

# KIC 005450881

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005450881-01	OBS	No	372.068149	473.909155	93.7	2.871	17.7	2.3	2.21	10402	2.29	26.84
005450881-02	OBS	No	1.223176	131.843372	6.9	6.172	11.4	6.6	2.21	10402	0.67	54908.31
005450881-03	OBS	No	132.630028	196.273501	46.6	9.571	9.4	3.0	2.21	10402	1.58	106.19

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005450881-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005450881-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005450881-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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

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

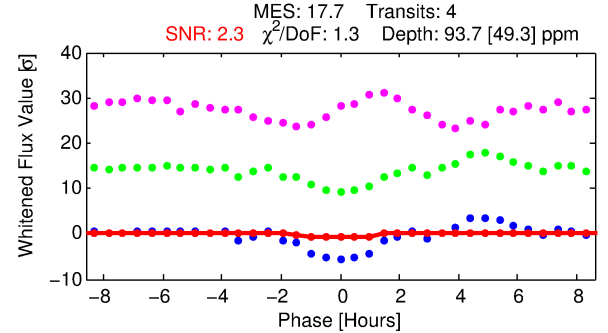
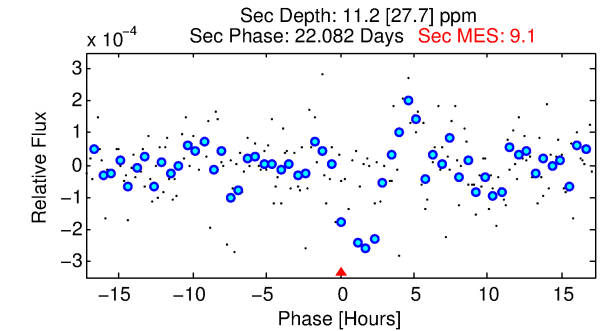
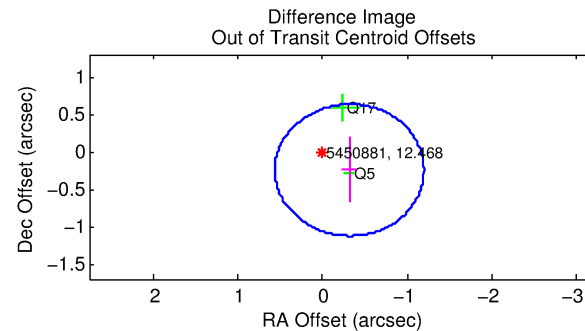
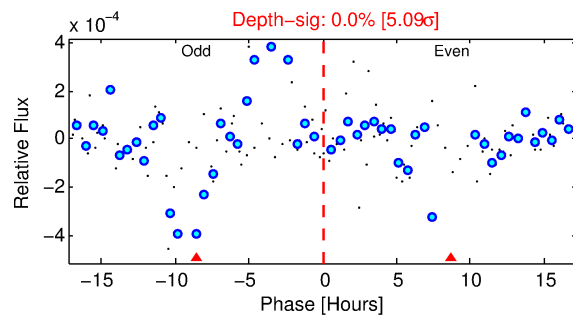
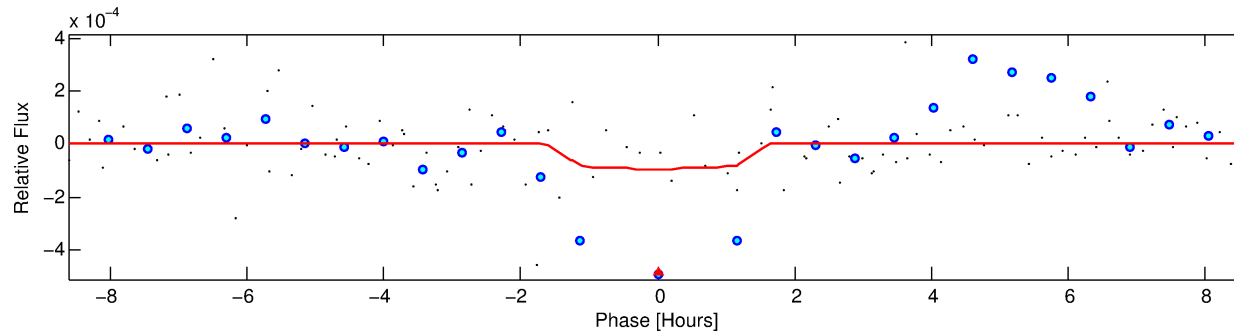
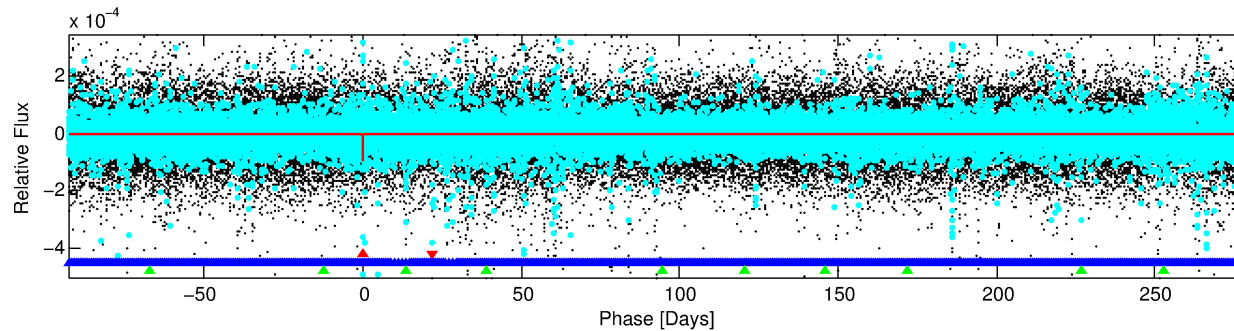
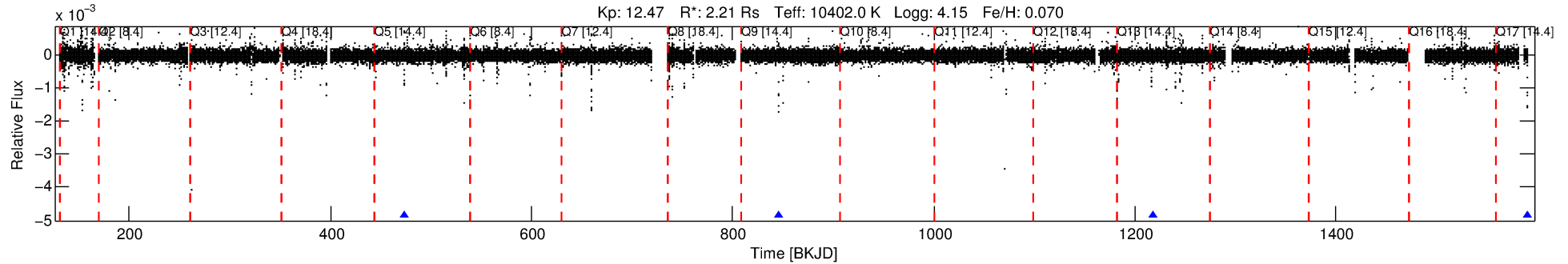
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005450881-01

No Significant Match Found

# DV One-Page Summary

KIC: 5450881 Candidate: 1 of 3 Period: 372.068 d



## DV Fit Results:

Period = 372.06815 [0.01202] d  
Epoch = 473.9092 [0.0239] BKJD  
Rp/R\* = 0.0095 [0.0093]  
a/R\* = 754.09 [5113.04]  
b = 0.66 [5.93]  
Seff = 26.84 [11.35]  
Teq = 580 [61] K  
Rp = 2.29 [2.39] Re  
a = 1.3816 [0.3930] AU  
Ag = 2240.41 [7128.46] [0.31σ]  
Teffp = 6174 [4881] K [1.15σ]

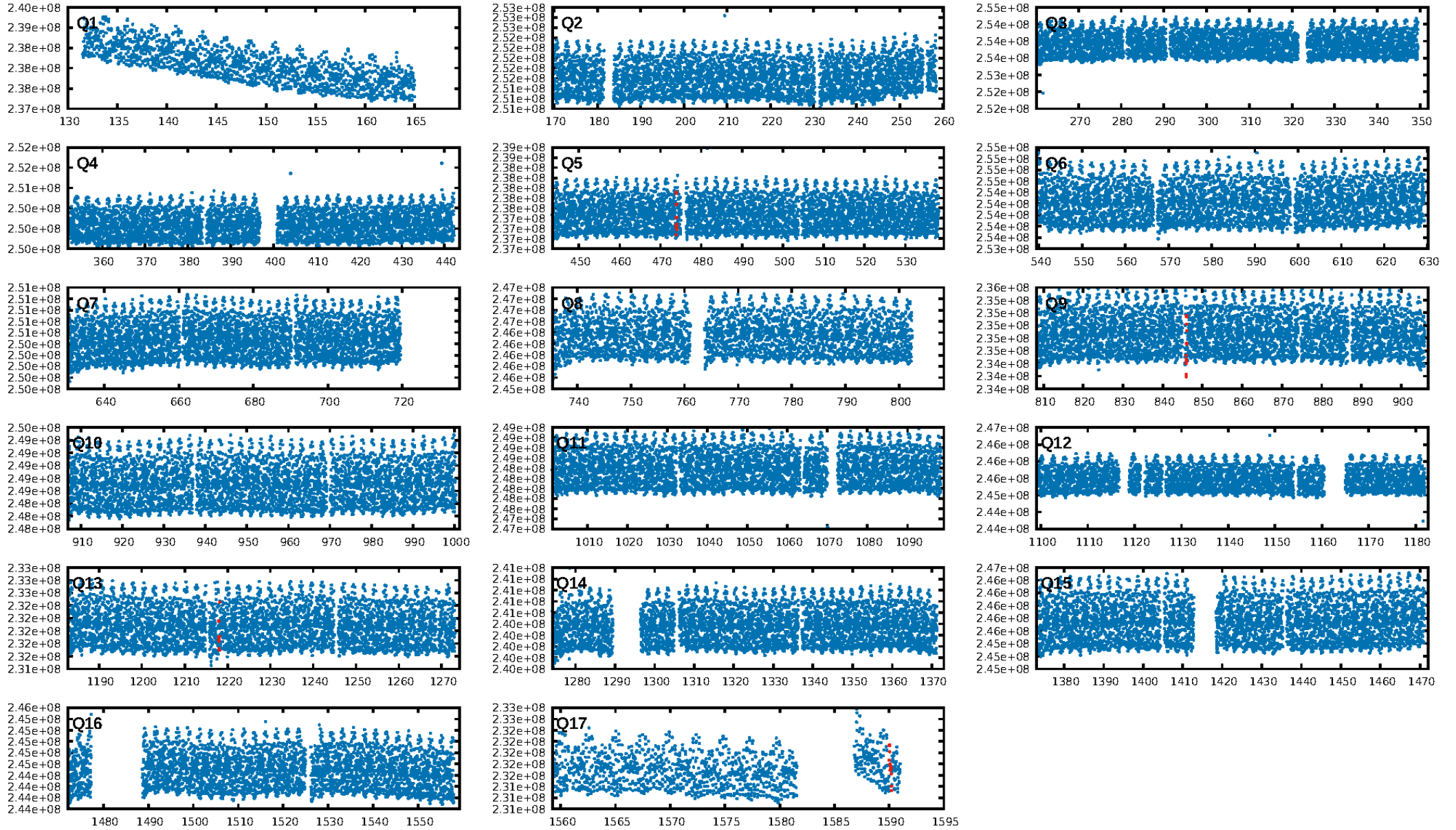
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [575.11σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 19.8%  
ModelChiSquareGof-sig: 98.8%  
Bootstrap-pfa: 1.84e-09  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -2.362  
Centroid-sig: 35.9%  
Centroid-so: 2.306 arcsec [0.81σ]  
OotOffset-rm: 0.404 arcsec [1.38σ]  
KicOffset-rm: 0.395 arcsec [1.02σ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 0.00 [0/2]

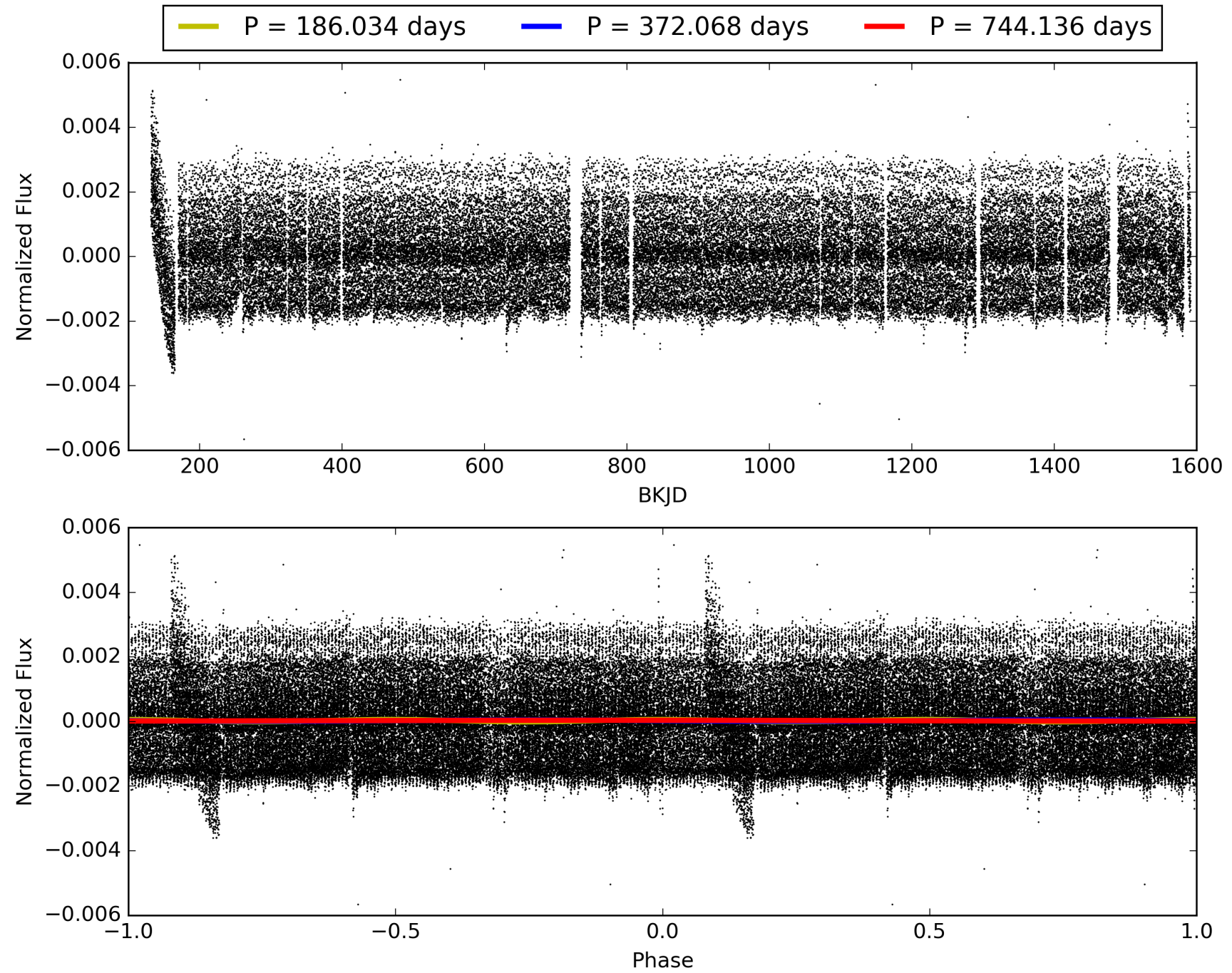
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:34:10 Z

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

# TCE 005450881-01, PDC Light Curves

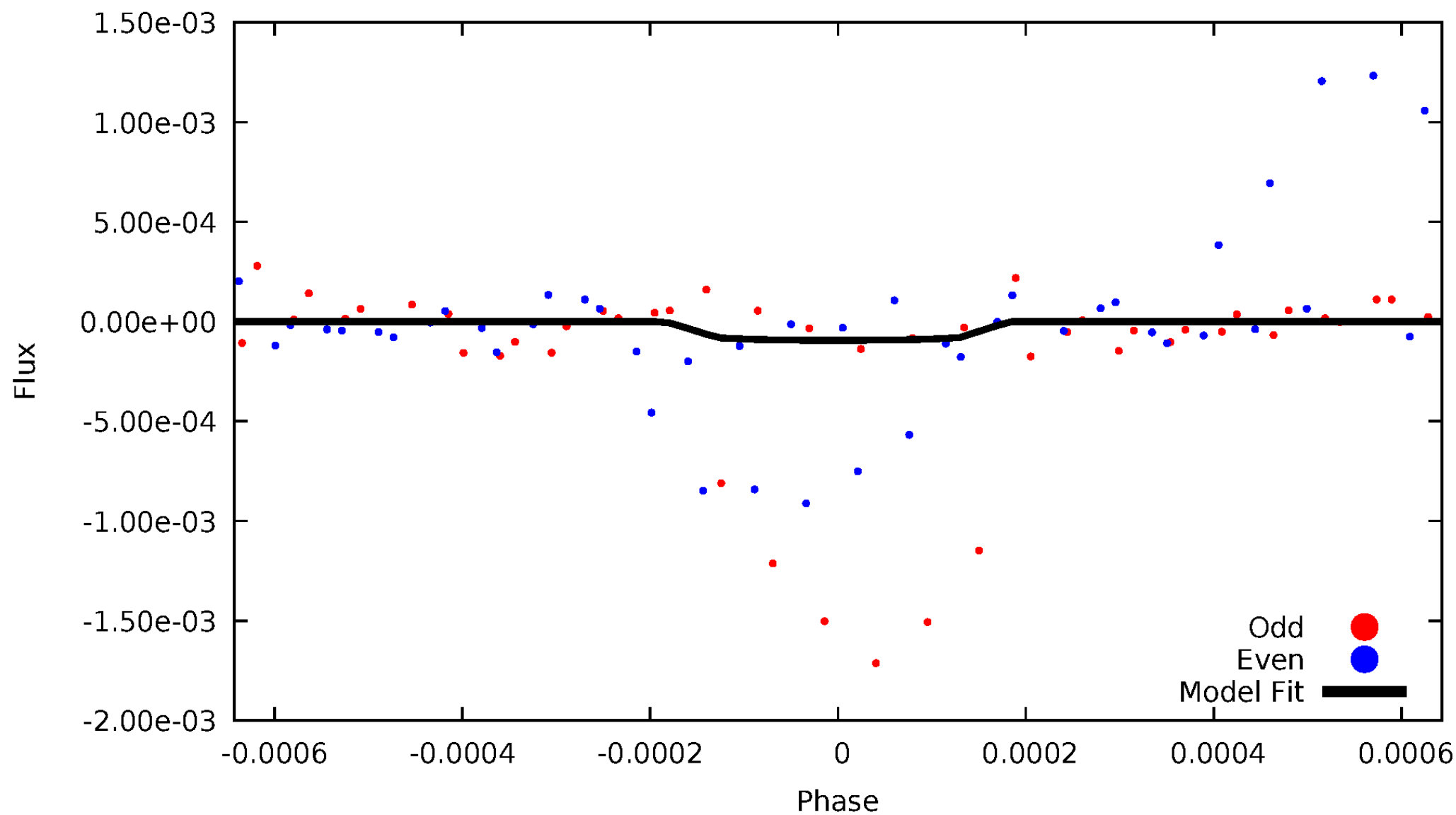


TCE 005450881-01



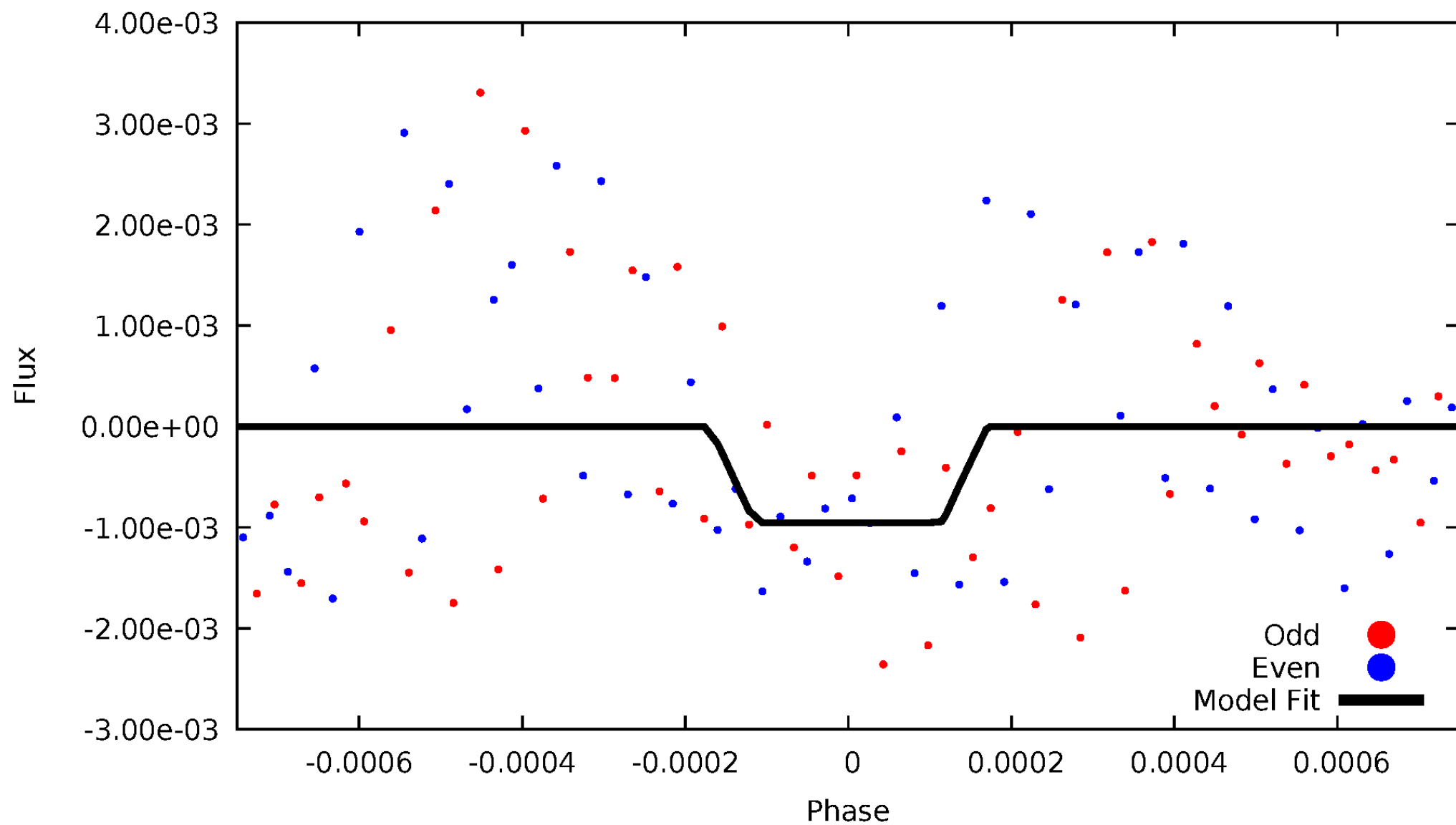
# DV Odd/Even

TCE 005450881-01



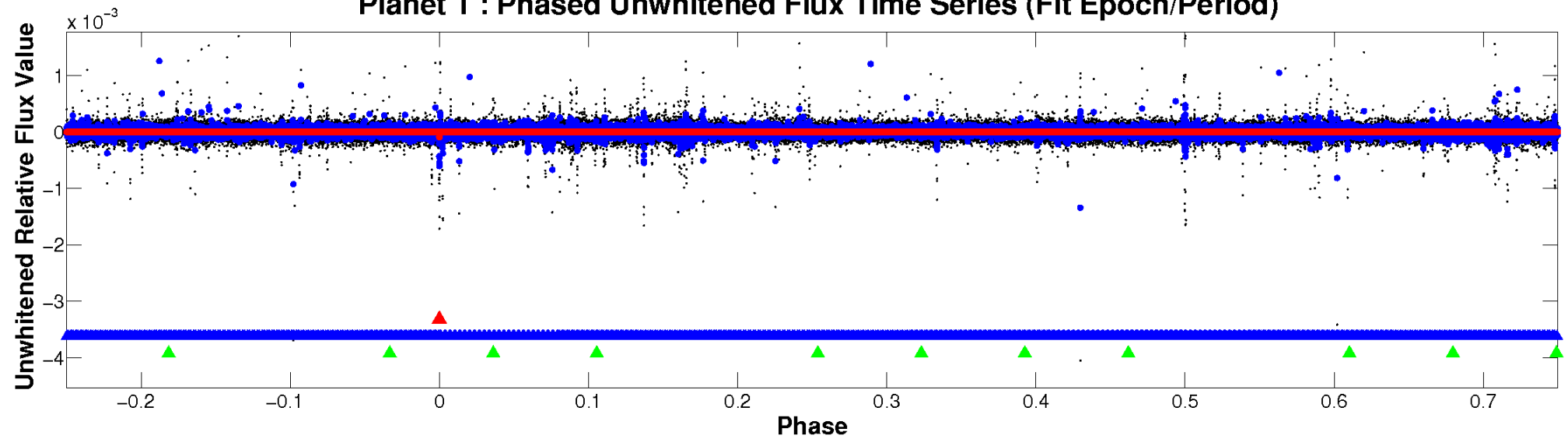
# ALT Odd/Even

TCE 005450881-01

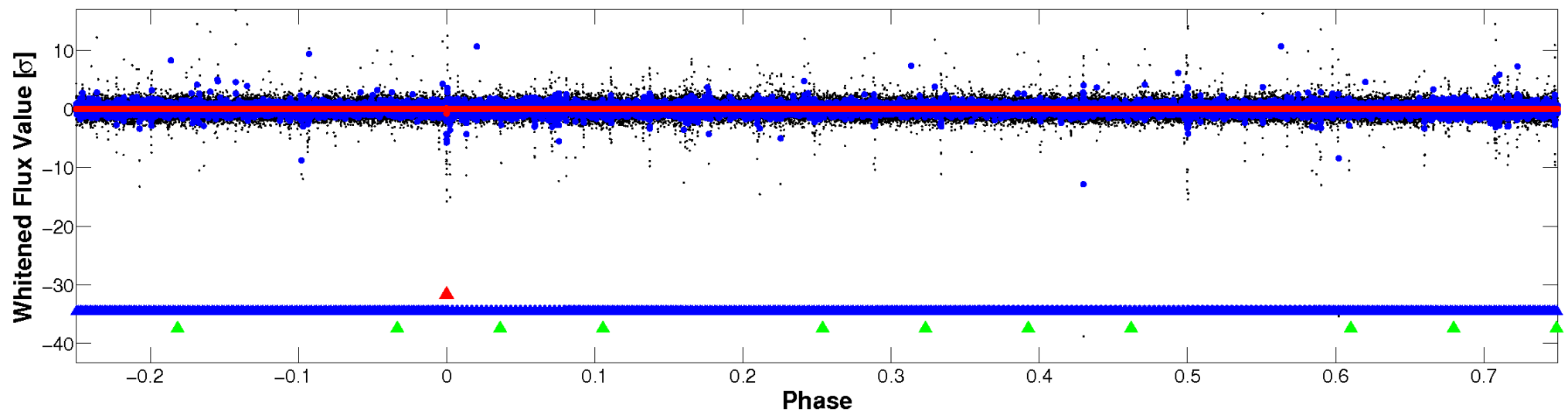


# Non-Whitened Vs. Whitened Light Curve

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



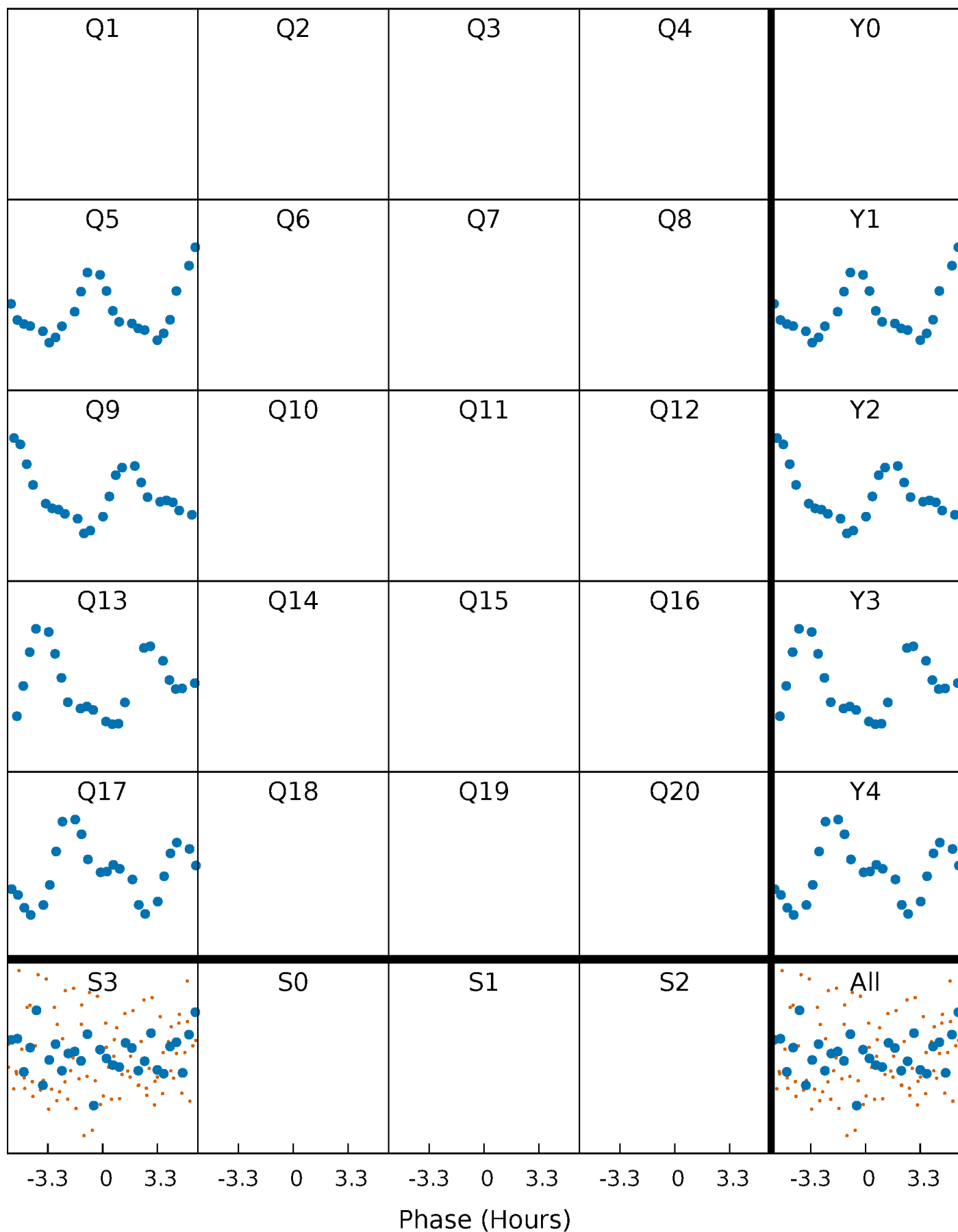
Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

