

# KIC 010035155

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010035155-01	OBS	No	0.560280	131.814367	811.8	0.808	10.2	23.0	1.56	7078	4.82	23772.76
010035155-02	OBS	No	0.560241	131.990486	18.2	1.928	10.1	0.7	1.56	7078	0.77	23774.98
010035155-03	OBS	No	48.172718	139.120669	2773.8	1.347	7.3	8.5	1.56	7078	9.62	62.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010035155-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010035155-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
010035155-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

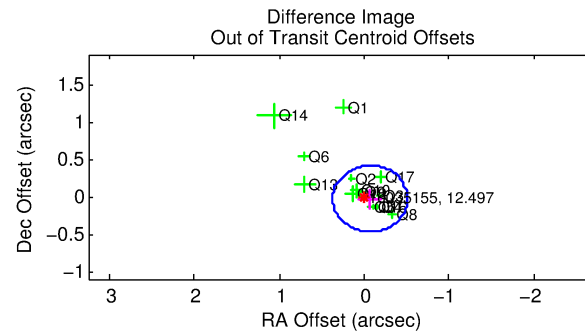
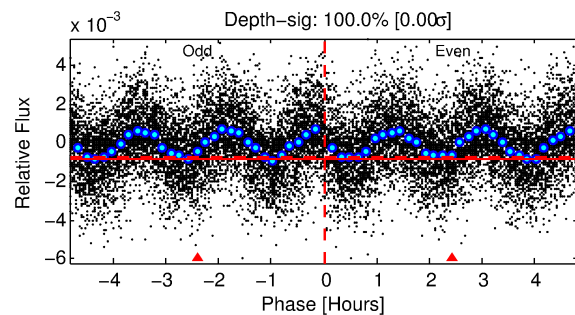
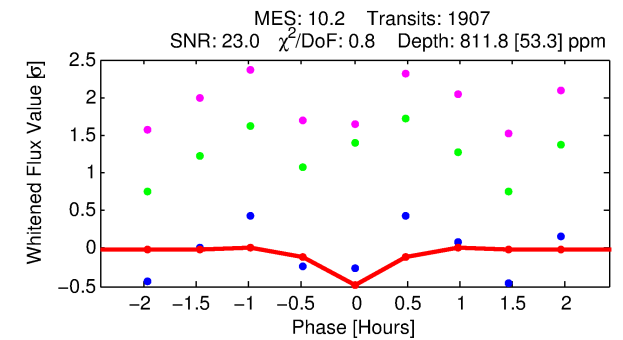
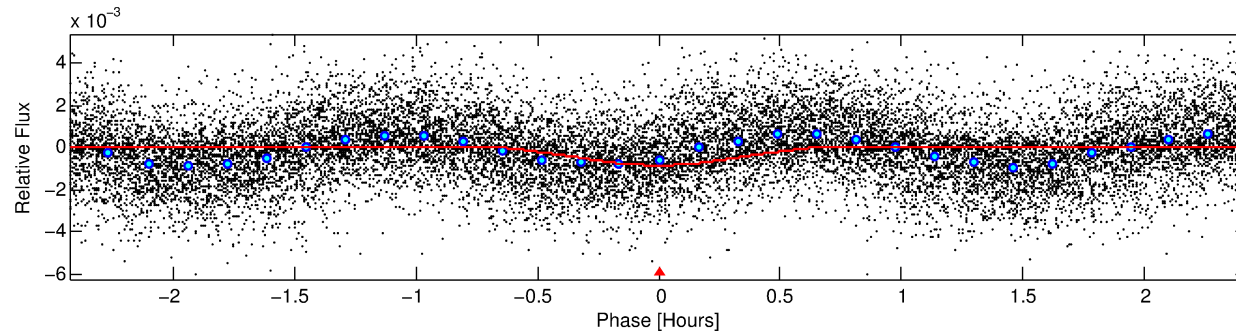
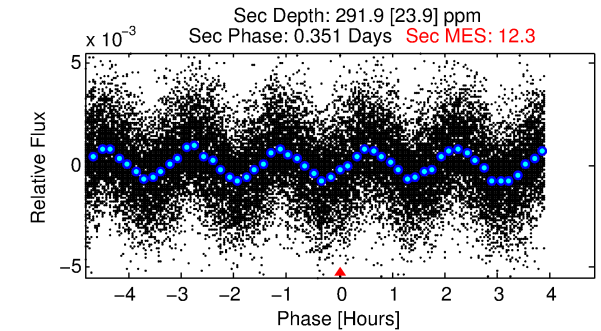
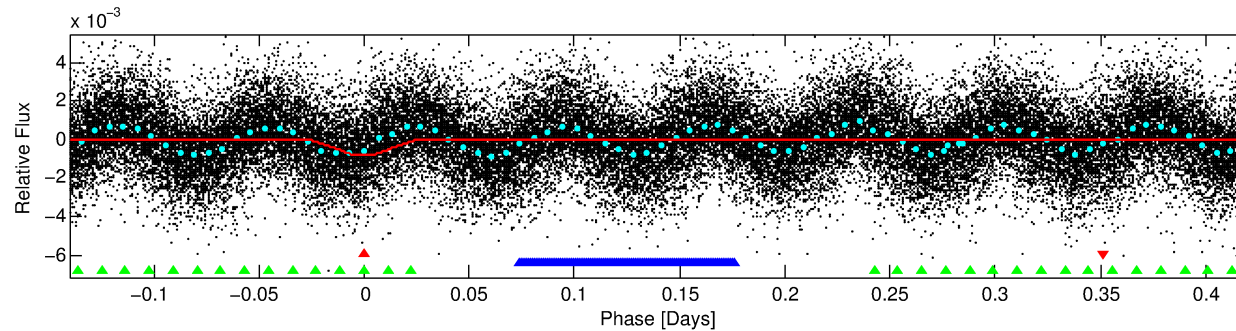
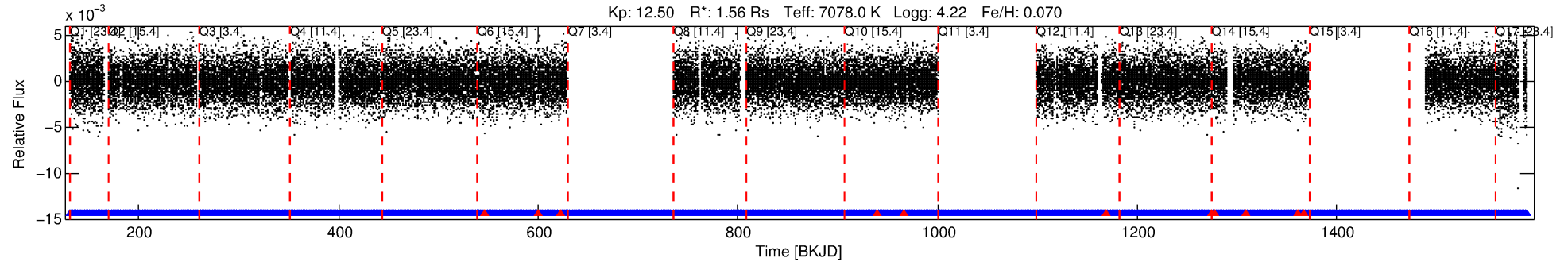
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010035155-01

No Significant Match Found

# DV One-Page Summary

KIC: 10035155 Candidate: 1 of 3 Period: 0.560 d



## DV Fit Results:

Period = 0.56028 [0.00000] d  
Epoch = 131.8144 [0.0006] BKJD  
Rp/R\* = 0.0283 [0.0046]  
a/R\* = 4.08 [3.60]  
b = 0.70 [0.69]  
Seff = 23772.76 [10492.17]  
Teq = 3166 [349] K  
Rp = 4.82 [1.88] Re  
a = 0.0152 [0.0044] AU  
Ag = 1.59 [0.84] [0.70σ]  
Teffp = 5497 [517] K [3.74σ]

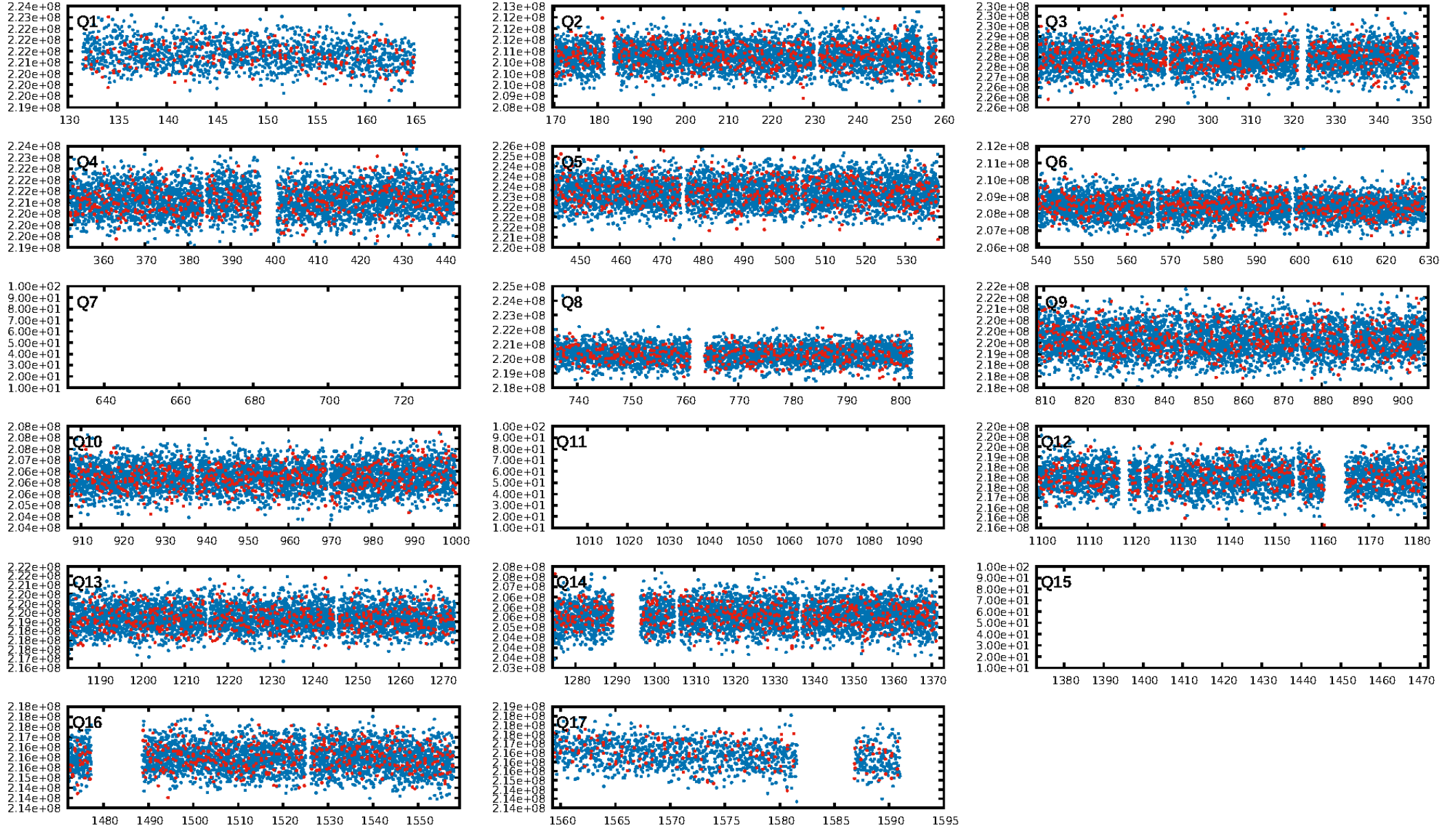
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [727.67σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.43e-23  
RollingBand-fgt: 0.99 [1787/1799]  
GhostDiagnostic-chr: 9.511  
Centroid-sig: 6.9%  
Centroid-so: 0.291 arcsec [6.36σ]  
OotOffset-rm: 0.078 arcsec [0.53σ]  
KicOffset-rm: 0.179 arcsec [1.24σ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 0.71 [10/14]  
DiffImageOverlap-fno: 0.00 [0/14]

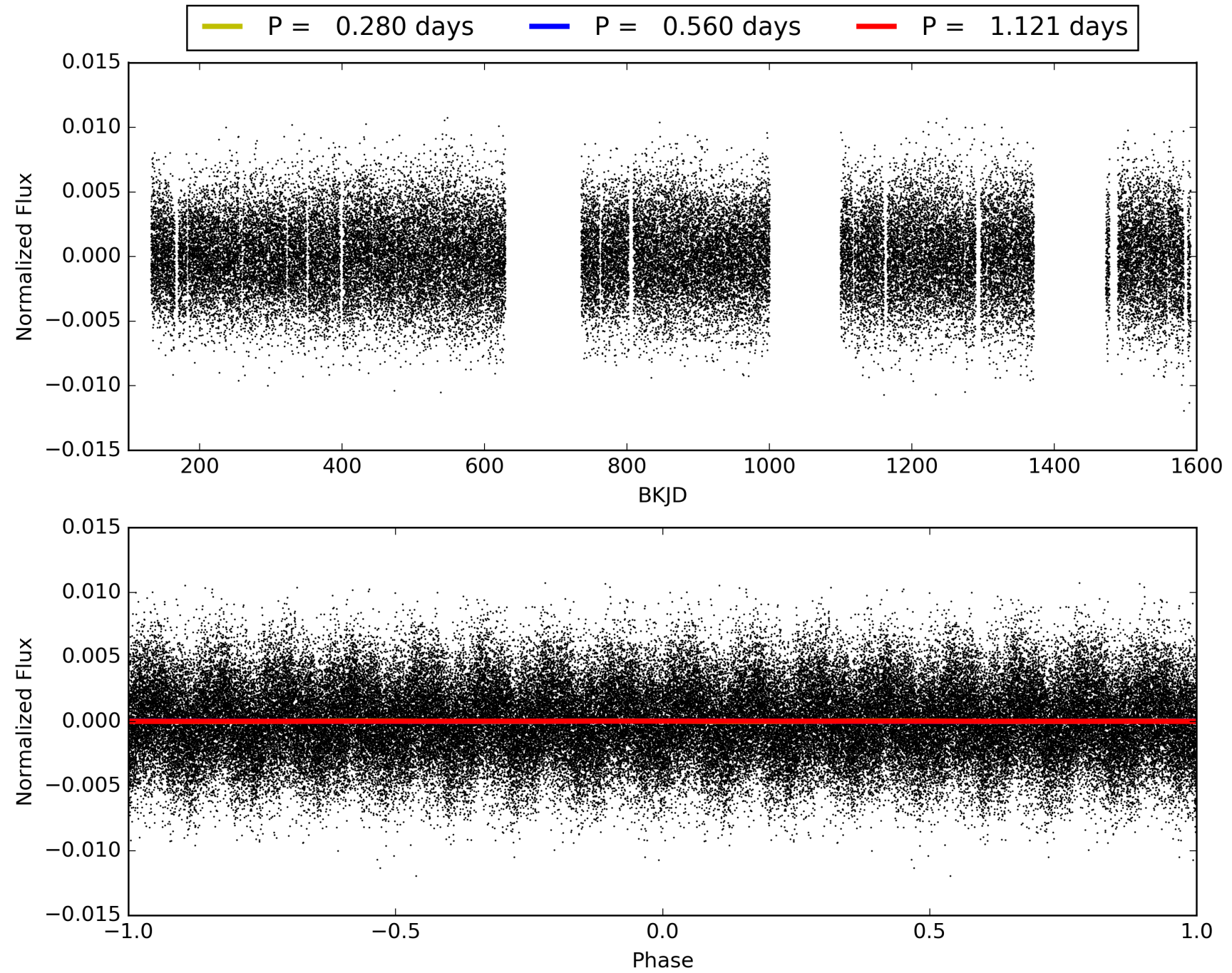
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010035155-01, PDC Light Curves



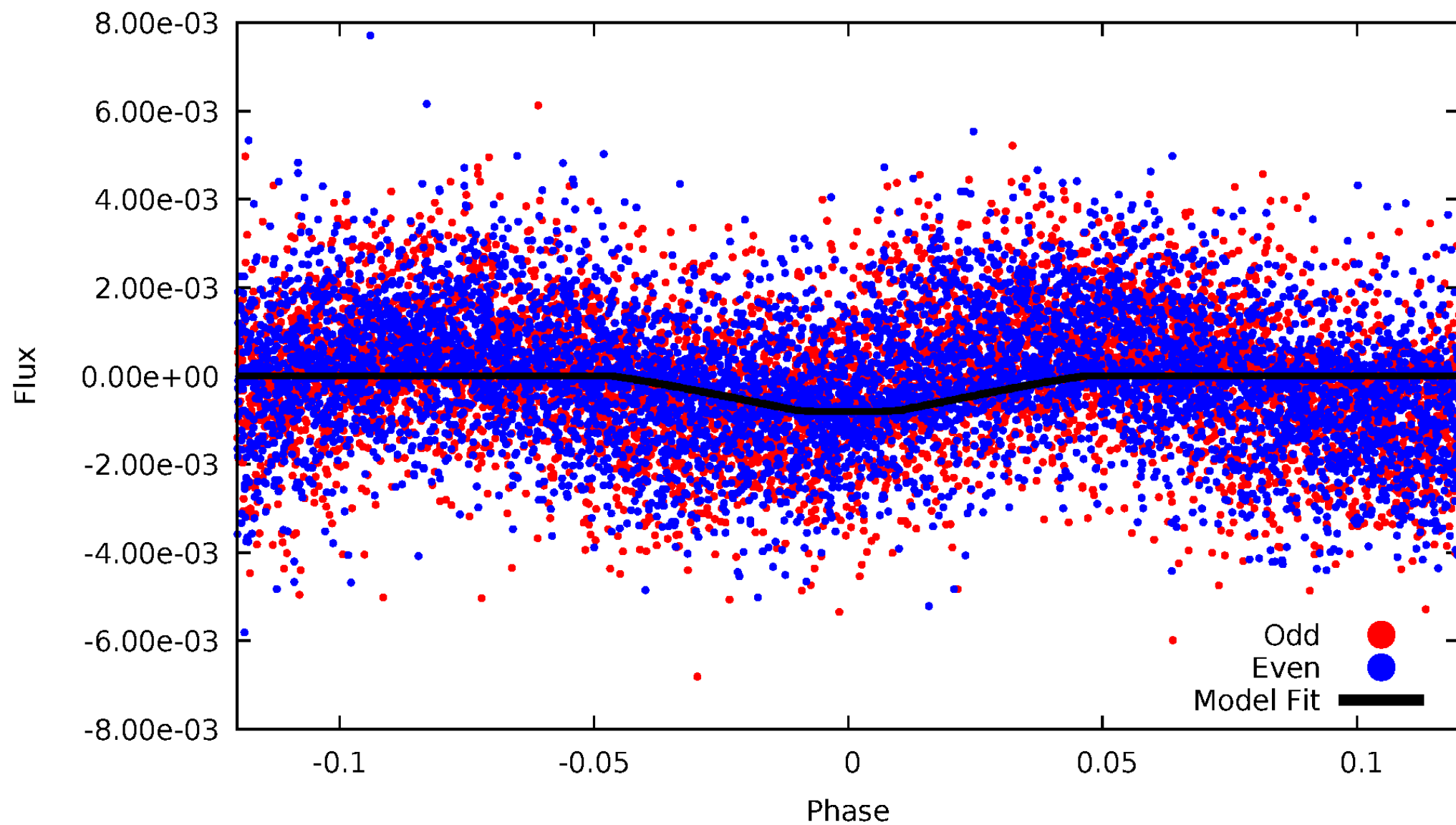
TCE 010035155-01





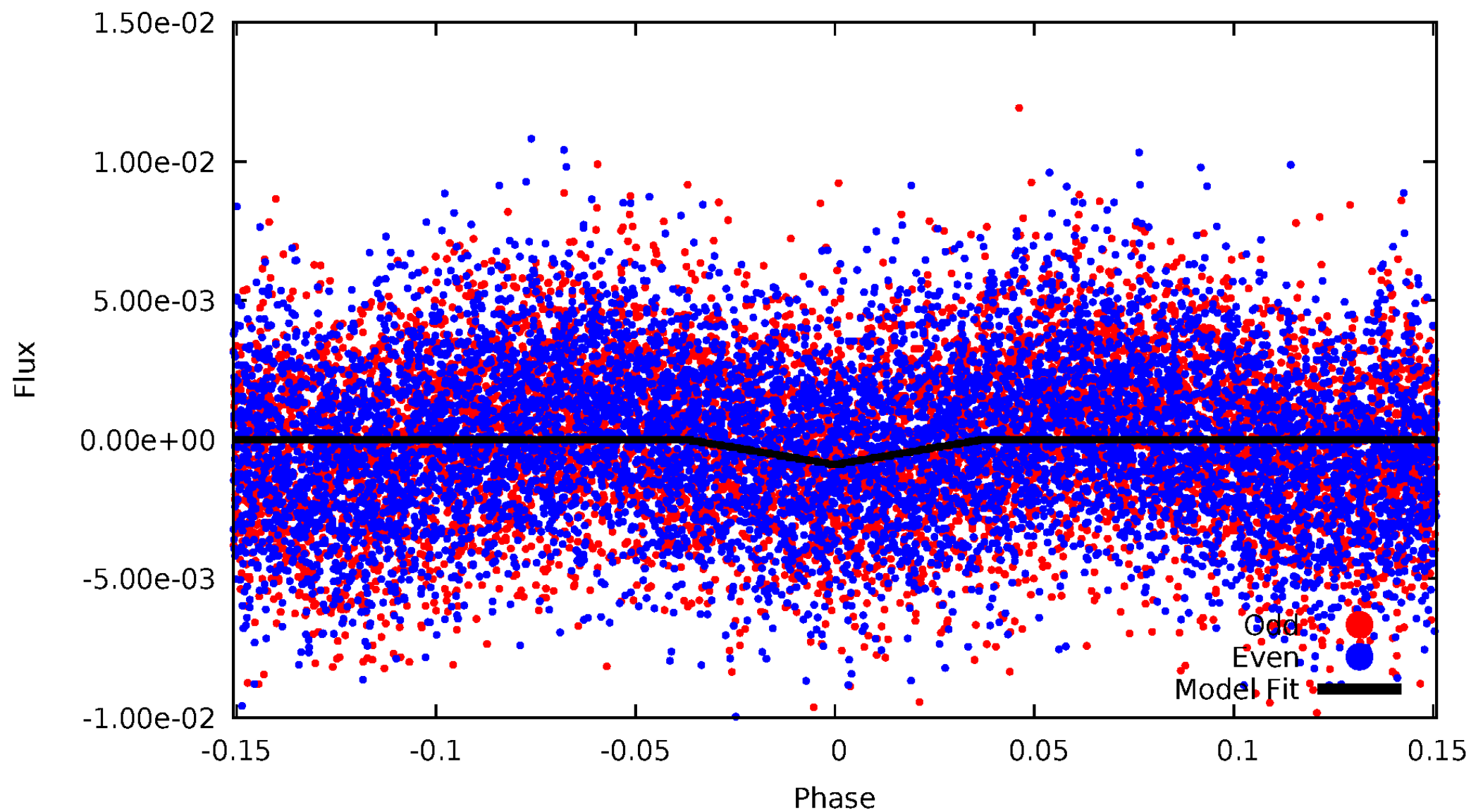
DV Odd/Even

TCE 010035155-01



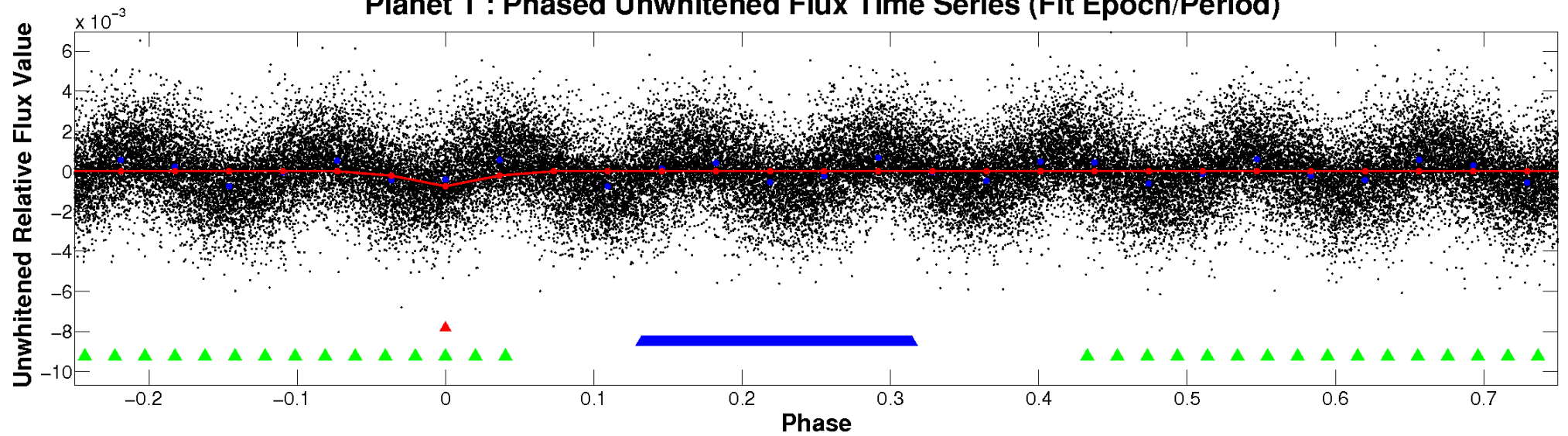
# ALT Odd/Even

TCE 010035155-01

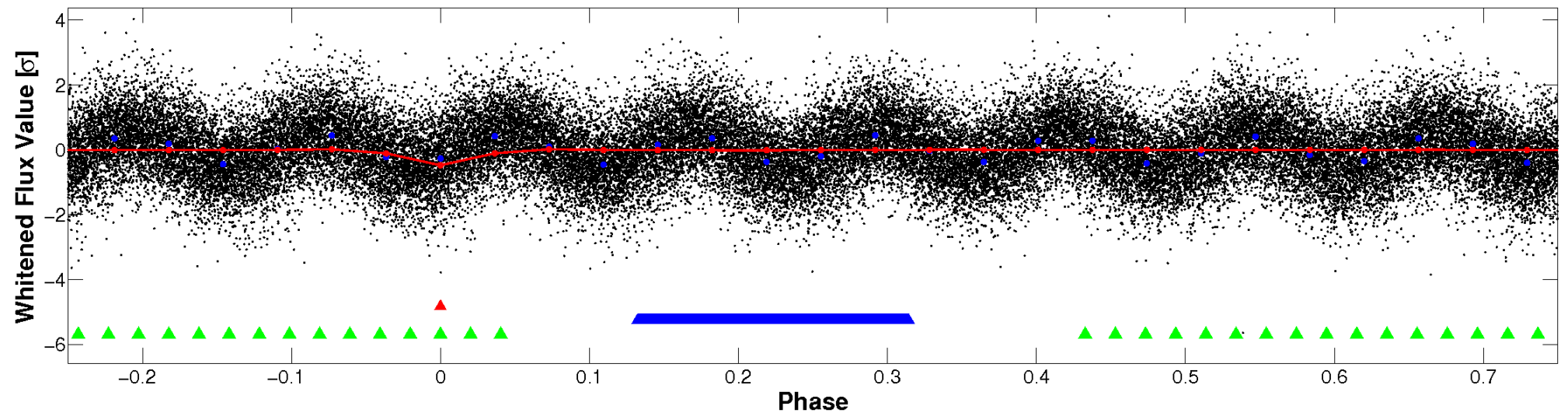


# Non-Whitened Vs. Whitened Light Curve

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

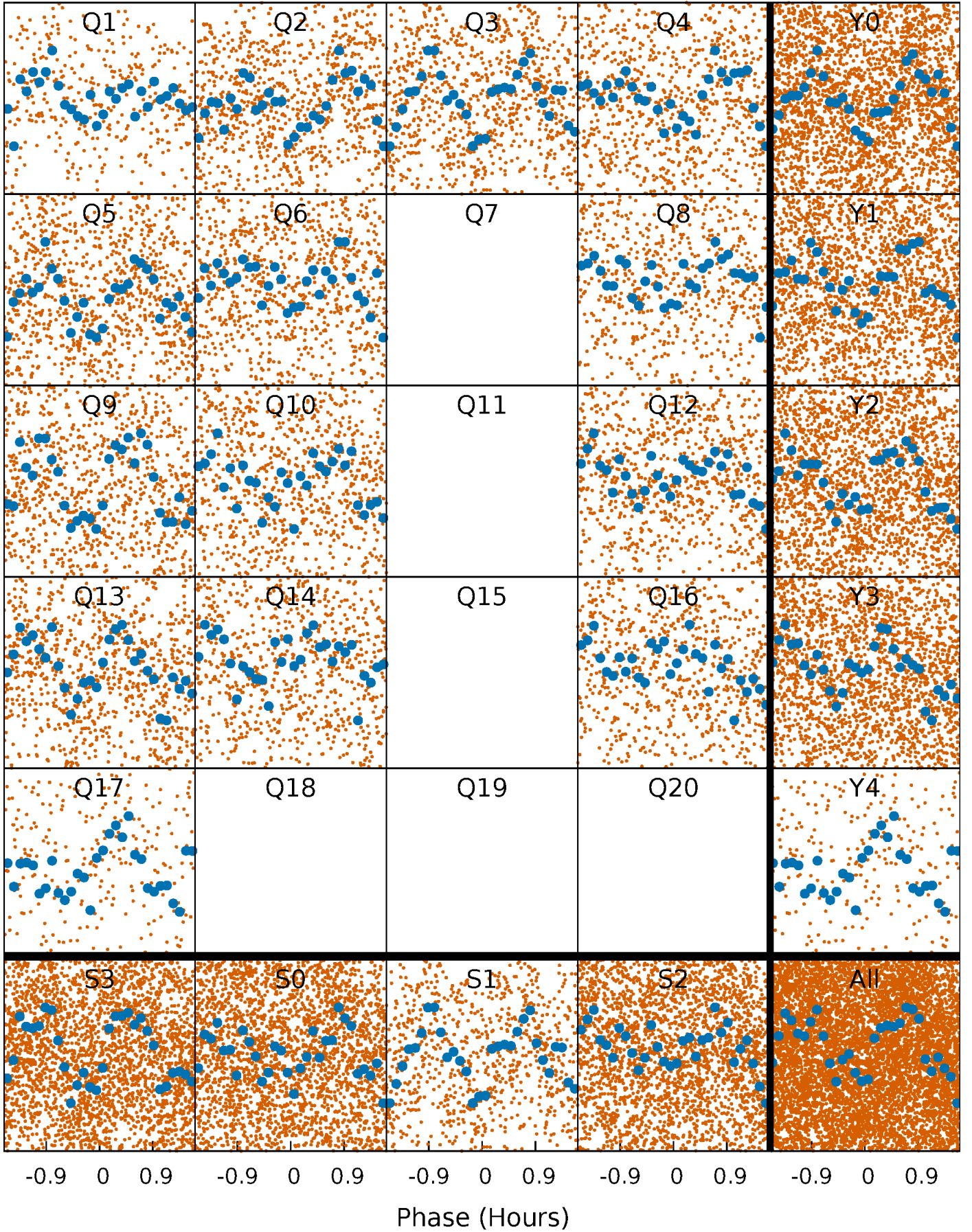


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

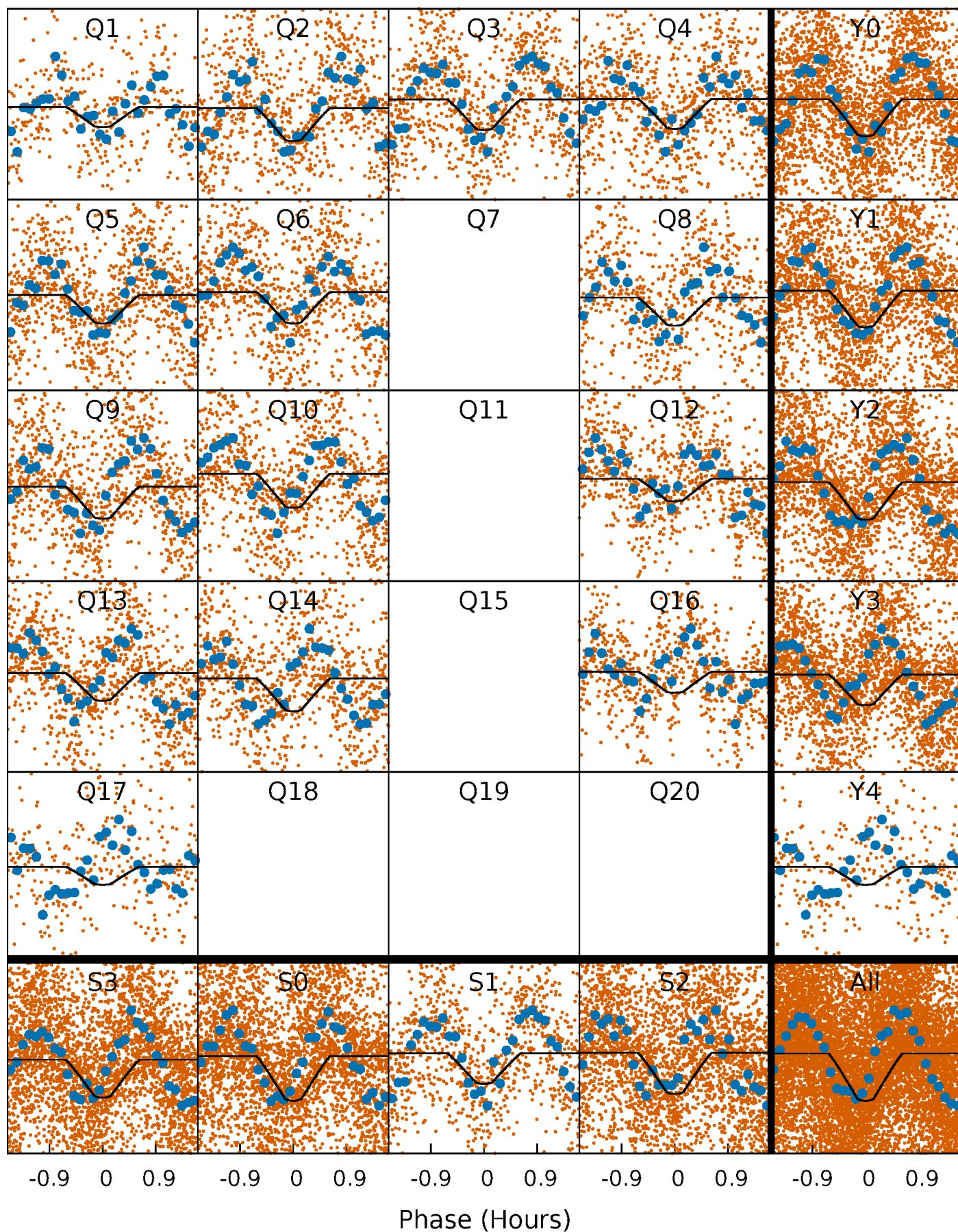
TCE 010035155-01   P= 0.560280 Days    $T_0=131.814367$  (BKJD)





