

# KIC 006283912

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006283912-01	OBS	No	2.698247	133.177561	17.6	12.890	7.7	7.7	1.58	6842	0.77	2757.01
006283912-02	OBS	No	2.698736	131.742955	21.4	11.298	13.2	12.0	1.58	6842	0.74	2756.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006283912-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
006283912-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED

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

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

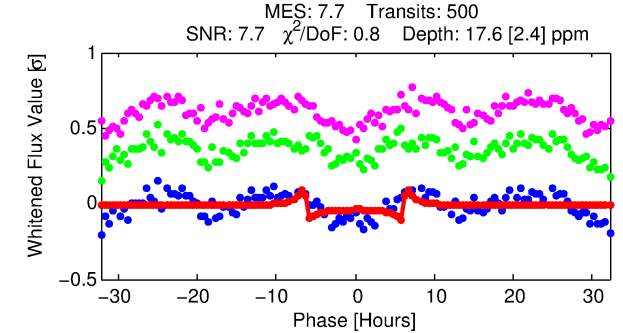
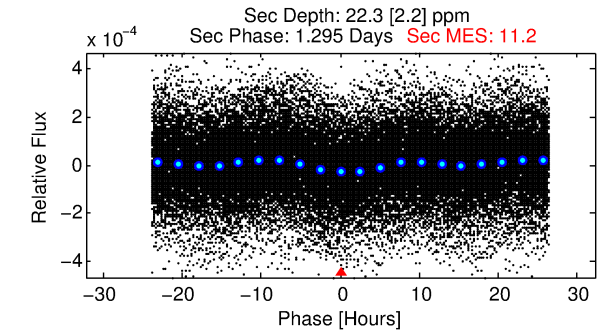
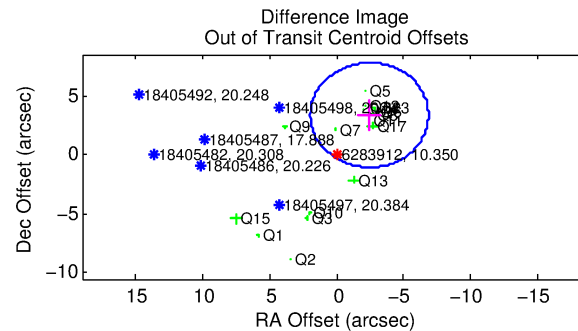
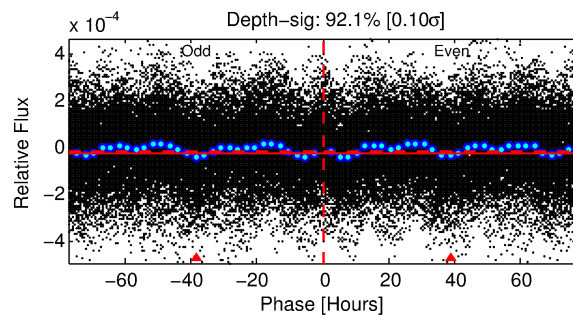
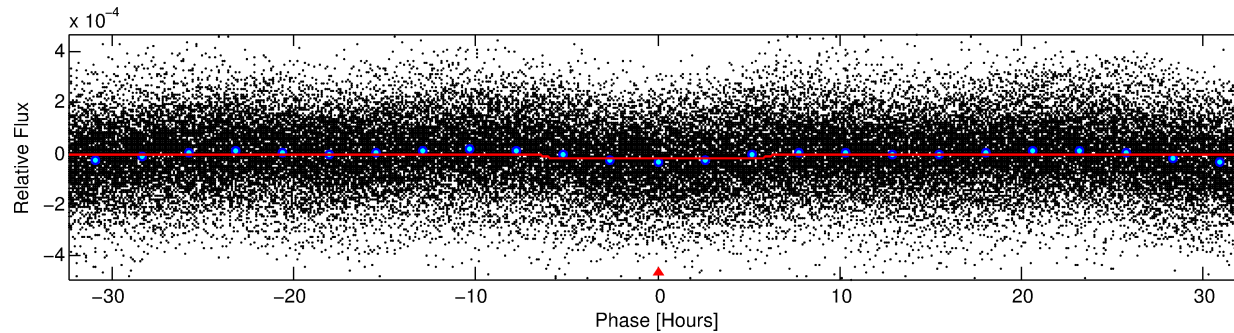
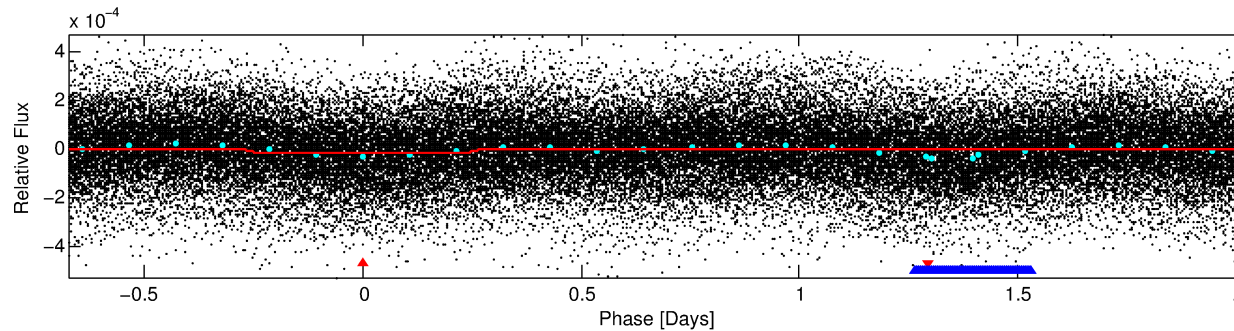
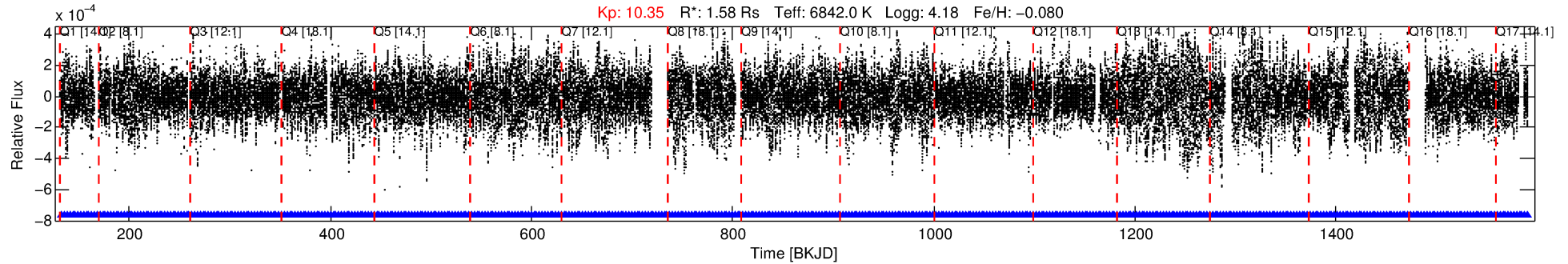
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006283912-01

No Significant Match Found

# DV One-Page Summary

KIC: 6283912 Candidate: 1 of 2 Period: 2.698 d



## DV Fit Results:

Period = 2.69825 [0.00002] d  
Epoch = 133.1776 [0.0033] BKJD  
Rp/R\* = 0.0045 [0.0005]  
a/R\* = 1.18 [0.14]  
b = 0.90 [0.09]  
Seff = 2757.01 [602.70]  
Teff = 1848 [101] K  
Rp = 0.77 [0.15] Re  
a = 0.0421 [0.0061] AU  
Ag = 36.64 [11.42] [3.12 $\sigma$ ]  
Teffp = 7028 [413] K [12.20 $\sigma$ ]

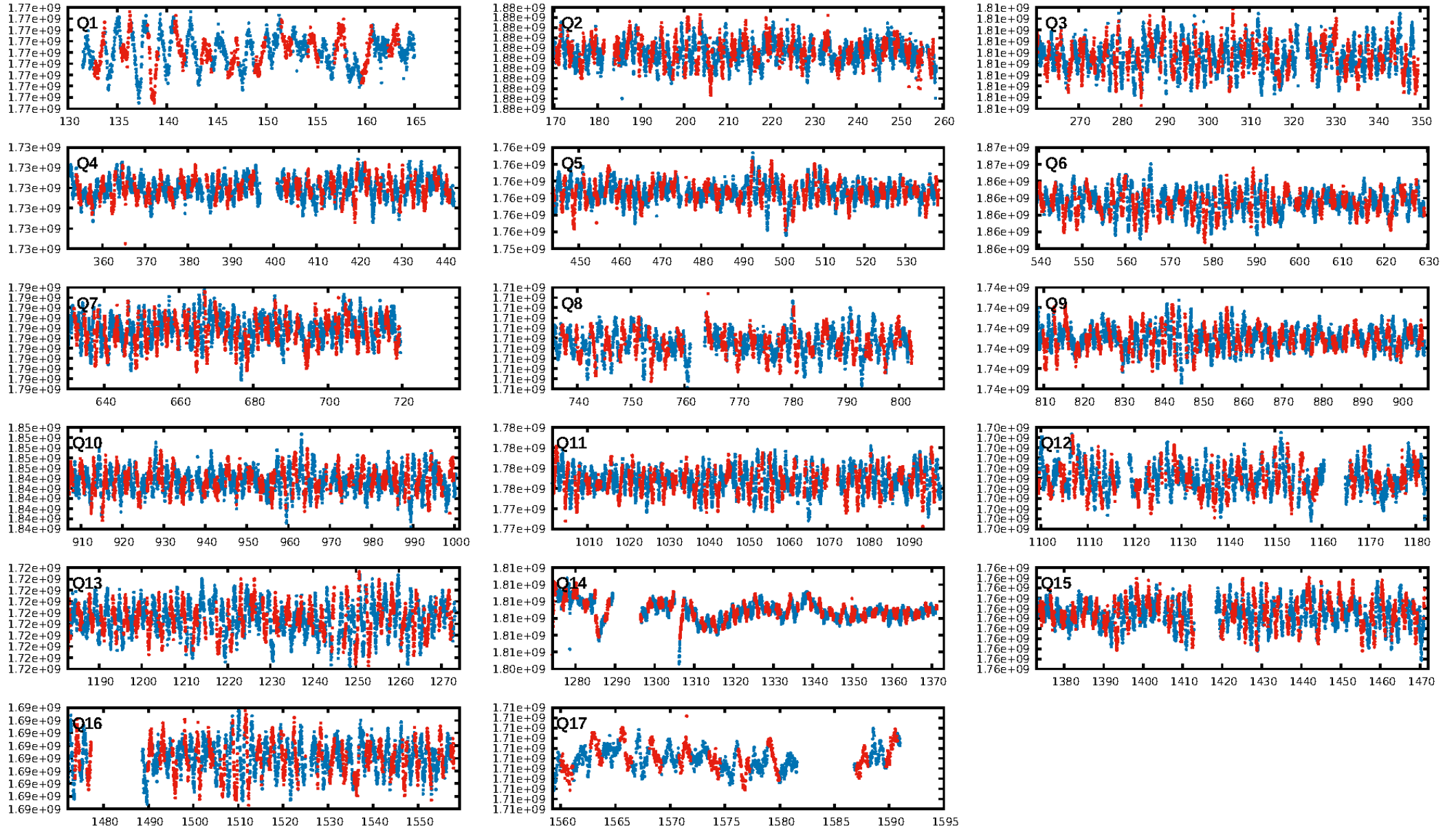
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.1% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [478/478]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.0%  
Centroid-so: 1.545 arcsec [2.66 $\sigma$ ]  
OotOffset-rm: 4.166 arcsec [2.83 $\sigma$ ]  
KicOffset-rm: 3.618 arcsec [2.84 $\sigma$ ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.25 [4/16]  
DiffImageOverlap-fno: 1.00 [17/17]

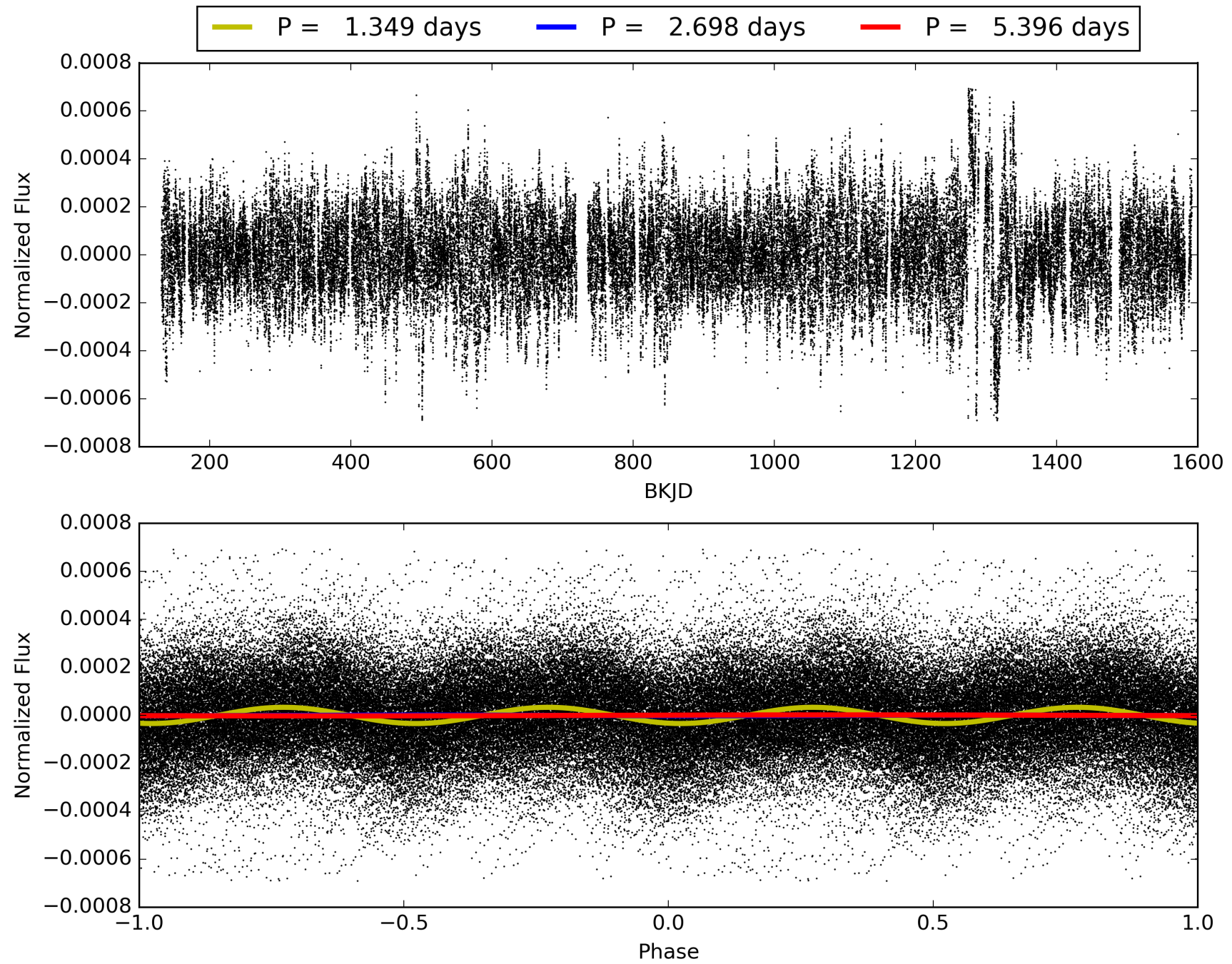
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:02:13 Z

