

# KIC 007825899

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007825899-01	OBS	0896.01	16.239463	143.091371	2571.5	4.274	97.9	99.4	0.84	5191	4.68	30.22
007825899-02	OBS	0896.02	6.308204	136.198371	1319.8	3.075	70.1	78.4	0.84	5191	3.24	106.62
007825899-03	OBS	0896.03	28.867170	156.209457	315.5	4.761	9.6	10.5	0.84	5191	1.70	14.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007825899-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007825899-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007825899-03	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.

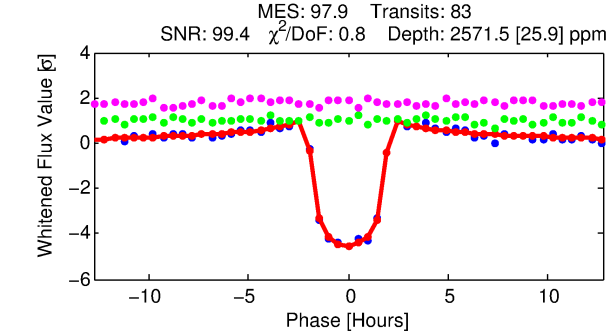
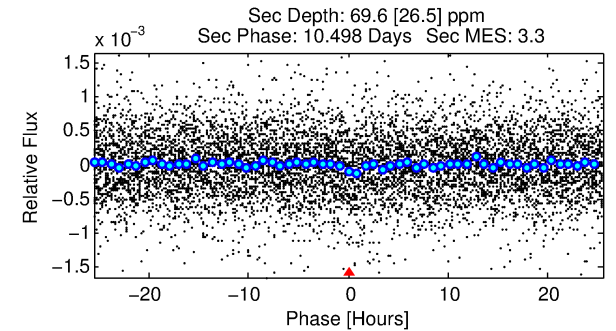
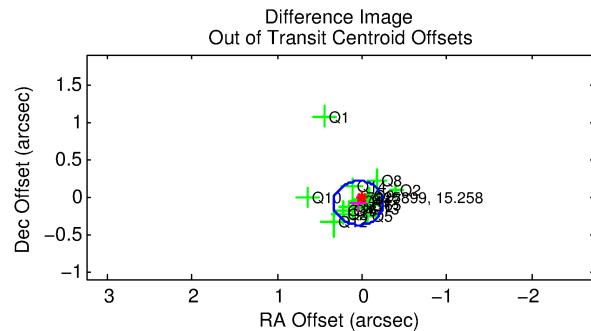
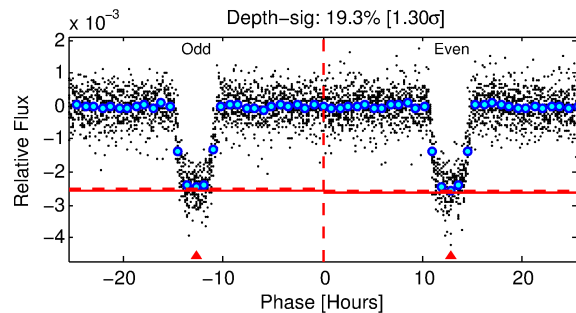
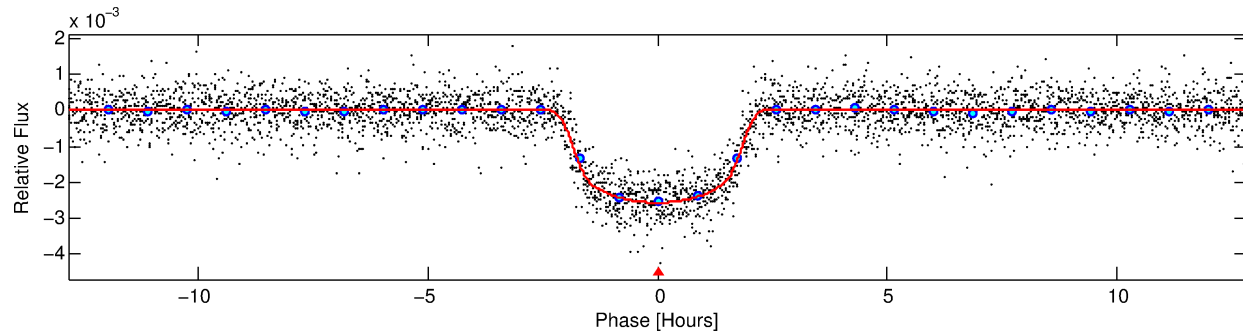
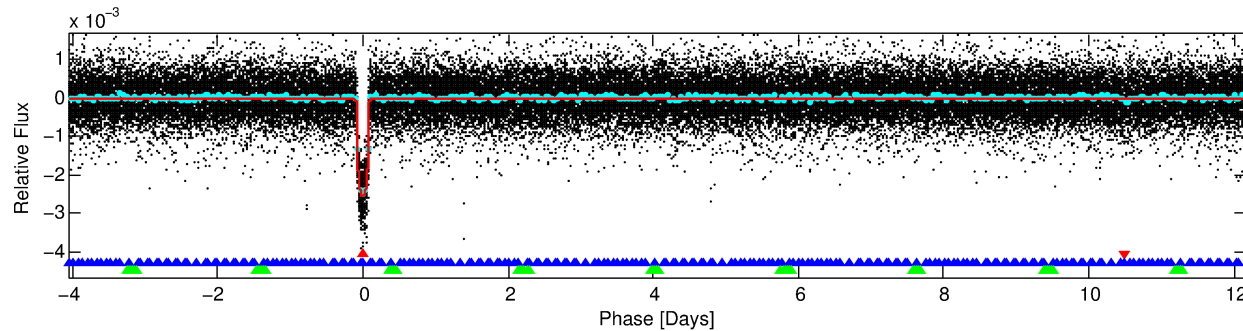
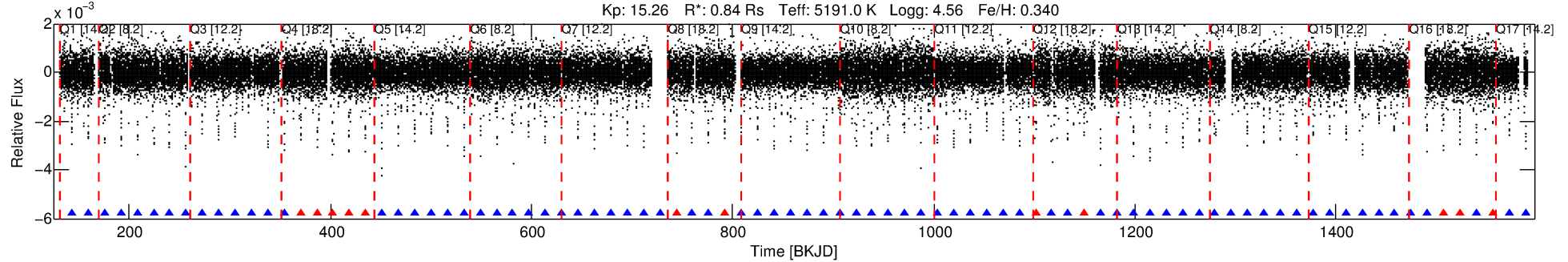
Ephemeris Match Information For 007825899-01

No Significant Match Found

# DV One-Page Summary

KIC: 7825899 Candidate: 1 of 3 Period: 16.239 d  
KOI: K00896.01 Name: Kepler-248c Corr: 0.973

Kp: 15.26 R\*: 0.84 Rs Teff: 5191.0 K Logg: 4.56 Fe/H: 0.340



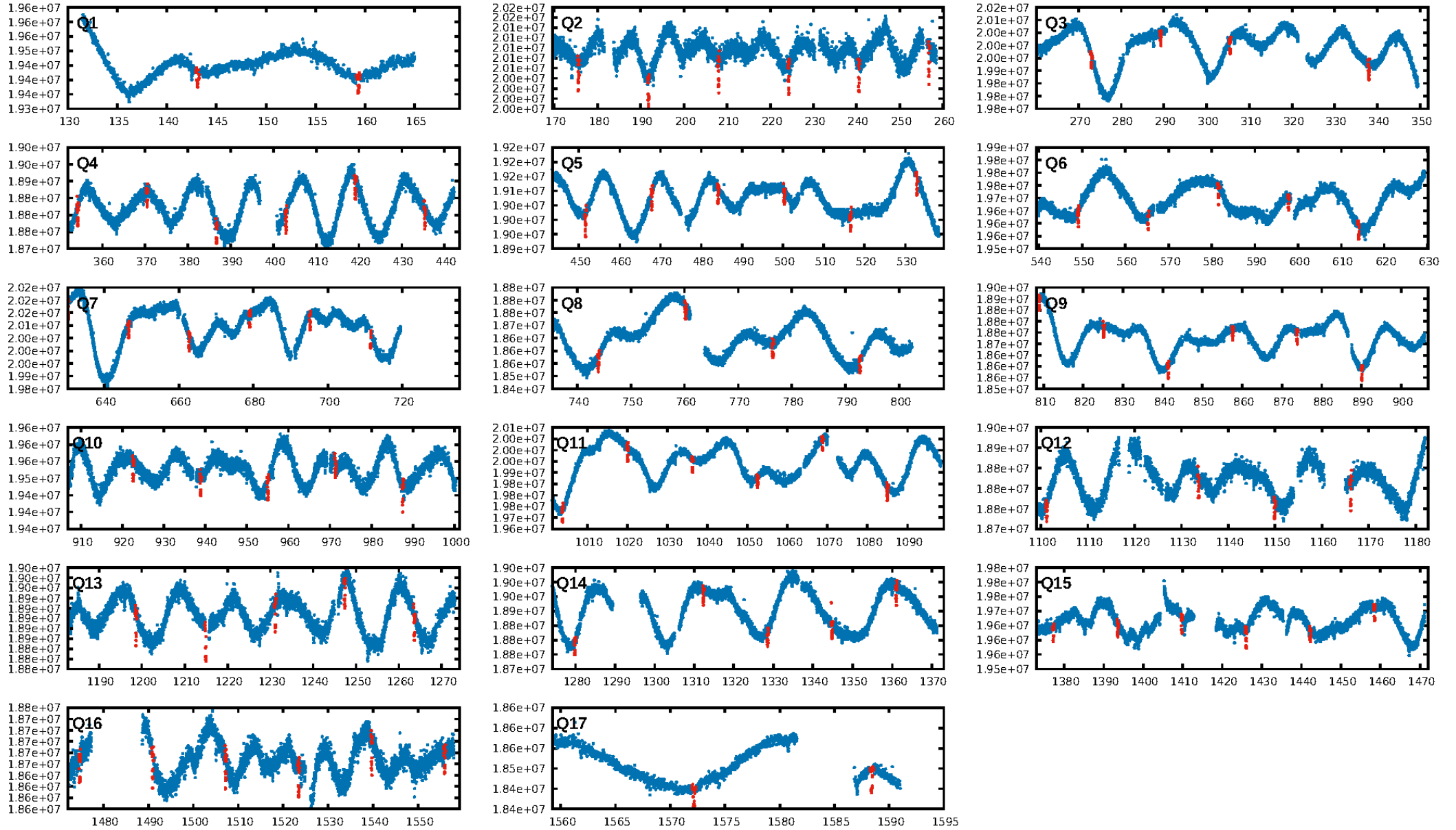
## DV Fit Results:

Period = 16.23946 [0.00002] d  
Epoch = 143.0914 [0.0008] BKJD  
Rp/R\* = 0.0512 [0.0016]  
a/R\* = 20.74 [2.17]  
b = 0.77 [0.06]  
Seff = 30.22 [5.09]  
Teff = 598 [25] K  
Rp = 4.68 [0.46] Re  
a = 0.1228 [0.0113] AU  
Ag = 26.35 [10.90] [2.33σ]  
Teffp = 2094 [206] K [7.20σ]

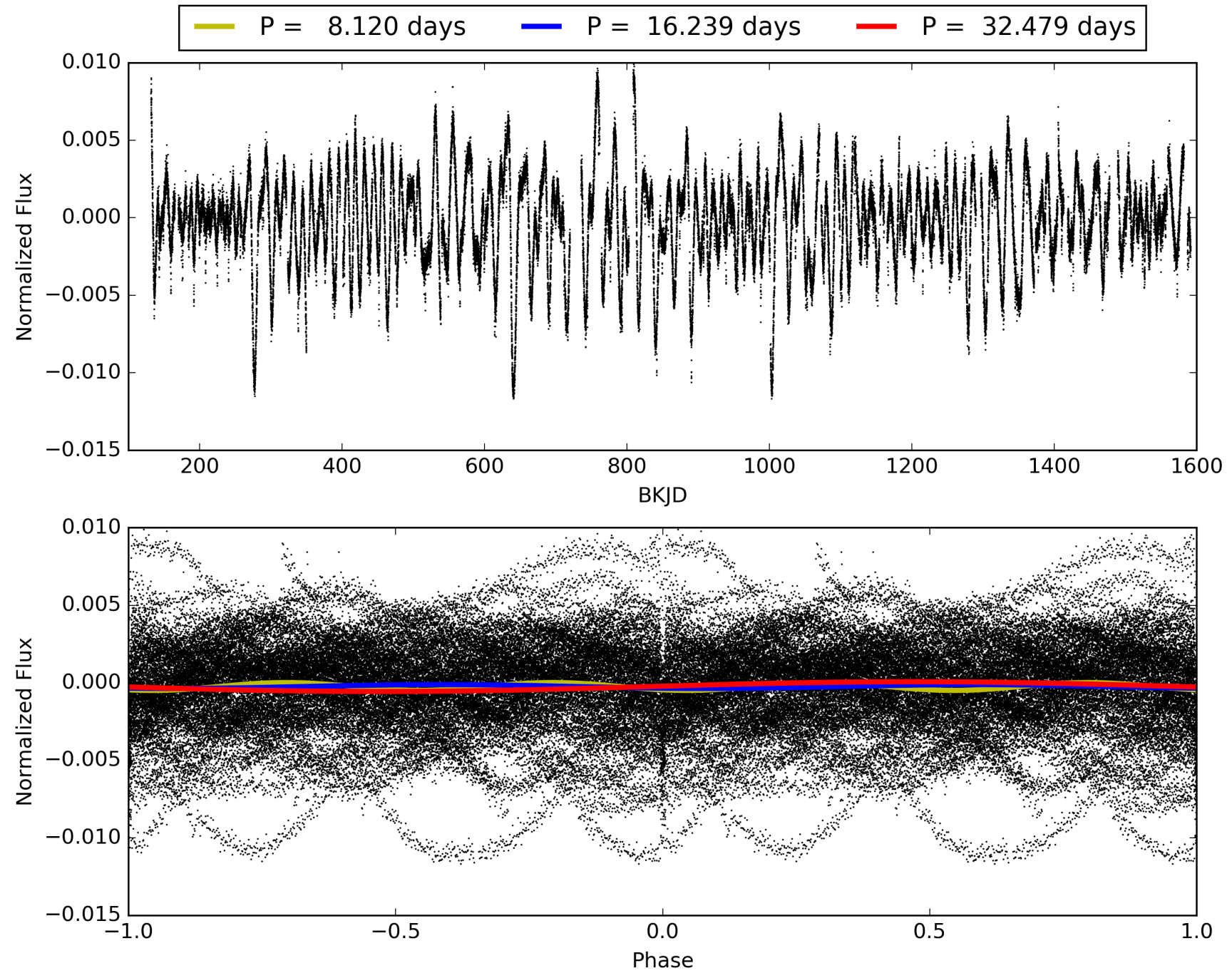
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [45.27σ]  
LongPeriod-sig: 100.0% [47.37σ]  
ModelChiSquare2-sig: 25.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.85 [67/79]  
GhostDiagnostic-chr: 4.109  
Centroid-sig: 0.0%  
Centroid-so: 0.308 arcsec [3.04σ]  
OotOffset-rm: 0.096 arcsec [0.99σ]  
KicOffset-rm: 0.091 arcsec [0.99σ]  
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]

# TCE 007825899-01, PDC Light Curves

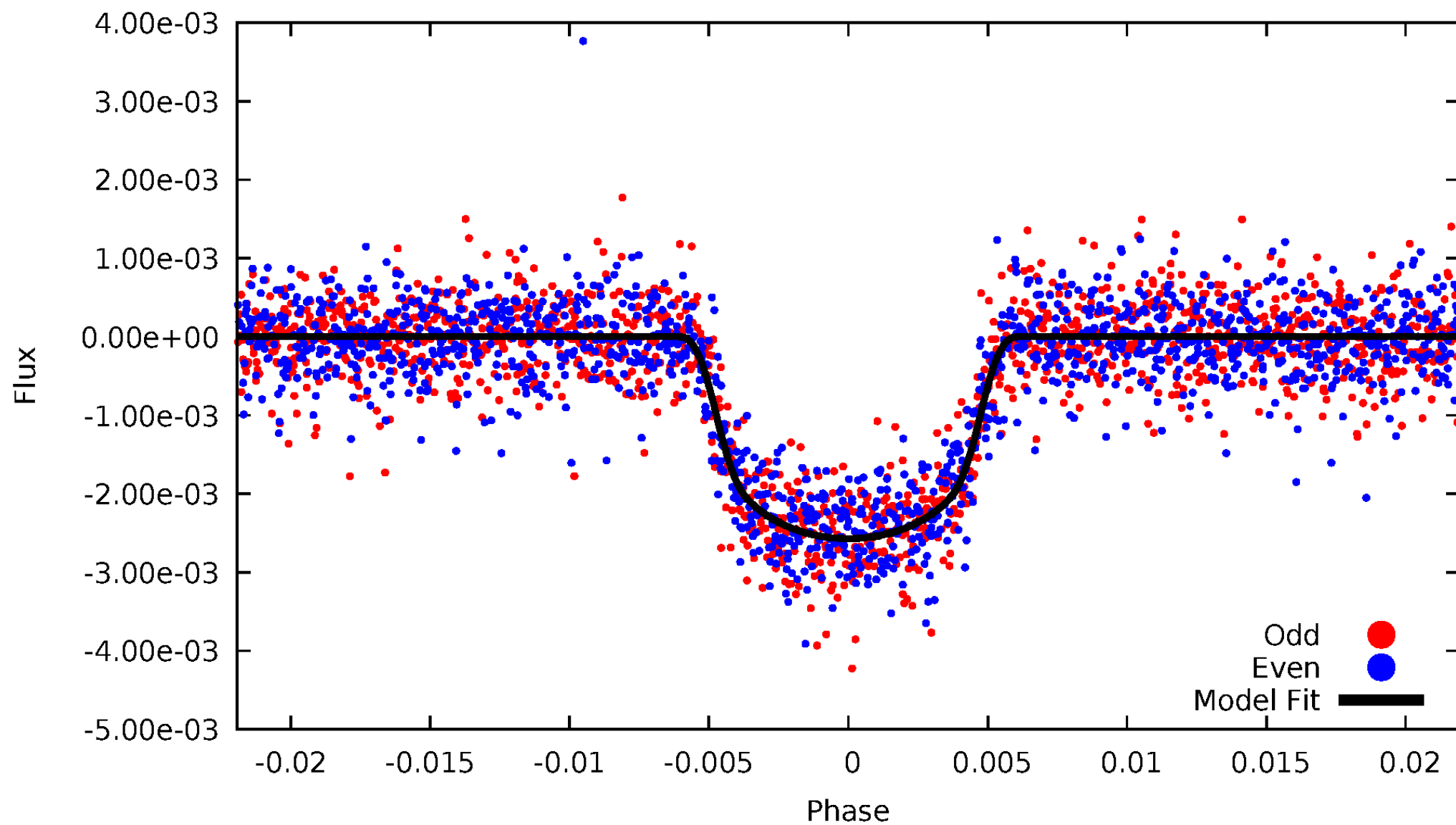


TCE 007825899-01



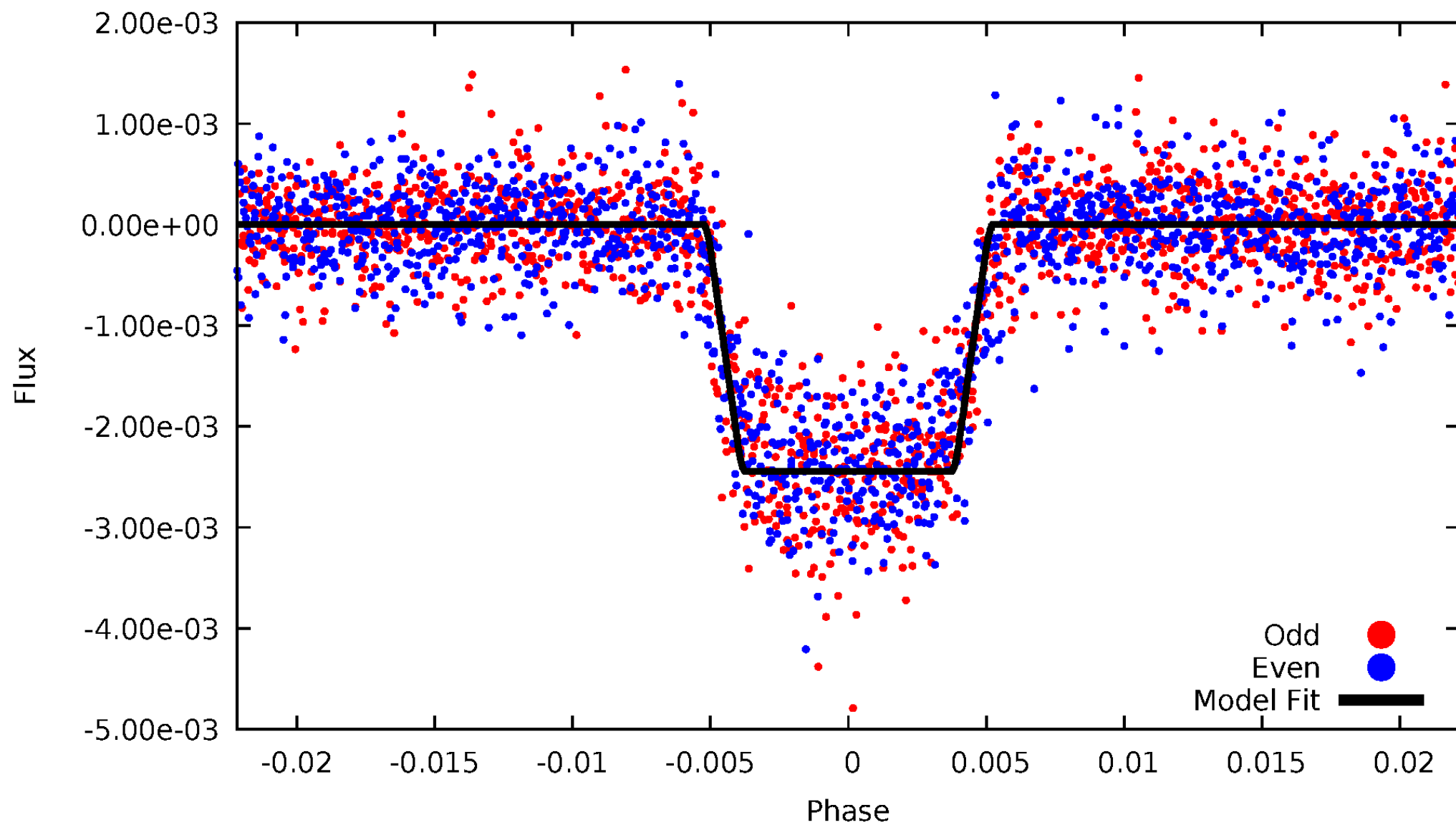
# DV Odd/Even

TCE 007825899-01



# ALT Odd/Even

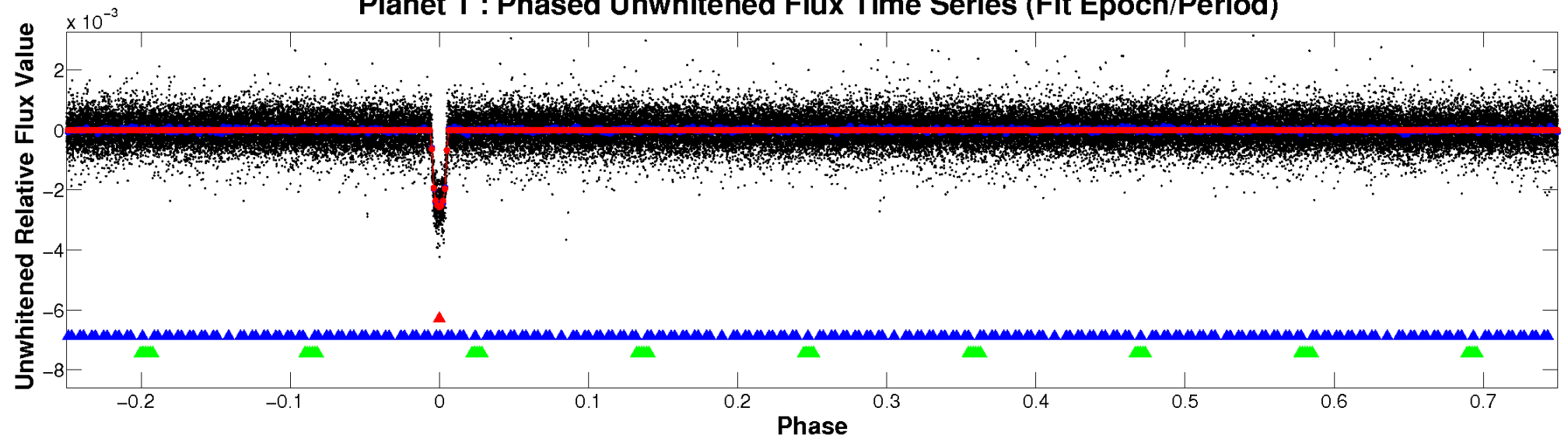
TCE 007825899-01



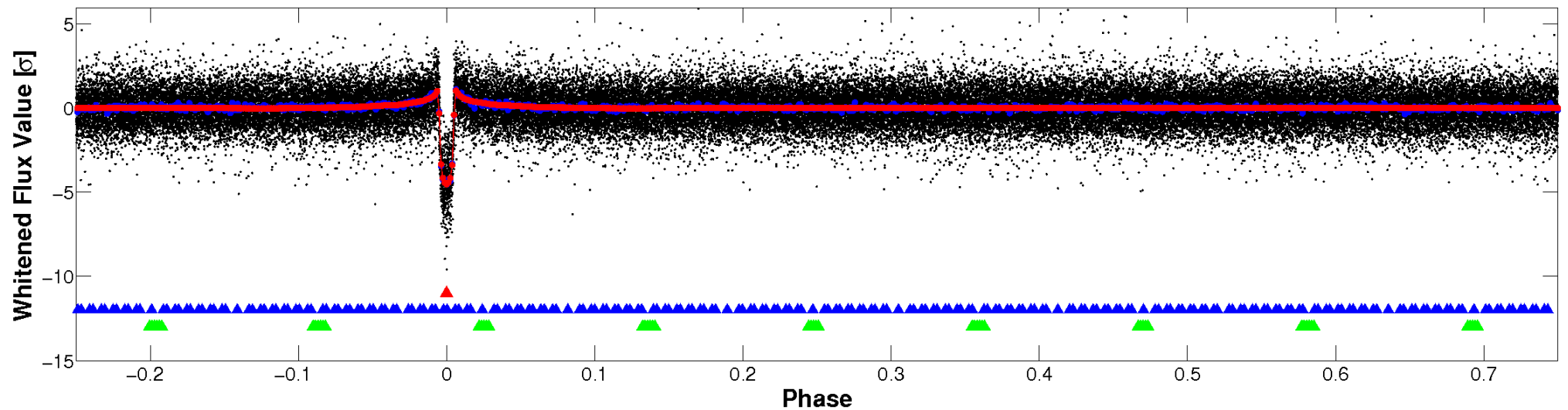


# Non-Whitened Vs. Whitened Light Curve

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

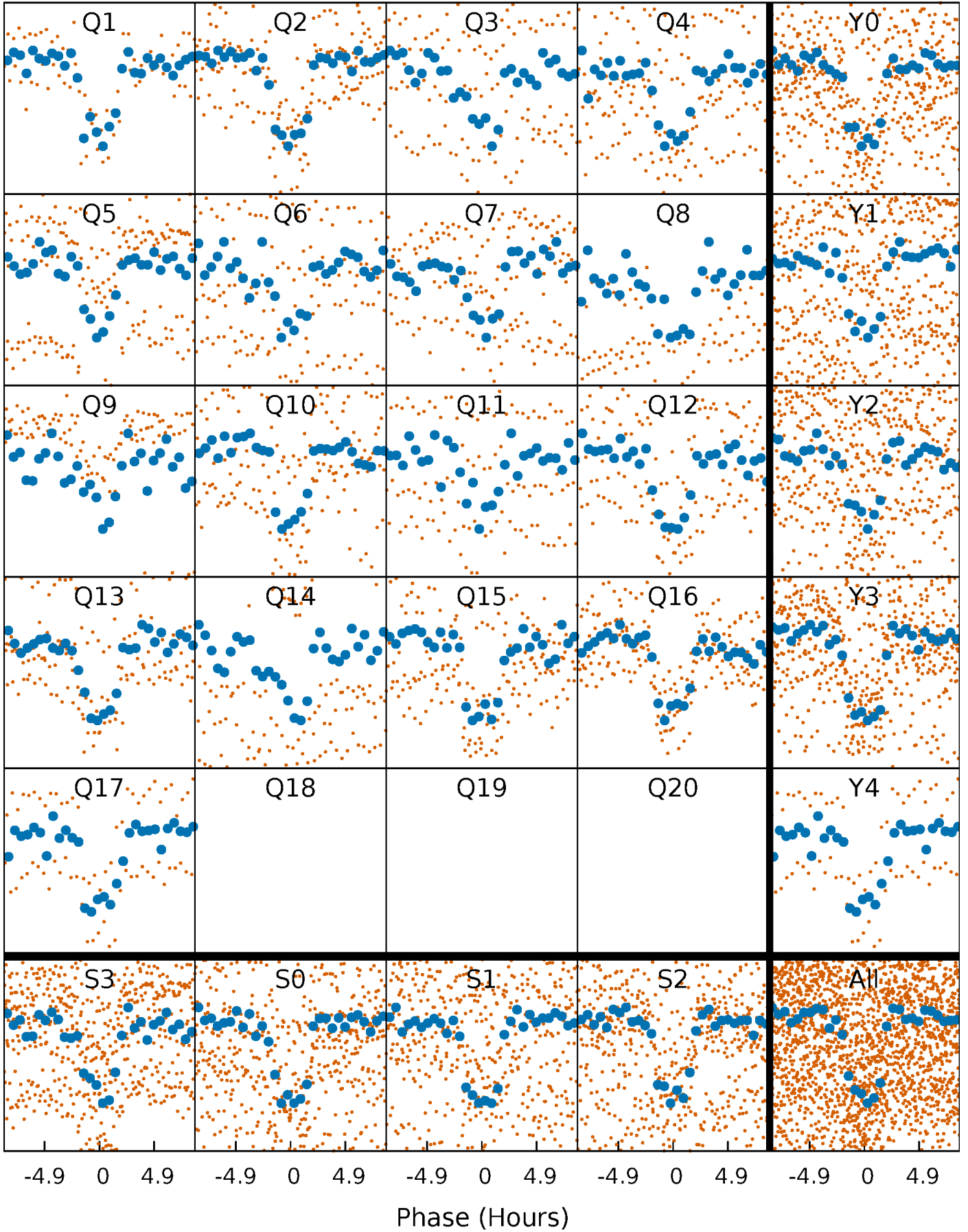


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

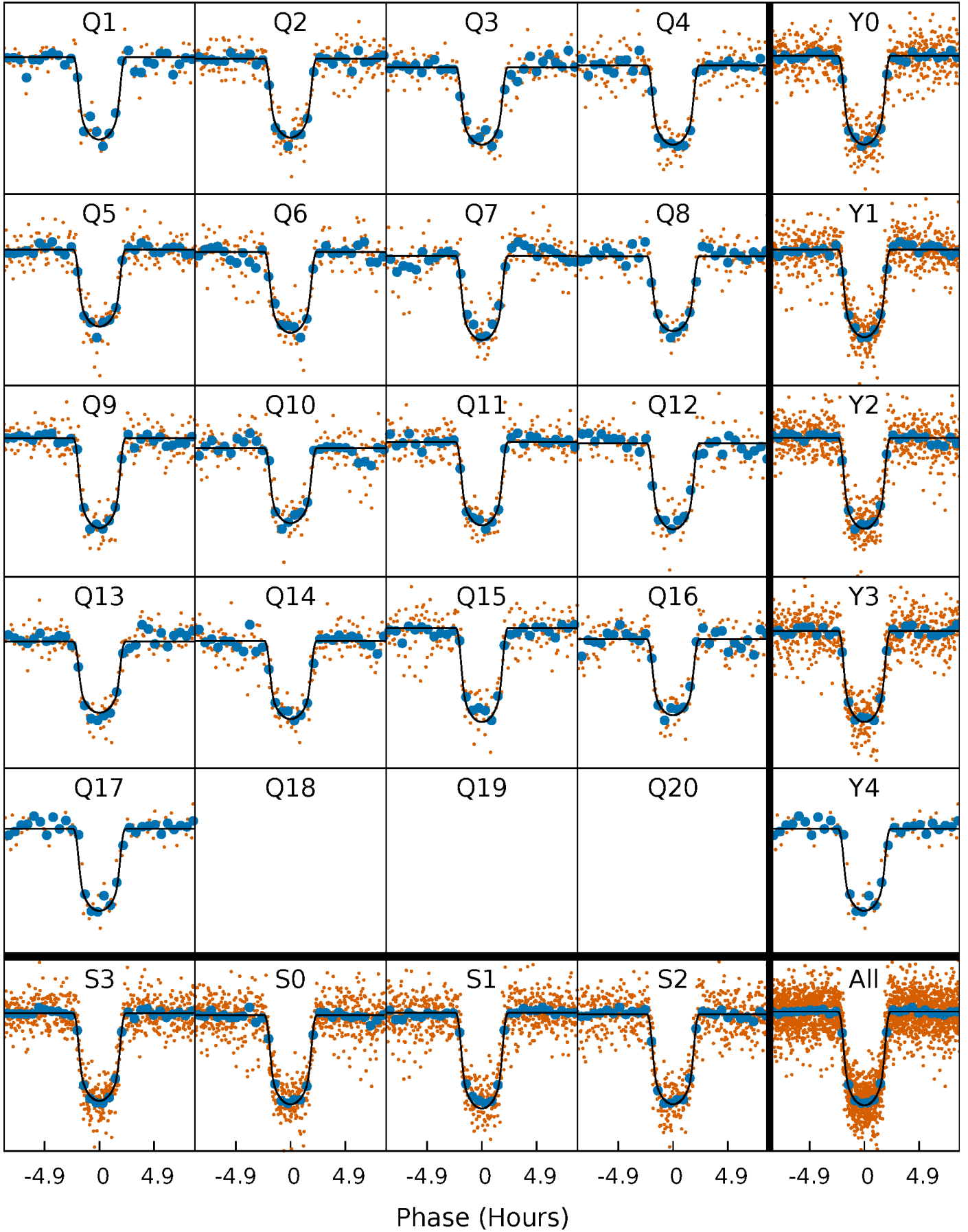
TCE 007825899-01 P= 16.239463 Days  $T_0=143.091371$  (BKJD)





