

# KIC 011401755

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011401755-01	OBS	0277.01	16.231674	139.219617	484.0	7.976	110.0	123.0	1.58	5919	3.85	174.35
011401755-02	OBS	0277.02	13.849734	141.678718	64.7	14.822	16.7	17.7	1.58	5919	2.67	215.44
011401755-03	OBS	No	563.109855	318.649753	145.7	18.927	17.6	8.3	1.58	5919	1.98	1.54

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011401755-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011401755-02	OBS	FP	0.06	1	0	0	0	LPP_DV
011401755-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

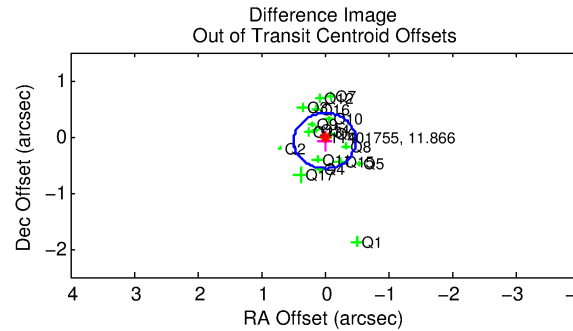
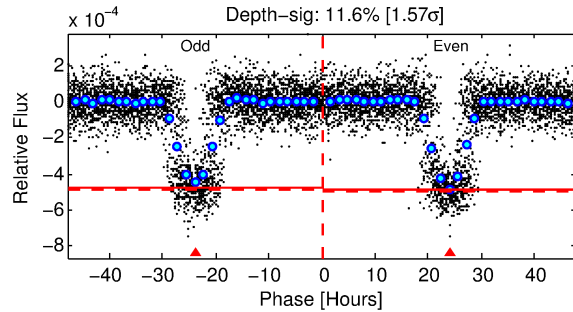
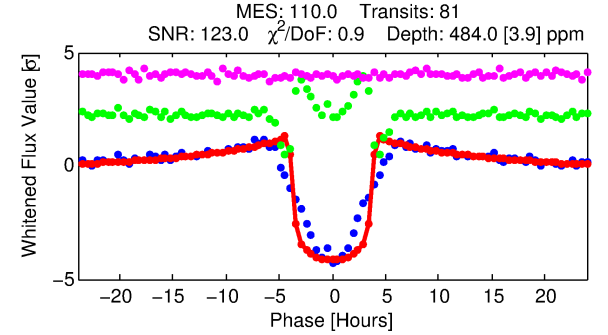
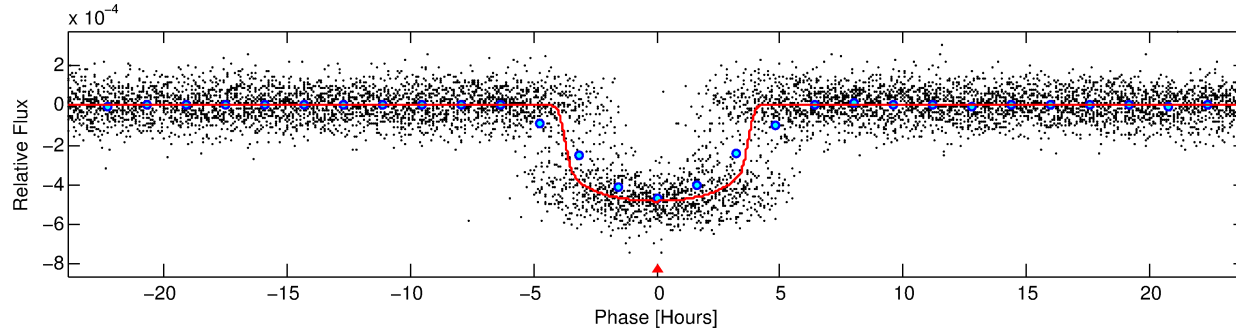
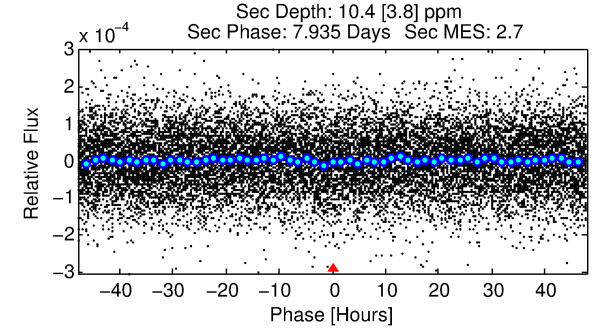
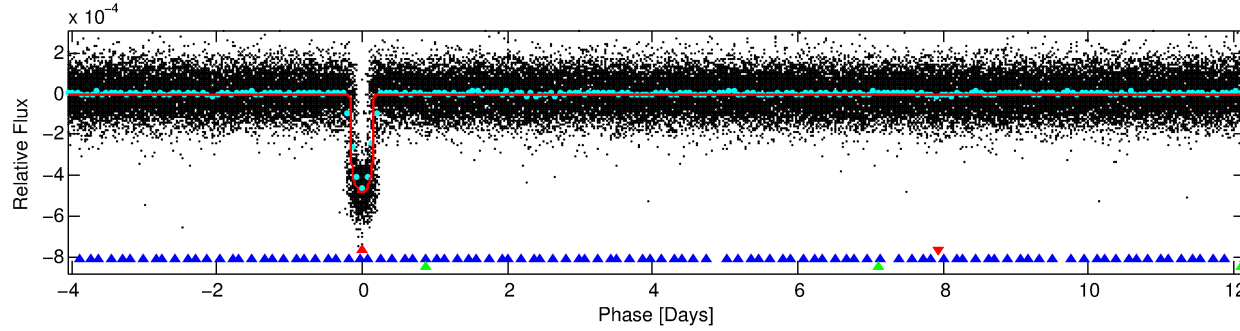
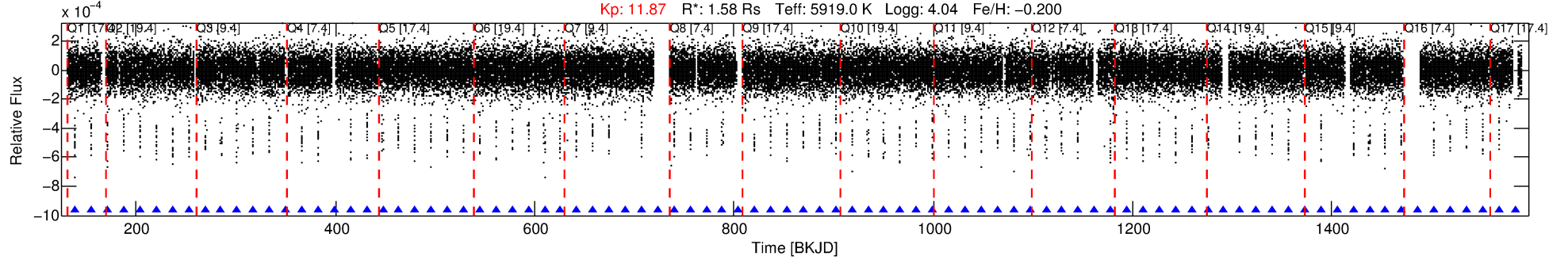
## Ephemeris Match Information For 011401755-01

No Significant Match Found

# DV One-Page Summary

KIC: 11401755 Candidate: 1 of 3 Period: 16.232 d  
KOI: K00277.01 Name: Kepler-36c Corr: 0.974

Kp: 11.87 R\*: 1.58 Rs Teff: 5919.0 K Logg: 4.04 Fe/H: -0.200



## DV Fit Results:

Period = 16.23167 [0.00002] d  
Epoch = 139.2196 [0.0009] BKJD  
Rp/R\* = 0.0223 [0.0005]  
a/R\* = 10.05 [1.04]  
b = 0.79 [0.05]  
Seff = 174.35 [12.96]  
Teq = 927 [17] K  
Rp = 3.85 [0.21] Re  
a = 0.1259 [0.0051] AU  
Ag = 6.14 [2.28] [2.25σ]  
Teffp = 2255 [209] K [6.34σ]

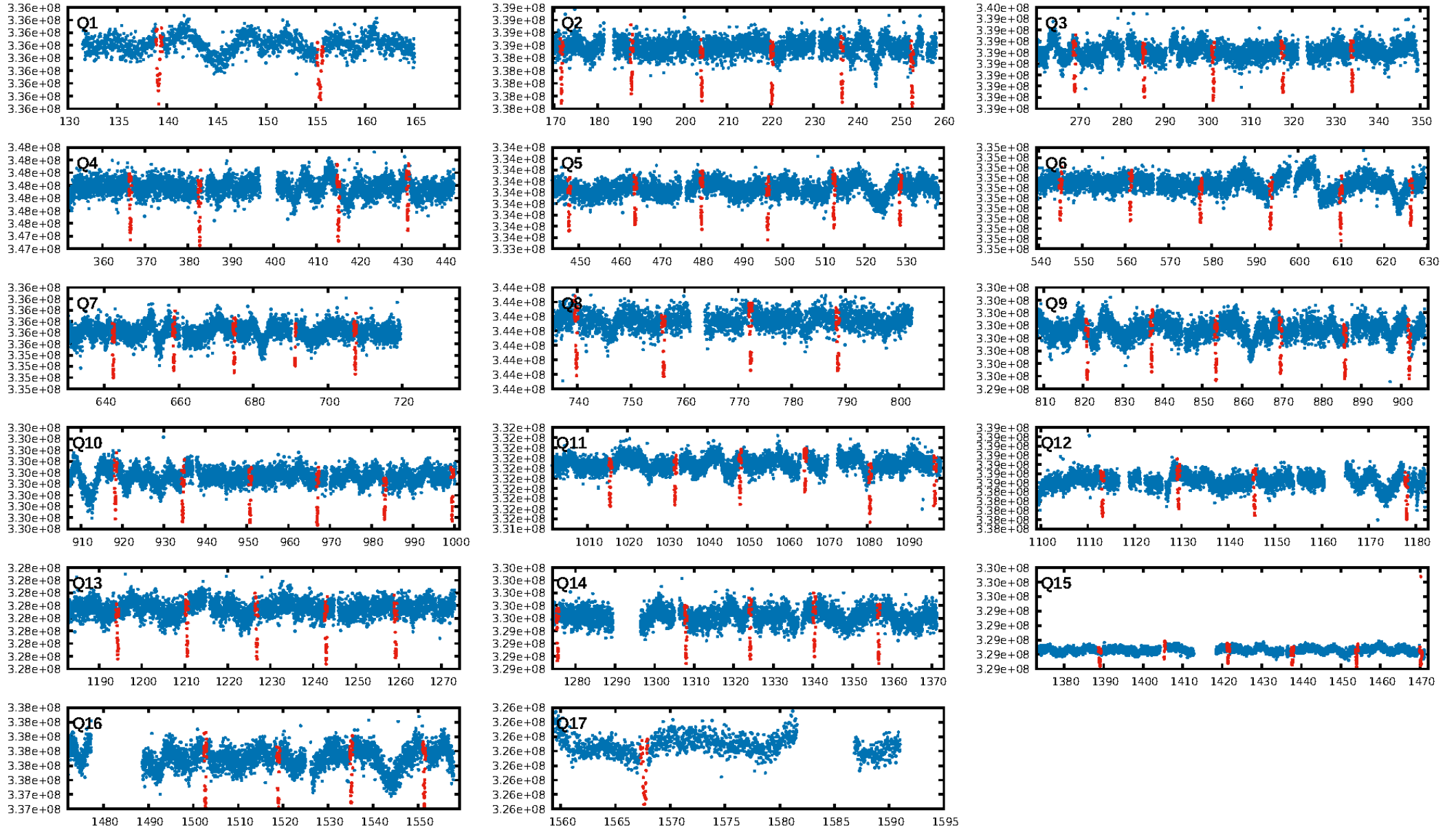
## DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.40σ]  
LongPeriod-sig: 100.0% [639.02σ]  
ModelChiSquare2-sig: 86.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [78/78]  
GhostDiagnostic-chr: 5.452  
Centroid-sig: 60.2%  
Centroid-so: 0.020 arcsec [0.30σ]  
OotOffset-rm: 0.075 arcsec [0.46σ]  
KicOffset-rm: 0.107 arcsec [0.59σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.94 [16/17]  
DiffImageOverlap-fno: 0.94 [16/17]

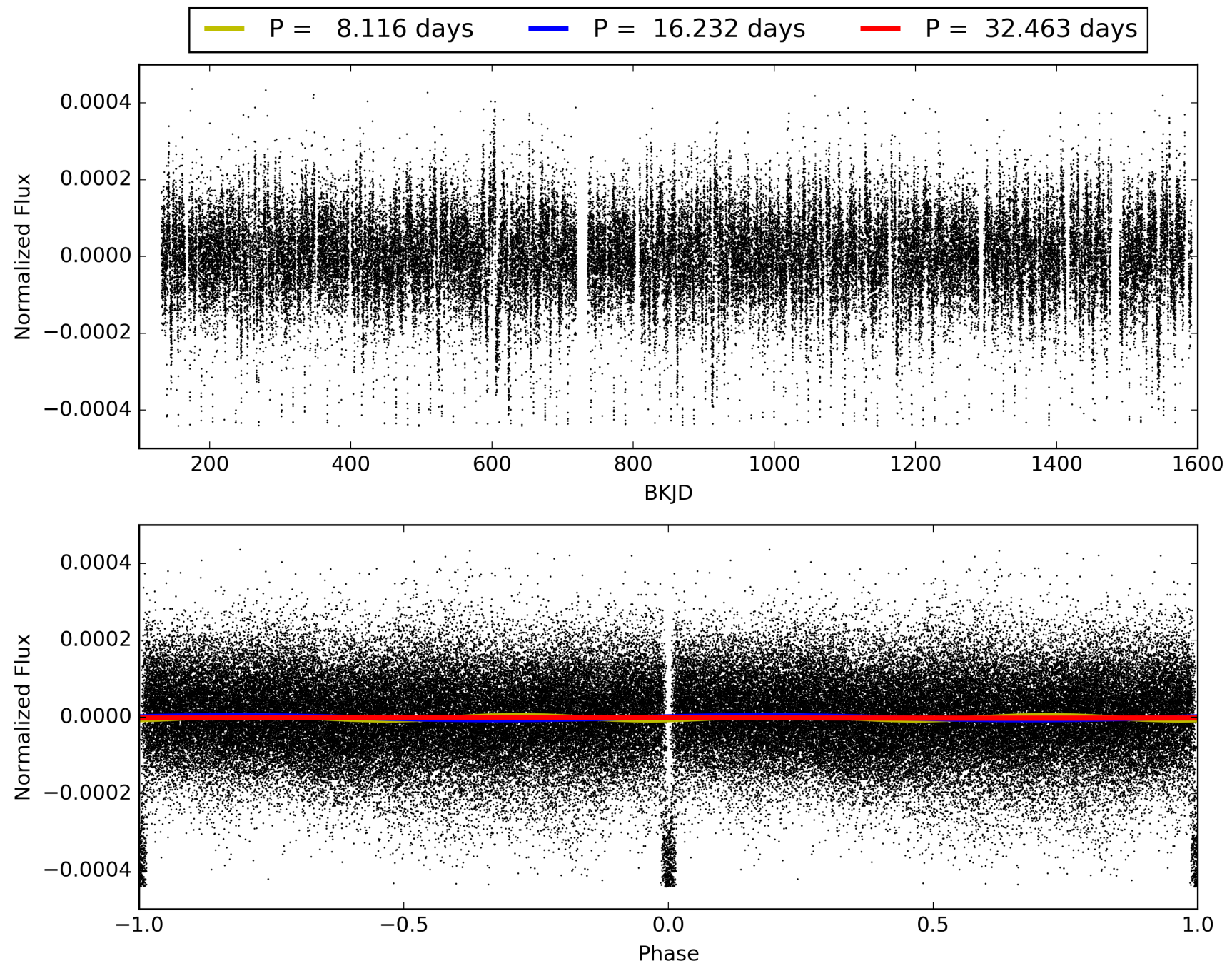
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:57:33 Z

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

# TCE 011401755-01, PDC Light Curves



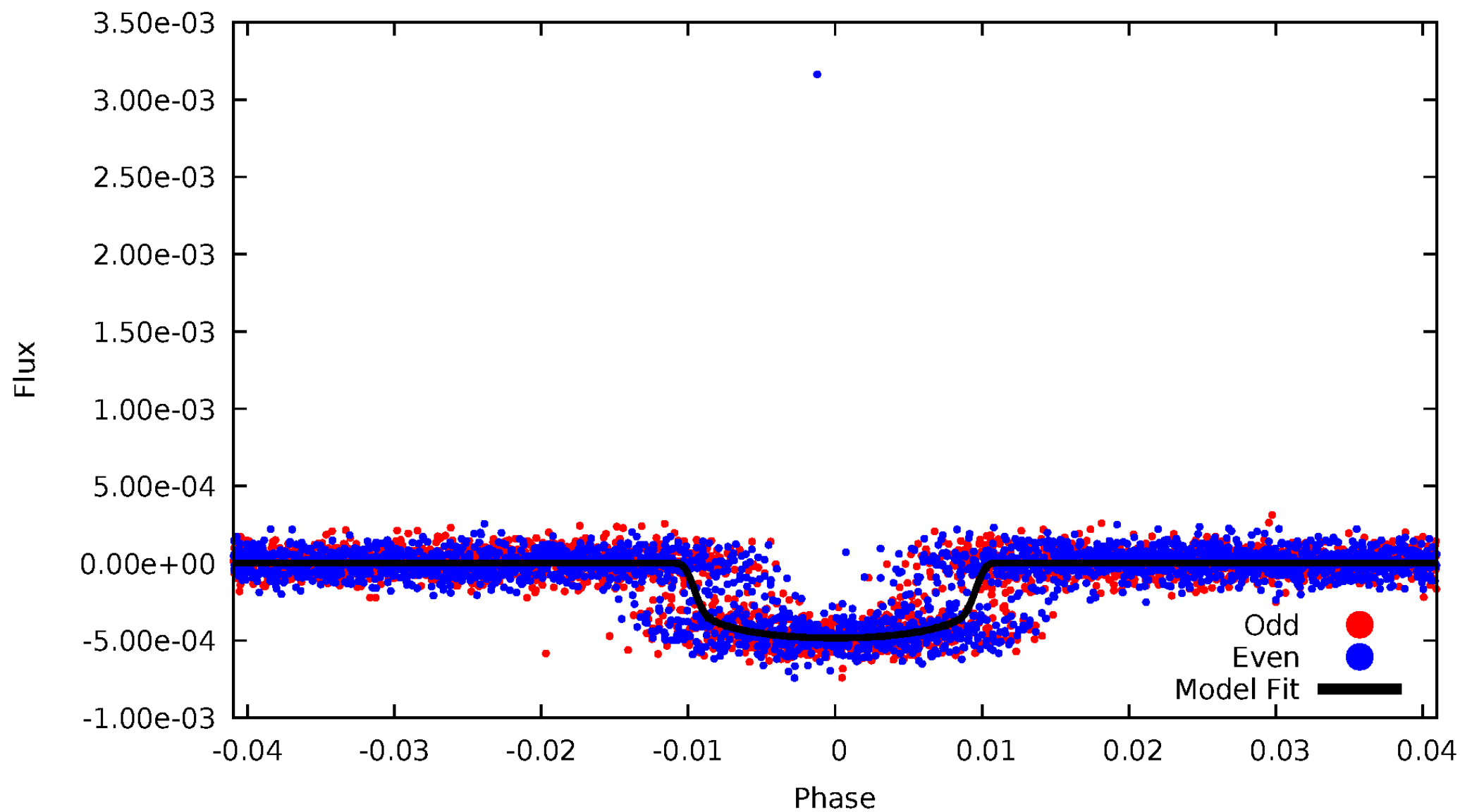
TCE 011401755-01





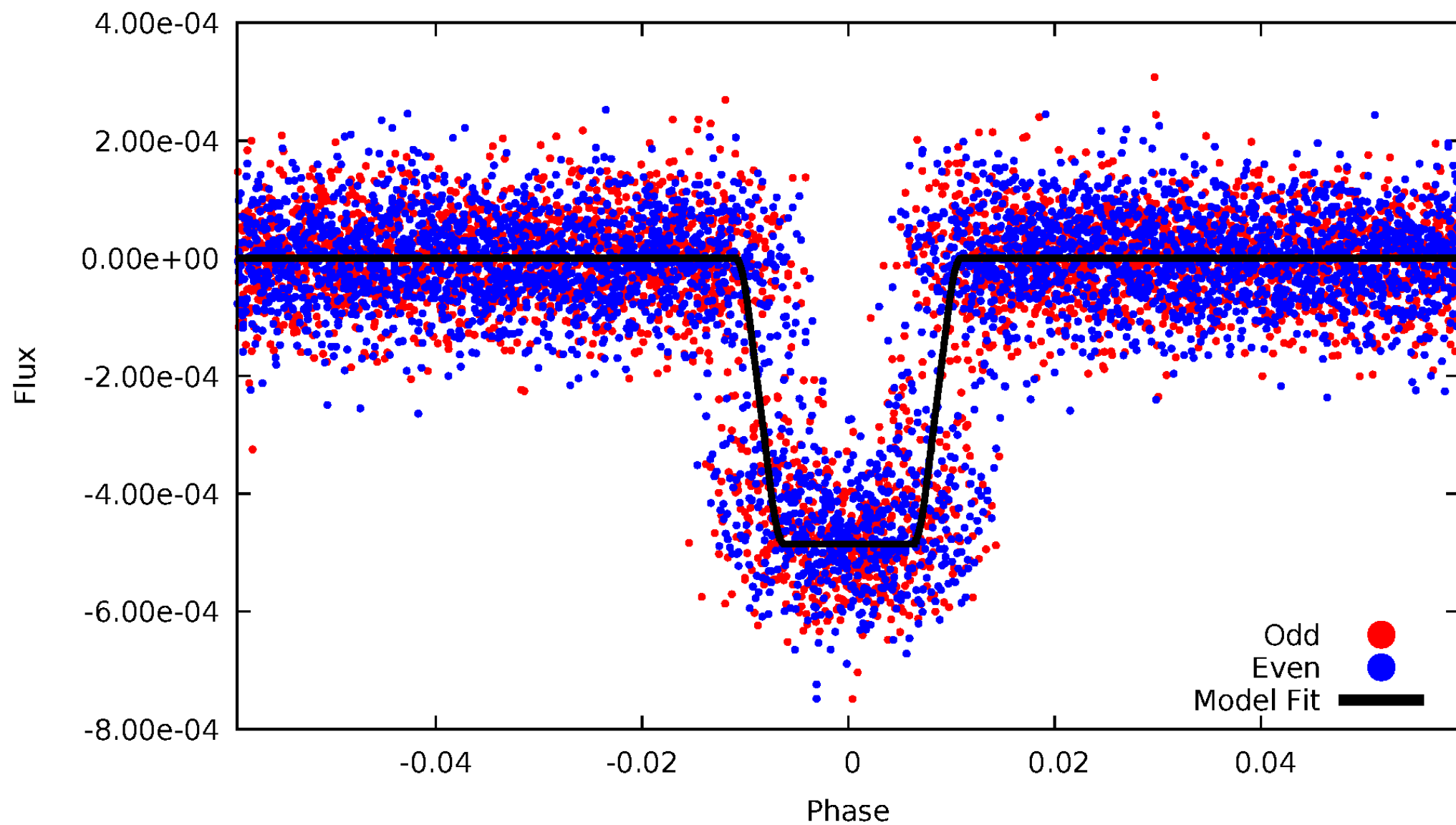
# DV Odd/Even

TCE 011401755-01



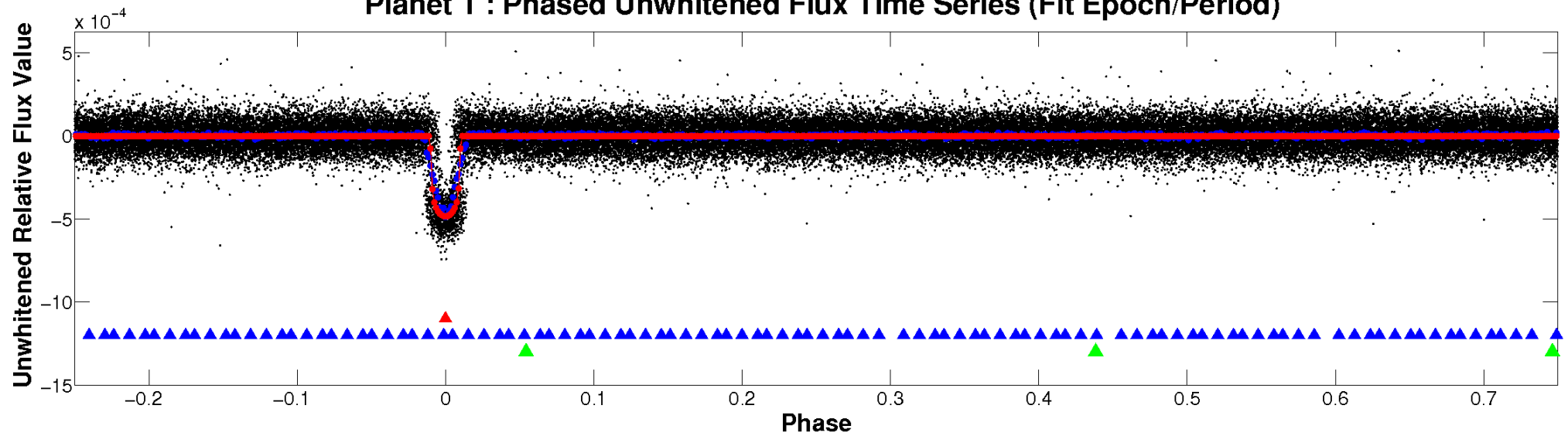
# ALT Odd/Even

TCE 011401755-01

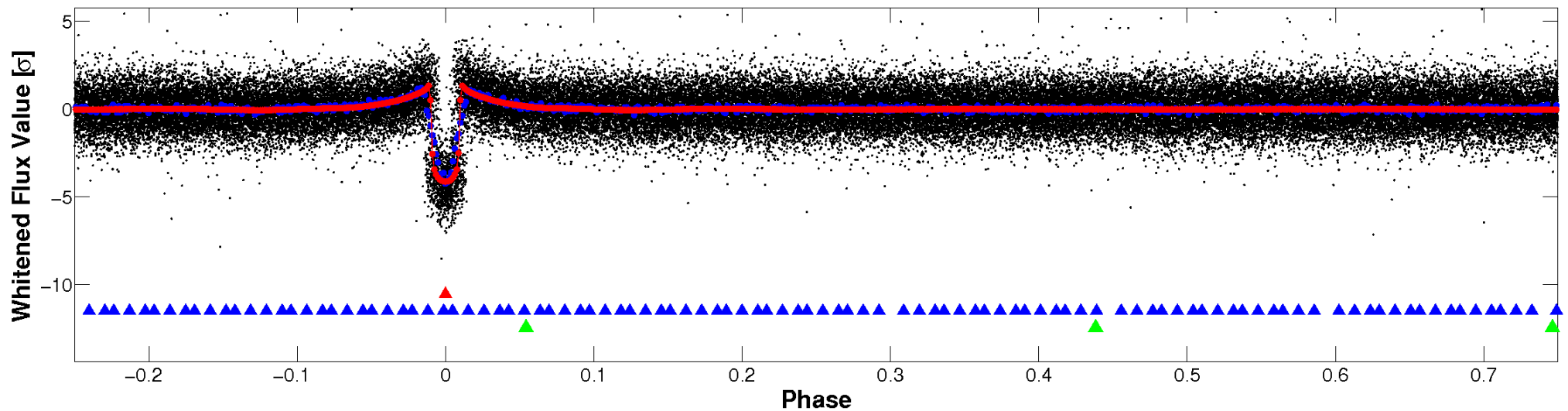


# Non-Whitened Vs. Whitened Light Curve

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

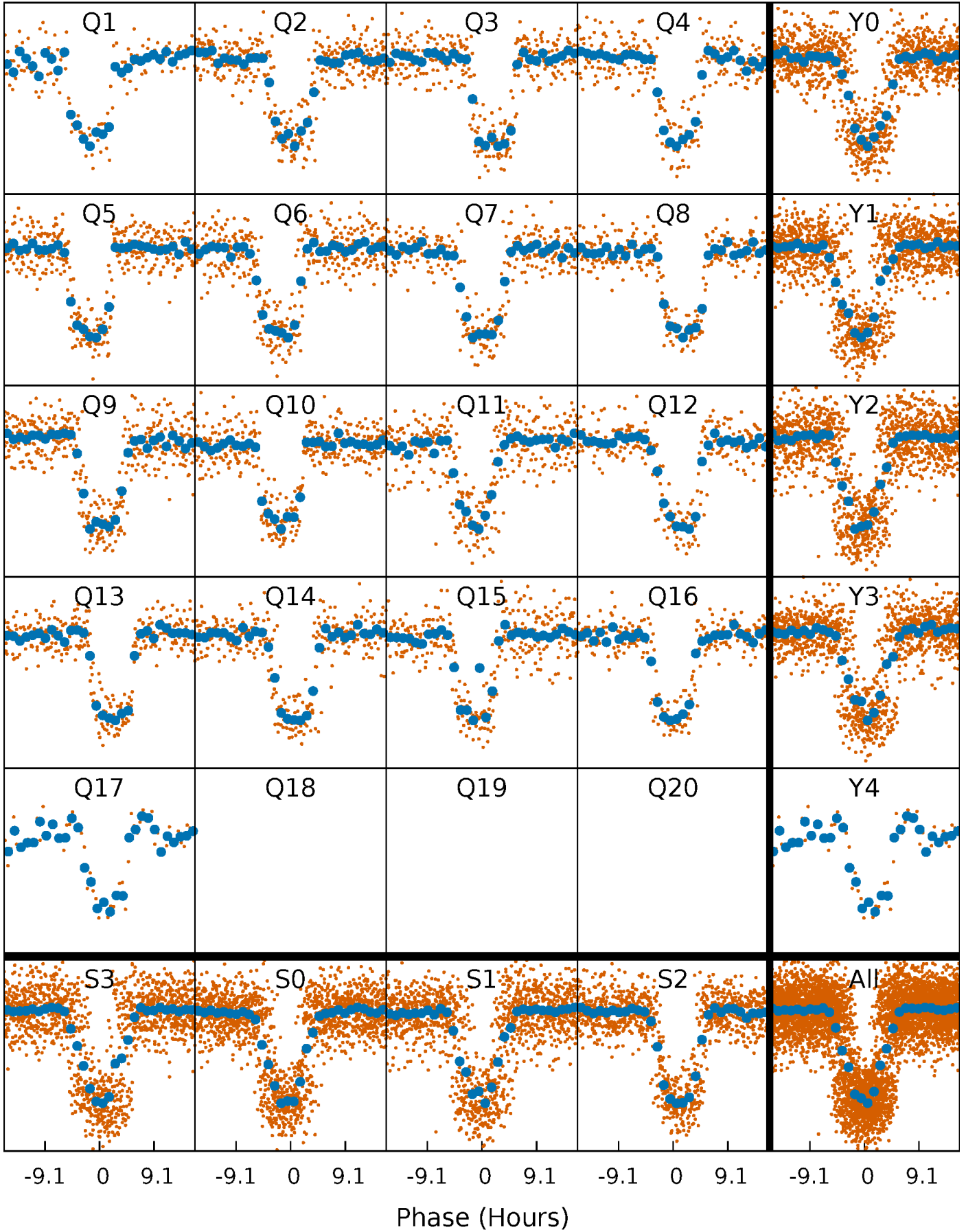


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

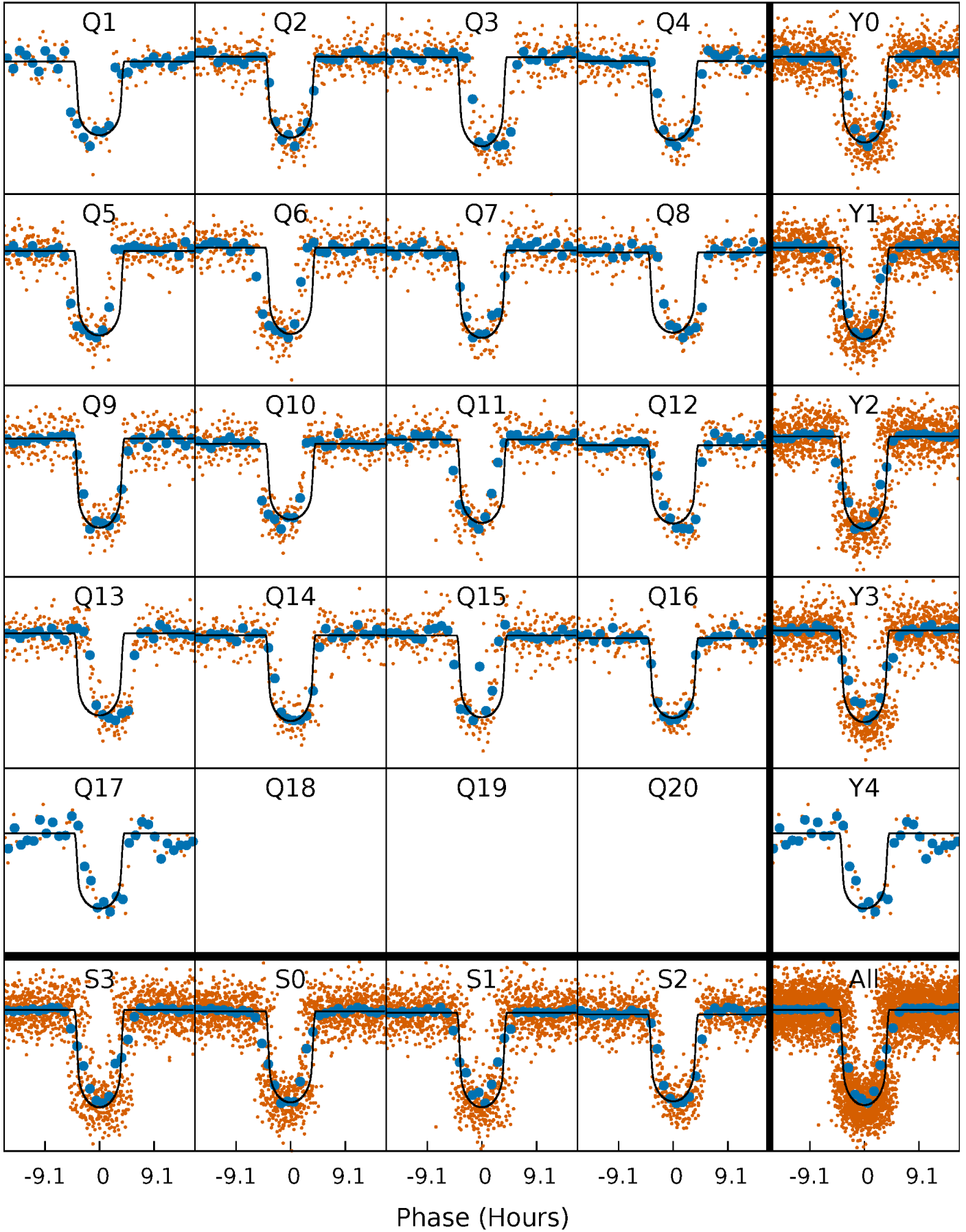
TCE 011401755-01 P= 16.231674 Days  $T_0=139.219617$  (BKJD)





