

# KIC 005737104

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005737104-01	OBS	No	1.063640	132.232283	114.2	3.492	10.0	8.9	1.24	6572	1.55	5181.30
005737104-02	OBS	No	1.063643	131.797615	104.1	3.205	9.6	8.4	1.24	6572	1.36	5181.28
005737104-03	OBS	No	83.450027	208.214585	1757.3	5.279	8.3	8.9	1.24	6572	7.85	15.43
005737104-04	OBS	No	35.982625	133.742455	1233.0	5.256	7.8	8.9	1.24	6572	5.63	47.36
005737104-05	OBS	No	57.860582	186.318311	1579.9	1.837	7.3	7.1	1.24	6572	5.18	25.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005737104-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005737104-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005737104-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
005737104-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT
005737104-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

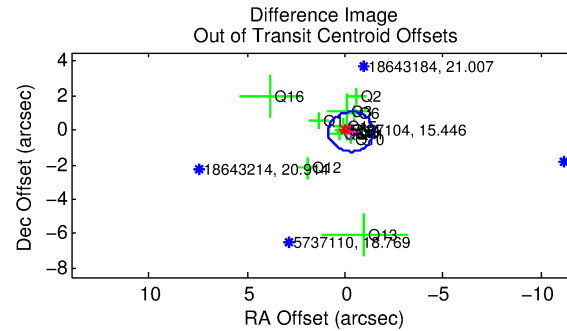
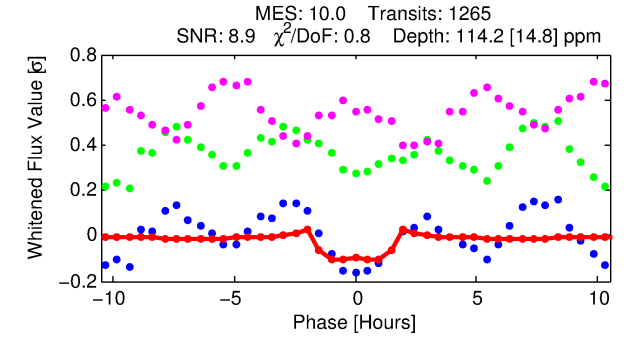
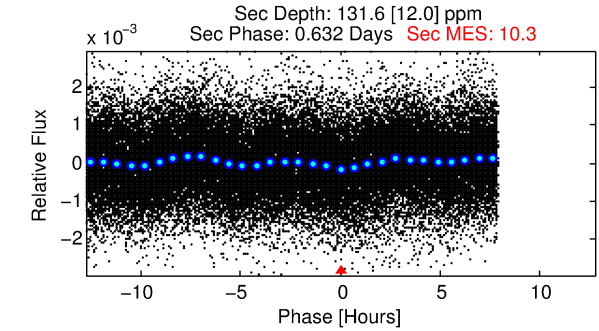
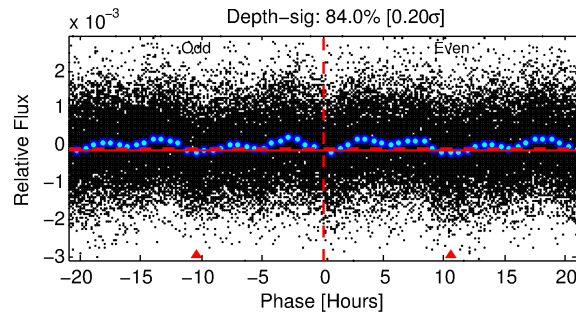
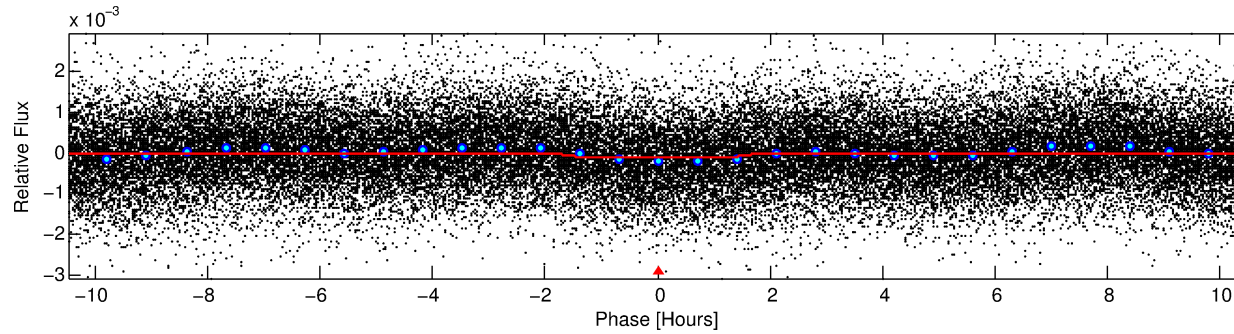
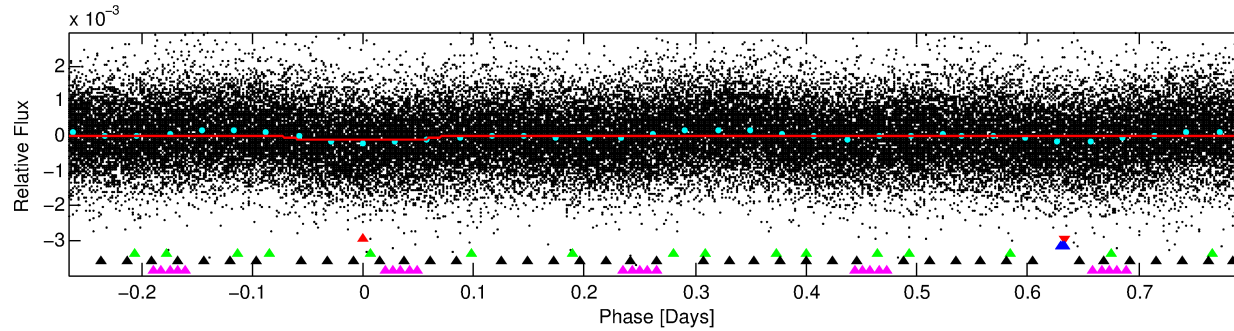
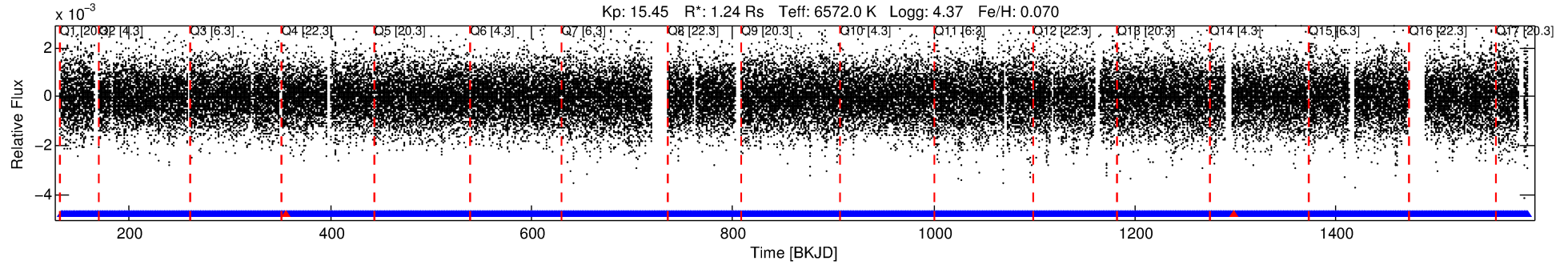
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005737104-01

No Significant Match Found

# DV One-Page Summary

KIC: 5737104 Candidate: 1 of 5 Period: 1.064 d



## DV Fit Results:

Period = 1.06364 [0.00001] d  
Epoch = 132.2323 [0.0033] BKJD  
Rp/R\* = 0.0115 [0.0038]  
a/R\* = 1.41 [1.31]  
b = 0.90 [0.38]  
Seff = 5181.30 [2053.42]  
Teq = 2163 [214] K  
Rp = 1.55 [0.69] Re  
a = 0.0222 [0.0055] AU  
Ag = 14.84 [11.22] [1.23 $\sigma$ ]  
**Teffp = 6565 [1128] K [3.83 $\sigma$ ]**

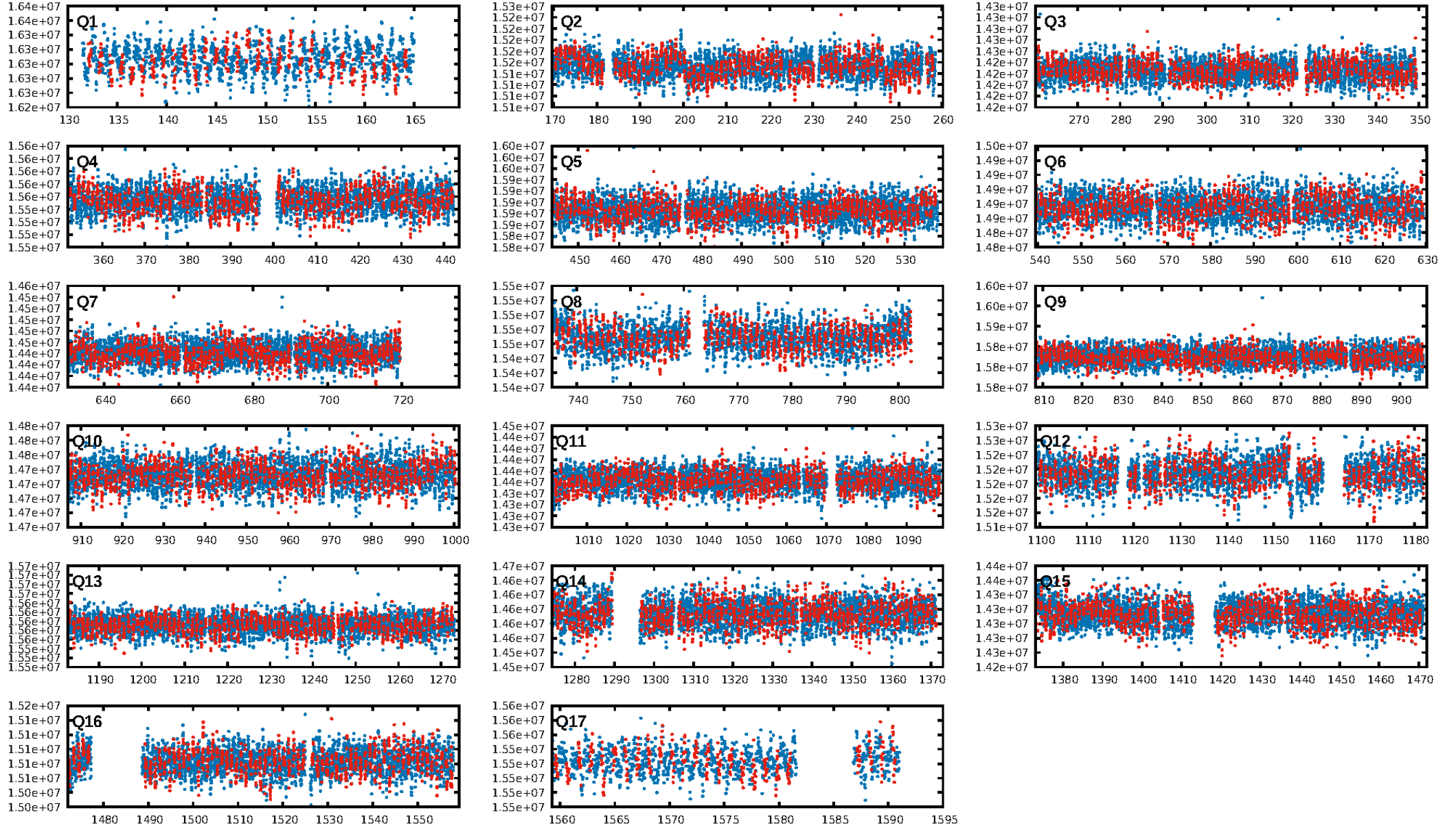
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
**LongPeriod-sig: 0.0% [0.00 $\sigma$ ]**  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.71e-28  
RollingBand-fgt: 1.00 [1207/1209]  
**GhostDiagnostic-chr: 0.9354**  
Centroid-sig: 29.6%  
Centroid-so: 0.692 arcsec [0.76 $\sigma$ ]  
OotOffset-rm: 0.310 arcsec [0.81 $\sigma$ ]  
OotOffset-st: 4/3/4/4 [15]  
KicOffset-rm: 0.519 arcsec [1.41 $\sigma$ ]  
KicOffset-st: 4/3/4/4 [15]  
DiffImageQuality-fgm: 0.87 [13/15]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:41:14 Z

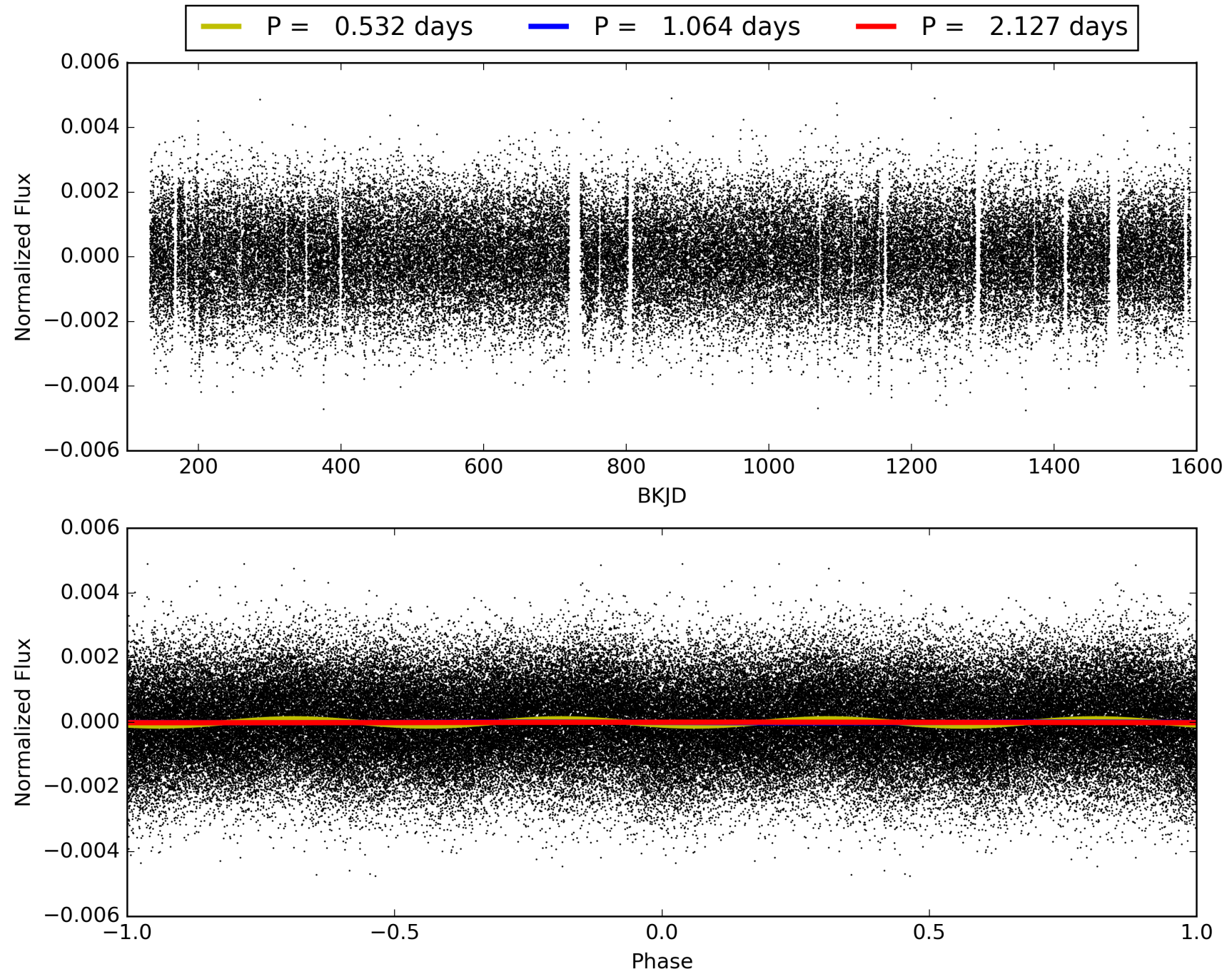
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005737104-01, PDC Light Curves





