

# KIC 006515246

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006515246-01	OBS	No	1.147952	131.788526	6.8	8.319	7.5	9.0	3.22	8124	0.95	54364.19
006515246-02	OBS	No	17.497612	143.452909	126.6	1.685	11.5	11.9	3.22	8124	4.07	1438.49
006515246-03	OBS	No	42.223744	170.468221	121.7	1.385	10.1	8.3	3.22	8124	4.08	444.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006515246-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006515246-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
006515246-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

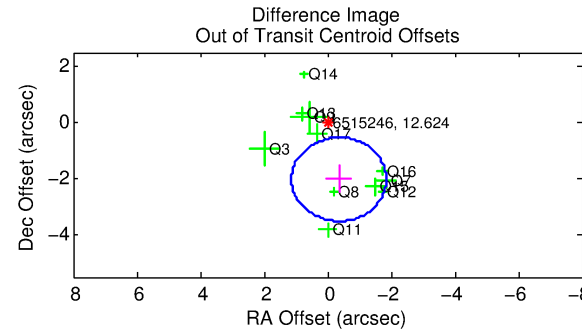
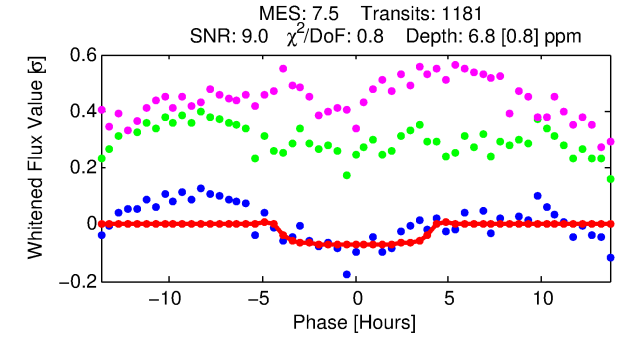
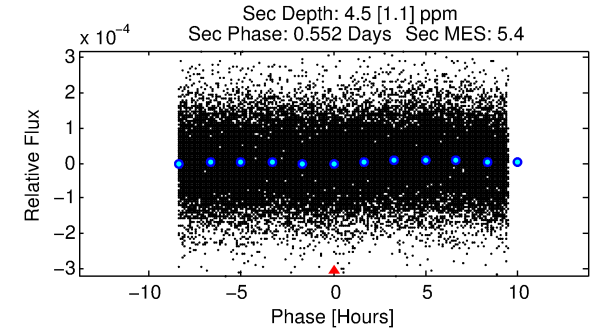
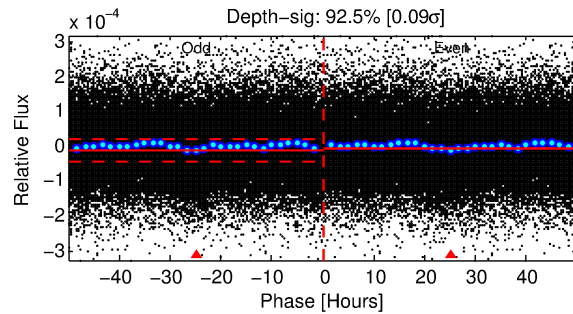
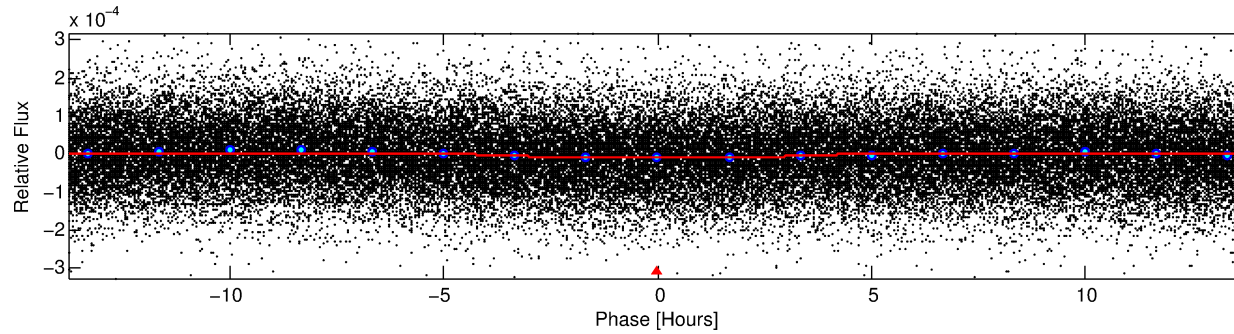
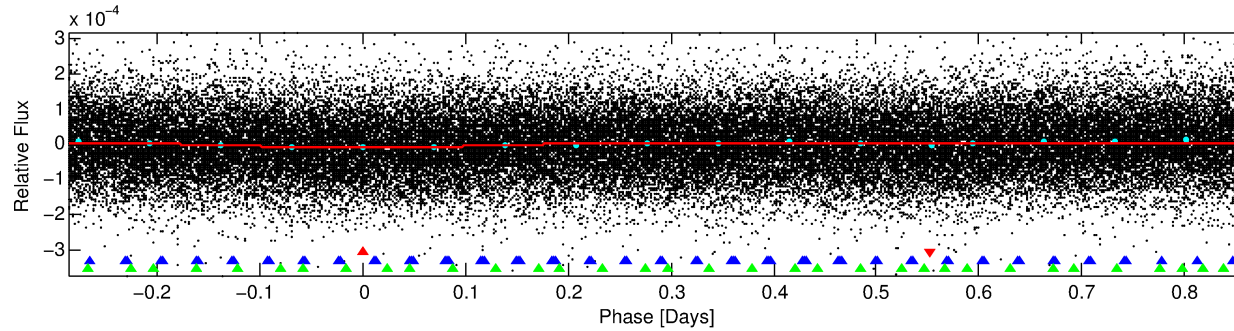
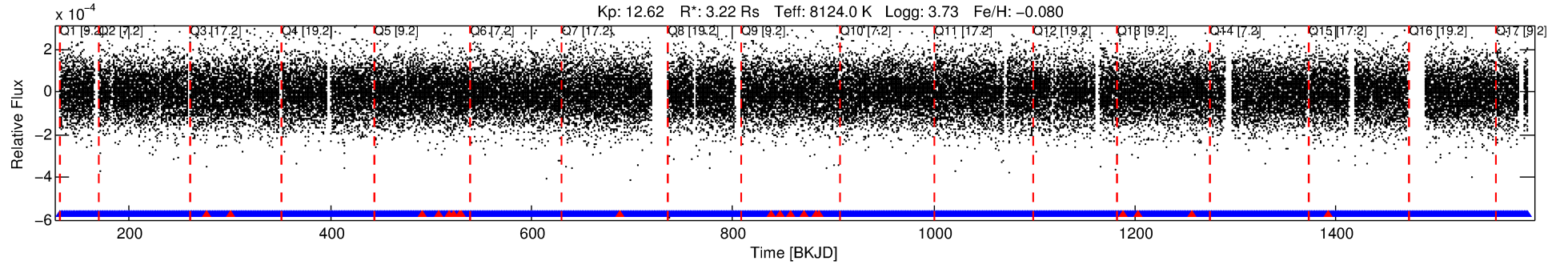
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006515246-01

No Significant Match Found

# DV One-Page Summary

KIC: 6515246 Candidate: 1 of 3 Period: 1.148 d



## DV Fit Results:

Period = 1.14795 [0.00002] d  
Epoch = 131.7885 [0.0082] BKJD  
Rp/R\* = 0.0027 [0.0014]  
a/R\* = 1.07 [0.45]  
b = 0.85 [1.05]  
Seff = 54364.19 [40723.42]  
Teq = 3894 [729] K  
Rp = 0.95 [0.68] Re  
a = 0.0273 [0.0125] AU  
Ag = 2.04 [2.66] [0.39 $\sigma$ ]  
Teffp = 7199 [1972] K [1.57 $\sigma$ ]

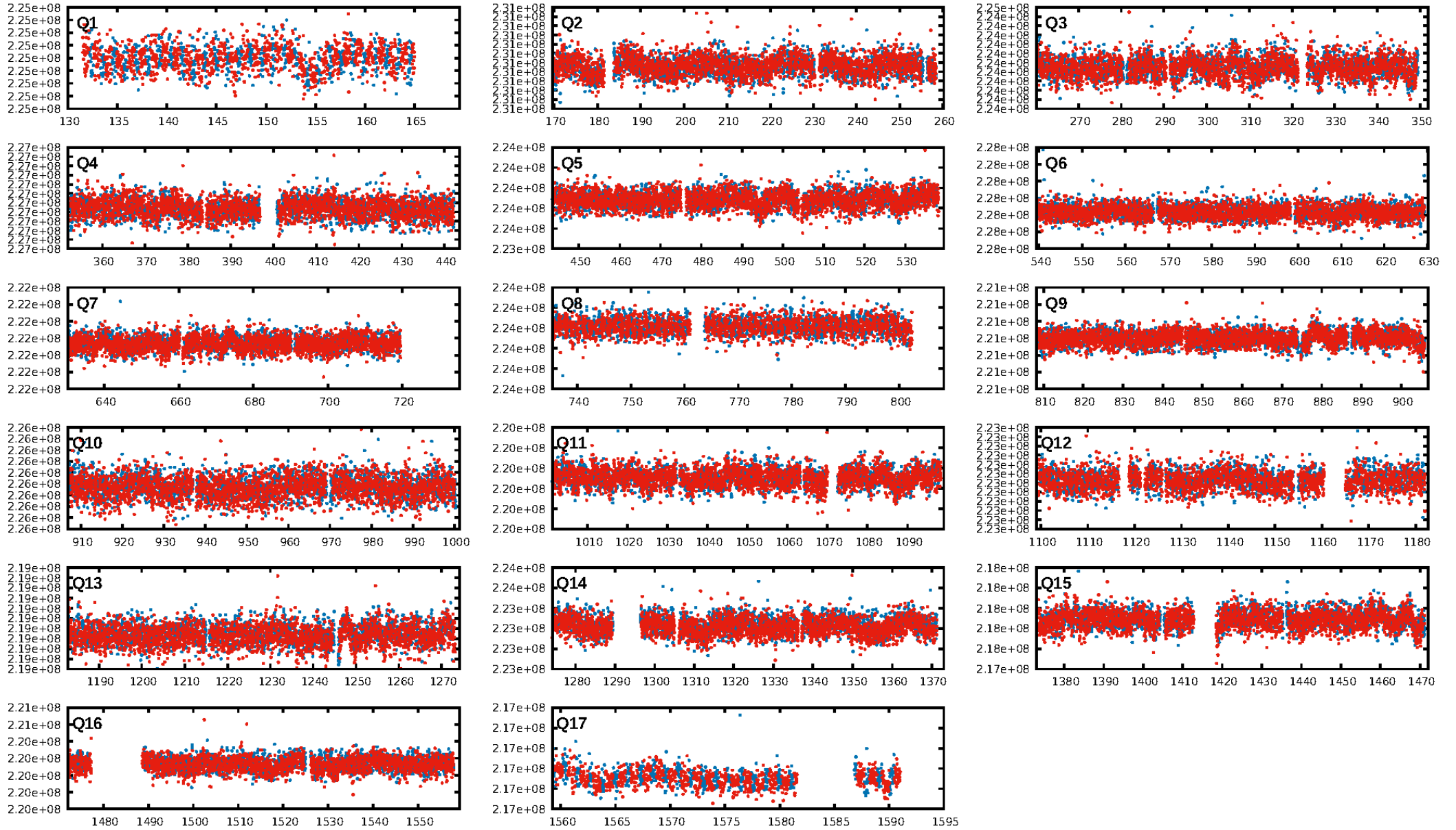
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [46.23 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.12e-13  
RollingBand-fgt: 0.98 [1108/1127]  
GhostDiagnostic-chr: 1.64  
Centroid-sig: 64.4%  
Centroid-so: 0.763 arcsec [0.53 $\sigma$ ]  
OotOffset-rm: 2.055 arcsec [4.14 $\sigma$ ]  
KicOffset-rm: 2.023 arcsec [4.47 $\sigma$ ]  
OotOffset-st: 1/4/3/3 [11]  
KicOffset-st: 1/4/3/3 [11]  
DiffImageQuality-fgm: 0.73 [8/11]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:27:47 Z

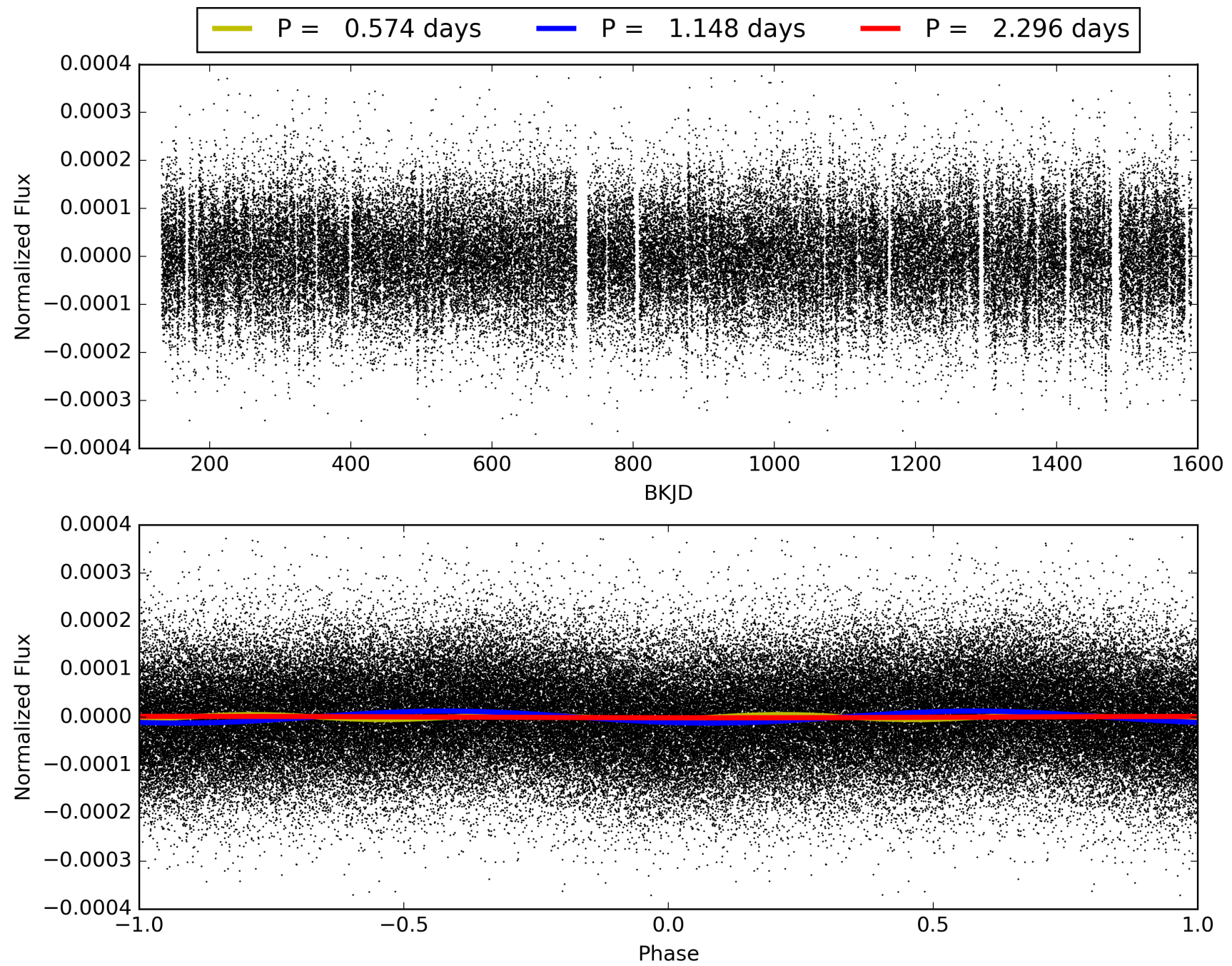
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006515246-01, PDC Light Curves





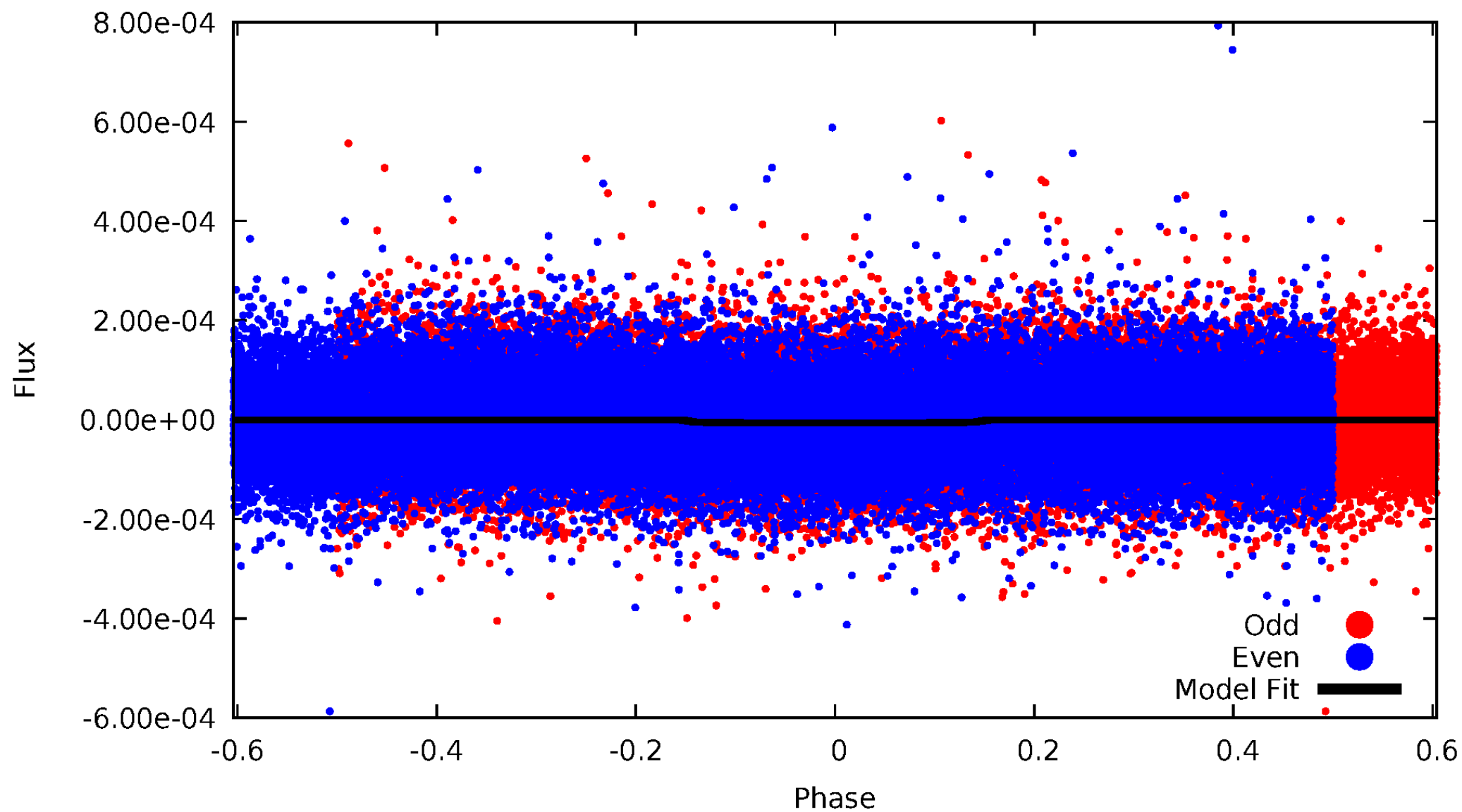
TCE 006515246-01





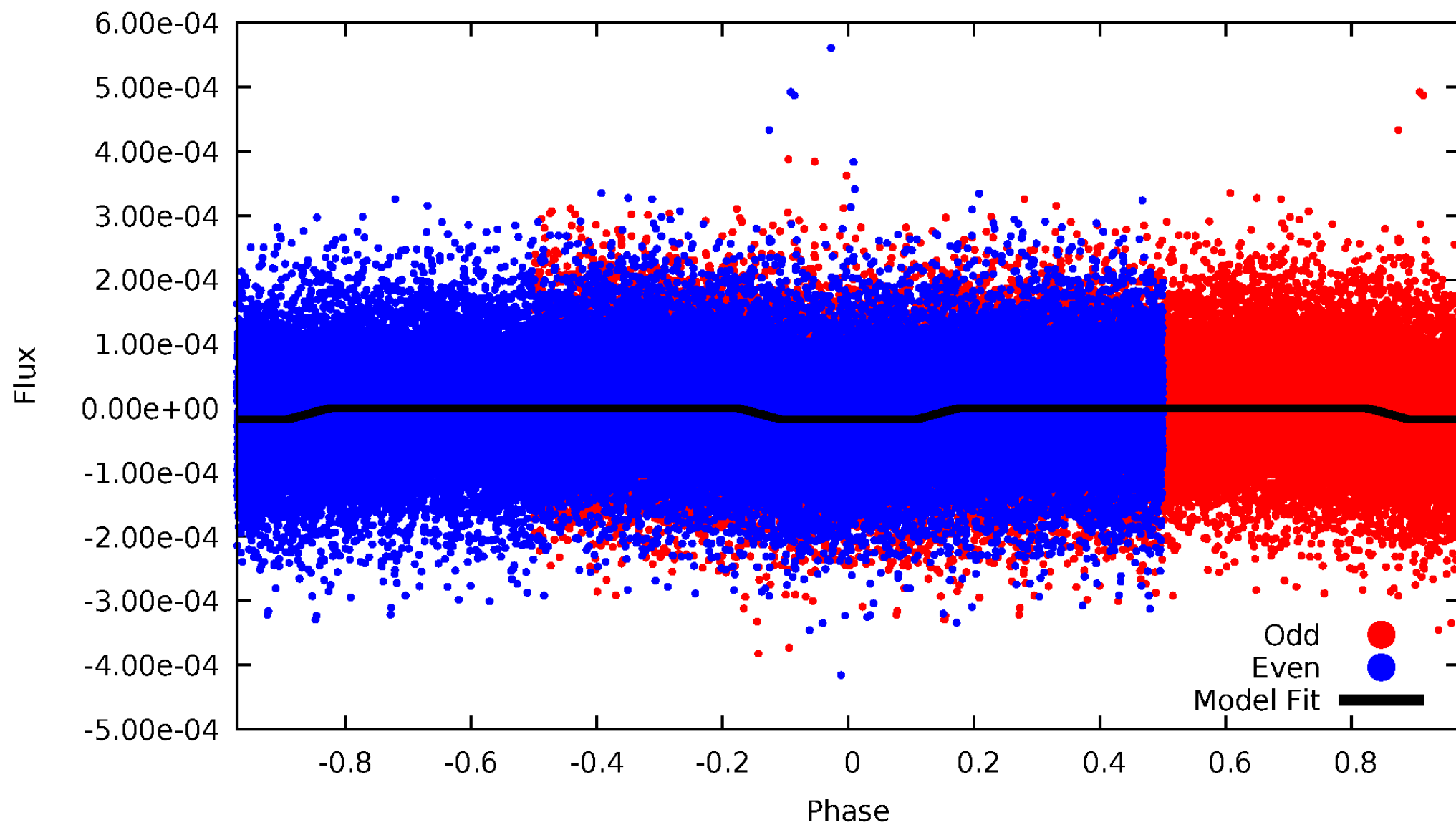
# DV Odd/Even

TCE 006515246-01



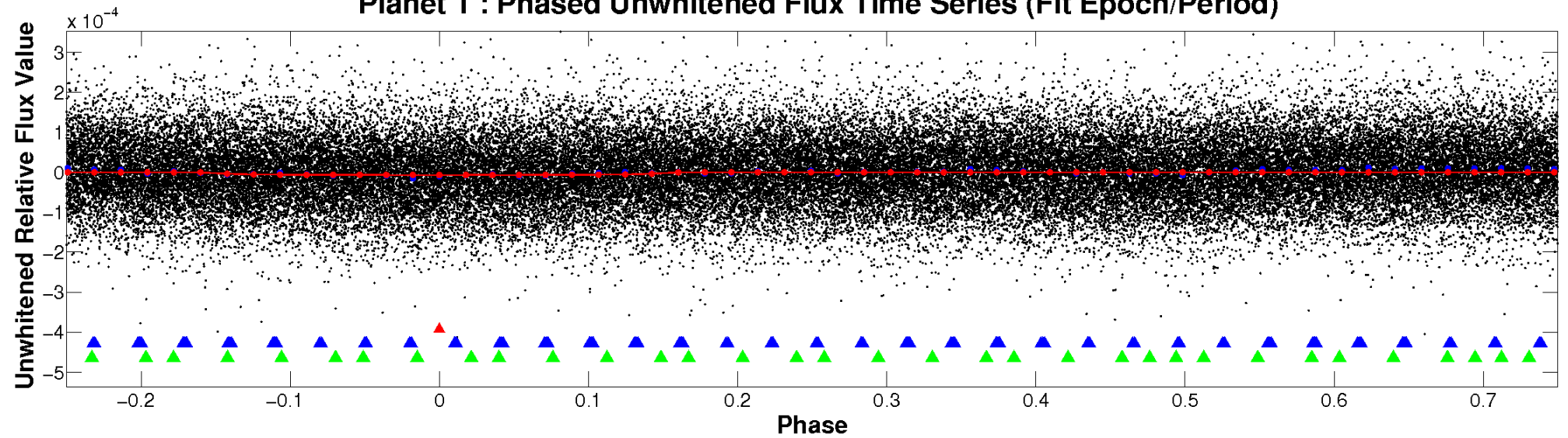
# ALT Odd/Even

TCE 006515246-01

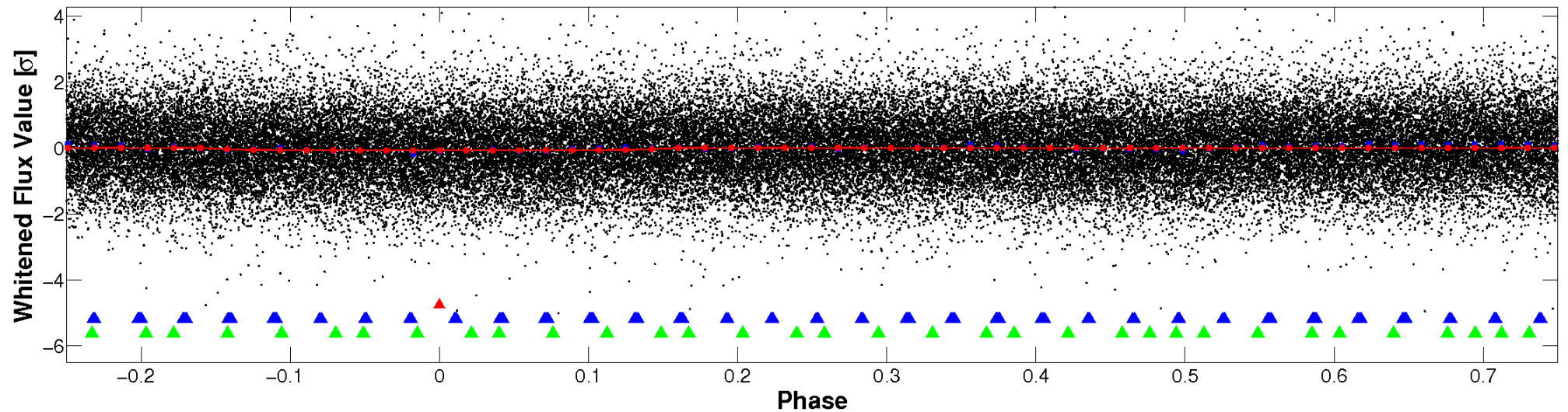


# Non-Whitened Vs. Whitened Light Curve

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



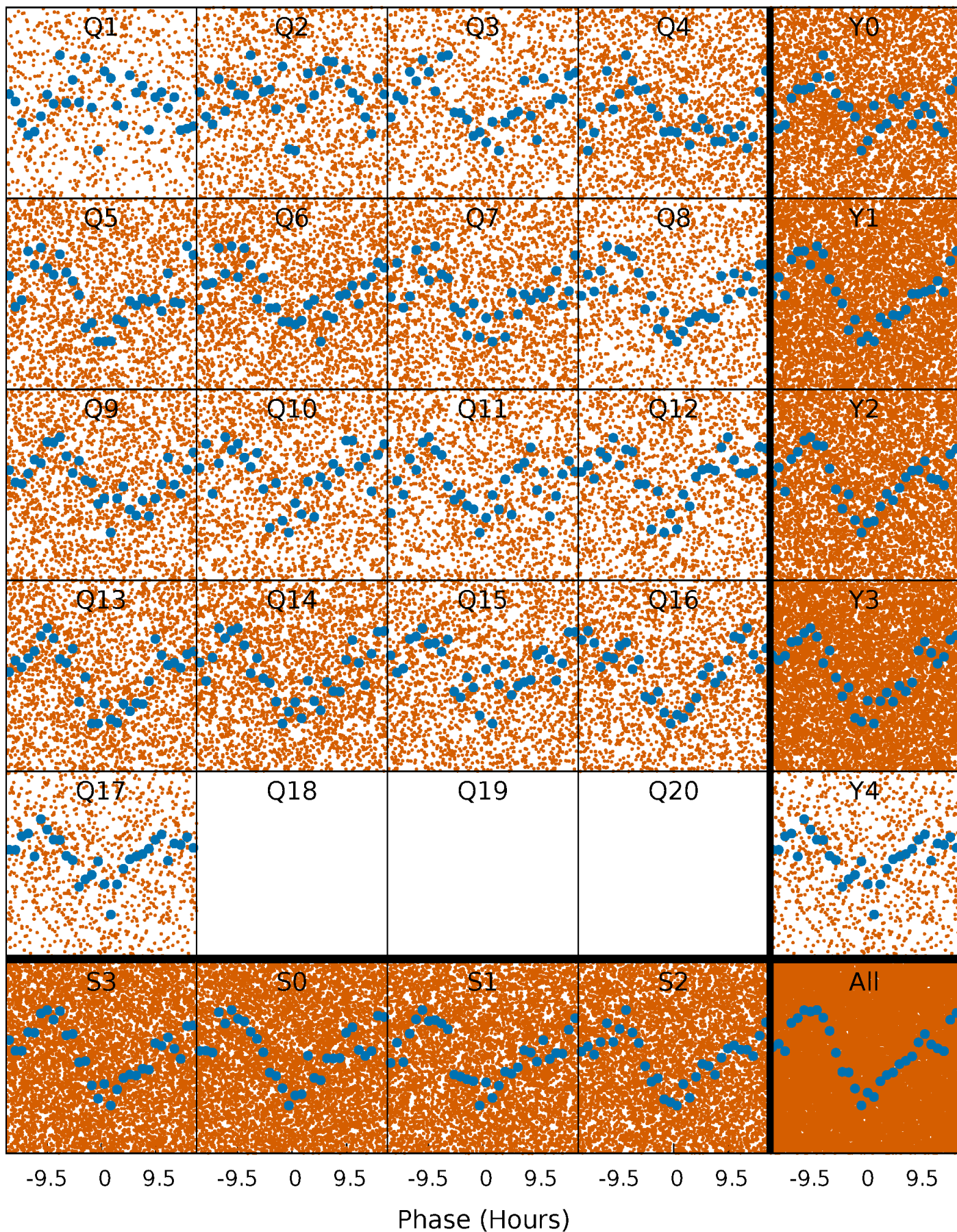
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

