

# KIC 003561656

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003561656-01	OBS	No	0.958539	131.734034	15.4	2.676	13.1	13.0	2.21	9744	0.90	61277.73
003561656-02	OBS	No	1.917059	132.332712	15.9	6.114	12.5	13.8	2.21	9744	1.01	24318.41
003561656-03	OBS	No	107.494083	236.133828	50.2	32.357	7.9	5.5	2.21	9744	1.66	113.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003561656-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_FEW_DIFFS
003561656-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
003561656-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

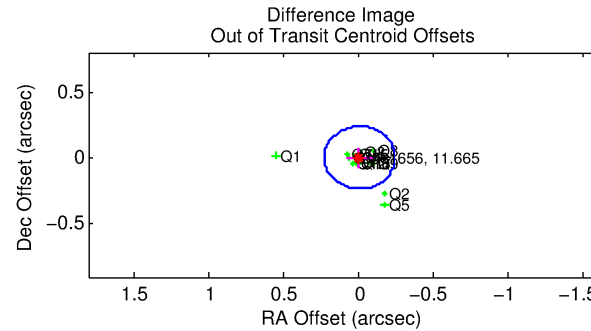
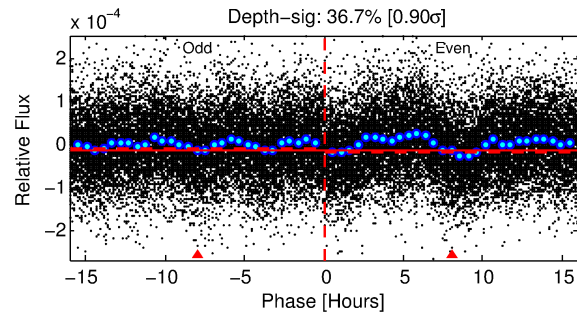
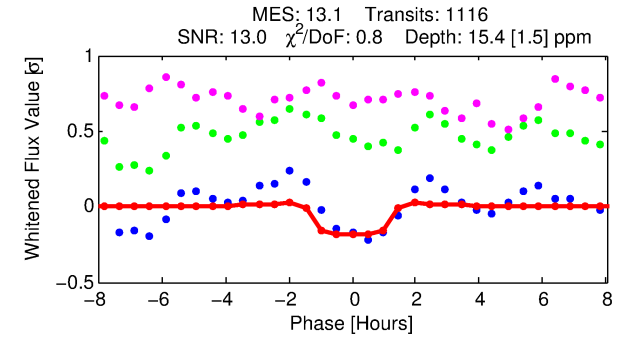
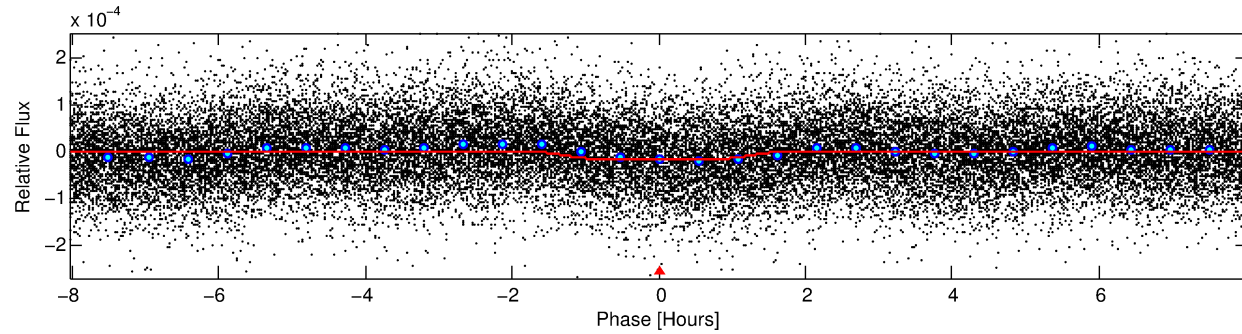
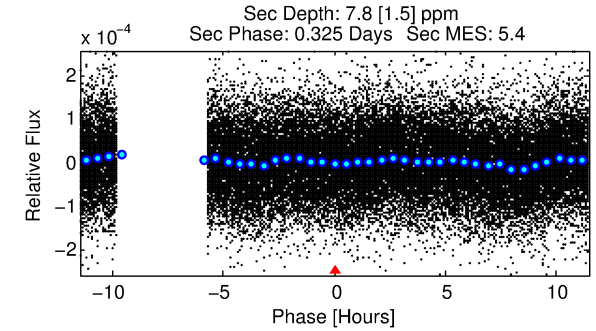
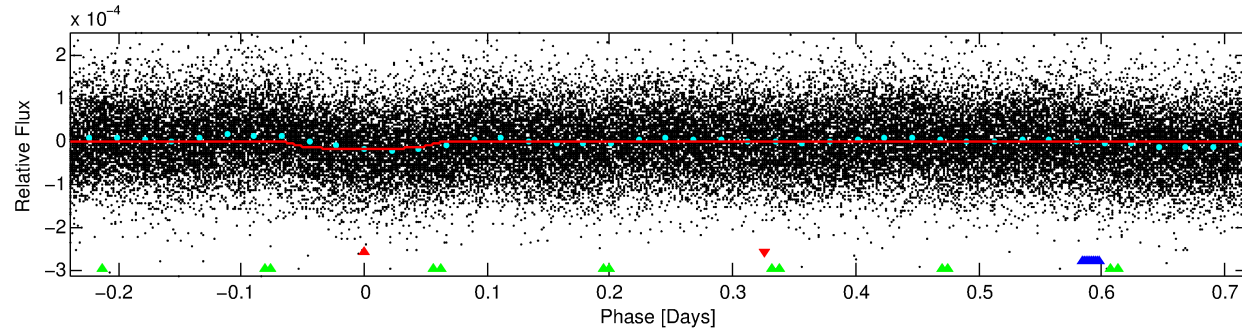
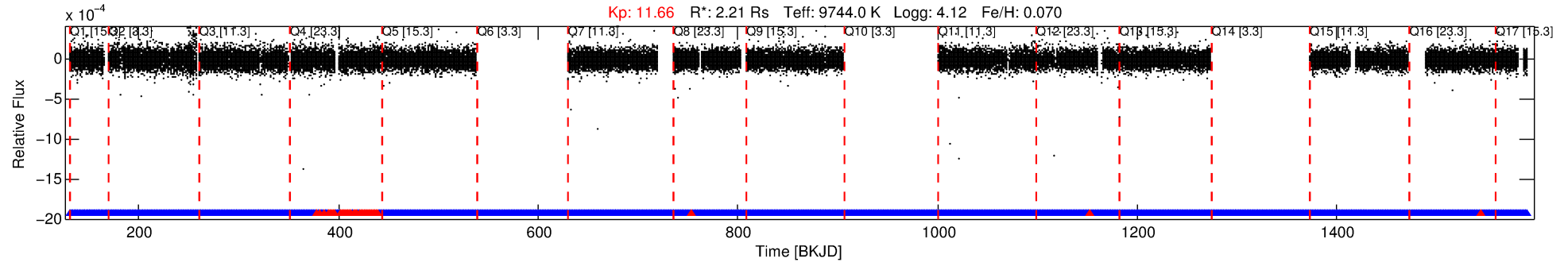
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003561656-01

No Significant Match Found

# DV One-Page Summary

KIC: 3561656 Candidate: 1 of 3 Period: 0.959 d



## DV Fit Results:

Period = 0.95854 [0.00001] d  
Epoch = 131.7340 [0.0022] BKJD  
Rp/R\* = 0.0037 [0.0007]  
a/R\* = 2.68 [2.89]  
b = 0.33 [3.44]  
Seff = 61277.73 [28346.49]  
Teq = 4012 [464] K  
Rp = 0.89 [0.39] Re  
a = 0.0253 [0.0080] AU  
Ag = 3.42 [2.05] [1.18σ]  
Teffp = 8436 [945] K [4.20σ]

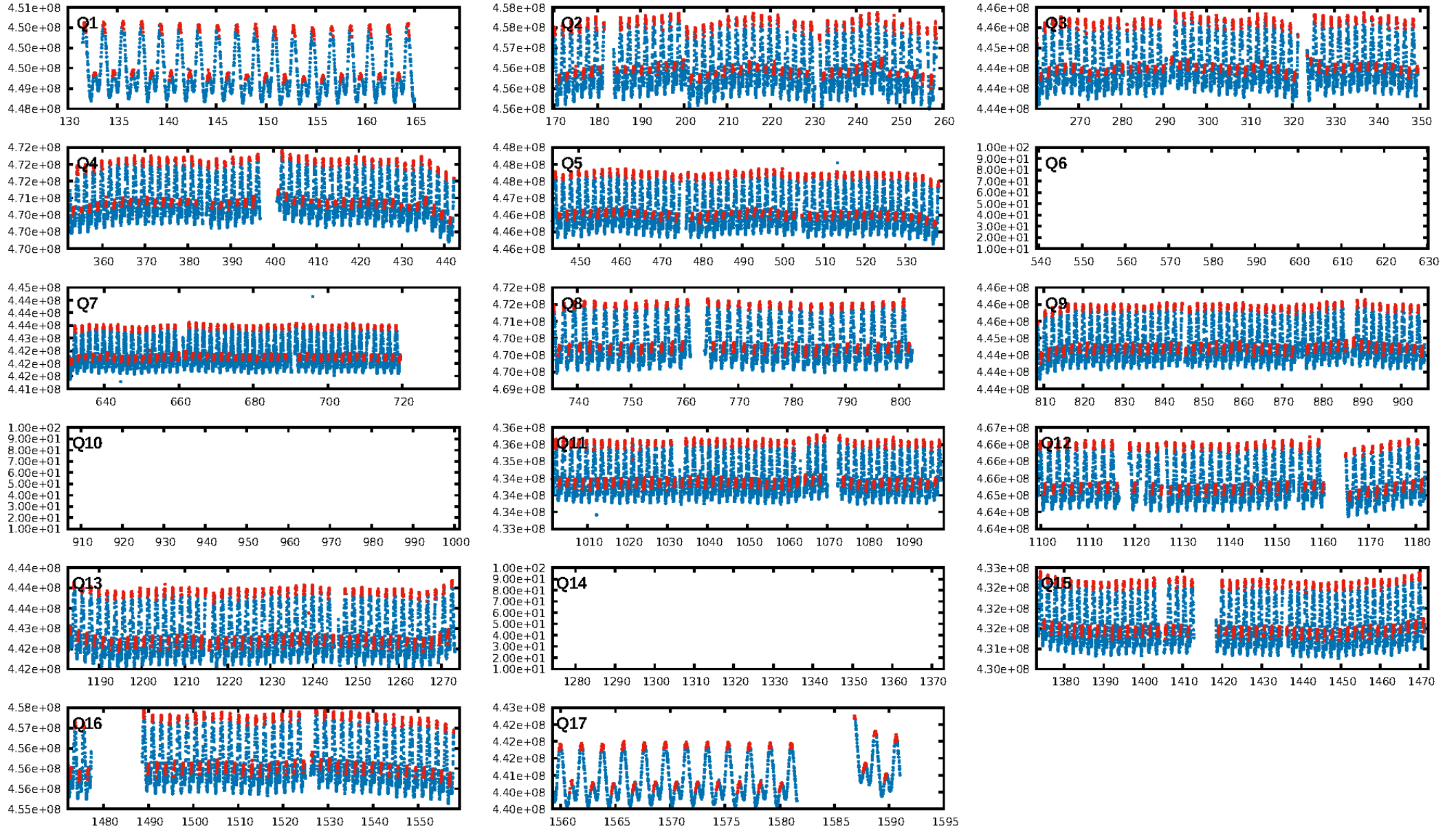
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 99.9% [3.45σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.24e-32  
RollingBand-fgt: 0.96 [1009/1053]  
GhostDiagnostic-chr: 2.788  
Centroid-sig: 9.0%  
Centroid-so: 1.053 arcsec [1.11σ]  
OotOffset-rm: 0.013 arcsec [0.16σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-rm: 0.212 arcsec [2.61σ]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 1.00 [14/14]

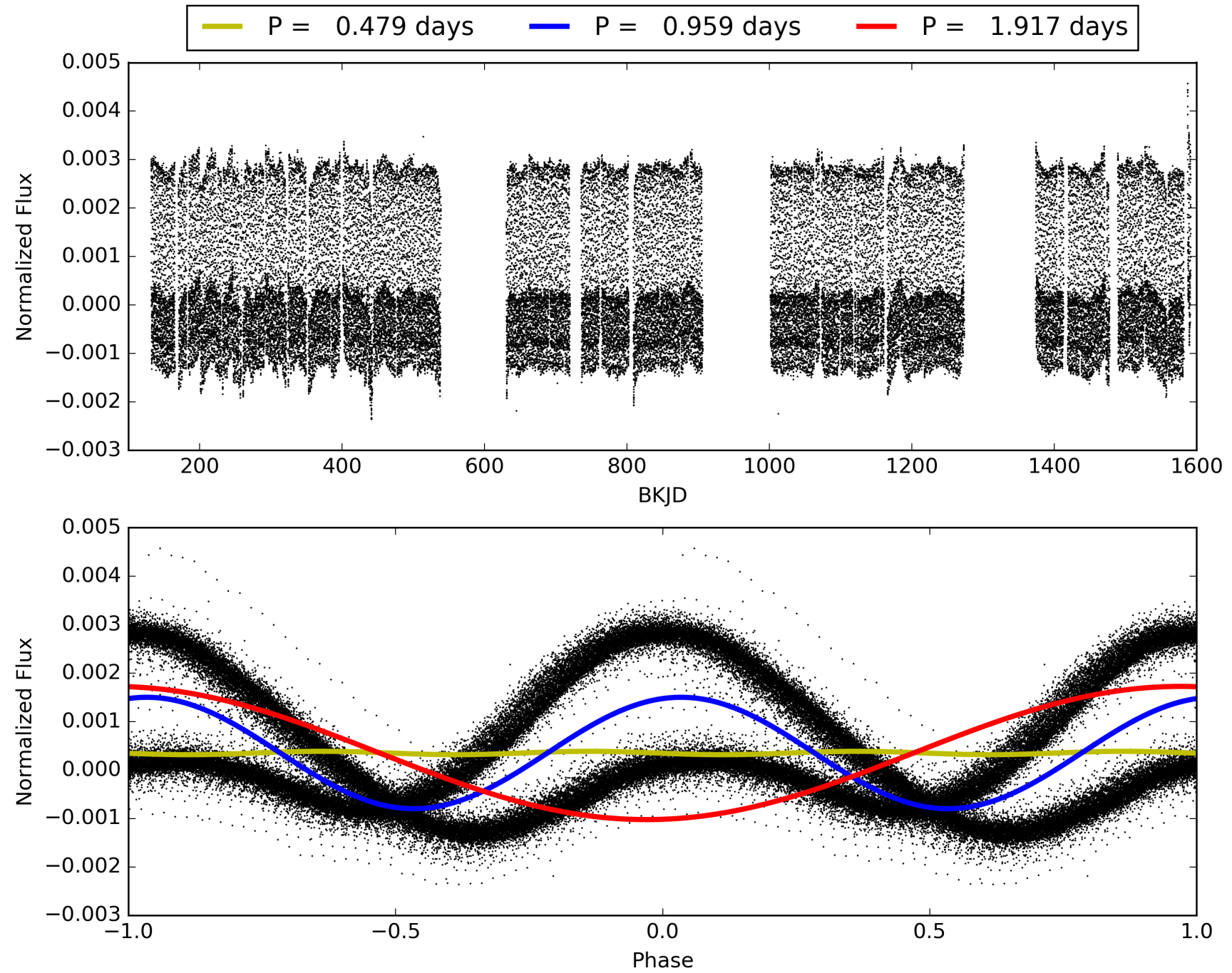
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:42:20 Z

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

# TCE 003561656-01, PDC Light Curves

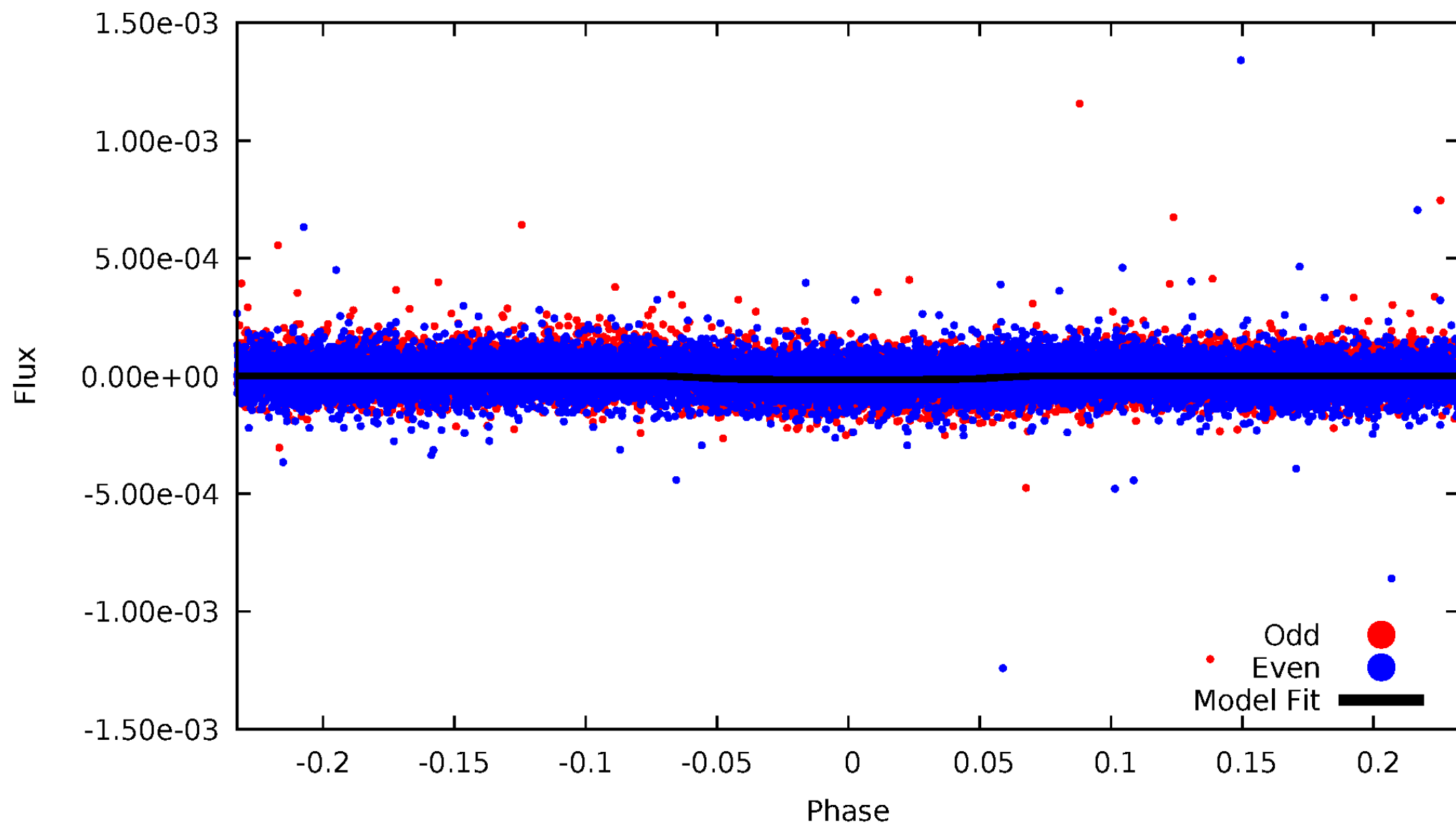


# TCE 003561656-01



# DV Odd/Even

TCE 003561656-01





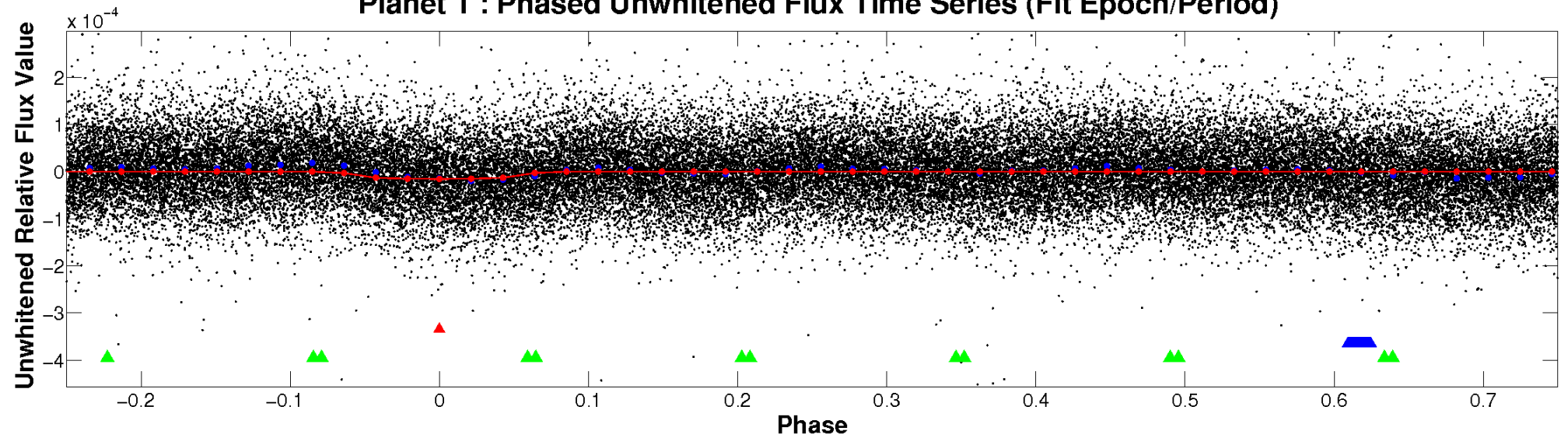
ALT Odd/Even

This plot does not exist for this TCE.

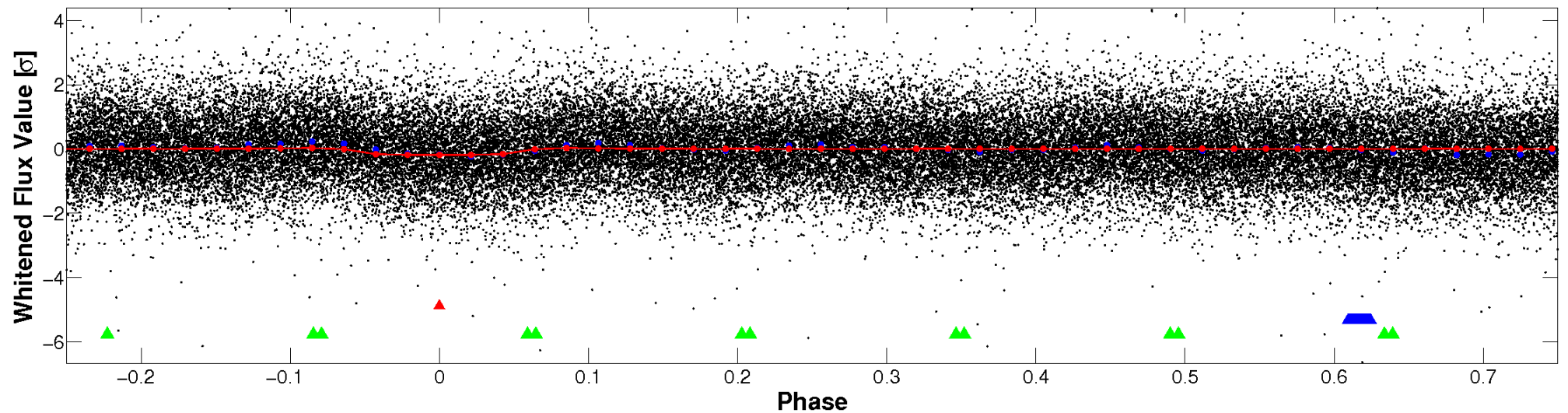


# Non-Whitened Vs. Whitened Light Curve

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



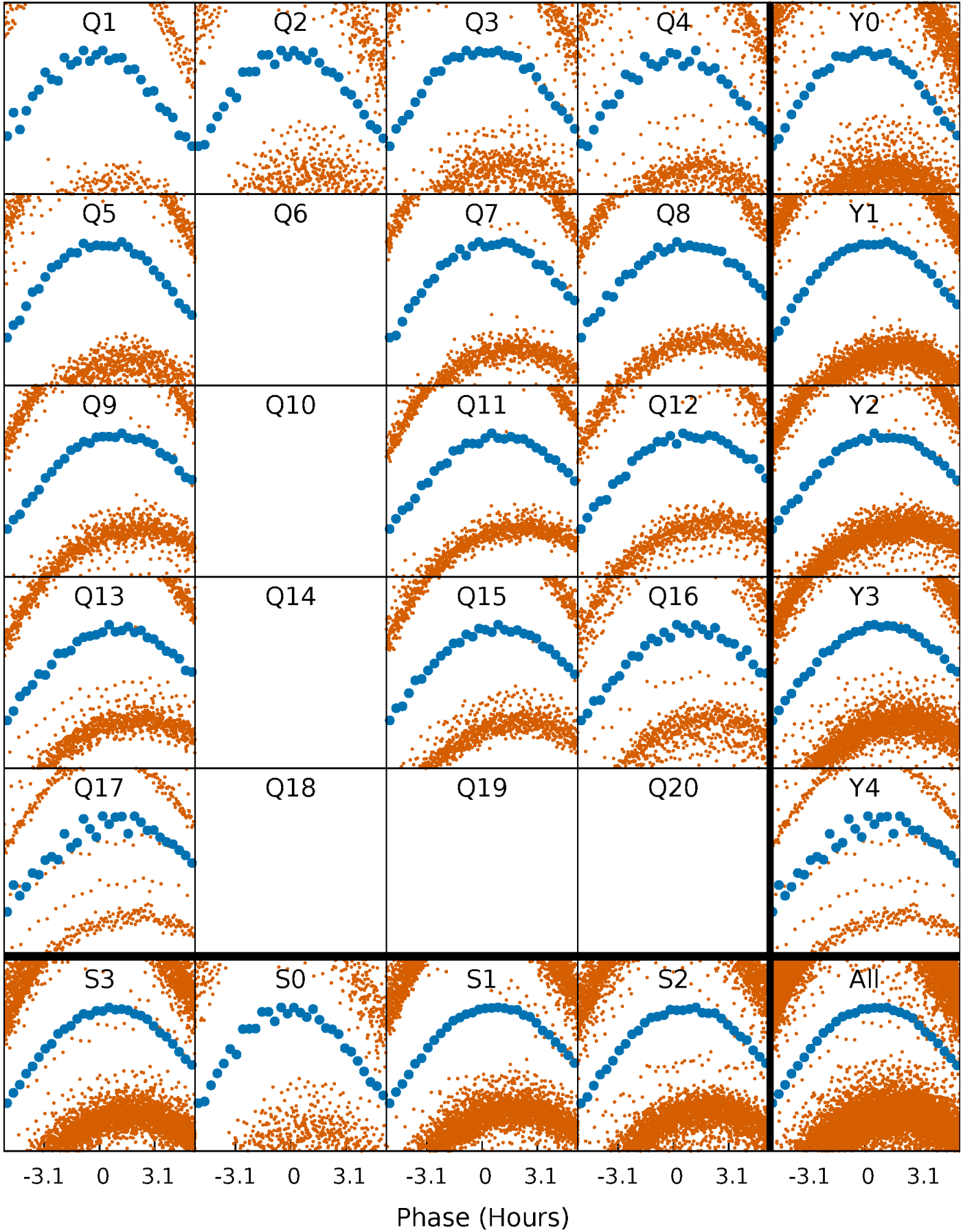
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





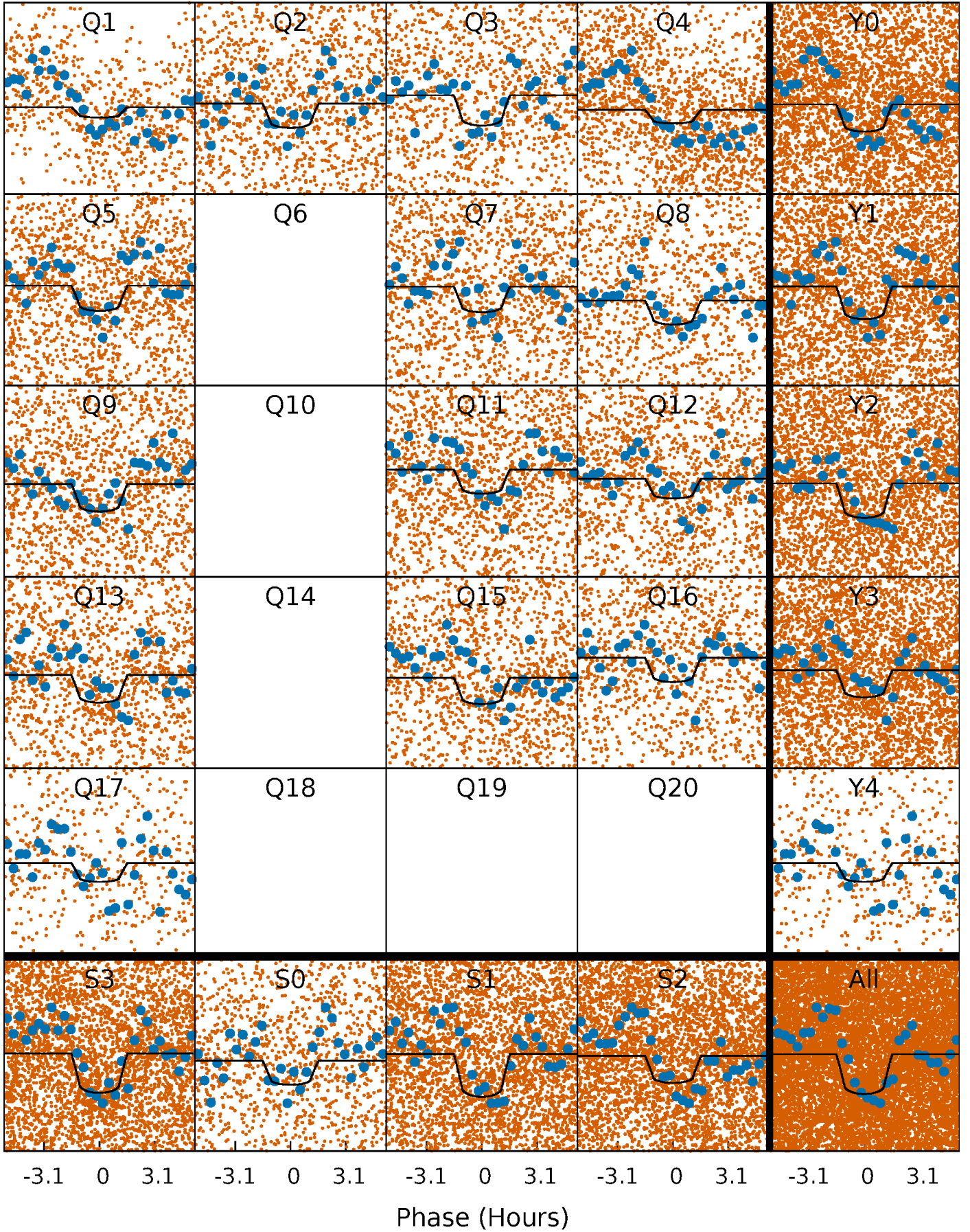
# PDC Quarter-Phased Transit Curves

TCE 003561656-01   P= 0.958539 Days    $T_0=131.734034$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 003561656-01 P= 0.958539 Days  $T_0=131.734034$  (BKJD)

