

# KIC 008912730

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008912730-01	OBS	3850.01	11.377584	132.573041	1743.4	7.678	49.5	59.6	1.66	6943	12.77	454.73
008912730-02	OBS	No	0.733978	131.742018	47.4	4.619	15.7	7.7	1.66	6943	1.16	17575.65
008912730-03	OBS	No	1.142509	131.890510	205.2	6.103	12.2	15.3	1.66	6943	3.72	9742.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008912730-01	OBS	FP	0.00	1	0	0	0	LPP_ALT
008912730-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
008912730-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_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 008912730-01

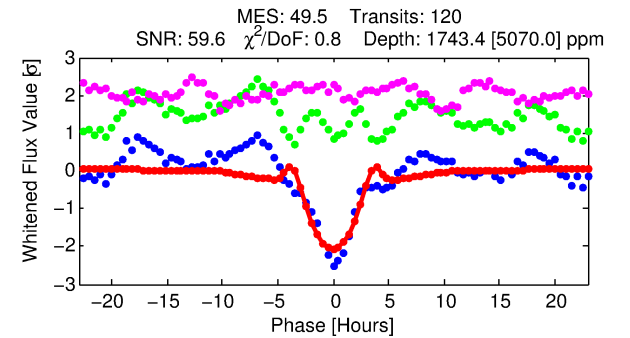
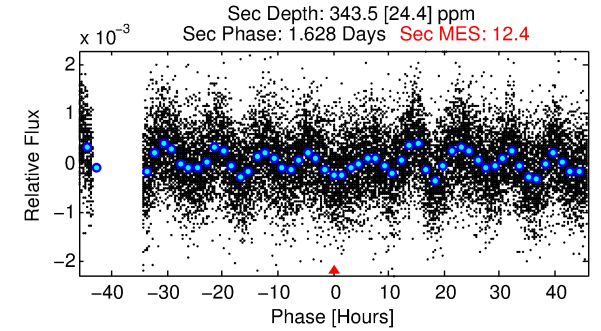
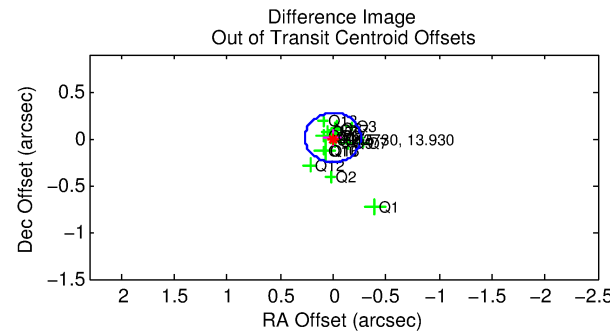
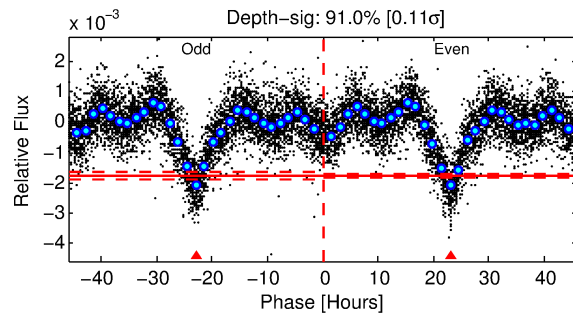
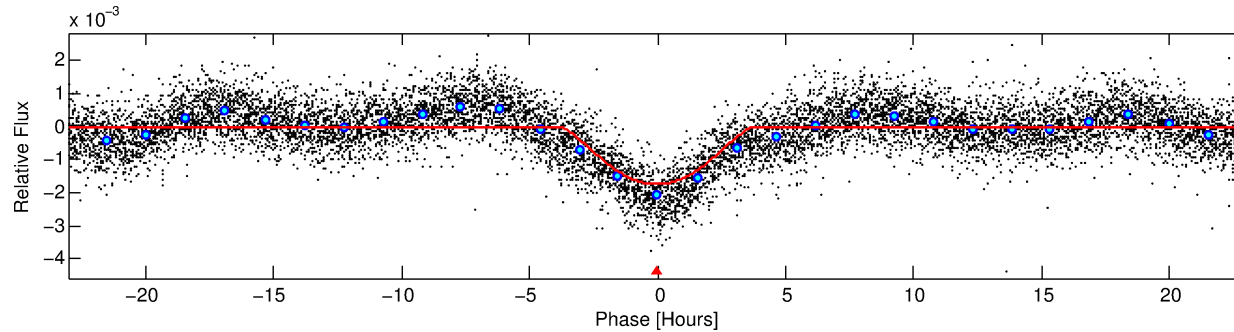
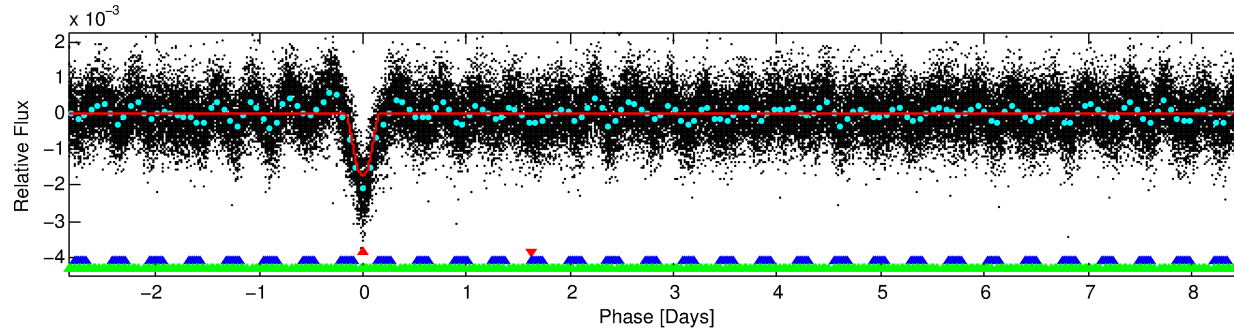
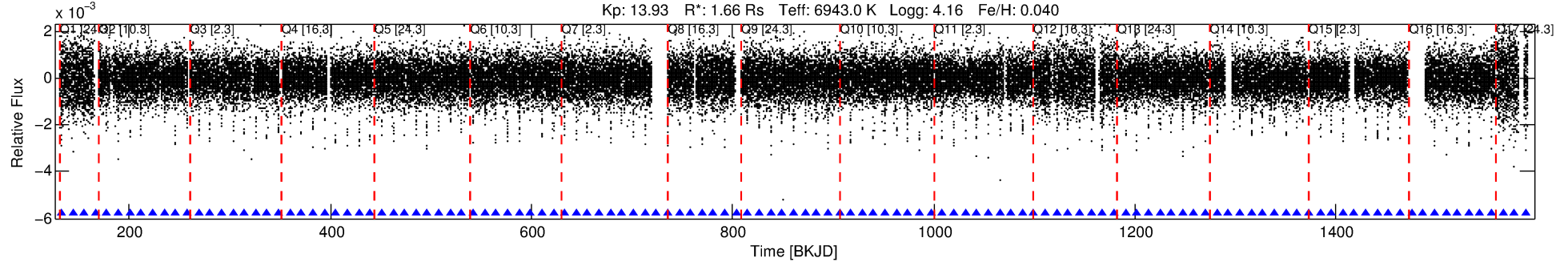
No Significant Match Found

# DV One-Page Summary

KIC: 8912730 Candidate: 1 of 3 Period: 11.378 d

KOI: K03850.01 Corr: 0.766

Kp: 13.93 R\*: 1.66 Rs Teff: 6943.0 K Logg: 4.16 Fe/H: 0.040



## DV Fit Results:

Period = 11.37758 [0.00004] d  
Epoch = 132.5730 [0.0029] BKJD  
Rp/R\* = 0.0705 [0.0261]  
a/R\* = 4.44 [0.34]  
b = 1.00 [0.10]  
Seff = 454.73 [183.42]  
Teq = 1178 [119] K  
Rp = 12.77 [6.23] Re  
a = 0.1123 [0.0290] AU  
Ag = 14.62 [12.10] [1.13σ]  
Teffp = 3560 [680] K [3.45σ]

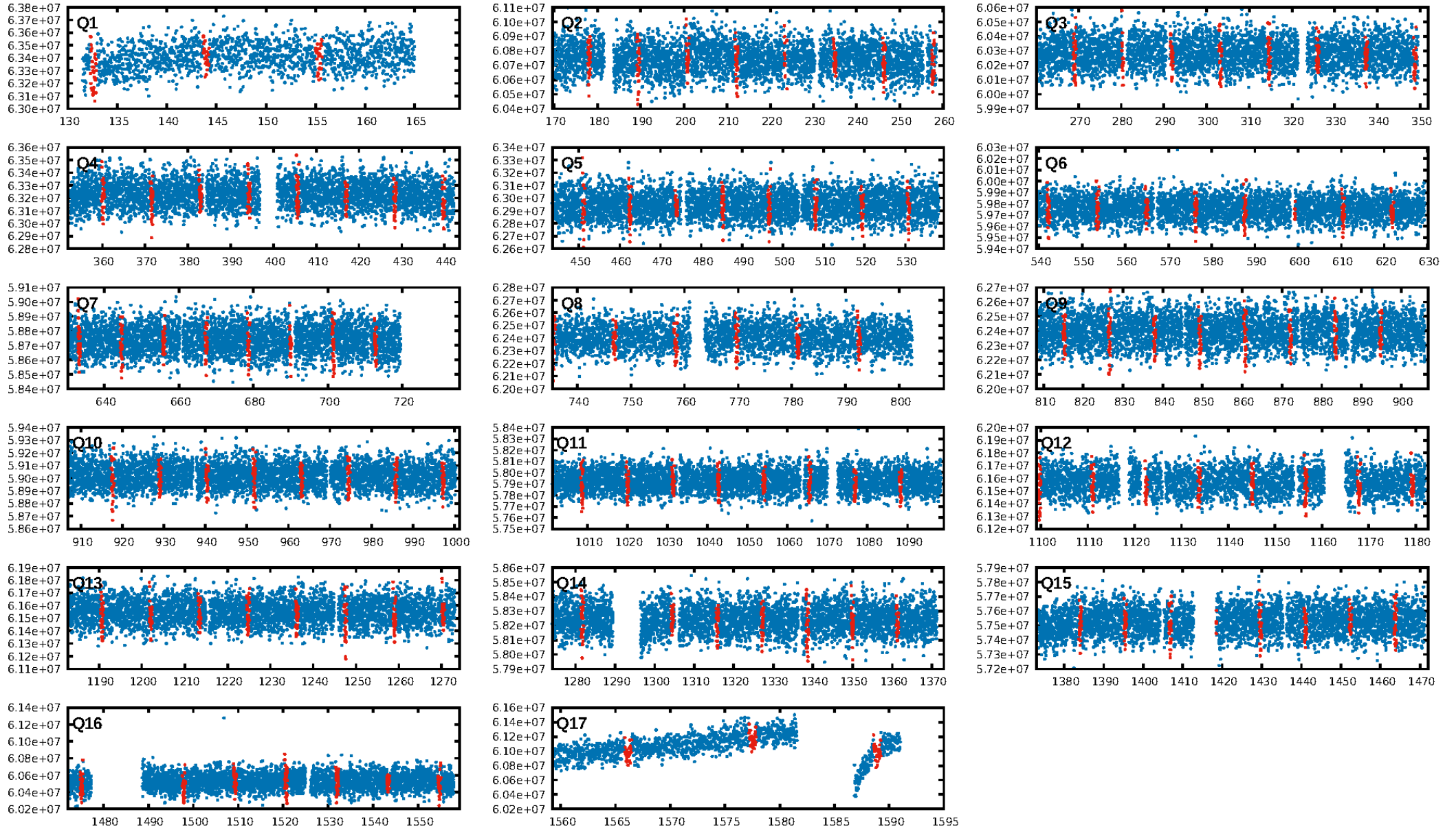
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.04σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [114/114]  
GhostDiagnostic-chr: 2.273  
Centroid-sig: 17.9%  
Centroid-so: 0.358 arcsec [5.01σ]  
OotOffset-rm: 0.011 arcsec [0.12σ]  
KicOffset-rm: 0.134 arcsec [1.55σ]  
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]

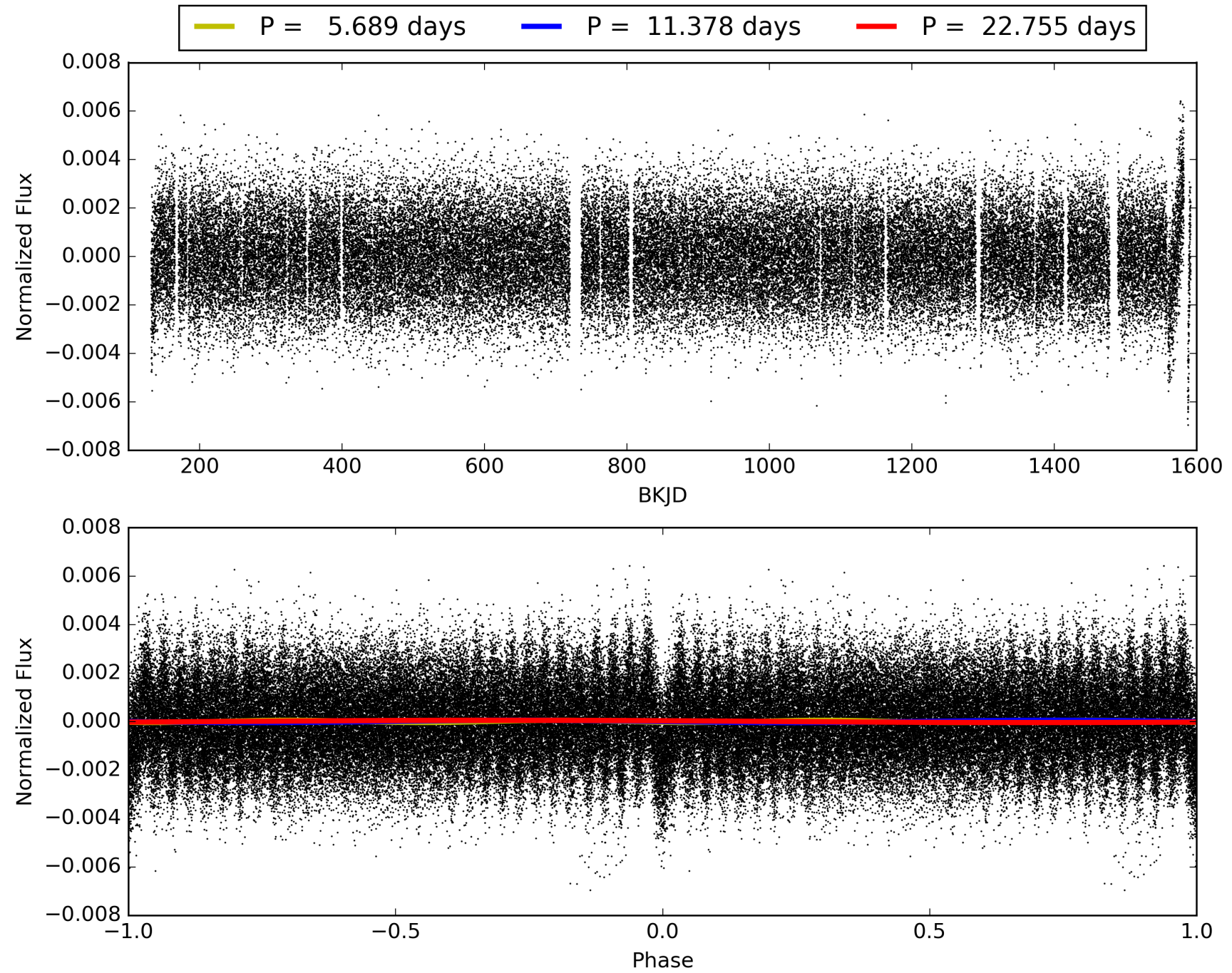
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:19:44 Z

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

# TCE 008912730-01, PDC Light Curves

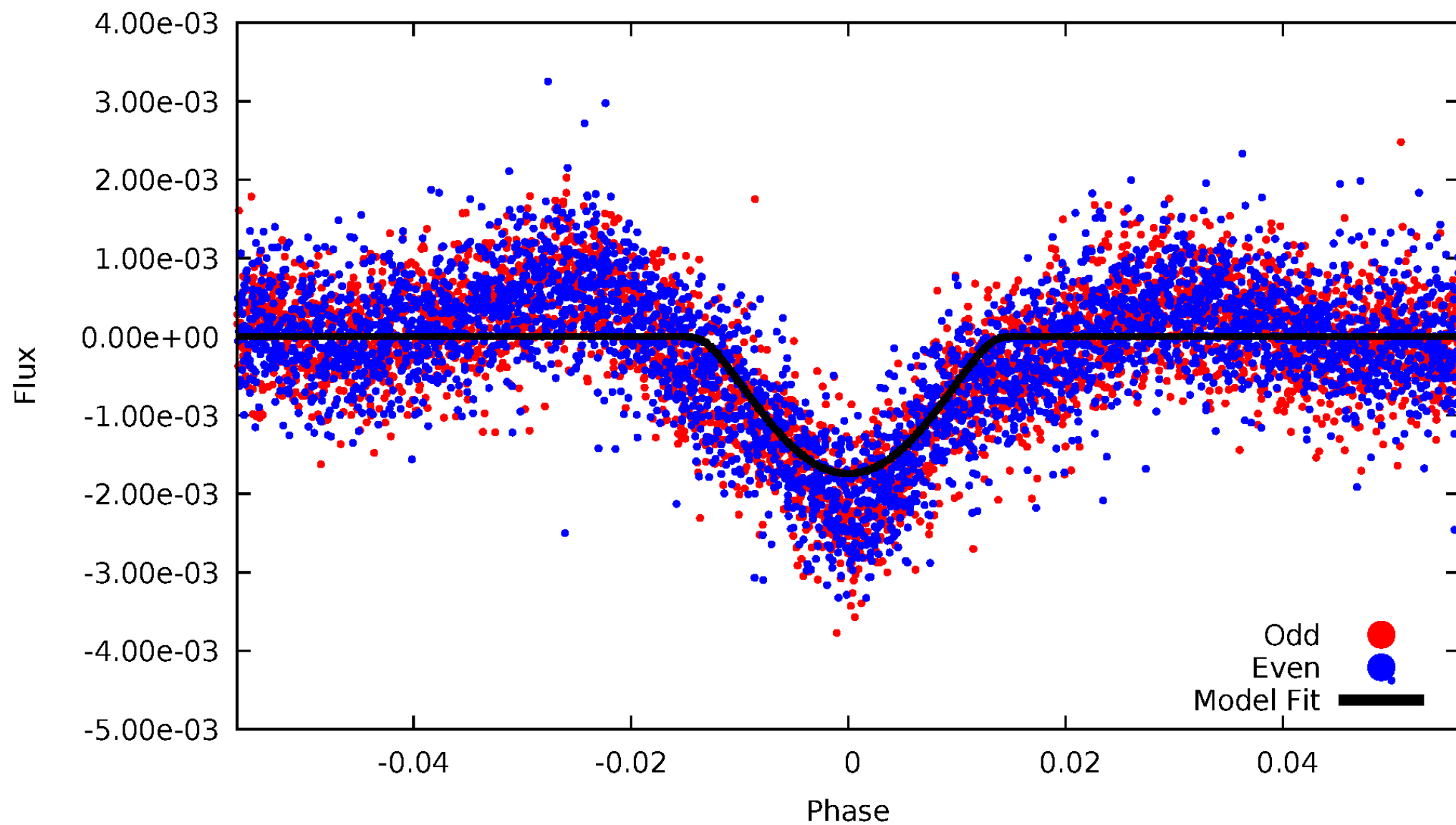


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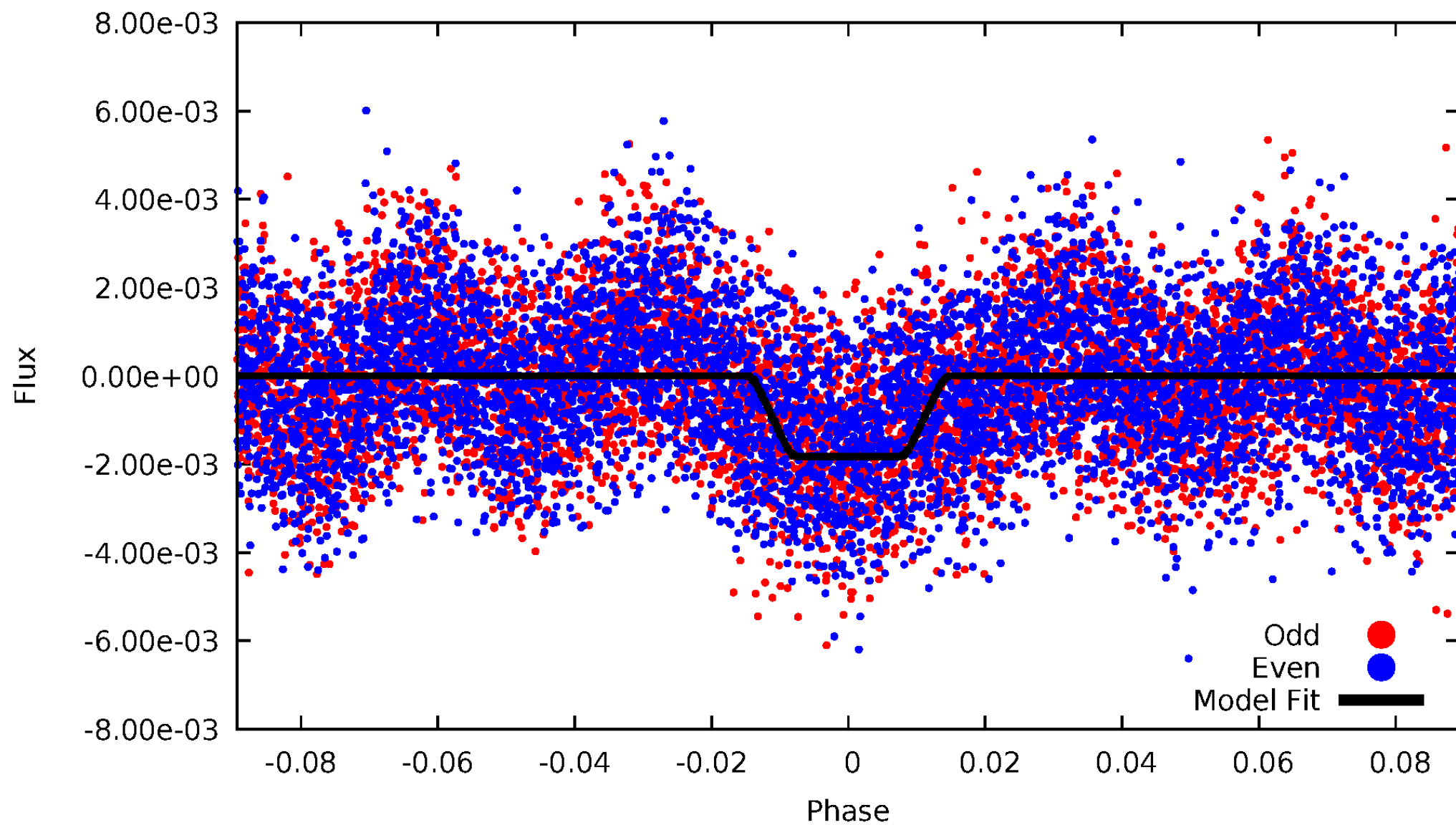
# DV Odd/Even

TCE 008912730-01



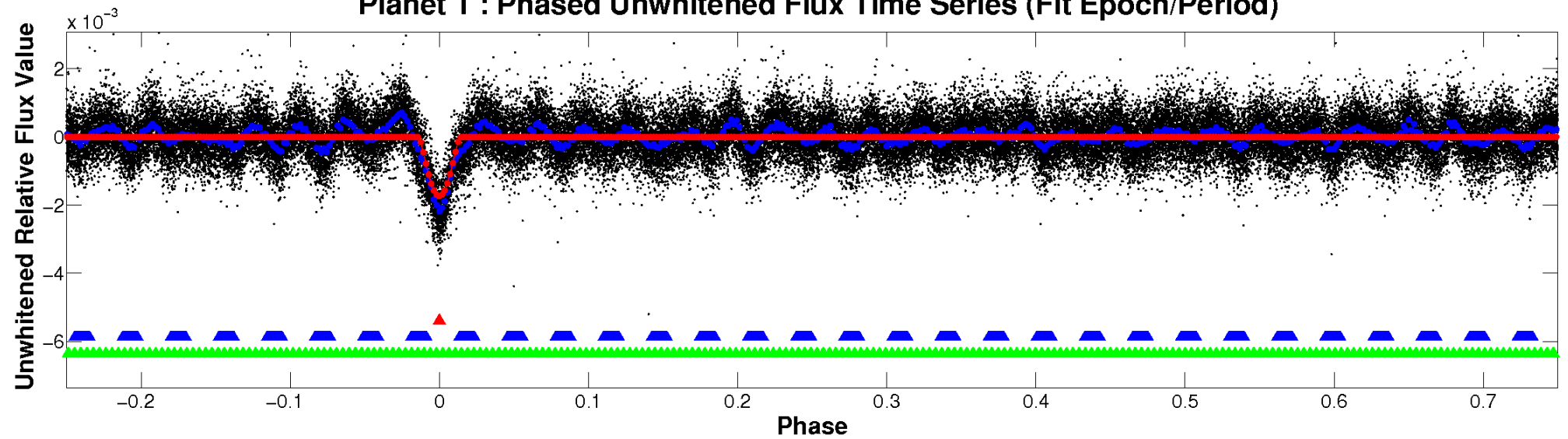
# ALT Odd/Even

TCE 008912730-01

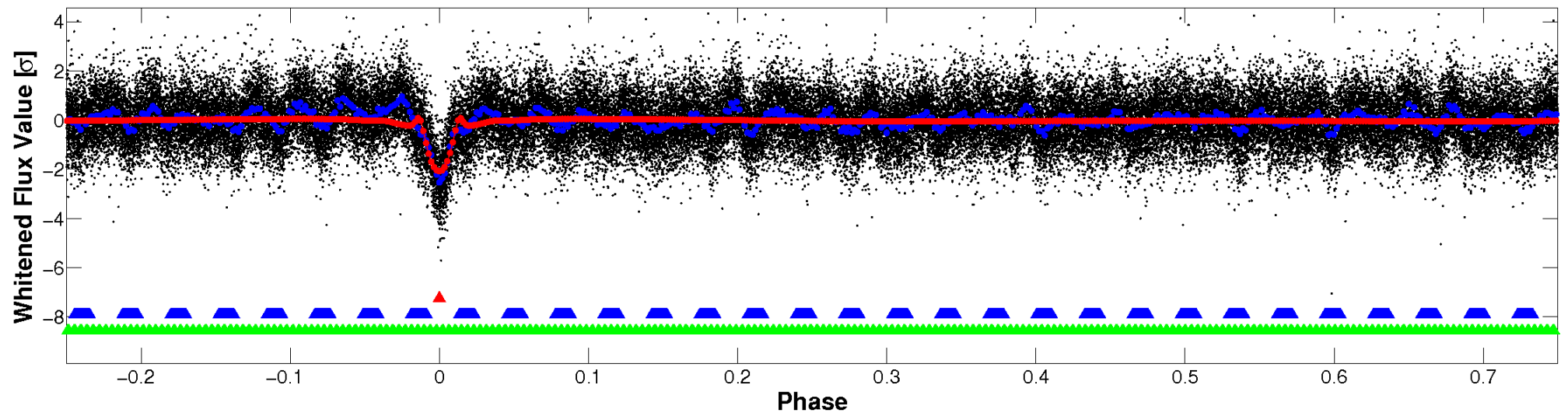


# Non-Whitened Vs. Whitened Light Curve

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

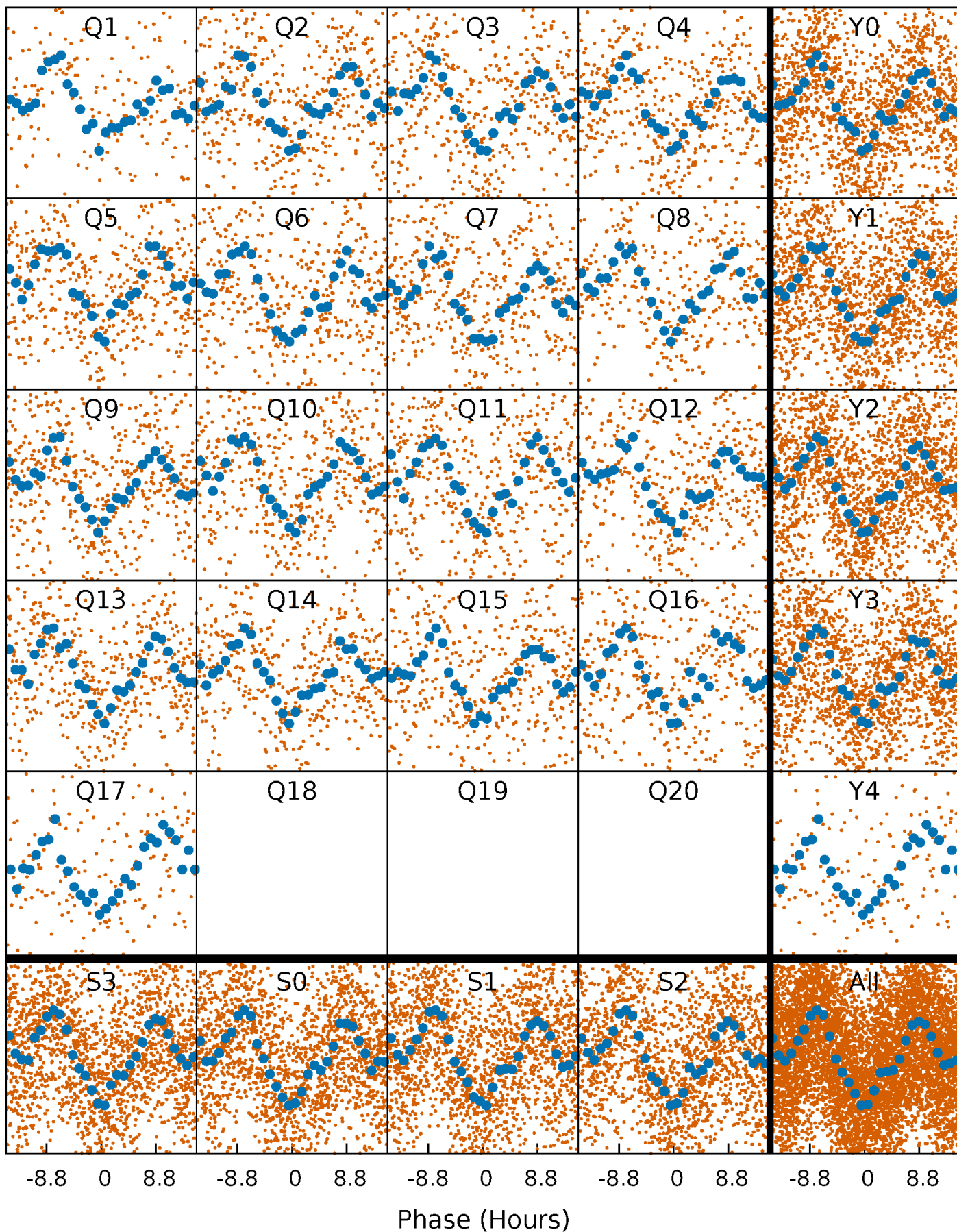


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



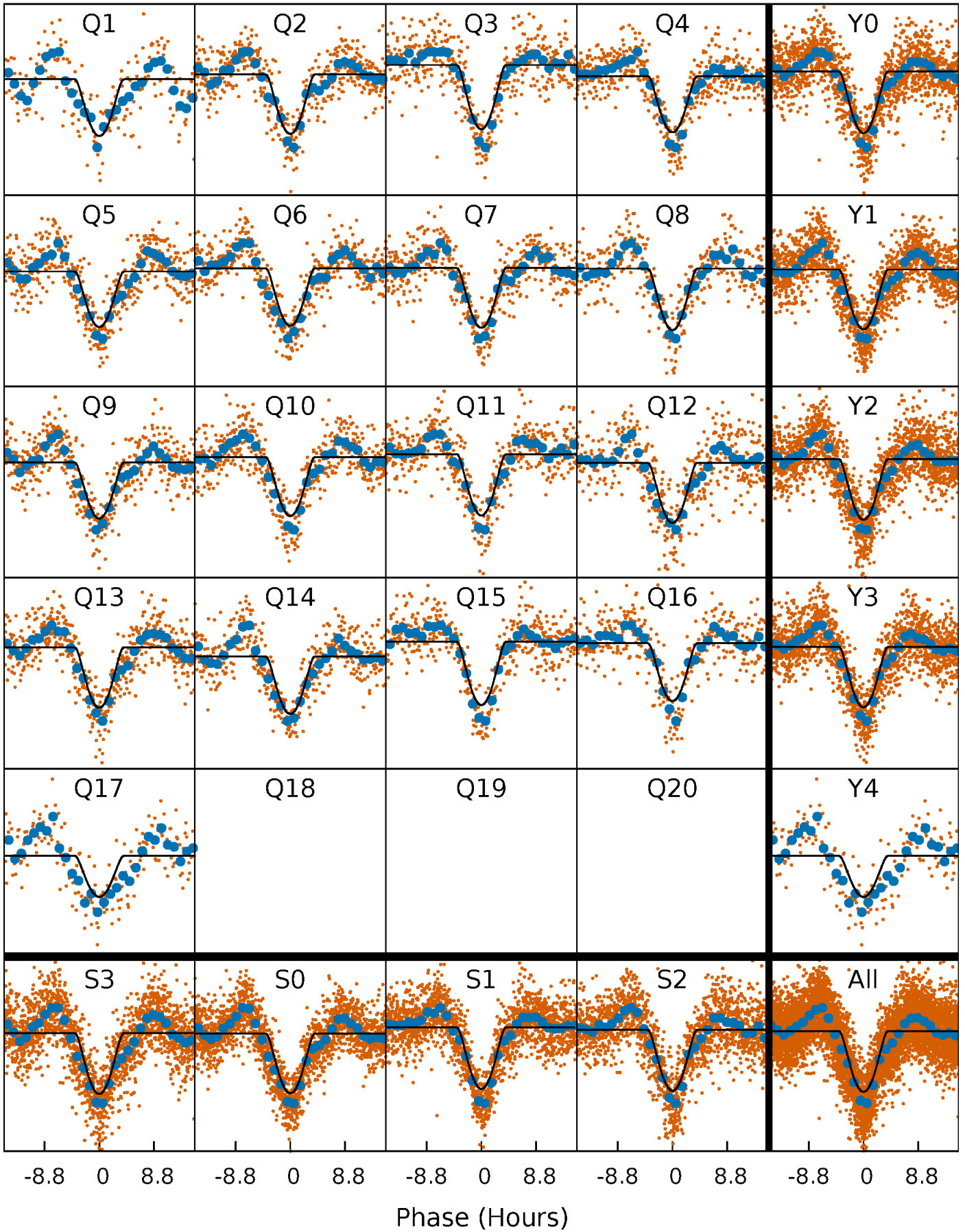
# PDC Quarter-Phased Transit Curves

TCE 008912730-01 P= 11.377584 Days  $T_0=132.573040$  (BKJD)