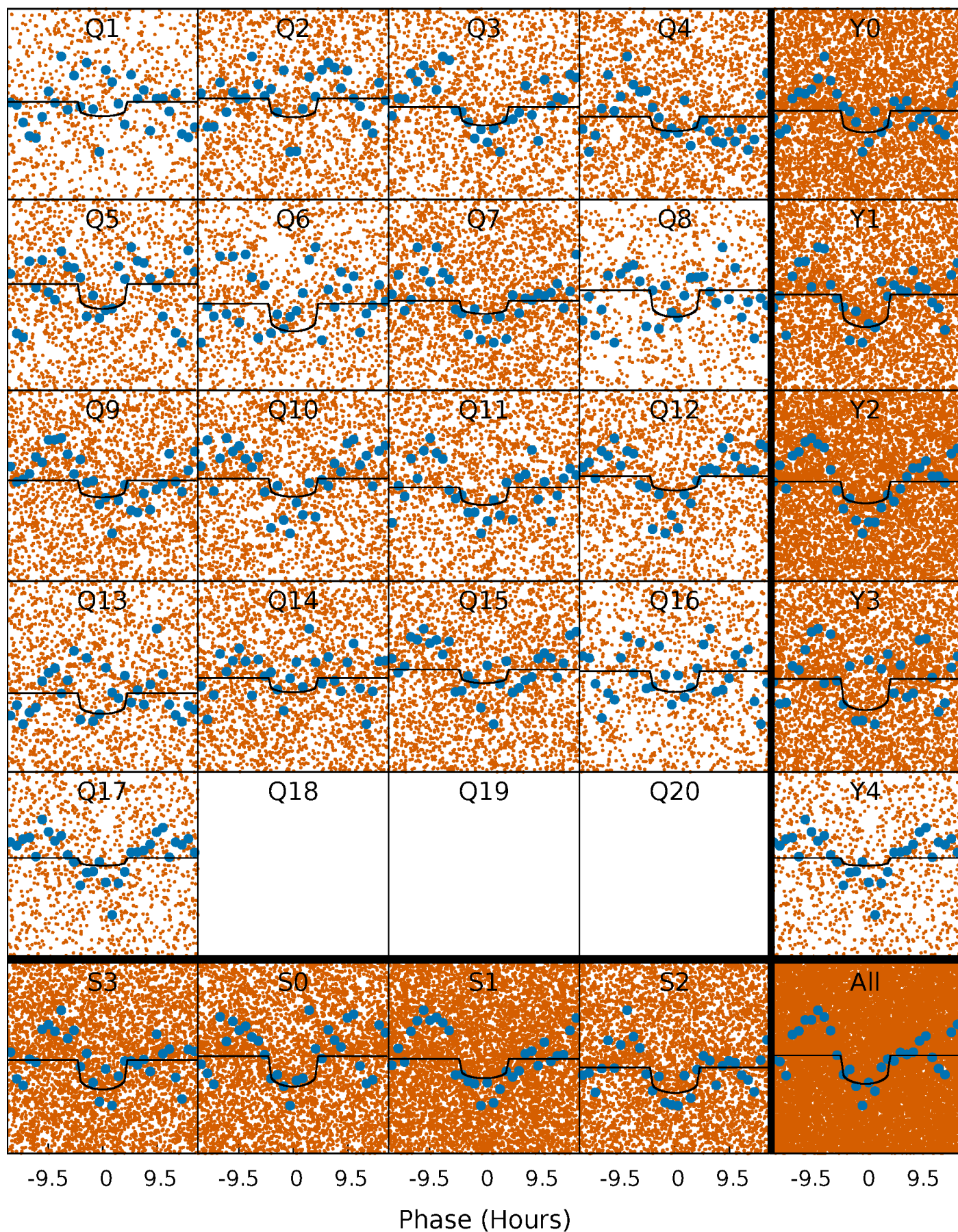
TCE 006515246-01 P= 1.147952 Days  $T_0=131.788526$  (BKJD)





# DV Quarter-Phased Transit Curves

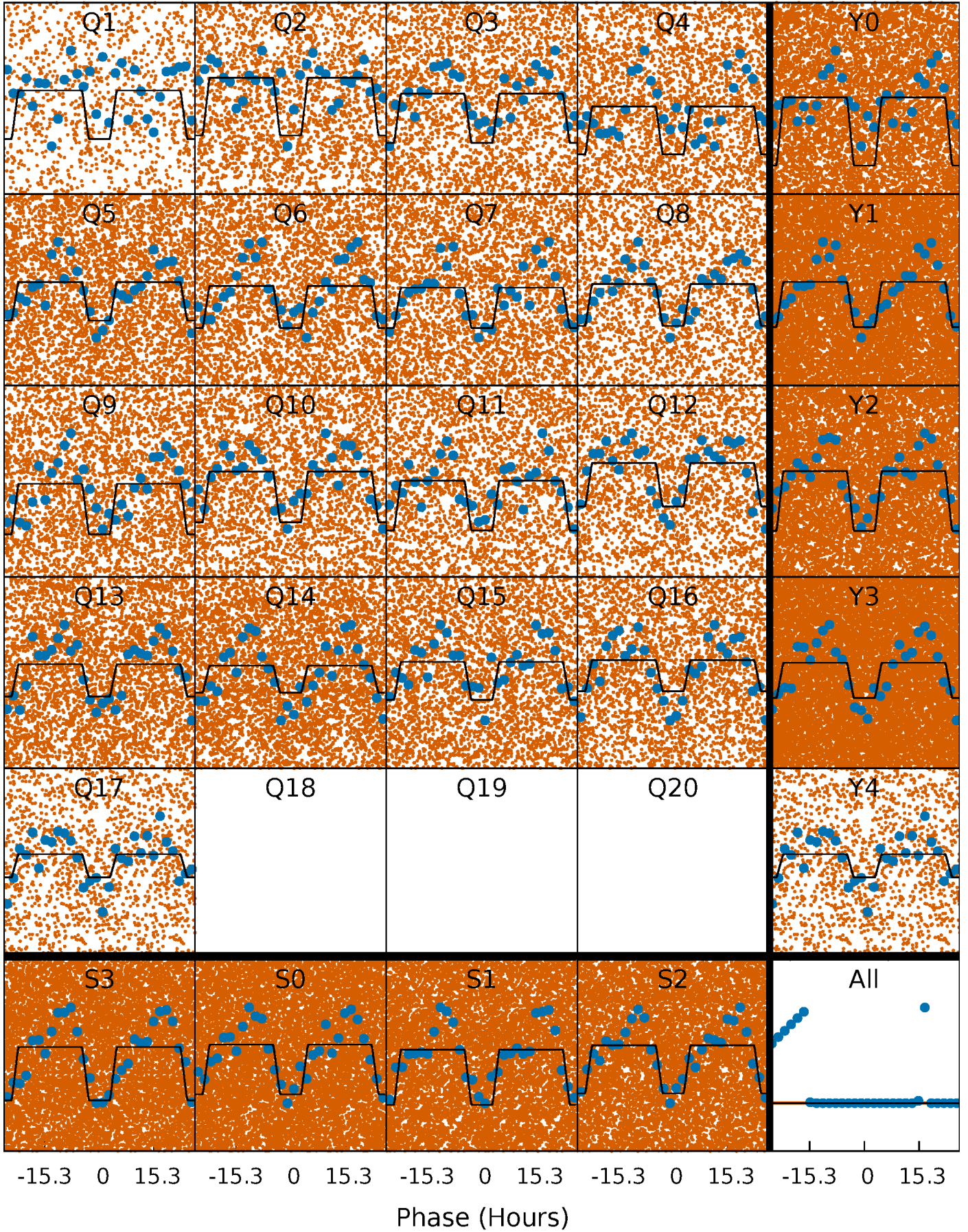
TCE 006515246-01 P= 1.147952 Days  $T_0=131.788526$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 006515246-01 P= 1.147954 Days  $T_0=131.814253$  (BKJD)

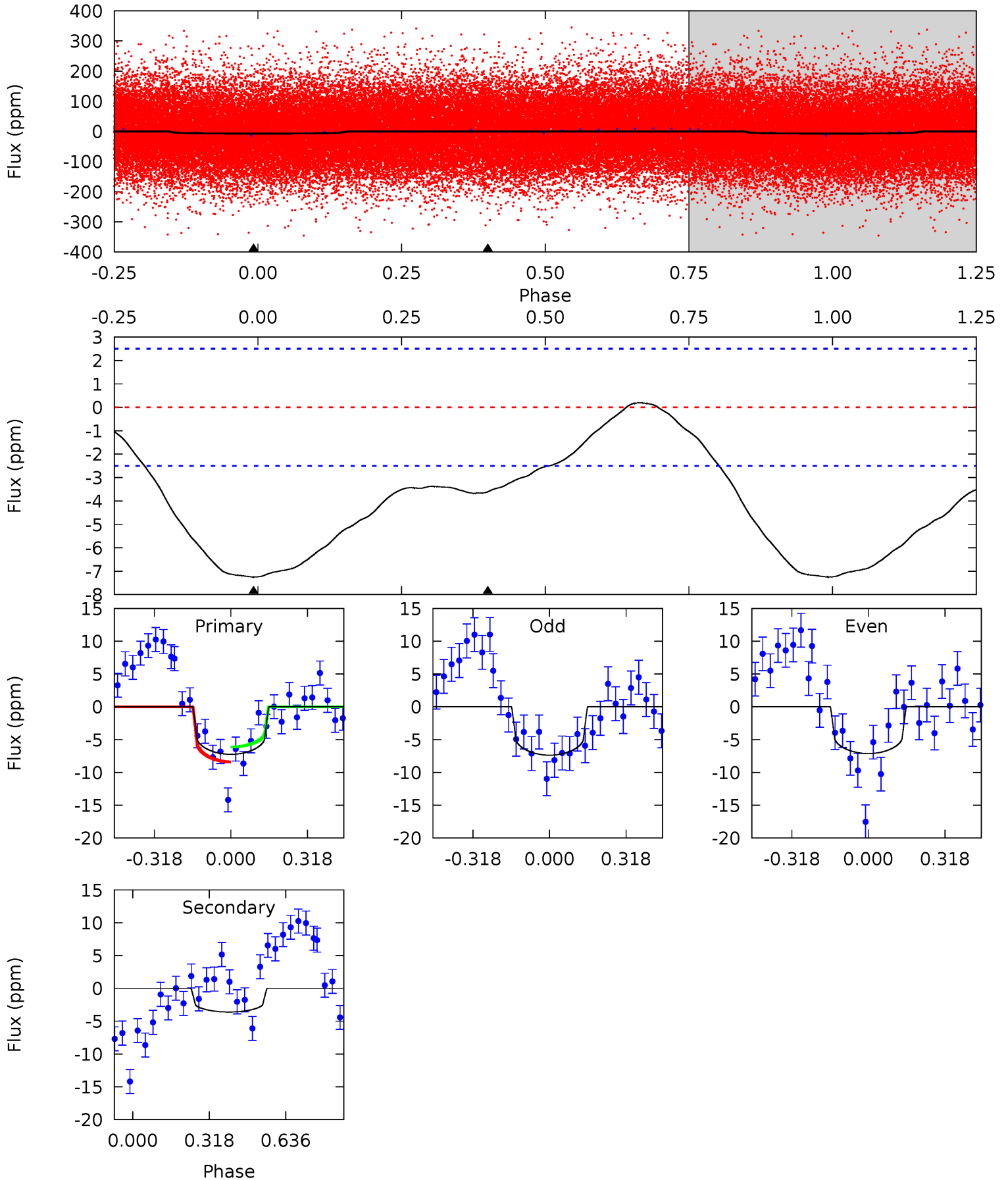




# DV Model-Shift Uniqueness Test

006515246-01, P = 1.147952 Days, E = 130.640574 Days

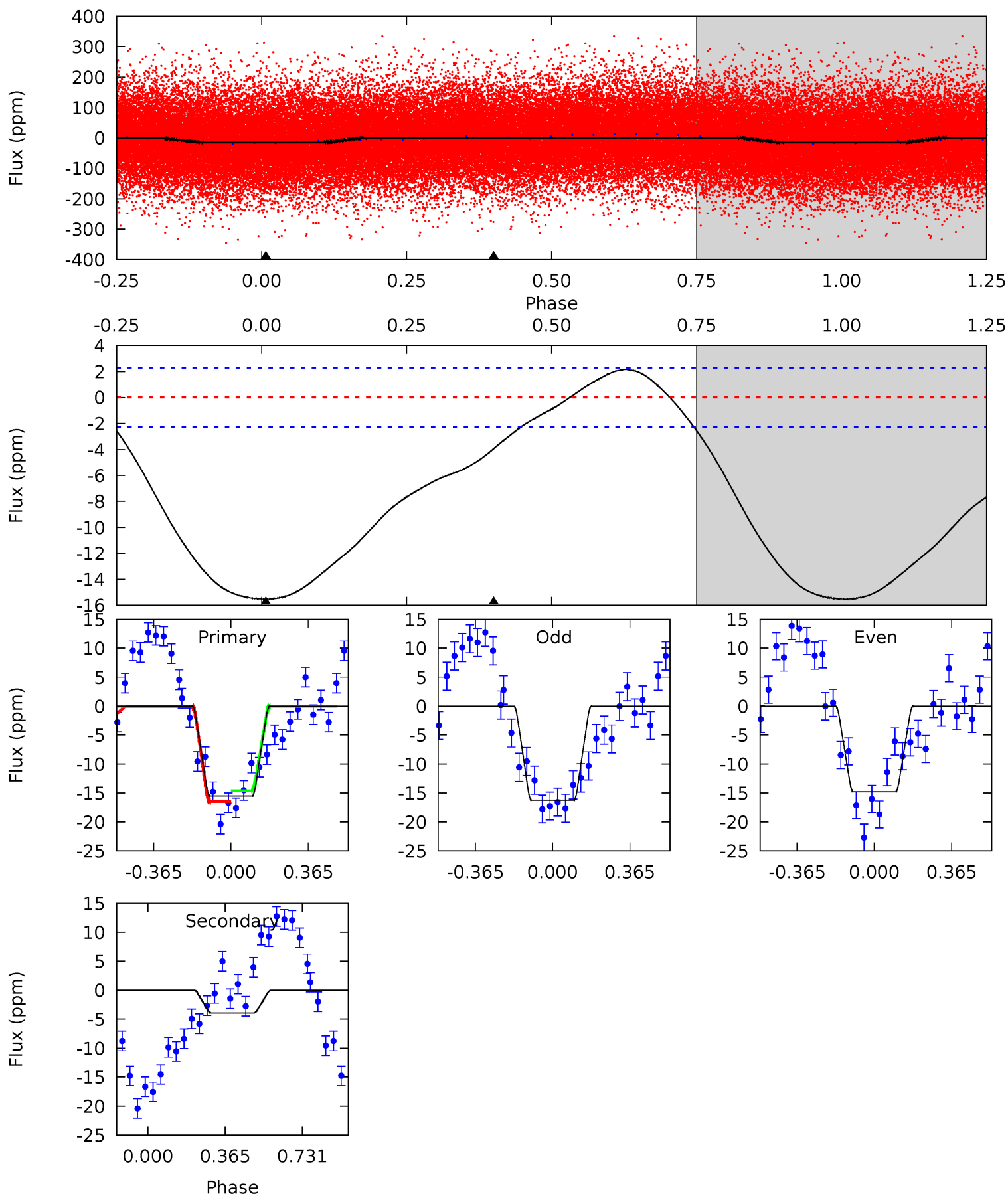
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	6.22	0	0	4.32	1.00	0.65	12.5	12.5	6.22	6.22	0.22	1.03	0.03	1.97



# Alt Model-Shift Uniqueness Test

006515246-01, P = 1.147954 Days, E = 130.666299 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
29.0	7.37	0	0	4.29	0.91	2.65	29.0	29.0	7.37	7.37	1.36	0.98	0.12	1.80



### Stellar Parameters For KIC 006515246

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8124^{+197}_{-367}$	$3.735^{+0.424}_{-0.106}$	$-0.080^{+0.200}_{-0.350}$	$3.220^{+0.782}_{-1.564}$	$2.054^{+0.291}_{-0.498}$	$0.087^{+0.338}_{-0.031}$
	+2%/-5%	+11%/-3%	+250%/-438%	+24%/-49%	+14%/-24%	+390%/-35%
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 006515246-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-4 \pm 1$	$0.87^{+0.57}_{-0.45}$	$5228^{+440}_{-574}$	$6212^{+3321}_{-1532}$	$1.910^{+6.584}_{-1.204}$
Alt.	$-4 \pm 1$	$1.33^{+0.62}_{-0.52}$	$5264^{+405}_{-606}$	$4968^{+1494}_{-1151}$	$0.929^{+1.422}_{-0.504}$

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



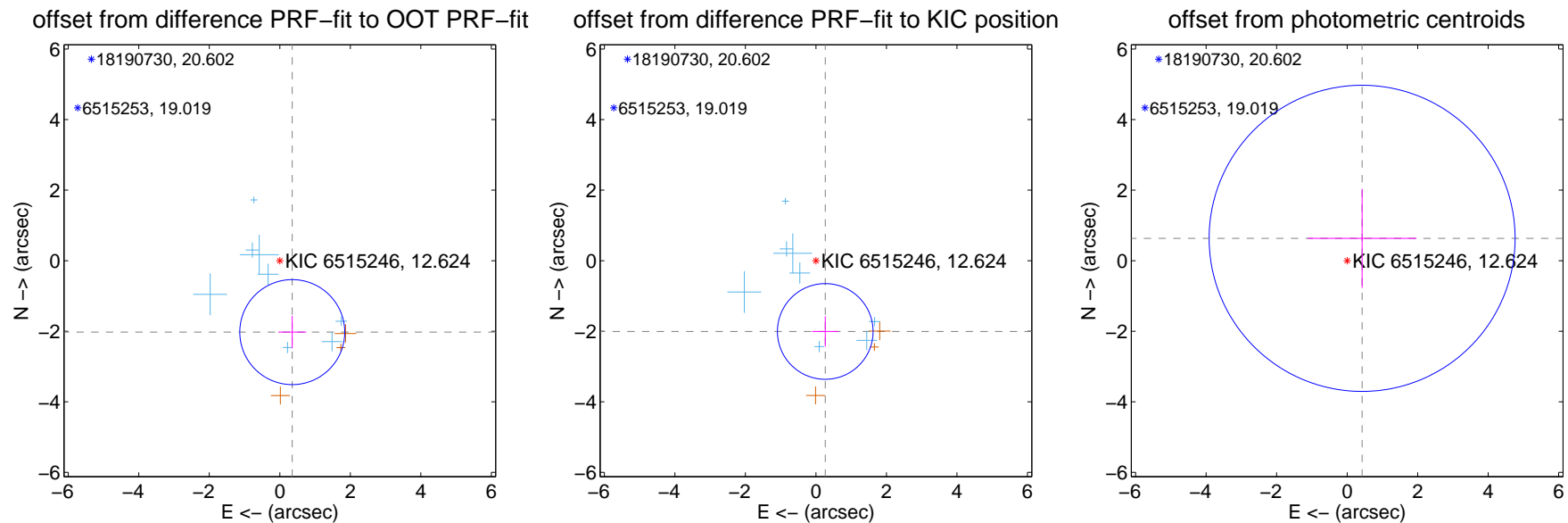
## DV Centroid Data

Supplemental centroid analysis for 006515246-01. Kepler magnitude: 12.62. Transit SNR 9.00

There are 8 quarters with good PRF difference image offsets

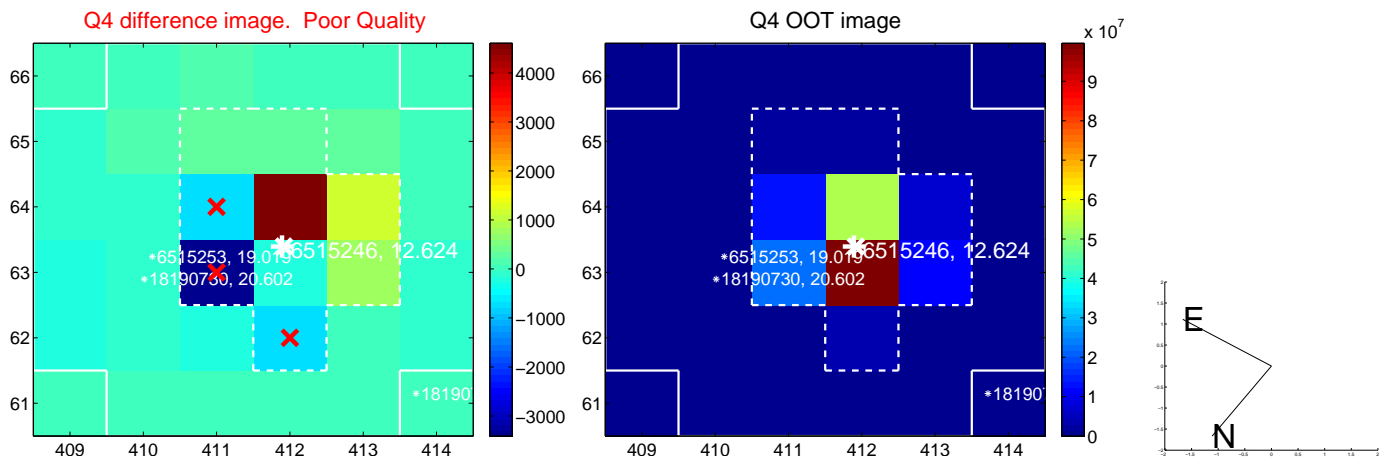
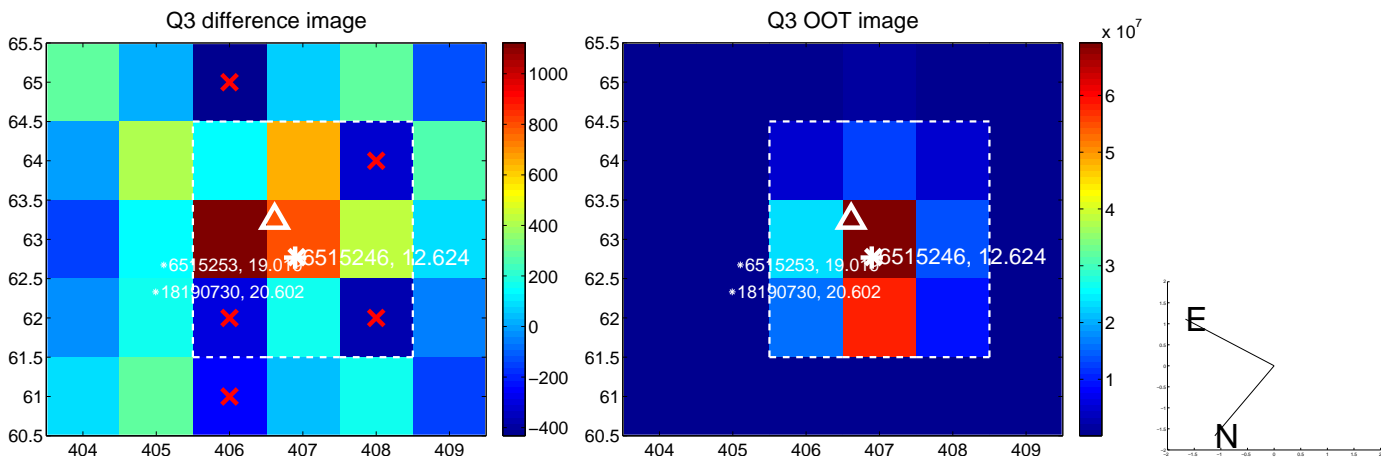
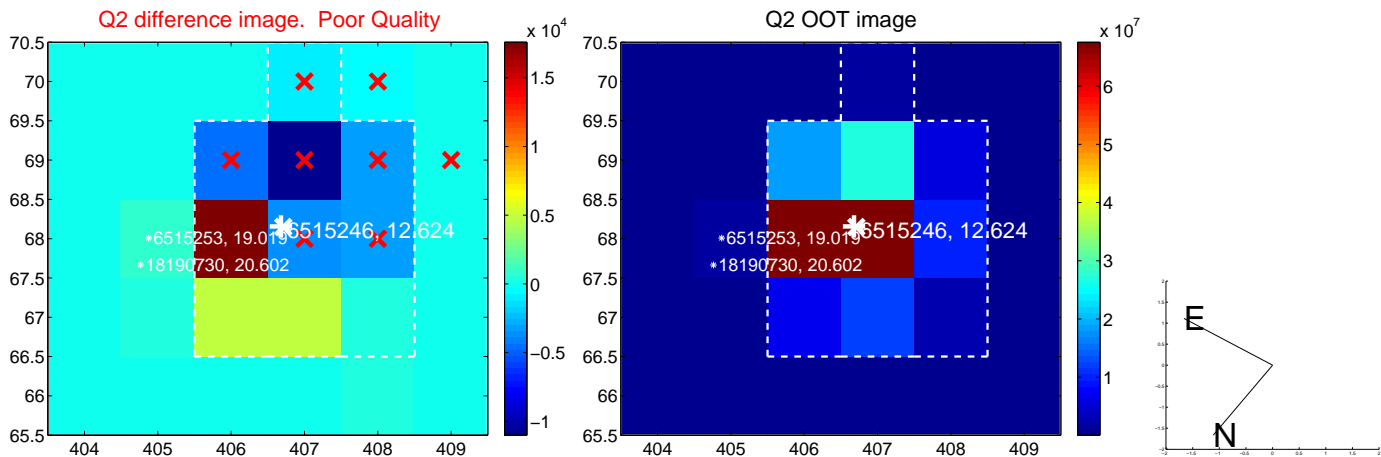
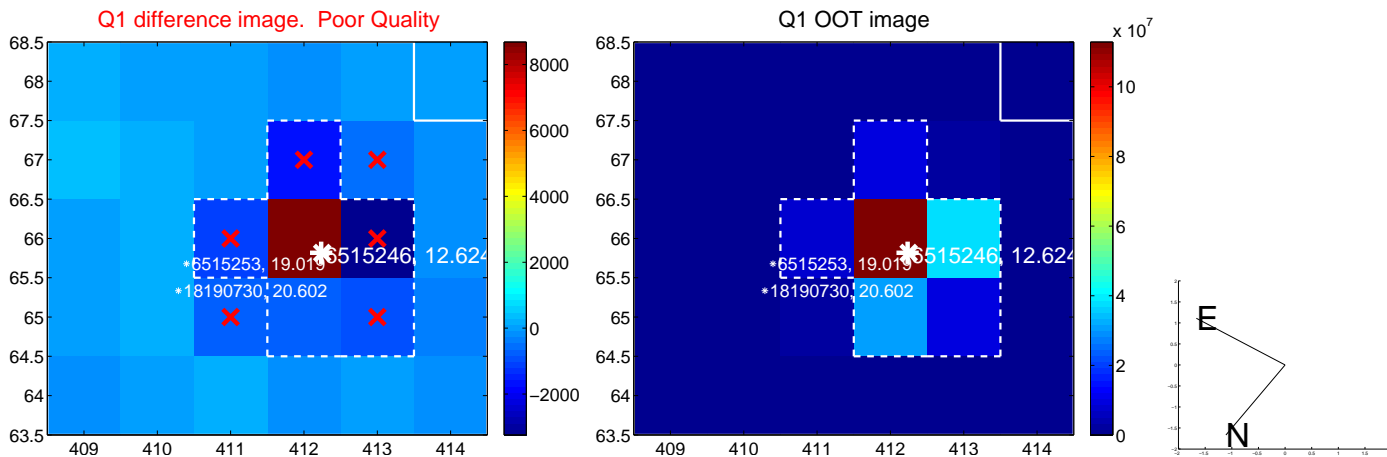
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.055 \pm 0.496$	4.14	$-0.353 \pm 0.396$	$-2.025 \pm 0.461$
PRF-fit source offset from KIC position	$2.023 \pm 0.452$	4.47	$-0.265 \pm 0.375$	$-2.006 \pm 0.433$
photometric centroid source offset	$0.76 \pm 1.45$	0.53	$-0.42 \pm 1.54$	$0.63 \pm 1.40$

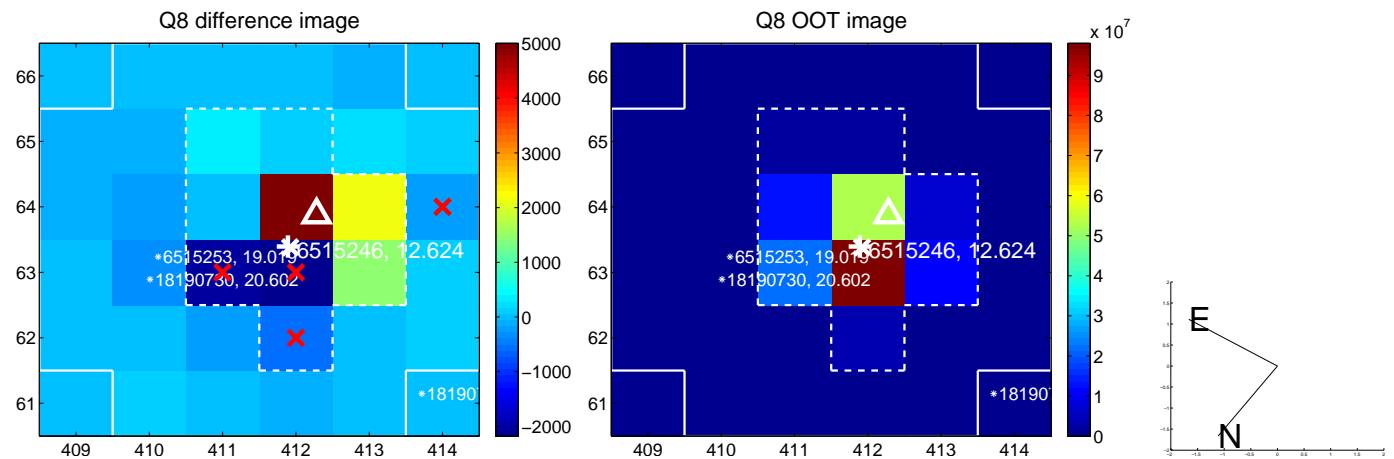
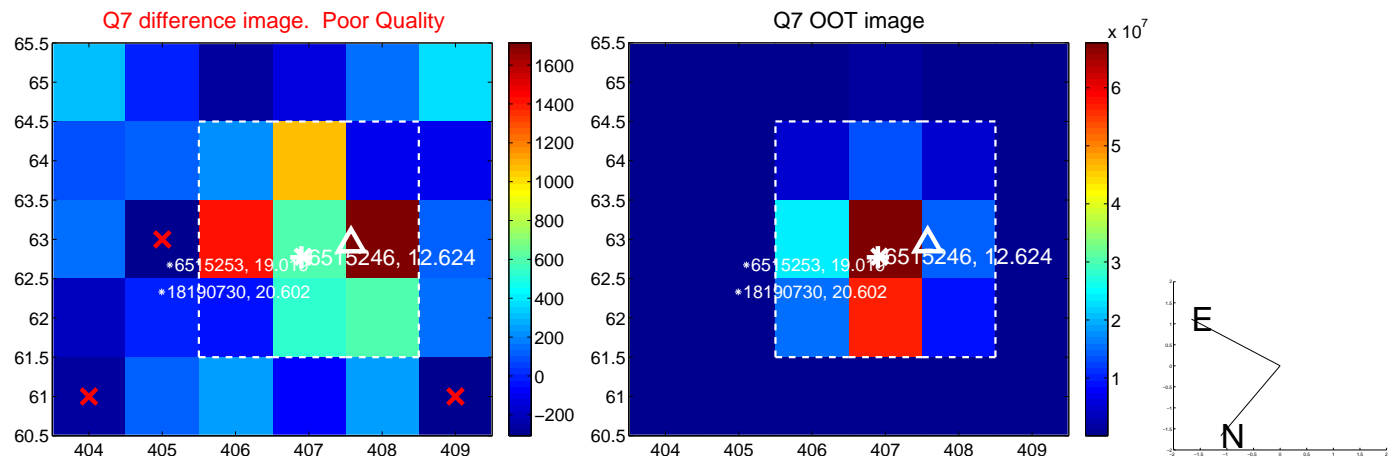
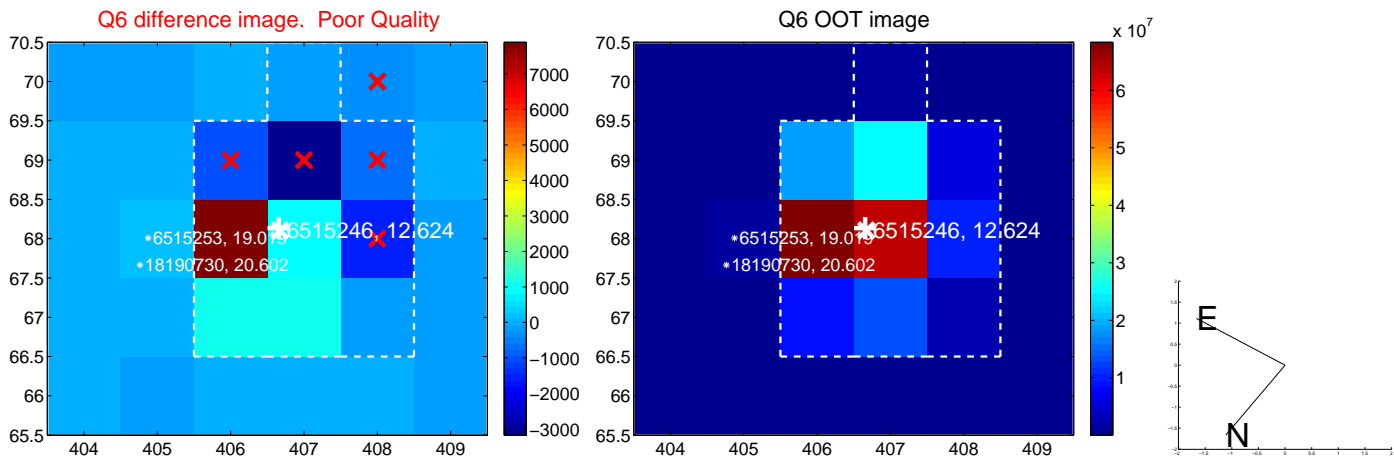
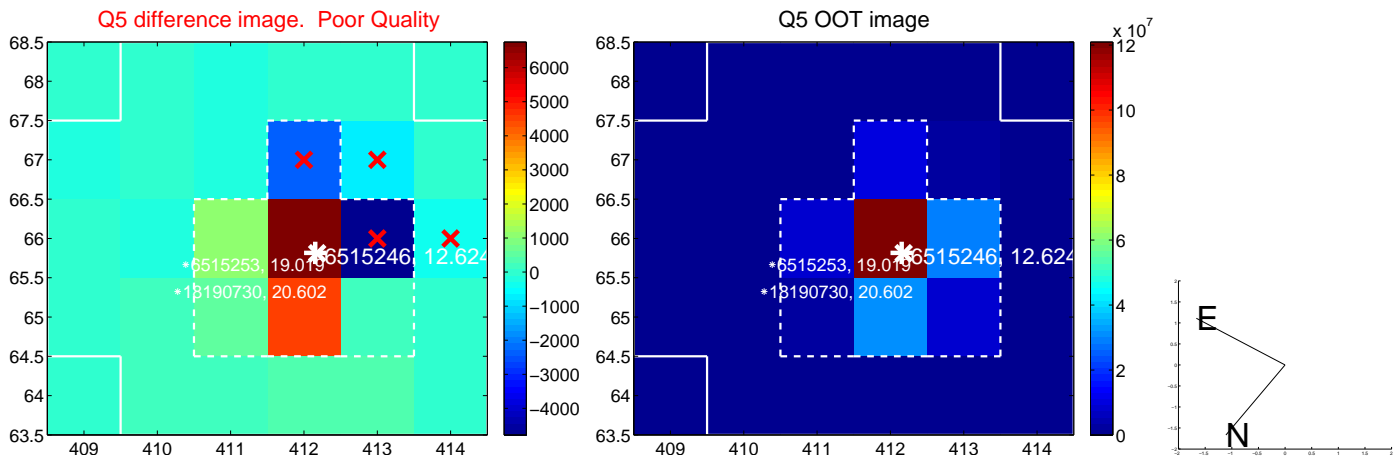


