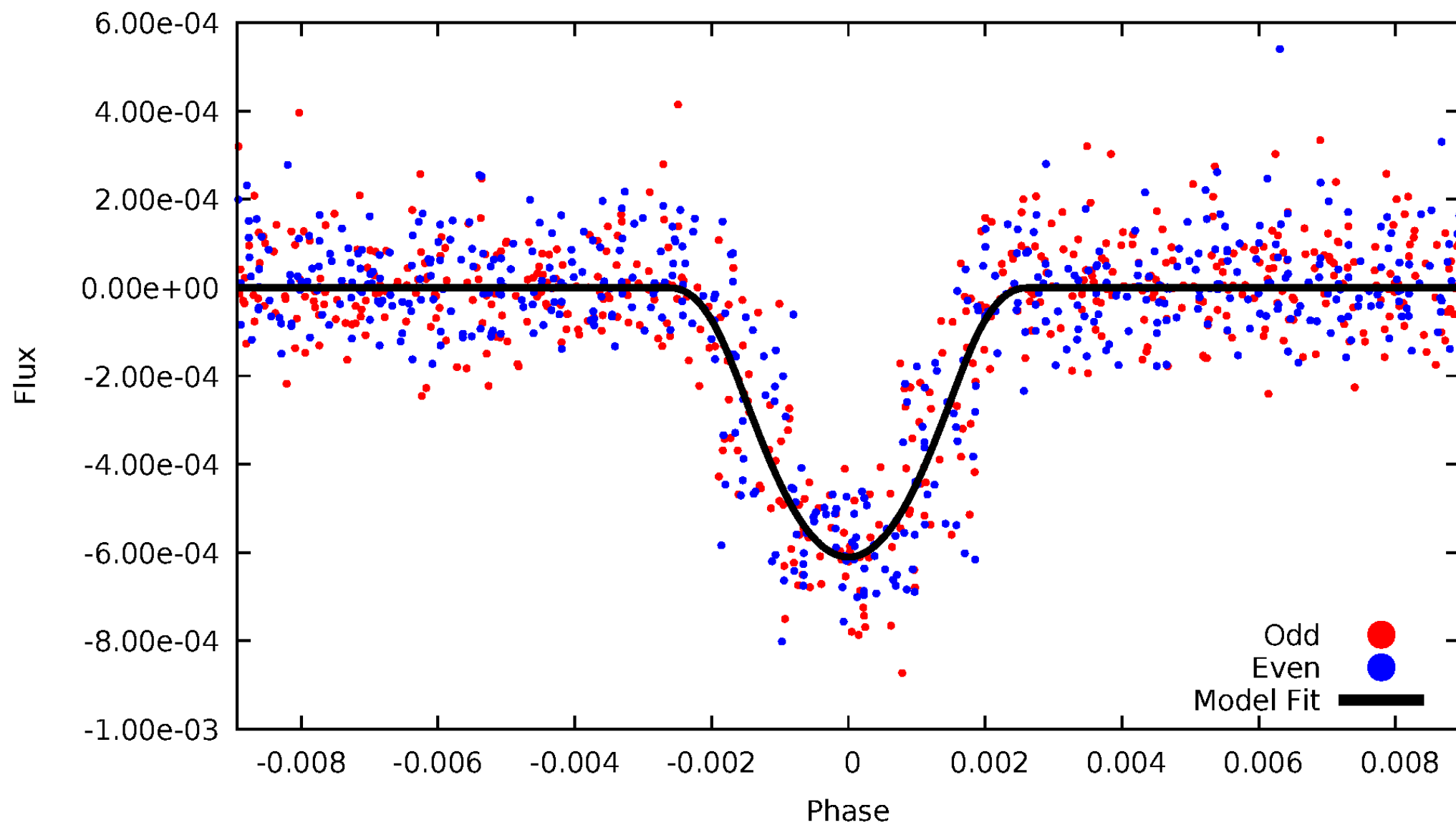


# TCE 007603200-02



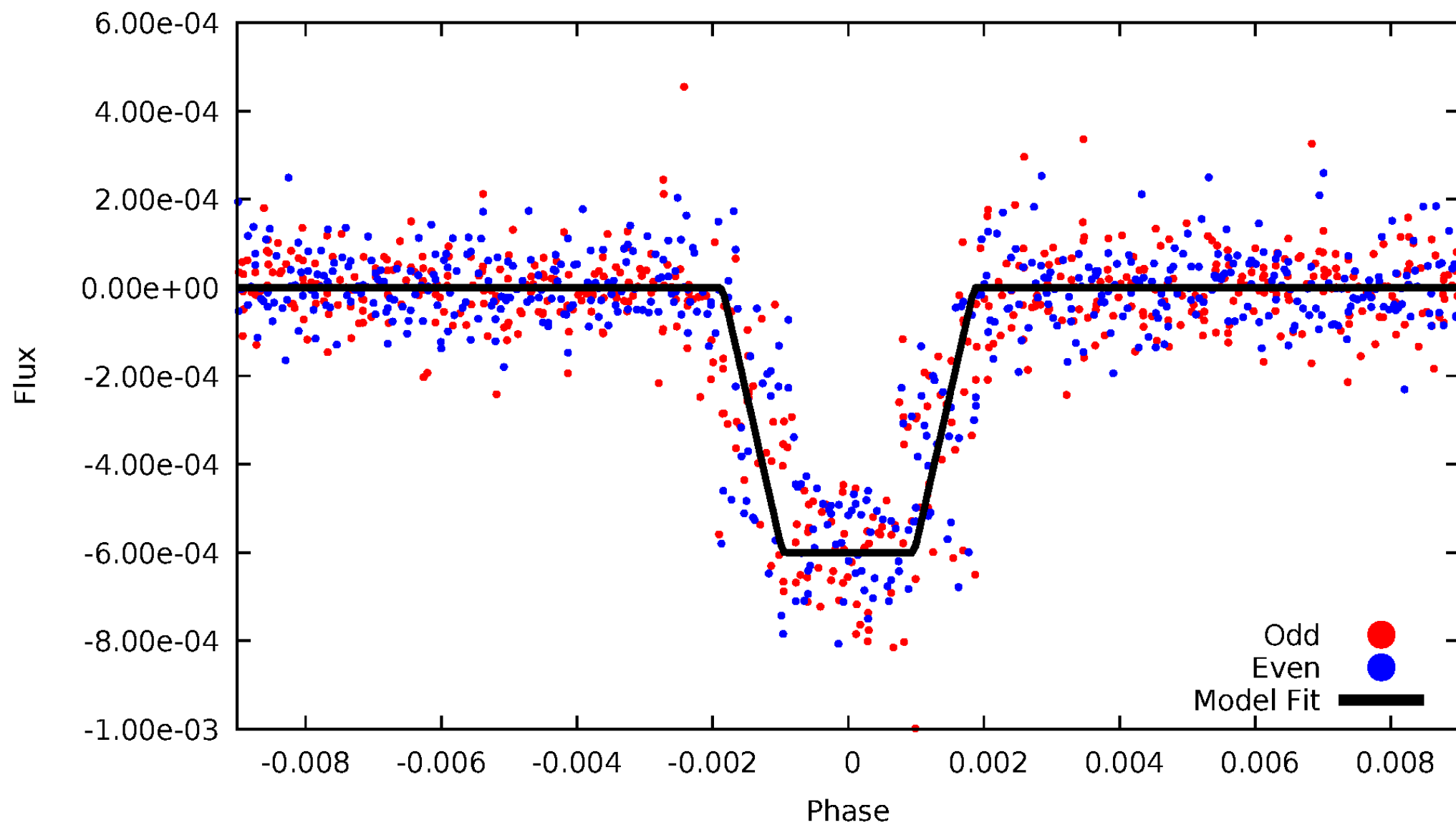
DV Odd/Even

TCE 007603200-02



# ALT Odd/Even

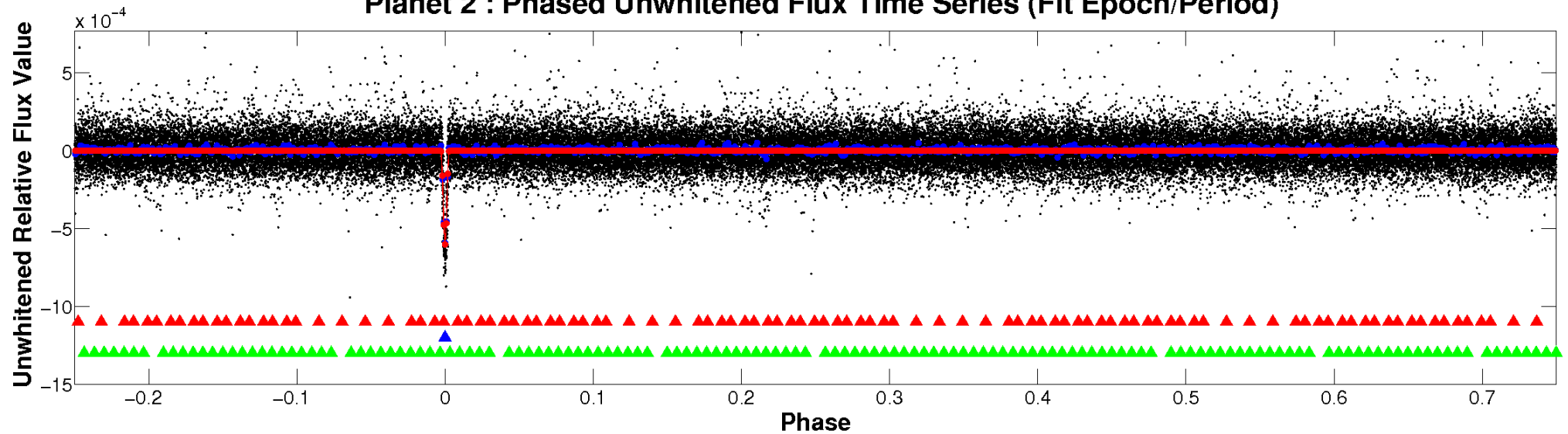
TCE 007603200-02



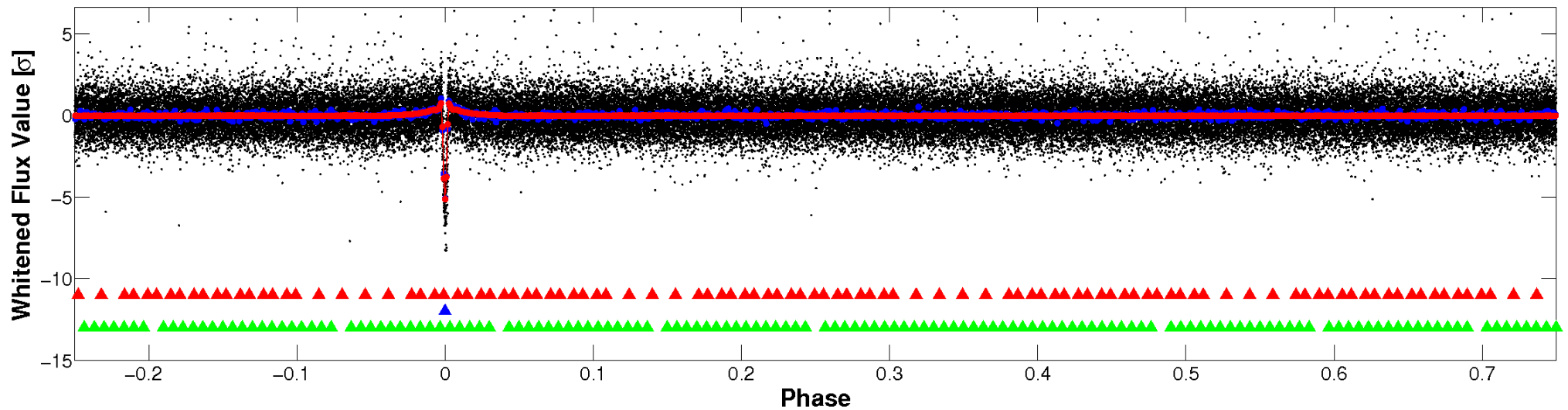


# Non-Whitened Vs. Whitened Light Curve

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

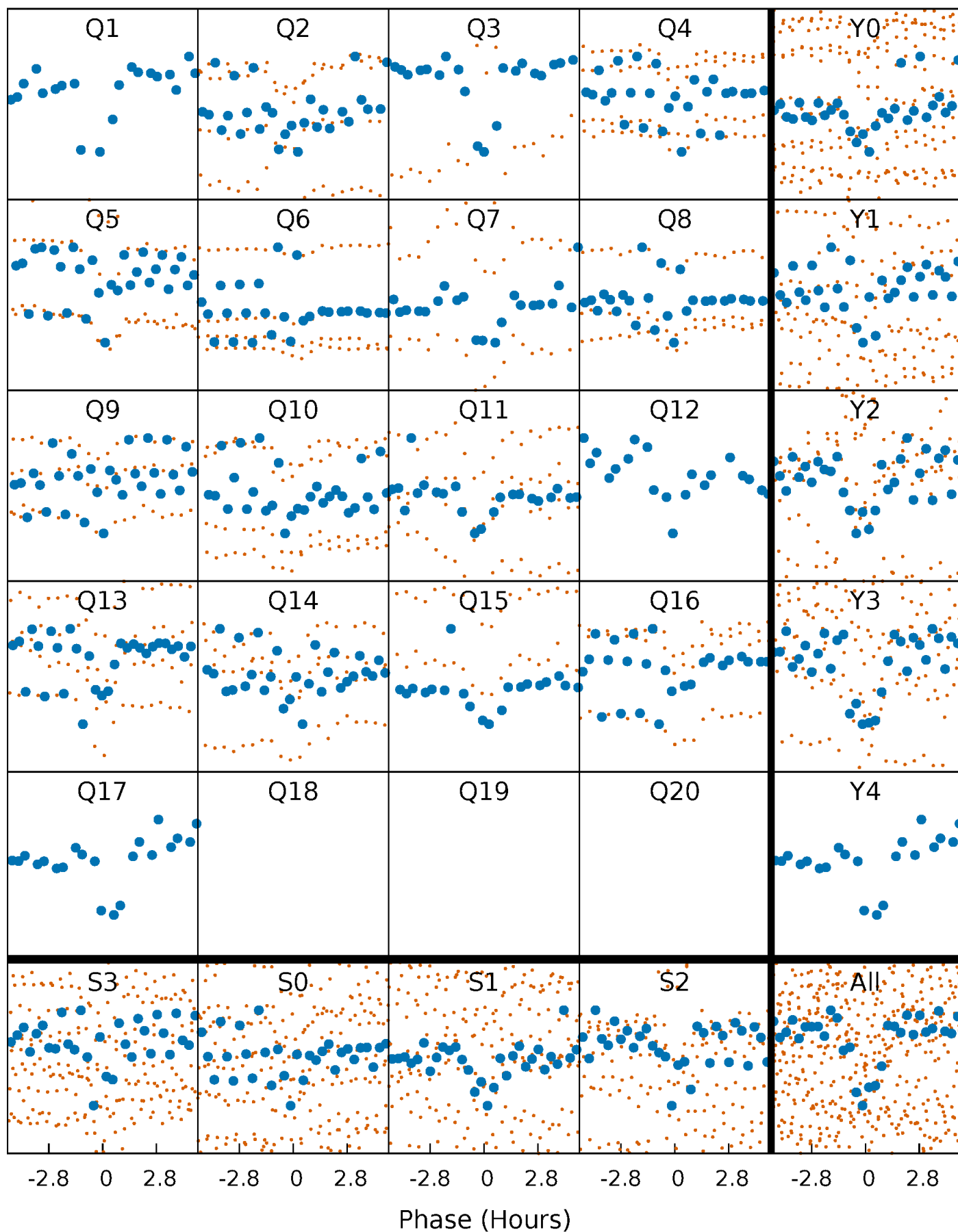


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



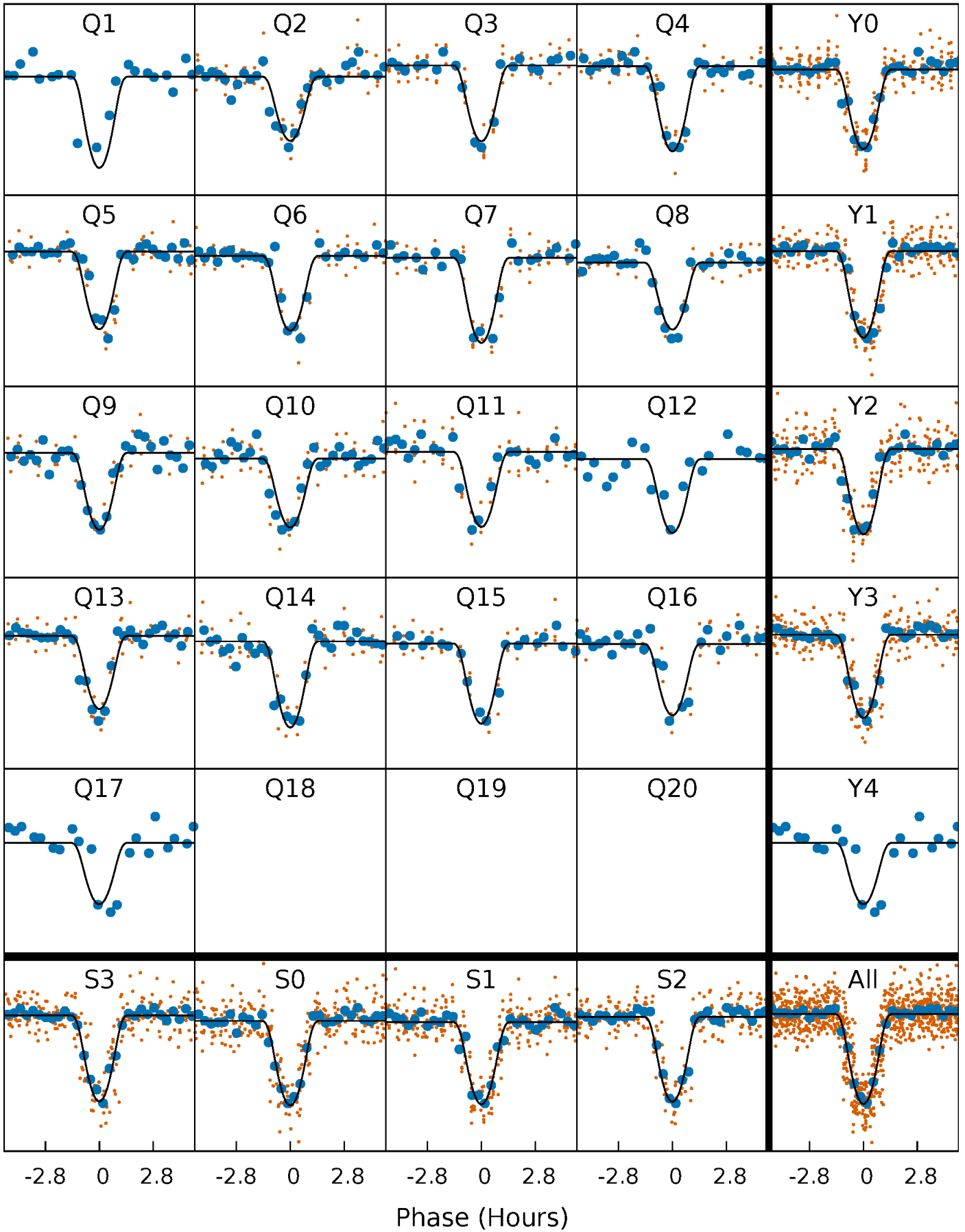
# PDC Quarter-Phased Transit Curves

TCE 007603200-02     $P = 23.088899$  Days     $T_0 = 147.921897$  (BKJD)



