

# KIC 001575977

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
001575977-01	OBS	No	0.676518	132.136830	77.2	2.323	10.3	7.2	1.73	7263	1.76	25576.91
001575977-02	OBS	No	0.676498	131.808329	55.0	3.499	11.9	5.3	1.73	7263	1.30	25577.90

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001575977-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
001575977-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

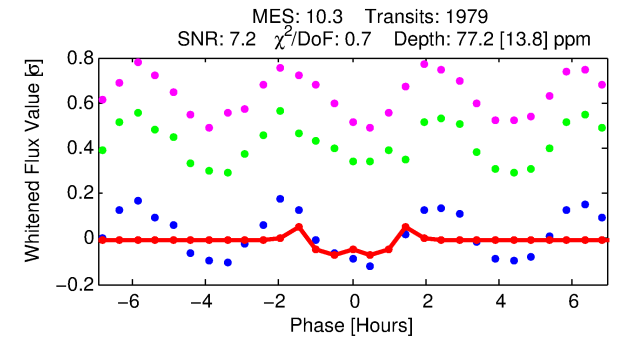
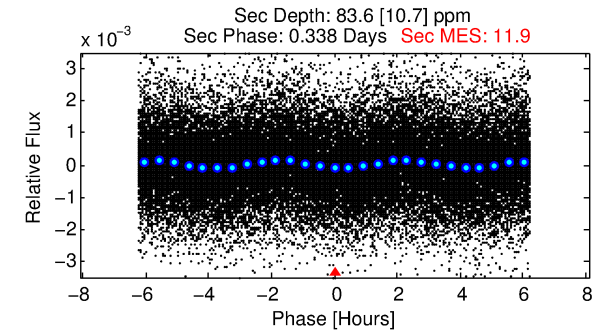
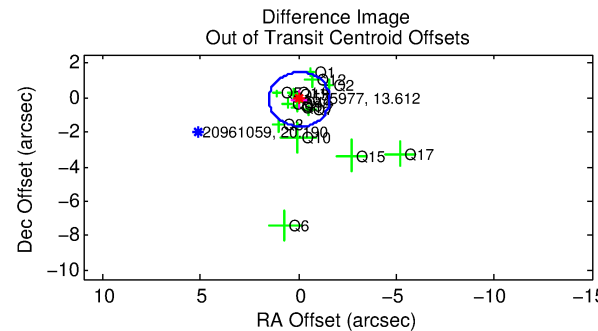
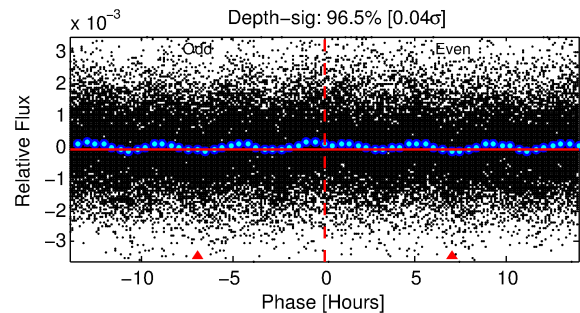
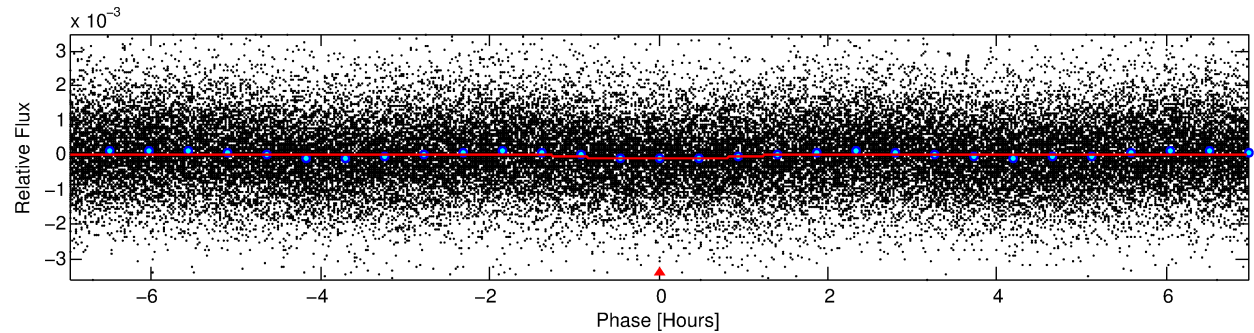
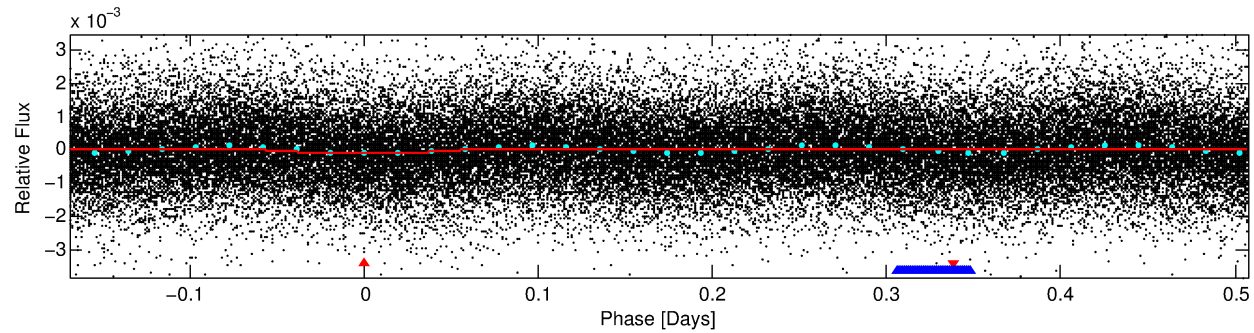
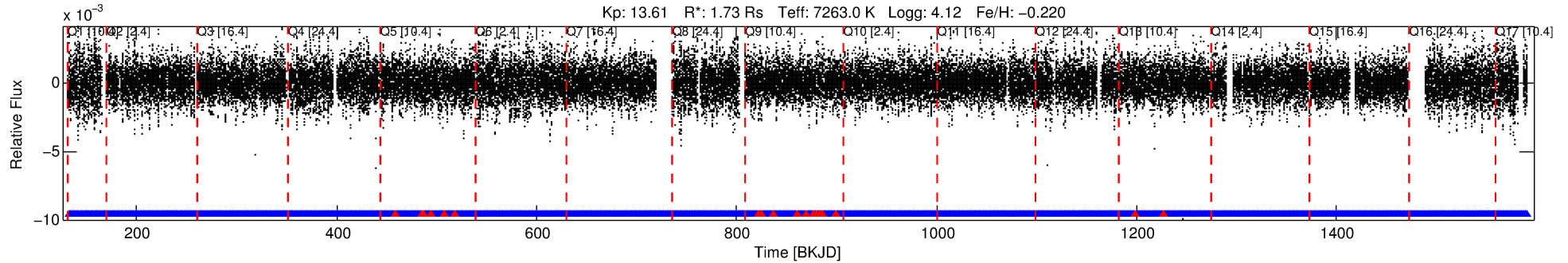
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 001575977-01

No Significant Match Found

# DV One-Page Summary

KIC: 1575977 Candidate: 1 of 2 Period: 0.677 d



## DV Fit Results:

Period = 0.67652 [0.00001] d  
Epoch = 132.1368 [0.0017] BKJD  
Rp/R\* = 0.0093 [0.0027]  
a/R\* = 1.39 [1.14]  
b = 0.90 [0.37]  
Seff = 25576.91 [9920.42]  
Teq = 3225 [313] K  
Rp = 1.76 [0.74] Re  
a = 0.0171 [0.0042] AU  
Ag = 4.32 [2.97] [1.12 $\sigma$ ]  
Teffp = 7188 [1130] K [3.38 $\sigma$ ]

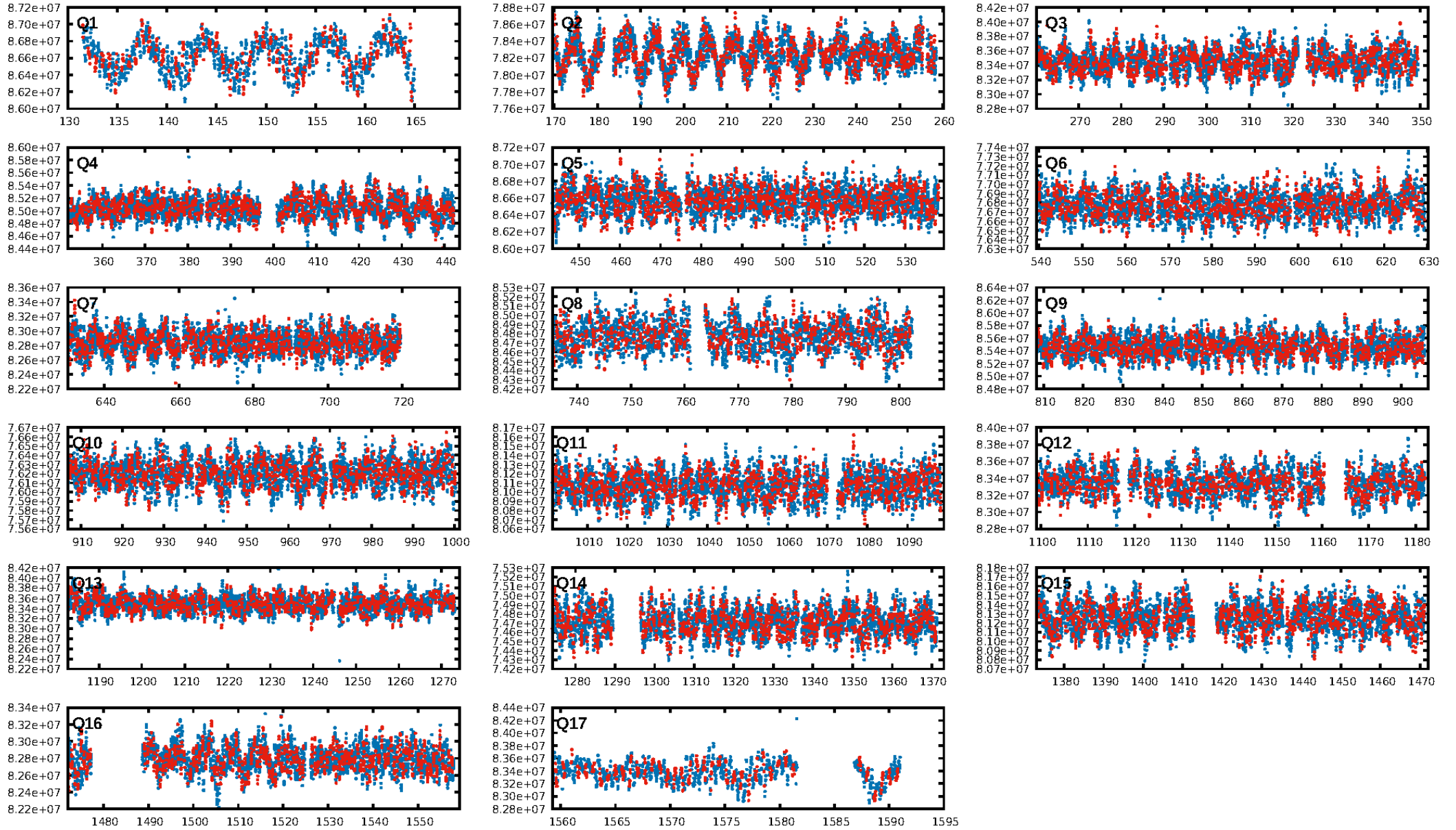
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [1872/1890]  
GhostDiagnostic-chr: 1.434  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.114 arcsec [0.22 $\sigma$ ]  
KicOffset-rm: 0.132 arcsec [0.25 $\sigma$ ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.75 [12/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:23:00 Z

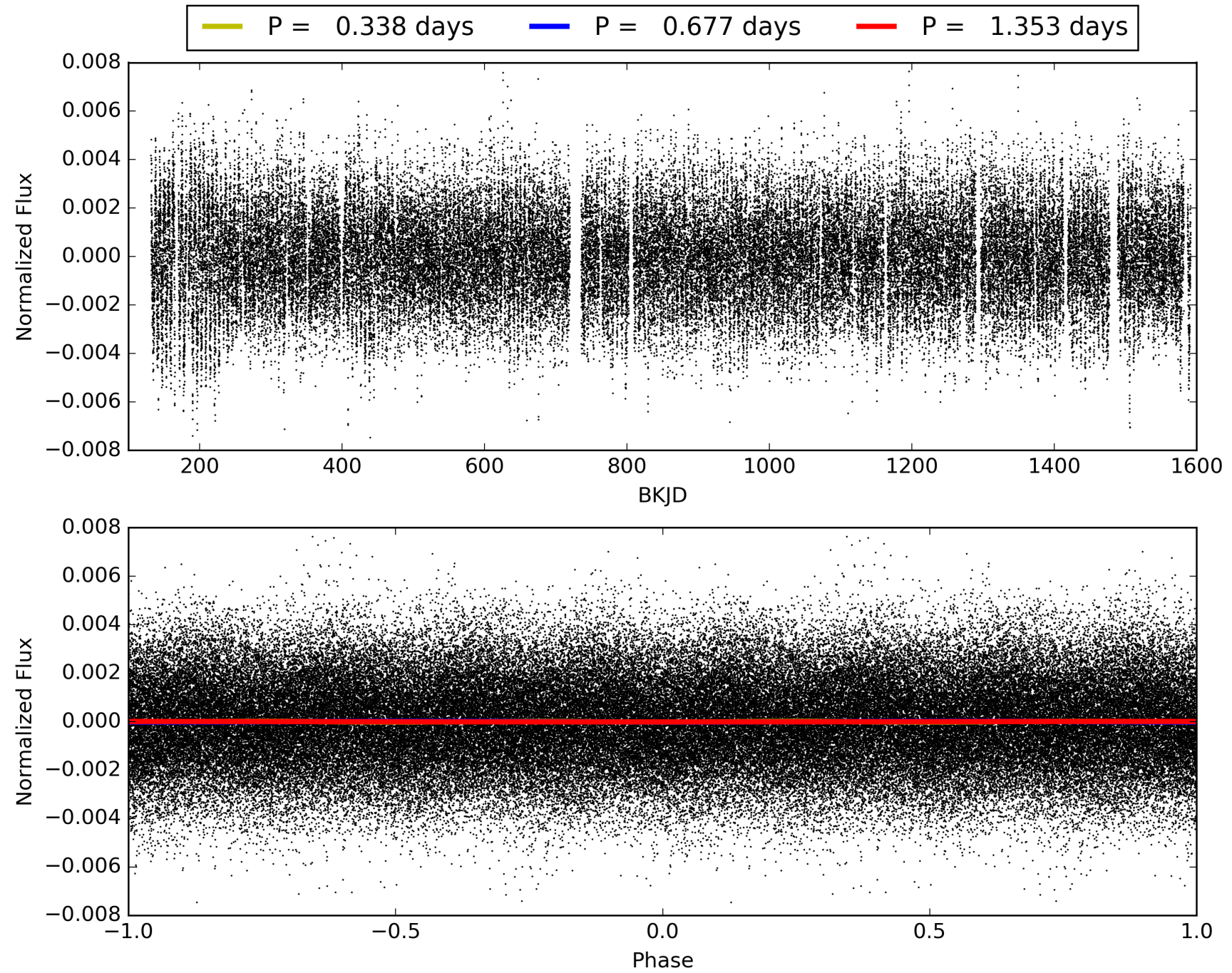
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 001575977-01, PDC Light Curves



