

# KIC 006966132

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006966132-01	OBS	No	367.598306	497.792777	1218.9	4.457	8.5	7.7	0.88	5767	3.77	0.77
006966132-02	OBS	No	3.935270	132.487457	116.5	17.131	7.9	8.3	0.88	5767	1.08	328.13
006966132-03	OBS	No	156.616426	254.909263	2118.2	10.500	19.3	-1.0	0.88	5767	4.02	2.42
006966132-04	OBS	No	51.248886	174.594493	1110.7	4.326	18.6	9.2	0.88	5767	3.14	10.71
006966132-05	OBS	No	165.065829	210.792943	548.2	9.665	9.1	6.2	0.88	5767	2.31	2.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006966132-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006966132-02	OBS	FP	0.00	1	0	0	0	LPP_DV
006966132-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006966132-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_FEW_DIFFS—HALO_GHOST
006966132-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS

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

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

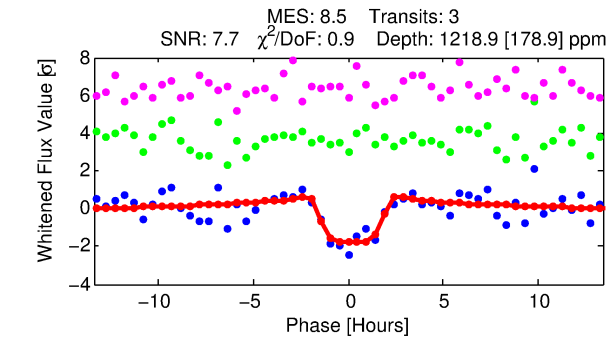
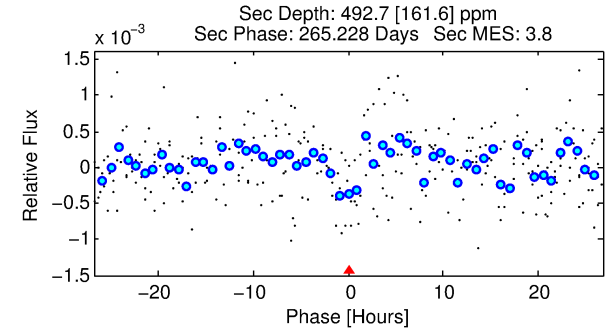
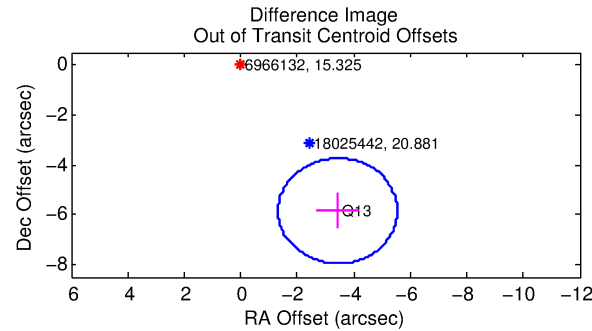
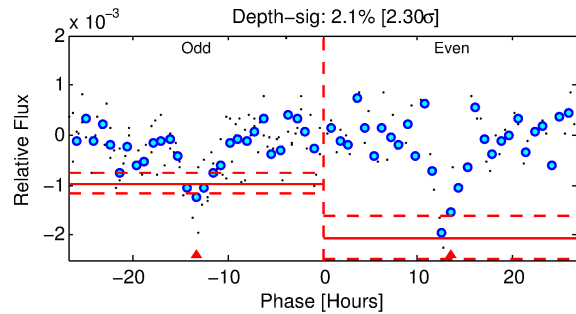
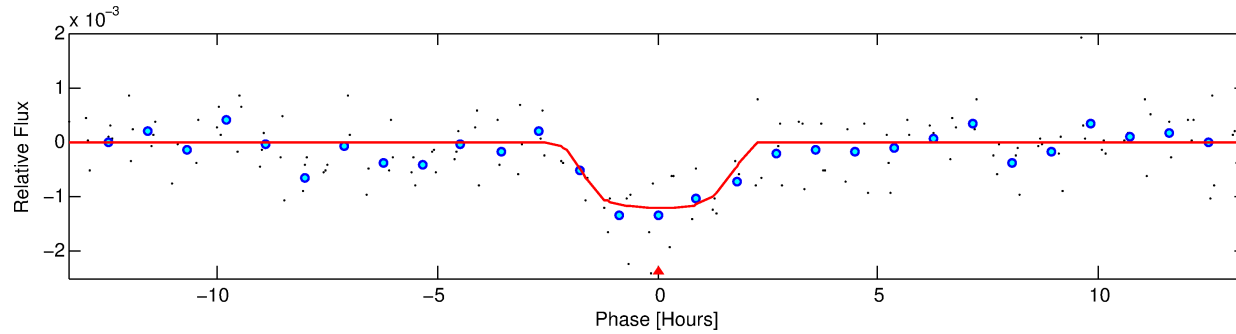
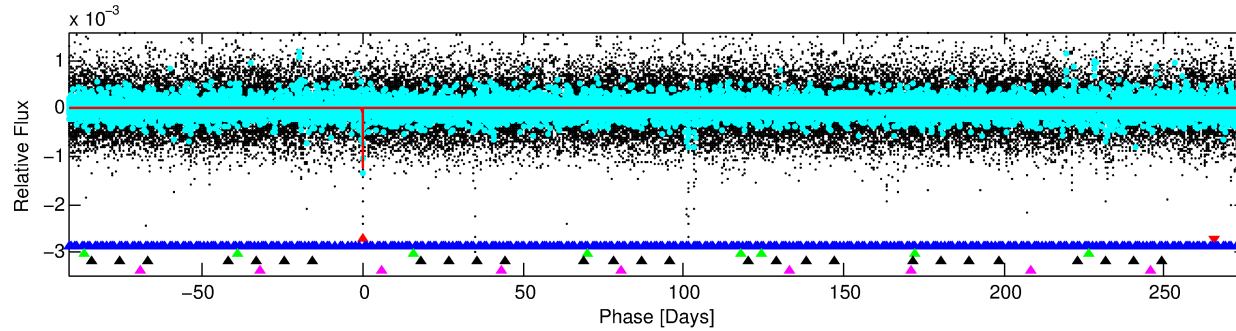
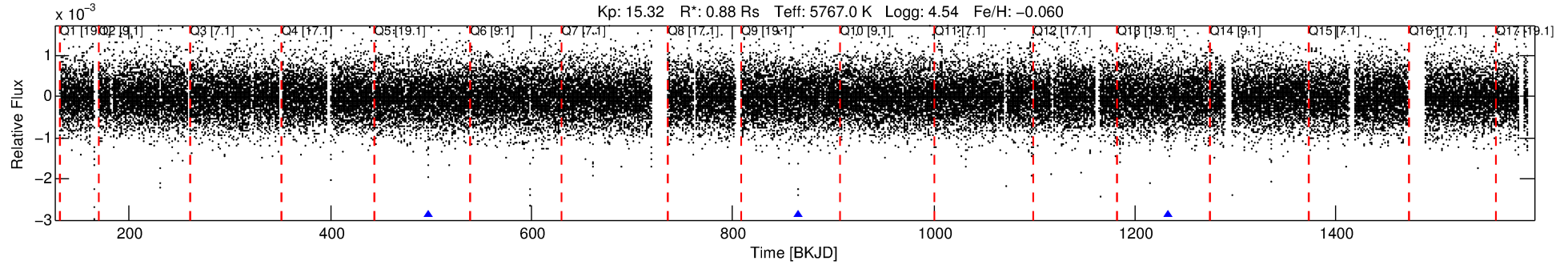
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006966132-01

No Significant Match Found

# DV One-Page Summary

KIC: 6966132 Candidate: 1 of 5 Period: 367.598 d



## DV Fit Results:

Period = 367.59831 [0.00694] d  
Epoch = 497.7928 [0.0083] BKJD  
Rp/R\* = 0.0392 [0.0054]  
a/R\* = 298.05 [133.41]  
b = 0.93 [0.07]  
Seff = 0.77 [0.31]  
Teq = 239 [24] K  
Rp = 3.77 [1.29] Re  
a = 0.9968 [0.2638] AU  
Ag = 18951.33 [10965.96] [1.73 $\sigma$ ]  
Teffp = 4339 [484] K [8.46 $\sigma$ ]

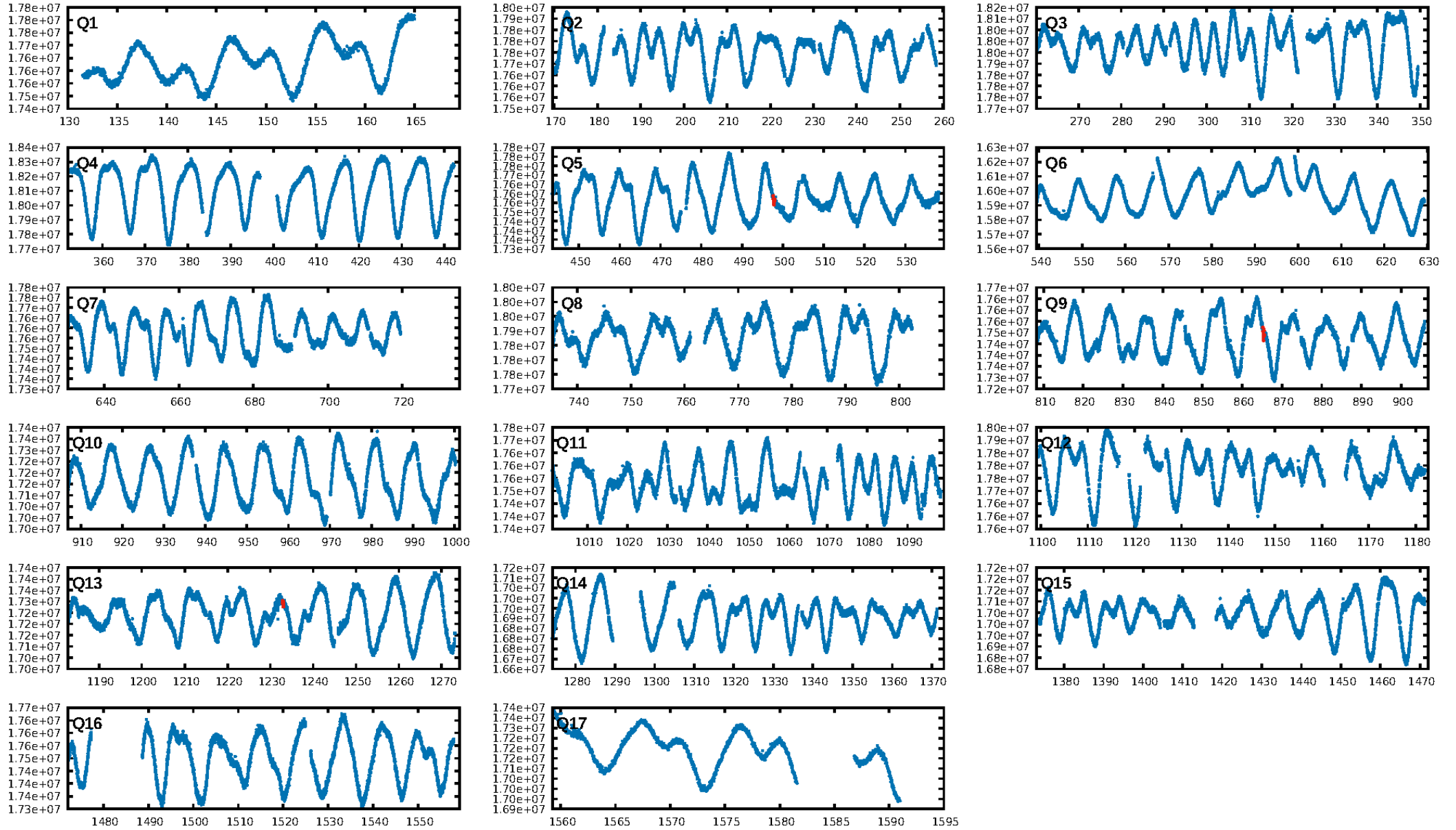
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [456.72 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 18.7%  
ModelChiSquareGof-sig: 87.7%  
**Bootstrap-pfa: 2.89e-08**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.3882**  
Centroid-sig: 52.3%  
Centroid-so: 1.099 arcsec [0.98 $\sigma$ ]  
**OotOffset-rm: 6.785 arcsec [9.65 $\sigma$ ]**  
**KicOffset-rm: 6.869 arcsec [9.77 $\sigma$ ]**  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 0.67 [2/3]

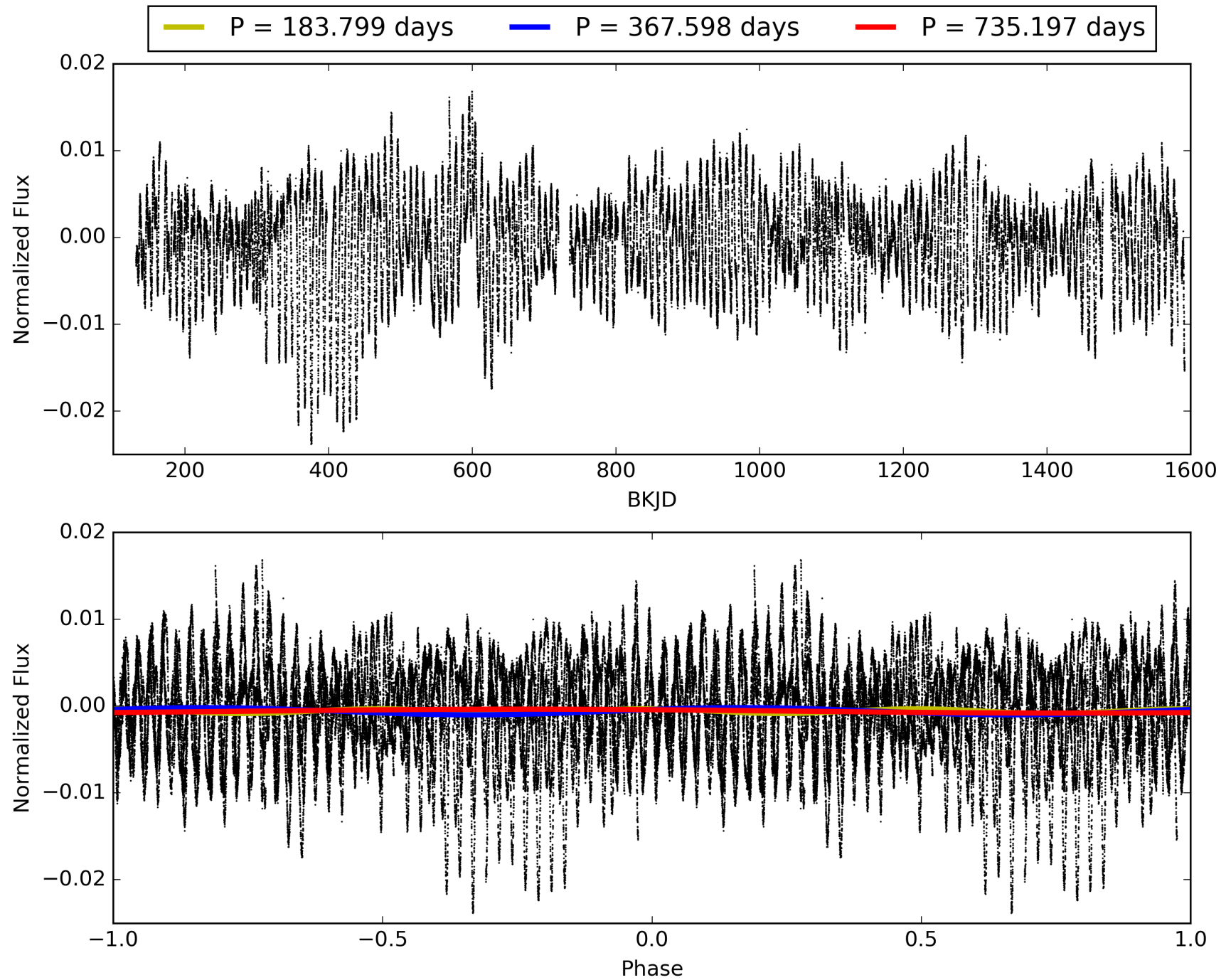
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:18:46 Z

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

# TCE 006966132-01, PDC Light Curves



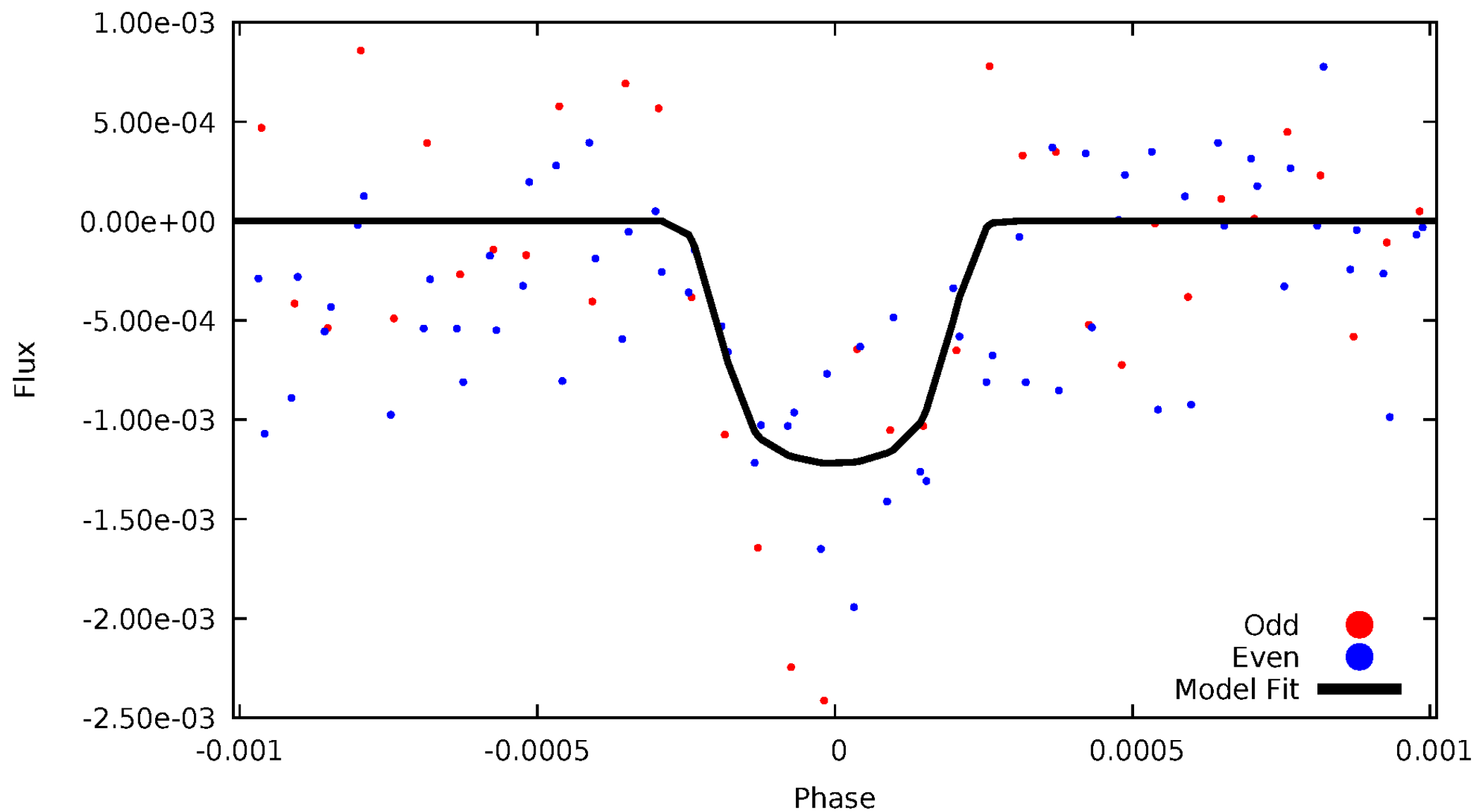
TCE 006966132-01





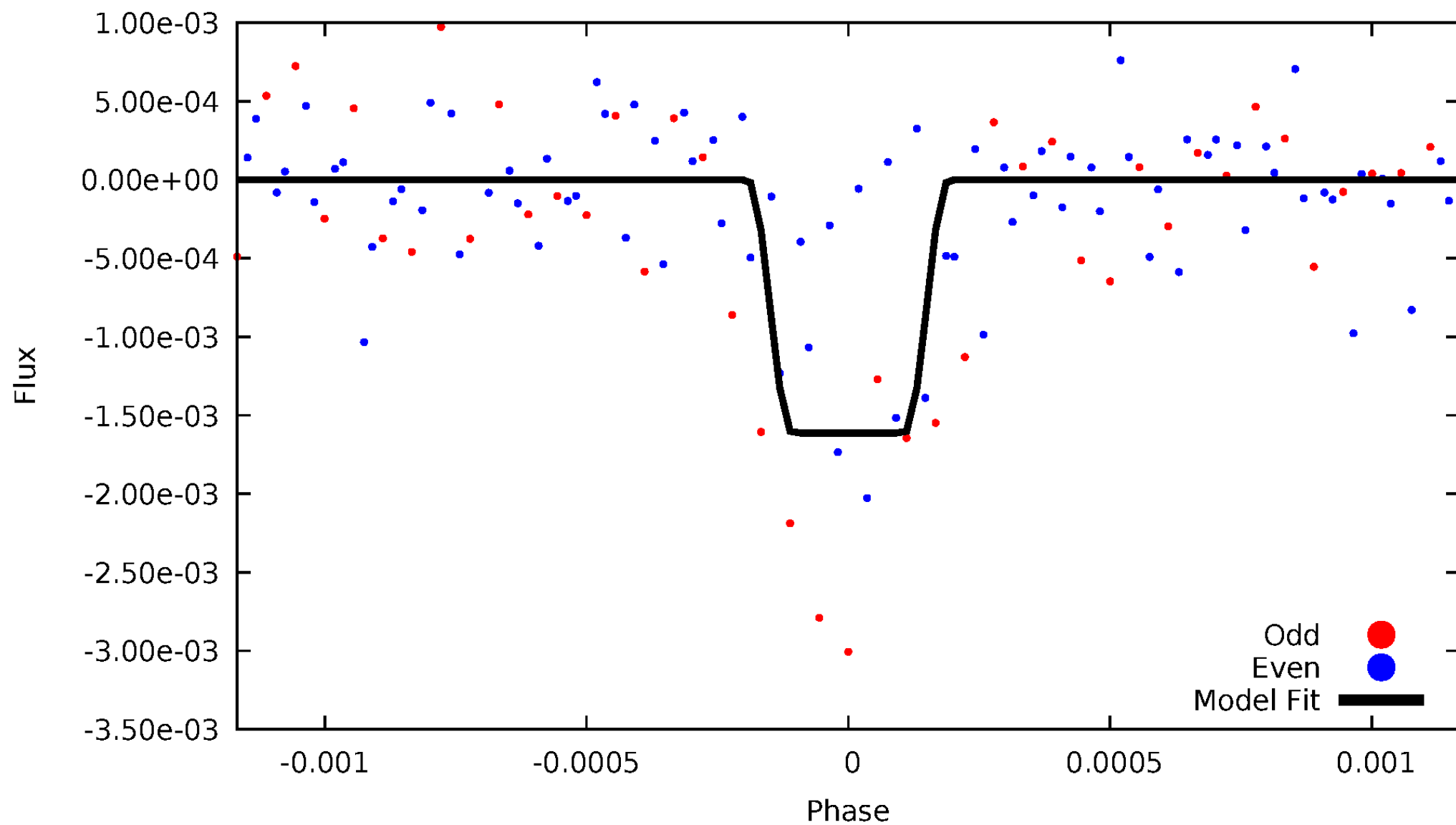
# DV Odd/Even

TCE 006966132-01



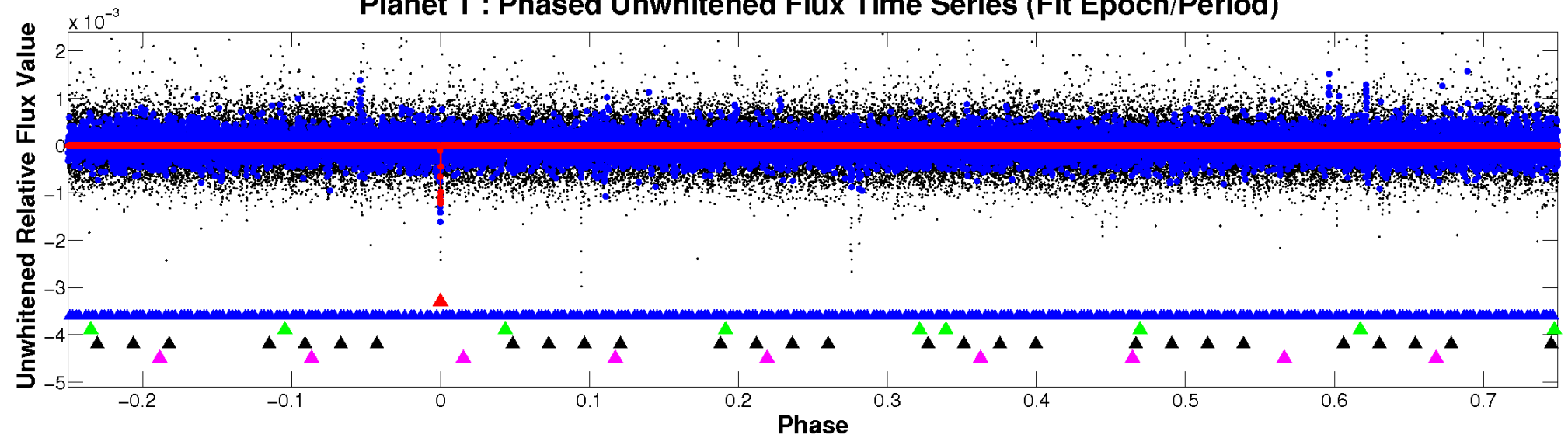
# ALT Odd/Even

TCE 006966132-01

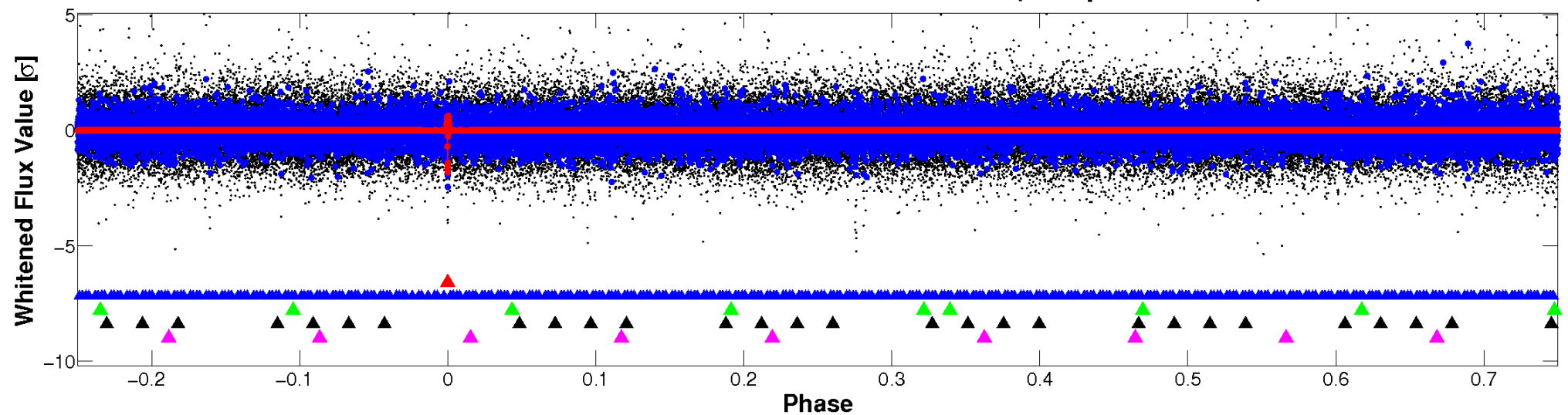


# Non-Whitened Vs. Whitened Light Curve

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

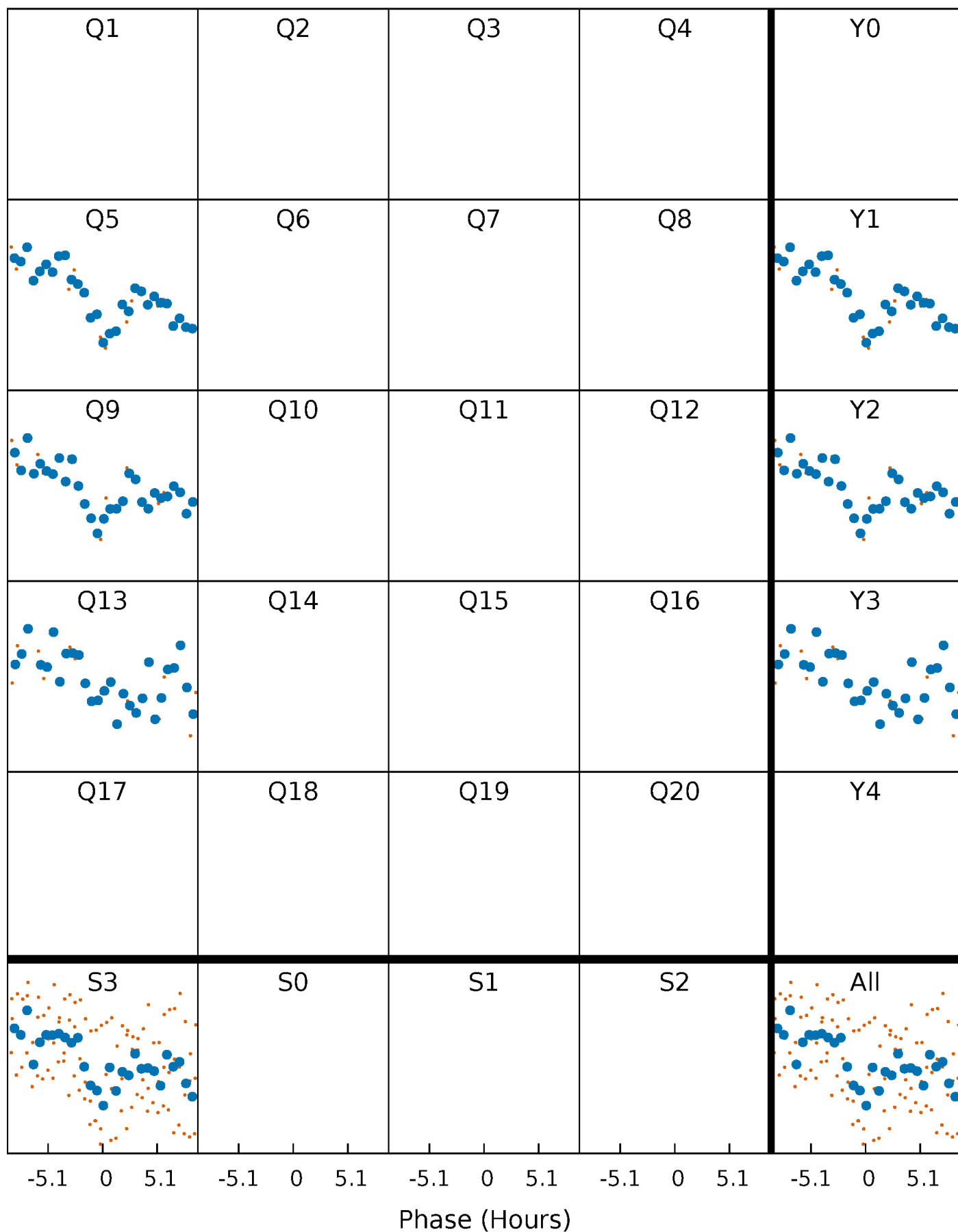


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



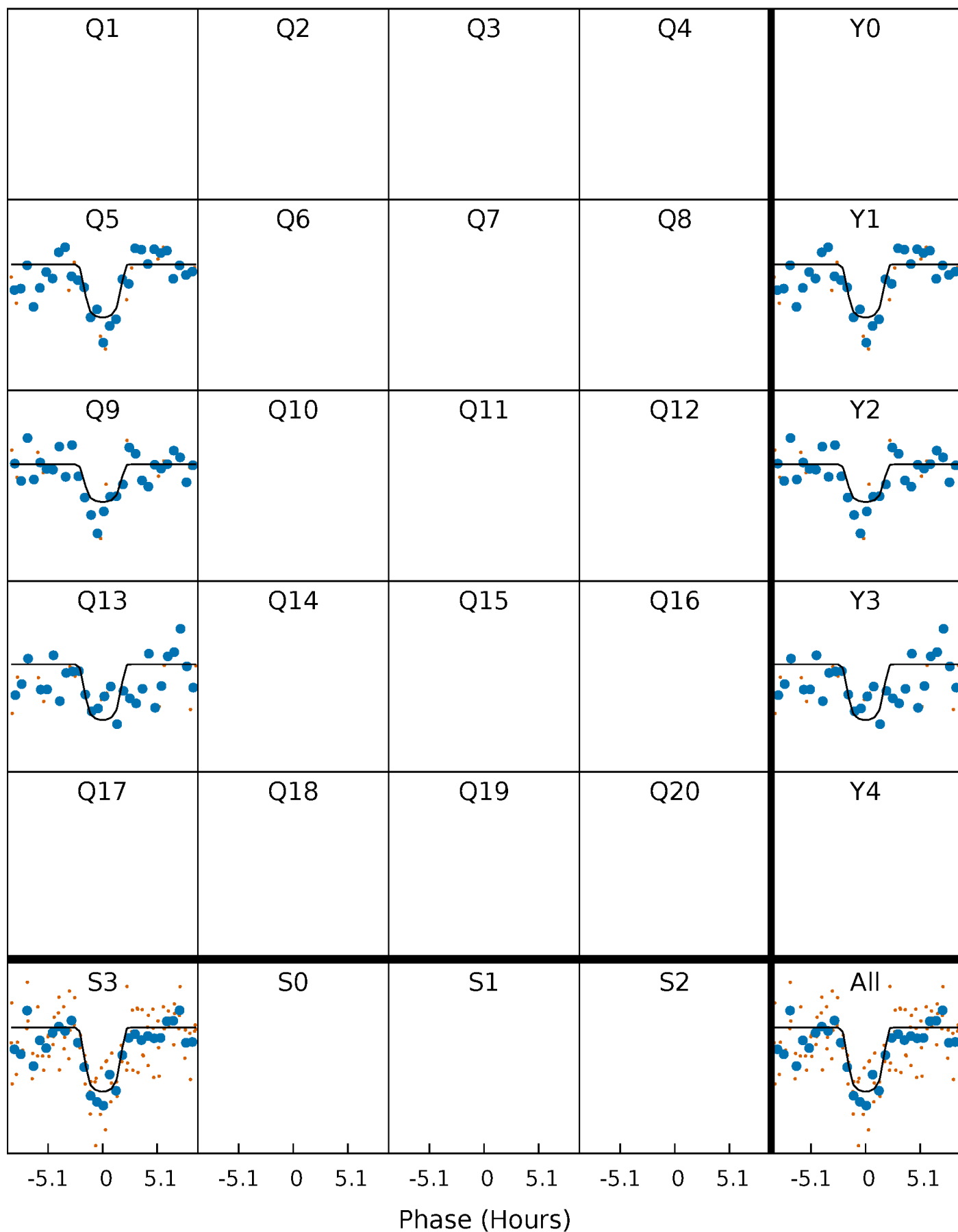
# PDC Quarter-Phased Transit Curves

TCE 006966132-01 P=367.598306 Days  $T_0=497.792777$  (BKJD)



# DV Quarter-Phased Transit Curves

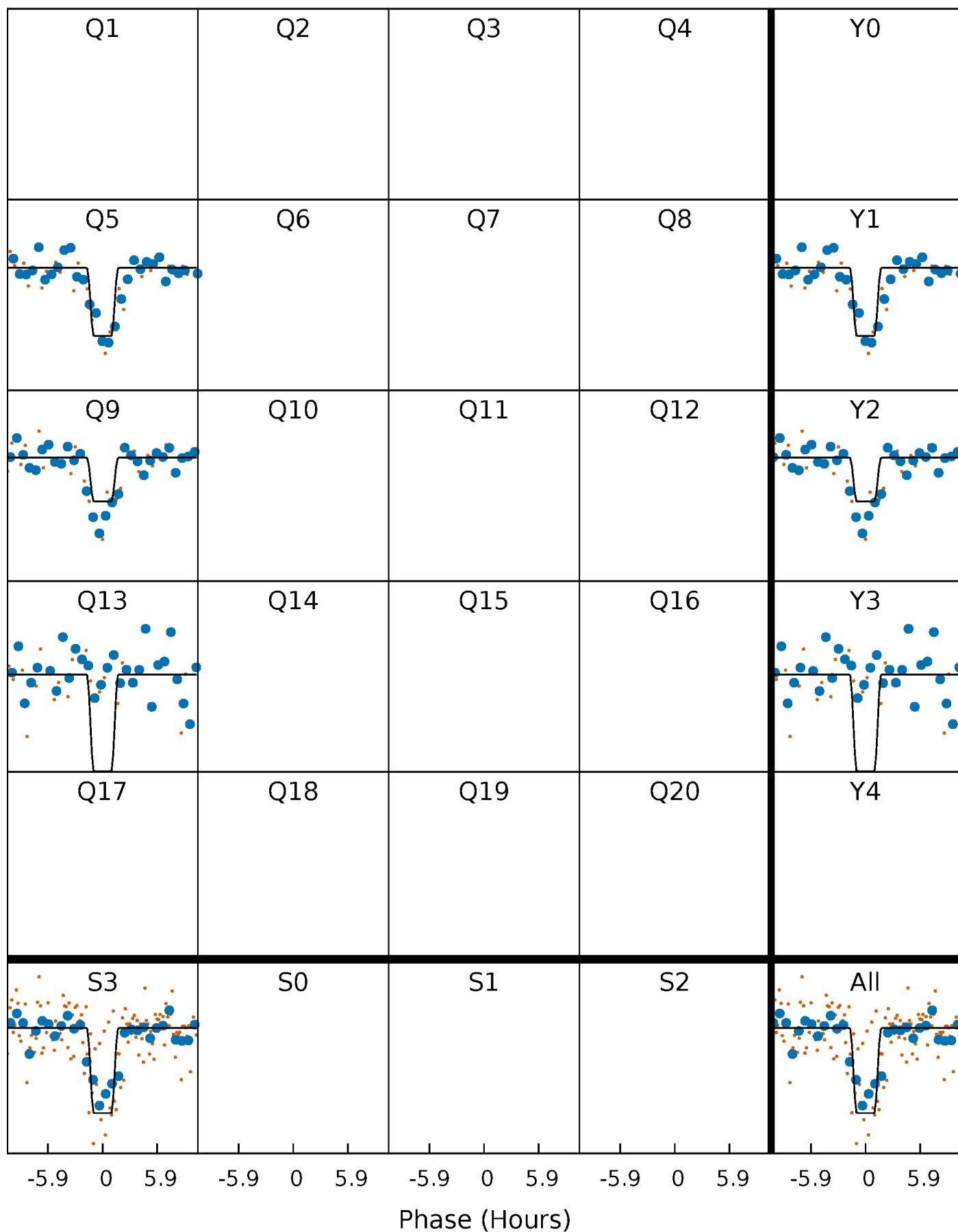
TCE 006966132-01   P=367.598306 Days    $T_0=497.792777$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

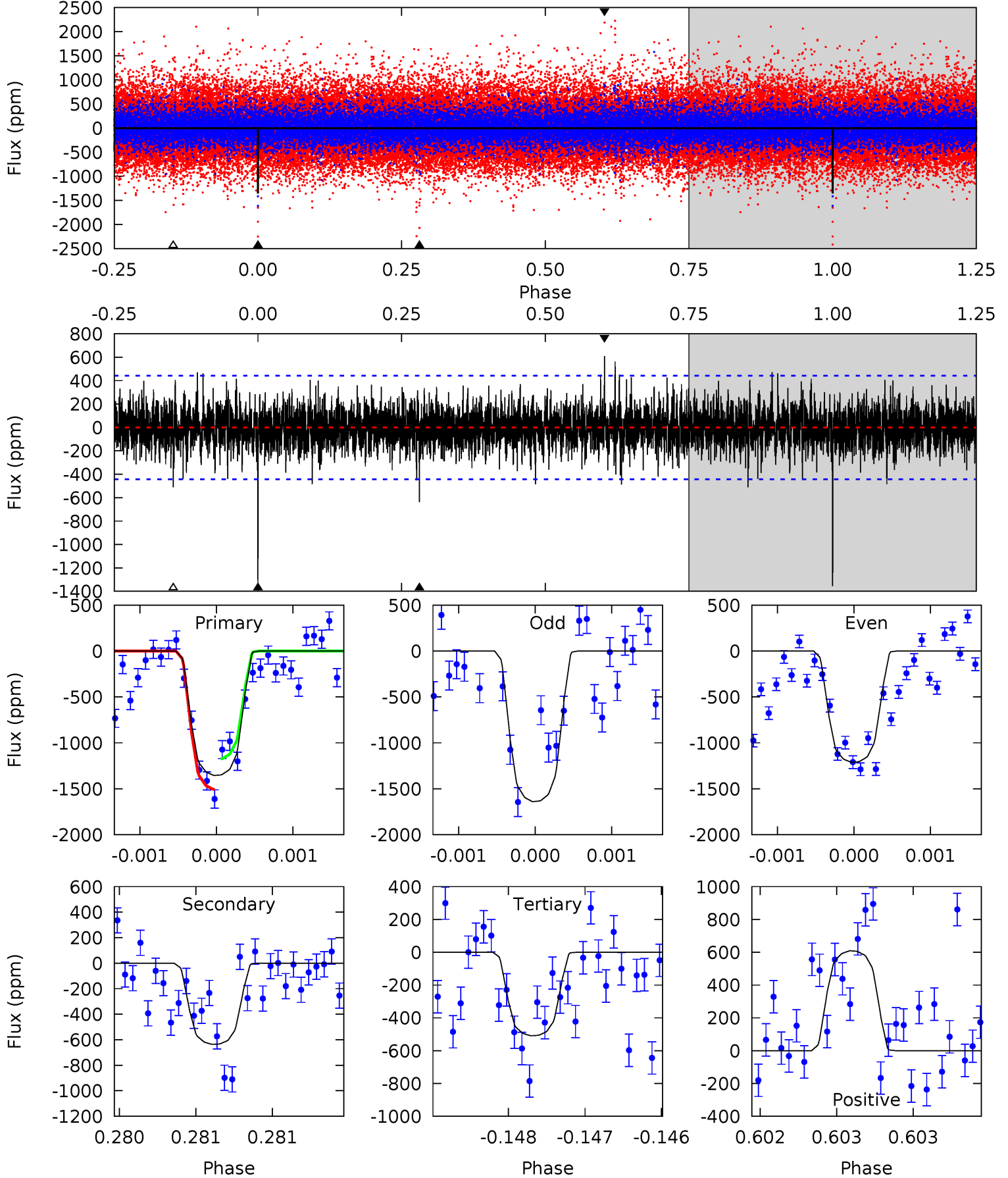
TCE 006966132-01 P=367.592933 Days  $T_0=497.791425$  (BKJD)



# DV Model-Shift Uniqueness Test

006966132-01, P = 367.598306 Days, E = 130.194471 Days

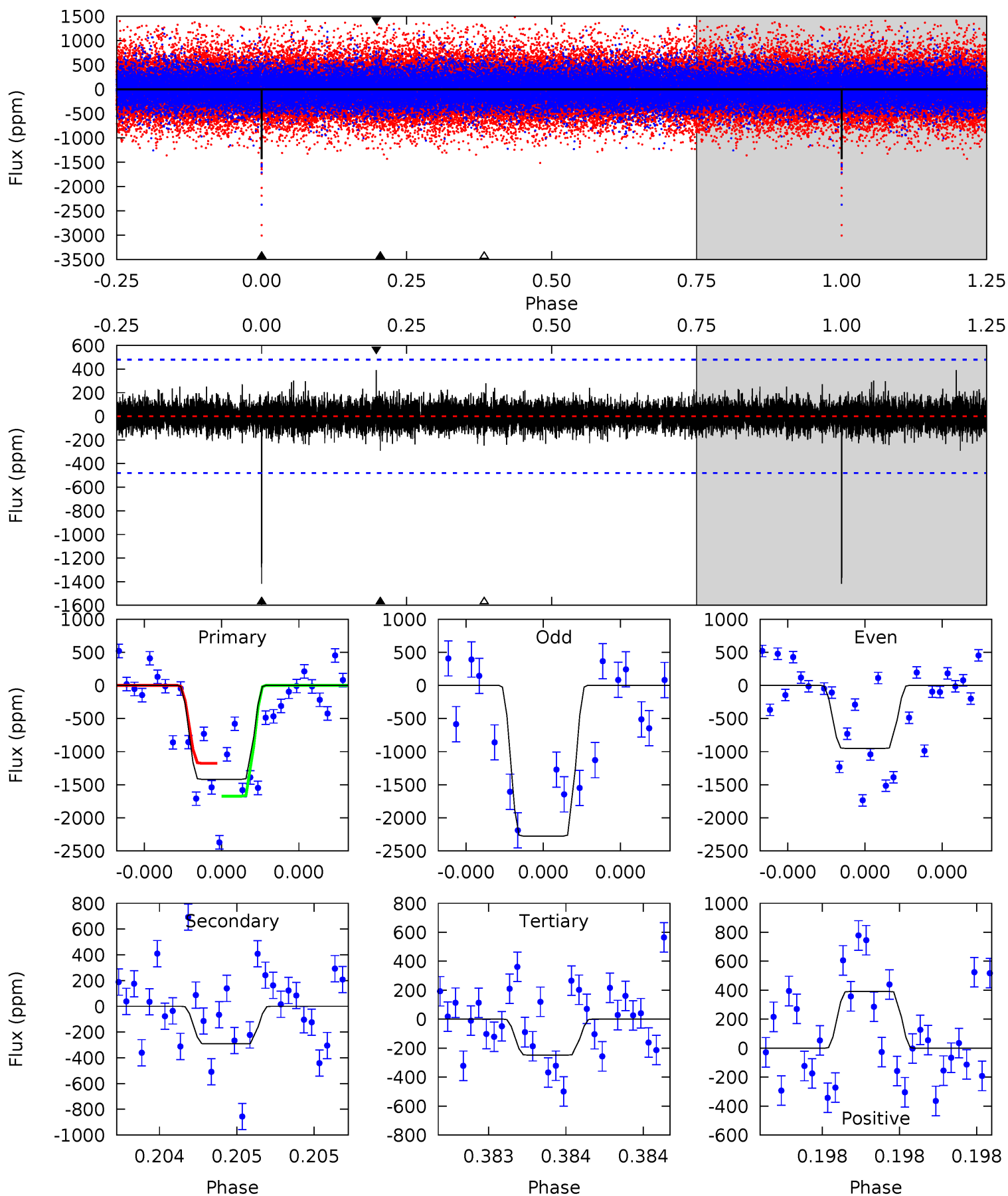
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	7.98	6.39	7.64	5.56	3.45	1.52	10.6	9.36	1.60	0.34	2.49	0.91	0.31	2.08



# Alt Model-Shift Uniqueness Test

006966132-01, P = 367.592933 Days, E = 130.198492 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
16.6	3.42	2.91	4.59	5.63	3.57	0.76	13.7	12.1	0.51	-1.17	7.56	0.82	0.22	2.74



### Stellar Parameters For KIC 006966132

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5767^{+173}_{-173}$	$4.538^{+0.037}_{-0.213}$	$-0.060^{+0.250}_{-0.300}$	$0.881^{+0.275}_{-0.069}$	$0.979^{+0.114}_{-0.114}$	$2.017^{+0.405}_{-1.044}$
	+3%/-3%	+1%/-5%	+417%/-500%	+31%/-8%	+12%/-12%	+20%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 006966132-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-636 \pm 80$	$3.96^{+0.80}_{-0.66}$	$343^{+23}_{-16}$	$4742^{+368}_{-274}$	$21410^{+9568}_{-6346}$
Alt.	$-291 \pm 85$	$3.99^{+0.82}_{-0.60}$	$343^{+25}_{-15}$	$4073^{+329}_{-326}$	$9477^{+5460}_{-3707}$

$T_{\text{max}}$  = 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

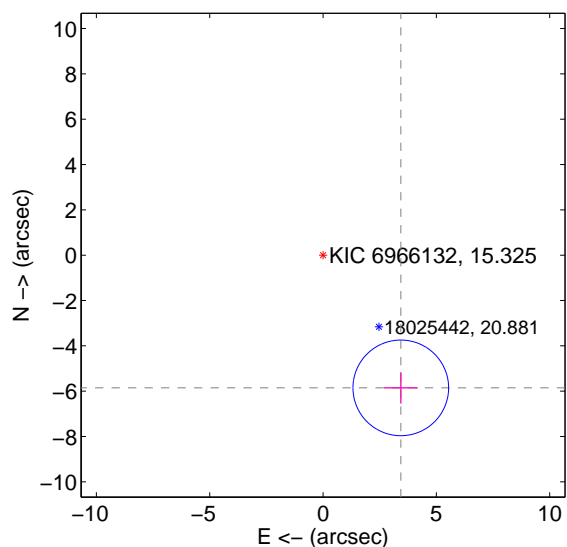
Supplemental centroid analysis for 006966132-01. Kepler magnitude: 15.32. Transit SNR 7.71

There are 0 quarters with good PRF difference image offsets

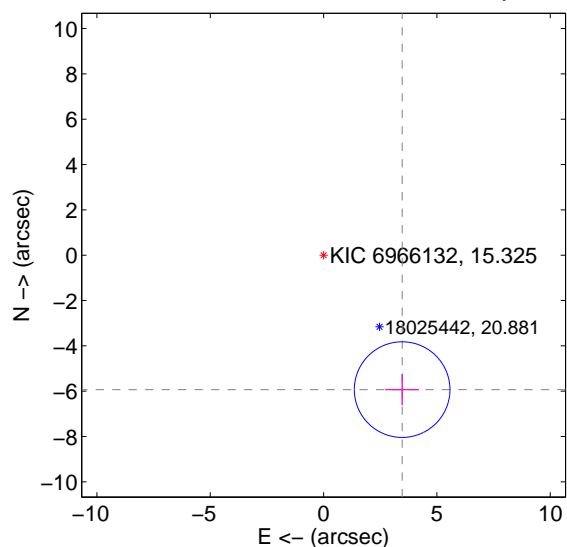
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.785 \pm 0.703$	9.65	$-3.430 \pm 0.747$	$-5.854 \pm 0.687$
PRF-fit source offset from KIC position	$6.869 \pm 0.703$	9.77	$-3.465 \pm 0.747$	$-5.931 \pm 0.687$
photometric centroid source offset	$1.10 \pm 1.12$	0.98	$-1.10 \pm 1.12$	$0.09 \pm 1.20$

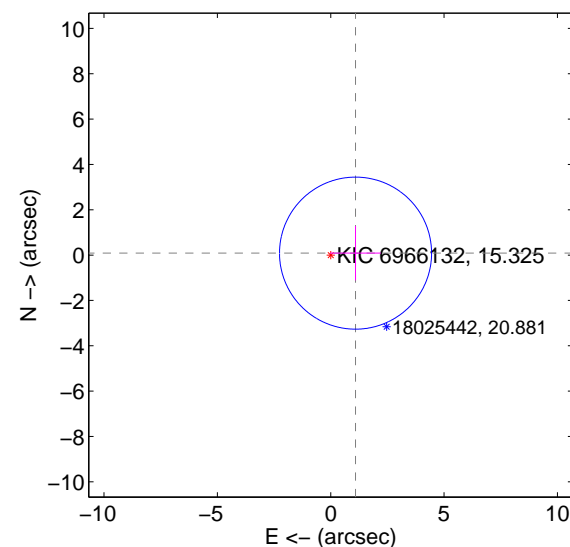
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