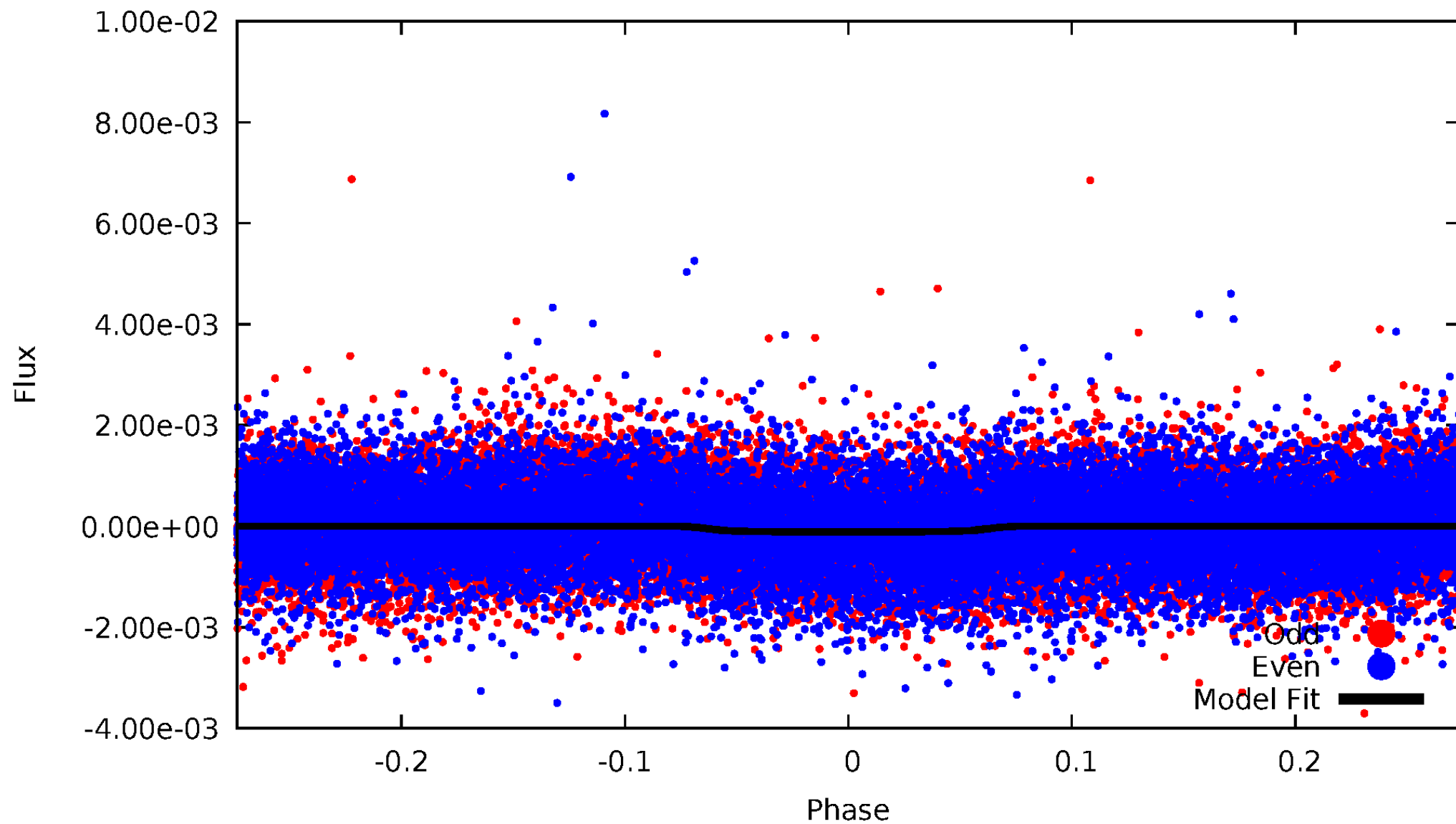
TCE 005737104-01





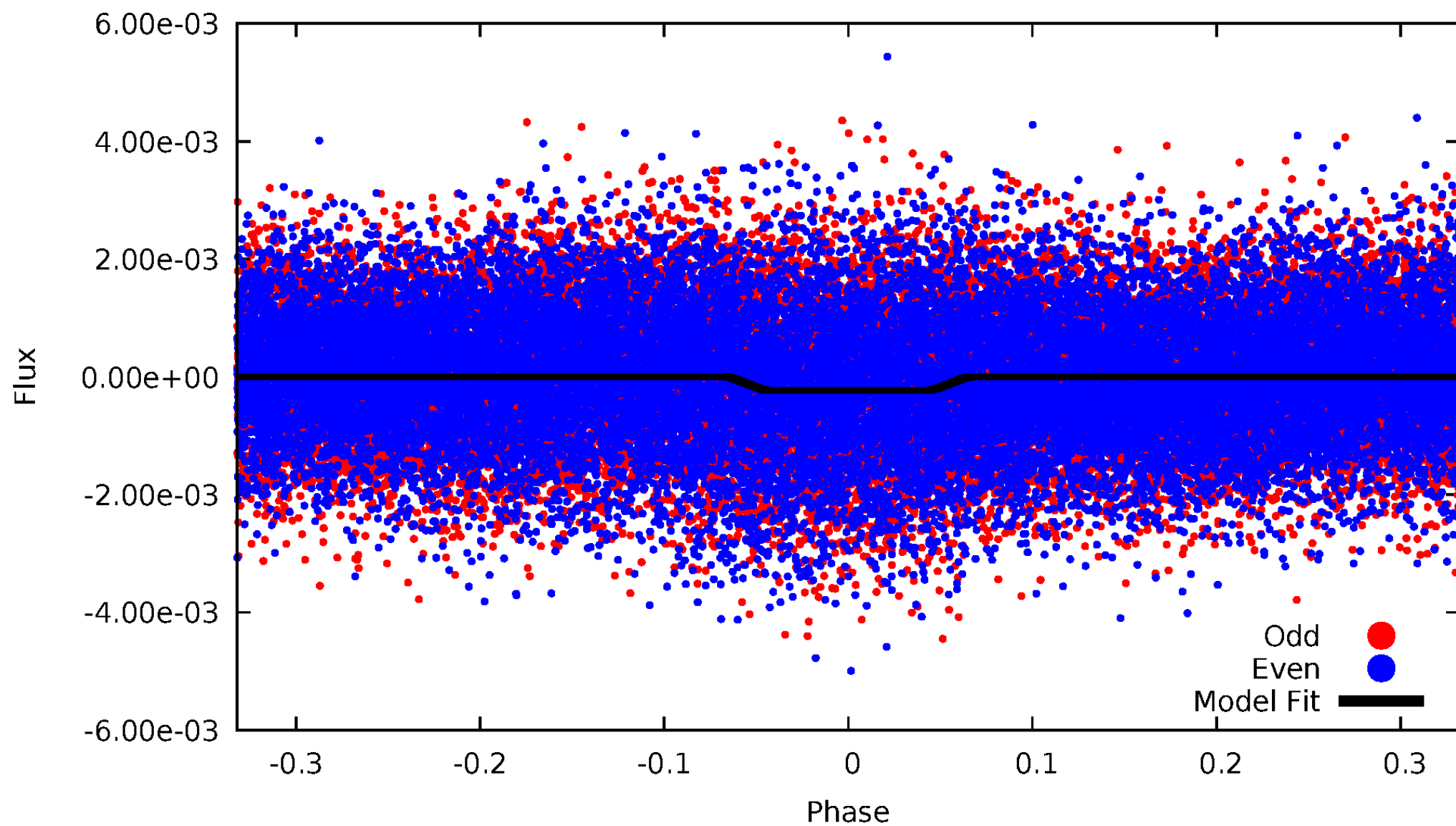
# DV Odd/Even

TCE 005737104-01



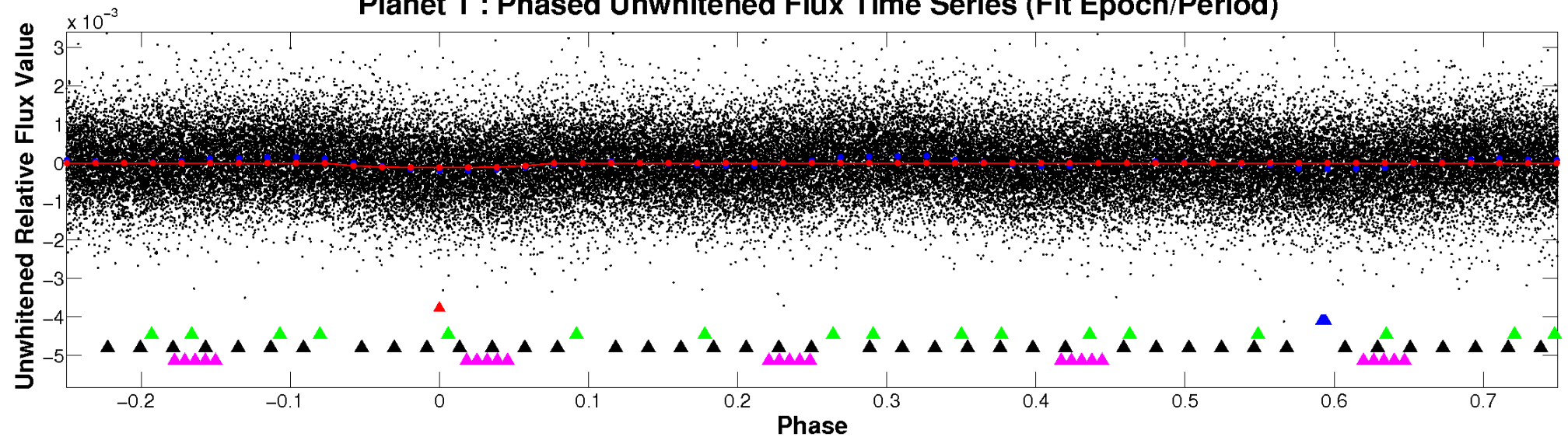
# ALT Odd/Even

TCE 005737104-01

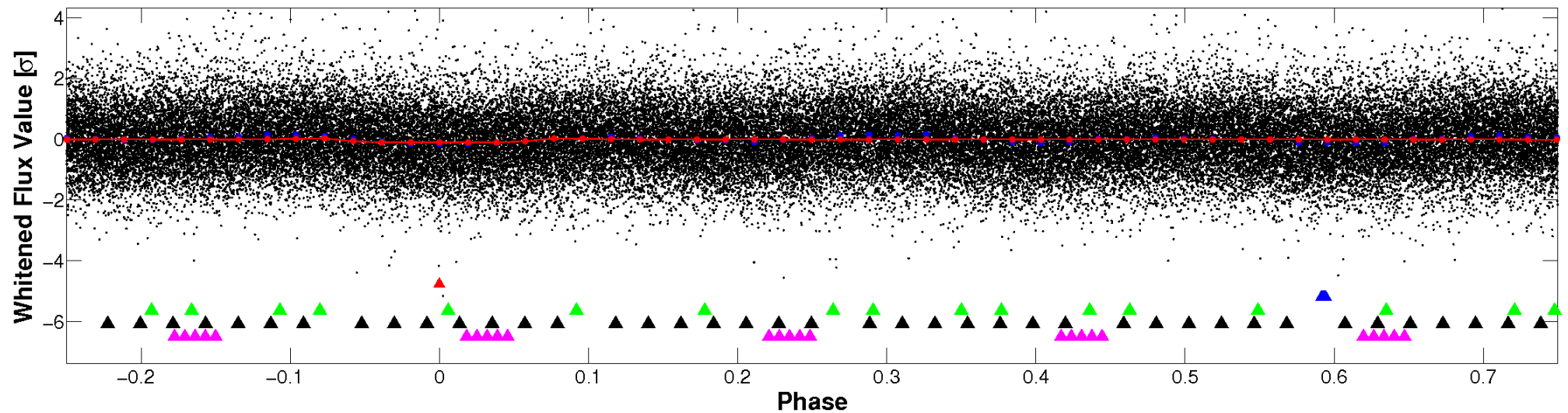


# Non-Whitened Vs. Whitened Light Curve

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



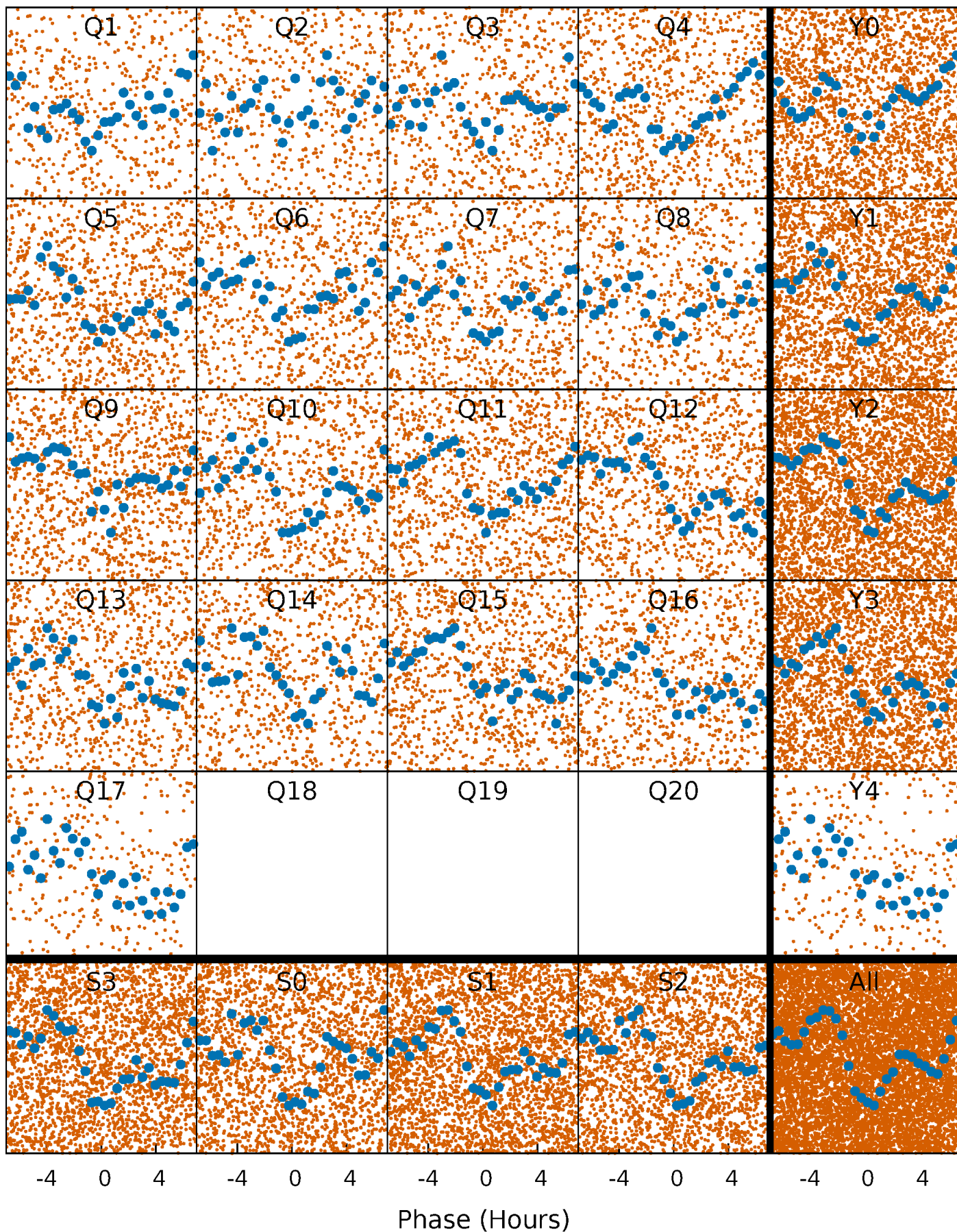
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





