

# KIC 005181455

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005181455-01	OBS	6536.01	5.579631	133.553520	118247.6	3.412	5277.0	4091.3	1.02	6188	48.78	357.48
005181455-02	OBS	No	2.789812	133.554196	12203.2	3.266	561.1	538.4	1.02	6188	18.89	900.80
005181455-03	OBS	No	412.839646	518.205900	771.2	9.000	7.4	-1.0	1.02	6188	2.84	1.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005181455-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
005181455-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
005181455-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

**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.

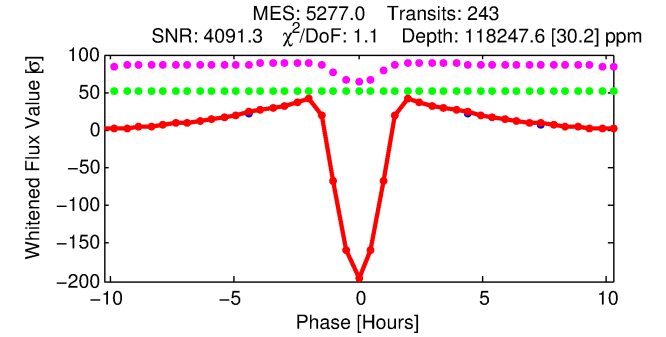
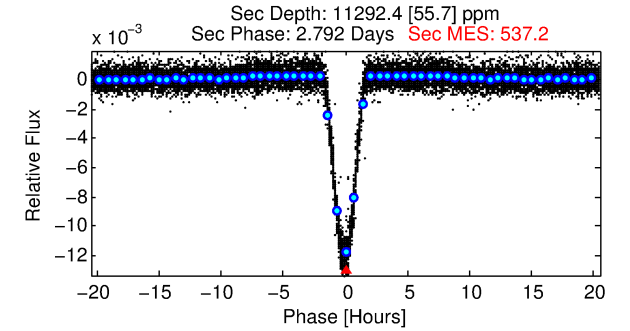
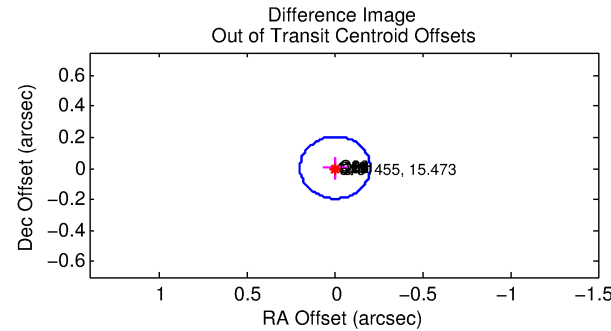
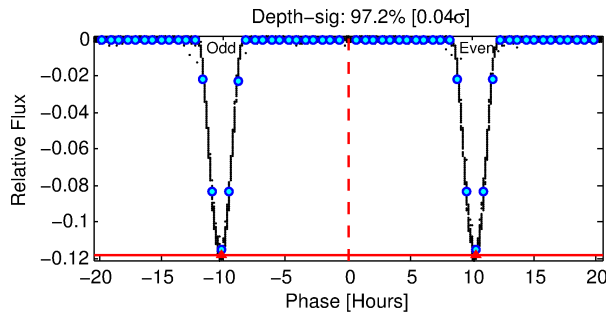
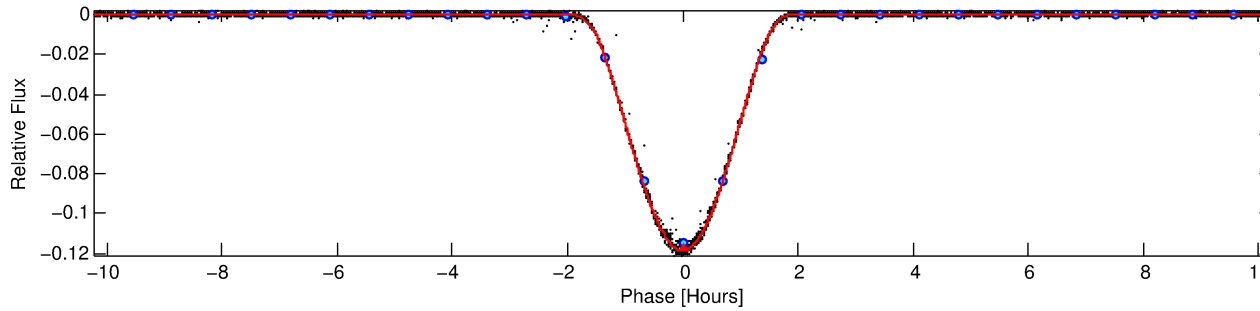
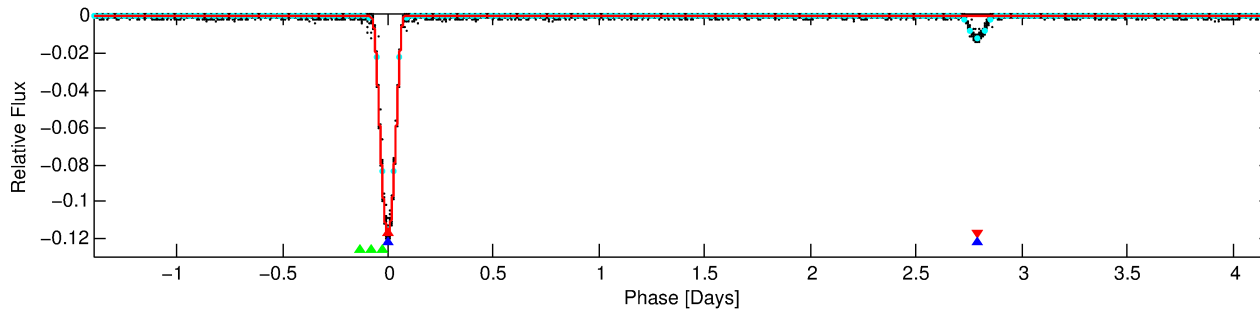
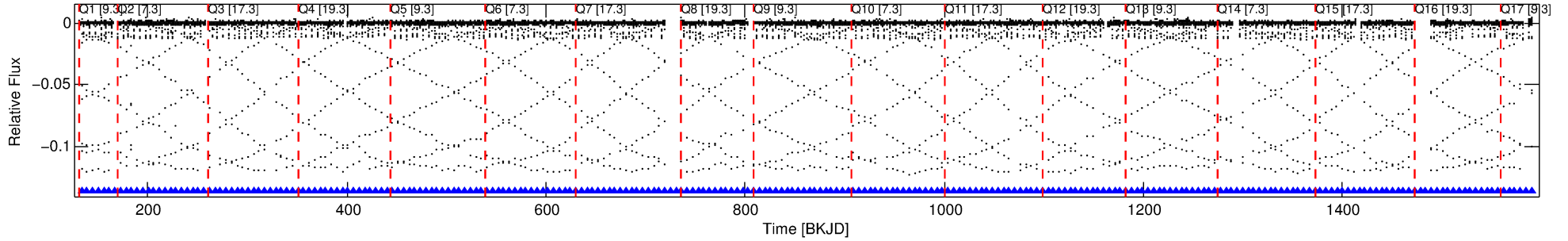
Ephemeris Match Information For 005181455-01

No Significant Match Found

# DV One-Page Summary

KIC: 5181455 Candidate: 1 of 3 Period: 5.580 d  
KOI: K06536.01 Corr: 0.996

Kp: 15.47 R\*: 1.02 Rs Teff: 6188.0 K Logg: 4.43 Fe/H: -0.220



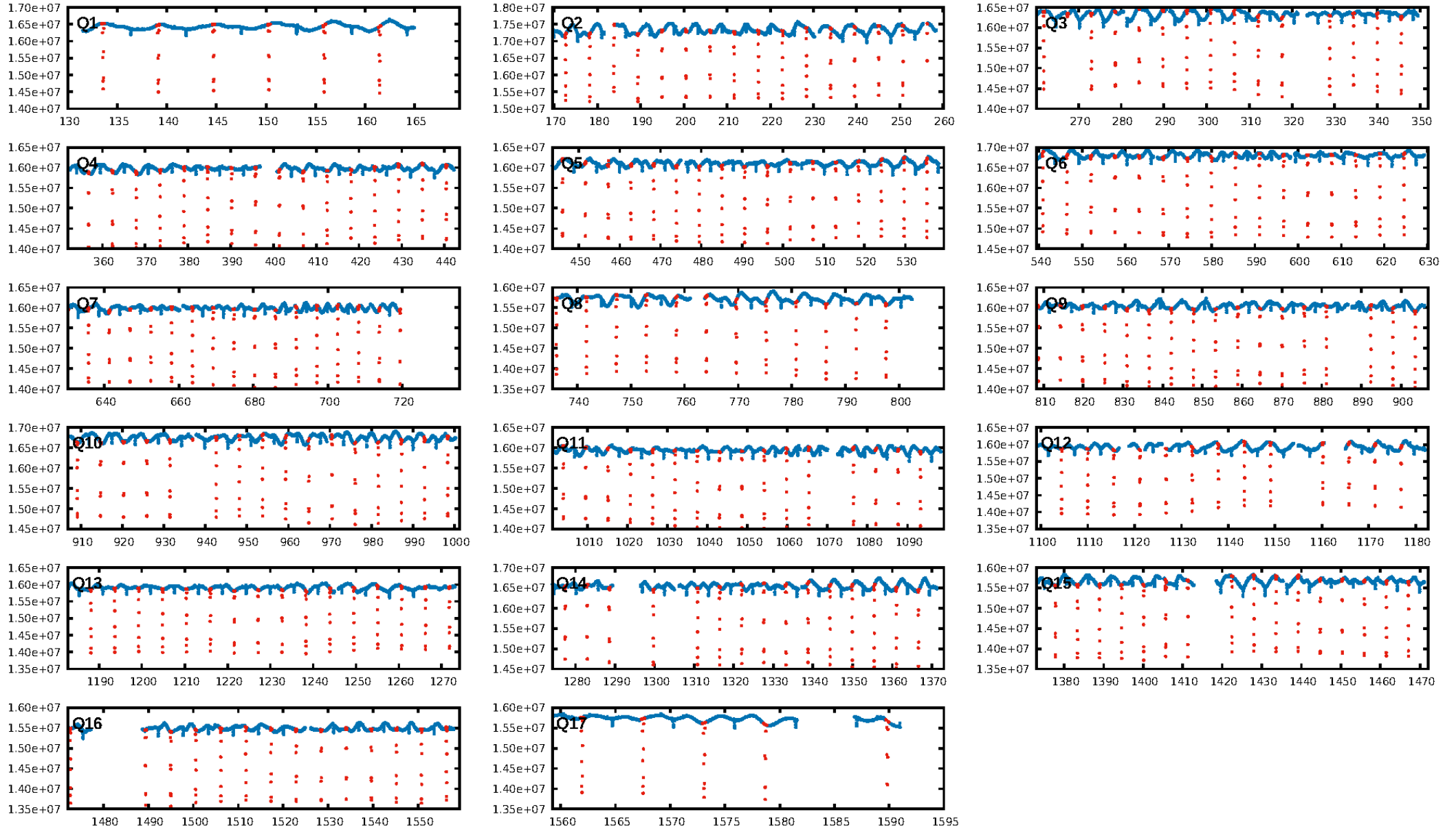
## DV Fit Results:

Period = 5.57963 [0.00000] d  
Epoch = 133.5535 [0.0000] BKJD  
Rp/R\* = 0.4374 [0.0076]  
a/R\* = 14.42 [0.01]  
b = 0.86 [0.01]  
Seff = 357.48 [145.91]  
Teq = 1109 [113] K  
Rp = 48.78 [15.58] Re  
a = 0.0620 [0.0163] AU  
Ag = 10.02 [3.80] [2.38σ]  
Teffp = 3050 [122] K [11.68σ]

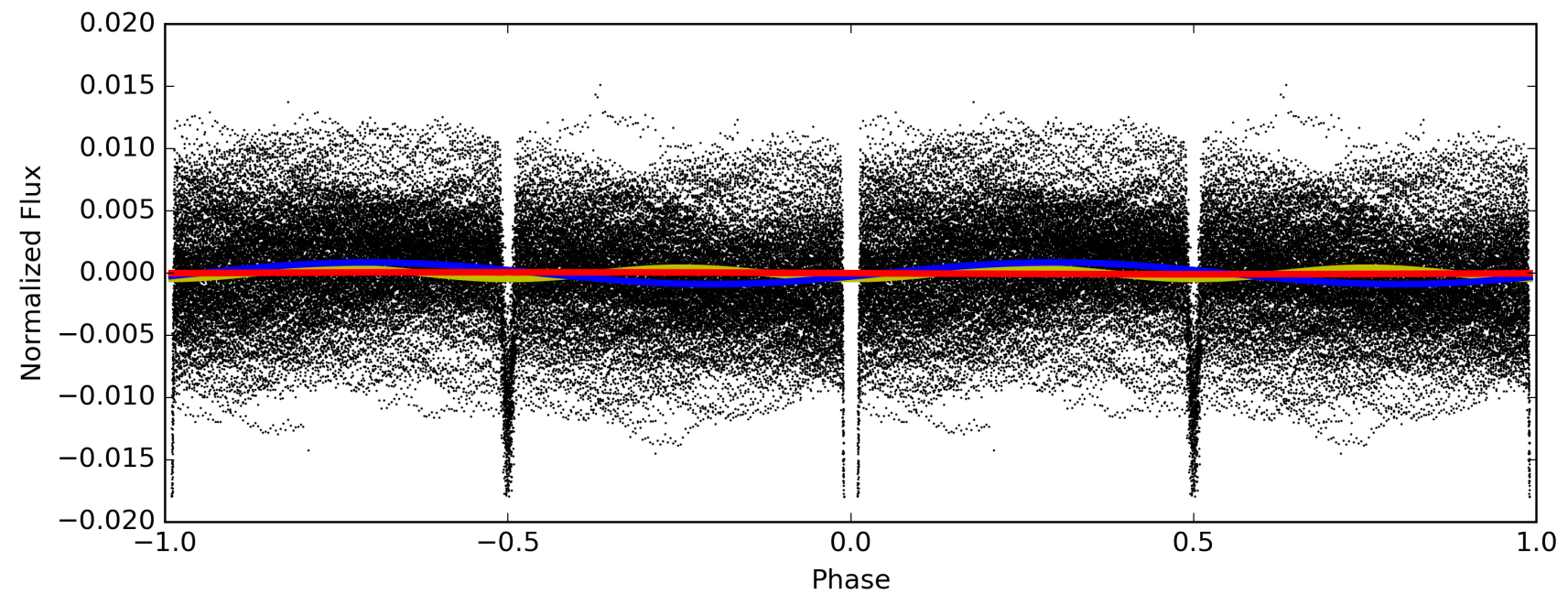
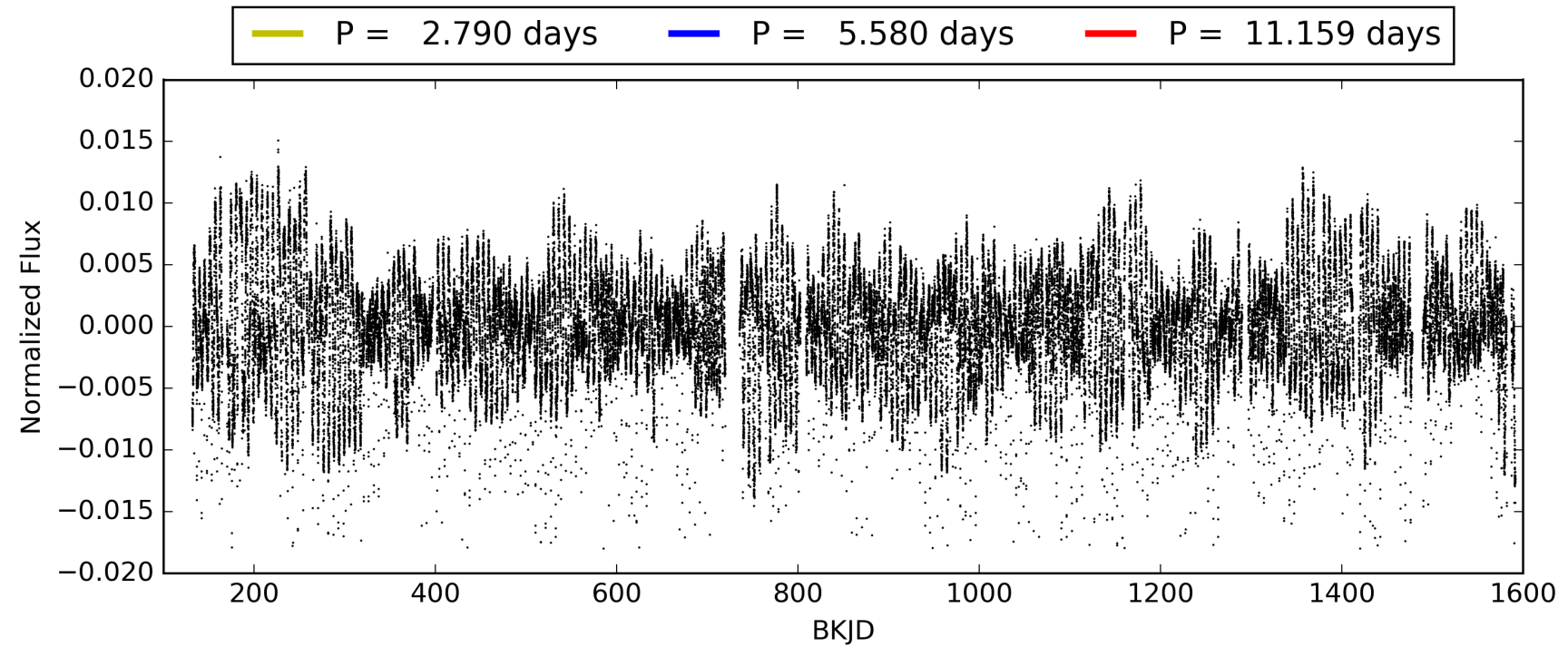
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.18σ]  
LongPeriod-sig: 100.0% [1015.49σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [232/232]  
GhostDiagnostic-chr: 3.119  
Centroid-sig: 0.0%  
Centroid-so: 0.109 arcsec [36.86σ]  
OotOffset-rm: 0.006 arcsec [0.09σ]  
KicOffset-rm: 0.079 arcsec [1.16σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.00 [0/17]