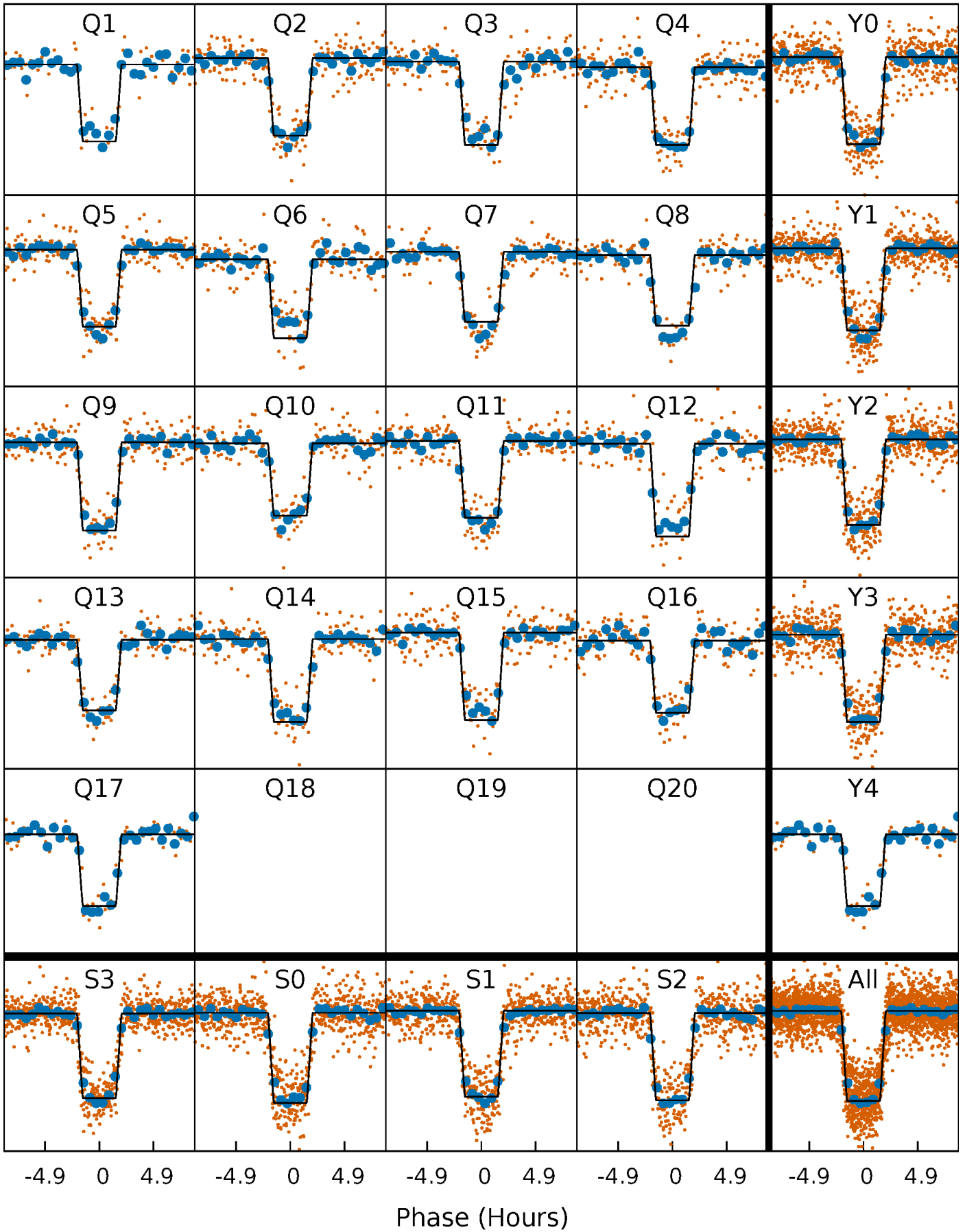
# DV Quarter-Phased Transit Curves

TCE 007825899-01 P= 16.239463 Days  $T_0=143.091371$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

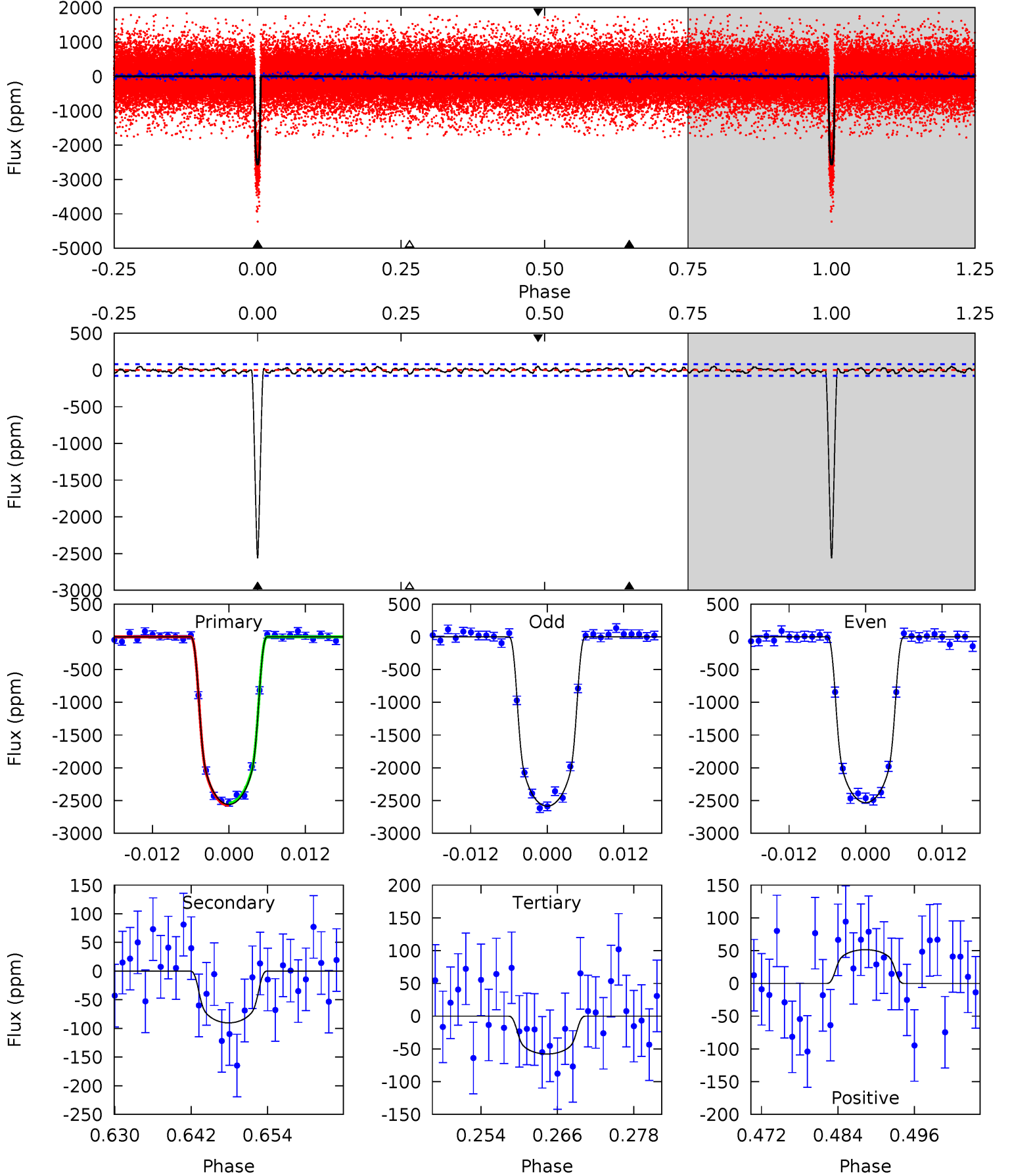
TCE 007825899-01 P= 16.239480 Days  $T_0=143.090524$  (BKJD)



# DV Model-Shift Uniqueness Test

007825899-01, P = 16.239463 Days, E = 126.851908 Days

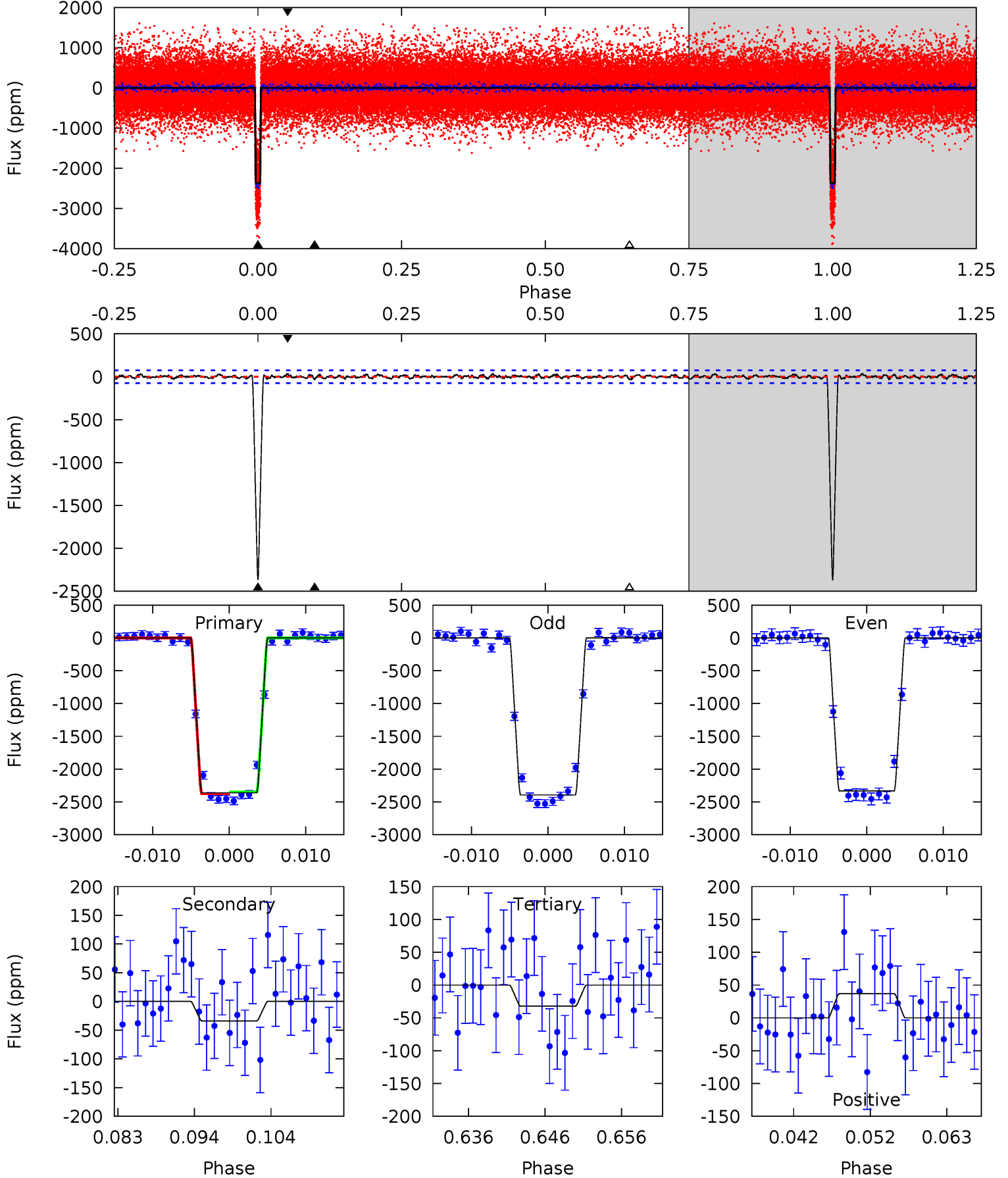
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
161.6	5.70	3.65	3.25	4.99	2.51	1.25	158.0	158.4	2.05	2.45	1.70	0.99	0.02	1.08



# Alt Model-Shift Uniqueness Test

007825899-01, P = 16.239480 Days, E = 126.851044 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
157.3	2.25	2.14	2.45	5.02	2.56	0.81	155.1	154.8	0.11	-0.20	2.13	1.01	0.02	0.88



### Stellar Parameters For KIC 007825899

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5191^{+103}_{-103}$	$4.564^{+0.016}_{-0.088}$	$0.340^{+0.100}_{-0.150}$	$0.837^{+0.078}_{-0.030}$	$0.937^{+0.024}_{-0.062}$	$2.248^{+0.160}_{-0.540}$
	+2%/-2%	+0%/-2%	+29%/-44%	+9%/-4%	+3%/-7%	+7%/-24%
Source	SPE58	SPE58	SPE58	DSEP		

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

### Secondary Eclipse Parameters for KIC 007825899-01 / KOI 0896.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-90 \pm 16$	$4.76^{+0.29}_{-0.22}$	$845^{+25}_{-21}$	$2911^{+79}_{-92}$	$32^{+7}_{-7}$
Alt.	$-34 \pm 15$	$4.59^{+0.27}_{-0.22}$	$845^{+26}_{-20}$	$2573^{+137}_{-186}$	$13^{+6}_{-6}$

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

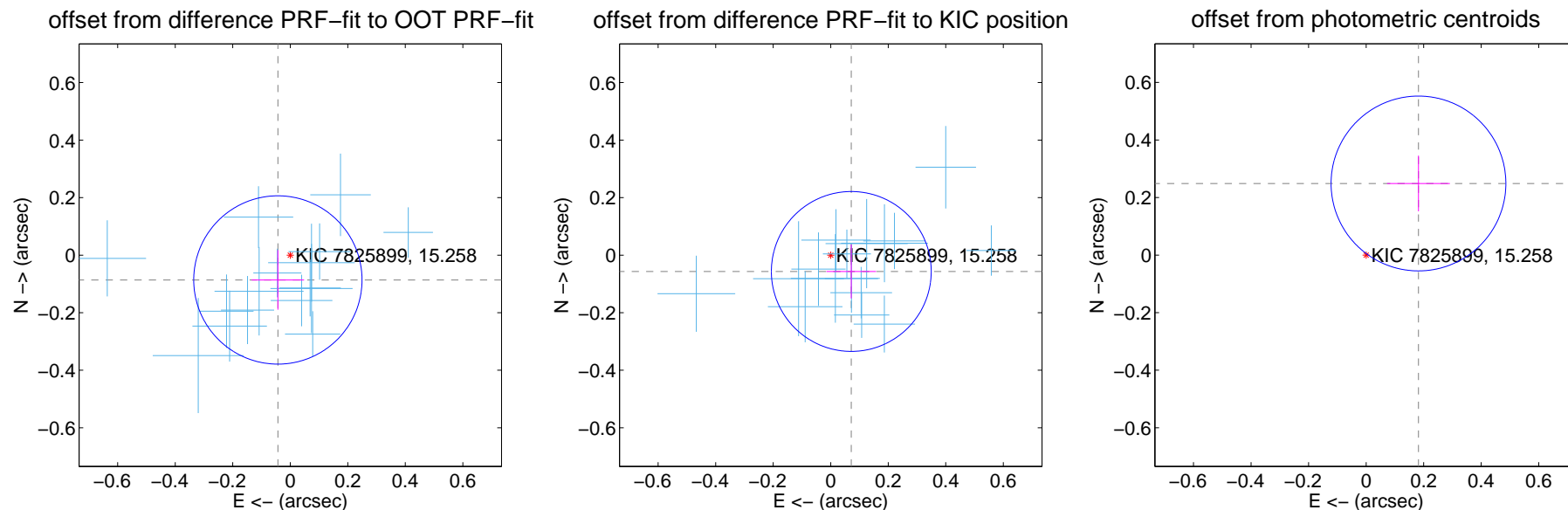
## DV Centroid Data

Supplemental centroid analysis for 007825899-01. Kepler magnitude: 15.26. Transit SNR 99.36

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

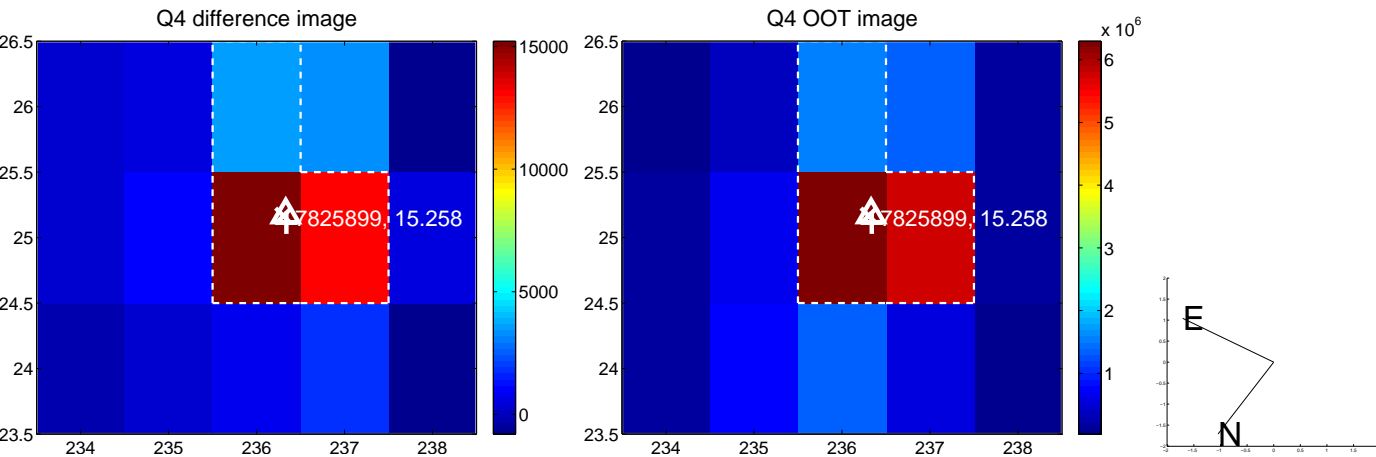
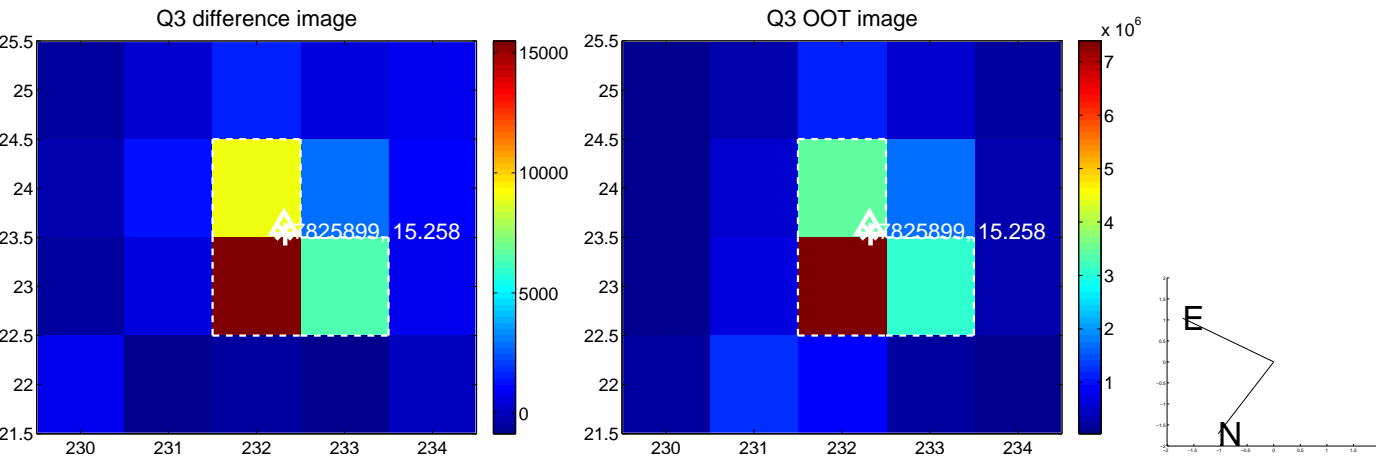
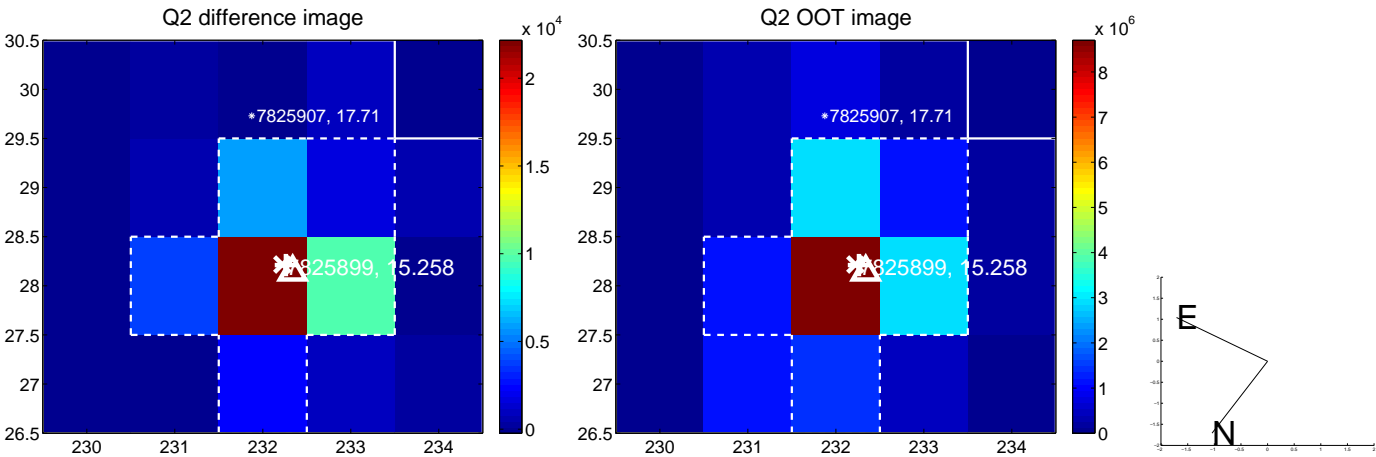
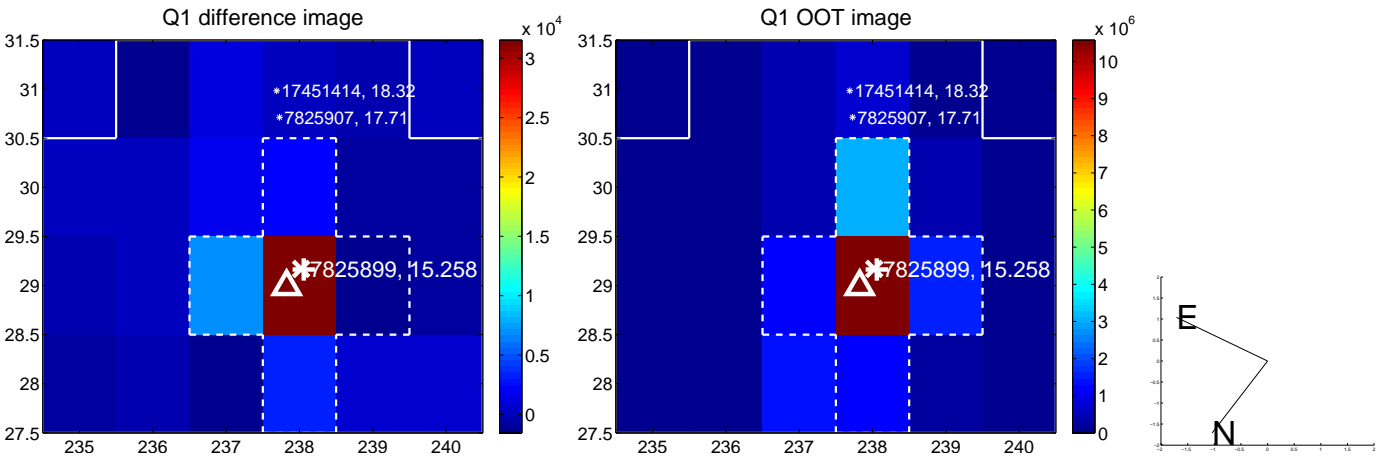
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.096 \pm 0.098$	0.99	$0.043 \pm 0.091$	$-0.086 \pm 0.103$
PRF-fit source offset from KIC position	$0.091 \pm 0.093$	0.99	$-0.072 \pm 0.086$	$-0.057 \pm 0.094$
photometric centroid source offset	$0.31 \pm 0.10$	3.04	$-0.18 \pm 0.11$	$0.25 \pm 0.10$



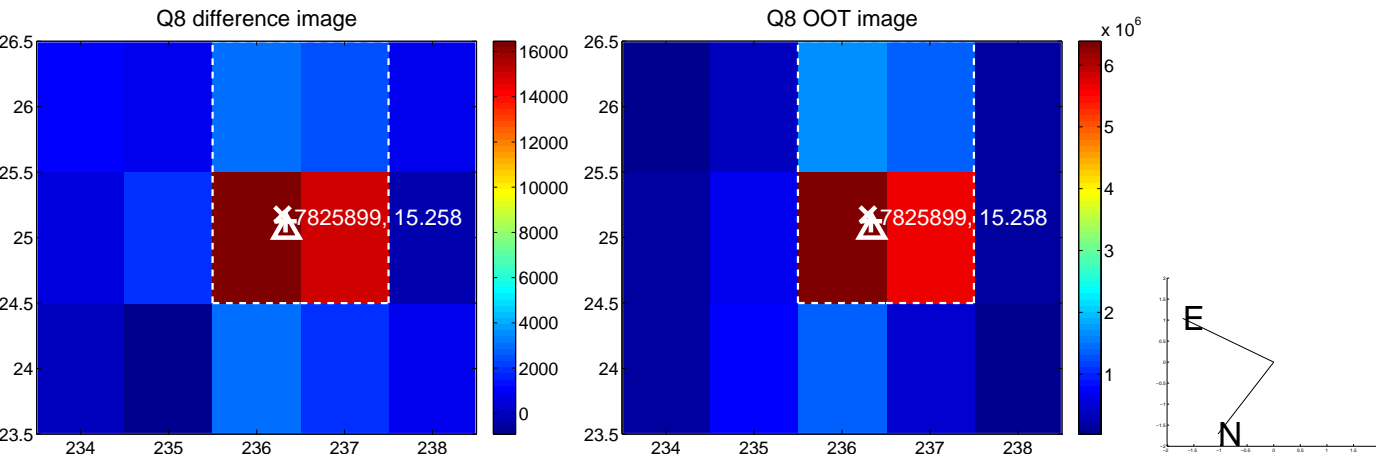
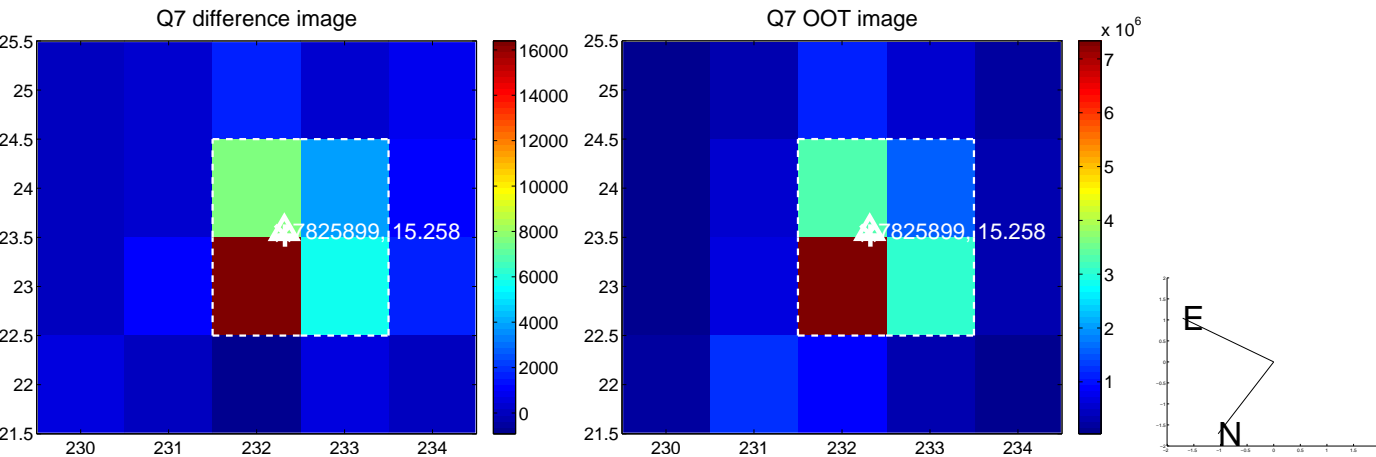
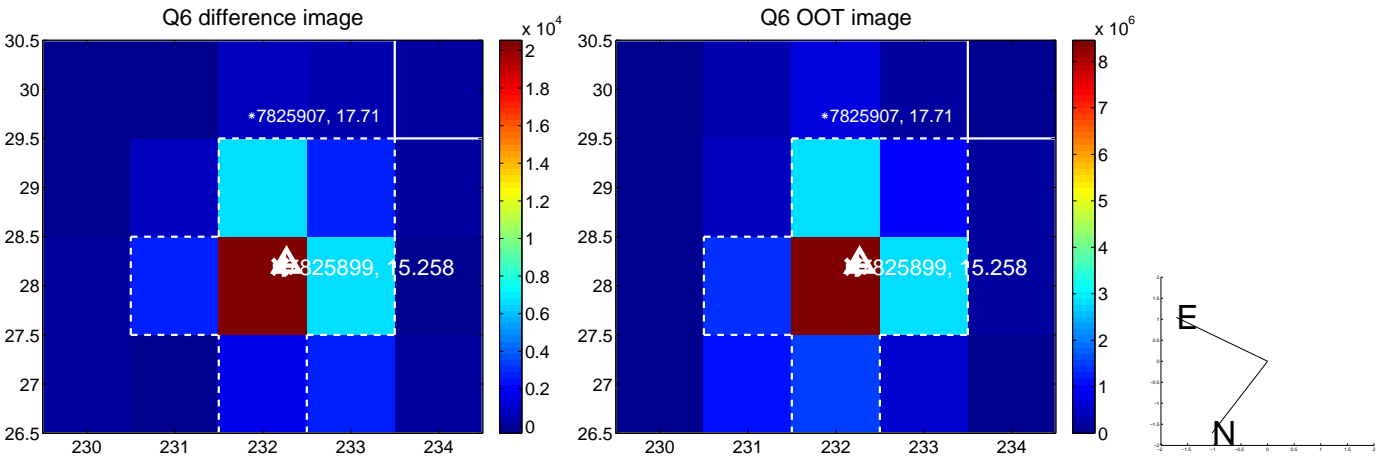
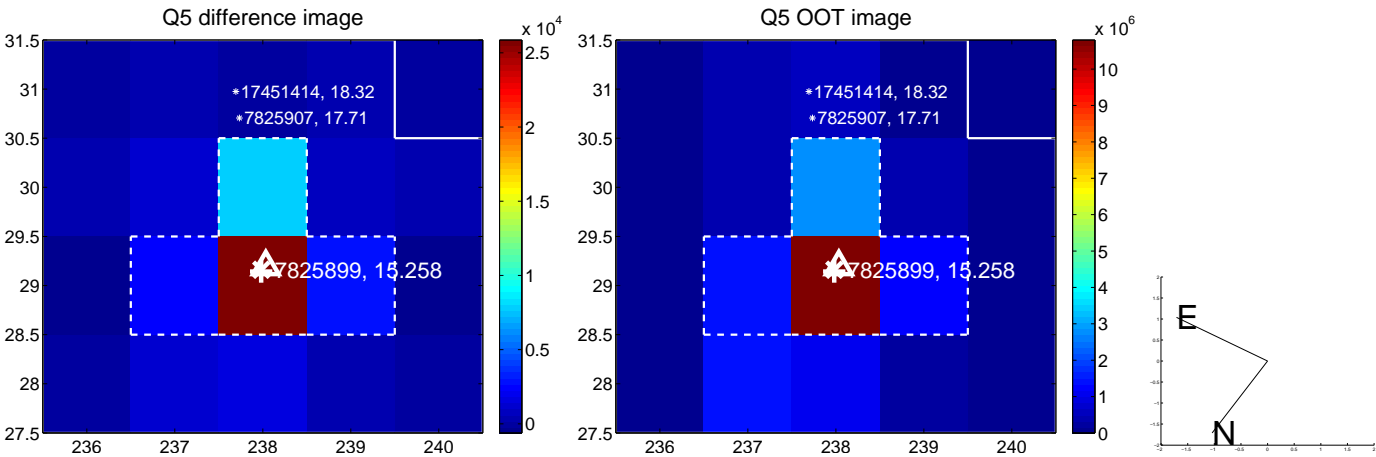
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