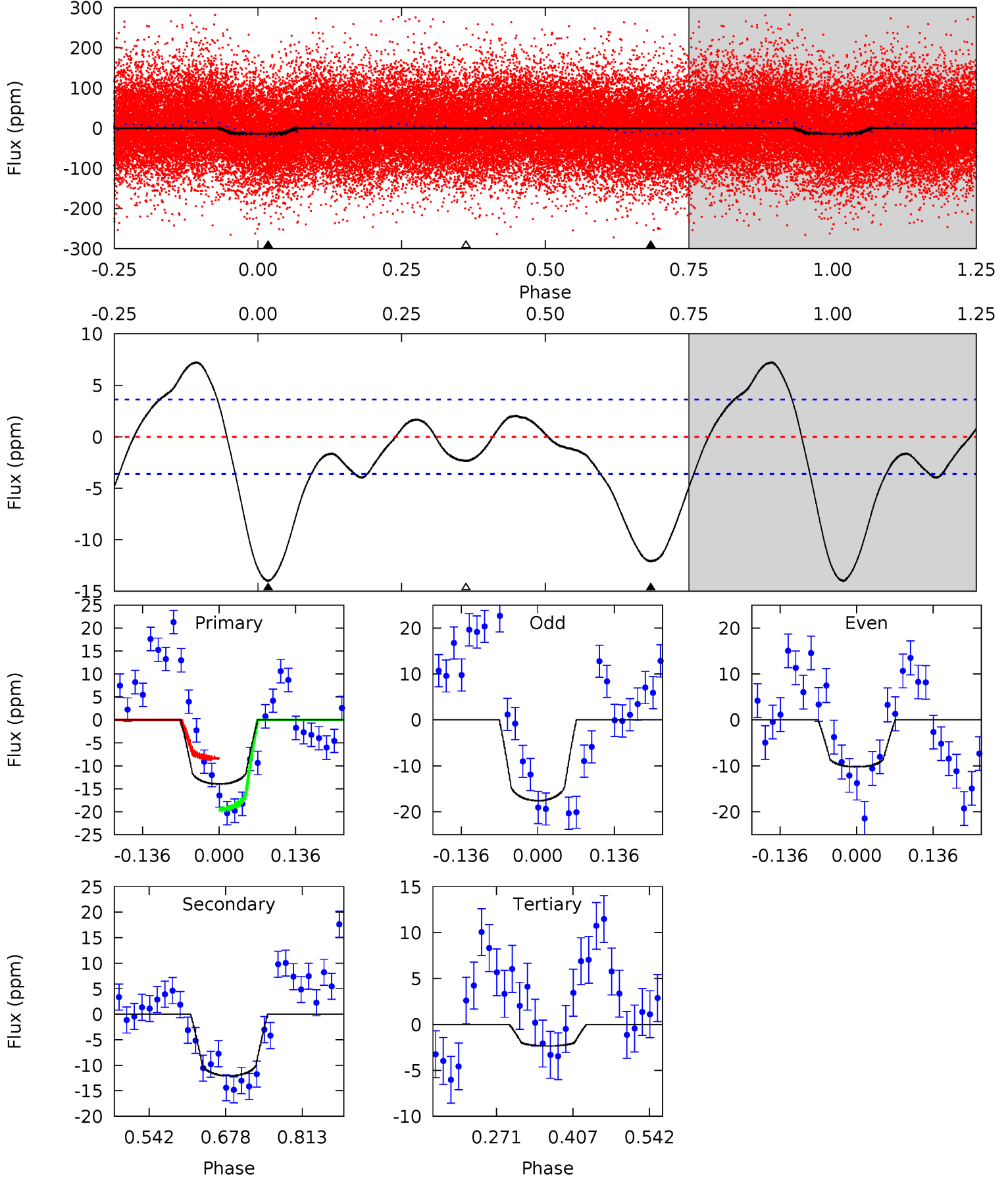


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

003561656-01, P = 0.958539 Days, E = 130.775495 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
17.4	15.0	2.92	0	4.50	1.49	3.11	14.5	17.4	12.1	15.0	4.59	1.13	0.34	6.94



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 003561656

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9744^{+272}_{-409}$	$4.123^{+0.148}_{-0.222}$	$0.070^{+0.150}_{-0.550}$	$2.205^{+0.873}_{-0.582}$	$2.356^{+0.396}_{-0.594}$	$0.309^{+0.249}_{-0.180}$
	+3%/-4%	+4%/-5%	+214%/-786%	+40%/-26%	+17%/-25%	+81%/-58%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003561656-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-12 \pm 1$	$0.92^{+0.27}_{-0.20}$	$5674^{+486}_{-443}$	$8942^{+1435}_{-1072}$	$4.846^{+2.865}_{-1.912}$
Alt.	N/A	N/A	N/A	N/A	N/A

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



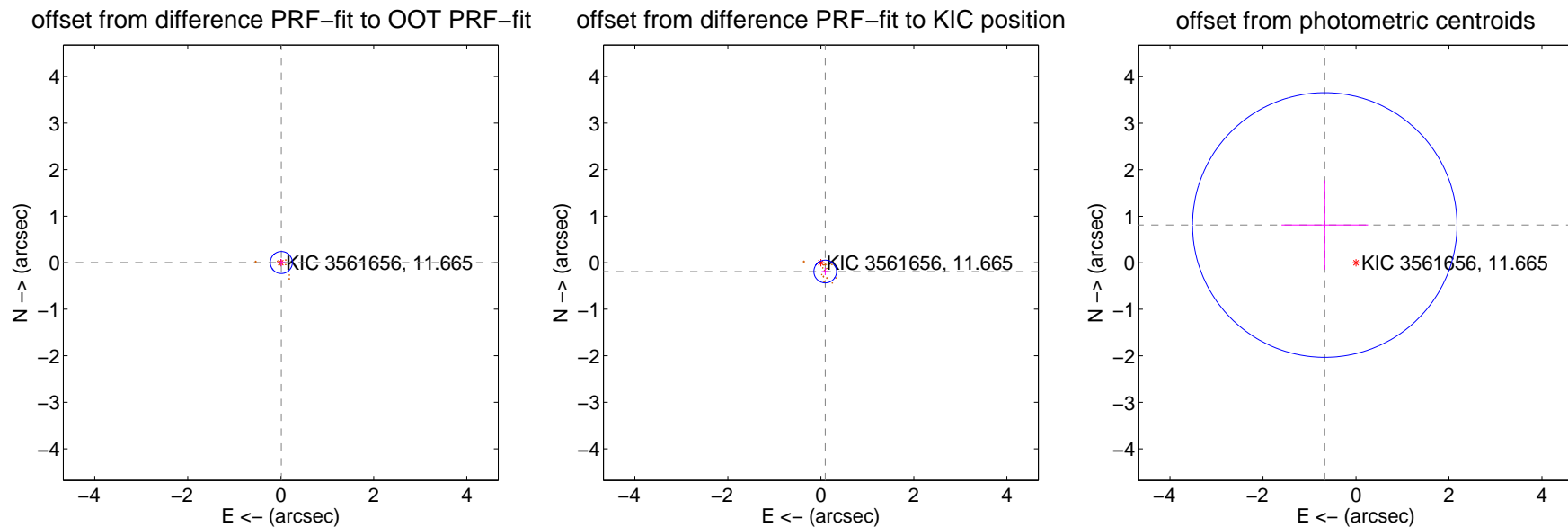
## DV Centroid Data

Supplemental centroid analysis for 003561656-01. **Kepler magnitude: 11.66.** Transit SNR 12.97

**There are 0 quarters with good PRF difference image offsets**

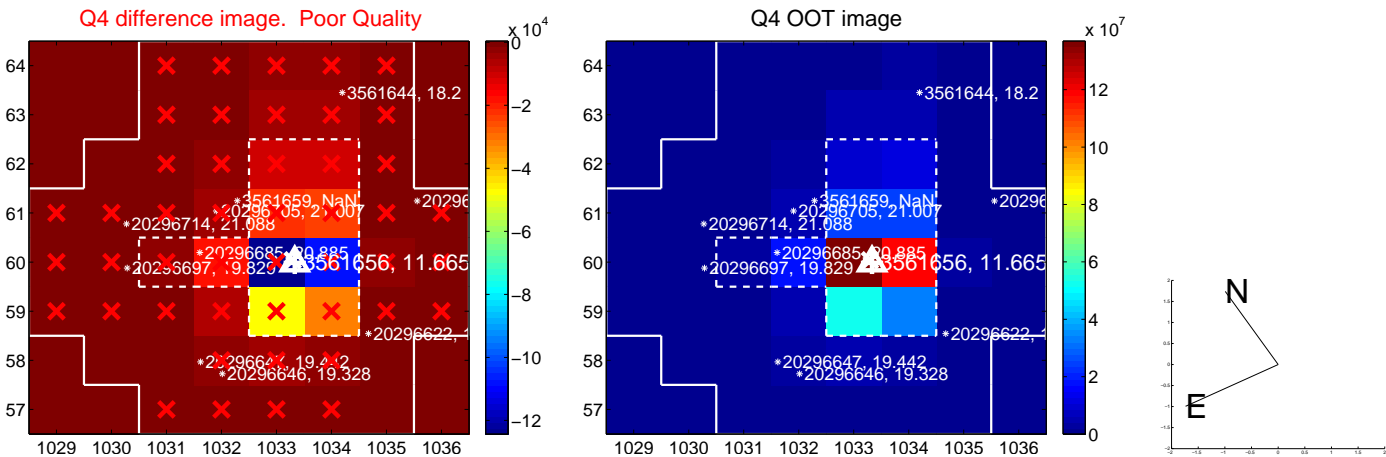
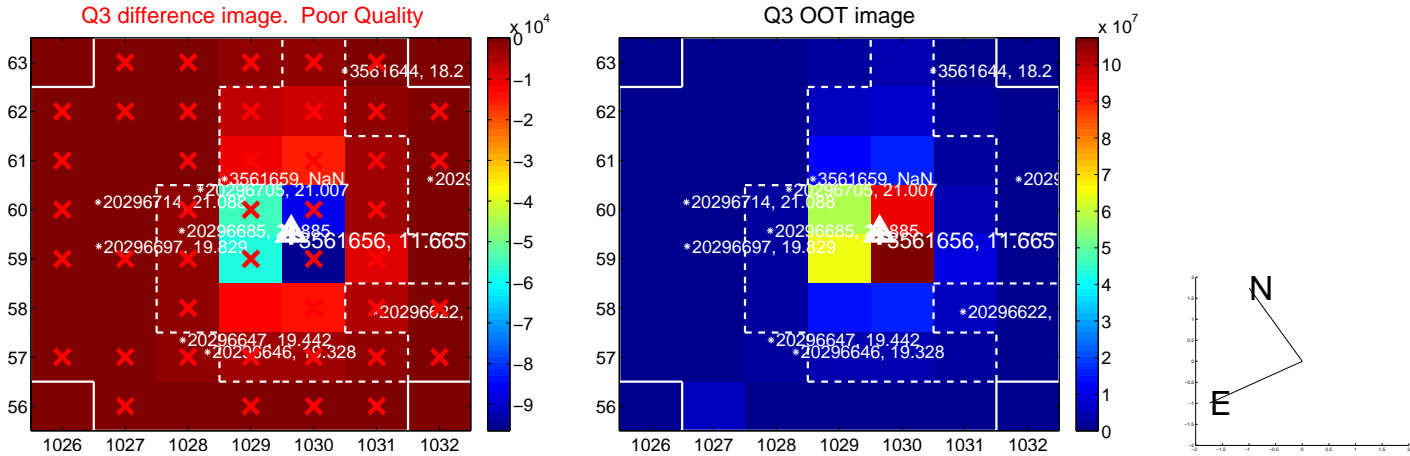
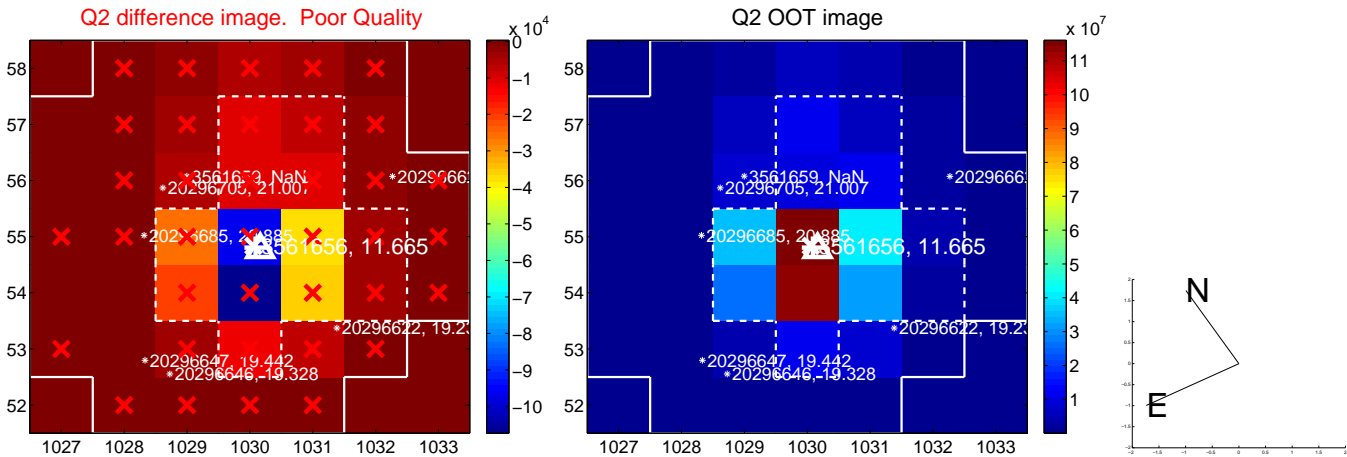
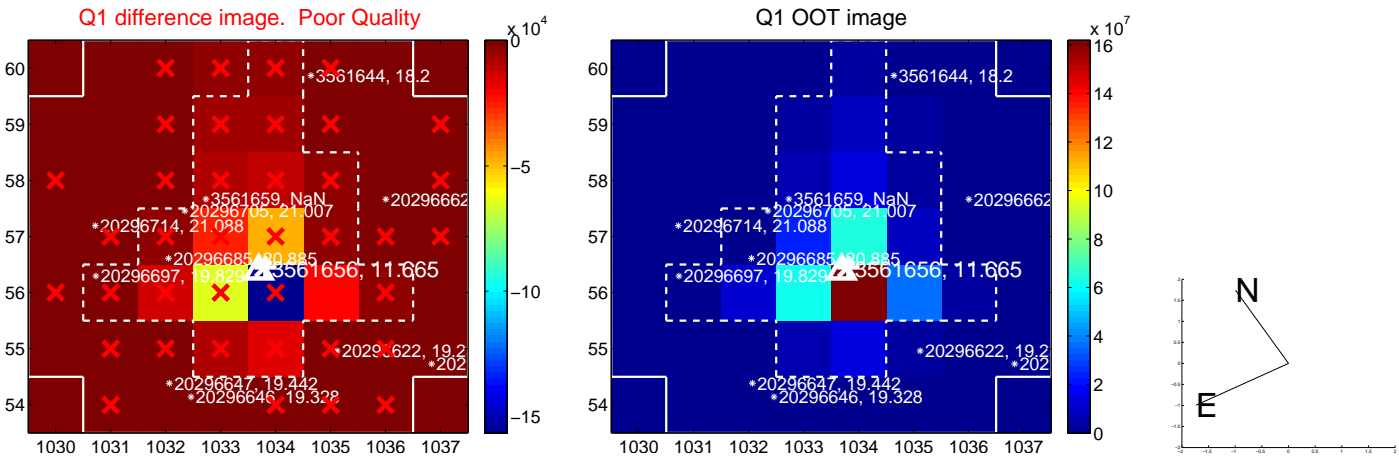
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.013 \pm 0.079$	0.16	$-0.012 \pm 0.082$	$0.003 \pm 0.074$
PRF-fit source offset from KIC position	$0.212 \pm 0.081$	2.61	$-0.094 \pm 0.077$	$-0.190 \pm 0.078$
photometric centroid source offset	$1.05 \pm 0.95$	1.11	$0.67 \pm 0.93$	$0.81 \pm 0.96$

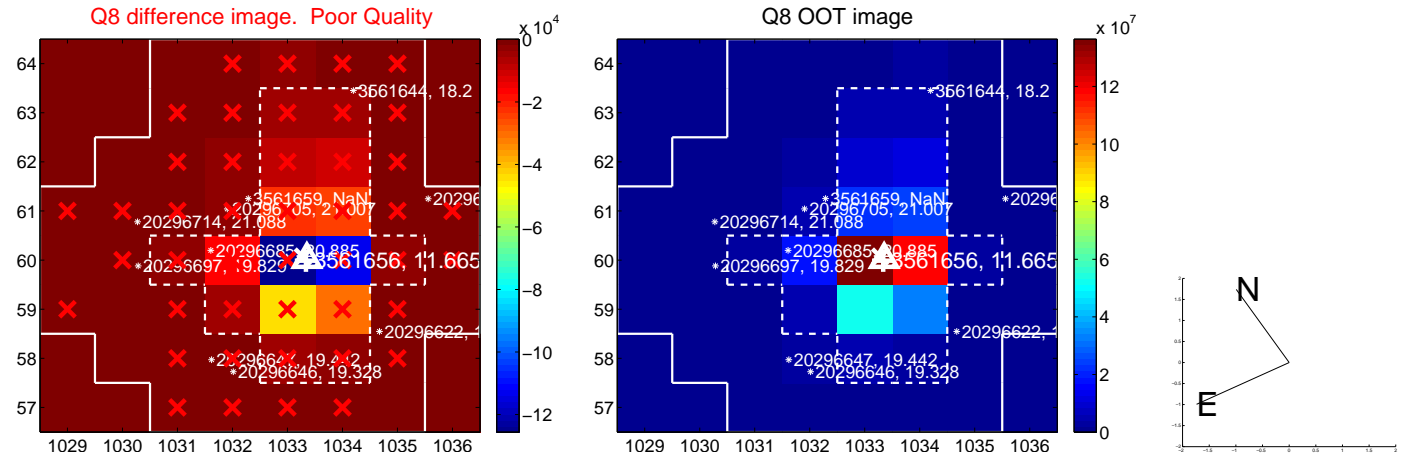
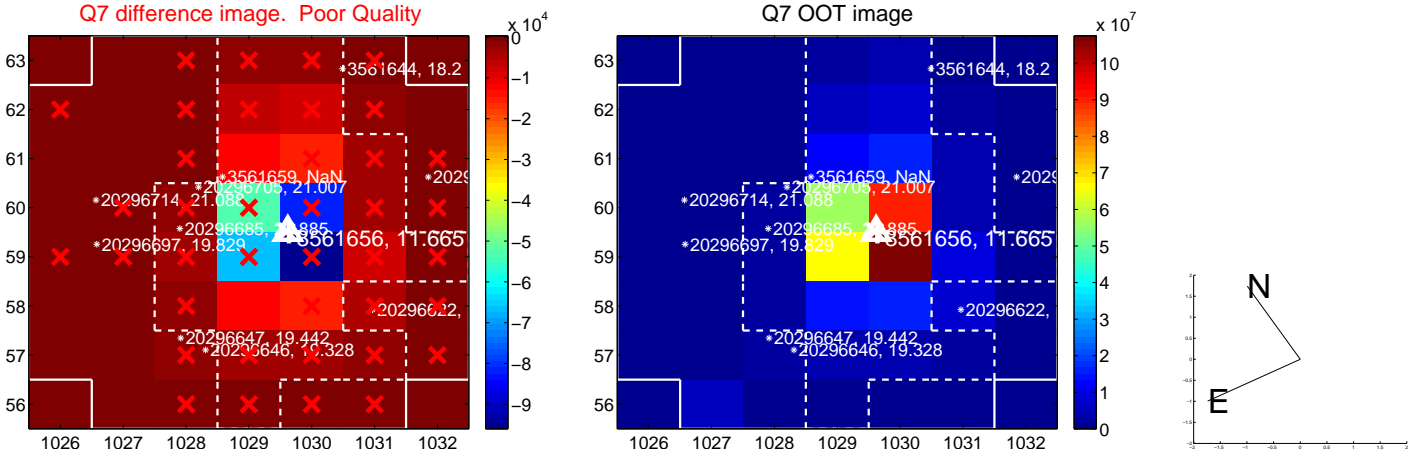
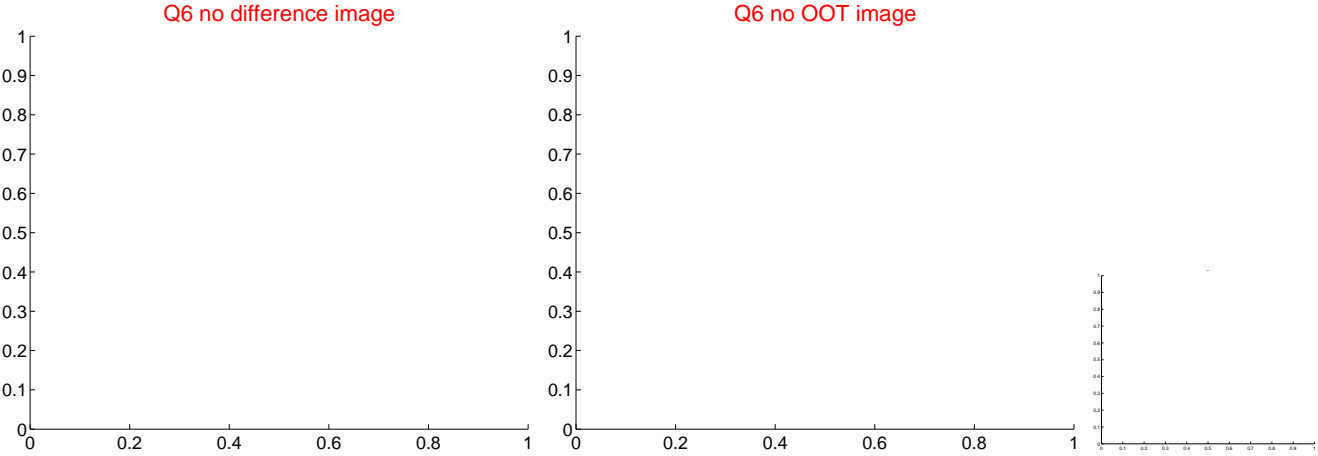
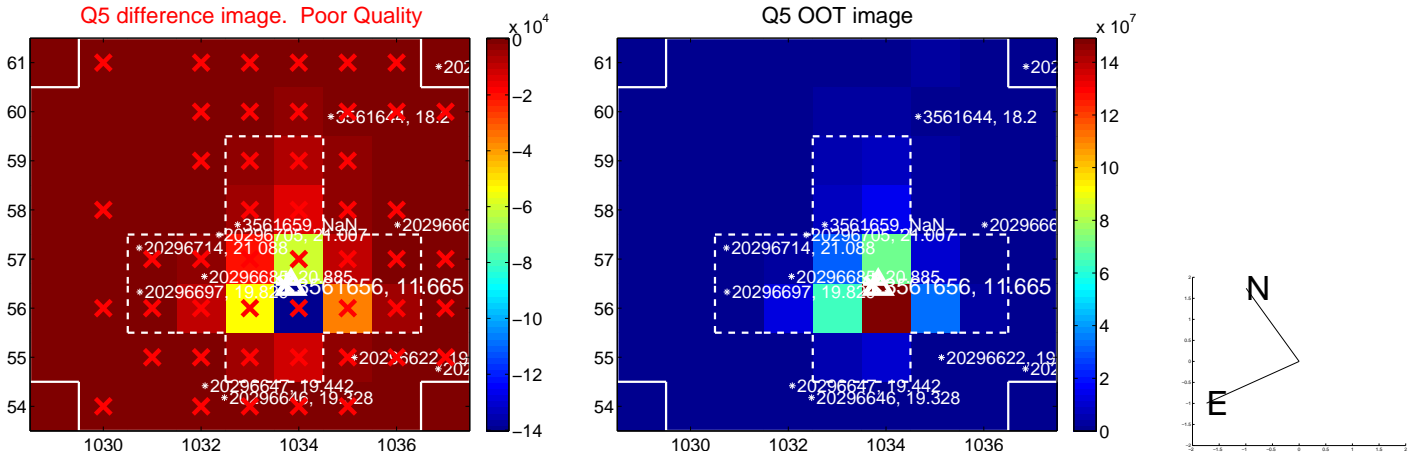


