

# KIC 006629106

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006629106-01	OBS	No	0.521780	131.746020	37.5	2.771	11.3	6.0	2.31	7297	1.62	60224.15
006629106-02	OBS	No	0.875942	131.898286	127.9	8.908	9.3	13.4	2.31	7297	2.63	30184.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006629106-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
006629106-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

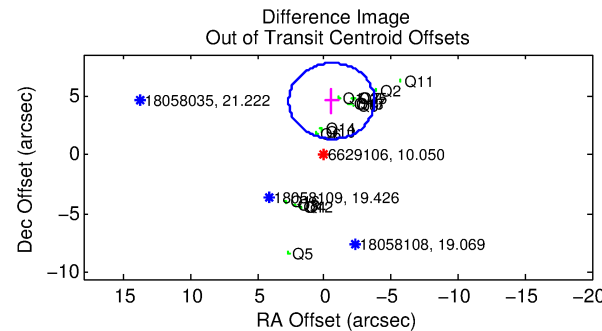
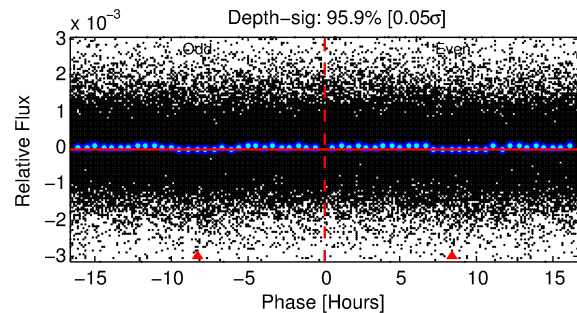
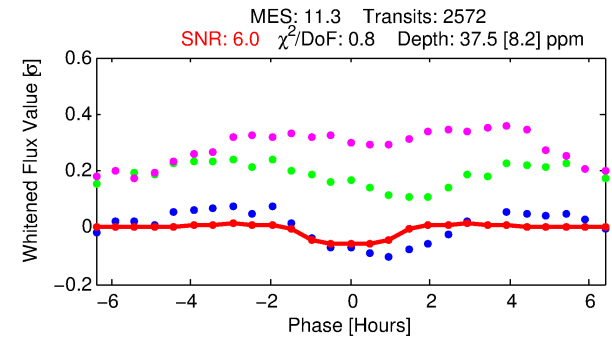
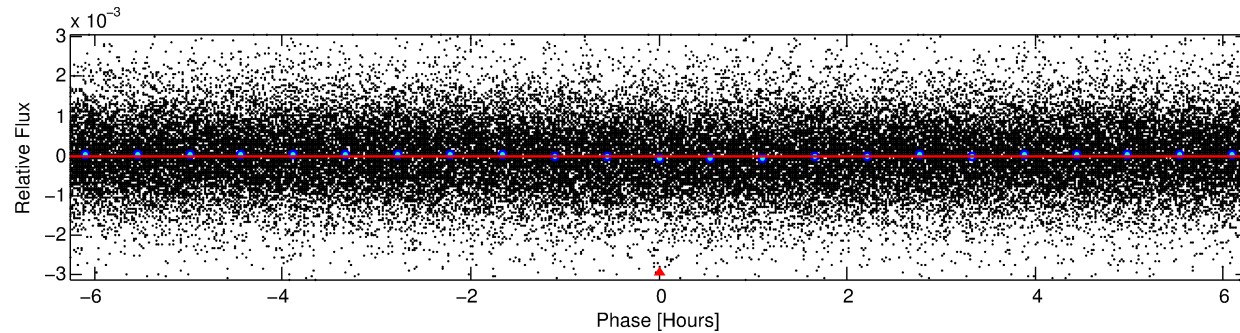
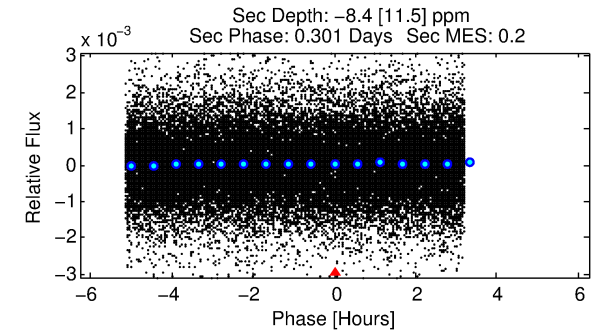
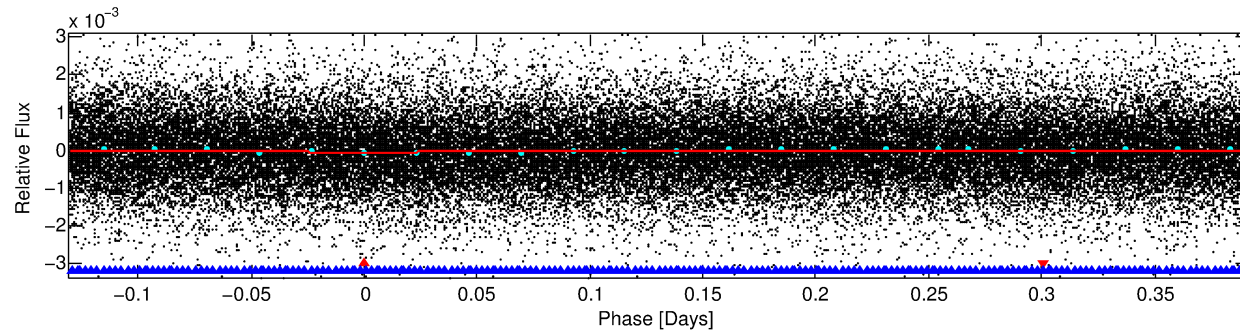
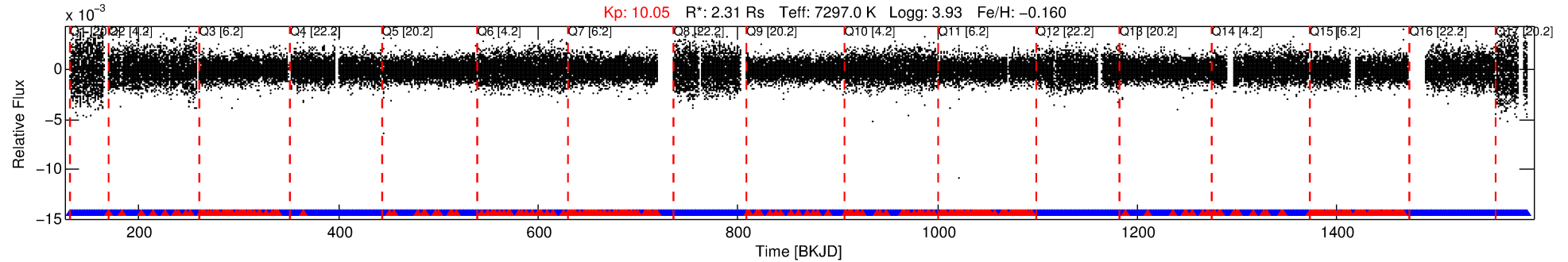
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006629106-01

No Significant Match Found

# DV One-Page Summary

KIC: 6629106 Candidate: 1 of 2 Period: 0.522 d



## DV Fit Results:

Period = 0.52178 [0.00002] d  
Epoch = 131.7460 [0.0058] BKJD  
Rp/R\* = 0.0064 [0.0066]  
a/R\* = 1.17 [1.90]  
b = 0.88 [1.64]  
Seff = 60224.15 [32763.06]  
Teq = 3995 [543] K  
Rp = 1.62 [1.77] Re  
a = 0.0150 [0.0049] AU  
Ag = N/A  
Teffp = N/A

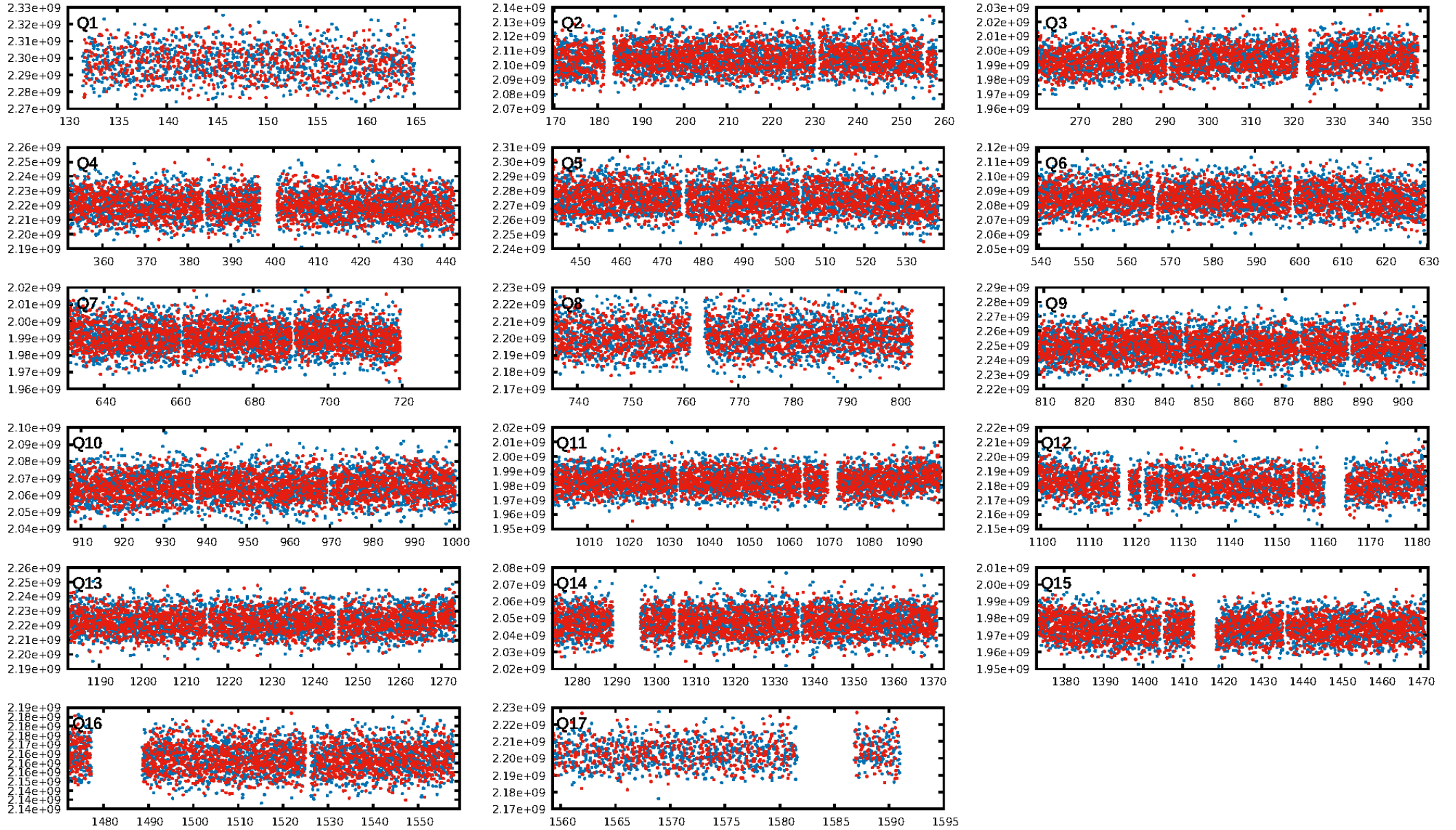
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 63.8% [0.91σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.85 [2088/2457]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 8.7%  
Centroid-so: 1.137 arcsec [1.96σ]  
OotOffset-rm: 4.586 arcsec [4.30σ]  
KicOffset-rm: 5.565 arcsec [4.69σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.24 [4/17]  
DiffImageOverlap-fno: 0.00 [0/17]

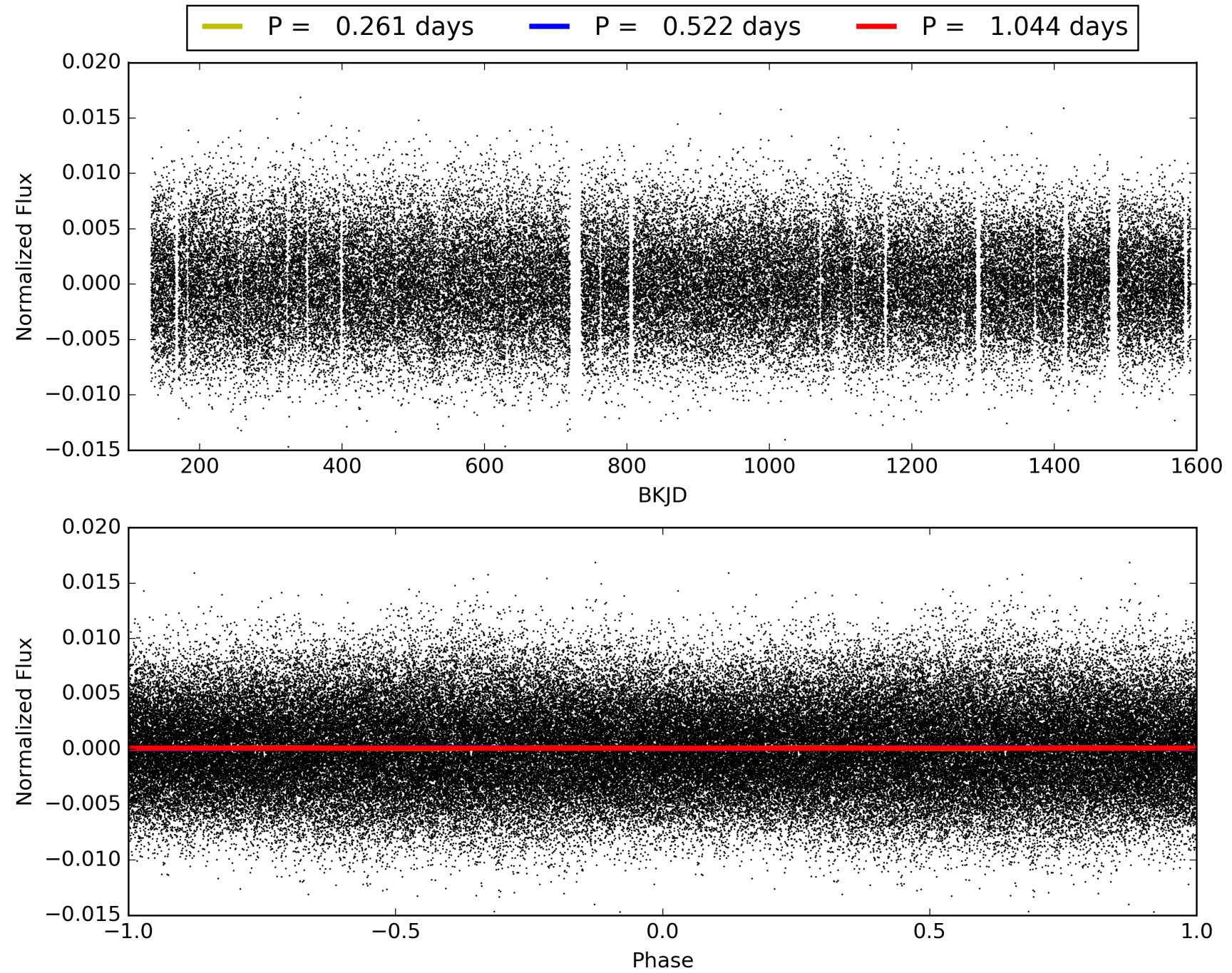
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:55:14 Z