# TCE 005181455-01, PDC Light Curves

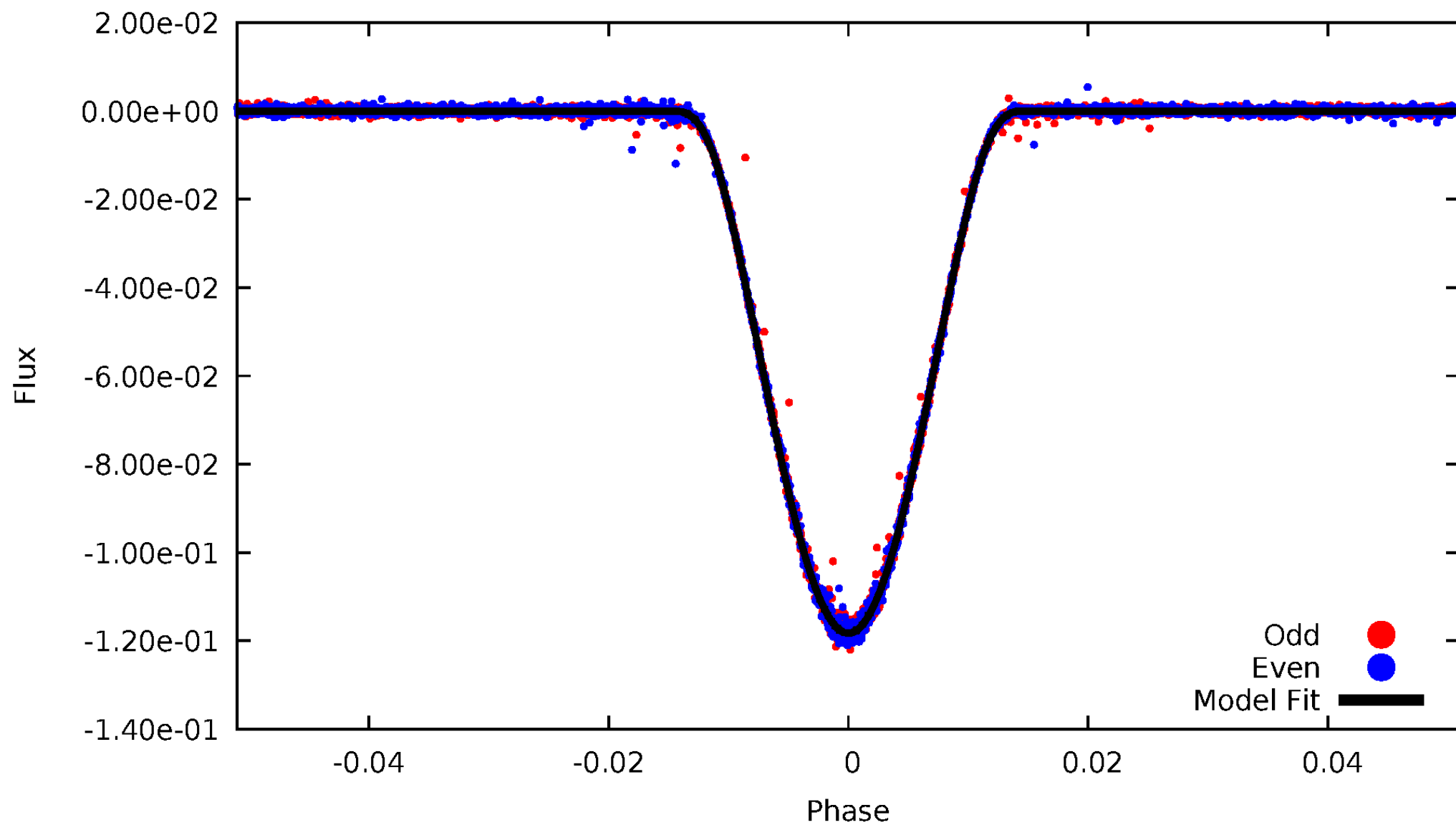


TCE 005181455-01



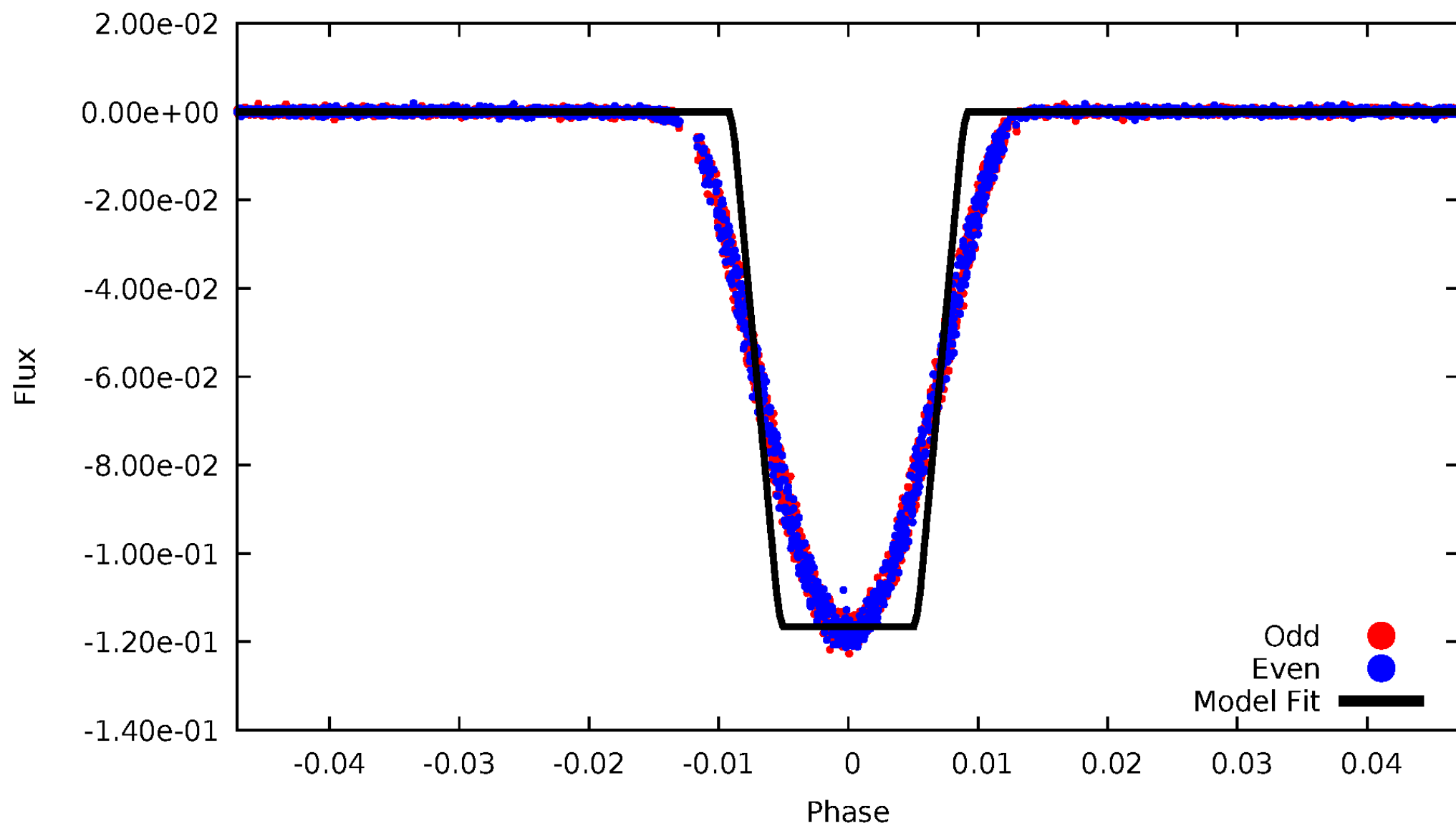
# DV Odd/Even

TCE 005181455-01



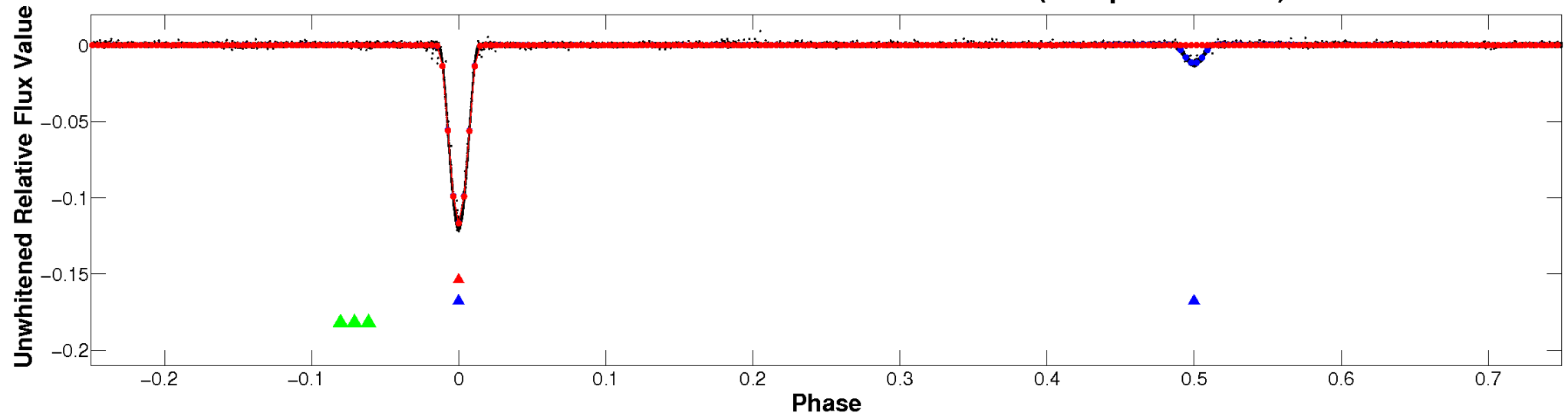
# ALT Odd/Even

TCE 005181455-01

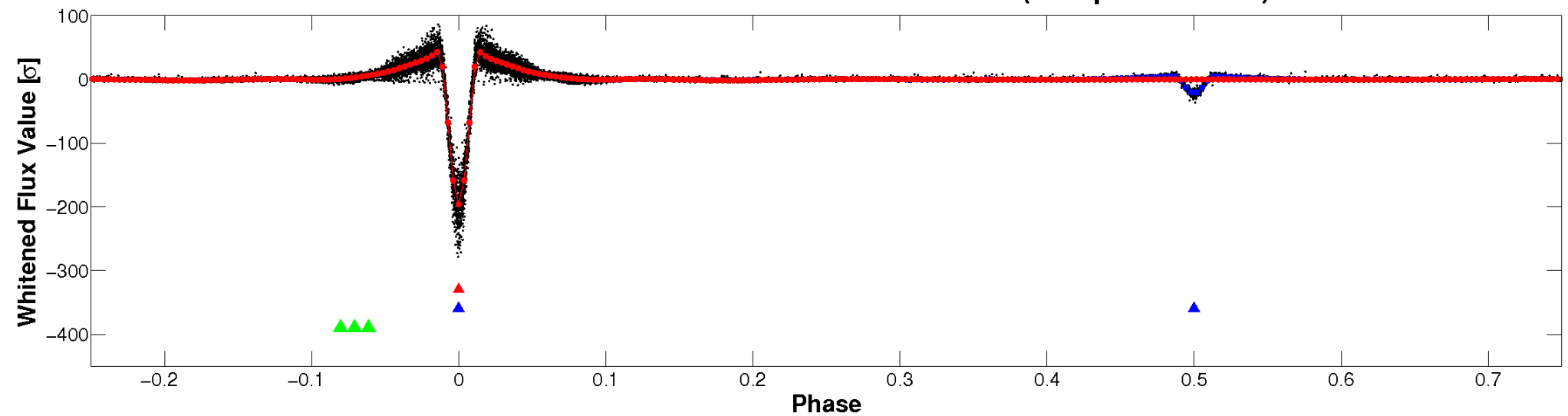


# Non-Whitened Vs. Whitened Light Curve

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

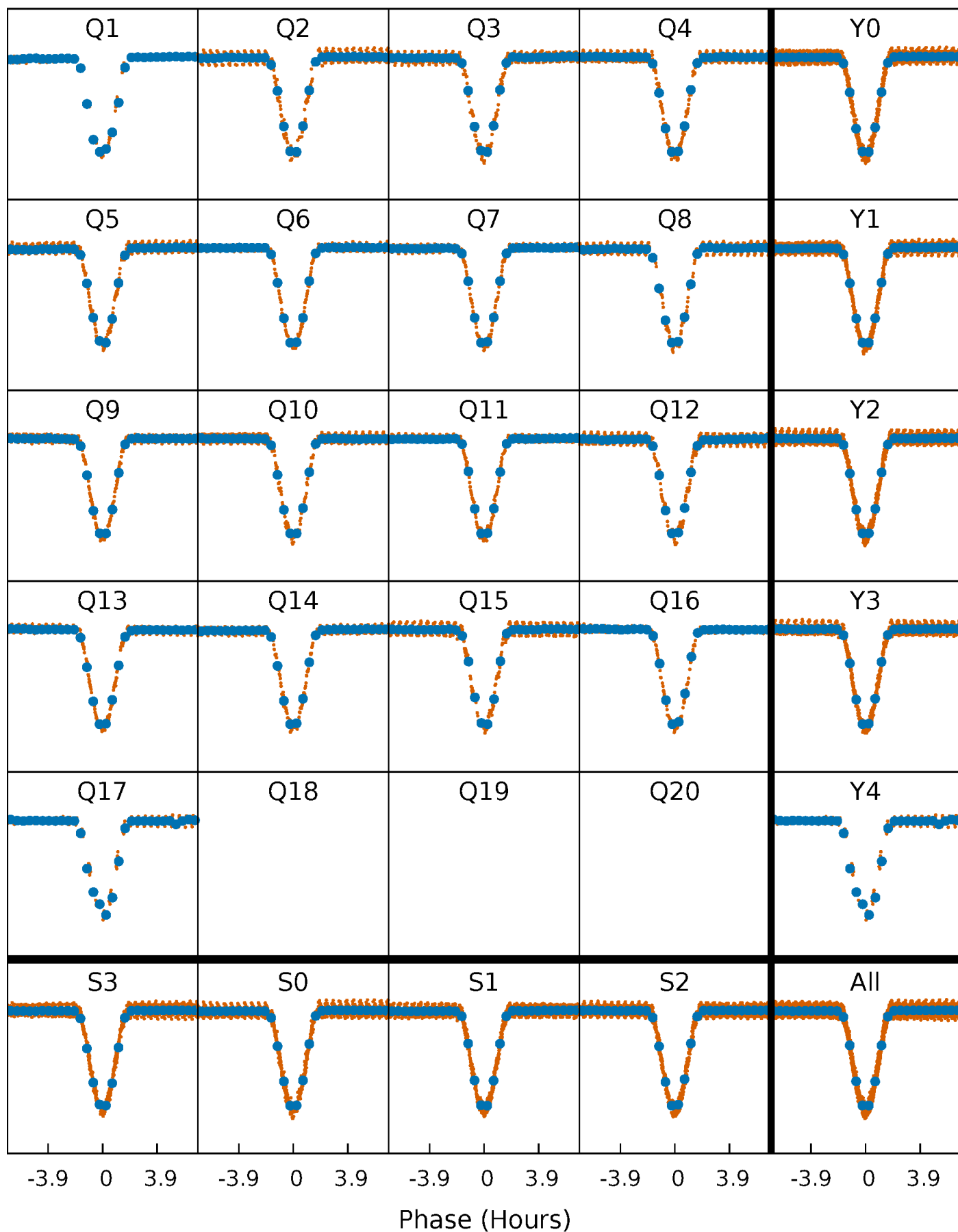


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

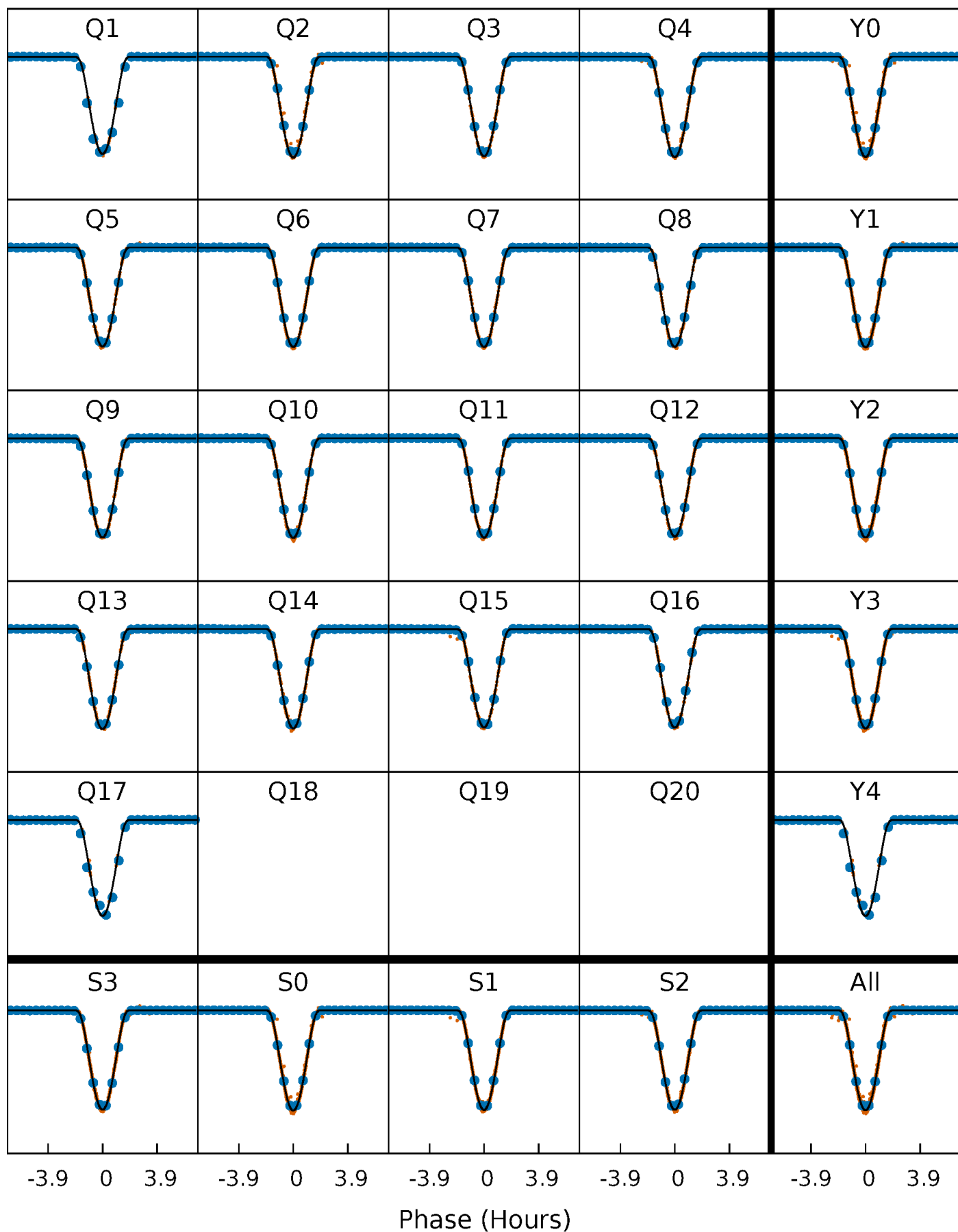
TCE 005181455-01 P= 5.579631 Days  $T_0=133.553520$  (BKJD)





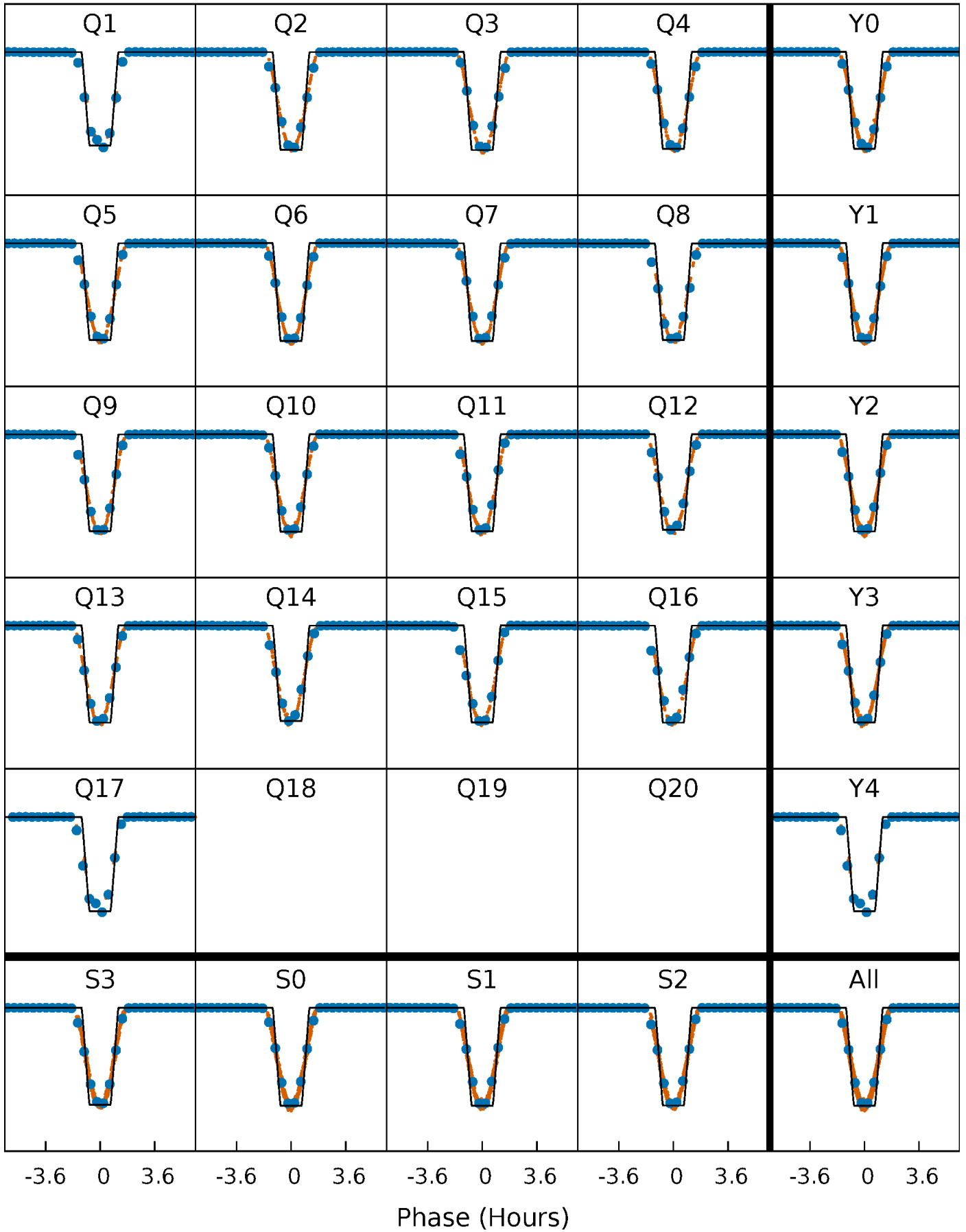
# DV Quarter-Phased Transit Curves

TCE 005181455-01 P= 5.579631 Days  $T_0=133.553520$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

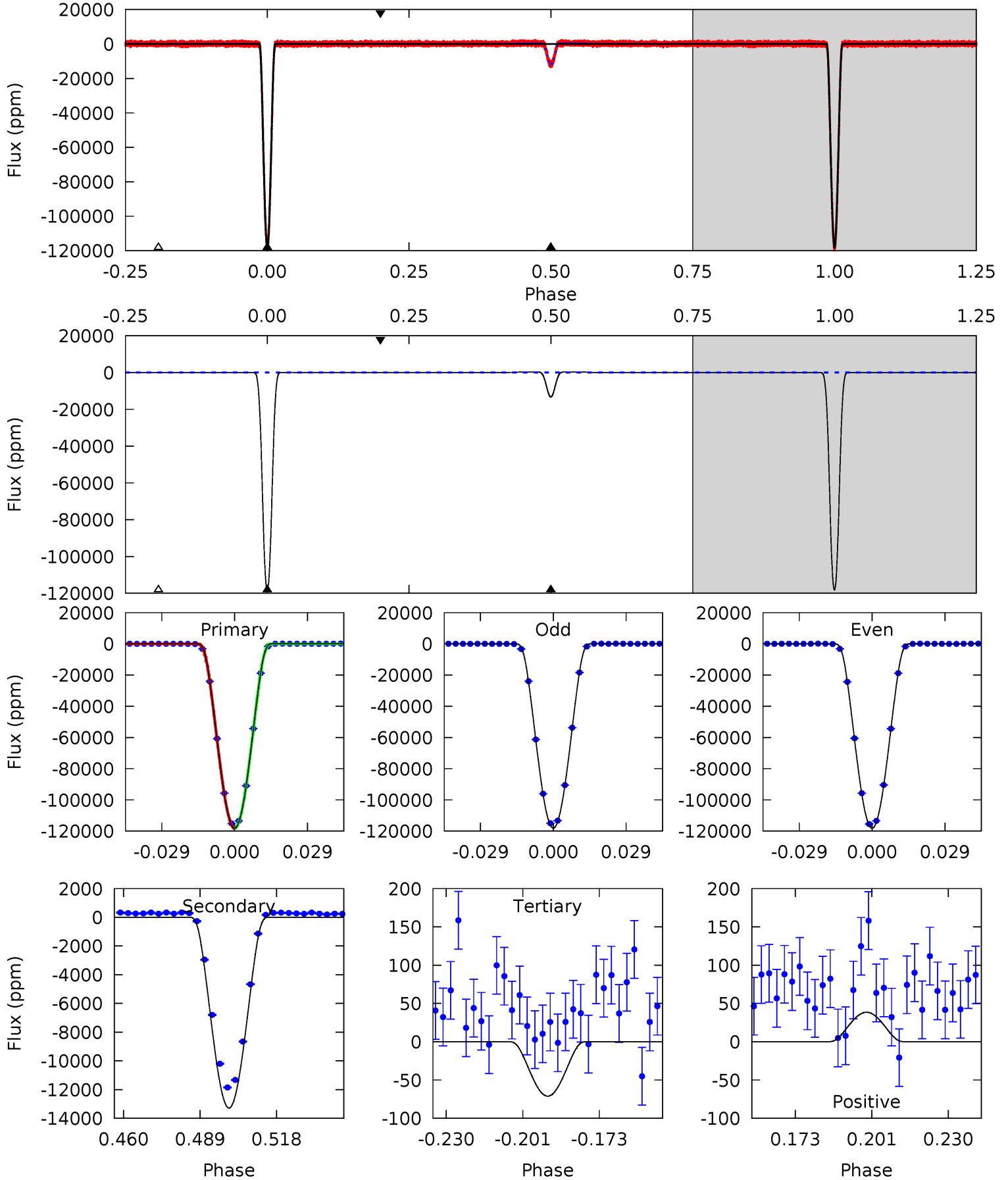
TCE 005181455-01 P= 5.579654 Days  $T_0=133.550546$  (BKJD)



# DV Model-Shift Uniqueness Test

005181455-01, P = 5.579631 Days, E = 127.973889 Days

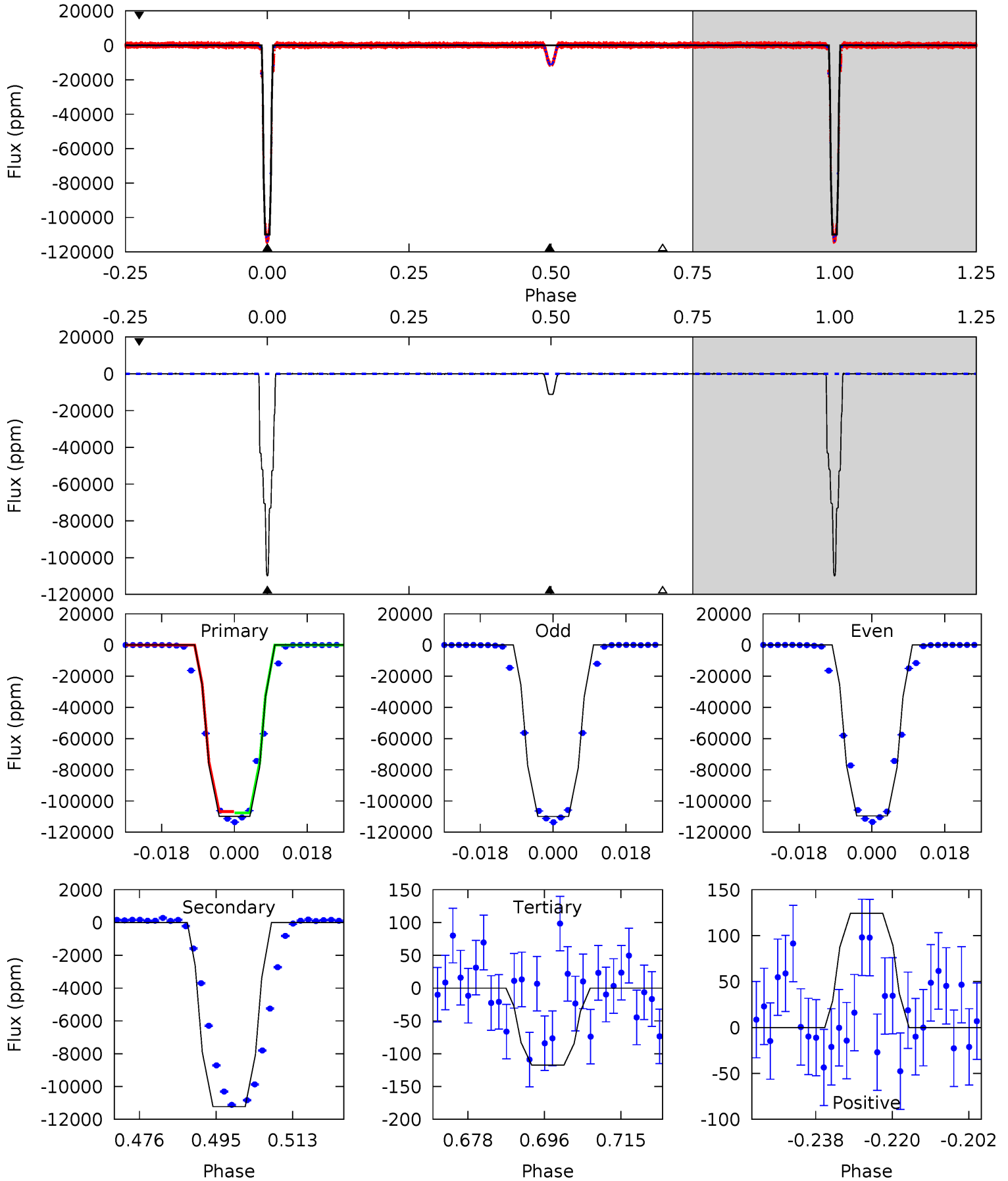
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9992	1124	6.01	3.26	4.82	2.19	6.89	9986	9989	1118	1120	3.21	1.00	0.00	0



# Alt Model-Shift Uniqueness Test

005181455-01, P = 5.579654 Days, E = 127.970892 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
3705	378.7	3.97	4.19	4.91	2.36	1.56	3701	3701	374.7	374.5	6.46	0.99	0.00	0



### Stellar Parameters For KIC 005181455

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6188^{+175}_{-241}$	$4.427^{+0.072}_{-0.203}$	$-0.220^{+0.250}_{-0.300}$	$1.022^{+0.326}_{-0.116}$	$1.013^{+0.160}_{-0.120}$	$1.338^{+0.521}_{-0.721}$
	+3%/-4%	+2%/-5%	+114%/-136%	+32%/-11%	+16%/-12%	+39%/-54%
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 005181455-01 / KOI 6536.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-13285 \pm 12$	$49.78^{+9.19}_{-4.21}$	$1574^{+129}_{-80}$	$3613^{+70}_{-87}$	$11^{+2}_{-3}$
Alt.	$-11226 \pm 30$	$38.52^{+7.49}_{-2.96}$	$1571^{+119}_{-79}$	$3820^{+76}_{-96}$	$16^{+3}_{-4}$

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

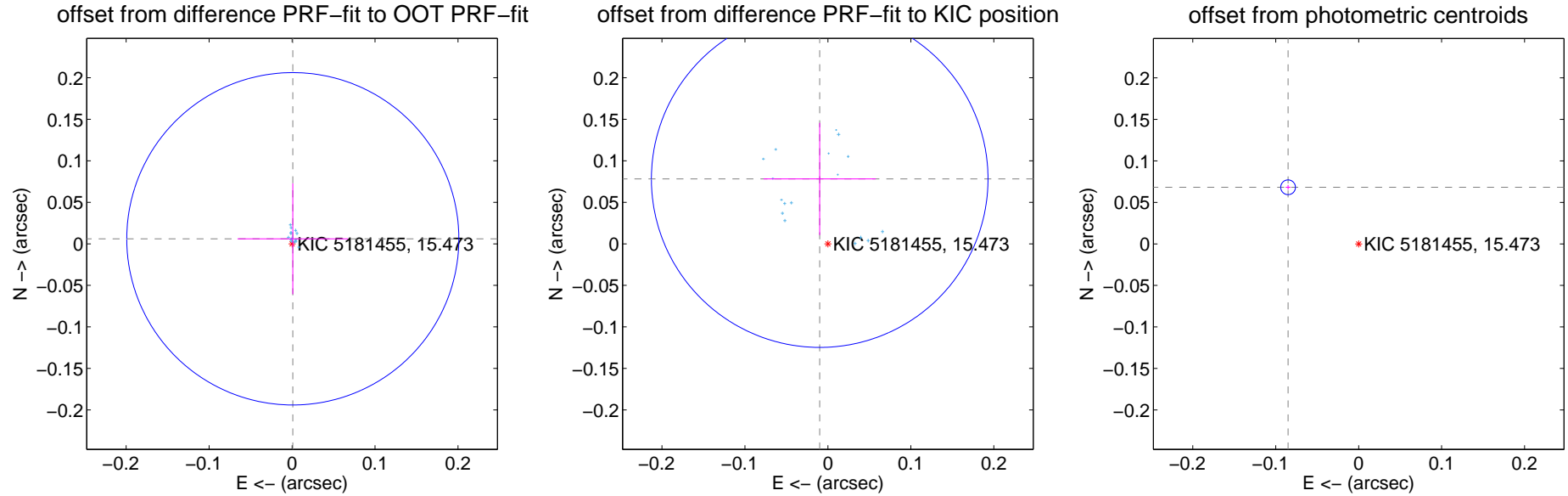
## DV Centroid Data

Supplemental centroid analysis for 005181455-01. Kepler magnitude: 15.47. Transit SNR 4091.33

There are 17 quarters with good PRF difference image offsets

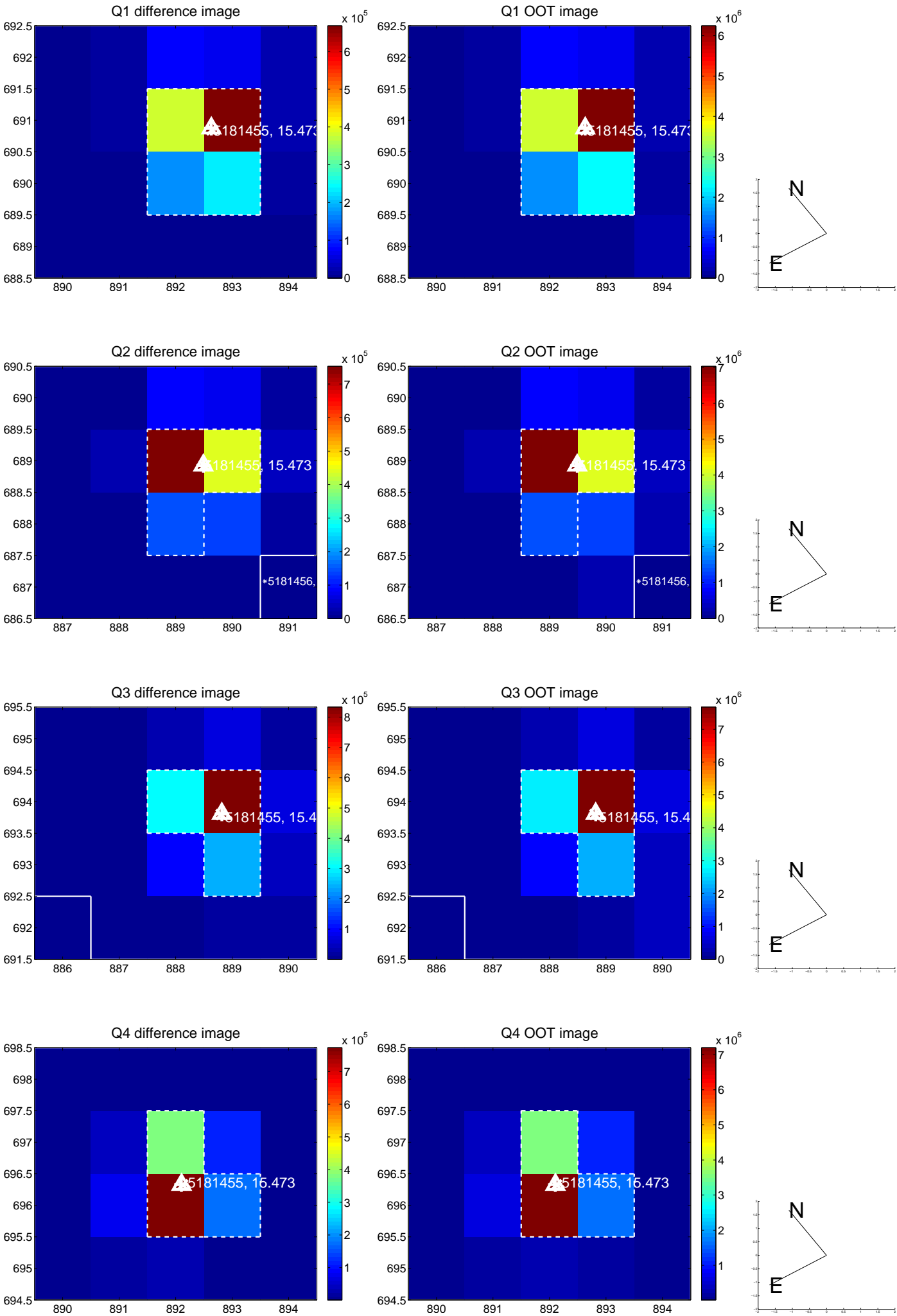
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.006 \pm 0.067$	0.09	$-0.001 \pm 0.067$	$0.006 \pm 0.067$
PRF-fit source offset from KIC position	$0.079 \pm 0.068$	1.16	$0.010 \pm 0.068$	$0.078 \pm 0.068$
photometric centroid source offset	$0.11 \pm 0.00$	<b>36.86</b>	$0.09 \pm 0.00$	$0.07 \pm 0.00$

