

# KIC 003336283

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003336283-01	OBS	No	10.765071	134.456988	174.7	40.929	8.9	15.5	2.82	6204	7.46	918.24
003336283-02	OBS	No	5.382626	135.417386	127.2	32.242	8.2	10.3	2.82	6204	6.39	2313.76

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003336283-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
003336283-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD

**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 003336283-01

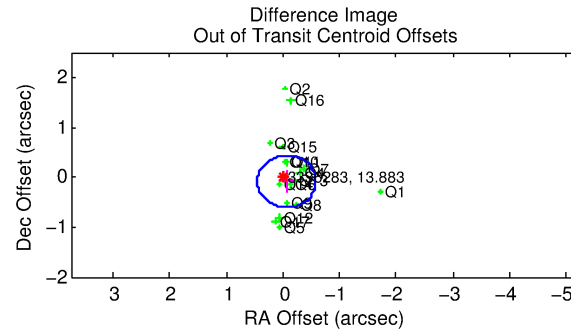
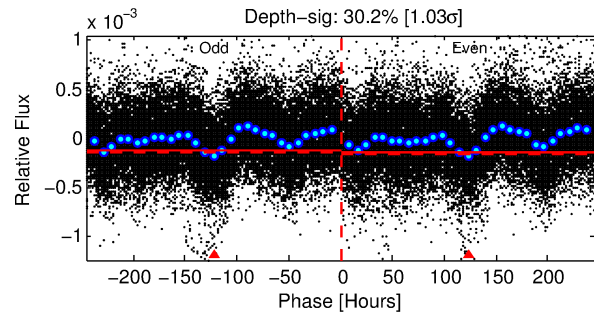
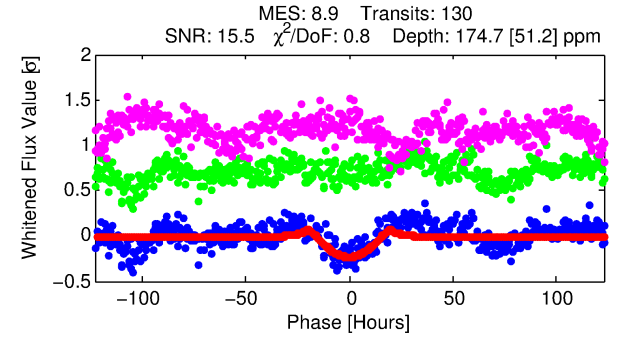
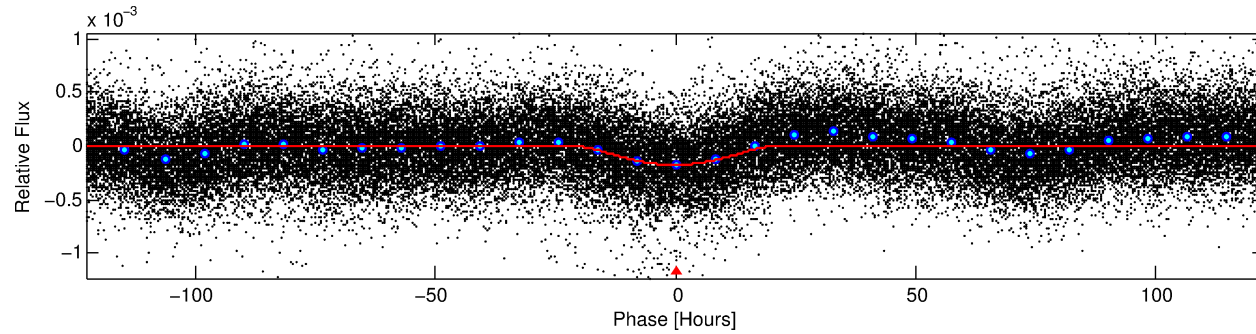
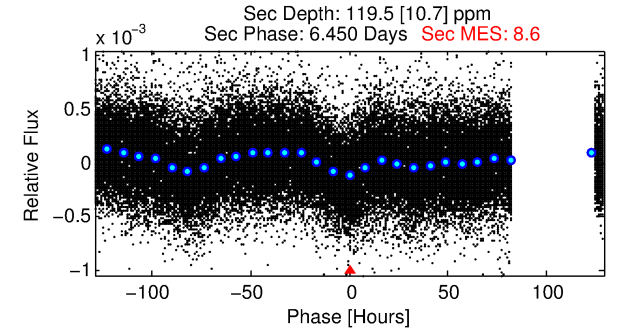
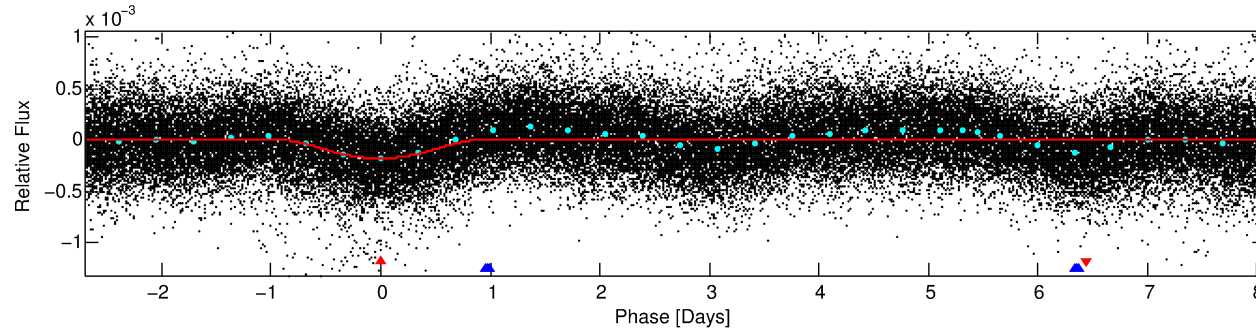
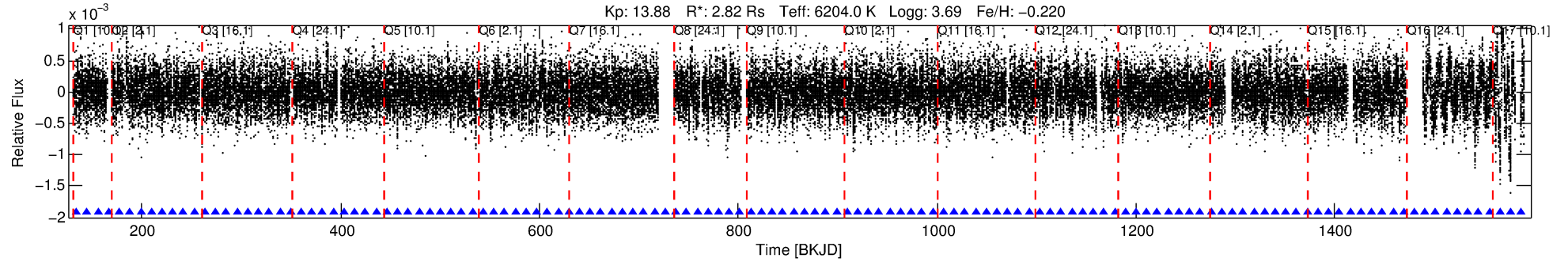
No Significant Match Found

# DV One-Page Summary

KIC: 3336283 Candidate: 1 of 2 Period: 10.765 d

KOI: K02974 Corr: No Ephemeris Match

Kp: 13.88 R\*: 2.82 Rs Teff: 6204.0 K Logg: 3.69 Fe/H: -0.220



## DV Fit Results:

Period = 10.76507 [0.00064] d  
Epoch = 134.4570 [0.0474] BKJD  
Rp/R\* = 0.0243 [0.0253]  
a/R\* = 1.10 [0.02]  
b = 1.00 [0.03]  
Seff = 918.24 [395.05]  
Teq = 1404 [151] K  
Rp = 7.46 [8.10] Re  
a = 0.1072 [0.0296] AU  
Ag = 13.57 [28.91] [0.43σ]  
Teffp = 4165 [2175] K [1.27σ]

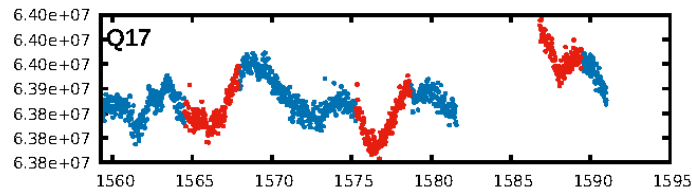
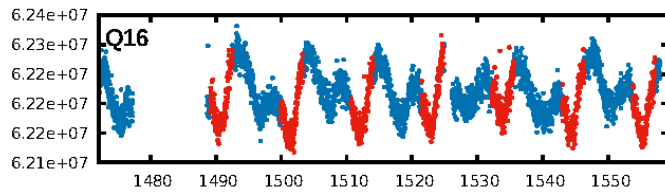
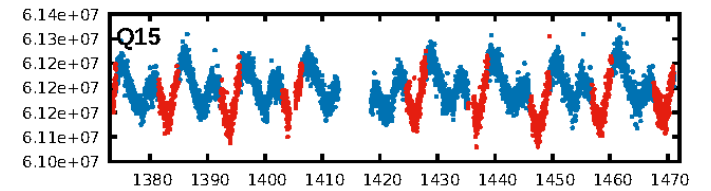
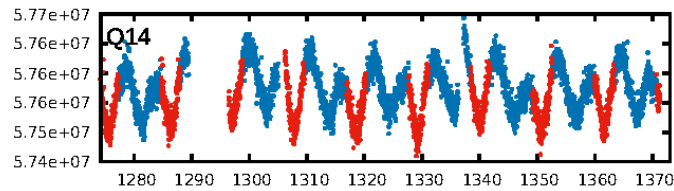
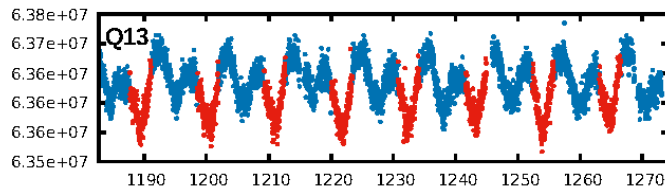
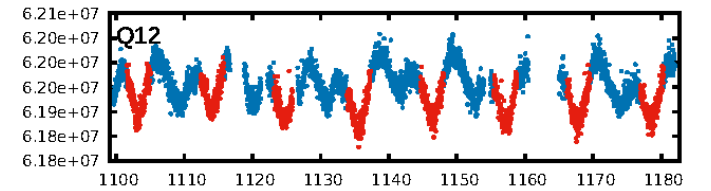
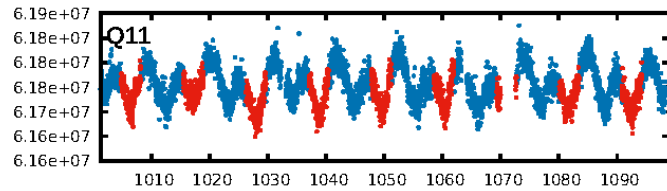
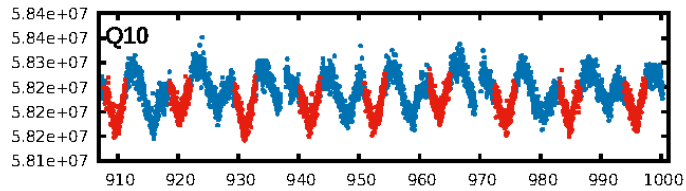
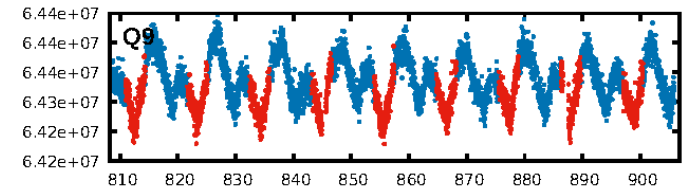
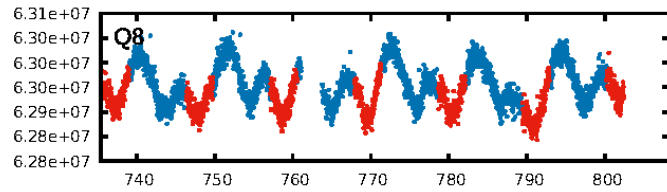
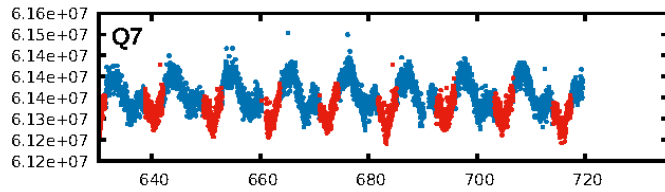
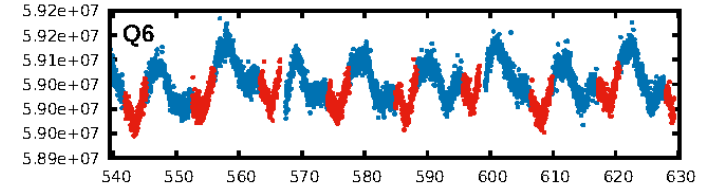
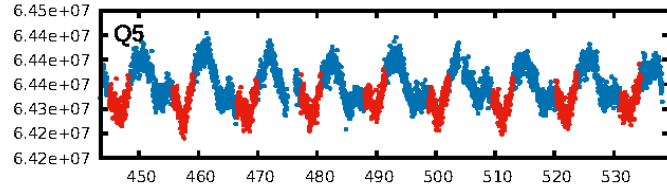
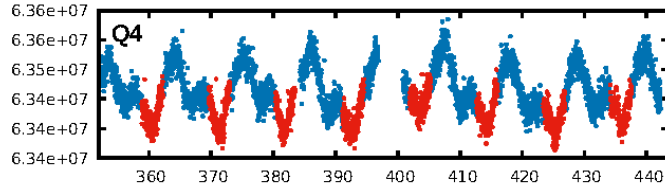
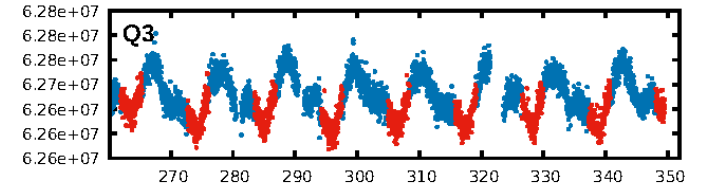
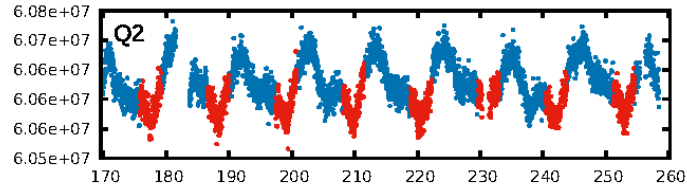
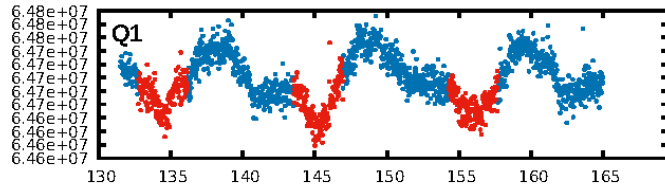
## DV Diagnostic Results:

ShortPeriod-sig: 98.7% [2.48σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 9.33e-21  
RollingBand-fgt: 1.00 [124/124]  
GhostDiagnostic-chr: 1.753  
Centroid-sig: 1.1%  
Centroid-so: 0.631 arcsec [1.95σ]  
OotOffset-rm: 0.107 arcsec [0.61σ]  
KicOffset-rm: 0.173 arcsec [1.18σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.00 [0/17]

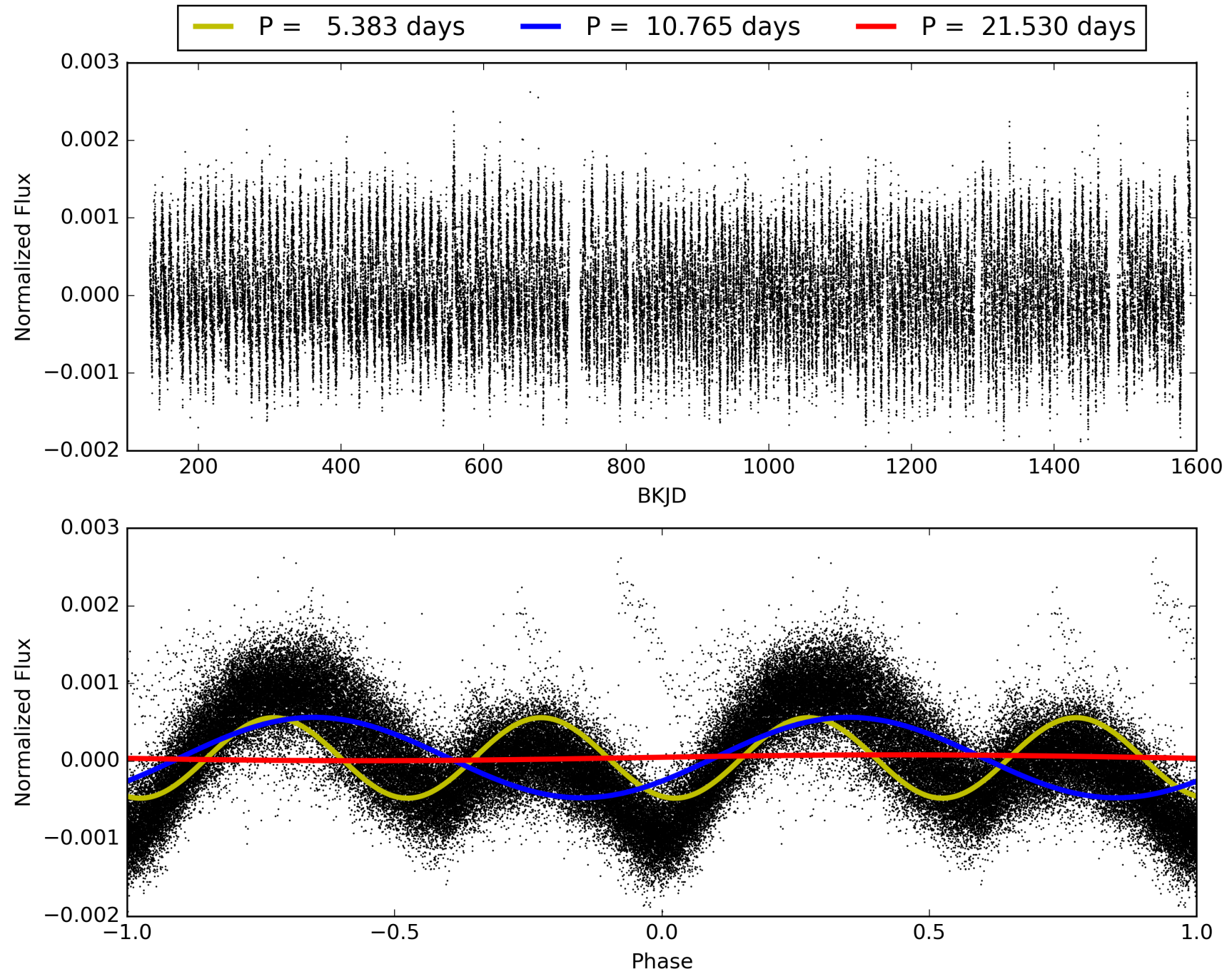
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:16:48 Z