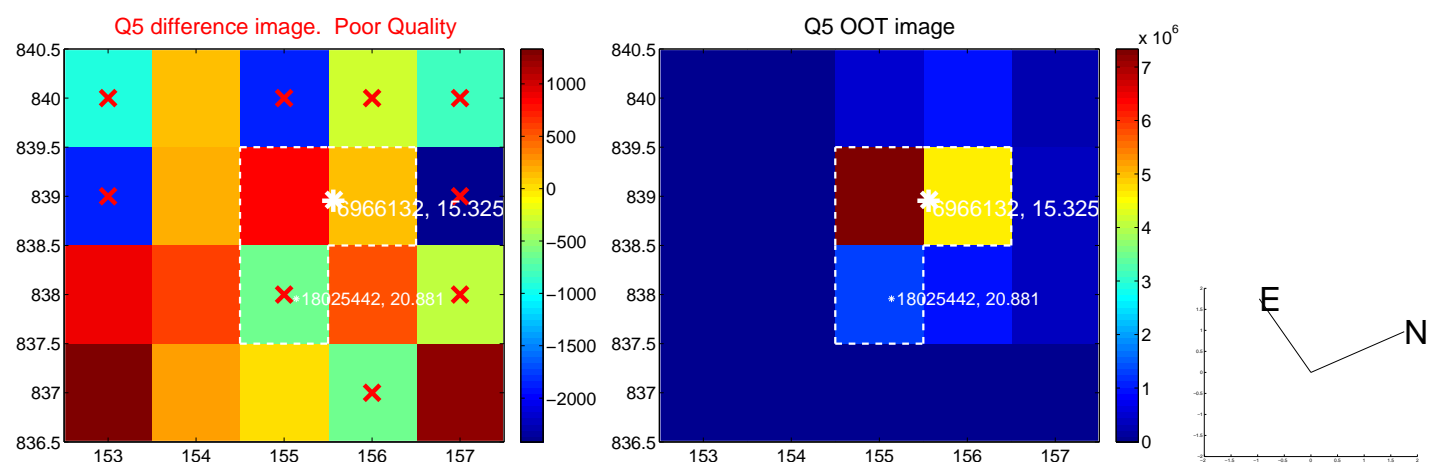
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

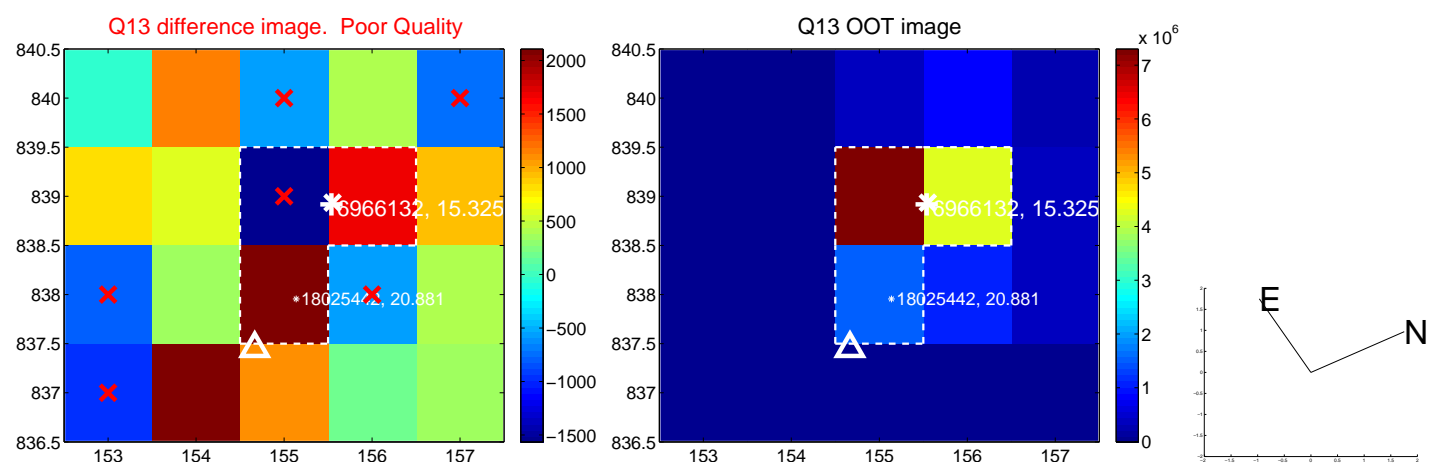


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

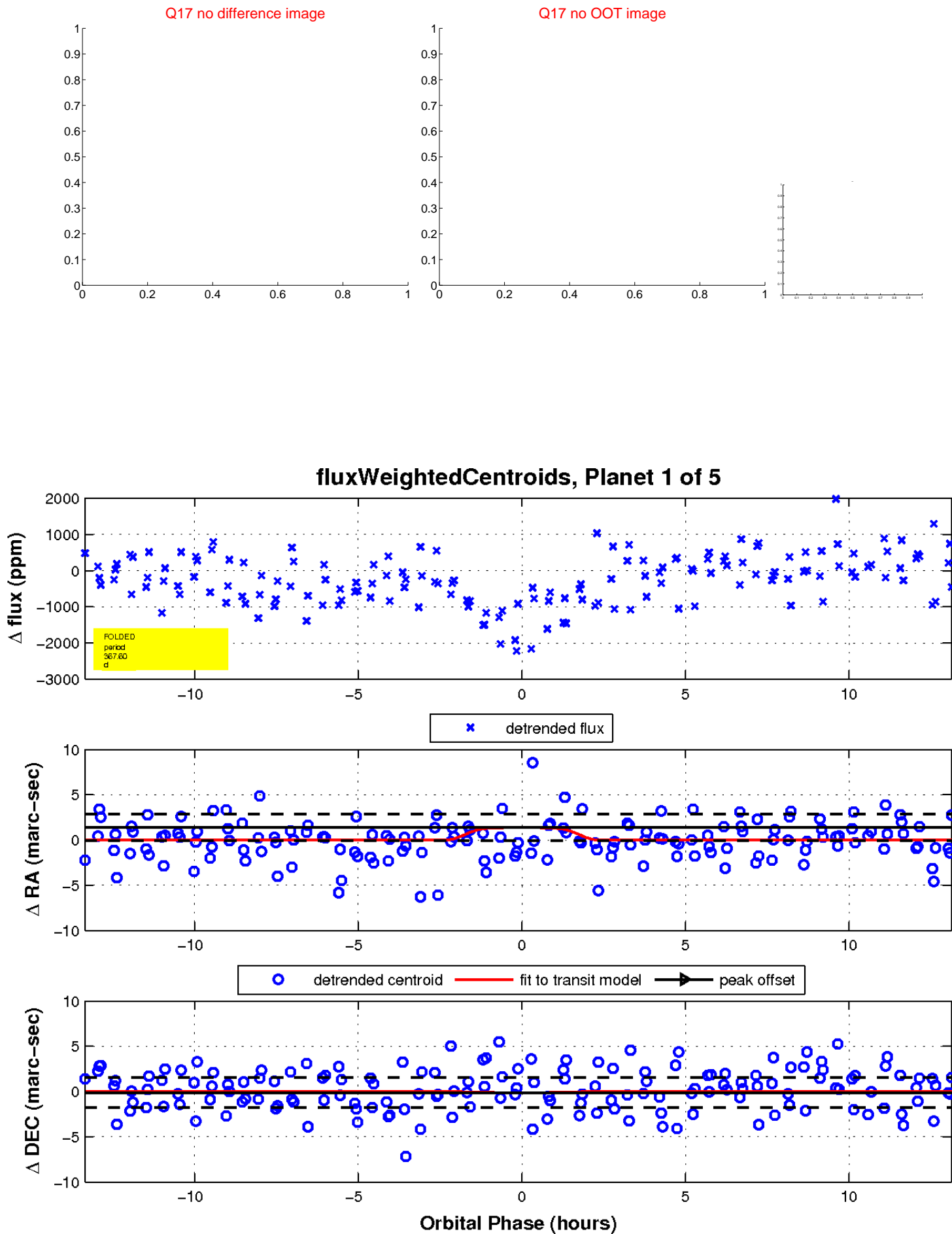




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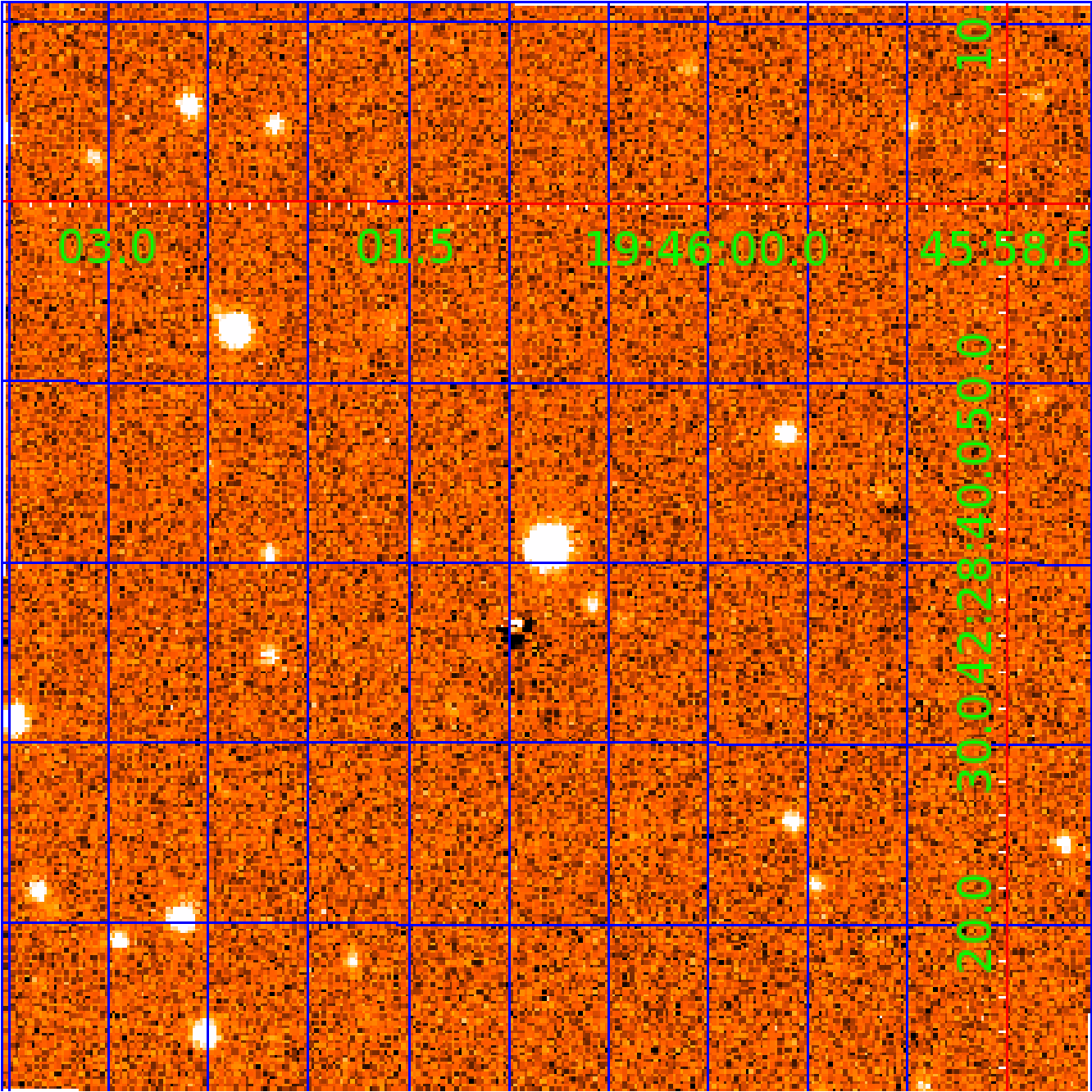
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 006966132

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006966132-01	OBS	No	367.598306	497.792777	1218.9	4.457	8.5	7.7	0.88	5767	3.77	0.77
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006966132-03	OBS	No	156.616426	254.909263	2118.2	10.500	19.3	-1.0	0.88	5767	4.02	2.42
006966132-04	OBS	No	51.248886	174.594493	1110.7	4.326	18.6	9.2	0.88	5767	3.14	10.71
006966132-05	OBS	No	165.065829	210.792943	548.2	9.665	9.1	6.2	0.88	5767	2.31	2.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006966132-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006966132-02	OBS	FP	0.00	1	0	0	0	LPP_DV
006966132-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006966132-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_FEW_DIFFS—HALO_GHOST
006966132-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS

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

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

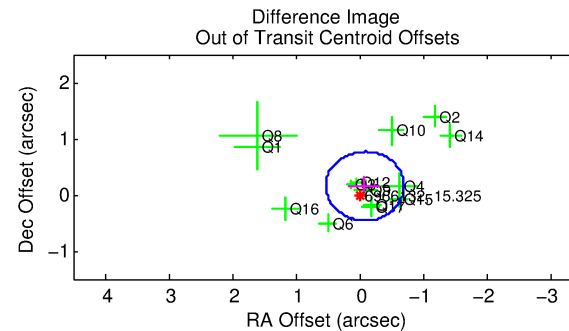
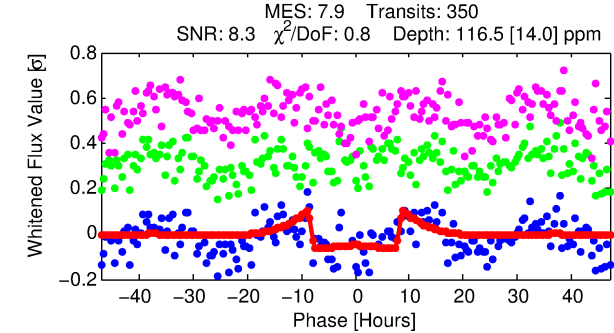
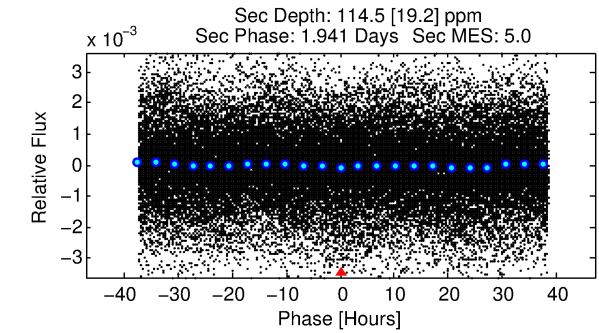
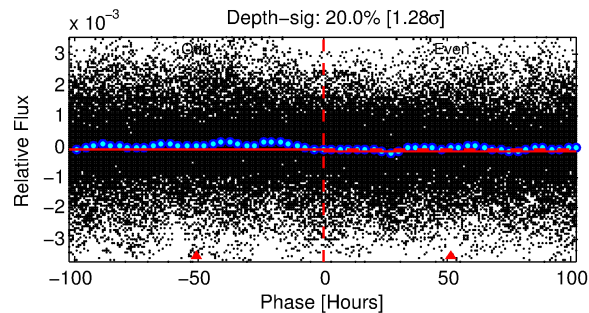
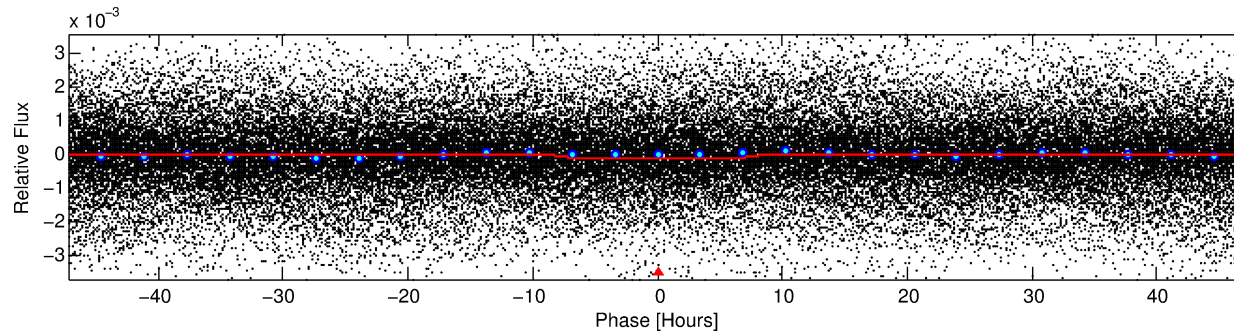
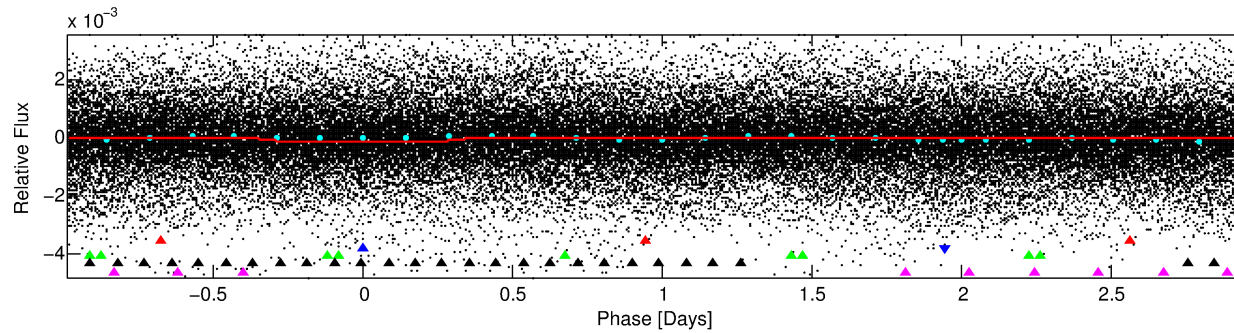
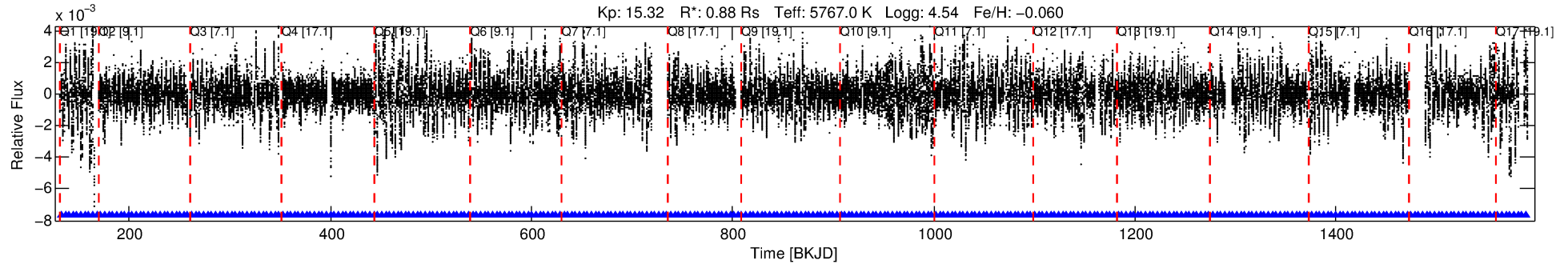
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006966132-02

No Significant Match Found

# DV One-Page Summary

KIC: 6966132 Candidate: 2 of 5 Period: 3.935 d



## DV Fit Results:

Period = 3.93527 [0.00005] d  
Epoch = 132.4875 [0.0090] BKJD  
 $R_p/R^*$  = 0.0113 [0.0014]  
 $a/R^*$  = 1.33 [0.30]  
 $b$  = 0.85 [0.17]  
 $S_{\text{eff}}$  = 328.13 [133.13]  
 $T_{\text{eq}}$  = 1085 [110] K  
 $R_p$  = 1.08 [0.37]  $R_e$   
 $a$  = 0.0484 [0.0128] AU  
 $A_g$  = 125.88 [62.16] [2.01 $\sigma$ ]  
 $T_{\text{effp}}$  = 5620 [462] K [9.55 $\sigma$ ]

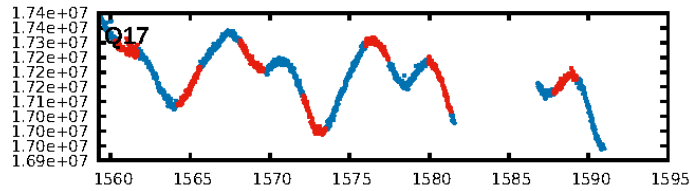
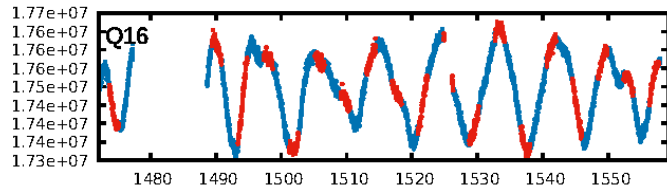
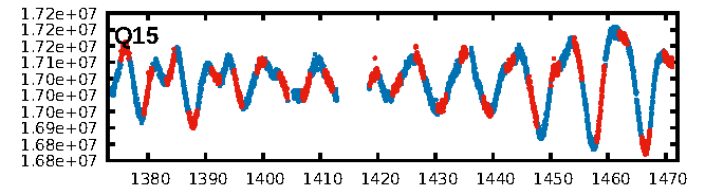
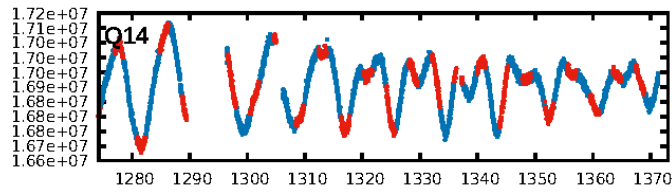
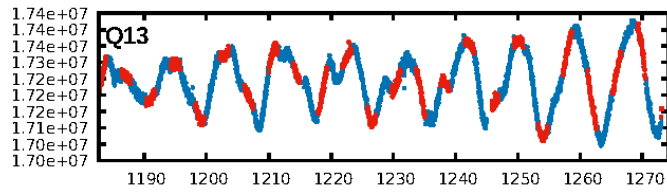
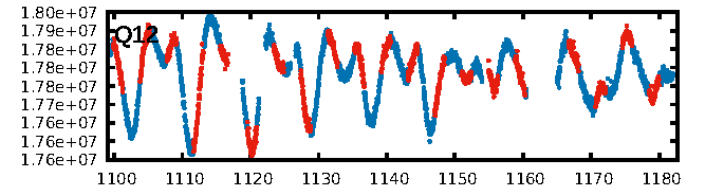
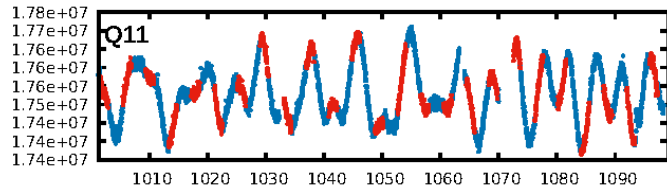
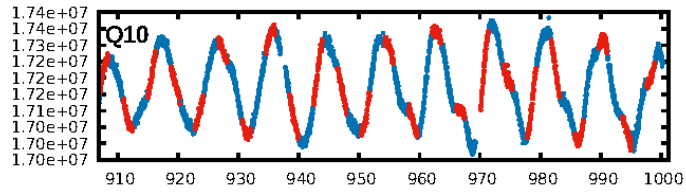
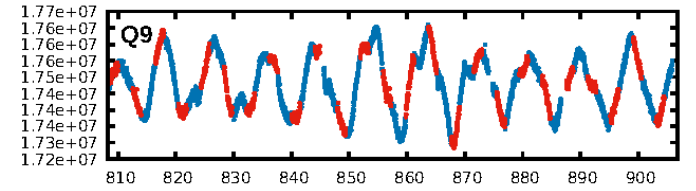
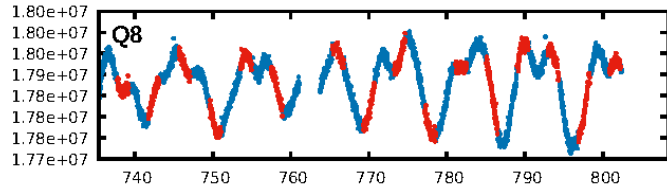
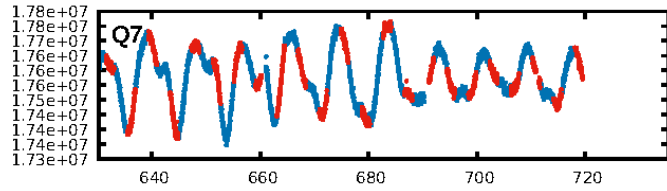
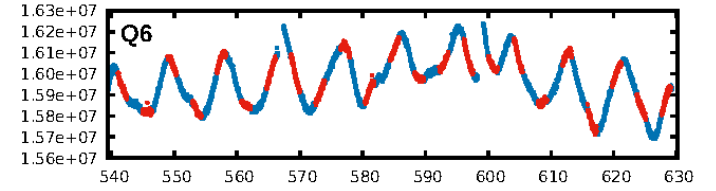
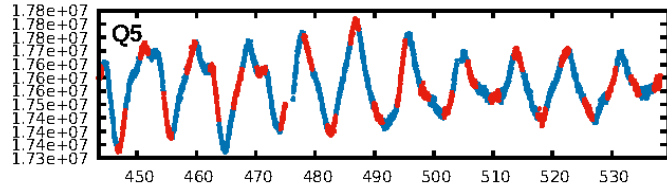
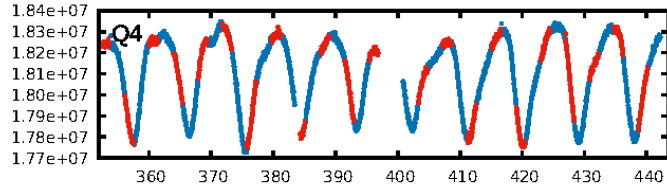
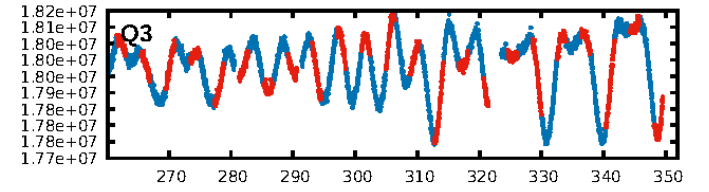
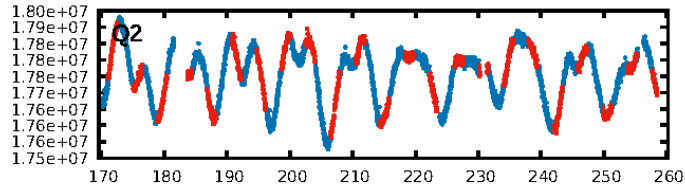
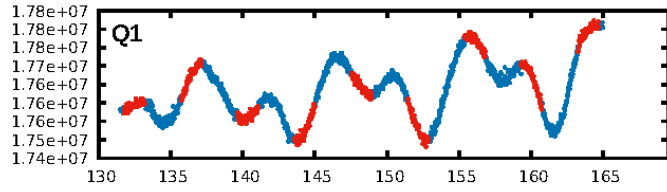
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [64.27 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 1.10e-09**  
RollingBand-fgt: 1.00 [334/334]  
GhostDiagnostic-chr: 3.622  
**Centroid-sig: 0.0%**  
Centroid-so: 1.549 arcsec [2.57 $\sigma$ ]  
OotOffset-rm: 0.176 arcsec [0.86 $\sigma$ ]  
KicOffset-rm: 0.174 arcsec [0.91 $\sigma$ ]  
OotOffset-st: 4/3/4/3 [14]  
KicOffset-st: 4/3/4/3 [14]  
DiffImageQuality-fgm: 0.71 [10/14]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:18:55 Z

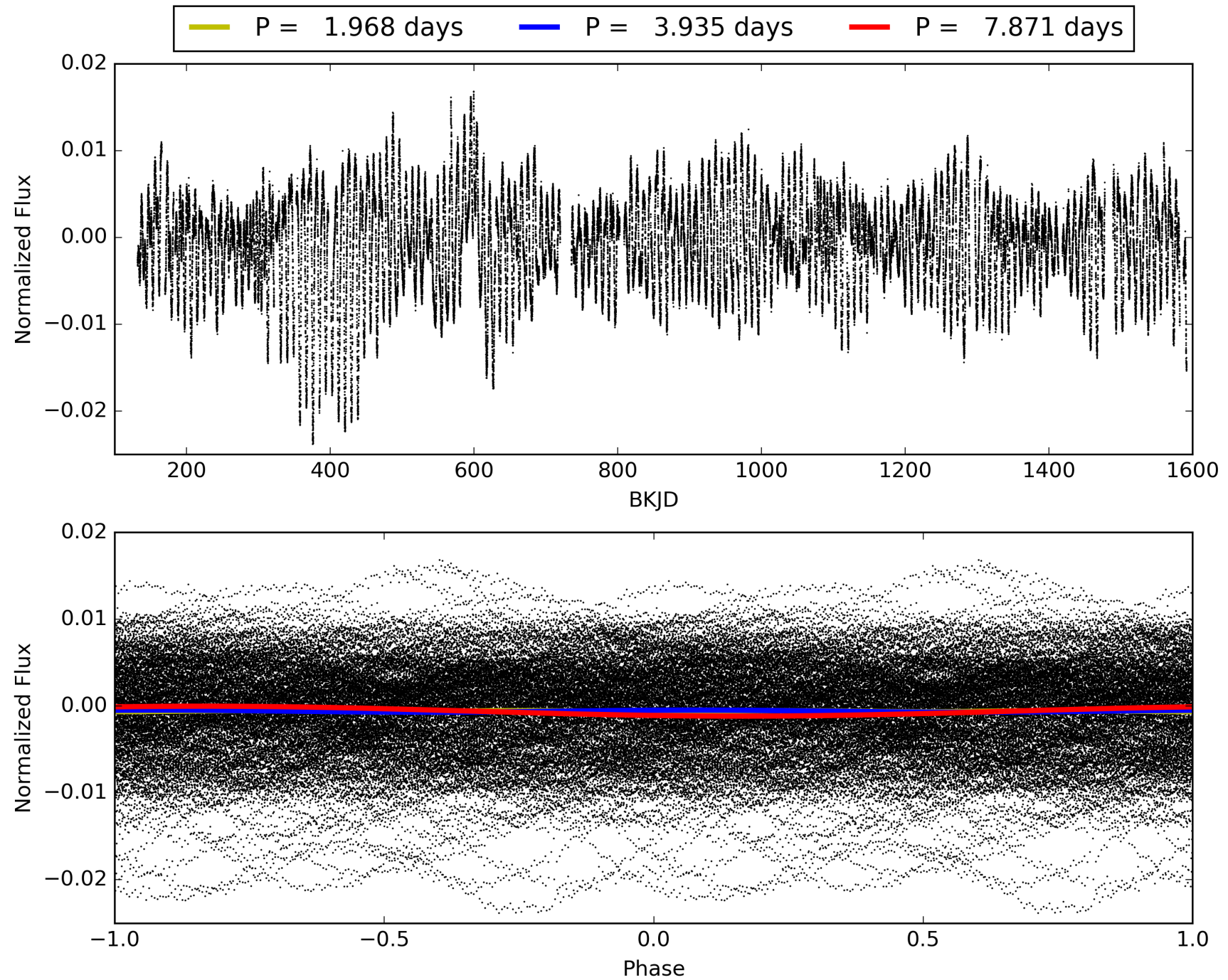
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006966132-02, PDC Light Curves





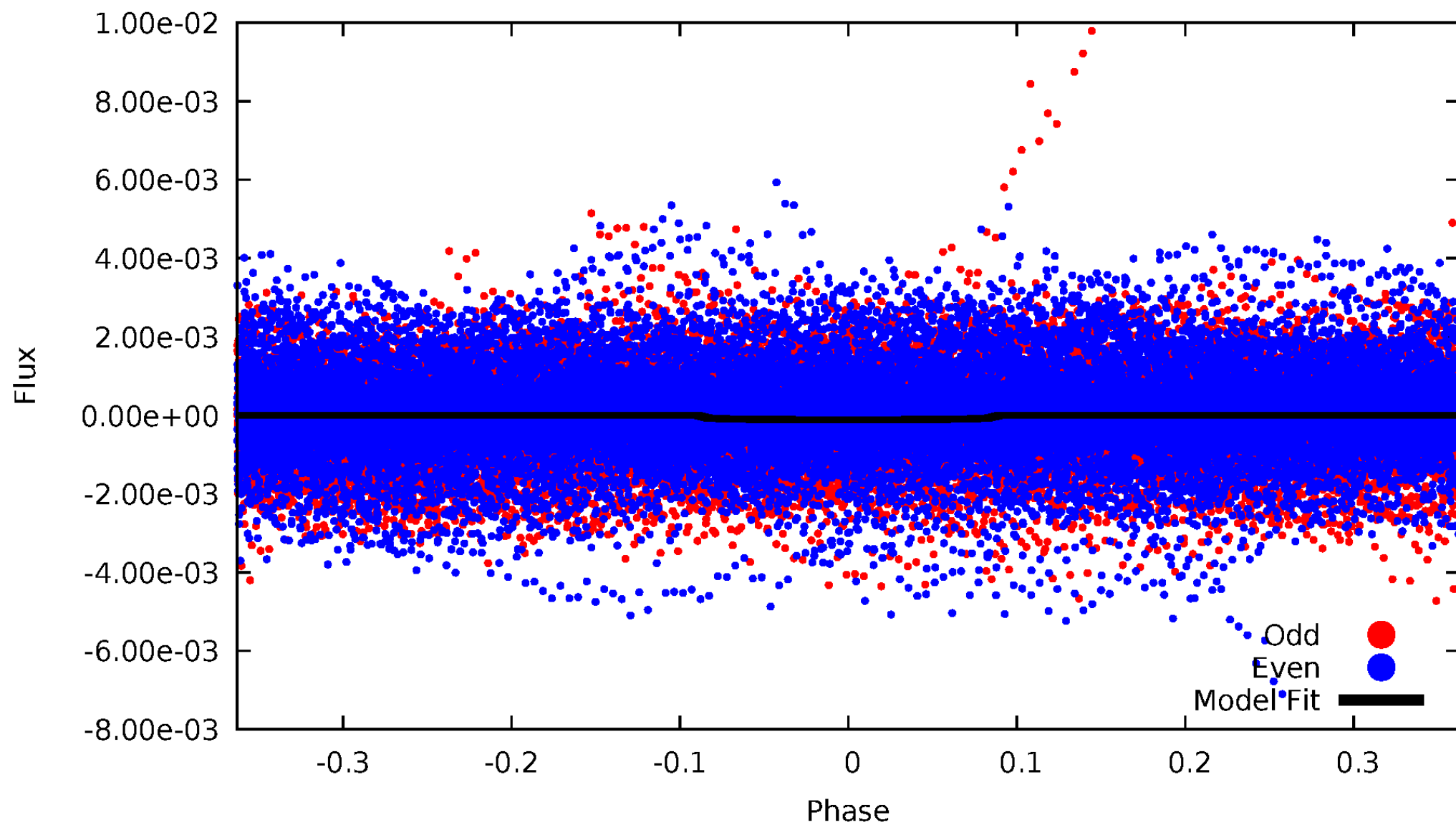
TCE 006966132-02





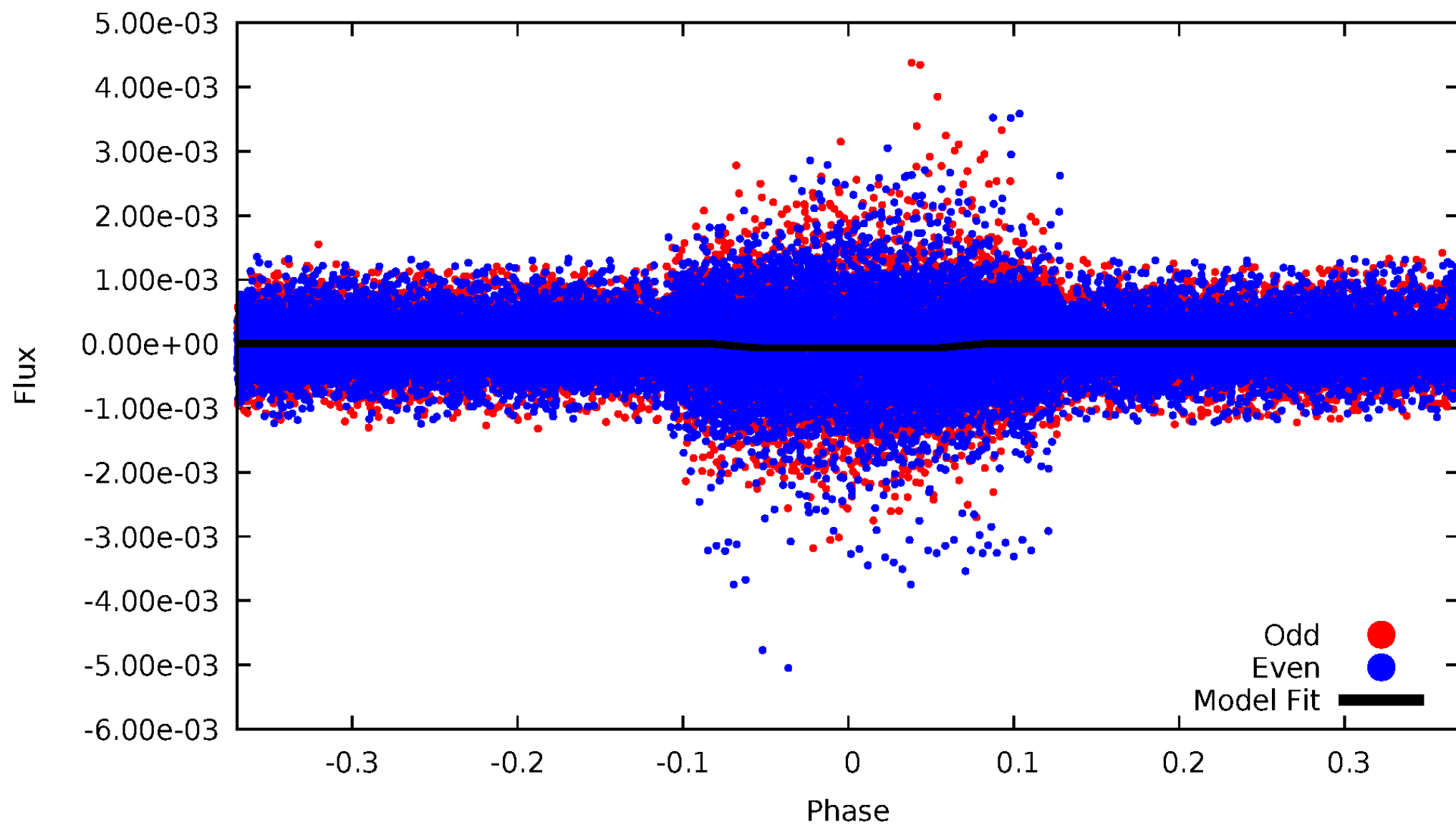
# DV Odd/Even

TCE 006966132-02



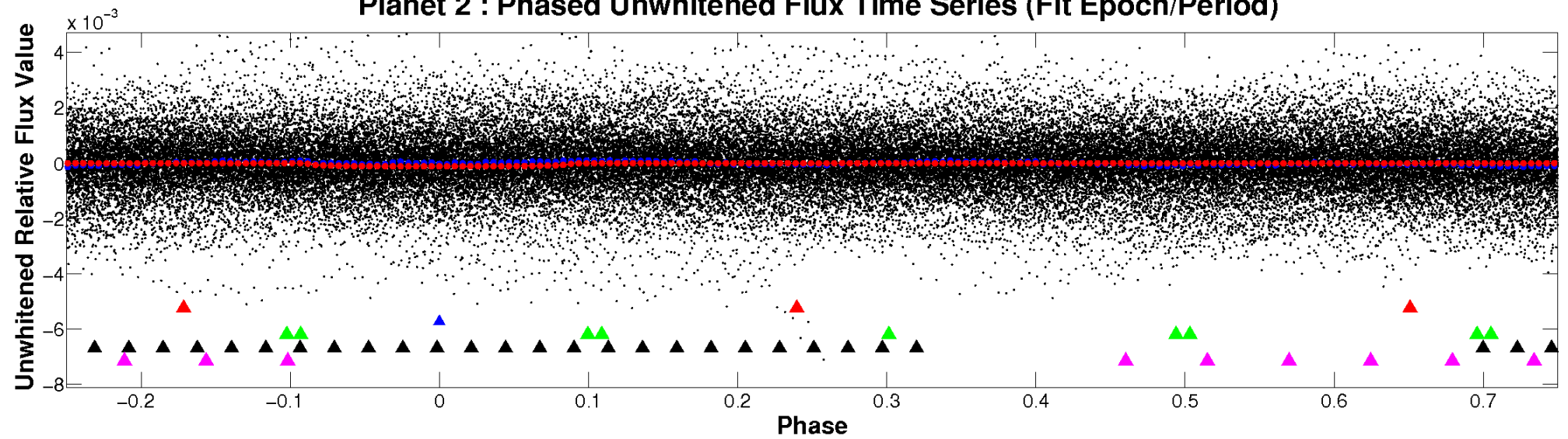
# ALT Odd/Even

TCE 006966132-02

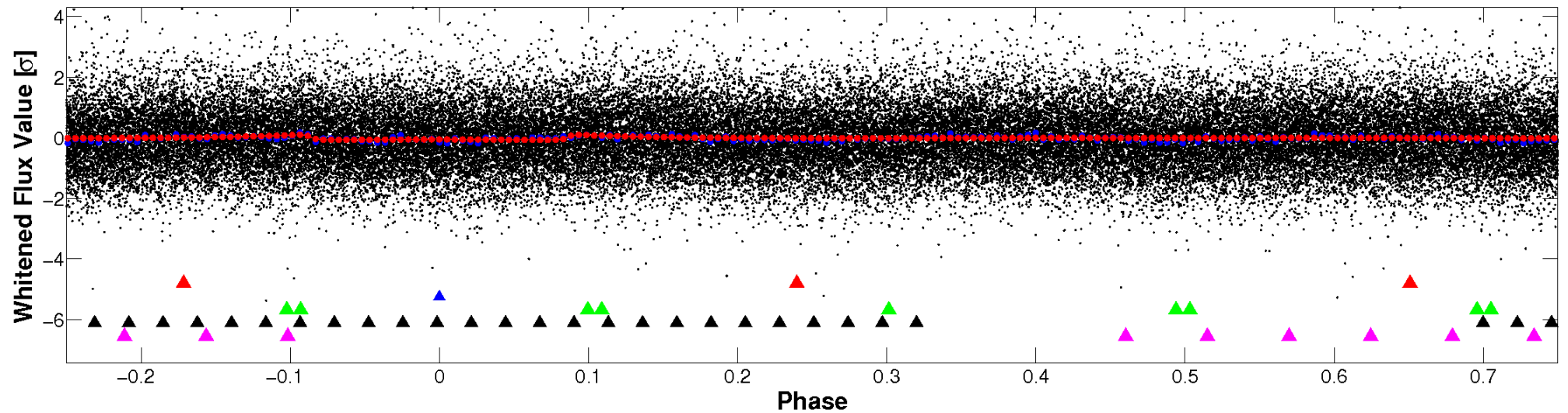


# Non-Whitened Vs. Whitened Light Curve

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

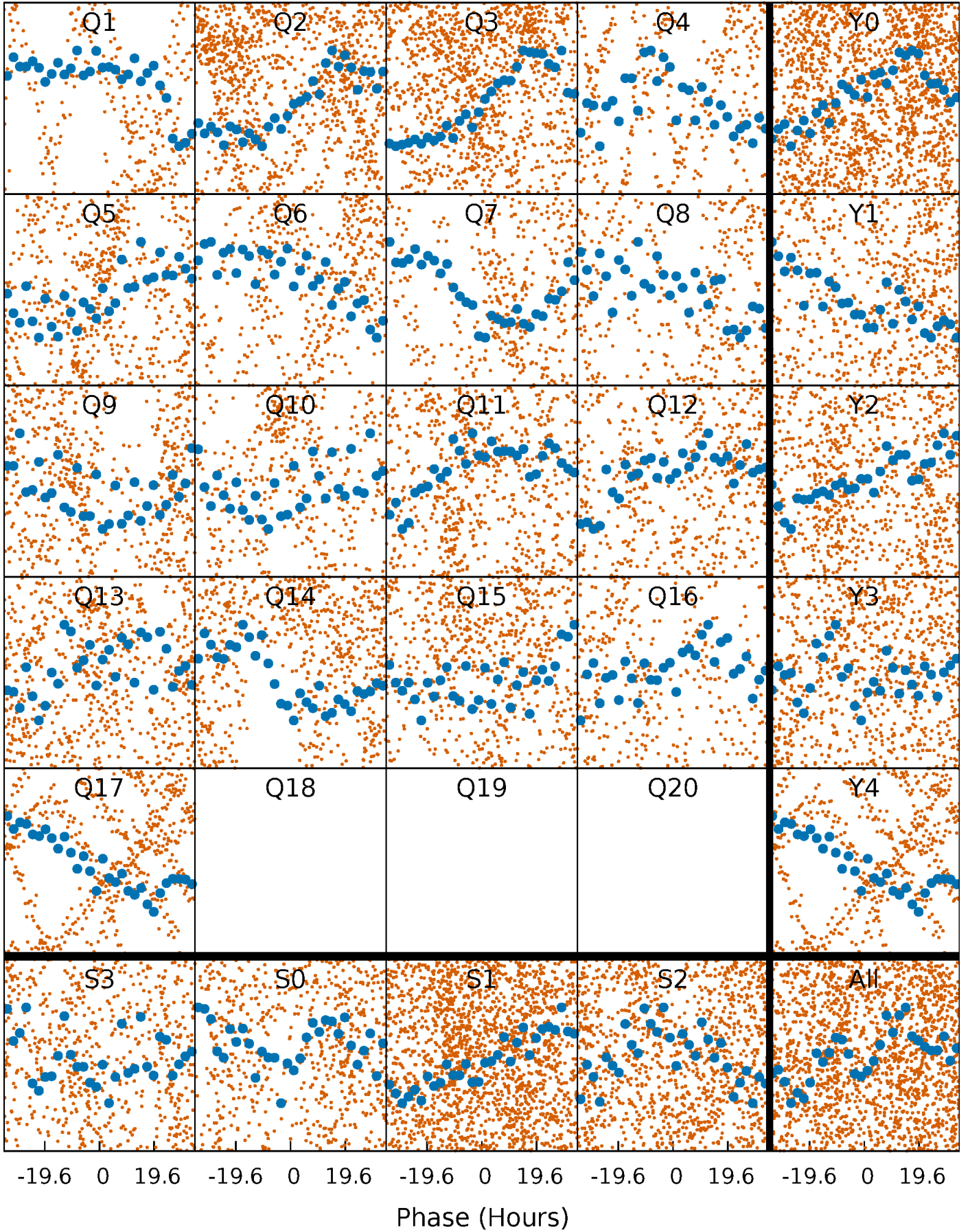


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

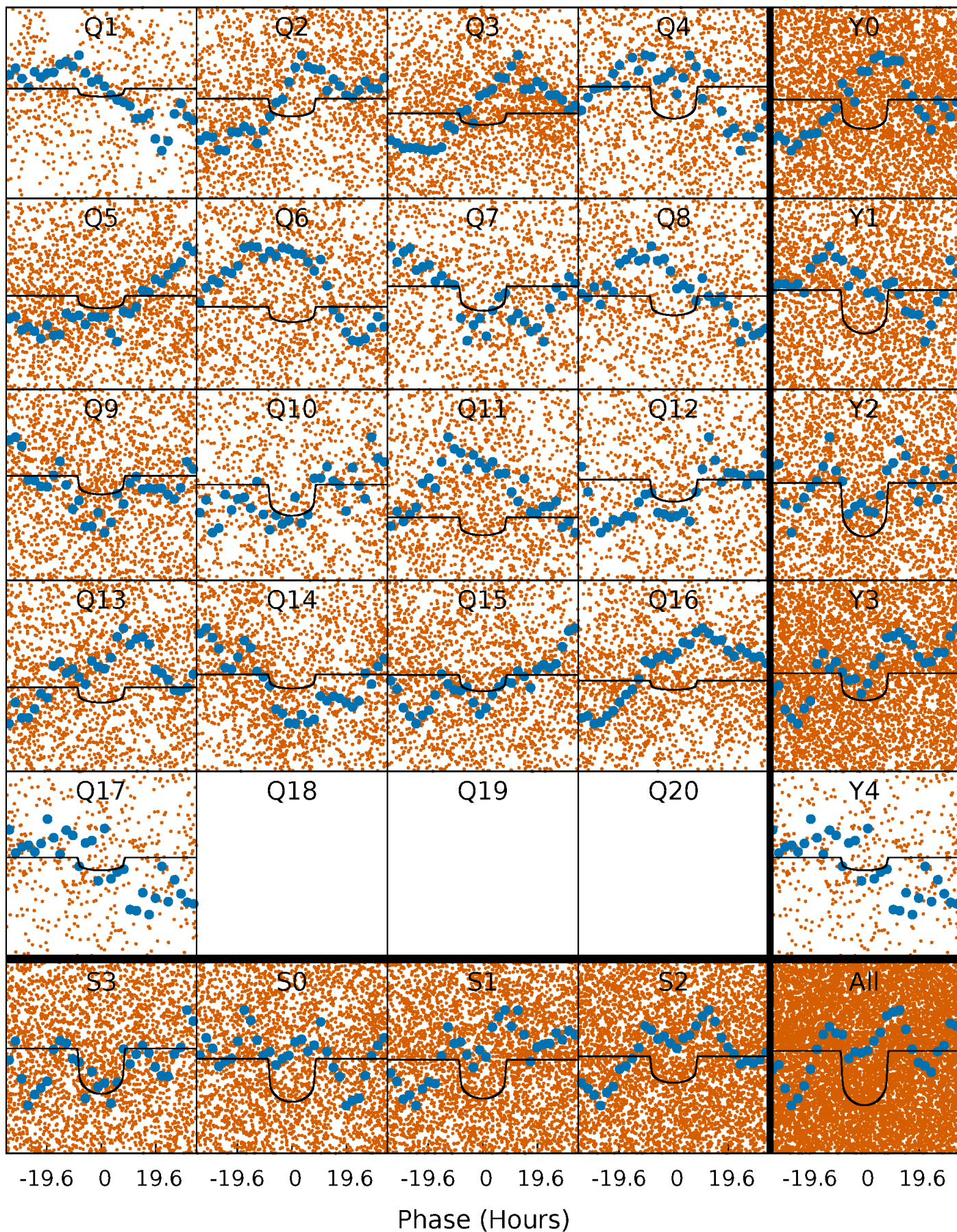
TCE 006966132-02   P= 3.935270 Days    $T_0=132.487457$  (BKJD)