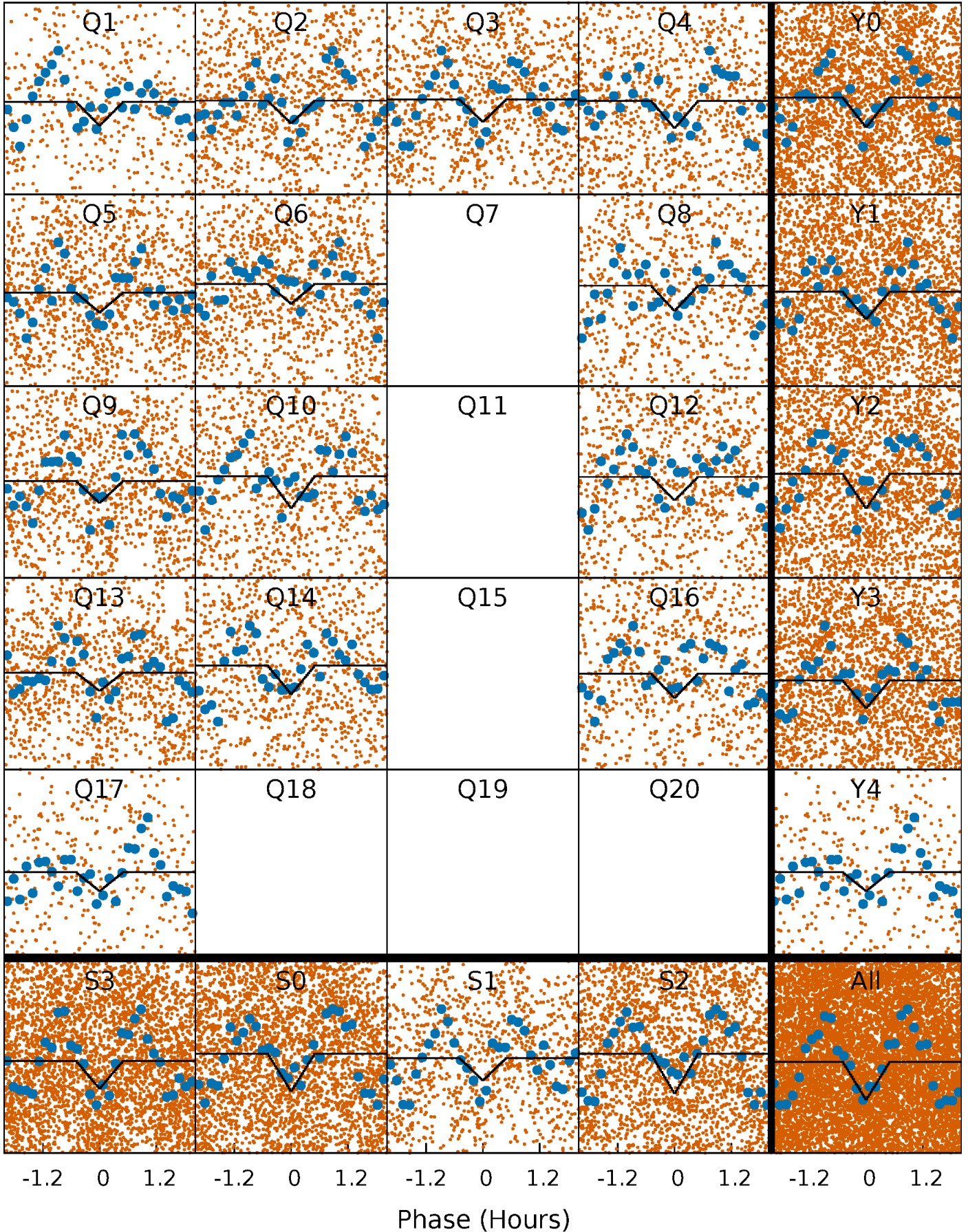
# DV Quarter-Phased Transit Curves

TCE 010035155-01 P= 0.560280 Days  $T_0=131.814367$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

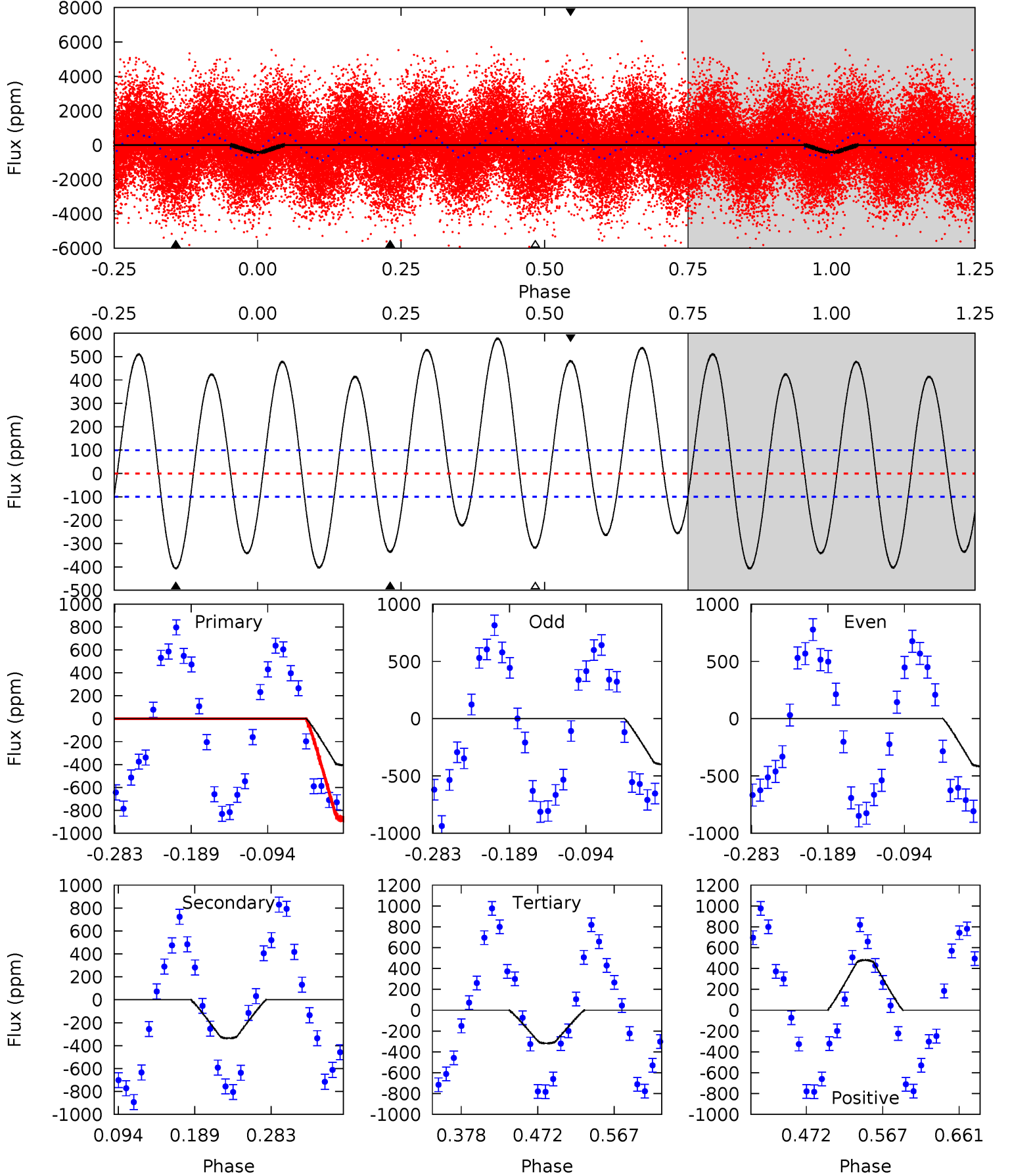
TCE 010035155-01 P= 0.560270 Days  $T_0=131.817068$  (BKJD)



# DV Model-Shift Uniqueness Test

010035155-01, P = 0.560280 Days, E = 131.254087 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
18.7	15.5	14.7	22.2	4.58	1.67	13.4	4.09	-3.44	0.83	-6.70	0.42	0.83	0.59	18.6

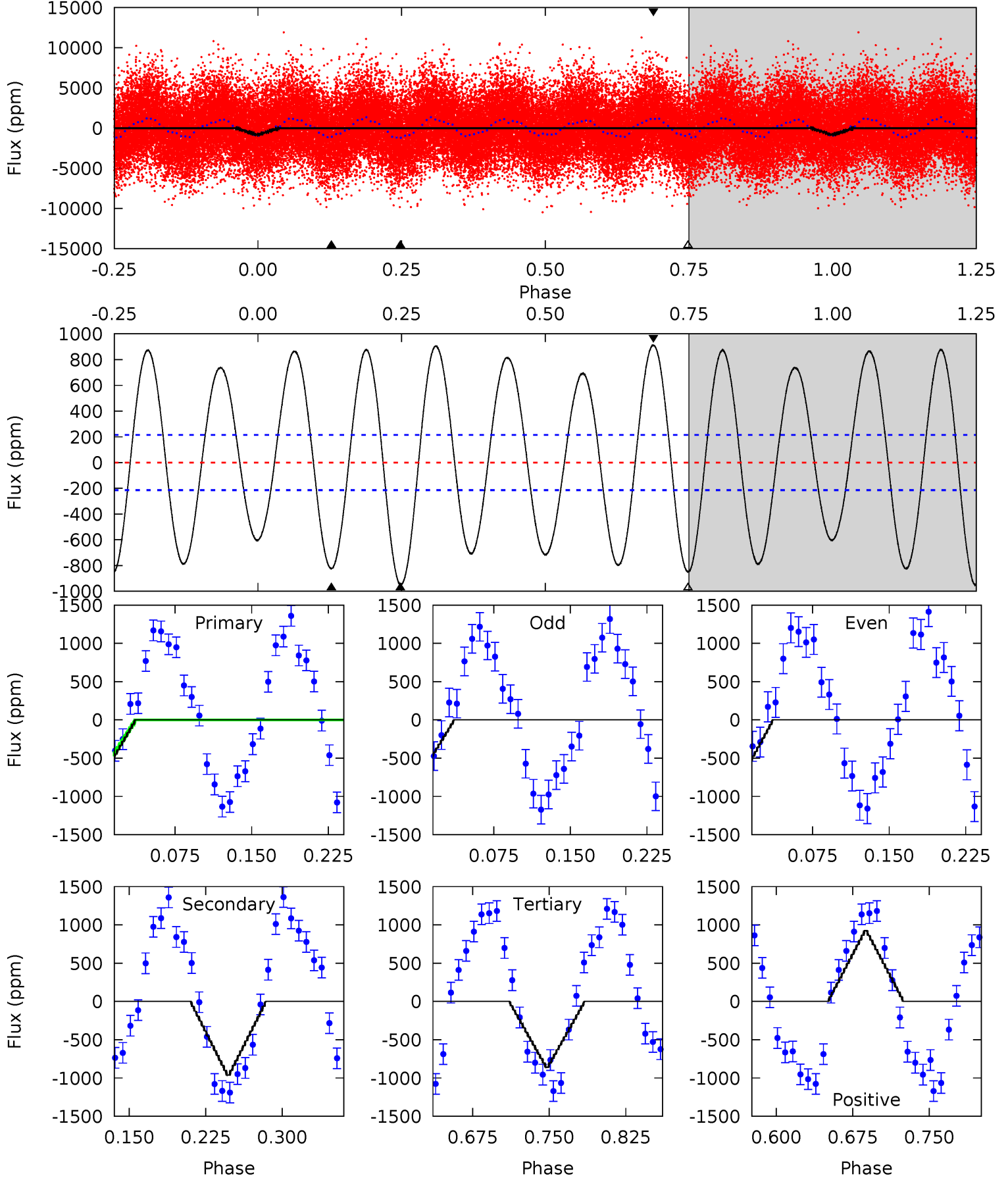




# Alt Model-Shift Uniqueness Test

010035155-01, P = 0.560270 Days, E = 131.256798 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	20.6	18.4	19.7	4.62	1.78	11.7	-0.53	-1.90	2.22	0.85	1.07	1.02	0.49	1.45





### Stellar Parameters For KIC 010035155

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7078^{+172}_{-296}$	$4.223^{+0.087}_{-0.217}$	$0.070^{+0.200}_{-0.350}$	$1.560^{+0.553}_{-0.237}$	$1.482^{+0.214}_{-0.214}$	$0.550^{+0.227}_{-0.308}$
	+2%/-4%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+41%/-56%
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 010035155-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-336 \pm 22$	$4.98^{+1.06}_{-0.96}$	$4469^{+370}_{-240}$	$5408^{+534}_{-468}$	$1.703^{+0.847}_{-0.575}$
Alt.	$-955 \pm 46$	$5.20^{+1.22}_{-0.93}$	$4473^{+372}_{-247}$	$7038^{+815}_{-676}$	$4.413^{+2.057}_{-1.520}$

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

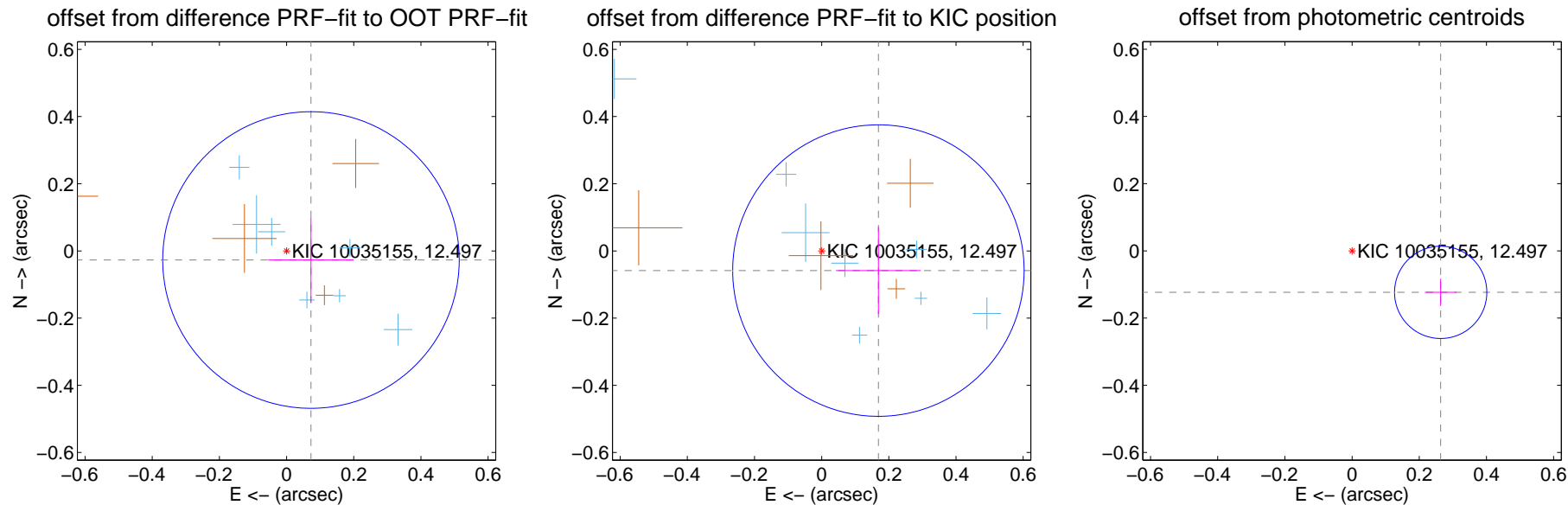
## DV Centroid Data

Supplemental centroid analysis for 010035155-01. Kepler magnitude: 12.50. Transit SNR 23.01

There are 10 quarters with good PRF difference image offsets

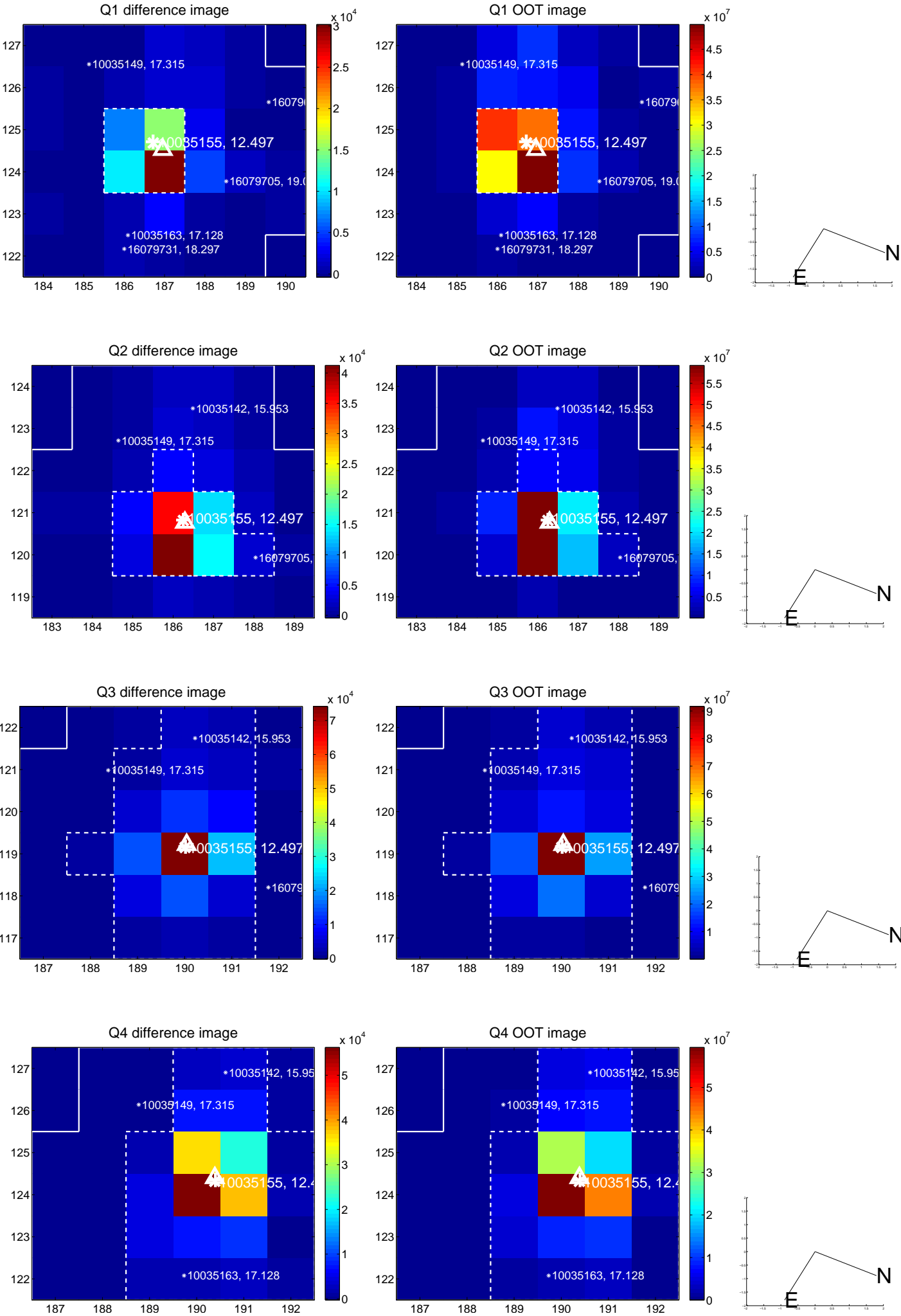
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.078 \pm 0.147$	0.53	$-0.073 \pm 0.127$	$-0.027 \pm 0.125$
PRF-fit source offset from KIC position	$0.179 \pm 0.145$	1.24	$-0.169 \pm 0.126$	$-0.058 \pm 0.129$
photometric centroid source offset	$0.29 \pm 0.05$	6.36	$-0.26 \pm 0.05$	$-0.12 \pm 0.04$

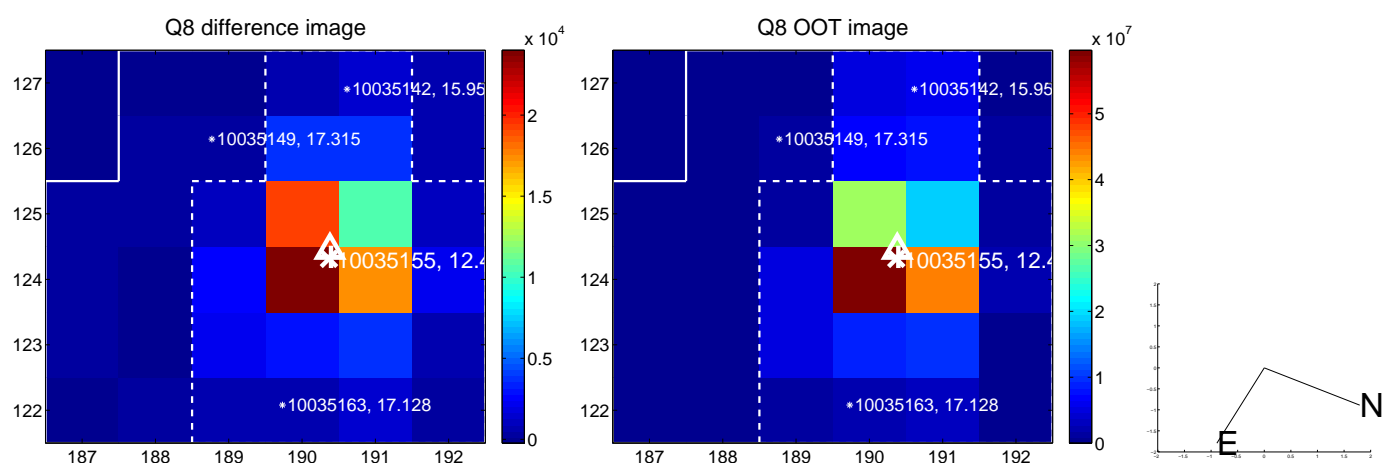
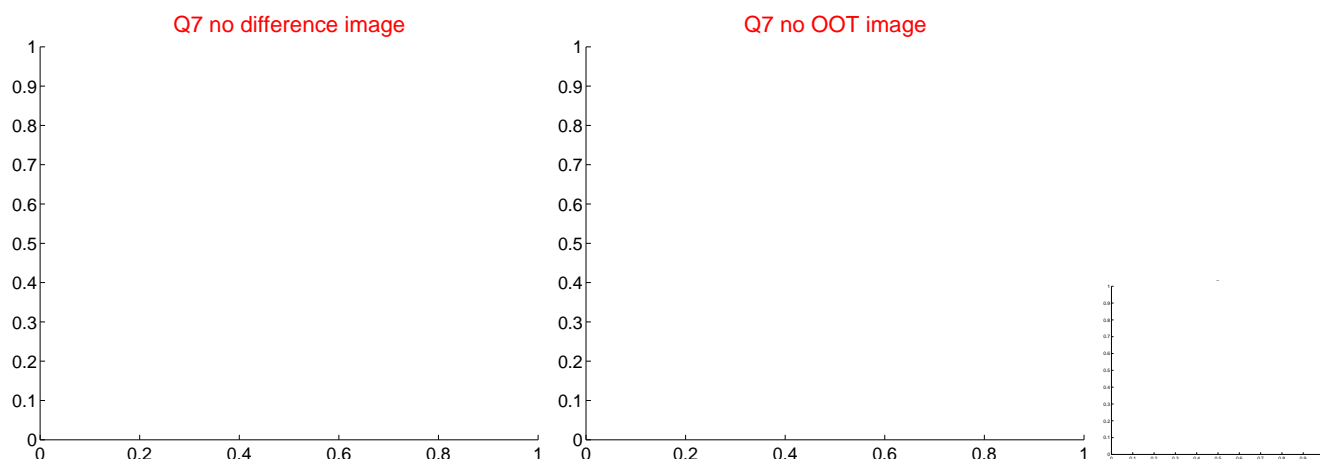
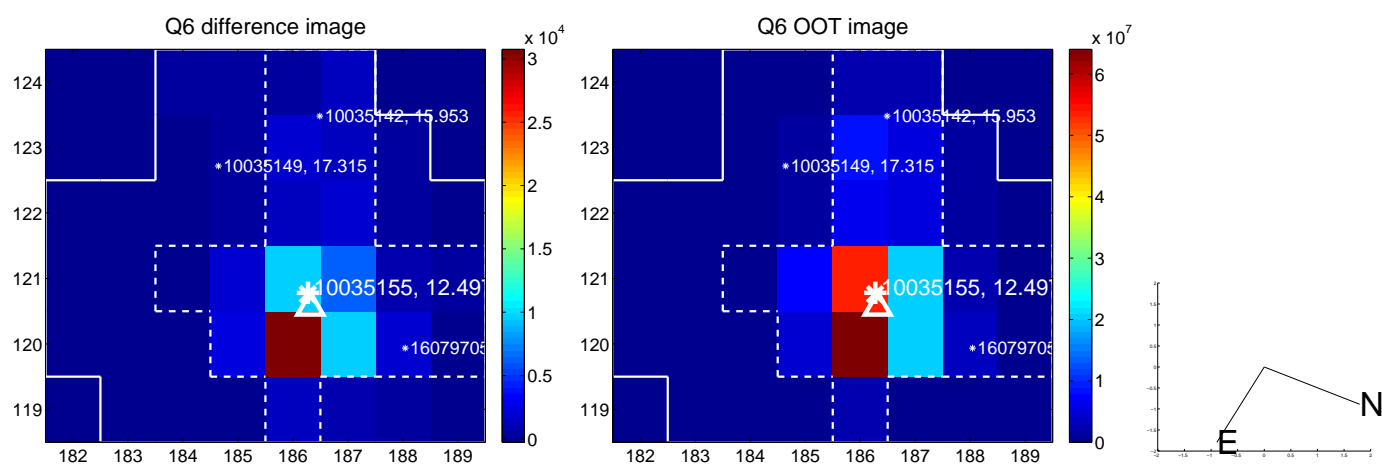
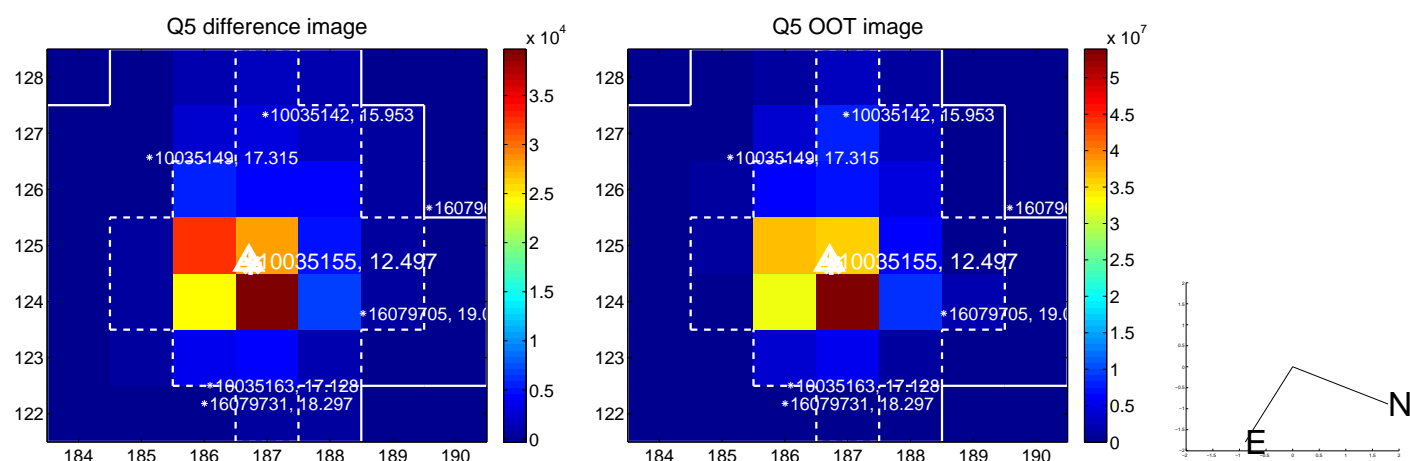


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

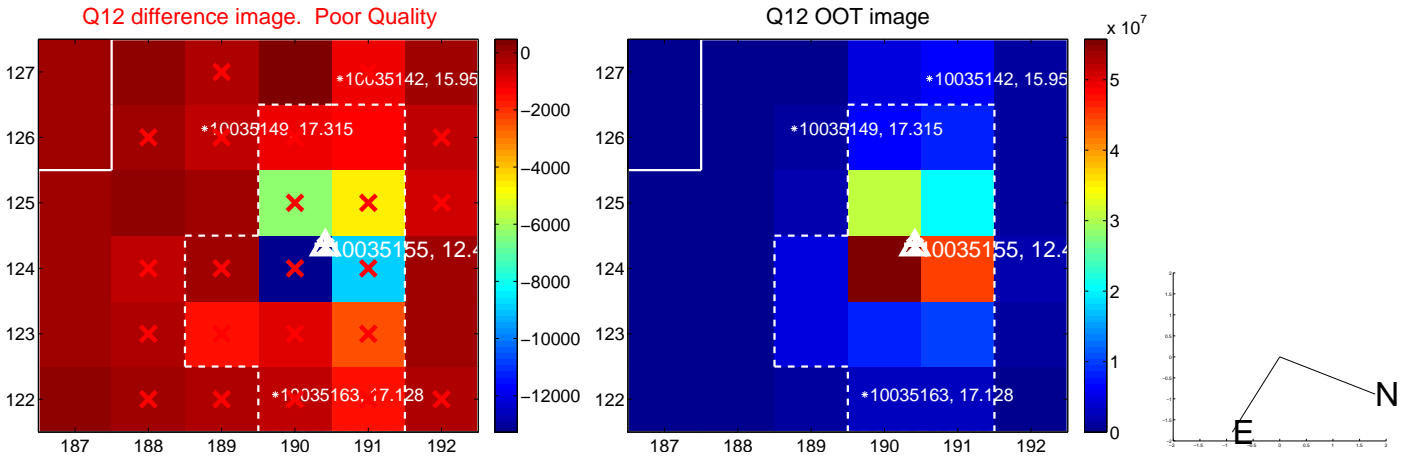
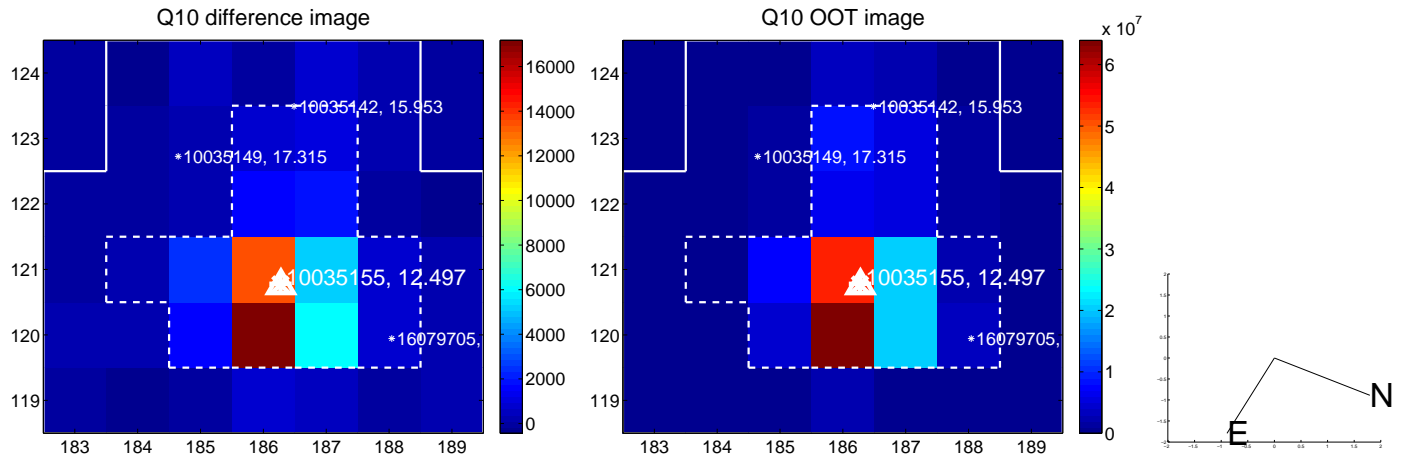
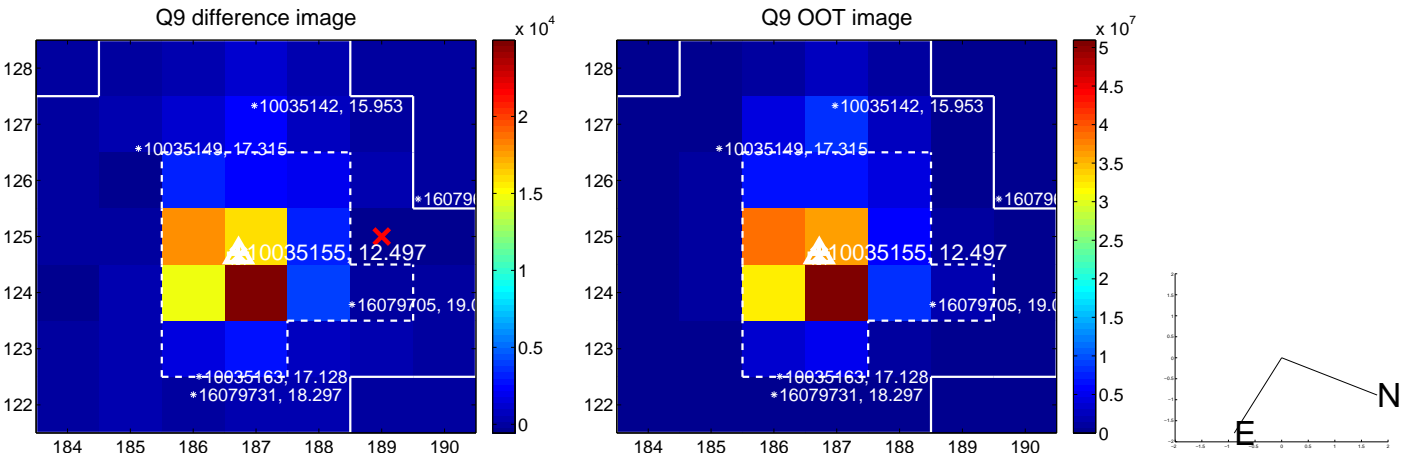