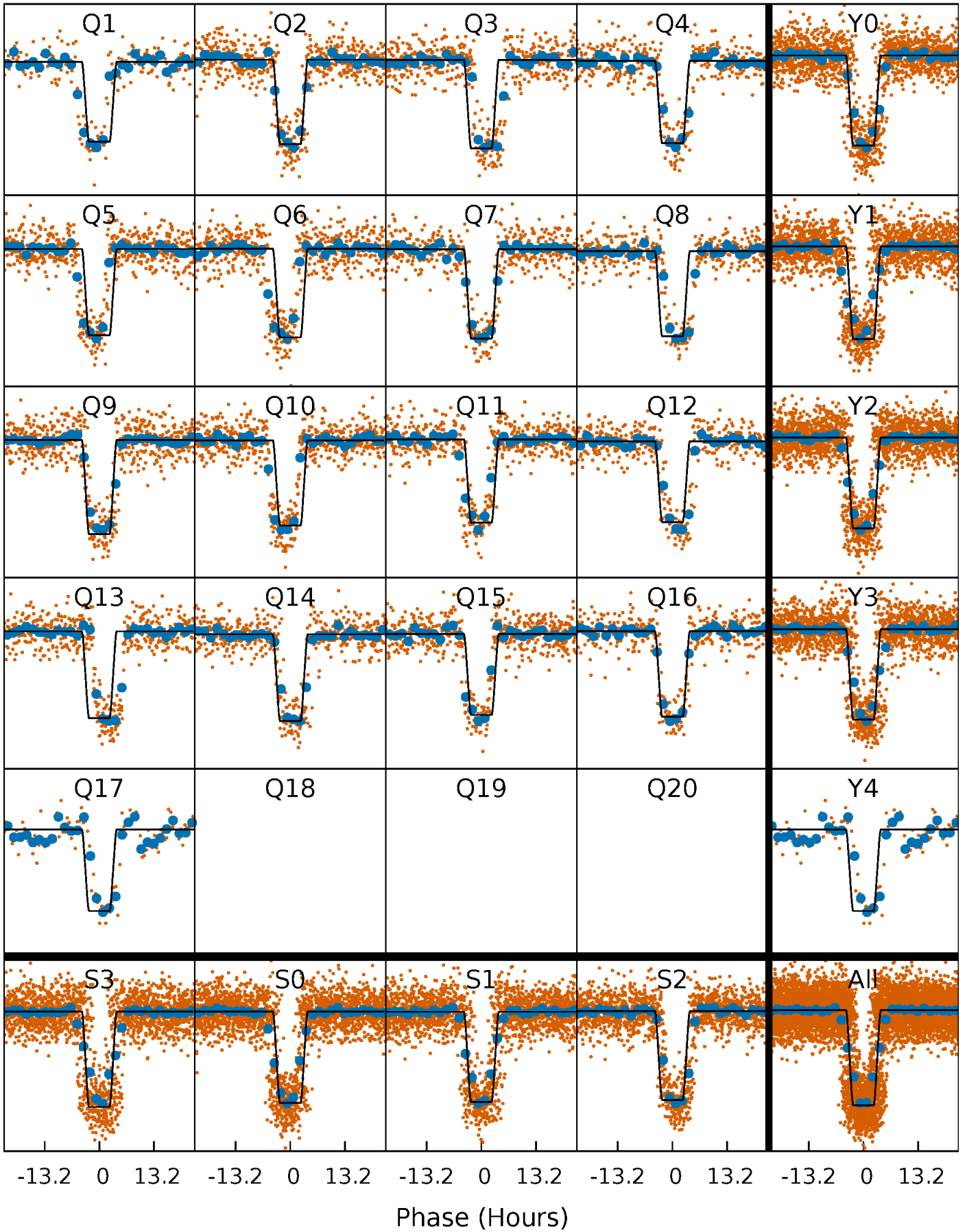
# DV Quarter-Phased Transit Curves

TCE 011401755-01 P= 16.231674 Days  $T_0=139.219617$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

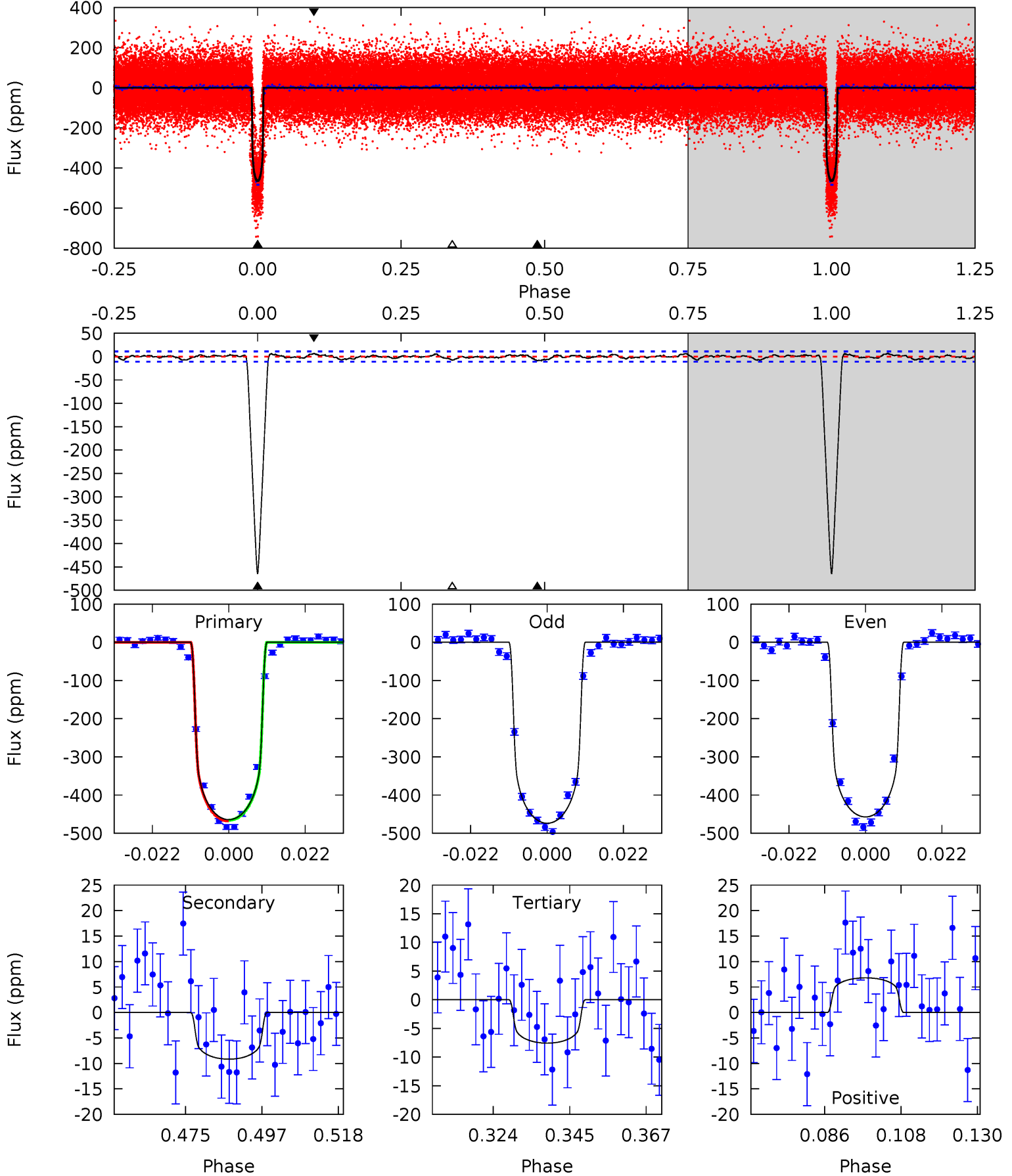
TCE 011401755-01 P= 16.231535 Days  $T_0=139.224934$  (BKJD)



# DV Model-Shift Uniqueness Test

011401755-01,  $P = 16.231674$  Days,  $E = 122.987943$  Days

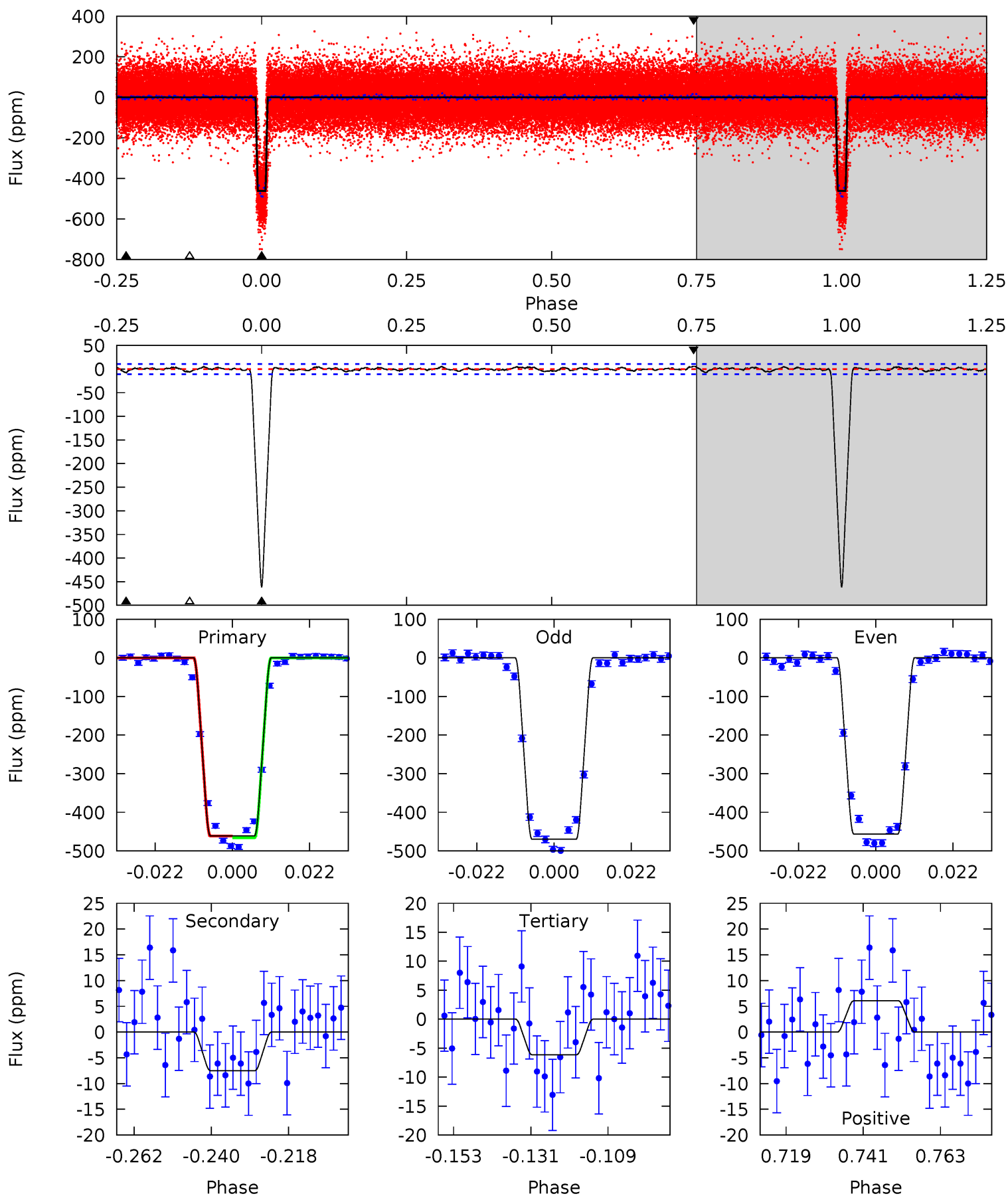
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
205.9	4.06	3.36	3.02	4.88	2.30	1.20	202.5	202.8	0.71	1.05	3.68	0.98	0.01	0.48



# Alt Model-Shift Uniqueness Test

011401755-01,  $P = 16.231535$  Days,  $E = 122.993399$  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
209.8	3.42	2.80	2.77	4.87	2.29	1.03	207.0	207.0	0.62	0.65	3.08	1.00	0.01	0.98





### Stellar Parameters For KIC 011401755

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5919^{+62}_{-71}$	$4.042^{+0.030}_{-0.030}$	$-0.200^{+0.050}_{-0.100}$	$1.585^{+0.071}_{-0.079}$	$1.009^{+0.036}_{-0.036}$	$0.357^{+0.043}_{-0.035}$
	+1%/-1%	+1%/-1%	+25%/-50%	+4%/-5%	+4%/-4%	+12%/-10%
Source	SPE8	AST69	SPE69	DSEP		

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

### Secondary Eclipse Parameters for KIC 011401755-01 / KOI 0277.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-9 \pm 2$	$3.85^{+0.13}_{-0.13}$	$1294^{+21}_{-21}$	$2868^{+103}_{-120}$	$5.401^{+1.398}_{-1.449}$
Alt.	$-8 \pm 2$	$3.82^{+0.13}_{-0.13}$	$1294^{+19}_{-21}$	$2804^{+104}_{-129}$	$4.590^{+1.268}_{-1.316}$

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

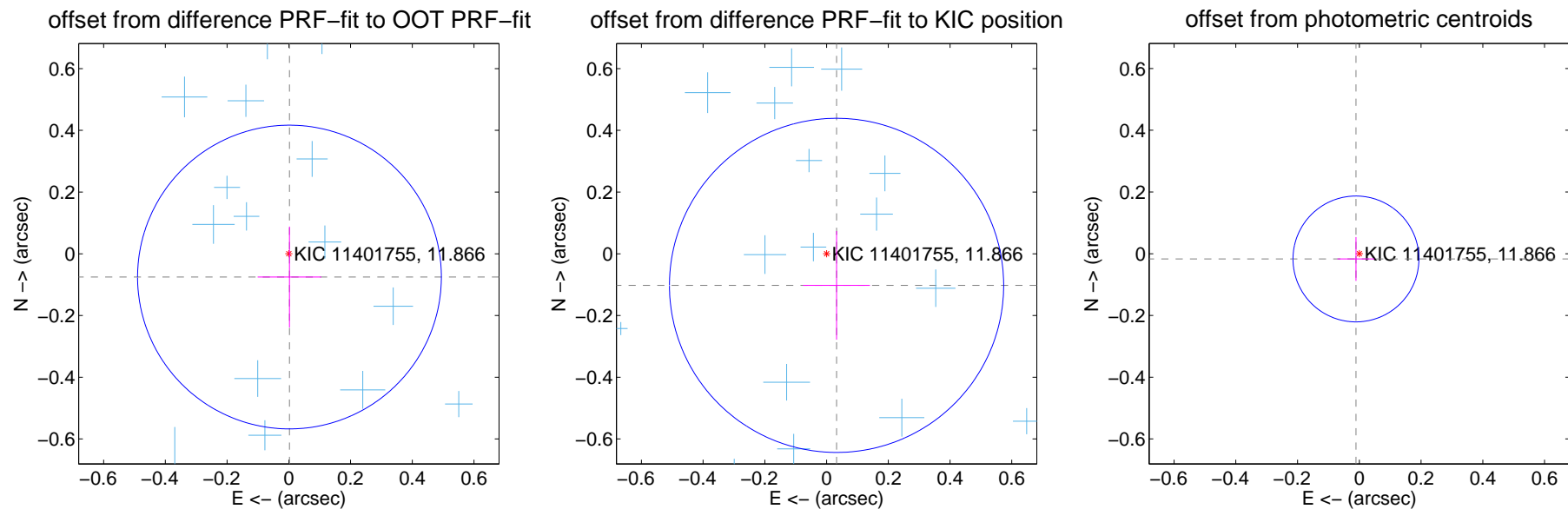
## DV Centroid Data

Supplemental centroid analysis for 011401755-01. **Kepler magnitude: 11.87.** Transit SNR 123.00

There are 16 quarters with good PRF difference image offsets

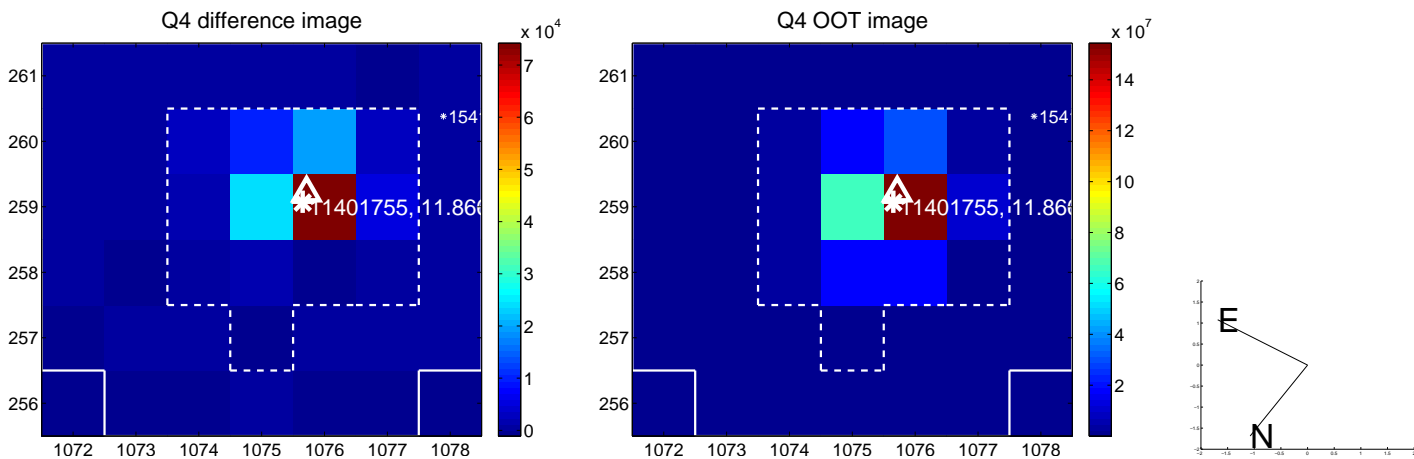
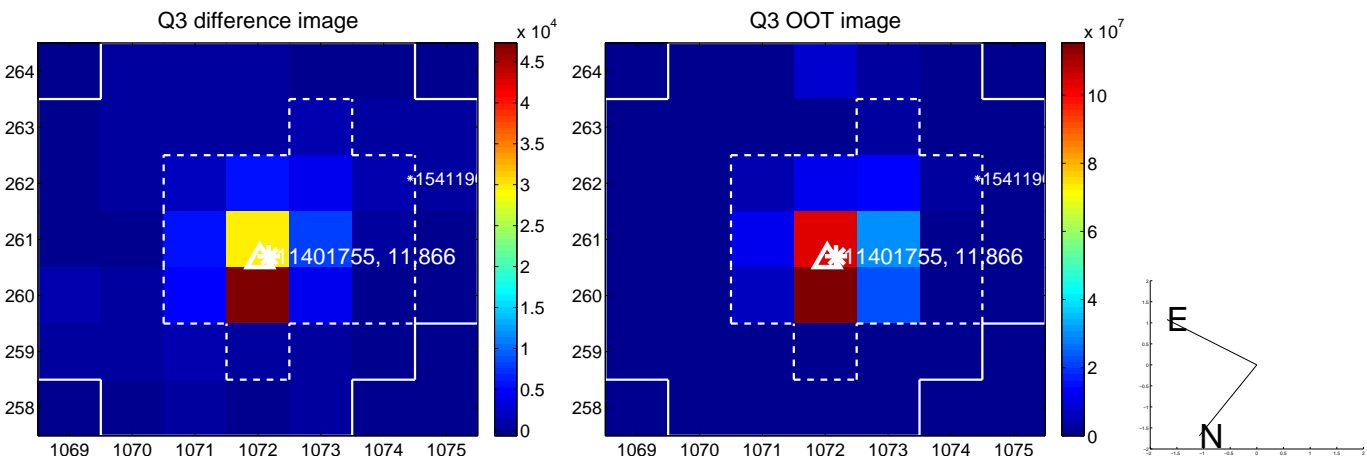
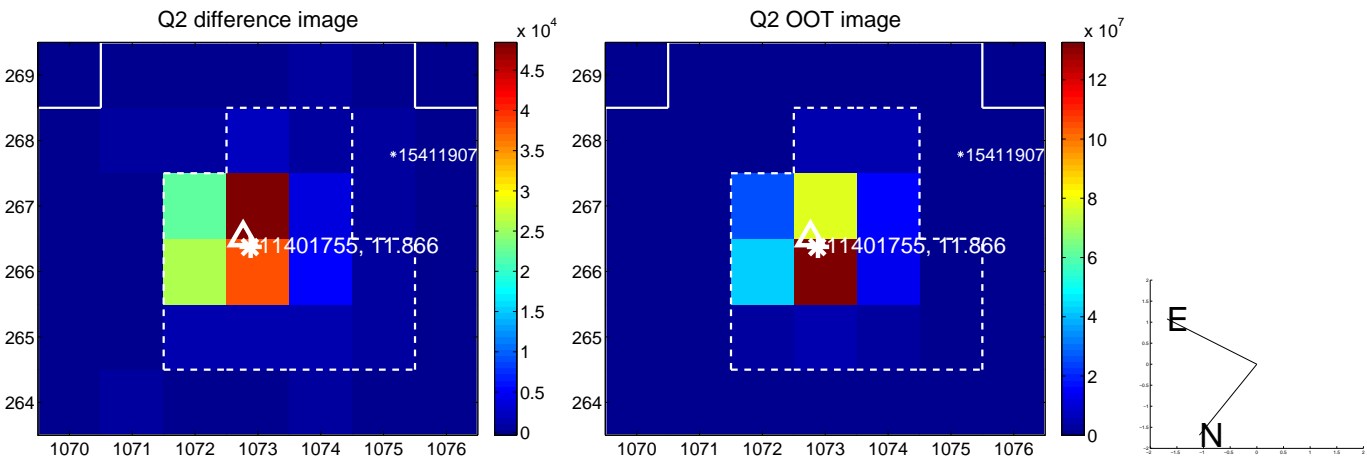
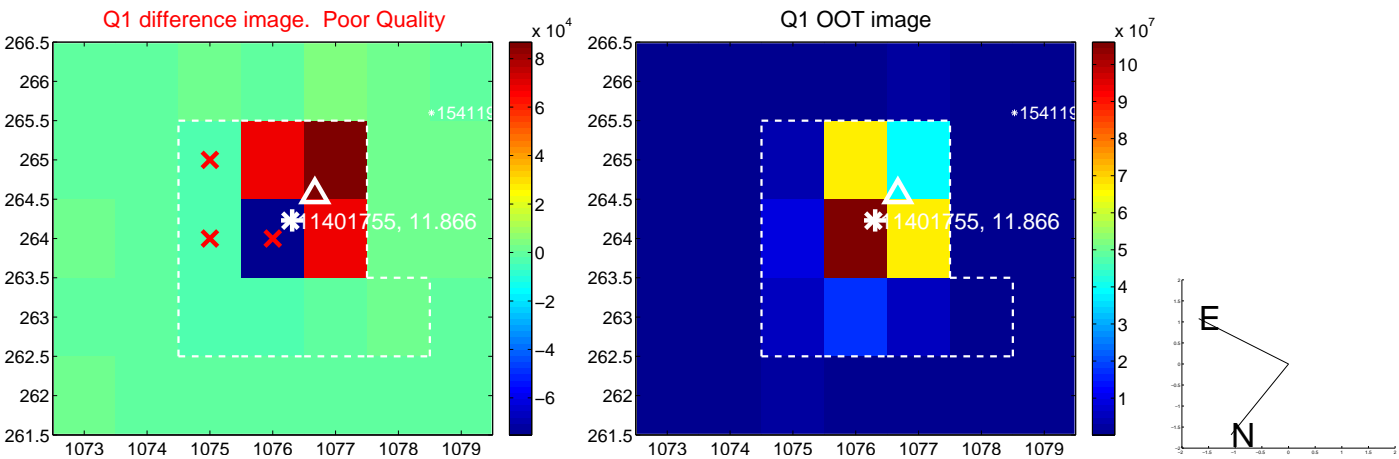
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.075 \pm 0.164$	0.46	$-0.002 \pm 0.103$	$-0.075 \pm 0.163$
PRF-fit source offset from KIC position	$0.107 \pm 0.180$	0.59	$-0.032 \pm 0.108$	$-0.102 \pm 0.176$
photometric centroid source offset	$0.02 \pm 0.07$	0.30	$0.01 \pm 0.06$	$-0.02 \pm 0.07$