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

# TCE 003336283-01, PDC Light Curves

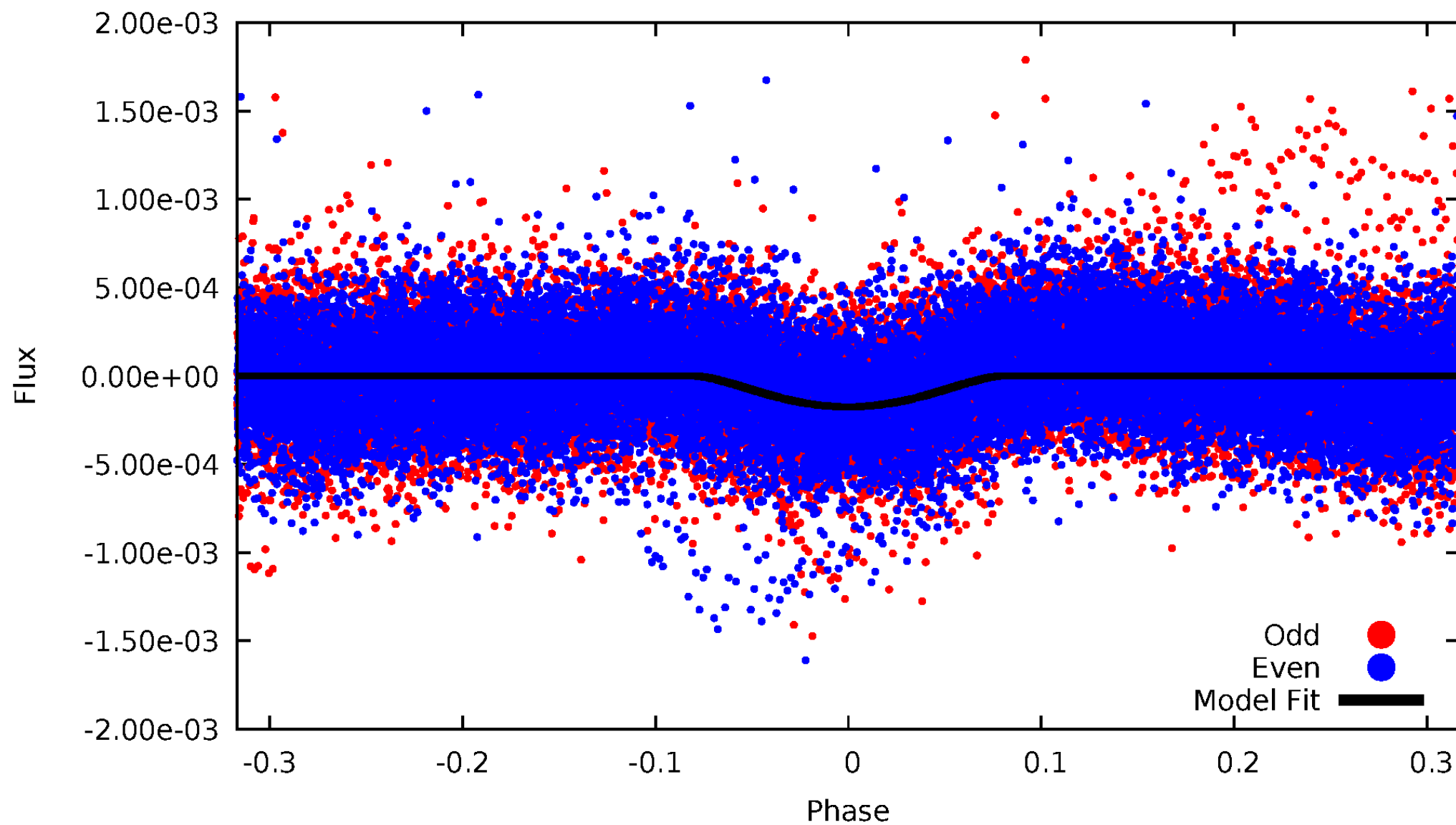


TCE 003336283-01



# DV Odd/Even

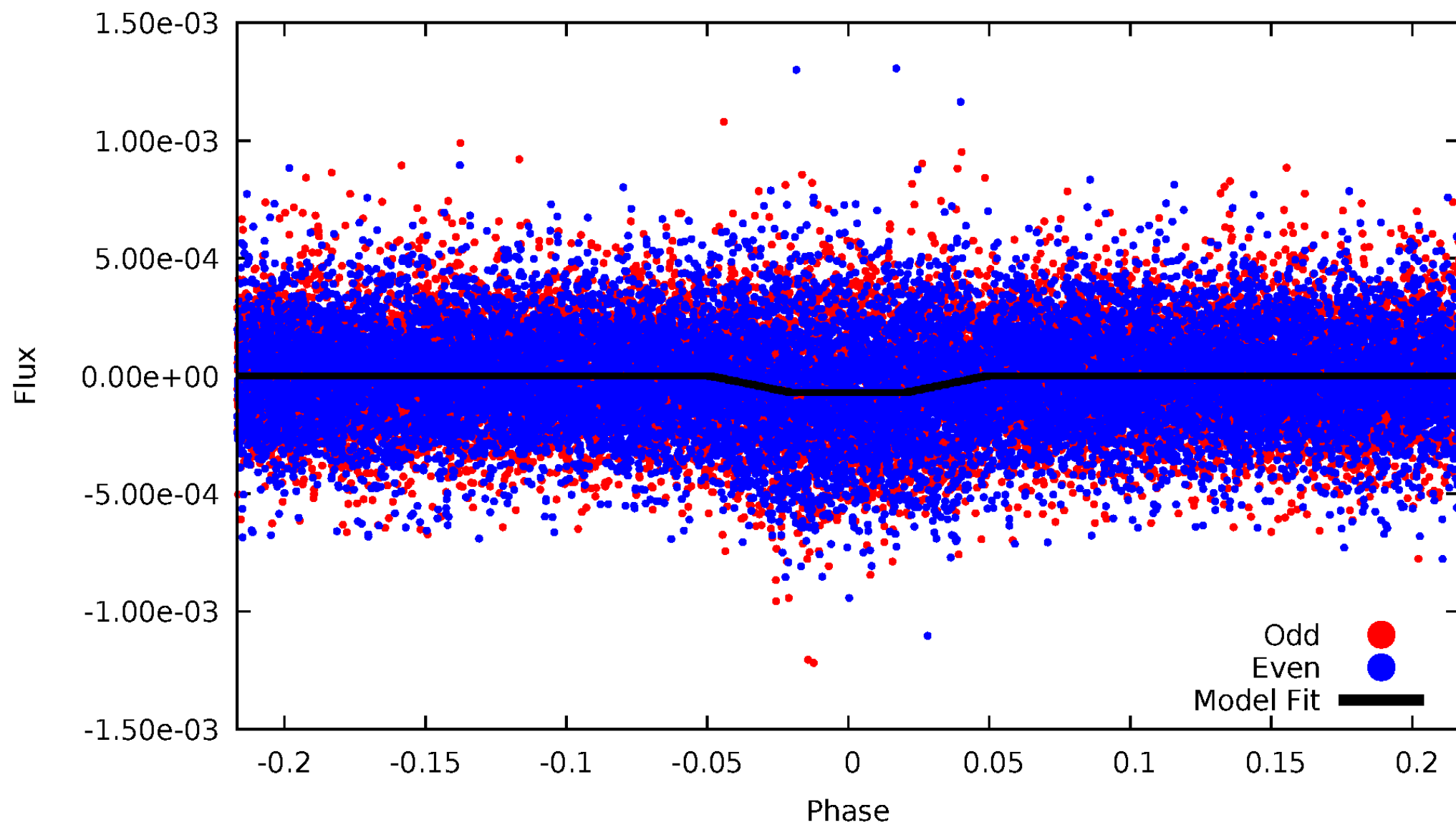
TCE 003336283-01



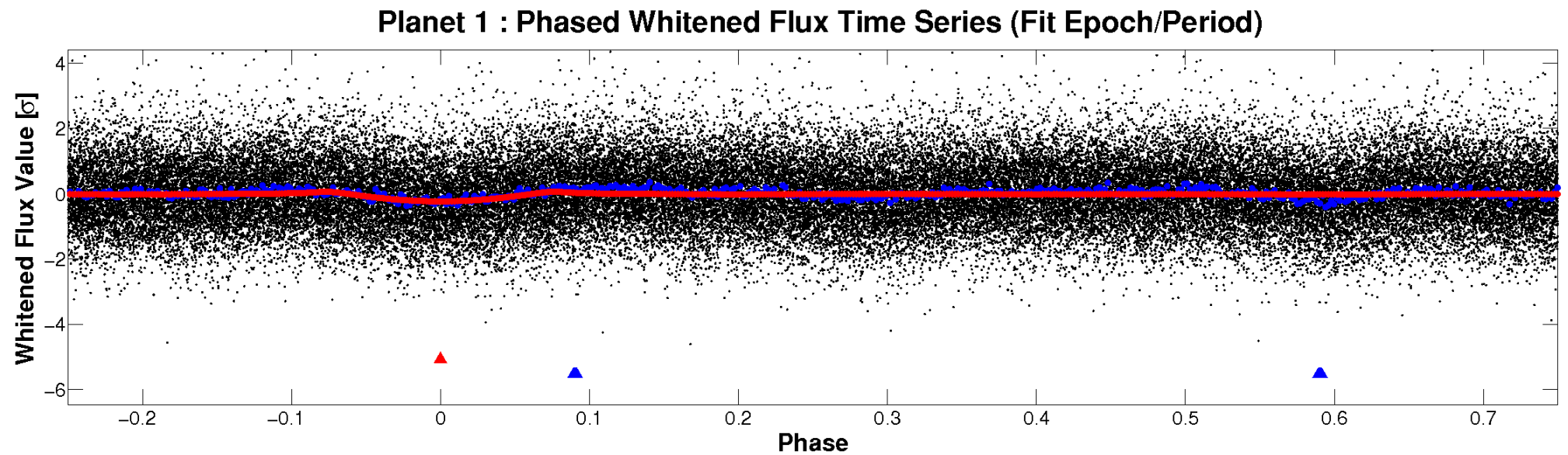
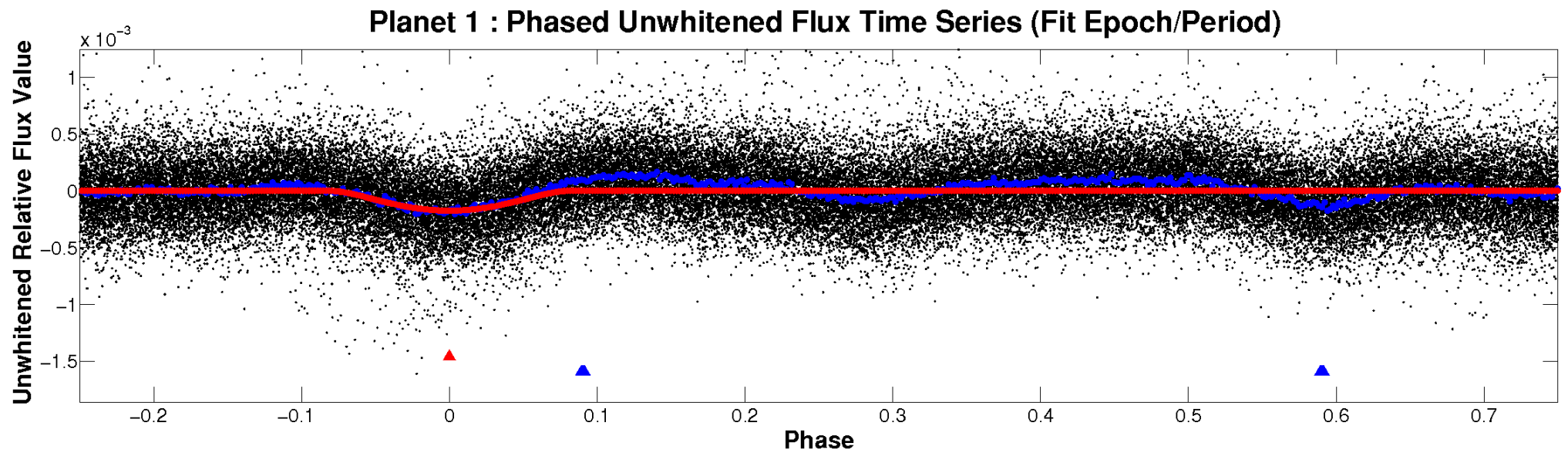


# ALT Odd/Even

TCE 003336283-01

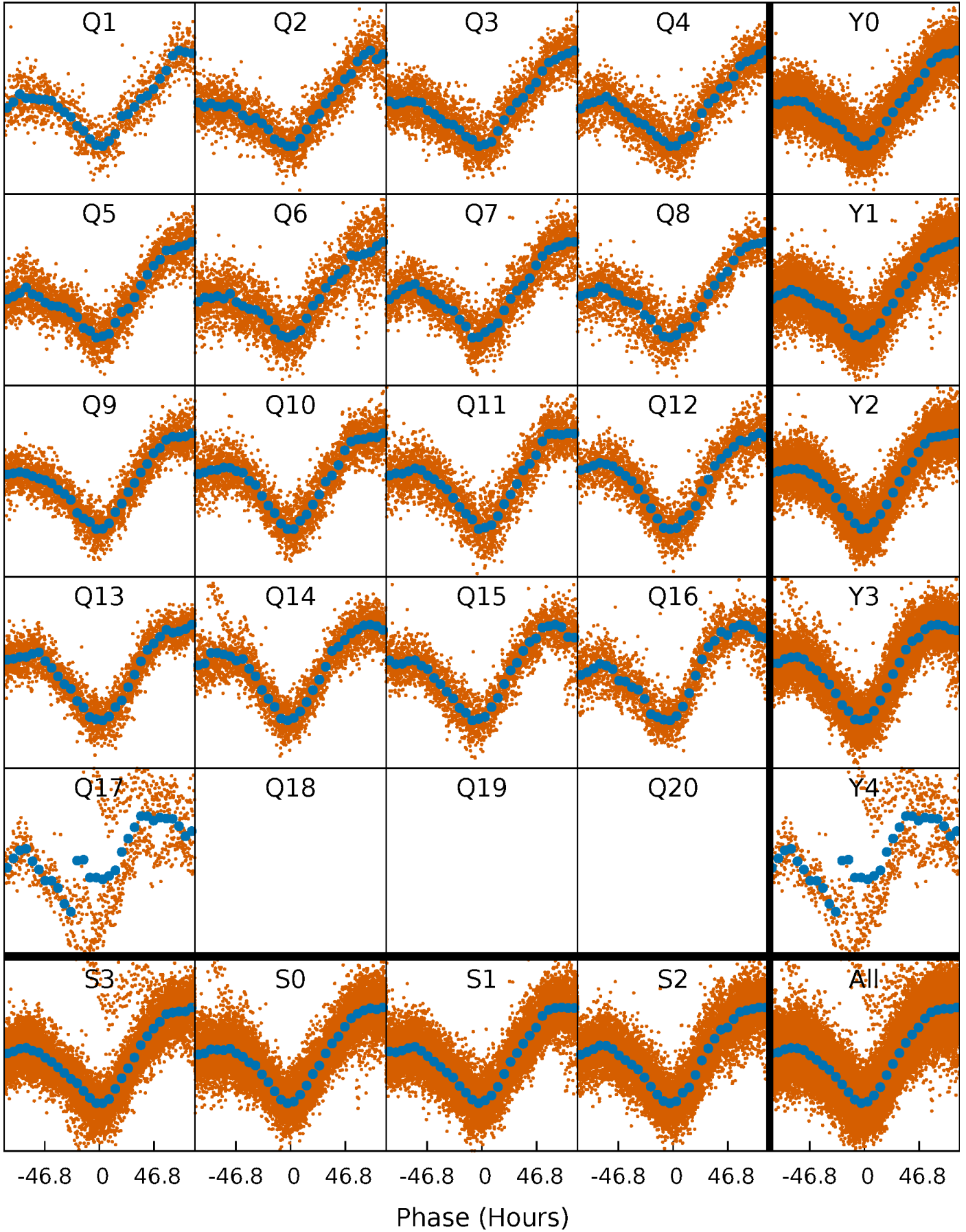


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

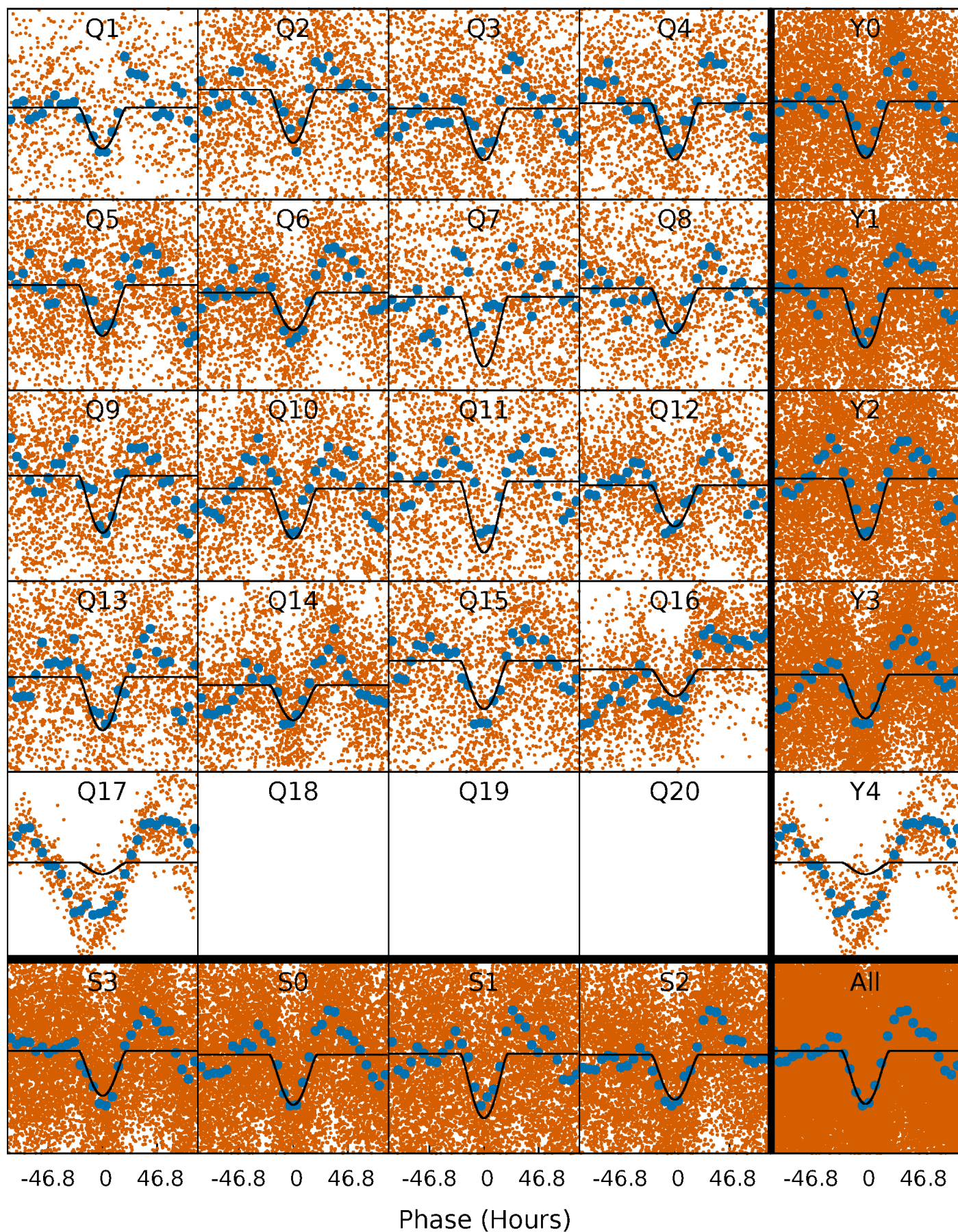
TCE 003336283-01 P= 10.765071 Days  $T_0=134.456988$  (BKJD)