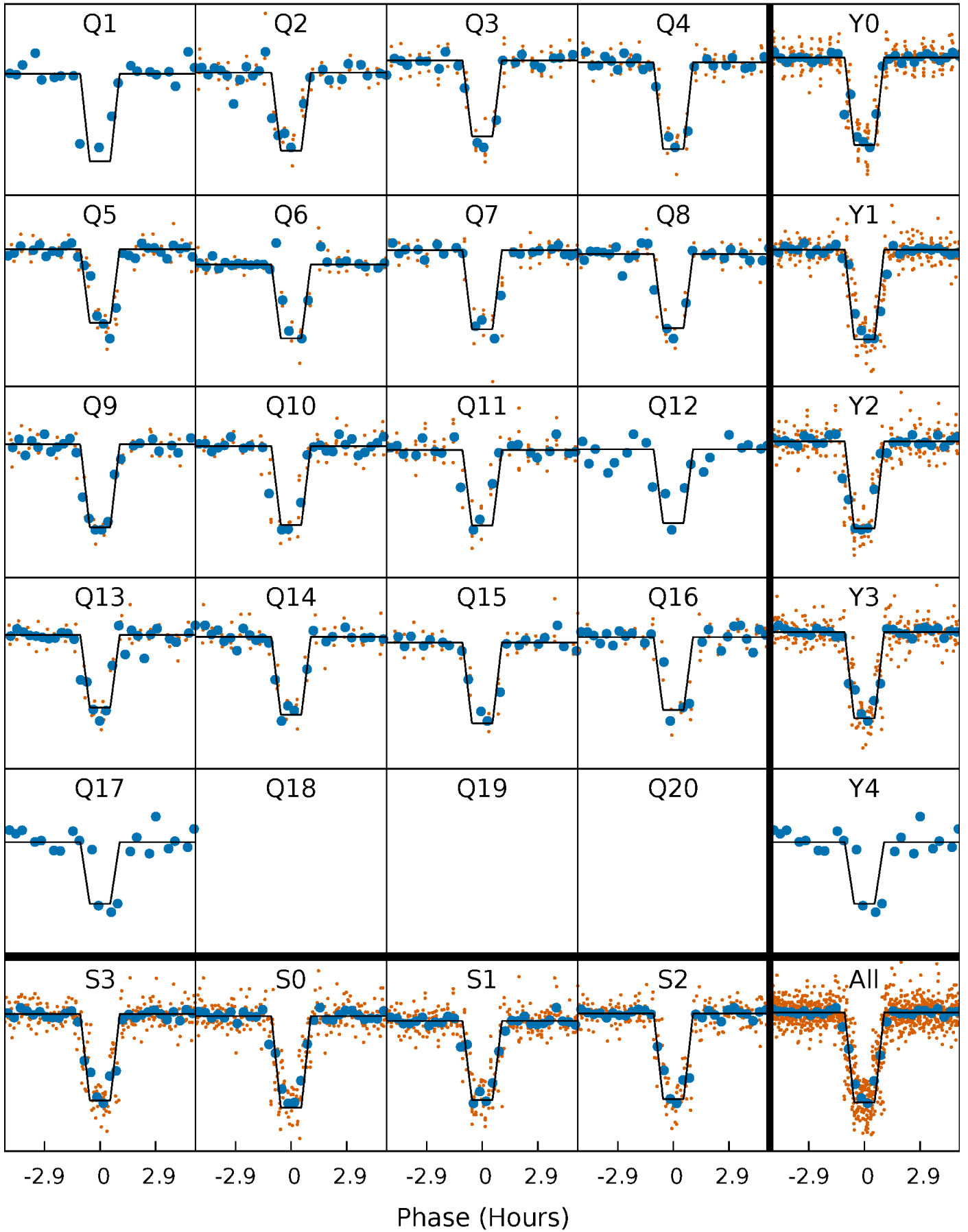
# DV Quarter-Phased Transit Curves

TCE 007603200-02   P= 23.088899 Days    $T_0=147.921897$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

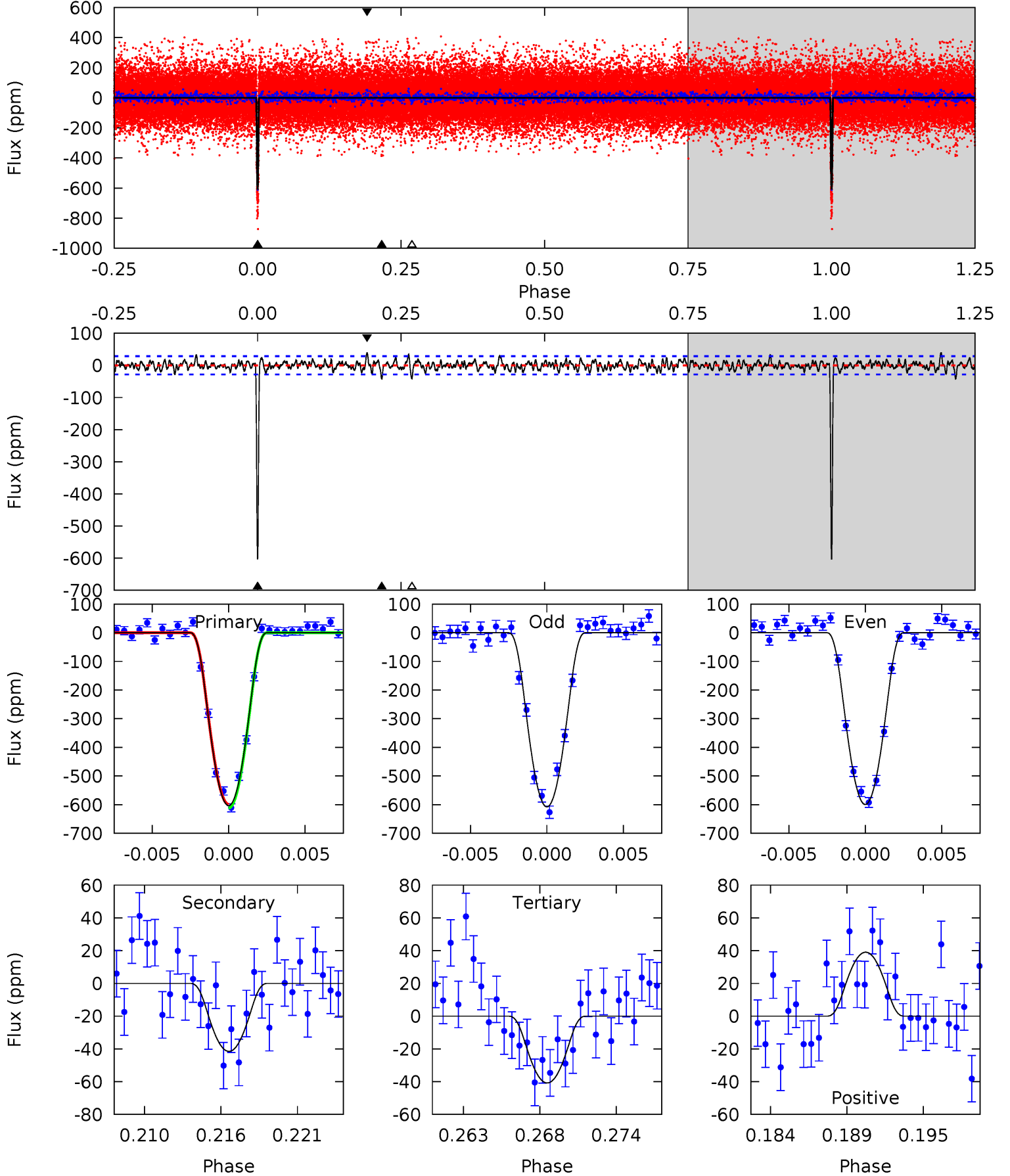
TCE 007603200-02     $P = 23.088959$  Days     $T_0 = 147.920084$  (BKJD)



# DV Model-Shift Uniqueness Test

007603200-02,  $P = 23.088899$  Days,  $E = 124.832998$  Days

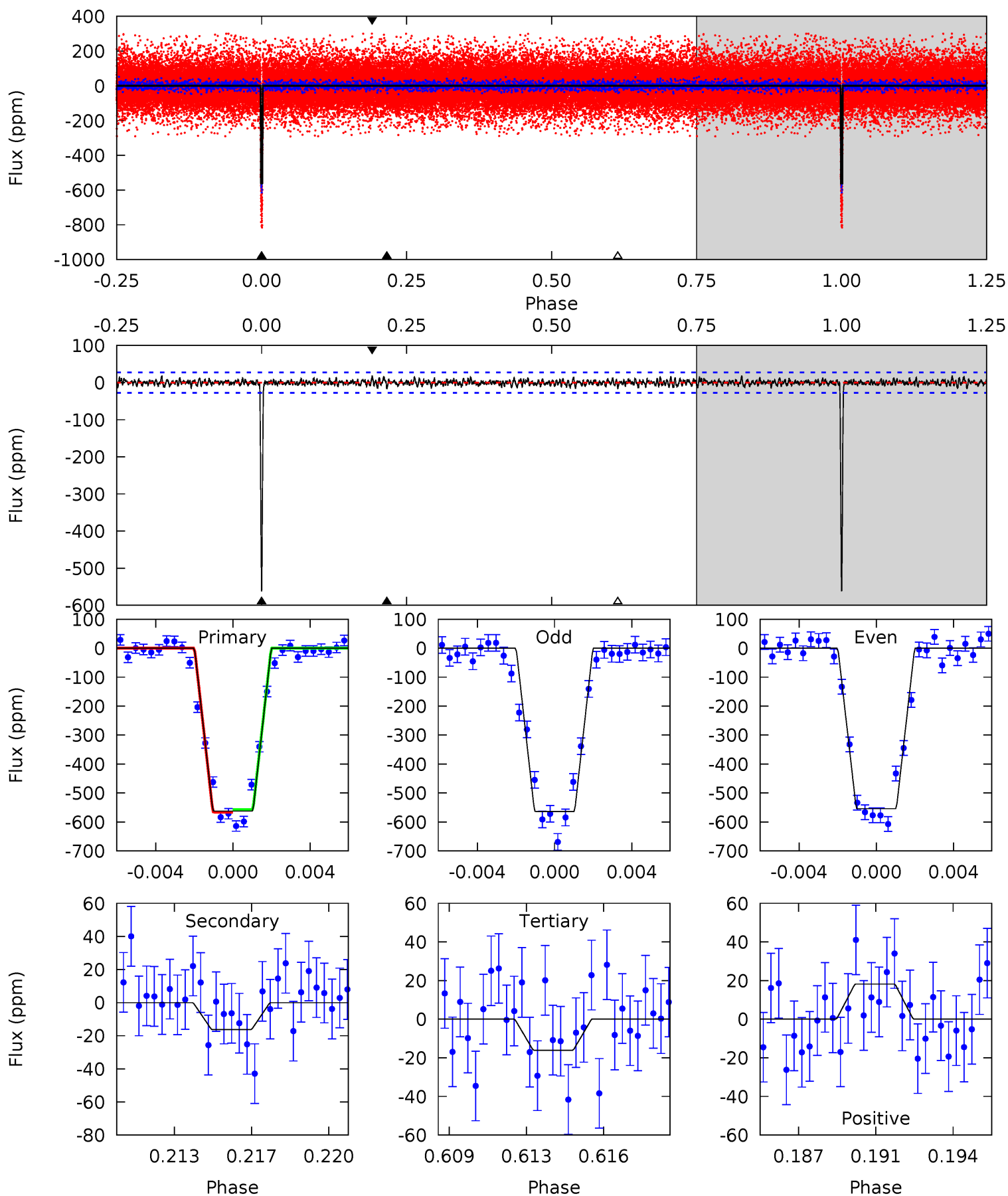
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
108.9	7.49	7.36	7.04	5.15	2.79	1.88	101.5	101.8	0.13	0.45	0.75	0.99	0.06	1.16



# Alt Model-Shift Uniqueness Test

007603200-02, P = 23.088959 Days, E = 124.831125 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
106.5	3.08	3.04	3.44	5.21	2.90	0.99	103.4	103.0	0.04	-0.36	0.93	1.01	0.03	0.82





### Stellar Parameters For KIC 007603200

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3846^{+77}_{-84}$	$4.738^{+0.052}_{-0.024}$	$-0.240^{+0.150}_{-0.150}$	$0.503^{+0.032}_{-0.048}$	$0.505^{+0.036}_{-0.040}$	$5.590^{+1.397}_{-0.632}$
	+2%/-2%	+1%/-1%	+62%/-62%	+6%/-10%	+7%/-8%	+25%/-11%
Source	SPE70	SPE60	SPE70	DSEP		

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

### Secondary Eclipse Parameters for KIC 007603200-02 / KOI 0314.02

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-42 \pm 6$	$1.96^{+0.67}_{-0.61}$	$470^{+11}_{-14}$	$2371^{+231}_{-157}$	$96^{+105}_{-43}$
Alt.	$-16 \pm 5$	$1.32^{+0.67}_{-0.60}$	$470^{+12}_{-13}$	$2338^{+354}_{-244}$	$84^{+187}_{-52}$

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

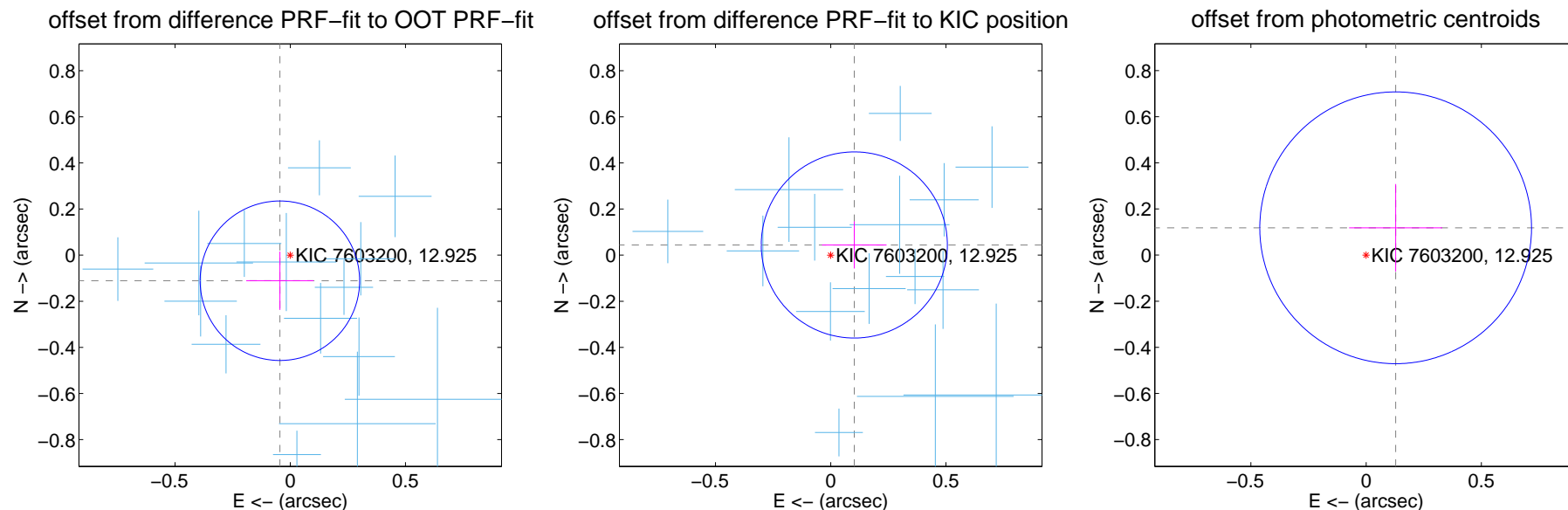
## DV Centroid Data

Supplemental centroid analysis for 007603200-02. Kepler magnitude: 12.93. Transit SNR 54.57

There are 17 quarters with good PRF difference image offsets

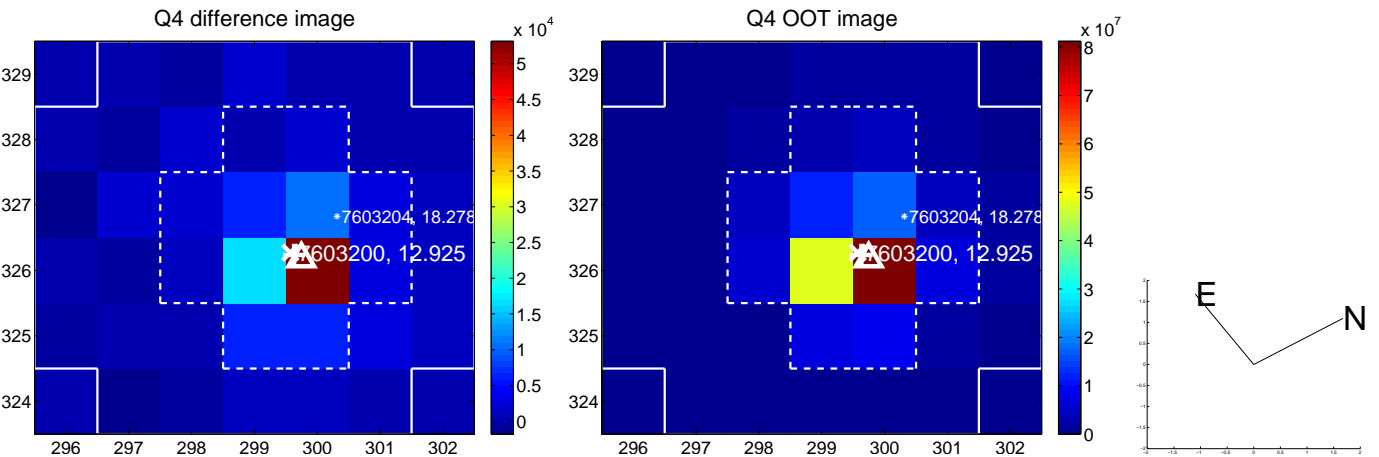
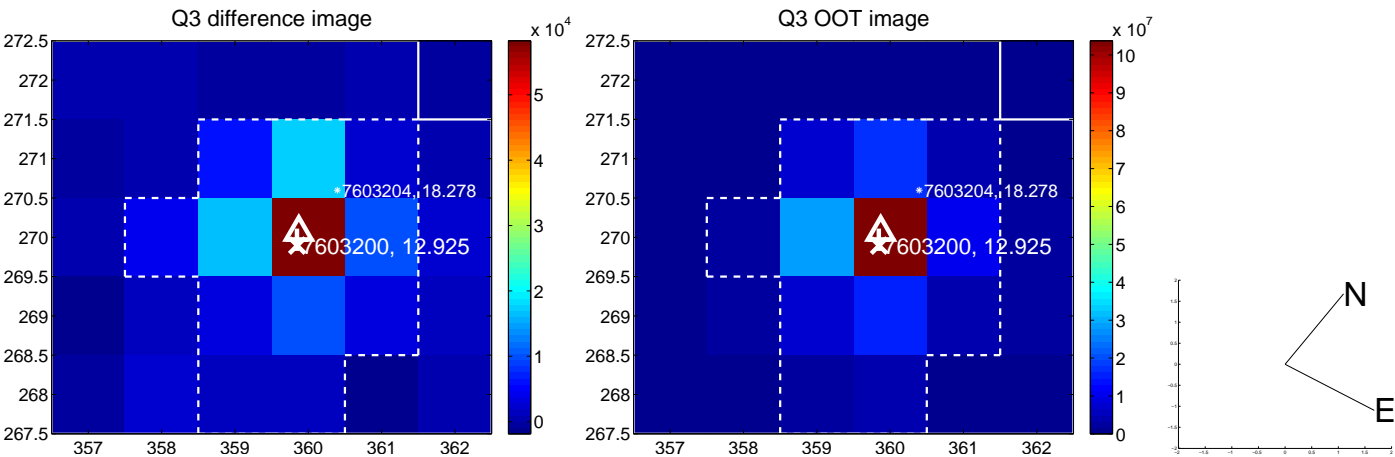
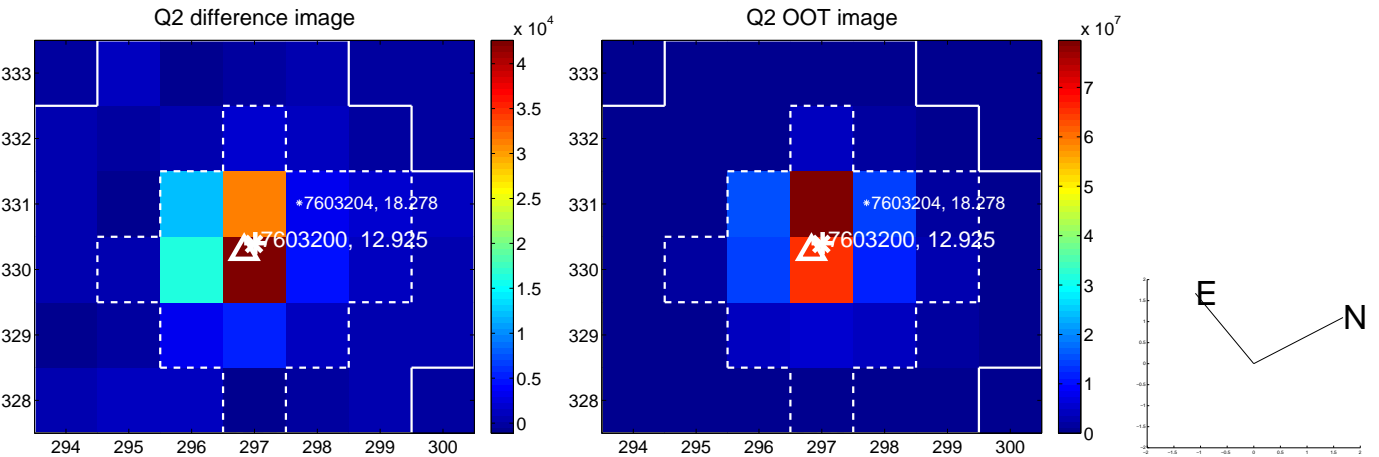
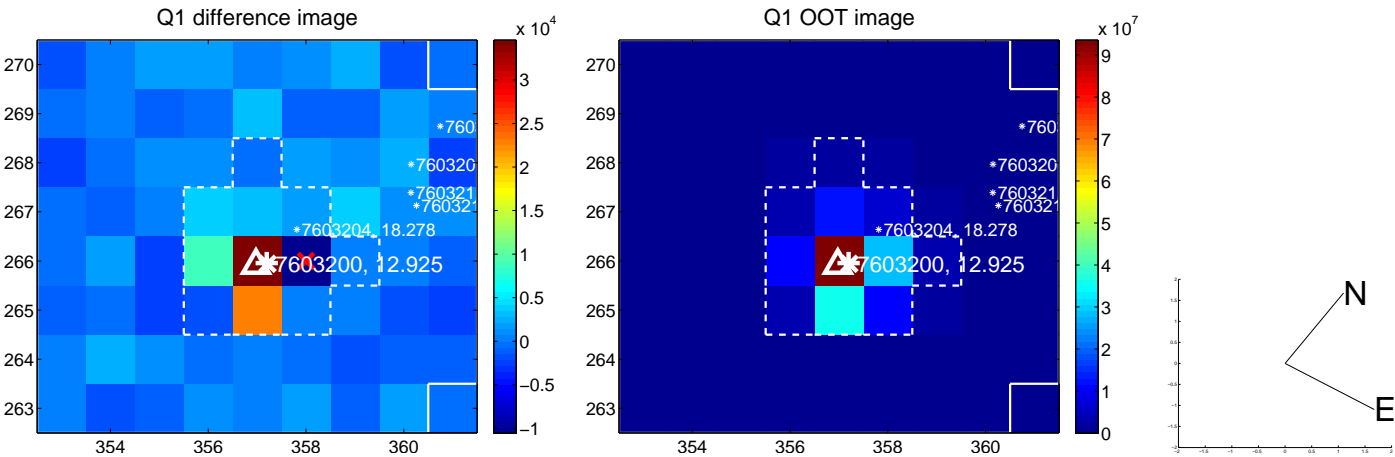
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.120 \pm 0.115$	1.04	$0.045 \pm 0.146$	$-0.111 \pm 0.127$
PRF-fit source offset from KIC position	$0.111 \pm 0.135$	0.83	$-0.102 \pm 0.140$	$0.044 \pm 0.102$
photometric centroid source offset	$0.17 \pm 0.20$	0.89	$-0.13 \pm 0.20$	$0.12 \pm 0.19$