# DV Quarter-Phased Transit Curves

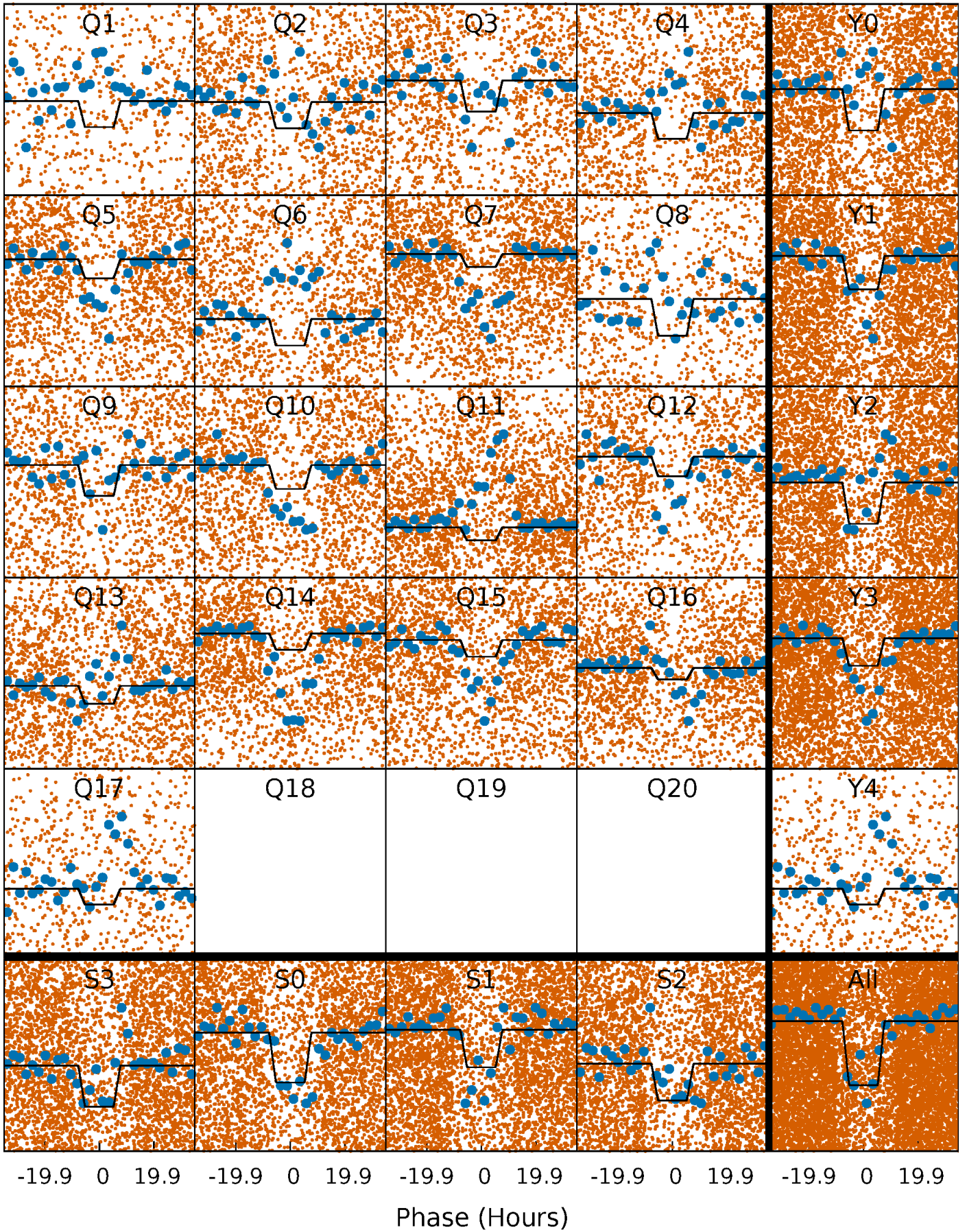
TCE 006966132-02   P= 3.935270 Days    $T_0=132.487457$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

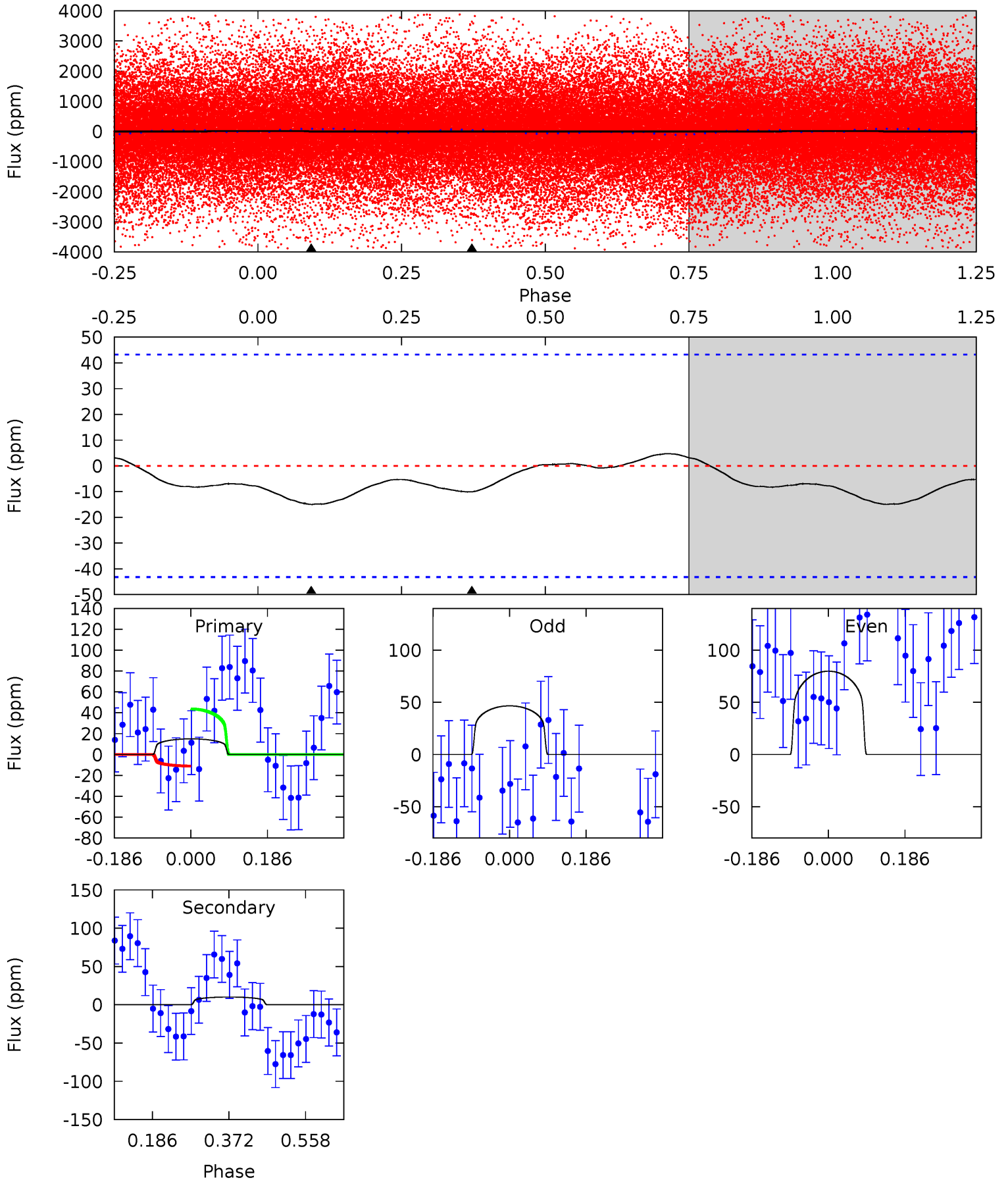
TCE 006966132-02 P= 3.935086 Days  $T_0=132.495891$  (BKJD)



# DV Model-Shift Uniqueness Test

006966132-02, P = 3.935270 Days, E = 128.552187 Days

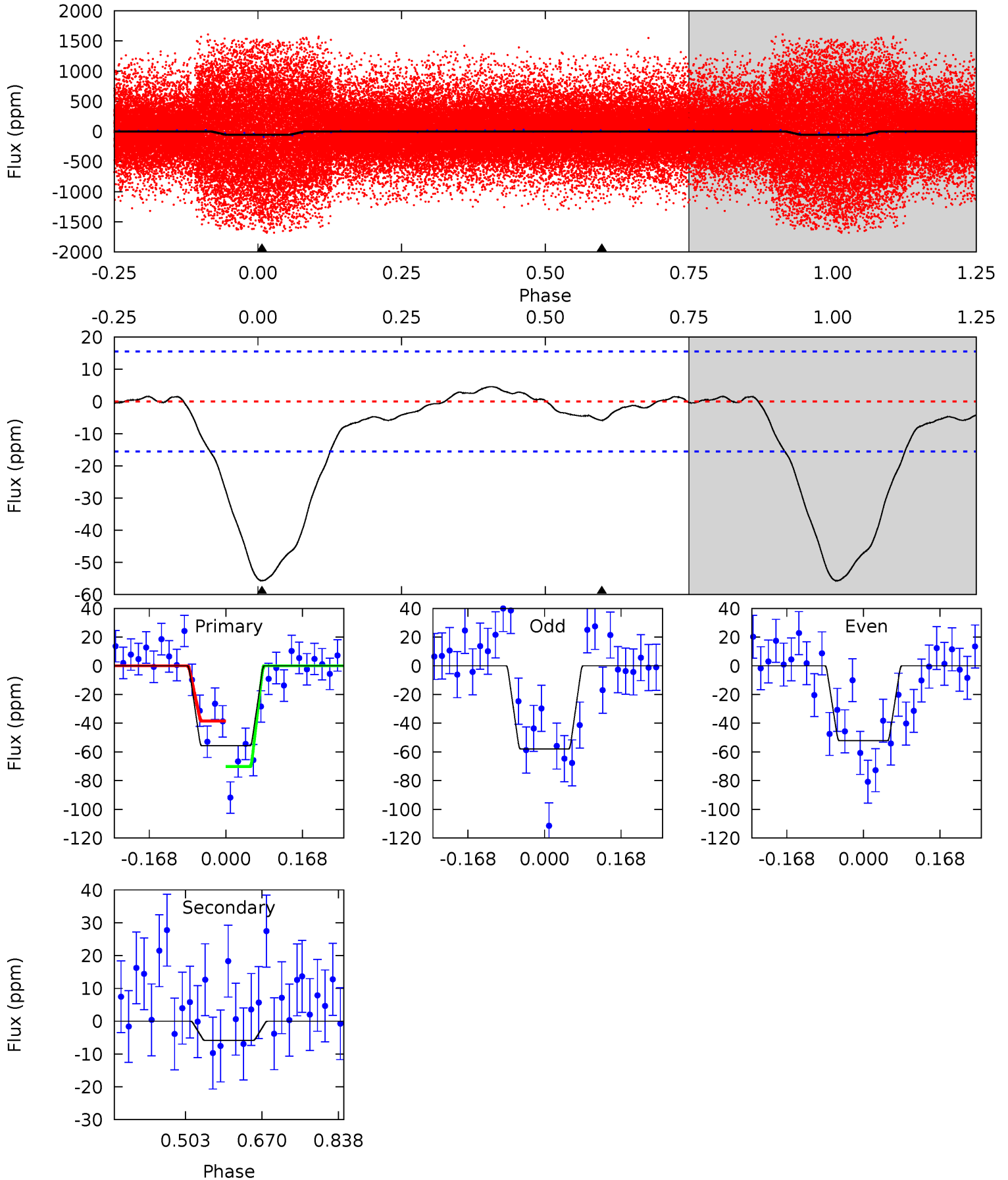
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.54	1.03	0	0	4.43	1.32	0.44	1.54	1.54	1.03	1.03	1.72	0.03	0.24	1.71



# Alt Model-Shift Uniqueness Test

006966132-02, P = 3.935086 Days, E = 128.560805 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
16.0	1.68	0	0	4.46	1.38	0.95	16.0	16.0	1.68	1.68	0.81	2.29	0.08	4.51





### Stellar Parameters For KIC 006966132

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5767^{+173}_{-173}$	$4.538^{+0.037}_{-0.213}$	$-0.060^{+0.250}_{-0.300}$	$0.881^{+0.275}_{-0.069}$	$0.979^{+0.114}_{-0.114}$	$2.017^{+0.405}_{-1.044}$
	+3%/-3%	+1%/-5%	+417%/-500%	+31%/-8%	+12%/-12%	+20%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 006966132-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-10 \pm 10$	$1.14^{+0.21}_{-0.16}$	$1564^{+112}_{-81}$	$3531^{+482}_{-1683}$	$9.360^{+12.120}_{-9.012}$
Alt.	$-6 \pm 3$	$0.81^{+0.18}_{-0.15}$	$1550^{+117}_{-70}$	$3586^{+431}_{-487}$	$11^{+11}_{-6}$

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

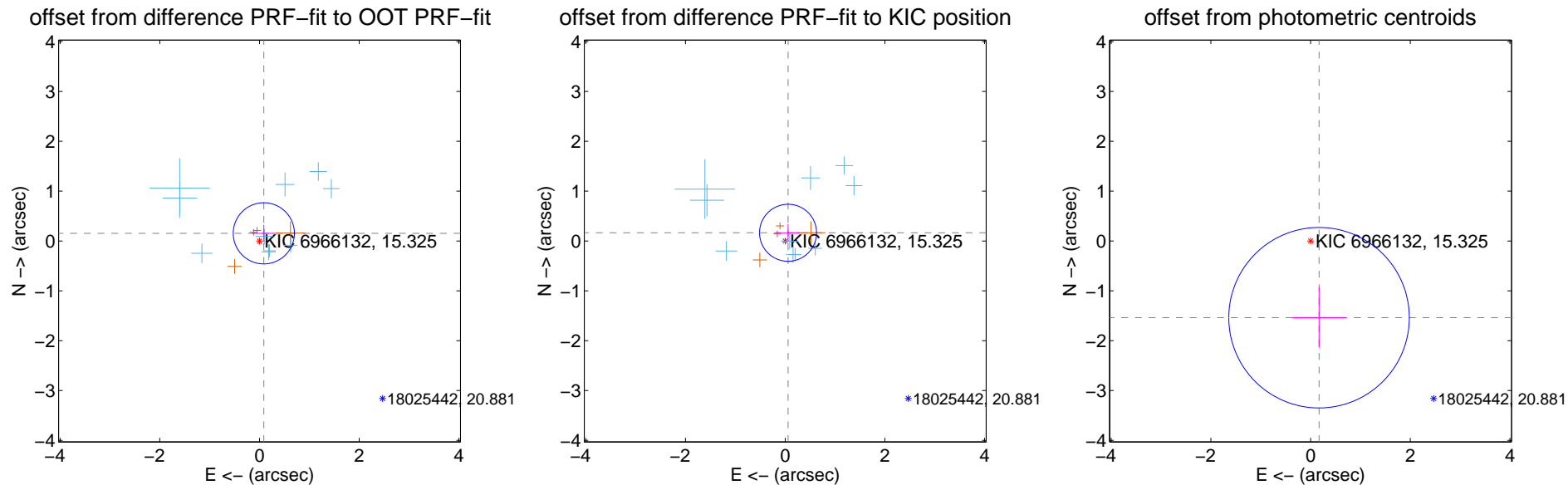
## DV Centroid Data

Supplemental centroid analysis for 006966132-02. Kepler magnitude: 15.32. Transit SNR 8.29

There are 10 quarters with good PRF difference image offsets

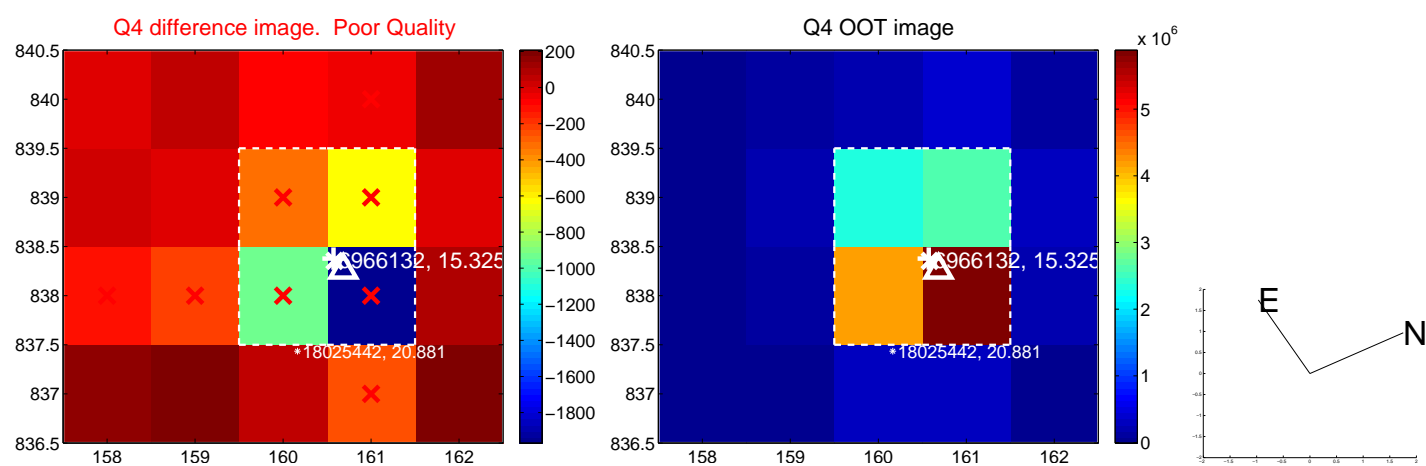
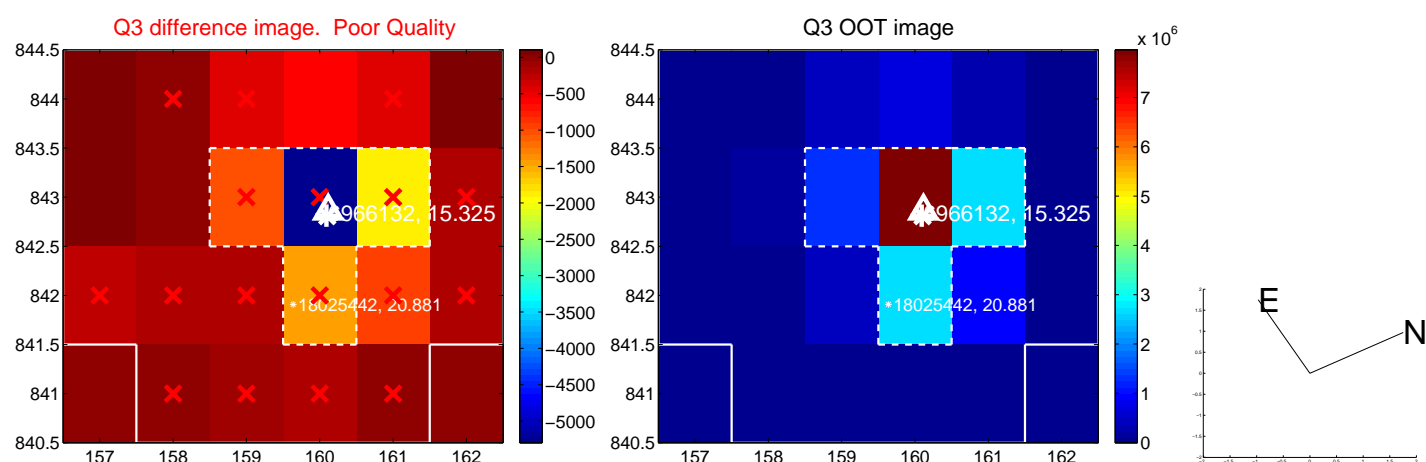
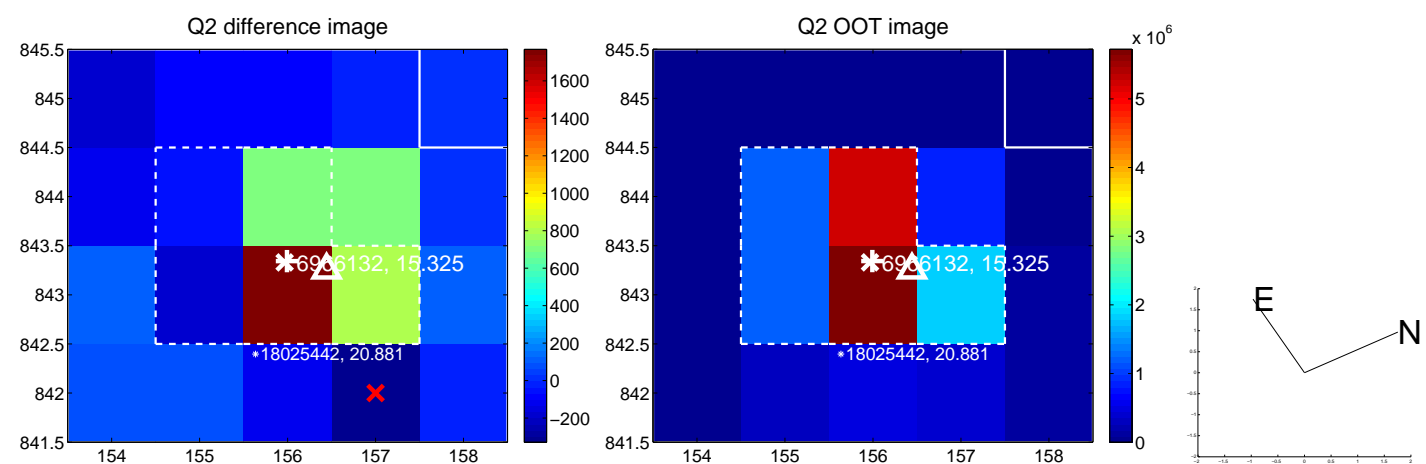
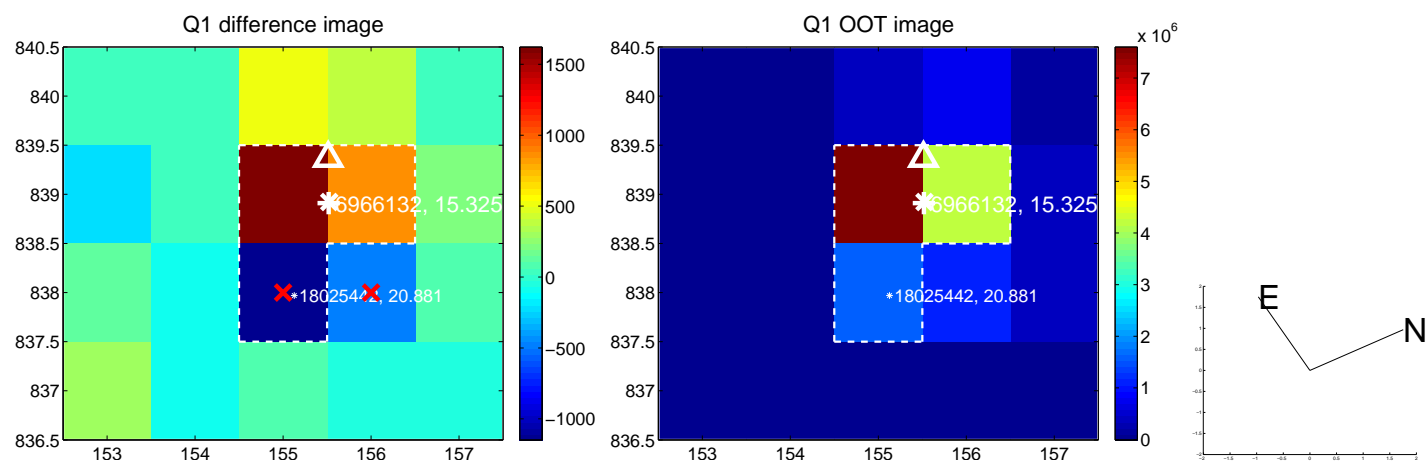
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.176 \pm 0.205$	0.86	$-0.087 \pm 0.235$	$0.154 \pm 0.169$
PRF-fit source offset from KIC position	$0.174 \pm 0.191$	0.91	$-0.058 \pm 0.247$	$0.165 \pm 0.175$
photometric centroid source offset	$1.55 \pm 0.60$	2.57	$-0.17 \pm 0.54$	$-1.54 \pm 0.60$

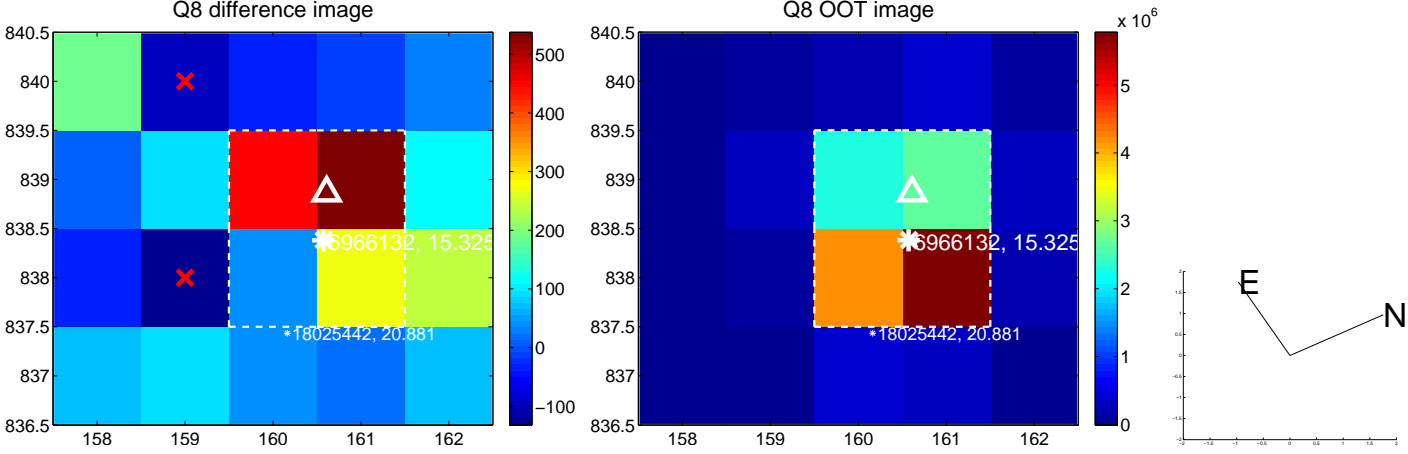
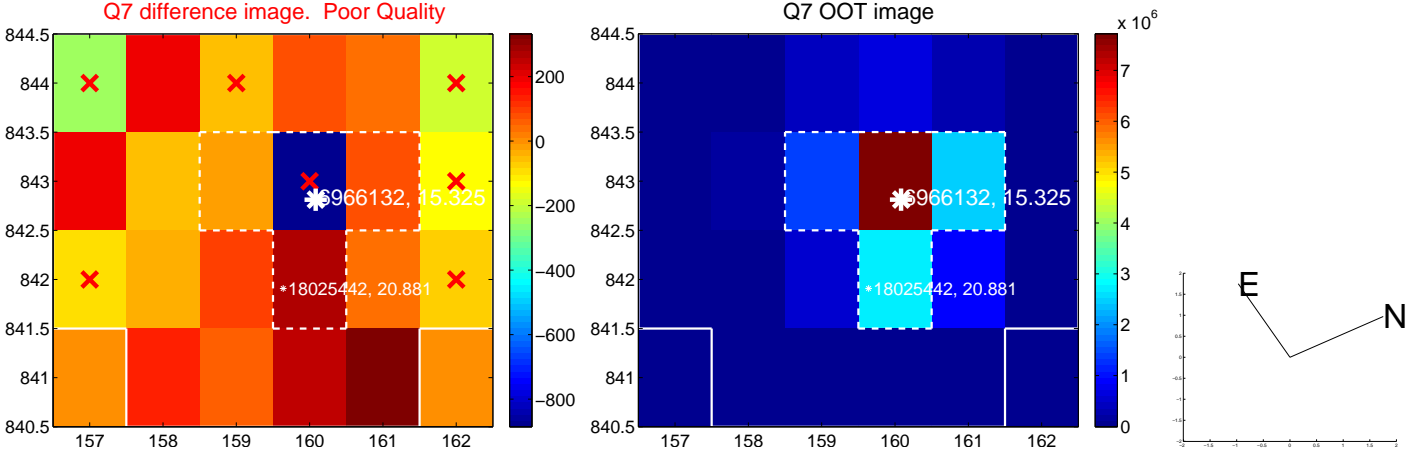
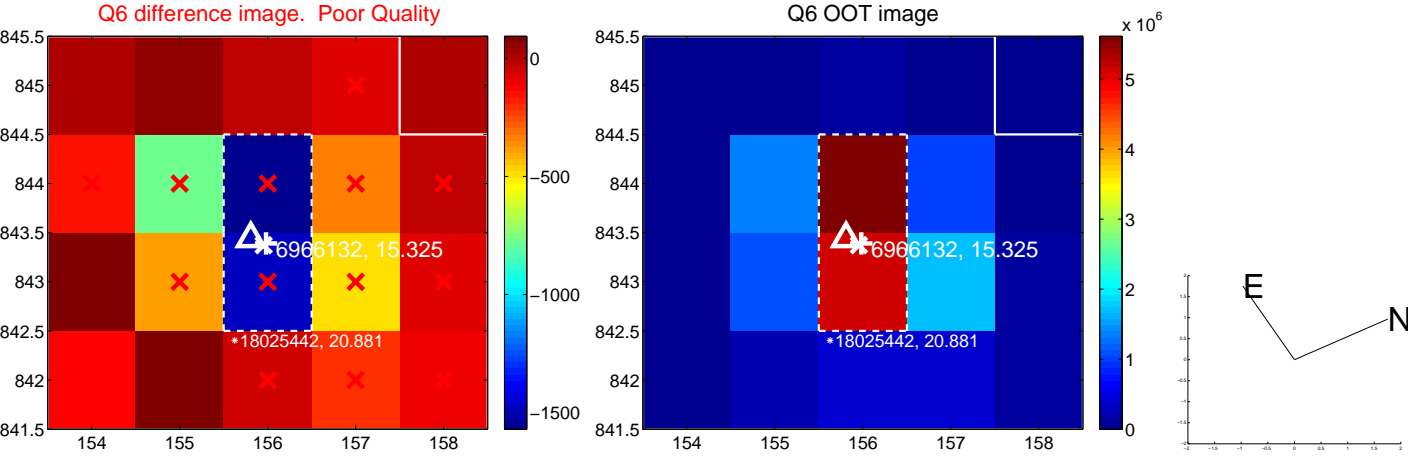
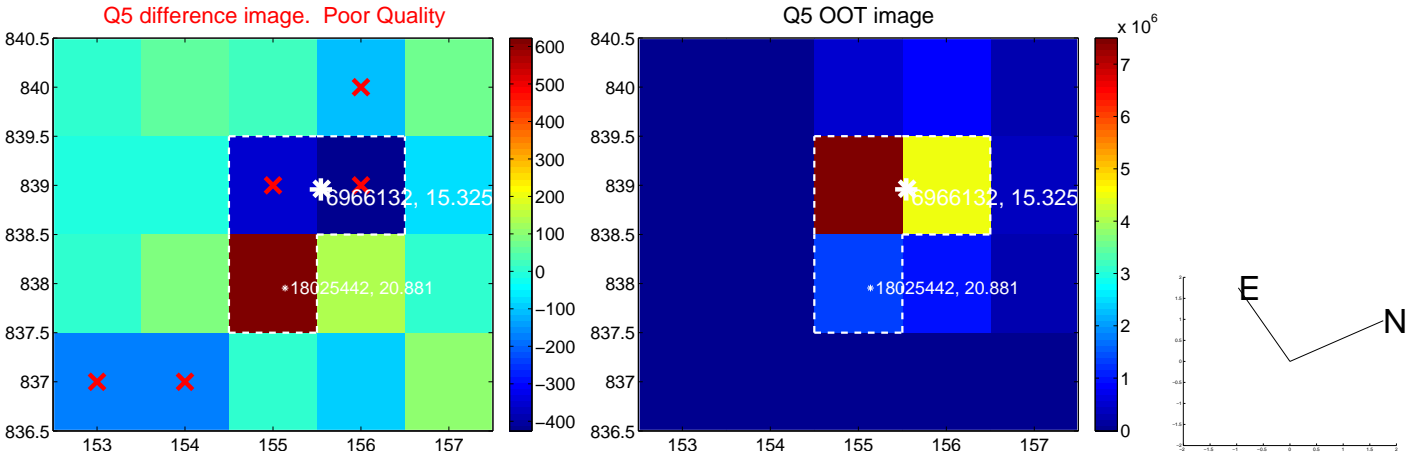


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

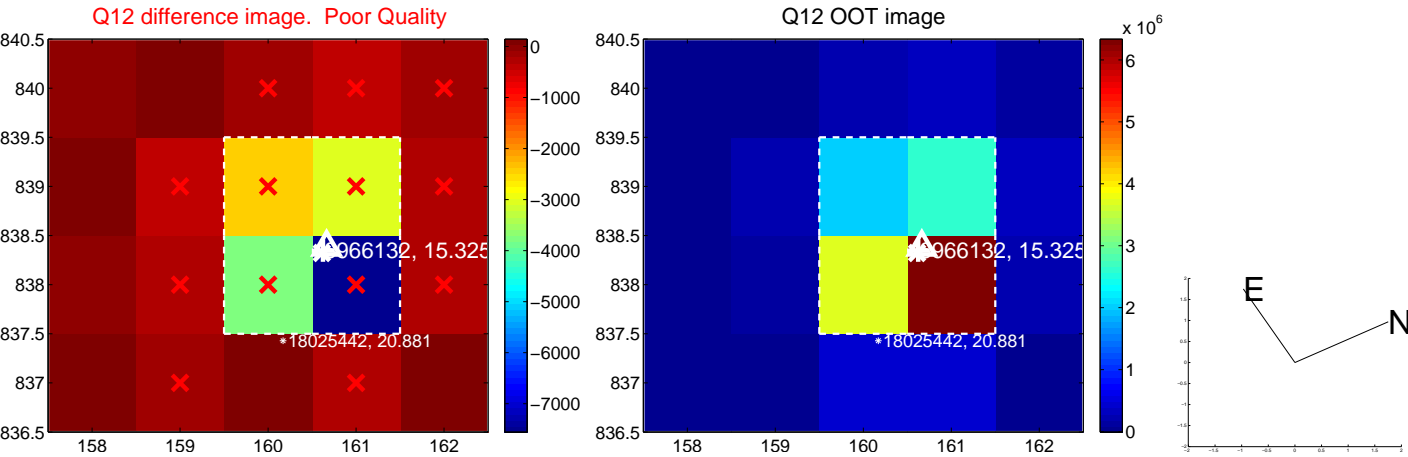
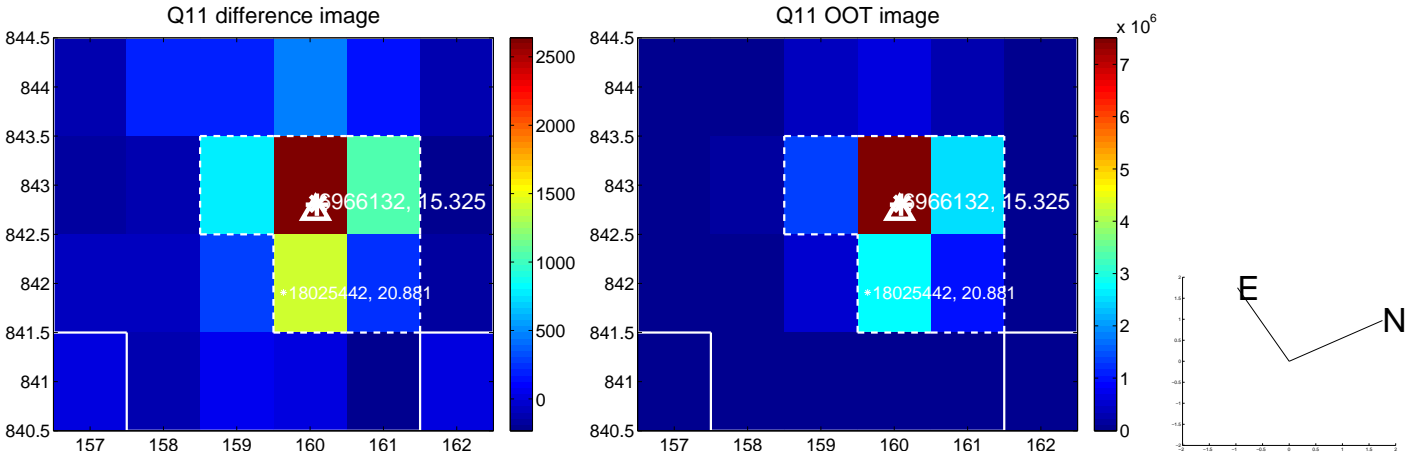
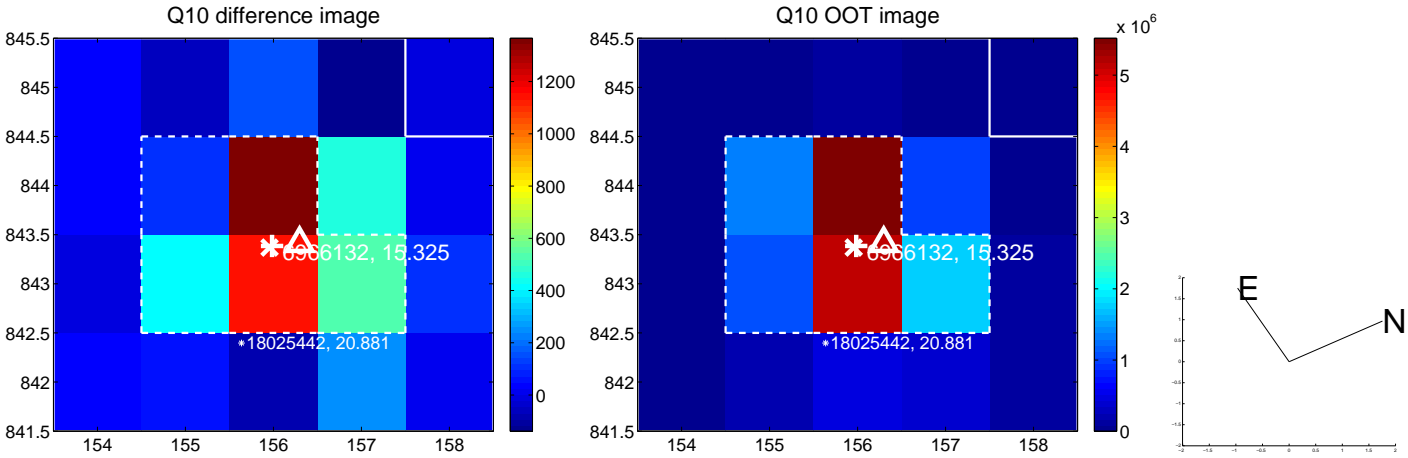
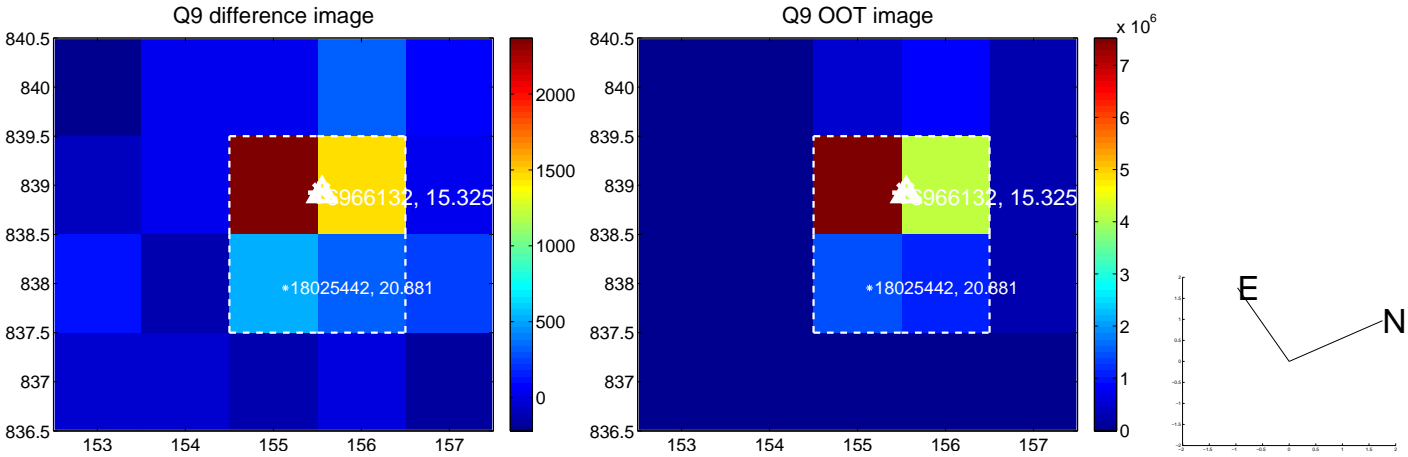
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



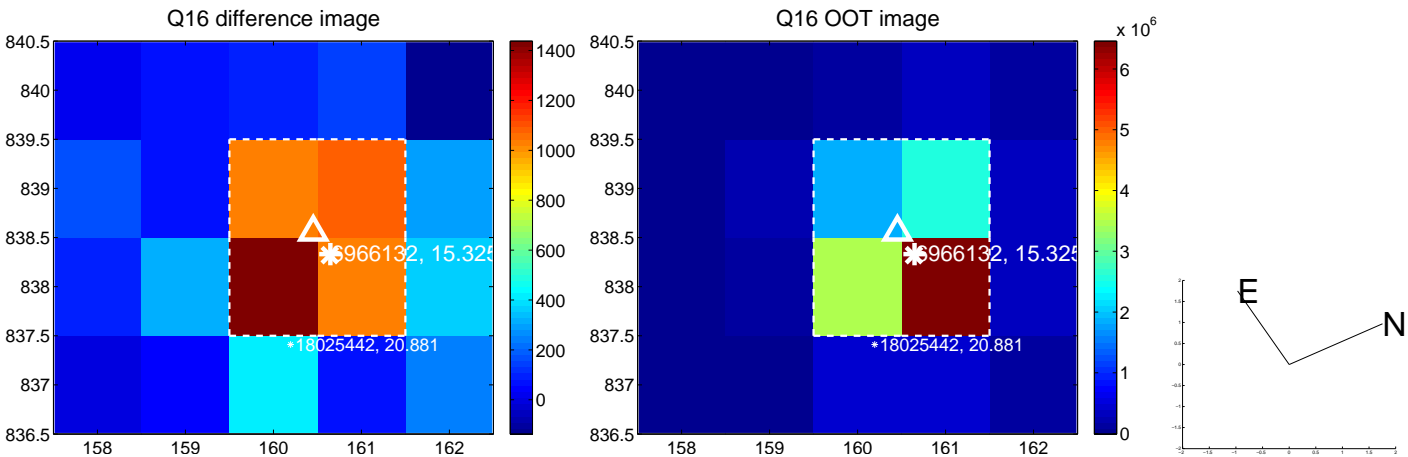
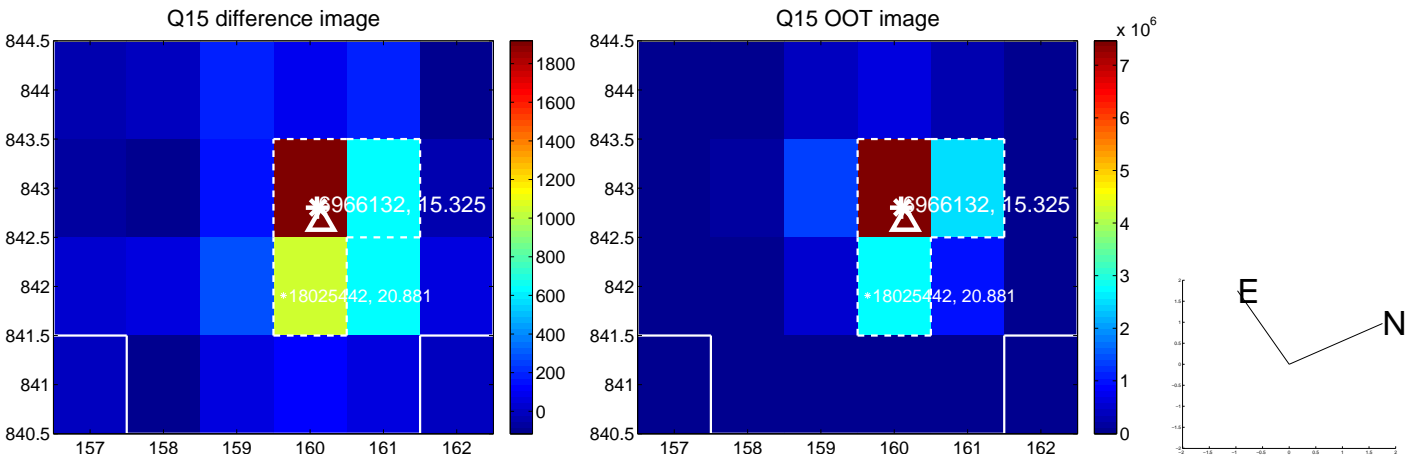
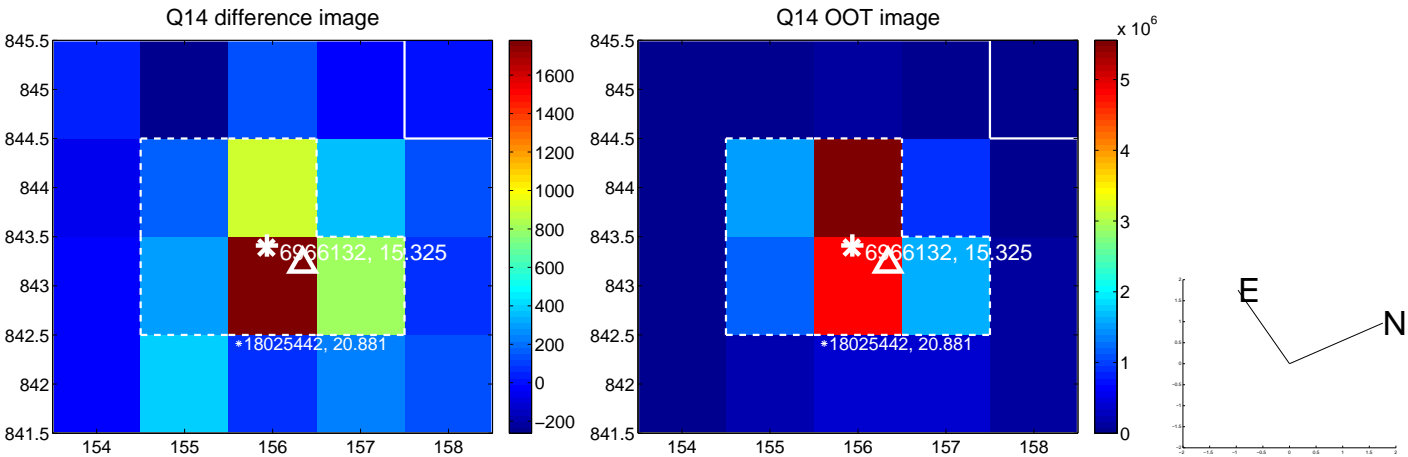
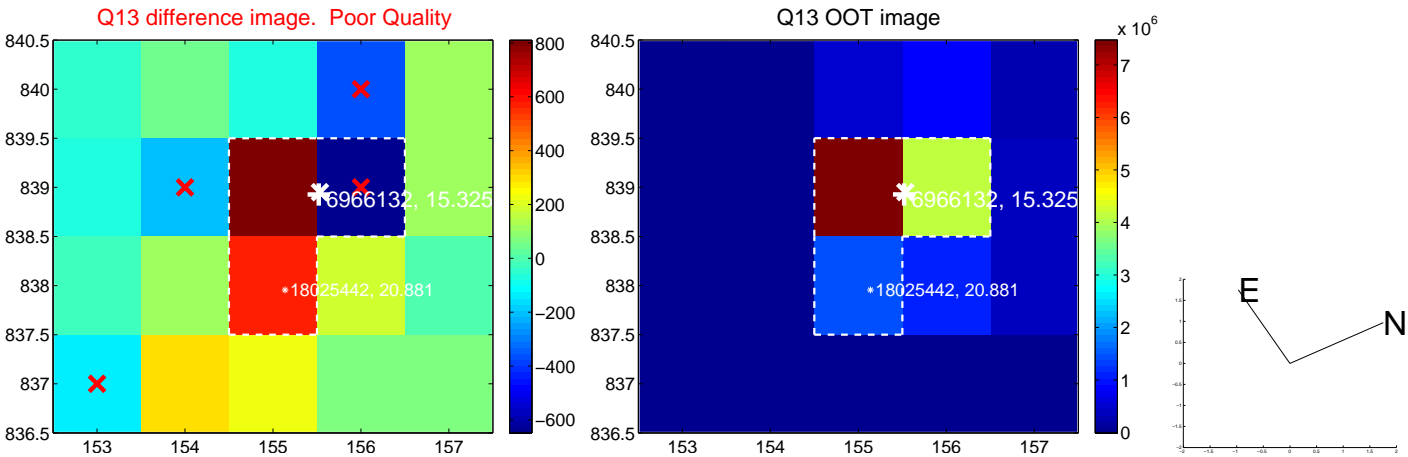
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



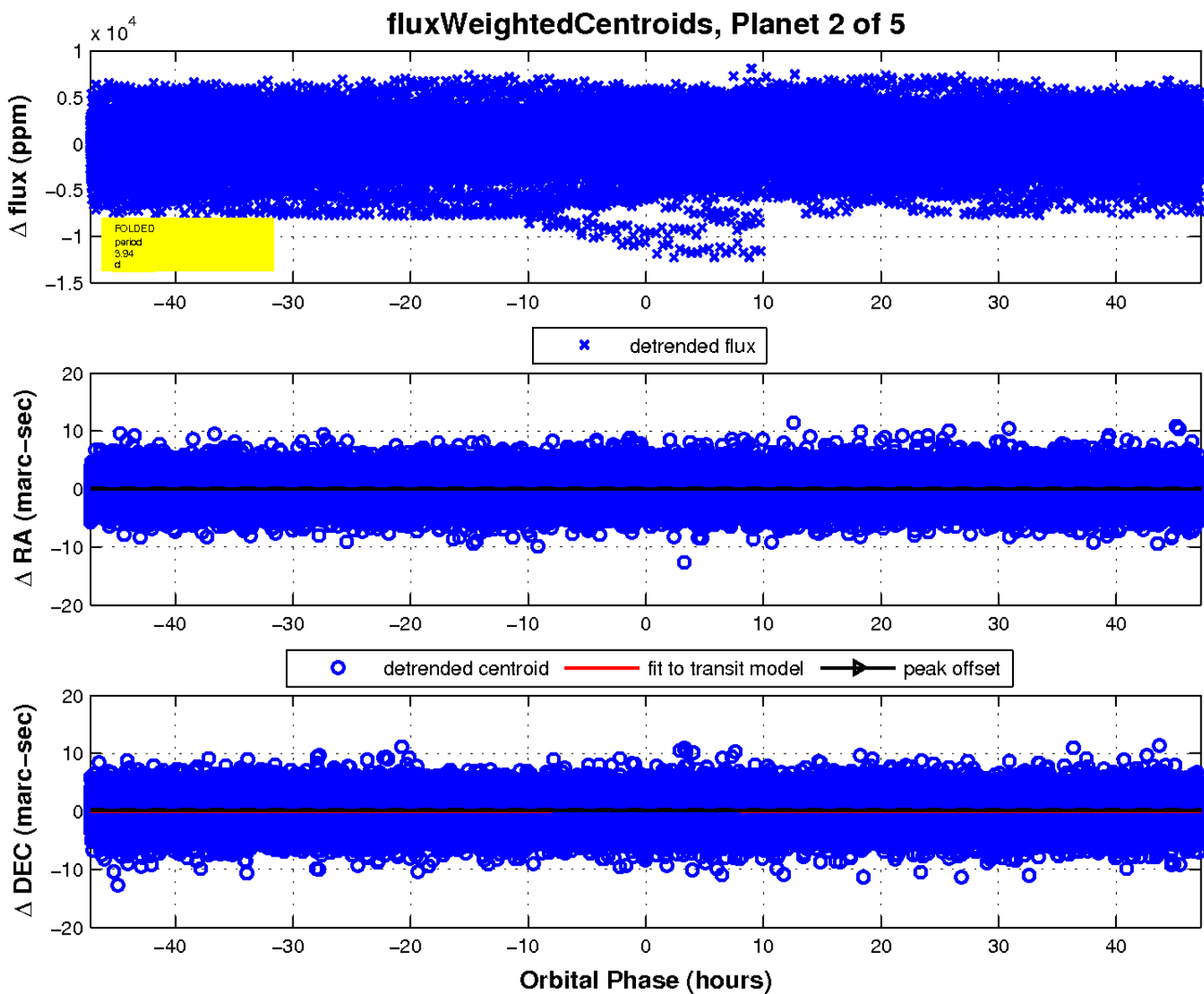
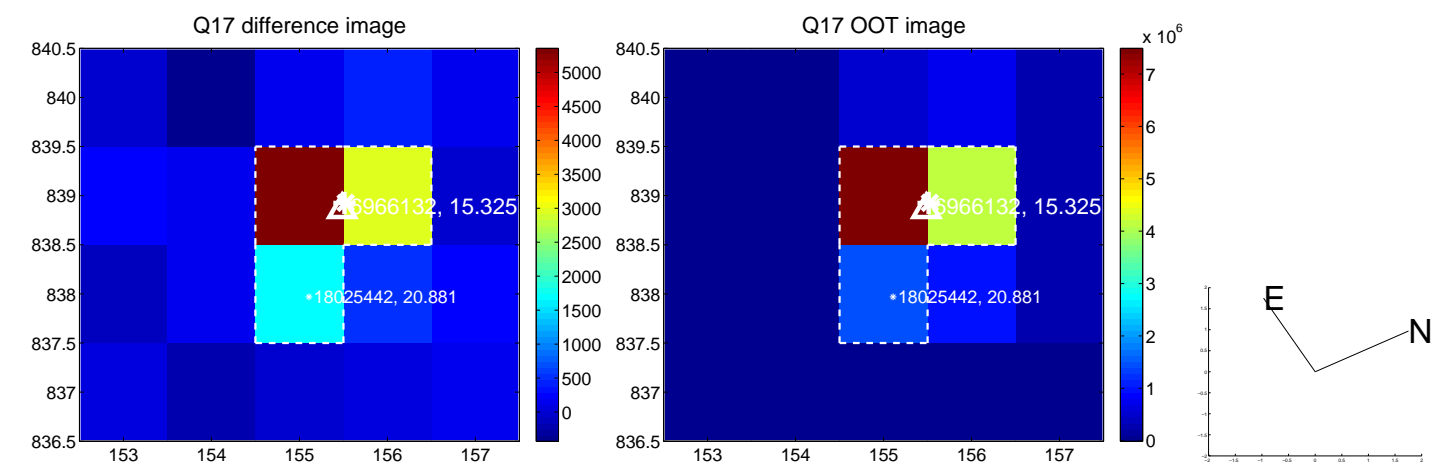
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