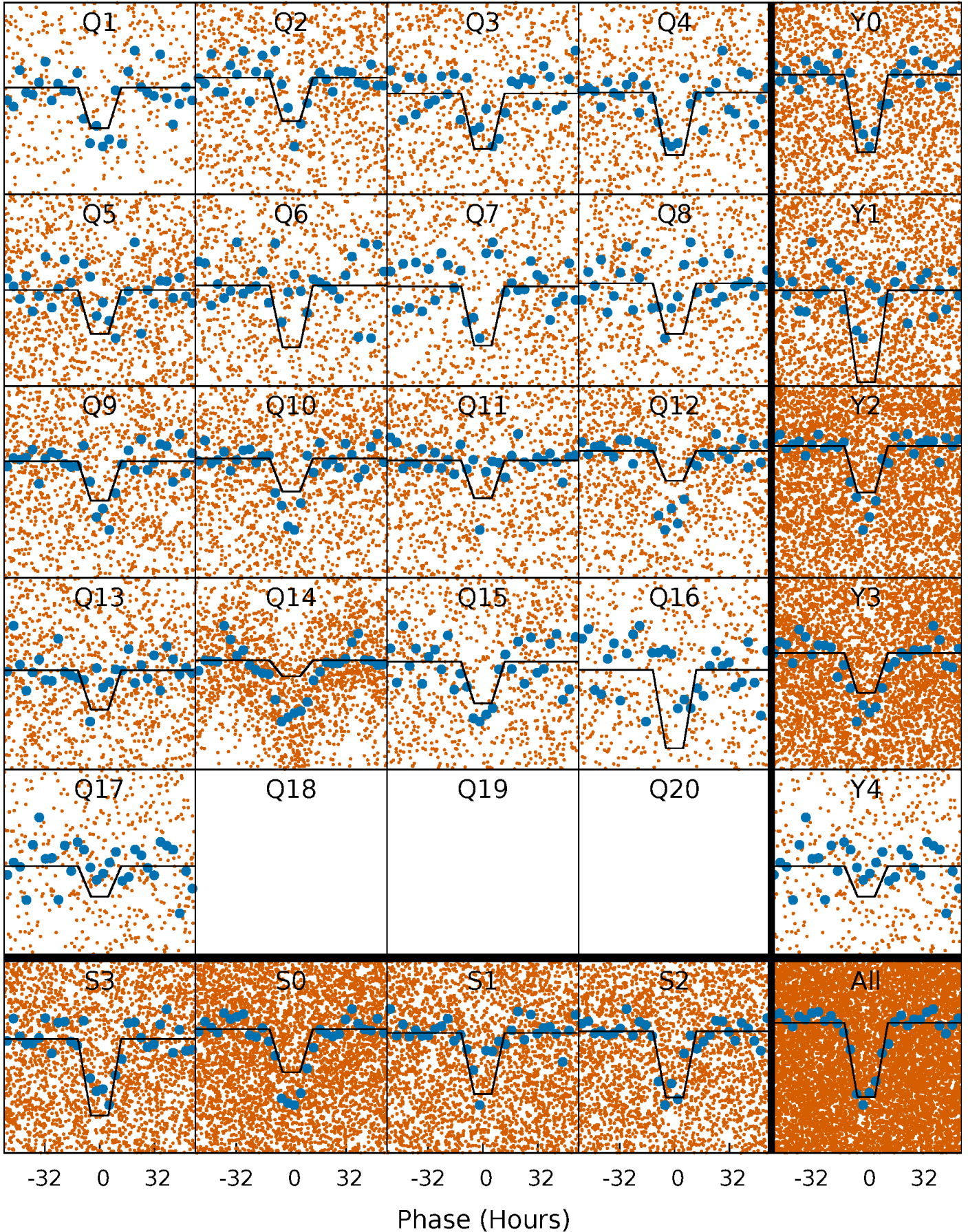
# DV Quarter-Phased Transit Curves

TCE 003336283-01 P= 10.765071 Days  $T_0=134.456988$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003336283-01 P= 10.763902 Days  $T_0=134.489053$  (BKJD)

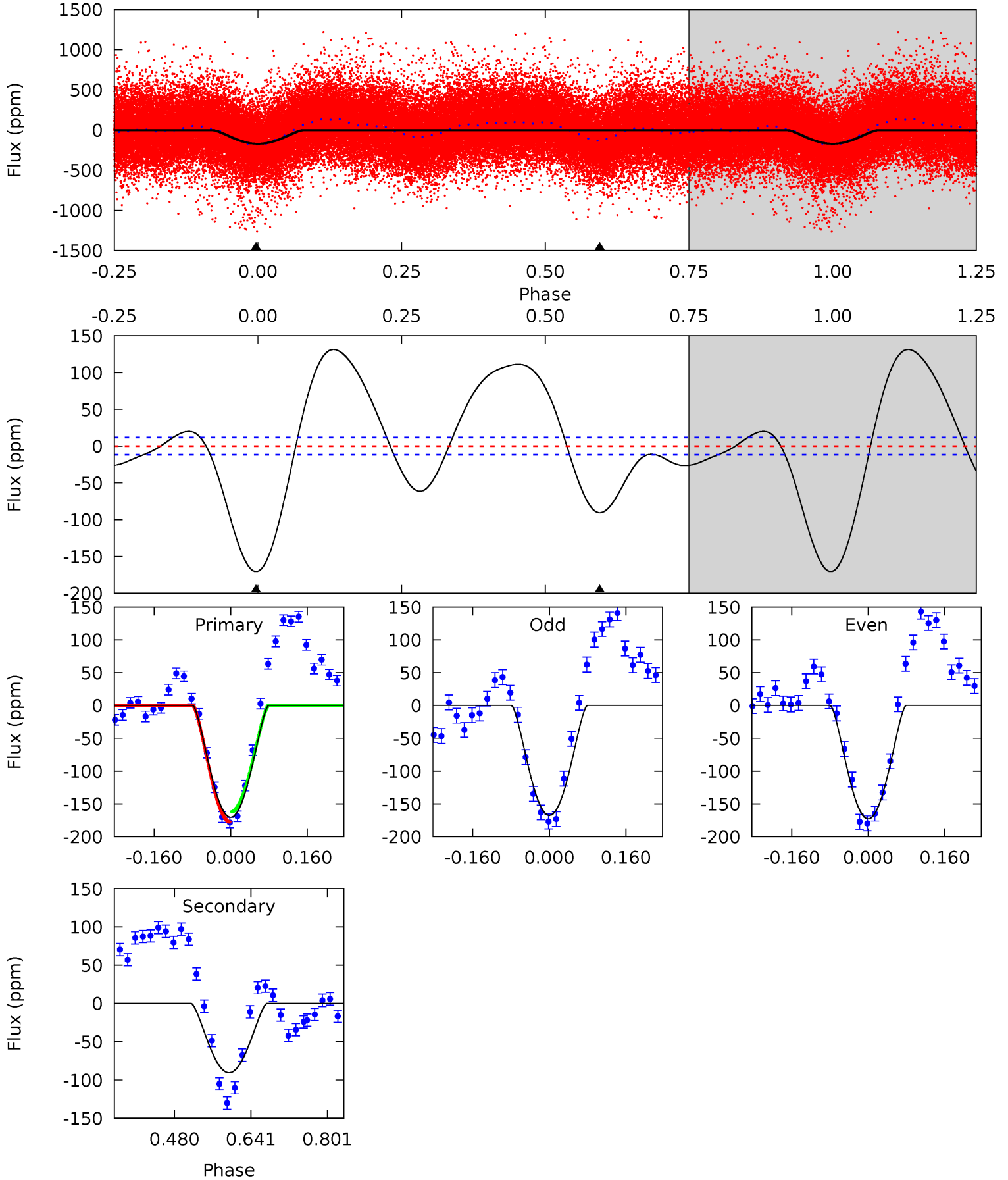




# DV Model-Shift Uniqueness Test

003336283-01, P = 10.765071 Days, E = 123.691917 Days

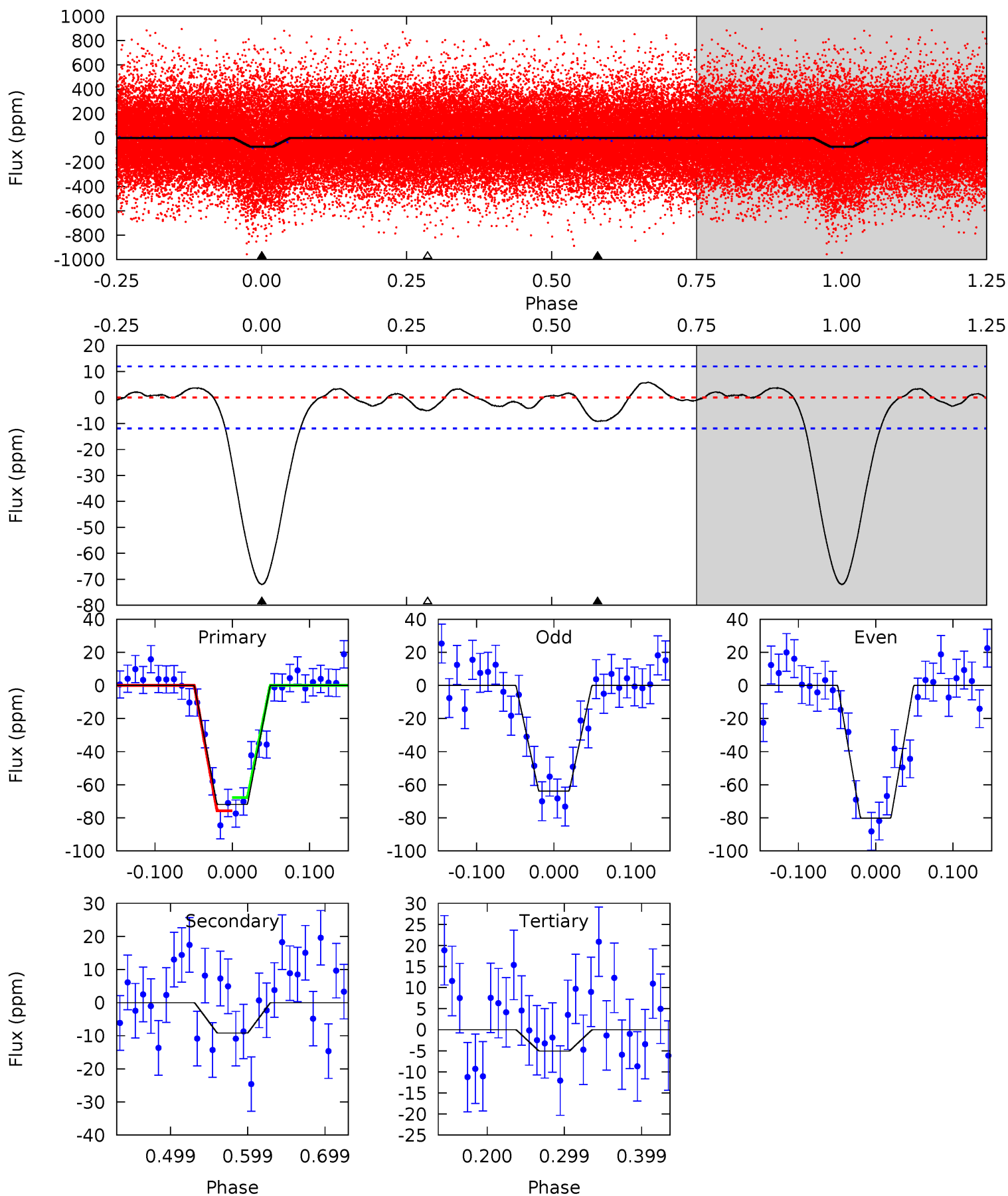
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
65.0	34.5	0	0	4.47	1.40	21.1	65.0	65.0	34.5	34.5	1.02	1.19	0.44	2.96



# Alt Model-Shift Uniqueness Test

003336283-01, P = 10.763902 Days, E = 123.725151 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
27.5	3.52	1.94	0	4.57	1.65	0.89	25.6	27.5	1.58	3.52	3.12	1.27	0.07	1.52



### Stellar Parameters For KIC 003336283

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6204^{+83}_{-83}$	$3.689^{+0.245}_{-0.105}$	$-0.220^{+0.200}_{-0.150}$	$2.819^{+0.460}_{-0.854}$	$1.417^{+0.134}_{-0.248}$	$0.089^{+0.144}_{-0.028}$
	+1%/-1%	+7%/-3%	+91%/-68%	+16%/-30%	+9%/-18%	+162%/-31%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 003336283-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-91 \pm 3$	$8.87^{+6.71}_{-5.90}$	$1945^{+101}_{-153}$	$3847^{+1998}_{-681}$	$7.279^{+58.371}_{-4.905}$
Alt.	$-9 \pm 3$	$5.55^{+6.22}_{-3.72}$	$1941^{+98}_{-152}$	$3003^{+1383}_{-917}$	$1.806^{+14.131}_{-1.437}$

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



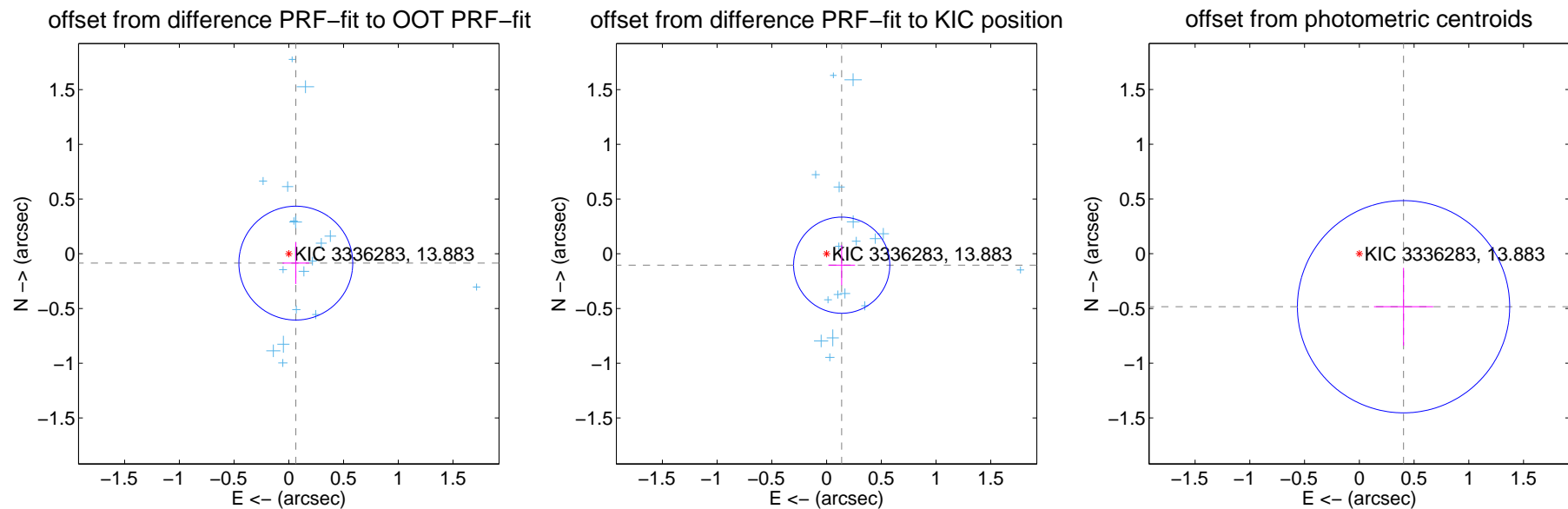
## DV Centroid Data

Supplemental centroid analysis for 003336283-01. Kepler magnitude: 13.88. Transit SNR 15.46