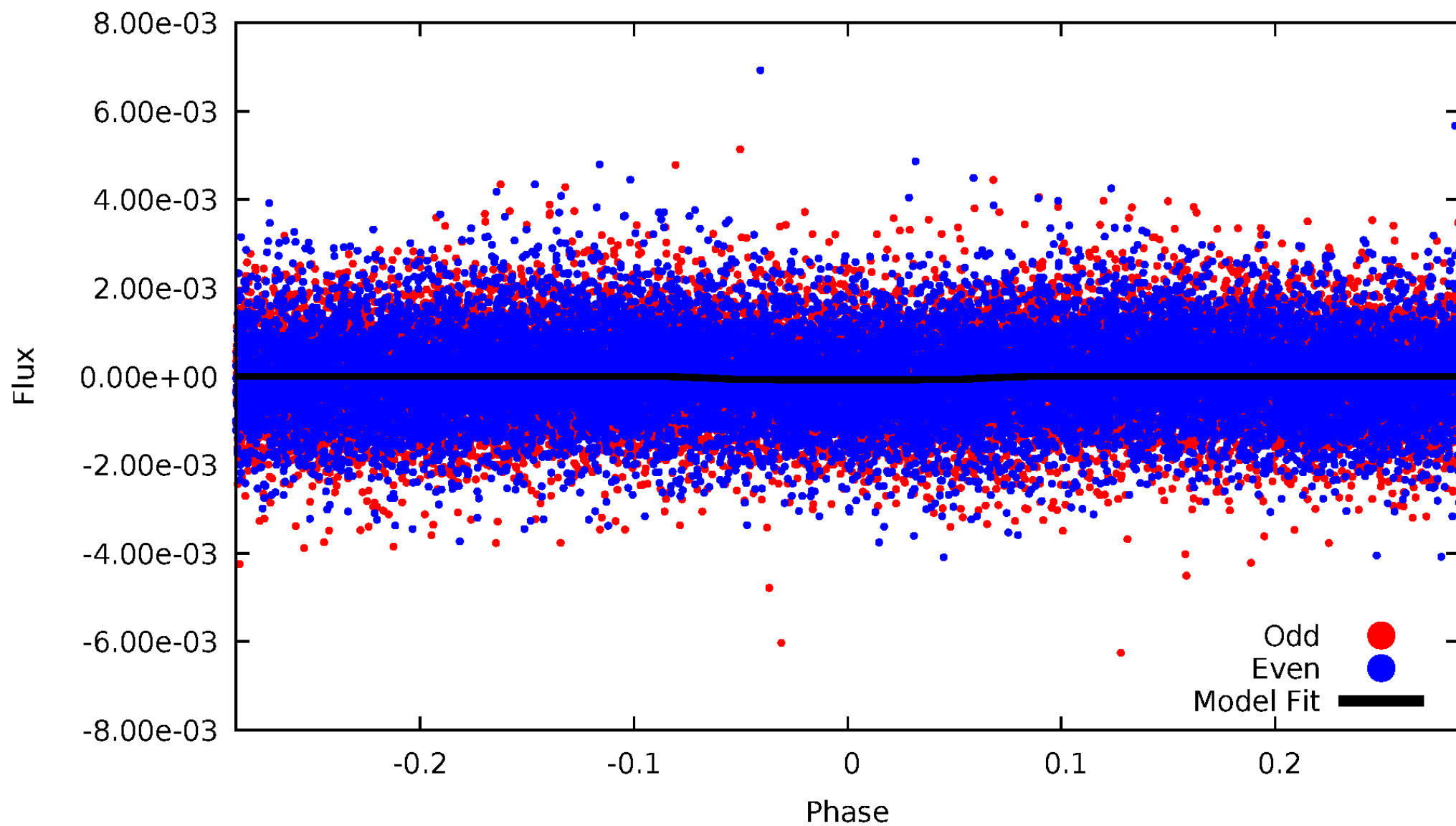


TCE 001575977-01



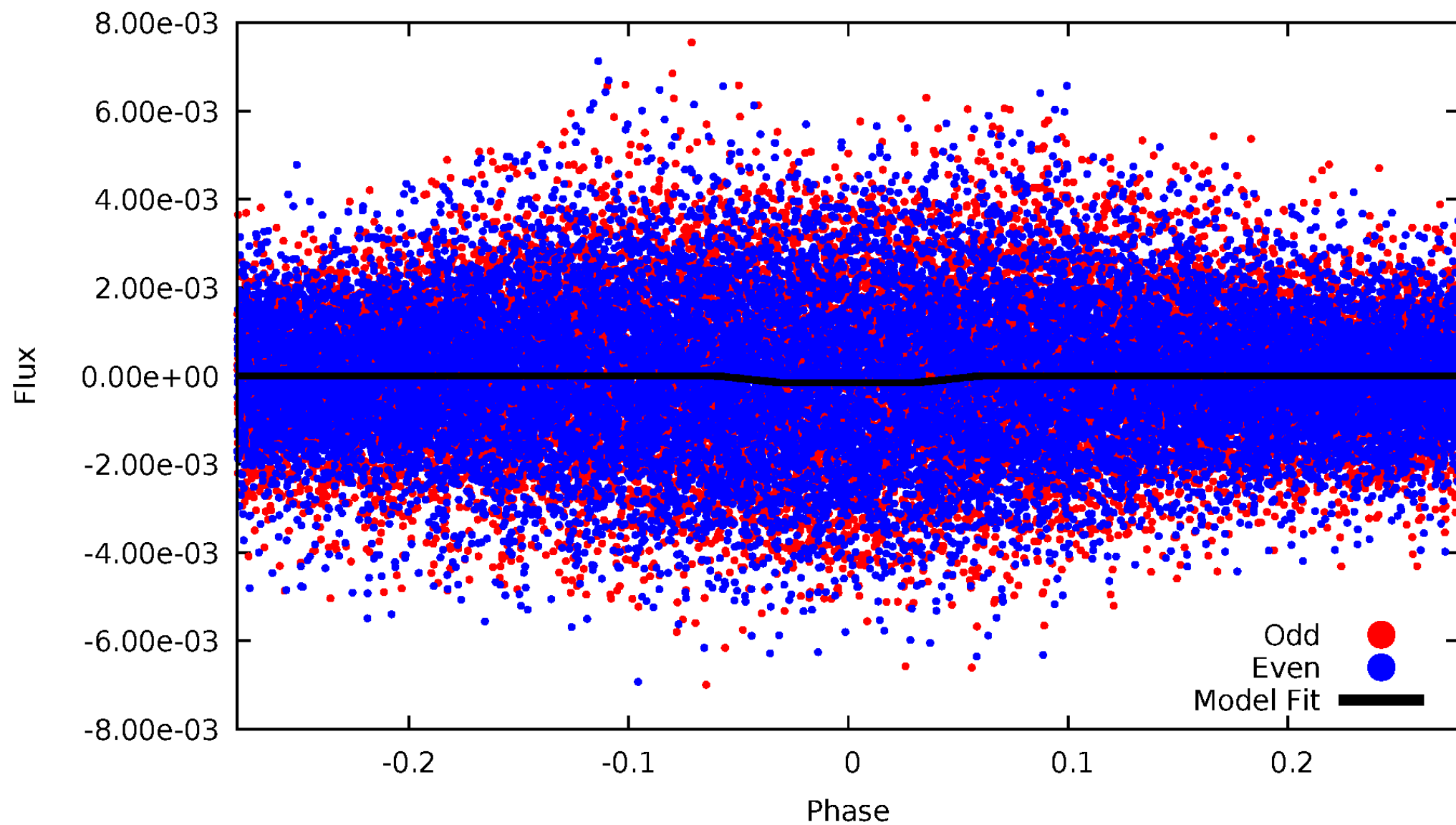
# DV Odd/Even

TCE 001575977-01



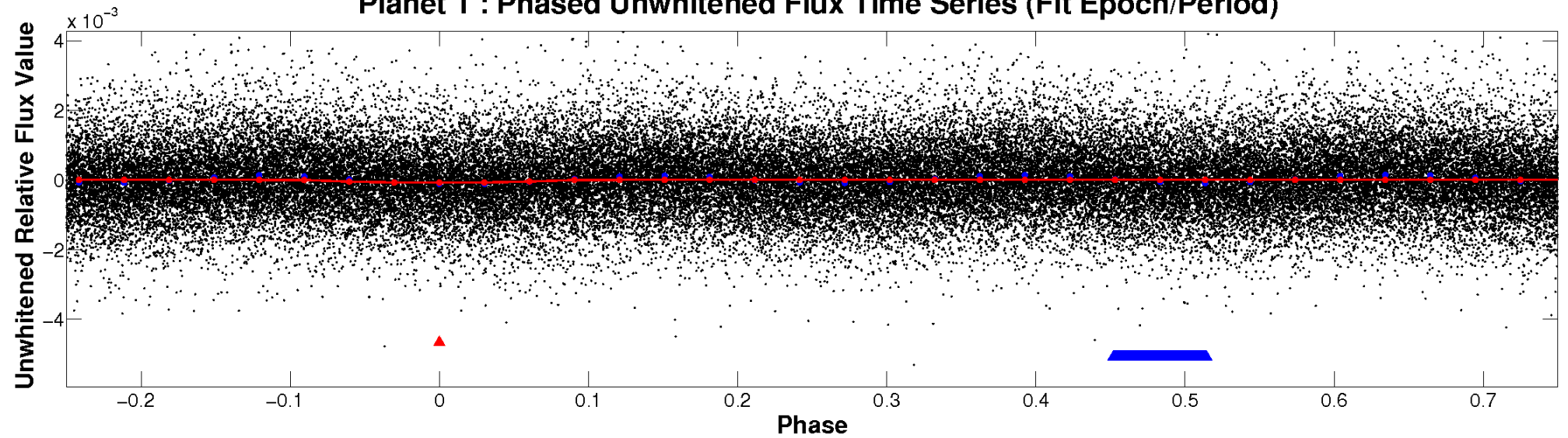
# ALT Odd/Even

TCE 001575977-01

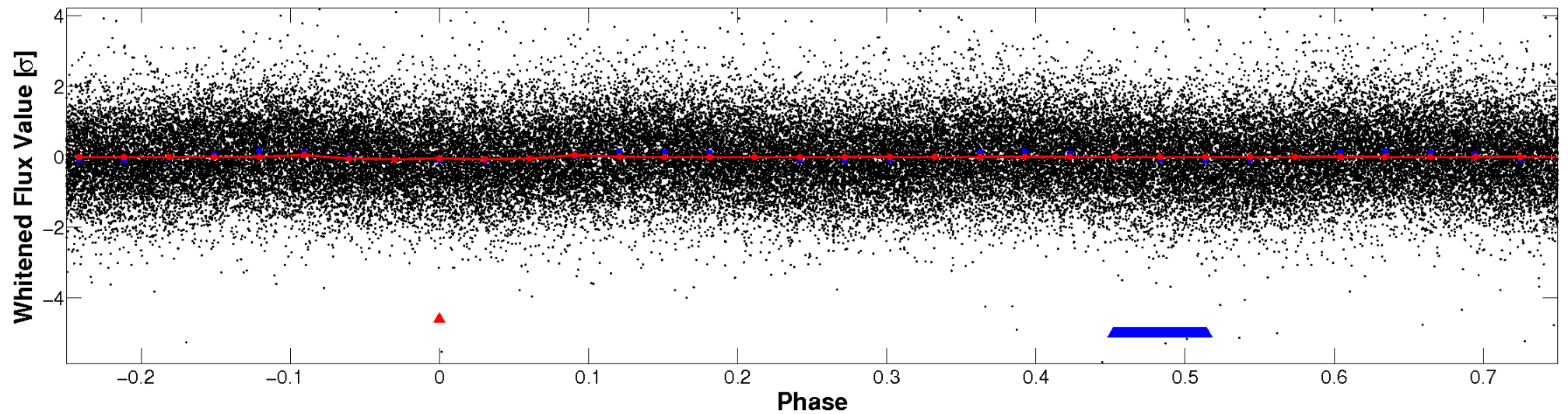


# Non-Whitened Vs. Whitened Light Curve

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



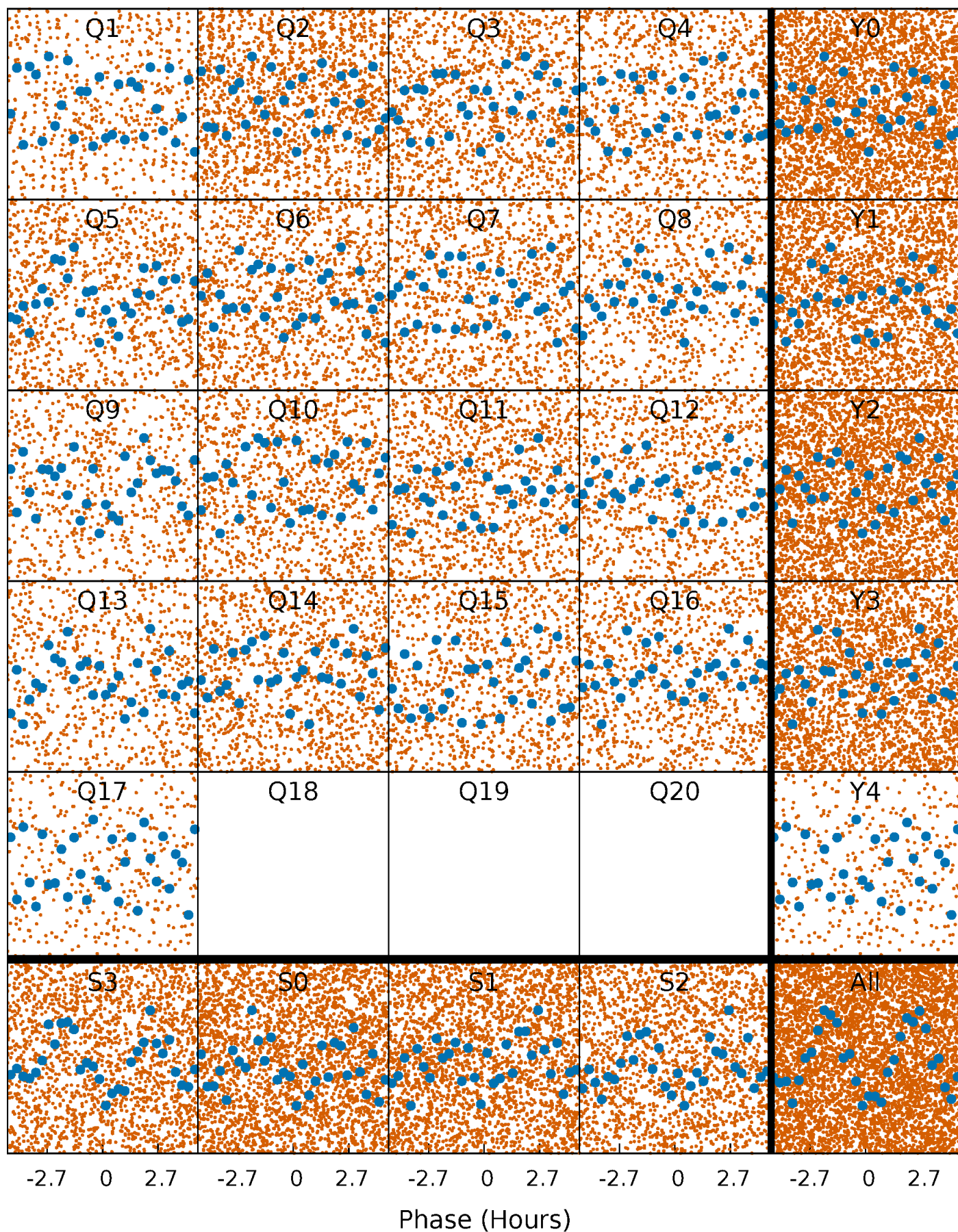
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

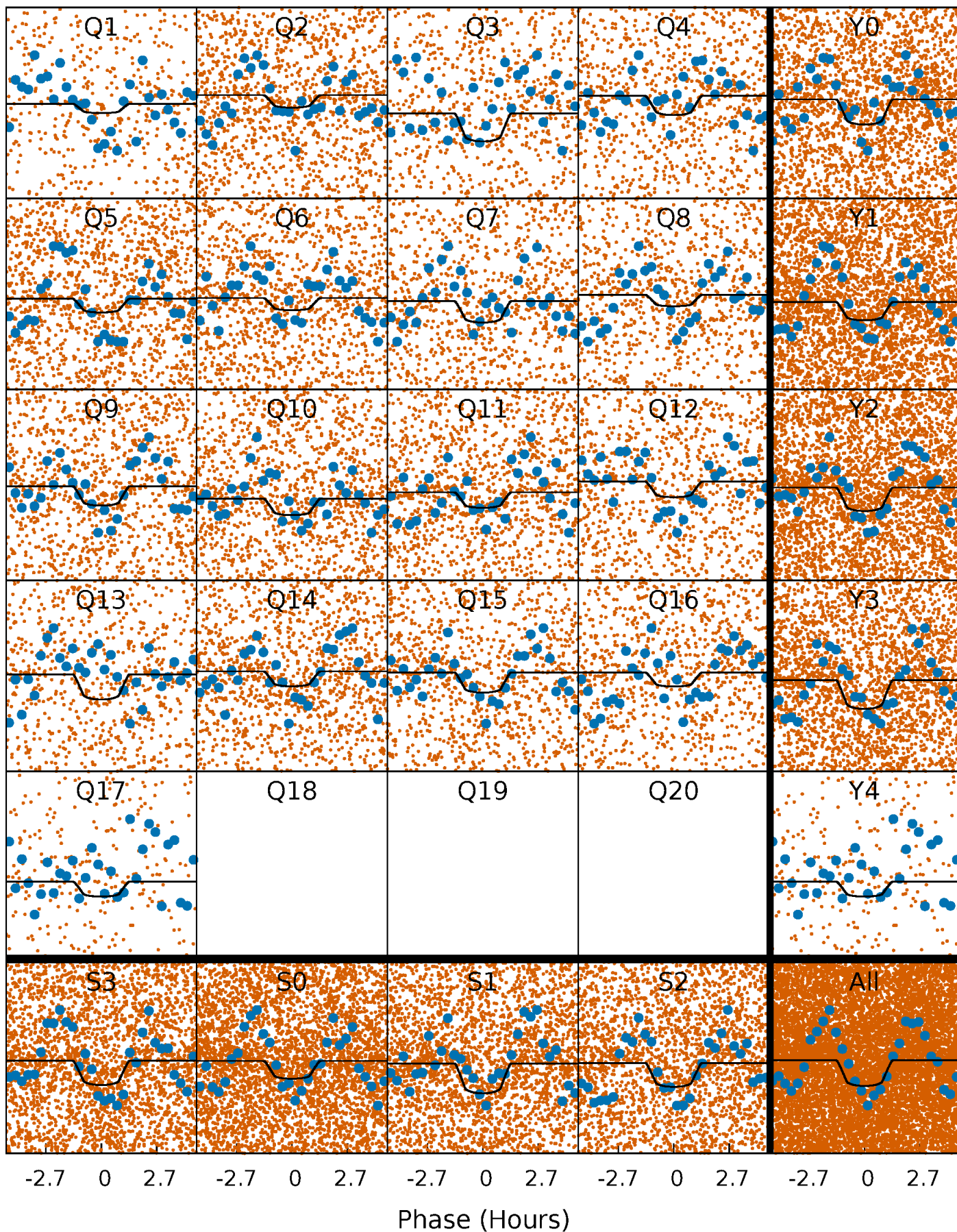
TCE 001575977-01 P= 0.676518 Days  $T_0=132.136830$  (BKJD)





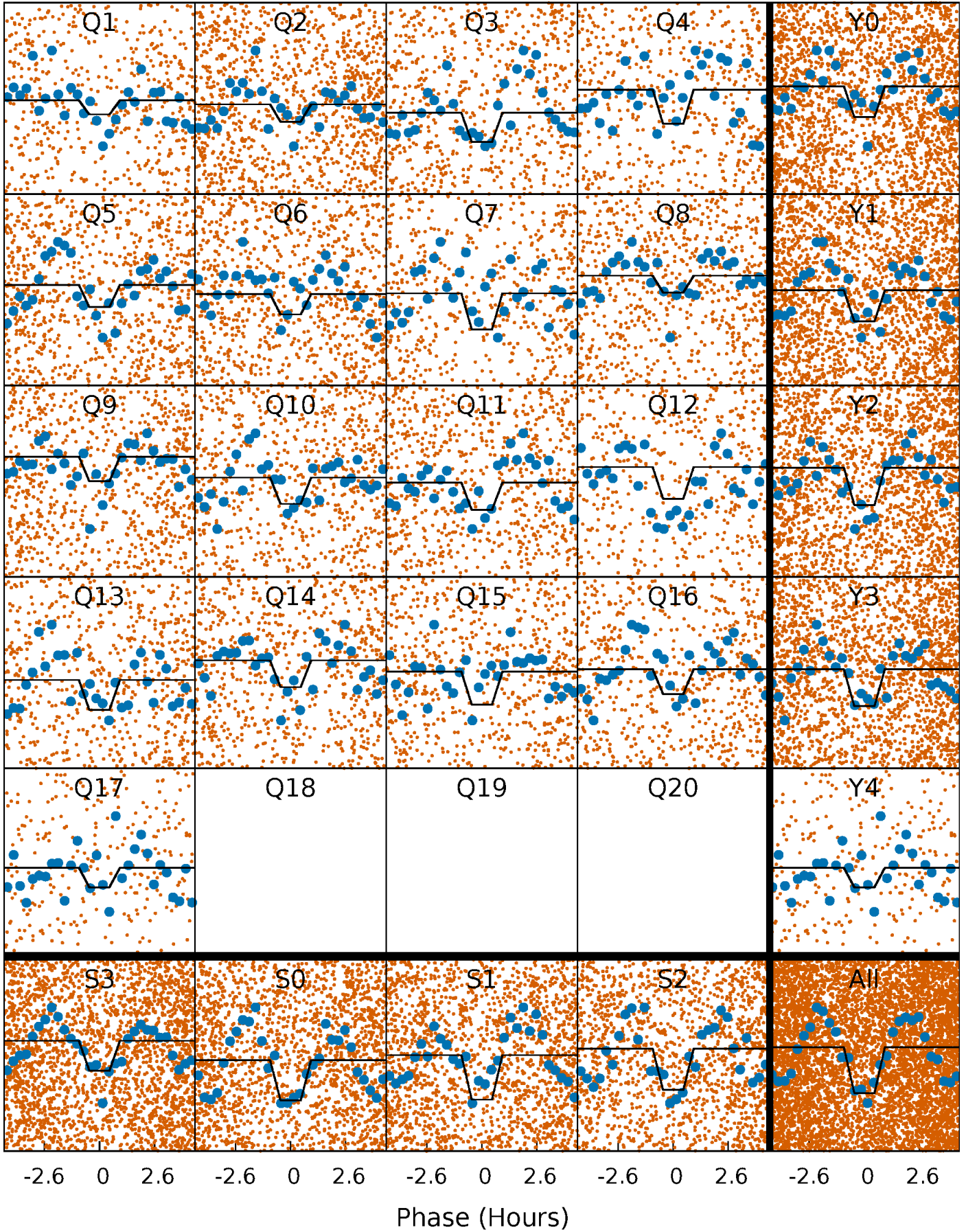
# DV Quarter-Phased Transit Curves

TCE 001575977-01 P= 0.676518 Days  $T_0=132.136830$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 001575977-01   P= 0.676530 Days    $T_0=132.135904$  (BKJD)

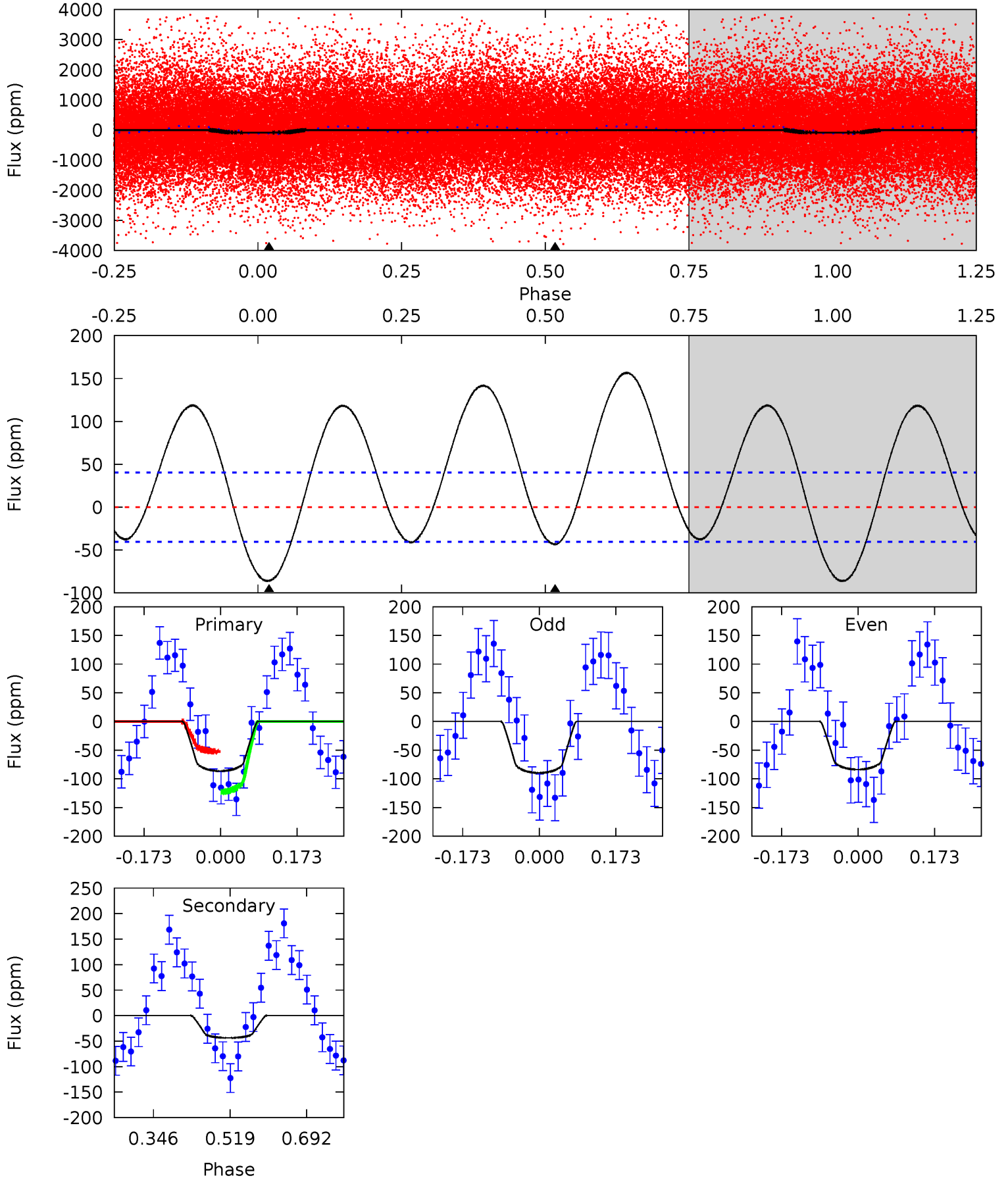




# DV Model-Shift Uniqueness Test

001575977-01, P = 0.676518 Days, E = 131.460312 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
9.49	4.80	0	0	4.45	1.36	4.19	9.49	9.49	4.80	4.80	0.33	1.14	0.64	3.93