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

# TCE 006283912-01, PDC Light Curves

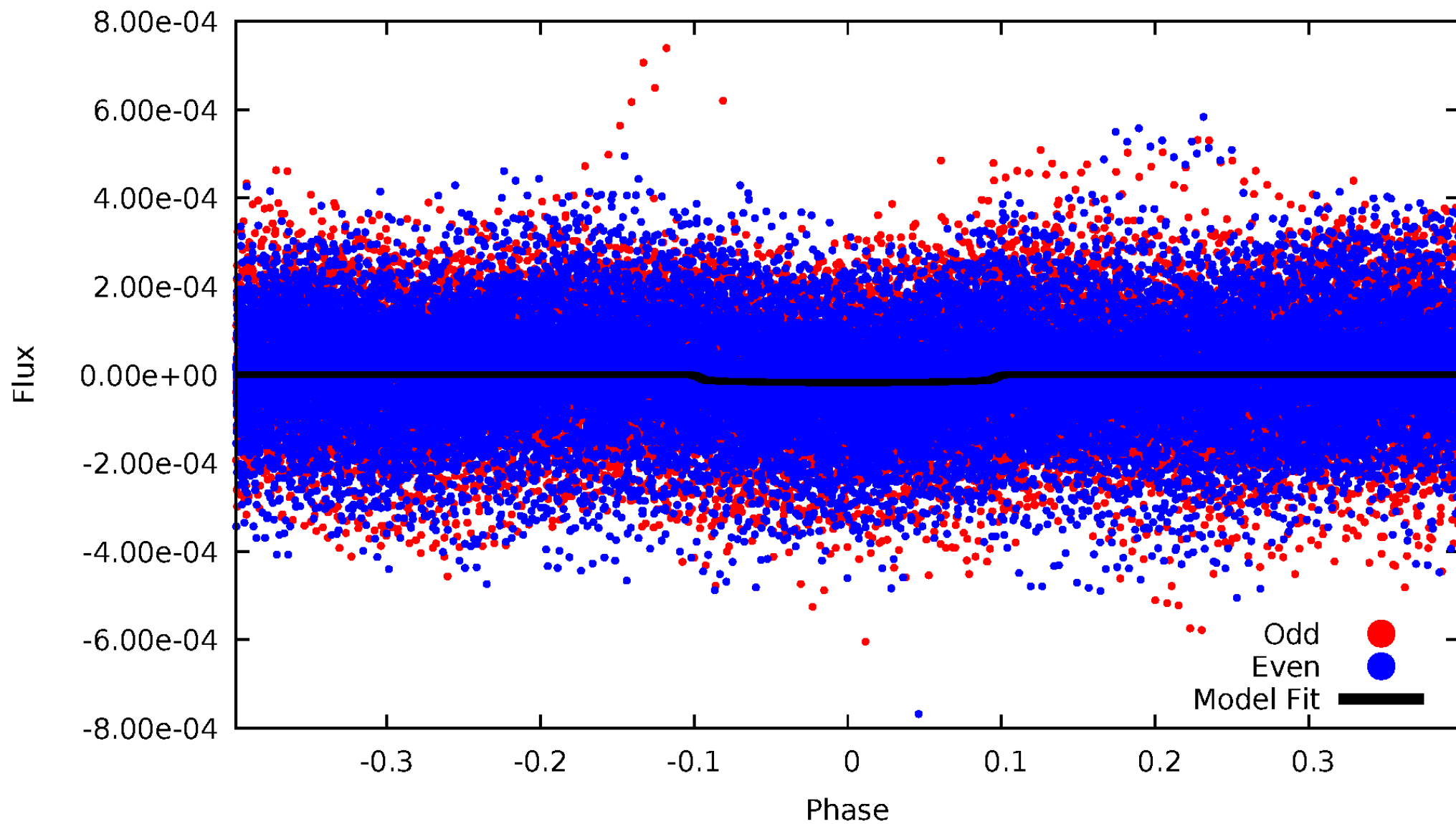


TCE 006283912-01



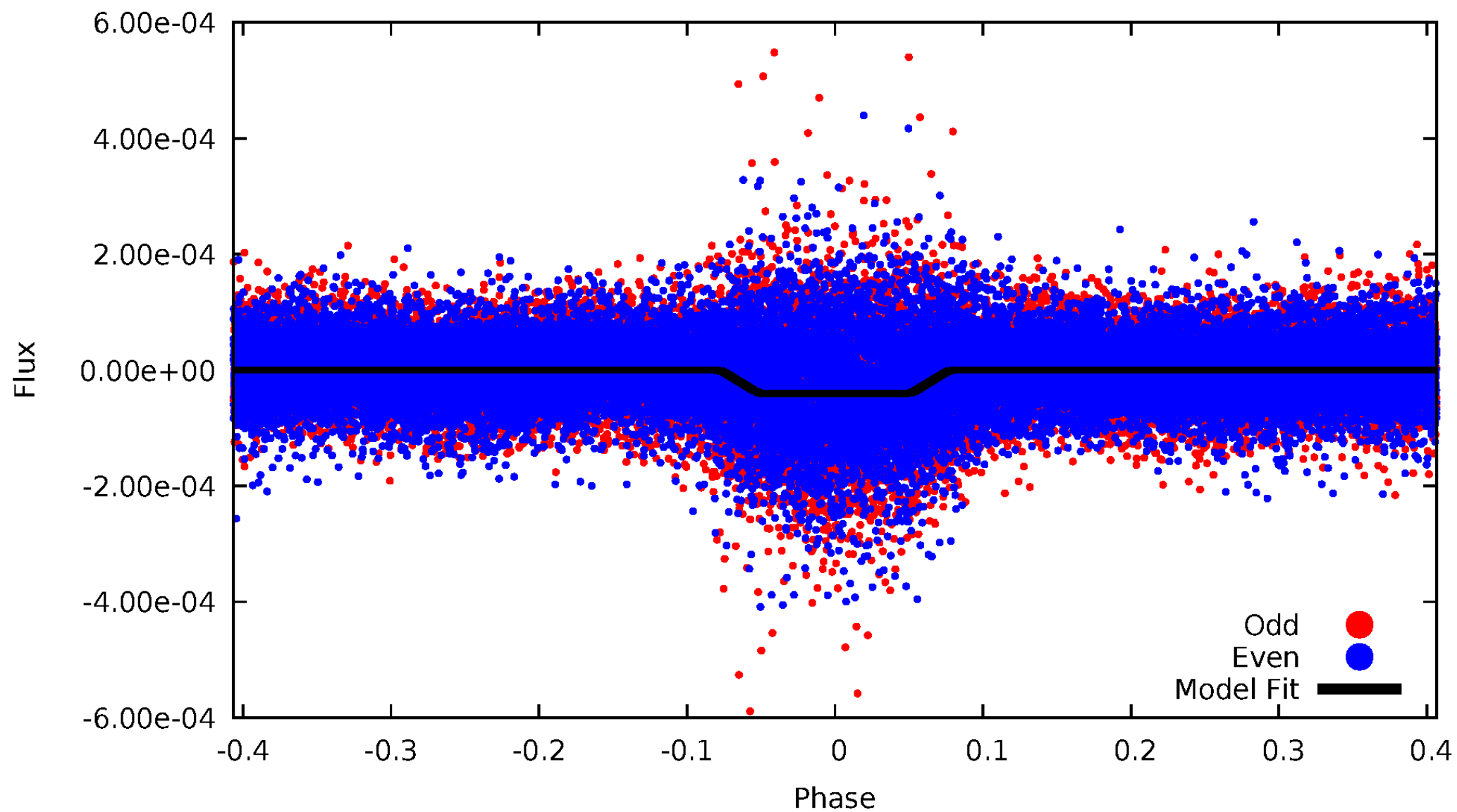
# DV Odd/Even

TCE 006283912-01

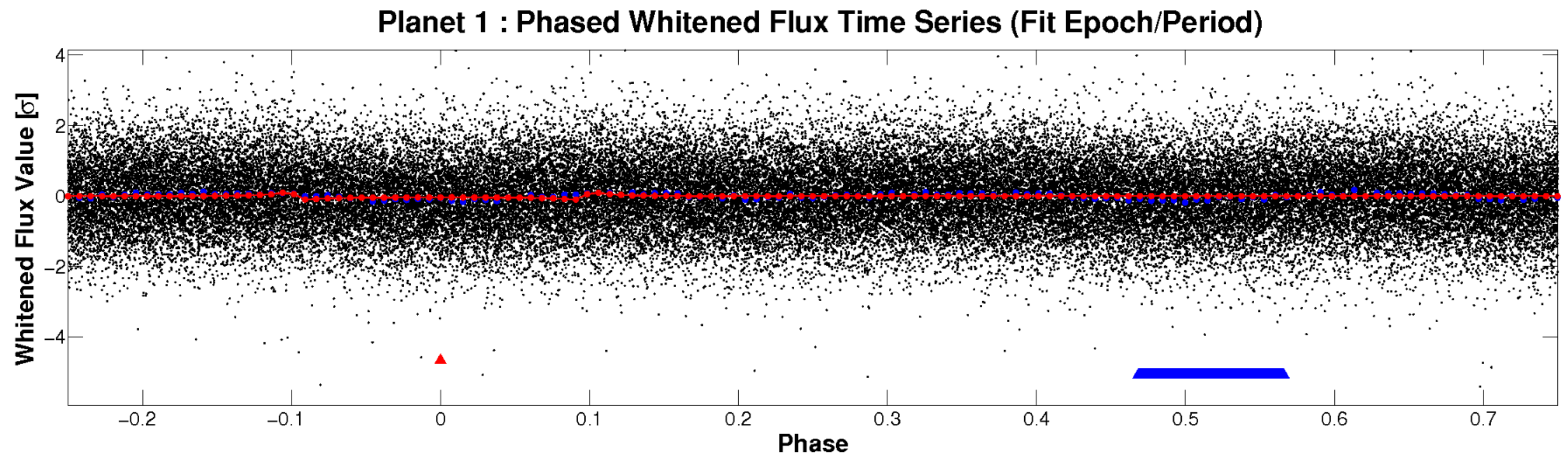
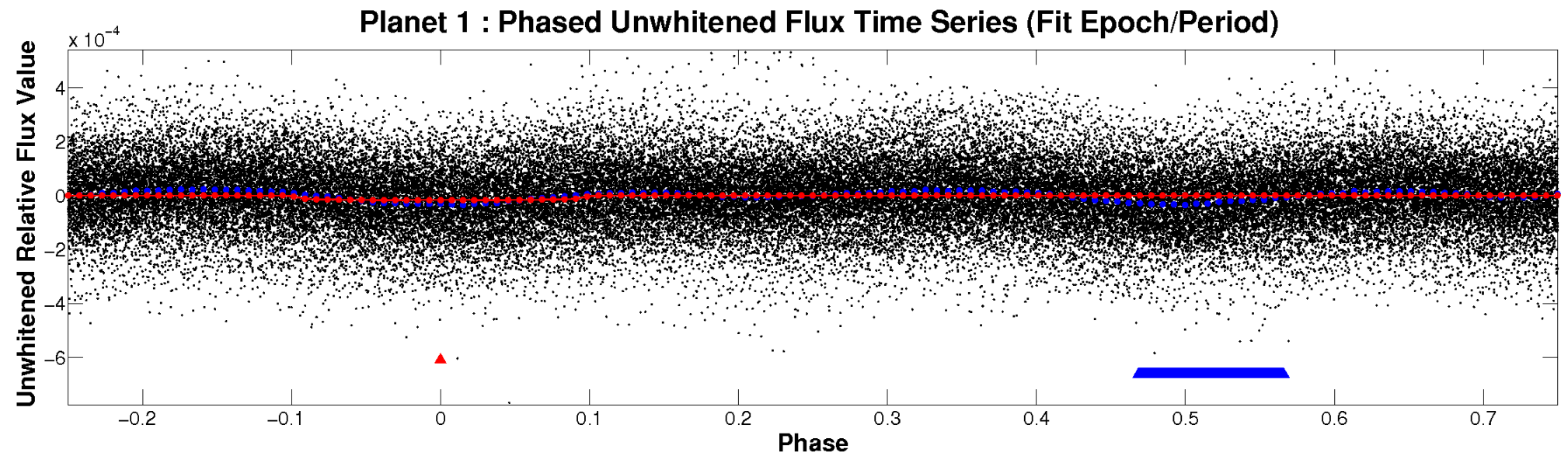


# ALT Odd/Even

TCE 006283912-01

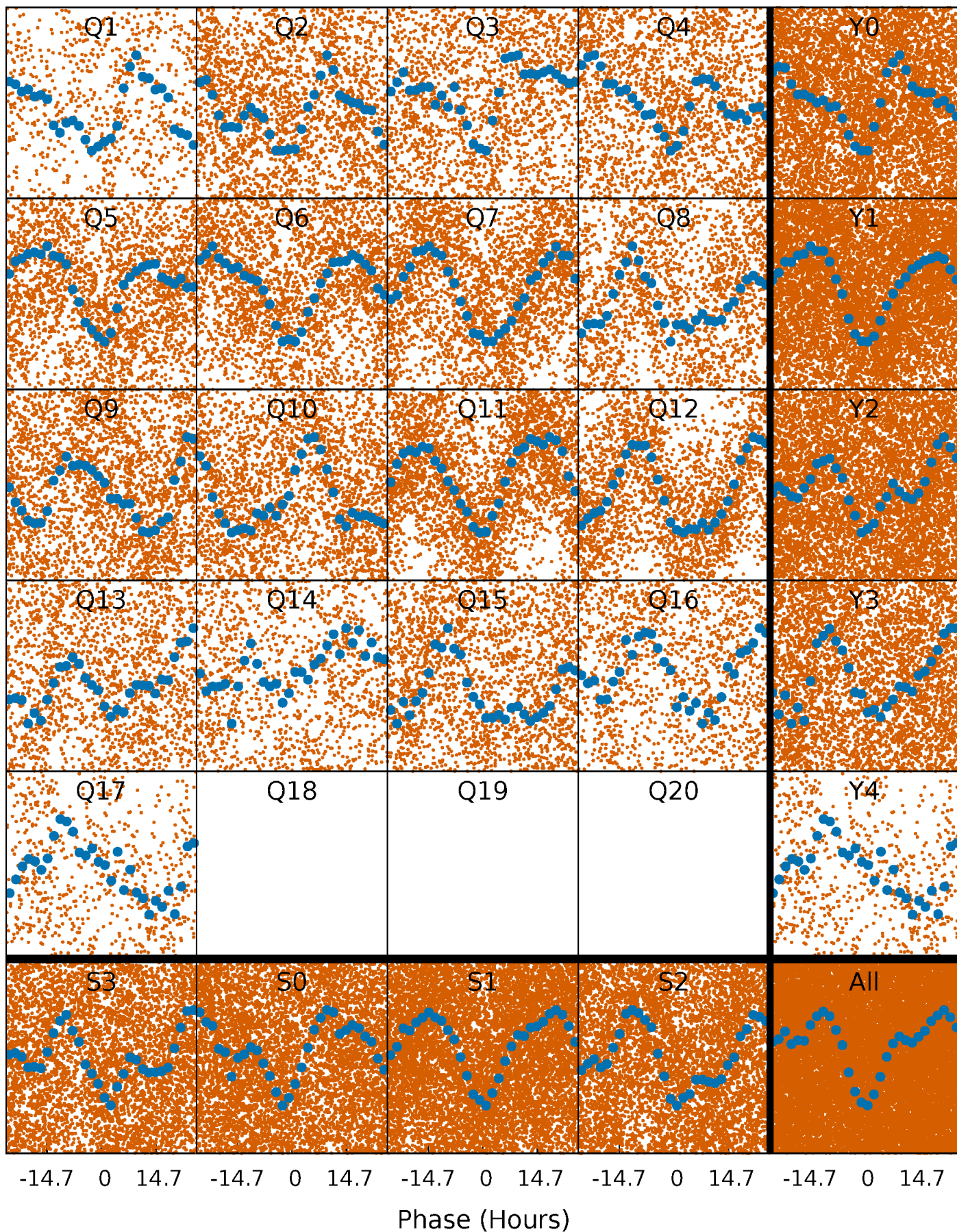


# Non-Whitened Vs. Whitened Light Curve



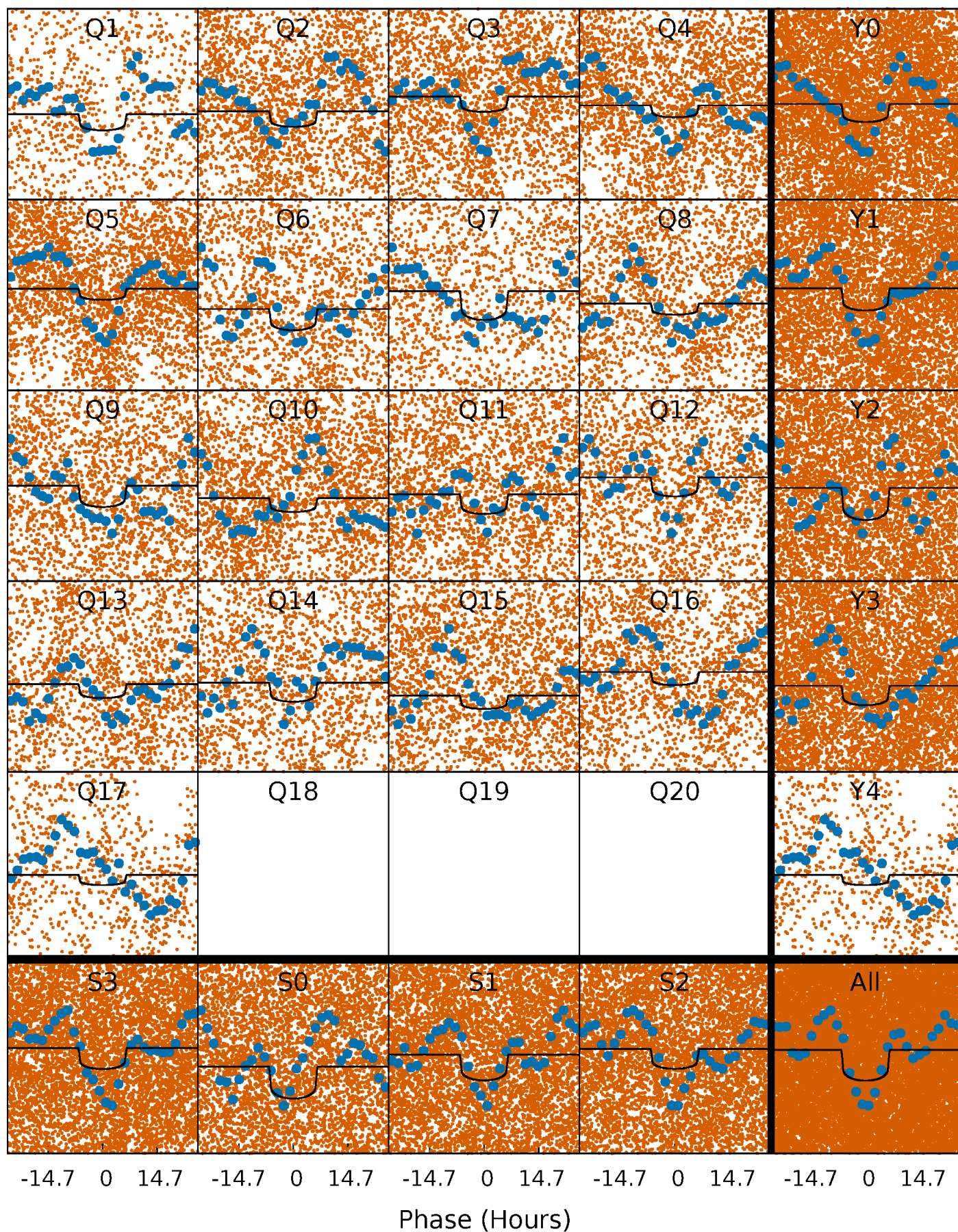
# PDC Quarter-Phased Transit Curves

TCE 006283912-01   P= 2.698247 Days    $T_0=133.177561$  (BKJD)



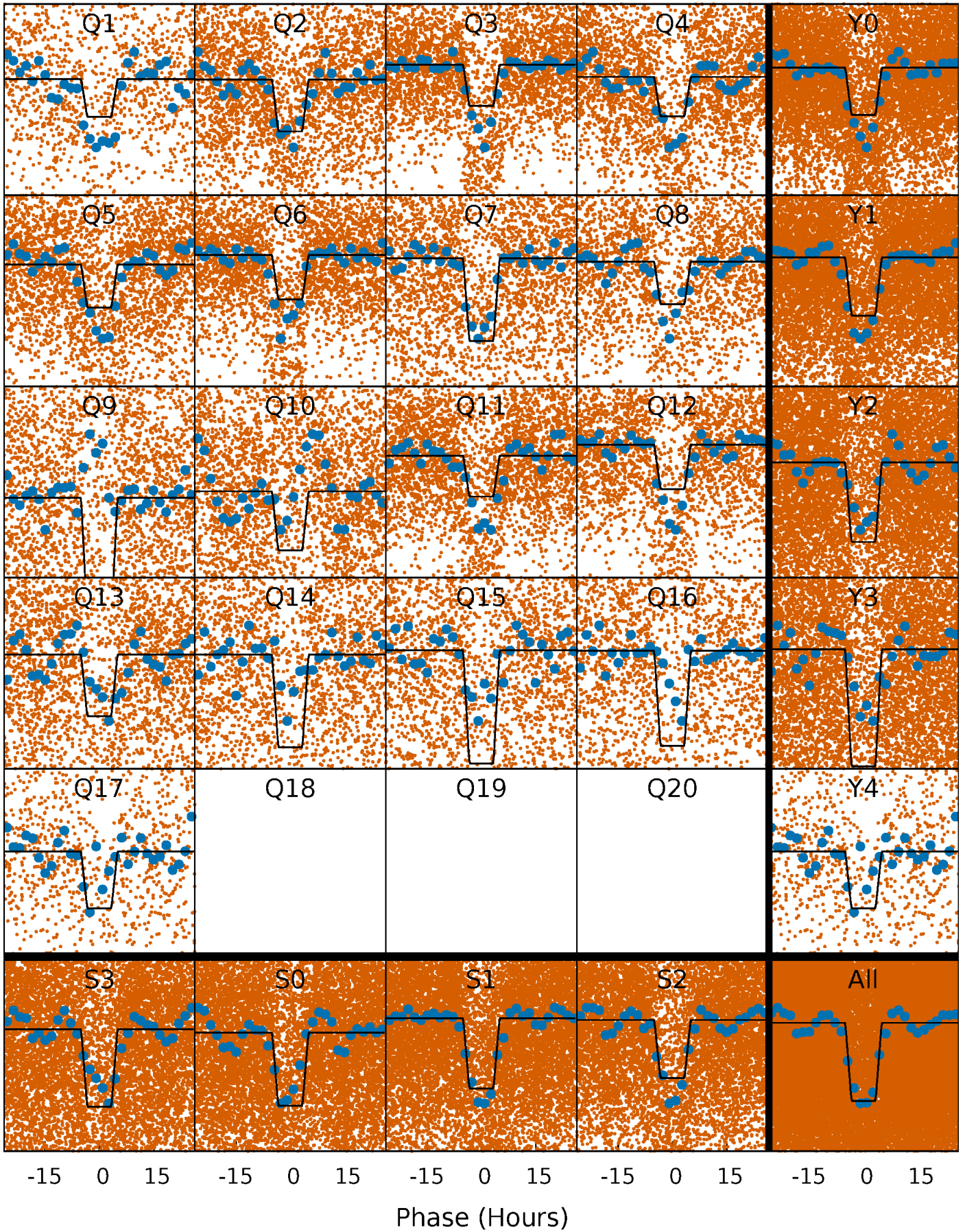
# DV Quarter-Phased Transit Curves

TCE 006283912-01   P= 2.698247 Days    $T_0=133.177561$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