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

# TCE 006629106-01, PDC Light Curves

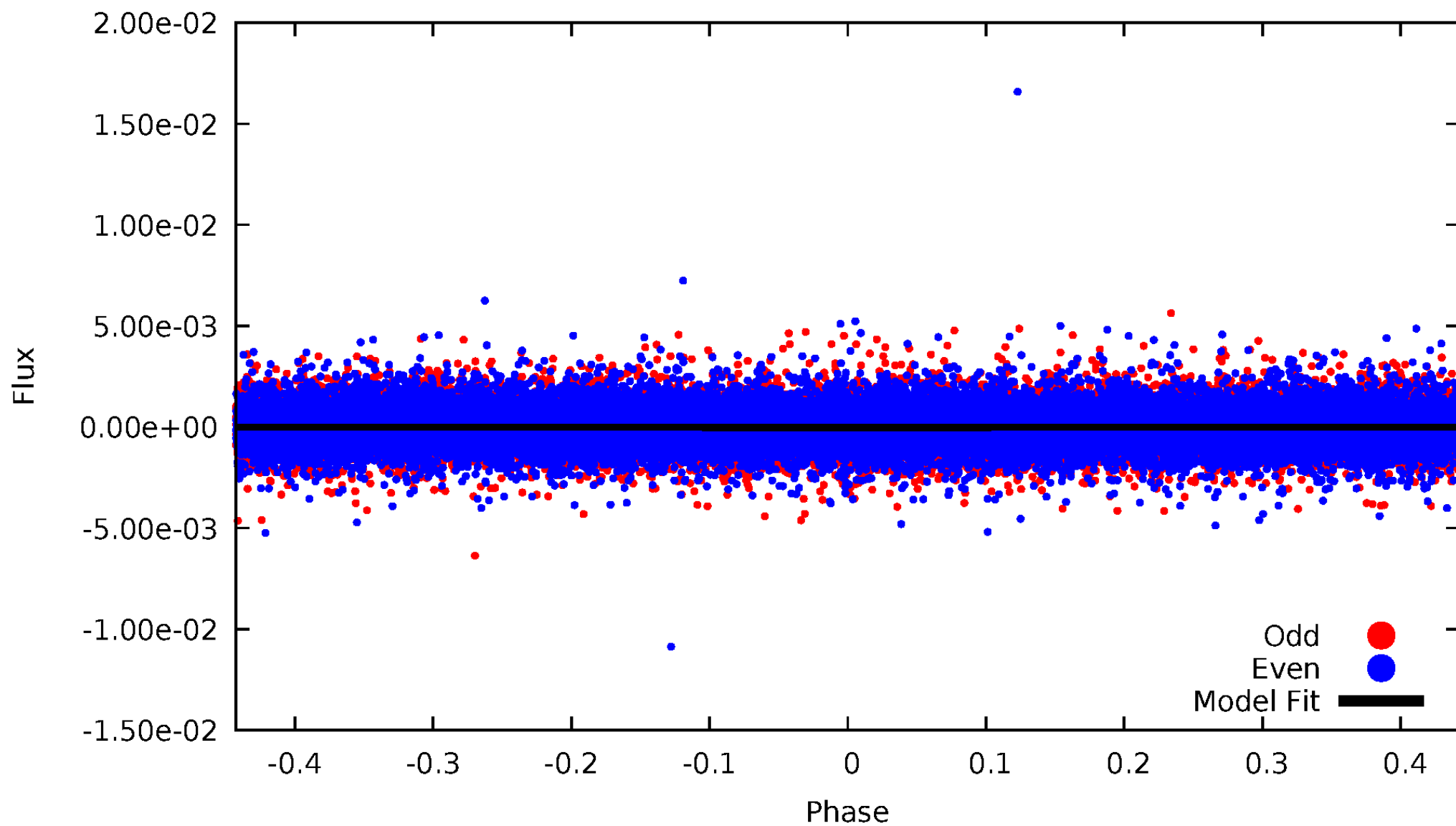


TCE 006629106-01



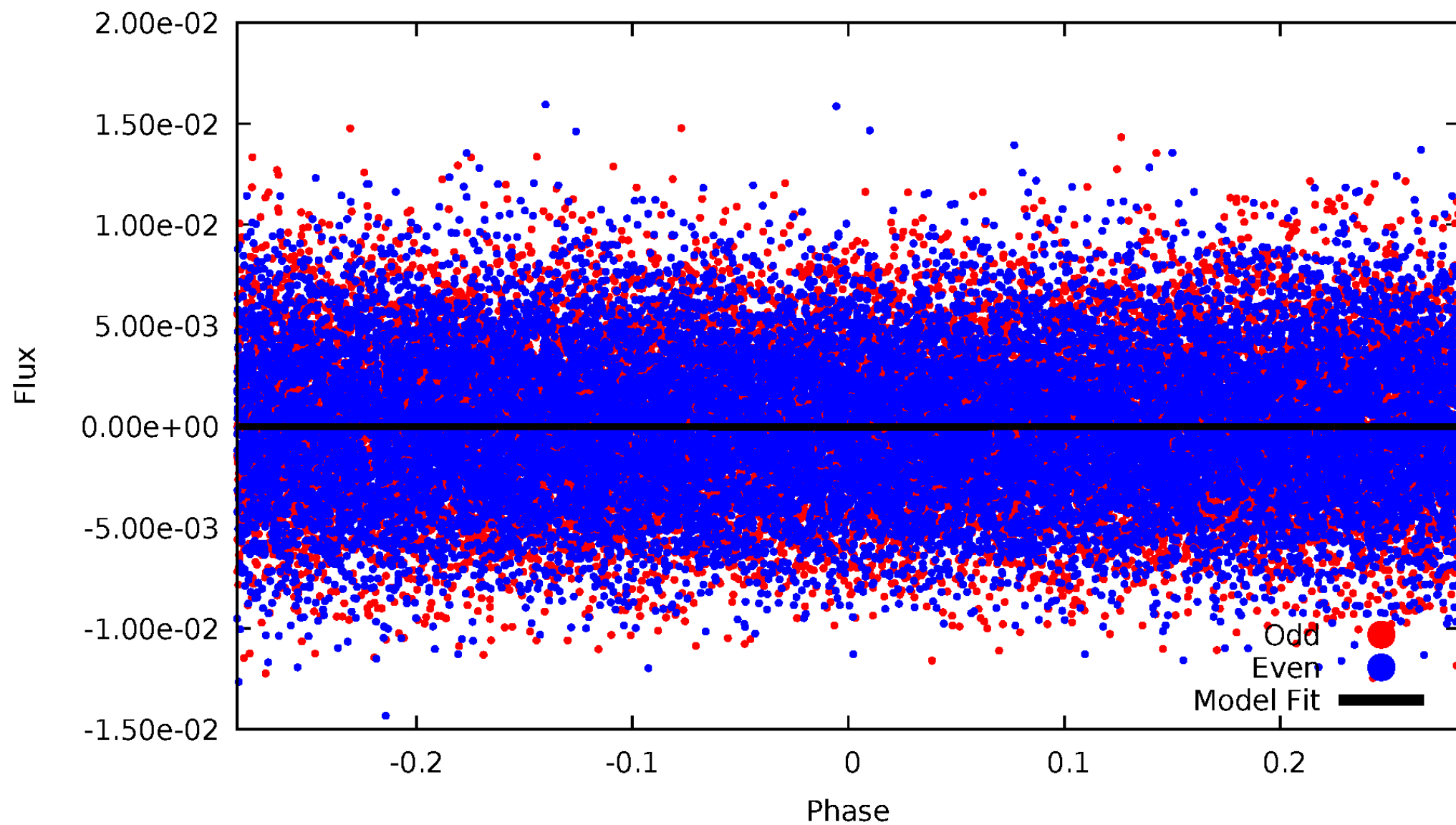
# DV Odd/Even

TCE 006629106-01



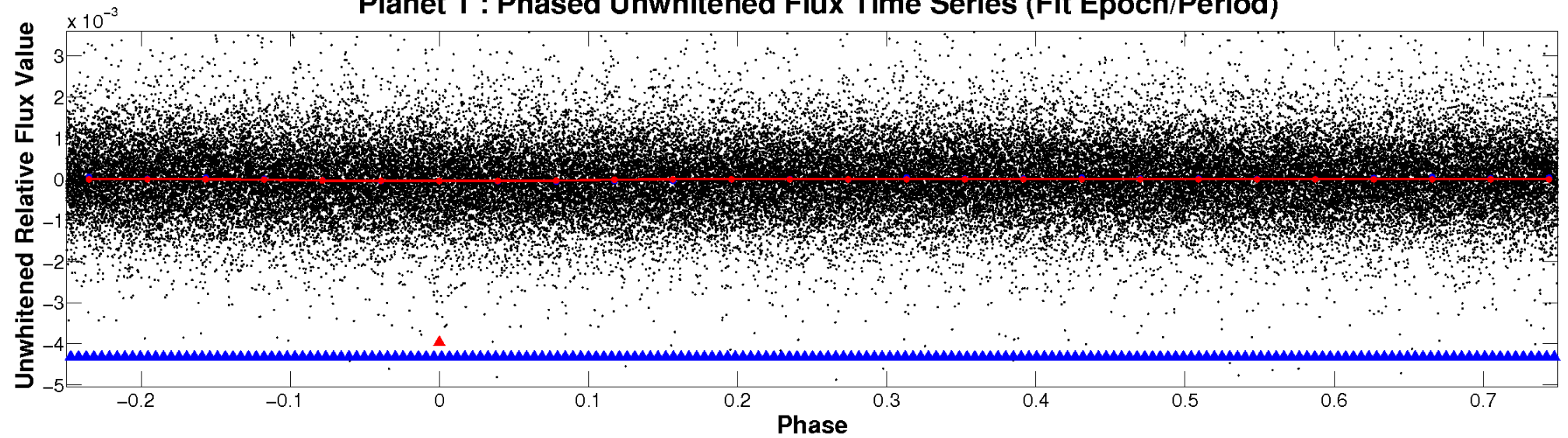
# ALT Odd/Even

TCE 006629106-01

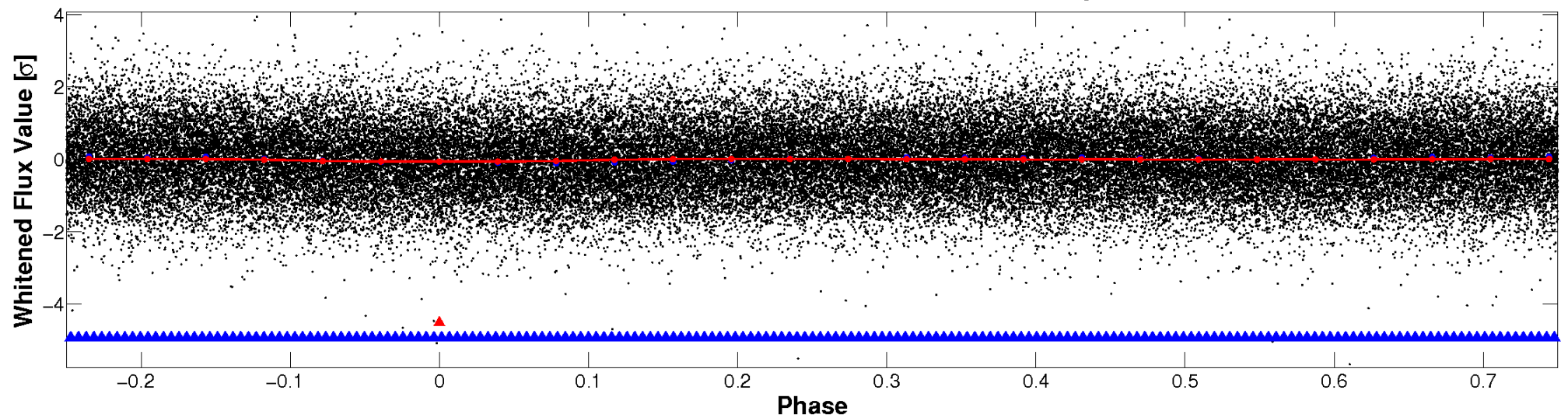


# Non-Whitened Vs. Whitened Light Curve

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

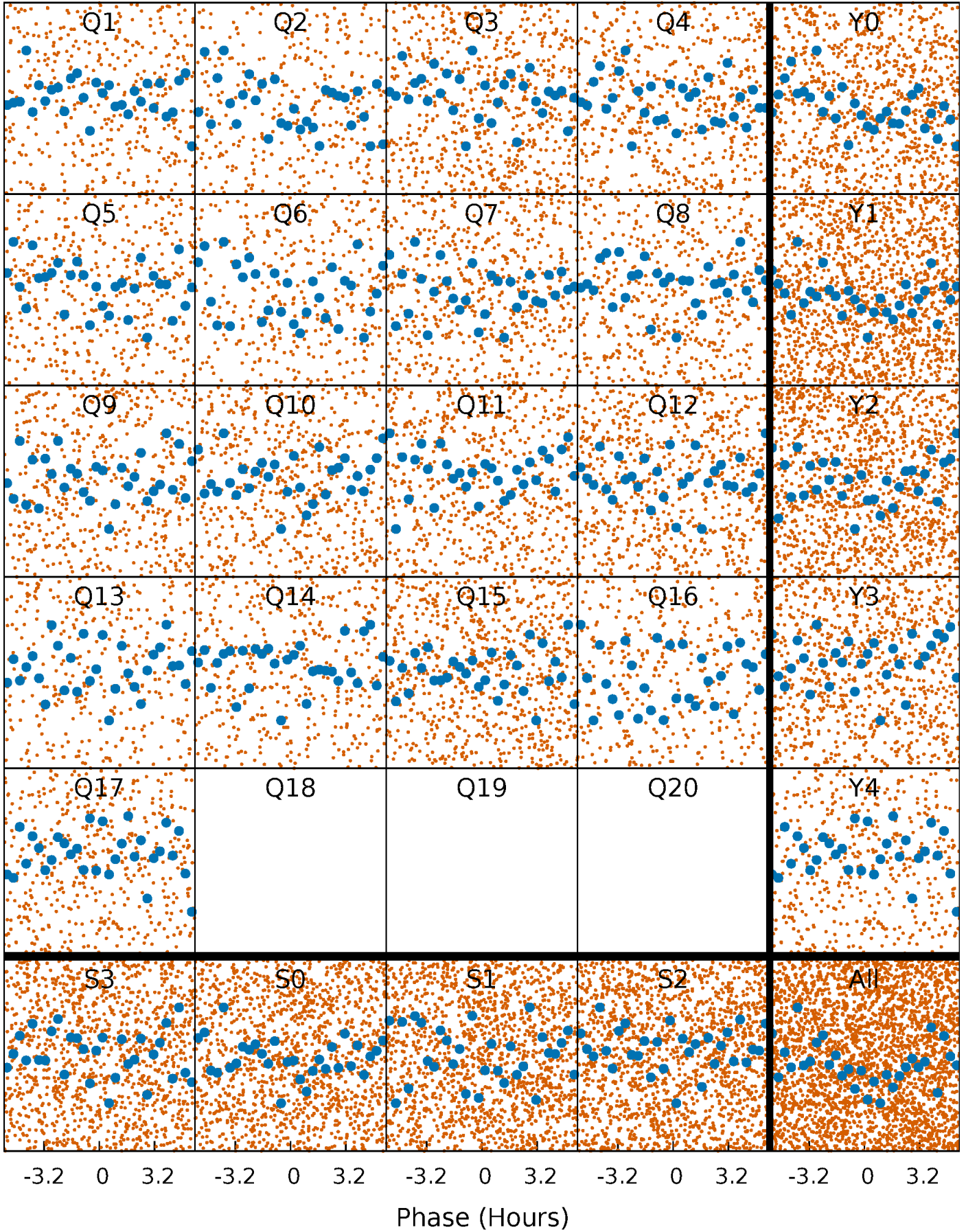


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



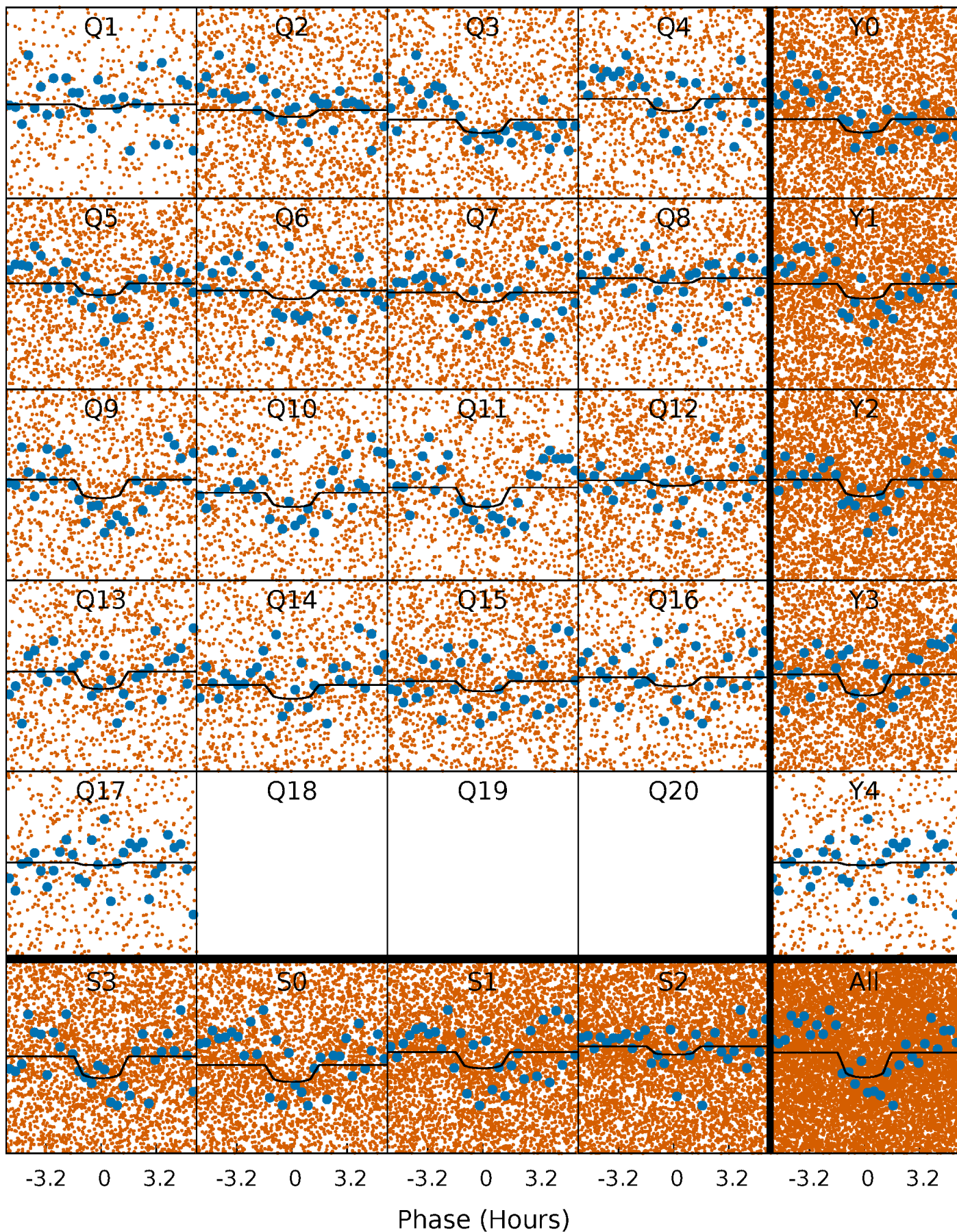
# PDC Quarter-Phased Transit Curves

TCE 006629106-01 P= 0.521780 Days  $T_0=131.746020$  (BKJD)



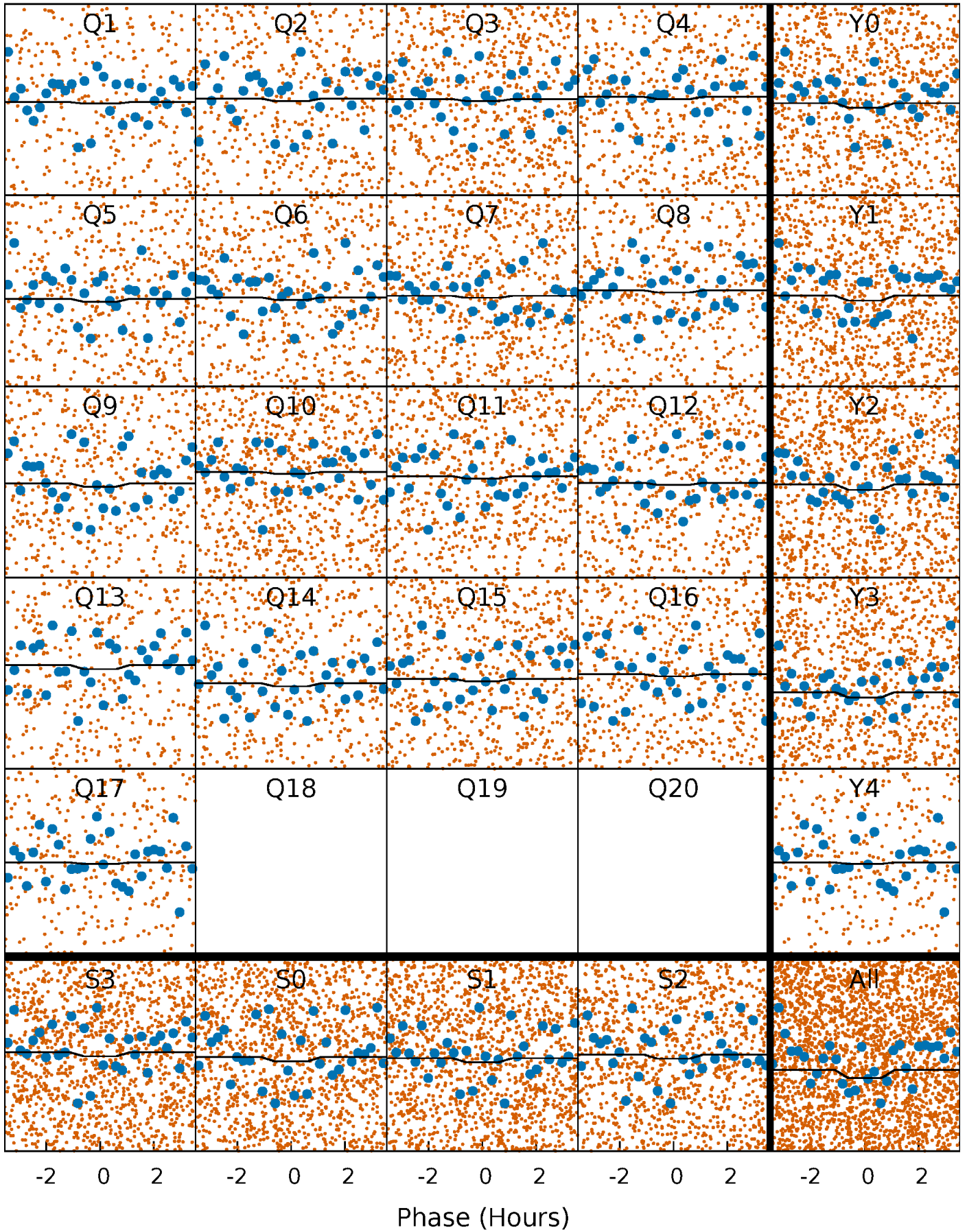
# DV Quarter-Phased Transit Curves

TCE 006629106-01 P= 0.521780 Days  $T_0=131.746020$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