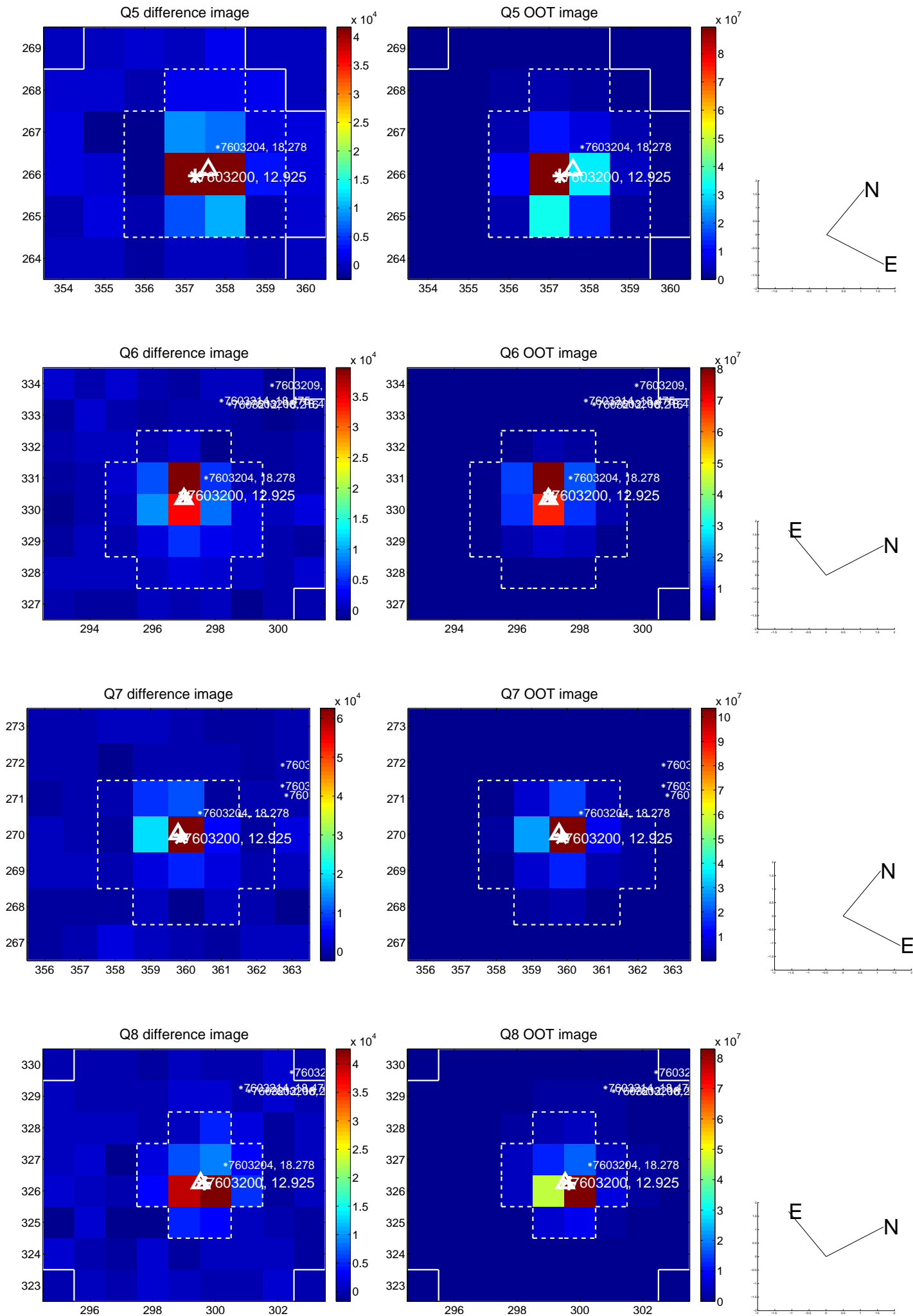


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

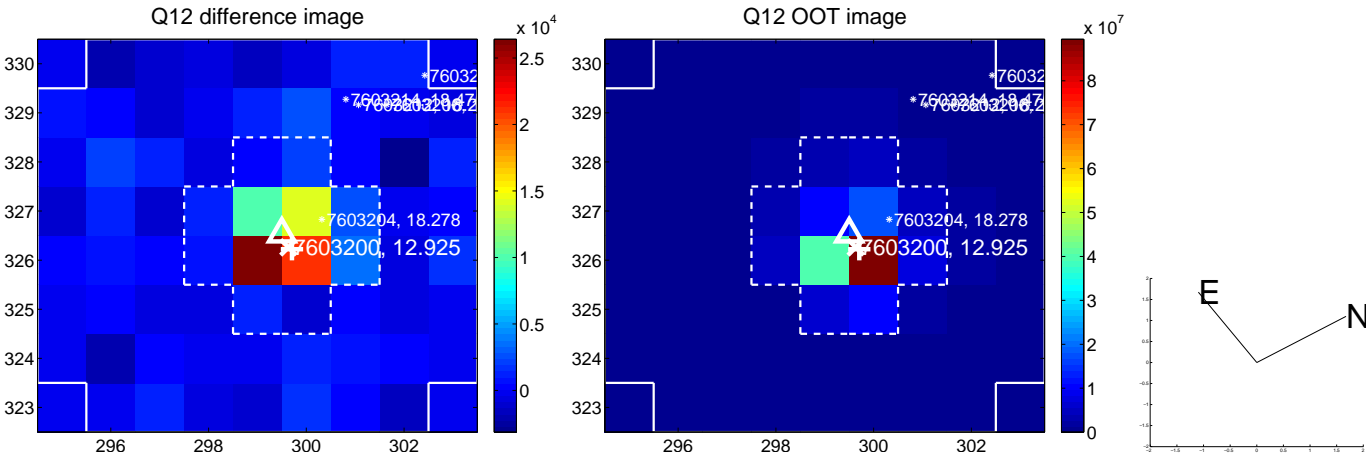
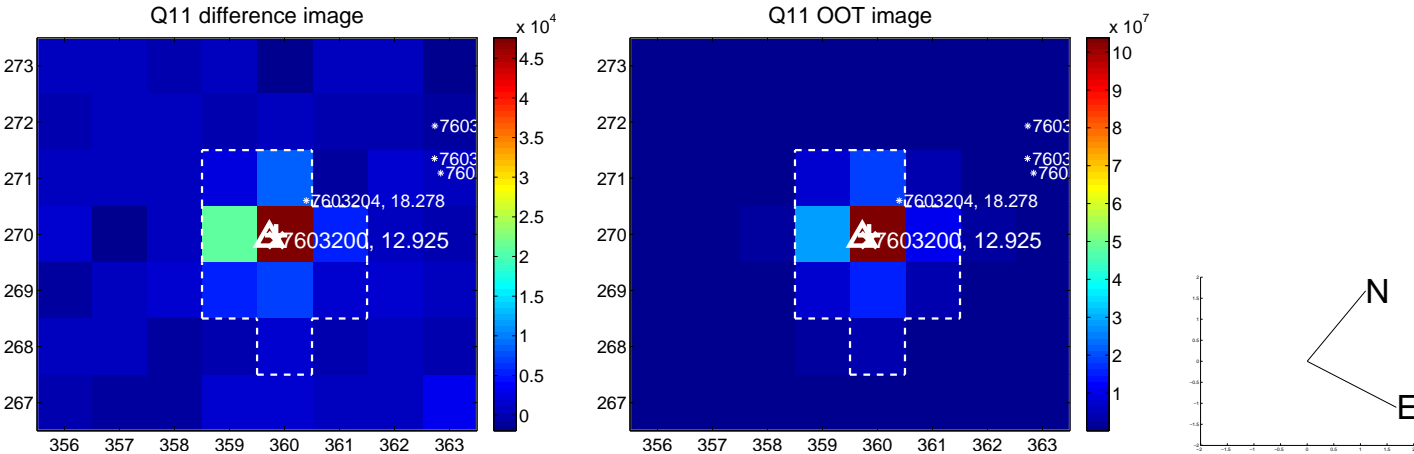
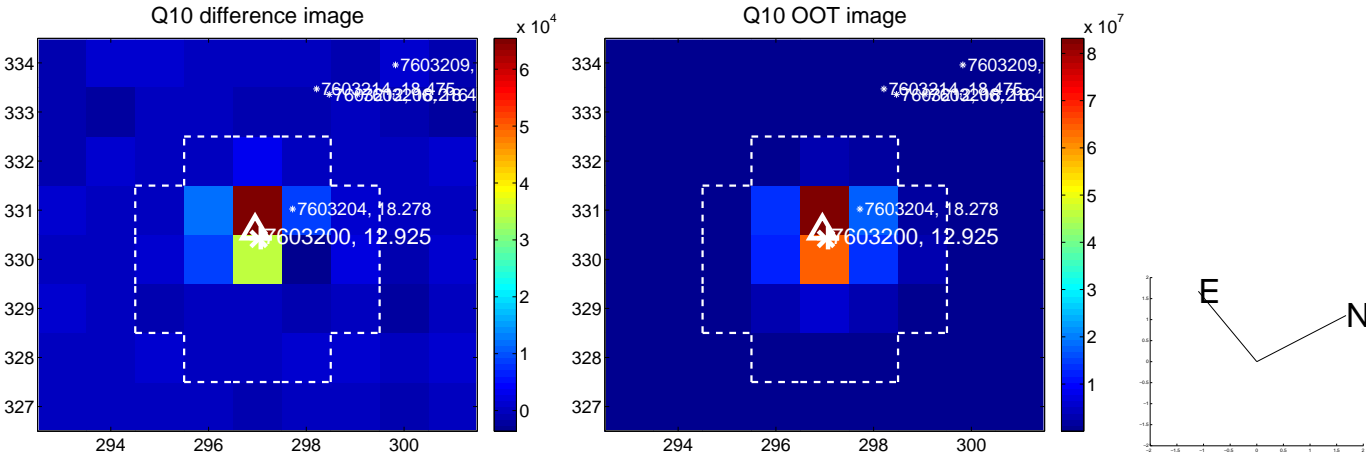
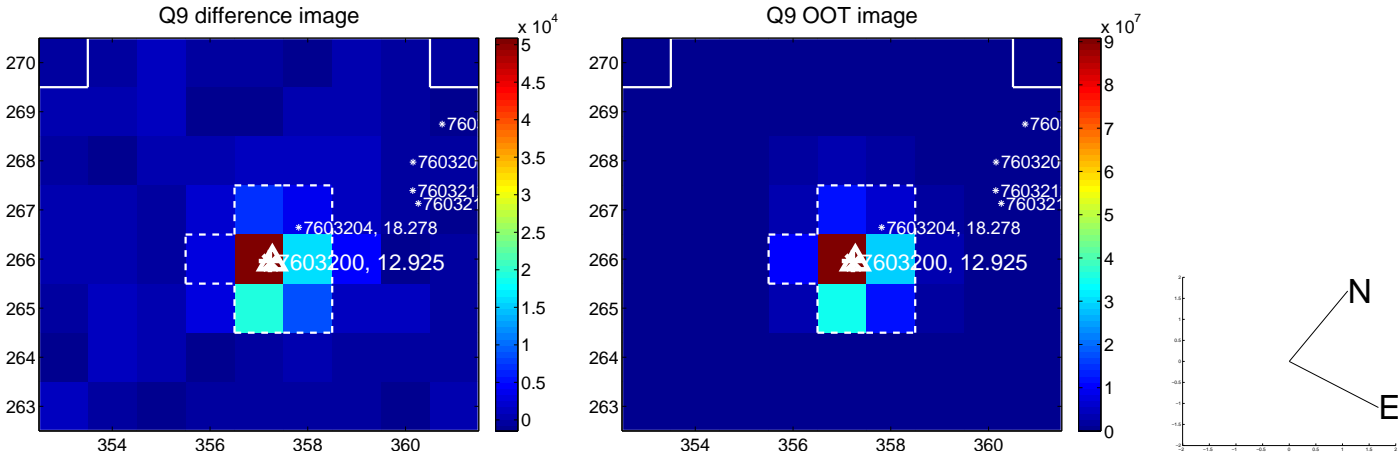
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



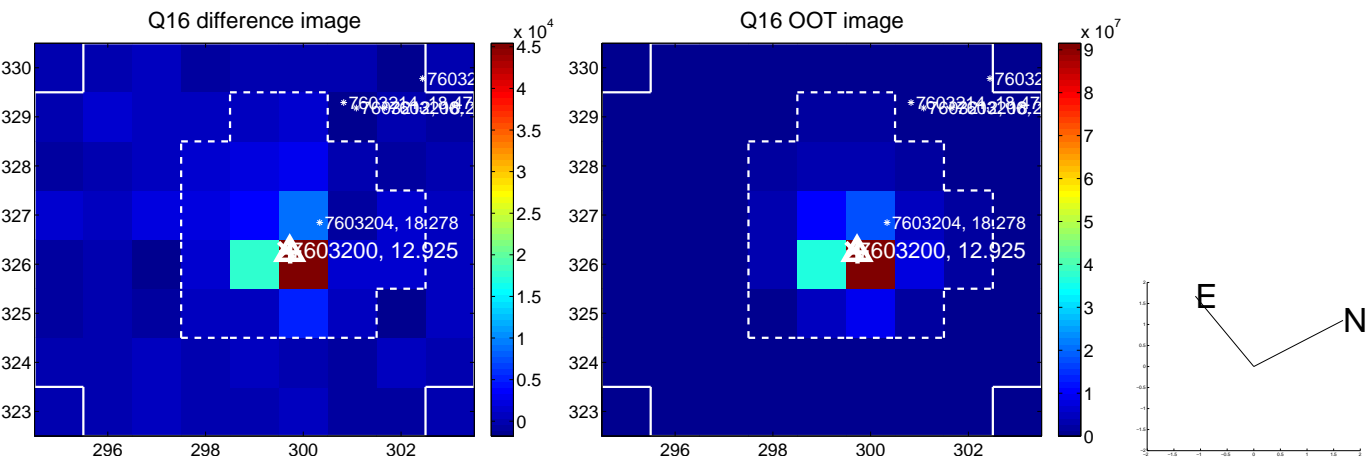
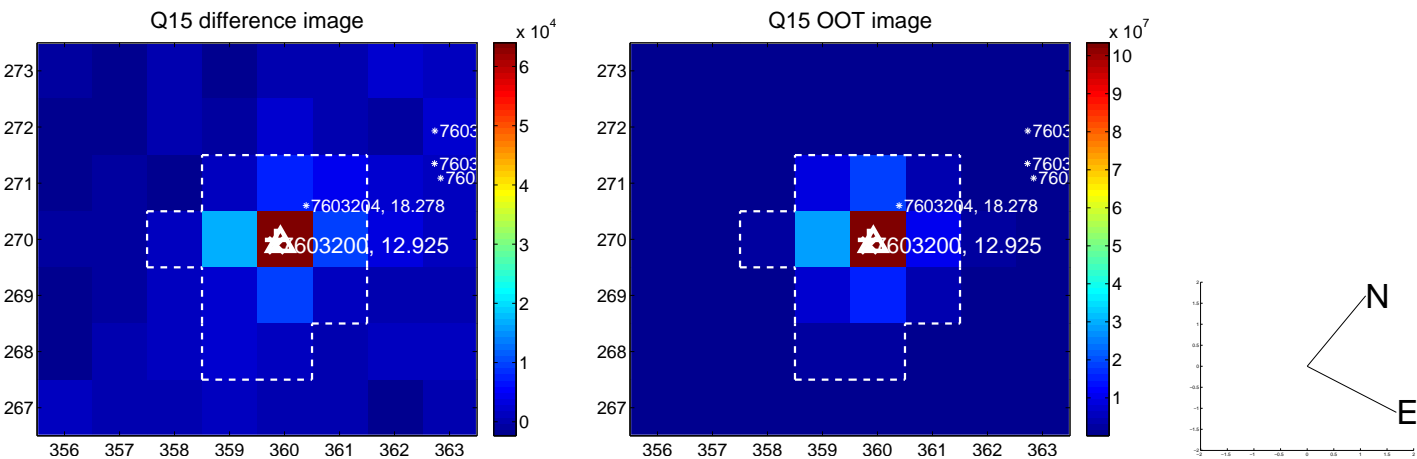
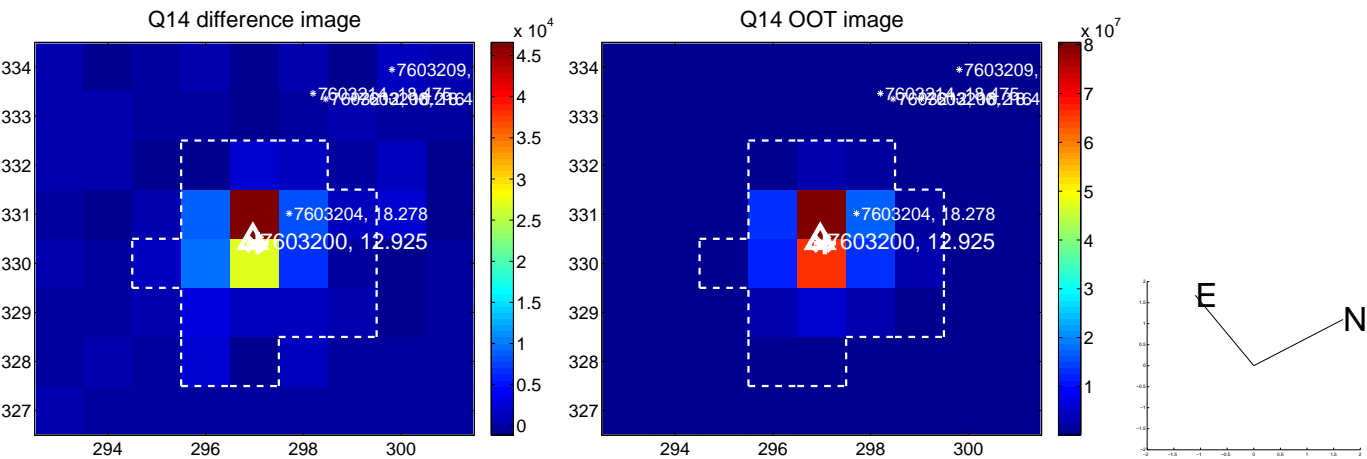
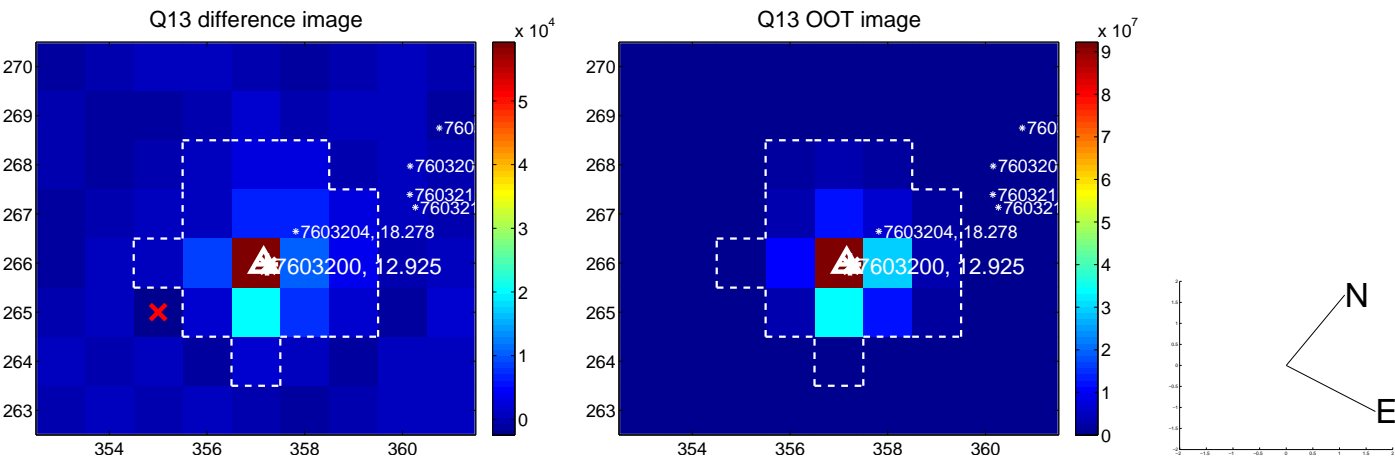
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