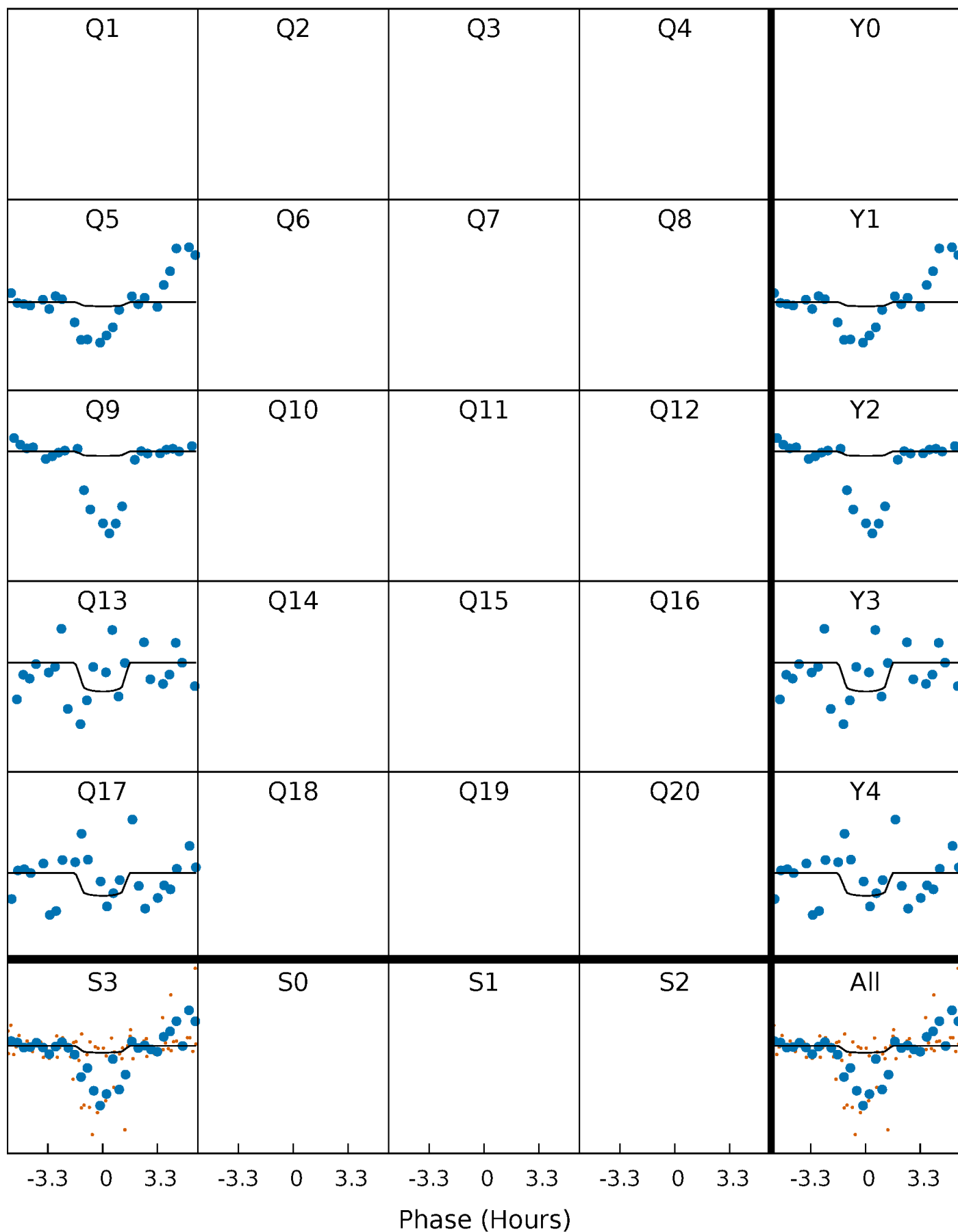
TCE 005450881-01 P=372.068149 Days  $T_0=473.909155$  (BKJD)





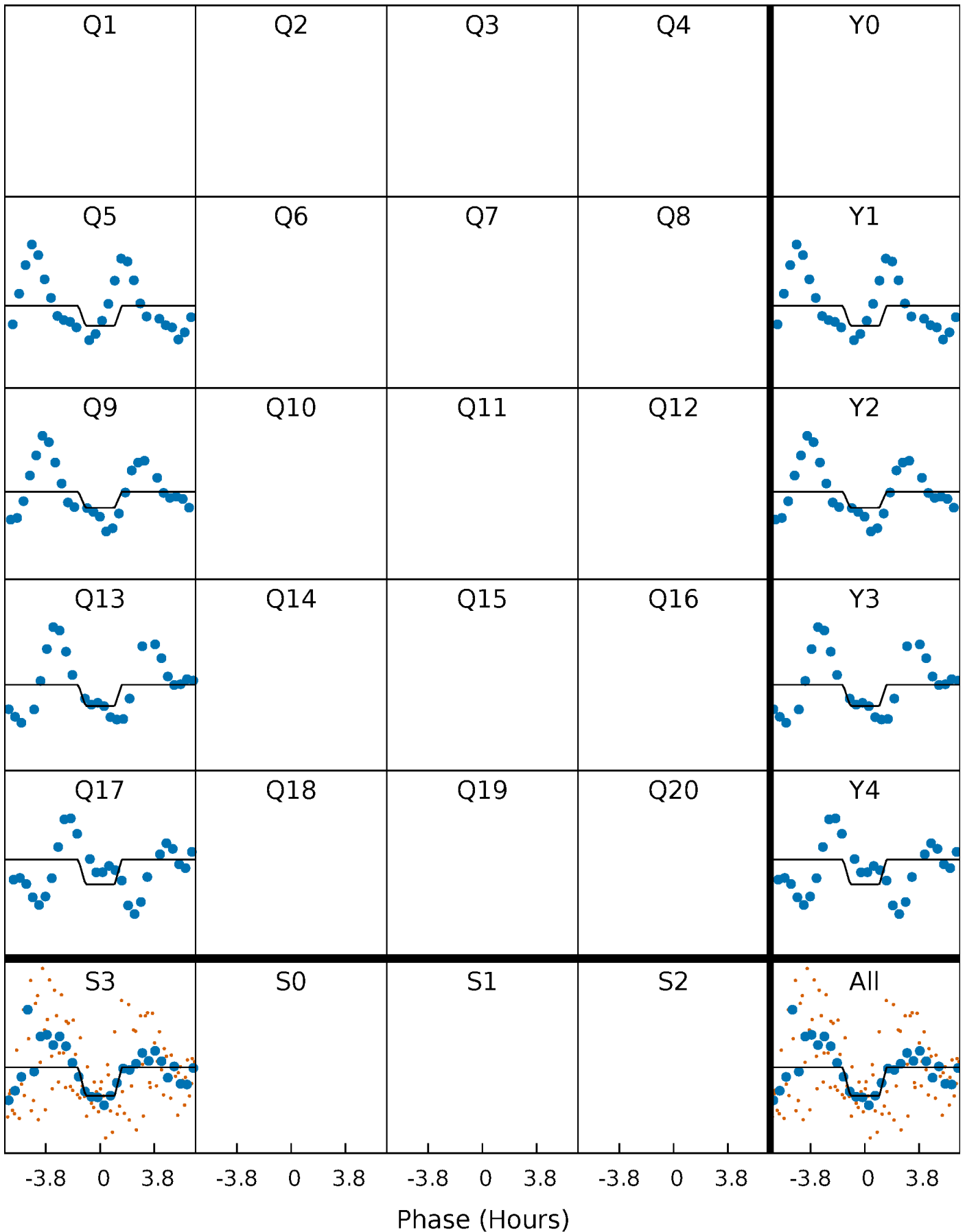
# DV Quarter-Phased Transit Curves

TCE 005450881-01     $P=372.068149$  Days     $T_0=473.909155$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

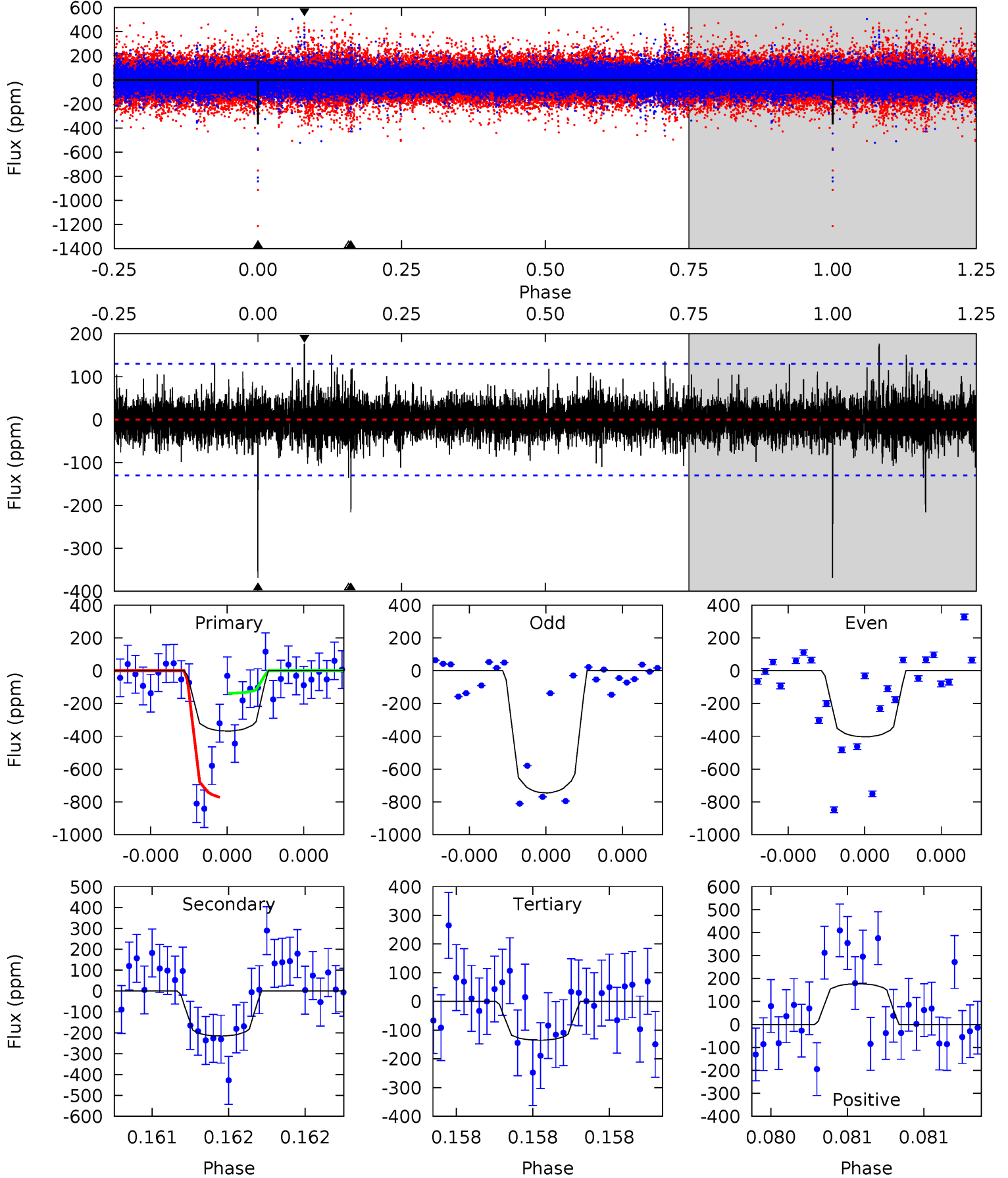
TCE 005450881-01   P=372.101939 Days    $T_0=473.813151$  (BKJD)



# DV Model-Shift Uniqueness Test

005450881-01, P = 372.068149 Days, E = 101.841006 Days

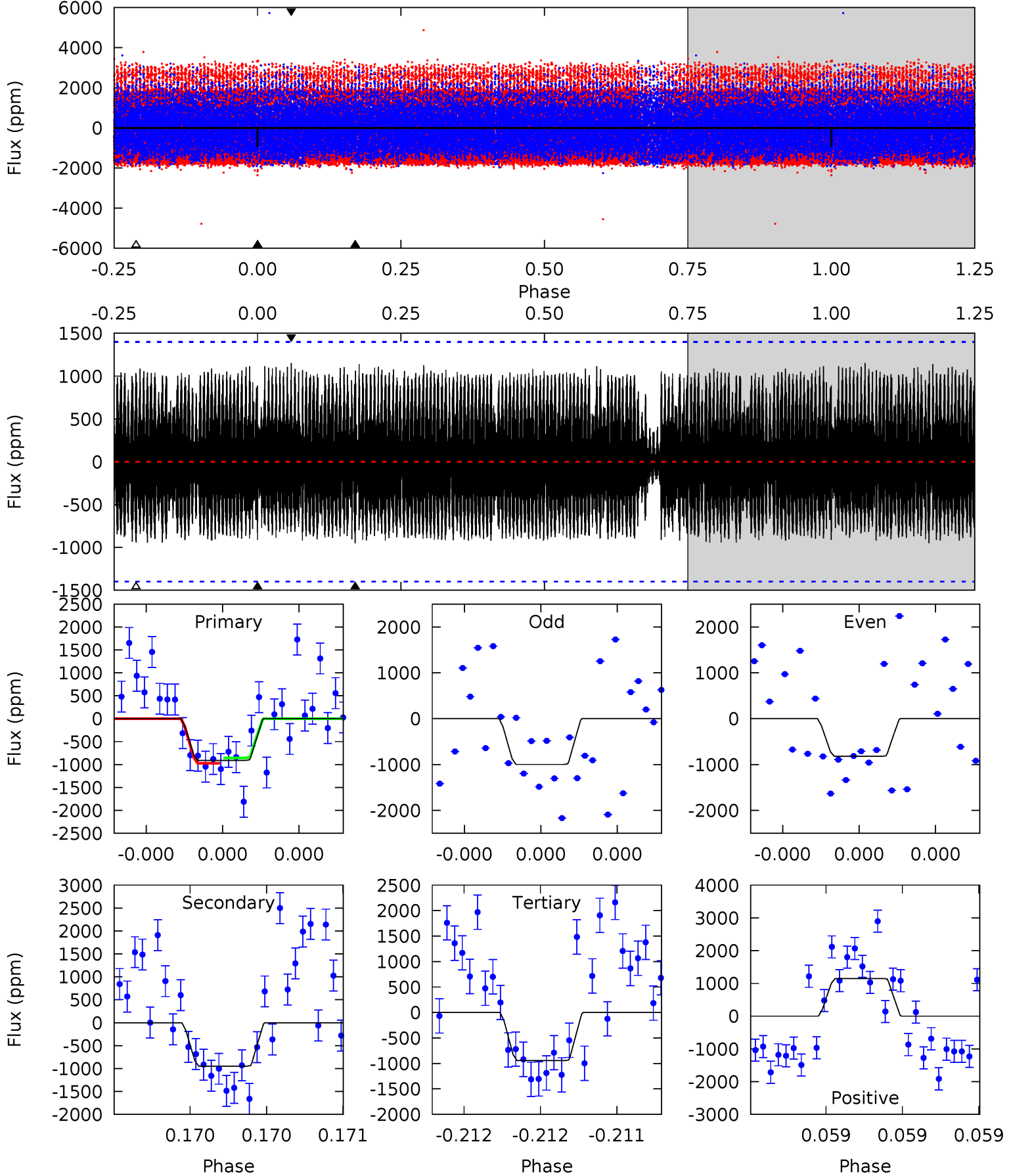
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	9.34	5.85	7.67	5.64	3.58	1.18	10.1	8.28	3.49	1.67	7.91	1.43	0.32	0



# Alt Model-Shift Uniqueness Test

005450881-01, P = 372.101939 Days, E = 101.711212 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
3.67	3.83	3.81	4.65	5.65	3.60	1.81	-0.13	-0.97	0.02	-0.82	0.36	1.10	0.55	0.24



### Stellar Parameters For KIC 005450881

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$10402^{+286}_{-429}$	$4.154^{+0.200}_{-0.200}$	$0.070^{+0.150}_{-0.600}$	$2.210^{+0.794}_{-0.650}$	$2.539^{+0.336}_{-0.577}$	$0.332^{+0.412}_{-0.186}$
	+3%/-4%	+5%/-5%	+214%/-857%	+36%/-29%	+13%/-23%	+124%/-56%
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 005450881-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-216 \pm 23$	$2.60^{+2.33}_{-1.63}$	$804^{+73}_{-73}$	$12667^{+26053}_{-4369}$	$31944^{+202498}_{-22756}$
Alt.	$-948 \pm 248$	$7.36^{+2.80}_{-2.29}$	$810^{+68}_{-65}$	$10223^{+3459}_{-2007}$	$17098^{+21860}_{-8216}$

$T_{\text{max}}$  = 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

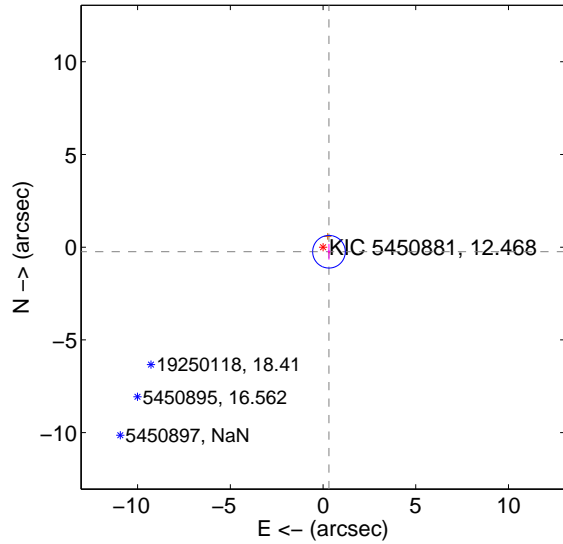
Supplemental centroid analysis for 005450881-01. Kepler magnitude: 12.47. Transit SNR 2.26

There are 0 quarters with good PRF difference image offsets

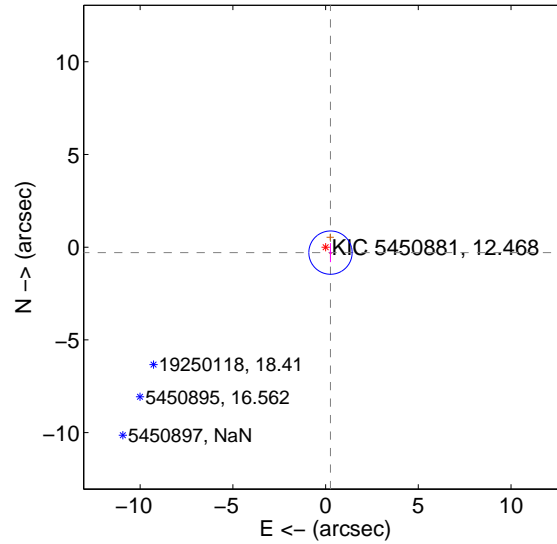
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.404 \pm 0.293$	1.38	$-0.320 \pm 0.076$	$-0.246 \pm 0.425$
PRF-fit source offset from KIC position	$0.395 \pm 0.389$	1.02	$-0.264 \pm 0.067$	$-0.294 \pm 0.512$
photometric centroid source offset	$2.31 \pm 2.86$	0.81	$0.19 \pm 2.43$	$2.30 \pm 2.86$

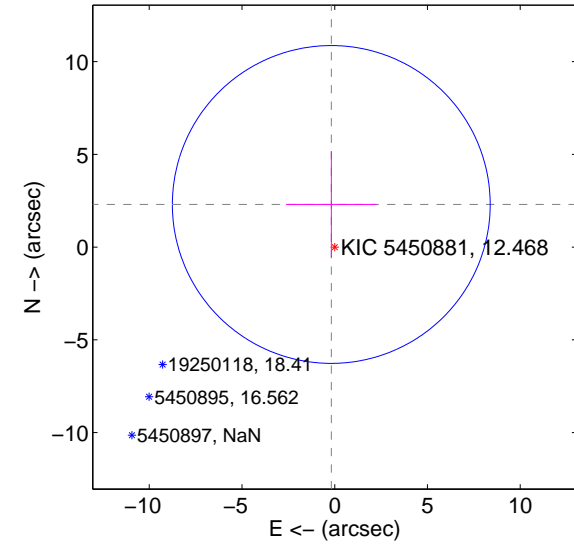
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



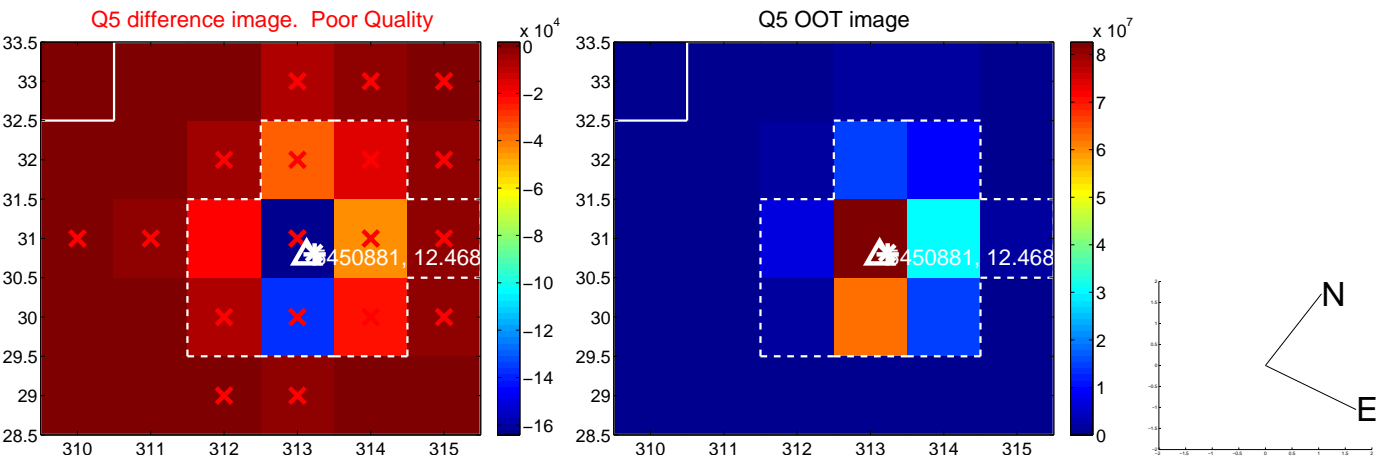
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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





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



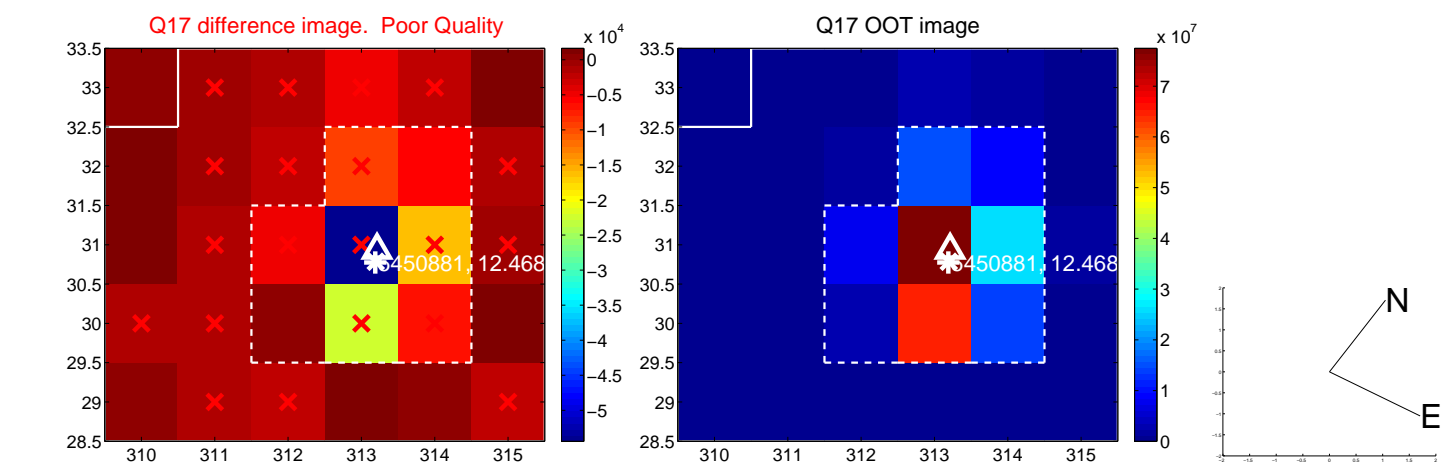
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



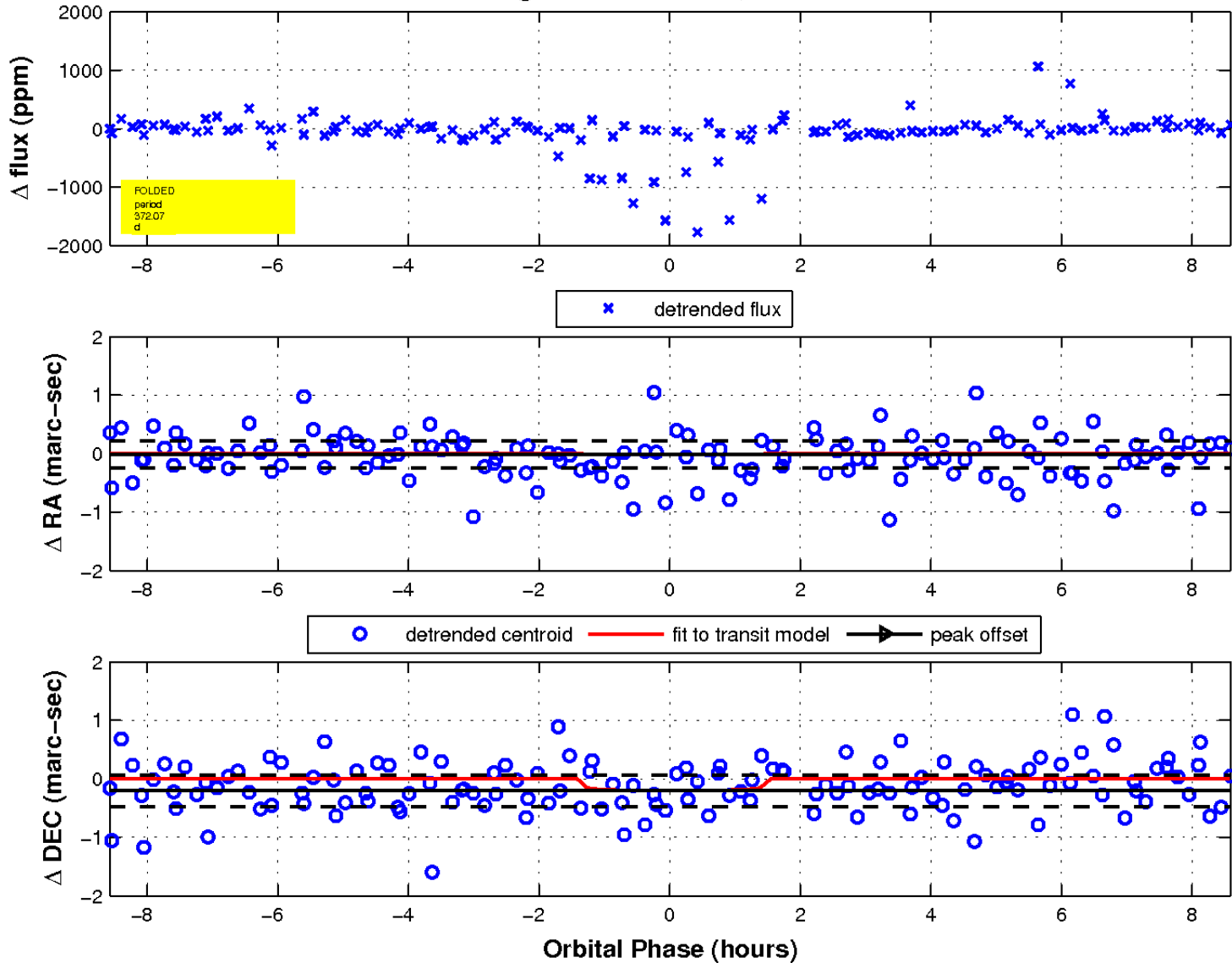
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