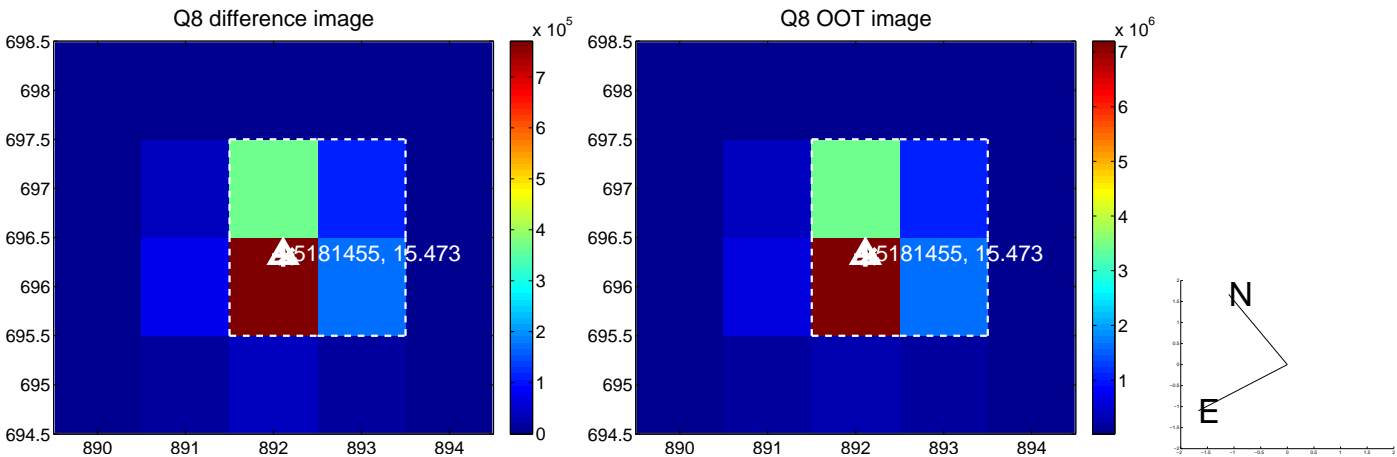
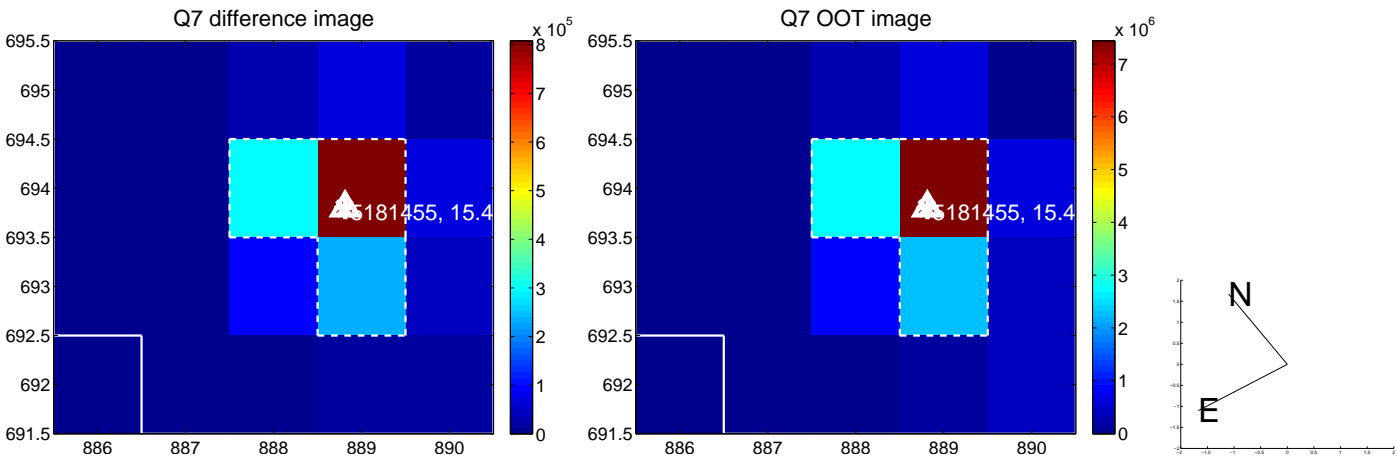
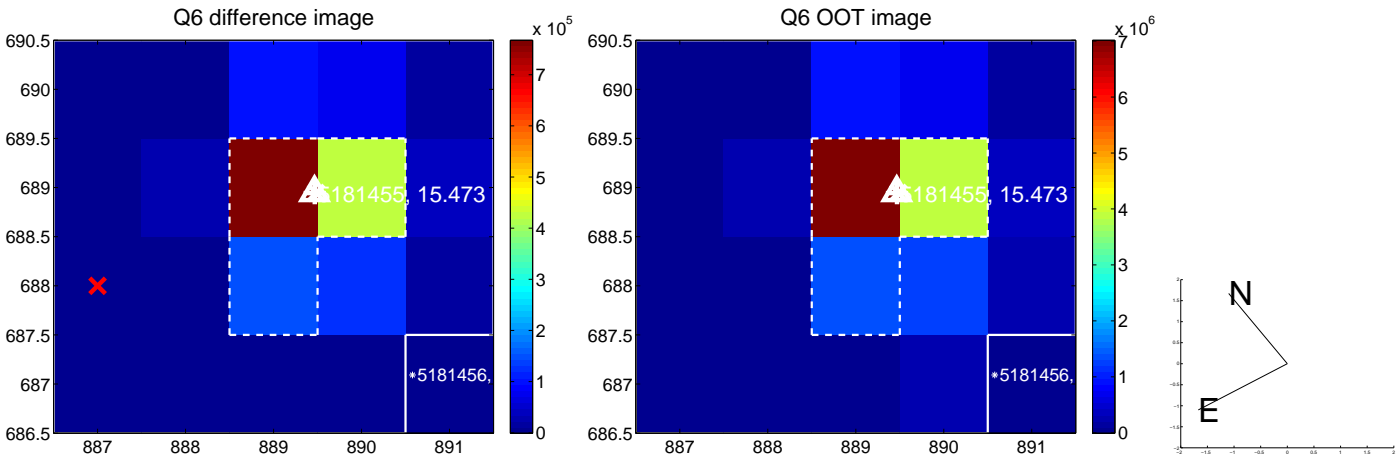
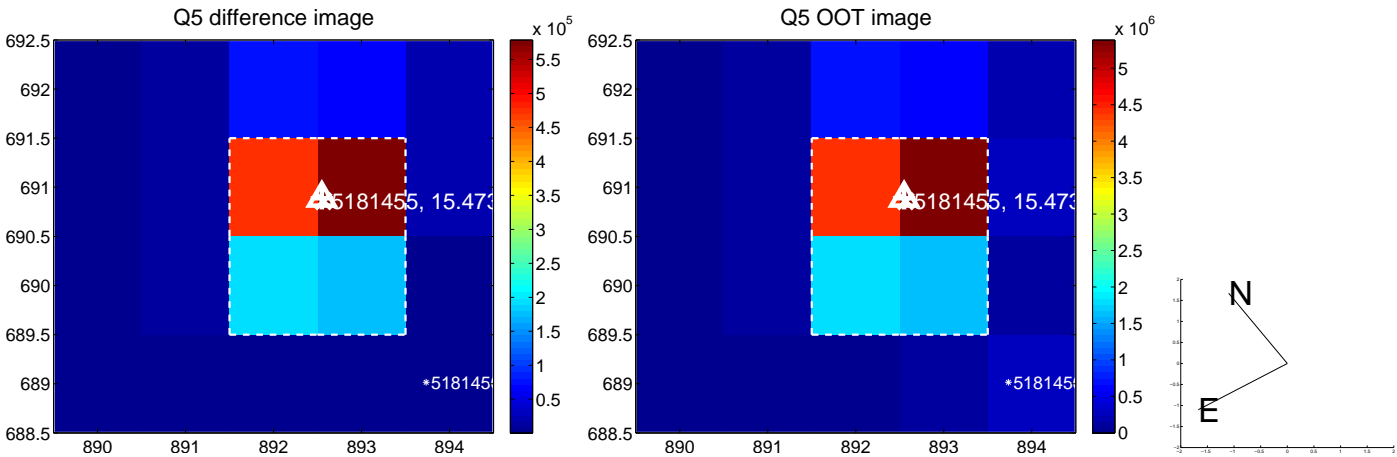


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

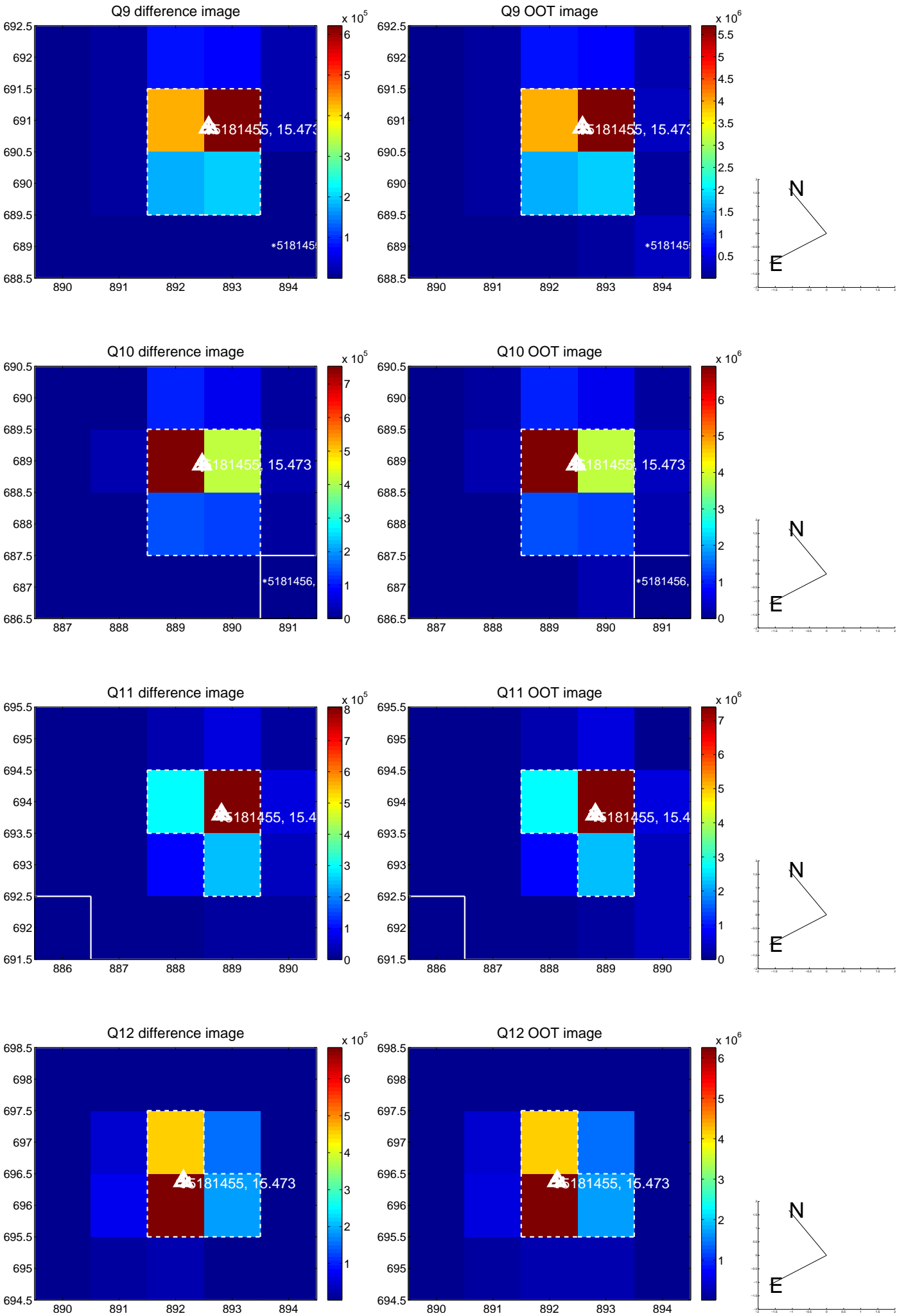


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

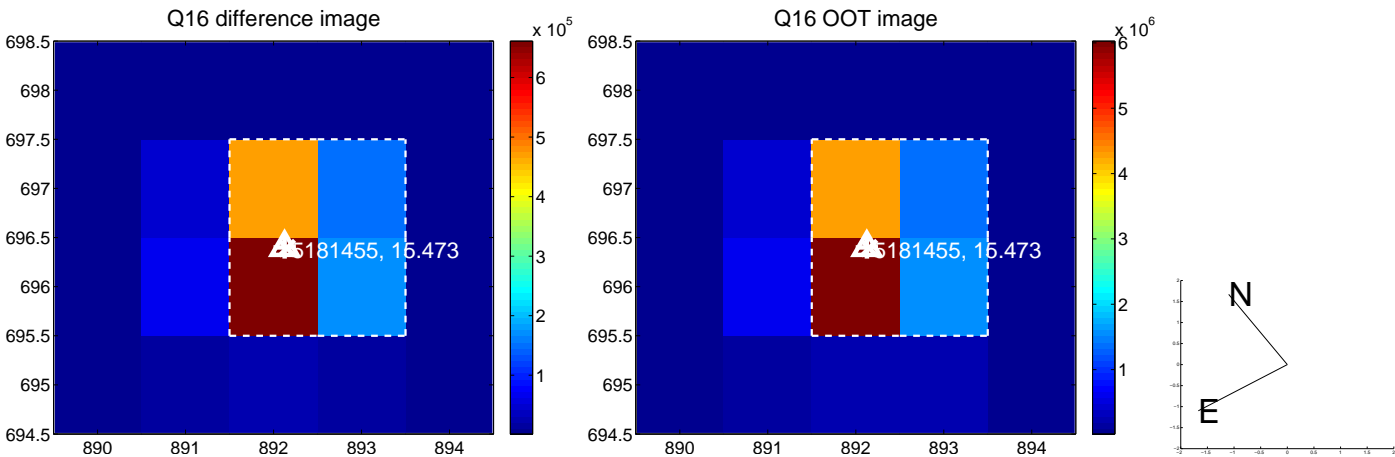
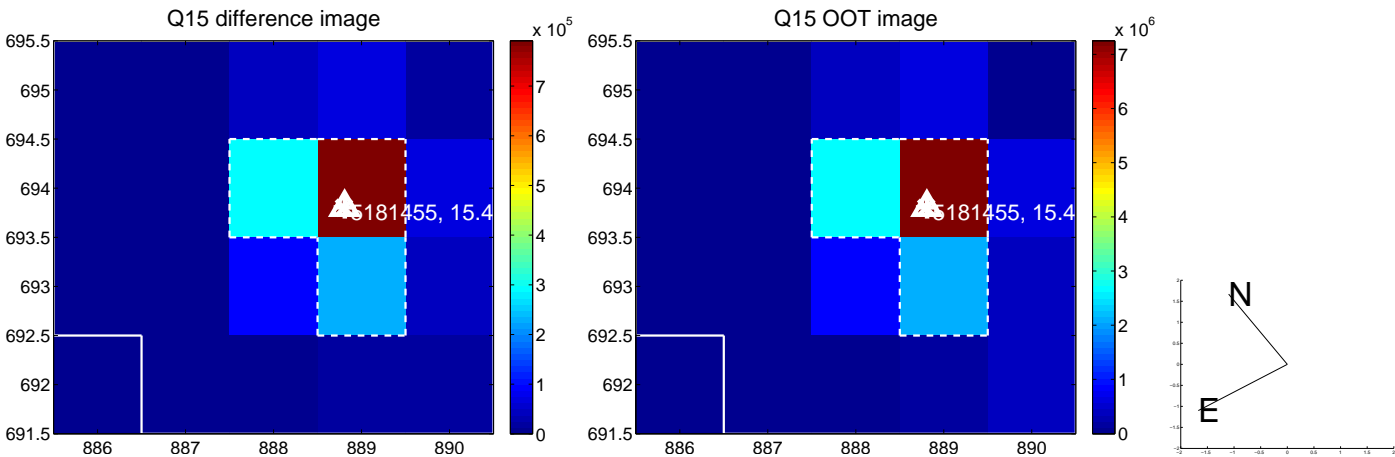
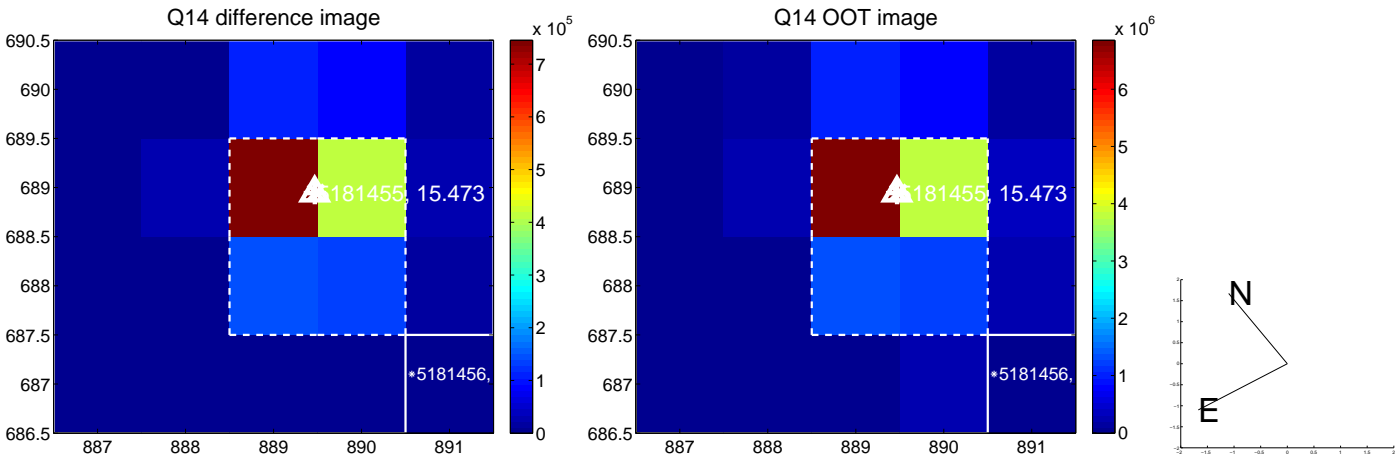
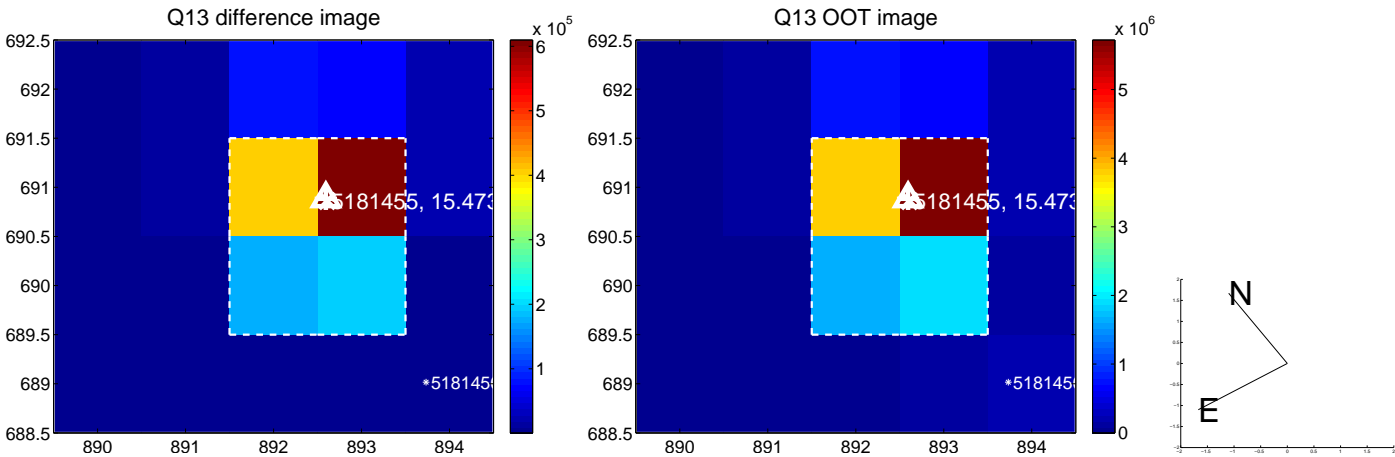




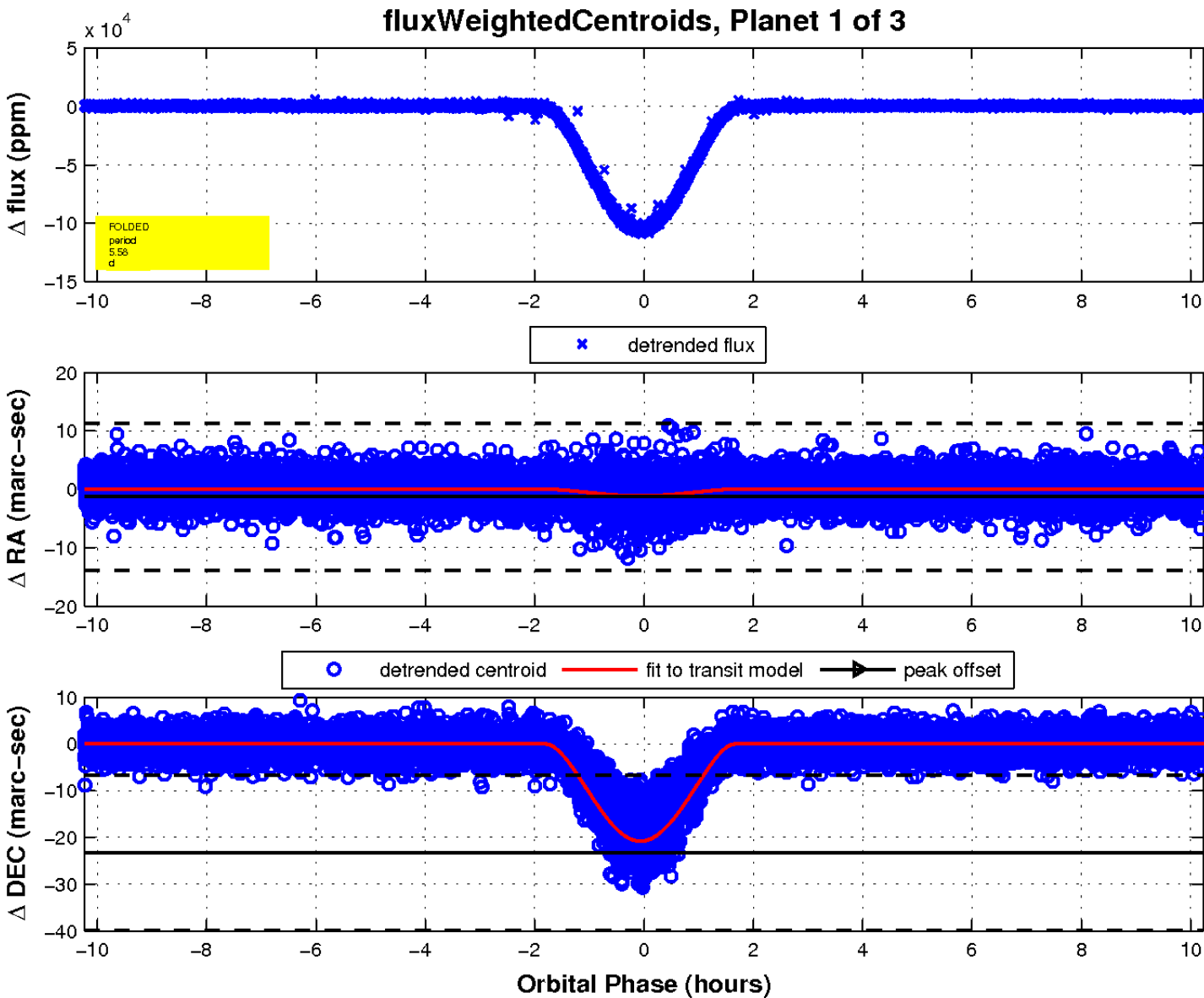
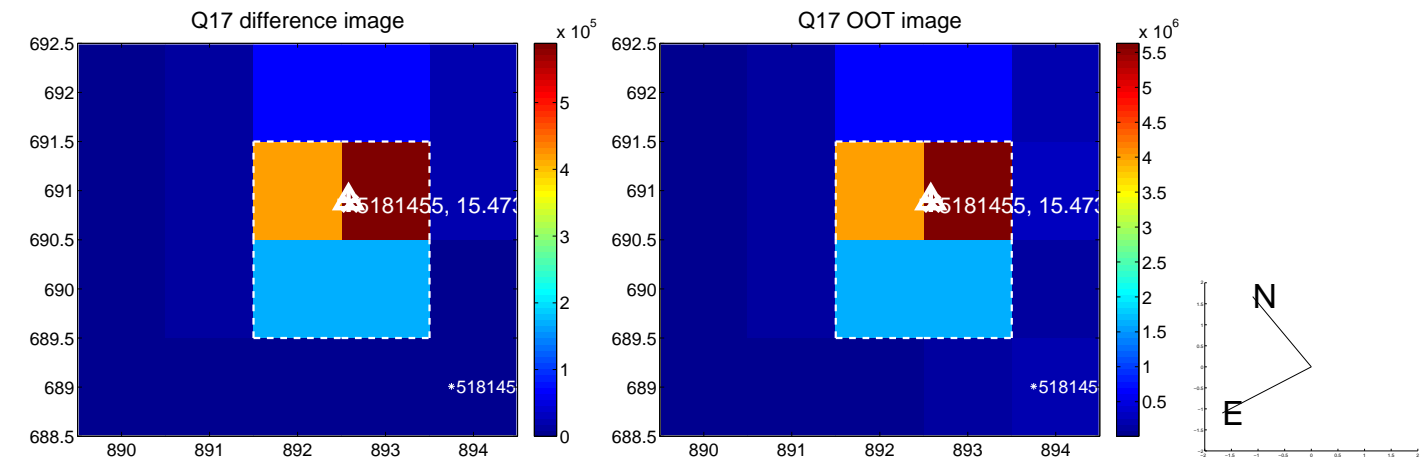
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

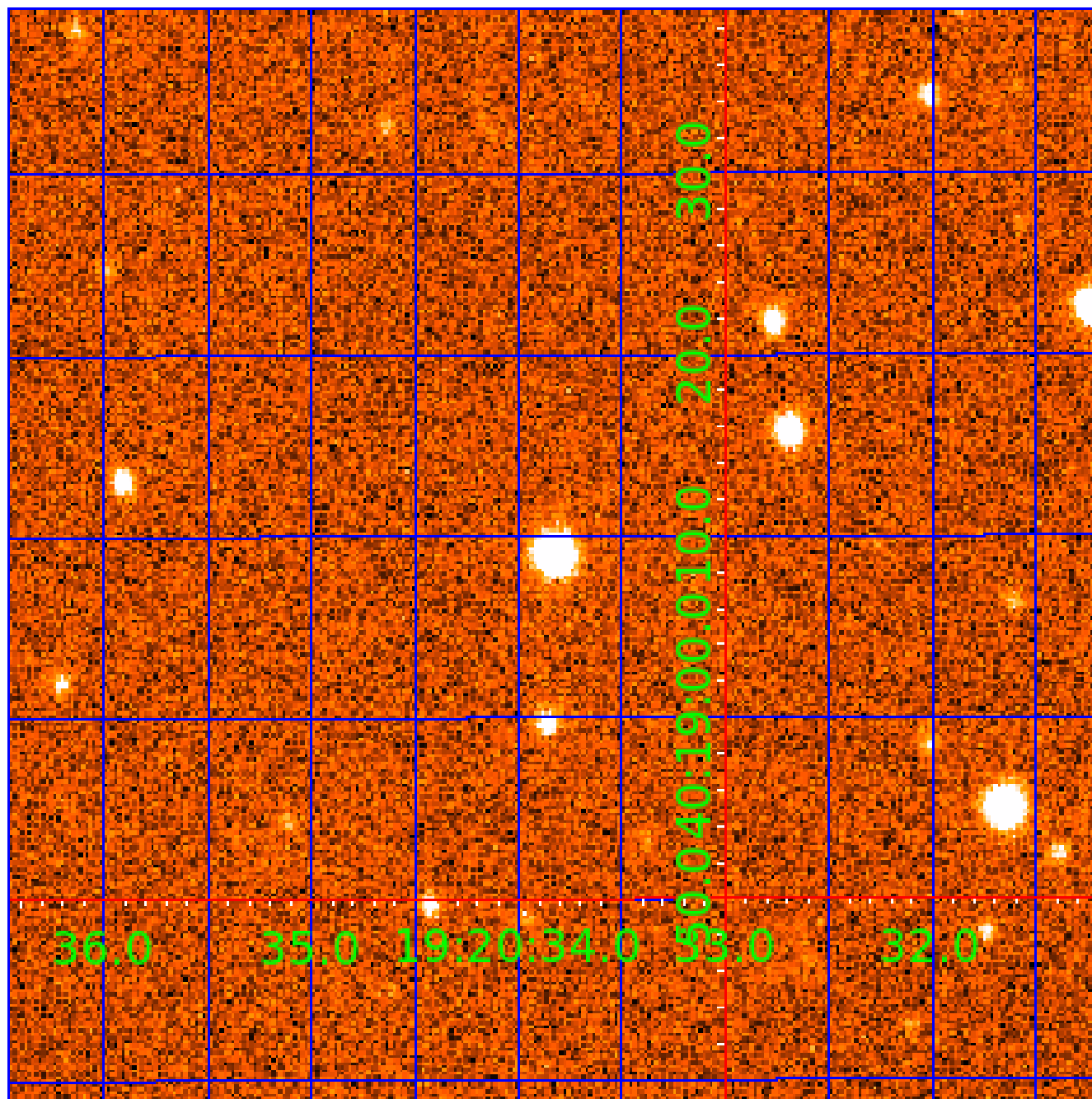


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 005181455

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005181455-01	OBS	6536.01	5.579631	133.553520	118247.6	3.412	5277.0	4091.3	1.02	6188	48.78	357.48
005181455-02	OBS	No	2.789812	133.554196	12203.2	3.266	561.1	538.4	1.02	6188	18.89	900.80
005181455-03	OBS	No	412.839646	518.205900	771.2	9.000	7.4	-1.0	1.02	6188	2.84	1.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005181455-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
005181455-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
005181455-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