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

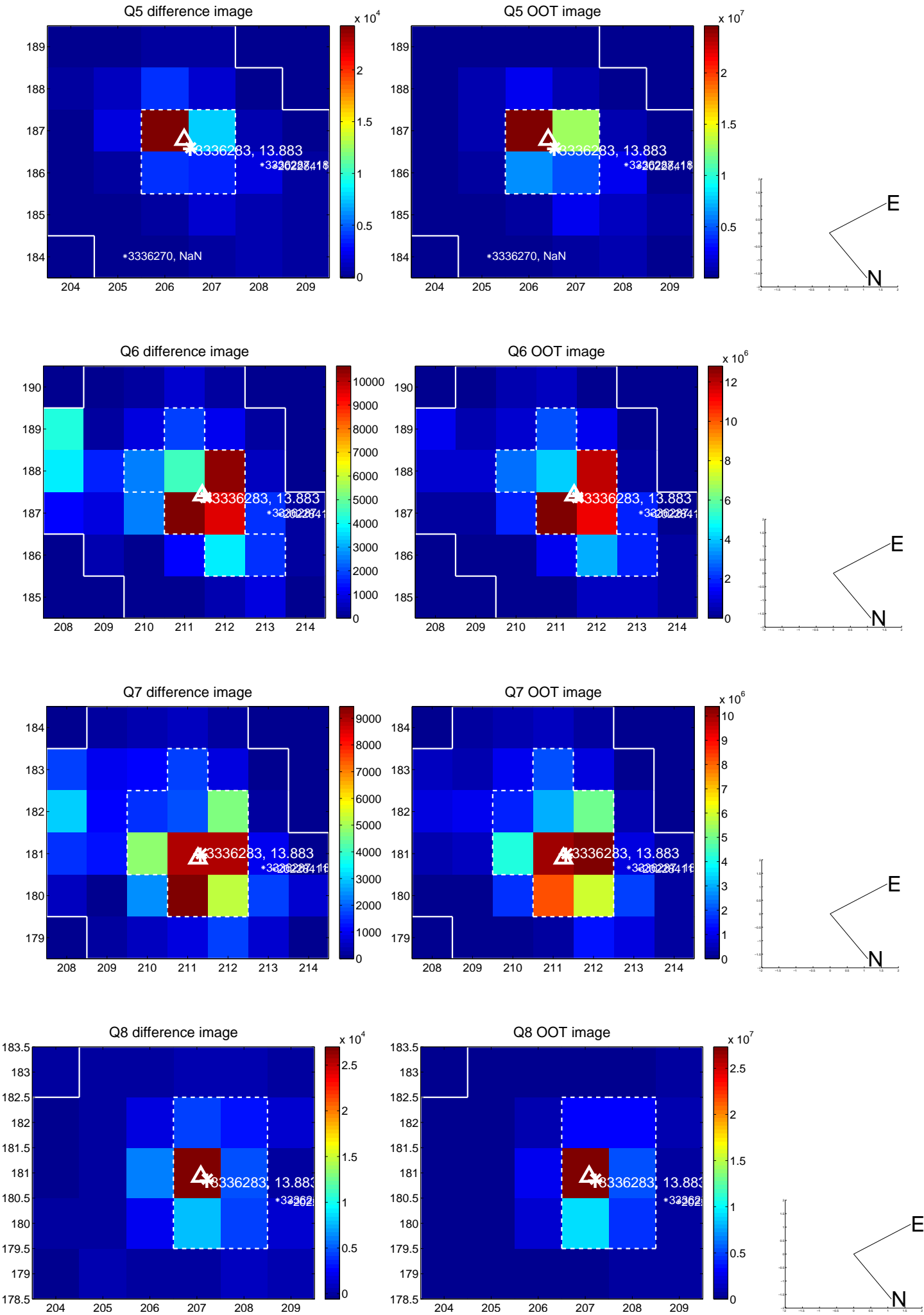
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.107 \pm 0.173$	0.61	$-0.064 \pm 0.123$	$-0.085 \pm 0.191$
PRF-fit source offset from KIC position	$0.173 \pm 0.146$	1.18	$-0.138 \pm 0.122$	$-0.104 \pm 0.183$
photometric centroid source offset	$0.63 \pm 0.32$	1.95	$-0.40 \pm 0.27$	$-0.48 \pm 0.36$



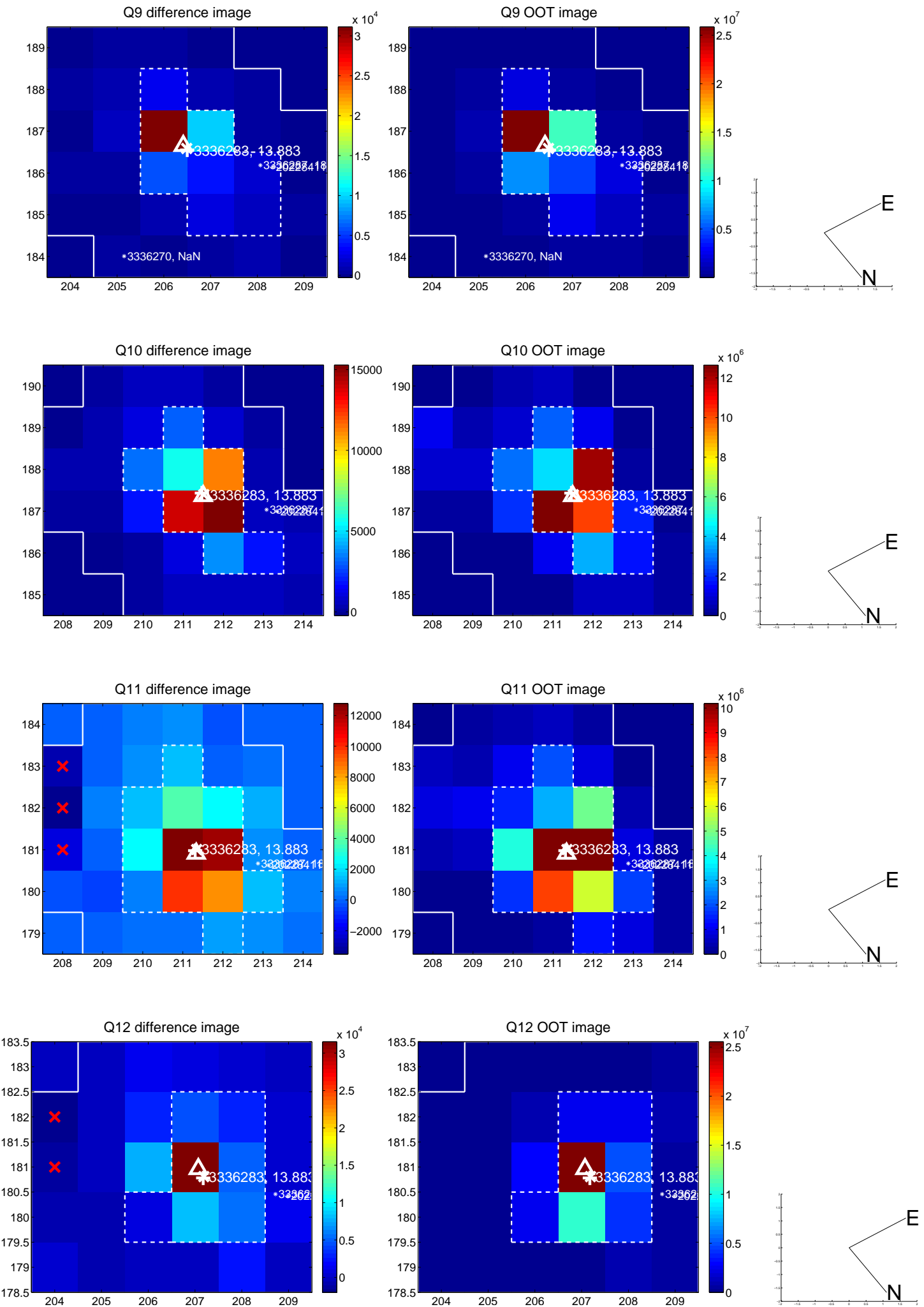
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



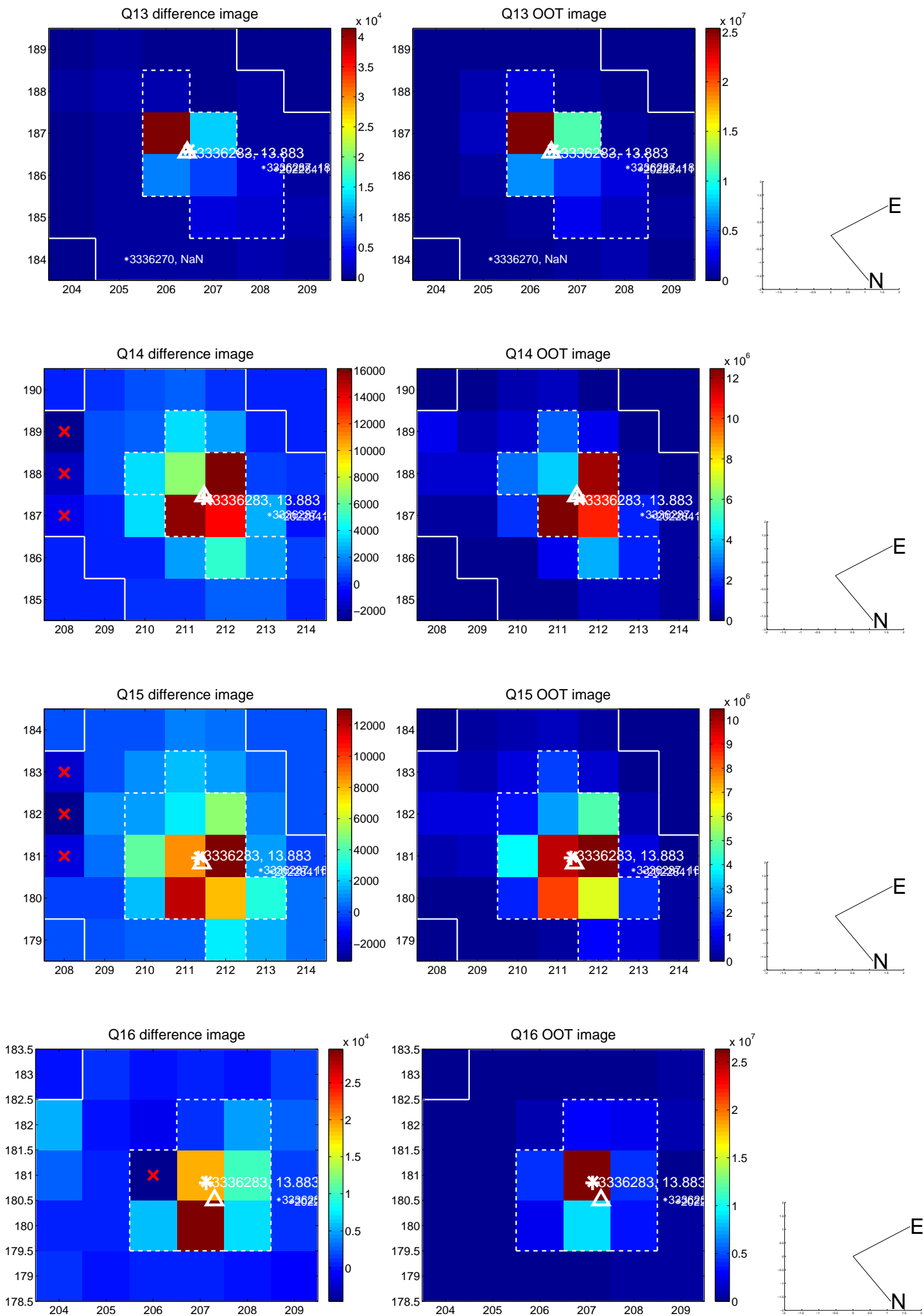
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

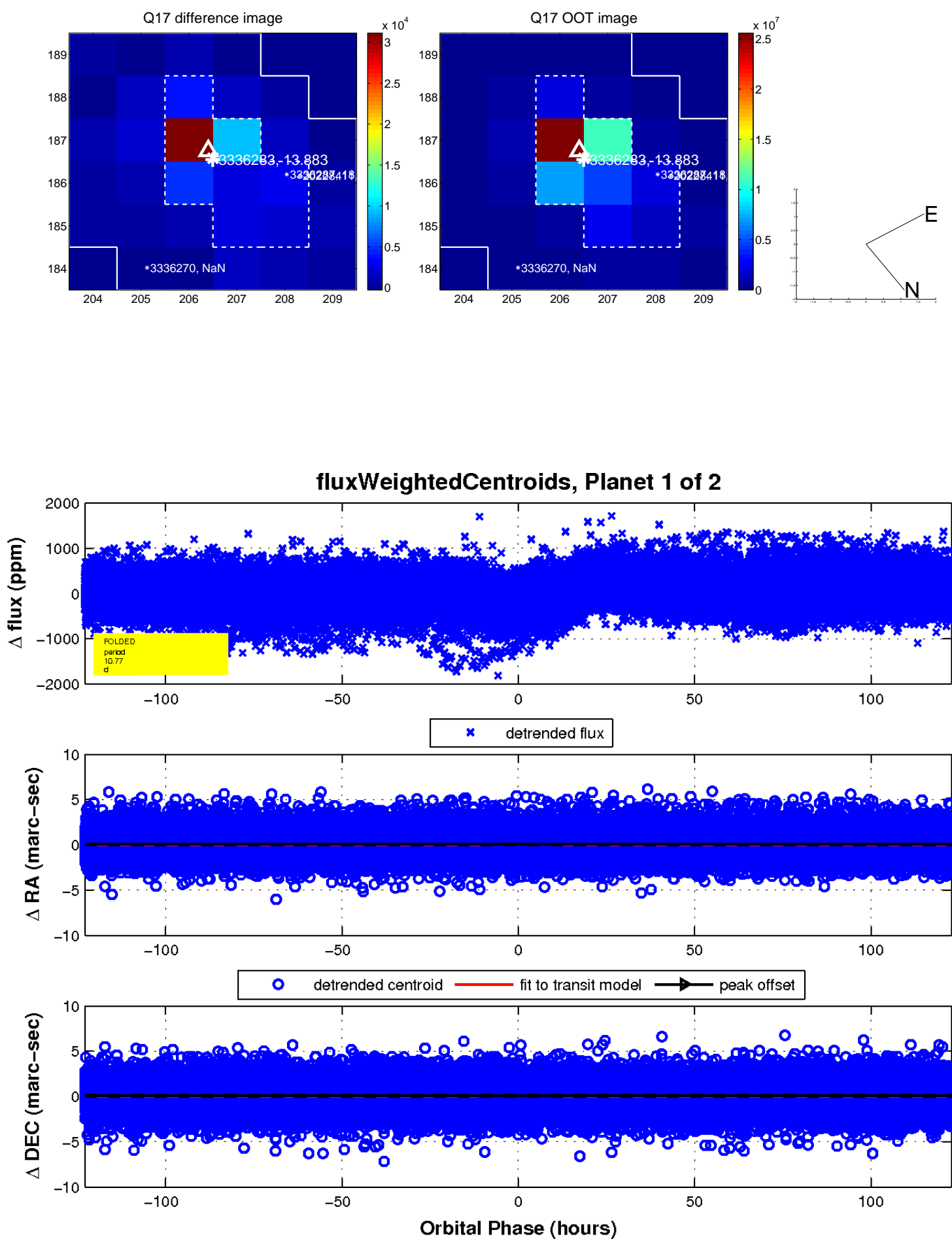


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



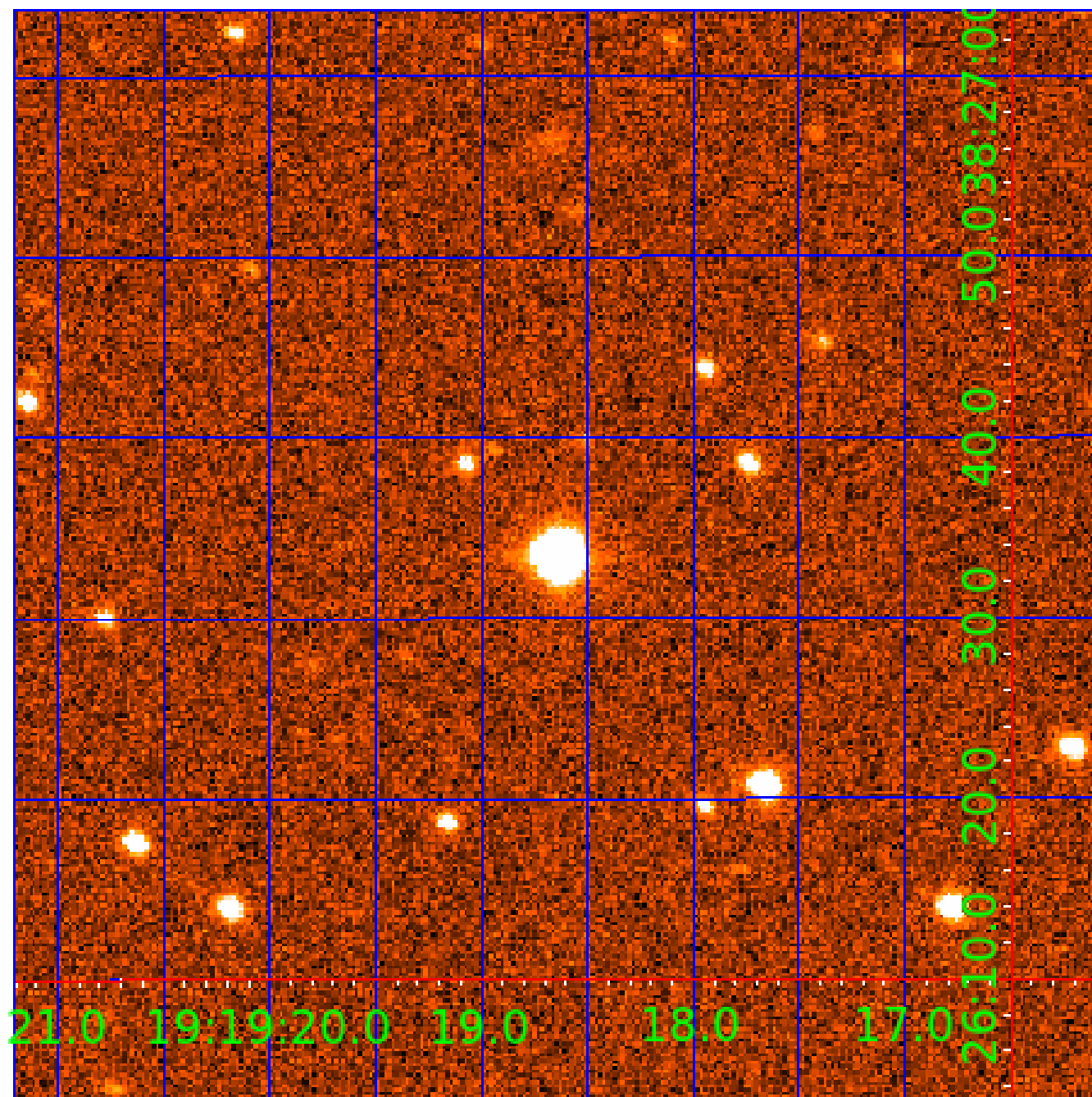


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003336283

## Q1-17 DR25 TCE Parameters

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003336283-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD