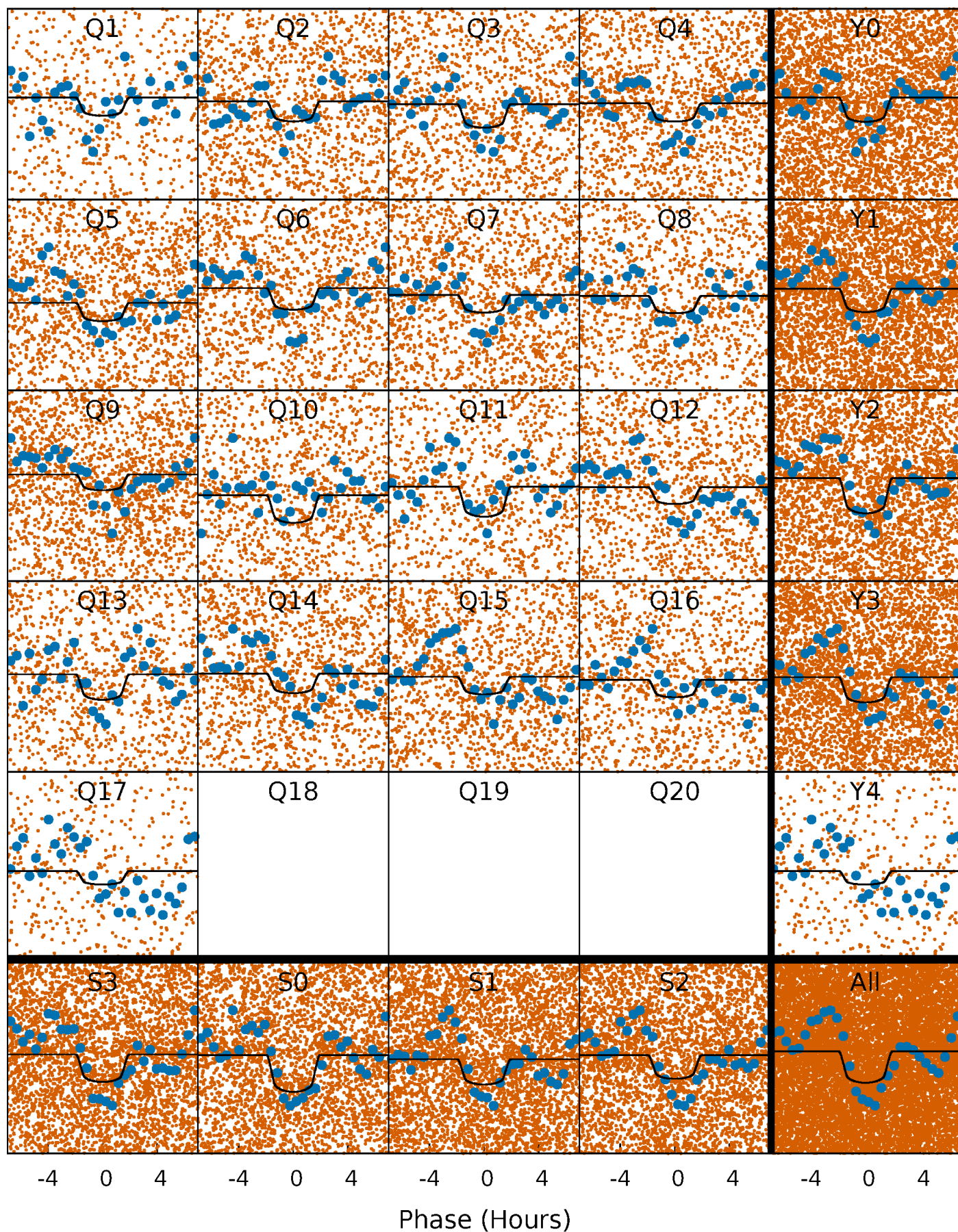
# PDC Quarter-Phased Transit Curves

TCE 005737104-01 P= 1.063640 Days  $T_0=132.232283$  (BKJD)



# DV Quarter-Phased Transit Curves

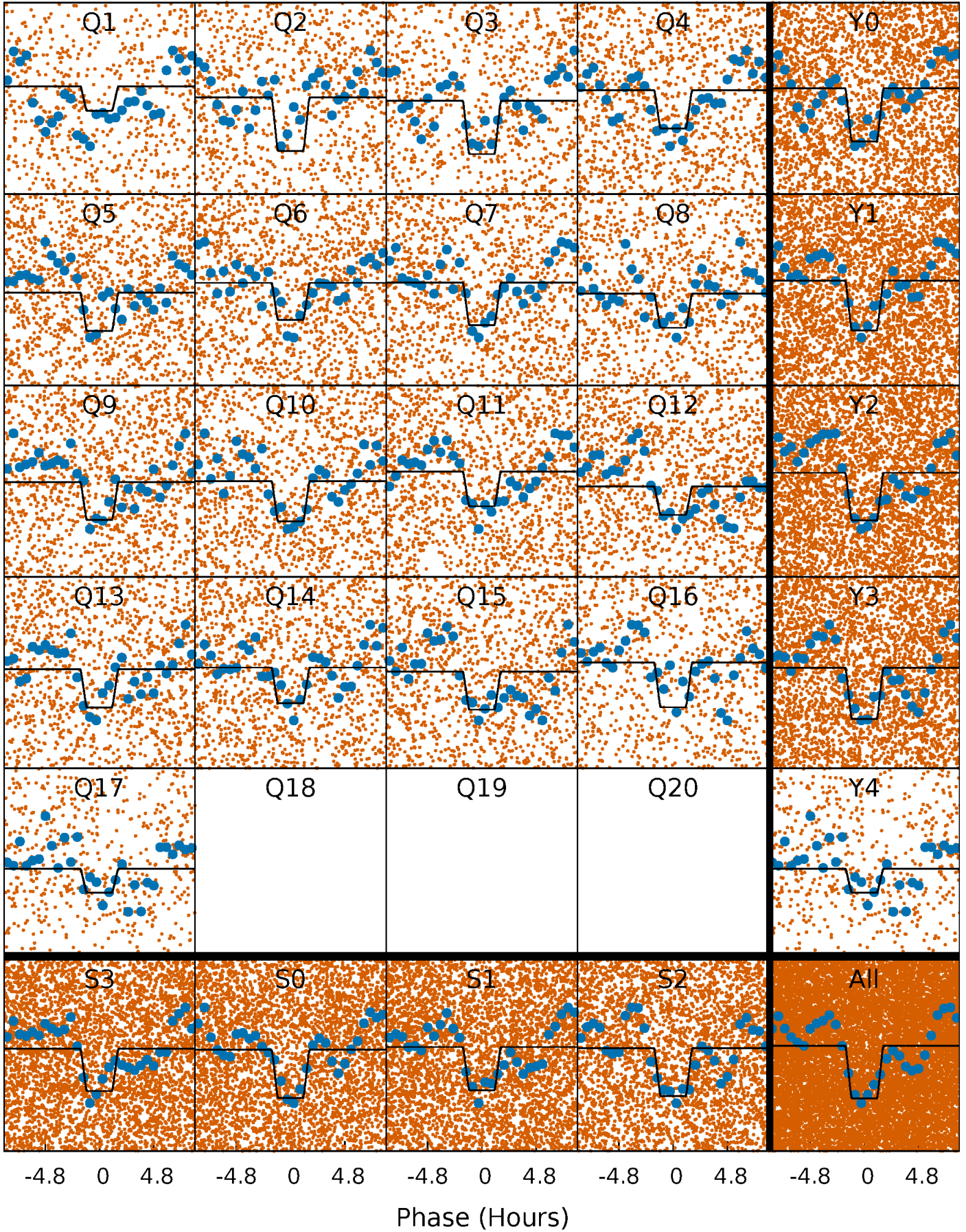
TCE 005737104-01 P= 1.063640 Days  $T_0=132.232283$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 005737104-01 P= 1.063668 Days  $T_0=132.230883$  (BKJD)

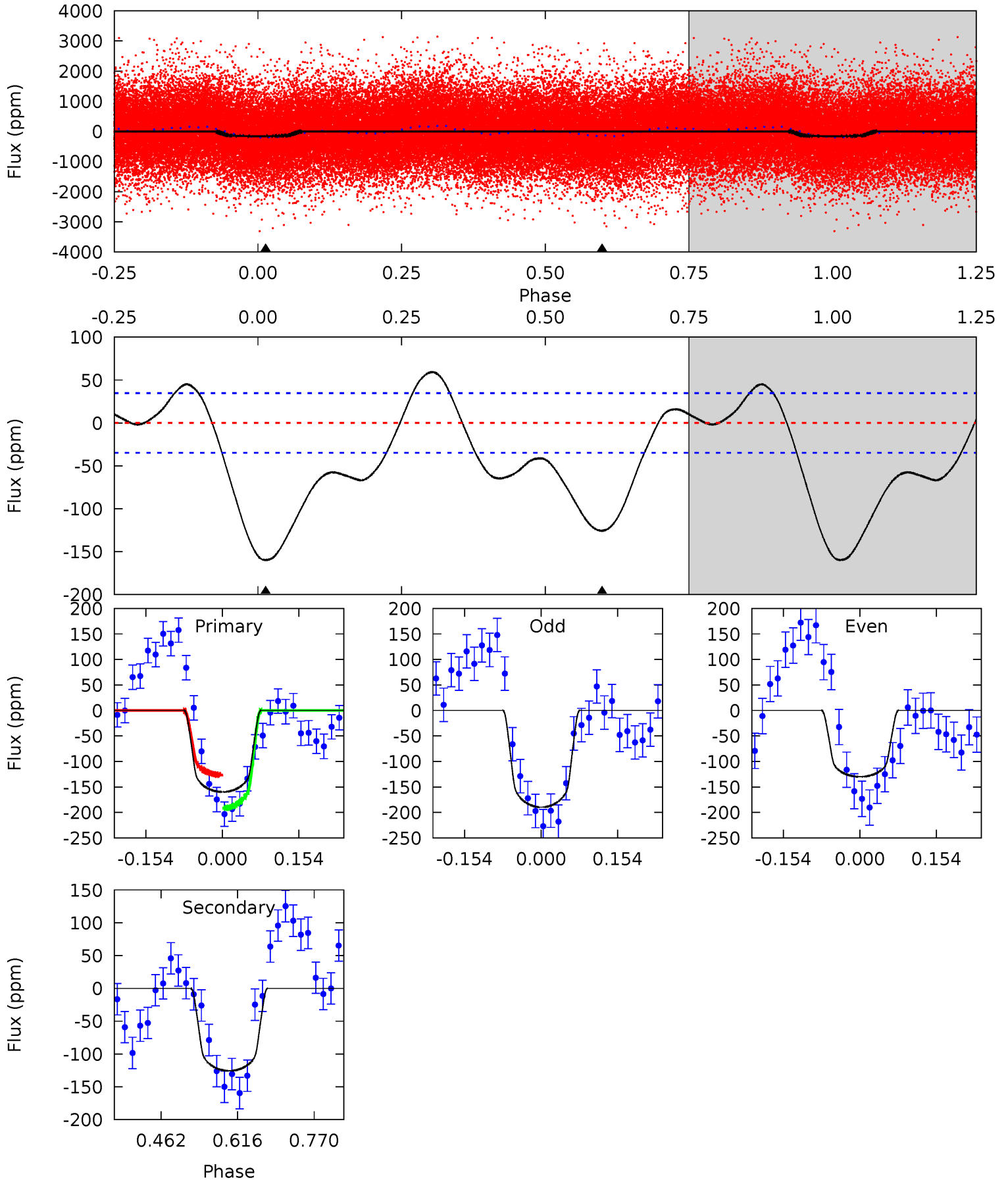




# DV Model-Shift Uniqueness Test

005737104-01, P = 1.063640 Days, E = 131.168643 Days

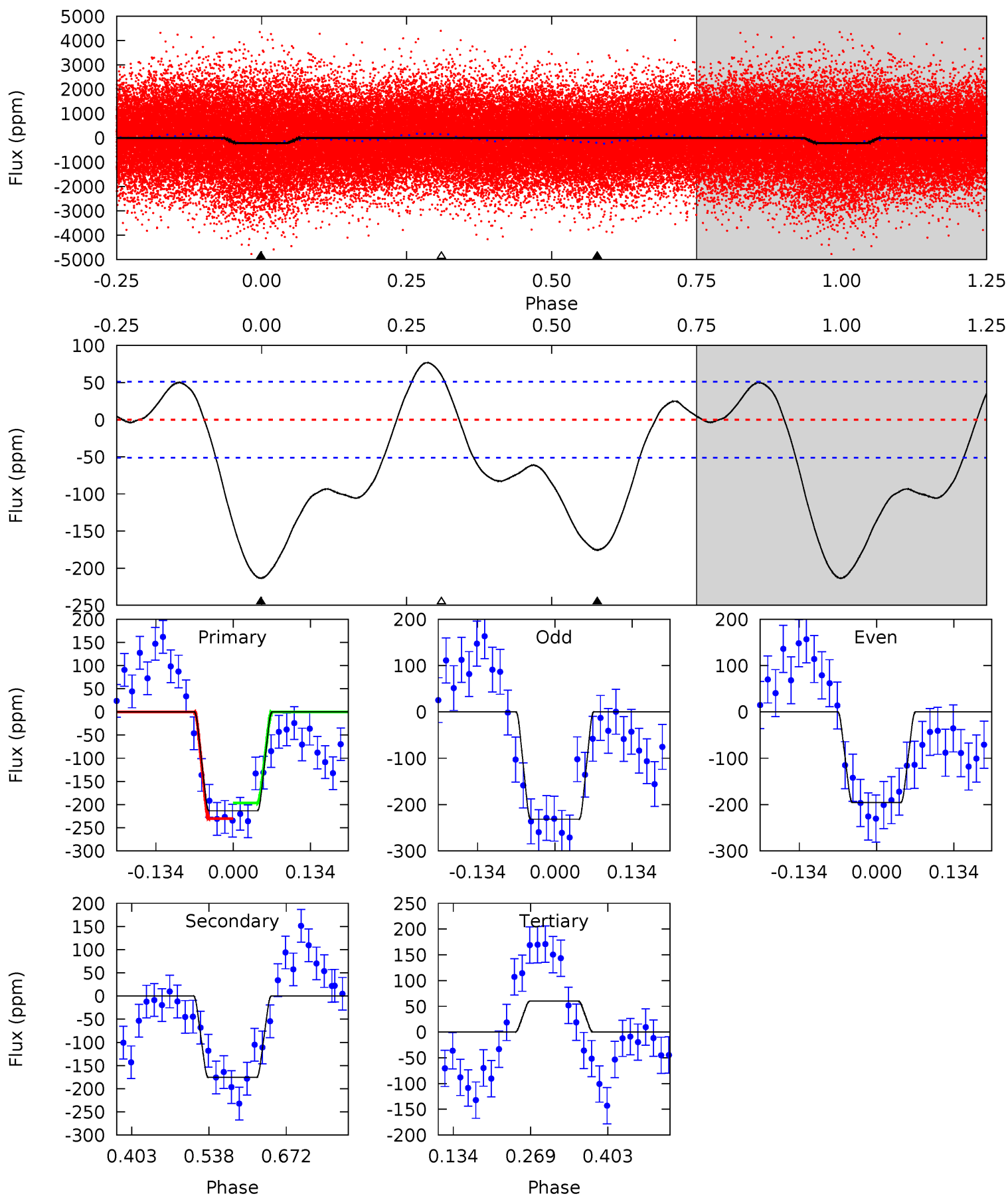
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	16.2	0	0	4.47	1.43	5.20	20.5	20.5	16.2	16.2	3.83	1.18	0.27	4.19