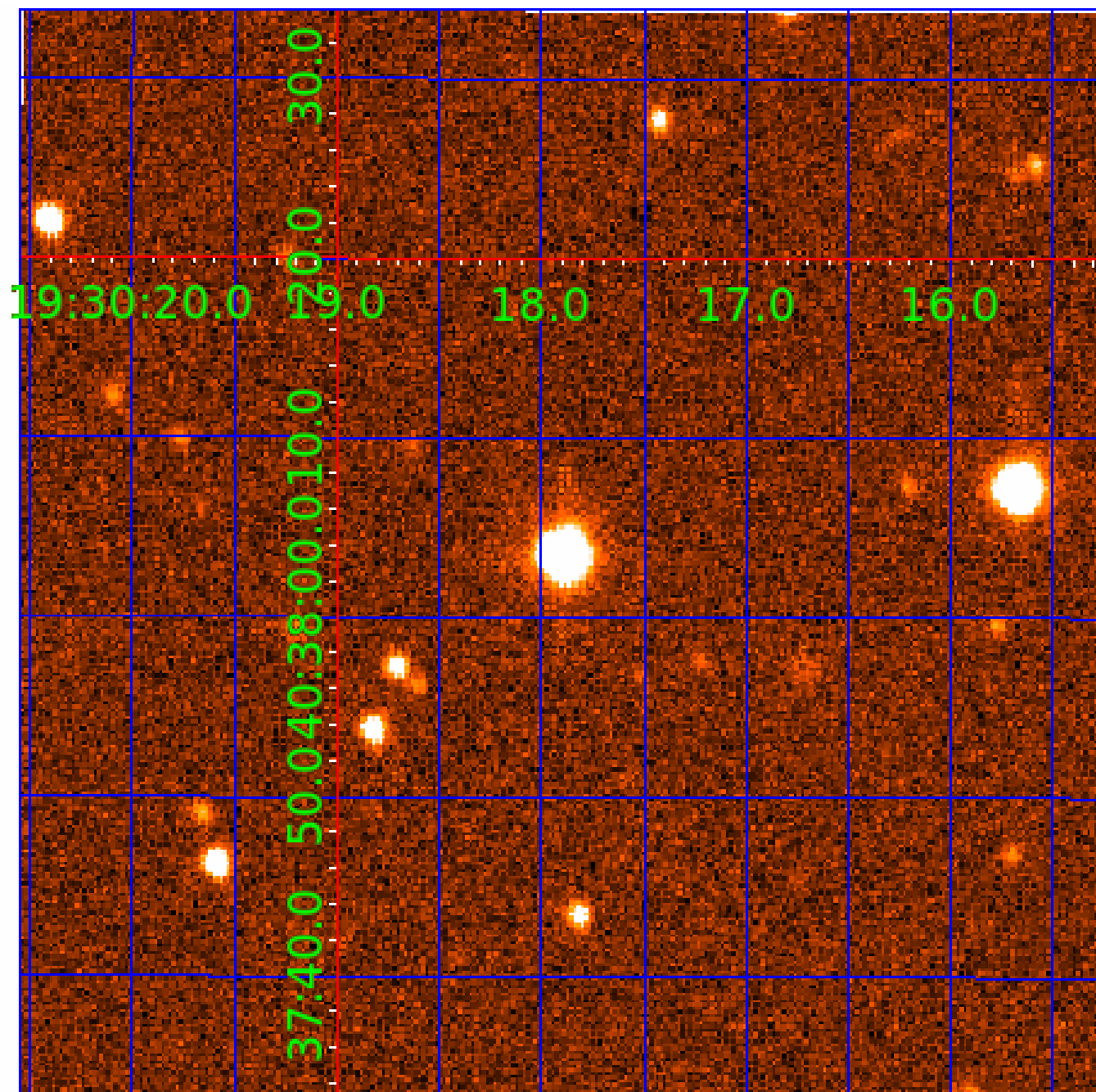


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



# KIC 005450881

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005450881-01	OBS	No	372.068149	473.909155	93.7	2.871	17.7	2.3	2.21	10402	2.29	26.84
005450881-02	OBS	No	1.223176	131.843372	6.9	6.172	11.4	6.6	2.21	10402	0.67	54908.31
005450881-03	OBS	No	132.630028	196.273501	46.6	9.571	9.4	3.0	2.21	10402	1.58	106.19

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005450881-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005450881-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005450881-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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

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

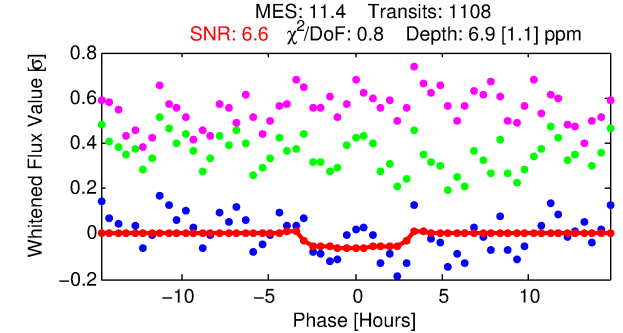
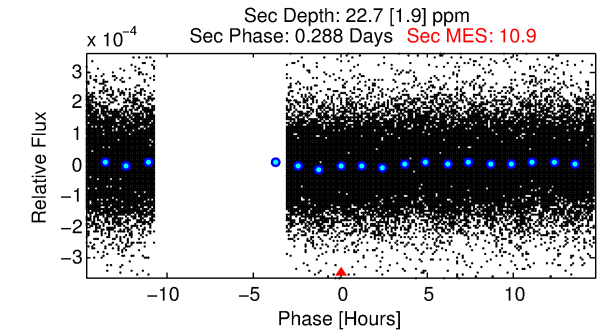
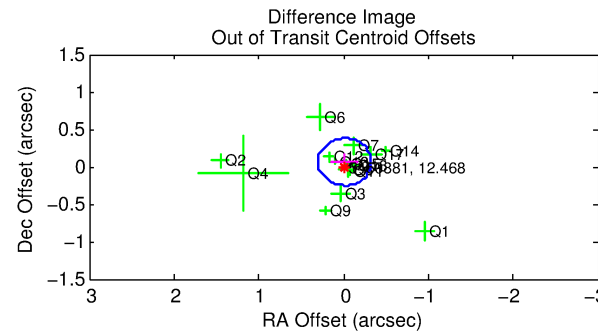
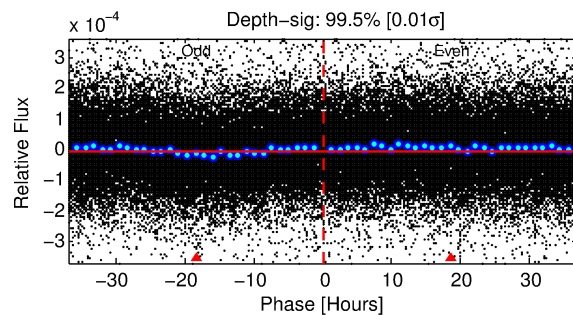
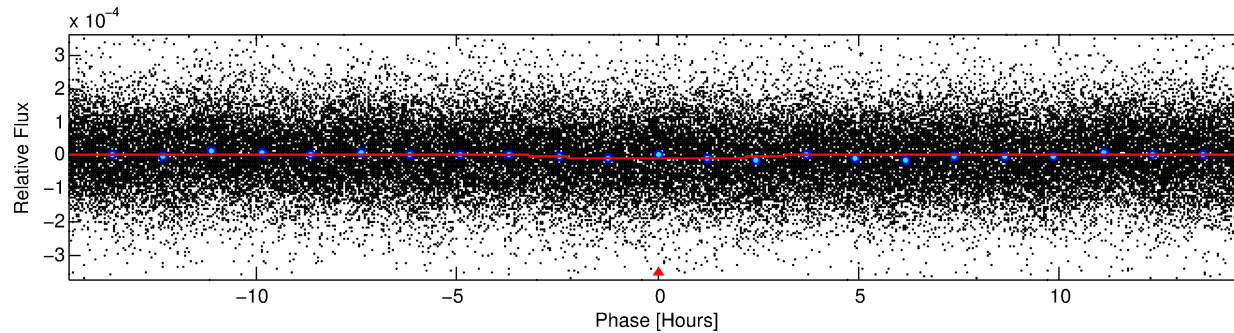
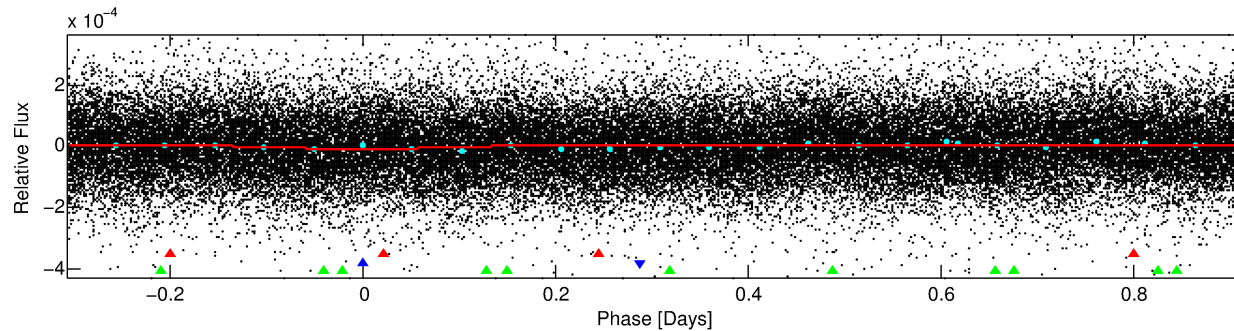
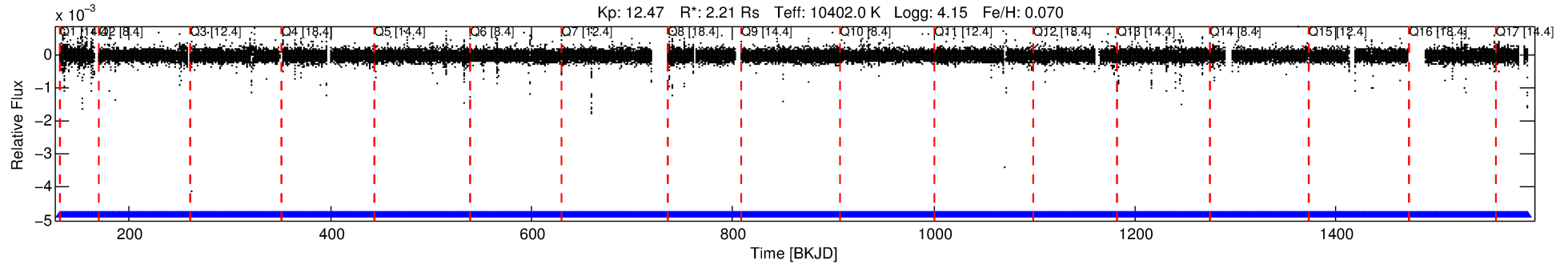
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005450881-02

No Significant Match Found

# DV One-Page Summary

KIC: 5450881 Candidate: 2 of 3 Period: 1.223 d



## DV Fit Results:

Period = 1.22318 [0.00002] d  
Epoch = 131.8434 [0.0077] BKJD  
Rp/R\* = 0.0028 [0.0008]  
a/R\* = 1.15 [0.66]  
b = 0.90 [0.49]  
Seff = 54908.31 [23220.38]  
Teq = 3903 [413] K  
Rp = 0.67 [0.30] Re  
a = 0.0305 [0.0087] AU  
Ag = 26.21 [18.15] [1.39 $\sigma$ ]  
Teffp = 13655 [2034] K [4.70 $\sigma$ ]

## DV Diagnostic Results:

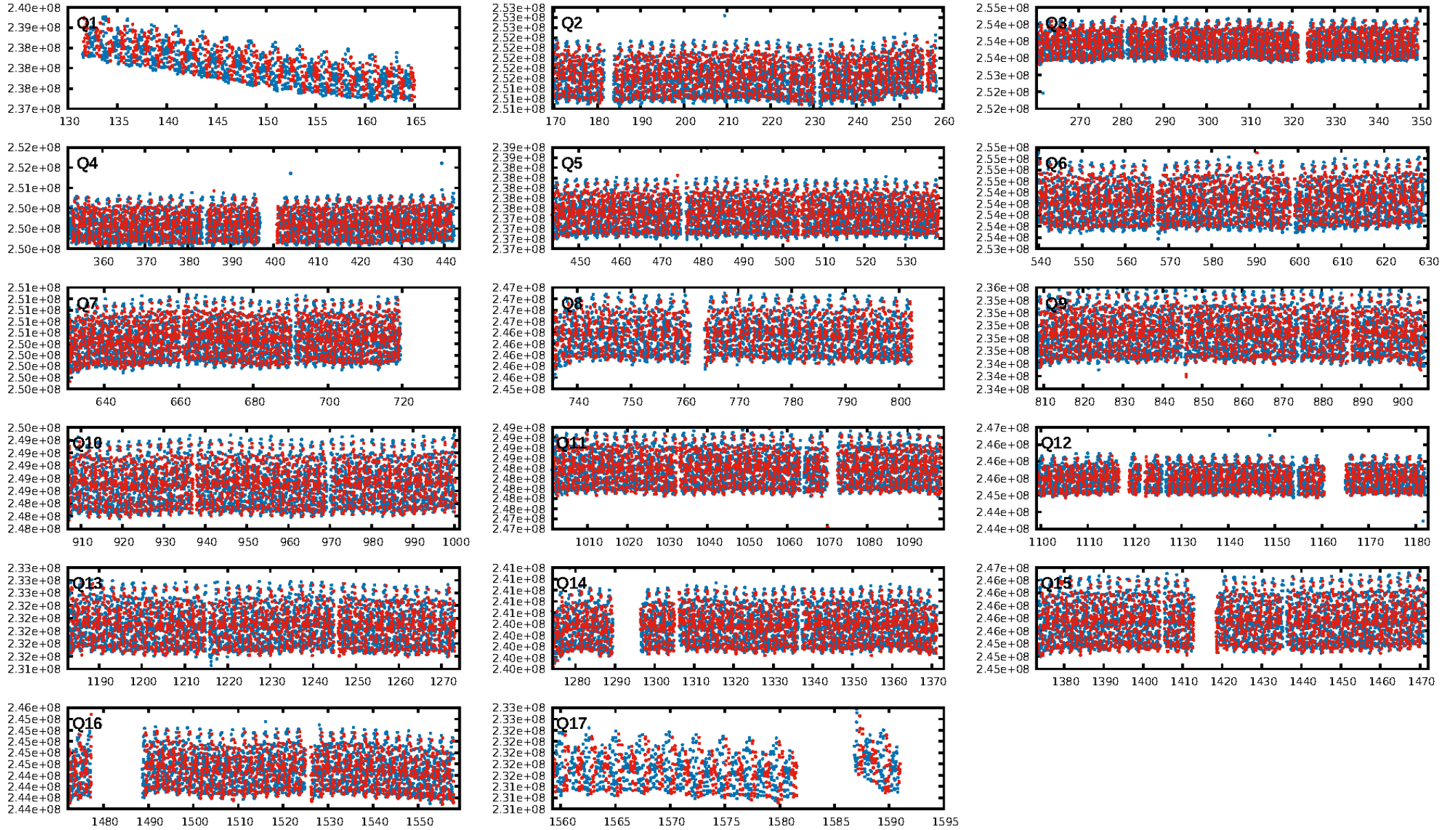
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [276.93 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.38e-17  
RollingBand-fgt: 1.00 [1057/1057]  
GhostDiagnostic-chr: 0.864  
Centroid-sig: 0.1%  
Centroid-so: 4.115 arcsec [2.72 $\sigma$ ]  
OotOffset-rm: 0.064 arcsec [0.61 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-rm: 0.053 arcsec [0.45 $\sigma$ ]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.75 [12/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:34:20 Z

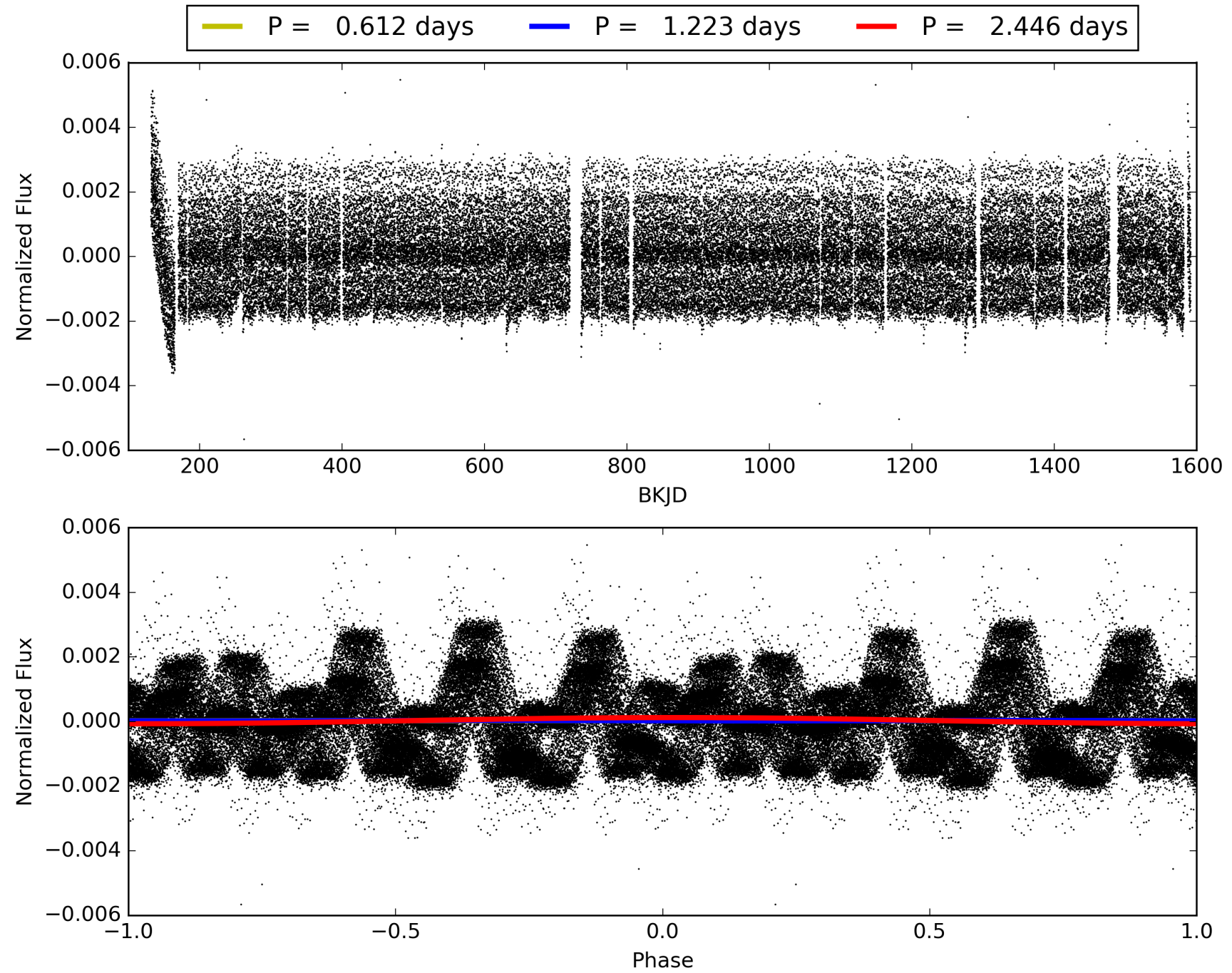
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 005450881-02, PDC Light Curves