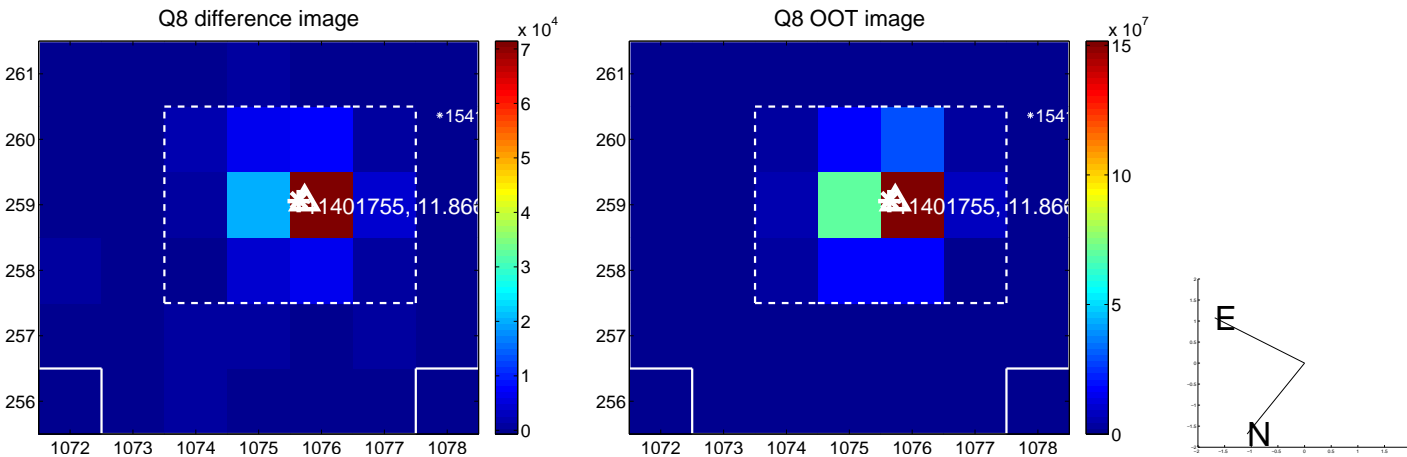
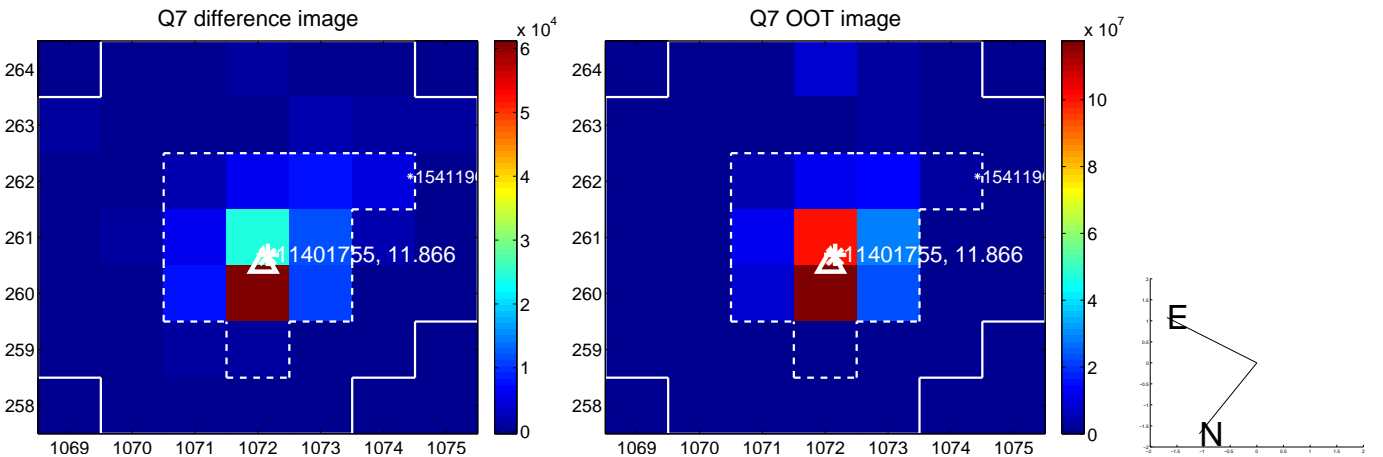
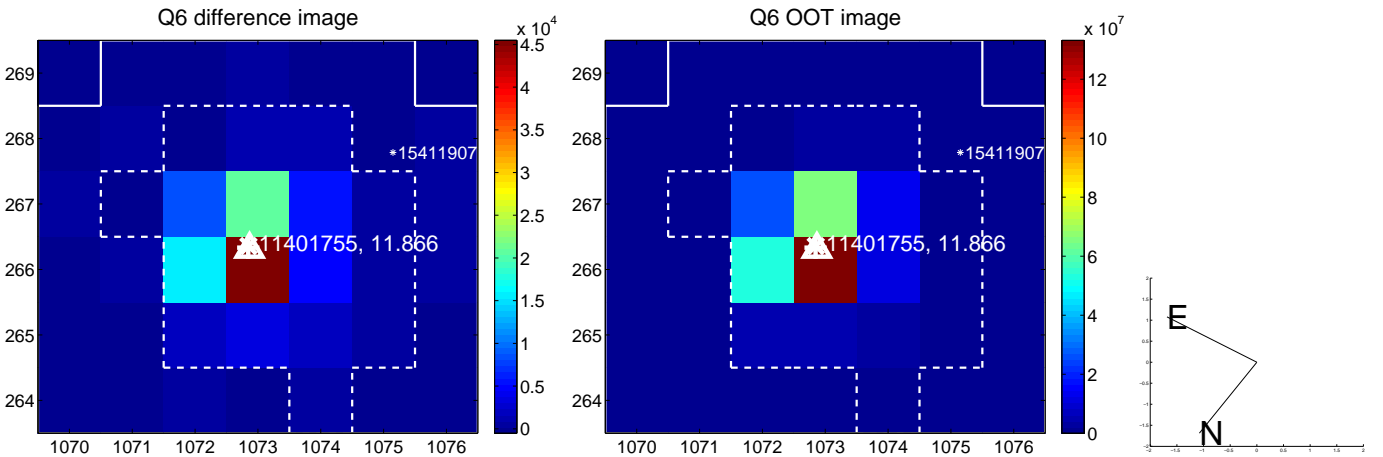
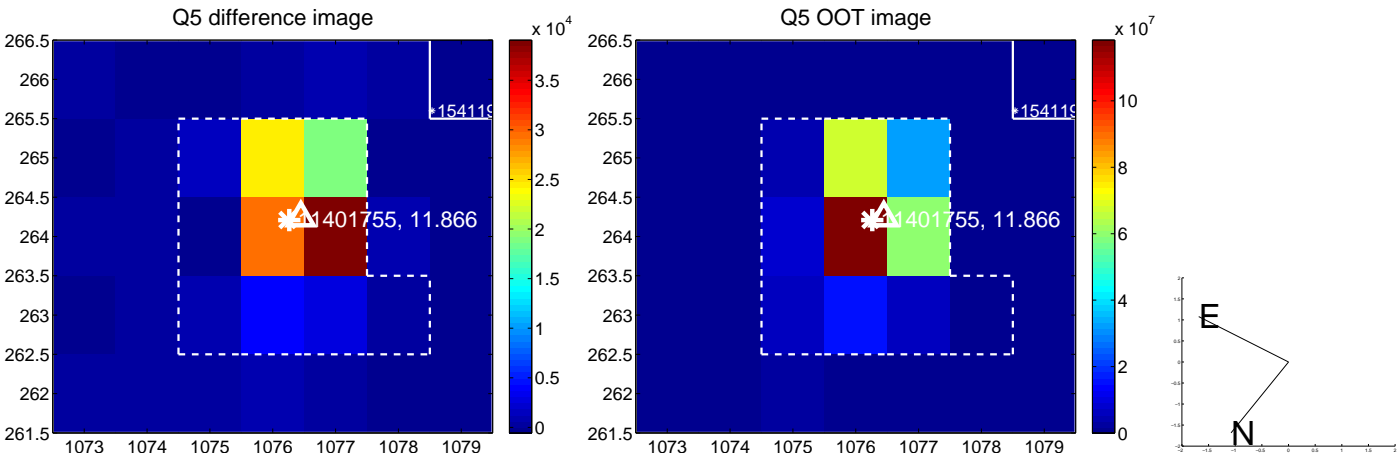


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

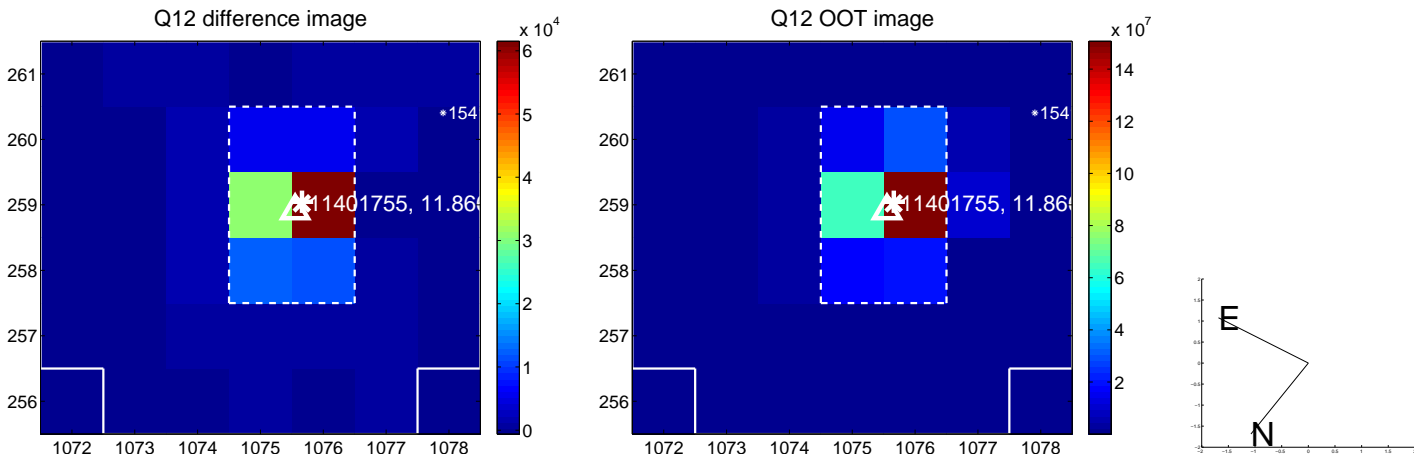
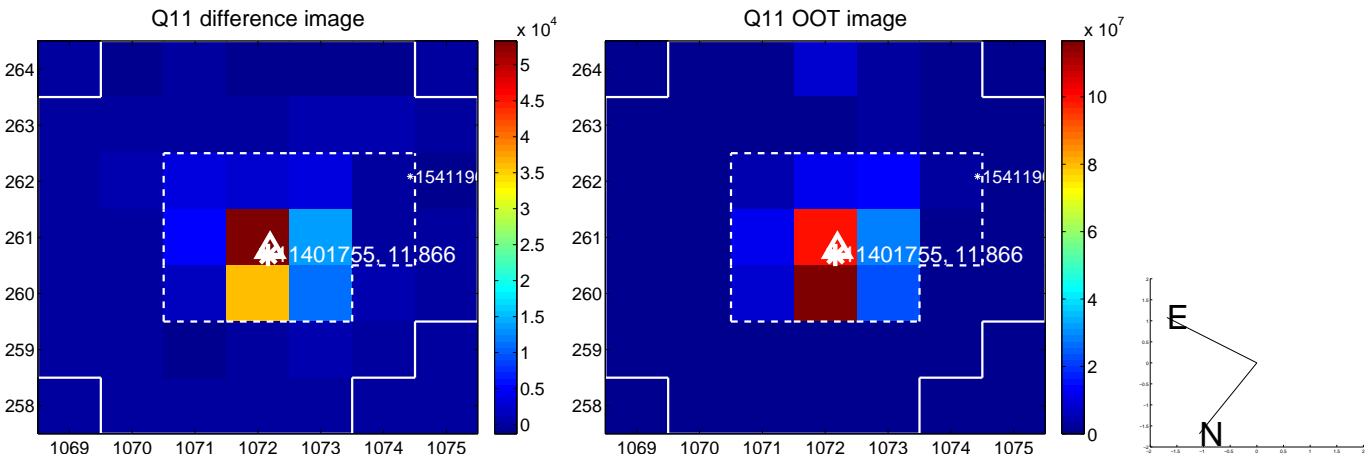
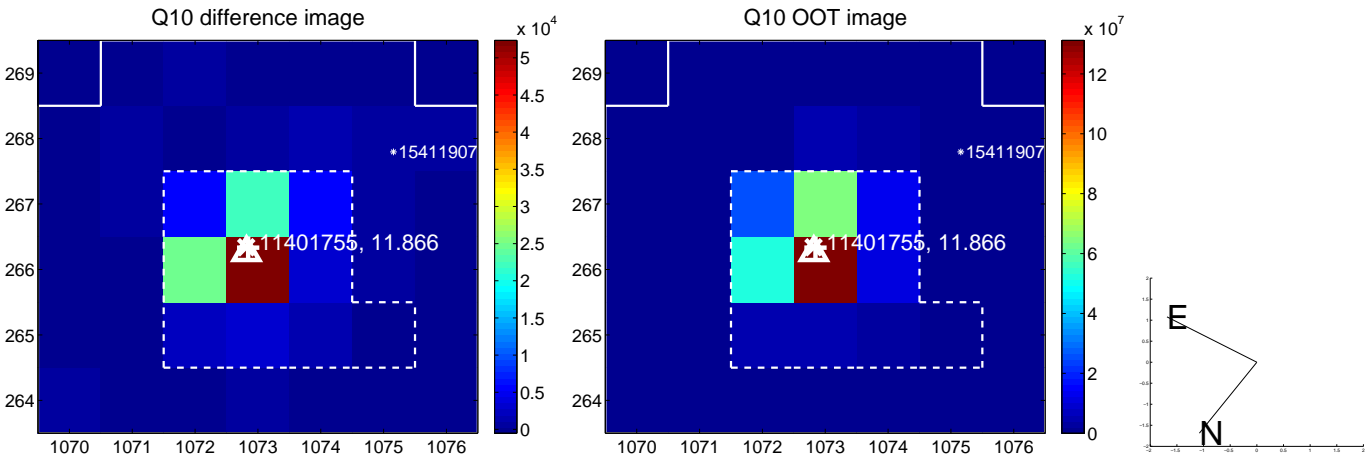
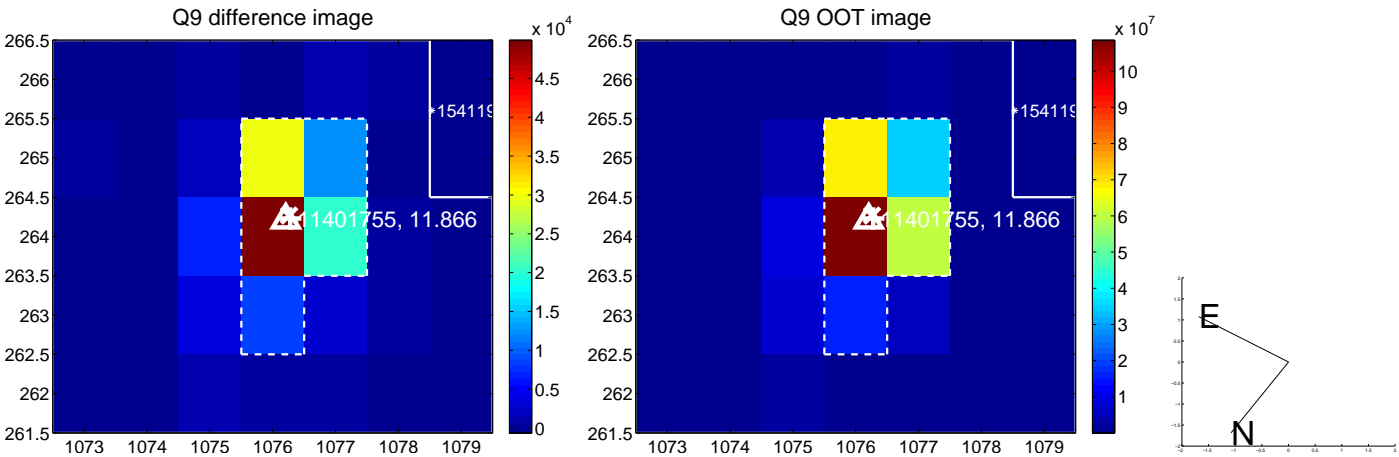


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

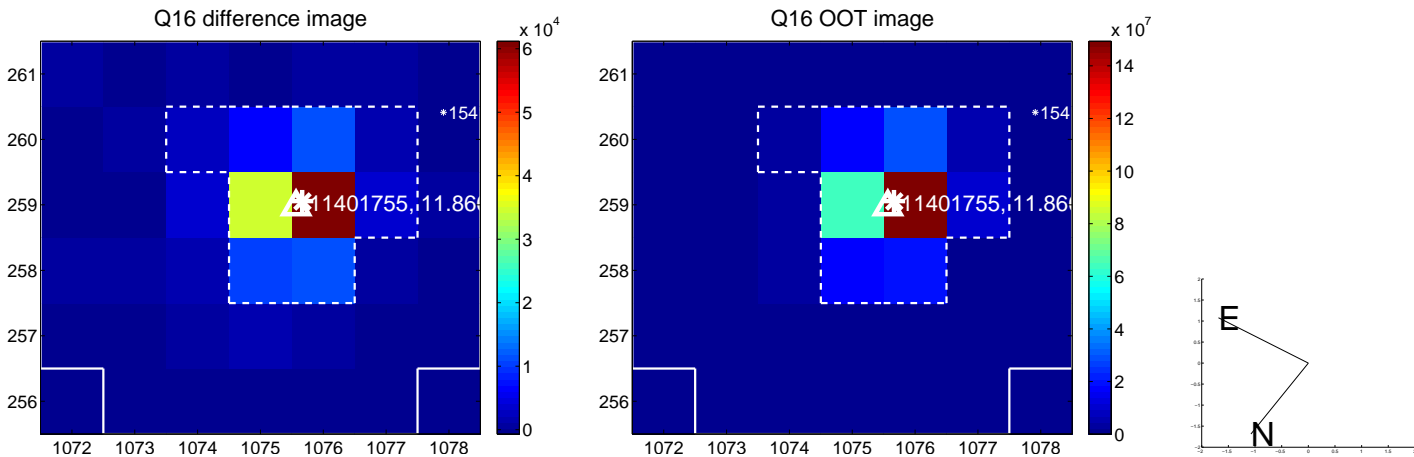
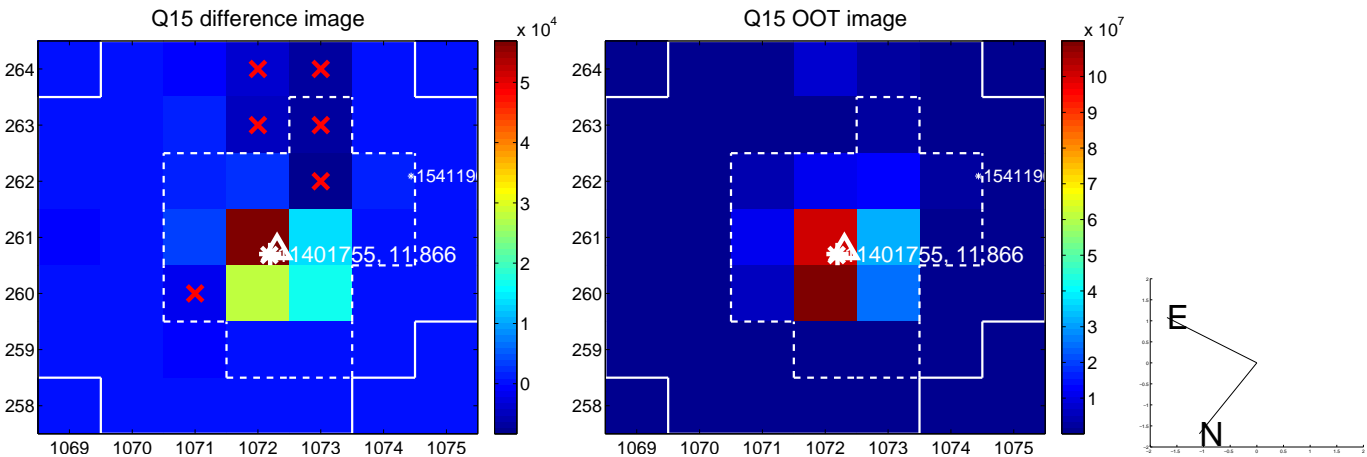
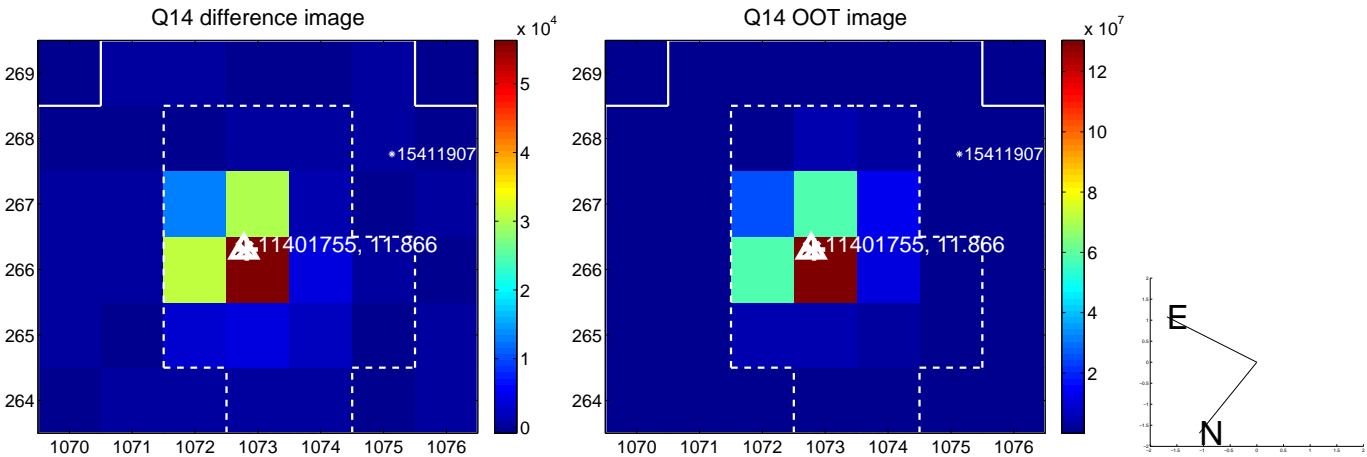
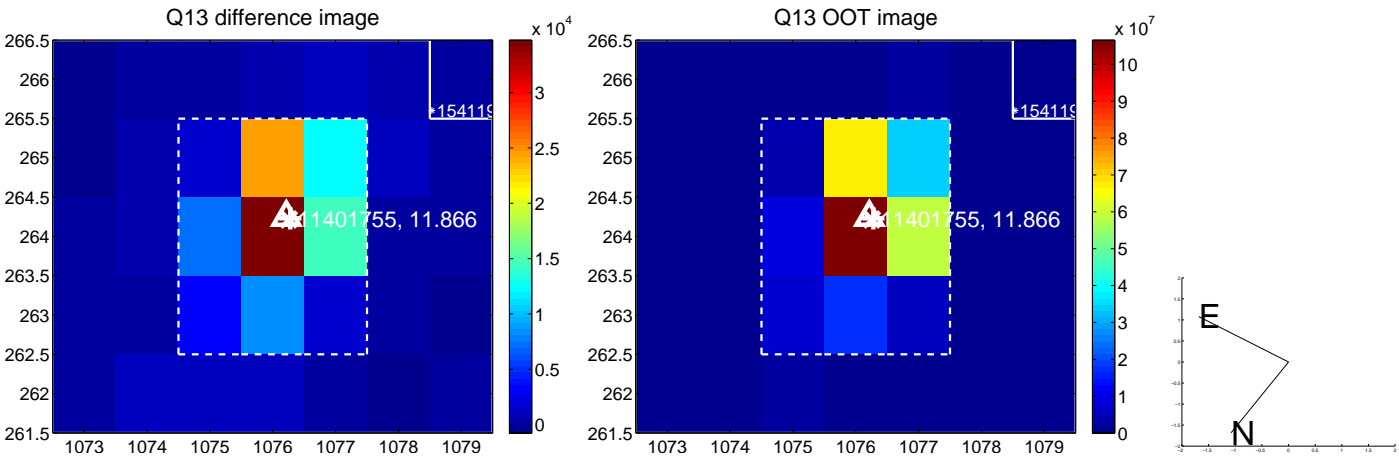




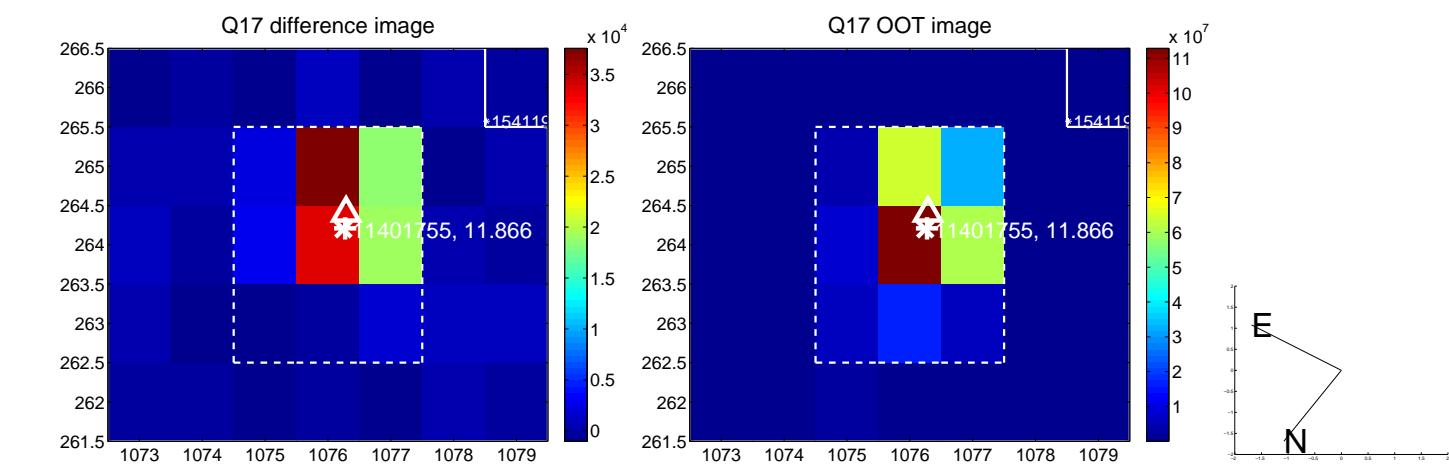
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



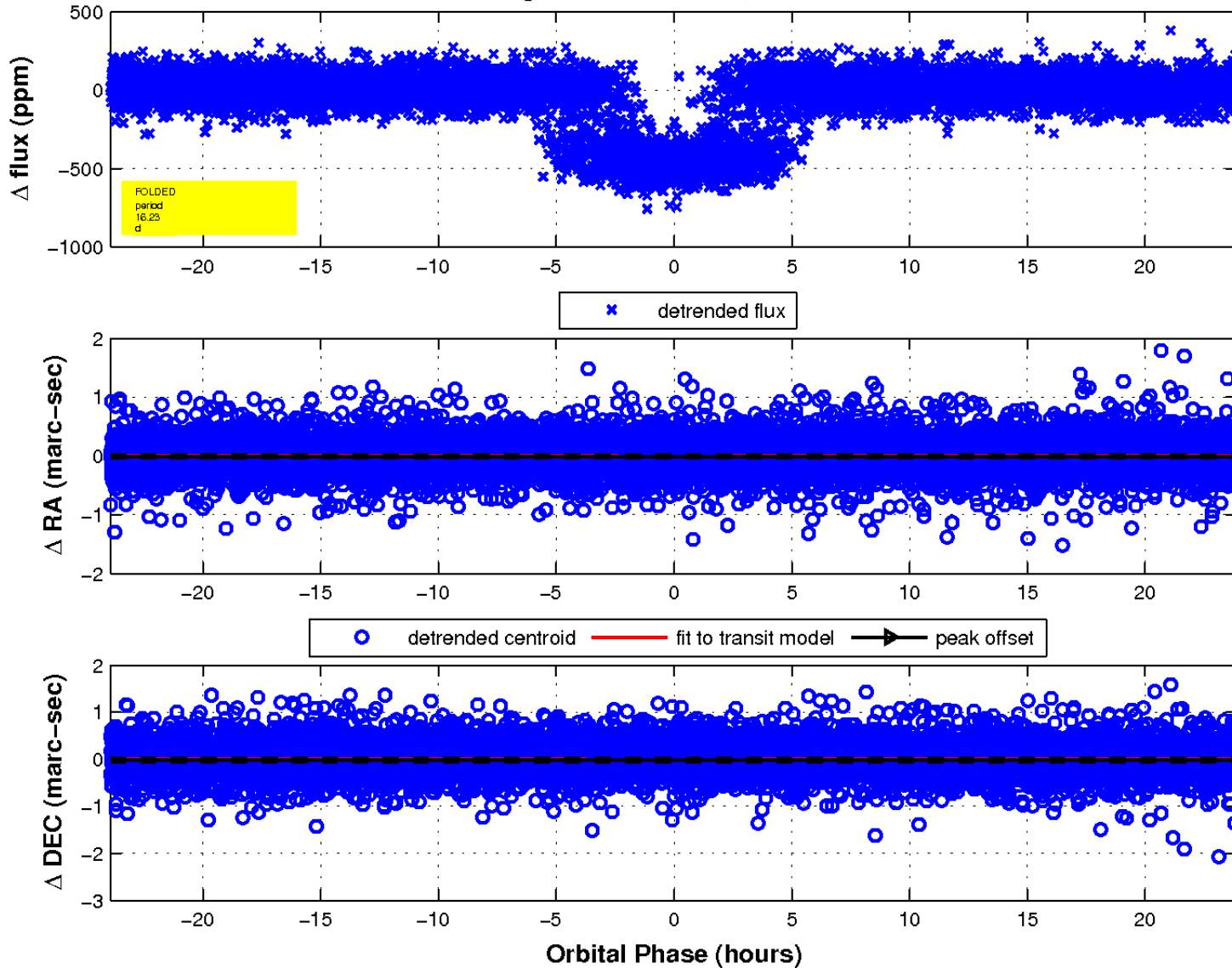
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

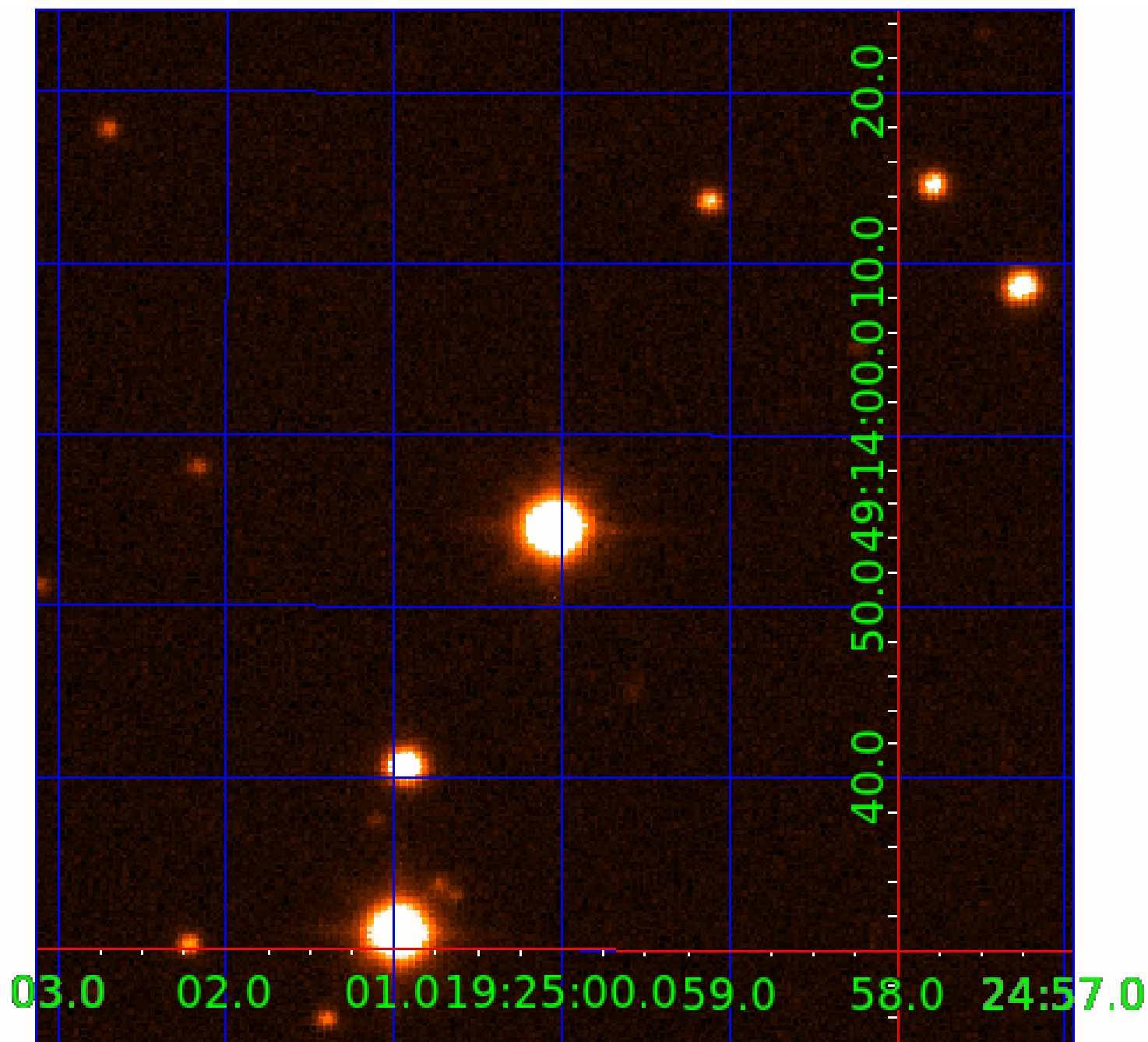


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination





# KIC 011401755

## Q1-17 DR25 TCE Parameters

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011401755-01	OBS	0277.01	16.231674	139.219617	484.0	7.976	110.0	123.0	1.58	5919	3.85	174.35
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011401755-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011401755-02	OBS	FP	0.06	1	0	0	0	LPP_DV
011401755-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