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

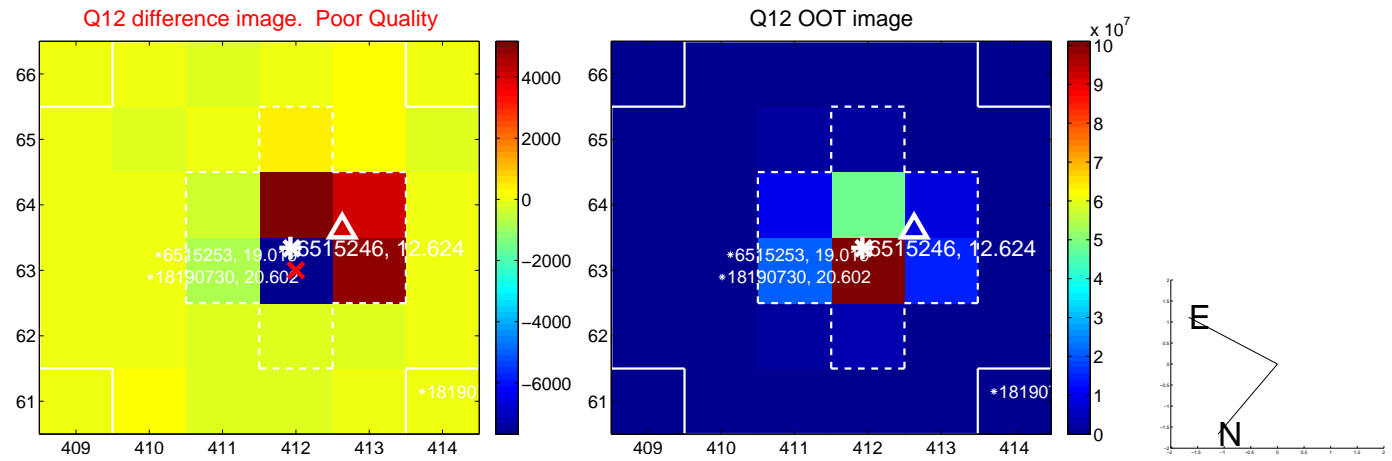
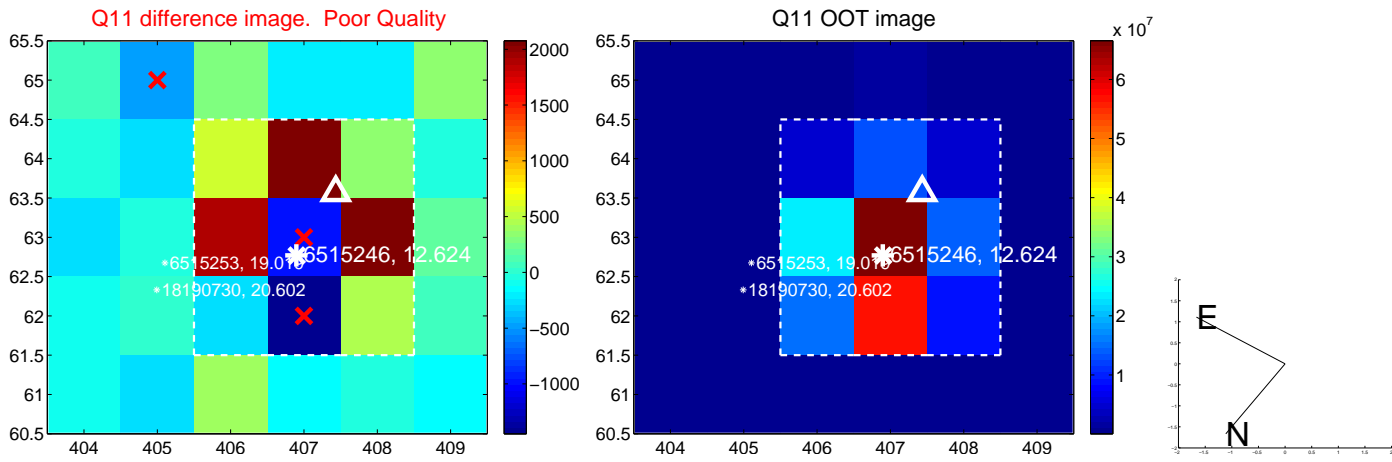
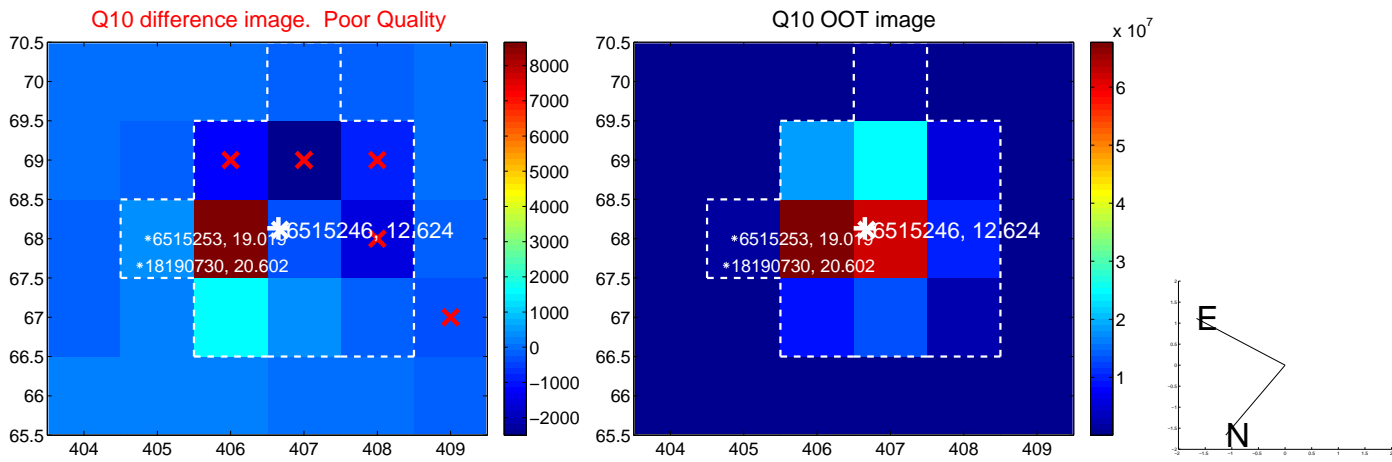
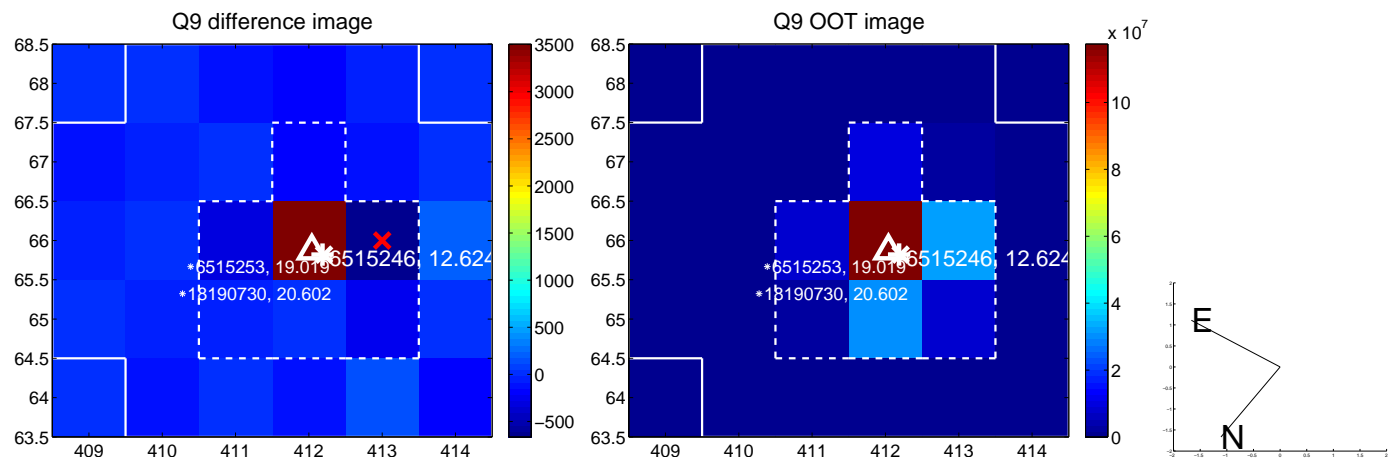


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

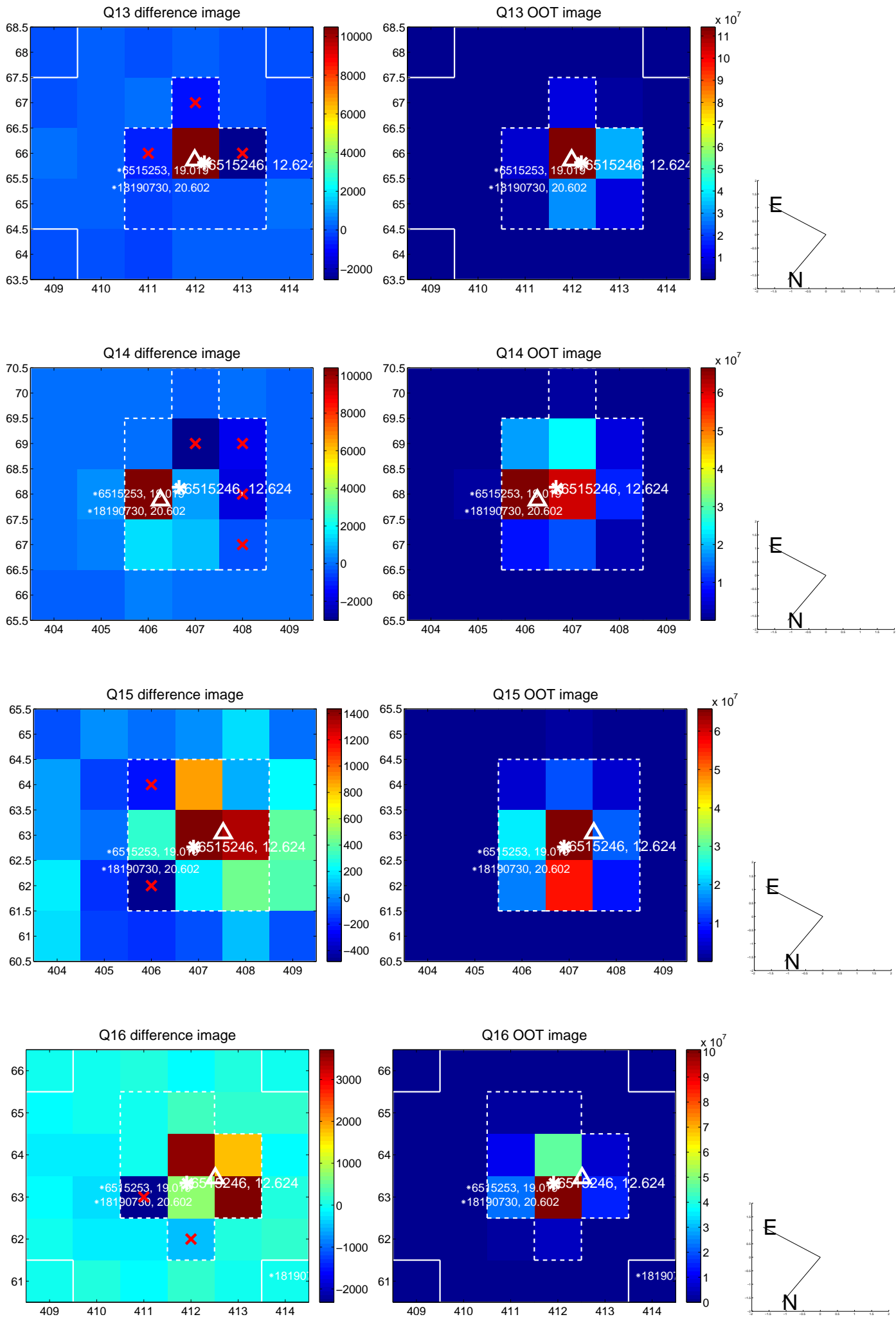




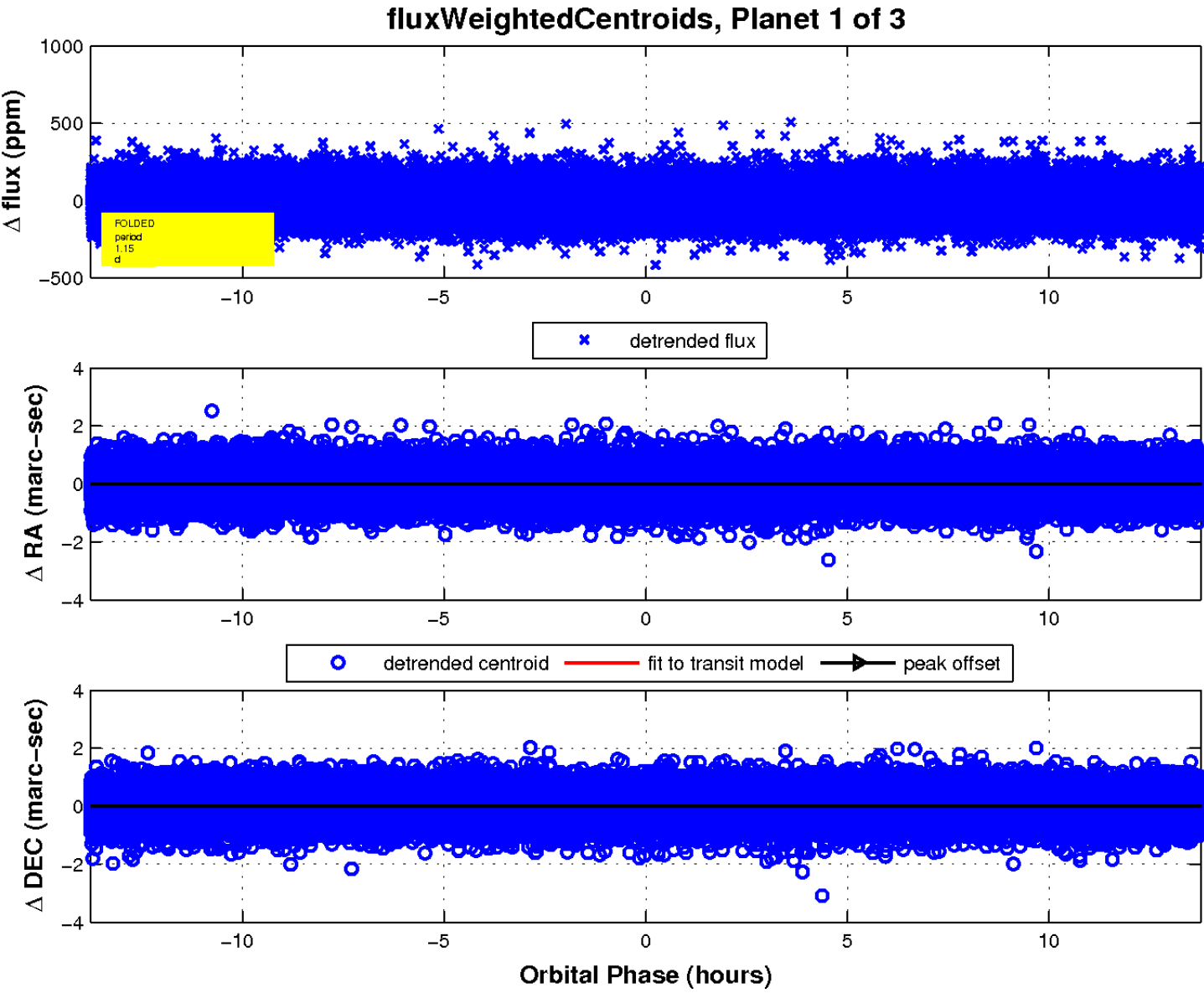
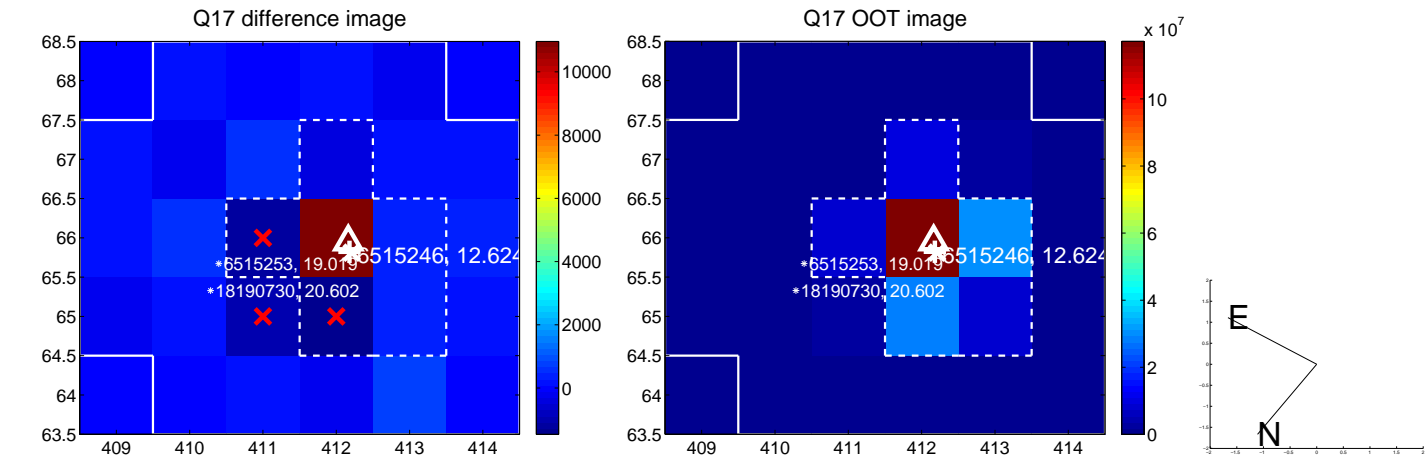
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

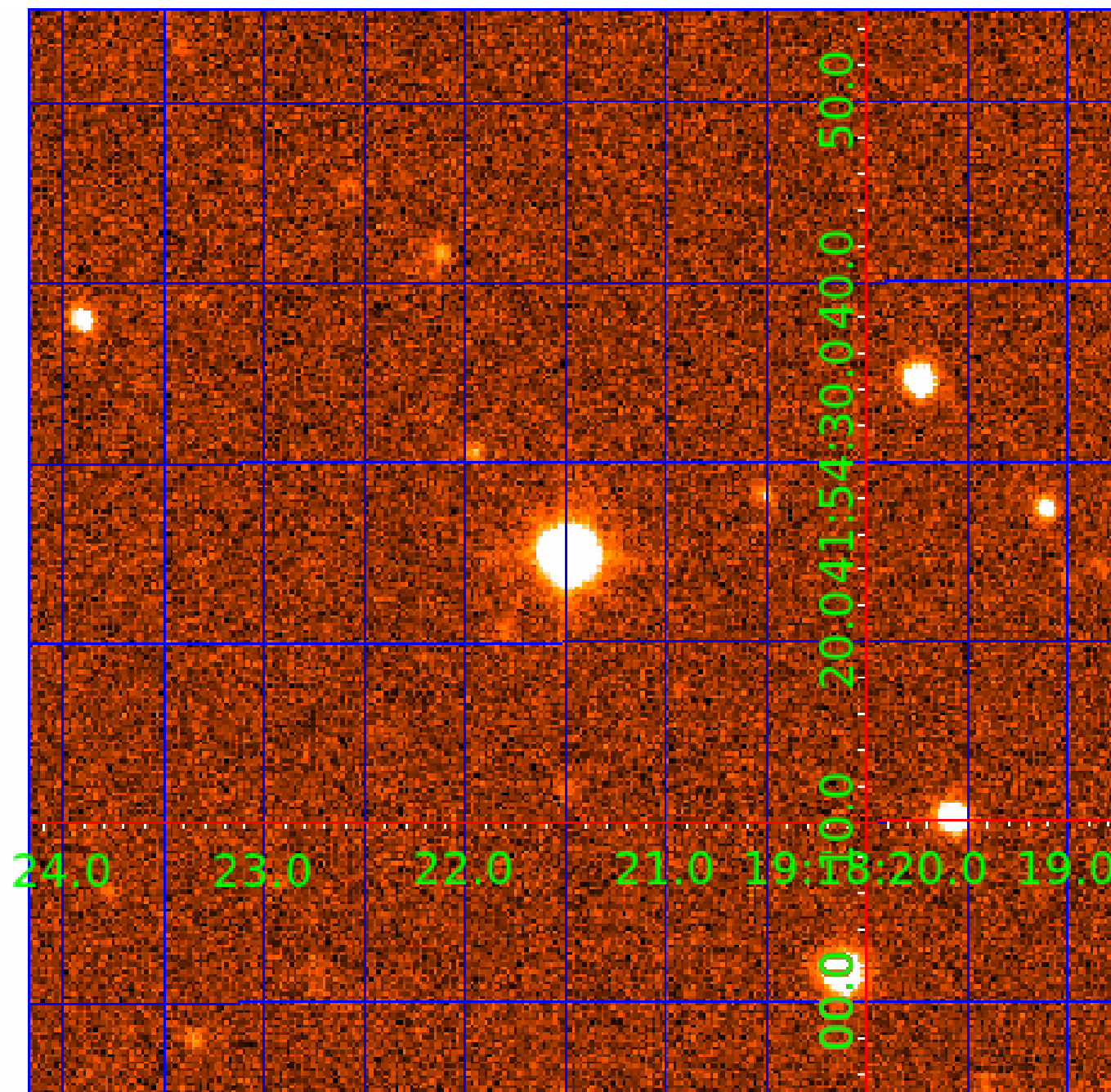


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006515246

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006515246-01	OBS	No	1.147952	131.788526	6.8	8.319	7.5	9.0	3.22	8124	0.95	54364.19
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006515246-03	OBS	No	42.223744	170.468221	121.7	1.385	10.1	8.3	3.22	8124	4.08	444.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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006515246-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
006515246-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

**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.

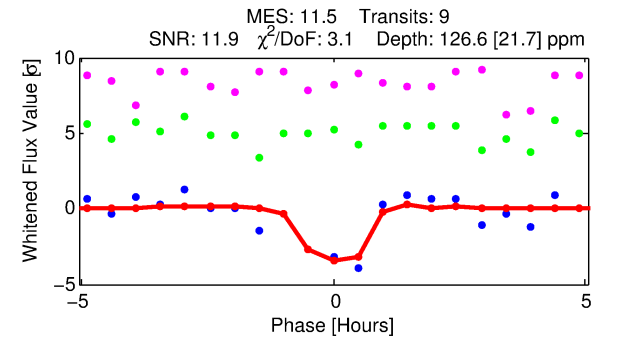
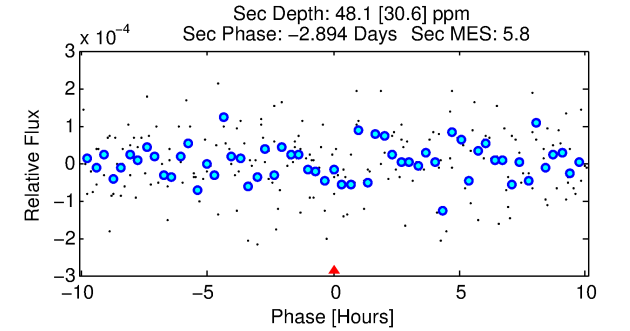
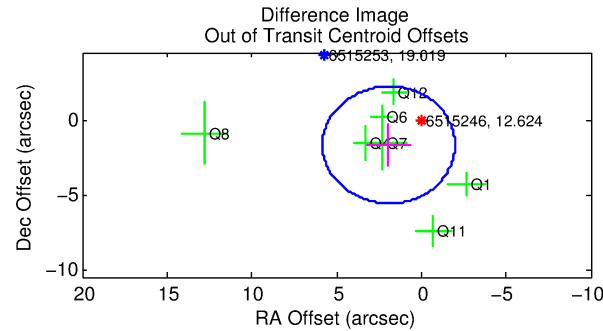
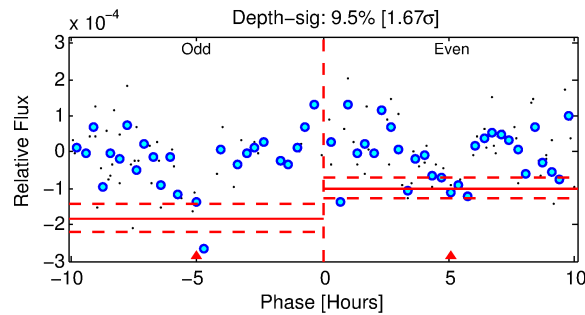
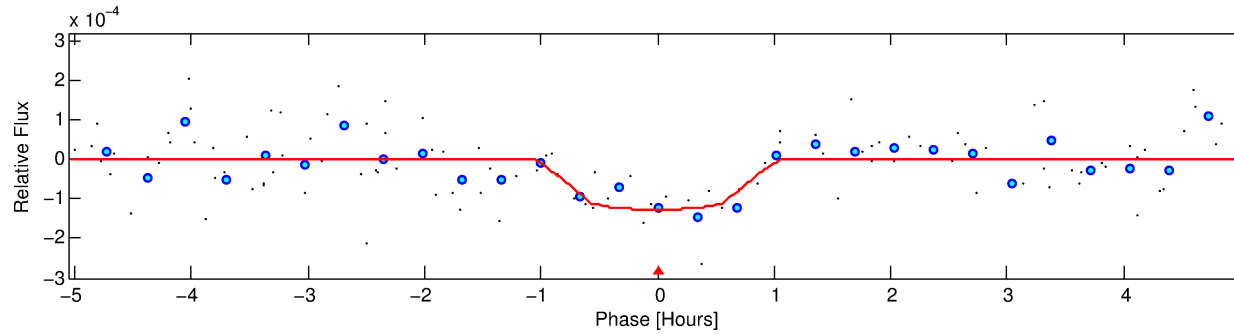
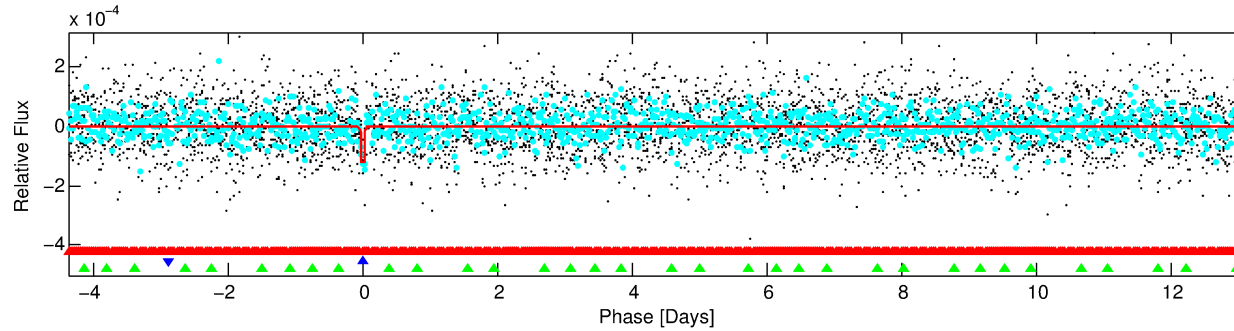
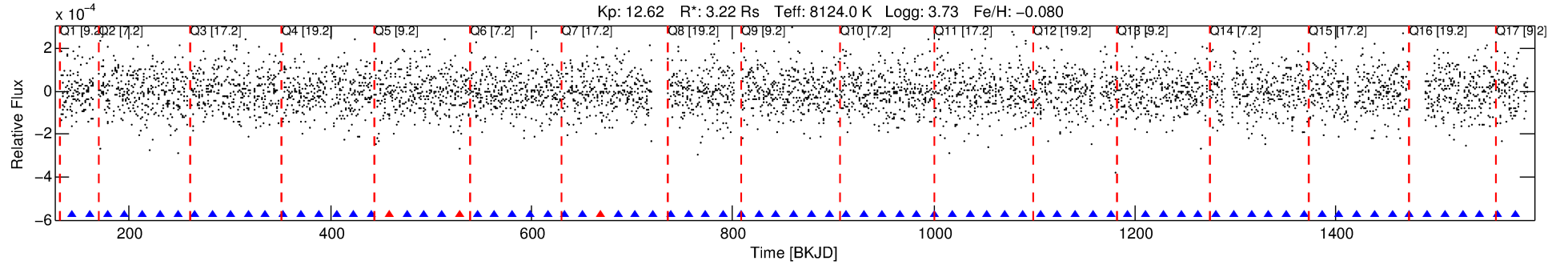
## Ephemeris Match Information For 006515246-02

No Significant Match Found



# DV One-Page Summary

KIC: 6515246 Candidate: 2 of 3 Period: 17.498 d



## DV Fit Results:

Period = 17.49761 [0.00022] d  
Epoch = 143.4529 [0.0100] BKJD  
Rp/R\* = 0.0116 [0.0114]  
a/R\* = 45.33 [265.57]  
b = 0.83 [2.16]  
Seff = 1438.49 [1077.55]  
Teq = 1570 [294] K  
Rp = 4.07 [4.45] Re  
a = 0.1677 [0.0770] AU  
Ag = 44.98 [98.34] [0.45 $\sigma$ ]  
Teffp = 6288 [3254] K [1.44 $\sigma$ ]