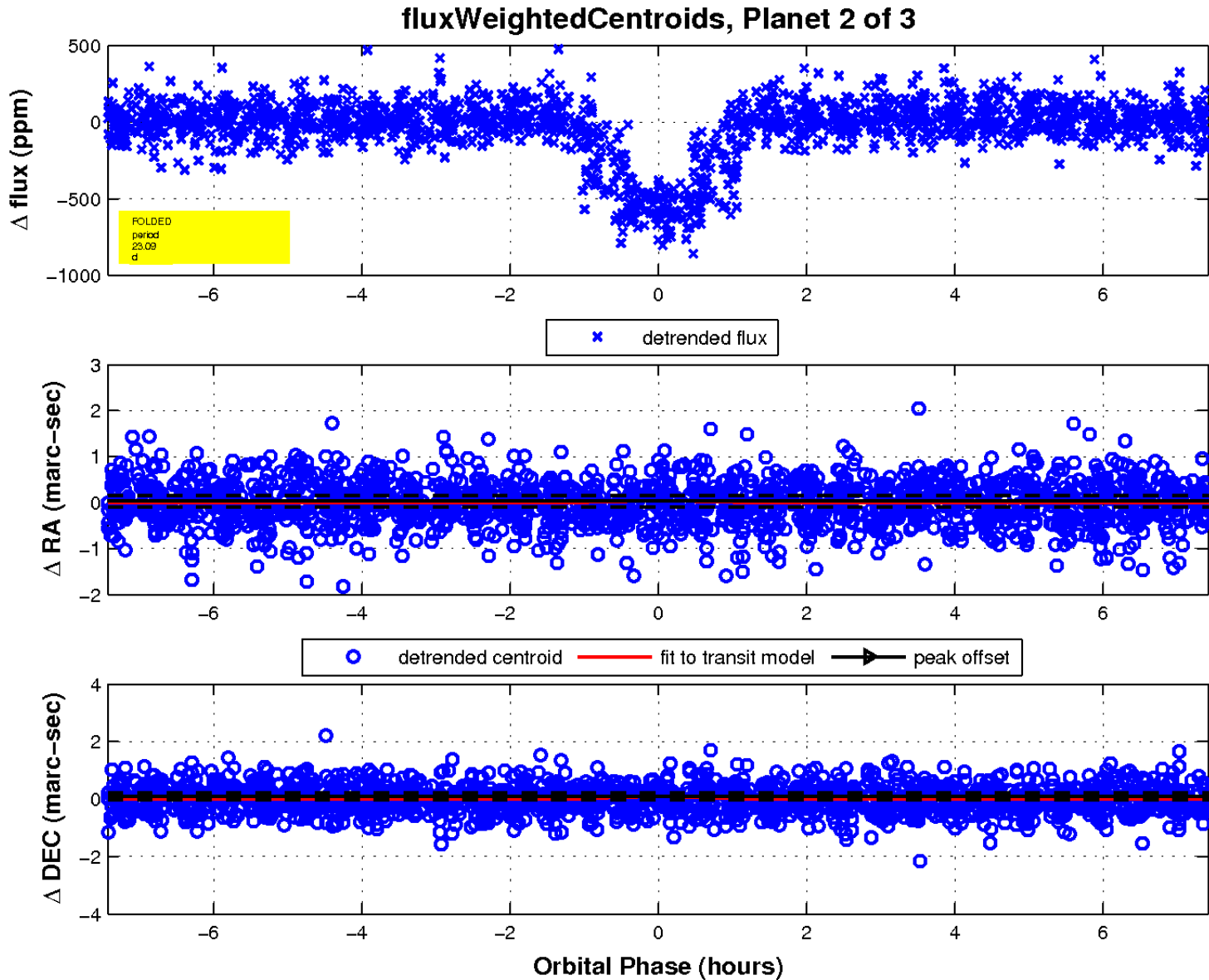
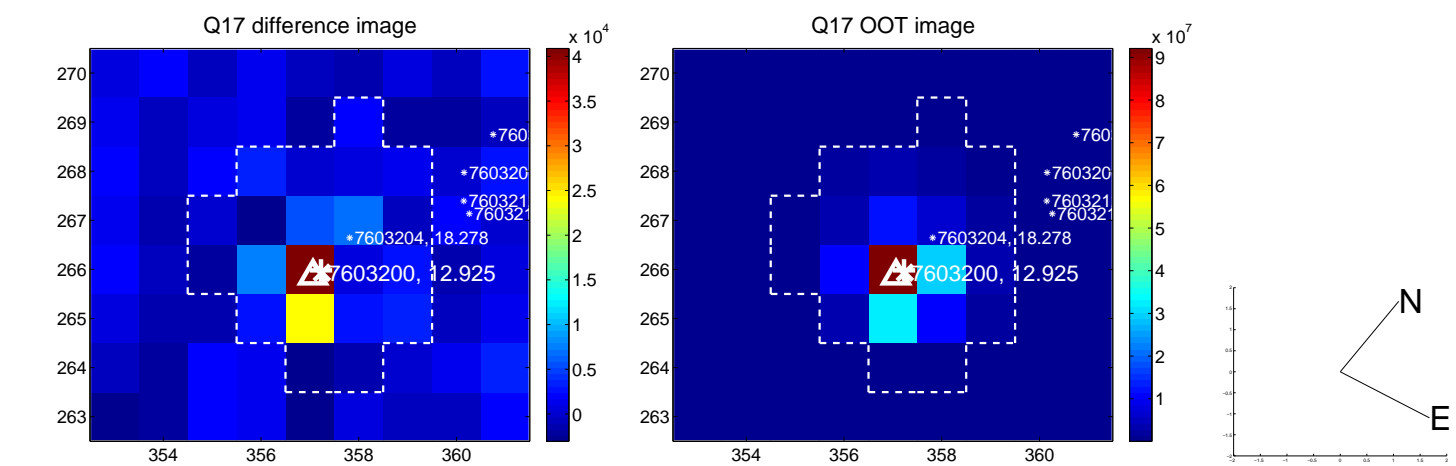
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

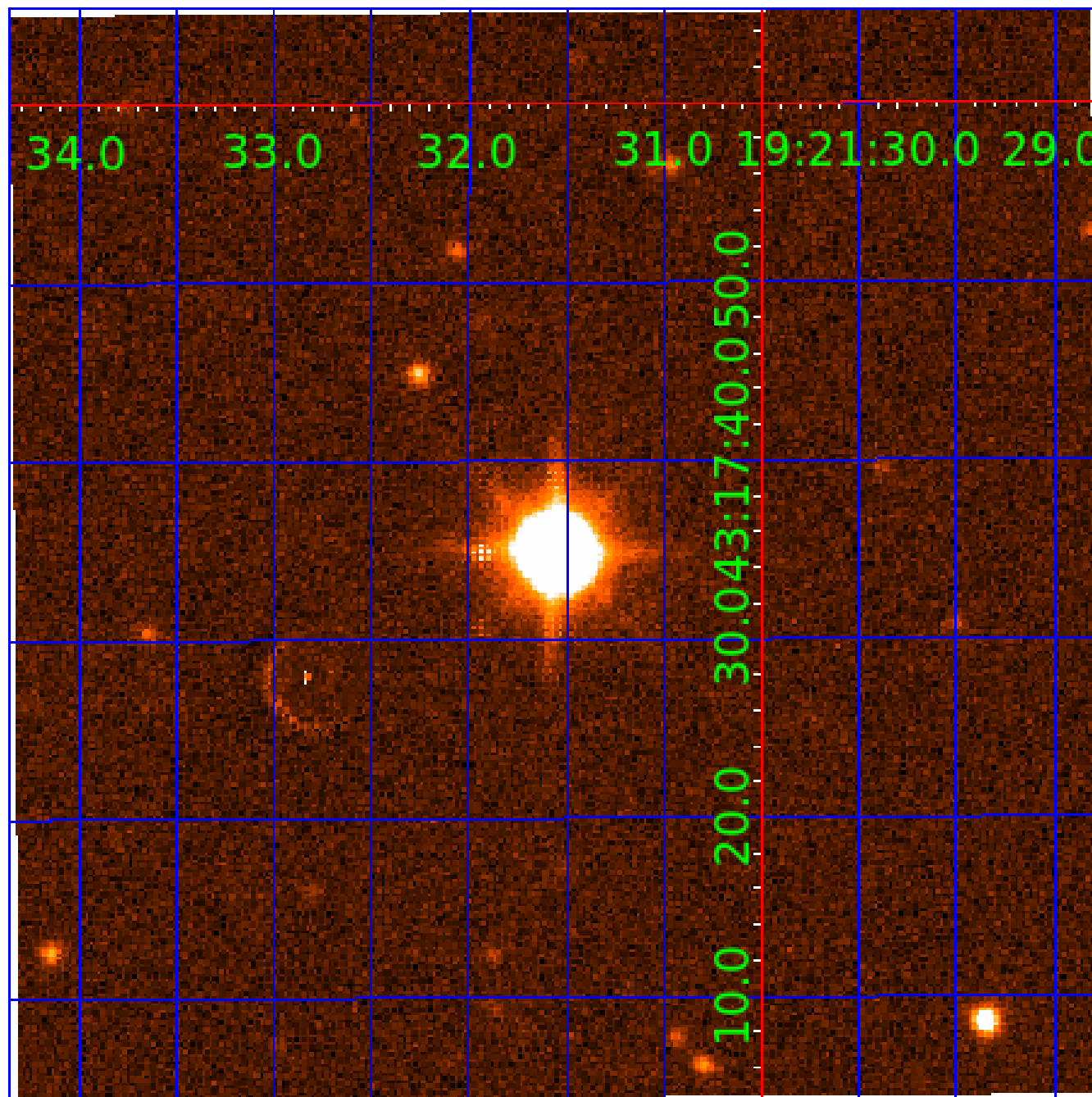


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007603200

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007603200-01	OBS	0314.01	13.781103	136.509116	722.4	2.473	112.7	108.6	0.50	3846	1.58	6.18
007603200-02	OBS	0314.02	23.088899	147.921897	610.1	2.475	59.5	54.6	0.50	3846	2.00	3.10
007603200-03	OBS	0314.03	10.313089	133.524154	108.6	3.274	14.3	16.4	0.50	3846	1.10	9.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007603200-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007603200-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007603200-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

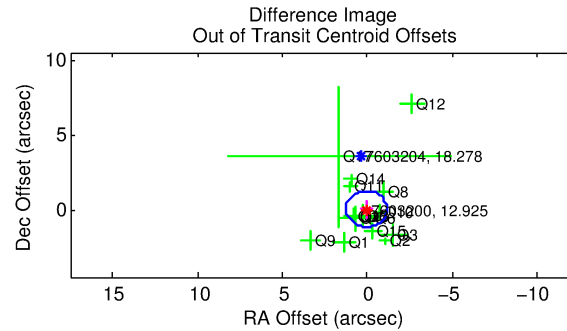
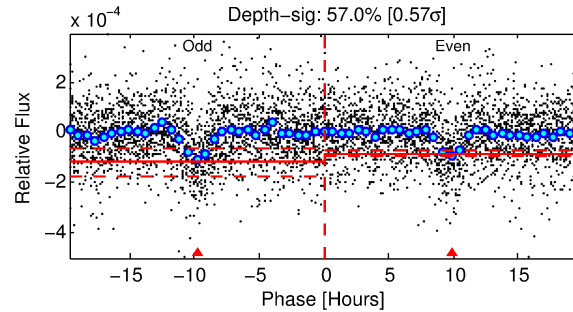
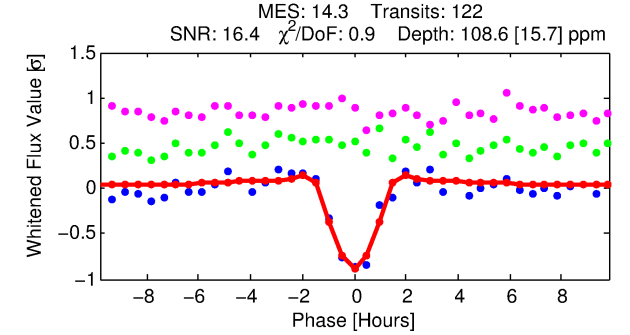
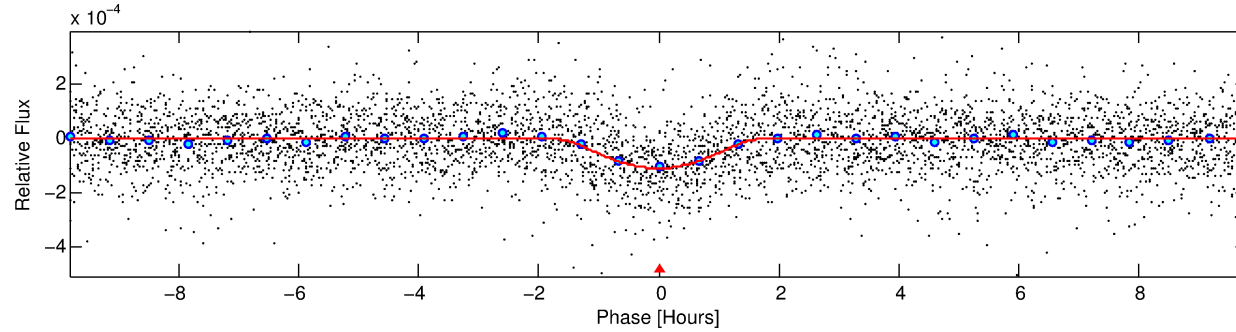
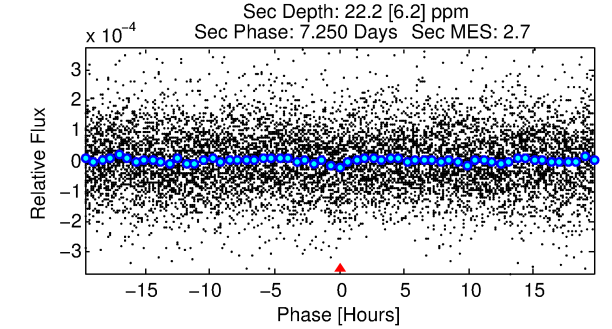
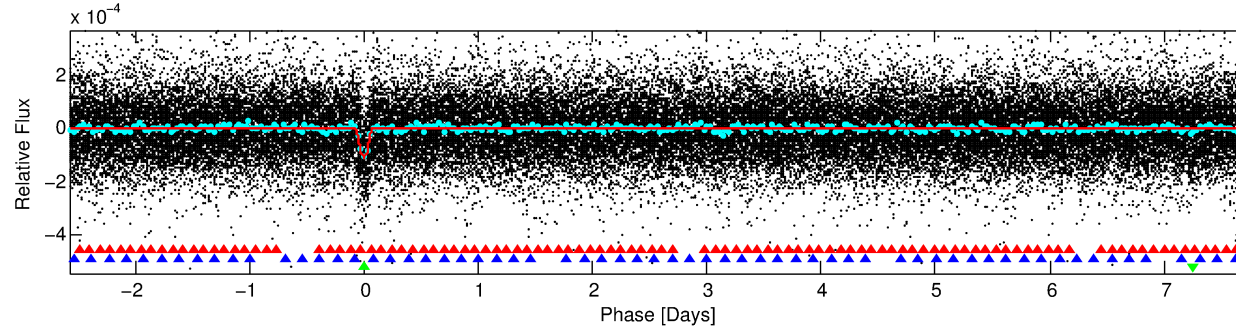
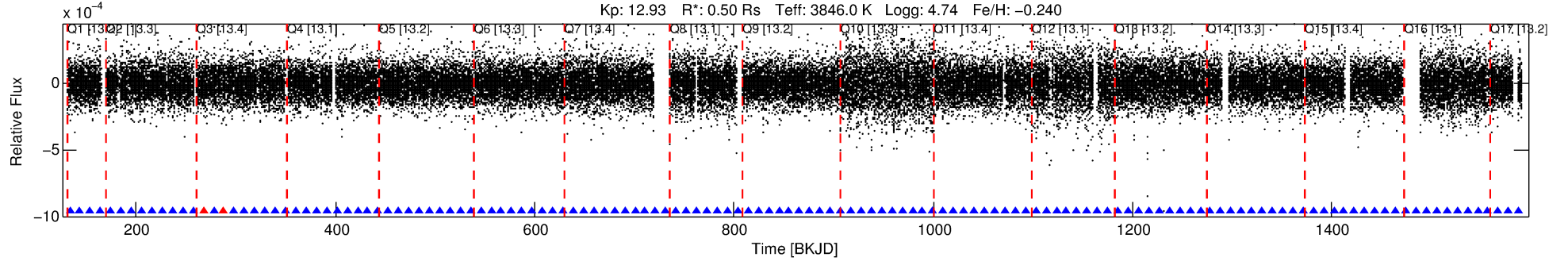
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007603200-03