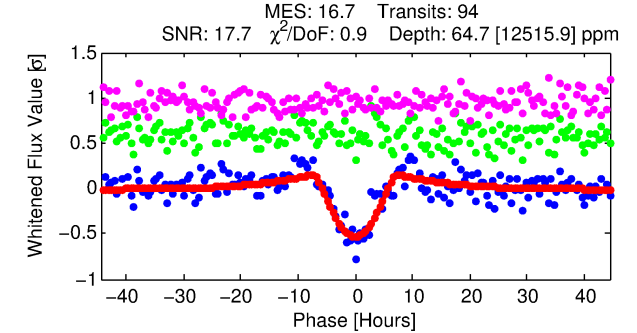
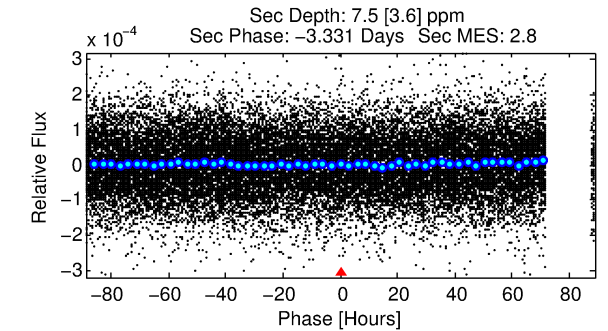
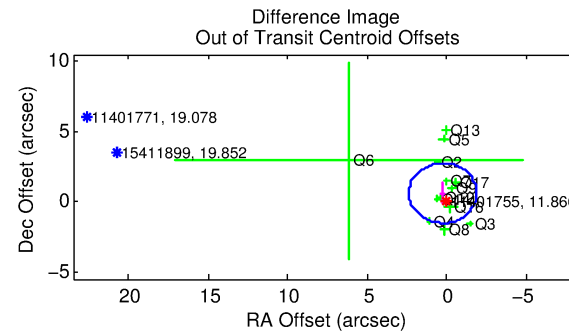
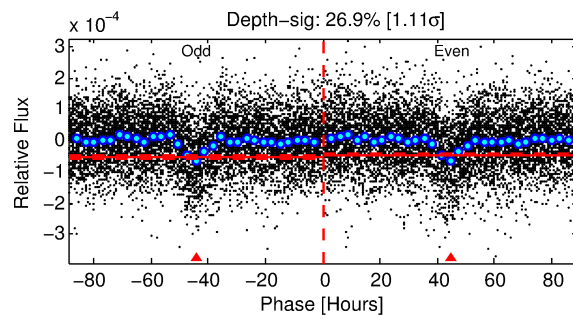
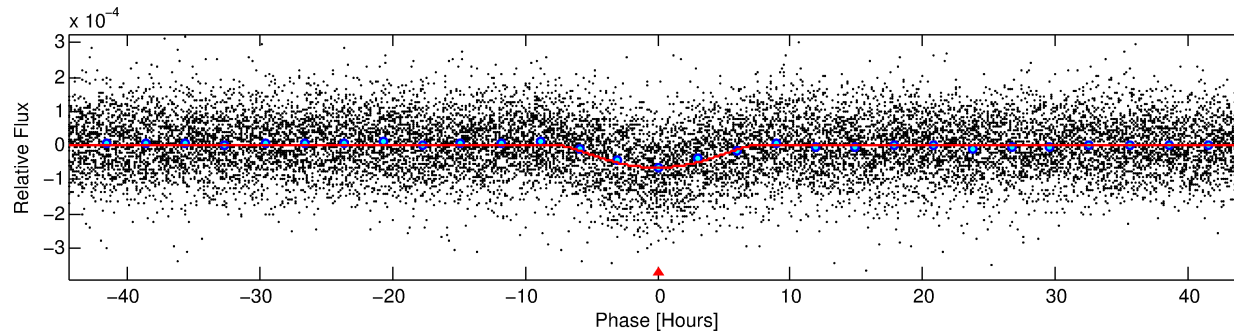
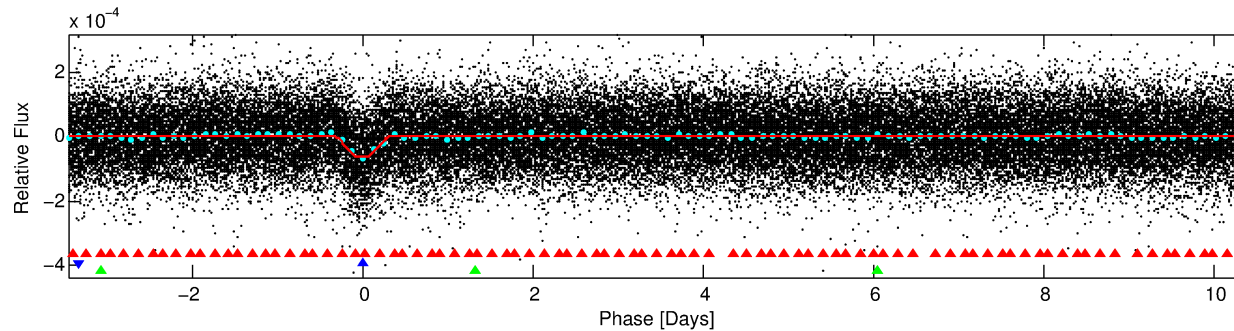
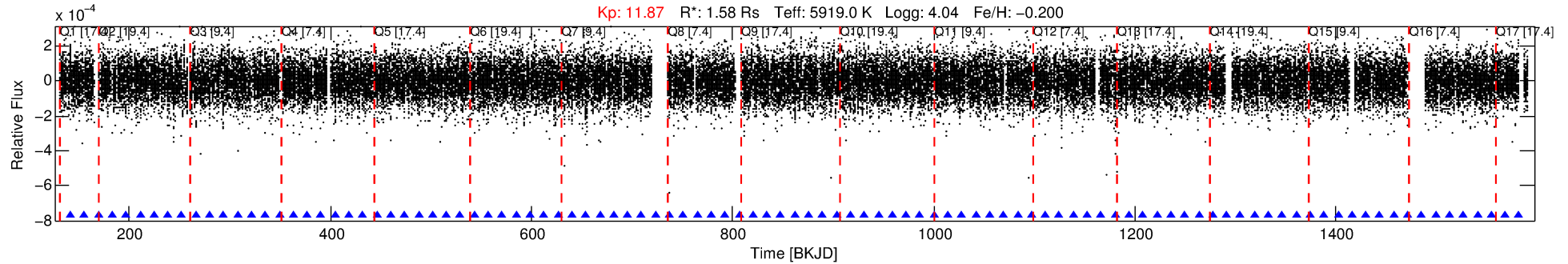
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011401755-02

No Significant Match Found

# DV One-Page Summary

KIC: 11401755 Candidate: 2 of 3 Period: 13.850 d  
KOI: K00277 Name: Kepler-36 Corr: No Ephemeris Match



## DV Fit Results:

Period = 13.84973 [0.00028] d  
Epoch = 141.6787 [0.0166] BKJD  
Rp/R\* = 0.0154 [0.0221]  
a/R\* = 1.61 [0.38]  
b = 1.00 [2.10]  
Seff = 215.44 [16.02]  
Teq = 977 [18] K  
Rp = 2.67 [3.82] Re  
a = 0.1132 [0.0046] AU  
Ag = 7.48 [21.75] [0.30 $\sigma$ ]  
Teffp = 2498 [1816] K [0.84 $\sigma$ ]

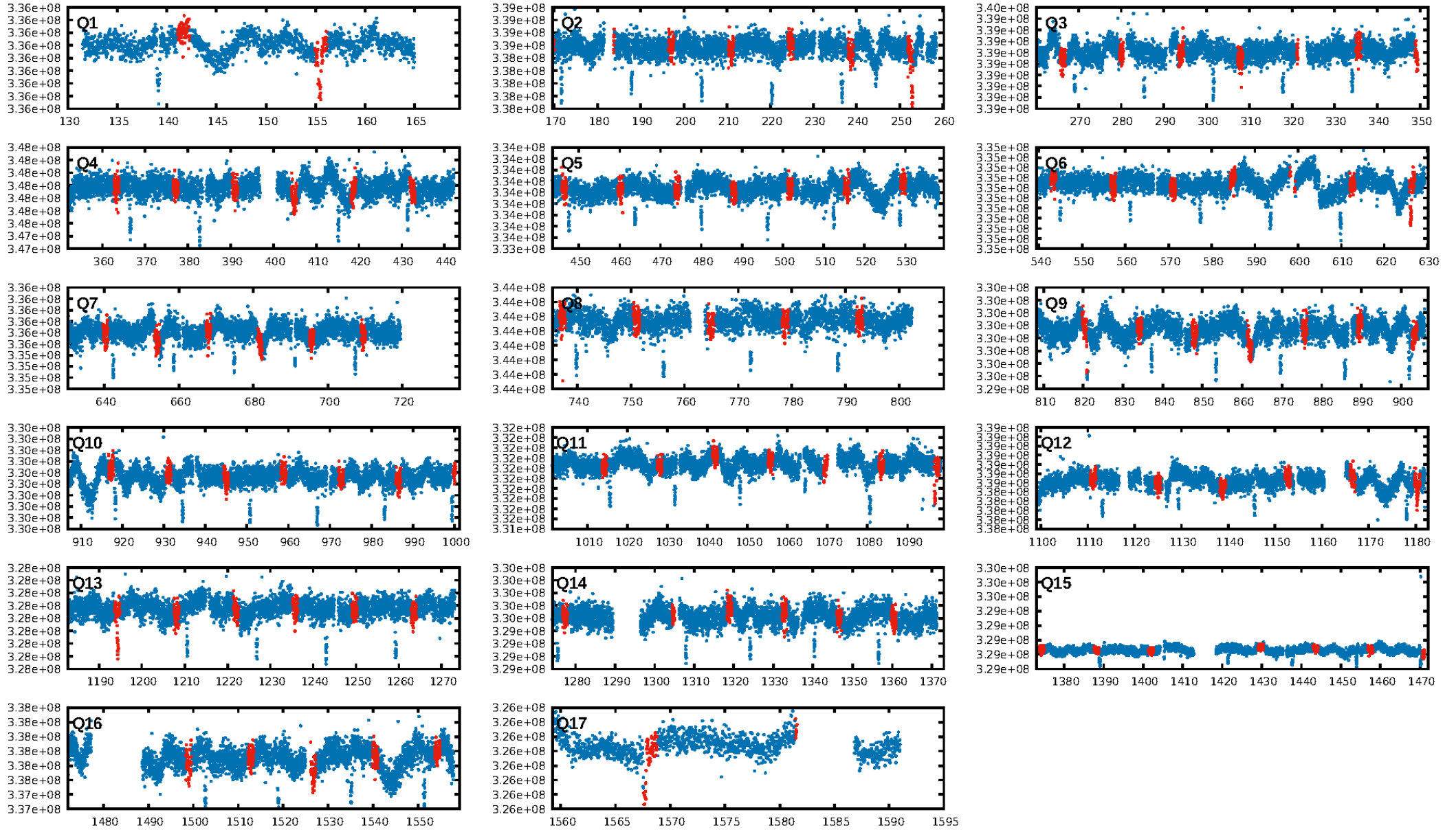
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 99.9% [3.40 $\sigma$ ]  
ModelChiSquare2-sig: 71.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.75e-55  
RollingBand-fgt: 1.00 [92/92]  
GhostDiagnostic-chr: -7.83  
Centroid-sig: 0.7%  
Centroid-so: 0.847 arcsec [1.70 $\sigma$ ]  
OotOffset-rm: 0.663 arcsec [0.93 $\sigma$ ]  
OotOffset-st: 3/2/4/4 [13]  
KicOffset-rm: 0.530 arcsec [0.77 $\sigma$ ]  
KicOffset-st: 3/2/4/4 [13]  
DiffImageQuality-fgm: 0.62 [8/13]  
DiffImageOverlap-fno: 0.94 [16/17]

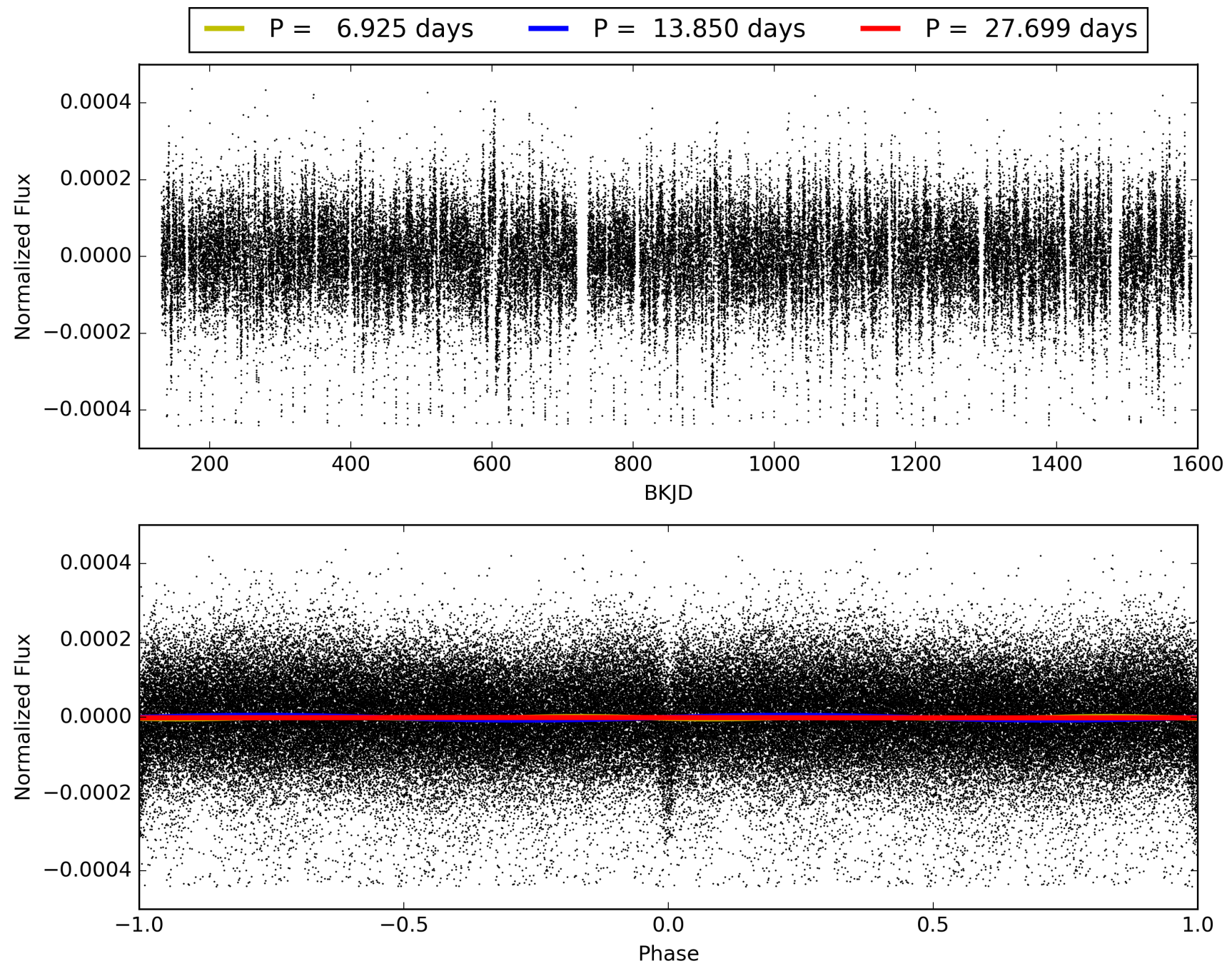
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:57:44 Z

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

# TCE 011401755-02, PDC Light Curves



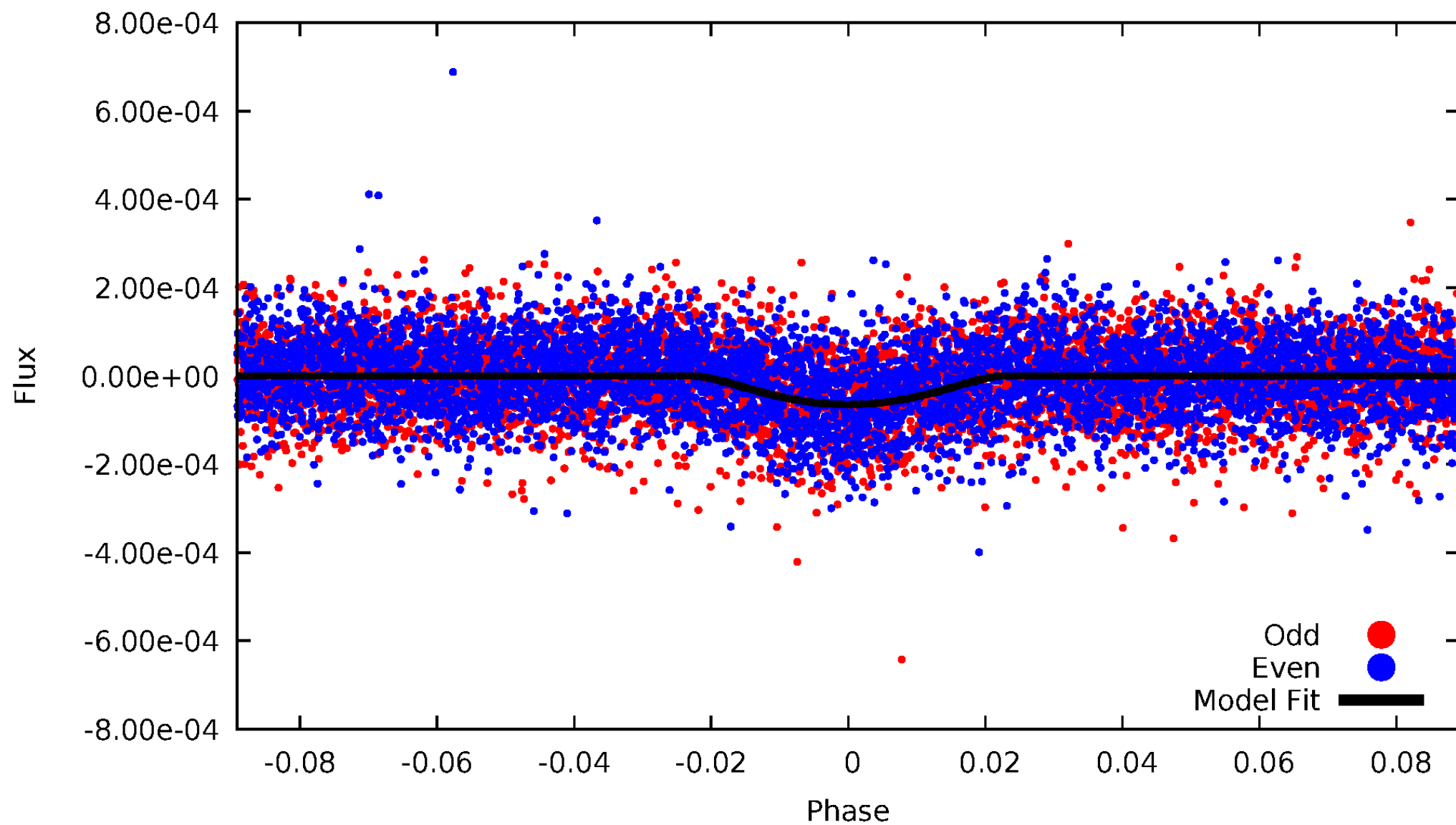
TCE 011401755-02





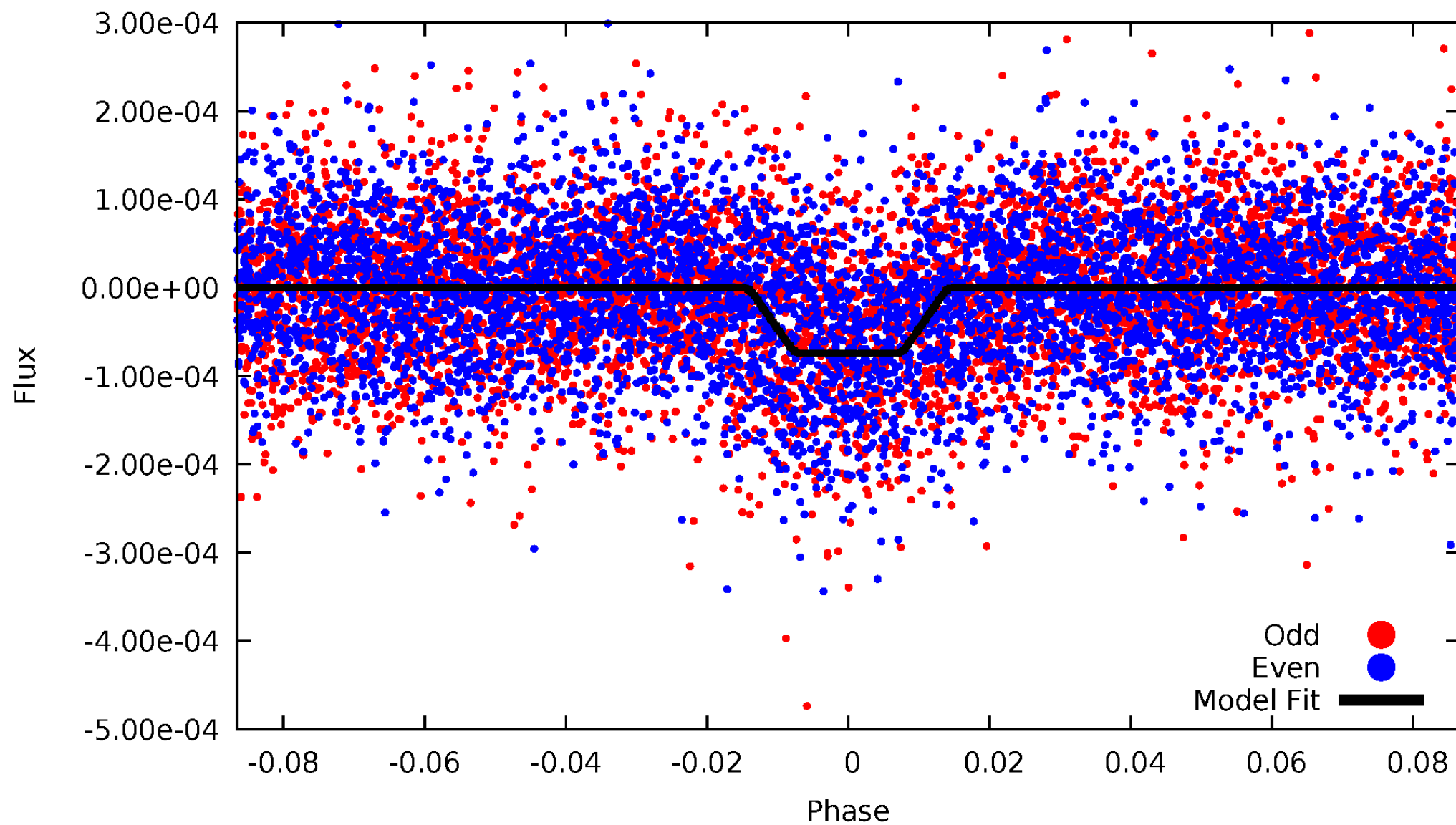
# DV Odd/Even

TCE 011401755-02



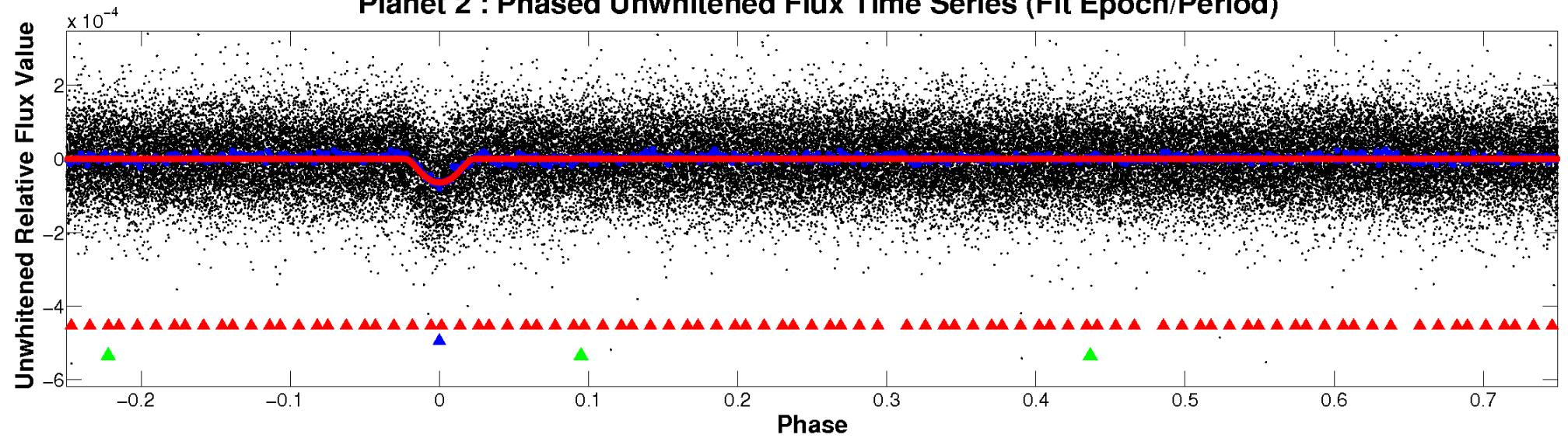
# ALT Odd/Even

TCE 011401755-02

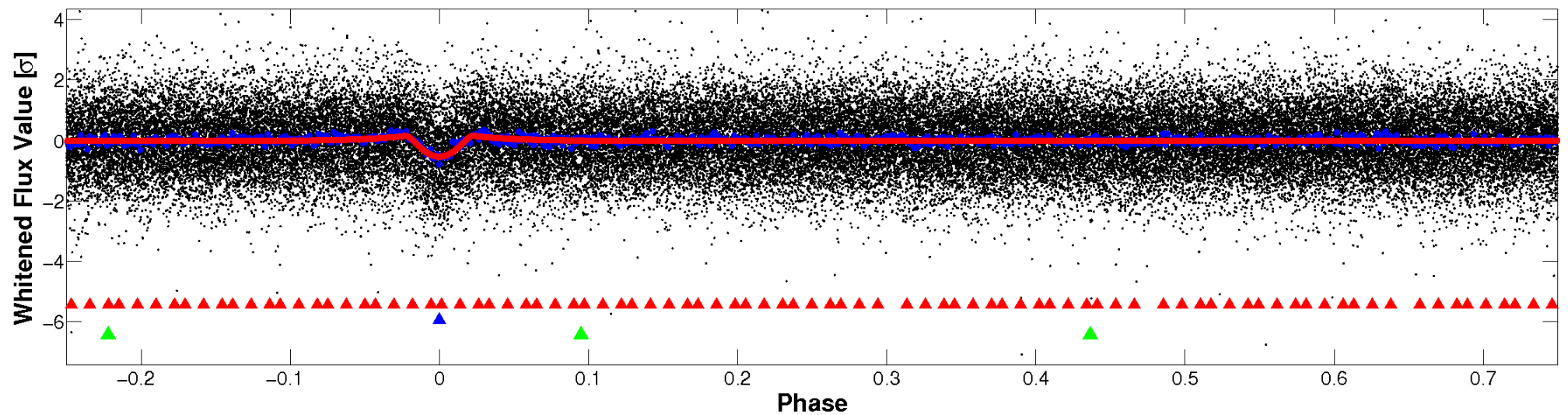


# Non-Whitened Vs. Whitened Light Curve

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



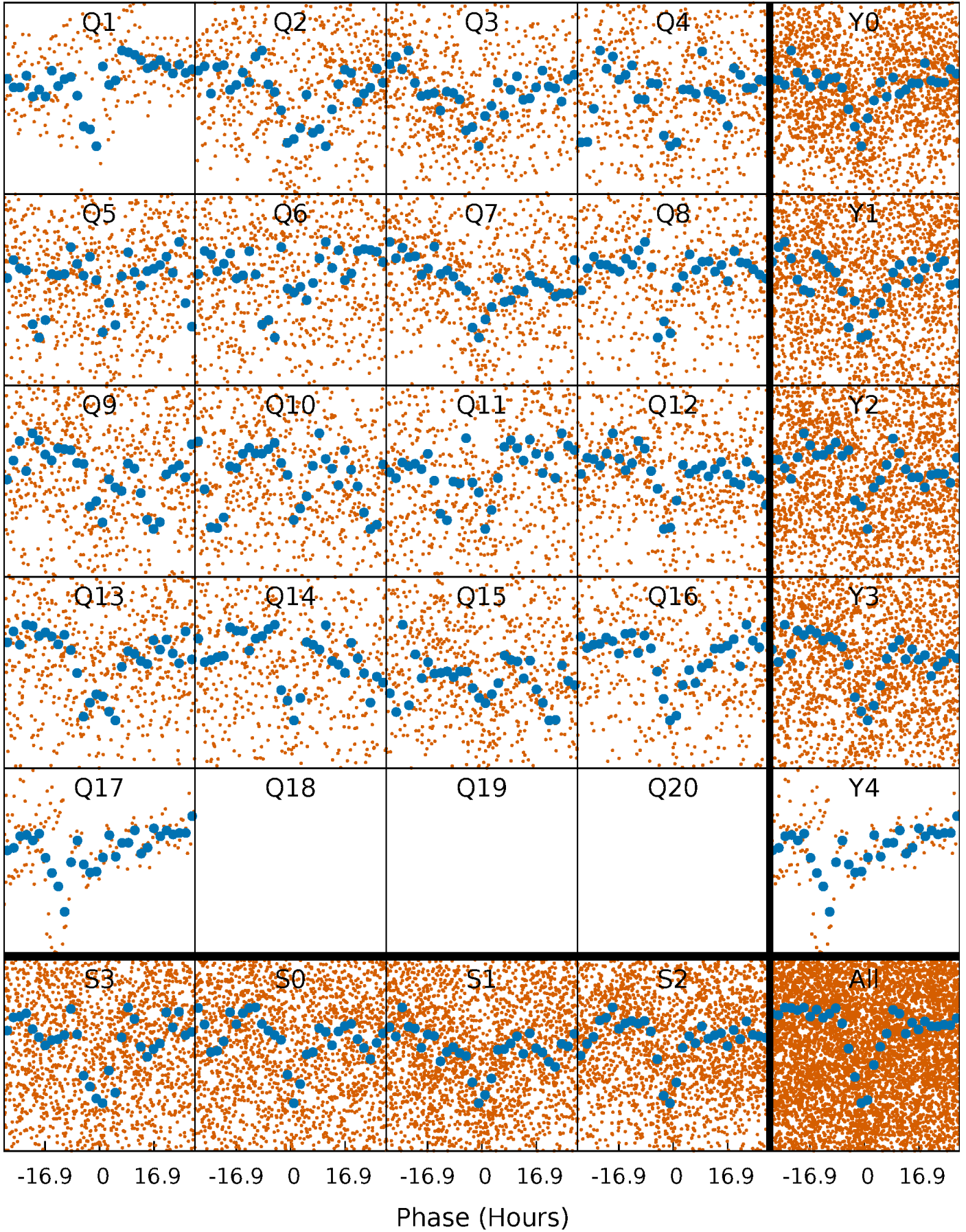
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