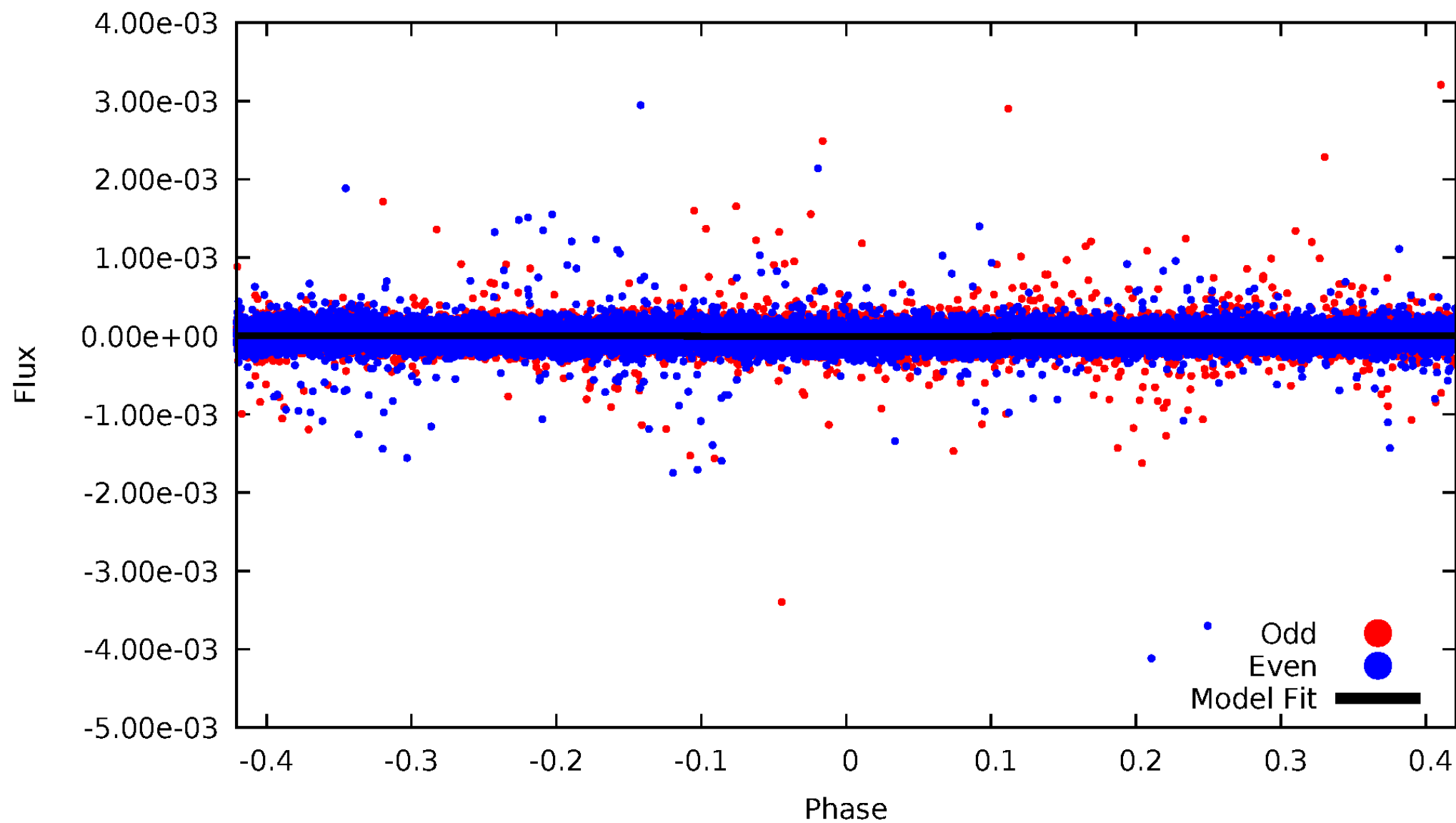


# TCE 005450881-02



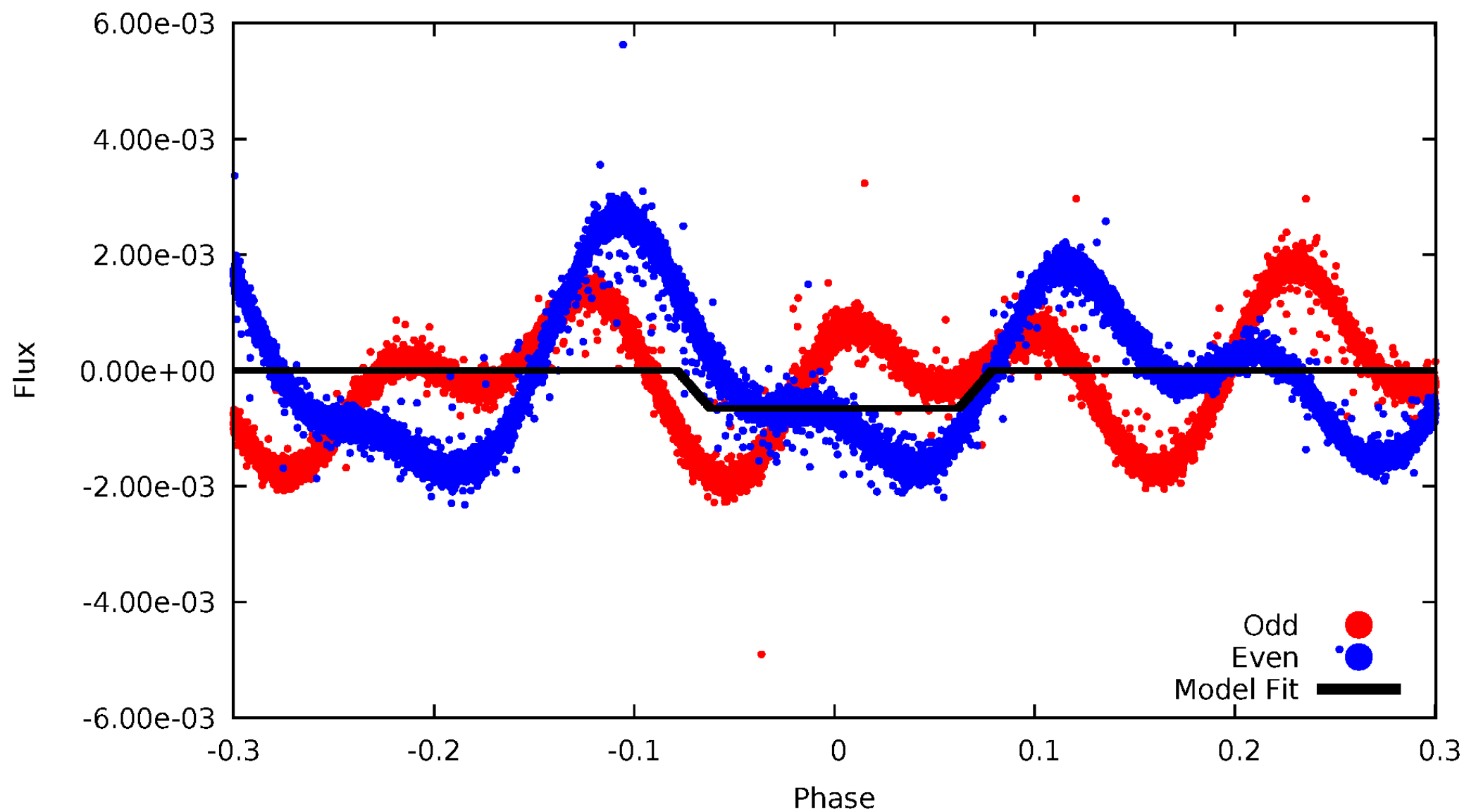
# DV Odd/Even

TCE 005450881-02



# ALT Odd/Even

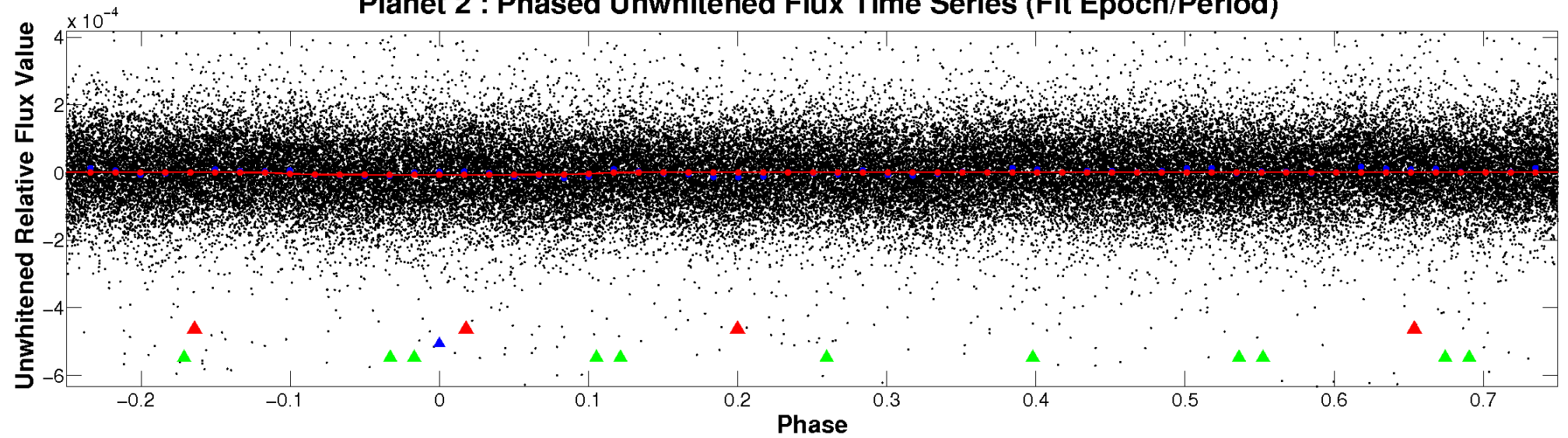
TCE 005450881-02



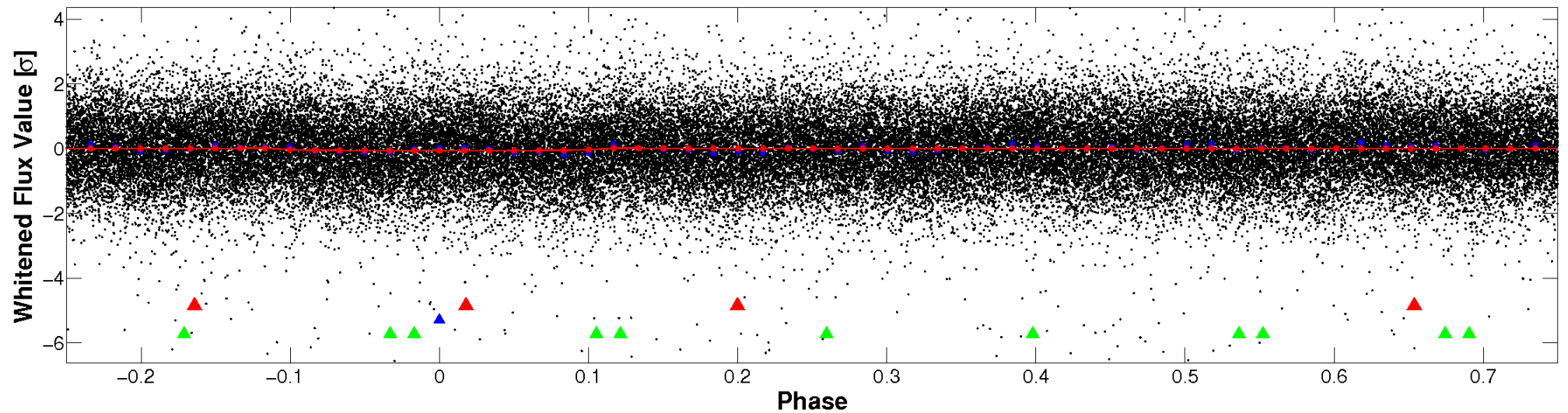


# Non-Whitened Vs. Whitened Light Curve

## 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

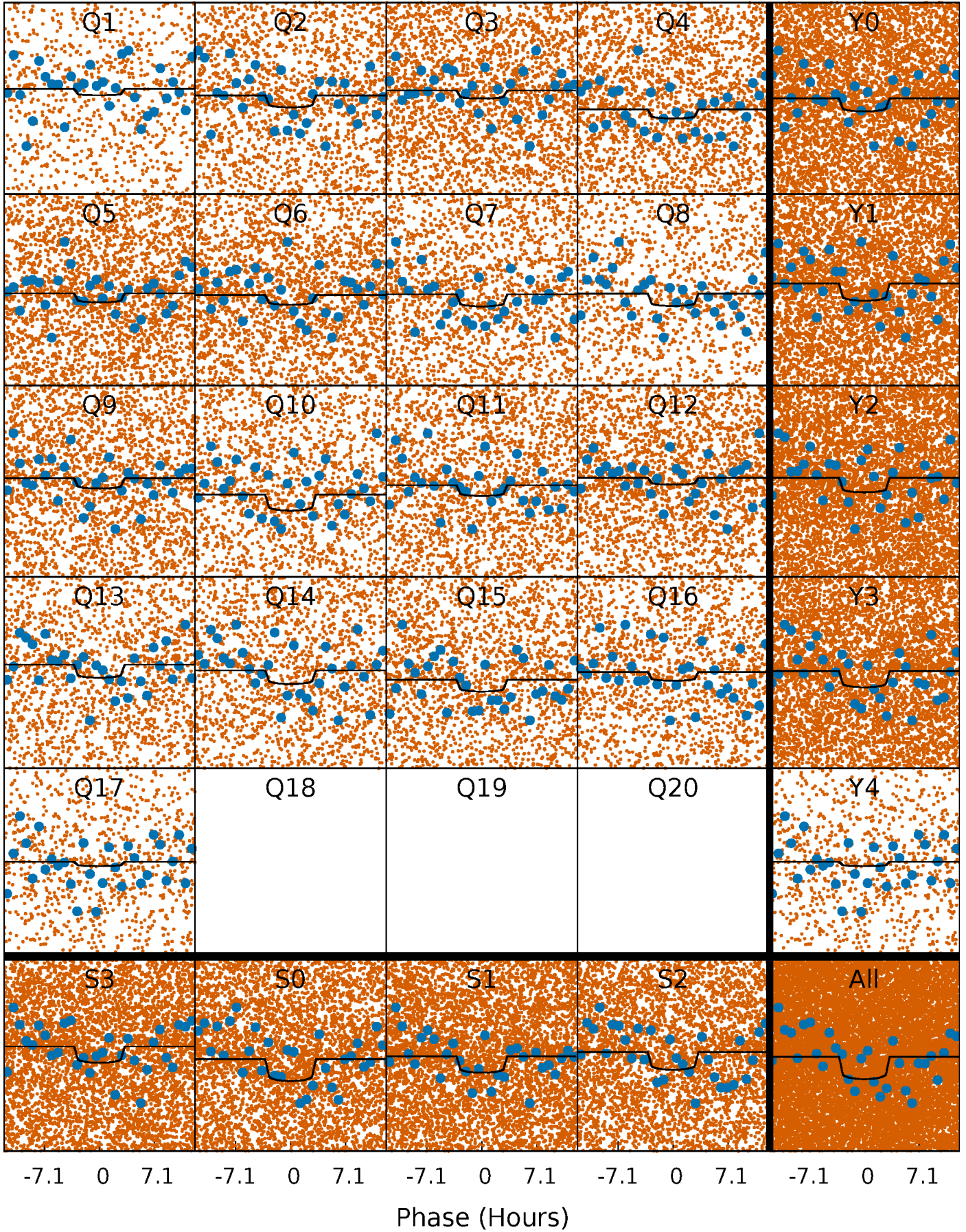
TCE 005450881-02   P= 1.223176 Days    $T_0=131.843372$  (BKJD)





# DV Quarter-Phased Transit Curves

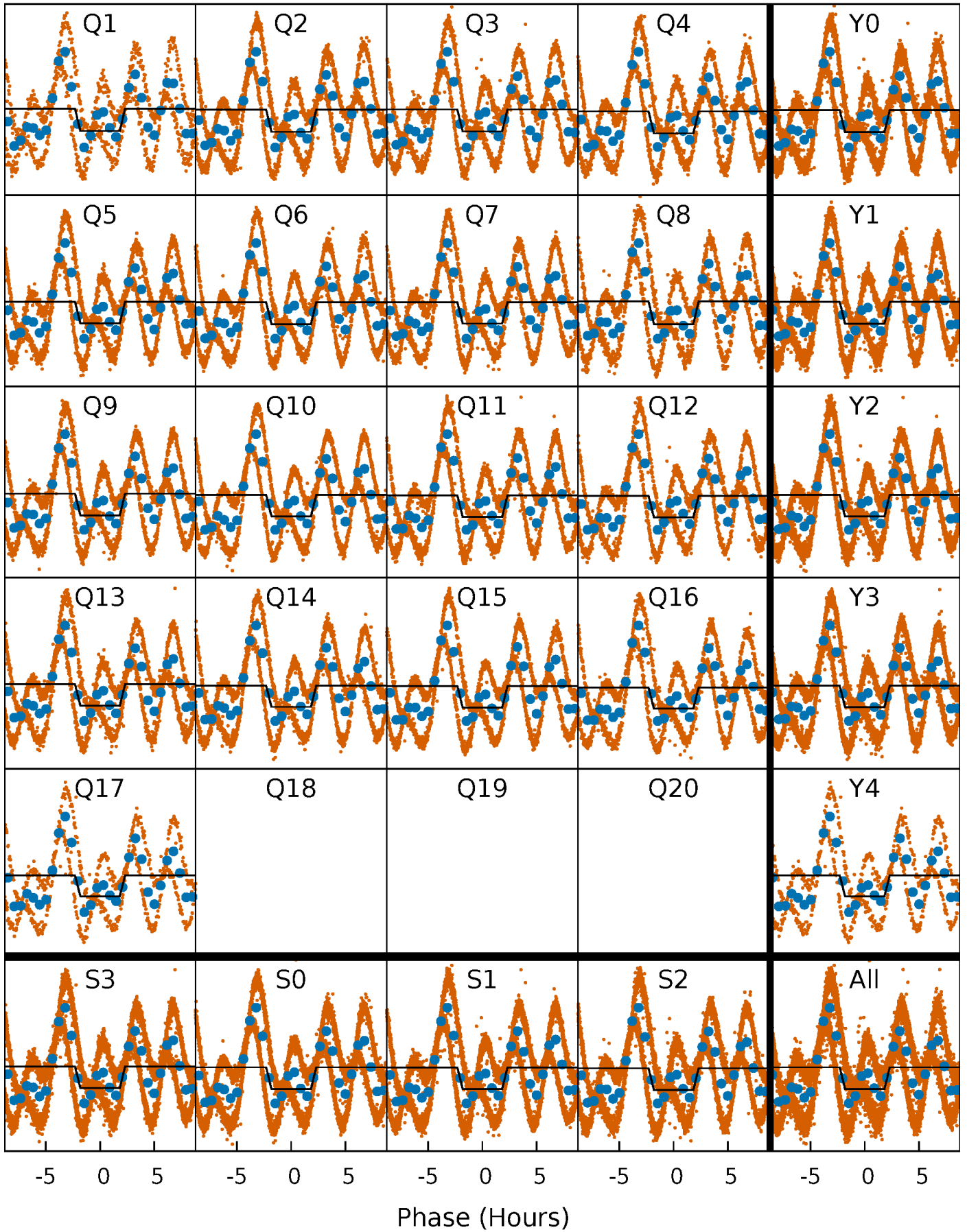
TCE 005450881-02 P= 1.223176 Days  $T_0=131.843372$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

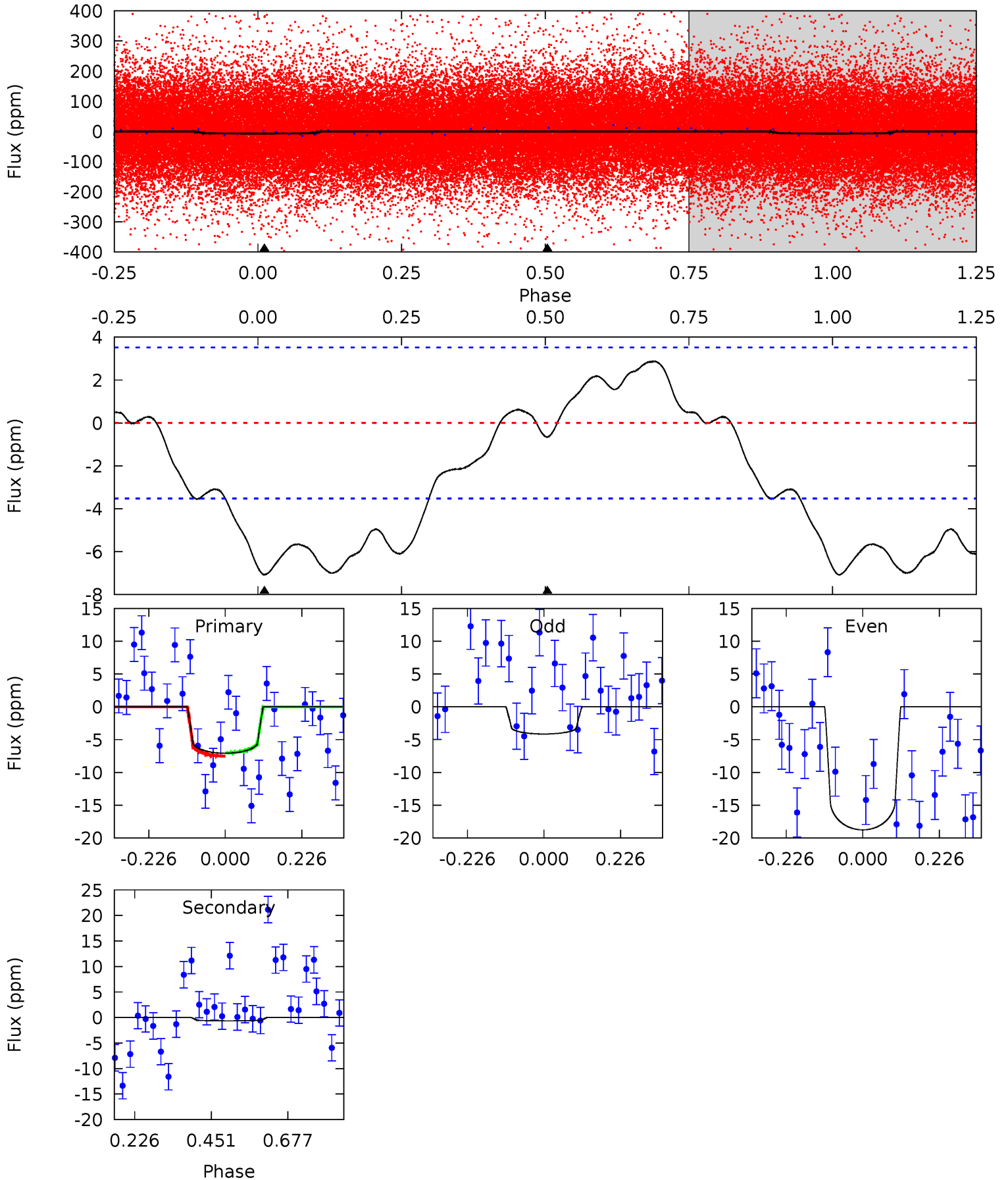
TCE 005450881-02   P= 1.223247 Days    $T_0=131.778451$  (BKJD)



# DV Model-Shift Uniqueness Test

005450881-02, P = 1.223176 Days, E = 130.620196 Days

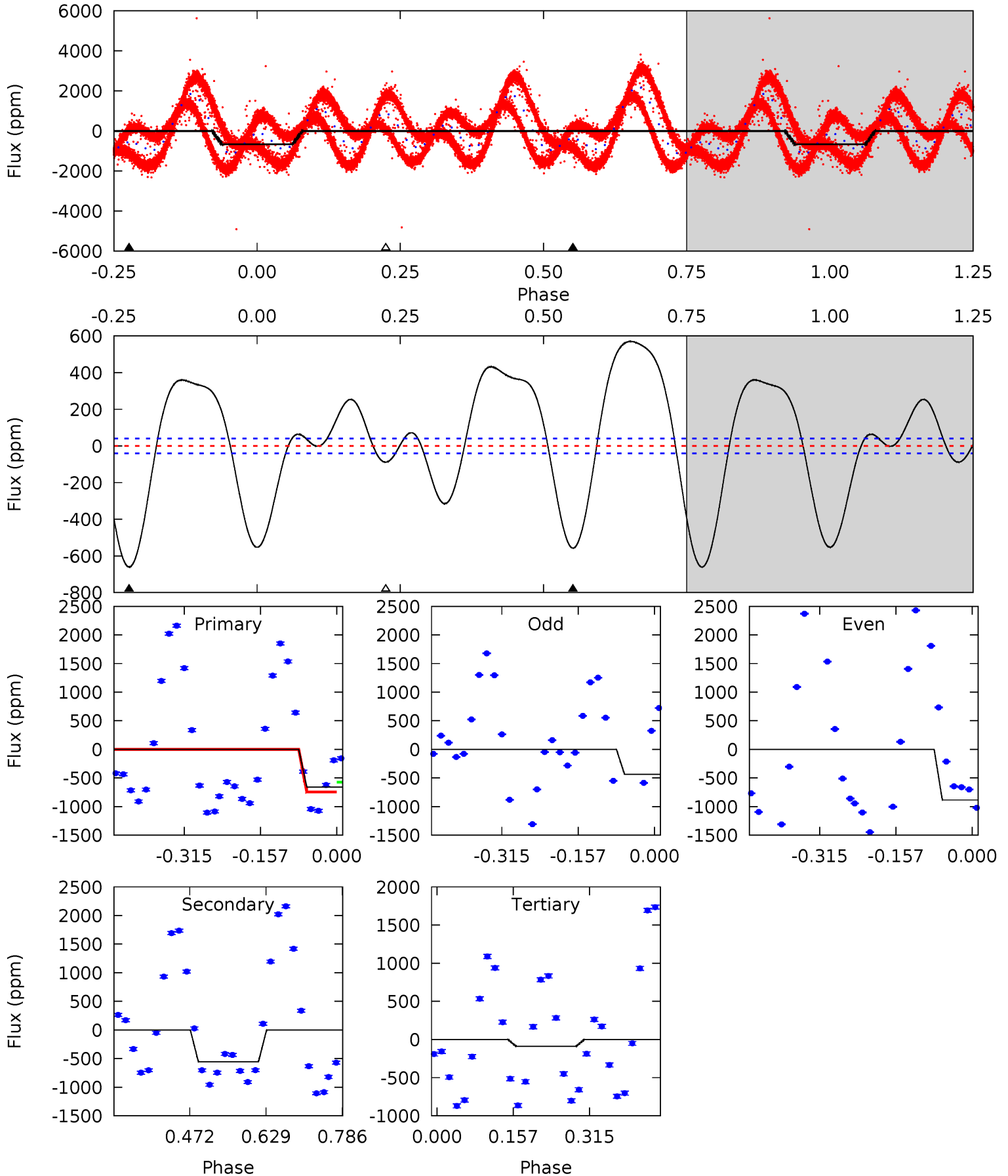
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.83	0.81	0	0	4.39	1.21	3.83	8.83	8.83	0.81	0.81	9.11	1.07	0.29	0.31



# Alt Model-Shift Uniqueness Test

005450881-02, P = 1.223247 Days, E = 130.555204 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
73.1	61.7	9.82	0	4.47	1.41	24.0	63.3	73.1	51.9	61.7	26.5	0.97	0.46	11.2



### Stellar Parameters For KIC 005450881

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$10402^{+286}_{-429}$	$4.154^{+0.200}_{-0.200}$	$0.070^{+0.150}_{-0.600}$	$2.210^{+0.794}_{-0.650}$	$2.539^{+0.336}_{-0.577}$	$0.332^{+0.412}_{-0.186}$
	+3%/-4%	+5%/-5%	+214%/-857%	+36%/-29%	+13%/-23%	+124%/-56%
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 005450881-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1 \pm 1$	$0.67^{+0.25}_{-0.22}$	$5473^{+488}_{-439}$	$4391^{+1863}_{-9108}$	$0.638^{+1.492}_{-0.837}$
Alt.	$-557 \pm 9$	$6.10^{+1.23}_{-0.94}$	$5447^{+452}_{-478}$	$9606^{+394}_{-426}$	$7.467^{+2.628}_{-2.082}$

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

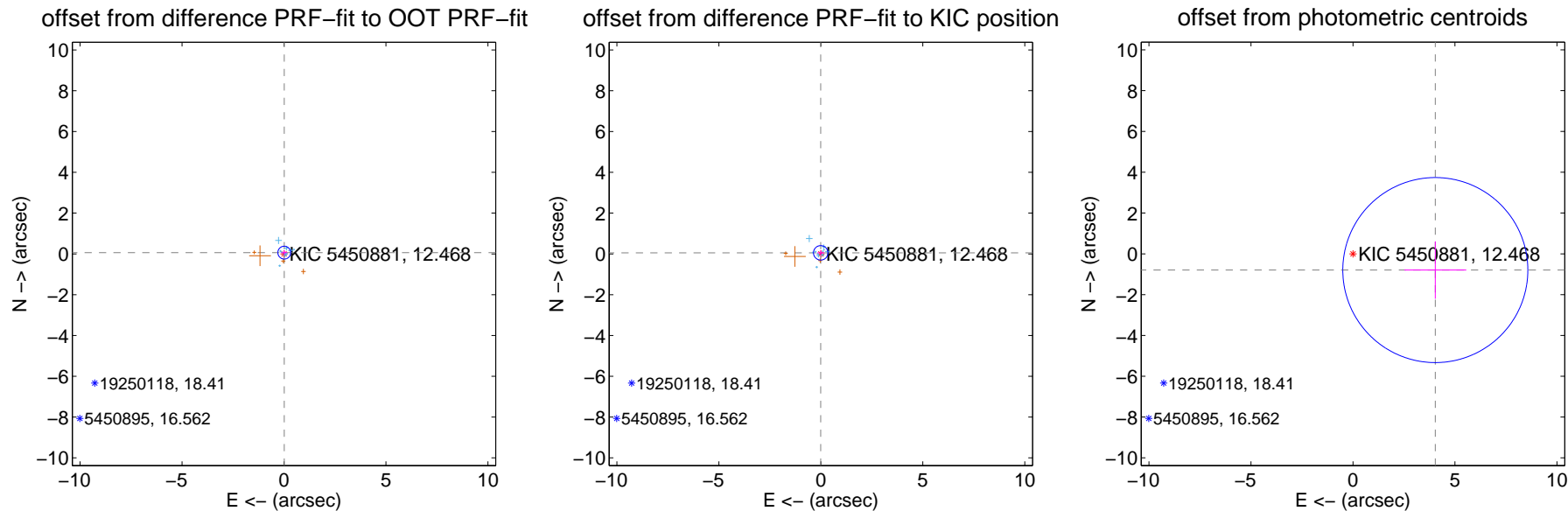
## DV Centroid Data

Supplemental centroid analysis for 005450881-02. Kepler magnitude: 12.47. Transit SNR 6.55

There are 12 quarters with good PRF difference image offsets

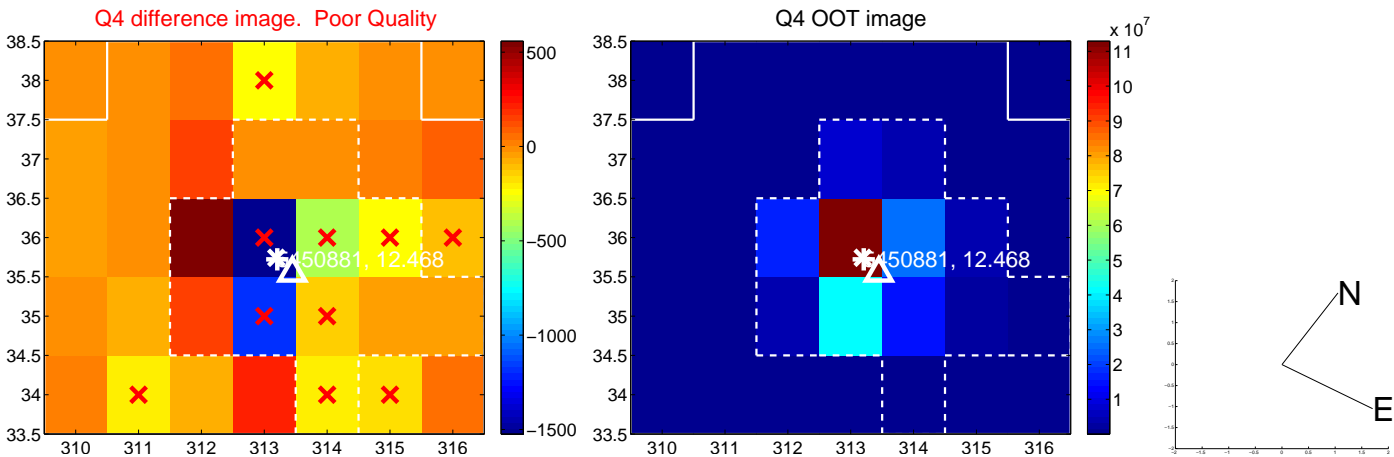
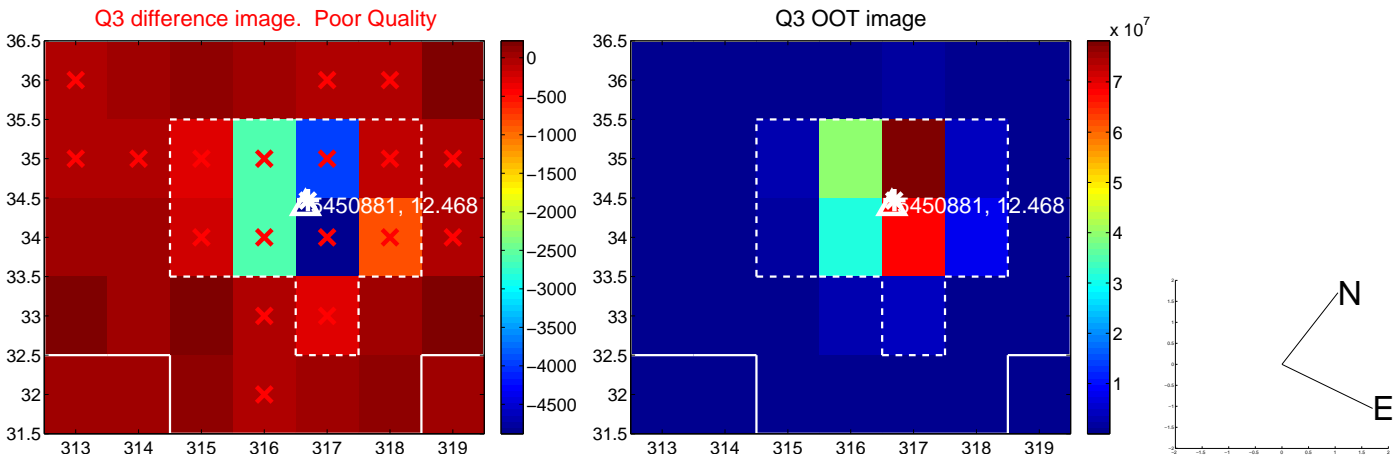
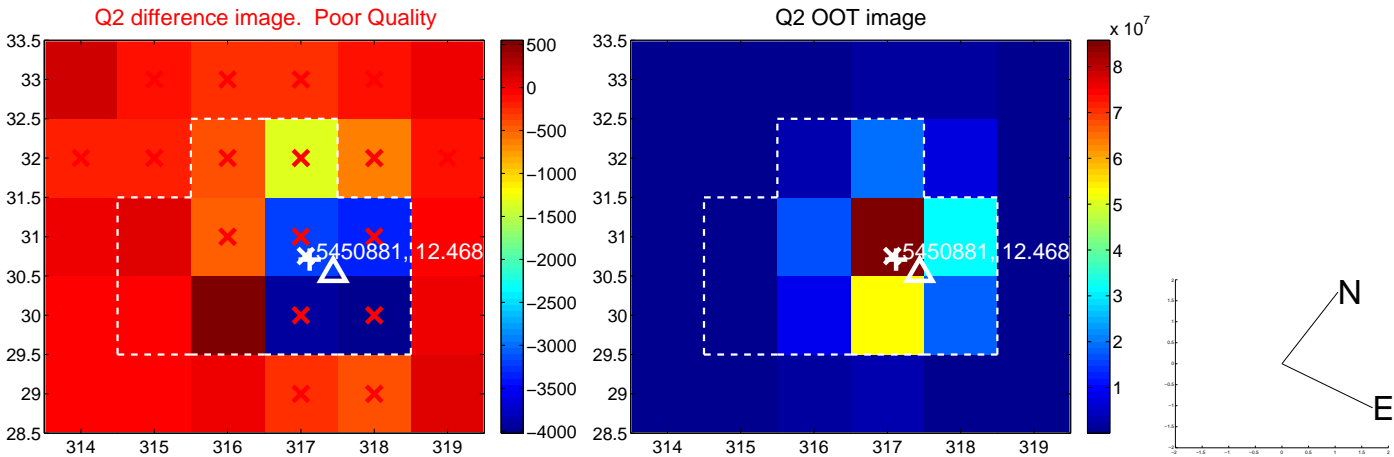
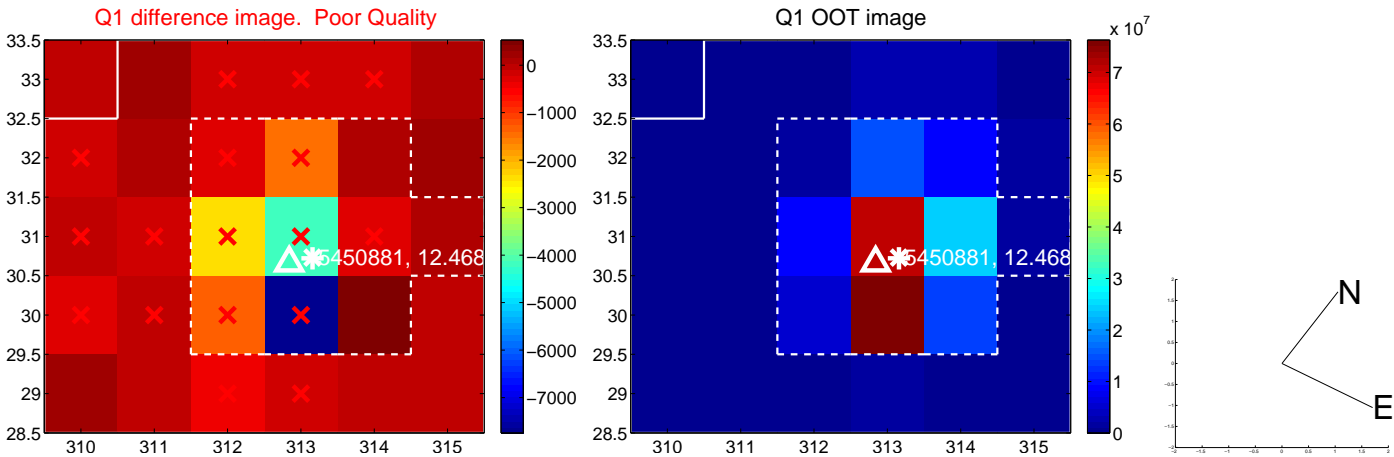
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.064 \pm 0.105$	0.61	$-0.013 \pm 0.148$	$0.063 \pm 0.106$
PRF-fit source offset from KIC position	$0.053 \pm 0.118$	0.45	$0.007 \pm 0.172$	$0.052 \pm 0.112$
photometric centroid source offset	$4.12 \pm 1.51$	2.72	$-4.04 \pm 1.52$	$-0.80 \pm 1.41$