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

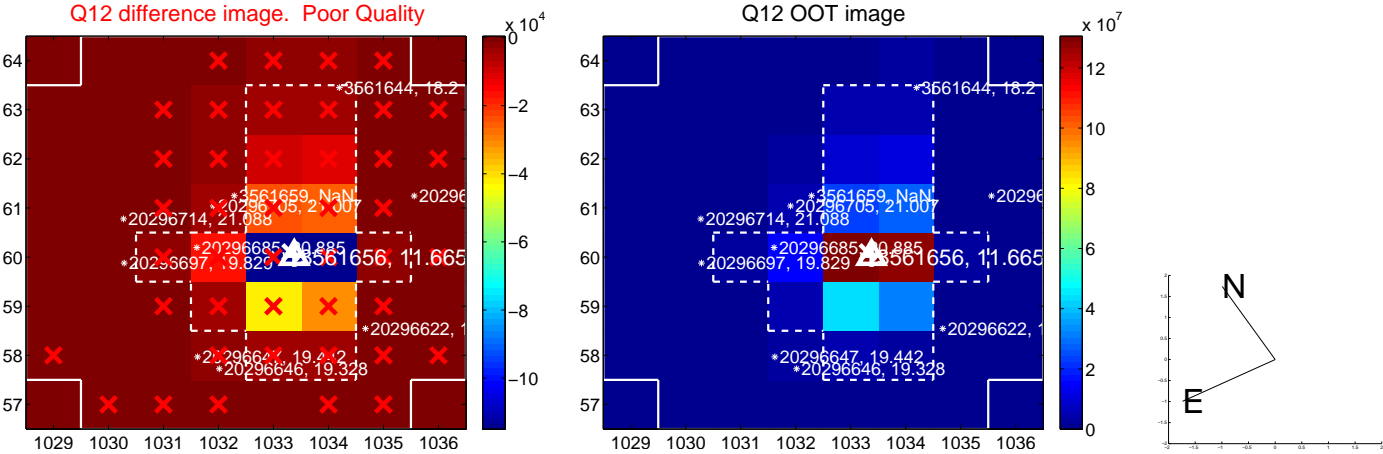
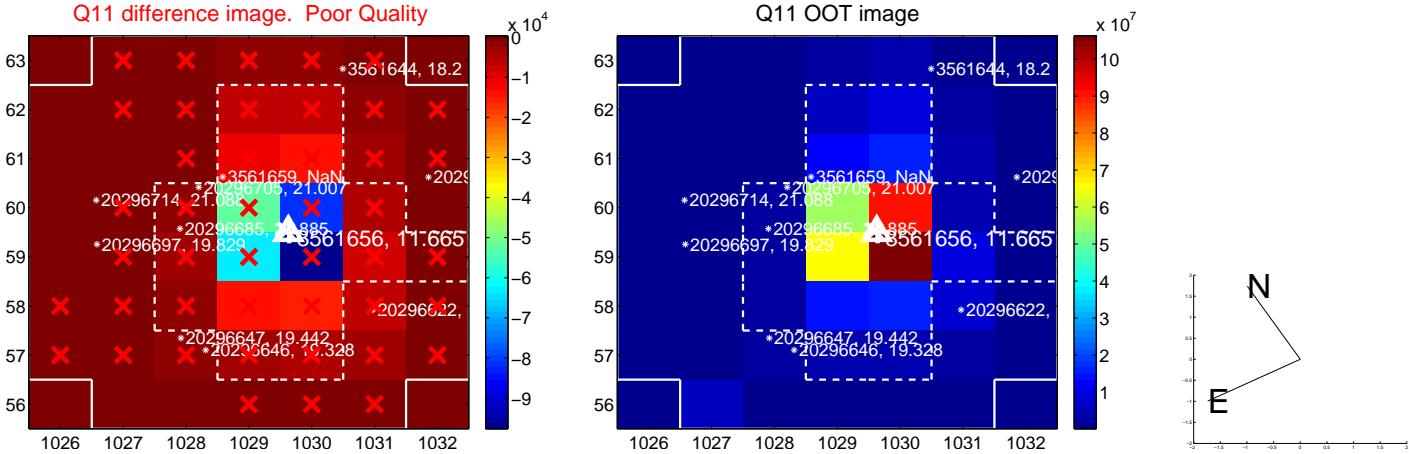
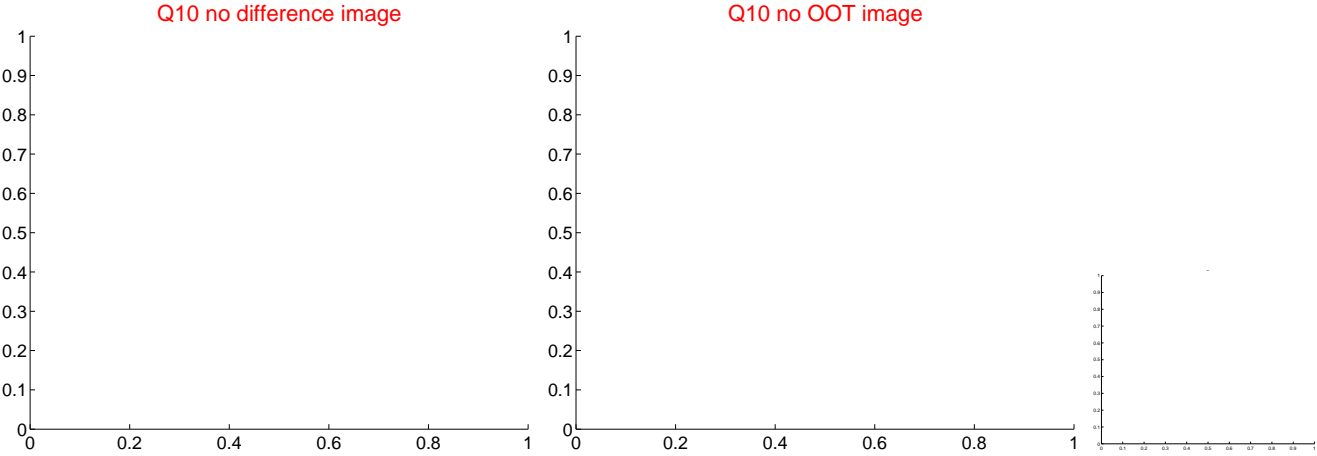
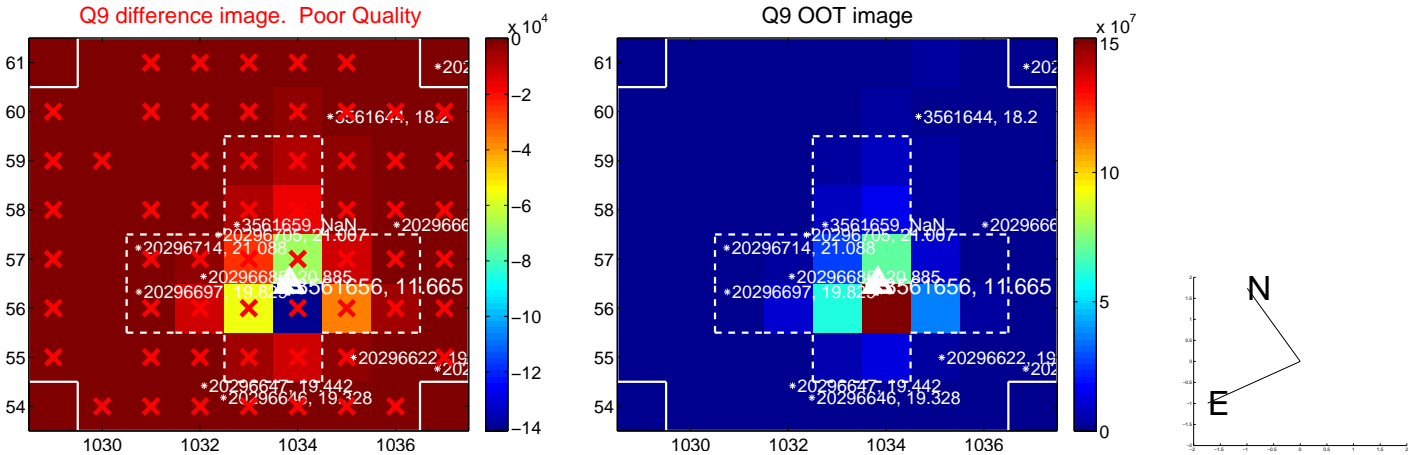
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



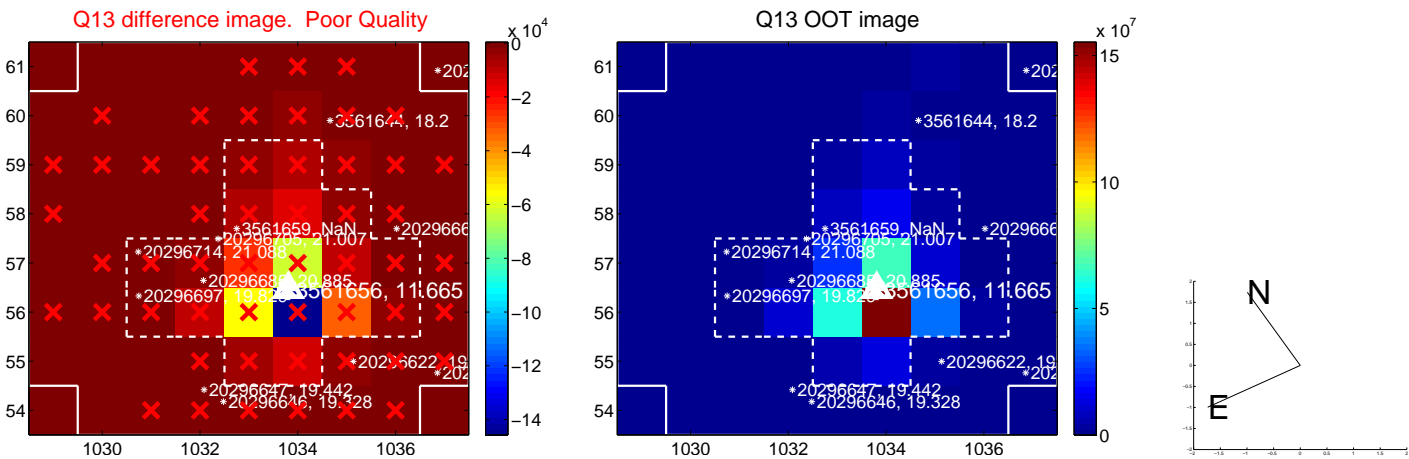
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



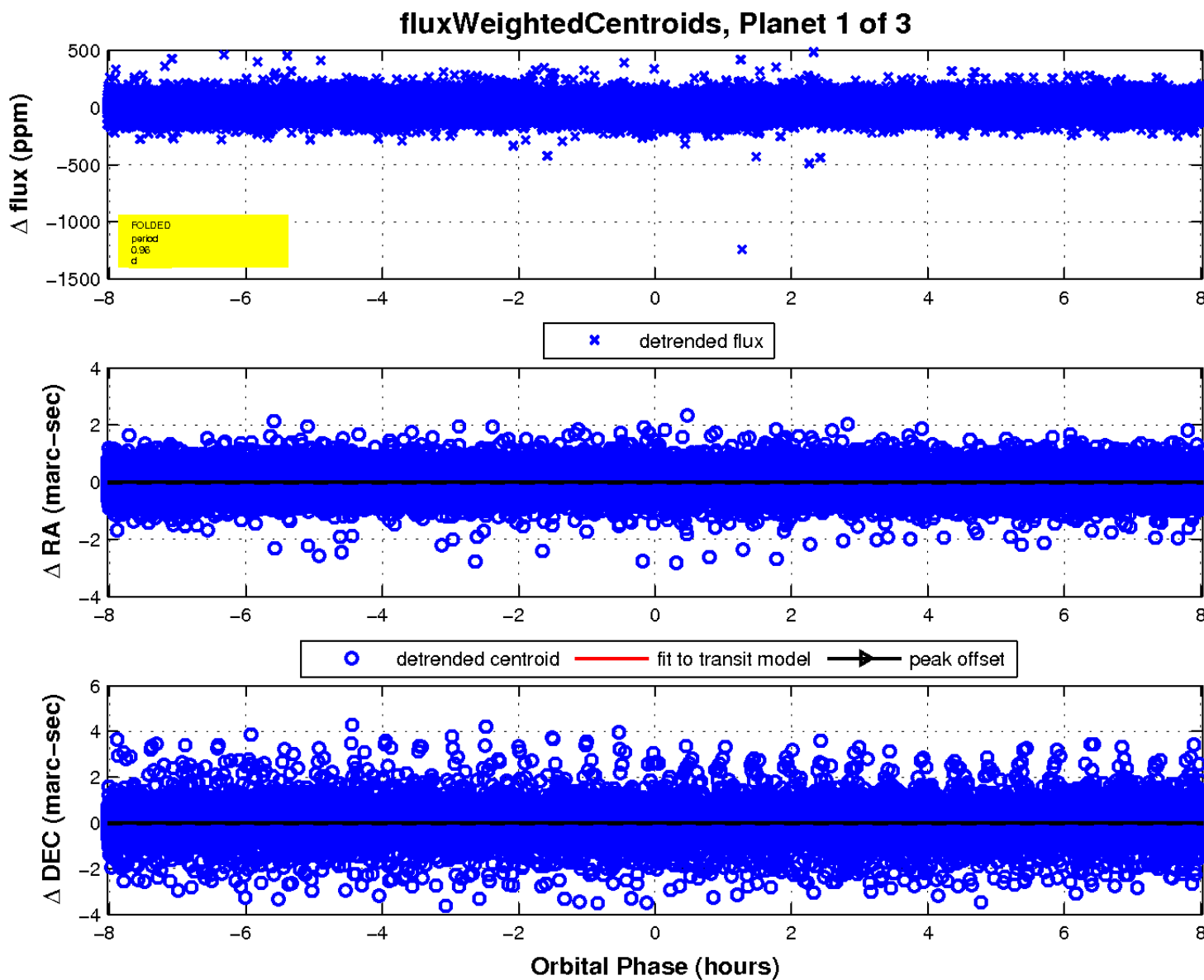
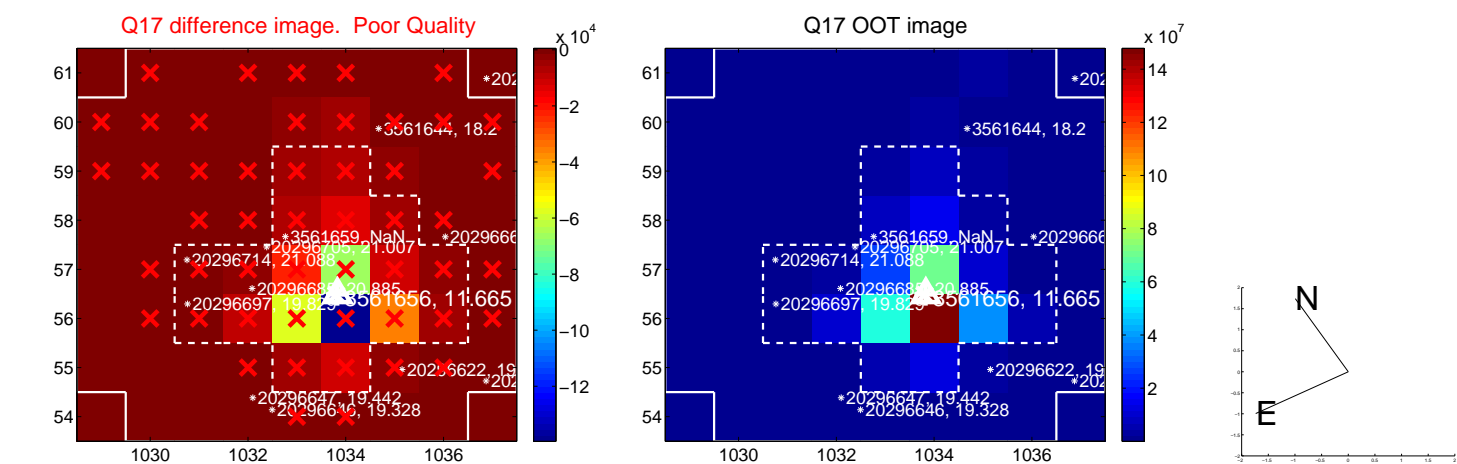
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



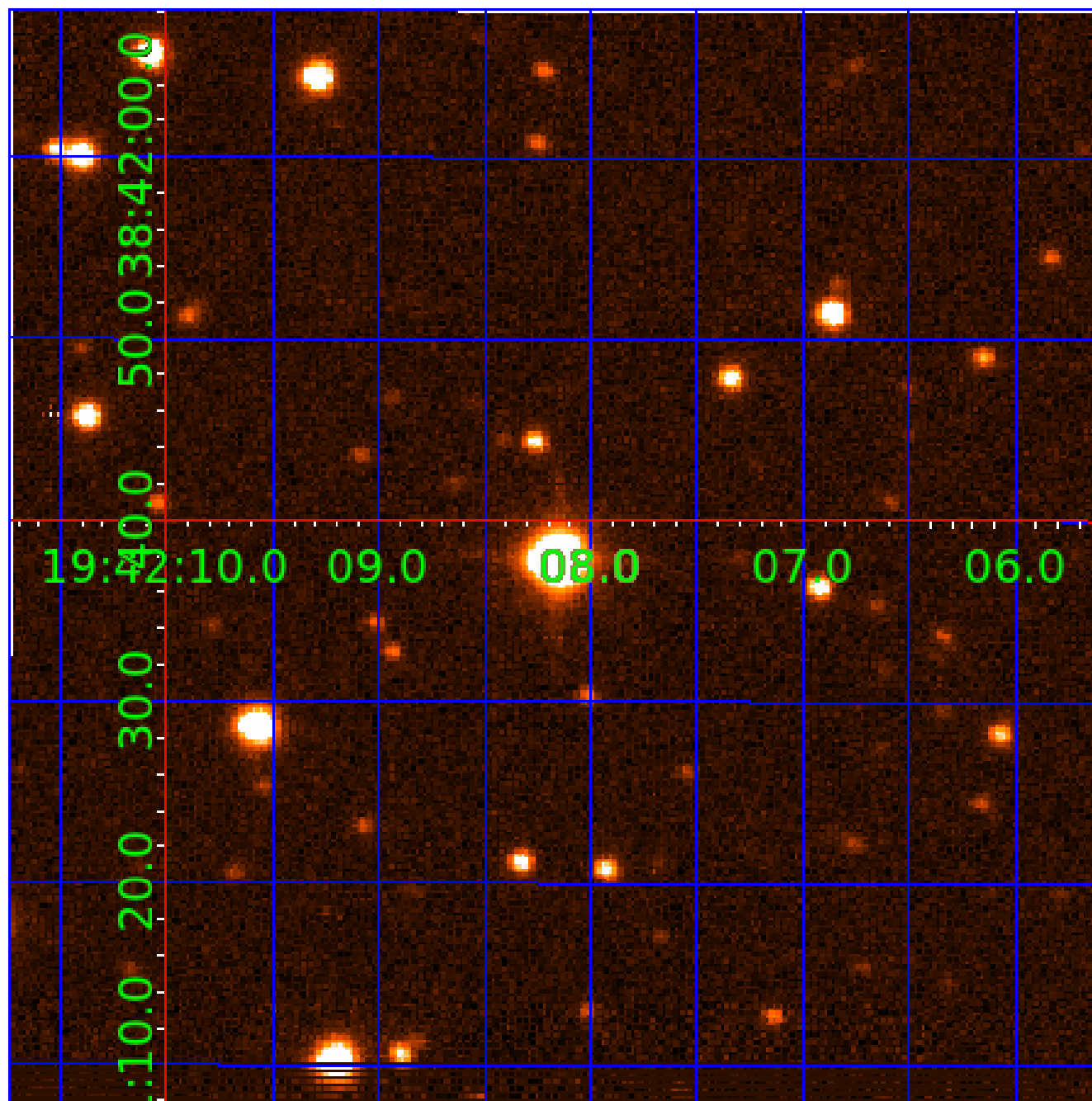
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





# UKIRT Image

Declination



# KIC 003561656

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003561656-01	OBS	No	0.958539	131.734034	15.4	2.676	13.1	13.0	2.21	9744	0.90	61277.73
003561656-02	OBS	No	1.917059	132.332712	15.9	6.114	12.5	13.8	2.21	9744	1.01	24318.41
003561656-03	OBS	No	107.494083	236.133828	50.2	32.357	7.9	5.5	2.21	9744	1.66	113.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003561656-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_FEW_DIFFS
003561656-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
003561656-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

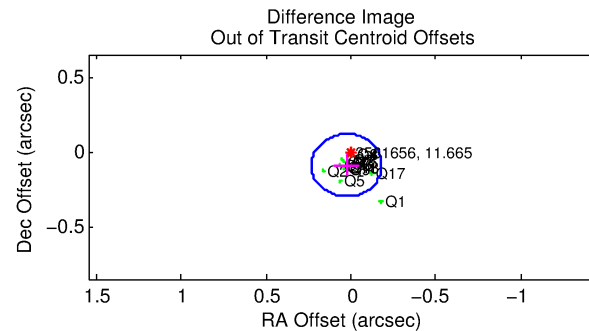
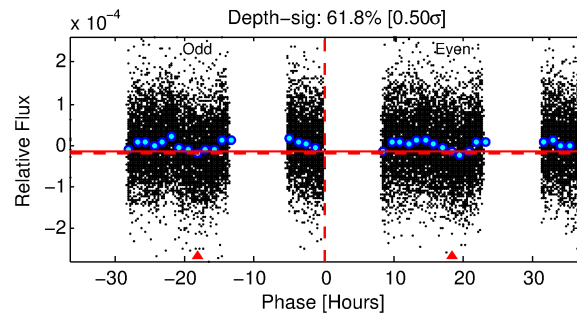
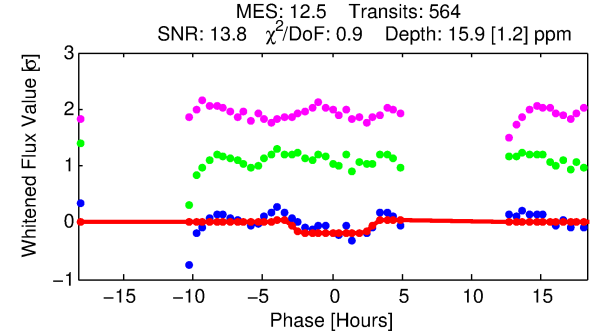
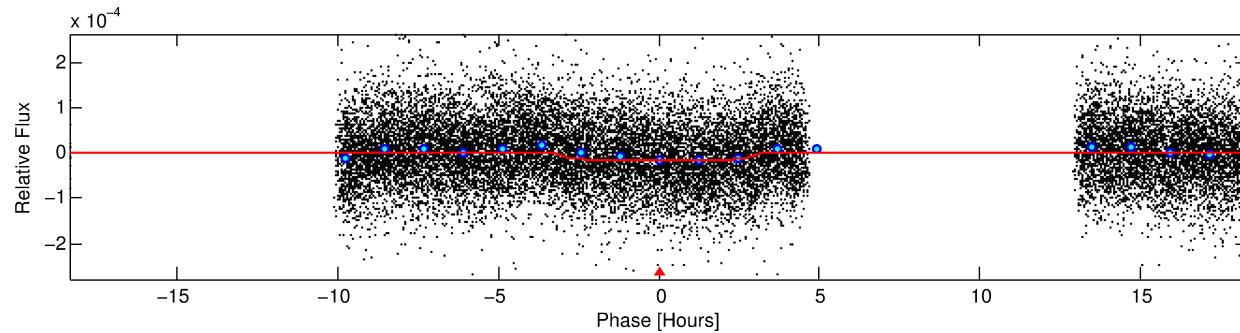
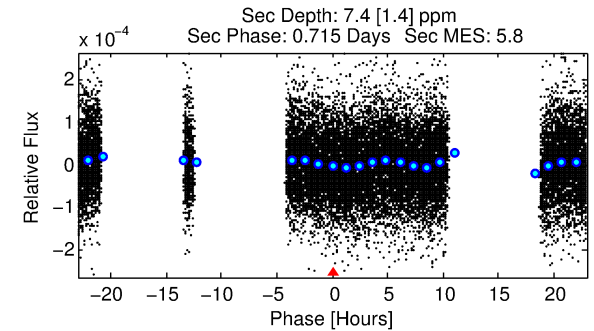
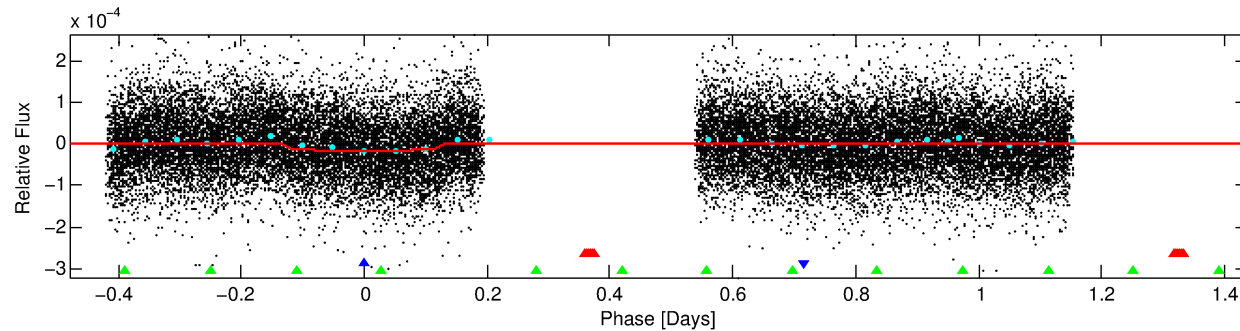
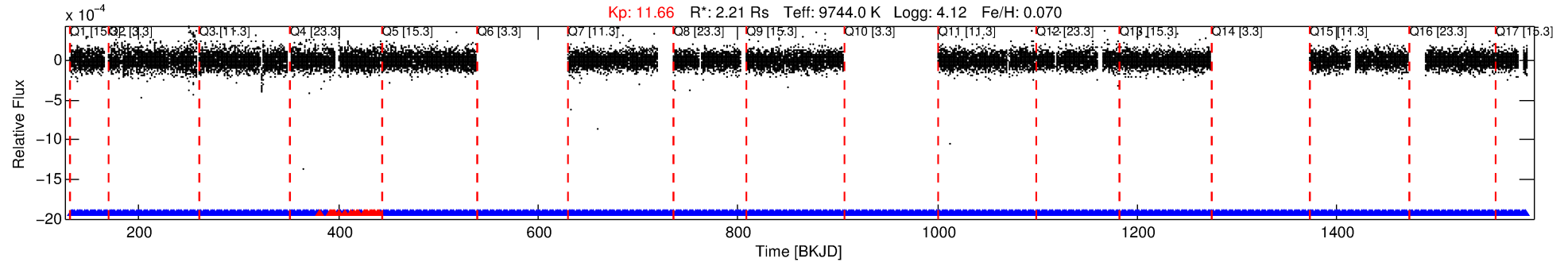
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003561656-02

No Significant Match Found

# DV One-Page Summary

KIC: 3561656 Candidate: 2 of 3 Period: 1.917 d



## DV Fit Results:

Period = 1.91706 [0.00001] d  
Epoch = 132.3327 [0.0037] BKJD  
Rp/R\* = 0.0042 [0.0006]  
a/R\* = 1.43 [0.75]  
b = 0.90 [0.22]  
Seff = 24318.41 [11249.46]  
Teq = 3184 [368] K  
Rp = 1.01 [0.42] Re  
a = 0.0402 [0.0126] AU  
Ag = 6.48 [3.53] [1.55σ]  
Teffp = 7854 [734] K [5.69σ]

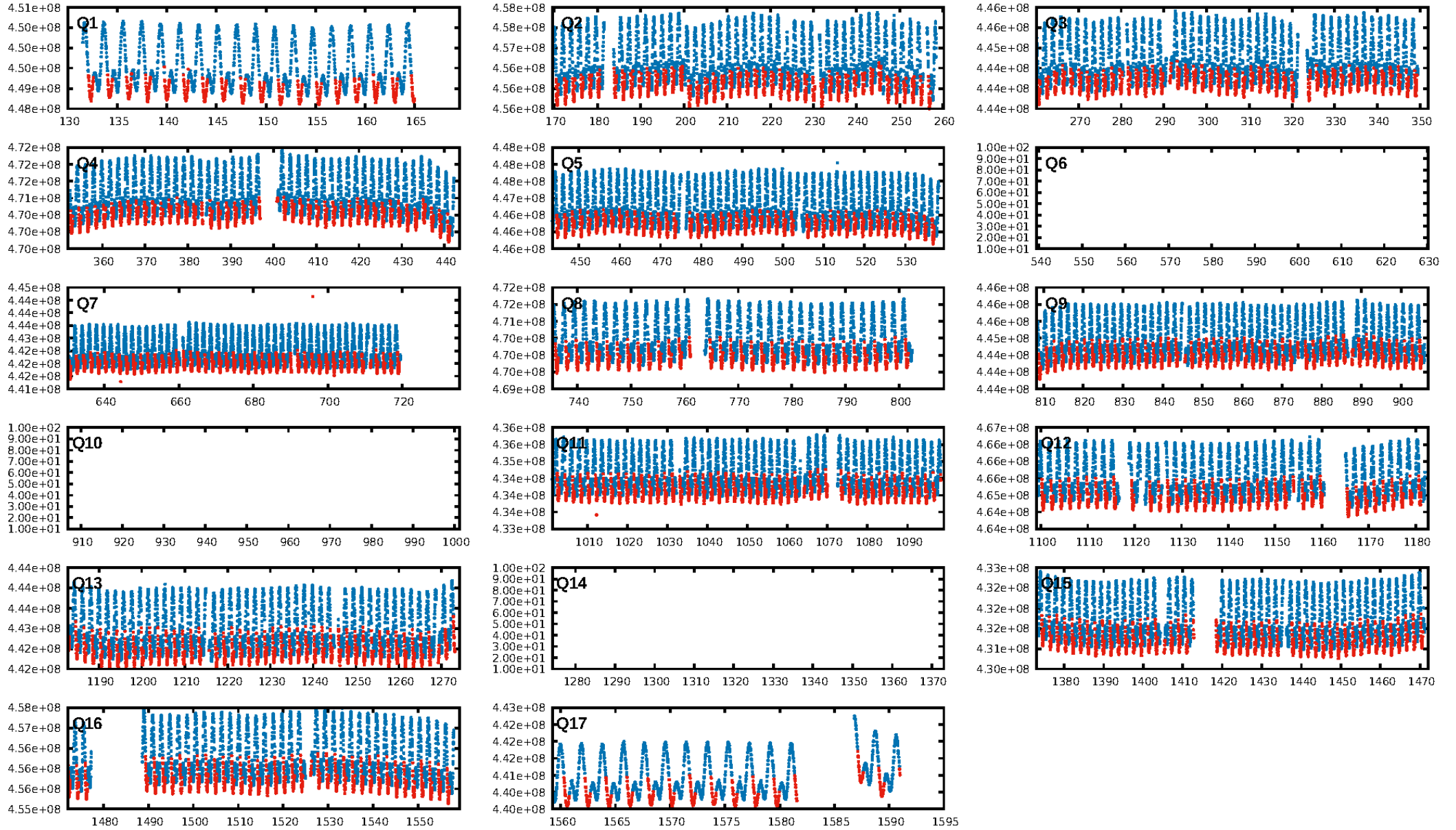
## DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.45σ]  
LongPeriod-sig: 100.0% [76.95σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.21e-28  
RollingBand-fgt: 0.96 [512/532]  
GhostDiagnostic-chr: 3.848  
Centroid-sig: 0.0%  
Centroid-so: 4.410 arcsec [4.39σ]  
OotOffset-rm: 0.095 arcsec [1.37σ]  
KicOffset-rm: 0.258 arcsec [3.59σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 0.00 [0/14]