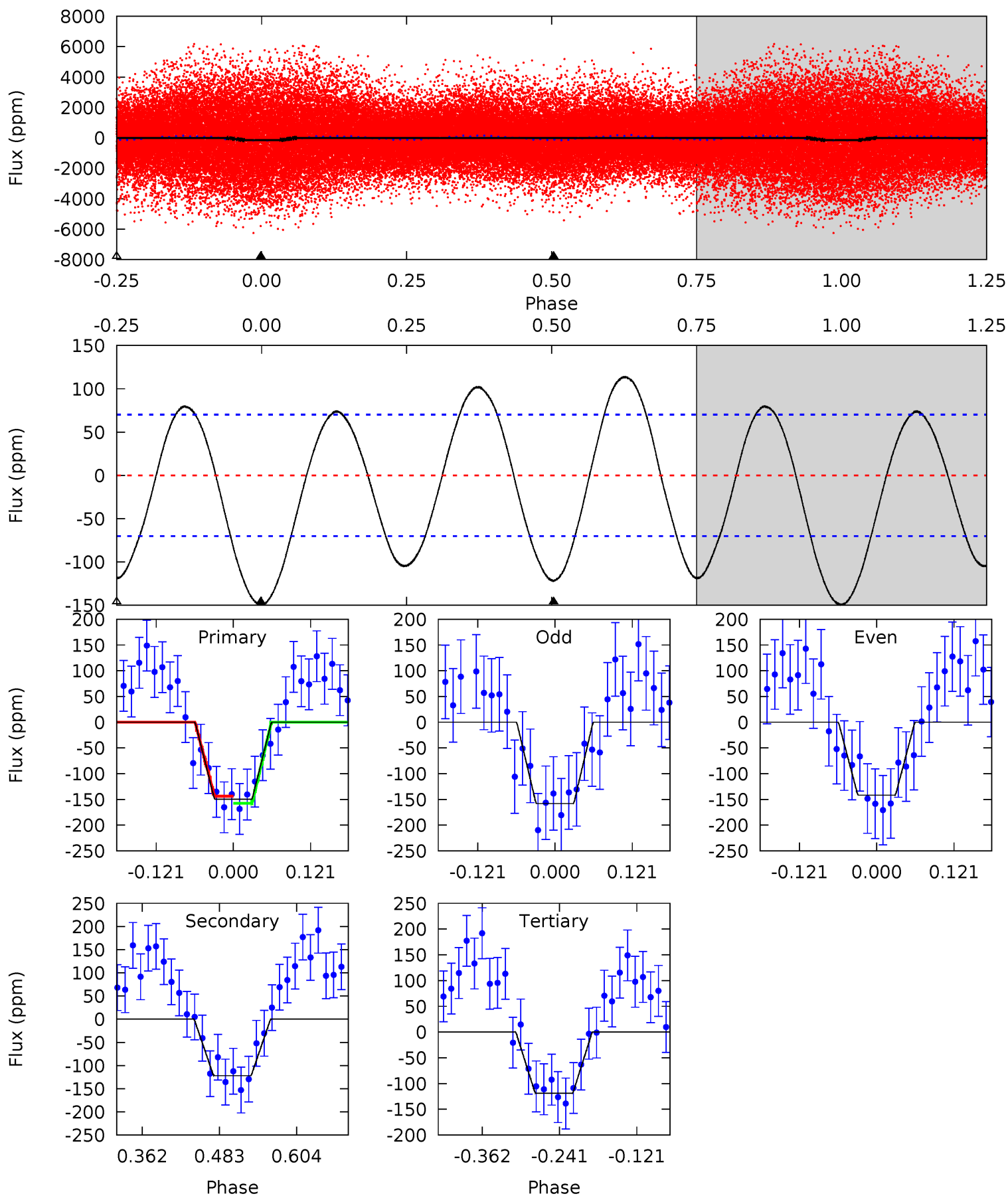




# Alt Model-Shift Uniqueness Test

001575977-01, P = 0.676530 Days, E = 131.459374 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
9.64	7.87	7.66	0	4.53	1.55	4.79	1.98	9.64	0.21	7.87	0.53	1.39	0.43	0.44



### Stellar Parameters For KIC 001575977

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7263^{+232}_{-348}$	$4.123^{+0.175}_{-0.175}$	$-0.220^{+0.250}_{-0.350}$	$1.727^{+0.528}_{-0.384}$	$1.442^{+0.219}_{-0.241}$	$0.394^{+0.363}_{-0.188}$
	+3%/-5%	+4%/-4%	+114%/-159%	+31%/-22%	+15%/-17%	+92%/-48%
Source	PHO1	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 001575977-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-44 \pm 9$	$1.72^{+0.61}_{-0.53}$	$4459^{+390}_{-346}$	$5781^{+1417}_{-818}$	$2.301^{+2.672}_{-1.085}$
Alt.	$-122 \pm 15$	$2.36^{+0.62}_{-0.57}$	$4488^{+318}_{-324}$	$6549^{+1087}_{-782}$	$3.428^{+2.538}_{-1.329}$

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

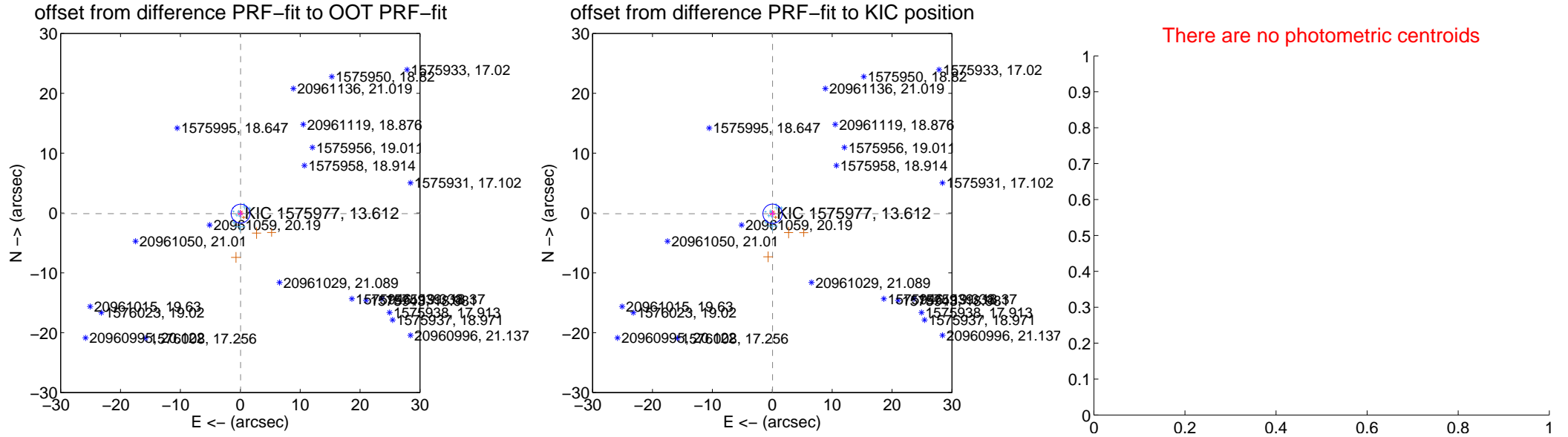
## DV Centroid Data

Supplemental centroid analysis for 001575977-01. Kepler magnitude: 13.61. Transit SNR 7.21

There are 12 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

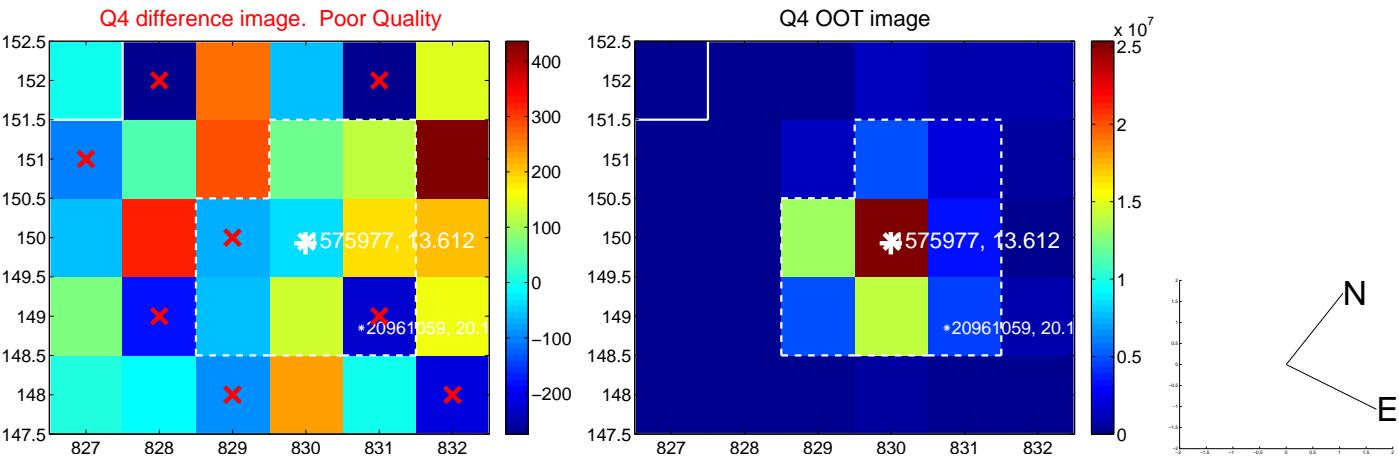
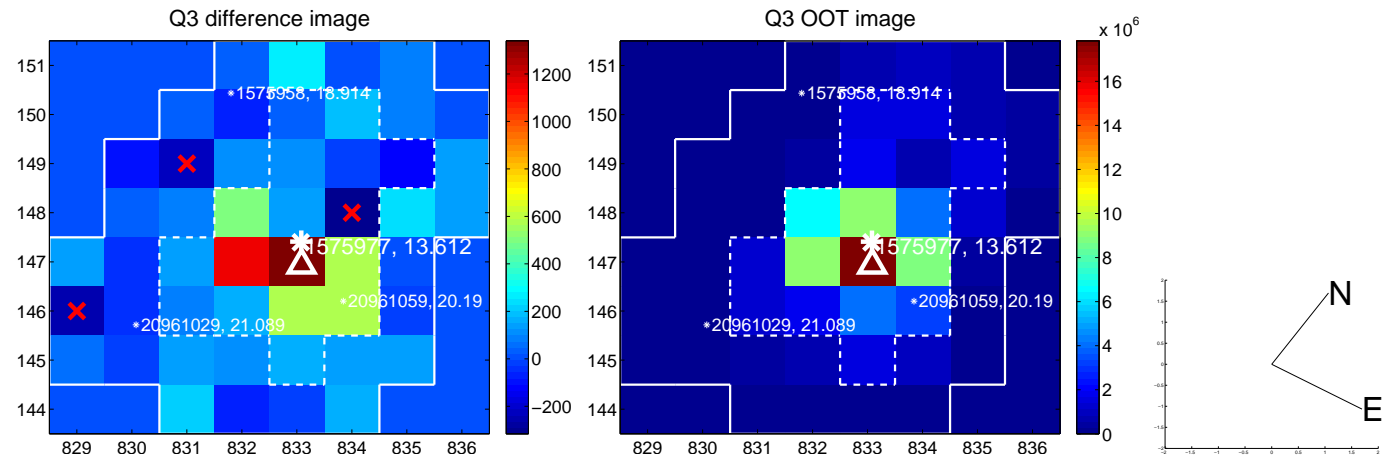
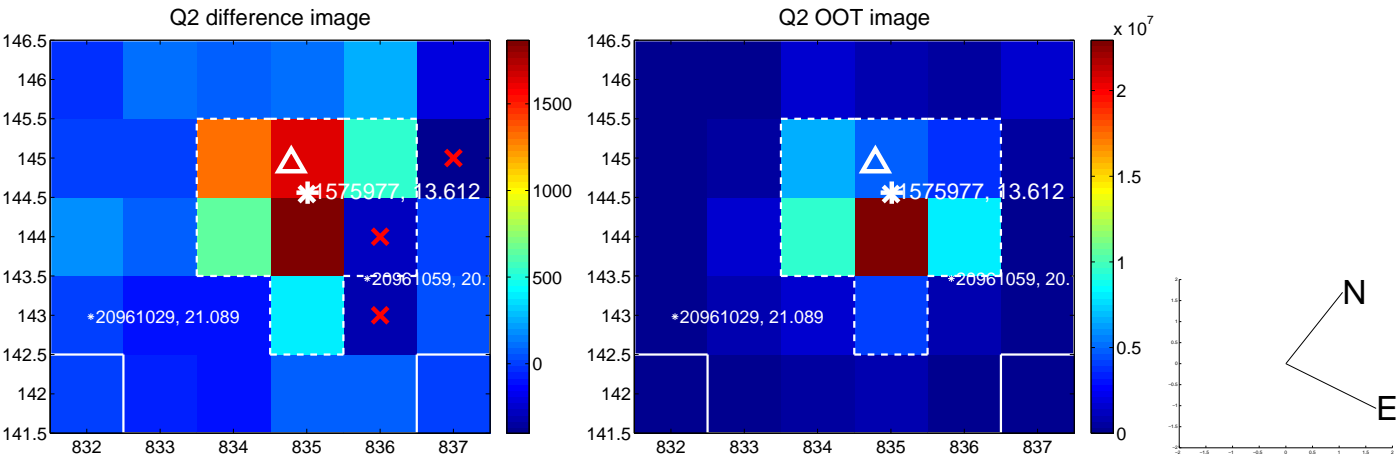
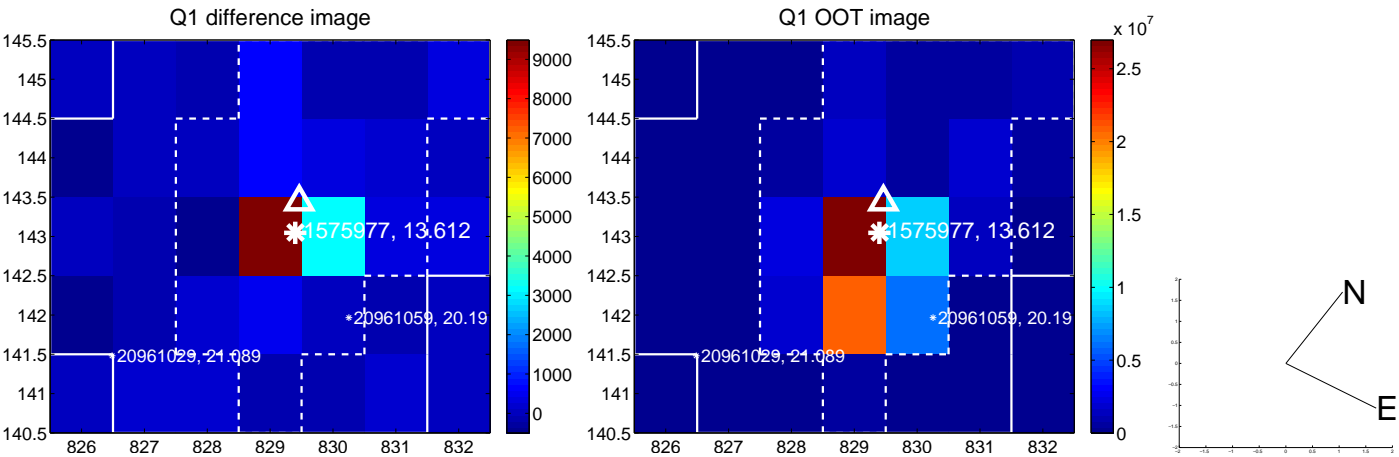
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.114 \pm 0.524$	0.22	$-0.044 \pm 0.398$	$-0.106 \pm 0.521$
PRF-fit source offset from KIC position	$0.132 \pm 0.537$	0.25	$-0.047 \pm 0.417$	$-0.123 \pm 0.518$
photometric centroid source offset	—	—	—	—



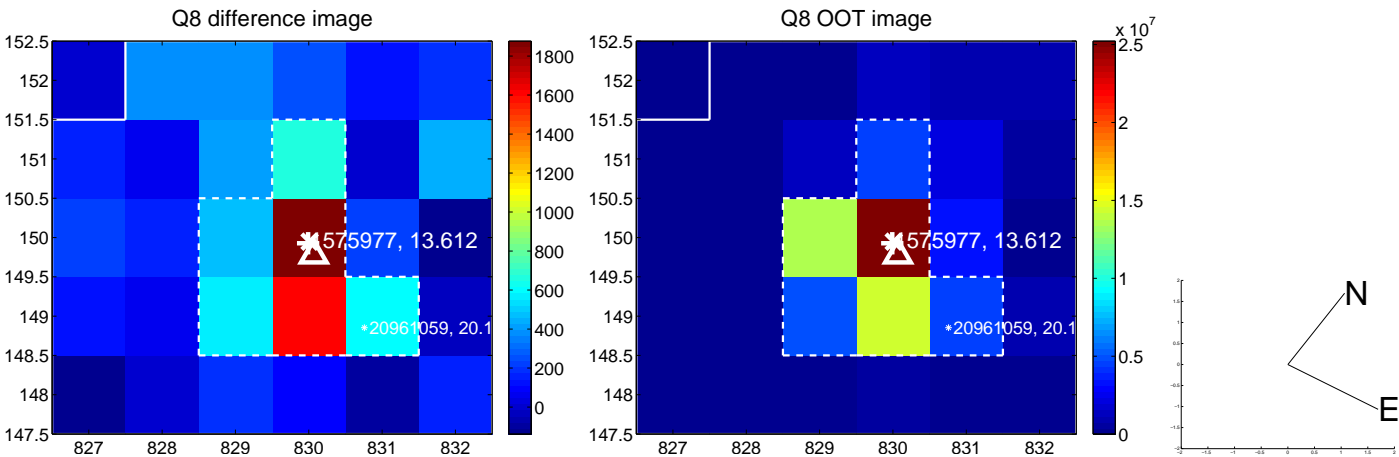
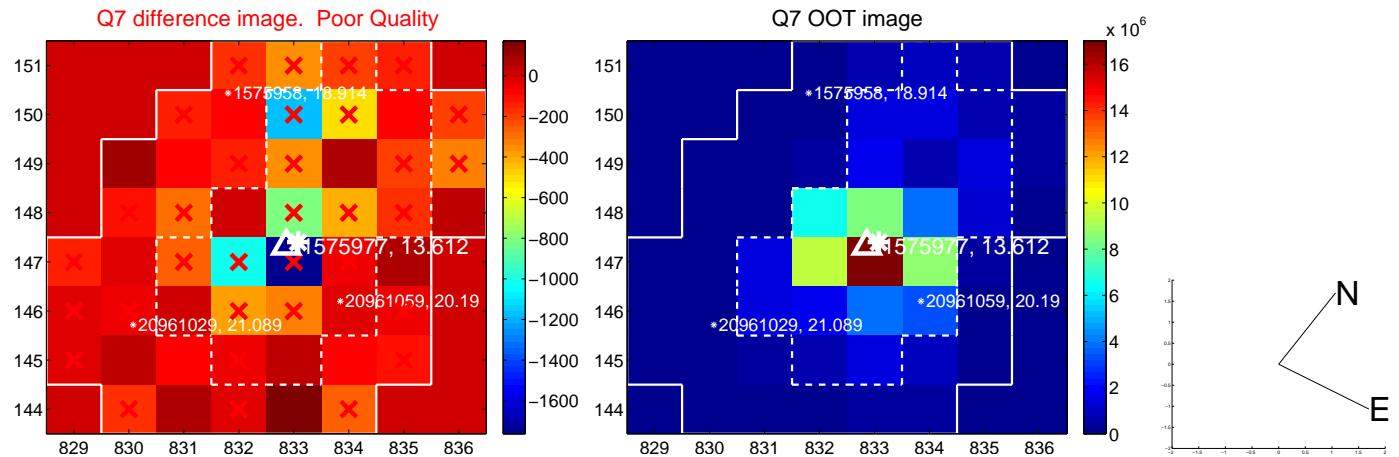
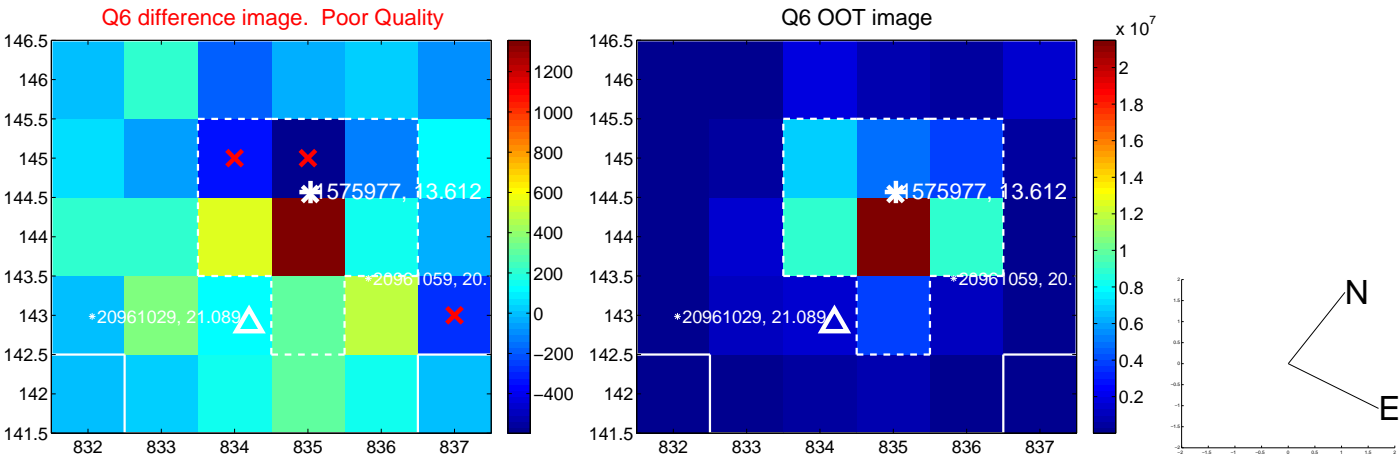
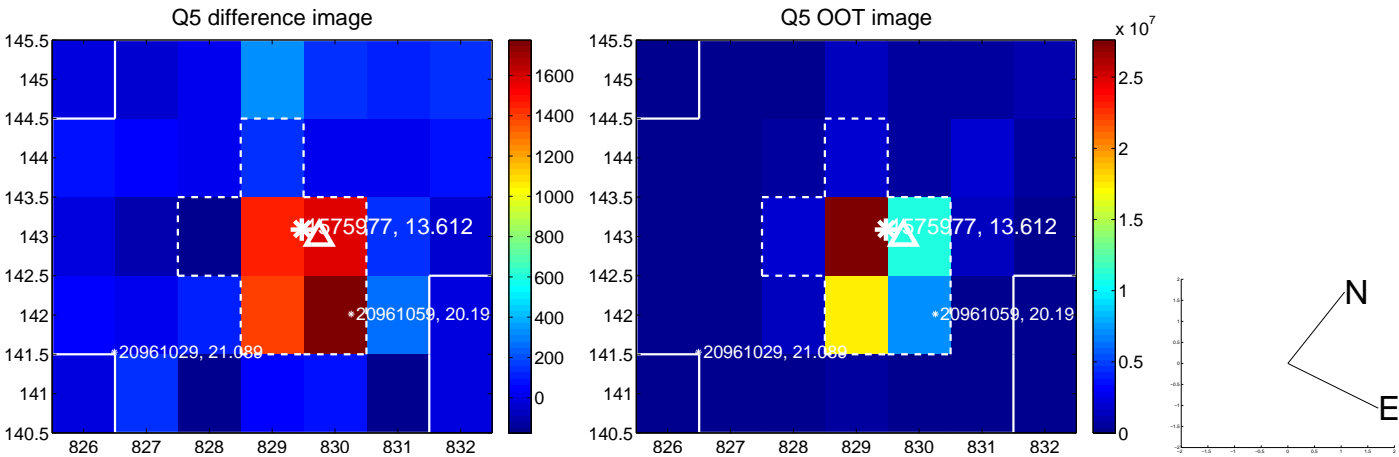
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