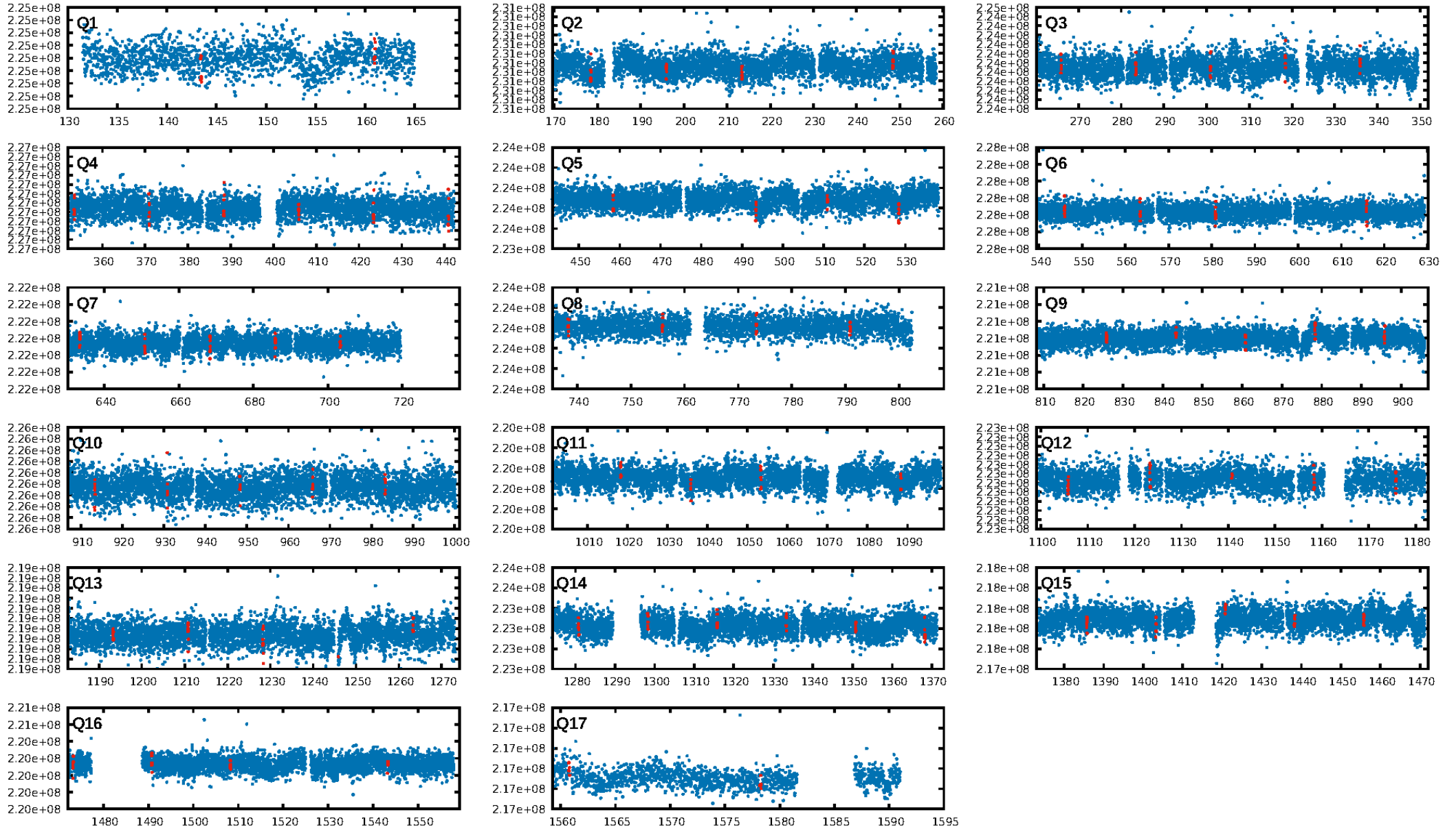
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.23 $\sigma$ ]  
LongPeriod-sig: 100.0% [272.06 $\sigma$ ]  
ModelChiSquare2-sig: 0.8%  
ModelChiSquareGof-sig: 90.4%  
**Bootstrap-pfa: 2.74e-09**  
**RollingBand-fgt: 0.67 [6/9]**  
GhostDiagnostic-chr: 1.444  
Centroid-sig: 26.6%  
Centroid-so: 0.668 arcsec [1.02 $\sigma$ ]  
OotOffset-rm: 2.551 arcsec [1.96 $\sigma$ ]  
OotOffset-st: 1/2/3/1 [7]  
KicOffset-rm: 2.605 arcsec [1.99 $\sigma$ ]  
KicOffset-st: 1/2/3/1 [7]  
DiffImageQuality-fgm: 0.29 [2/7]  
DiffImageOverlap-fno: 0.82 [14/17]

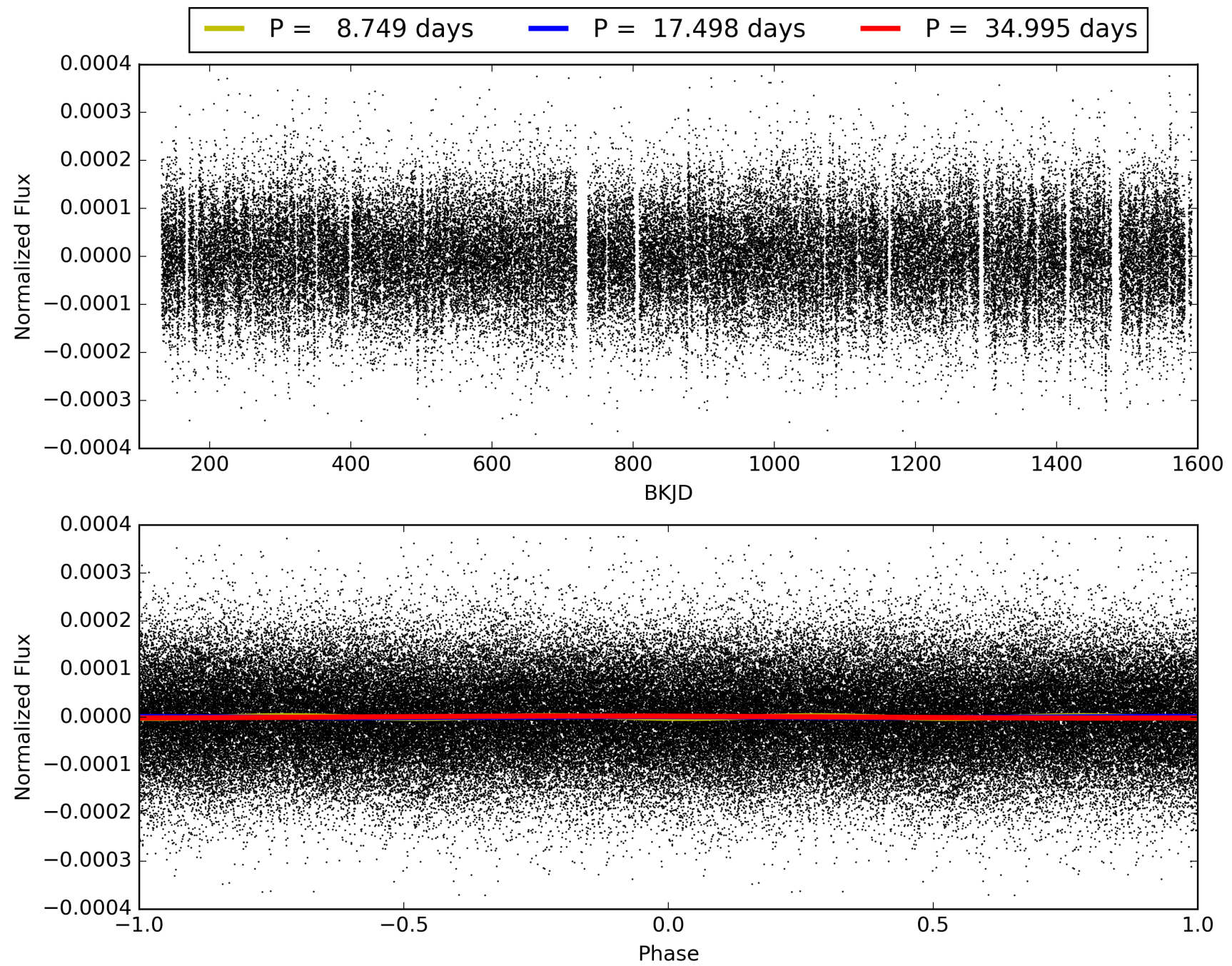
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:27:58 Z

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

# TCE 006515246-02, PDC Light Curves

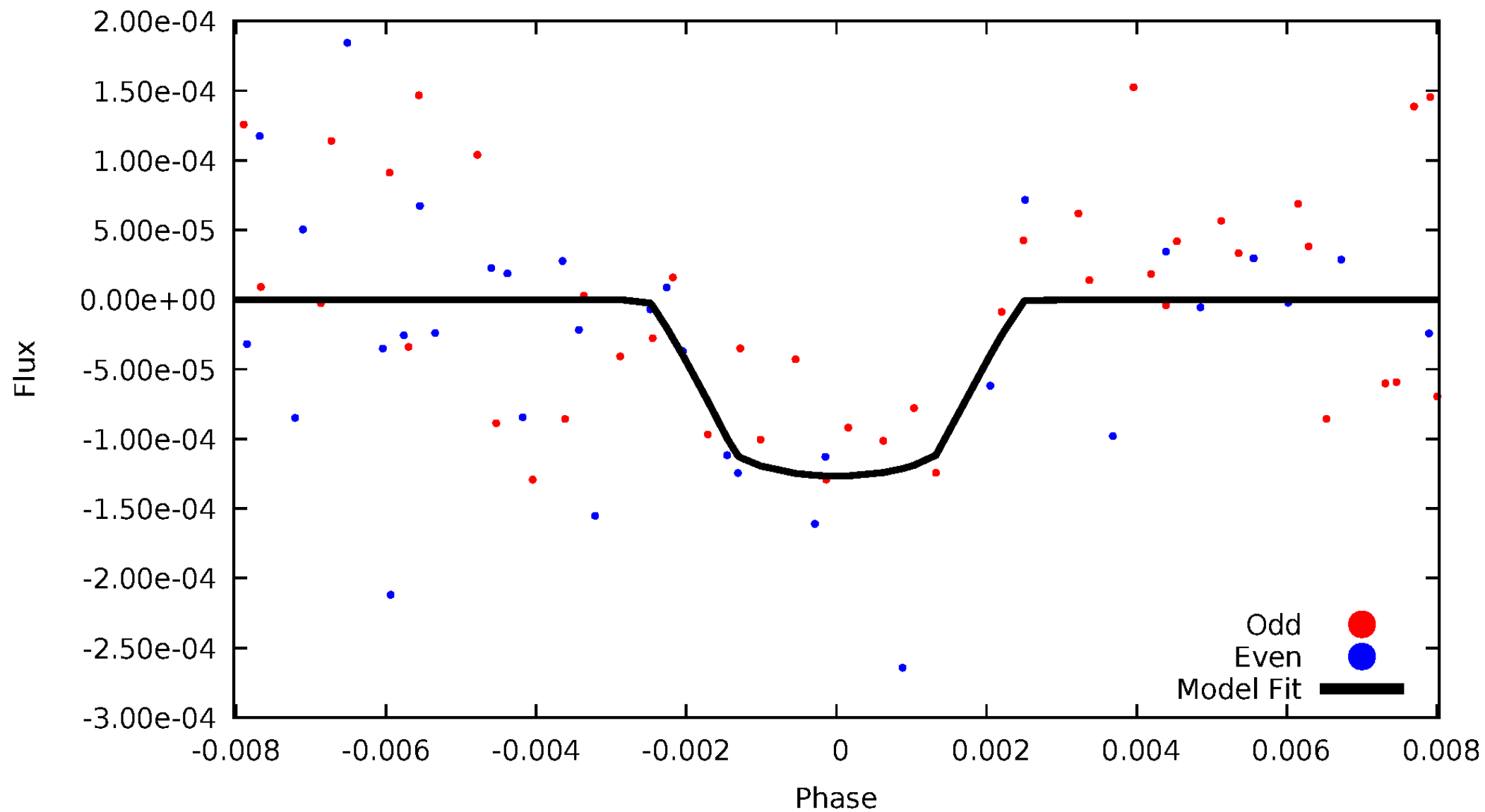


TCE 006515246-02



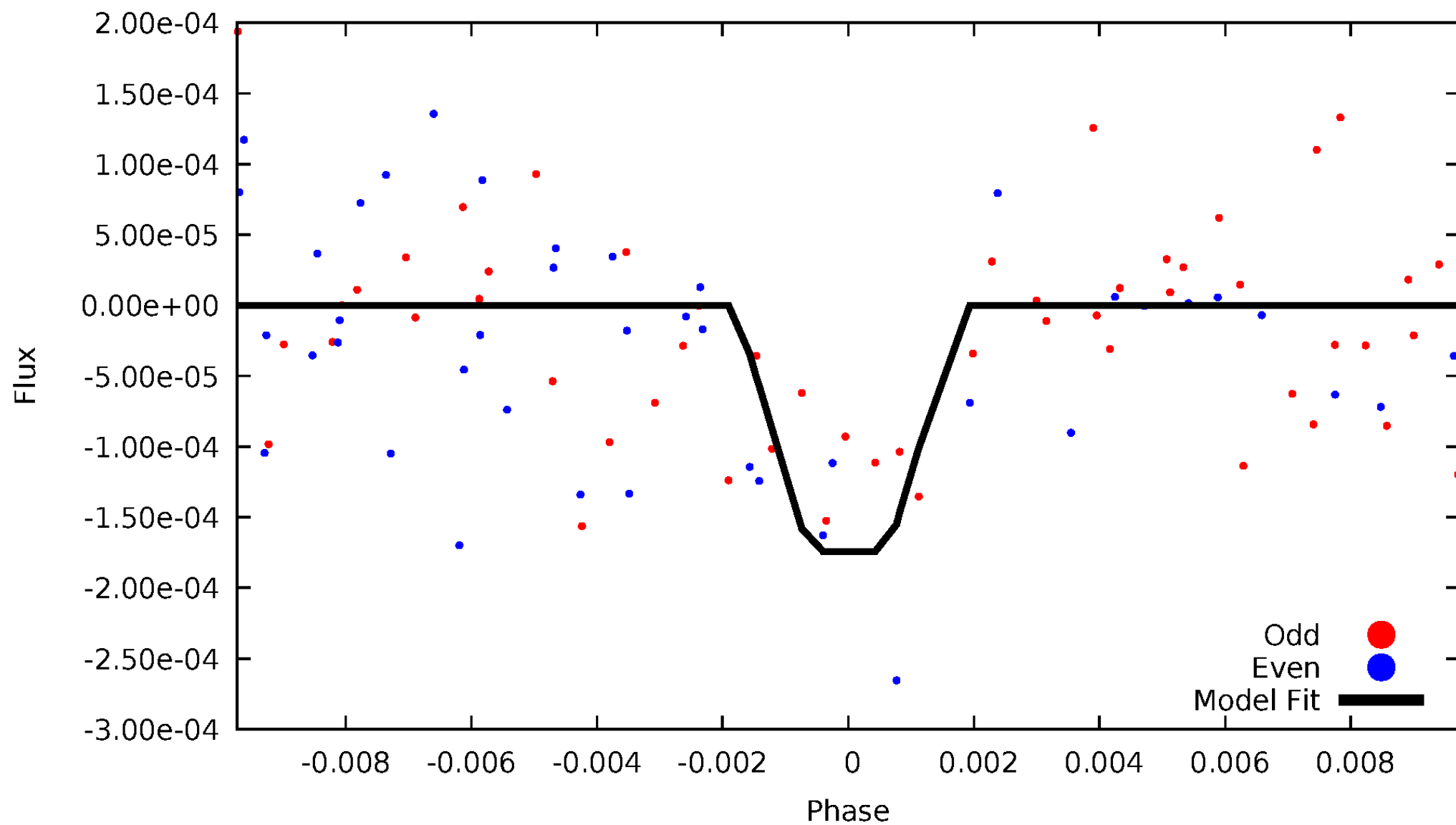
# DV Odd/Even

TCE 006515246-02



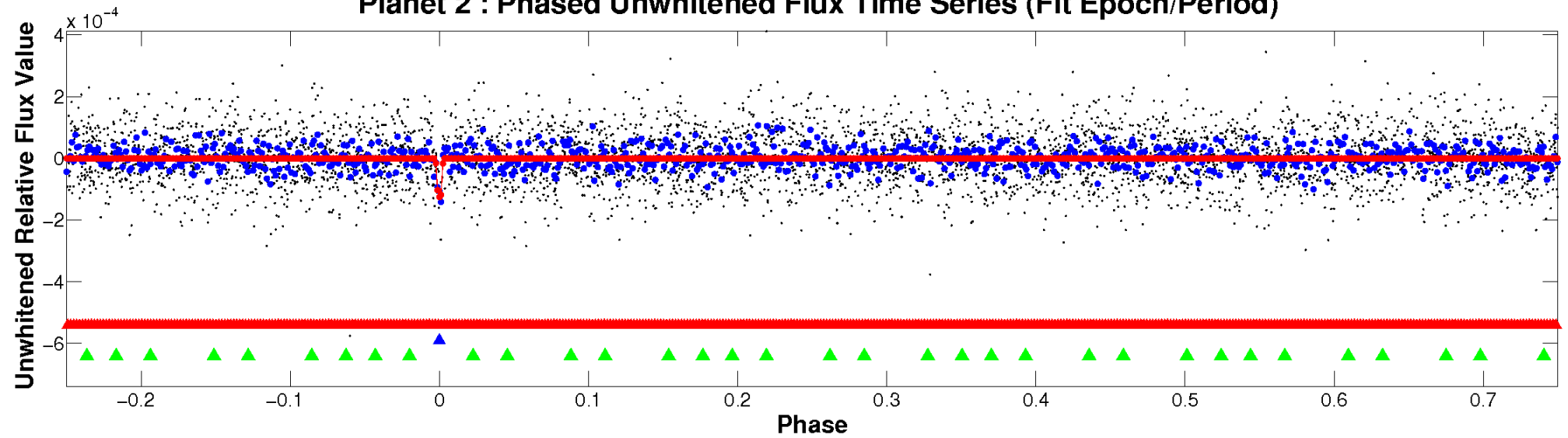
# ALT Odd/Even

TCE 006515246-02

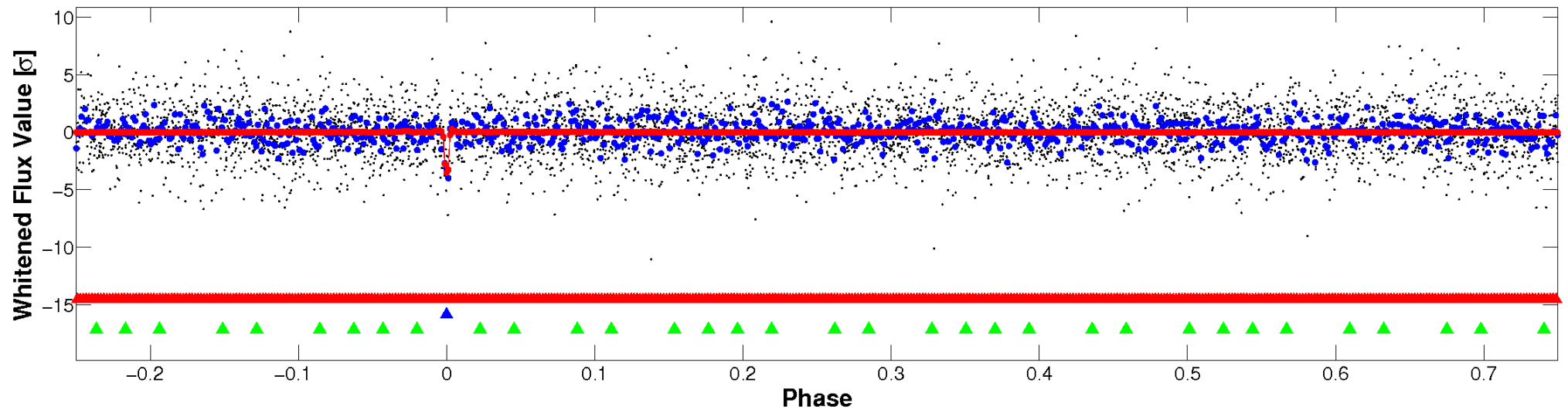


# Non-Whitened Vs. Whitened Light Curve

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



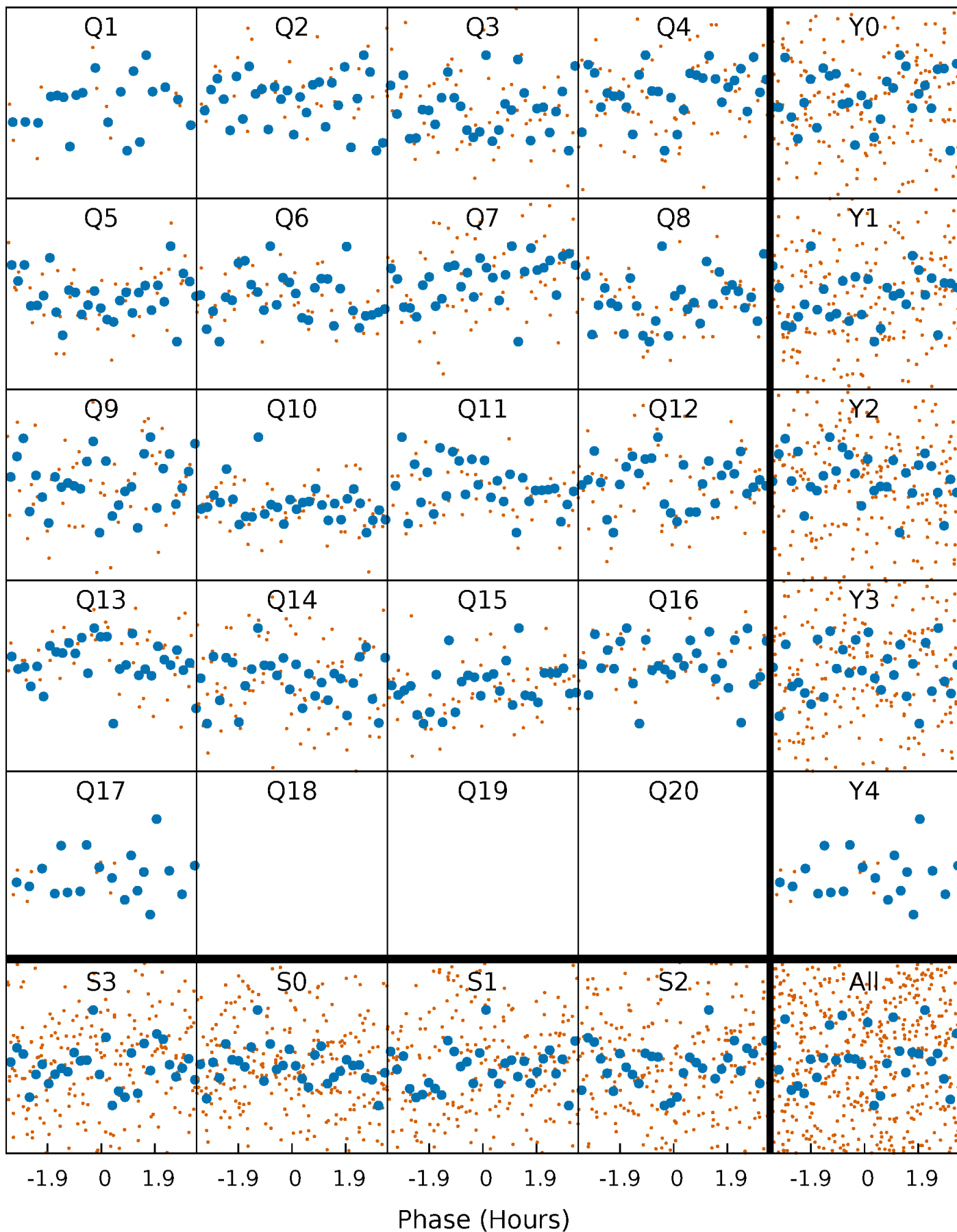
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





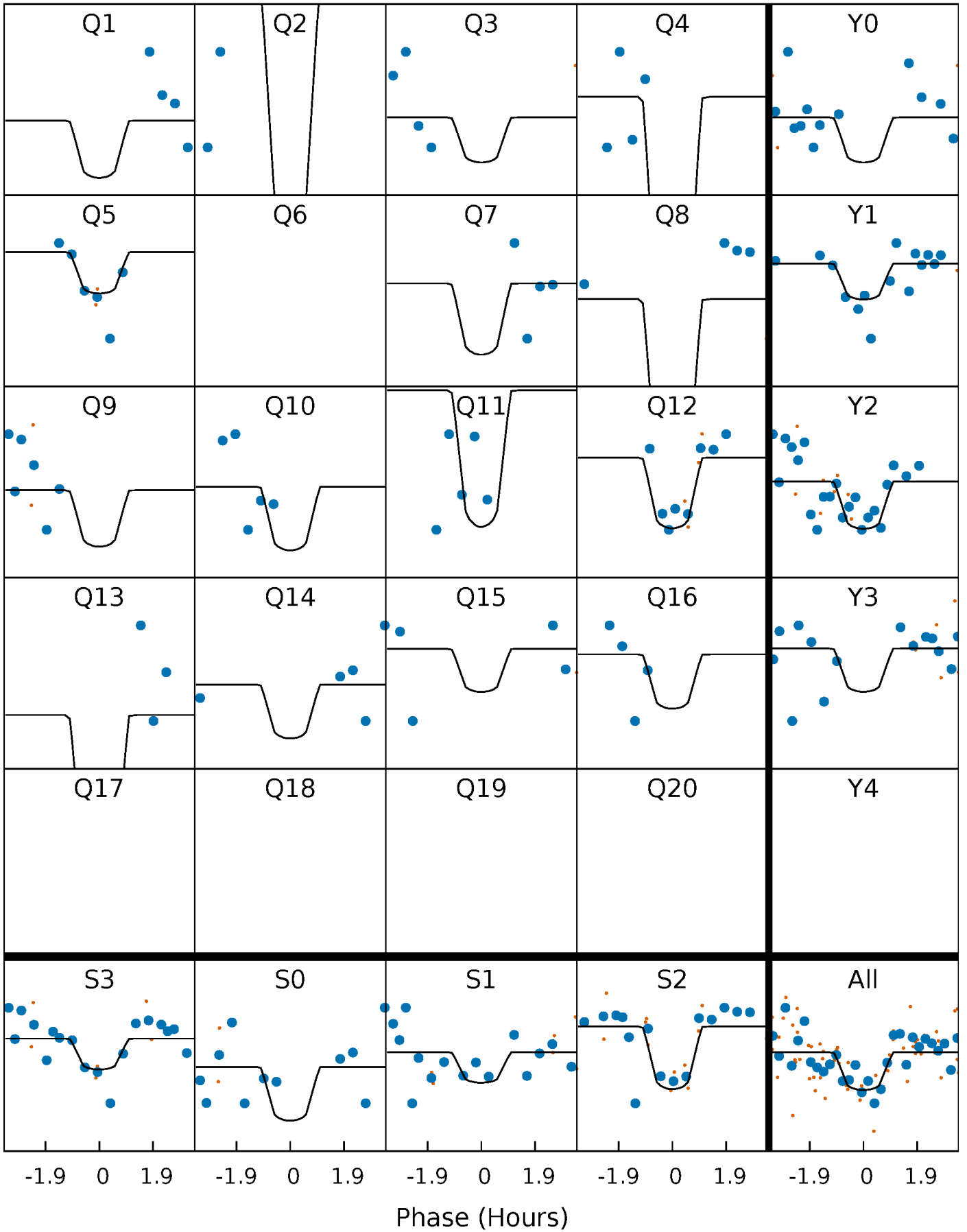
# PDC Quarter-Phased Transit Curves

TCE 006515246-02 P= 17.497612 Days  $T_0=143.452909$  (BKJD)



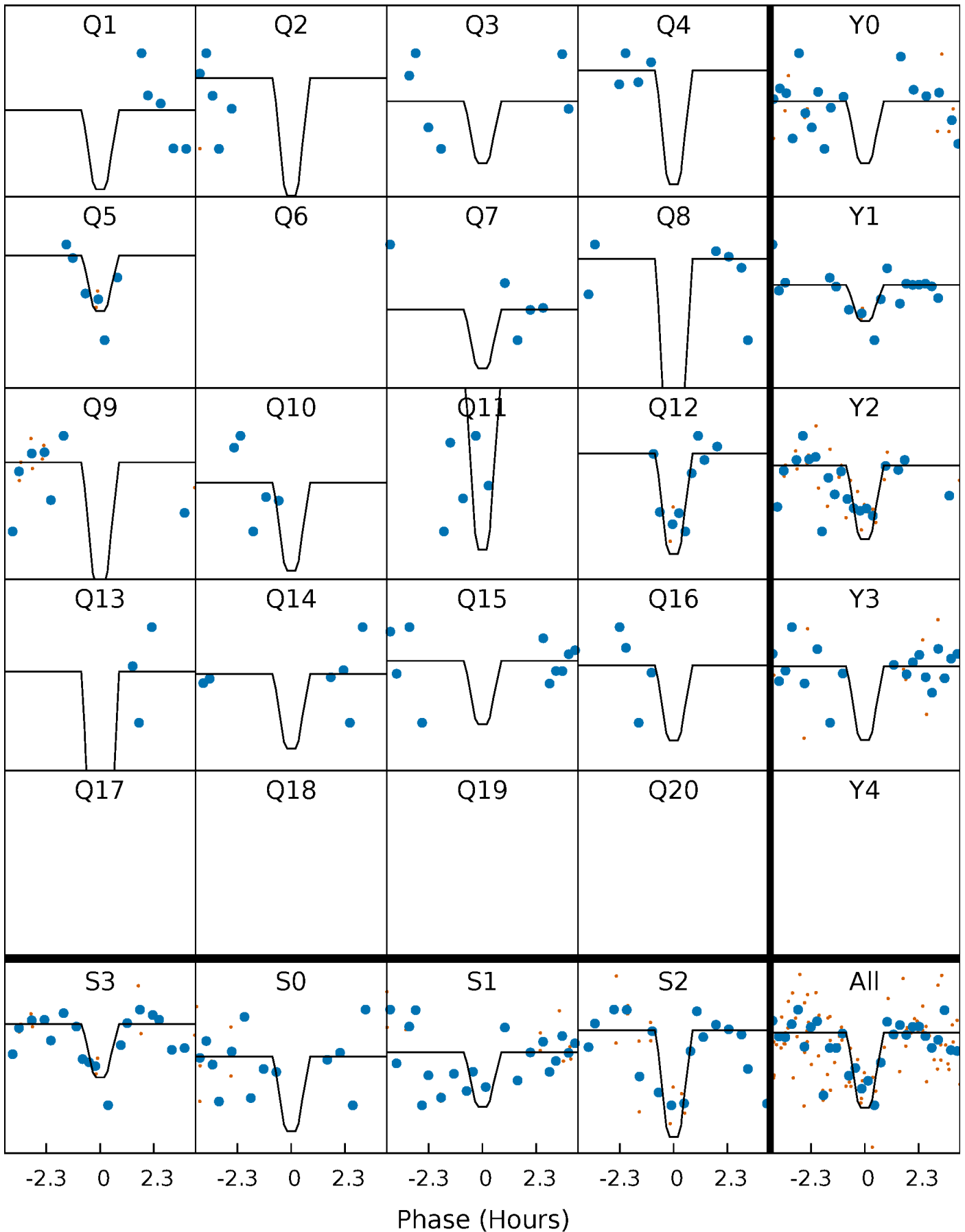
# DV Quarter-Phased Transit Curves

TCE 006515246-02 P= 17.497612 Days  $T_0=143.452909$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