**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.

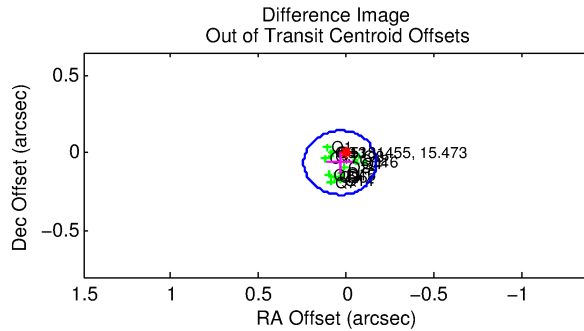
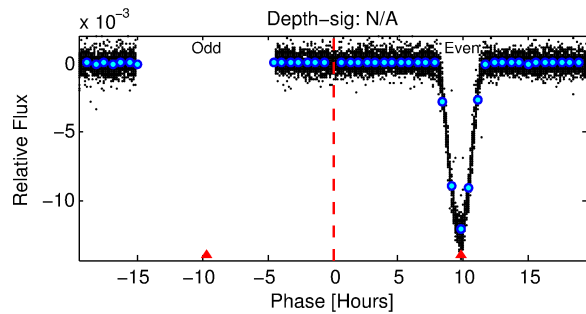
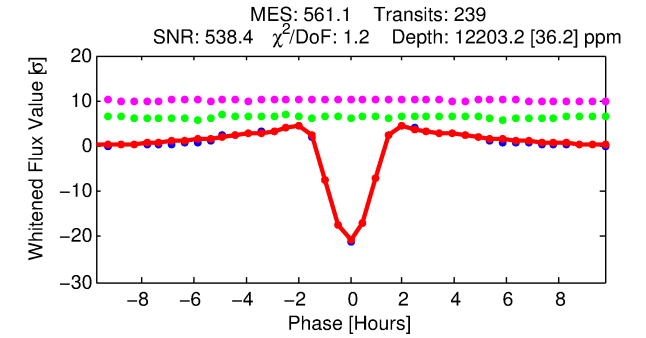
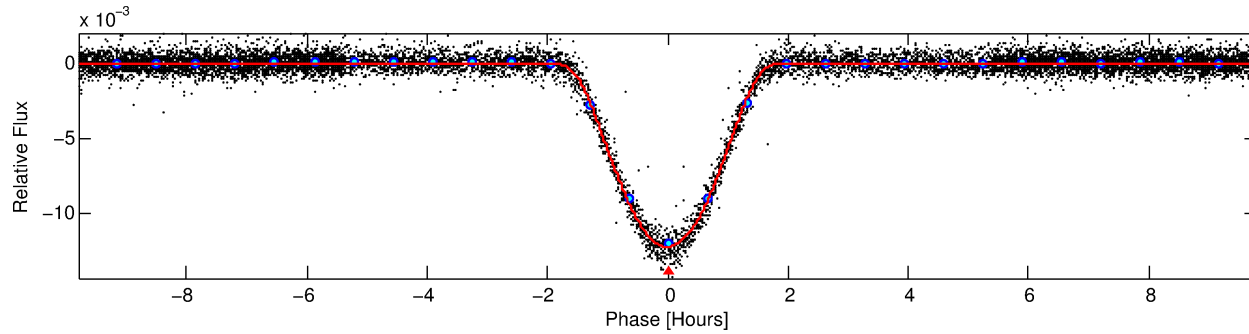
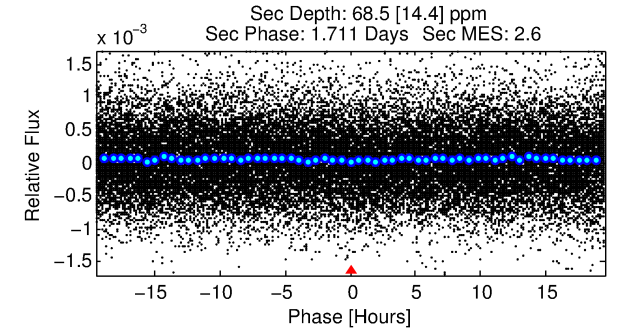
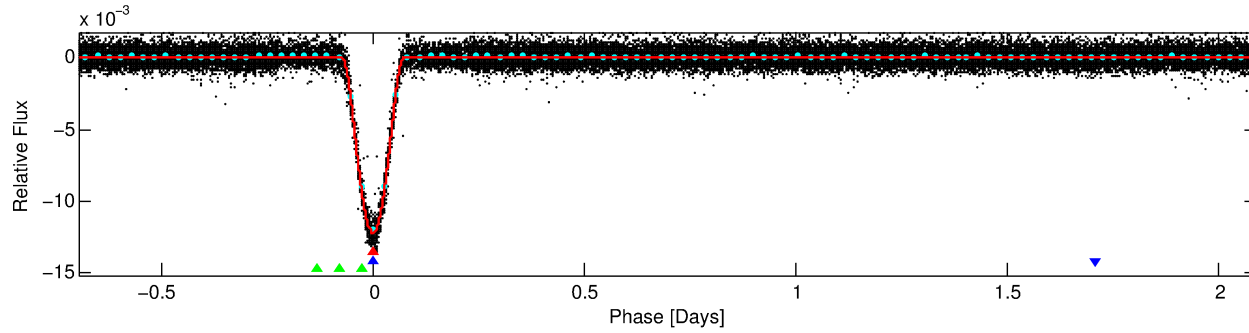
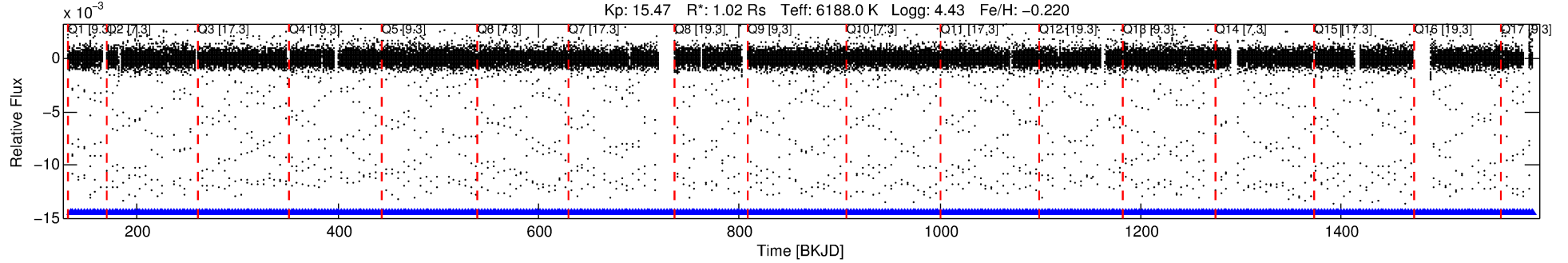
## Ephemeris Match Information For 005181455-02

No Significant Match Found

# DV One-Page Summary

KIC: 5181455 Candidate: 2 of 3 Period: 2.790 d  
KOI: K06536 Corr: No Ephemeris Match

Kp: 15.47 R\*: 1.02 Rs Teff: 6188.0 K Logg: 4.43 Fe/H: -0.220



## DV Fit Results:

Period = 2.78981 [0.00000] d  
Epoch = 133.5542 [0.0001] BKJD  
Rp/R\* = 0.1693 [0.0147]  
a/R\* = 4.25 [0.05]  
b = 0.98 [0.02]  
Seff = 900.80 [367.67]  
Teff = 1397 [143] K  
Rp = 18.89 [6.24] Re  
a = 0.0390 [0.0103] AU  
Ag = 0.16 [0.07] [-11.20σ]  
Teffp = 1368 [107] K [-0.16σ]

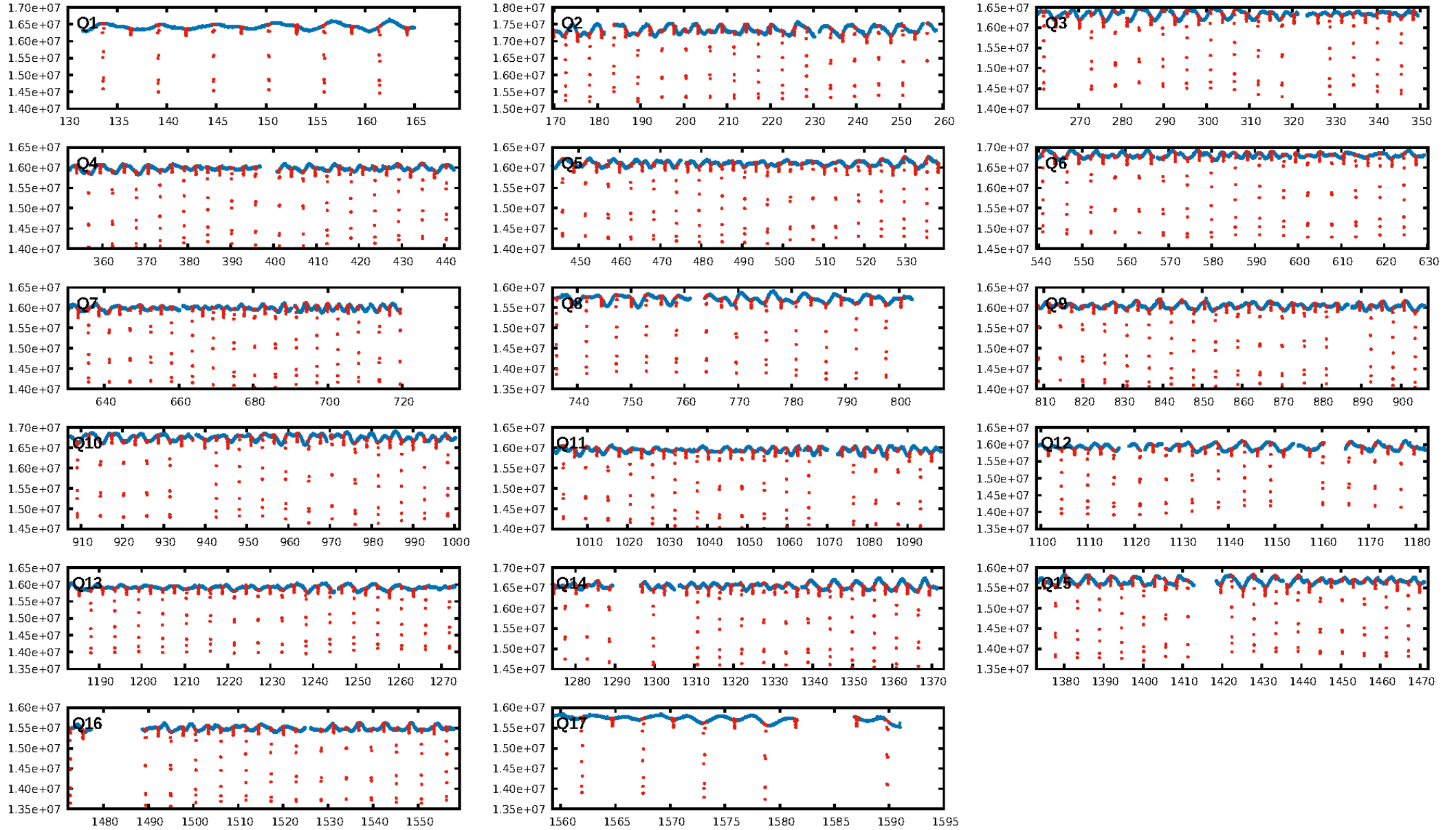
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [14.18σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [228/228]  
GhostDiagnostic-chr: 3.263  
Centroid-sig: 0.0%  
Centroid-so: 0.106 arcsec [5.28σ]  
OotOffset-rm: 0.072 arcsec [1.05σ]  
KicOffset-rm: 0.046 arcsec [0.67σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:58:10 Z

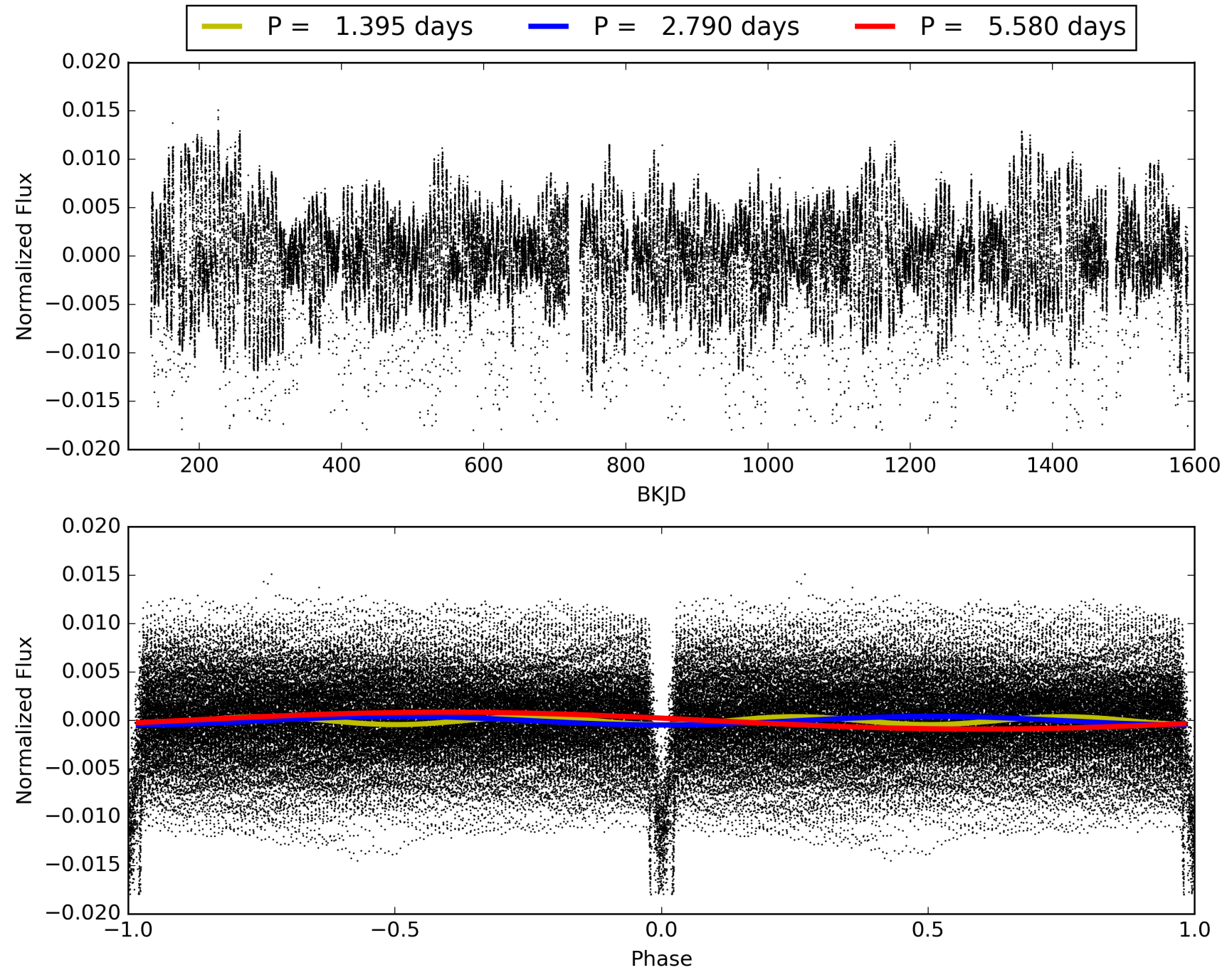
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005181455-02, PDC Light Curves





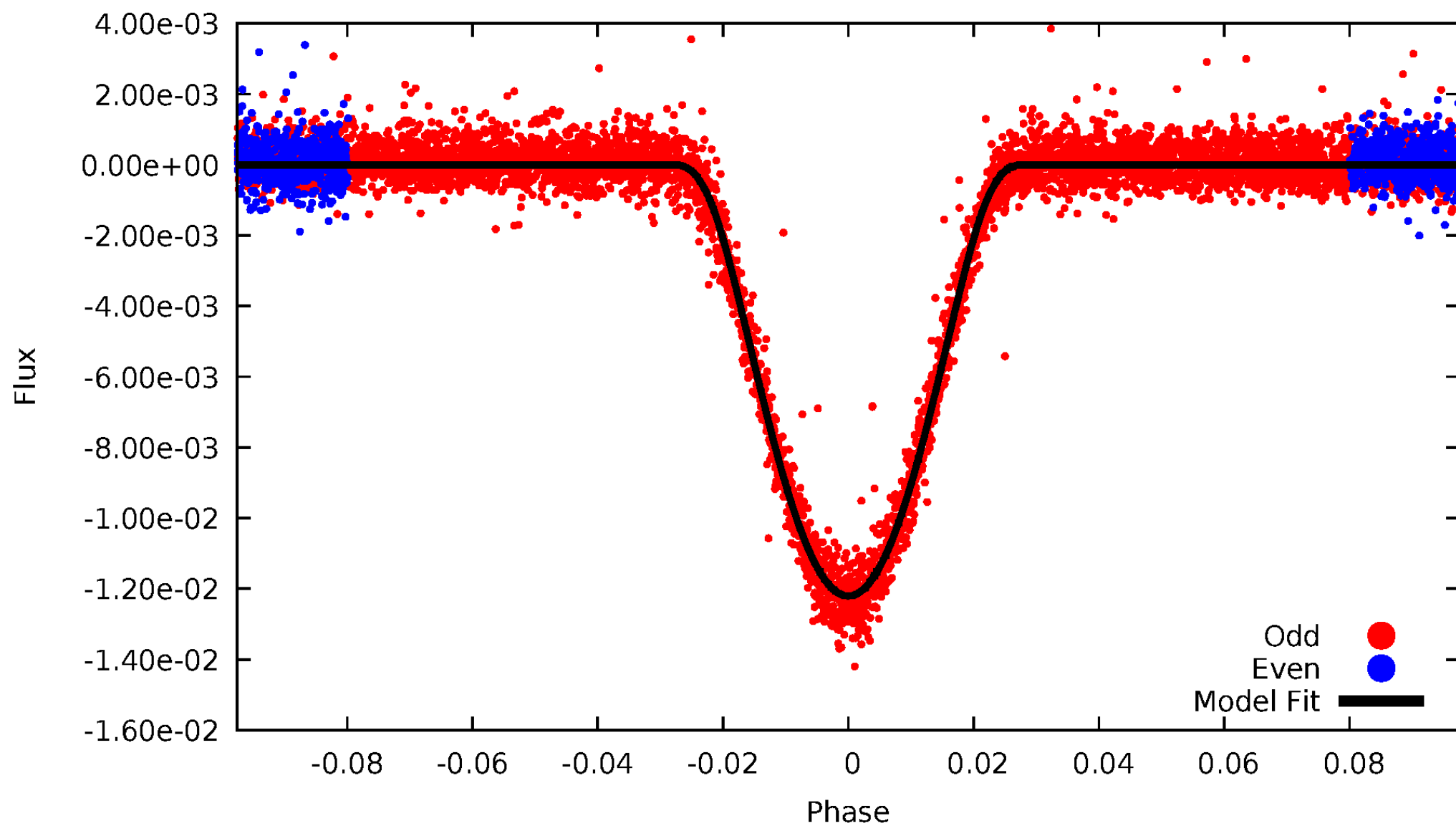
# TCE 005181455-02





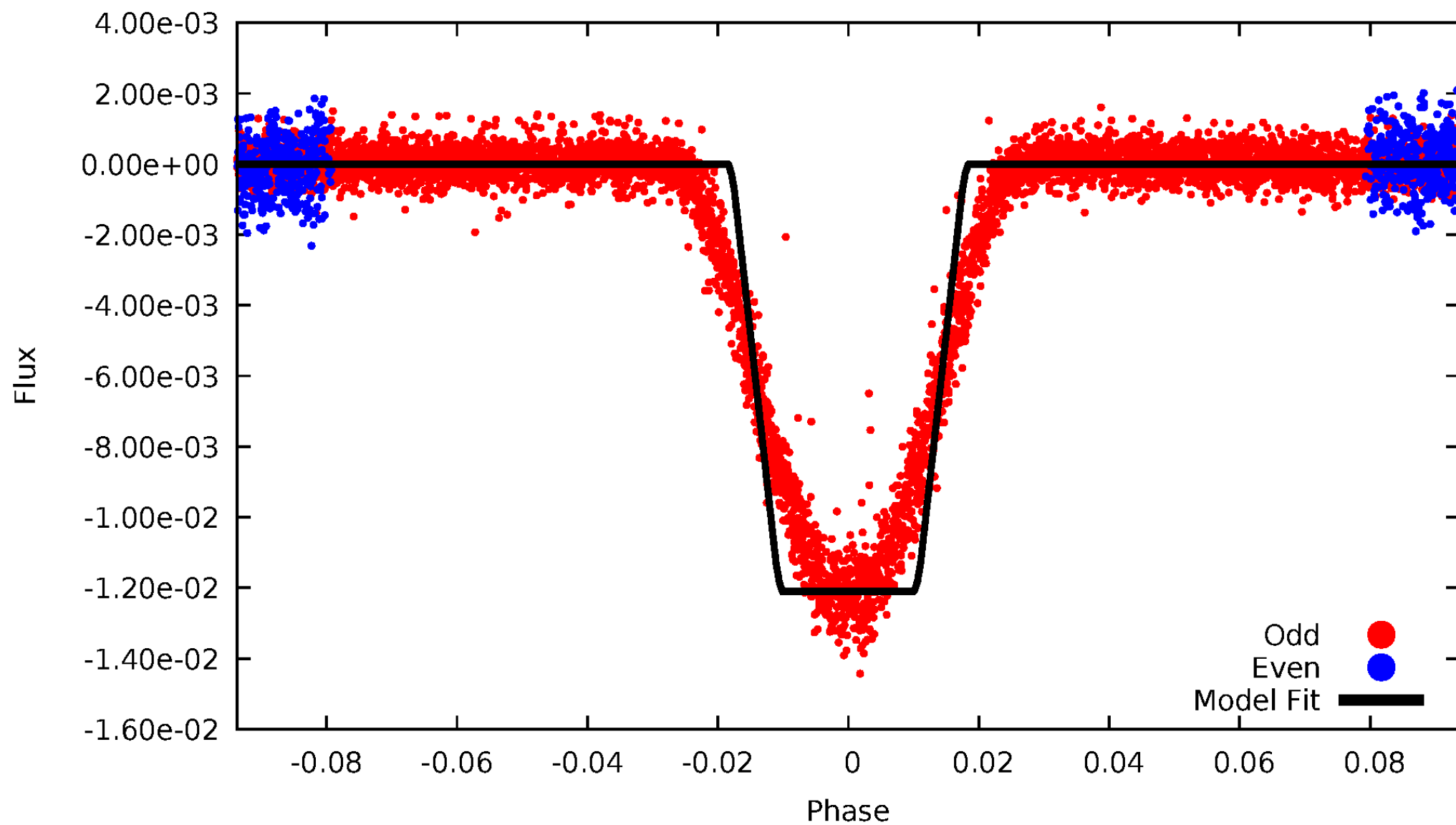
# DV Odd/Even

TCE 005181455-02



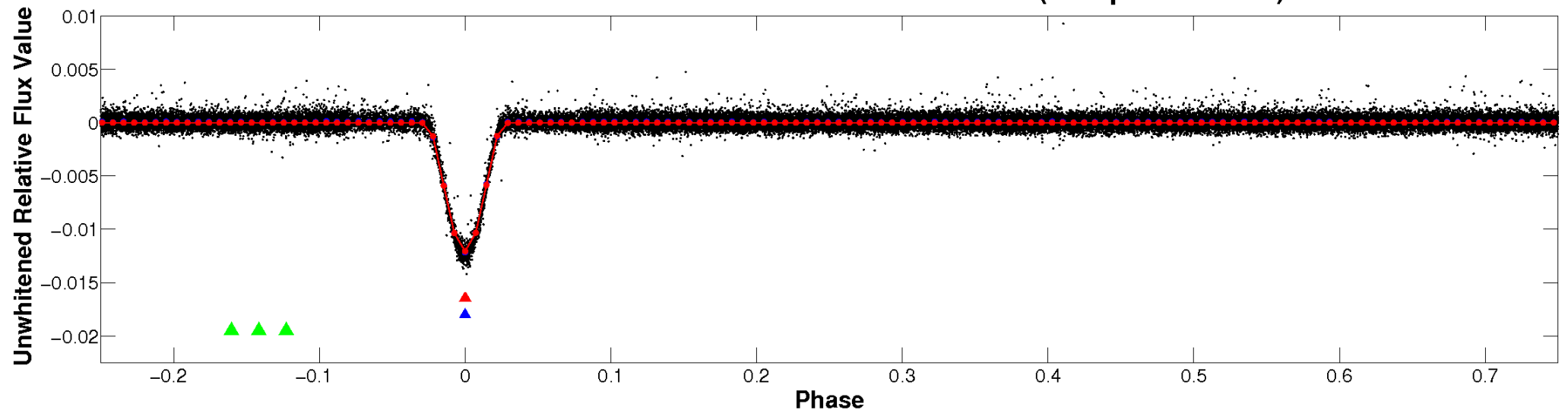
# ALT Odd/Even

TCE 005181455-02

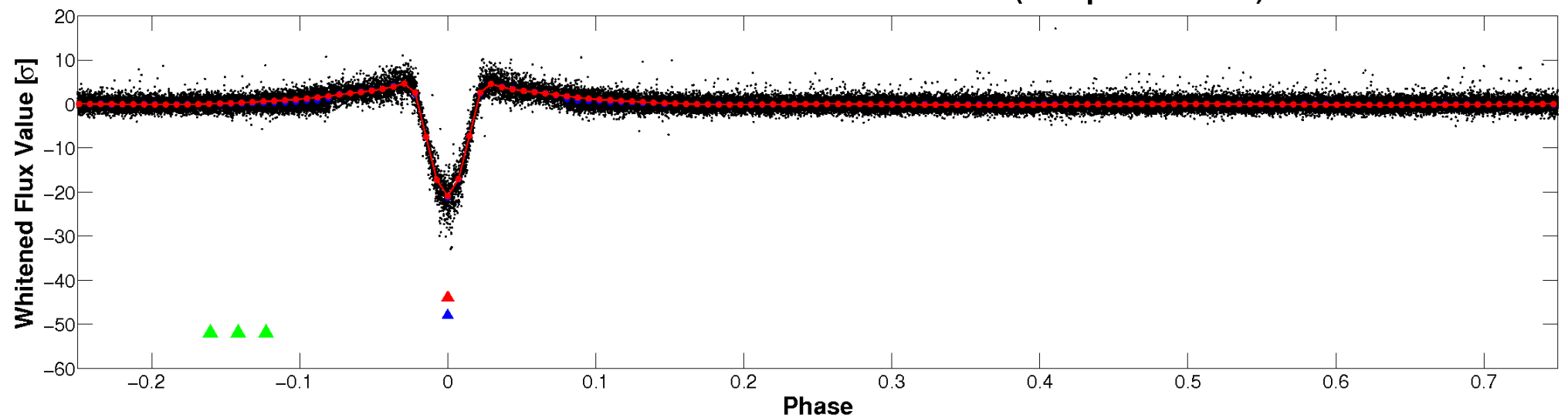


# Non-Whitened Vs. Whitened Light Curve

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

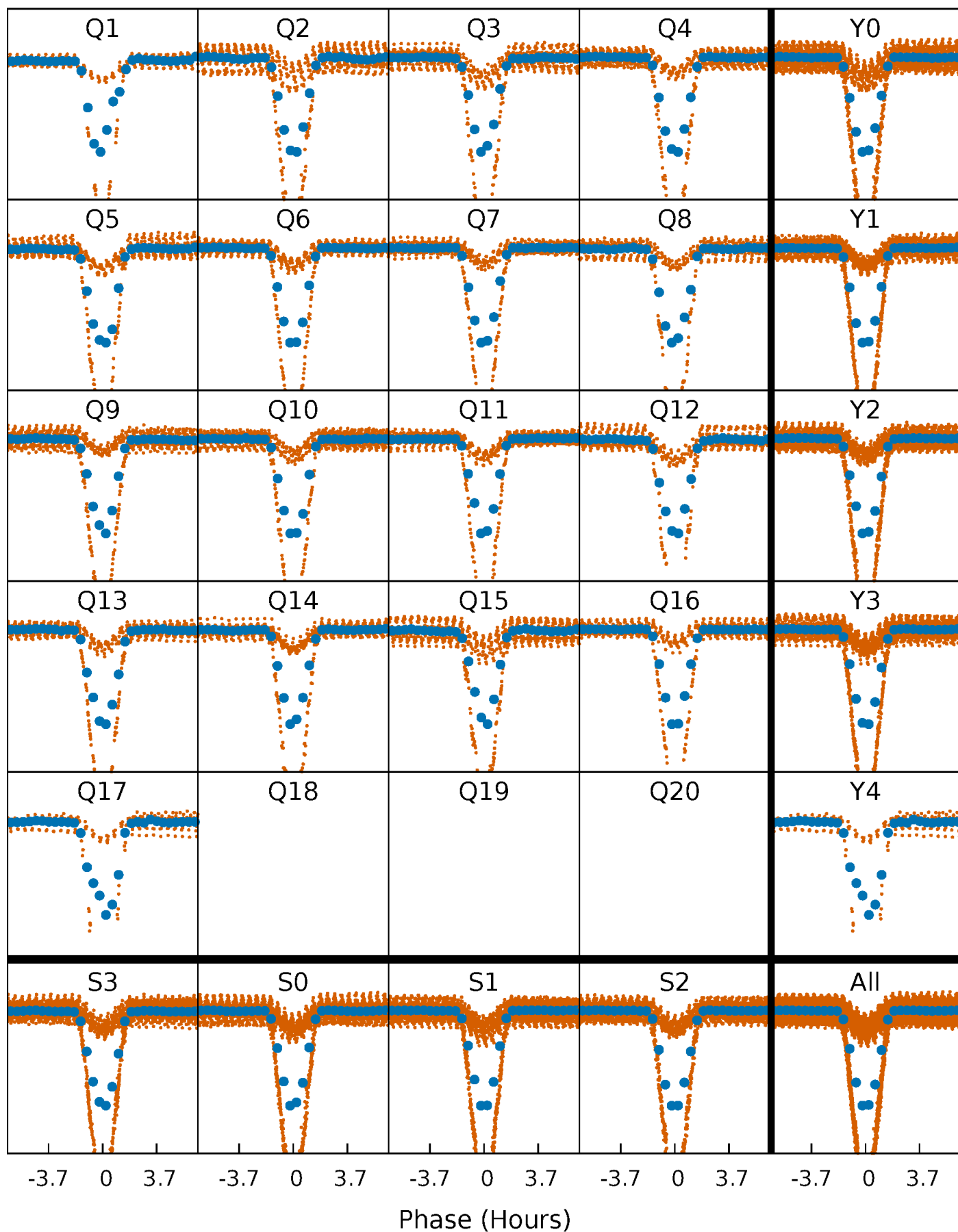


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



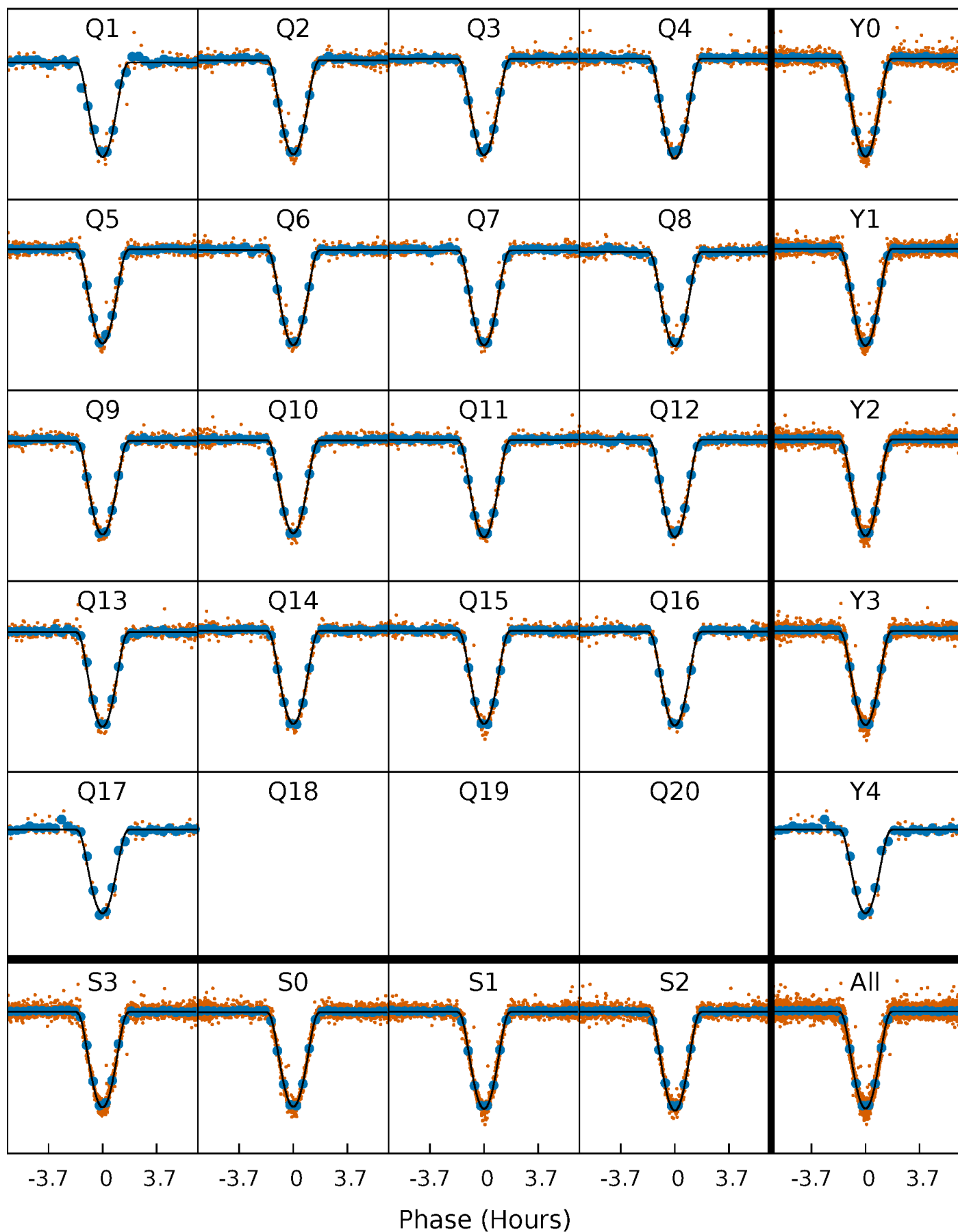
# PDC Quarter-Phased Transit Curves

TCE 005181455-02 P= 2.789812 Days  $T_0=133.554195$  (BKJD)