# Alt Model-Shift Uniqueness Test

005737104-01, P = 1.063668 Days, E = 131.167215 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
18.8	15.5	-5.28	0	4.50	1.50	4.99	24.1	18.8	20.7	15.5	1.58	1.00	0.26	1.51



### Stellar Parameters For KIC 005737104

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6572^{+187}_{-281}$	$4.365^{+0.065}_{-0.195}$	$0.070^{+0.200}_{-0.400}$	$1.238^{+0.363}_{-0.168}$	$1.298^{+0.150}_{-0.224}$	$0.964^{+0.328}_{-0.474}$
	+3%/-4%	+1%/-4%	+286%/-571%	+29%/-14%	+12%/-17%	+34%/-49%
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 005737104-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-126 \pm 8$	$1.59^{+0.57}_{-0.51}$	$3073^{+210}_{-159}$	$6451^{+1575}_{-870}$	$13^{+15}_{-6}$
Alt.	$-176 \pm 11$	$2.16^{+0.64}_{-0.63}$	$3072^{+234}_{-184}$	$6007^{+1097}_{-651}$	$10^{+10}_{-4}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$



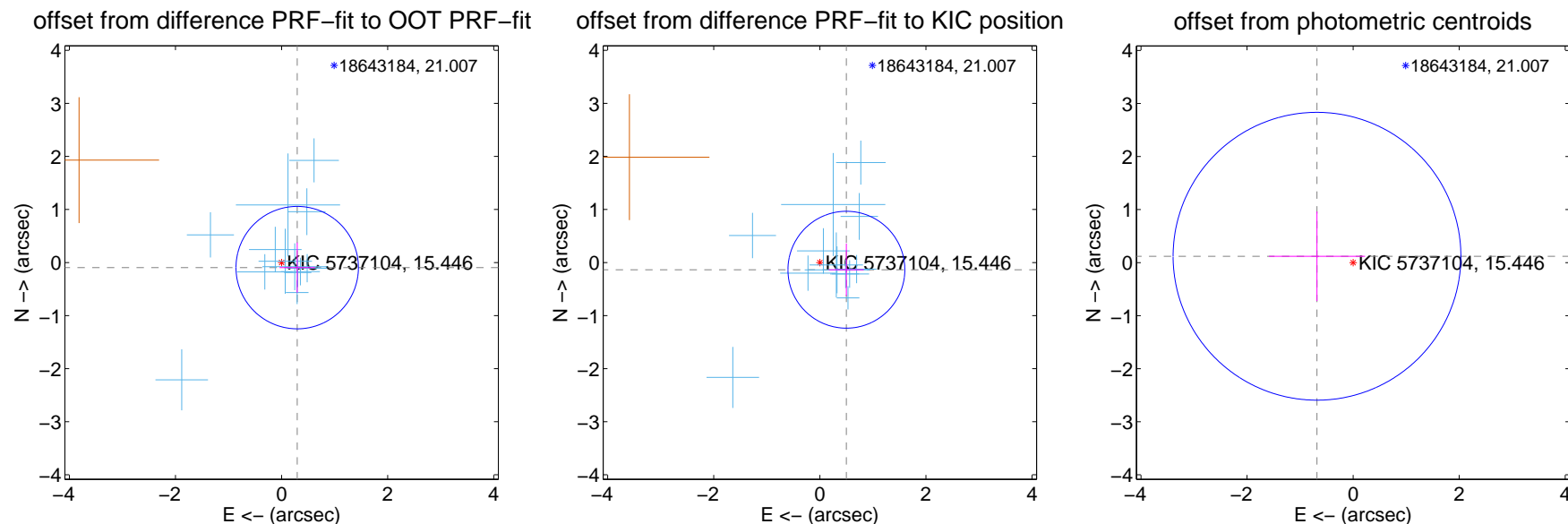
## DV Centroid Data

Supplemental centroid analysis for 005737104-01. Kepler magnitude: 15.45. Transit SNR 8.92

There are 13 quarters with good PRF difference image offsets

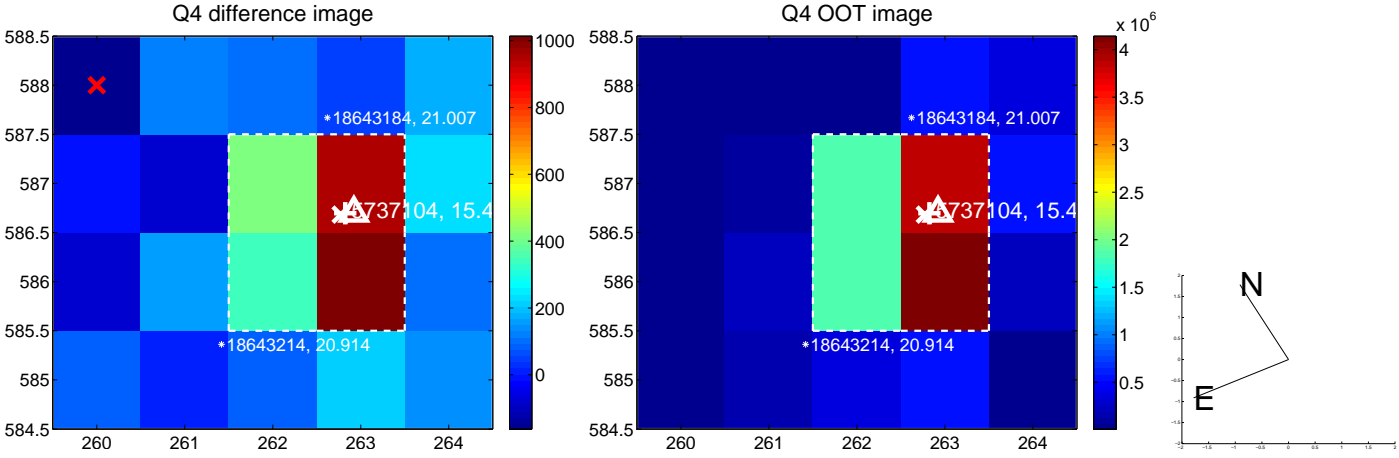
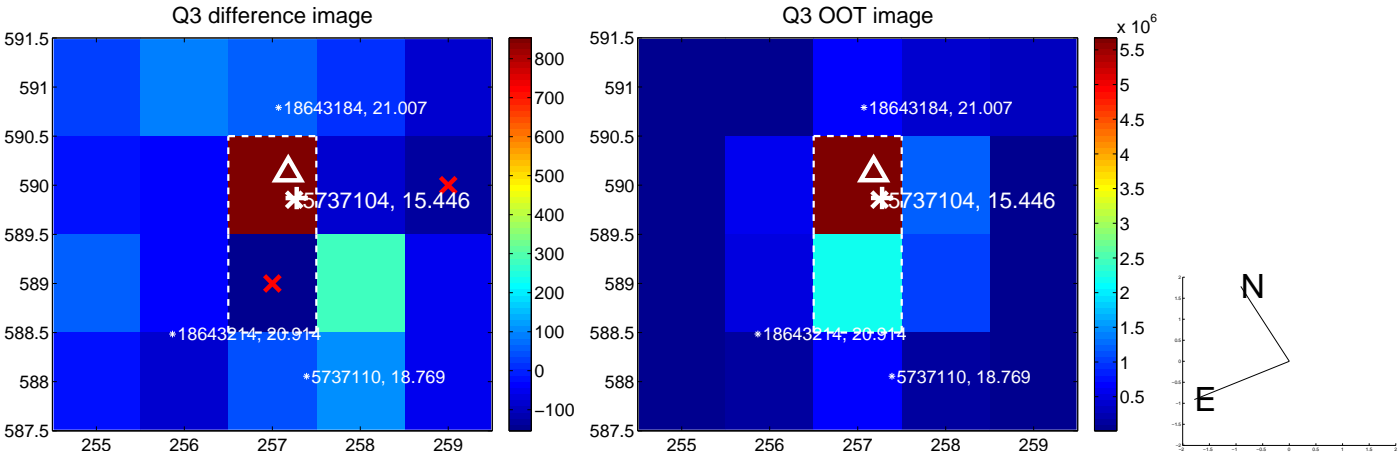
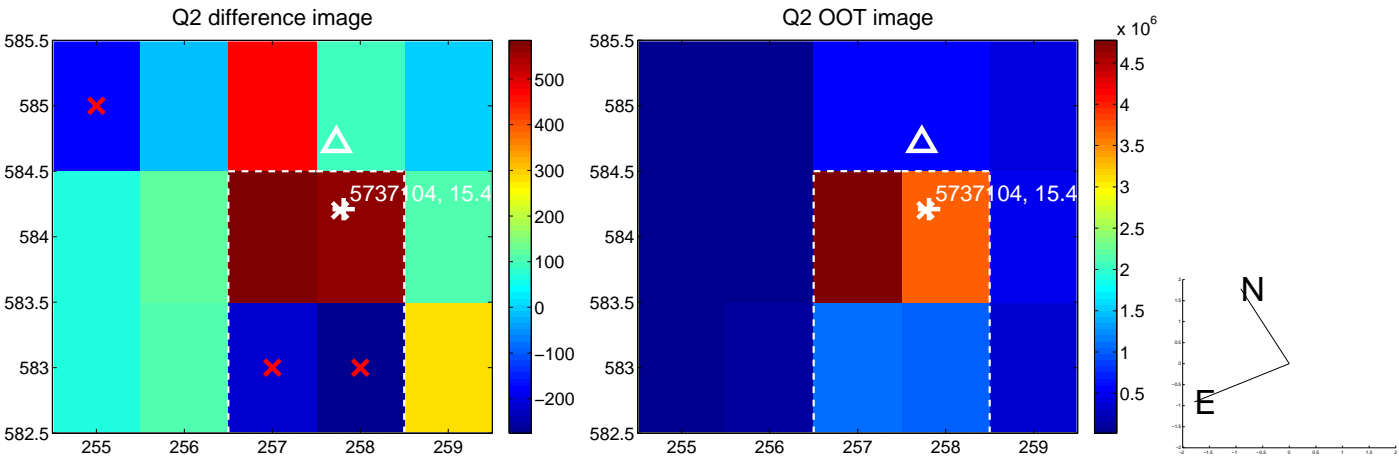
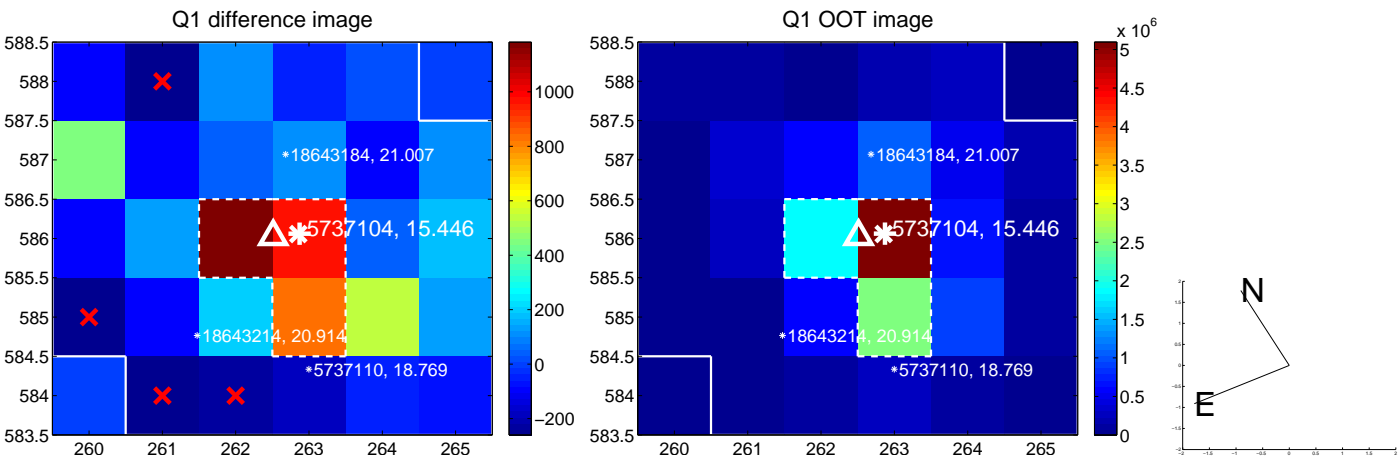
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.310 \pm 0.385$	0.81	$-0.295 \pm 0.334$	$-0.096 \pm 0.473$
PRF-fit source offset from KIC position	$0.519 \pm 0.367$	1.41	$-0.500 \pm 0.329$	$-0.136 \pm 0.492$
photometric centroid source offset	$0.69 \pm 0.90$	0.76	$0.68 \pm 0.91$	$0.12 \pm 0.84$