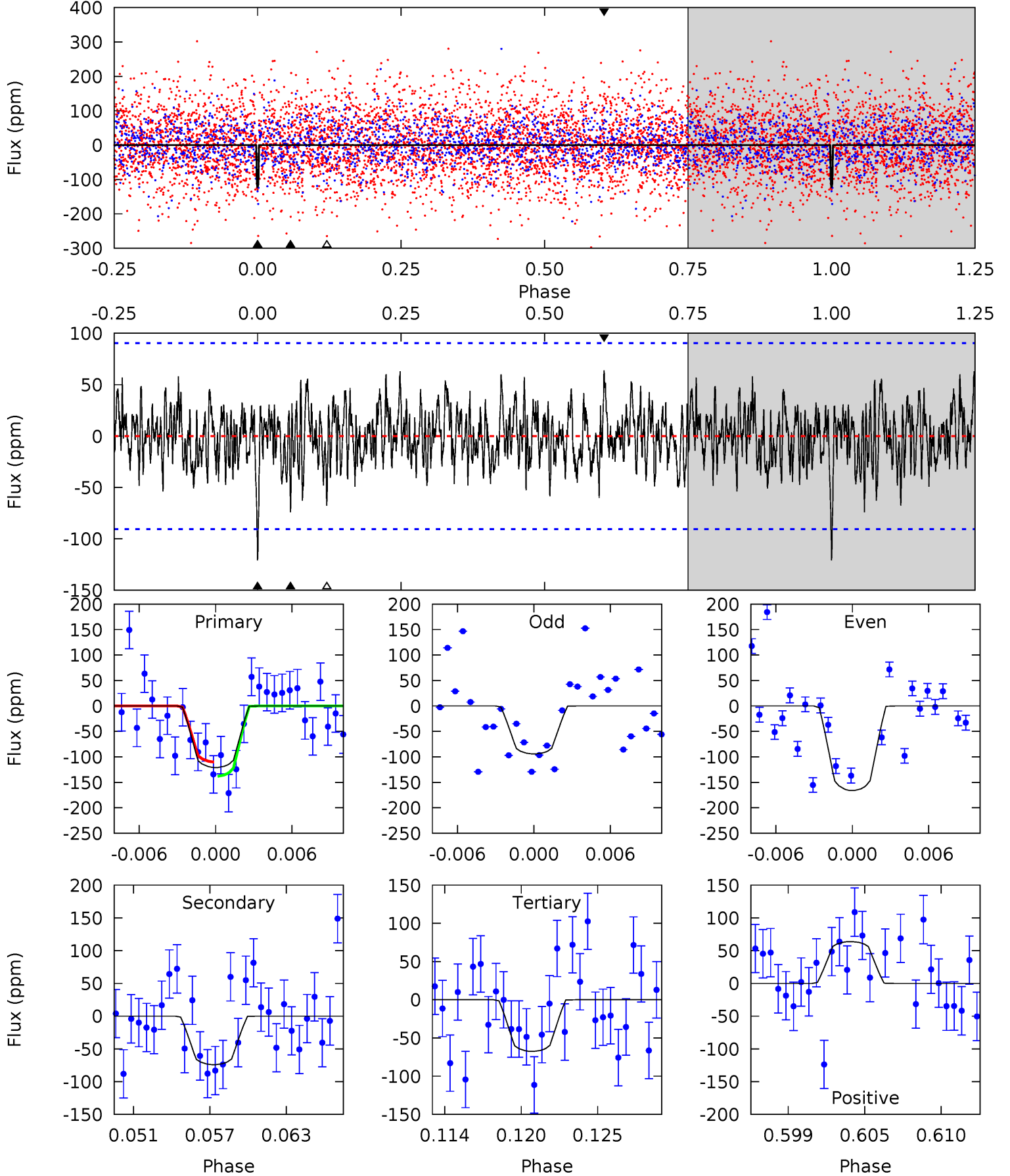
TCE 006515246-02 P= 17.497660 Days  $T_0=143.453876$  (BKJD)



# DV Model-Shift Uniqueness Test

006515246-02,  $P = 17.497612$  Days,  $E = 125.955297$  Days

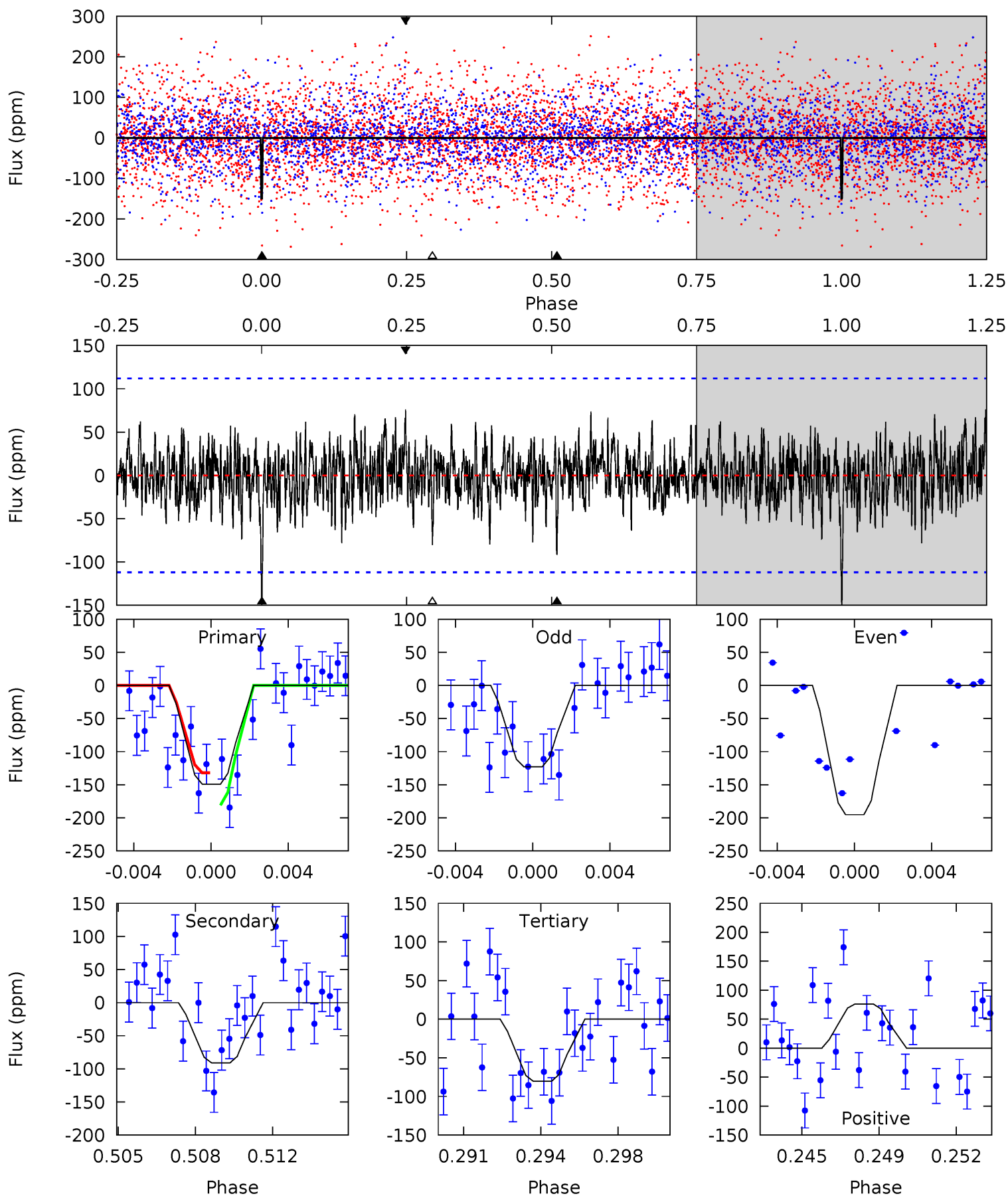
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.86	4.21	3.84	3.62	5.13	2.76	1.27	3.02	3.24	0.37	0.59	2.02	1.04	0.35	0.79



# Alt Model-Shift Uniqueness Test

006515246-02, P = 17.497660 Days, E = 125.956216 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
6.96	4.24	3.75	3.55	5.22	2.92	1.14	3.21	3.40	0.50	0.69	1.61	1.06	0.34	1.08



### Stellar Parameters For KIC 006515246

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8124^{+197}_{-367}$	$3.735^{+0.424}_{-0.106}$	$-0.080^{+0.200}_{-0.350}$	$3.220^{+0.782}_{-1.564}$	$2.054^{+0.291}_{-0.498}$	$0.087^{+0.338}_{-0.031}$
	+2%/-5%	+11%/-3%	+250%/-438%	+24%/-49%	+14%/-24%	+390%/-35%
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 006515246-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-74 \pm 18$	$4.25^{+3.75}_{-2.87}$	$2101^{+166}_{-235}$	$6295^{+6625}_{-1566}$	$64^{+572}_{-46}$
Alt.	$-91 \pm 21$	$4.73^{+3.79}_{-2.84}$	$2106^{+173}_{-237}$	$6164^{+4421}_{-1352}$	$62^{+324}_{-43}$

$T_{\text{max}}$  = 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

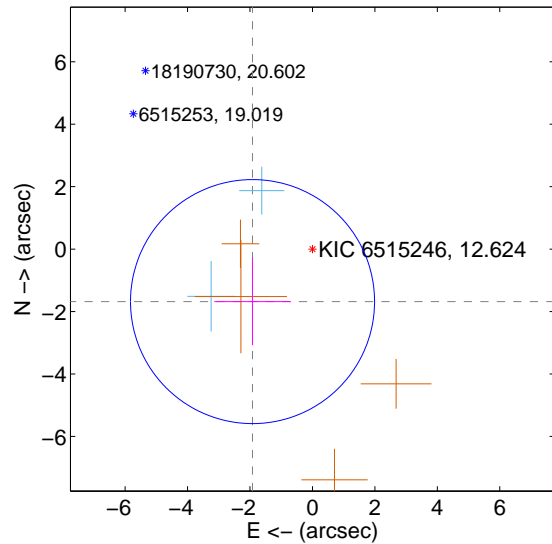
Supplemental centroid analysis for 006515246-02. Kepler magnitude: 12.62. Transit SNR 11.86

There are 2 quarters with good PRF difference image offsets

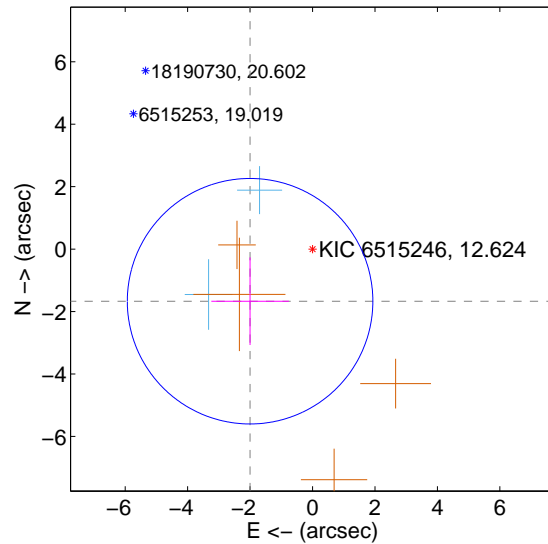
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.551 \pm 1.303$	1.96	$1.919 \pm 1.224$	$-1.682 \pm 1.398$
PRF-fit source offset from KIC position	$2.605 \pm 1.311$	1.99	$2.000 \pm 1.243$	$-1.669 \pm 1.403$
photometric centroid source offset	$0.67 \pm 0.65$	1.02	$0.42 \pm 0.69$	$0.52 \pm 0.63$

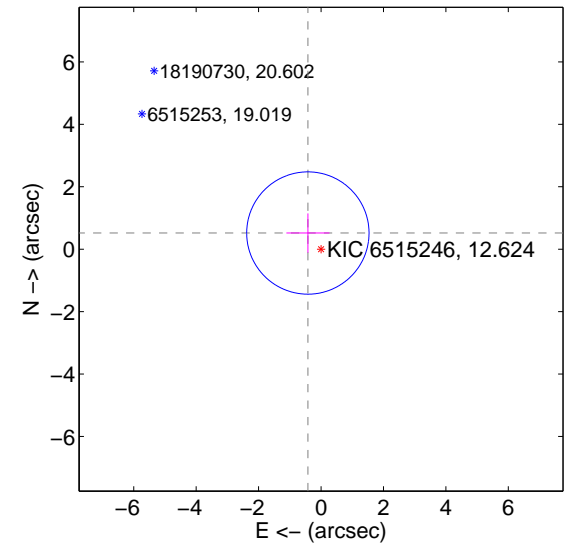
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

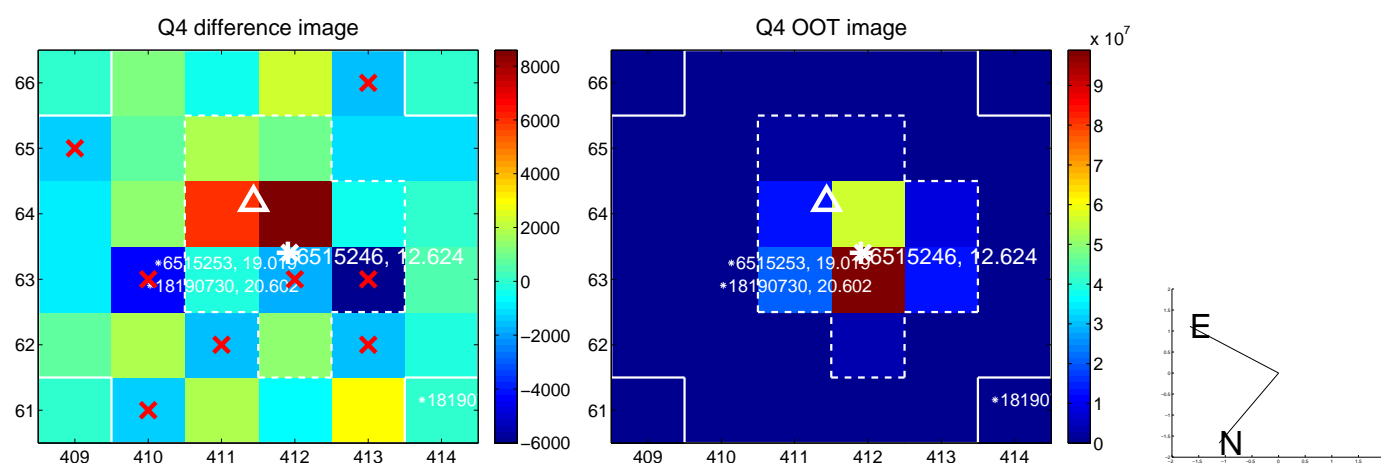
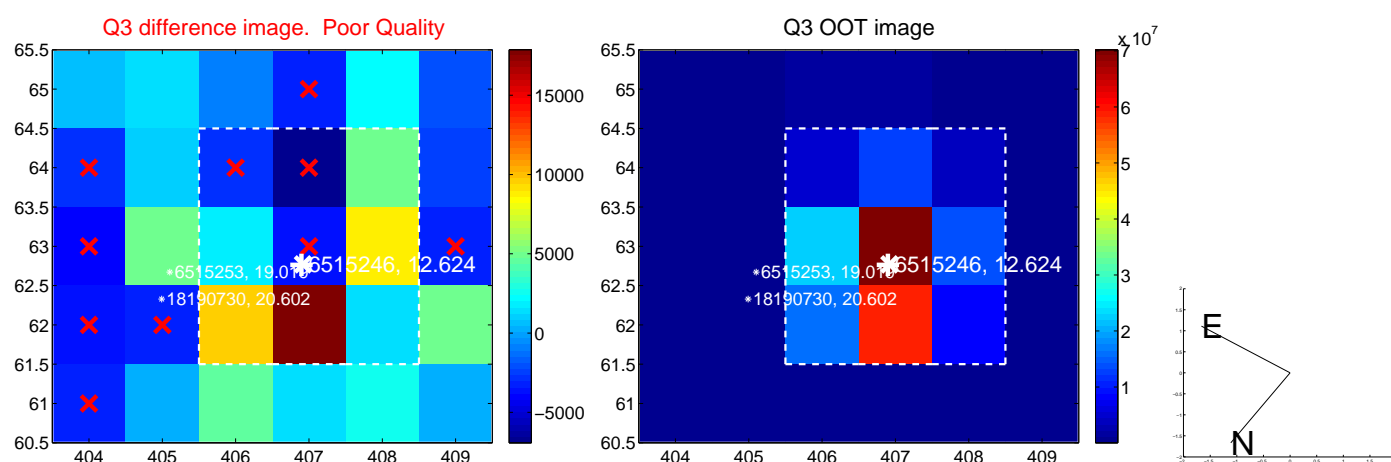
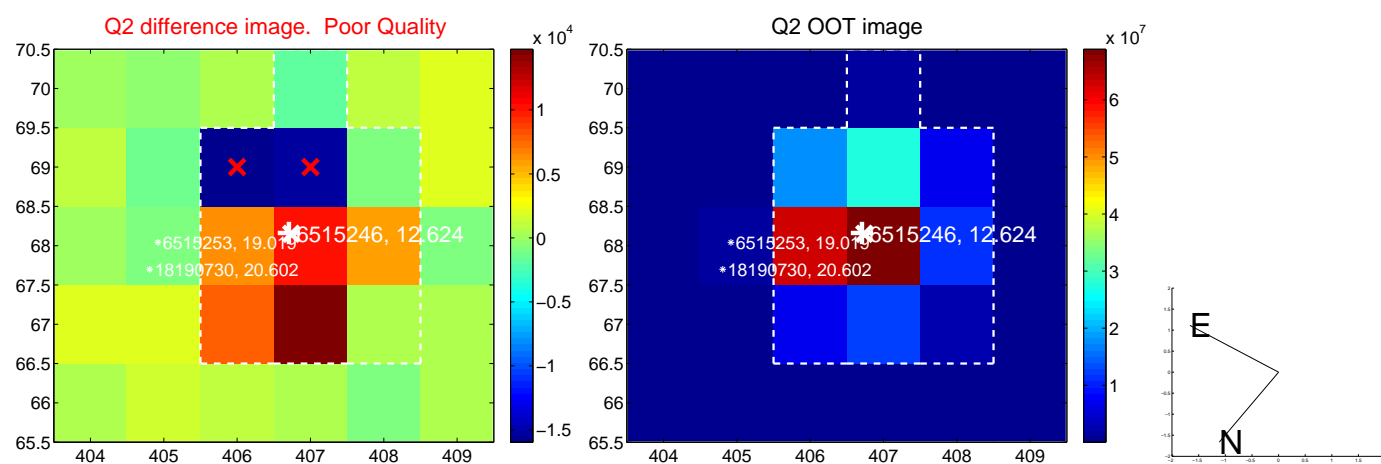
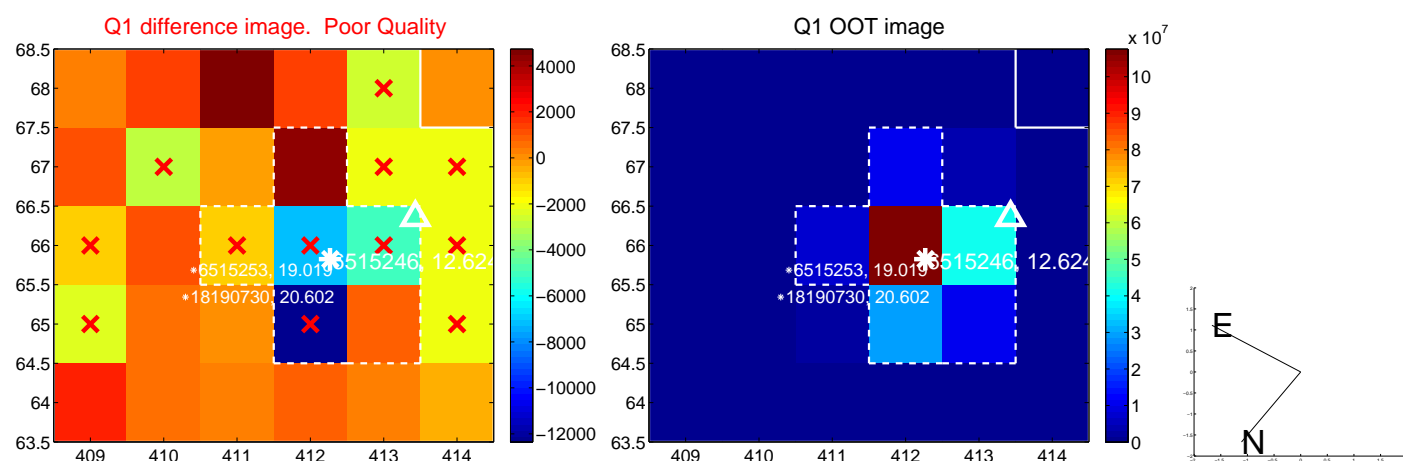


offset from photometric centroids

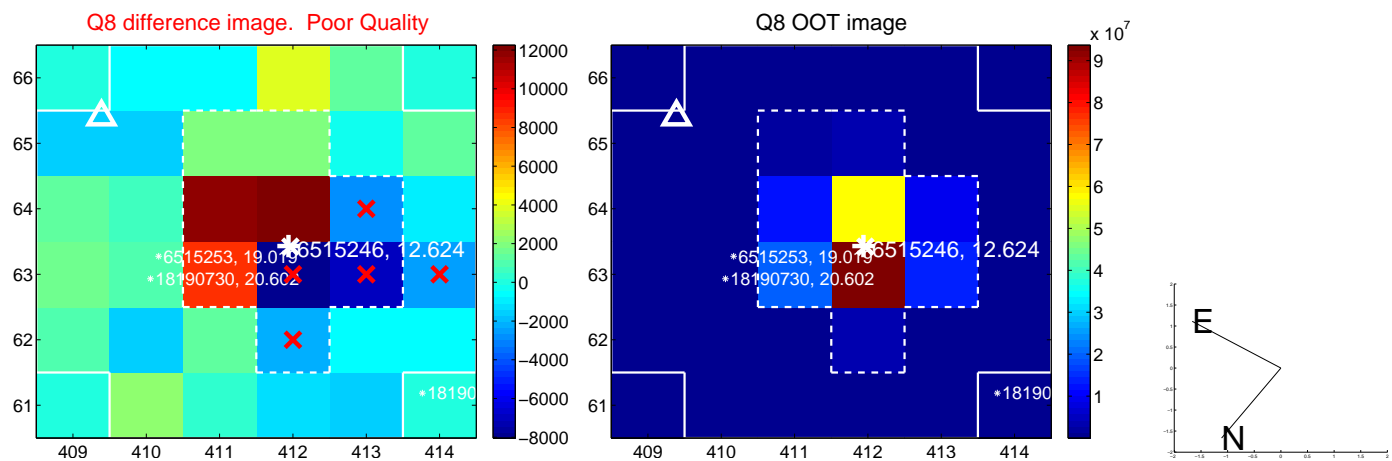
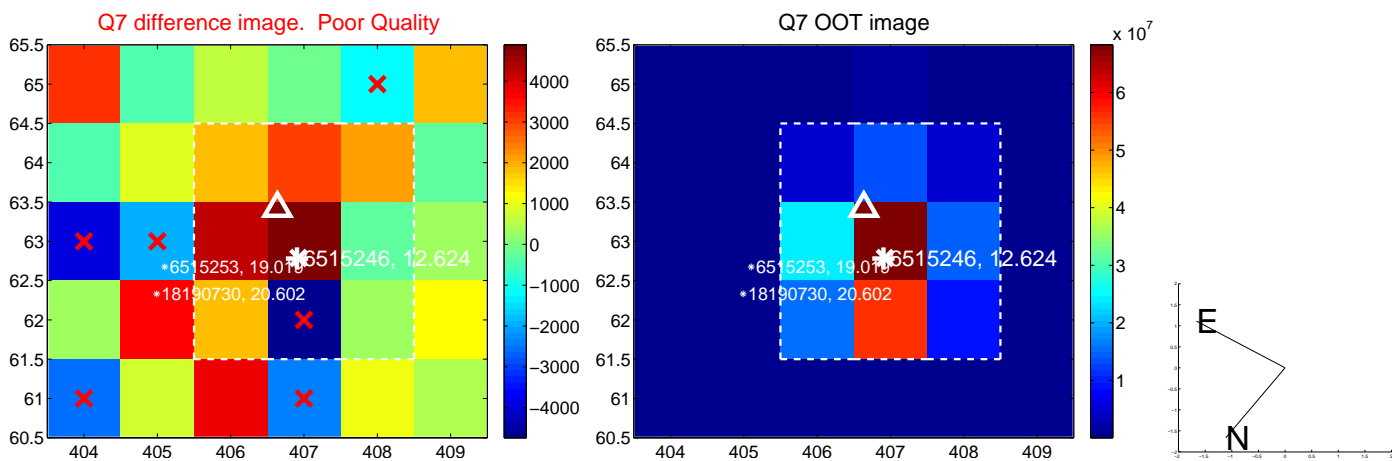
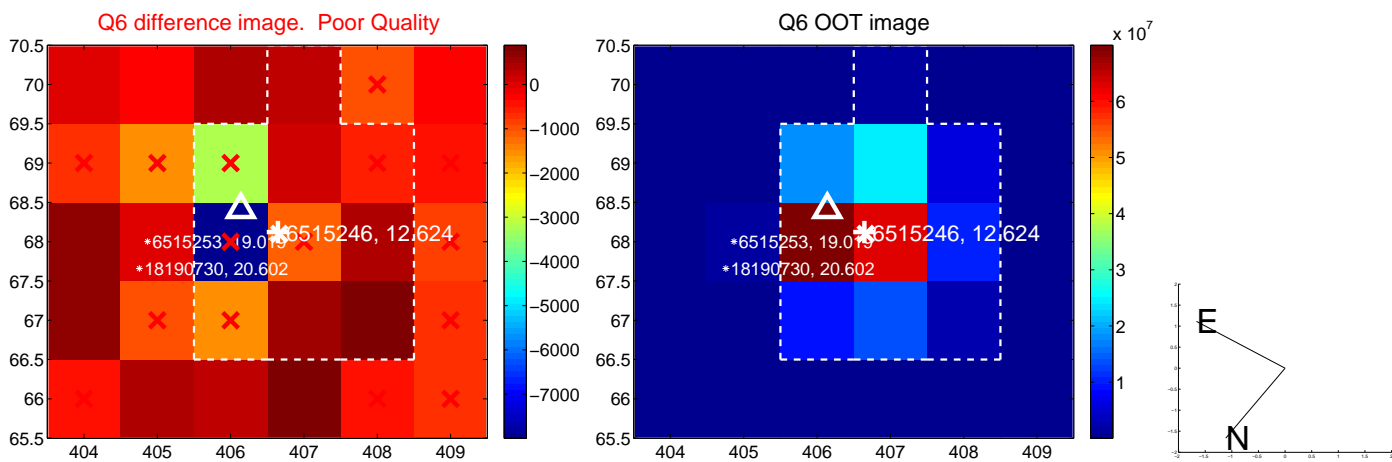
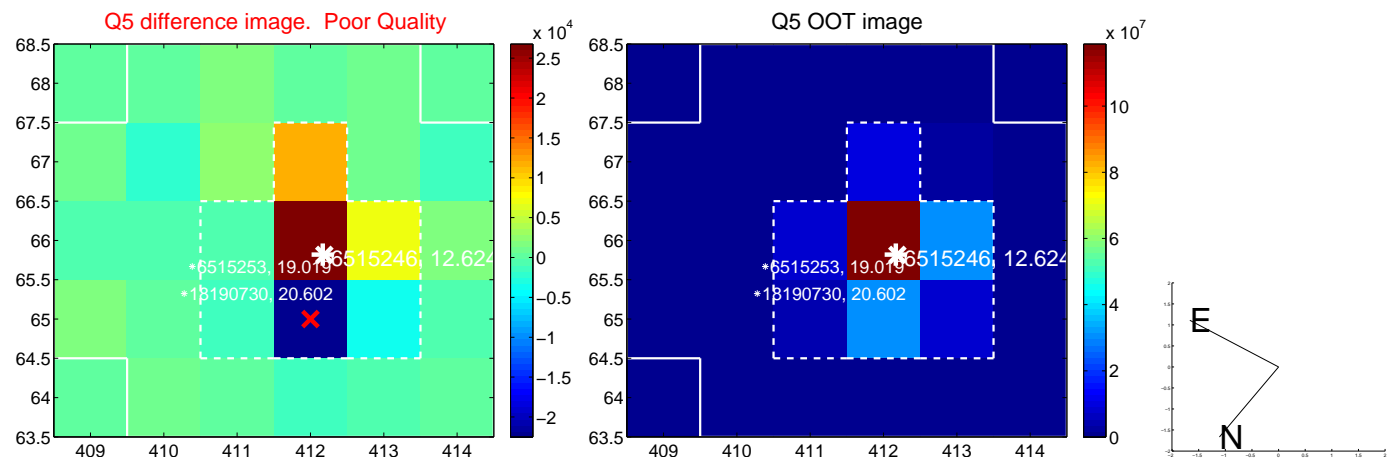


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

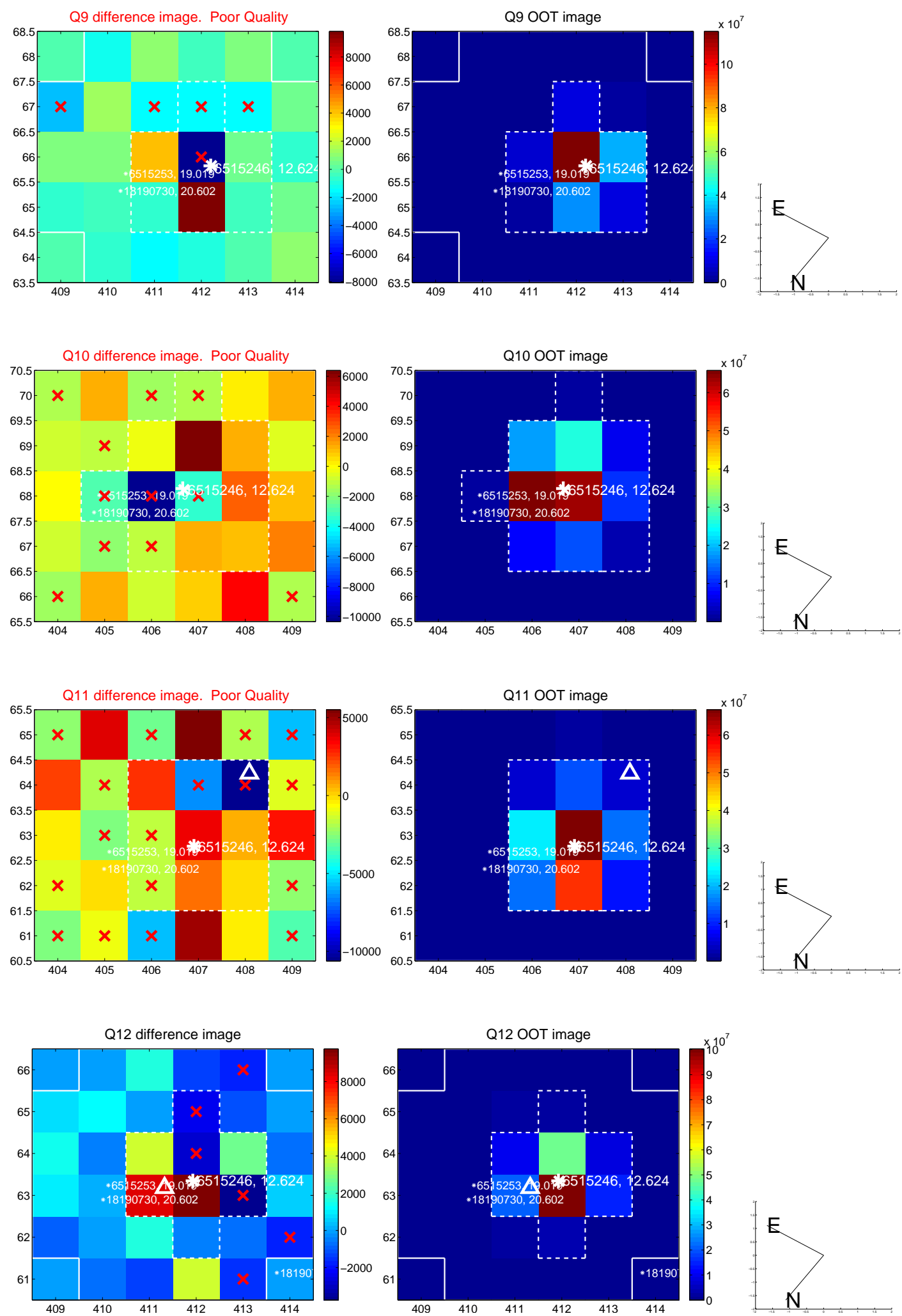
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