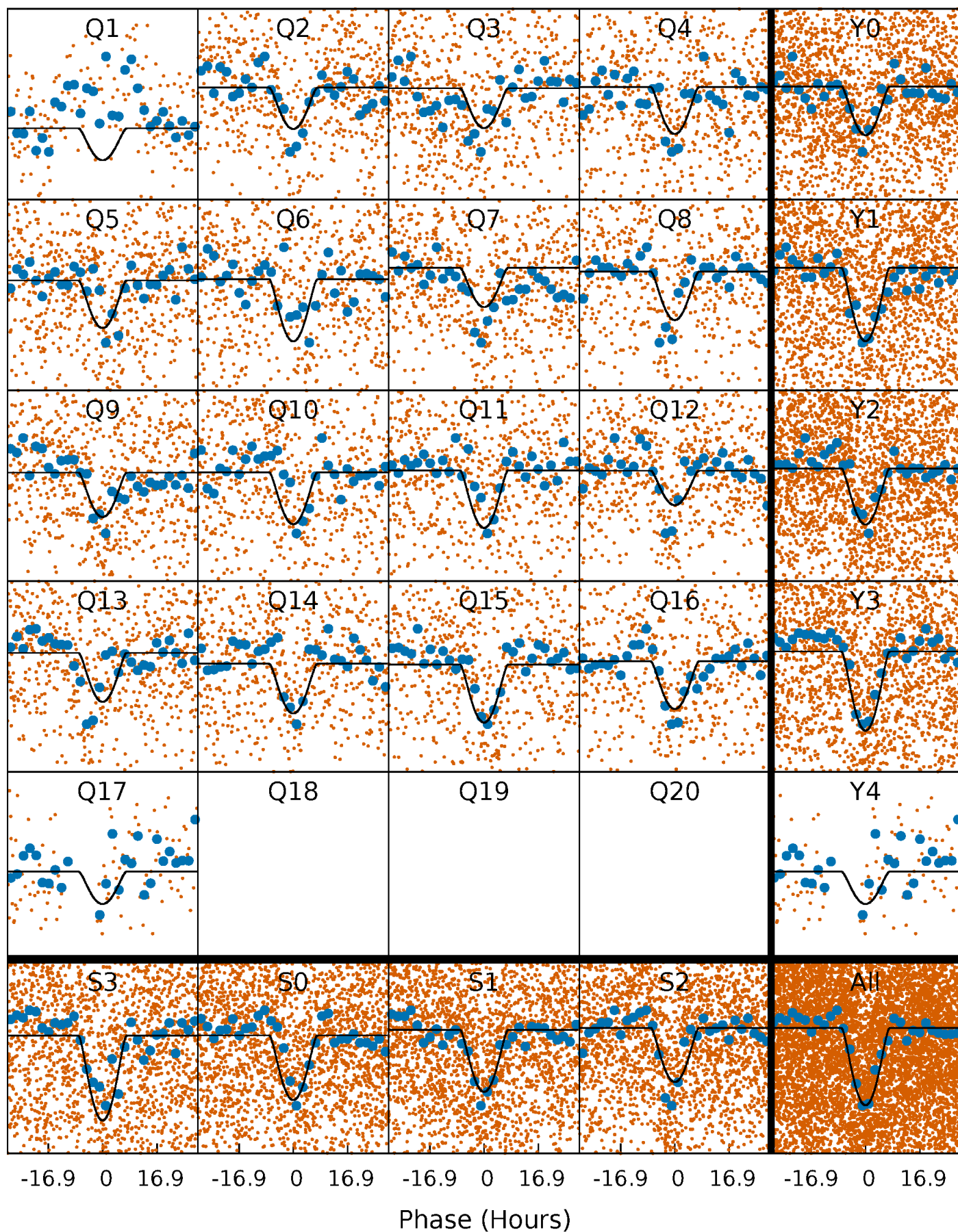
# PDC Quarter-Phased Transit Curves

TCE 011401755-02 P= 13.849734 Days  $T_0=141.678718$  (BKJD)



# DV Quarter-Phased Transit Curves

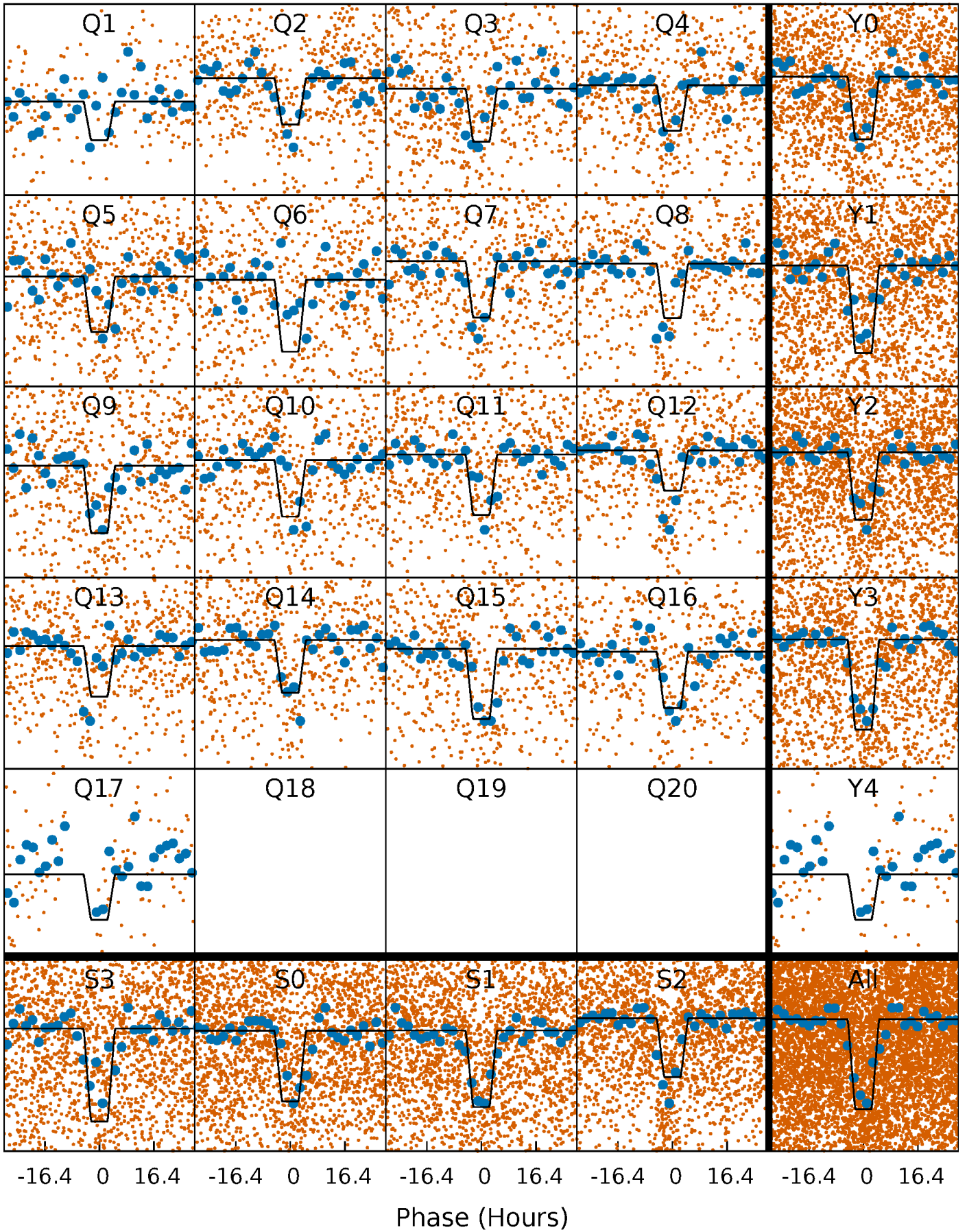
TCE 011401755-02 P= 13.849734 Days  $T_0=141.678718$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

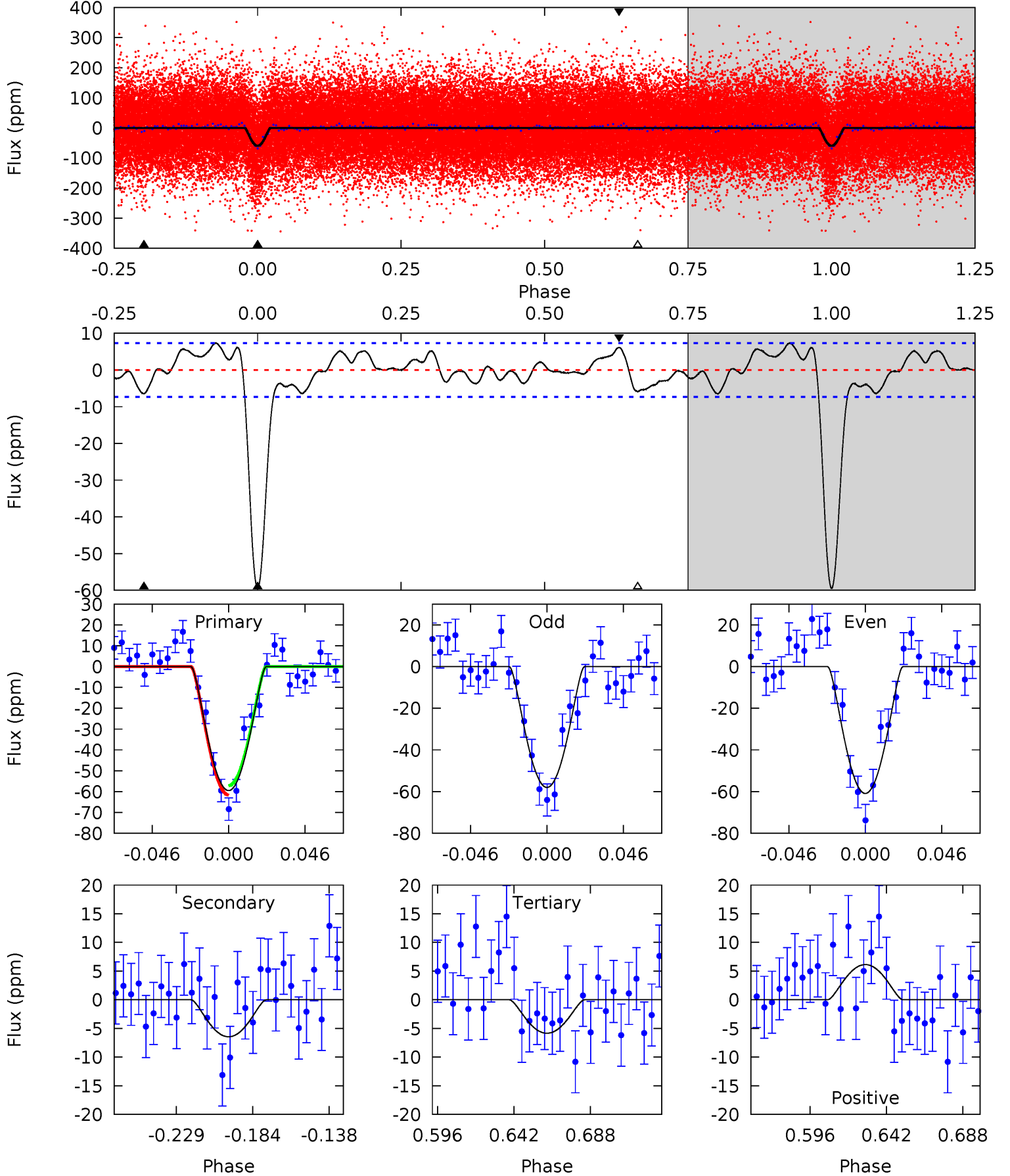
TCE 011401755-02 P= 13.849140 Days  $T_0=141.701187$  (BKJD)



# DV Model-Shift Uniqueness Test

011401755-02, P = 13.849734 Days, E = 127.828984 Days

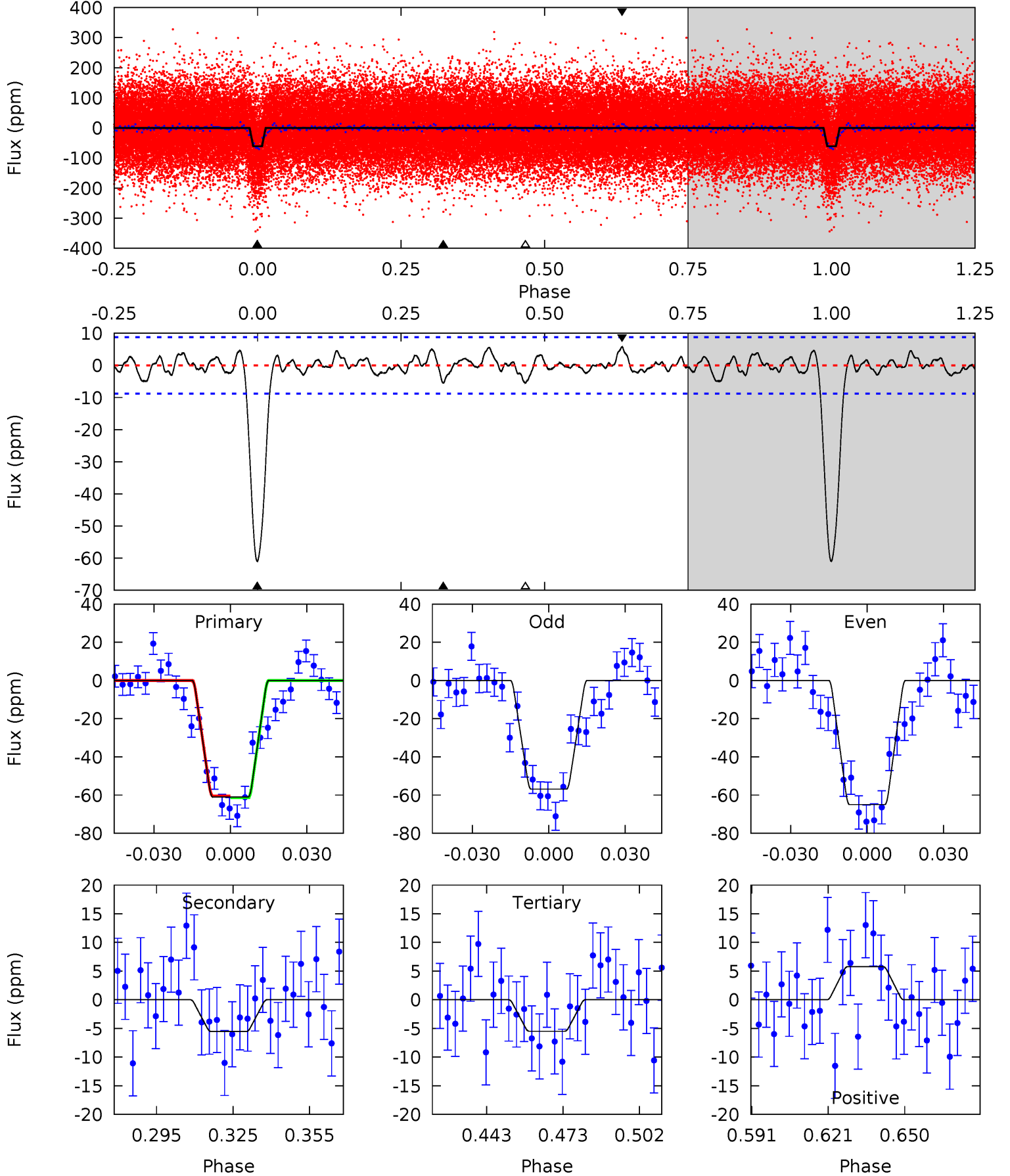
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.4	4.17	3.77	3.96	4.73	2.00	2.07	34.6	34.4	0.40	0.21	0.93	0.94	0.11	1.44



# Alt Model-Shift Uniqueness Test

011401755-02,  $P = 13.849140$  Days,  $E = 127.852047$  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
33.4	3.03	3.01	3.17	4.81	2.18	1.10	30.4	30.2	0.02	-0.14	2.22	1.10	0.09	0.26



### Stellar Parameters For KIC 011401755

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5919^{+62}_{-71}$	$4.042^{+0.030}_{-0.030}$	$-0.200^{+0.050}_{-0.100}$	$1.585^{+0.071}_{-0.079}$	$1.009^{+0.036}_{-0.036}$	$0.357^{+0.043}_{-0.035}$
	+1%/-1%	+1%/-1%	+25%/-50%	+4%/-5%	+4%/-4%	+12%/-10%
Source	SPE8	AST69	SPE69	DSEP		

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

### Secondary Eclipse Parameters for KIC 011401755-02 / KOI 0277.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-6 \pm 2$	$3.99^{+3.47}_{-2.60}$	$1364^{+21}_{-22}$	$2680^{+1064}_{-473}$	$2.766^{+20.925}_{-1.982}$
Alt.	$-6 \pm 2$	$3.25^{+3.17}_{-2.18}$	$1366^{+21}_{-22}$	$2776^{+1202}_{-533}$	$3.475^{+30.978}_{-2.617}$

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

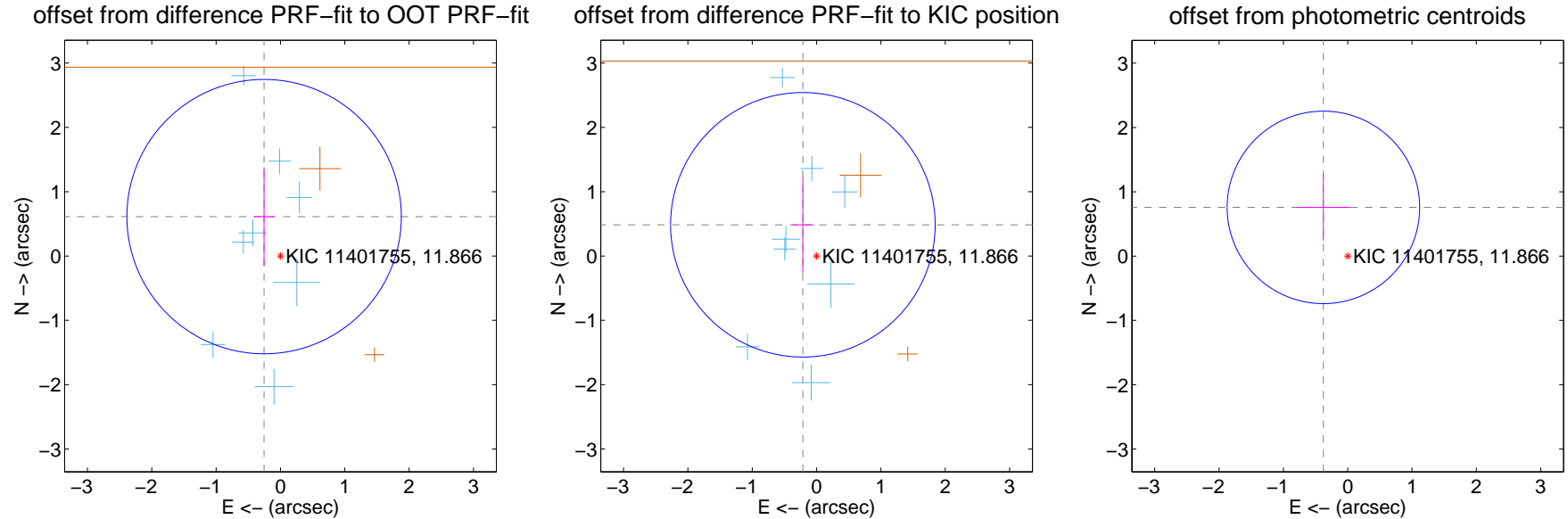
## DV Centroid Data

Supplemental centroid analysis for 011401755-02. **Kepler magnitude: 11.87.** Transit SNR 17.71

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

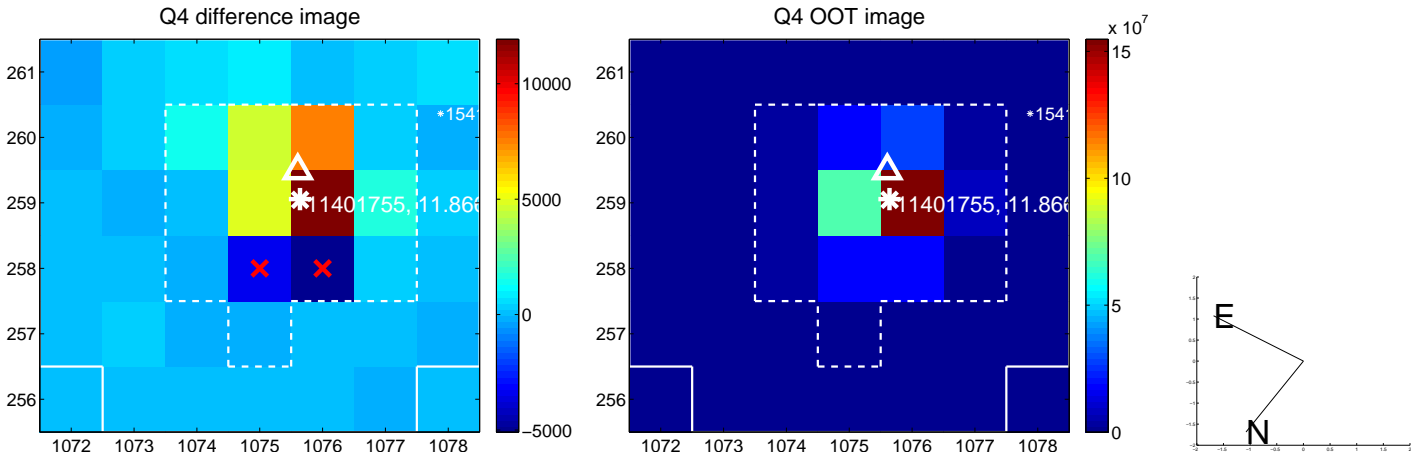
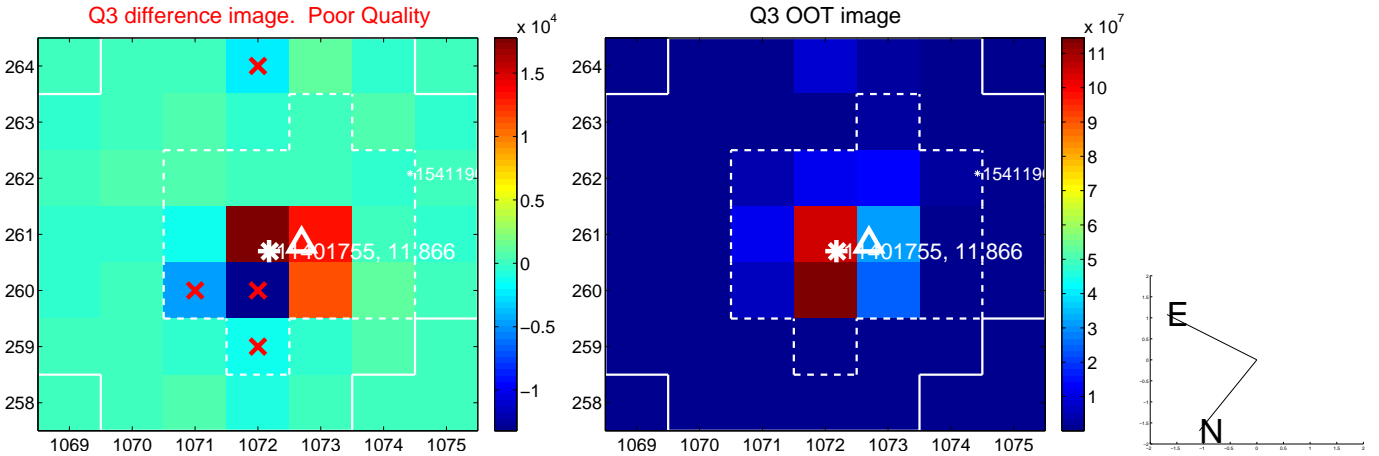
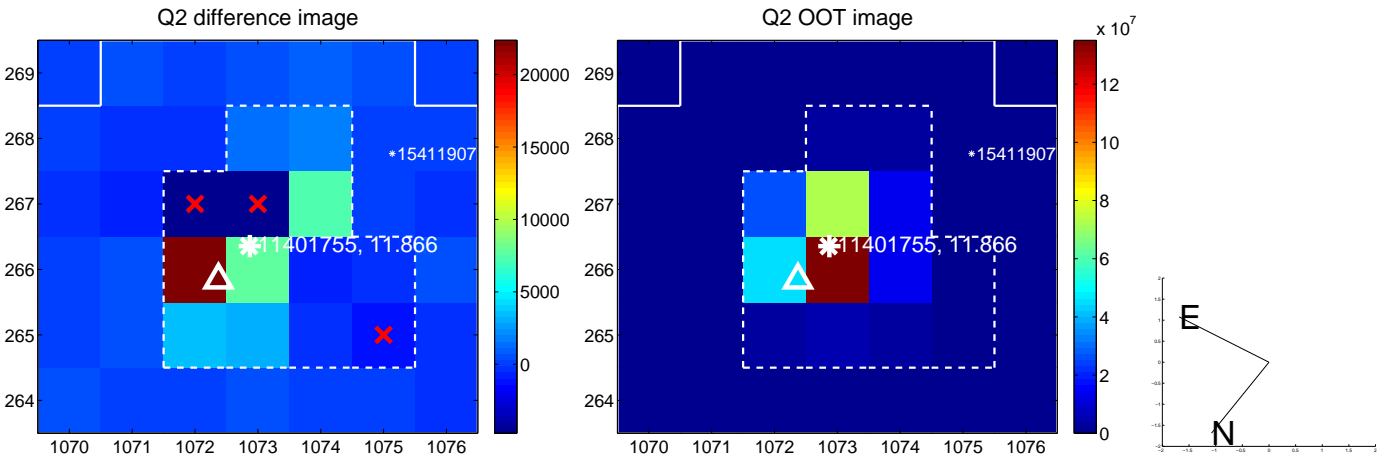
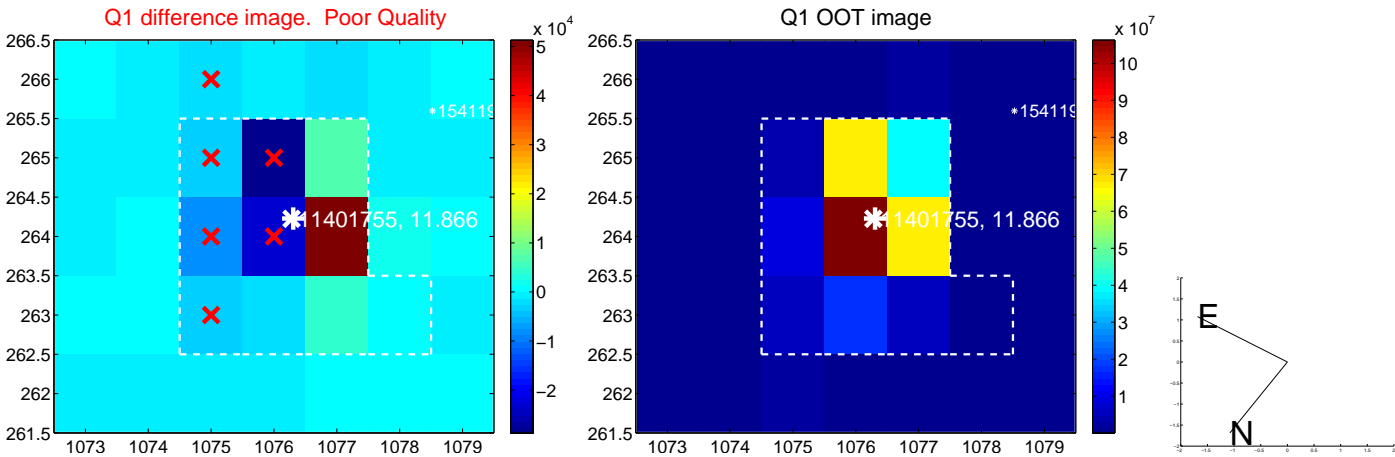
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.663 \pm 0.711$	0.93	$0.254 \pm 0.158$	$0.613 \pm 0.767$
PRF-fit source offset from KIC position	$0.530 \pm 0.685$	0.77	$0.213 \pm 0.162$	$0.486 \pm 0.745$
photometric centroid source offset	$0.85 \pm 0.50$	1.70	$0.38 \pm 0.42$	$0.76 \pm 0.52$



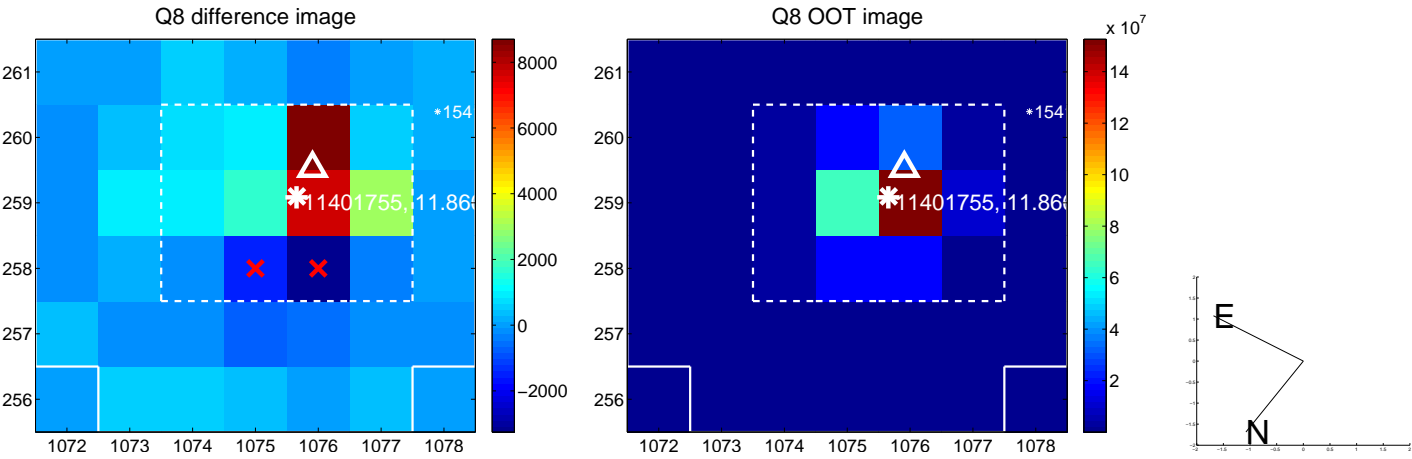
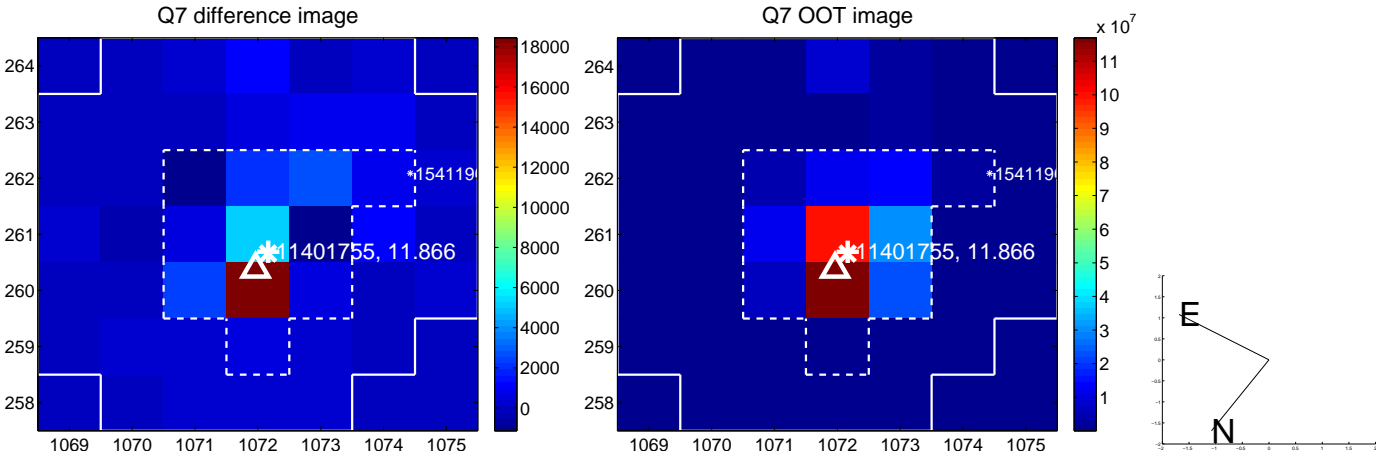
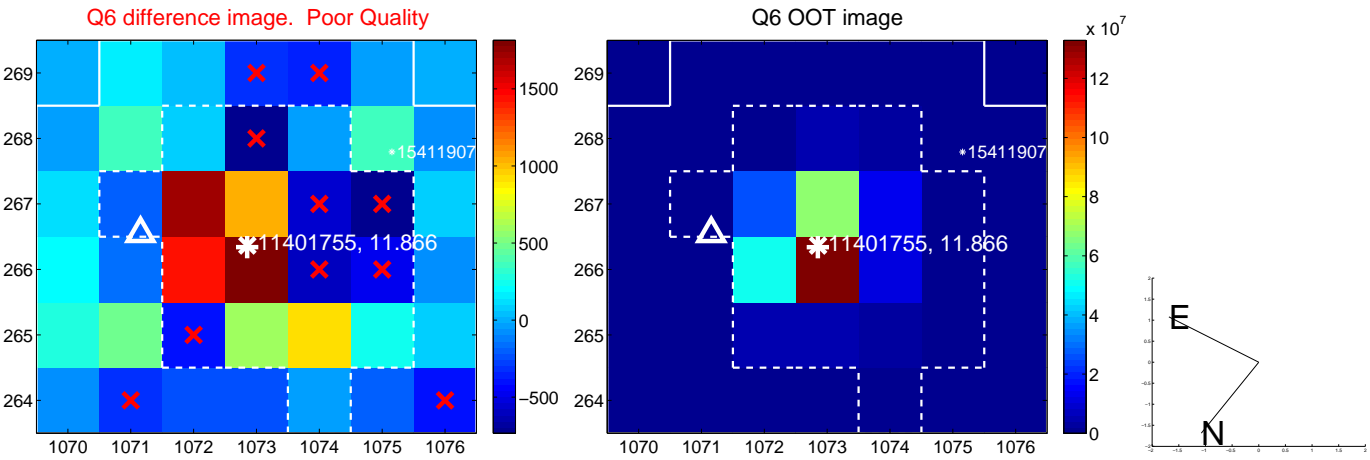
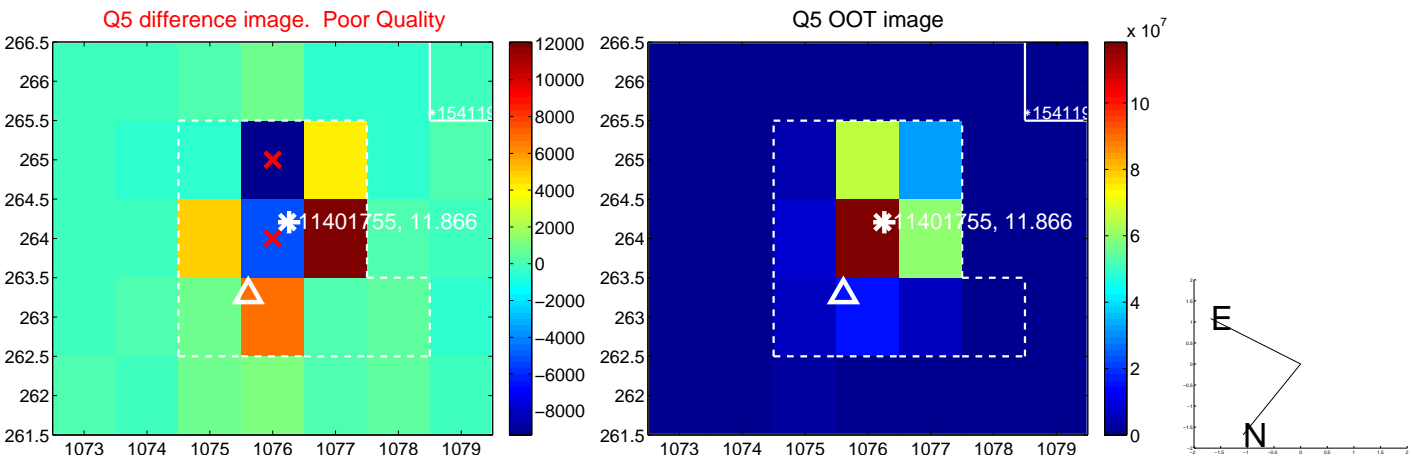
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