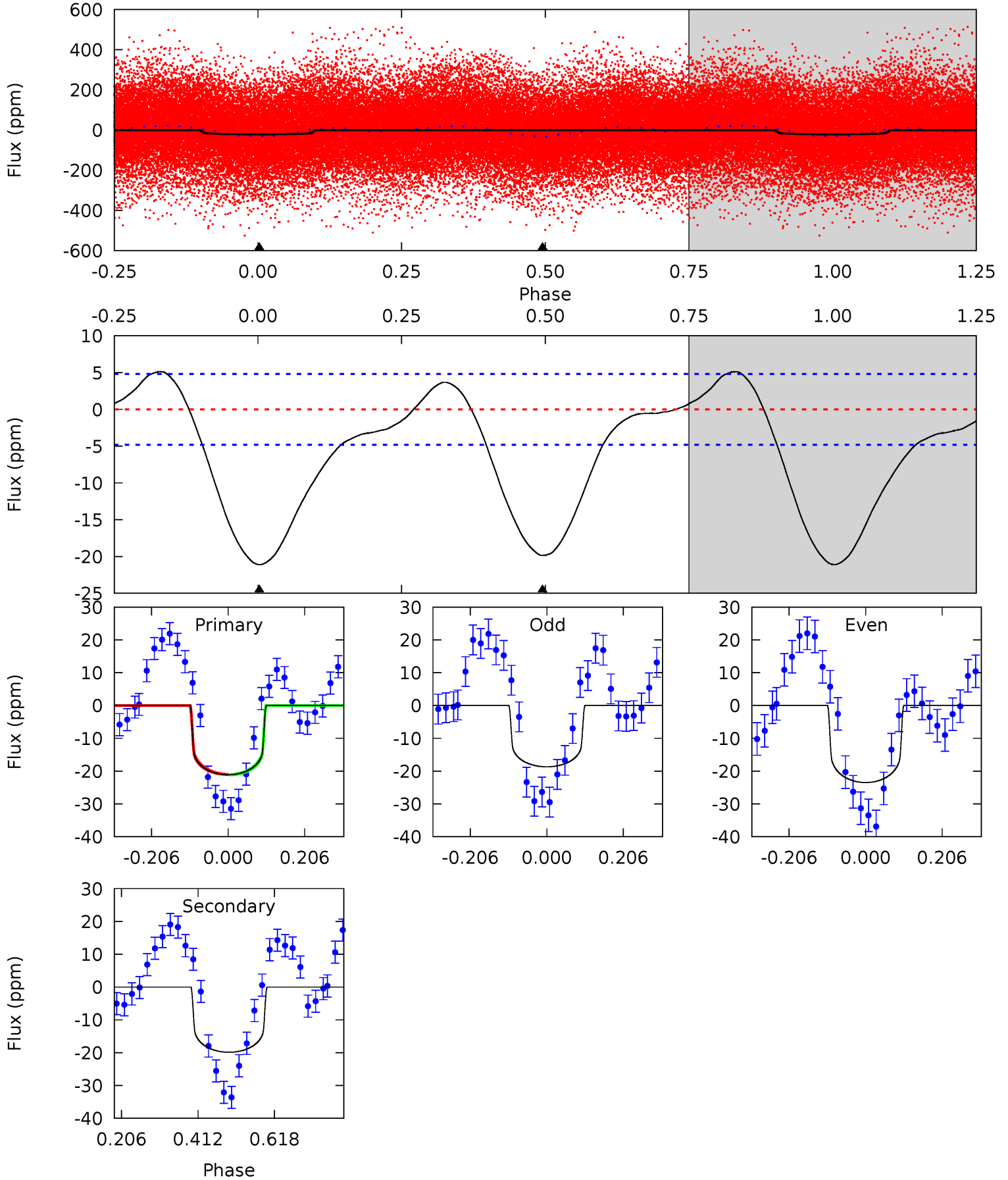
TCE 006283912-01   P= 2.698147 Days    $T_0=133.179351$  (BKJD)



# DV Model-Shift Uniqueness Test

006283912-01, P = 2.698247 Days, E = 130.479314 Days

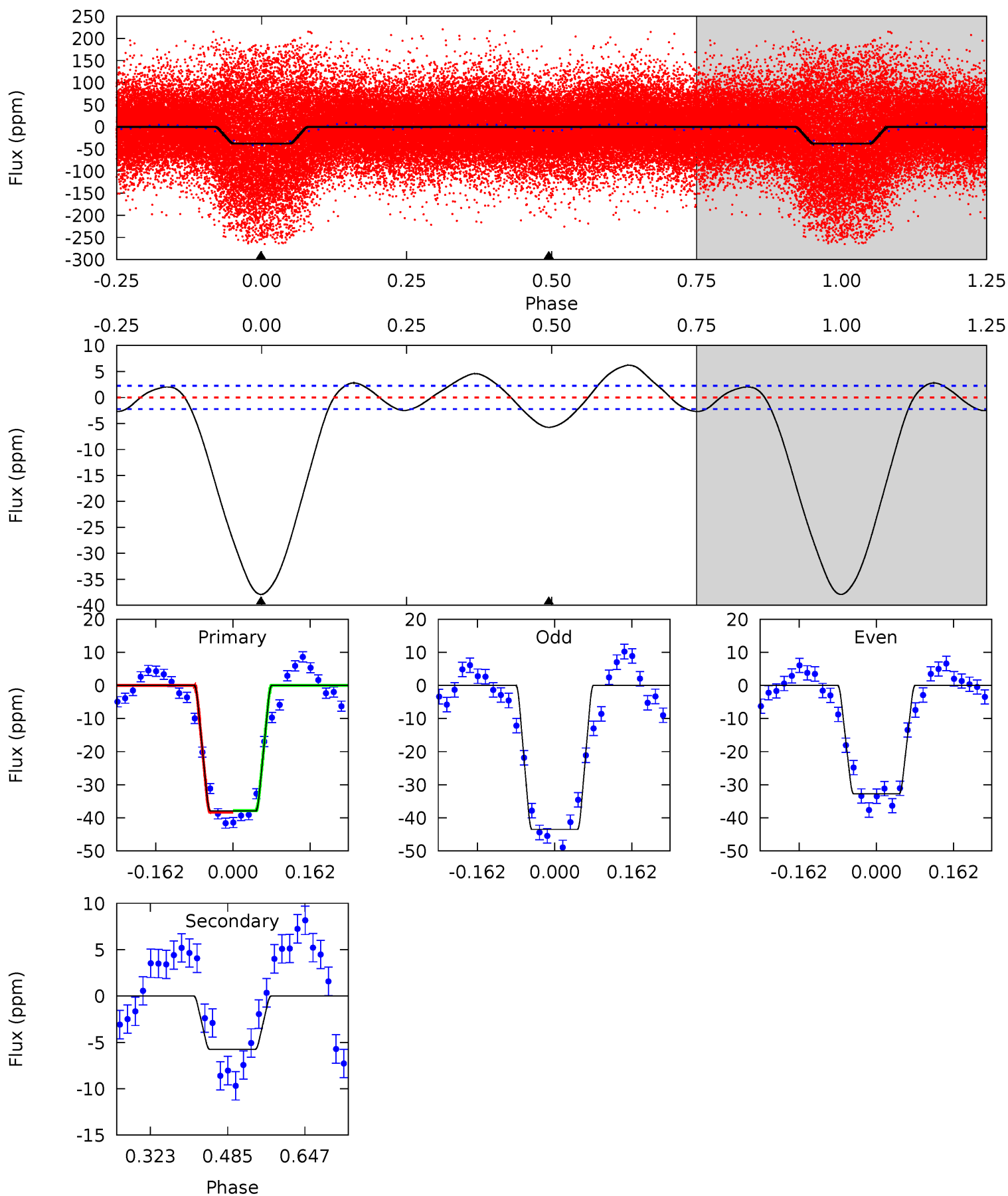
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	18.2	0	0	4.41	1.26	1.54	19.3	19.3	18.2	18.2	2.20	1.17	0.20	0.07



# Alt Model-Shift Uniqueness Test

006283912-01, P = 2.698147 Days, E = 130.481204 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
75.9	11.5	0	0	4.46	1.40	3.90	75.9	75.9	11.5	11.5	10.8	1.00	0.14	0



### Stellar Parameters For KIC 006283912

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6842^{+72}_{-92}$	$4.178^{+0.084}_{-0.116}$	$-0.080^{+0.150}_{-0.150}$	$1.579^{+0.272}_{-0.181}$	$1.378^{+0.099}_{-0.099}$	$0.493^{+0.198}_{-0.166}$
	+1%/-1%	+2%/-3%	+188%/-188%	+17%/-11%	+7%/-7%	+40%/-34%
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 006283912-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-20 \pm 1$	$0.78^{+0.11}_{-0.10}$	$2585^{+129}_{-88}$	$6813^{+421}_{-395}$	$32^{+9}_{-7}$
Alt.	$-6 \pm 0$	$1.11^{+0.13}_{-0.11}$	$2591^{+114}_{-91}$	$4325^{+159}_{-146}$	$4.519^{+1.068}_{-0.895}$

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

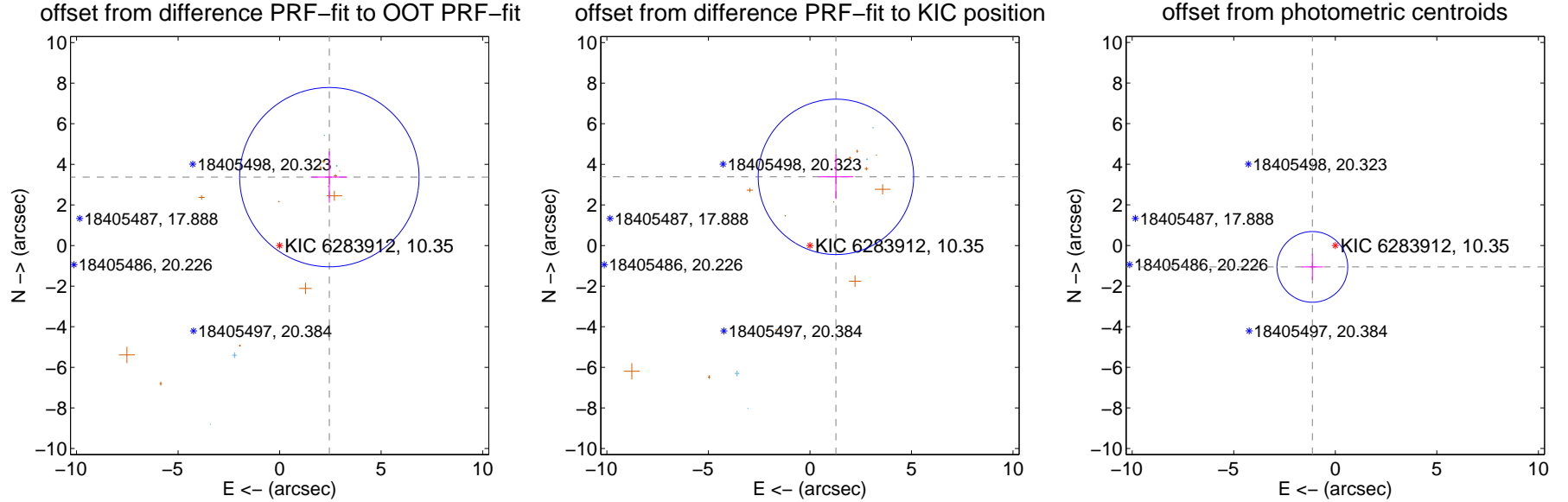
## DV Centroid Data

Supplemental centroid analysis for 006283912-01. **Kepler magnitude: 10.35**. Transit SNR 7.69

There are 4 quarters with good PRF difference image offsets

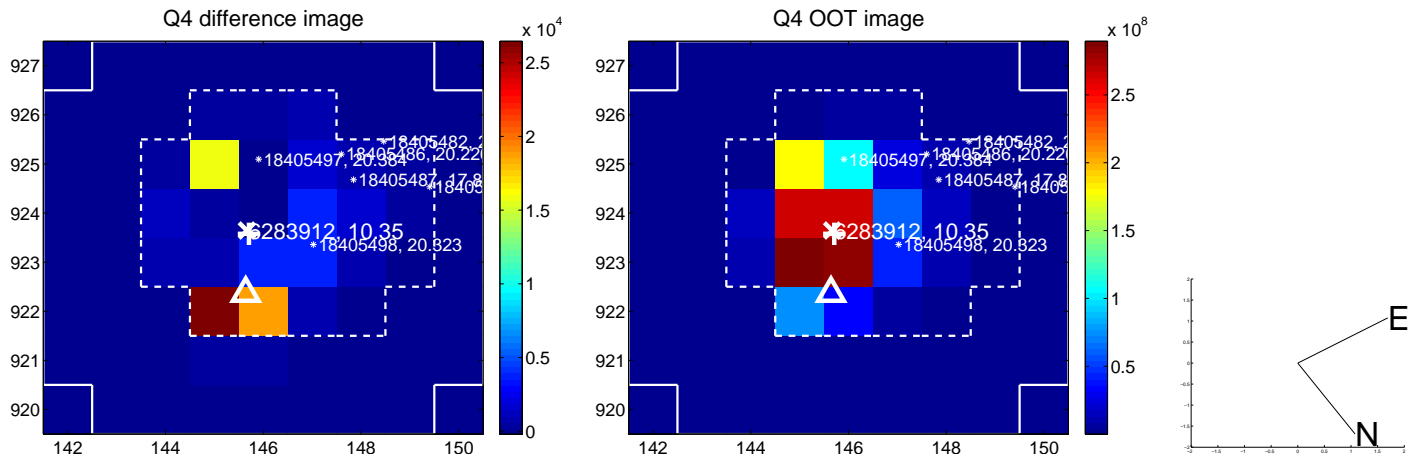
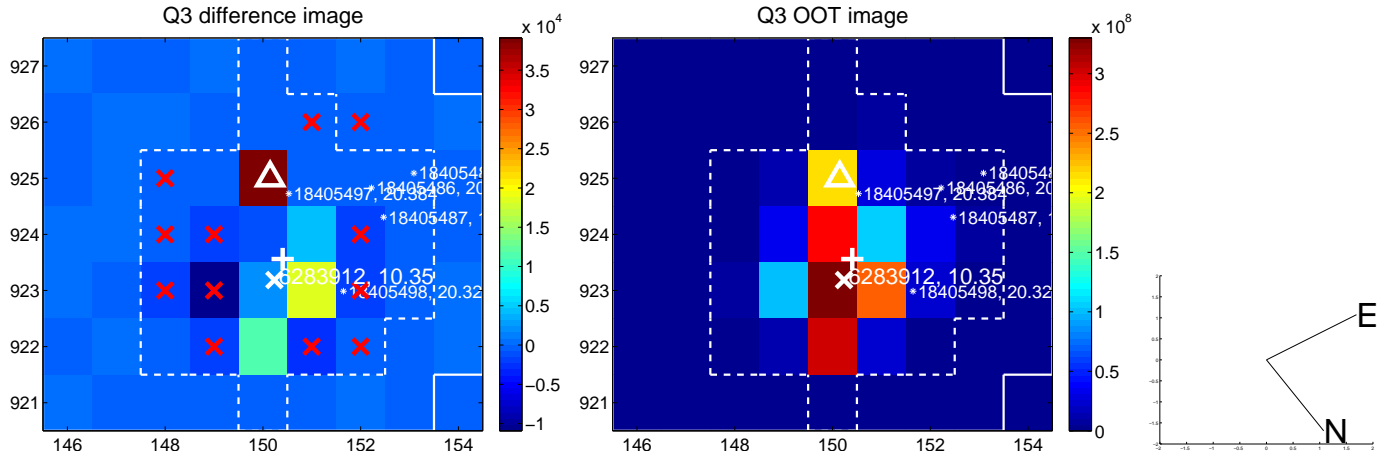
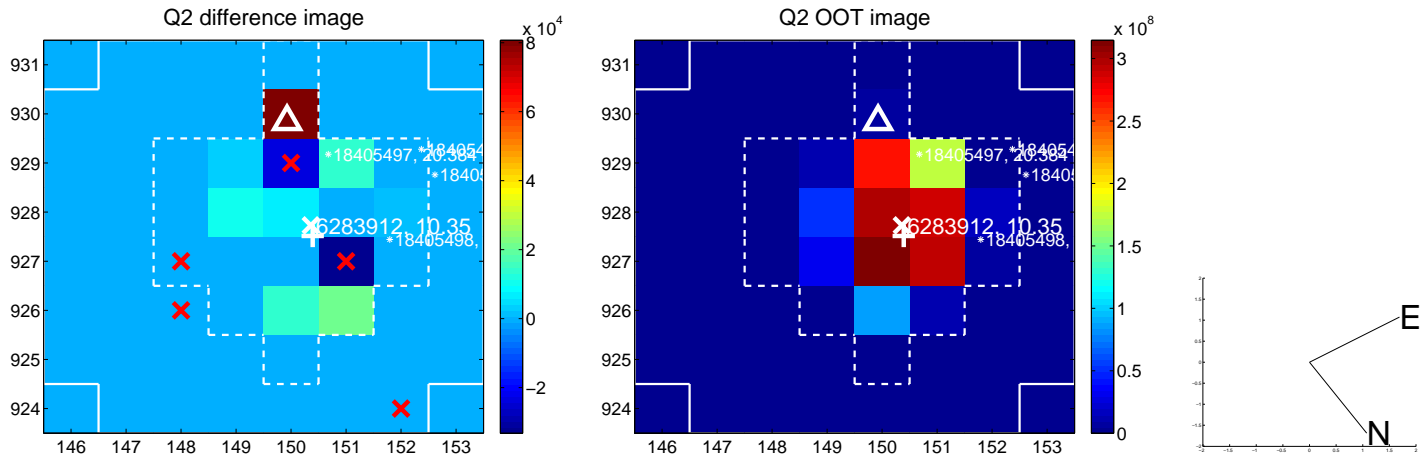
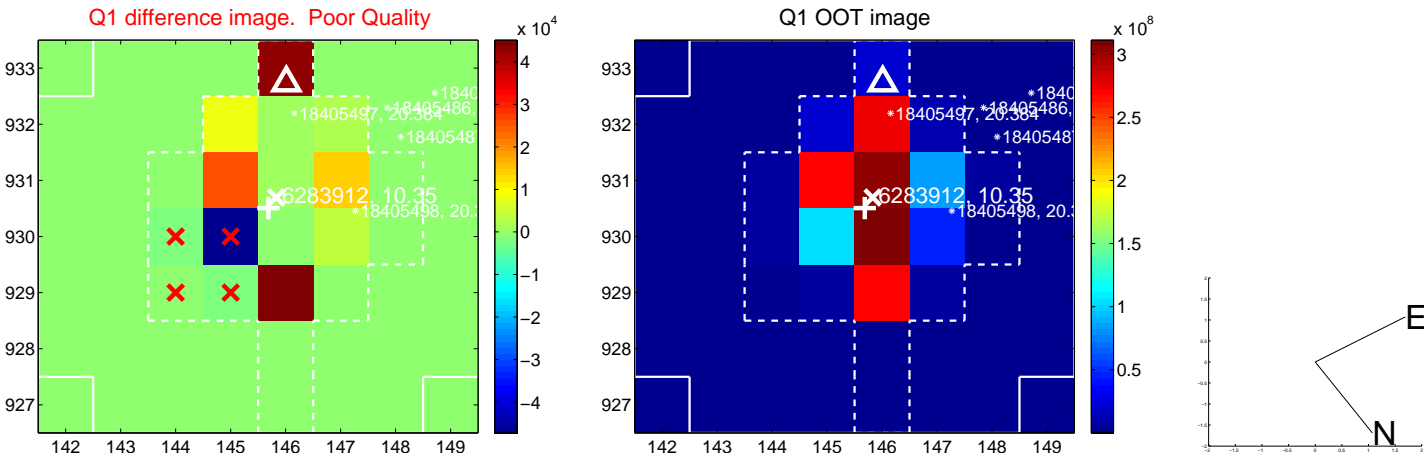
The direct PRF centroid is offset from the target star catalog position by about 0.94 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.166 \pm 1.472$	2.83	$-2.451 \pm 0.878$	$3.369 \pm 1.263$
PRF-fit source offset from KIC position	$3.618 \pm 1.276$	2.84	$-1.280 \pm 0.864$	$3.383 \pm 1.090$
photometric centroid source offset	$1.55 \pm 0.58$	2.66	$1.13 \pm 0.53$	$-1.06 \pm 0.64$