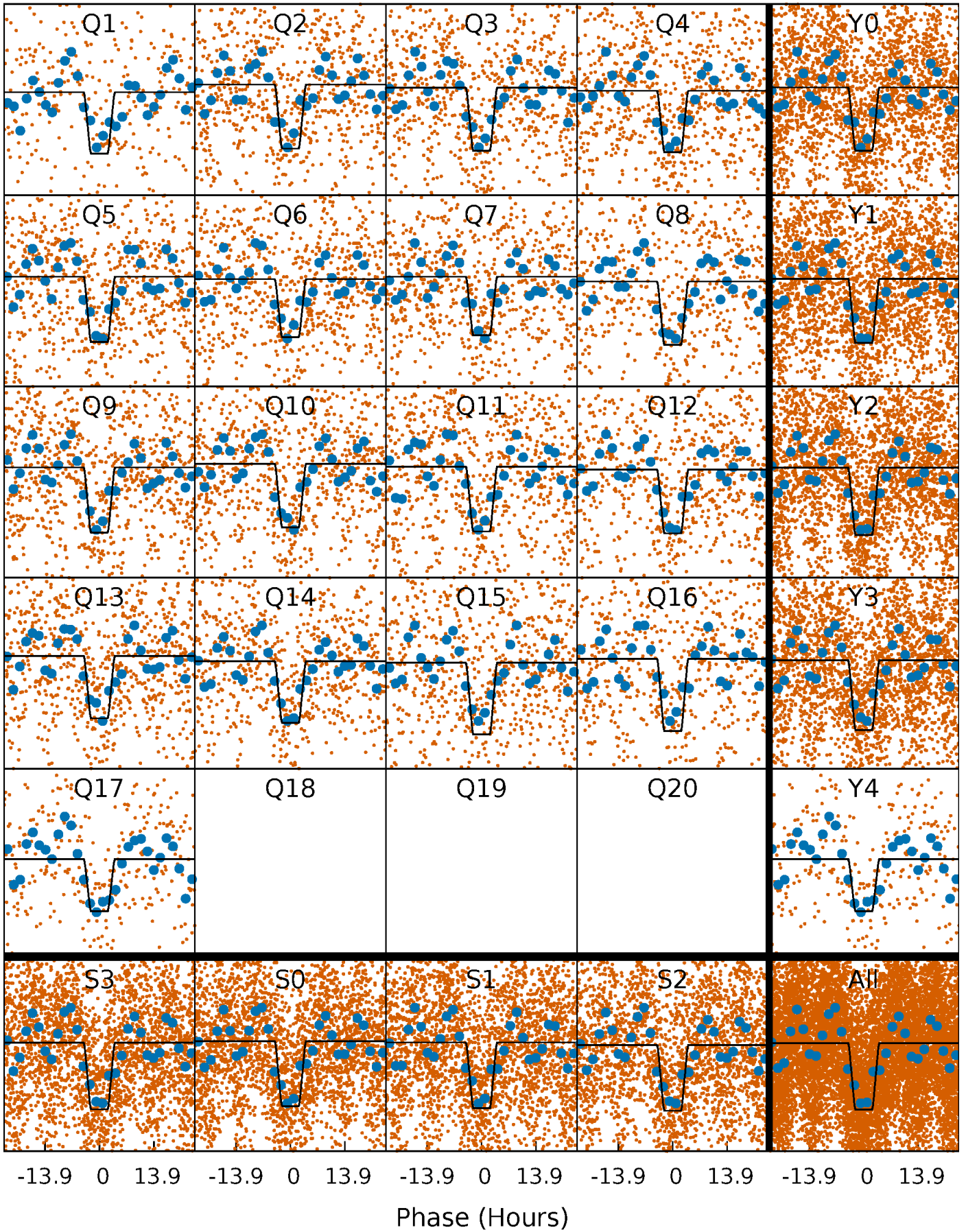
# DV Quarter-Phased Transit Curves

TCE 008912730-01 P= 11.377584 Days  $T_0=132.573040$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

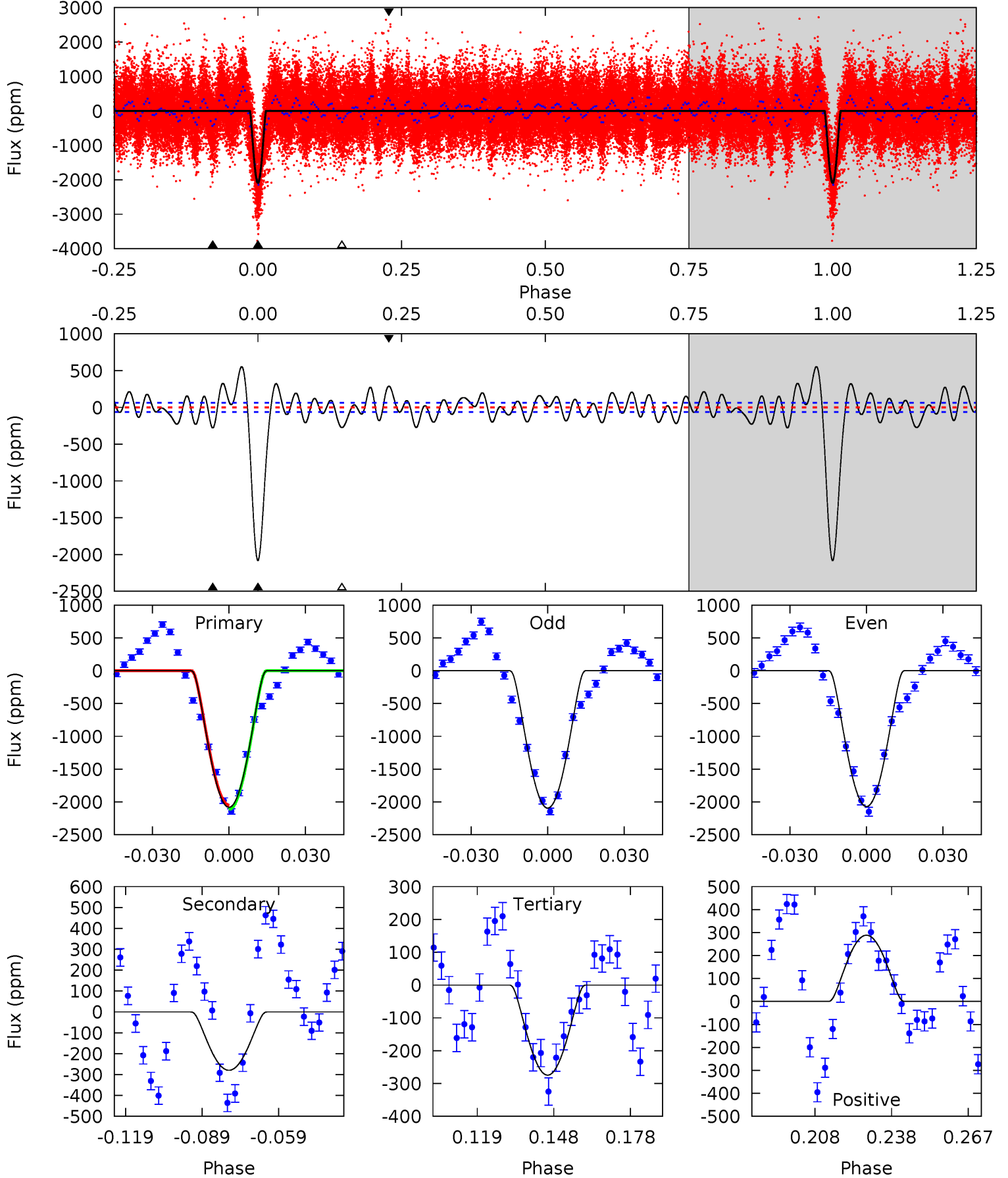
TCE 008912730-01 P= 11.377493 Days  $T_0=132.583252$  (BKJD)



# DV Model-Shift Uniqueness Test

008912730-01,  $P = 11.377584$  Days,  $E = 121.195456$  Days

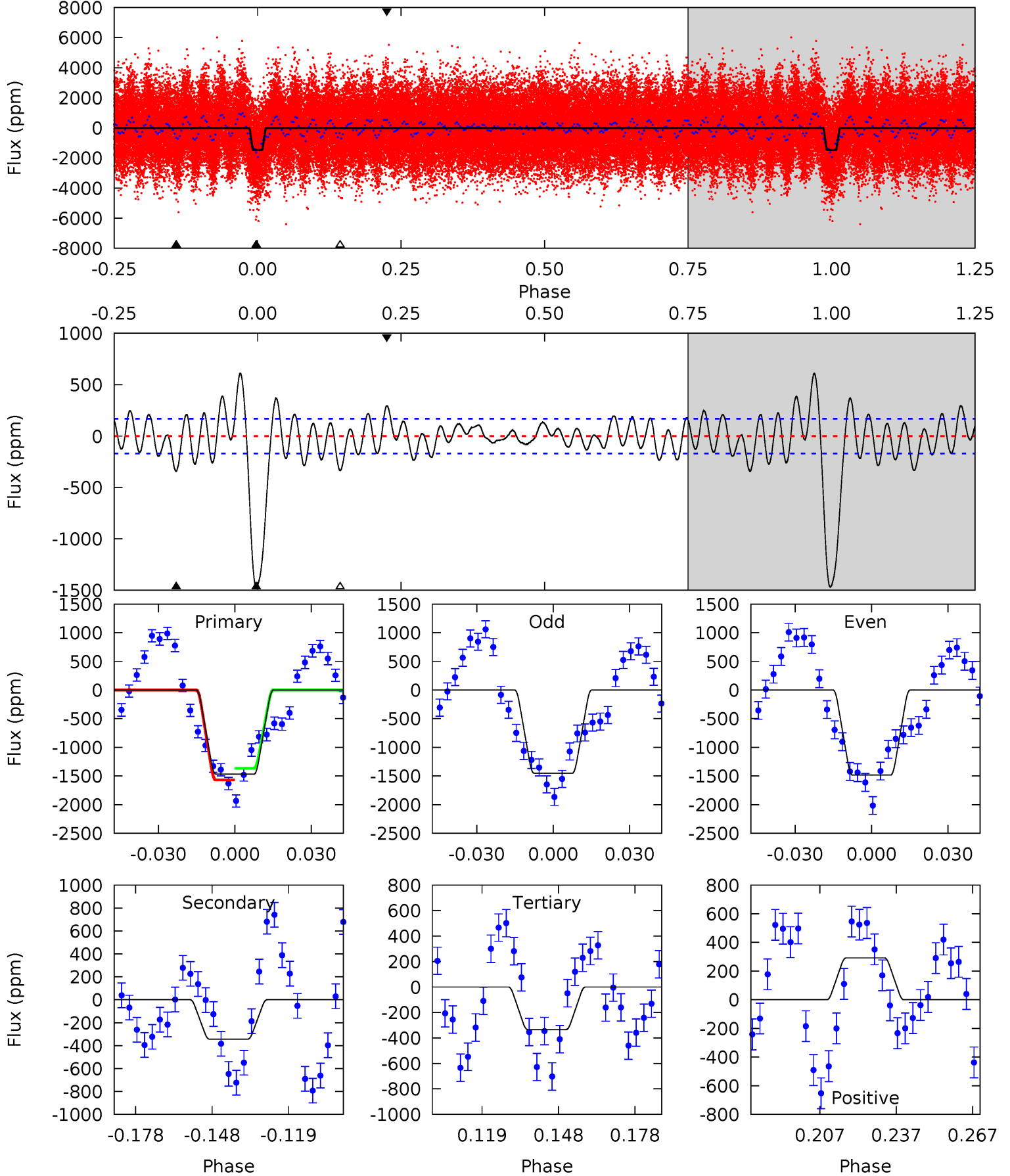
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
160.4	21.5	21.1	22.2	4.81	2.17	10.0	139.2	138.2	0.39	-0.67	0.89	1.03	0.21	2.40



# Alt Model-Shift Uniqueness Test

008912730-01,  $P = 11.377493$  Days,  $E = 121.205759$  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
41.9	9.81	9.54	8.33	4.81	2.17	3.94	32.3	33.5	0.27	1.47	0.44	1.07	0.29	2.88



### Stellar Parameters For KIC 008912730

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6943^{+194}_{-305}$	$4.162^{+0.128}_{-0.192}$	$0.040^{+0.200}_{-0.350}$	$1.660^{+0.528}_{-0.352}$	$1.459^{+0.216}_{-0.238}$	$0.449^{+0.287}_{-0.234}$
	+3%/-4%	+3%/-5%	+500%/-875%	+32%/-21%	+15%/-16%	+64%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008912730-01 / KOI 3850.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-280 \pm 13$	$12.74^{+5.70}_{-4.81}$	$1658^{+126}_{-112}$	$3750^{+670}_{-397}$	$12^{+19}_{-6}$
Alt.	$-344 \pm 35$	$7.76^{+5.17}_{-4.00}$	$1646^{+141}_{-104}$	$4673^{+1777}_{-768}$	$39^{+121}_{-25}$

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

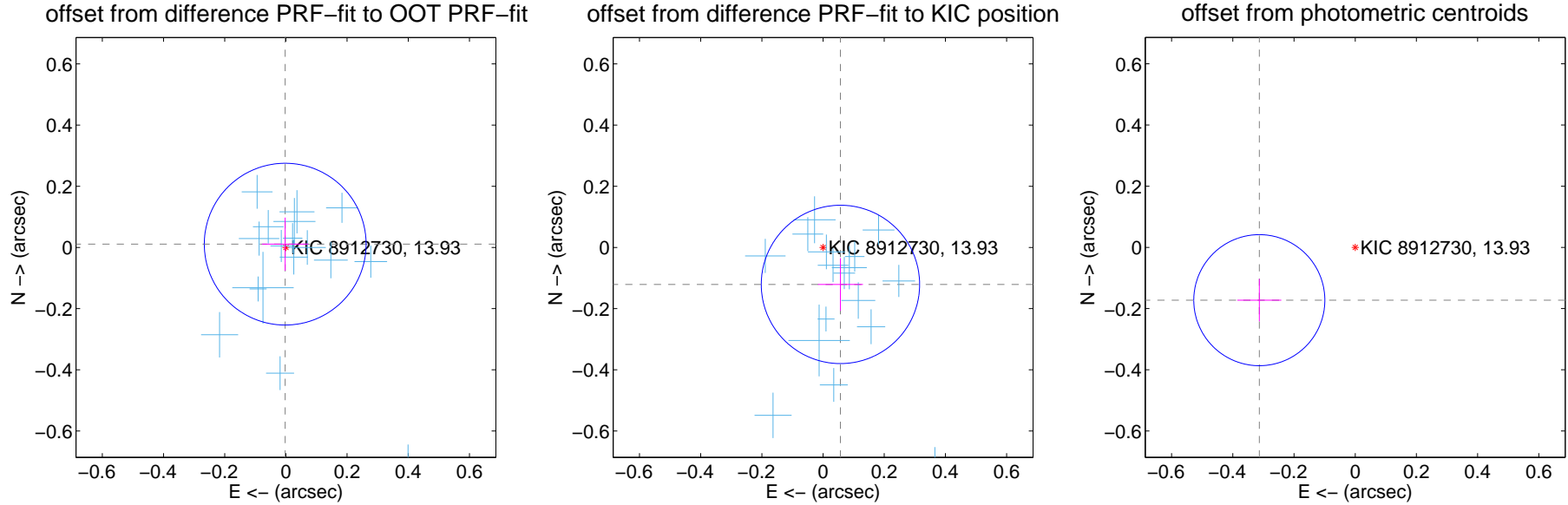
## DV Centroid Data

Supplemental centroid analysis for 008912730-01. Kepler magnitude: 13.93. Transit SNR 59.62

There are 17 quarters with good PRF difference image offsets

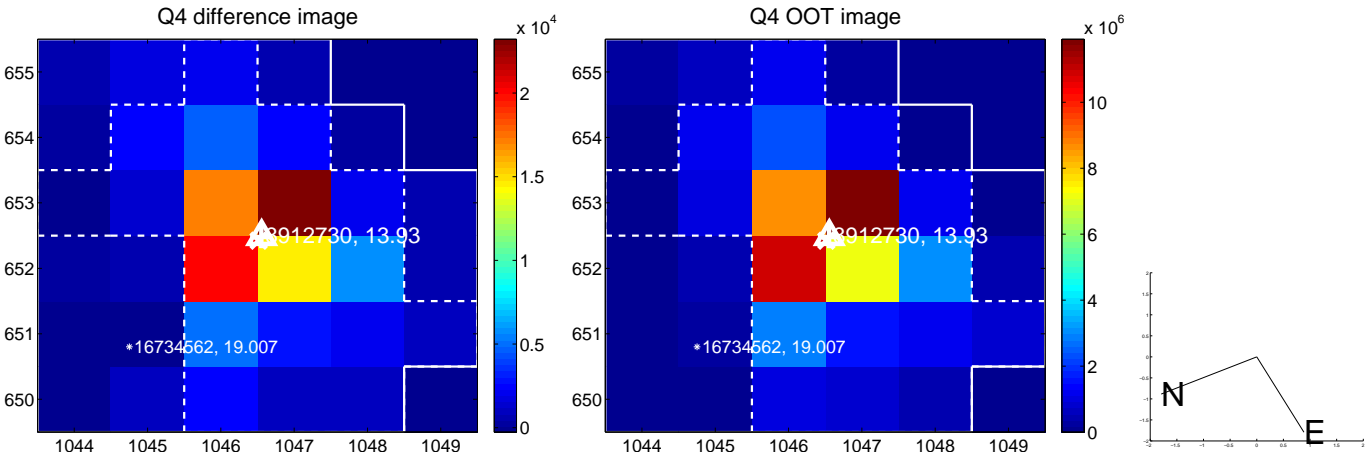
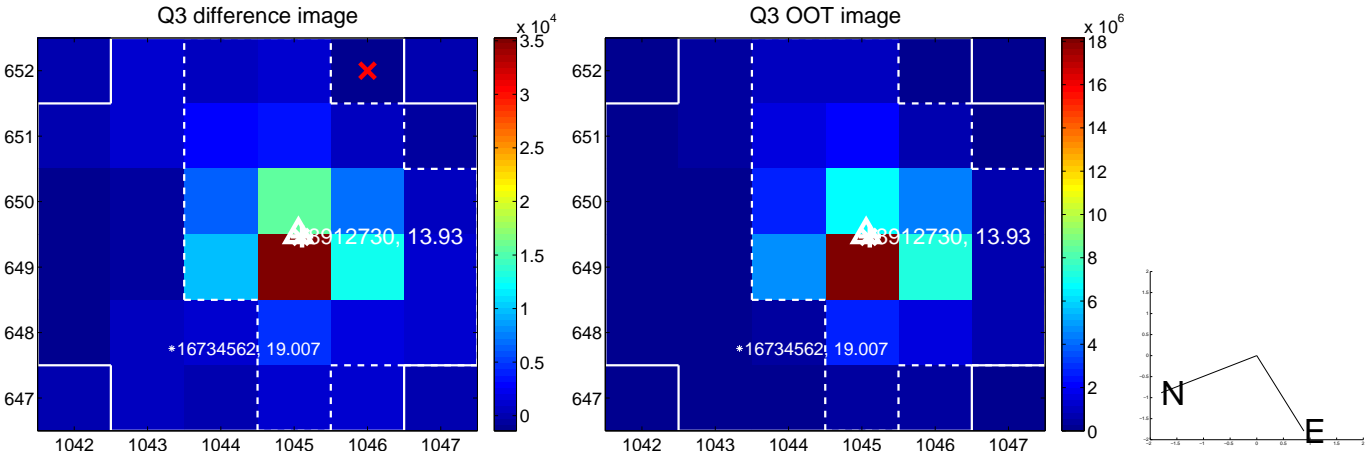
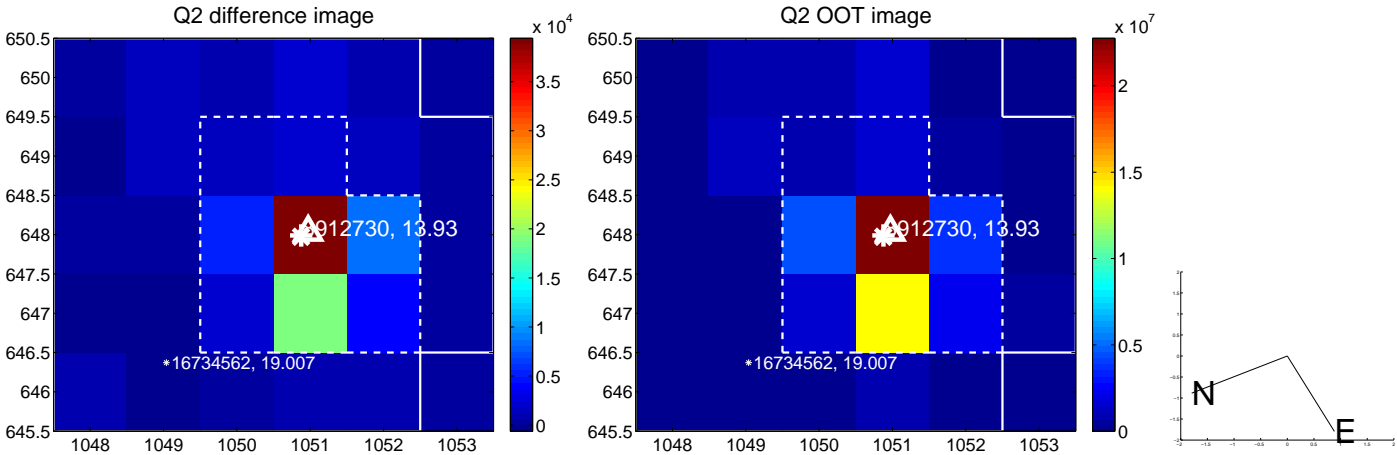
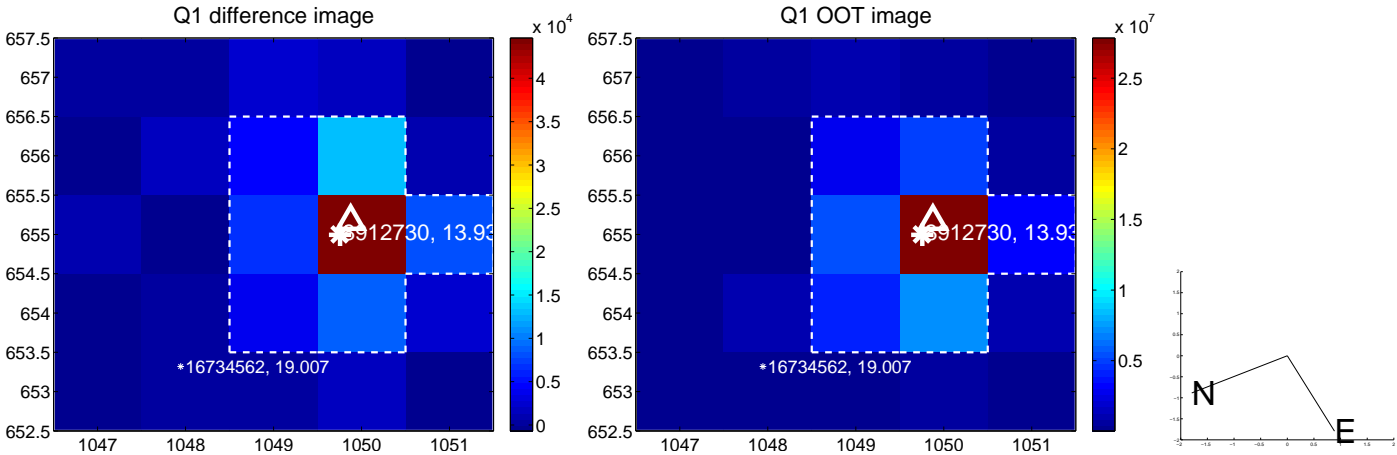
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.011 \pm 0.088$	0.12	$0.002 \pm 0.076$	$0.011 \pm 0.087$
PRF-fit source offset from KIC position	$0.134 \pm 0.086$	1.55	$-0.057 \pm 0.074$	$-0.121 \pm 0.086$
photometric centroid source offset	$0.36 \pm 0.07$	5.01	$0.31 \pm 0.07$	$-0.17 \pm 0.07$

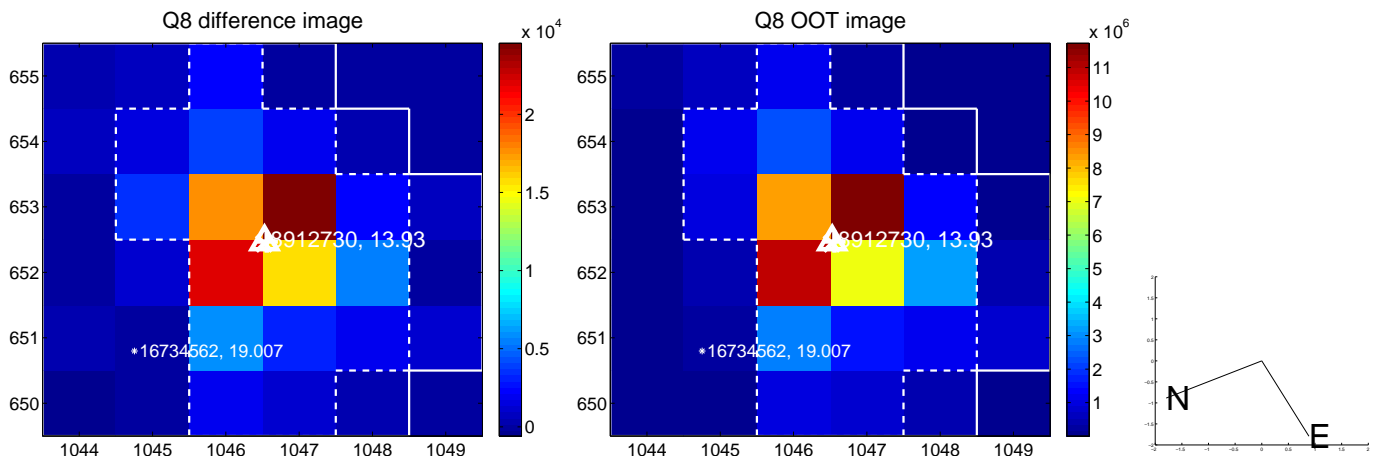
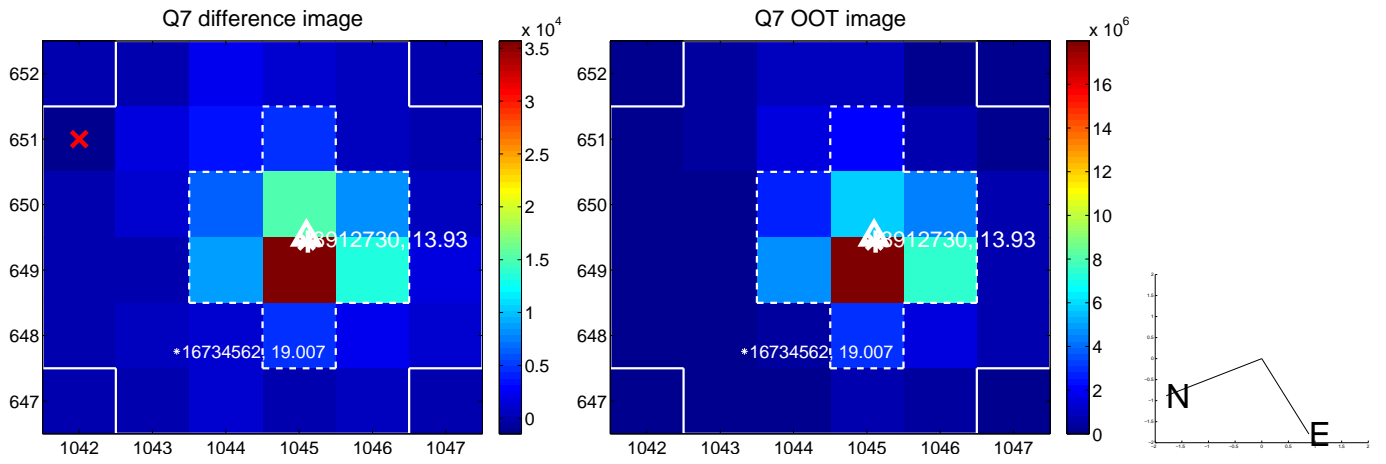
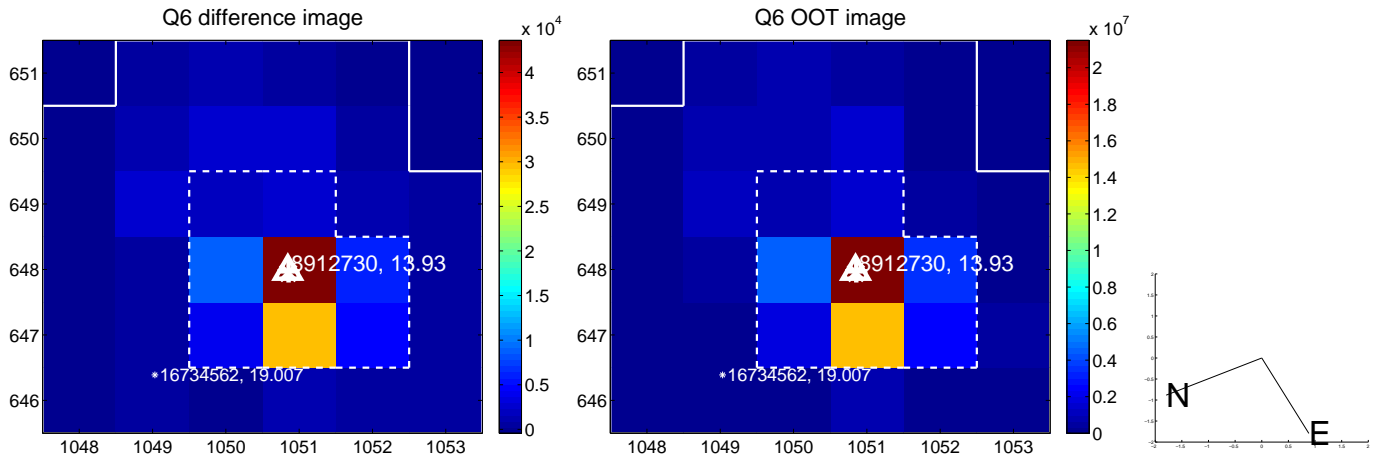
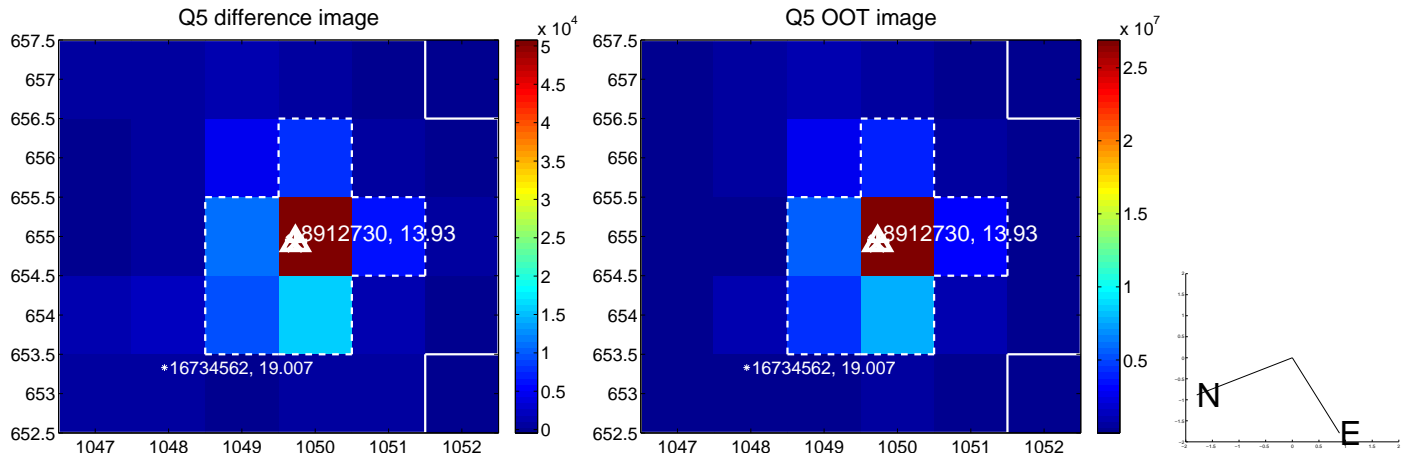