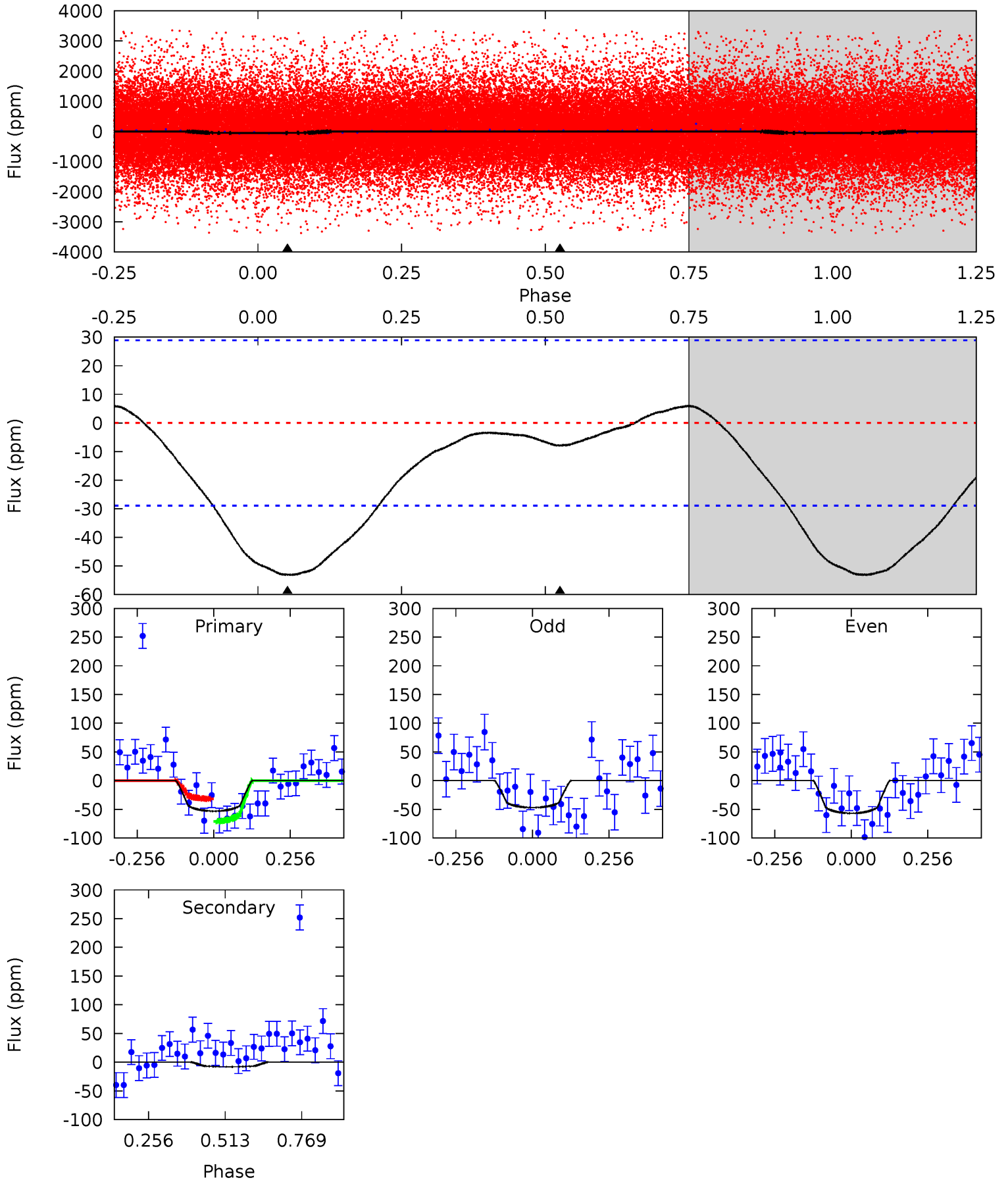
TCE 006629106-01 P= 0.521809 Days  $T_0=131.741640$  (BKJD)



# DV Model-Shift Uniqueness Test

006629106-01, P = 0.521780 Days, E = 131.224240 Days

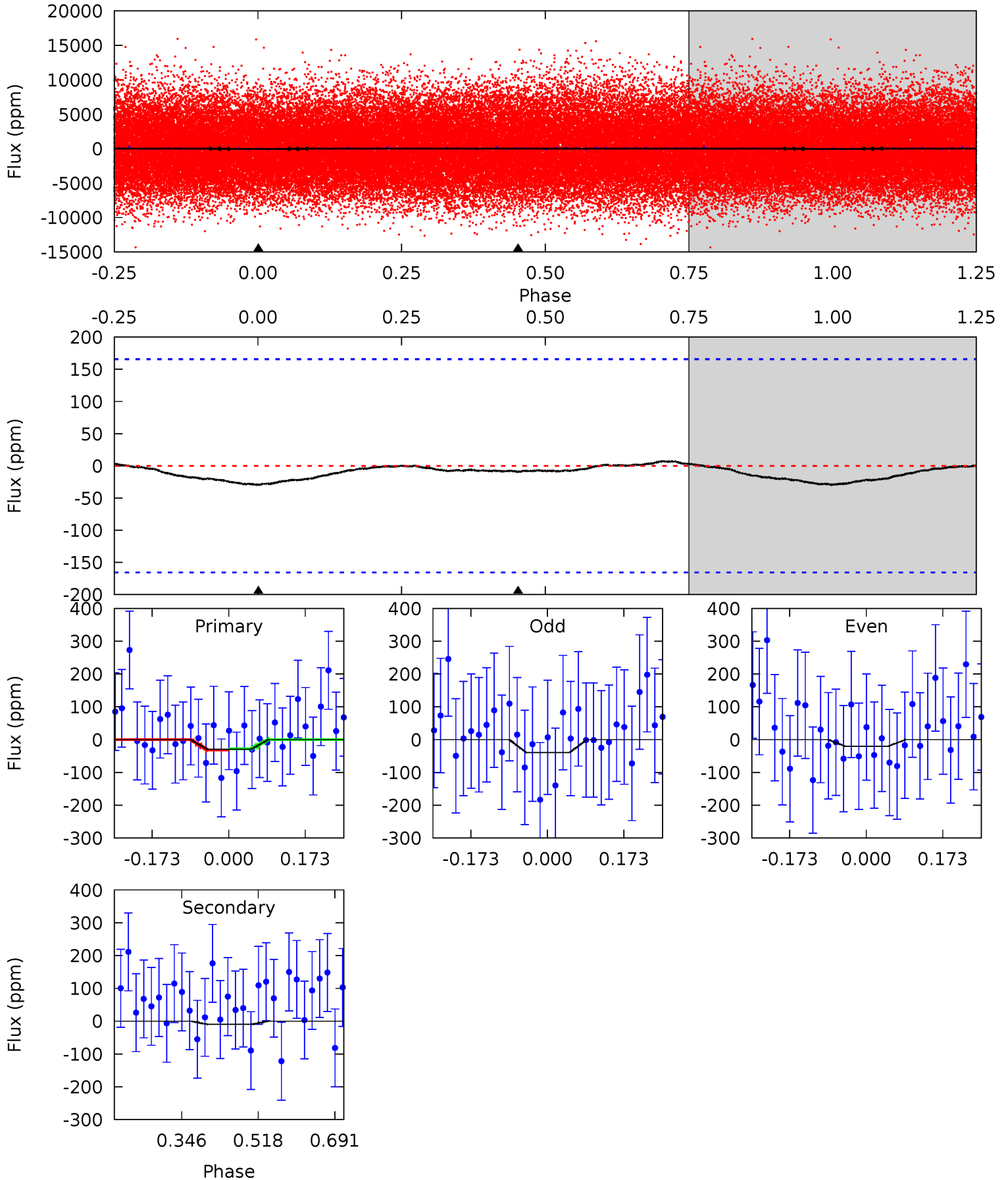
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.02	1.20	0	0	4.36	1.14	1.03	8.02	8.02	1.20	1.20	0.74	1.02	0.10	3.03



# Alt Model-Shift Uniqueness Test

006629106-01, P = 0.521809 Days, E = 131.219831 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.80	0.26	0	0	4.45	1.36	0.09	0.80	0.80	0.26	0.26	0.26	0.92	0.20	0.05



### Stellar Parameters For KIC 006629106

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7297^{+228}_{-304}$	$3.929^{+0.301}_{-0.129}$	$-0.160^{+0.250}_{-0.350}$	$2.309^{+0.540}_{-0.810}$	$1.650^{+0.184}_{-0.368}$	$0.189^{+0.391}_{-0.071}$
	+3%/-4%	+8%/-3%	+156%/-219%	+23%/-35%	+11%/-22%	+207%/-37%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 006629106-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-8 \pm 7$	$1.89^{+1.52}_{-1.17}$	$5477^{+393}_{-538}$	$-3568^{+9672}_{-1059}$	$0.219^{+1.241}_{-0.194}$
Alt.	$-10 \pm 37$	$1.61^{+1.44}_{-1.07}$	$5474^{+418}_{-520}$	$-2457^{+11887}_{-4279}$	$0.294^{+5.157}_{-1.626}$

$T_{\text{max}}$  = 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

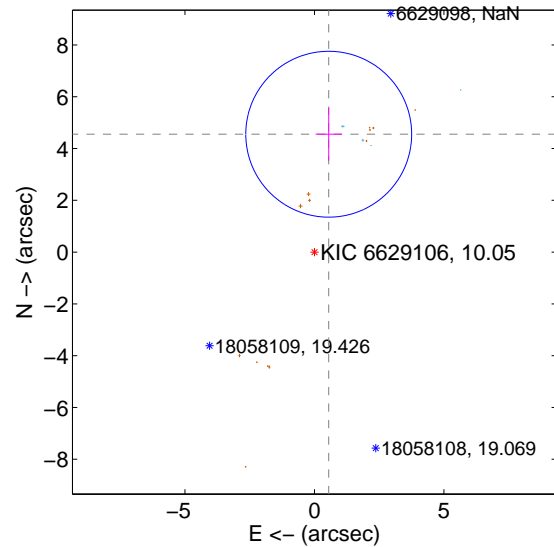
Supplemental centroid analysis for 006629106-01. **Kepler magnitude: 10.05**. Transit SNR 6.05

There are 4 quarters with good PRF difference image offsets

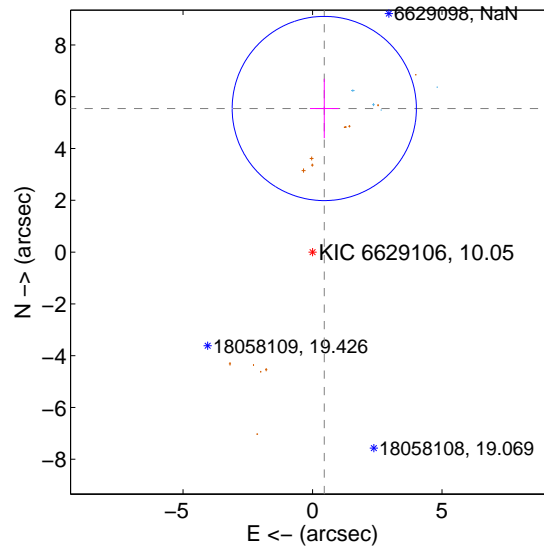
The direct PRF centroid is offset from the target star catalog position by about 1.47 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>4.586 \pm 1.068</math></b>	<b>4.30</b>	$-0.552 \pm 0.510$	$4.553 \pm 1.021$
PRF-fit source offset from KIC position	<b><math>5.565 \pm 1.186</math></b>	<b>4.69</b>	$-0.454 \pm 0.552$	$5.546 \pm 1.149$
photometric centroid source offset	$1.14 \pm 0.58$	1.96	$-0.48 \pm 0.39$	$1.03 \pm 0.61$

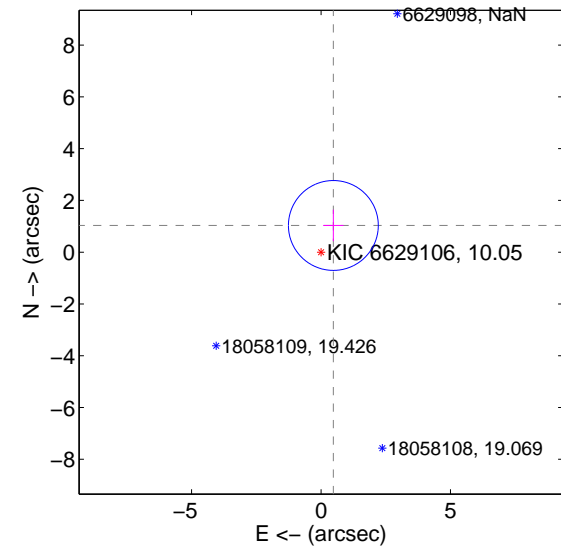
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