No Significant Match Found

# DV One-Page Summary

KIC: 7603200 Candidate: 3 of 3 Period: 10.313 d  
KOI: K00314.03 Name: Kepler-138b Corr: 0.811



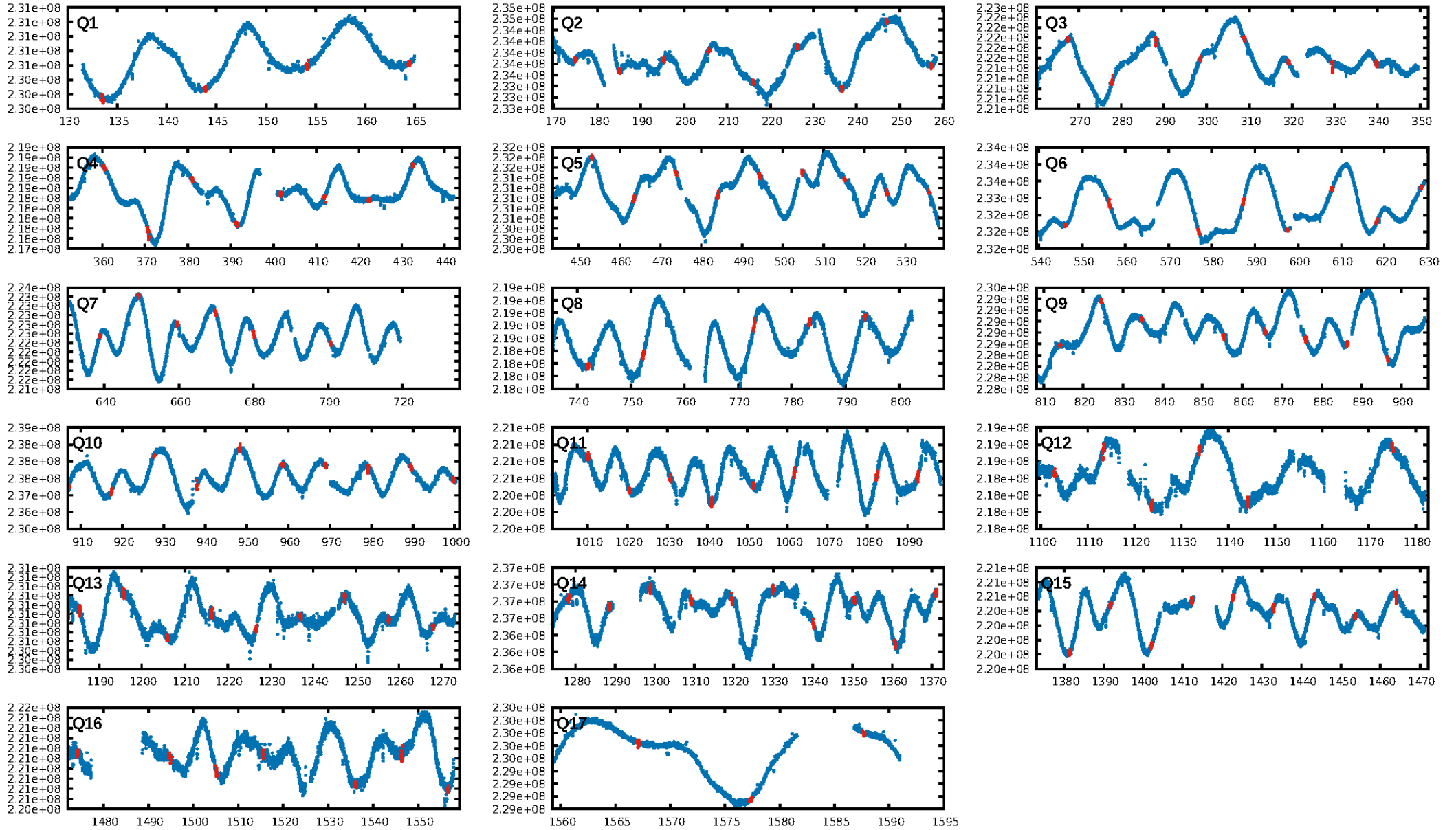
## DV Fit Results:

Period = 10.31309 [0.00005] d  
Epoch = 133.5242 [0.0039] BKJD  
Rp/R\* = 0.0200 [0.0380]  
a/R\* = 5.03 [2.50]  
b = 1.00 [0.06]  
Seff = 9.09 [1.22]  
Teq = 443 [15] K  
Rp = 1.10 [2.09] Re  
a = 0.0738 [0.0055] AU  
Ag = 55.36 [211.22] [0.26σ]  
Teffp = 1867 [1781] K [0.80σ]

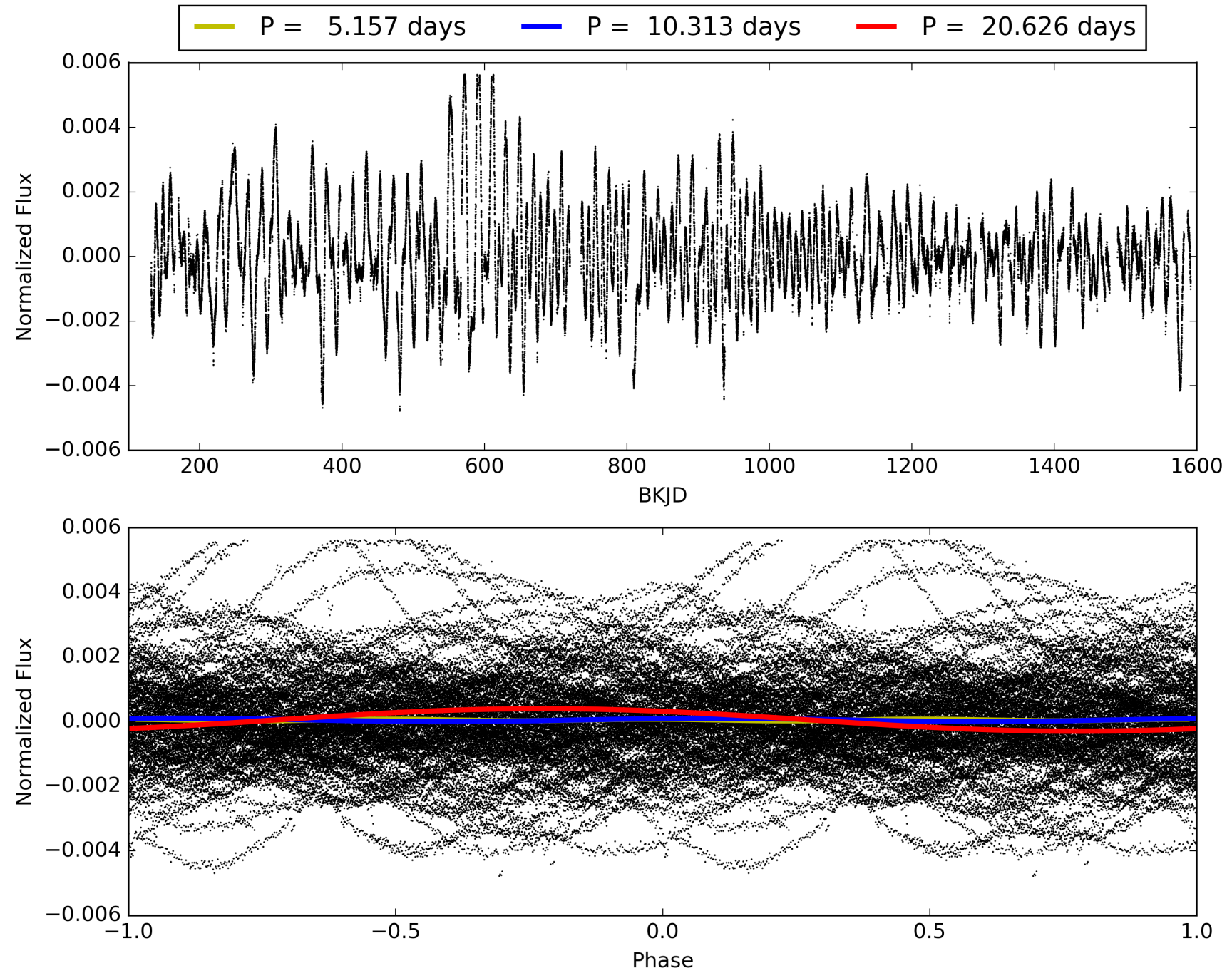
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [20.29σ]  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.04e-42  
RollingBand-fgt: 0.98 [113/115]  
GhostDiagnostic-chr: 3.068  
Centroid-sig: 24.4%  
Centroid-so: 0.883 arcsec [1.39σ]  
OotOffset-rm: 0.055 arcsec [0.14σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-rm: 0.235 arcsec [0.40σ]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.81 [13/16]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007603200-03, PDC Light Curves

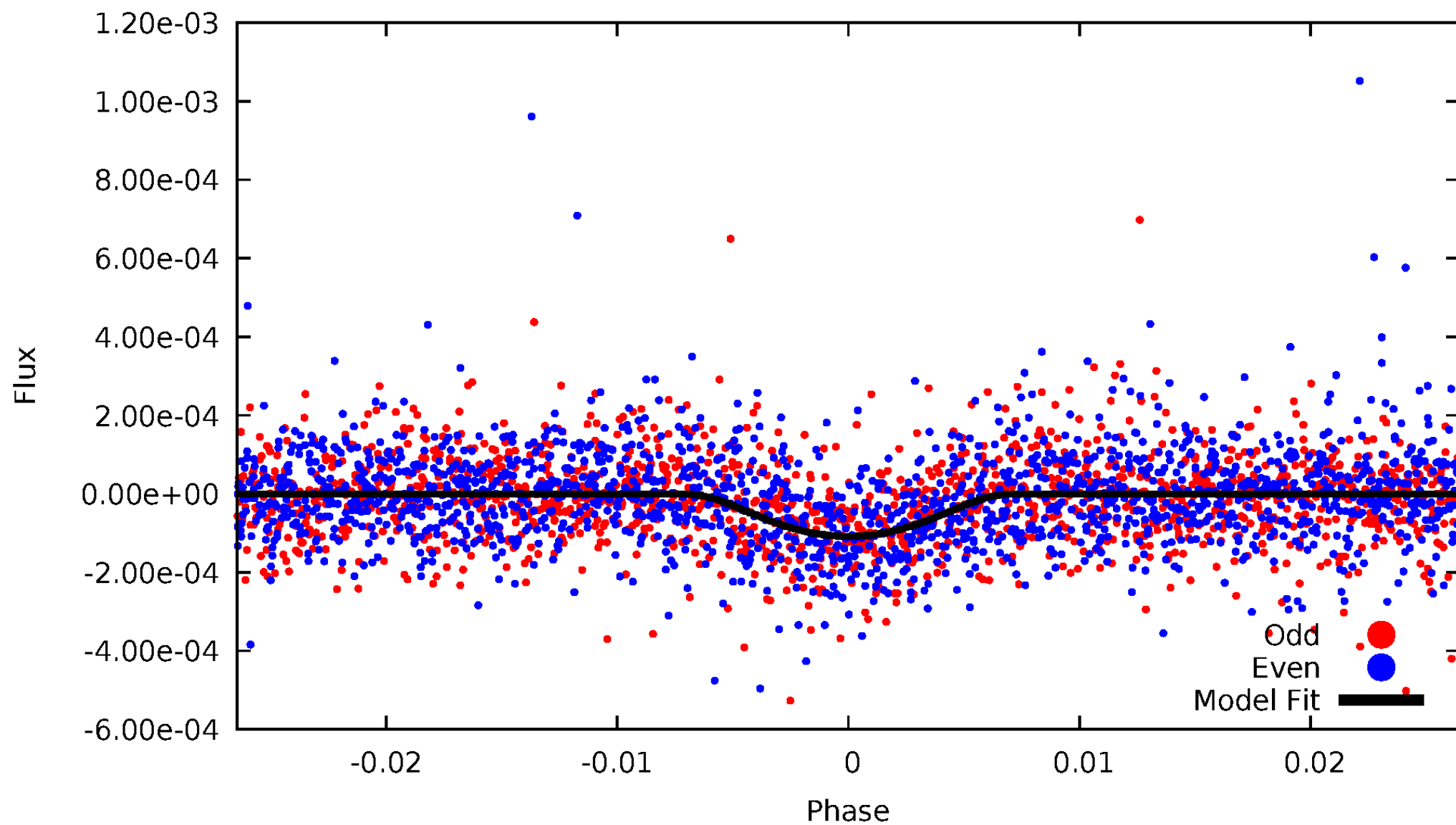


TCE 007603200-03



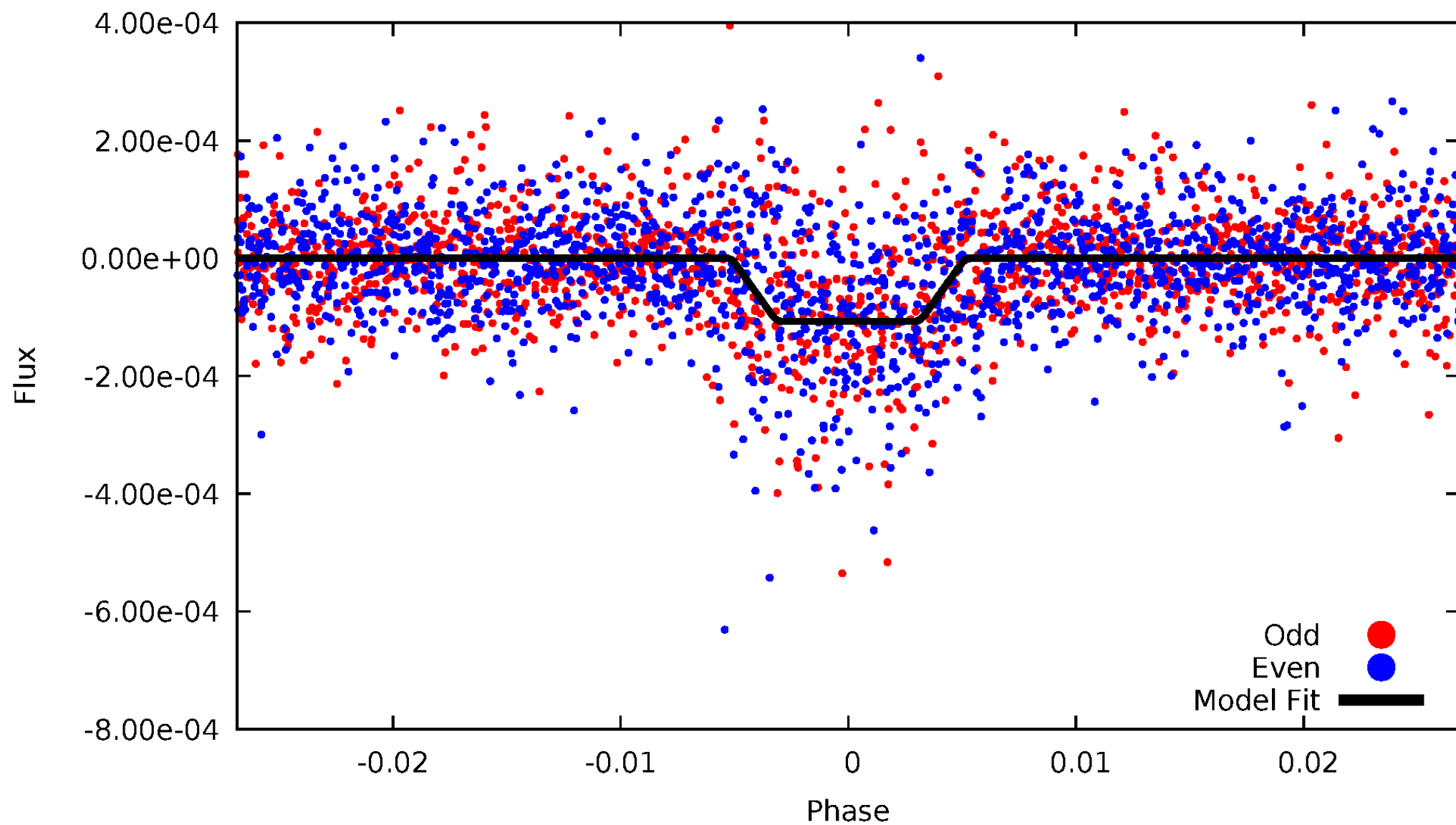
# DV Odd/Even

TCE 007603200-03



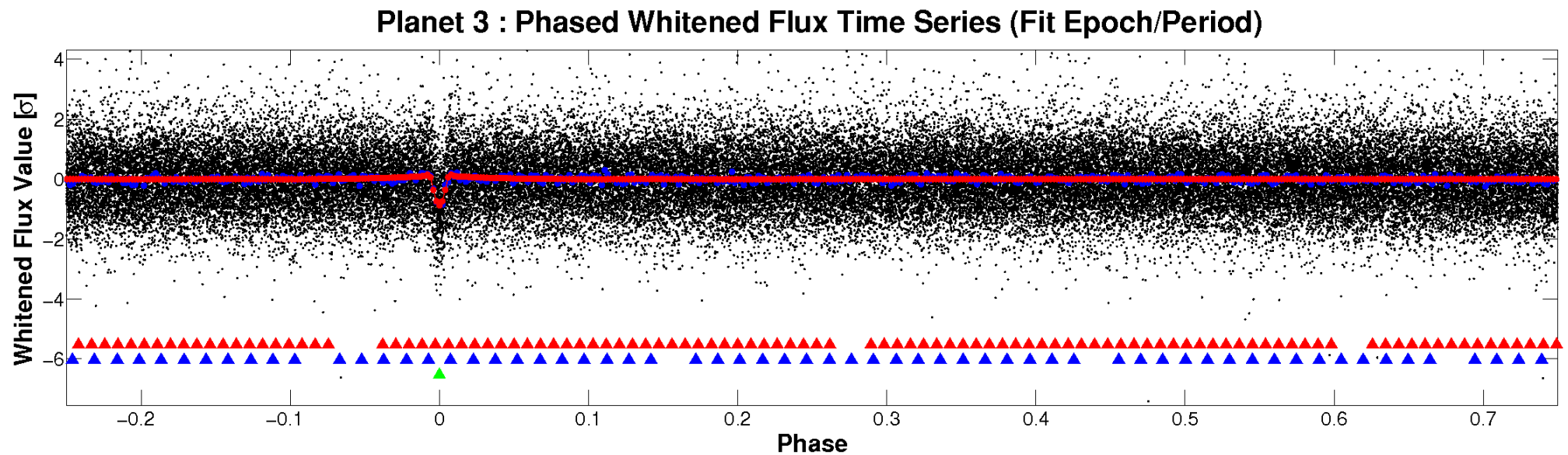
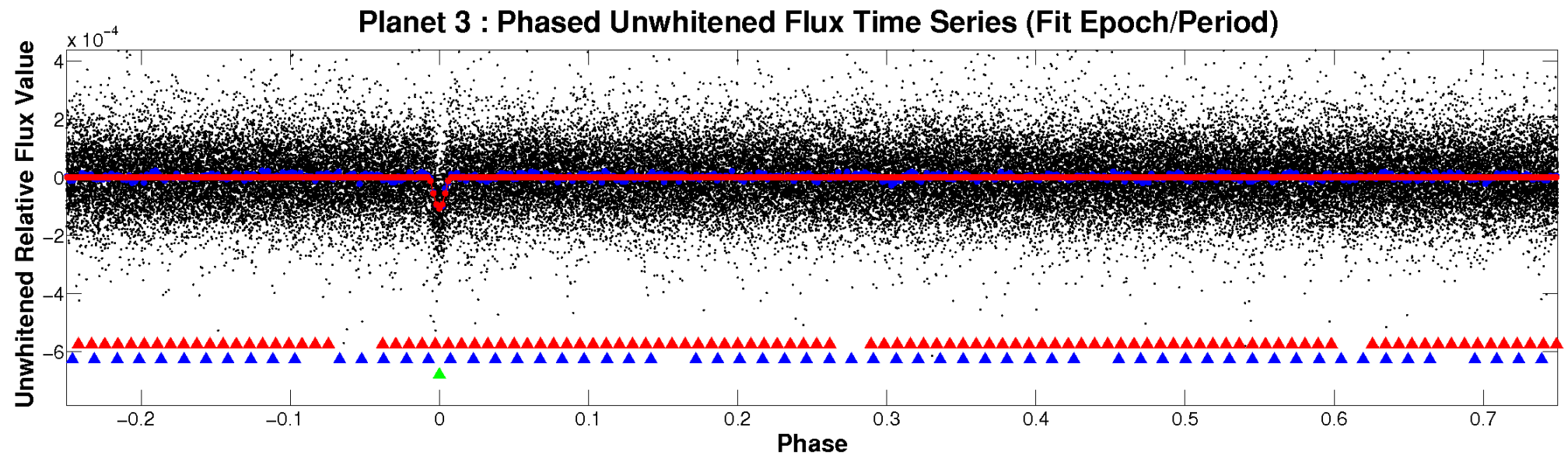
# ALT Odd/Even