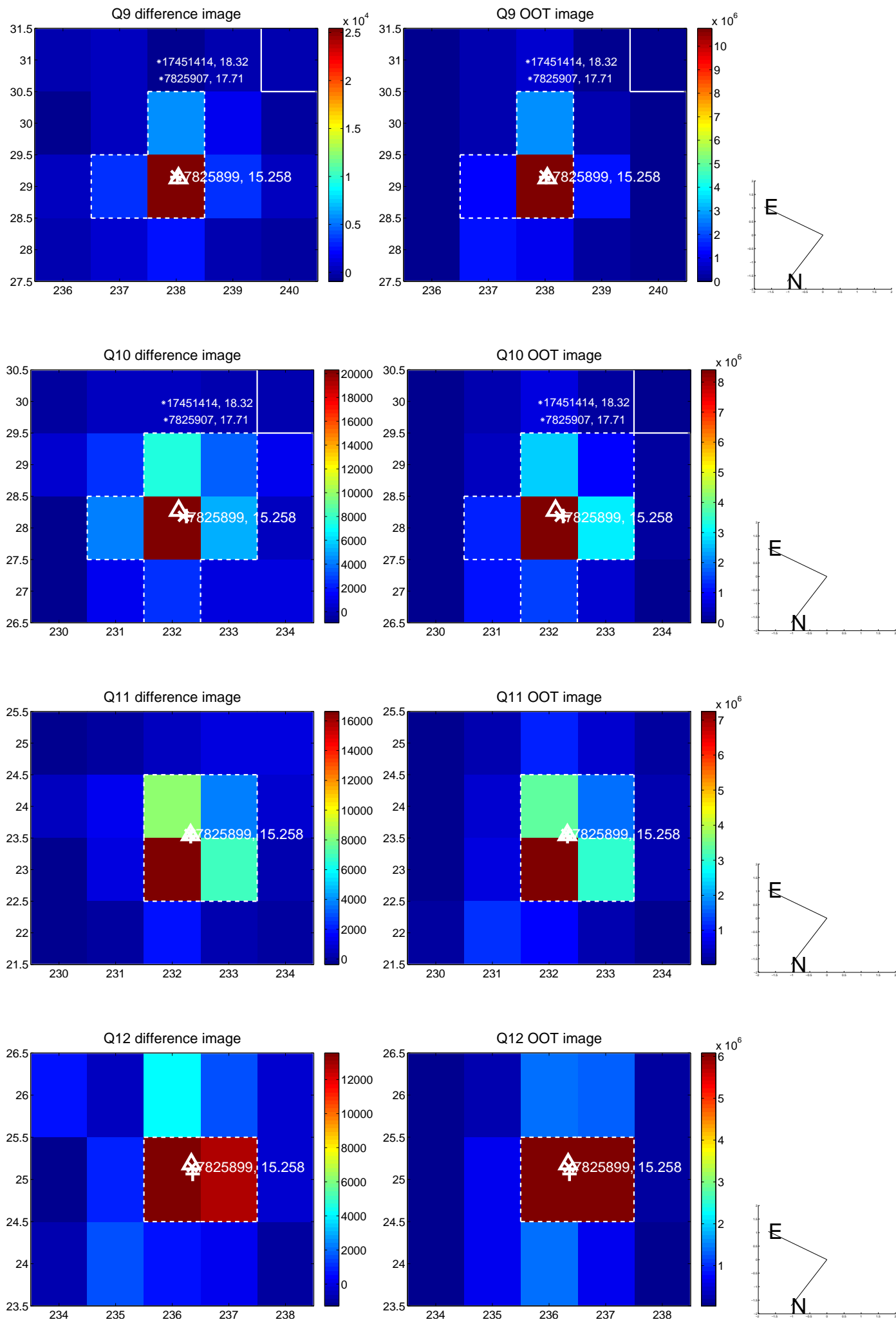
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



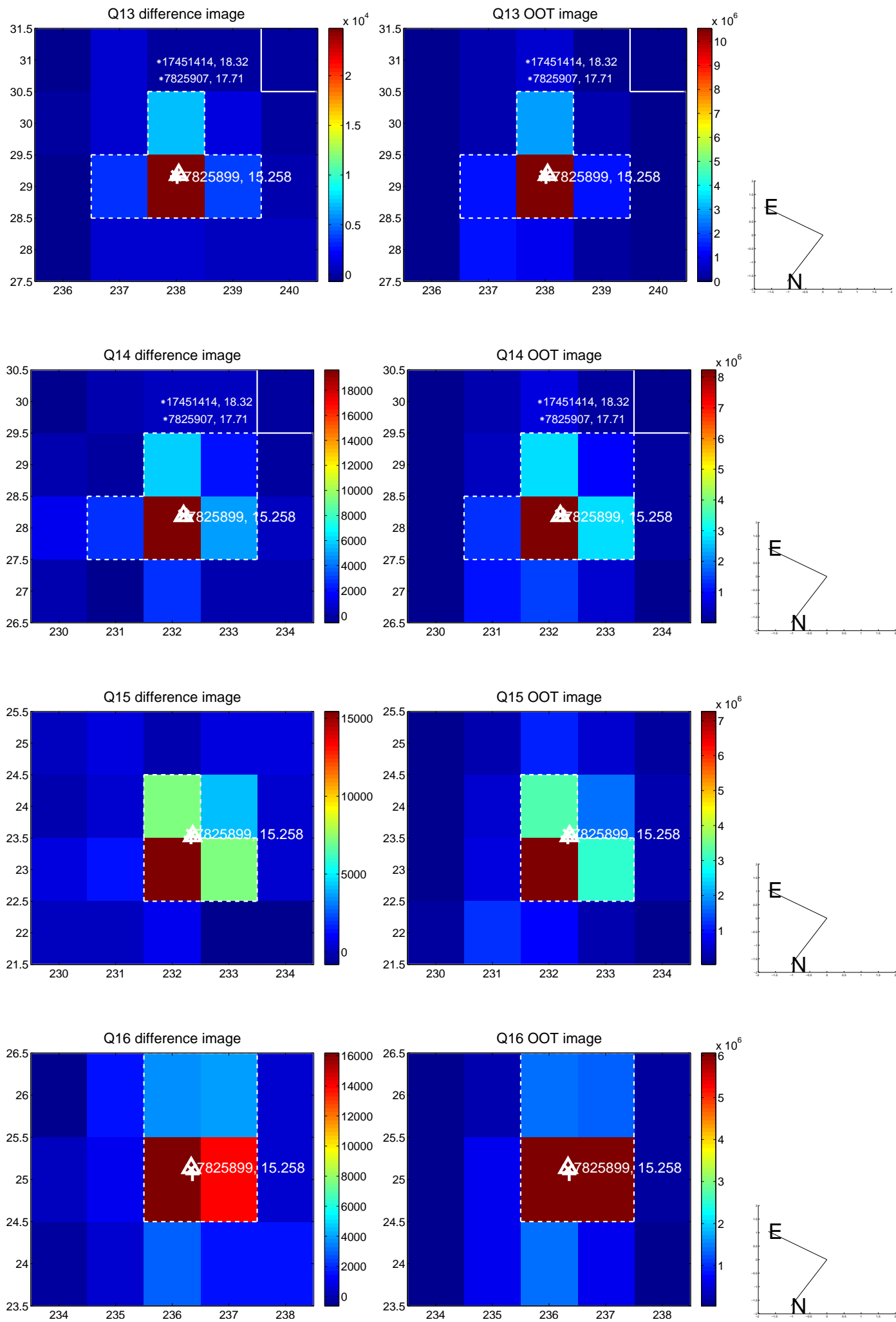
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



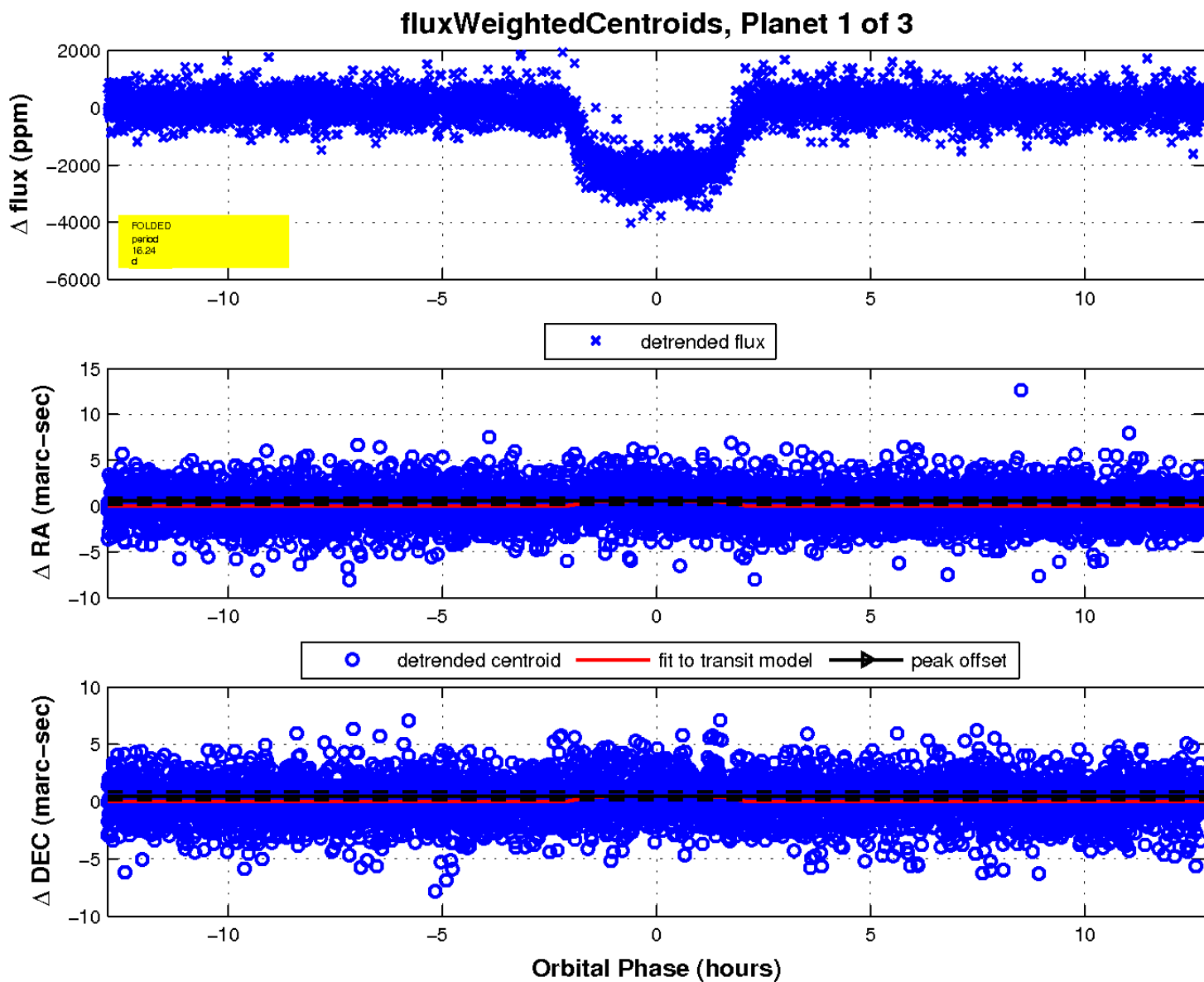
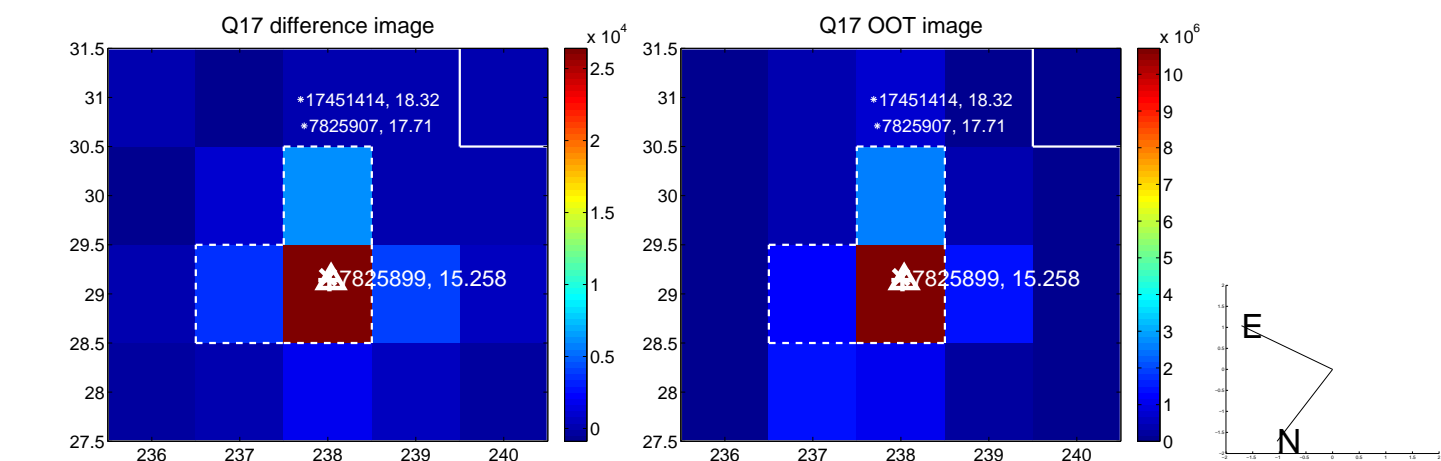
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

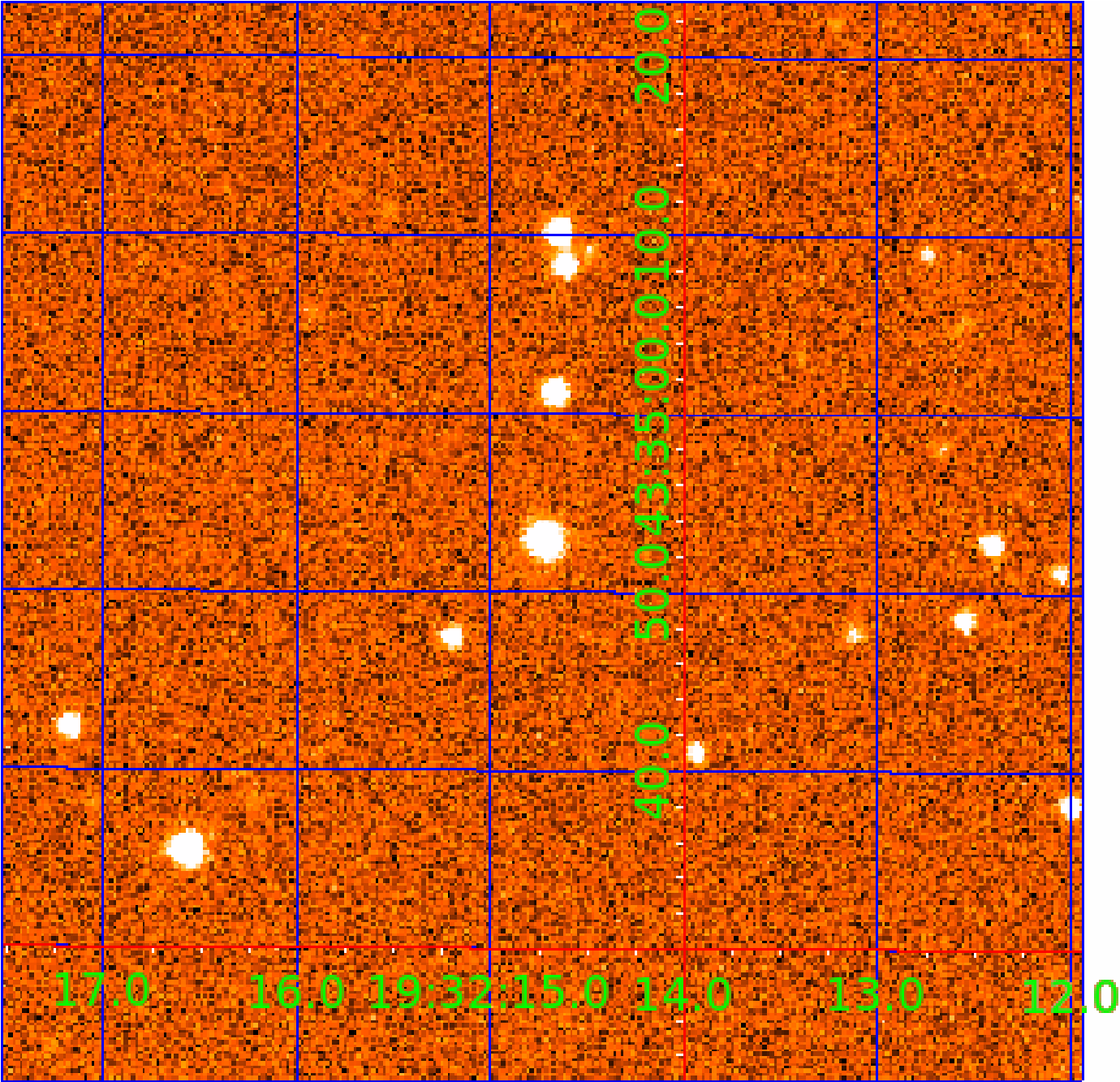


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007825899

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007825899-01	OBS	0896.01	16.239463	143.091371	2571.5	4.274	97.9	99.4	0.84	5191	4.68	30.22
007825899-02	OBS	0896.02	6.308204	136.198371	1319.8	3.075	70.1	78.4	0.84	5191	3.24	106.62
007825899-03	OBS	0896.03	28.867170	156.209457	315.5	4.761	9.6	10.5	0.84	5191	1.70	14.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007825899-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007825899-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007825899-03	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.

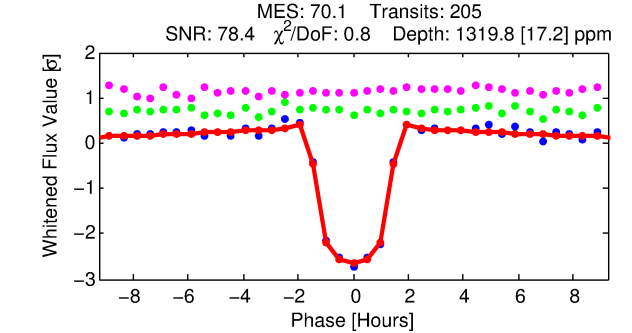
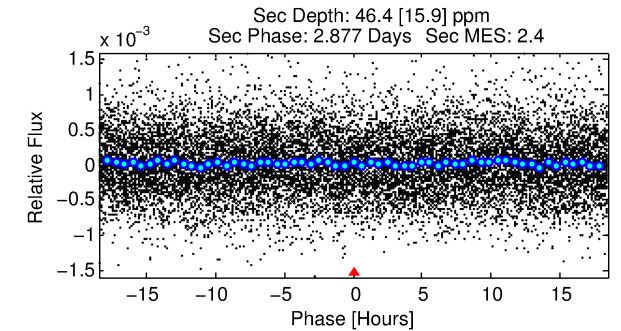
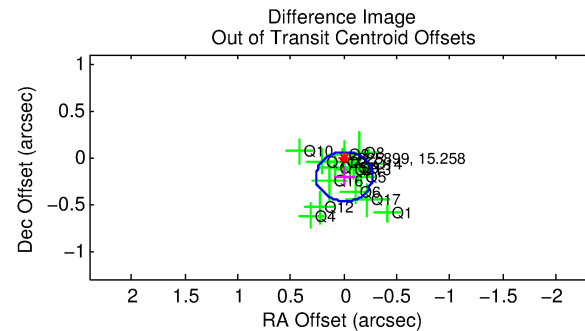
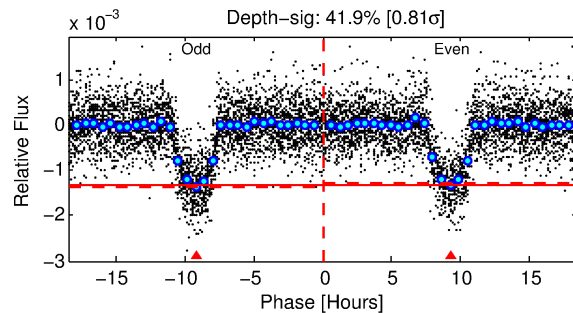
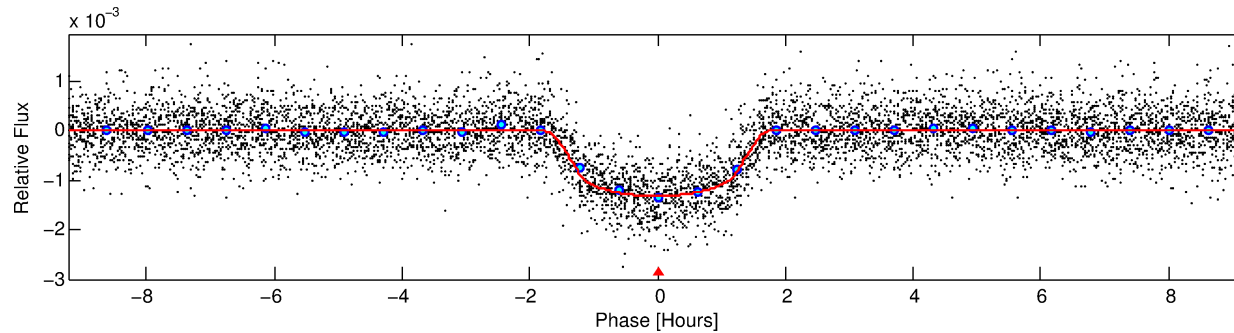
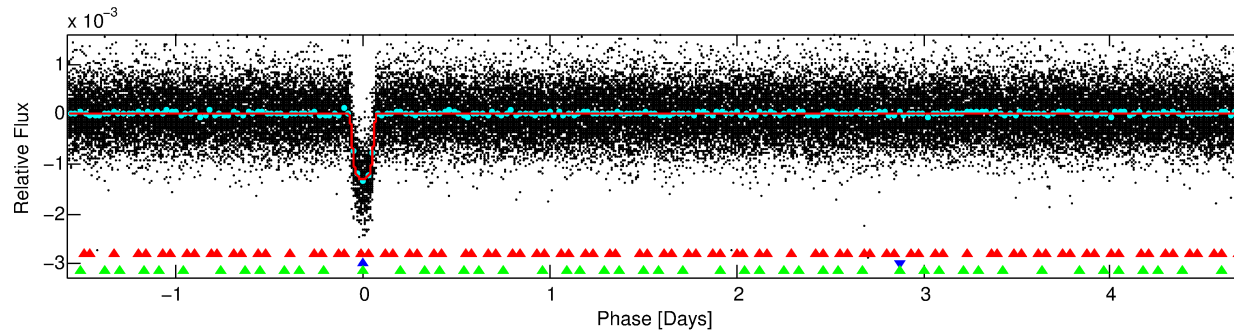
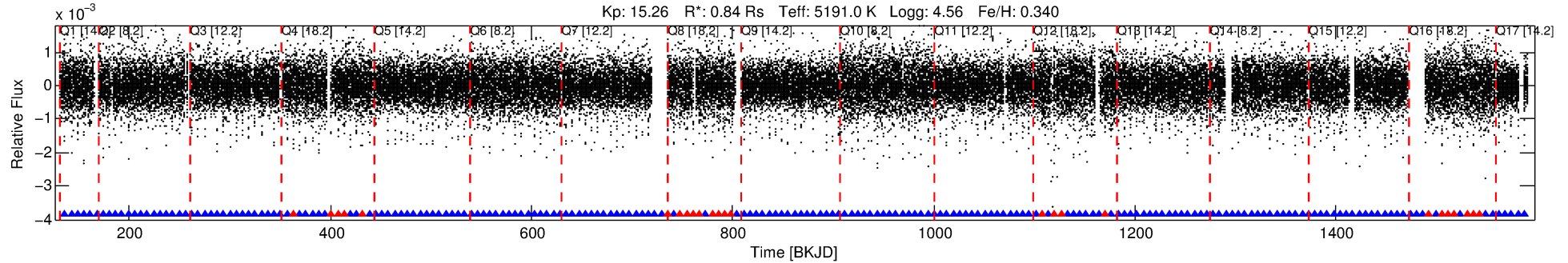
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007825899-02

No Significant Match Found

# DV One-Page Summary

KIC: 7825899 Candidate: 2 of 3 Period: 6.308 d  
KOI: K00896.02 Name: Kepler-248b Corr: 0.992



## DV Fit Results:

Period = 6.30820 [0.00001] d  
Epoch = 136.1984 [0.0007] BKJD  
Rp/R\* = 0.0355 [0.0051]  
a/R\* = 12.07 [6.02]  
b = 0.69 [0.38]  
Seff = 106.62 [17.97]  
Teff = 819 [35] K  
Rp = 3.24 [0.56] Re  
a = 0.0654 [0.0060] AU  
Ag = 10.40 [4.90] [1.92 $\sigma$ ]  
Teffp = 2275 [259] K [5.58 $\sigma$ ]

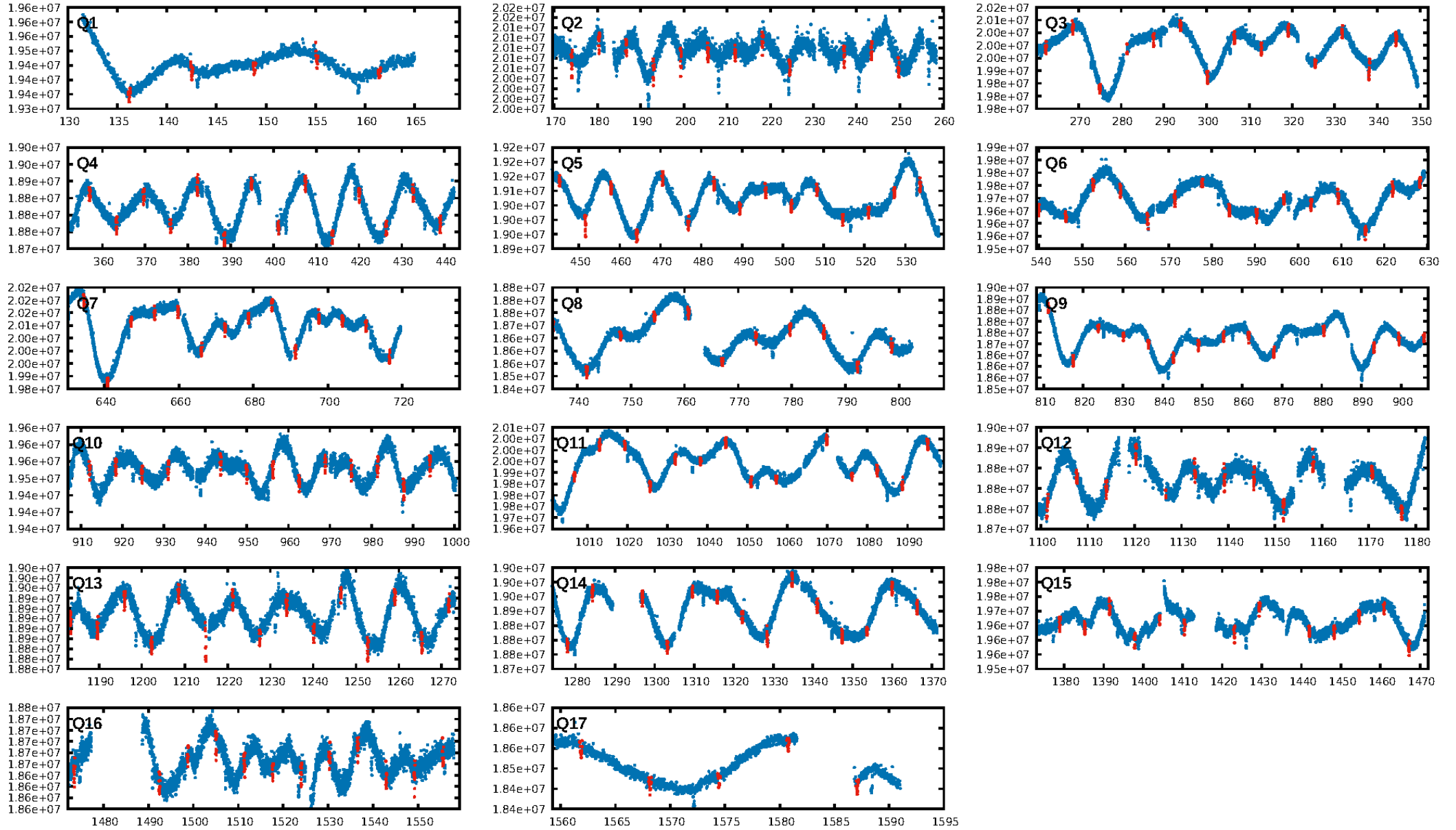
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [45.27 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.87 [170/195]  
GhostDiagnostic-chr: 5.324  
Centroid-sig: 0.0%  
Centroid-so: 0.169 arcsec [1.12 $\sigma$ ]  
OotOffset-rm: 0.206 arcsec [2.33 $\sigma$ ]  
KicOffset-rm: 0.182 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]