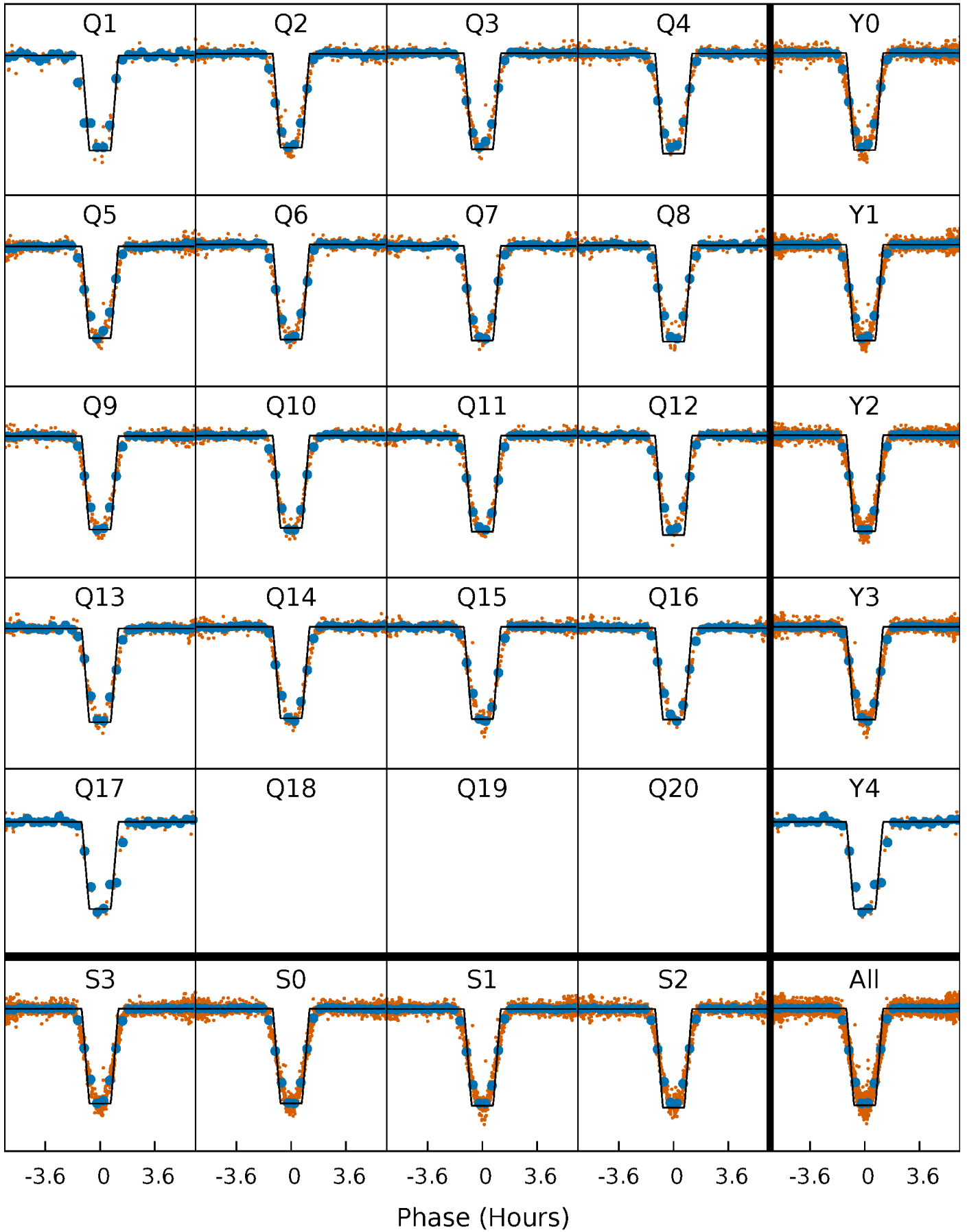
# DV Quarter-Phased Transit Curves

TCE 005181455-02   P= 2.789812 Days    $T_0=133.554195$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

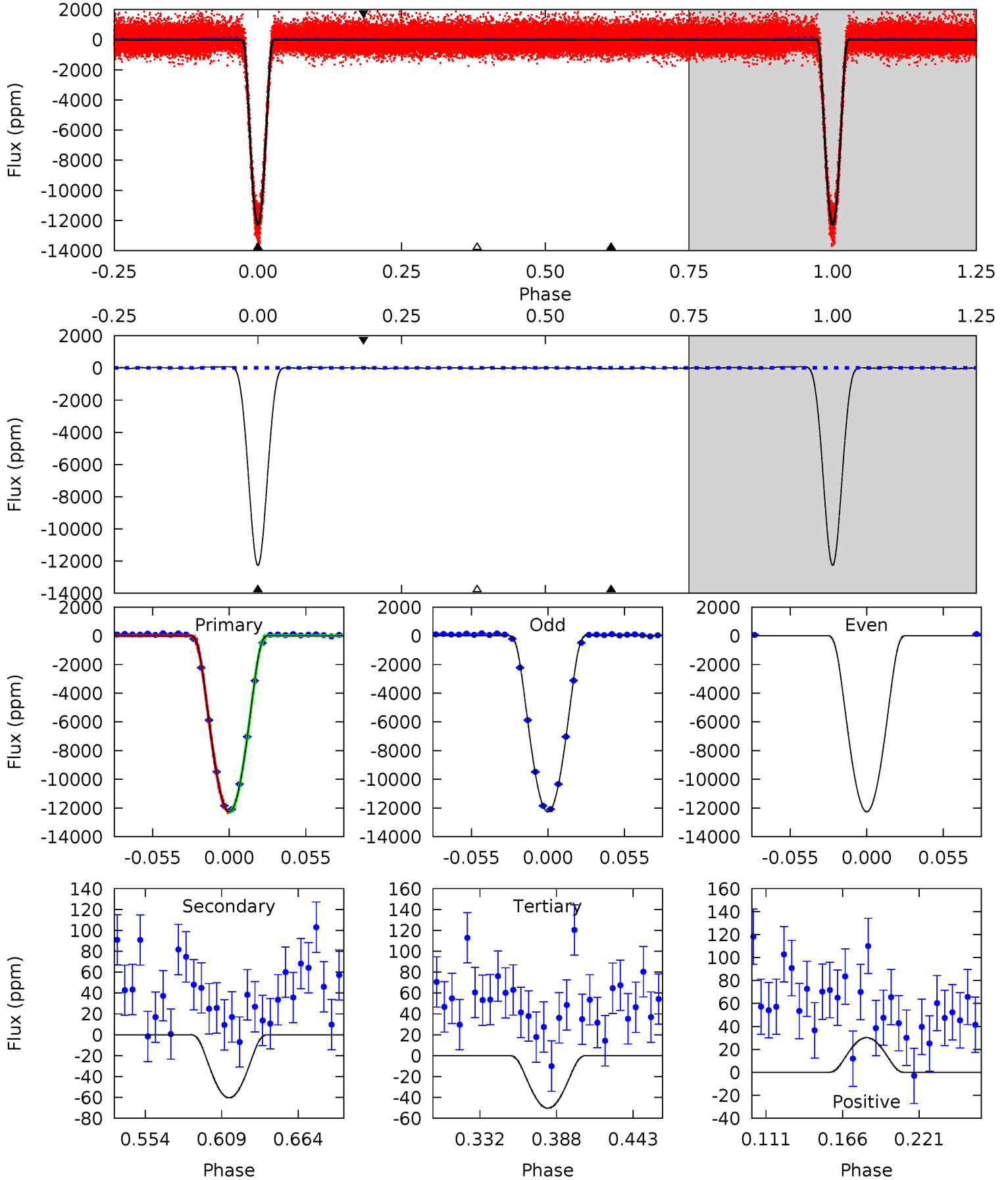
TCE 005181455-02 P= 2.789801 Days  $T_0=133.556819$  (BKJD)



# DV Model-Shift Uniqueness Test

005181455-02, P = 2.789812 Days, E = 130.764383 Days

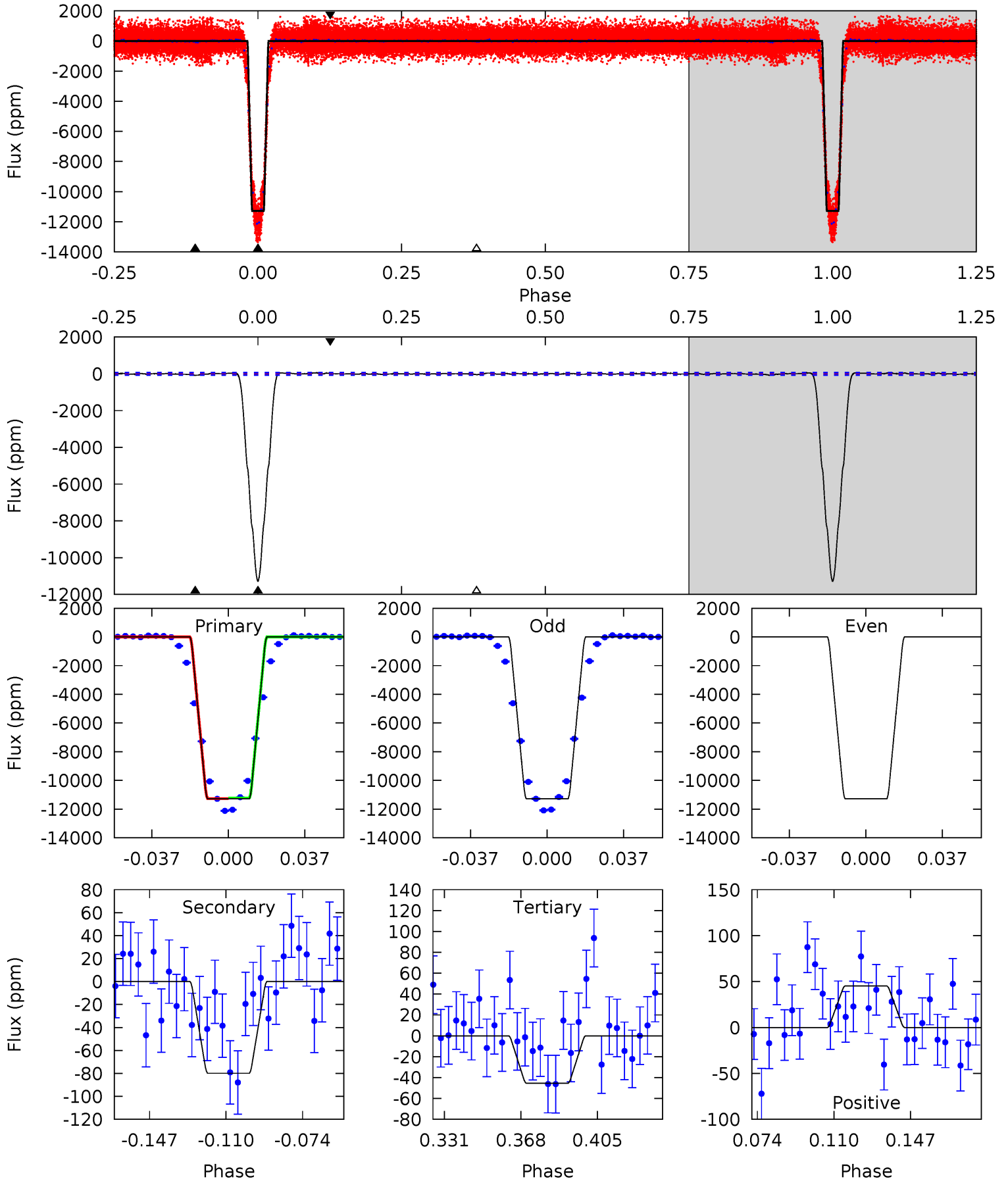
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1103	5.44	4.53	2.72	4.69	1.92	1.89	1099	1101	0.91	2.72	0	1.00	0.01	0.39



# Alt Model-Shift Uniqueness Test

005181455-02, P = 2.789801 Days, E = 130.767018 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
848.9	6.01	3.42	3.40	4.77	2.09	1.29	845.5	845.5	2.59	2.61	0	1.00	0.01	1.65





### Stellar Parameters For KIC 005181455

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6188^{+175}_{-241}$	$4.427^{+0.072}_{-0.203}$	$-0.220^{+0.250}_{-0.300}$	$1.022^{+0.326}_{-0.116}$	$1.013^{+0.160}_{-0.120}$	$1.338^{+0.521}_{-0.721}$
	+3%/-4%	+2%/-5%	+114%/-136%	+32%/-11%	+16%/-12%	+39%/-54%
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 005181455-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-60 \pm 11$	$19.41^{+3.27}_{-2.33}$	$1971^{+143}_{-93}$	$-2316^{+118}_{-127}$	$0.129^{+0.049}_{-0.038}$
Alt.	$-80 \pm 13$	$12.62^{+2.85}_{-1.96}$	$1971^{+148}_{-106}$	$2210^{+237}_{-4141}$	$0.412^{+0.176}_{-0.142}$

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

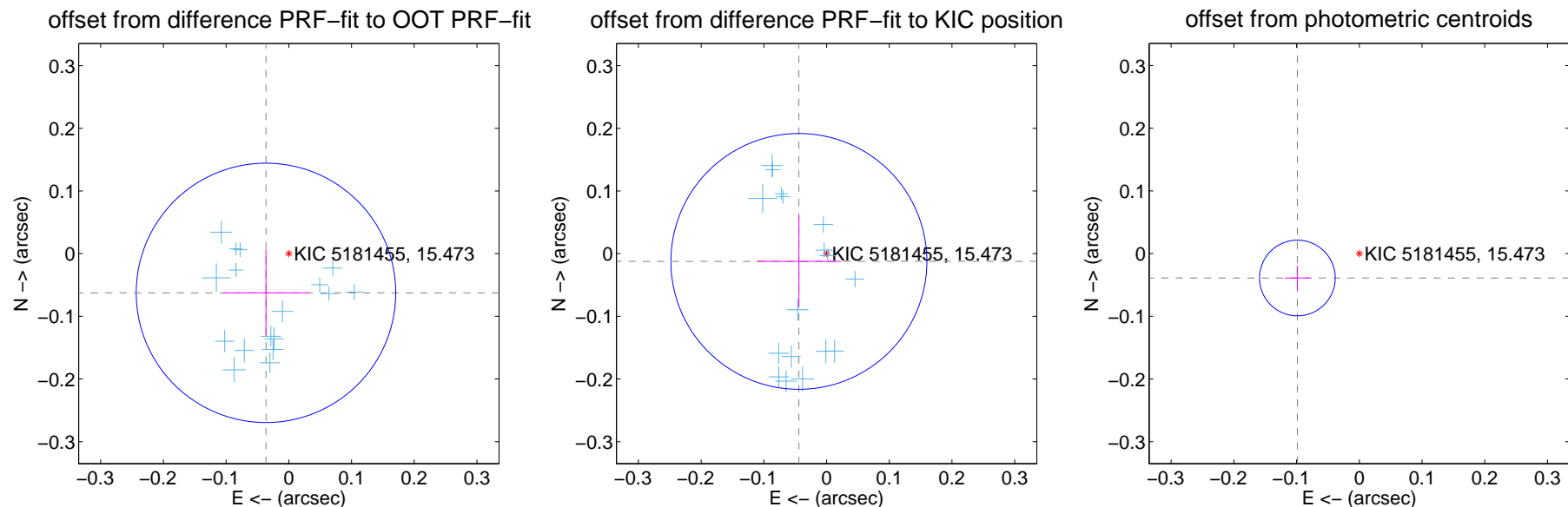
## DV Centroid Data

Supplemental centroid analysis for 005181455-02. Kepler magnitude: 15.47. Transit SNR 538.39

There are 17 quarters with good PRF difference image offsets

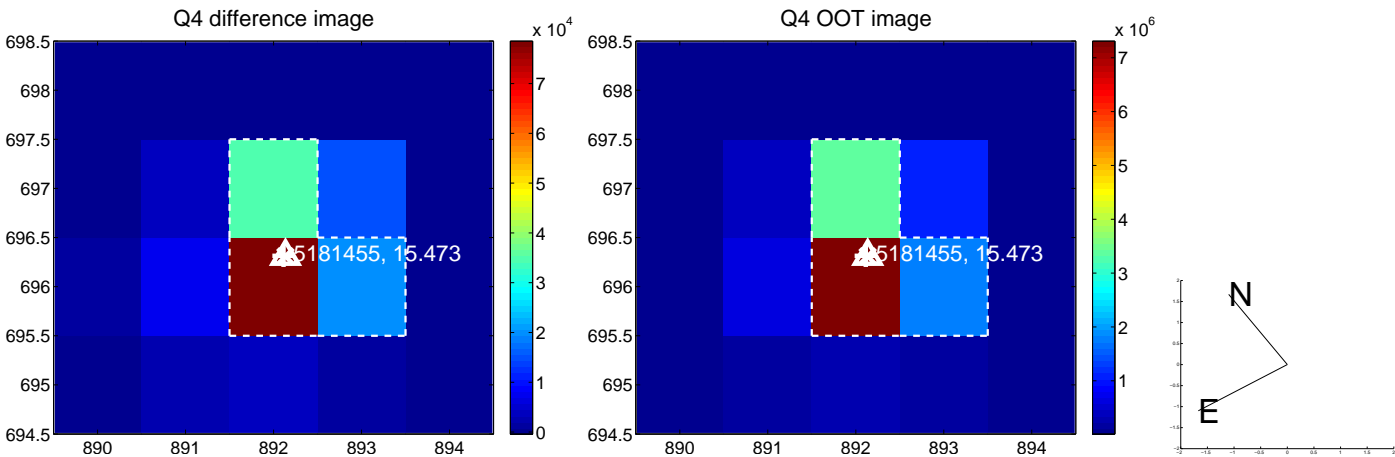
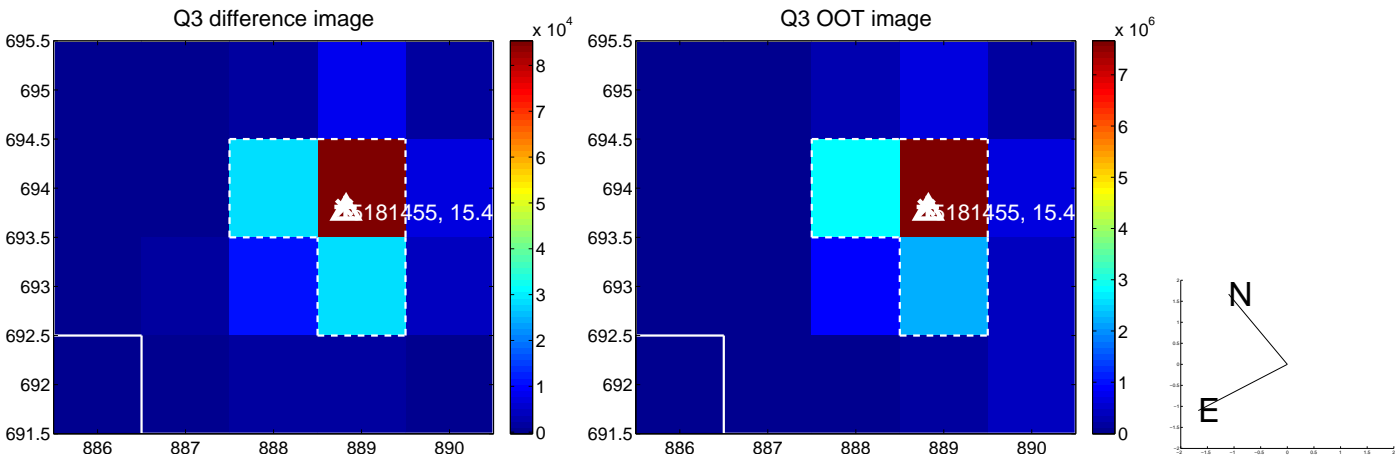
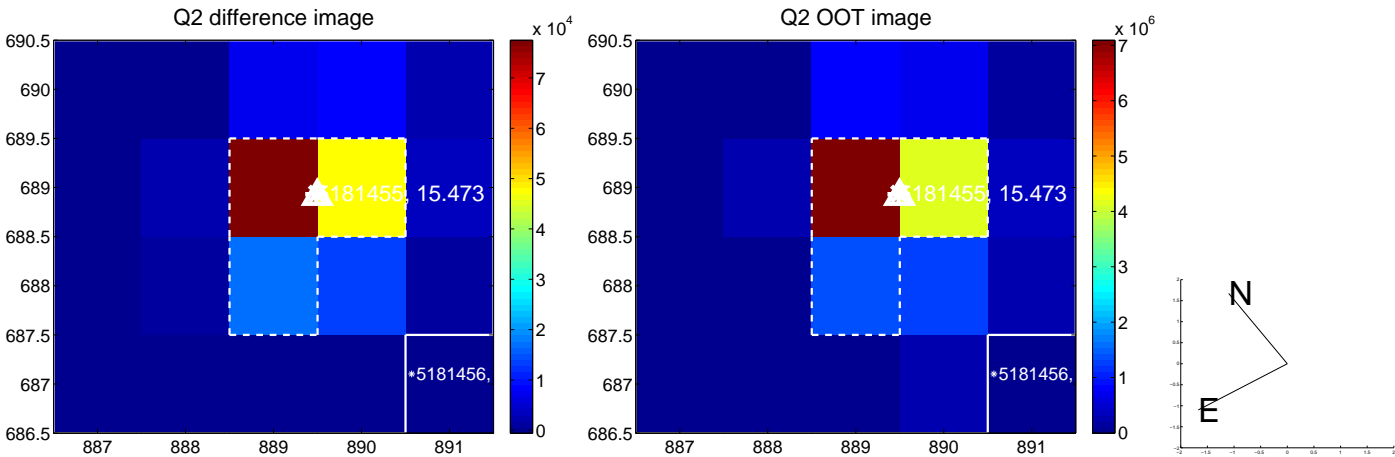
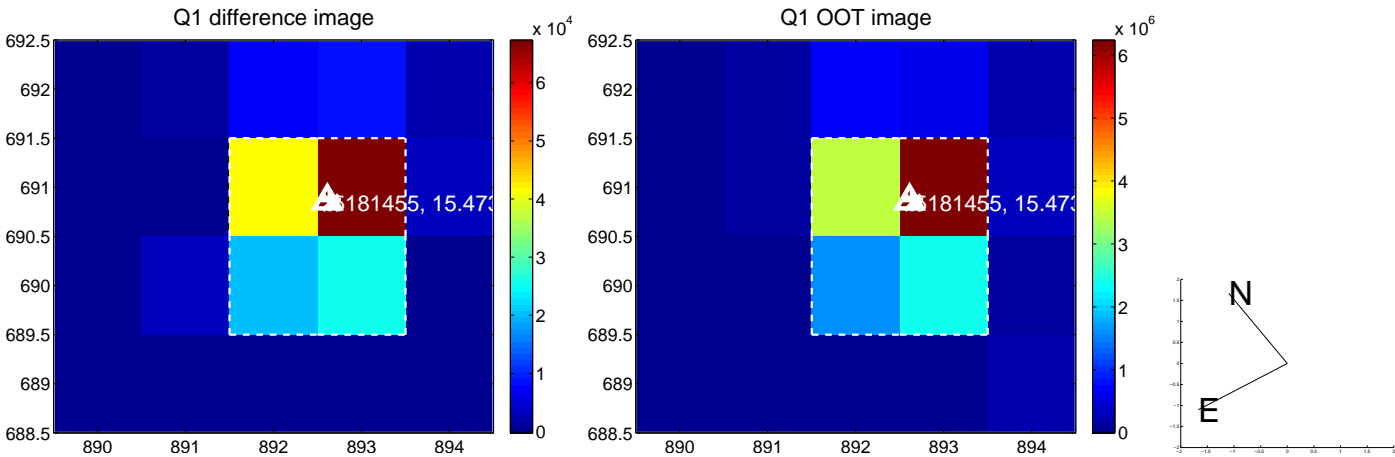
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.072 \pm 0.069$	1.05	$0.036 \pm 0.068$	$-0.063 \pm 0.069$
PRF-fit source offset from KIC position	$0.046 \pm 0.068$	0.67	$0.044 \pm 0.068$	$-0.012 \pm 0.074$
photometric centroid source offset	$0.11 \pm 0.02$	5.28	$0.10 \pm 0.02$	$-0.04 \pm 0.02$