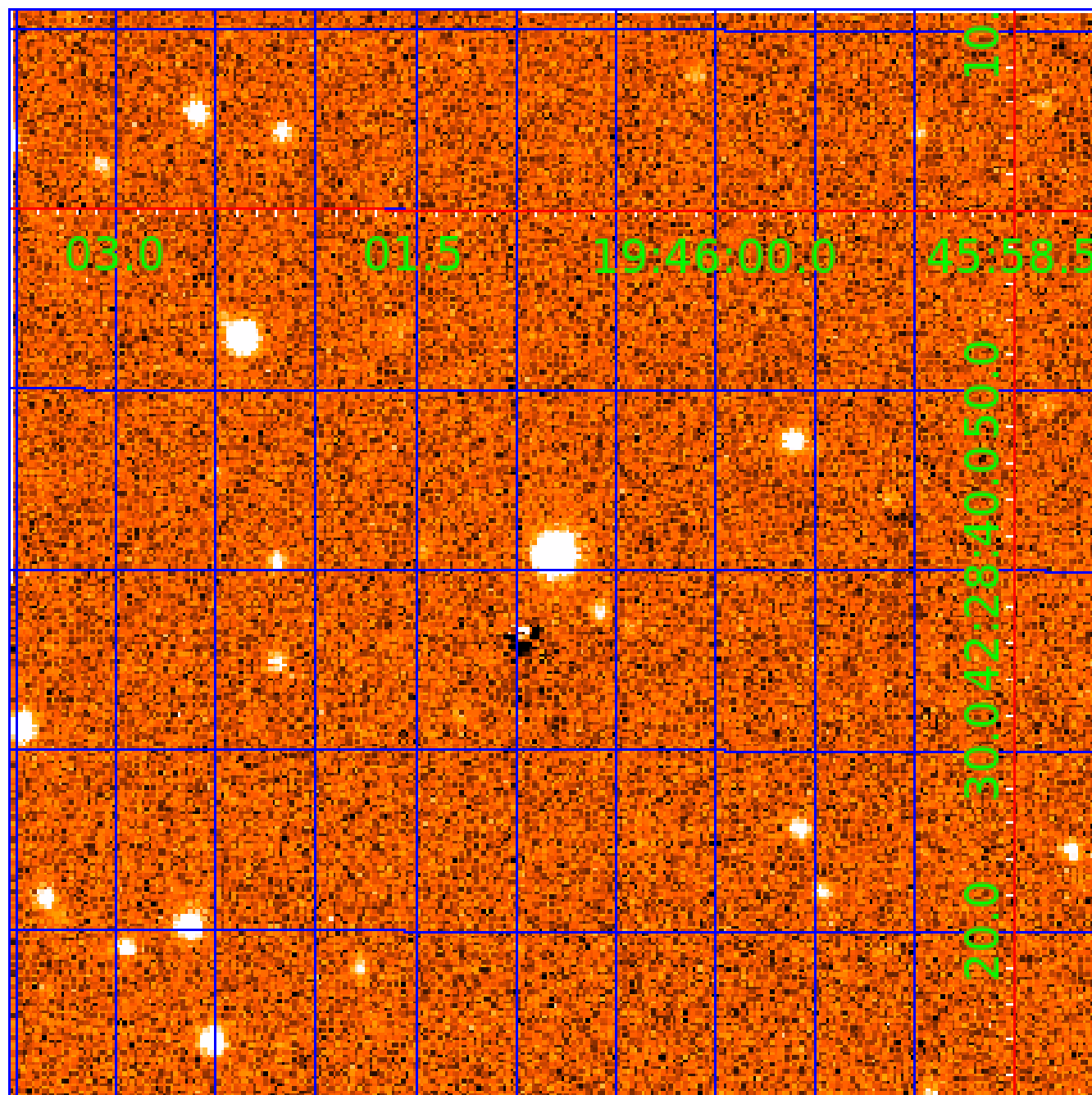


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006966132

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006966132-01	OBS	No	367.598306	497.792777	1218.9	4.457	8.5	7.7	0.88	5767	3.77	0.77
006966132-02	OBS	No	3.935270	132.487457	116.5	17.131	7.9	8.3	0.88	5767	1.08	328.13
006966132-03	OBS	No	156.616426	254.909263	2118.2	10.500	19.3	-1.0	0.88	5767	4.02	2.42
006966132-04	OBS	No	51.248886	174.594493	1110.7	4.326	18.6	9.2	0.88	5767	3.14	10.71
006966132-05	OBS	No	165.065829	210.792943	548.2	9.665	9.1	6.2	0.88	5767	2.31	2.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006966132-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006966132-02	OBS	FP	0.00	1	0	0	0	LPP_DV
006966132-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006966132-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_FEW_DIFFS—HALO_GHOST
006966132-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS

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

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

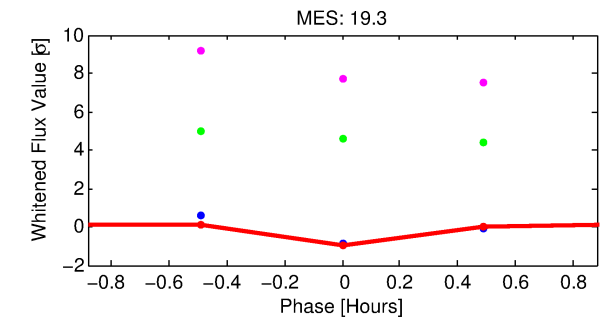
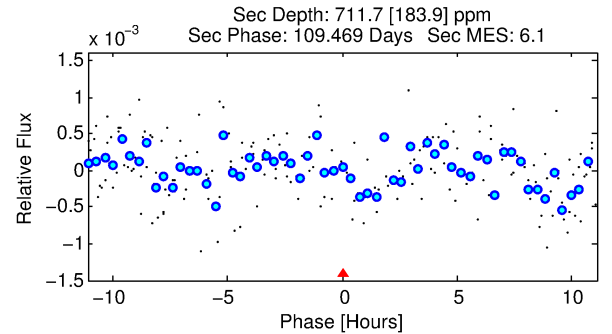
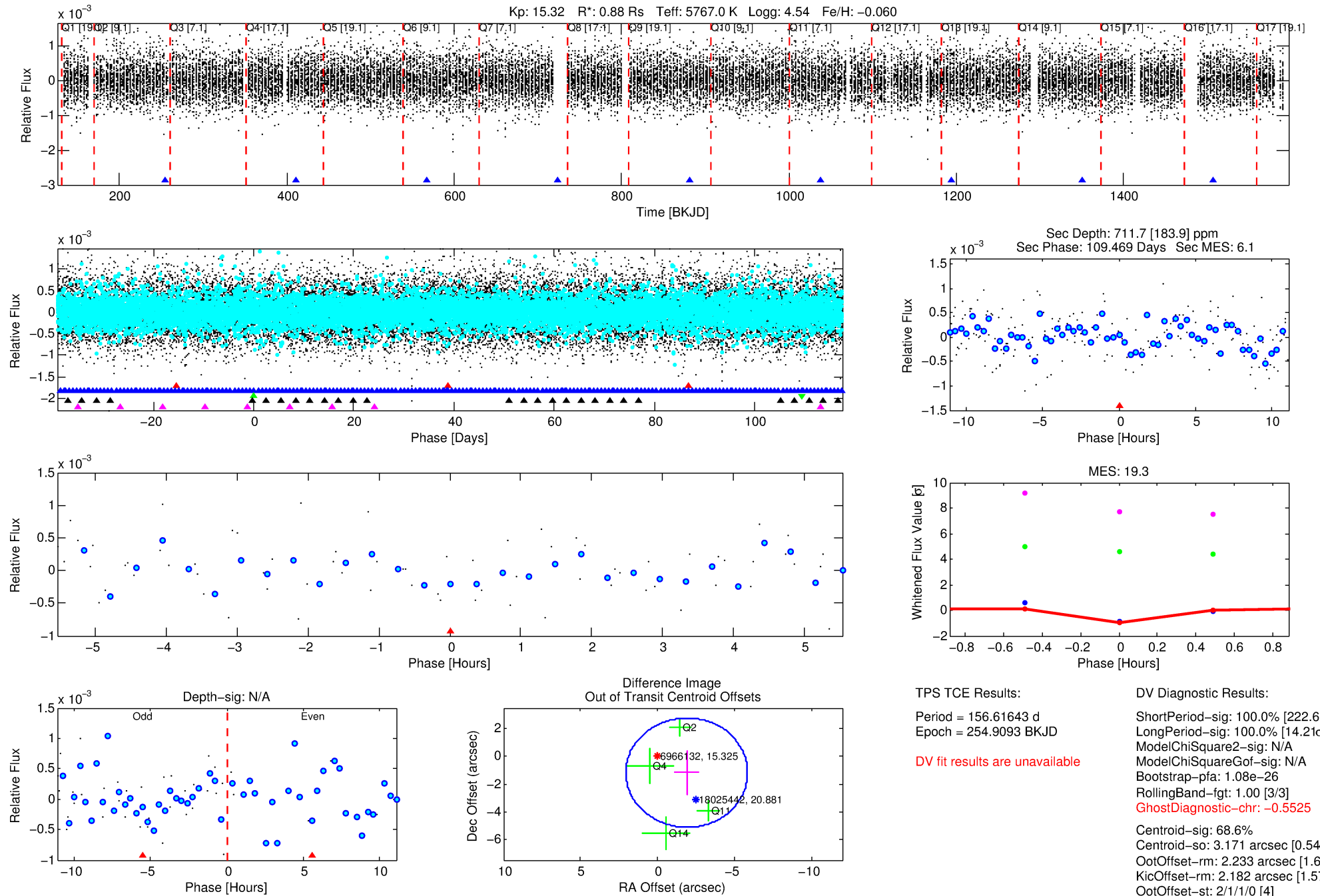
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006966132-03

No Significant Match Found

# DV One-Page Summary

KIC: 6966132 Candidate: 3 of 5 Period: 156.616 d



TPS TCE Results:

Period = 156.61643 d  
Epoch = 254.9093 BKJD

DV fit results are unavailable

DV Diagnostic Results:

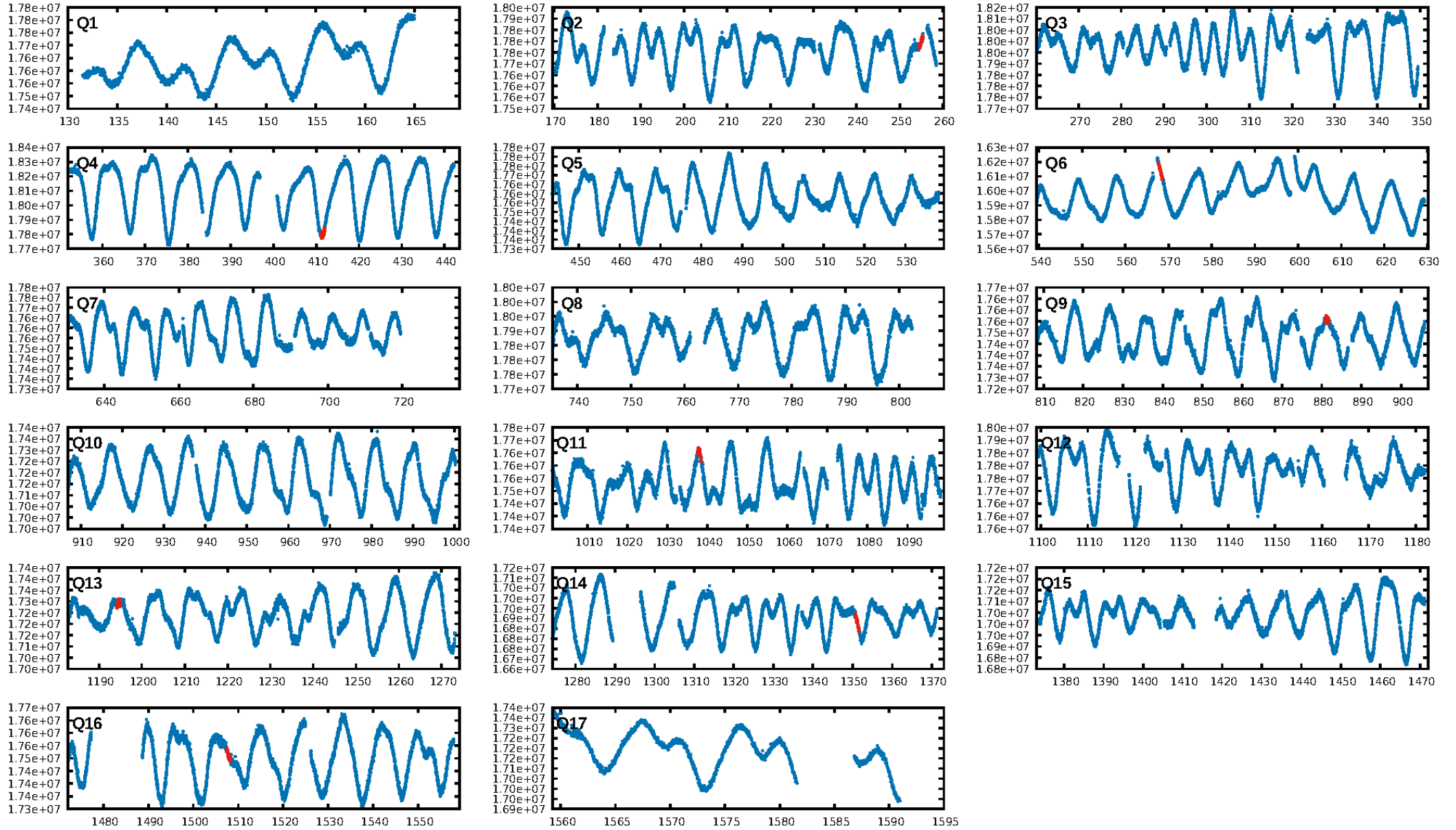
ShortPeriod-sig: 100.0% [222.68 $\sigma$ ]  
LongPeriod-sig: 100.0% [14.21 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.08e-26  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.5525

Centroid-sig: 68.6%  
Centroid-so: 3.171 arcsec [0.54 $\sigma$ ]  
OotOffset-rm: 2.233 arcsec [1.69 $\sigma$ ]  
KicOffset-rm: 2.182 arcsec [1.57 $\sigma$ ]  
OotOffset-st: 2/1/1/0 [4]  
KicOffset-st: 2/1/1/0 [4]  
DiffImageQuality-fgm: 0.00 [0/4]  
DiffImageOverlap-fno: 0.50 [3/6]

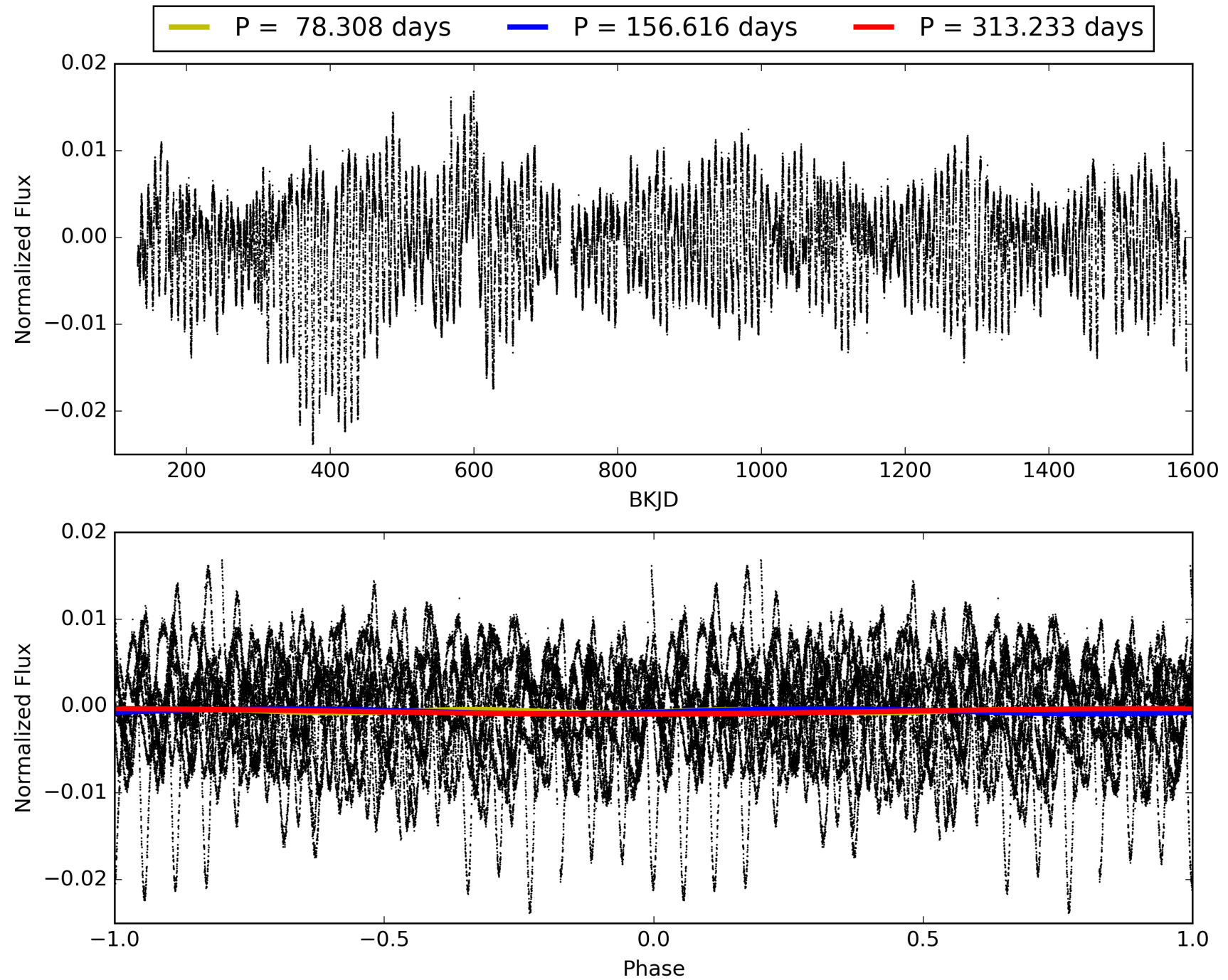
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:19:09 Z

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

# TCE 006966132-03, PDC Light Curves

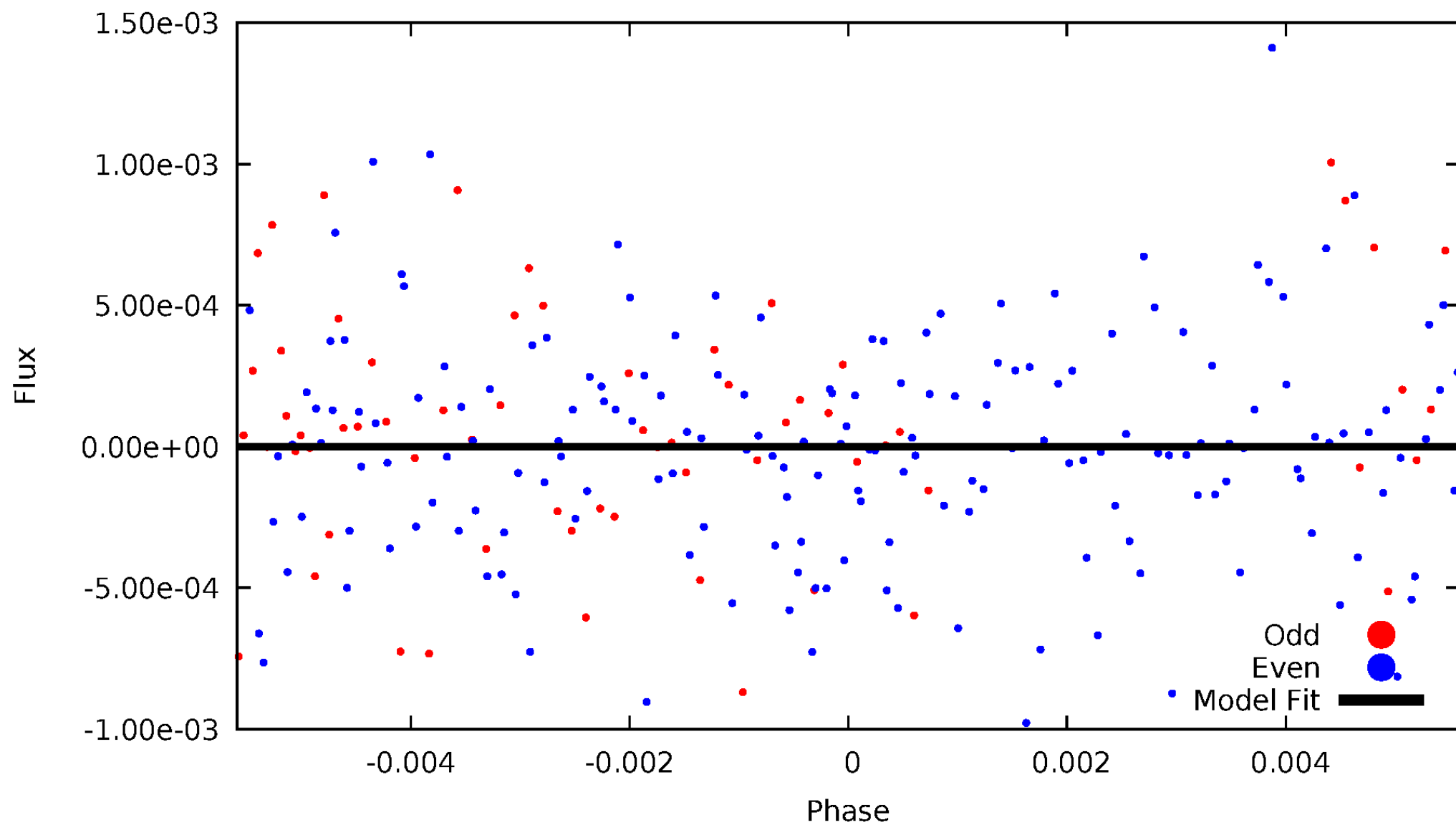


TCE 006966132-03



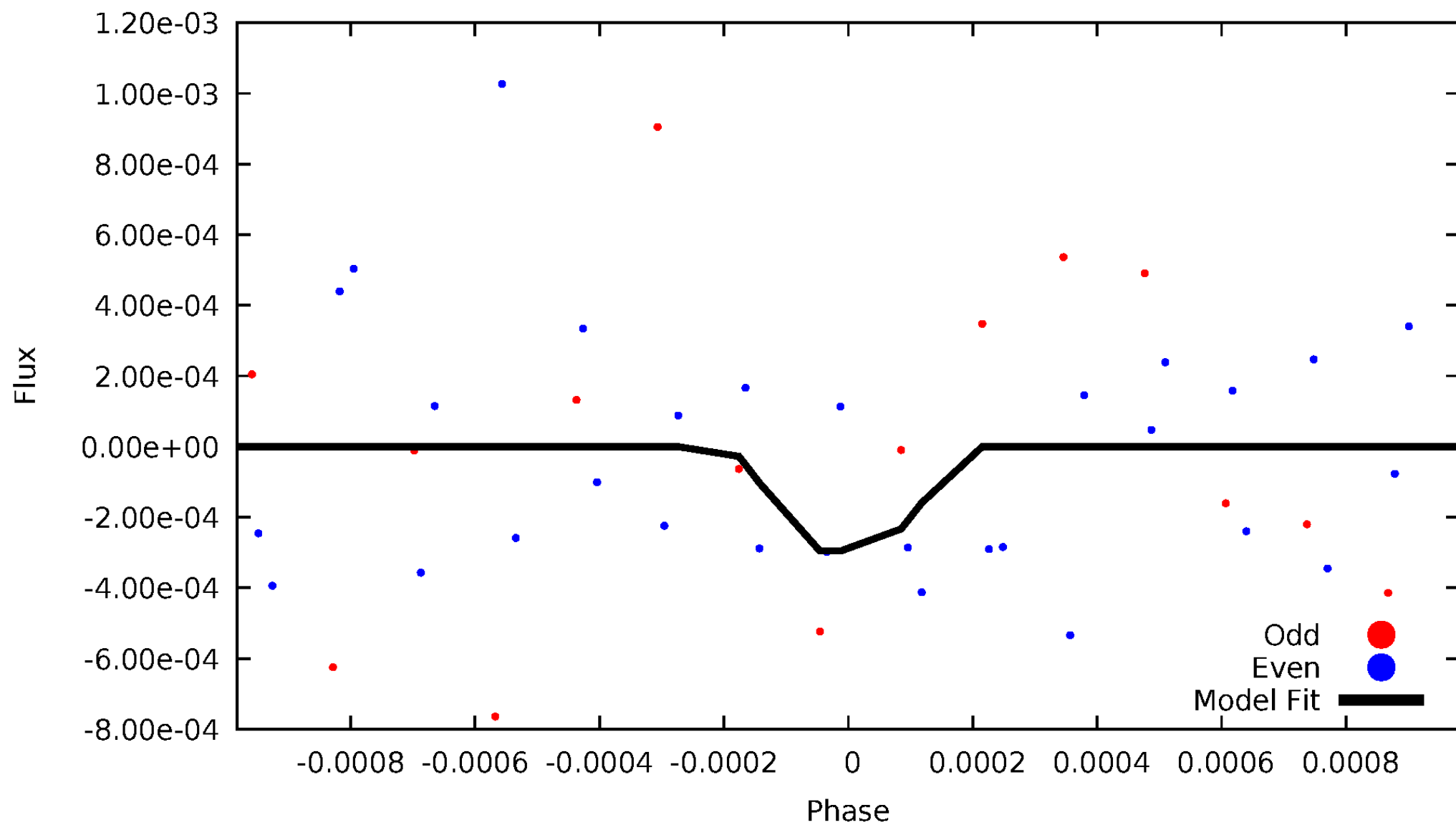
# DV Odd/Even

TCE 006966132-03



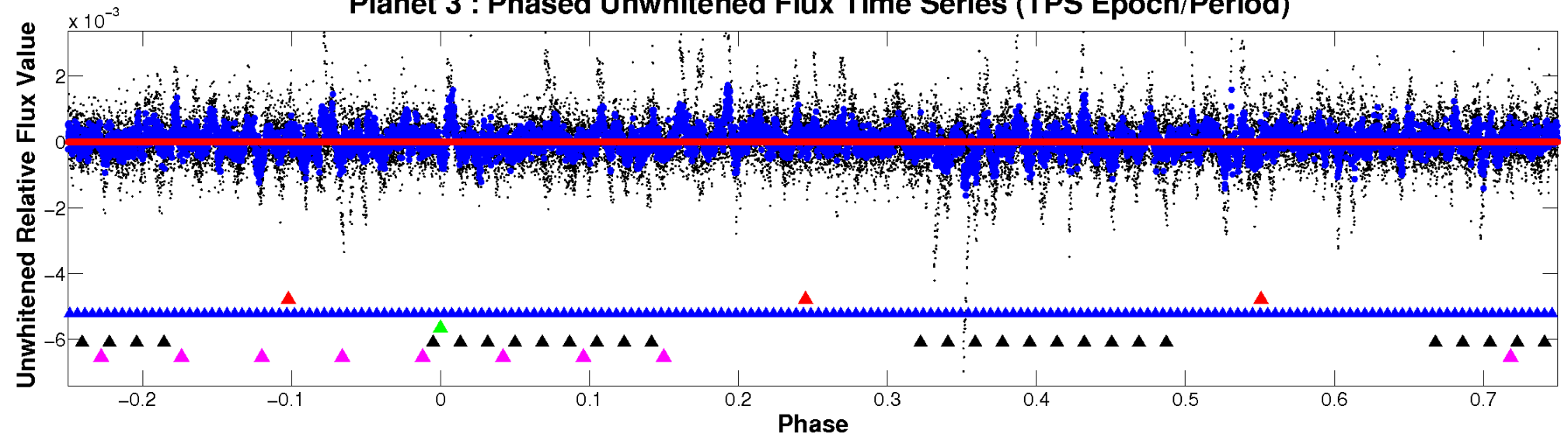
# ALT Odd/Even

TCE 006966132-03

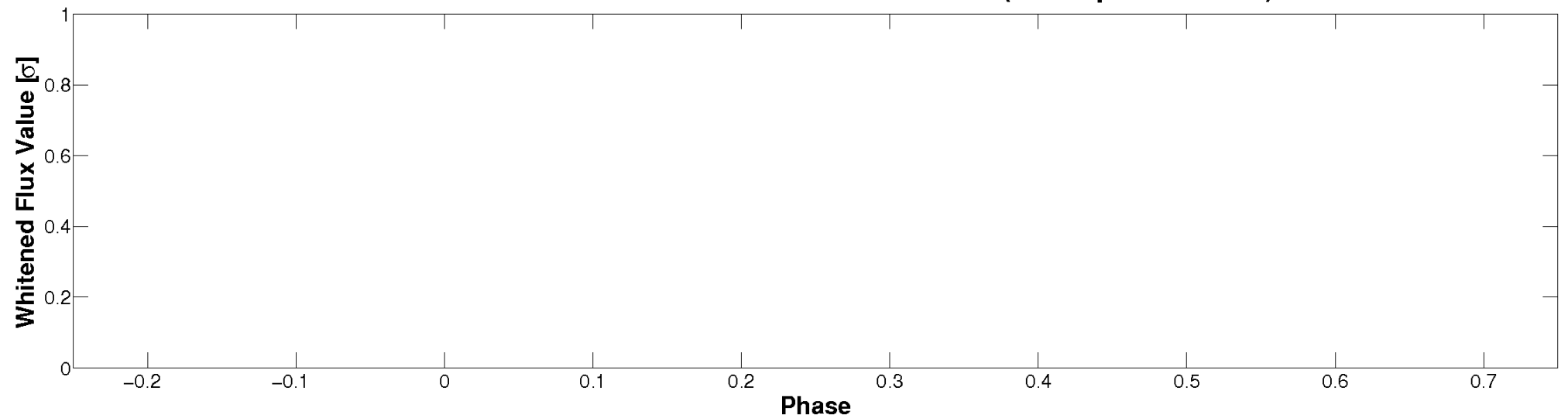


# Non-Whitened Vs. Whitened Light Curve

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

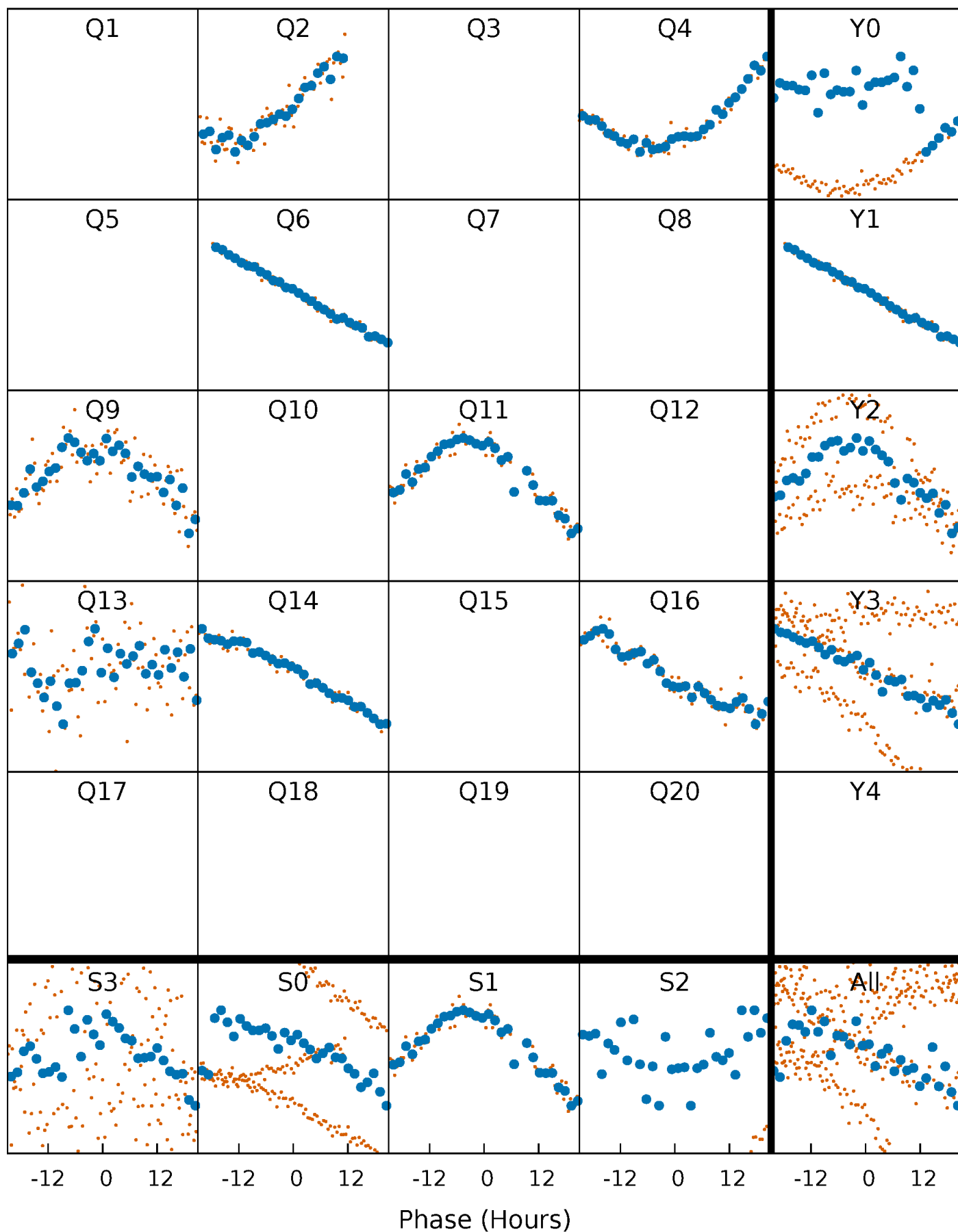


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



# PDC Quarter-Phased Transit Curves

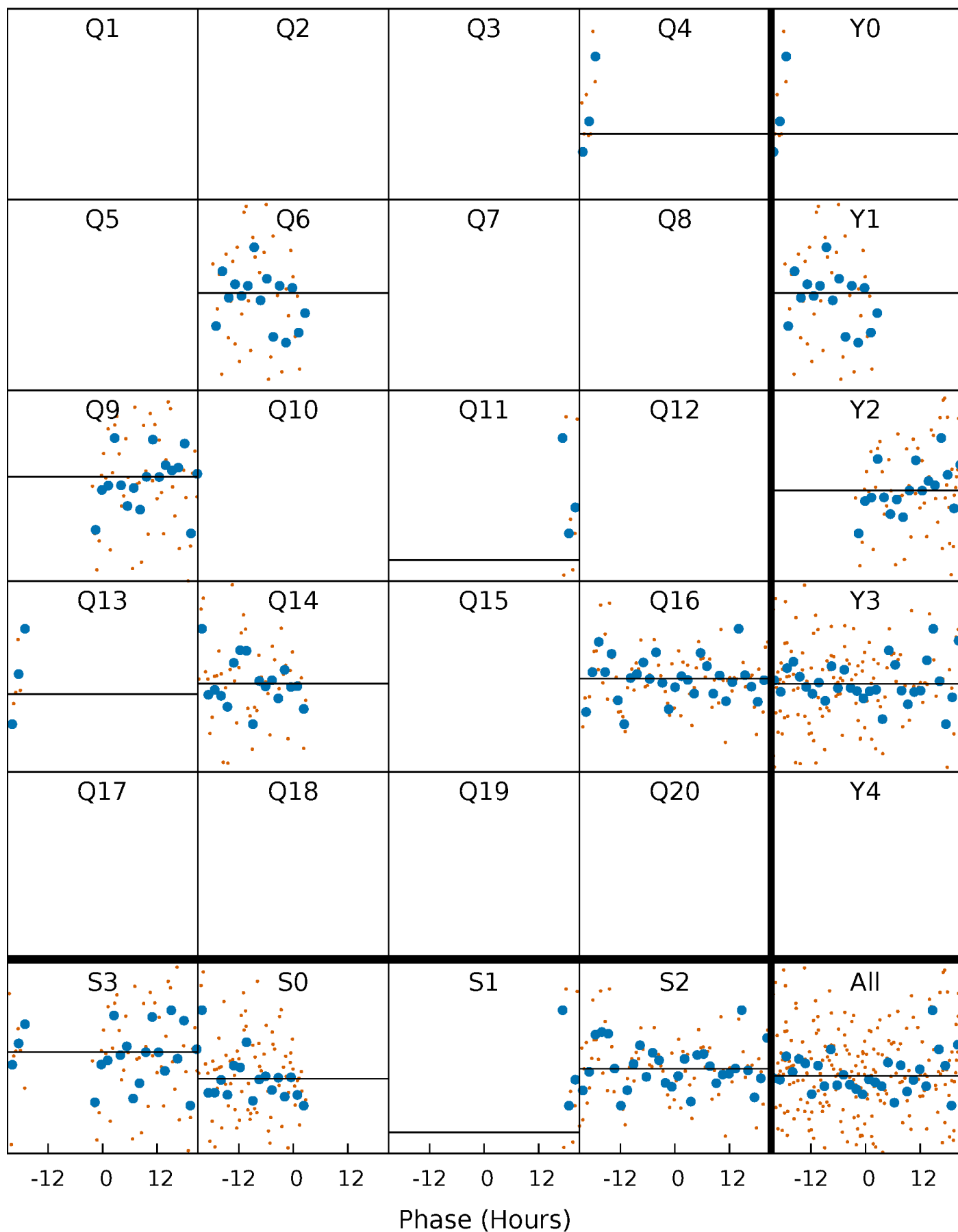
TCE 006966132-03 P=156.616426 Days  $T_0=254.909263$  (BKJD)





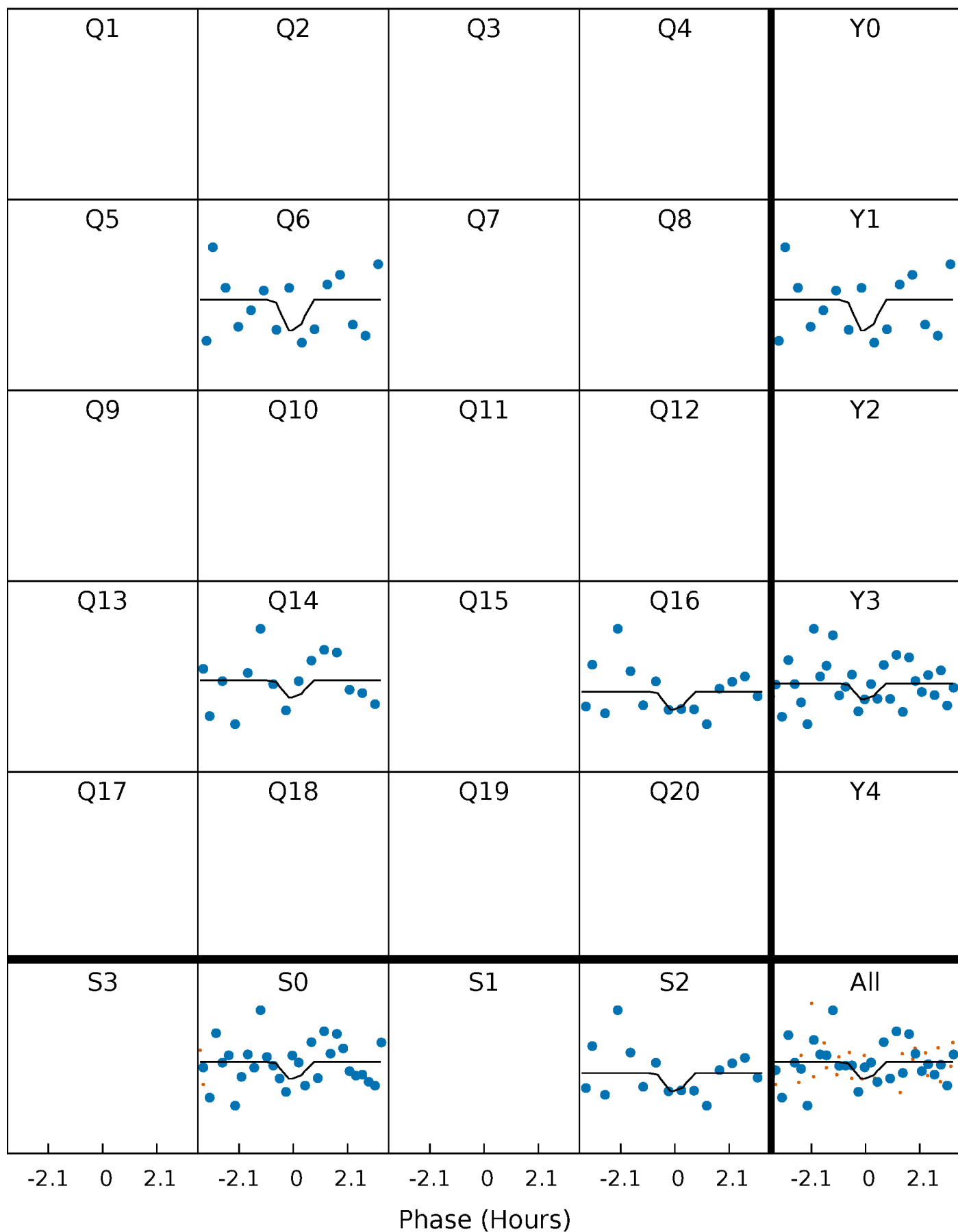
# DV Quarter-Phased Transit Curves

TCE 006966132-03 P=156.616426 Days  $T_0=254.909263$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

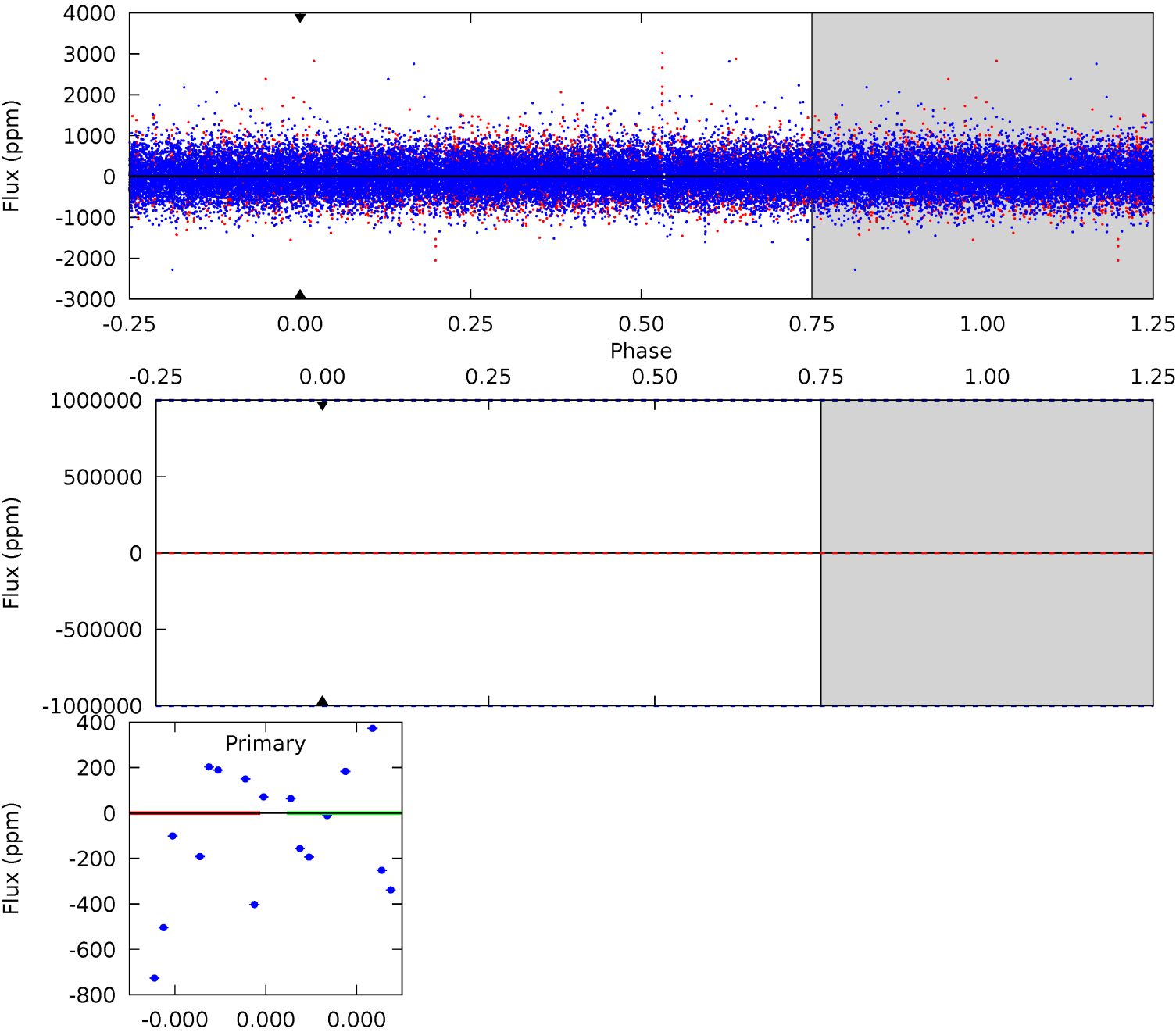
TCE 006966132-03 P=156.616426 Days  $T_0=254.397735$  (BKJD)



# DV Model-Shift Uniqueness Test

006966132-03, P = 156.616426 Days, E = 98.292837 Days

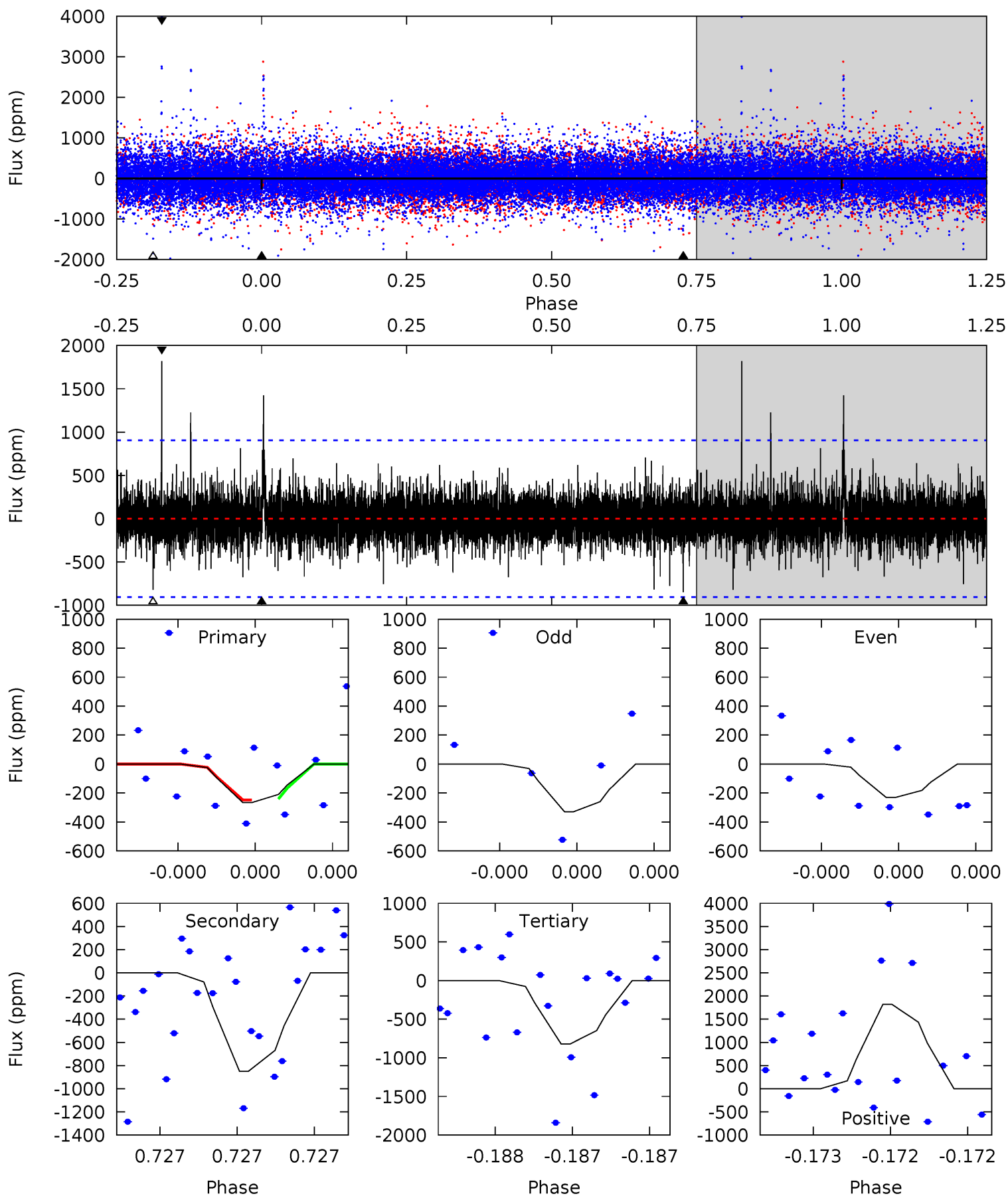
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006966132-03, P = 156.616426 Days, E = 97.781309 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
1.67	5.32	5.14	11.4	5.67	3.63	1.11	-3.47	-9.73	0.18	-6.08	0.28	0.85	0.68	0.02