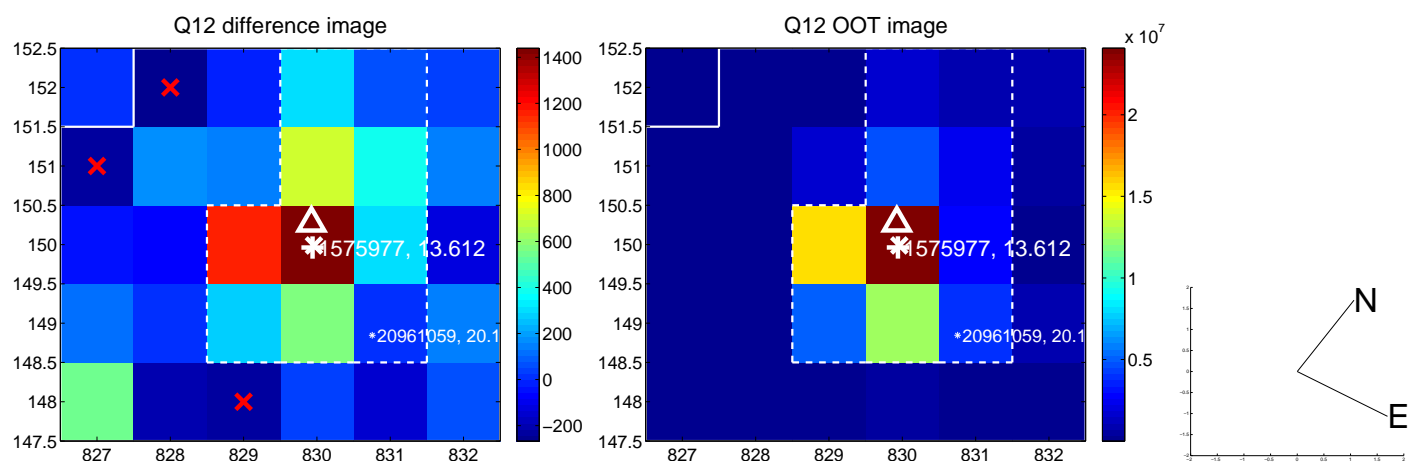
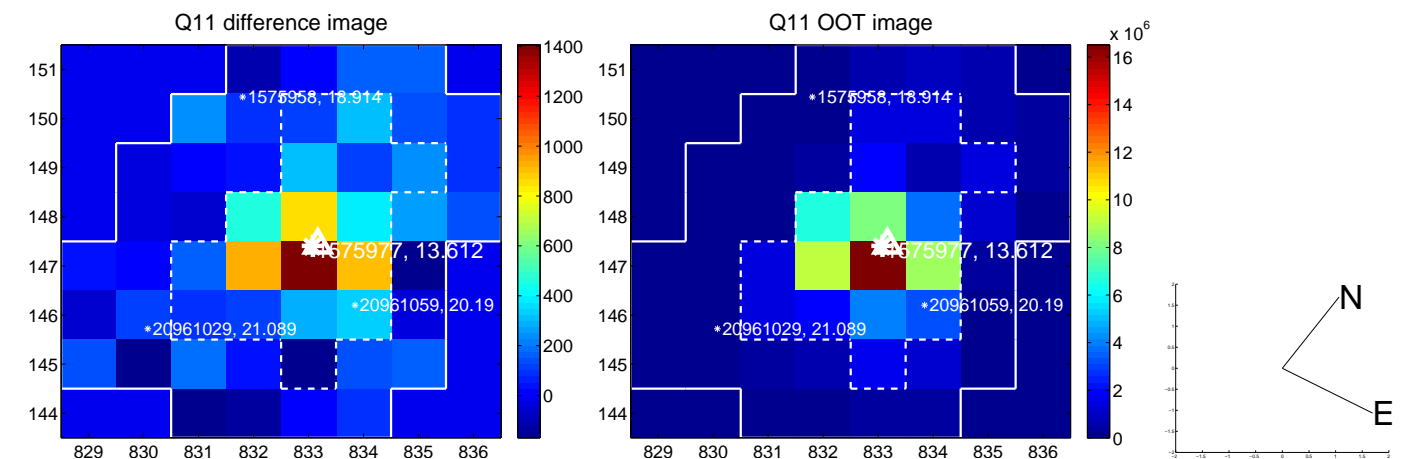
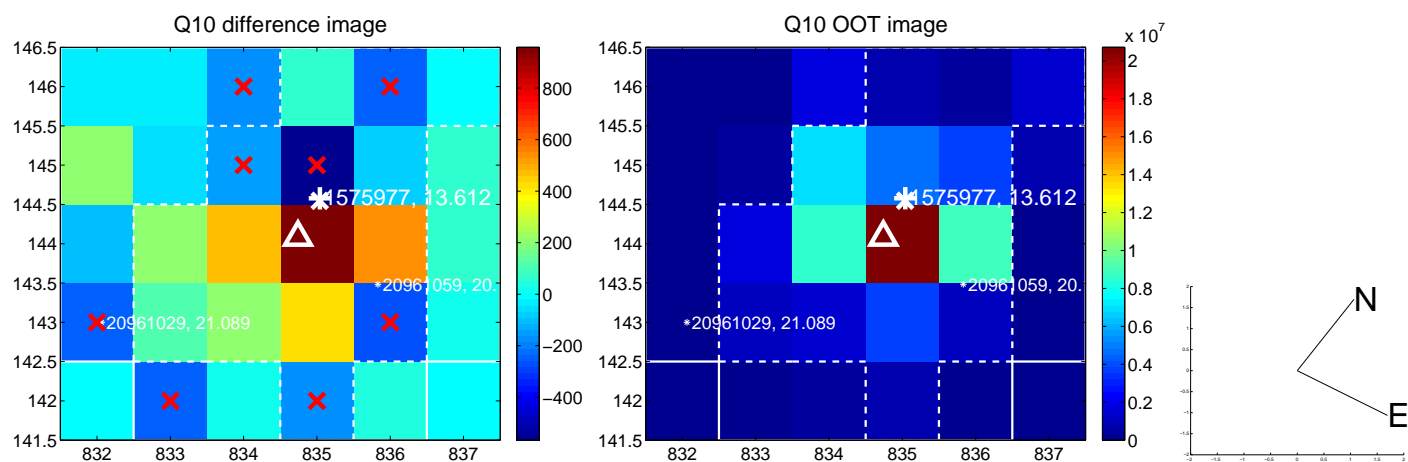
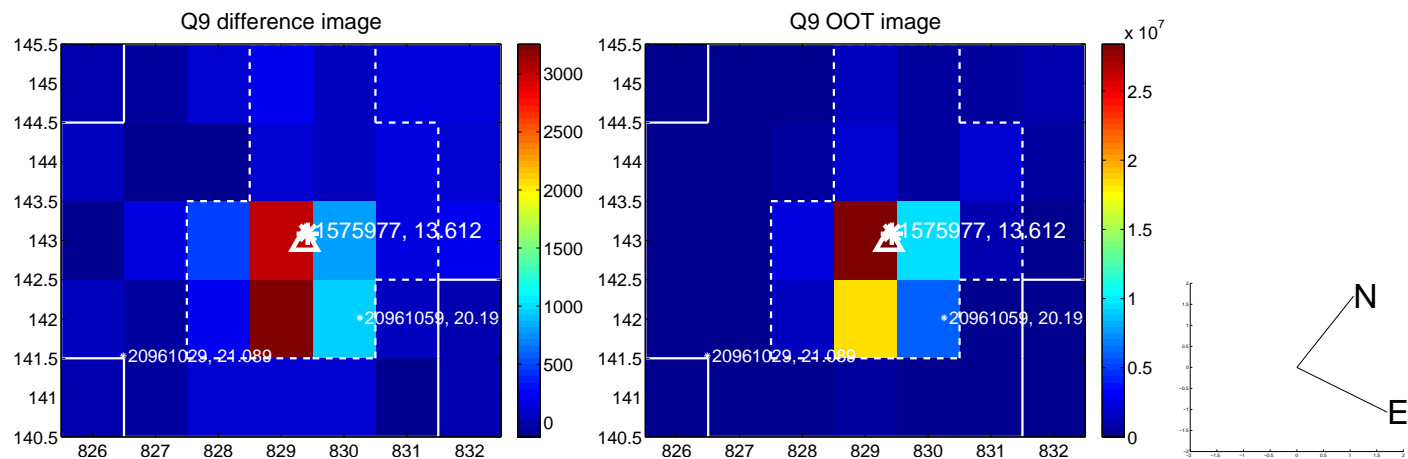
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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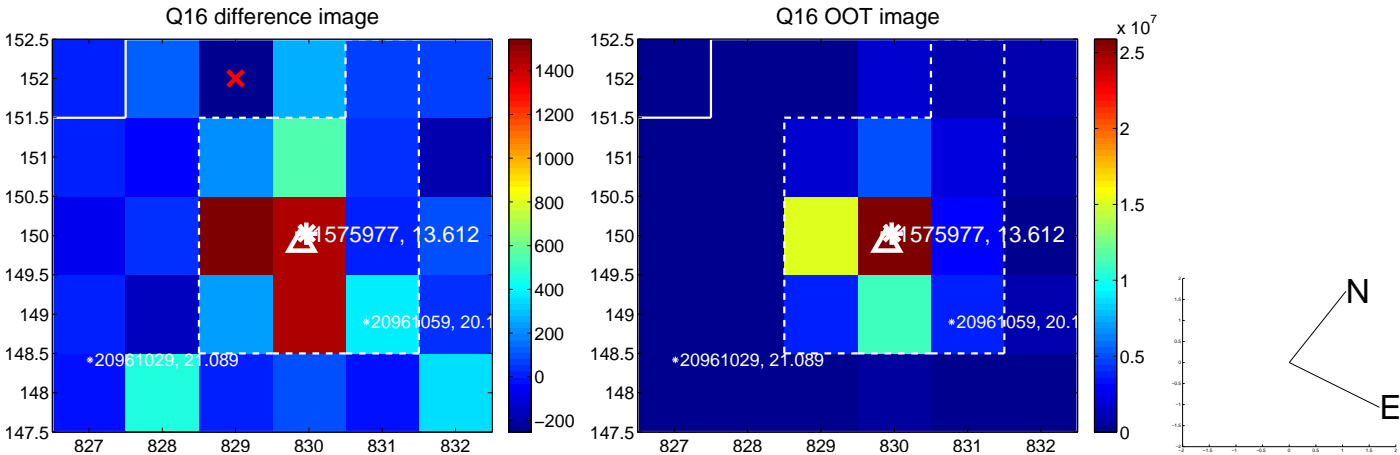
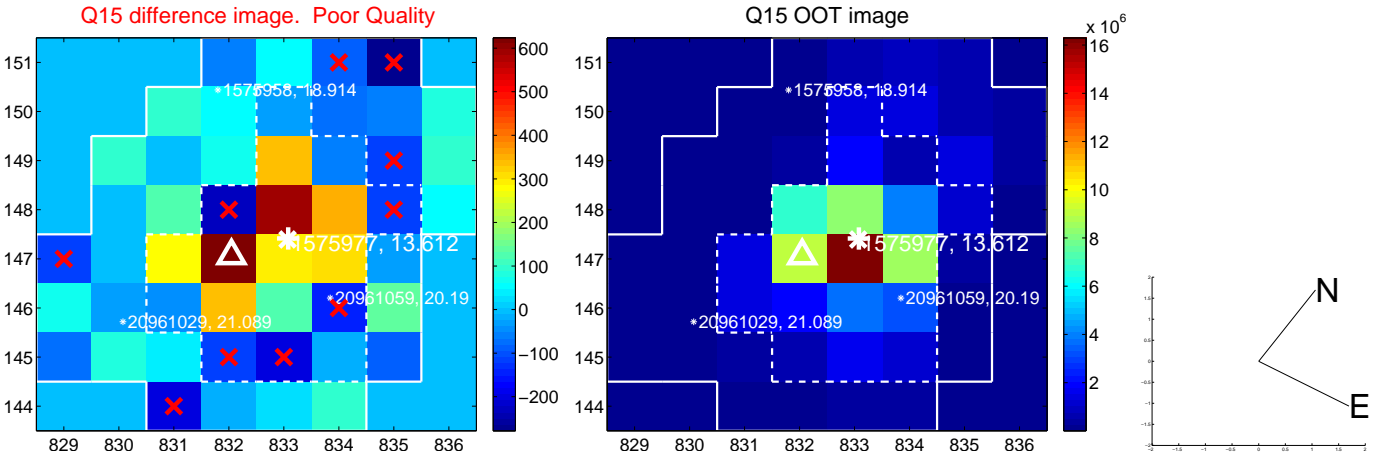
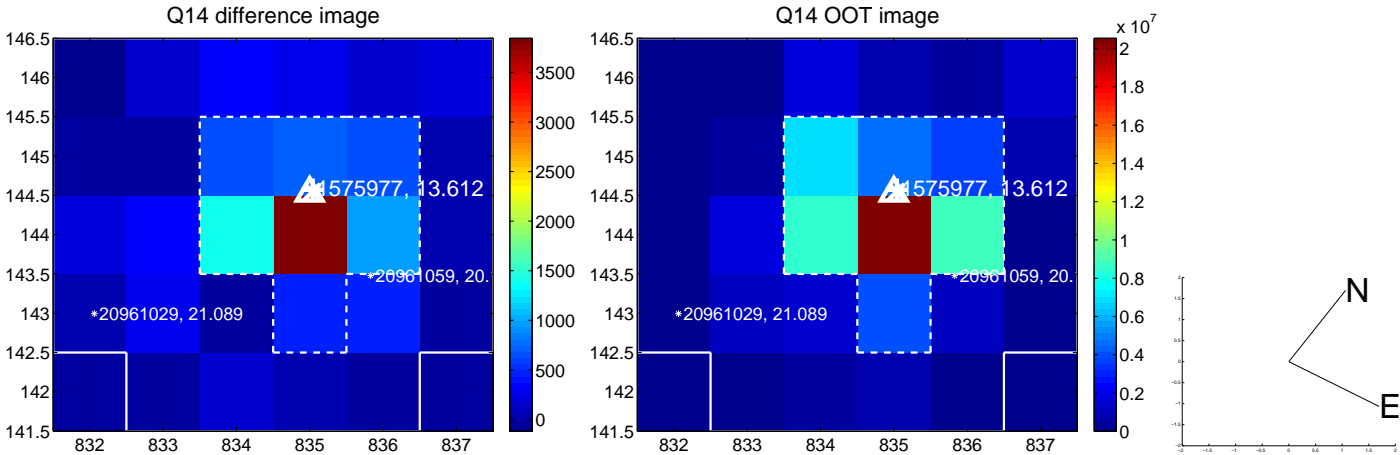
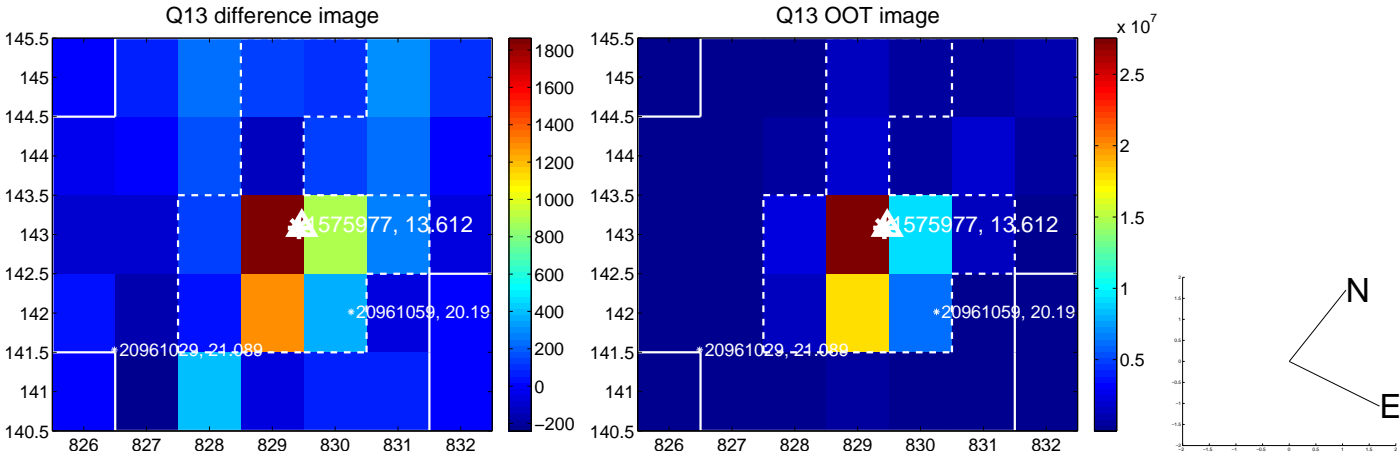


