

# KIC 008517361

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008517361-01	OBS	No	3.592890	132.380417	13.6	17.054	9.3	9.1	1.44	6947	0.61	1670.81
008517361-02	OBS	No	279.399168	362.871031	871.5	61.866	33.6	25.4	1.44	6947	7.95	5.03
008517361-03	OBS	No	245.315726	266.172671	130.1	47.703	10.8	8.8	1.44	6947	2.04	5.99

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008517361-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008517361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008517361-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

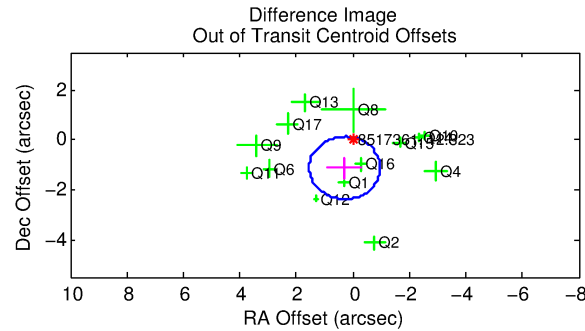
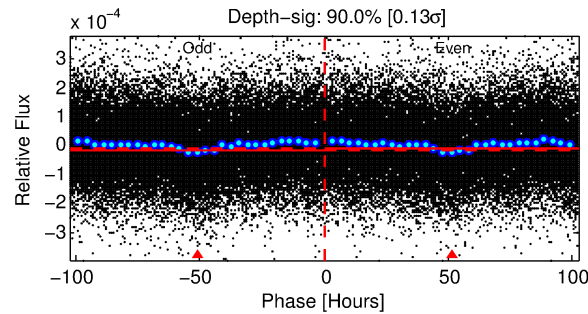
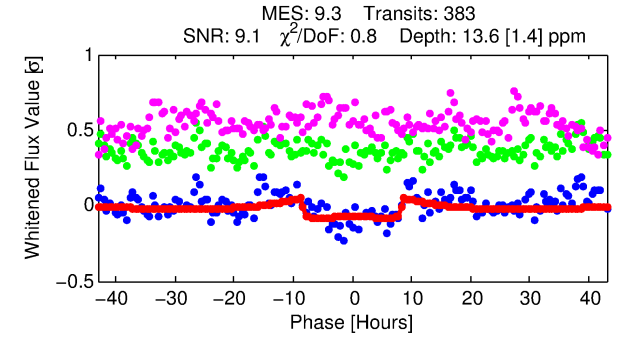
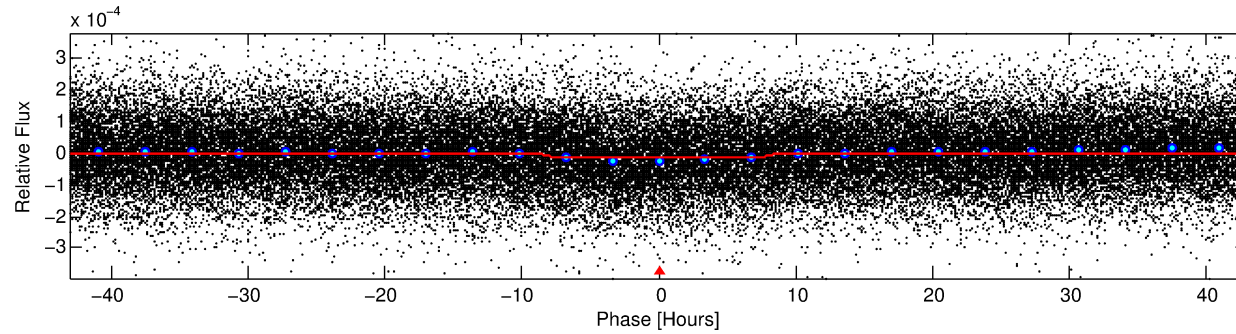
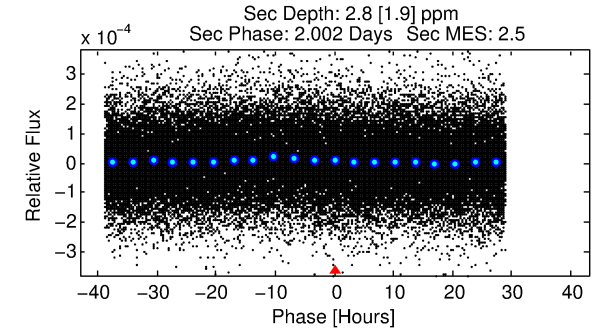
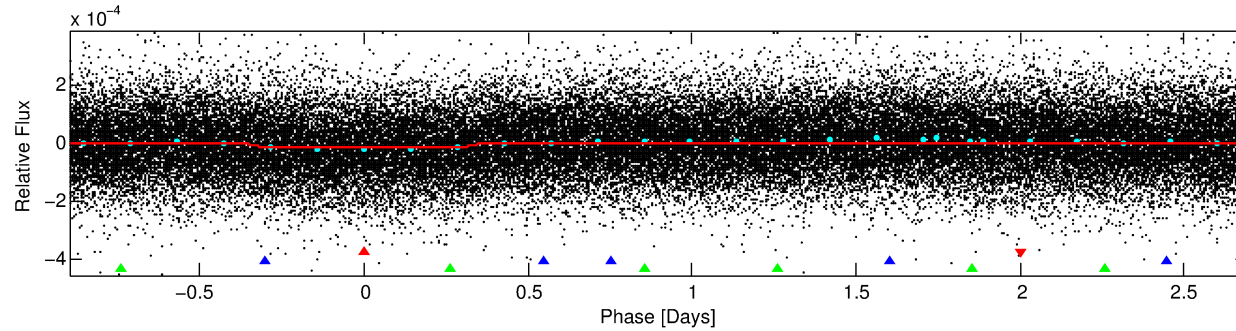
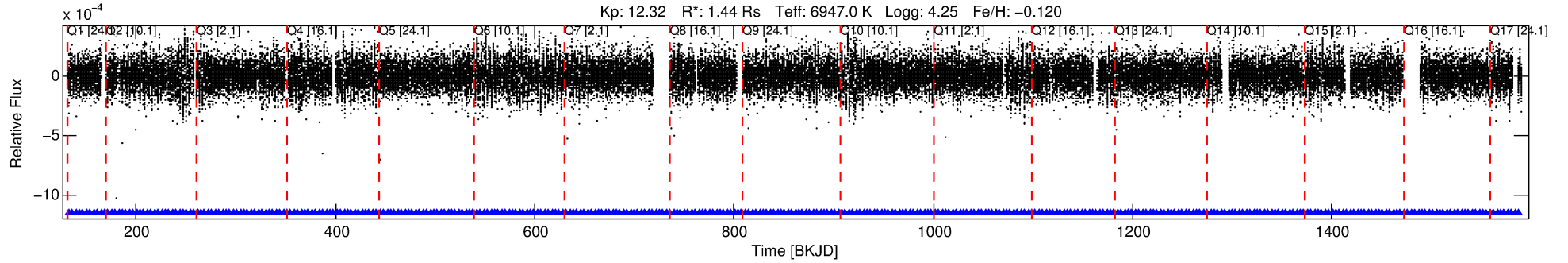
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008517361-01

No Significant Match Found

# DV One-Page Summary

KIC: 8517361 Candidate: 1 of 3 Period: 3.593 d



## DV Fit Results:

Period = 3.59289 [0.00005] d  
Epoch = 132.3804 [0.0098] BKJD  
Rp/R\* = 0.0039 [0.0006]  
a/R\* = 1.22 [0.36]  
b = 0.88 [0.25]  
Seff = 1670.81 [560.10]  
Teq = 1630 [137] K  
Rp = 0.61 [0.17] Re  
a = 0.0507 [0.0097] AU  
Ag = 10.96 [8.79] [1.13σ]  
Teffp = 4587 [890] K [3.28σ]

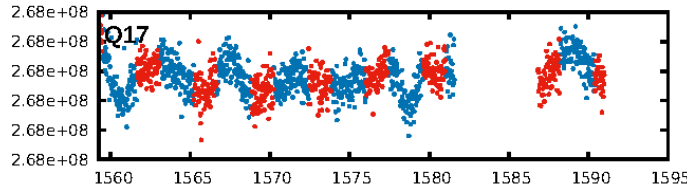
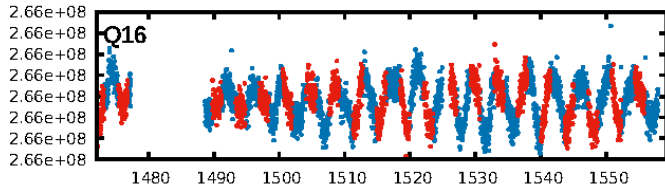
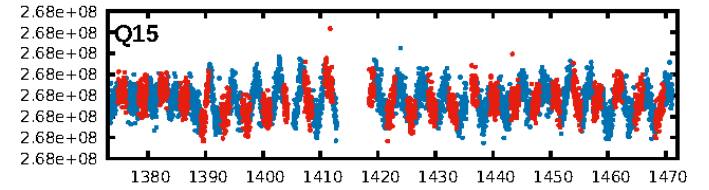
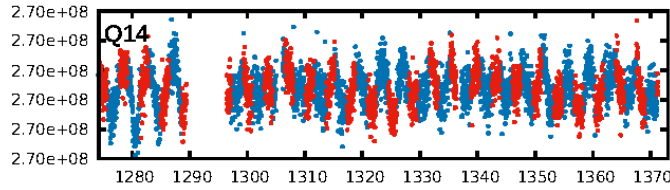
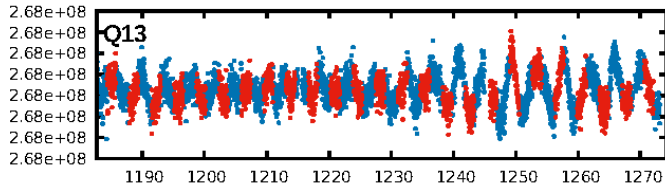
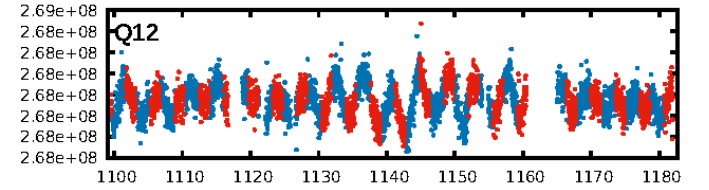
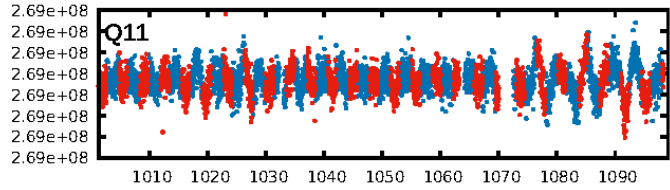
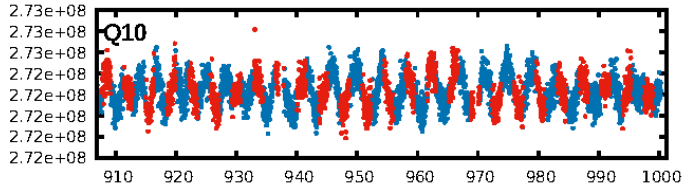
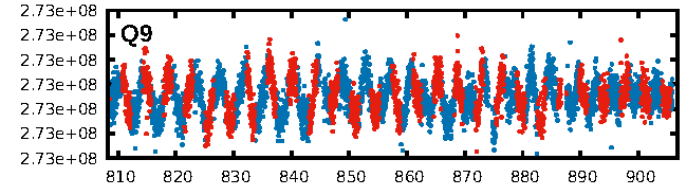
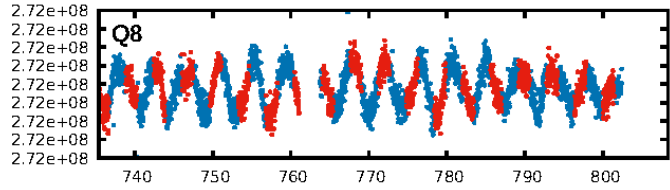
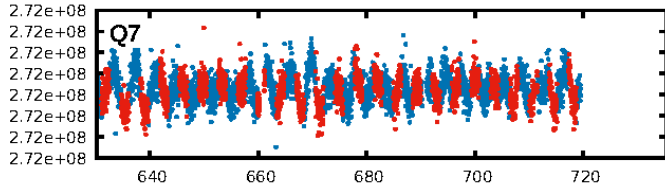
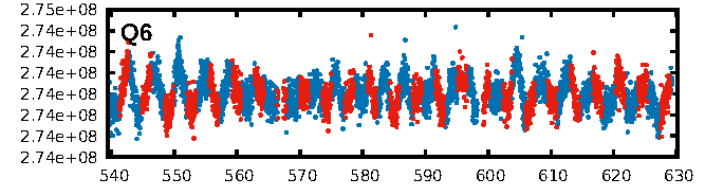
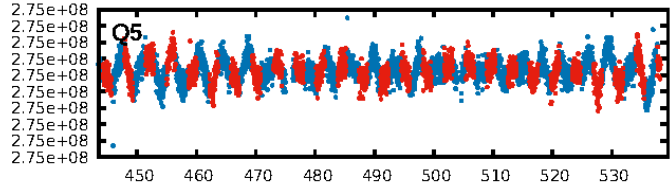
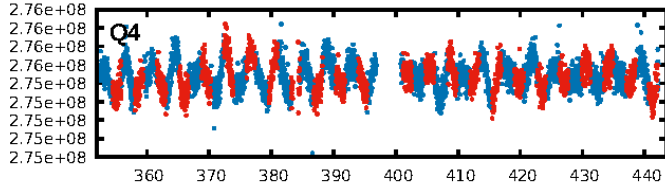
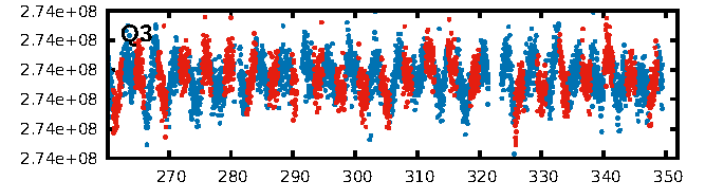
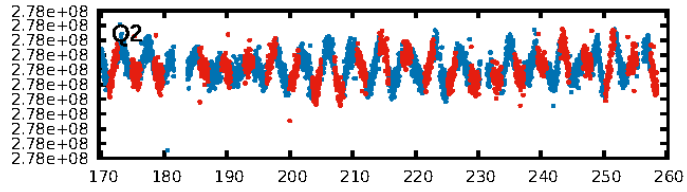
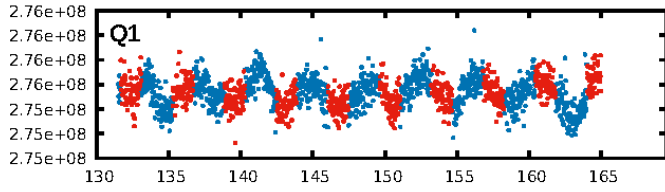
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [114.52σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.64e-13  
RollingBand-fgt: 1.00 [365/365]  
GhostDiagnostic-chr: 2.754  
Centroid-sig: 11.4%  
Centroid-so: 2.008 arcsec [1.61σ]  
OotOffset-rm: 1.166 arcsec [2.79σ]  
OotOffset-st: 4/2/4/4 [14]  
KicOffset-rm: 1.290 arcsec [3.08σ]  
KicOffset-st: 4/2/4/4 [14]  
DiffImageQuality-fgm: 0.57 [8/14]  
DiffImageOverlap-fno: 1.00 [17/17]

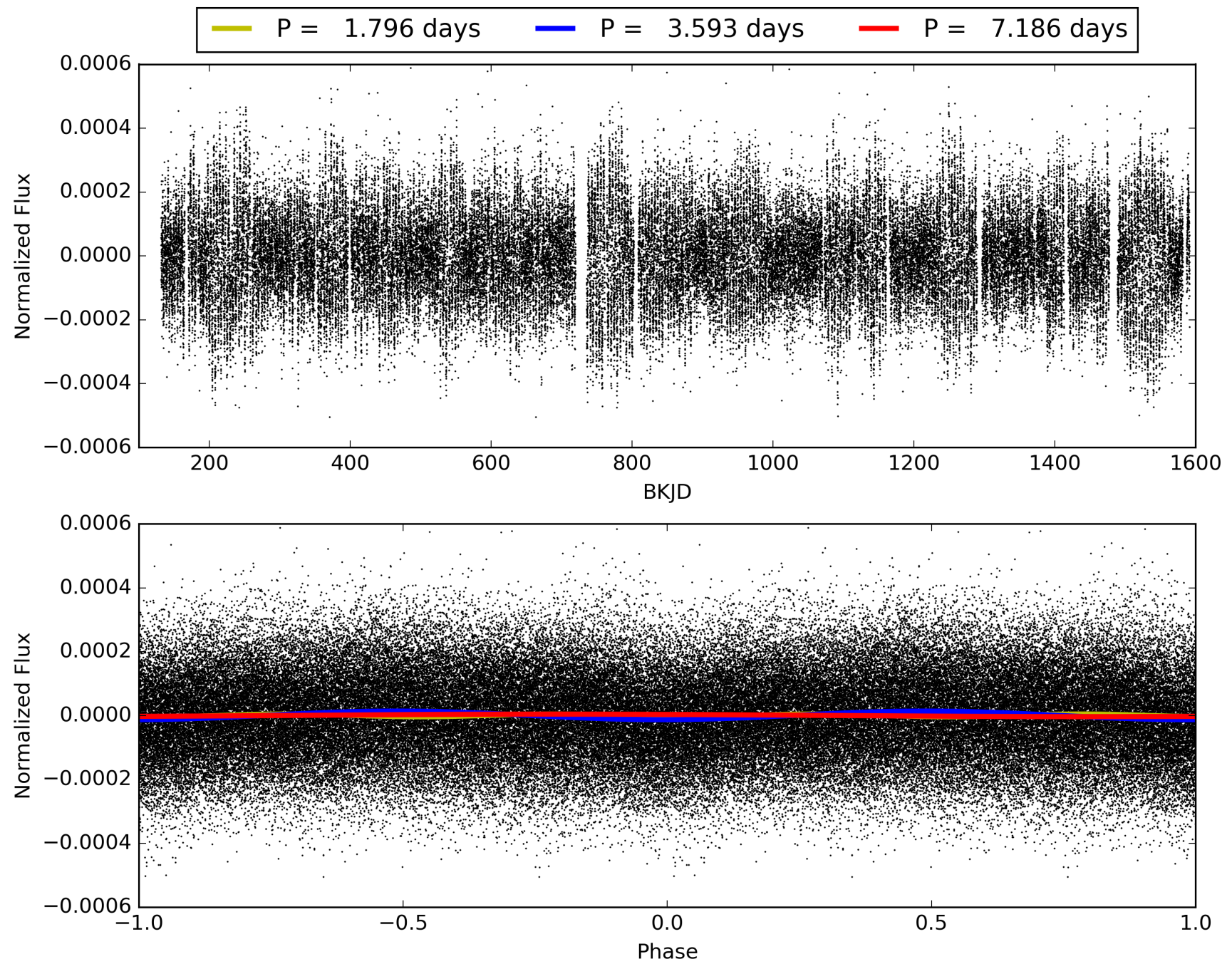
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:32:44 Z