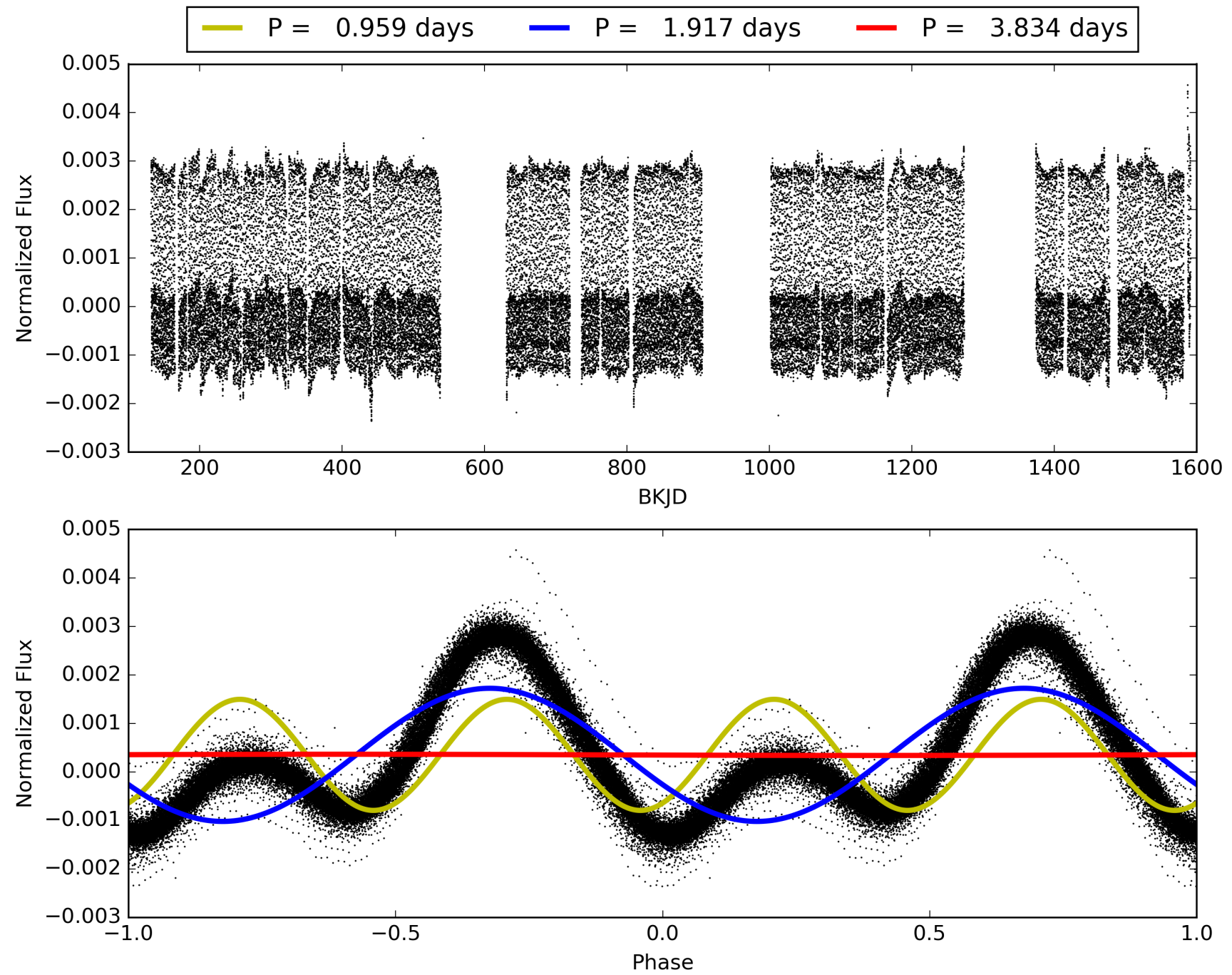
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:42:30 Z

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

# TCE 003561656-02, PDC Light Curves

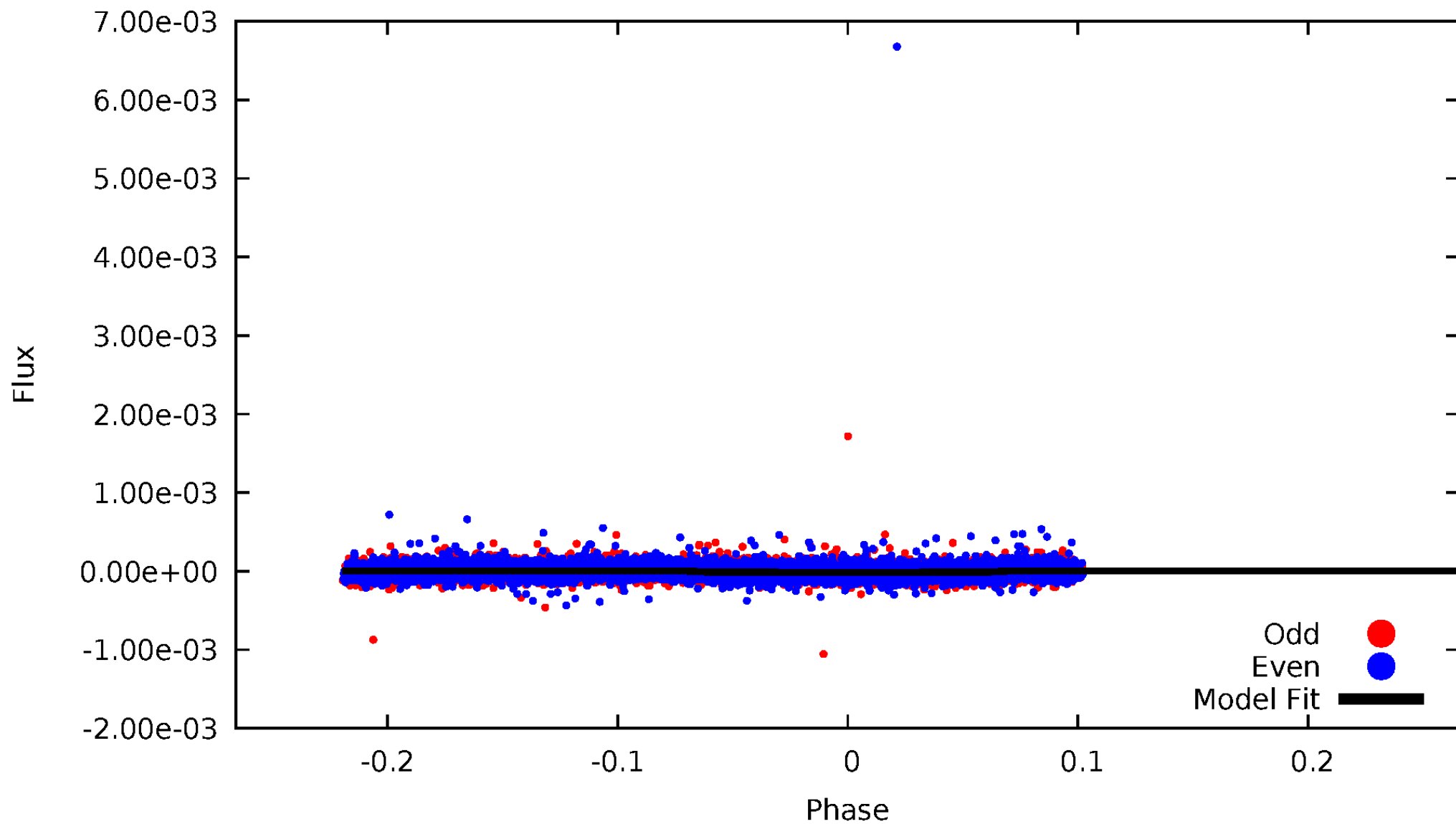


# TCE 003561656-02



# DV Odd/Even

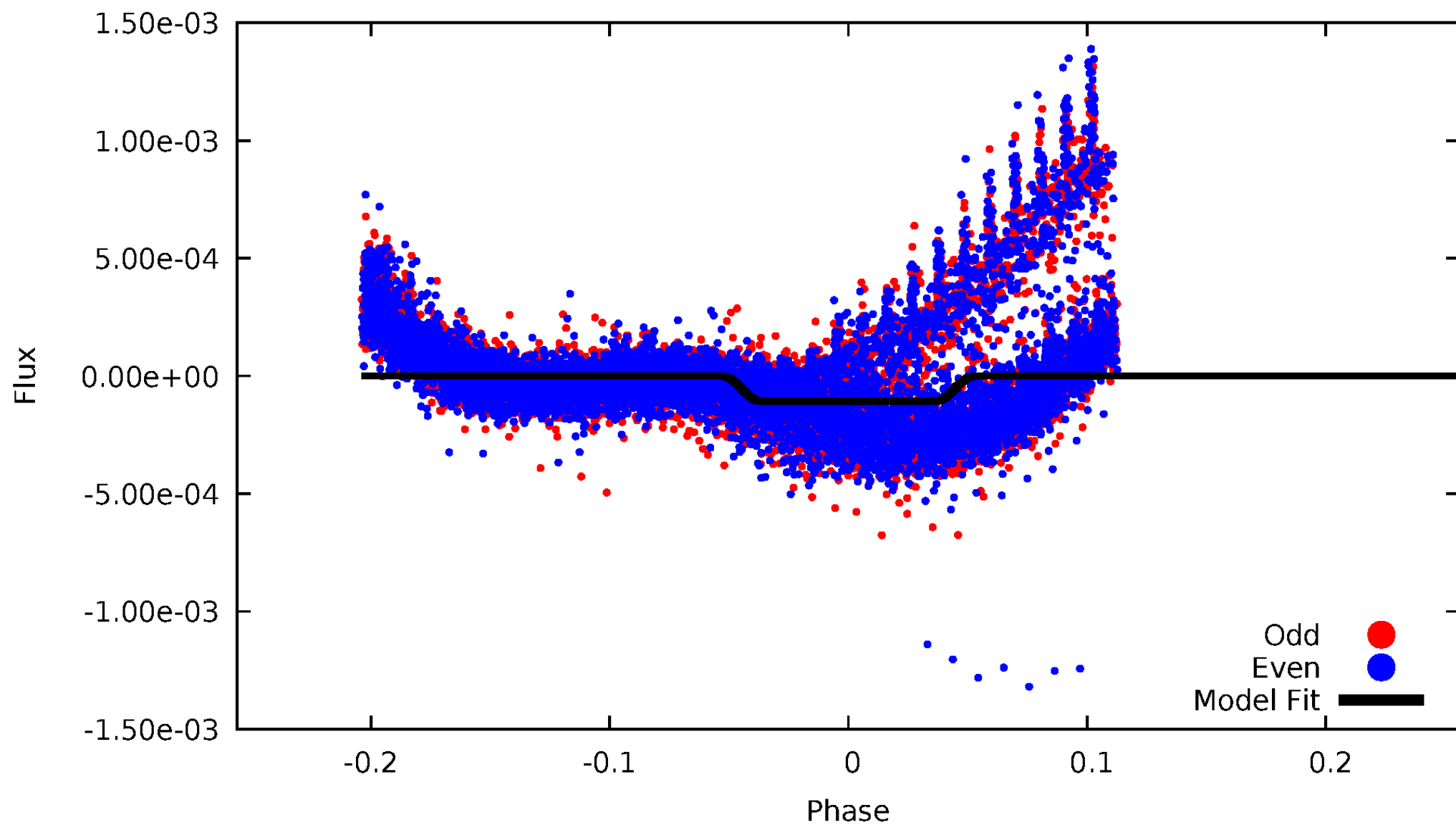
TCE 003561656-02





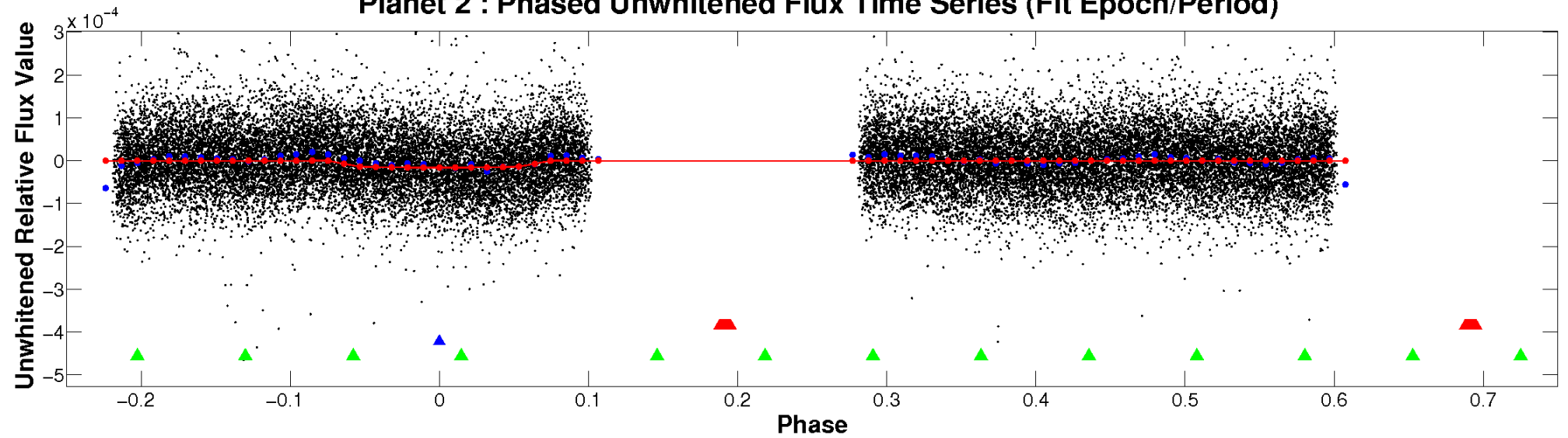
# ALT Odd/Even

TCE 003561656-02

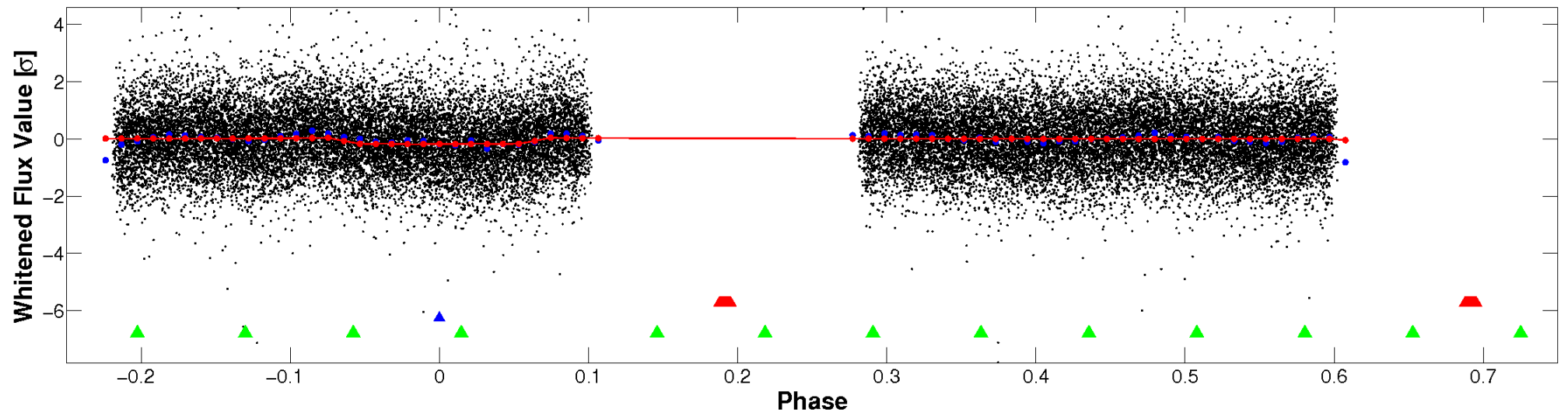


# Non-Whitened Vs. Whitened Light Curve

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

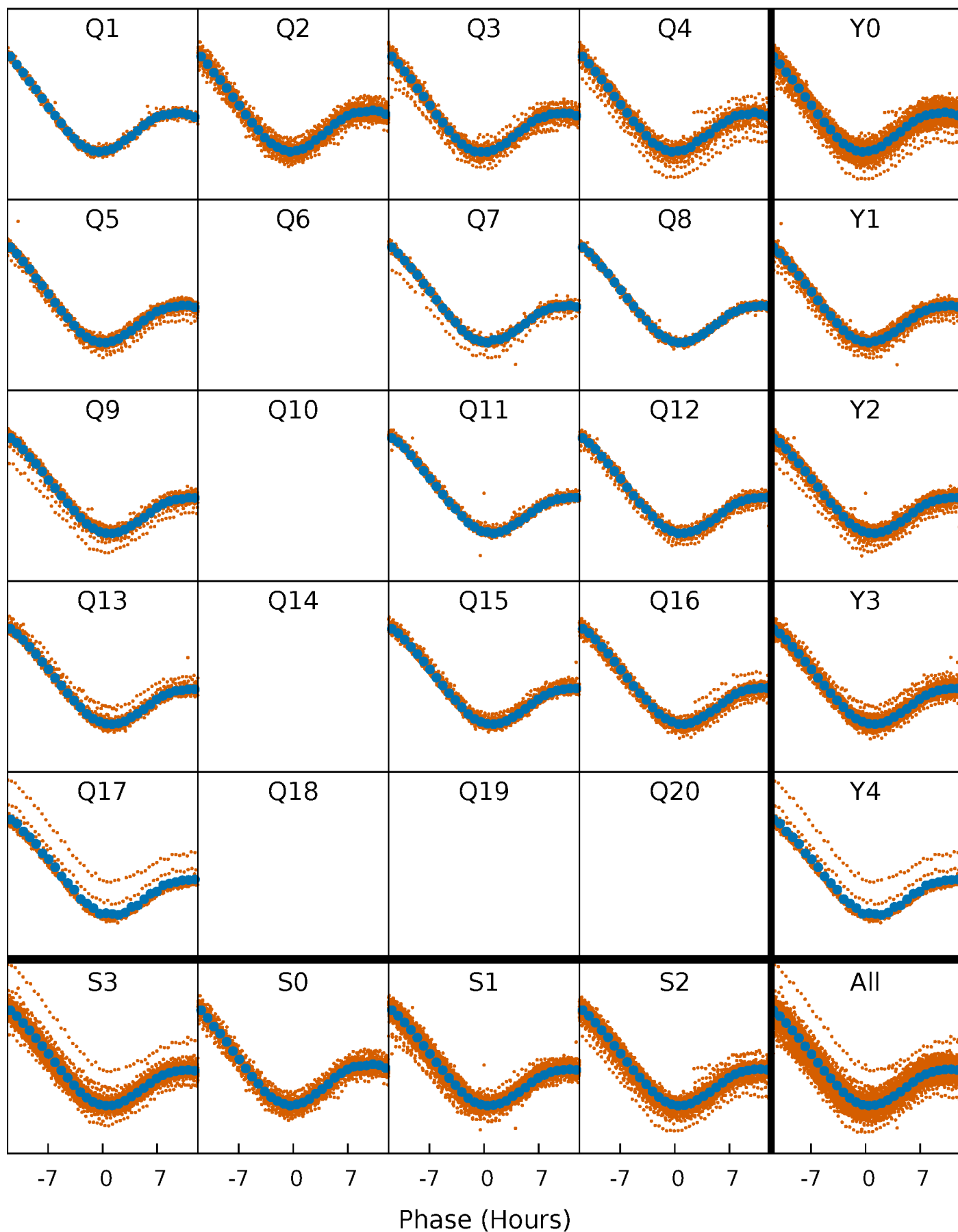


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



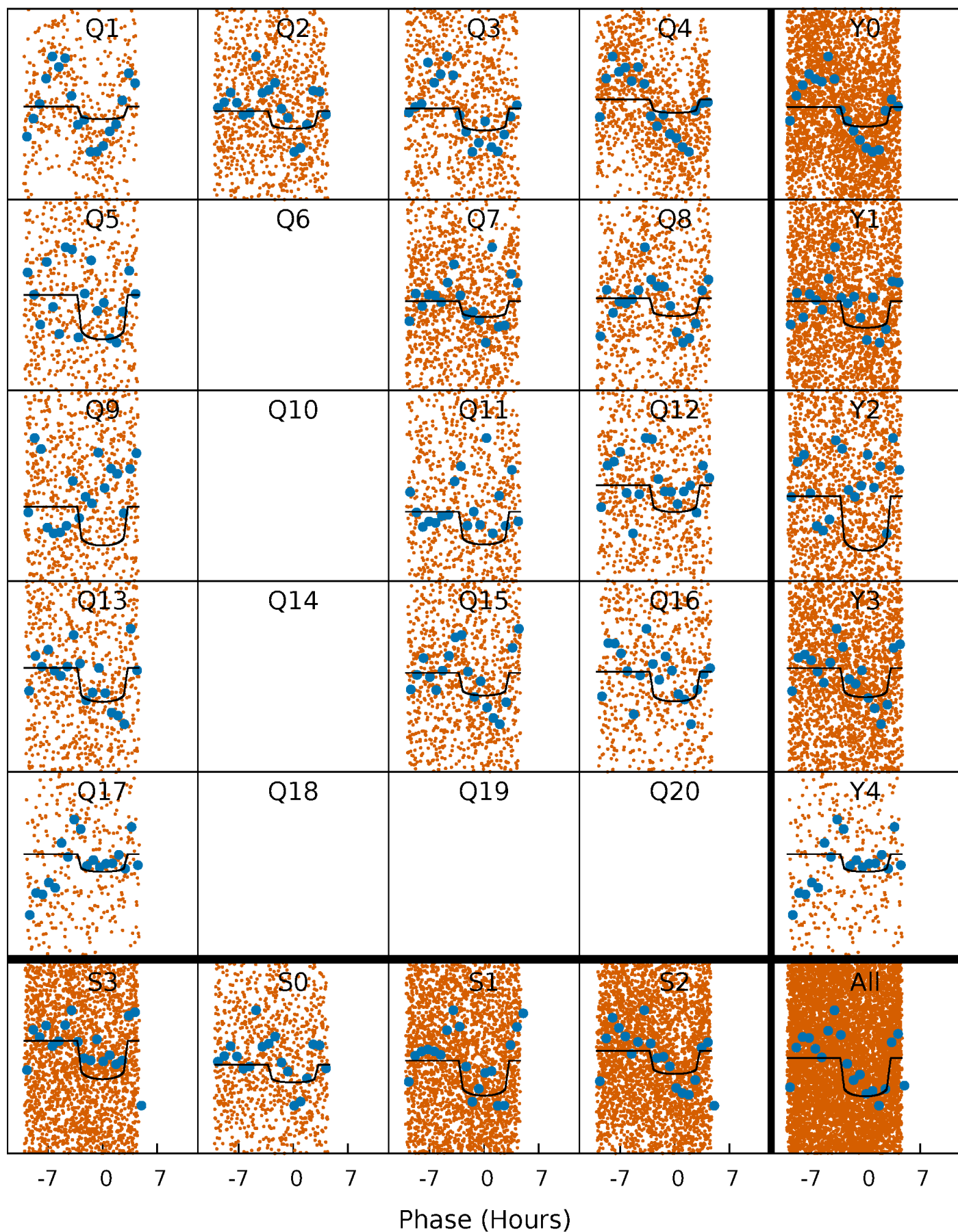
# PDC Quarter-Phased Transit Curves

TCE 003561656-02   P= 1.917059 Days    $T_0=132.332712$  (BKJD)



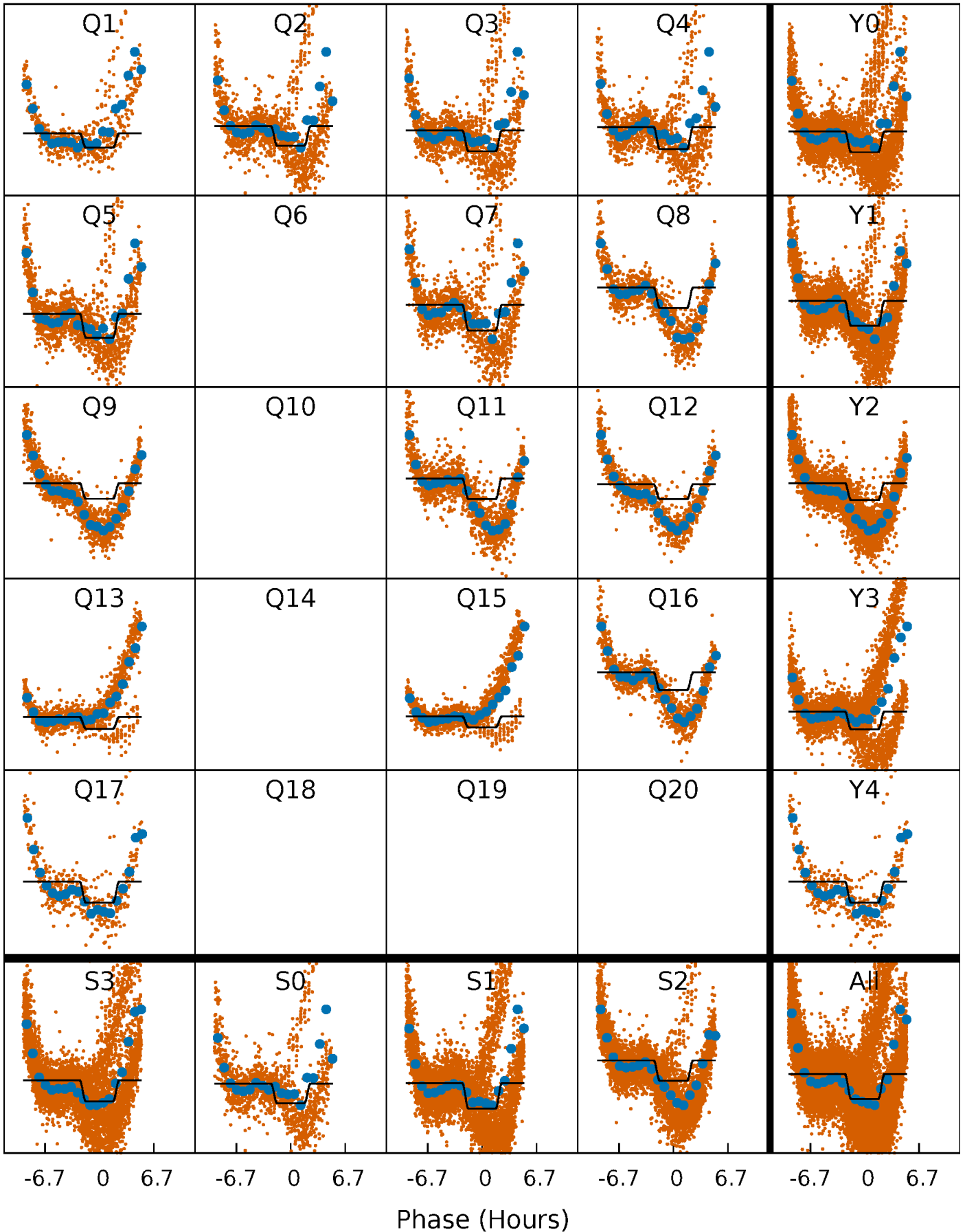
# DV Quarter-Phased Transit Curves

TCE 003561656-02   P= 1.917059 Days    $T_0=132.332712$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

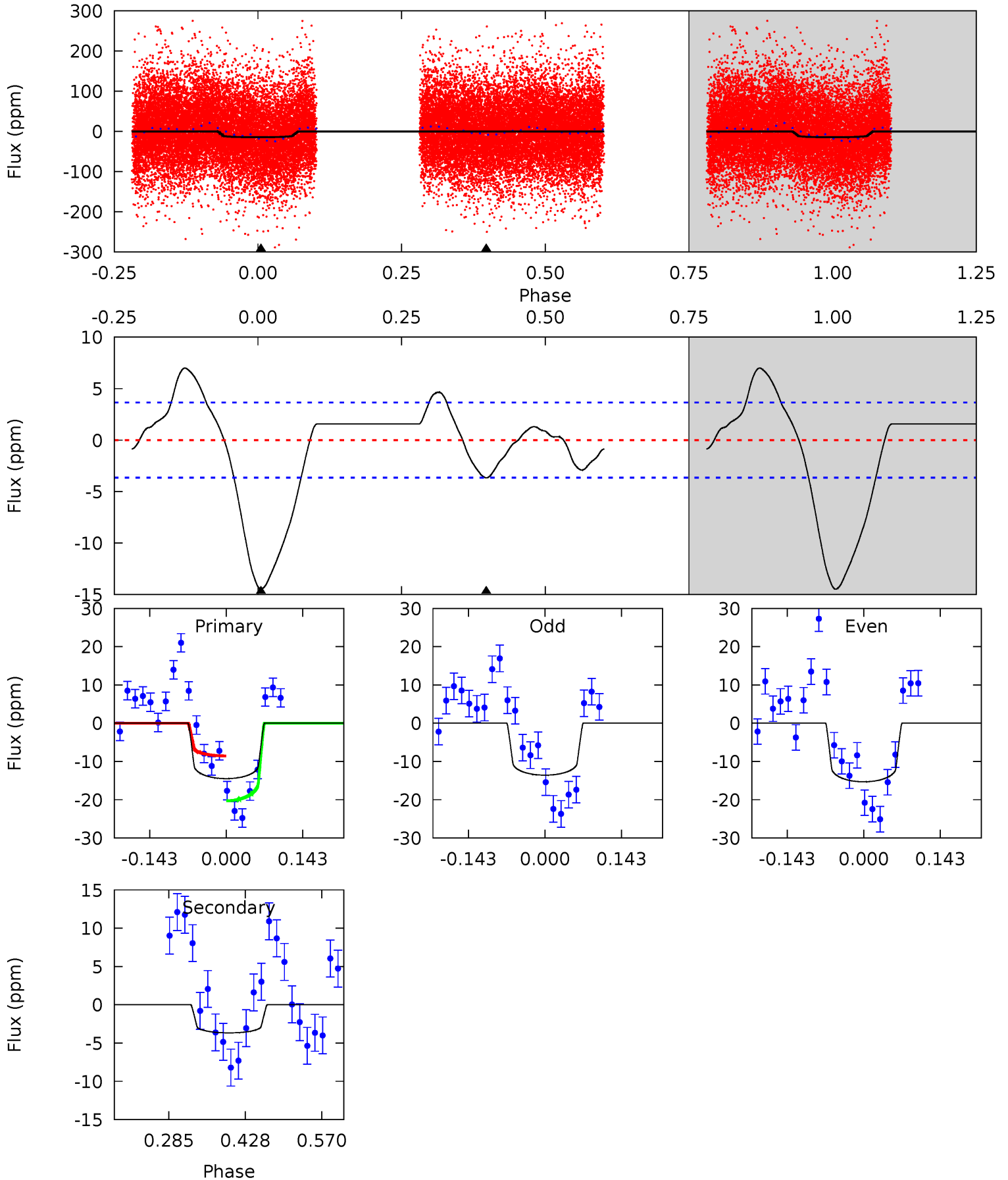
TCE 003561656-02   P= 1.917073 Days    $T_0=132.302566$  (BKJD)