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

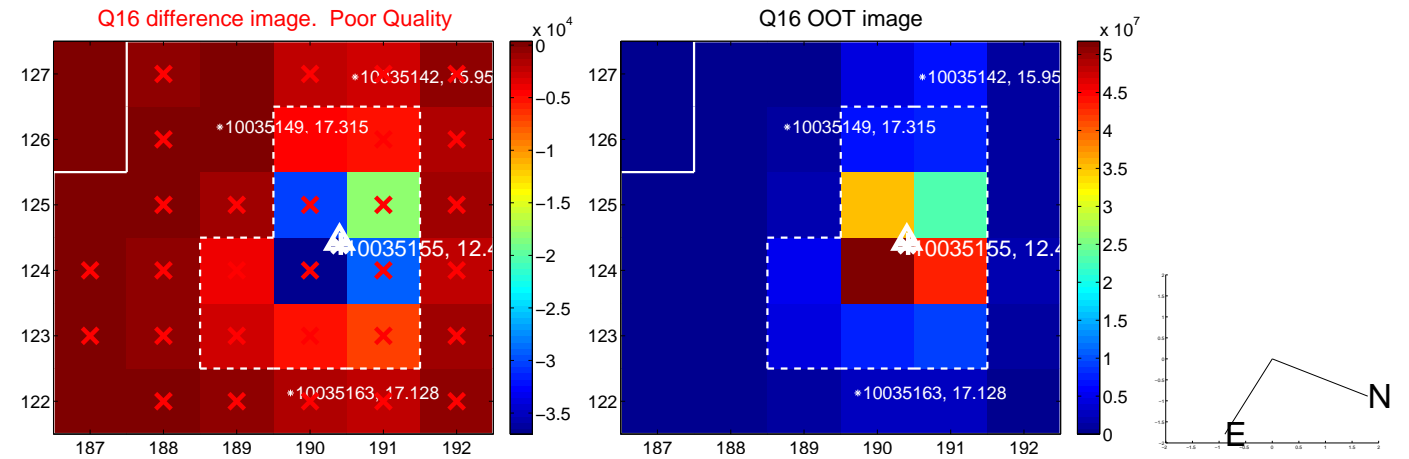
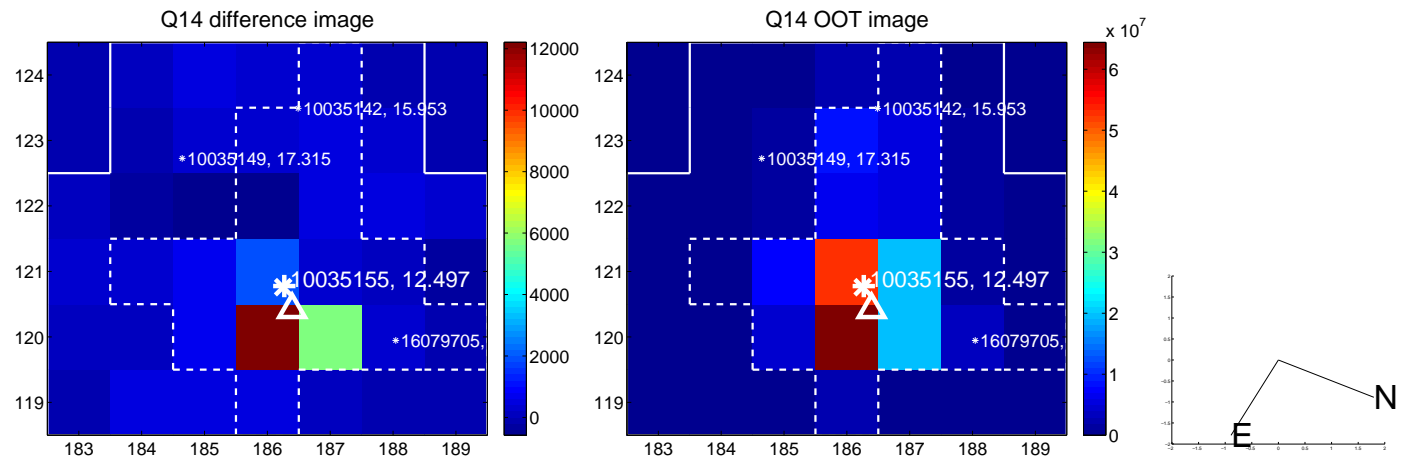
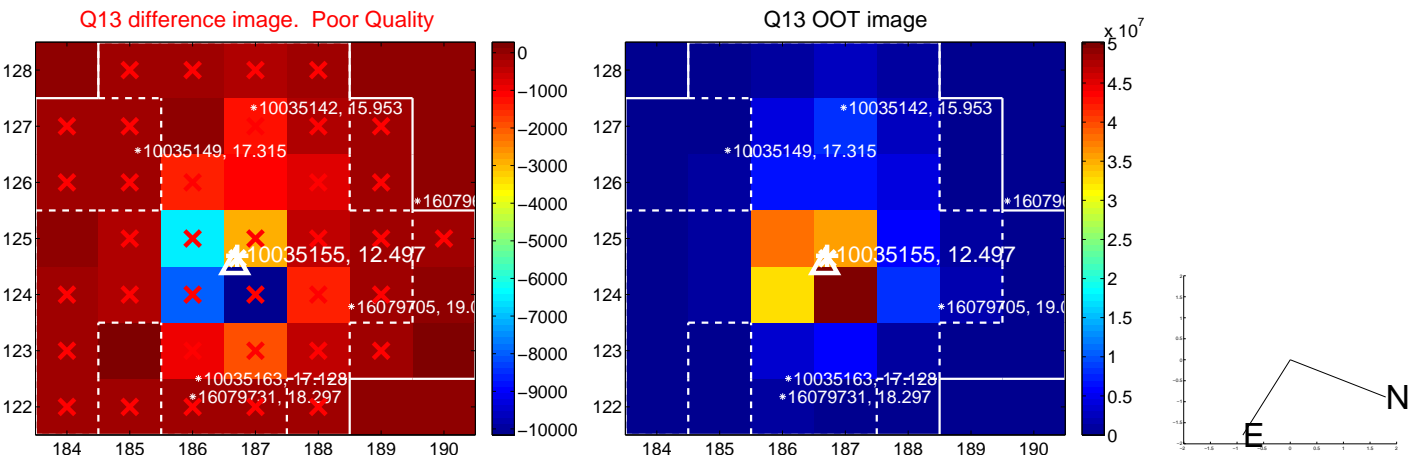




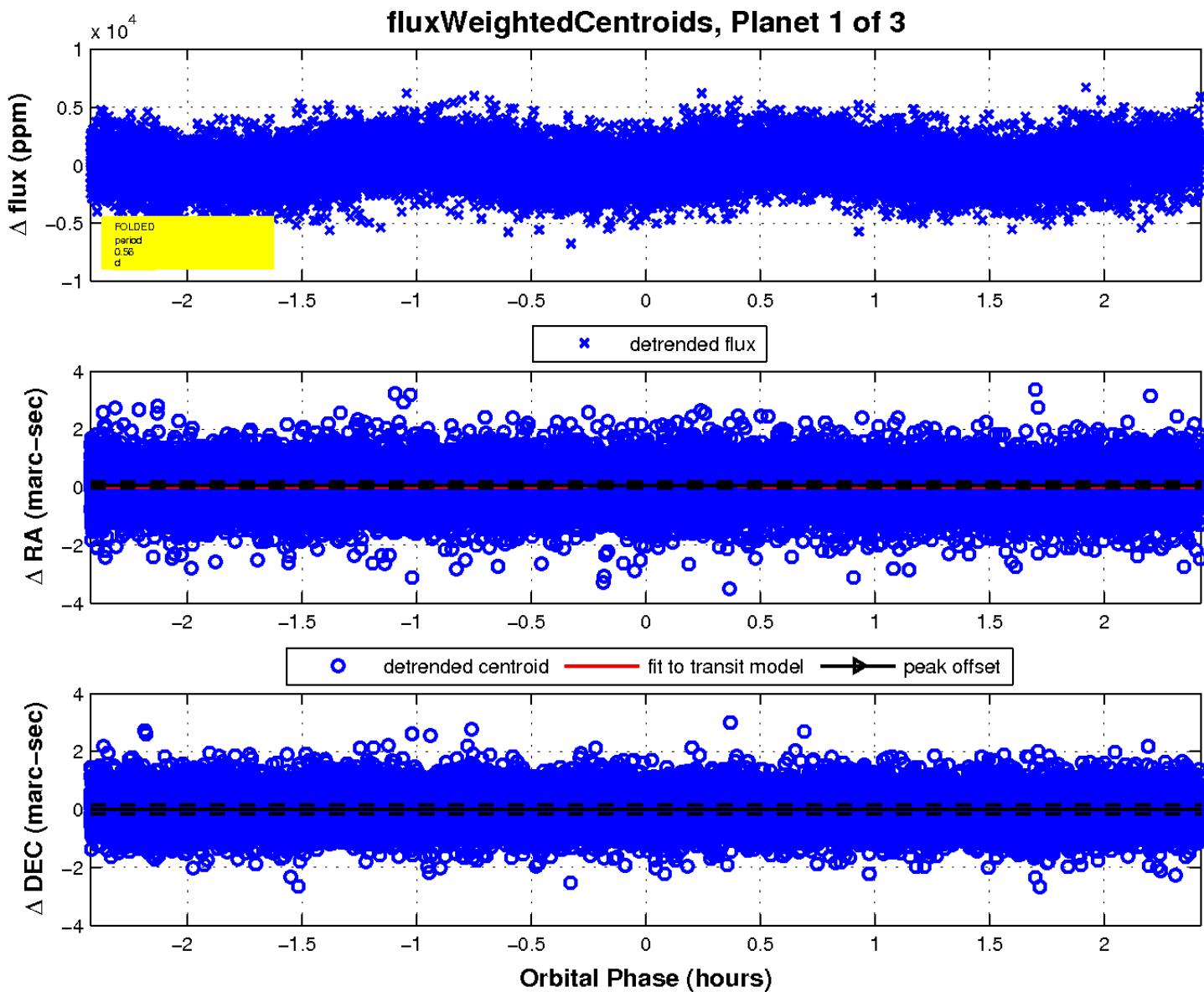
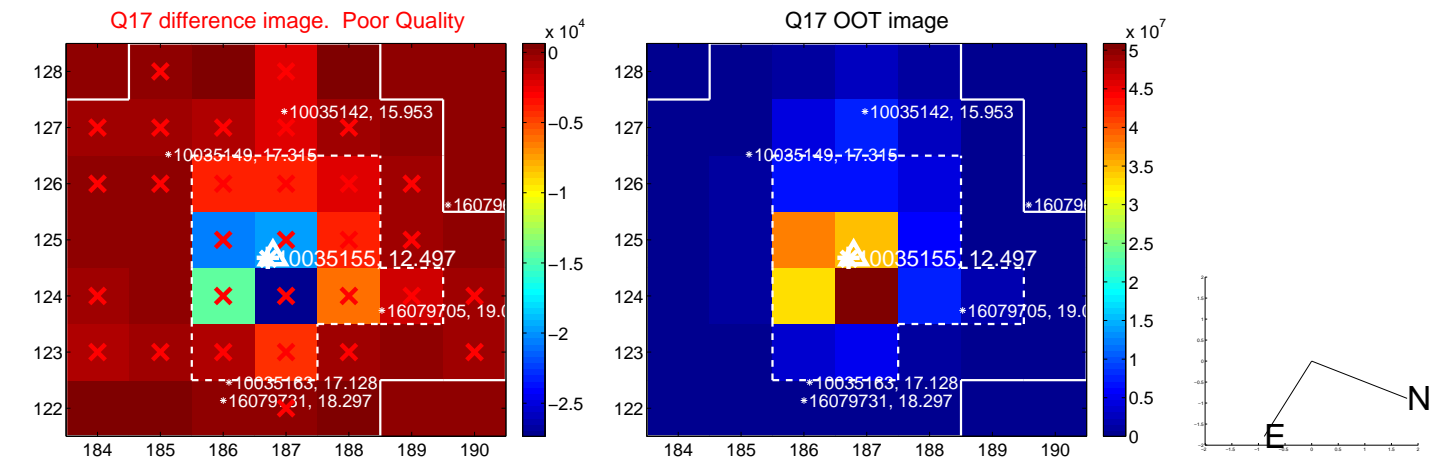
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

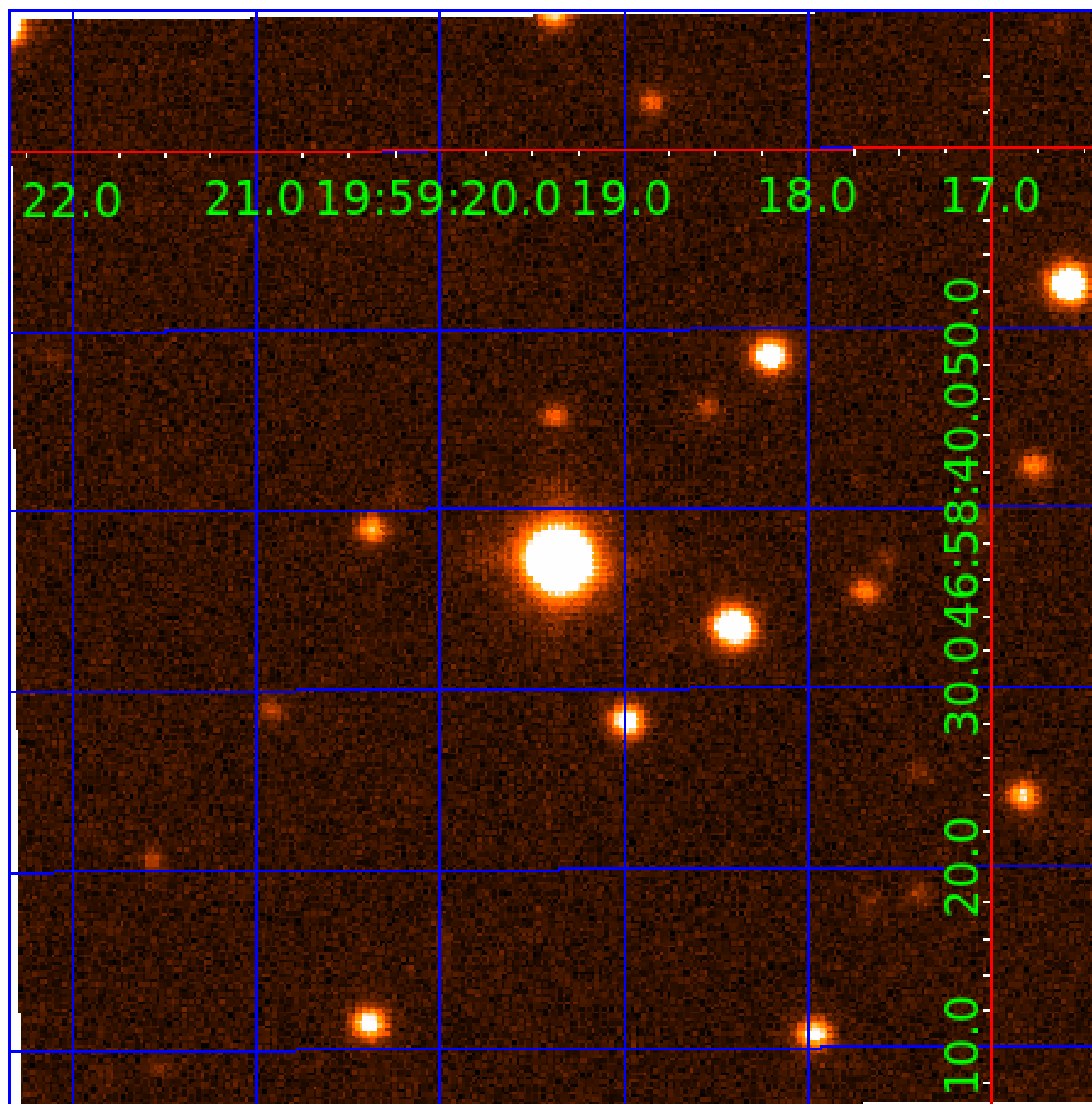


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 010035155

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010035155-01	OBS	No	0.560280	131.814367	811.8	0.808	10.2	23.0	1.56	7078	4.82	23772.76
010035155-02	OBS	No	0.560241	131.990486	18.2	1.928	10.1	0.7	1.56	7078	0.77	23774.98
010035155-03	OBS	No	48.172718	139.120669	2773.8	1.347	7.3	8.5	1.56	7078	9.62	62.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010035155-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010035155-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
010035155-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

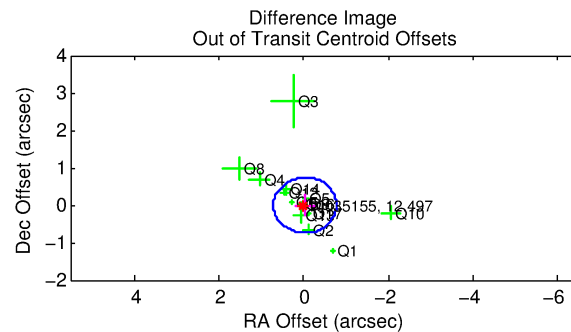
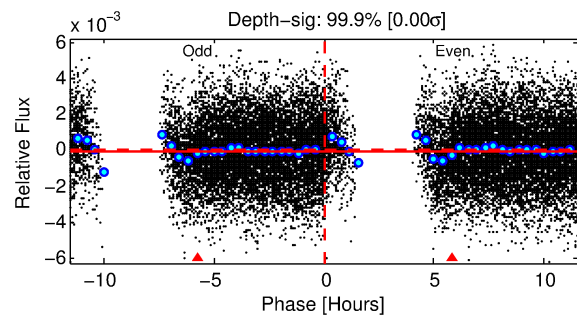
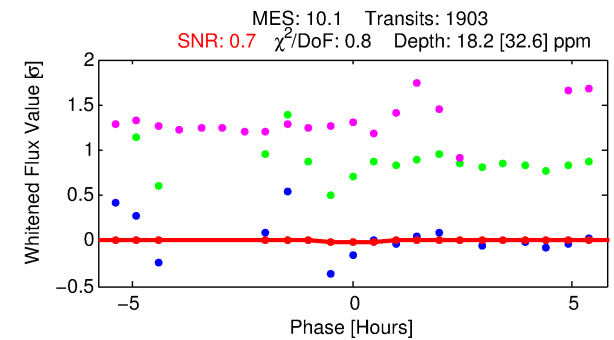
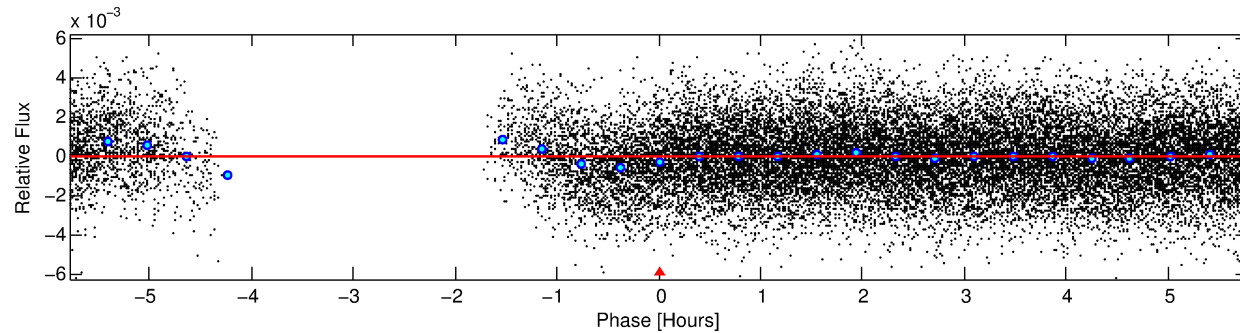
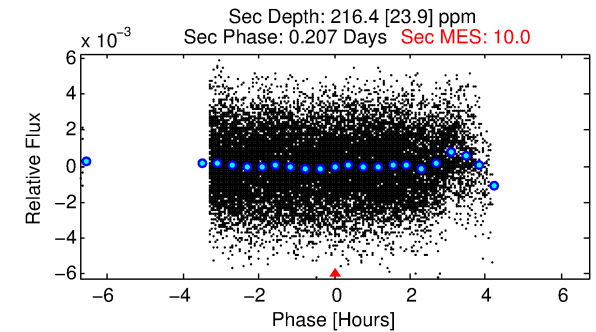
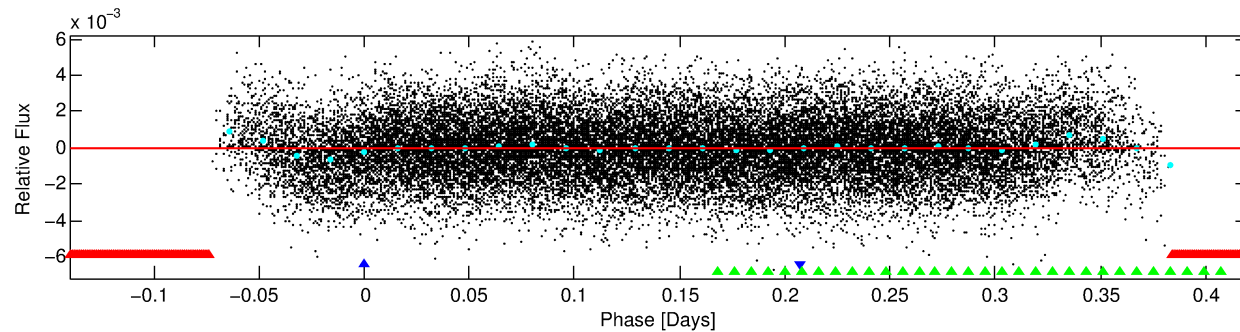
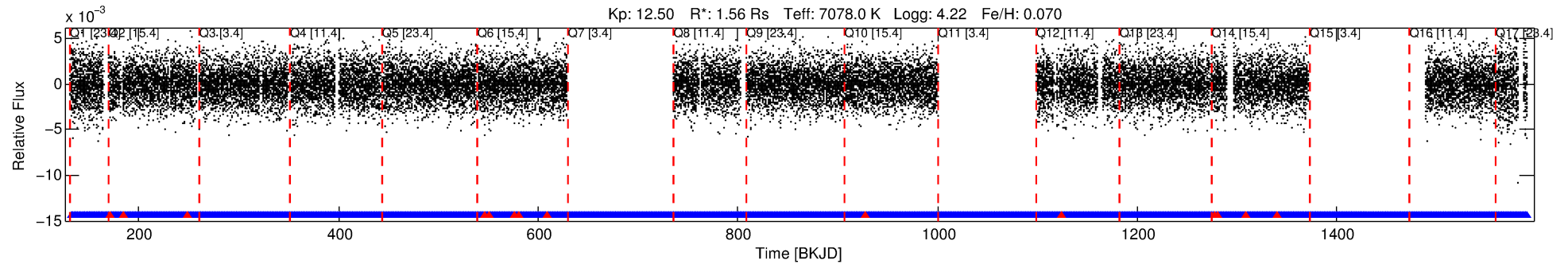
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010035155-02

No Significant Match Found

# DV One-Page Summary

KIC: 10035155 Candidate: 2 of 3 Period: 0.560 d



## DV Fit Results:

Period = 0.56024 [0.00014] d  
Epoch = 131.9905 [0.0422] BKJD  
Rp/R\* = 0.0045 [0.0194]  
a/R\* = 1.37 [16.74]  
b = 0.90 [5.70]  
Seff = 23774.98 [10493.15]  
Teq = 3166 [349] K  
Rp = 0.77 [3.31] Re  
a = 0.0152 [0.0044] AU  
Ag = 45.89 [392.30] [0.11σ]  
Teffp = 12742 [27205] K [0.35σ]

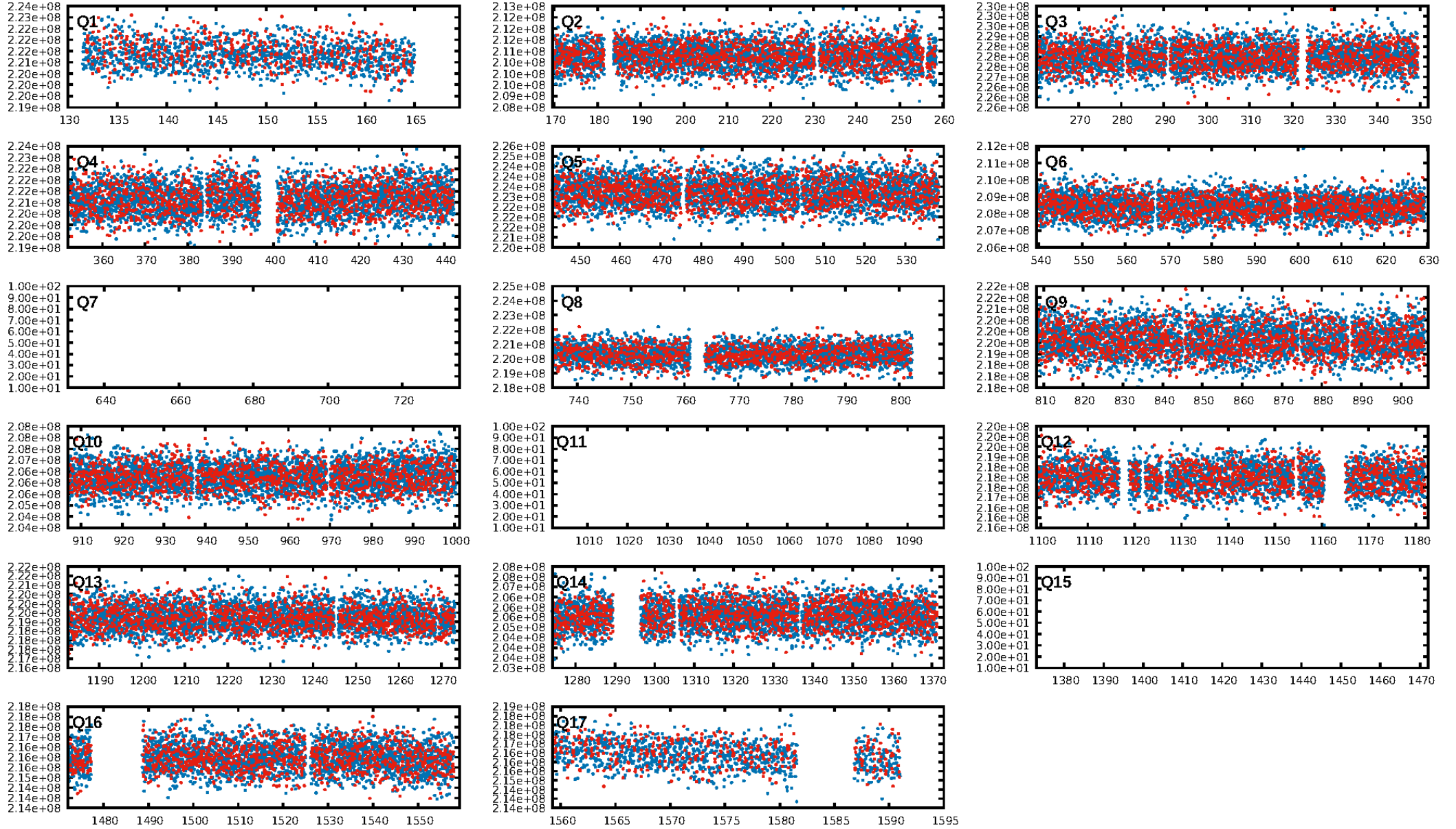
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
**LongPeriod-sig: 0.0% [0.00σ]**  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.98e-22  
RollingBand-fgt: 0.99 [1781/1796]  
**GhostDiagnostic-chr: -1.188**  
**Centroid-sig: 0.2%**  
Centroid-so: 2.395 arcsec [2.09σ]  
OotOffset-rm: 0.032 arcsec [0.13σ]  
KicOffset-rm: 0.130 arcsec [0.52σ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 0.50 [7/14]  
DiffImageOverlap-fno: 0.00 [0/14]

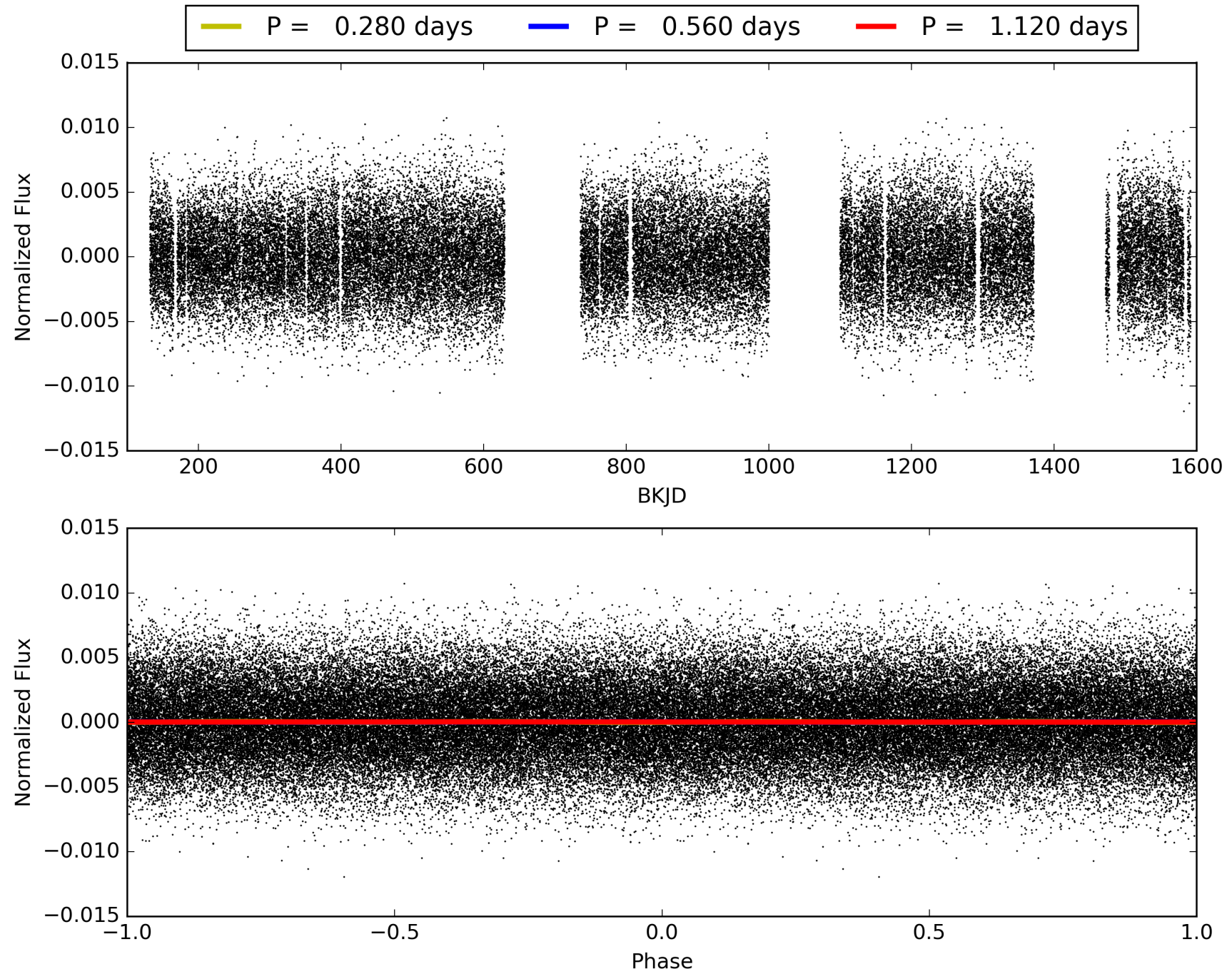
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:01:19 Z