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

## TCE 008517361-01, PDC Light Curves



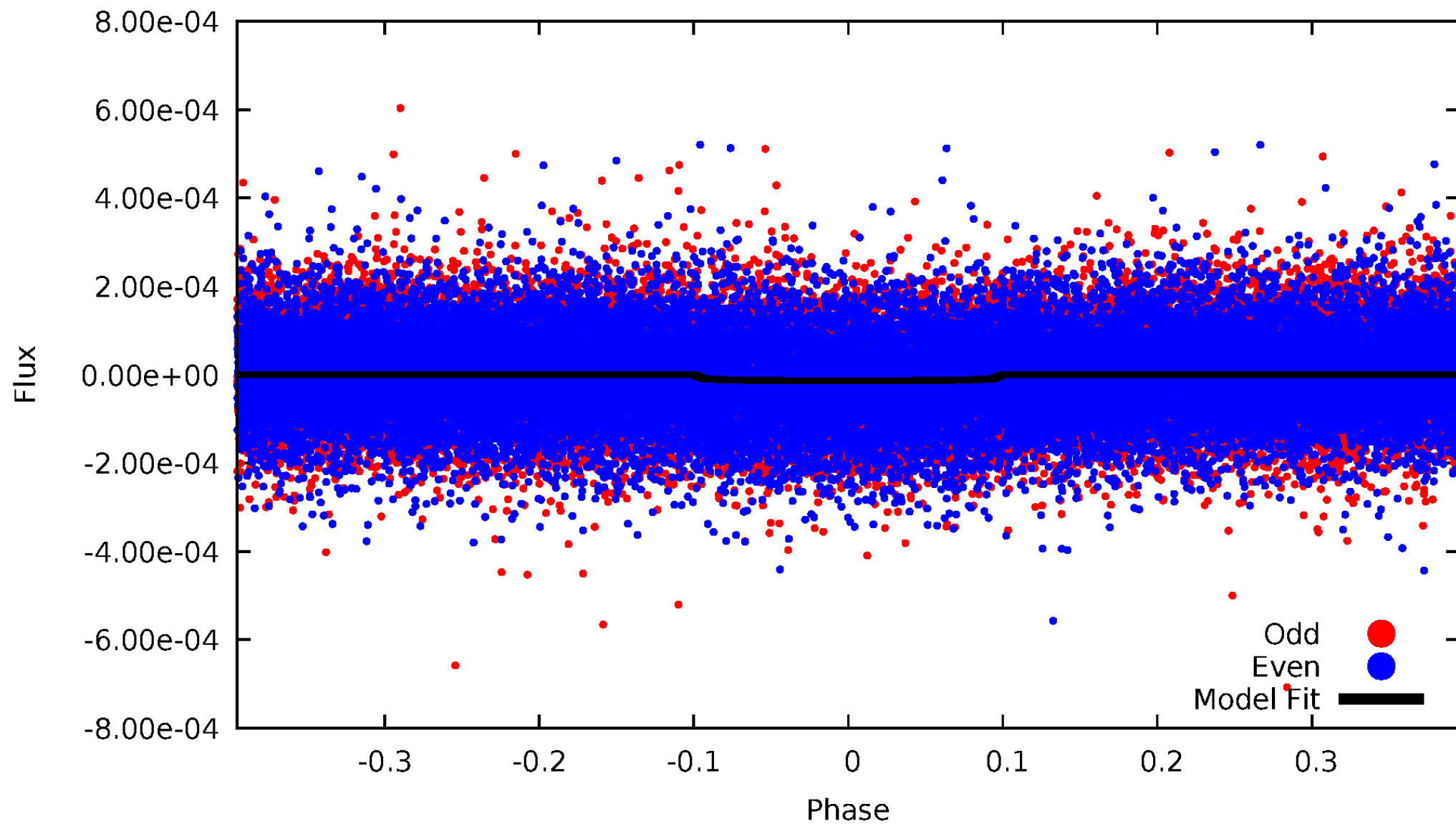
# TCE 008517361-01





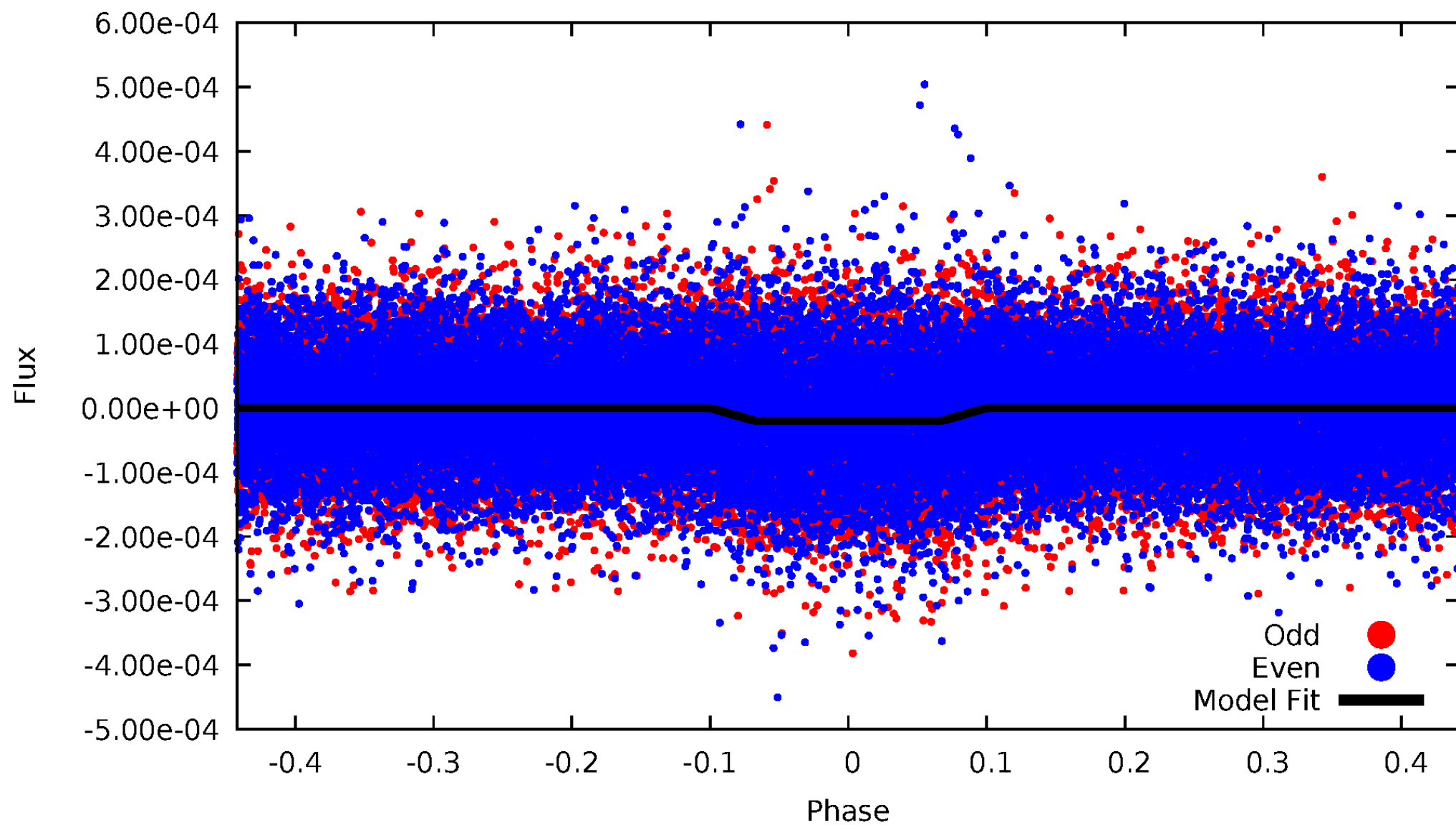
# DV Odd/Even

TCE 008517361-01



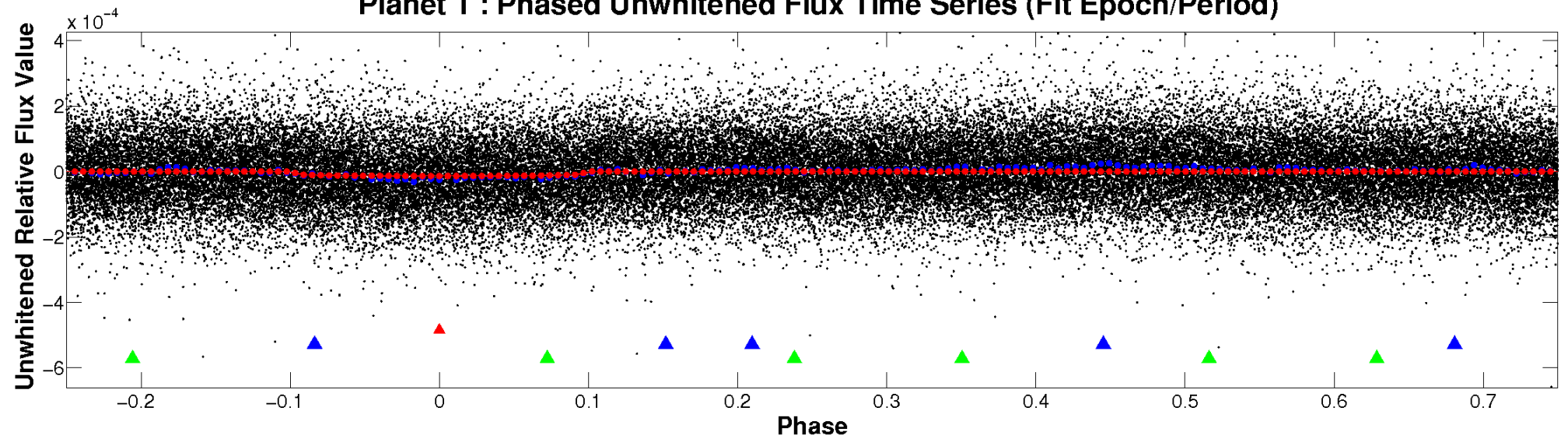
# ALT Odd/Even

TCE 008517361-01

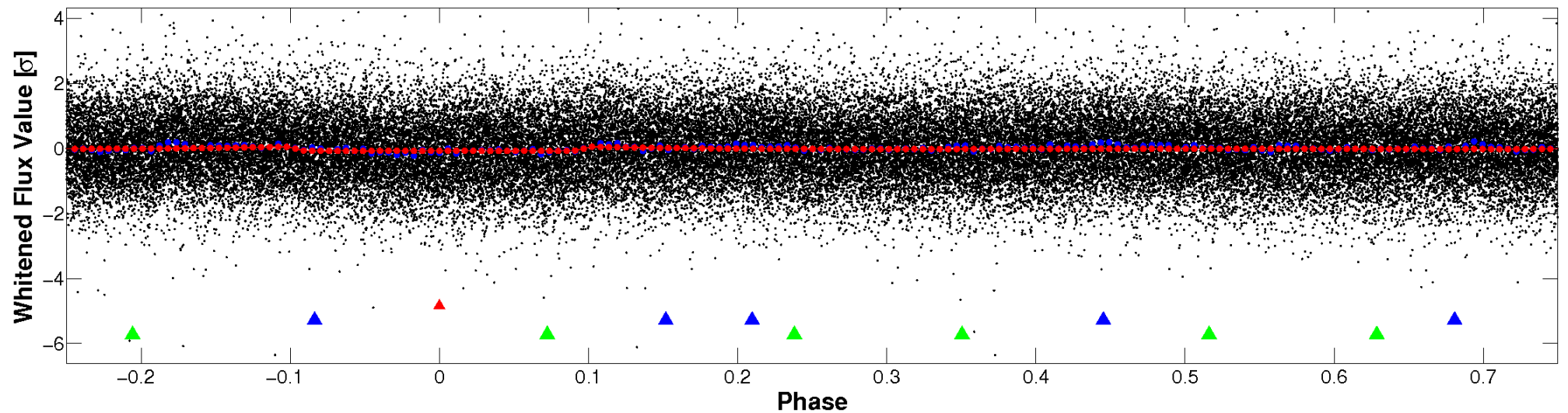


# Non-Whitened Vs. Whitened Light Curve

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

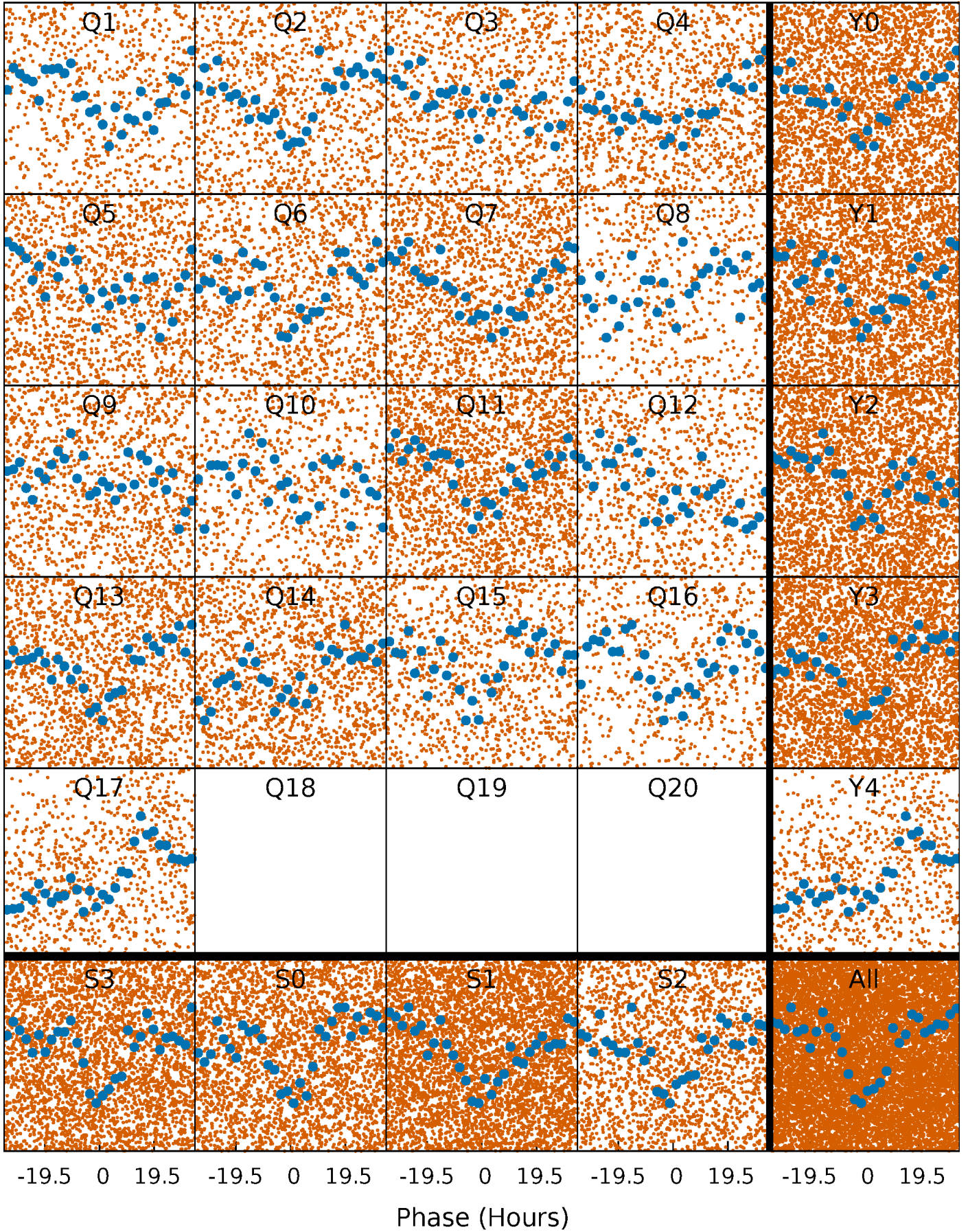


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

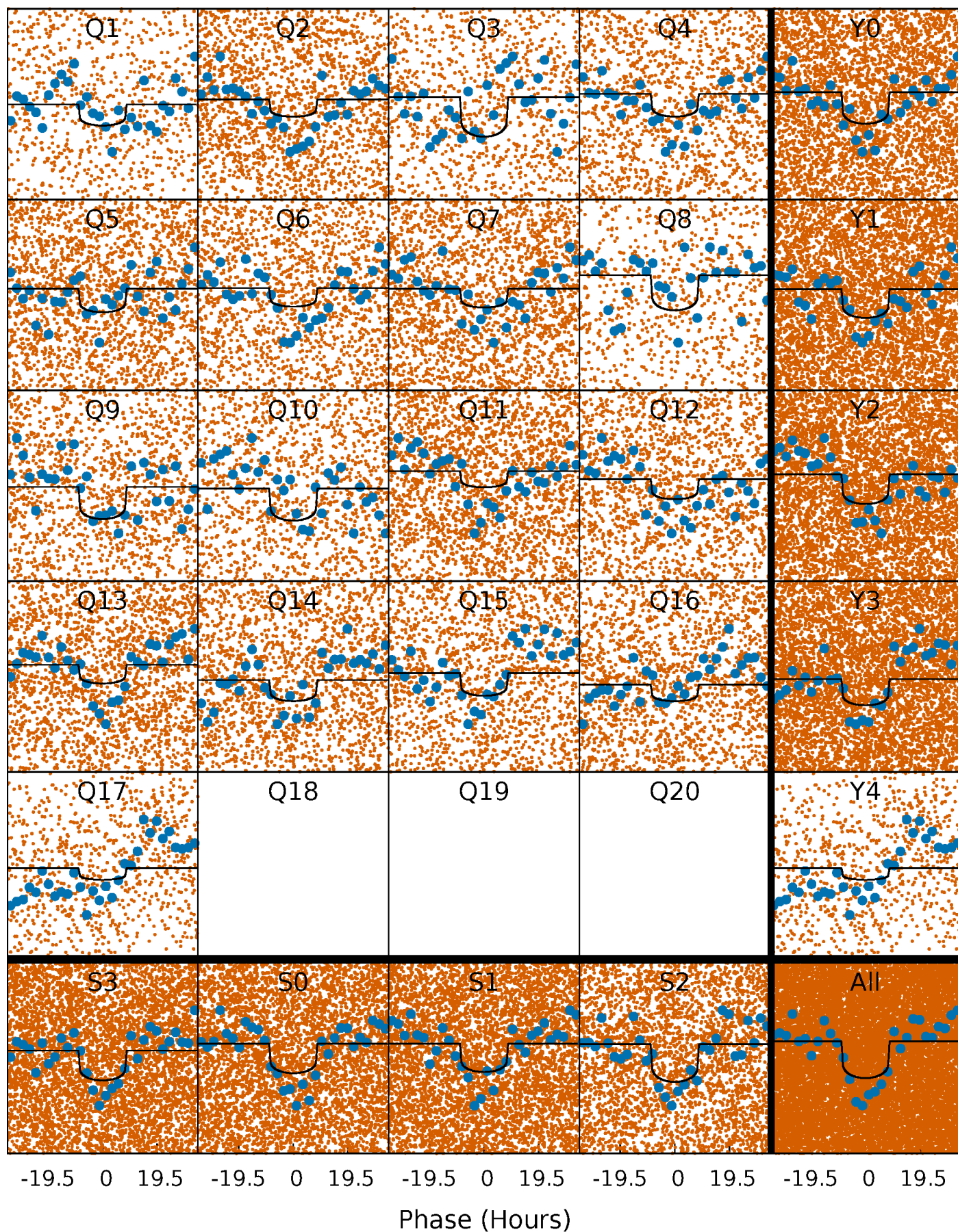
TCE 008517361-01   P= 3.592890 Days    $T_0=132.380417$  (BKJD)





# DV Quarter-Phased Transit Curves

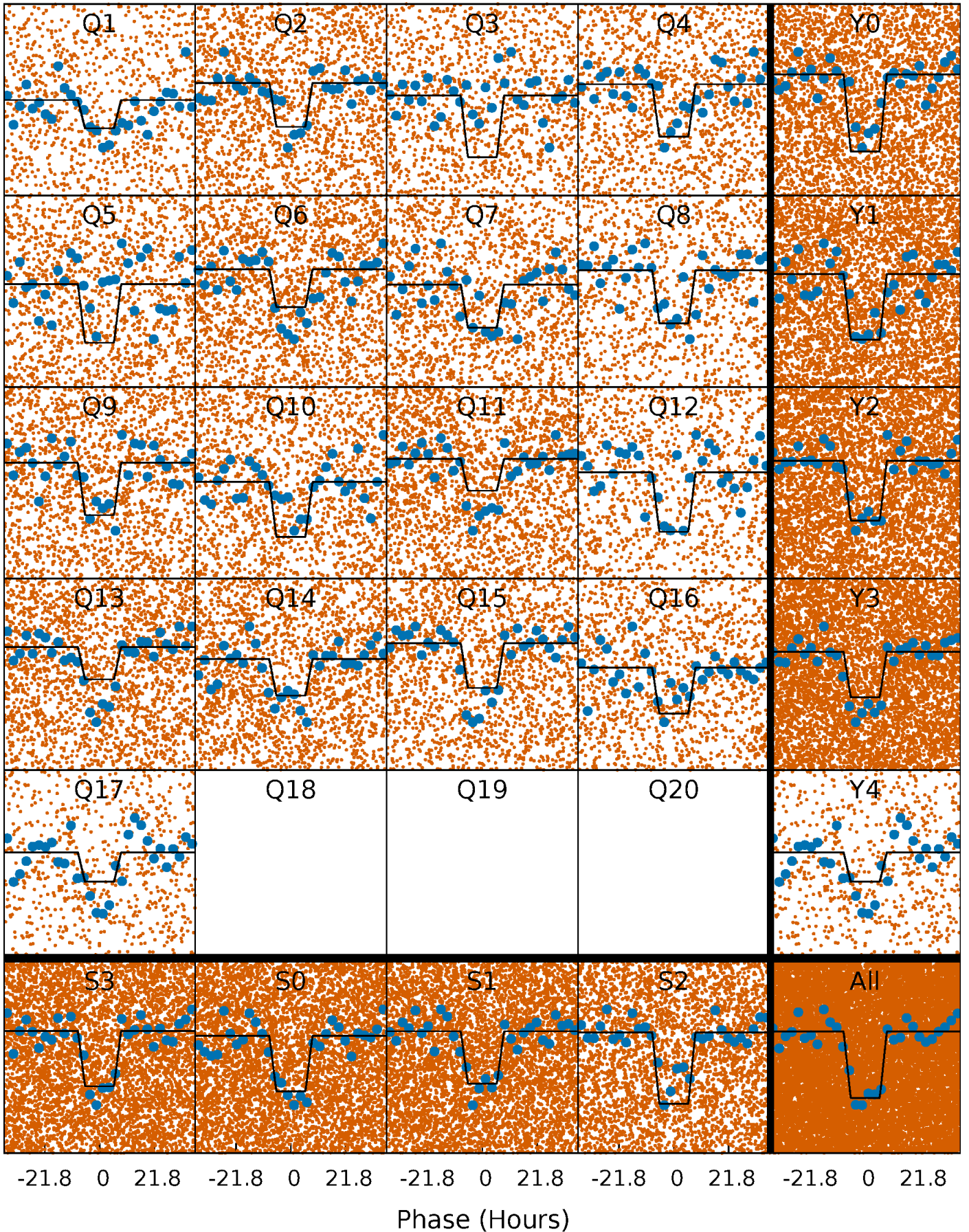
TCE 008517361-01 P= 3.592890 Days  $T_0=132.380417$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

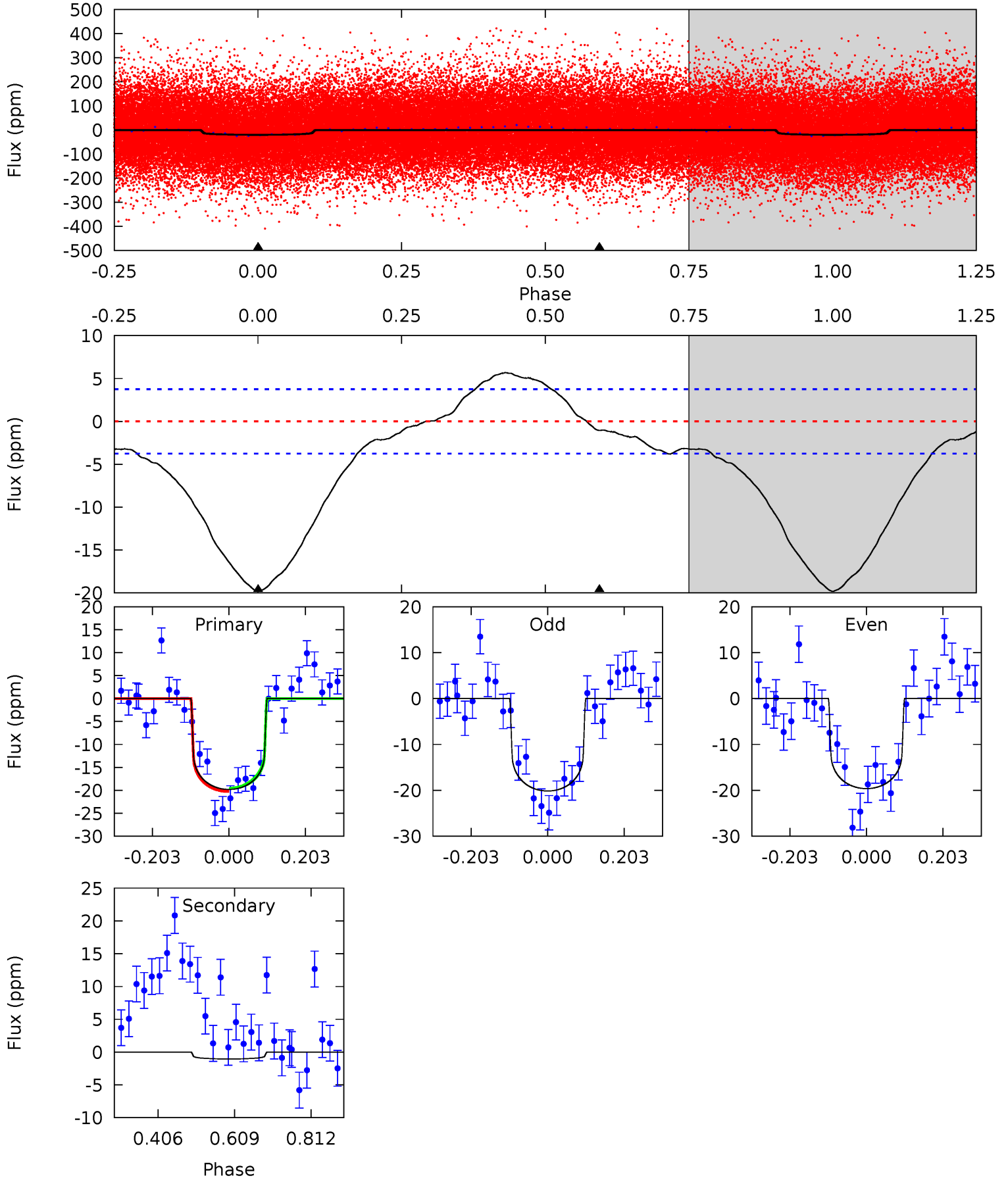
TCE 008517361-01 P= 3.592995 Days  $T_0=132.385282$  (BKJD)



# DV Model-Shift Uniqueness Test

008517361-01, P = 3.592890 Days, E = 128.787527 Days

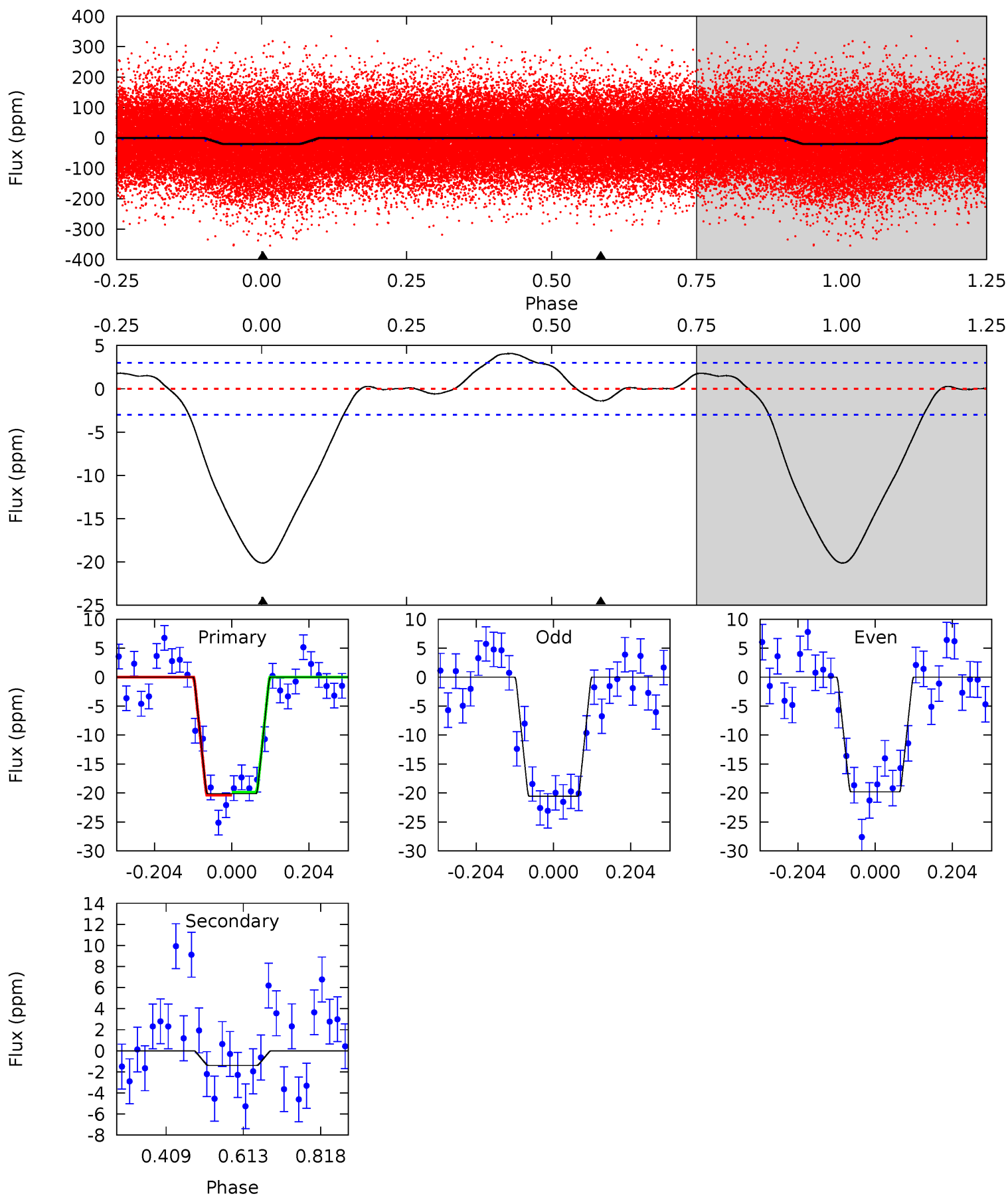
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.3	1.24	0	0	4.41	1.27	2.24	23.3	23.3	1.24	1.24	0.31	0.92	0.22	0.39



# Alt Model-Shift Uniqueness Test

008517361-01, P = 3.592995 Days, E = 128.792287 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
29.6	2.05	0	0	4.41	1.27	1.22	29.6	29.6	2.05	2.05	0.55	1.06	0.17	0.38





### Stellar Parameters For KIC 008517361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6947^{+192}_{-329}$	$4.254^{+0.092}_{-0.150}$	$-0.120^{+0.250}_{-0.350}$	$1.436^{+0.330}_{-0.220}$	$1.356^{+0.150}_{-0.206}$	$0.645^{+0.276}_{-0.266}$
	+3%/-5%	+2%/-4%	+208%/-292%	+23%/-15%	+11%/-15%	+43%/-41%
Source	PHO1	FLK73	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 008517361-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1 \pm 1$	$0.61^{+0.13}_{-0.11}$	$2289^{+135}_{-133}$	$3789^{+574}_{-982}$	$3.657^{+3.894}_{-2.928}$
Alt.	$-1 \pm 1$	$0.72^{+0.13}_{-0.13}$	$2279^{+143}_{-121}$	$3801^{+393}_{-522}$	$3.621^{+2.723}_{-1.867}$

$T_{\text{max}}$  = 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

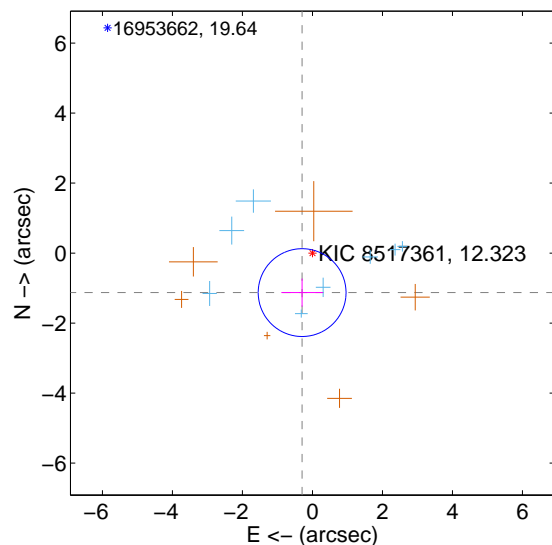
Supplemental centroid analysis for 008517361-01. Kepler magnitude: 12.32. Transit SNR 9.10

There are 8 quarters with good PRF difference image offsets

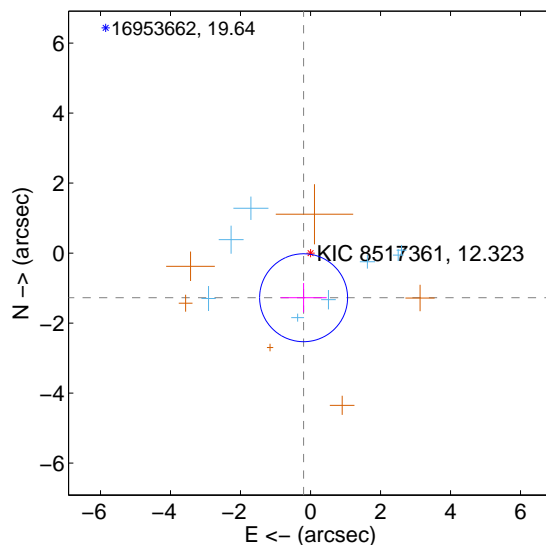
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.166 \pm 0.418$	2.79	$0.295 \pm 0.594$	$-1.128 \pm 0.400$
PRF-fit source offset from KIC position	$1.290 \pm 0.419$	3.08	$0.198 \pm 0.662$	$-1.275 \pm 0.418$
photometric centroid source offset	$2.01 \pm 1.25$	1.61	$-1.93 \pm 1.26$	$-0.55 \pm 1.09$