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

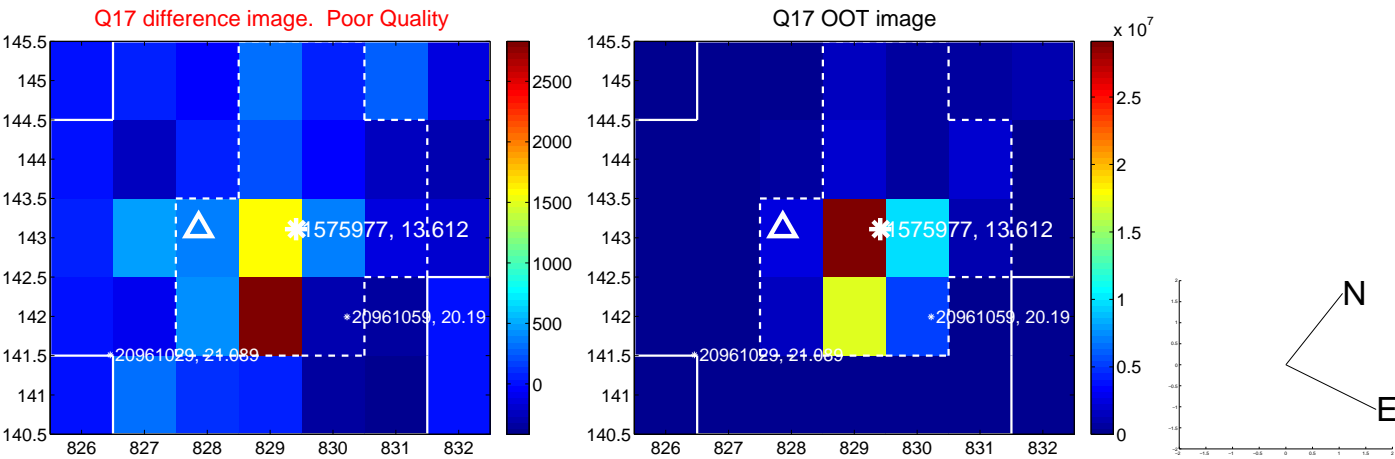




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



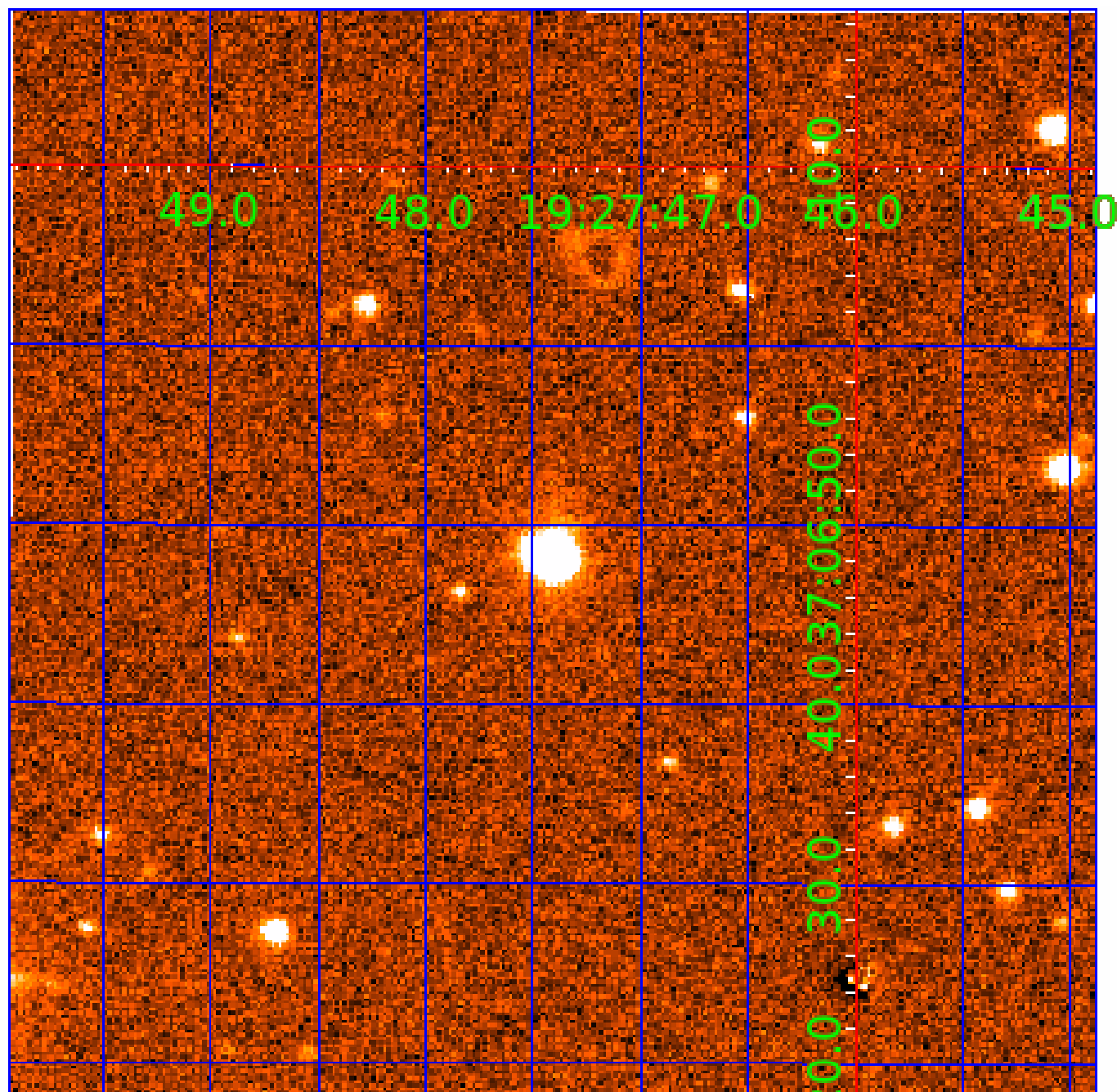
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination





# KIC 001575977

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
001575977-01	OBS	No	0.676518	132.136830	77.2	2.323	10.3	7.2	1.73	7263	1.76	25576.91
001575977-02	OBS	No	0.676498	131.808329	55.0	3.499	11.9	5.3	1.73	7263	1.30	25577.90

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001575977-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
001575977-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

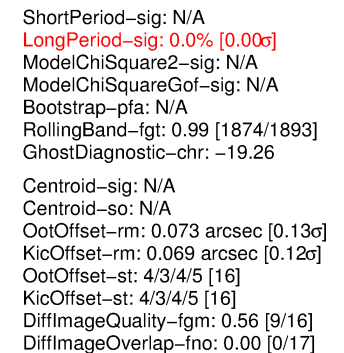
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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.

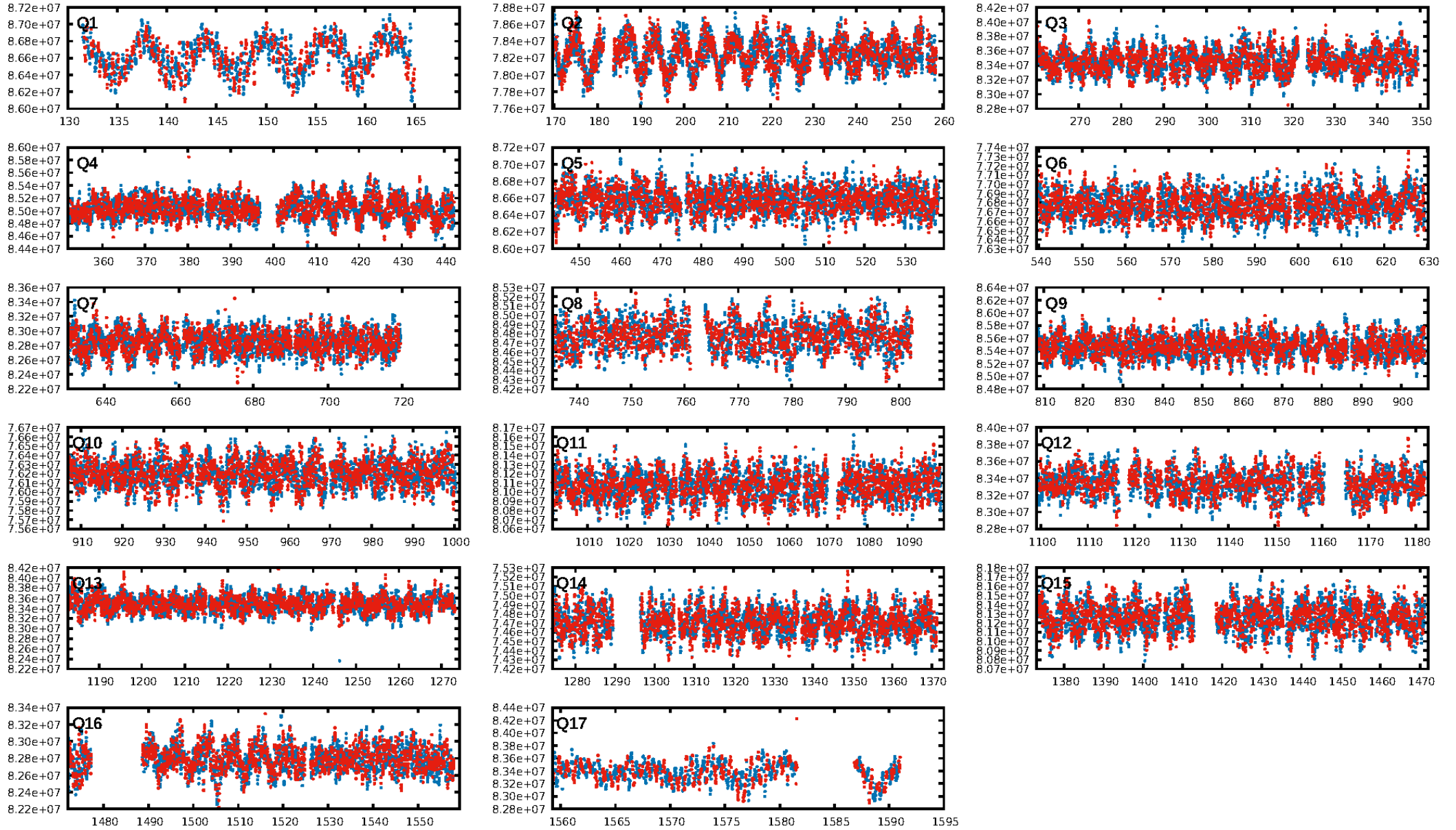
## Ephemeris Match Information For 001575977-02

No Significant Match Found

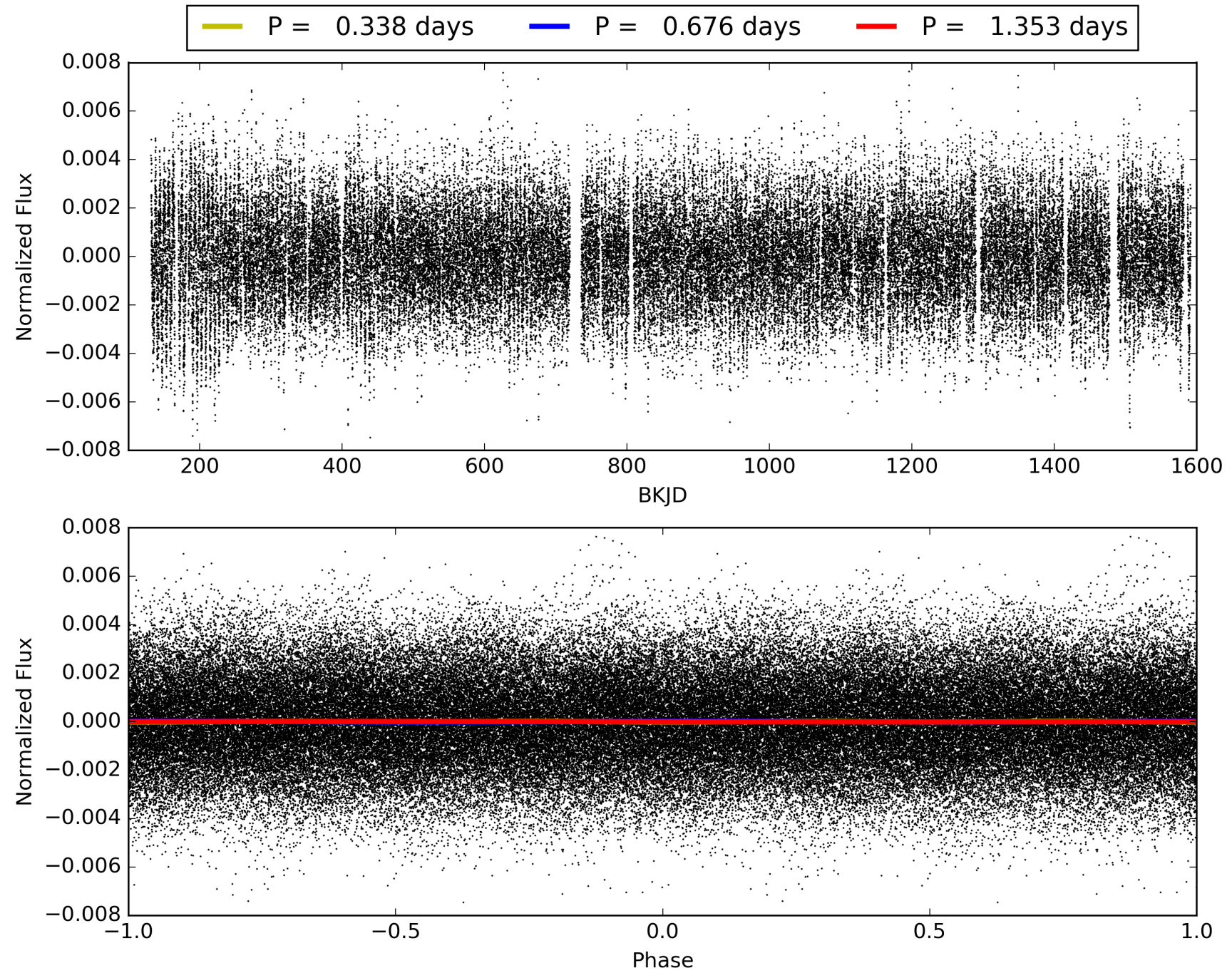
## KIC: 1575977    Candidate: 2 of 2    Period: 0.676 d



# TCE 001575977-02, PDC Light Curves



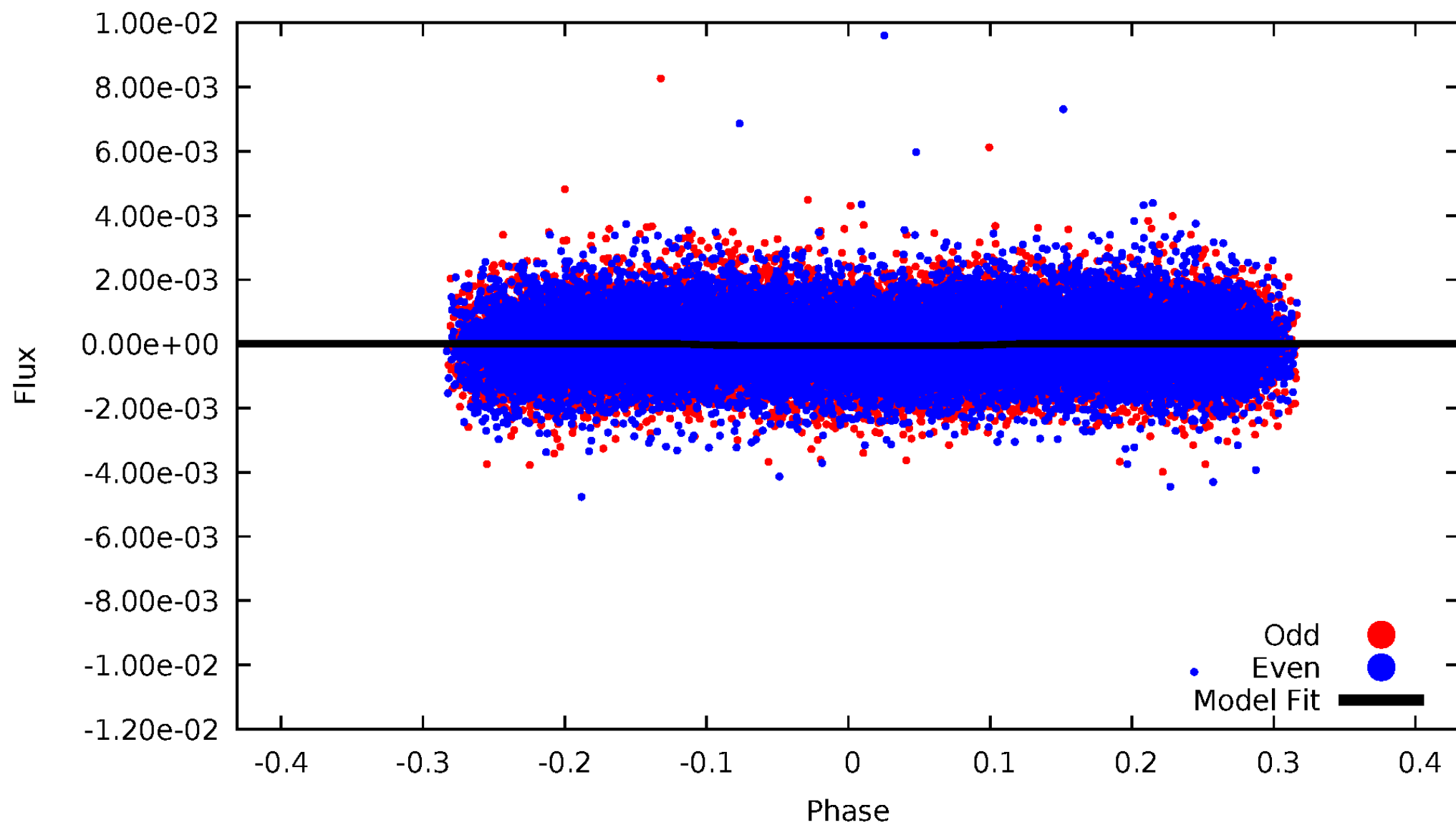
TCE 001575977-02





# DV Odd/Even

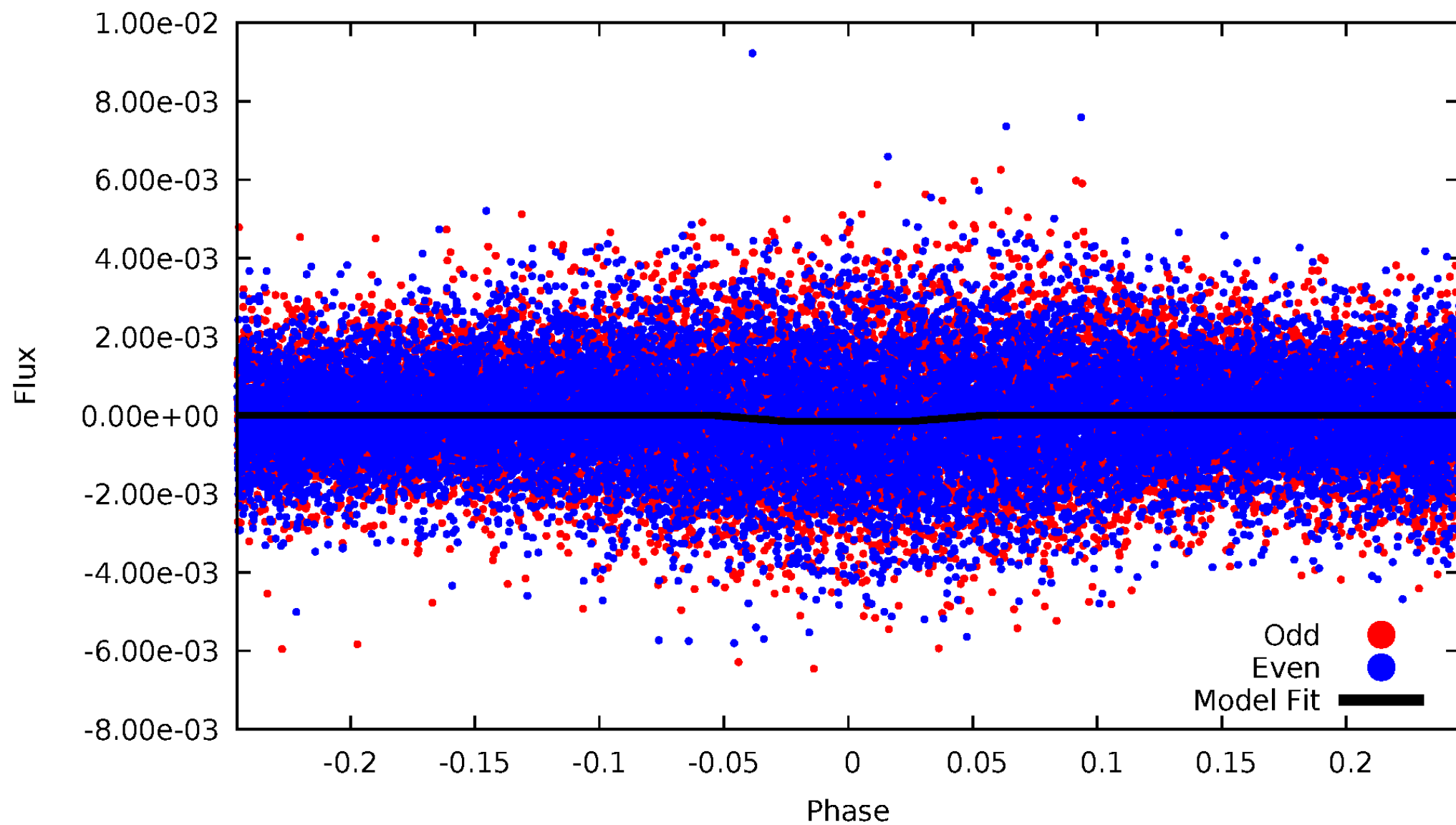
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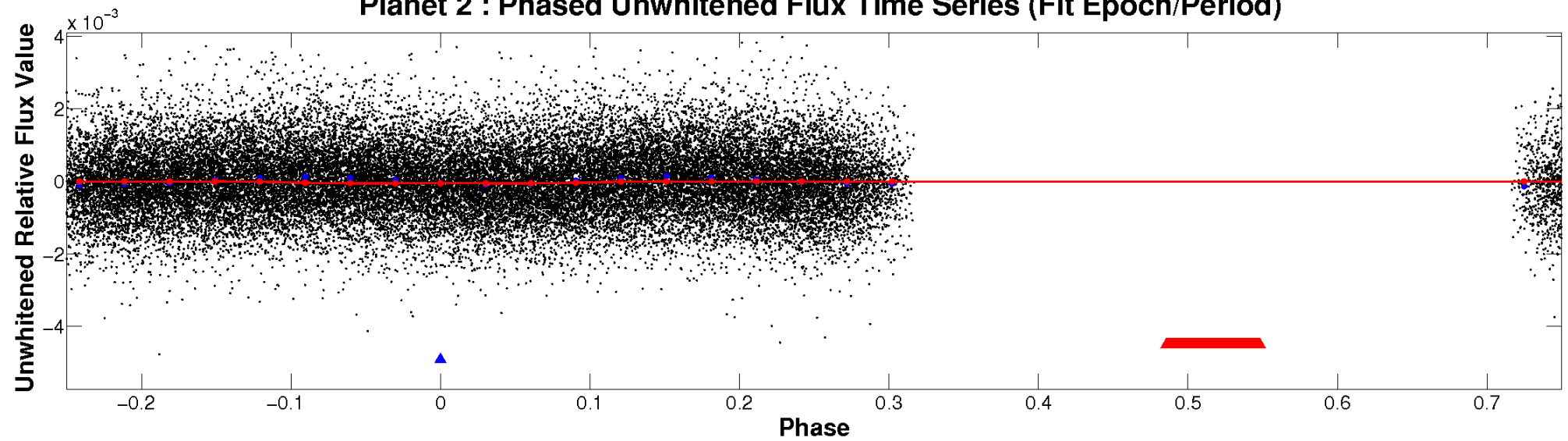
# ALT Odd/Even