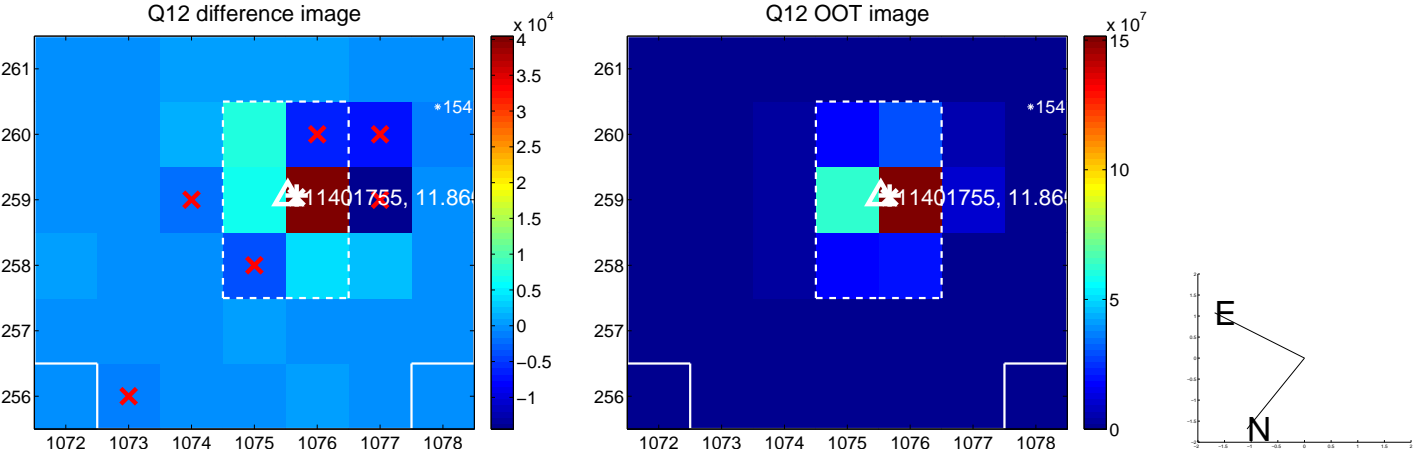
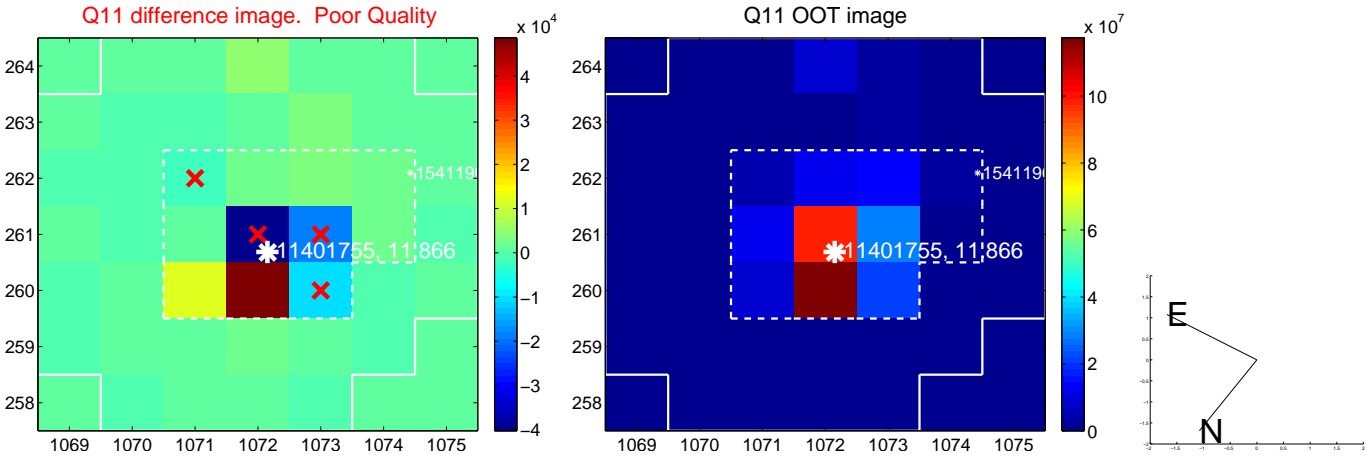
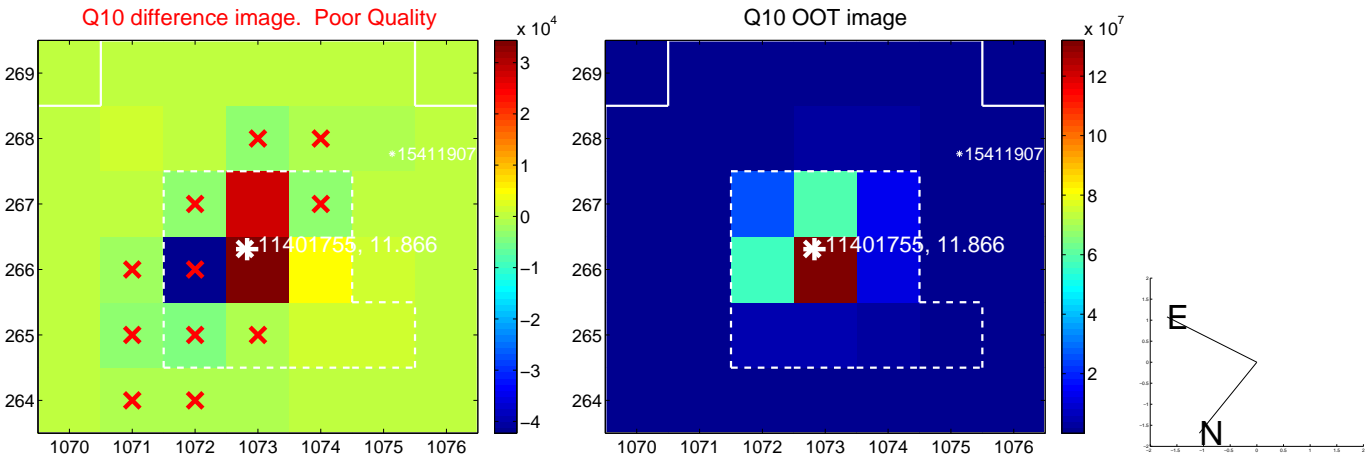
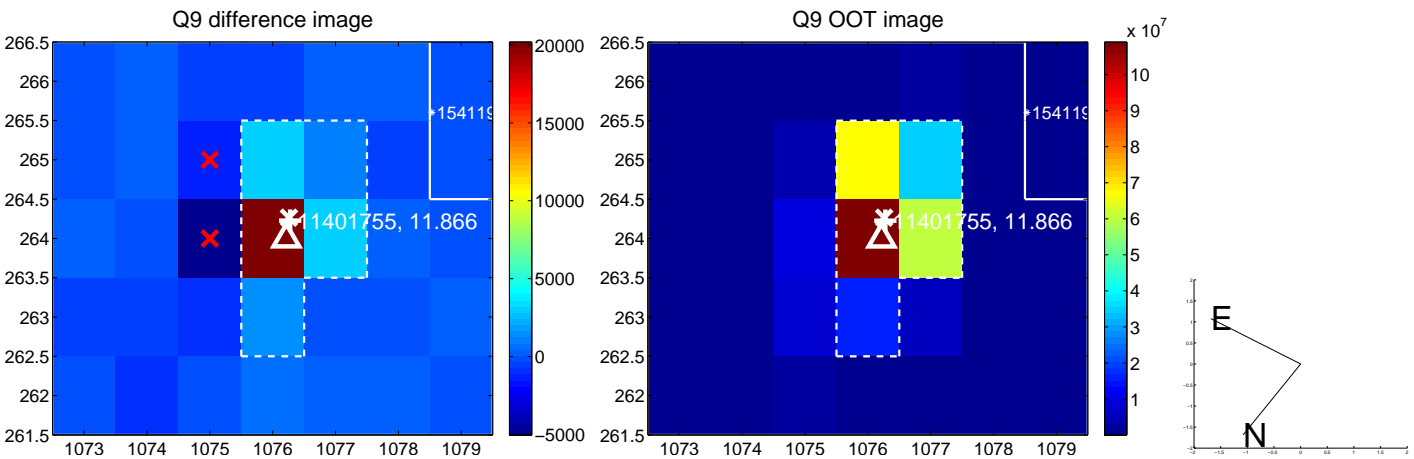
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



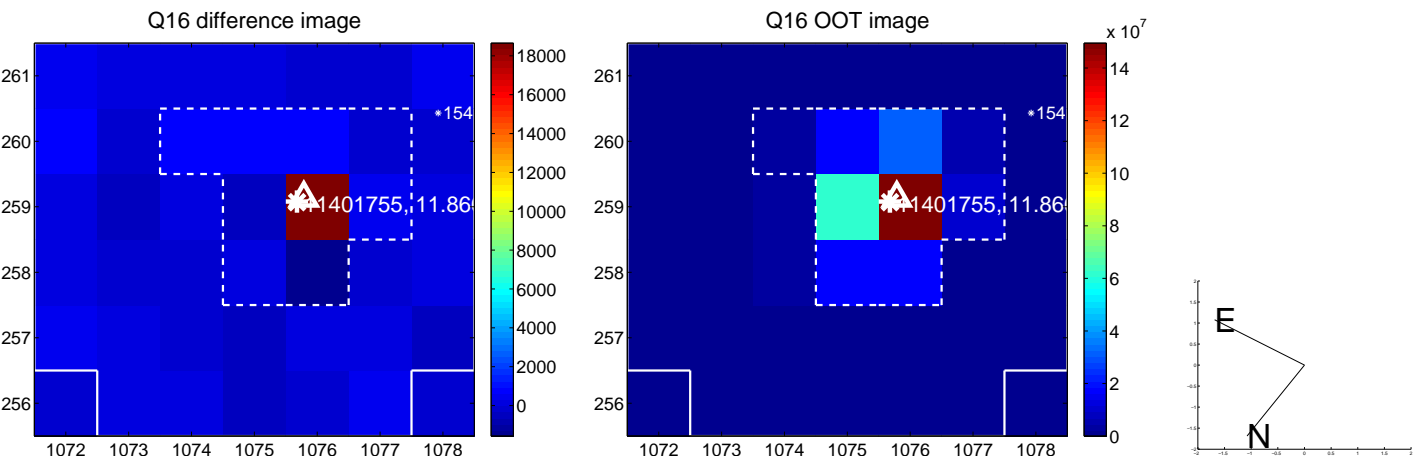
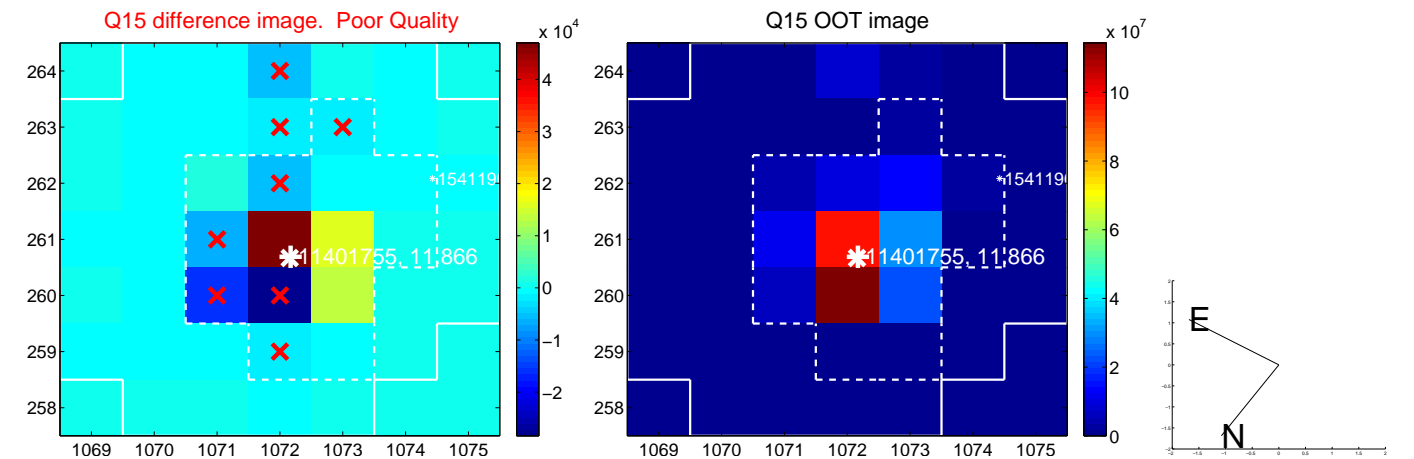
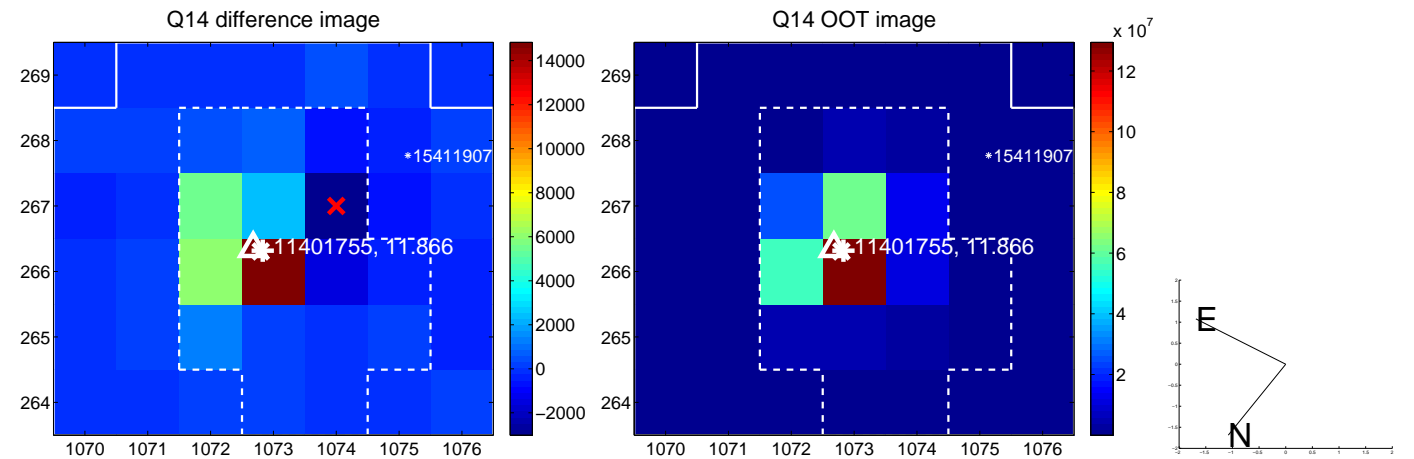
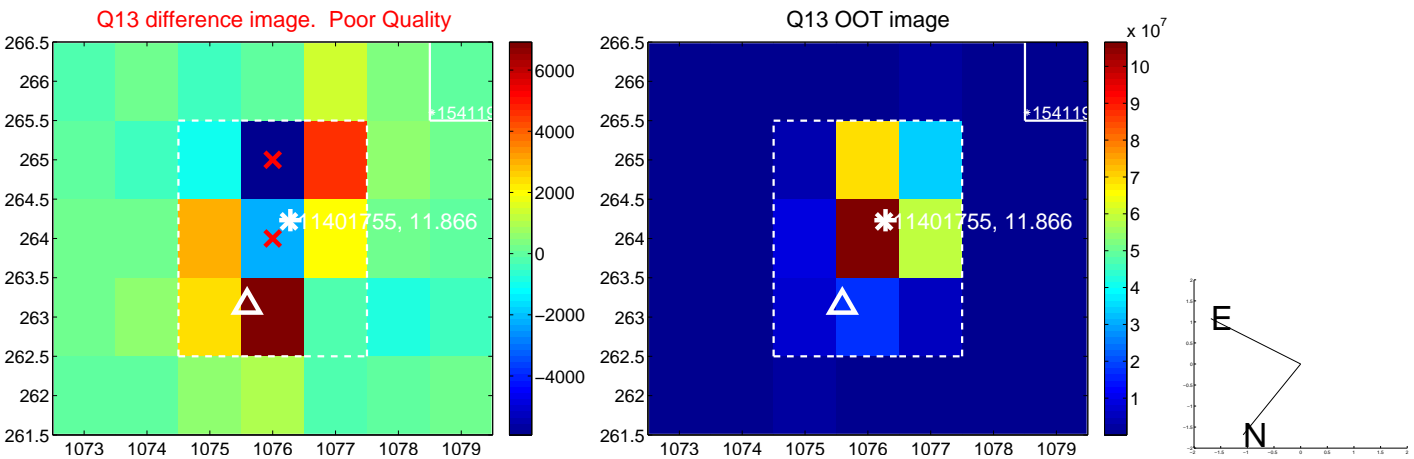
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



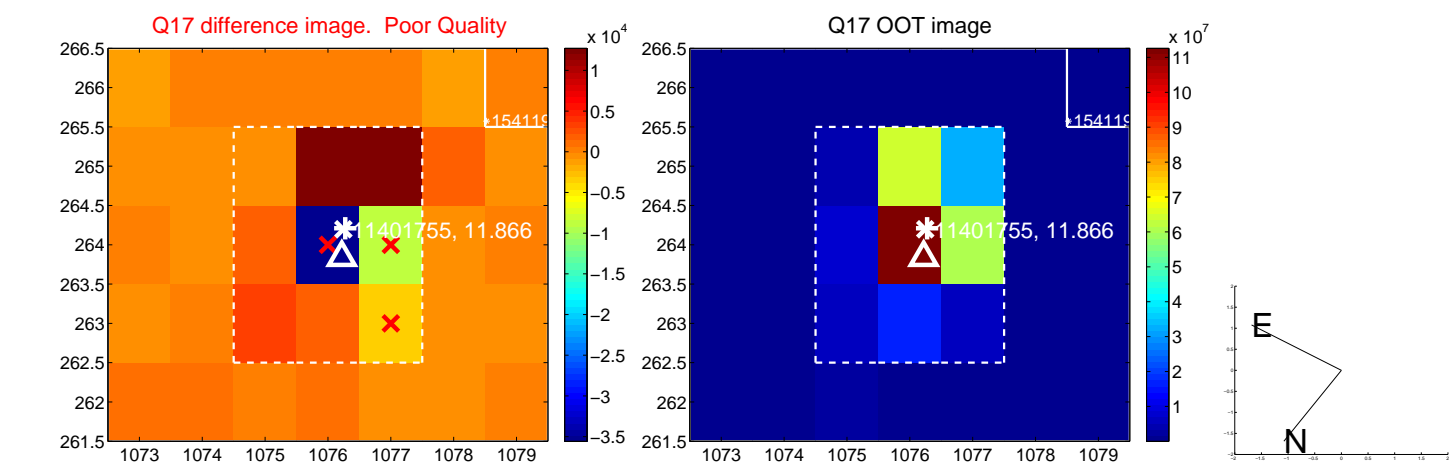
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



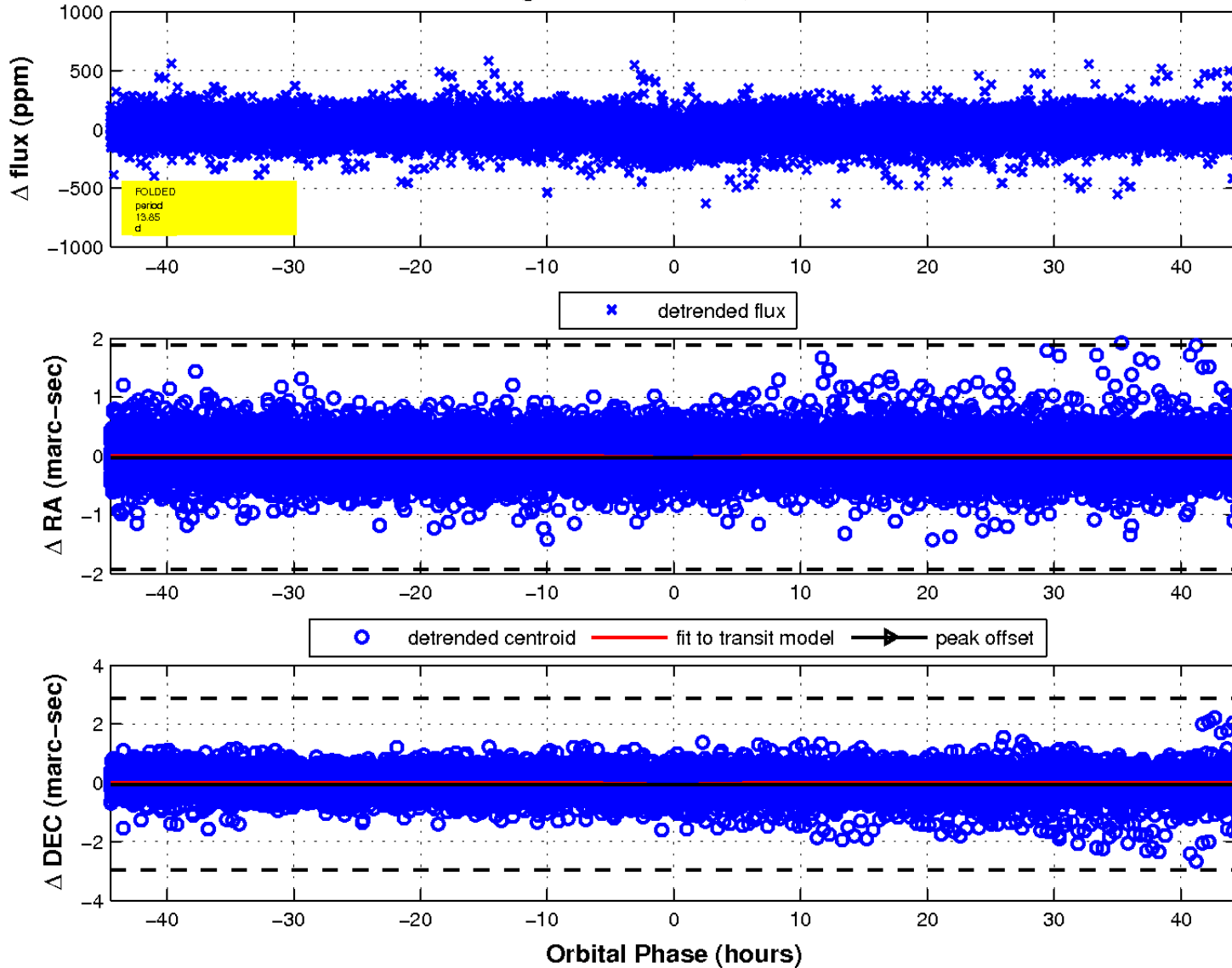
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

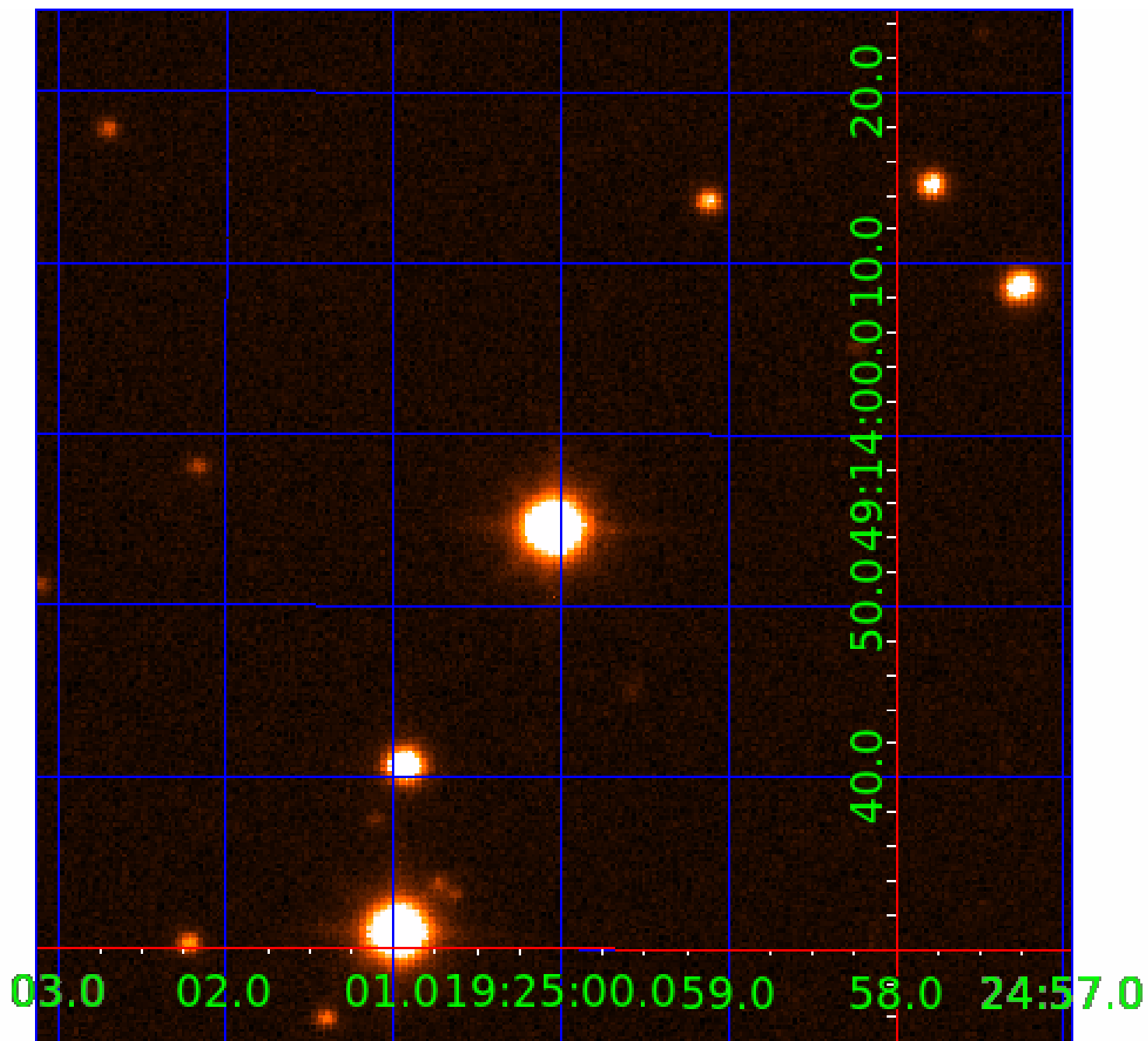


### fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



# KIC 011401755

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011401755-01	OBS	0277.01	16.231674	139.219617	484.0	7.976	110.0	123.0	1.58	5919	3.85	174.35
011401755-02	OBS	0277.02	13.849734	141.678718	64.7	14.822	16.7	17.7	1.58	5919	2.67	215.44
011401755-03	OBS	No	563.109855	318.649753	145.7	18.927	17.6	8.3	1.58	5919	1.98	1.54

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011401755-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011401755-02	OBS	FP	0.06	1	0	0	0	LPP_DV
011401755-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