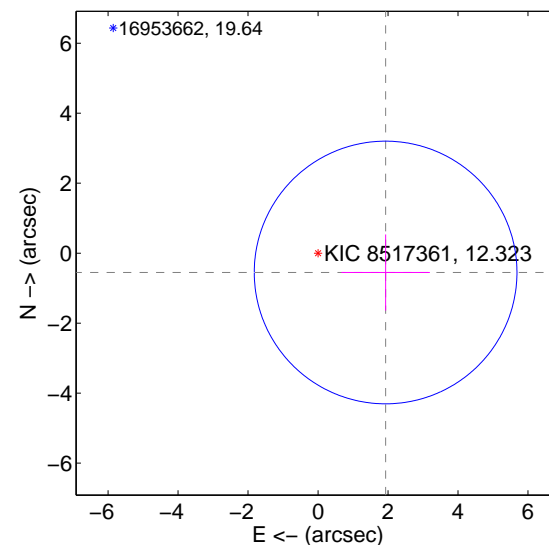
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

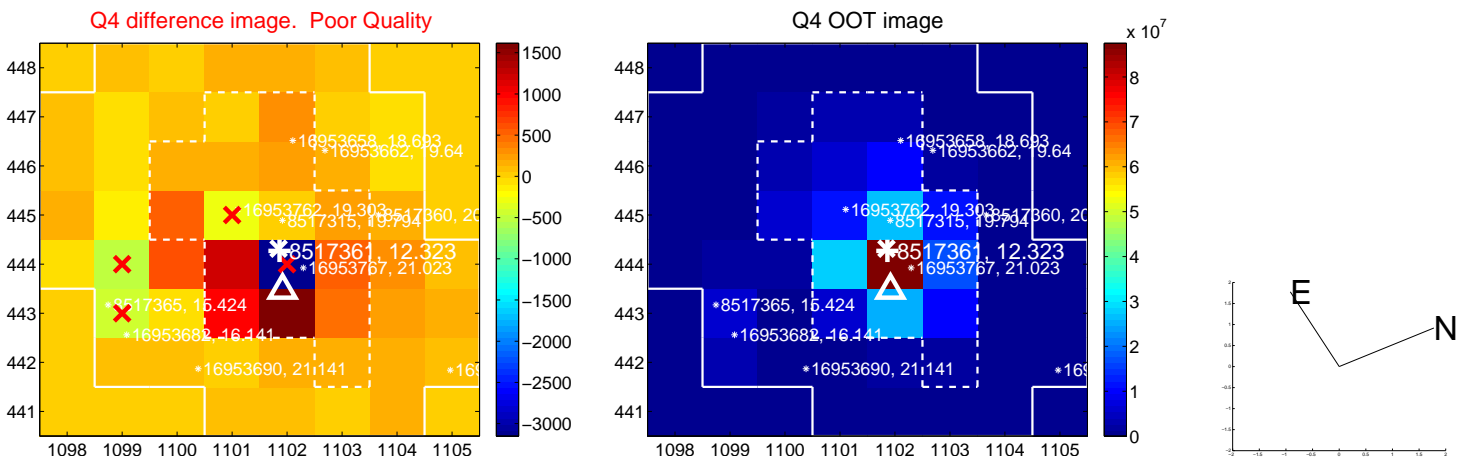
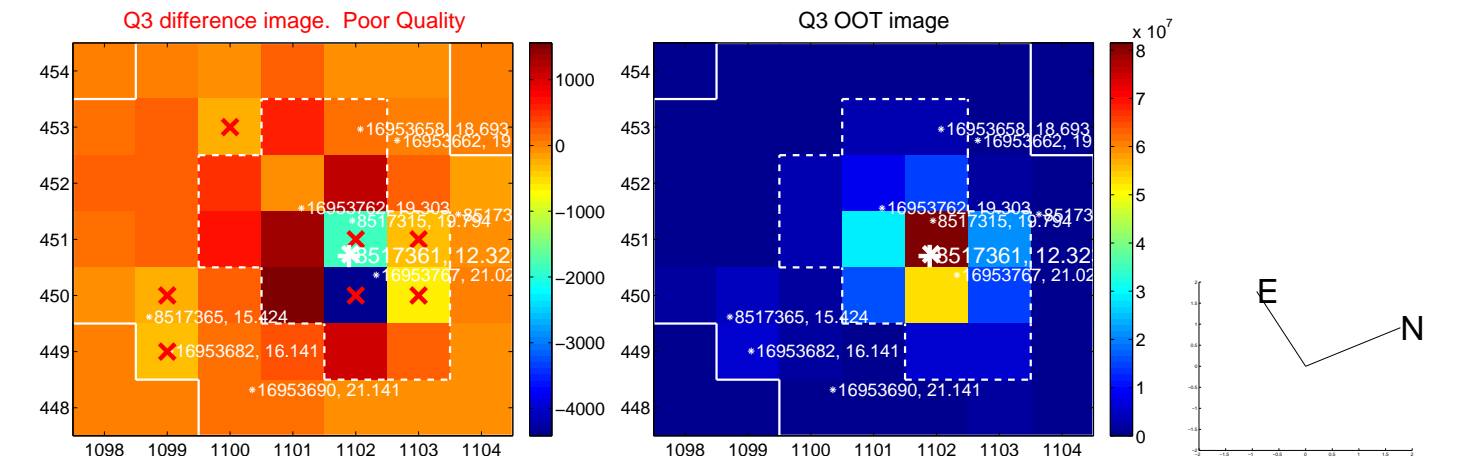
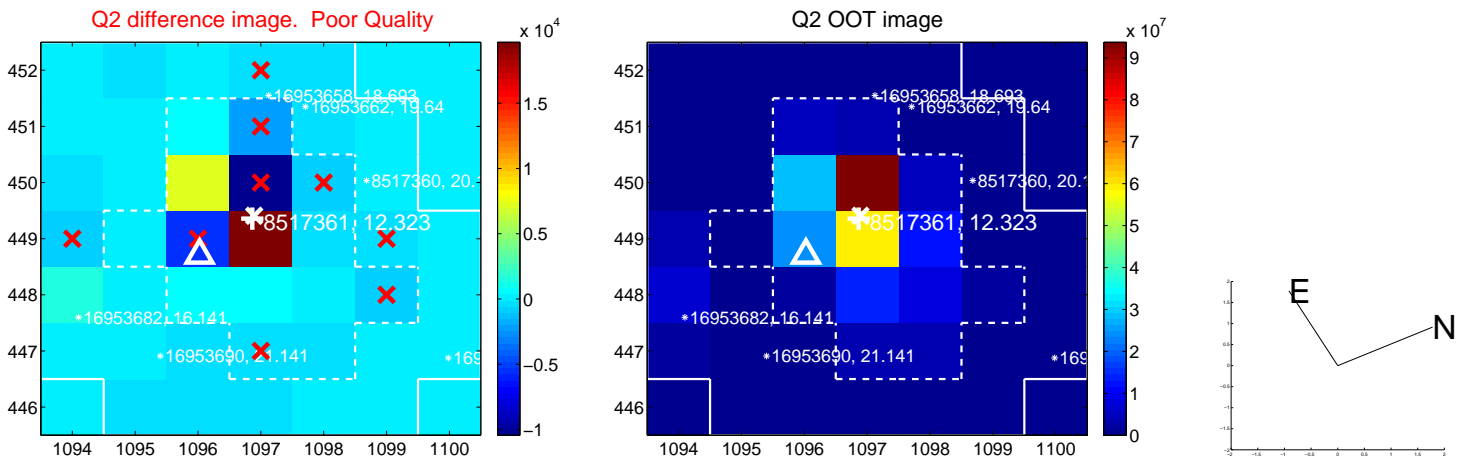
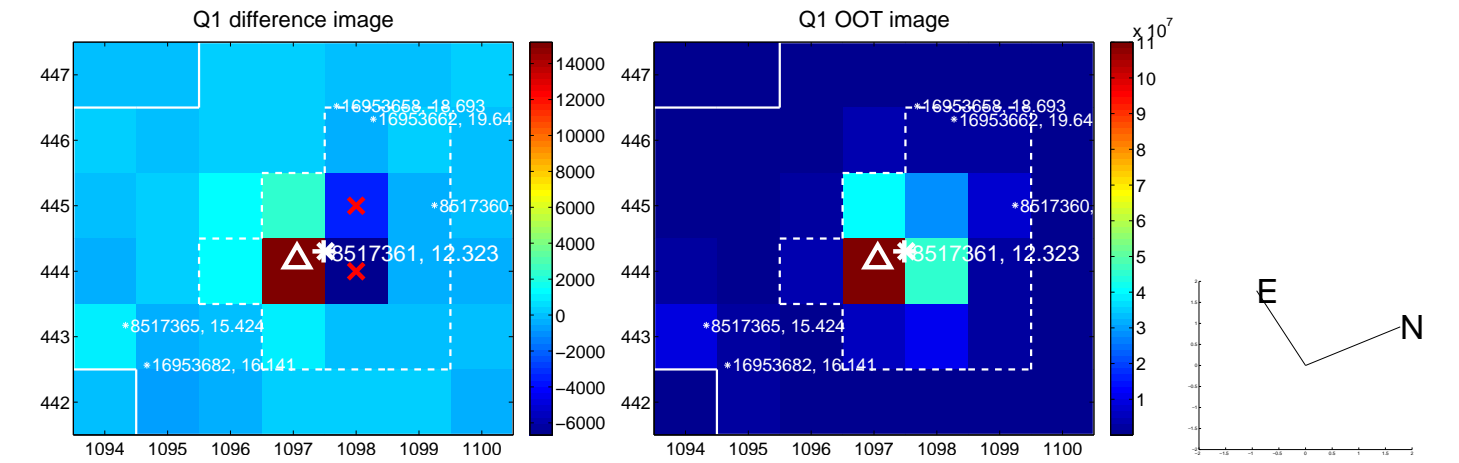


offset from photometric centroids

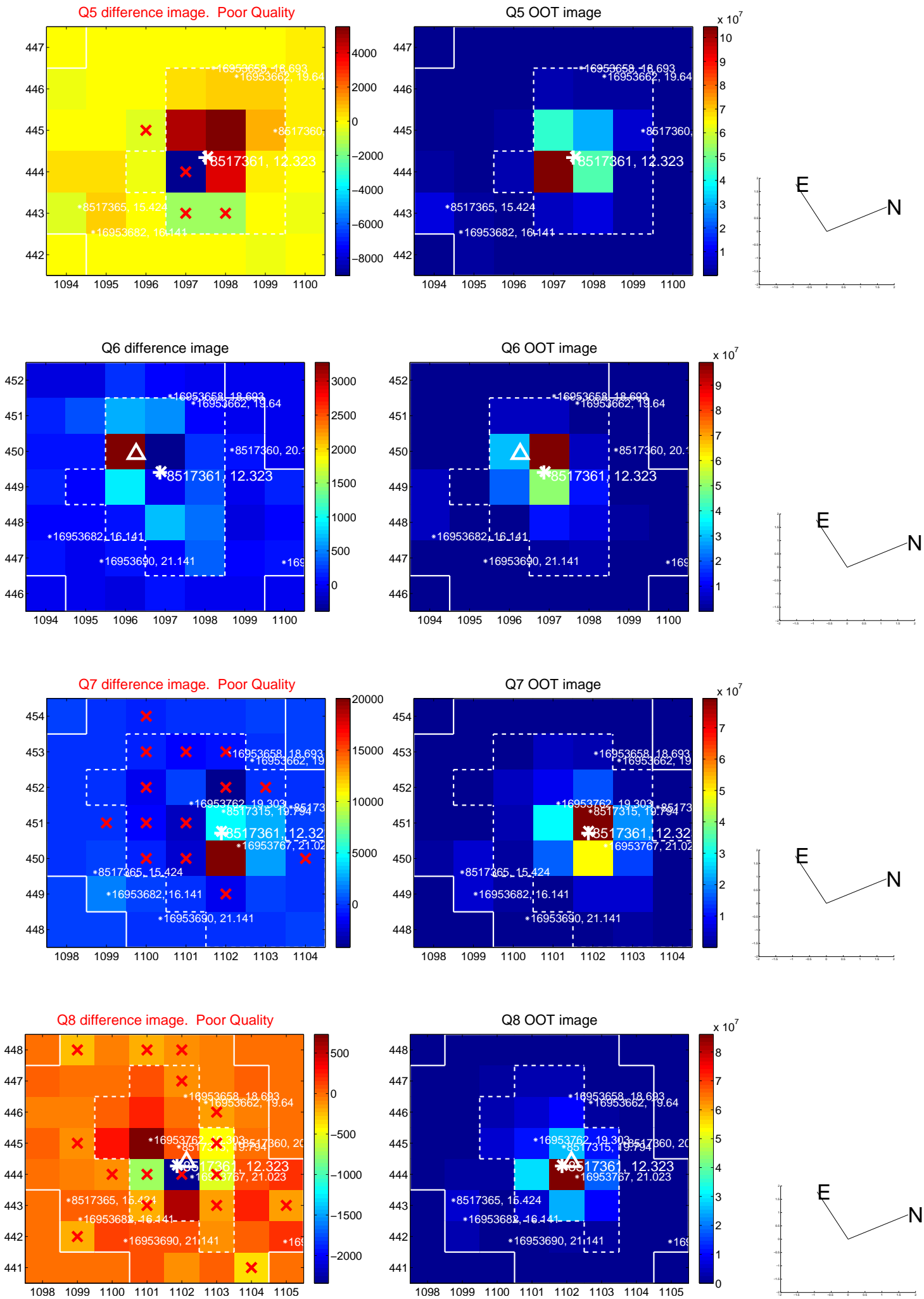


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

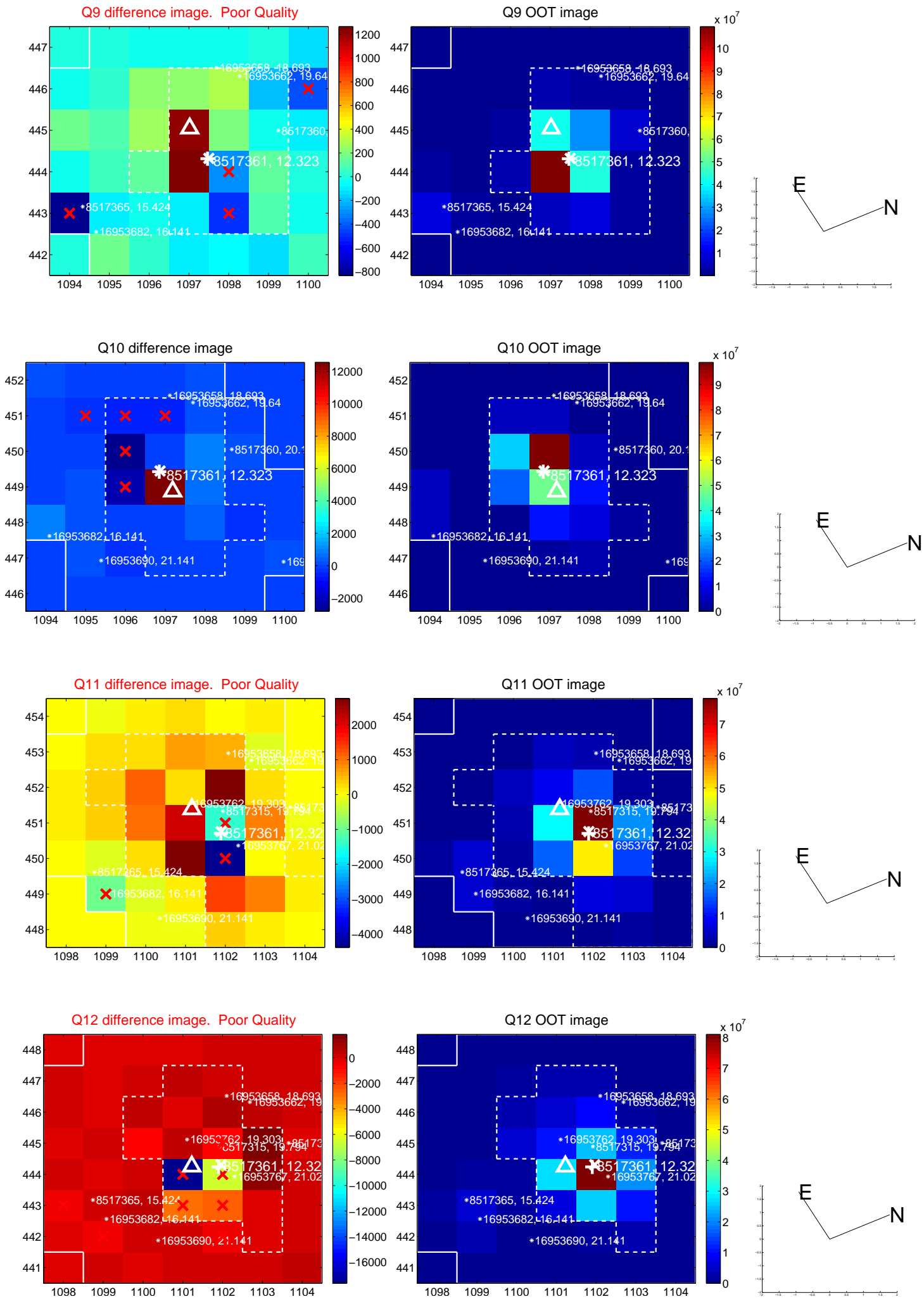


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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

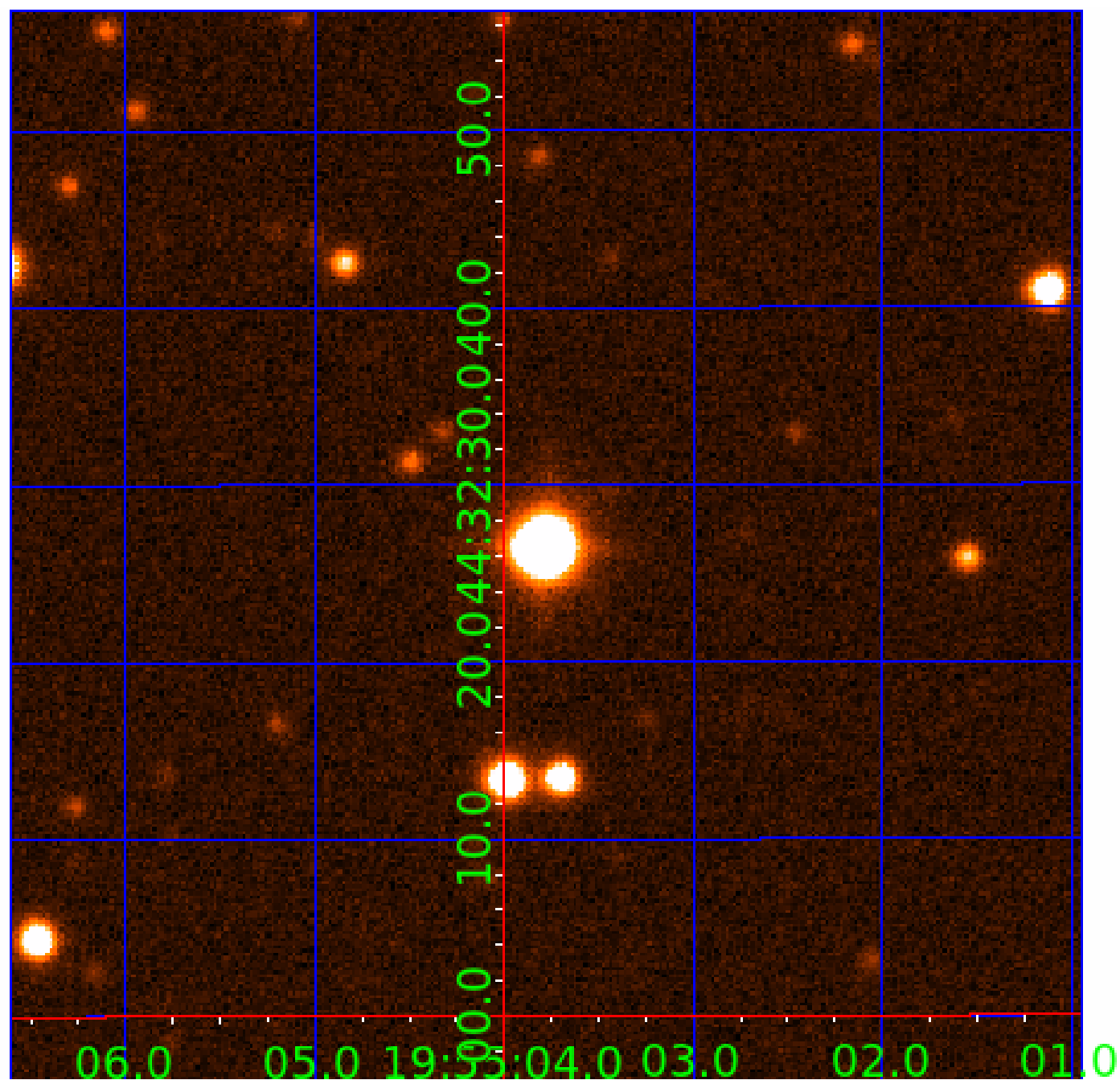






UKIRT Image

Declination





# KIC 008517361

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008517361-01	OBS	No	3.592890	132.380417	13.6	17.054	9.3	9.1	1.44	6947	0.61	1670.81
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008517361-03	OBS	No	245.315726	266.172671	130.1	47.703	10.8	8.8	1.44	6947	2.04	5.99

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008517361-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008517361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008517361-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

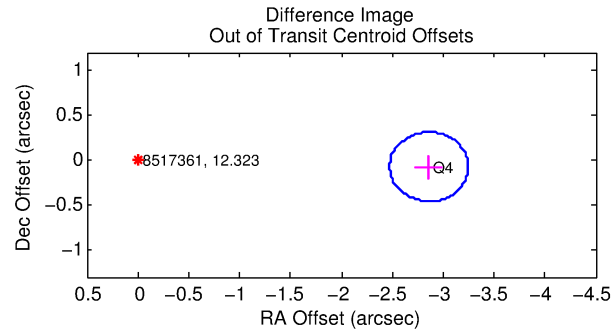
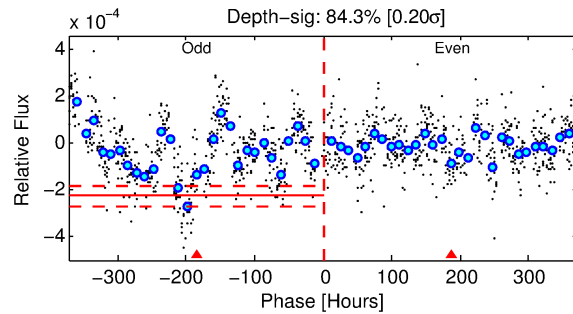
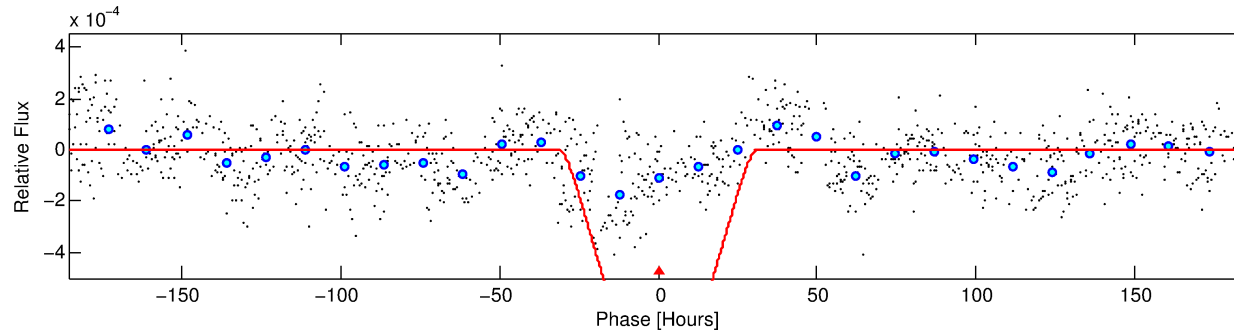
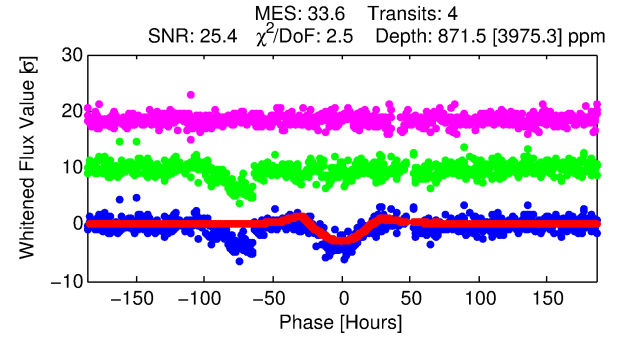
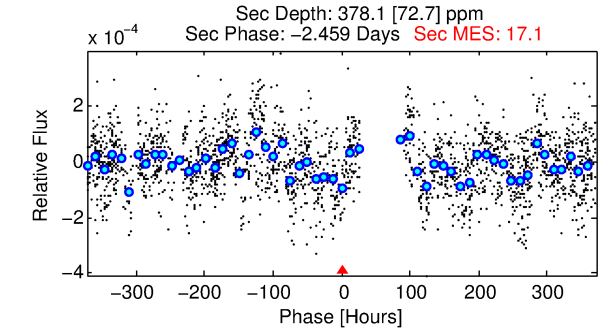
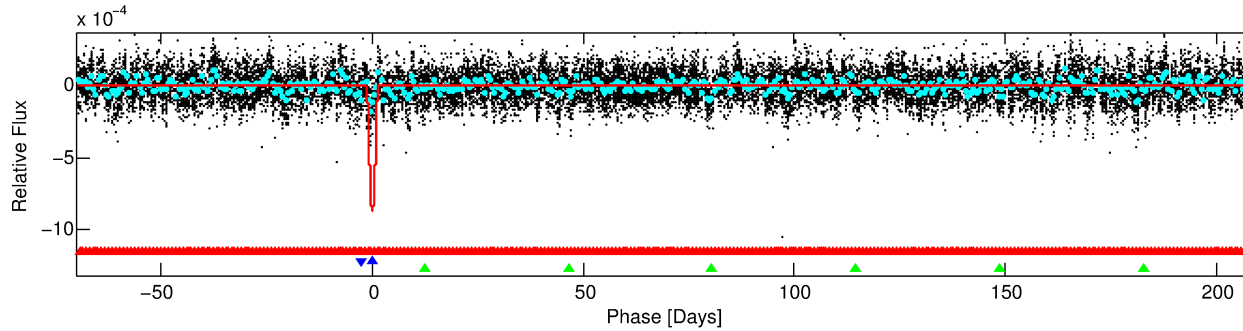
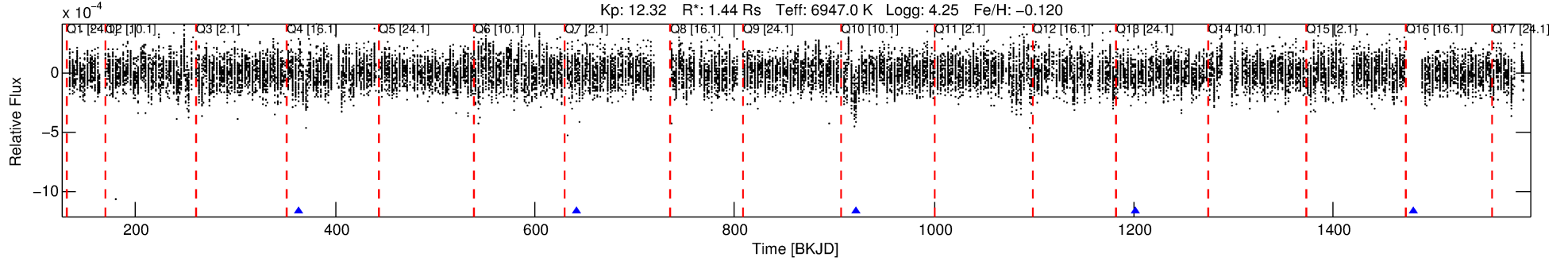
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008517361-02