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

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

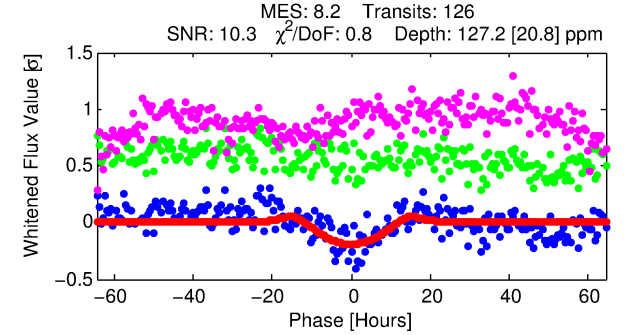
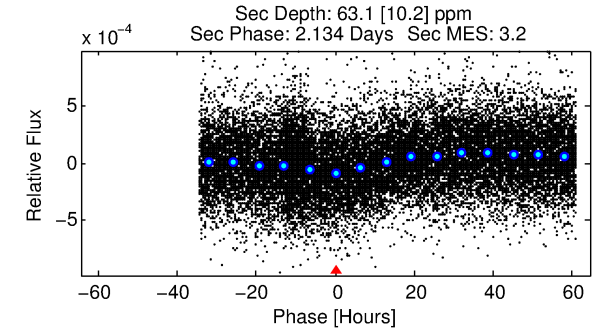
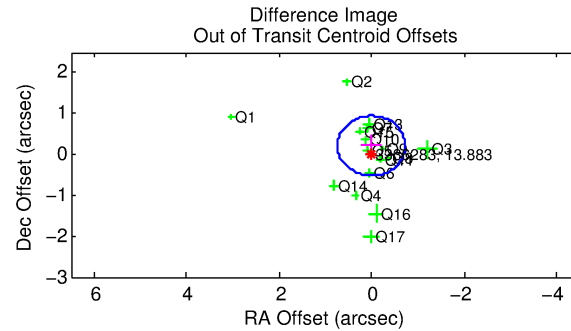
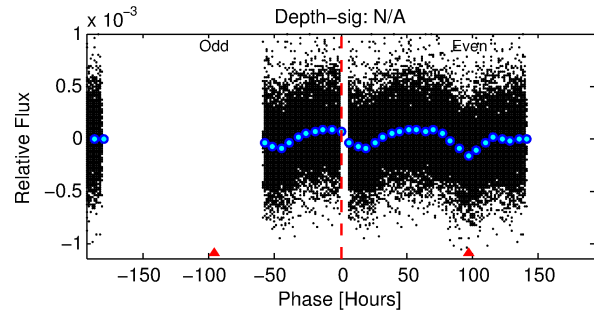
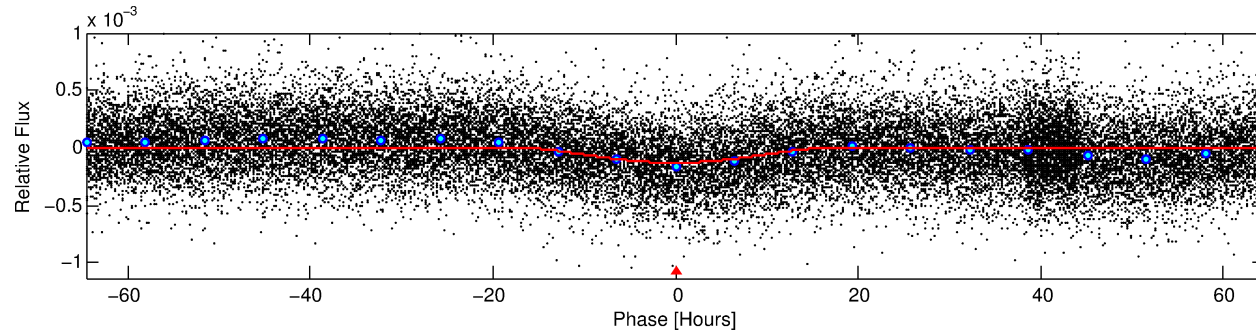
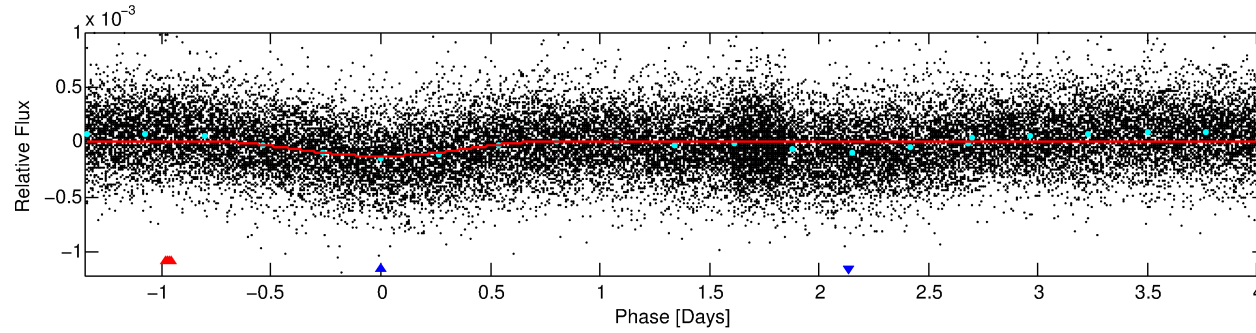
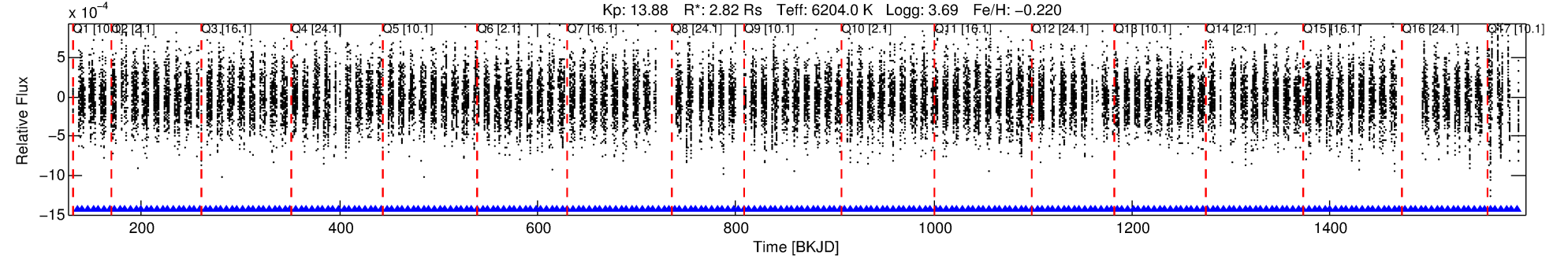
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003336283-02

No Significant Match Found

# DV One-Page Summary

KIC: 3336283 Candidate: 2 of 2 Period: 5.383 d  
KOI: K02974 Corr: No Ephemeris Match



## DV Fit Results:

Period = 5.38263 [0.00035] d  
Epoch = 135.4174 [0.0544] BKJD  
Rp/R\* = 0.0208 [0.0291]  
a/R\* = 1.04 [0.01]  
b = 1.00 [0.05]  
Seff = 2313.76 [995.45]  
Teq = 1769 [190] K  
Rp = 6.39 [9.16] Re  
a = 0.0675 [0.0186] AU  
Ag = 3.87 [10.99] [0.26σ]  
Teffp = 3836 [2691] K [0.77σ]

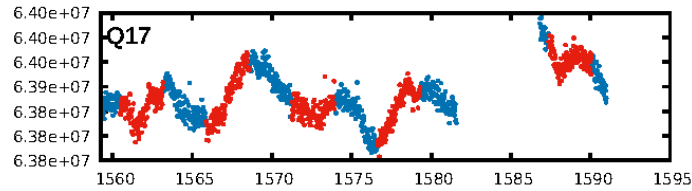
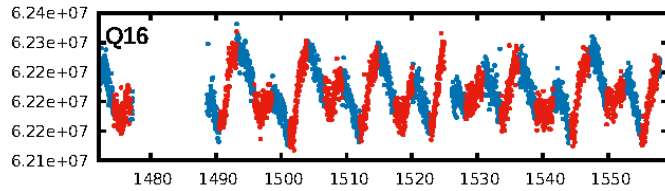
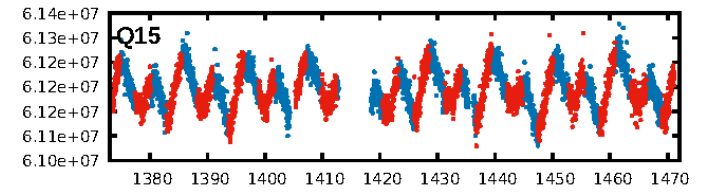
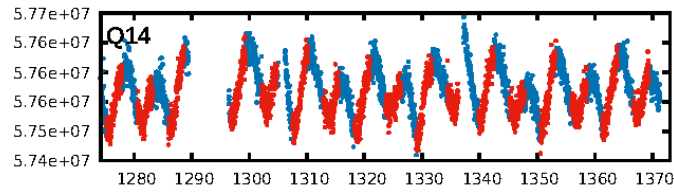
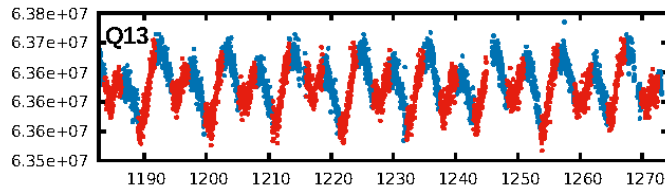
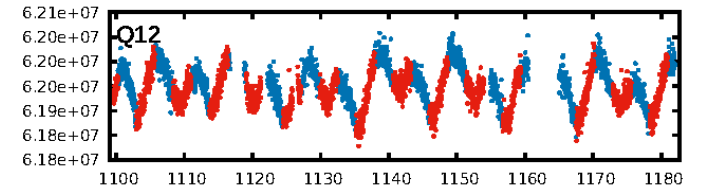
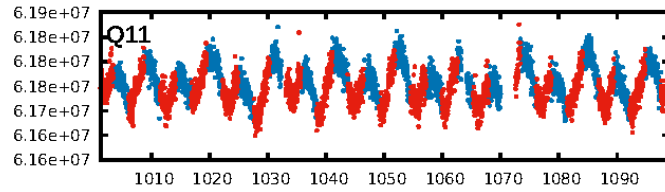
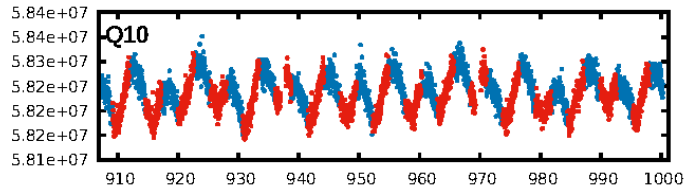
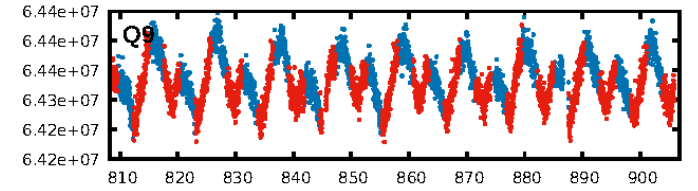
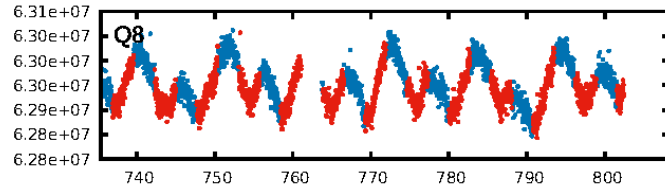
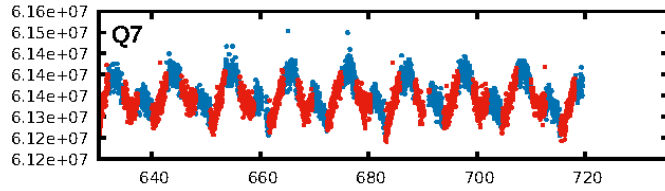
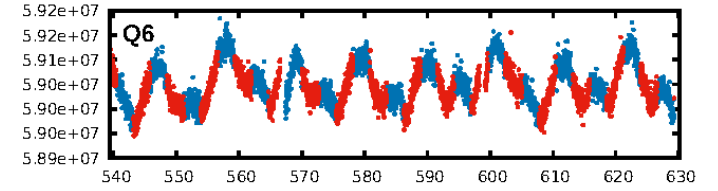
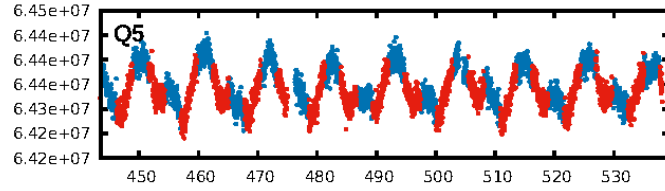
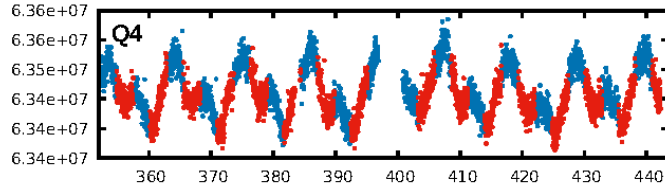
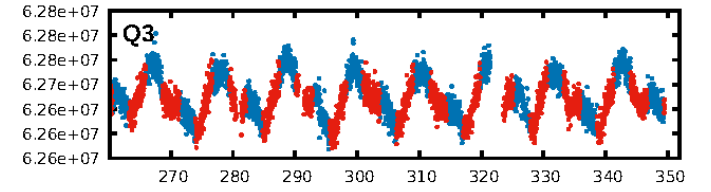
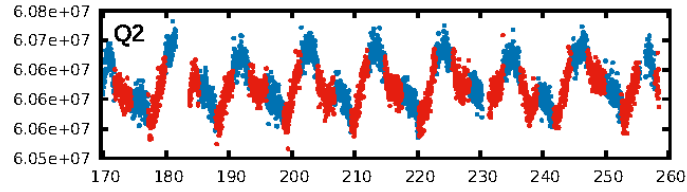
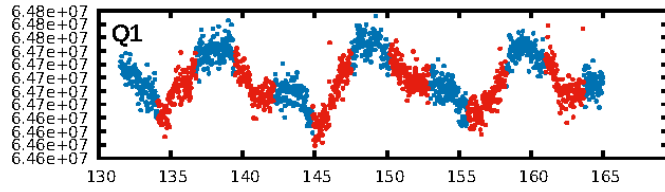
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 98.7% [2.48σ]  
ModelChiSquare2-sig: 99.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.34e-19  
RollingBand-fgt: 1.00 [121/121]  
GhostDiagnostic-chr: 1.155  
Centroid-sig: 32.7%  
Centroid-so: 0.354 arcsec [0.91σ]  
OotOffset-rm: 0.211 arcsec [0.87σ]  
KicOffset-rm: 0.273 arcsec [1.26σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:17:02 Z

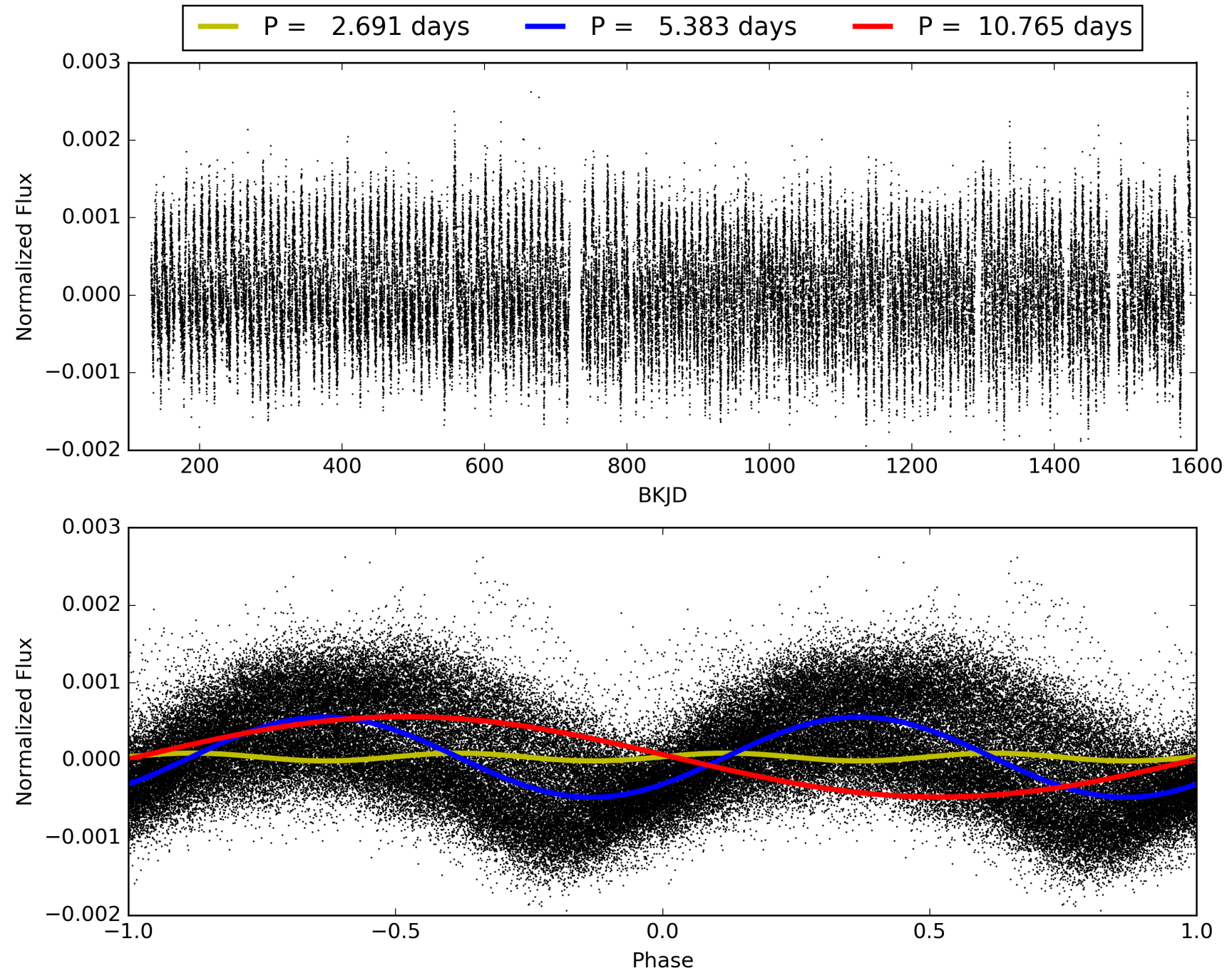
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003336283-02, PDC Light Curves