### Stellar Parameters For KIC 006966132

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5767^{+173}_{-173}$	$4.538^{+0.037}_{-0.213}$	$-0.060^{+0.250}_{-0.300}$	$0.881^{+0.275}_{-0.069}$	$0.979^{+0.114}_{-0.114}$	$2.017^{+0.405}_{-1.044}$
	+3%/-3%	+1%/-5%	+417%/-500%	+31%/-8%	+12%/-12%	+20%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 006966132-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$8.94^{+9.06}_{-6.02}$	$455^{+32}_{-21}$	$4547^{+13862}_{-20423}$	$5971^{+414626}_{-336493}$
Alt.	$-849 \pm 160$	$7.89^{+7.72}_{-5.24}$	$457^{+31}_{-23}$	$3845^{+2302}_{-733}$	$2250^{+18263}_{-1683}$

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

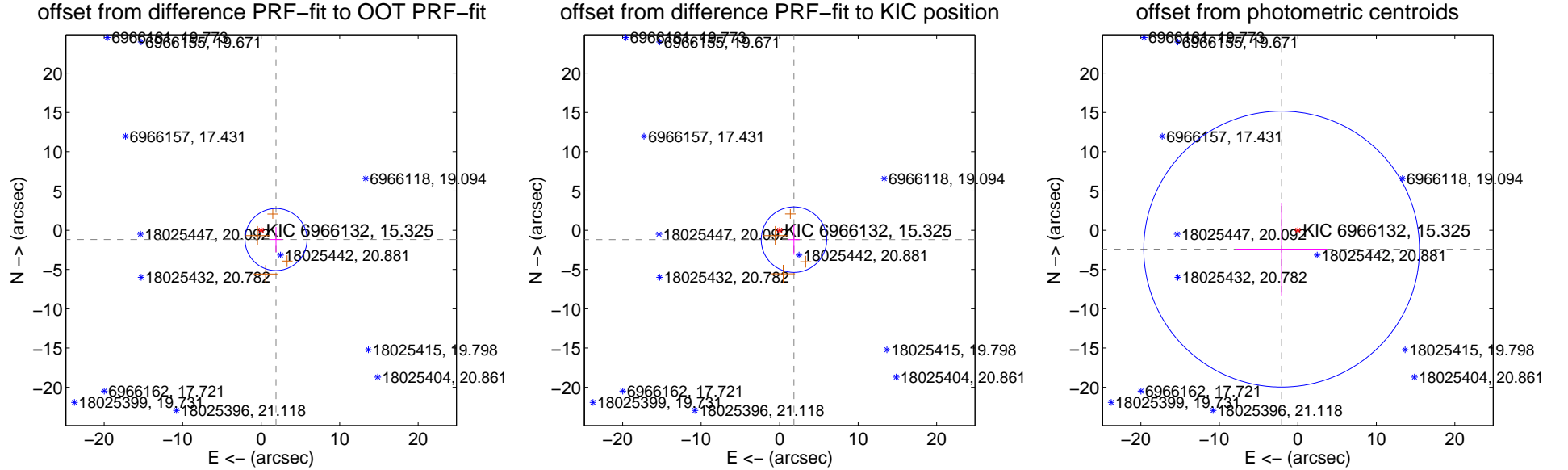
## DV Centroid Data

Supplemental centroid analysis for 006966132-03. Kepler magnitude: 15.32. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

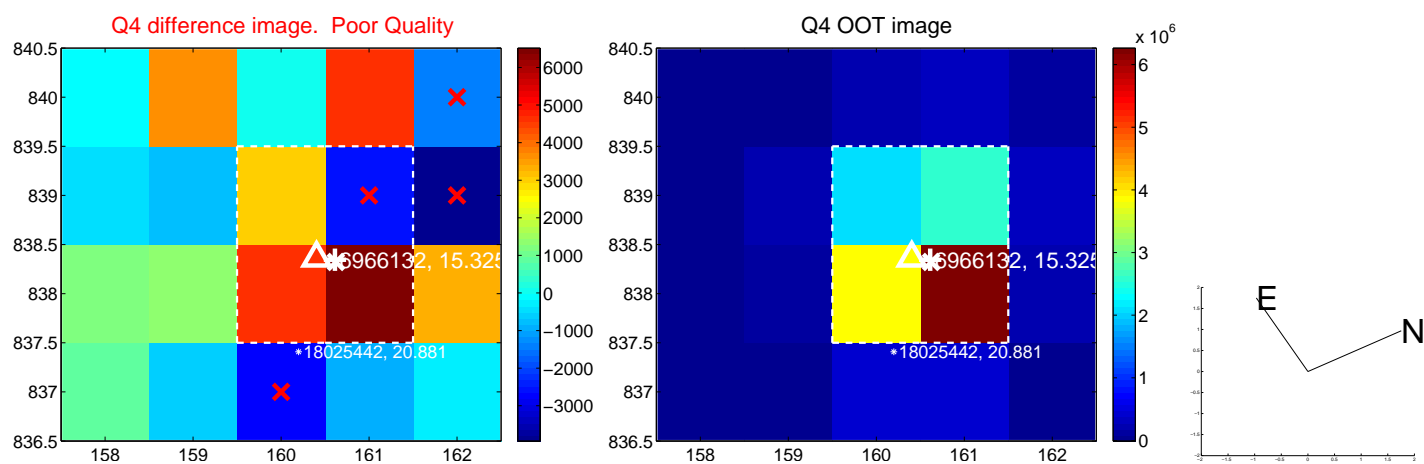
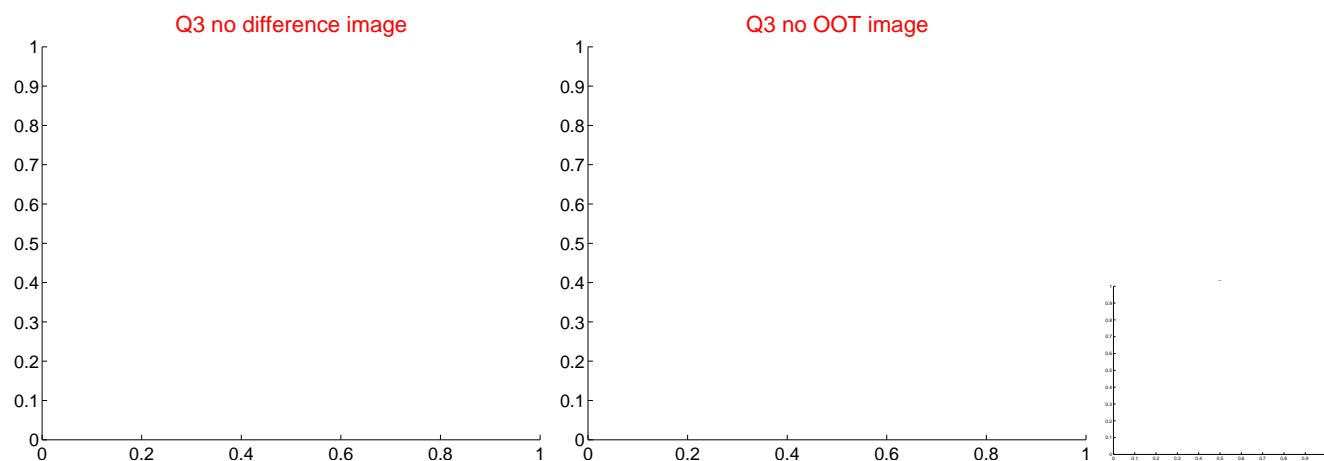
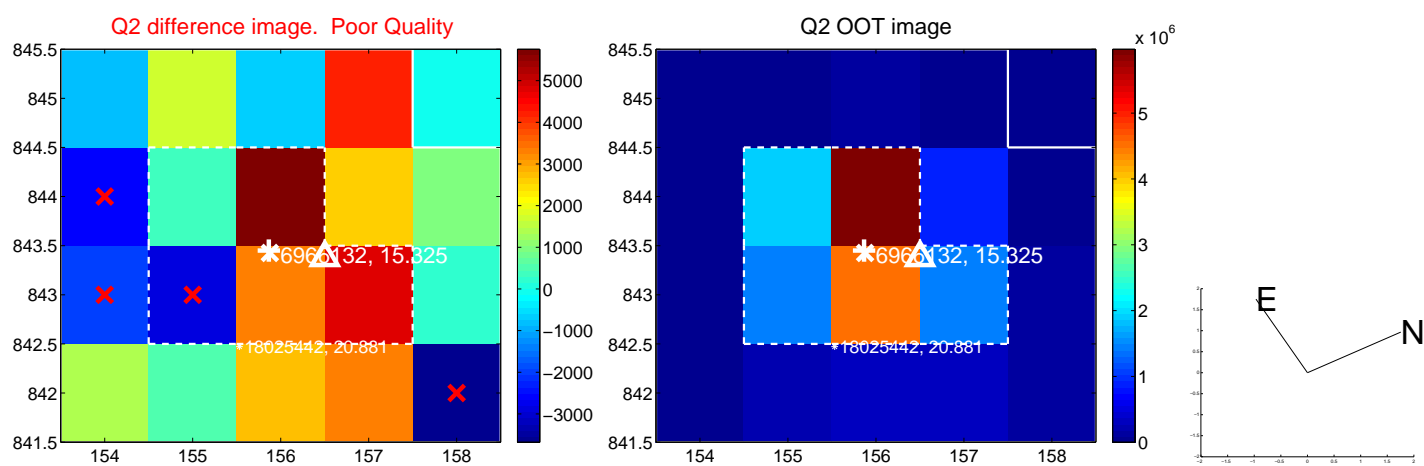
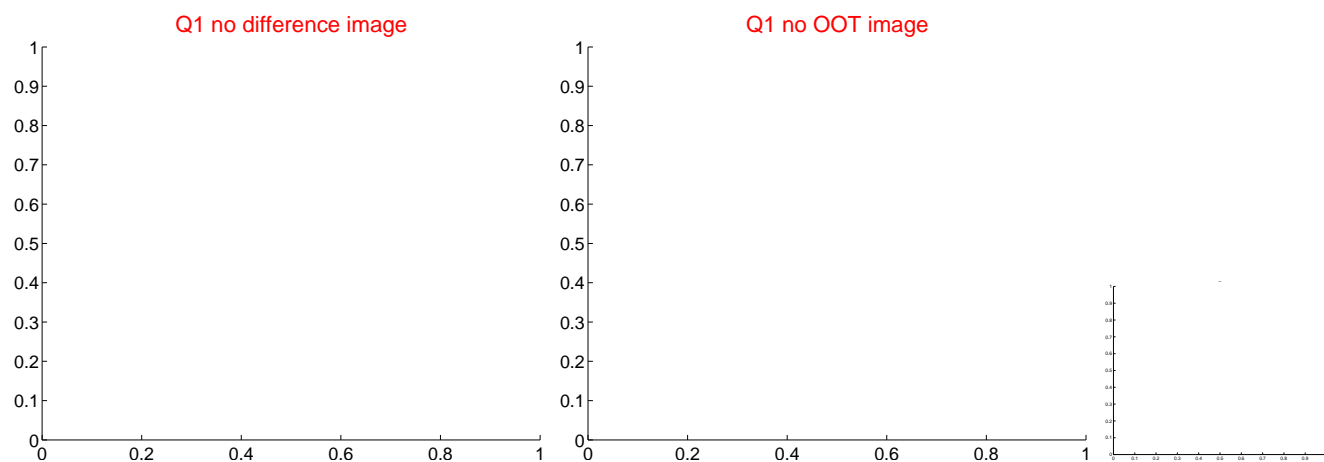
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.233 \pm 1.318$	1.69	$-1.895 \pm 0.737$	$-1.182 \pm 1.608$
PRF-fit source offset from KIC position	$2.182 \pm 1.390$	1.57	$-1.823 \pm 0.726$	$-1.200 \pm 1.917$
photometric centroid source offset	$3.17 \pm 5.85$	0.54	$2.07 \pm 5.79$	$-2.40 \pm 5.90$



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

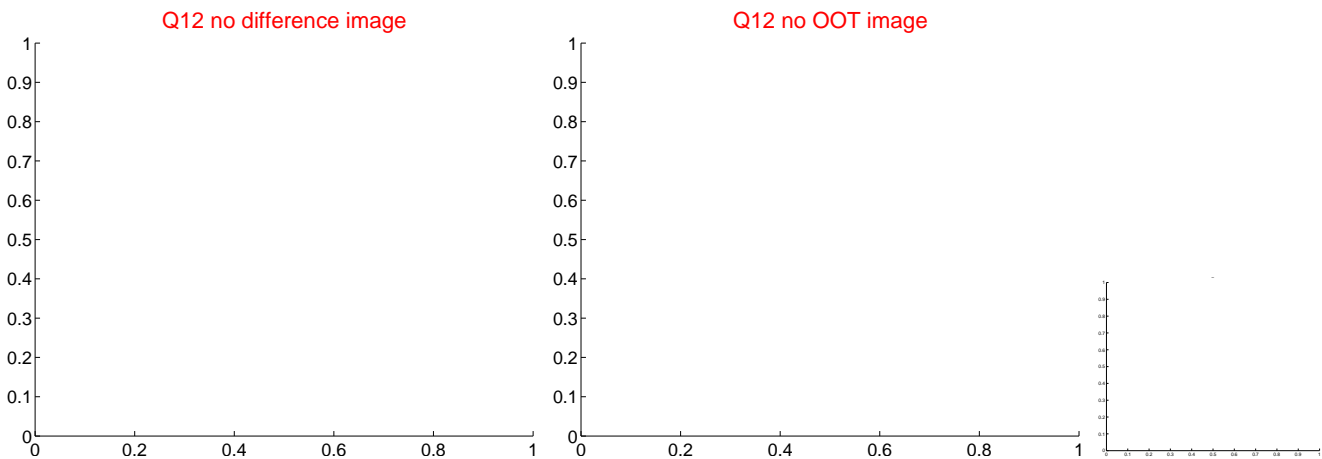
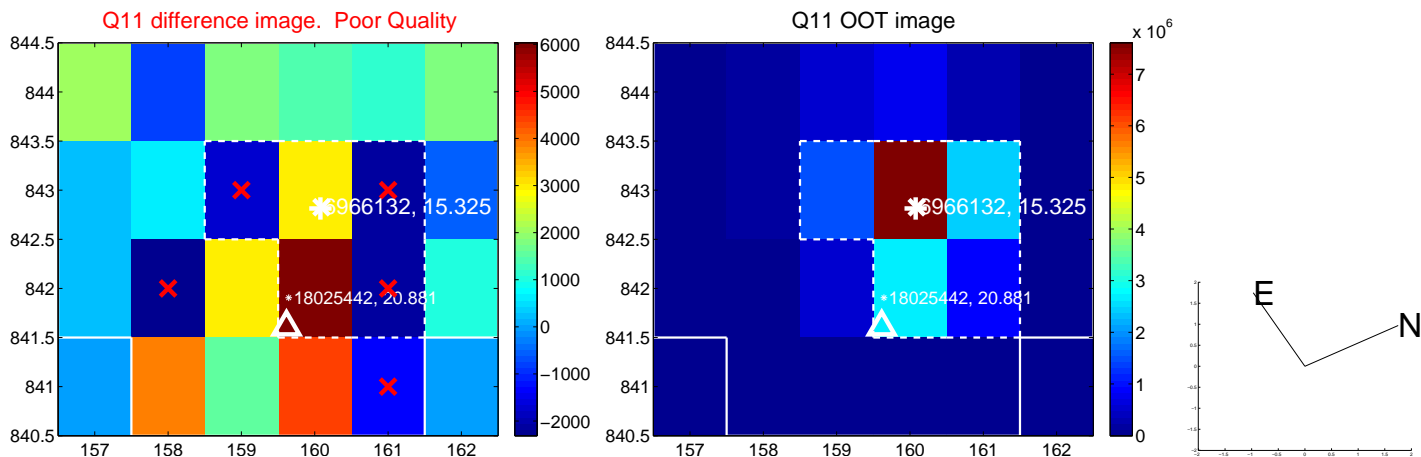
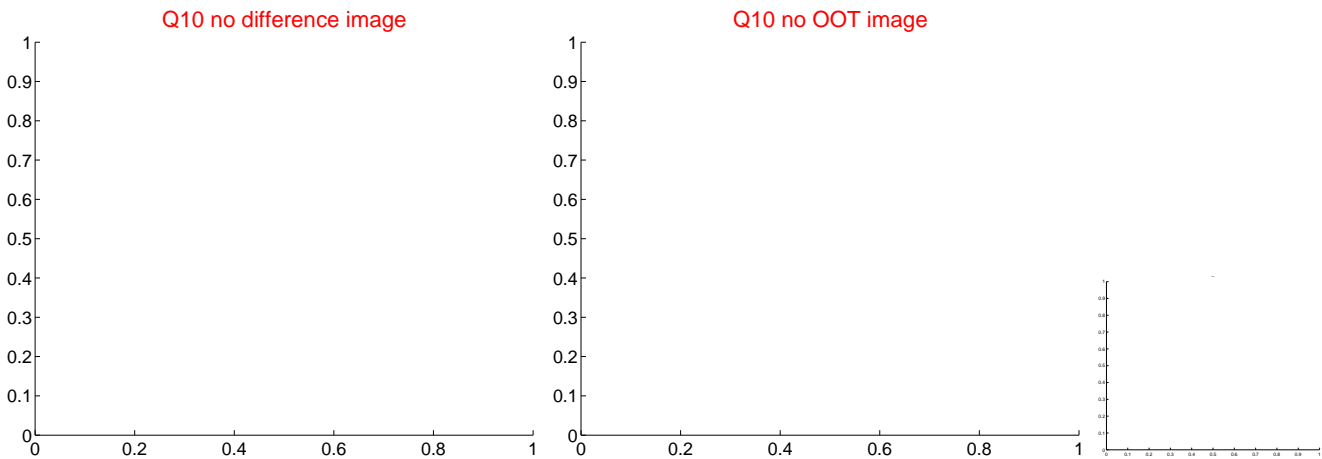
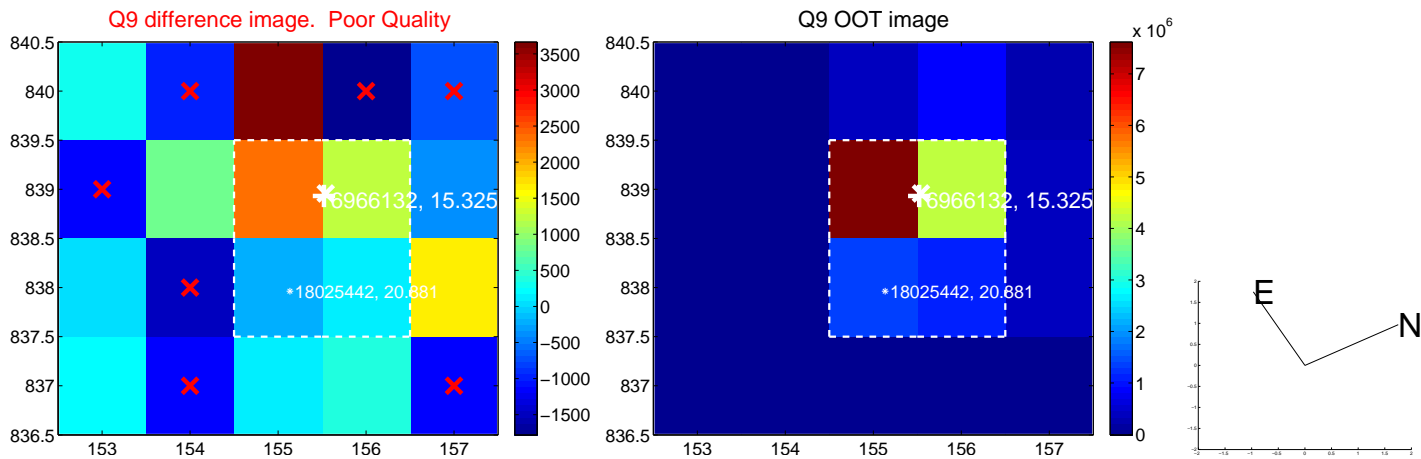


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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.

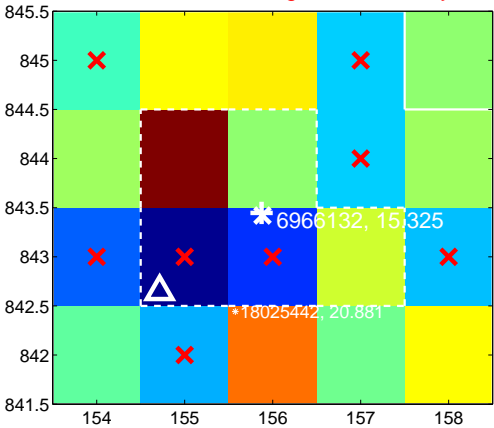
Q13 no difference image



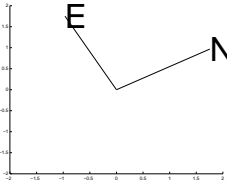
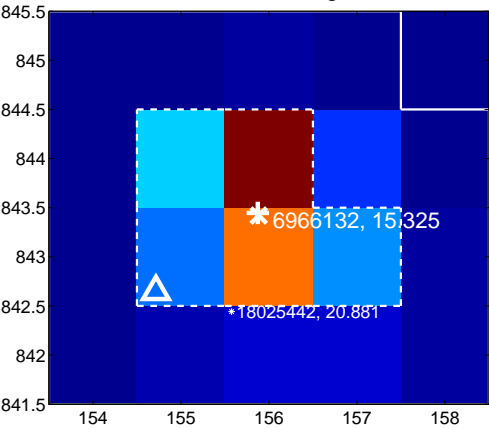
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



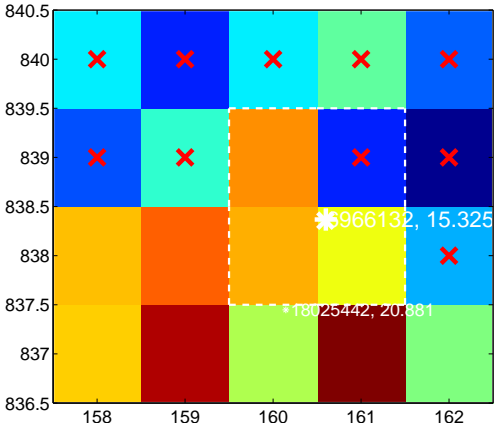
Q15 no difference image



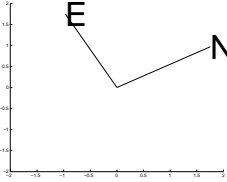
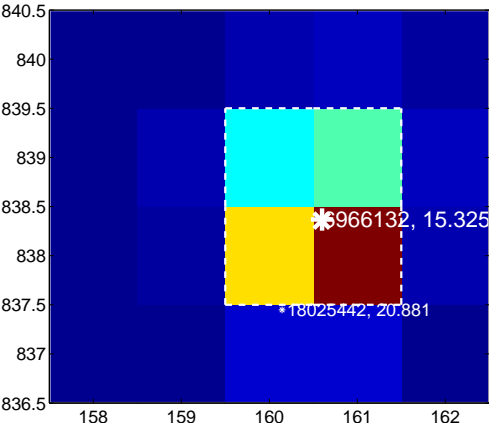
Q15 no OOT image



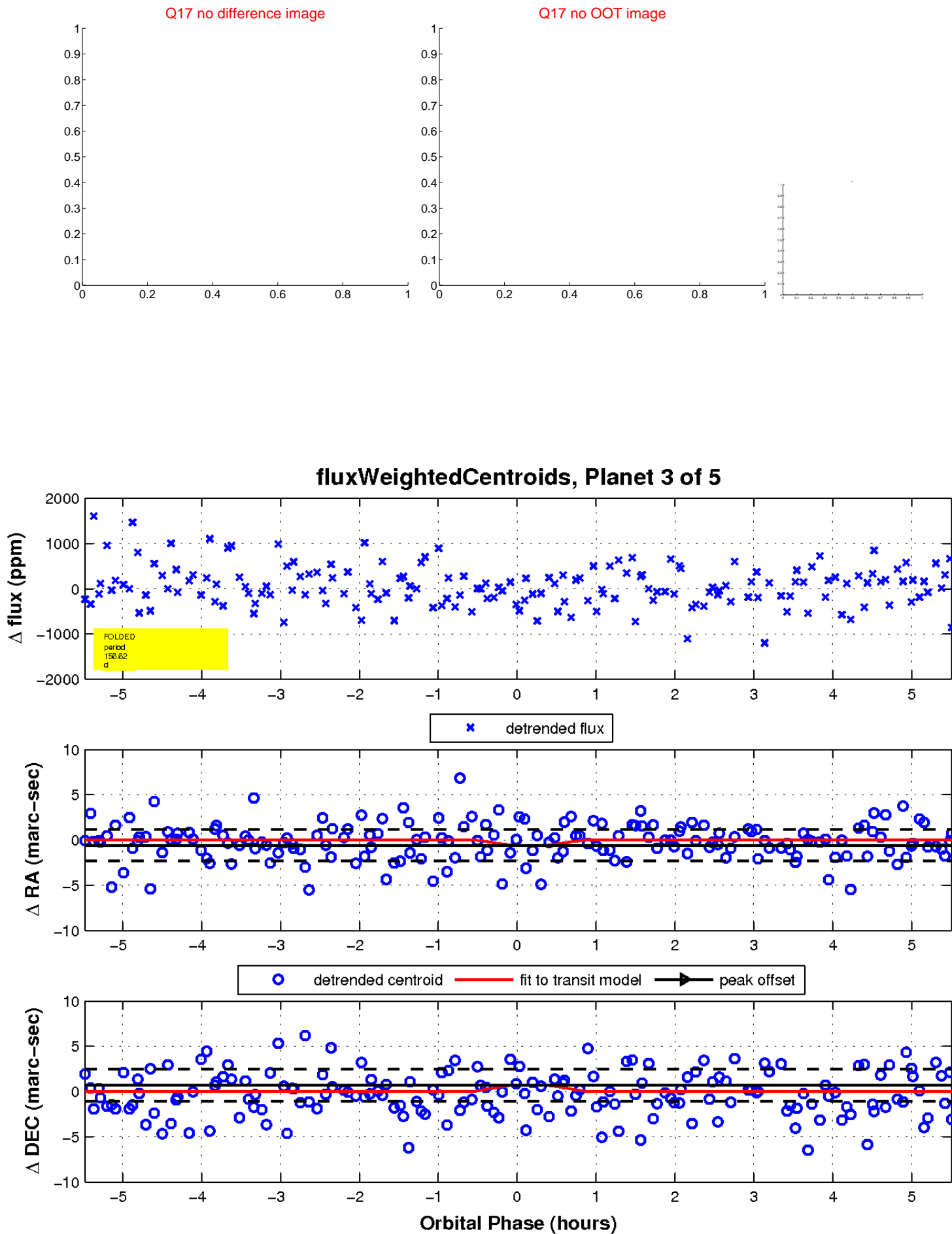
Q16 difference image. Poor Quality



Q16 OOT image

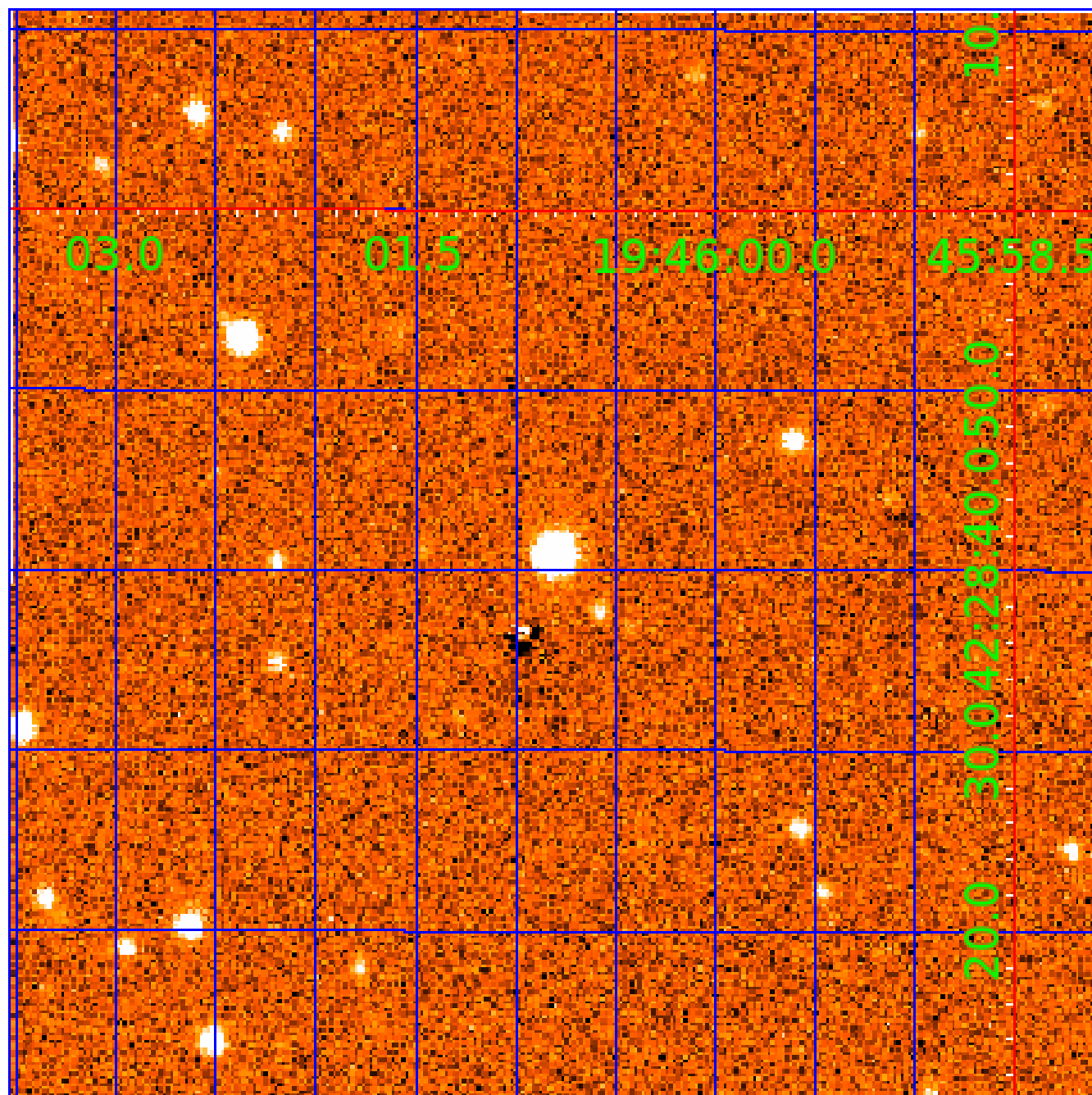


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006966132

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006966132-01	OBS	No	367.598306	497.792777	1218.9	4.457	8.5	7.7	0.88	5767	3.77	0.77
006966132-02	OBS	No	3.935270	132.487457	116.5	17.131	7.9	8.3	0.88	5767	1.08	328.13
006966132-03	OBS	No	156.616426	254.909263	2118.2	10.500	19.3	-1.0	0.88	5767	4.02	2.42
006966132-04	OBS	No	51.248886	174.594493	1110.7	4.326	18.6	9.2	0.88	5767	3.14	10.71
006966132-05	OBS	No	165.065829	210.792943	548.2	9.665	9.1	6.2	0.88	5767	2.31	2.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006966132-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006966132-02	OBS	FP	0.00	1	0	0	0	LPP_DV
006966132-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006966132-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_FEW_DIFFS—HALO_GHOST
006966132-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS

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

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

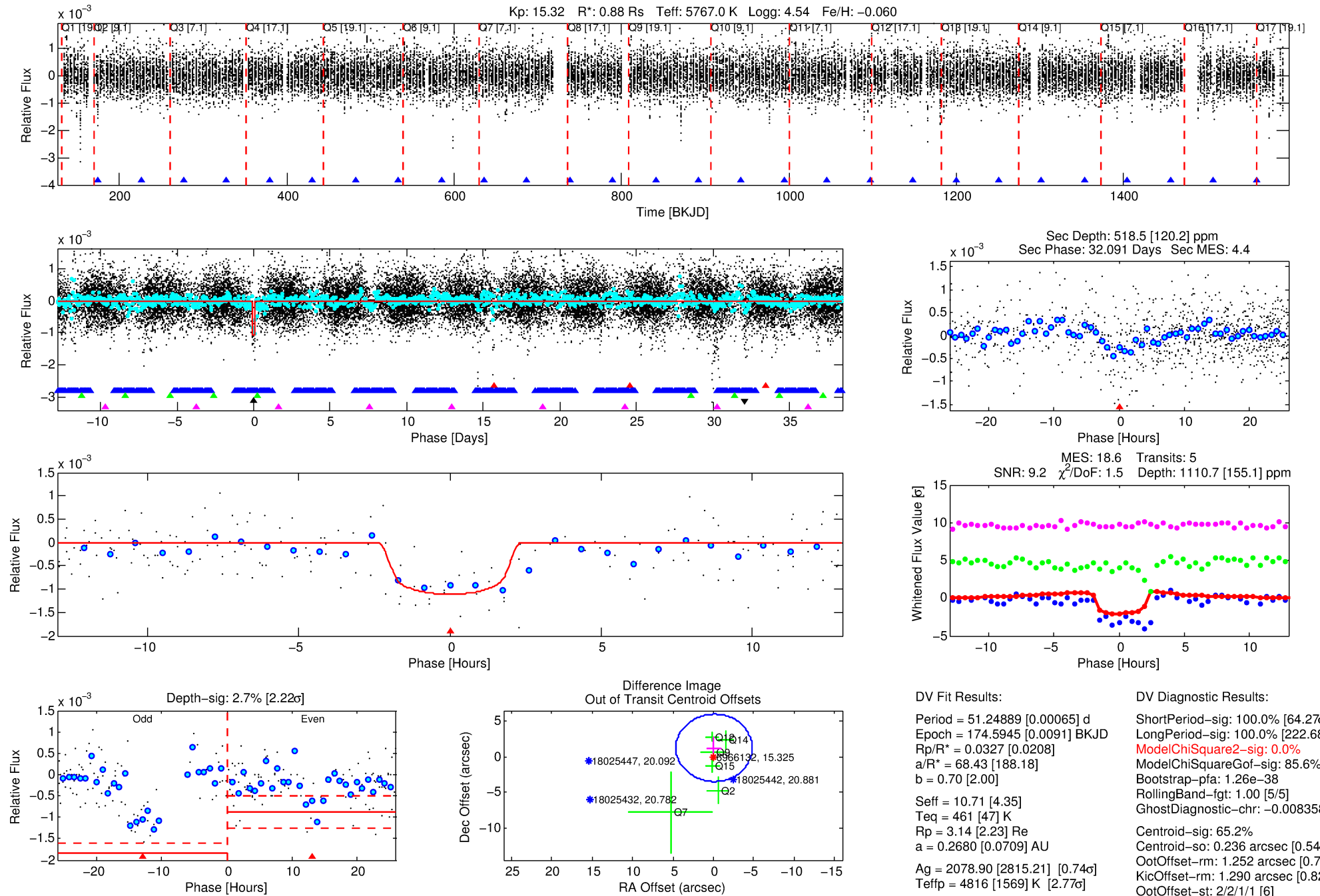
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006966132-04

No Significant Match Found

# DV One-Page Summary

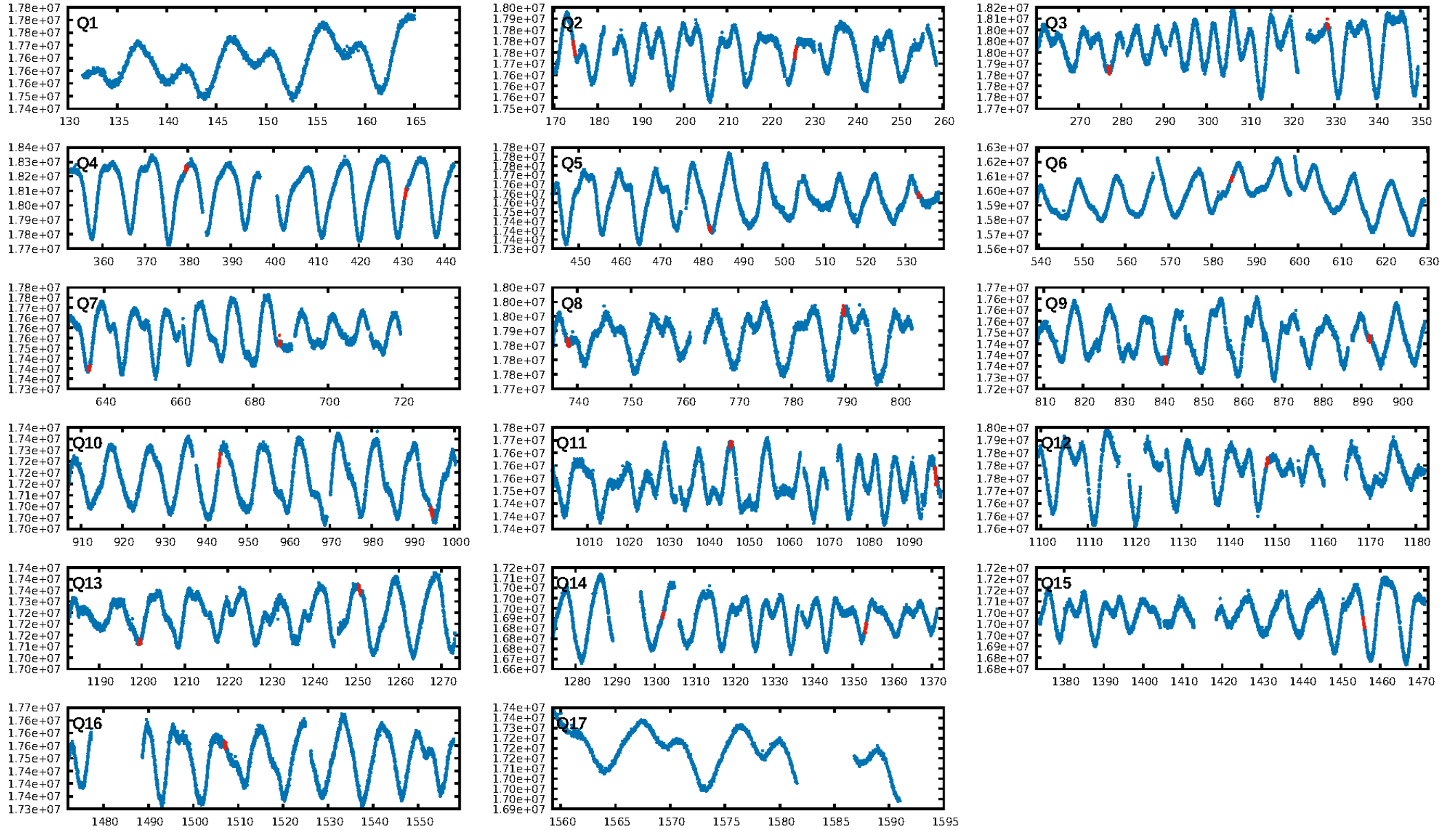
KIC: 6966132 Candidate: 4 of 5 Period: 51.249 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:19:15 Z

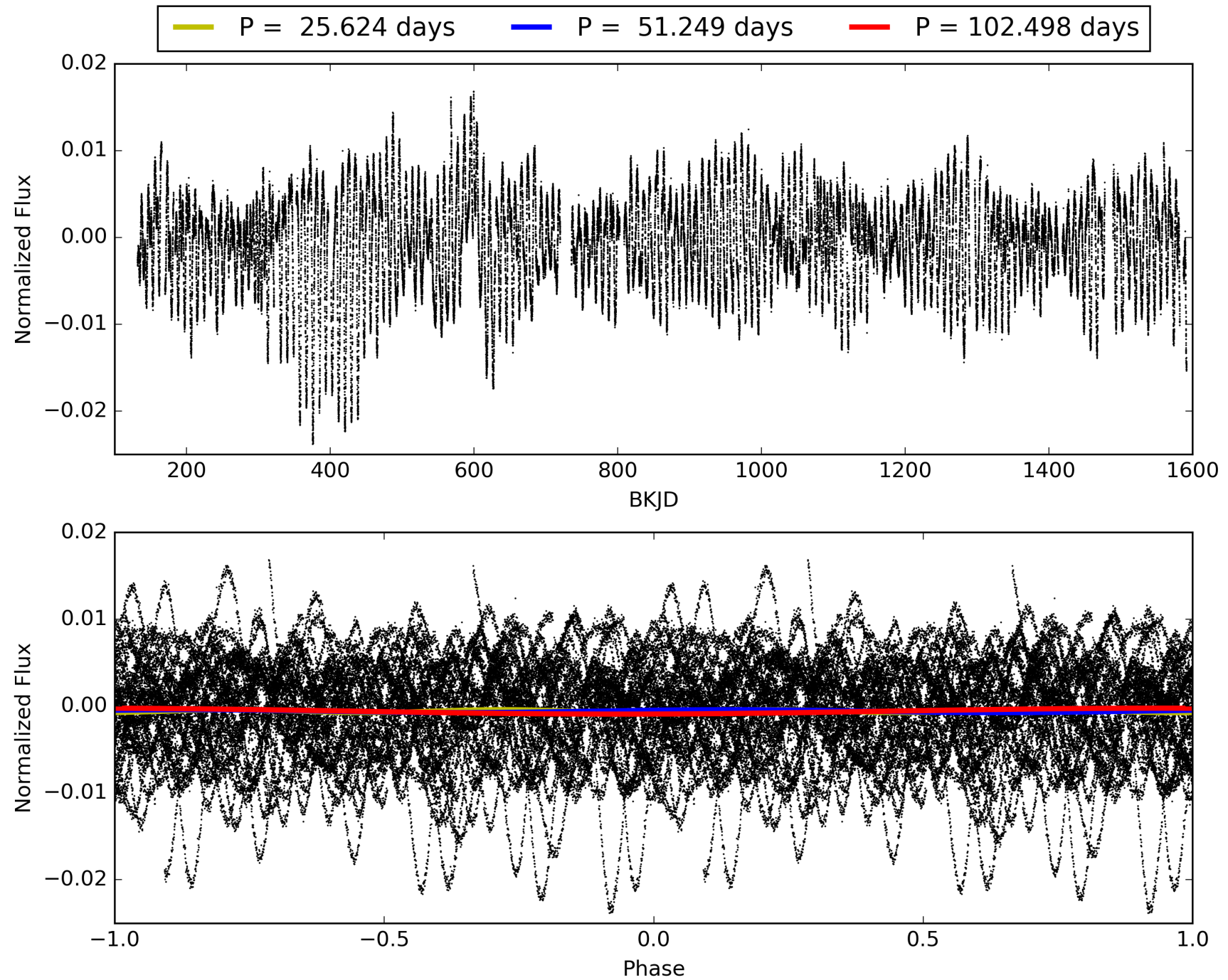
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006966132-04, PDC Light Curves