No Significant Match Found

# DV One-Page Summary

KIC: 8517361 Candidate: 2 of 3 Period: 279.399 d



## DV Fit Results:

Period = 279.39917 [0.02996] d  
Epoch = 362.8710 [0.0560] BKJD  
Rp/R\* = 0.0507 [0.0483]  
a/R\* = 11.17 [2.57]  
b = 1.00 [0.09]  
Seff = 5.03 [1.69]  
Teq = 382 [32] K  
Rp = 7.95 [7.78] Re  
a = 0.9246 [0.1772] AU  
Ag = 2816.43 [5446.85] [0.52σ]  
Teffp = 4302 [2069] K [1.89σ]

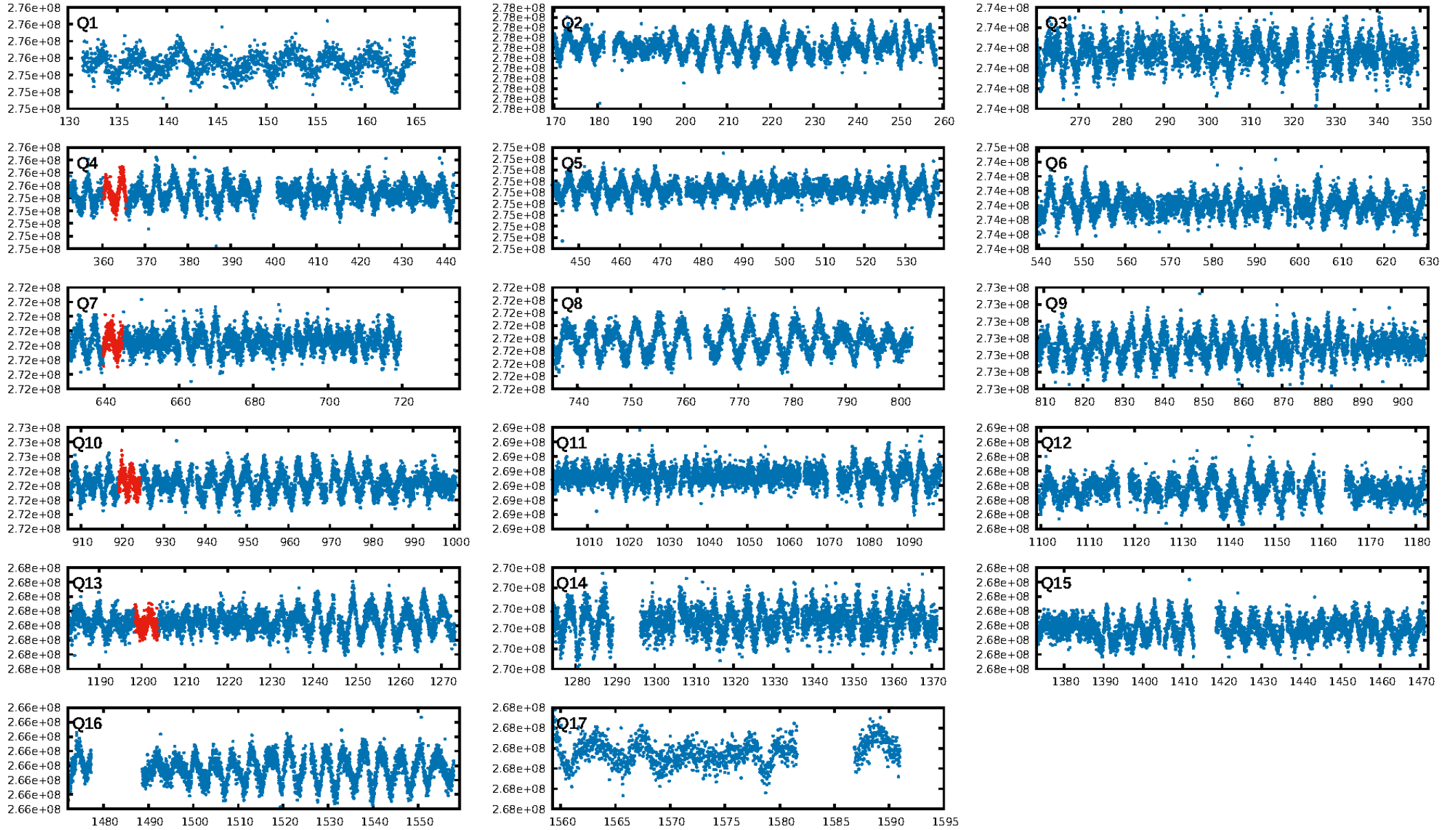
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.47σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.27e-114  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 4.431  
Centroid-sig: 36.2%  
Centroid-so: 0.602 arcsec [3.37σ]  
OotOffset-rm: 2.860 arcsec [22.26σ]  
KicOffset-rm: 3.100 arcsec [24.13σ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 0.00 [0/2]

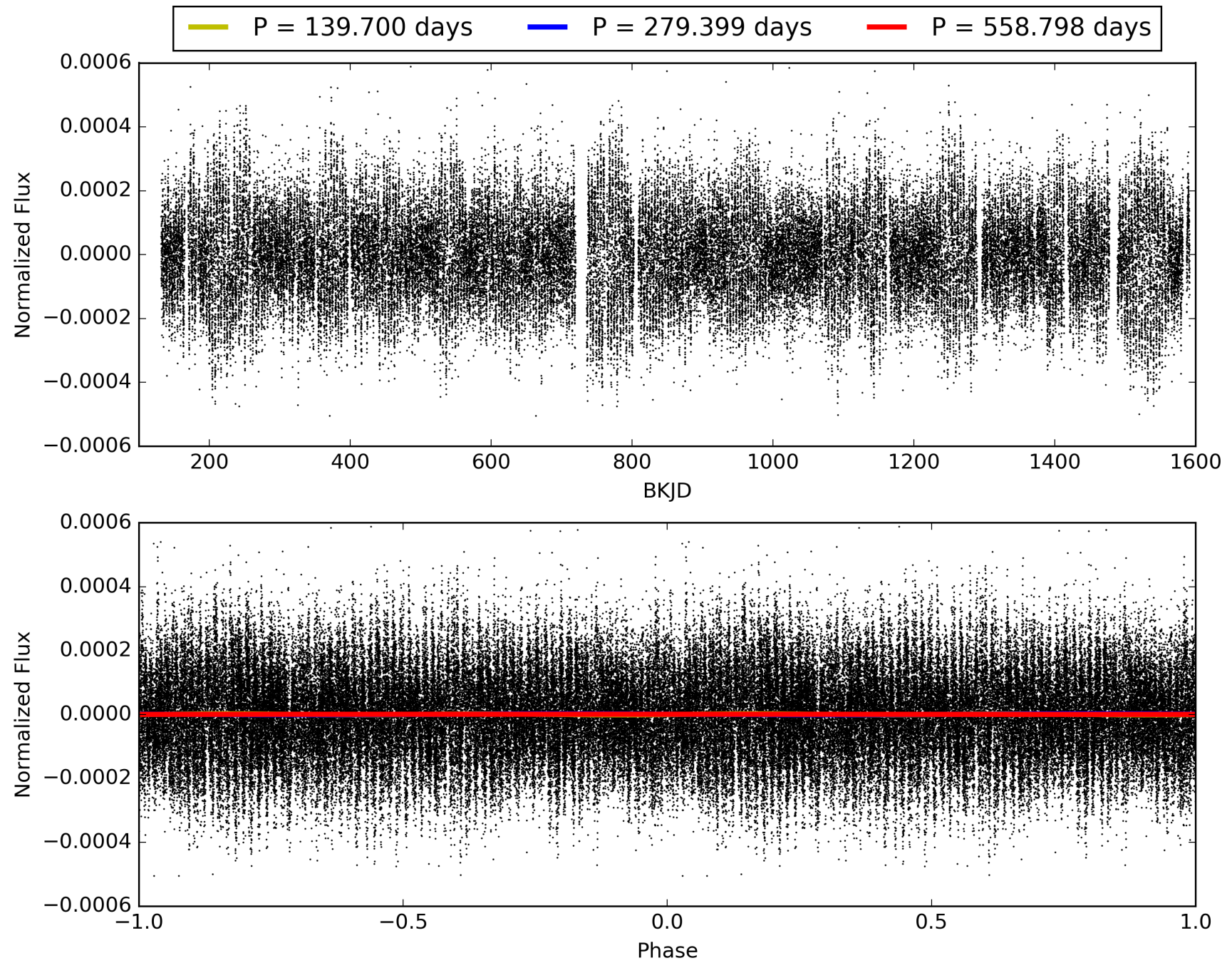
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:32:57 Z

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

# TCE 008517361-02, PDC Light Curves

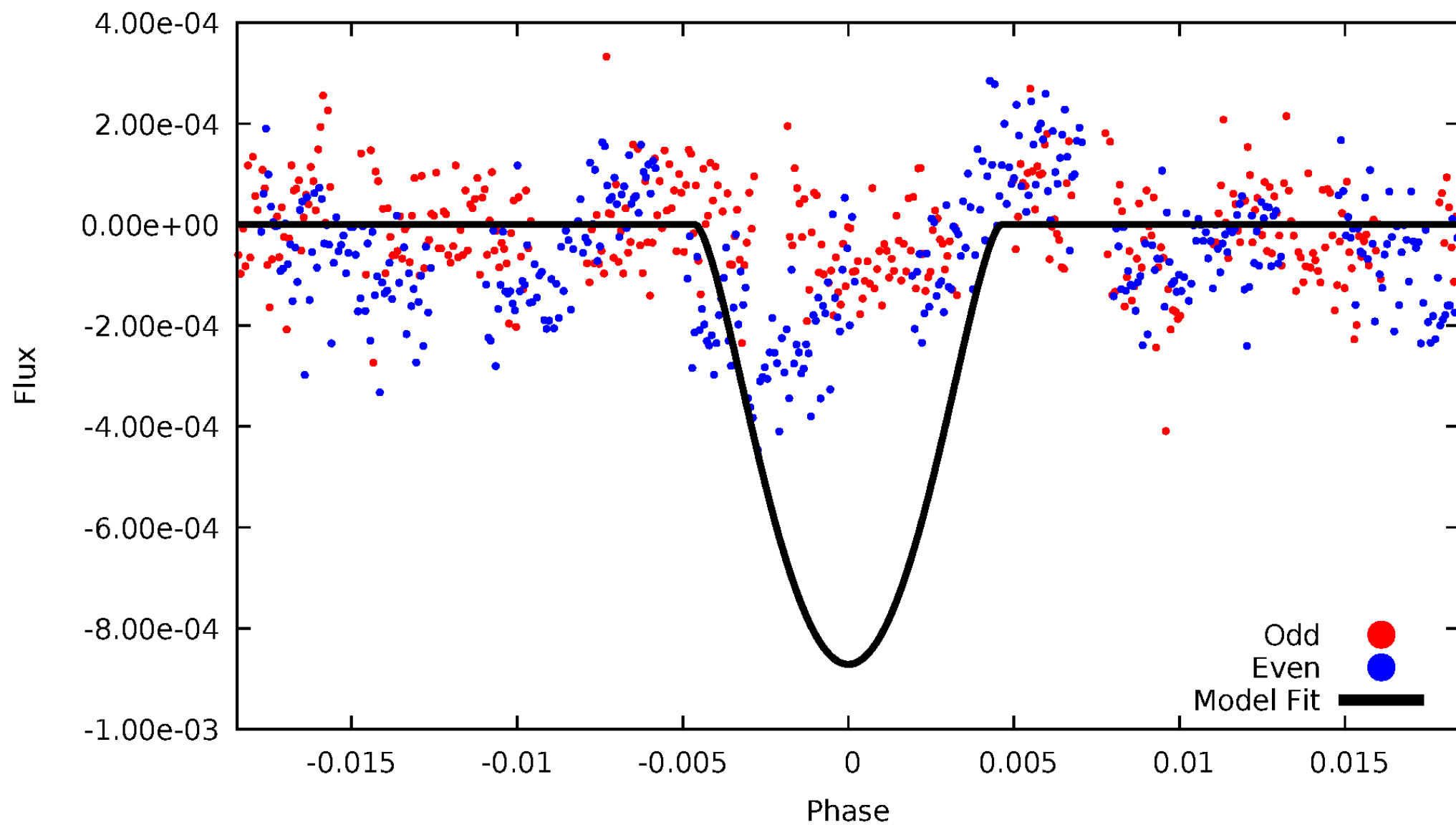


# TCE 008517361-02



# DV Odd/Even

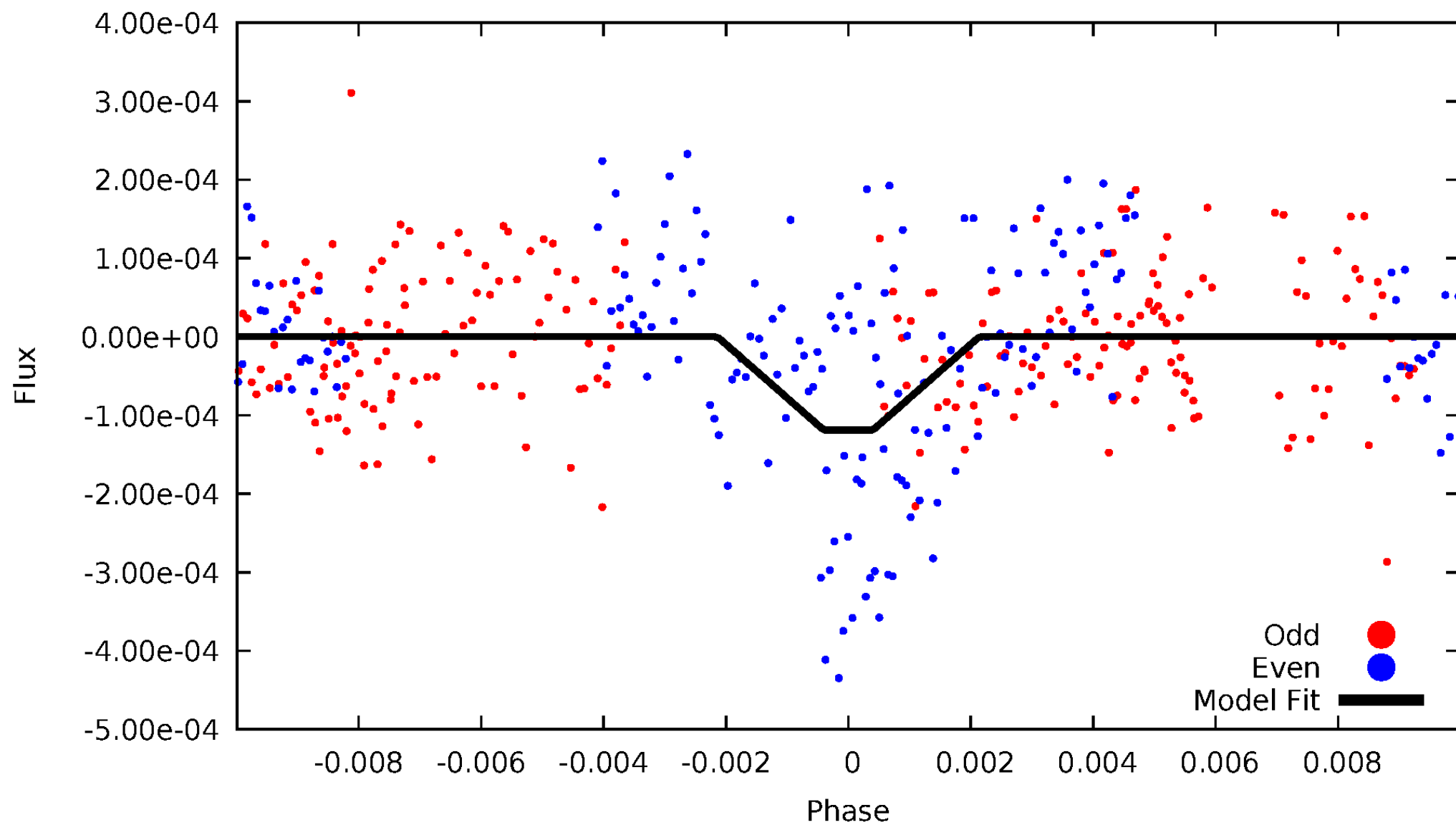
TCE 008517361-02





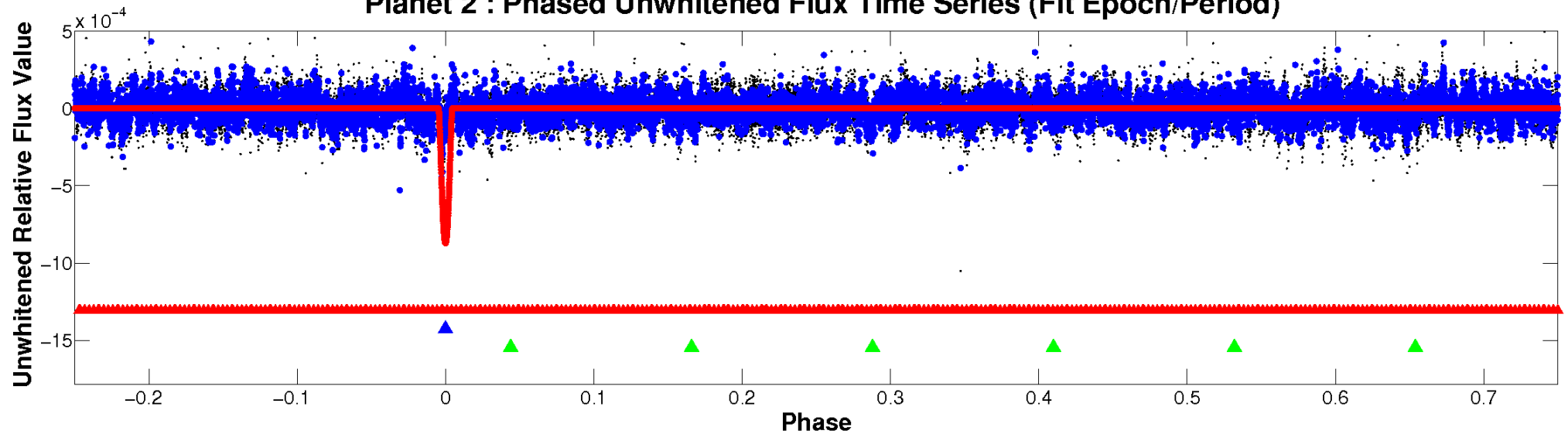
# ALT Odd/Even

TCE 008517361-02

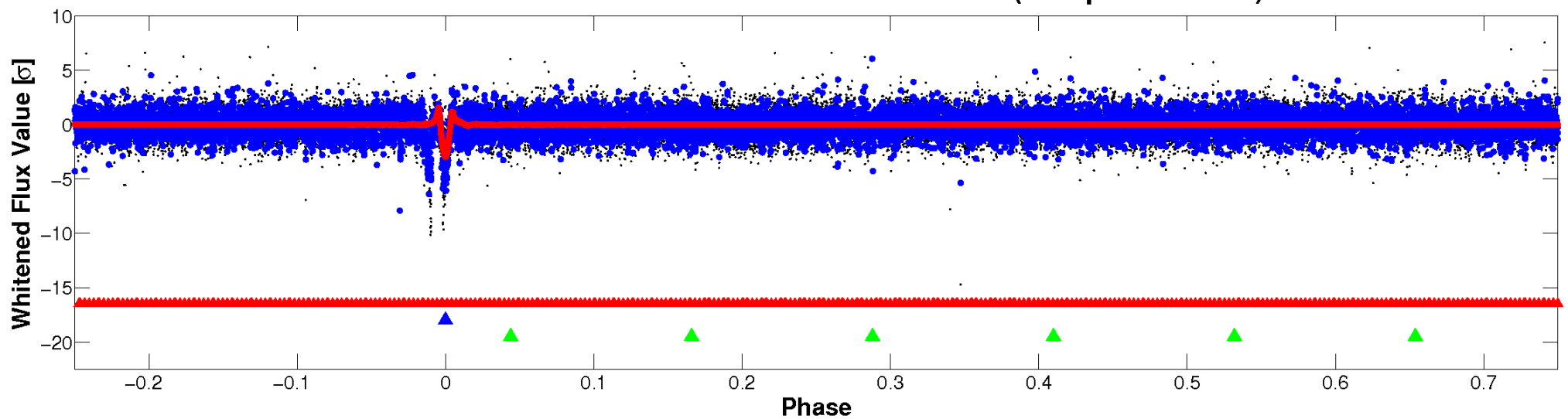


# Non-Whitened Vs. Whitened Light Curve

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



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



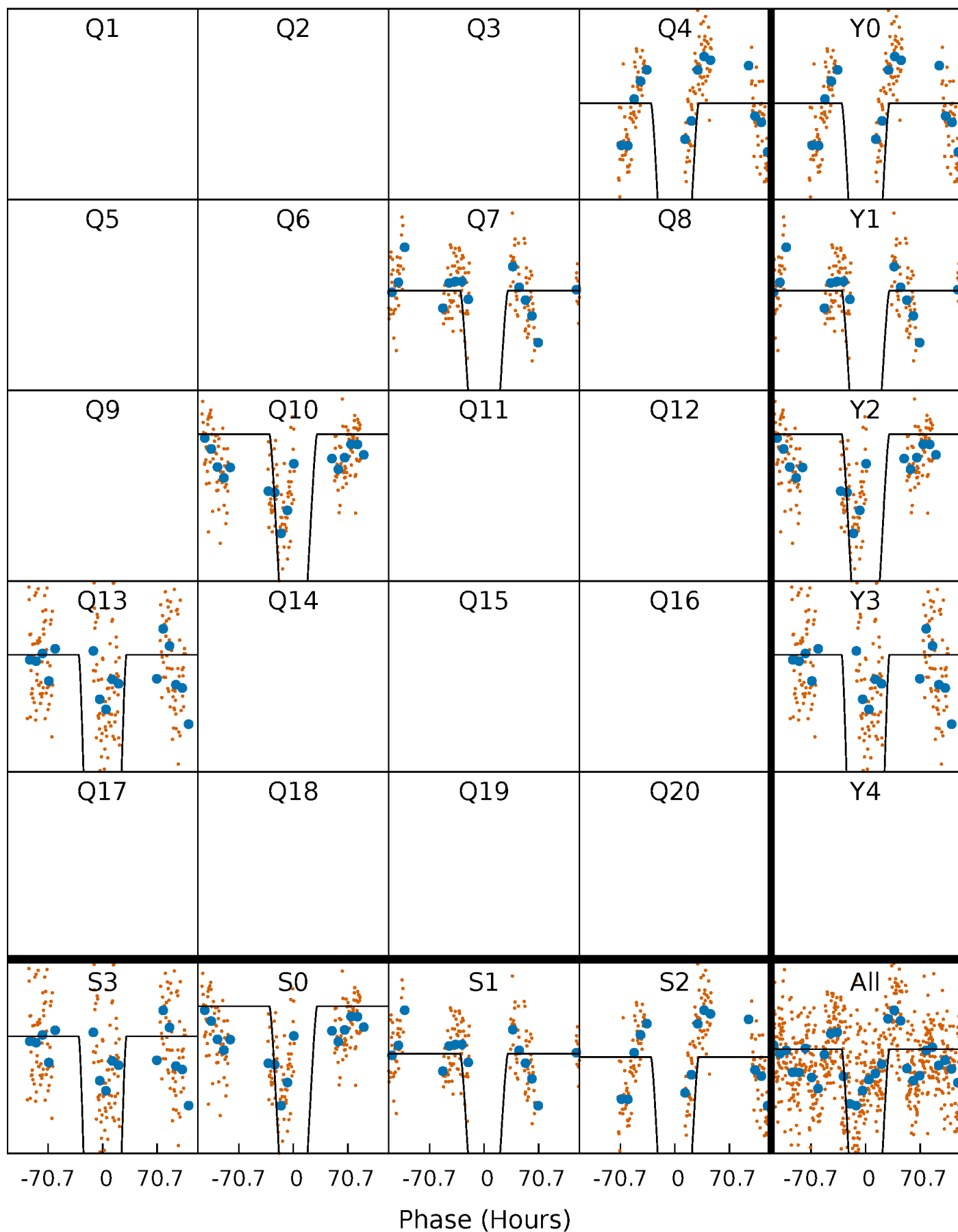
# PDC Quarter-Phased Transit Curves

TCE 008517361-02     $P=279.399168$  Days     $T_0=362.871031$  (BKJD)



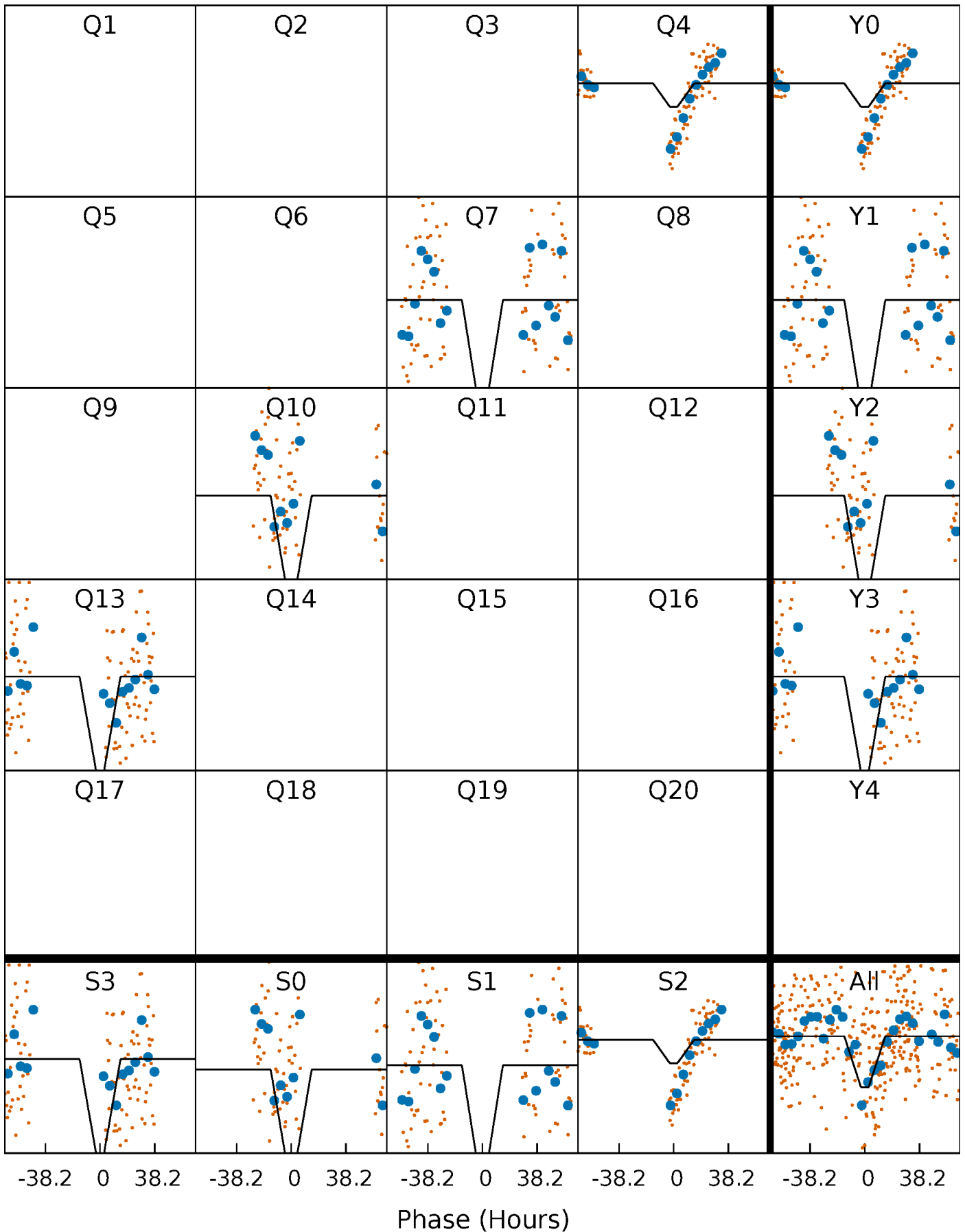
# DV Quarter-Phased Transit Curves

TCE 008517361-02 P=279.399168 Days  $T_0=362.871031$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