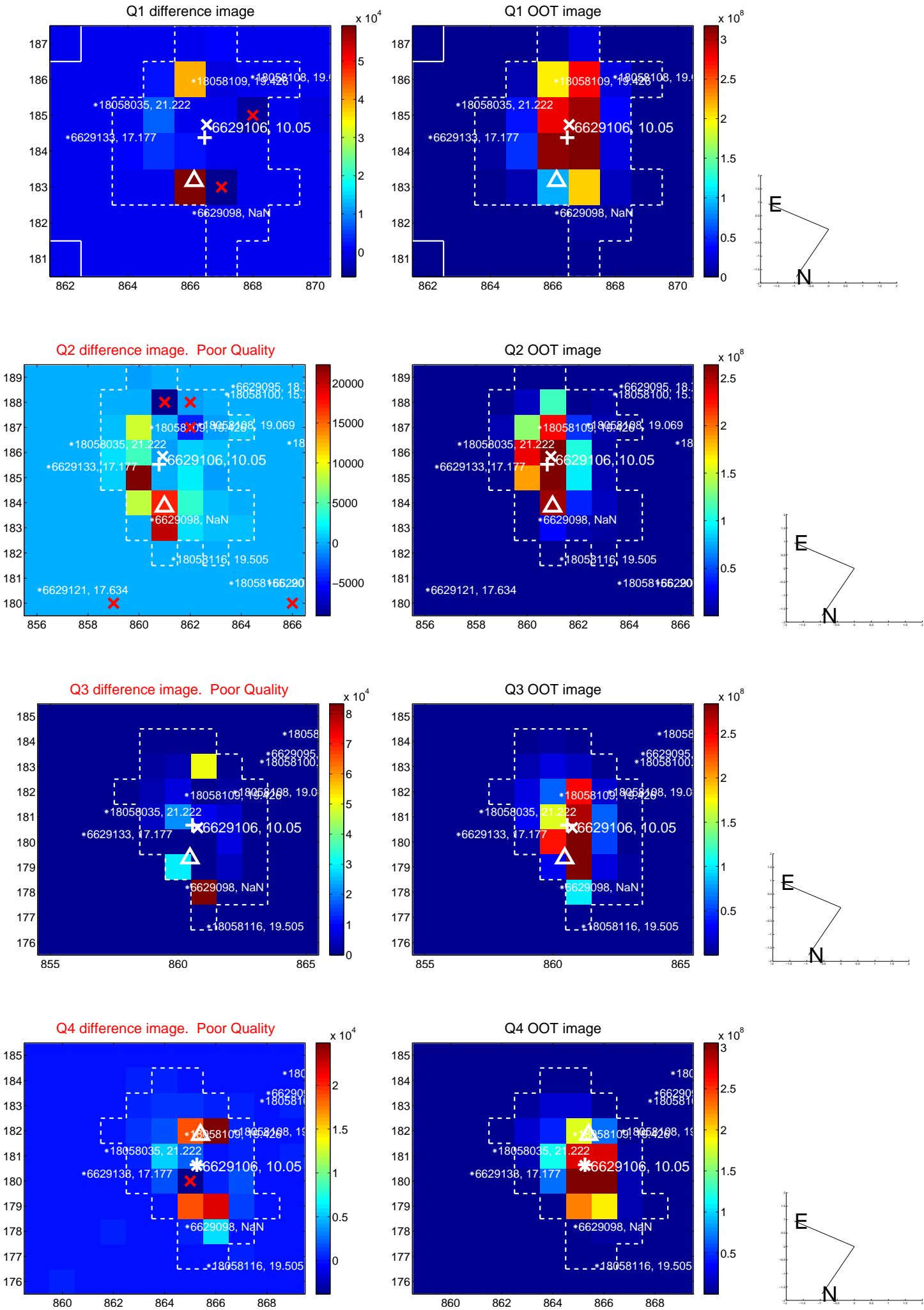


offset from photometric centroids

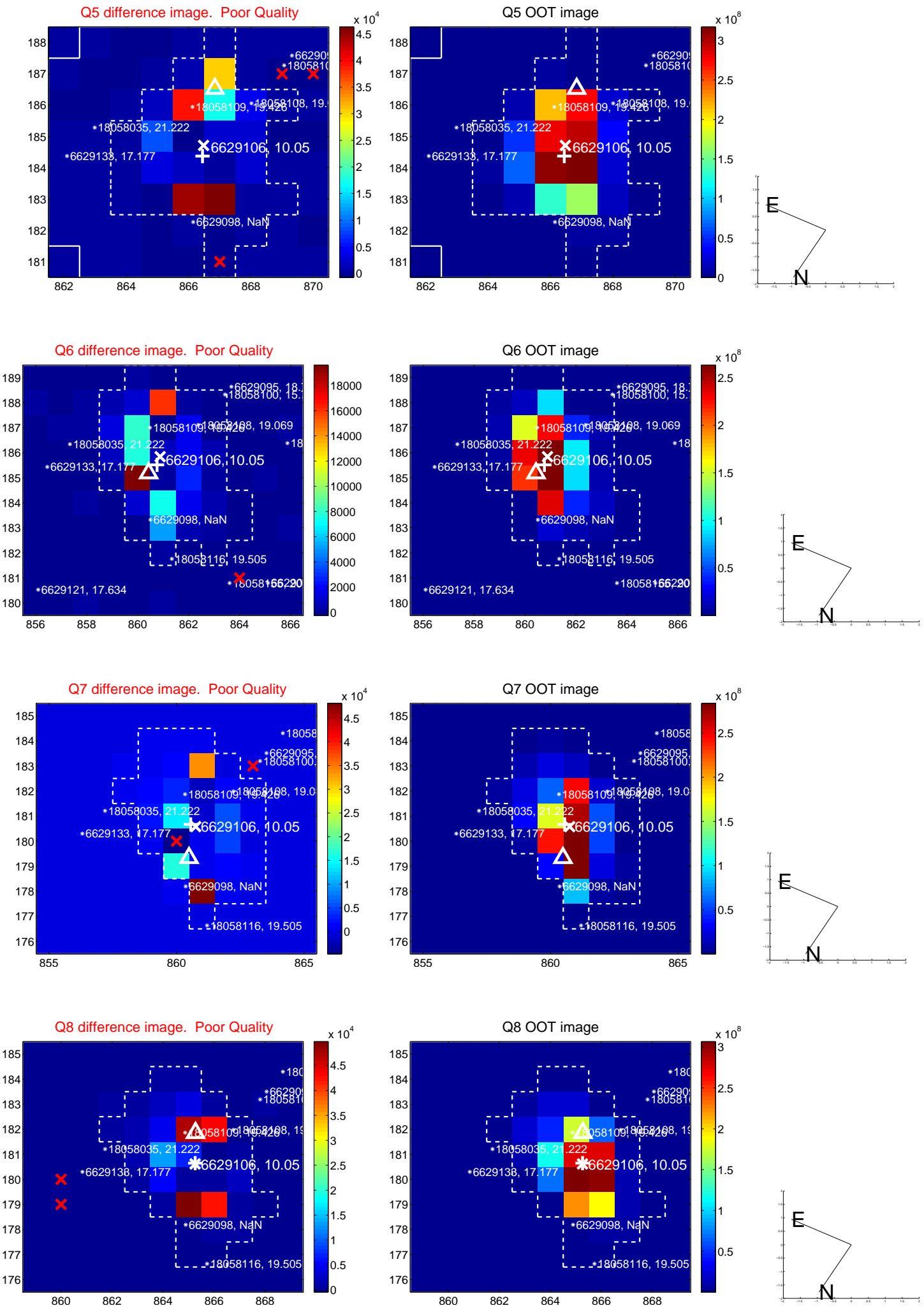


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

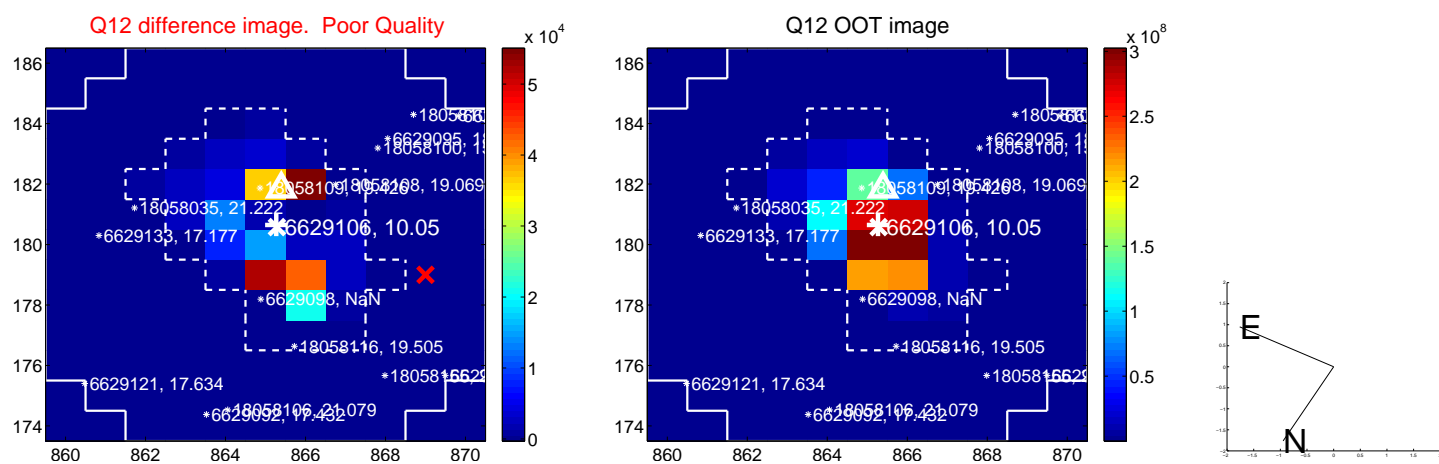
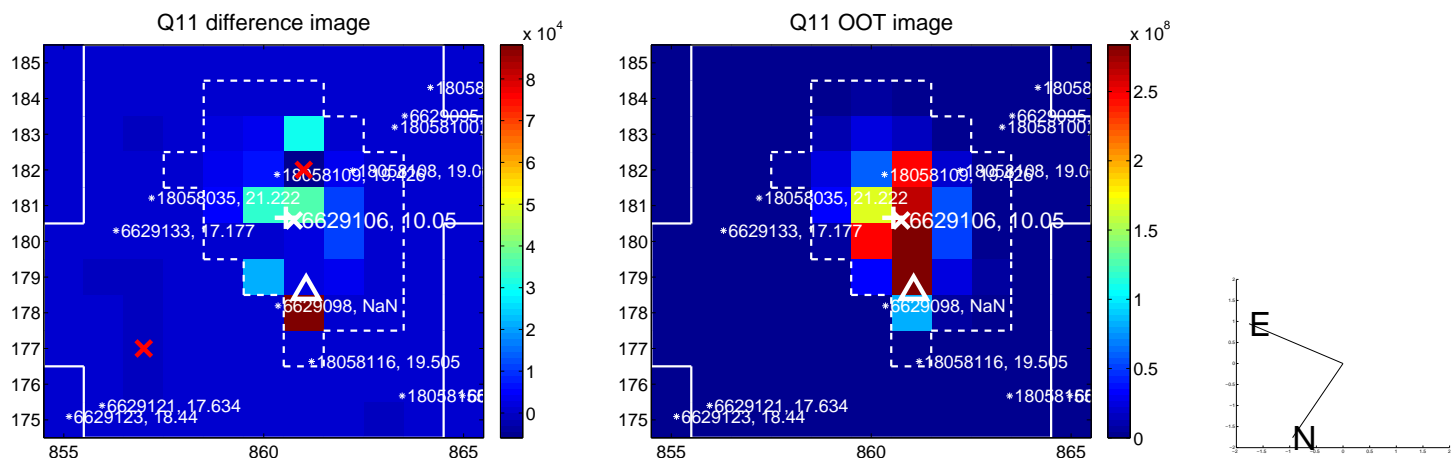
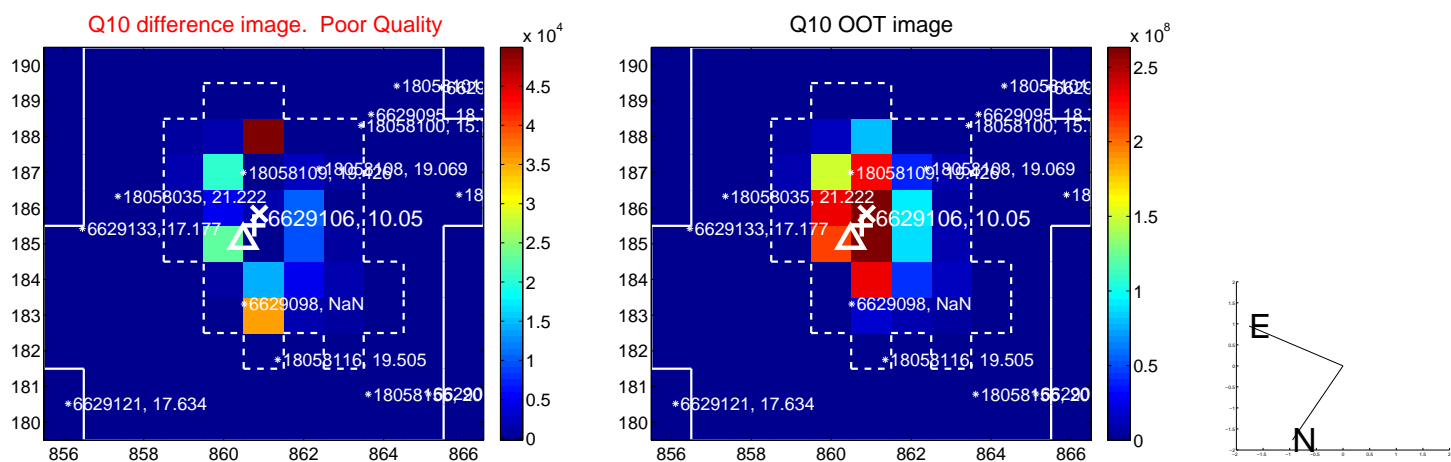
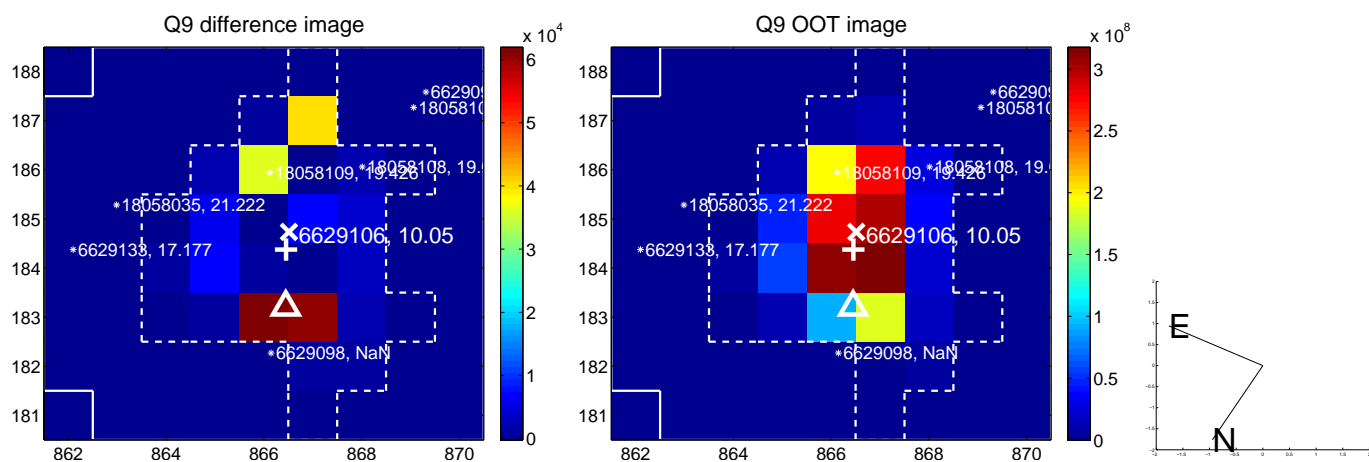
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



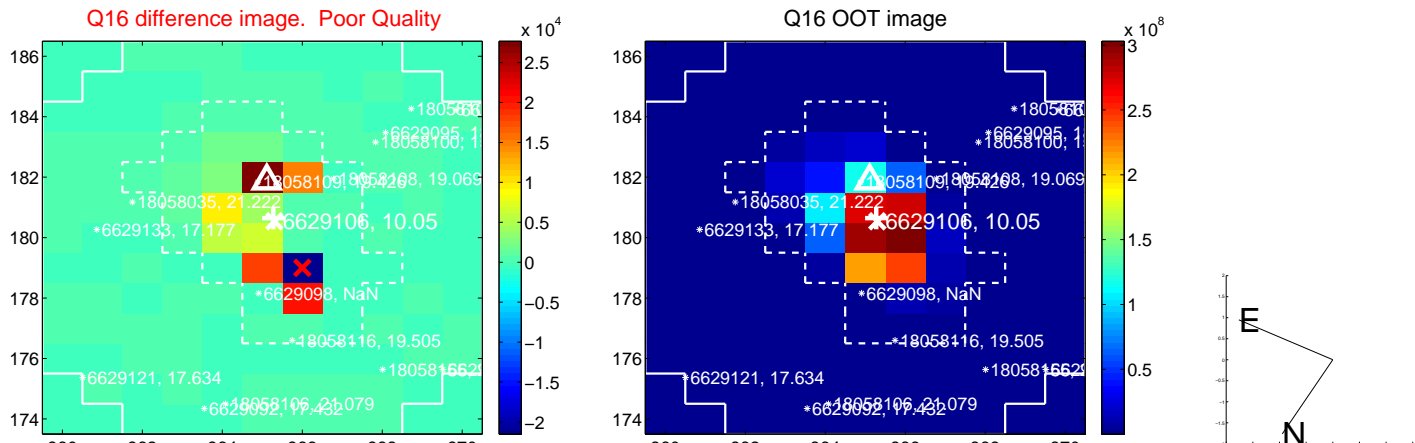
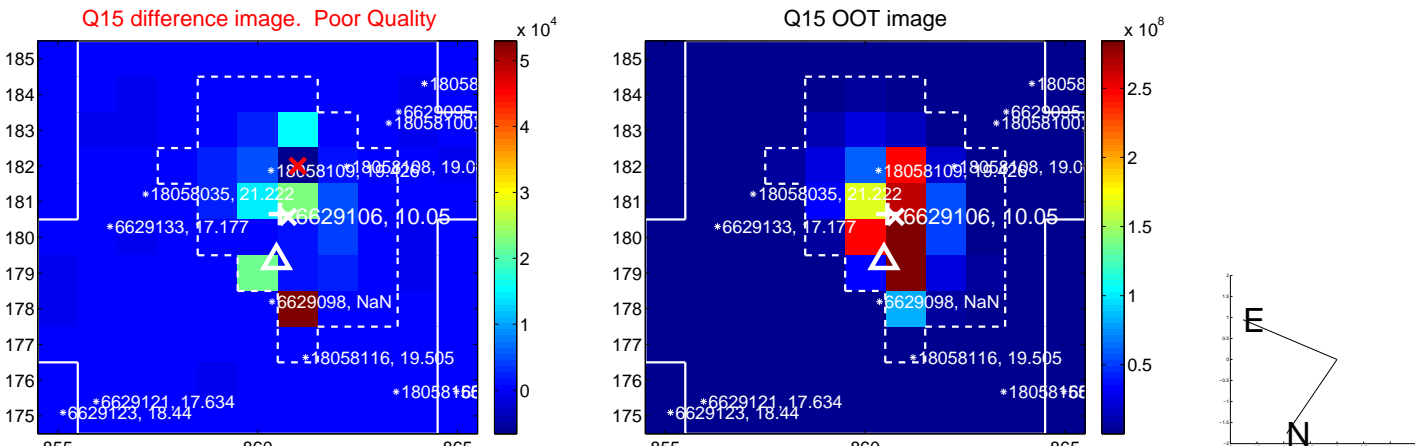
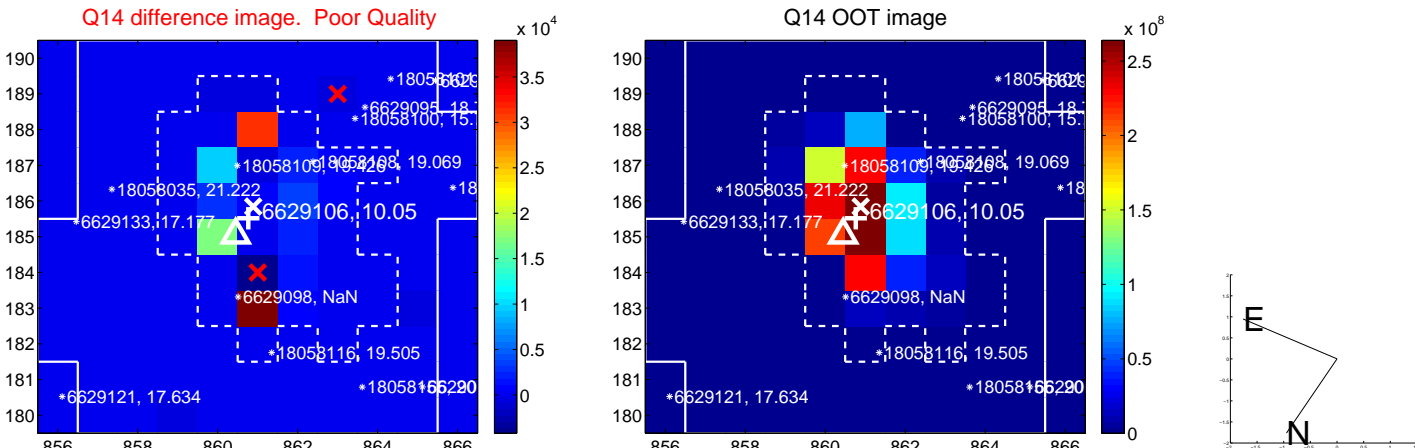
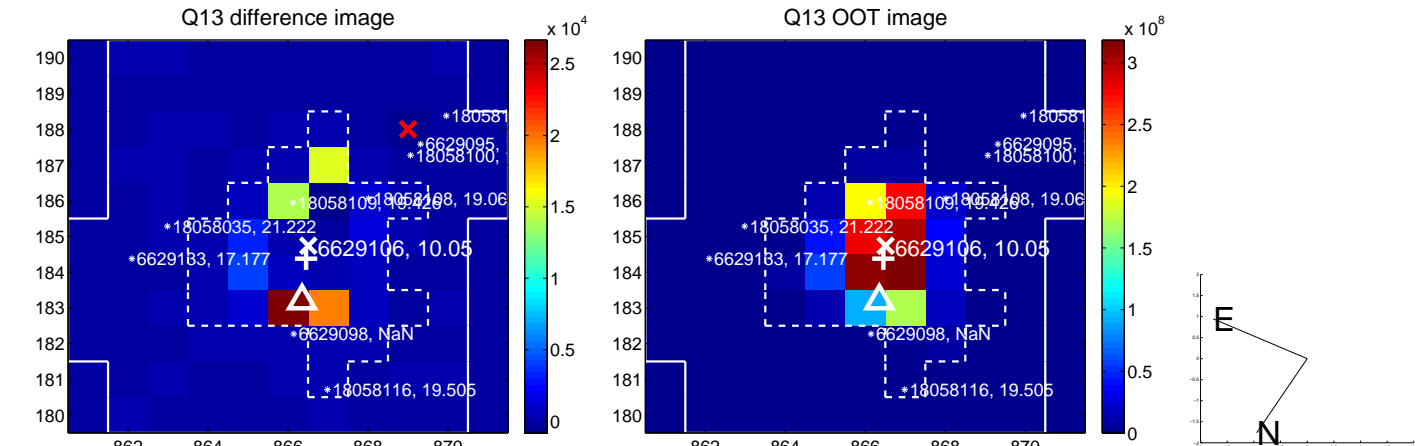
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



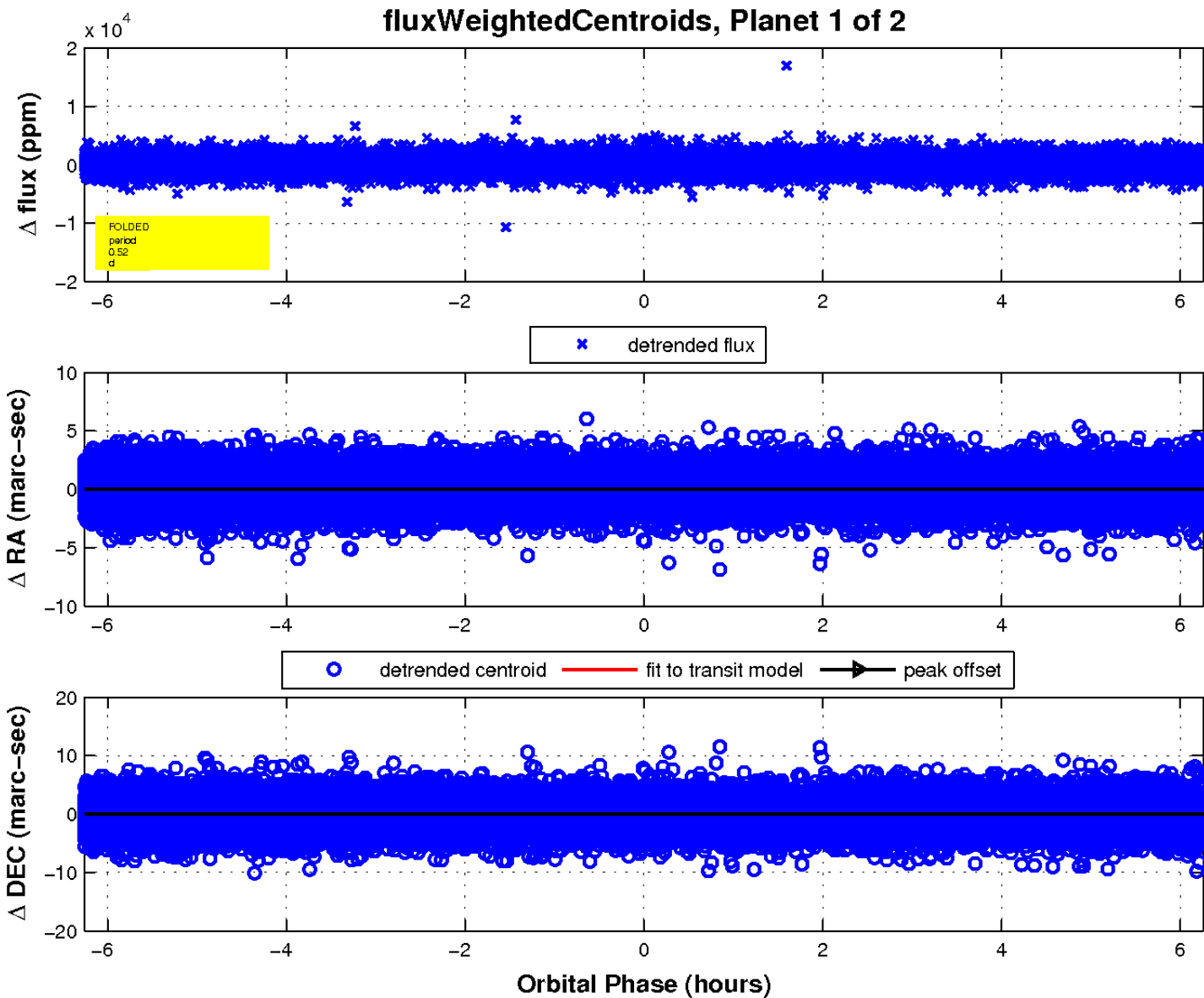
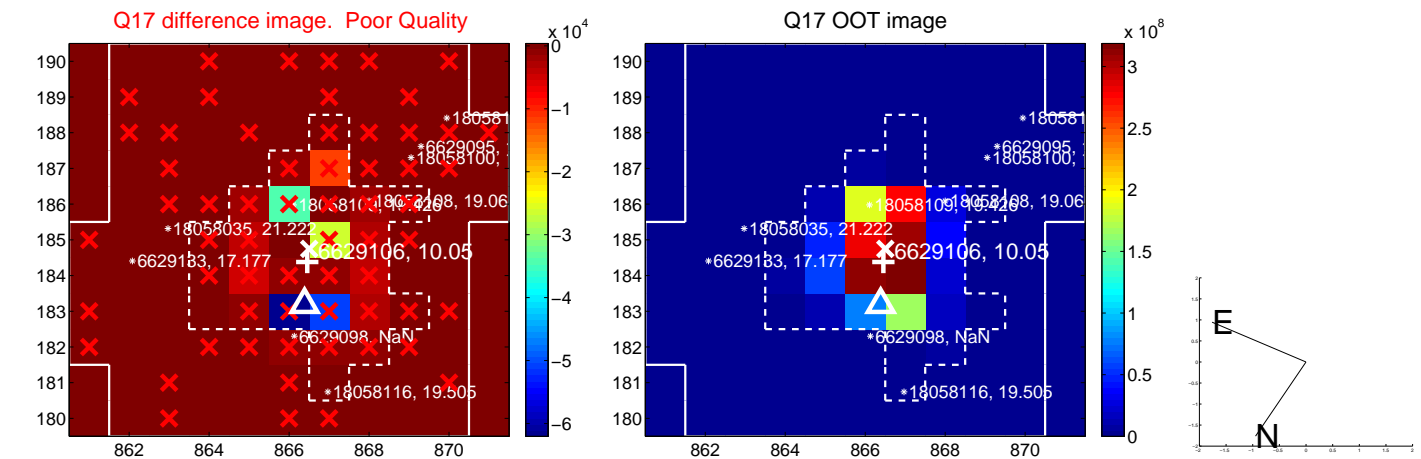
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