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

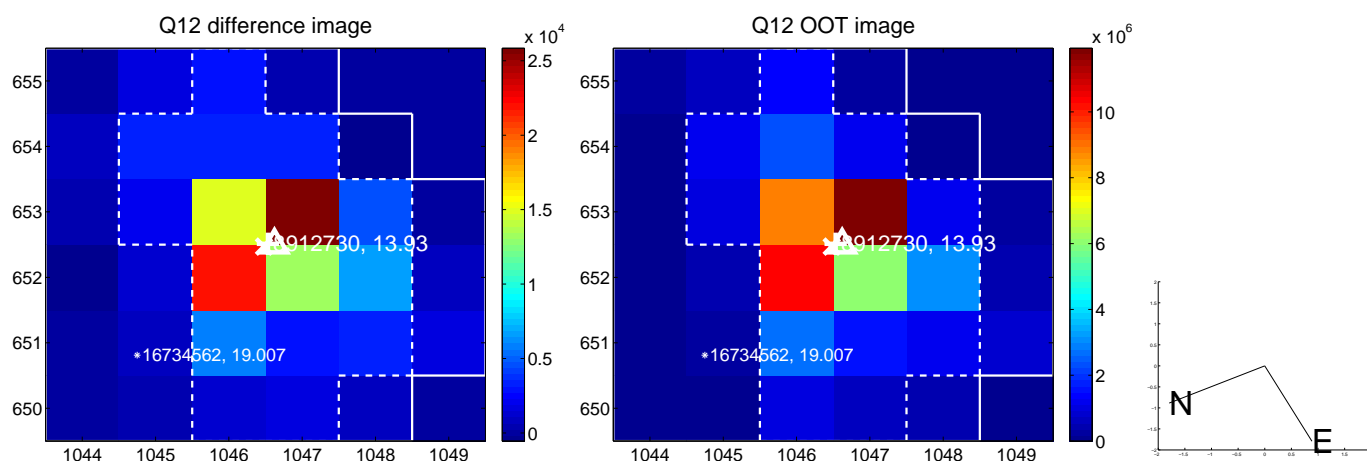
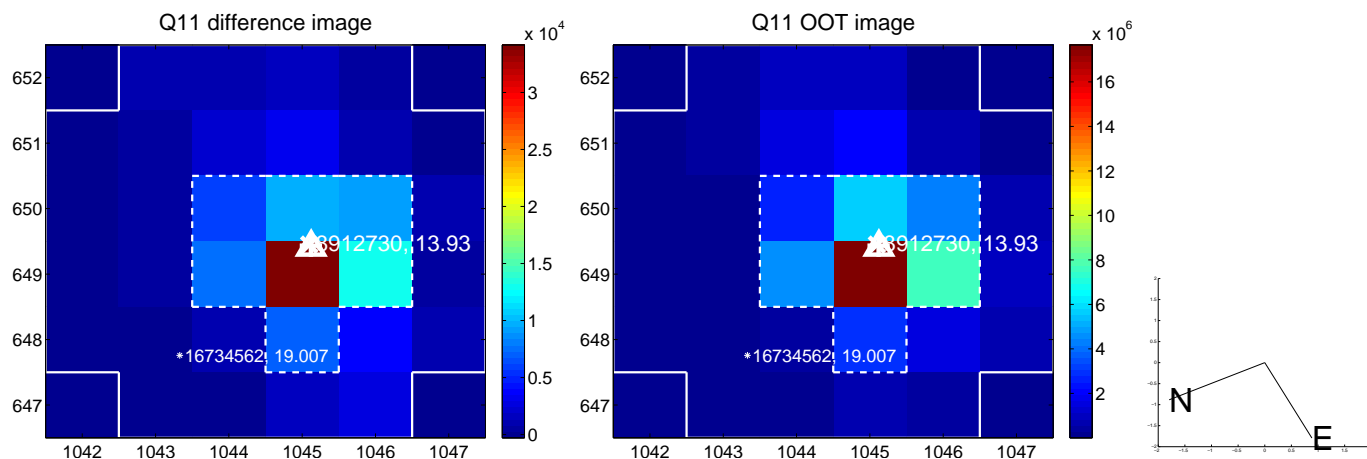
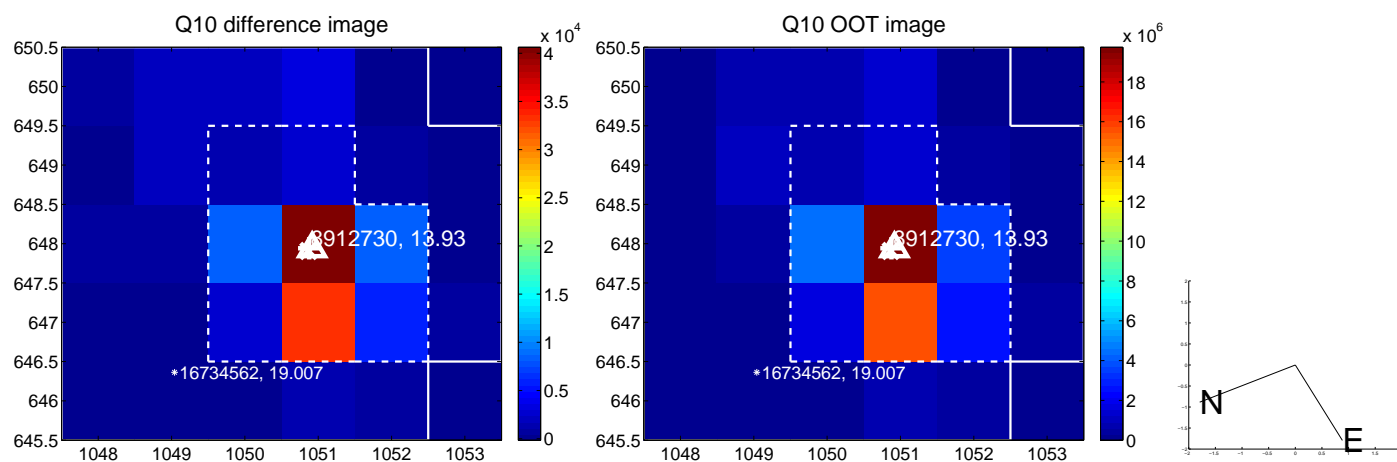
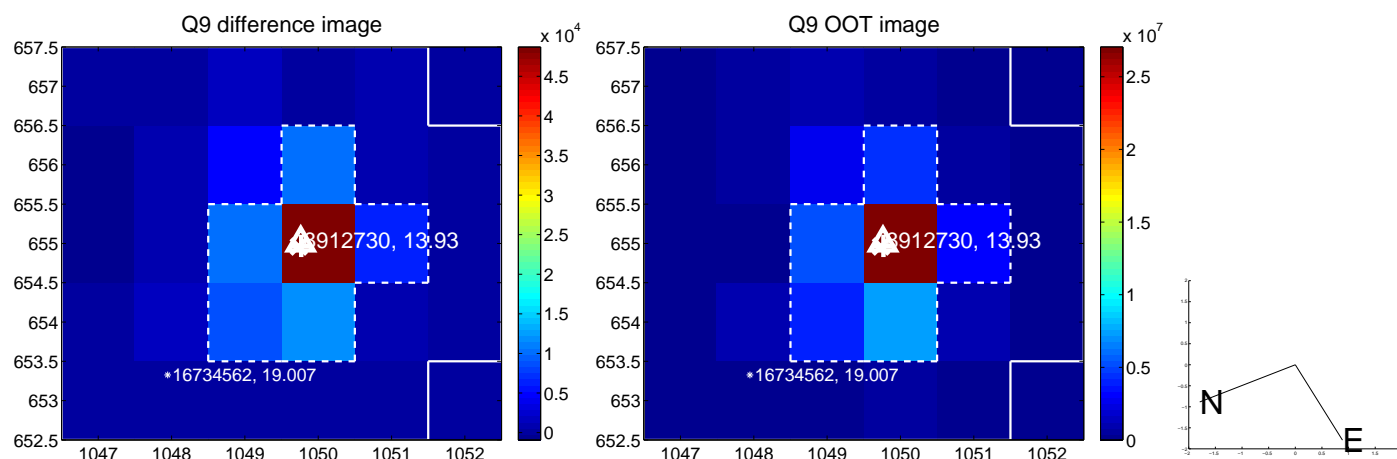
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



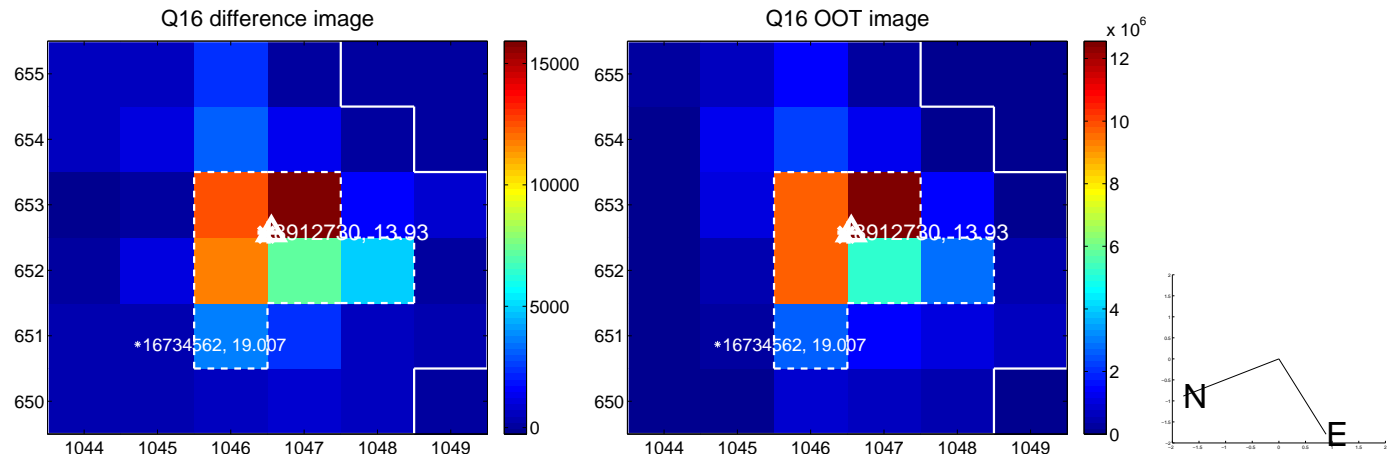
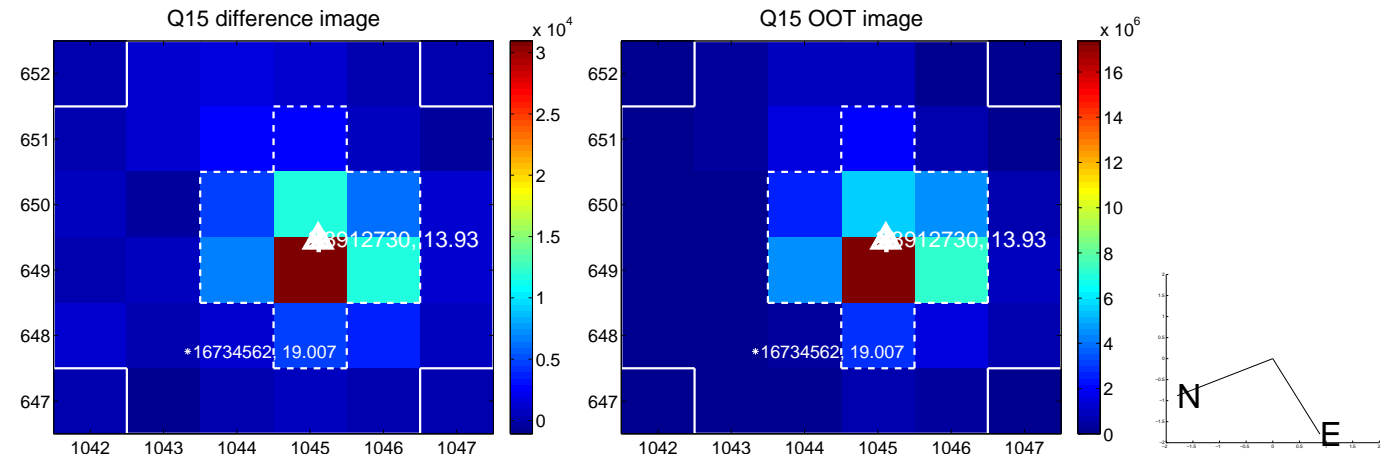
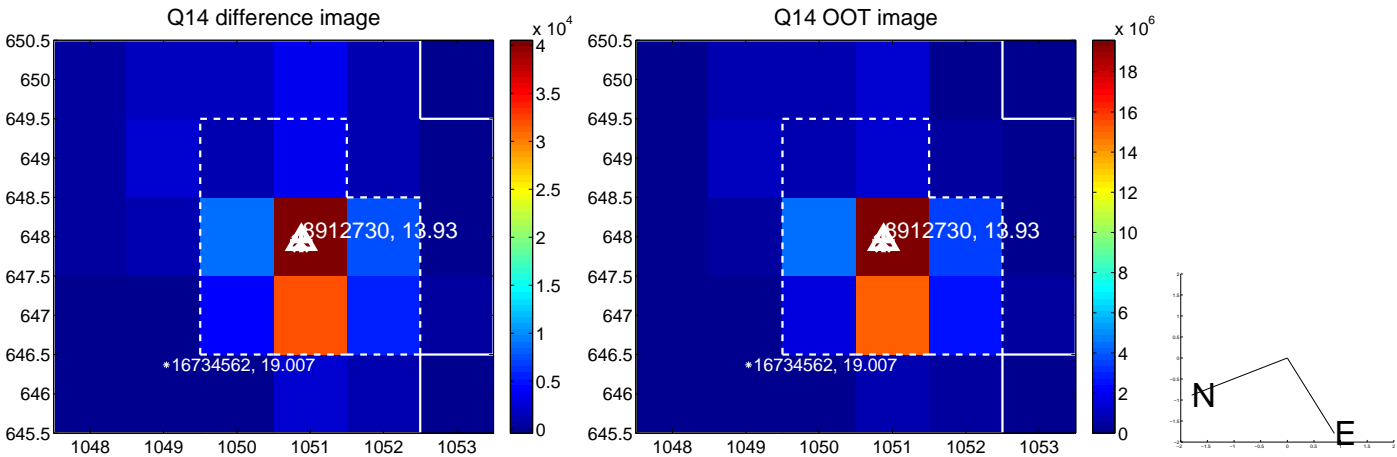
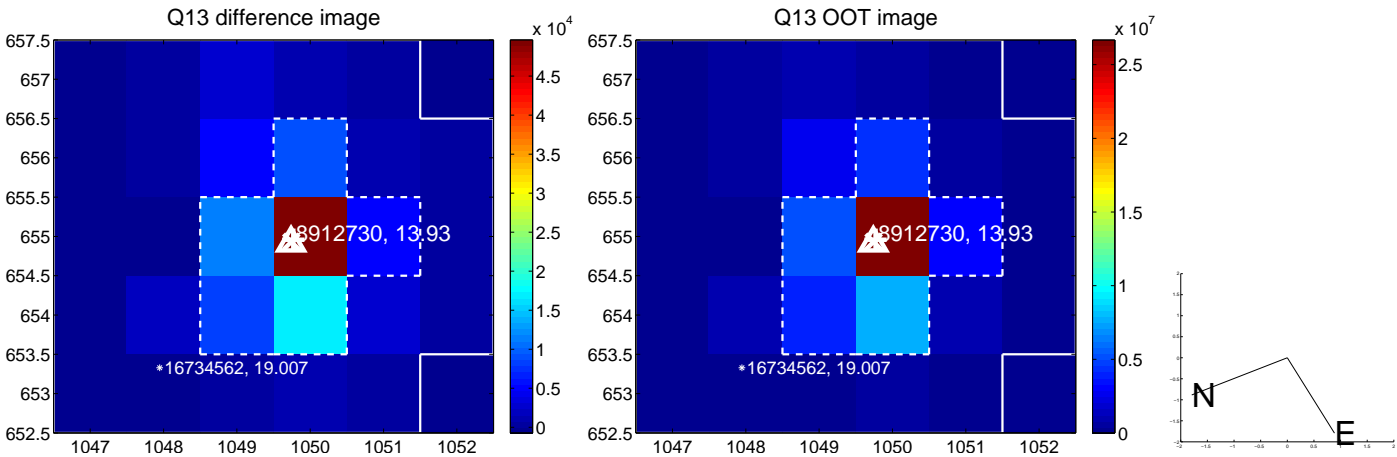
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



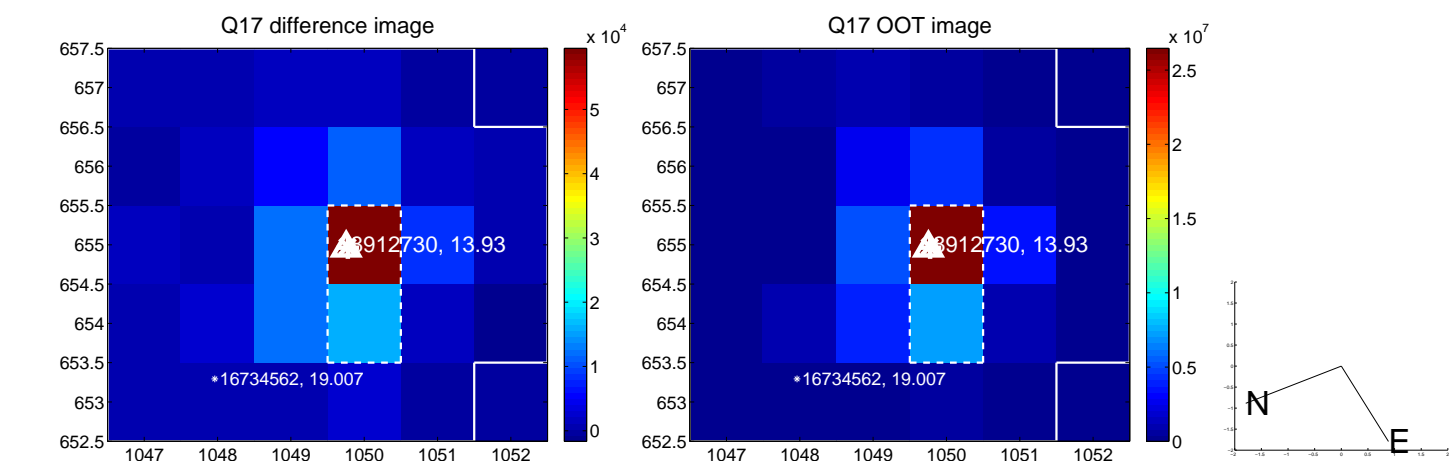
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



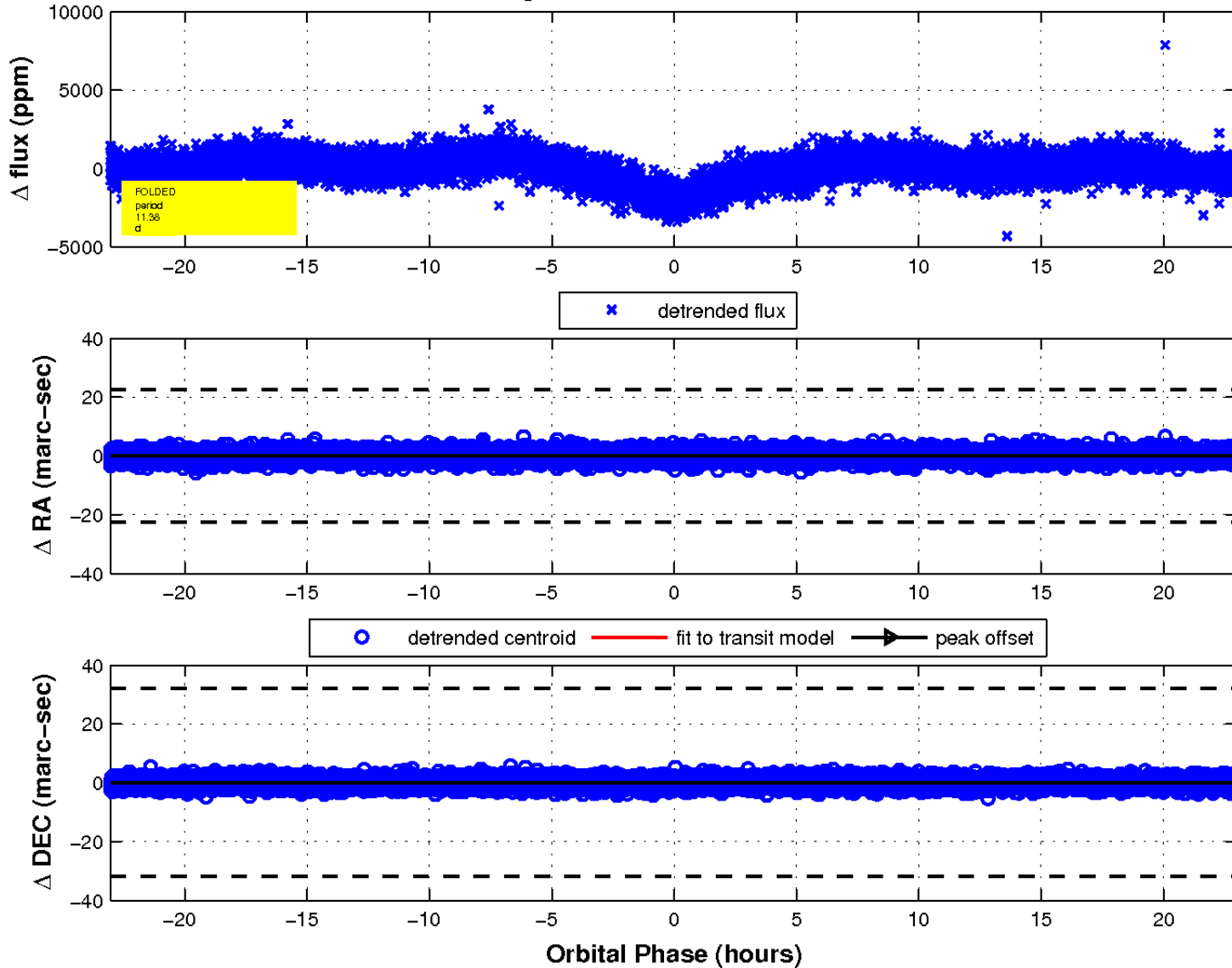
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

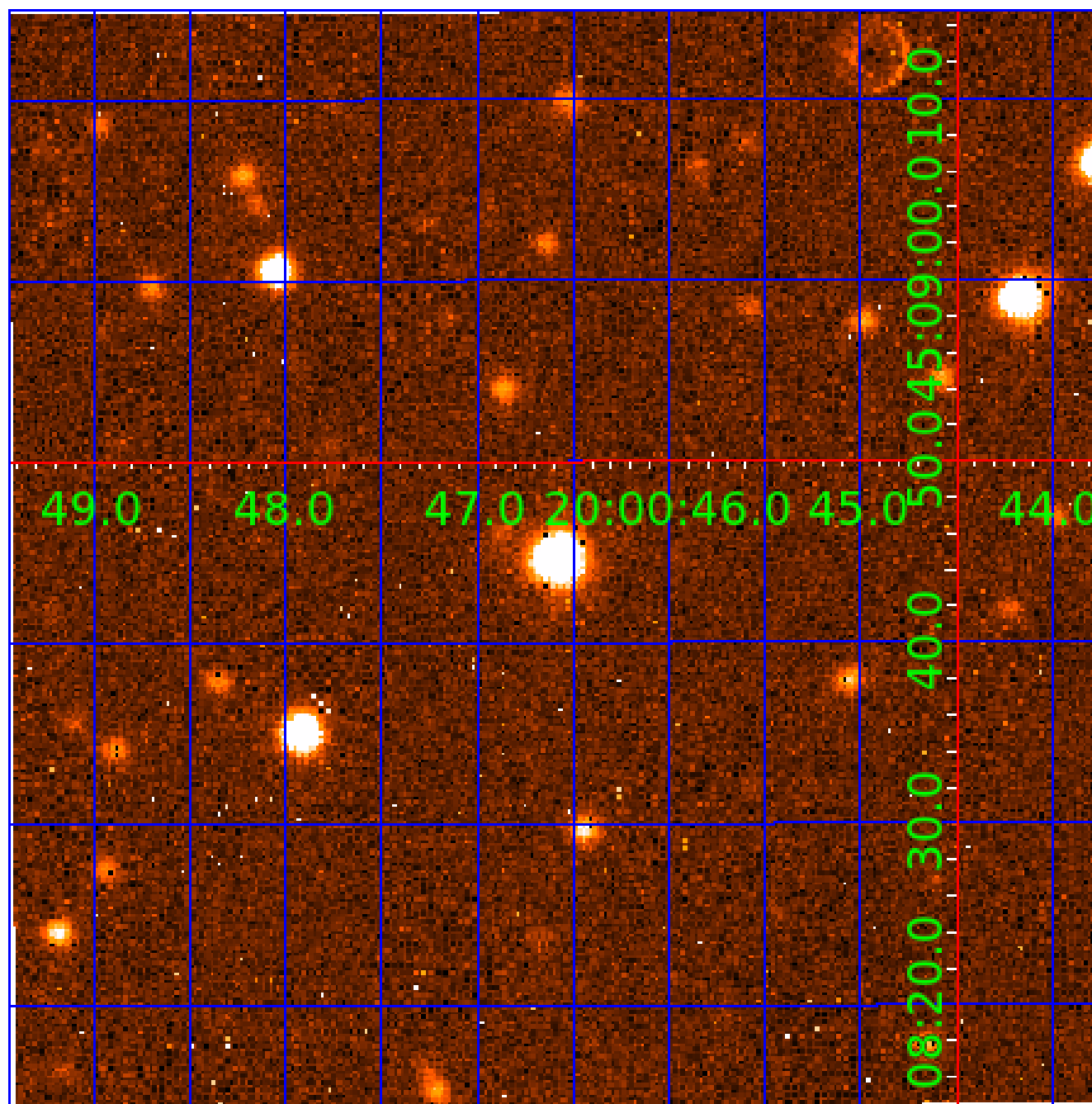


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



# KIC 008912730

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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008912730-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
008912730-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_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.

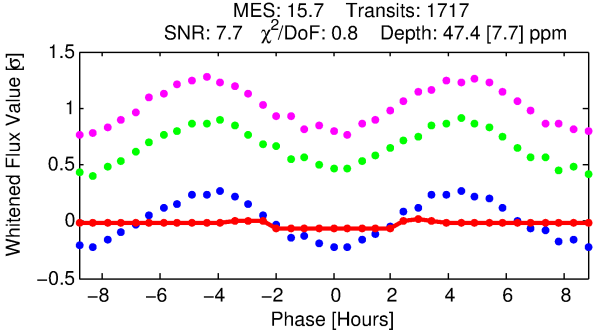
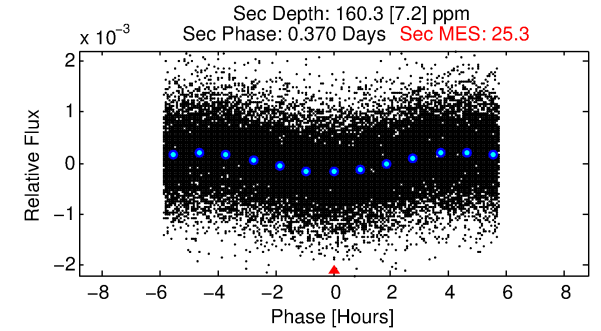
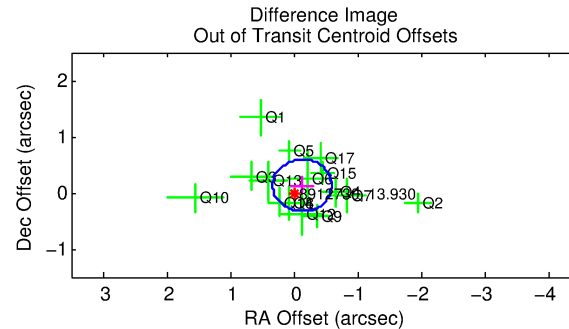
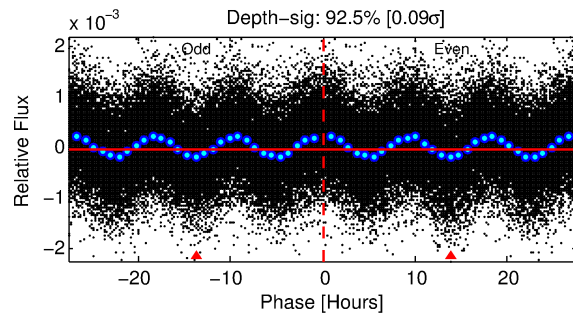
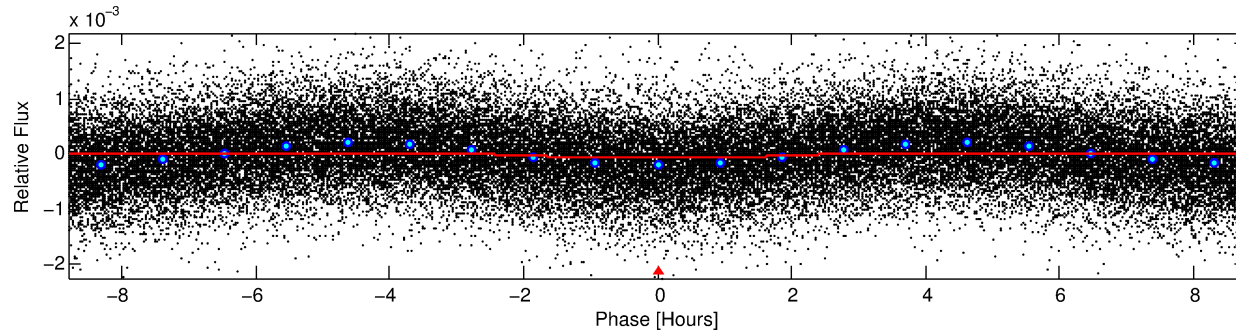
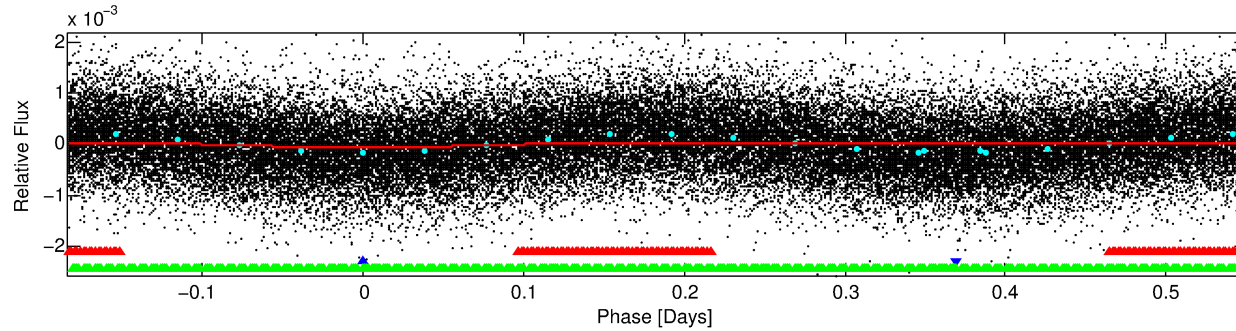
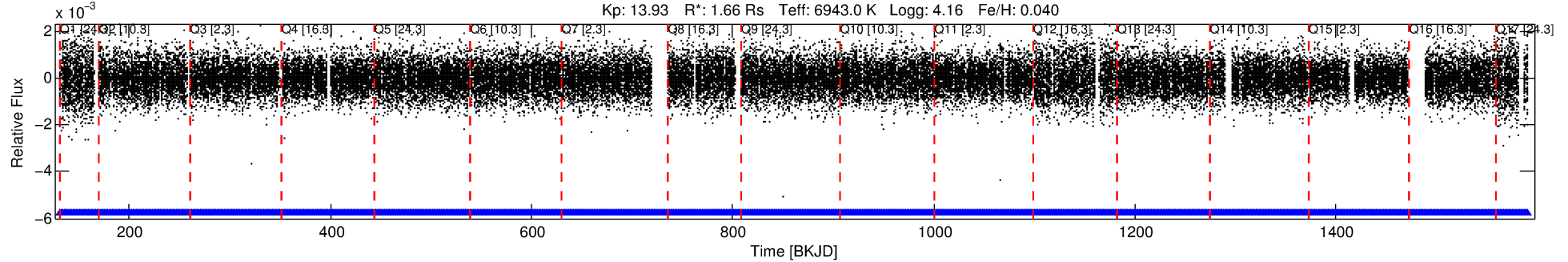
## Ephemeris Match Information For 008912730-02

No Significant Match Found

# DV One-Page Summary

KIC: 8912730 Candidate: 2 of 3 Period: 0.734 d  
KOI: K03850 Corr: No Ephemeris Match