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

# TCE 010035155-02, PDC Light Curves



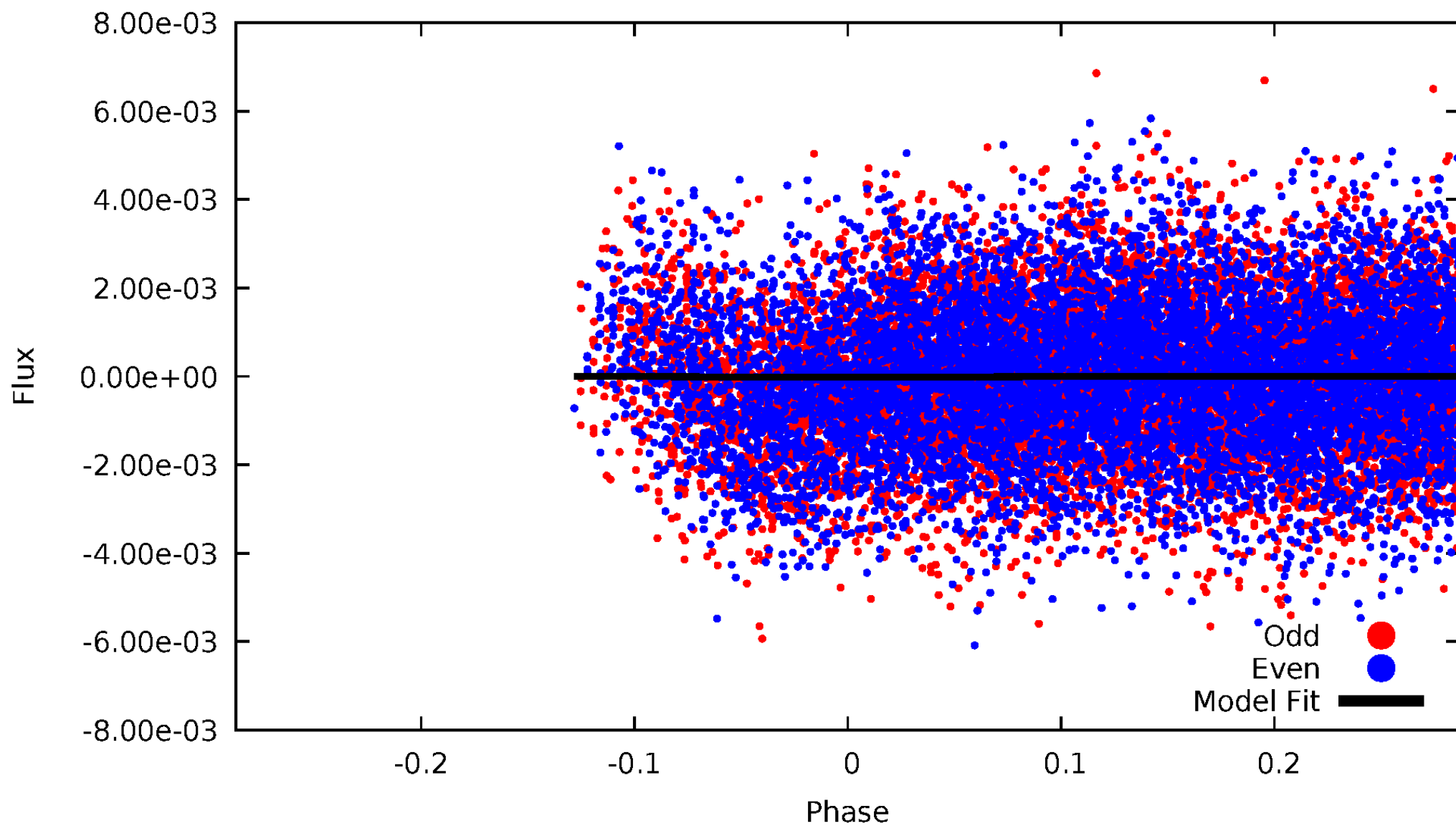
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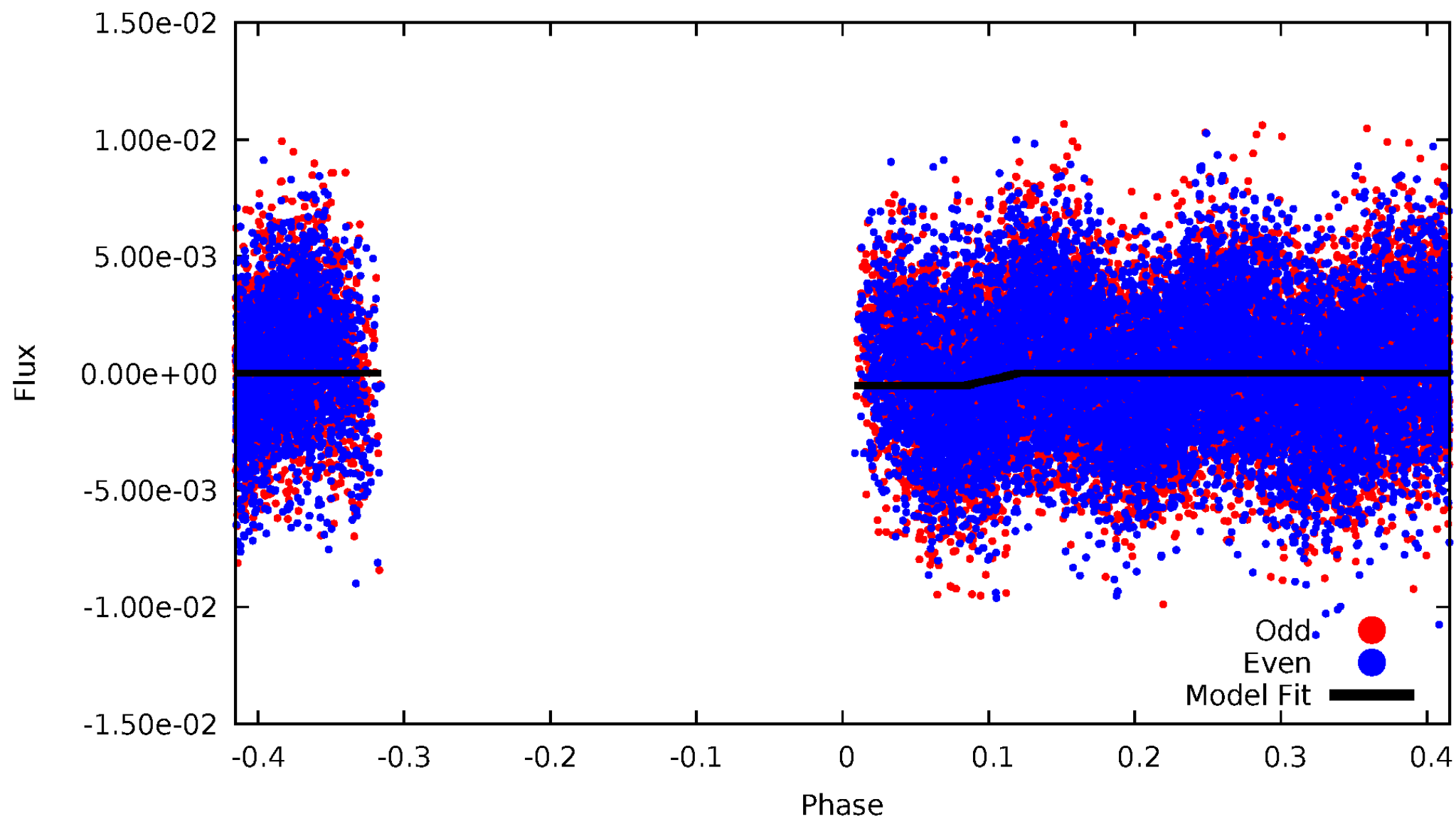
# DV Odd/Even

TCE 010035155-02



ALT Odd/Even

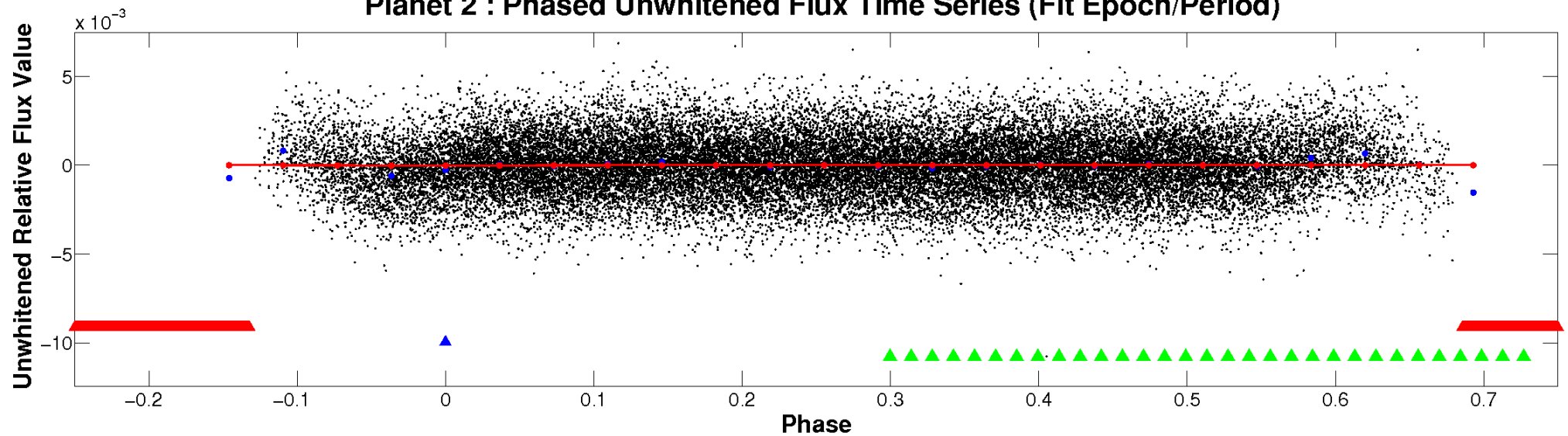
TCE 010035155-02



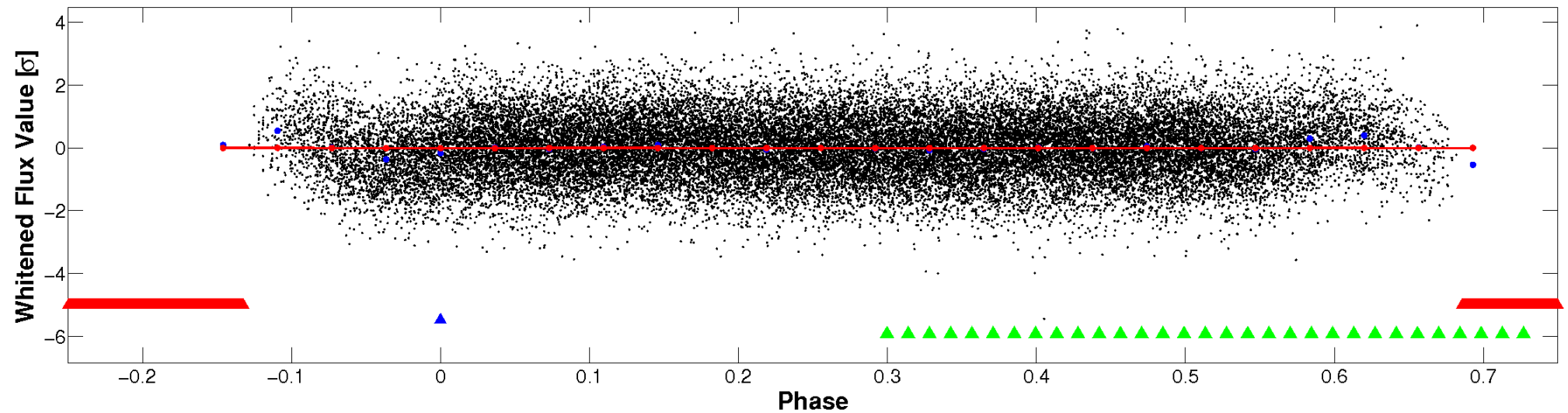


# Non-Whitened Vs. Whitened Light Curve

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

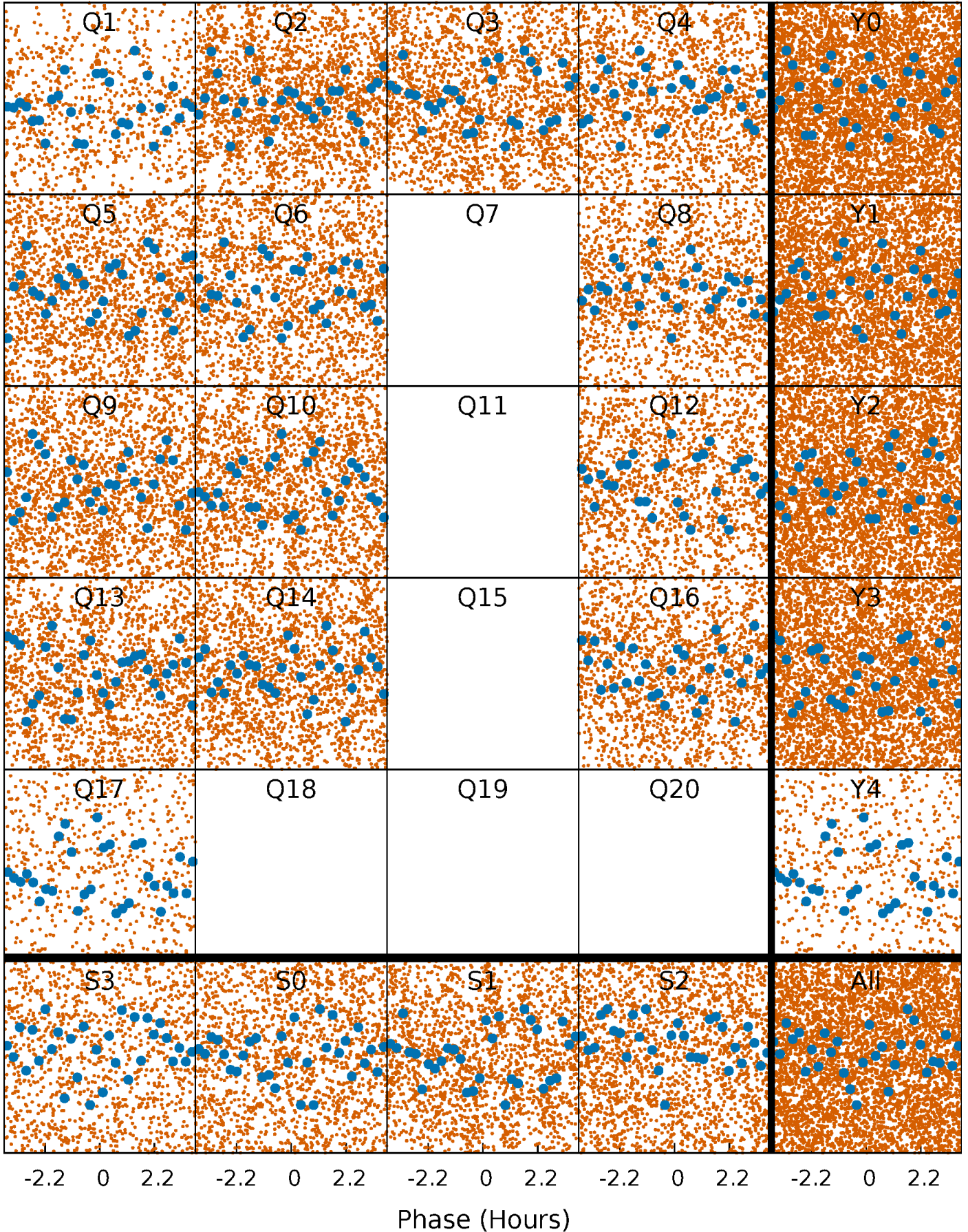


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



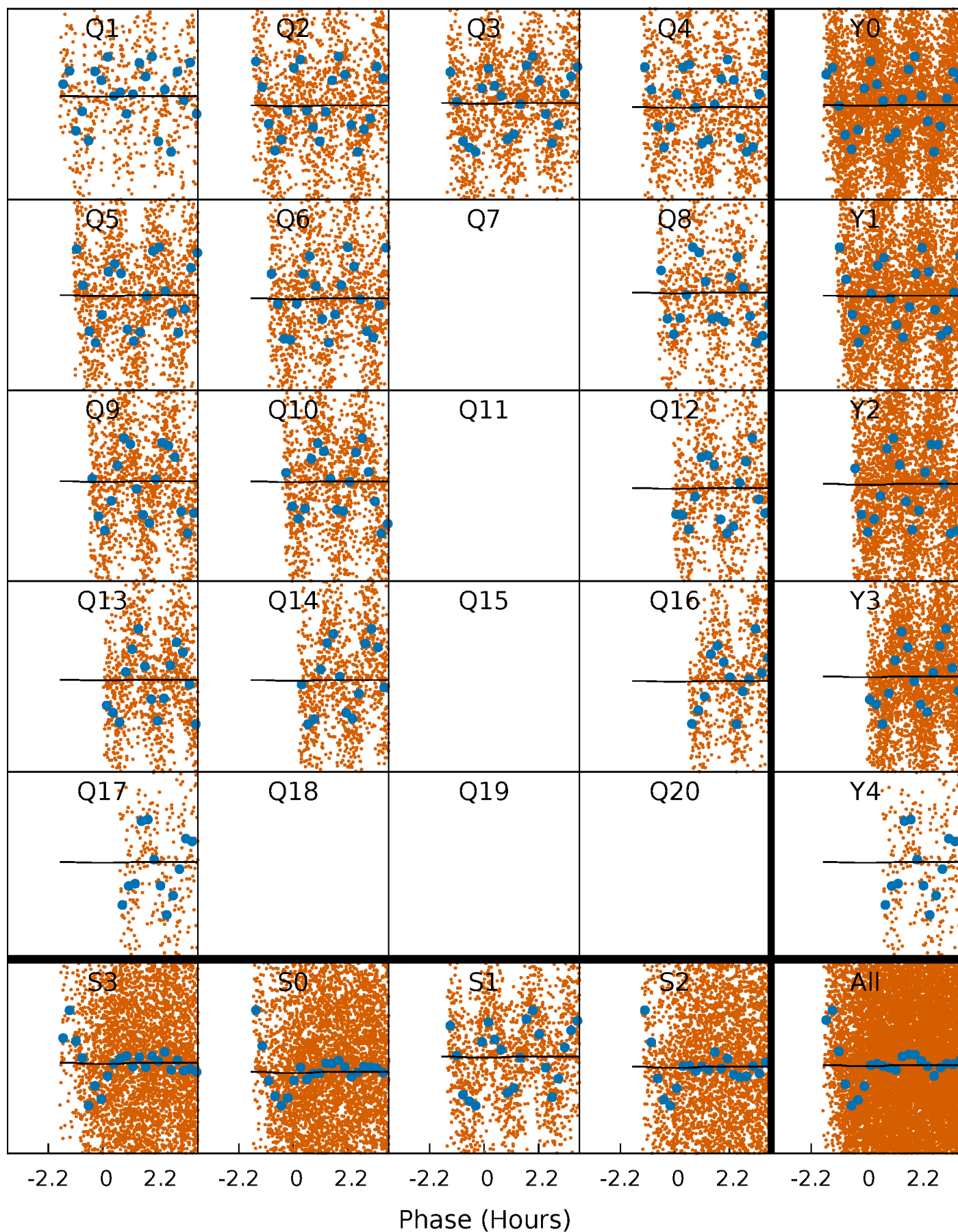
# PDC Quarter-Phased Transit Curves

TCE 010035155-02 P= 0.560241 Days  $T_0=131.990486$  (BKJD)



# DV Quarter-Phased Transit Curves

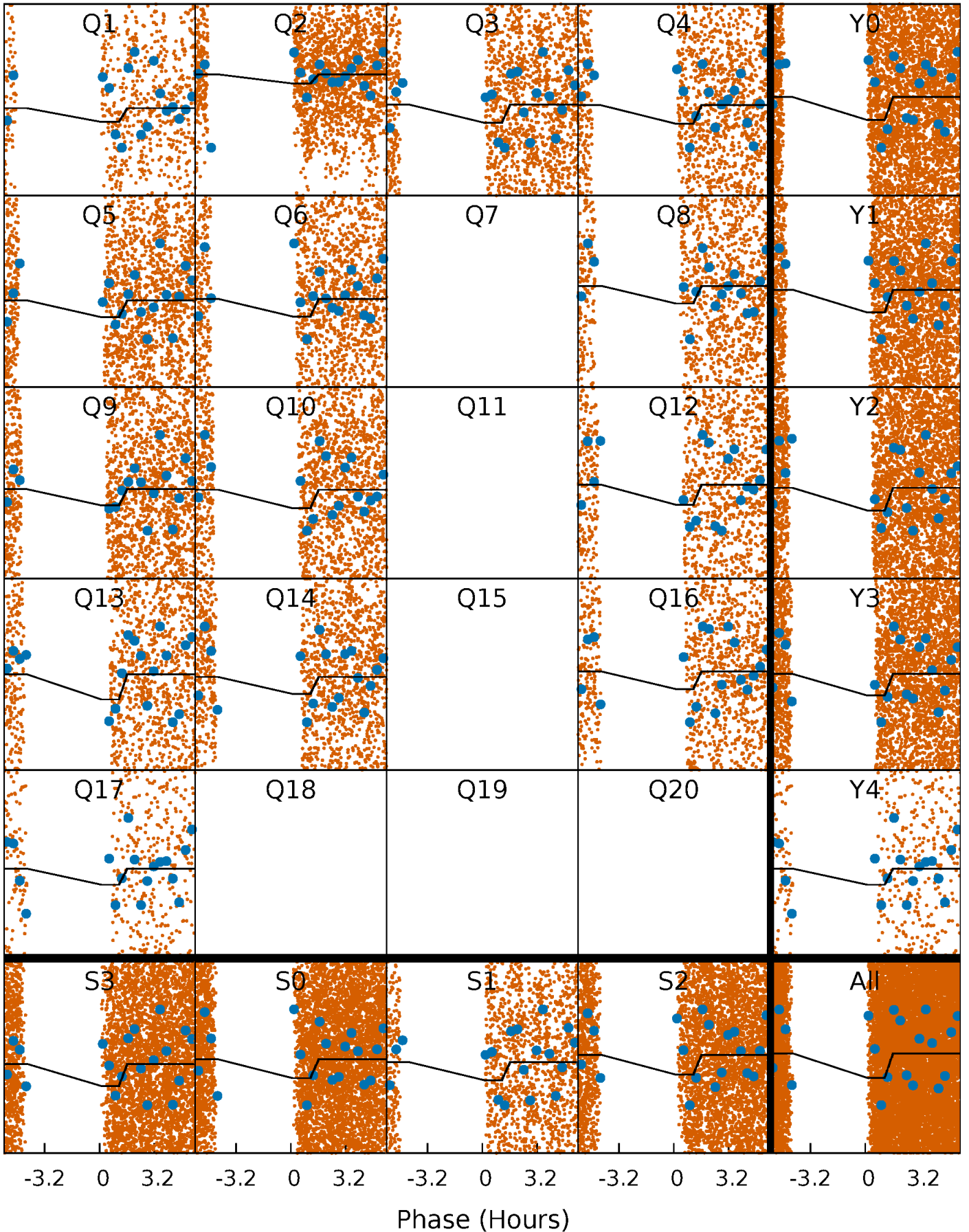
TCE 010035155-02 P= 0.560241 Days  $T_0=131.990486$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

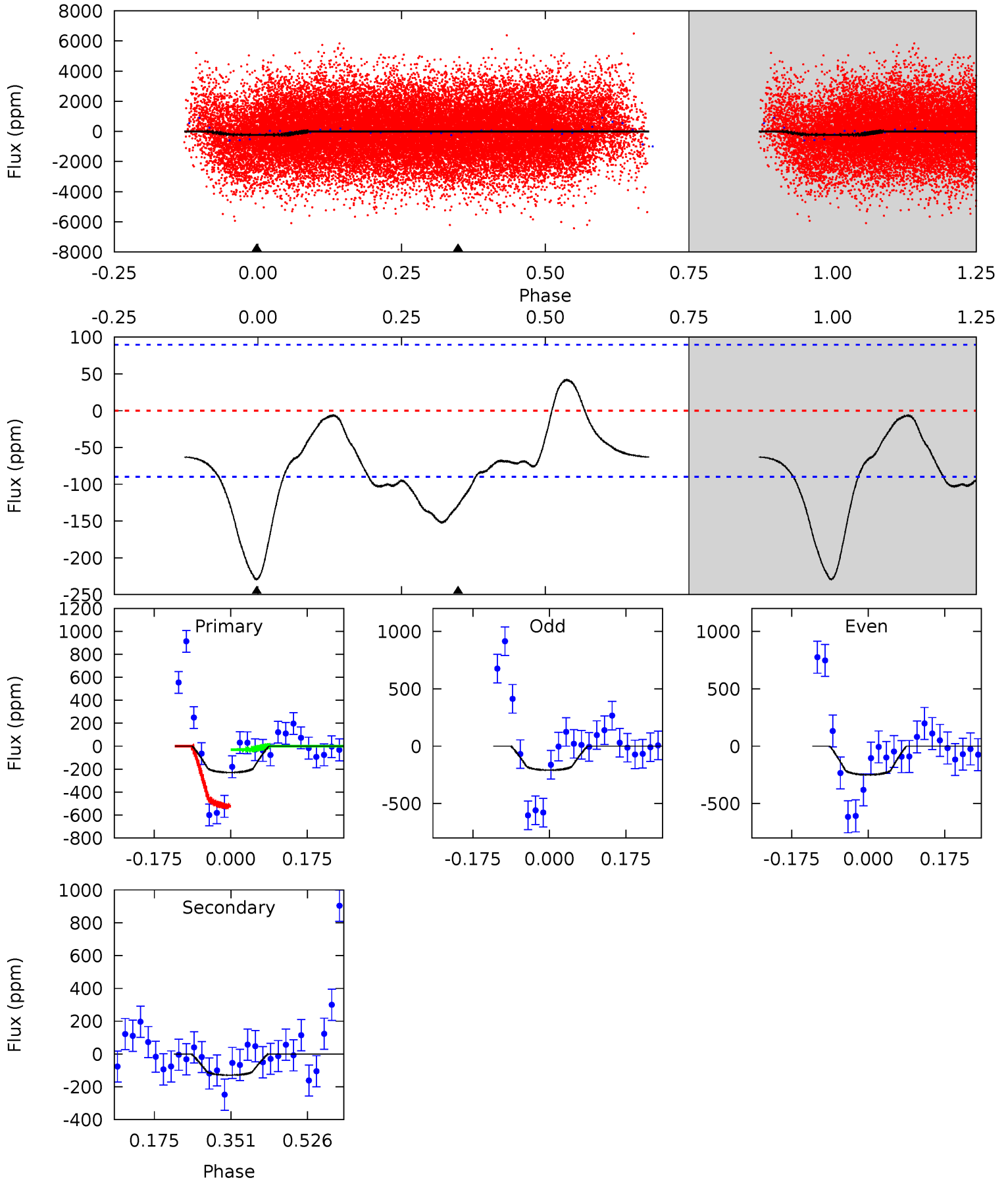
TCE 010035155-02 P= 0.560270 Days  $T_0=131.913779$  (BKJD)



# DV Model-Shift Uniqueness Test

010035155-02, P = 0.560241 Days, E = 131.430245 Days

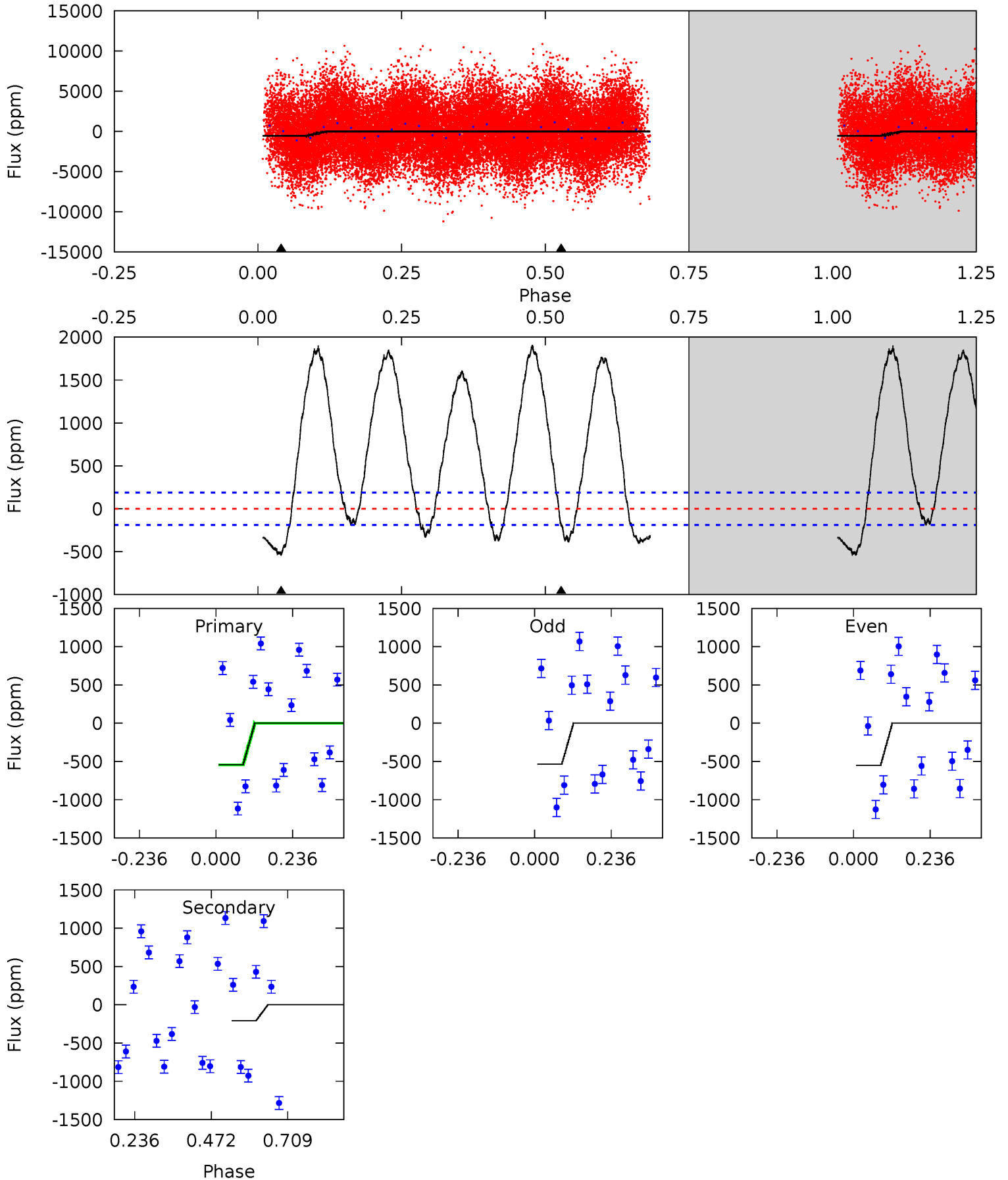
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	6.38	0	0	4.45	1.36	1.89	11.4	11.4	6.38	6.38	1.01	1.33	0.15	11.7



# Alt Model-Shift Uniqueness Test

010035155-02, P = 0.560270 Days, E = 131.353509 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	4.81	0	0	4.38	1.18	8.59	12.6	12.6	4.81	4.81	0.18	1.13	0.78	0