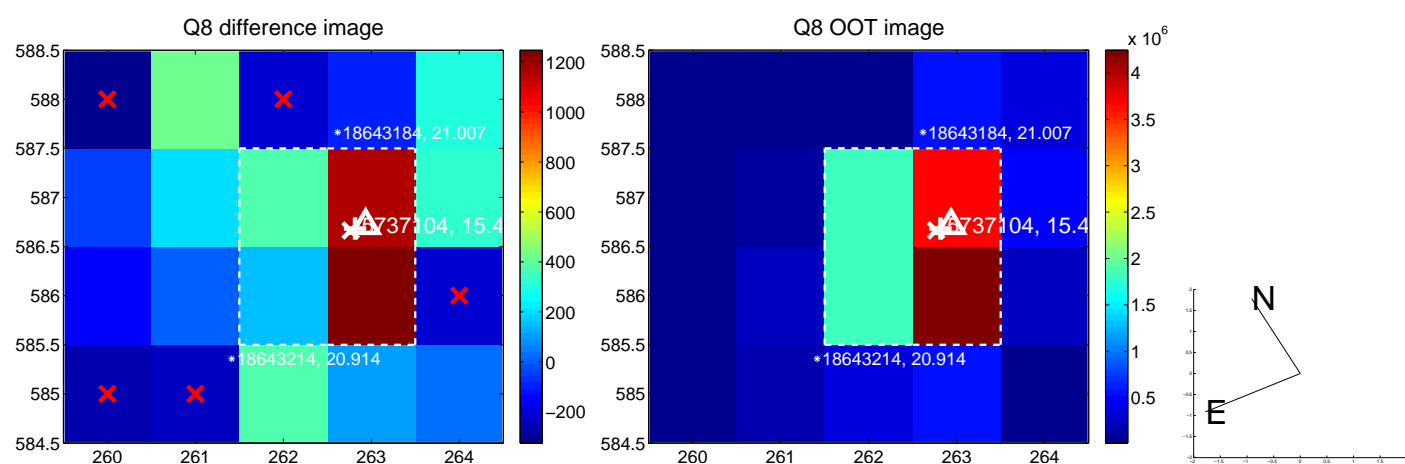
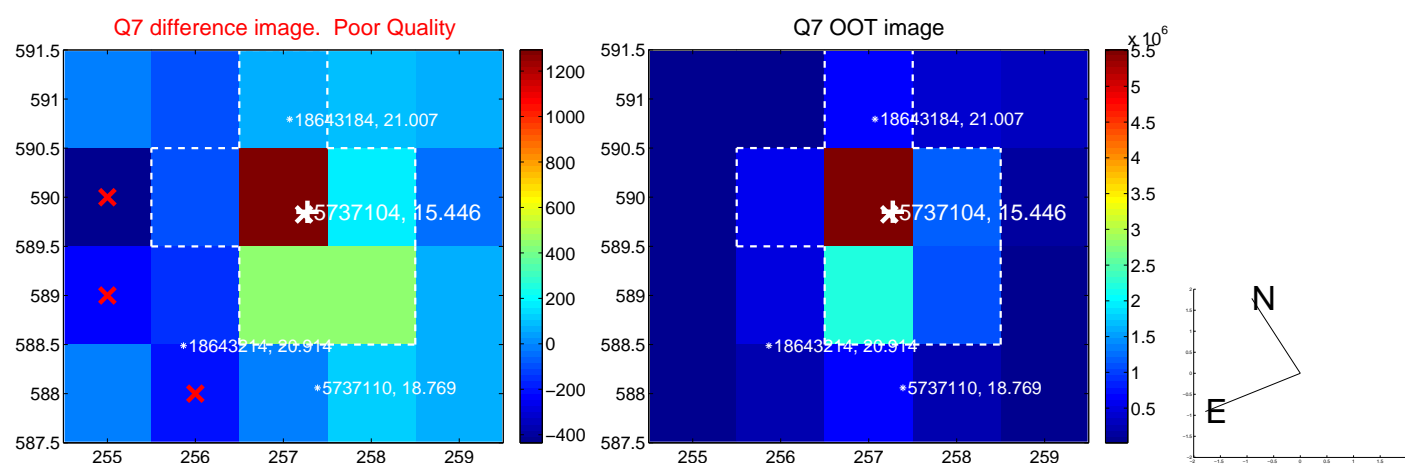
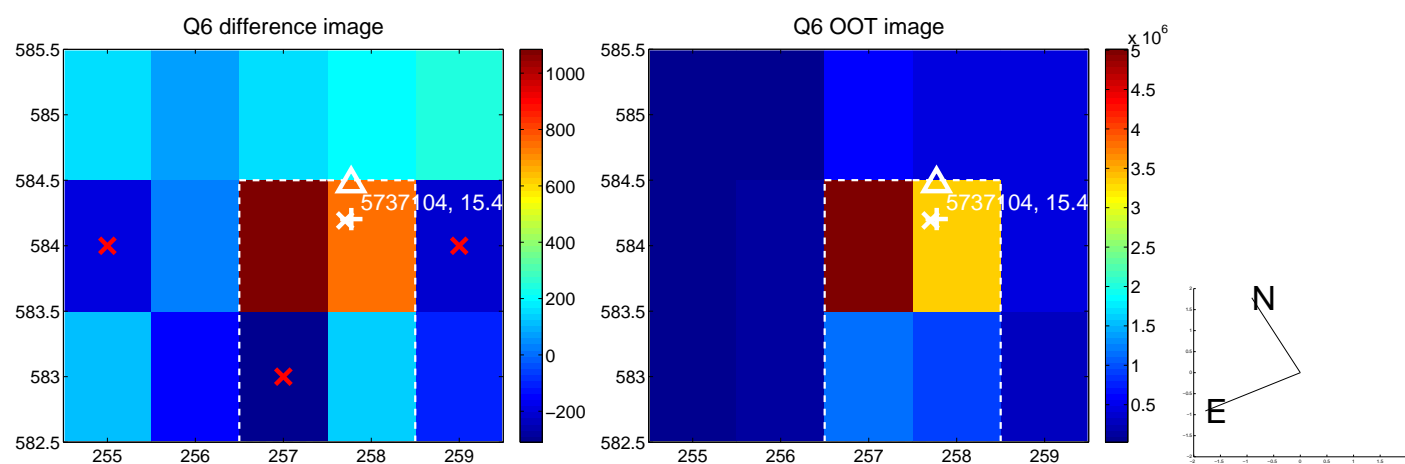
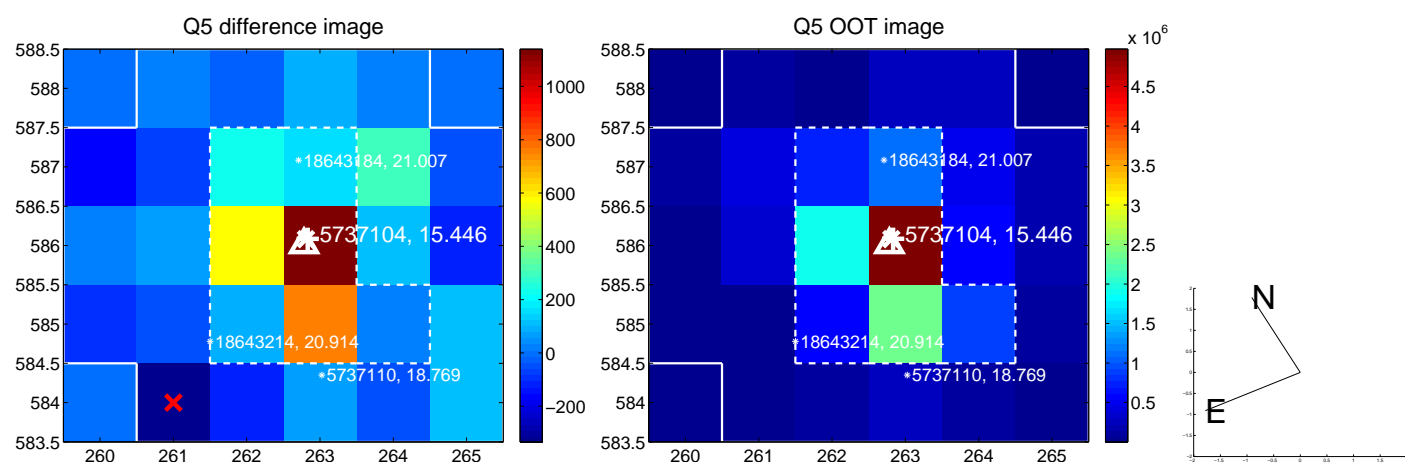


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

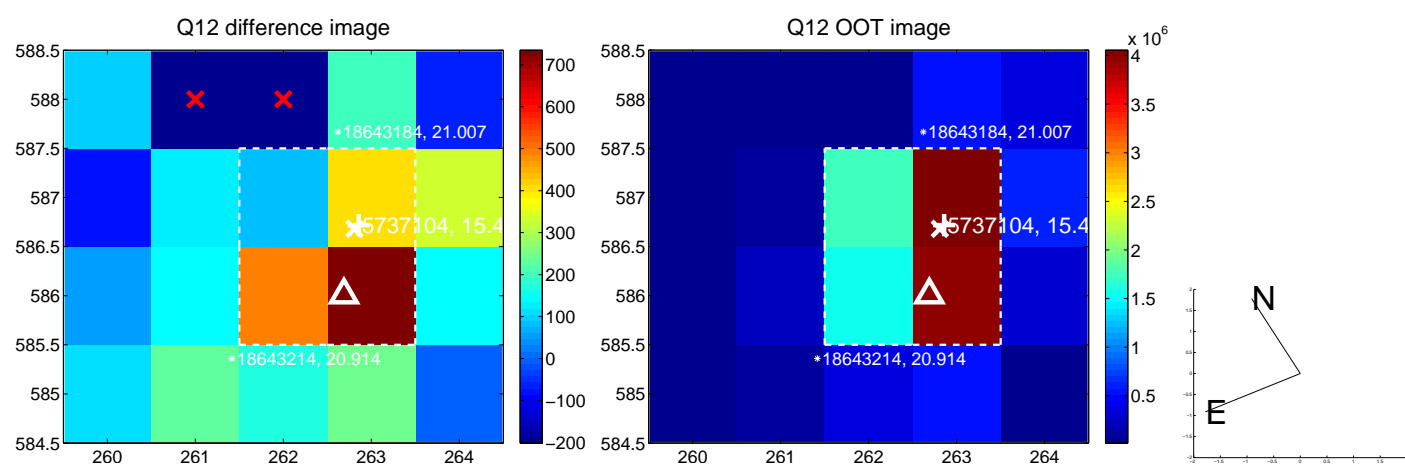
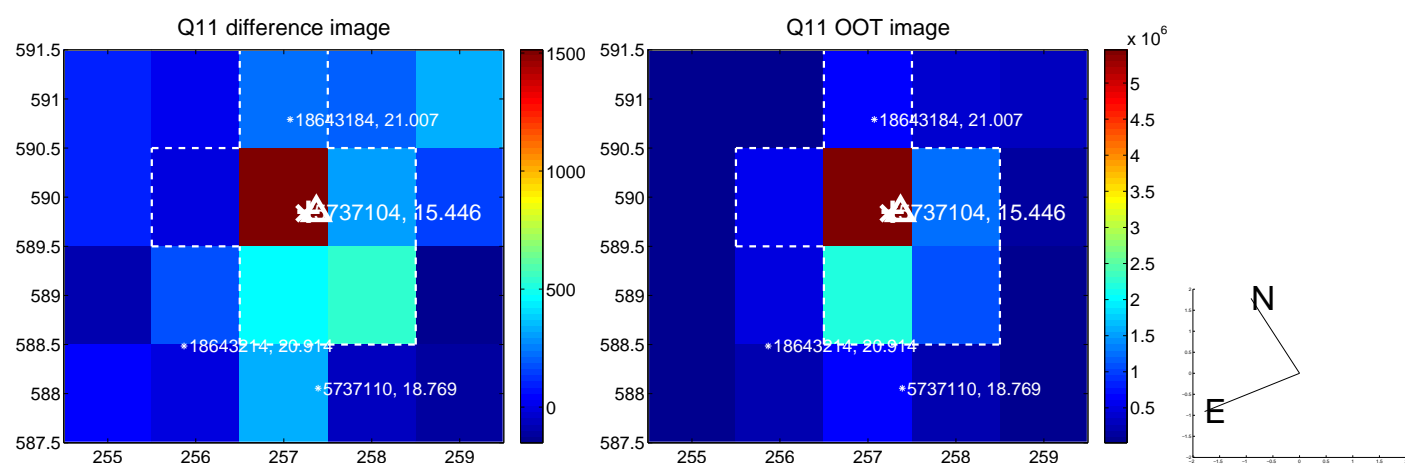
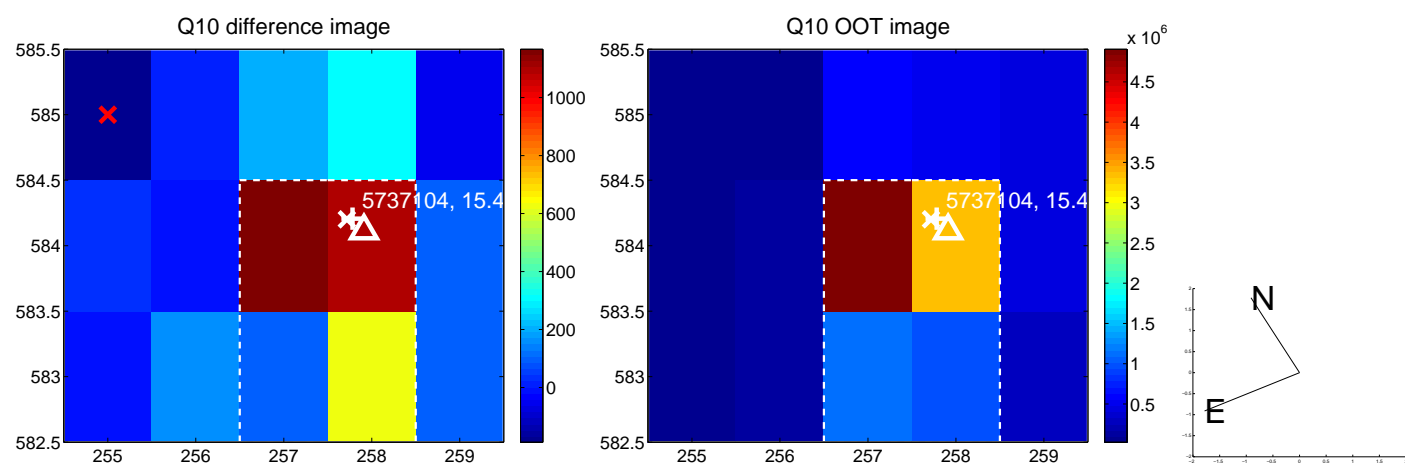
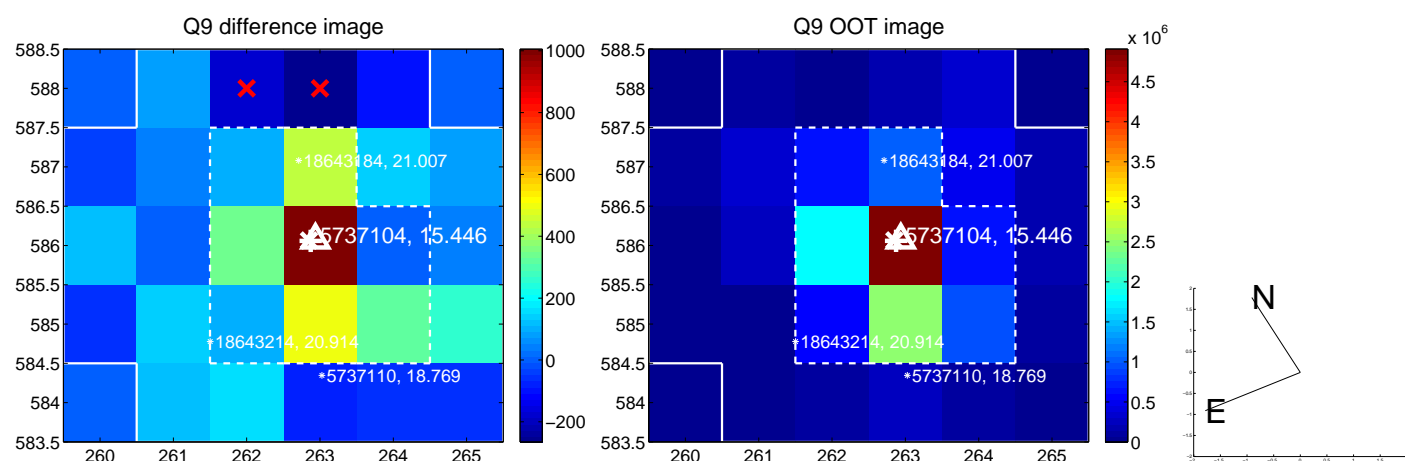