Kp: 13.93 R\*: 1.66 Rs Teff: 6943.0 K Logg: 4.16 Fe/H: 0.040

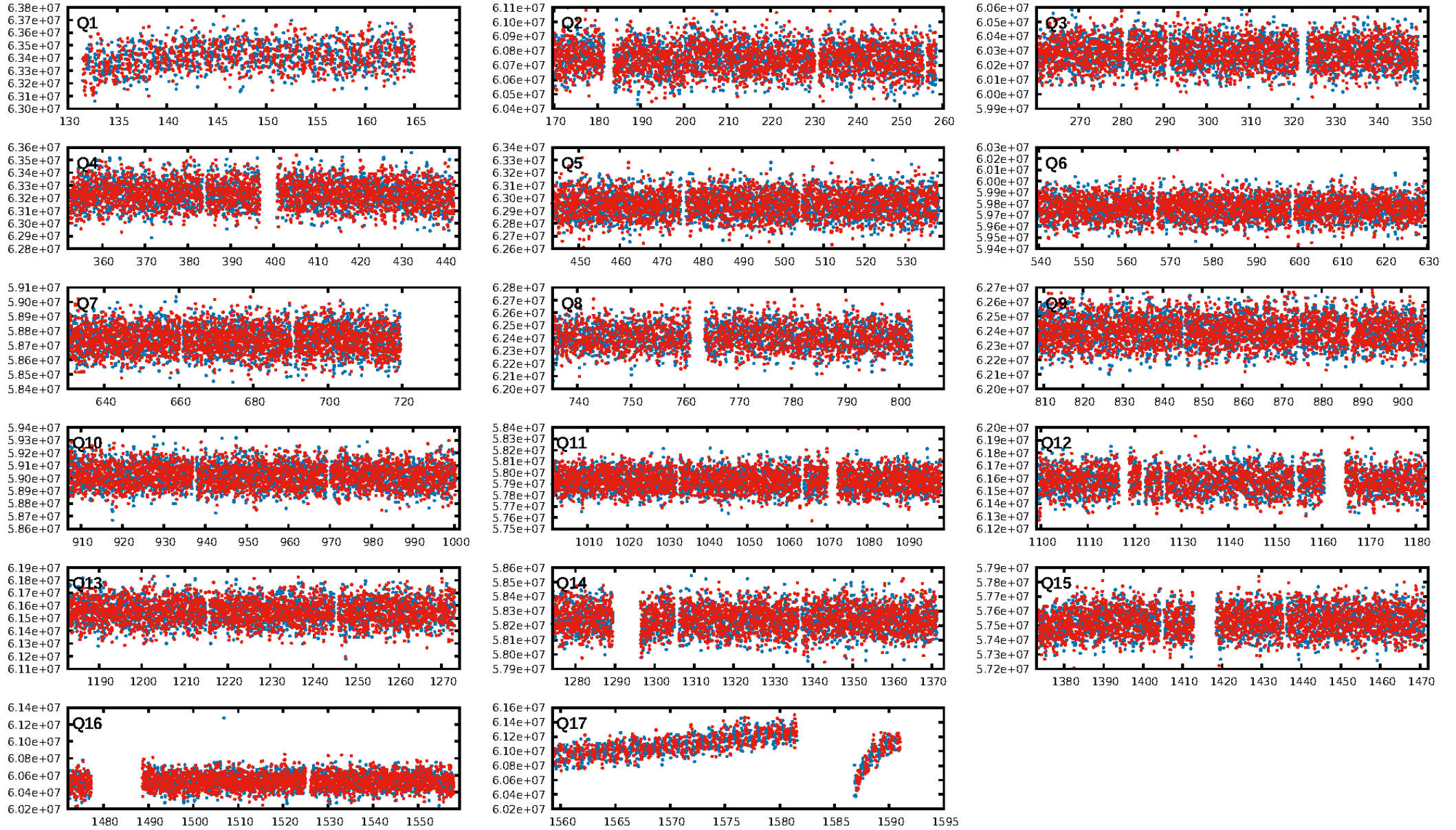


DV Fit Results:	DV Diagnostic Results:
Period = 0.73398 [0.00001] d	ShortPeriod-sig: N/A
Epoch = 131.7420 [0.0049] BKJD	LongPeriod-sig: 80.0% [1.28σ]
Rp/R* = 0.0064 [0.0067]	ModelChiSquare2-sig: N/A
a/R* = 1.37 [3.76]	ModelChiSquareGof-sig: N/A
b = 0.10 [60.86]	Bootstrap-pfa: N/A
Seff = 17575.65 [7089.48]	RollingBand-fgt: 1.00 [1640/1640]
Teq = 2936 [296] K	GhostDiagnostic-chr: -92.14
Rp = 1.15 [1.27] Re	Centroid-sig: 10.6%
a = 0.0181 [0.0047] AU	Centroid-so: 1.243 arcsec [1.95σ]
Ag = 21.59 [45.97] [0.45σ]	OotOffset-rm: 0.184 arcsec [1.19σ]
Teffp = 9785 [5150] K [1.33σ]	KicOffset-rm: 0.157 arcsec [0.78σ]
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	KicOffset-st: 4/3/3/5 [15]
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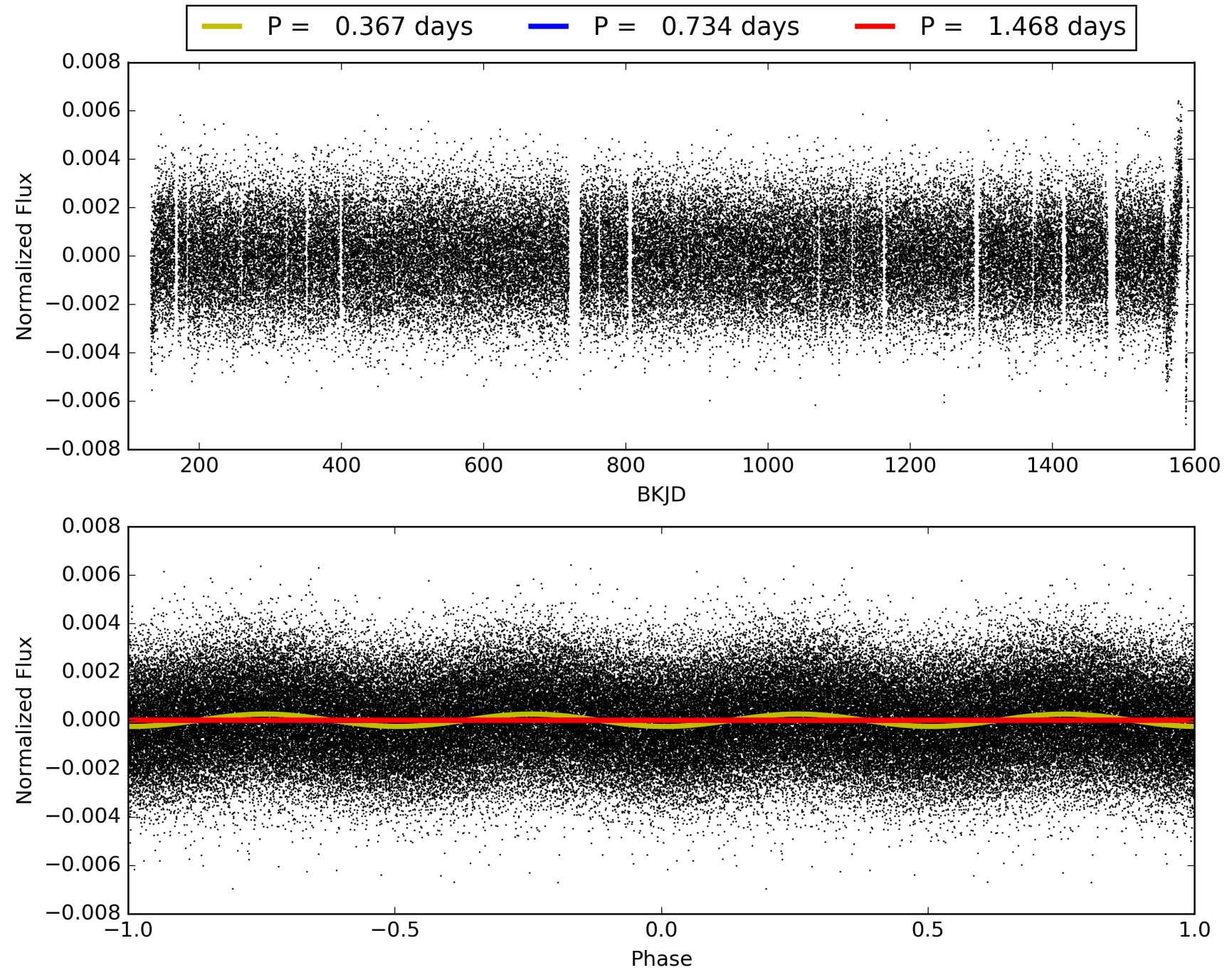
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:19:54 Z

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

# TCE 008912730-02, PDC Light Curves

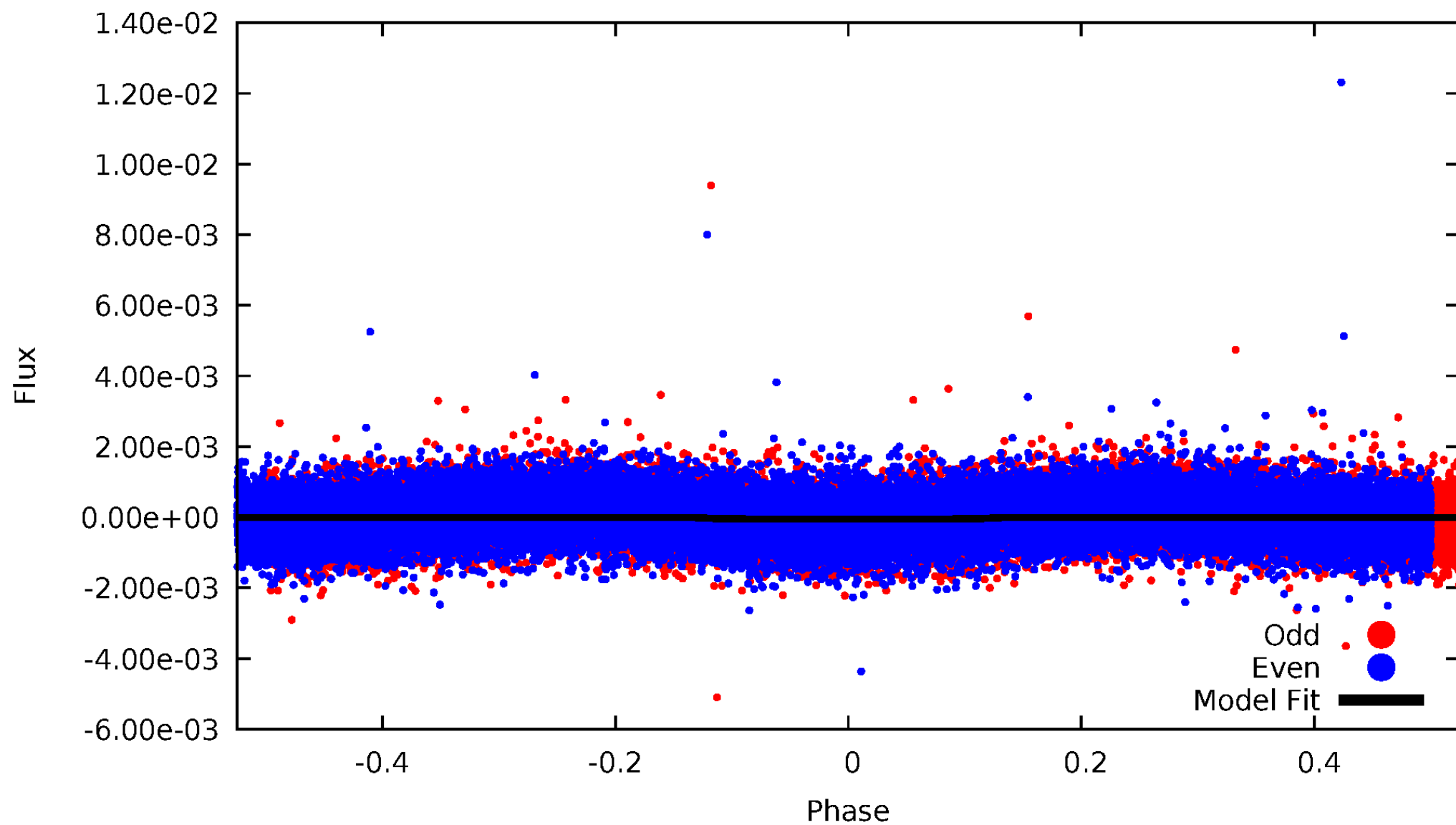


# TCE 008912730-02



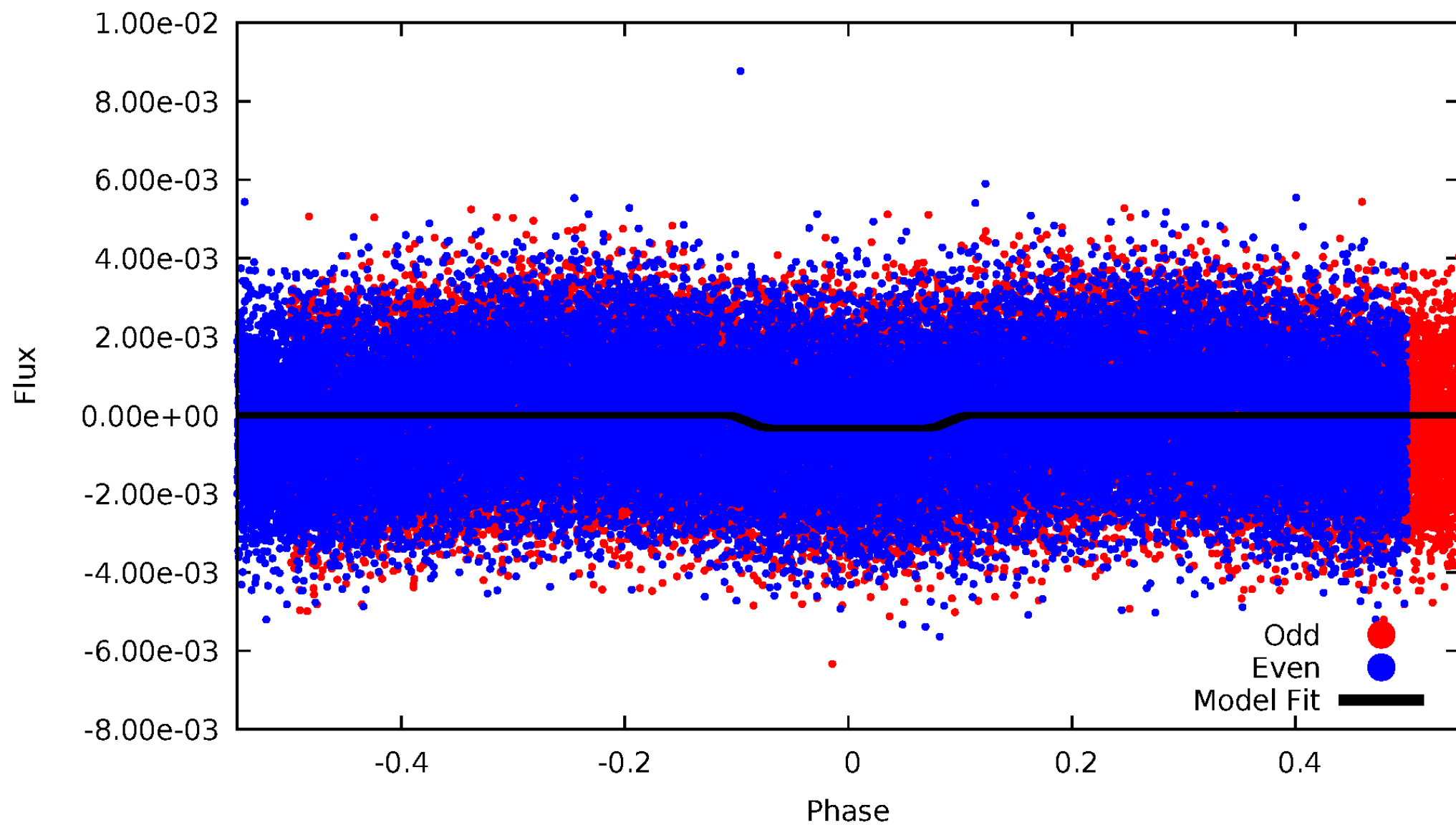
# DV Odd/Even

TCE 008912730-02



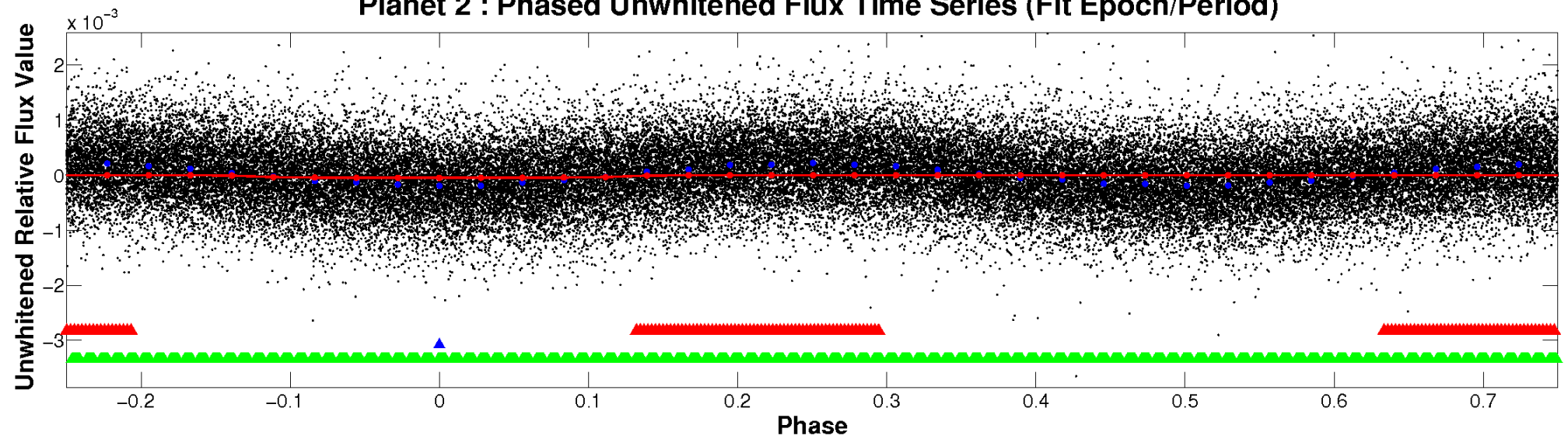
# ALT Odd/Even

TCE 008912730-02

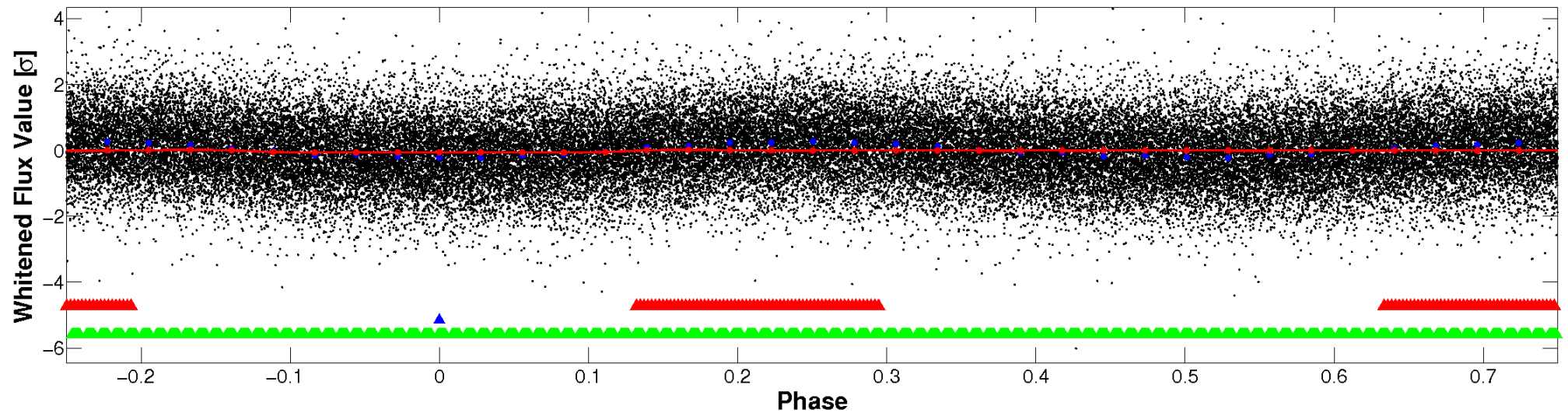


# Non-Whitened Vs. Whitened Light Curve

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

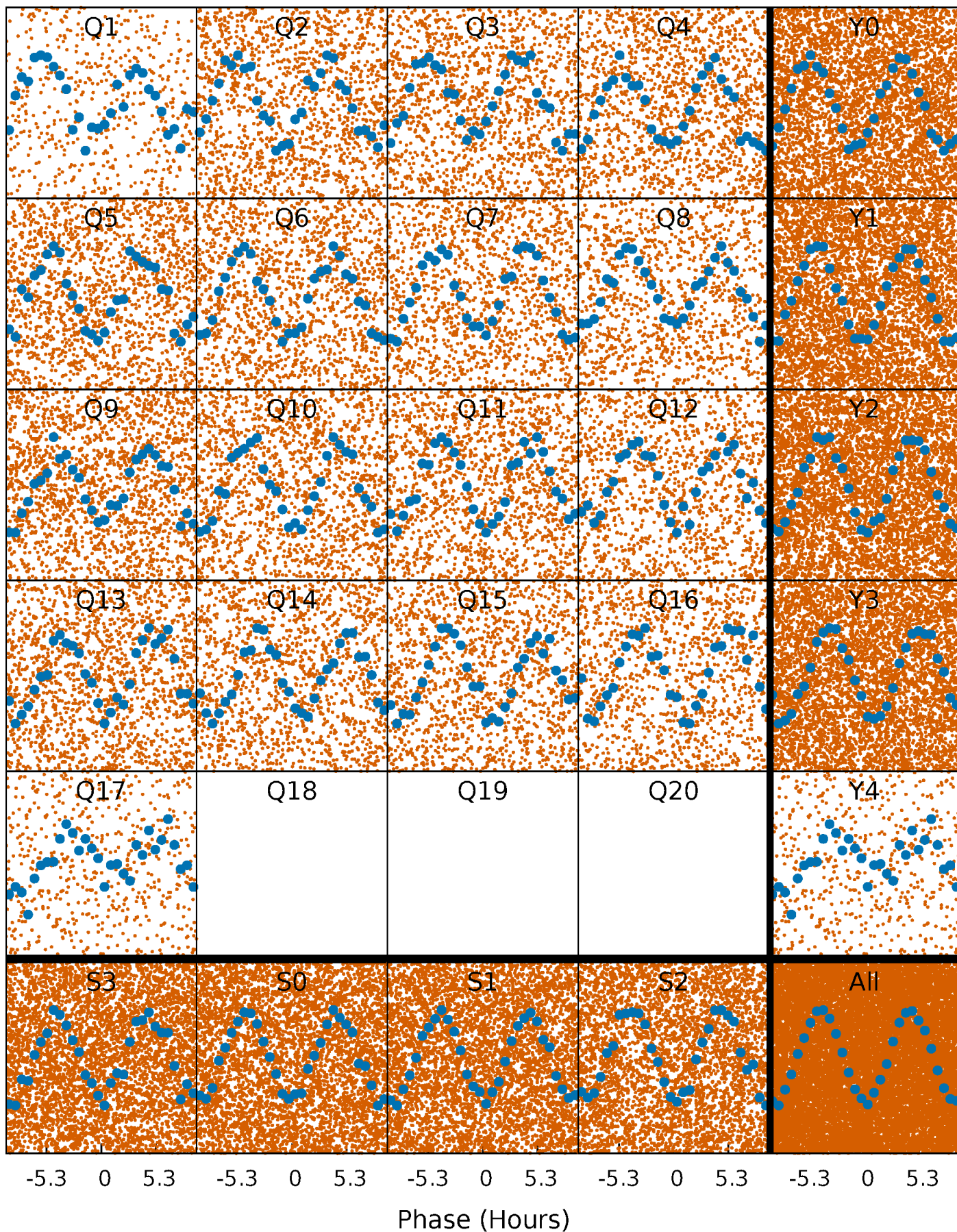


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



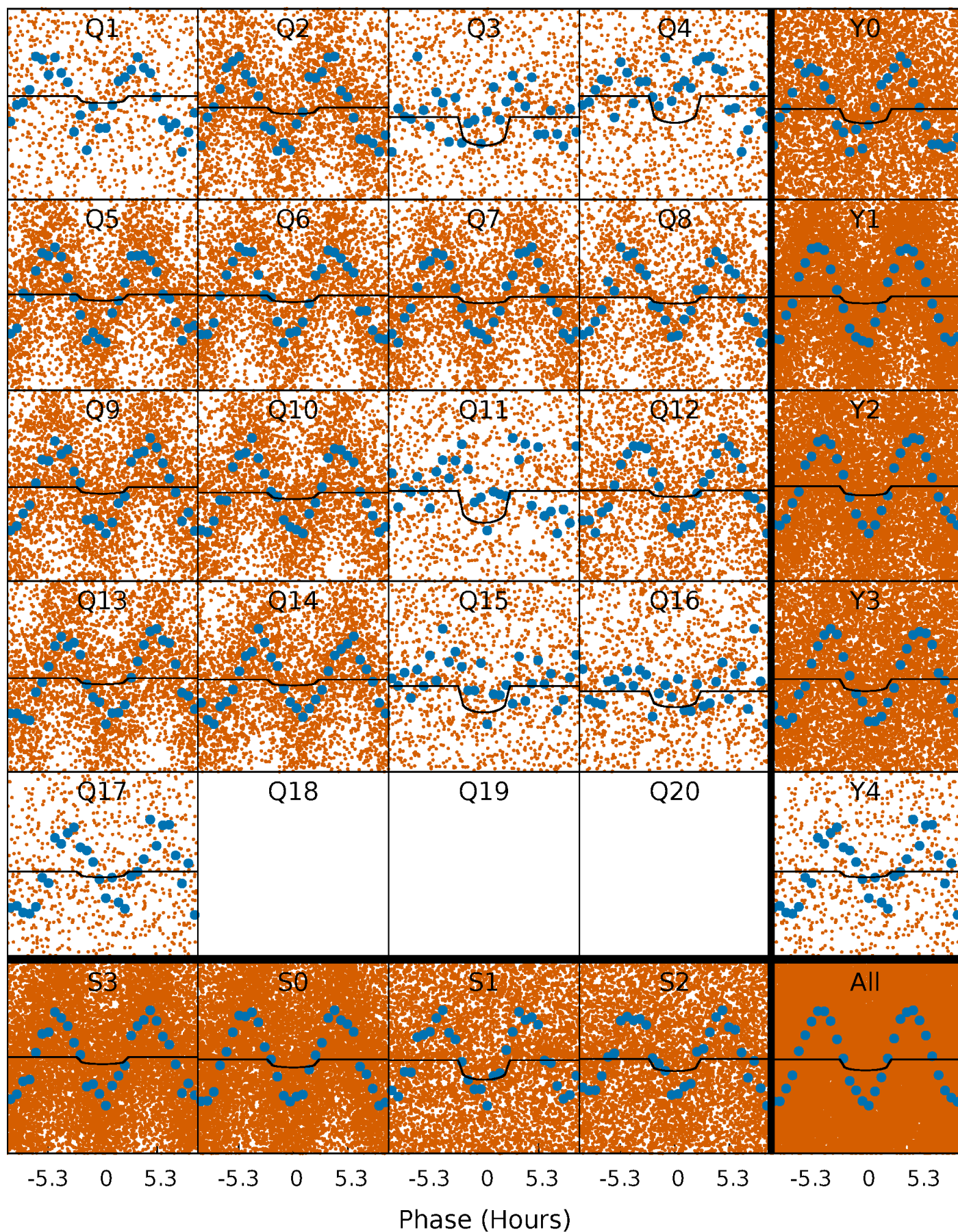
# PDC Quarter-Phased Transit Curves

TCE 008912730-02 P= 0.733978 Days  $T_0=131.742018$  (BKJD)



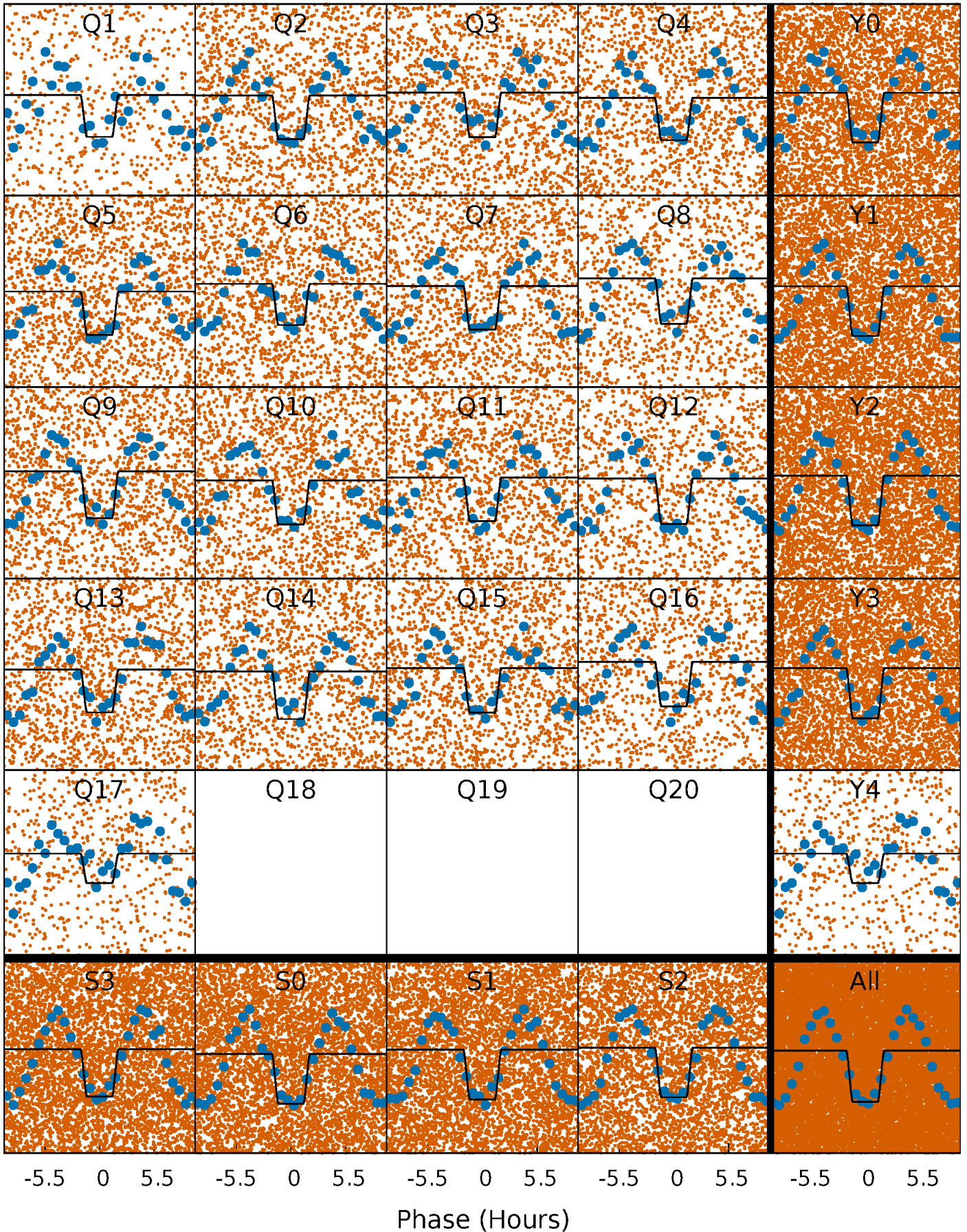
# DV Quarter-Phased Transit Curves

TCE 008912730-02   P= 0.733978 Days    $T_0=131.742018$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

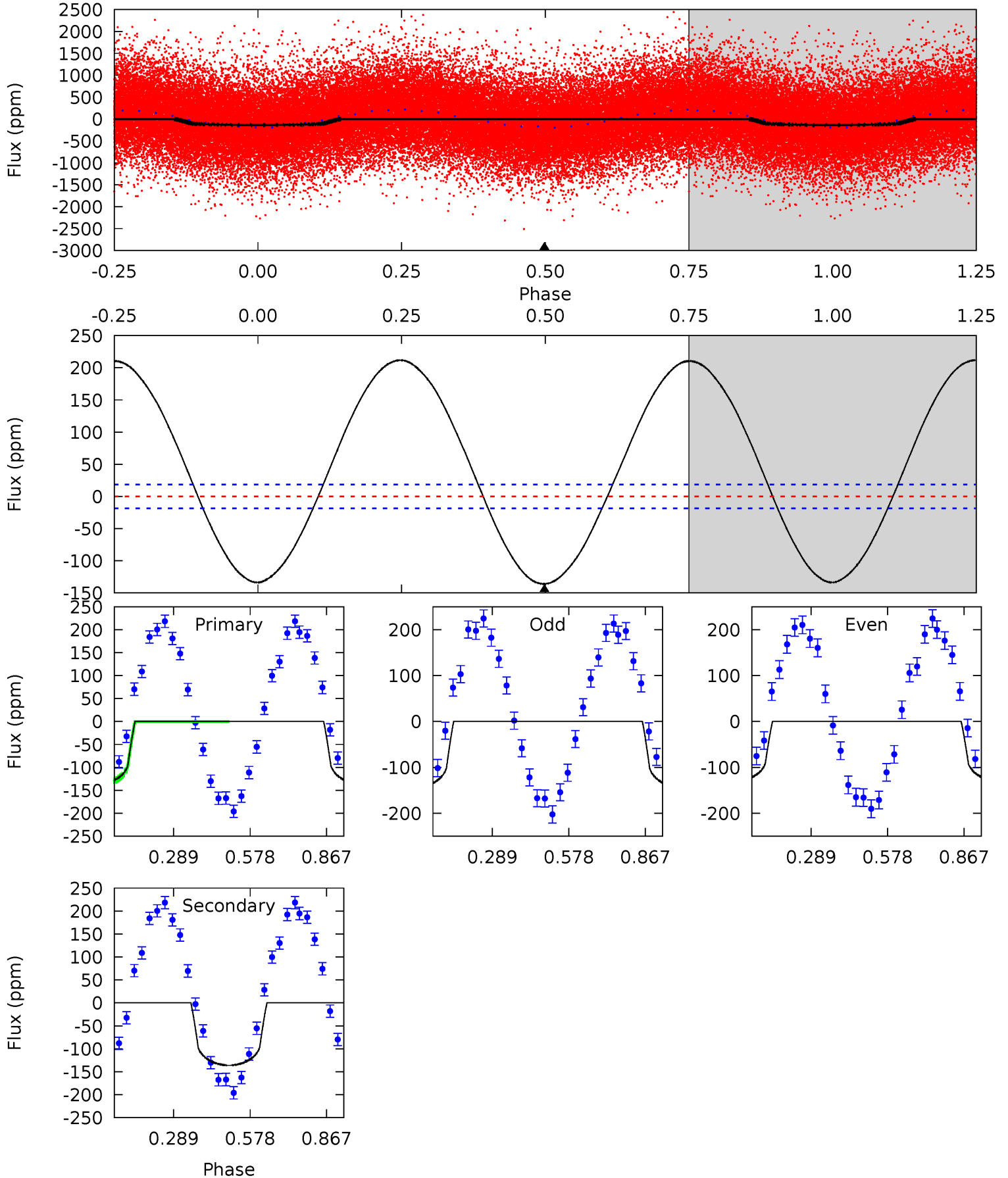
TCE 008912730-02   P= 0.734028 Days    $T_0=131.695920$  (BKJD)



# DV Model-Shift Uniqueness Test

008912730-02, P = 0.733978 Days, E = 131.008040 Days

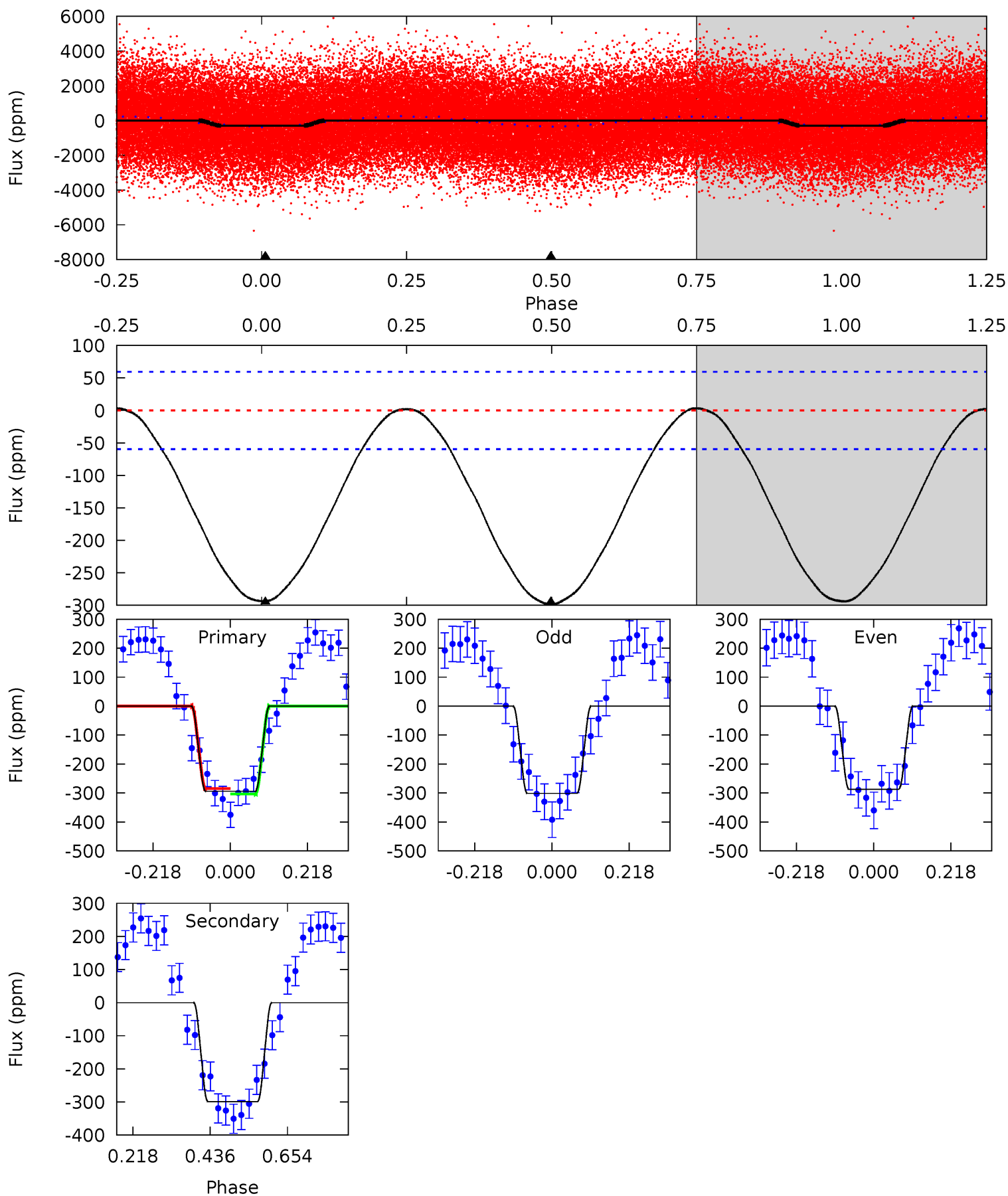
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.0	32.0	0	0	4.34	1.06	25.5	32.0	32.0	32.0	32.0	1.53	1.05	0.61	0.47