TCE 007603200-03



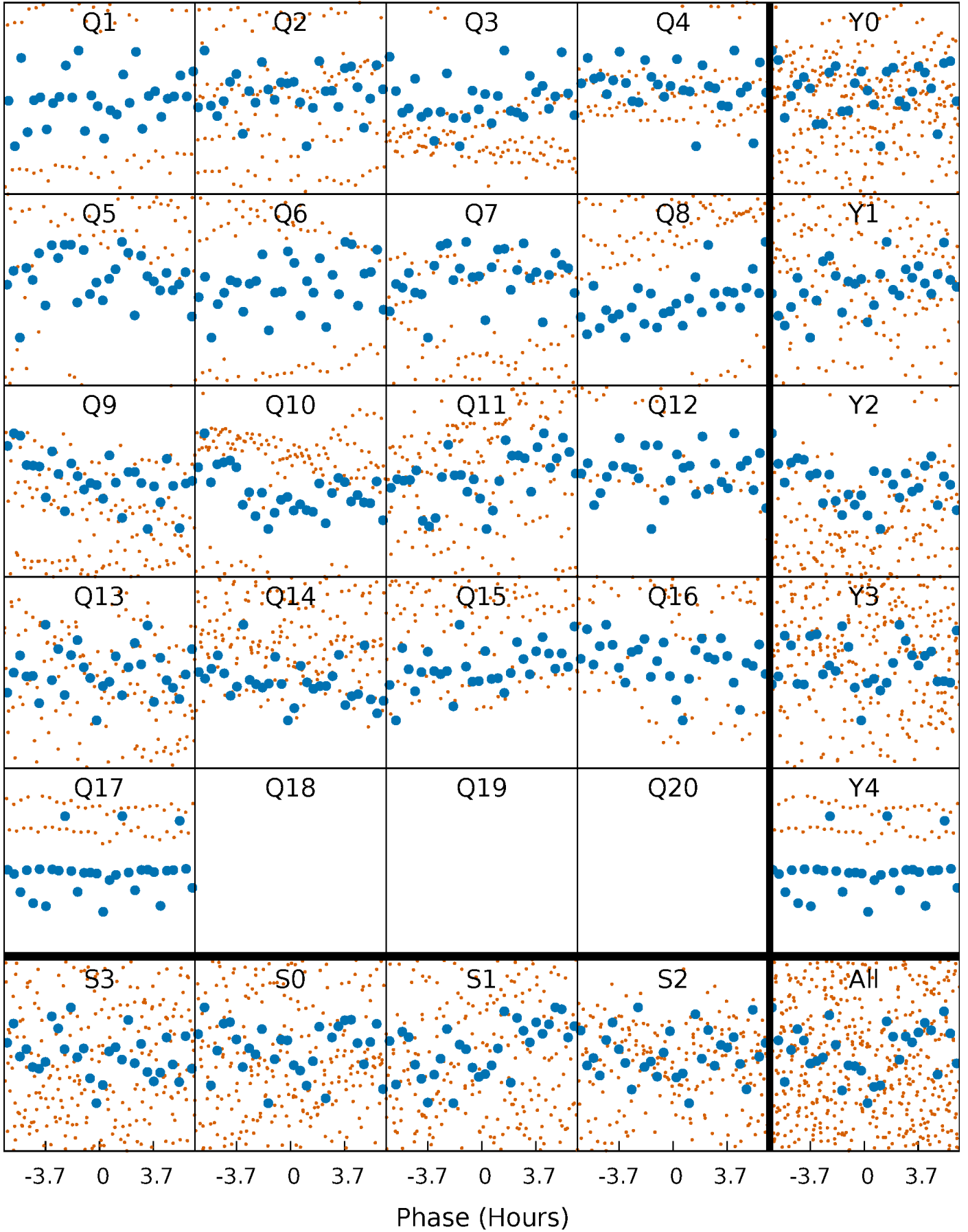


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

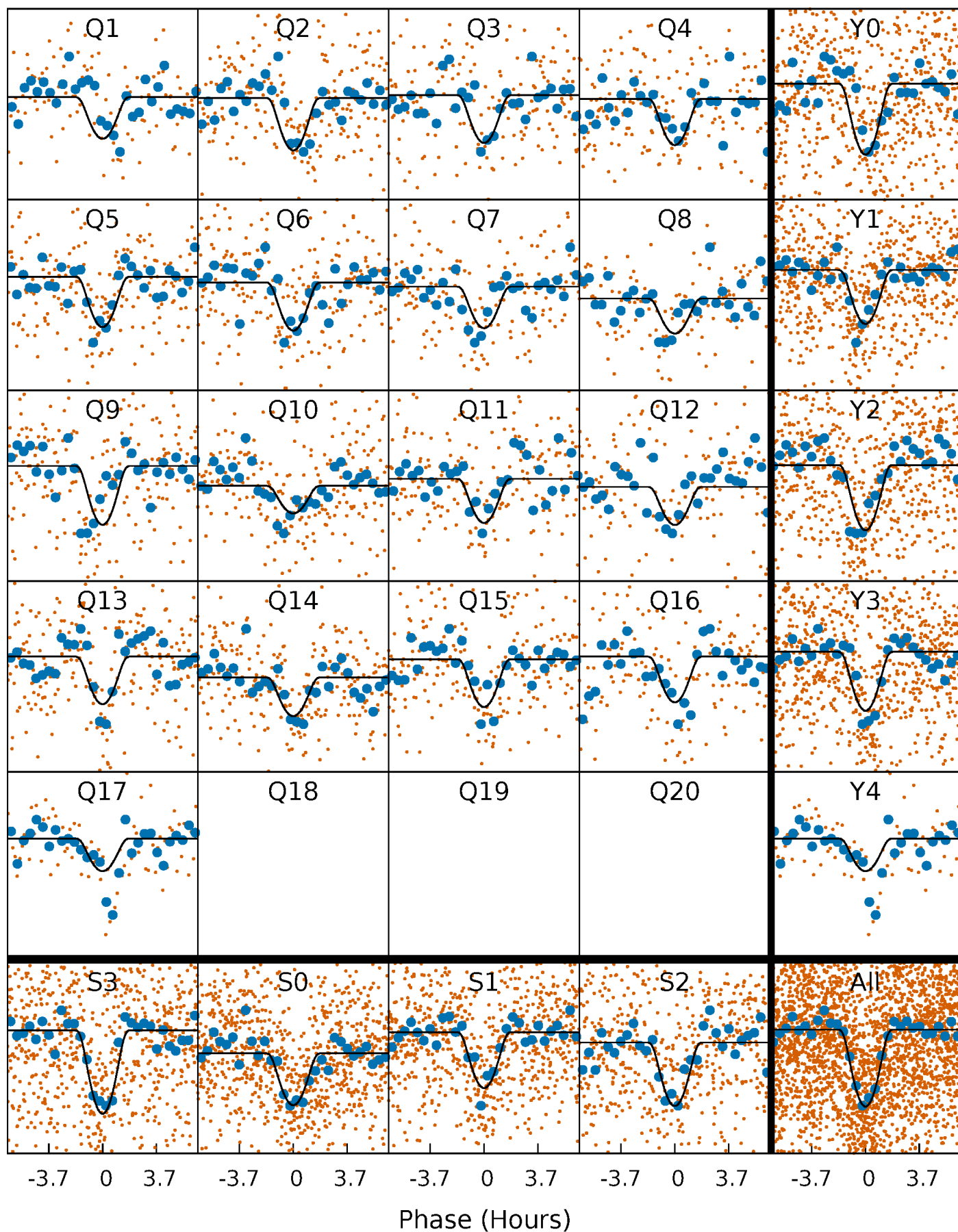
TCE 007603200-03 P= 10.313089 Days  $T_0=133.524154$  (BKJD)





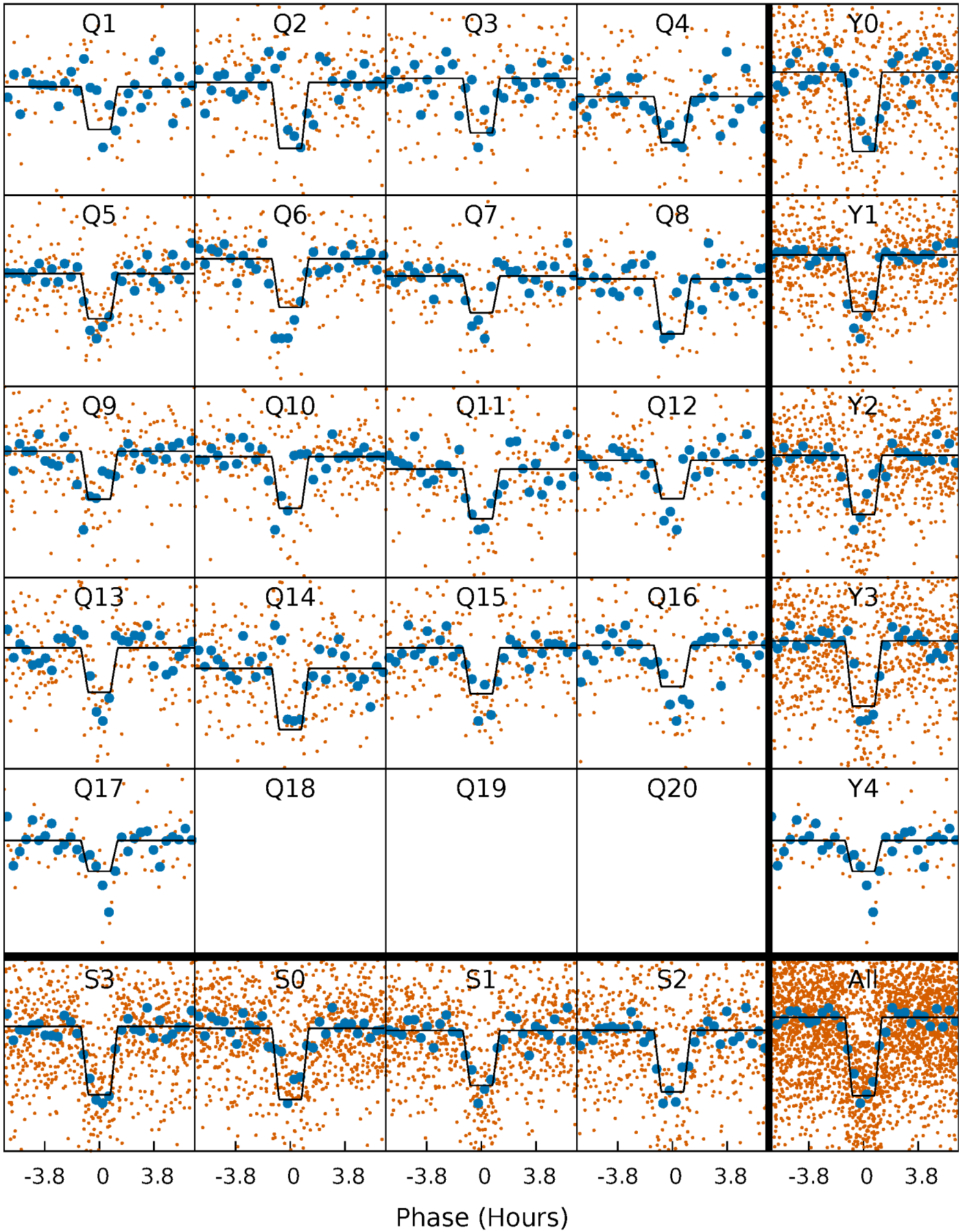
# DV Quarter-Phased Transit Curves

TCE 007603200-03     $P = 10.313089$  Days     $T_0 = 133.524154$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

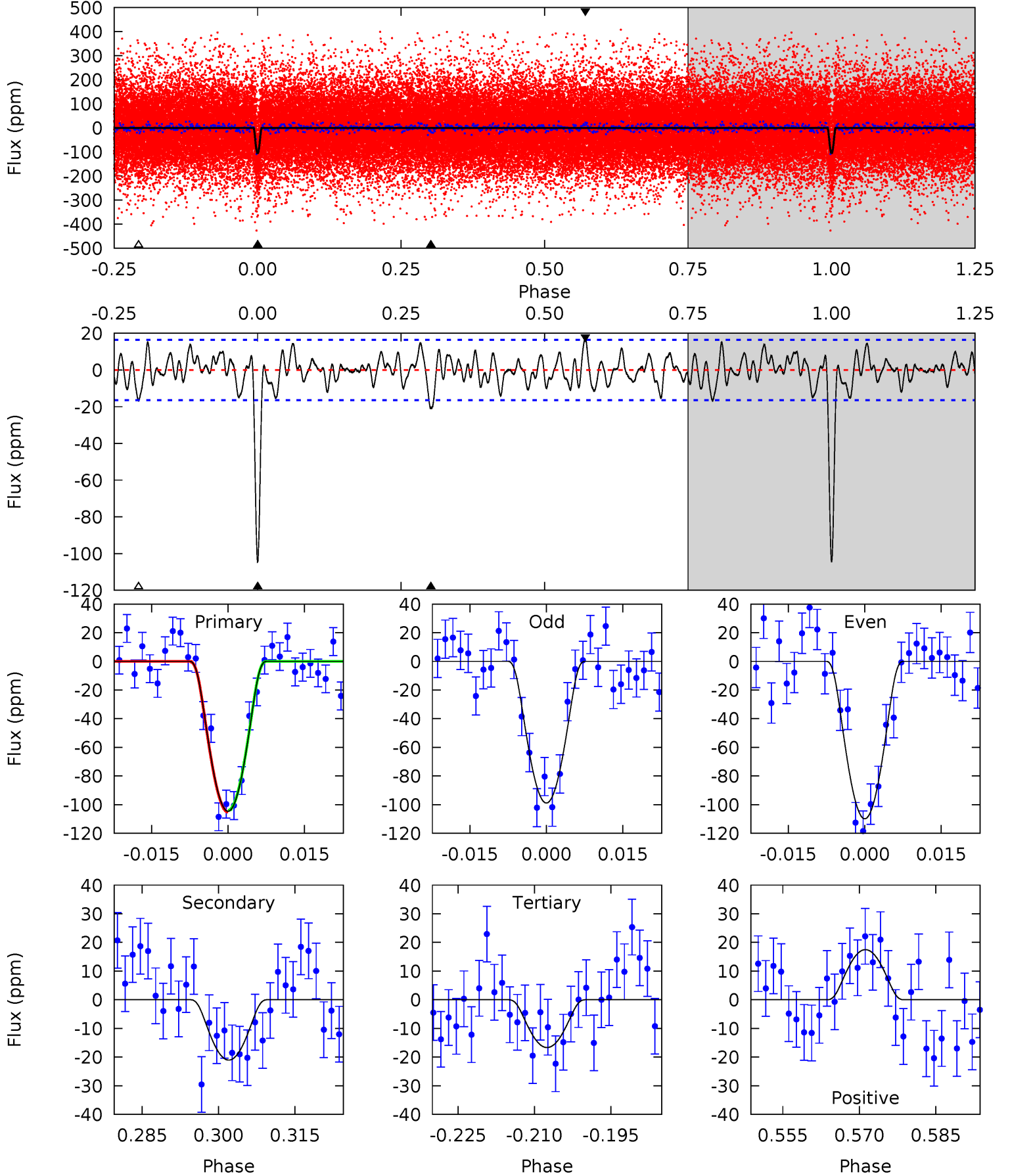
TCE 007603200-03 P= 10.313138 Days  $T_0=133.516603$  (BKJD)



# DV Model-Shift Uniqueness Test

007603200-03,  $P = 10.313089$  Days,  $E = 123.211065$  Days

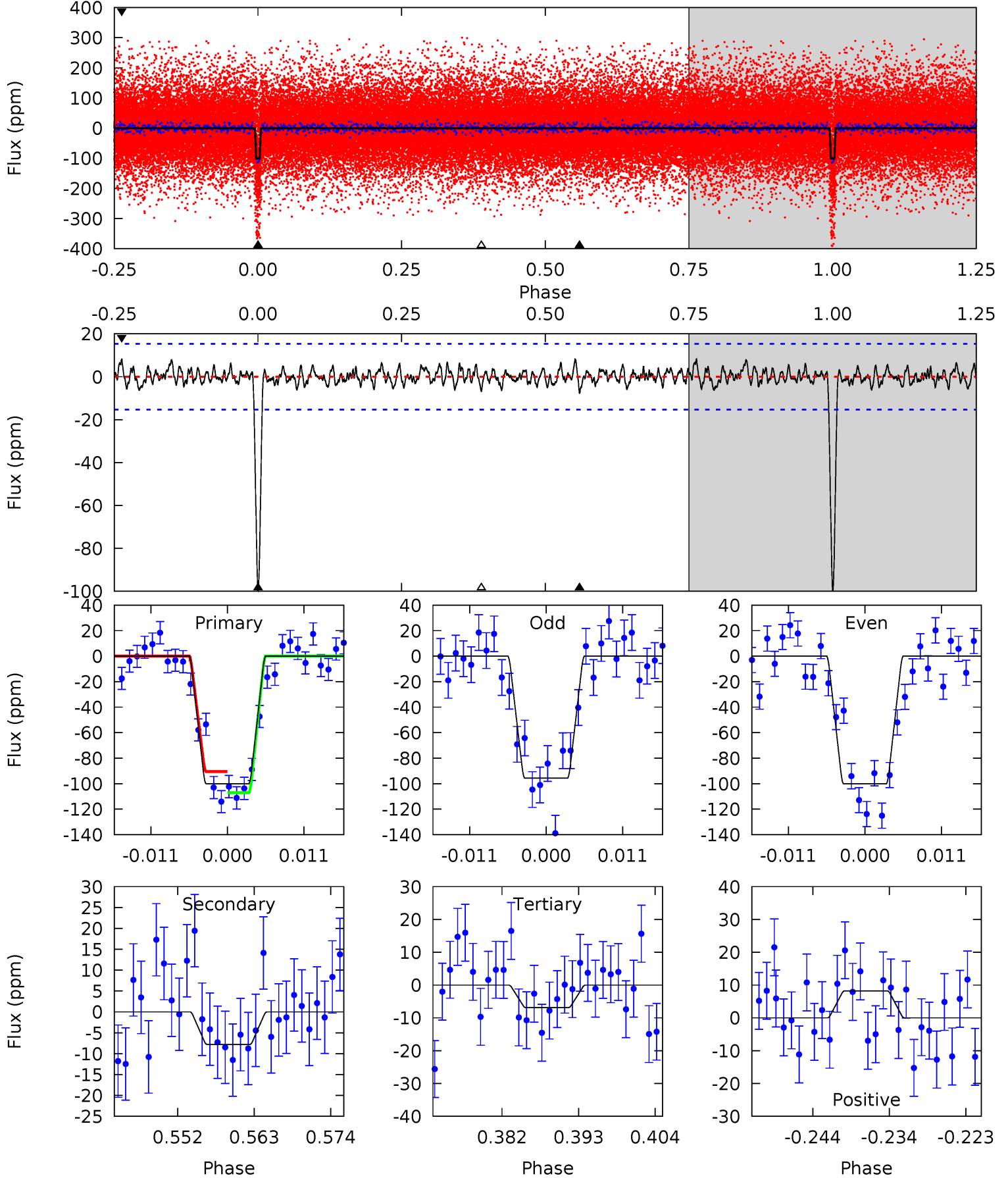
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.5	6.34	5.03	5.27	4.95	2.43	1.86	26.5	26.3	1.32	1.08	1.66	0.94	0.14	0.16