# DV Model-Shift Uniqueness Test

003561656-02, P = 1.917059 Days, E = 130.415653 Days

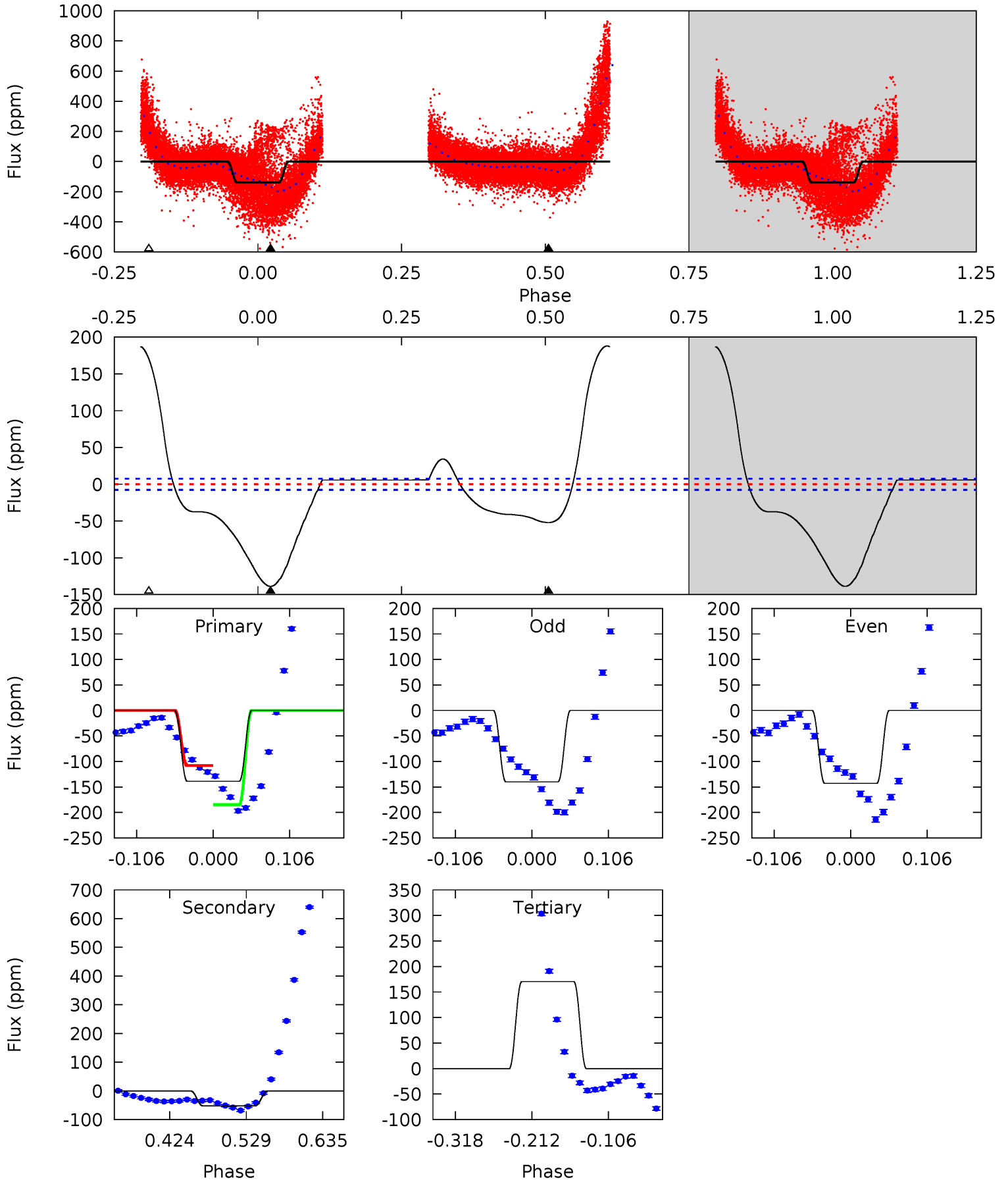
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	4.52	0	0	4.49	1.47	3.01	17.8	17.8	4.52	4.52	1.08	0.77	0.33	7.35



# Alt Model-Shift Uniqueness Test

003561656-02, P = 1.917073 Days, E = 130.385493 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
83.7	31.4	-102.7	0	4.55	1.62	39.5	186.3	83.7	134.1	31.4	0.81	0.82	0.58	18.2





### Stellar Parameters For KIC 003561656

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9744^{+272}_{-409}$	$4.123^{+0.148}_{-0.222}$	$0.070^{+0.150}_{-0.550}$	$2.205^{+0.873}_{-0.582}$	$2.356^{+0.396}_{-0.594}$	$0.309^{+0.249}_{-0.180}$
	+3%/-4%	+4%/-5%	+214%/-786%	+40%/-26%	+17%/-25%	+81%/-58%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003561656-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4 \pm 1$	$1.01^{+0.24}_{-0.19}$	$4482^{+416}_{-317}$	$5928^{+676}_{-578}$	$3.051^{+1.562}_{-1.213}$
Alt.	$-52 \pm 2$	$2.54^{+0.58}_{-0.39}$	$4477^{+451}_{-336}$	$7531^{+384}_{-337}$	$6.973^{+2.529}_{-2.108}$

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

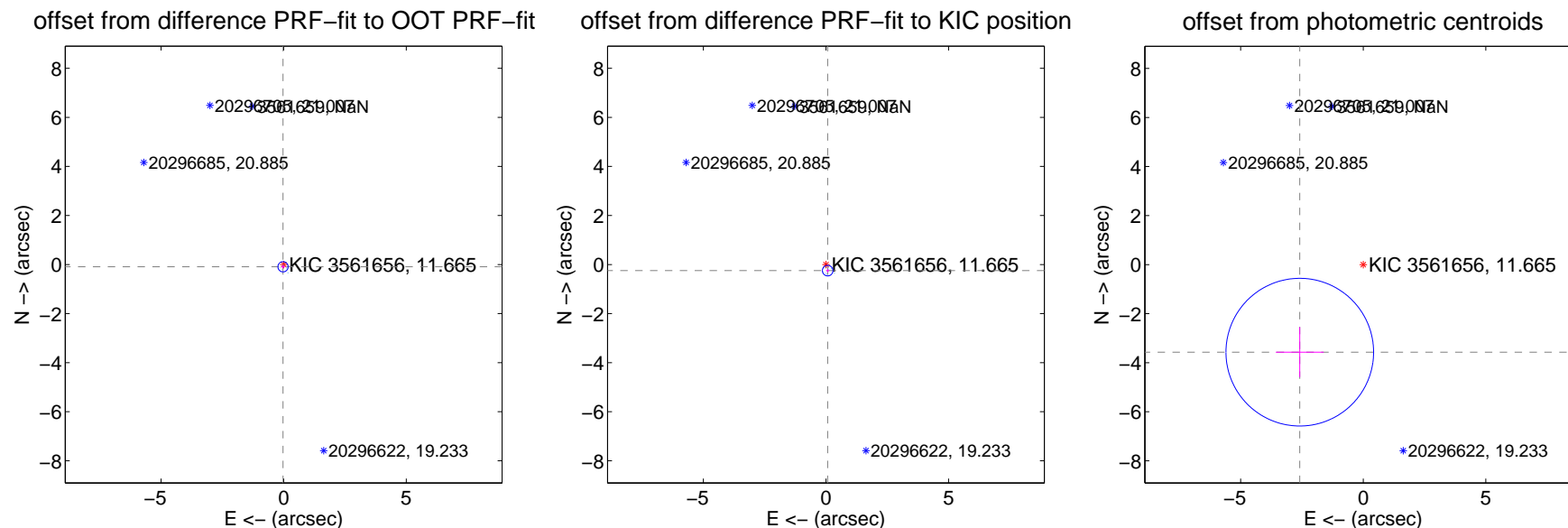
## DV Centroid Data

Supplemental centroid analysis for 003561656-02. **Kepler magnitude: 11.66.** Transit SNR 13.76

There are 14 quarters with good PRF difference image offsets

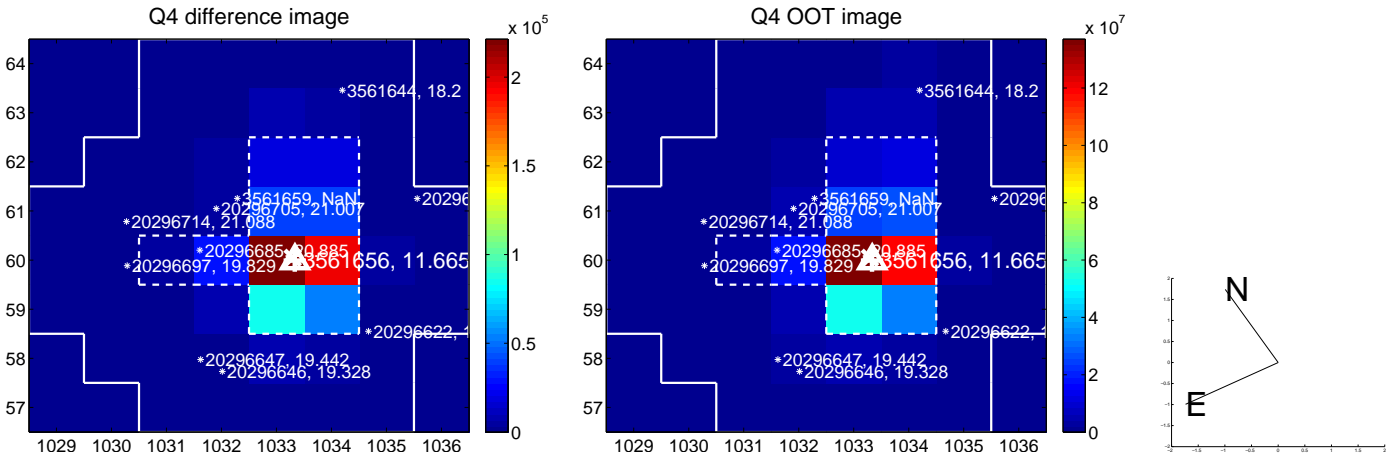
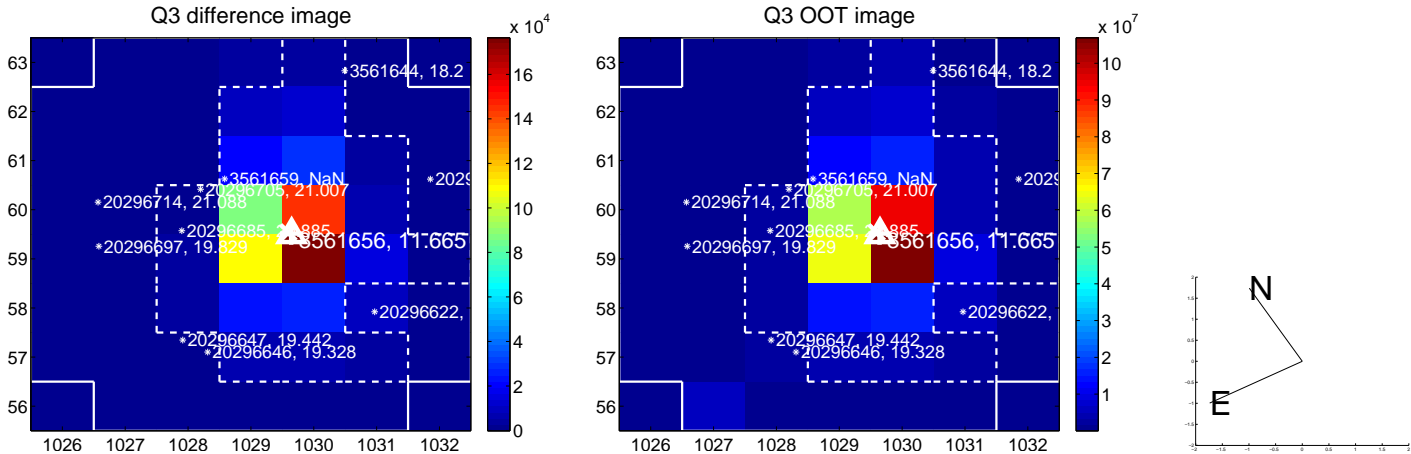
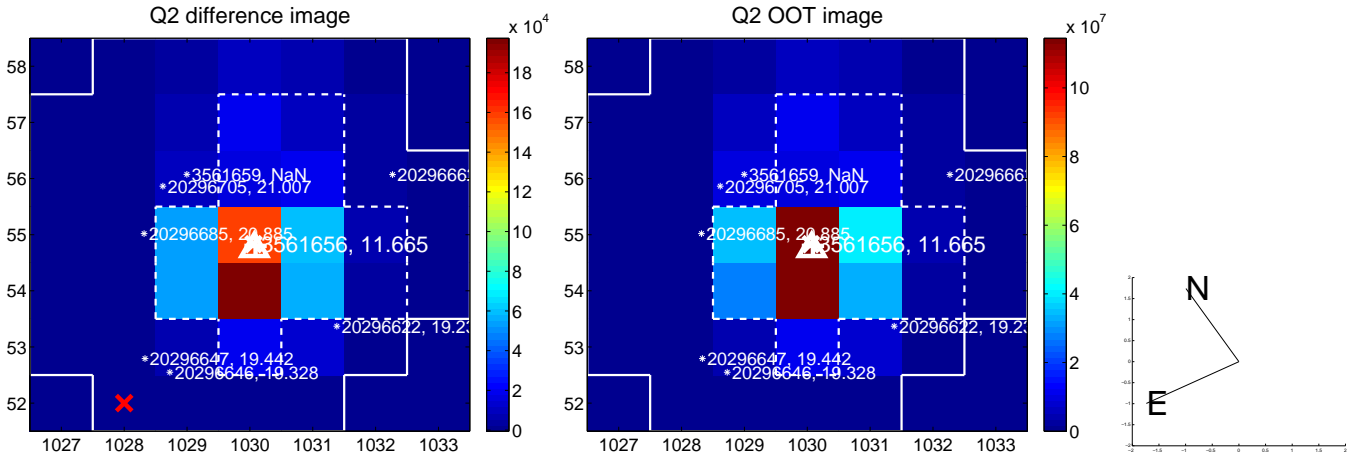
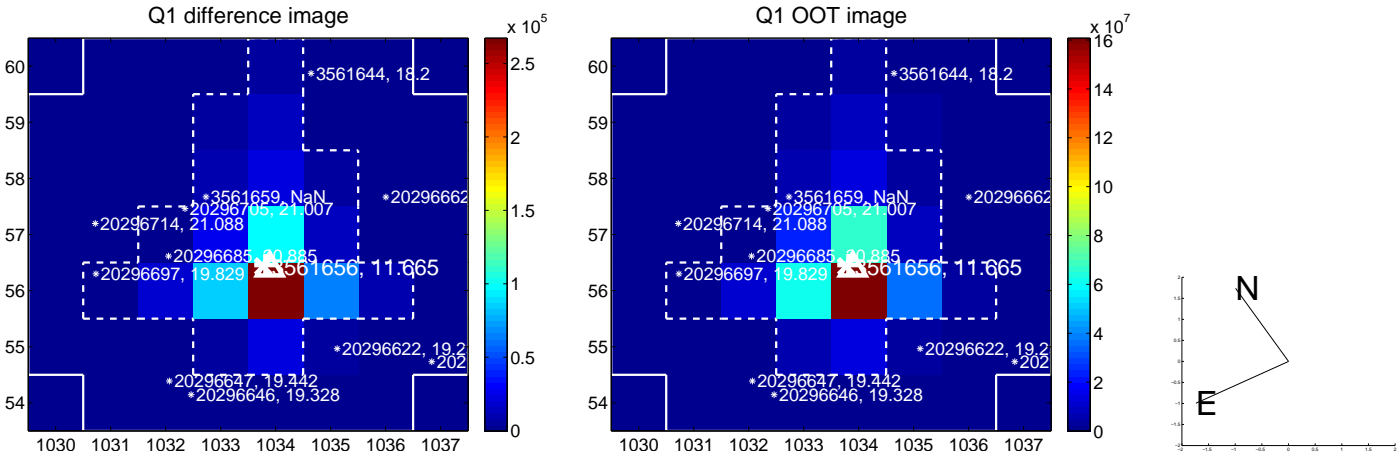
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.095 \pm 0.069$	1.37	$0.027 \pm 0.070$	$-0.091 \pm 0.070$
PRF-fit source offset from KIC position	<b><math>0.258 \pm 0.072</math></b>	<b>3.59</b>	$-0.070 \pm 0.069$	$-0.248 \pm 0.072$
photometric centroid source offset	<b><math>4.41 \pm 1.00</math></b>	<b>4.39</b>	$2.59 \pm 0.98$	$-3.57 \pm 1.02$

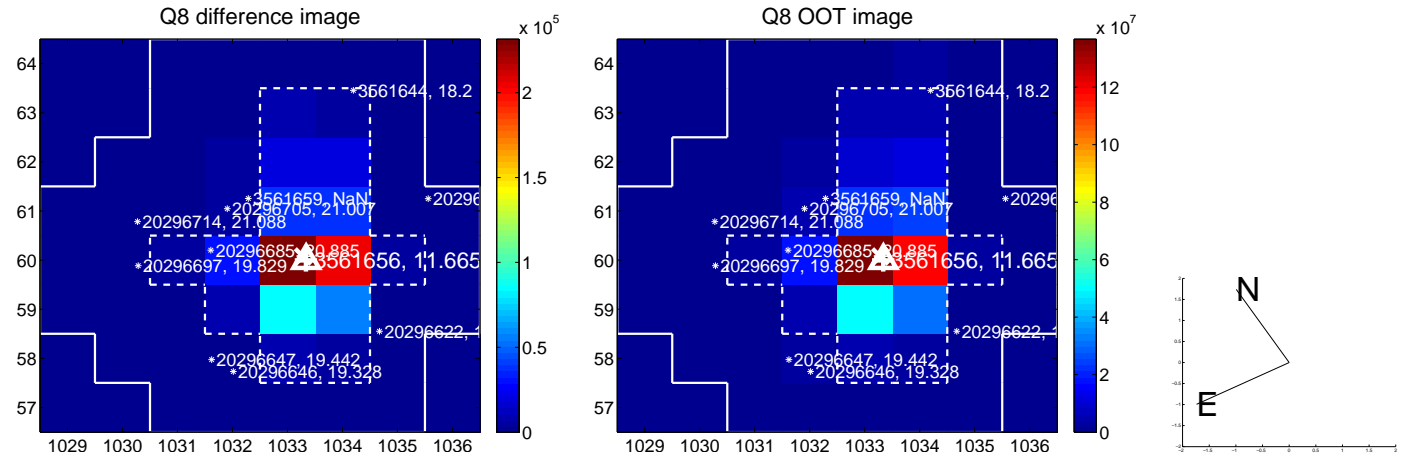
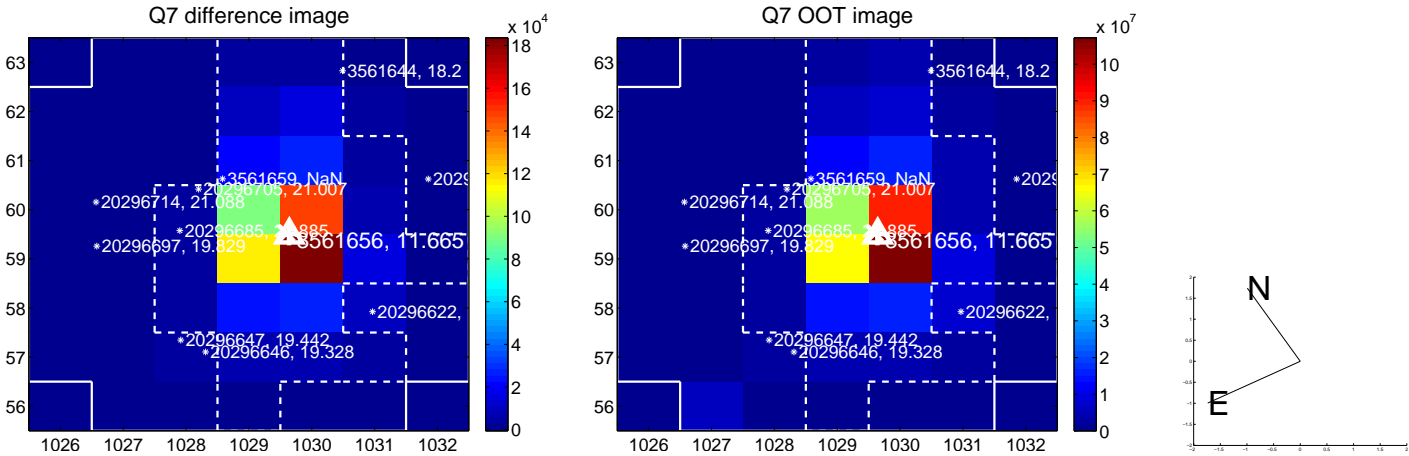
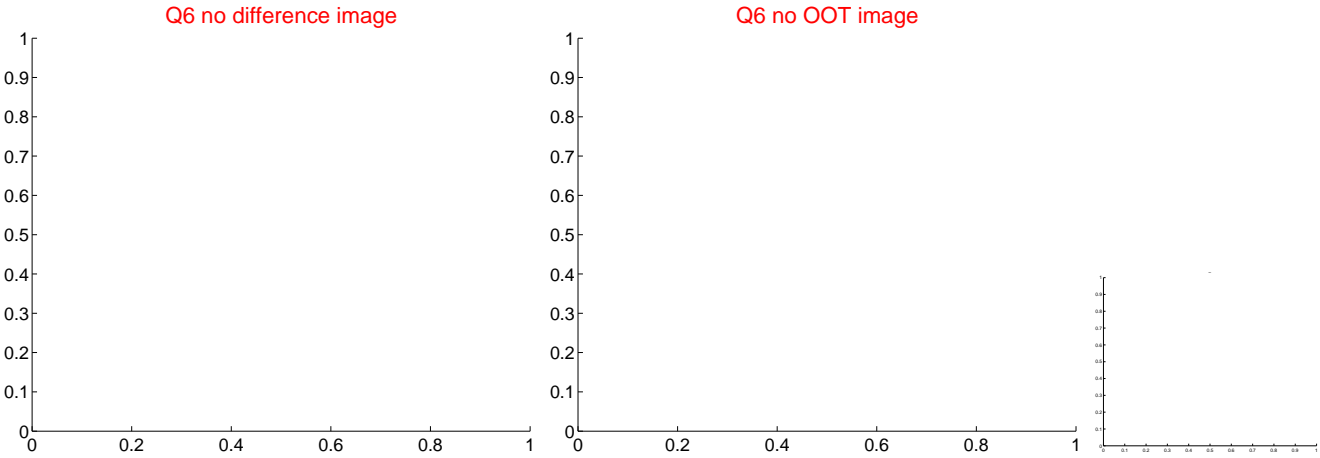
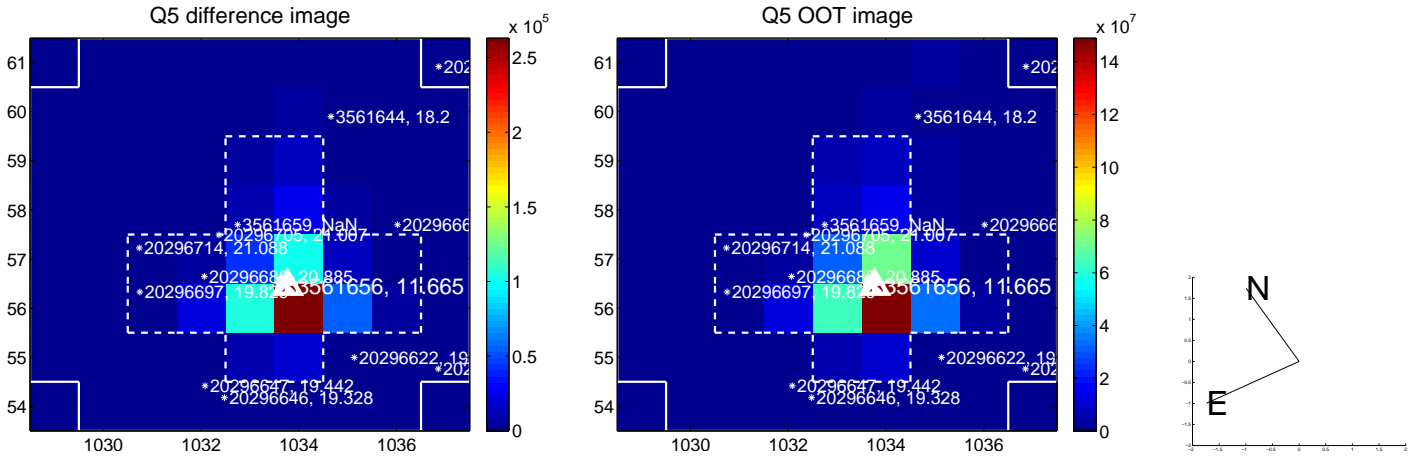


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

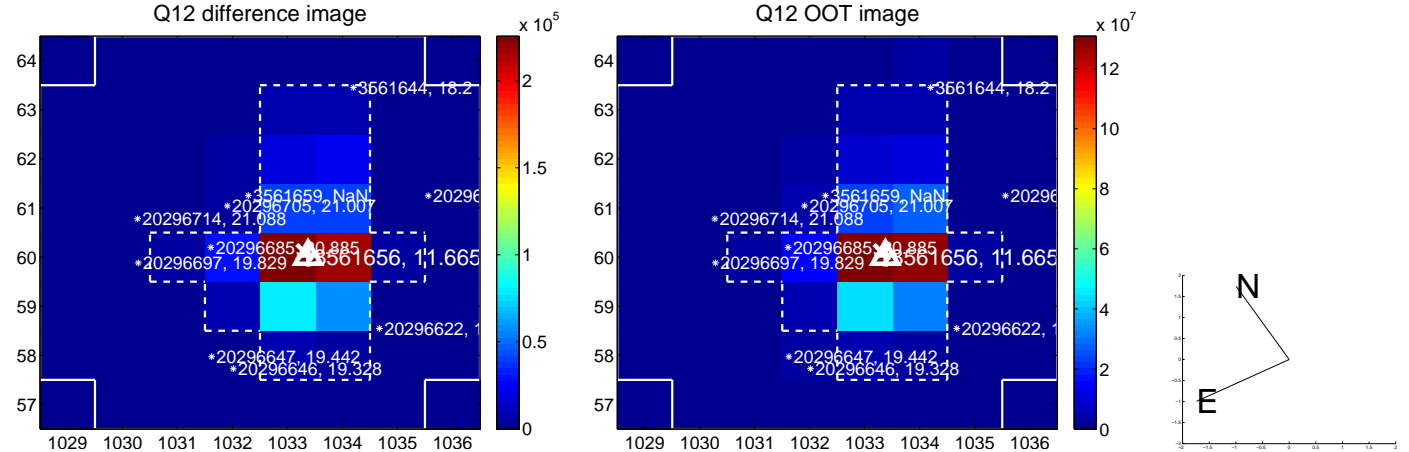
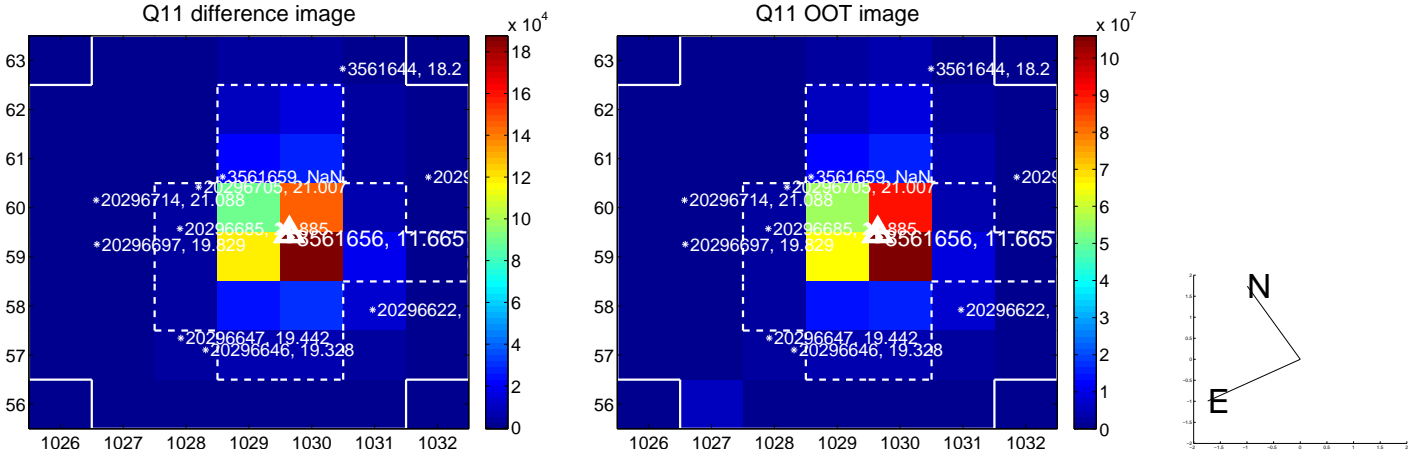
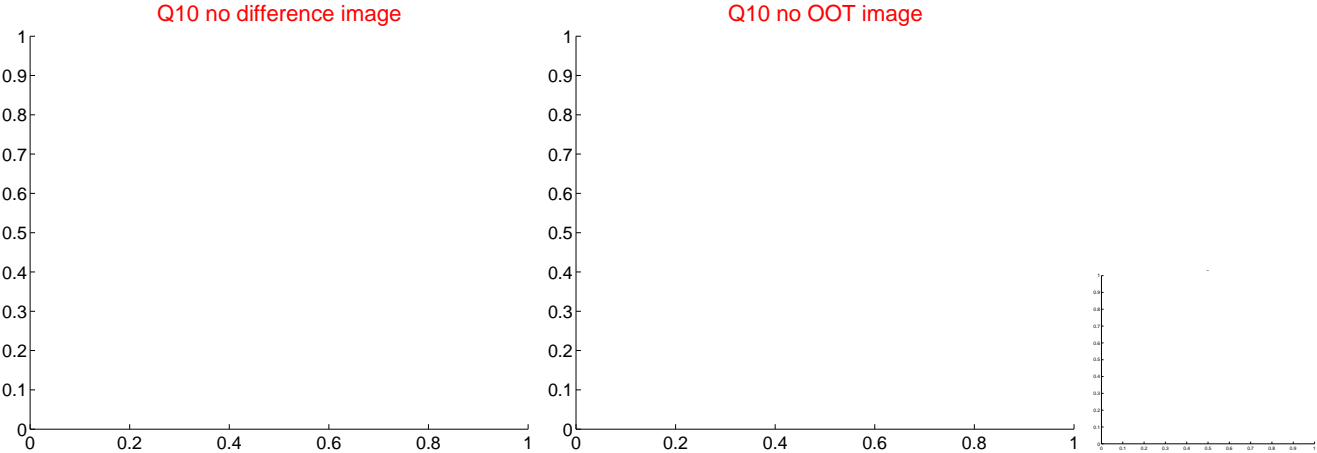
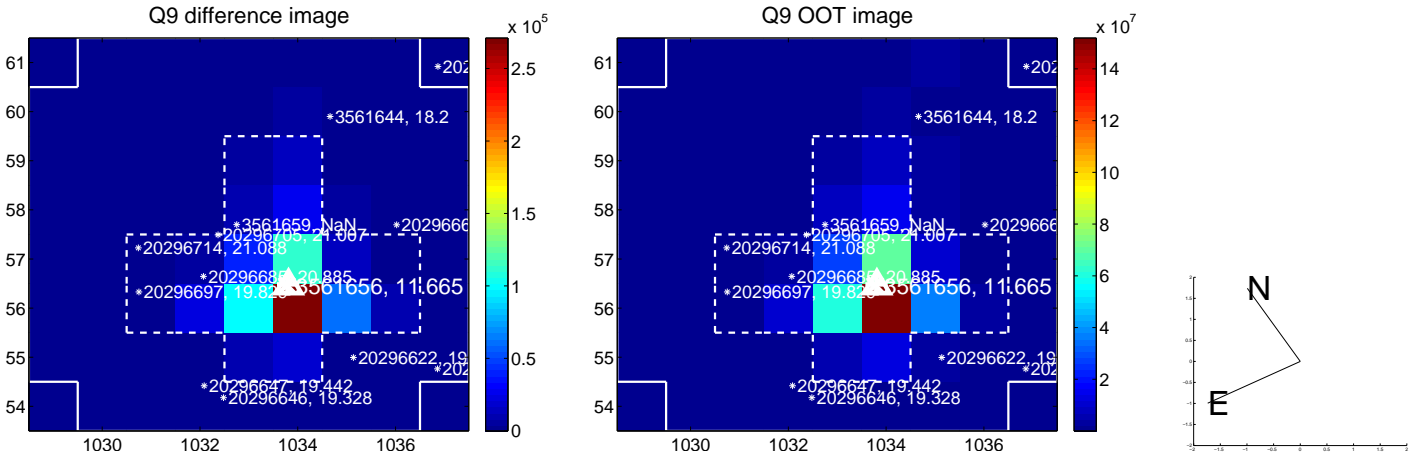
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