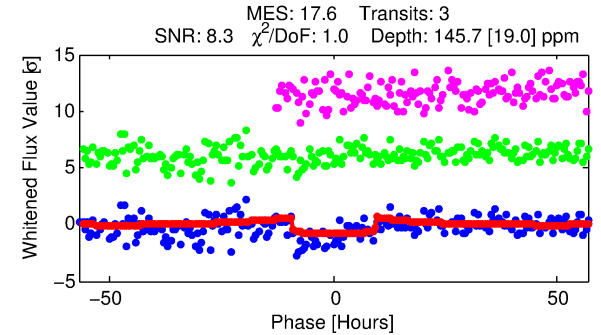
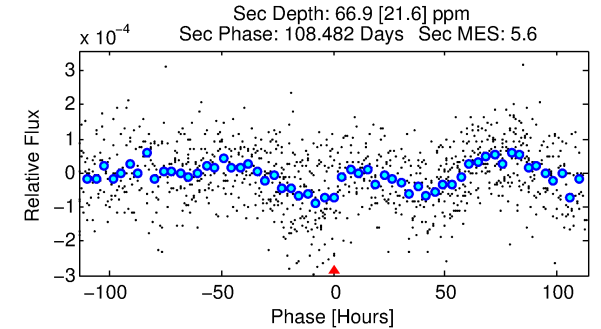
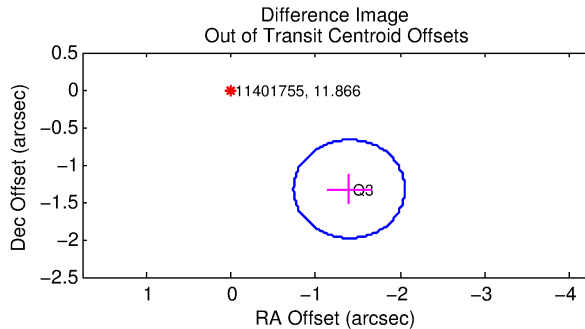
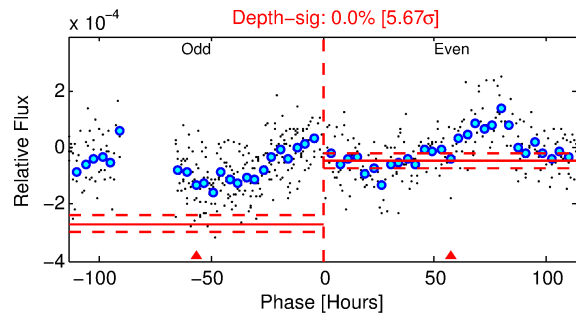
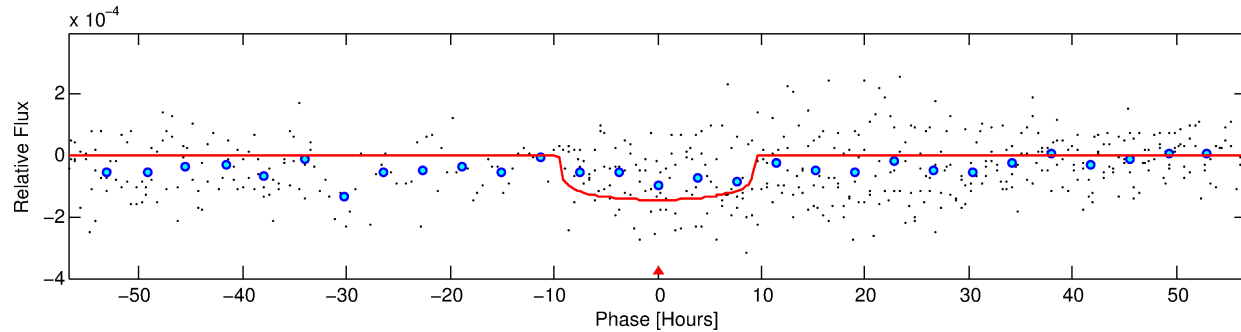
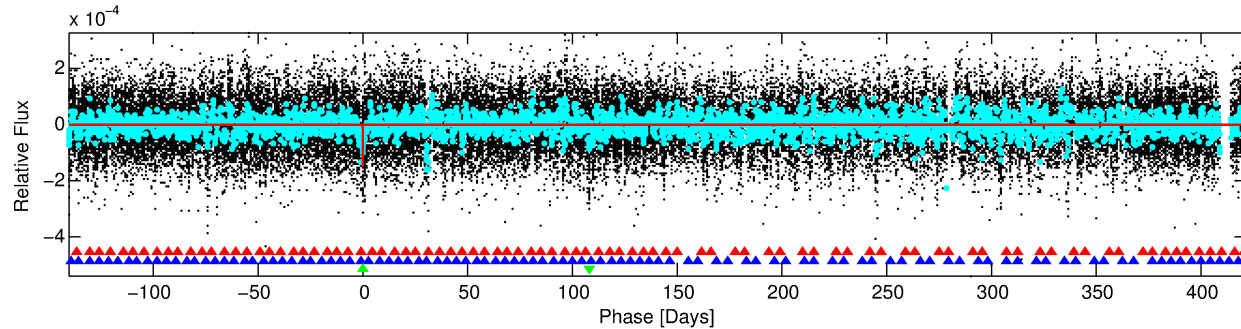
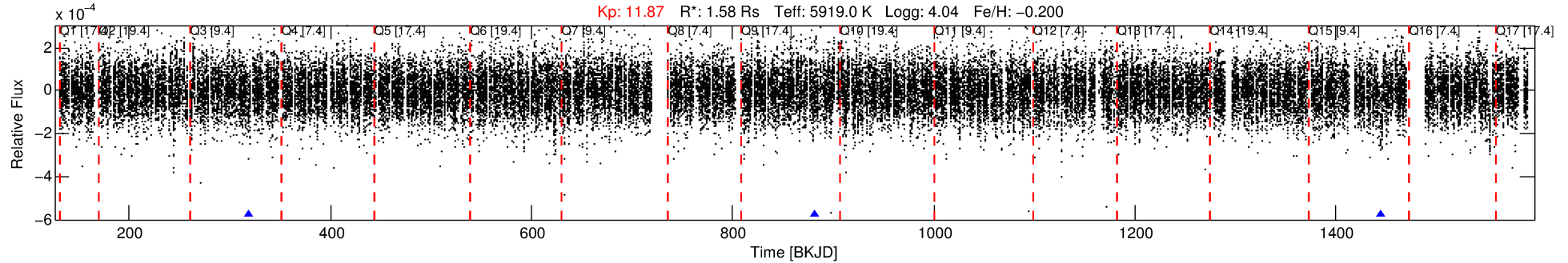
## Ephemeris Match Information For 011401755-03

No Significant Match Found



# DV One-Page Summary

KIC: 11401755 Candidate: 3 of 3 Period: 563.110 d  
KOI: K00277 Name: Kepler-36 Corr: No Ephemeris Match



## DV Fit Results:

Period = 563.10986 [0.01599] d  
Epoch = 318.6498 [0.0225] BKJD  
Rp/R\* = 0.0115 [0.0049]  
a/R\* = 189.88 [375.46]  
b = 0.57 [2.34]  
Seff = 1.54 [0.11]  
Teq = 284 [5] K  
Rp = 1.98 [0.85] Re  
a = 1.3390 [0.0541] AU  
Ag = 16768.22 [15267.42] [1.10 $\sigma$ ]  
Teff = 4998 [1137] K [4.15 $\sigma$ ]

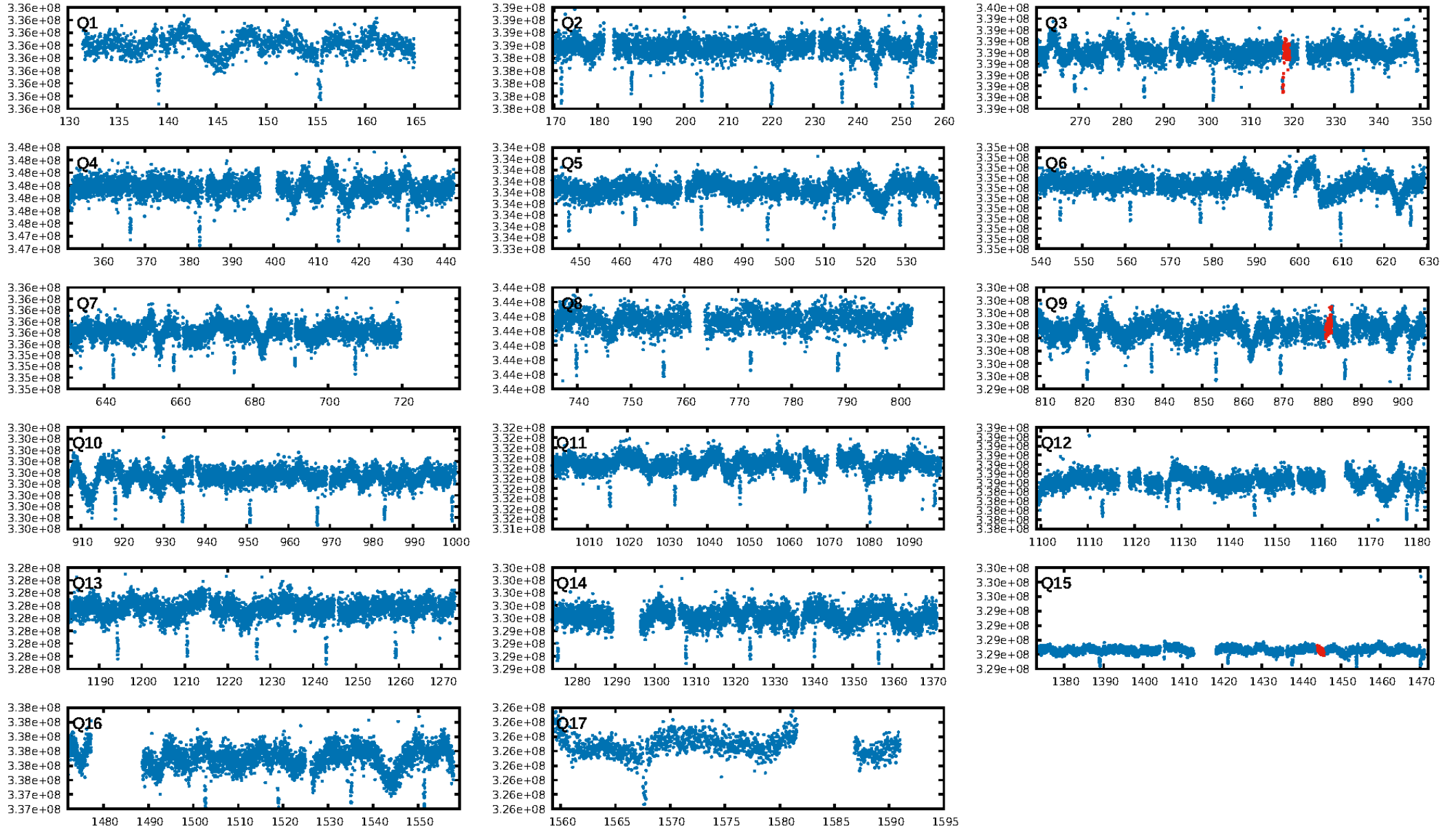
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [639.02 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 96.6%  
Bootstrap-pfa: 8.47e-27  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.495  
Centroid-sig: 96.4%  
Centroid-so: 0.117 arcsec [0.11 $\sigma$ ]  
OotOffset-rm: 1.927 arcsec [8.80 $\sigma$ ]  
KicOffset-rm: 1.887 arcsec [8.64 $\sigma$ ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 0.33 [1/3]

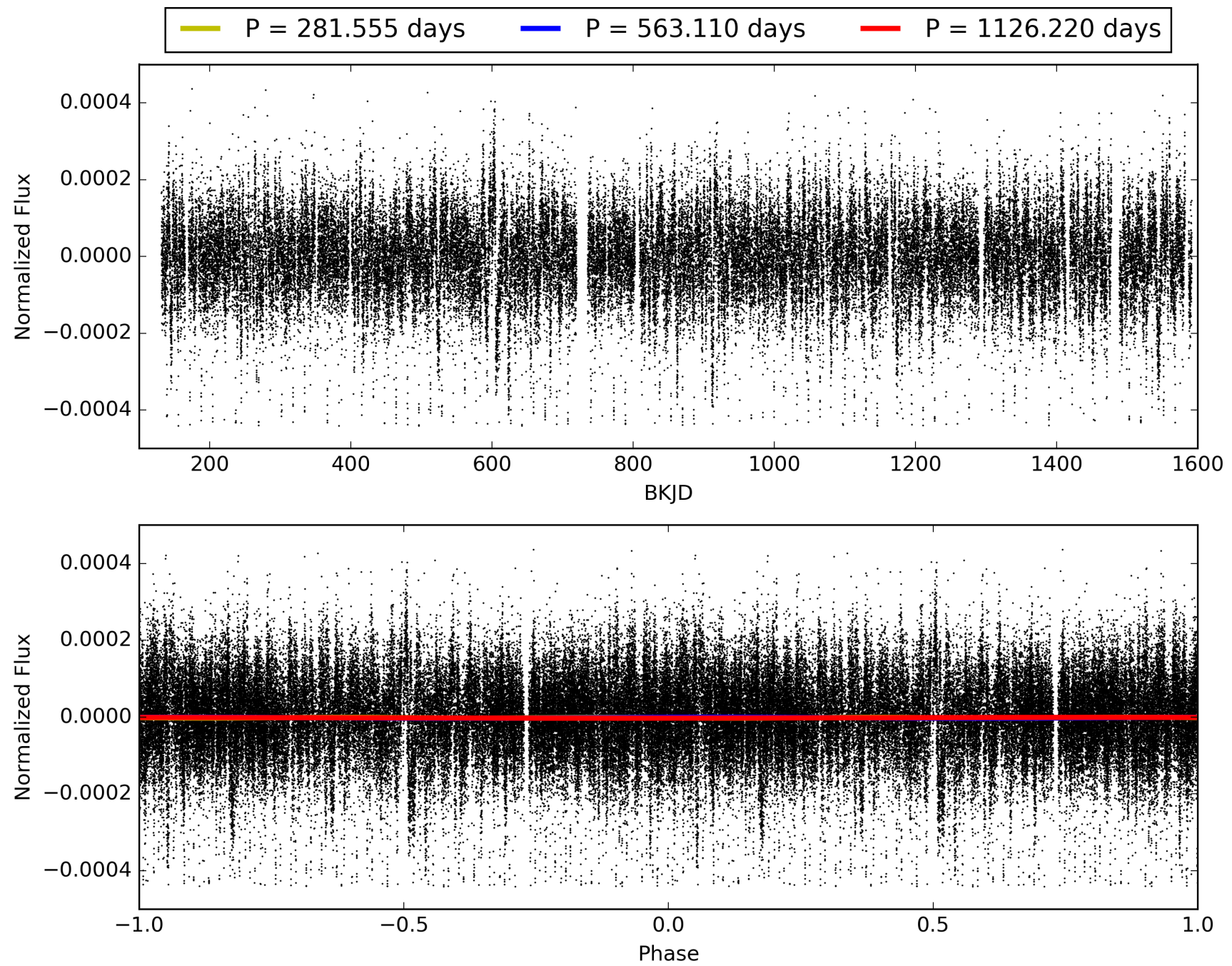
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:57:54 Z

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

# TCE 011401755-03, PDC Light Curves

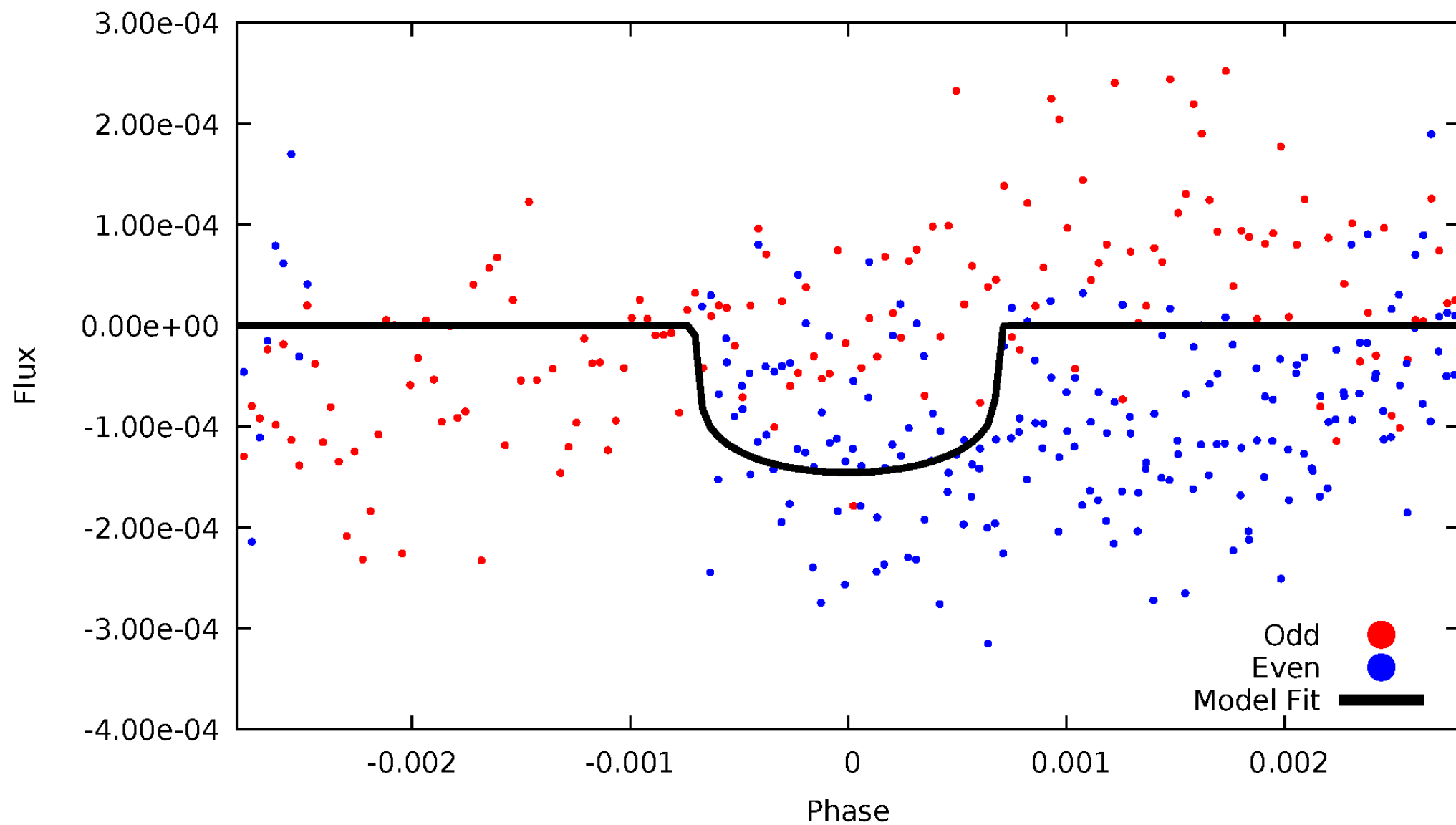


# TCE 011401755-03



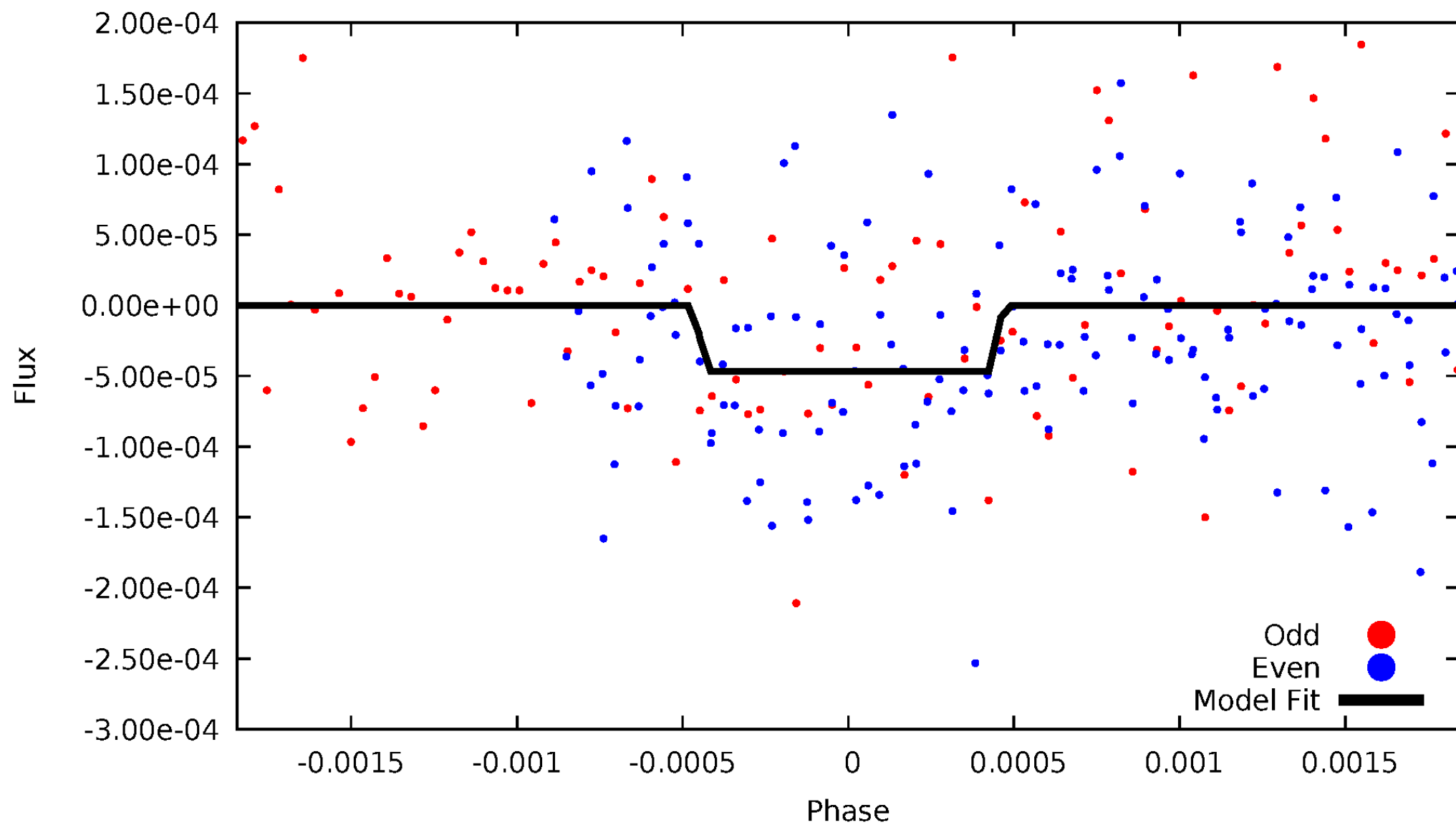
# DV Odd/Even

TCE 011401755-03



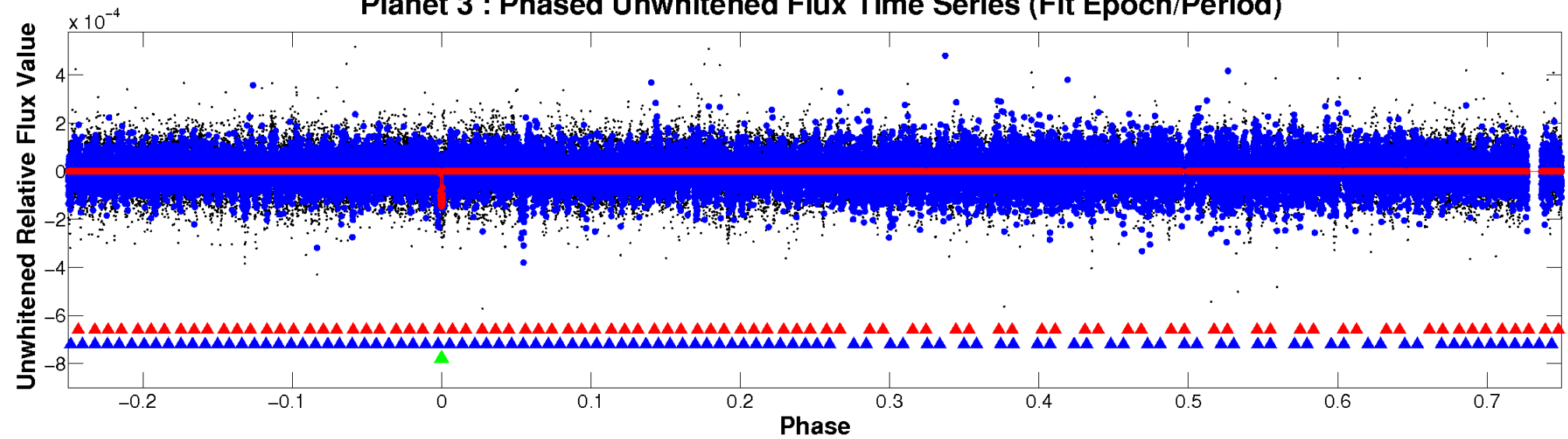
# ALT Odd/Even

TCE 011401755-03

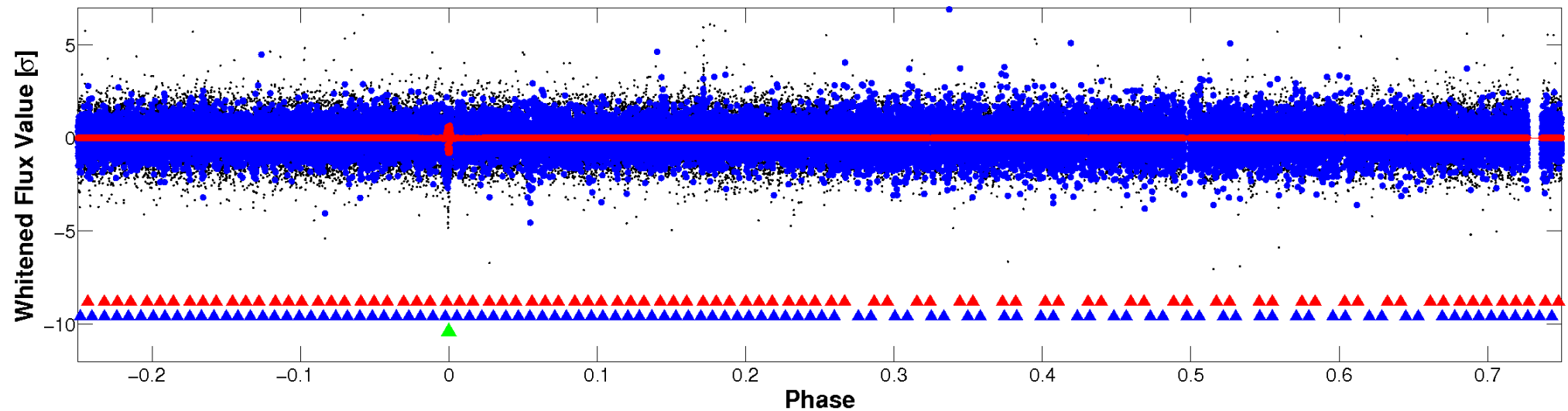


# Non-Whitened Vs. Whitened Light Curve

## 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

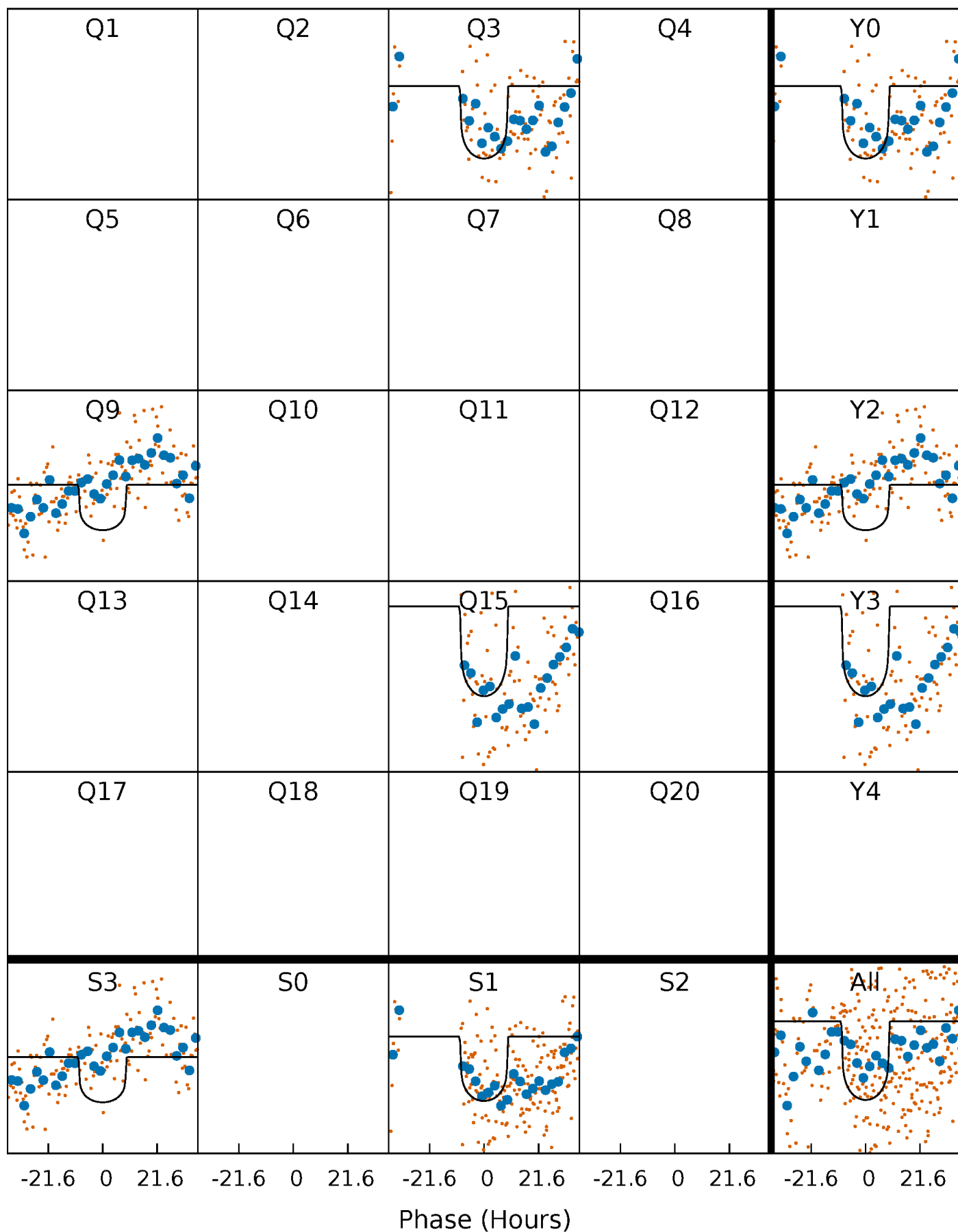
TCE 011401755-03     $P=563.109855$  Days     $T_0=318.649753$  (BKJD)





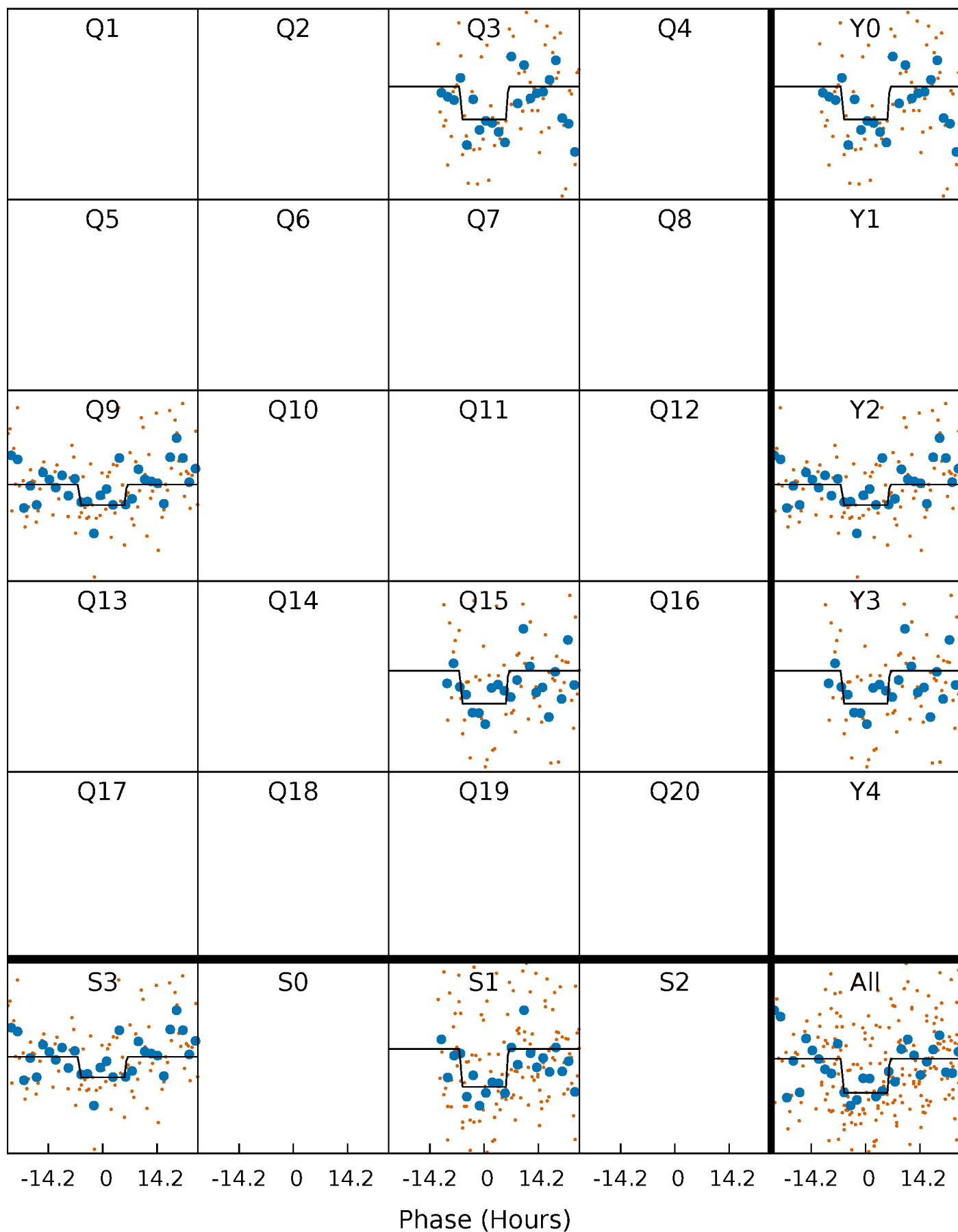
# DV Quarter-Phased Transit Curves

TCE 011401755-03     $P=563.109855$  Days     $T_0=318.649753$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