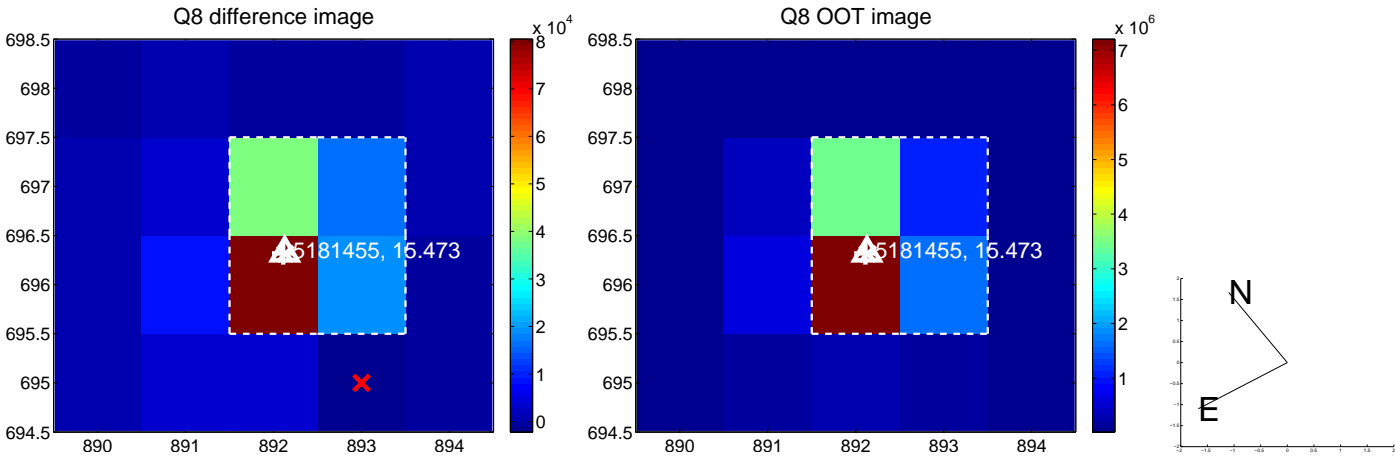
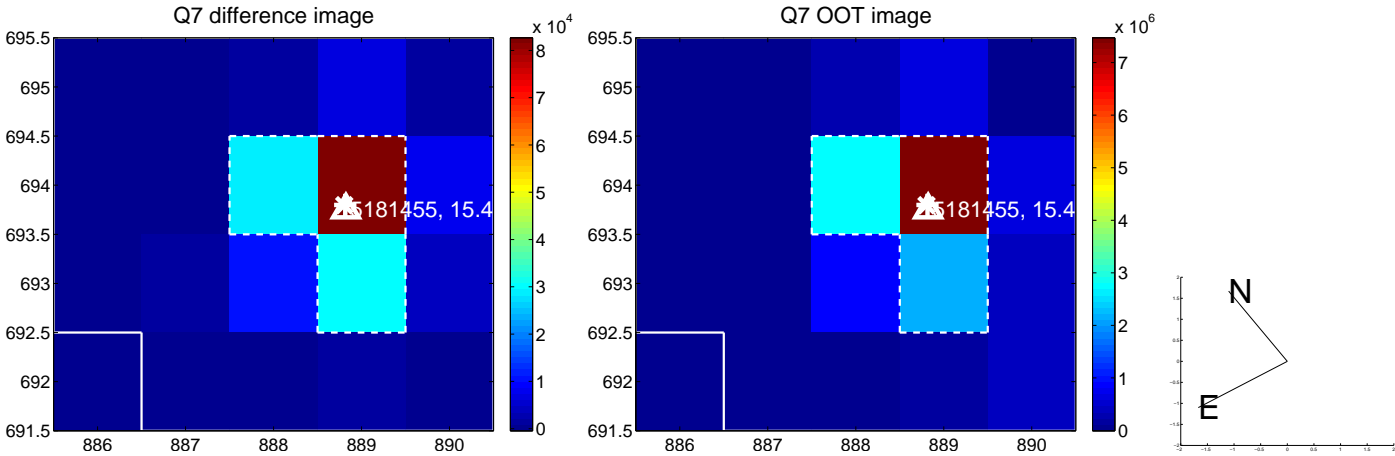
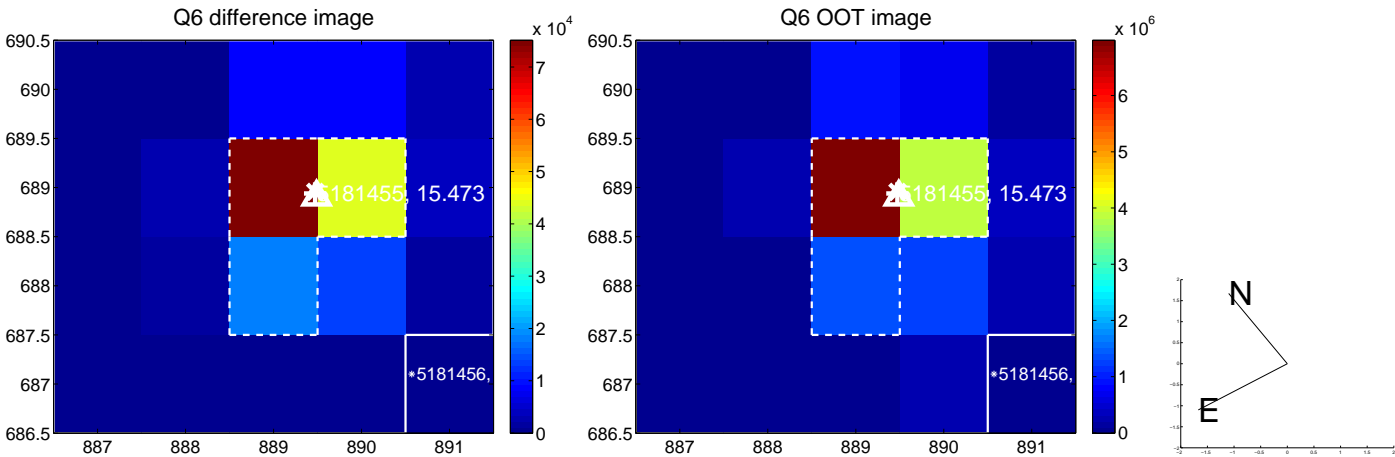
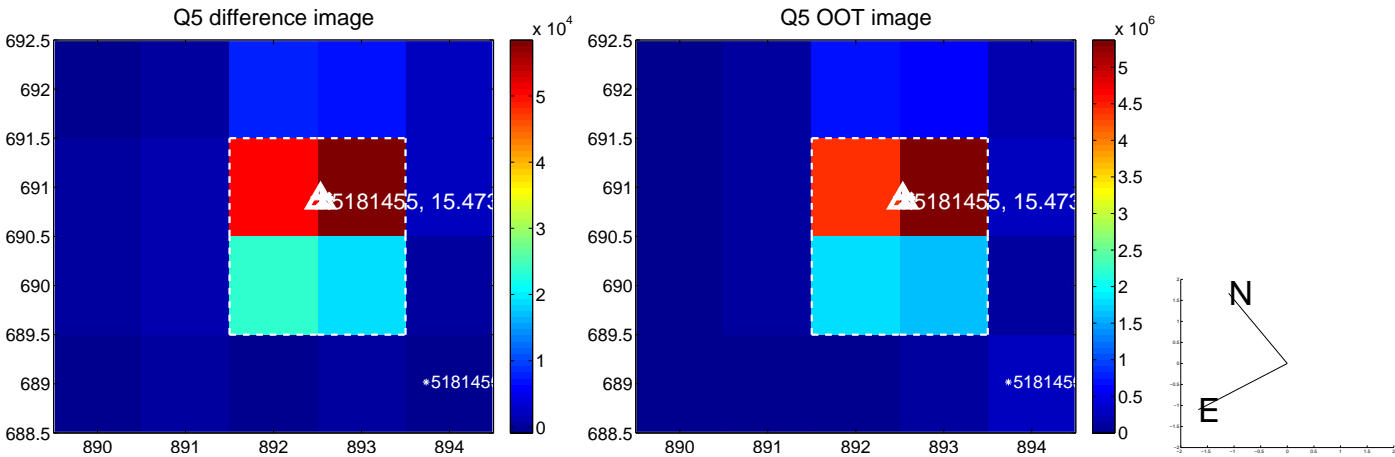


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

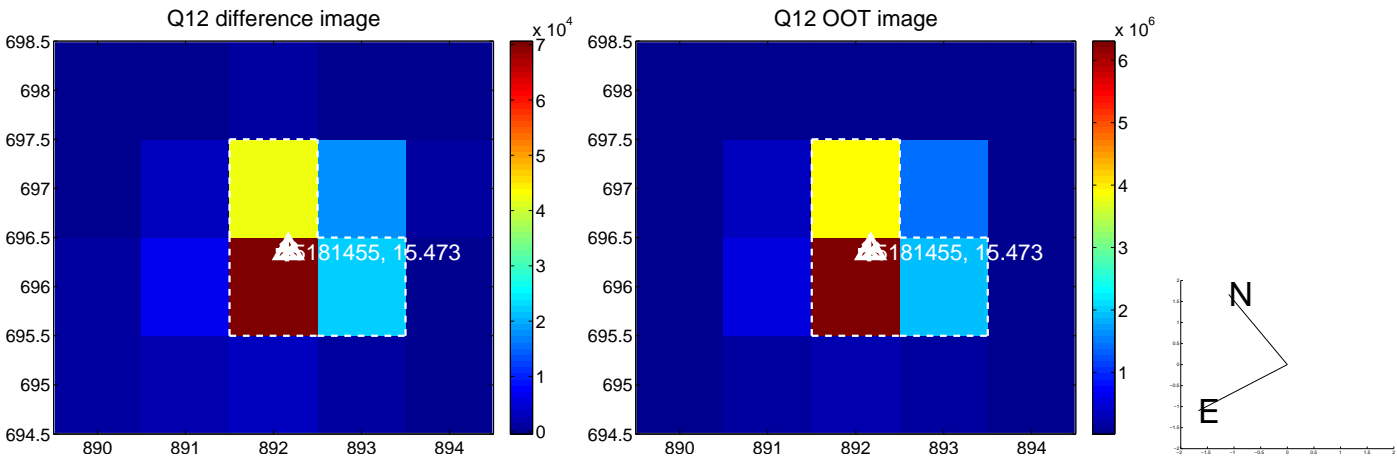
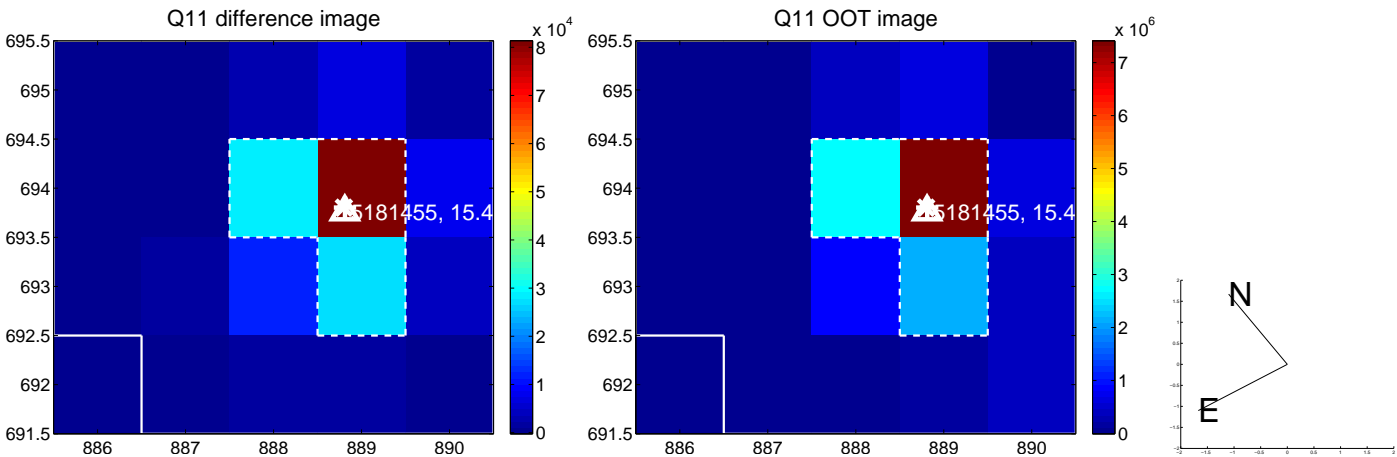
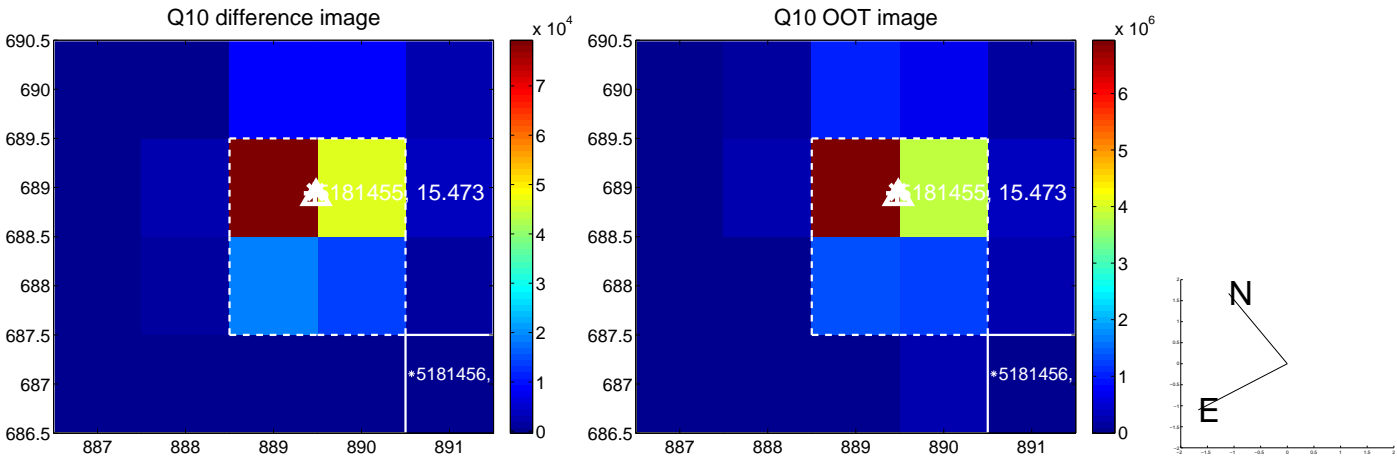
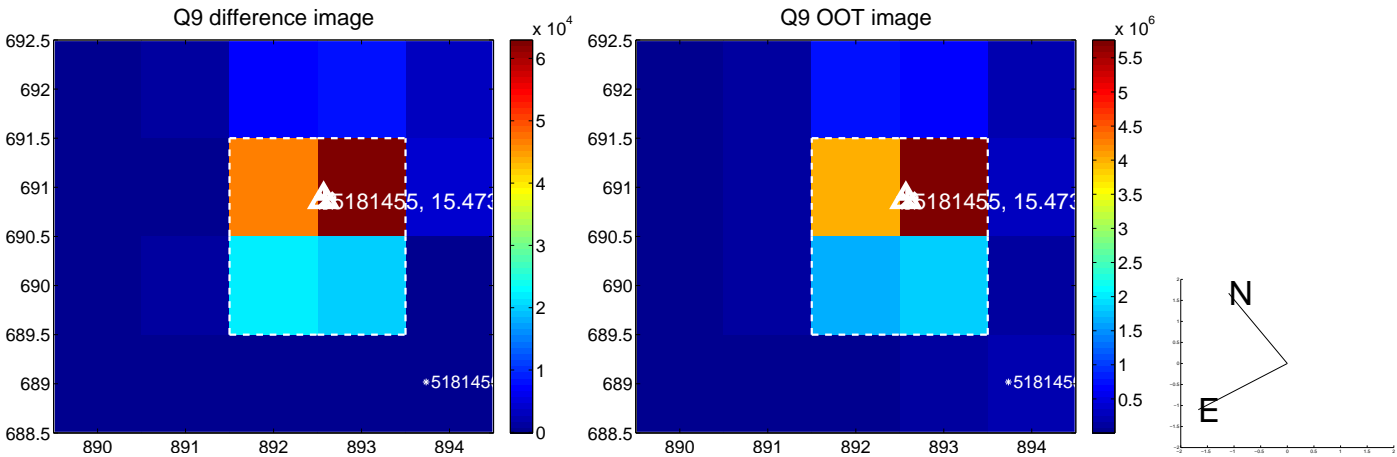
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

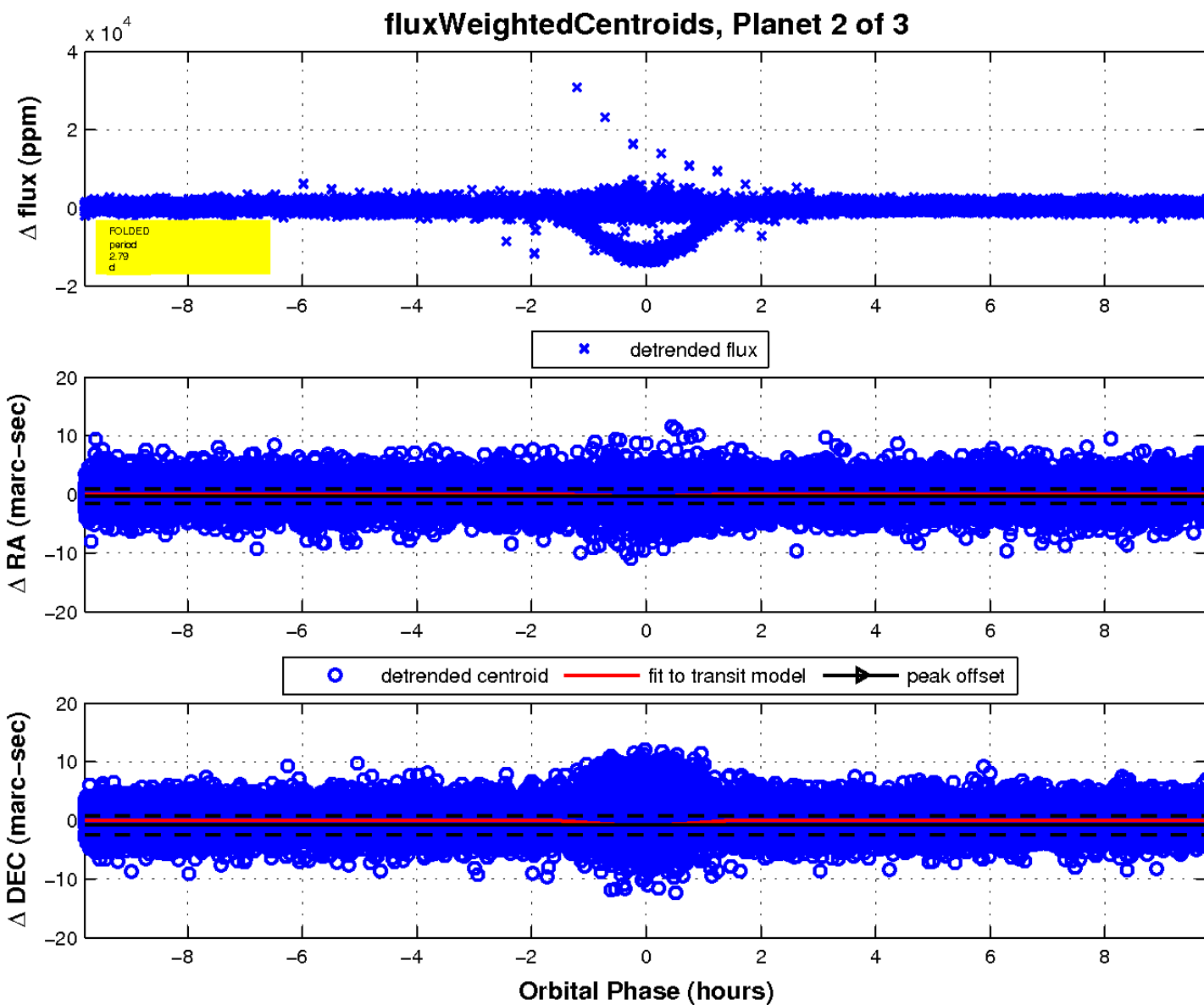
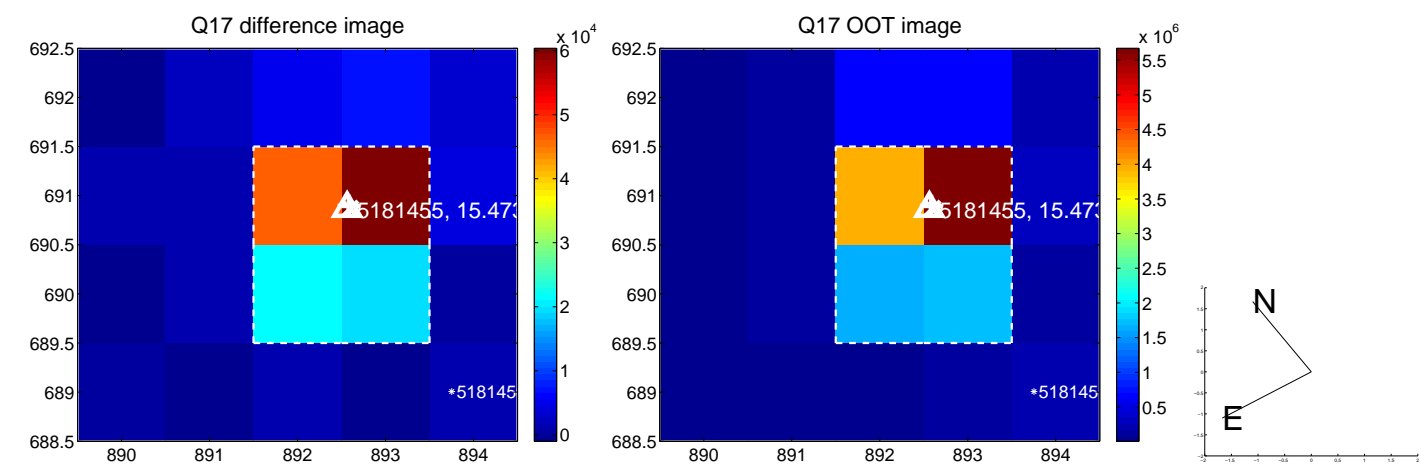


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



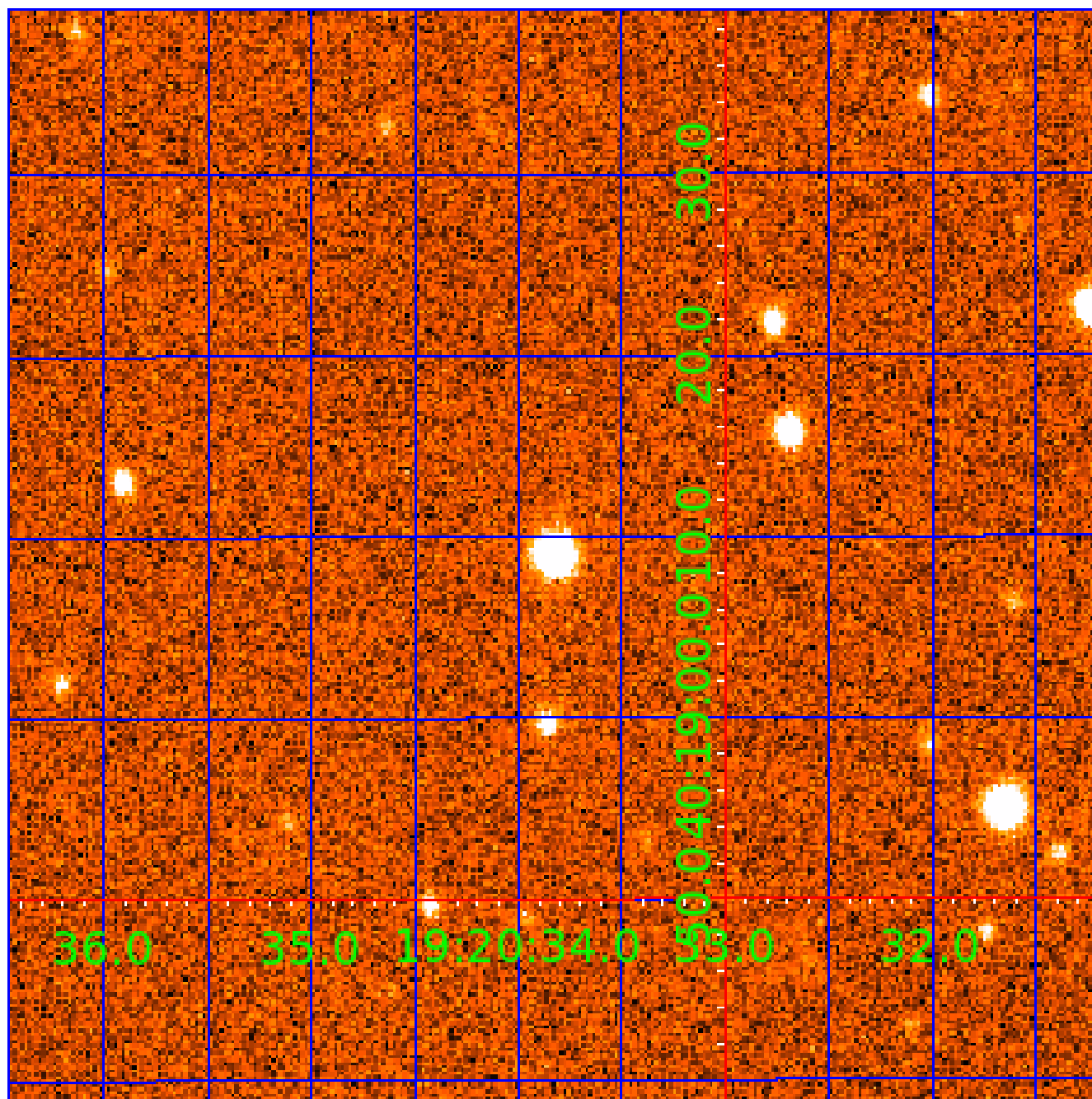


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination





# KIC 005181455

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005181455-01	OBS	6536.01	5.579631	133.553520	118247.6	3.412	5277.0	4091.3	1.02	6188	48.78	357.48
005181455-02	OBS	No	2.789812	133.554196	12203.2	3.266	561.1	538.4	1.02	6188	18.89	900.80
005181455-03	OBS	No	412.839646	518.205900	771.2	9.000	7.4	-1.0	1.02	6188	2.84	1.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005181455-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
005181455-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
005181455-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

**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.

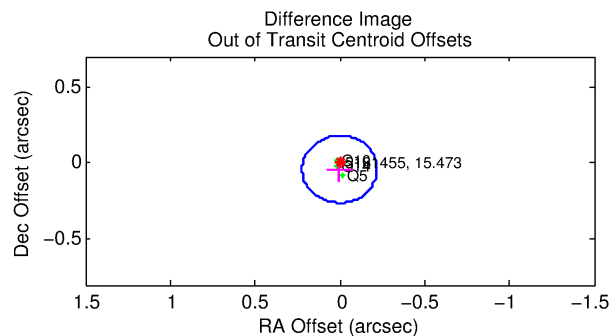
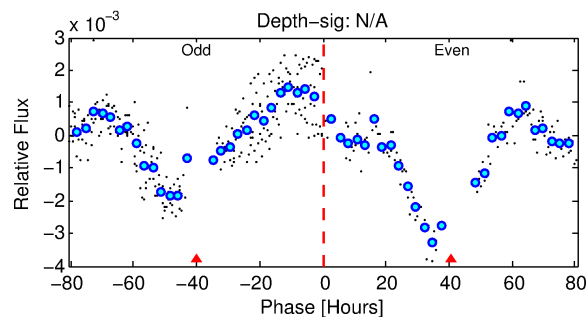
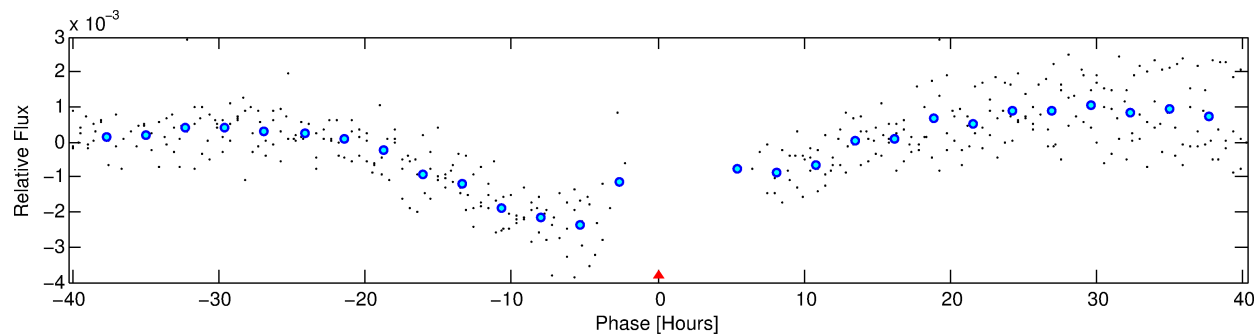
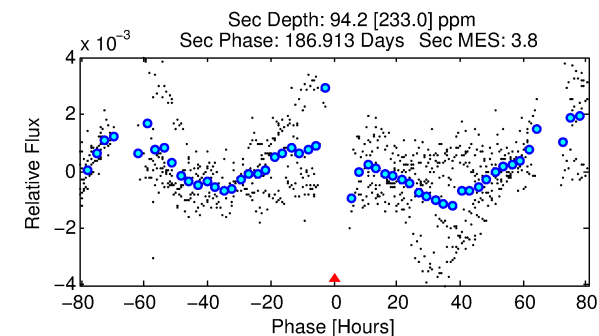
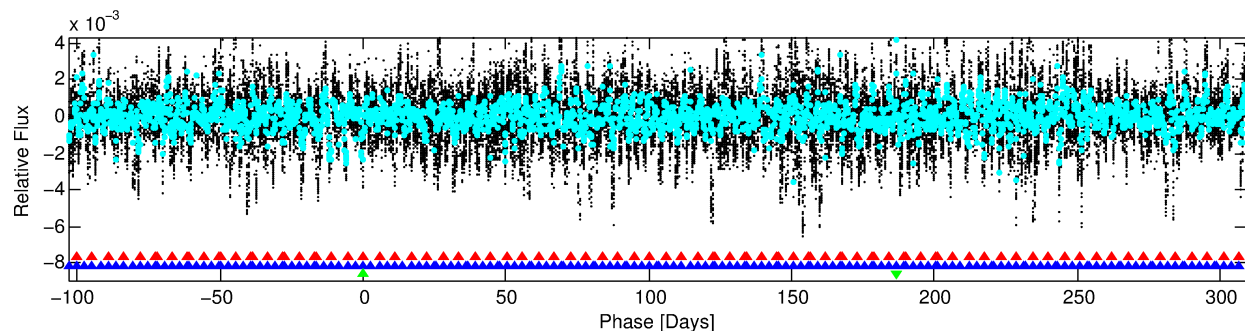
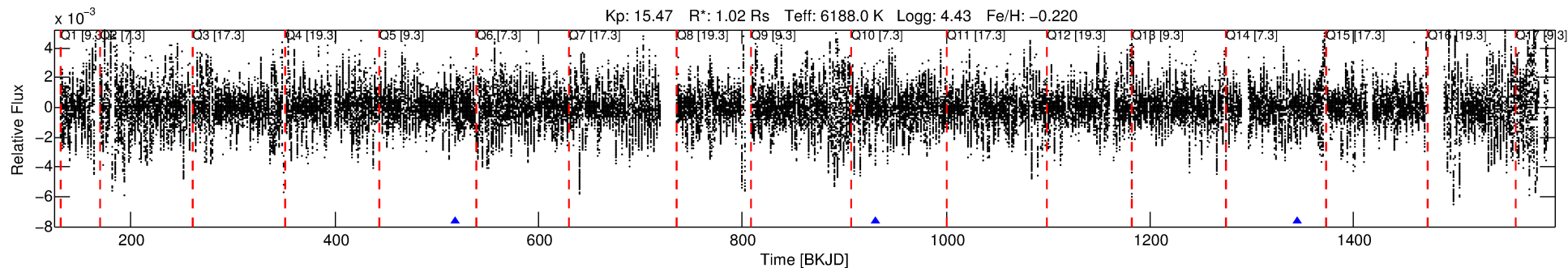
## Ephemeris Match Information For 005181455-03