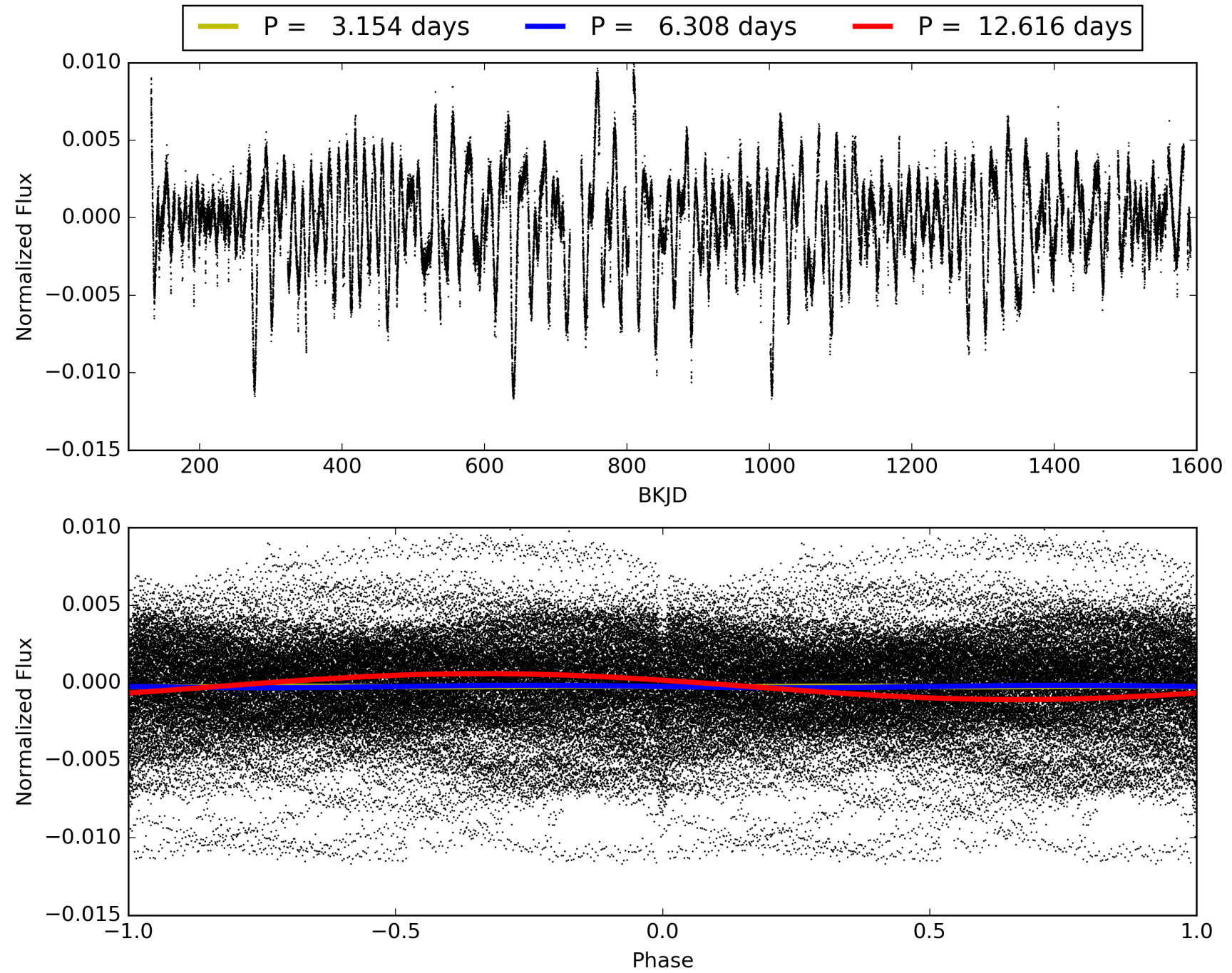
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:16:58 Z

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

# TCE 007825899-02, PDC Light Curves

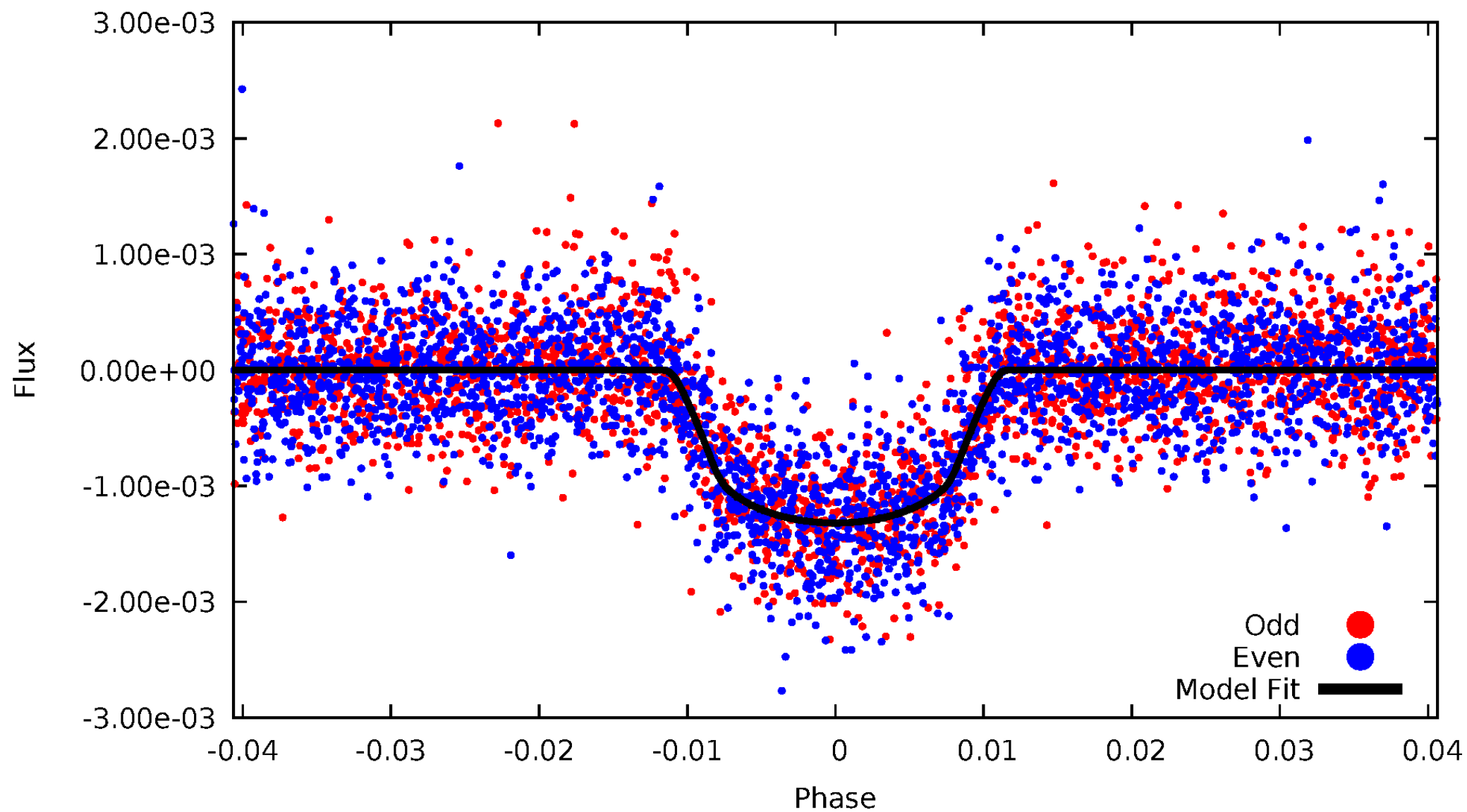


TCE 007825899-02



# DV Odd/Even

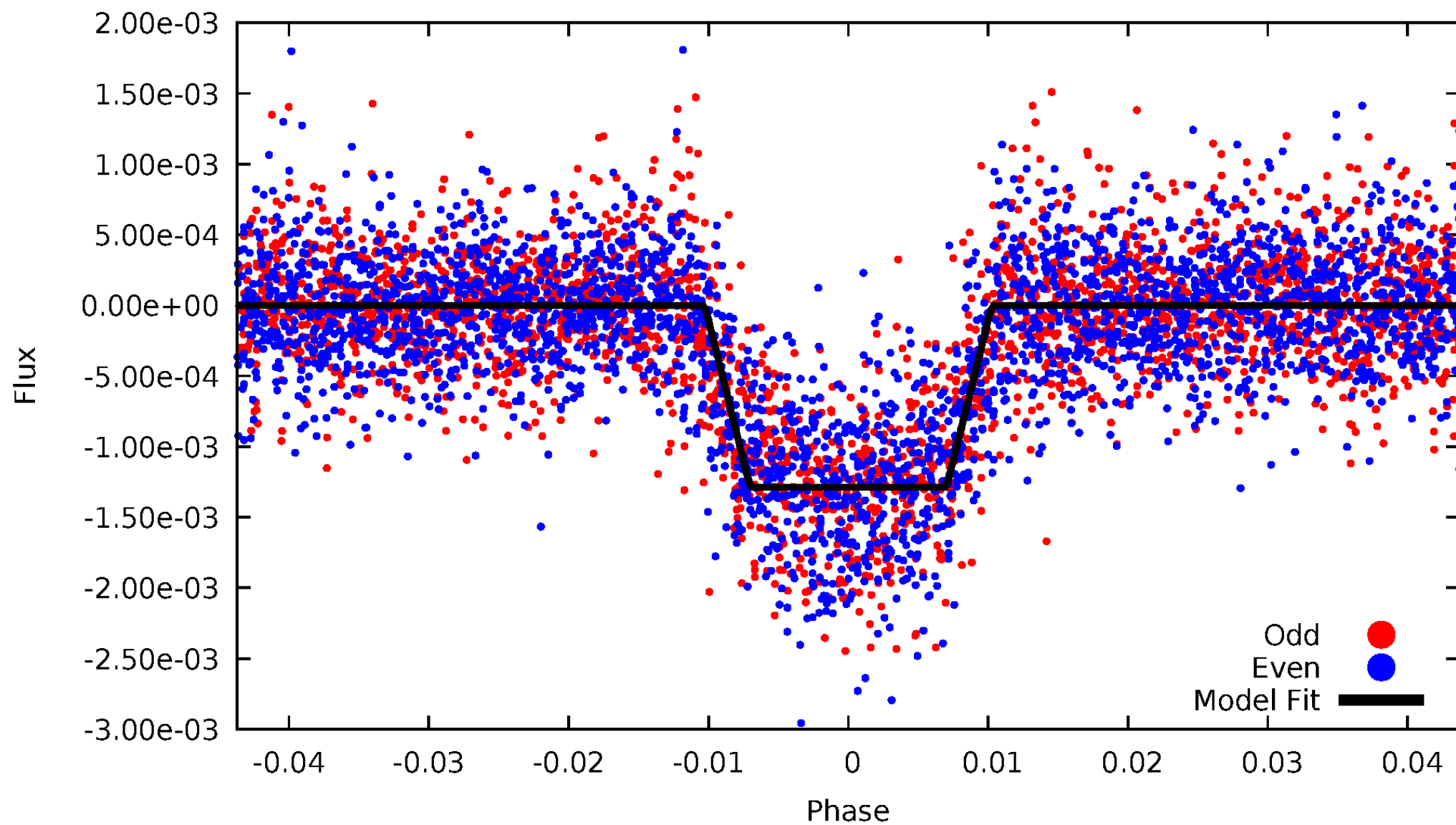
TCE 007825899-02





# ALT Odd/Even

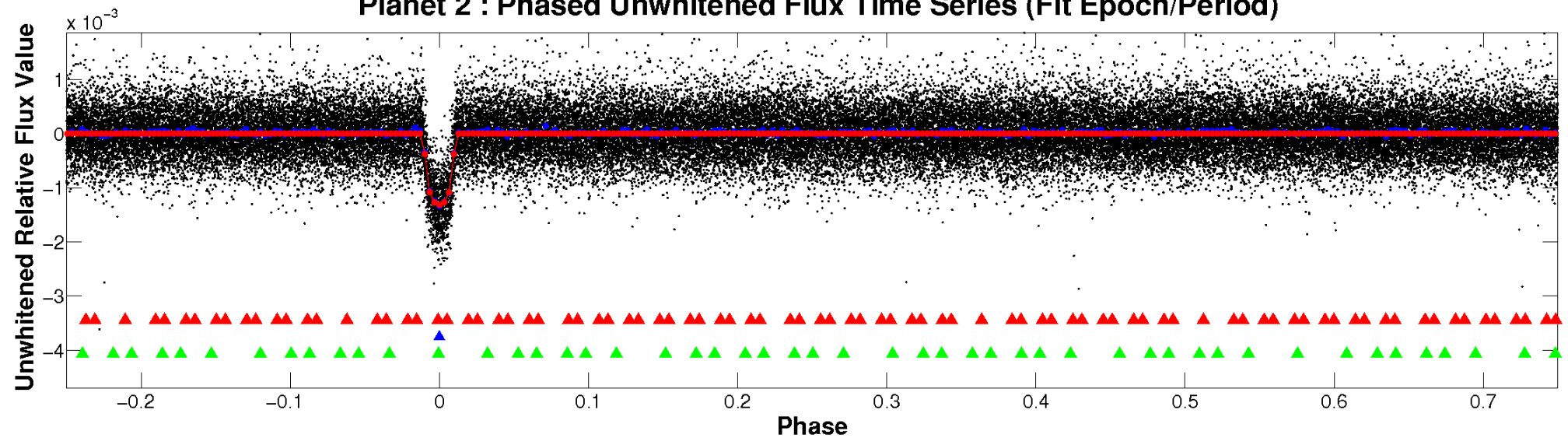
TCE 007825899-02



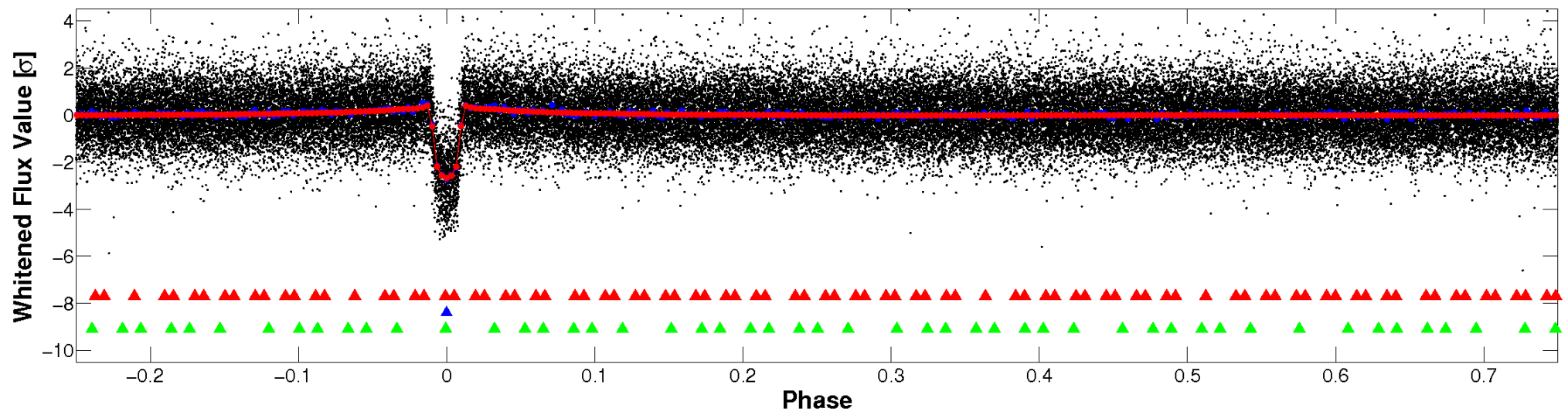


# Non-Whitened Vs. Whitened Light Curve

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

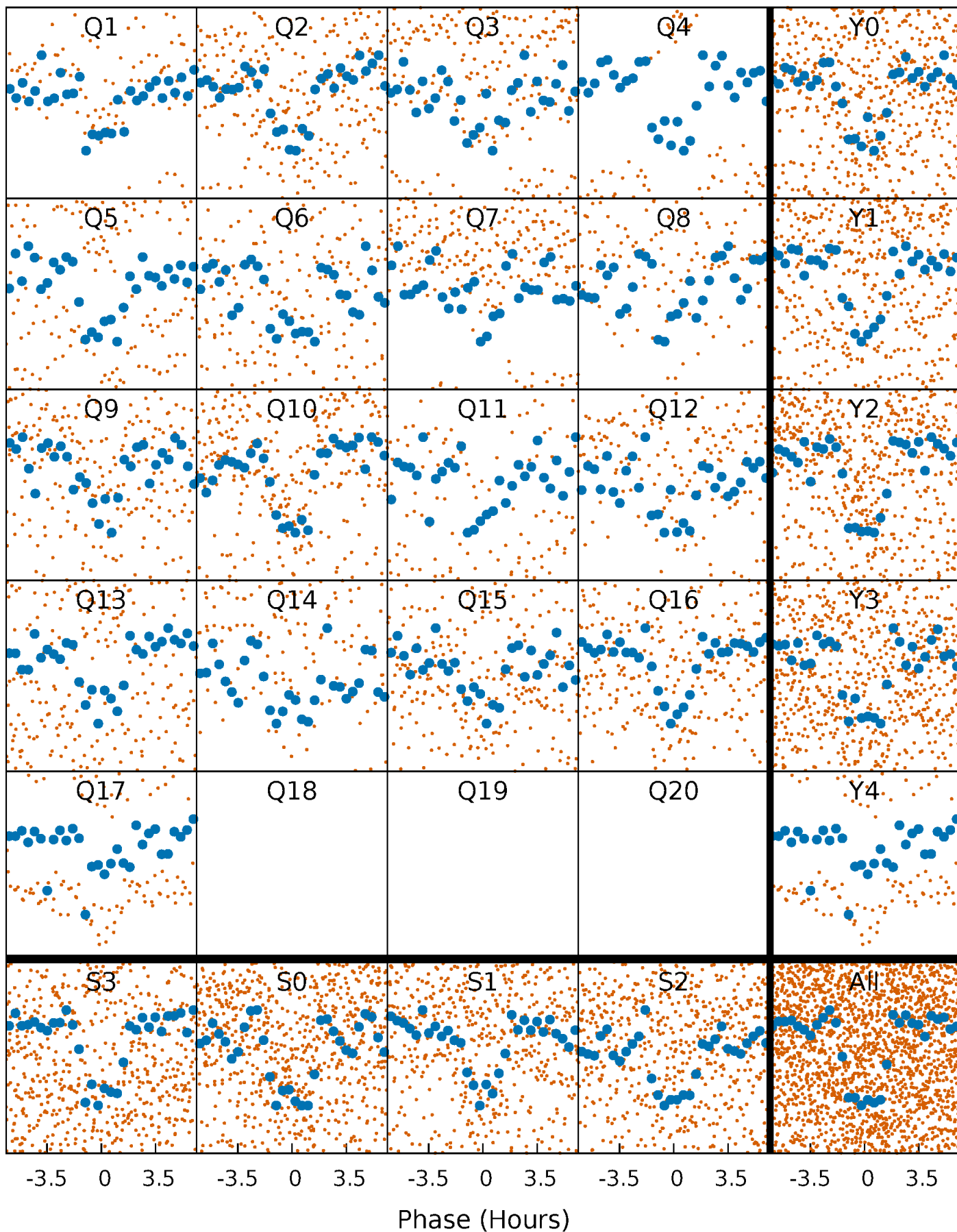


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



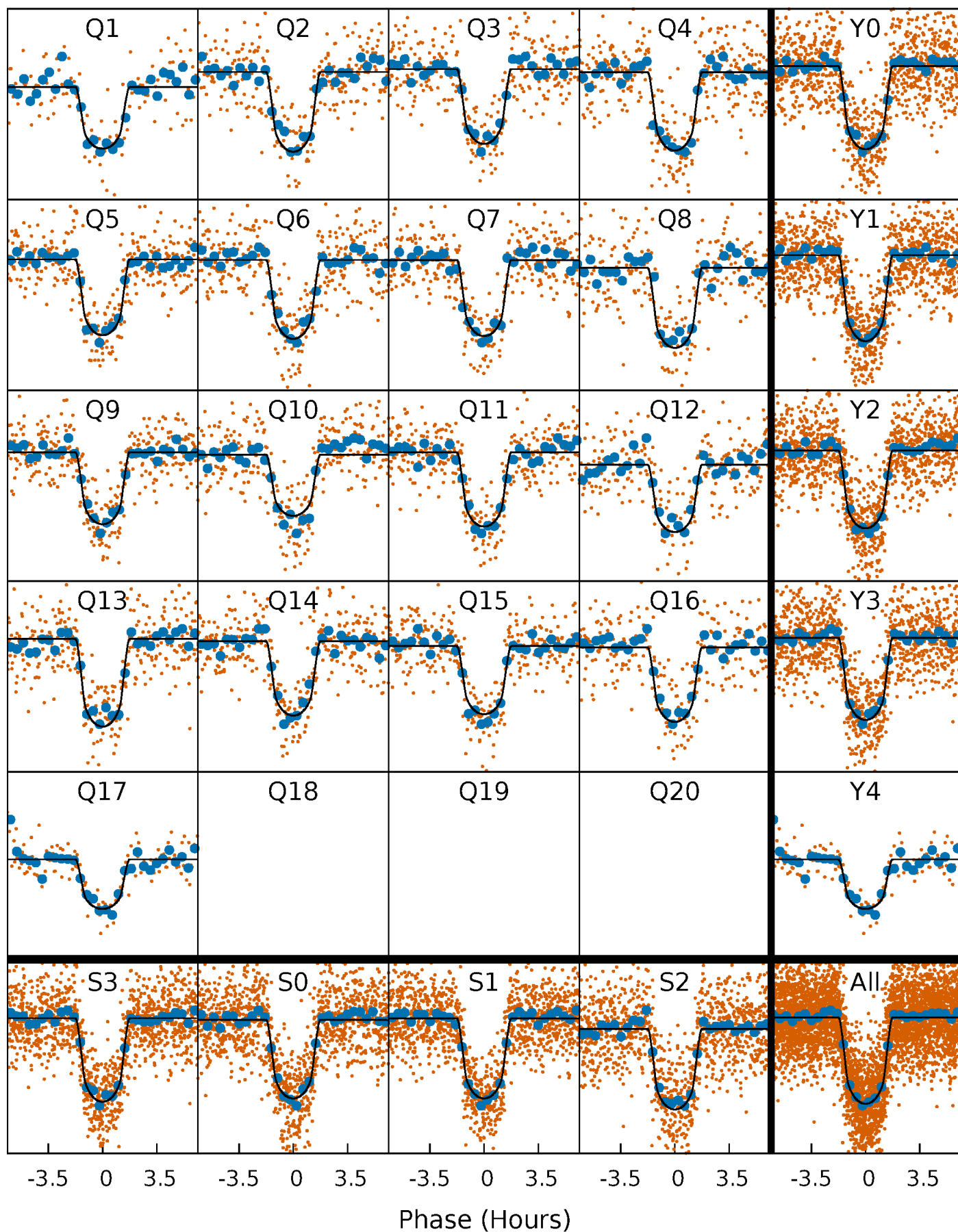
# PDC Quarter-Phased Transit Curves

TCE 007825899-02   P= 6.308204 Days    $T_0=136.198371$  (BKJD)



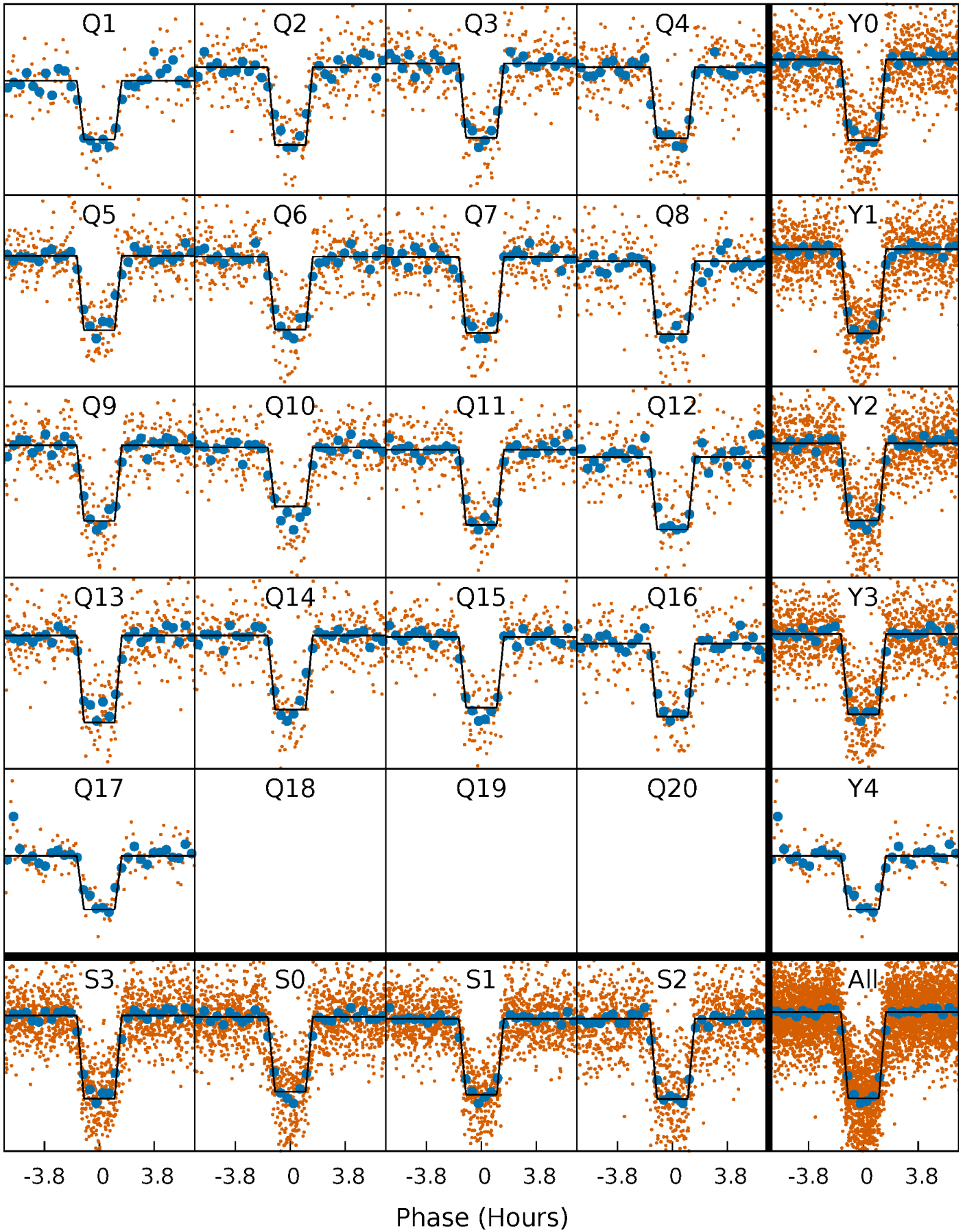
# DV Quarter-Phased Transit Curves

TCE 007825899-02 P= 6.308204 Days  $T_0=136.198371$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007825899-02 P= 6.308191 Days  $T_0=136.200119$  (BKJD)

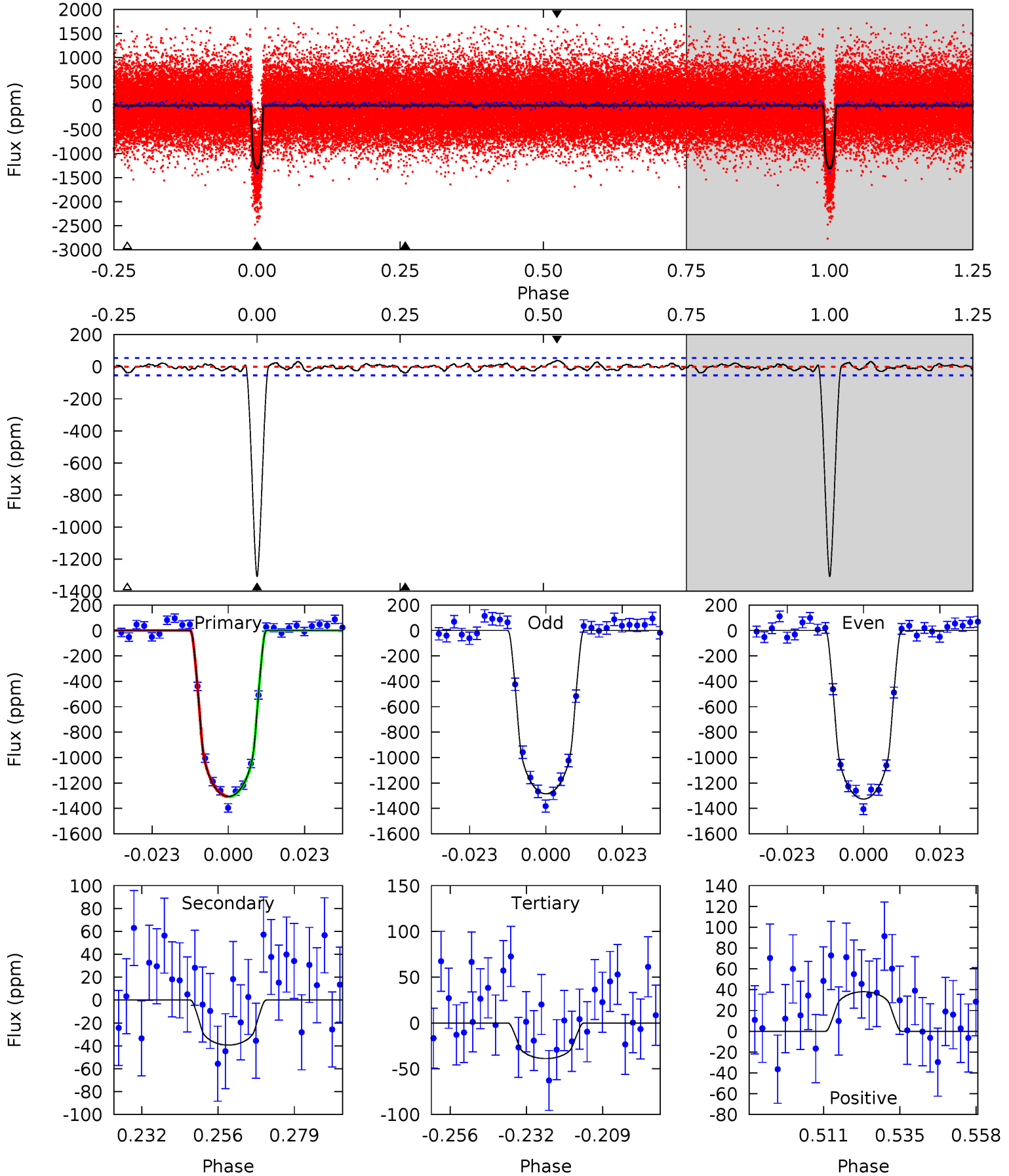




# DV Model-Shift Uniqueness Test

007825899-02, P = 6.308204 Days, E = 129.890167 Days

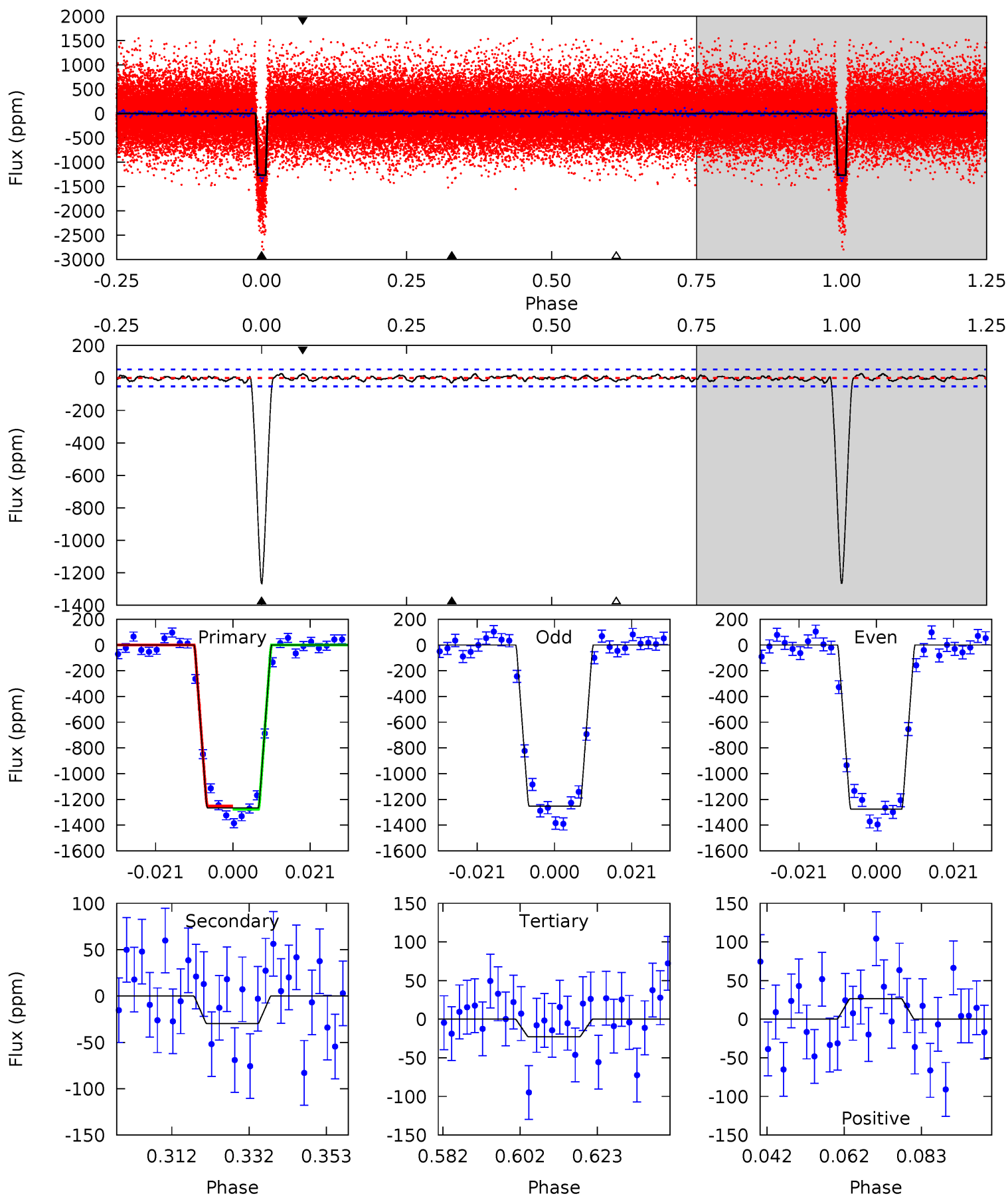
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
117.8	3.55	3.51	3.42	4.86	2.27	1.30	114.3	114.4	0.04	0.12	1.87	0.98	0.03	0.21