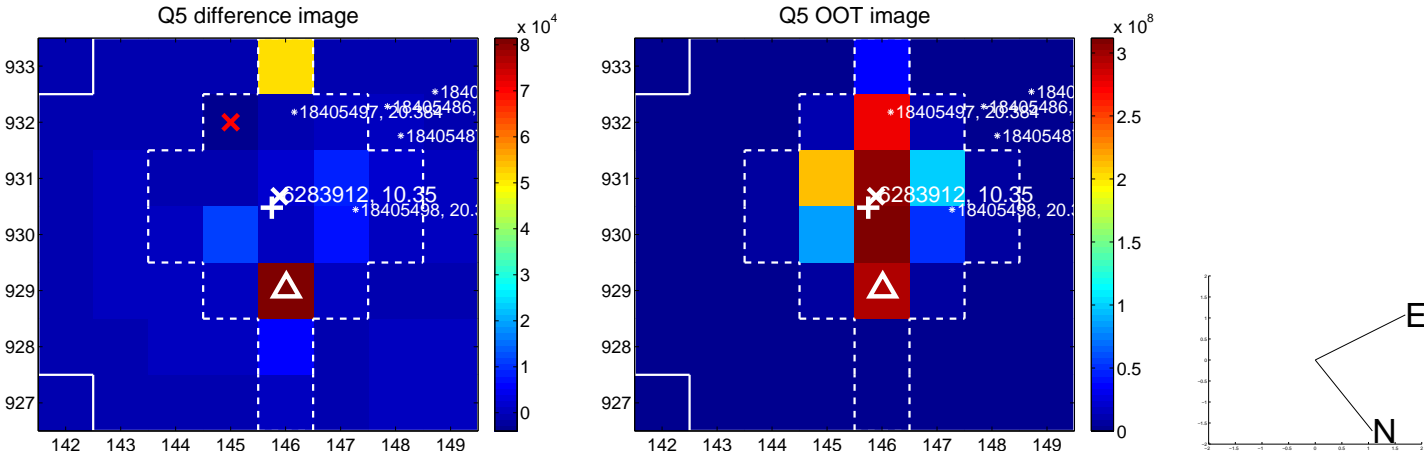


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

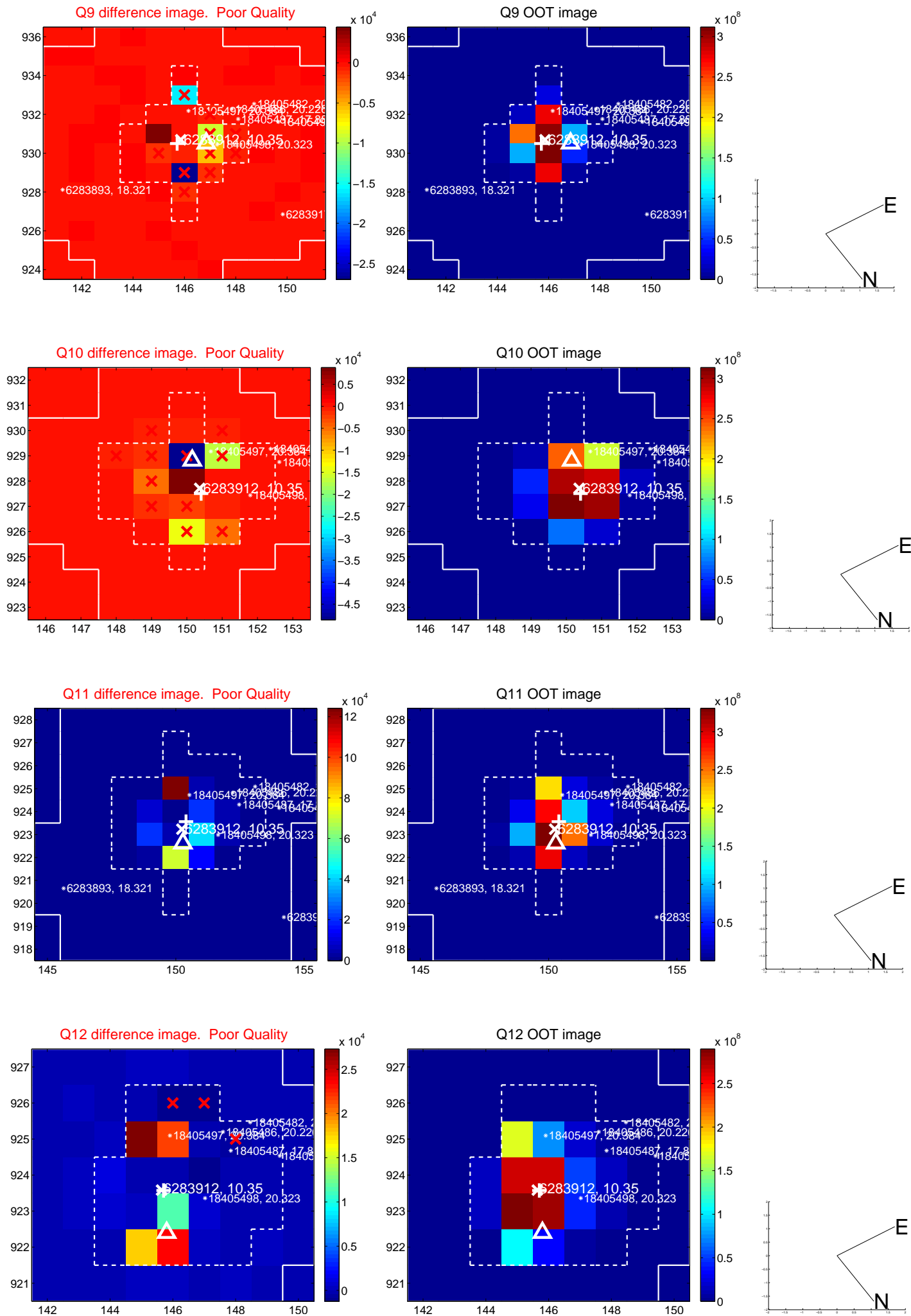
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



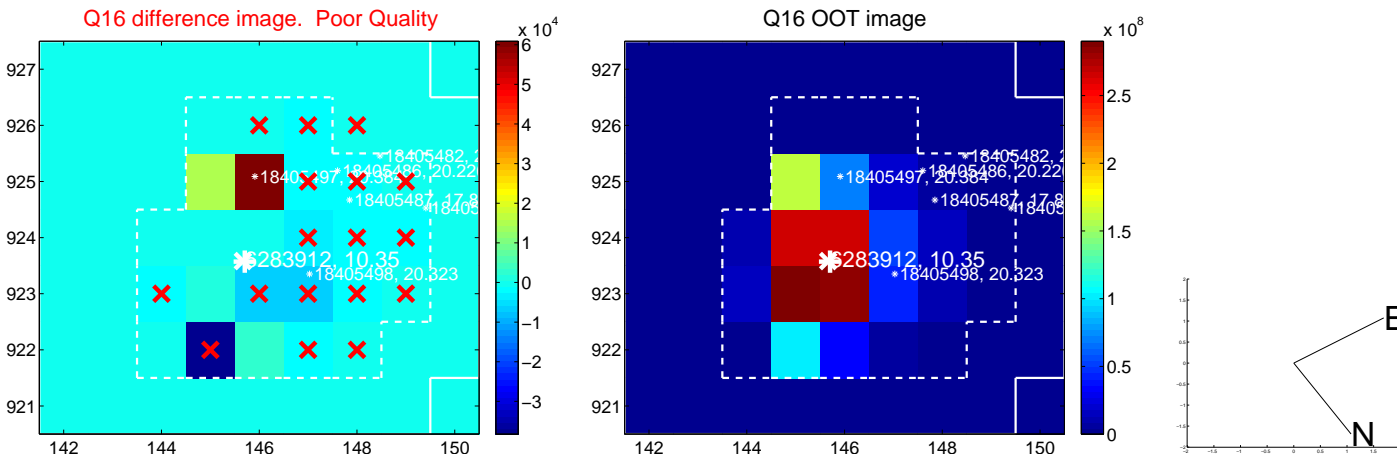
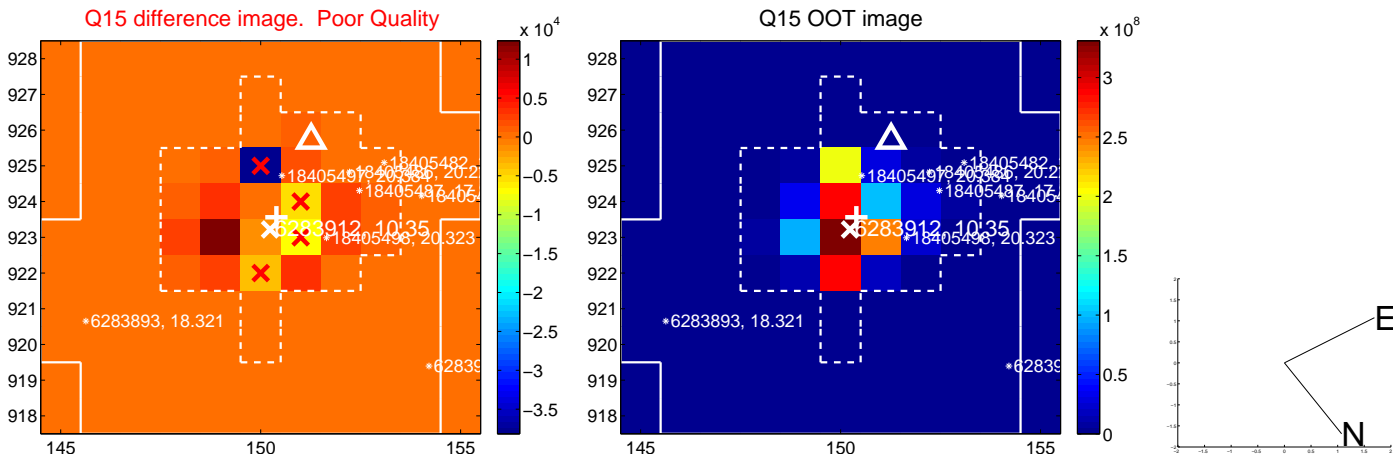
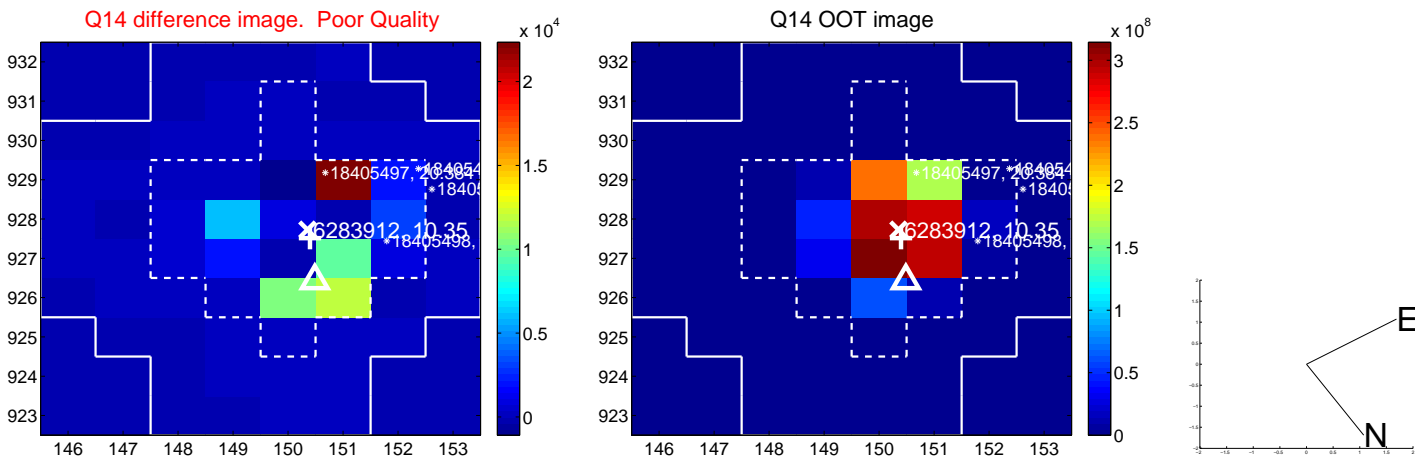
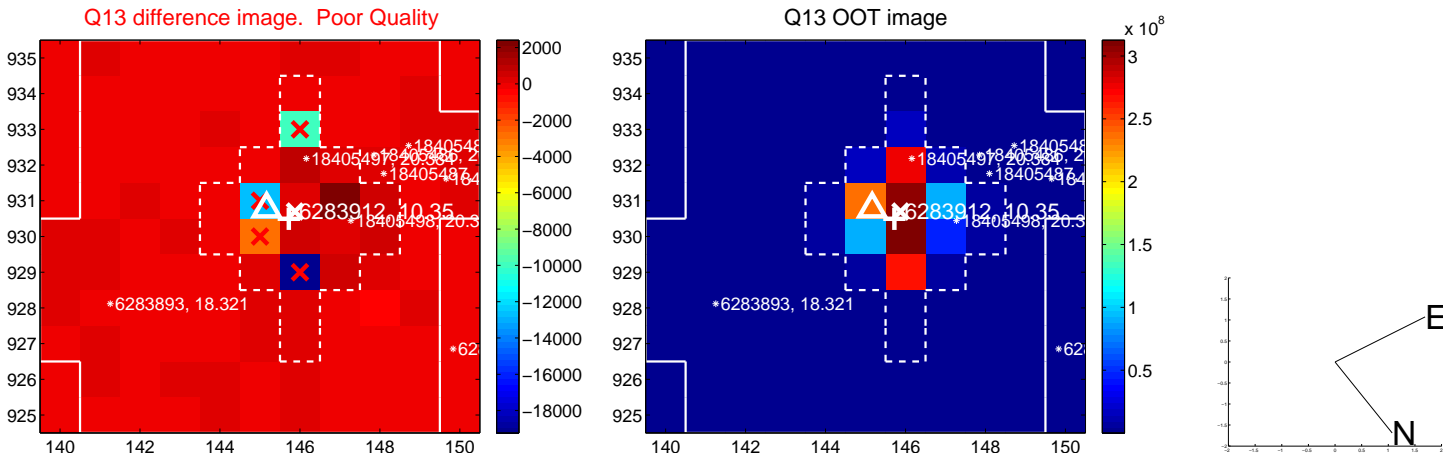
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



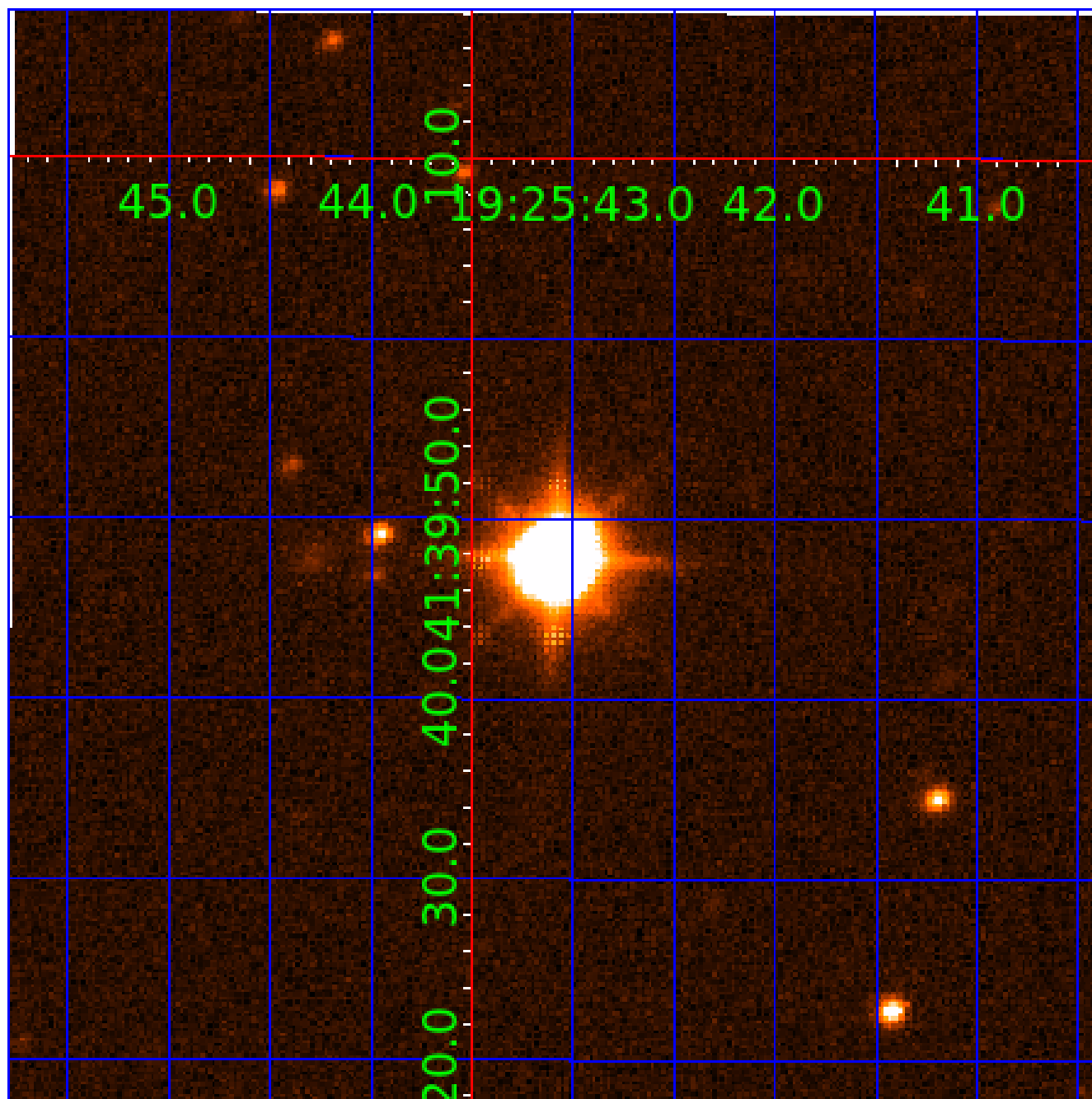
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 006283912

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006283912-01	OBS	No	2.698247	133.177561	17.6	12.890	7.7	7.7	1.58	6842	0.77	2757.01
006283912-02	OBS	No	2.698736	131.742955	21.4	11.298	13.2	12.0	1.58	6842	0.74	2756.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006283912-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
006283912-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED

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

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

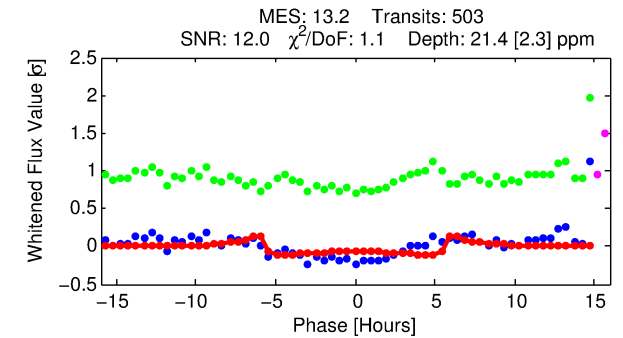
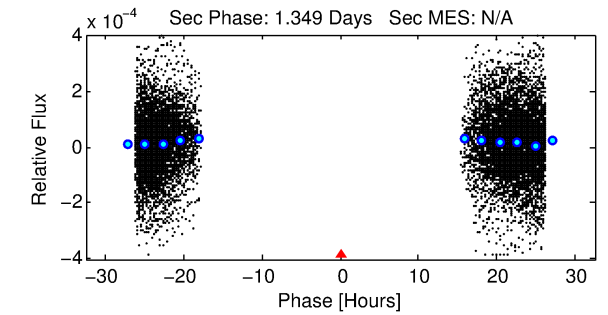
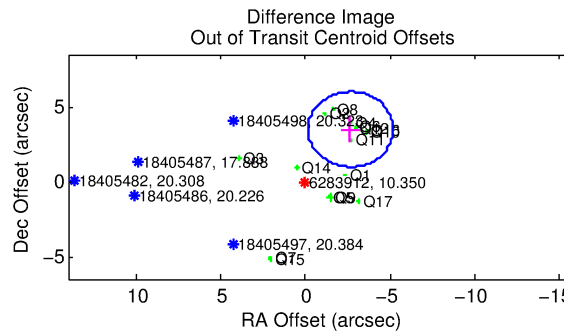
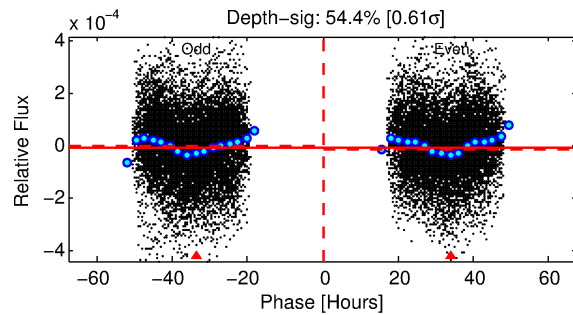
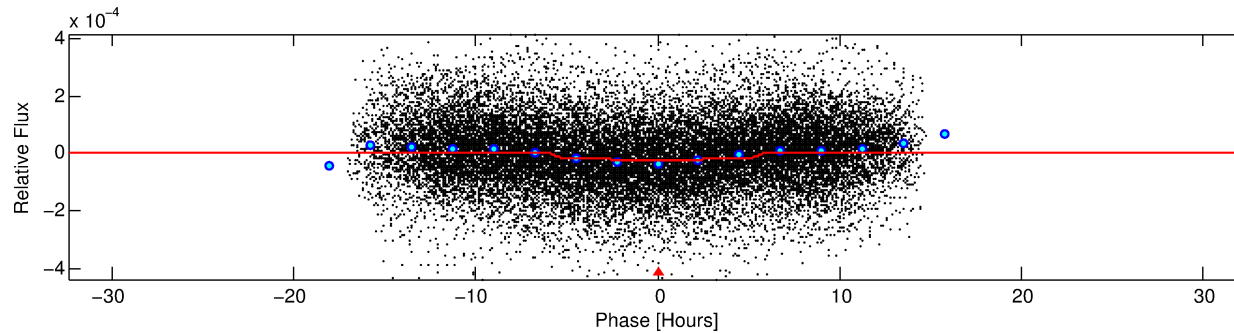
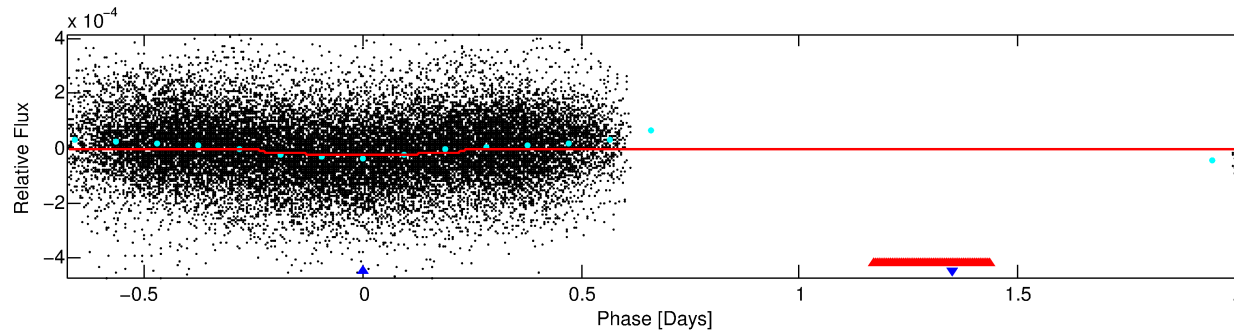
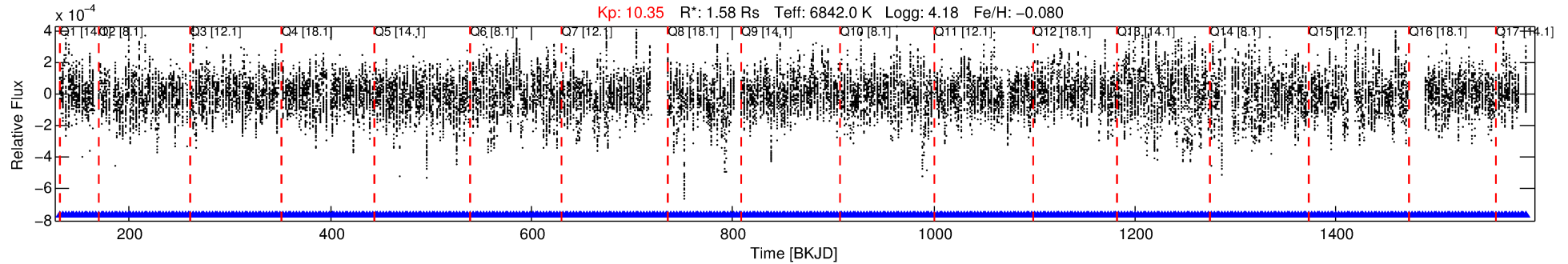
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006283912-02