No Significant Match Found

# DV One-Page Summary

KIC: 5181455 Candidate: 3 of 3 Period: 412.840 d  
KOI: K06536 Corr: No Ephemeris Match

Kp: 15.47 R\*: 1.02 Rs Teff: 6188.0 K Logg: 4.43 Fe/H: -0.220



## TPS TCE Results:

Period = 412.83965 d  
Epoch = 518.2059 BKJD

DV fit results are unavailable

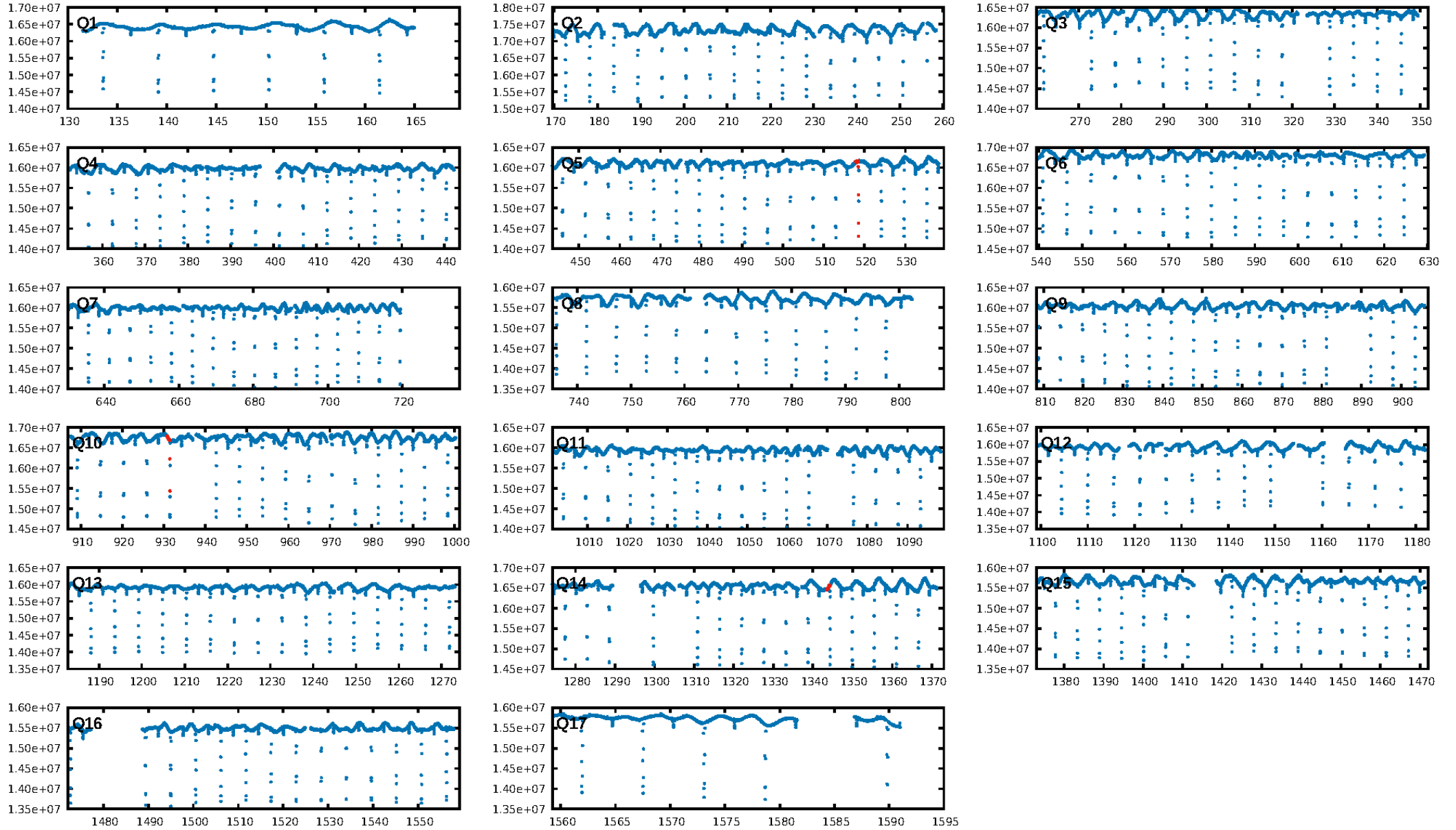
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1015.49σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.2911  
Centroid-sig: 0.6%  
Centroid-so: 0.741 arcsec [2.84σ]  
OotOffset-rm: 0.040 arcsec [0.54σ]  
KicOffset-rm: 0.014 arcsec [0.20σ]  
OotOffset-st: 2/0/0/1 [3]  
KicOffset-st: 2/0/0/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 0.00 [0/3]

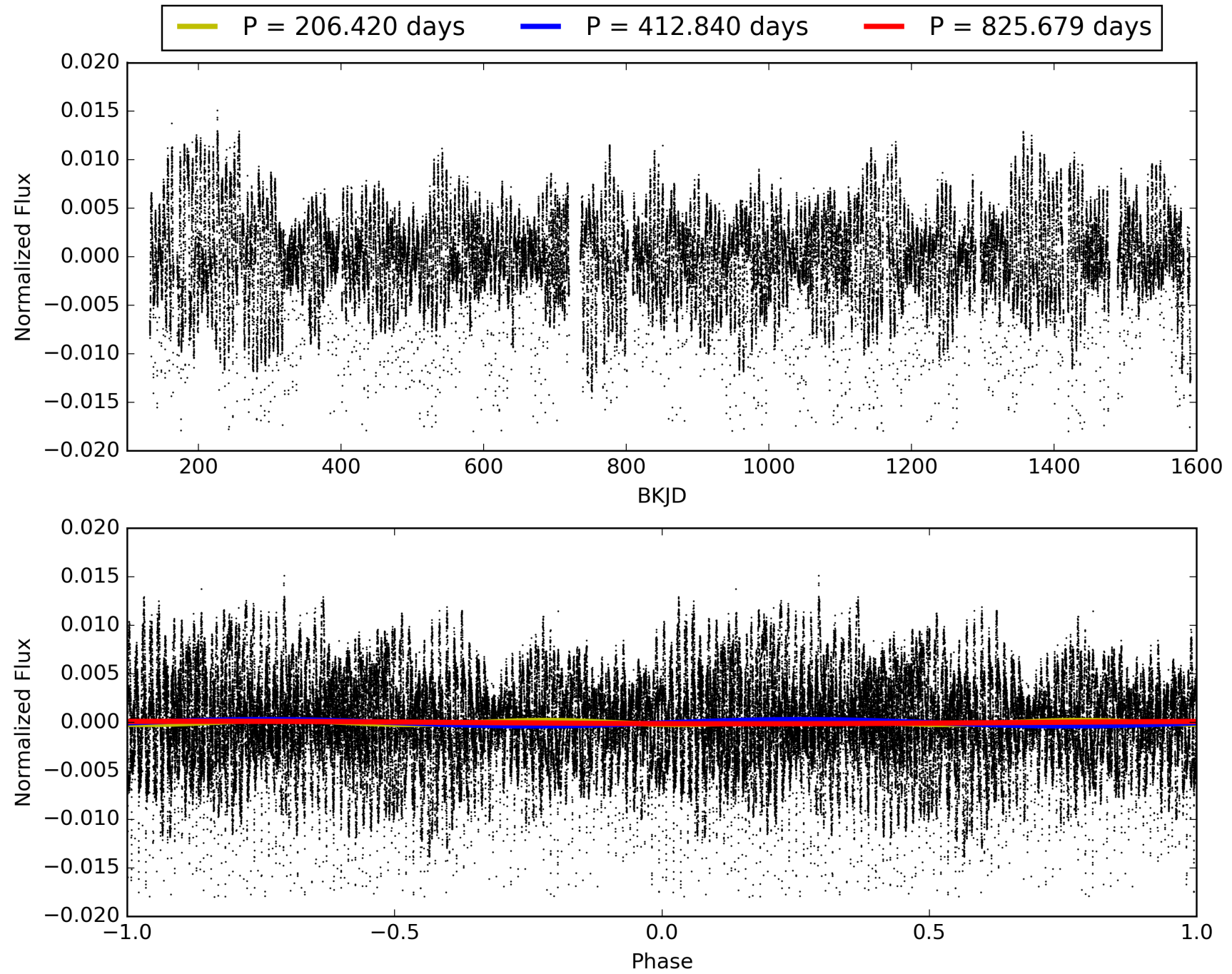
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:58:19 Z

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

# TCE 005181455-03, PDC Light Curves

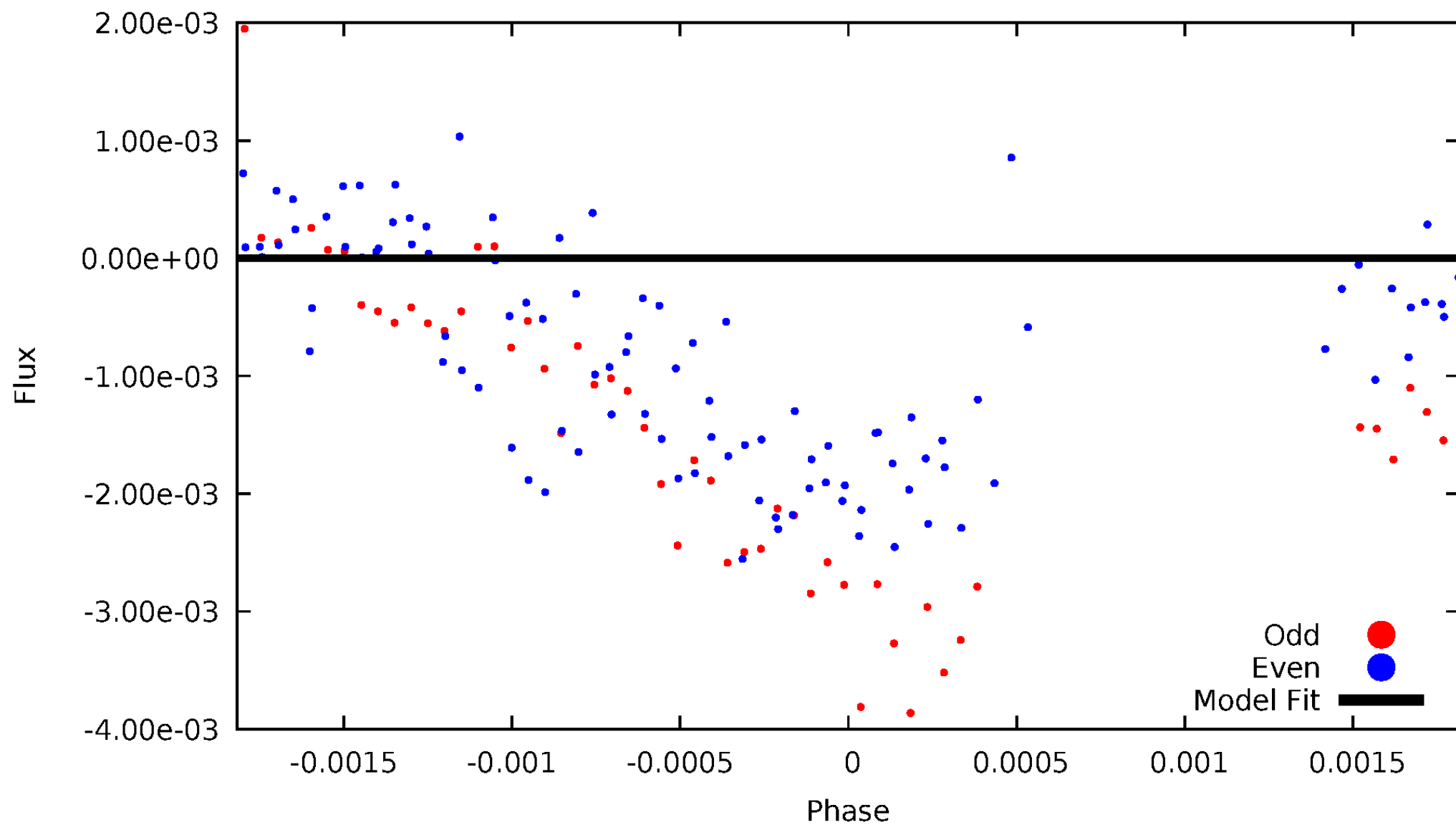


TCE 005181455-03



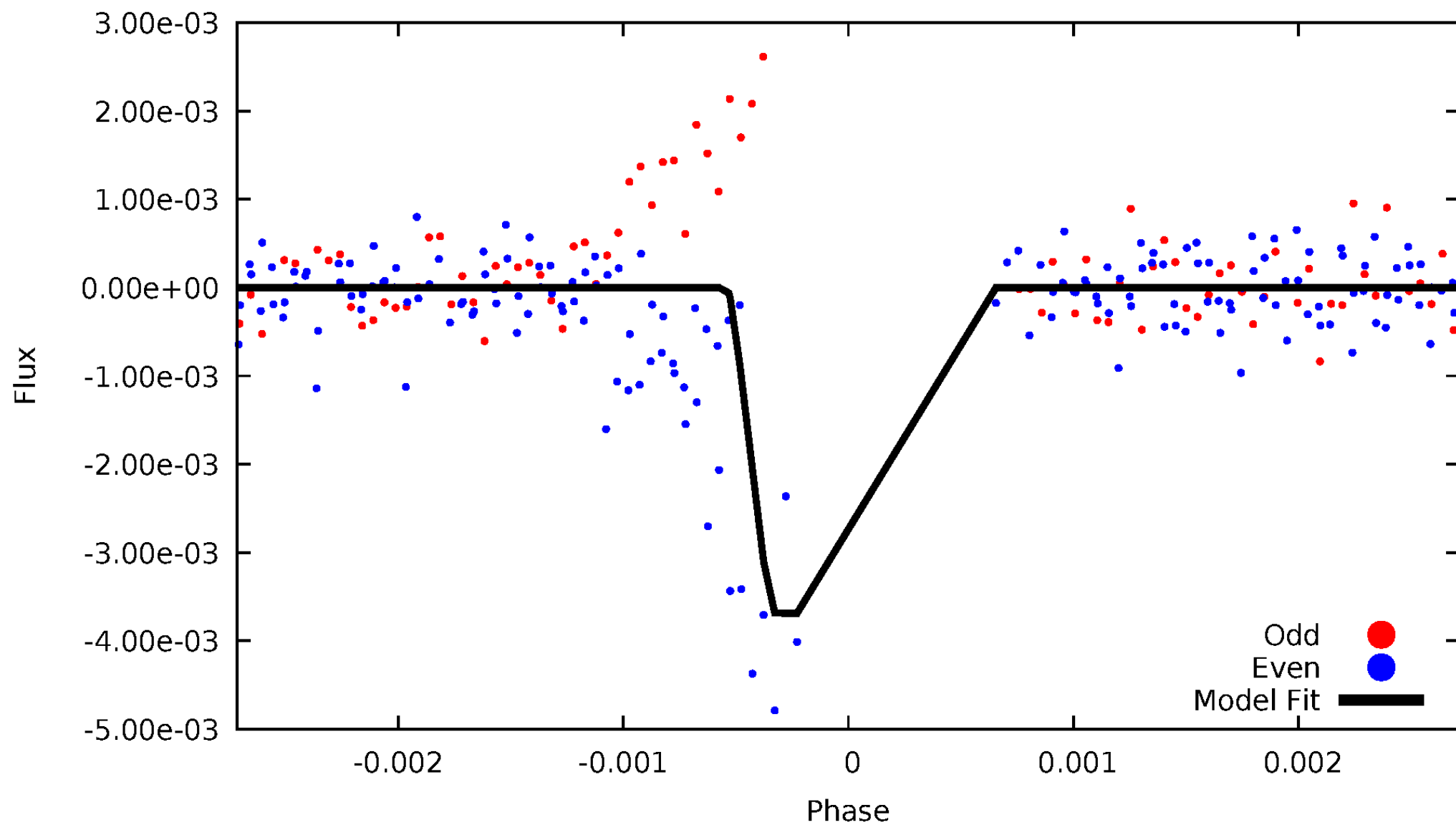
DV Odd/Even

TCE 005181455-03



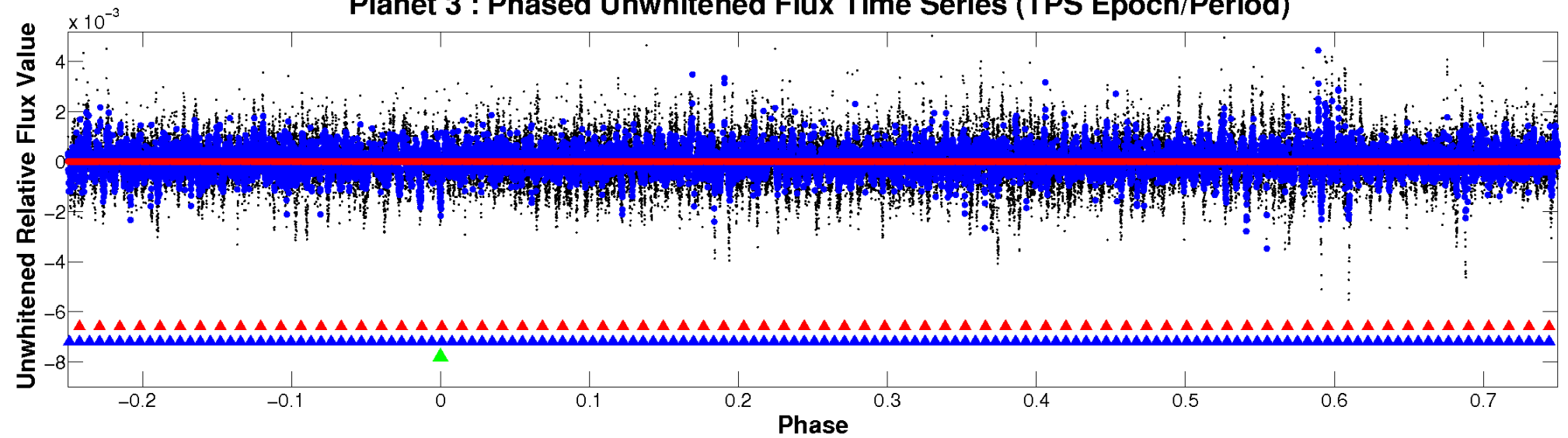
# ALT Odd/Even

TCE 005181455-03



# Non-Whitened Vs. Whitened Light Curve

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

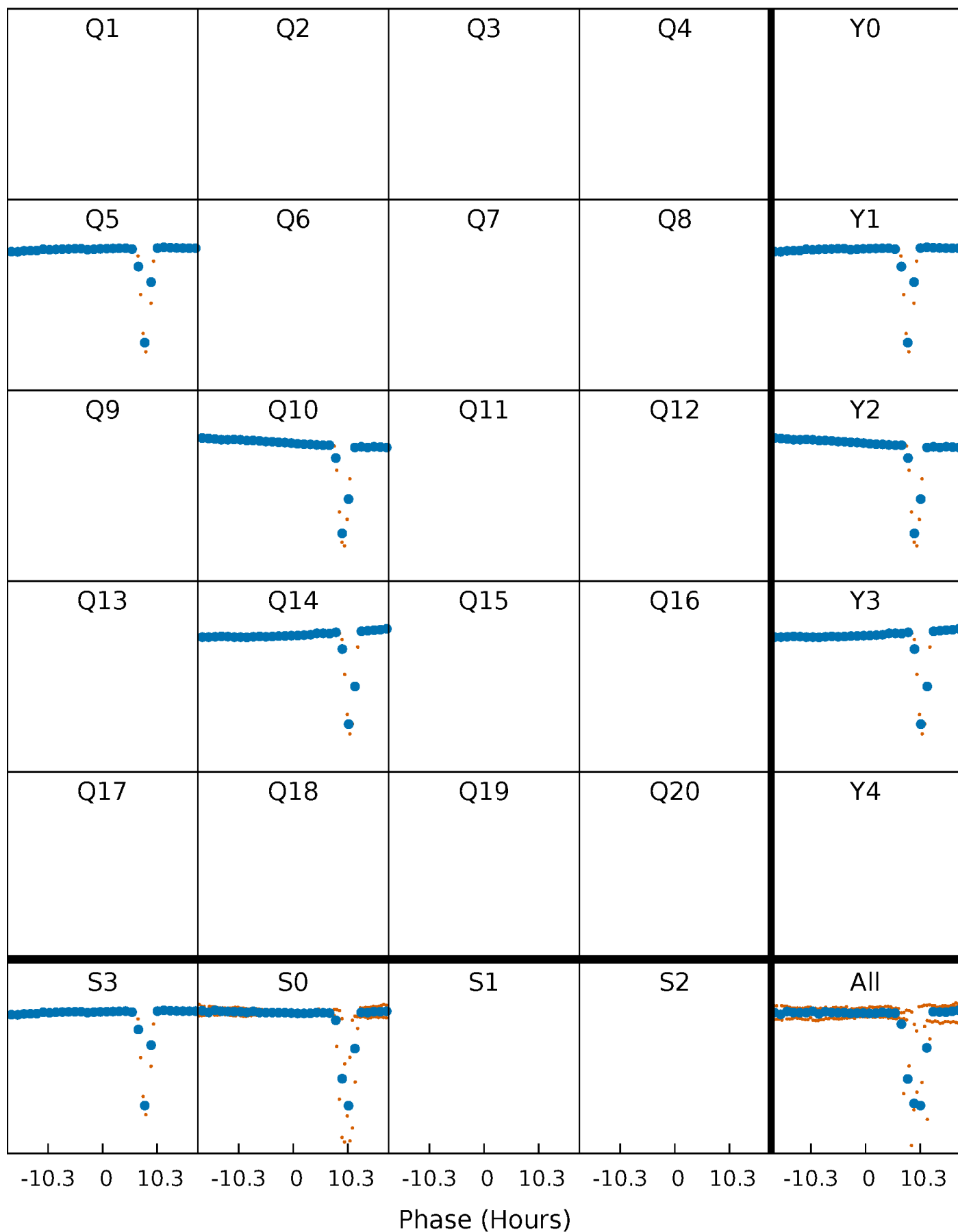


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



# PDC Quarter-Phased Transit Curves

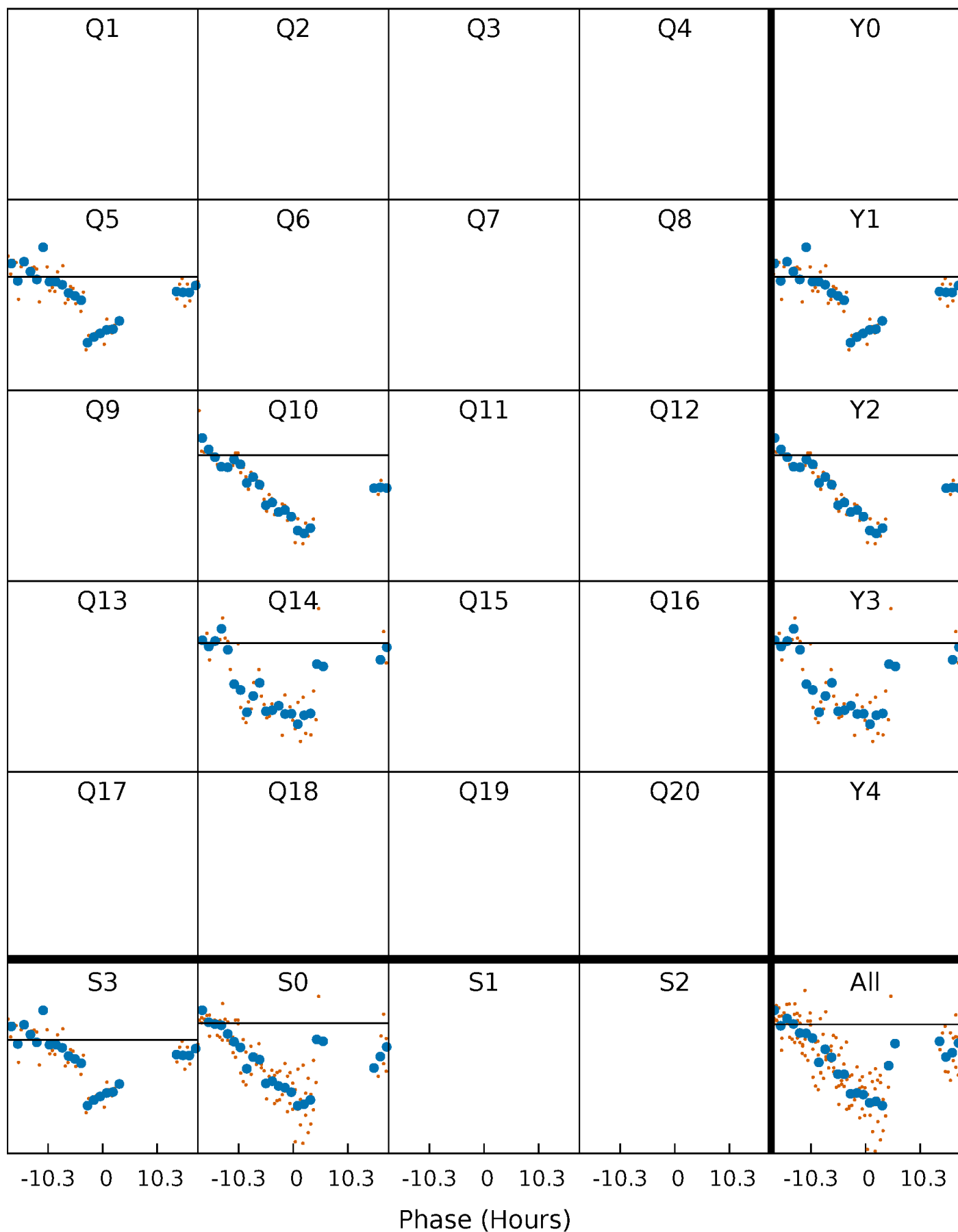
TCE 005181455-03 P=412.839646 Days  $T_0=518.205900$  (BKJD)





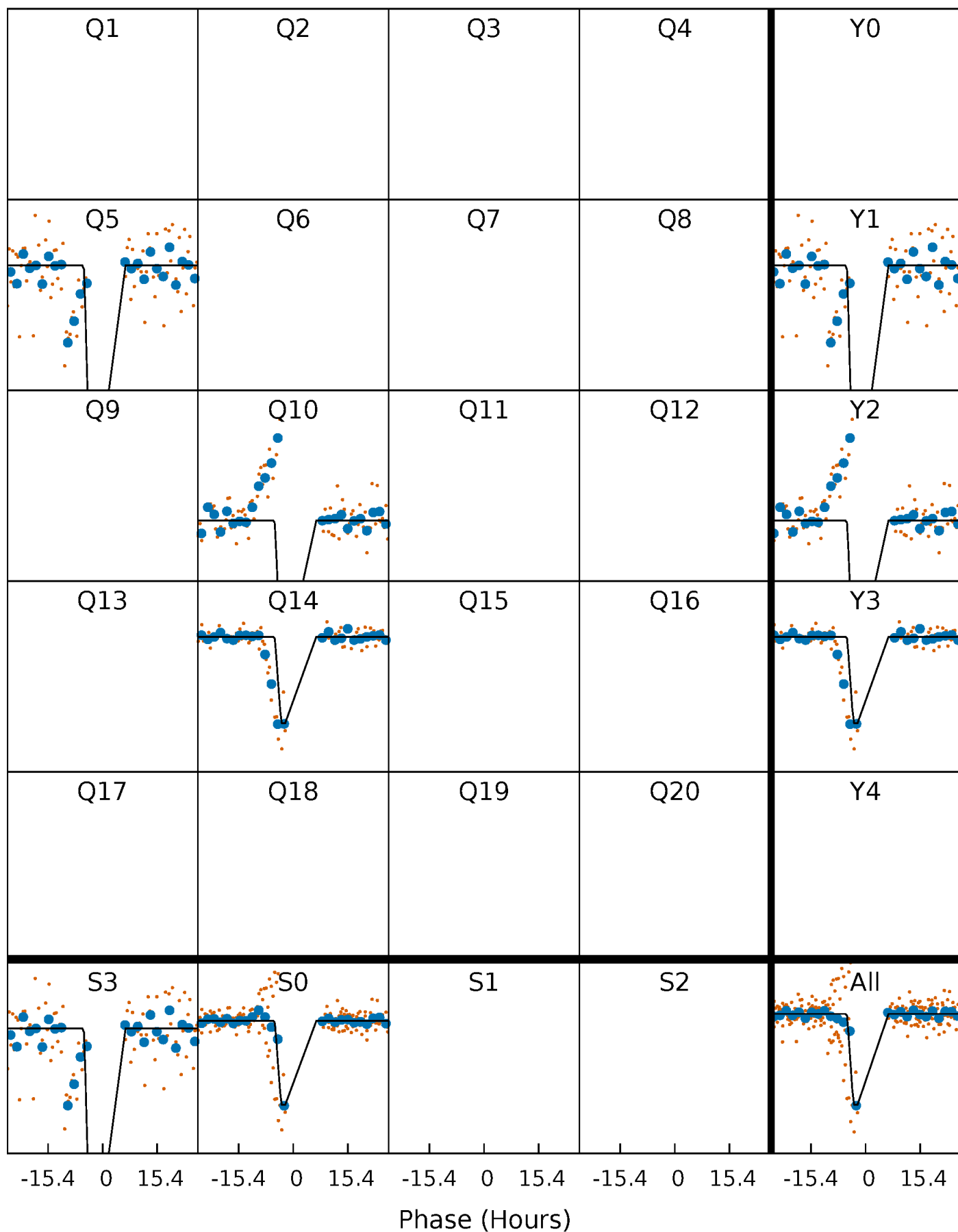
# DV Quarter-Phased Transit Curves

TCE 005181455-03     $P=412.839646$  Days     $T_0=518.205900$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