# Alt Model-Shift Uniqueness Test

007825899-02, P = 6.308191 Days, E = 129.891928 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
117.9	2.78	2.12	2.47	4.88	2.31	0.95	115.7	115.4	0.66	0.30	1.04	1.03	0.02	1.19





### Stellar Parameters For KIC 007825899

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5191^{+103}_{-103}$	$4.564^{+0.016}_{-0.088}$	$0.340^{+0.100}_{-0.150}$	$0.837^{+0.078}_{-0.030}$	$0.937^{+0.024}_{-0.062}$	$2.248^{+0.160}_{-0.540}$
	+2%/-2%	+0%/-2%	+29%/-44%	+9%/-4%	+3%/-7%	+7%/-24%
Source	SPE58	SPE58	SPE58	DSEP		

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

### Secondary Eclipse Parameters for KIC 007825899-02 / KOI 0896.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-39 \pm 11$	$3.30^{+0.51}_{-0.54}$	$1159^{+34}_{-30}$	$2864^{+170}_{-173}$	$8.336^{+4.159}_{-3.031}$
Alt.	$-30 \pm 11$	$3.37^{+0.49}_{-0.48}$	$1157^{+33}_{-29}$	$2731^{+172}_{-181}$	$6.039^{+3.240}_{-2.360}$

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

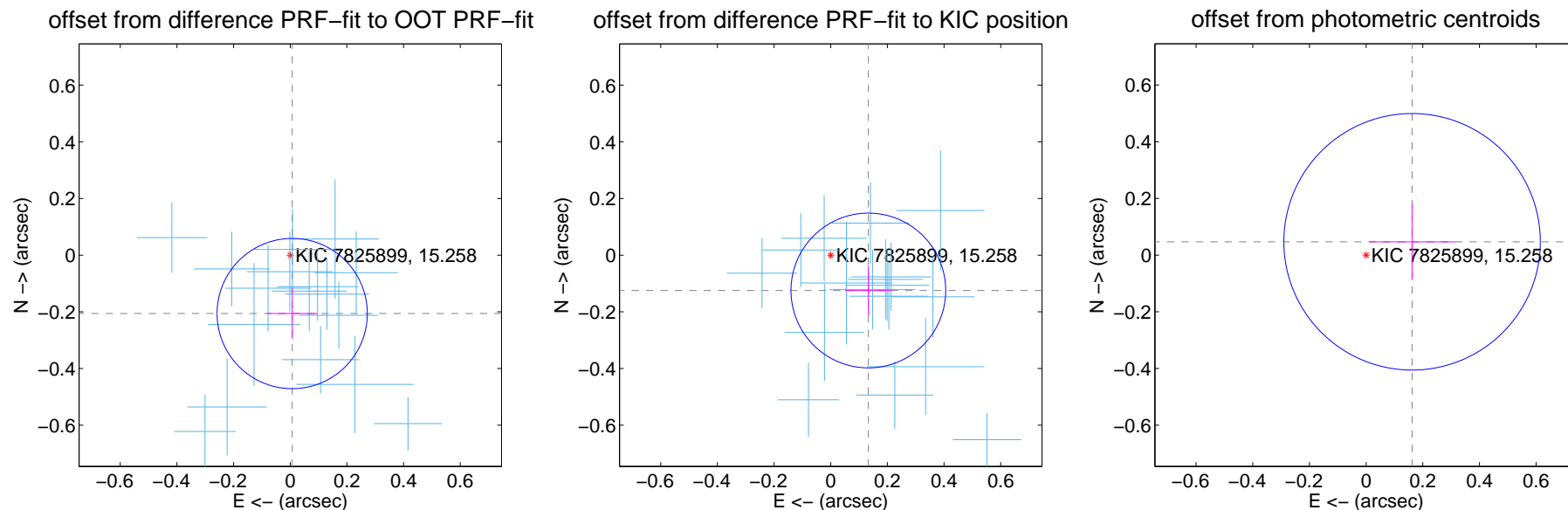
## DV Centroid Data

Supplemental centroid analysis for 007825899-02. Kepler magnitude: 15.26. Transit SNR 78.42

There are 17 quarters with good PRF difference image offsets

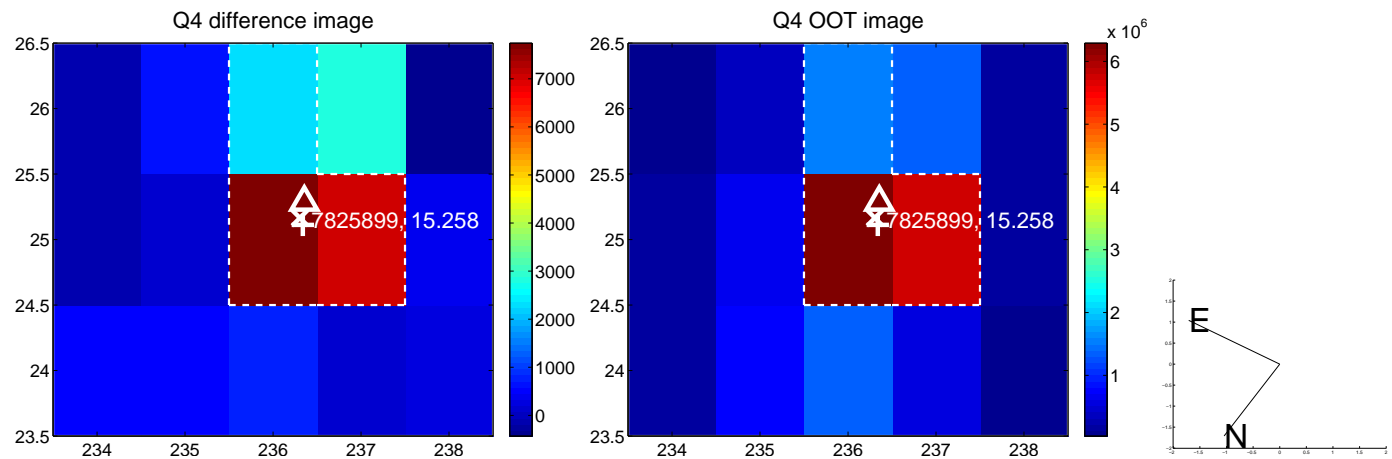
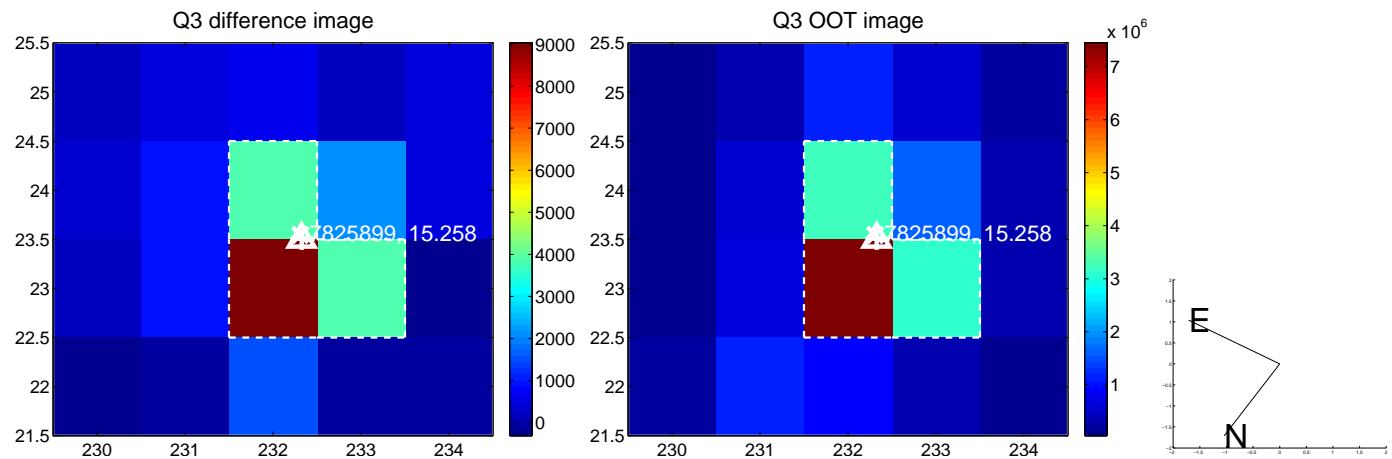
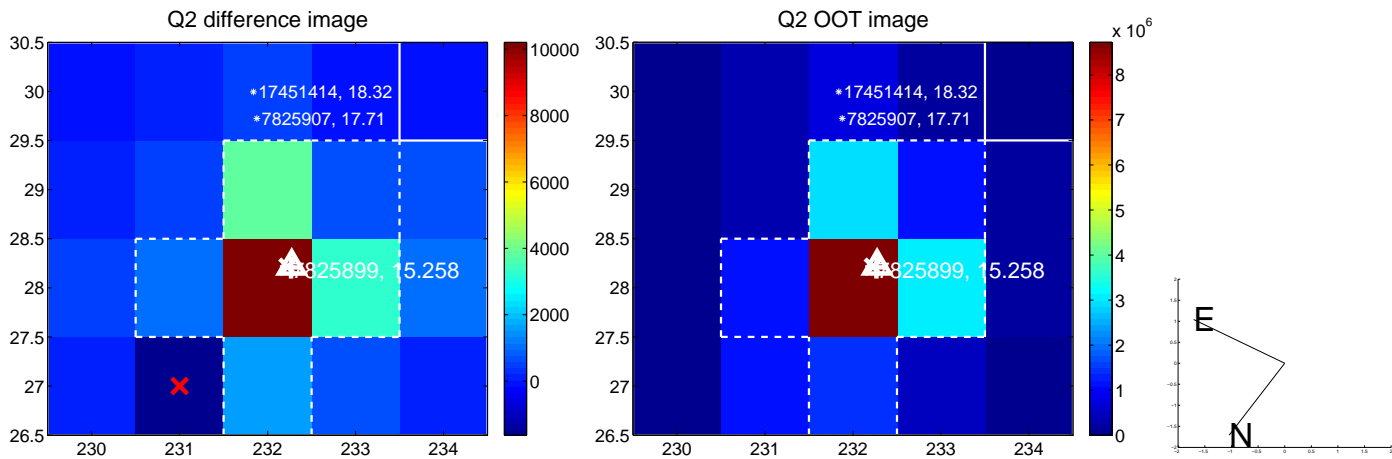
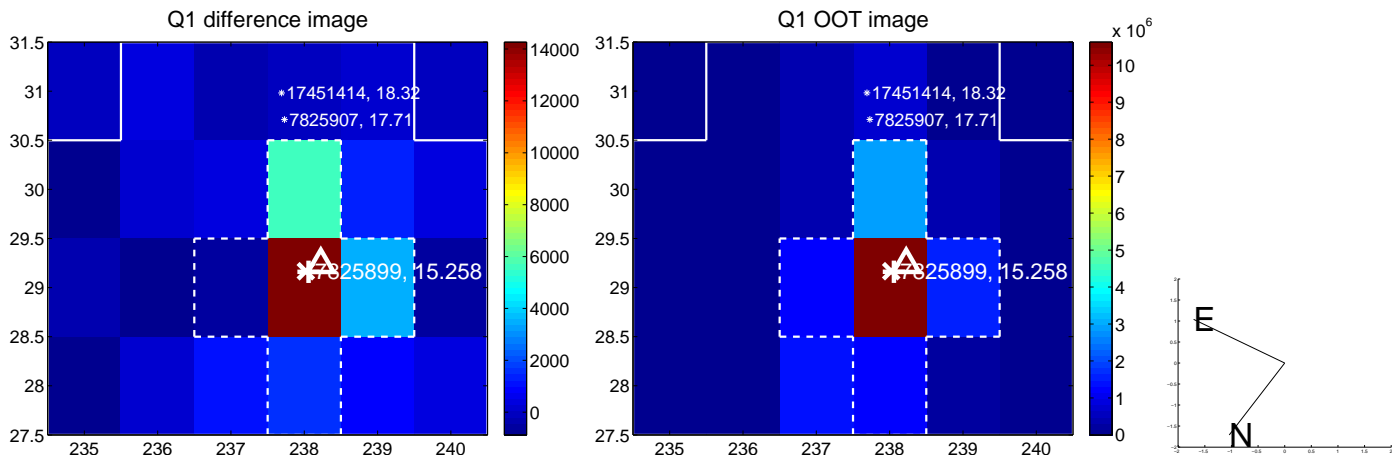
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.206 \pm 0.088$	2.33	$-0.007 \pm 0.089$	$-0.206 \pm 0.088$
PRF-fit source offset from KIC position	$0.182 \pm 0.091$	2.00	$-0.133 \pm 0.083$	$-0.125 \pm 0.087$
photometric centroid source offset	$0.17 \pm 0.15$	1.12	$-0.16 \pm 0.15$	$0.05 \pm 0.13$

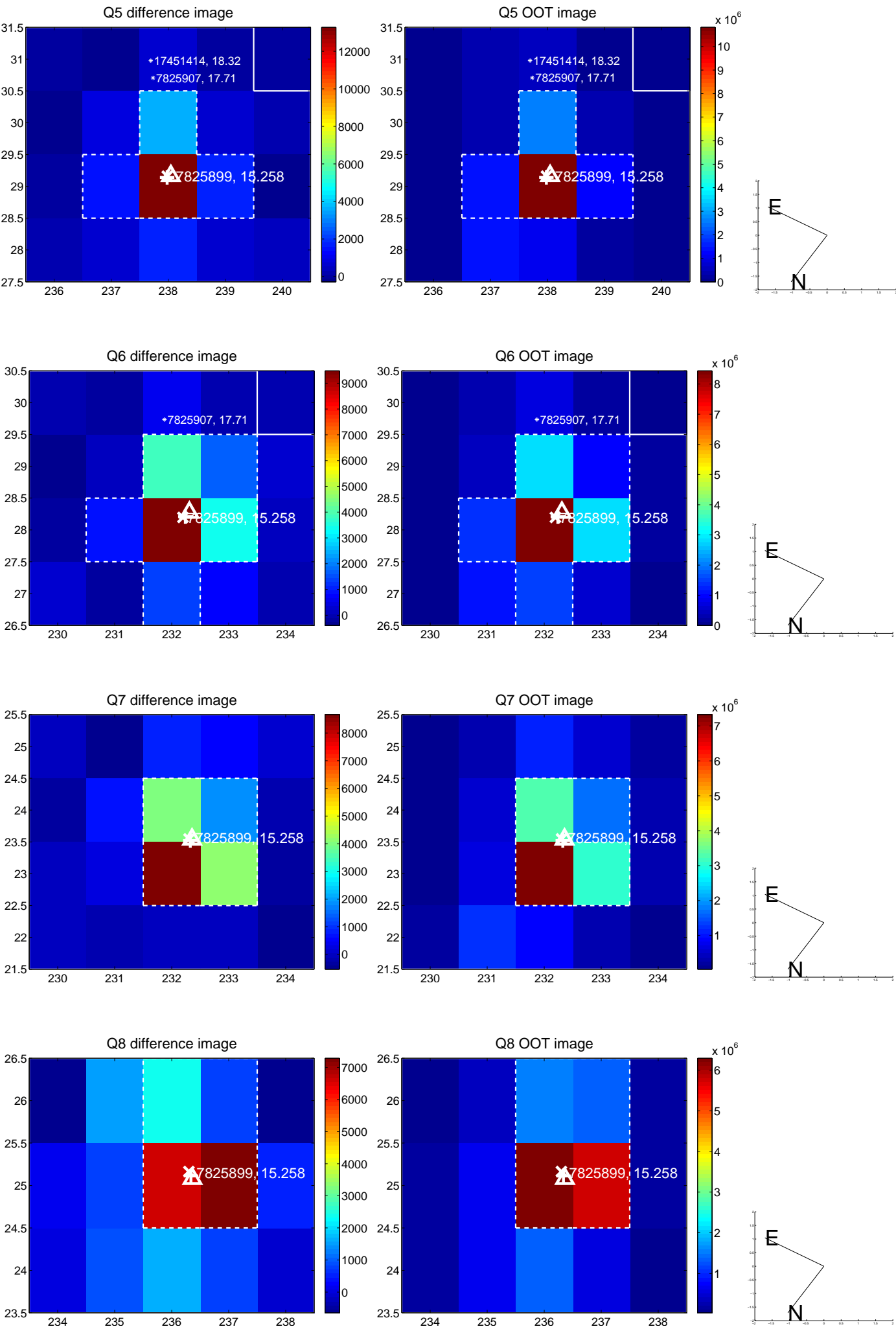


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

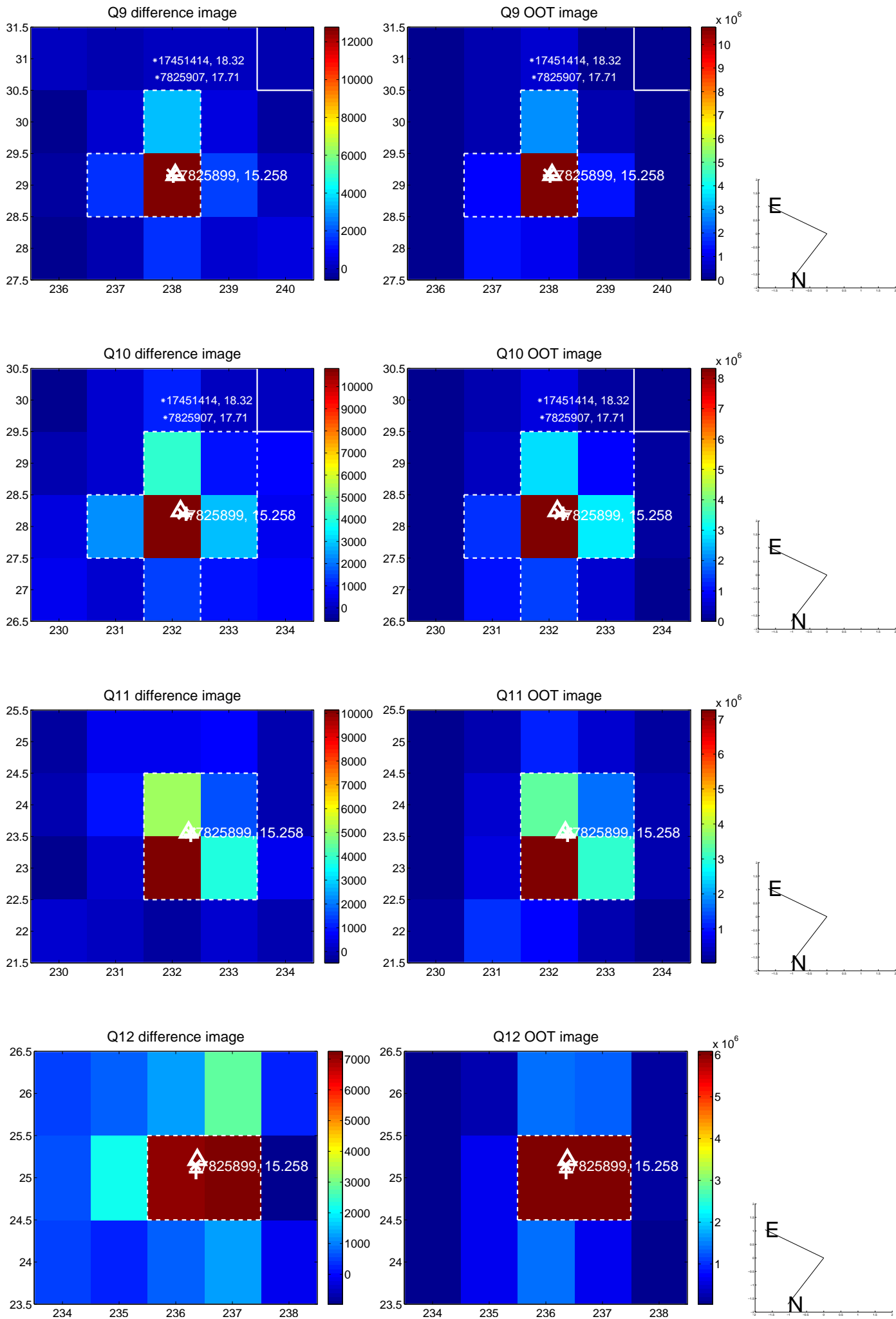
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



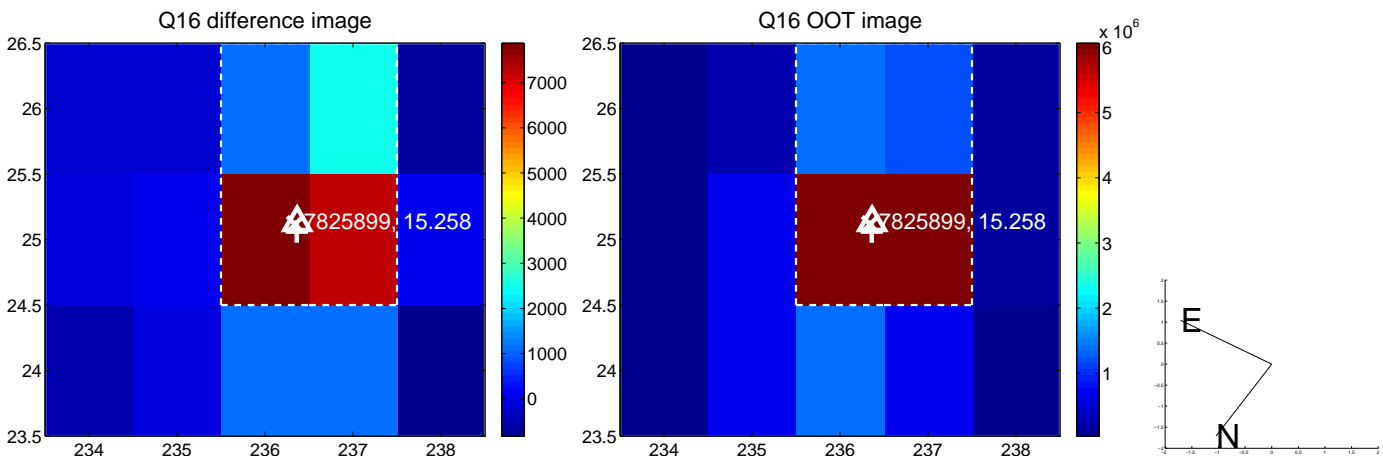
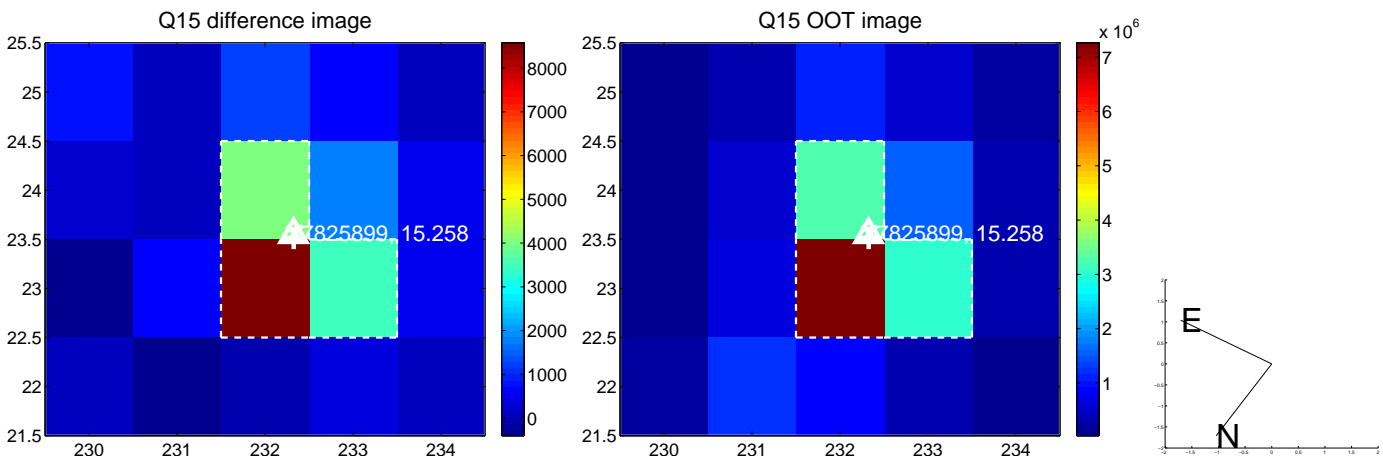
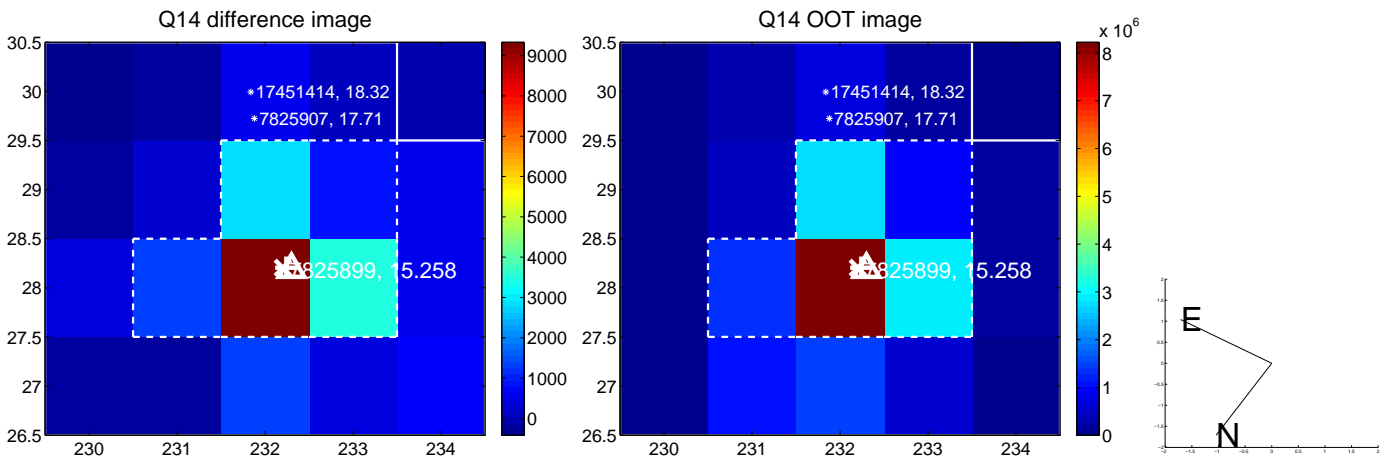
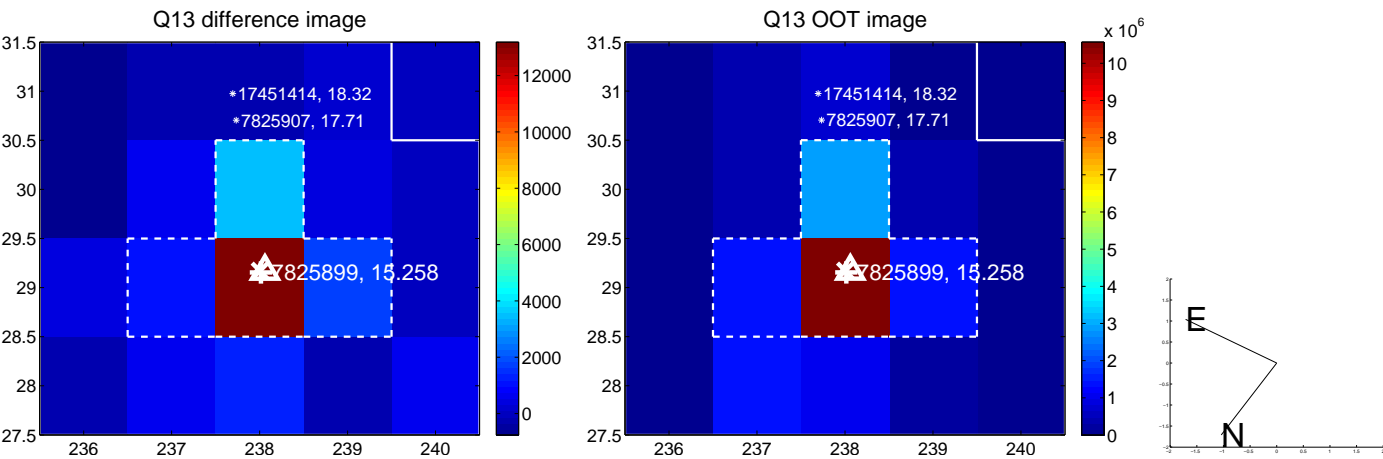
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