# Alt Model-Shift Uniqueness Test

007603200-03, P = 10.313138 Days, E = 123.203465 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
32.7	2.55	2.24	2.69	5.01	2.55	0.88	30.4	30.0	0.31	-0.13	0.72	1.09	0.08	2.69



### Stellar Parameters For KIC 007603200

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3846^{+77}_{-84}$	$4.738^{+0.052}_{-0.024}$	$-0.240^{+0.150}_{-0.150}$	$0.503^{+0.032}_{-0.048}$	$0.505^{+0.036}_{-0.040}$	$5.590^{+1.397}_{-0.632}$
	+2%/-2%	+1%/-1%	+62%/-62%	+6%/-10%	+7%/-8%	+25%/-11%
Source	SPE70	SPE60	SPE70	DSEP		

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

### Secondary Eclipse Parameters for KIC 007603200-03 / KOI 0314.03

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-21 \pm 3$	$1.85^{+1.69}_{-1.30}$	$616^{+15}_{-18}$	$2208^{+794}_{-282}$	$18^{+181}_{-13}$
Alt.	$-8 \pm 3$	$1.66^{+1.45}_{-1.15}$	$616^{+16}_{-17}$	$2032^{+659}_{-292}$	$8.422^{+82.180}_{-6.478}$

$T_{max}$  = 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

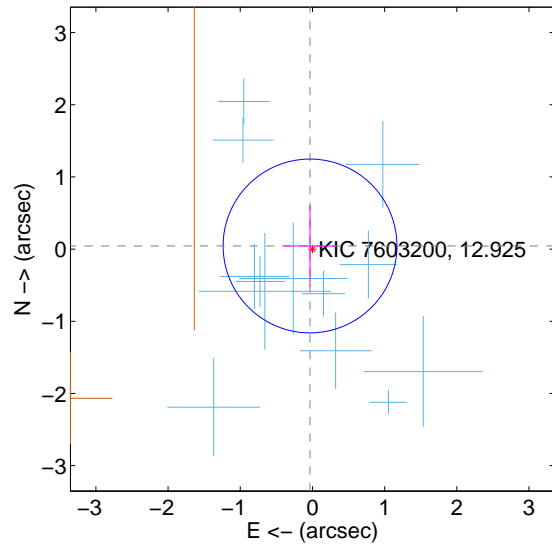
Supplemental centroid analysis for 007603200-03. Kepler magnitude: 12.93. Transit SNR 16.44

There are 13 quarters with good PRF difference image offsets

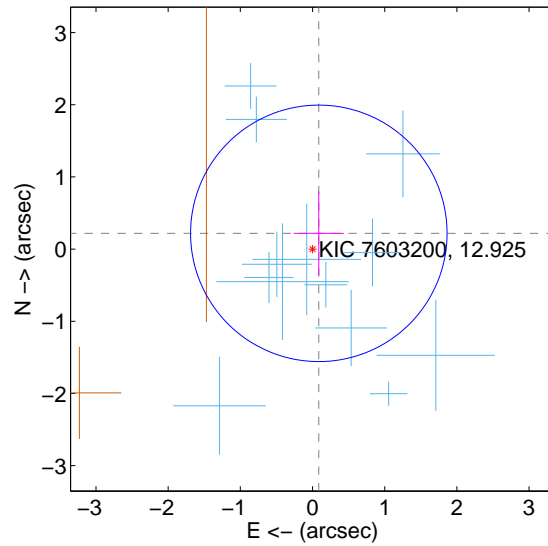
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.055 \pm 0.401$	0.14	$0.033 \pm 0.367$	$0.043 \pm 0.562$
PRF-fit source offset from KIC position	$0.235 \pm 0.592$	0.40	$-0.087 \pm 0.347$	$0.218 \pm 0.581$
photometric centroid source offset	$0.88 \pm 0.64$	1.39	$-0.57 \pm 0.65$	$0.67 \pm 0.62$

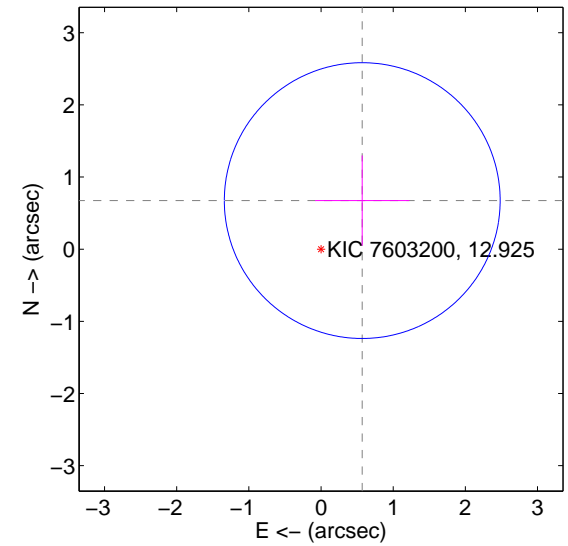
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

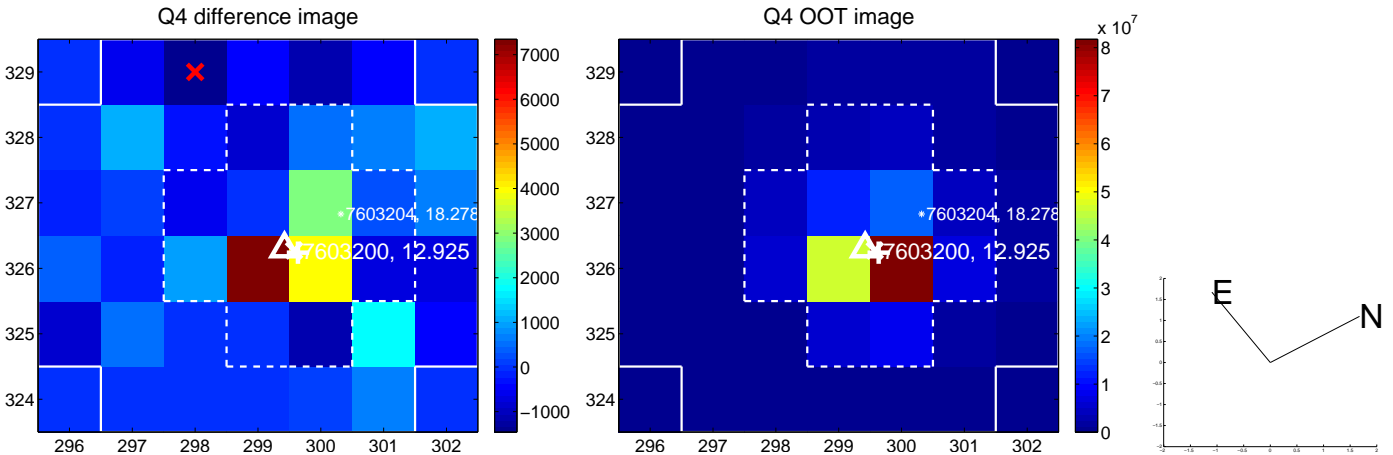
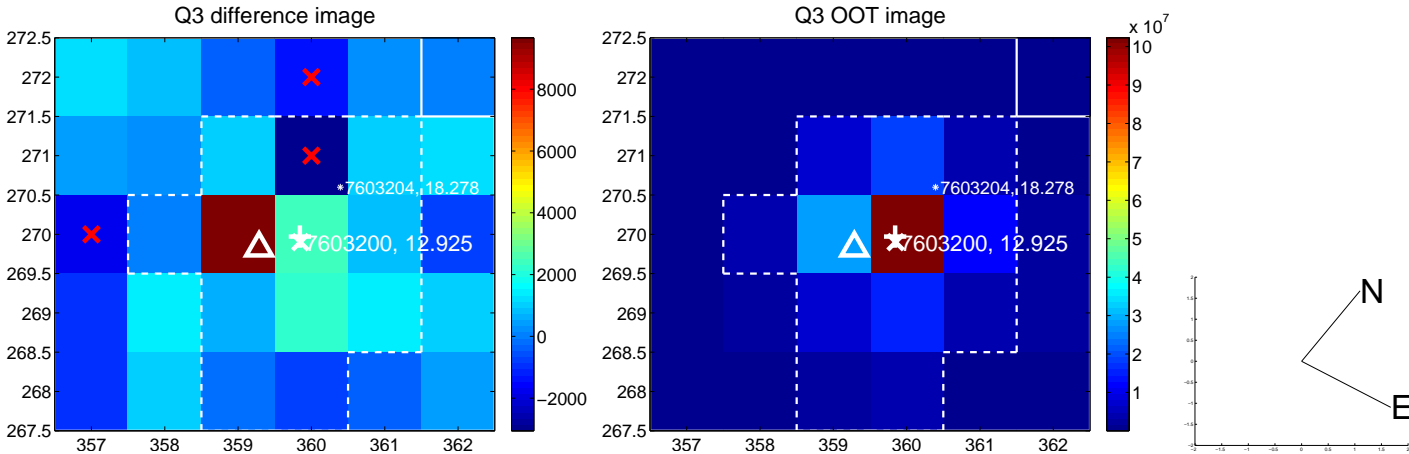
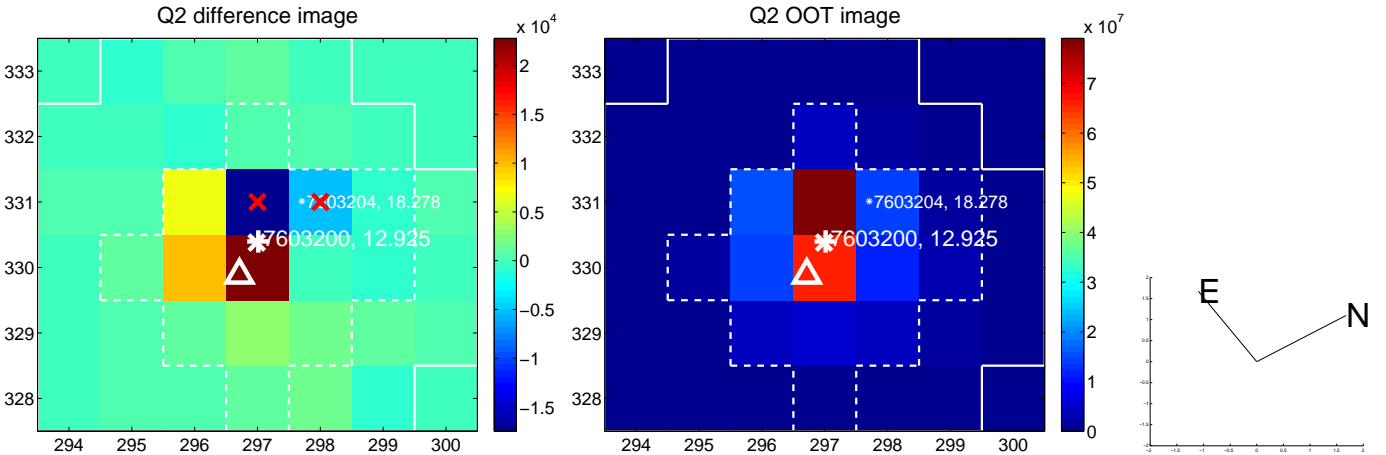
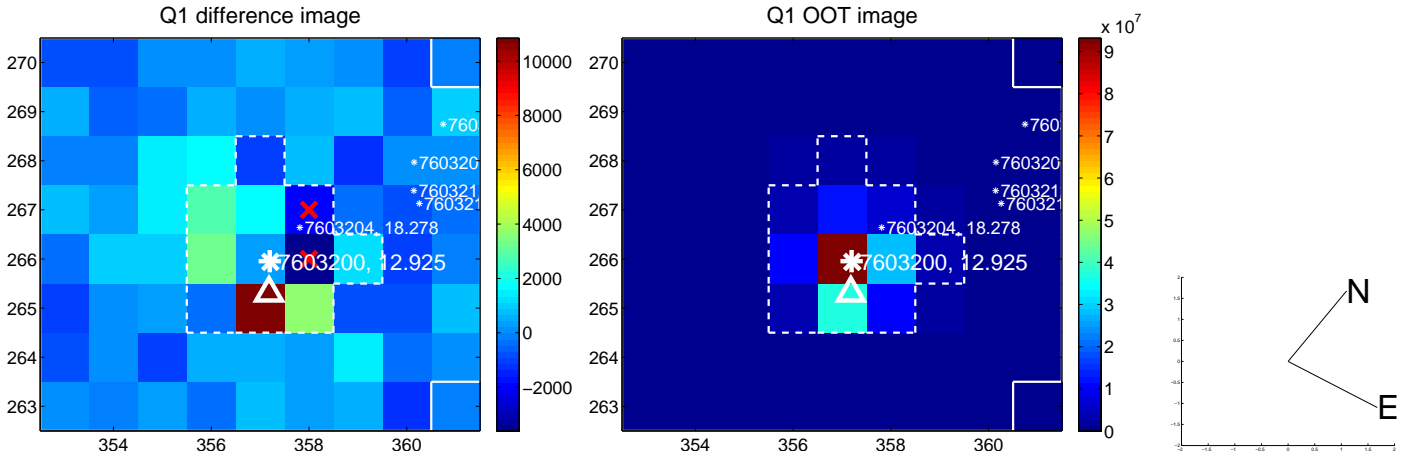


offset from photometric centroids



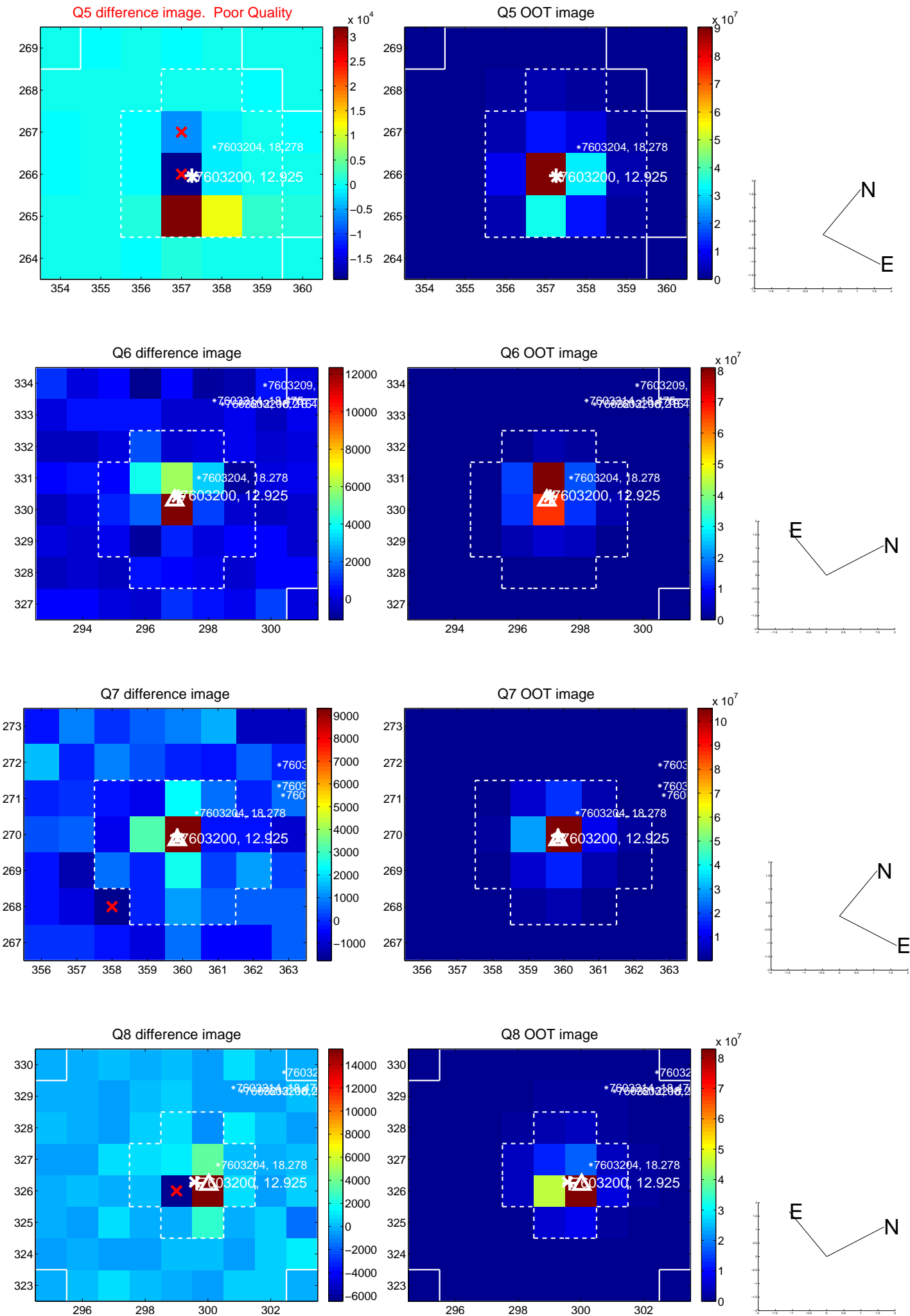
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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