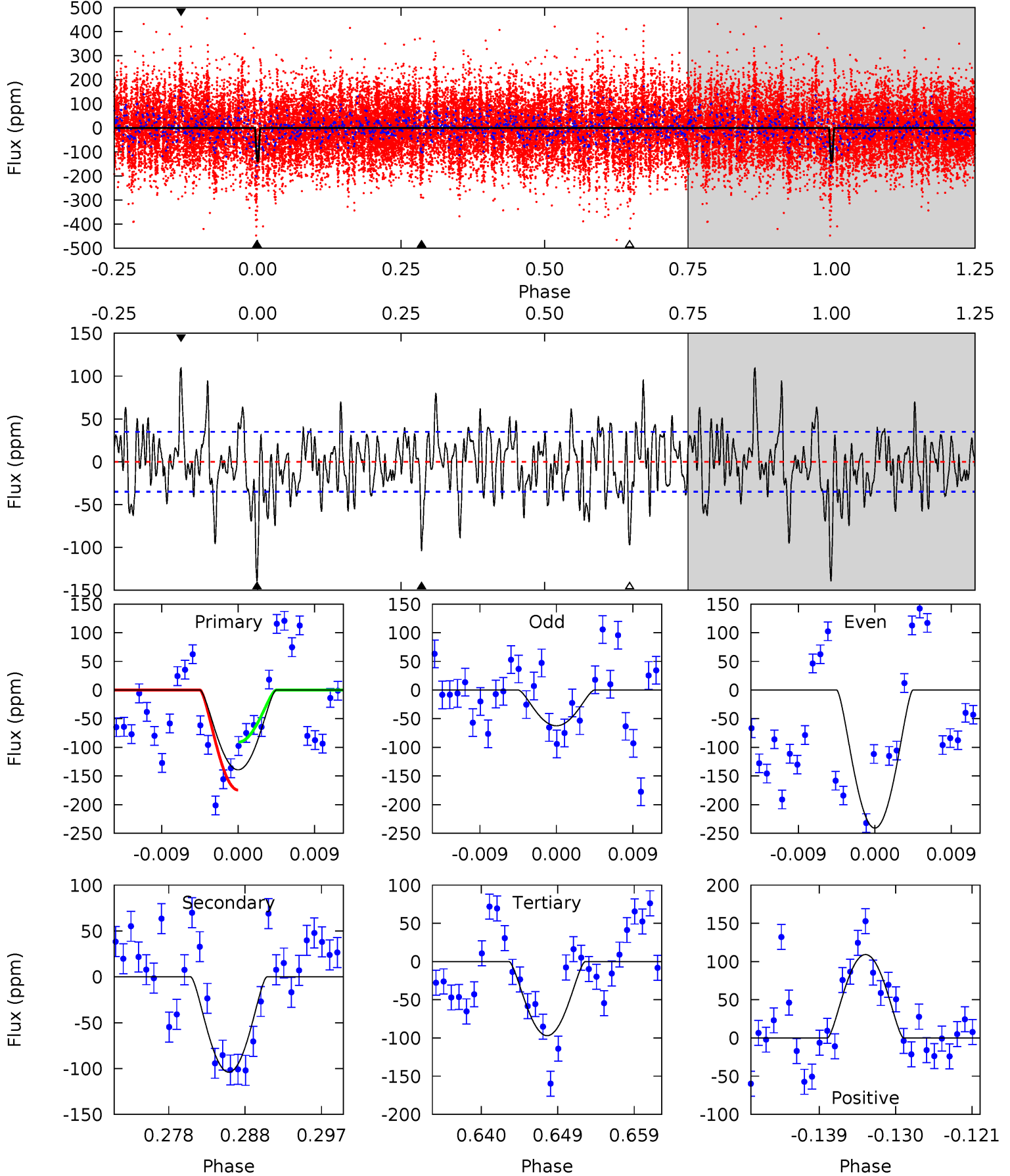
TCE 008517361-02     $P=278.958961$  Days     $T_0=363.535661$  (BKJD)



# DV Model-Shift Uniqueness Test

008517361-02, P = 279.399168 Days, E = 83.471863 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
20.1	15.0	14.0	15.7	5.04	2.60	4.53	6.08	4.33	1.00	-0.75	12.9	1.23	0.44	6.00

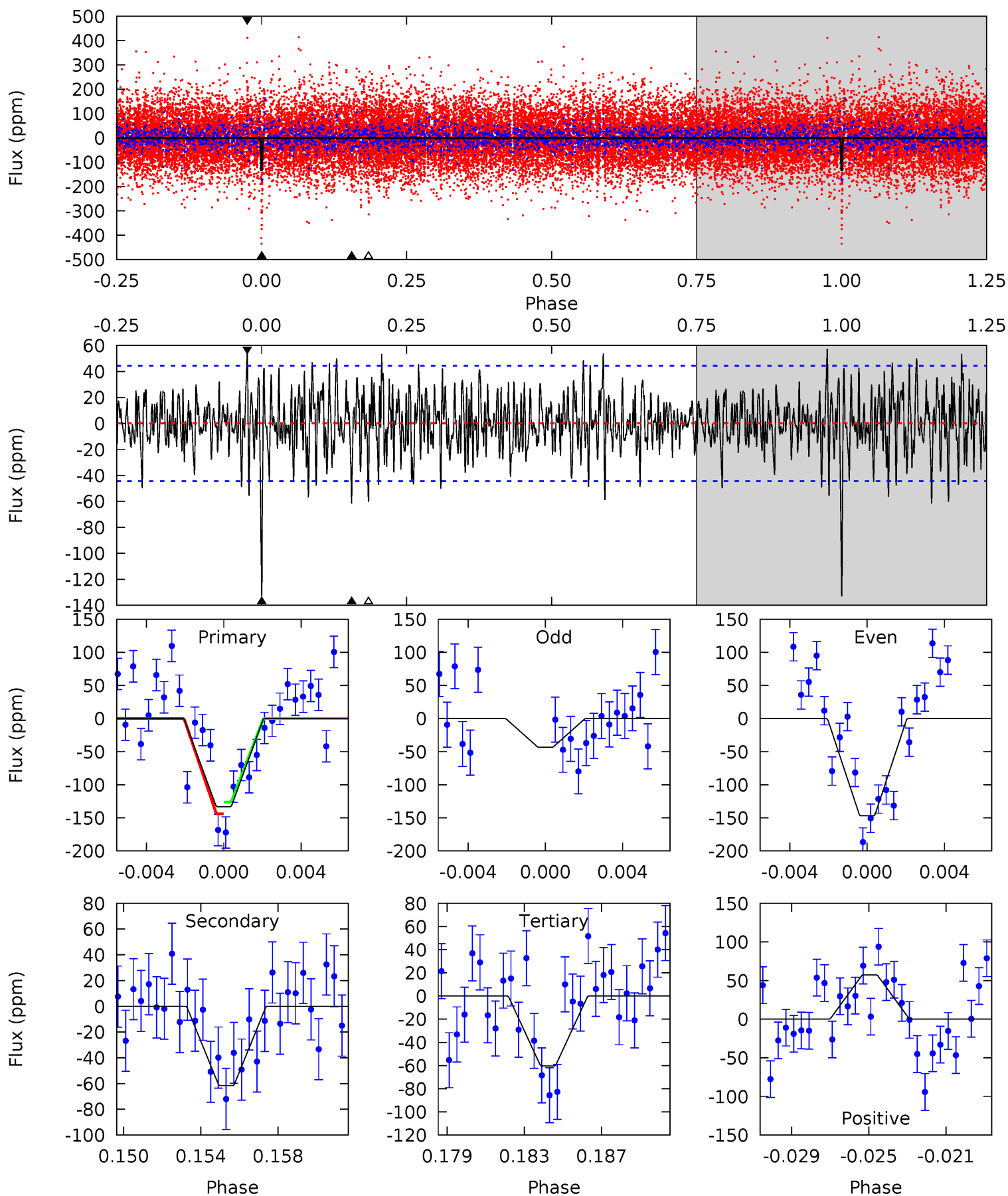




# Alt Model-Shift Uniqueness Test

008517361-02,  $P = 278.958961$  Days,  $E = 84.576700$  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
15.6	7.20	7.04	6.70	5.19	2.87	2.08	8.53	8.87	0.16	0.50	5.09	2.56	0.30	0.99



### Stellar Parameters For KIC 008517361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6947^{+192}_{-329}$	$4.254^{+0.092}_{-0.150}$	$-0.120^{+0.250}_{-0.350}$	$1.436^{+0.330}_{-0.220}$	$1.356^{+0.150}_{-0.206}$	$0.645^{+0.276}_{-0.266}$
	+3%/-5%	+2%/-4%	+208%/-292%	+23%/-15%	+11%/-15%	+43%/-41%
Source	PHO1	FLK73	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 008517361-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-104 \pm 7$	$9.78^{+7.65}_{-6.06}$	$538^{+31}_{-31}$	$3330^{+1348}_{-483}$	$508^{+2915}_{-342}$
Alt.	$-62 \pm 9$	$6.10^{+5.52}_{-4.35}$	$537^{+31}_{-34}$	$3576^{+2244}_{-637}$	$781^{+8426}_{-576}$

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

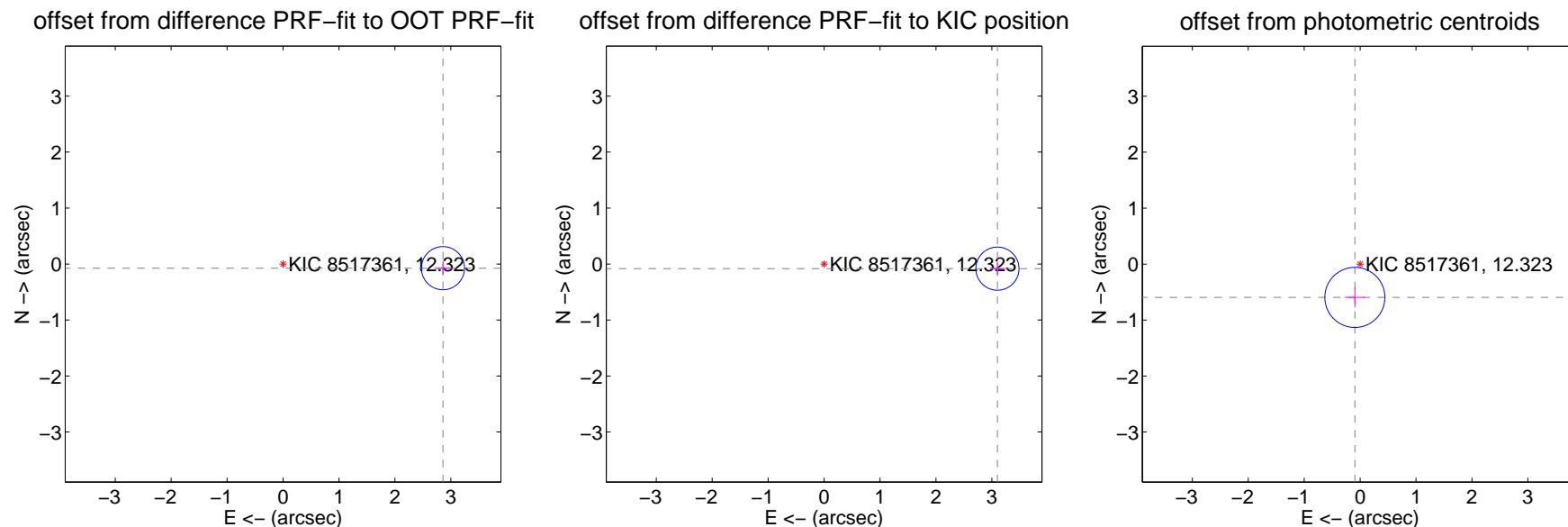
## DV Centroid Data

Supplemental centroid analysis for 008517361-02. Kepler magnitude: 12.32. Transit SNR 25.41

There are 1 quarters with good PRF difference image offsets

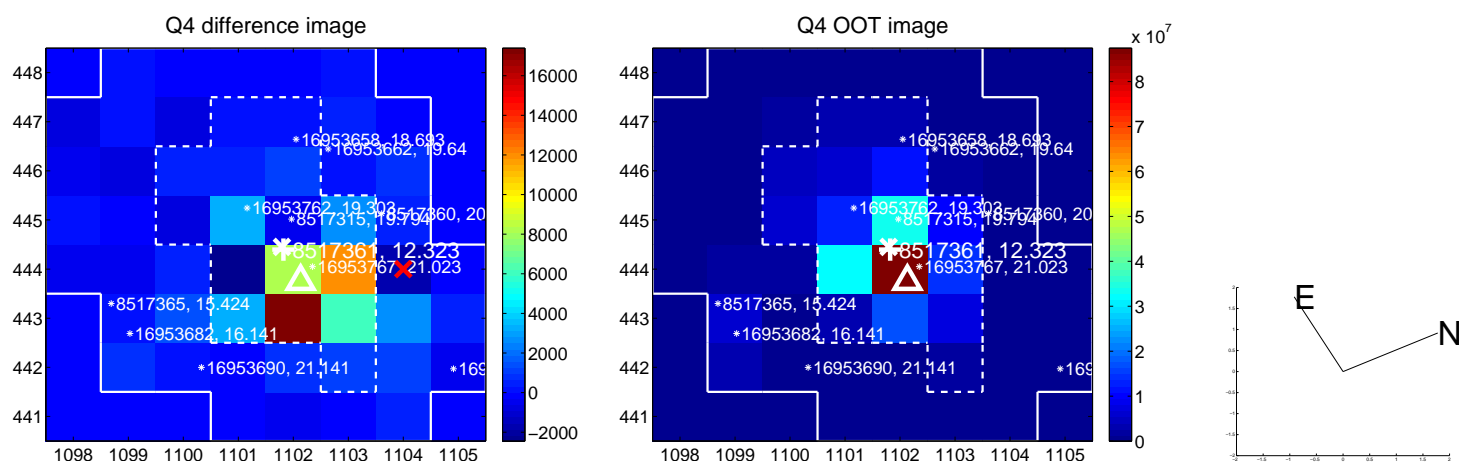
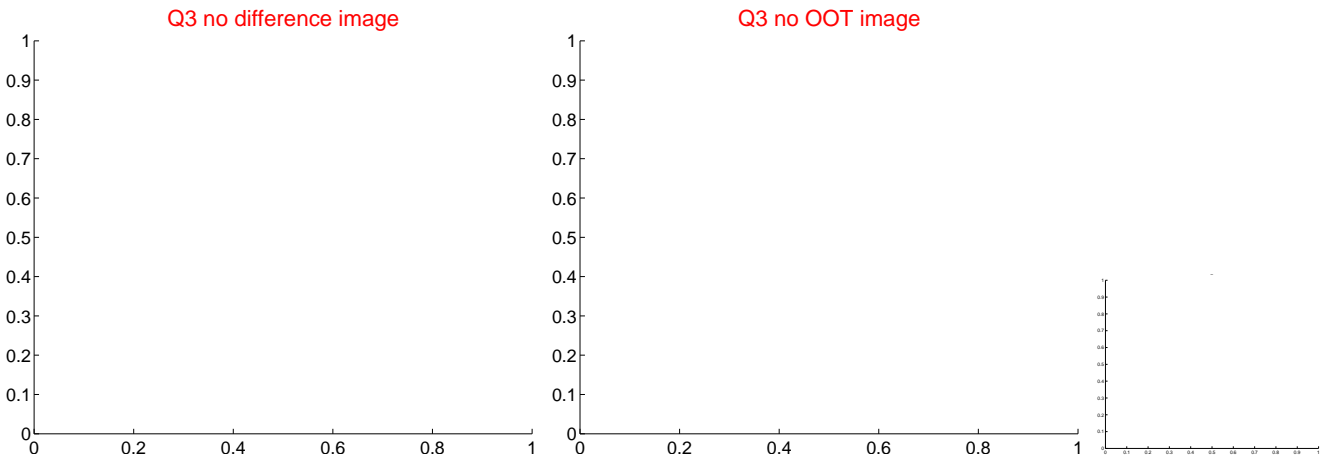
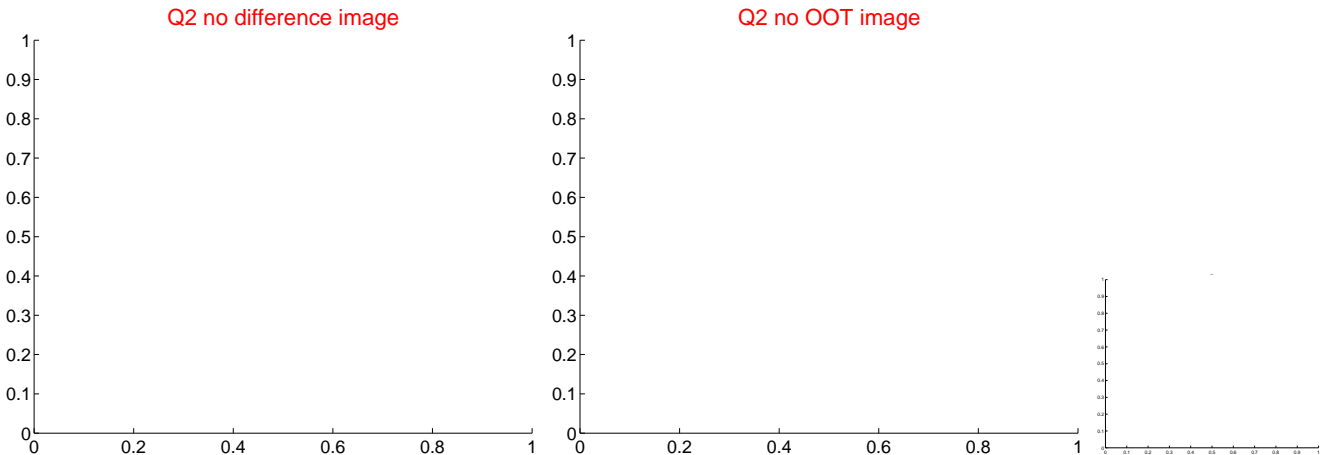
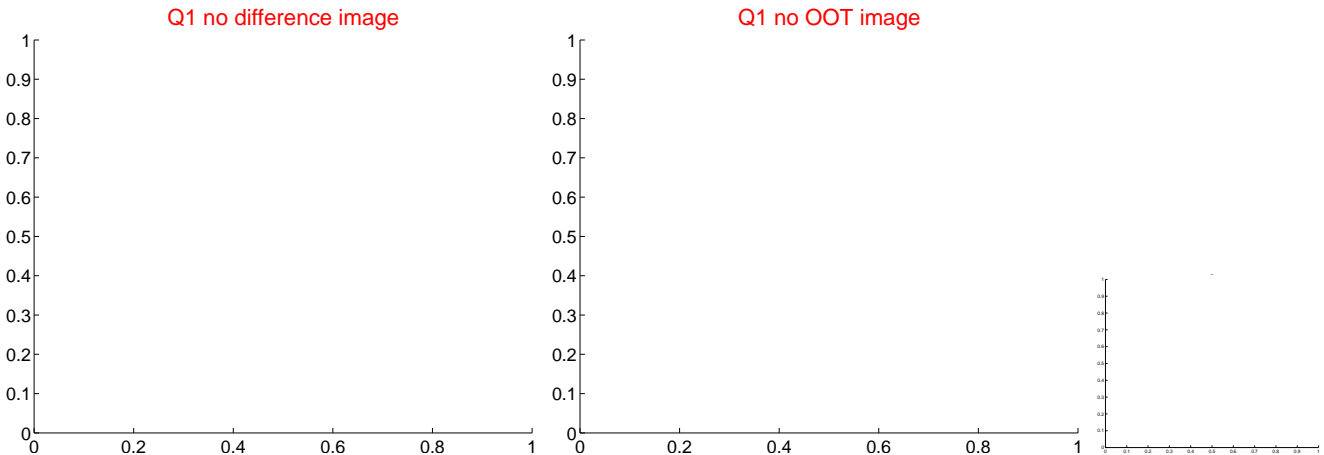
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.860 \pm 0.128$	22.26	$-2.859 \pm 0.128$	$-0.074 \pm 0.126$
PRF-fit source offset from KIC position	$3.100 \pm 0.128$	24.13	$-3.099 \pm 0.128$	$-0.082 \pm 0.126$
photometric centroid source offset	$0.60 \pm 0.18$	3.37	$0.09 \pm 0.18$	$-0.60 \pm 0.18$



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

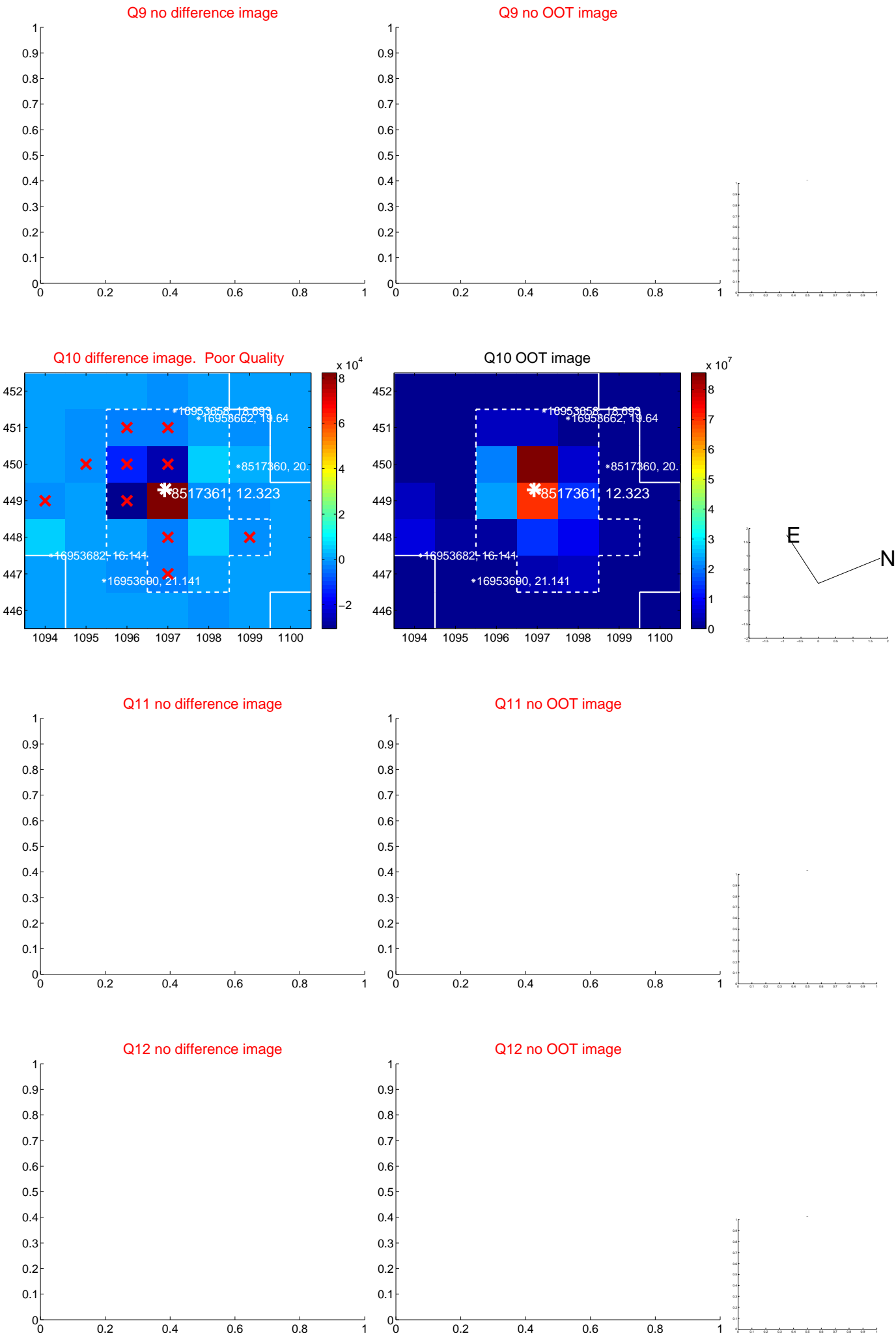


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





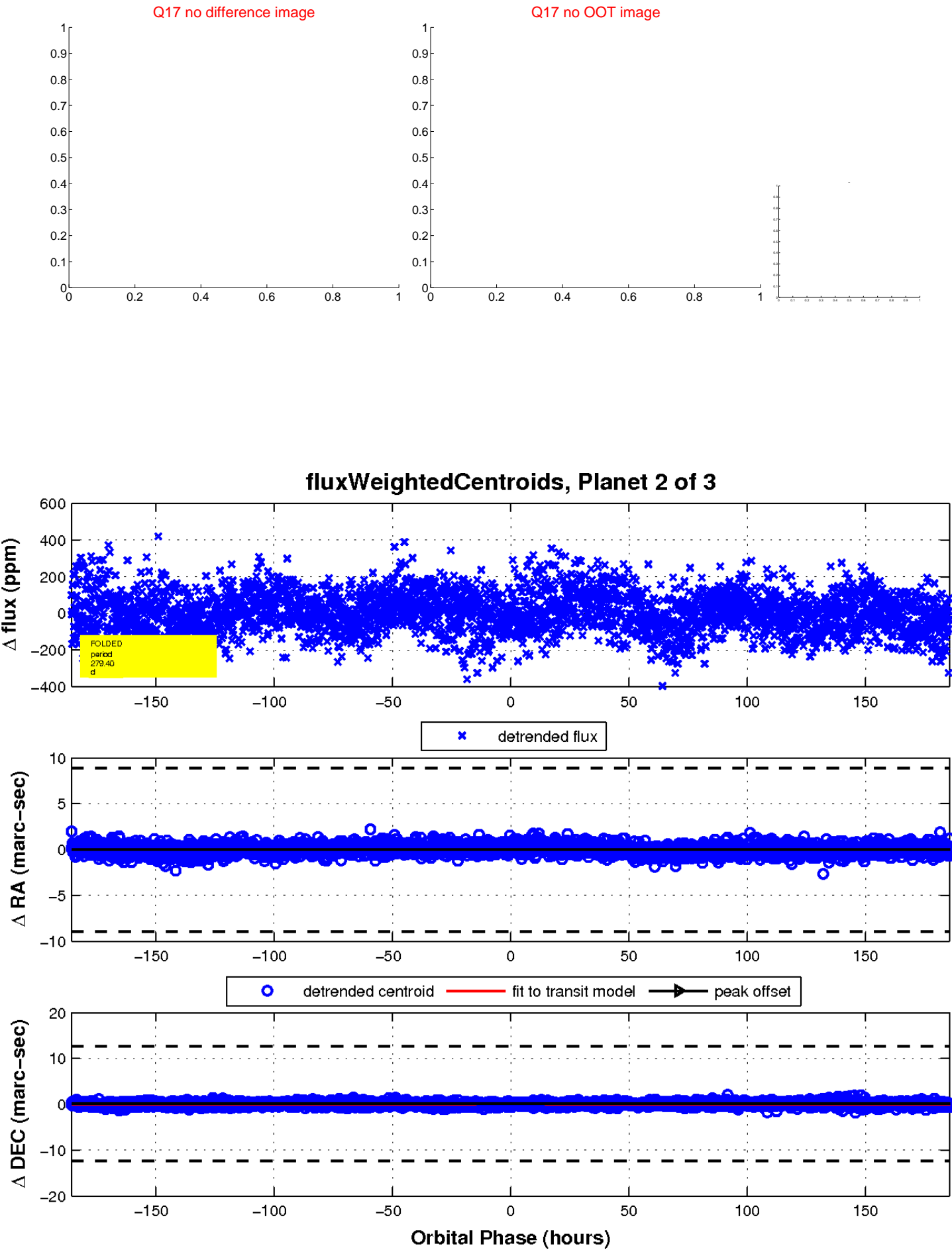
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