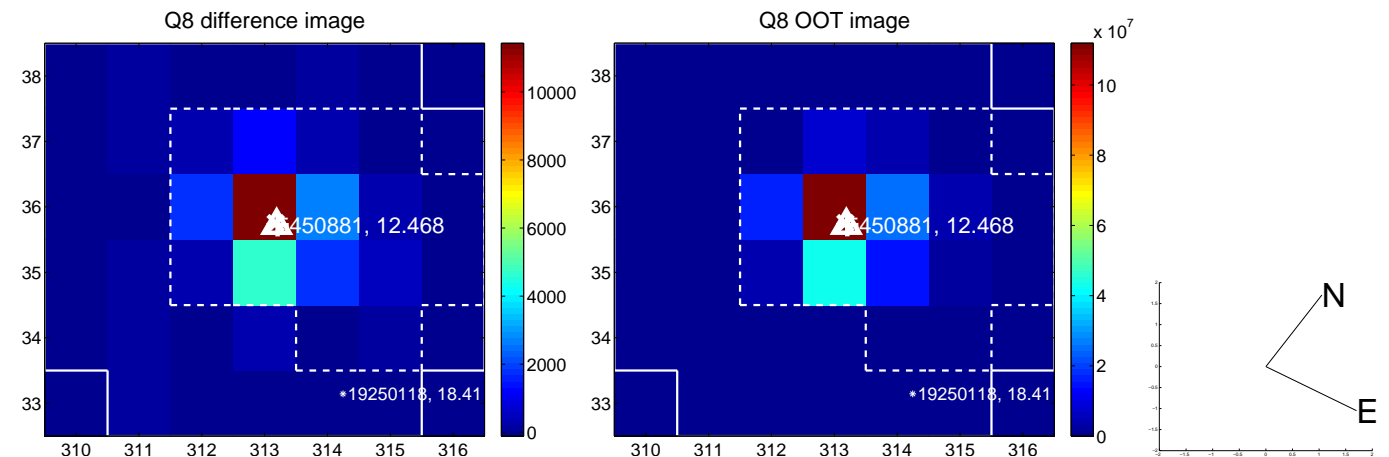
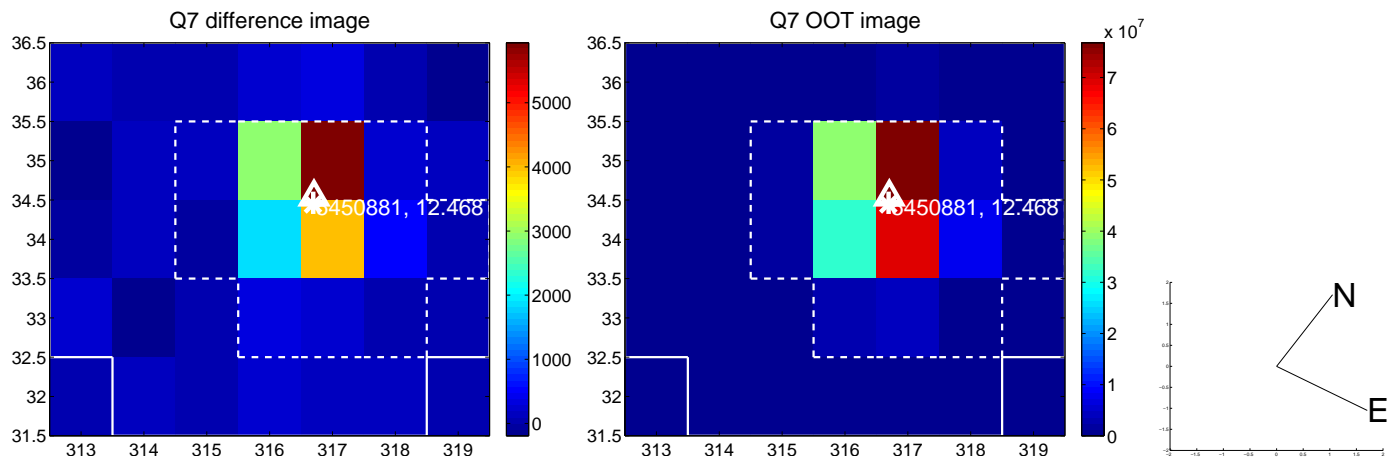
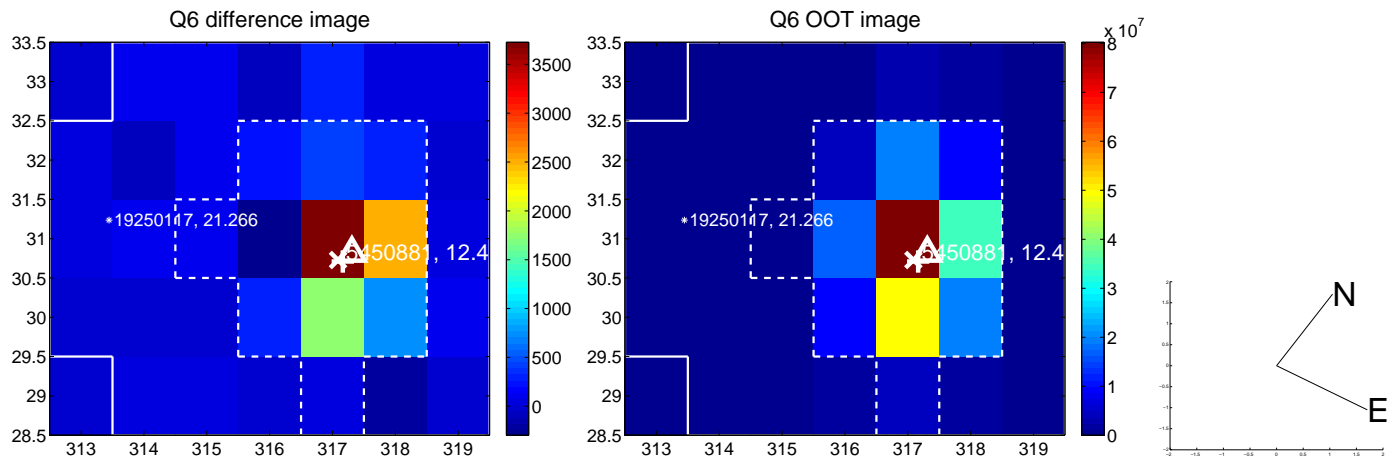
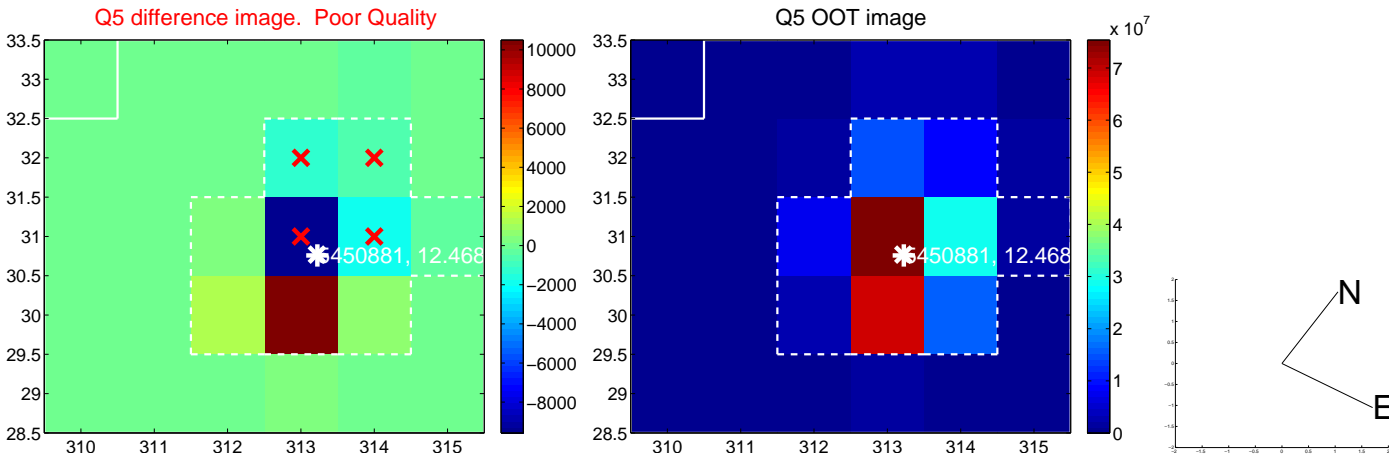


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

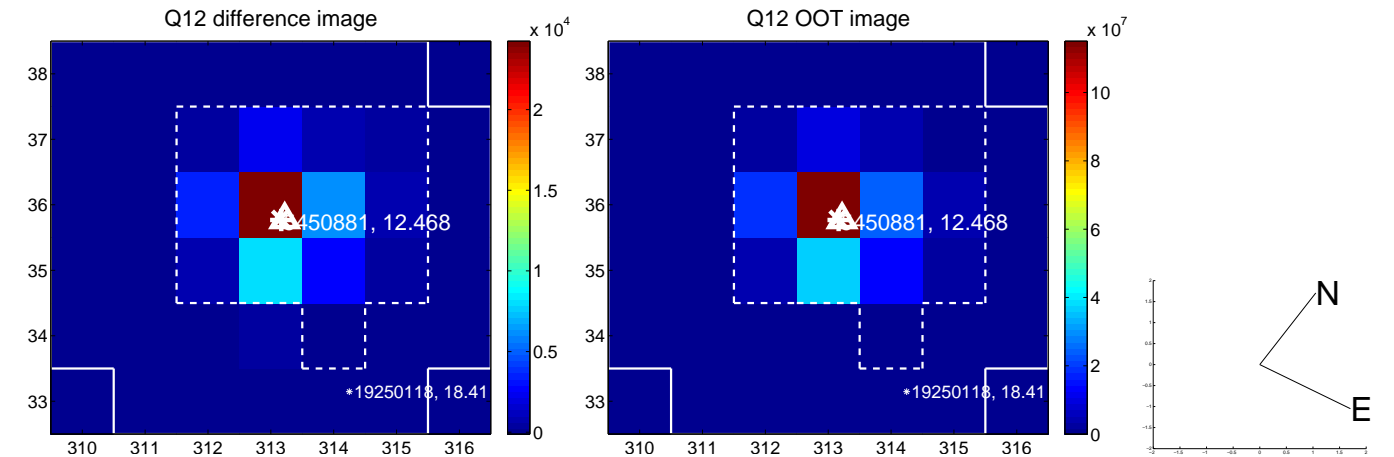
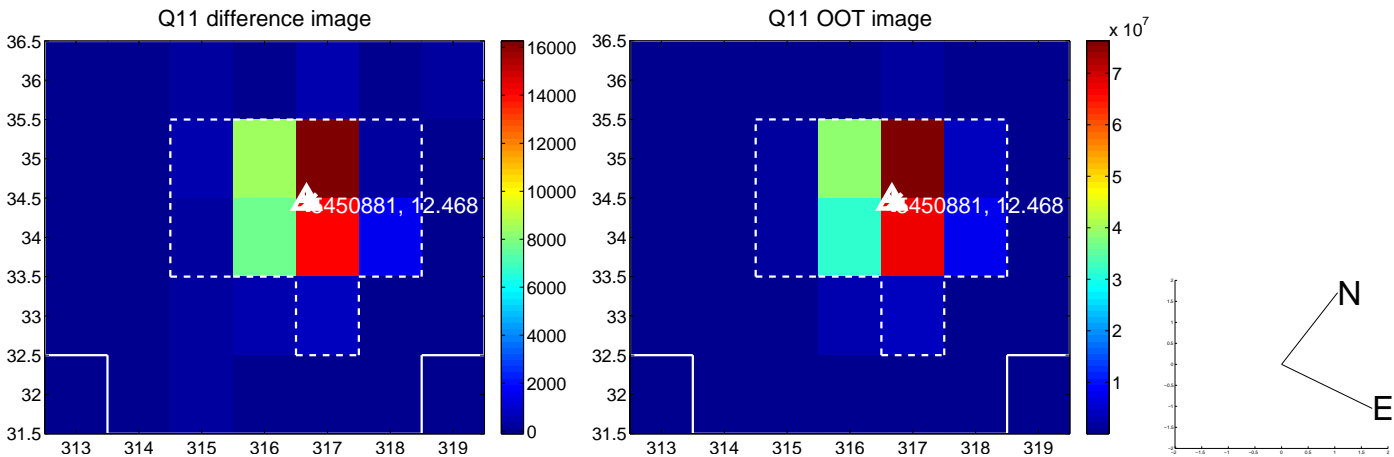
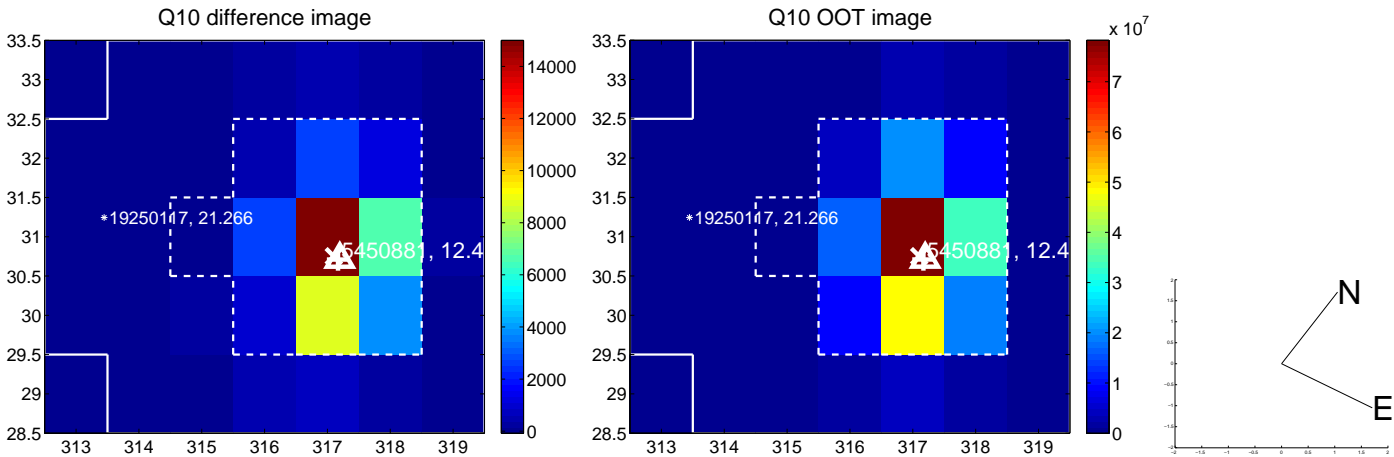
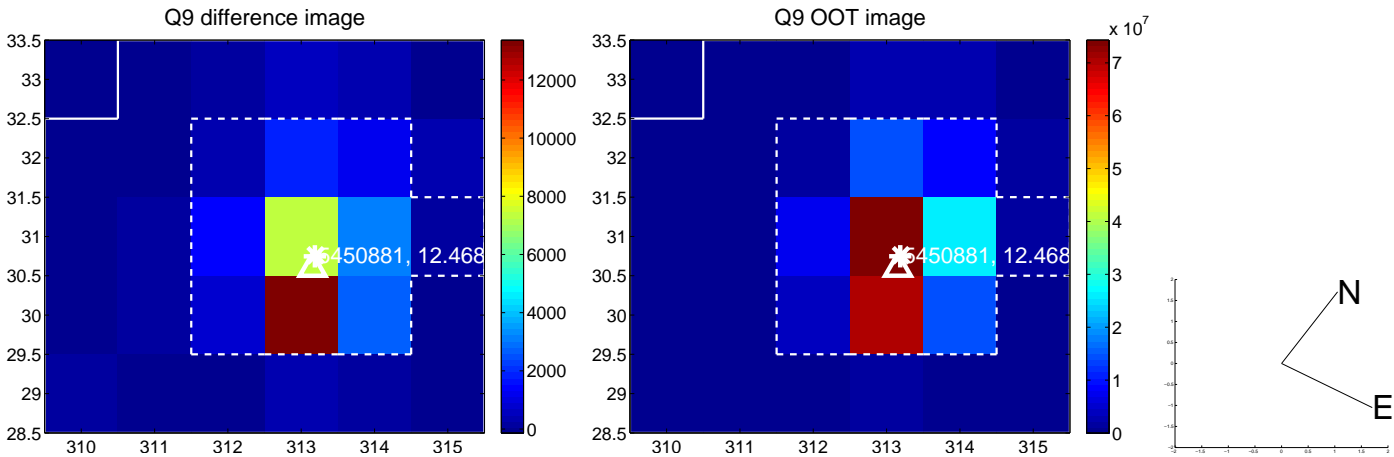


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

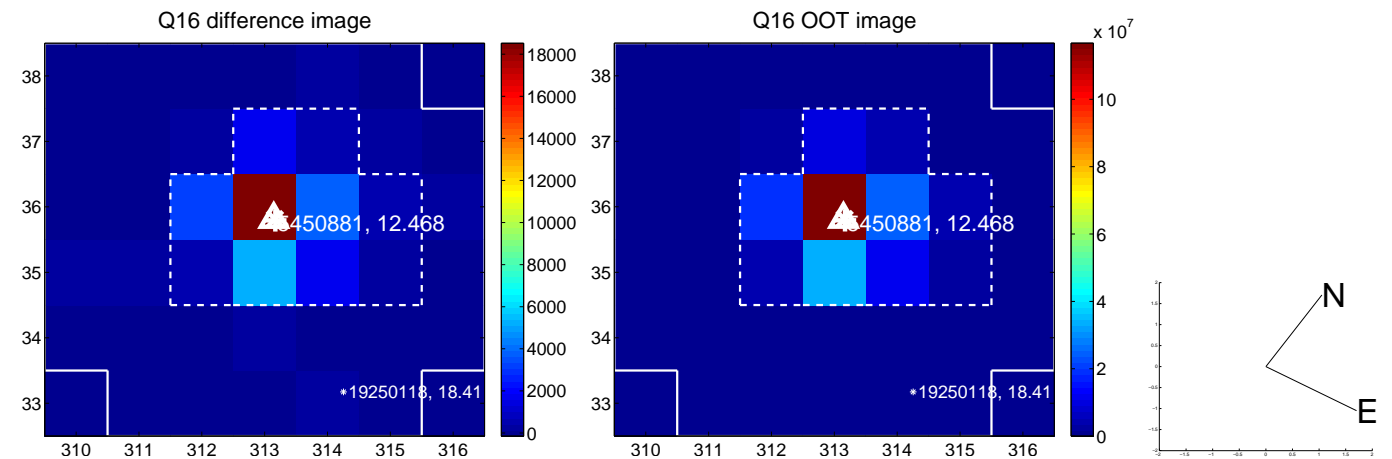
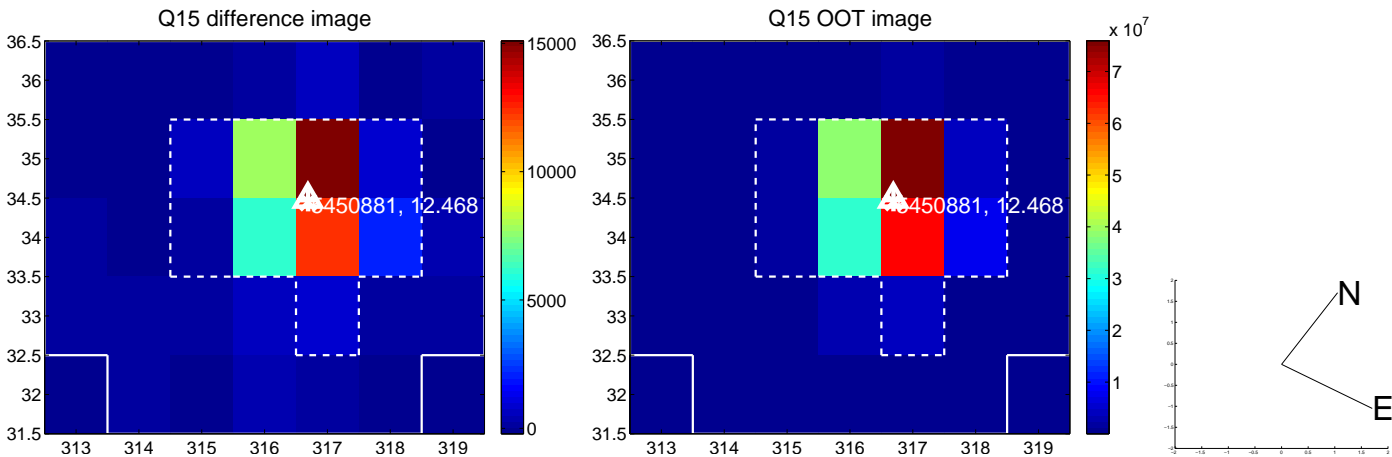
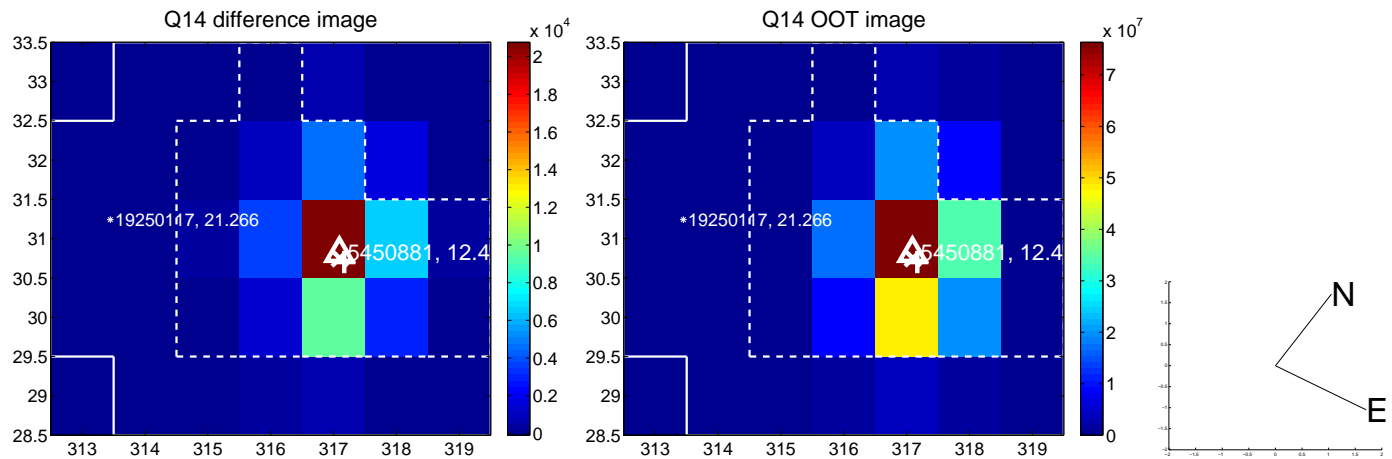
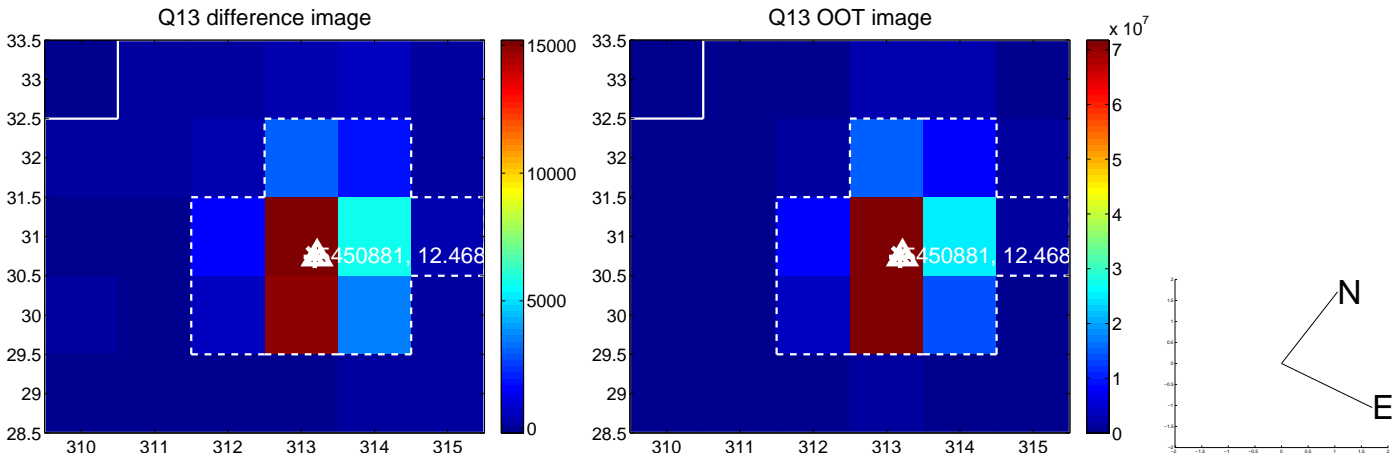