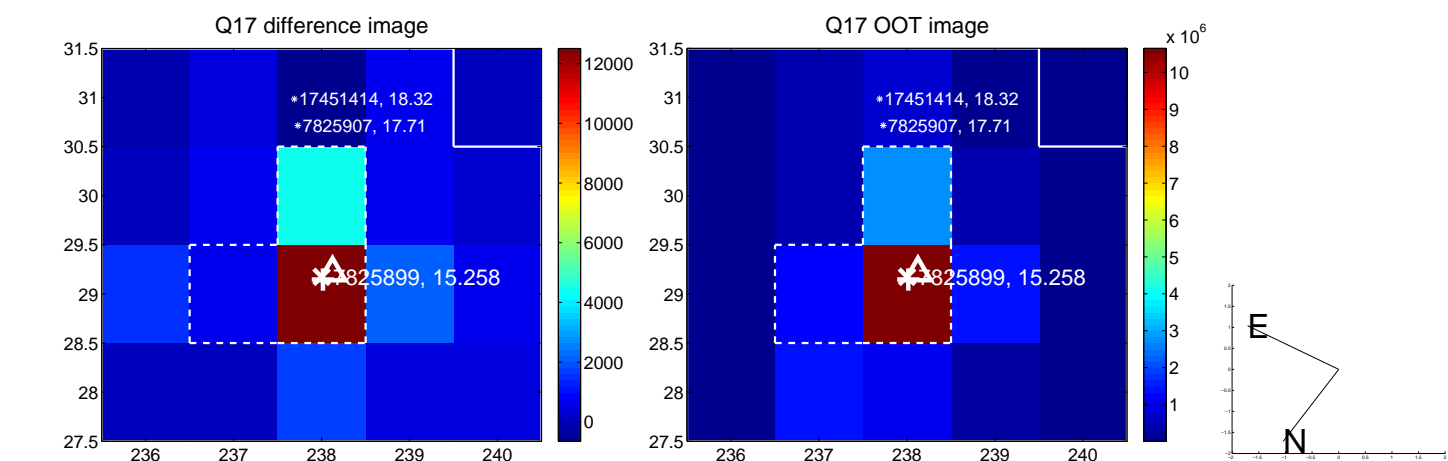
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



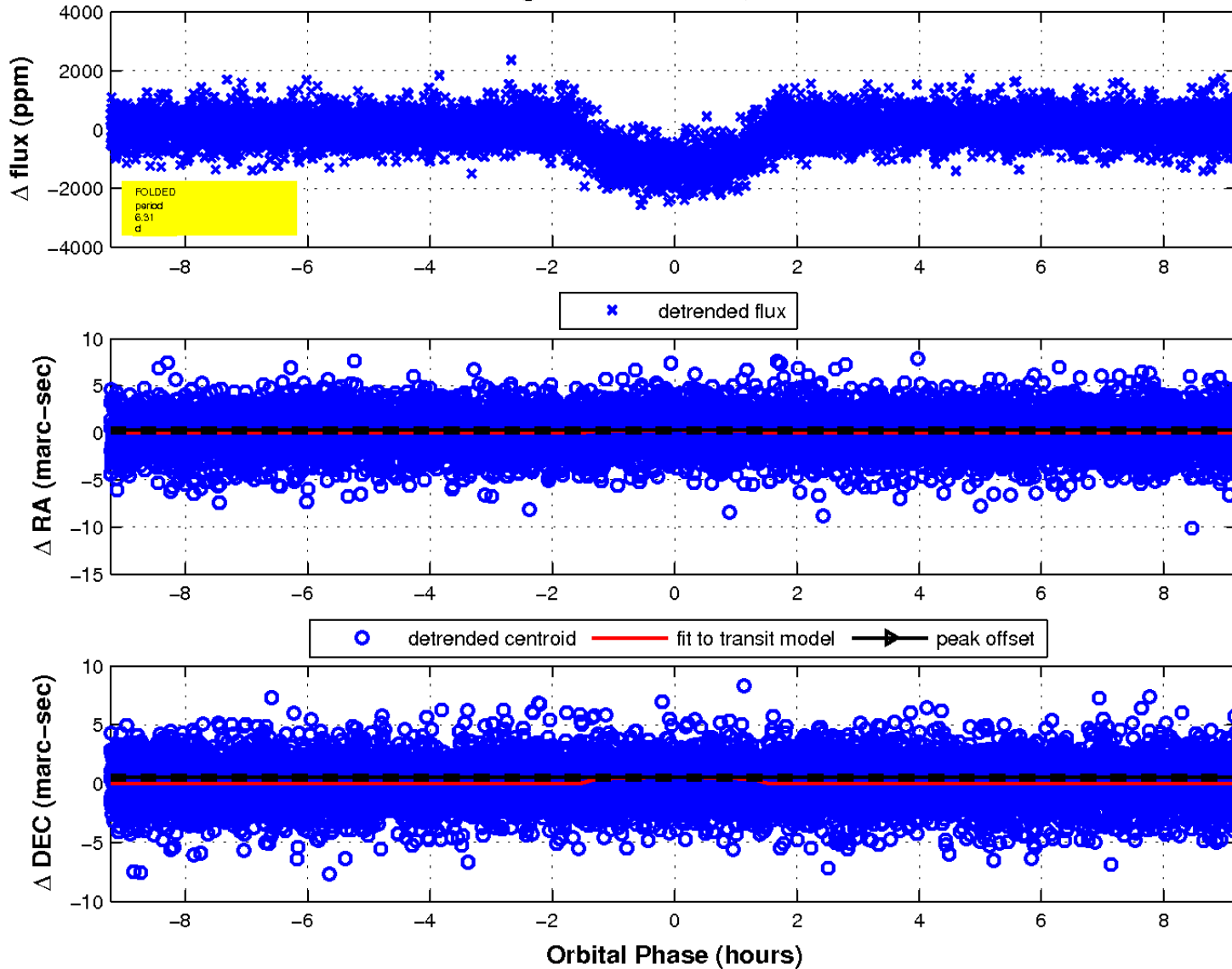
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



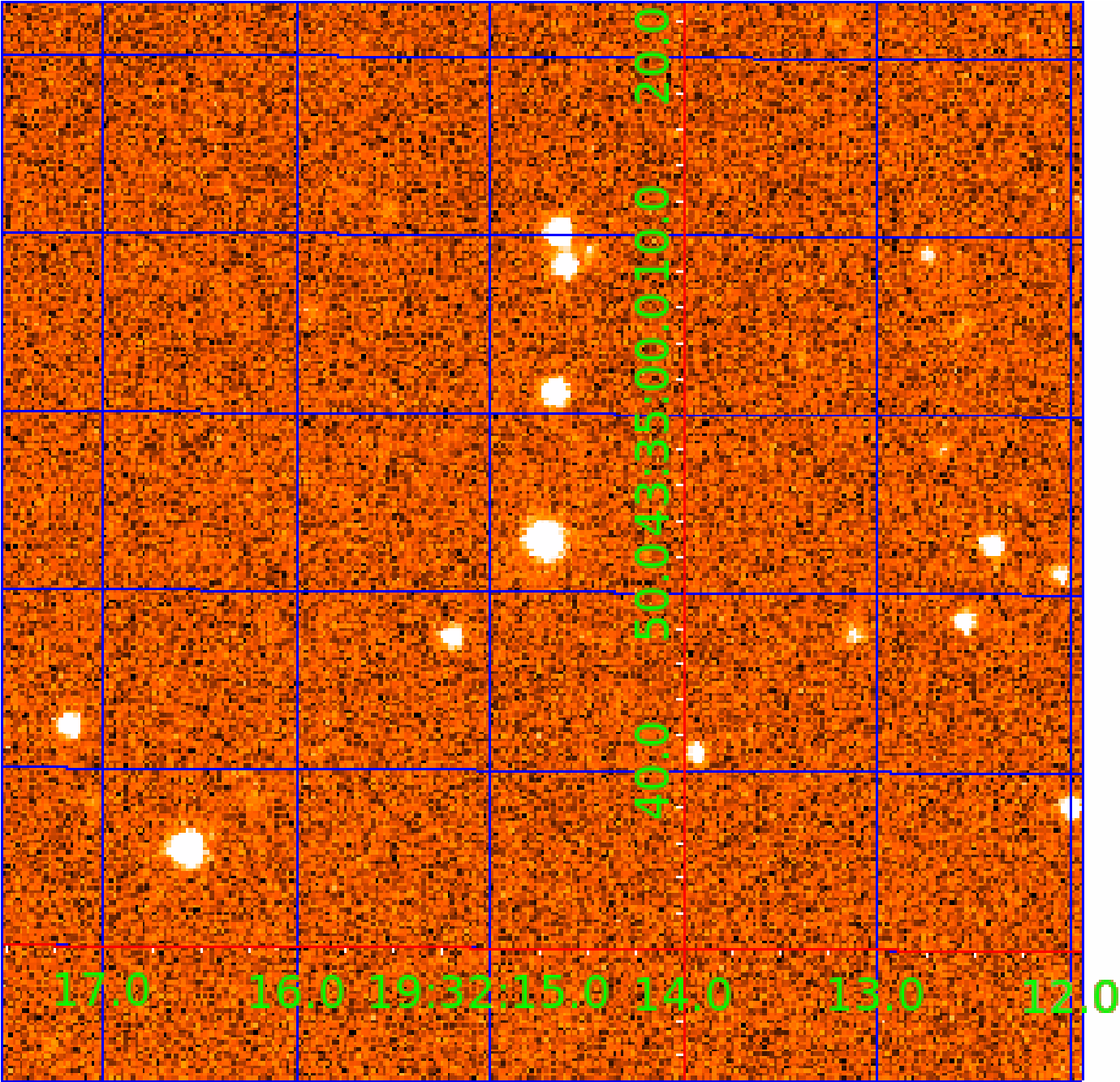
fluxWeightedCentroids, Planet 2 of 3





UKIRT Image

Declination



# KIC 007825899

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007825899-01	OBS	0896.01	16.239463	143.091371	2571.5	4.274	97.9	99.4	0.84	5191	4.68	30.22
007825899-02	OBS	0896.02	6.308204	136.198371	1319.8	3.075	70.1	78.4	0.84	5191	3.24	106.62
007825899-03	OBS	0896.03	28.867170	156.209457	315.5	4.761	9.6	10.5	0.84	5191	1.70	14.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007825899-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007825899-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007825899-03	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 007825899-03

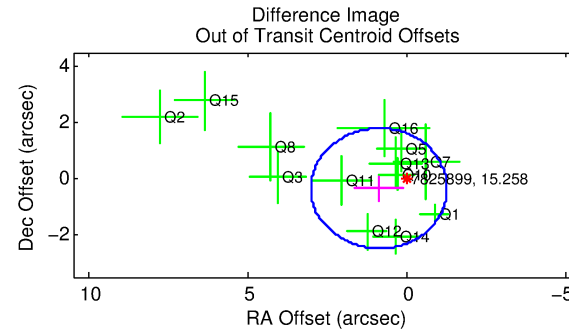
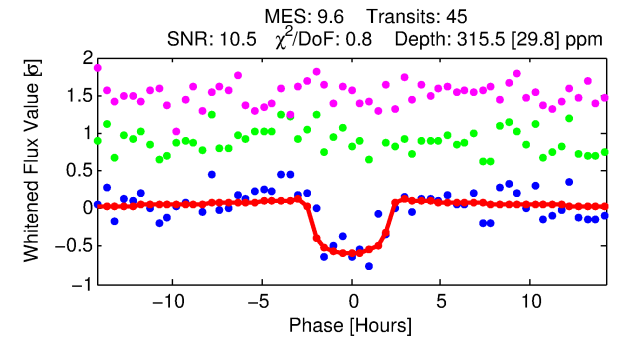
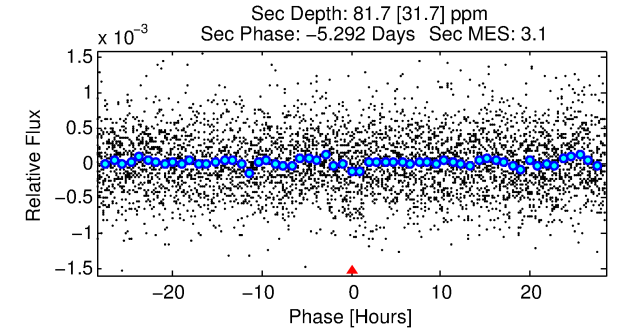
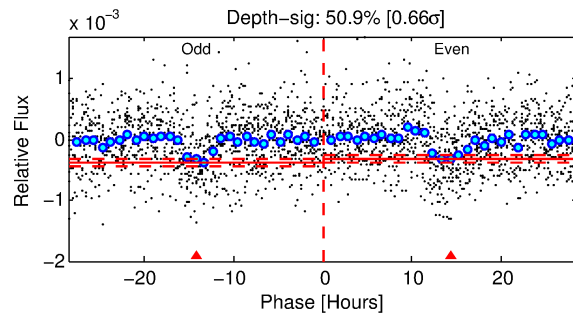
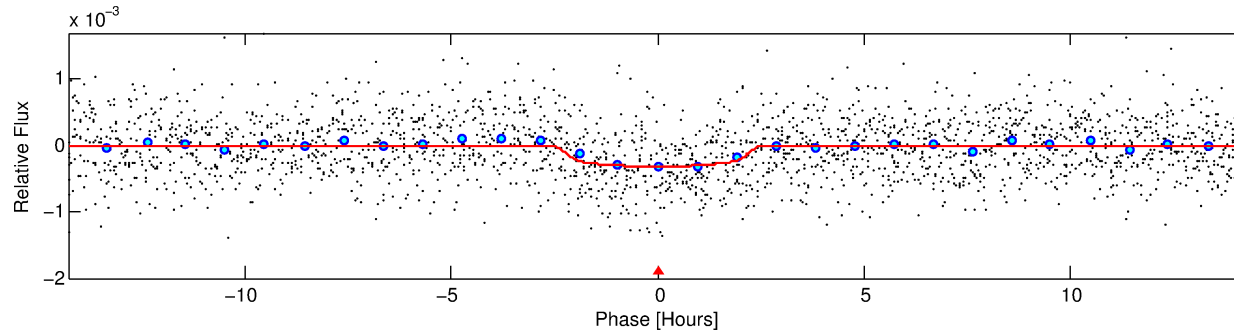
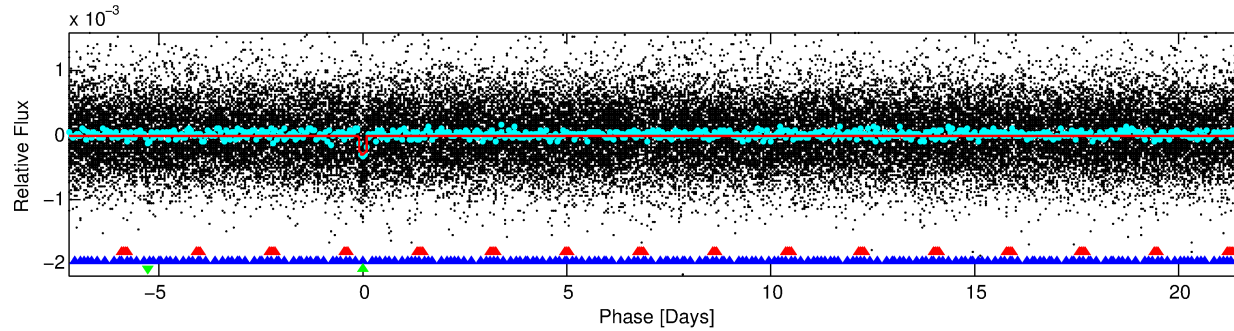
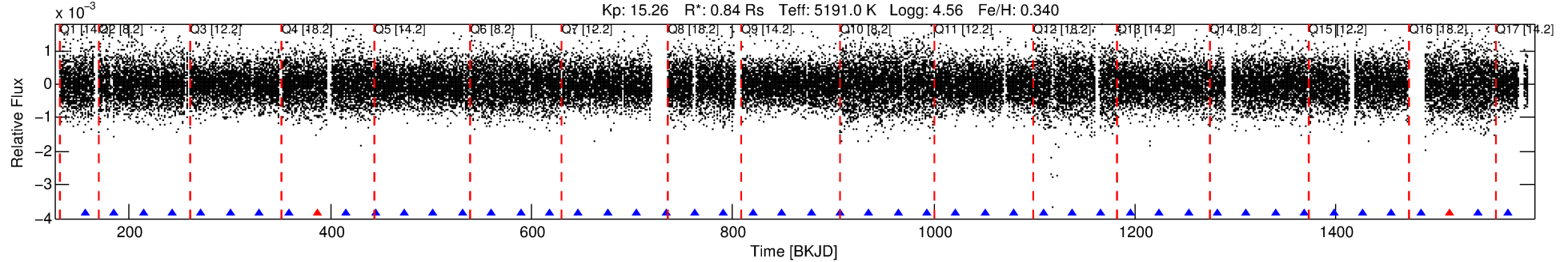
No Significant Match Found

# DV One-Page Summary

KIC: 7825899 Candidate: 3 of 3 Period: 28.867 d

KOI: K00896.03 Corr: 0.931

Kp: 15.26 R\*: 0.84 Rs Teff: 5191.0 K Logg: 4.56 Fe/H: 0.340



## DV Fit Results:

Period = 28.86717 [0.00028] d  
Epoch = 156.2095 [0.0076] BKJD  
Rp/R\* = 0.0186 [0.0110]  
a/R\* = 27.12 [60.59]  
b = 0.83 [0.84]  
Seff = 14.03 [2.37]  
Teq = 494 [21] K  
Rp = 1.70 [1.02] Re  
a = 0.1802 [0.0165] AU  
Ag = 504.05 [632.72] [0.80σ]  
Teffp = 3616 [1129] K [2.77σ]

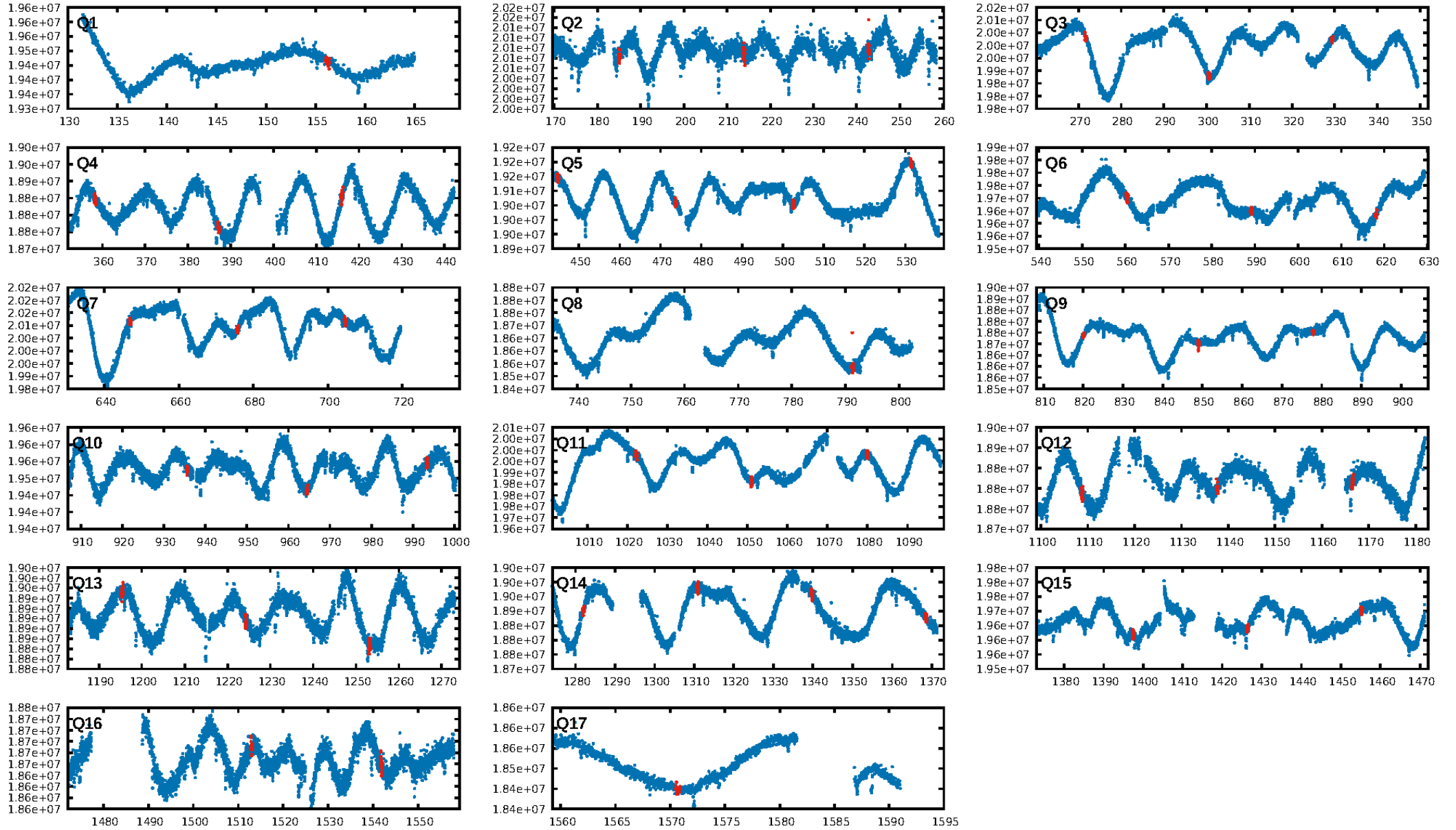
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.37σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 91.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.45e-20  
RollingBand-fgt: 0.95 [41/43]  
GhostDiagnostic-chr: 29.68  
Centroid-sig: 86.7%  
Centroid-so: 0.313 arcsec [0.30σ]  
OotOffset-rm: 0.949 arcsec [1.33σ]  
OotOffset-st: 3/4/3/3 [13]  
KicOffset-rm: 0.821 arcsec [1.18σ]  
KicOffset-st: 3/4/3/3 [13]  
DiffImageQuality-fgm: 0.46 [6/13]  
DiffImageOverlap-fno: 1.00 [17/17]

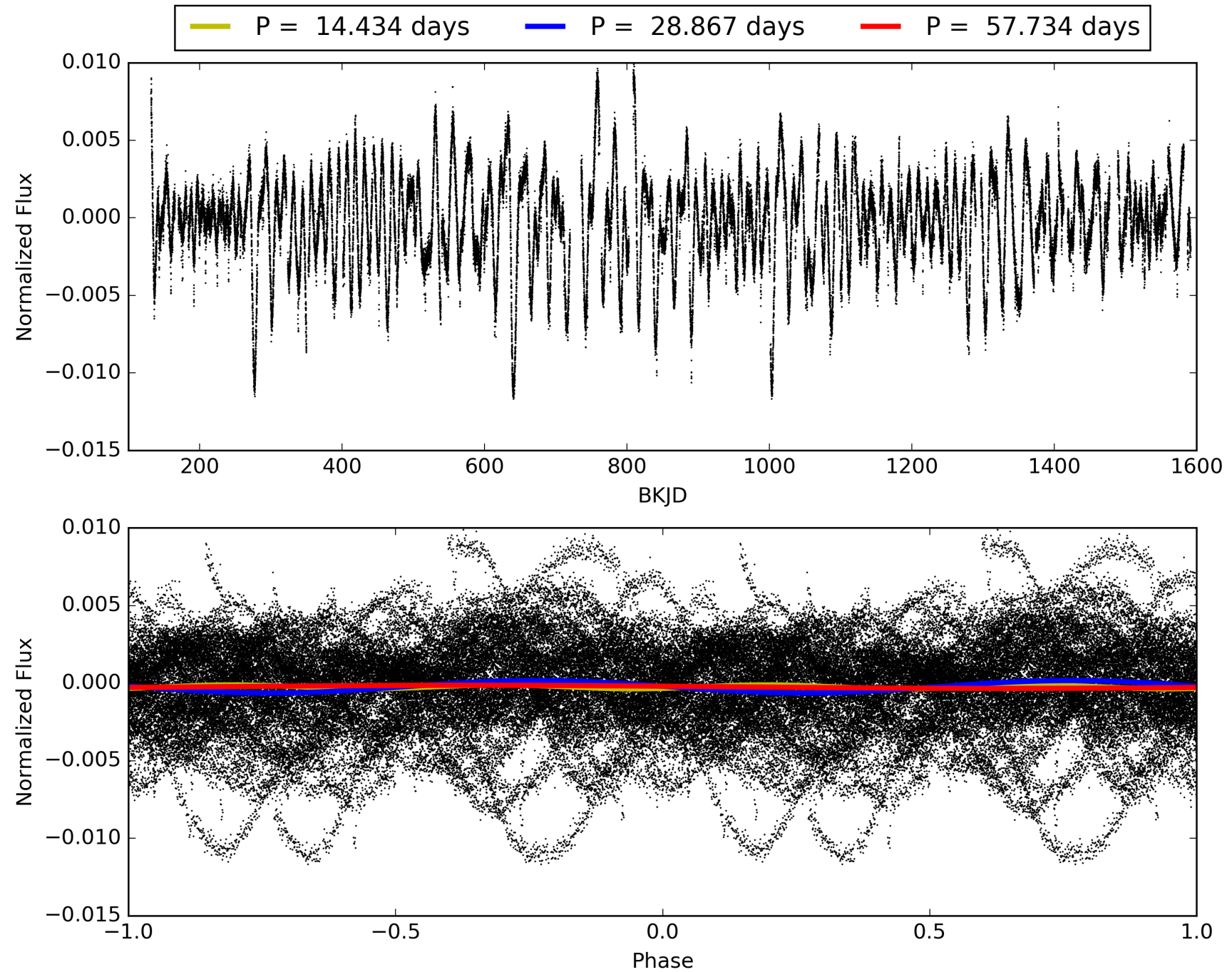
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:17:05 Z