No Significant Match Found

# DV One-Page Summary

KIC: 6283912 Candidate: 2 of 2 Period: 2.699 d



## DV Fit Results:

Period = 2.69874 [0.00002] d  
Epoch = 131.7430 [0.0030] BKJD  
Rp/R\* = 0.0043 [0.0012]  
a/R\* = 1.86 [2.10]  
b = 0.31 [4.62]  
Seff = 2756.35 [602.56]  
Teq = 1848 [101] K  
Rp = 0.74 [0.24] Re  
a = 0.0421 [0.0061] AU

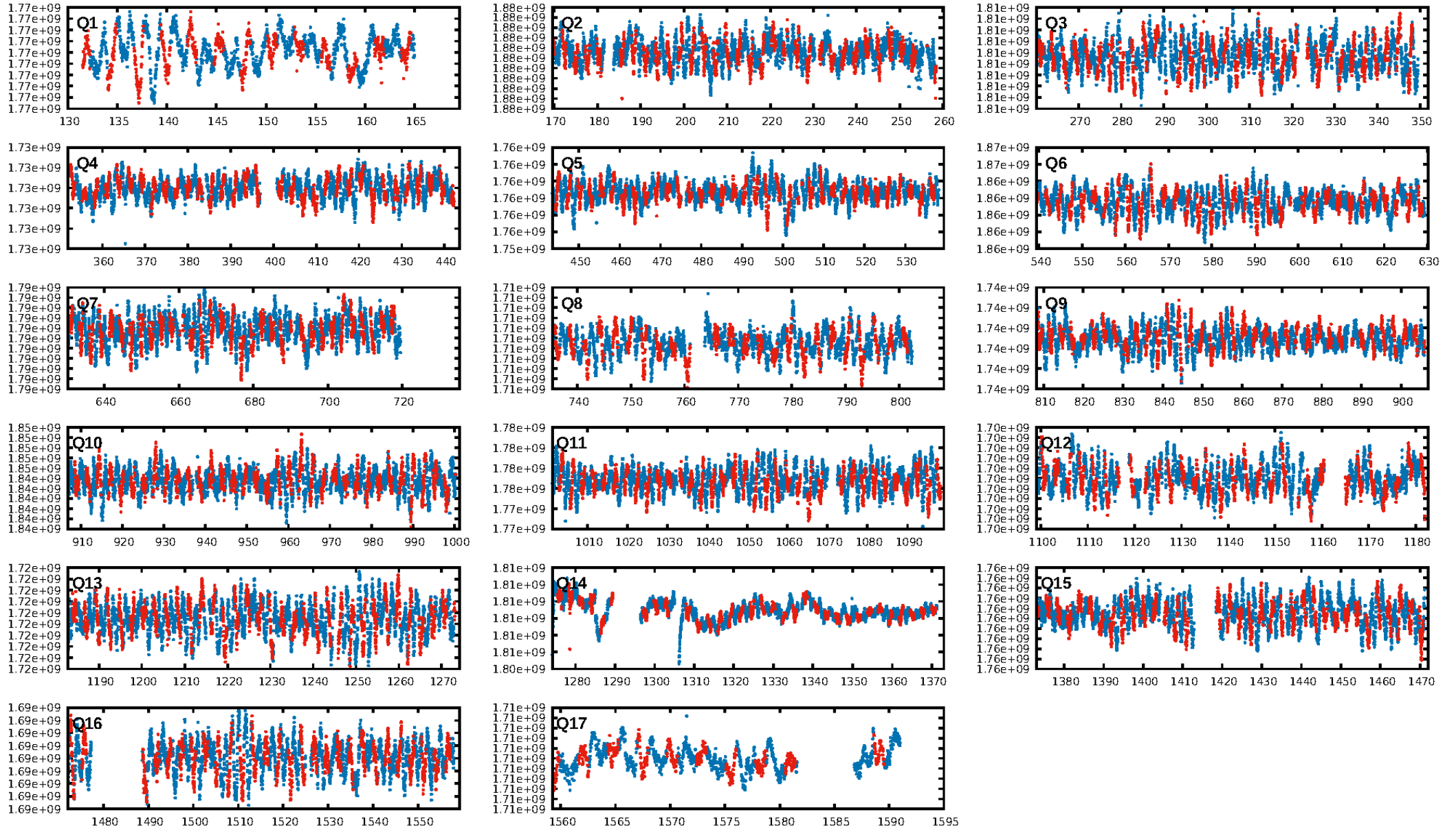
## DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [480/480]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.2%  
Centroid-so: 1.111 arcsec [2.07 $\sigma$ ]  
OotOffset-rm: 4.385 arcsec [5.24 $\sigma$ ]  
KicOffset-rm: 4.325 arcsec [4.43 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.31 [5/16]  
DiffImageOverlap-fno: 1.00 [17/17]

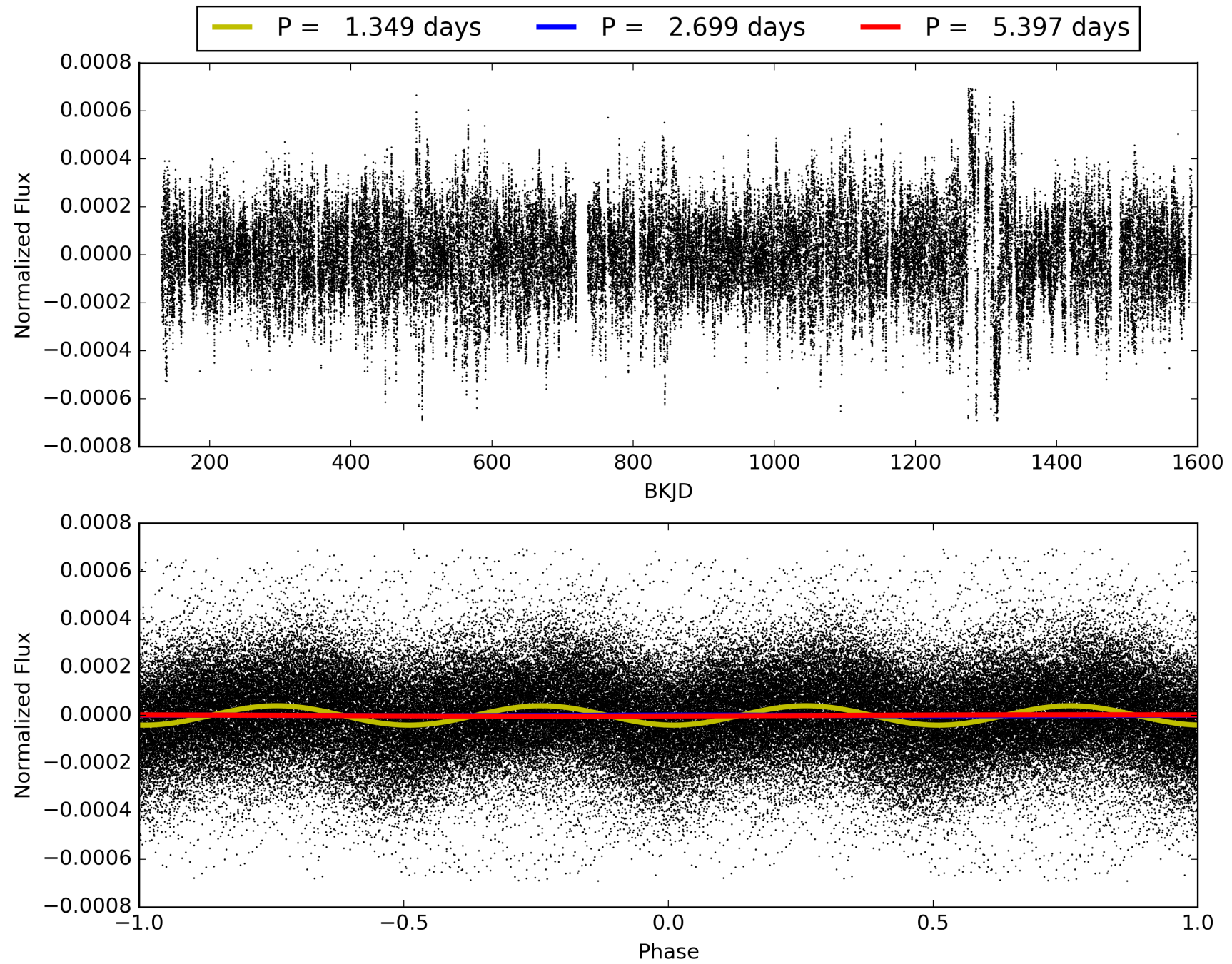
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:02:40 Z