### Stellar Parameters For KIC 010035155

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7078^{+172}_{-296}$	$4.223^{+0.087}_{-0.217}$	$0.070^{+0.200}_{-0.350}$	$1.560^{+0.553}_{-0.237}$	$1.482^{+0.214}_{-0.214}$	$0.550^{+0.227}_{-0.308}$
	+2%/-4%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+41%/-56%
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 010035155-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-129 \pm 20$	$2.71^{+2.73}_{-1.90}$	$4492^{+350}_{-277}$	$5828^{+7201}_{-2032}$	$2.177^{+20.674}_{-1.642}$
Alt.	$-207 \pm 43$	$4.64^{+3.40}_{-2.77}$	$4481^{+366}_{-262}$	$4934^{+3415}_{-1629}$	$1.208^{+5.846}_{-0.809}$

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

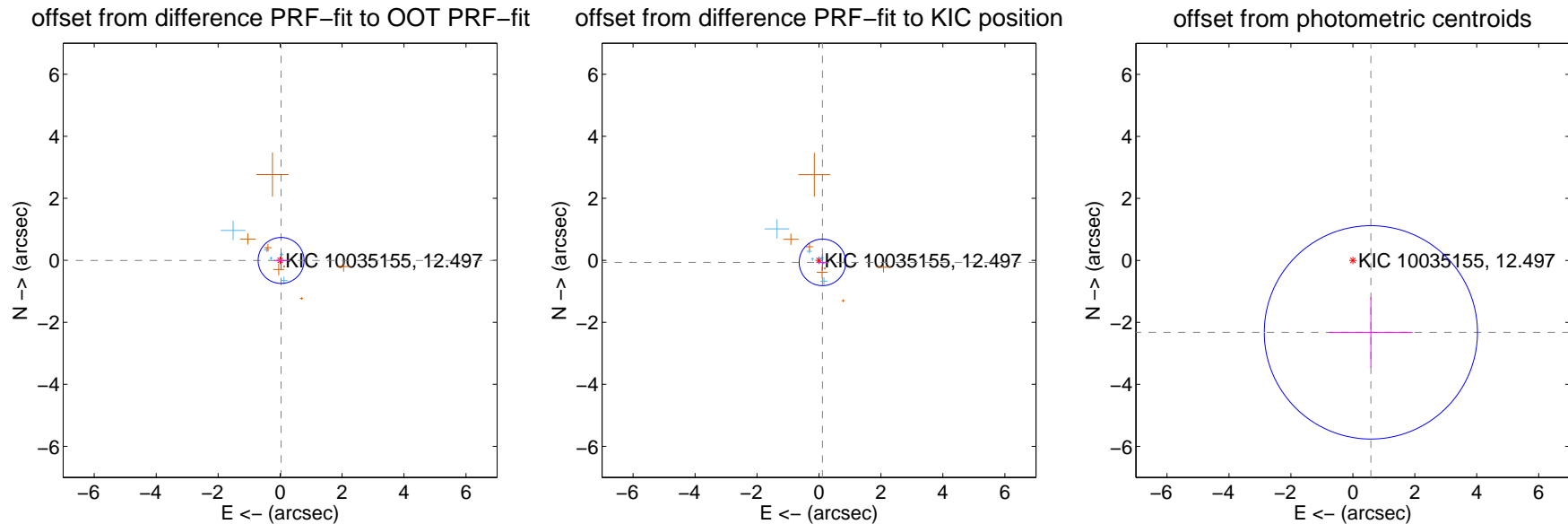
## DV Centroid Data

Supplemental centroid analysis for 010035155-02. Kepler magnitude: 12.50. Transit SNR 0.70

There are 7 quarters with good PRF difference image offsets

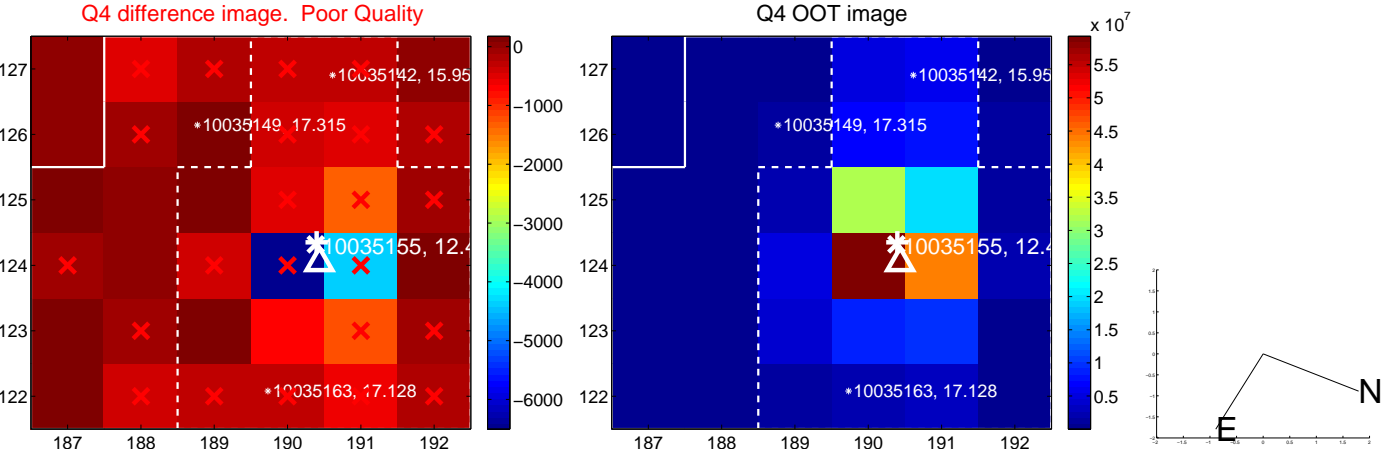
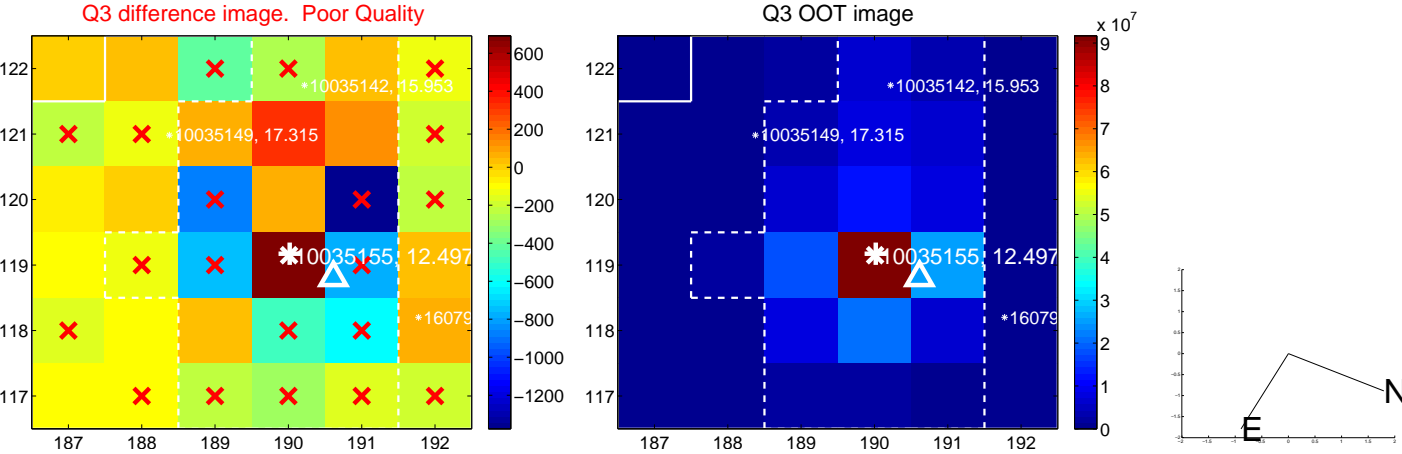
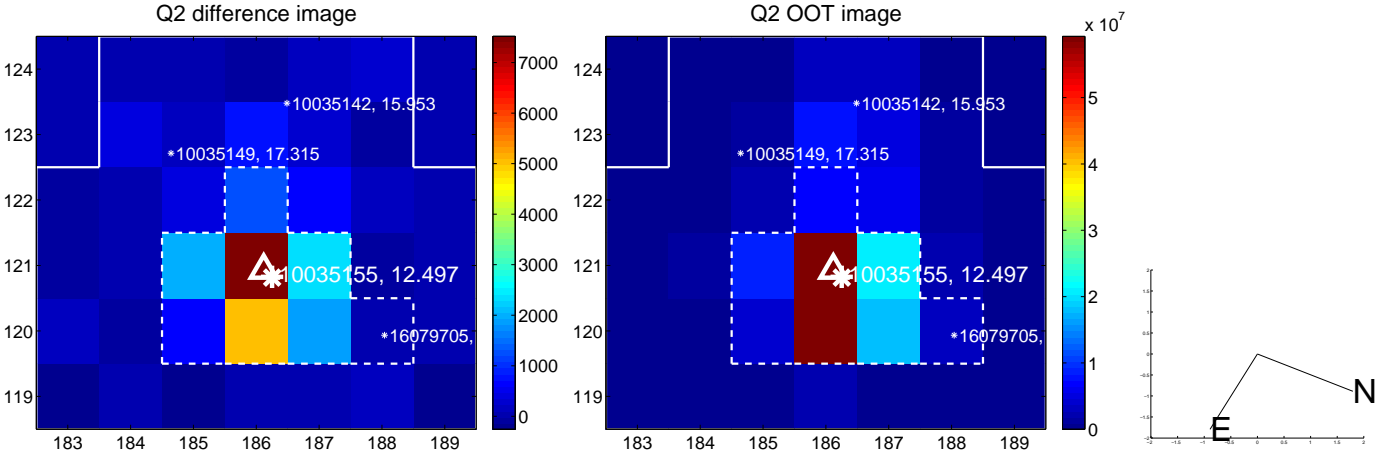
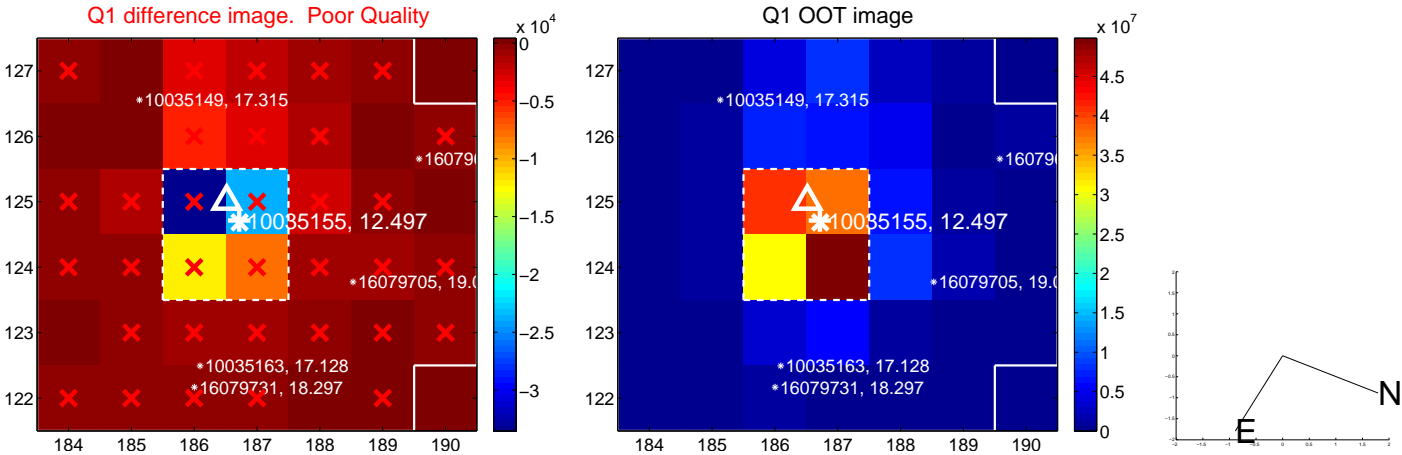
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.032 \pm 0.247$	0.13	$-0.032 \pm 0.230$	$-0.005 \pm 0.265$
PRF-fit source offset from KIC position	$0.130 \pm 0.250$	0.52	$-0.112 \pm 0.191$	$-0.067 \pm 0.258$
photometric centroid source offset	$2.39 \pm 1.15$	2.09	$-0.58 \pm 1.34$	$-2.32 \pm 1.13$

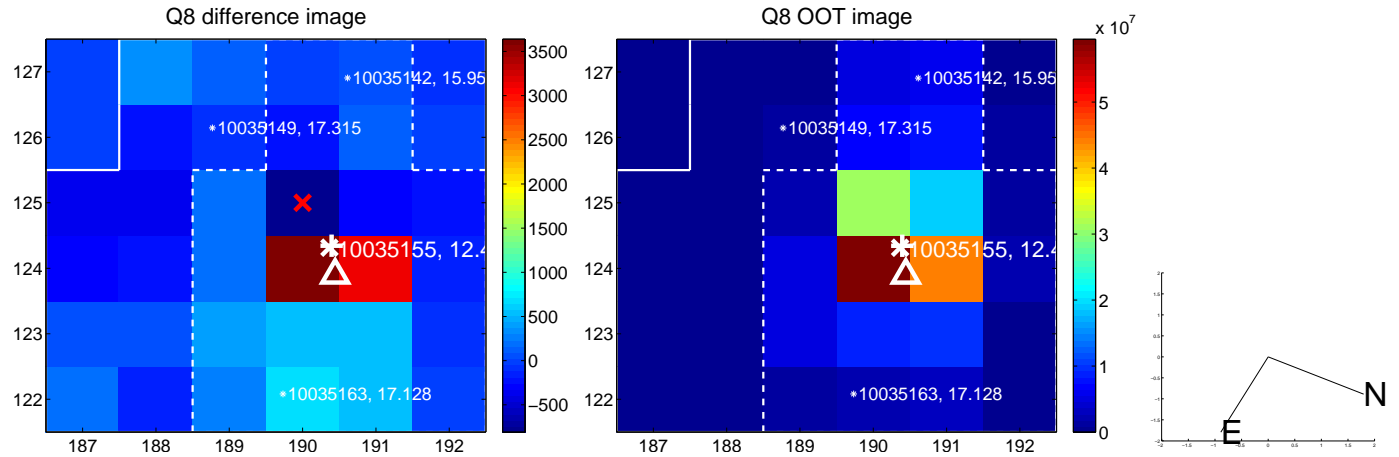
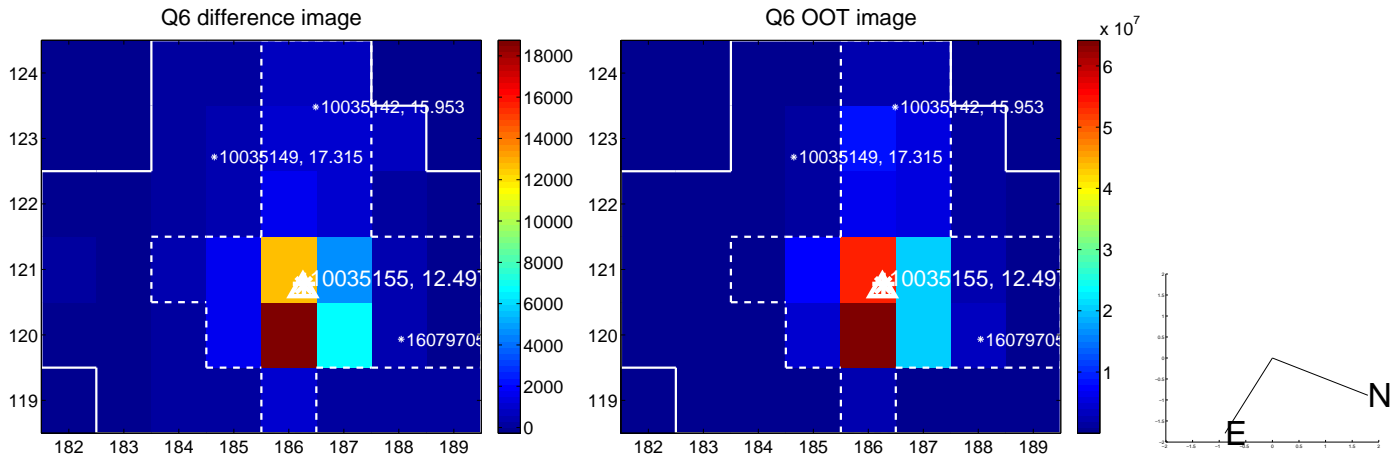
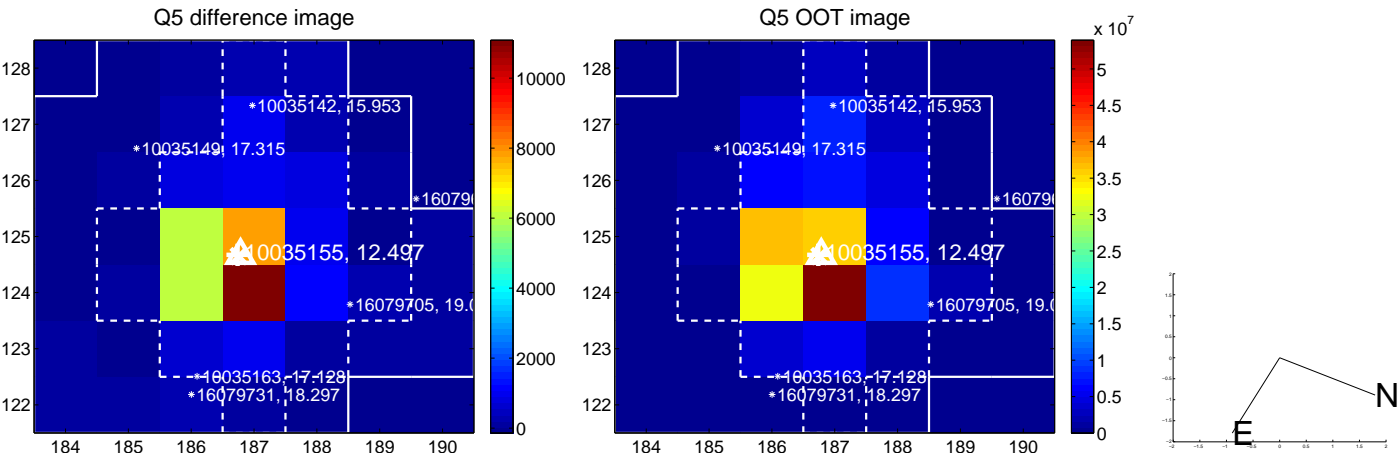


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

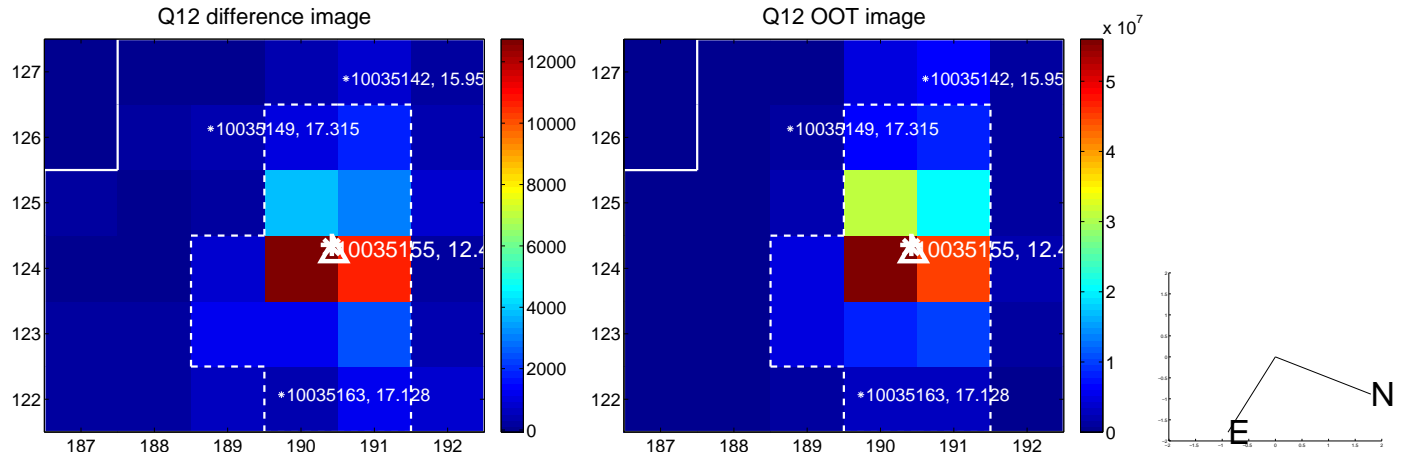
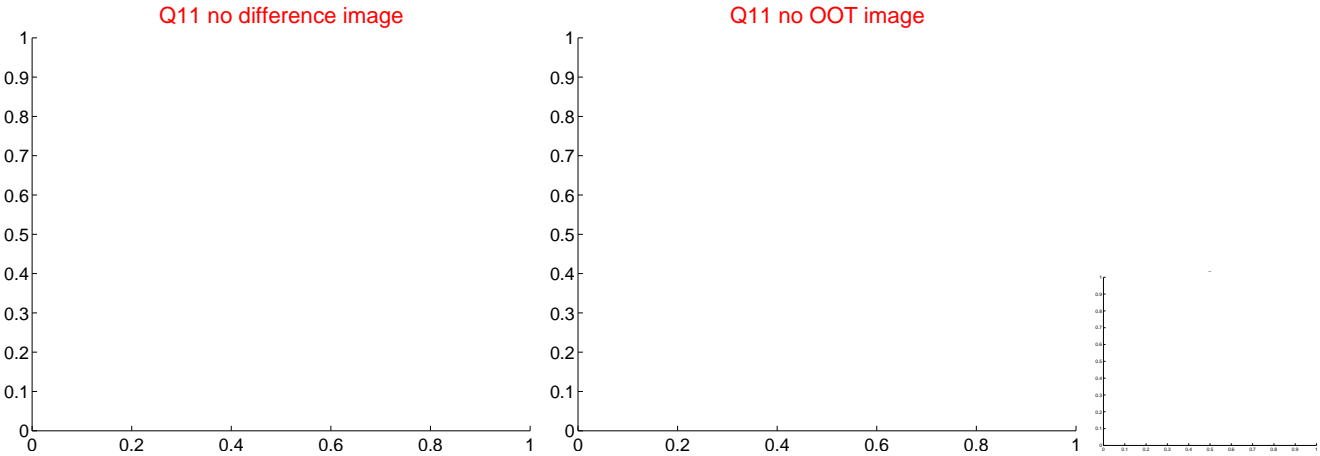
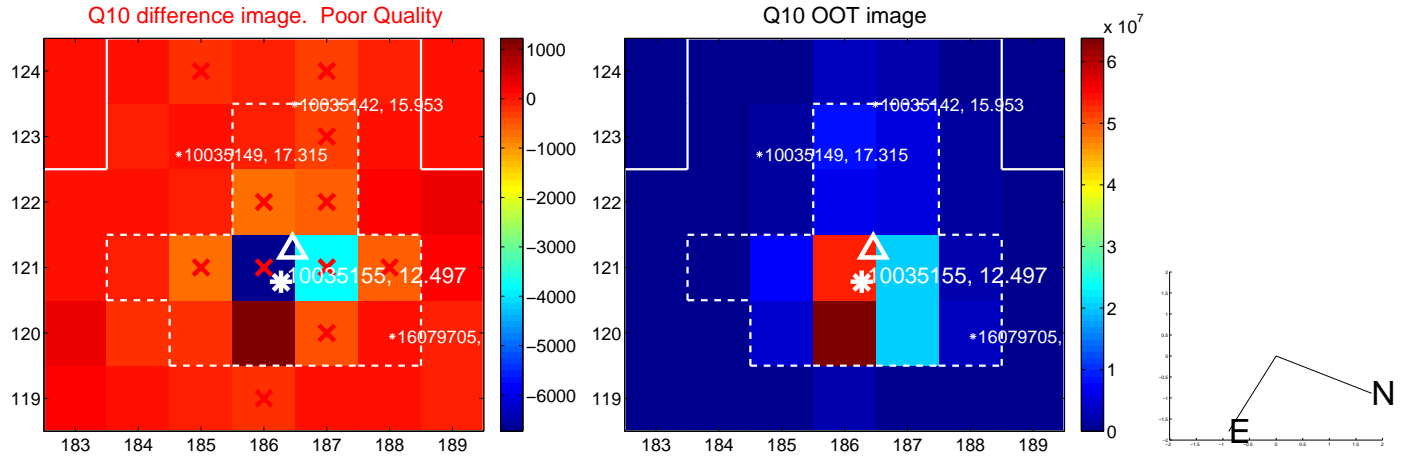
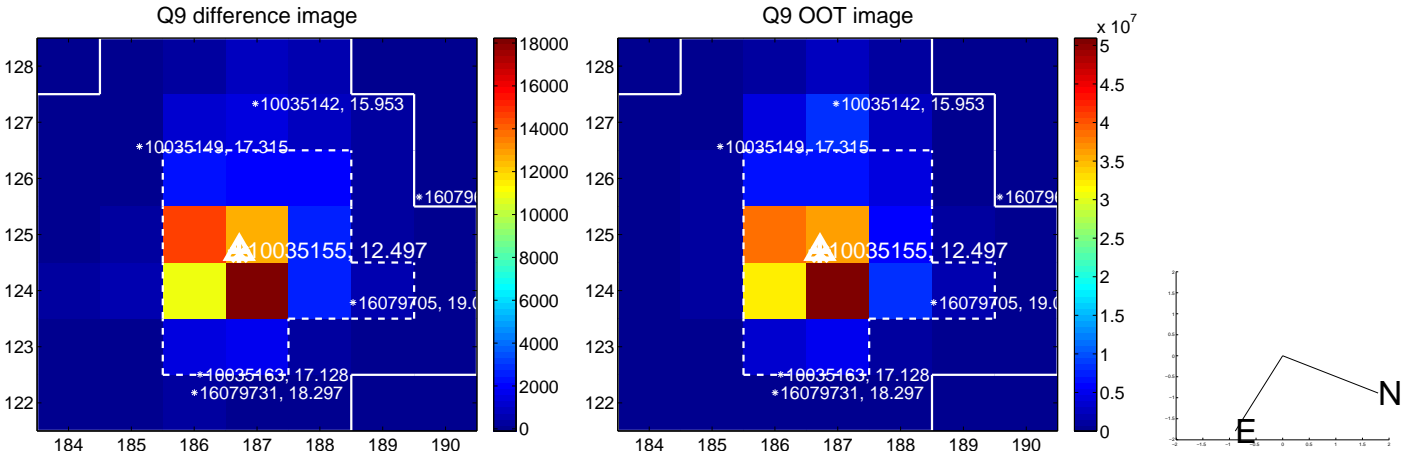
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

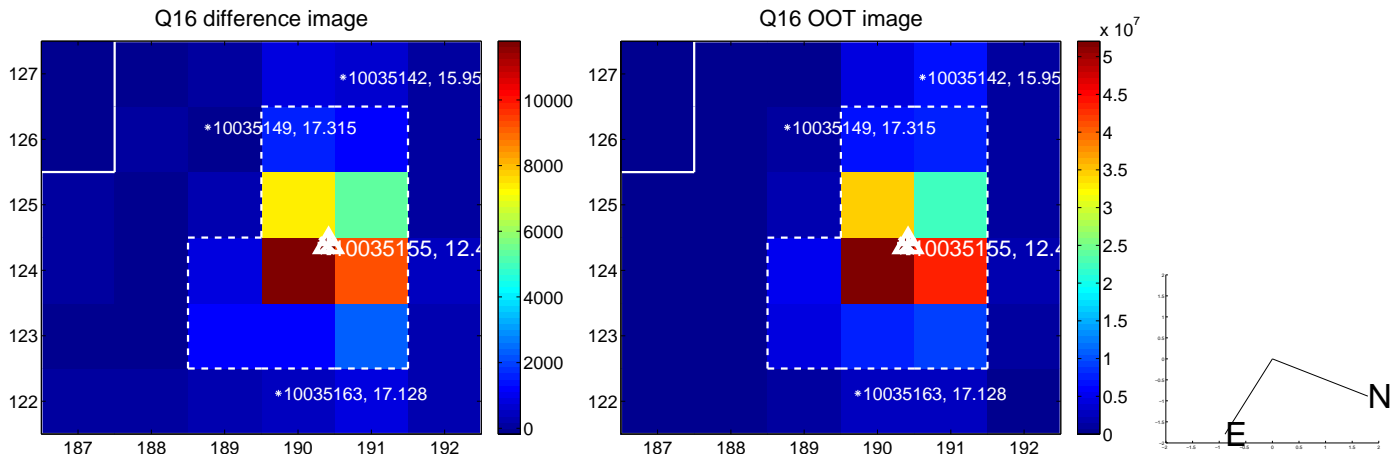
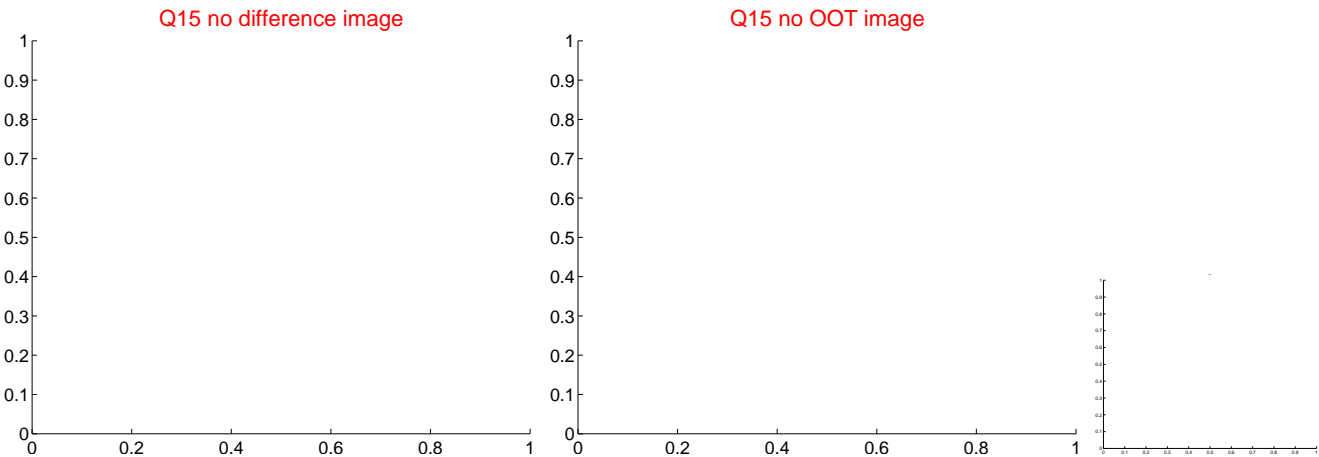
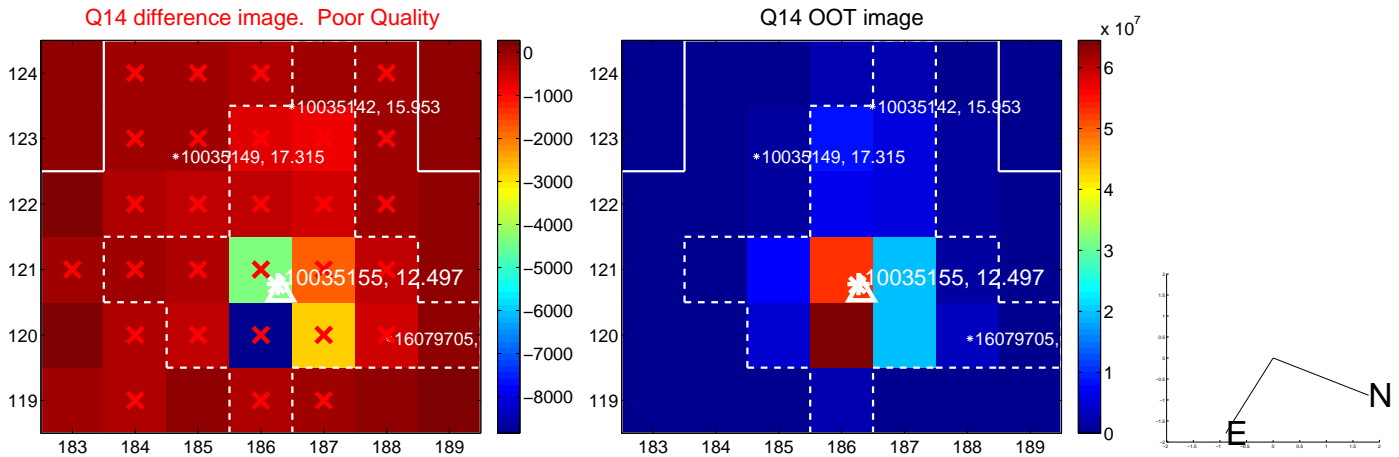
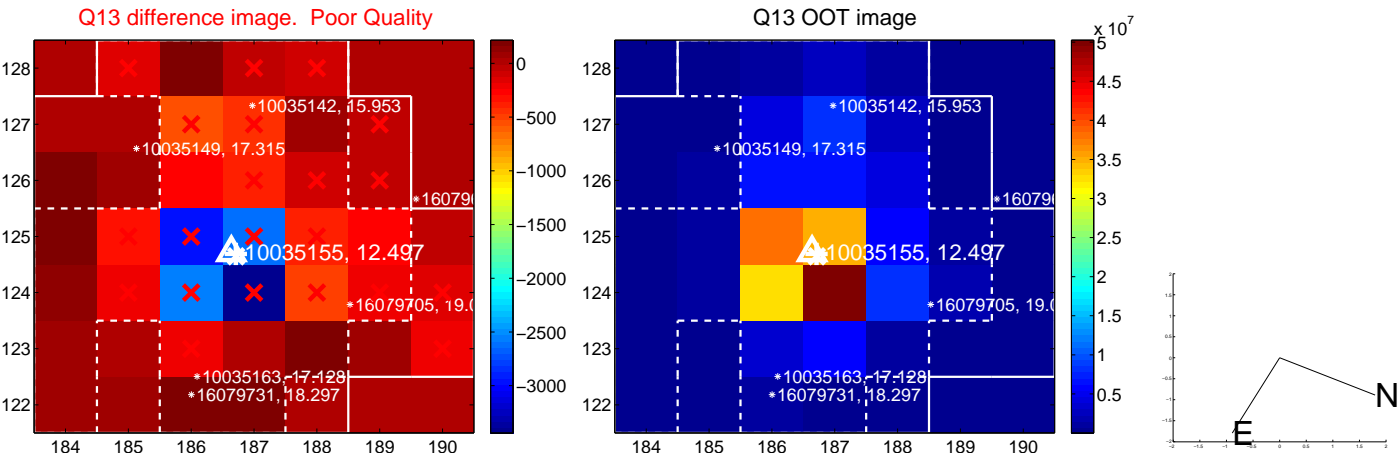