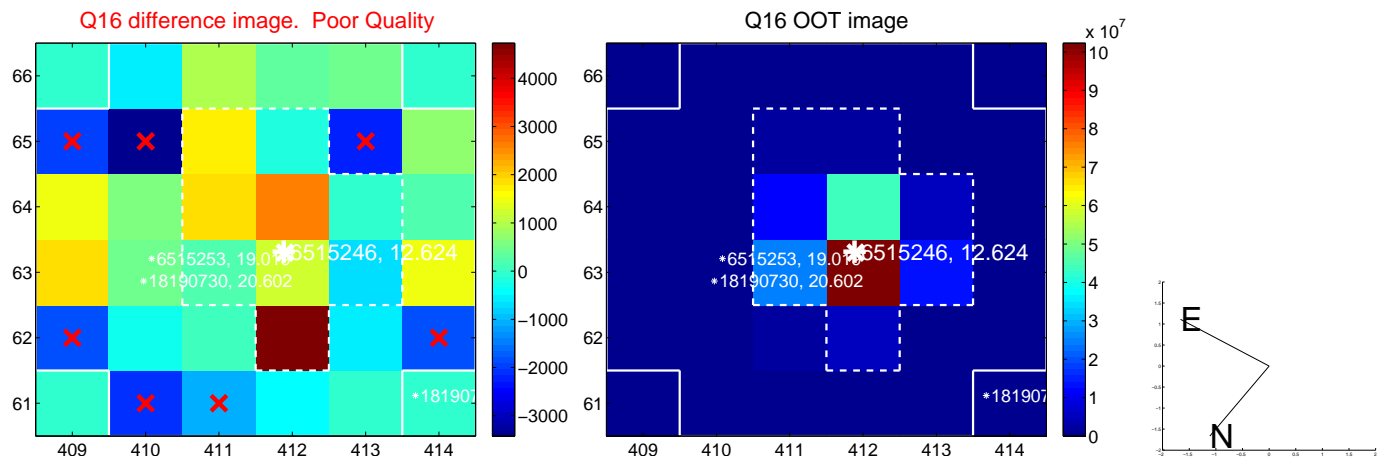
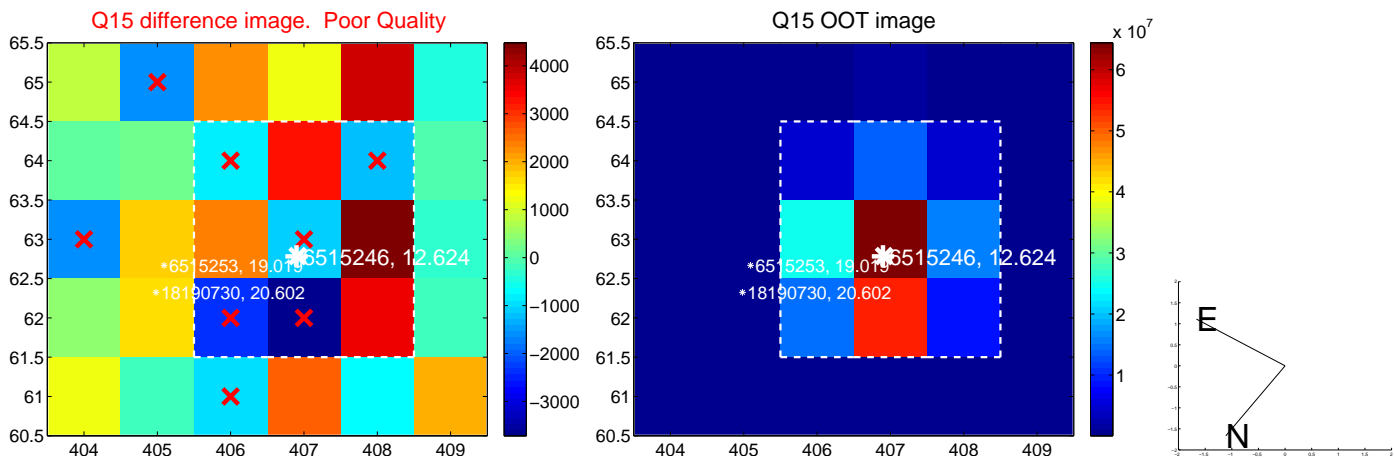
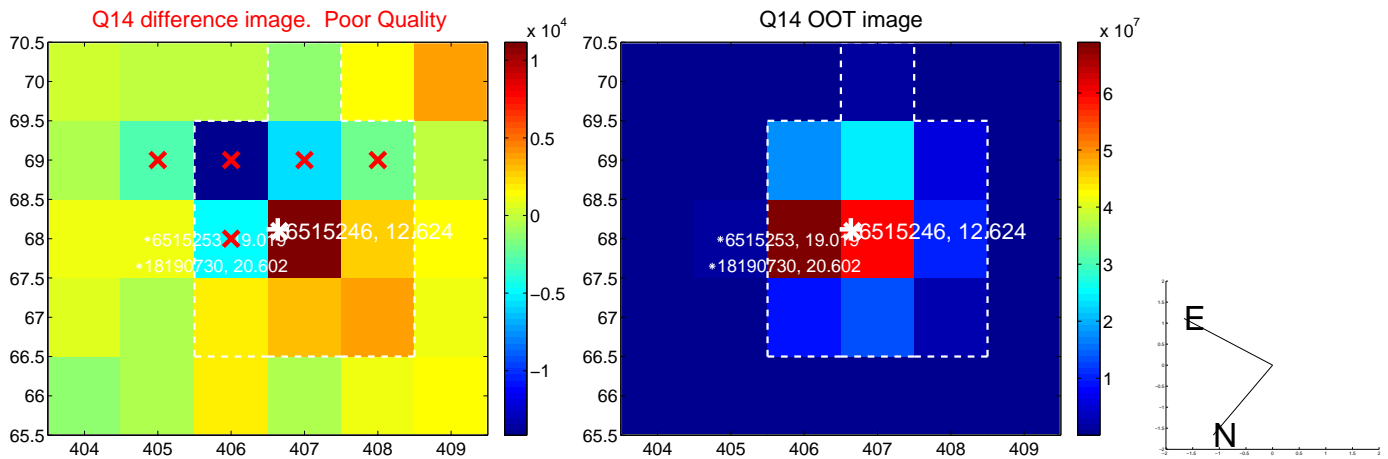
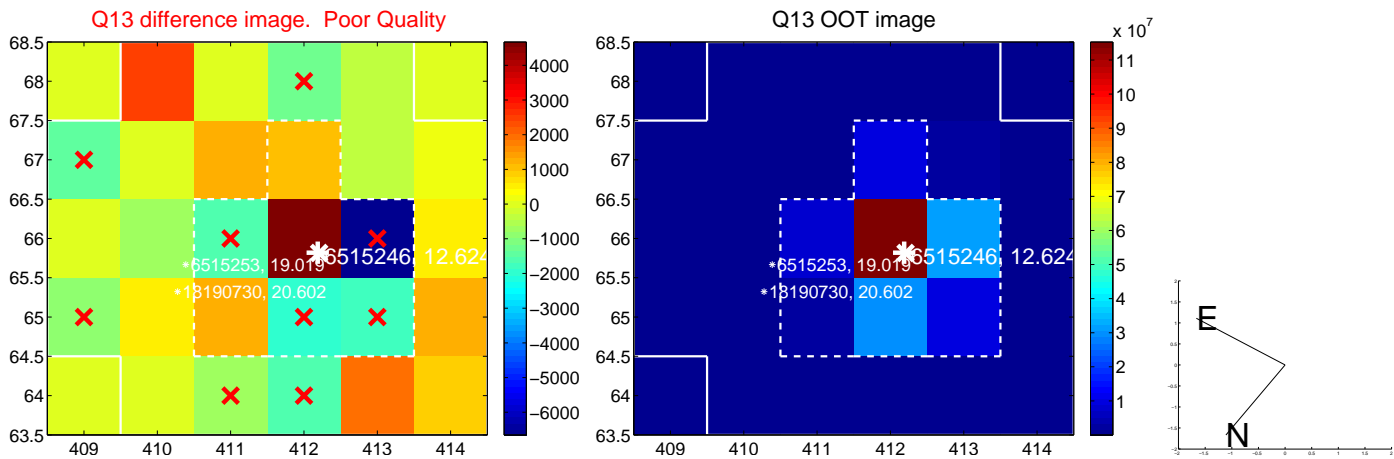


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

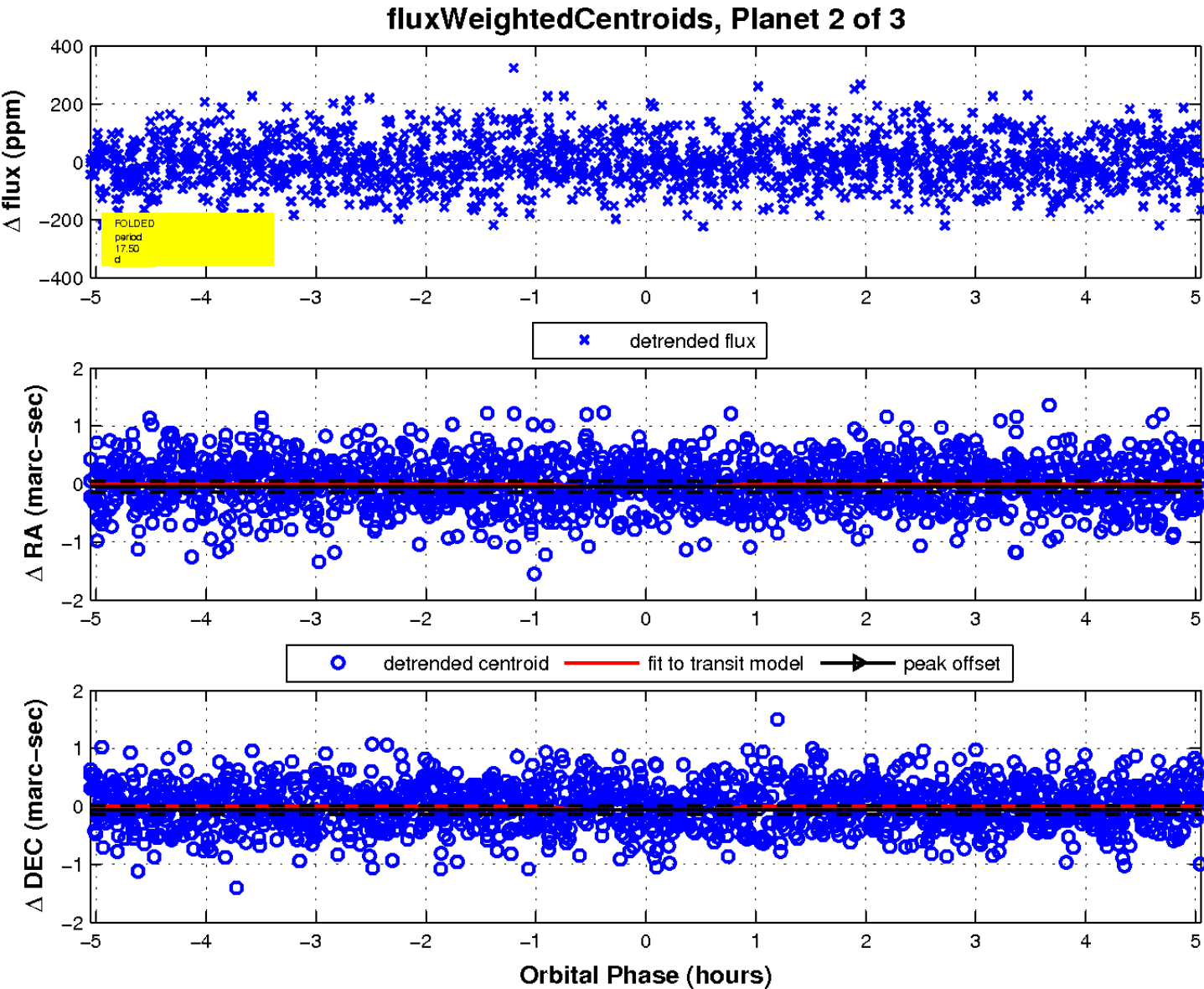
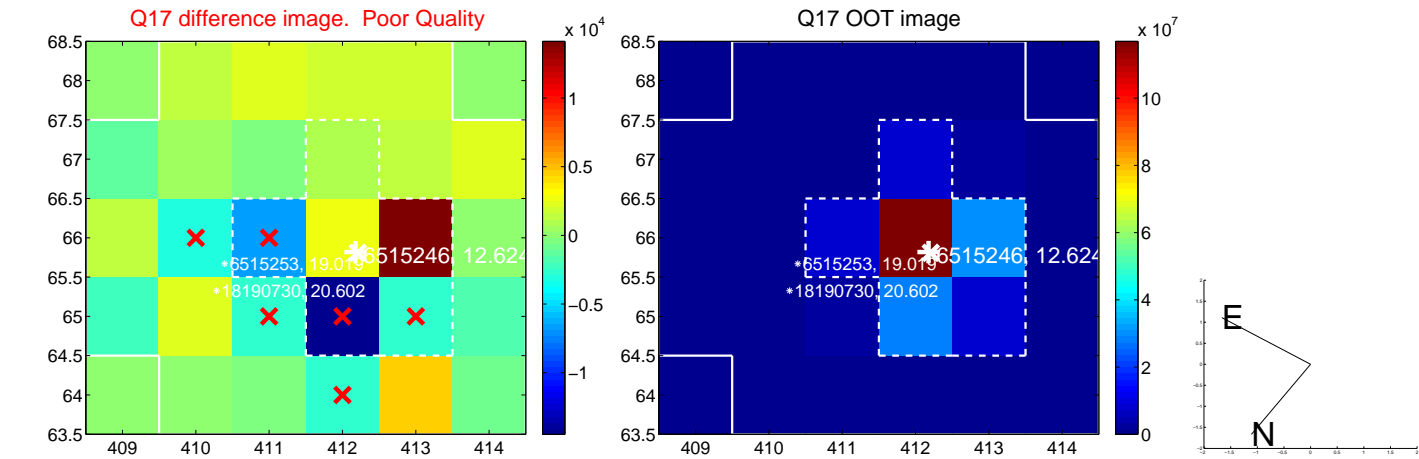




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

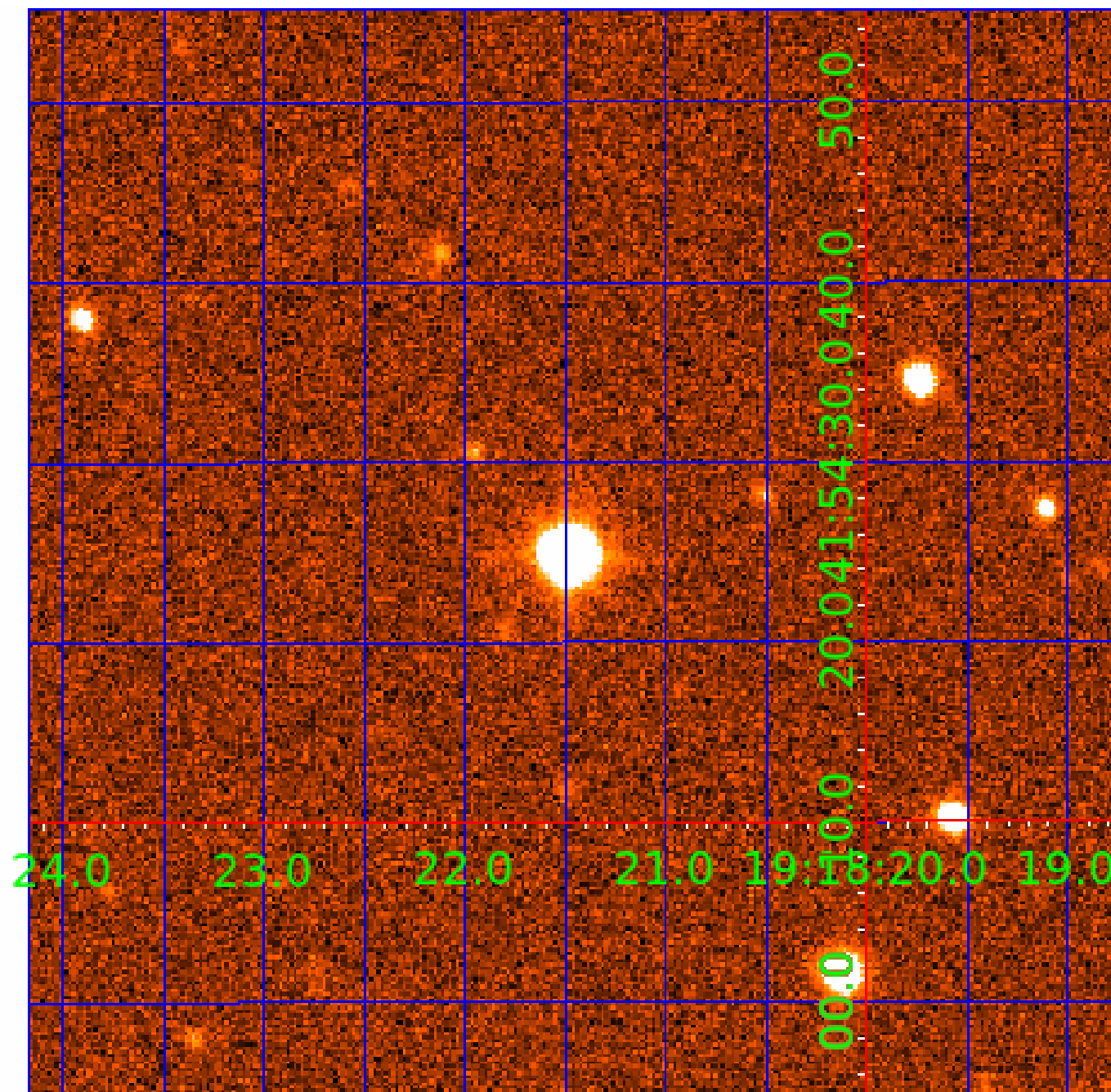


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006515246

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006515246-01	OBS	No	1.147952	131.788526	6.8	8.319	7.5	9.0	3.22	8124	0.95	54364.19
006515246-02	OBS	No	17.497612	143.452909	126.6	1.685	11.5	11.9	3.22	8124	4.07	1438.49
006515246-03	OBS	No	42.223744	170.468221	121.7	1.385	10.1	8.3	3.22	8124	4.08	444.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006515246-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006515246-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
006515246-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

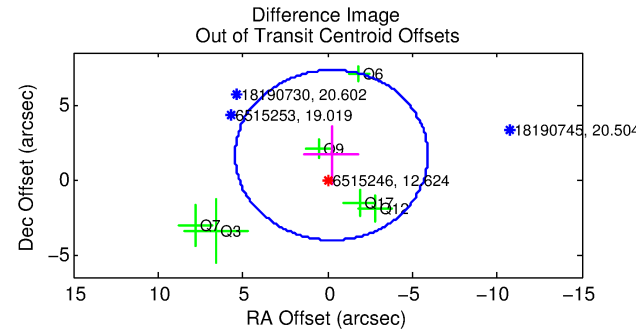
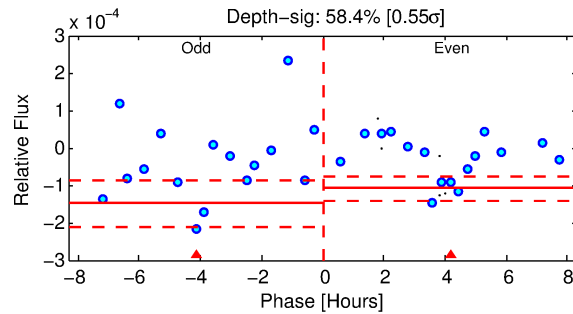
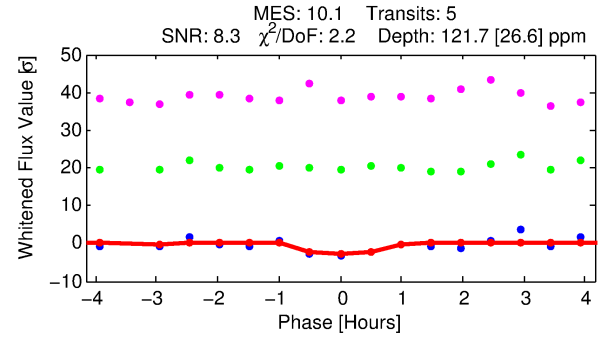
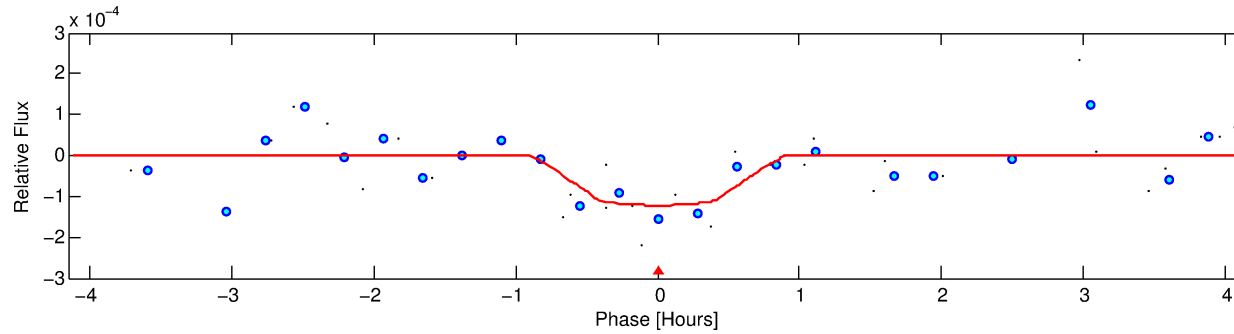
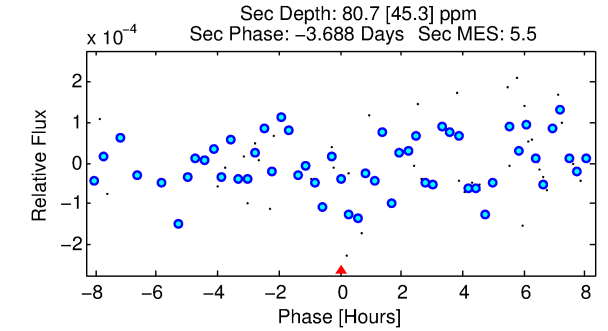
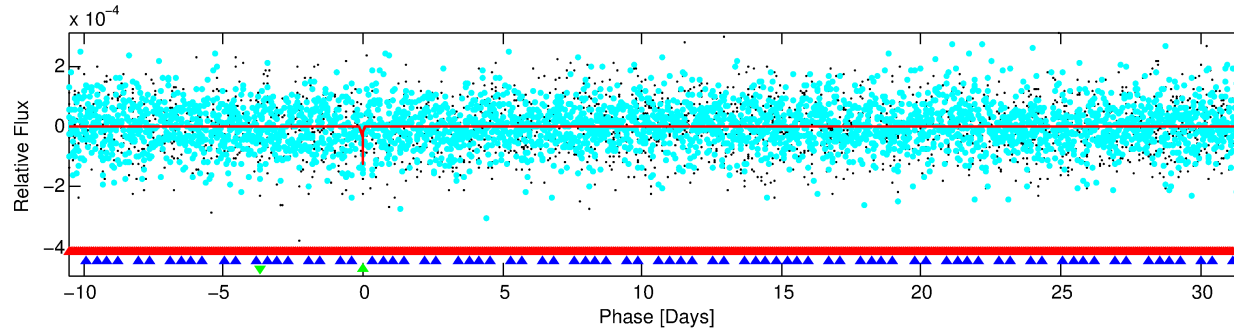
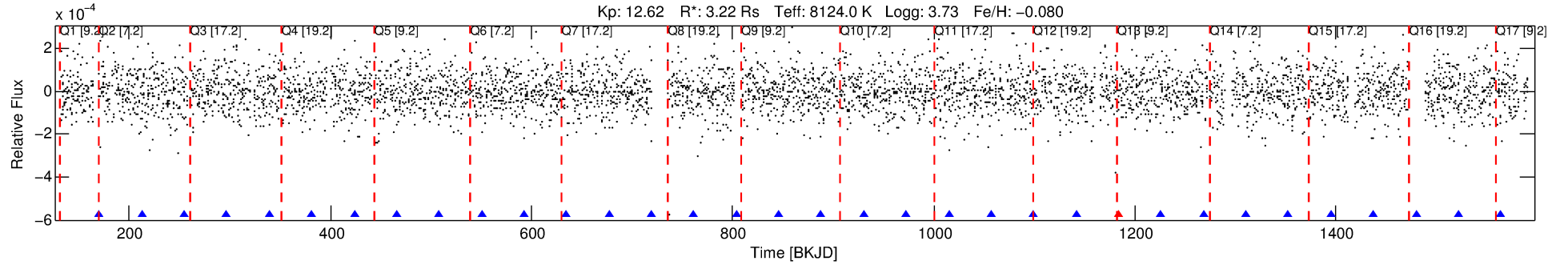
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006515246-03

No Significant Match Found

# DV One-Page Summary

KIC: 6515246 Candidate: 3 of 3 Period: 42.224 d



## DV Fit Results:

Period = 42.22374 [0.00045] d  
Epoch = 170.4682 [0.0079] BKJD  
Rp/R\* = 0.0116 [0.0349]  
a/R\* = 118.17 [2231.12]  
b = 0.88 [5.08]  
Seff = 444.43 [332.92]  
Teq = 1171 [219] K  
Rp = 4.08 [12.42] Re  
a = 0.3017 [0.1385] AU  
Ag = 242.66 [1474.83] [0.16σ]  
Teffp = 7144 [10782] K [0.55σ]

## DV Diagnostic Results:

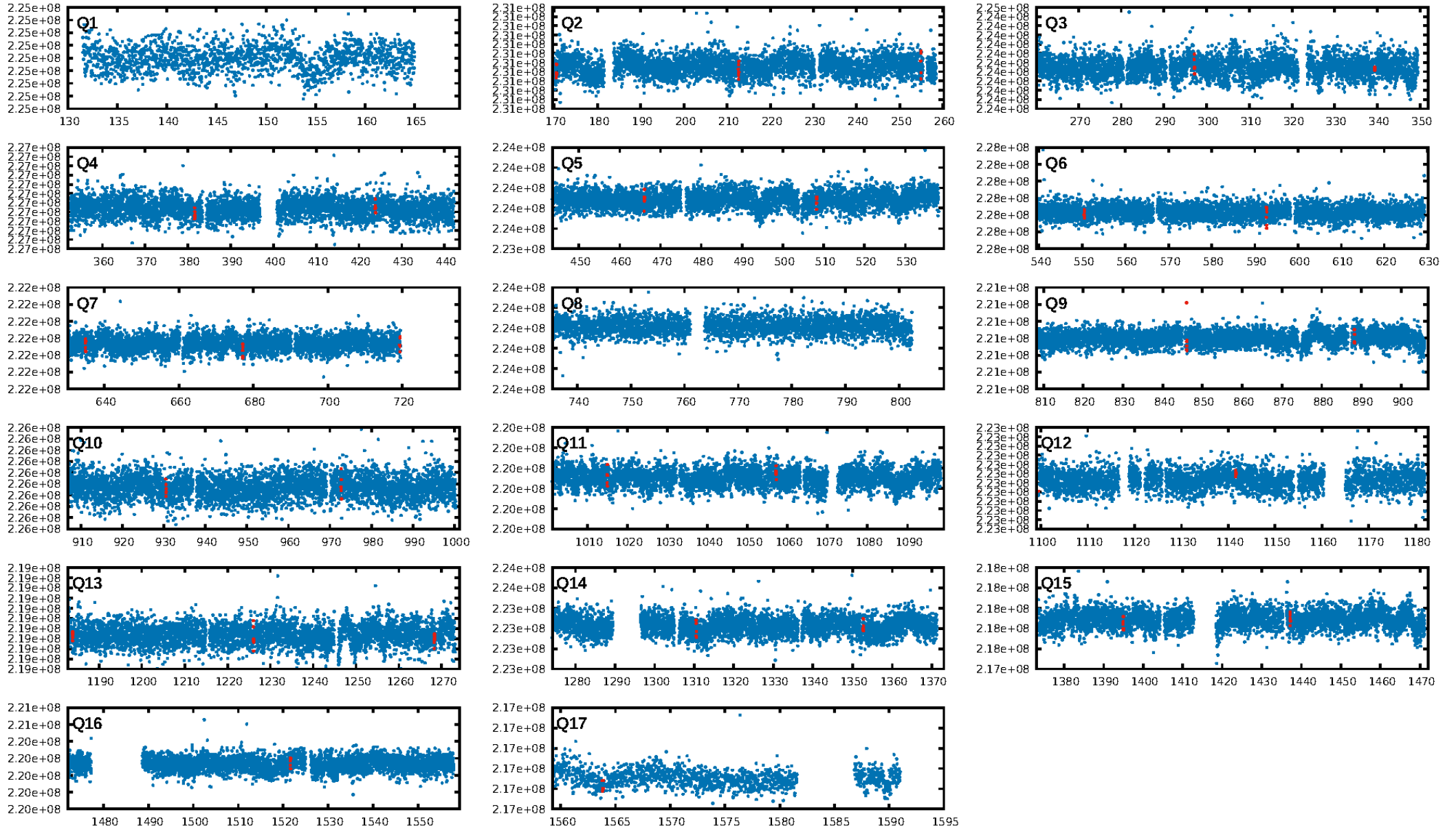
ShortPeriod-sig: 100.0% [272.06σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 1.5%  
ModelChiSquareGof-sig: 89.1%  
Bootstrap-pfa: 5.43e-09  
RollingBand-fgt: 0.75 [3/4]  
GhostDiagnostic-chr: 2.453  
Centroid-sig: 69.6%  
Centroid-so: 0.491 arcsec [0.42σ]  
OotOffset-rm: 1.653 arcsec [0.87σ]  
OotOffset-st: 1/2/1/2 [6]  
KicOffset-rm: 1.675 arcsec [0.89σ]  
KicOffset-st: 1/2/1/2 [6]  
DiffImageQuality-fgm: 0.33 [2/6]  
DiffImageOverlap-fno: 0.47 [7/15]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:28:01 Z

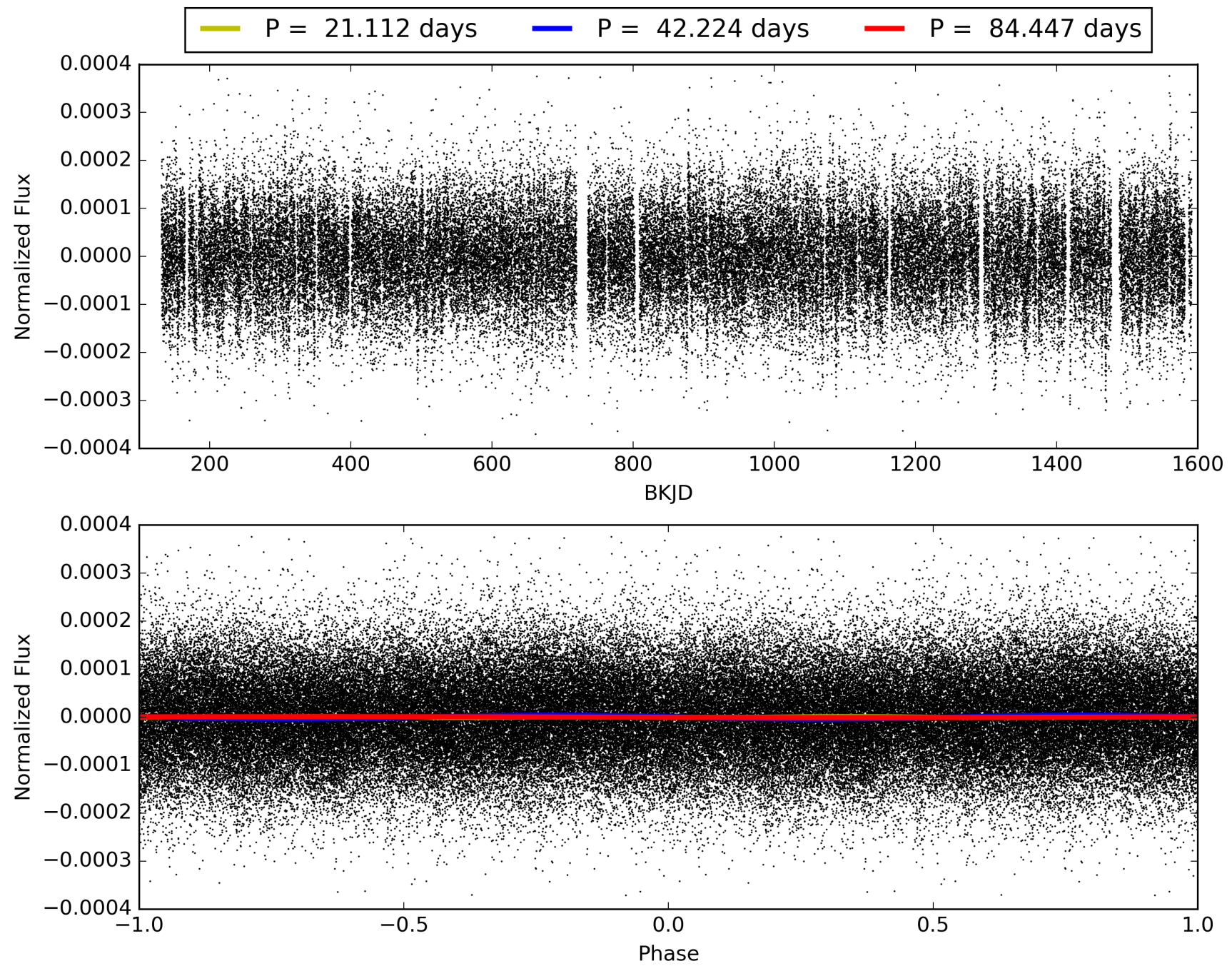
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 006515246-03, PDC Light Curves