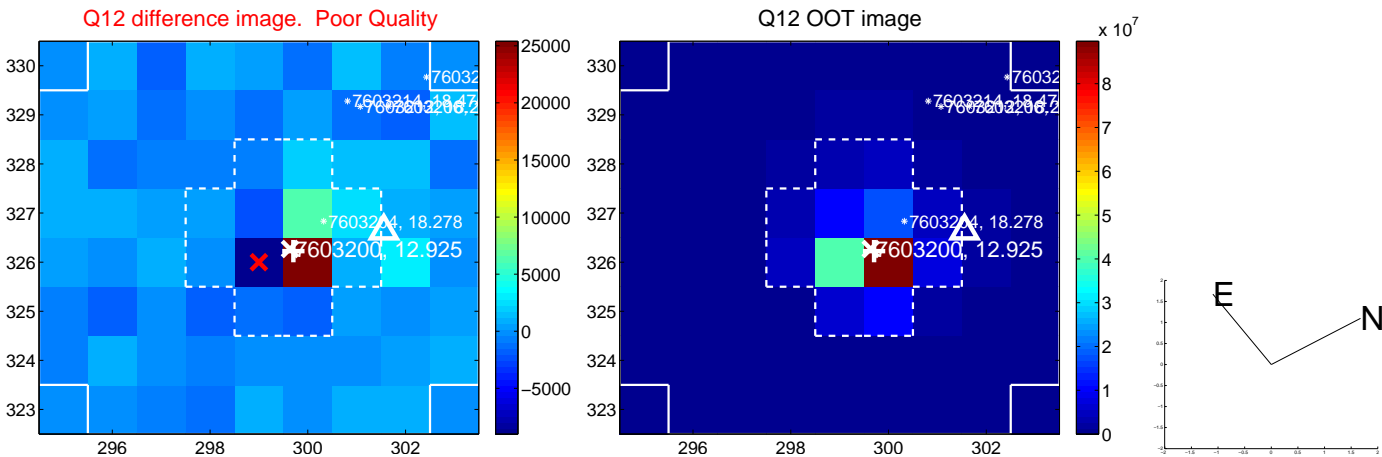
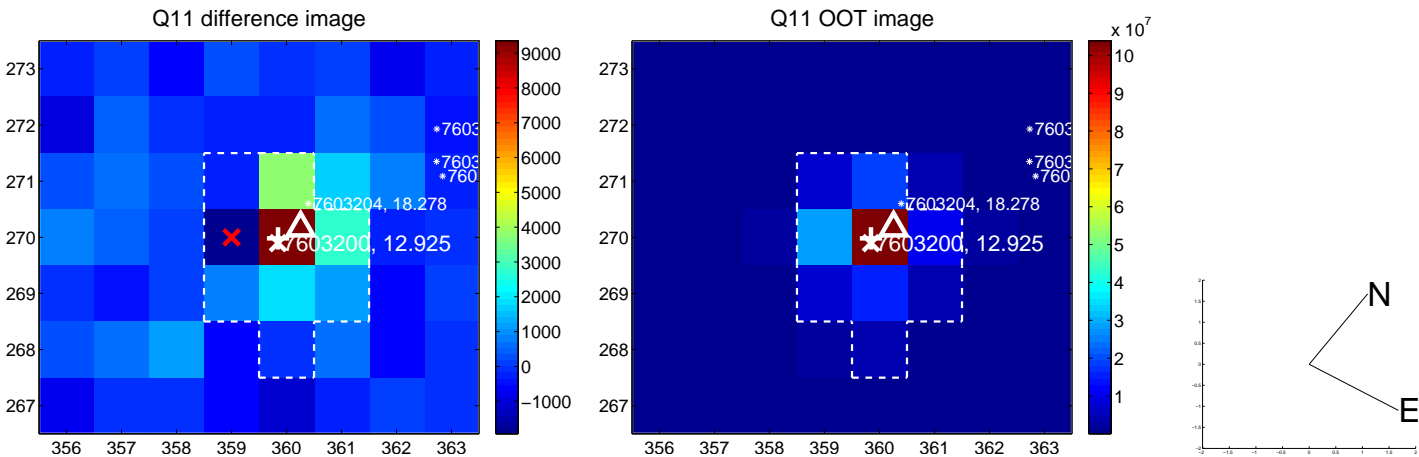
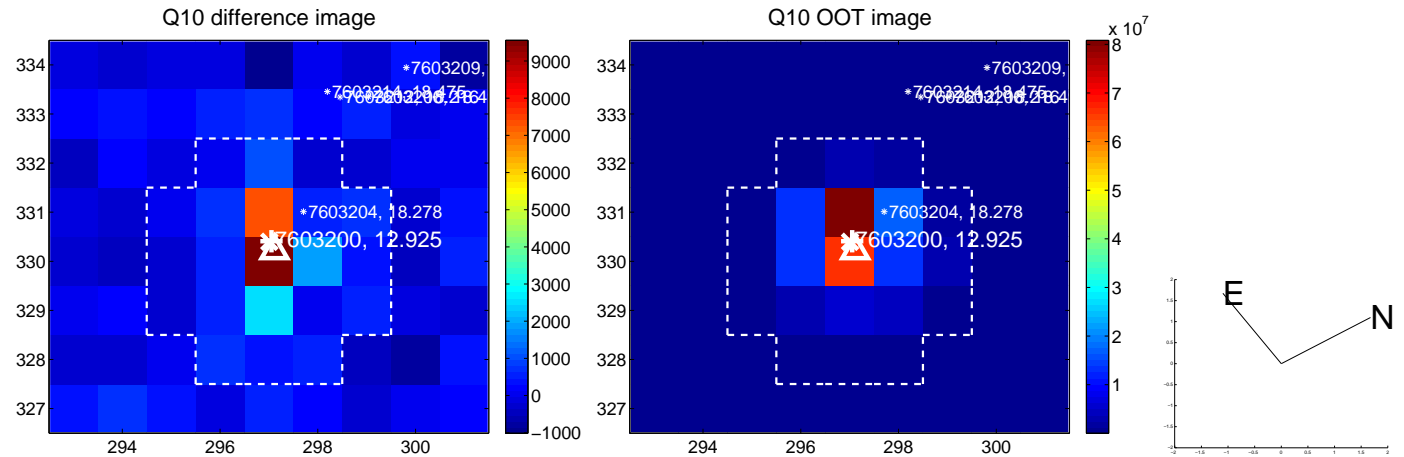
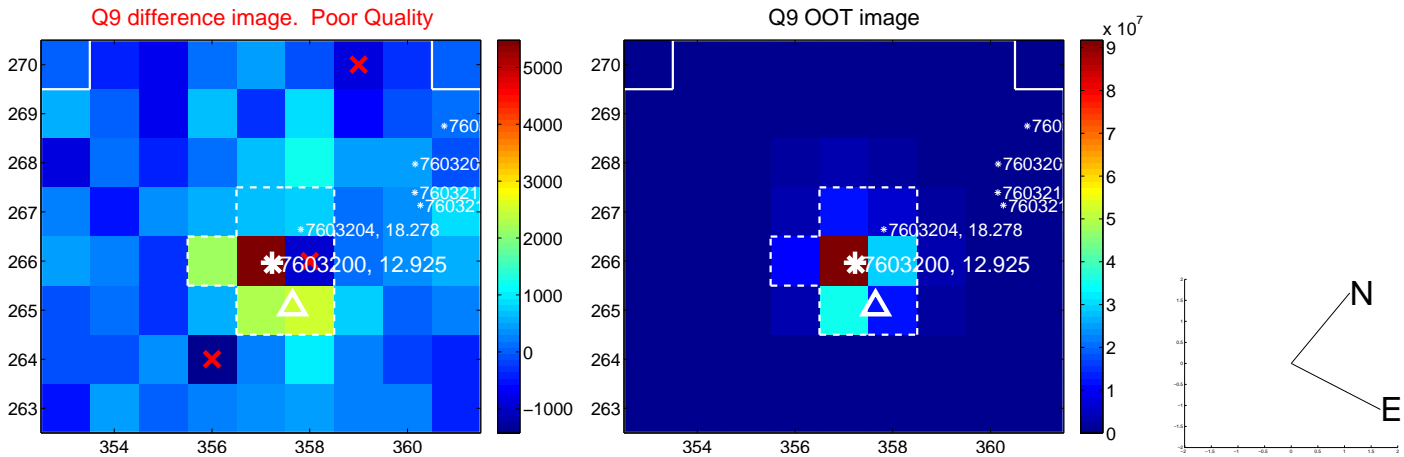


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

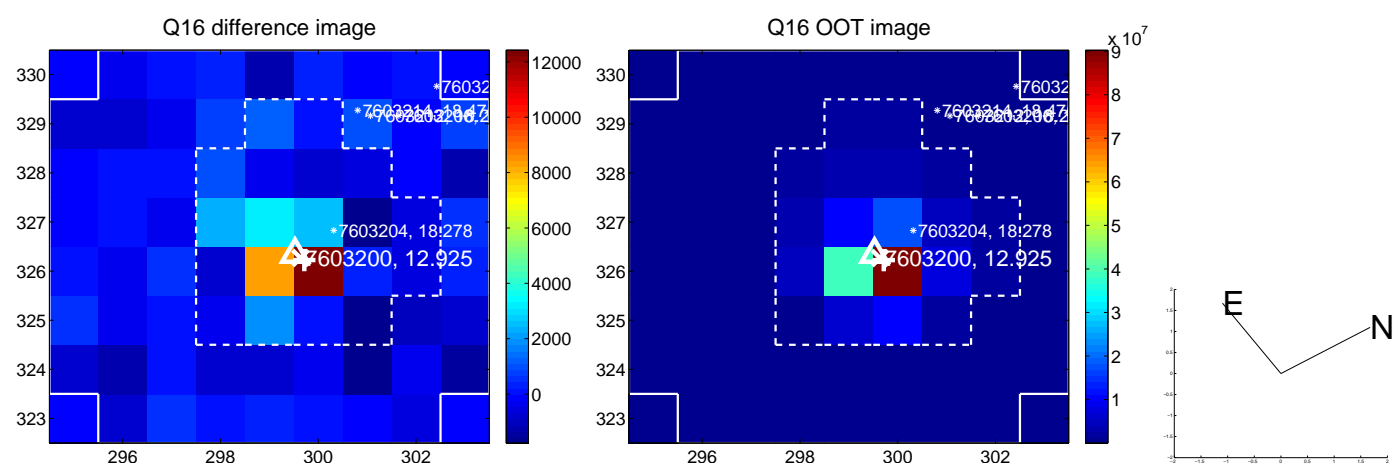
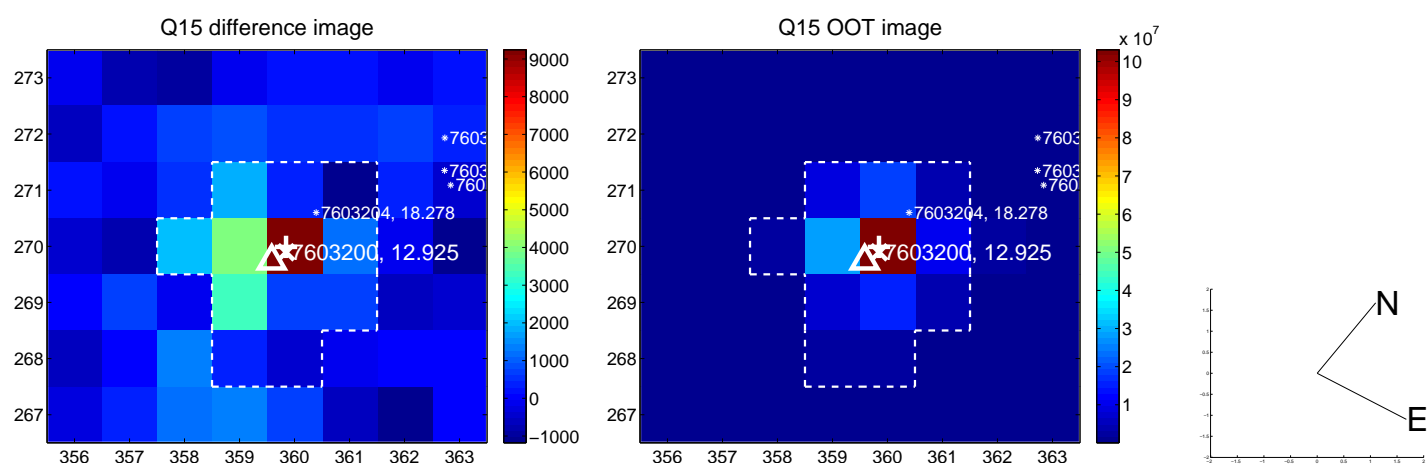
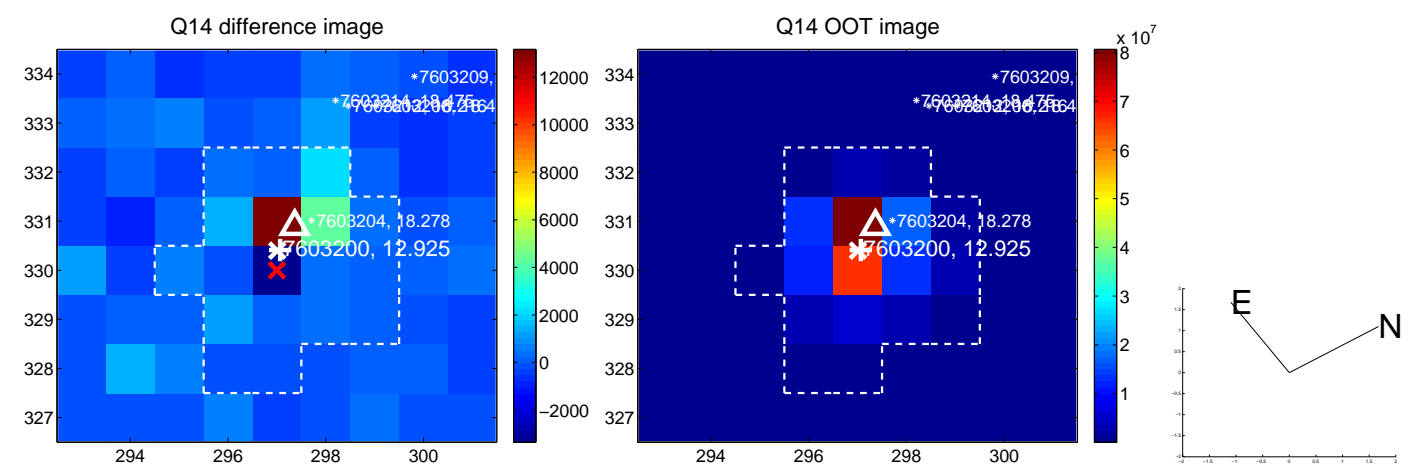
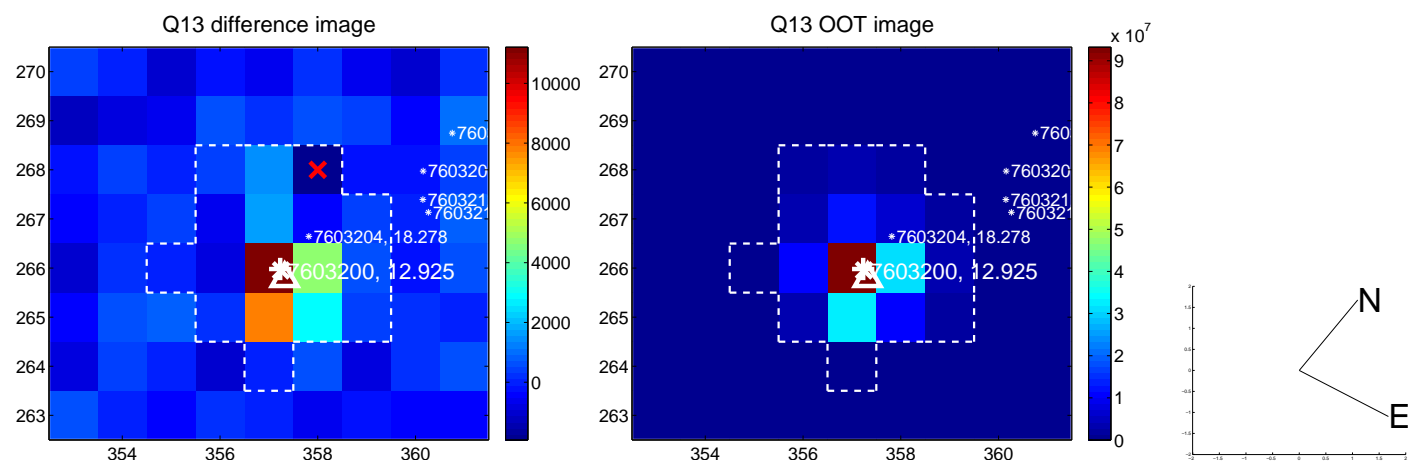




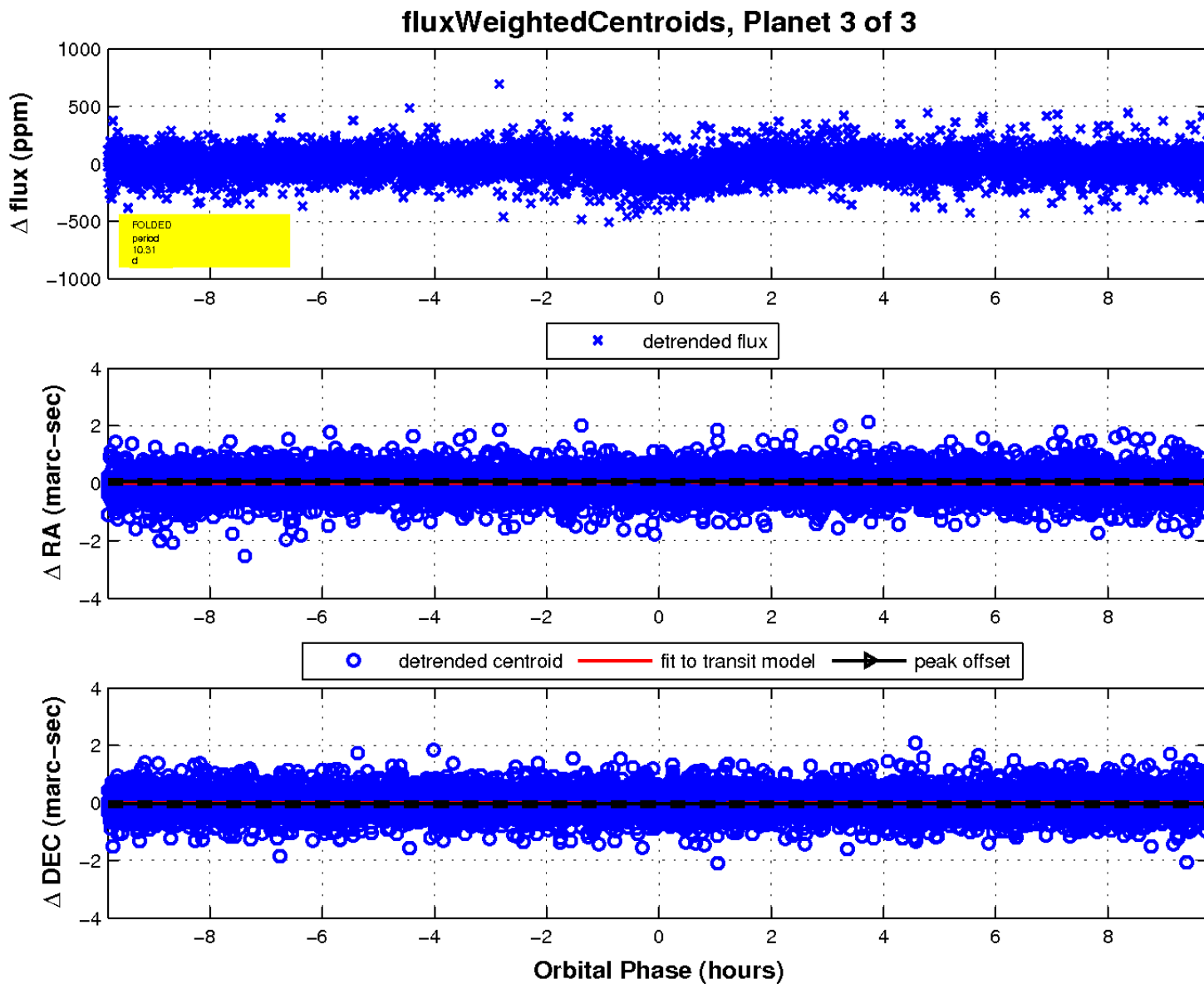
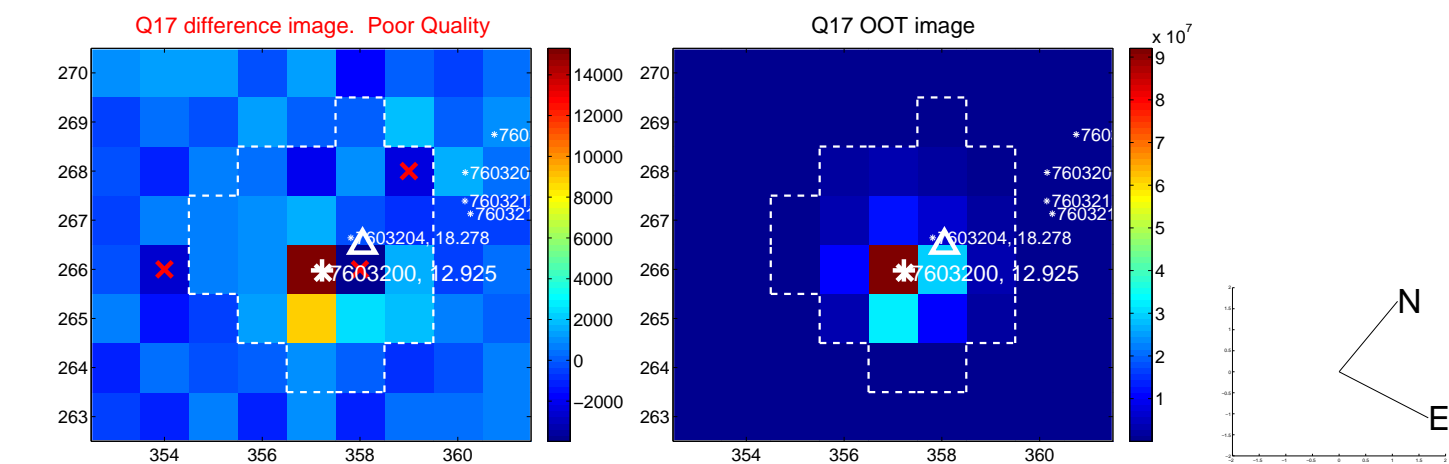
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