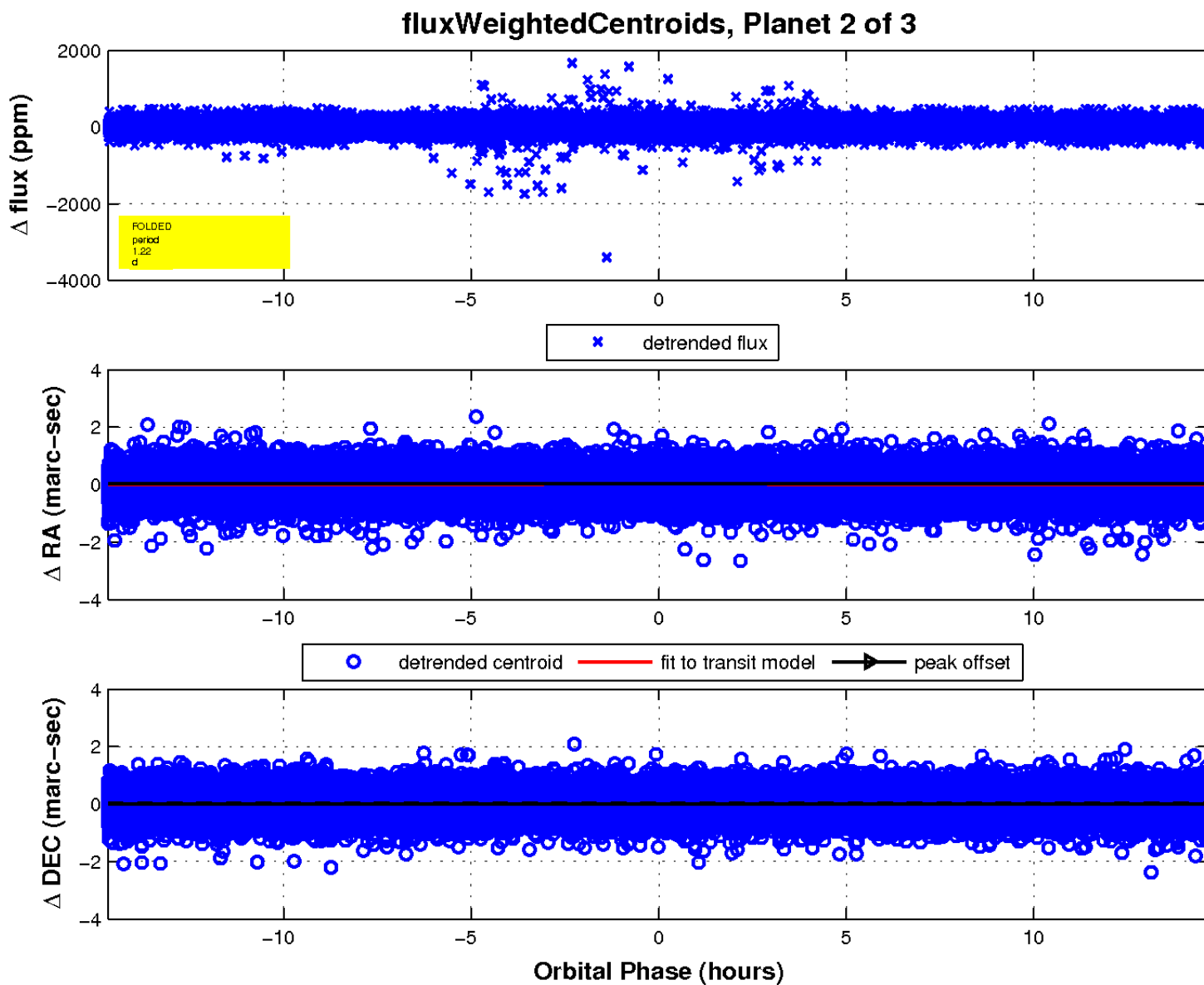
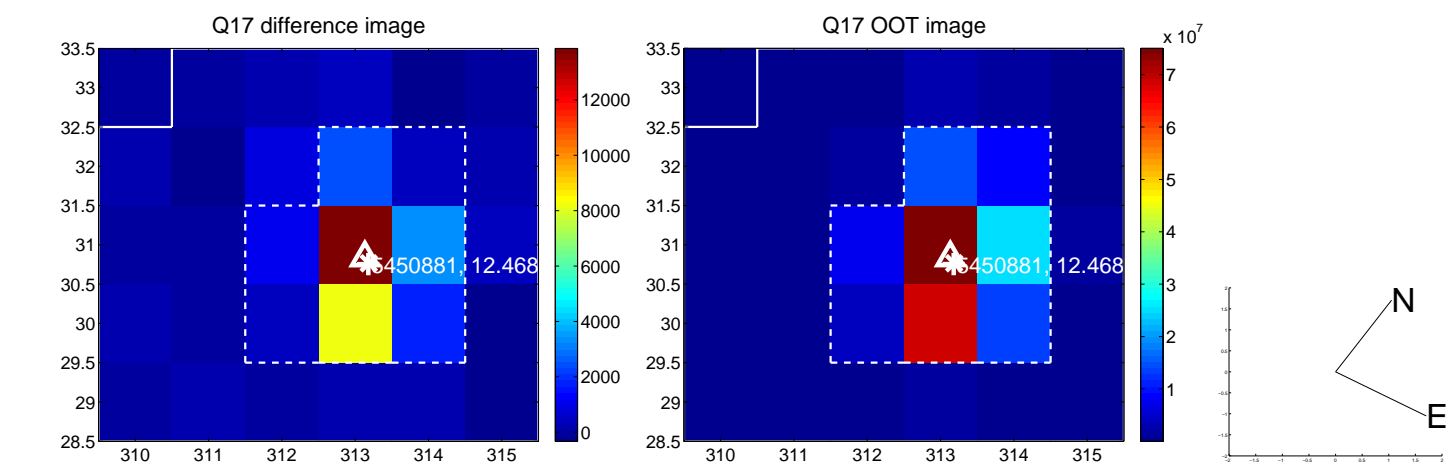
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

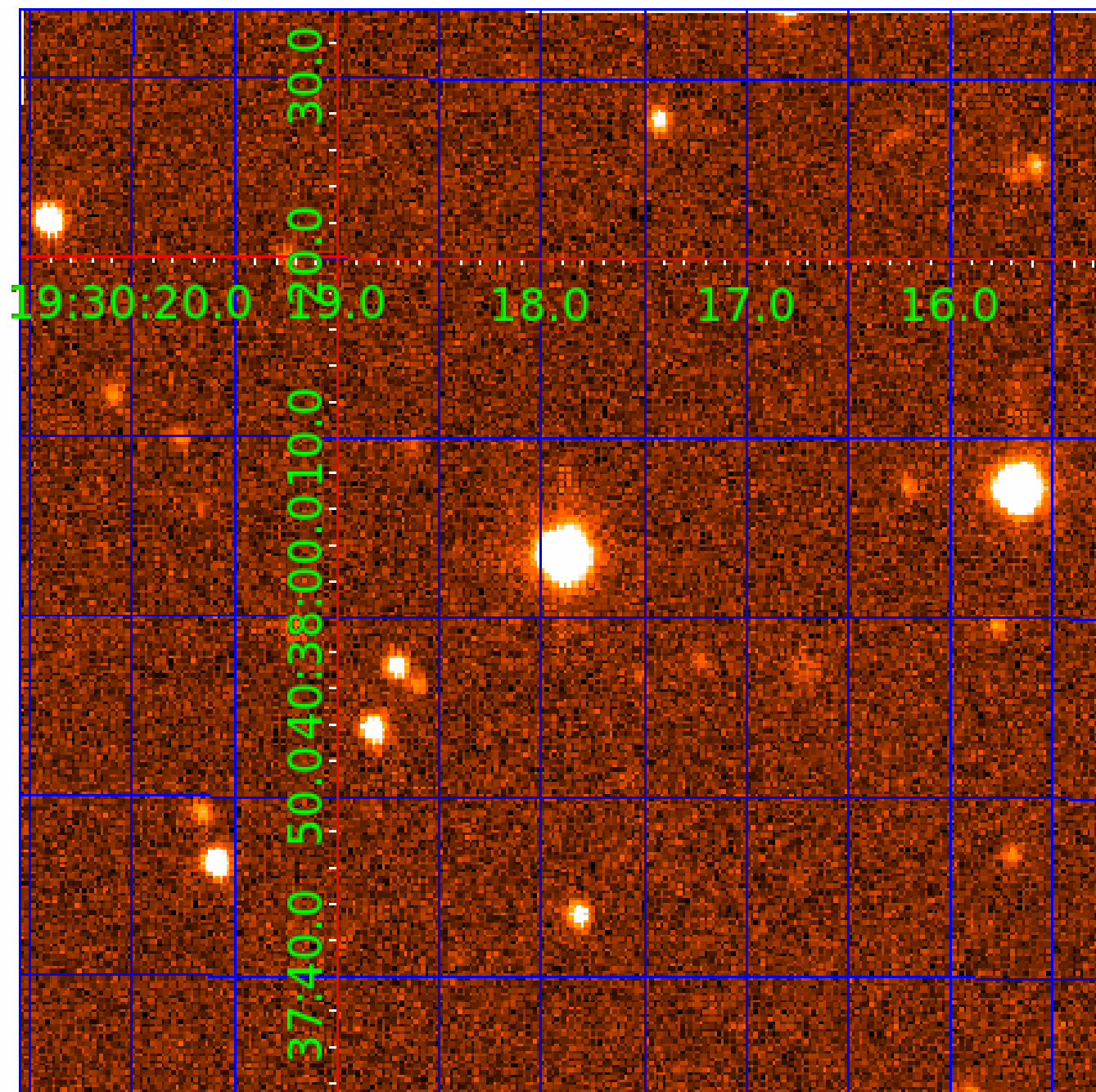


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005450881

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005450881-01	OBS	No	372.068149	473.909155	93.7	2.871	17.7	2.3	2.21	10402	2.29	26.84
005450881-02	OBS	No	1.223176	131.843372	6.9	6.172	11.4	6.6	2.21	10402	0.67	54908.31
005450881-03	OBS	No	132.630028	196.273501	46.6	9.571	9.4	3.0	2.21	10402	1.58	106.19

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005450881-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005450881-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005450881-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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

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

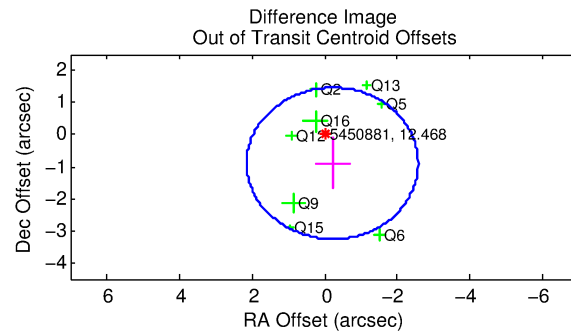
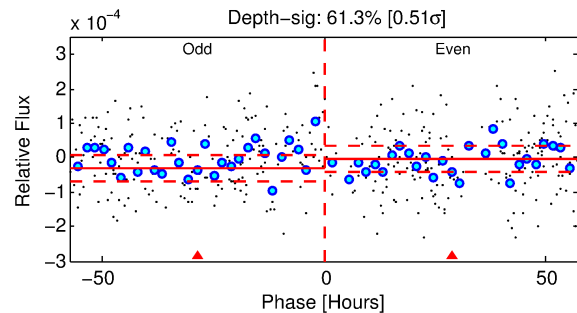
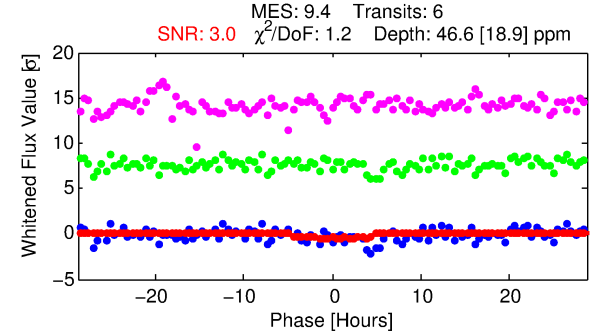
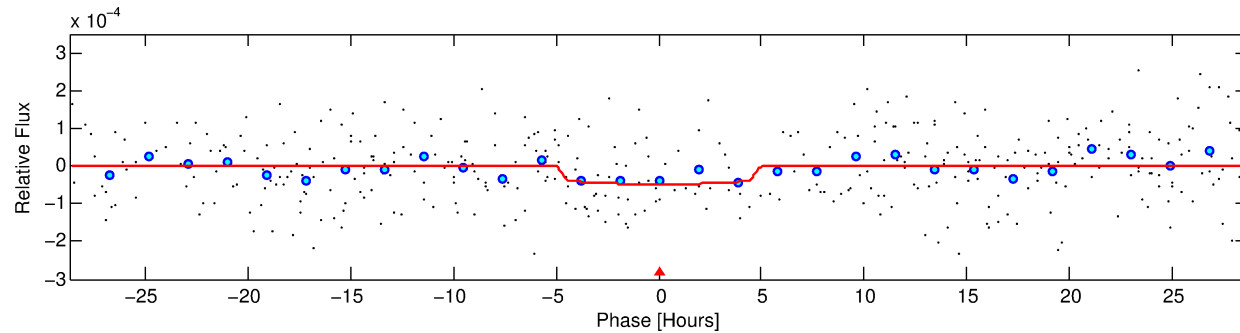
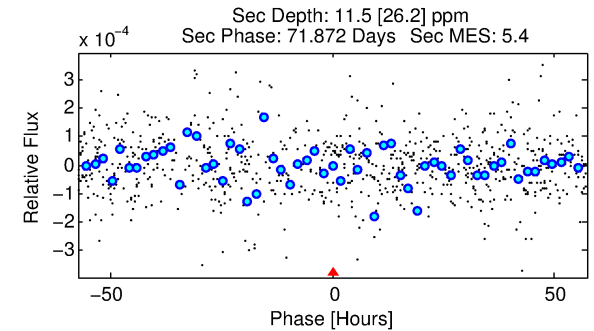
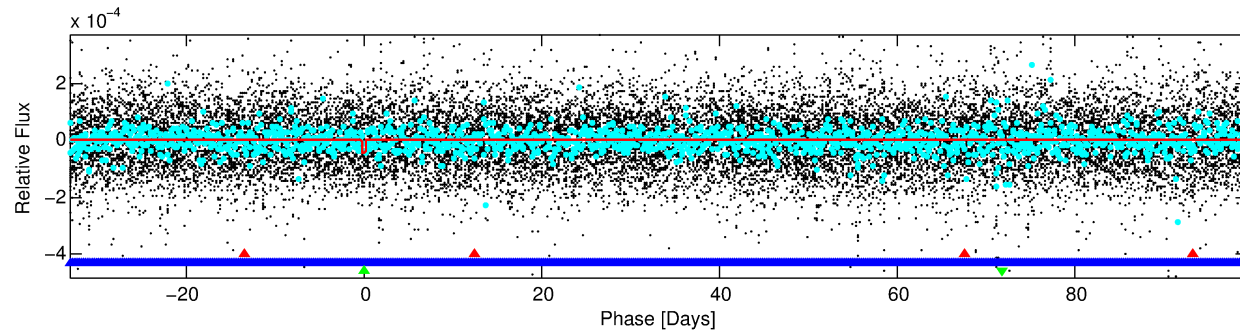
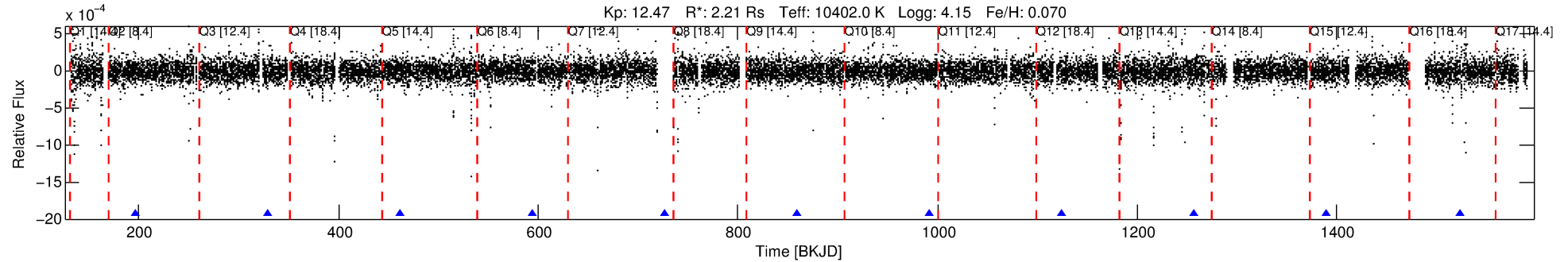
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005450881-03

No Significant Match Found

# DV One-Page Summary

KIC: 5450881 Candidate: 3 of 3 Period: 132.630 d



## DV Fit Results:

Period = 132.63003 [0.00669] d  
Epoch = 196.2735 [0.1305] BKJD  
Rp/R\* = 0.0066 [0.0123]  
a/R\* = 93.05 [1315.66]  
b = 0.49 [21.81]  
Seff = 106.19 [44.91]  
Teq = 819 [87] K  
Rp = 1.58 [3.01] Re  
a = 0.6946 [0.1976] AU  
Ag = 1220.19 [5371.97] [0.23σ]  
Teffp = 7480 [8206] K [0.81σ]

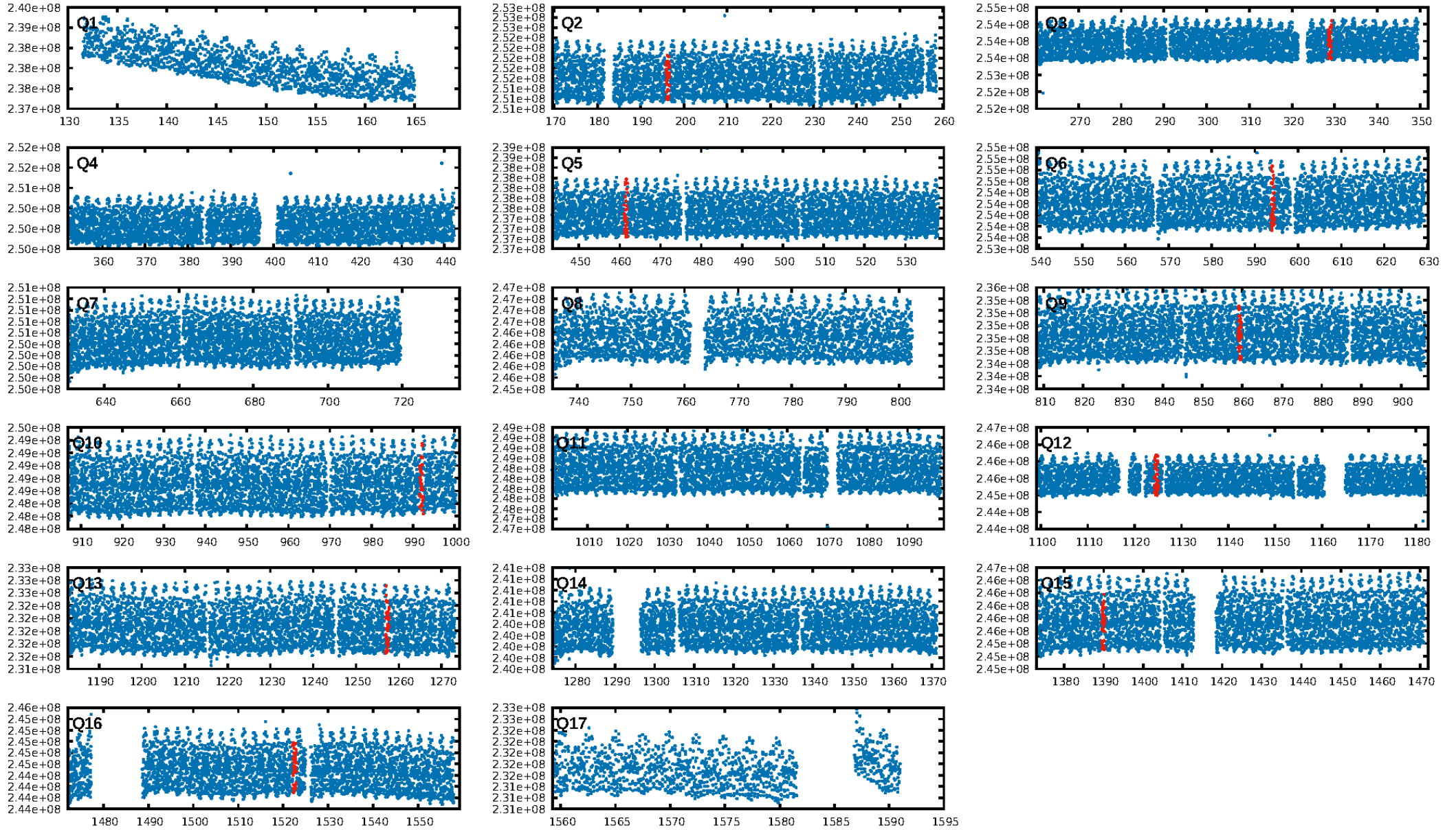
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [276.93σ]  
LongPeriod-sig: 100.0% [575.11σ]  
ModelChiSquare2-sig: 33.2%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 5.86e-10**  
RollingBand-fgt: 1.00 [6/6]  
**GhostDiagnostic-chr: -1.222**  
Centroid-sig: 46.2%  
Centroid-so: 1.793 arcsec [0.89σ]  
OotOffset-rm: 0.922 arcsec [1.17σ]  
OotOffset-st: 2/1/2/3 [8]  
KicOffset-rm: 0.894 arcsec [1.17σ]  
KicOffset-st: 2/1/2/3 [8]  
DiffImageQuality-fgm: 0.25 [2/8]  
DiffImageOverlap-fno: 0.00 [0/10]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:34:30 Z

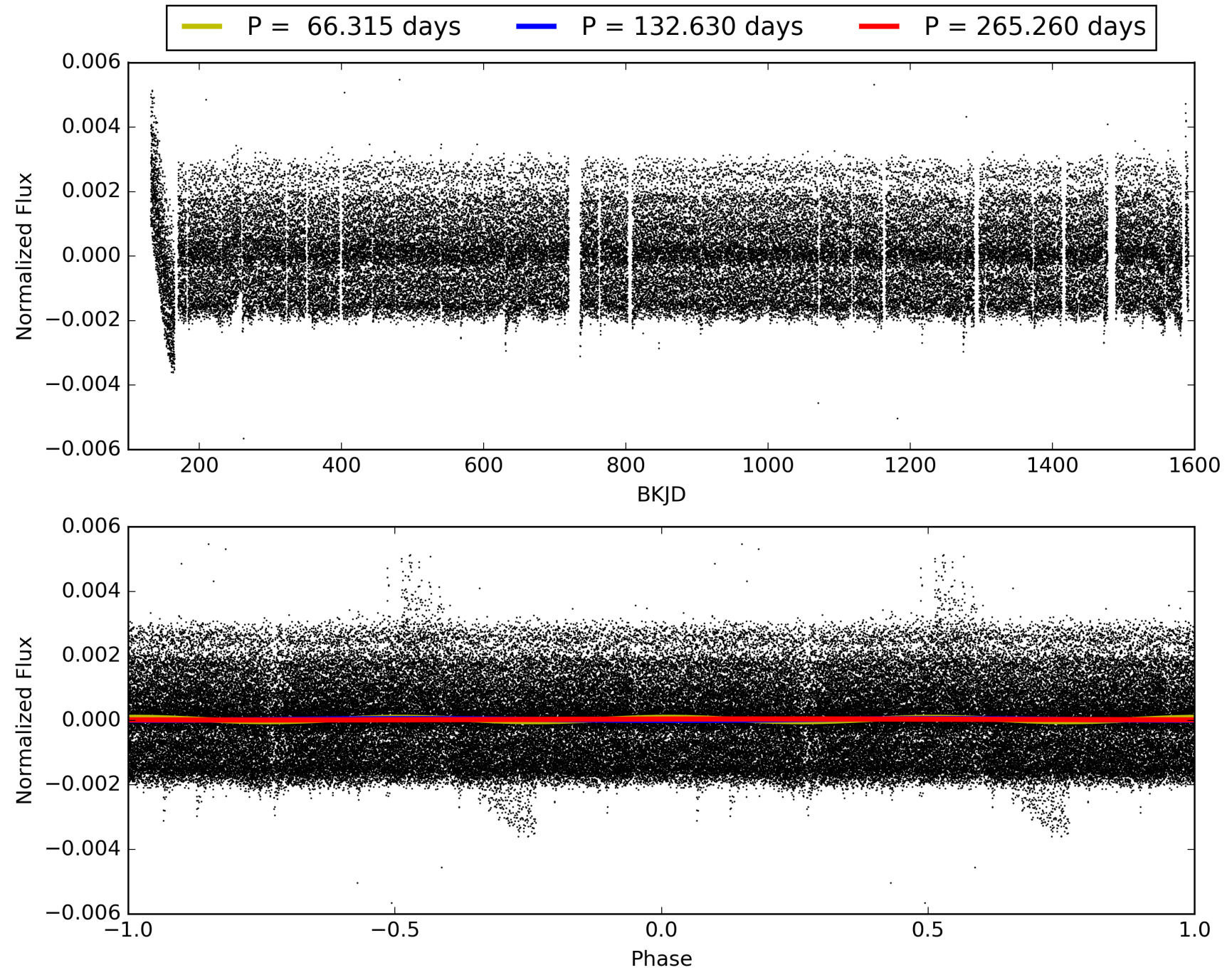
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005450881-03, PDC Light Curves