# Alt Model-Shift Uniqueness Test

008912730-02, P = 0.734028 Days, E = 130.961892 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
21.7	22.1	0	0	4.40	1.23	0.28	21.7	21.7	22.1	22.1	0.53	0.92	0.01	0.71



### Stellar Parameters For KIC 008912730

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6943^{+194}_{-305}$	$4.162^{+0.128}_{-0.192}$	$0.040^{+0.200}_{-0.350}$	$1.660^{+0.528}_{-0.352}$	$1.459^{+0.216}_{-0.238}$	$0.449^{+0.287}_{-0.234}$
	+3%/-4%	+3%/-5%	+500%/-875%	+32%/-21%	+15%/-16%	+64%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008912730-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-136 \pm 4$	$1.41^{+1.19}_{-0.89}$	$4112^{+306}_{-285}$	$8763^{+11454}_{-2650}$	$12^{+78}_{-9}$
Alt.	$-299 \pm 14$	$3.36^{+1.29}_{-1.25}$	$4119^{+320}_{-270}$	$6649^{+2021}_{-1091}$	$4.798^{+6.725}_{-2.347}$

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

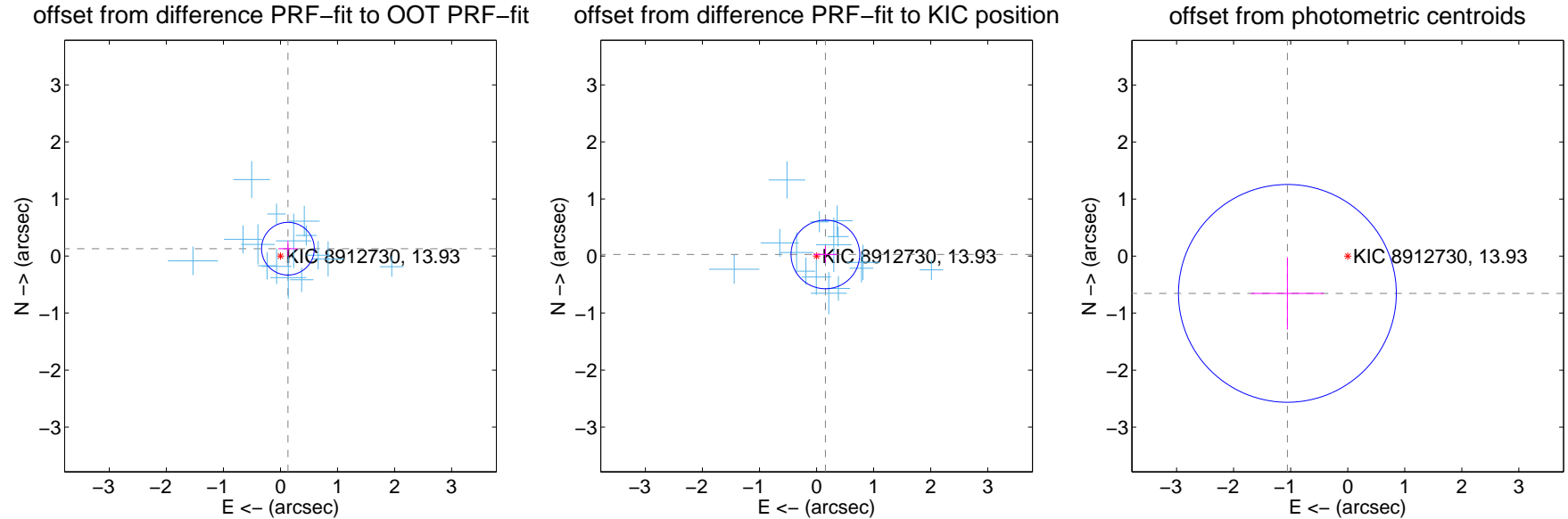
## DV Centroid Data

Supplemental centroid analysis for 008912730-02. Kepler magnitude: 13.93. Transit SNR 7.74

There are 15 quarters with good PRF difference image offsets

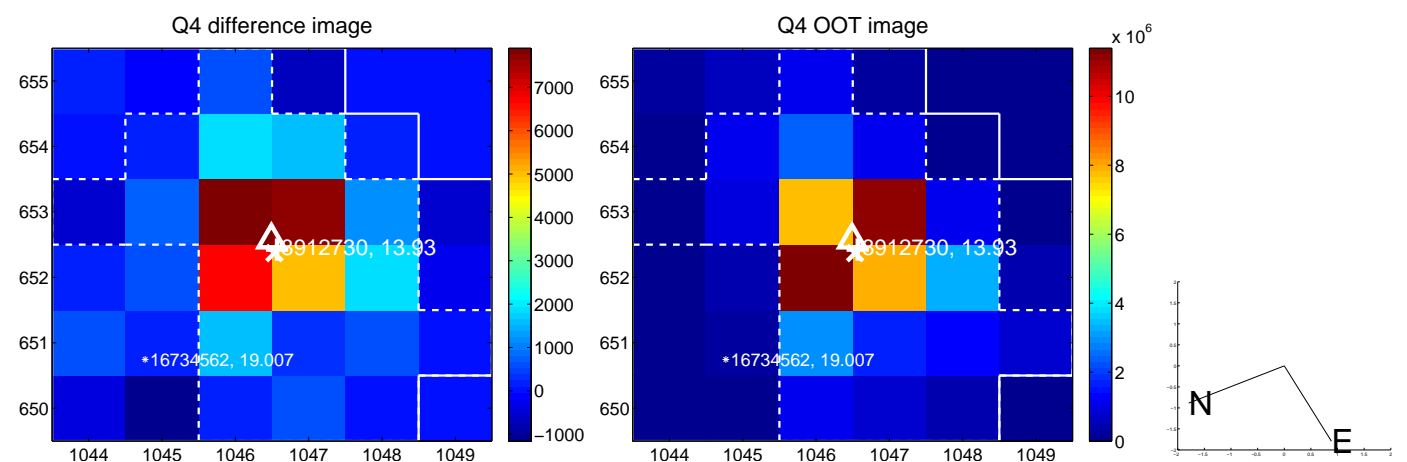
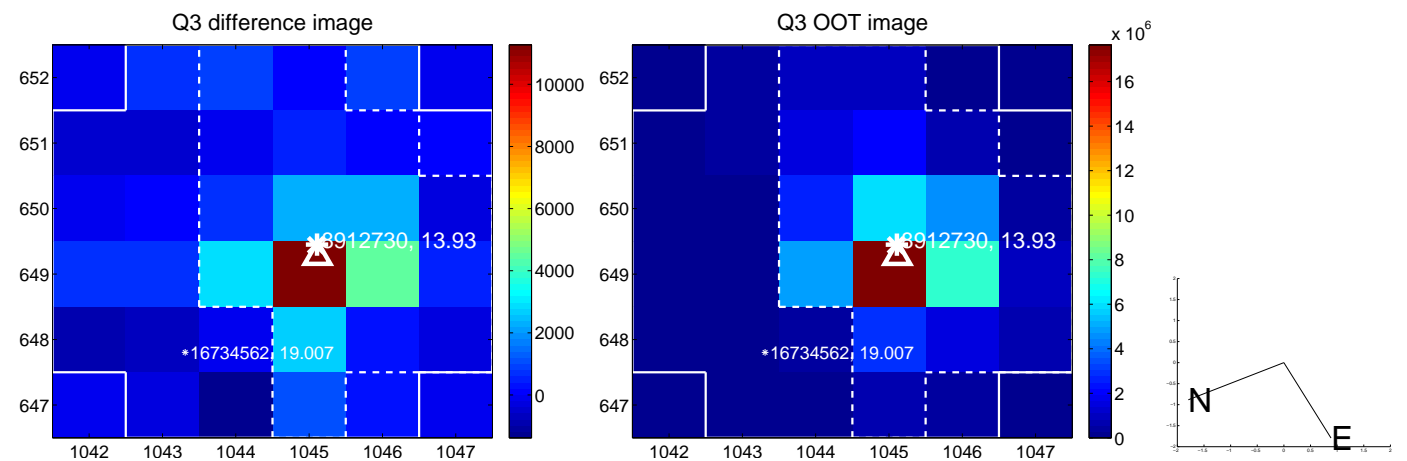
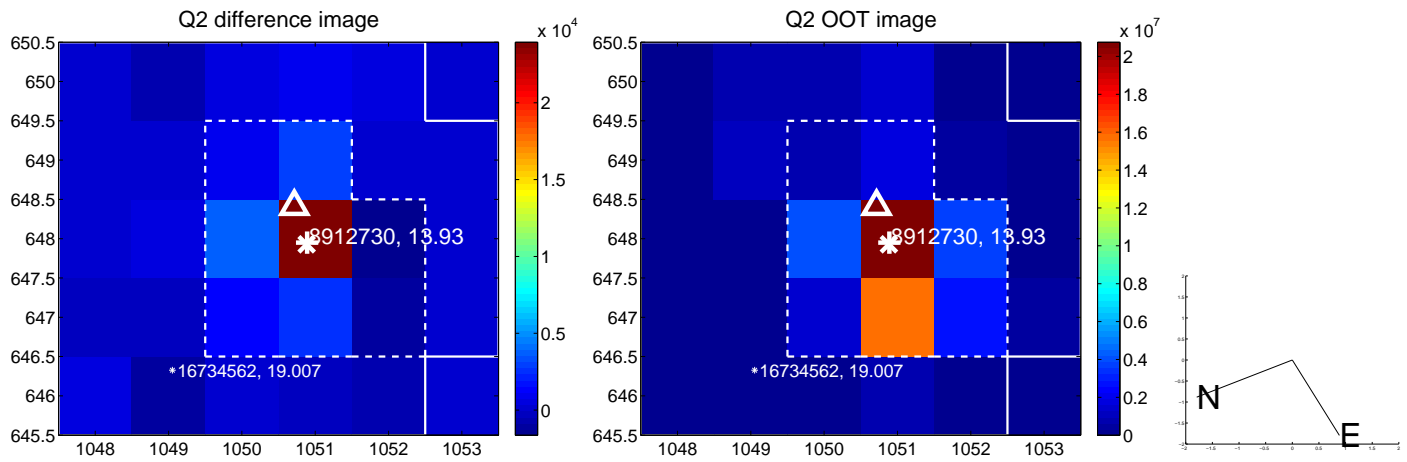
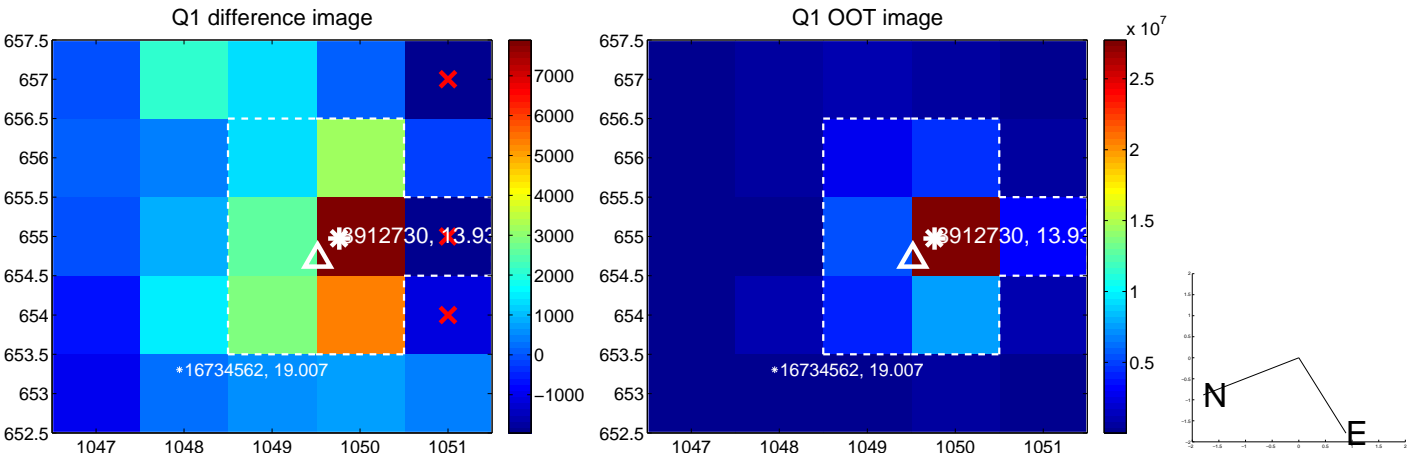
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.184 \pm 0.154$	1.19	$-0.131 \pm 0.168$	$0.129 \pm 0.138$
PRF-fit source offset from KIC position	$0.157 \pm 0.201$	0.78	$-0.154 \pm 0.208$	$0.028 \pm 0.144$
photometric centroid source offset	$1.24 \pm 0.64$	1.95	$1.06 \pm 0.64$	$-0.65 \pm 0.63$

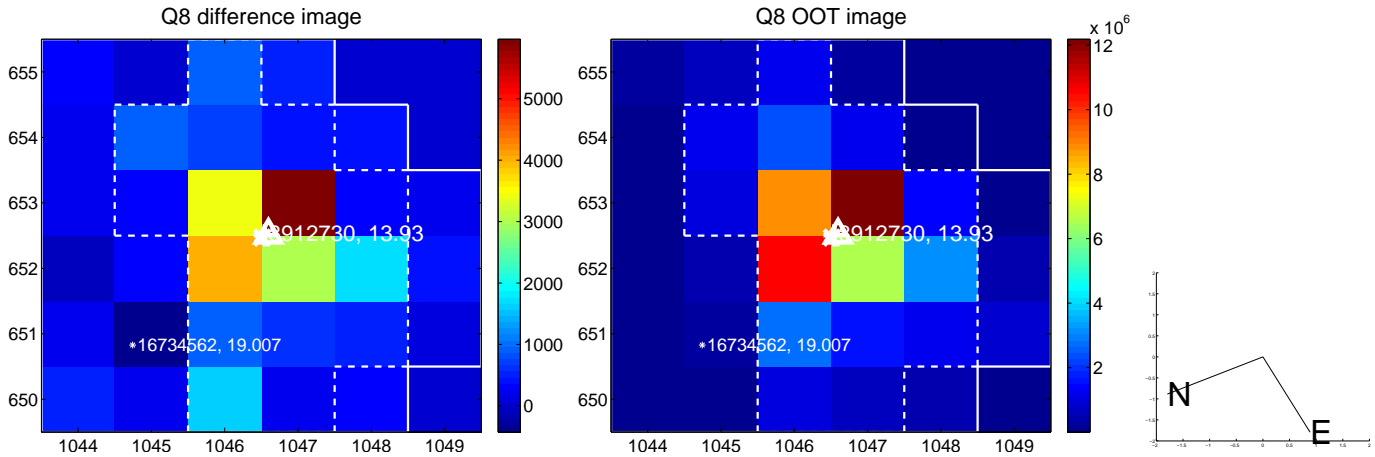
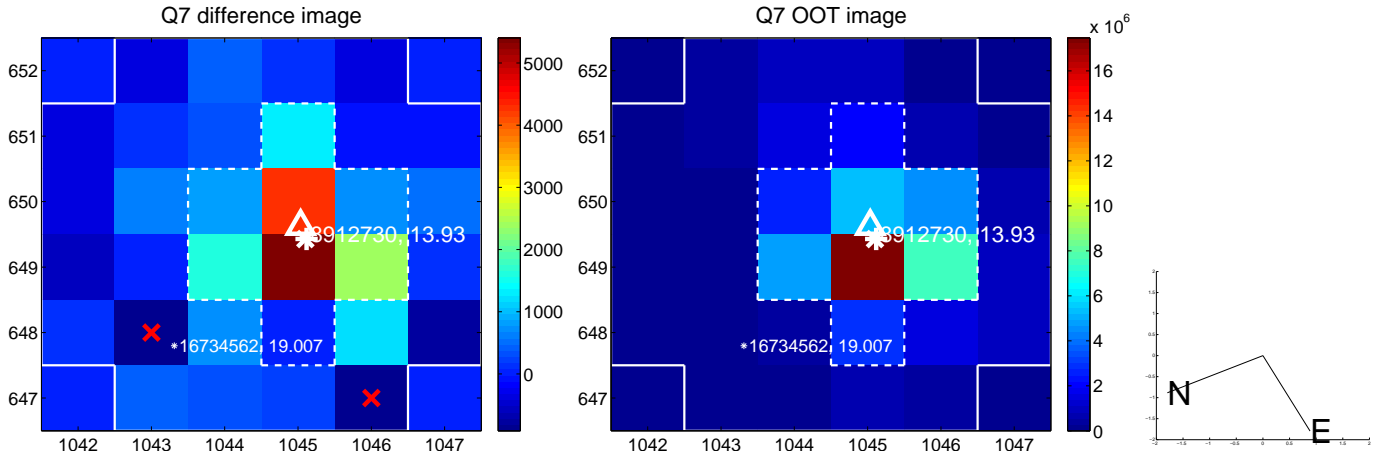
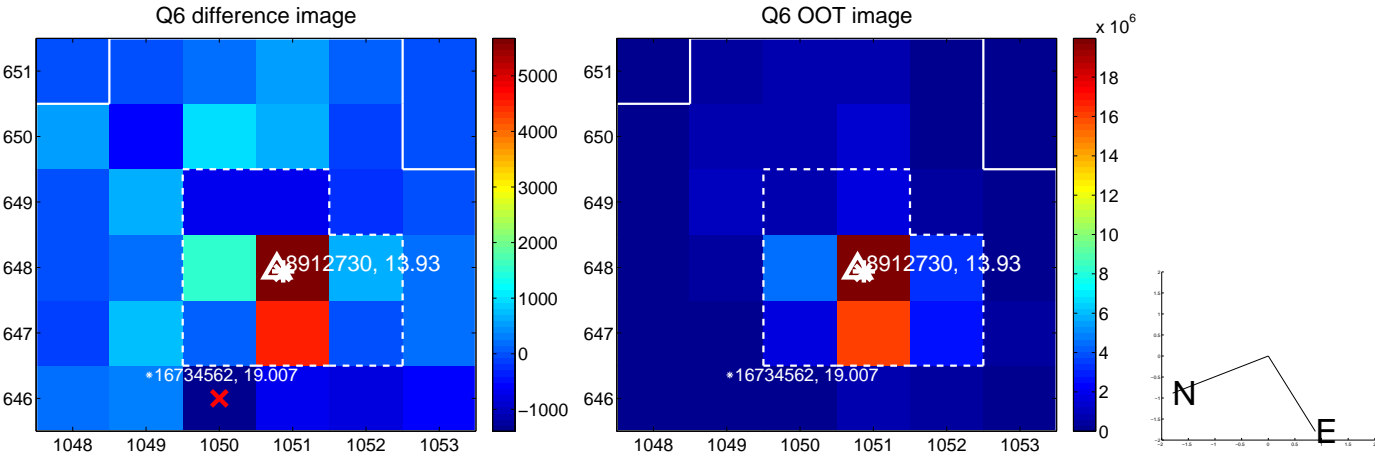
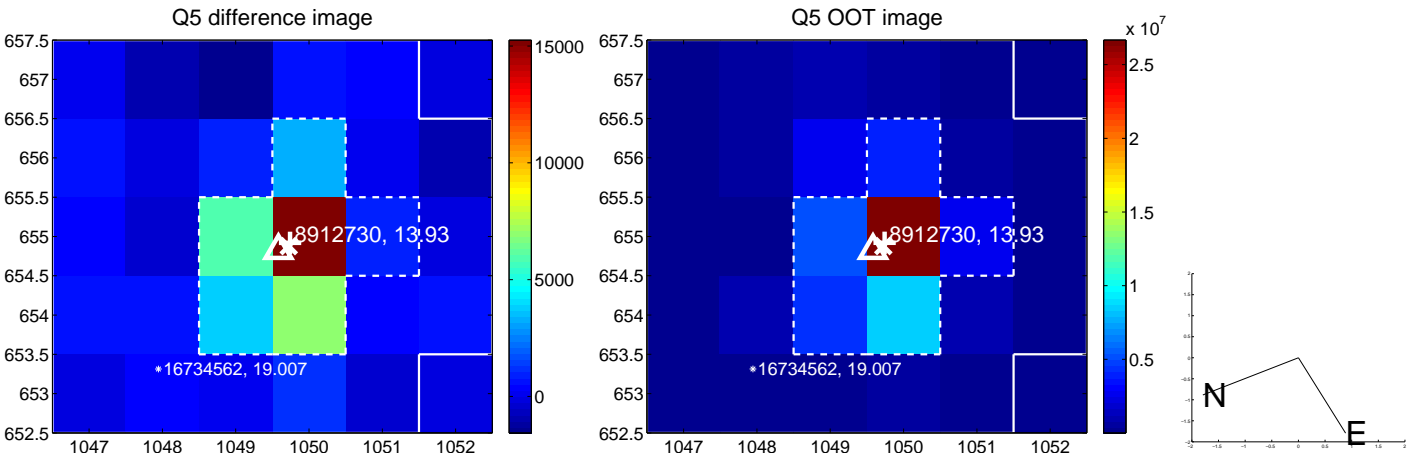


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

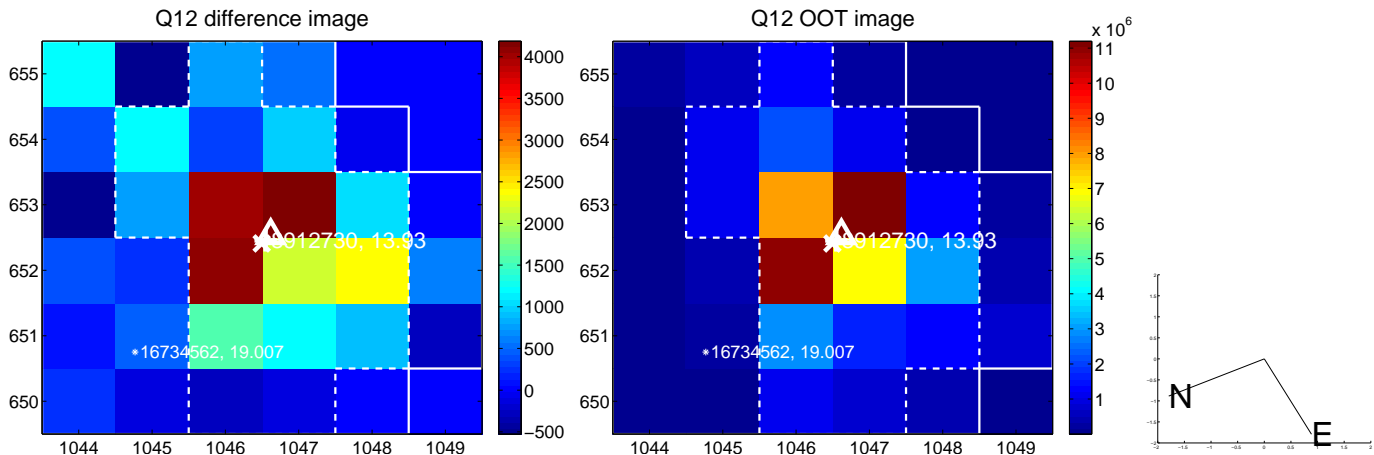
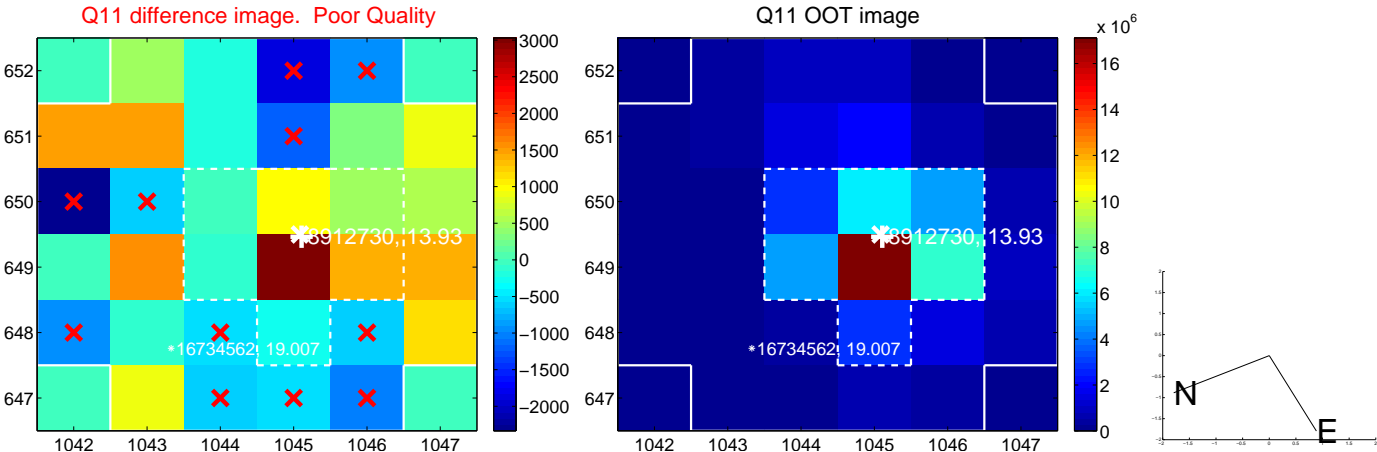
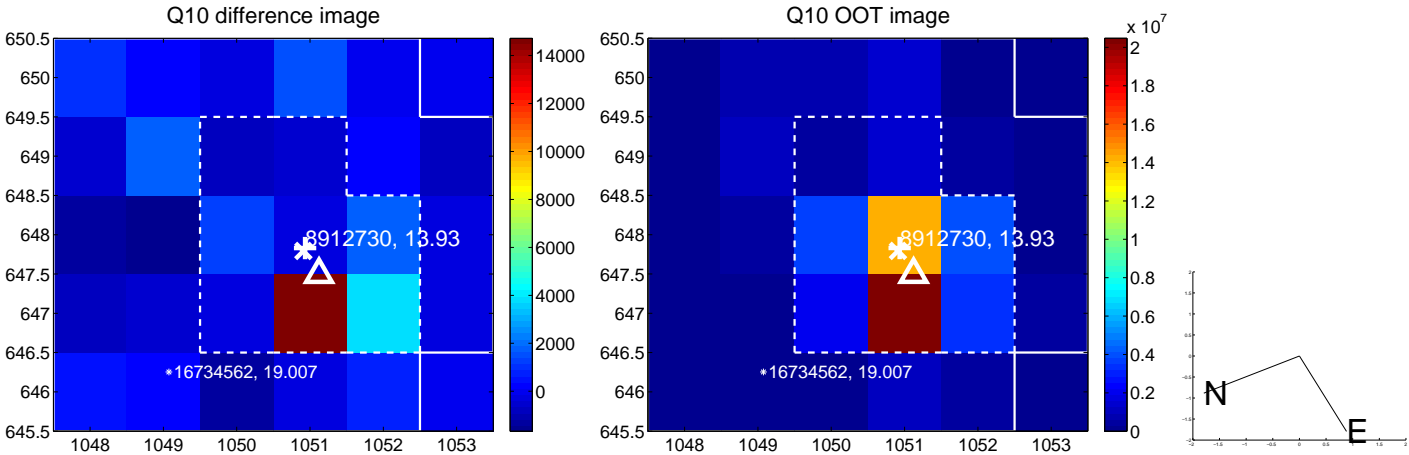
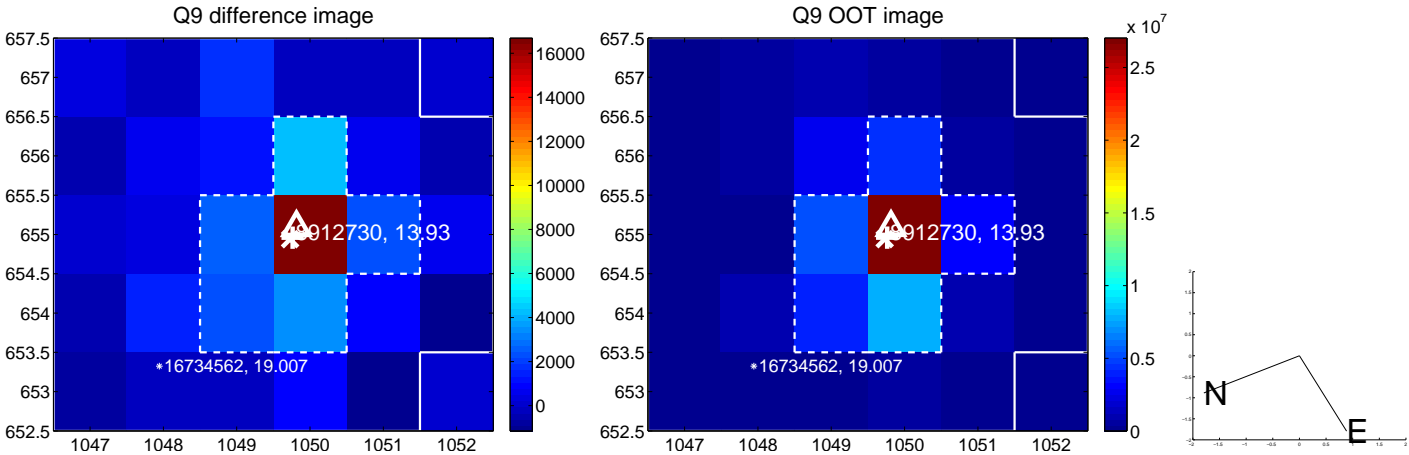
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