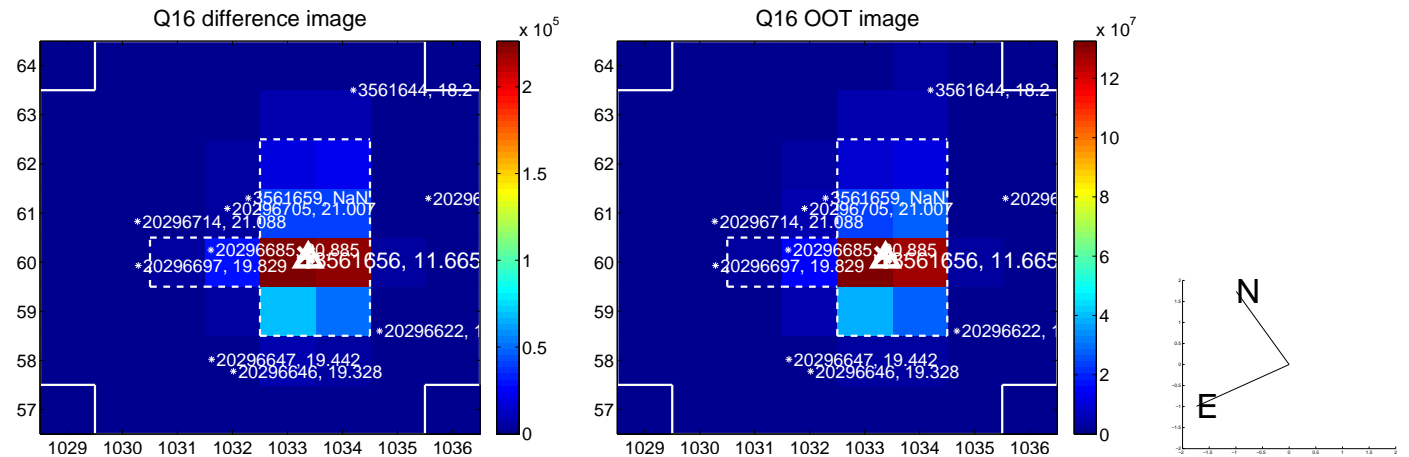
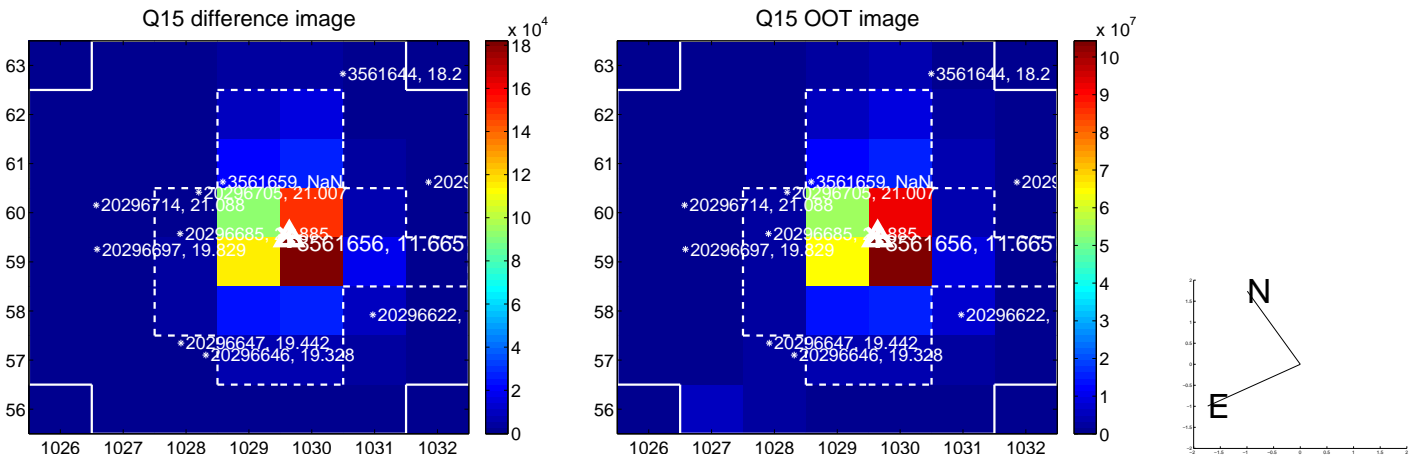
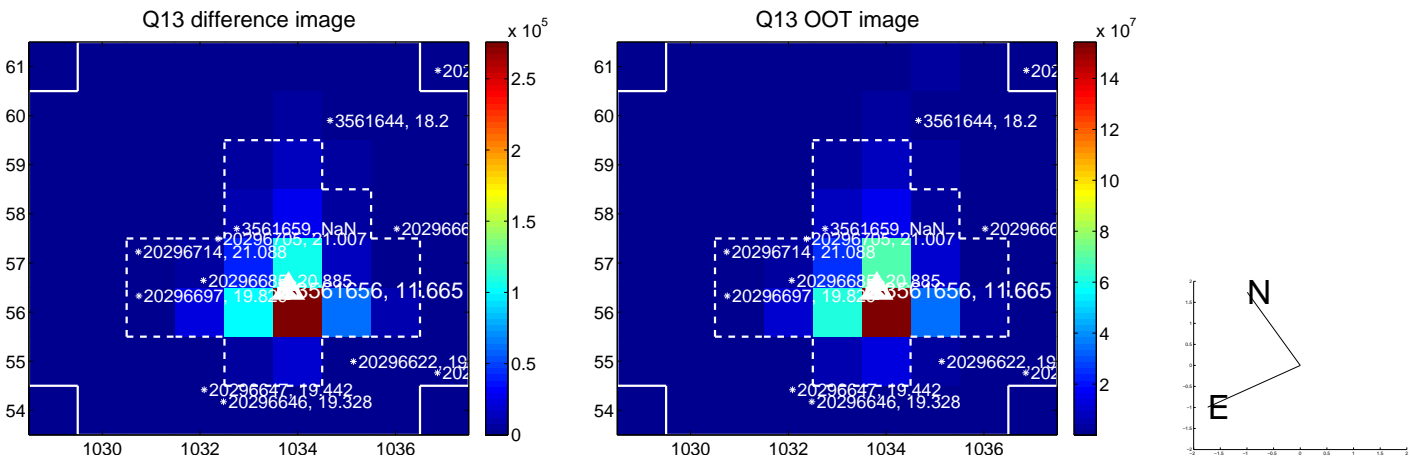
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



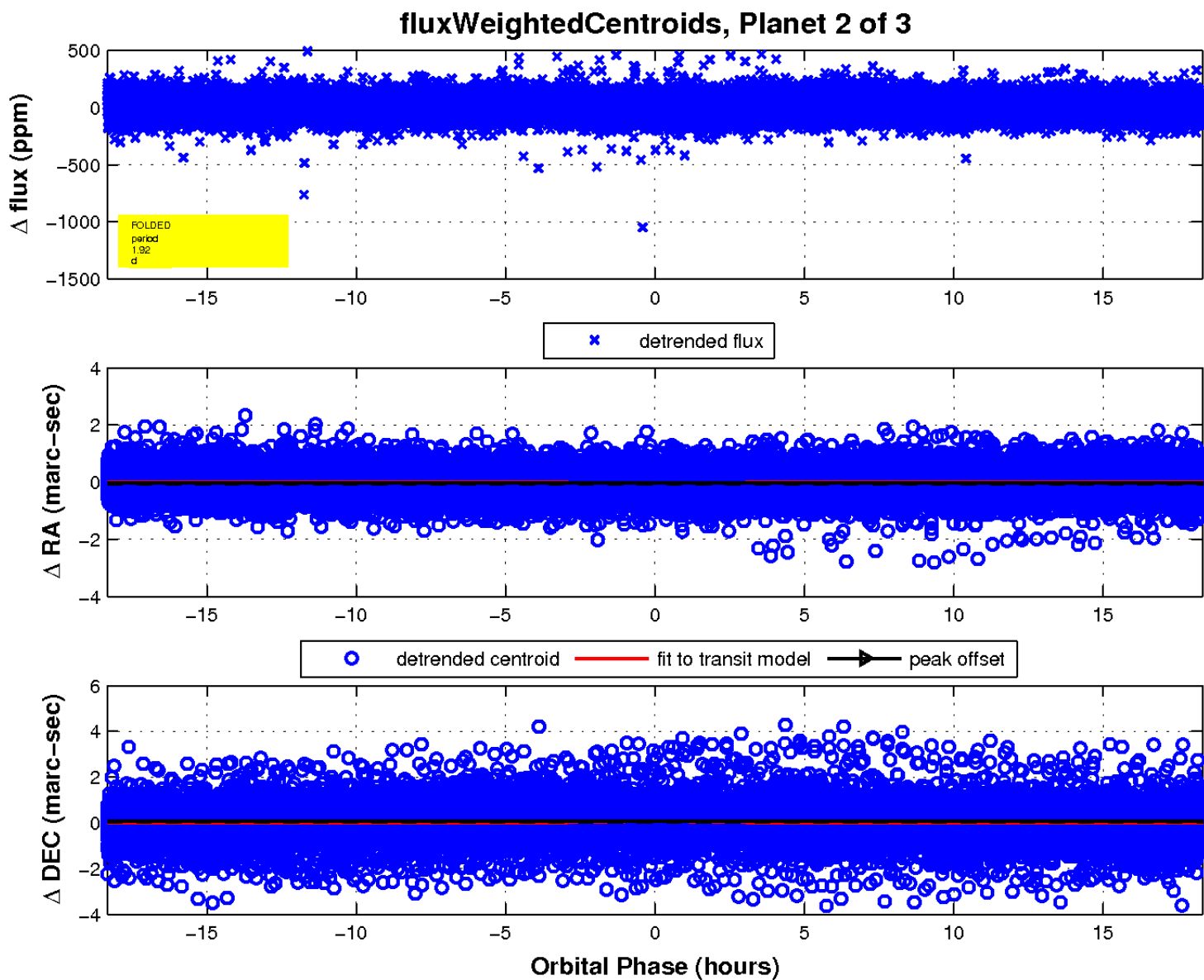
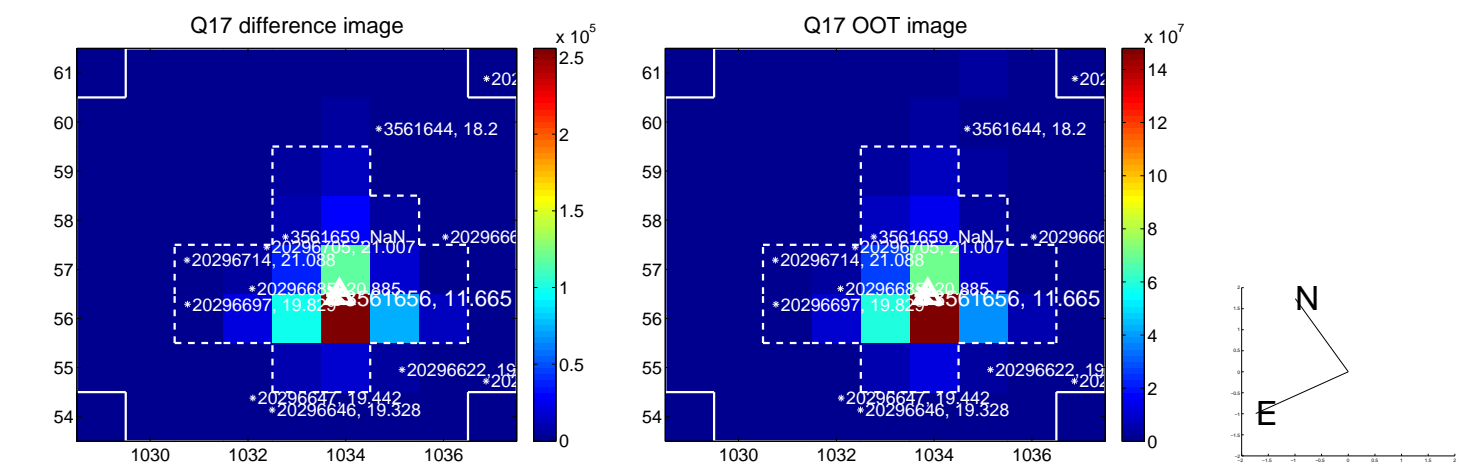
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

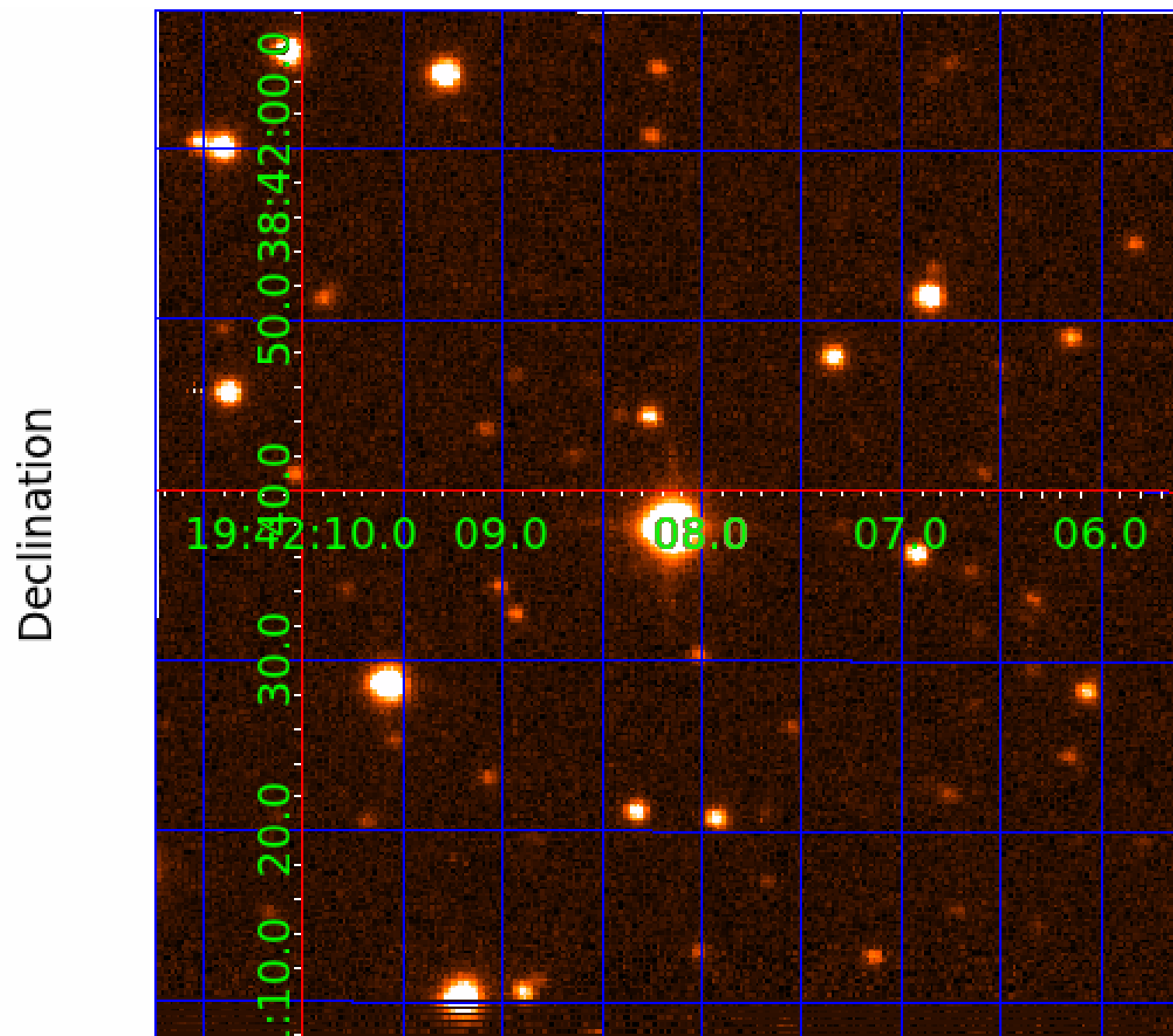


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



# KIC 003561656

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003561656-01	OBS	No	0.958539	131.734034	15.4	2.676	13.1	13.0	2.21	9744	0.90	61277.73
003561656-02	OBS	No	1.917059	132.332712	15.9	6.114	12.5	13.8	2.21	9744	1.01	24318.41
003561656-03	OBS	No	107.494083	236.133828	50.2	32.357	7.9	5.5	2.21	9744	1.66	113.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003561656-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_FEW_DIFFS
003561656-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
003561656-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

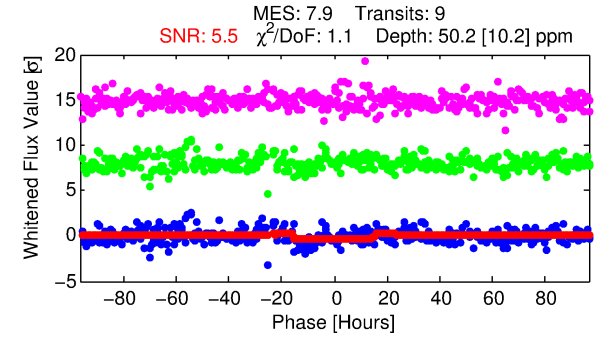
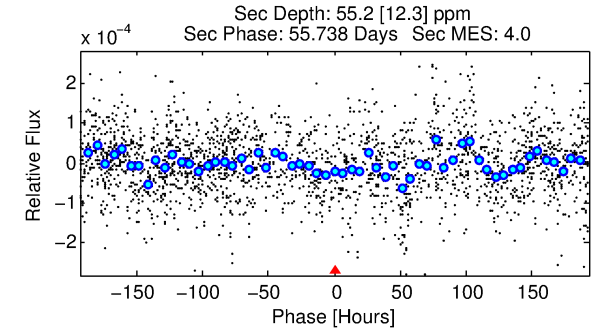
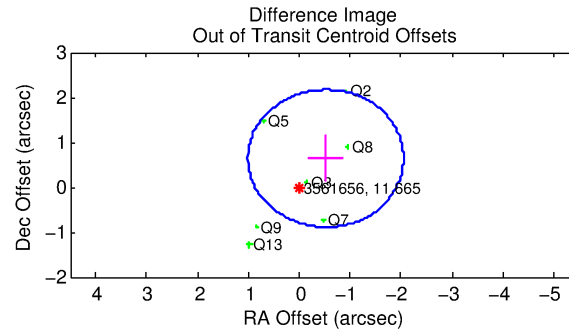
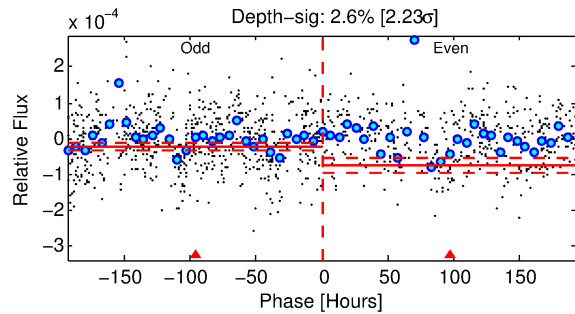
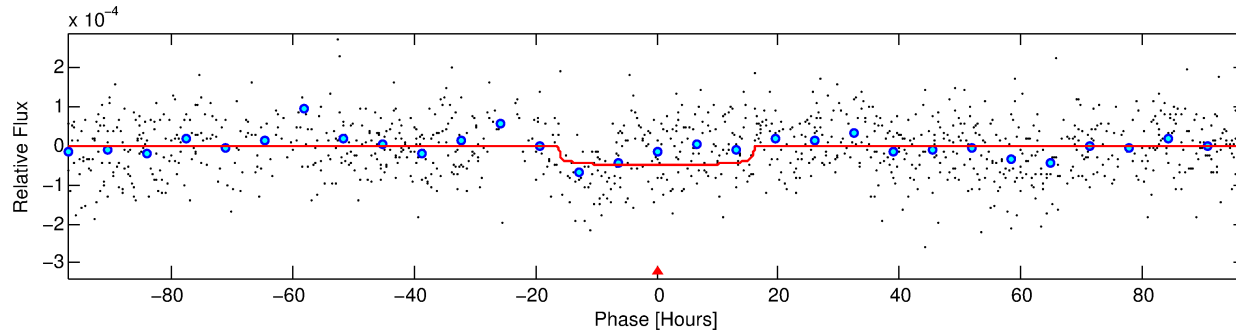
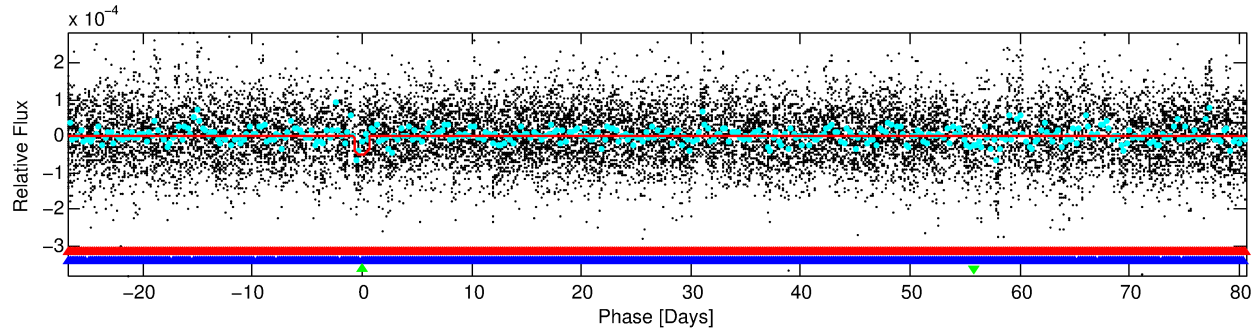
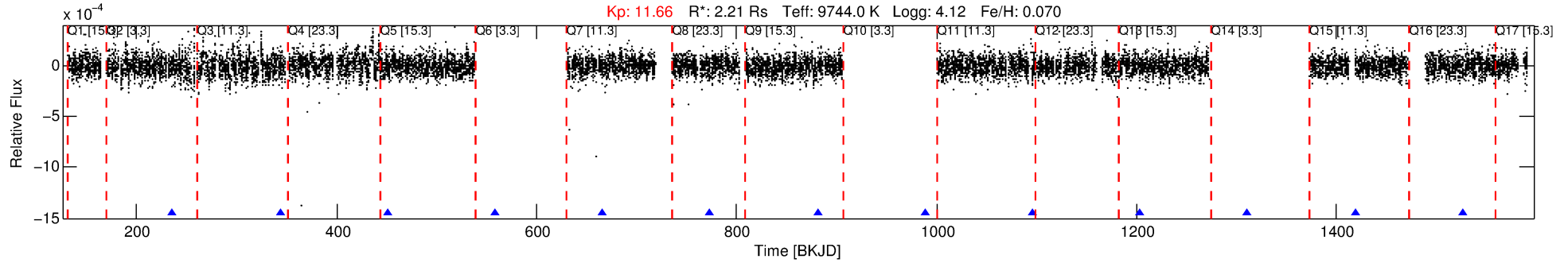
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003561656-03

No Significant Match Found

# DV One-Page Summary

KIC: 3561656 Candidate: 3 of 3 Period: 107.494 d



## DV Fit Results:

Period = 107.49408 [0.00549] d  
Epoch = 236.1338 [0.0409] BKJD  
Rp/R\* = 0.0069 [0.0013]  
a/R\* = 19.92 [20.32]  
b = 0.63 [0.98]  
Seff = 113.31 [52.42]  
Teff = 832 [96] K  
Rp = 1.66 [0.72] Re  
a = 0.5887 [0.1849] AU  
Ag = 3822.09 [2327.19] [1.64σ]  
Teffp = 10114 [1167] K [7.92σ]

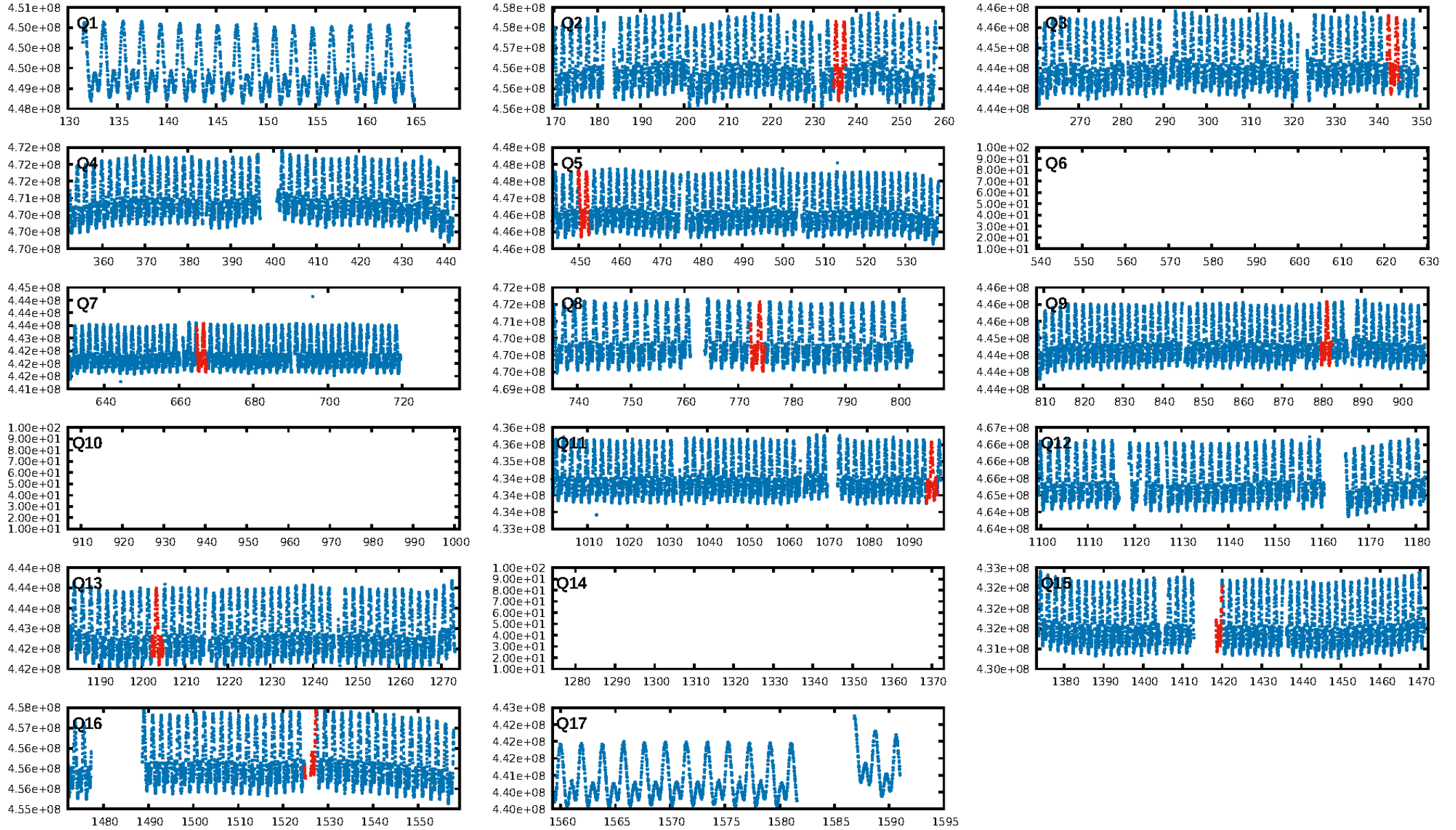
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [76.95σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 1.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.70e-12  
RollingBand-fgt: 1.00 [9/9]  
GhostDiagnostic-chr: 1.185  
Centroid-sig: 81.3%  
Centroid-so: 0.704 arcsec [0.37σ]  
OotOffset-rm: 0.824 arcsec [1.62σ]  
KicOffset-rm: 0.633 arcsec [2.13σ]  
OotOffset-st: 1/2/1/3 [7]  
KicOffset-st: 1/2/1/3 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 0.00 [0/7]