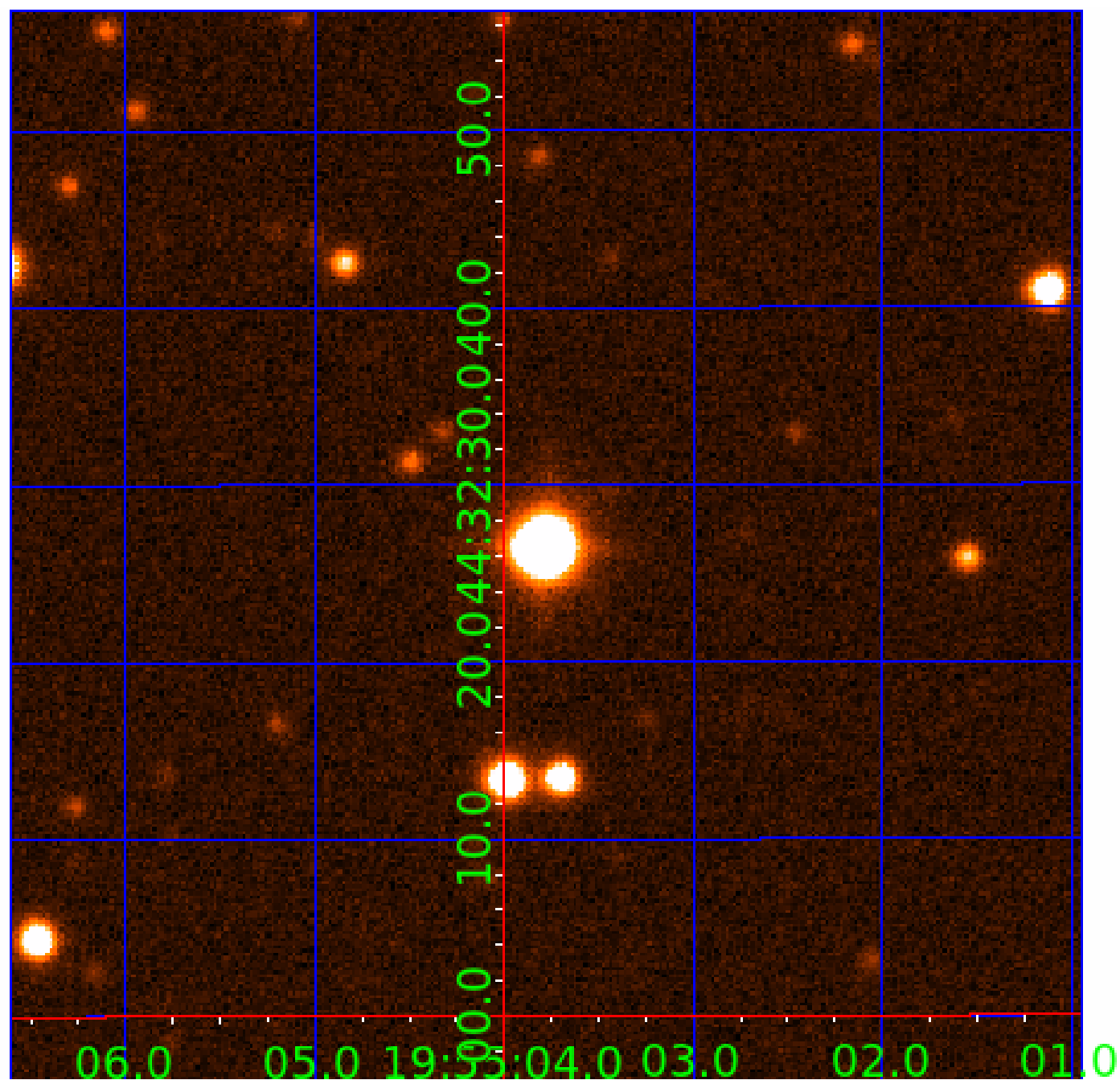


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008517361

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008517361-01	OBS	No	3.592890	132.380417	13.6	17.054	9.3	9.1	1.44	6947	0.61	1670.81
008517361-02	OBS	No	279.399168	362.871031	871.5	61.866	33.6	25.4	1.44	6947	7.95	5.03
008517361-03	OBS	No	245.315726	266.172671	130.1	47.703	10.8	8.8	1.44	6947	2.04	5.99

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008517361-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008517361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008517361-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

**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.

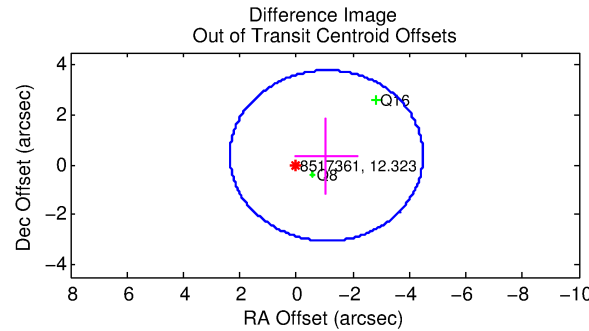
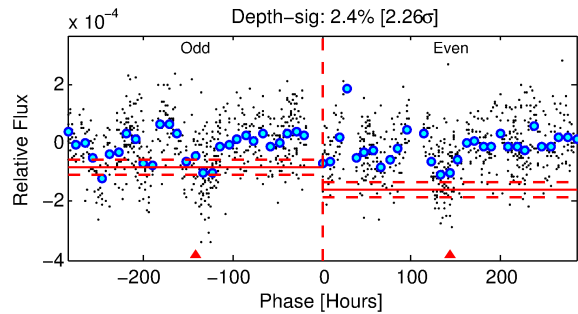
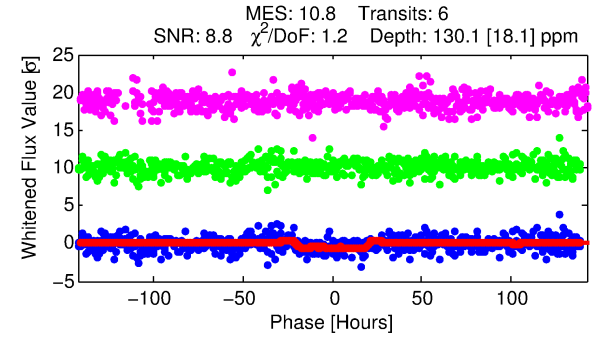
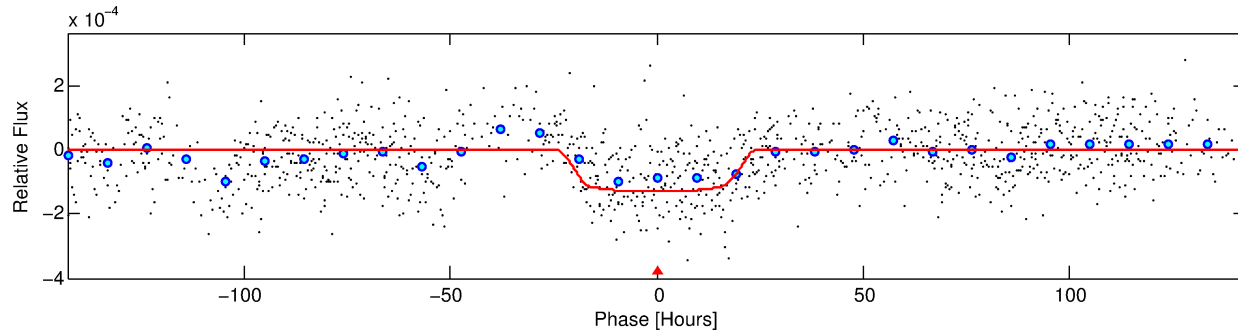
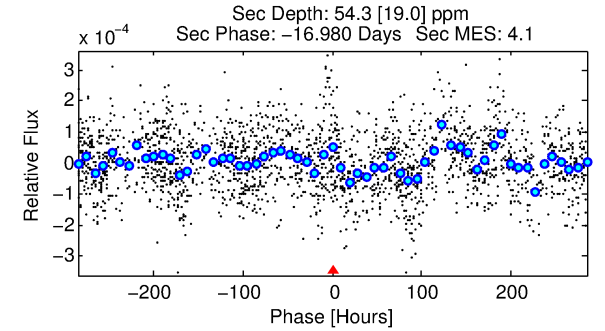
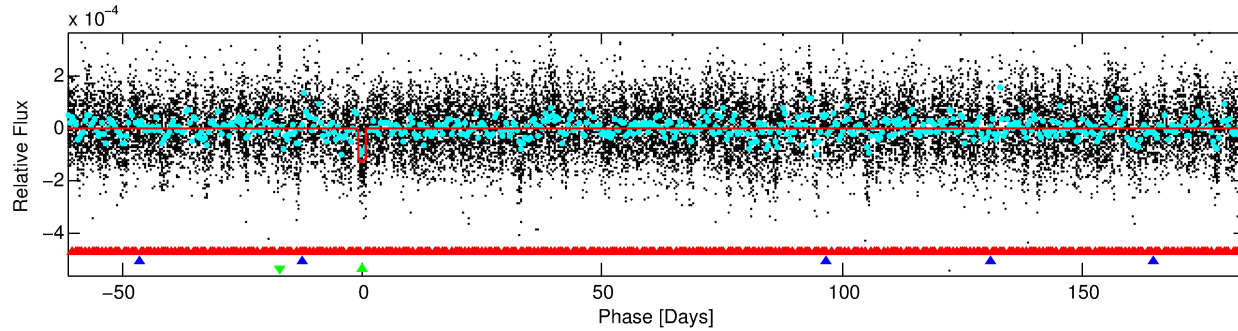
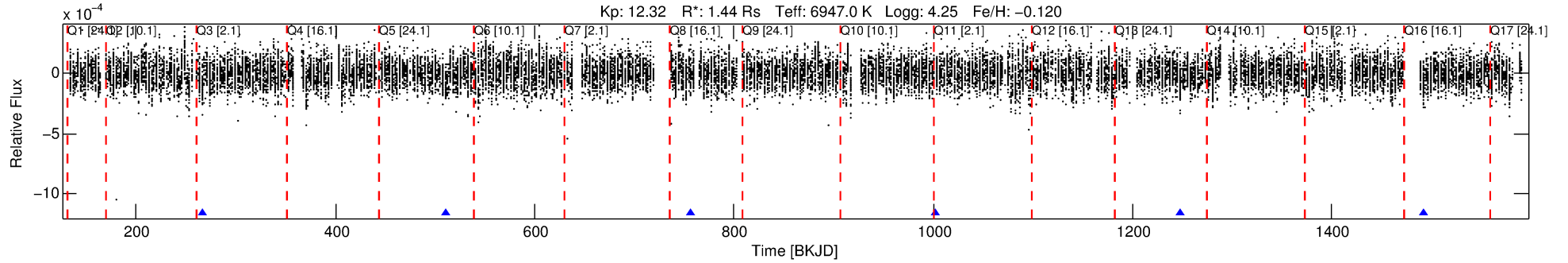
Ephemeris Match Information For 008517361-03

No Significant Match Found



# DV One-Page Summary

KIC: 8517361 Candidate: 3 of 3 Period: 245.316 d



## DV Fit Results:

Period = 245.31573 [0.02110] d  
Epoch = 266.1727 [0.0713] BKJD  
Rp/R\* = 0.0130 [0.0010]  
a/R\* = 12.61 [2.61]  
b = 0.96 [0.02]  
Seff = 5.99 [2.01]  
Teq = 399 [33] K  
Rp = 2.04 [0.50] Re  
a = 0.8478 [0.1625] AU  
Ag = 5146.52 [2437.48] [2.11σ]  
Teffp = 5223 [560] K [8.60σ]

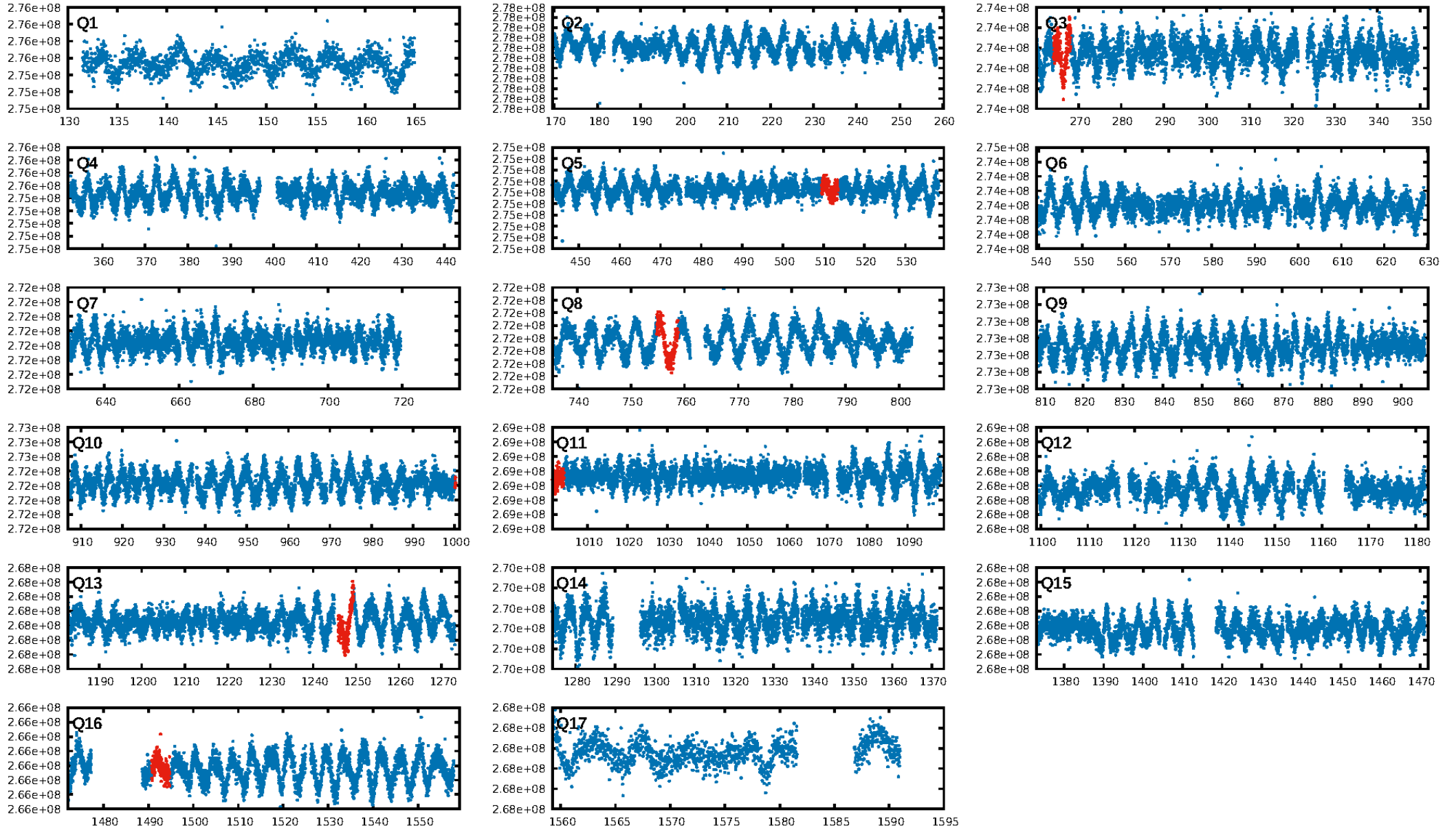
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [114.52σ]  
LongPeriod-sig: 100.0% [10.47σ]  
ModelChiSquare2-sig: 13.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.13e-15  
RollingBand-fgt: 1.00 [6/6]  
**GhostDiagnostic-chr: 0.05106**  
Centroid-sig: 4.6%  
Centroid-so: 0.526 arcsec [0.76σ]  
OotOffset-rm: 1.125 arcsec [0.99σ]  
KicOffset-rm: 1.201 arcsec [1.03σ]  
OotOffset-st: 0/0/2/0 [2]  
KicOffset-st: 0/0/2/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.00 [0/3]

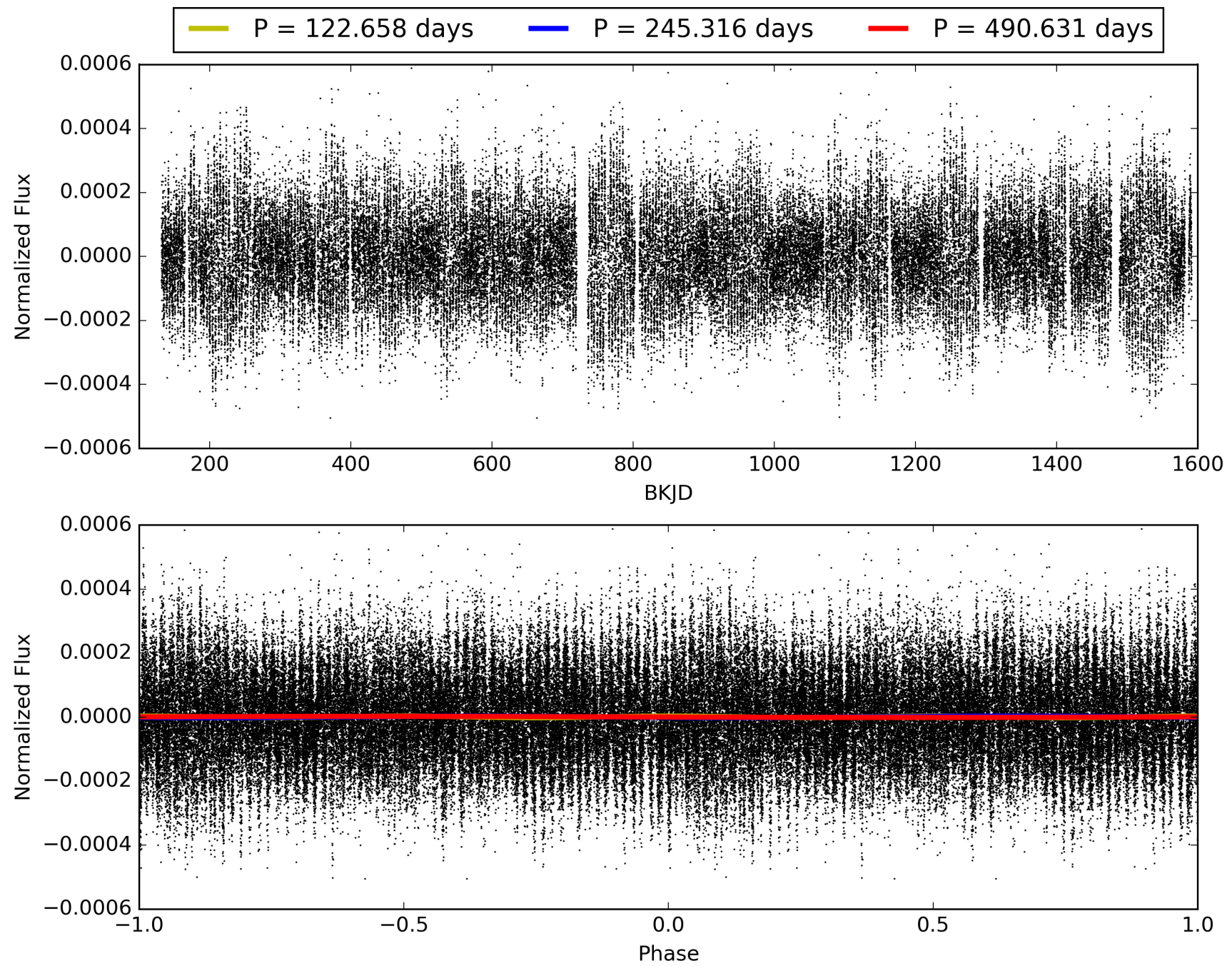
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:33:03 Z