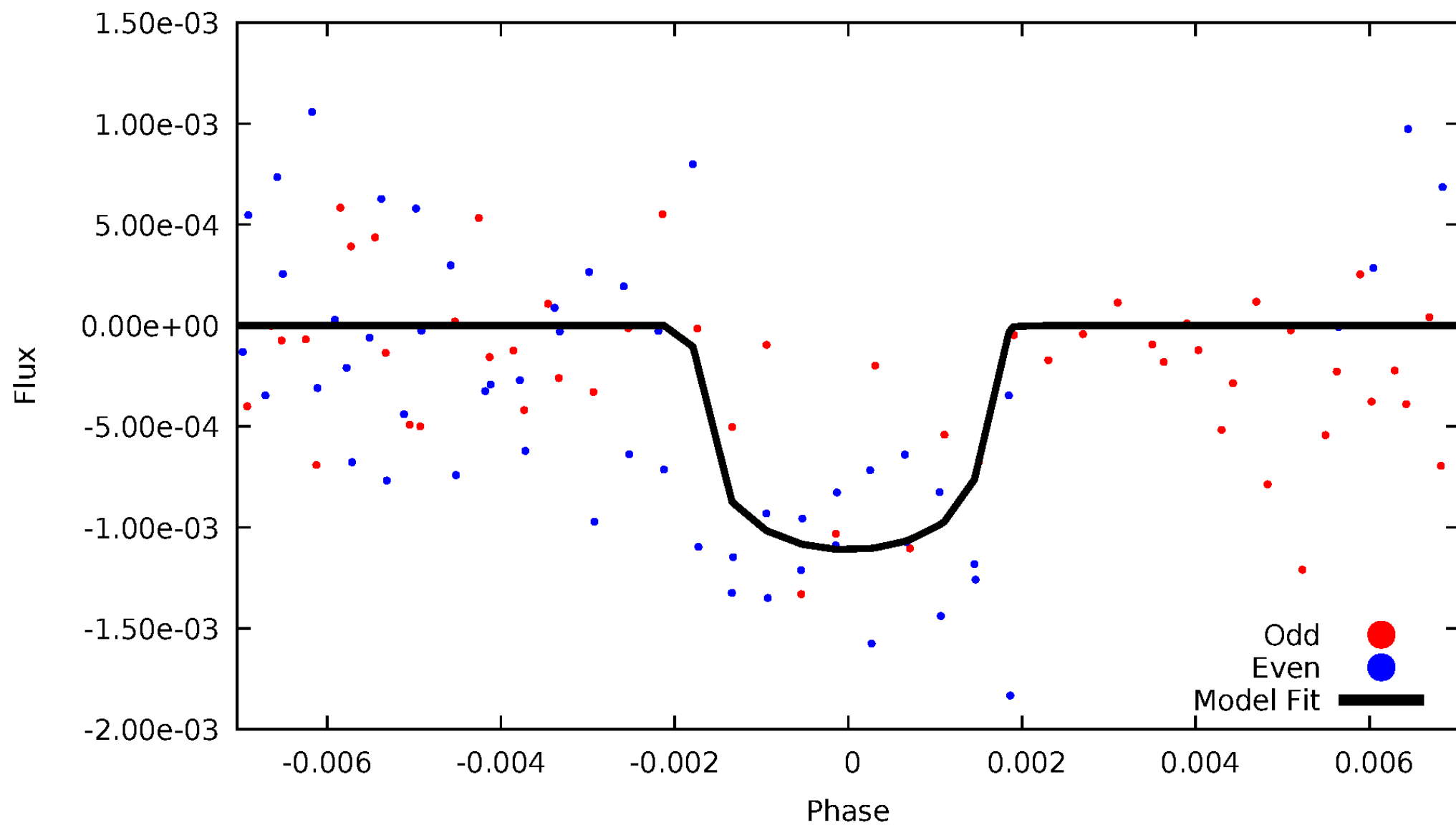
TCE 006966132-04





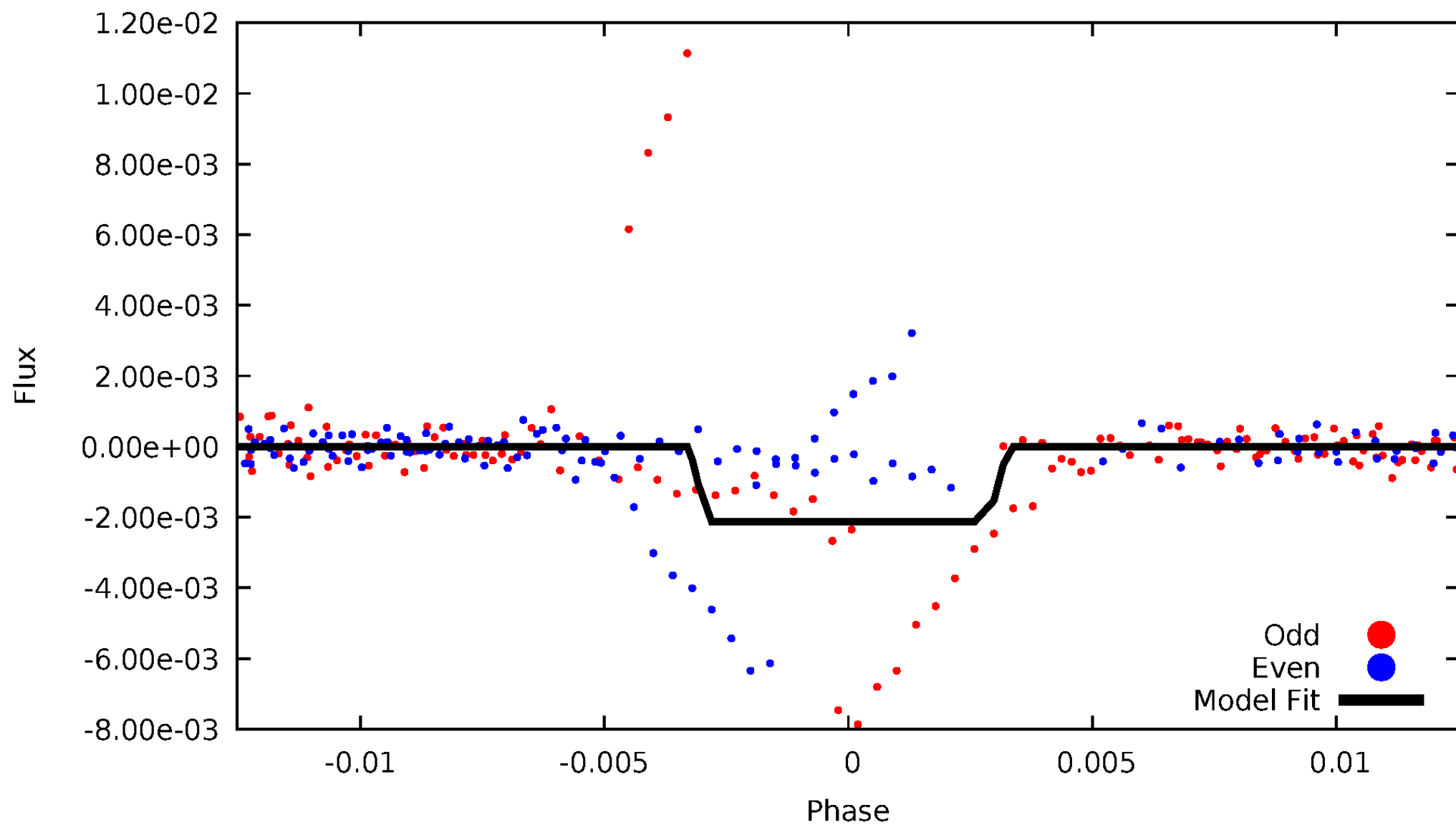
# DV Odd/Even

TCE 006966132-04



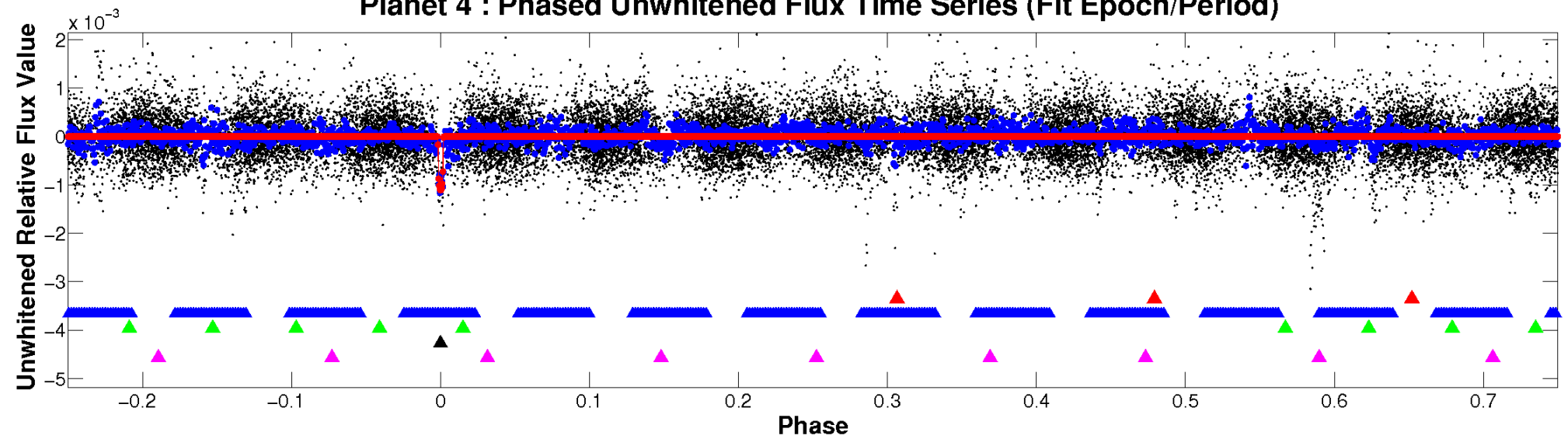
# ALT Odd/Even

TCE 006966132-04

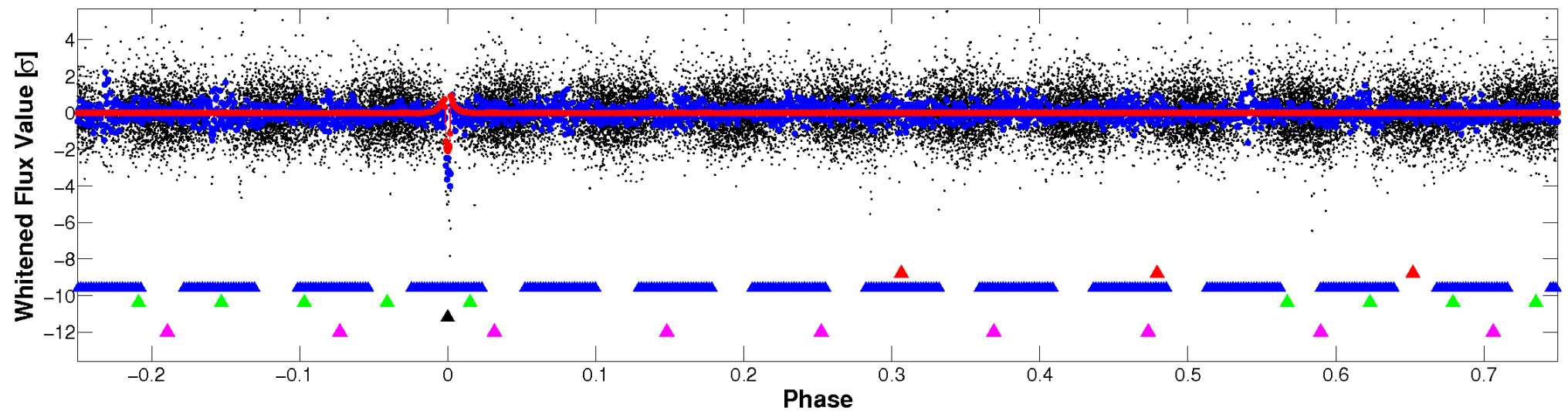


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

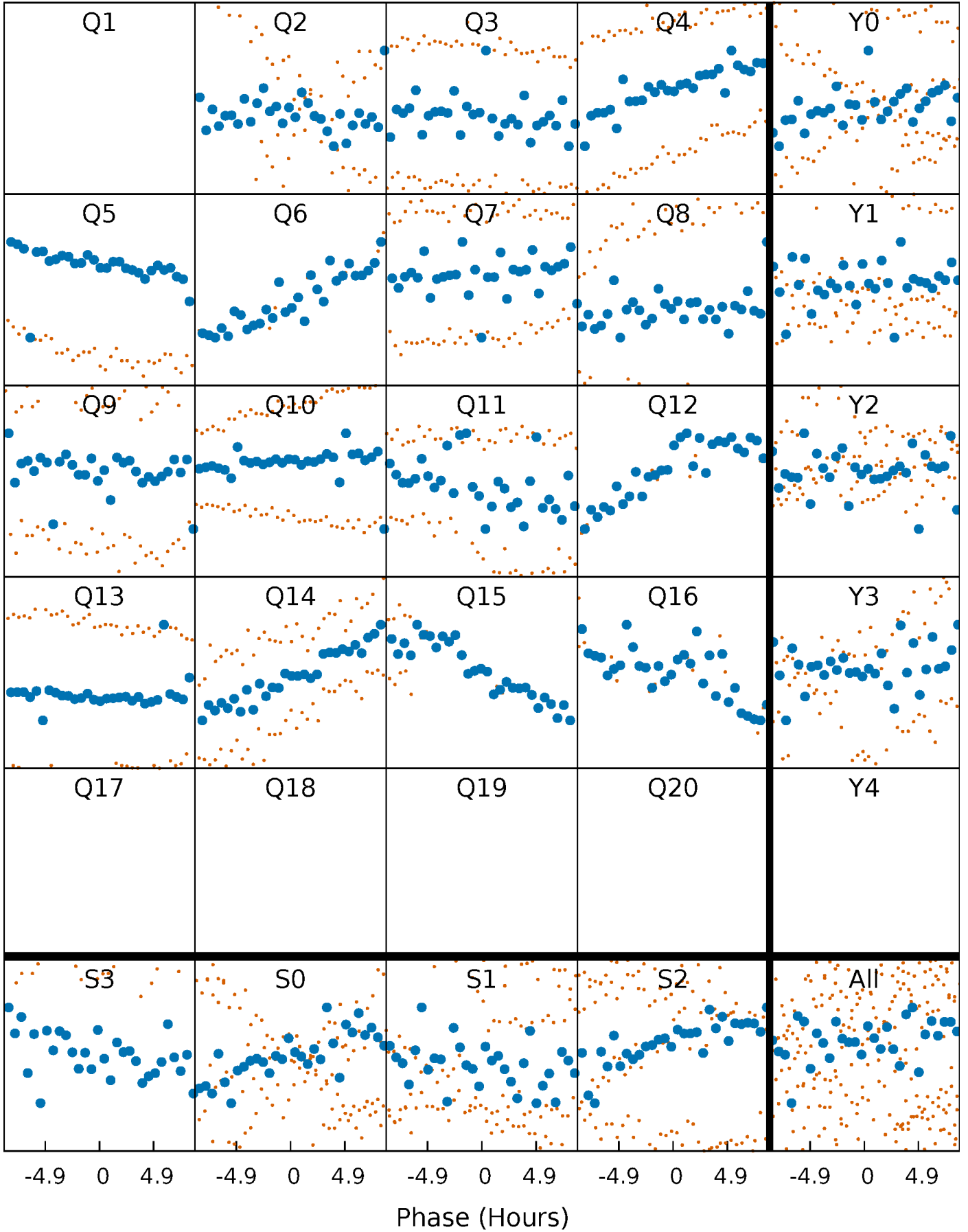


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



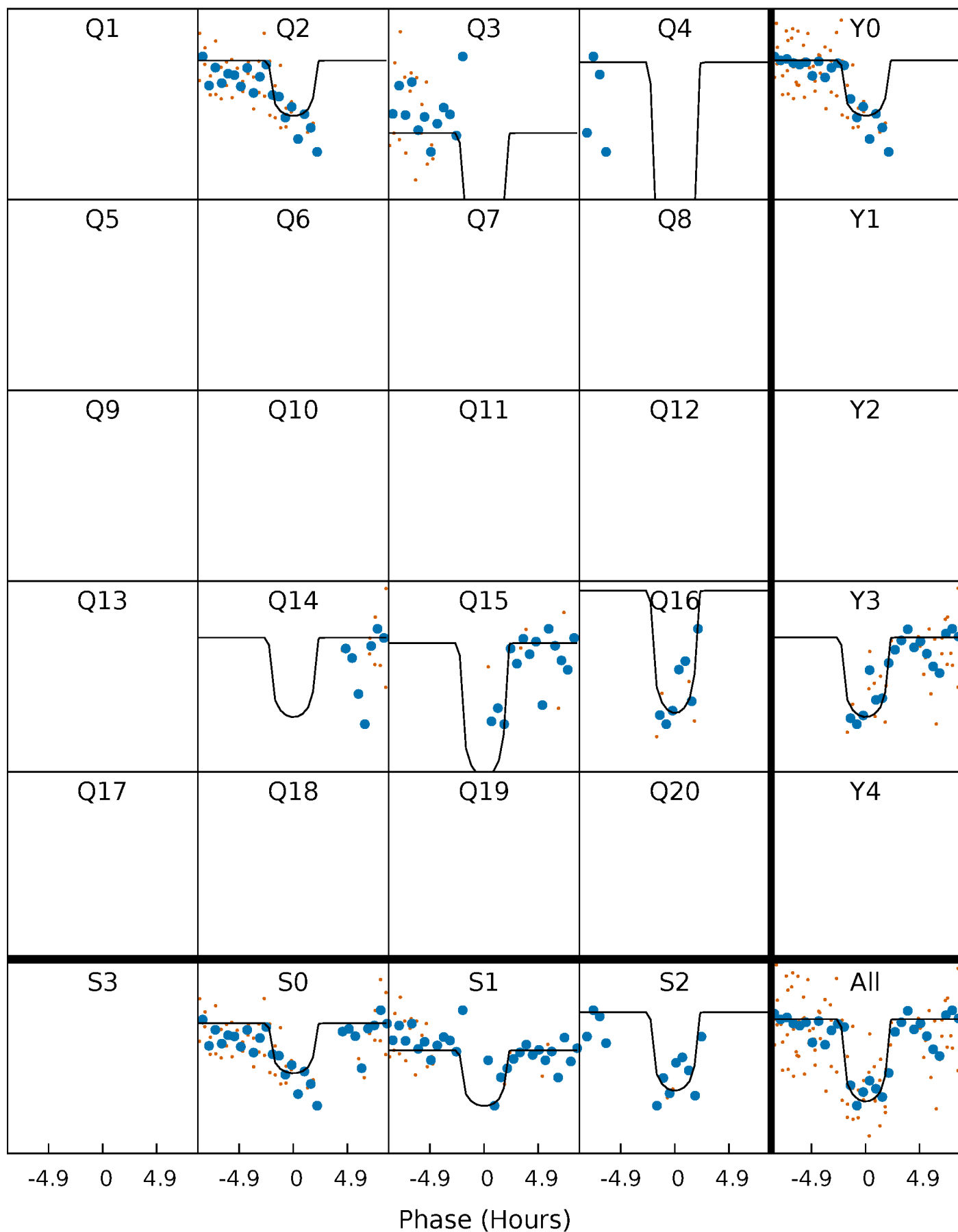
# PDC Quarter-Phased Transit Curves

TCE 006966132-04     $P = 51.248886$  Days     $T_0 = 174.594493$  (BKJD)



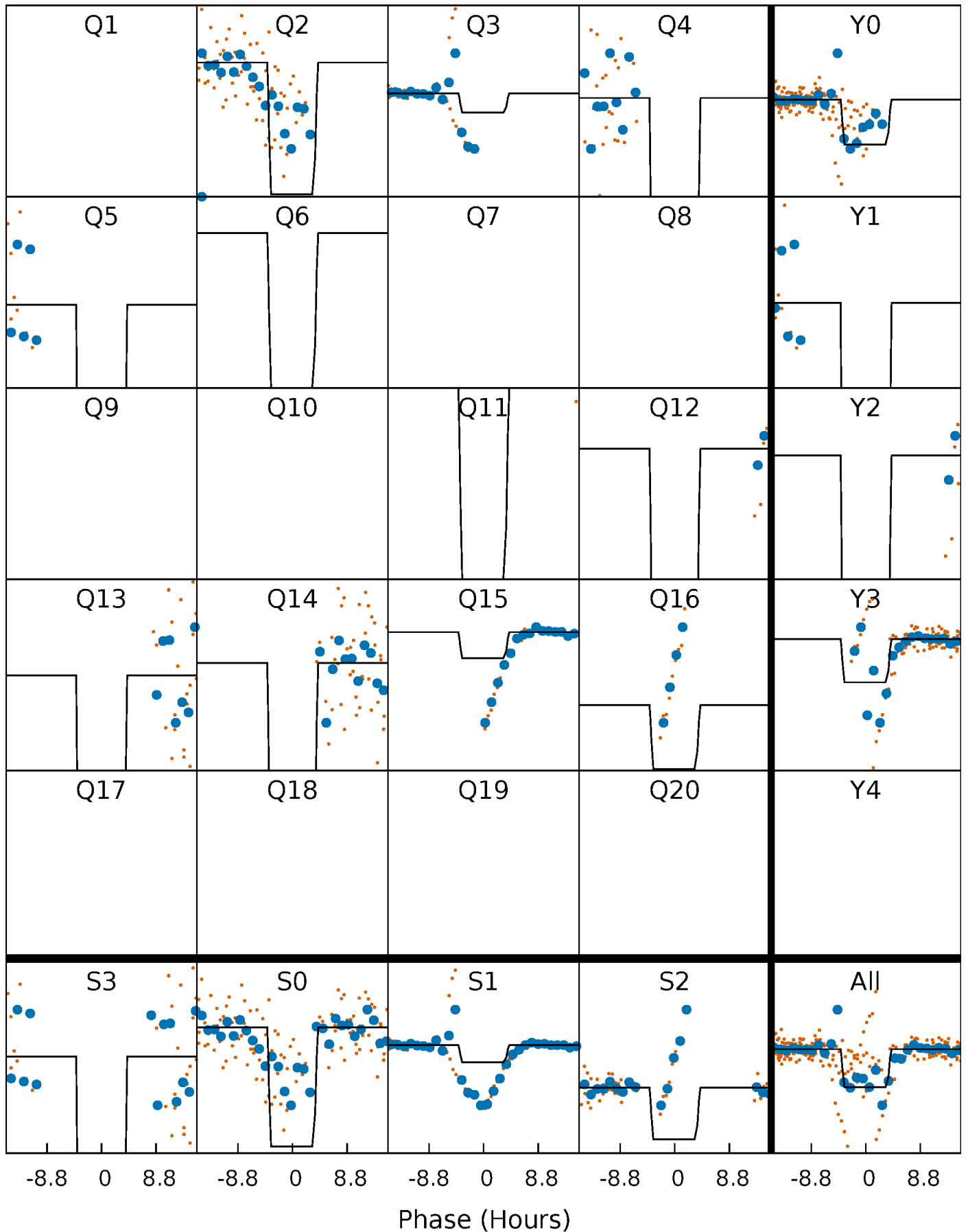
# DV Quarter-Phased Transit Curves

TCE 006966132-04   P= 51.248886 Days    $T_0=174.594493$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

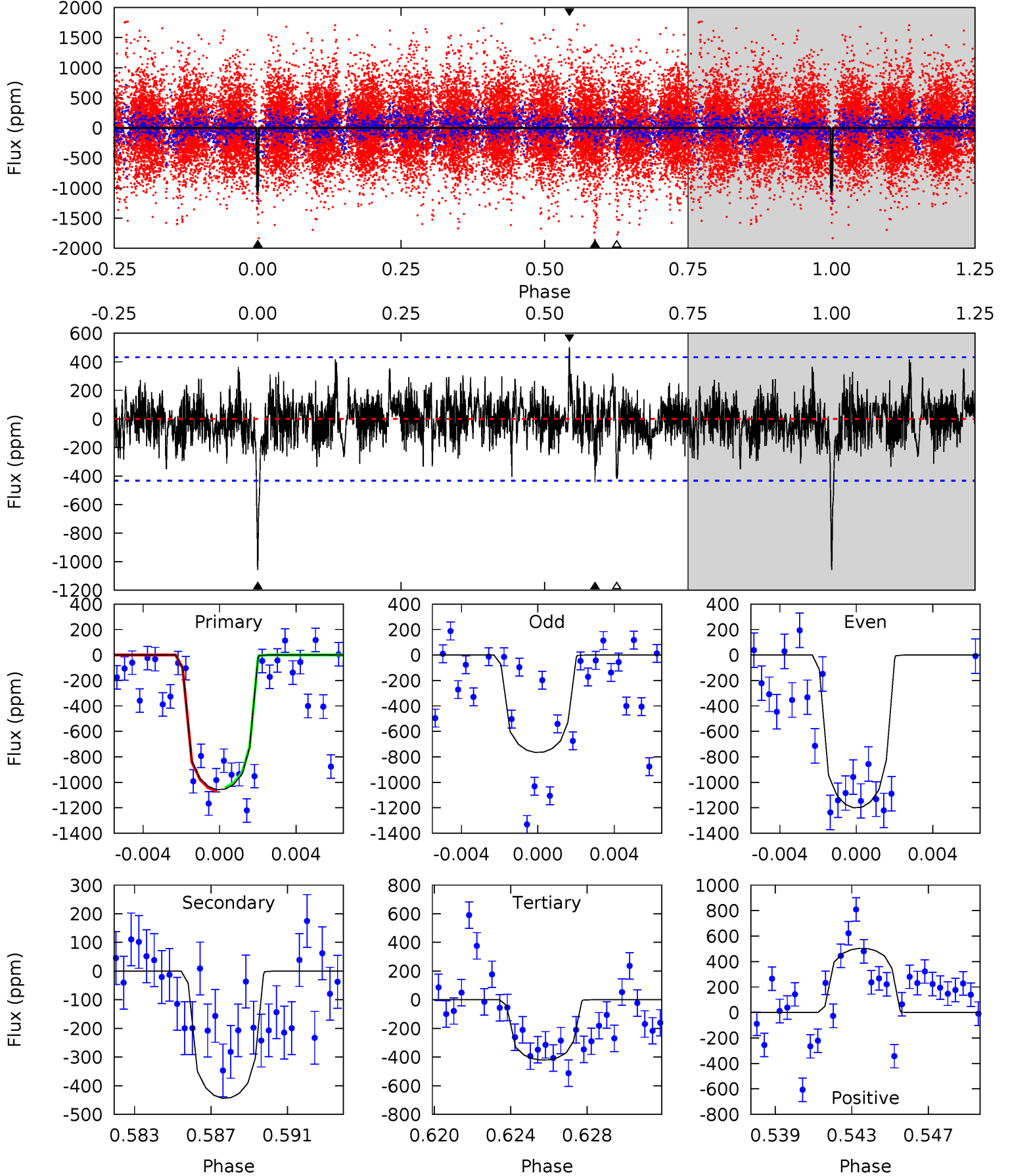
TCE 006966132-04 P= 51.250443 Days  $T_0=174.581995$  (BKJD)



# DV Model-Shift Uniqueness Test

006966132-04, P = 51.248886 Days, E = 123.345607 Days

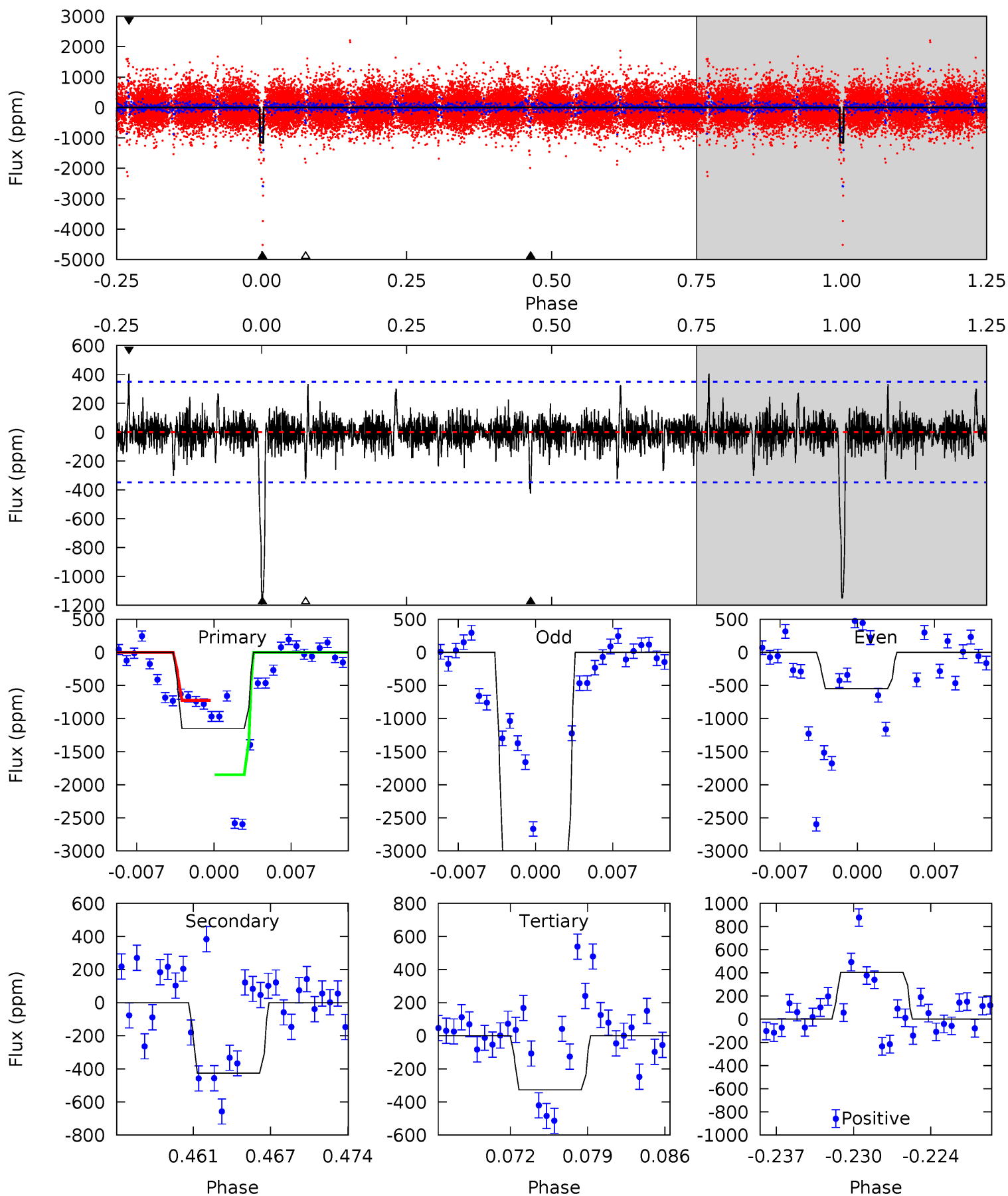
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	5.35	5.07	6.07	5.21	2.90	1.28	7.68	6.68	0.28	-0.72	2.46	1.04	0.32	0.17



# Alt Model-Shift Uniqueness Test

006966132-04, P = 51.250443 Days, E = 123.331552 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
16.9	6.26	4.79	5.93	5.11	2.72	0.99	12.1	11.0	1.46	0.32	23.1	1.50	0.26	0





### Stellar Parameters For KIC 006966132

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5767^{+173}_{-173}$	$4.538^{+0.037}_{-0.213}$	$-0.060^{+0.250}_{-0.300}$	$0.881^{+0.275}_{-0.069}$	$0.979^{+0.114}_{-0.114}$	$2.017^{+0.405}_{-1.044}$
	+3%/-3%	+1%/-5%	+417%/-500%	+31%/-8%	+12%/-12%	+20%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 006966132-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-444 \pm 83$	$3.50^{+2.11}_{-1.80}$	$663^{+46}_{-33}$	$4695^{+1803}_{-802}$	$1413^{+4521}_{-895}$
Alt.	$-426 \pm 68$	$4.76^{+2.28}_{-2.01}$	$659^{+47}_{-28}$	$4088^{+976}_{-485}$	$712^{+1449}_{-377}$

$T_{max}$  = 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

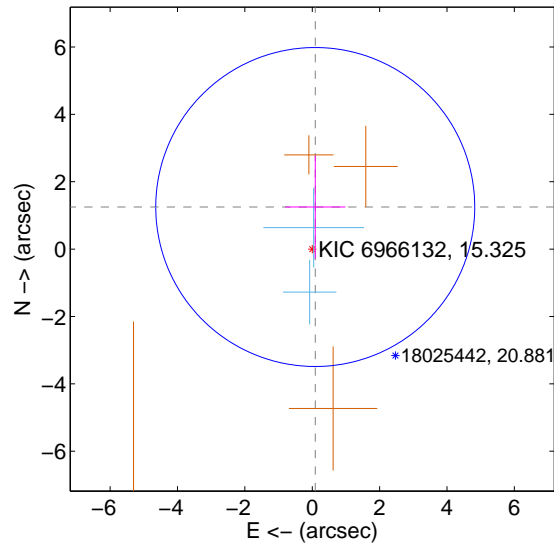
Supplemental centroid analysis for 006966132-04. Kepler magnitude: 15.32. Transit SNR 9.20

There are 2 quarters with good PRF difference image offsets

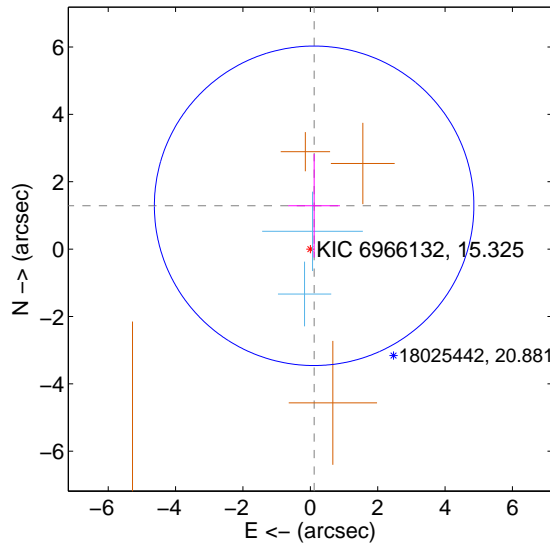
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.252 \pm 1.578$	0.79	$-0.089 \pm 0.894$	$1.249 \pm 1.530$
PRF-fit source offset from KIC position	$1.290 \pm 1.581$	0.82	$-0.113 \pm 0.768$	$1.285 \pm 1.534$
photometric centroid source offset	$0.24 \pm 0.43$	0.54	$-0.20 \pm 0.42$	$0.12 \pm 0.46$

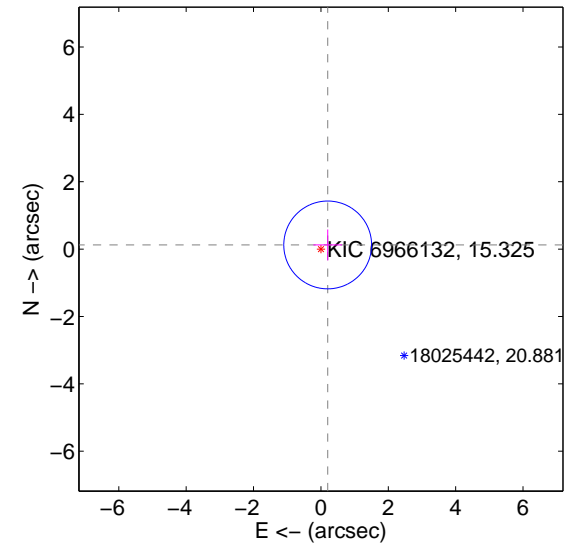
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

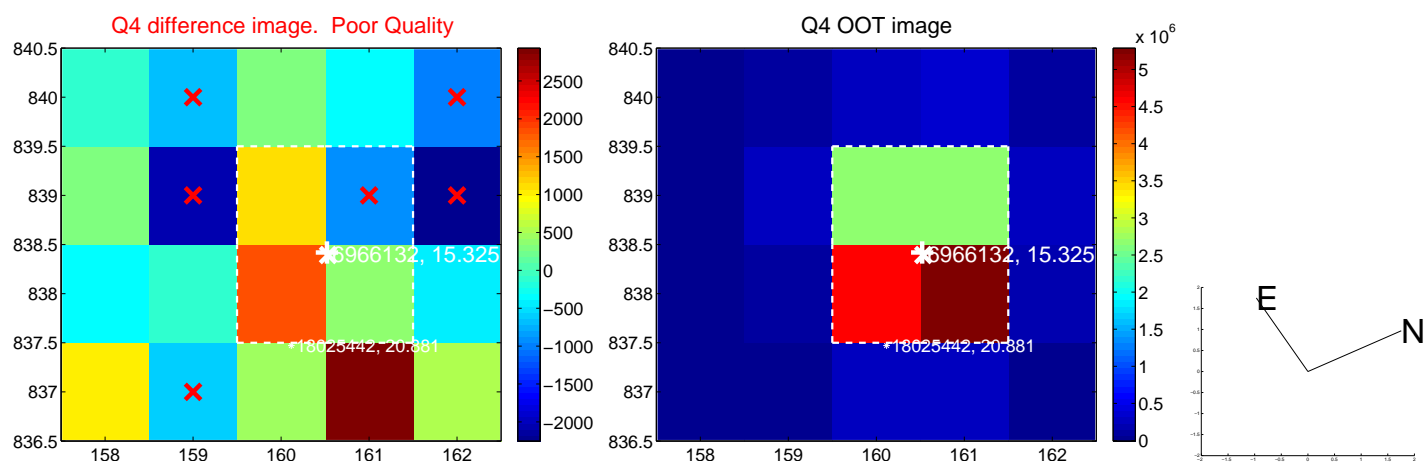
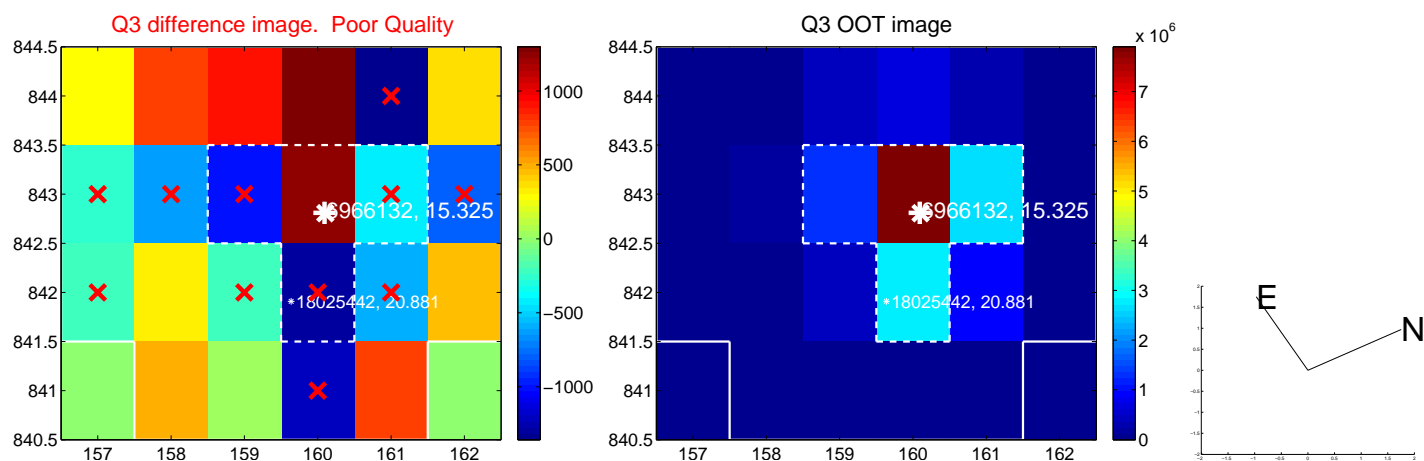
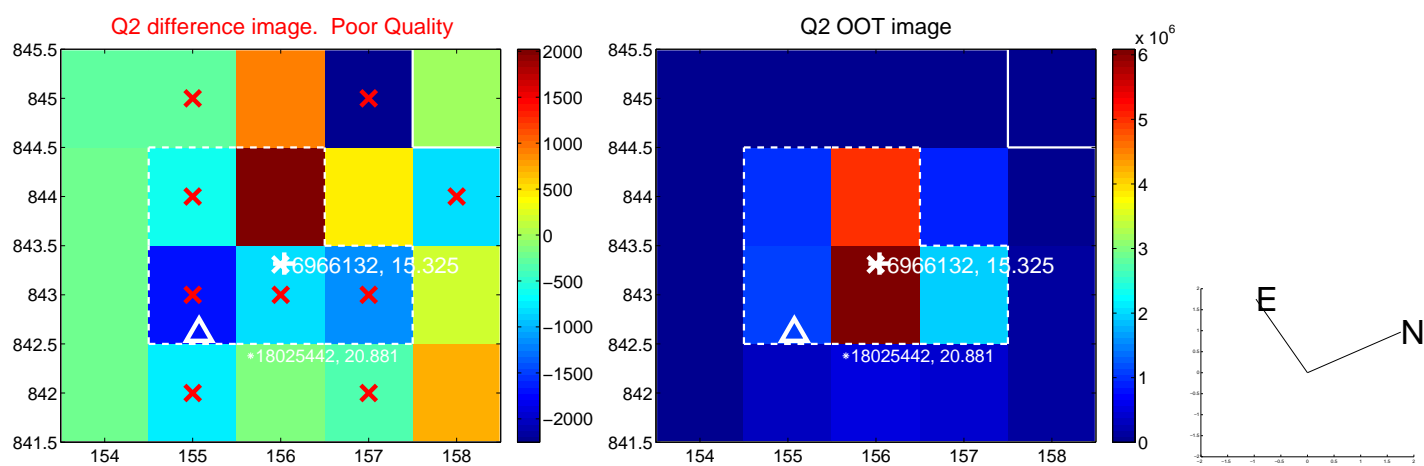
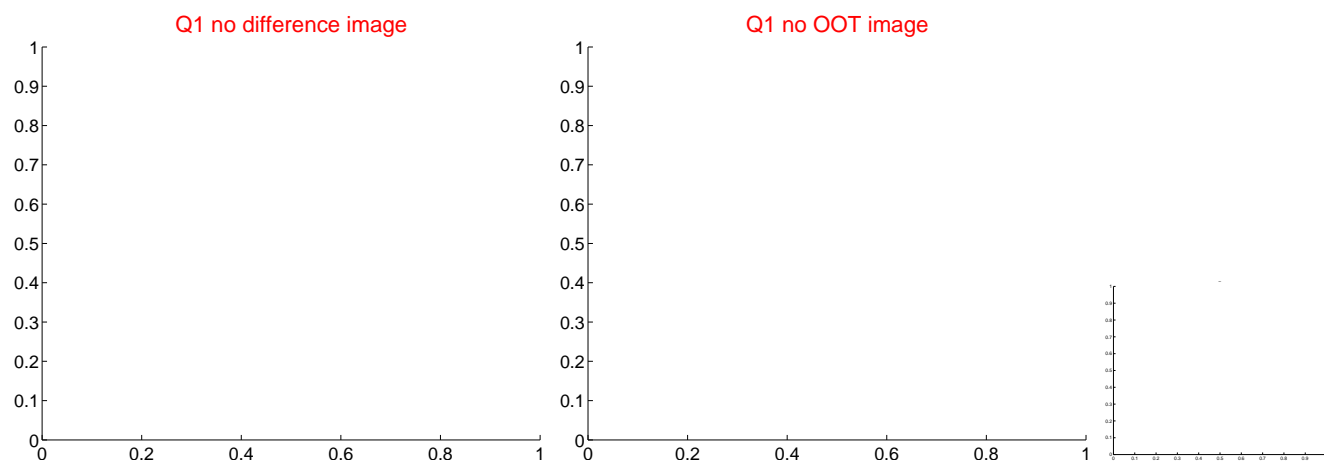


offset from photometric centroids

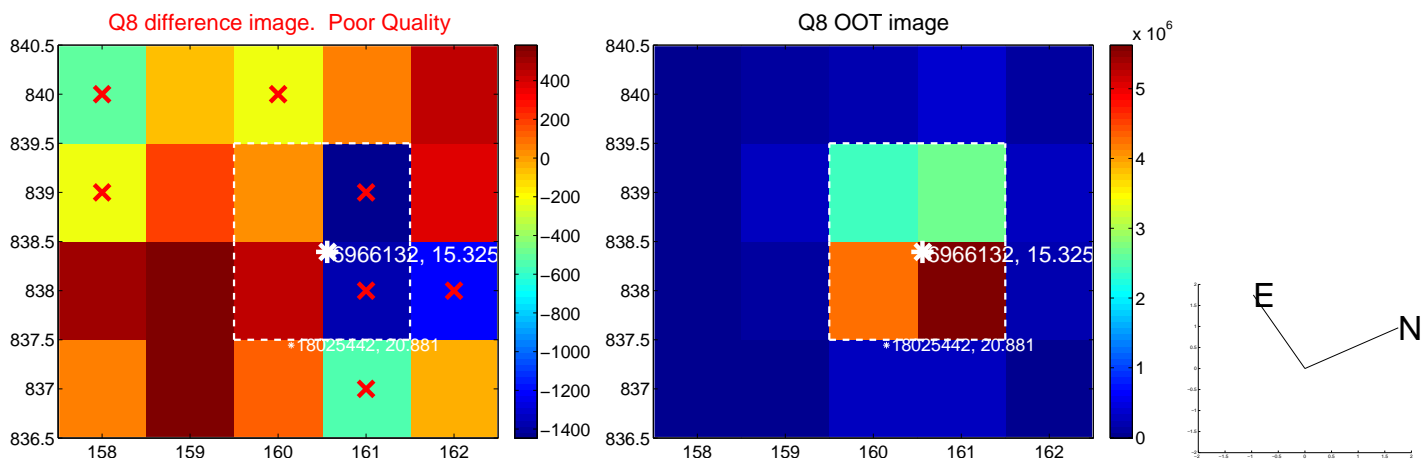
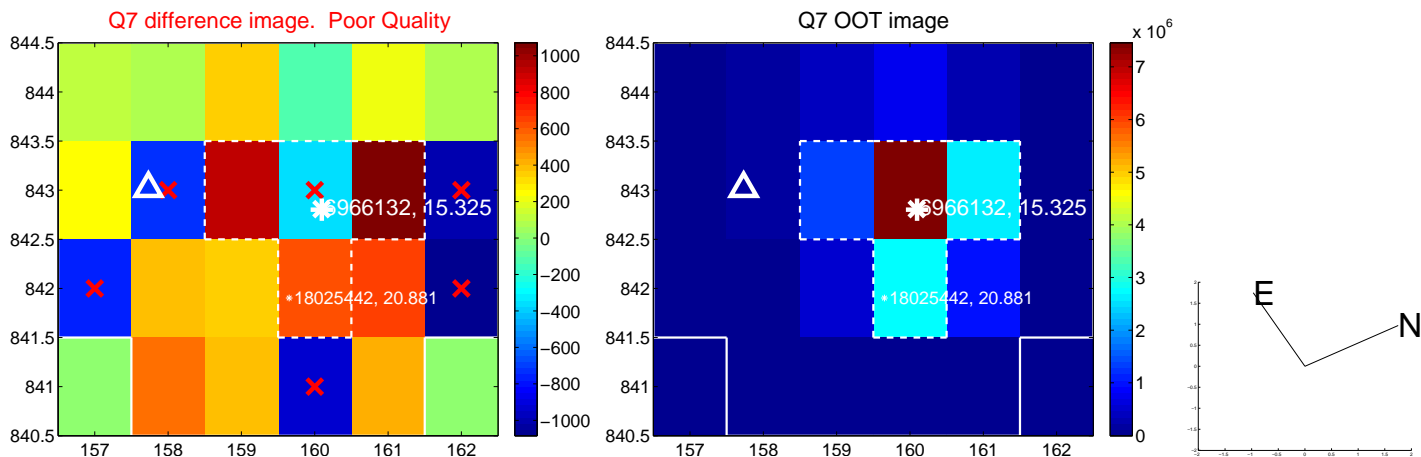
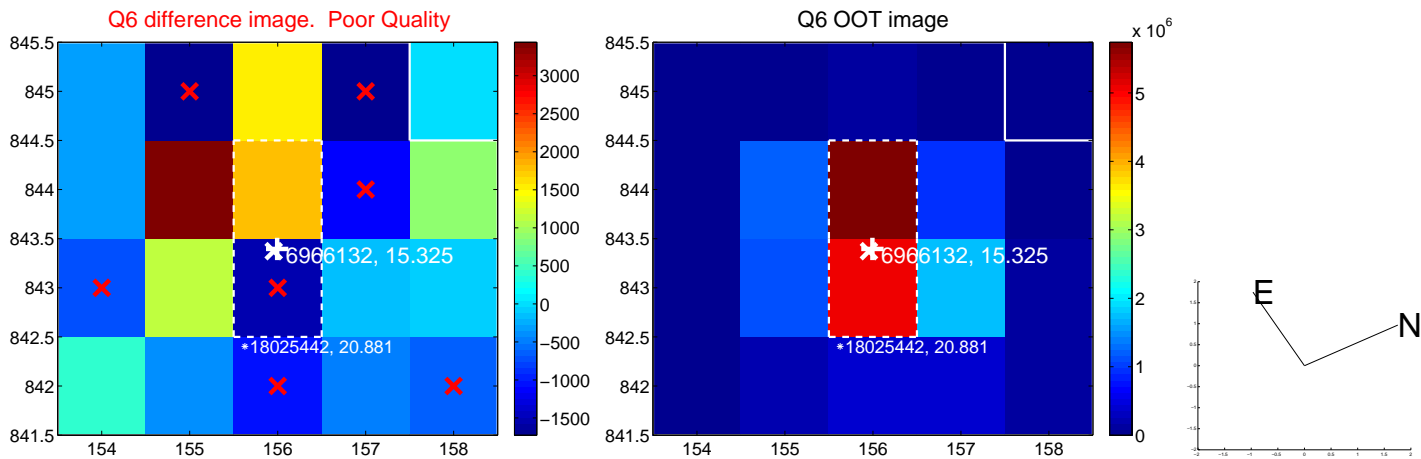
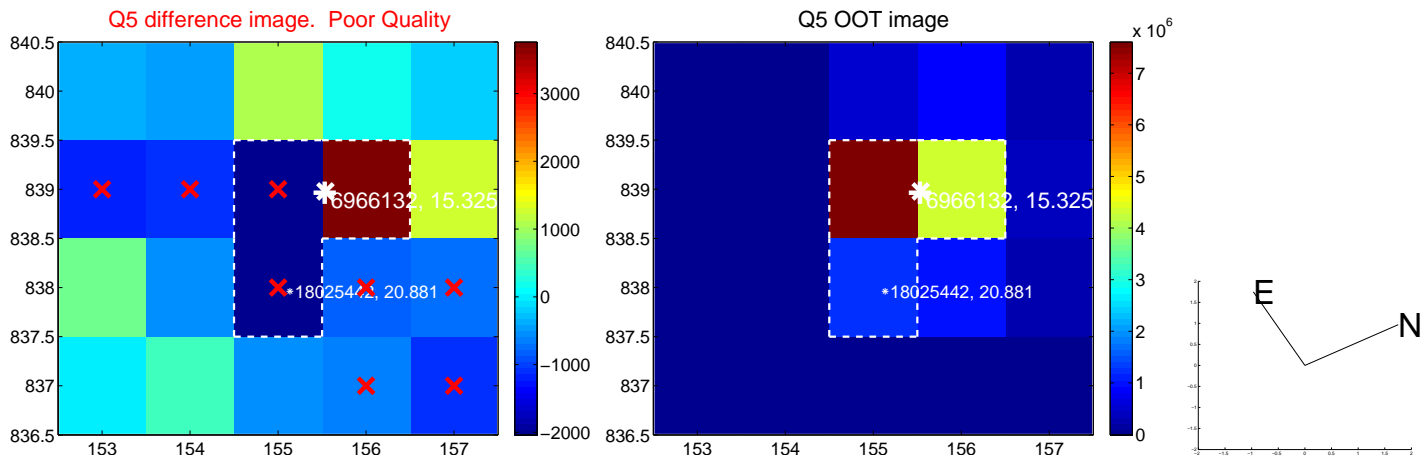


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

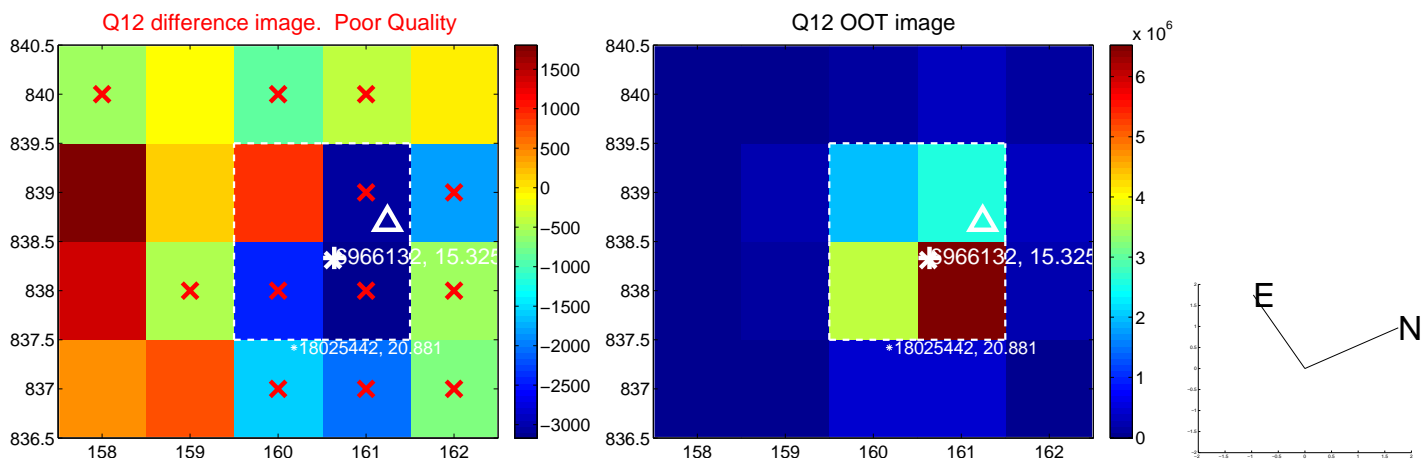
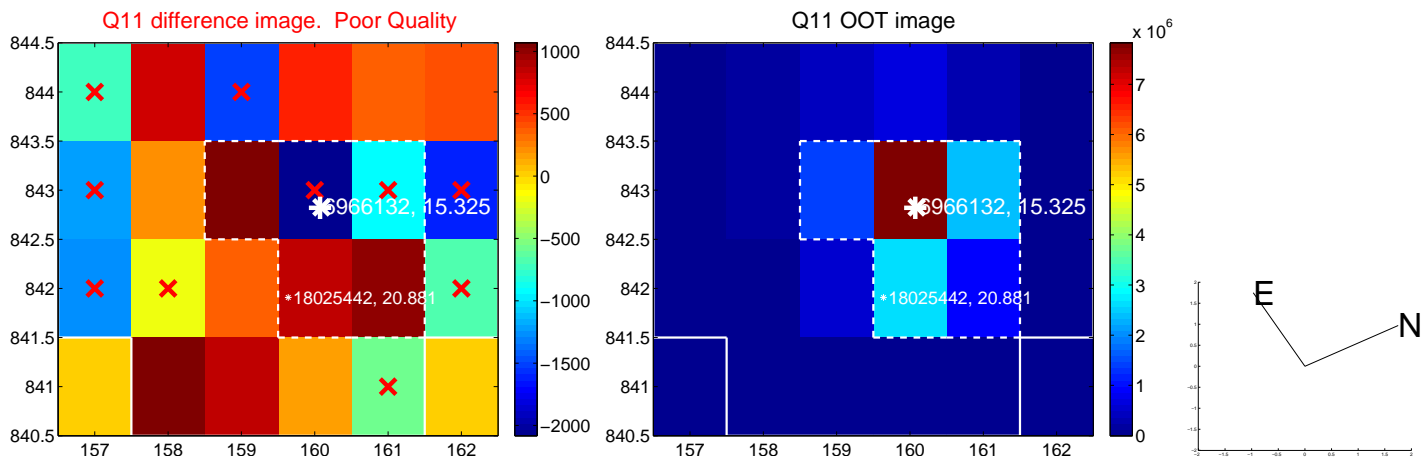
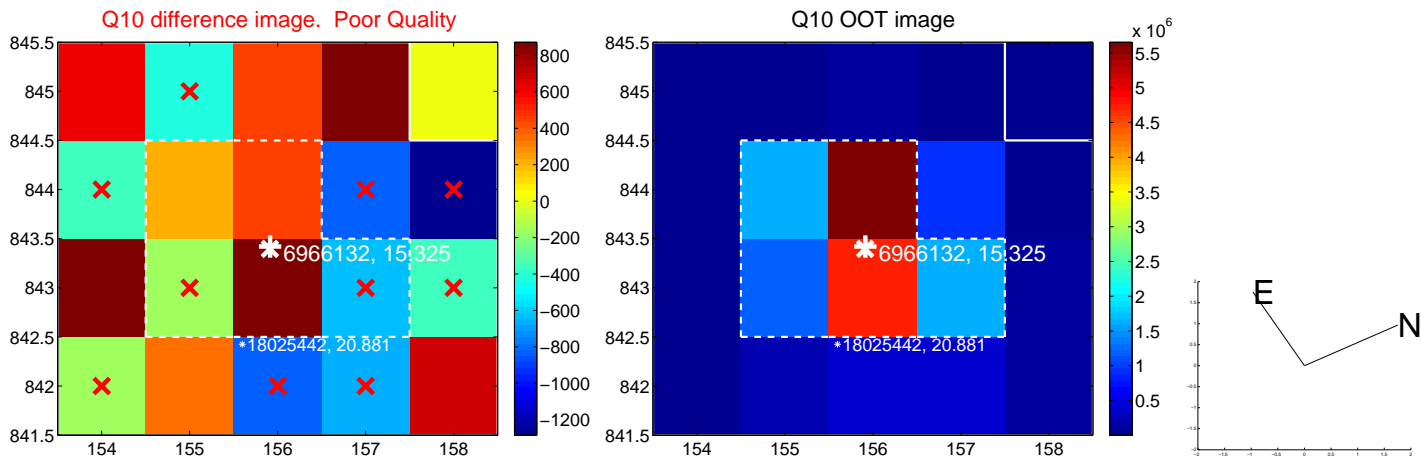
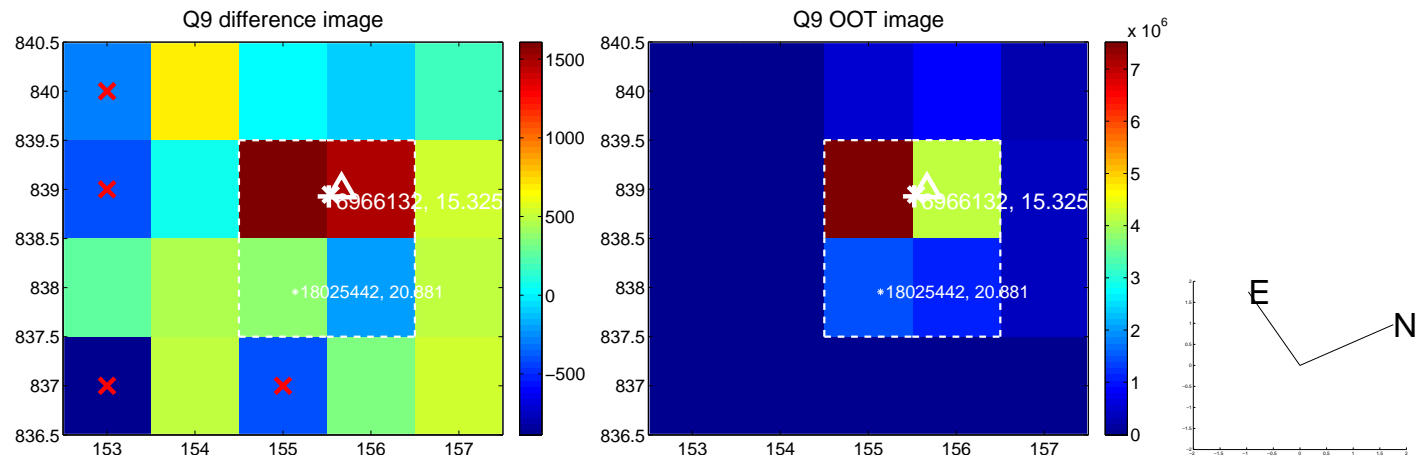
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