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

# TCE 006283912-02, PDC Light Curves

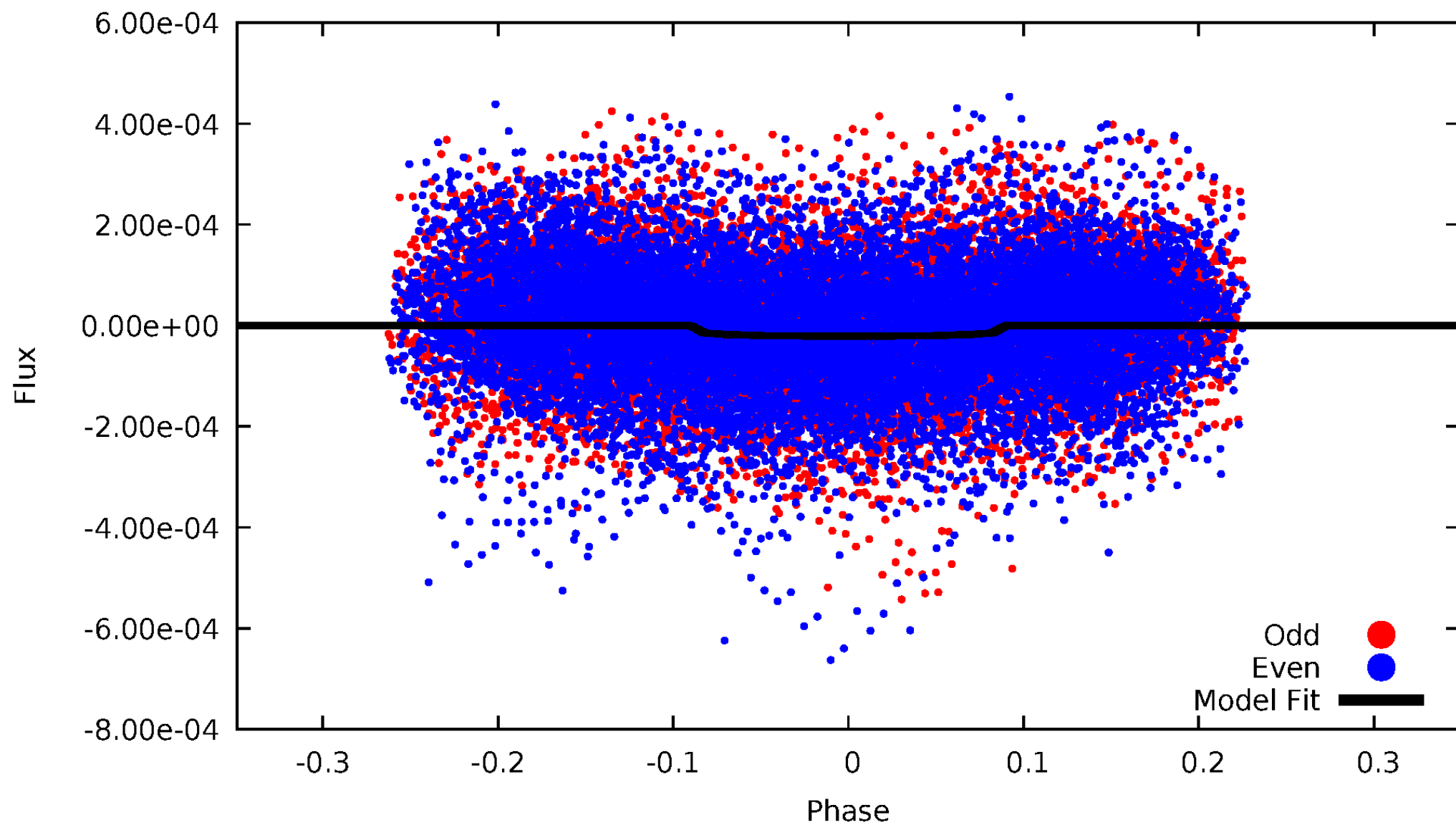


TCE 006283912-02



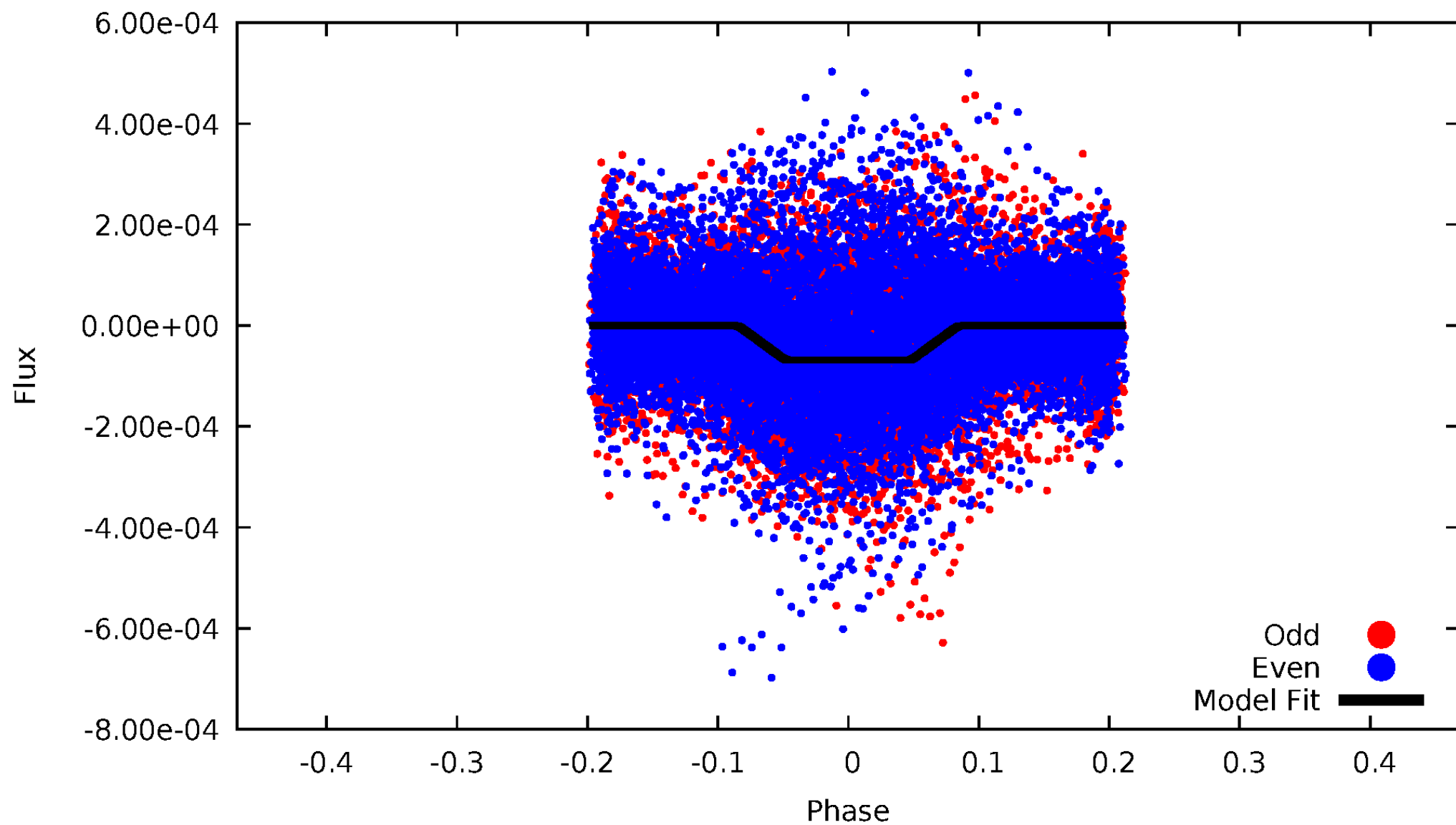
DV Odd/Even

TCE 006283912-02



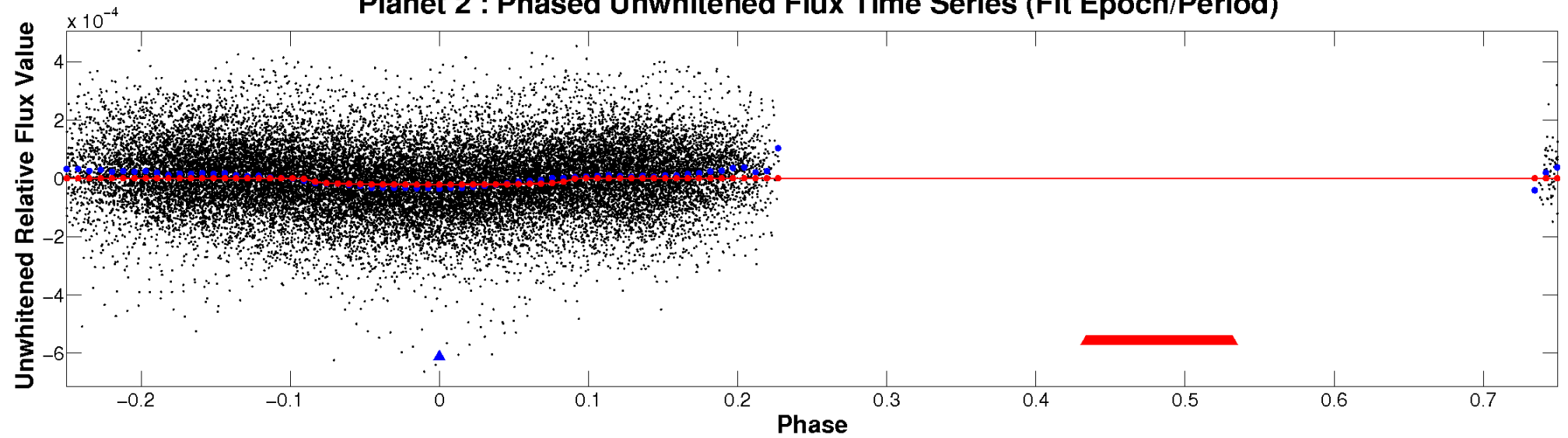
# ALT Odd/Even

TCE 006283912-02

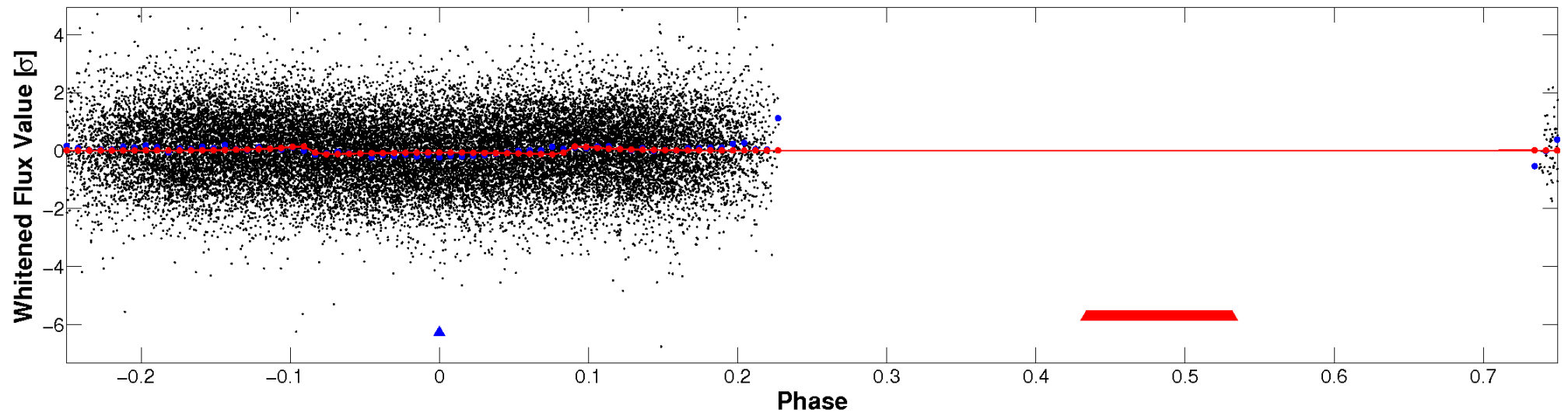


# Non-Whitened Vs. Whitened Light Curve

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

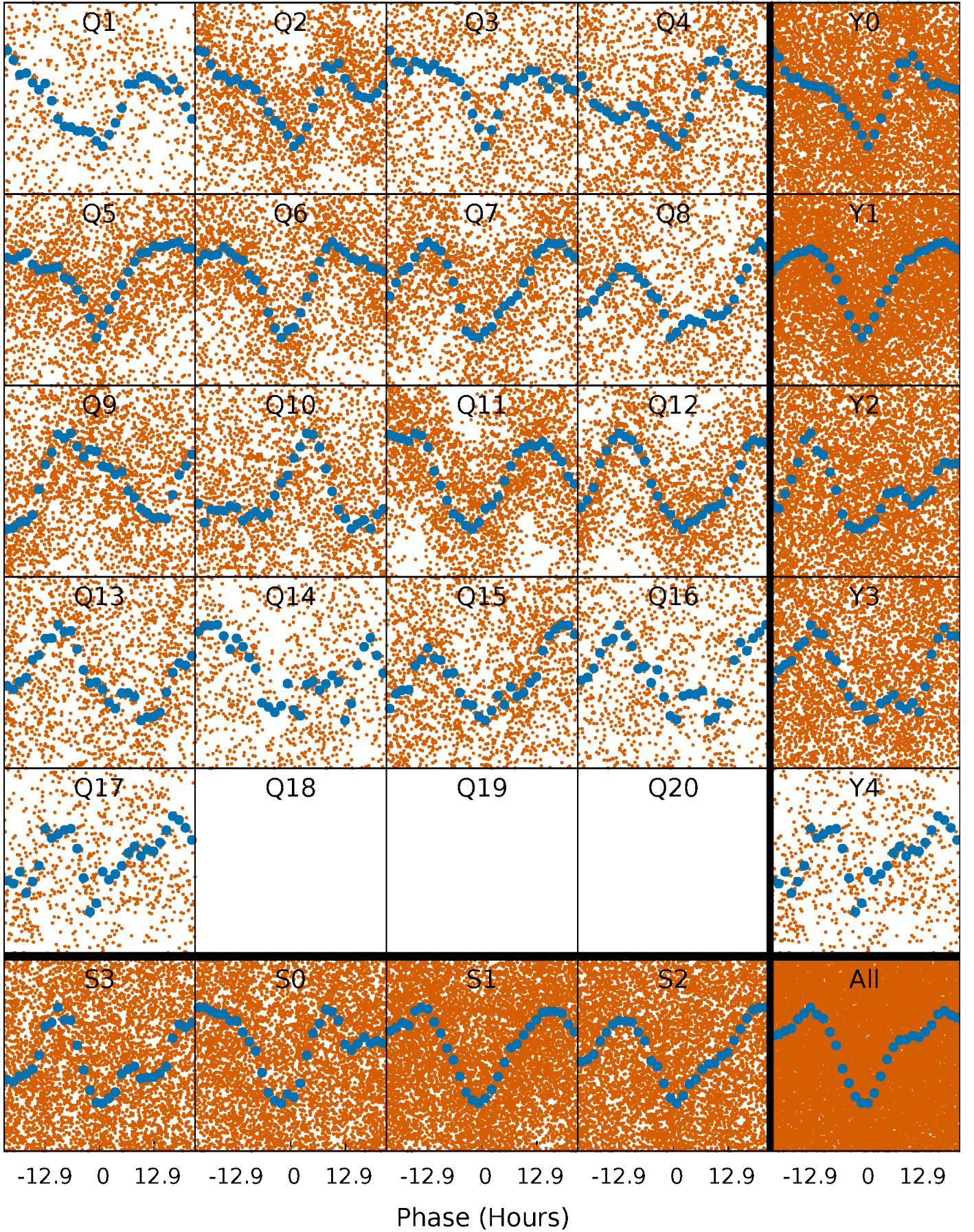


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



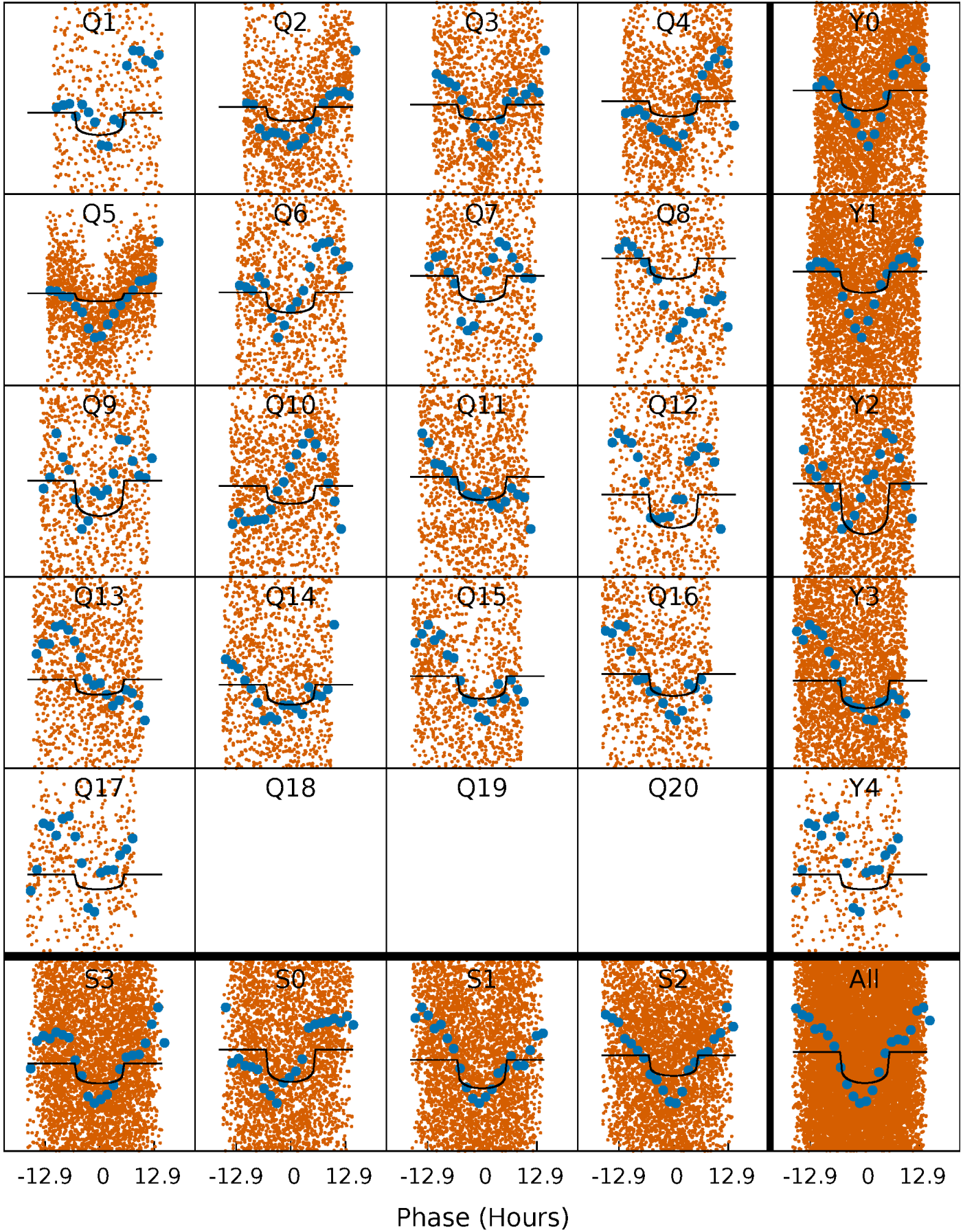
# PDC Quarter-Phased Transit Curves

TCE 006283912-02   P= 2.698736 Days    $T_0=131.742955$  (BKJD)



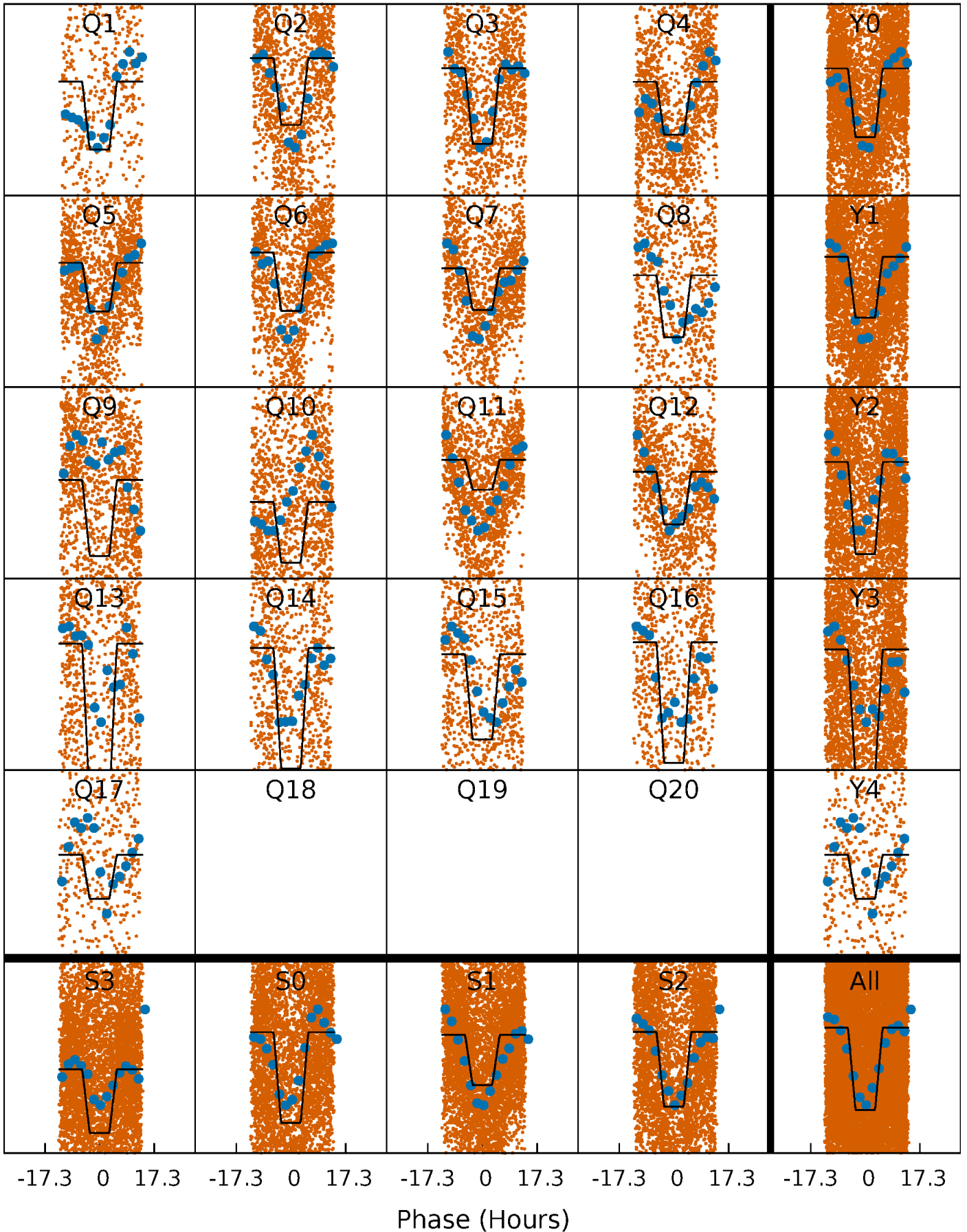
# DV Quarter-Phased Transit Curves

TCE 006283912-02   P= 2.698736 Days    $T_0=131.742955$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

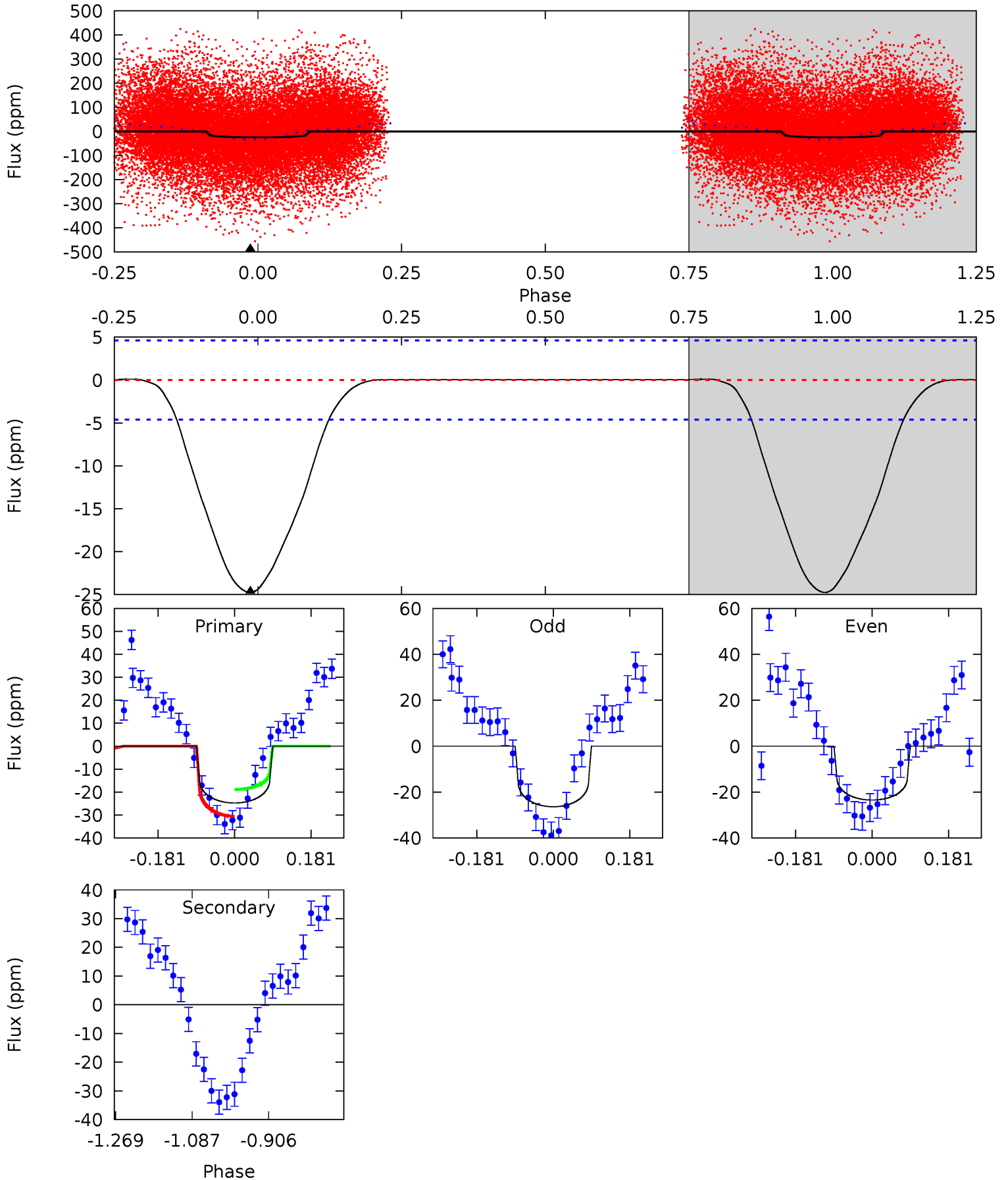
TCE 006283912-02   P= 2.698331 Days    $T_0=131.787138$  (BKJD)



# DV Model-Shift Uniqueness Test

006283912-02, P = 2.698736 Days, E = 129.044219 Days

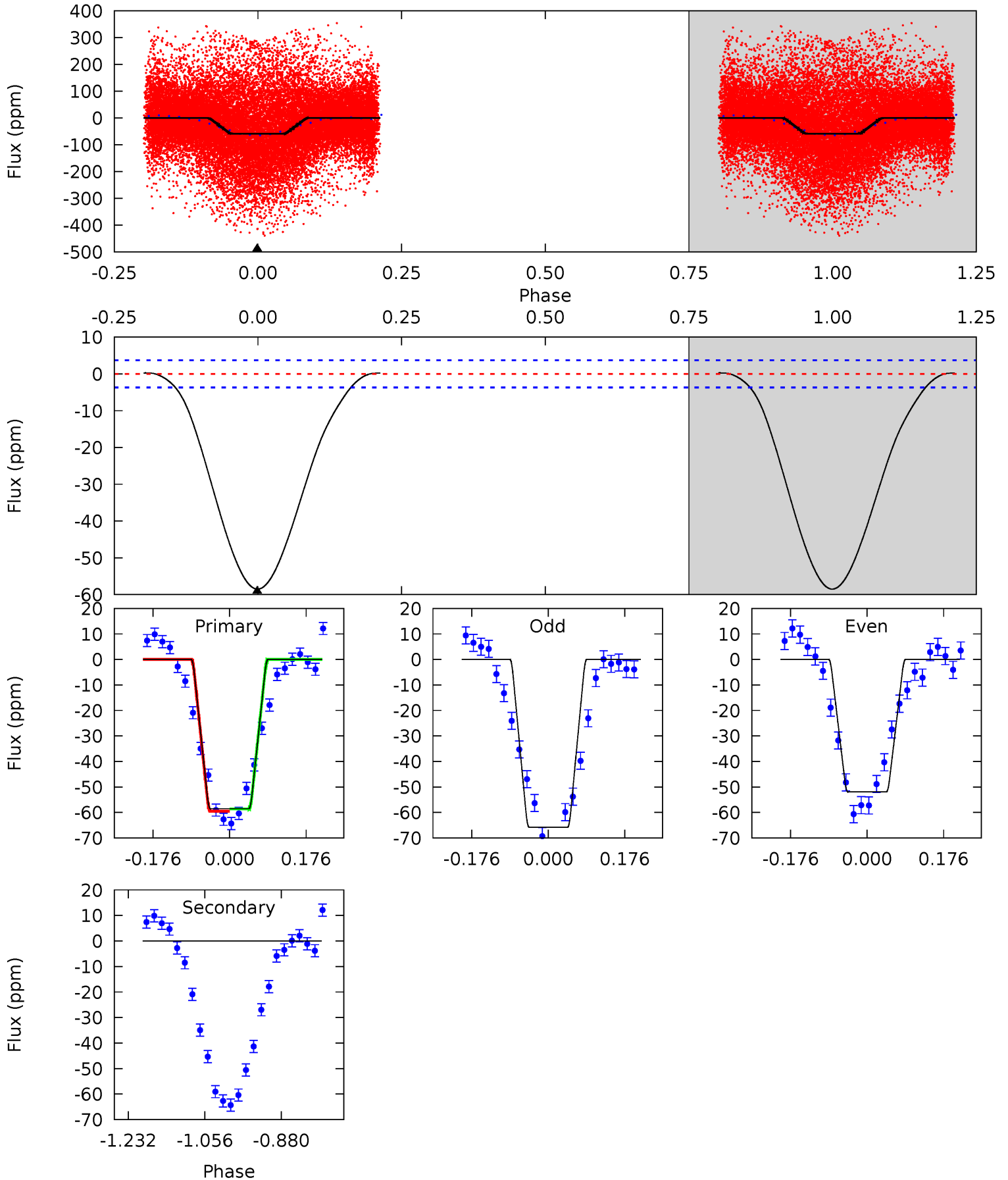
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.9	0	0	0	4.44	1.34	0.23	23.9	23.9	0	0	1.39	1.05	0.00	5.68