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

# TCE 008517361-03, PDC Light Curves

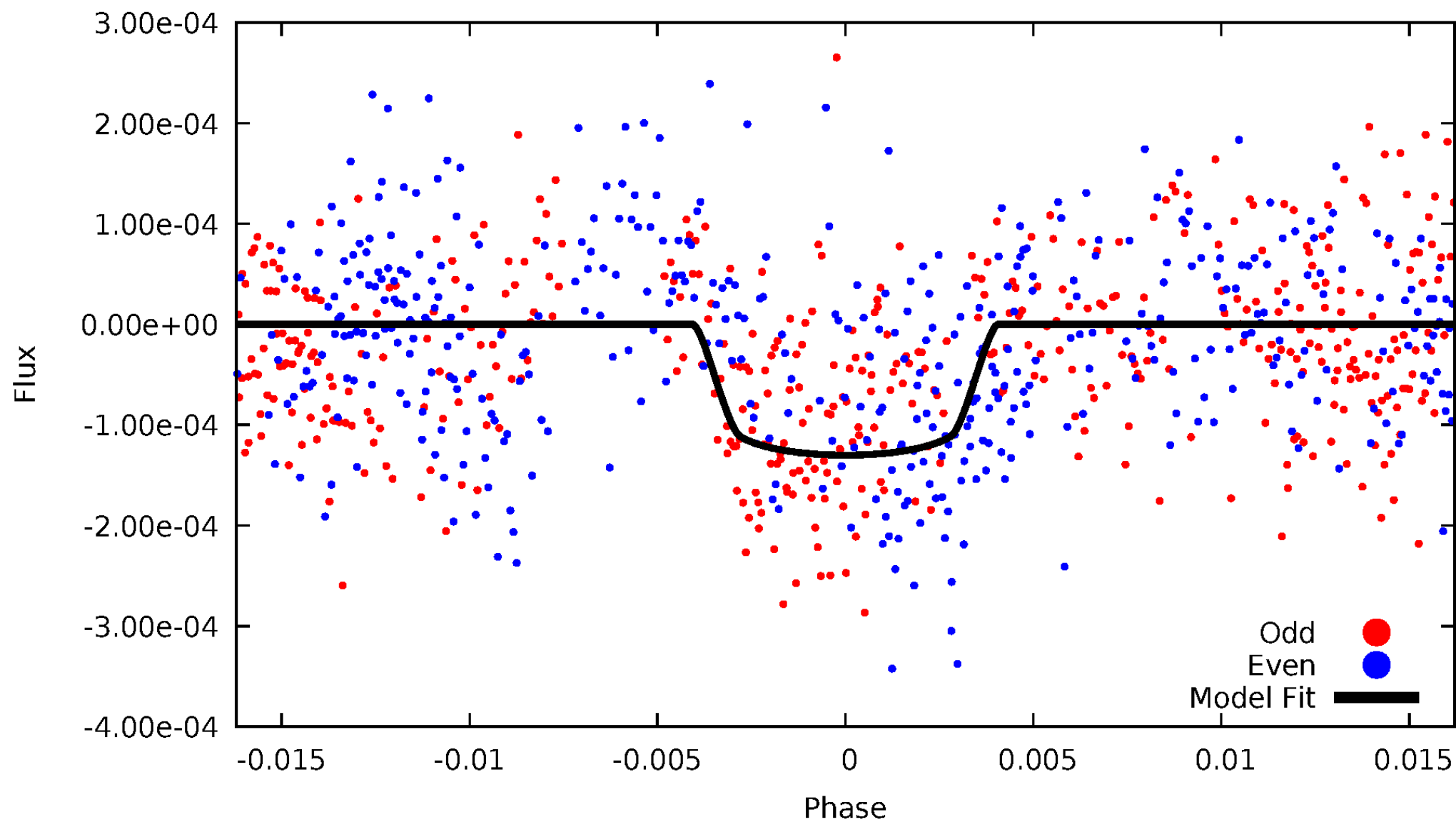


# TCE 008517361-03



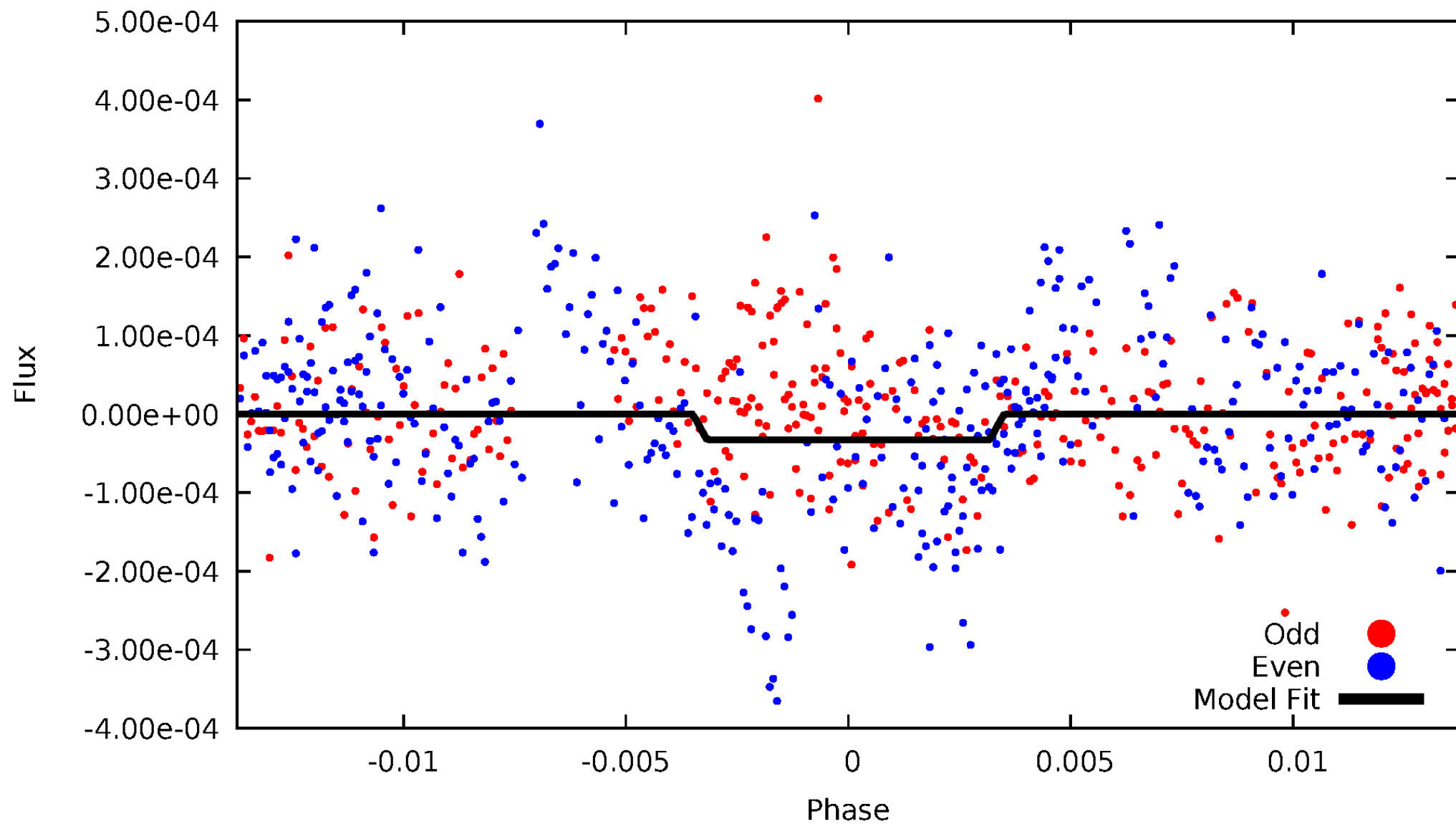
# DV Odd/Even

TCE 008517361-03

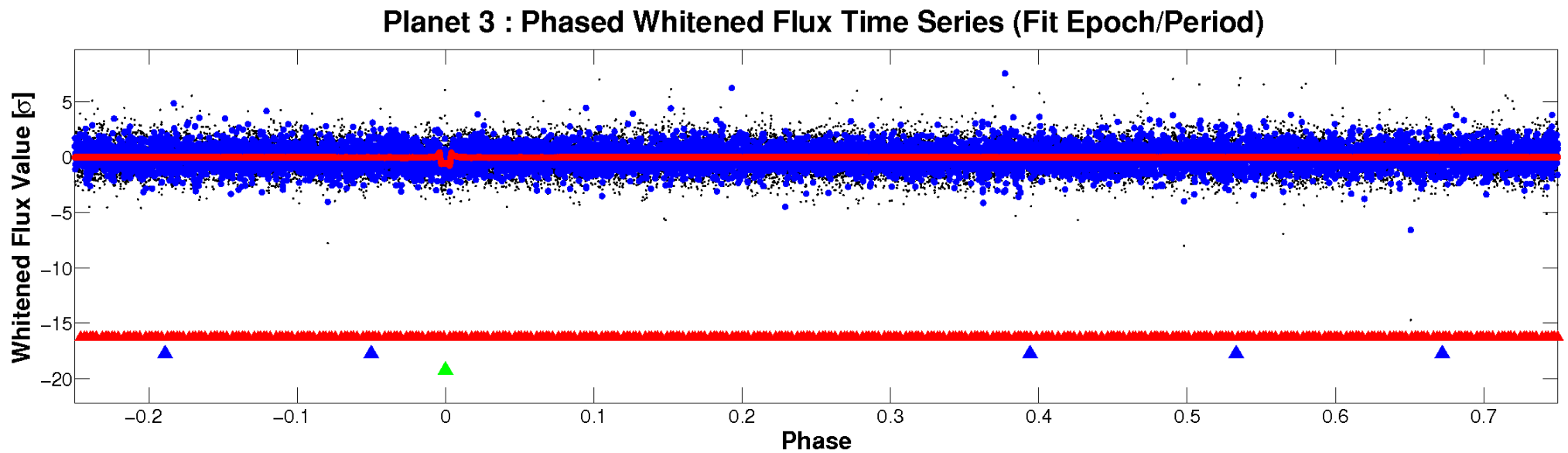
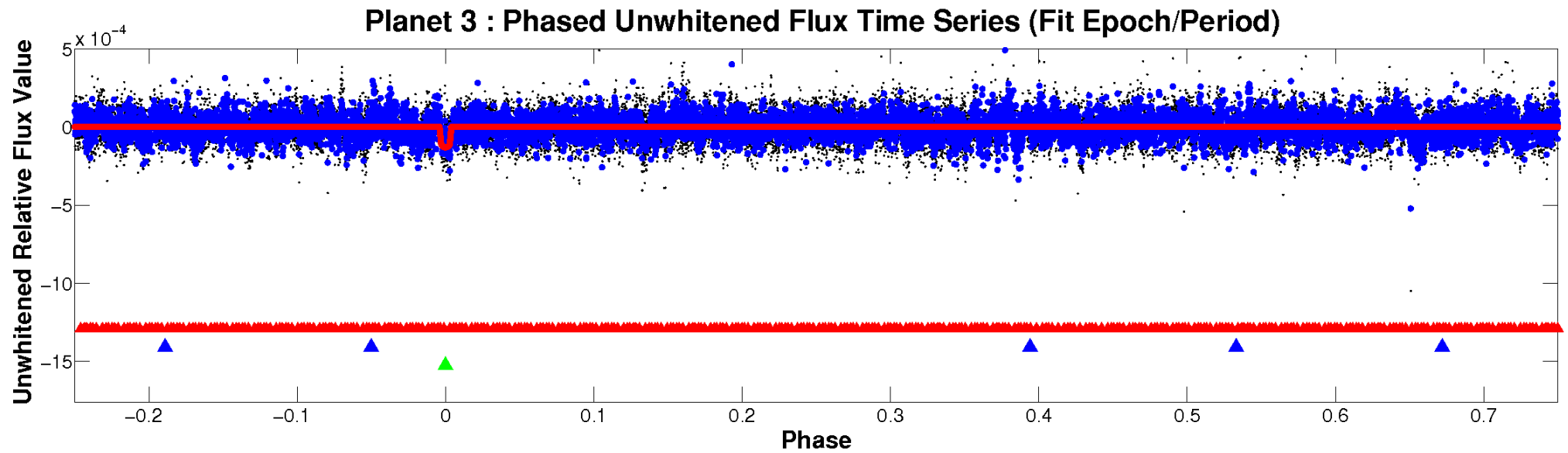


# ALT Odd/Even

TCE 008517361-03



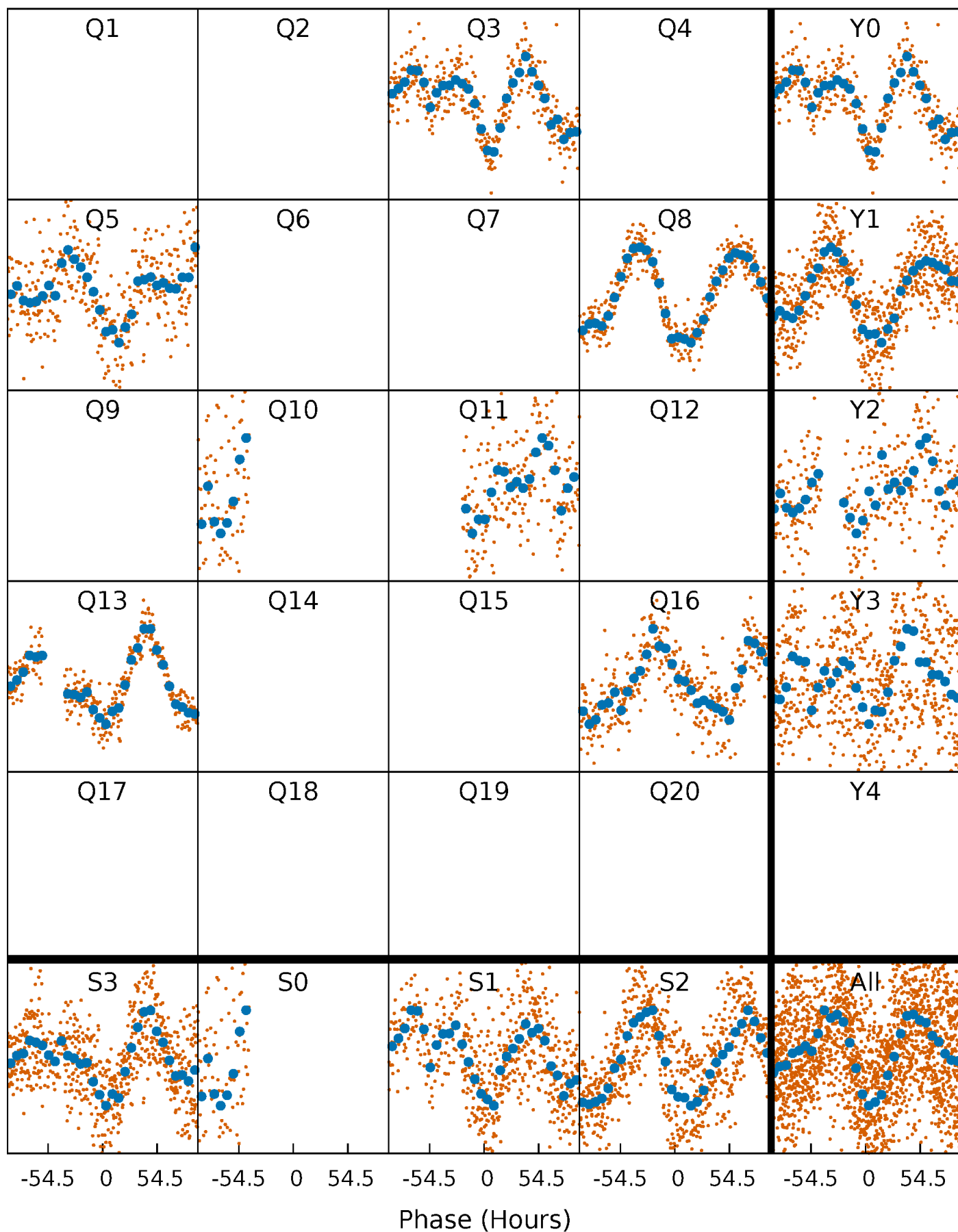
# Non-Whitened Vs. Whitened Light Curve





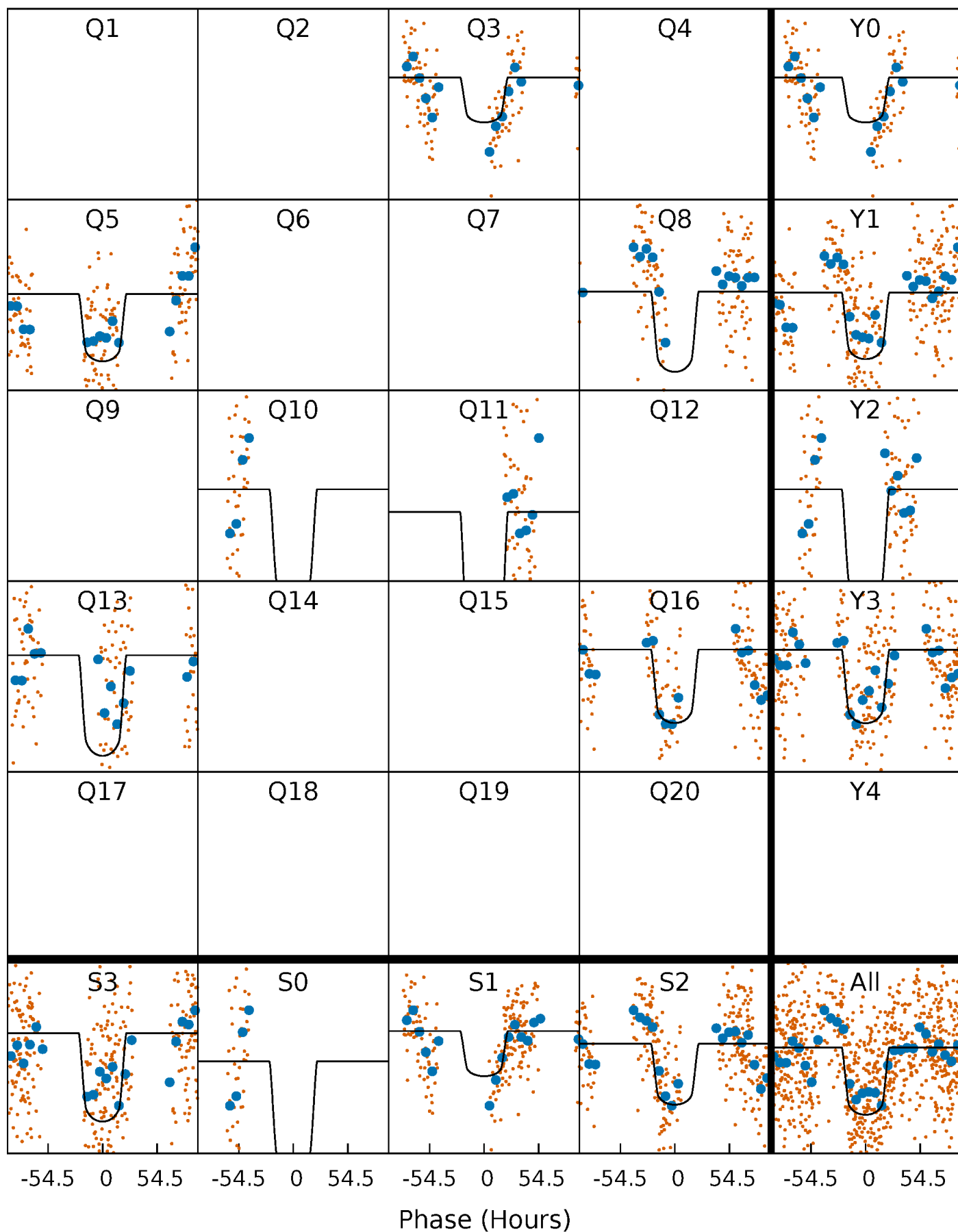
# PDC Quarter-Phased Transit Curves

TCE 008517361-03   P=245.315726 Days    $T_0=266.172671$  (BKJD)



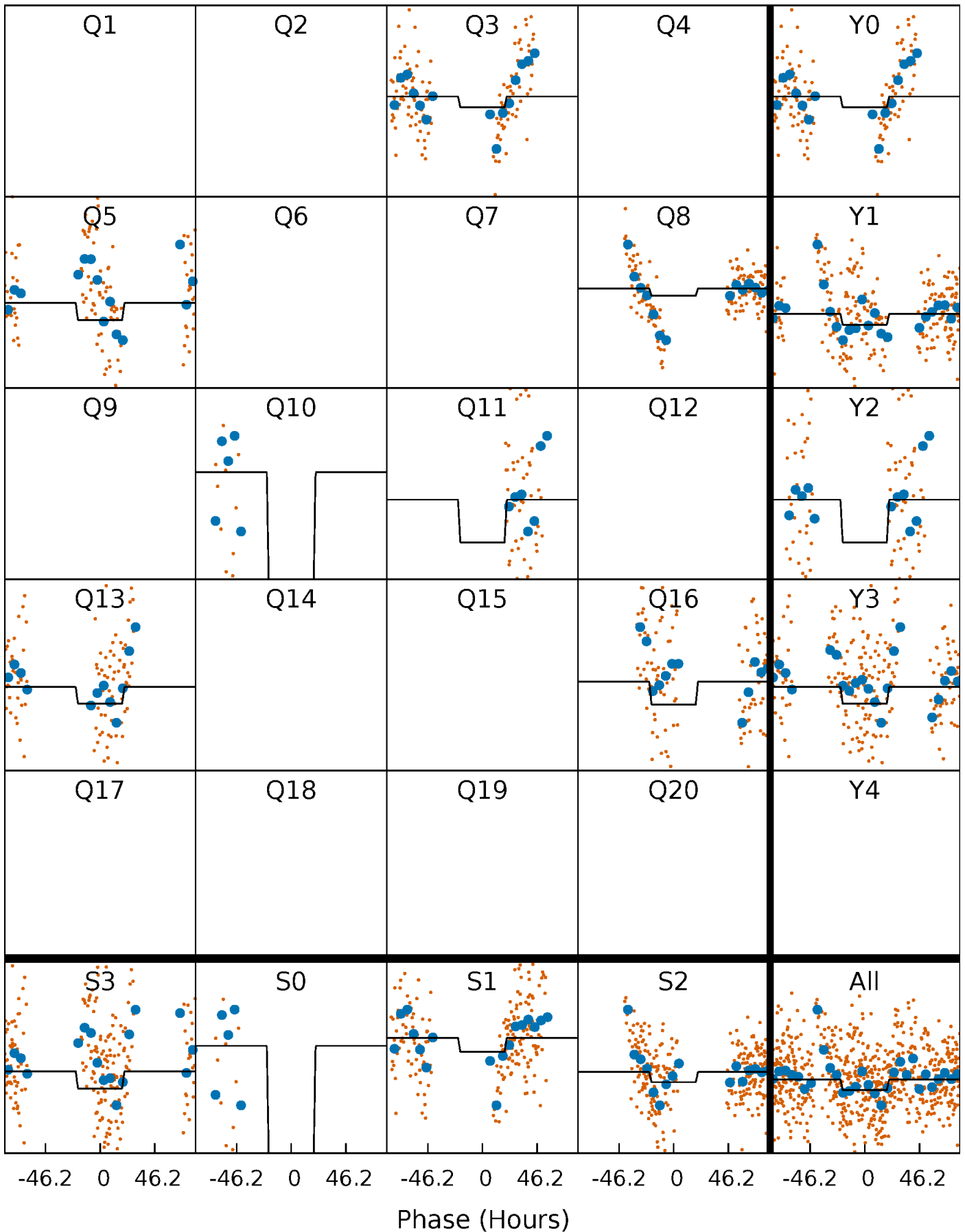
# DV Quarter-Phased Transit Curves

TCE 008517361-03 P=245.315726 Days  $T_0=266.172671$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

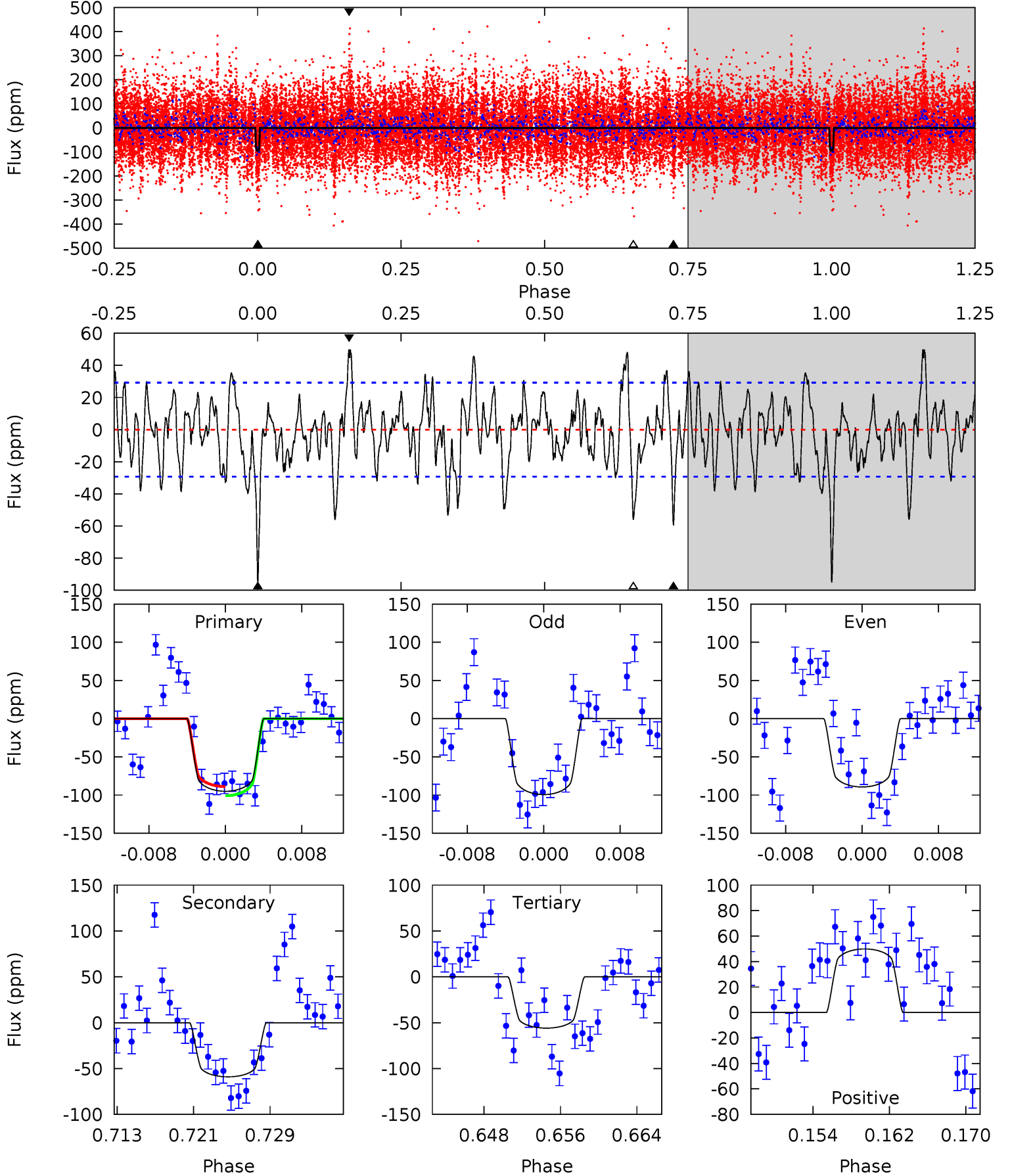
TCE 008517361-03   P=245.366188 Days    $T_0=266.029332$  (BKJD)



# DV Model-Shift Uniqueness Test

008517361-03,  $P = 245.315726$  Days,  $E = 20.856945$  Days

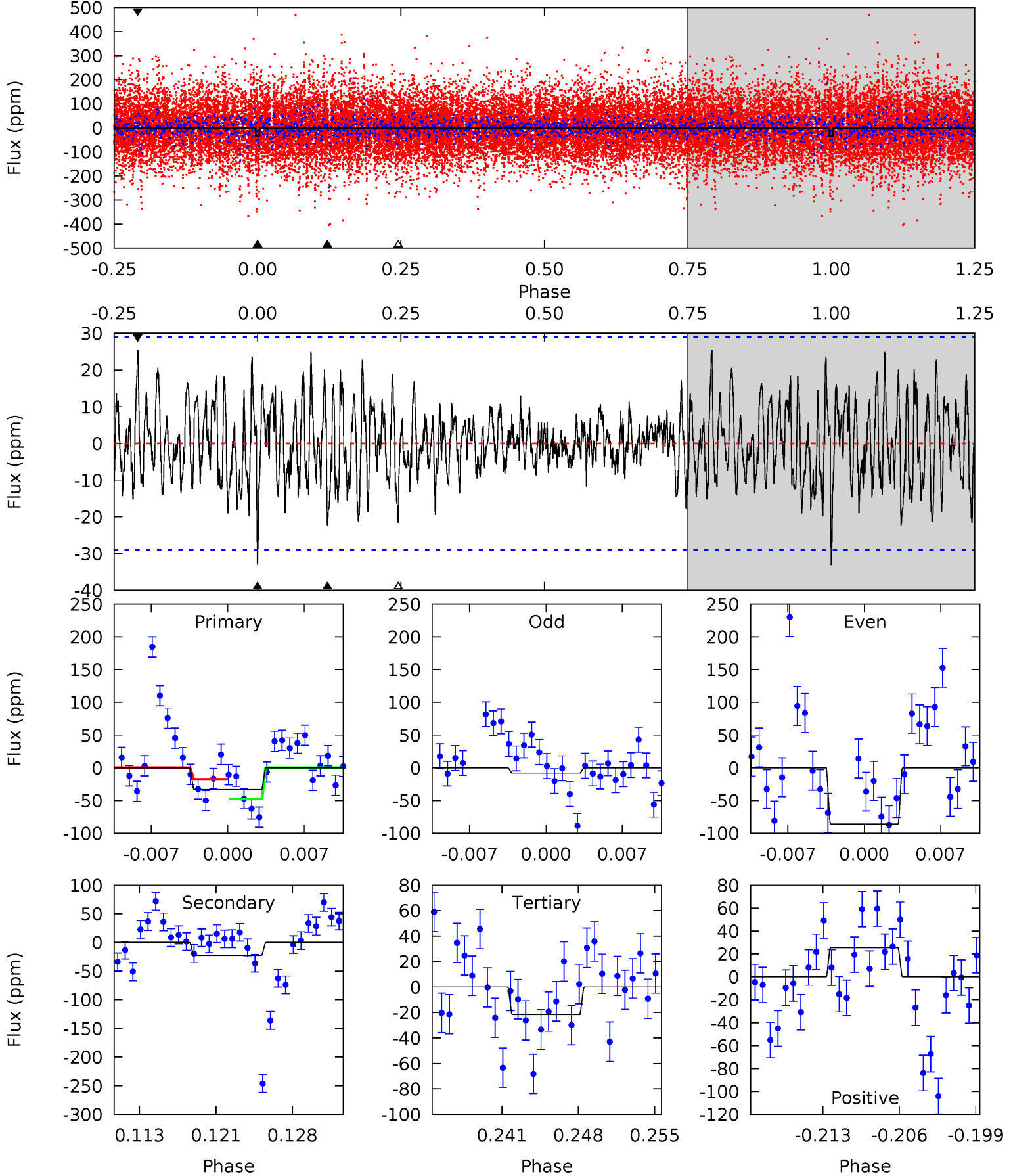
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	10.2	9.67	8.63	5.07	2.65	3.22	6.76	7.81	0.54	1.58	0.87	0.82	0.34	1.03



# Alt Model-Shift Uniqueness Test

008517361-03, P = 245.366188 Days, E = 20.663144 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
5.82	3.93	3.81	4.48	5.09	2.69	1.36	2.01	1.34	0.12	-0.56	6.86	3.22	0.44	2.63



### Stellar Parameters For KIC 008517361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6947^{+192}_{-329}$	$4.254^{+0.092}_{-0.150}$	$-0.120^{+0.250}_{-0.350}$	$1.436^{+0.330}_{-0.220}$	$1.356^{+0.150}_{-0.206}$	$0.645^{+0.276}_{-0.266}$
	+3%/-5%	+2%/-4%	+208%/-292%	+23%/-15%	+11%/-15%	+43%/-41%
Source	PHO1	FLK73	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 008517361-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-59 \pm 6$	$2.08^{+0.32}_{-0.26}$	$560^{+37}_{-33}$	$5321^{+287}_{-300}$	$5368^{+1562}_{-1413}$
Alt.	$-22 \pm 6$	$0.91^{+0.20}_{-0.18}$	$558^{+38}_{-29}$	$6194^{+801}_{-634}$	$10388^{+5962}_{-4027}$