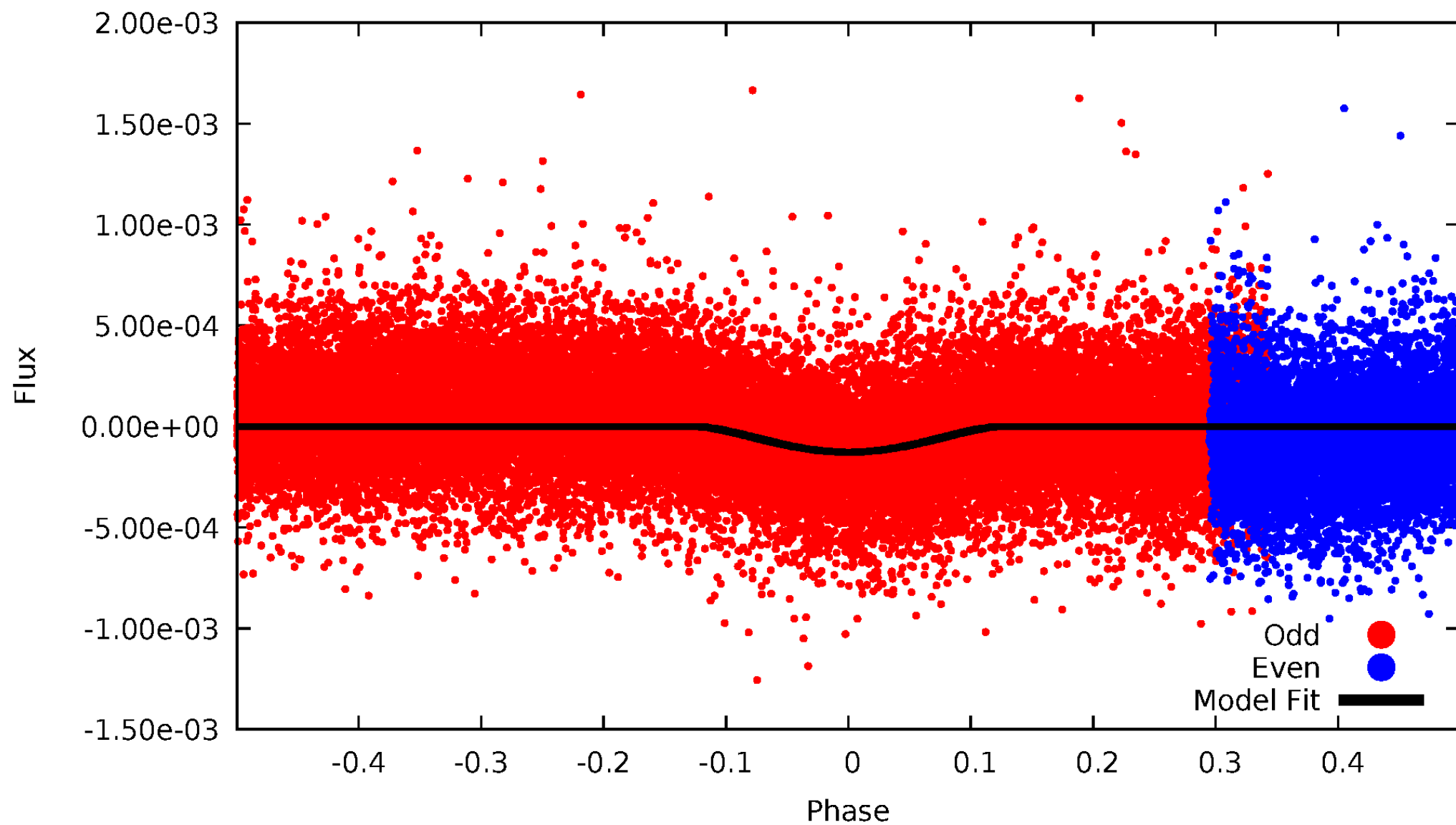


TCE 003336283-02



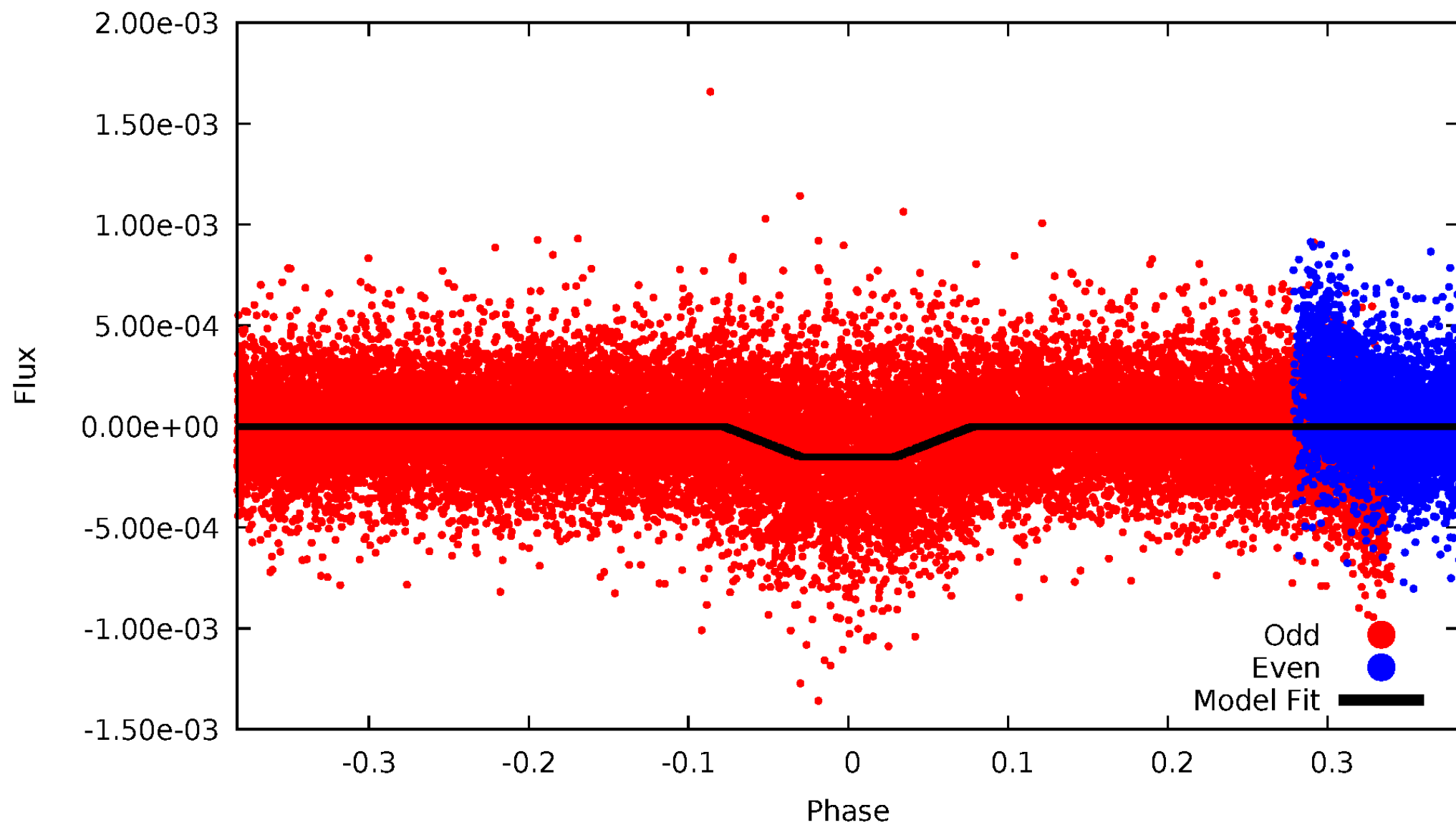
# DV Odd/Even

TCE 003336283-02



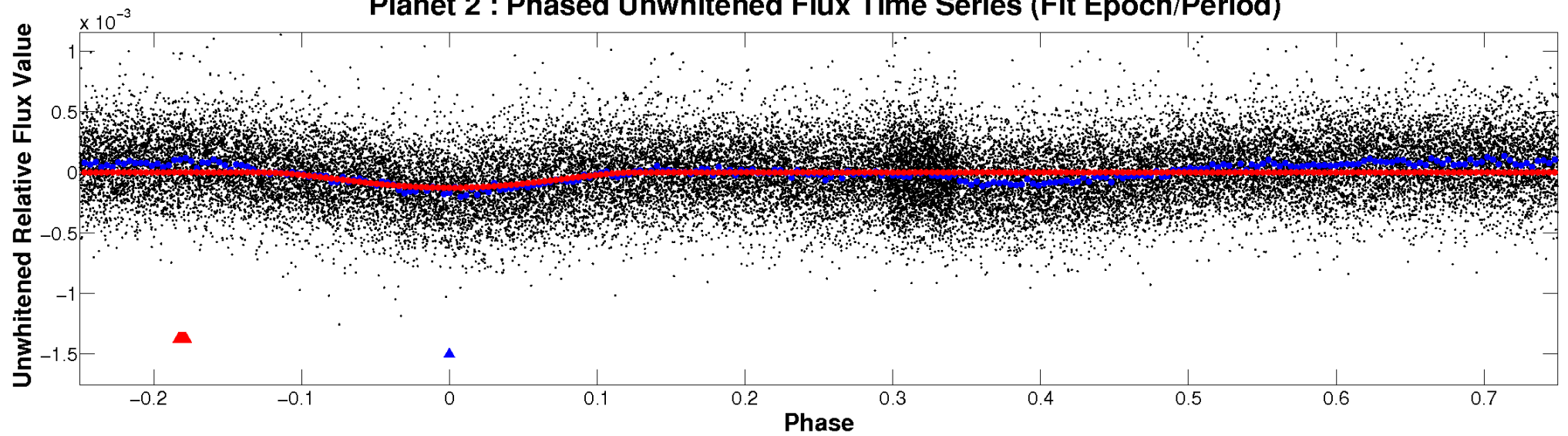
# ALT Odd/Even

TCE 003336283-02

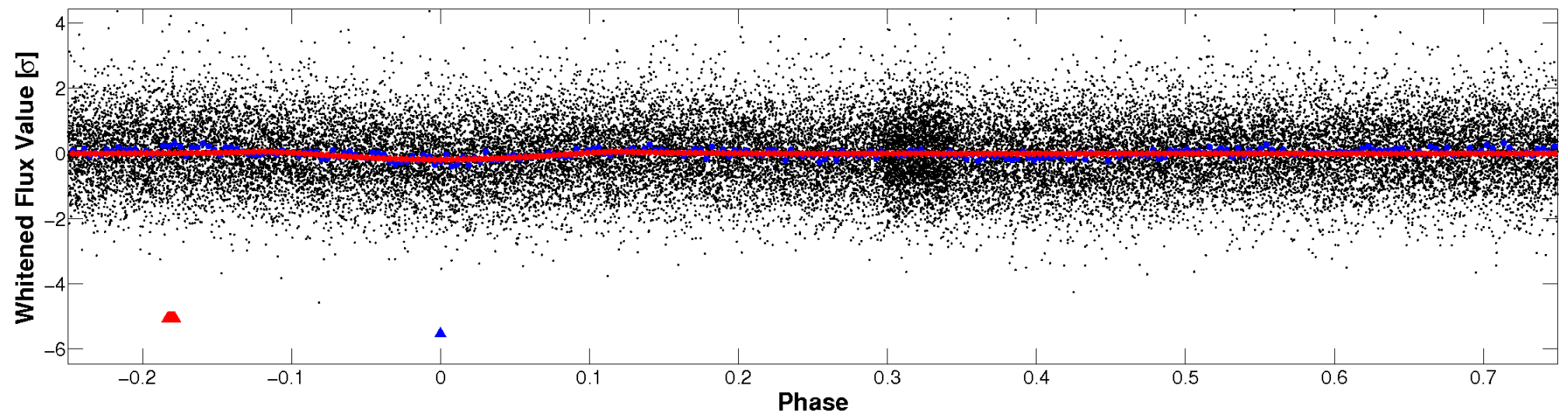


# Non-Whitened Vs. Whitened Light Curve

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



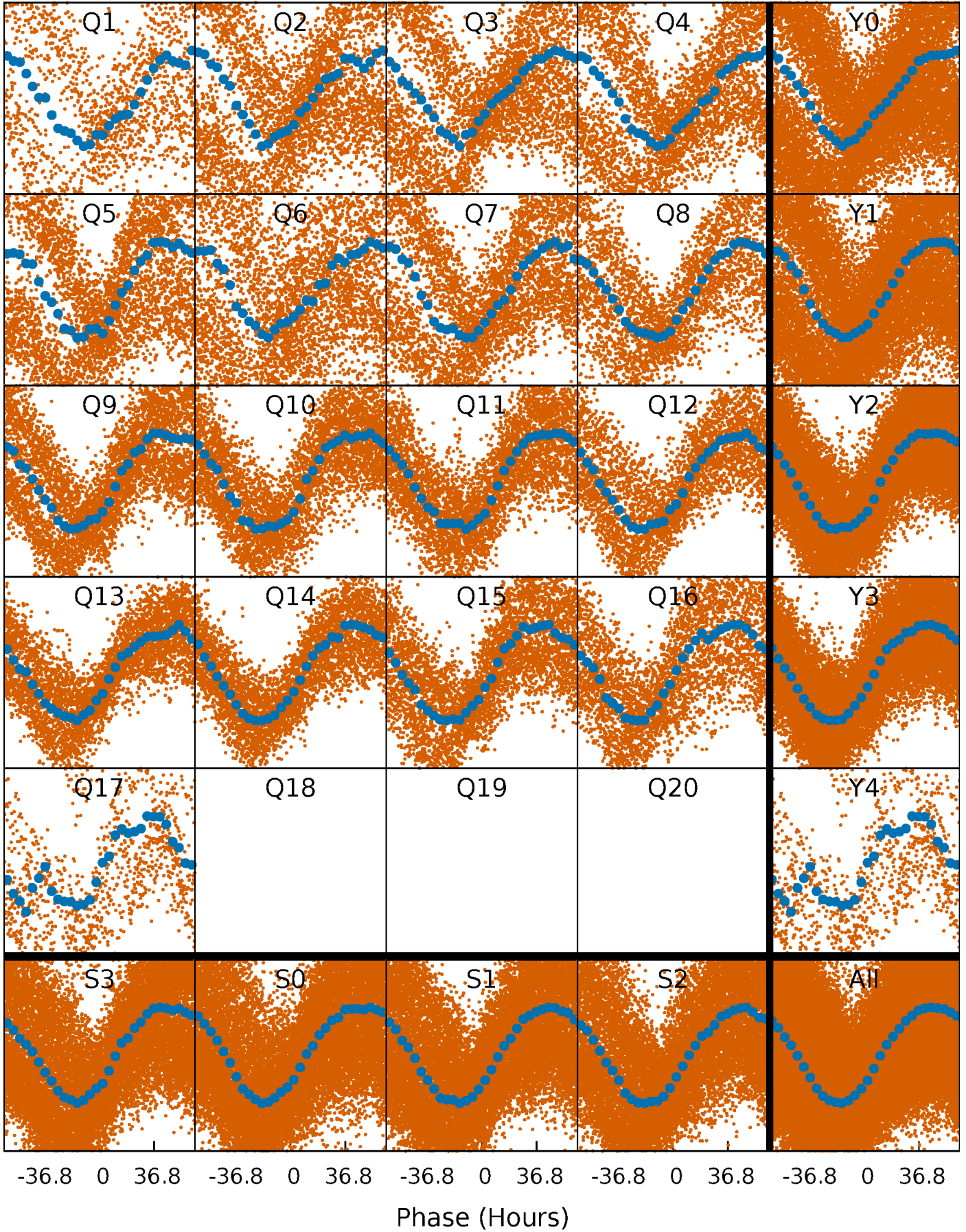
**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

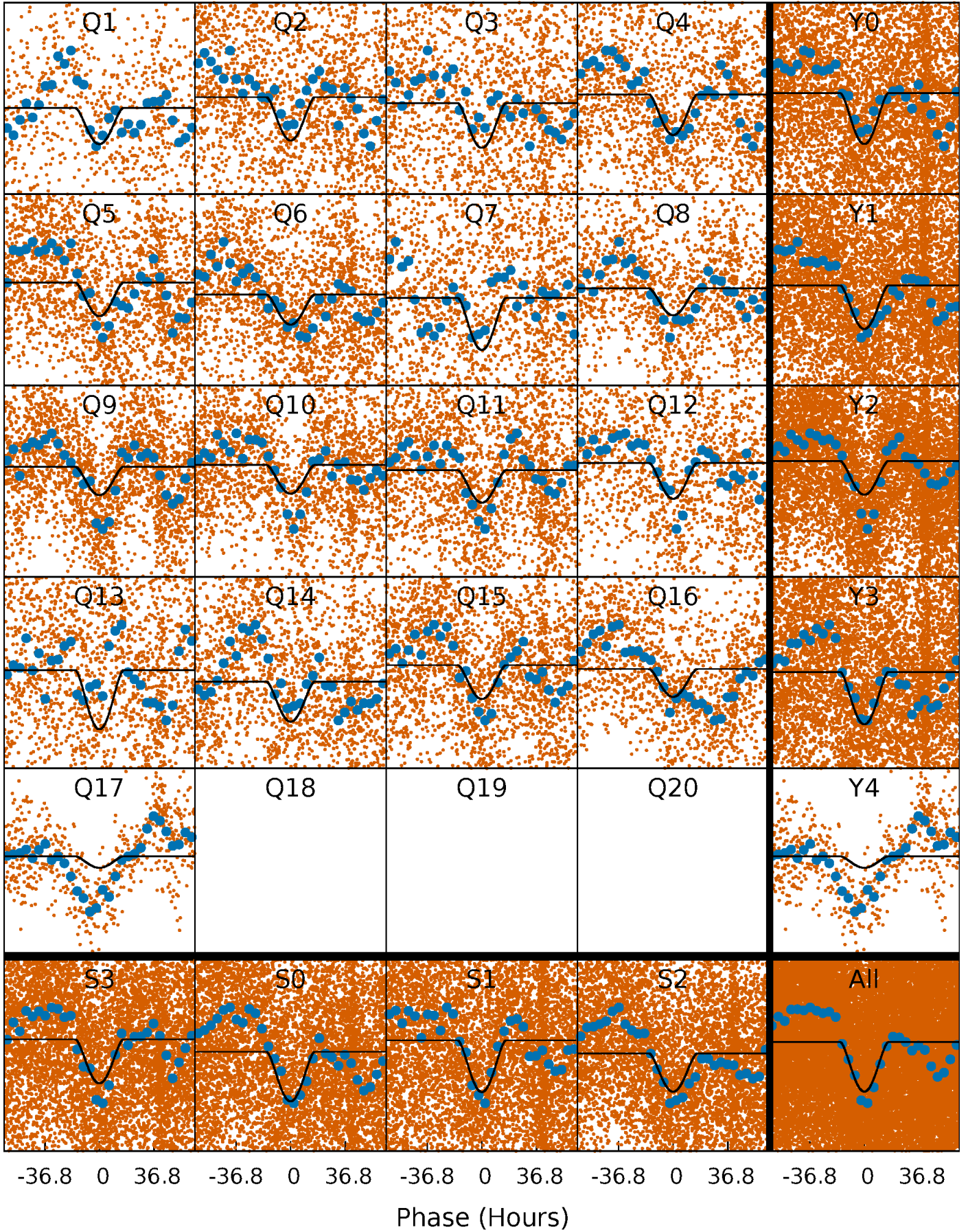
TCE 003336283-02   P= 5.382626 Days    $T_0=135.417386$  (BKJD)