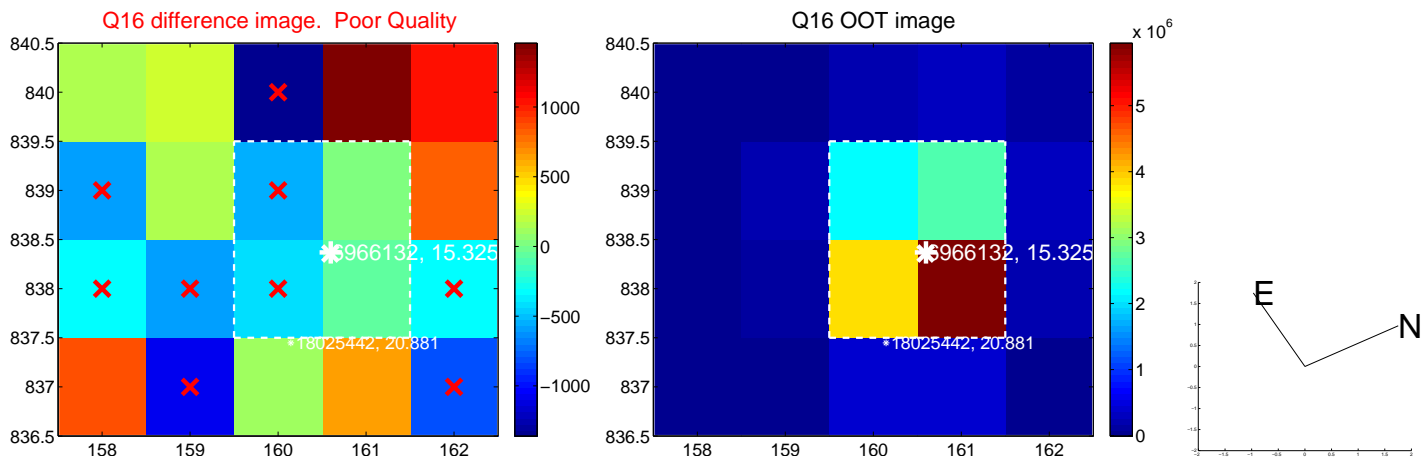
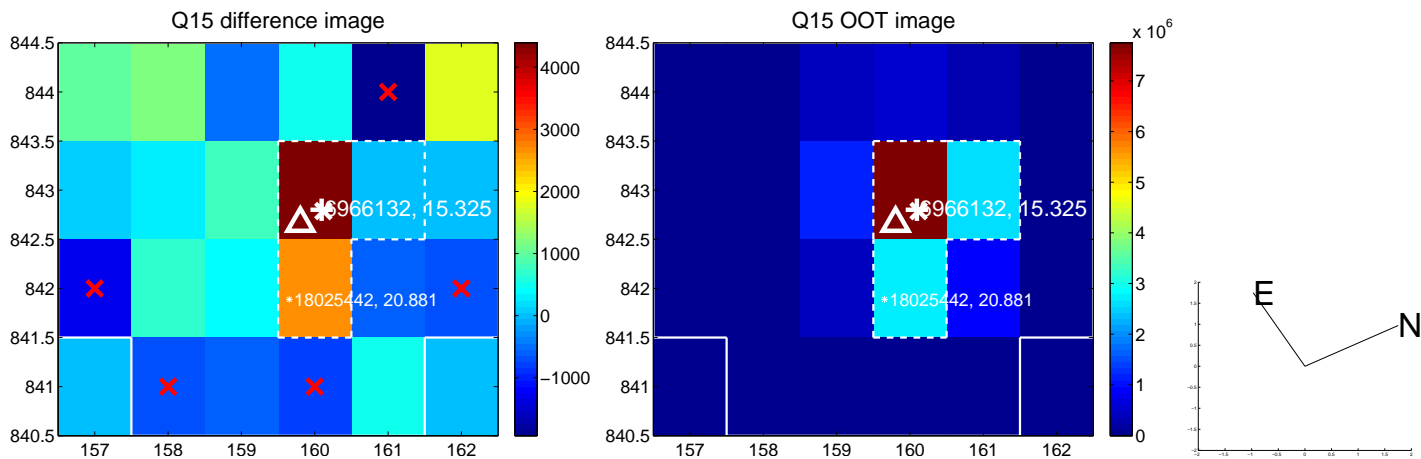
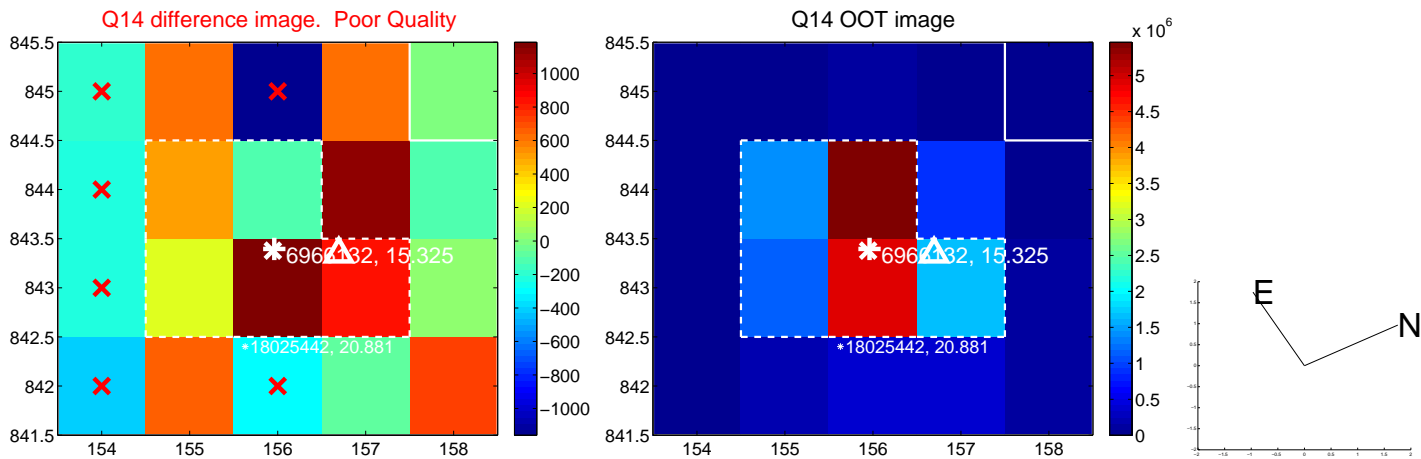
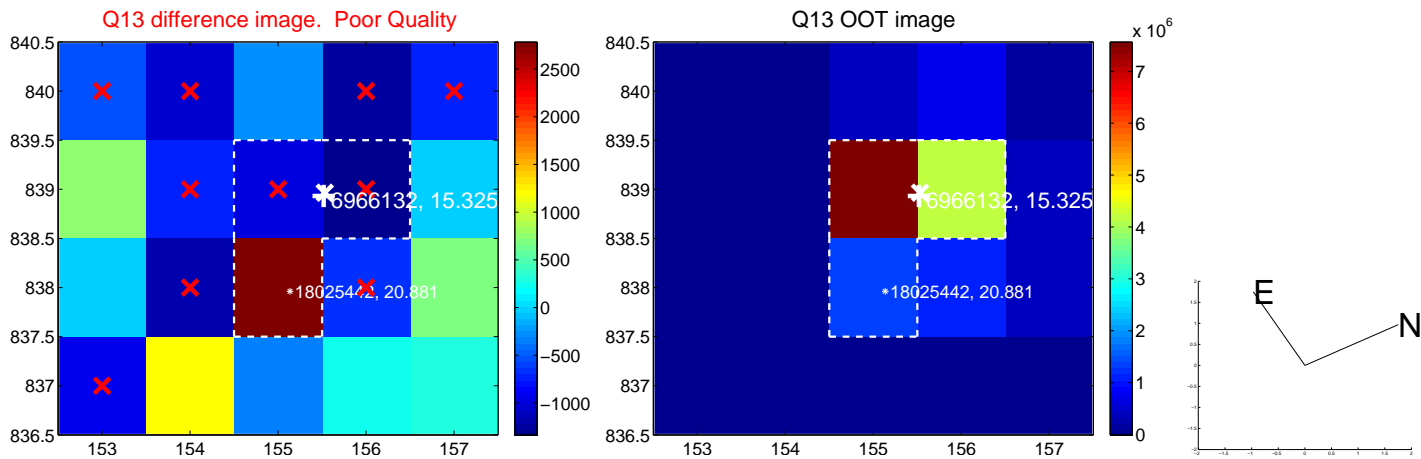
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



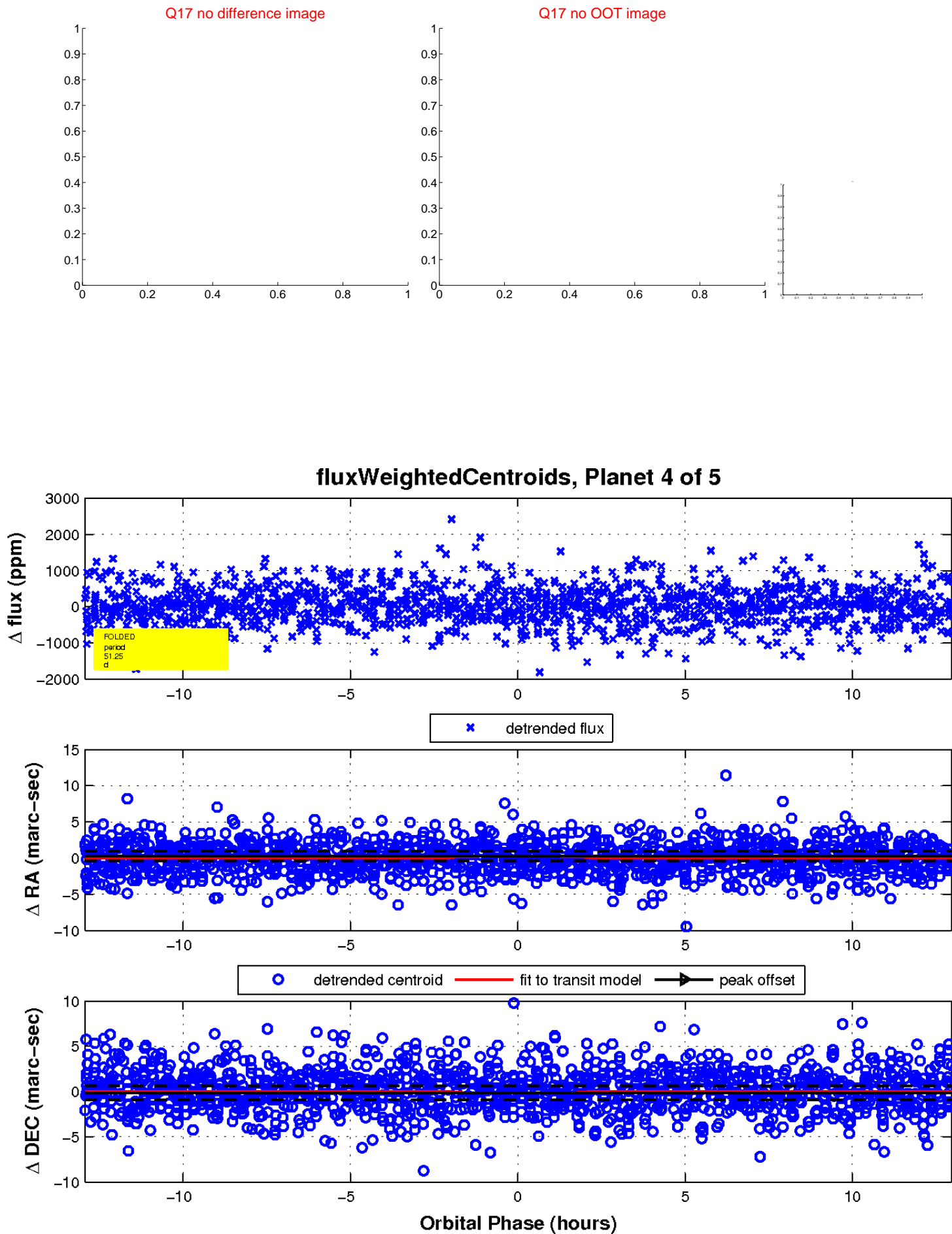
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

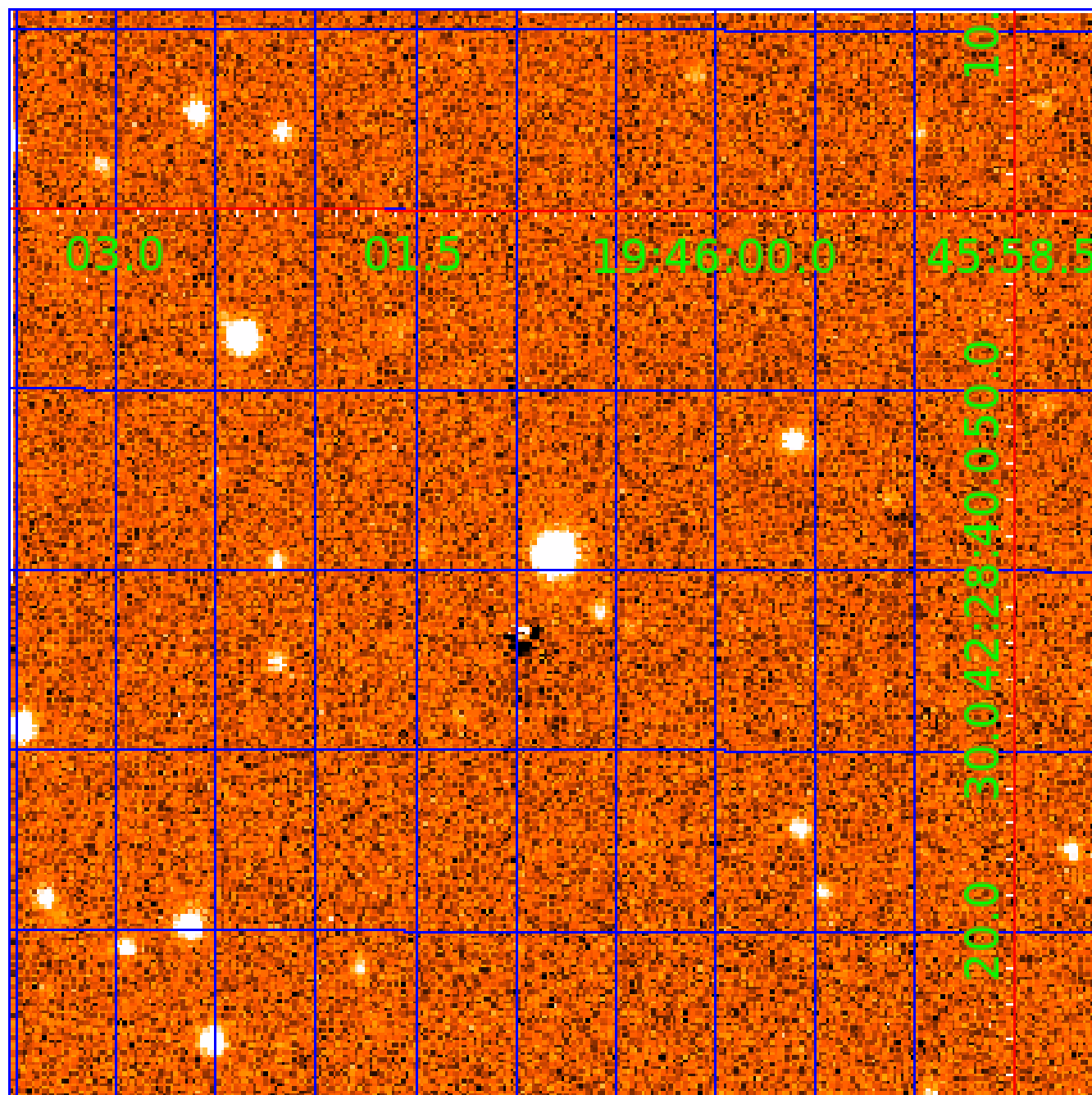


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006966132

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006966132-01	OBS	No	367.598306	497.792777	1218.9	4.457	8.5	7.7	0.88	5767	3.77	0.77
006966132-02	OBS	No	3.935270	132.487457	116.5	17.131	7.9	8.3	0.88	5767	1.08	328.13
006966132-03	OBS	No	156.616426	254.909263	2118.2	10.500	19.3	-1.0	0.88	5767	4.02	2.42
006966132-04	OBS	No	51.248886	174.594493	1110.7	4.326	18.6	9.2	0.88	5767	3.14	10.71
006966132-05	OBS	No	165.065829	210.792943	548.2	9.665	9.1	6.2	0.88	5767	2.31	2.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006966132-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006966132-02	OBS	FP	0.00	1	0	0	0	LPP_DV
006966132-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006966132-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_FEW_DIFFS—HALO_GHOST
006966132-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS

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

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

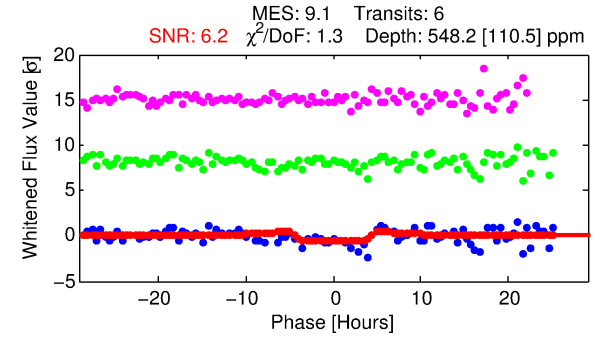
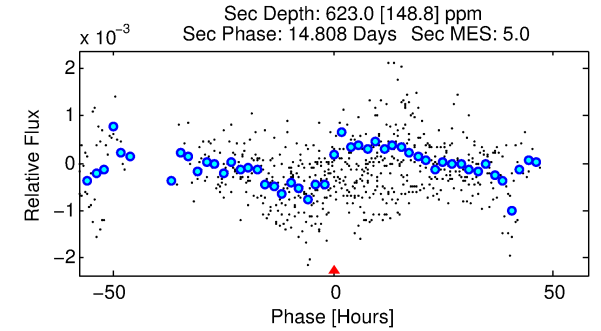
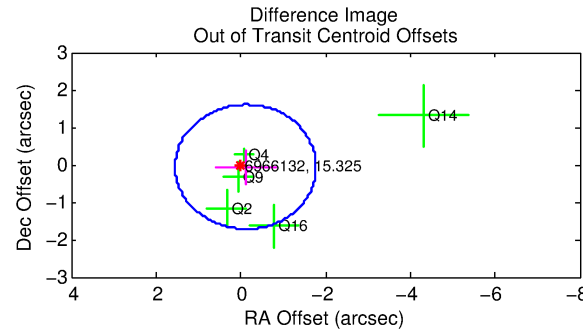
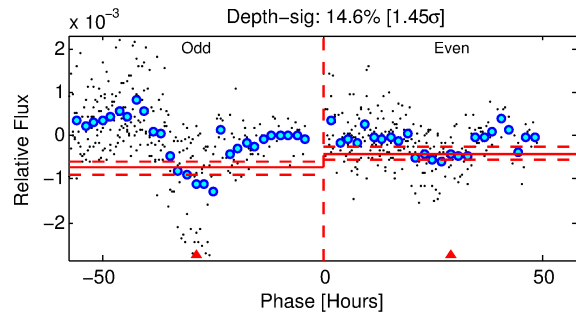
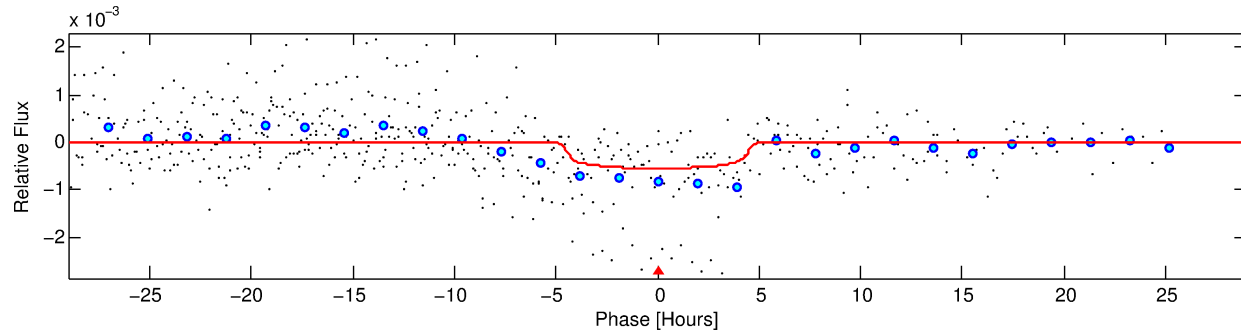
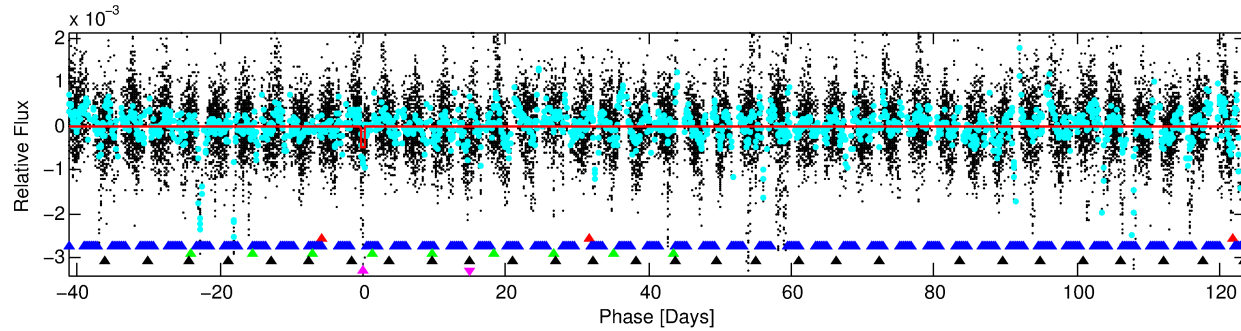
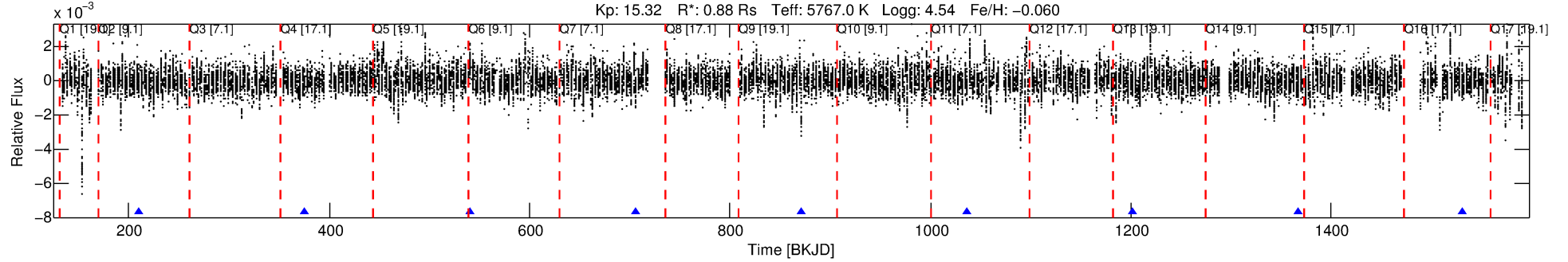
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006966132-05

No Significant Match Found

# DV One-Page Summary

KIC: 6966132 Candidate: 5 of 5 Period: 165.066 d



## DV Fit Results:

Period = 165.06583 [0.00634] d  
Epoch = 210.7929 [0.0401] BKJD  
Rp/R\* = 0.0240 [0.0066]  
a/R\* = 80.38 [89.94]  
b = 0.82 [0.46]  
Seff = 2.25 [0.91]  
Teq = 312 [32] K  
Rp = 2.31 [0.96] Re  
a = 0.5845 [0.1547] AU  
Ag = 21935.96 [15647.18] [1.40 $\sigma$ ]  
Teffp = 5877 [897] K [6.20 $\sigma$ ]

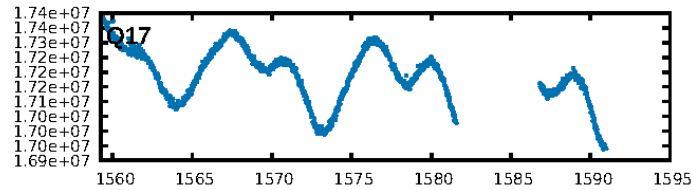
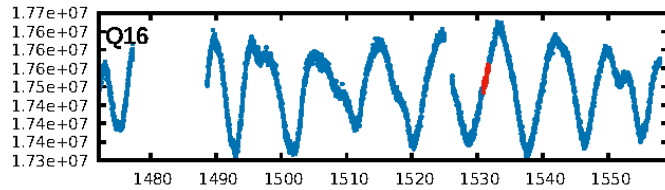
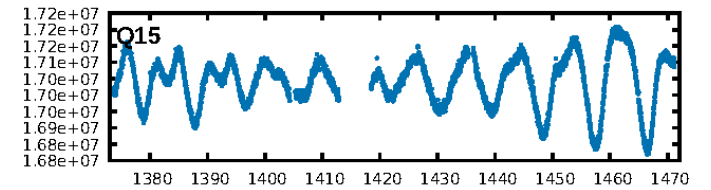
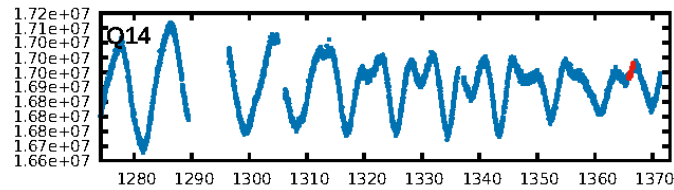
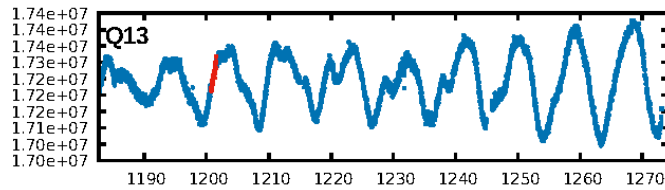
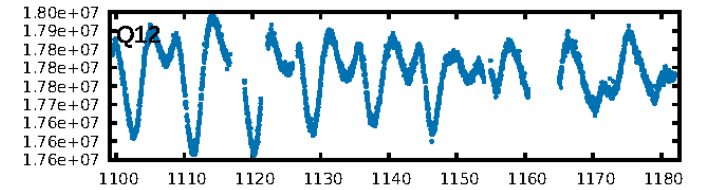
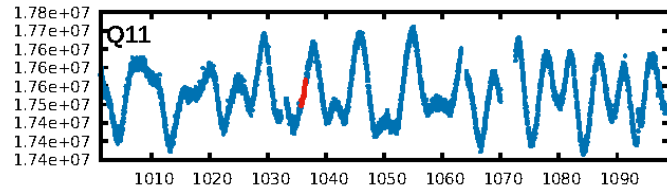
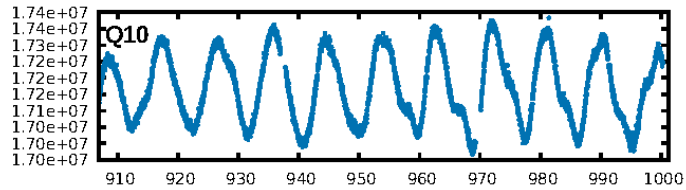
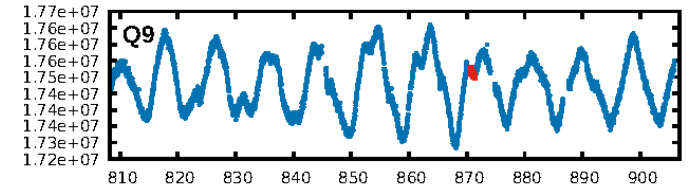
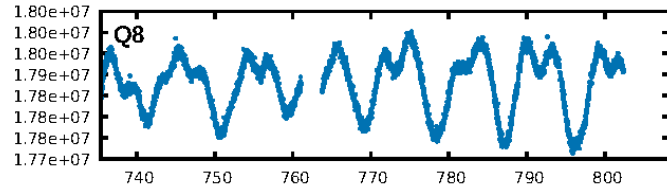
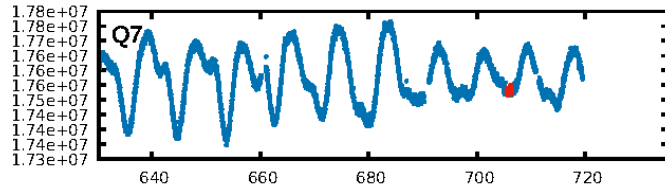
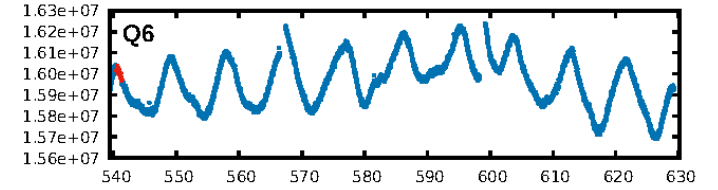
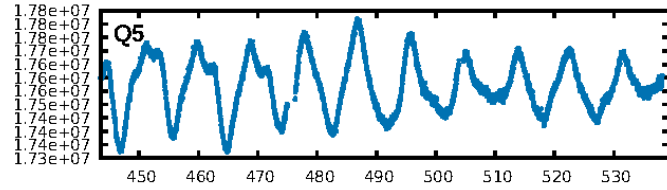
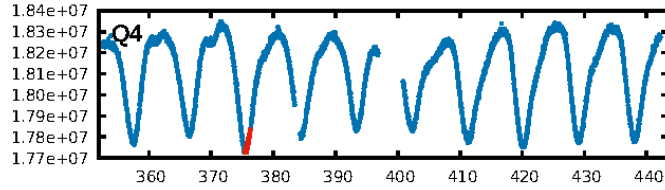
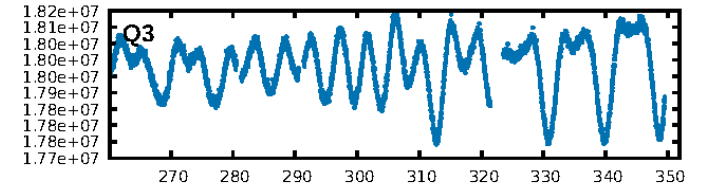
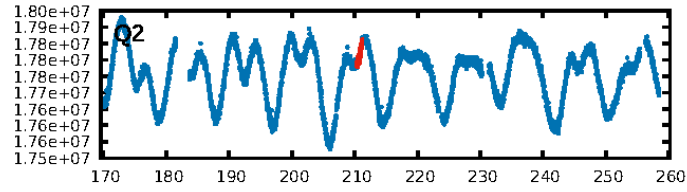
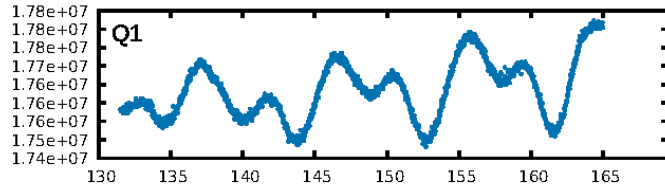
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.21 $\sigma$ ]  
LongPeriod-sig: 100.0% [456.72 $\sigma$ ]  
ModelChiSquare2-sig: 0.2%  
ModelChiSquareGof-sig: 97.0%  
Bootstrap-pfa: 5.40e-08  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: -6.353  
Centroid-sig: 77.1%  
Centroid-so: 0.462 arcsec [0.44 $\sigma$ ]  
OotOffset-rm: 0.132 arcsec [0.24 $\sigma$ ]  
OotOffset-st: 2/0/2/1 [5]  
KicOffset-rm: 0.060 arcsec [0.17 $\sigma$ ]  
KicOffset-st: 2/0/2/1 [5]  
DiffImageQuality-fgm: 0.80 [4/5]  
DiffImageOverlap-fno: 0.57 [4/7]

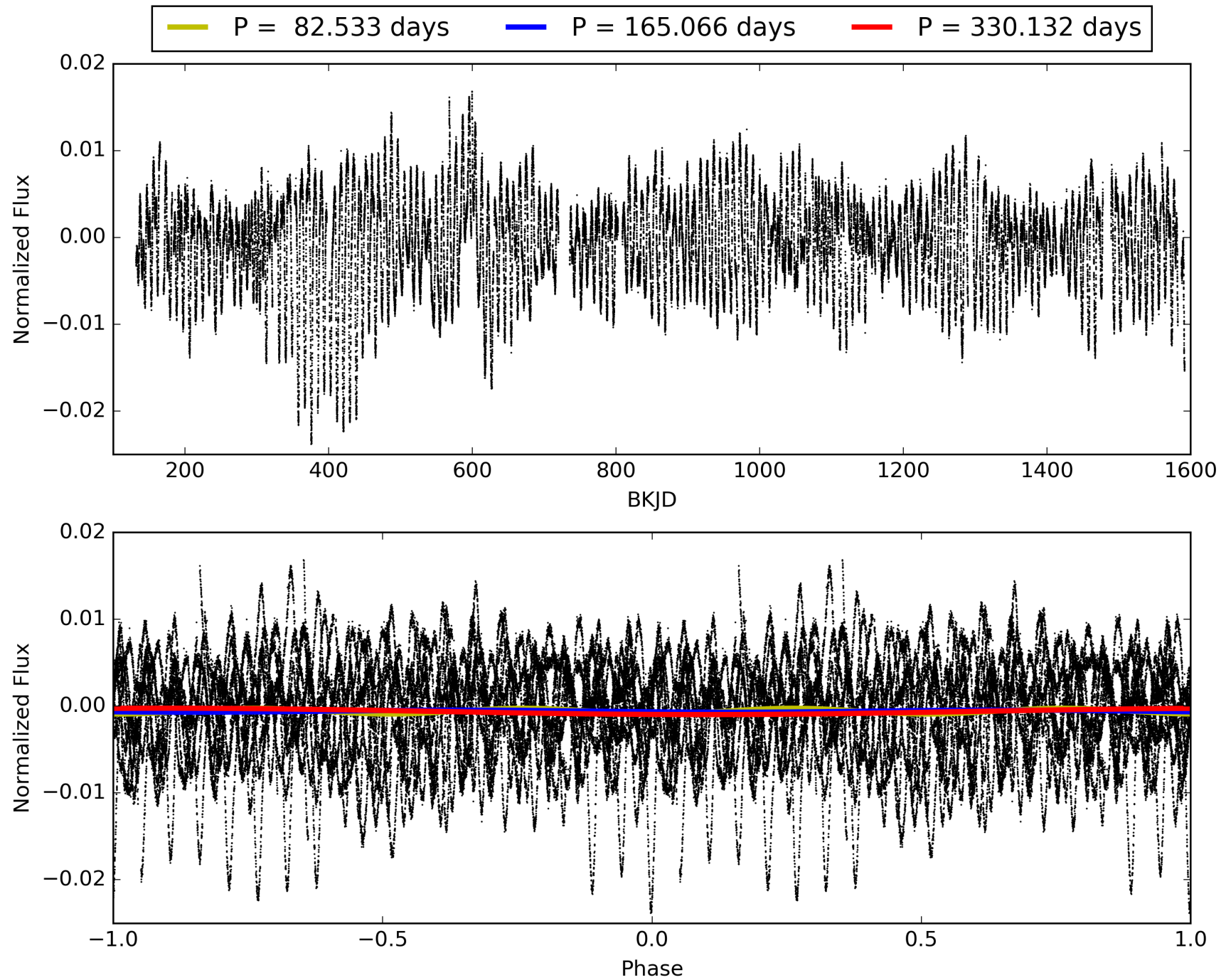
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:19:20 Z

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

# TCE 006966132-05, PDC Light Curves

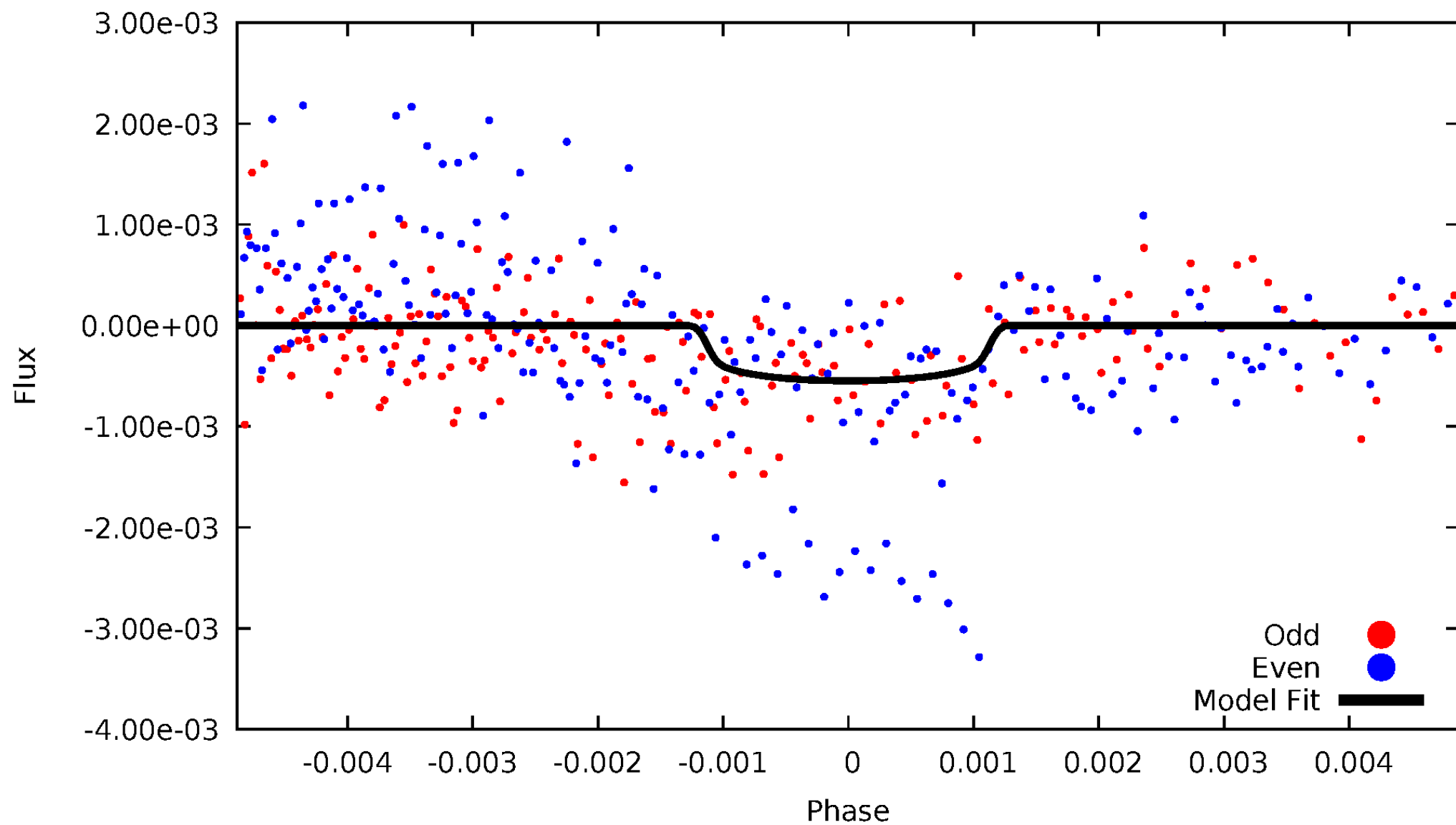


TCE 006966132-05



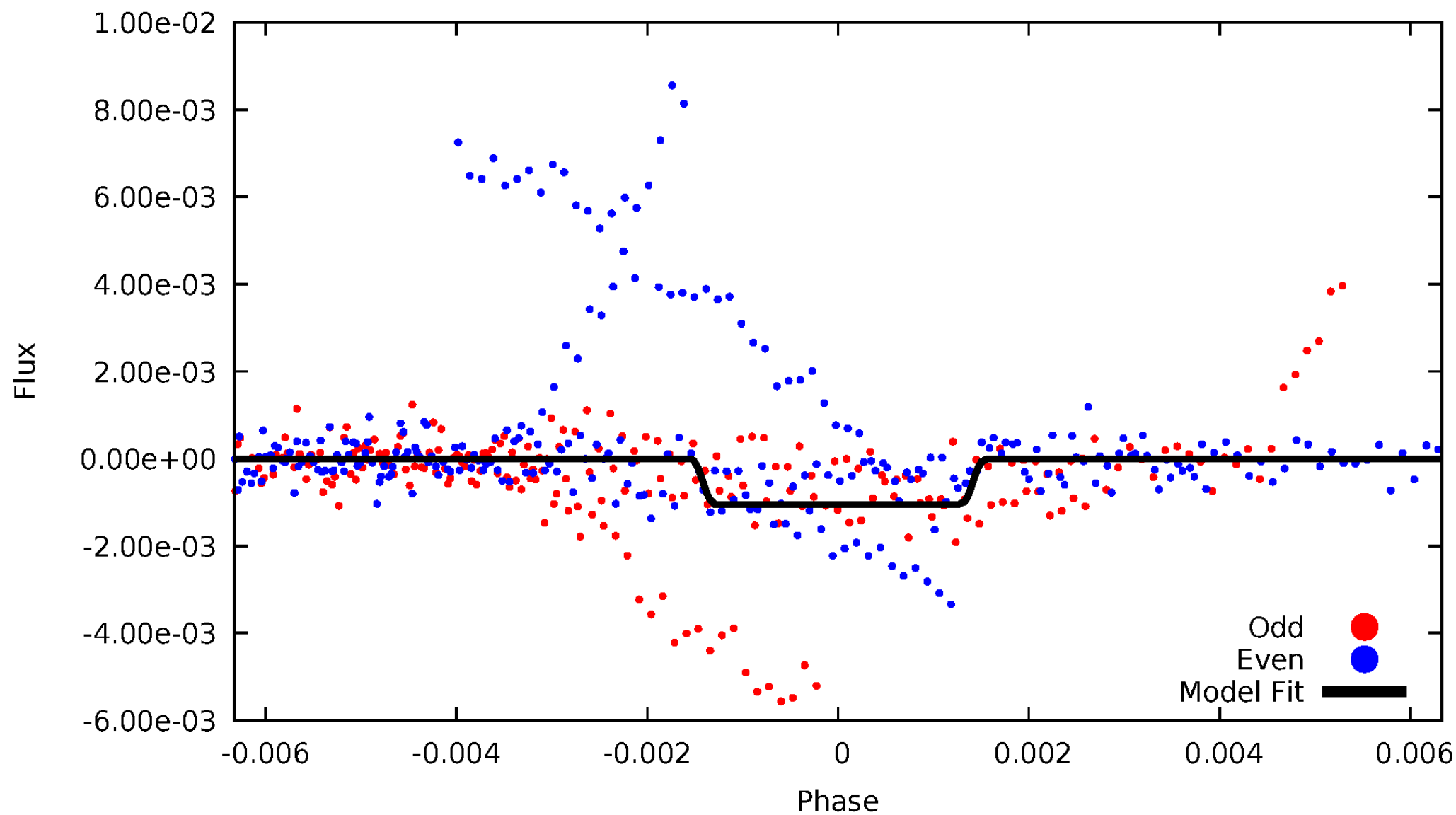
# DV Odd/Even

TCE 006966132-05



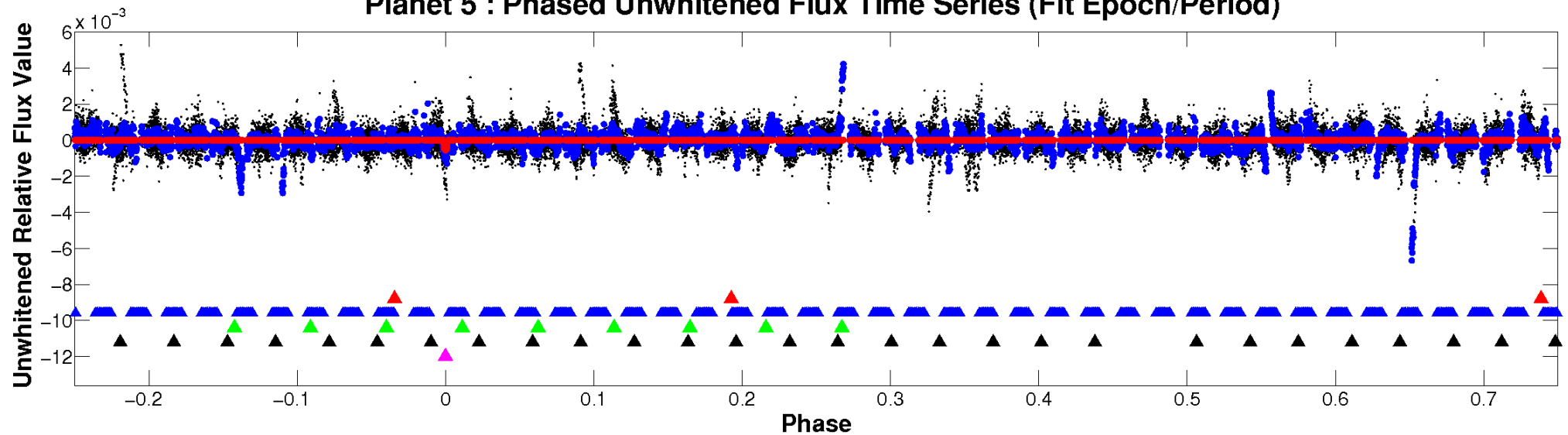
# ALT Odd/Even

TCE 006966132-05

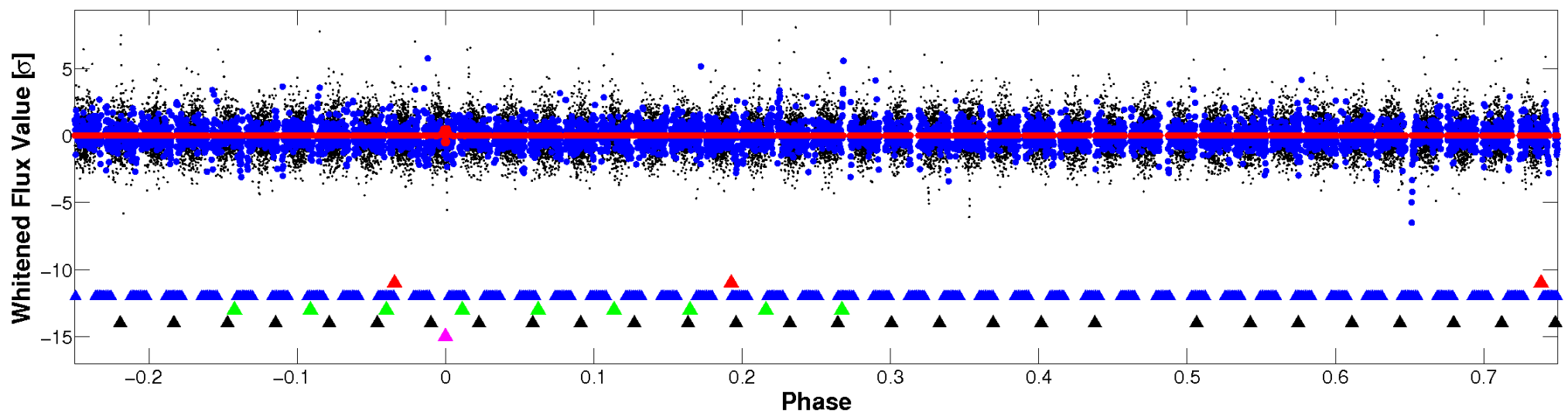


# Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



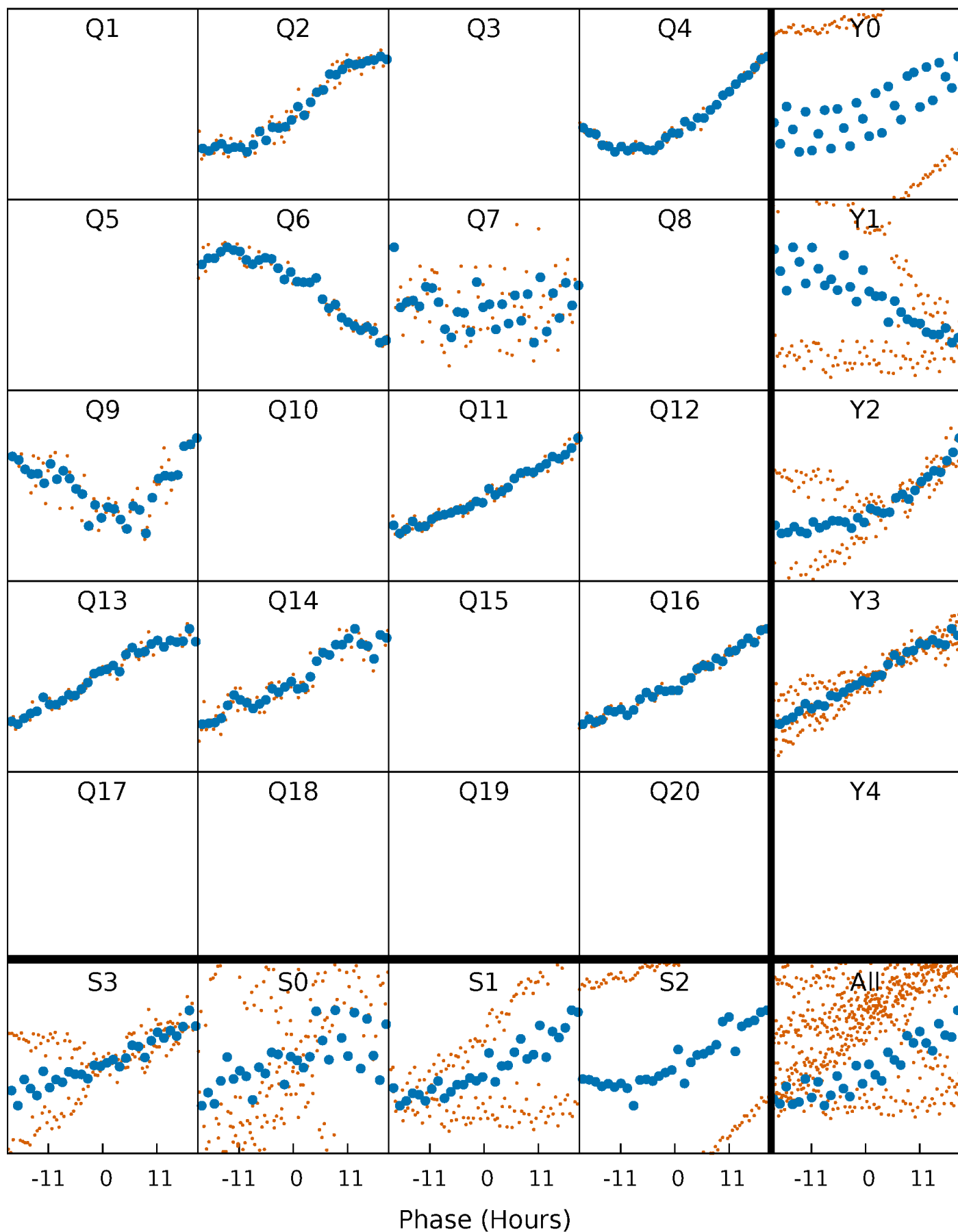
Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