# Alt Model-Shift Uniqueness Test

006283912-02, P = 2.698331 Days, E = 129.088807 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
70.0	0	0	0	4.44	1.35	0.65	70.0	70.0	0	0	8.27	0.83	0.00	0.35



### Stellar Parameters For KIC 006283912

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6842^{+72}_{-92}$	$4.178^{+0.084}_{-0.116}$	$-0.080^{+0.150}_{-0.150}$	$1.579^{+0.272}_{-0.181}$	$1.378^{+0.099}_{-0.099}$	$0.493^{+0.198}_{-0.166}$
	+1%/-1%	+2%/-3%	+188%/-188%	+17%/-11%	+7%/-7%	+40%/-34%
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 006283912-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1$	$0.76^{+0.22}_{-0.22}$	$2589^{+116}_{-95}$	$-2894^{+6585}_{-970}$	$-0.034^{+1.959}_{-2.067}$
Alt.	$0 \pm 1$	$1.43^{+0.26}_{-0.22}$	$2588^{+107}_{-87}$	$-2882^{+5351}_{-350}$	$-0.028^{+0.432}_{-0.399}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

## DV Centroid Data

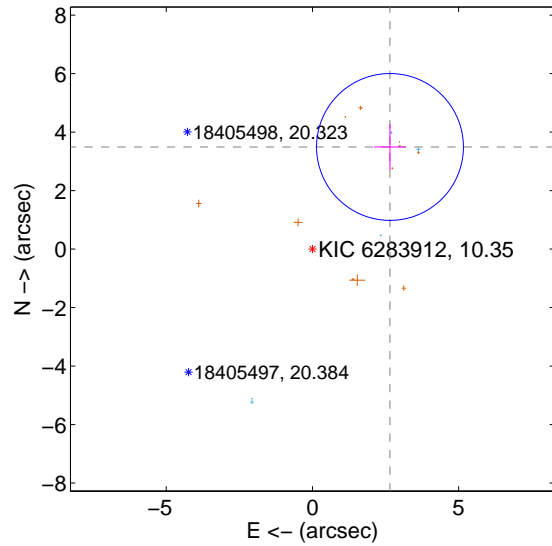
Supplemental centroid analysis for 006283912-02. **Kepler magnitude: 10.35**. Transit SNR 11.95

There are 5 quarters with good PRF difference image offsets

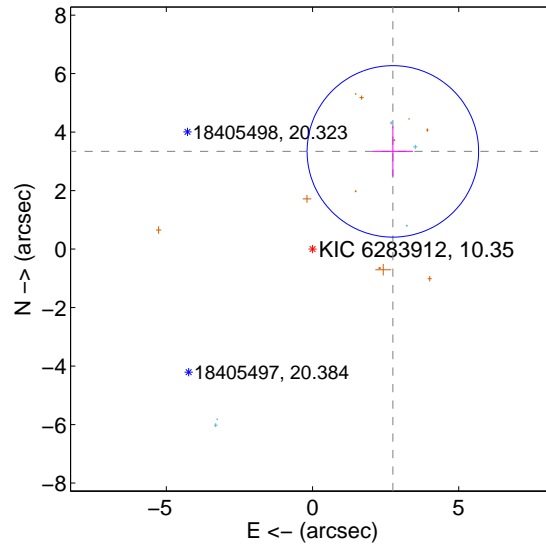
The direct PRF centroid is offset from the target star catalog position by about 0.94 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>4.385 \pm 0.837</math></b>	<b>5.24</b>	$-2.651 \pm 0.546$	$3.493 \pm 0.784$
PRF-fit source offset from KIC position	<b><math>4.325 \pm 0.977</math></b>	<b>4.43</b>	$-2.747 \pm 0.687$	$3.341 \pm 0.857$
photometric centroid source offset	$1.11 \pm 0.54$	2.07	$-0.21 \pm 0.45$	$-1.09 \pm 0.54$

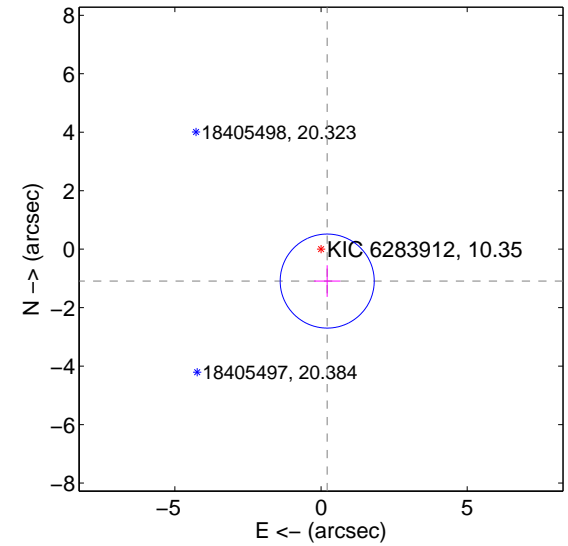
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

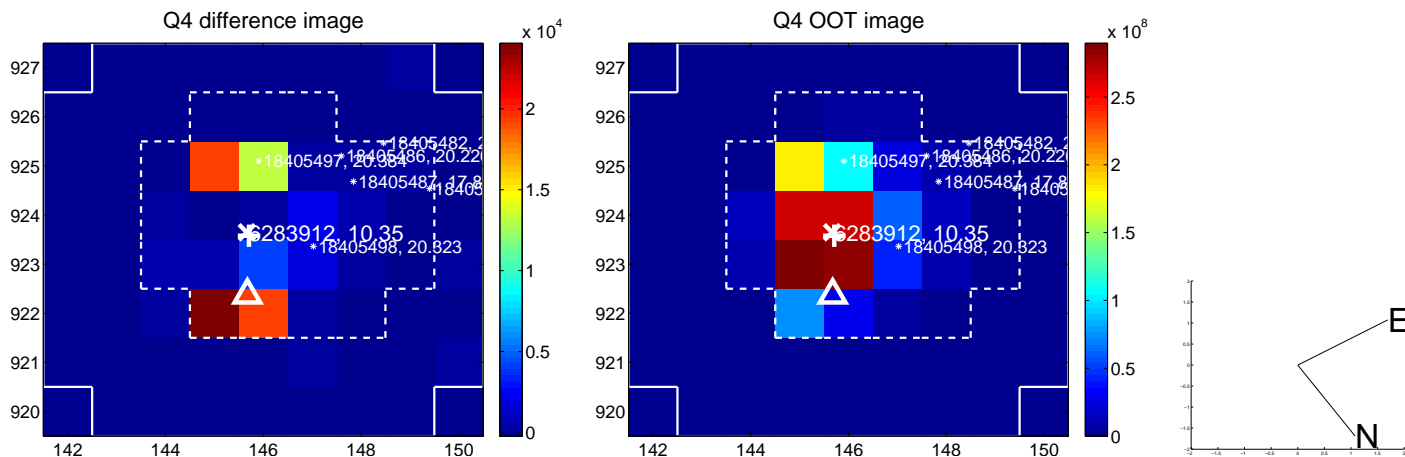
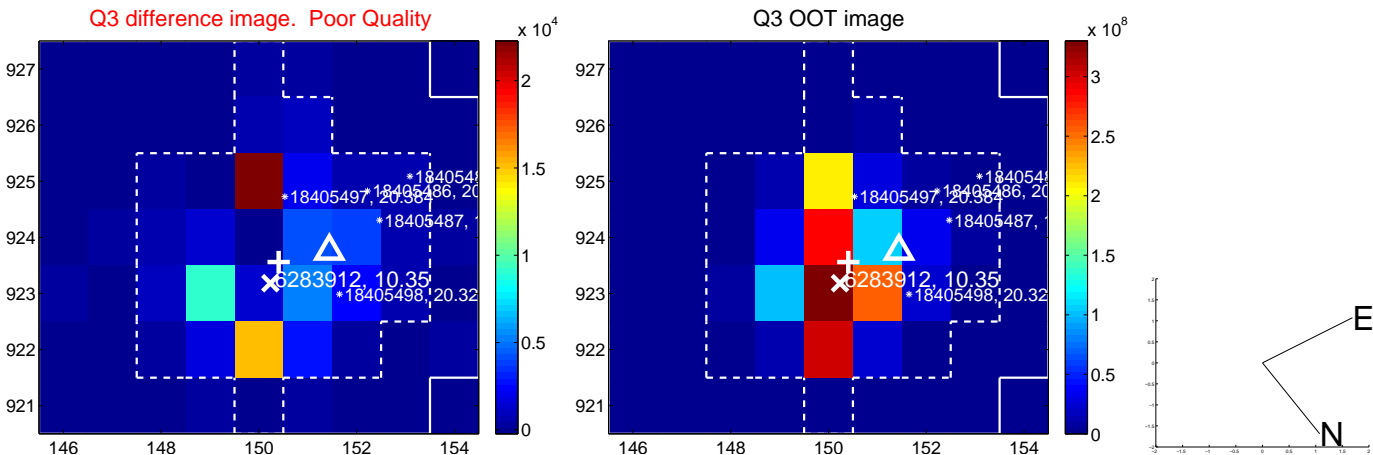
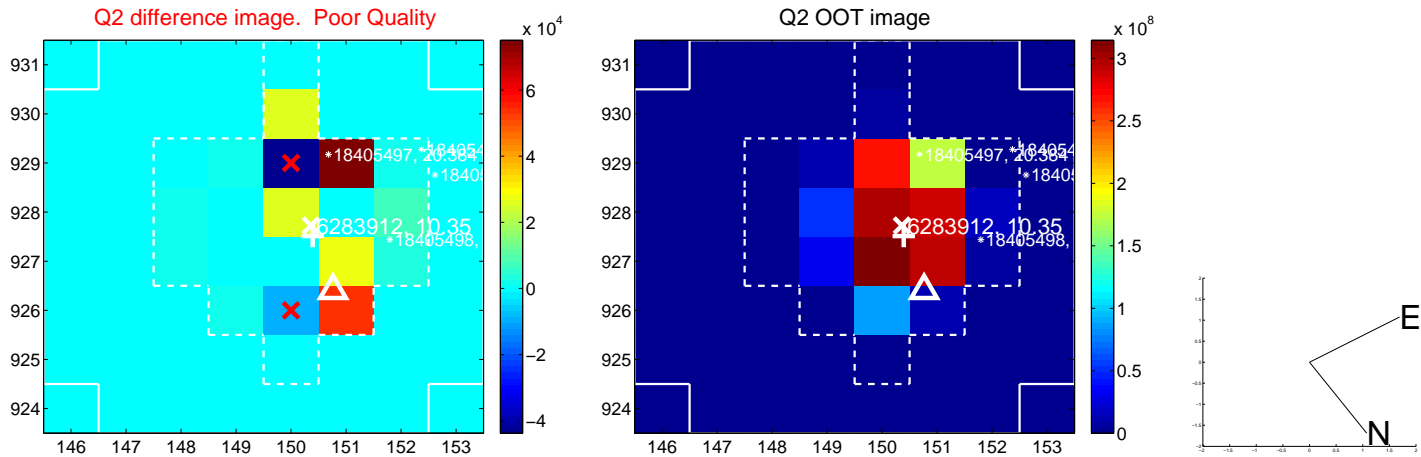
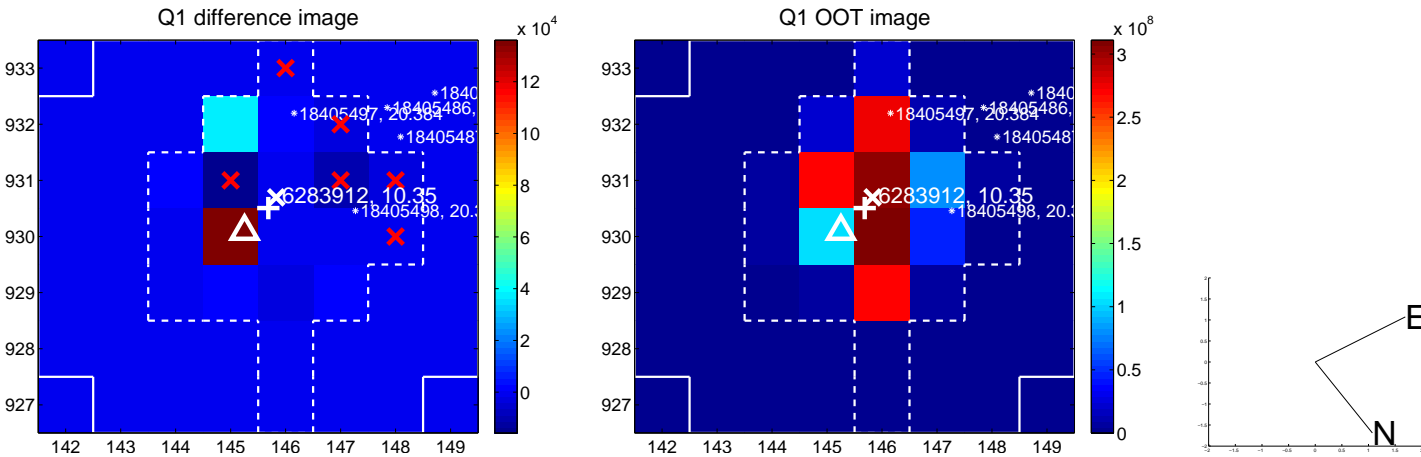


offset from photometric centroids

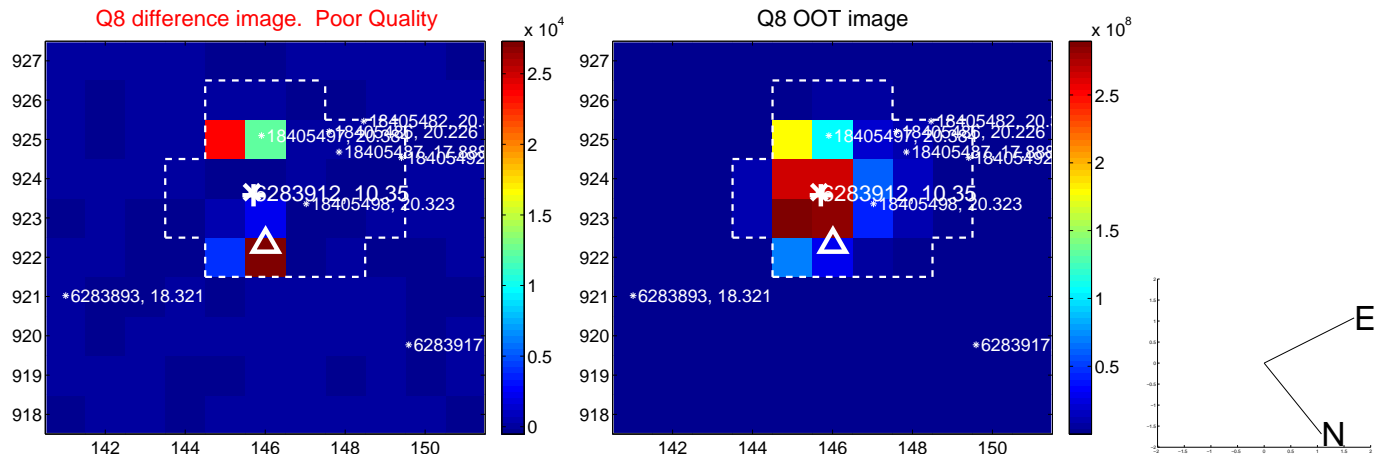
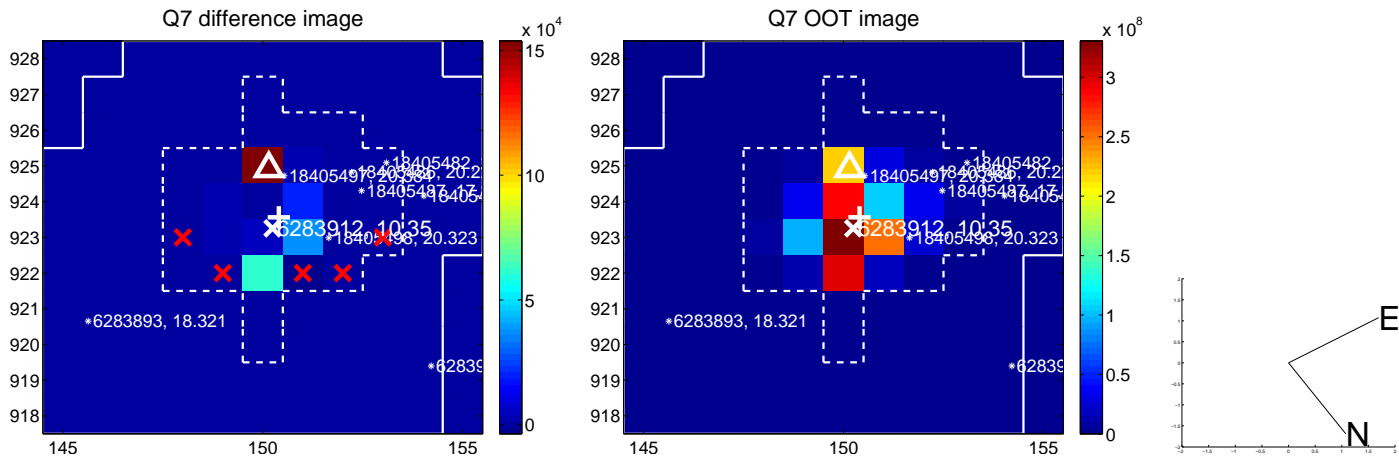
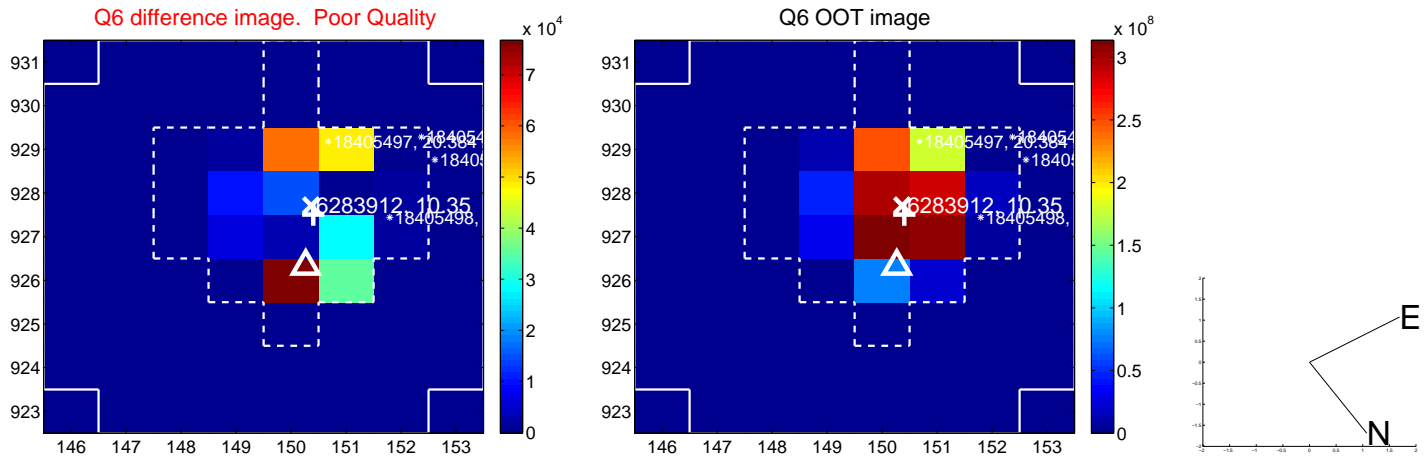
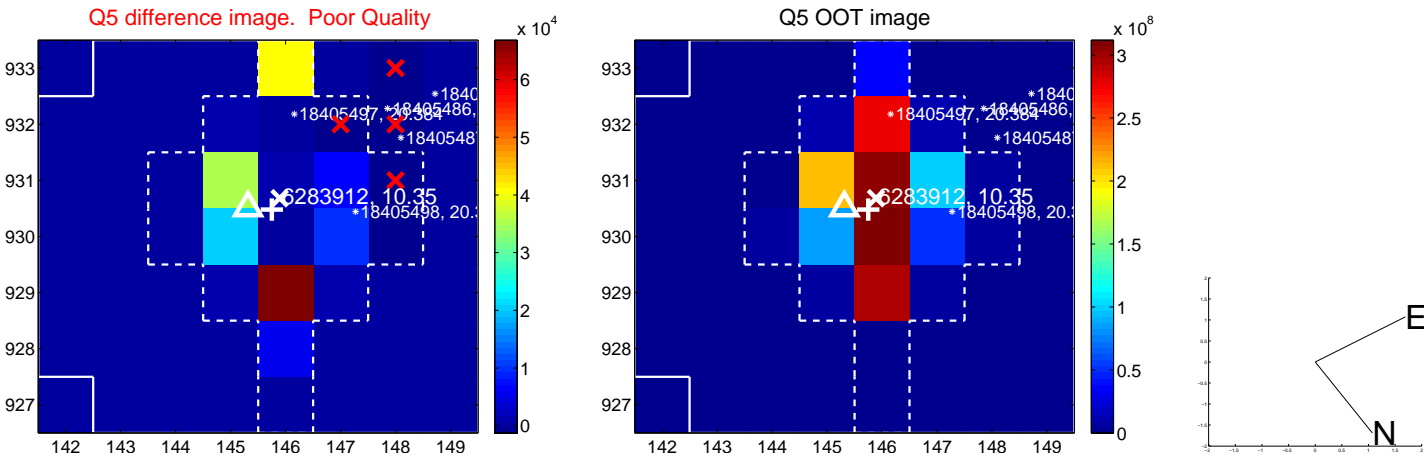