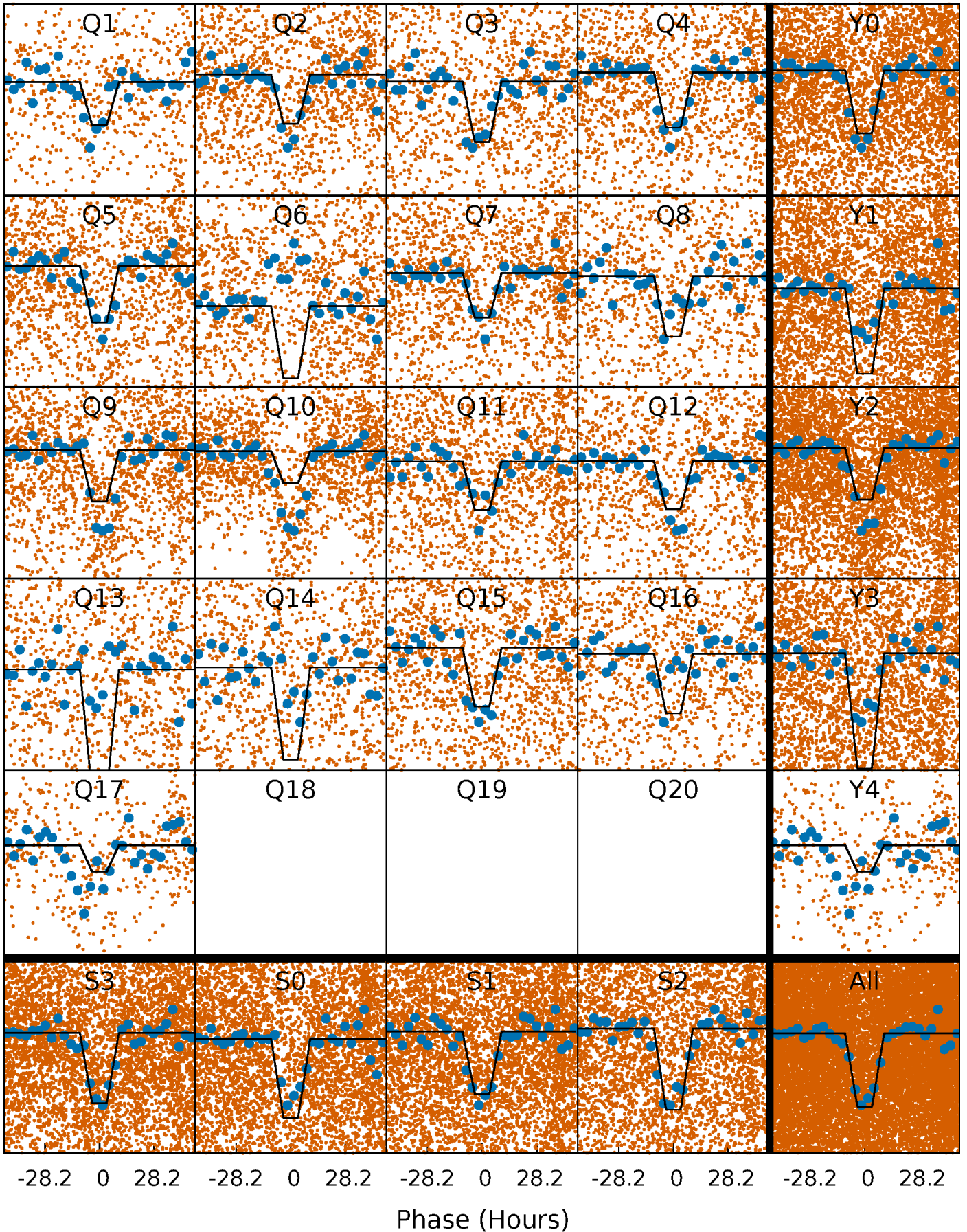
# DV Quarter-Phased Transit Curves

TCE 003336283-02   P= 5.382626 Days    $T_0=135.417386$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003336283-02   P= 5.382900 Days    $T_0=135.438008$  (BKJD)

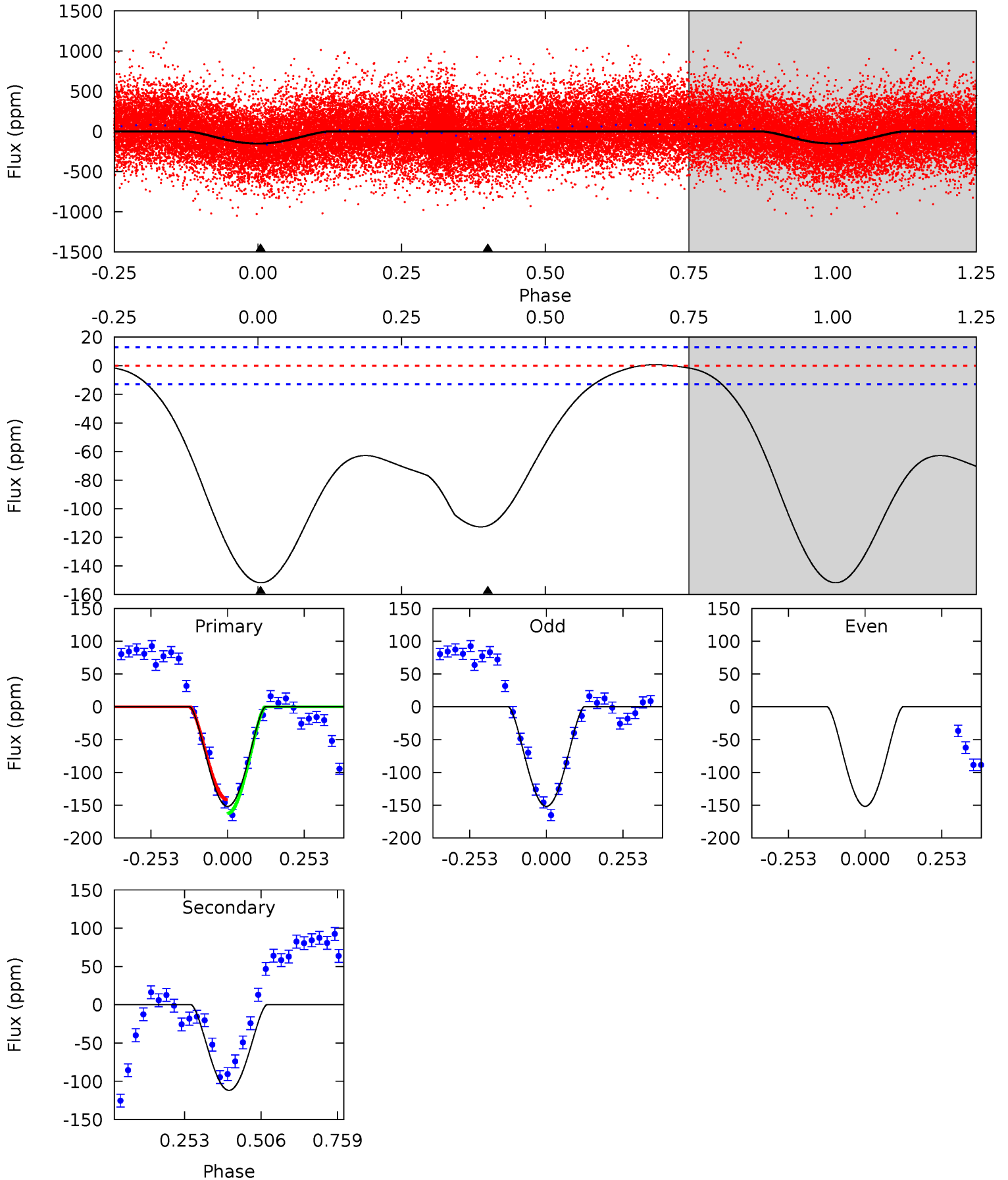




# DV Model-Shift Uniqueness Test

003336283-02, P = 5.382626 Days, E = 130.034760 Days

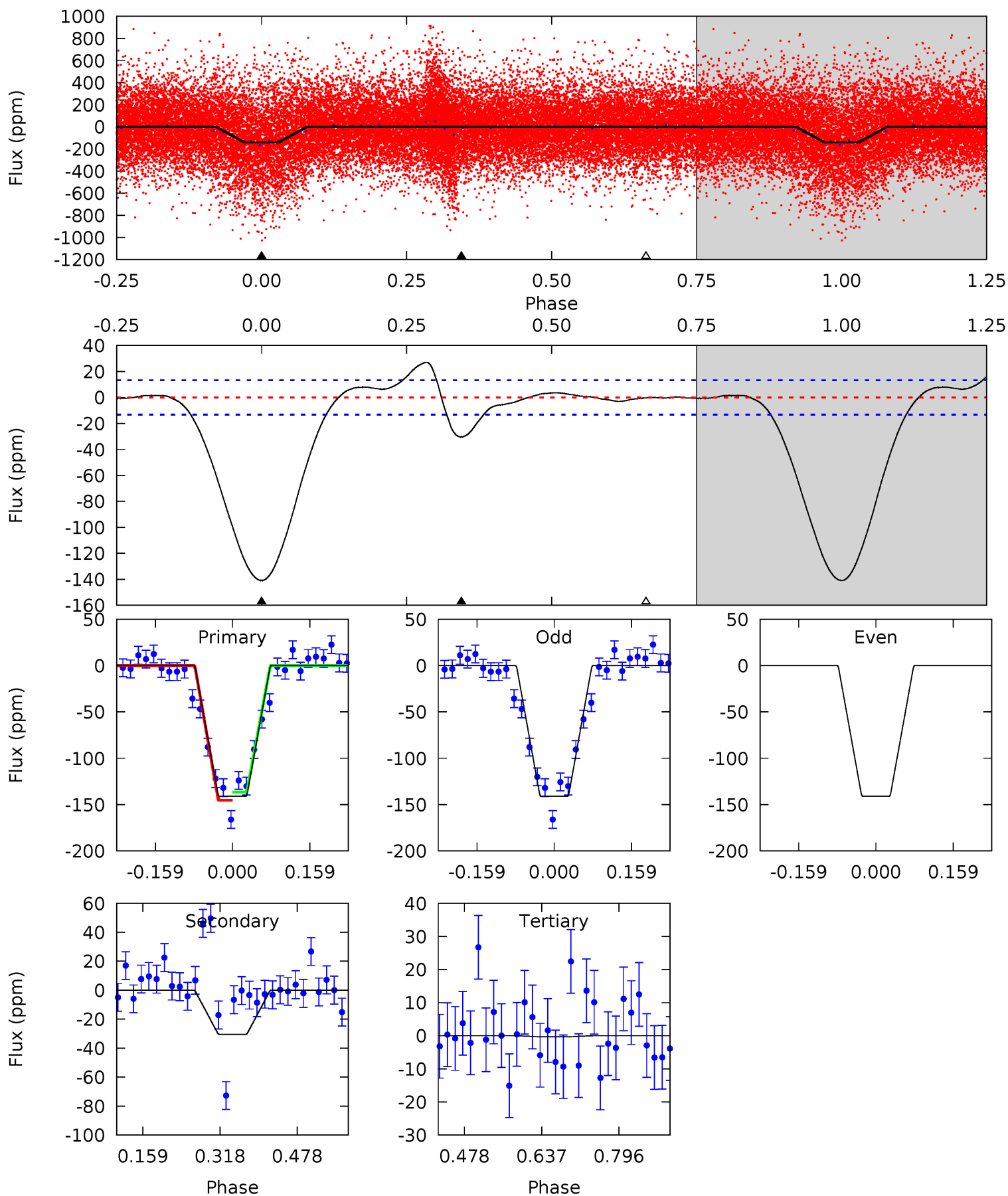
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.4	37.9	0	0	4.37	1.14	0.26	51.4	51.4	37.9	37.9	0	0.95	0.01	3.63



# Alt Model-Shift Uniqueness Test

003336283-02, P = 5.382900 Days, E = 130.055108 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
47.7	10.3	0.11	0	4.47	1.41	0.83	47.6	47.7	10.2	10.3	0	1.01	0.16	1.35



### Stellar Parameters For KIC 003336283

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6204^{+83}_{-83}$	$3.689^{+0.245}_{-0.105}$	$-0.220^{+0.200}_{-0.150}$	$2.819^{+0.460}_{-0.854}$	$1.417^{+0.134}_{-0.248}$	$0.089^{+0.144}_{-0.028}$
	+1%/-1%	+7%/-3%	+91%/-68%	+16%/-30%	+9%/-18%	+162%/-31%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 003336283-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-112 \pm 3$	$8.75^{+8.16}_{-5.91}$	$2451^{+112}_{-179}$	$3925^{+2435}_{-795}$	$3.631^{+30.965}_{-2.648}$
Alt.	$-30 \pm 3$	$7.02^{+7.57}_{-4.56}$	$2459^{+112}_{-206}$	$3355^{+1711}_{-1101}$	$1.549^{+10.831}_{-1.194}$

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

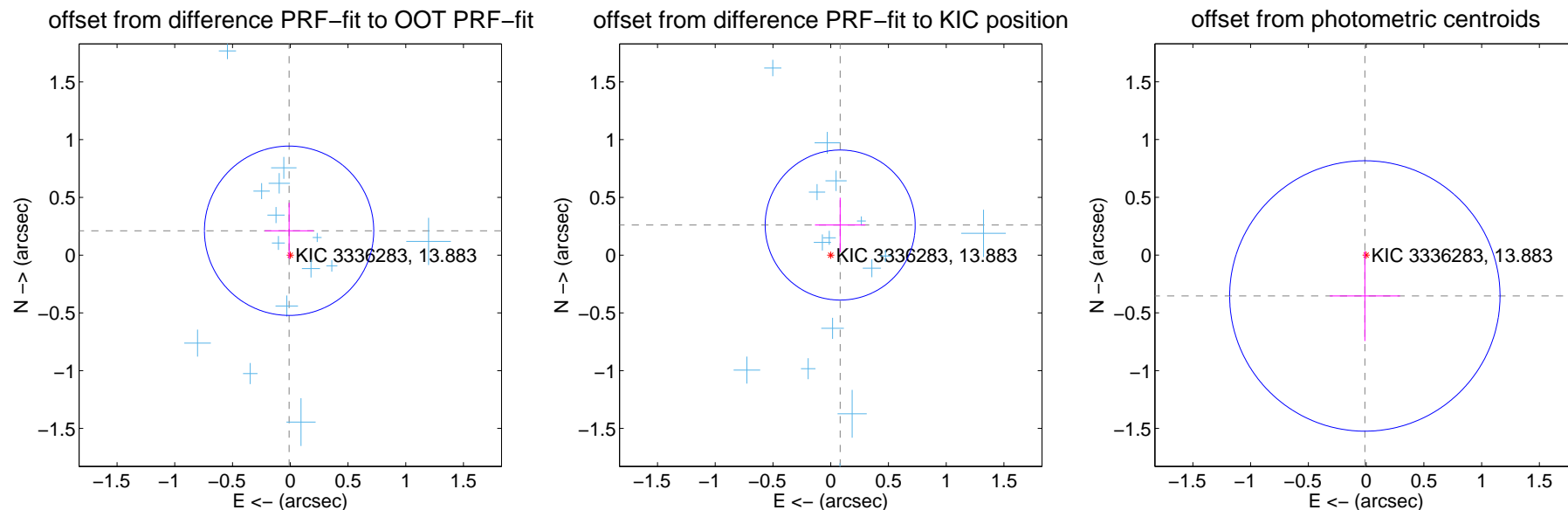
## DV Centroid Data

Supplemental centroid analysis for 003336283-02. Kepler magnitude: 13.88. Transit SNR 10.30

There are 16 quarters with good PRF difference image offsets

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

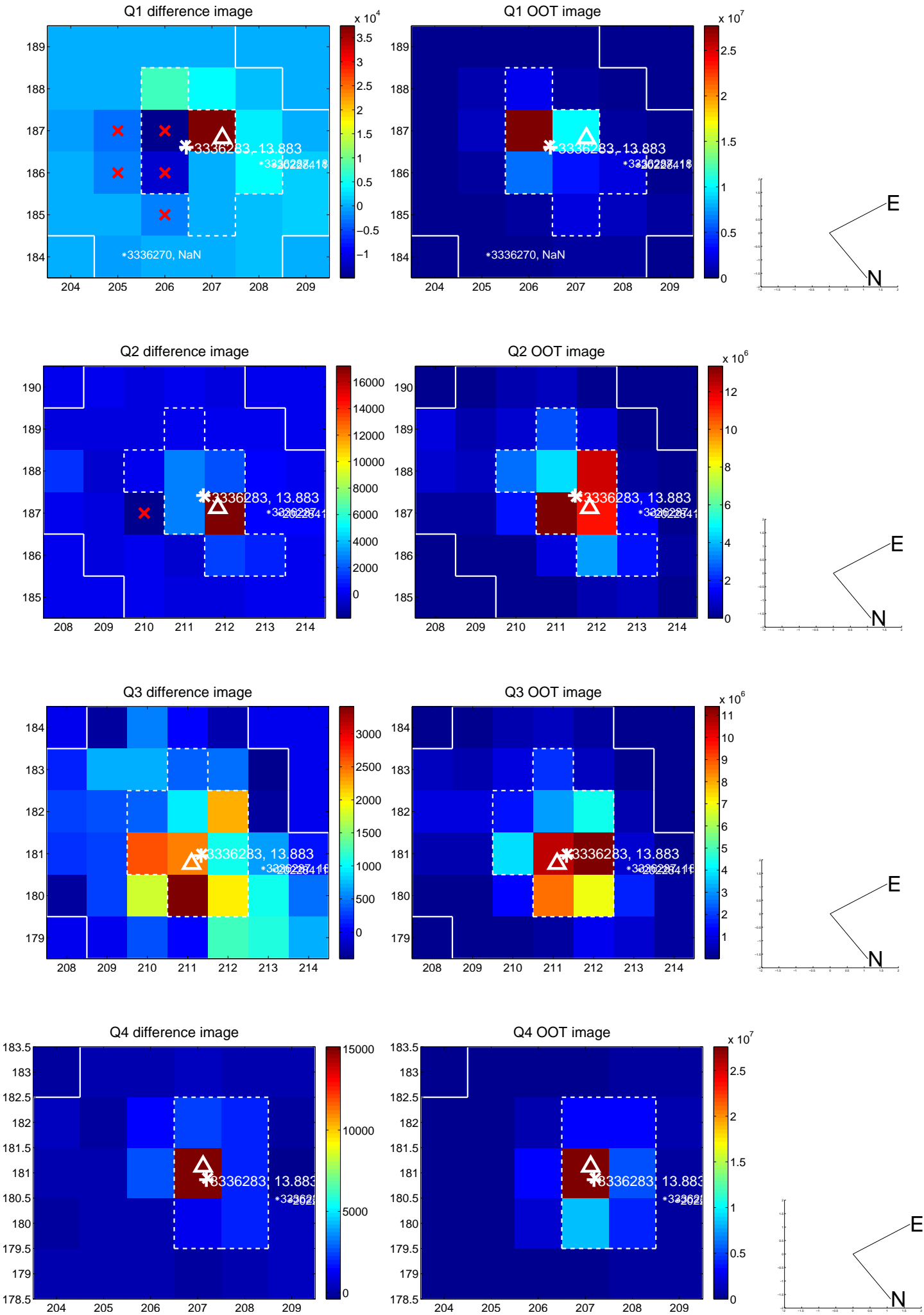
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.211 \pm 0.244$	0.87	$0.010 \pm 0.211$	$0.211 \pm 0.242$
PRF-fit source offset from KIC position	$0.273 \pm 0.216$	1.26	$-0.082 \pm 0.218$	$0.261 \pm 0.236$
photometric centroid source offset	$0.35 \pm 0.39$	0.91	$0.01 \pm 0.30$	$-0.35 \pm 0.39$