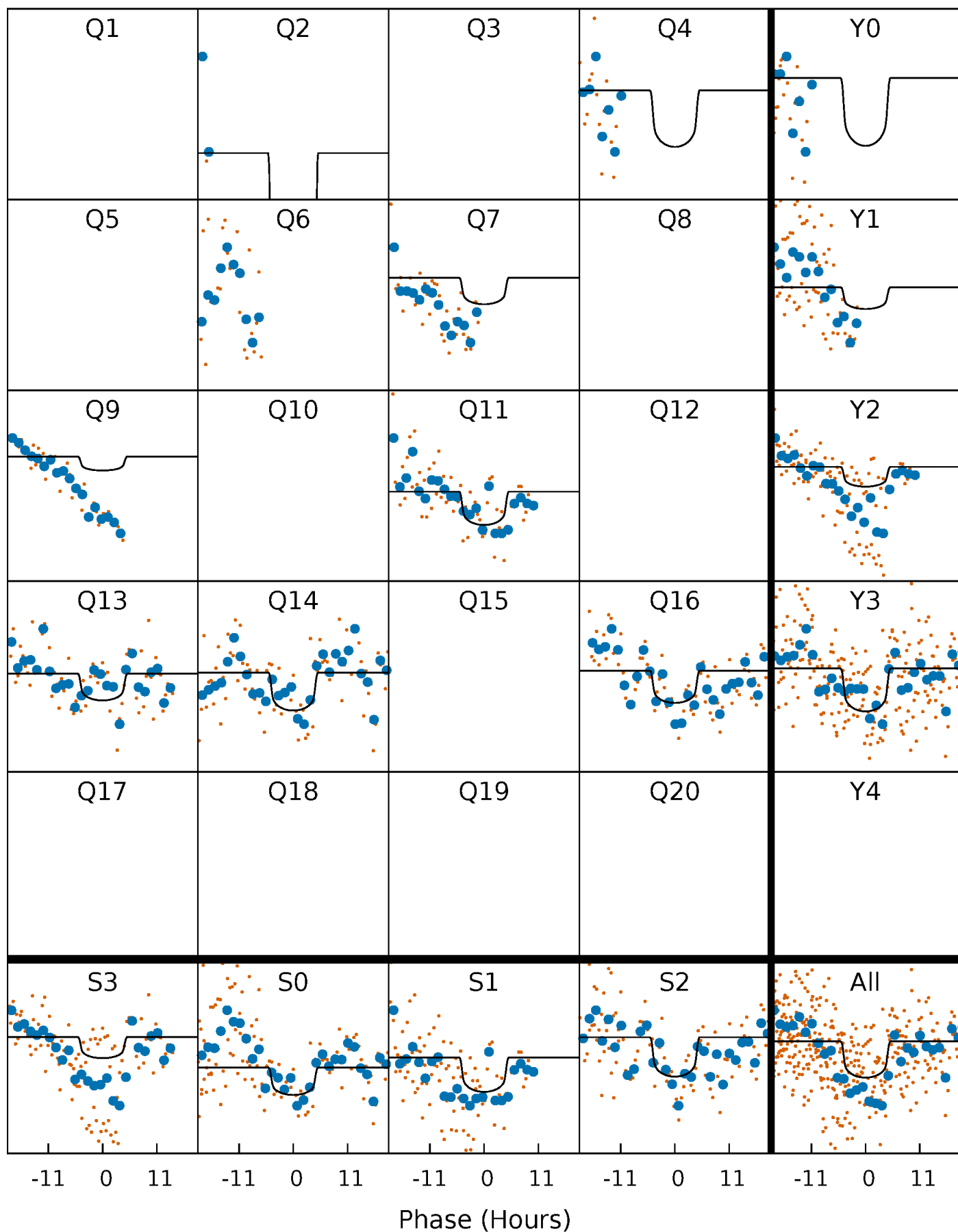
TCE 006966132-05     $P=165.065829$  Days     $T_0=210.792943$  (BKJD)





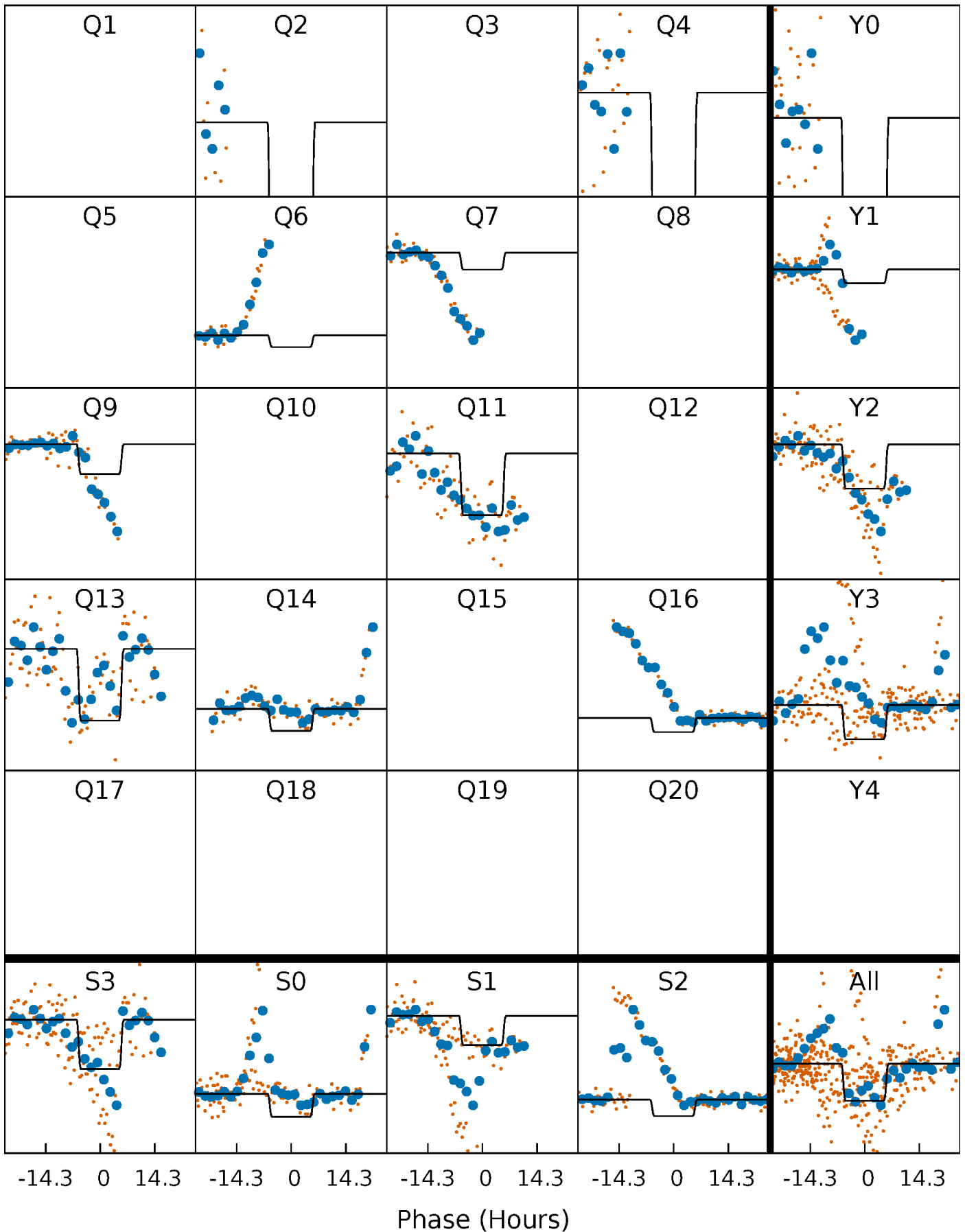
# DV Quarter-Phased Transit Curves

TCE 006966132-05     $P=165.065829$  Days     $T_0=210.792943$  (BKJD)



## Alt. Detrend Quarter-Phased Transit Curves

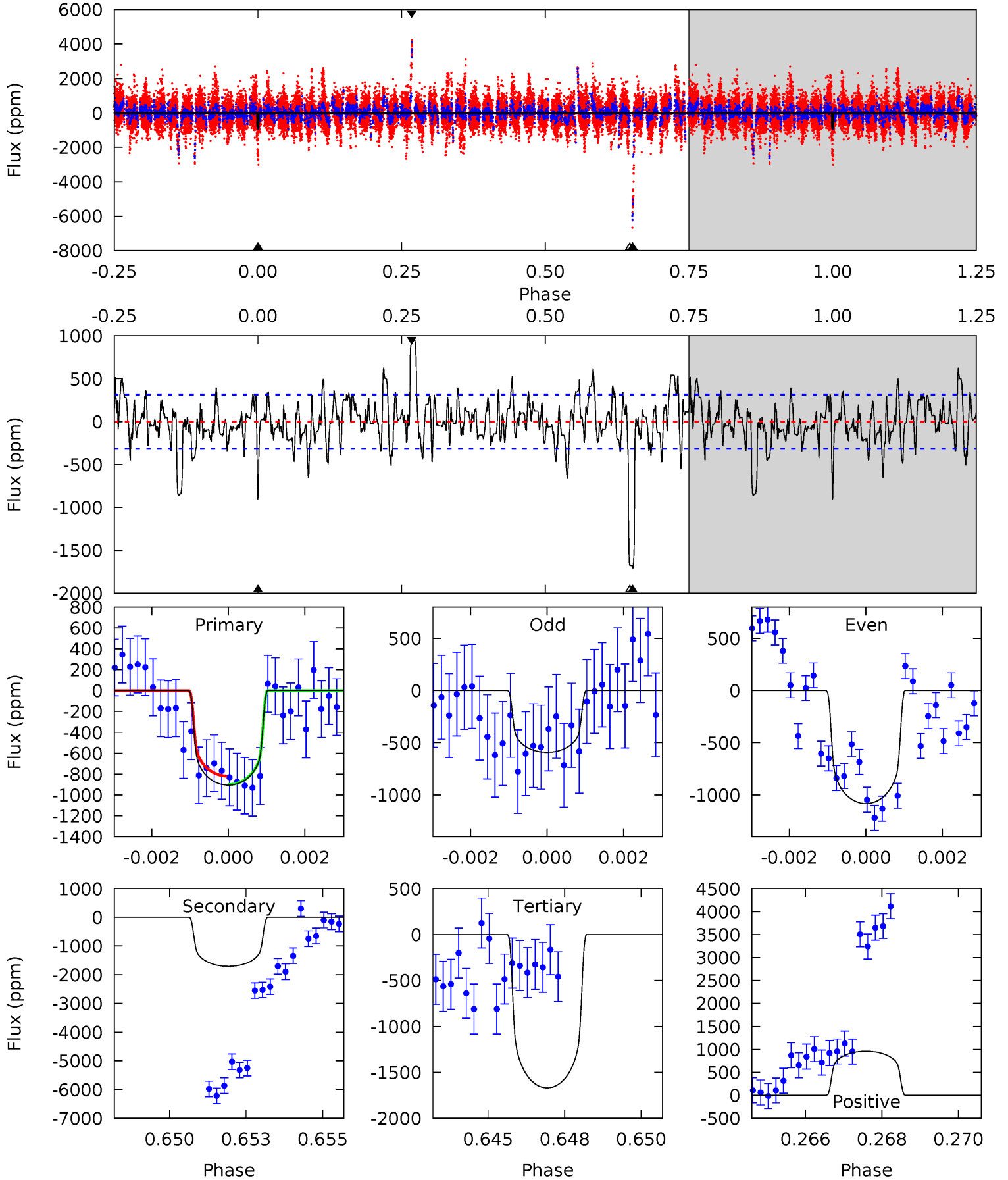
TCE 006966132-05     $P=165.055487$  Days     $T_0=210.811214$  (BKJD)



# DV Model-Shift Uniqueness Test

006966132-05,  $P = 165.065829$  Days,  $E = 45.727114$  Days

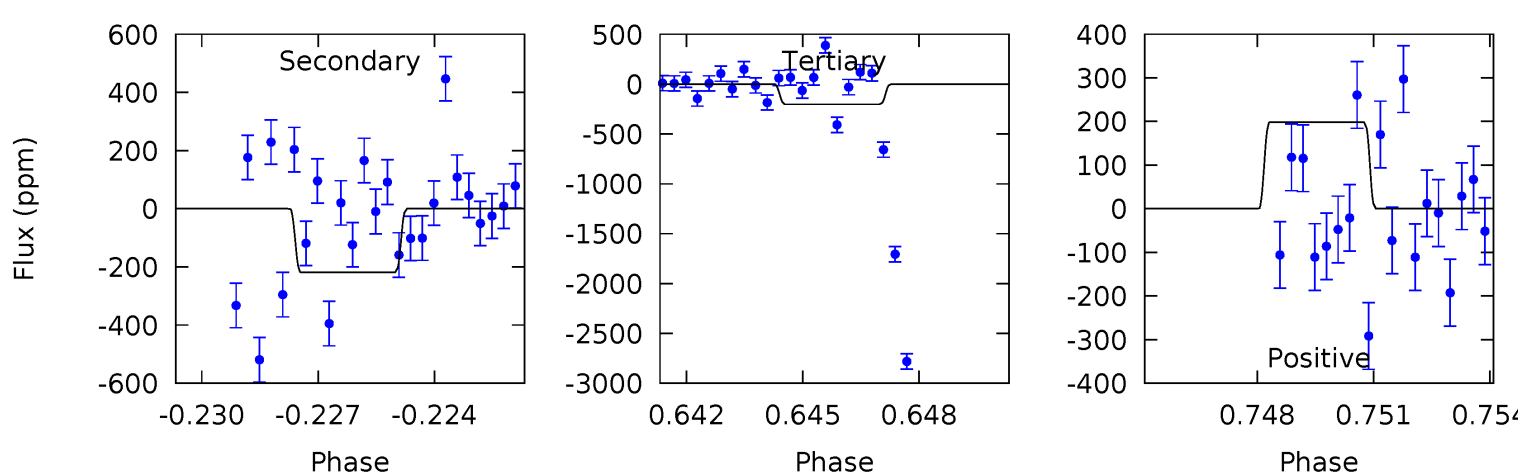
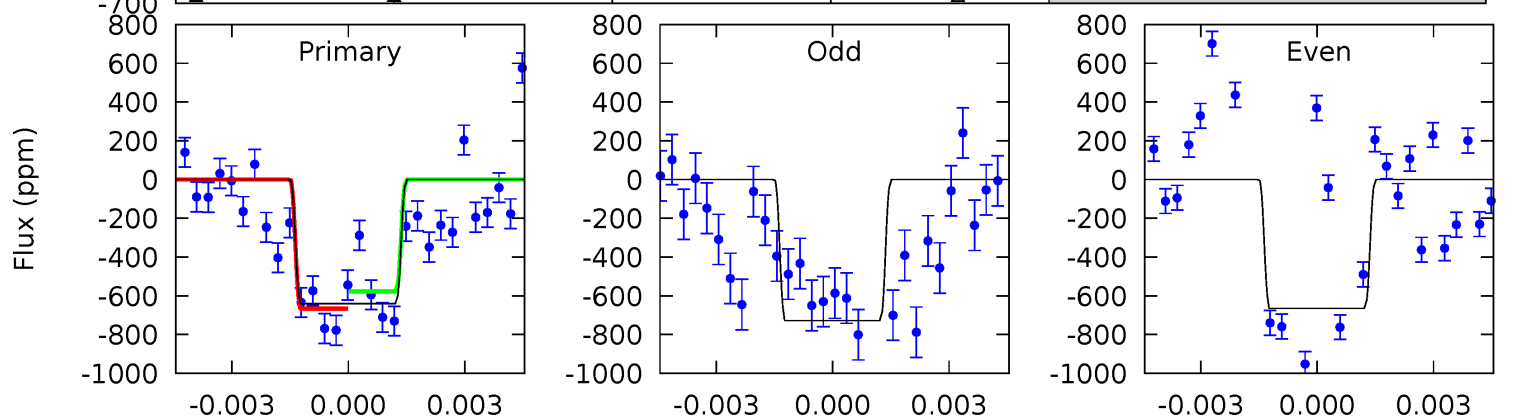
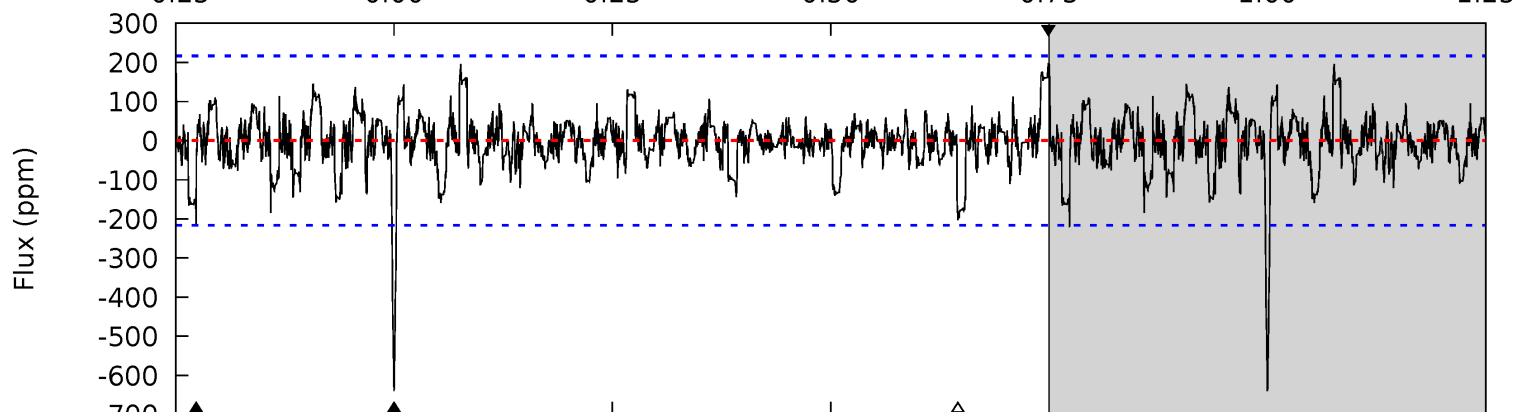
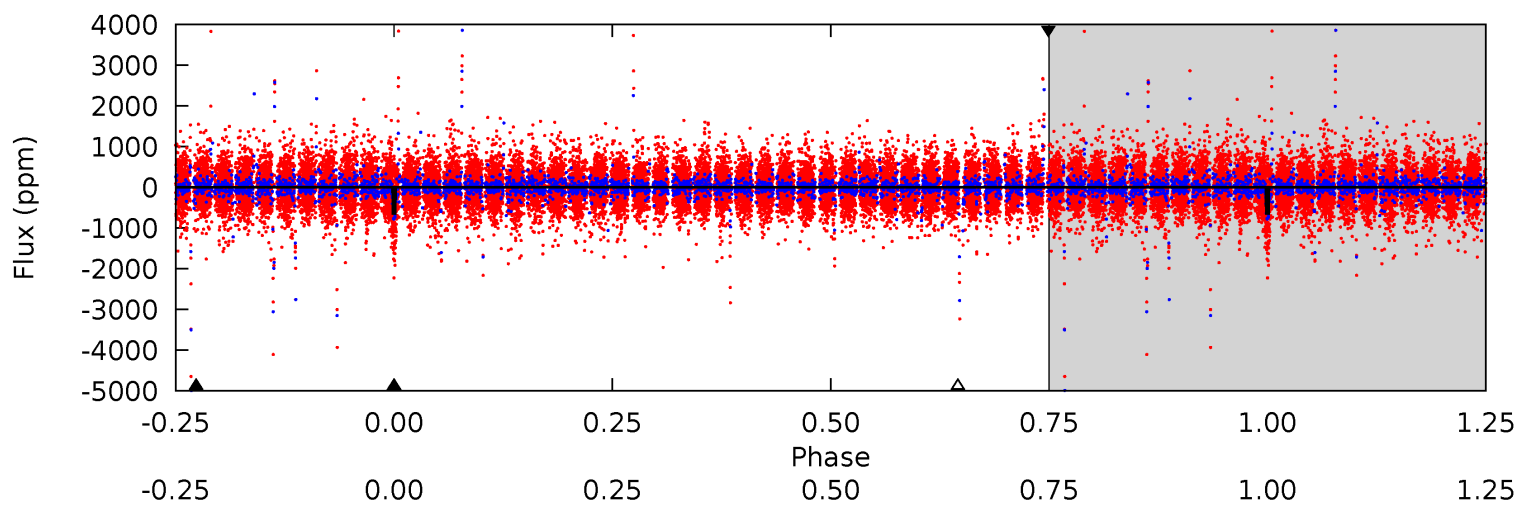
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	28.6	28.0	16.1	5.29	3.03	3.79	-12.8	-0.91	0.61	12.5	4.05	1.82	0.36	0.67



# Alt Model-Shift Uniqueness Test

006966132-05, P = 165.055487 Days, E = 45.755727 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
15.5	5.28	4.92	4.80	5.25	2.96	1.02	10.6	10.7	0.37	0.48	0.72	1.39	0.24	1.07



### Stellar Parameters For KIC 006966132

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5767^{+173}_{-173}$	$4.538^{+0.037}_{-0.213}$	$-0.060^{+0.250}_{-0.300}$	$0.881^{+0.275}_{-0.069}$	$0.979^{+0.114}_{-0.114}$	$2.017^{+0.405}_{-1.044}$
	+3%/-3%	+1%/-5%	+417%/-500%	+31%/-8%	+12%/-12%	+20%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 006966132-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1706 \pm 60$	$2.39^{+0.74}_{-0.70}$	$446^{+31}_{-19}$	$7769^{+1902}_{-1043}$	$54851^{+56732}_{-23010}$
Alt.	$-218 \pm 41$	$3.23^{+0.84}_{-0.64}$	$447^{+33}_{-20}$	$4170^{+349}_{-321}$	$3752^{+2199}_{-1452}$

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

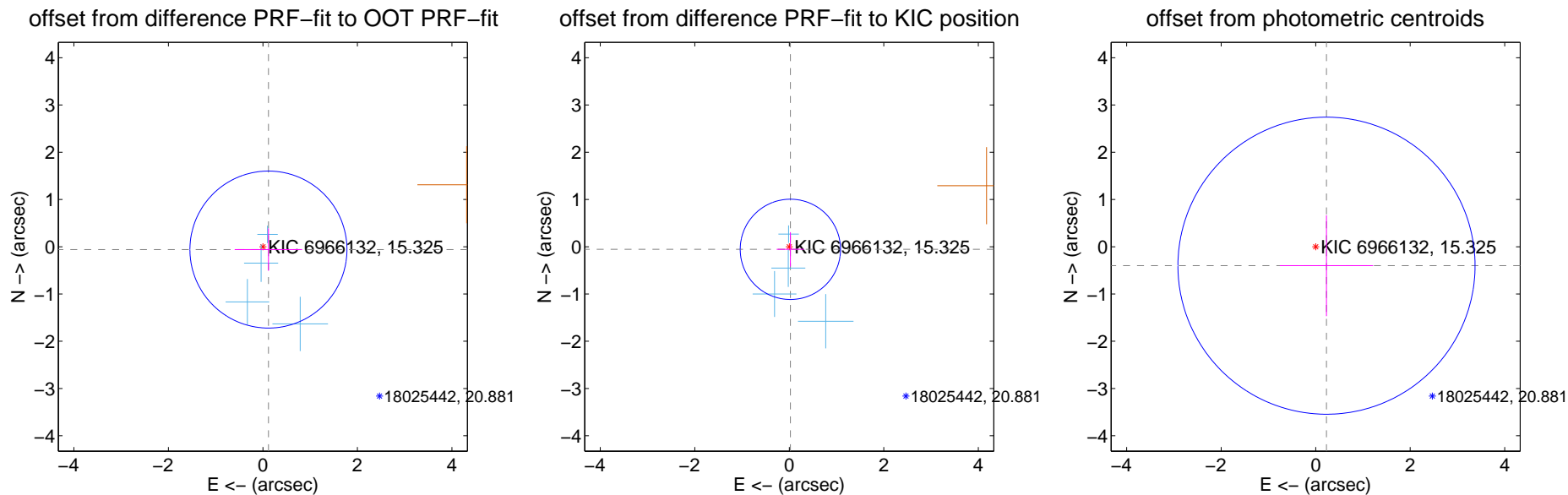
## DV Centroid Data

Supplemental centroid analysis for 006966132-05. Kepler magnitude: 15.32. Transit SNR 6.22

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.132 \pm 0.554$	0.24	$-0.117 \pm 0.713$	$-0.060 \pm 0.448$
PRF-fit source offset from KIC position	$0.060 \pm 0.354$	0.17	$-0.023 \pm 0.290$	$-0.055 \pm 0.363$
photometric centroid source offset	$0.46 \pm 1.05$	0.44	$-0.23 \pm 0.99$	$-0.40 \pm 1.07$



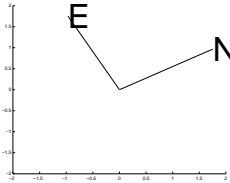
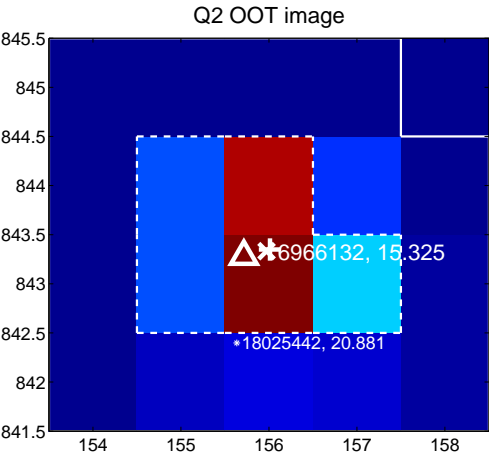
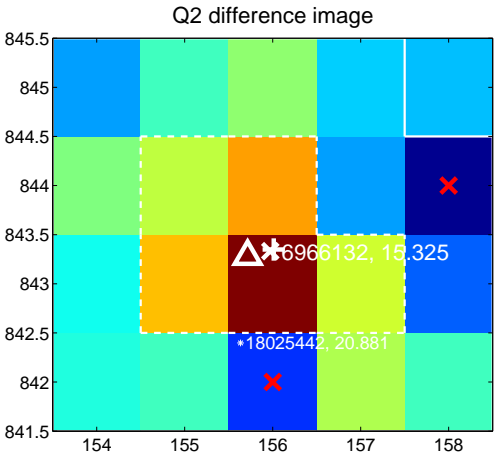
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

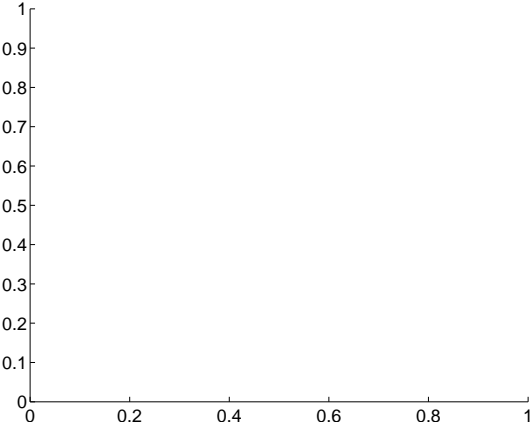
Q1 no difference image



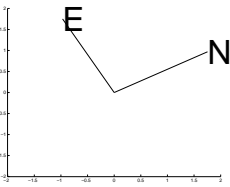
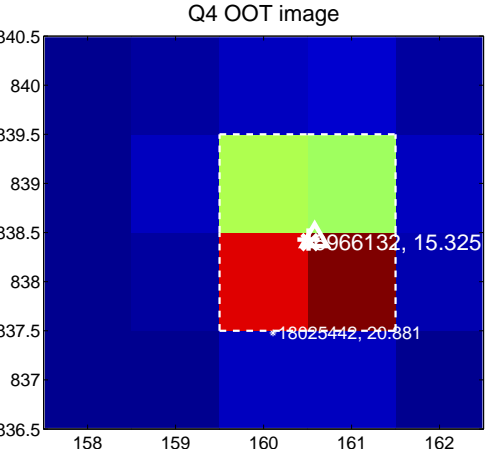
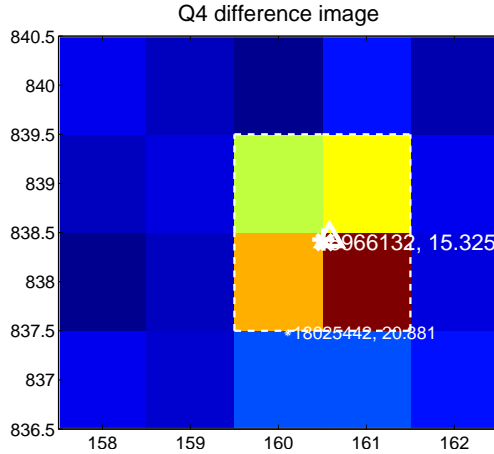
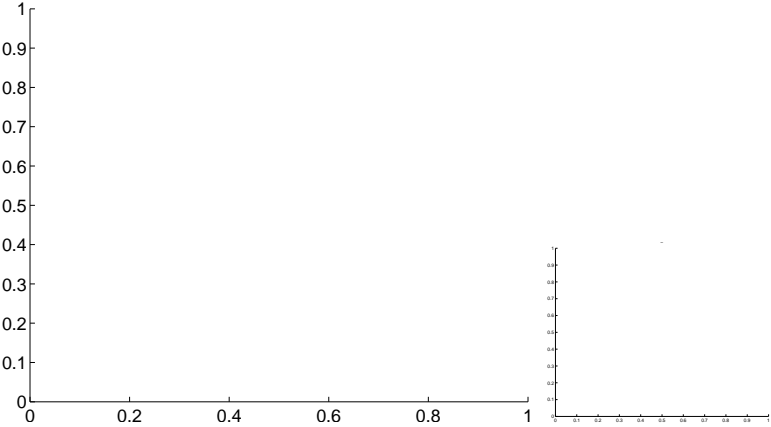
Q1 no OOT image



Q3 no difference image



Q3 no OOT image

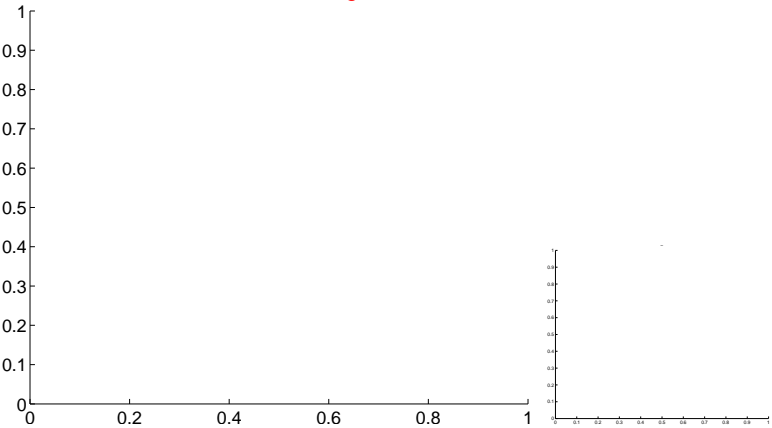


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

Q5 no difference image



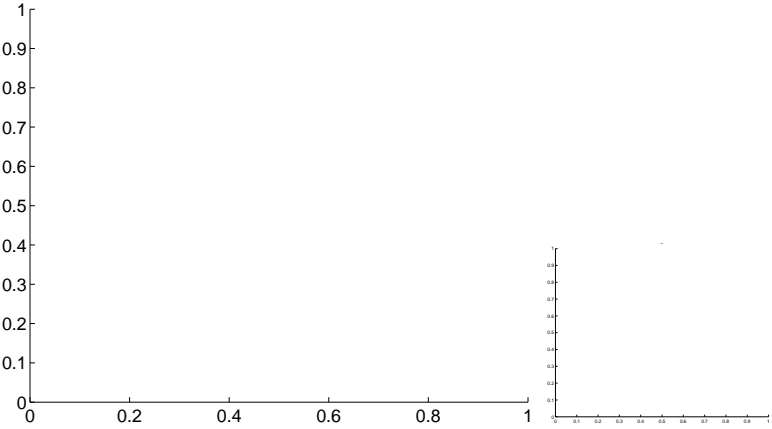
Q5 no OOT image



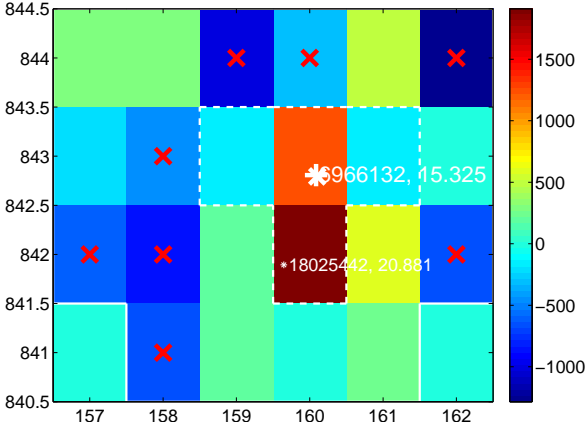
Q6 no difference image



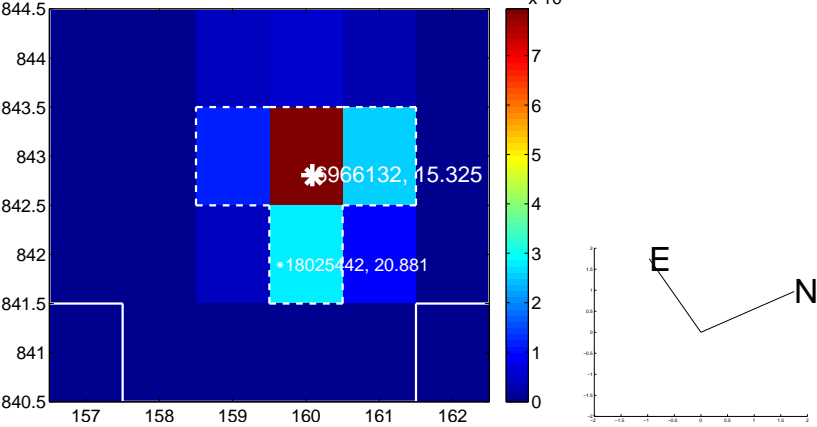
Q6 no OOT image



Q7 difference image. Poor Quality



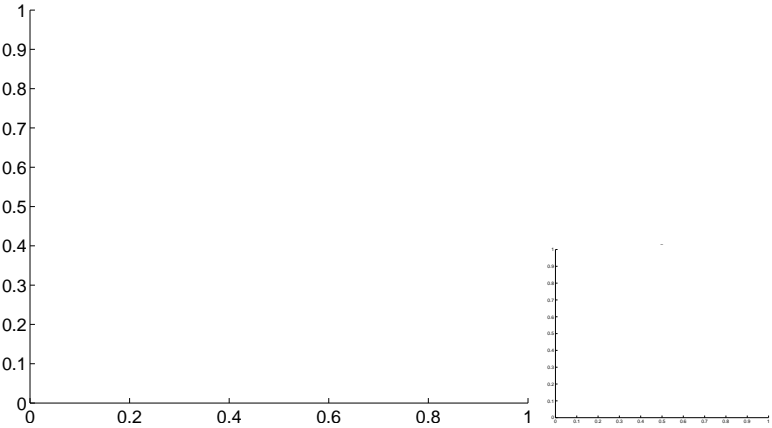
Q7 OOT image



Q8 no difference image

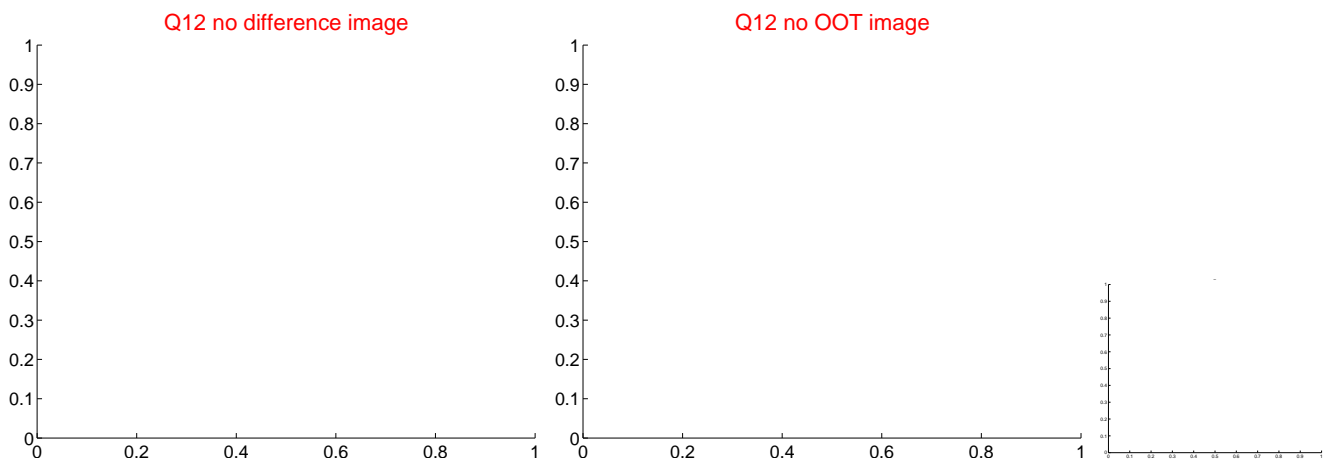
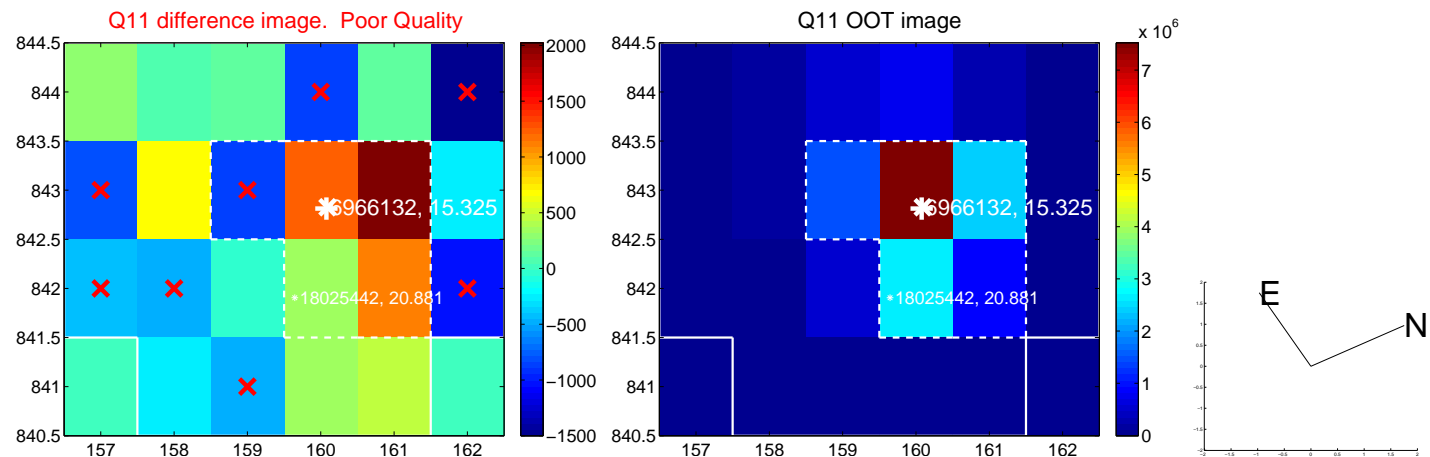
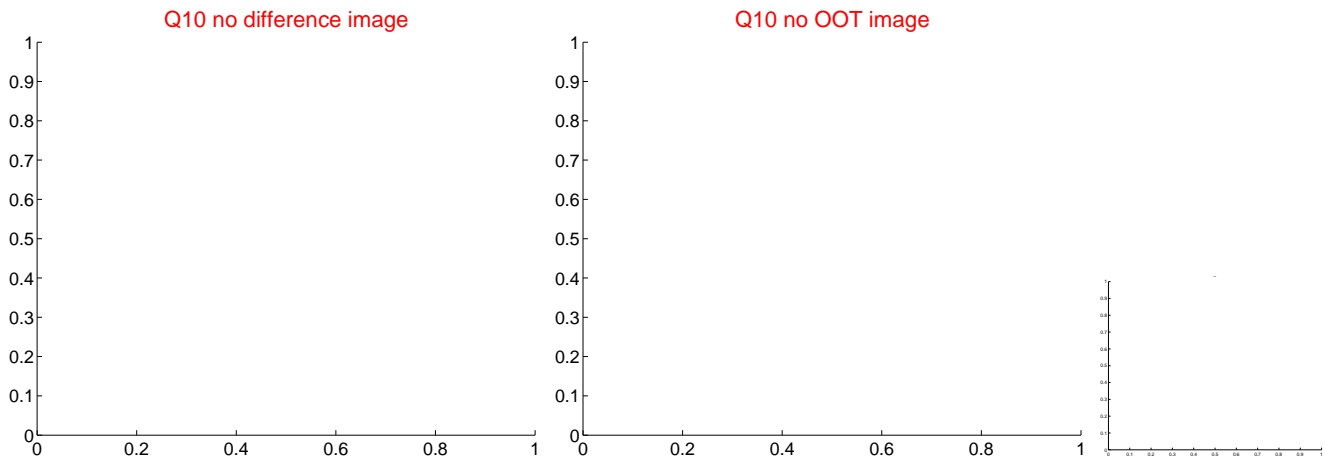
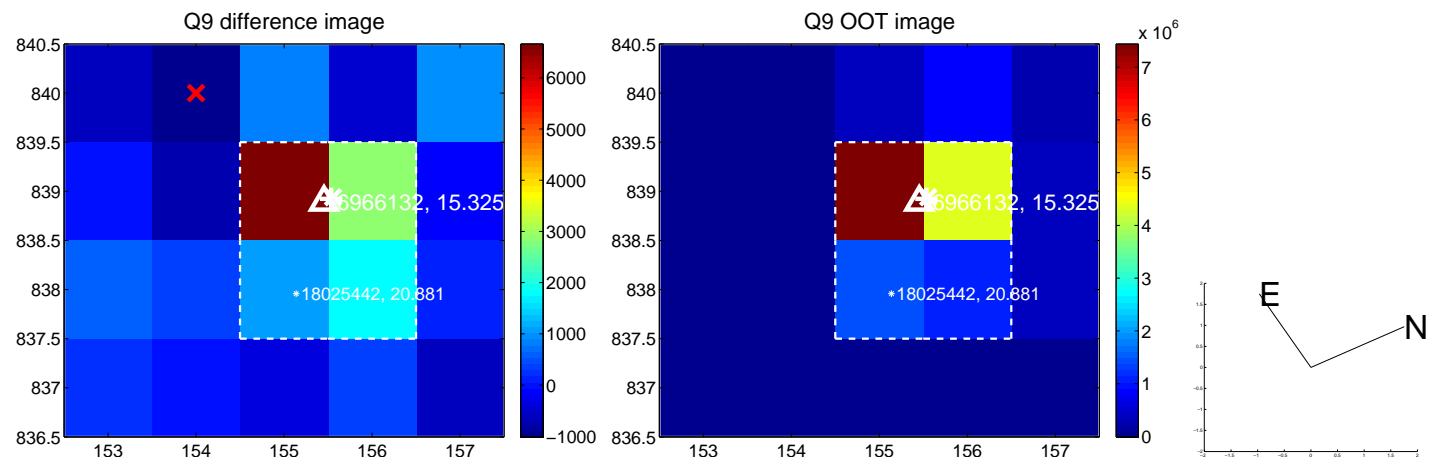


Q8 no OOT image





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.

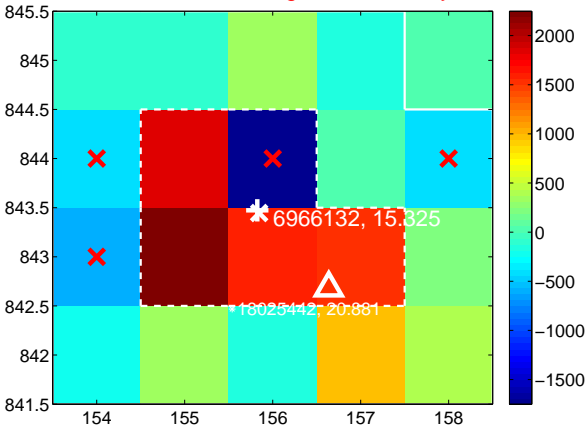
Q13 no difference image



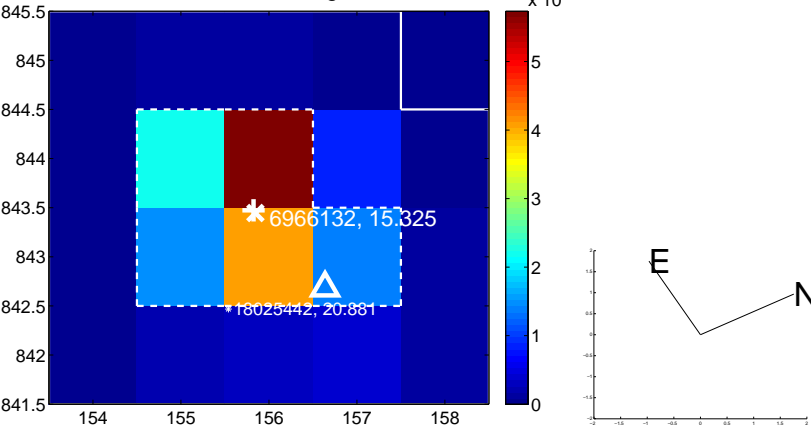
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



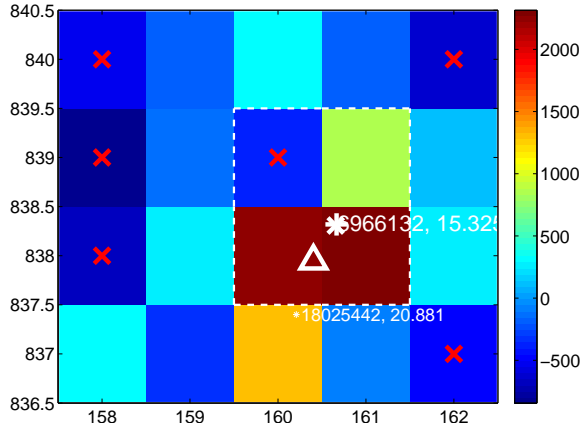
Q15 no difference image



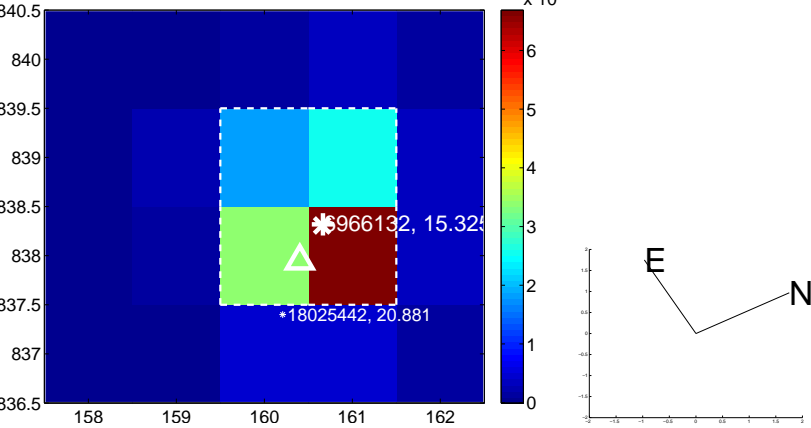
Q15 no OOT image



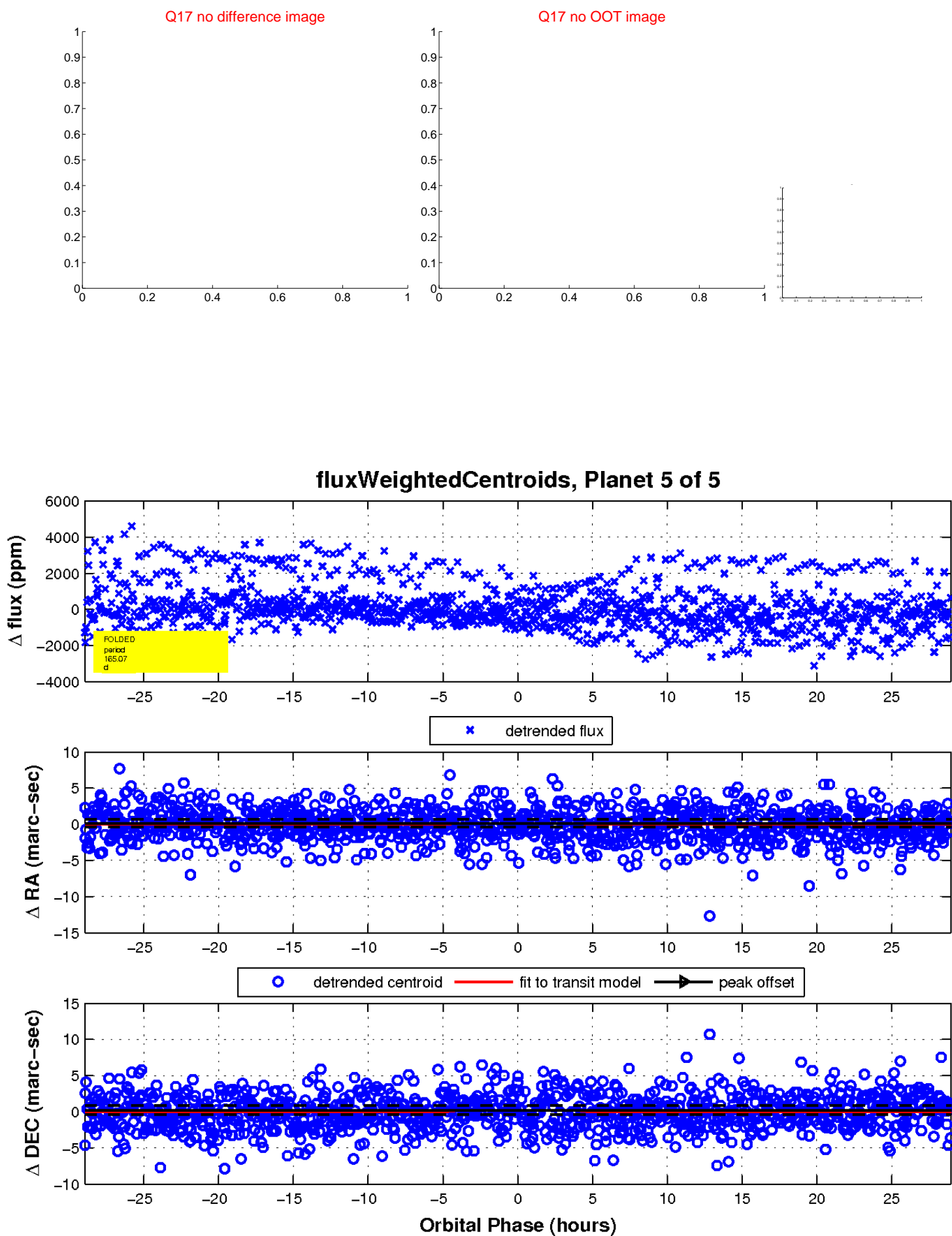
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