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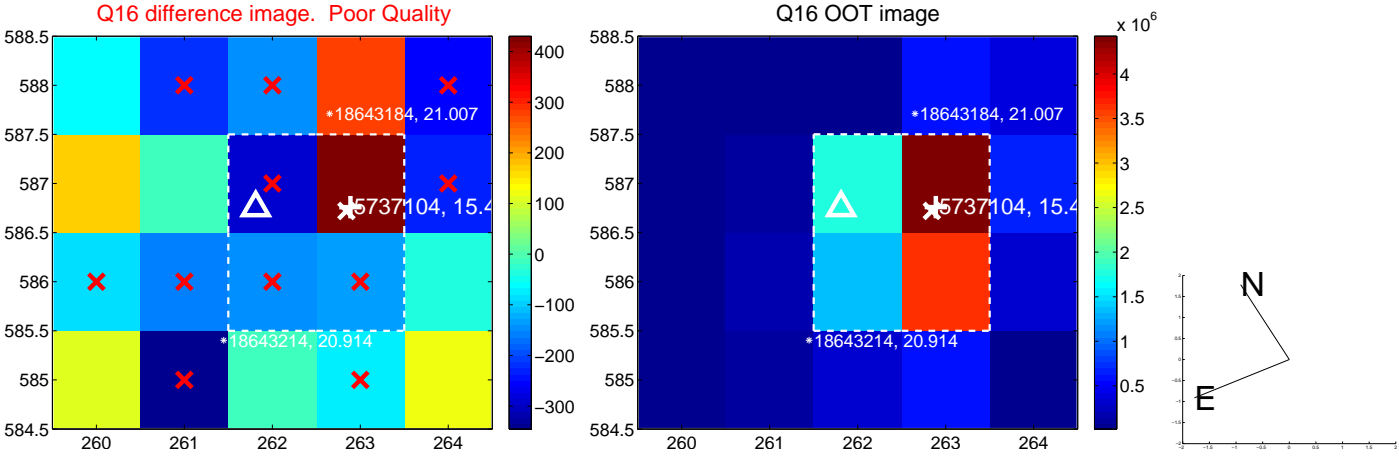
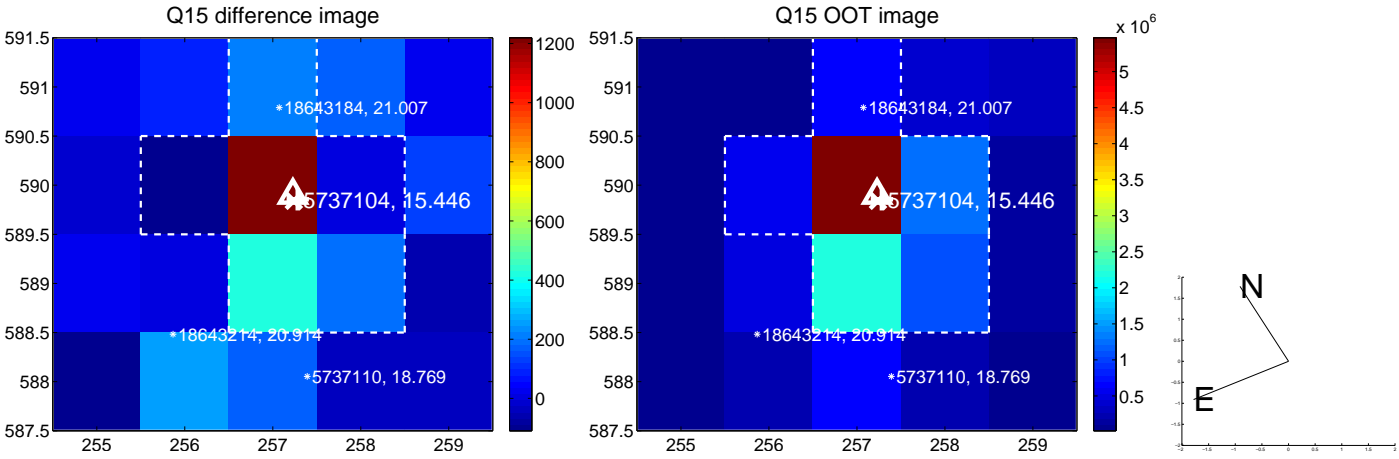
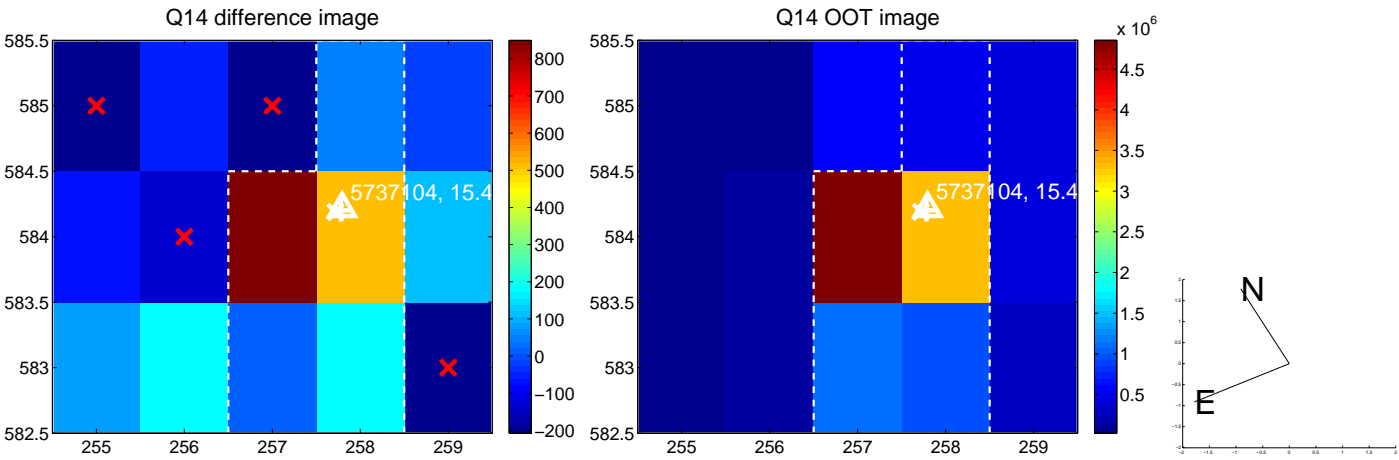
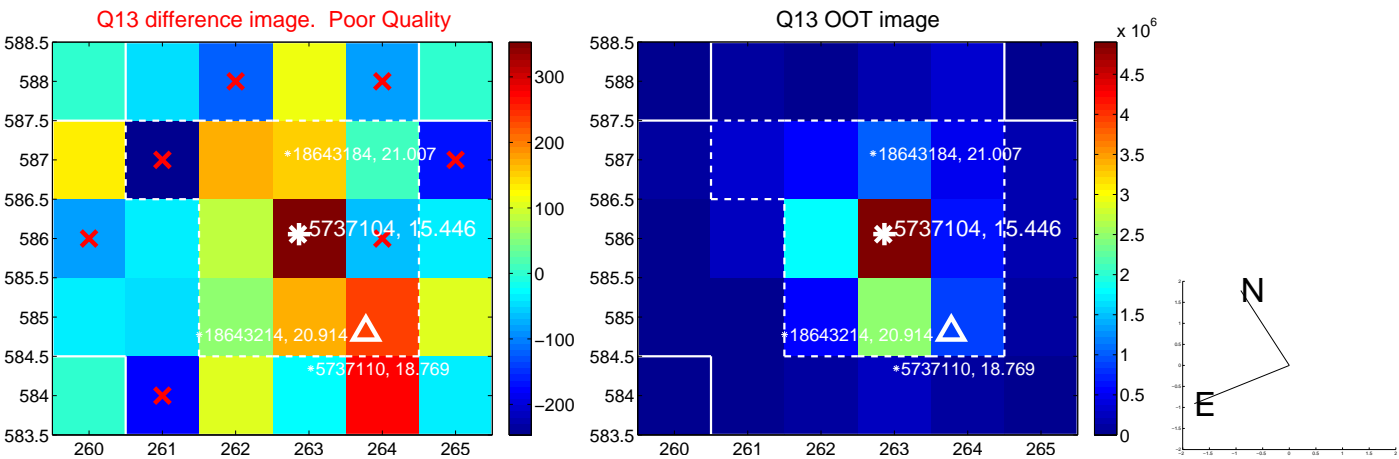




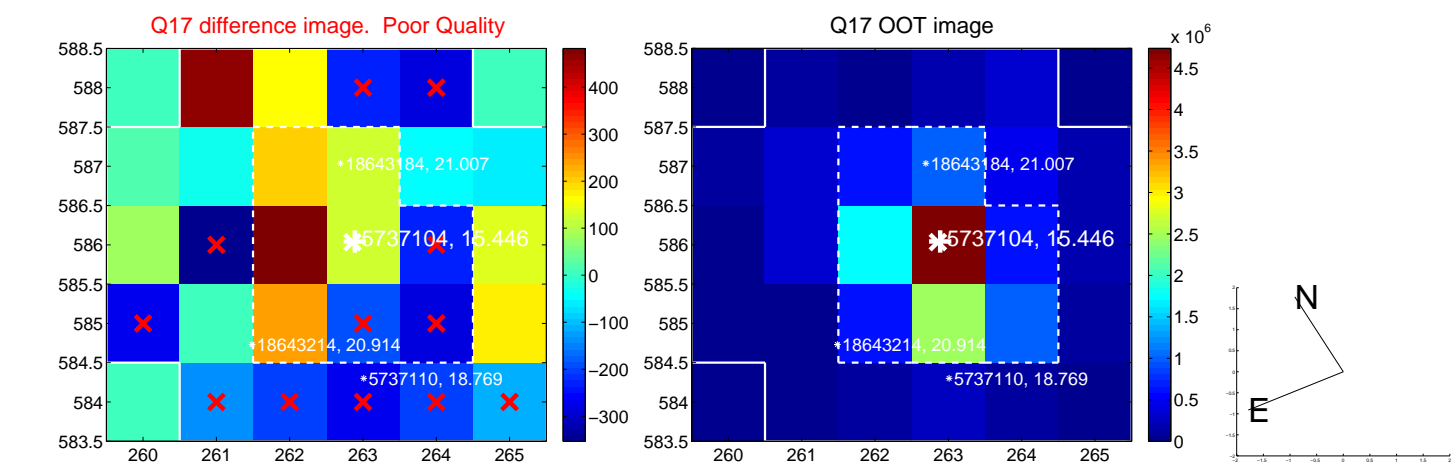
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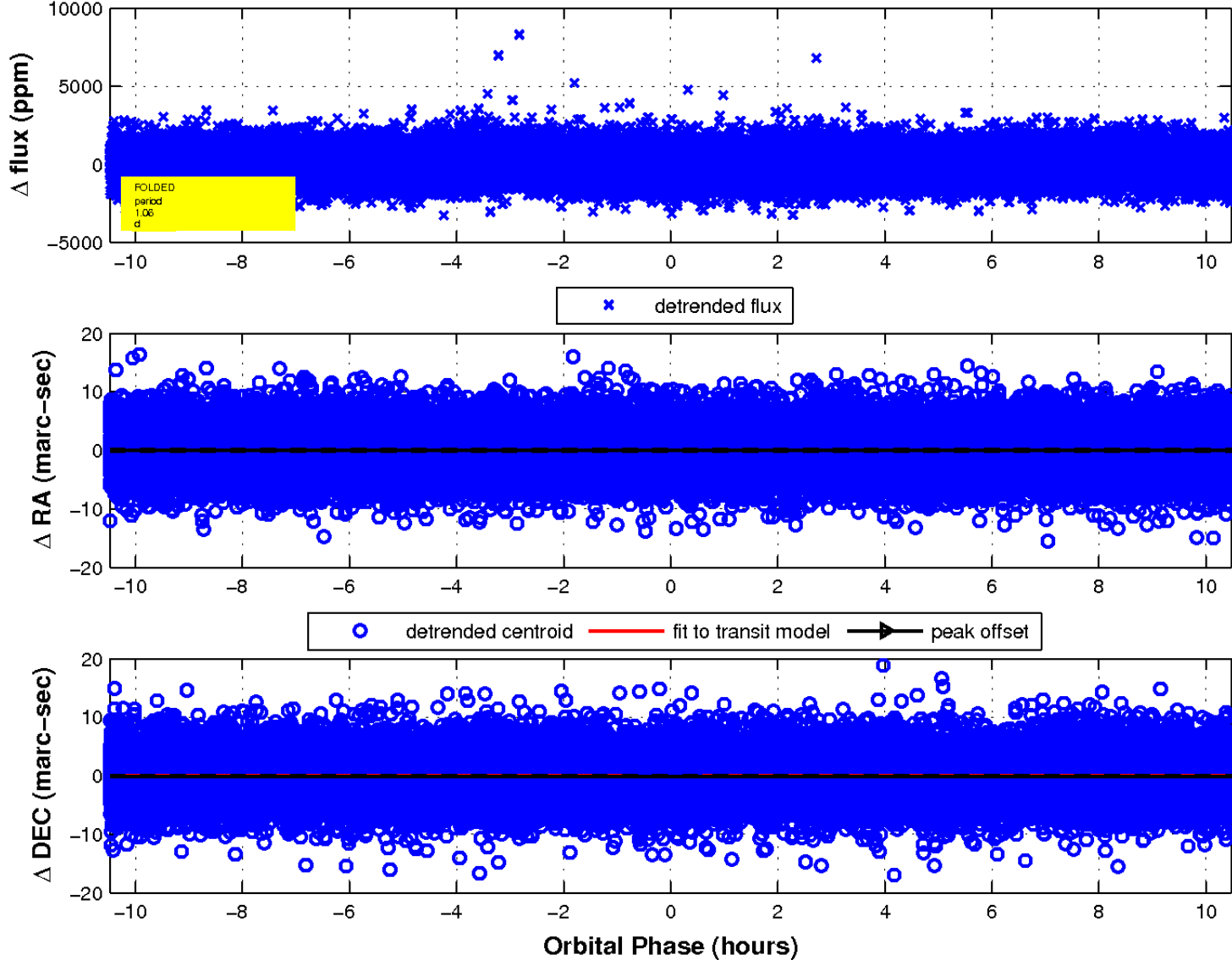
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

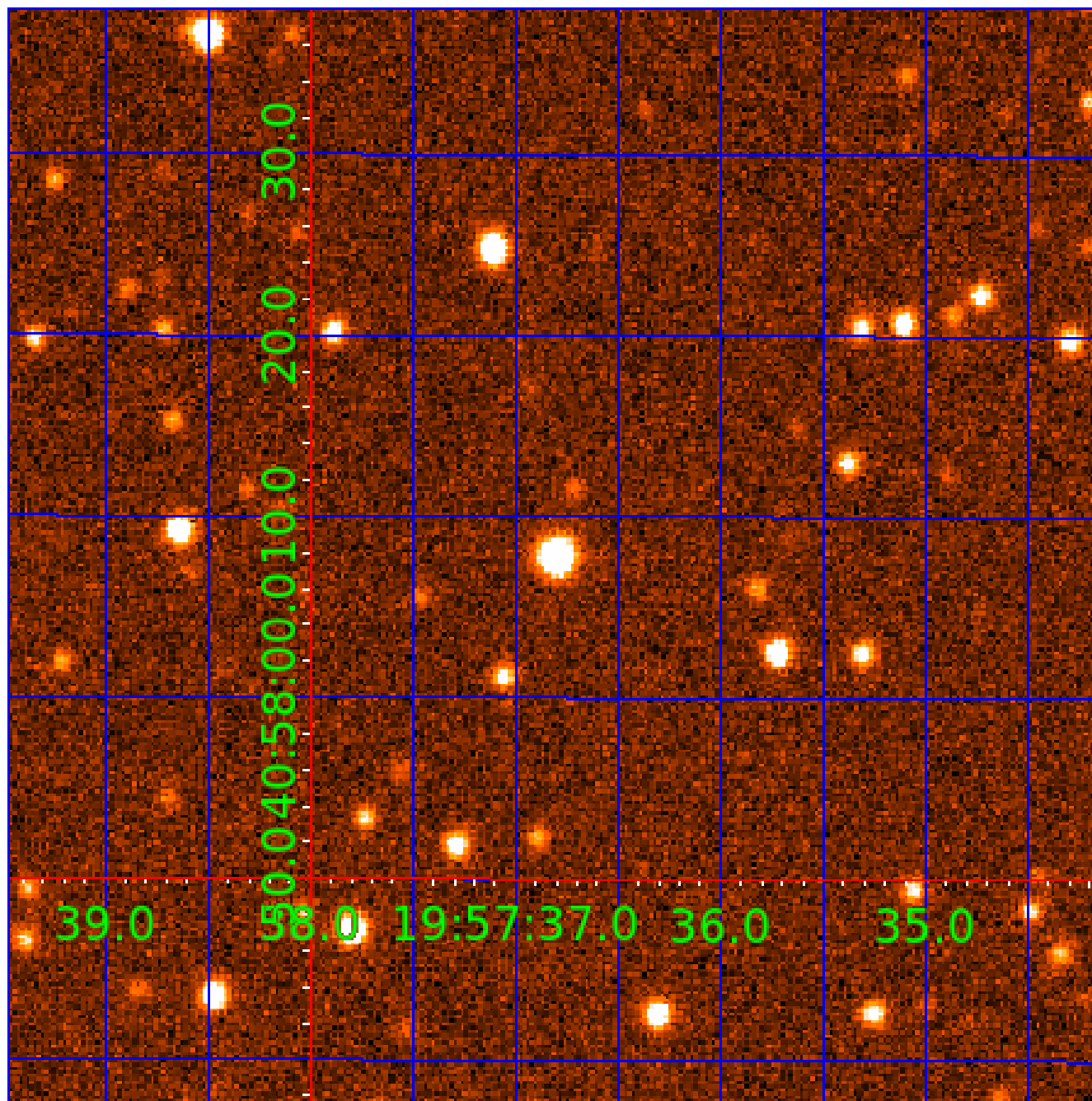


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



# KIC 005737104

## 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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005737104-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005737104-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
005737104-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT
005737104-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