TCE 001575977-02

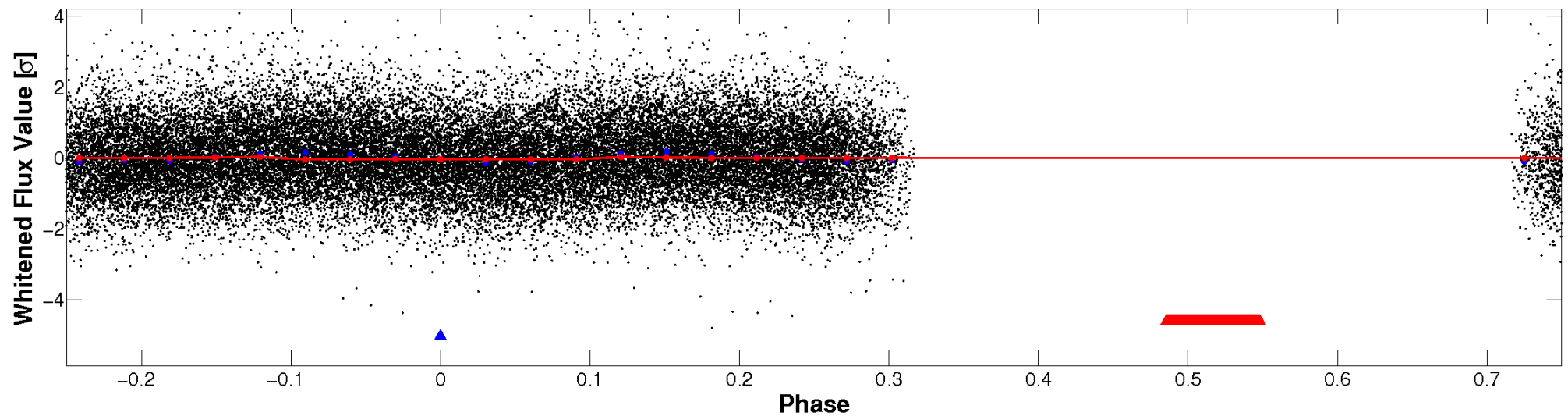


# Non-Whitened Vs. Whitened Light Curve

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

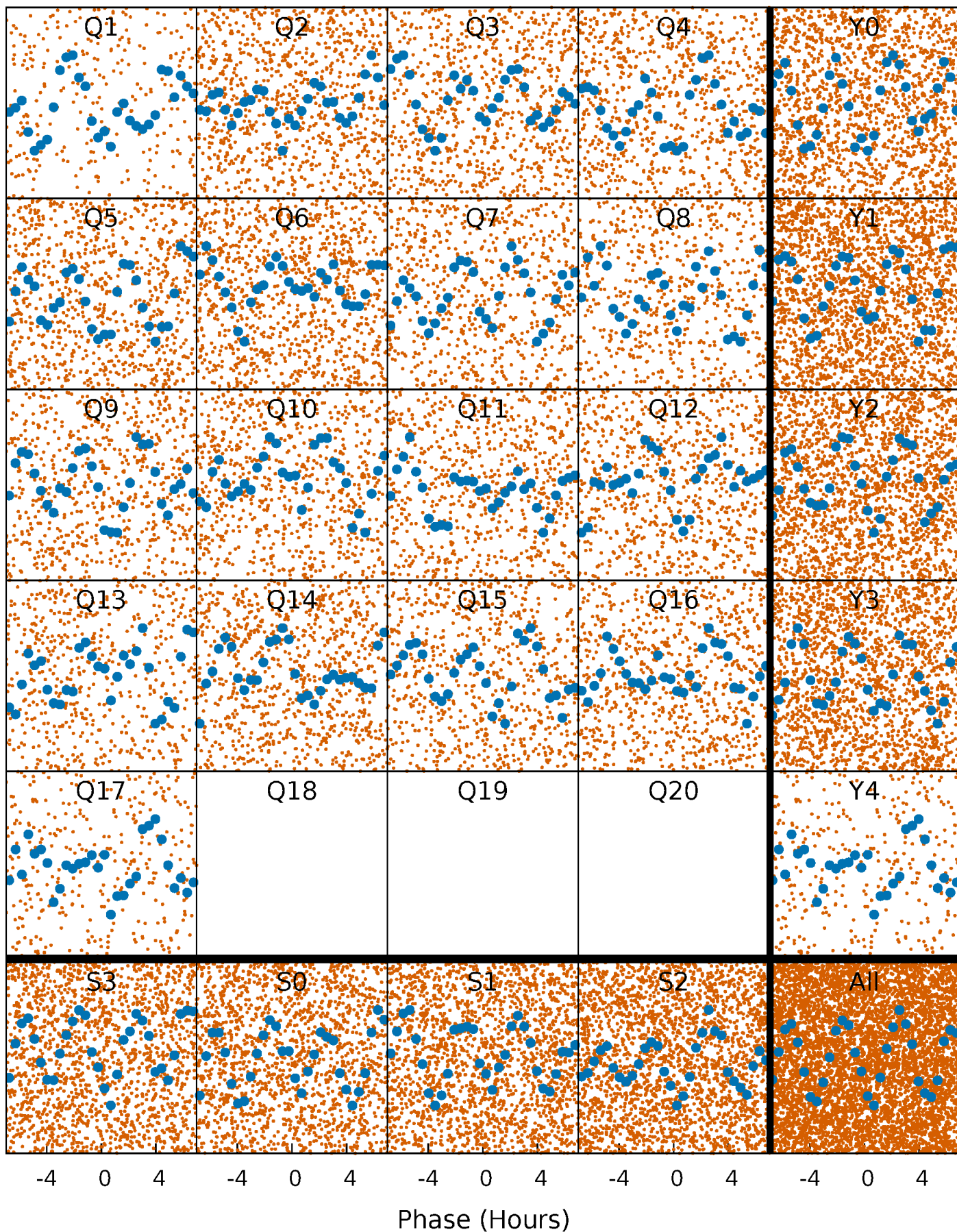


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

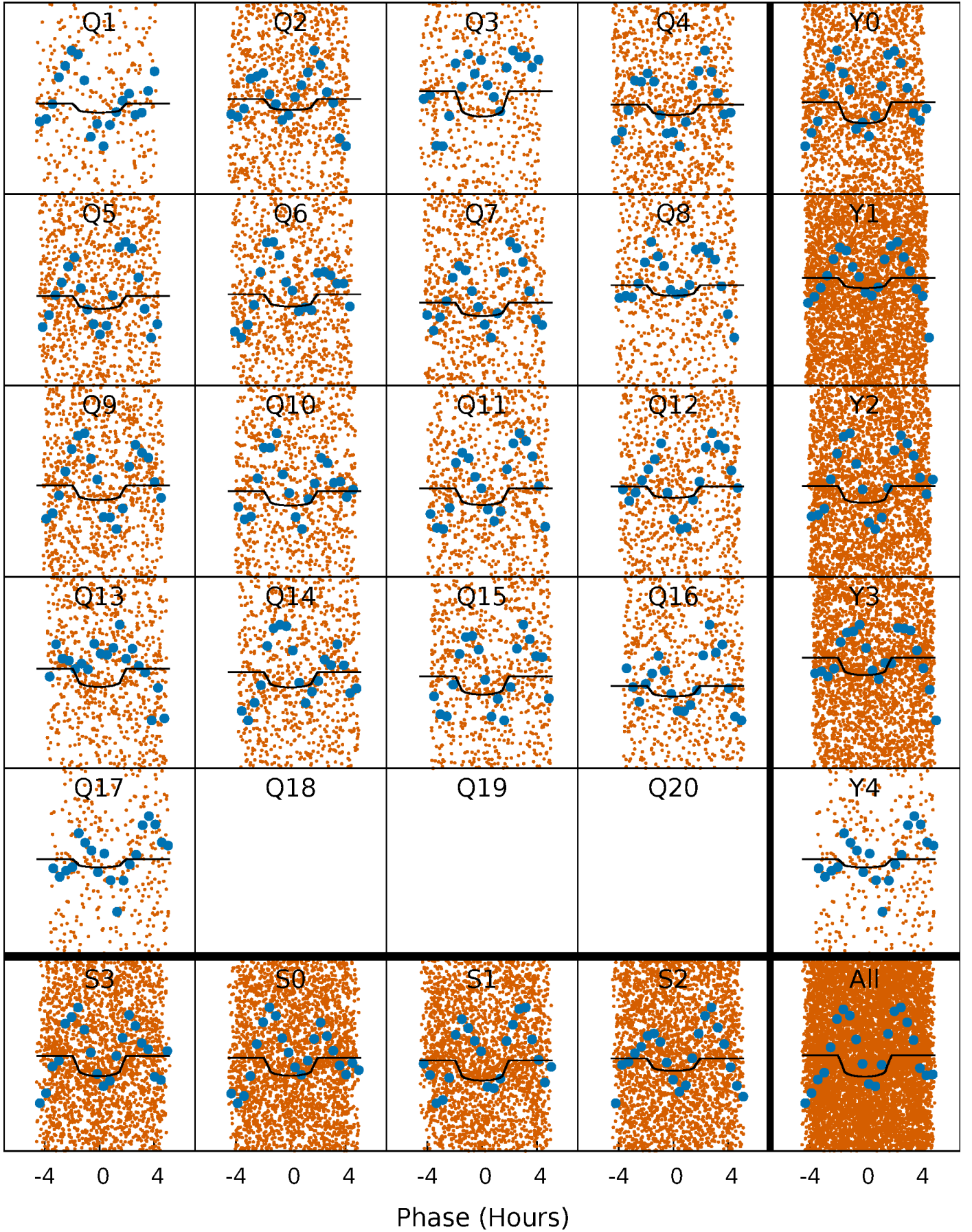
TCE 001575977-02   P= 0.676498 Days    $T_0=131.808329$  (BKJD)





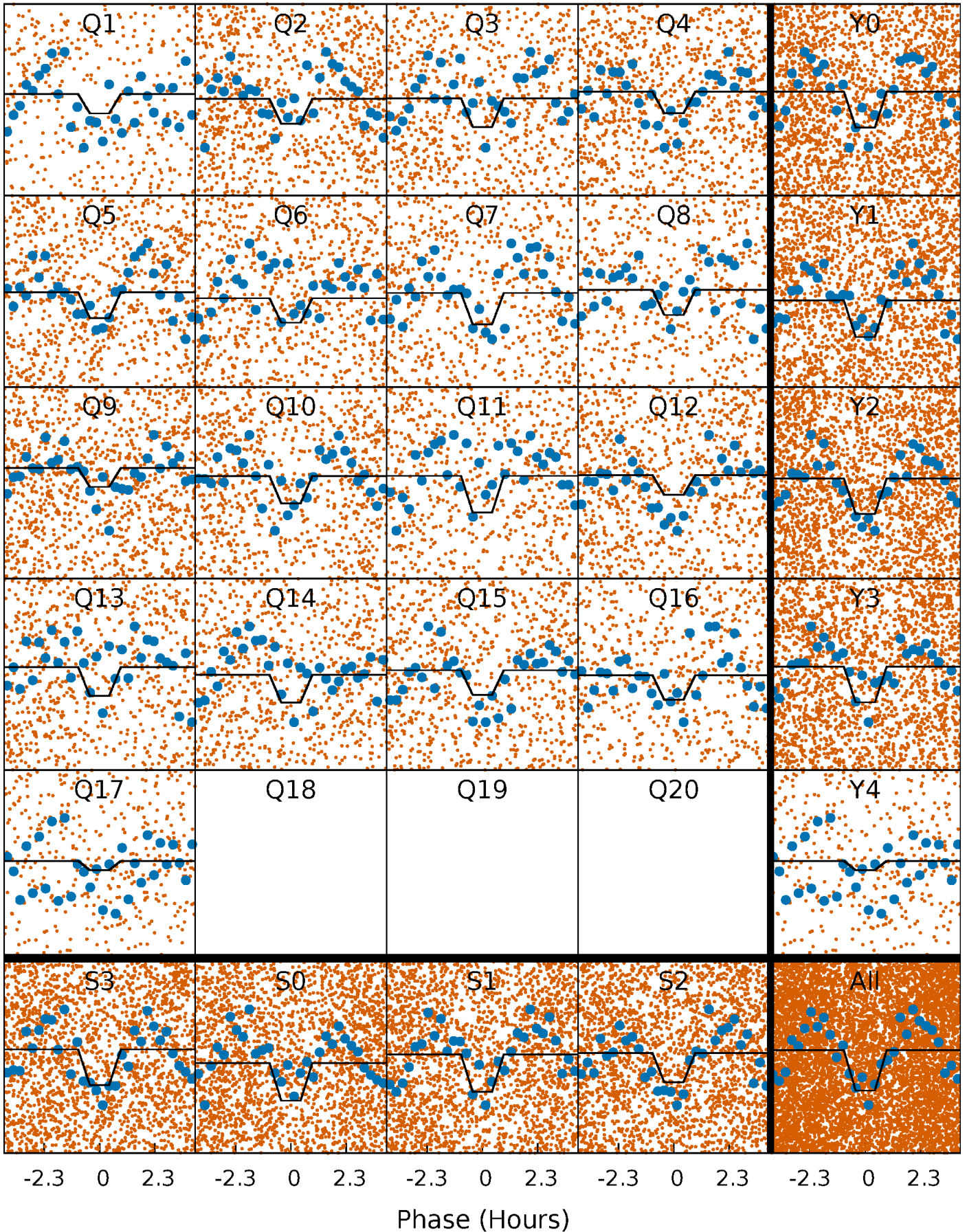
# DV Quarter-Phased Transit Curves

TCE 001575977-02     $P = 0.676498$  Days     $T_0 = 131.808329$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 001575977-02 P= 0.676518 Days  $T_0=131.808751$  (BKJD)

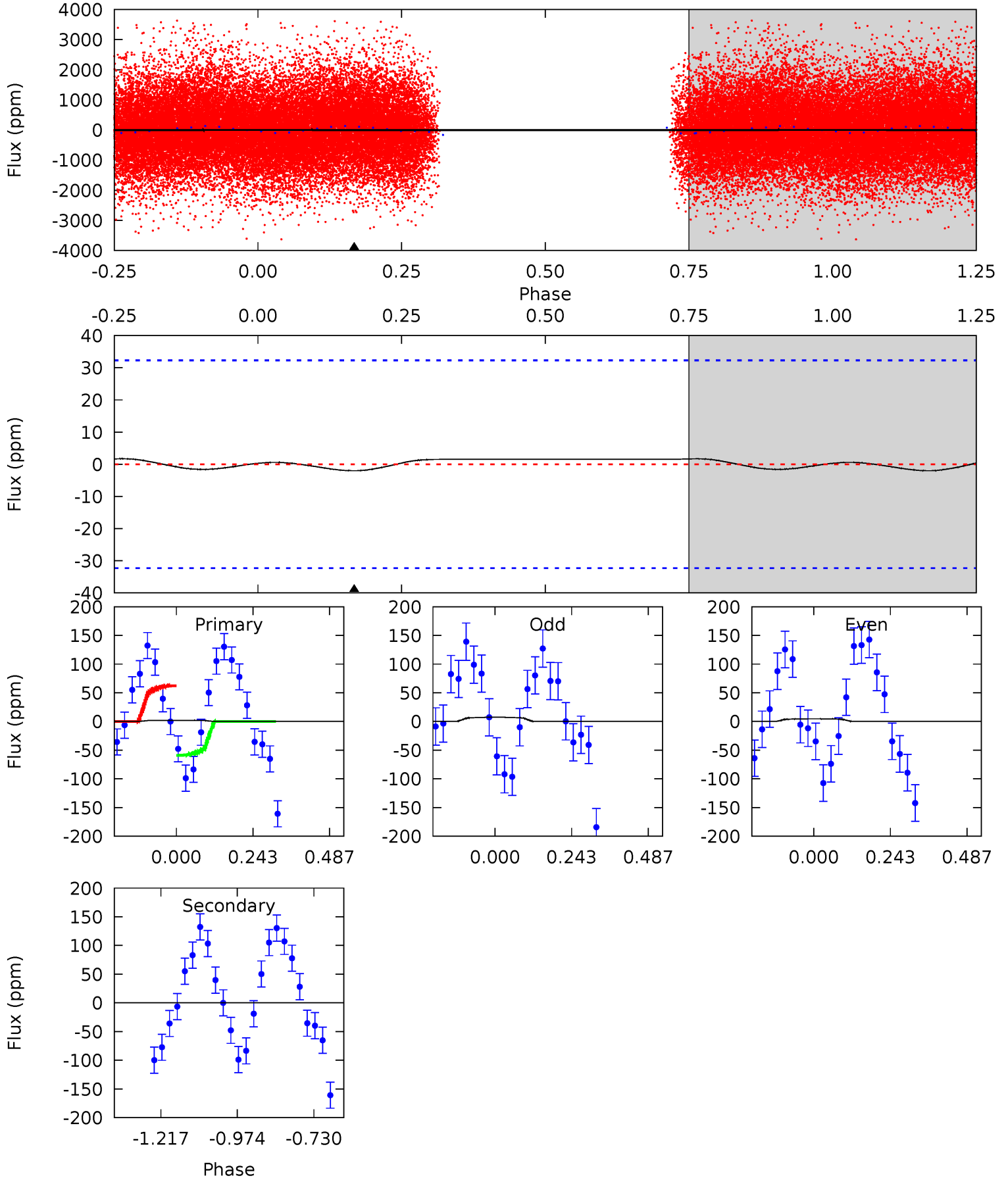




# DV Model-Shift Uniqueness Test

001575977-02, P = 0.676498 Days, E = 131.131831 Days

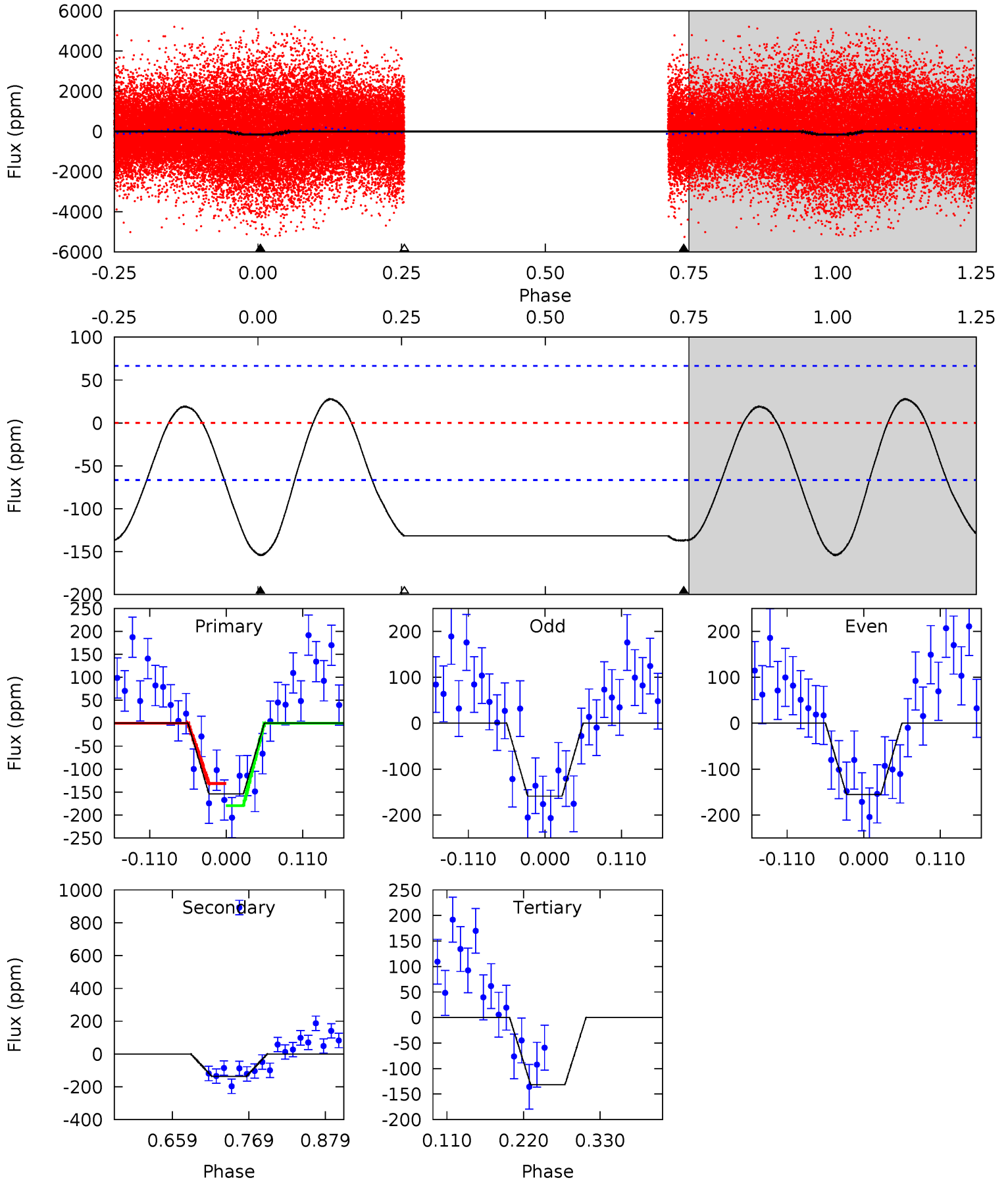
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.27	0	0	0	4.37	1.17	0.17	0.27	0.27	0	0	0.18	0.45	0.46	0.22