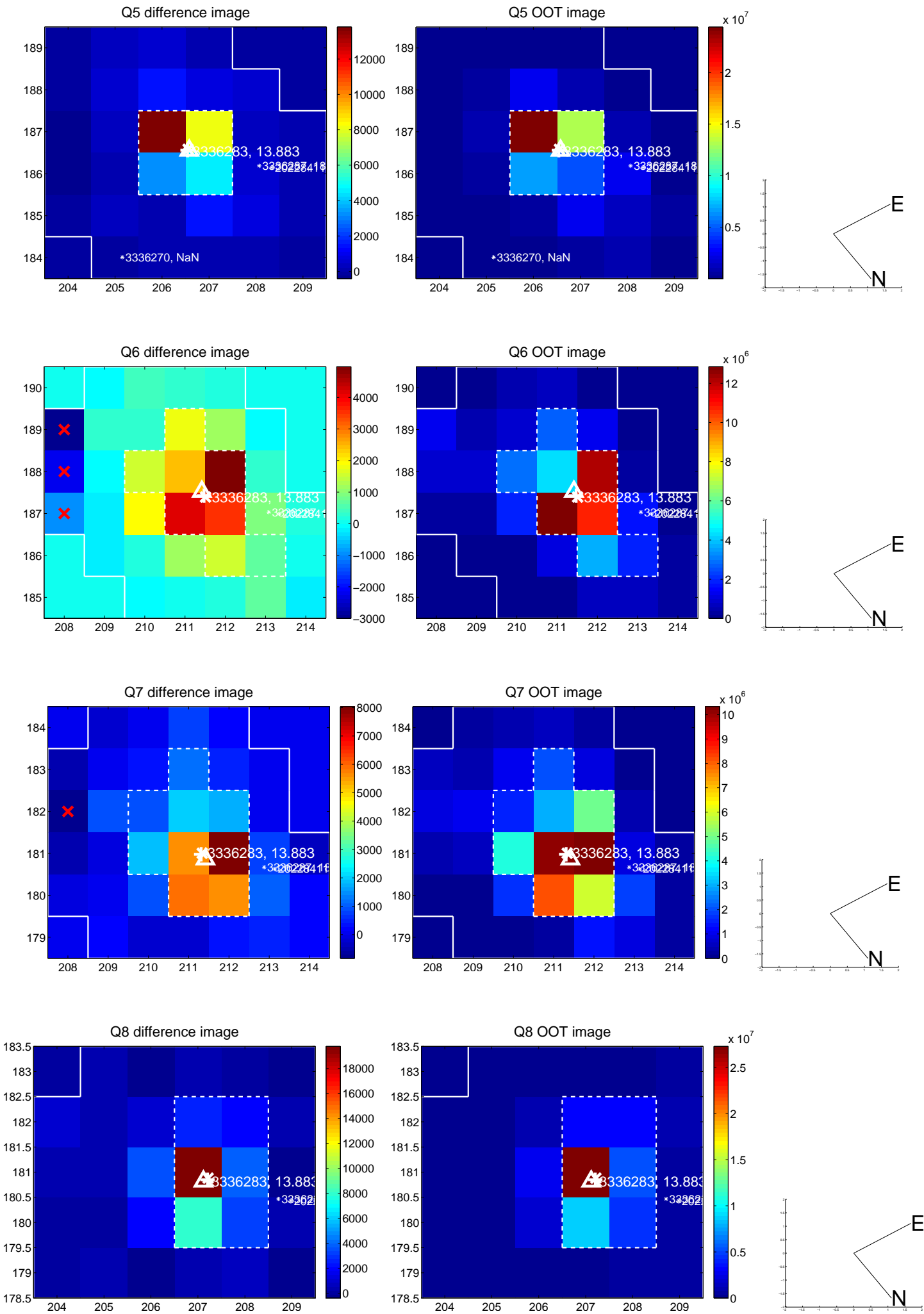
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



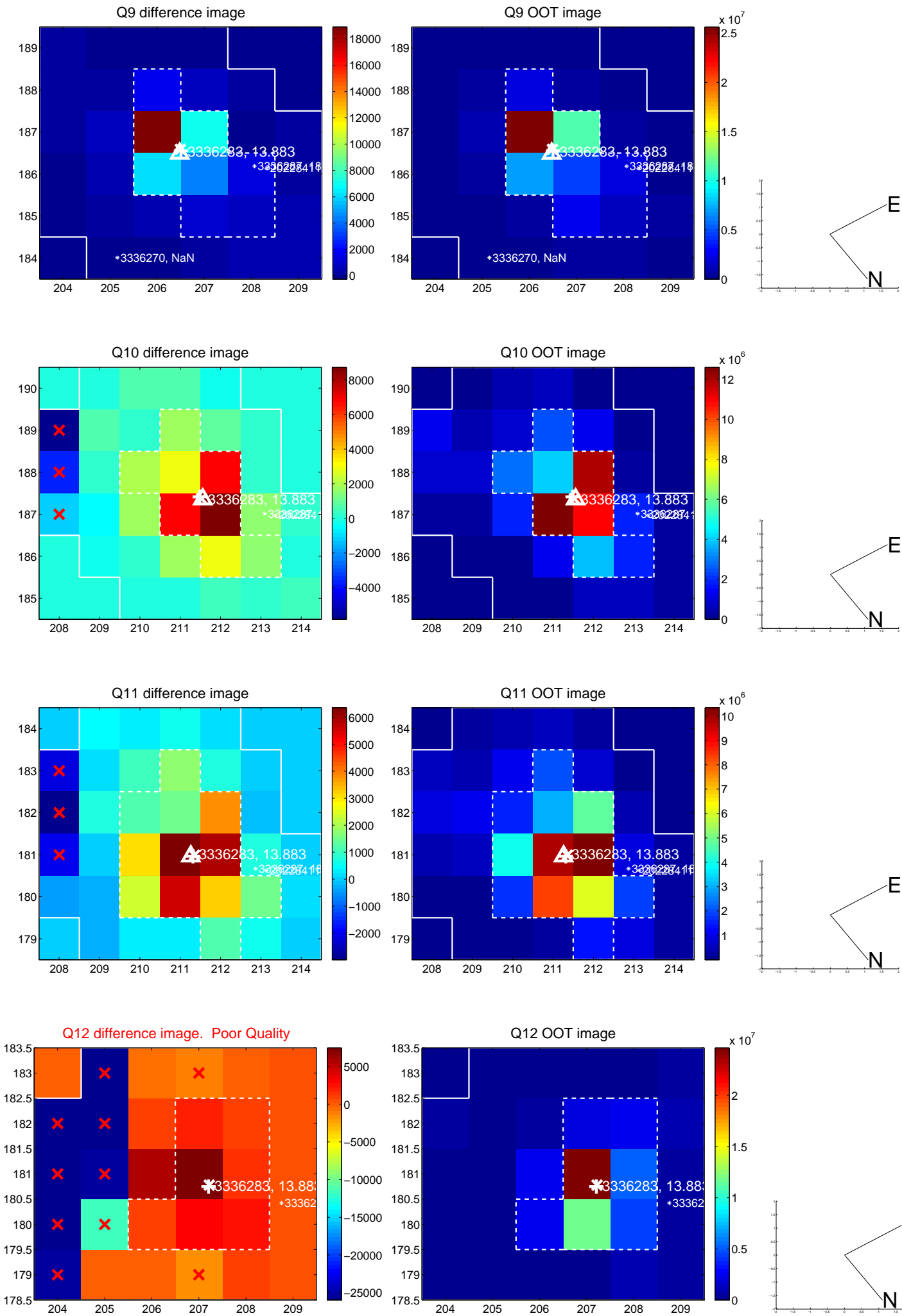
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



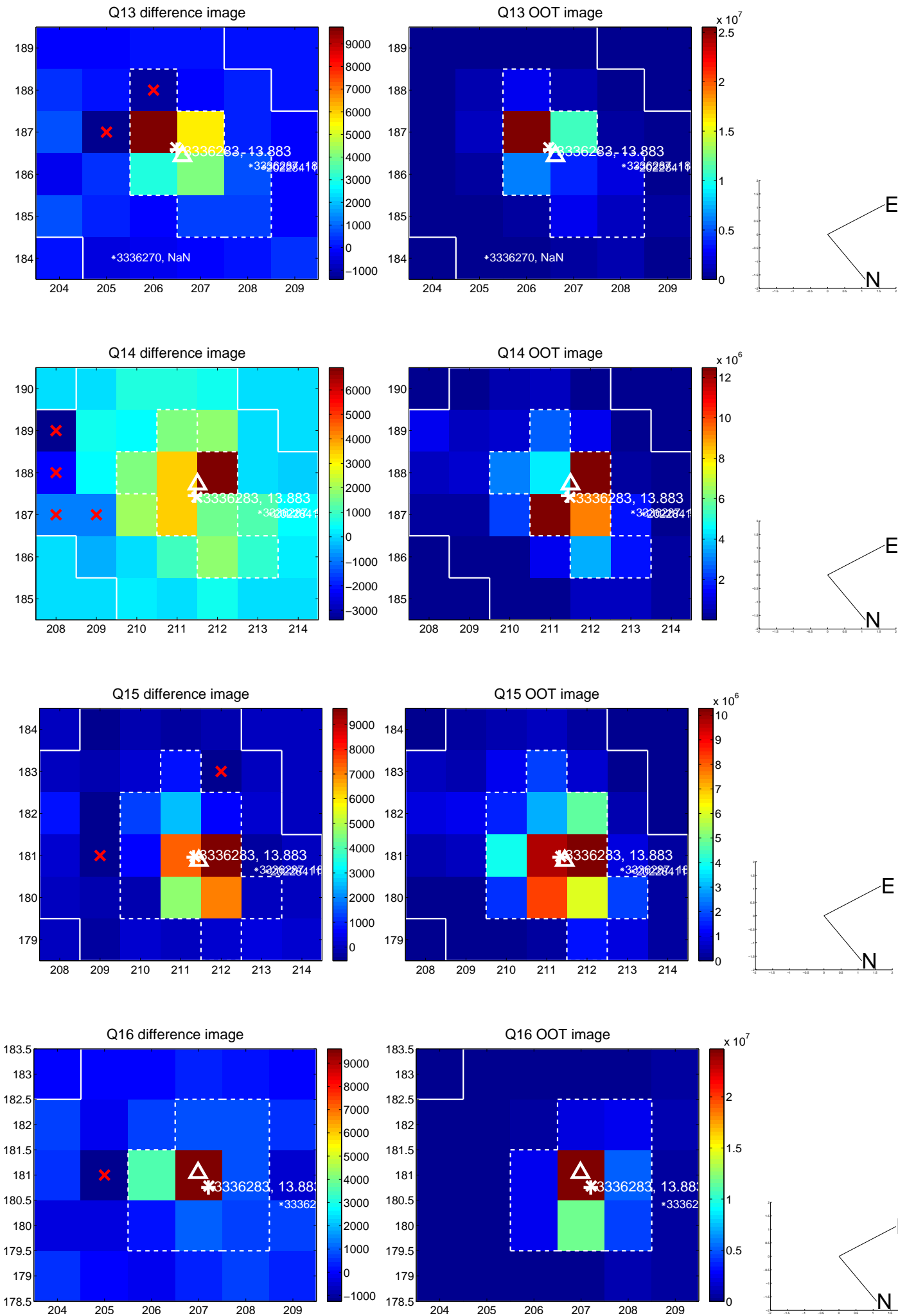
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



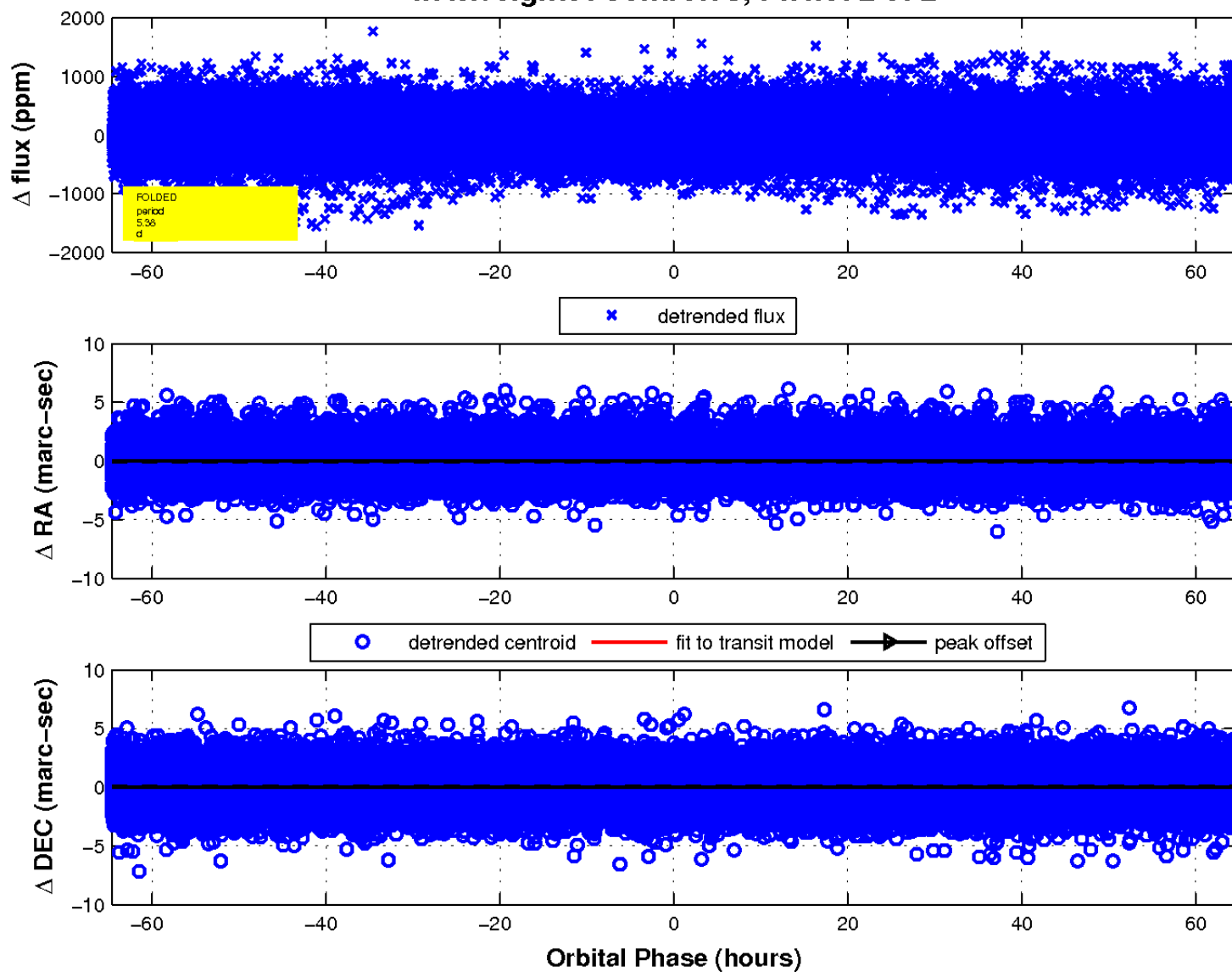
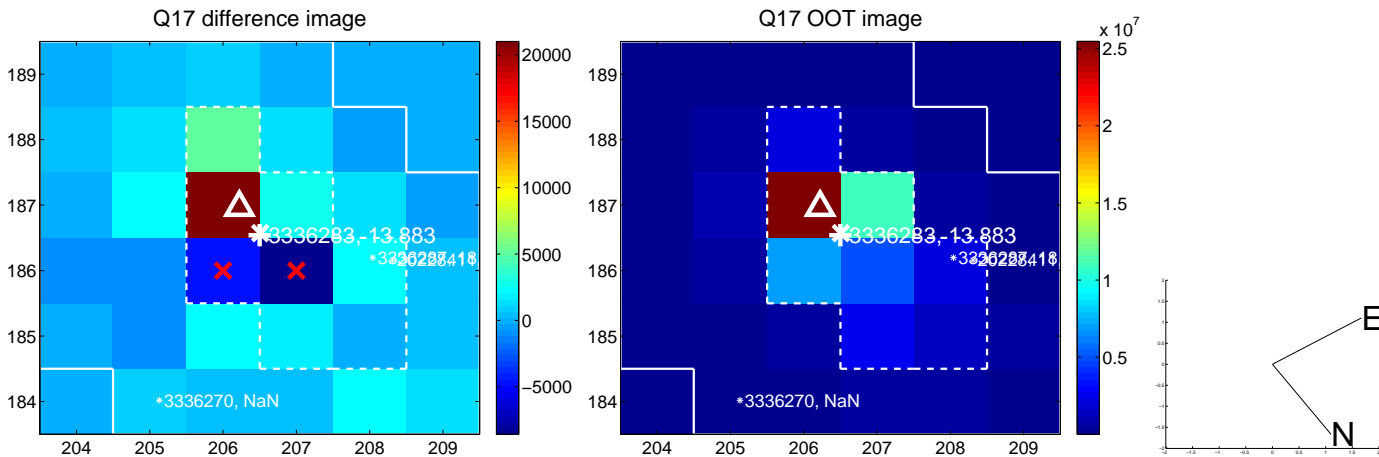
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