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

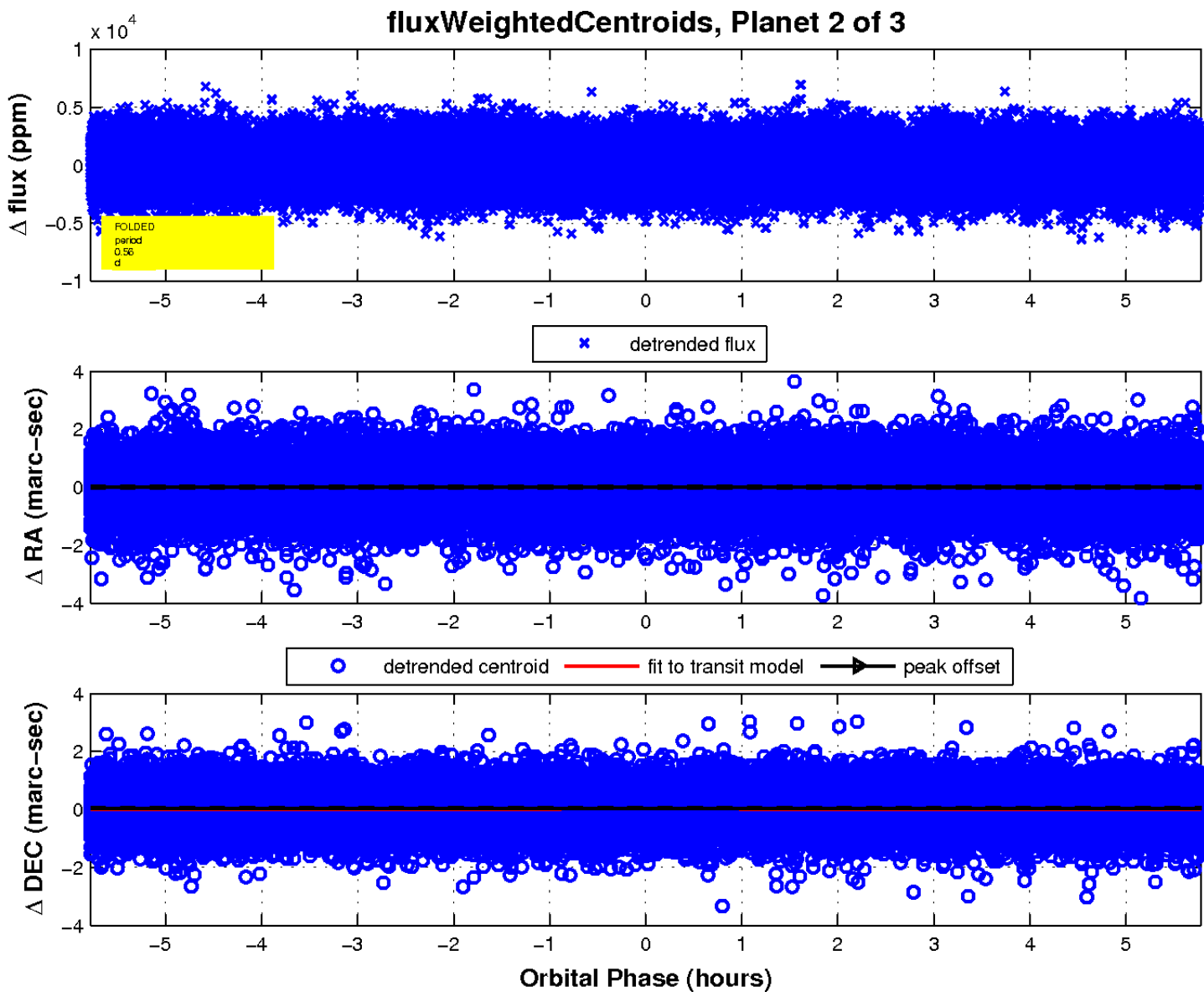
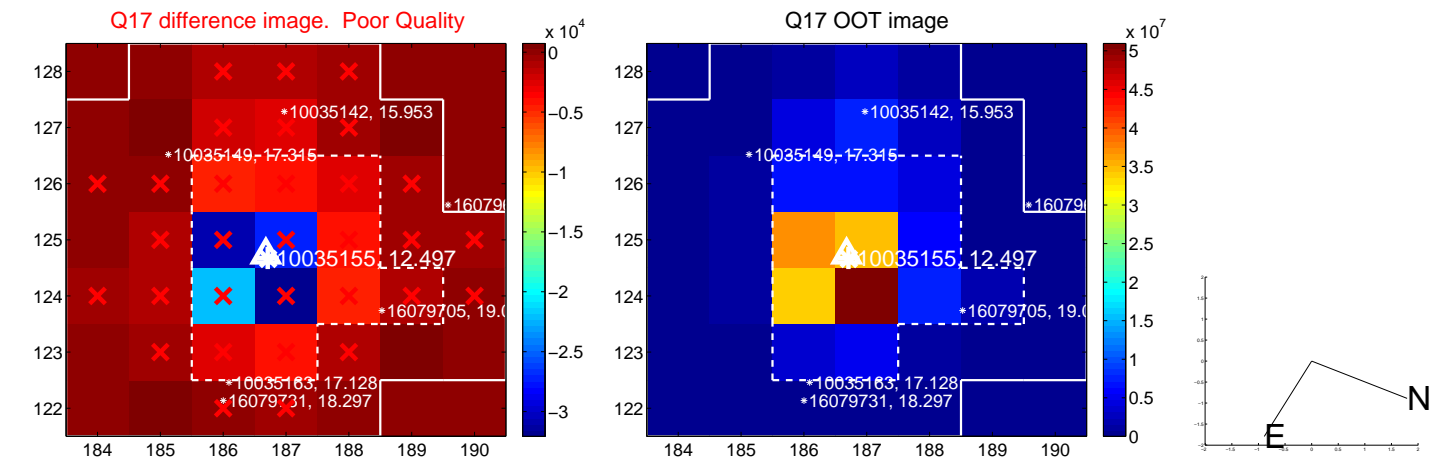




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

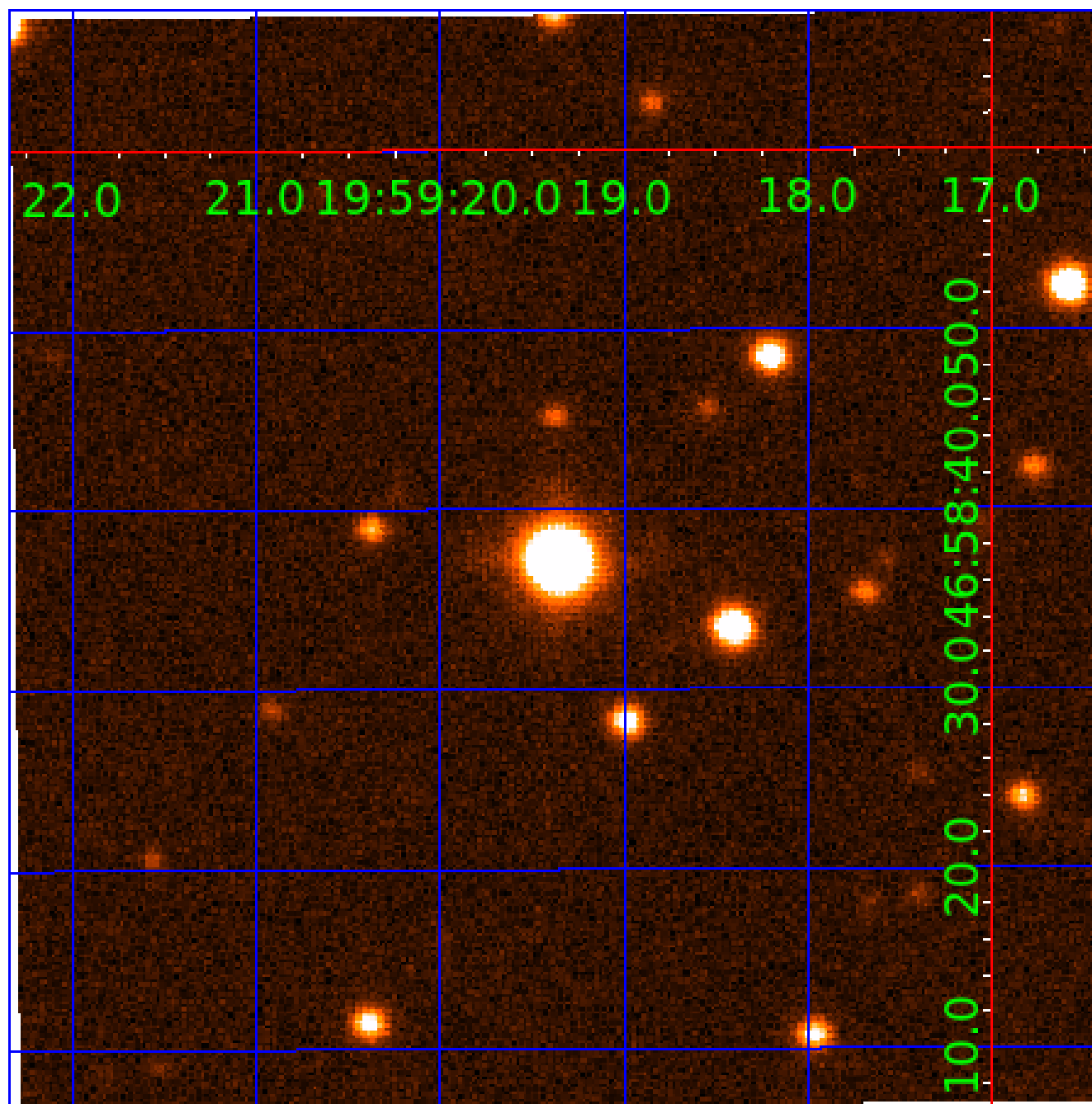


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010035155

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010035155-01	OBS	No	0.560280	131.814367	811.8	0.808	10.2	23.0	1.56	7078	4.82	23772.76
010035155-02	OBS	No	0.560241	131.990486	18.2	1.928	10.1	0.7	1.56	7078	0.77	23774.98
010035155-03	OBS	No	48.172718	139.120669	2773.8	1.347	7.3	8.5	1.56	7078	9.62	62.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010035155-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010035155-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
010035155-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

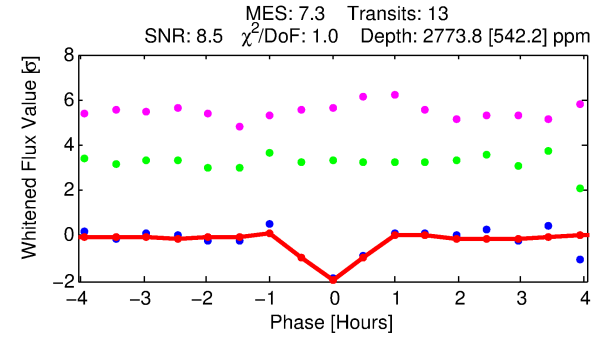
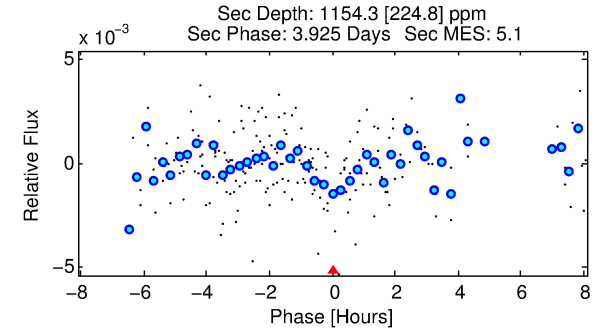
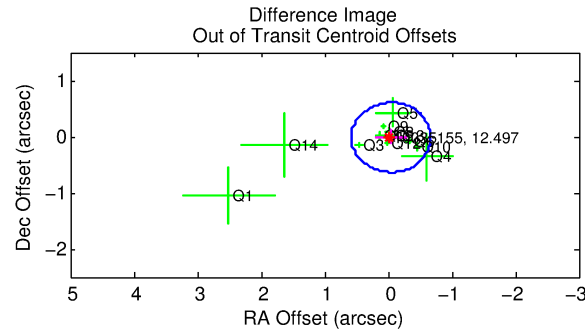
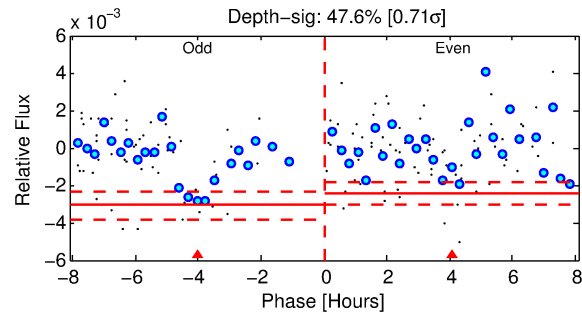
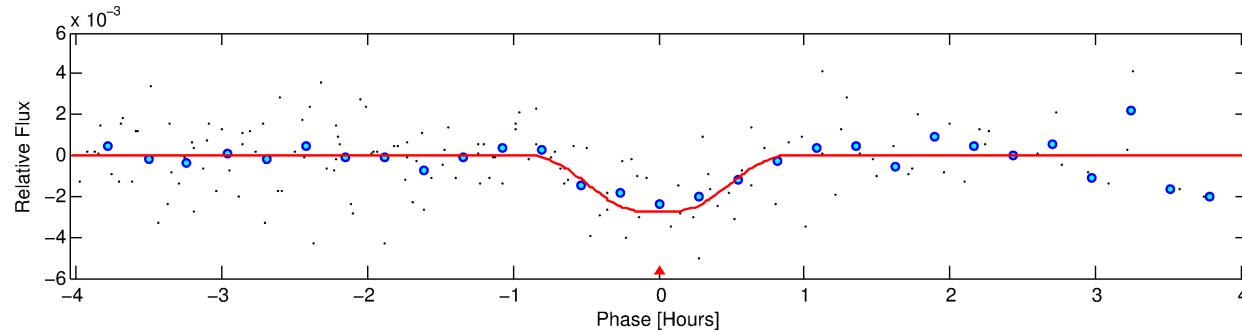
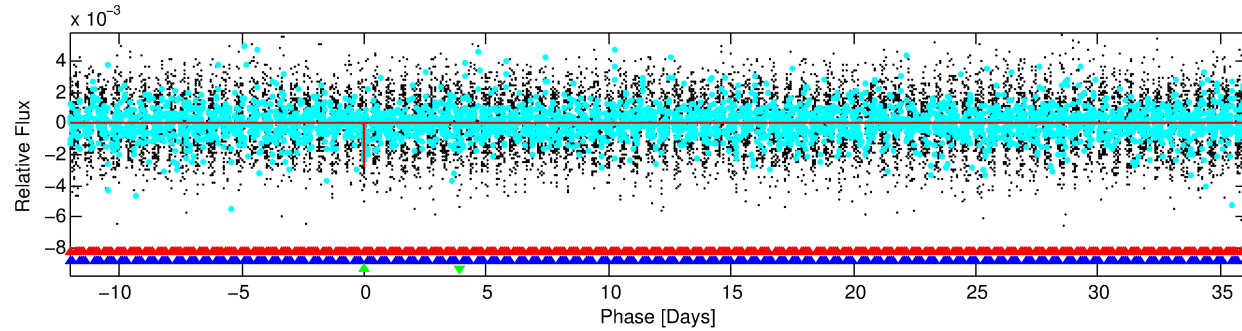
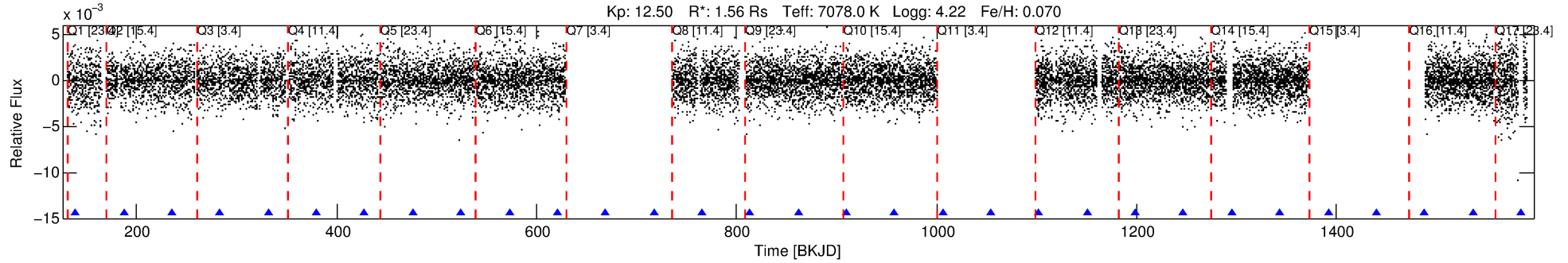
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010035155-03

No Significant Match Found

# DV One-Page Summary

KIC: 10035155 Candidate: 3 of 3 Period: 48.173 d



## DV Fit Results:

Period = 48.17272 [0.00044] d  
Epoch = 139.1207 [0.0097] BKJD  
Rp/R\* = 0.0565 [0.0173]  
a/R\* = 151.86 [203.27]  
b = 0.90 [0.30]  
Seff = 62.64 [27.65]  
Teff = 717 [79] K  
Rp = 9.62 [4.51] Re  
a = 0.2956 [0.0855] AU  
Ag = 599.88 [457.32] [1.31 $\sigma$ ]  
Teffp = 5489 [913] K [5.21 $\sigma$ ]

## DV Diagnostic Results:

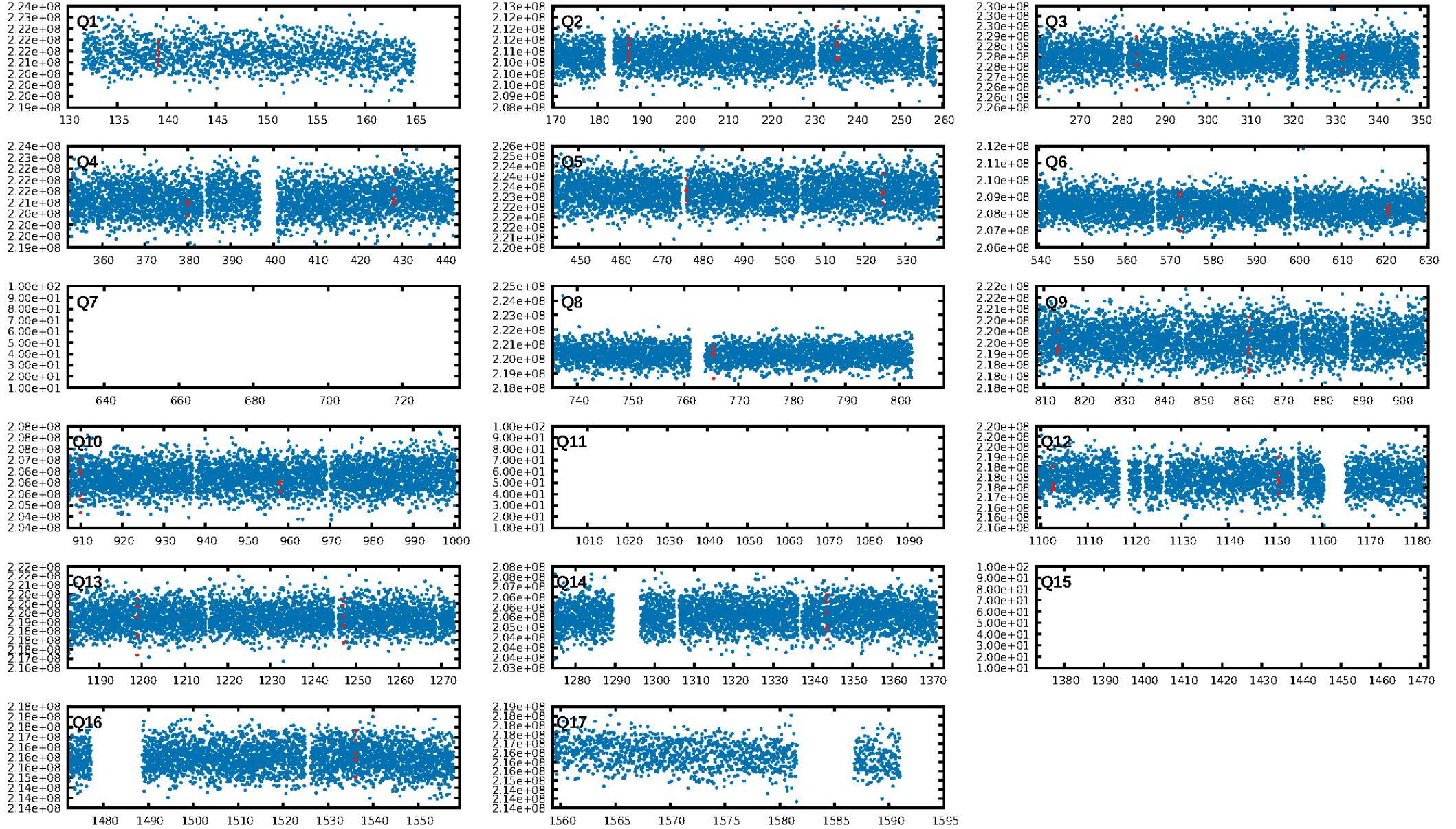
ShortPeriod-sig: 100.0% [727.67 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 57.8%  
ModelChiSquareGof-sig: 99.8%  
**Bootstrap-pfa: 2.26e-11**  
RollingBand-fgt: 1.00 [13/13]  
GhostDiagnostic-chr: 1.019  
Centroid-sig: 28.0%  
Centroid-so: 0.117 arcsec [1.28 $\sigma$ ]  
OotOffset-rm: 0.044 arcsec [0.21 $\sigma$ ]  
OotOffset-st: 3/1/4/4 [12]  
KicOffset-rm: 0.157 arcsec [0.82 $\sigma$ ]  
KicOffset-st: 3/1/4/4 [12]  
DiffImageQuality-fgm: 0.67 [8/12]  
DiffImageOverlap-fno: 0.00 [0/13]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:01:26 Z

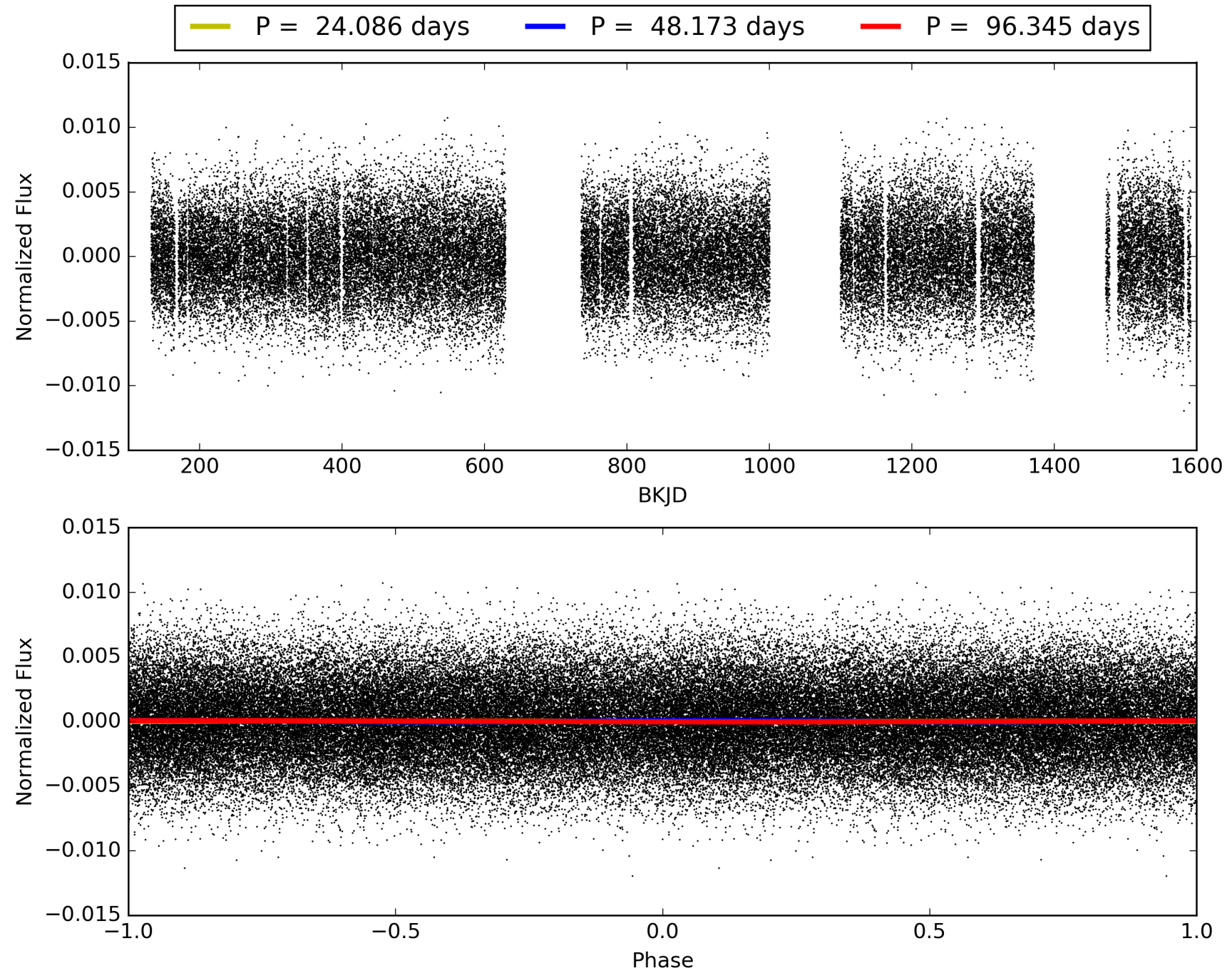
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 010035155-03, PDC Light Curves