# Alt Model-Shift Uniqueness Test

001575977-02, P = 0.676518 Days, E = 131.132233 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
10.5	9.38	9.00	0	4.54	1.60	3.76	1.54	10.5	0.38	9.38	0.12	0.82	0.15	1.43



### Stellar Parameters For KIC 001575977

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7263^{+232}_{-348}$	$4.123^{+0.175}_{-0.175}$	$-0.220^{+0.250}_{-0.350}$	$1.727^{+0.528}_{-0.384}$	$1.442^{+0.219}_{-0.241}$	$0.394^{+0.363}_{-0.188}$
	+3%/-5%	+4%/-4%	+114%/-159%	+31%/-22%	+15%/-17%	+92%/-48%
Source	PHO1	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 001575977-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 7$	$1.42^{+1.02}_{-0.85}$	$4466^{+359}_{-317}$	$-4016^{+8557}_{-1029}$	$-0.024^{+0.980}_{-0.832}$
Alt.	$-137 \pm 15$	$2.32^{+1.21}_{-1.05}$	$4495^{+330}_{-337}$	$6866^{+3354}_{-1442}$	$4.020^{+9.153}_{-2.271}$

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

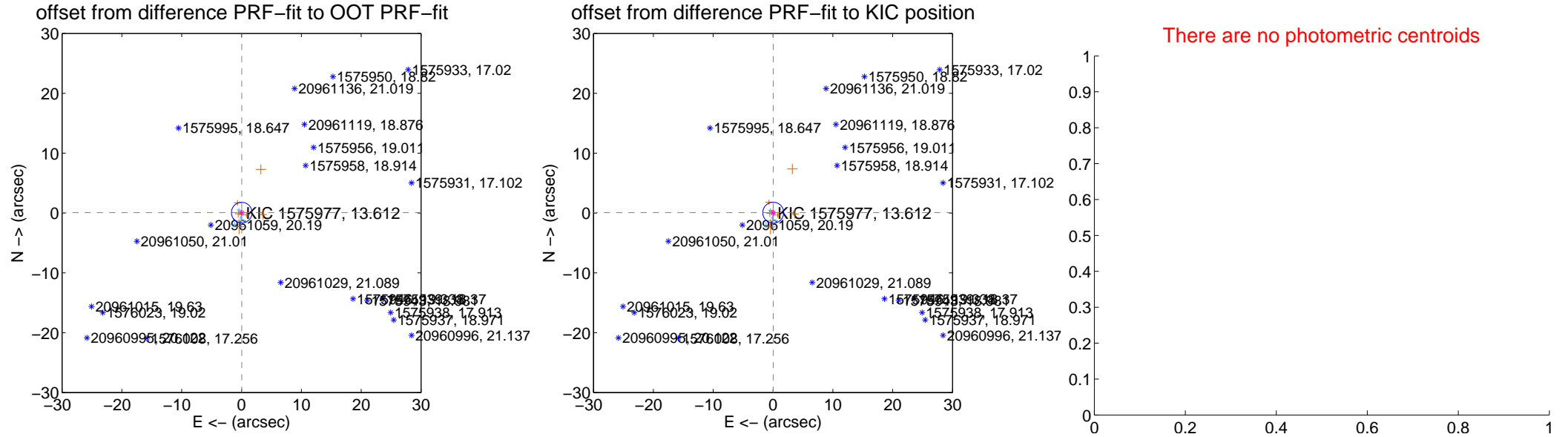
## DV Centroid Data

Supplemental centroid analysis for 001575977-02. Kepler magnitude: 13.61. Transit SNR 5.27

There are 9 quarters with good PRF difference image offsets

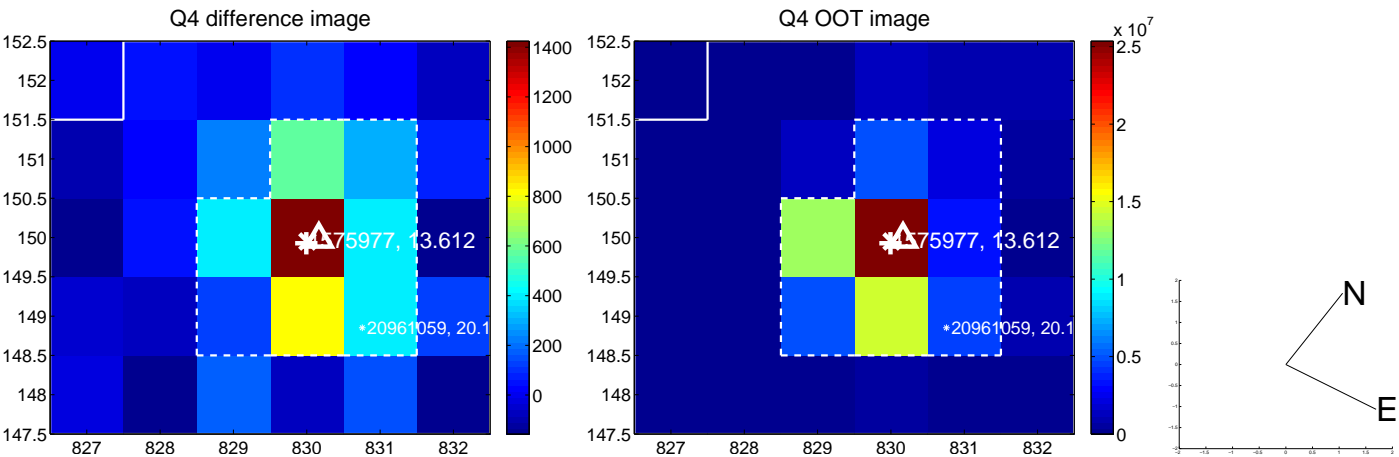
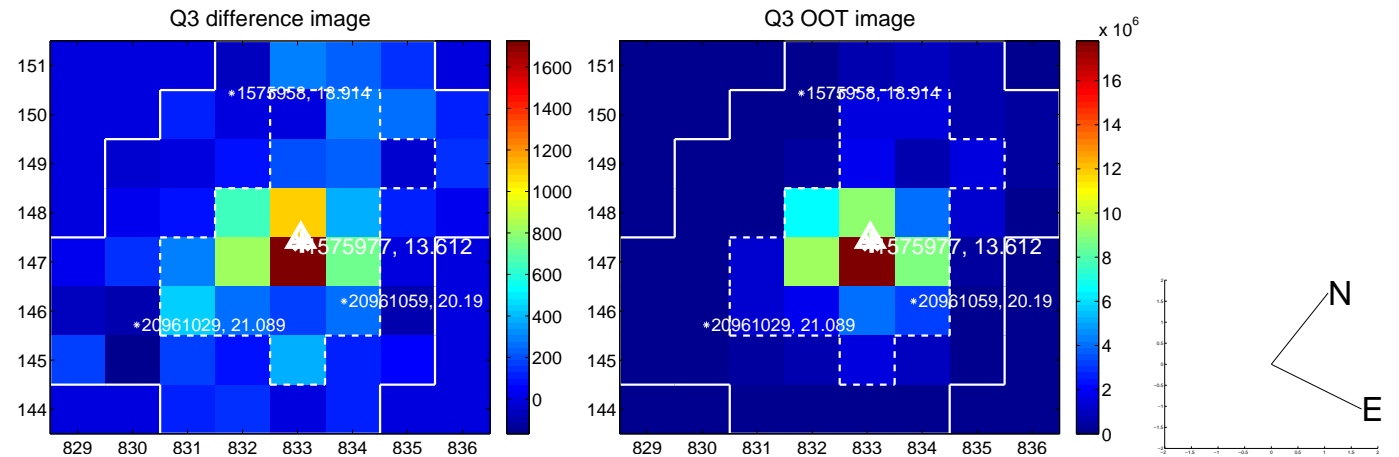
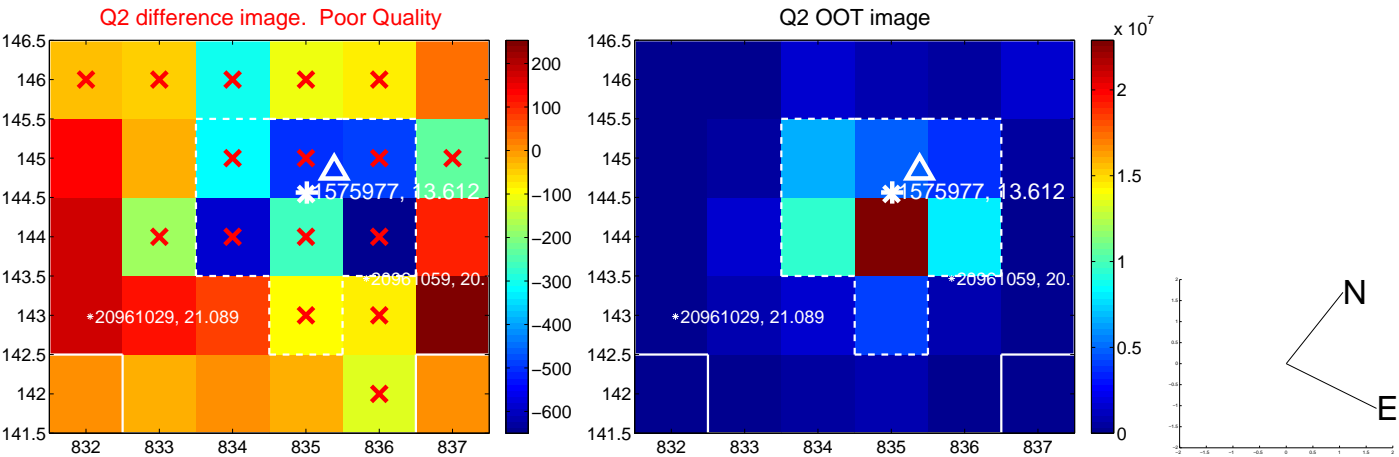
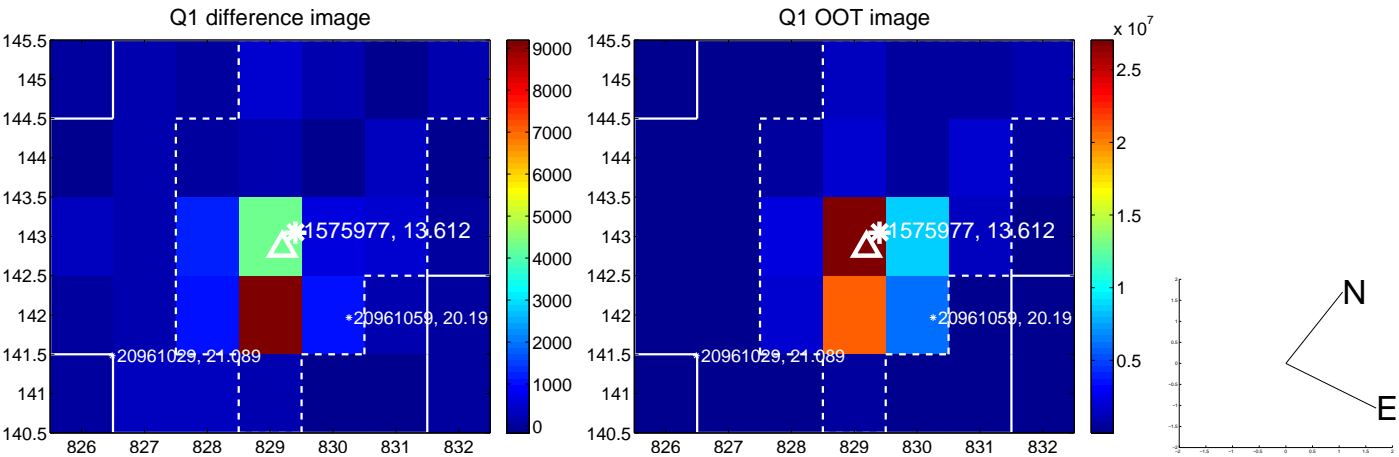
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.073 \pm 0.574$	0.13	$-0.030 \pm 0.321$	$0.067 \pm 0.541$
PRF-fit source offset from KIC position	$0.069 \pm 0.582$	0.12	$-0.038 \pm 0.345$	$0.058 \pm 0.547$
photometric centroid source offset	—	—	—	—



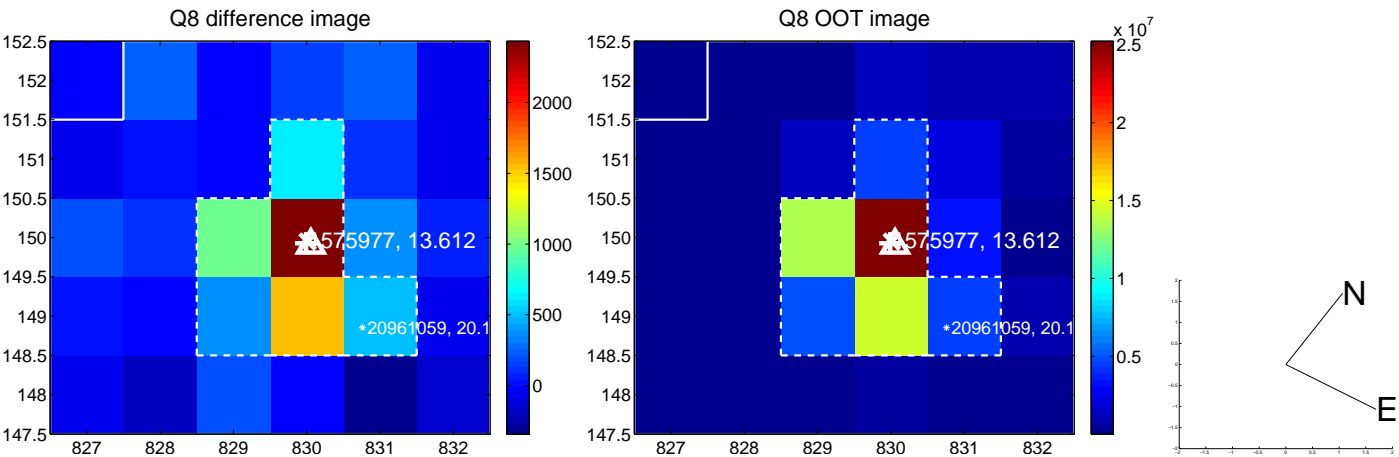
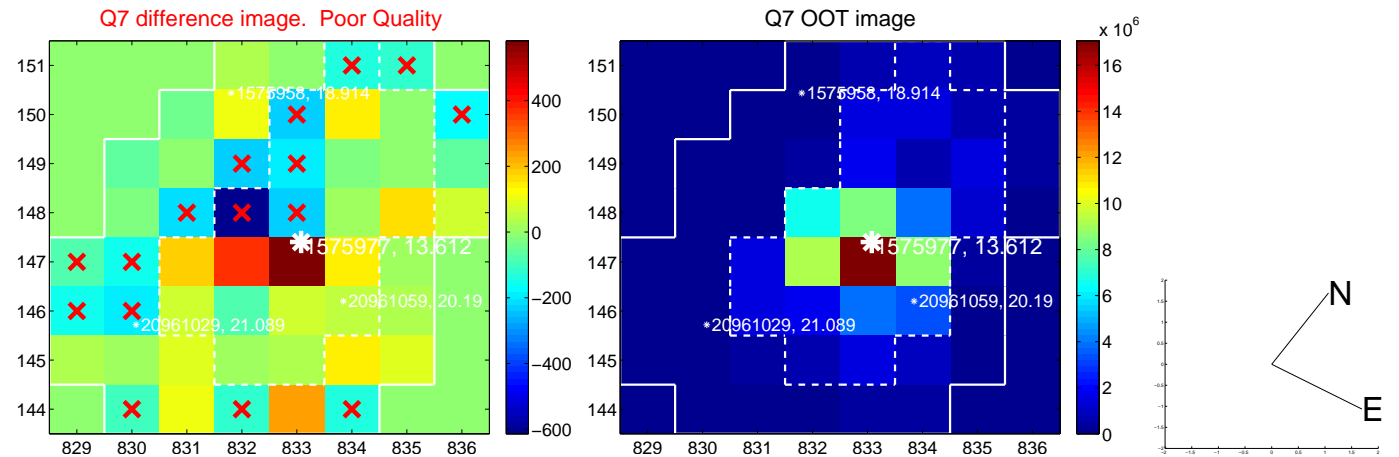
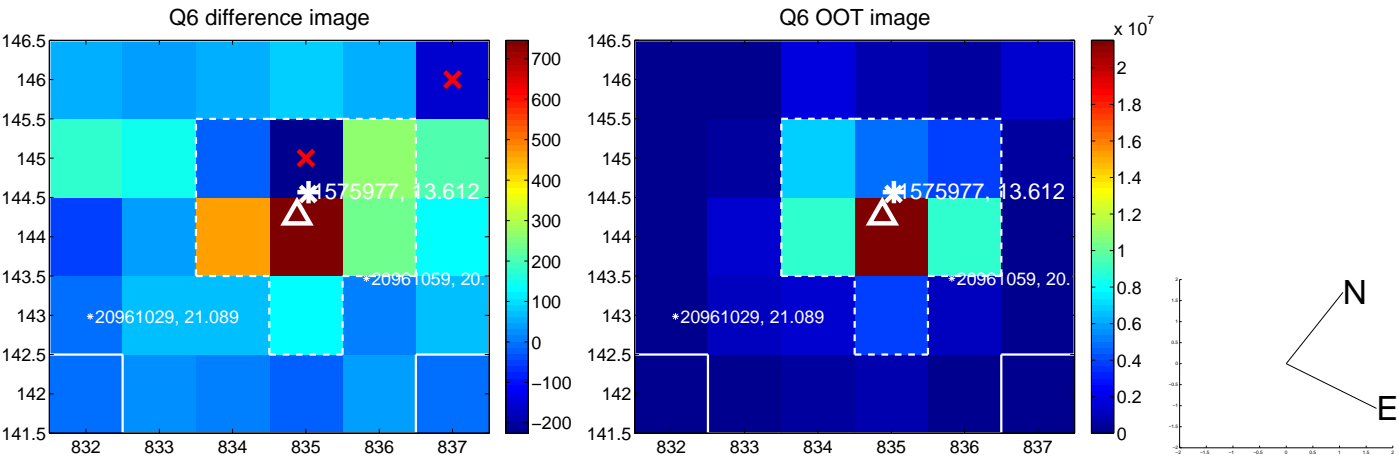
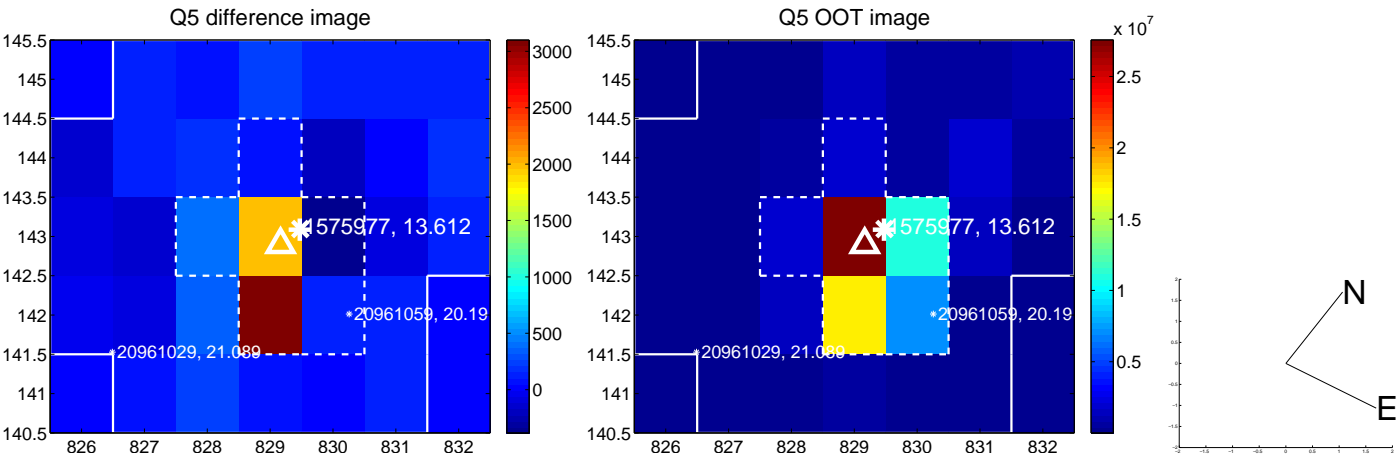
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