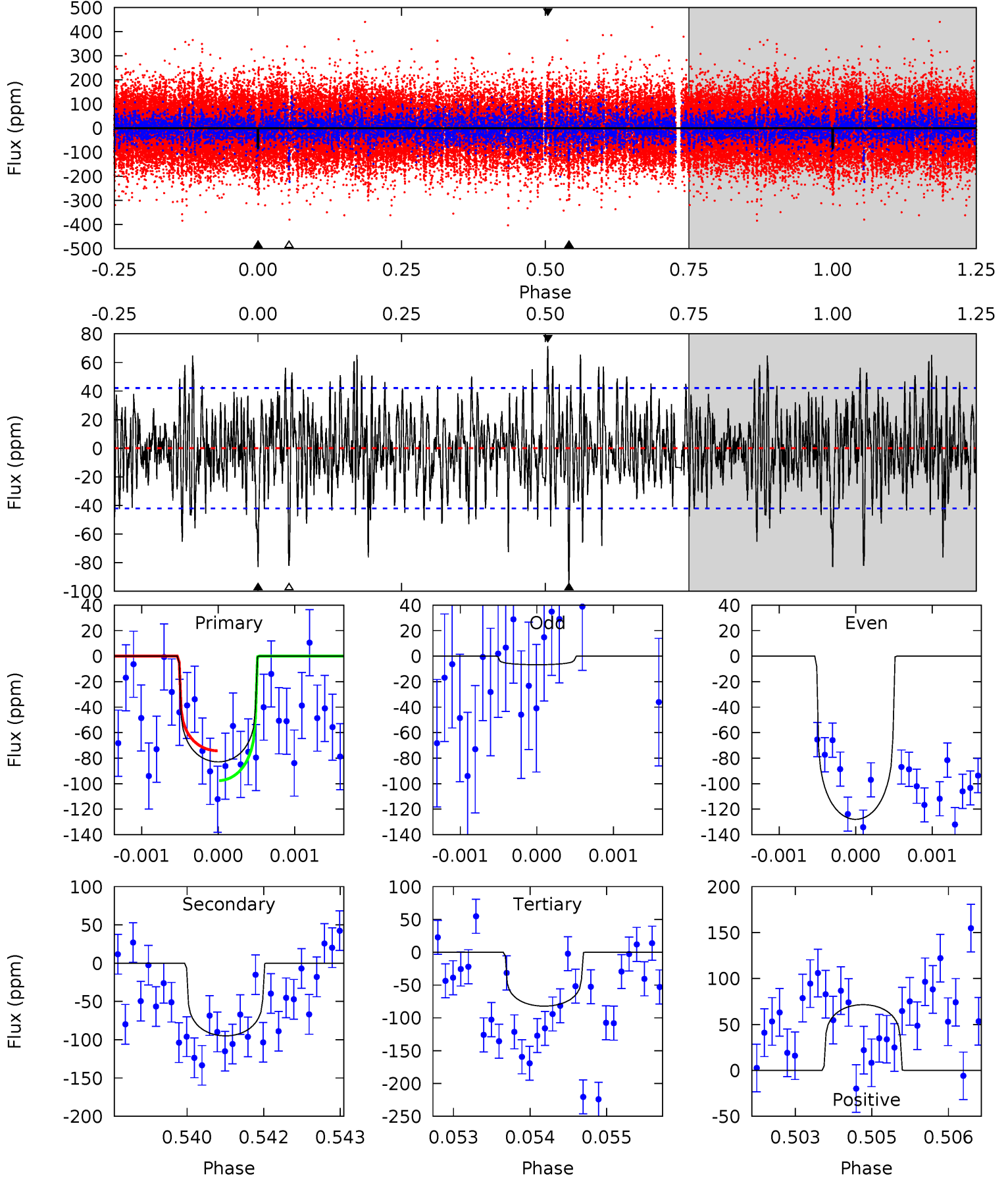
TCE 011401755-03     $P=563.067179$  Days     $T_0=318.794286$  (BKJD)



# DV Model-Shift Uniqueness Test

011401755-03, P = 563.109855 Days, E = 318.649753 Days

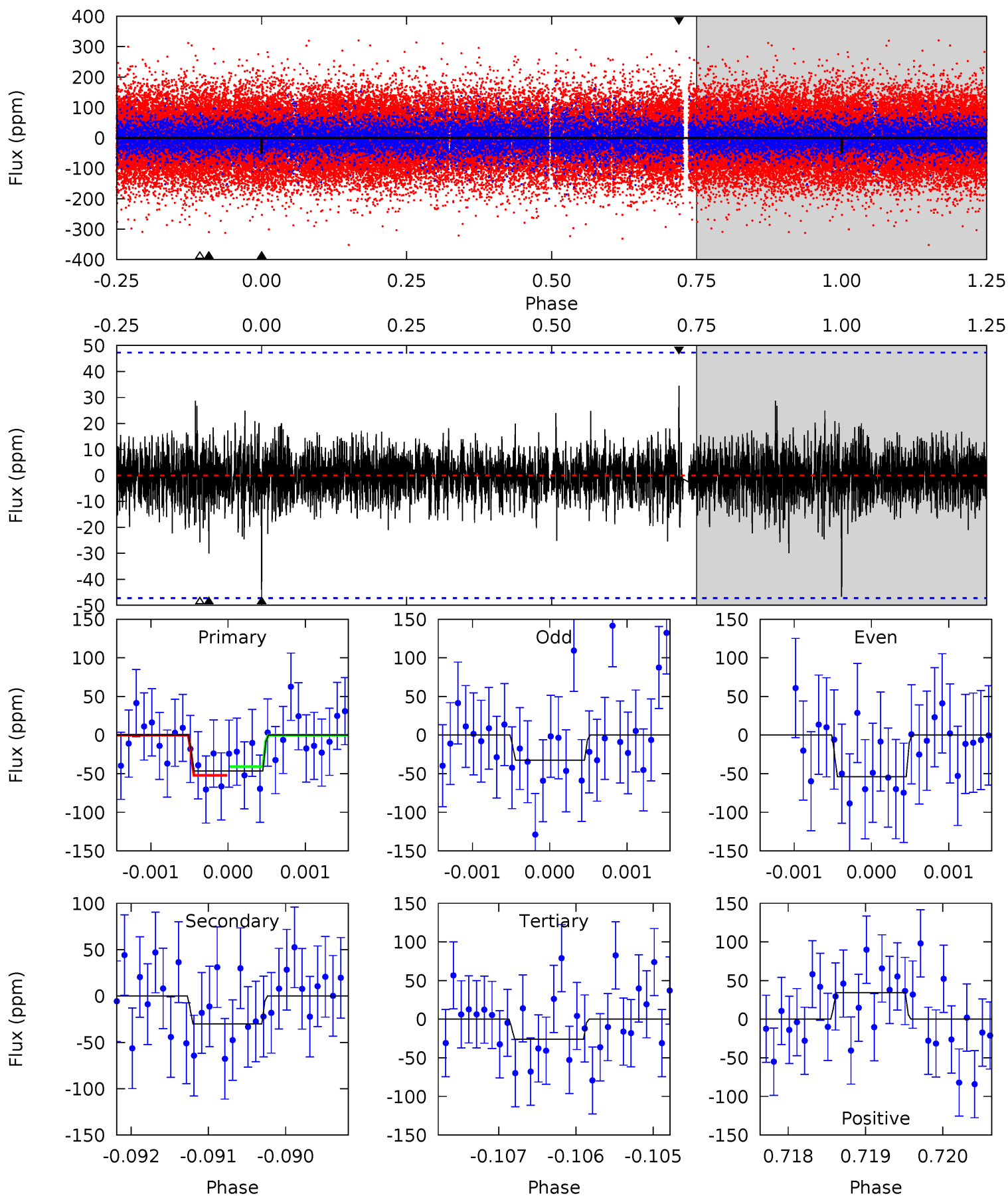
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	12.2	10.5	9.17	5.39	3.20	2.78	0.10	1.47	1.64	3.01	7.30	0.86	0.43	1.49



# Alt Model-Shift Uniqueness Test

011401755-03, P = 563.067179 Days, E = 318.794286 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
5.39	3.46	2.98	3.98	5.46	3.31	0.77	2.41	1.41	0.48	-0.52	1.17	1.02	0.42	0.65



### Stellar Parameters For KIC 011401755

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5919^{+62}_{-71}$	$4.042^{+0.030}_{-0.030}$	$-0.200^{+0.050}_{-0.100}$	$1.585^{+0.071}_{-0.079}$	$1.009^{+0.036}_{-0.036}$	$0.357^{+0.043}_{-0.035}$
	+1%/-1%	+1%/-1%	+25%/-50%	+4%/-5%	+4%/-4%	+12%/-10%
Source	SPE8	AST69	SPE69	DSEP		

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

### Secondary Eclipse Parameters for KIC 011401755-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-95 \pm 8$	$2.01^{+0.81}_{-0.80}$	$397^{+6}_{-6}$	$5461^{+1599}_{-743}$	$23387^{+42466}_{-11614}$
Alt.	$-30 \pm 9$	$1.24^{+0.85}_{-0.66}$	$397^{+6}_{-6}$	$5234^{+2401}_{-1064}$	$19481^{+69542}_{-13249}$

$T_{max}$  = 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

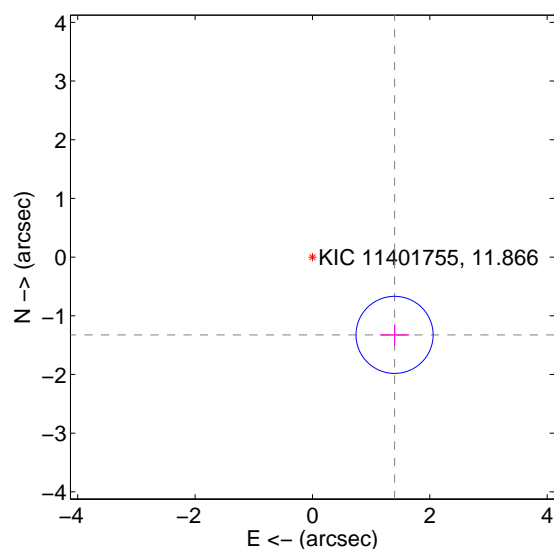
Supplemental centroid analysis for 011401755-03. **Kepler magnitude: 11.87.** Transit SNR 8.27

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

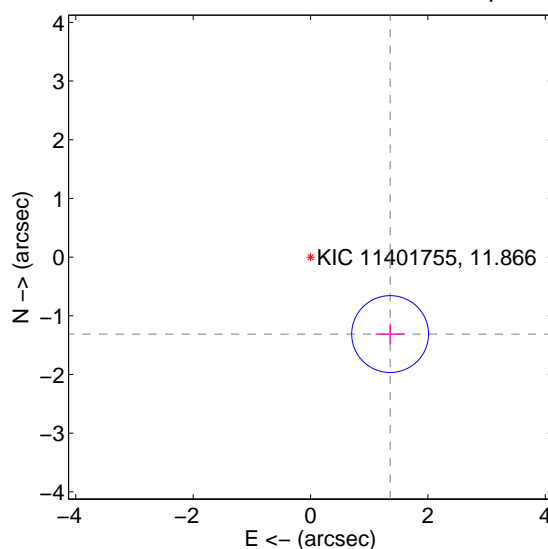
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.927 \pm 0.219</math></b>	<b>8.80</b>	$-1.399 \pm 0.249$	$-1.325 \pm 0.180$
PRF-fit source offset from KIC position	<b><math>1.887 \pm 0.218</math></b>	<b>8.64</b>	$-1.356 \pm 0.249$	$-1.311 \pm 0.180$
photometric centroid source offset	$0.12 \pm 1.11$	0.11	$0.04 \pm 0.66$	$0.11 \pm 1.16$

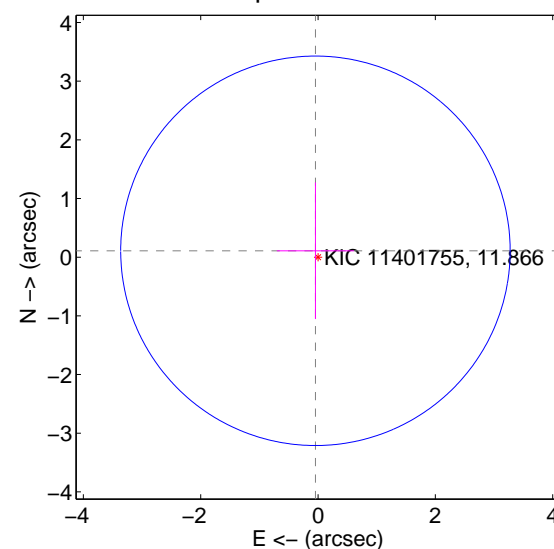
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



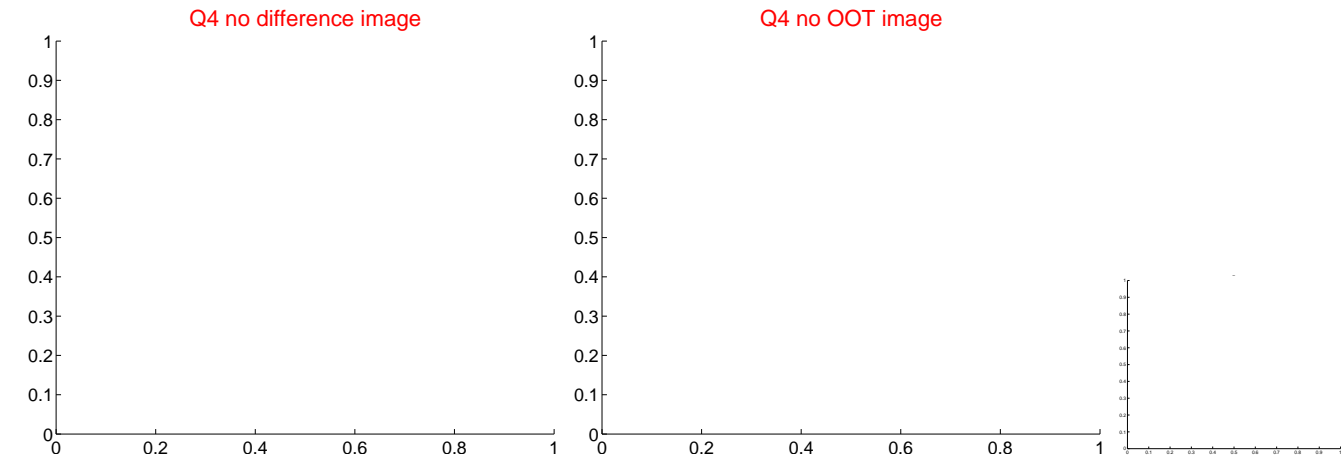
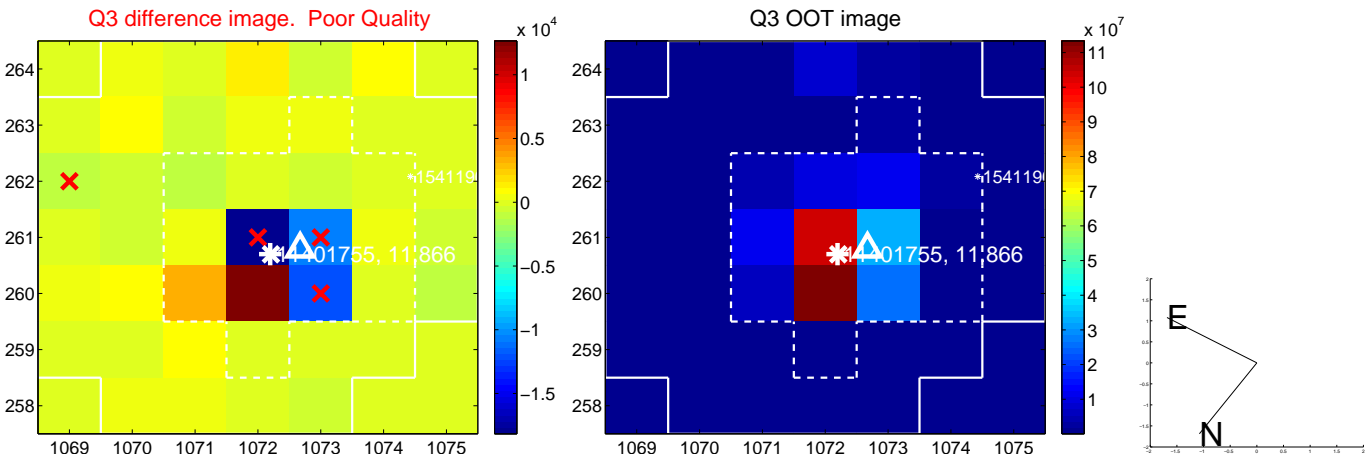
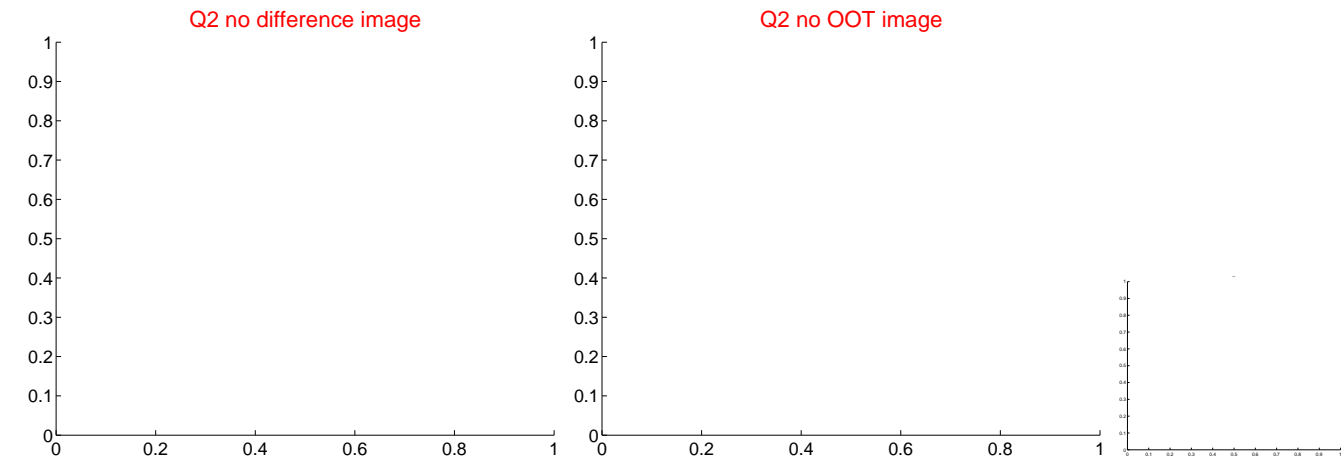
offset from photometric centroids



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



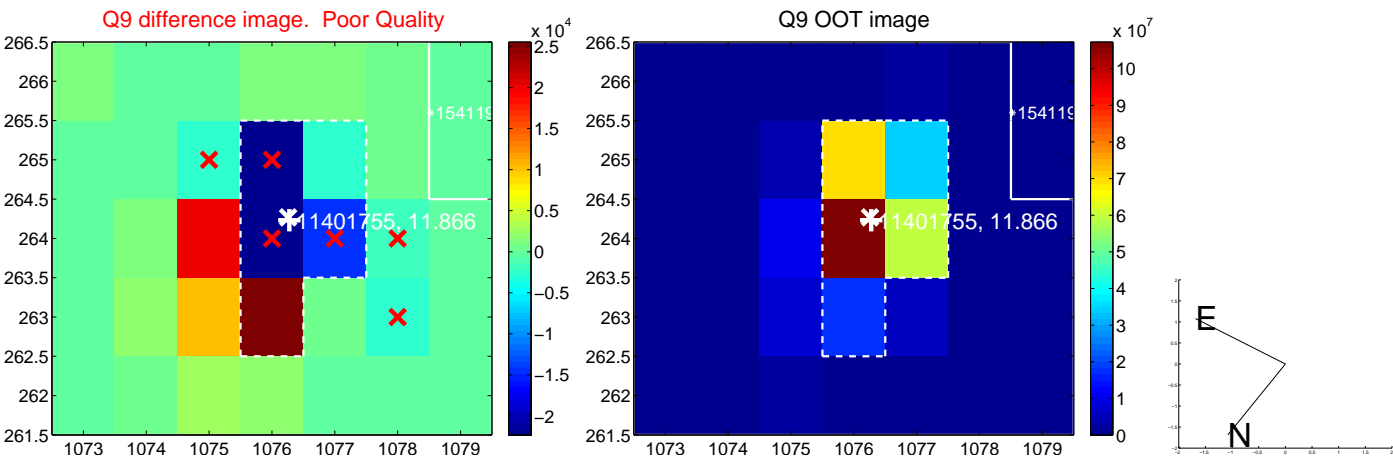
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



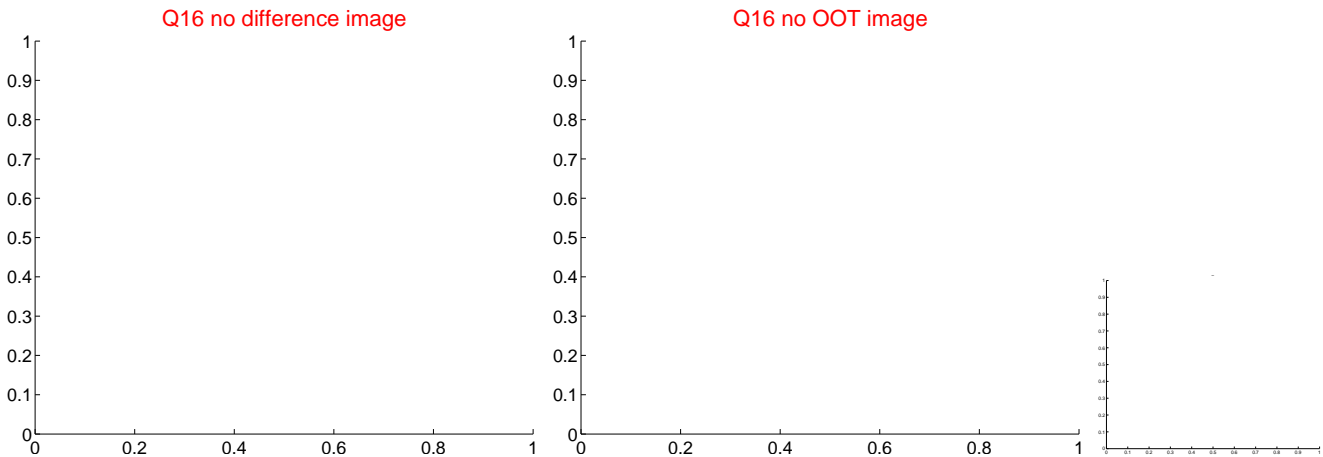
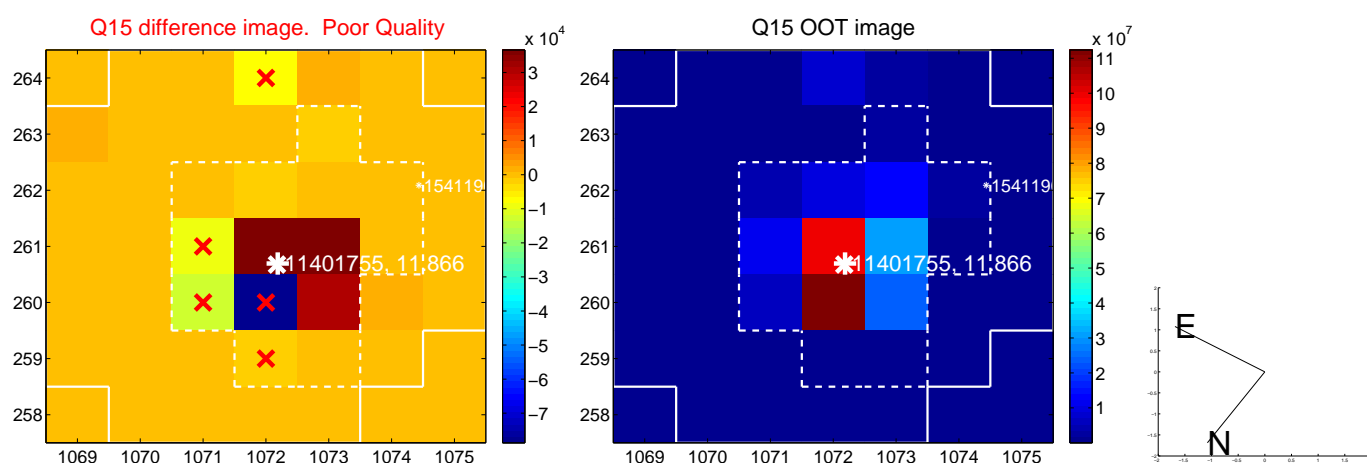
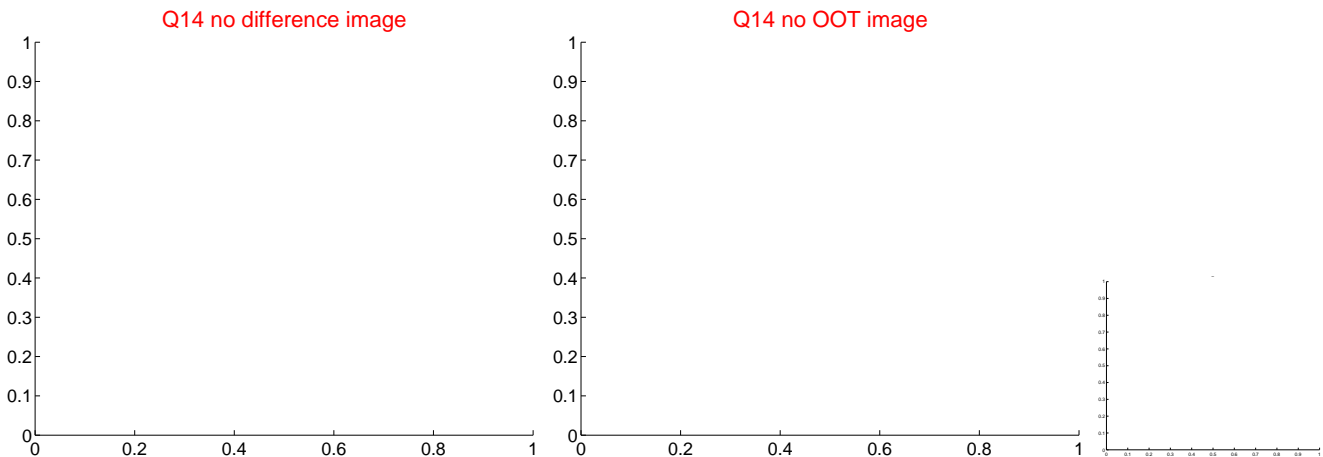
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



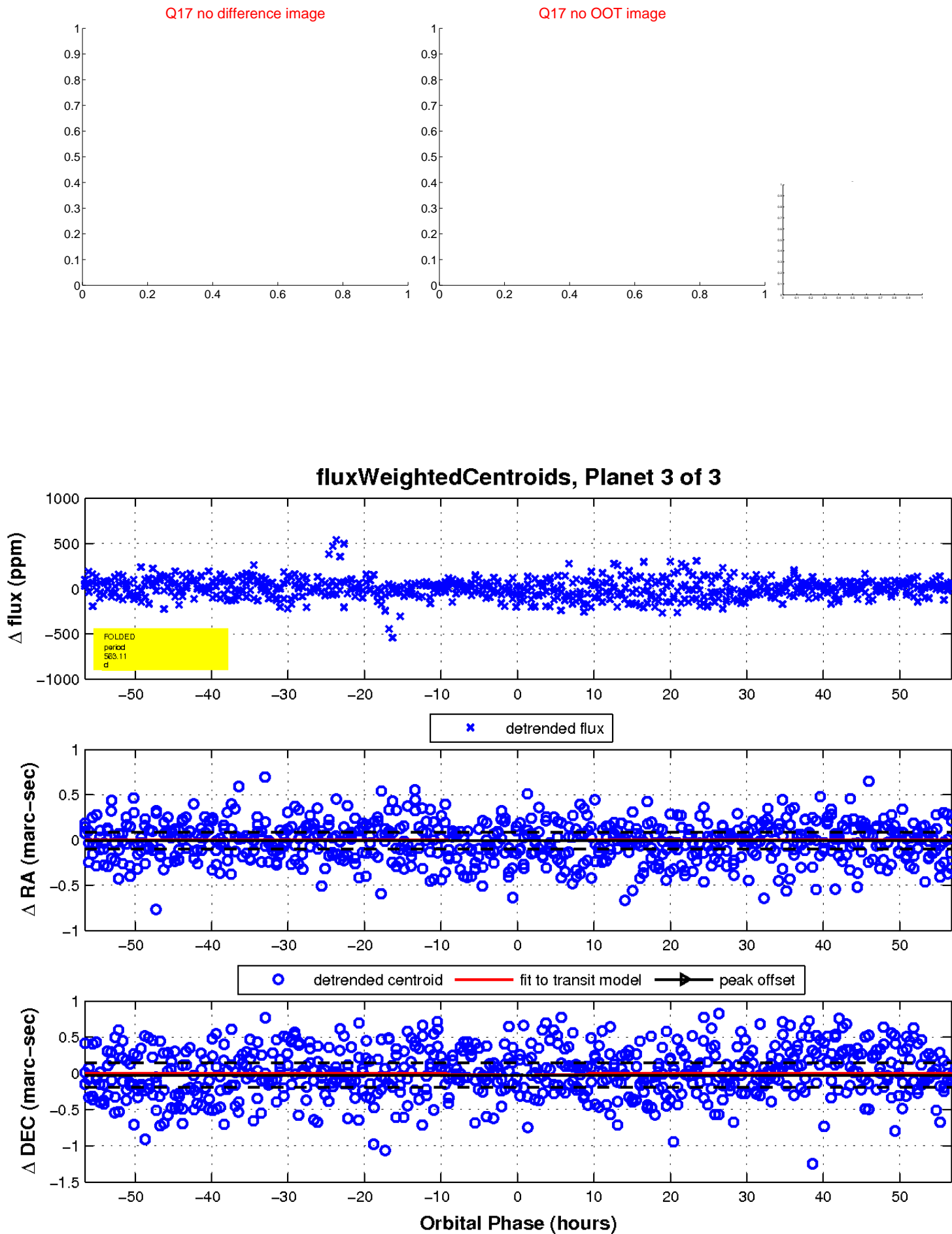
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