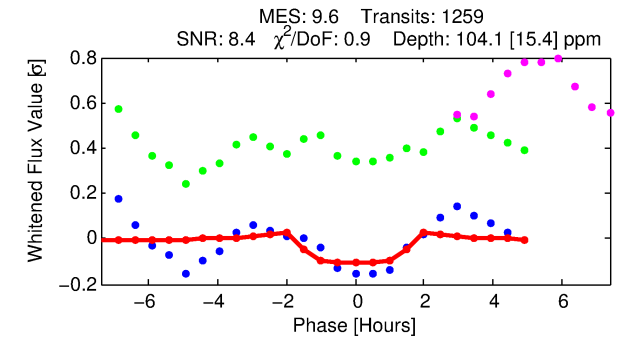
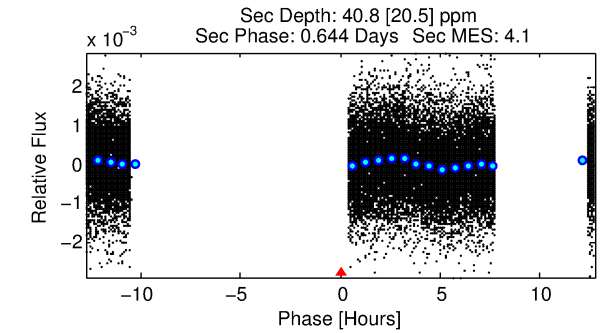
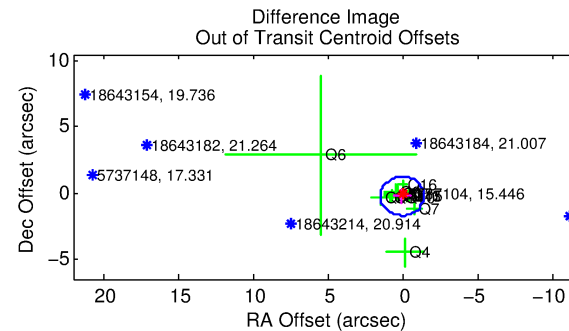
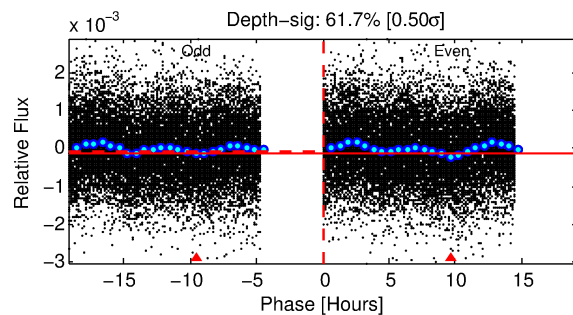
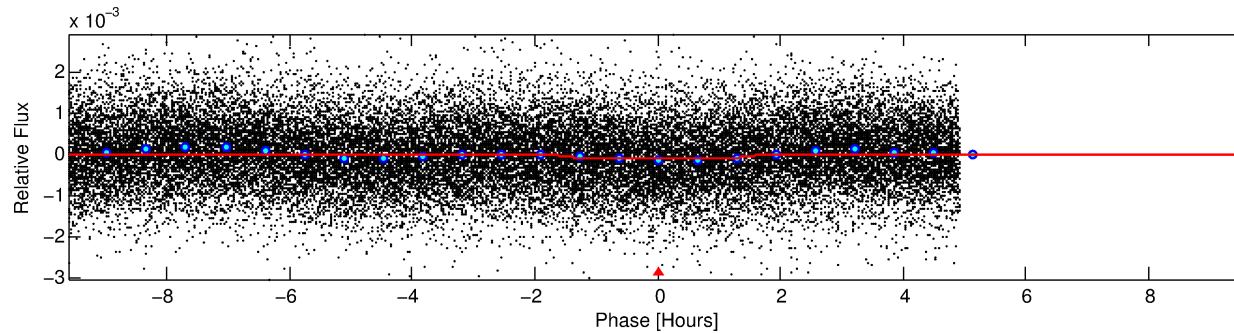
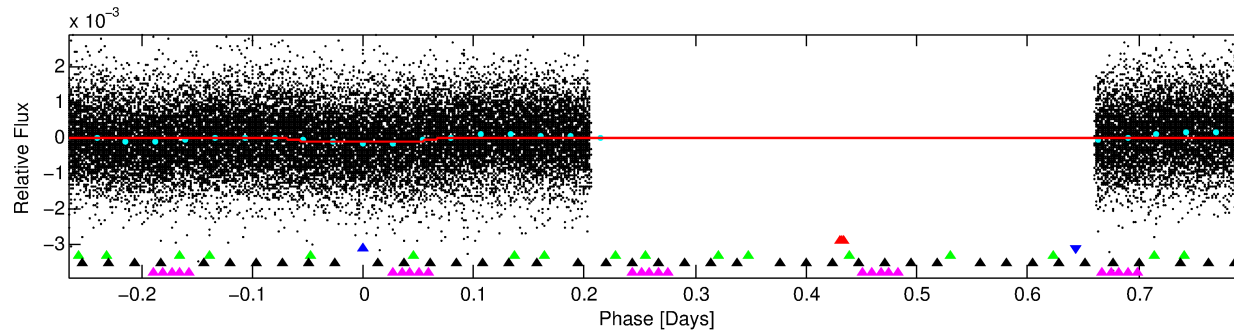
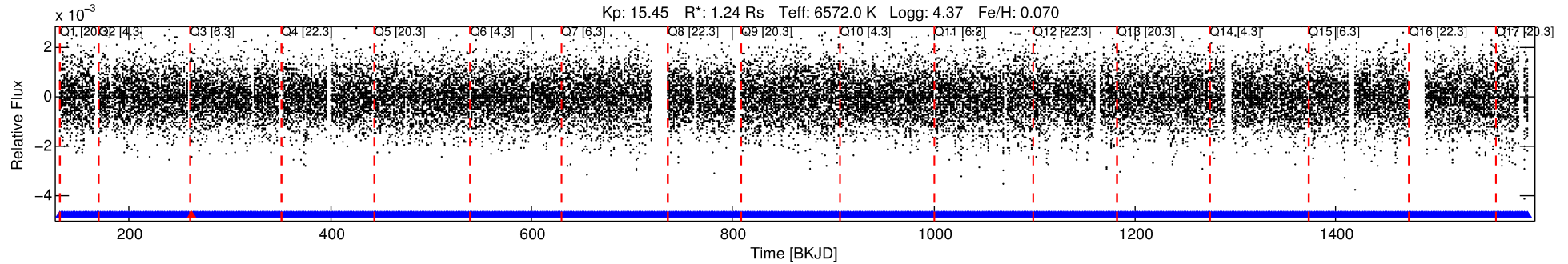
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005737104-02

No Significant Match Found

# DV One-Page Summary

KIC: 5737104 Candidate: 2 of 5 Period: 1.064 d



## DV Fit Results:

Period = 1.06364 [0.00001] d  
Epoch = 131.7976 [0.0035] BKJD  
Rp/R\* = 0.0101 [0.0065]  
a/R\* = 1.97 [5.12]  
b = 0.73 [2.31]  
Seff = 5181.28 [2053.41]  
Teff = 2163 [214] K  
Rp = 1.36 [0.97] Re  
a = 0.0222 [0.0055] AU  
Ag = 5.98 [8.59] [0.58 $\sigma$ ]  
Teffp = 5231 [1832] K [1.66 $\sigma$ ]

## DV Diagnostic Results:

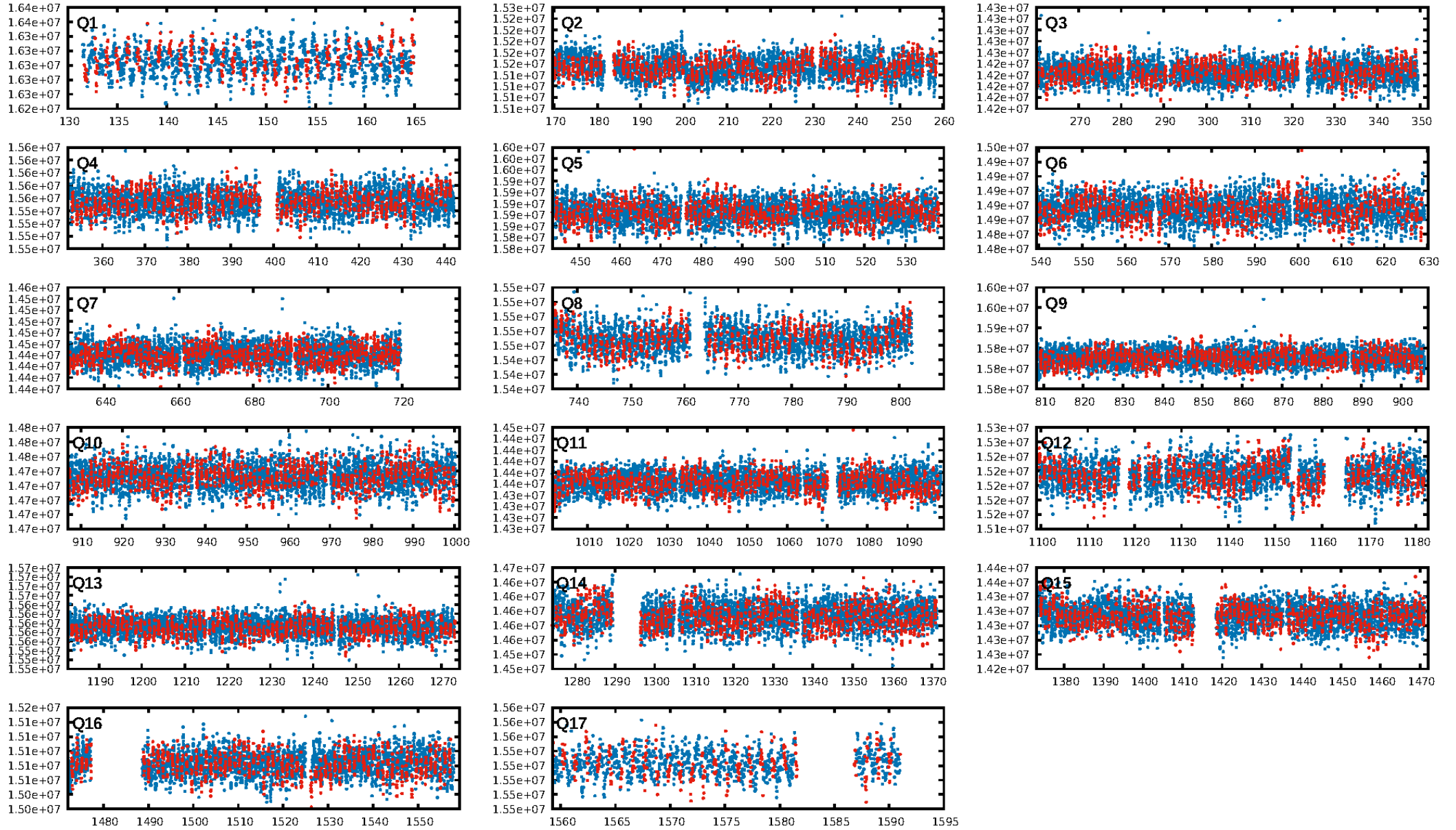
ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
LongPeriod-sig: 100.0% [136.13 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.11e-26  
RollingBand-fgt: 1.00 [1200/1201]  
GhostDiagnostic-chr: 1.641  
Centroid-sig: 78.4%  
Centroid-so: 1.149 arcsec [1.14 $\sigma$ ]  
OotOffset-rm: 0.230 arcsec [0.47 $\sigma$ ]  
KicOffset-rm: 0.335 arcsec [0.67 $\sigma$ ]  
OotOffset-st: 3/3/4/3 [13]  
KicOffset-st: 3/3/4/3 [13]  
DiffImageQuality-fgm: 0.85 [11/13]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:41:26 Z

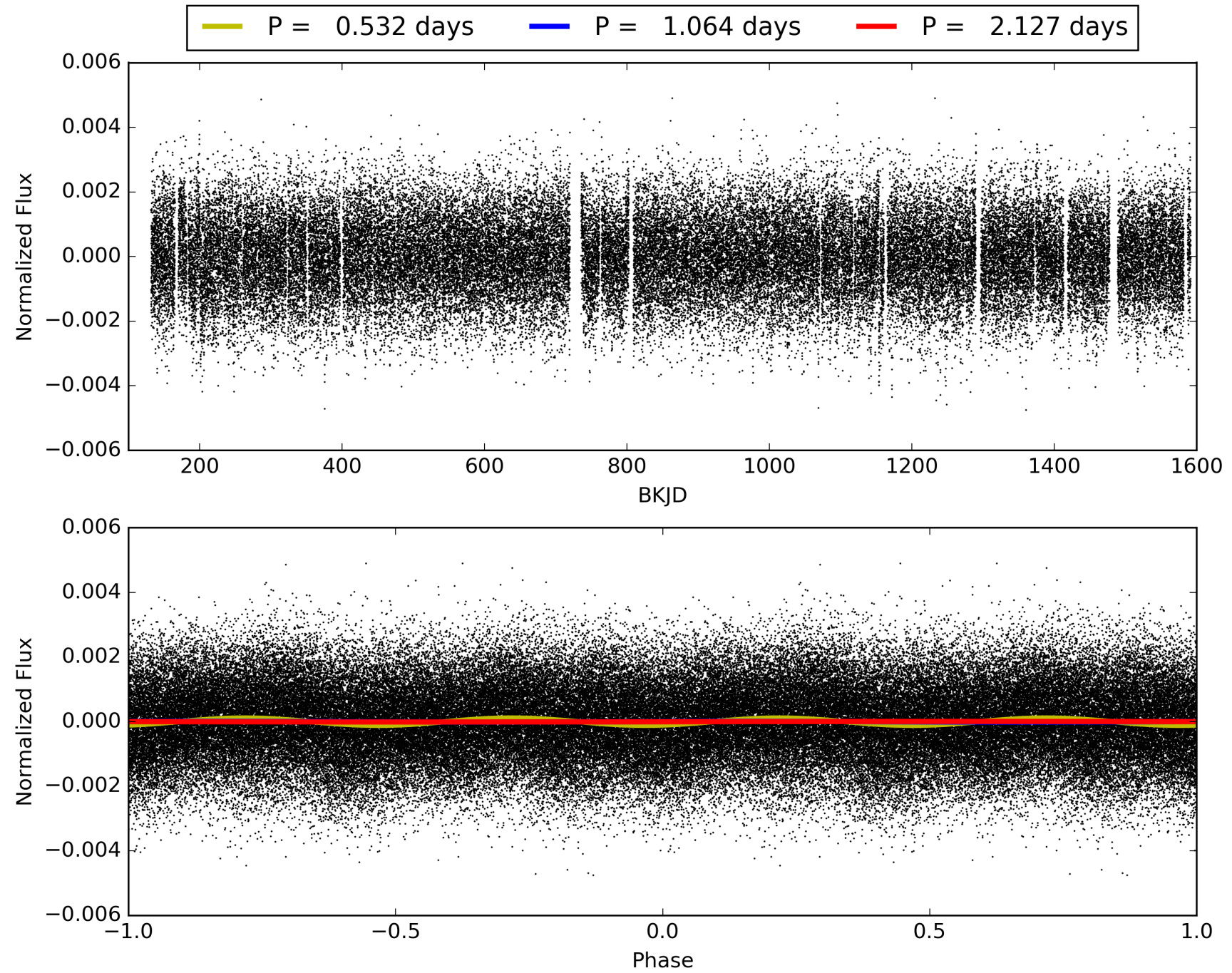
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 005737104-02, PDC Light Curves