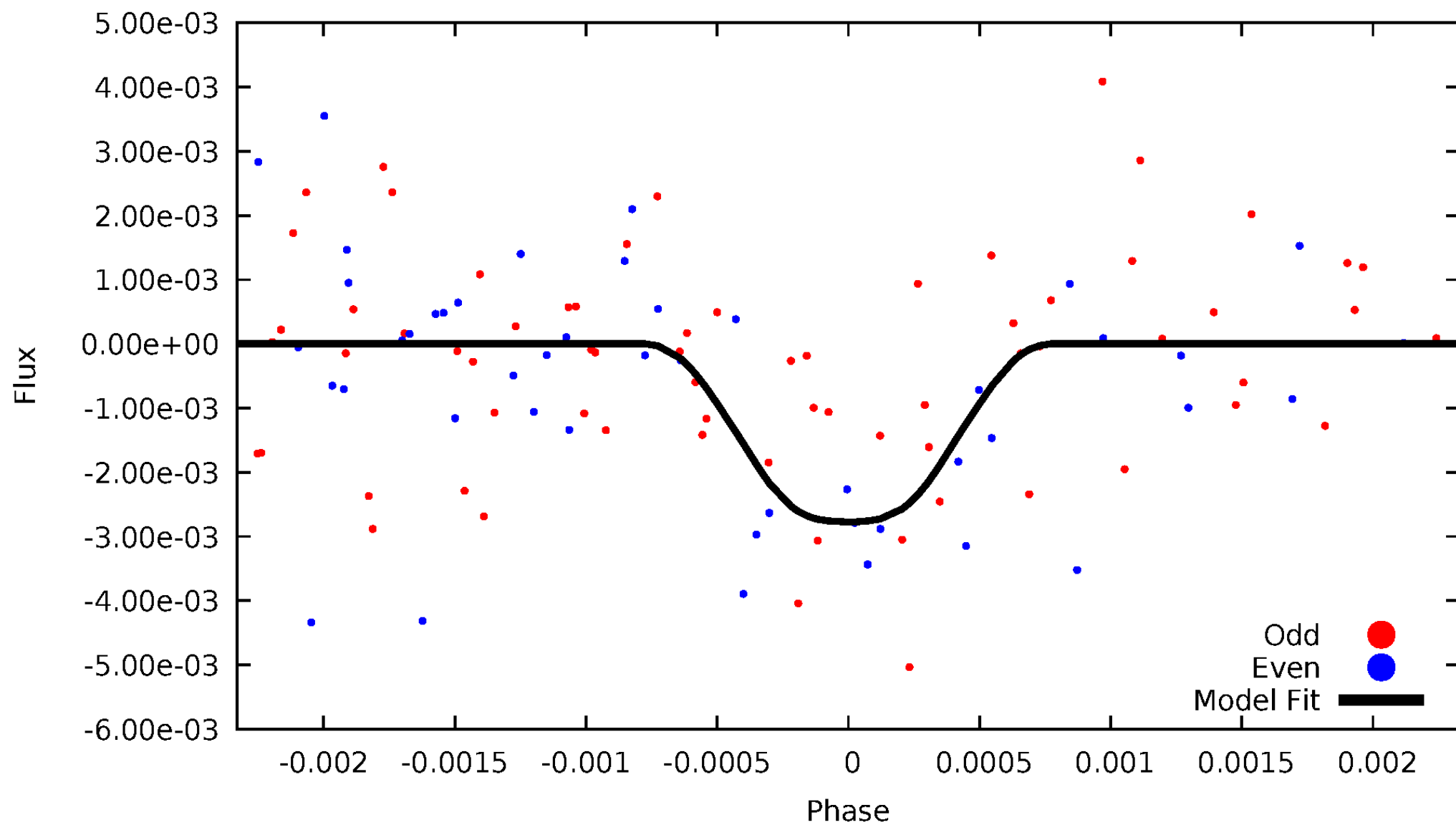


TCE 010035155-03



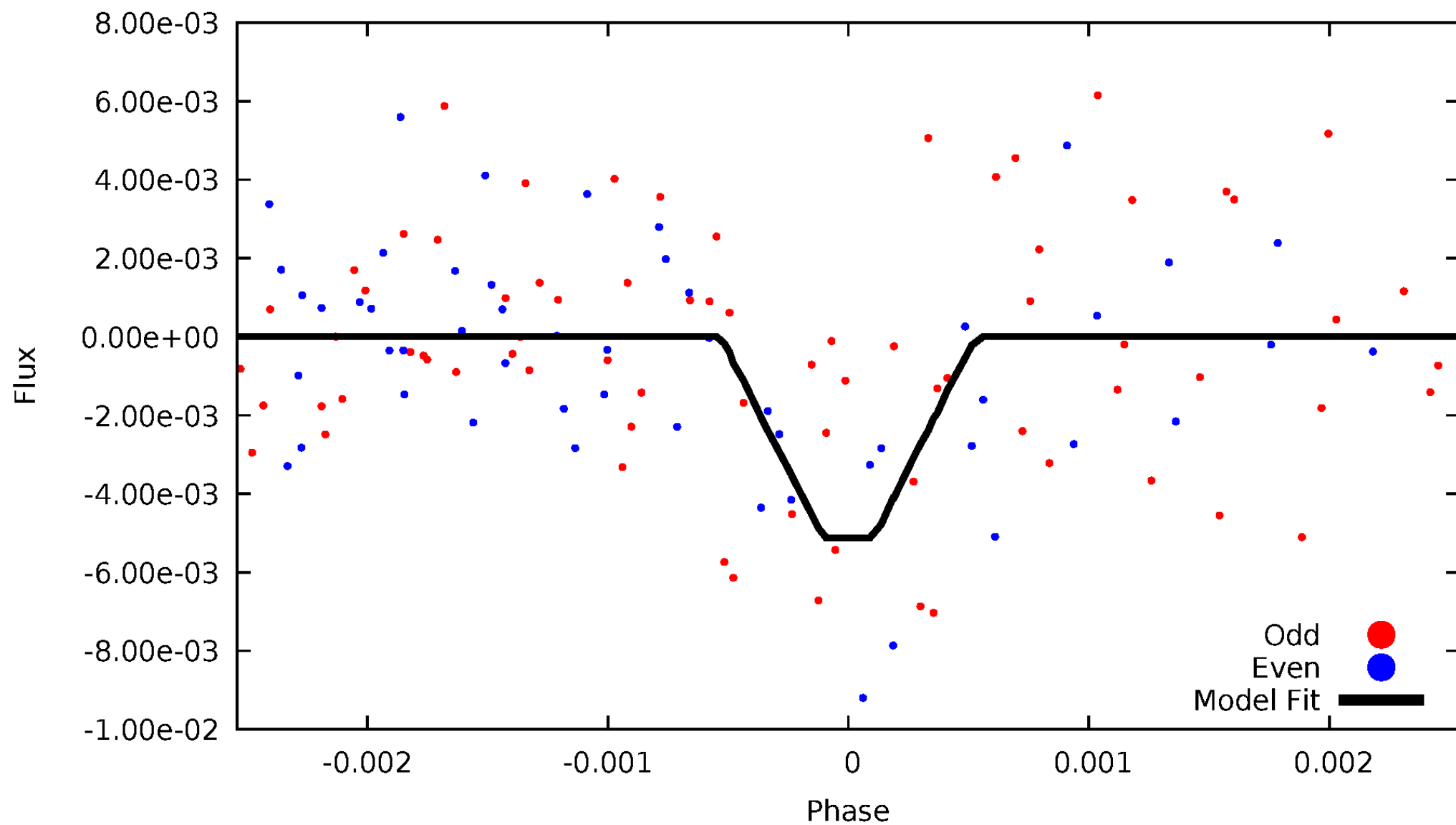
# DV Odd/Even

TCE 010035155-03



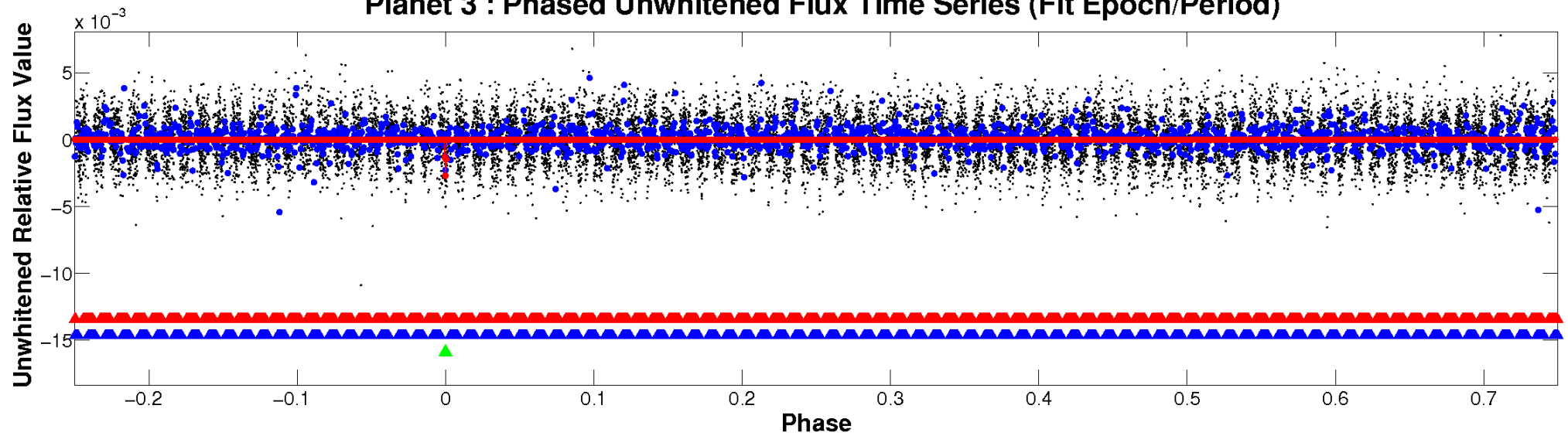
# ALT Odd/Even

TCE 010035155-03

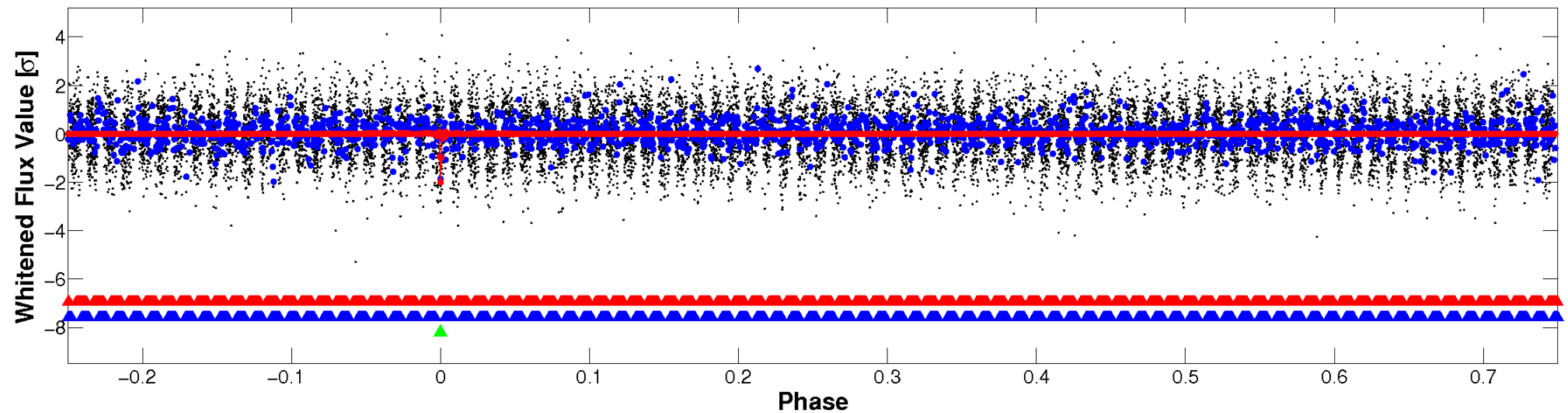


# Non-Whitened Vs. Whitened Light Curve

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

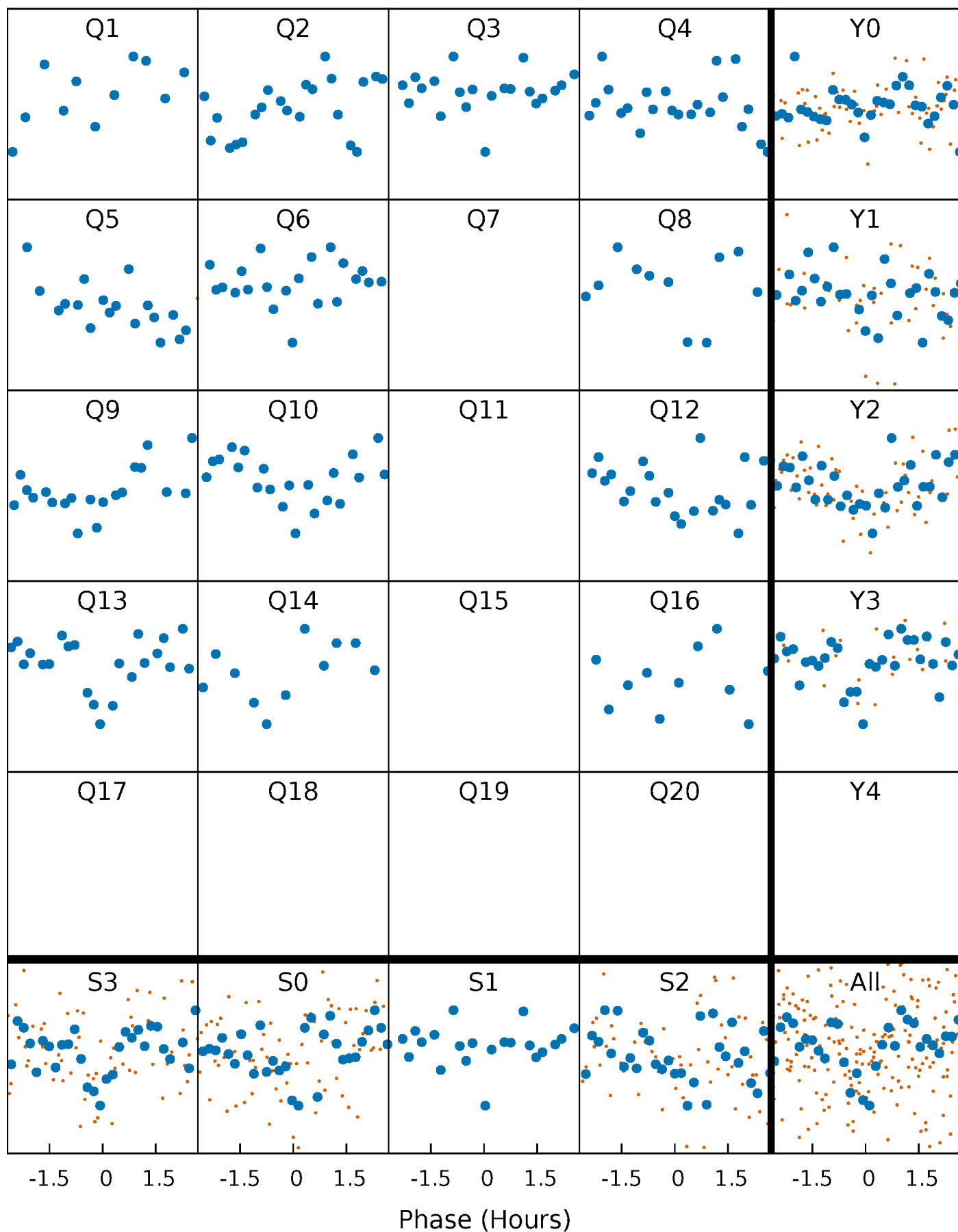


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

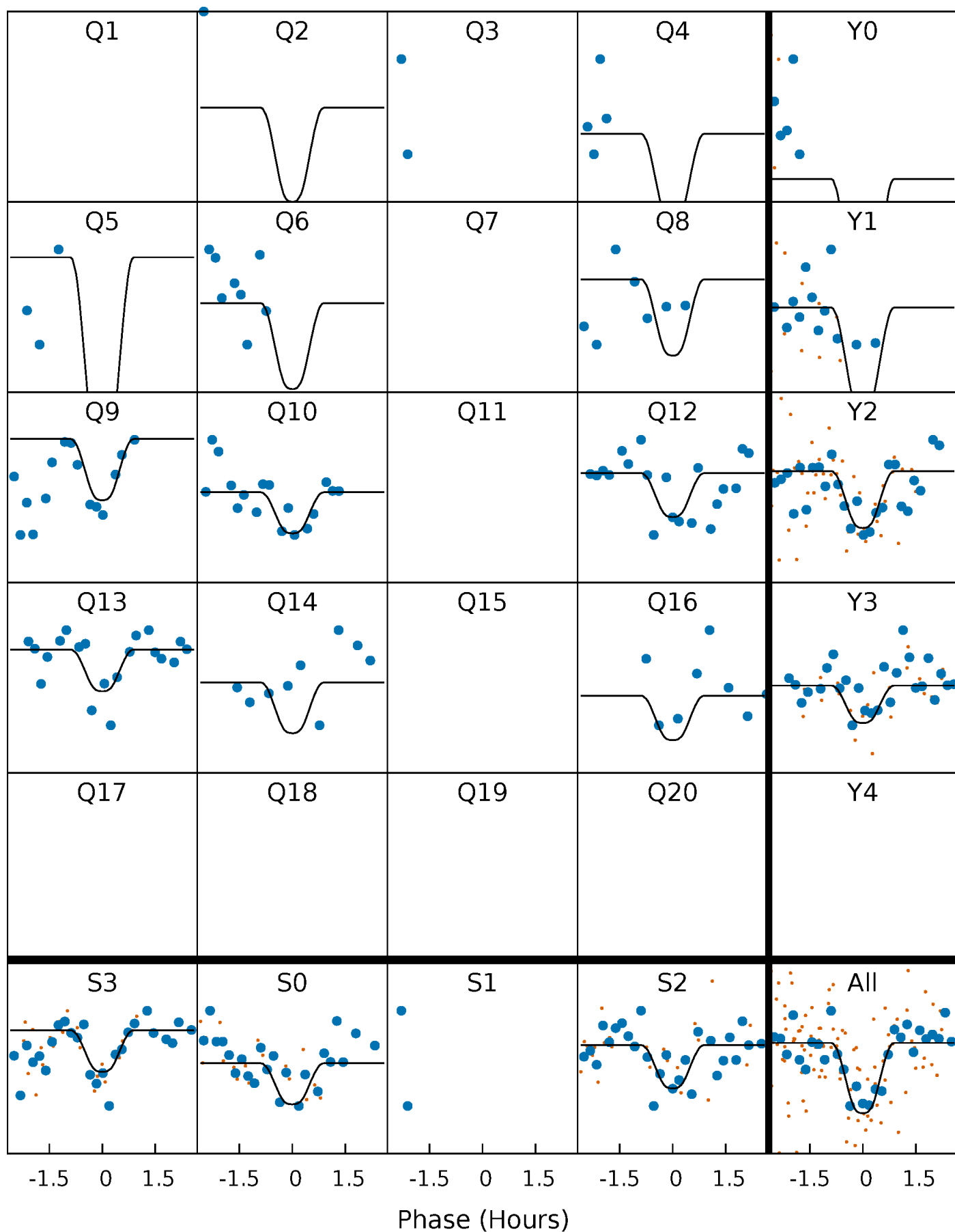
TCE 010035155-03 P= 48.172718 Days  $T_0=139.120669$  (BKJD)





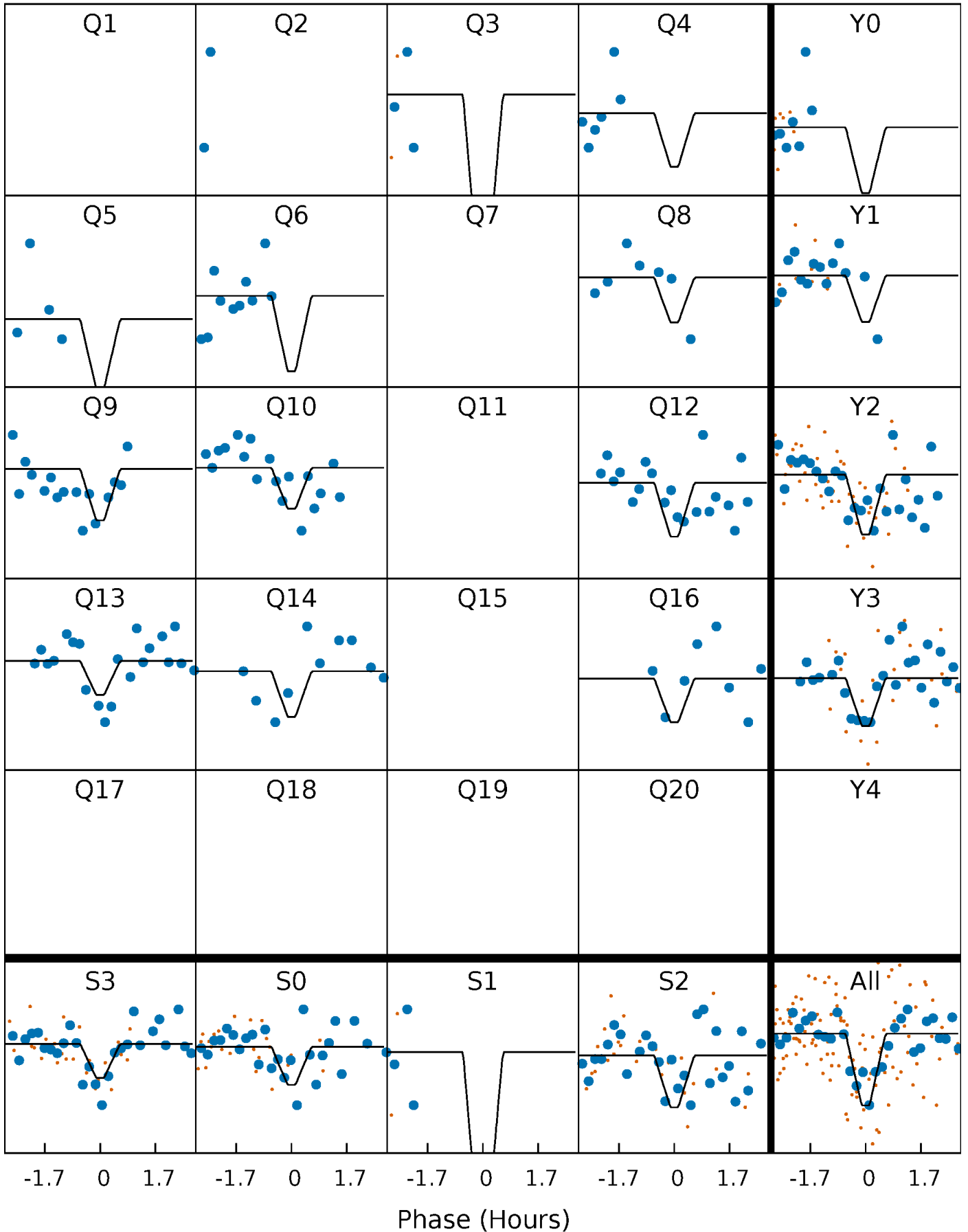
# DV Quarter-Phased Transit Curves

TCE 010035155-03 P= 48.172718 Days  $T_0=139.120669$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

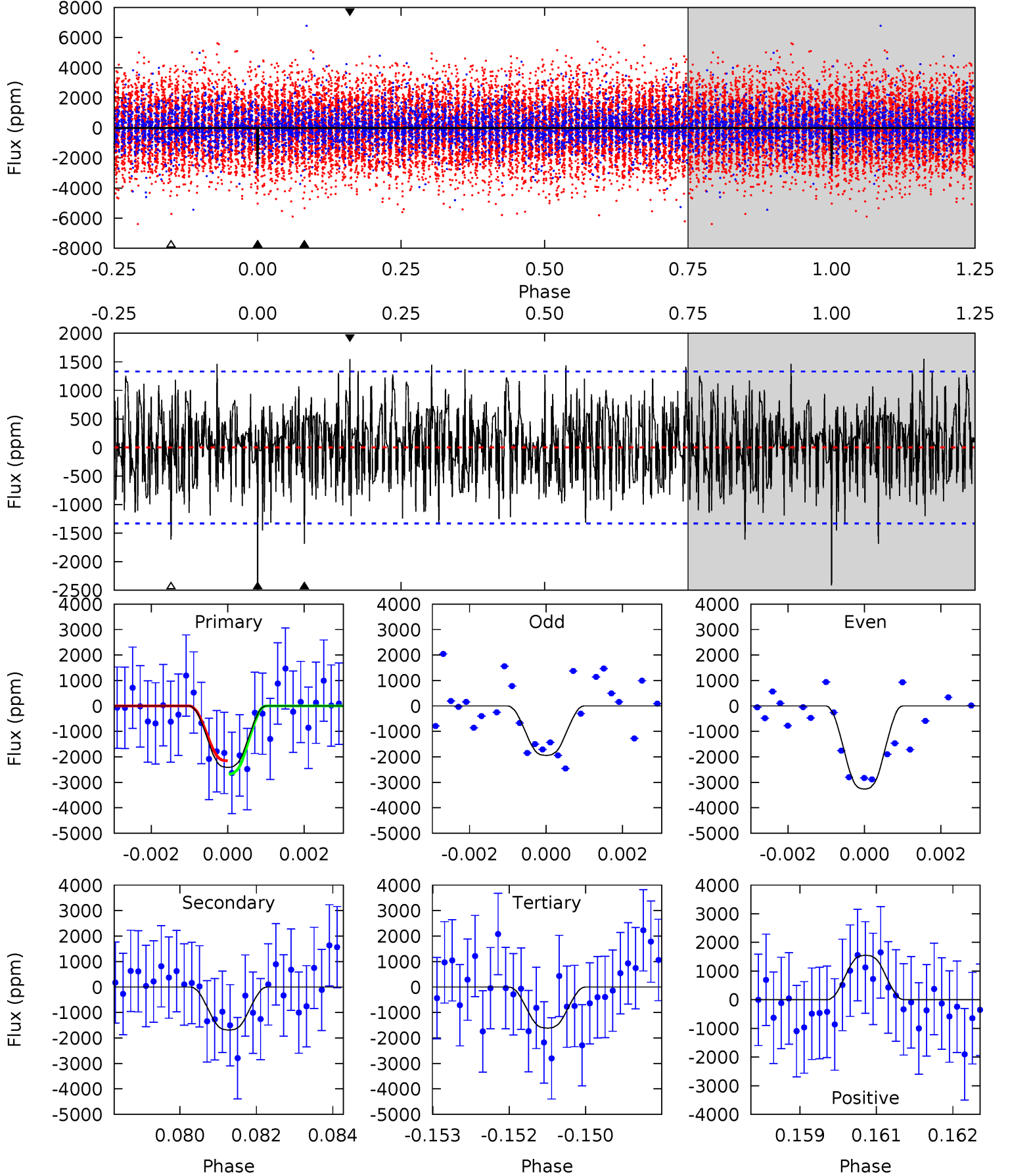
TCE 010035155-03 P= 48.172699 Days  $T_0=139.117922$  (BKJD)



# DV Model-Shift Uniqueness Test

010035155-03, P = 48.172718 Days, E = 90.947951 Days

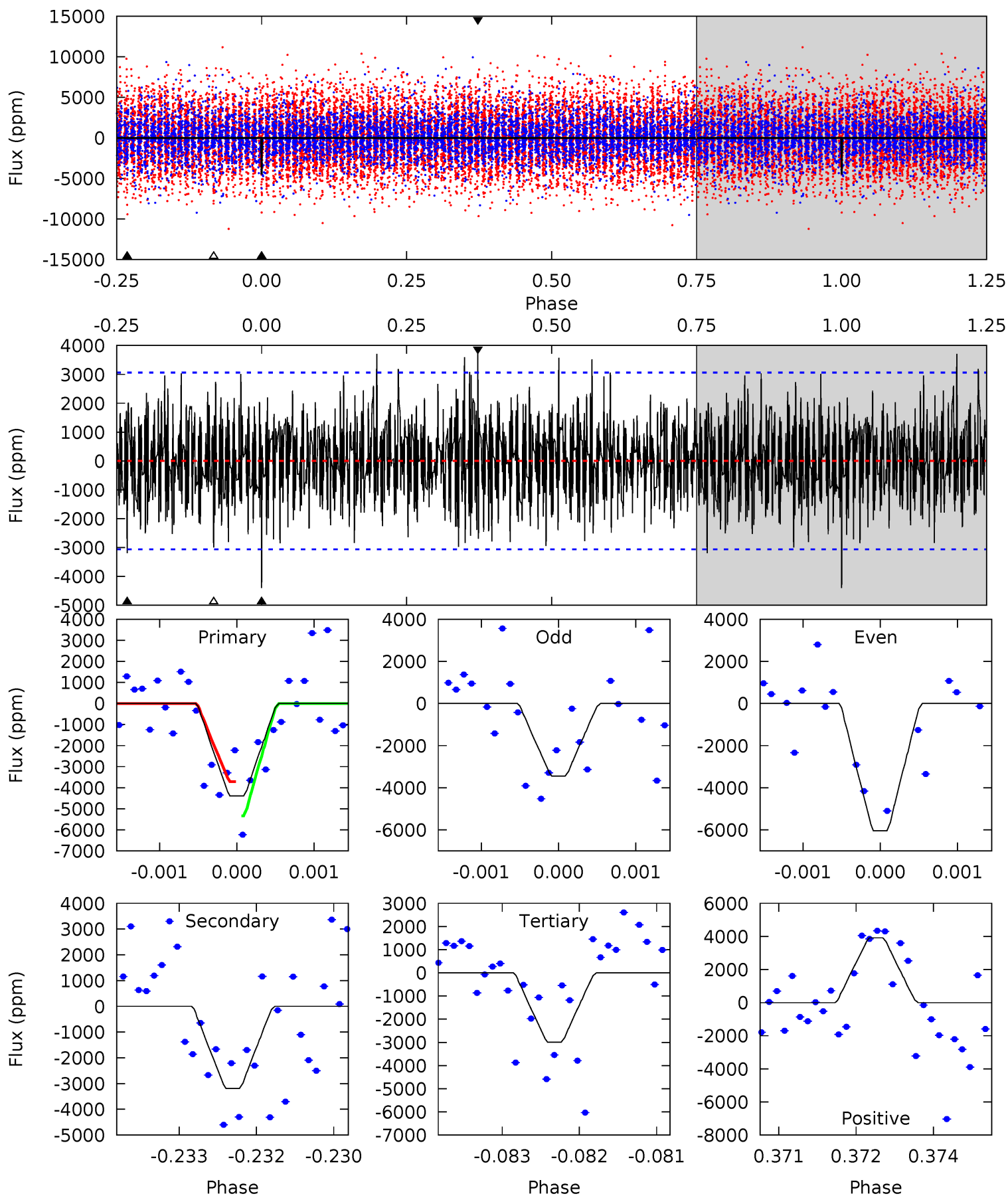
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.73	6.80	6.51	6.25	5.37	3.17	1.93	3.23	3.48	0.30	0.55	2.52	1.21	0.39	1.06



# Alt Model-Shift Uniqueness Test

010035155-03, P = 48.172699 Days, E = 90.945223 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
7.82	5.68	5.33	6.96	5.45	3.28	1.93	2.49	0.86	0.35	-1.29	2.20	1.30	0.47	1.44



### Stellar Parameters For KIC 010035155

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7078^{+172}_{-296}$	$4.223^{+0.087}_{-0.217}$	$0.070^{+0.200}_{-0.350}$	$1.560^{+0.553}_{-0.237}$	$1.482^{+0.214}_{-0.214}$	$0.550^{+0.227}_{-0.308}$
	+2%/-4%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+41%/-56%
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 010035155-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1686 \pm 248$	$9.88^{+3.61}_{-3.24}$	$1022^{+86}_{-63}$	$5964^{+1376}_{-759}$	$809^{+902}_{-390}$
Alt.	$-3190 \pm 562$	$12.60^{+3.54}_{-3.54}$	$1015^{+83}_{-57}$	$6269^{+1099}_{-767}$	$981^{+929}_{-434}$

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

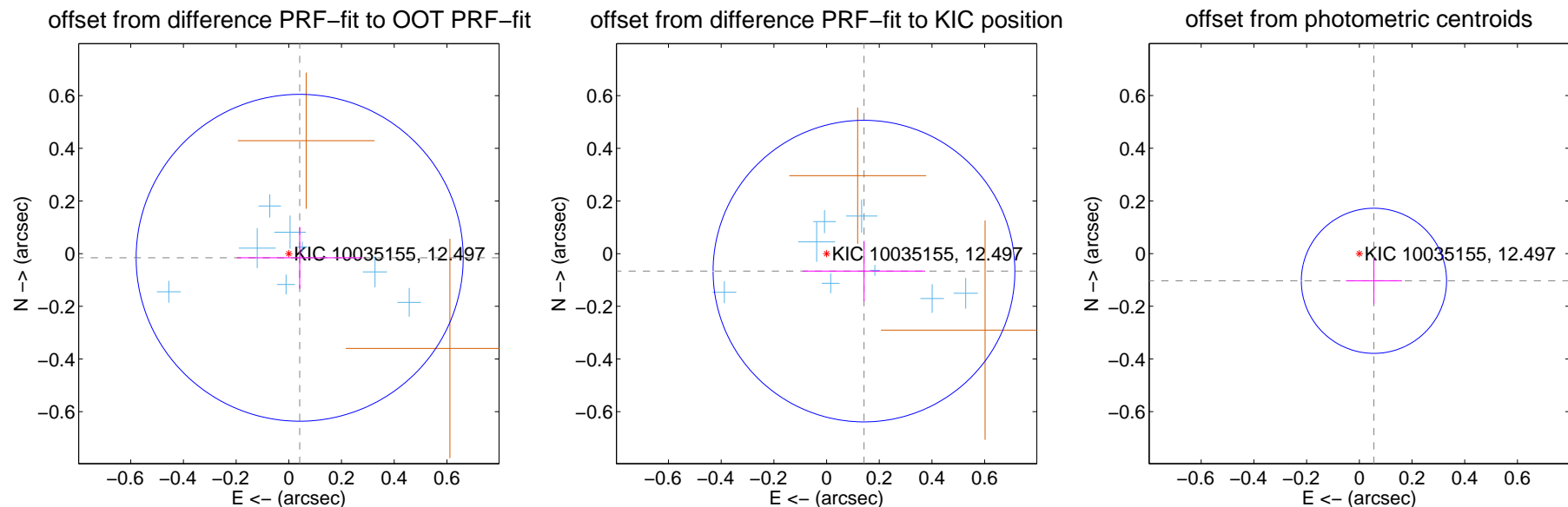
## DV Centroid Data

Supplemental centroid analysis for 010035155-03. Kepler magnitude: 12.50. Transit SNR 8.47