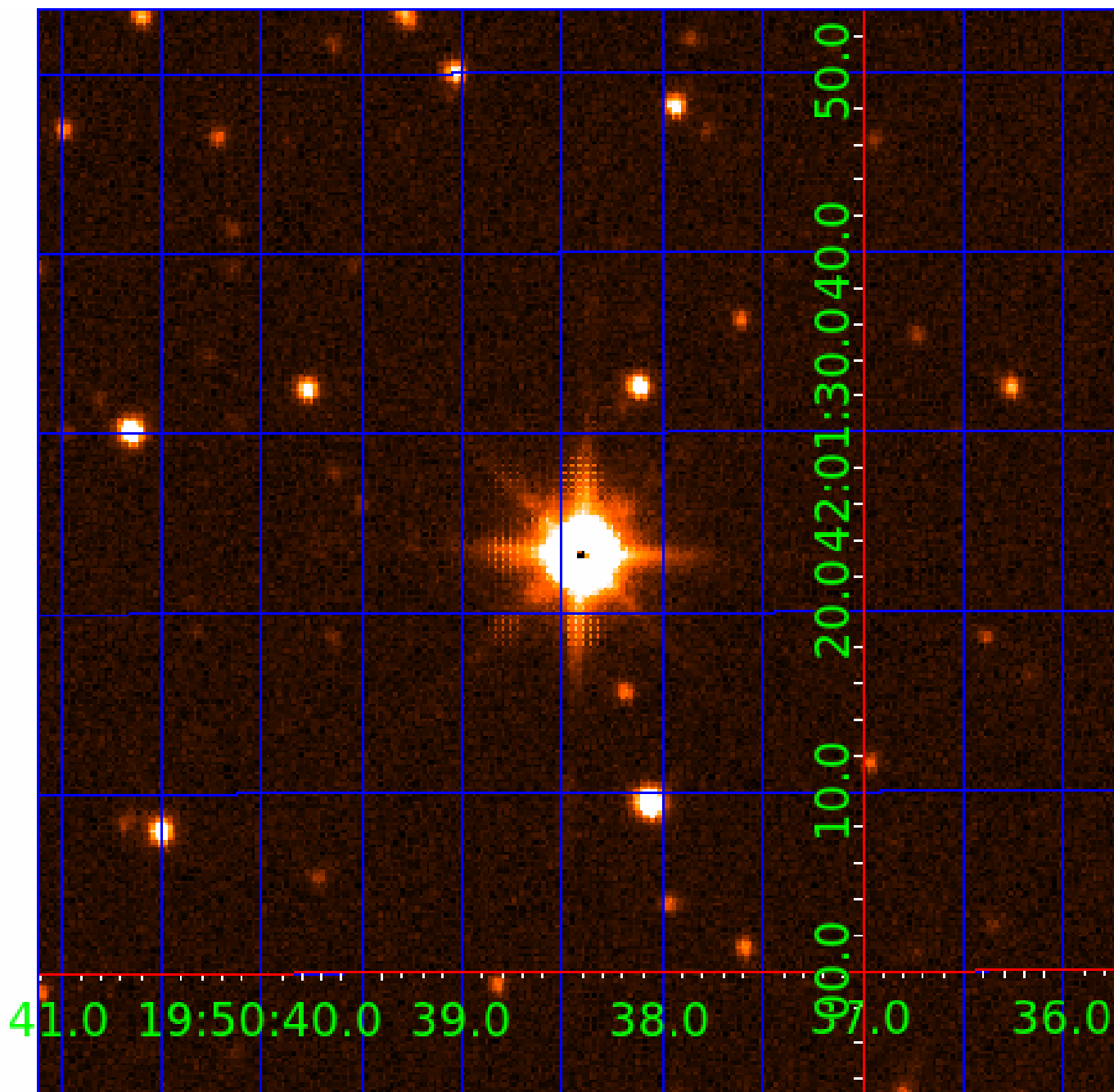


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006629106

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006629106-01	OBS	No	0.521780	131.746020	37.5	2.771	11.3	6.0	2.31	7297	1.62	60224.15
006629106-02	OBS	No	0.875942	131.898286	127.9	8.908	9.3	13.4	2.31	7297	2.63	30184.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006629106-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
006629106-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

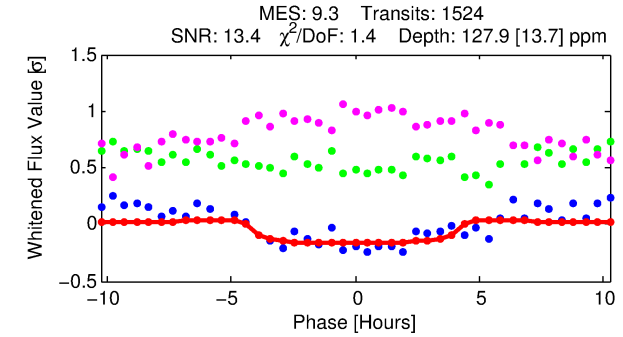
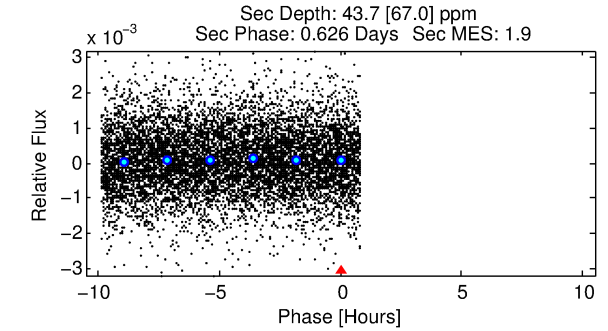
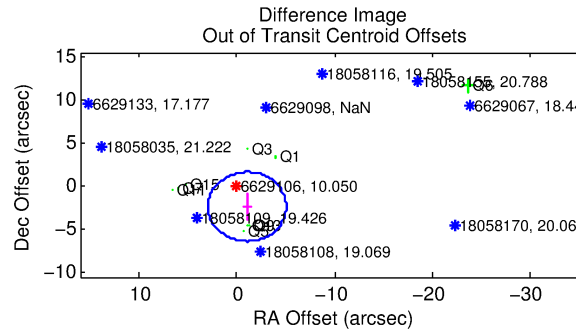
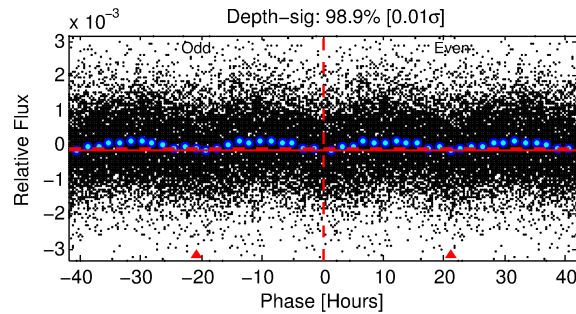
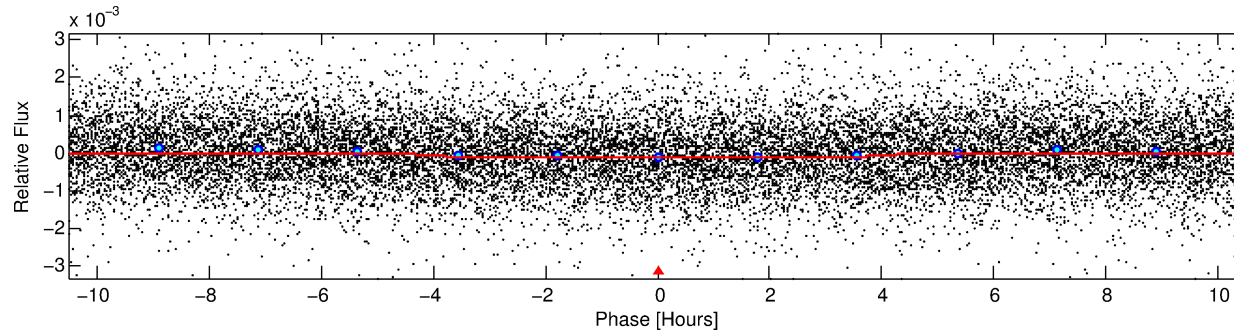
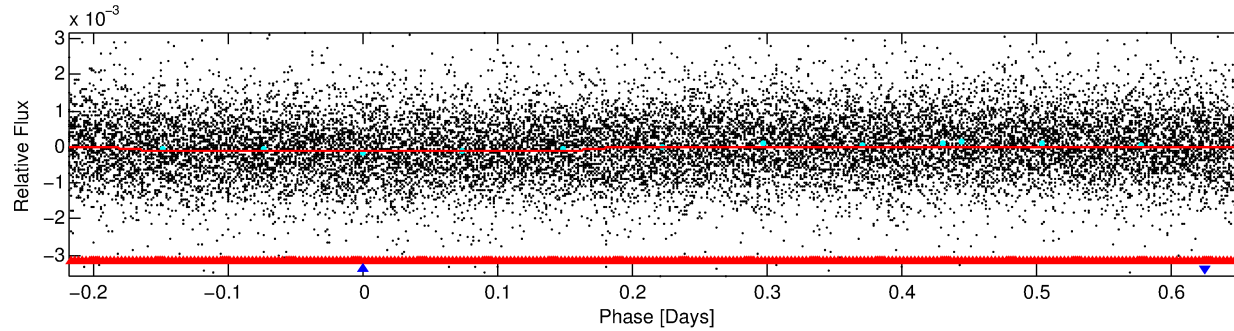
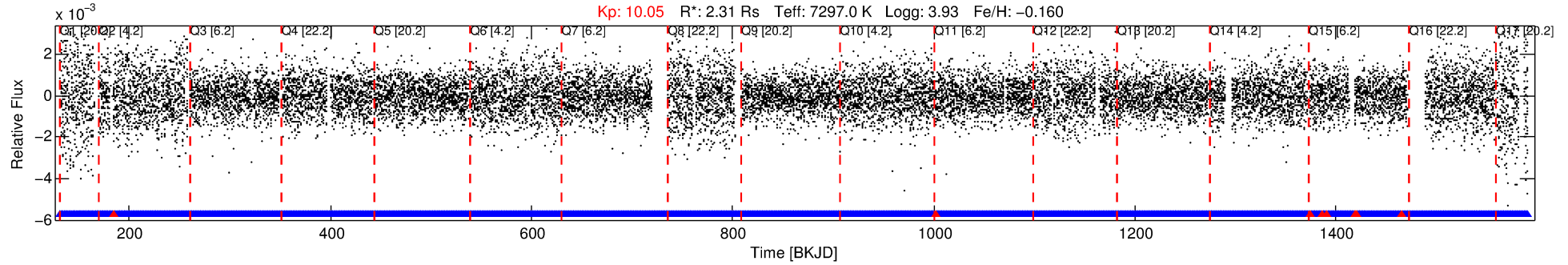
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006629106-02

No Significant Match Found

# DV One-Page Summary

KIC: 6629106 Candidate: 2 of 2 Period: 0.876 d



## DV Fit Results:

Period = 0.87594 [0.00002] d  
Epoch = 131.8983 [0.0077] BKJD  
Rp/R\* = 0.0105 [0.0093]  
a/R\* = 1.04 [0.37]  
b = 0.06 [80.53]  
Seff = 30184.72 [16421.05]  
Teq = 3361 [457] K  
Rp = 2.63 [2.52] Re  
a = 0.0212 [0.0070] AU  
Ag = 1.55 [3.74] [0.15 $\sigma$ ]  
Teffp = 5801 [3417] K [0.71 $\sigma$ ]

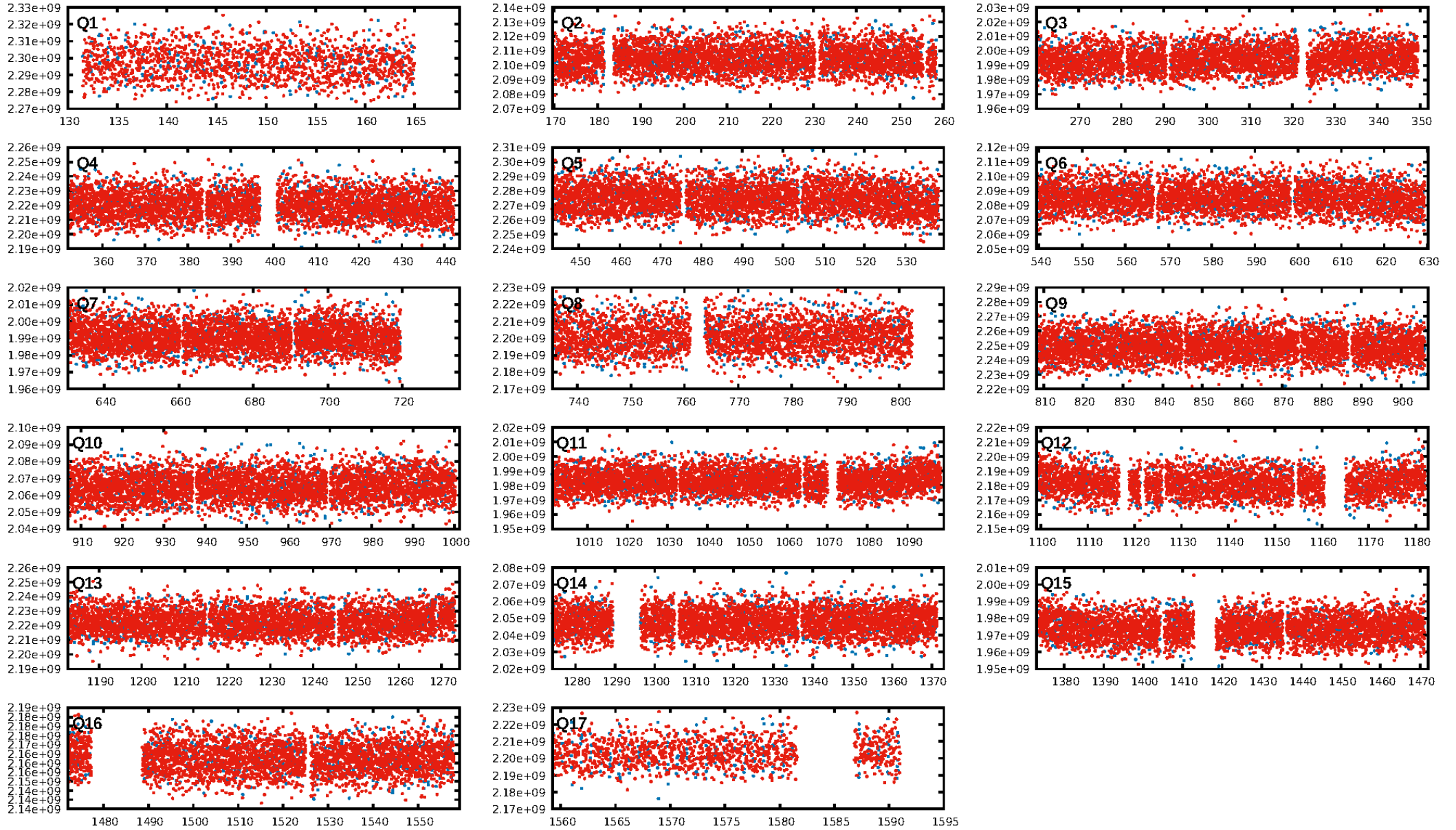
## DV Diagnostic Results:

ShortPeriod-sig: 63.8% [0.91 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [1446/1456]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 2.2%  
Centroid-so: 0.709 arcsec [3.98 $\sigma$ ]  
OotOffset-rm: 2.589 arcsec [1.94 $\sigma$ ]  
KicOffset-rm: 2.750 arcsec [2.42 $\sigma$ ]  
OotOffset-st: 1/4/0/4 [9]  
KicOffset-st: 1/4/0/4 [9]  
DiffImageQuality-fgm: 0.00 [0/9]  
DiffImageOverlap-fno: 0.00 [0/17]