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

# TCE 007825899-03, PDC Light Curves

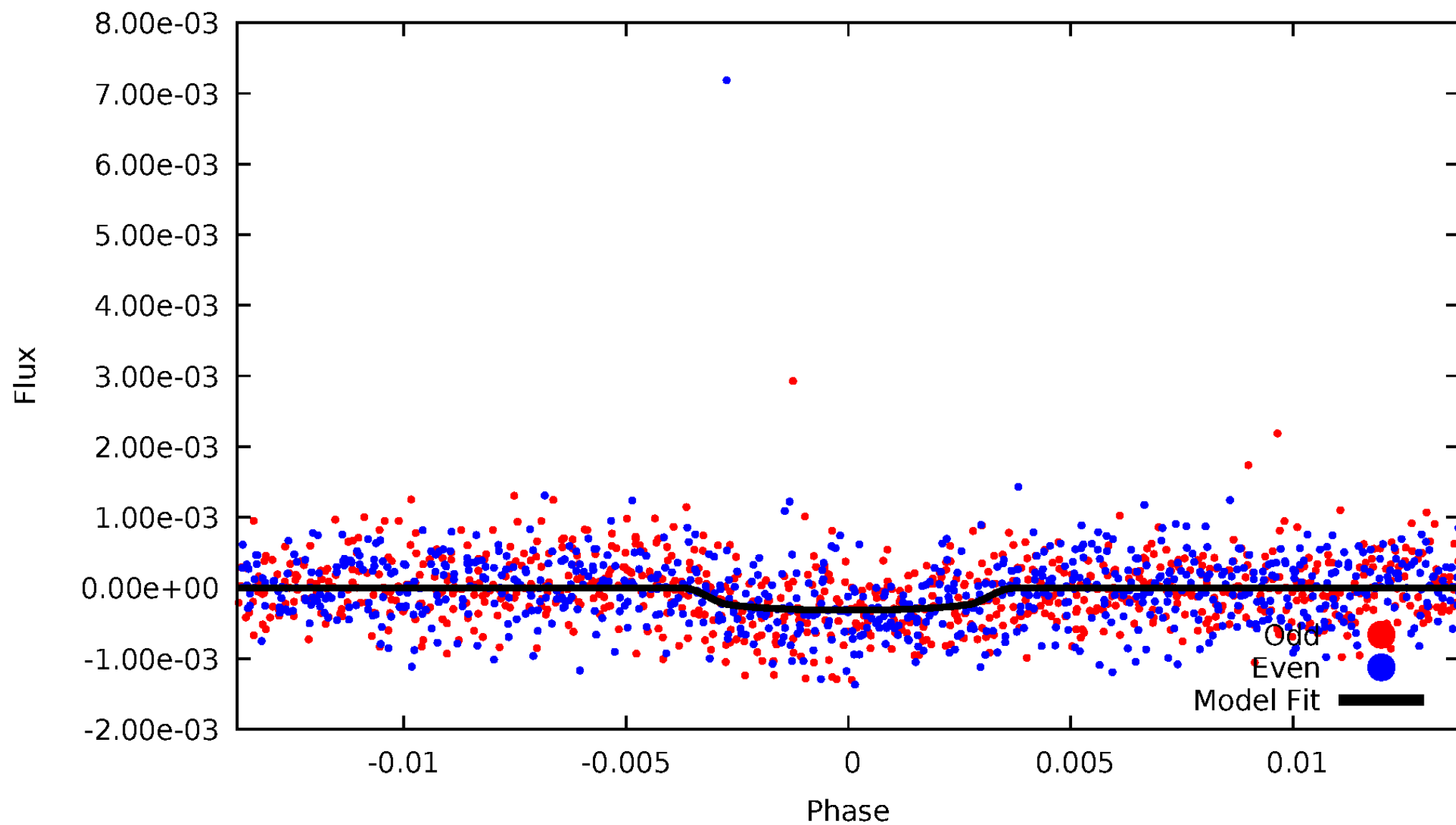


TCE 007825899-03



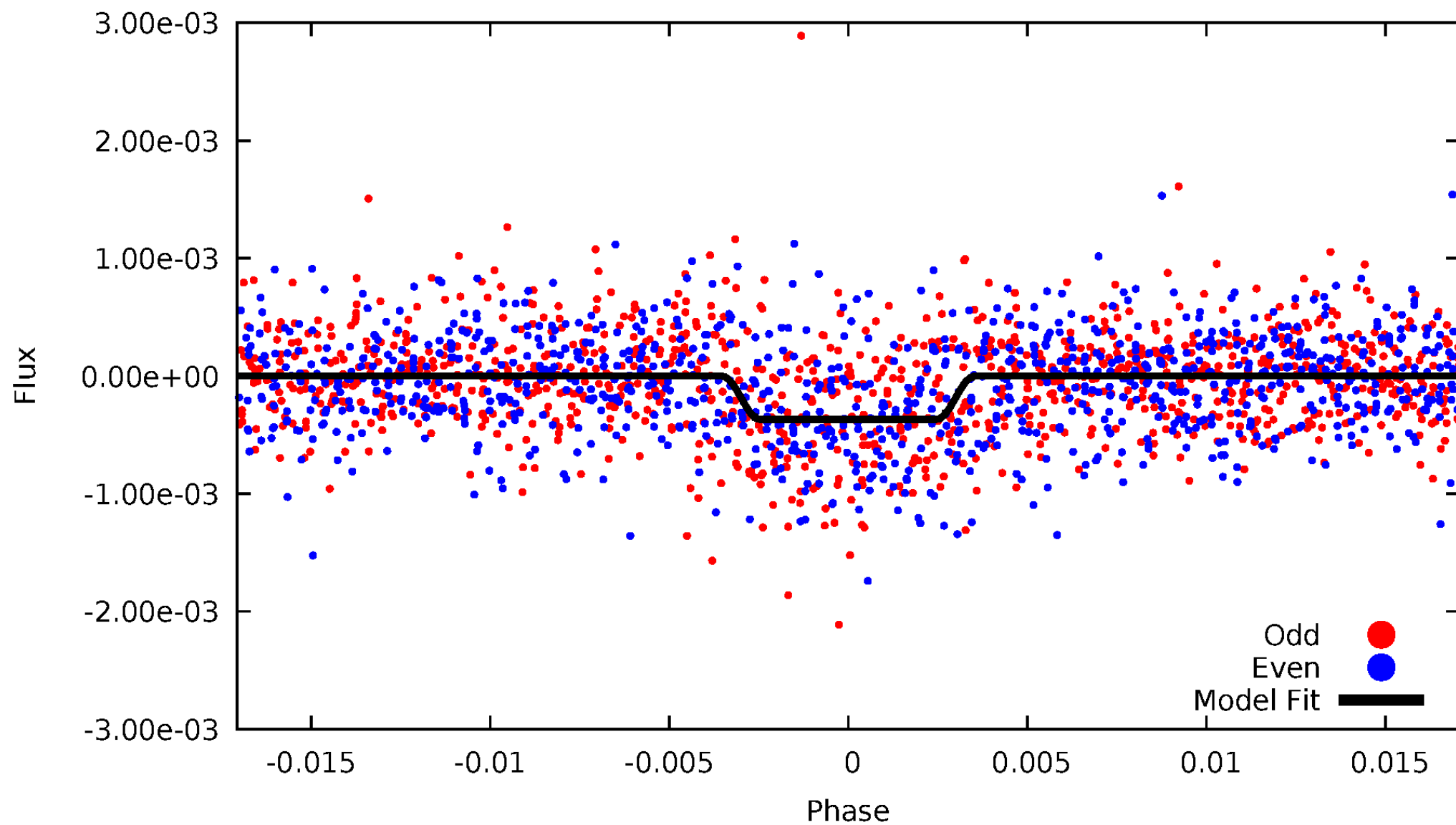
# DV Odd/Even

TCE 007825899-03



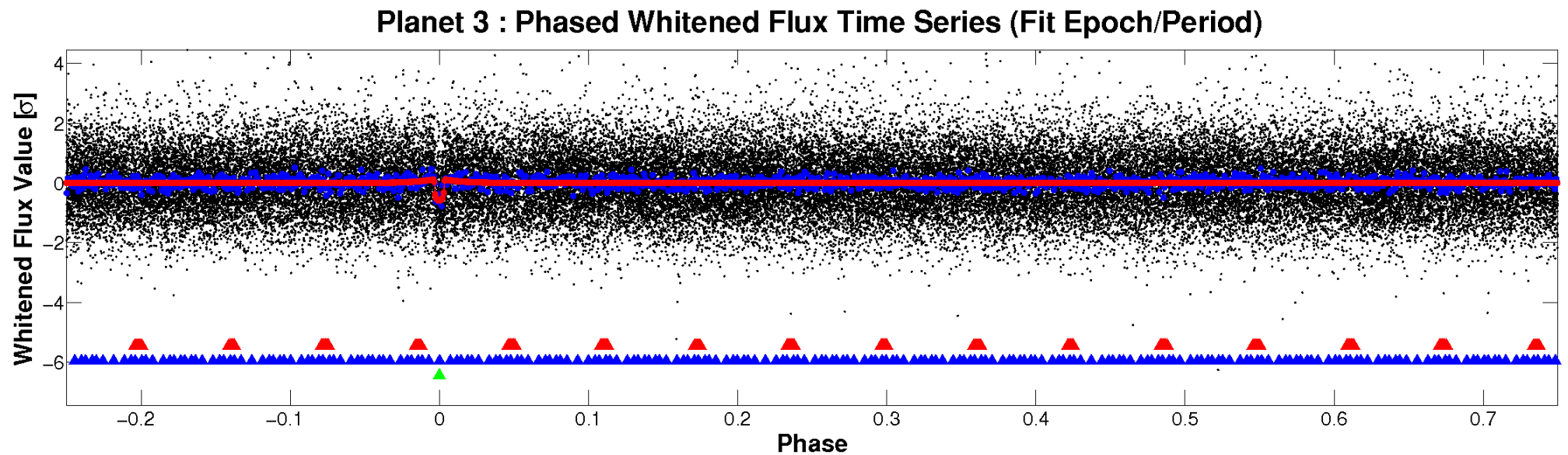
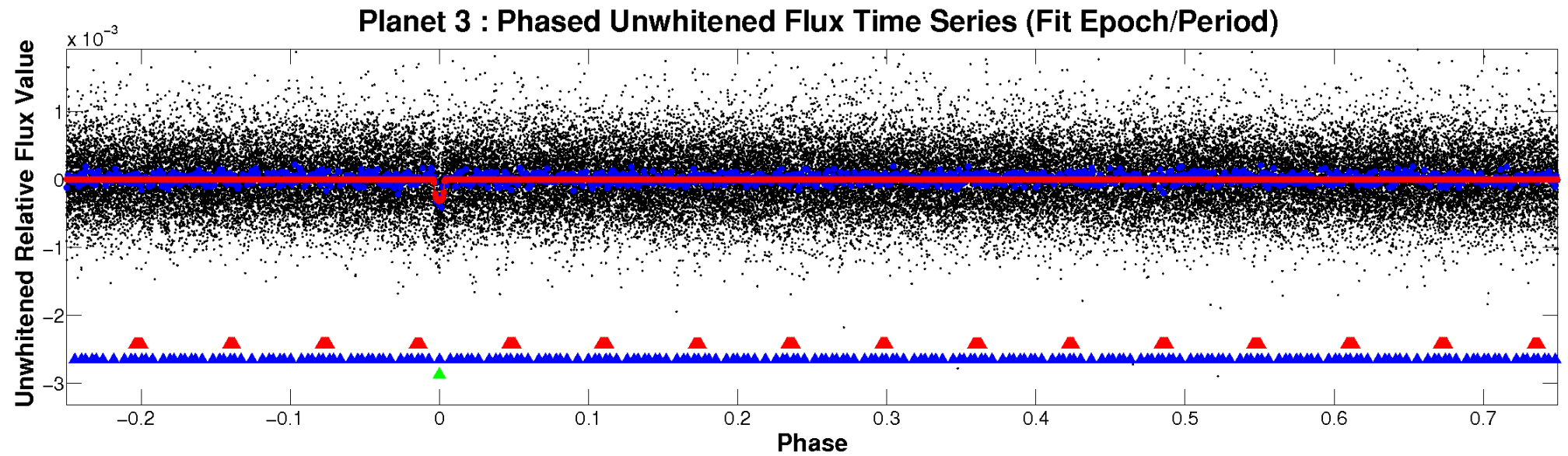
# ALT Odd/Even

TCE 007825899-03



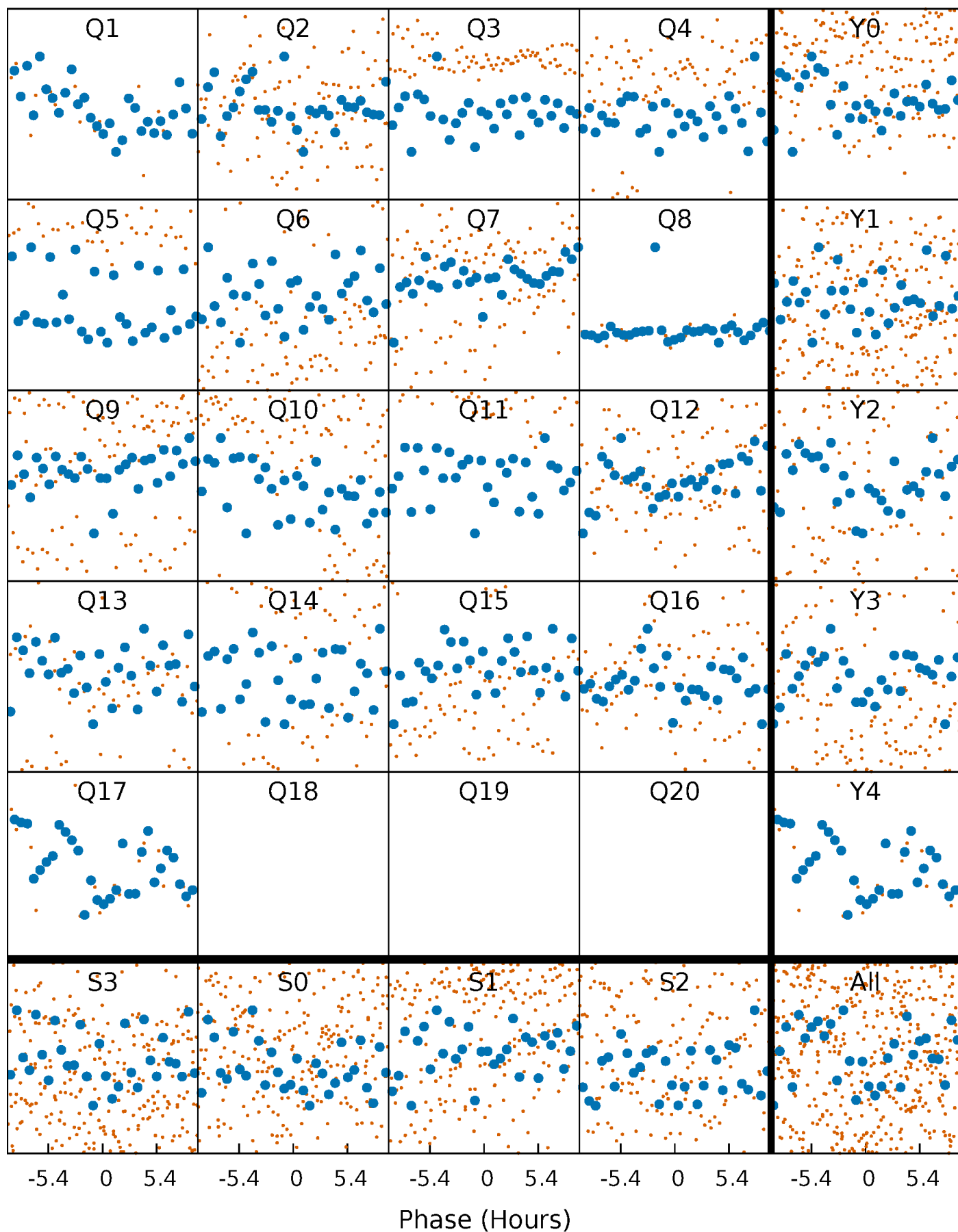


# Non-Whitened Vs. Whitened Light Curve



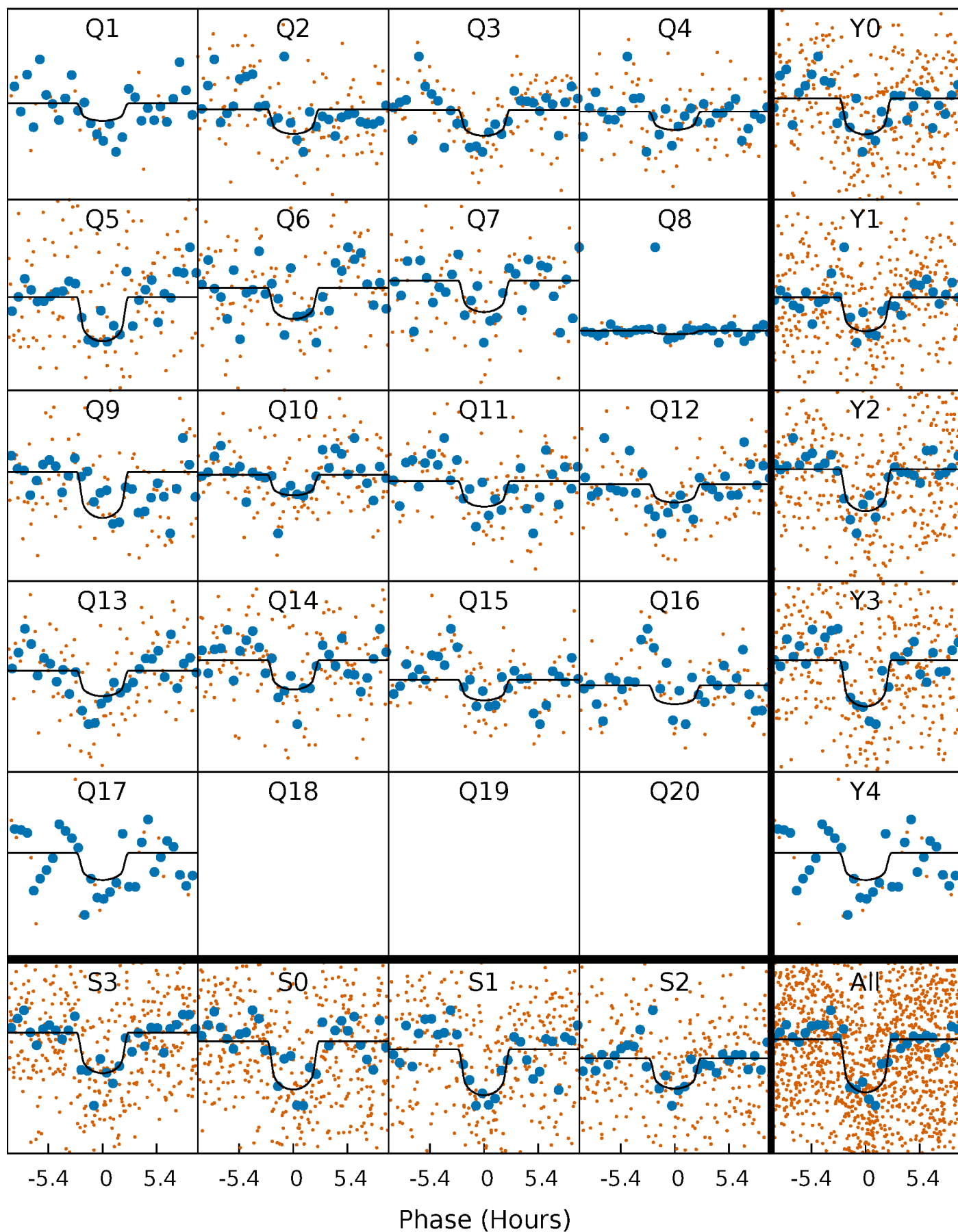
# PDC Quarter-Phased Transit Curves

TCE 007825899-03 P= 28.867170 Days  $T_0=156.209457$  (BKJD)



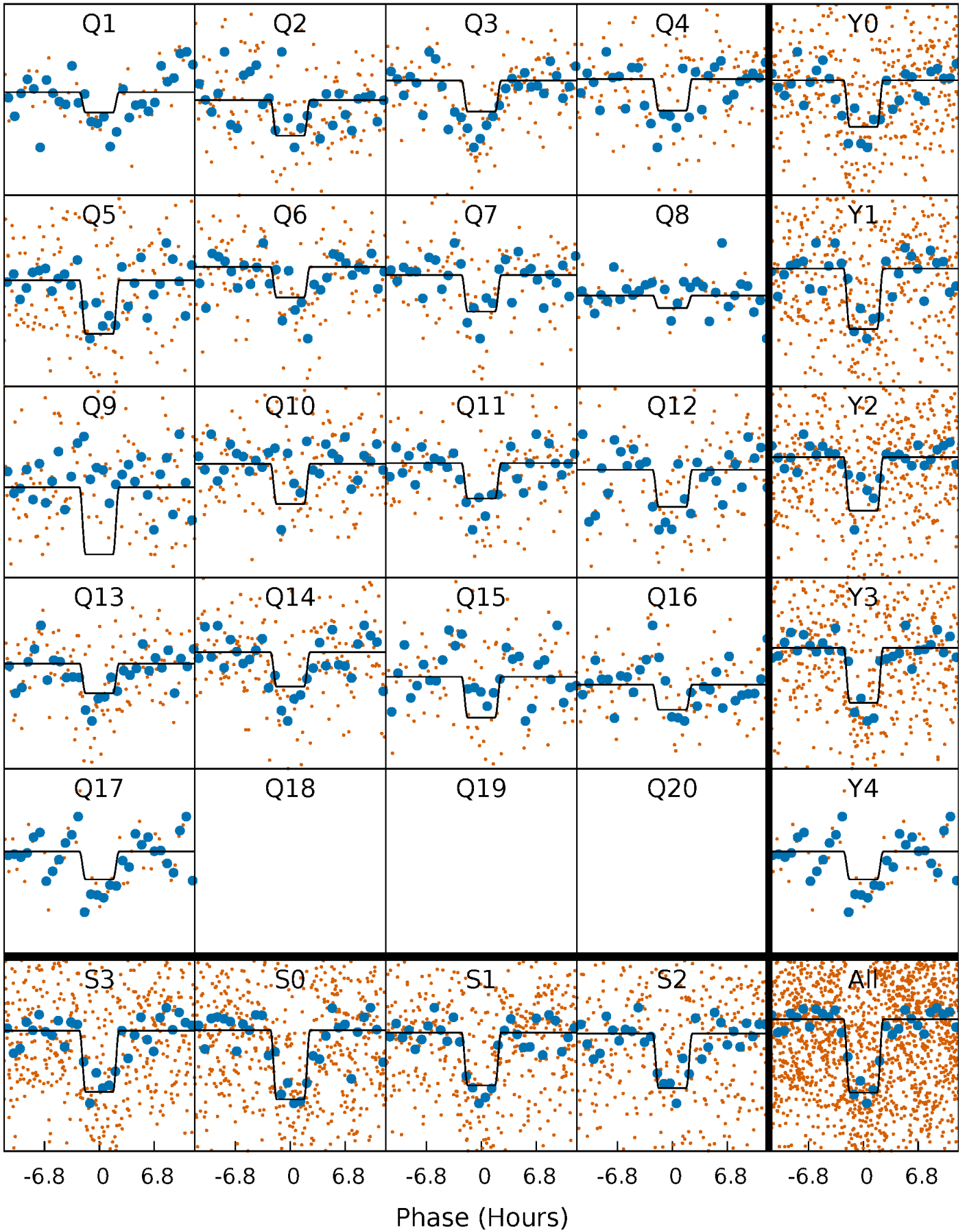
# DV Quarter-Phased Transit Curves

TCE 007825899-03 P= 28.867170 Days  $T_0=156.209457$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

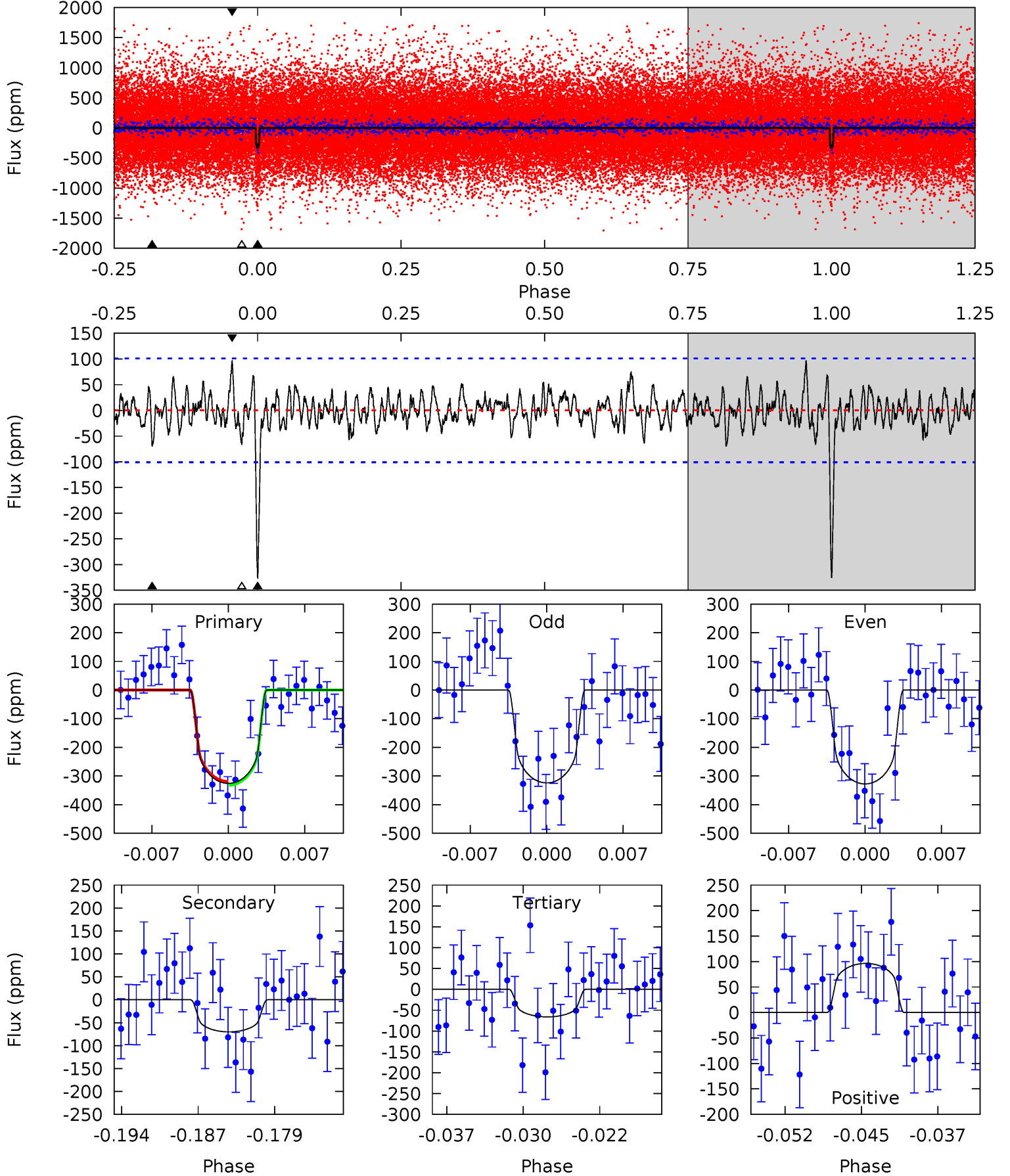
TCE 007825899-03 P= 28.866808 Days  $T_0=156.212536$  (BKJD)



# DV Model-Shift Uniqueness Test

007825899-03, P = 28.867170 Days, E = 127.342287 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
16.4	3.52	3.33	4.85	5.08	2.68	1.22	13.1	11.5	0.20	-1.32	0.09	1.07	0.23	0.33

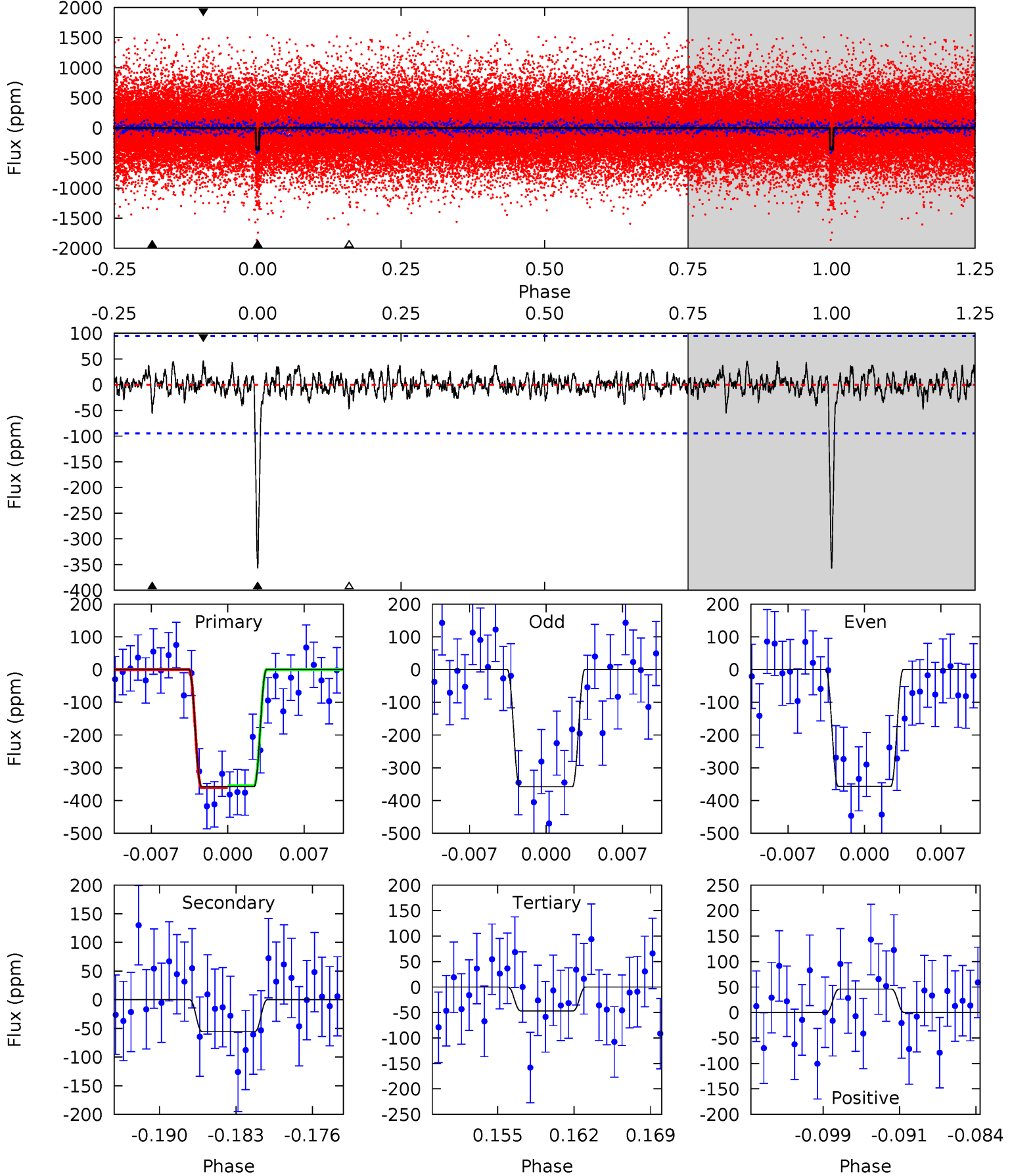




# Alt Model-Shift Uniqueness Test

007825899-03, P = 28.866808 Days, E = 127.345728 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
19.2	2.99	2.52	2.46	5.09	2.70	0.76	16.7	16.7	0.47	0.52	0.02	1.11	0.11	0.18



### Stellar Parameters For KIC 007825899

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5191^{+103}_{-103}$	$4.564^{+0.016}_{-0.088}$	$0.340^{+0.100}_{-0.150}$	$0.837^{+0.078}_{-0.030}$	$0.937^{+0.024}_{-0.062}$	$2.248^{+0.160}_{-0.540}$
	+2%/-2%	+0%/-2%	+29%/-44%	+9%/-4%	+3%/-7%	+7%/-24%
Source	SPE58	SPE58	SPE58	DSEP		

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

### Secondary Eclipse Parameters for KIC 007825899-03 / KOI 0896.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-70 \pm 20$	$1.76^{+1.02}_{-0.88}$	$698^{+21}_{-18}$	$3766^{+1173}_{-531}$	$393^{+1226}_{-245}$
Alt.	$-56 \pm 19$	$1.88^{+0.94}_{-1.01}$	$697^{+19}_{-18}$	$3565^{+1088}_{-458}$	$277^{+930}_{-170}$

$T_{\text{max}}$  = 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

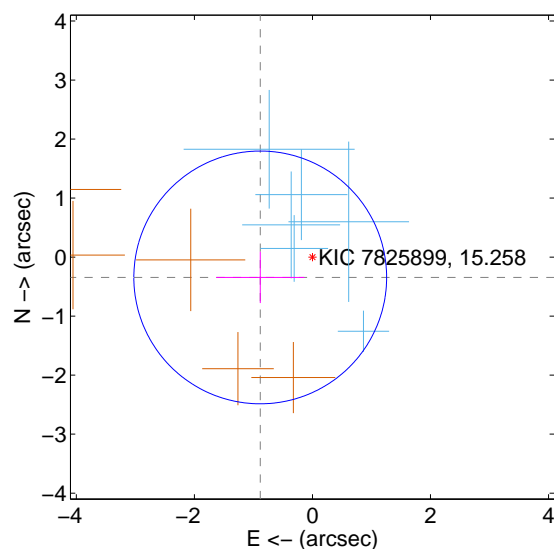
Supplemental centroid analysis for 007825899-03. Kepler magnitude: 15.26. Transit SNR 10.46

There are 6 quarters with good PRF difference image offsets

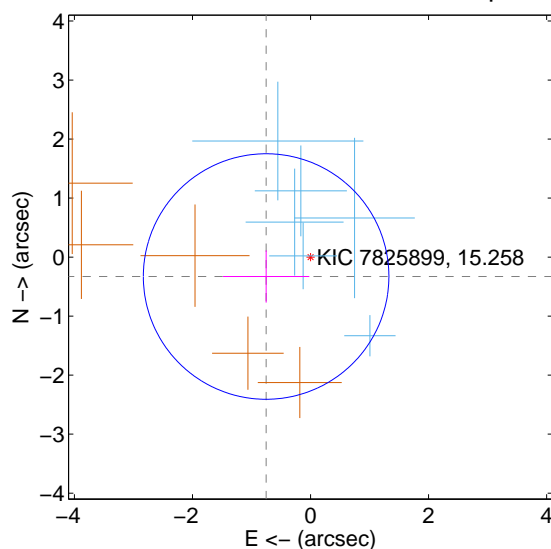
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.949 \pm 0.714$	1.33	$0.885 \pm 0.747$	$-0.344 \pm 0.434$
PRF-fit source offset from KIC position	$0.821 \pm 0.693$	1.18	$0.752 \pm 0.732$	$-0.329 \pm 0.443$
photometric centroid source offset	$0.31 \pm 1.03$	0.30	$-0.22 \pm 1.10$	$0.22 \pm 0.97$

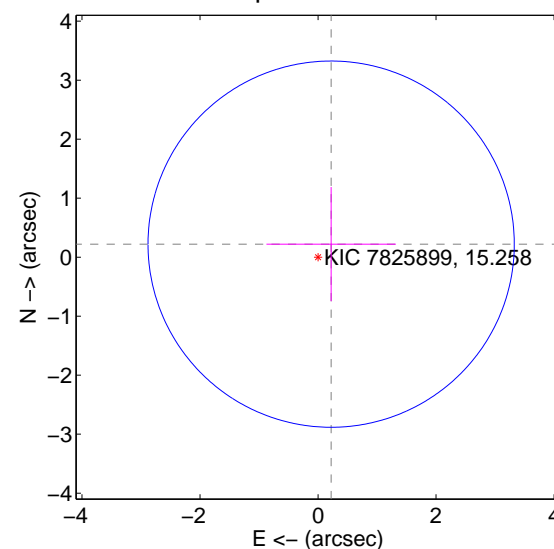
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