There are 8 quarters with good PRF difference image offsets

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

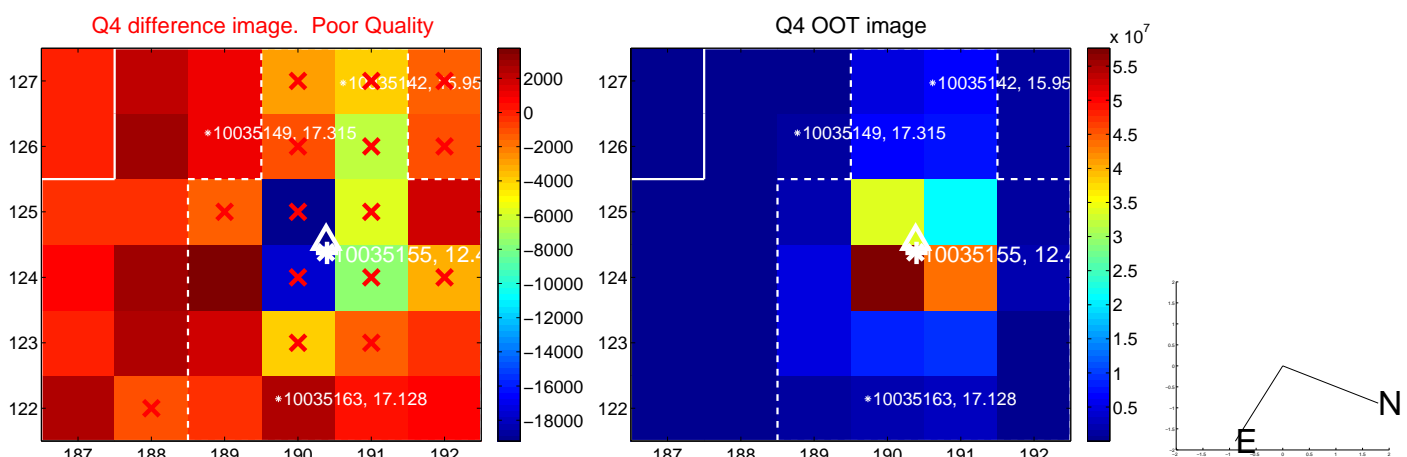
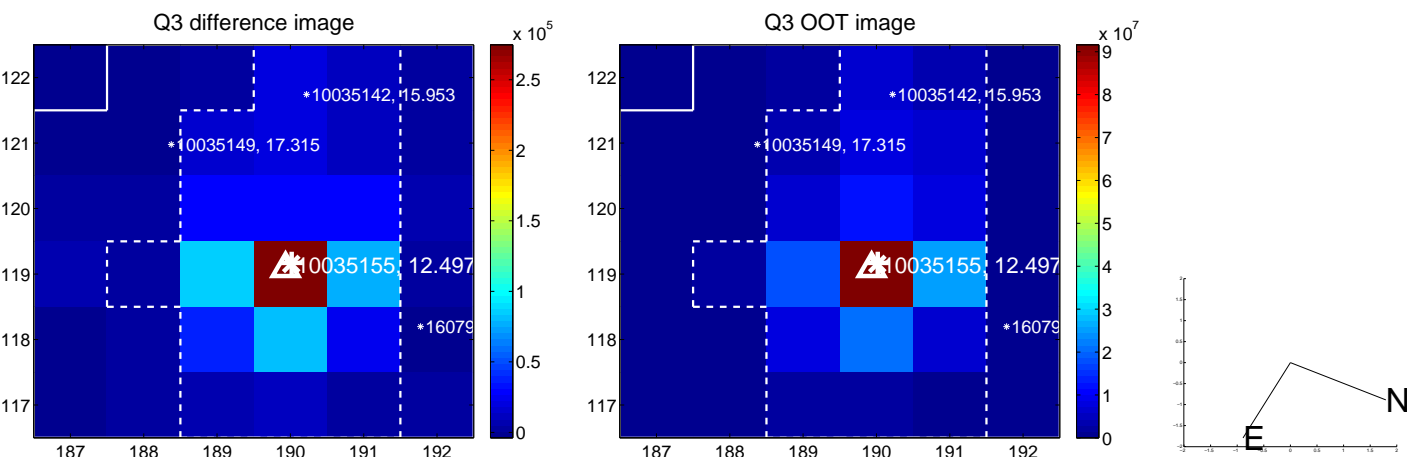
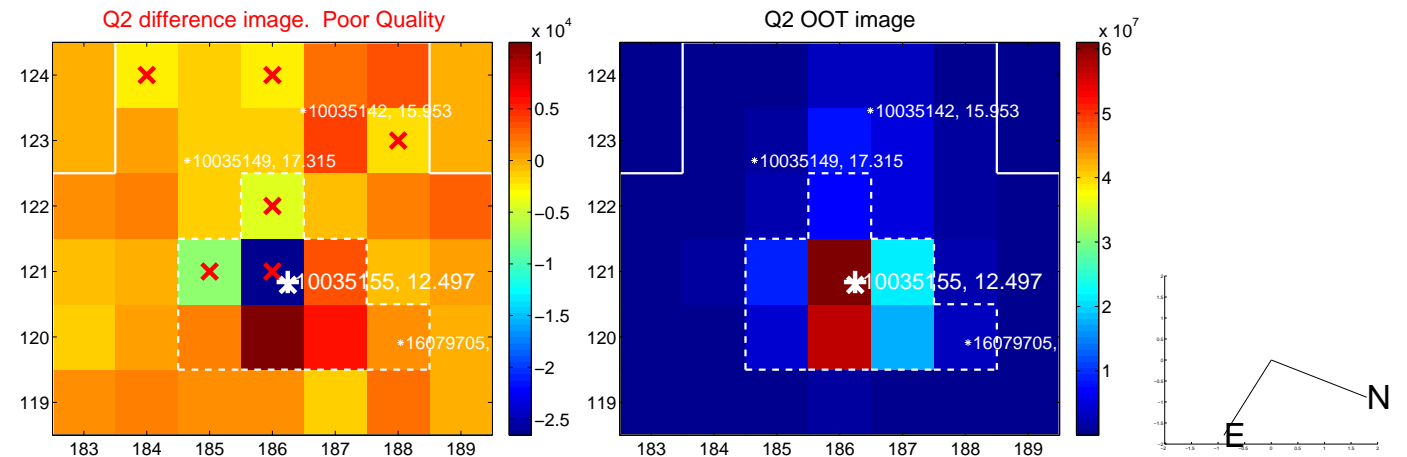
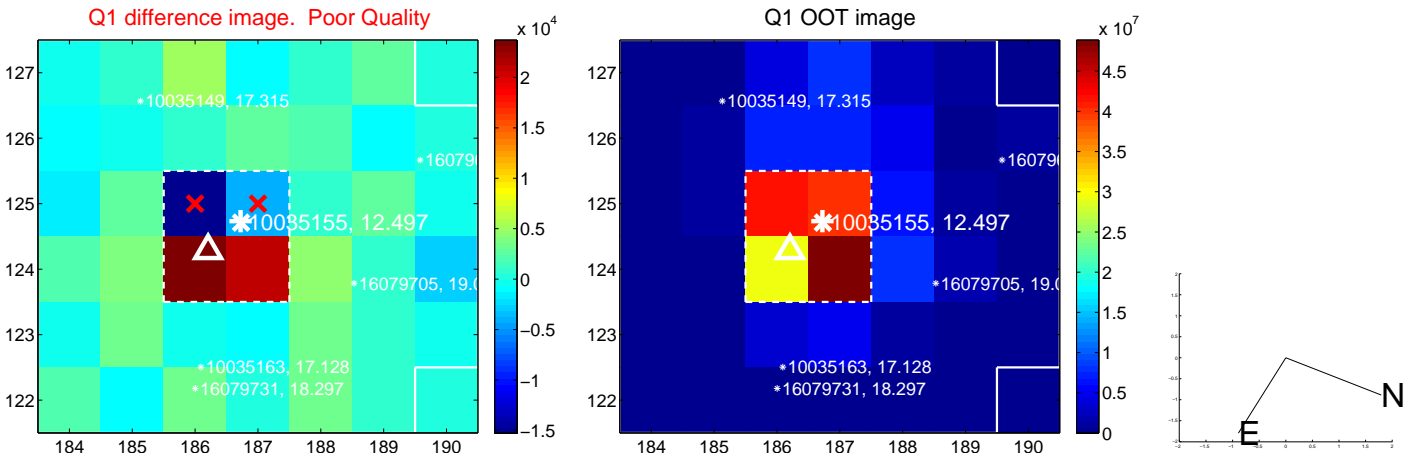
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.044 \pm 0.207$	0.21	$-0.041 \pm 0.238$	$-0.016 \pm 0.117$
PRF-fit source offset from KIC position	$0.157 \pm 0.191$	0.82	$-0.142 \pm 0.232$	$-0.066 \pm 0.115$
photometric centroid source offset	$0.12 \pm 0.09$	1.28	$-0.06 \pm 0.11$	$-0.10 \pm 0.09$



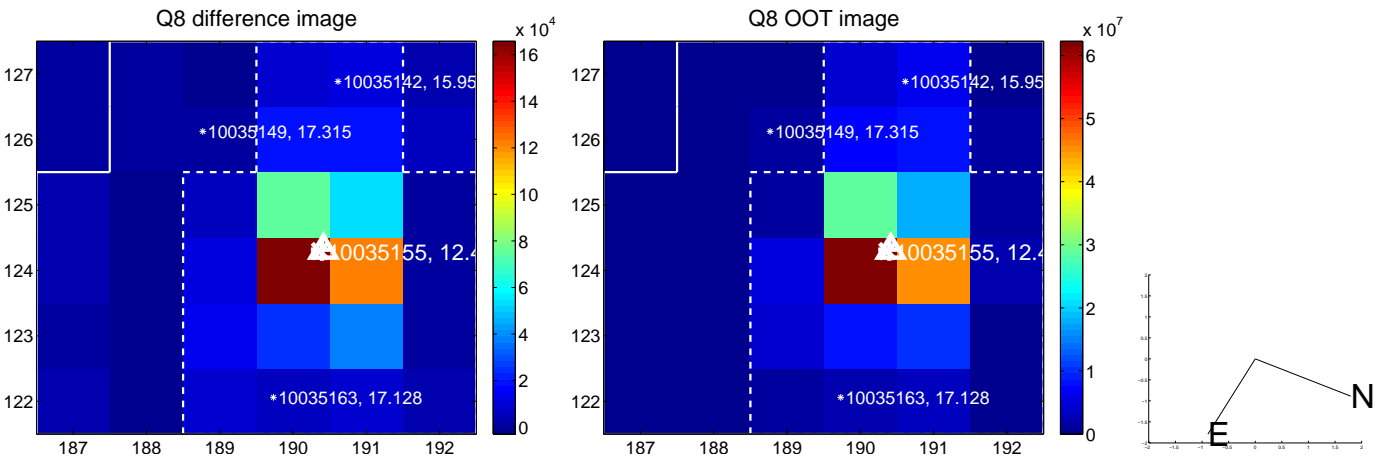
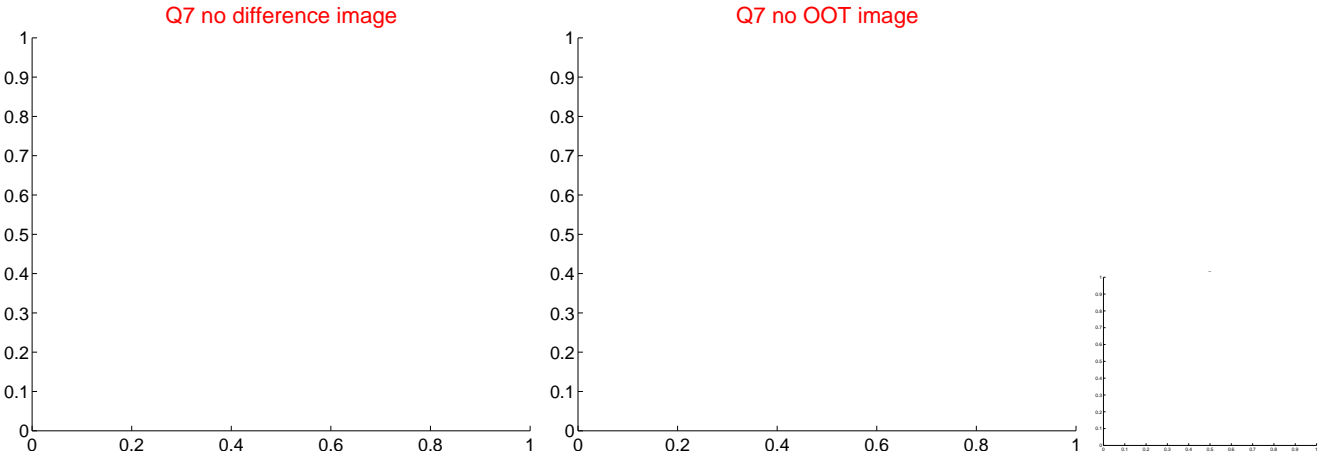
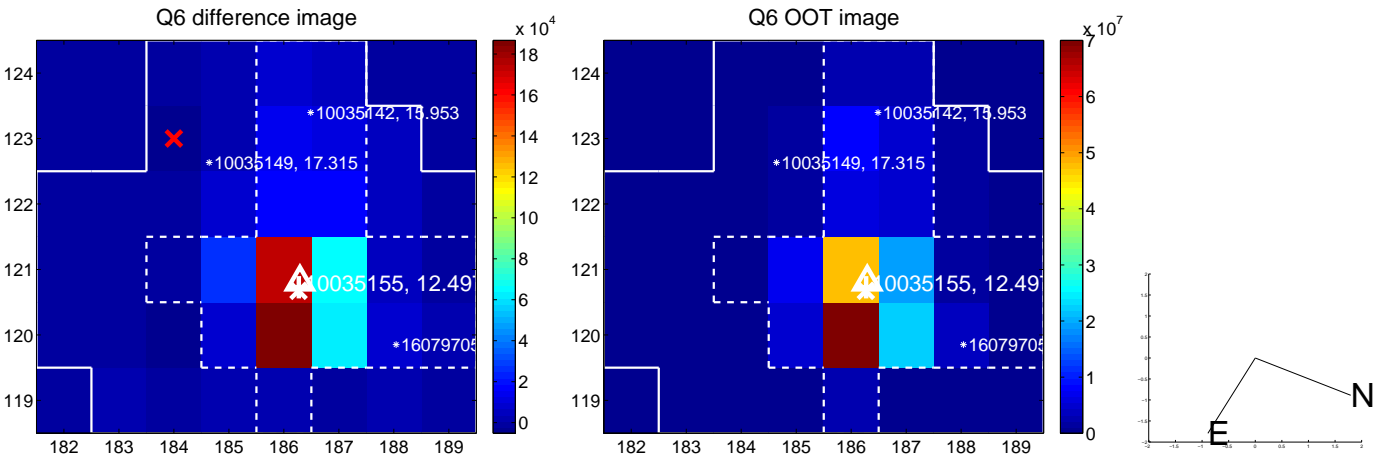
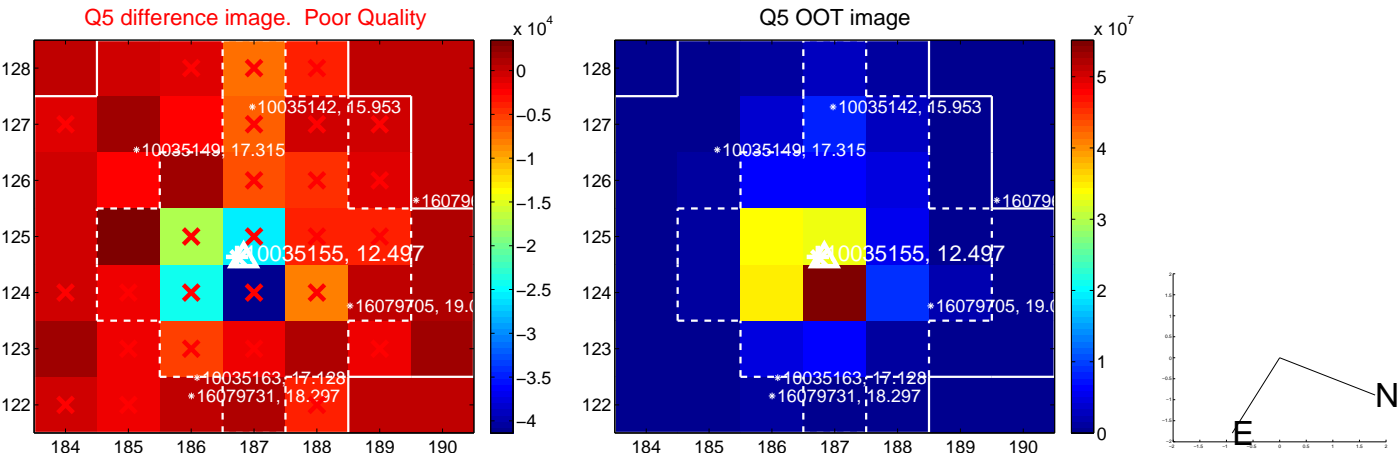
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



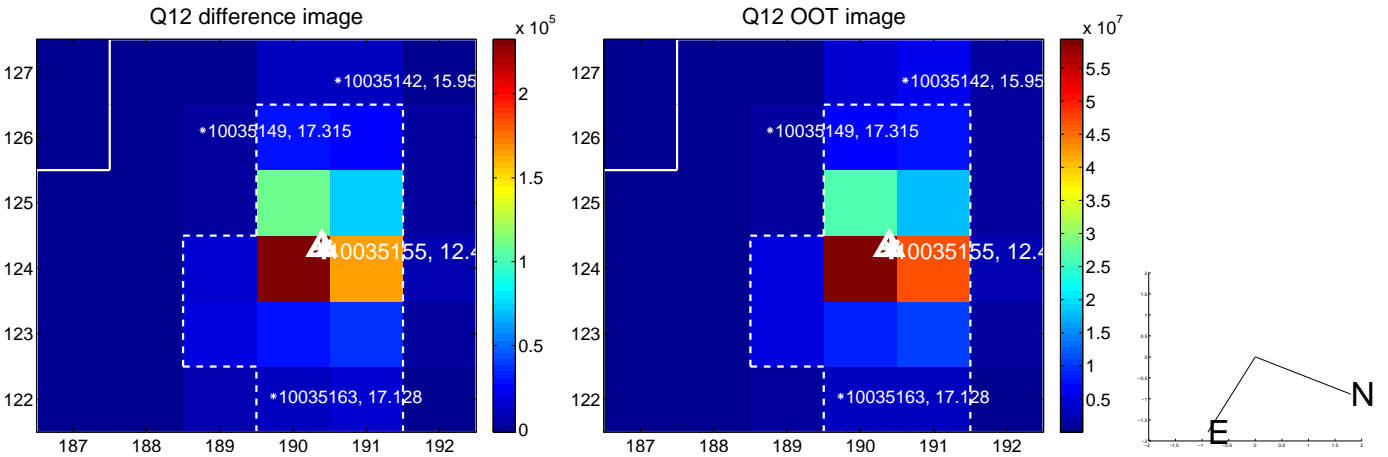
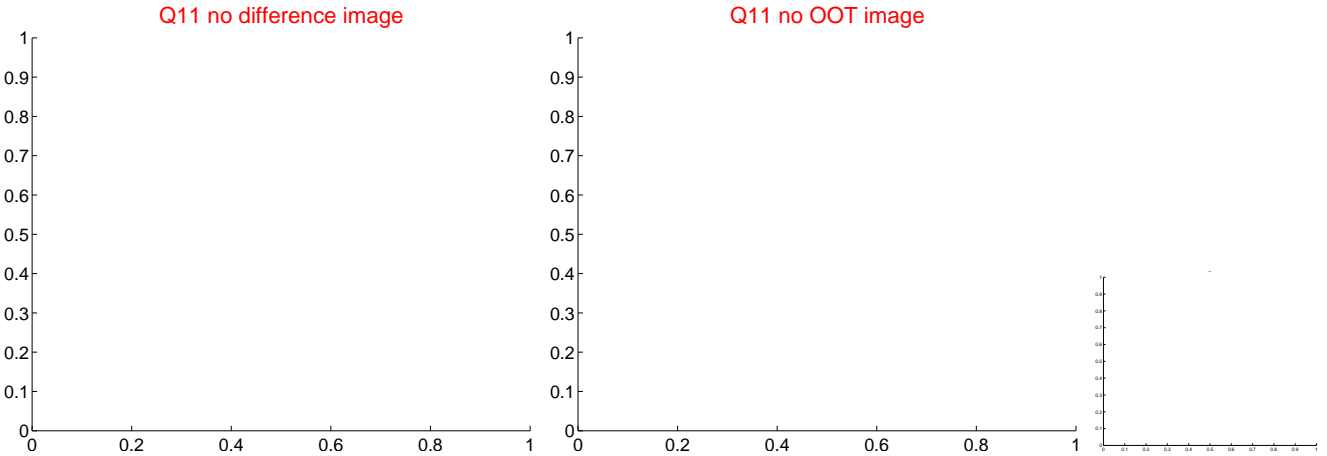
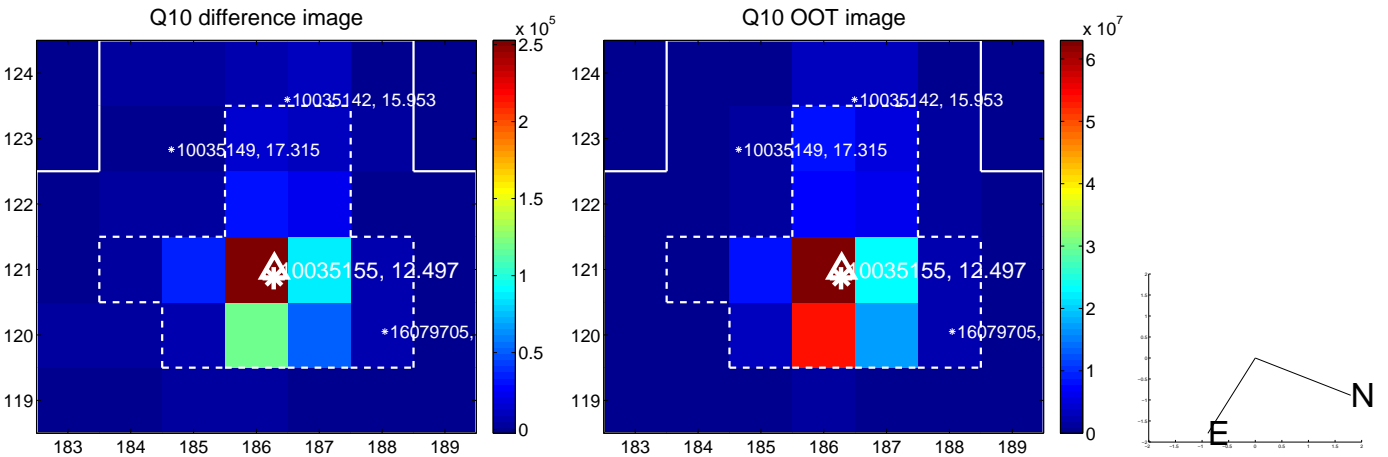
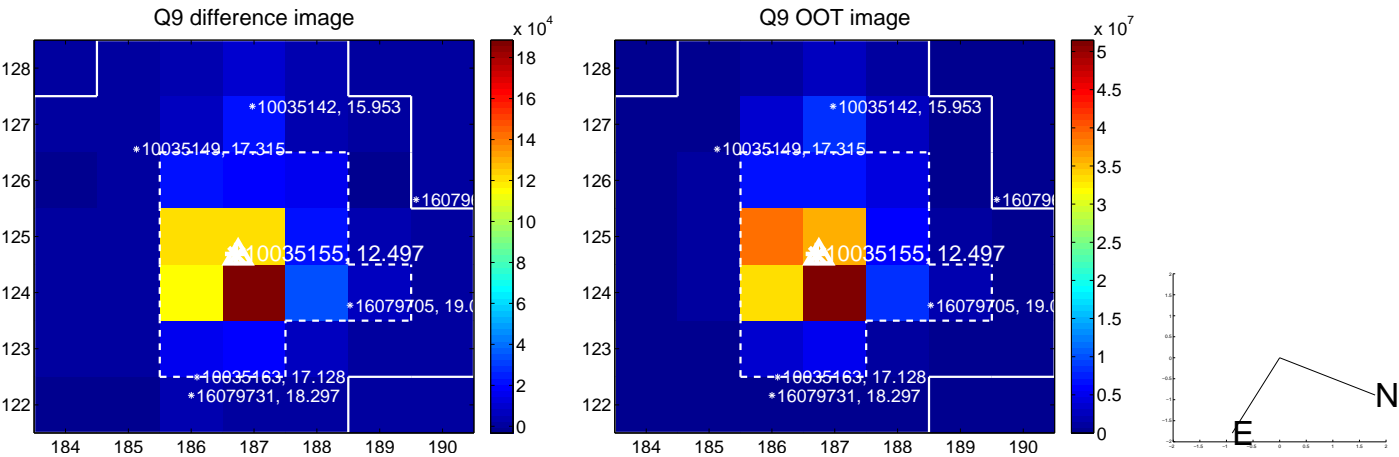
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



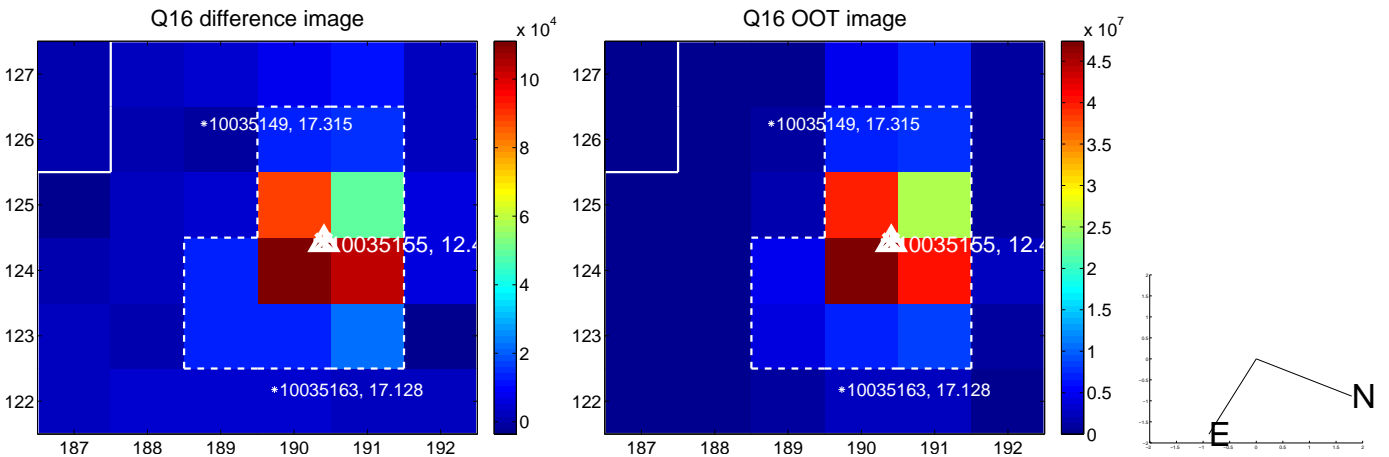
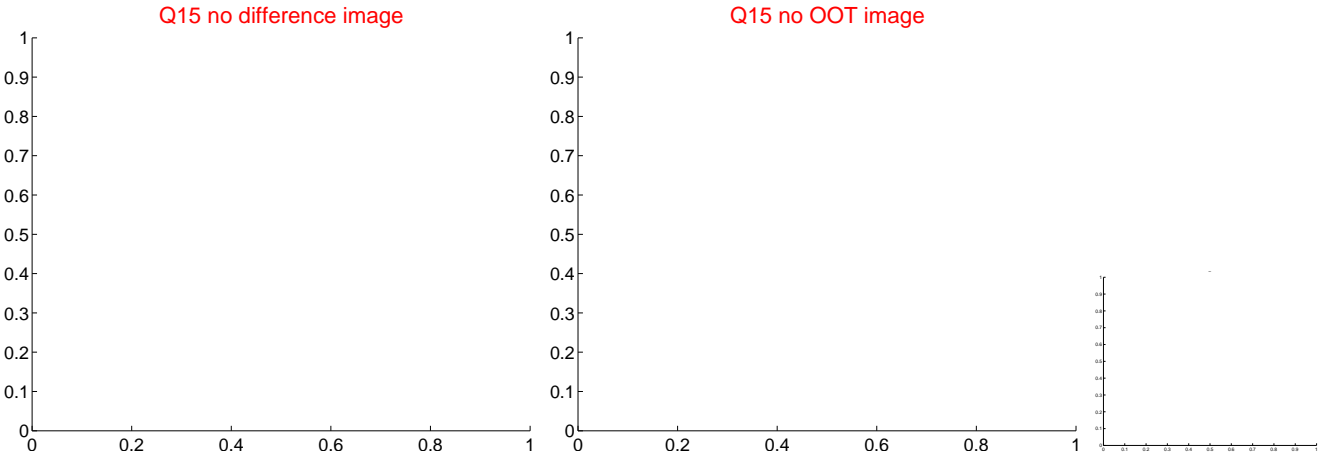
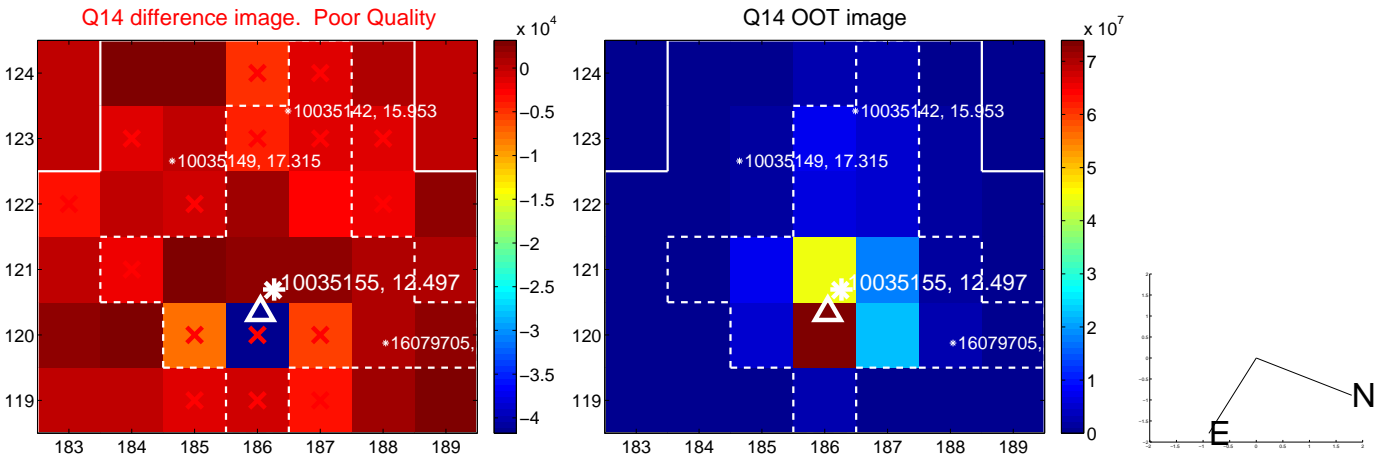
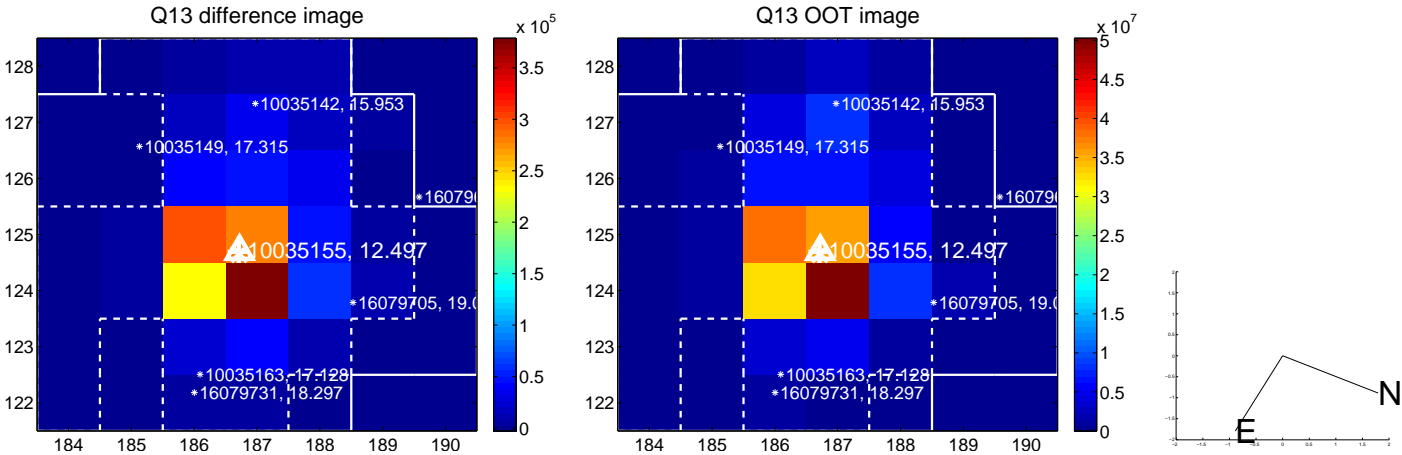
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



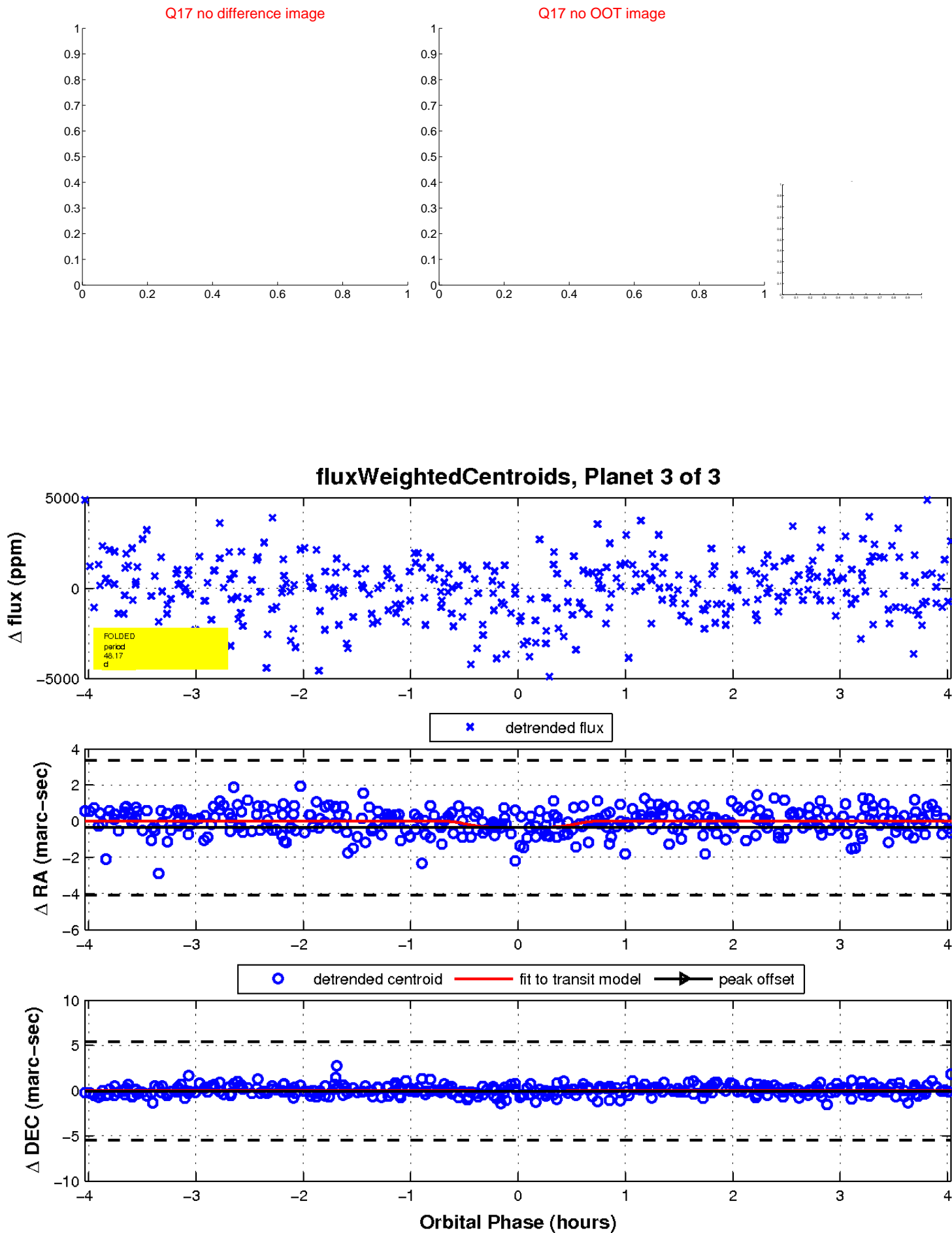
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