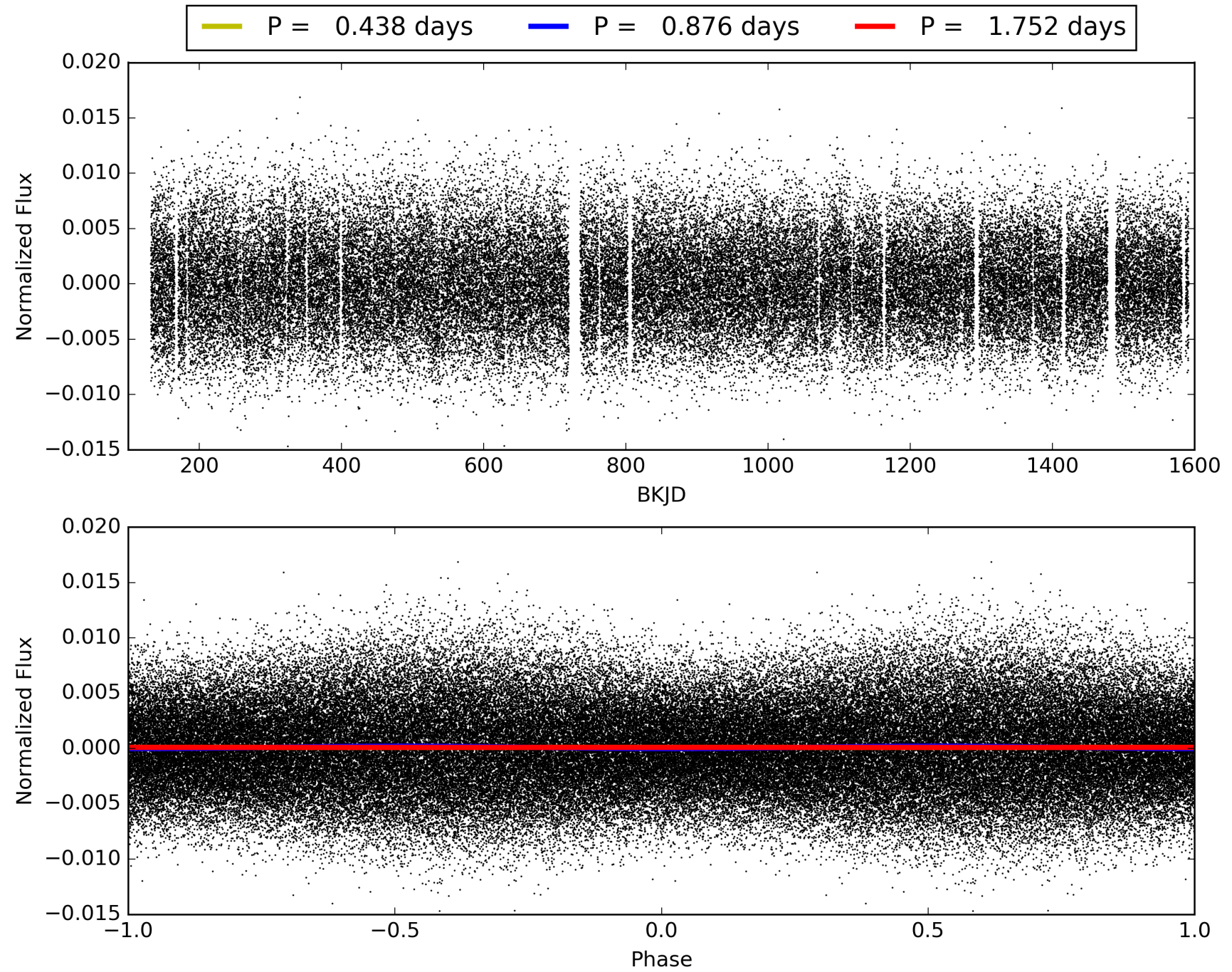
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:55:30 Z

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

# TCE 006629106-02, PDC Light Curves

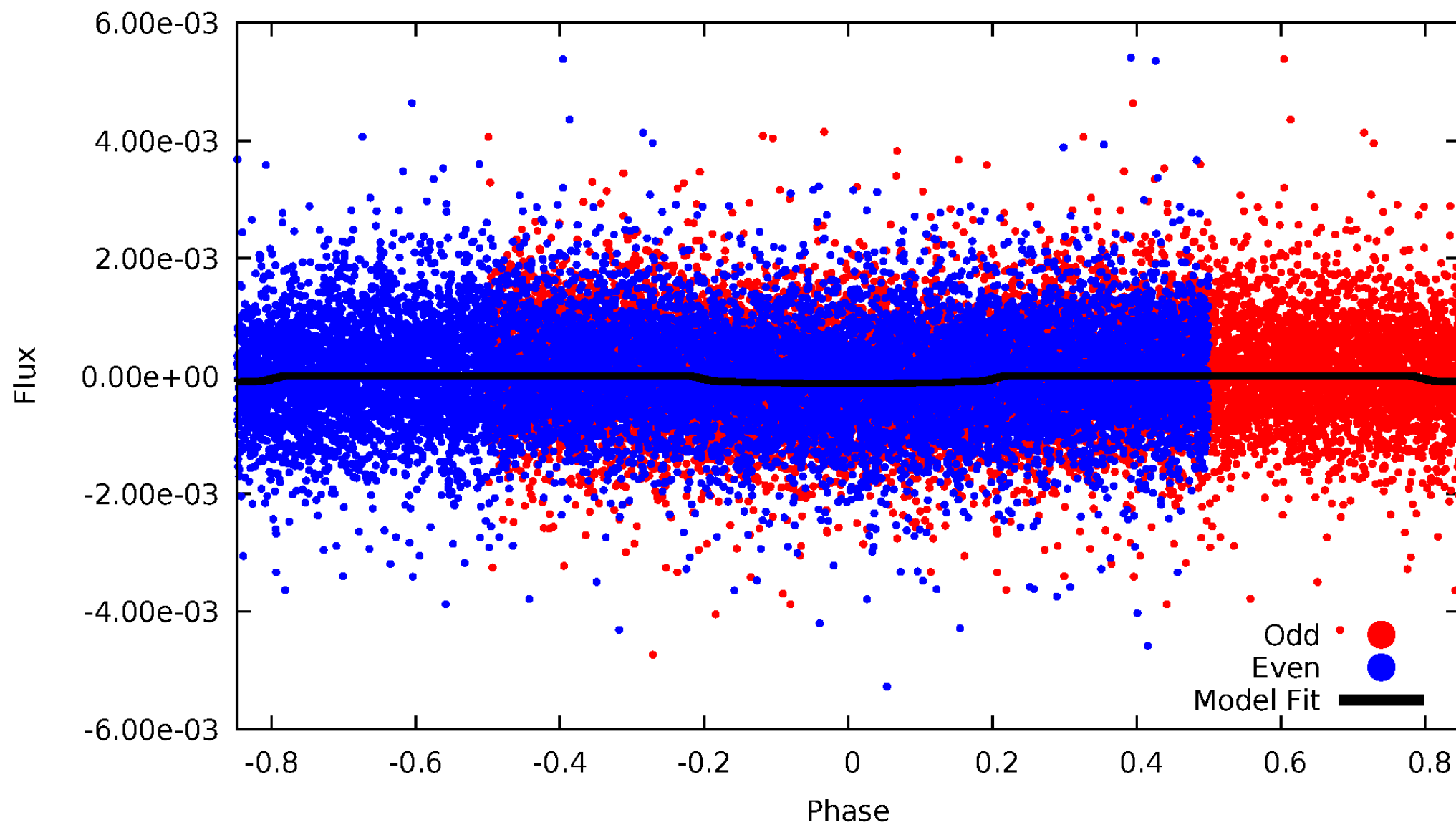


# TCE 006629106-02



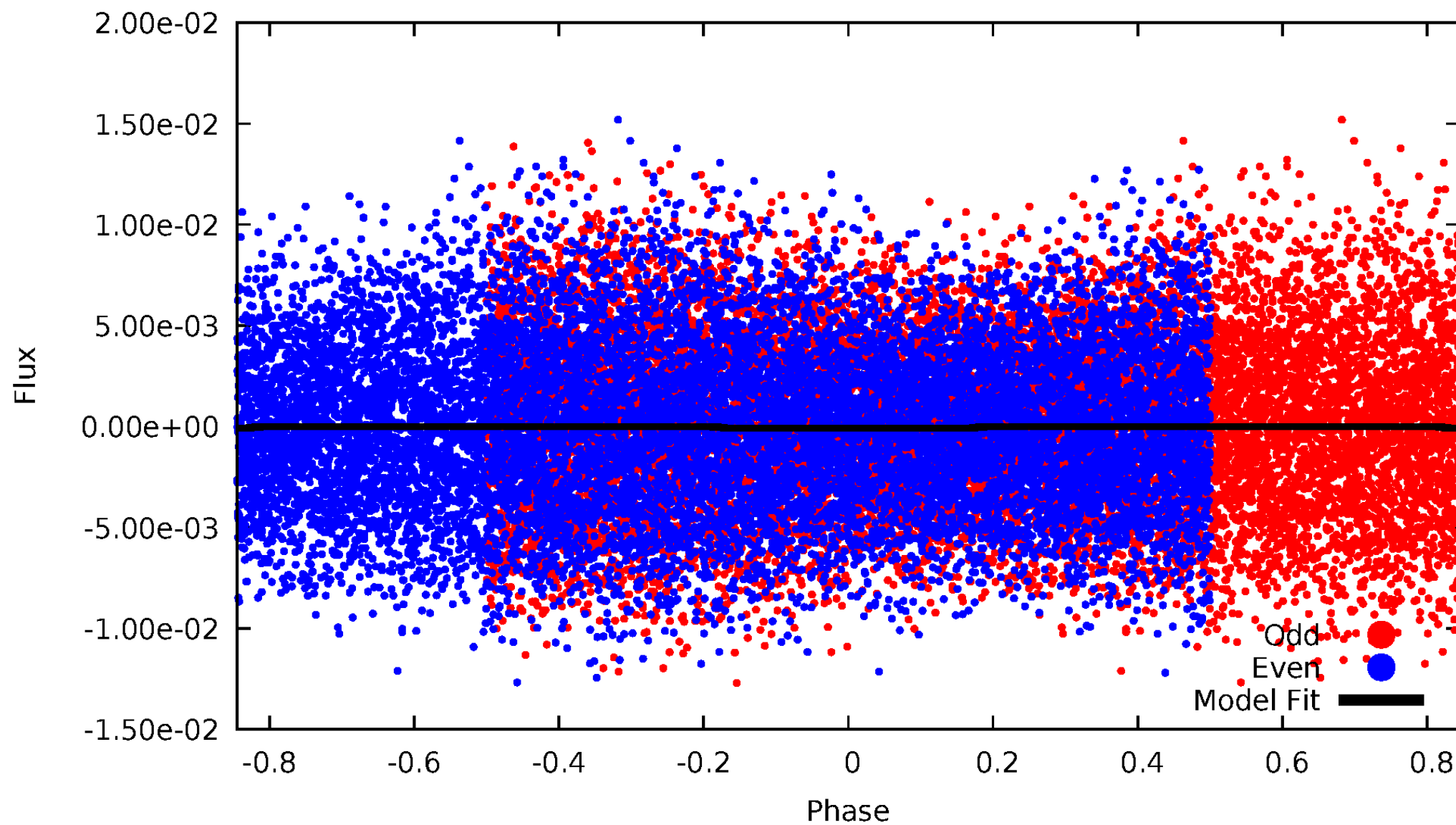
DV Odd/Even

TCE 006629106-02



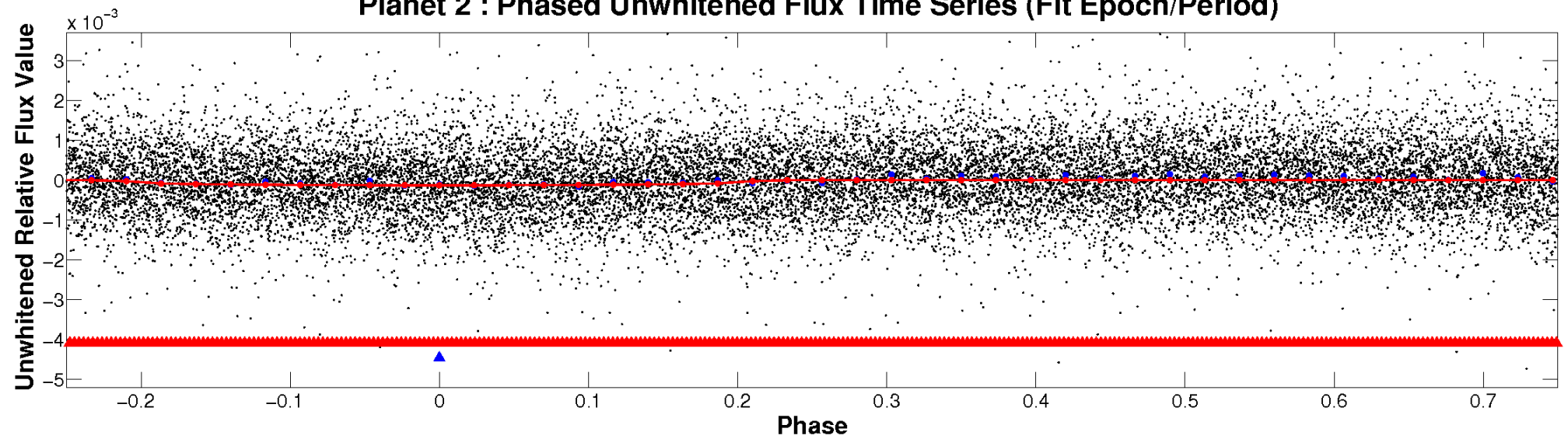
# ALT Odd/Even

TCE 006629106-02

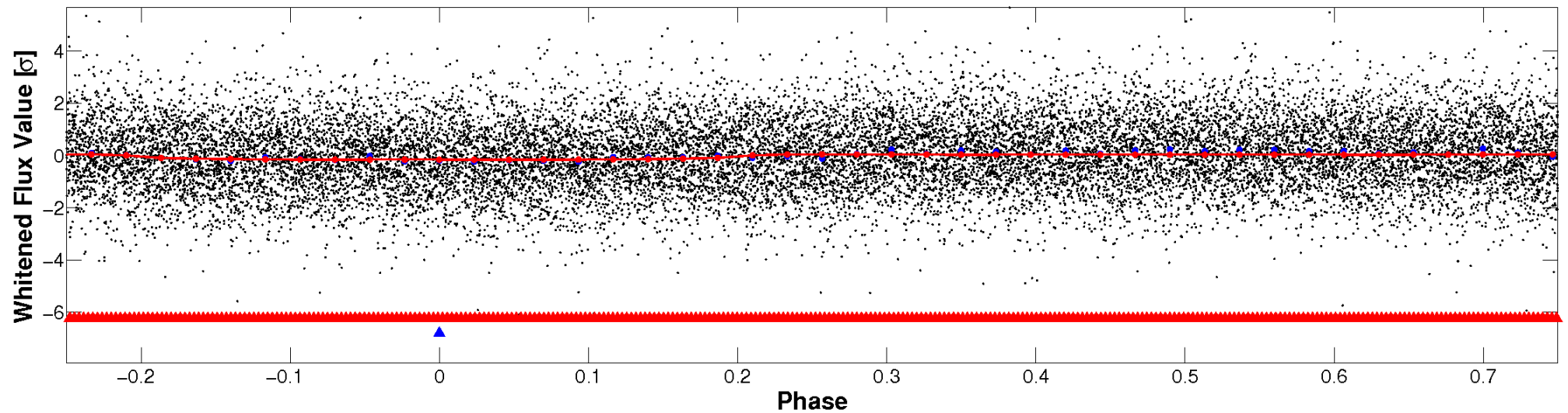


# Non-Whitened Vs. Whitened Light Curve

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

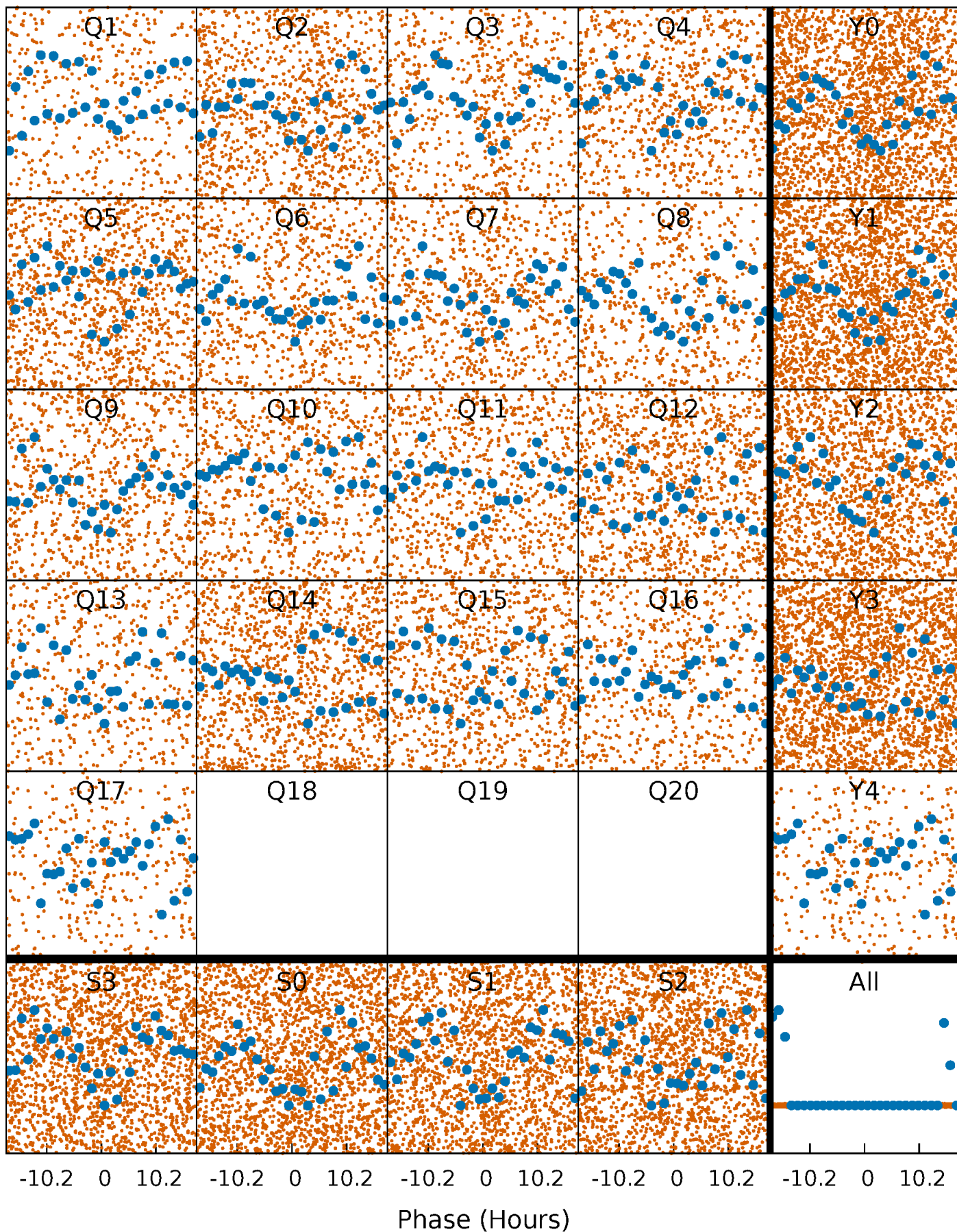


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



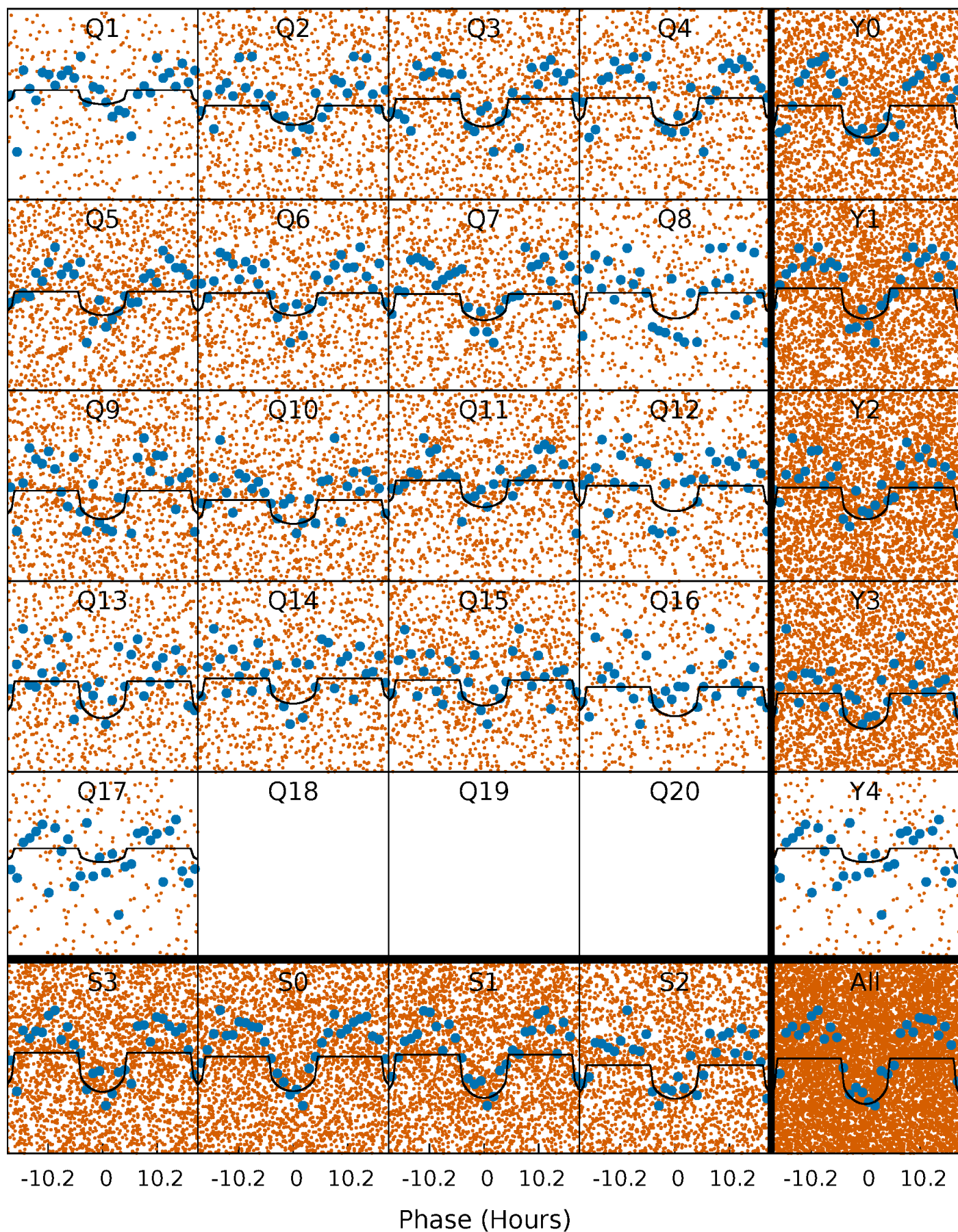
# PDC Quarter-Phased Transit Curves

TCE 006629106-02   P= 0.875942 Days    $T_0=131.898286$  (BKJD)