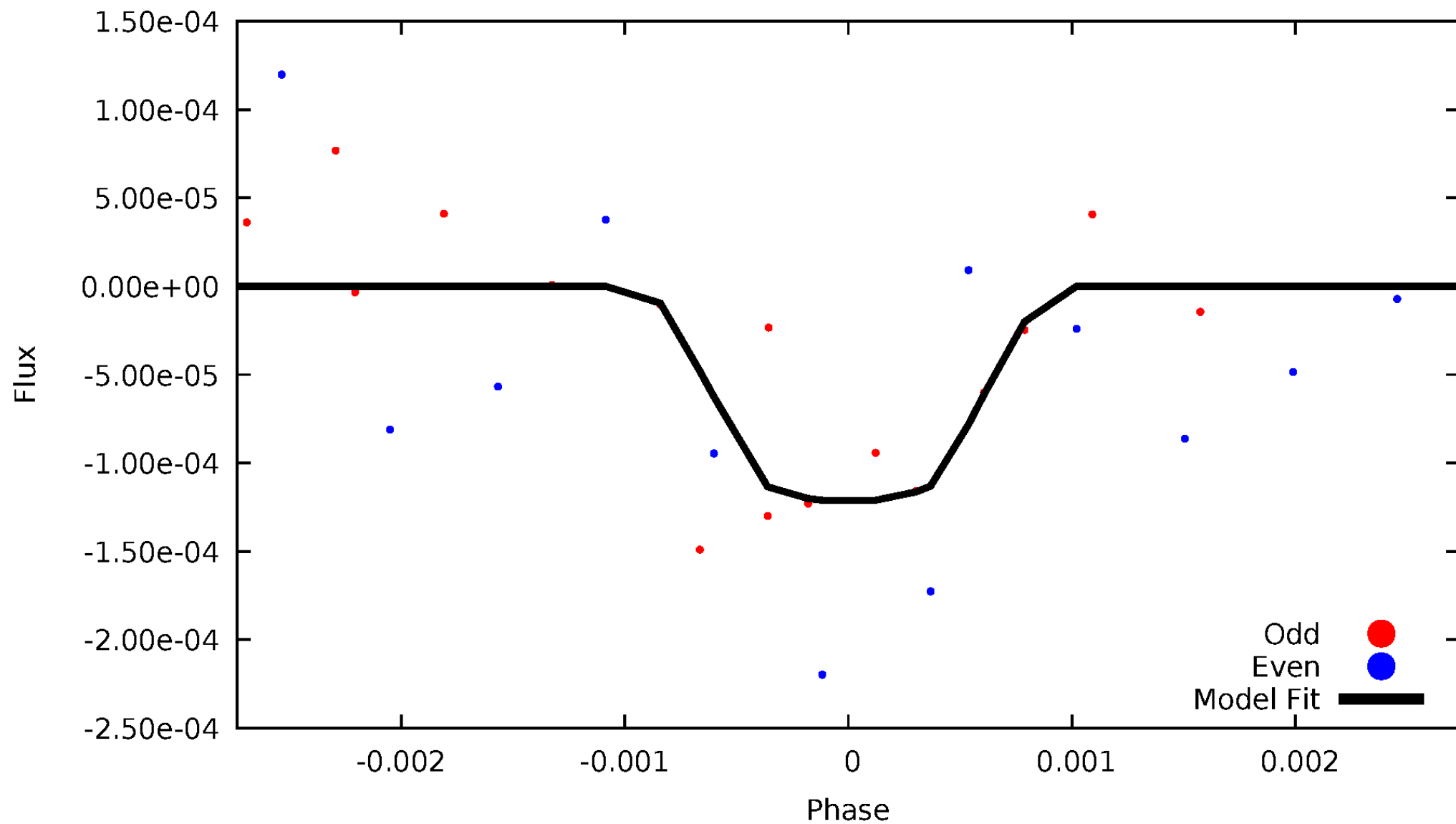


TCE 006515246-03



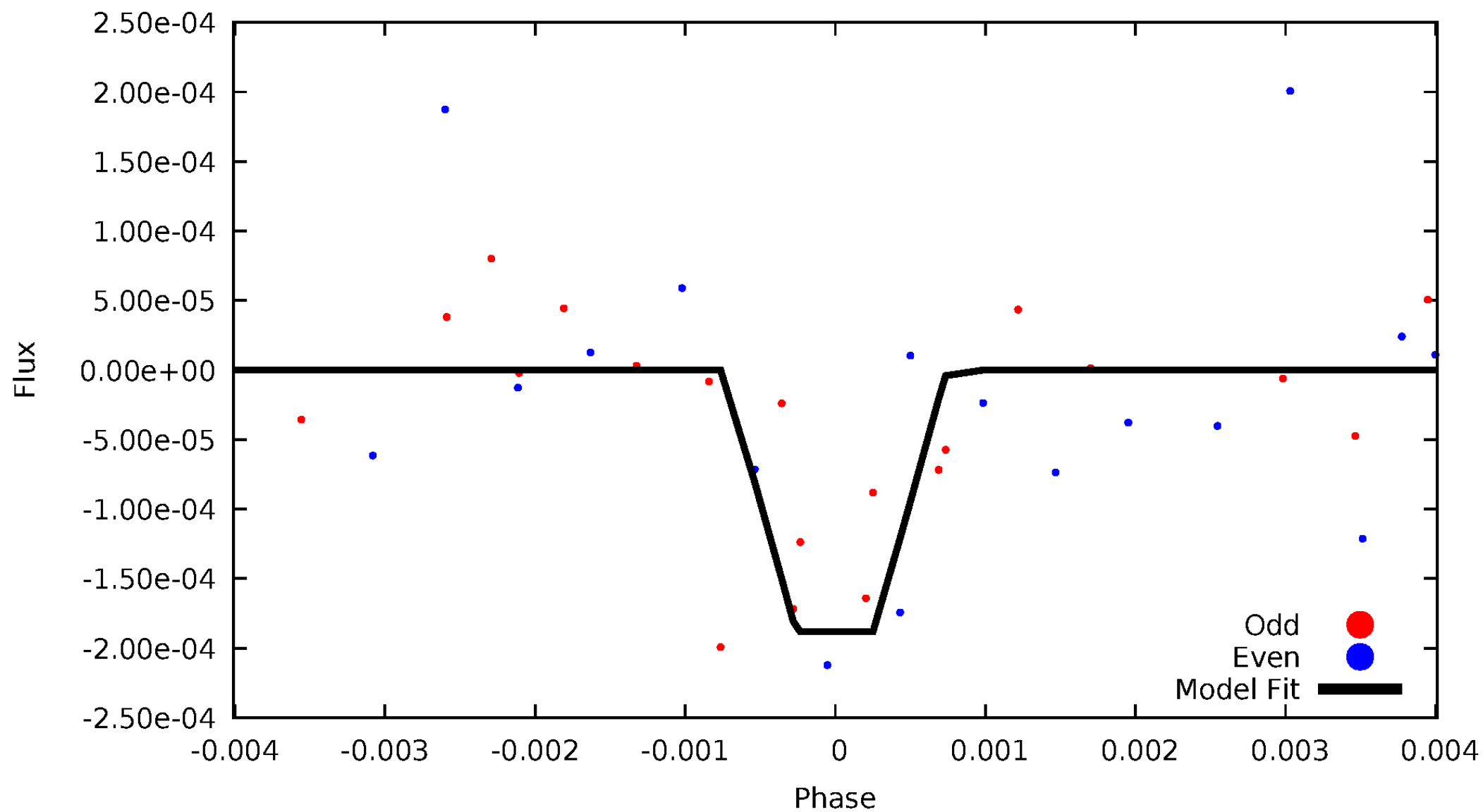
# DV Odd/Even

TCE 006515246-03



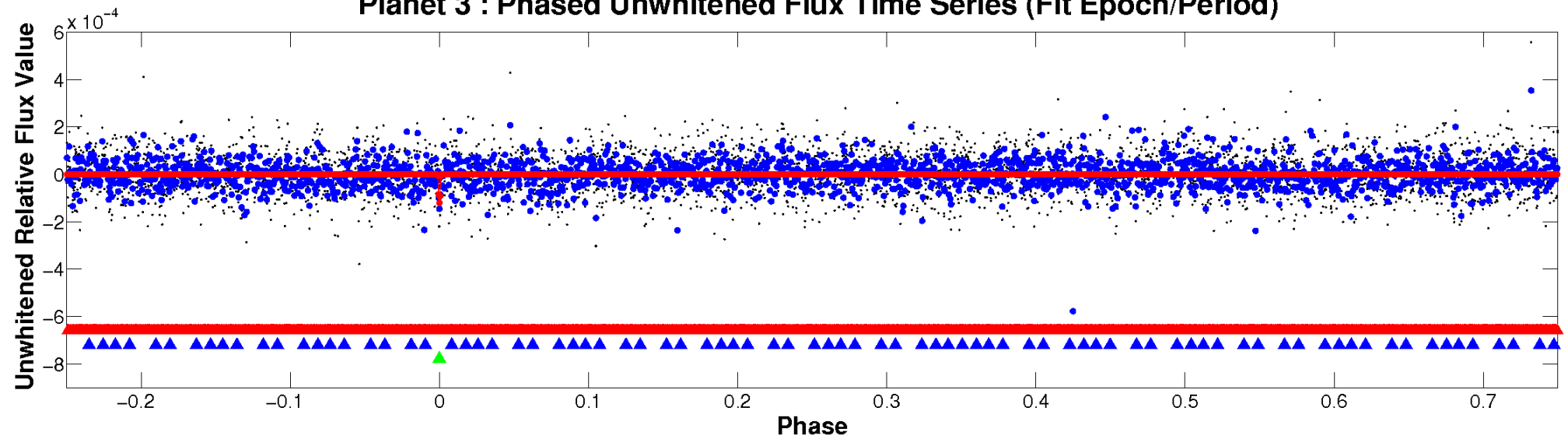
# ALT Odd/Even

TCE 006515246-03

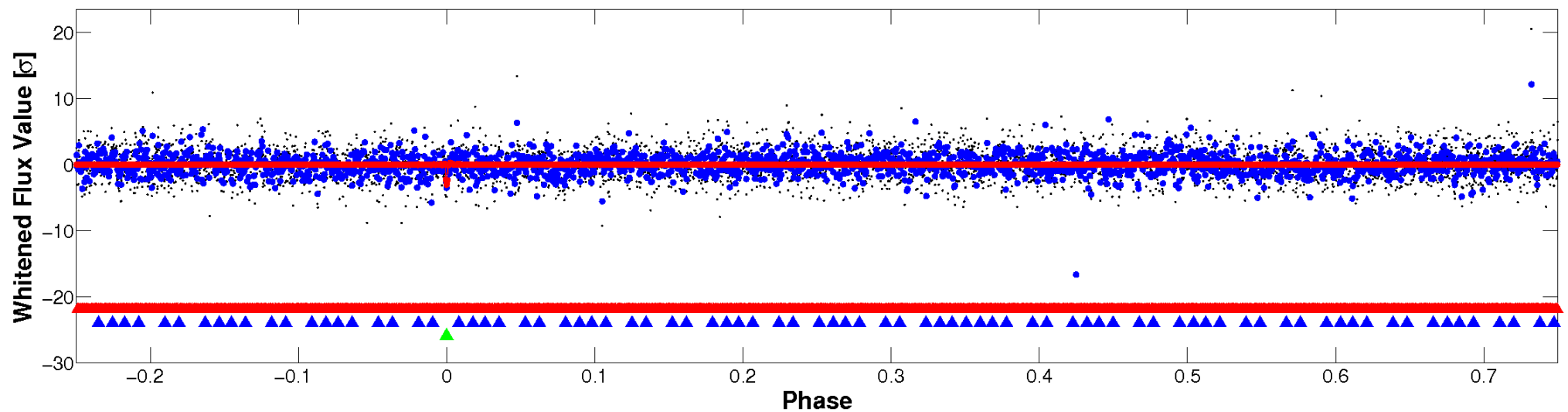


# Non-Whitened Vs. Whitened Light Curve

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



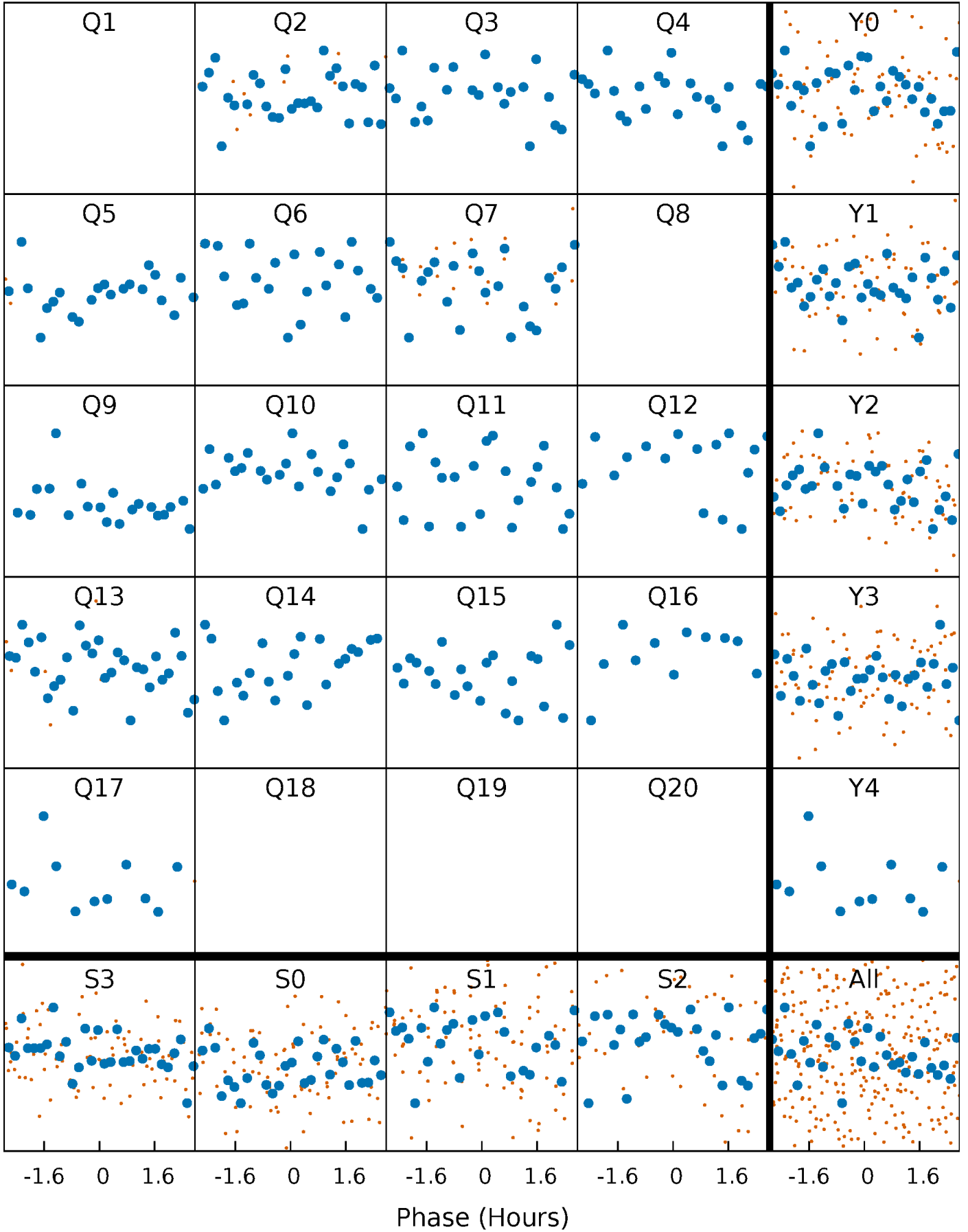
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





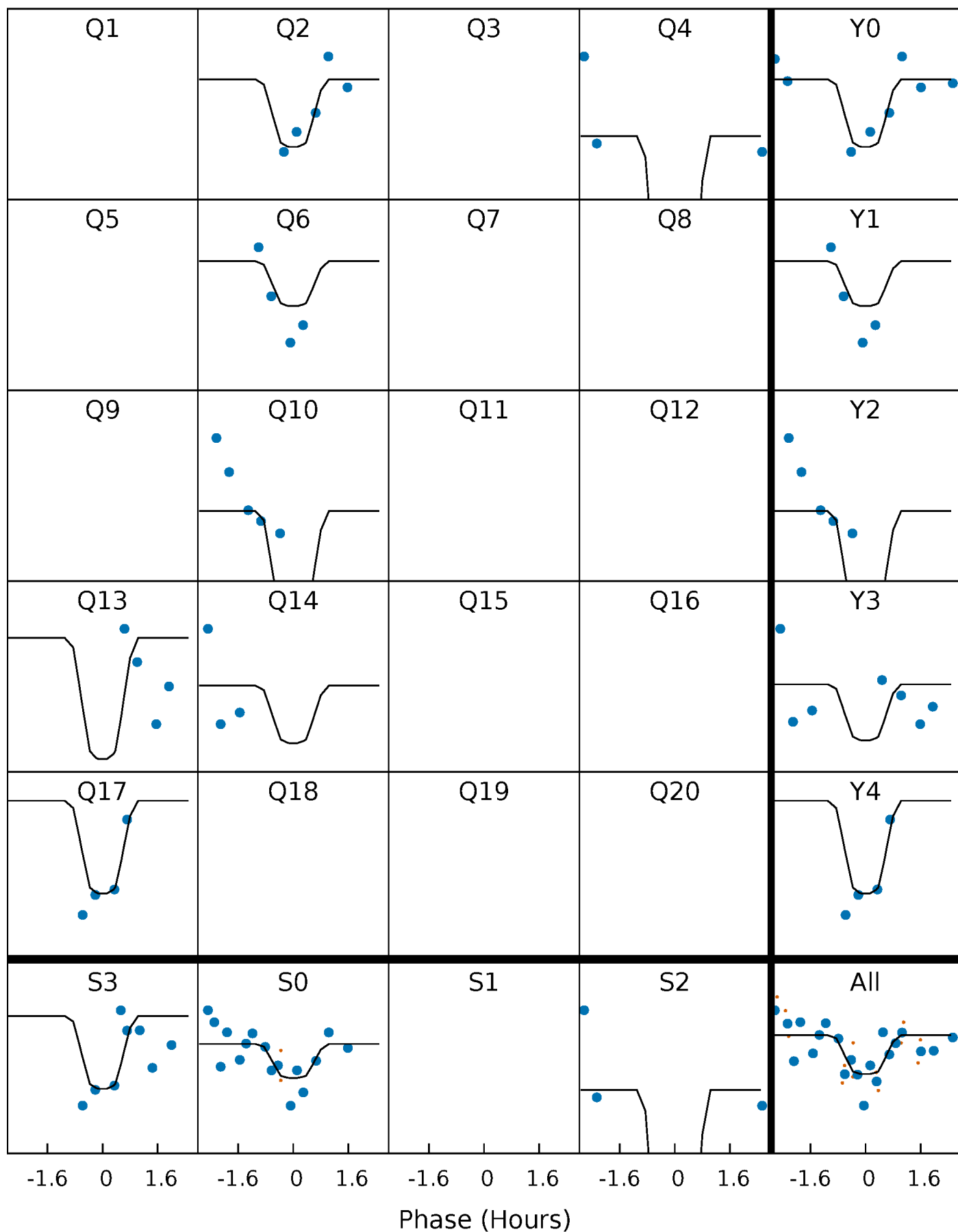
# PDC Quarter-Phased Transit Curves

TCE 006515246-03   P= 42.223744 Days    $T_0=170.468221$  (BKJD)



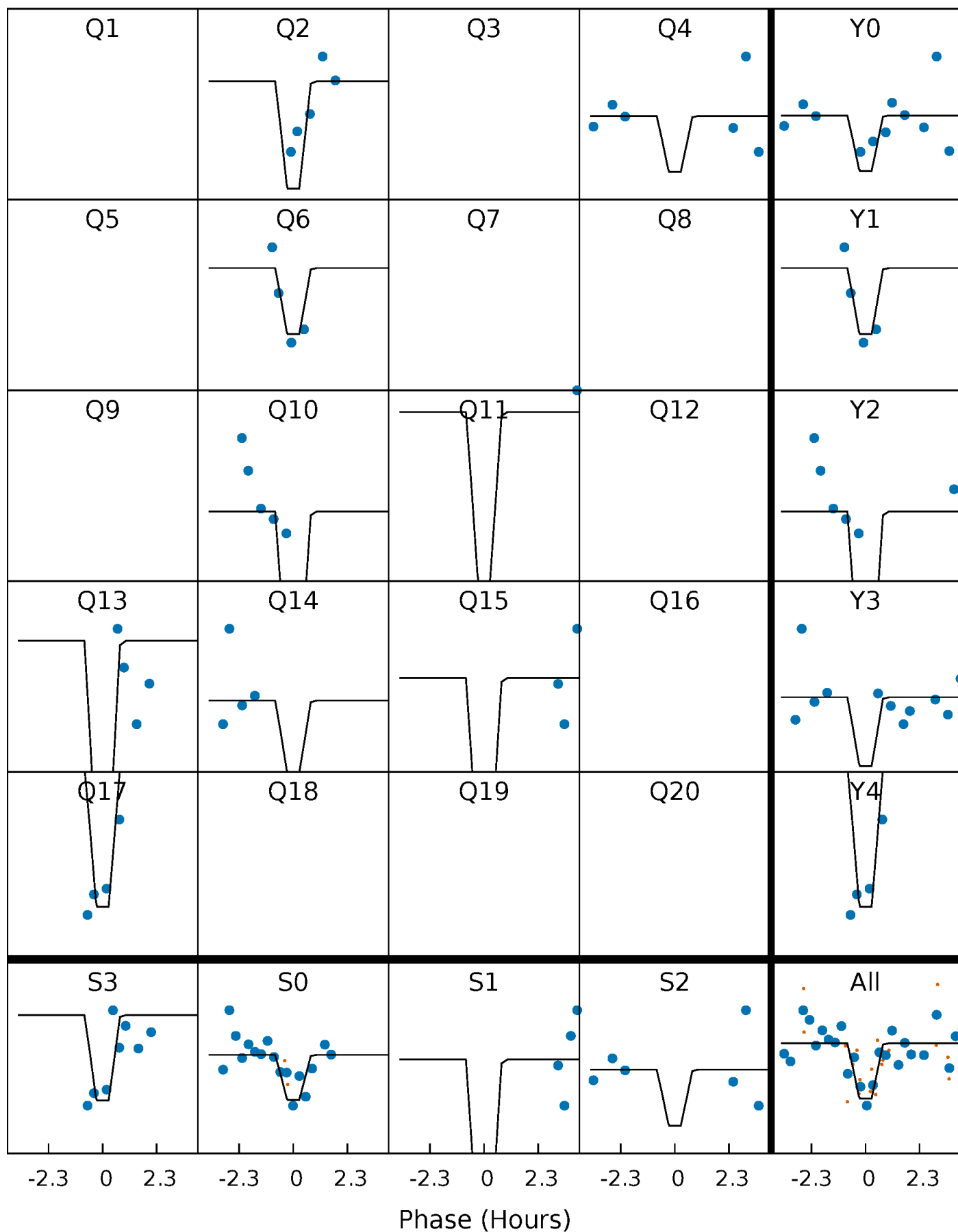
# DV Quarter-Phased Transit Curves

TCE 006515246-03 P= 42.223744 Days  $T_0=170.468221$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

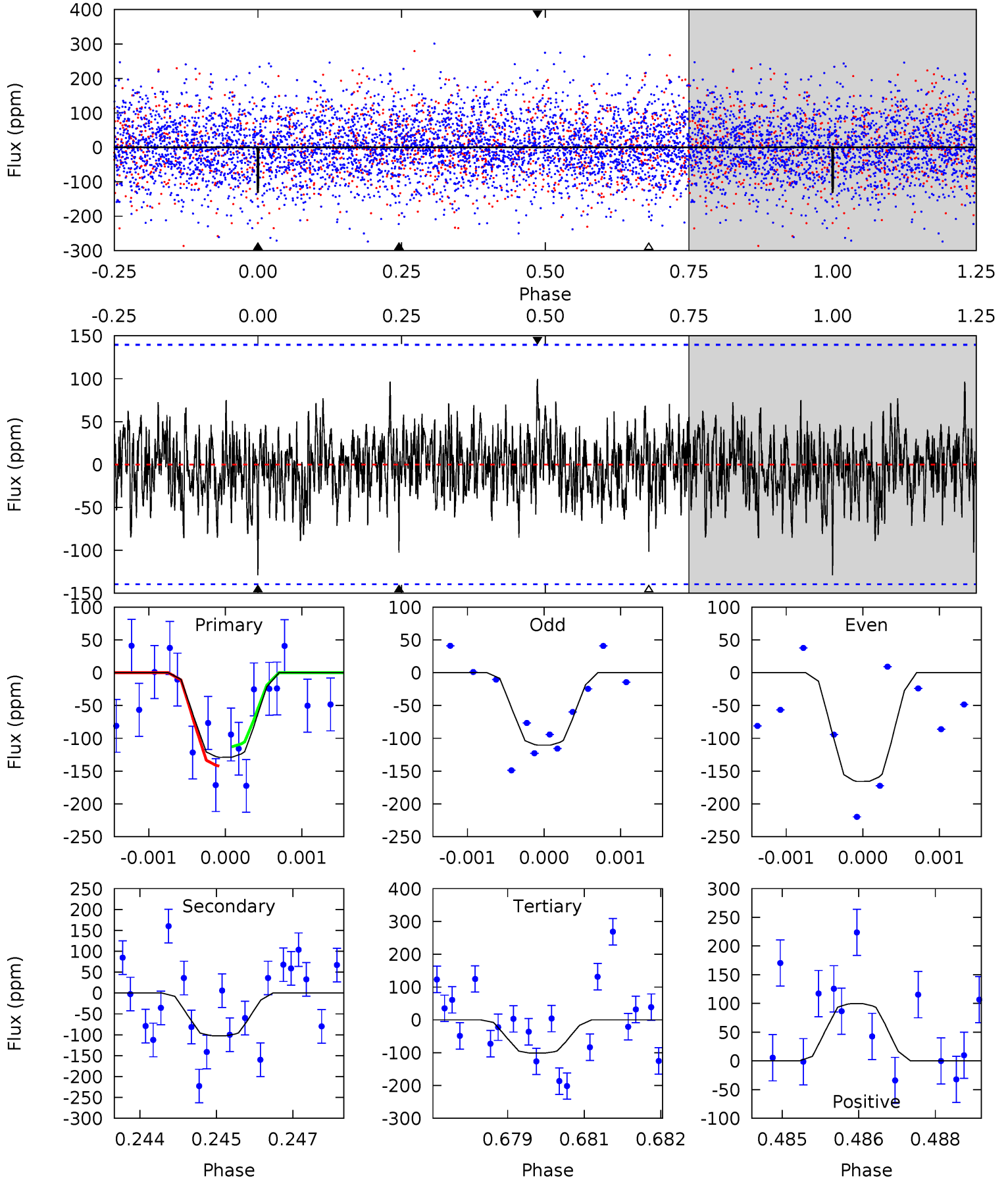
TCE 006515246-03 P= 42.224046 Days  $T_0=170.462504$  (BKJD)



# DV Model-Shift Uniqueness Test

006515246-03, P = 42.223744 Days, E = 128.244477 Days

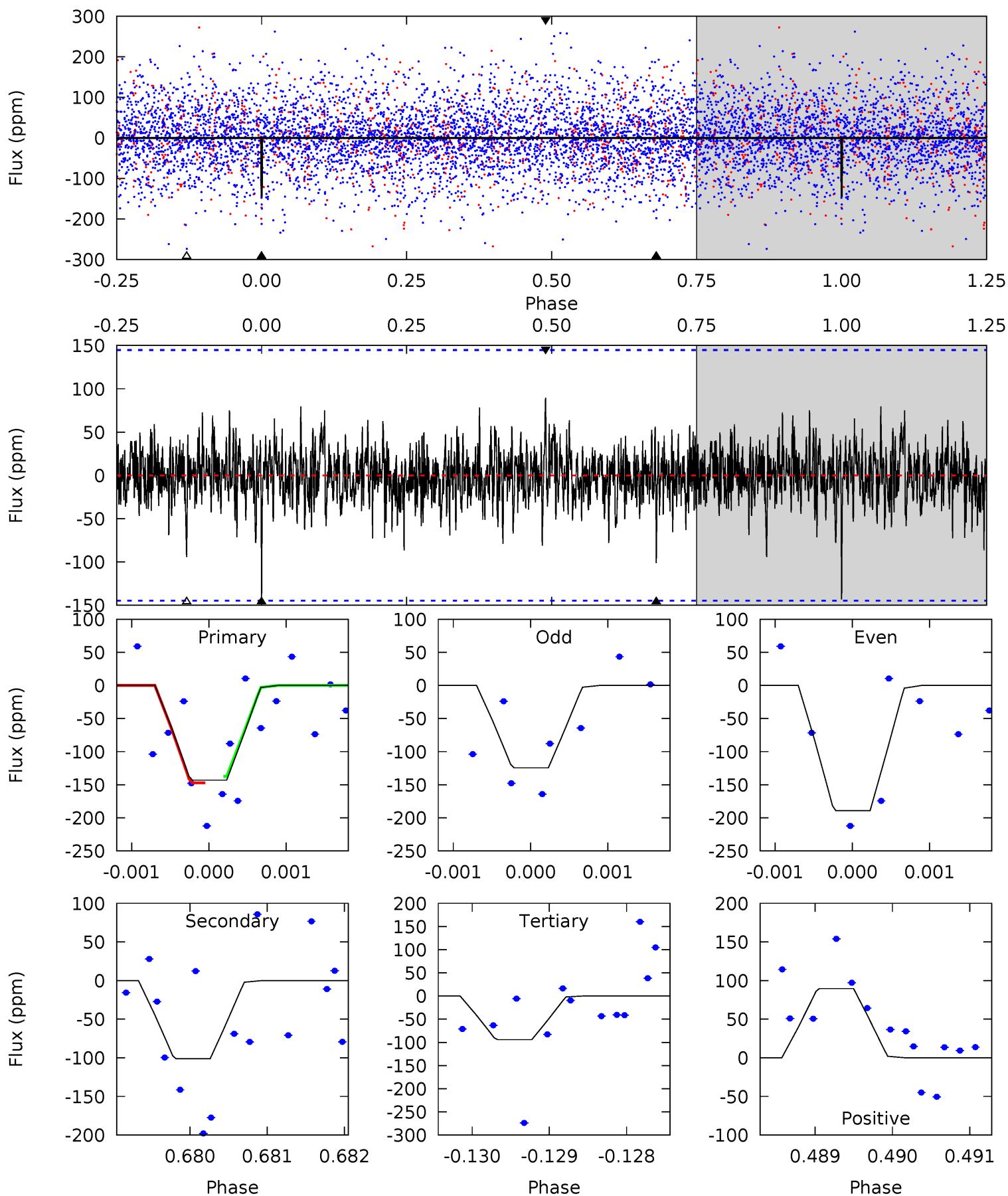
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.98	3.95	3.92	3.84	5.38	3.18	1.15	1.06	1.13	0.03	0.11	1.04	0.94	0.44	0.57



# Alt Model-Shift Uniqueness Test

006515246-03, P = 42.224046 Days, E = 128.238458 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
5.38	3.80	3.54	3.37	5.44	3.27	0.93	1.84	2.01	0.26	0.43	1.18	0.96	0.39	0.18



### Stellar Parameters For KIC 006515246

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8124^{+197}_{-367}$	$3.735^{+0.424}_{-0.106}$	$-0.080^{+0.200}_{-0.350}$	$3.220^{+0.782}_{-1.564}$	$2.054^{+0.291}_{-0.498}$	$0.087^{+0.338}_{-0.031}$
	+2%/-5%	+11%/-3%	+250%/-438%	+24%/-49%	+14%/-24%	+390%/-35%
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 006515246-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-102 \pm 26$	$8.61^{+9.85}_{-5.87}$	$1565^{+139}_{-181}$	$4830^{+4089}_{-1152}$	$67^{+641}_{-52}$
Alt.	$-101 \pm 27$	$9.37^{+9.81}_{-6.06}$	$1572^{+121}_{-208}$	$4632^{+3135}_{-1022}$	$58^{+411}_{-44}$

$T_{\text{max}}$  = 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

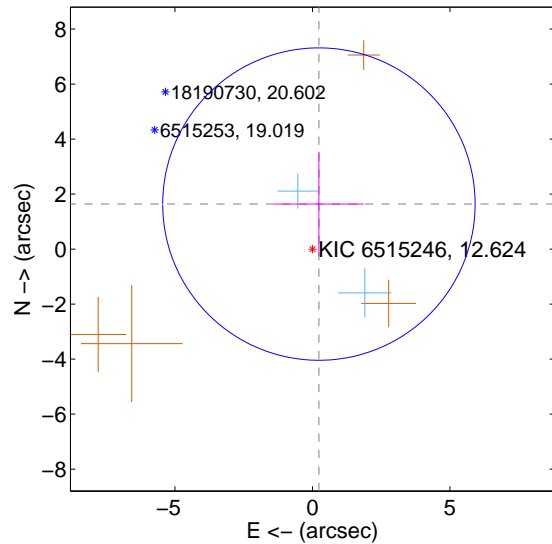
Supplemental centroid analysis for 006515246-03. Kepler magnitude: 12.62. Transit SNR 8.27