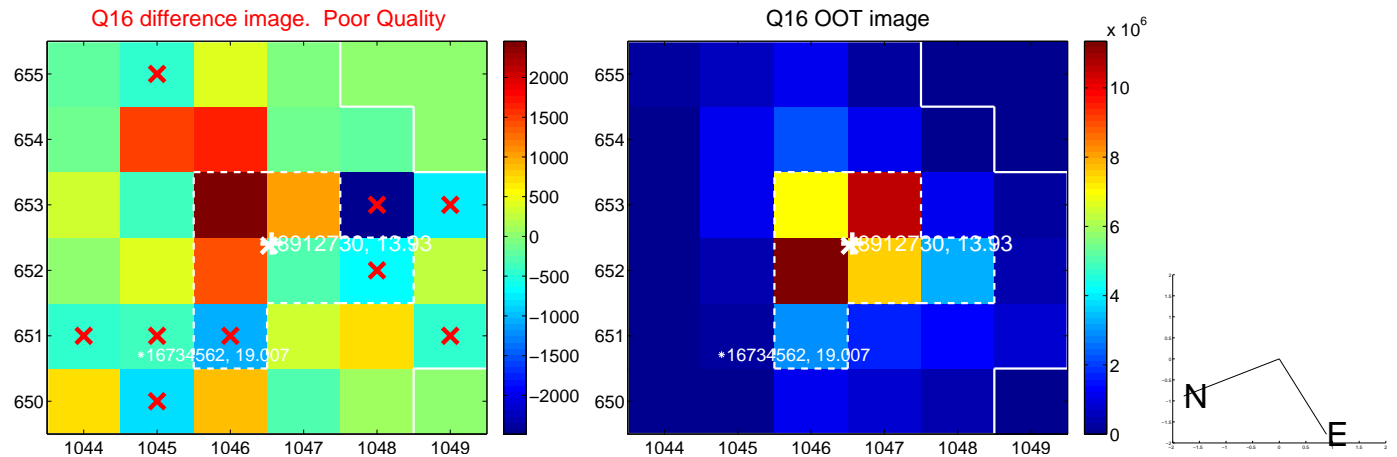
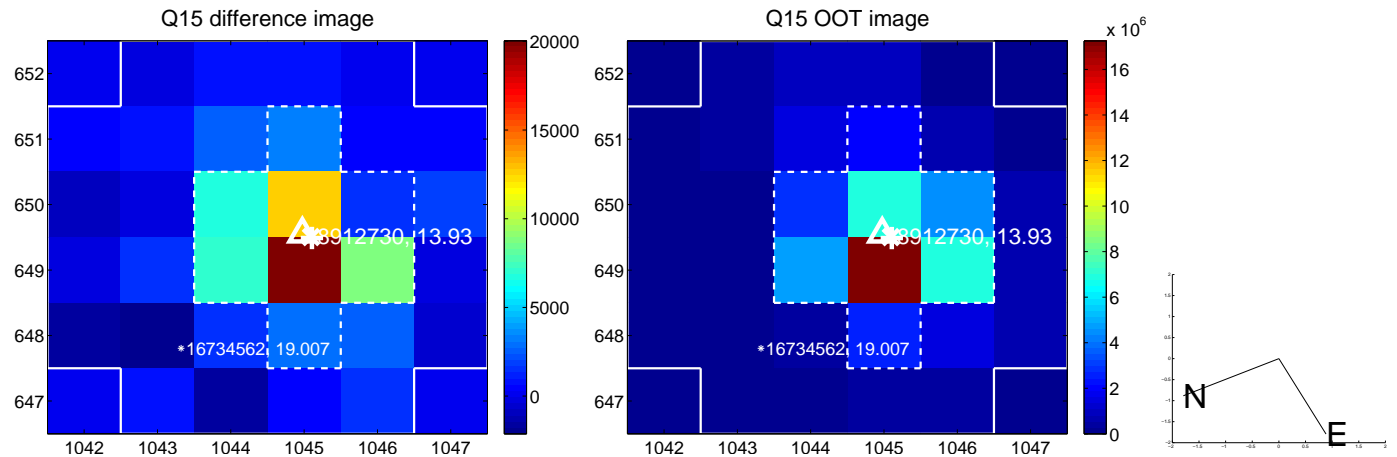
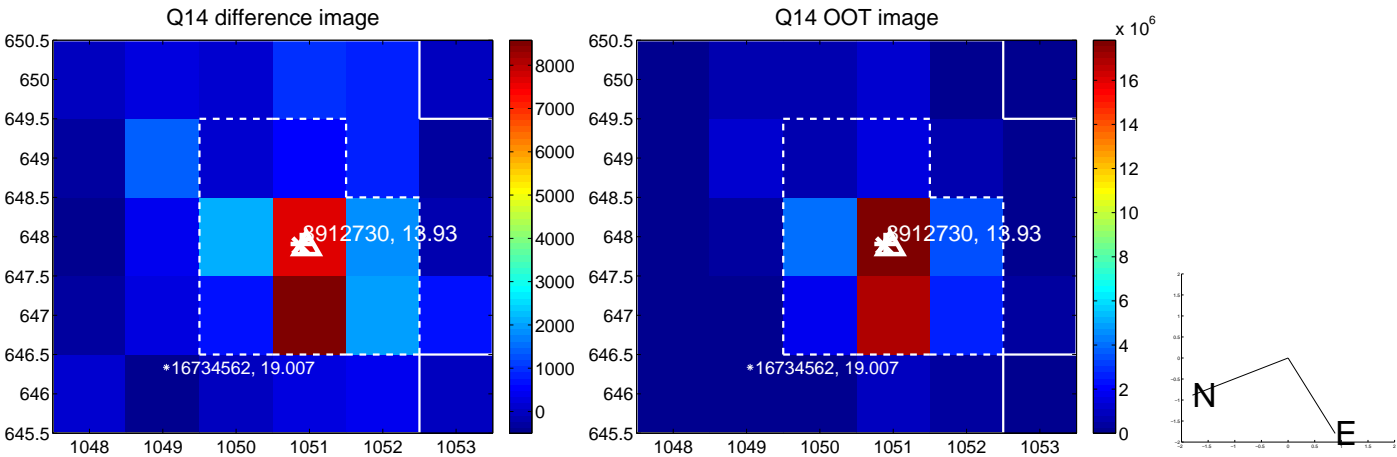
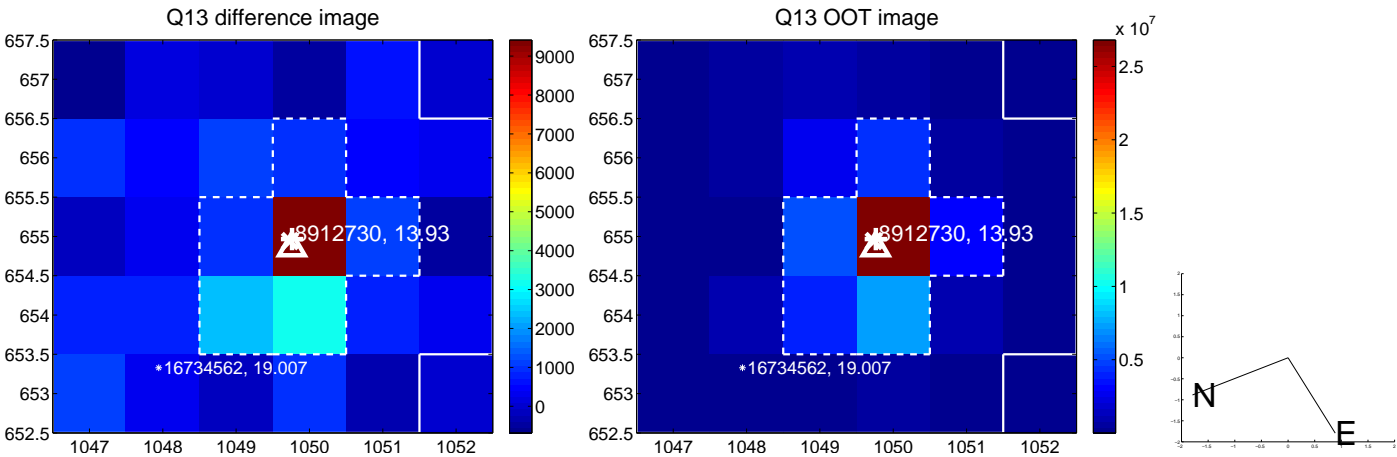
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



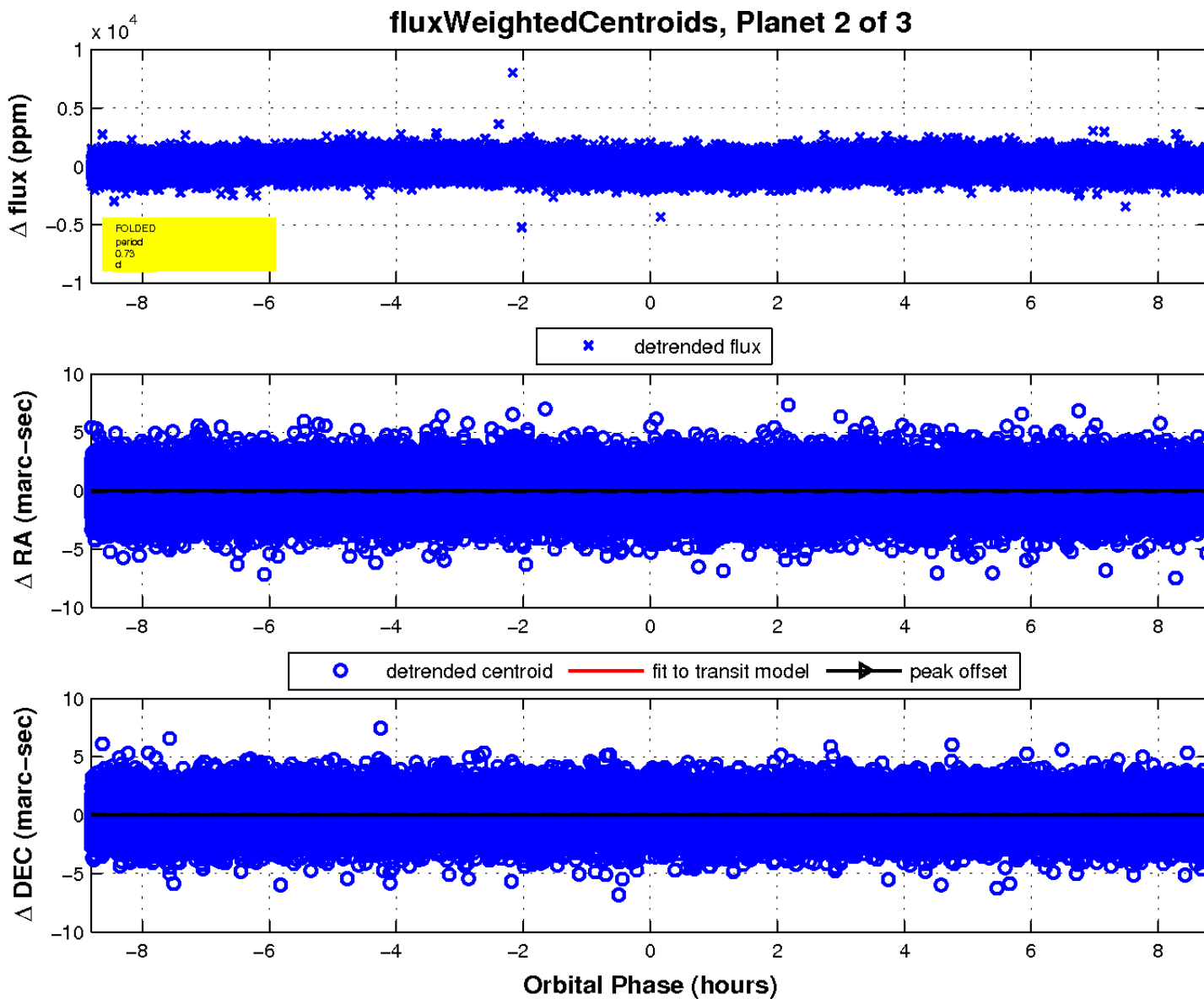
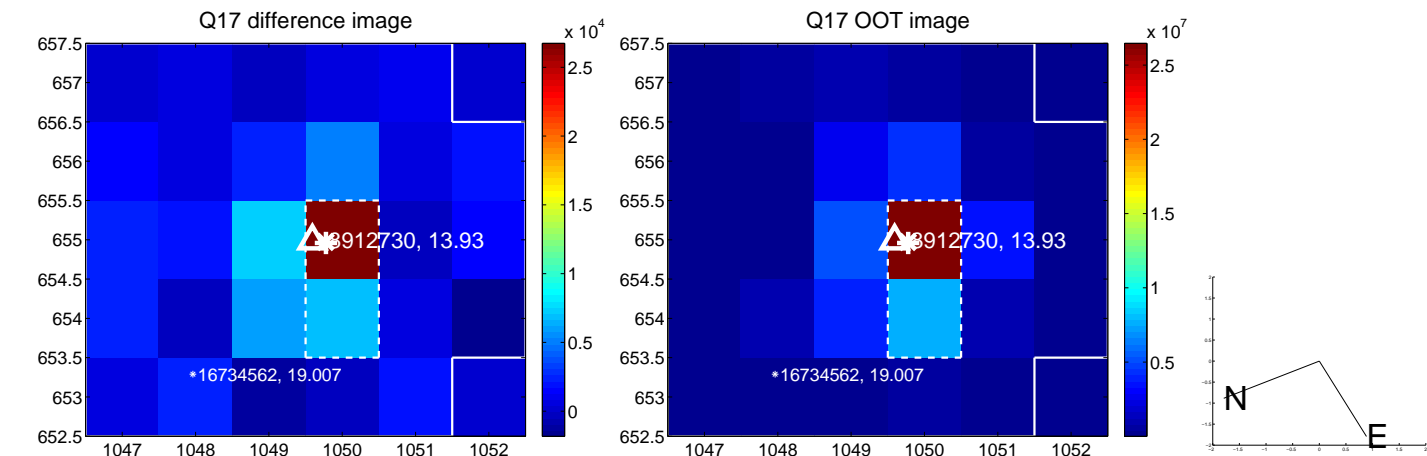
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

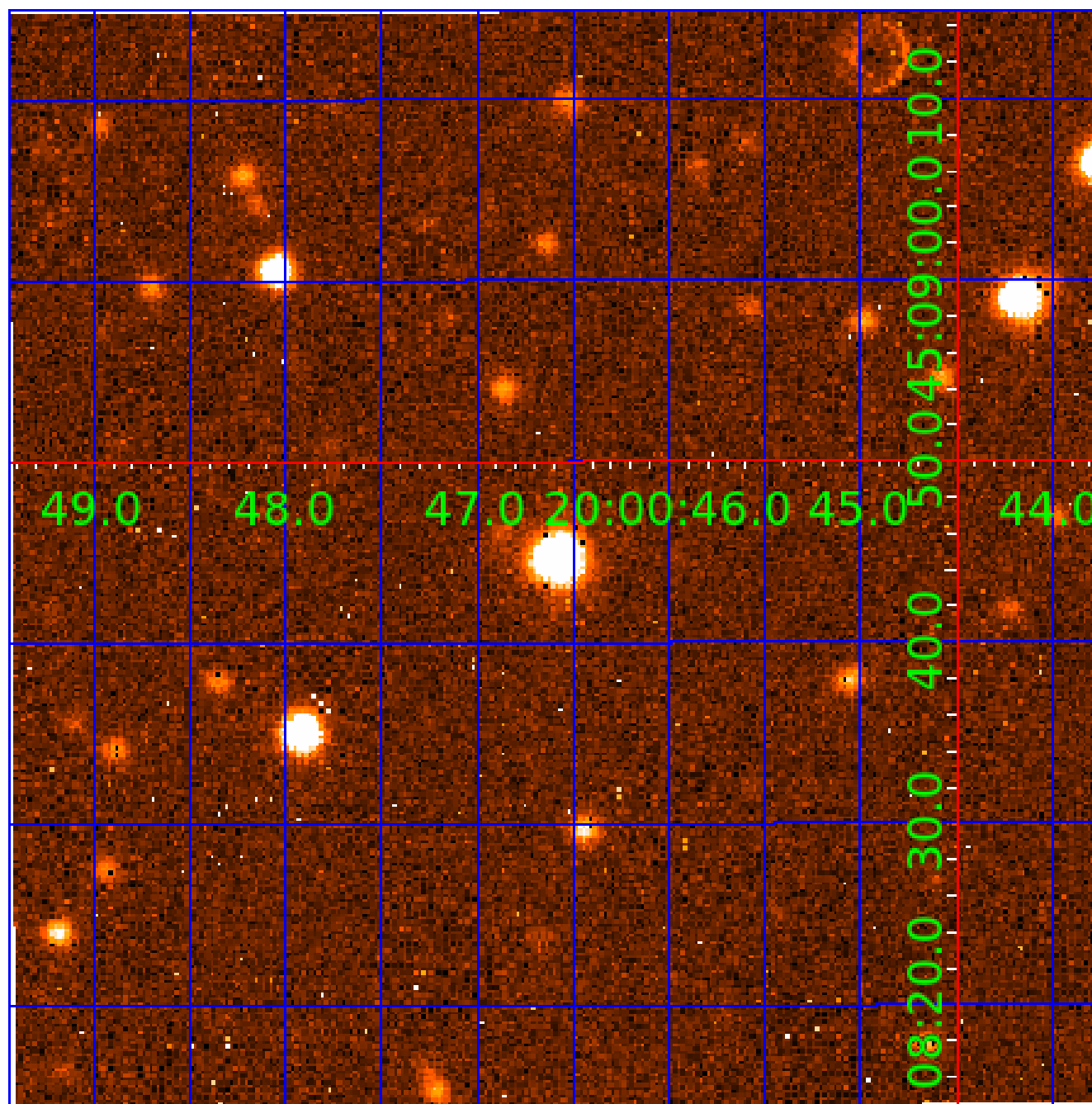


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008912730

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008912730-01	OBS	3850.01	11.377584	132.573041	1743.4	7.678	49.5	59.6	1.66	6943	12.77	454.73
008912730-02	OBS	No	0.733978	131.742018	47.4	4.619	15.7	7.7	1.66	6943	1.16	17575.65
008912730-03	OBS	No	1.142509	131.890510	205.2	6.103	12.2	15.3	1.66	6943	3.72	9742.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008912730-01	OBS	FP	0.00	1	0	0	0	LPP_ALT
008912730-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
008912730-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_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.

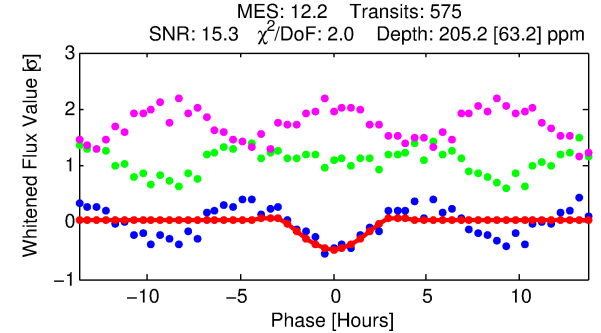
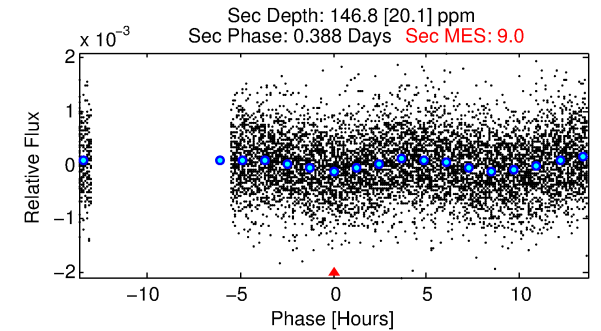
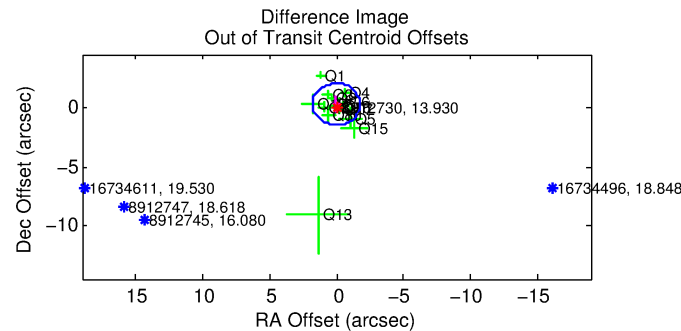
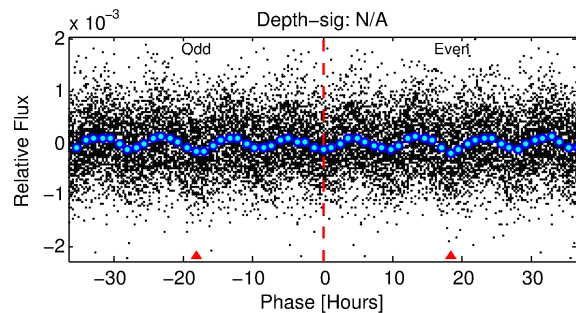
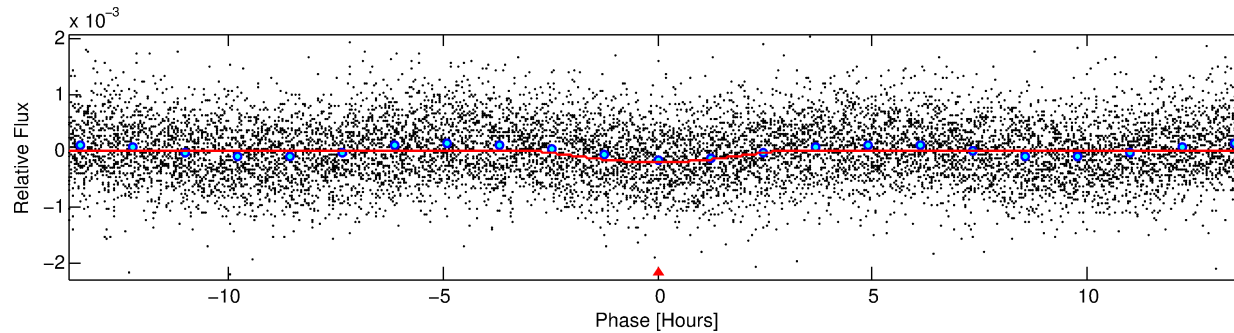
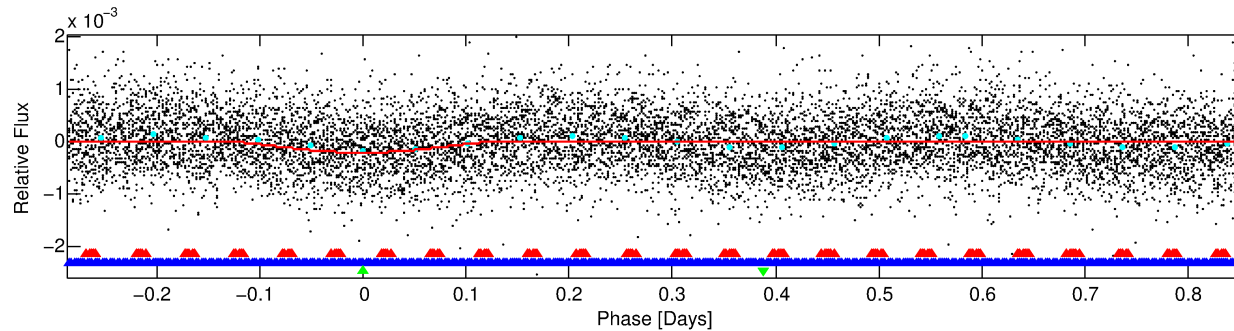
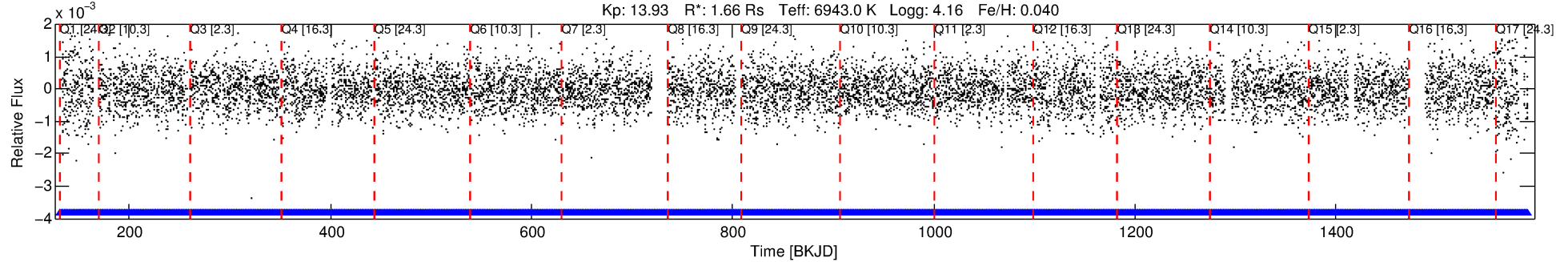
## Ephemeris Match Information For 008912730-03

No Significant Match Found

# DV One-Page Summary

KIC: 8912730 Candidate: 3 of 3 Period: 1.143 d  
KOI: K03850 Corr: No Ephemeris Match

Kp: 13.93 R\*: 1.66 Rs Teff: 6943.0 K Logg: 4.16 Fe/H: 0.040



## DV Fit Results:

Period = 1.14251 [0.00002] d  
Epoch = 131.8905 [0.0088] BKJD  
Rp/R\* = 0.0205 [0.0213]  
a/R\* = 1.06 [0.02]  
b = 0.99 [0.04]  
Seff = 9742.61 [3929.87]  
Teq = 2533 [255] K  
Rp = 3.72 [4.04] Re  
a = 0.0243 [0.0063] AU  
Ag = 3.44 [7.27] [0.34σ]  
Teffp = 5335 [2787] K [1.00σ]

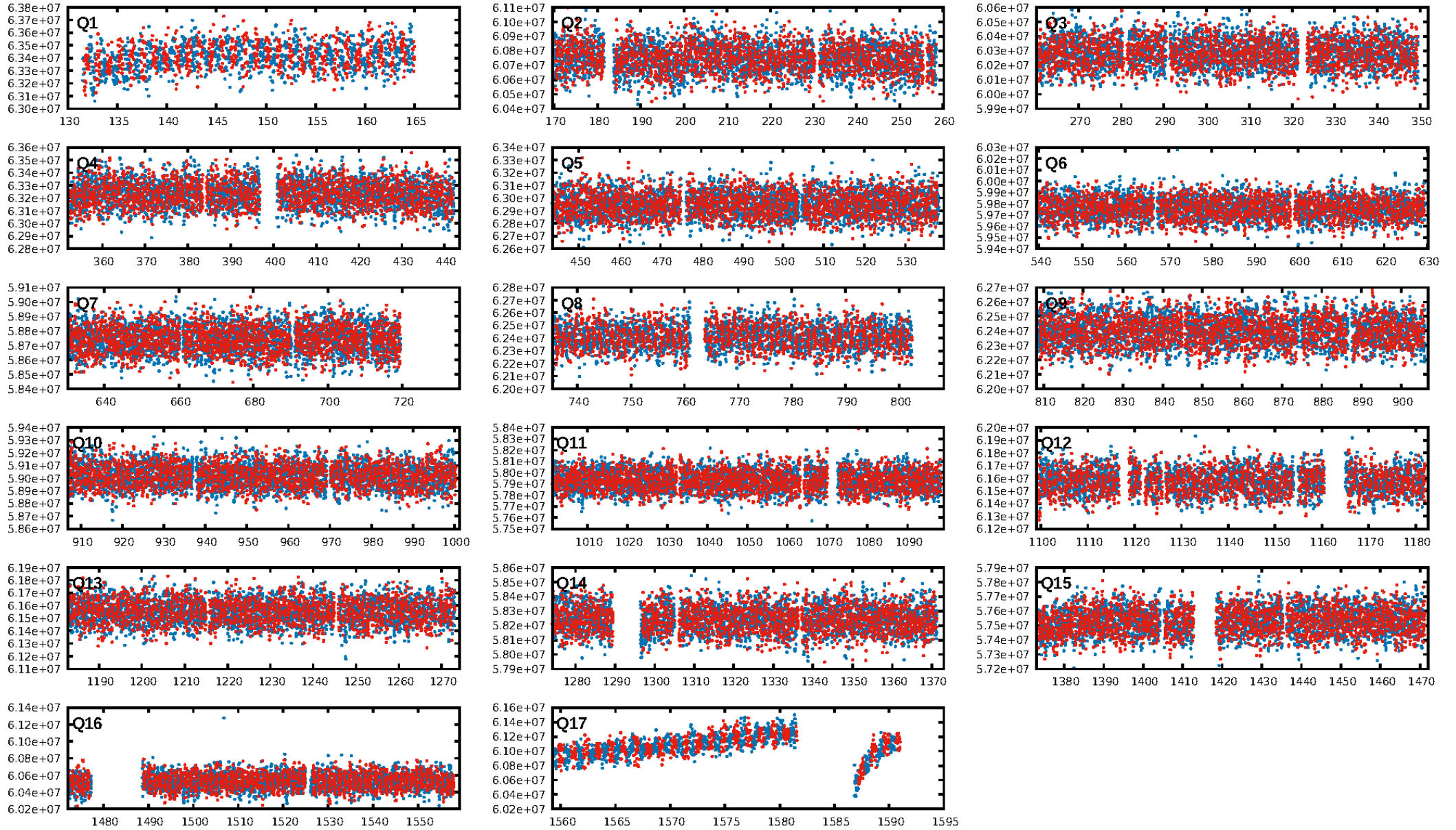
## DV Diagnostic Results:

ShortPeriod-sig: 80.0% [1.28σ]  
LongPeriod-sig: 100.0% [25.04σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [551/551]  
GhostDiagnostic-chr: 1.167  
Centroid-sig: 4.6%  
Centroid-so: 0.105 arcsec [0.50σ]  
OotOffset-rm: 0.274 arcsec [0.47σ]  
KicOffset-rm: 0.196 arcsec [0.35σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.31 [5/16]  
DiffImageOverlap-fno: 0.00 [0/17]

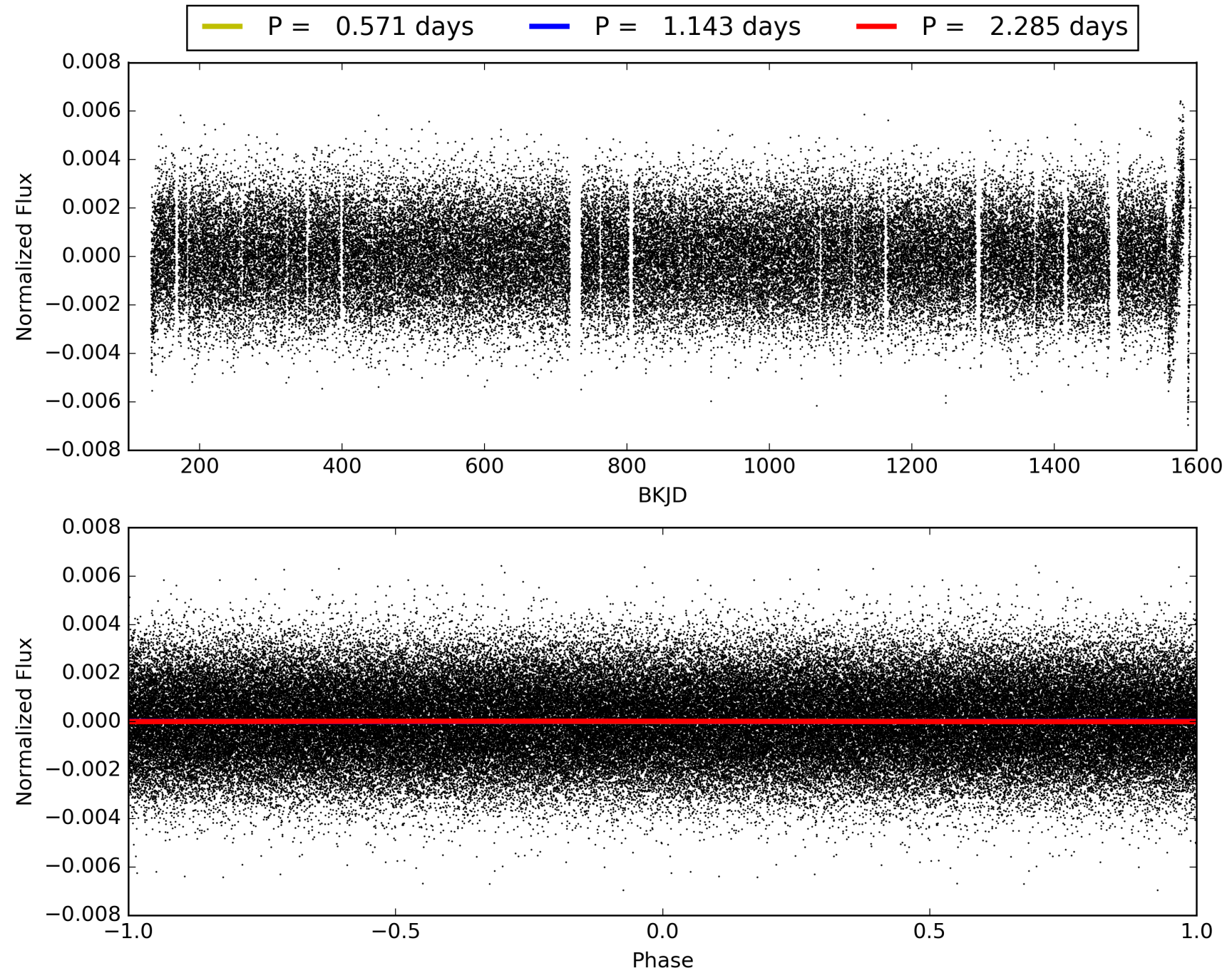
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:20:08 Z