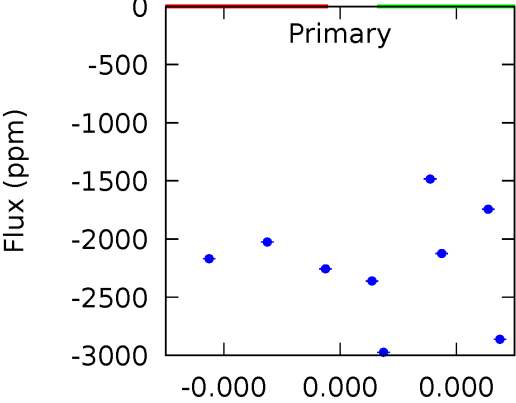
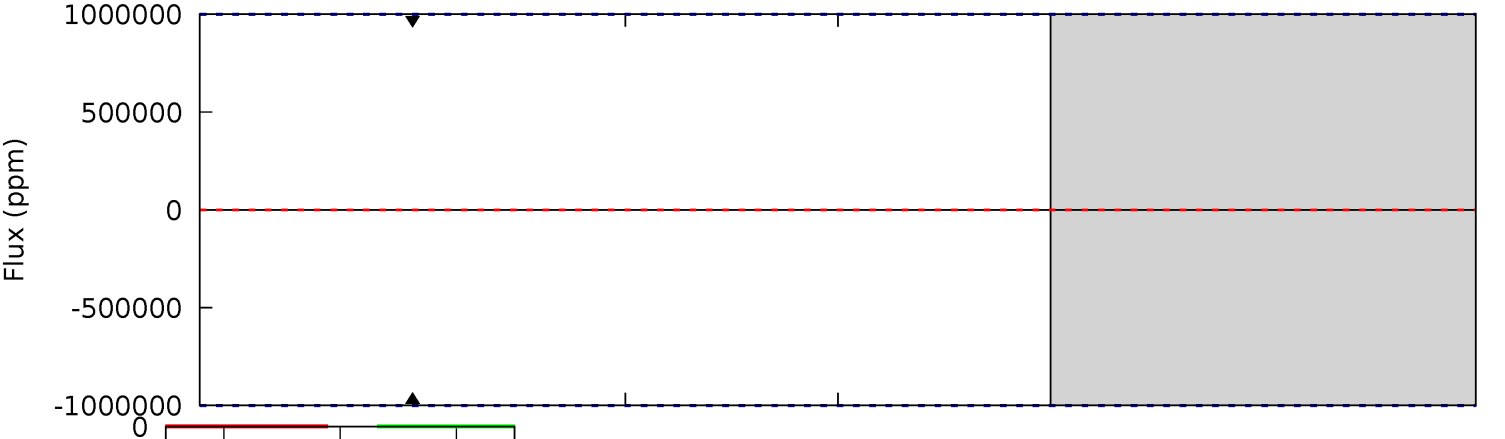
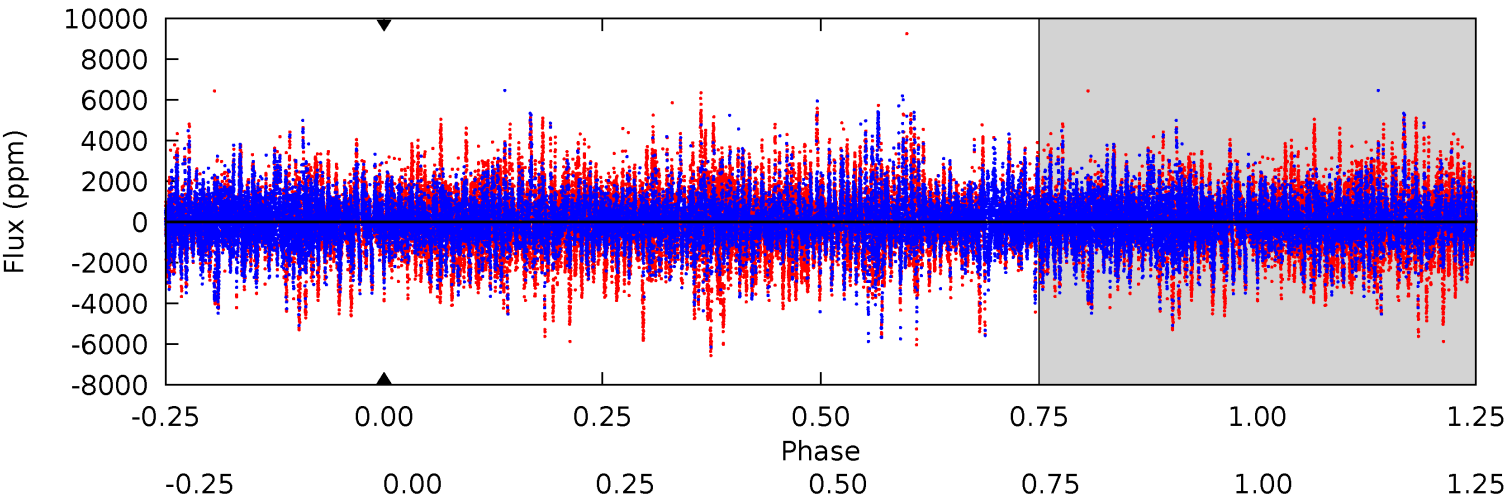
TCE 005181455-03 P=412.839646 Days  $T_0=518.520489$  (BKJD)



# DV Model-Shift Uniqueness Test

005181455-03, P = 412.839646 Days, E = 105.366254 Days

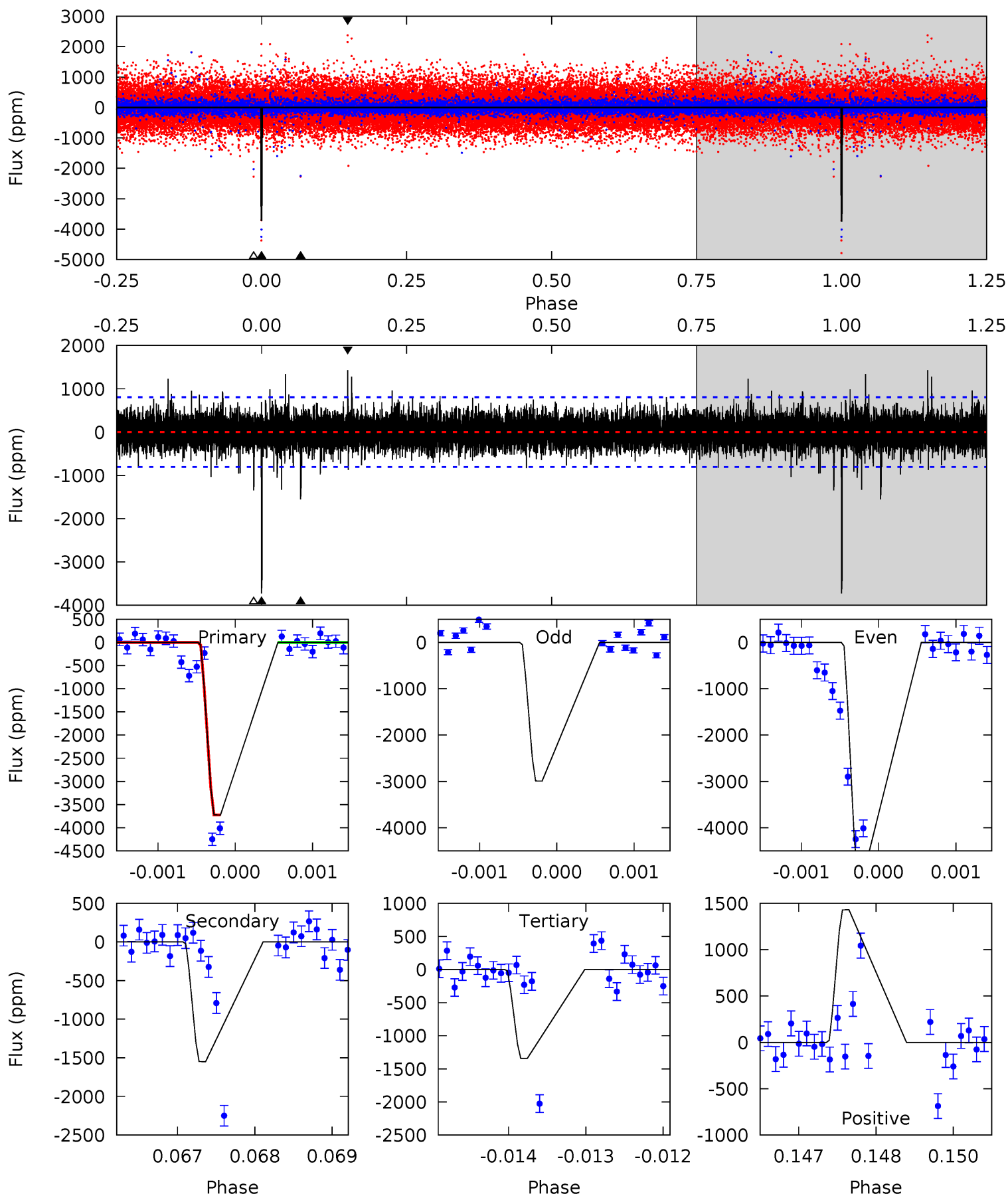
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

005181455-03, P = 412.839646 Days, E = 105.680843 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
25.1	10.4	9.04	9.62	5.42	3.24	1.34	16.0	15.4	1.39	0.81	8.08	0	0.28	0



### Stellar Parameters For KIC 005181455

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6188^{+175}_{-241}$	$4.427^{+0.072}_{-0.203}$	$-0.220^{+0.250}_{-0.300}$	$1.022^{+0.326}_{-0.116}$	$1.013^{+0.160}_{-0.120}$	$1.338^{+0.521}_{-0.721}$
	+3%/-4%	+2%/-5%	+114%/-136%	+32%/-11%	+16%/-12%	+39%/-54%
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 005181455-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$9.10^{+10.15}_{-6.26}$	$375^{+27}_{-21}$	$3302^{+20007}_{-23890}$	$2044^{+1457956}_{-1166041}$
Alt.	$-1549 \pm 149$	$11.19^{+9.44}_{-7.67}$	$374^{+27}_{-20}$	$4210^{+2873}_{-793}$	$8133^{+73755}_{-5815}$

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

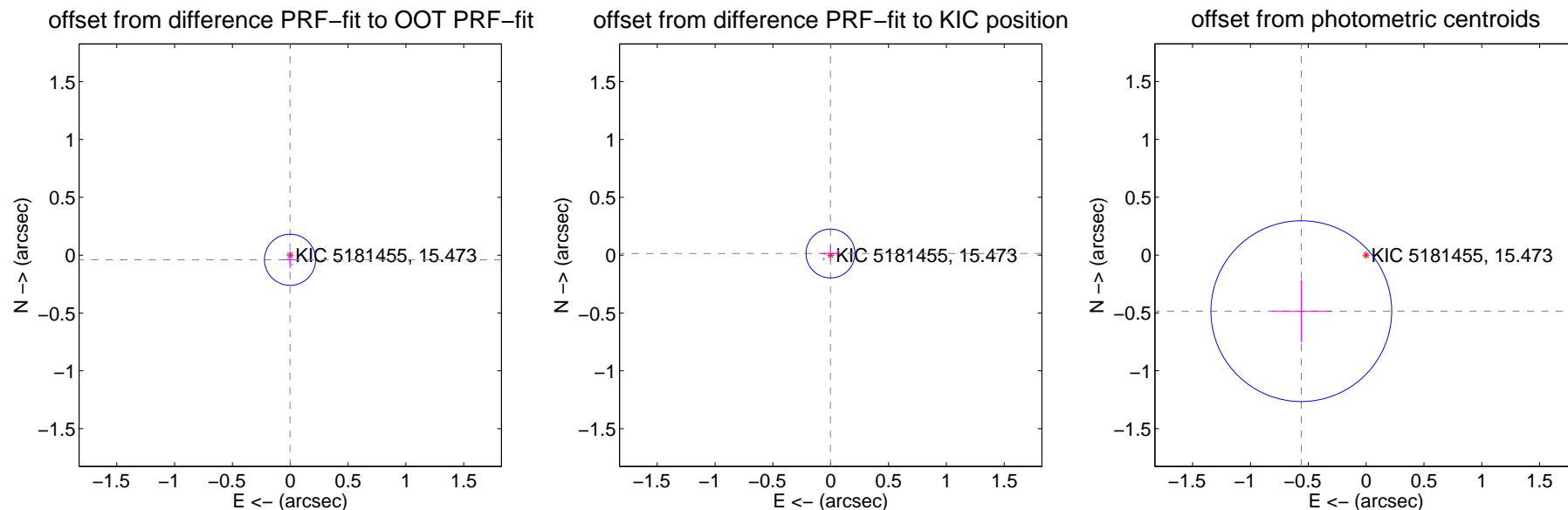
## DV Centroid Data

Supplemental centroid analysis for 005181455-03. Kepler magnitude: 15.47. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.040 \pm 0.074$	0.54	$0.002 \pm 0.068$	$-0.040 \pm 0.074$
PRF-fit source offset from KIC position	$0.014 \pm 0.070$	0.20	$0.002 \pm 0.085$	$0.014 \pm 0.070$
photometric centroid source offset	$0.74 \pm 0.26$	2.84	$0.56 \pm 0.26$	$-0.48 \pm 0.27$

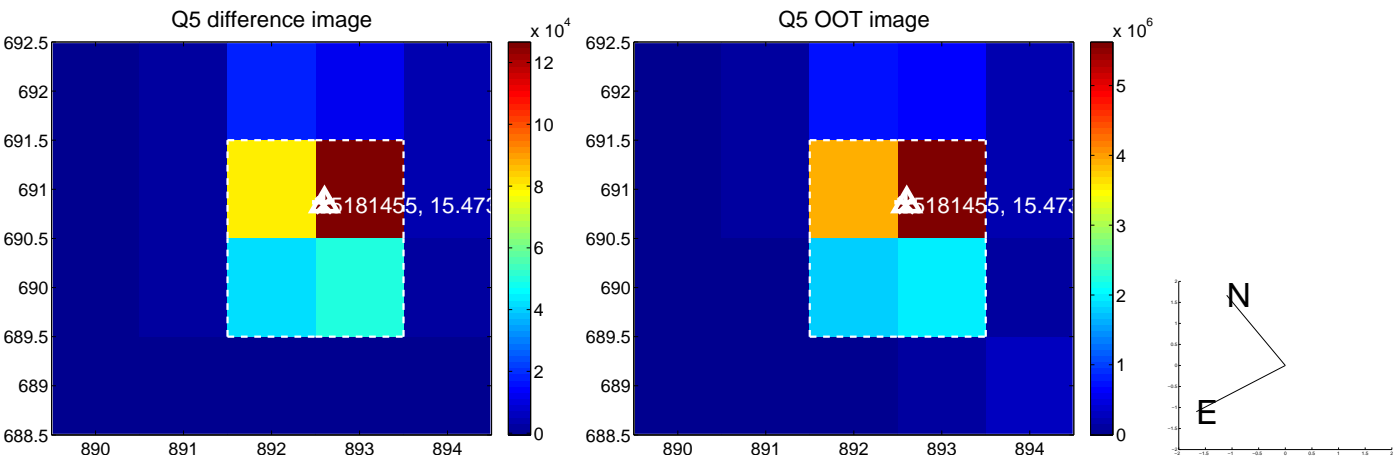


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



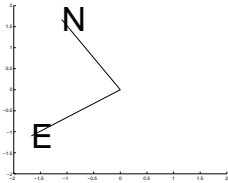
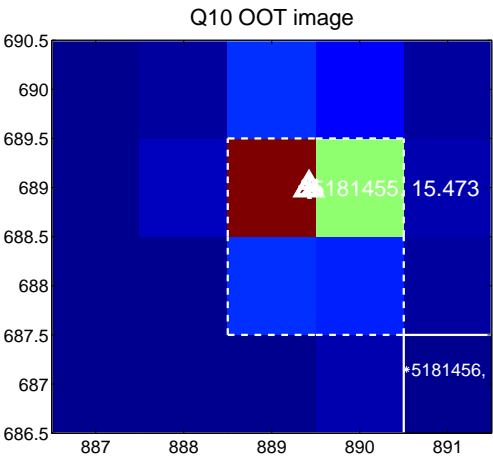
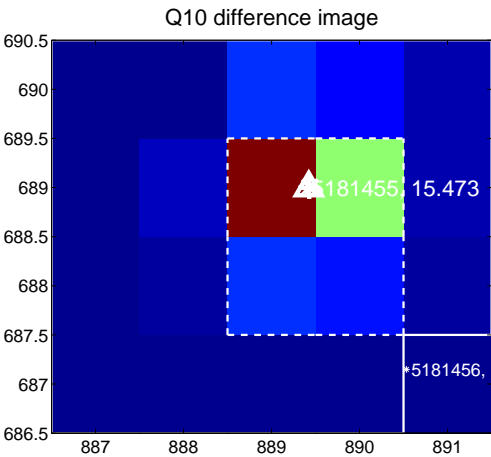


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

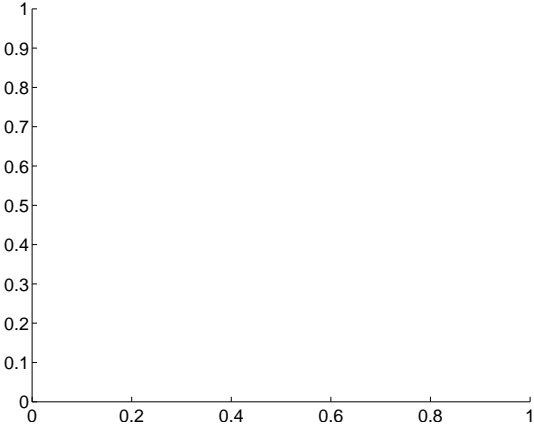
Q9 no difference image



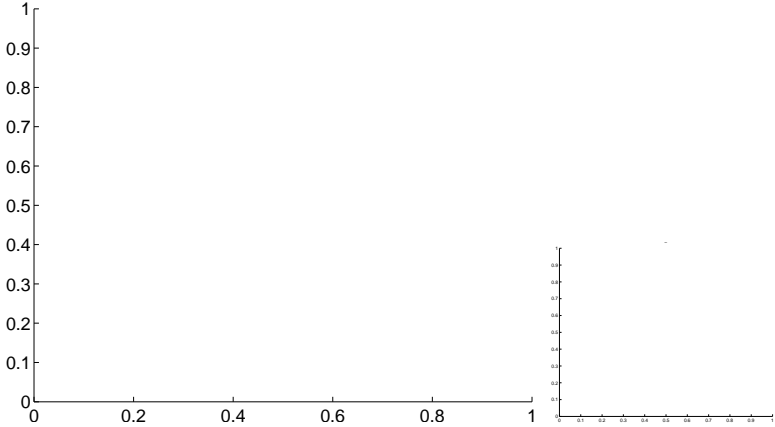
Q9 no OOT image



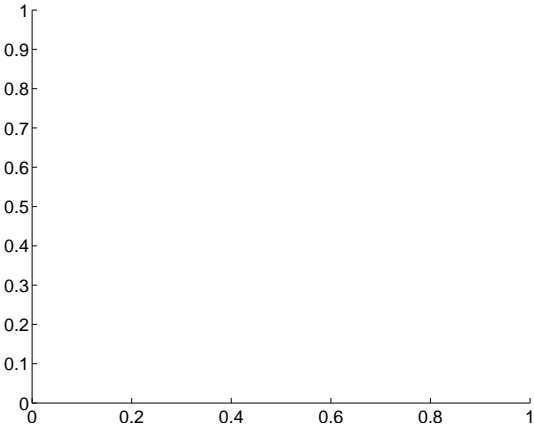
Q11 no difference image



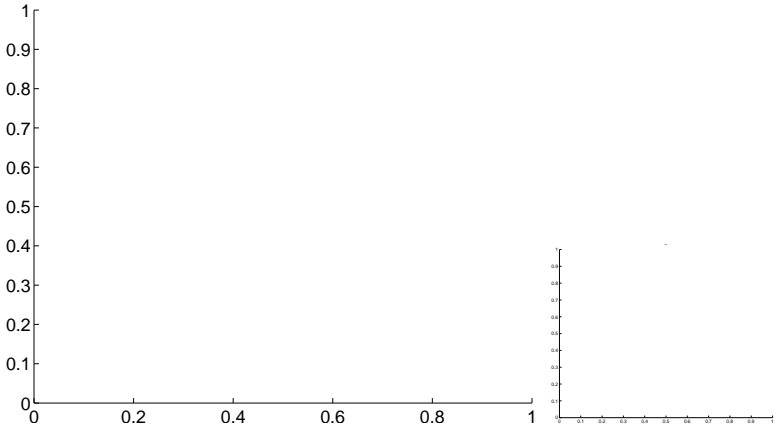
Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

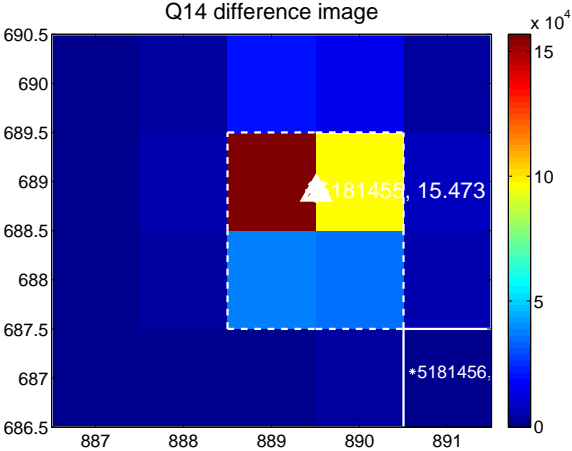
Q13 no difference image



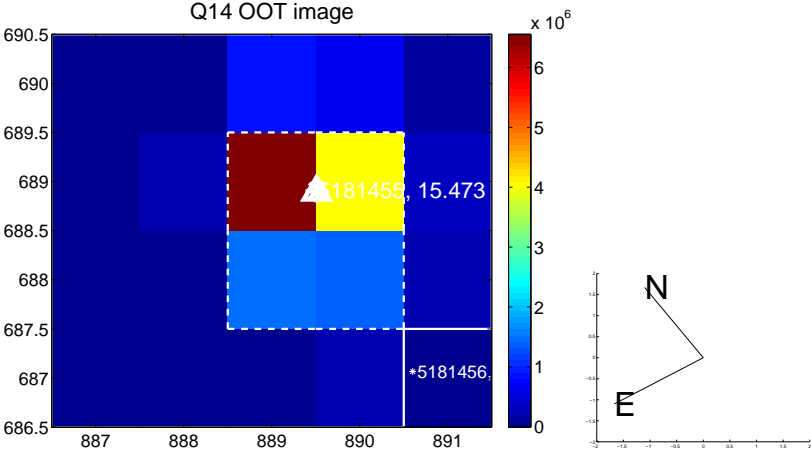
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



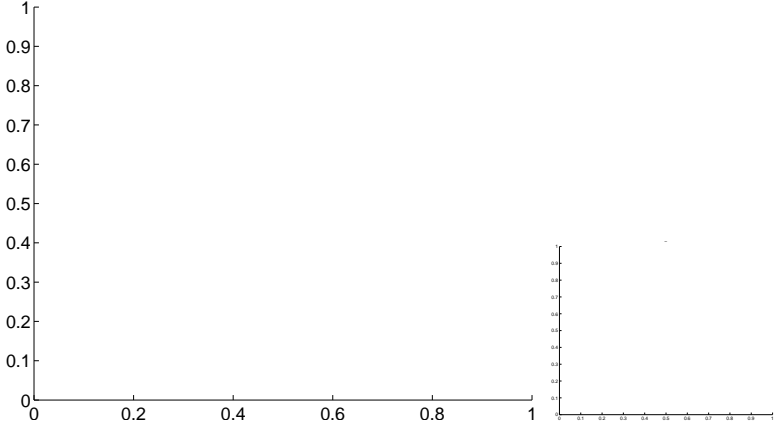
Q15 no OOT image



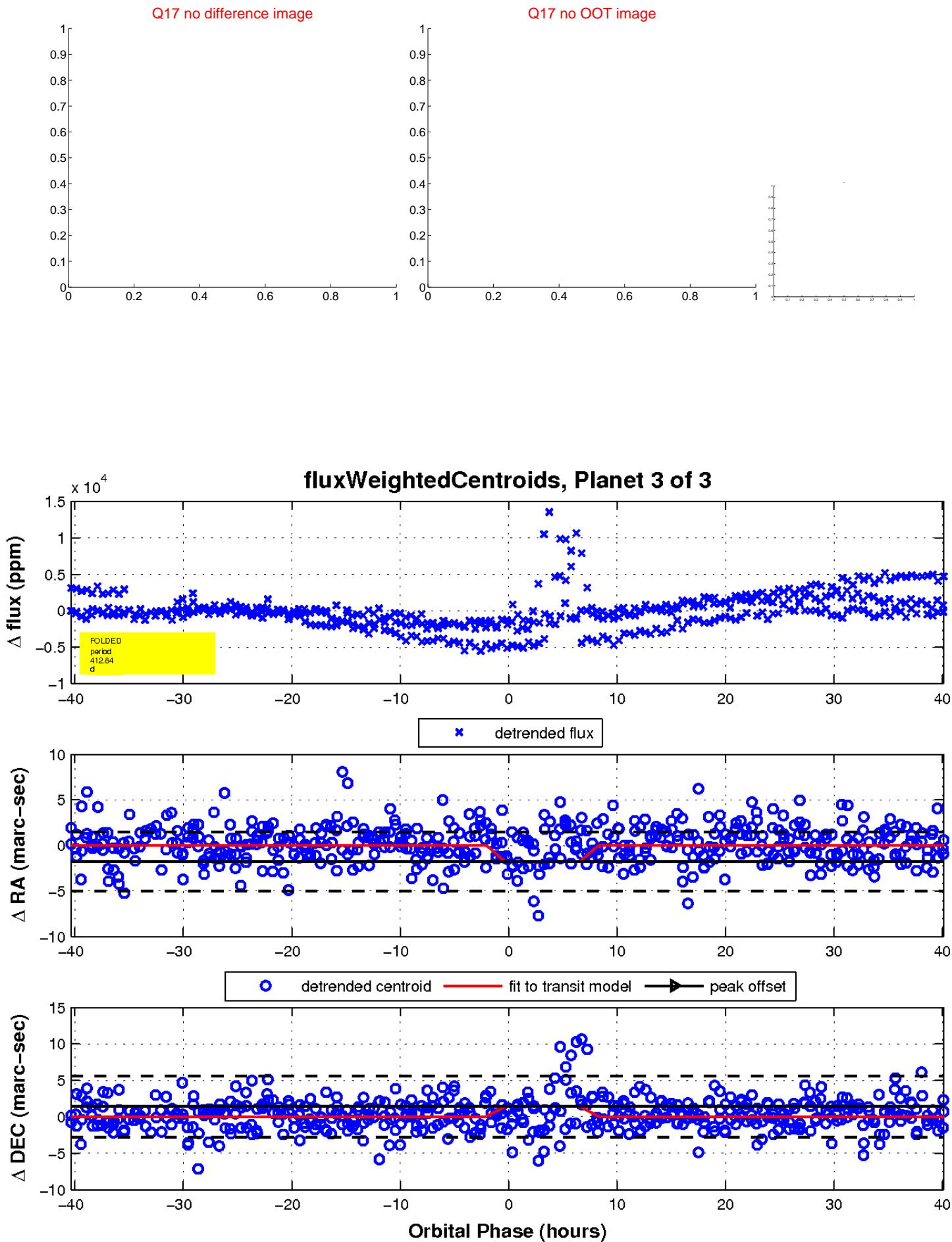
Q16 no difference image



Q16 no OOT image



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



# UKIRT Image

Declination