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



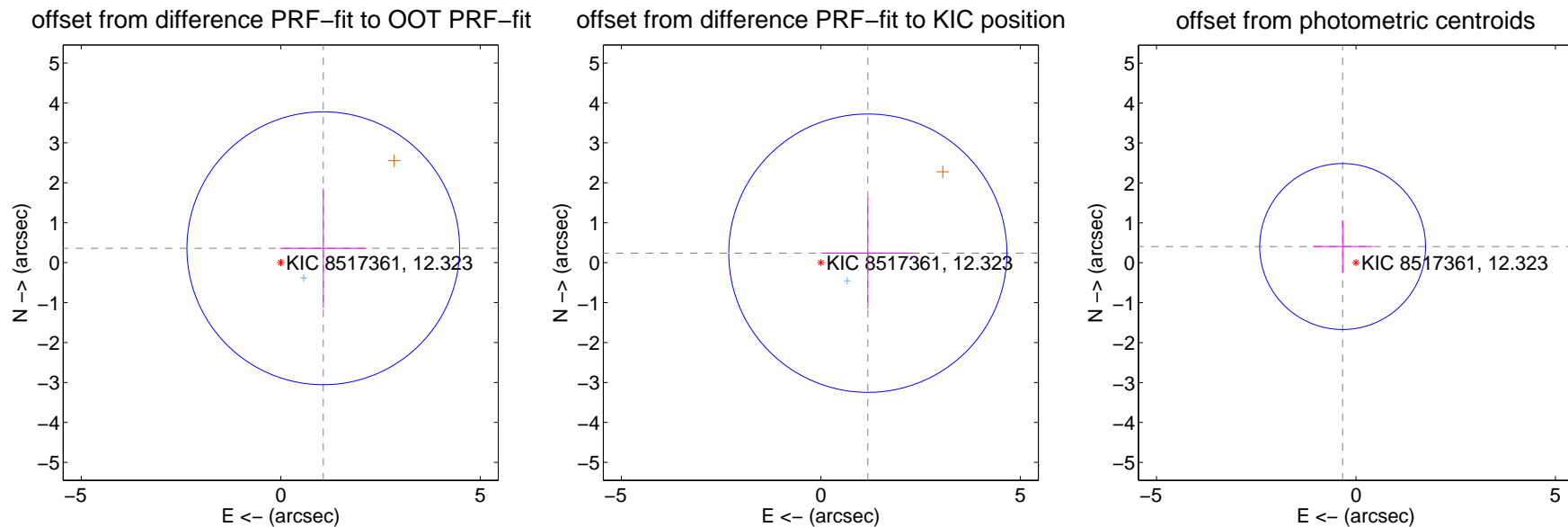
## DV Centroid Data

Supplemental centroid analysis for 008517361-03. Kepler magnitude: 12.32. Transit SNR 8.78

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.125 \pm 1.139$	0.99	$-1.065 \pm 1.091$	$0.361 \pm 1.494$
PRF-fit source offset from KIC position	$1.201 \pm 1.162$	1.03	$-1.177 \pm 1.152$	$0.238 \pm 1.389$
photometric centroid source offset	$0.53 \pm 0.69$	0.76	$0.33 \pm 0.75$	$0.41 \pm 0.65$

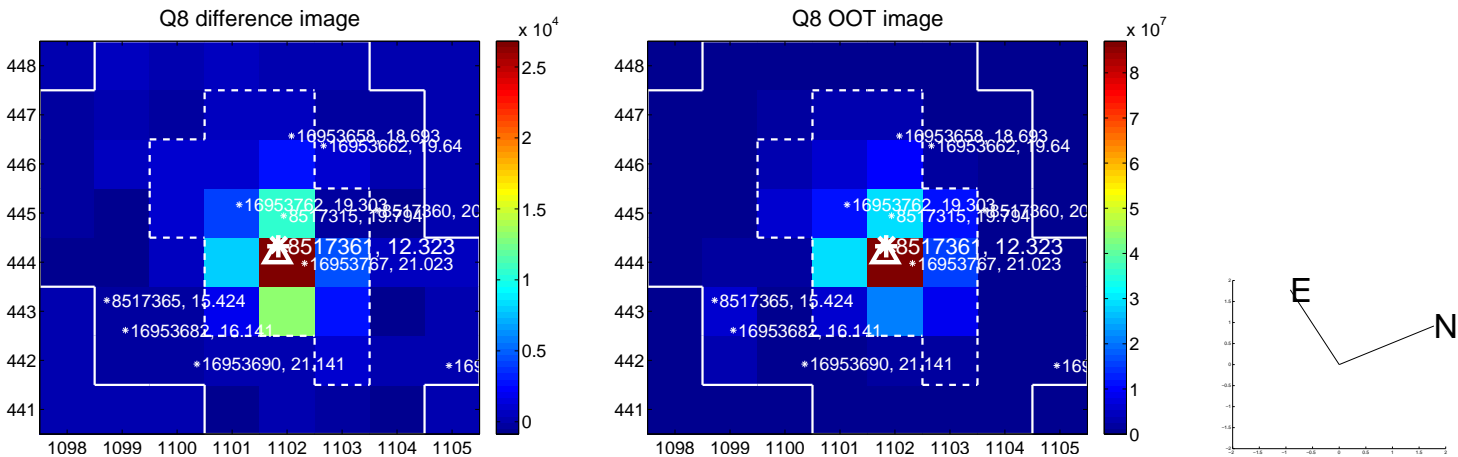
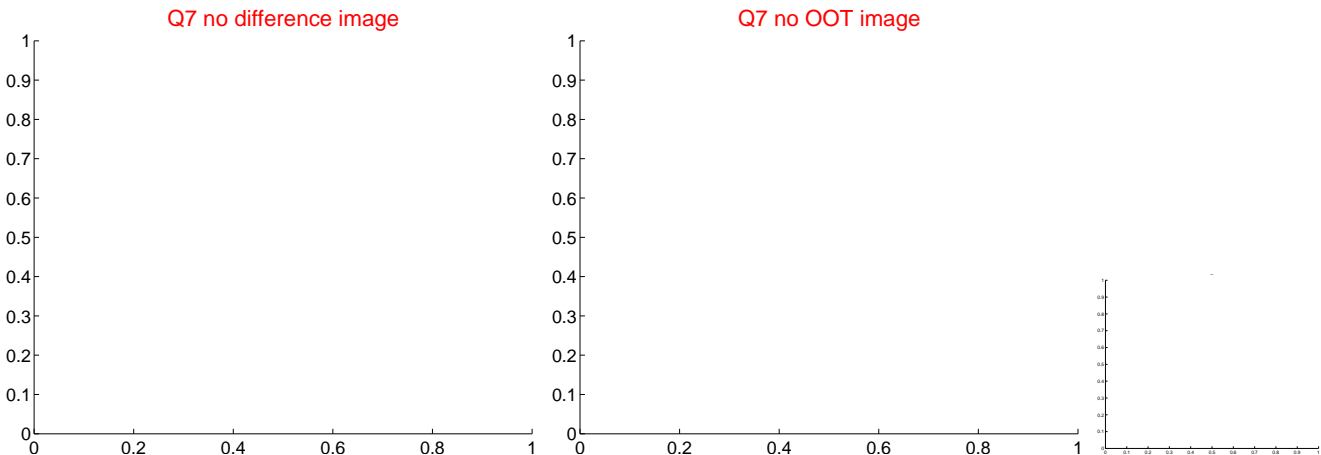
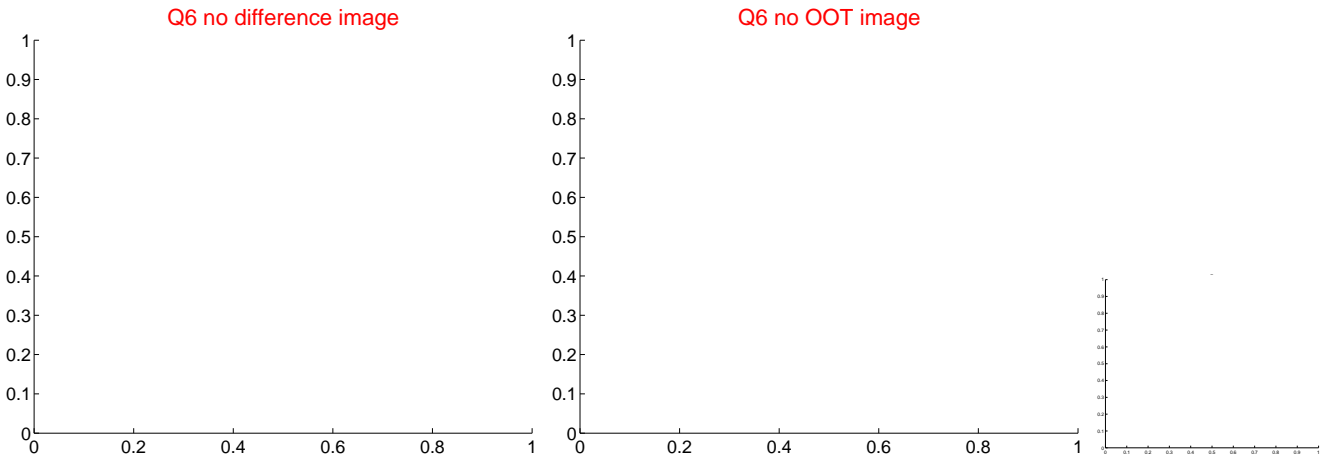
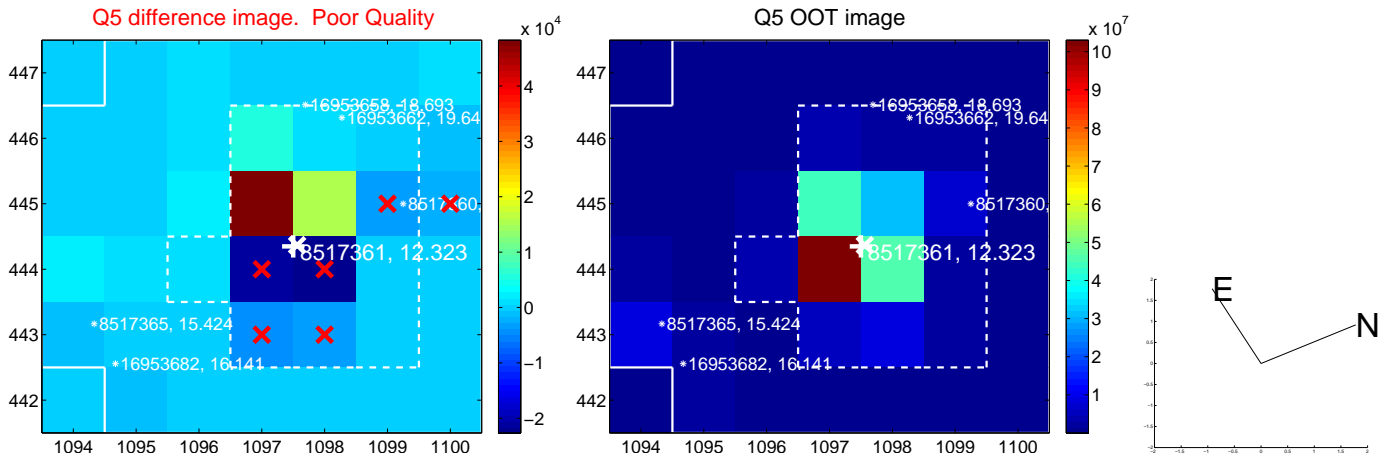


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

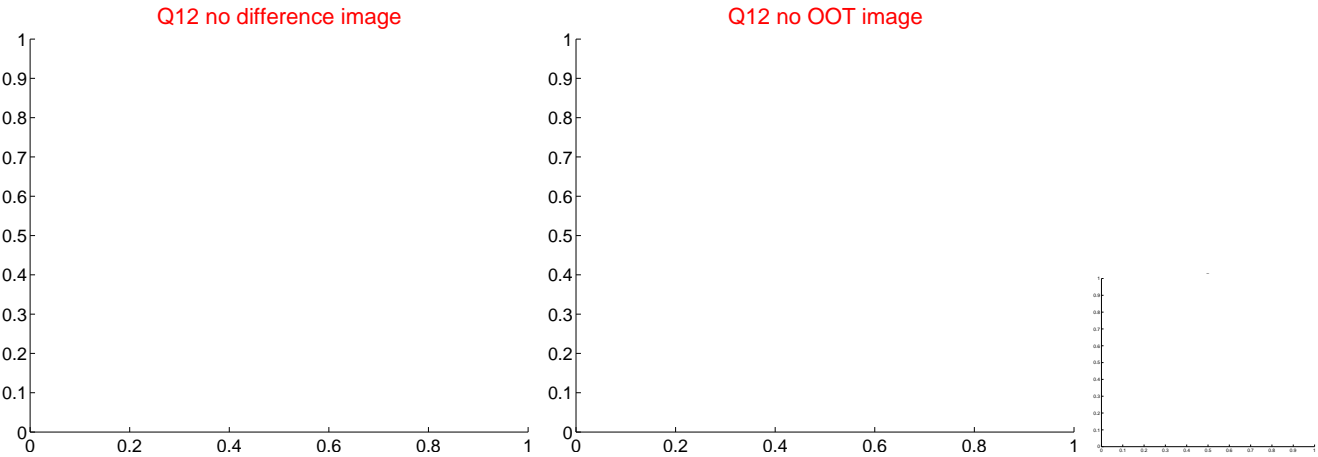
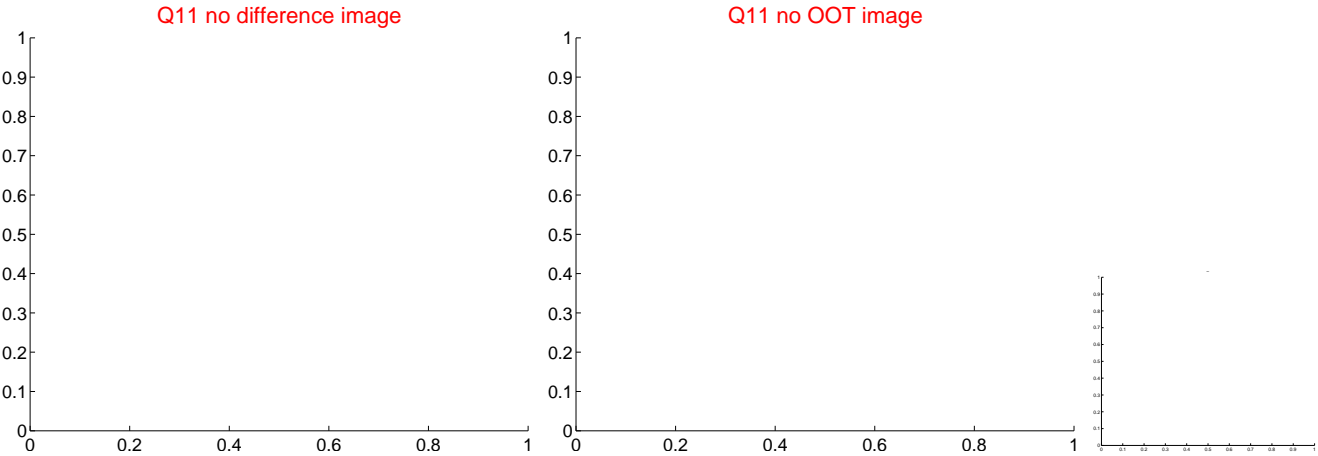
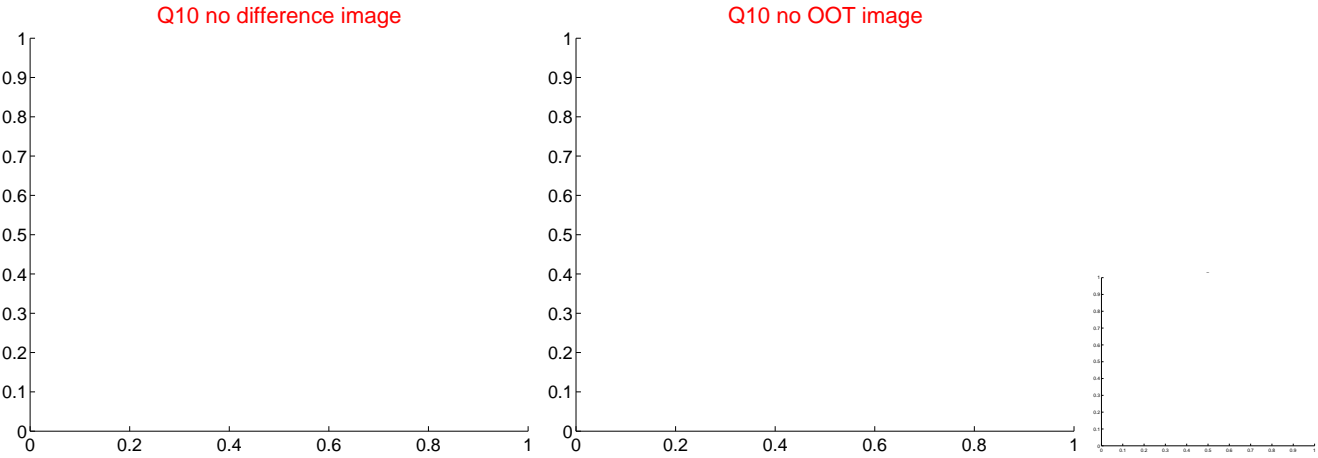
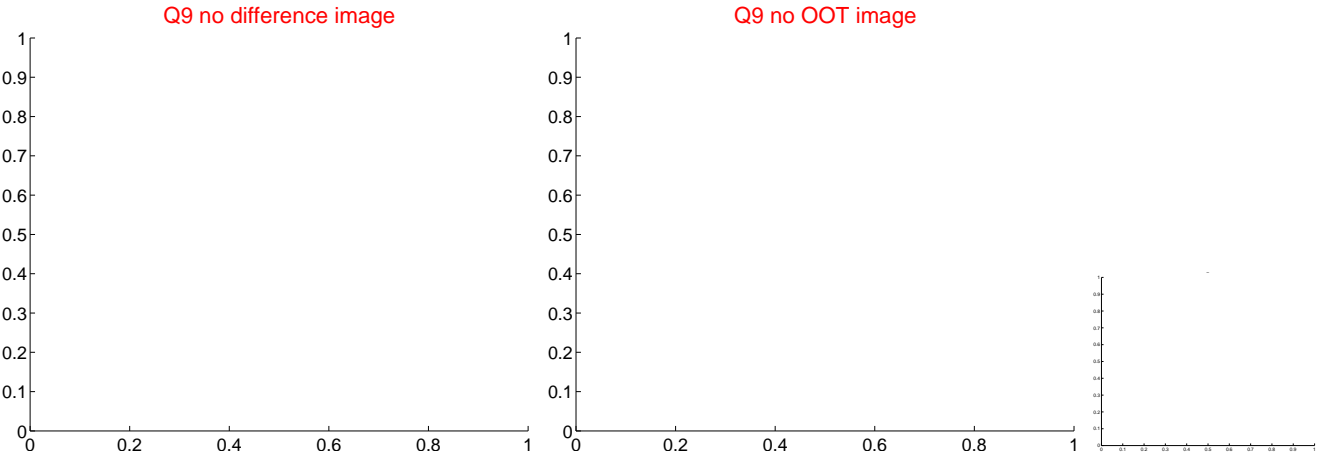
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



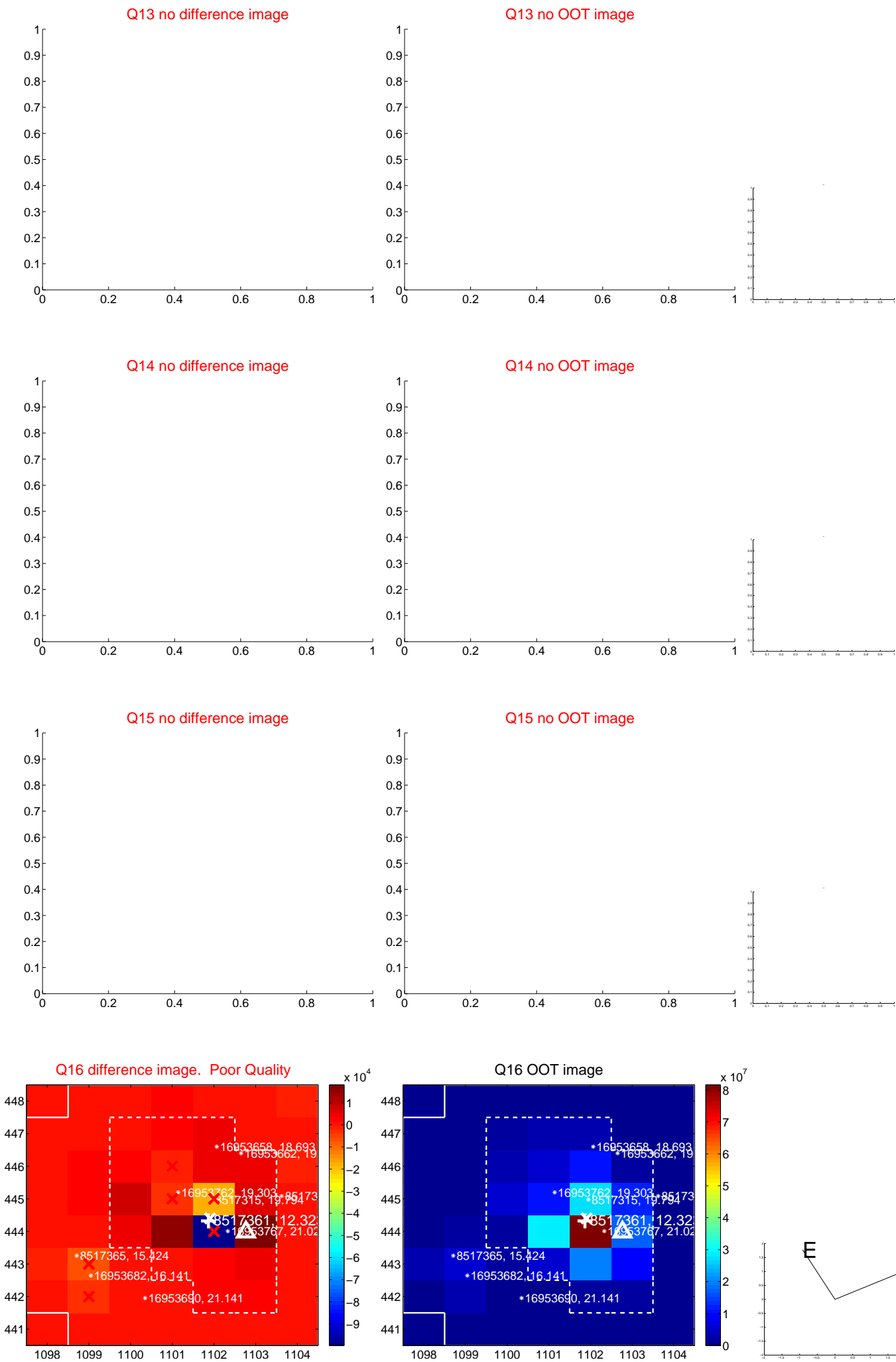
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



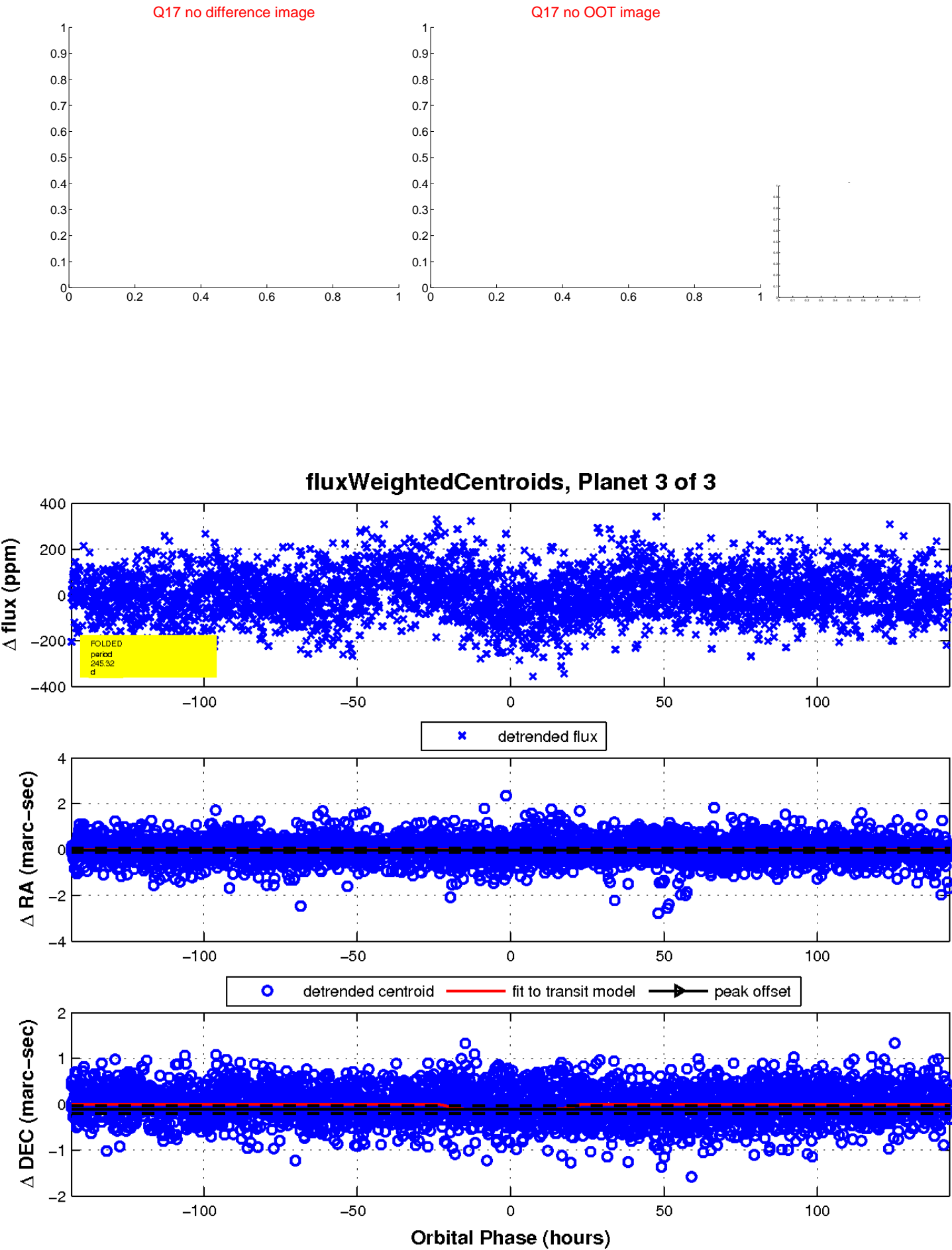
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