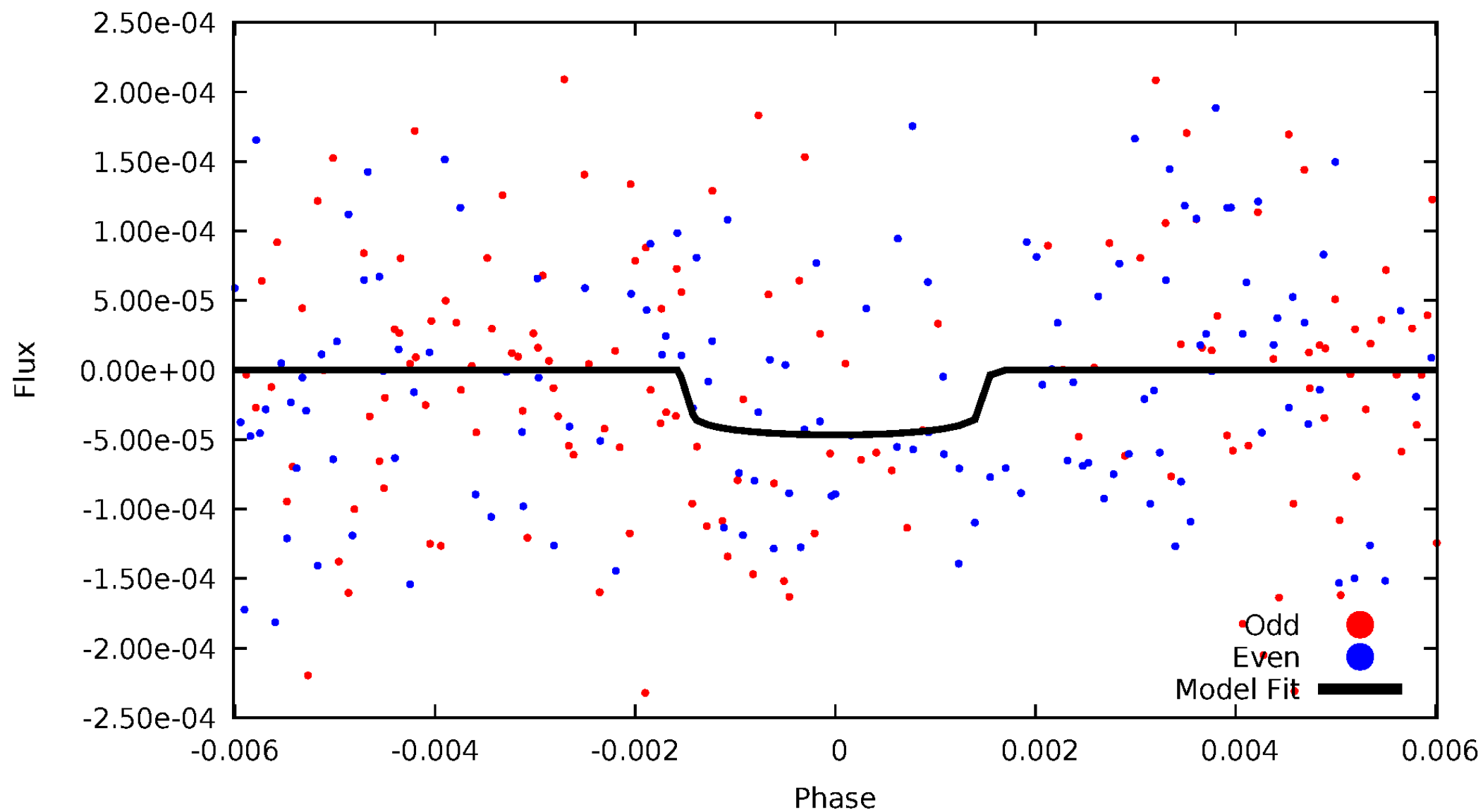
# TCE 005450881-03





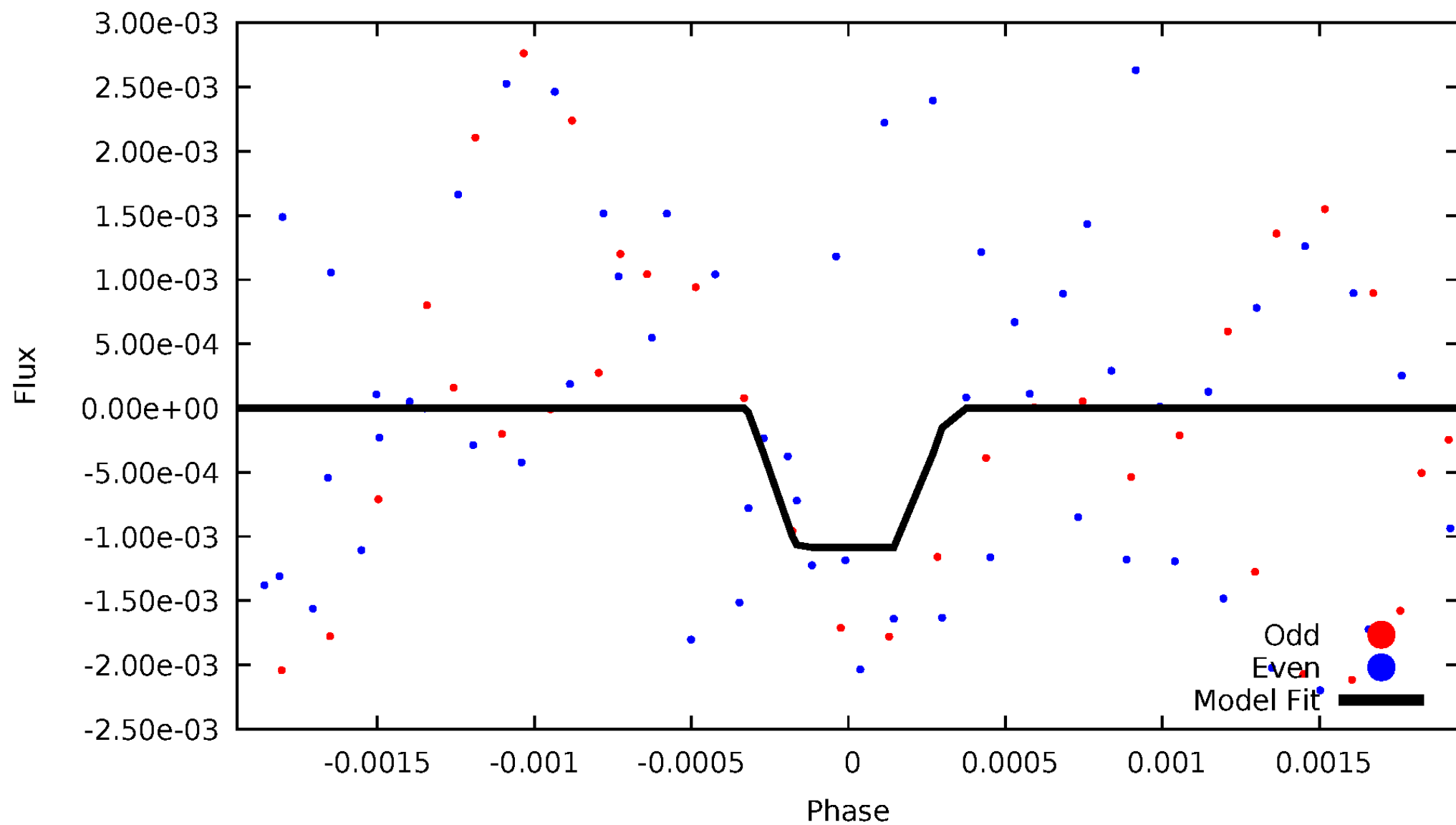
# DV Odd/Even

TCE 005450881-03



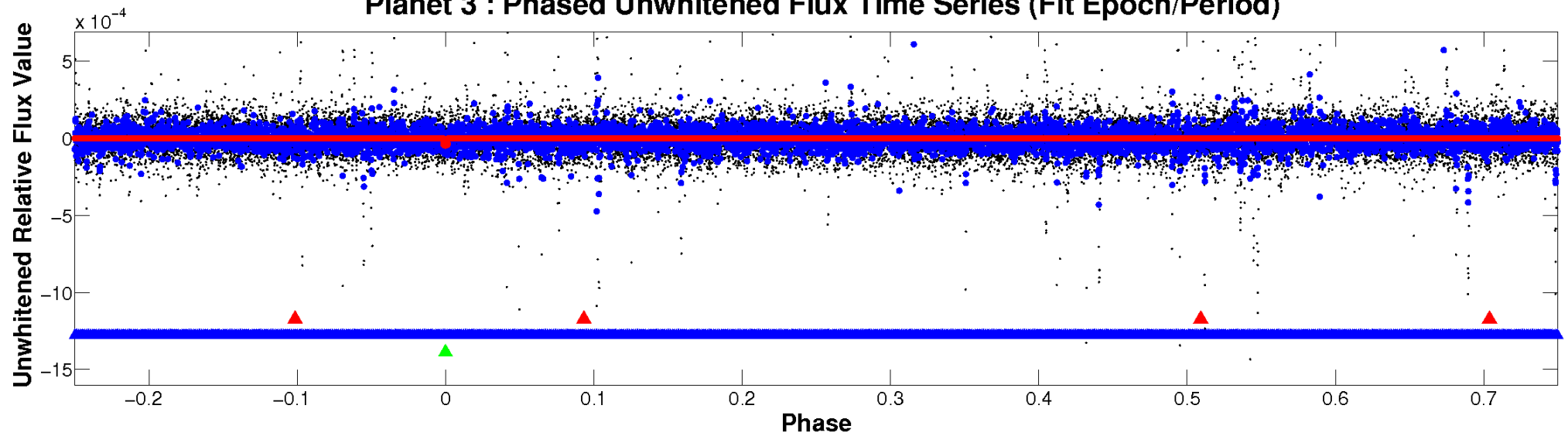
# ALT Odd/Even

TCE 005450881-03

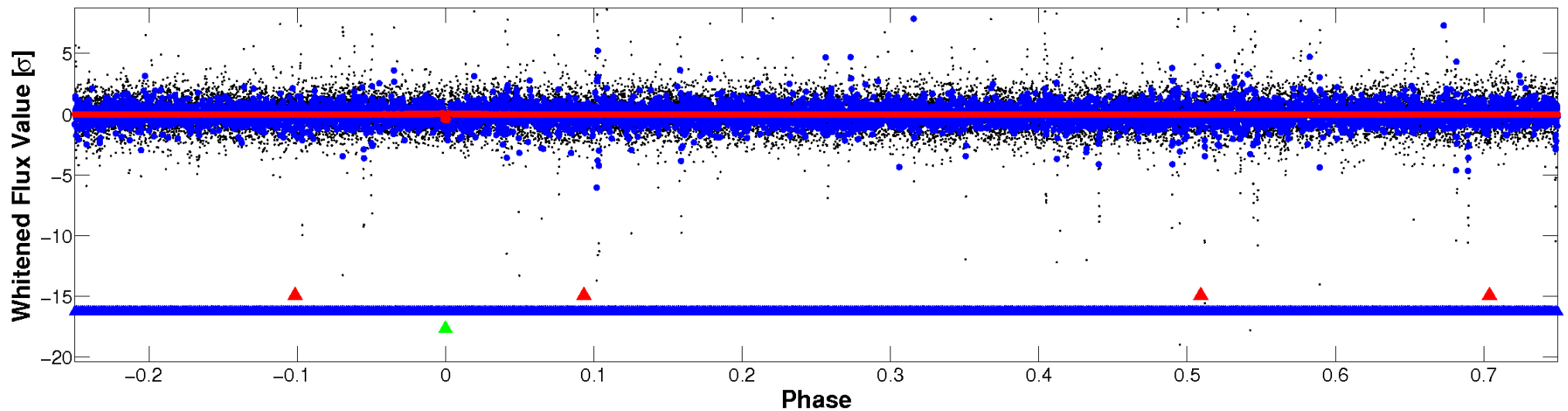


# Non-Whitened Vs. Whitened Light Curve

**Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

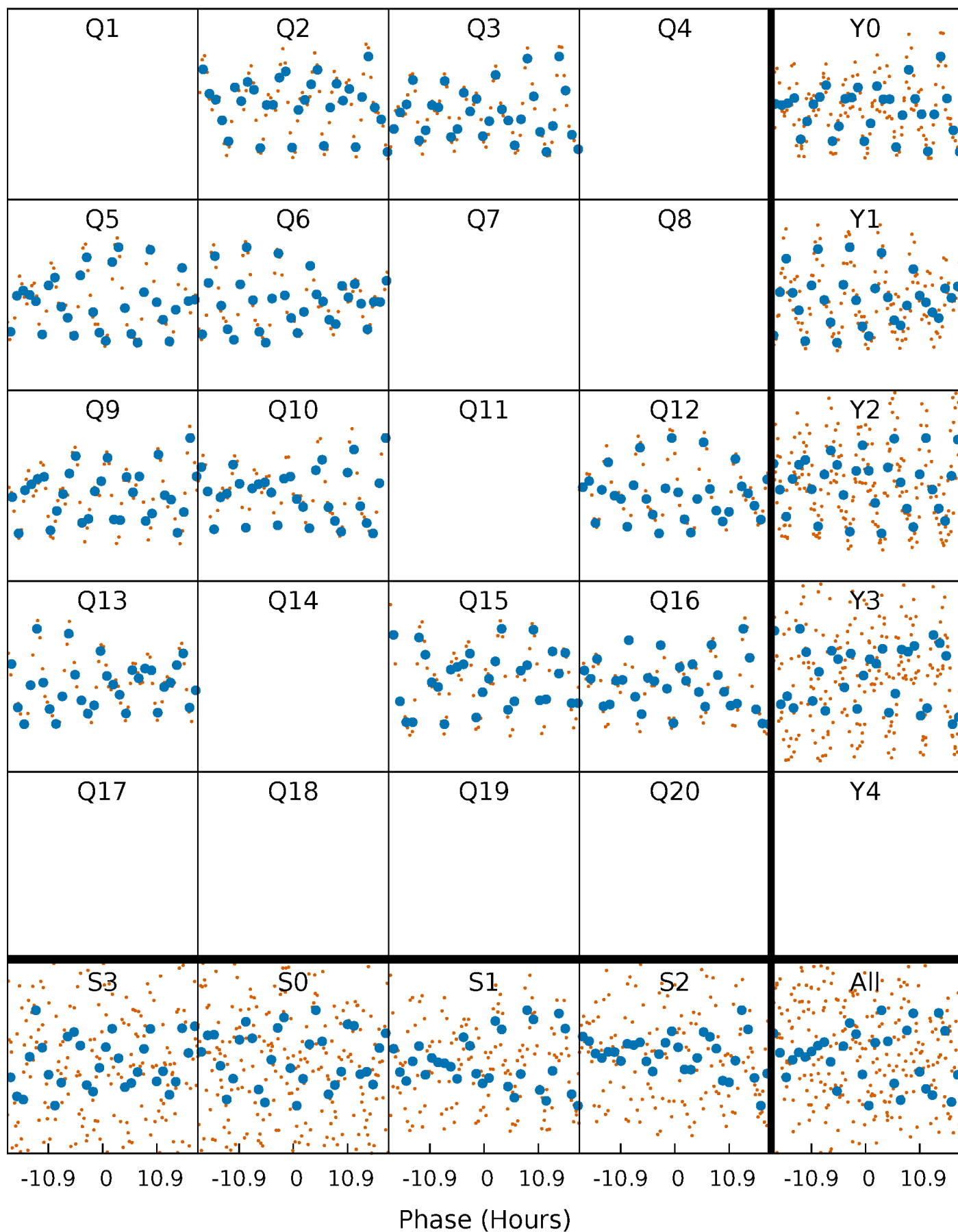


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



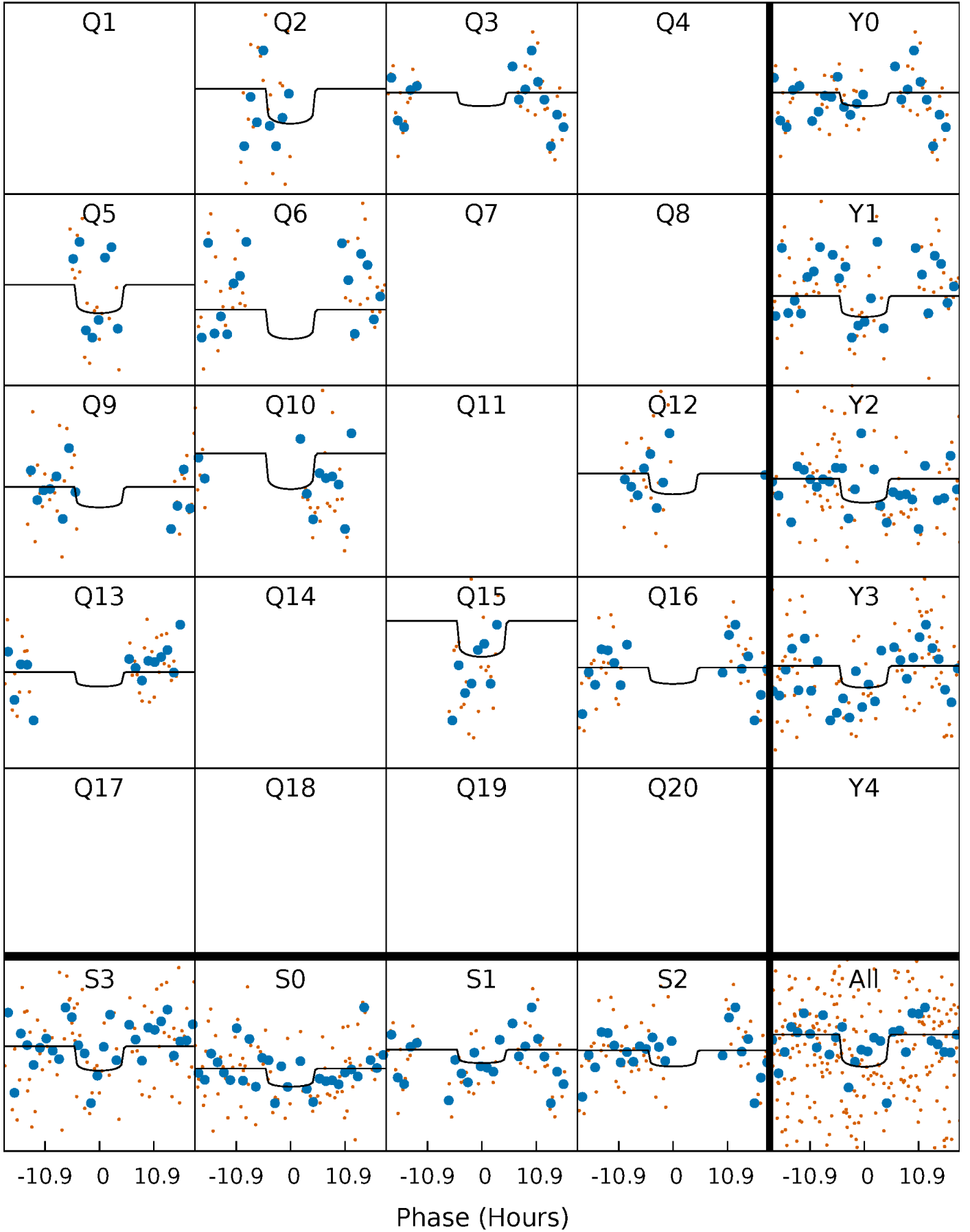
# PDC Quarter-Phased Transit Curves

TCE 005450881-03 P=132.630028 Days  $T_0=196.273501$  (BKJD)



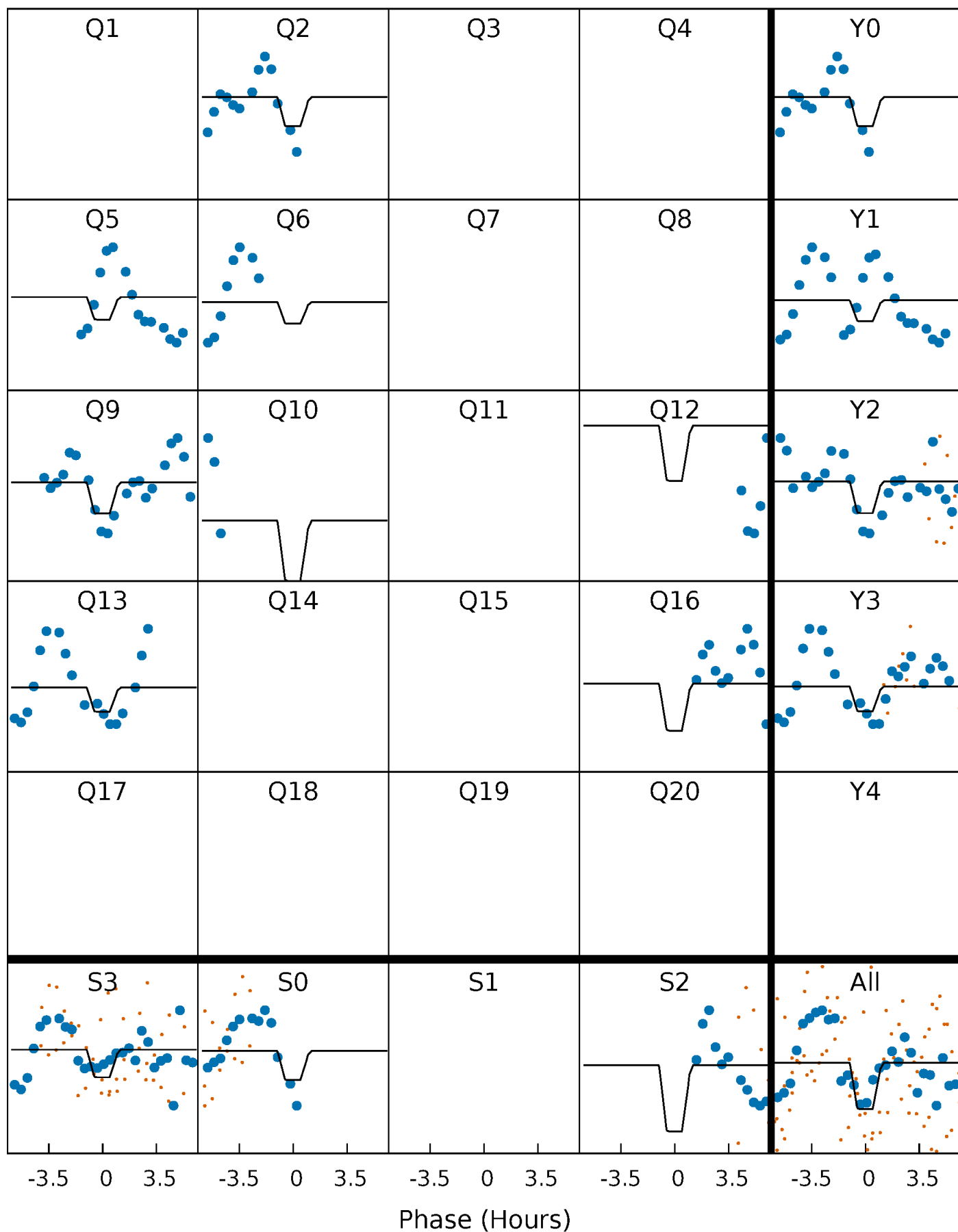
# DV Quarter-Phased Transit Curves

TCE 005450881-03 P=132.630028 Days  $T_0=196.273501$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

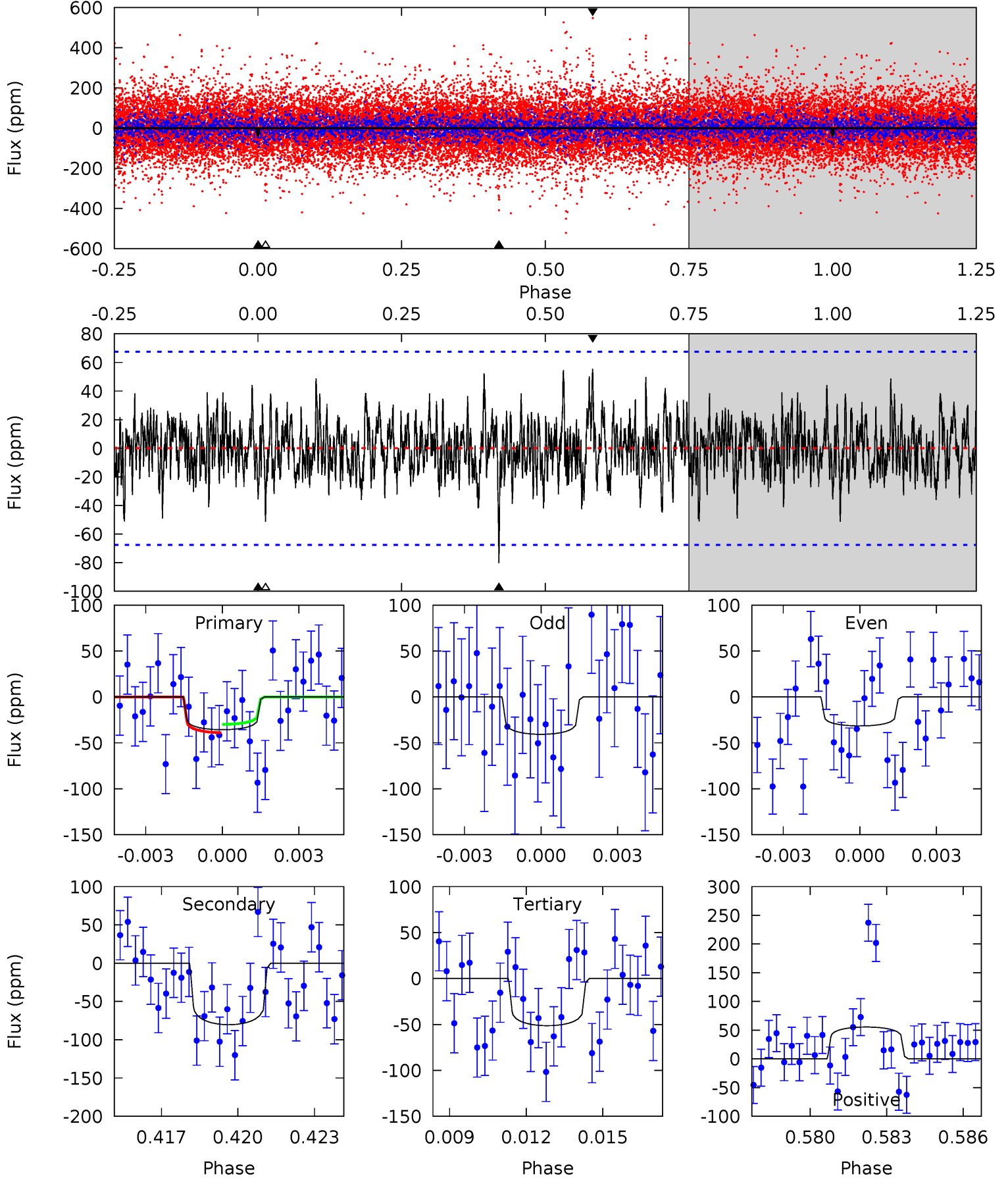
TCE 005450881-03 P=132.545693 Days  $T_0=196.263466$  (BKJD)



# DV Model-Shift Uniqueness Test

005450881-03,  $P = 132.630028$  Days,  $E = 63.643473$  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
2.77	6.24	3.99	4.32	5.25	2.96	1.24	-1.22	-1.54	2.25	1.93	0.35	0.77	0.41	0.34

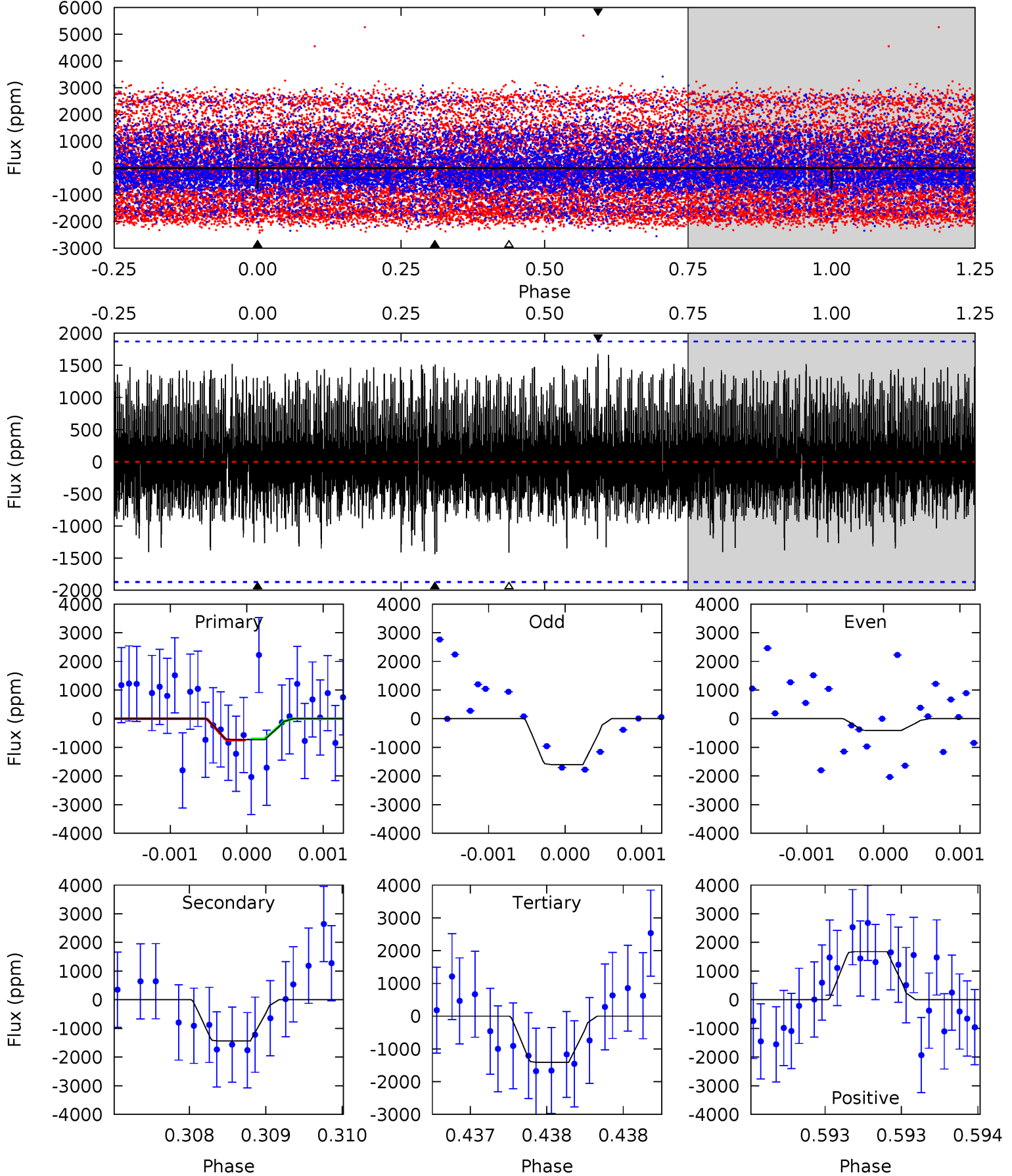




# Alt Model-Shift Uniqueness Test

005450881-03, P = 132.545693 Days, E = 63.717773 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
2.16	4.26	4.18	4.97	5.54	3.42	1.58	-2.01	-2.80	0.08	-0.71	1.59	0.54	0.54	0.06



### Stellar Parameters For KIC 005450881

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$10402^{+286}_{-429}$	$4.154^{+0.200}_{-0.200}$	$0.070^{+0.150}_{-0.600}$	$2.210^{+0.794}_{-0.650}$	$2.539^{+0.336}_{-0.577}$	$0.332^{+0.412}_{-0.186}$
	+3%/-4%	+5%/-5%	+214%/-857%	+36%/-29%	+13%/-23%	+124%/-56%
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 005450881-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-80 \pm 13$	$2.49^{+2.62}_{-1.66}$	$1138^{+94}_{-92}$	$9078^{+16509}_{-2928}$	$3352^{+28326}_{-2569}$
Alt.	$-1439 \pm 338$	$7.86^{+3.28}_{-2.98}$	$1140^{+99}_{-90}$	$11535^{+6215}_{-2809}$	$5907^{+9378}_{-3229}$

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

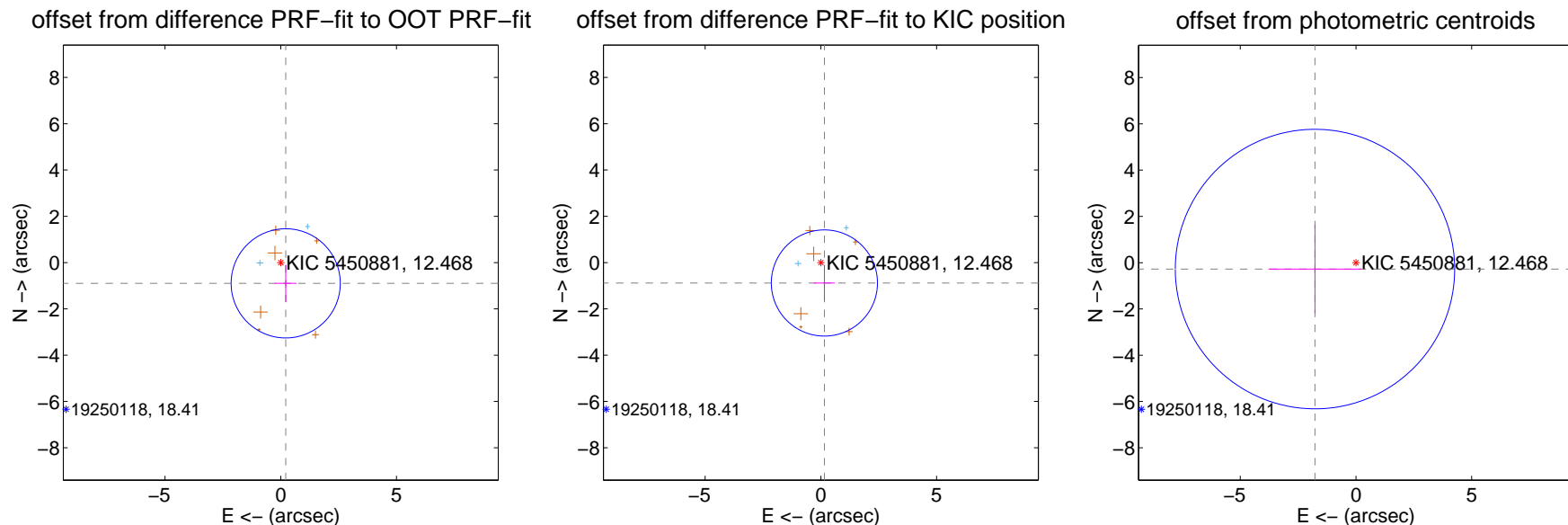
## DV Centroid Data

Supplemental centroid analysis for 005450881-03. Kepler magnitude: 12.47. Transit SNR 3.02