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

# TCE 008912730-03, PDC Light Curves

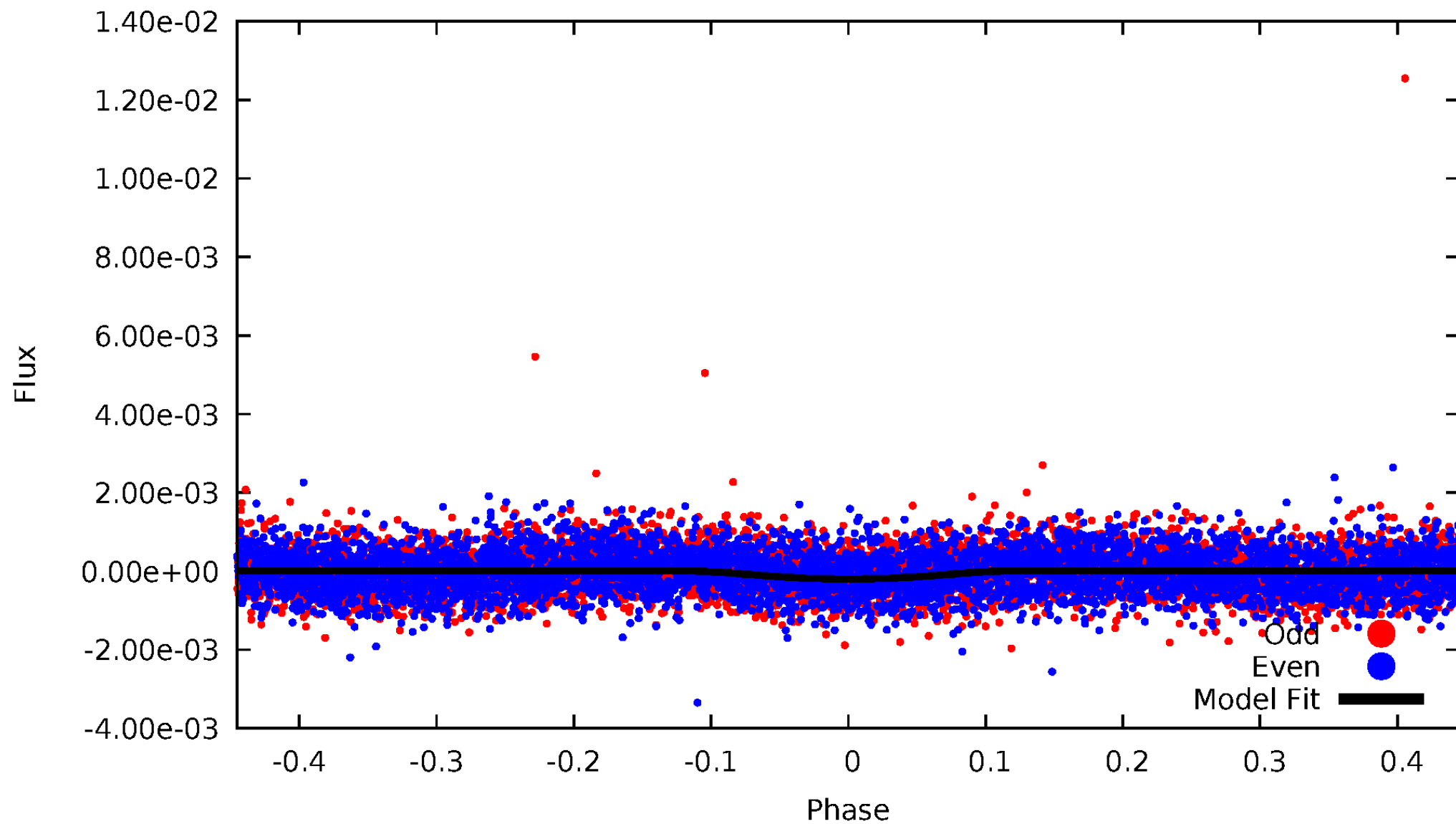


TCE 008912730-03



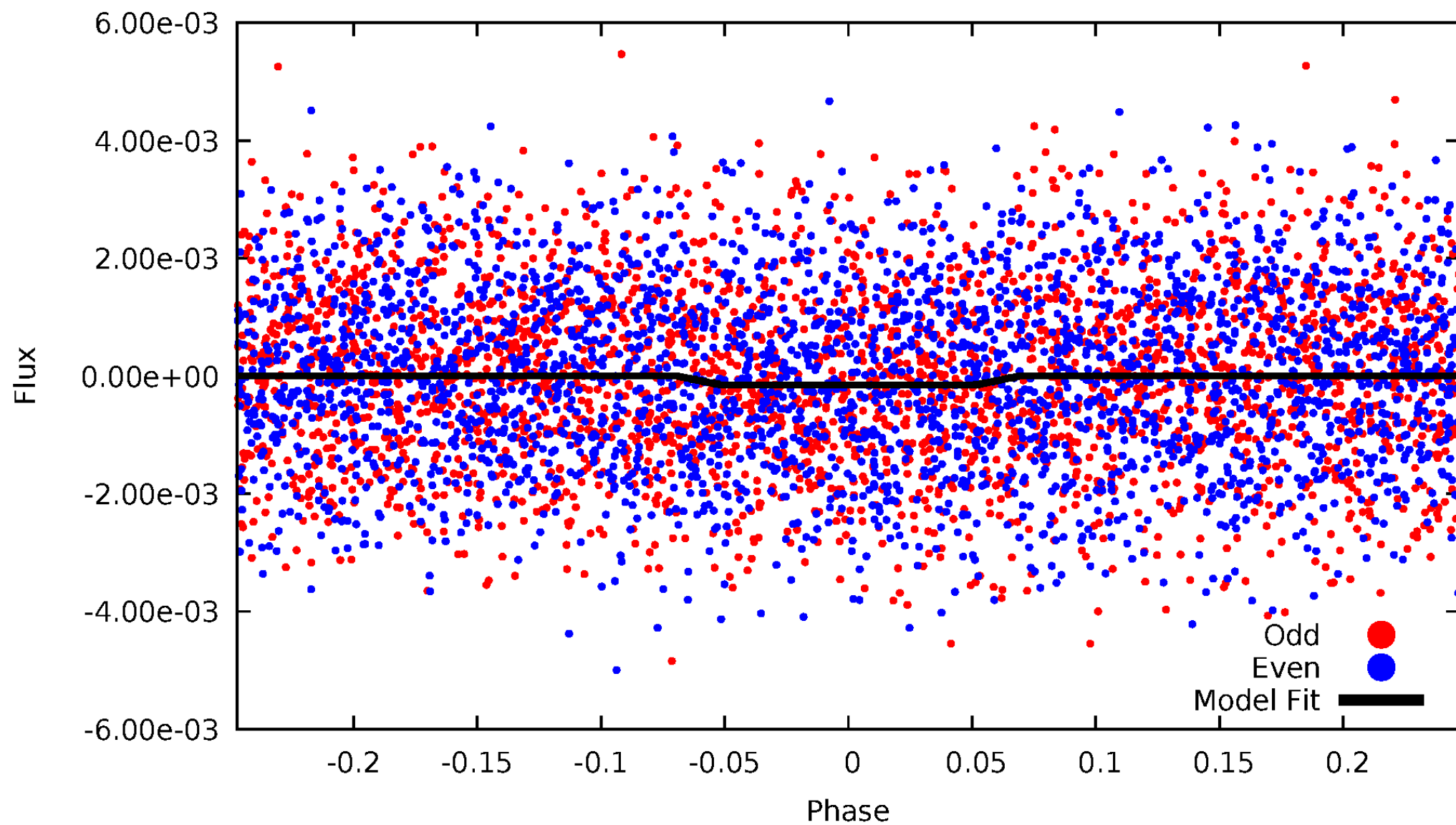
# DV Odd/Even

TCE 008912730-03



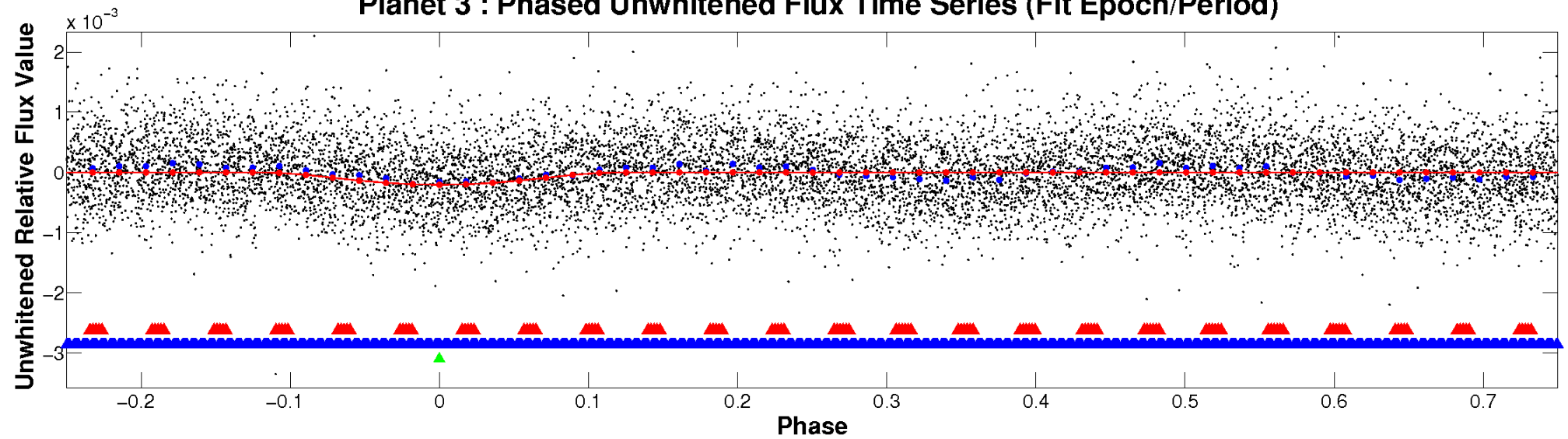
# ALT Odd/Even

TCE 008912730-03

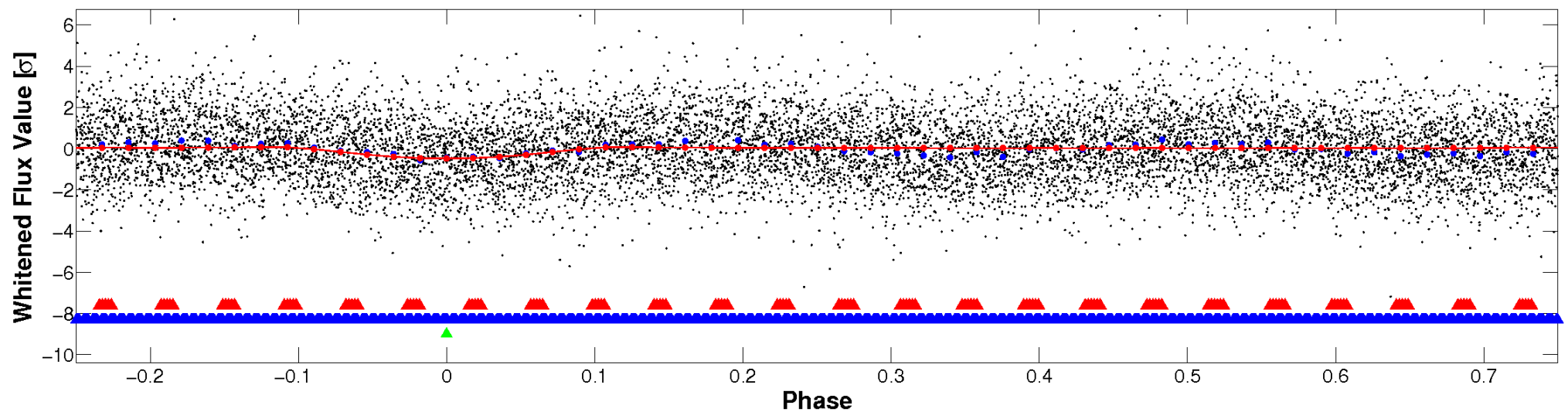


# Non-Whitened Vs. Whitened Light Curve

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

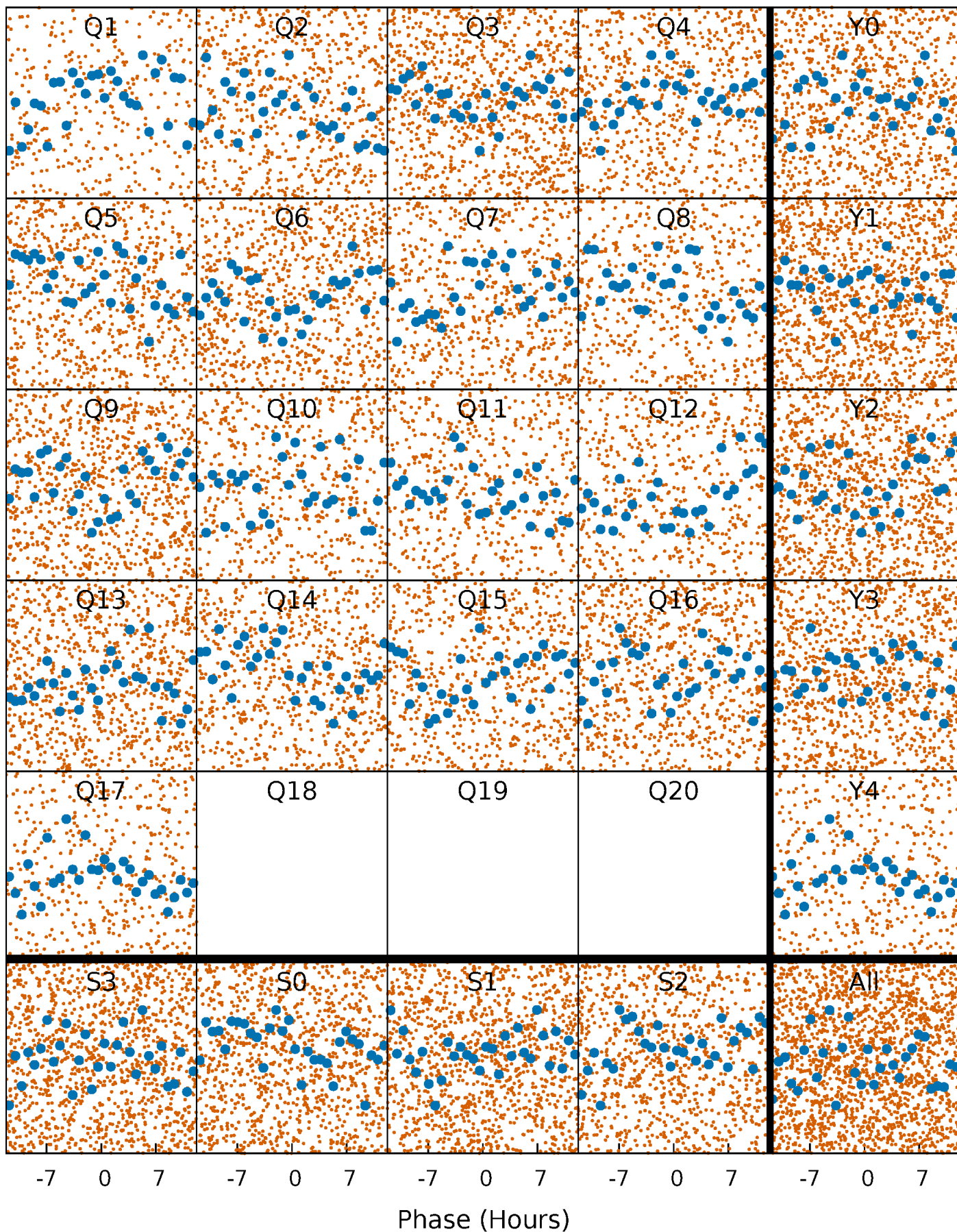


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



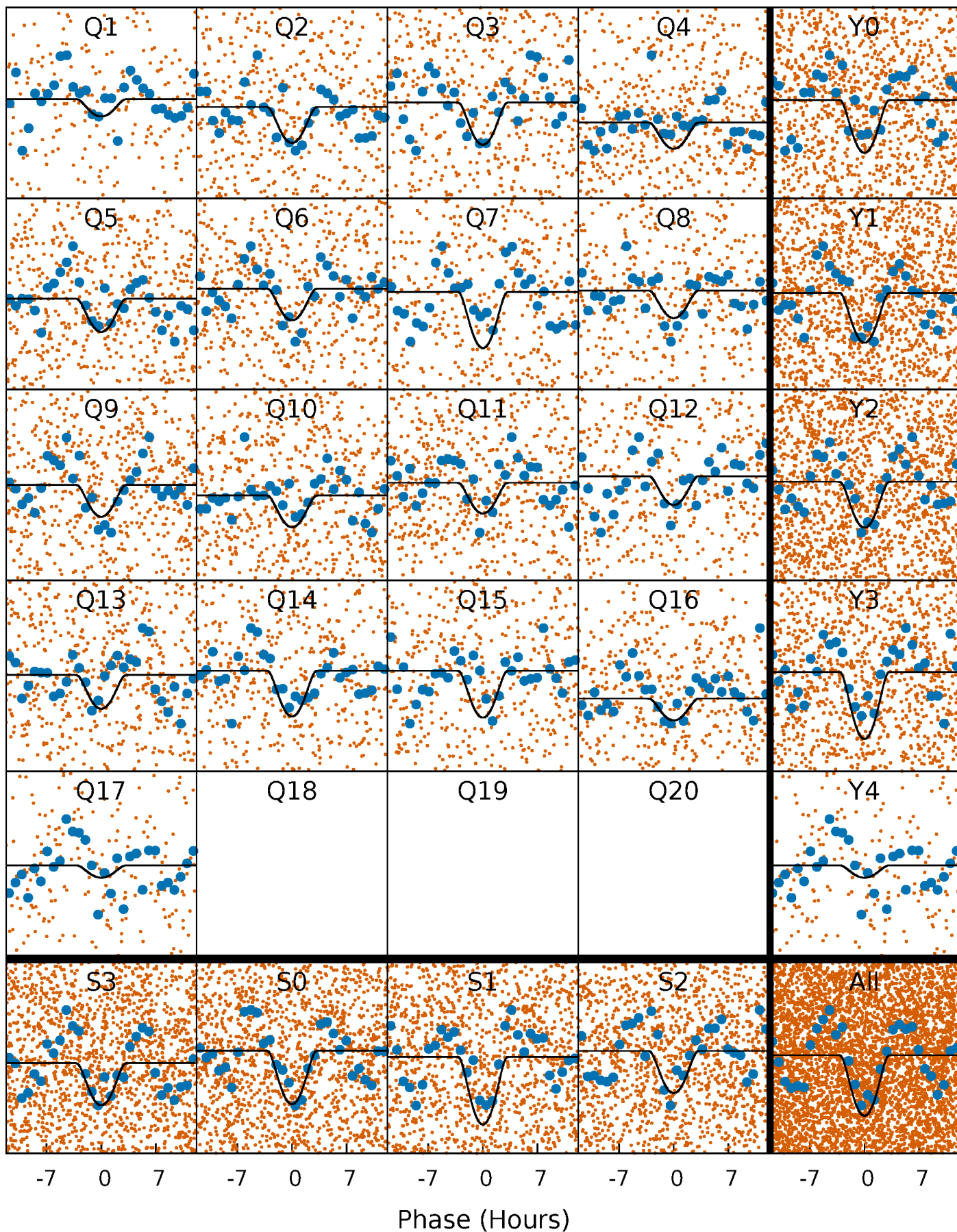
# PDC Quarter-Phased Transit Curves

TCE 008912730-03 P= 1.142509 Days  $T_0=131.890510$  (BKJD)



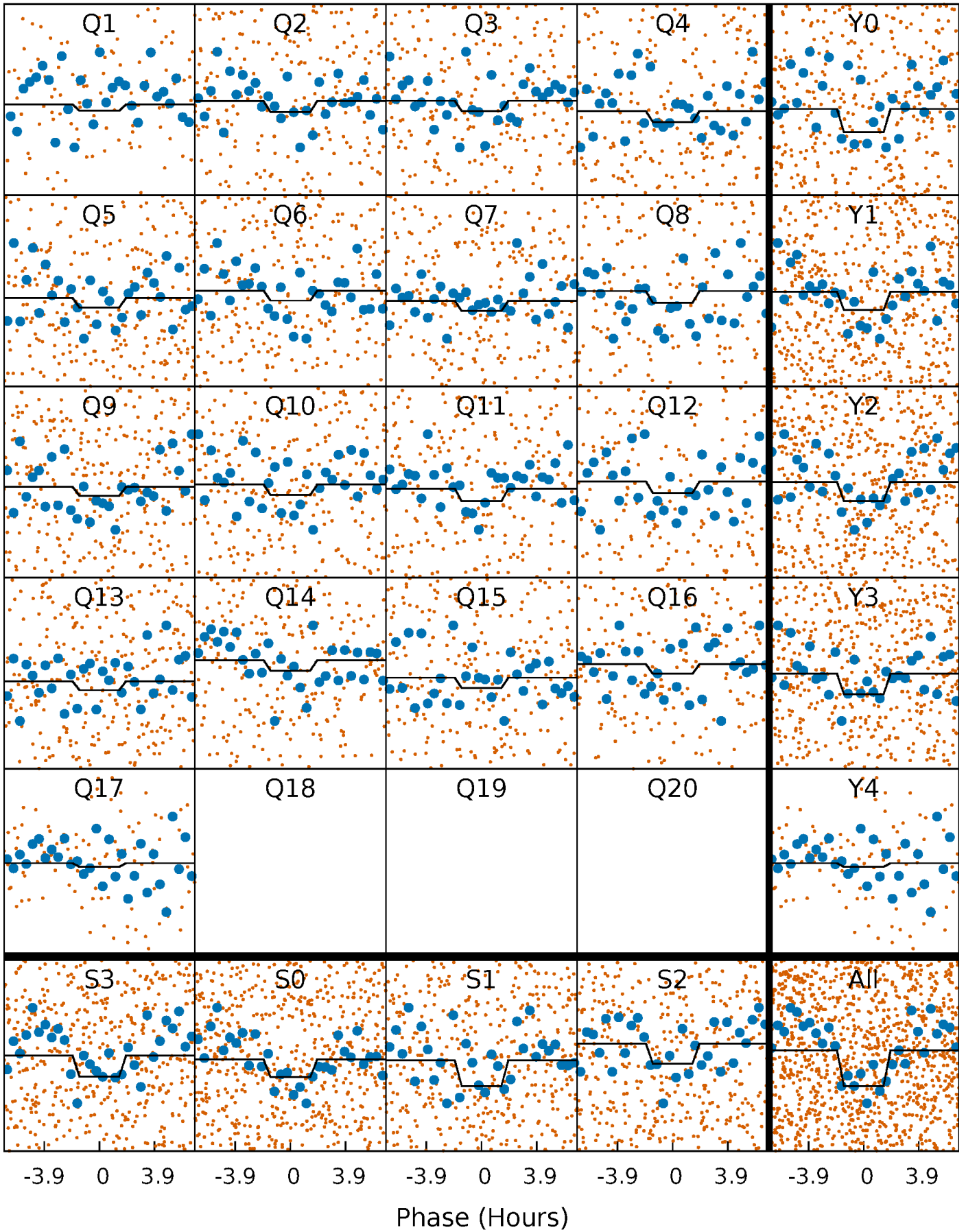
# DV Quarter-Phased Transit Curves

TCE 008912730-03   P= 1.142509 Days    $T_0=131.890510$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

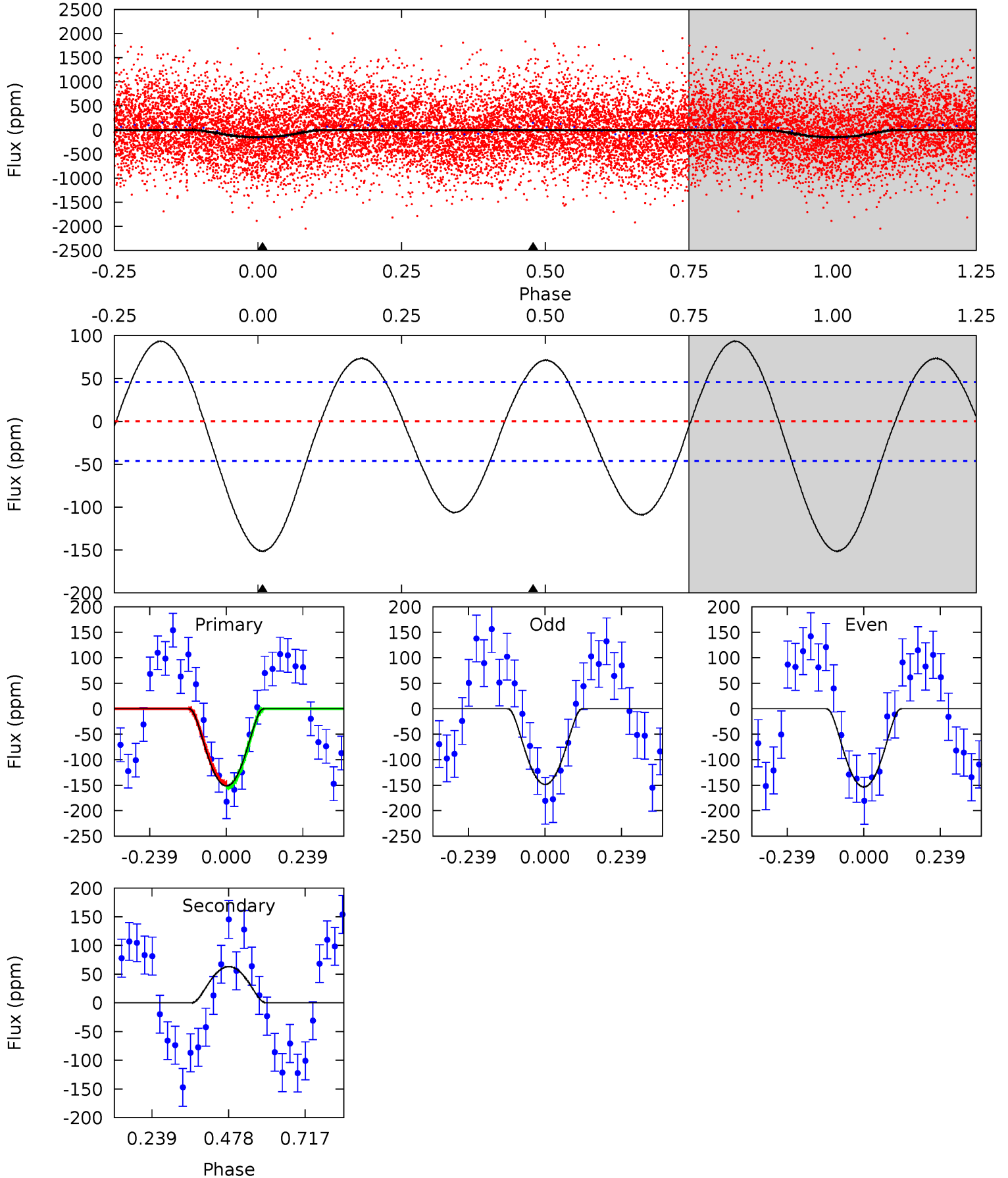
TCE 008912730-03     $P = 1.142548$  Days     $T_0 = 131.865664$  (BKJD)



# DV Model-Shift Uniqueness Test

008912730-03, P = 1.142509 Days, E = 131.890510 Days

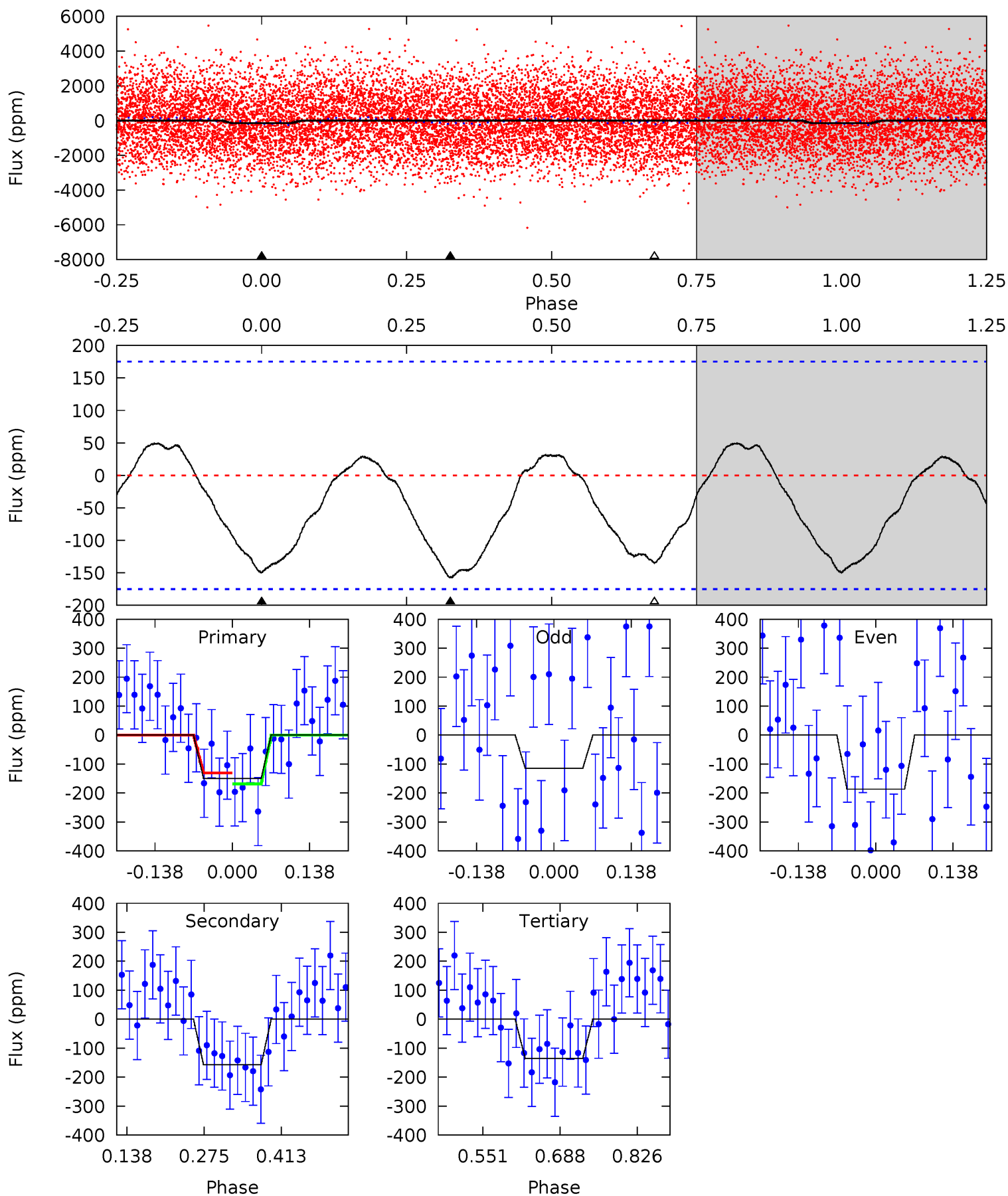
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	-6.00	0	0	4.38	1.18	3.75	14.4	14.4	-6.00	-6.00	0.24	0.38	0.38	0.49



# Alt Model-Shift Uniqueness Test

008912730-03, P = 1.142548 Days, E = 131.865664 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
3.85	4.04	3.47	0	4.50	1.48	1.58	0.39	3.85	0.57	4.04	0.93	1.03	0.24	0.48



### Stellar Parameters For KIC 008912730

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6943^{+194}_{-305}$	$4.162^{+0.128}_{-0.192}$	$0.040^{+0.200}_{-0.350}$	$1.660^{+0.528}_{-0.352}$	$1.459^{+0.216}_{-0.238}$	$0.449^{+0.287}_{-0.234}$
	+3%/-4%	+3%/-5%	+500%/-875%	+32%/-21%	+15%/-16%	+64%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008912730-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$63 \pm 11$	$4.45^{+3.77}_{-2.85}$	$3549^{+265}_{-222}$	$-4397^{+565}_{-2149}$	$-1.012^{+0.706}_{-6.240}$
Alt.	$-157 \pm 39$	$3.70^{+3.45}_{-2.34}$	$3561^{+272}_{-224}$	$5334^{+4172}_{-1458}$	$3.427^{+23.082}_{-2.521}$

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

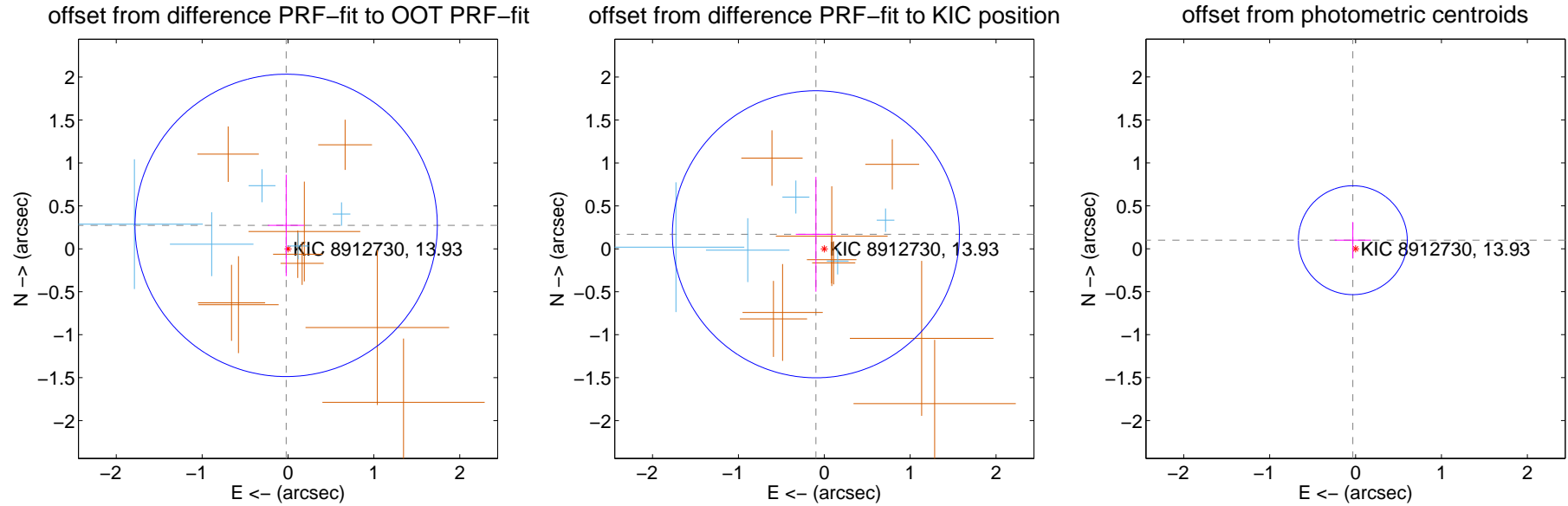
## DV Centroid Data

Supplemental centroid analysis for 008912730-03. Kepler magnitude: 13.93. Transit SNR 15.31

There are 5 quarters with good PRF difference image offsets

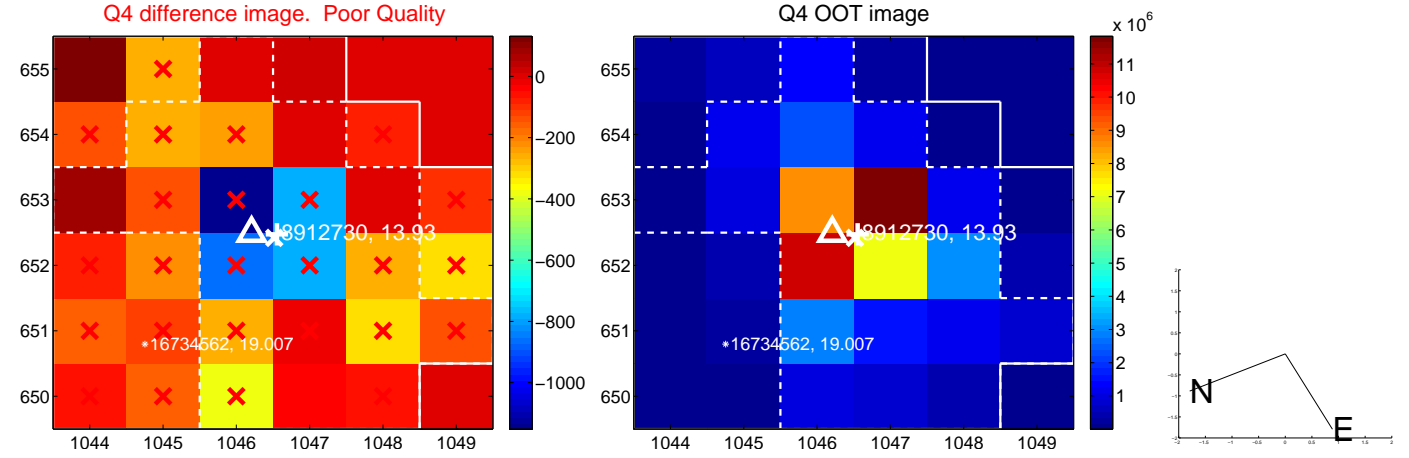
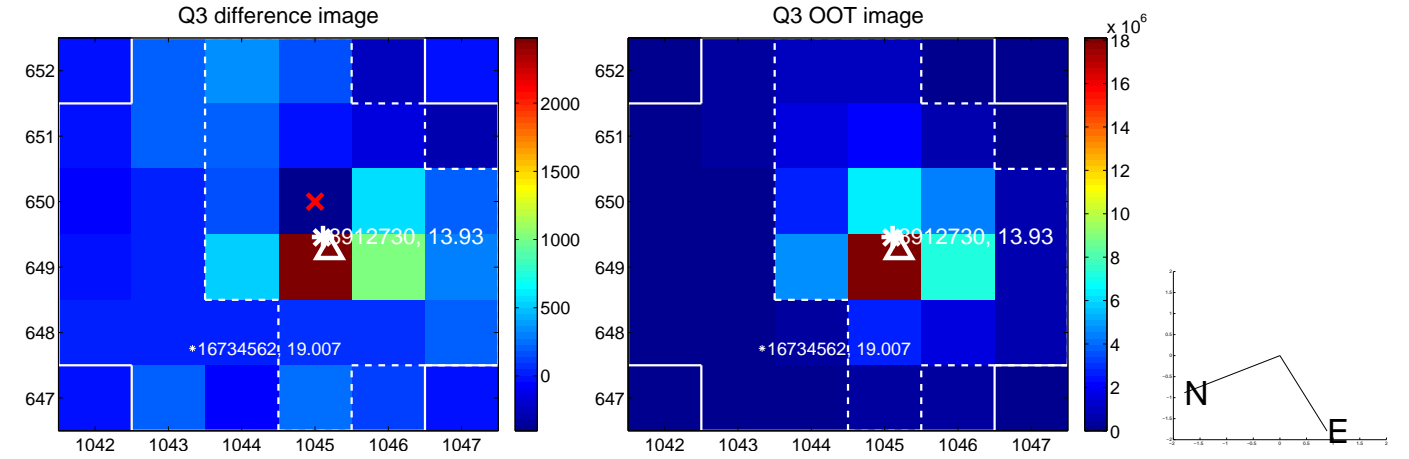
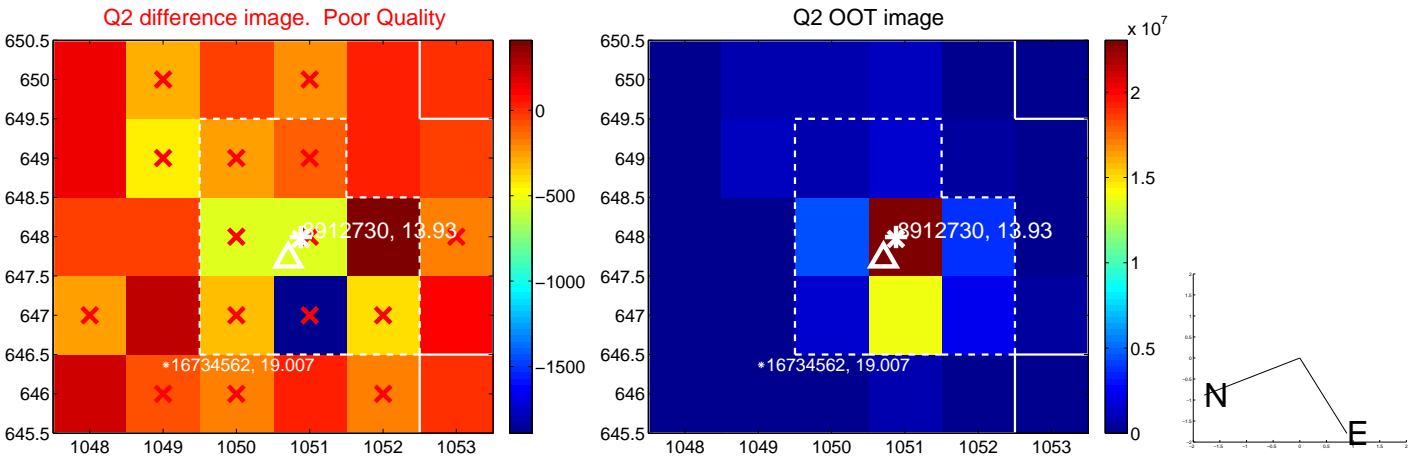
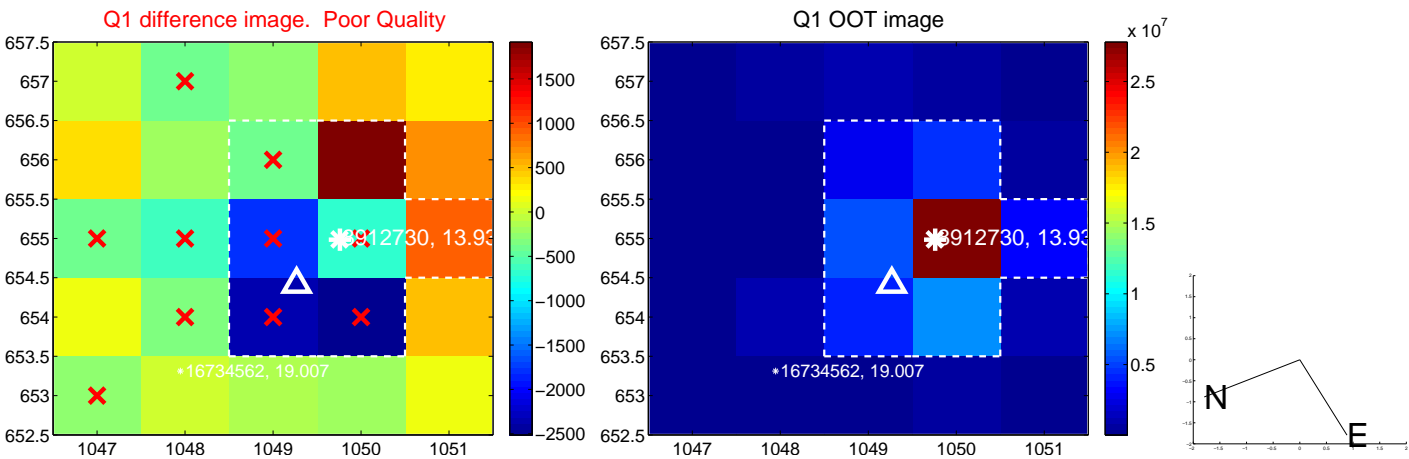
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.274 \pm 0.587$	0.47	$0.022 \pm 0.212$	$0.273 \pm 0.591$
PRF-fit source offset from KIC position	$0.196 \pm 0.557$	0.35	$0.098 \pm 0.234$	$0.170 \pm 0.669$
photometric centroid source offset	$0.10 \pm 0.21$	0.50	$0.03 \pm 0.21$	$0.10 \pm 0.21$