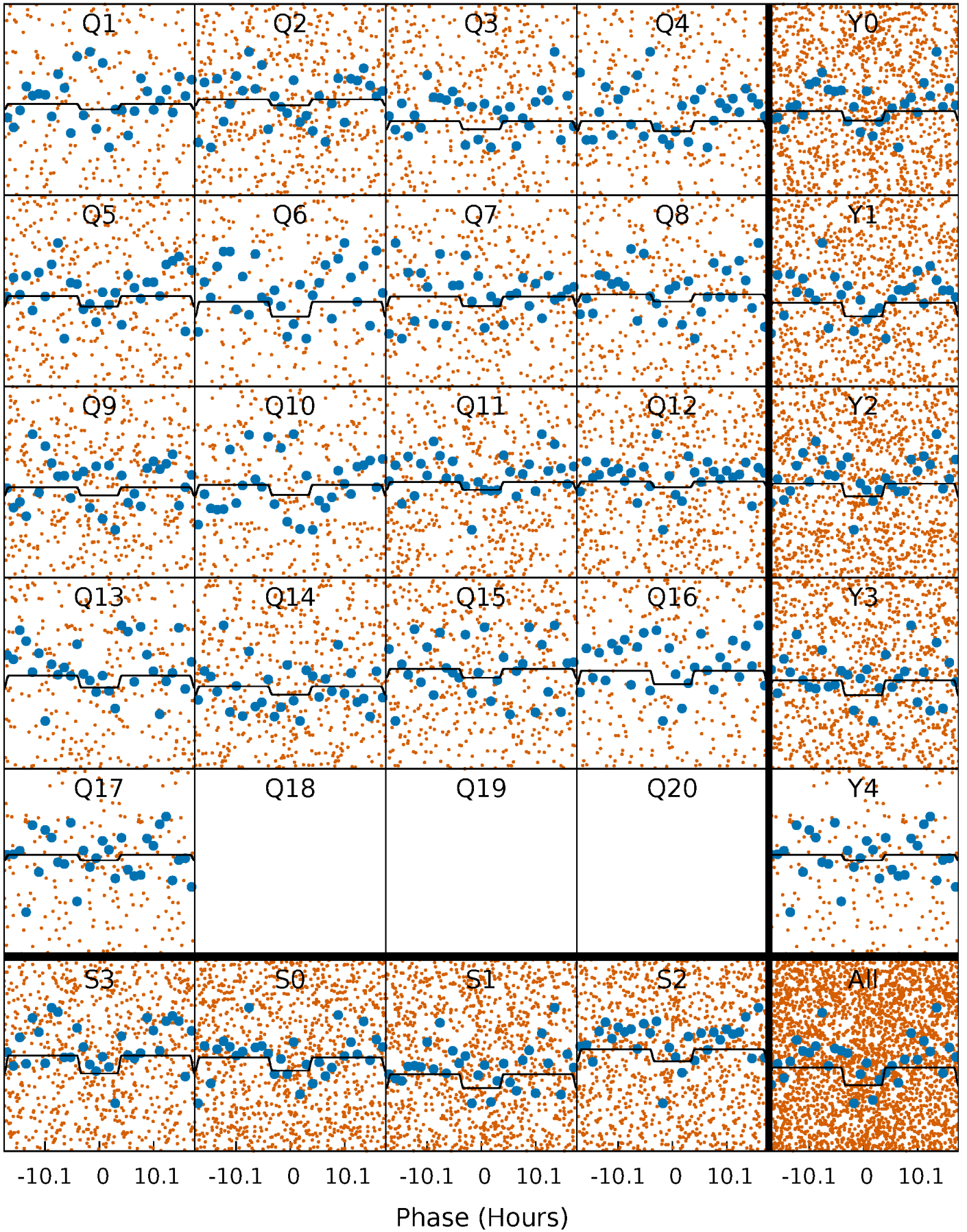
# DV Quarter-Phased Transit Curves

TCE 006629106-02 P= 0.875942 Days  $T_0=131.898286$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

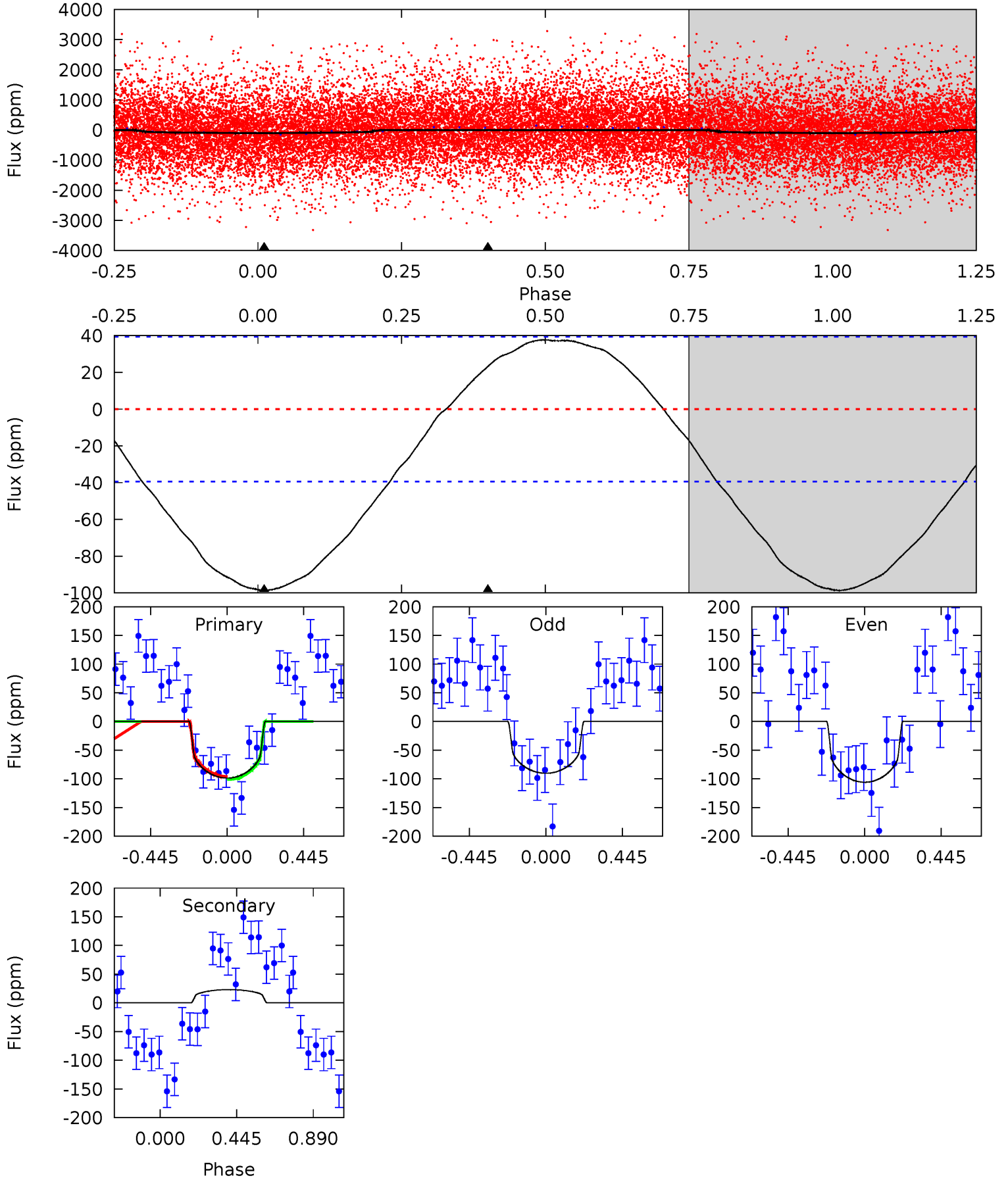
TCE 006629106-02   P= 0.875891 Days    $T_0=131.872817$  (BKJD)



# DV Model-Shift Uniqueness Test

006629106-02, P = 0.875942 Days, E = 131.022344 Days

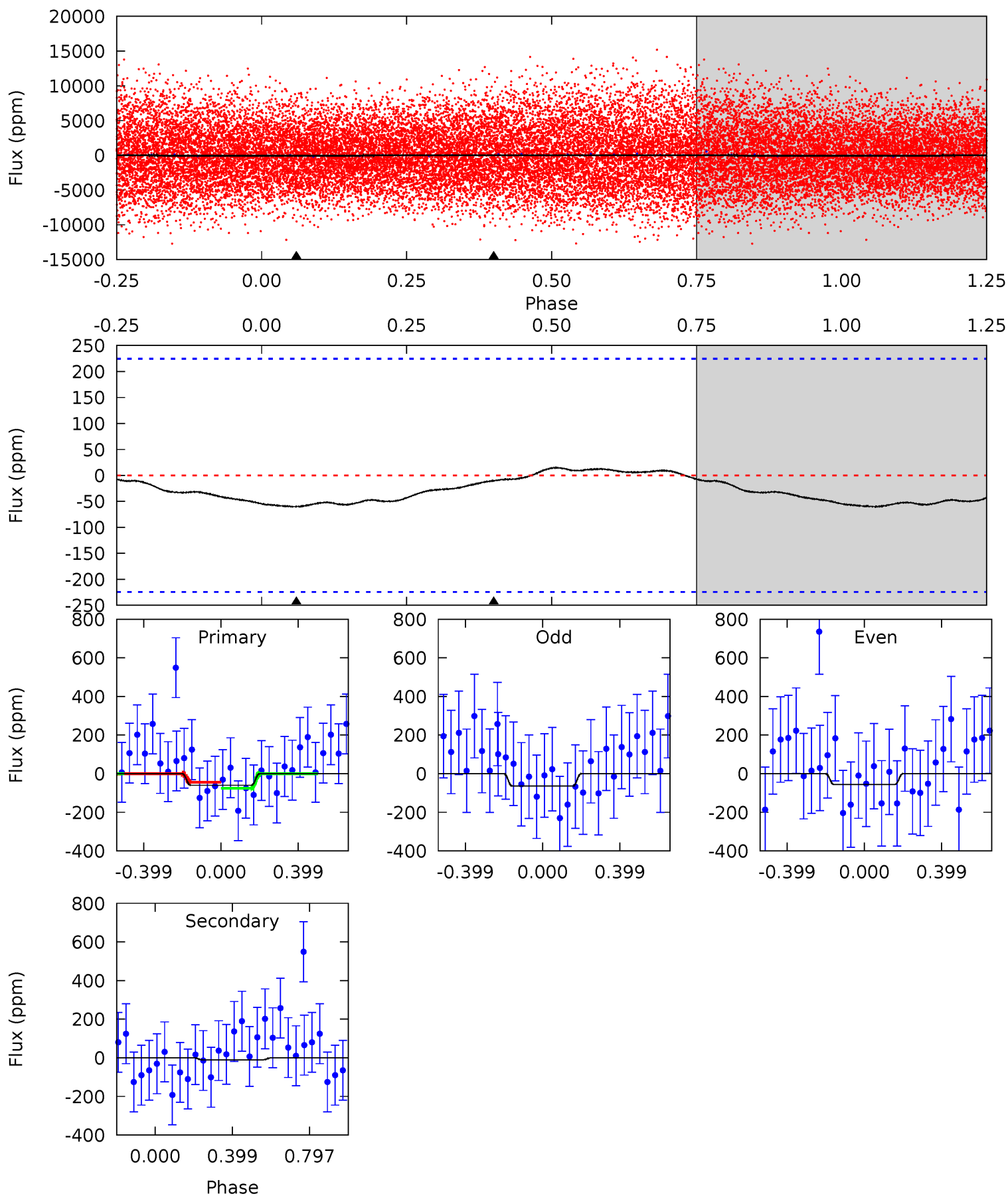
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	-2.49	0	0	4.24	0.76	1.22	10.6	10.6	-2.49	-2.49	0.84	-7.53	0.28	0.28



# Alt Model-Shift Uniqueness Test

006629106-02, P = 0.875891 Days, E = 130.996926 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
1.14	0.19	0	0	4.27	0.84	0.15	1.14	1.14	0.19	0.19	0.07	0.86	0.20	0.36



### Stellar Parameters For KIC 006629106

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7297^{+228}_{-304}$	$3.929^{+0.301}_{-0.129}$	$-0.160^{+0.250}_{-0.350}$	$2.309^{+0.540}_{-0.810}$	$1.650^{+0.184}_{-0.368}$	$0.189^{+0.391}_{-0.071}$
	+3%/-4%	+8%/-3%	+156%/-219%	+23%/-35%	+11%/-22%	+207%/-37%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 006629106-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$23 \pm 9$	$2.77^{+2.08}_{-1.66}$	$4592^{+358}_{-431}$	$-5071^{+621}_{-2277}$	$-0.707^{+0.498}_{-3.717}$
Alt.	$-10 \pm 53$	$2.58^{+2.11}_{-1.48}$	$4591^{+368}_{-436}$	$-3346^{+10020}_{-2597}$	$0.199^{+3.395}_{-2.001}$

$T_{\text{max}}$  = 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

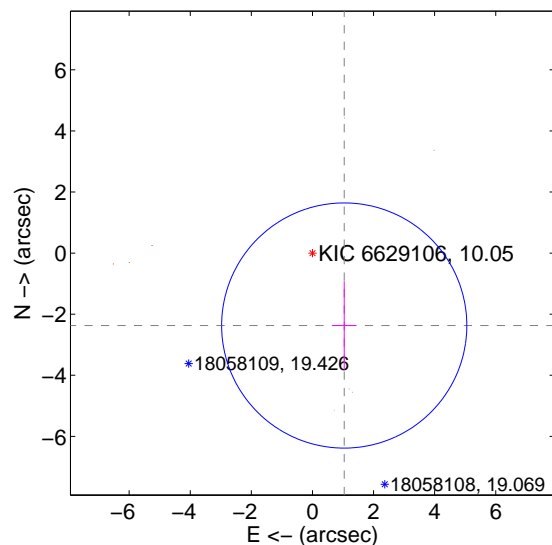
Supplemental centroid analysis for 006629106-02. **Kepler magnitude: 10.05.** Transit SNR 13.42

**There are 0 quarters with good PRF difference image offsets**

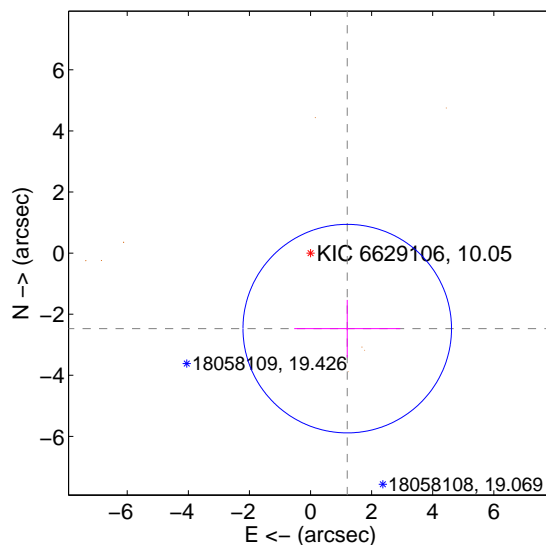
The direct PRF centroid is offset from the target star catalog position by about 0.87 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.589 \pm 1.338$	1.94	$-1.041 \pm 0.387$	$-2.371 \pm 1.451$
PRF-fit source offset from KIC position	$2.750 \pm 1.138$	2.42	$-1.202 \pm 1.735$	$-2.473 \pm 0.943$
photometric centroid source offset	$0.71 \pm 0.18$	<b>3.98</b>	$-0.38 \pm 0.12$	$0.60 \pm 0.20$

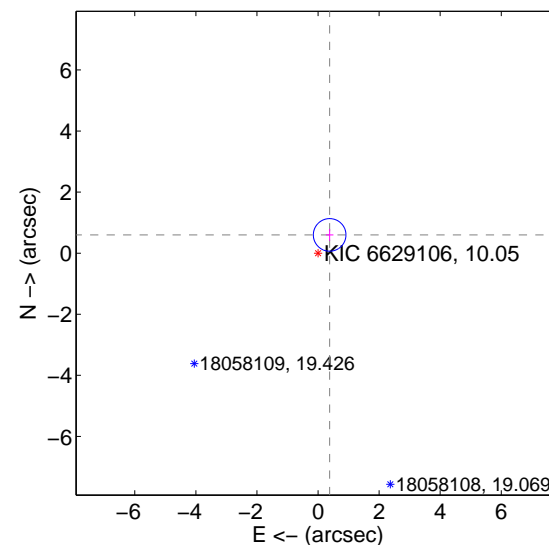
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