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

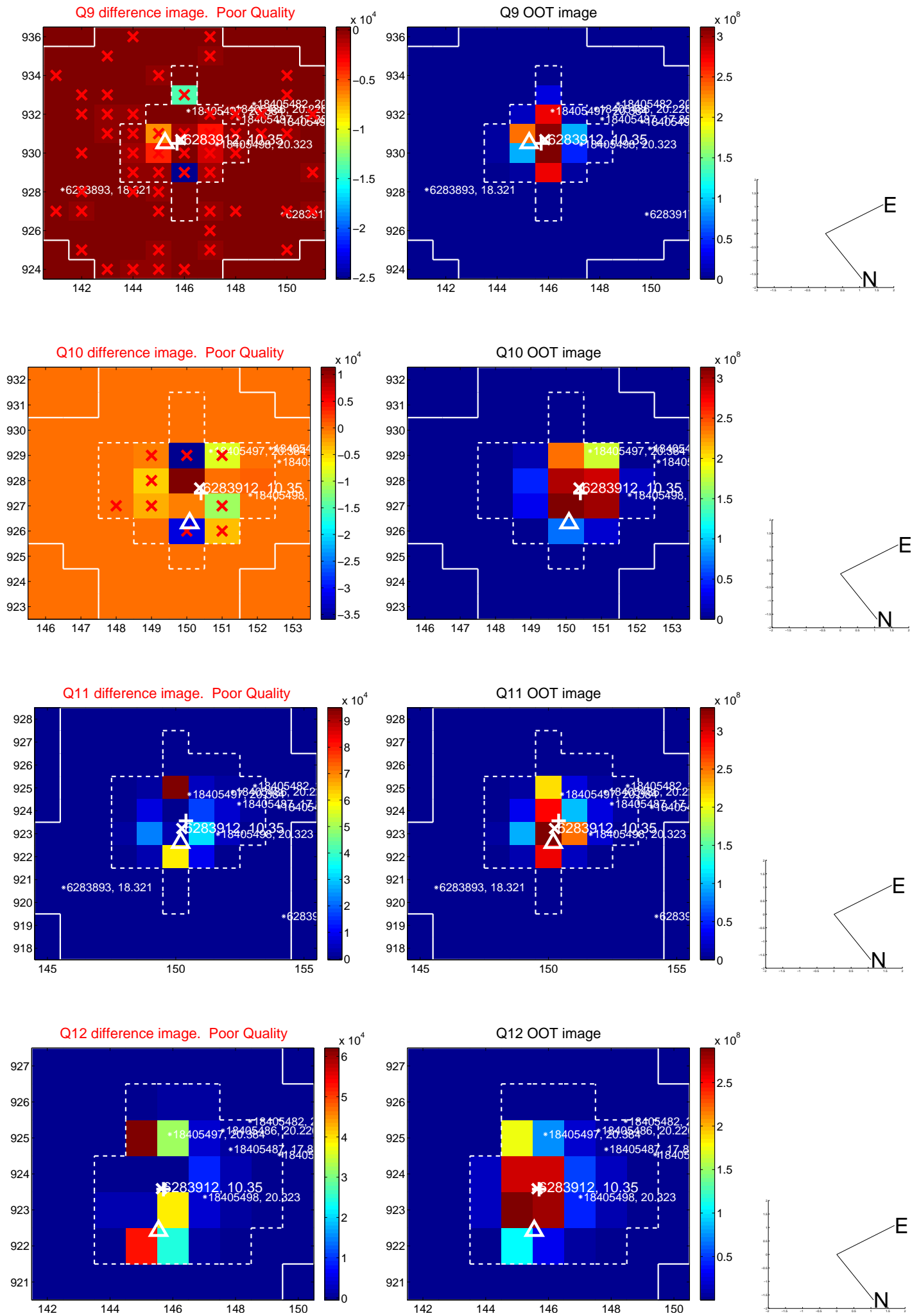
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



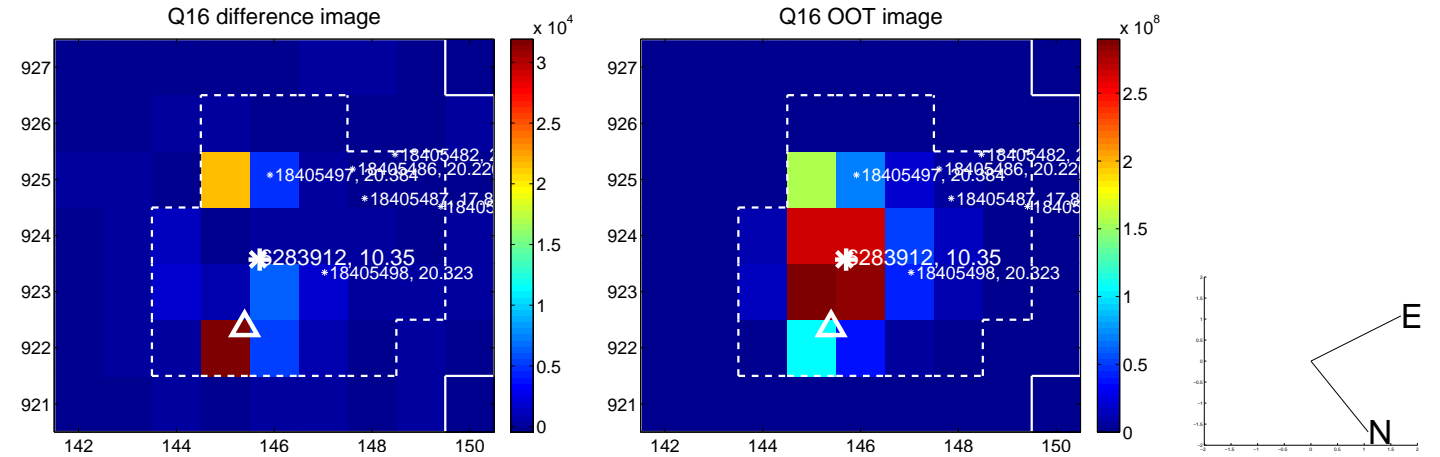
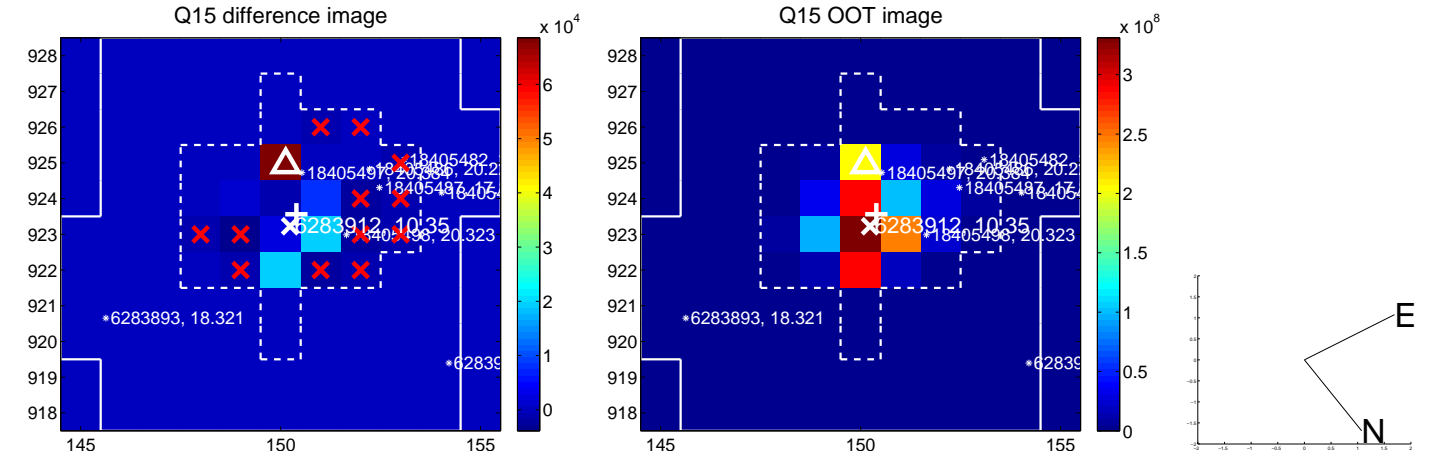
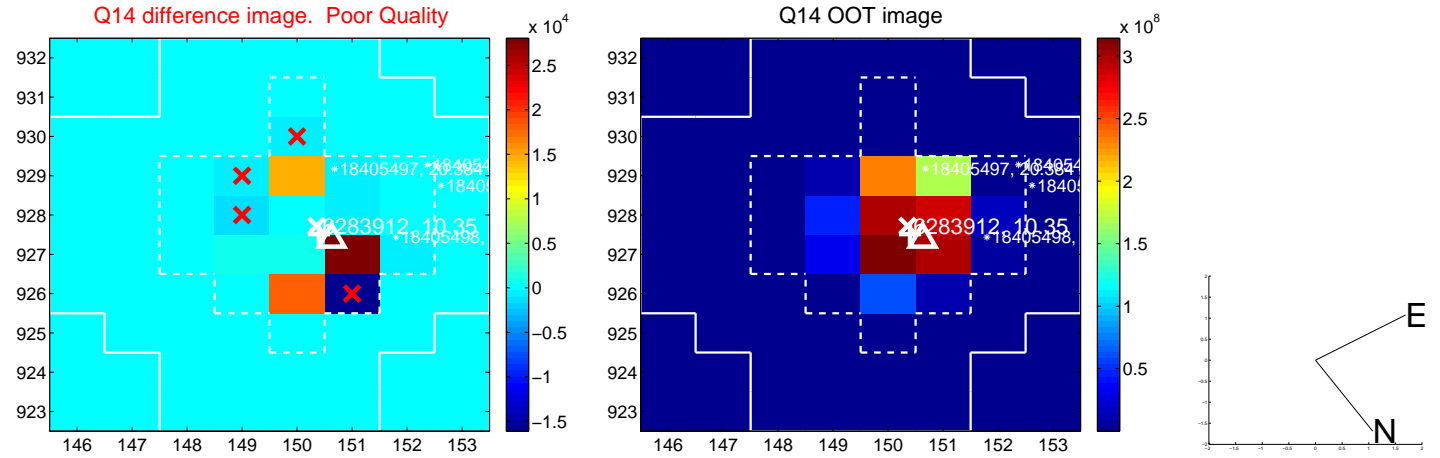
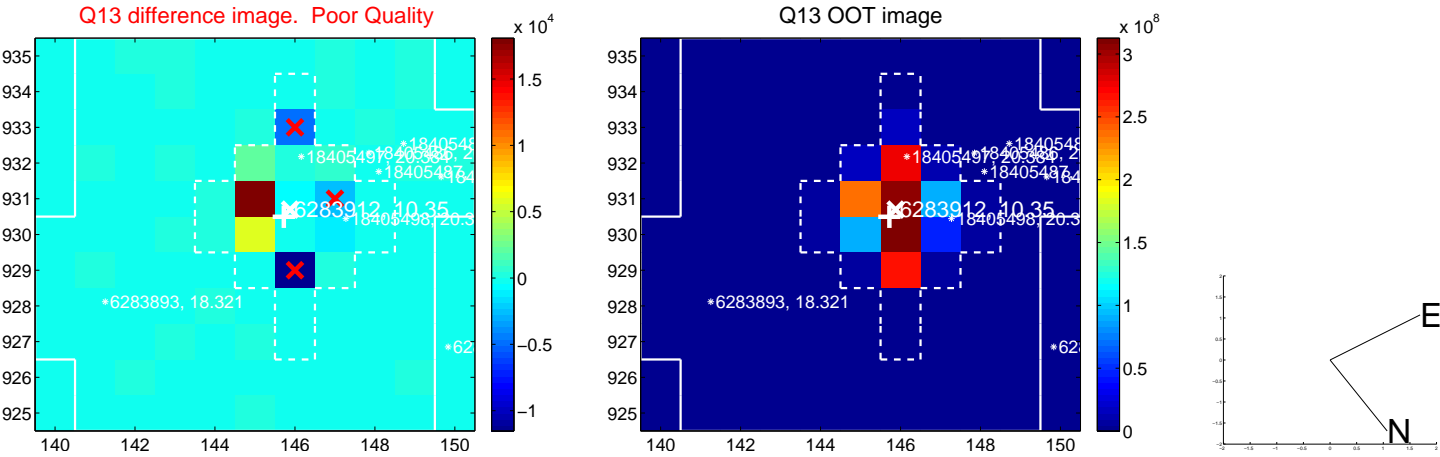
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



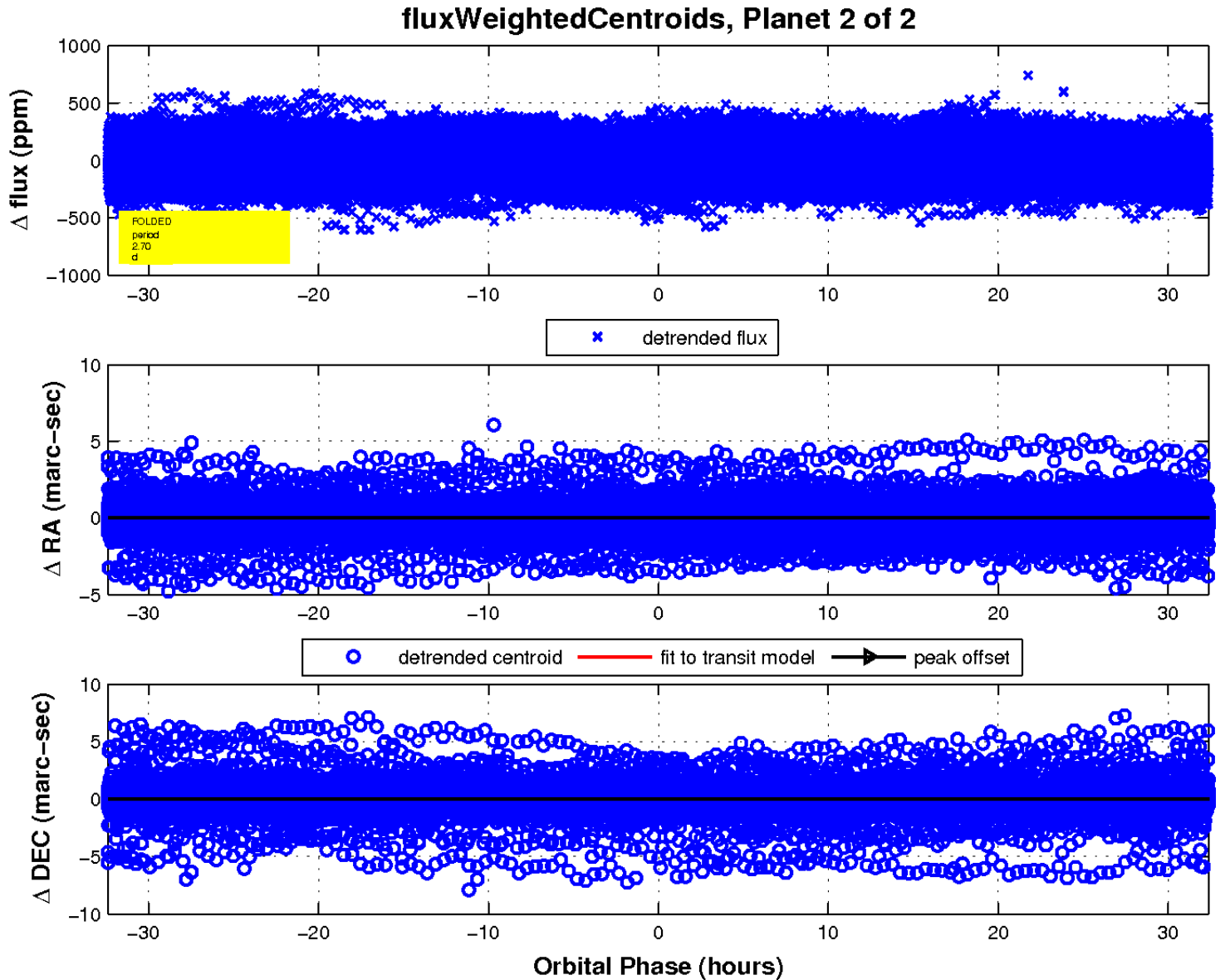
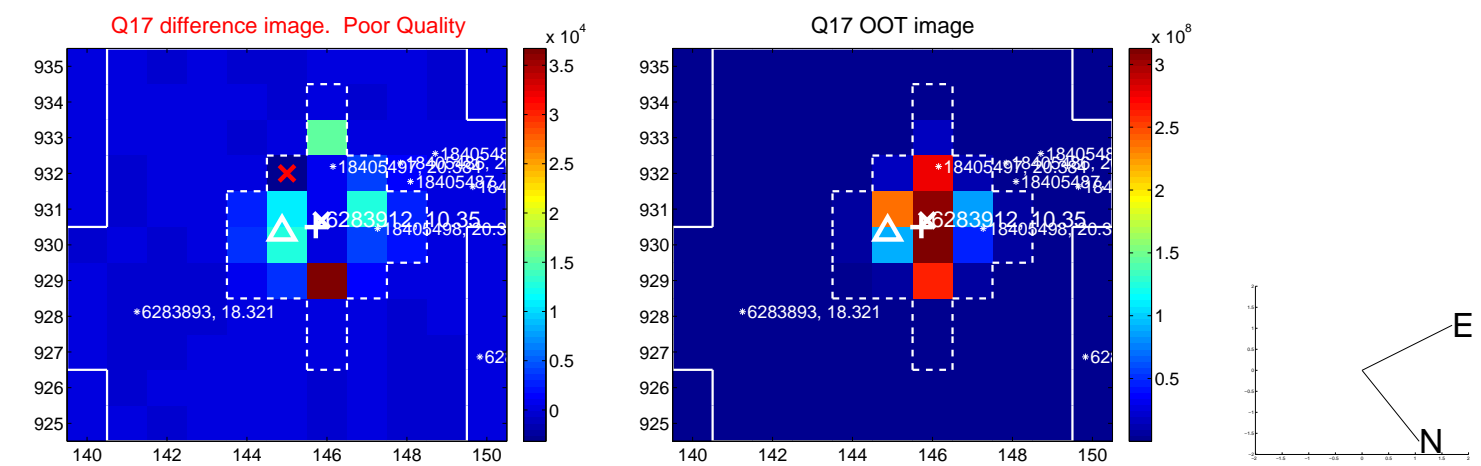
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