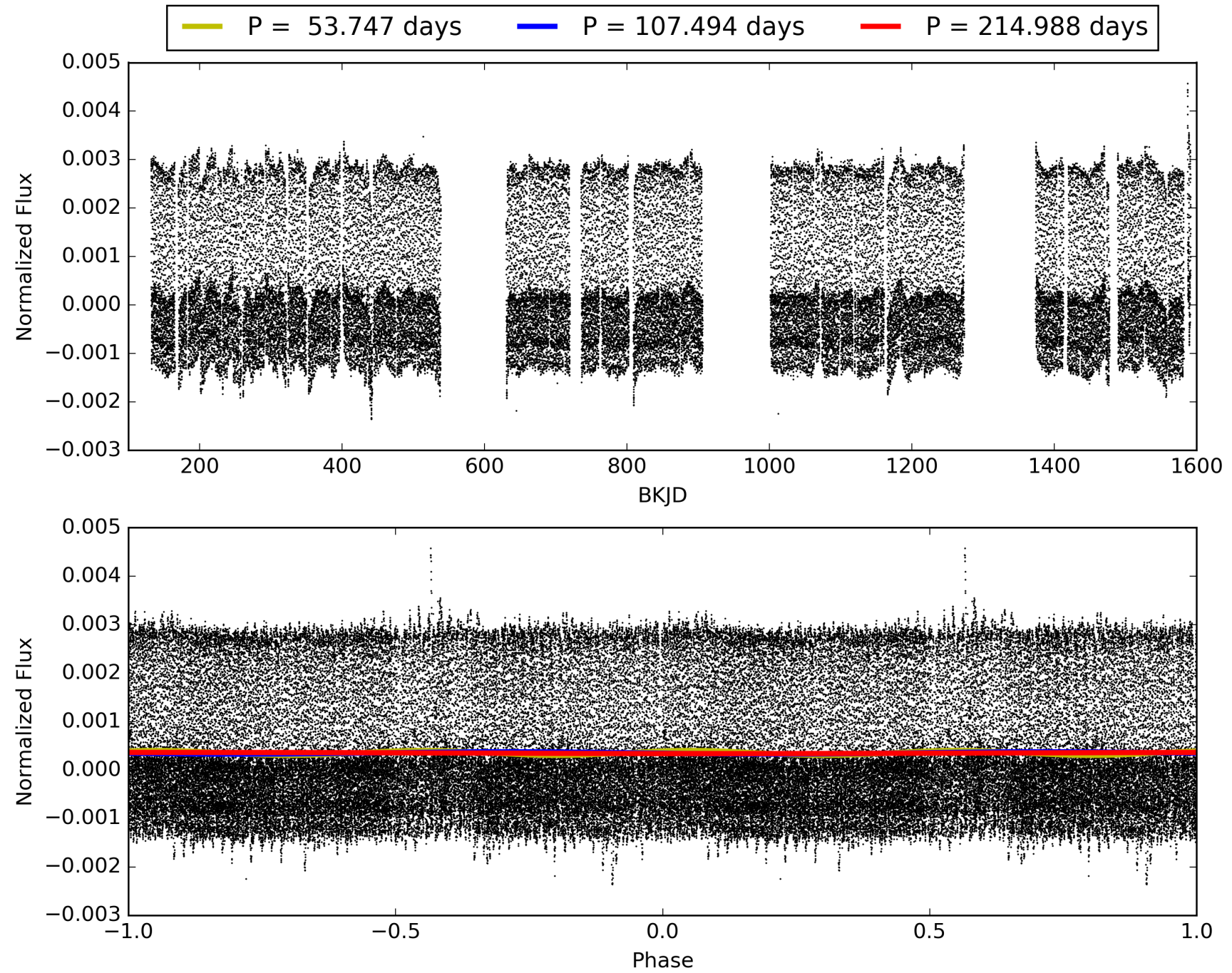
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:42:37 Z

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

# TCE 003561656-03, PDC Light Curves



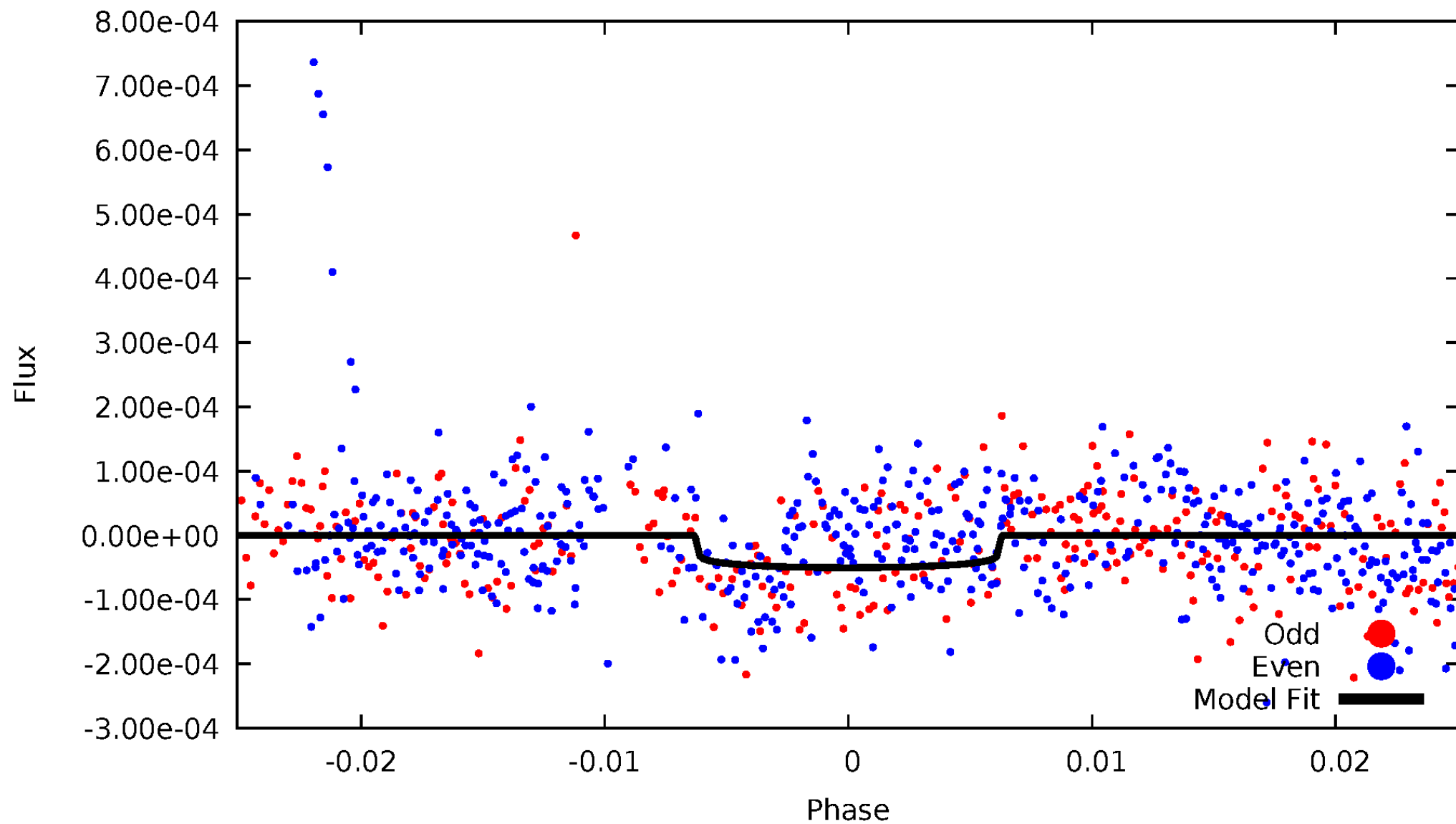
TCE 003561656-03





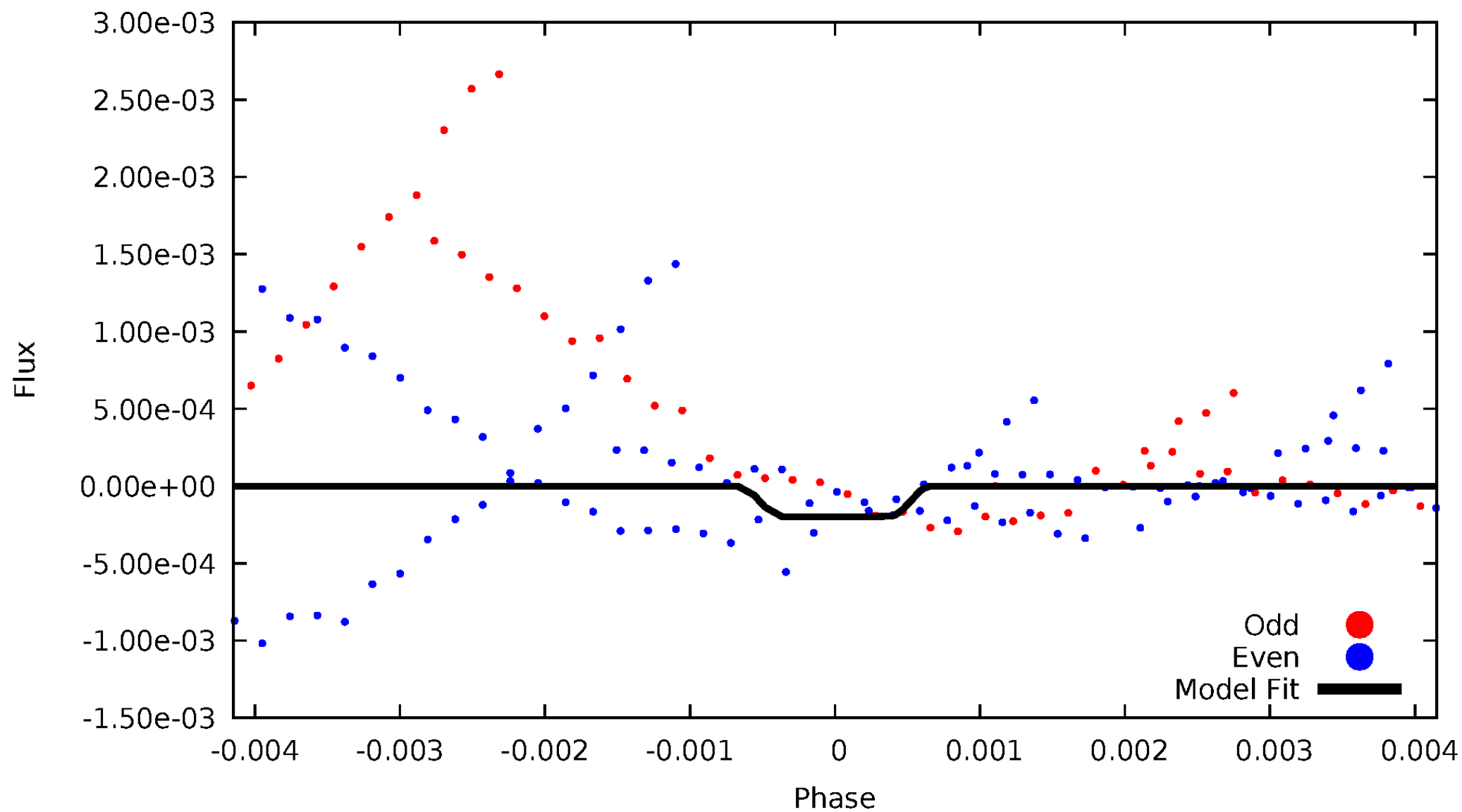
# DV Odd/Even

TCE 003561656-03



# ALT Odd/Even

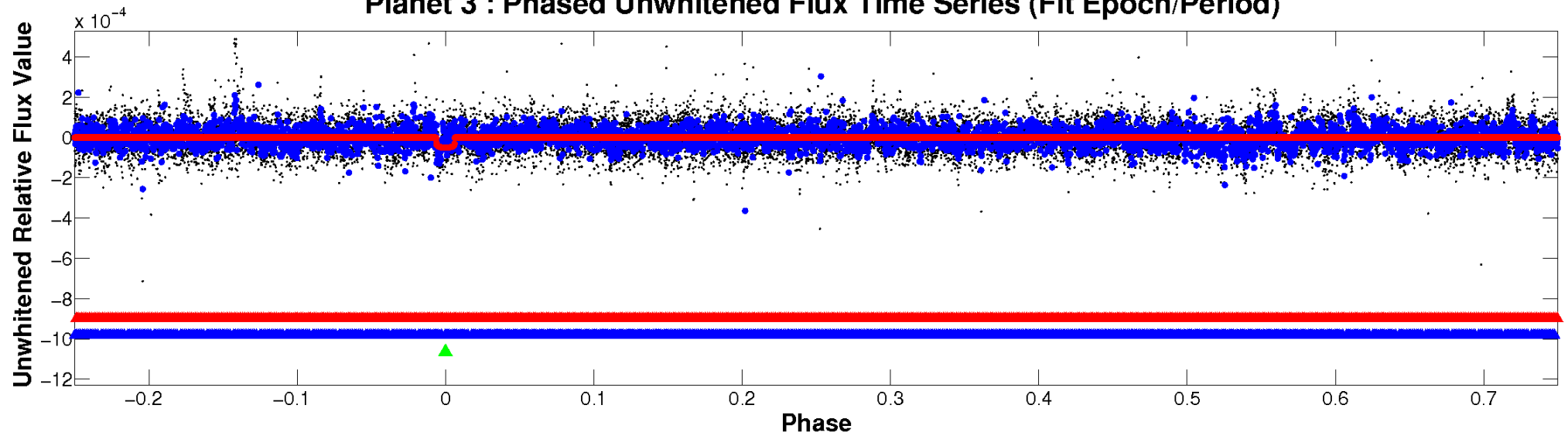
TCE 003561656-03



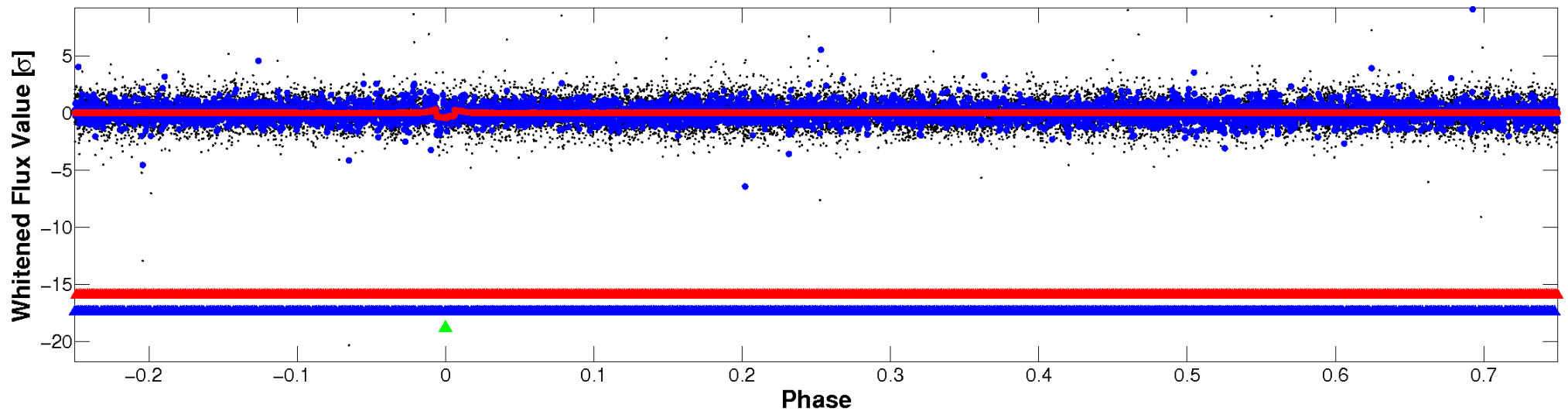


# Non-Whitened Vs. Whitened Light Curve

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

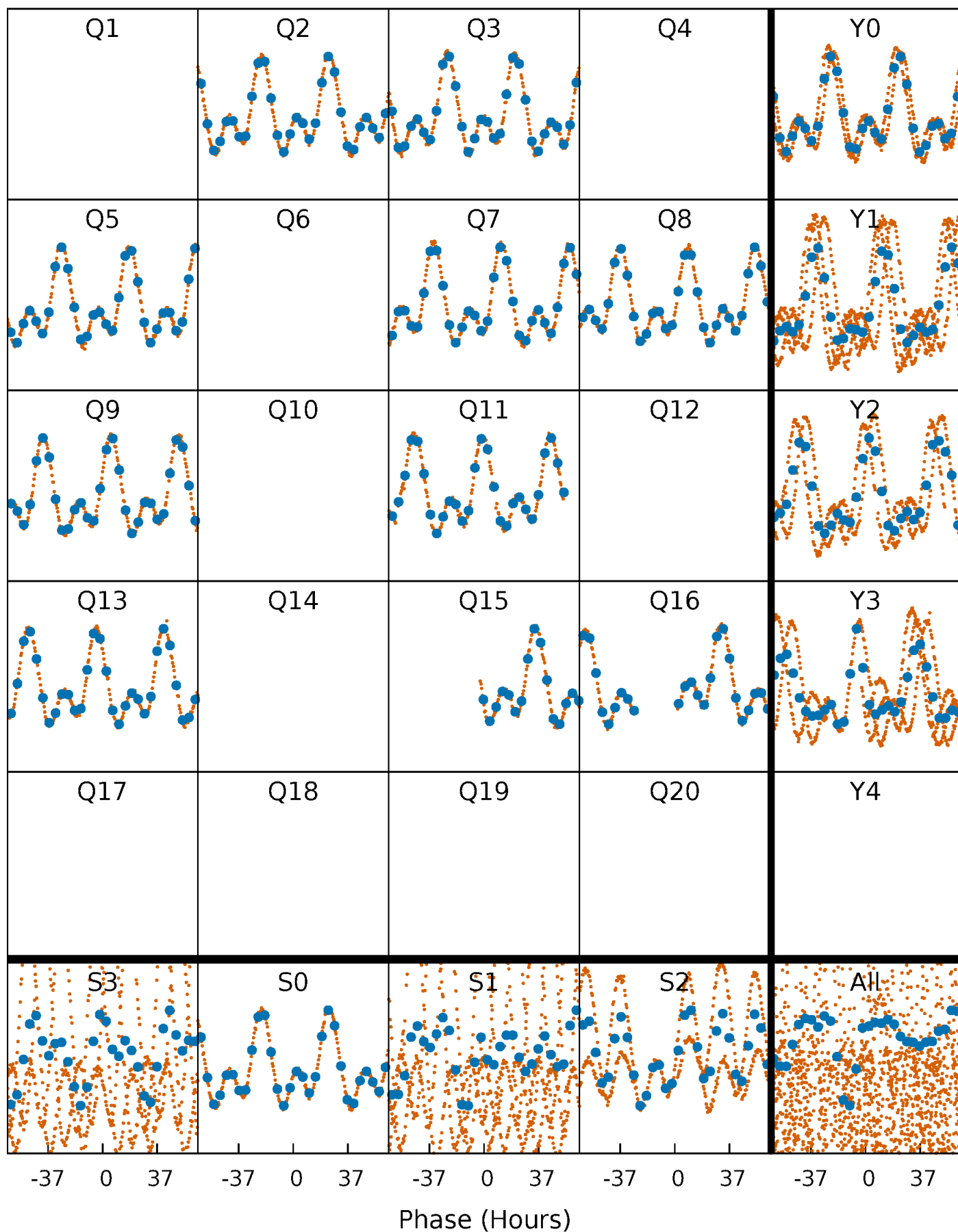


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



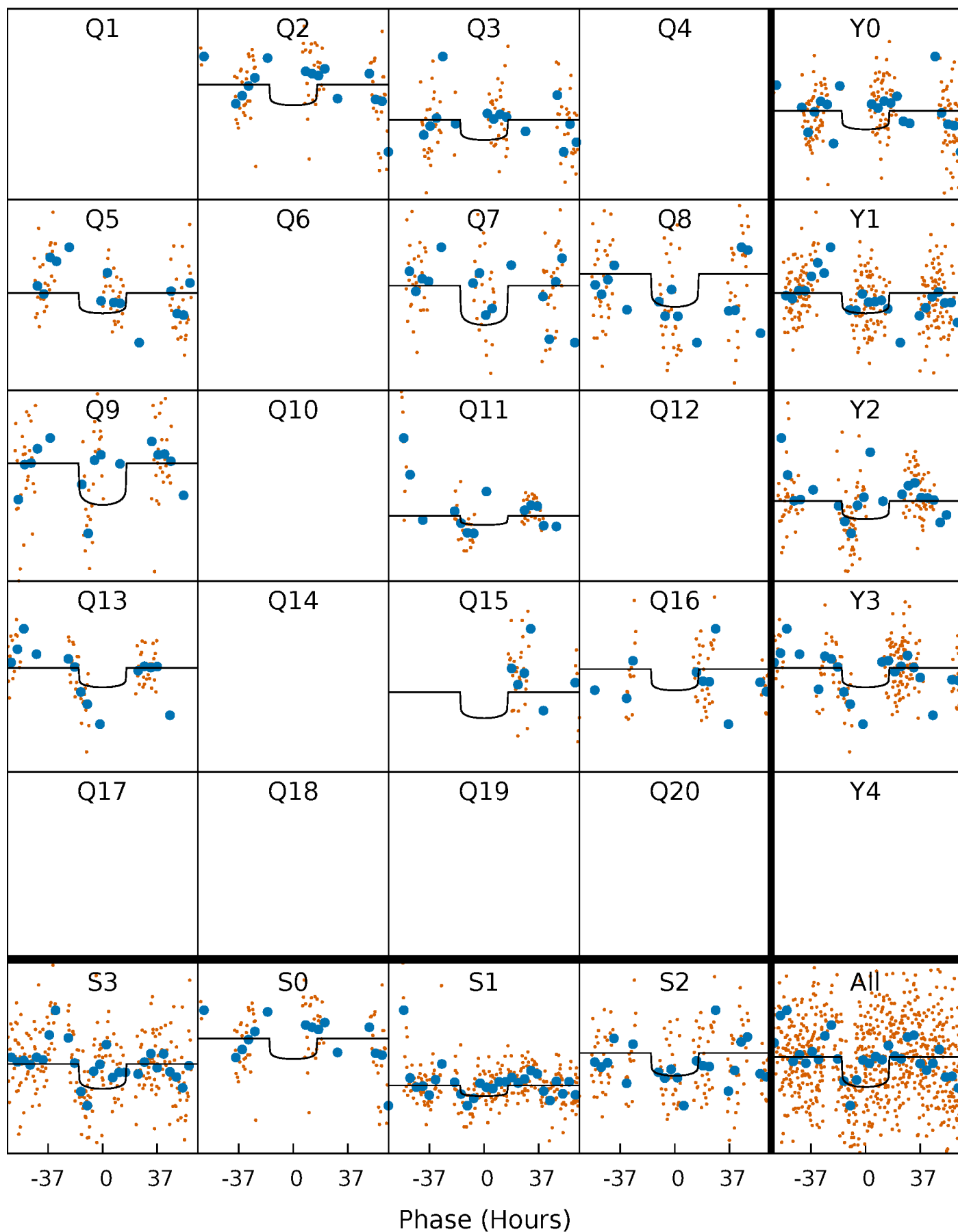
# PDC Quarter-Phased Transit Curves

TCE 003561656-03 P=107.494083 Days  $T_0=236.133828$  (BKJD)



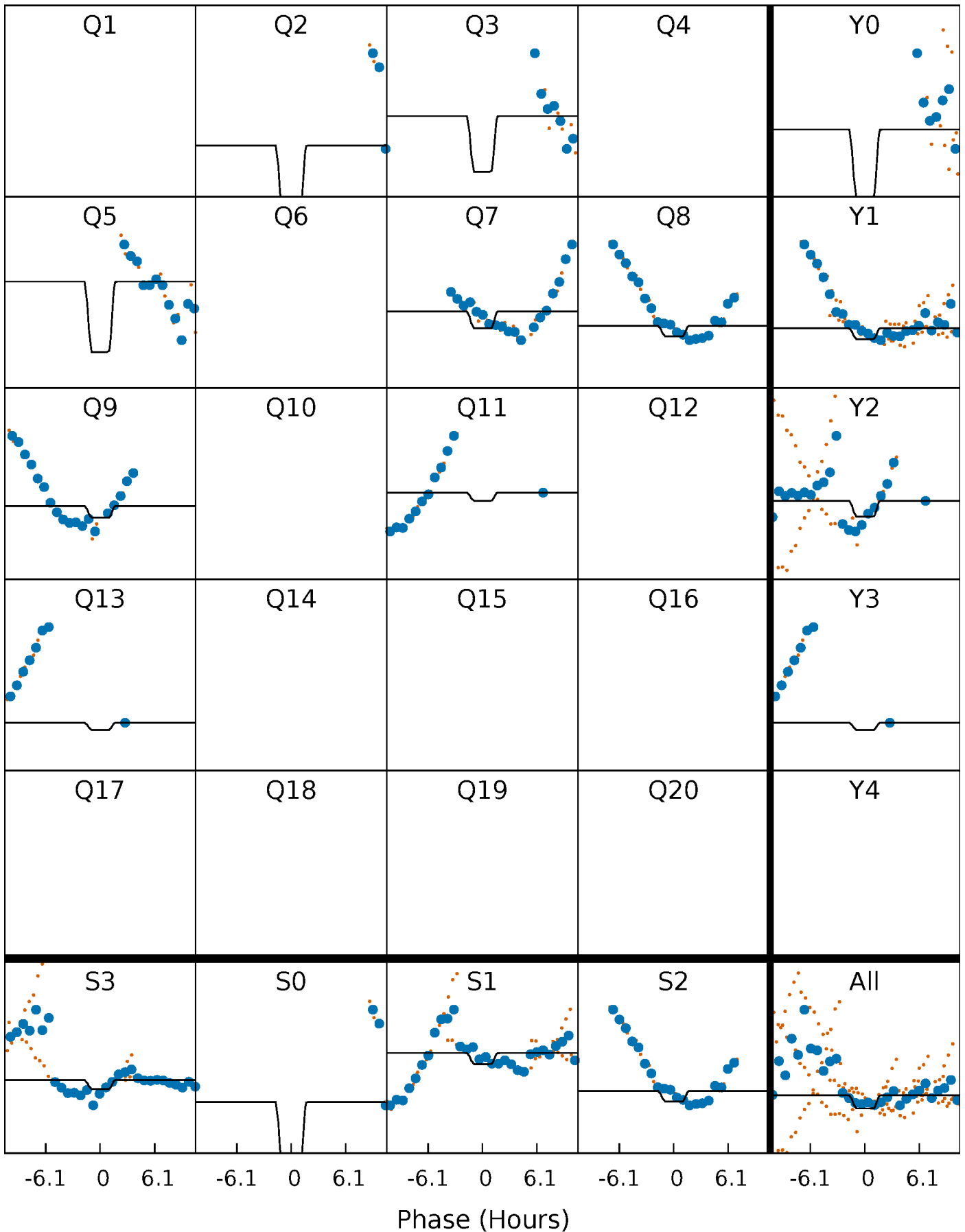
# DV Quarter-Phased Transit Curves

TCE 003561656-03 P=107.494083 Days  $T_0=236.133828$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

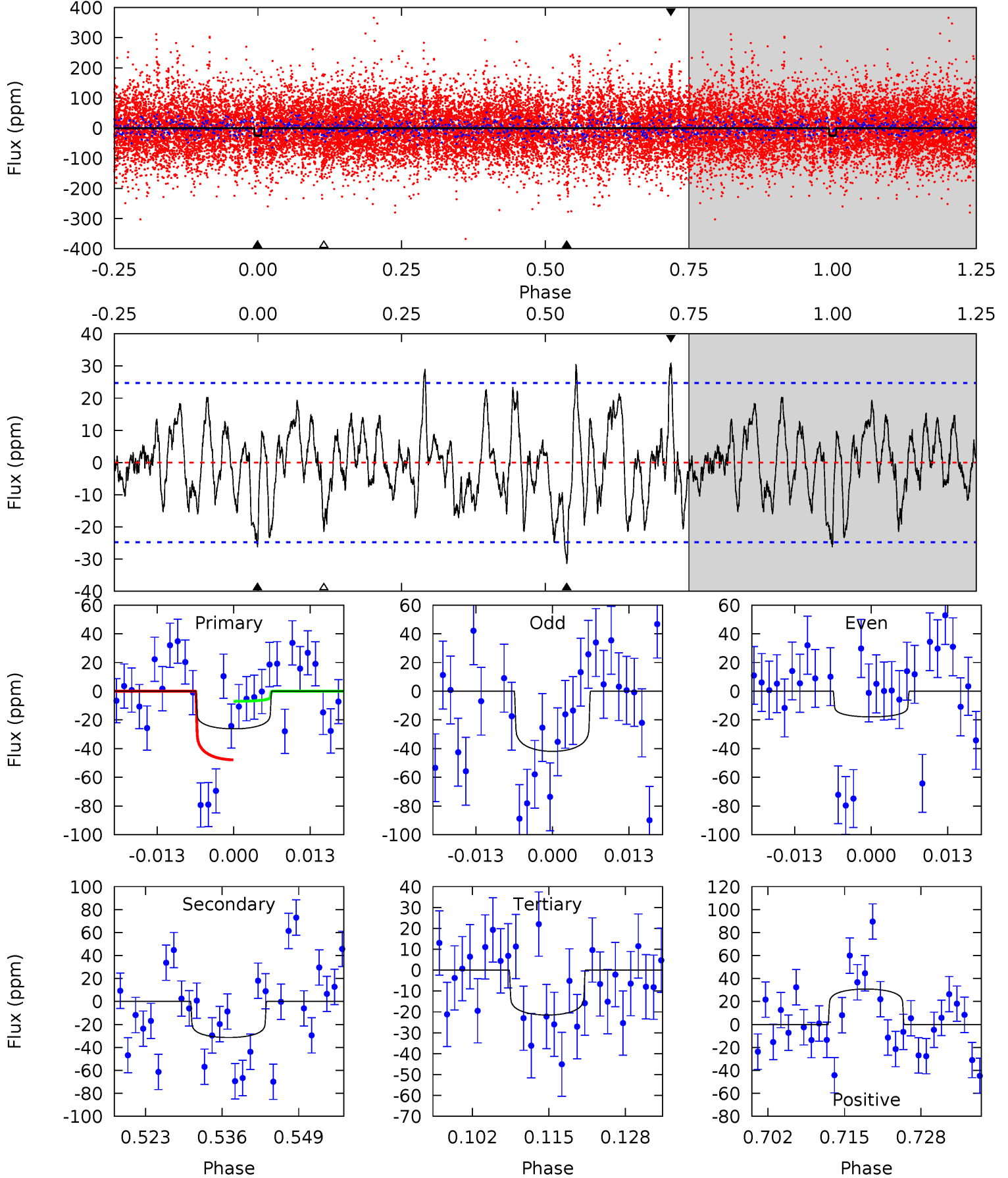
TCE 003561656-03 P=107.489492 Days  $T_0=236.034672$  (BKJD)