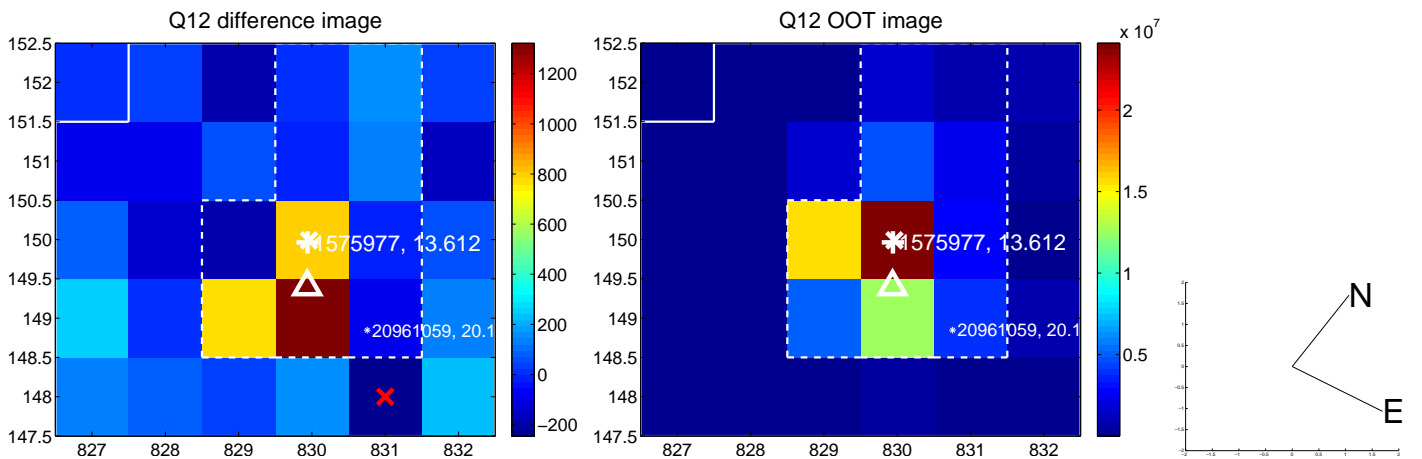
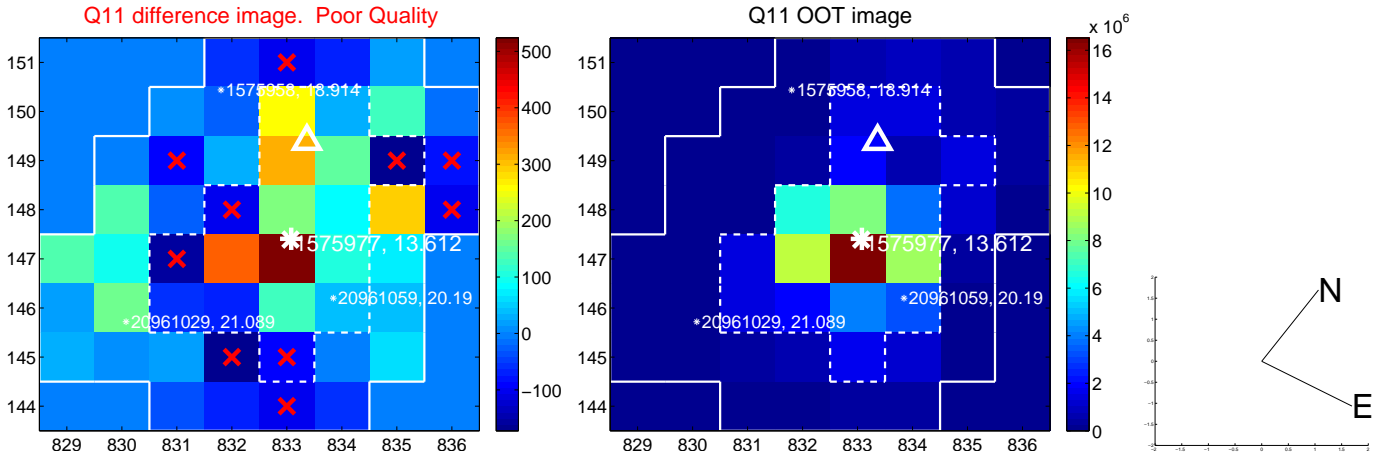
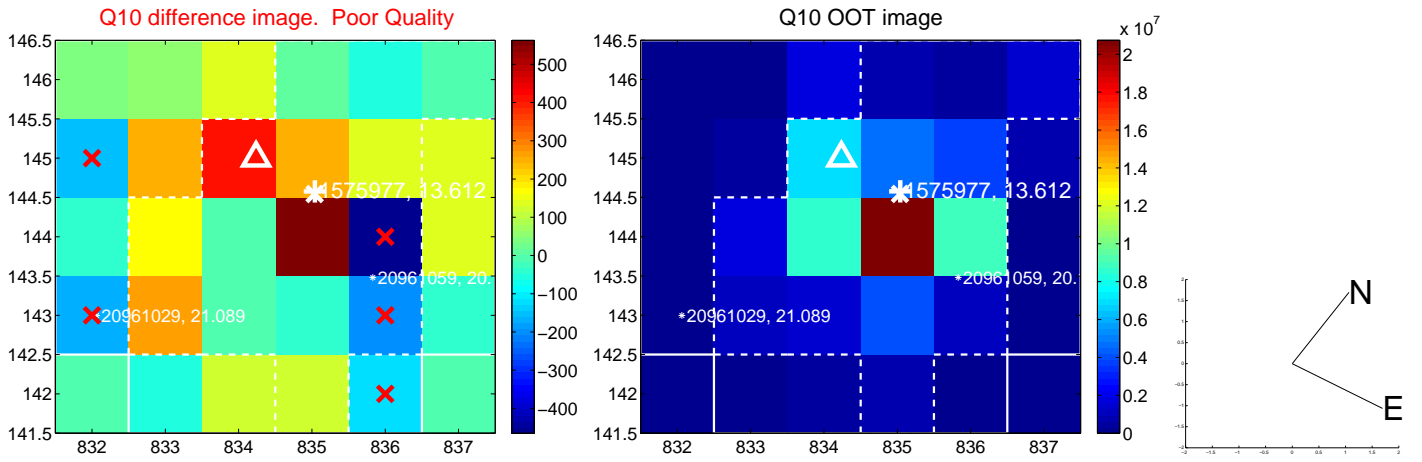
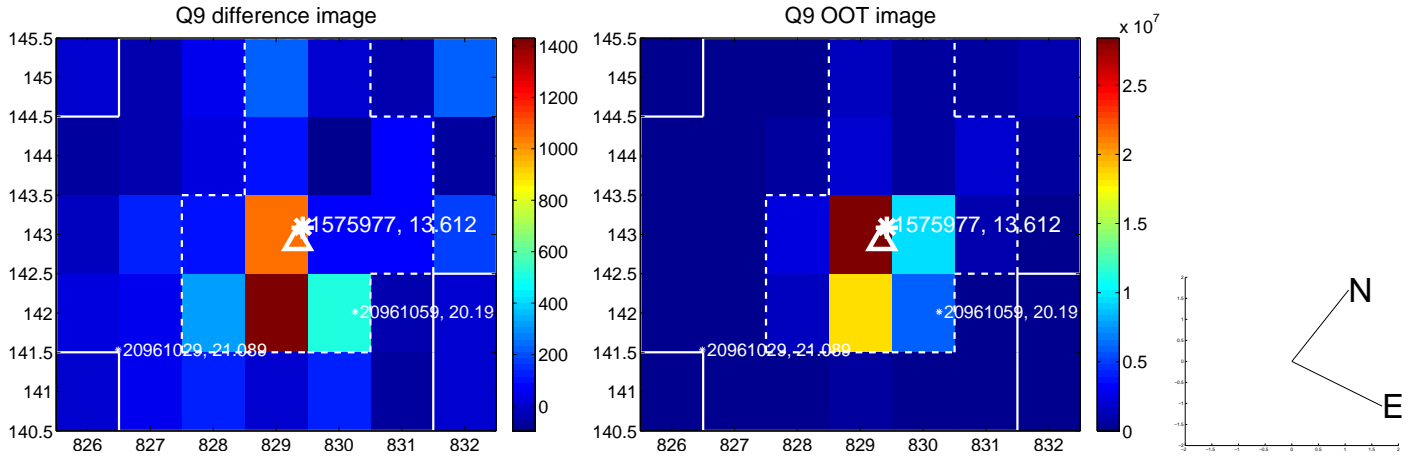




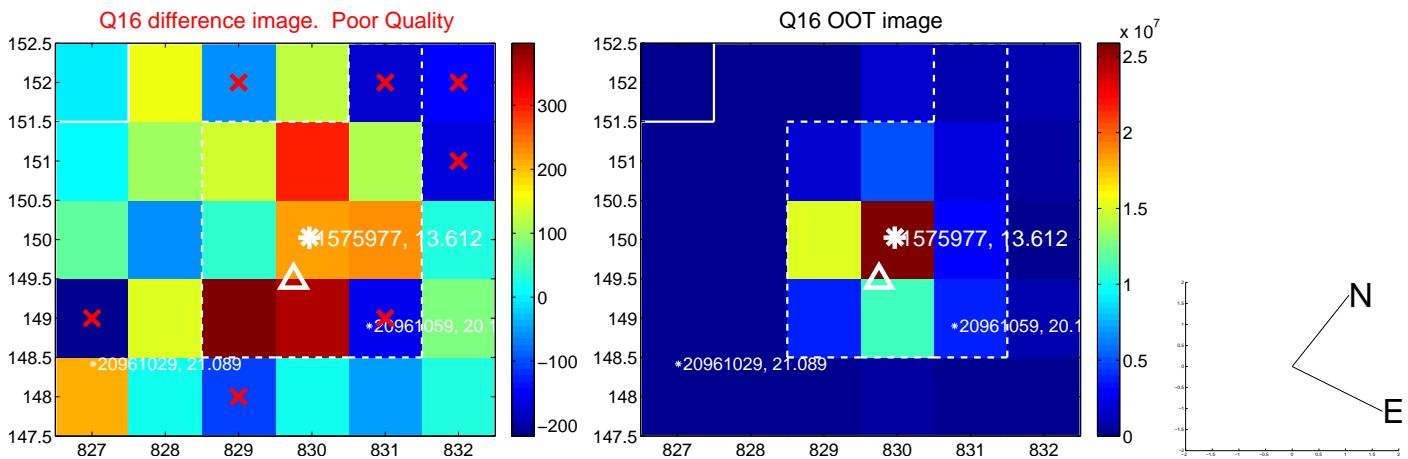
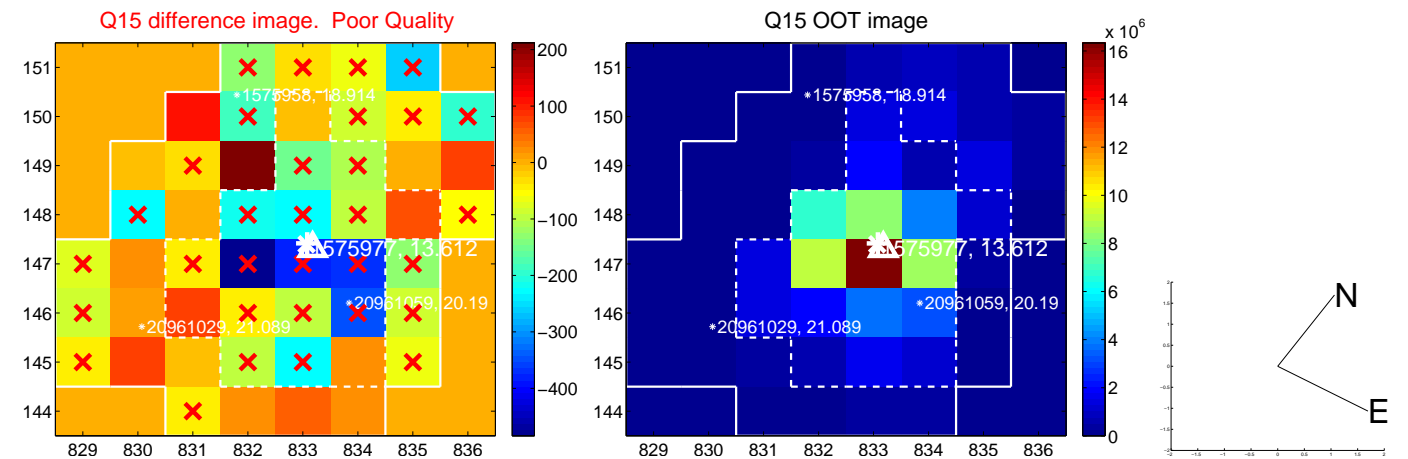
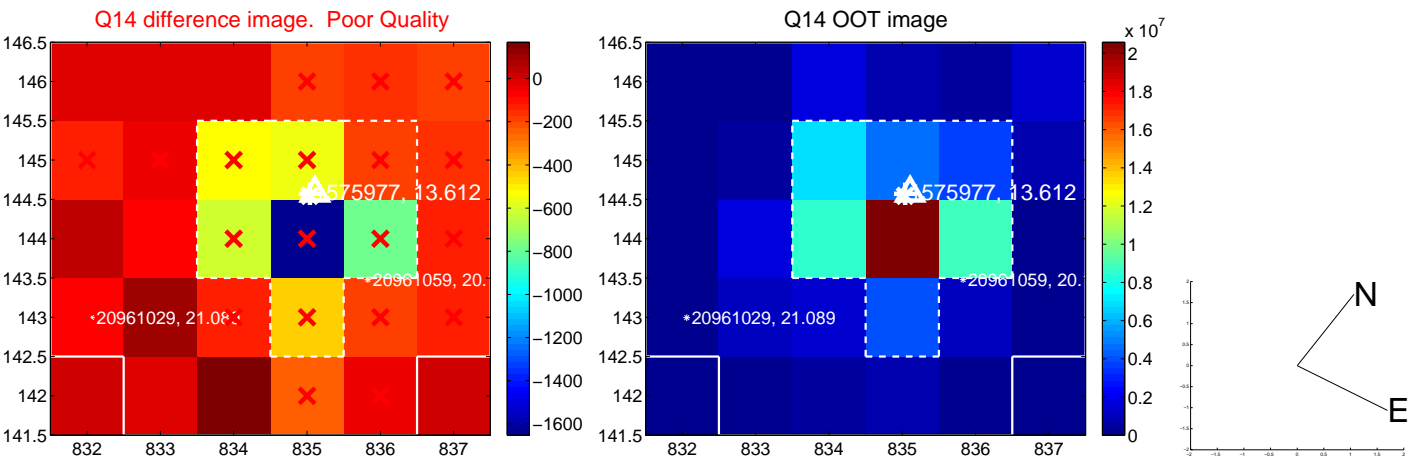
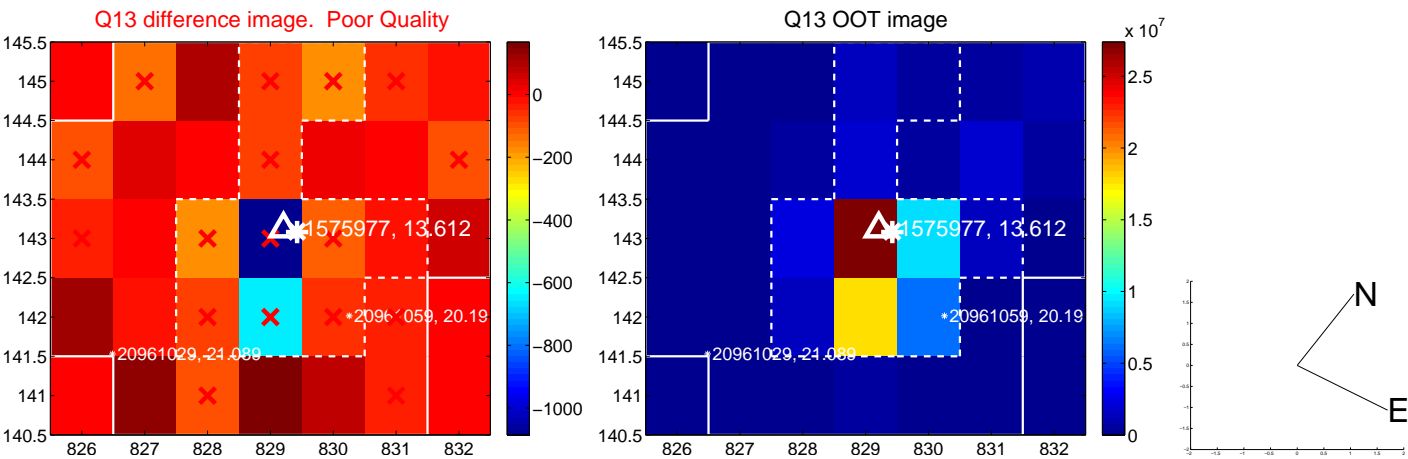
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



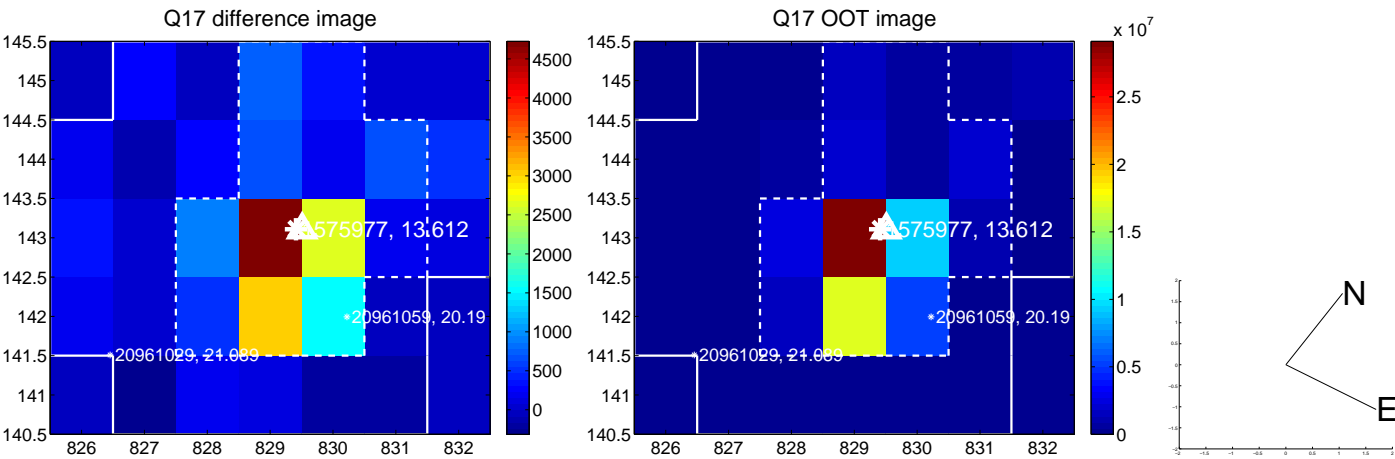
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