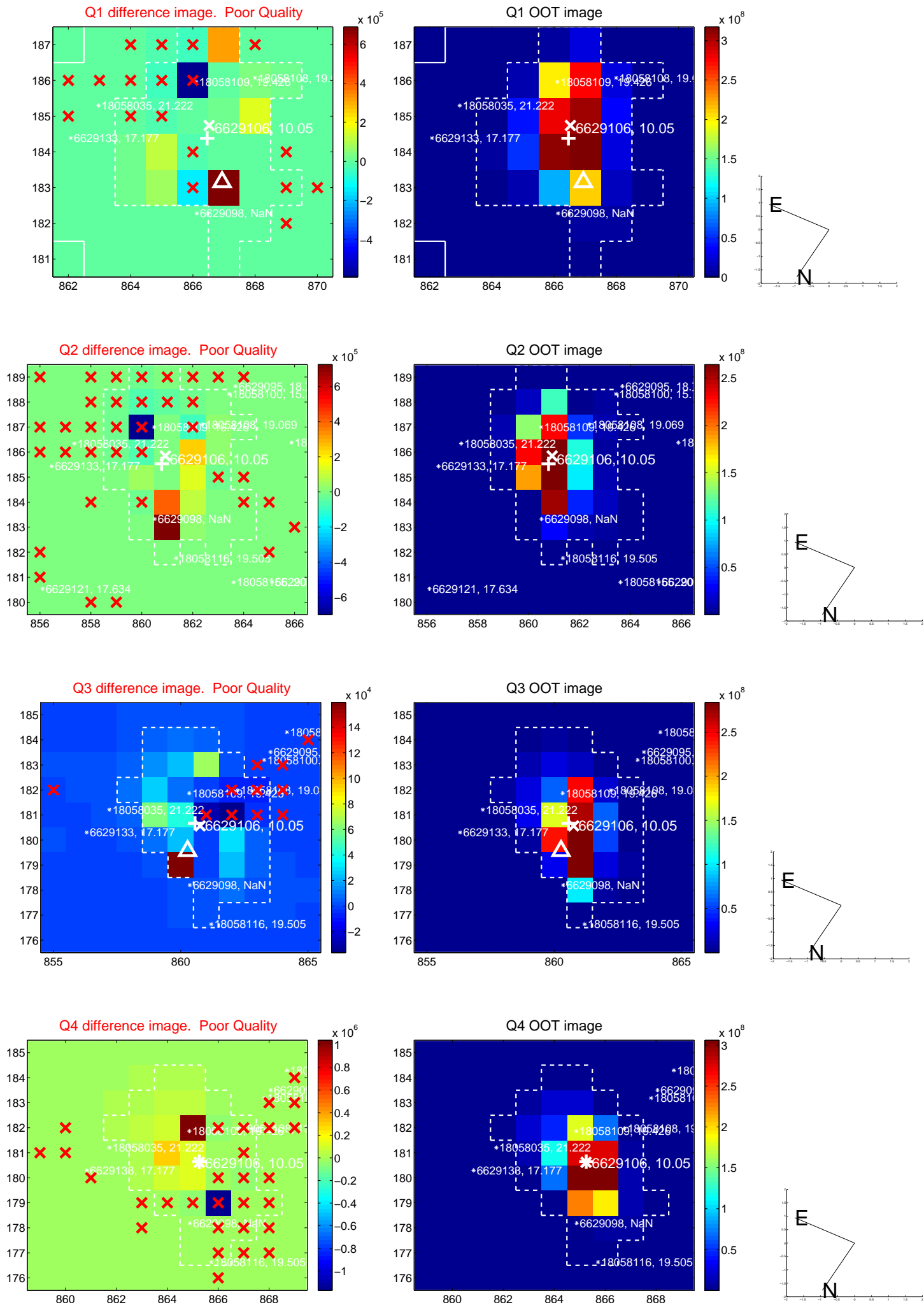


offset from photometric centroids

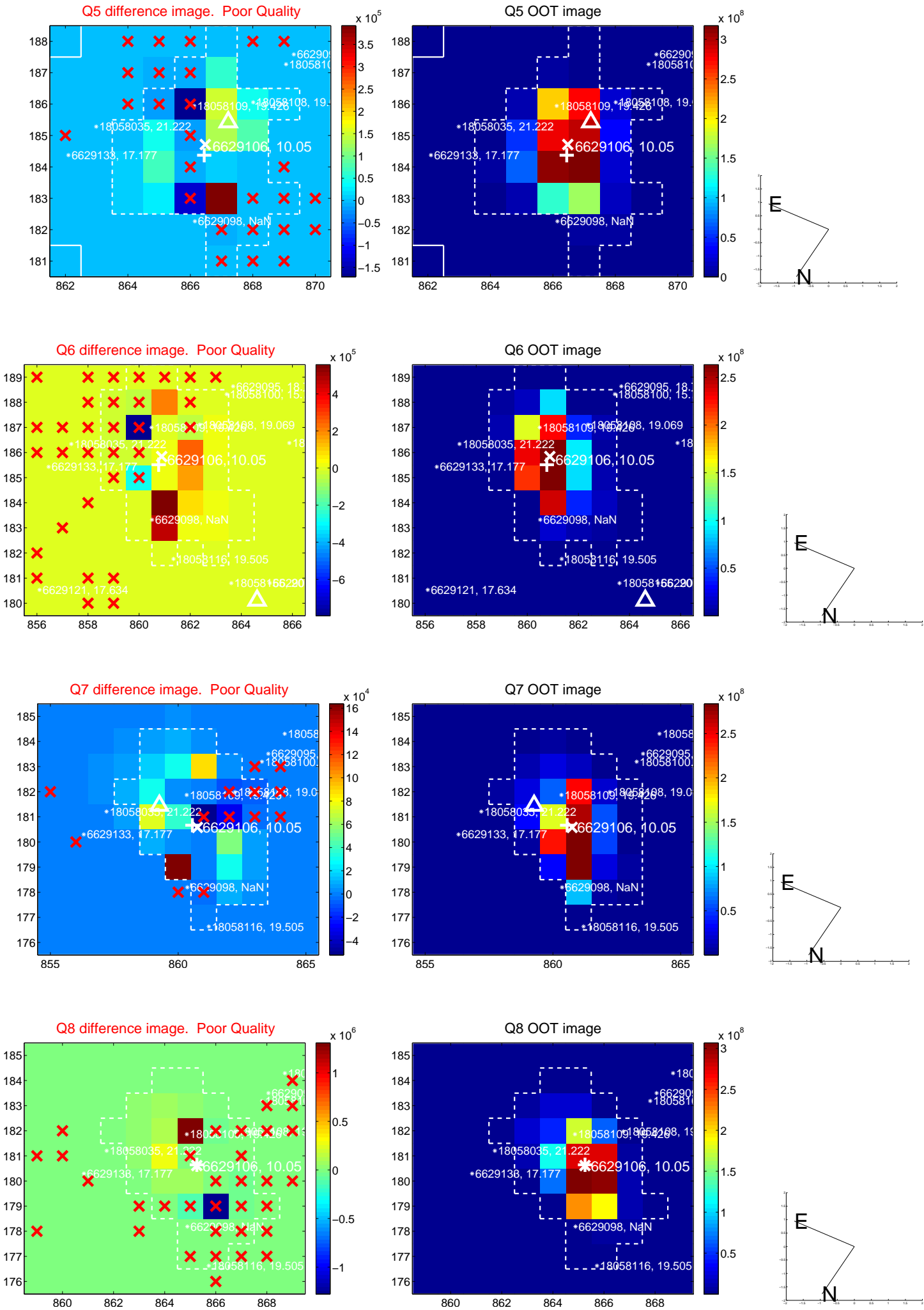


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

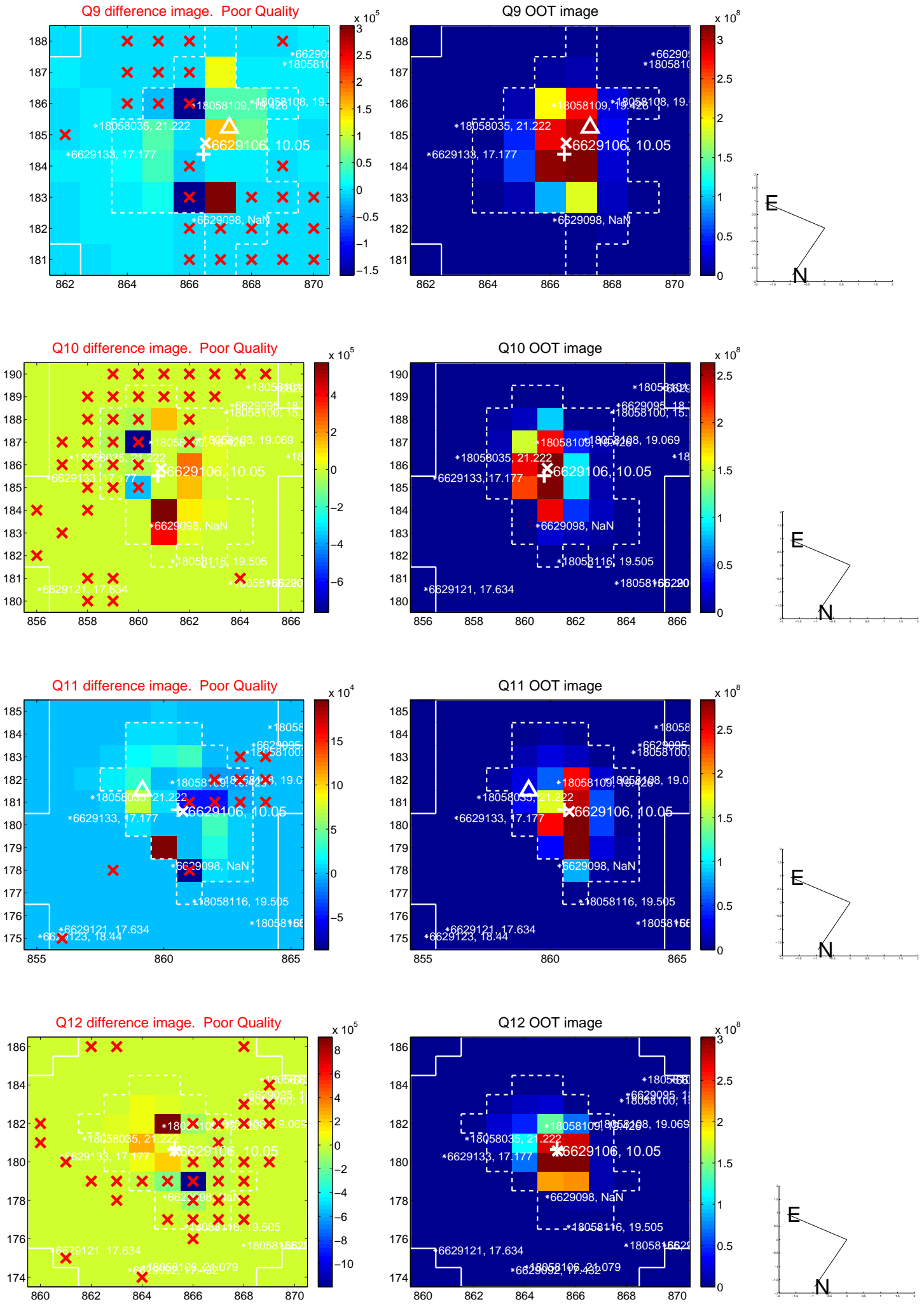
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



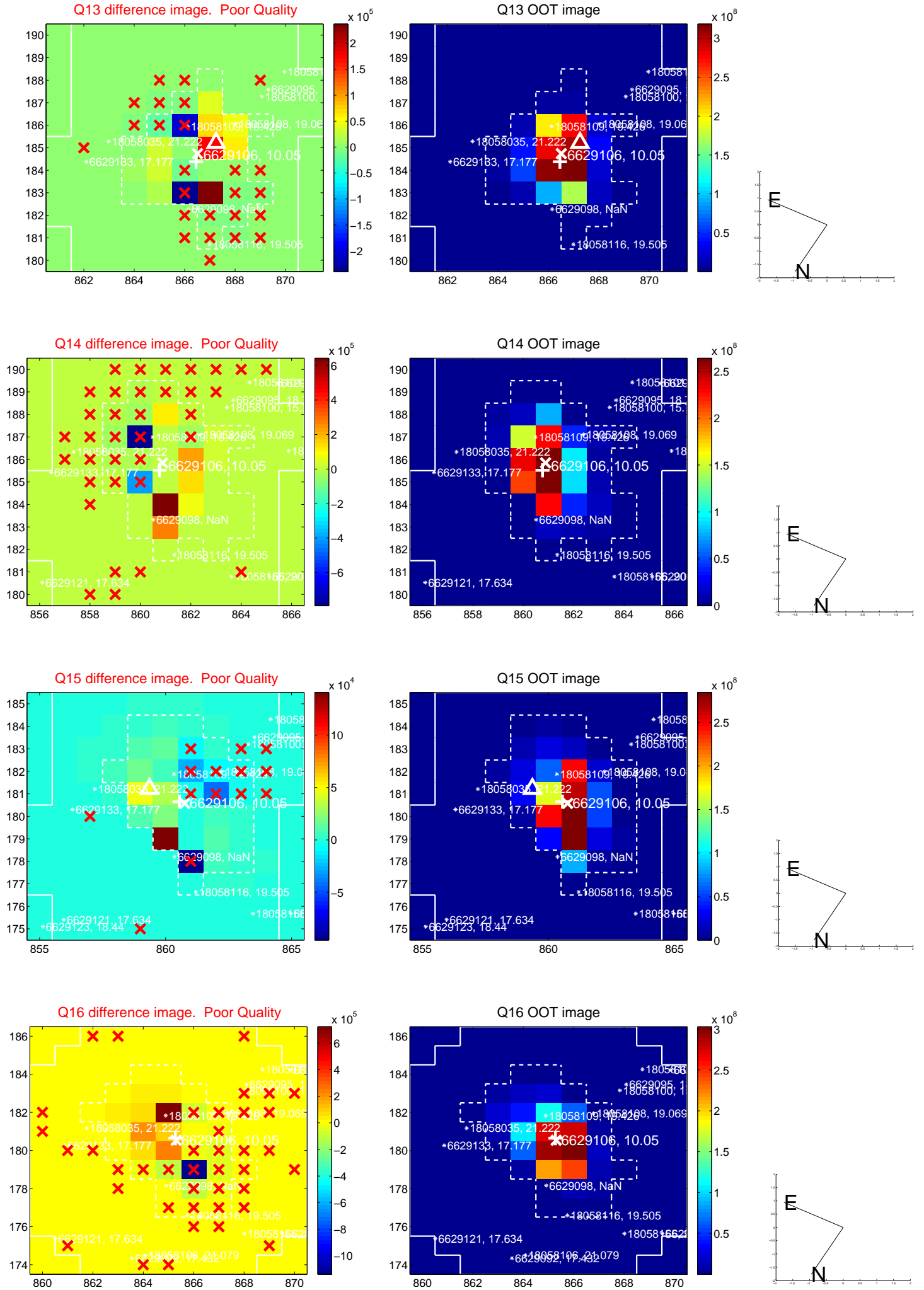
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



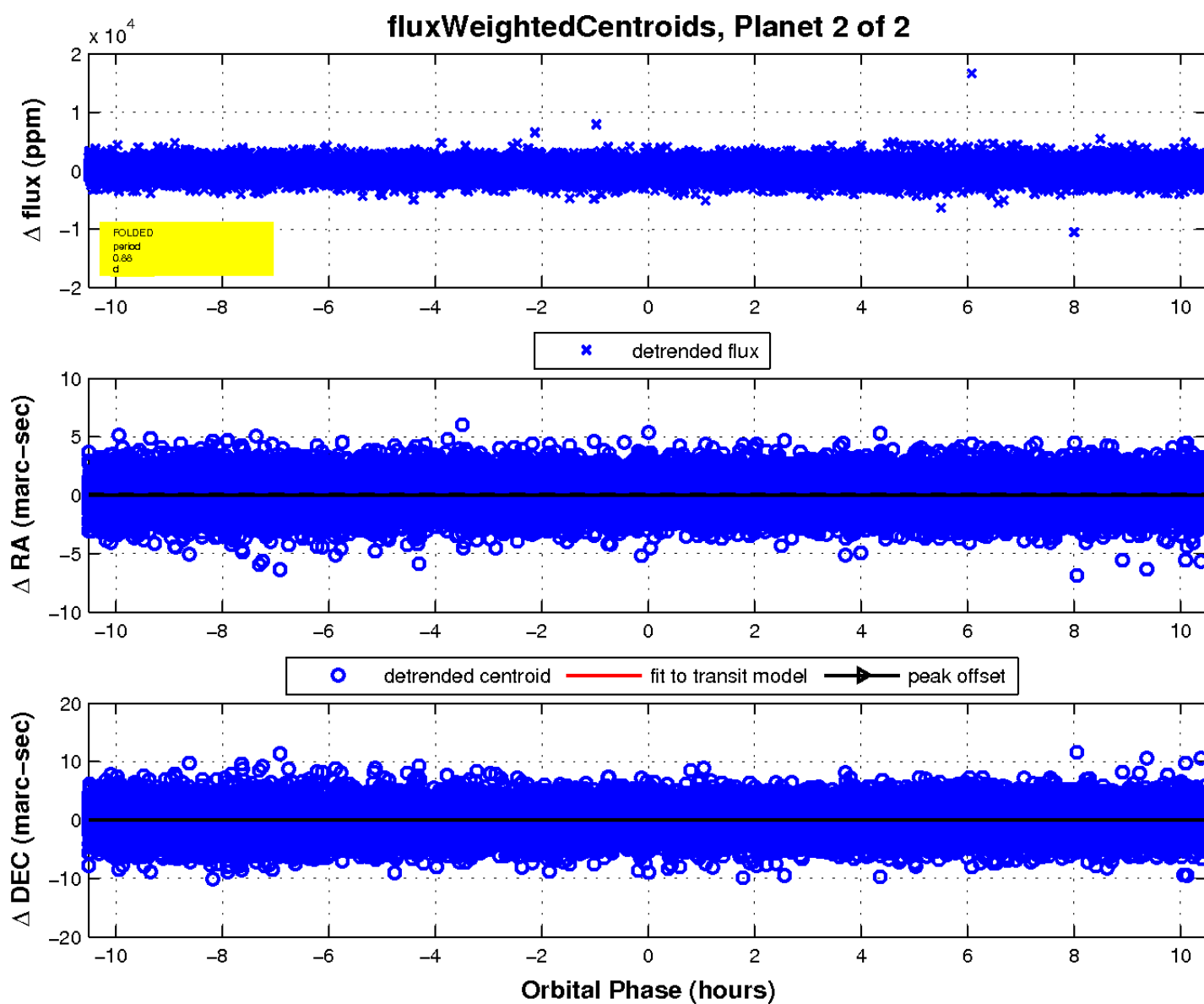
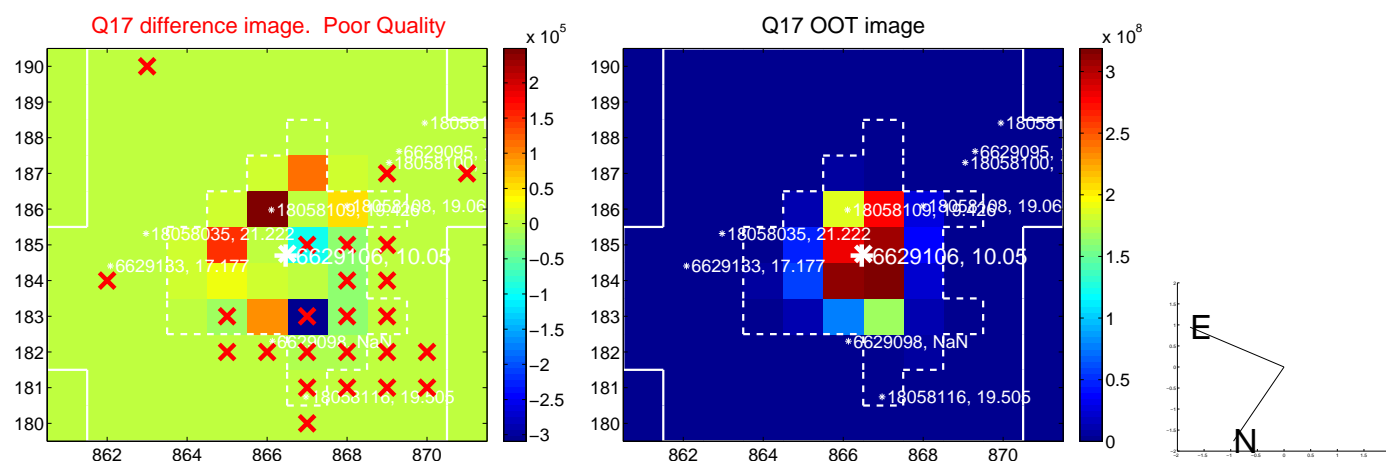
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