# DV Model-Shift Uniqueness Test

003561656-03, P = 107.494083 Days, E = 128.639745 Days

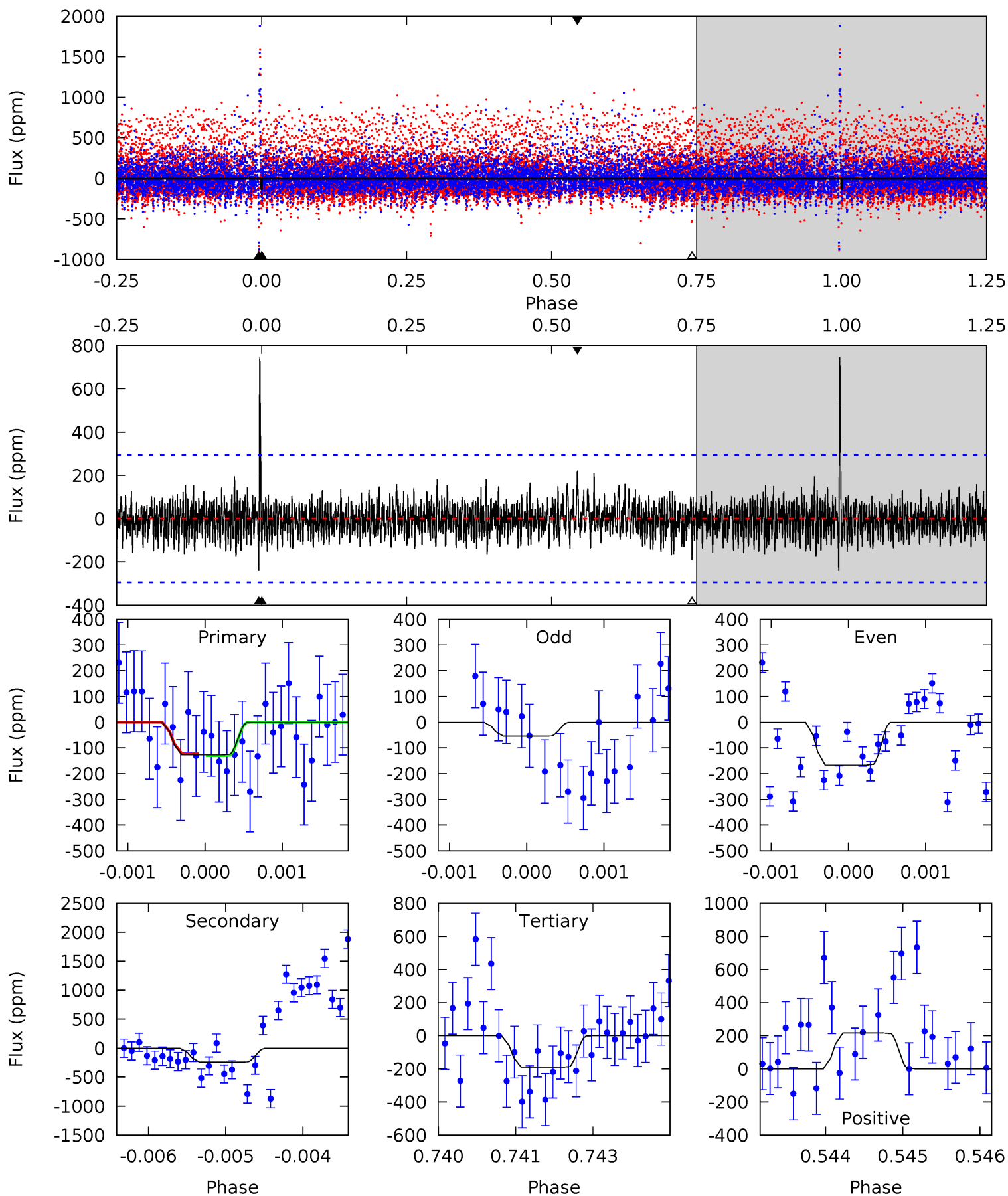
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.28	6.32	4.33	6.20	4.98	2.49	2.02	0.95	-0.92	1.99	0.12	2.30	1.44	0.50	4.09



# Alt Model-Shift Uniqueness Test

003561656-03, P = 107.489492 Days, E = 128.545180 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.33	4.42	3.50	3.99	5.42	3.24	1.17	-1.17	-1.65	0.92	0.43	0.89	2.13	0.76	0.07



### Stellar Parameters For KIC 003561656

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9744^{+272}_{-409}$	$4.123^{+0.148}_{-0.222}$	$0.070^{+0.150}_{-0.550}$	$2.205^{+0.873}_{-0.582}$	$2.356^{+0.396}_{-0.594}$	$0.309^{+0.249}_{-0.180}$
	+3%/-4%	+4%/-5%	+214%/-786%	+40%/-26%	+17%/-25%	+81%/-58%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003561656-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-31 \pm 5$	$1.69^{+0.45}_{-0.40}$	$1179^{+106}_{-93}$	$8449^{+1369}_{-954}$	$2010^{+1499}_{-780}$
Alt.	$-240 \pm 54$	$3.46^{+0.74}_{-0.58}$	$1176^{+100}_{-86}$	$10454^{+1207}_{-1273}$	$3690^{+1928}_{-1354}$

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



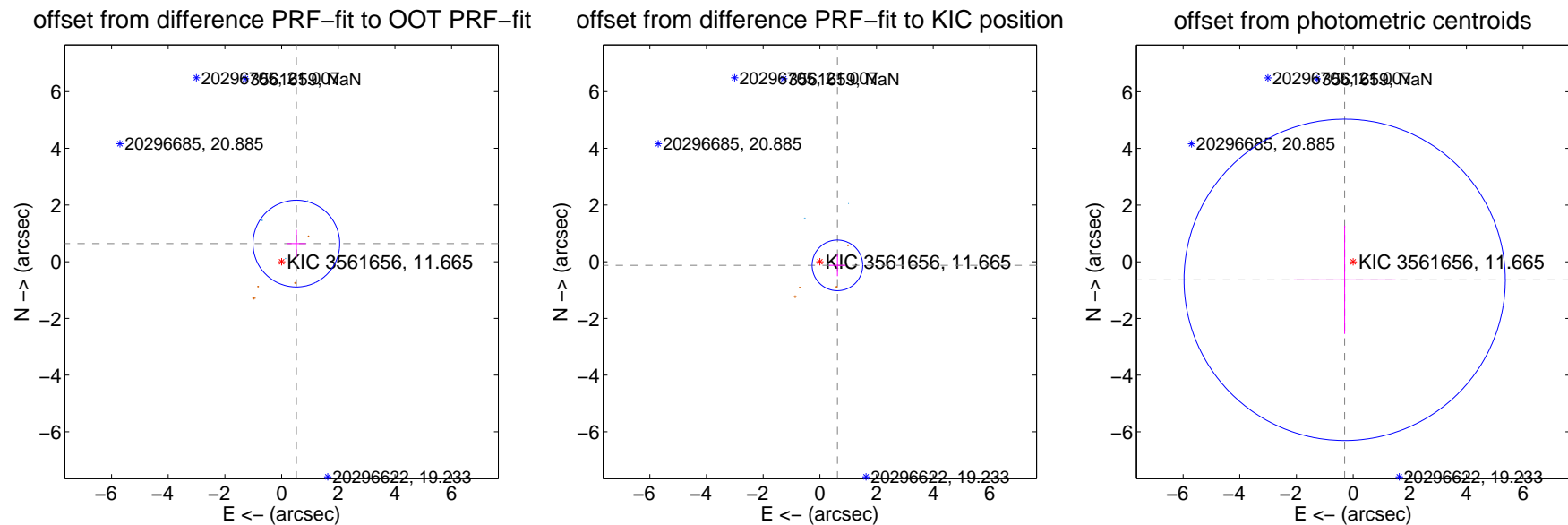
## DV Centroid Data

Supplemental centroid analysis for 003561656-03. **Kepler magnitude: 11.66.** Transit SNR 5.46

**There are 3 quarters with good PRF difference image offsets**

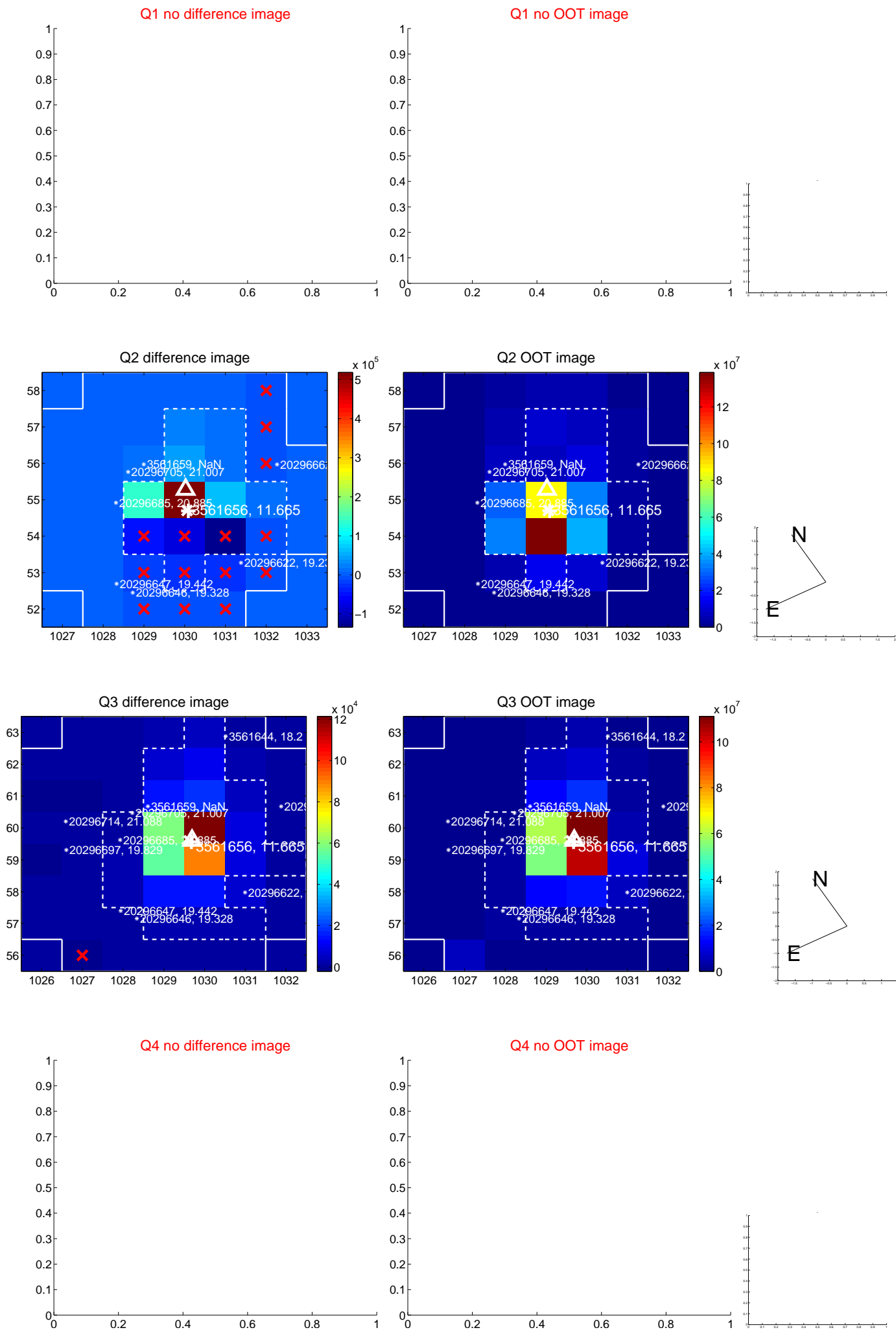
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.824 \pm 0.510$	1.62	$-0.522 \pm 0.336$	$0.638 \pm 0.487$
PRF-fit source offset from KIC position	$0.633 \pm 0.298$	2.13	$-0.620 \pm 0.294$	$-0.129 \pm 0.382$
photometric centroid source offset	$0.70 \pm 1.89$	0.37	$0.30 \pm 1.80$	$-0.64 \pm 1.91$

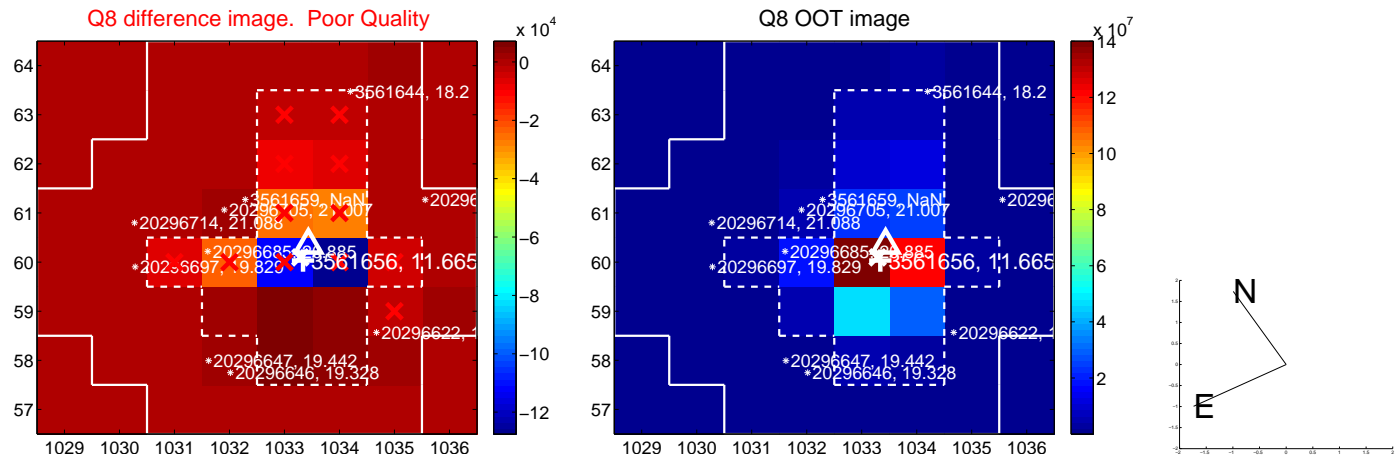
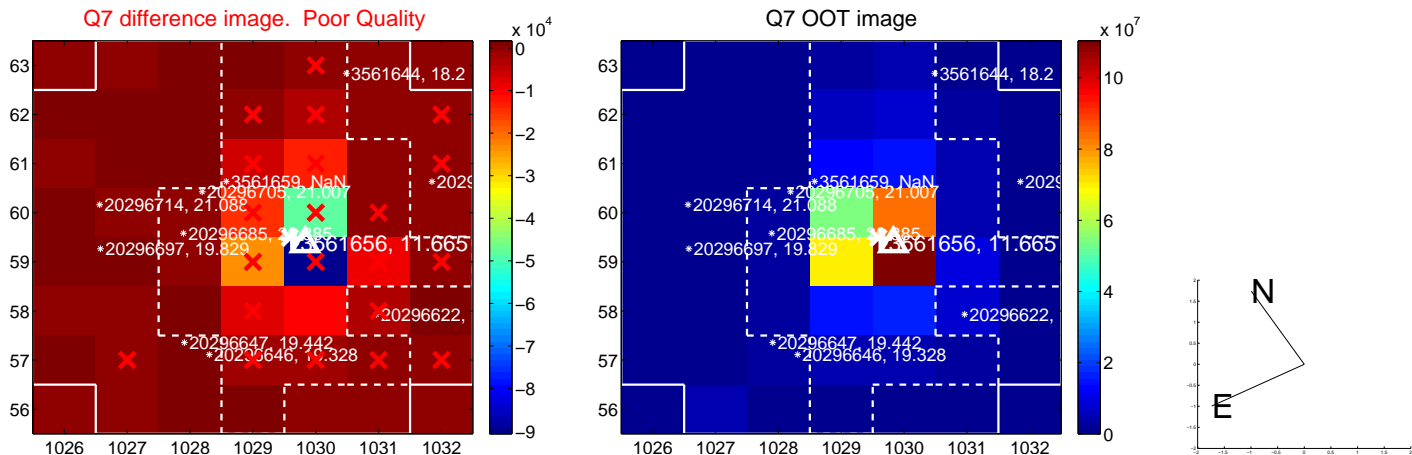
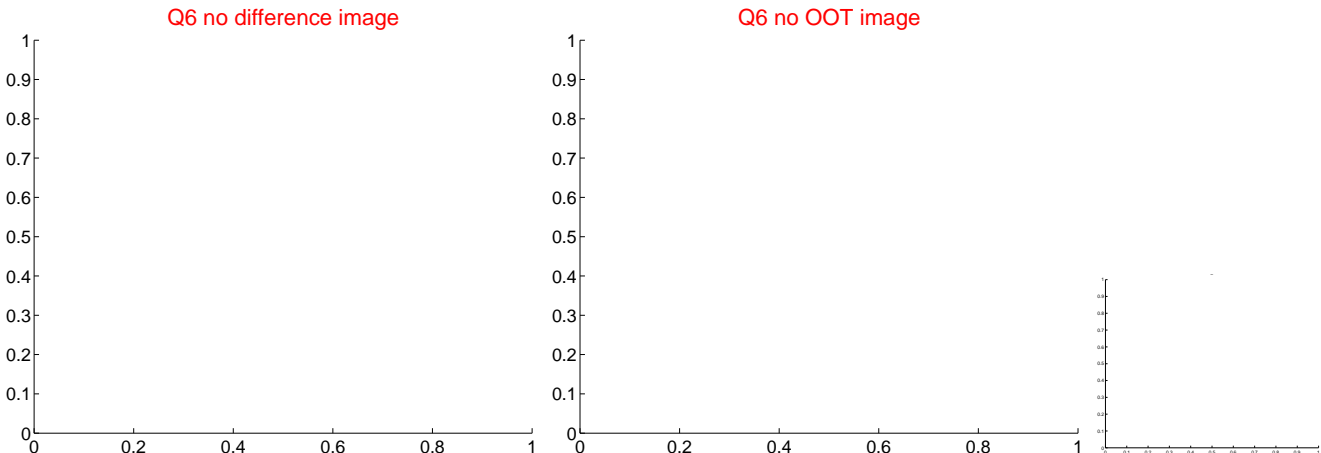
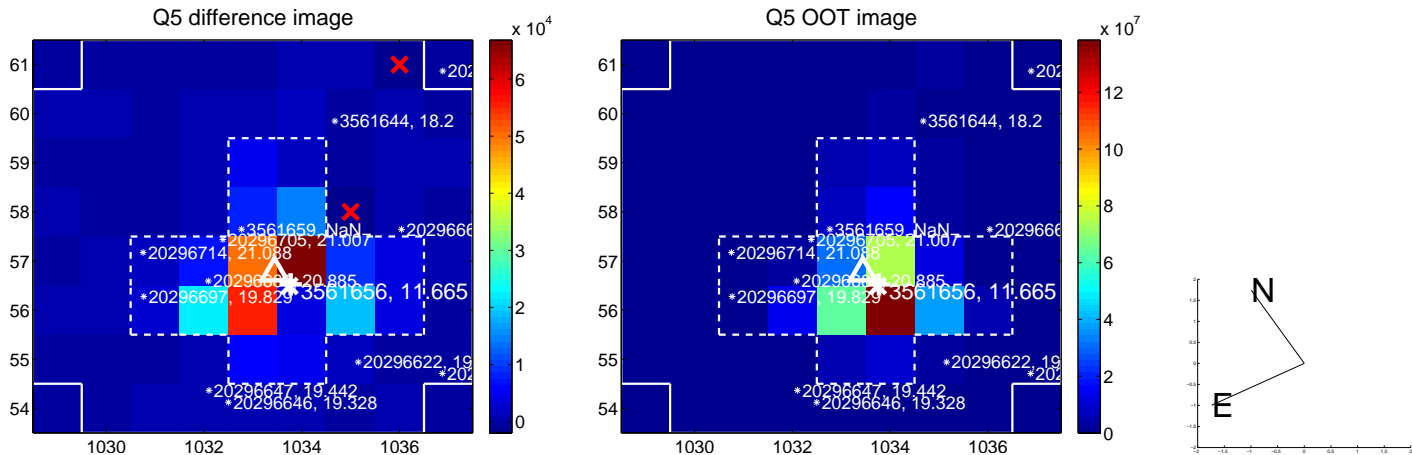


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

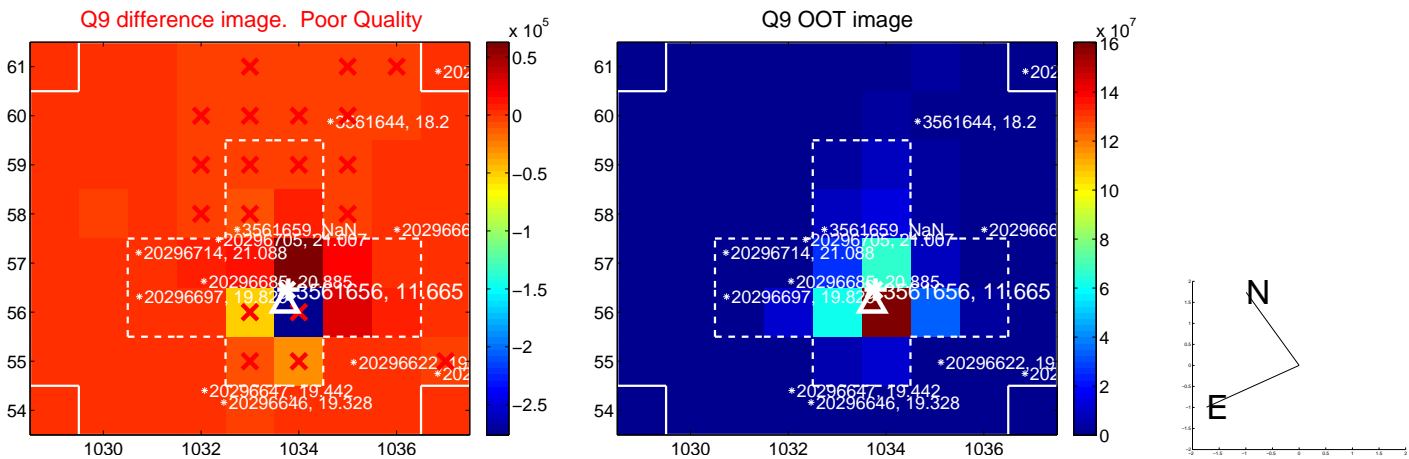
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



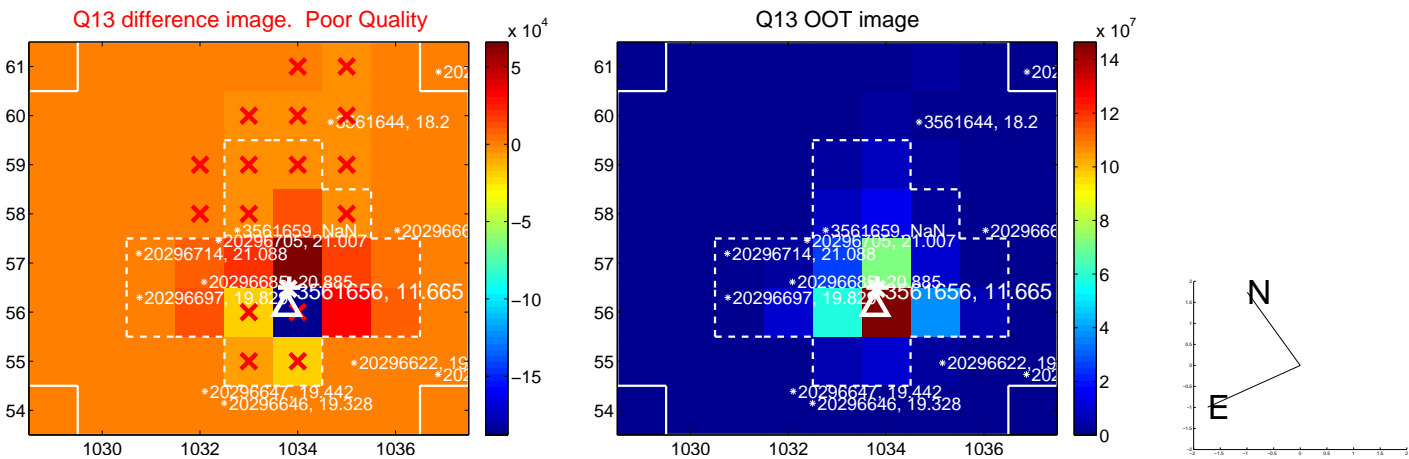
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



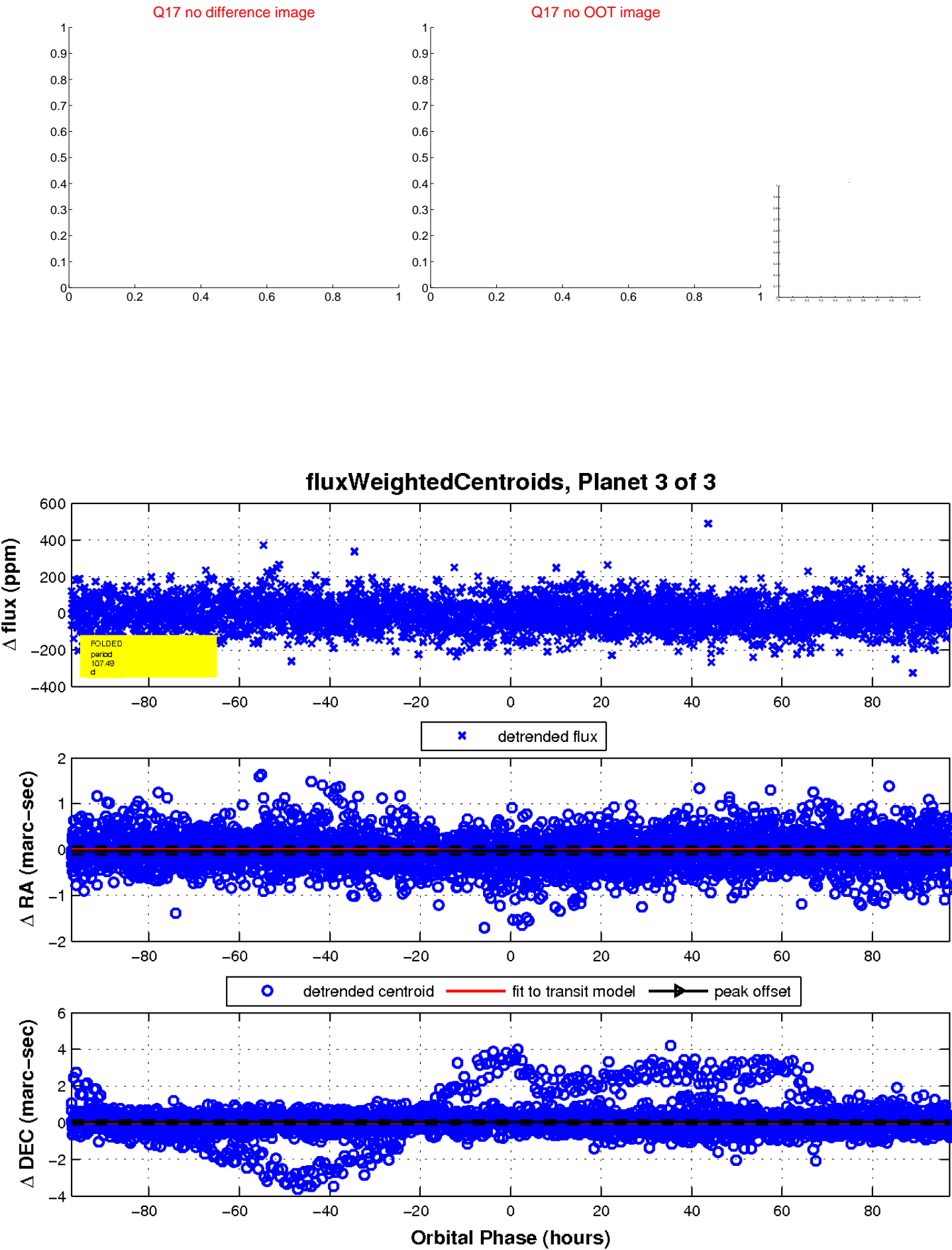
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