There are 2 quarters with good PRF difference image offsets

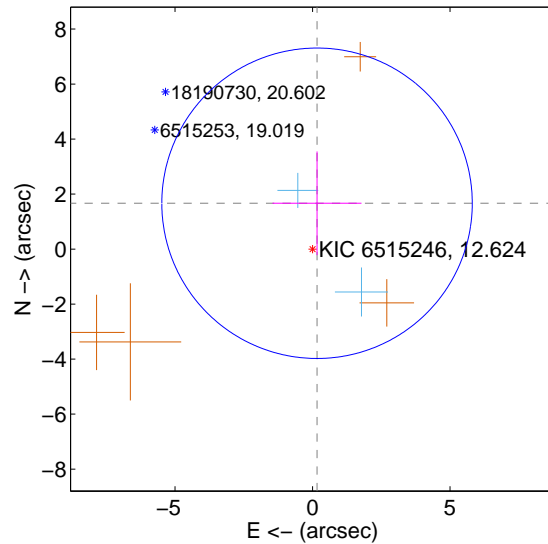
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.653 \pm 1.893$	0.87	$-0.235 \pm 1.632$	$1.637 \pm 1.898$
PRF-fit source offset from KIC position	$1.675 \pm 1.881$	0.89	$-0.164 \pm 1.617$	$1.666 \pm 1.883$
photometric centroid source offset	$0.49 \pm 1.16$	0.42	$0.24 \pm 1.24$	$-0.43 \pm 1.13$

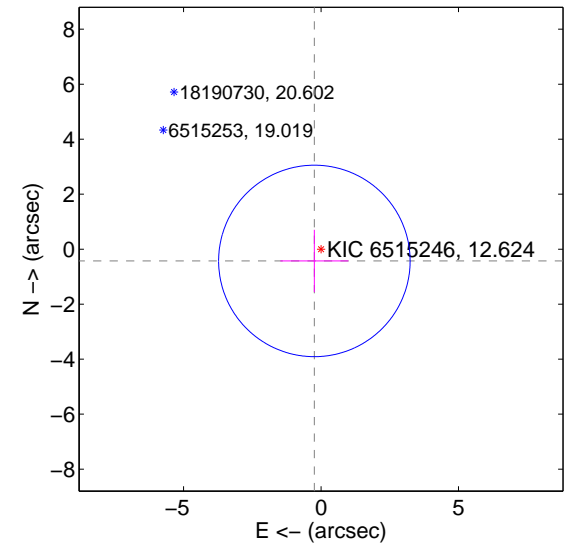
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

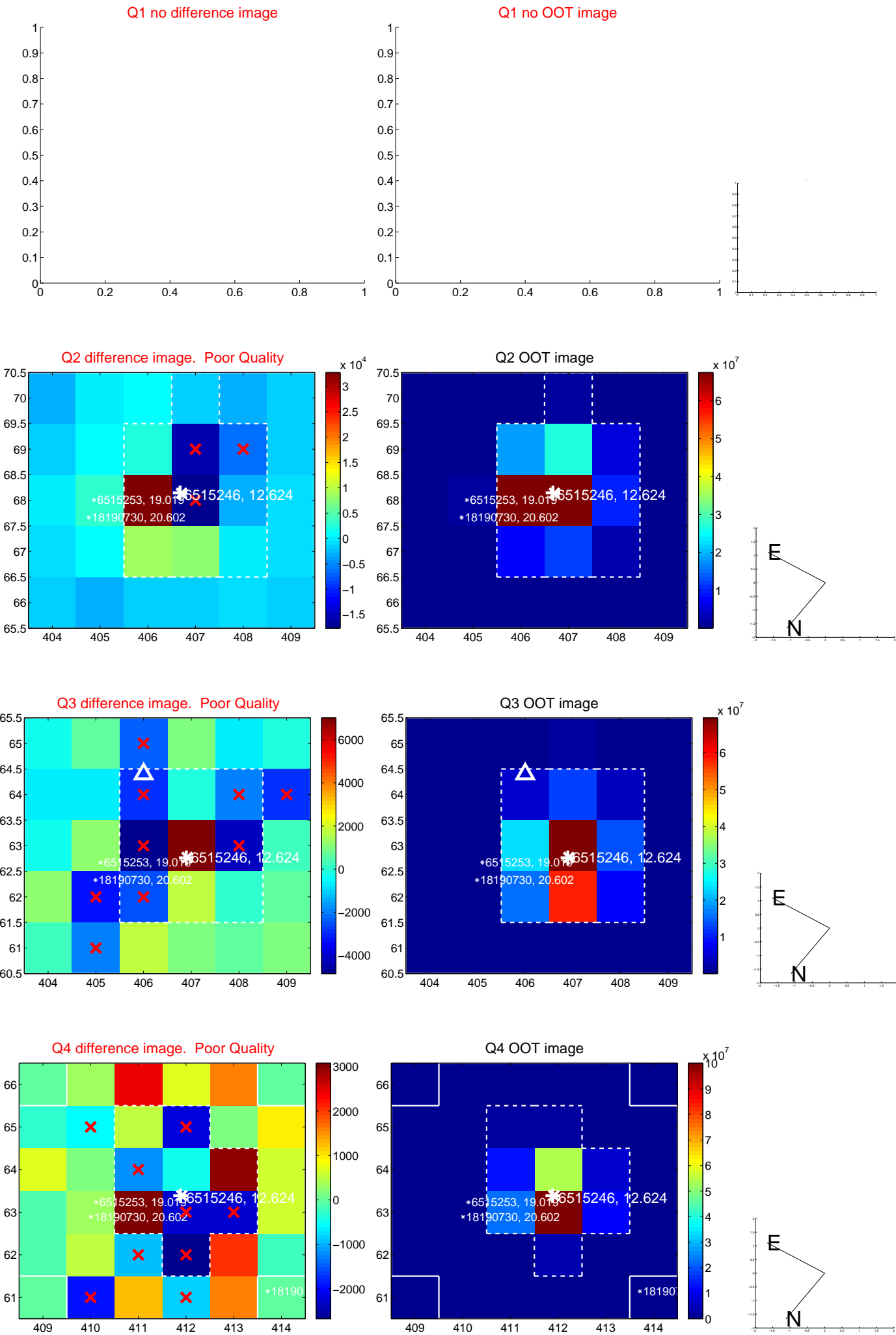


offset from photometric centroids

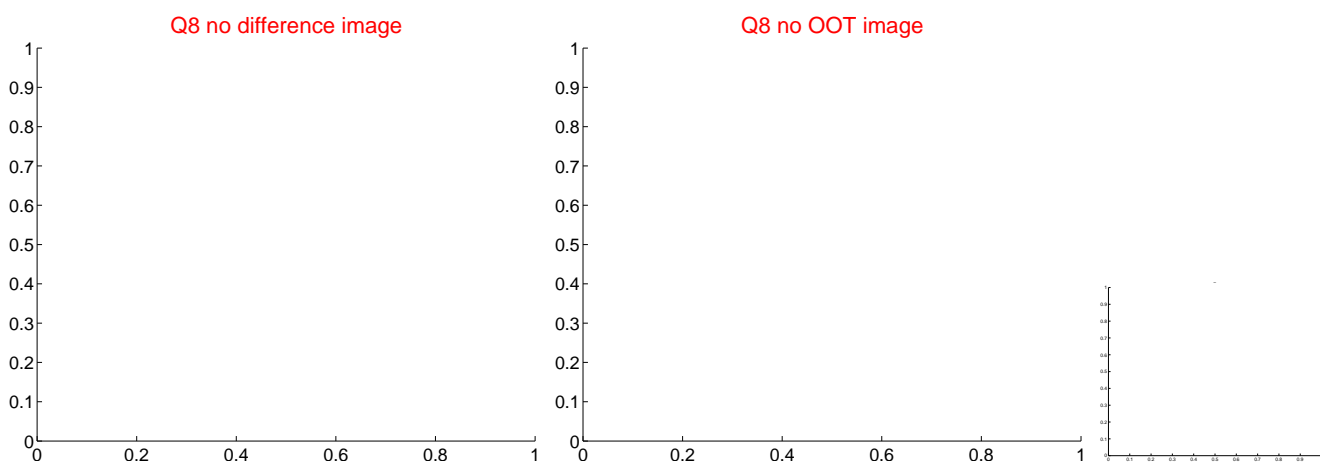
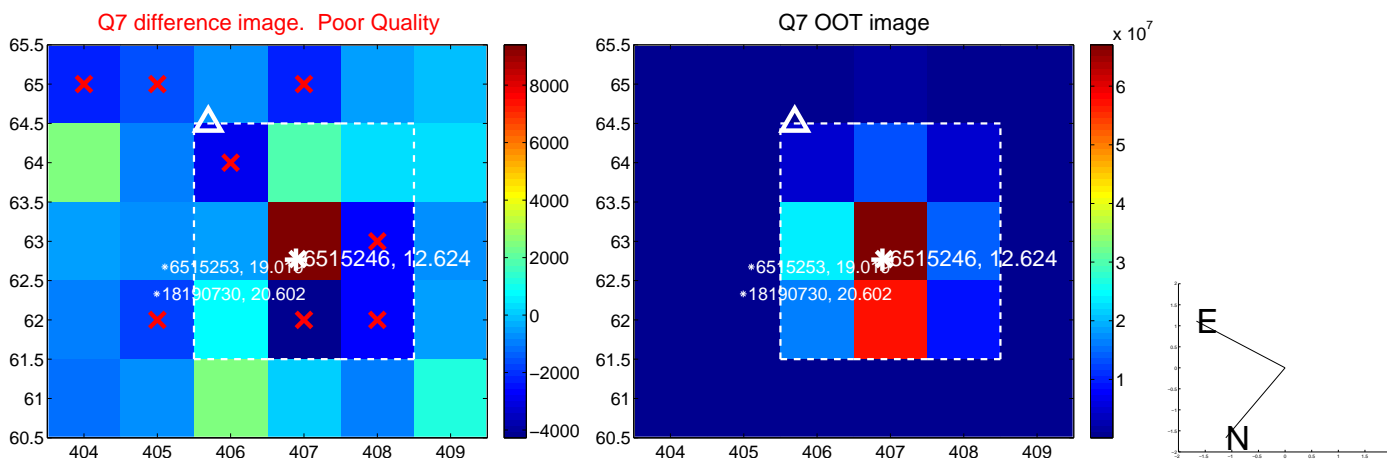
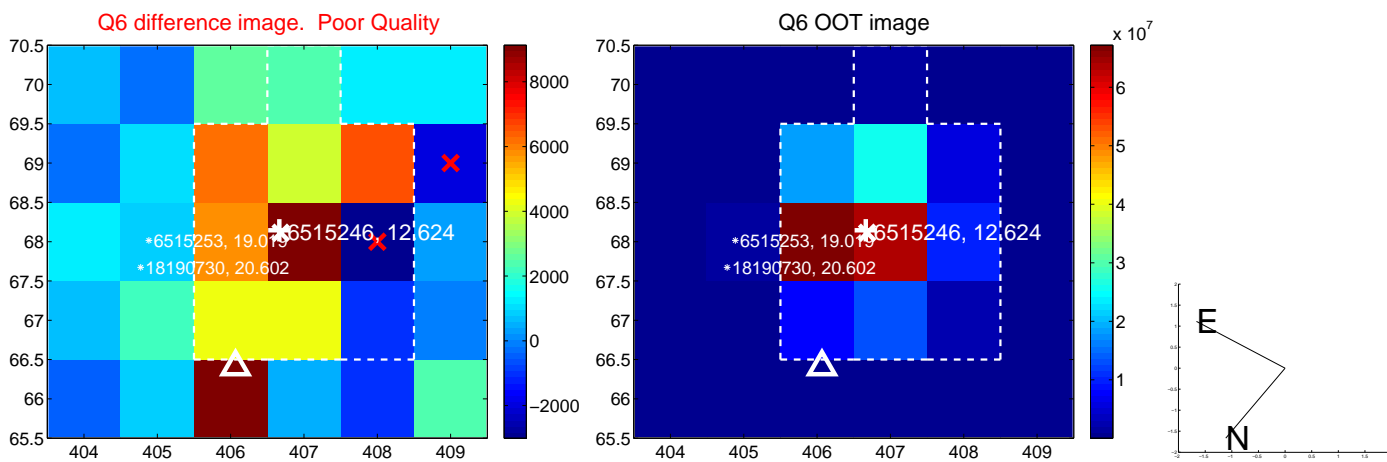
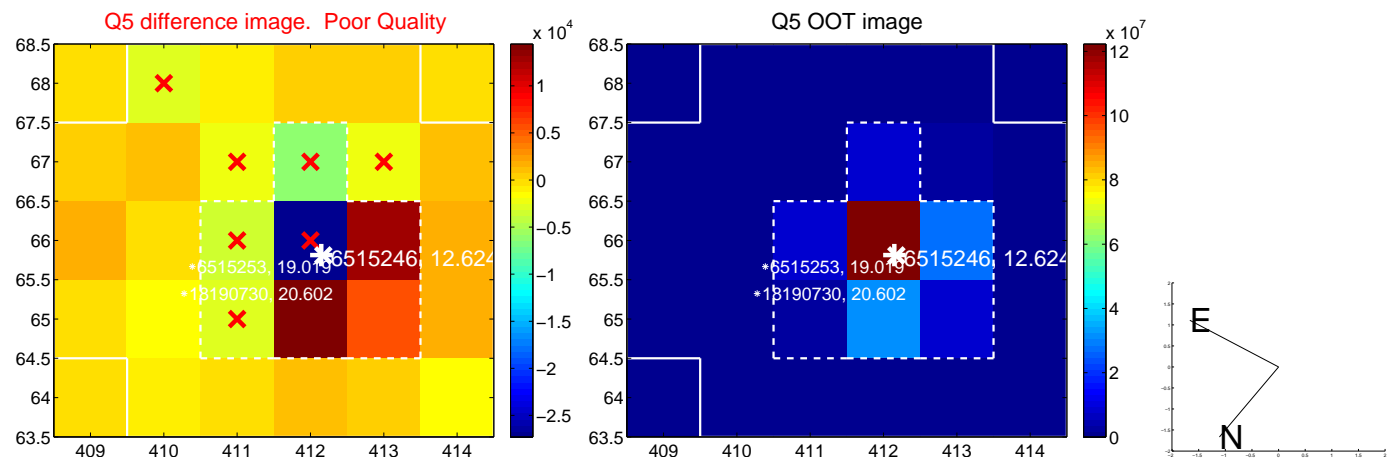


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

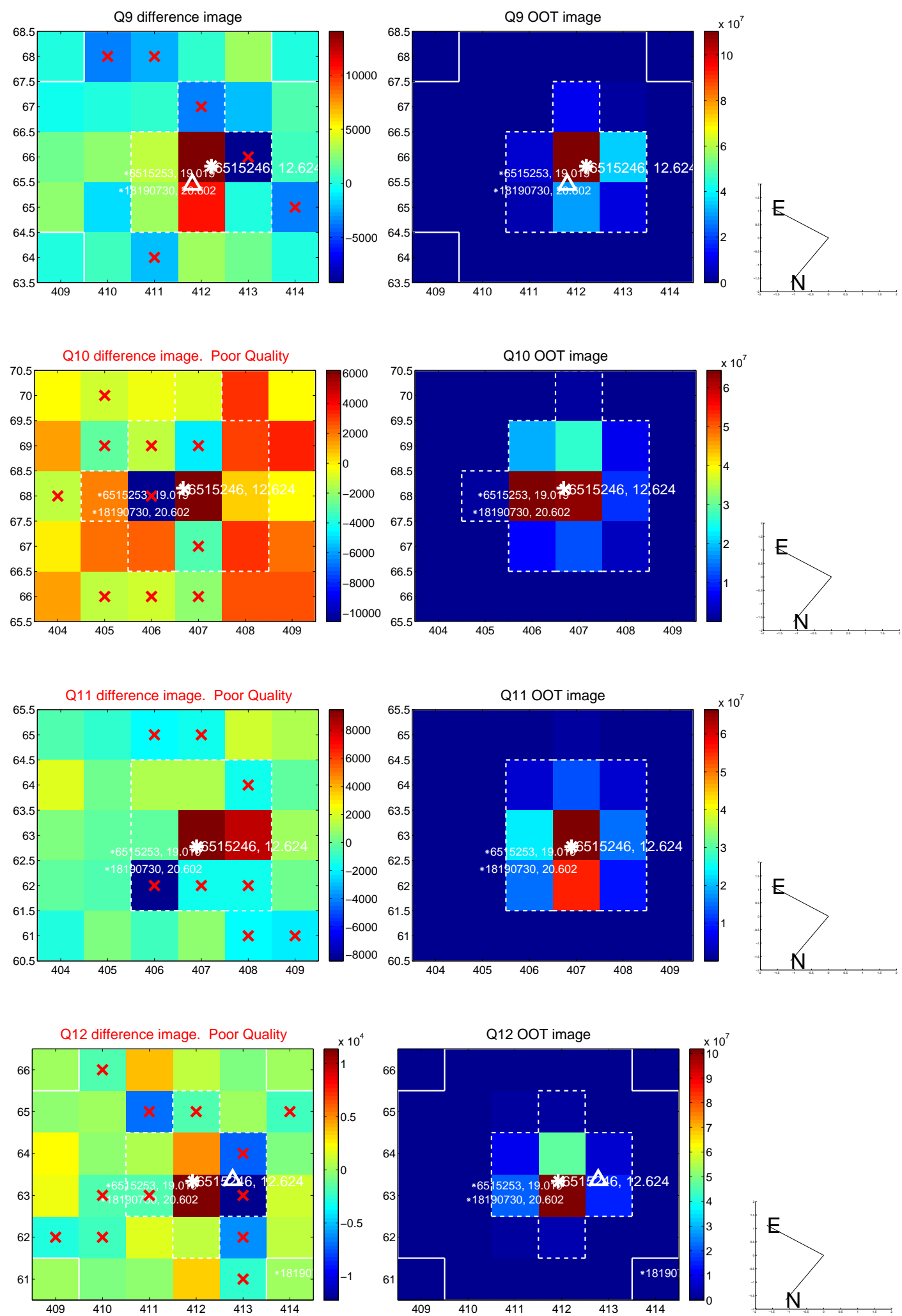
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



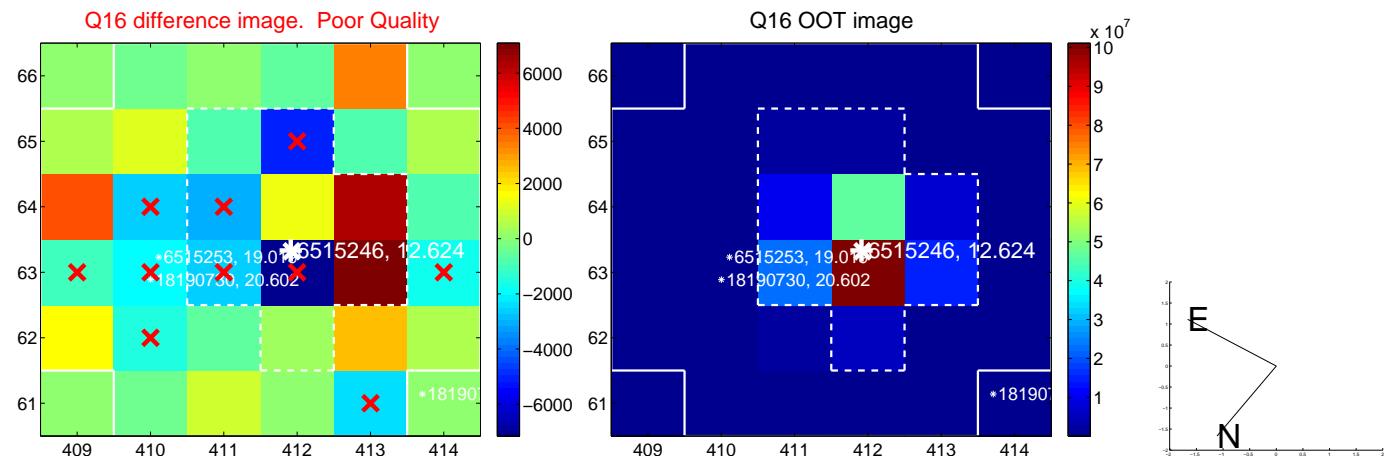
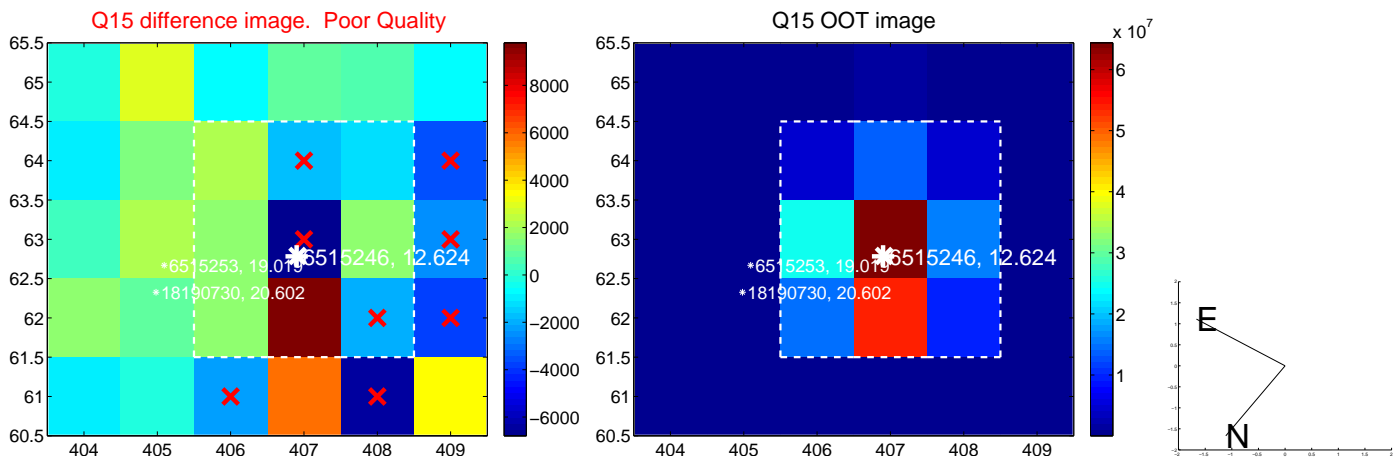
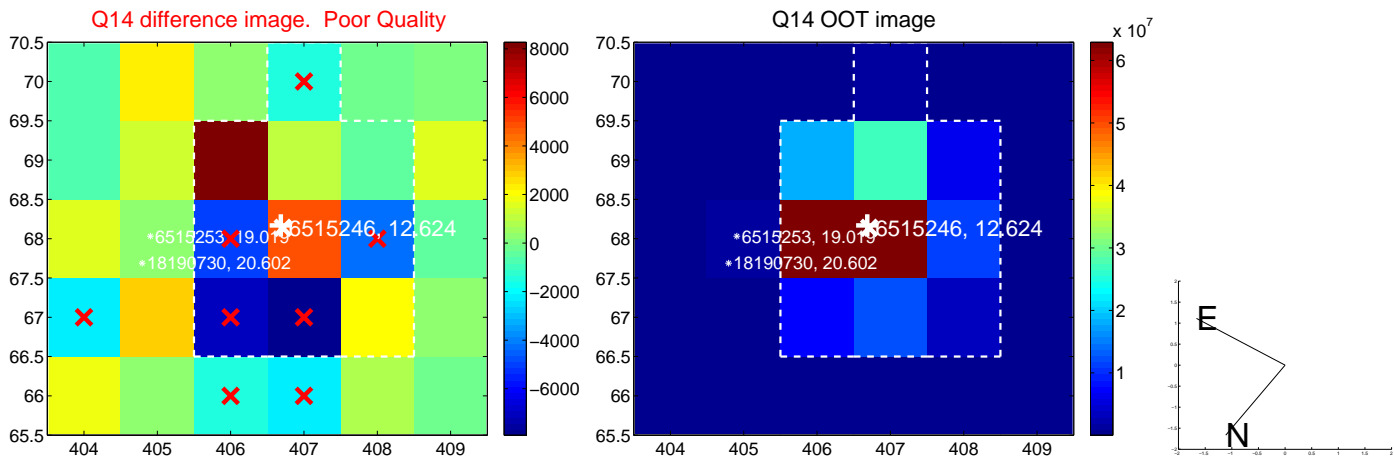
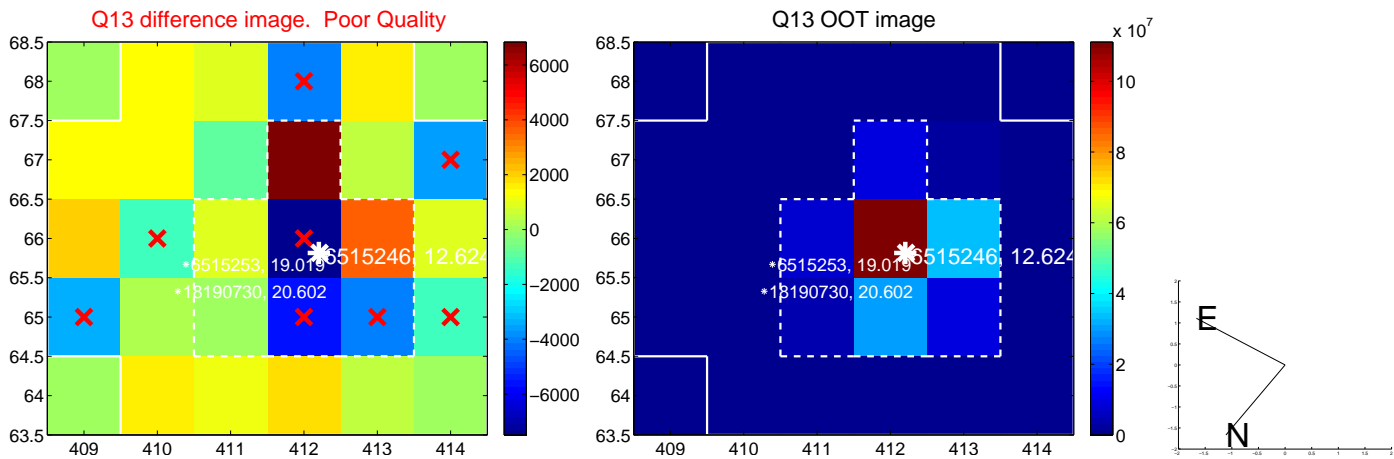
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



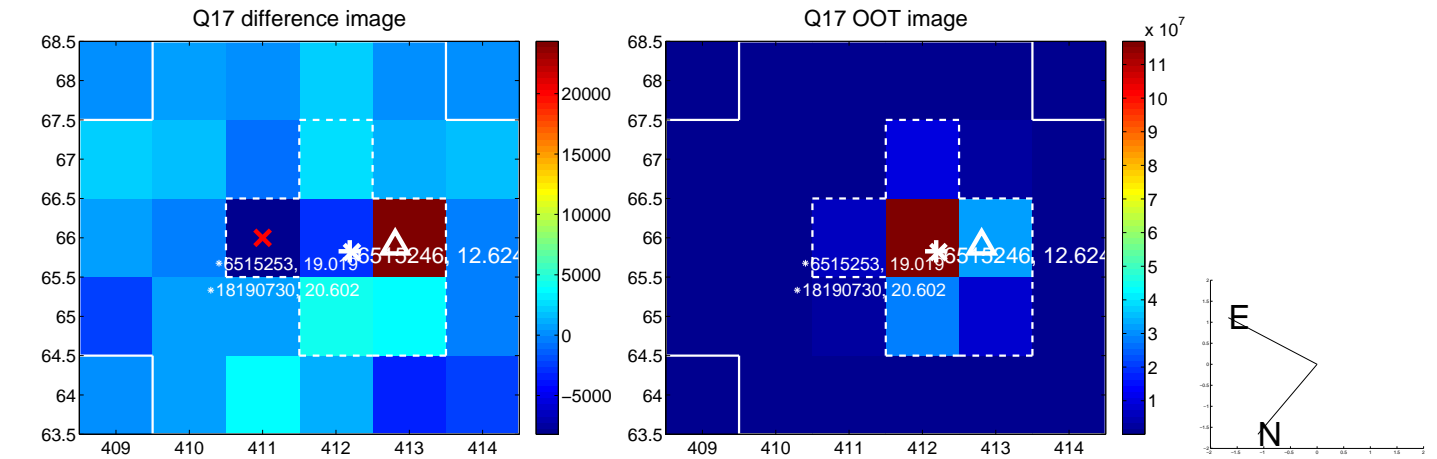
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



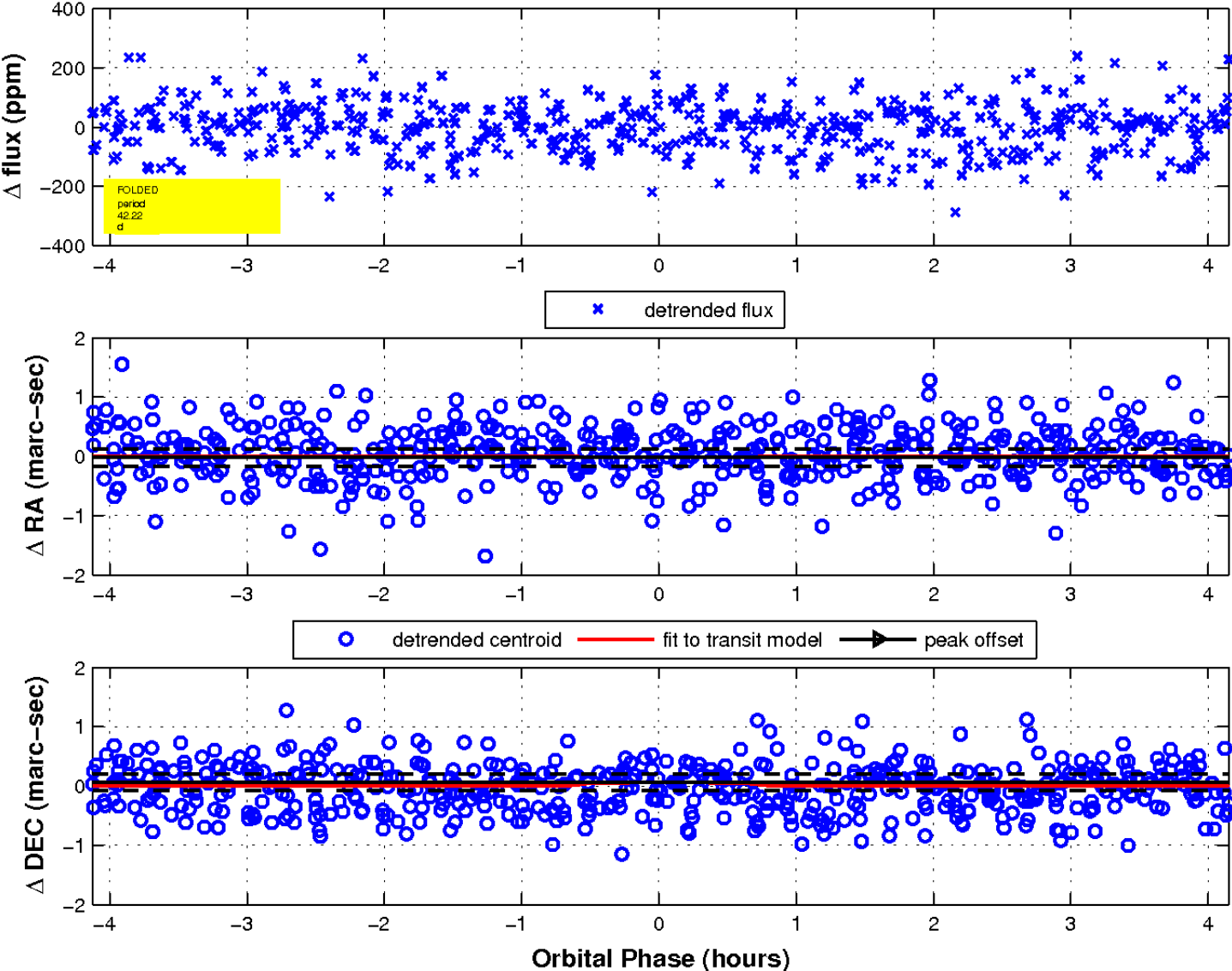
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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UKIRT Image

Declination