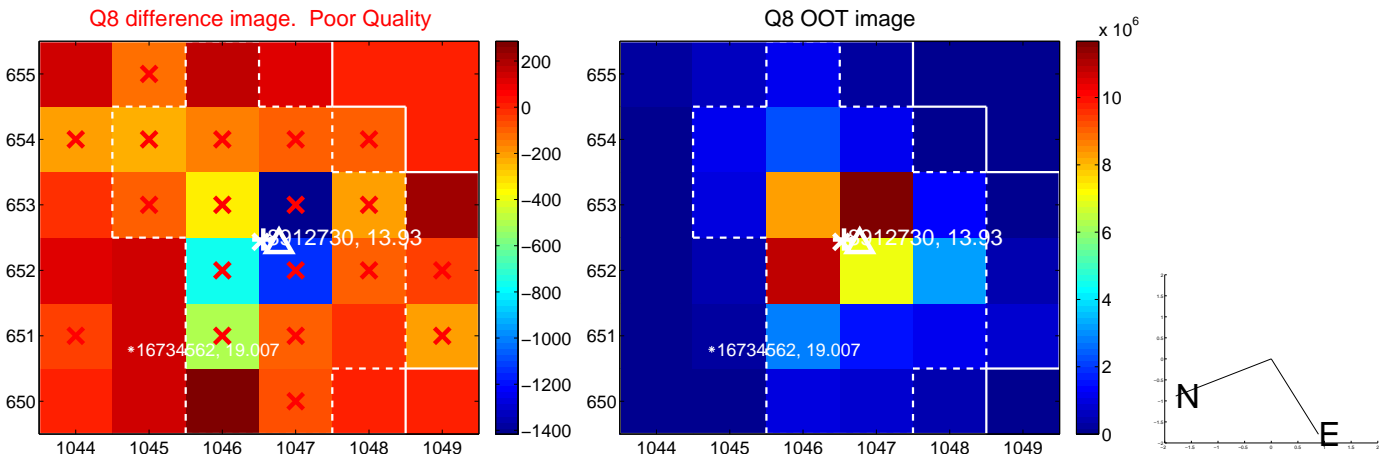
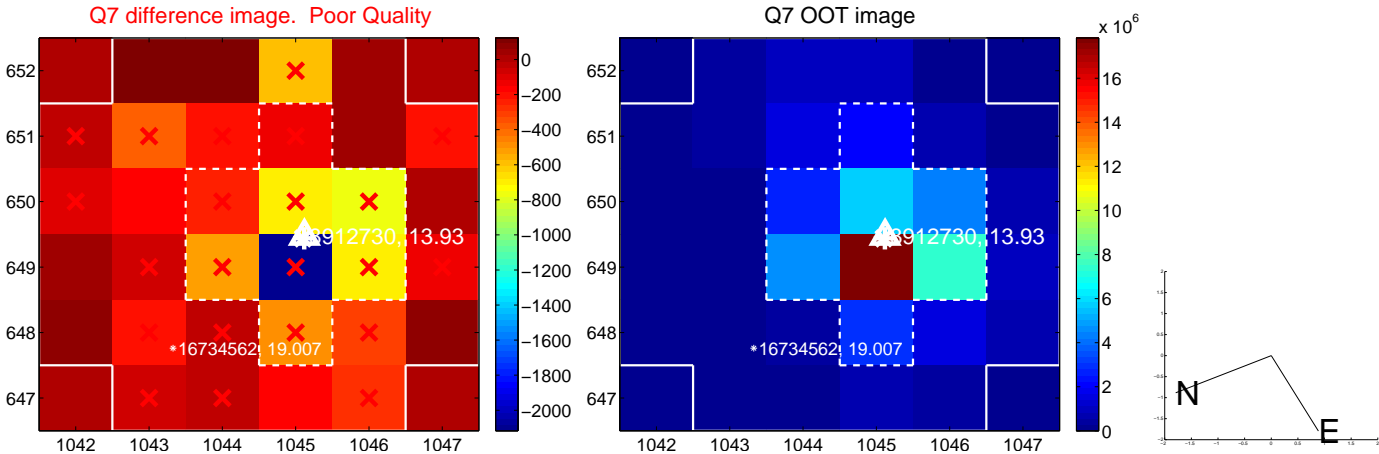
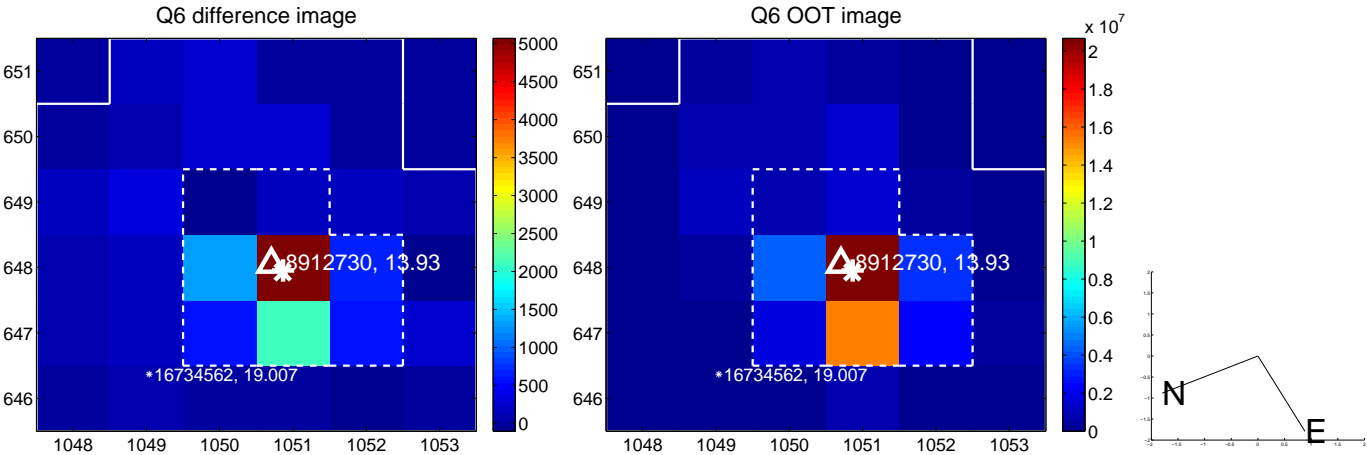
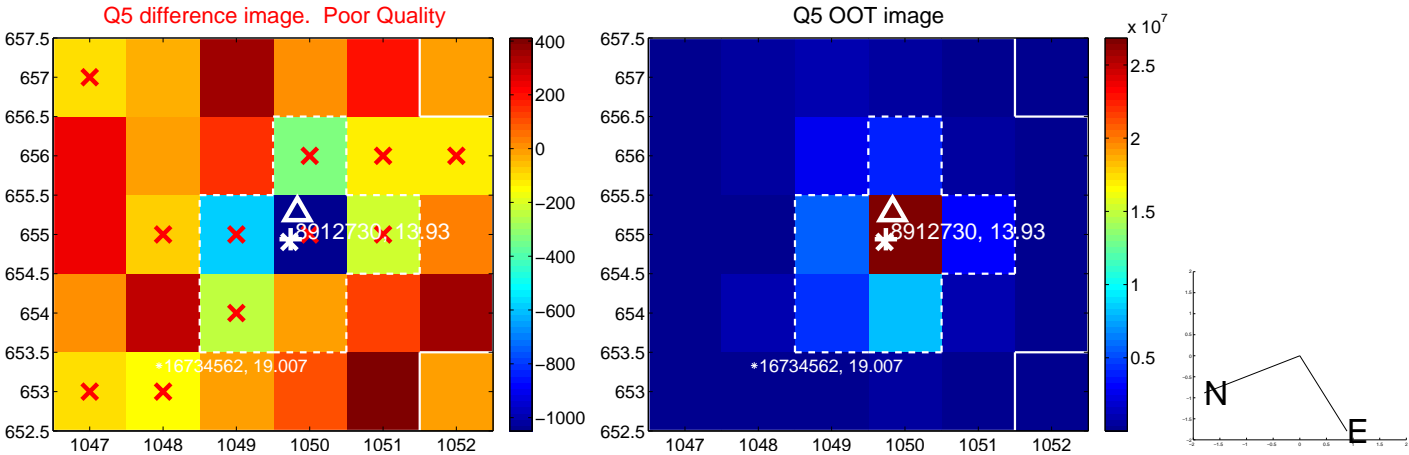


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

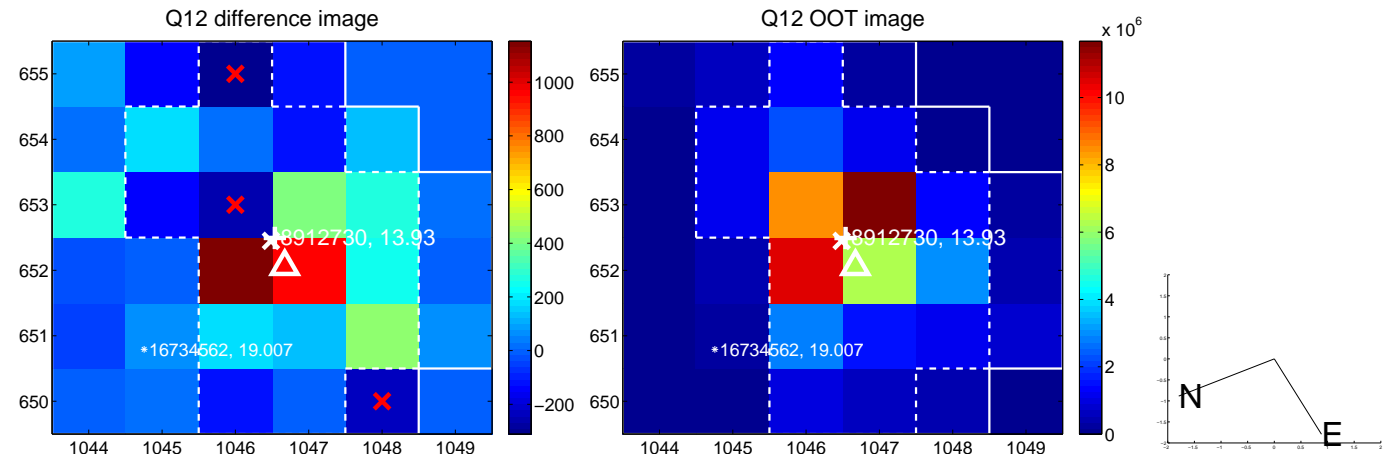
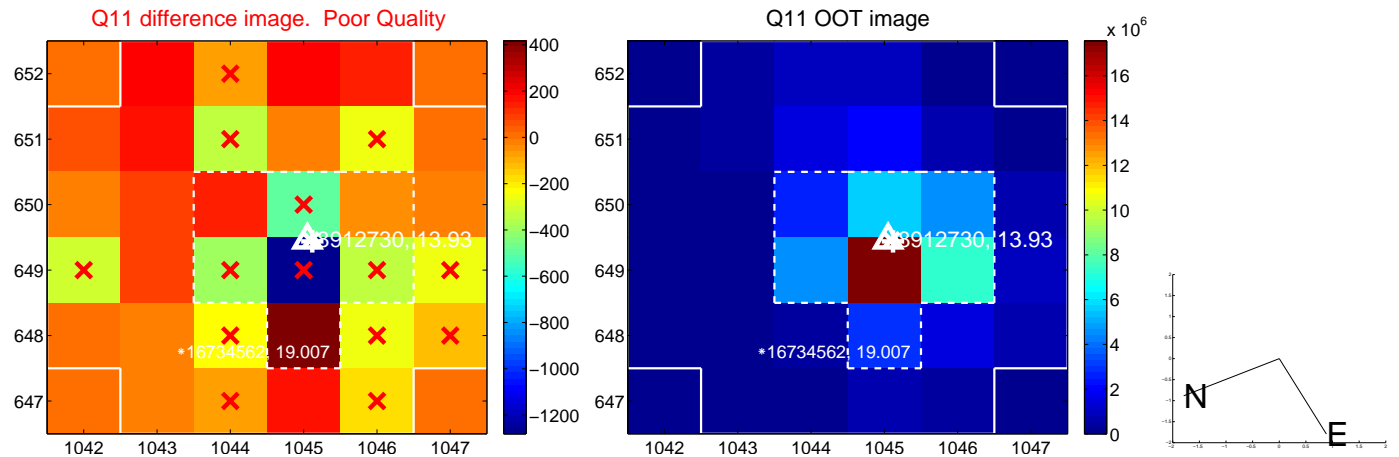
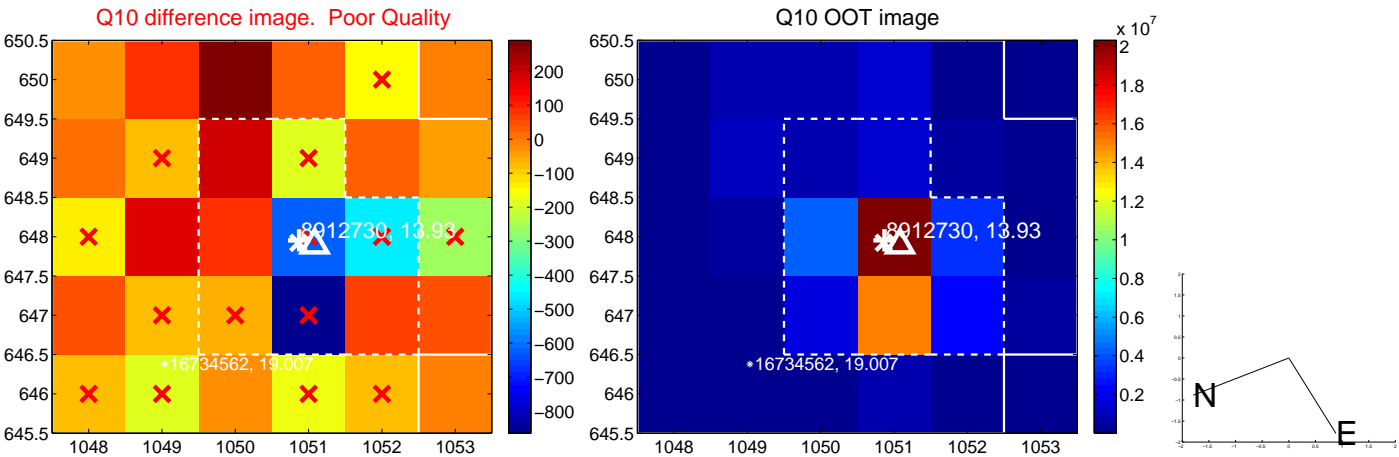
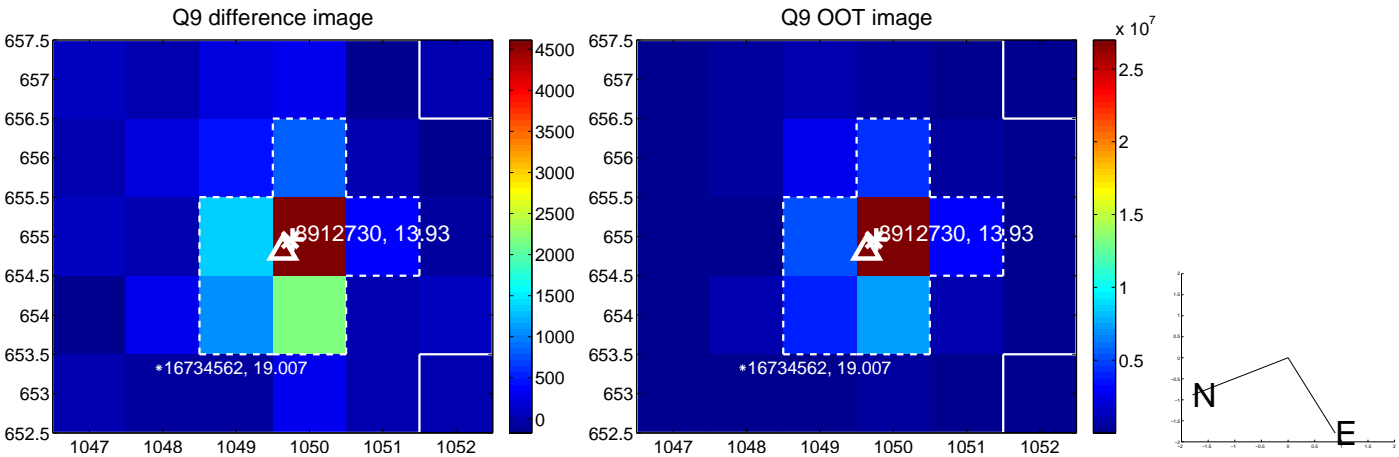
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



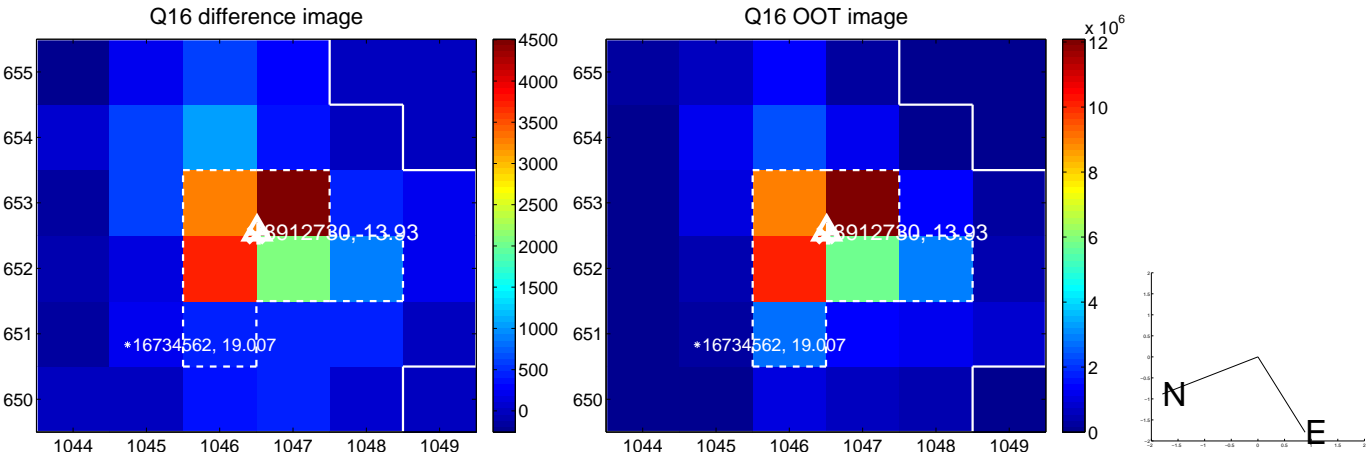
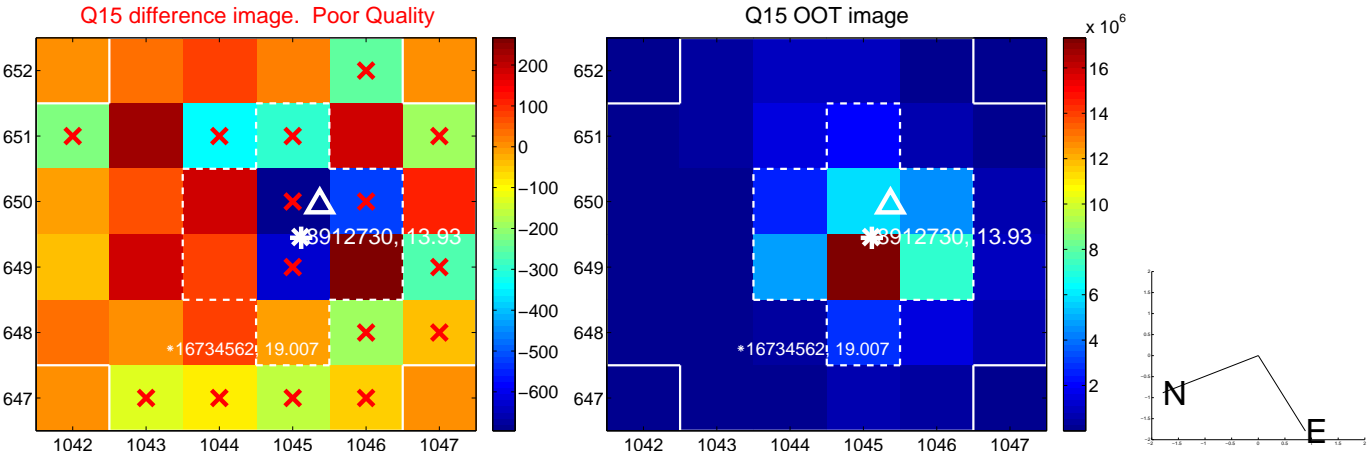
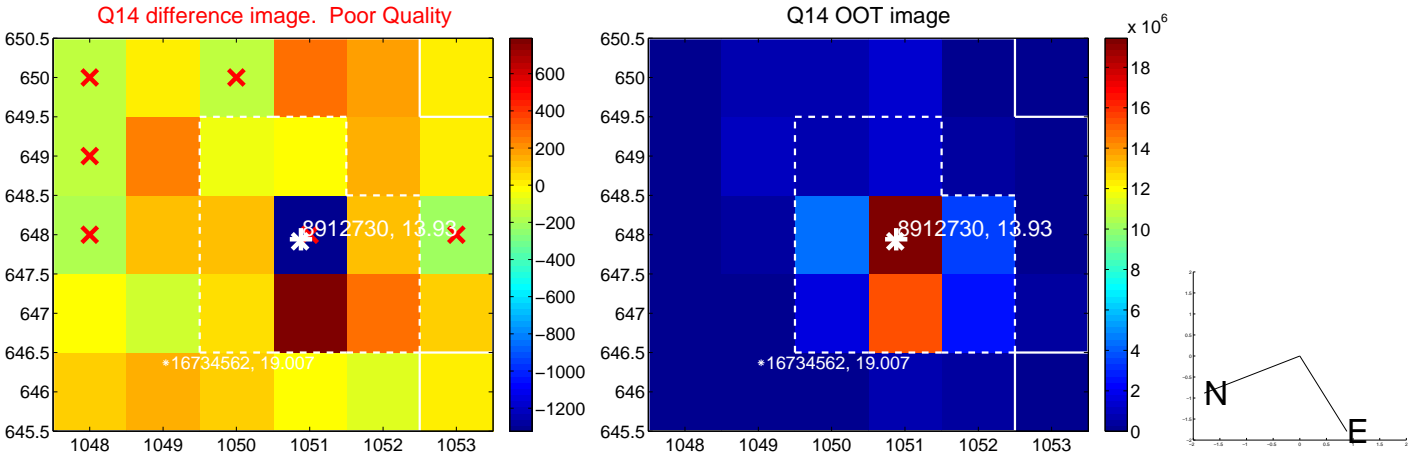
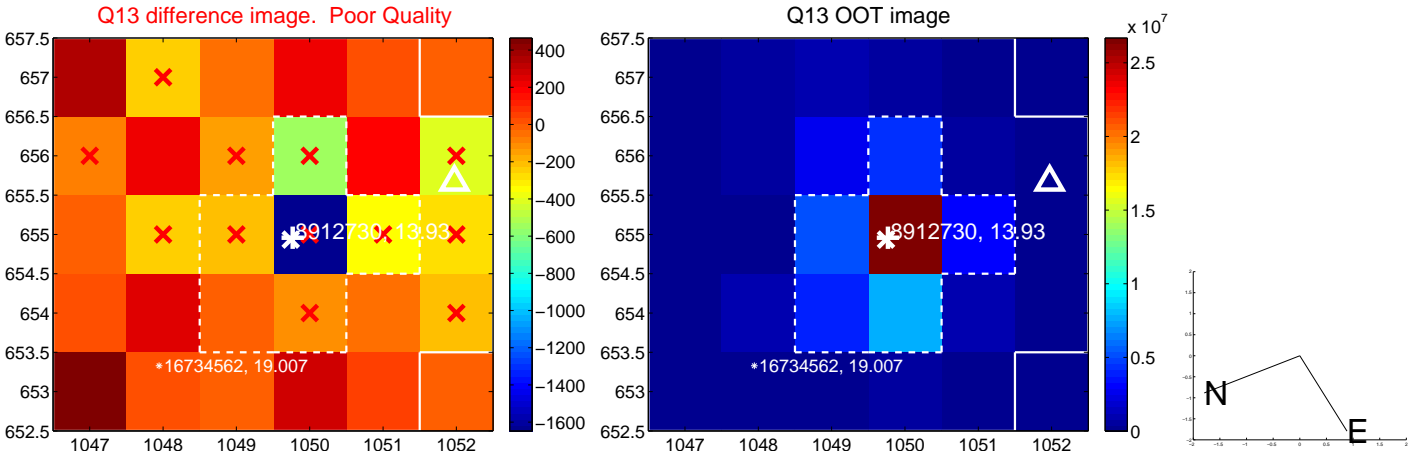
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



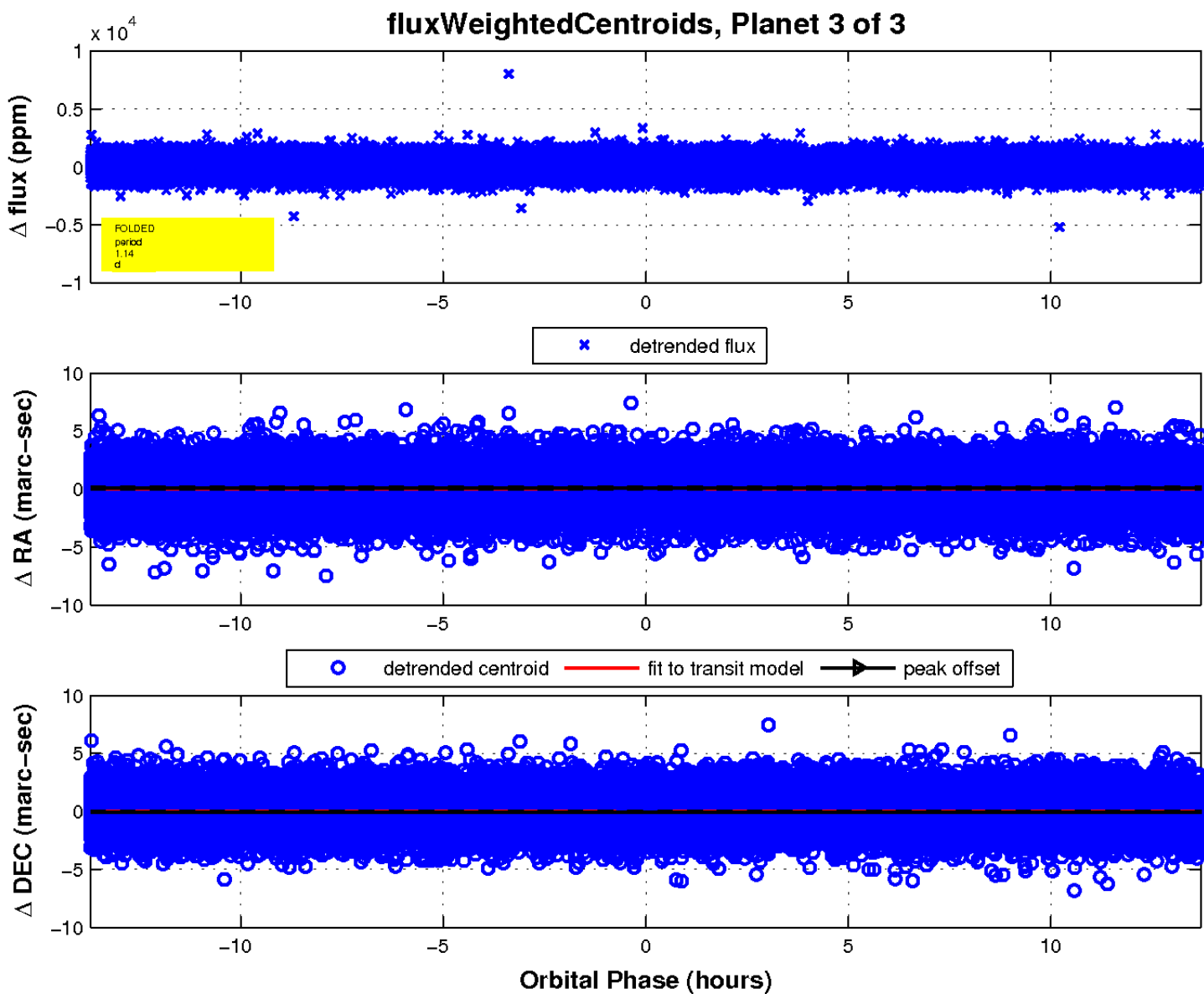
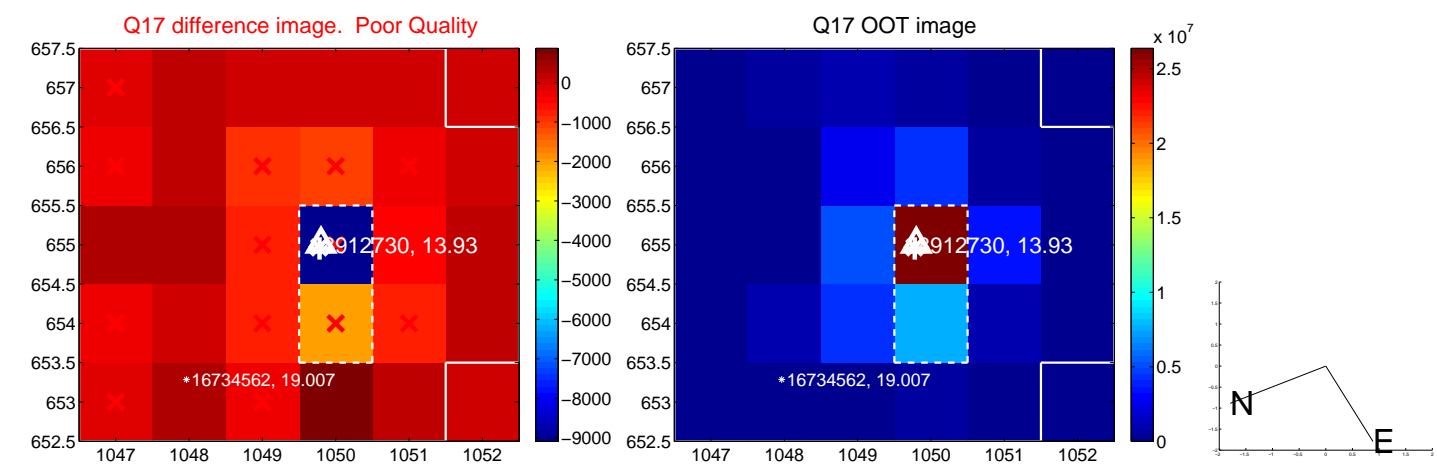
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