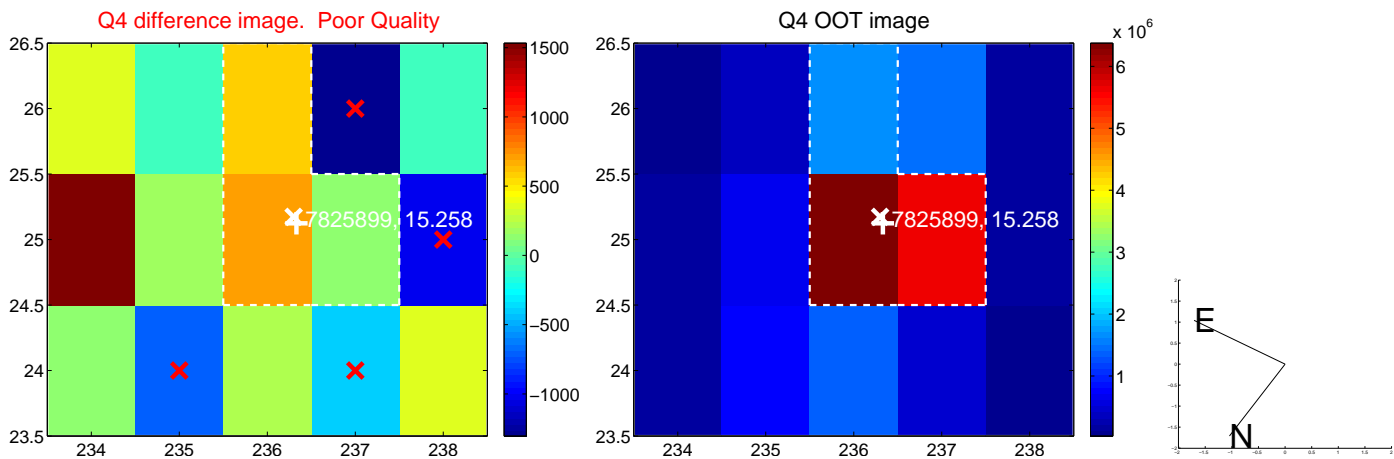
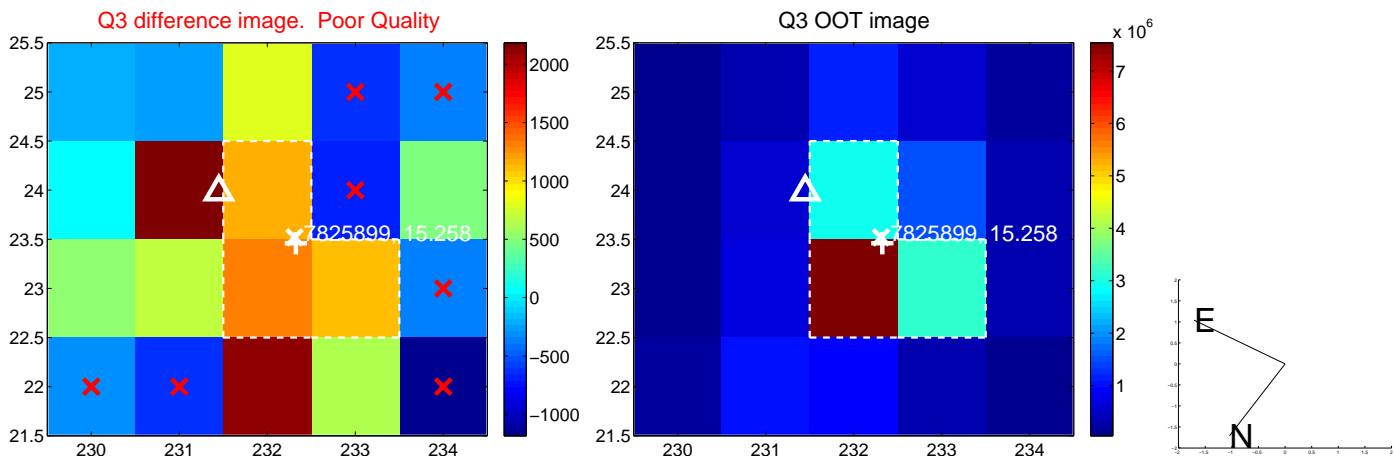
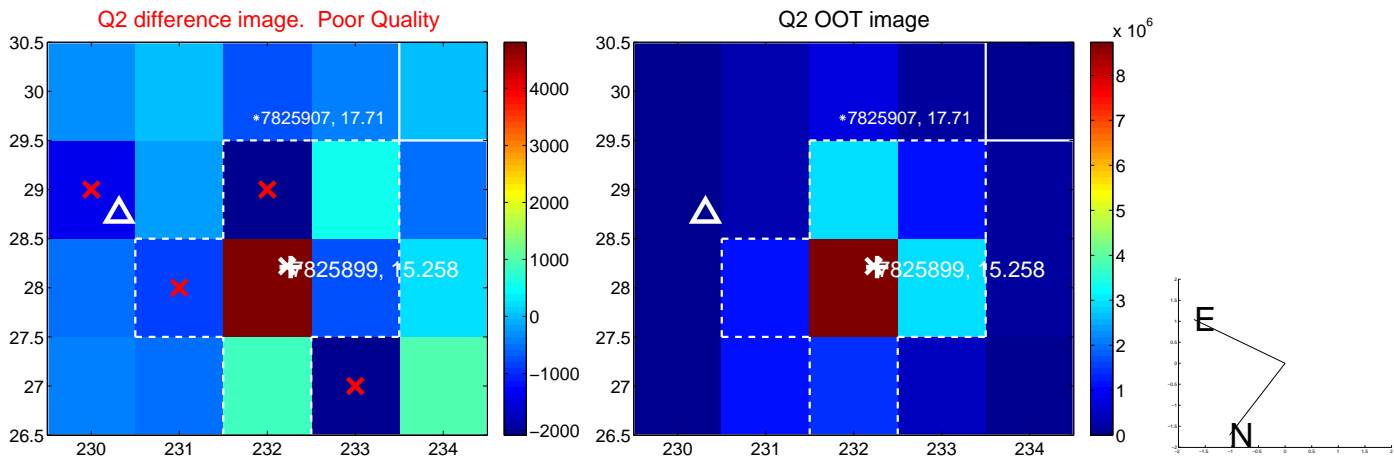
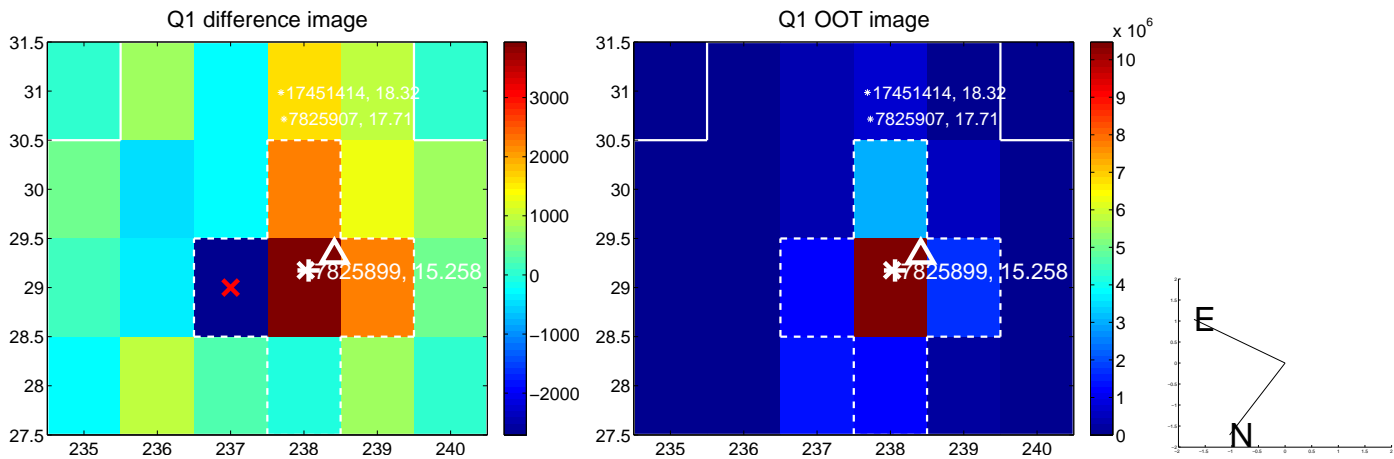


offset from photometric centroids

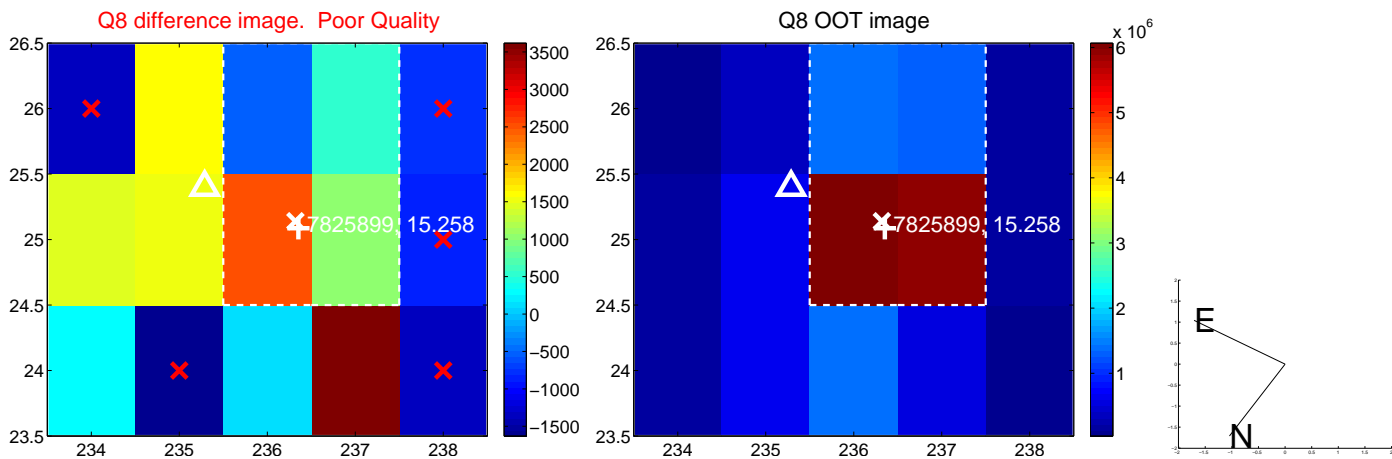
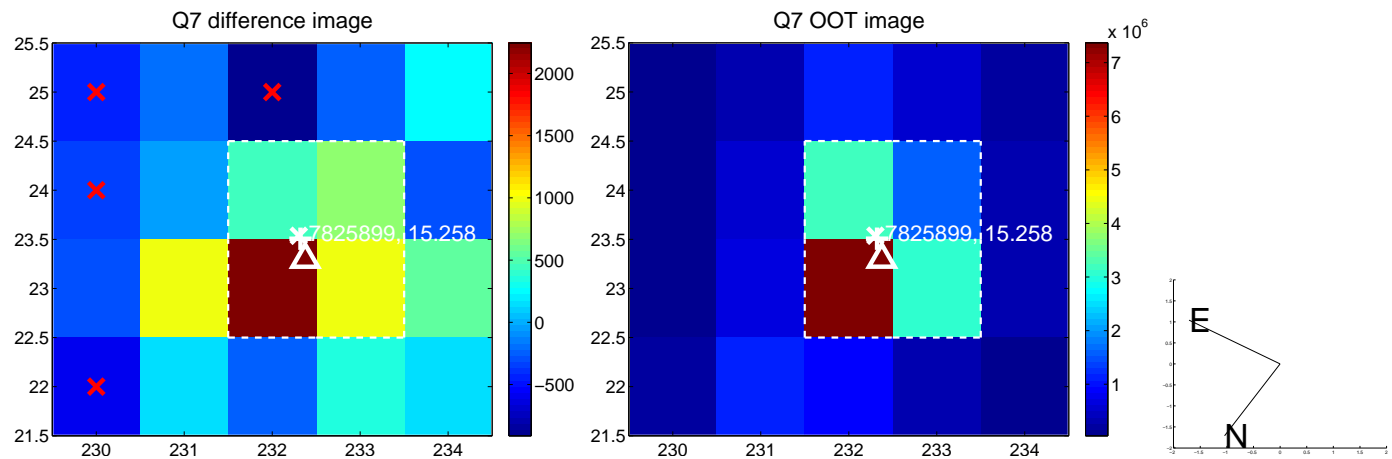
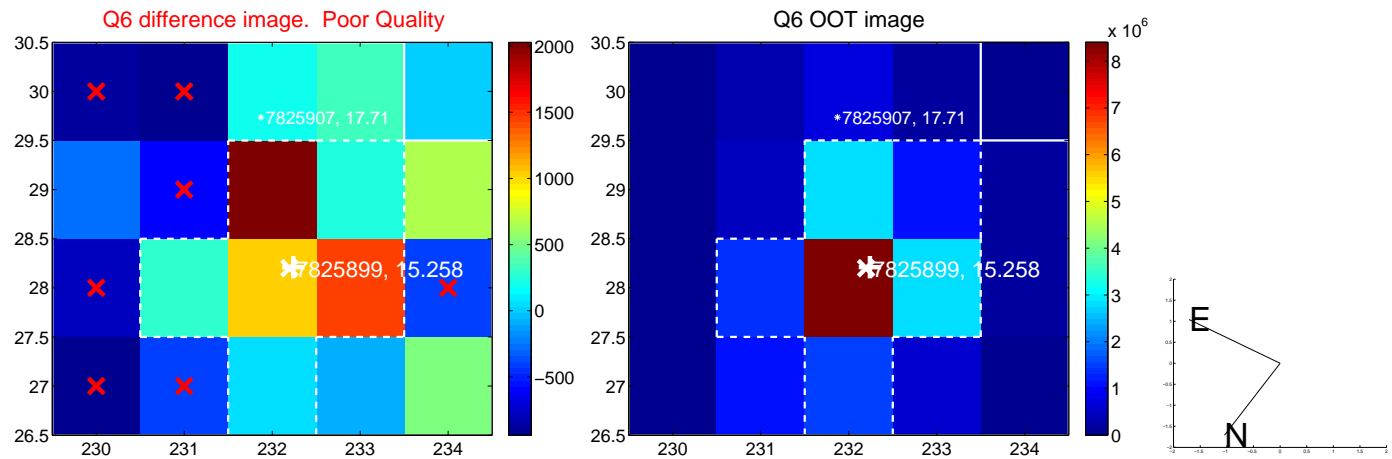
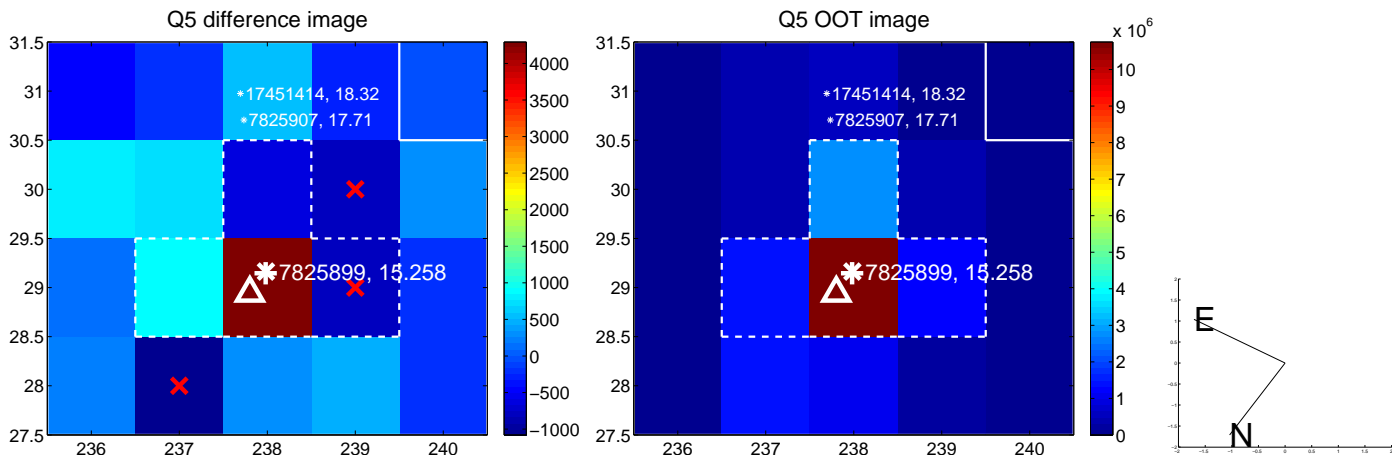


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

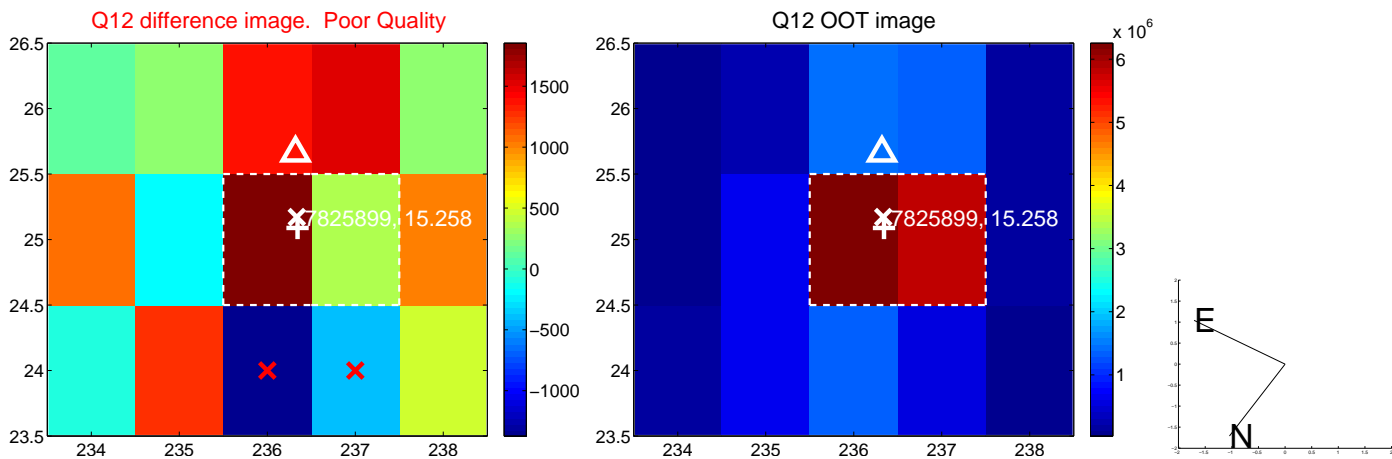
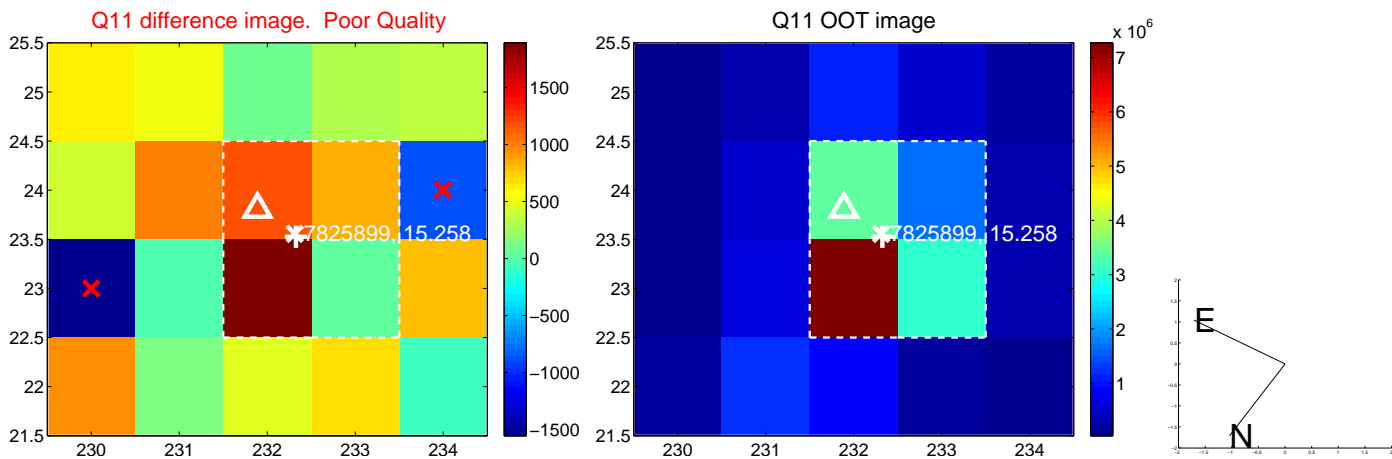
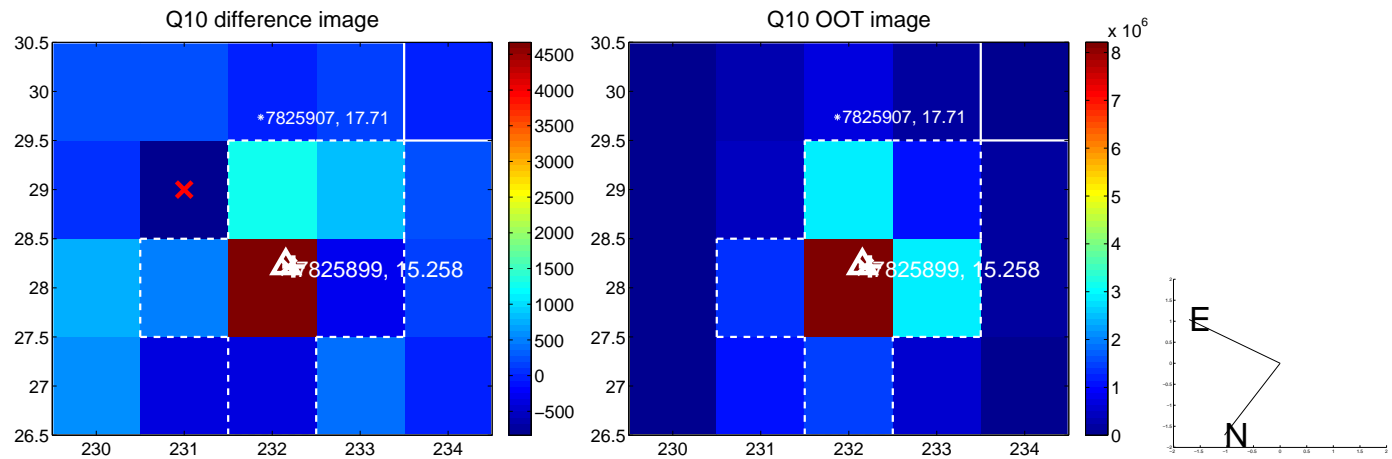
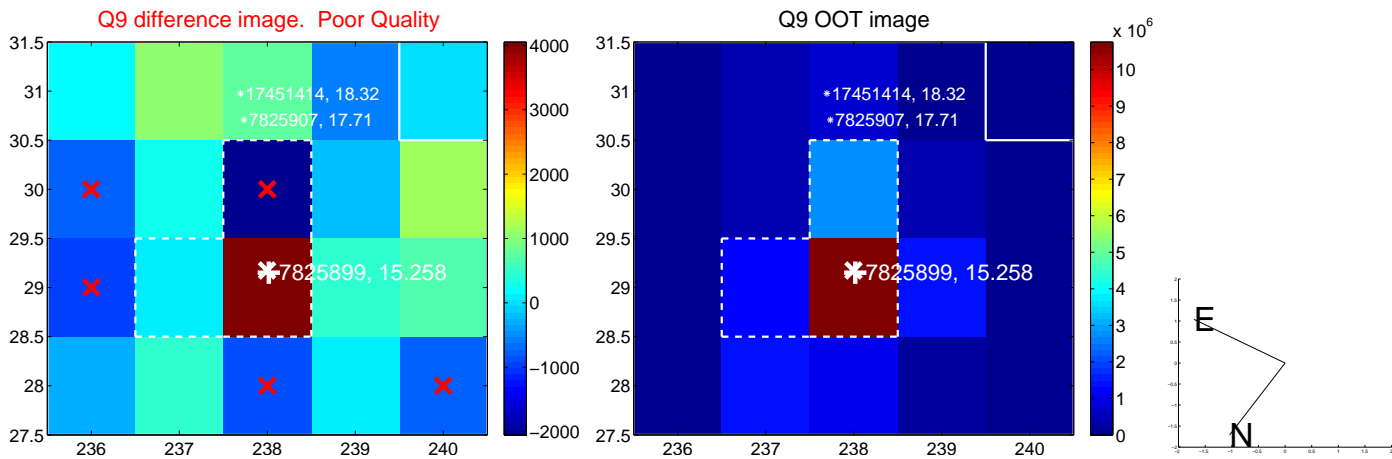
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



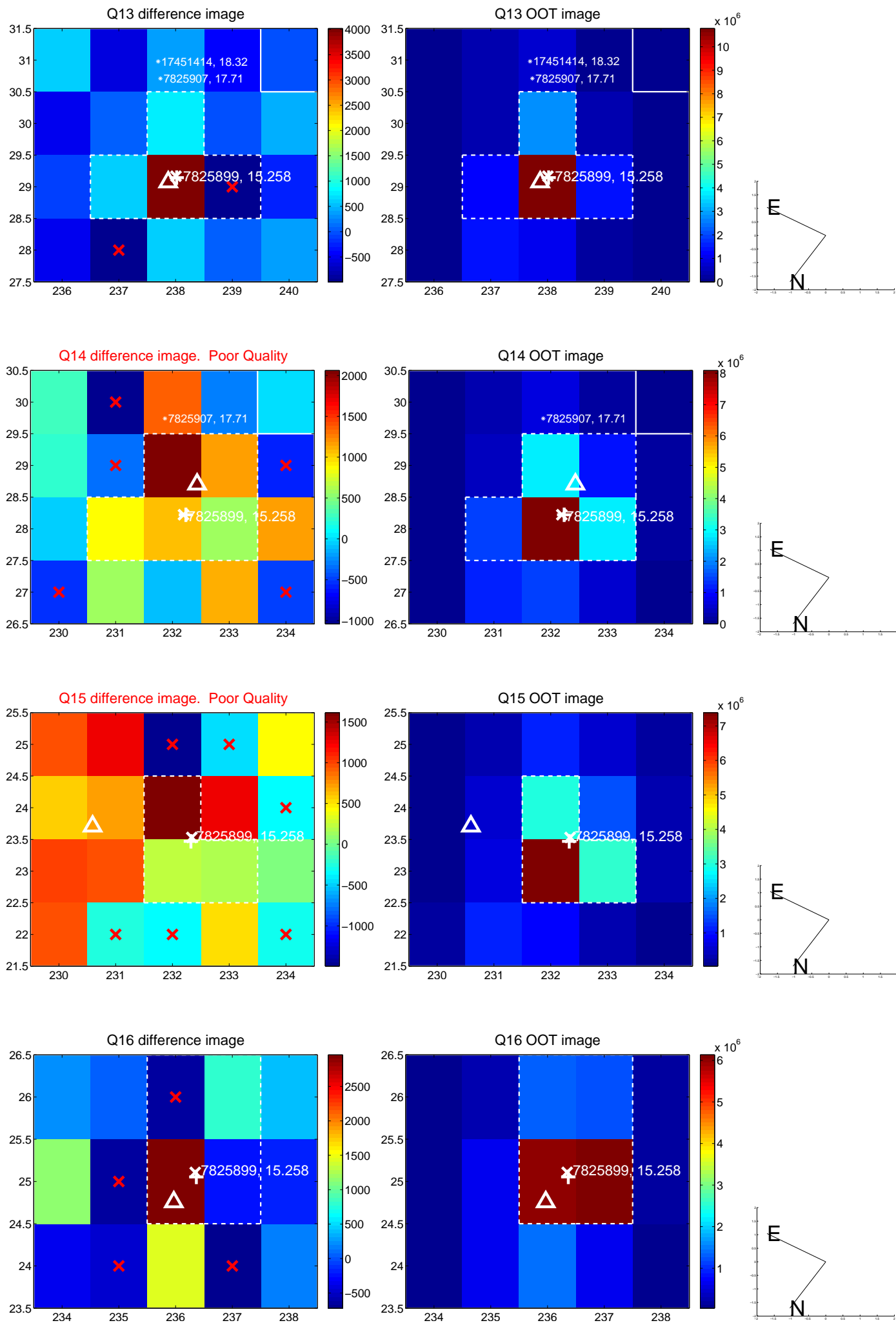
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



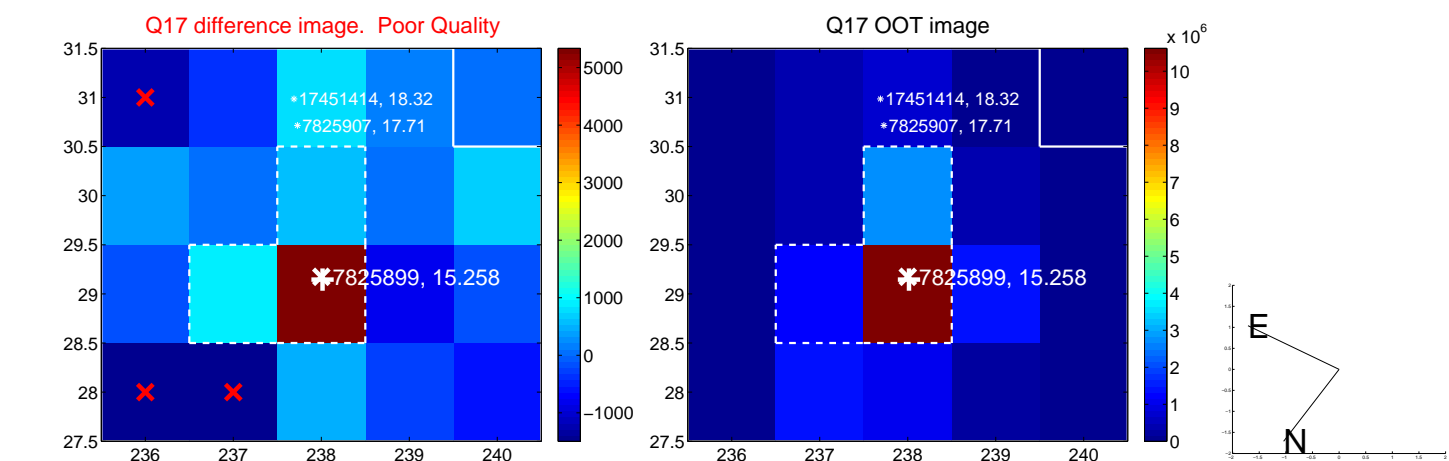
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



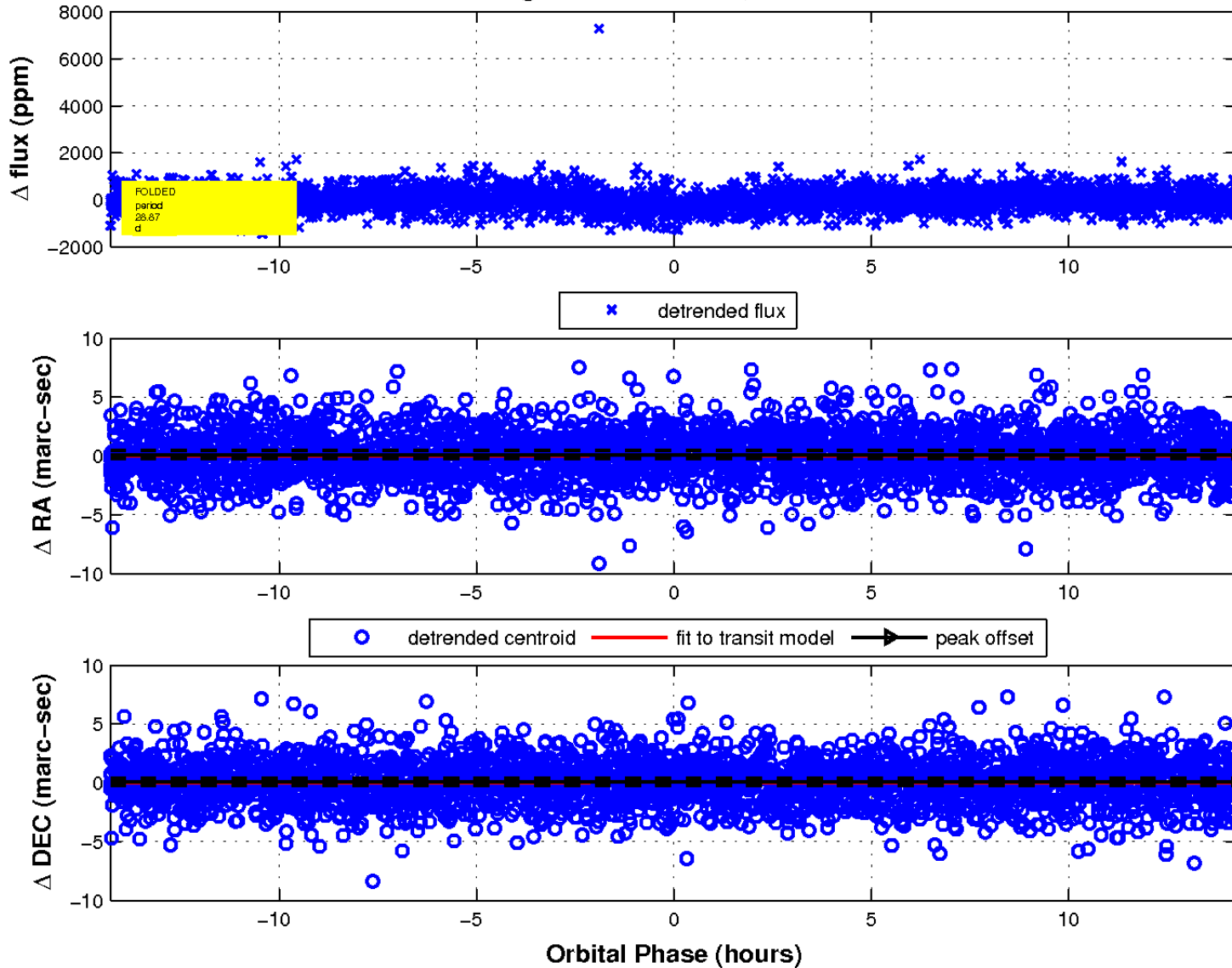
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