There are 2 quarters with good PRF difference image offsets

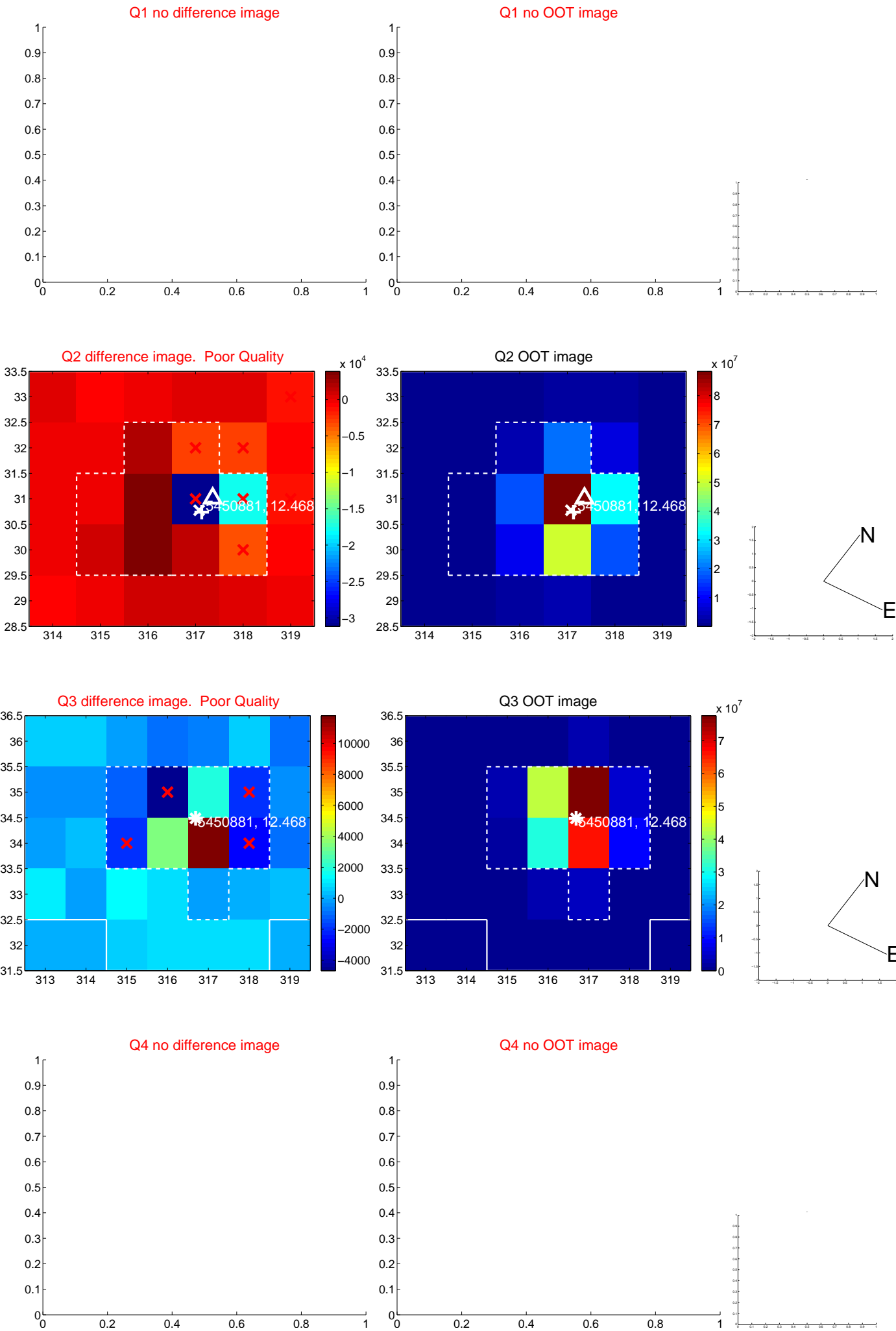
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.922 \pm 0.786$	1.17	$-0.215 \pm 0.470$	$-0.897 \pm 0.801$
PRF-fit source offset from KIC position	$0.894 \pm 0.765$	1.17	$-0.153 \pm 0.451$	$-0.881 \pm 0.772$
photometric centroid source offset	$1.79 \pm 2.01$	0.89	$1.77 \pm 2.02$	$-0.28 \pm 1.92$

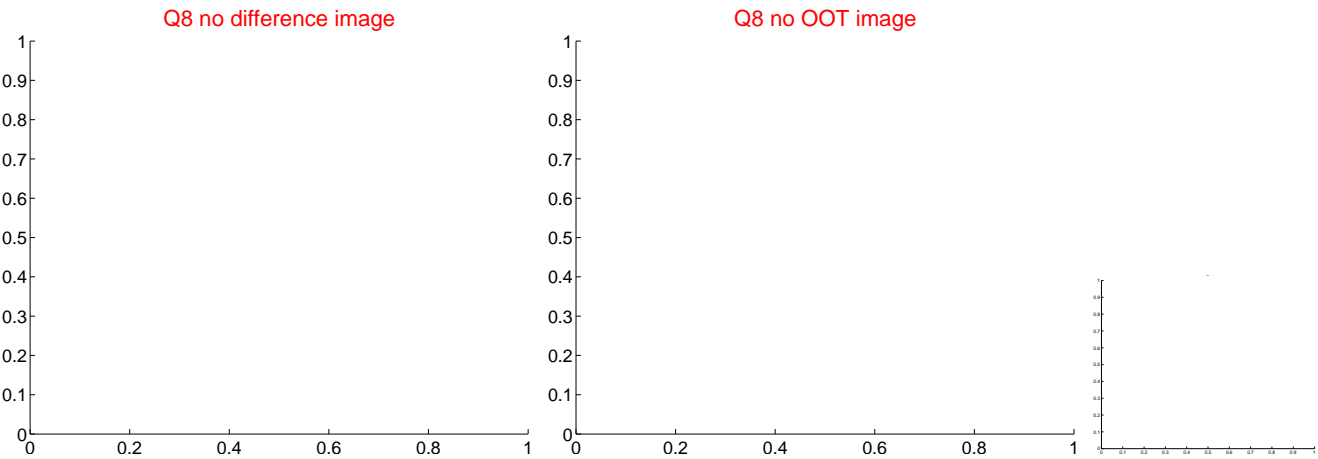
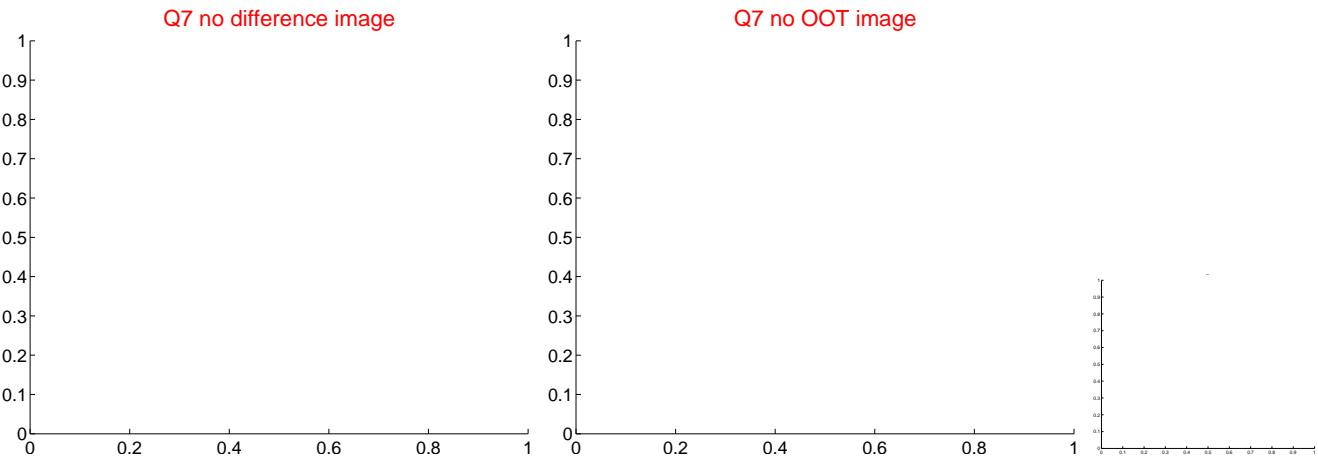
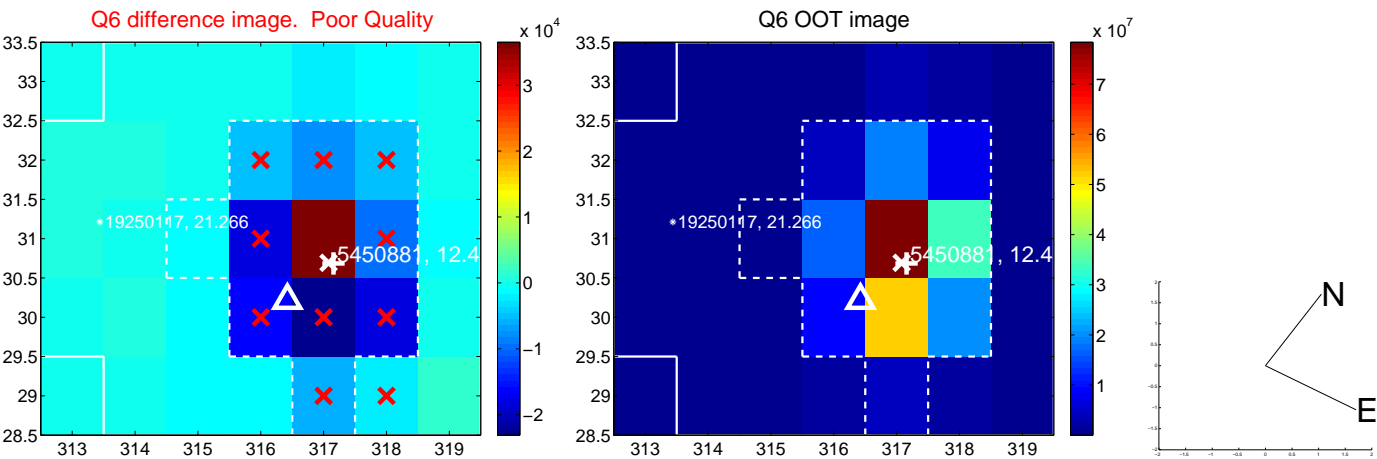
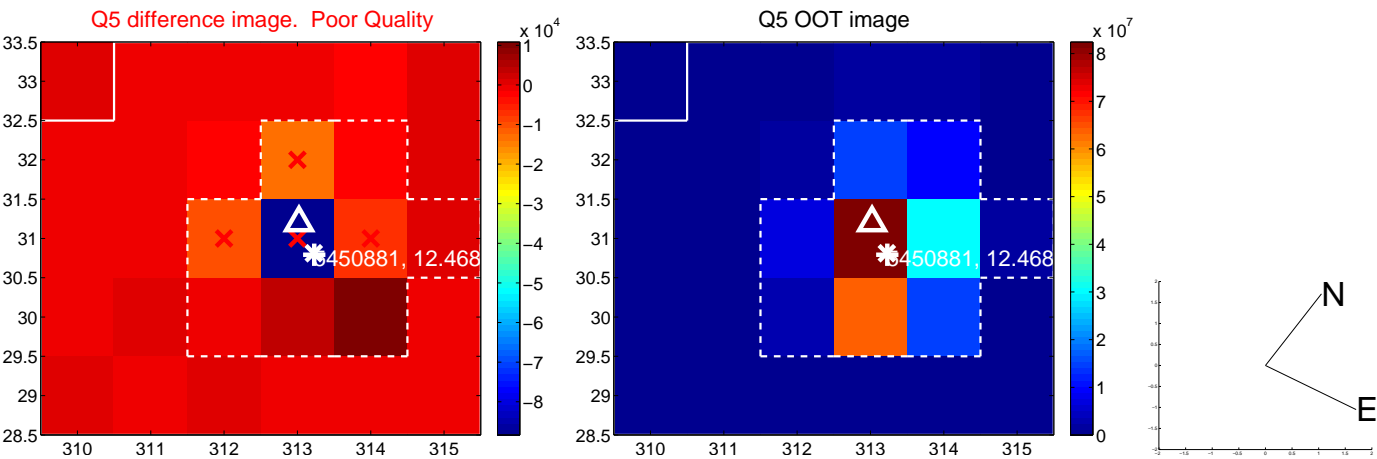


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

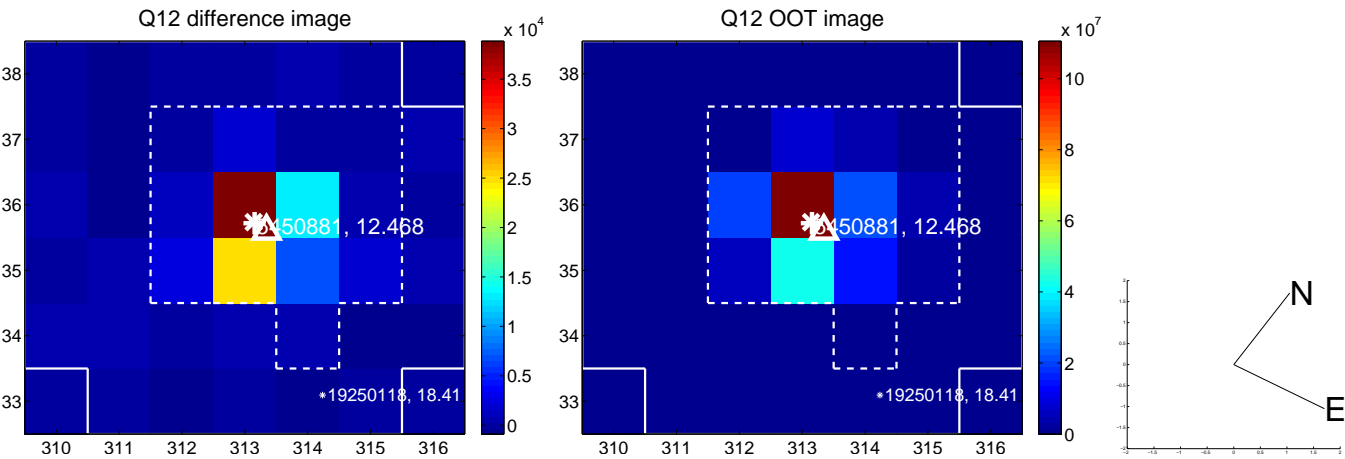
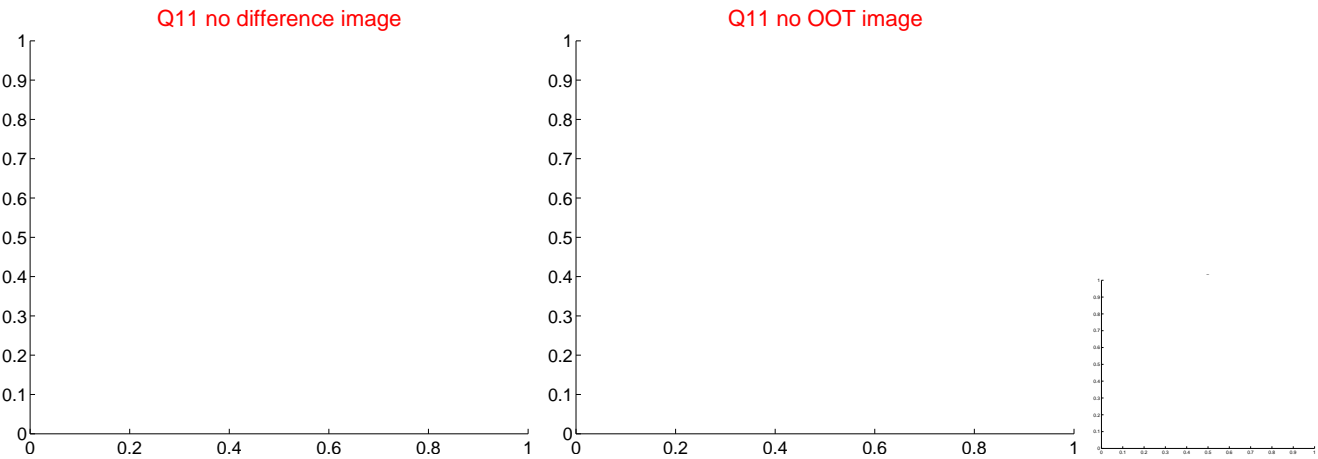
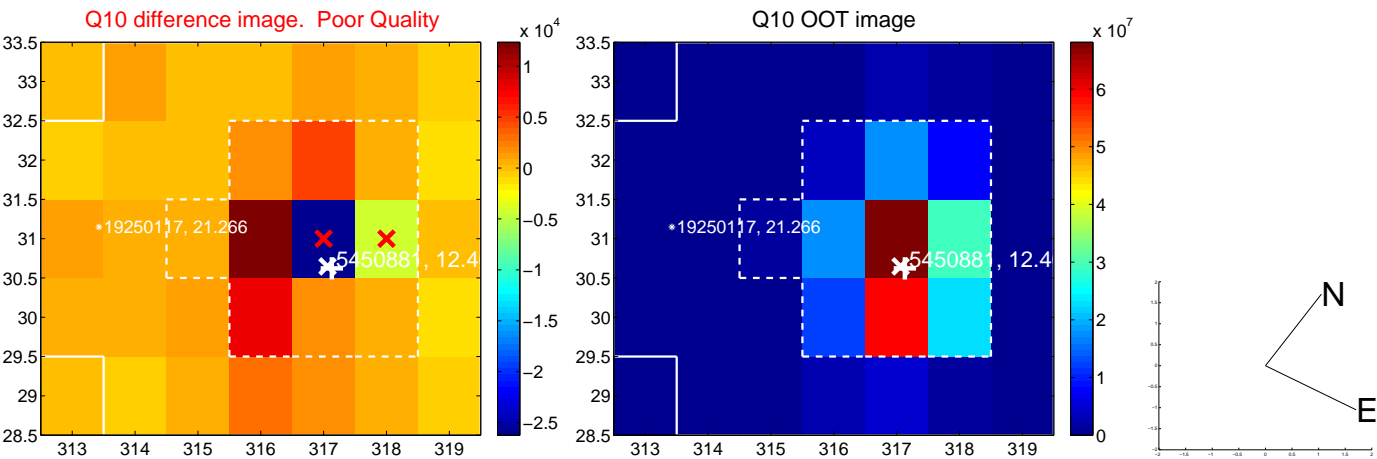
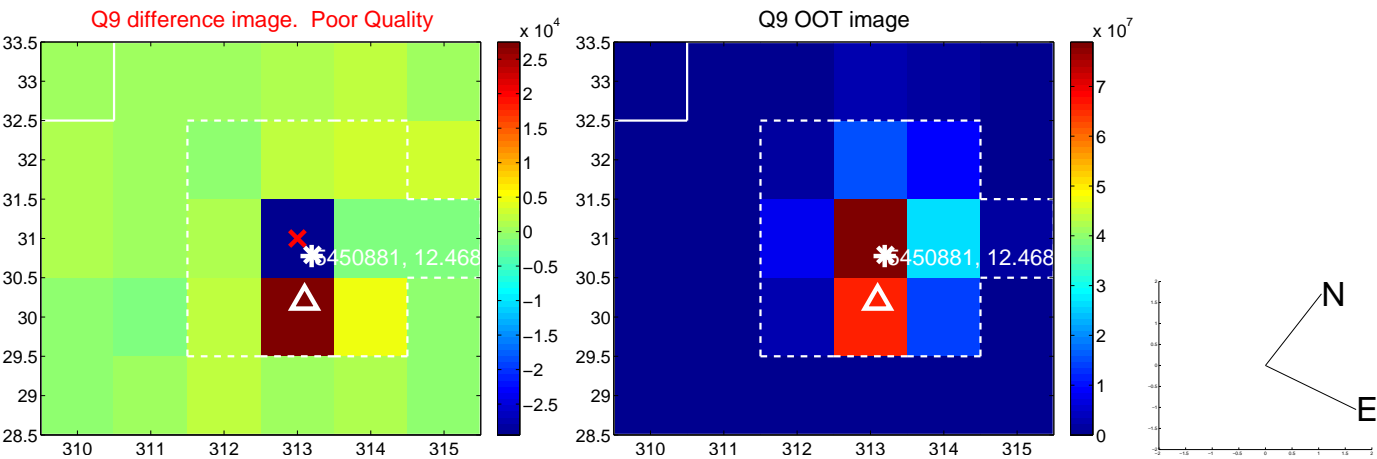
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



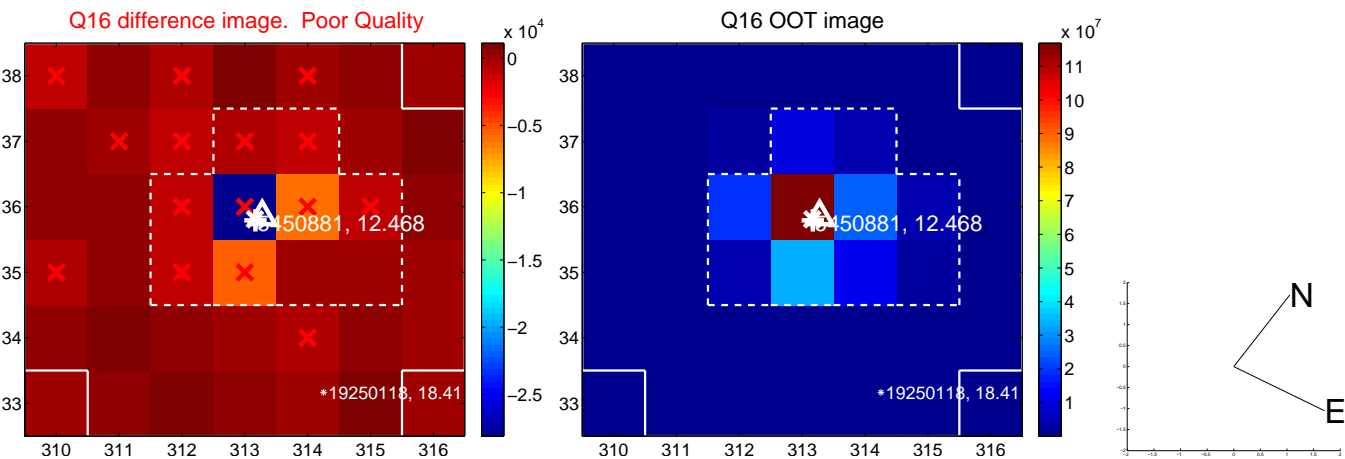
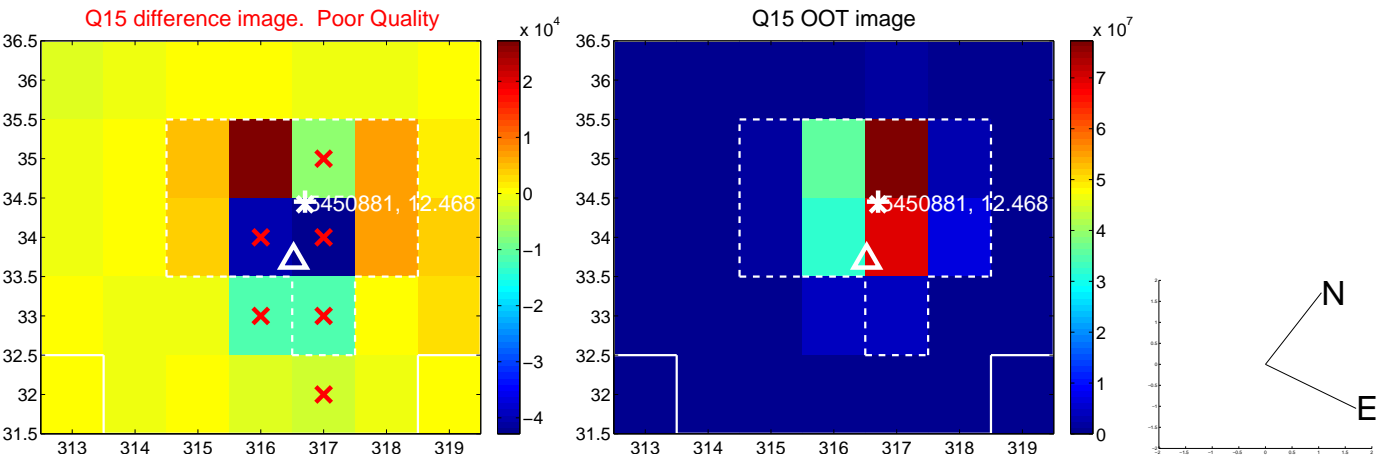
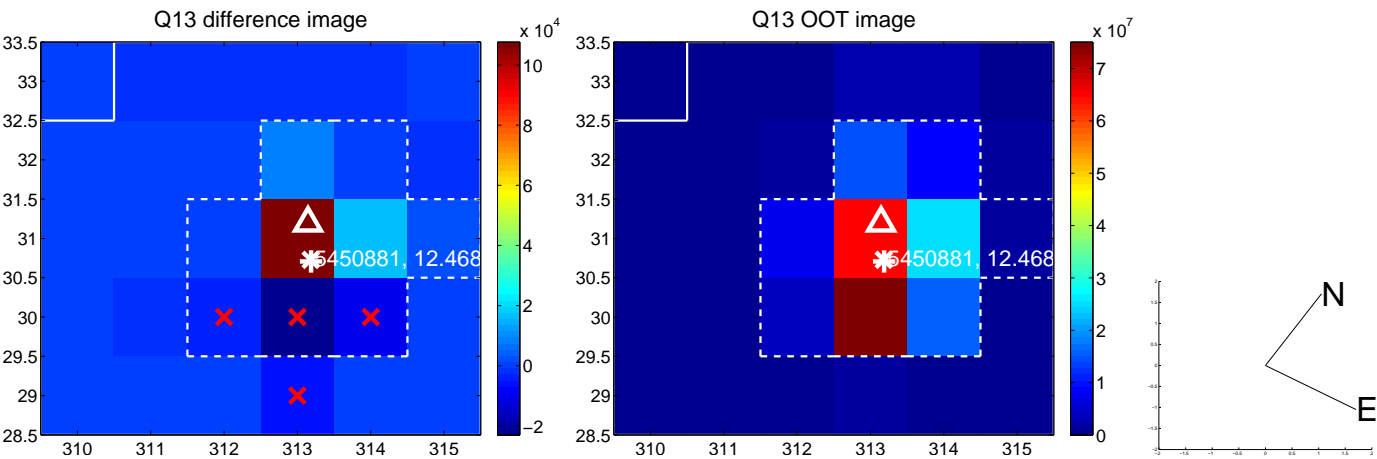
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

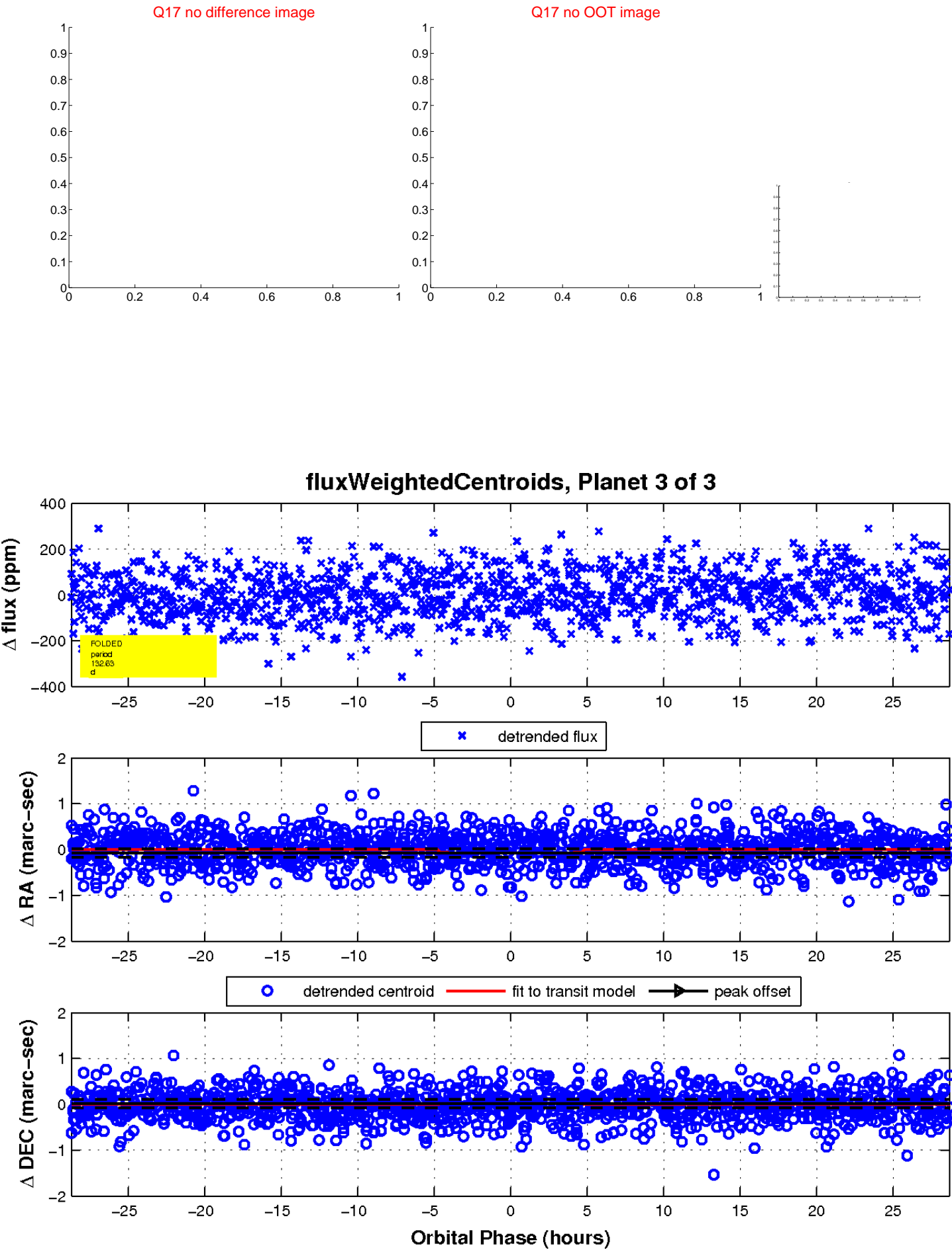


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