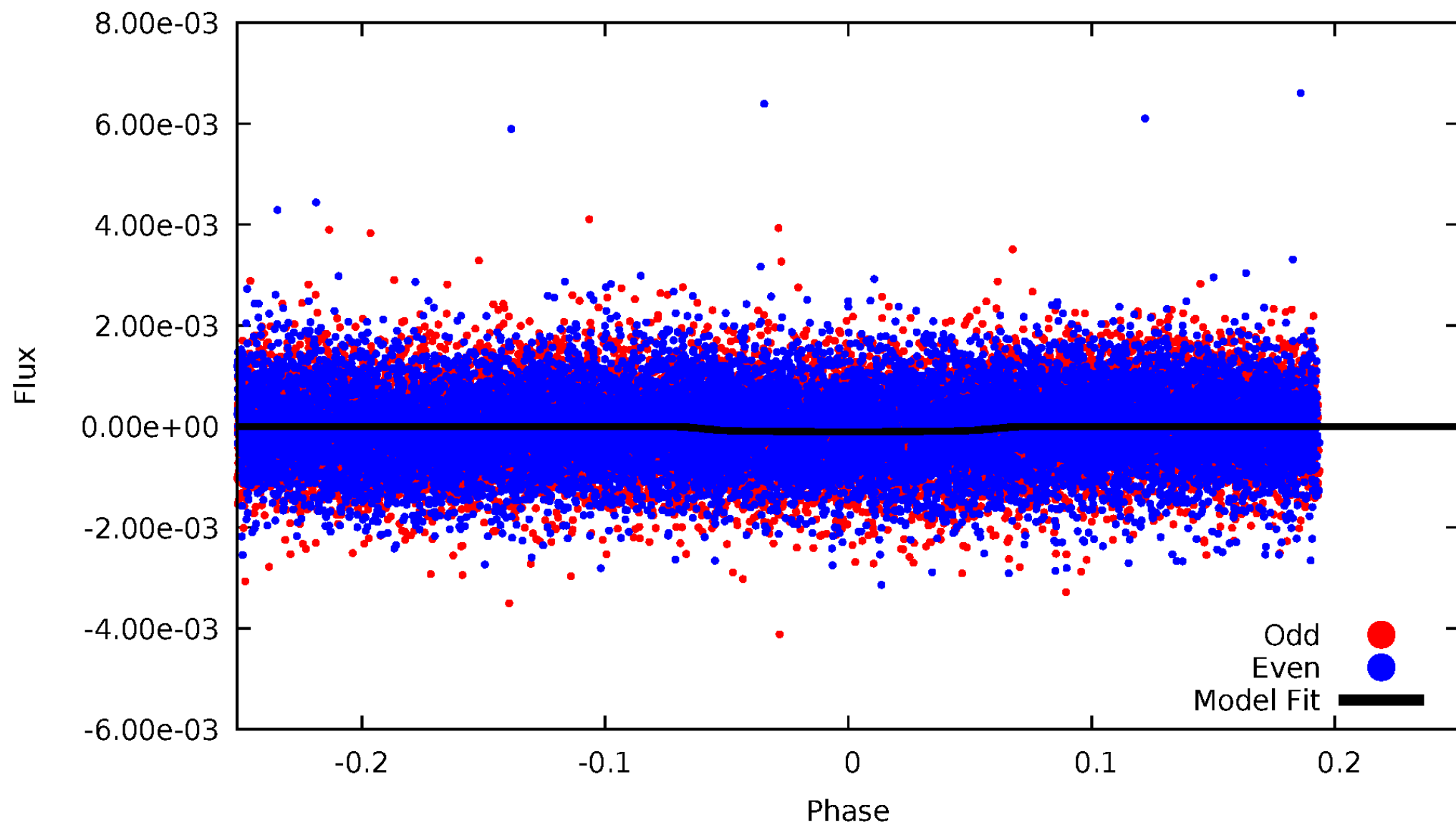


TCE 005737104-02



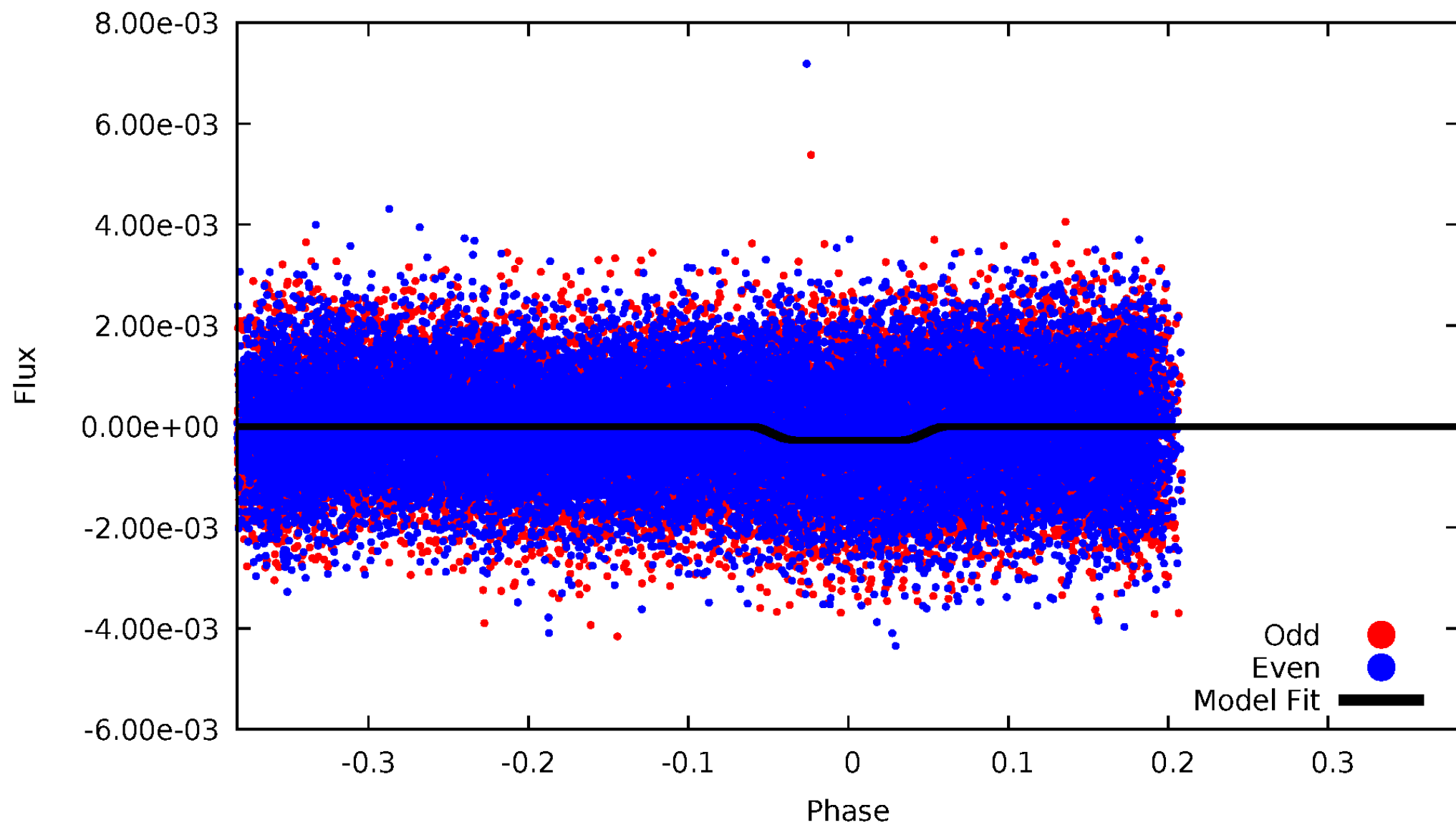
# DV Odd/Even

TCE 005737104-02



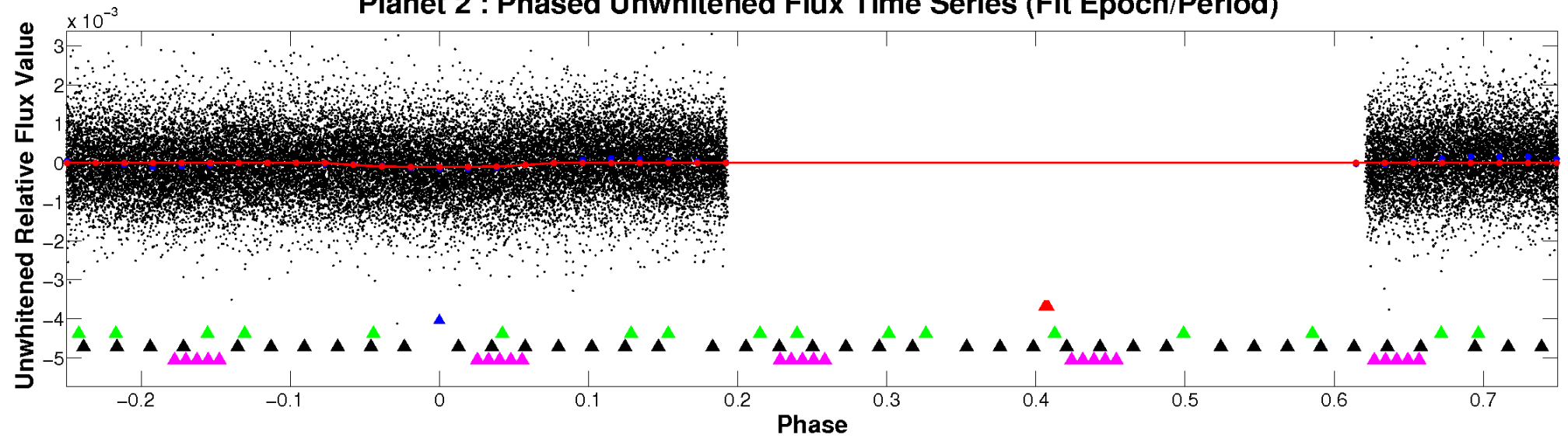
# ALT Odd/Even

TCE 005737104-02

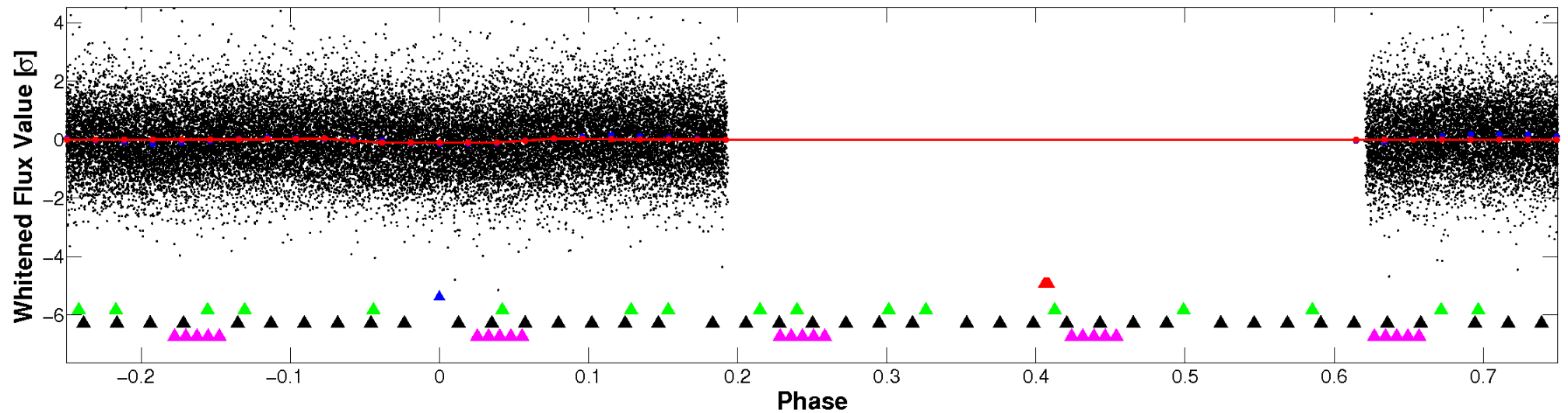


# Non-Whitened Vs. Whitened Light Curve

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



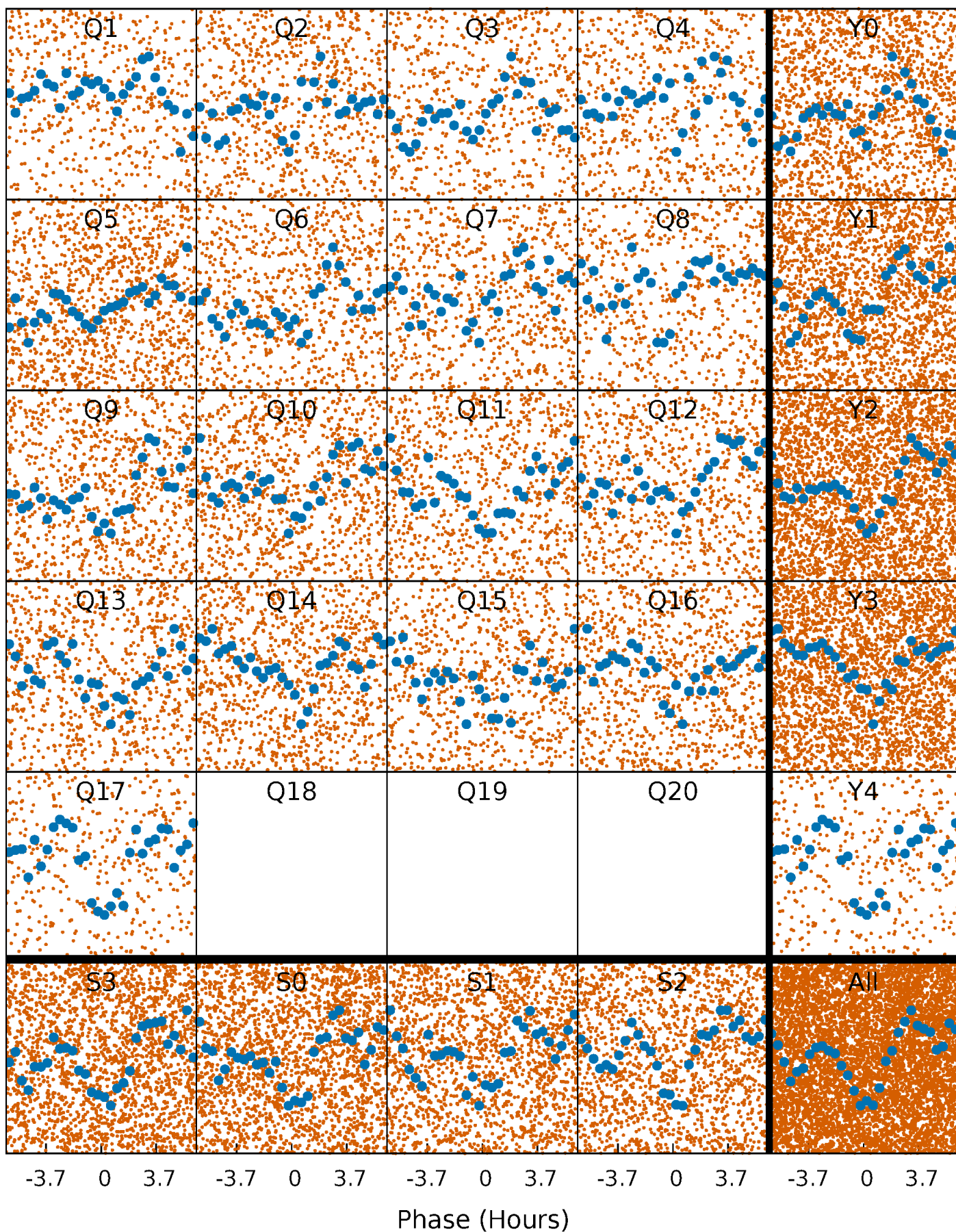
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

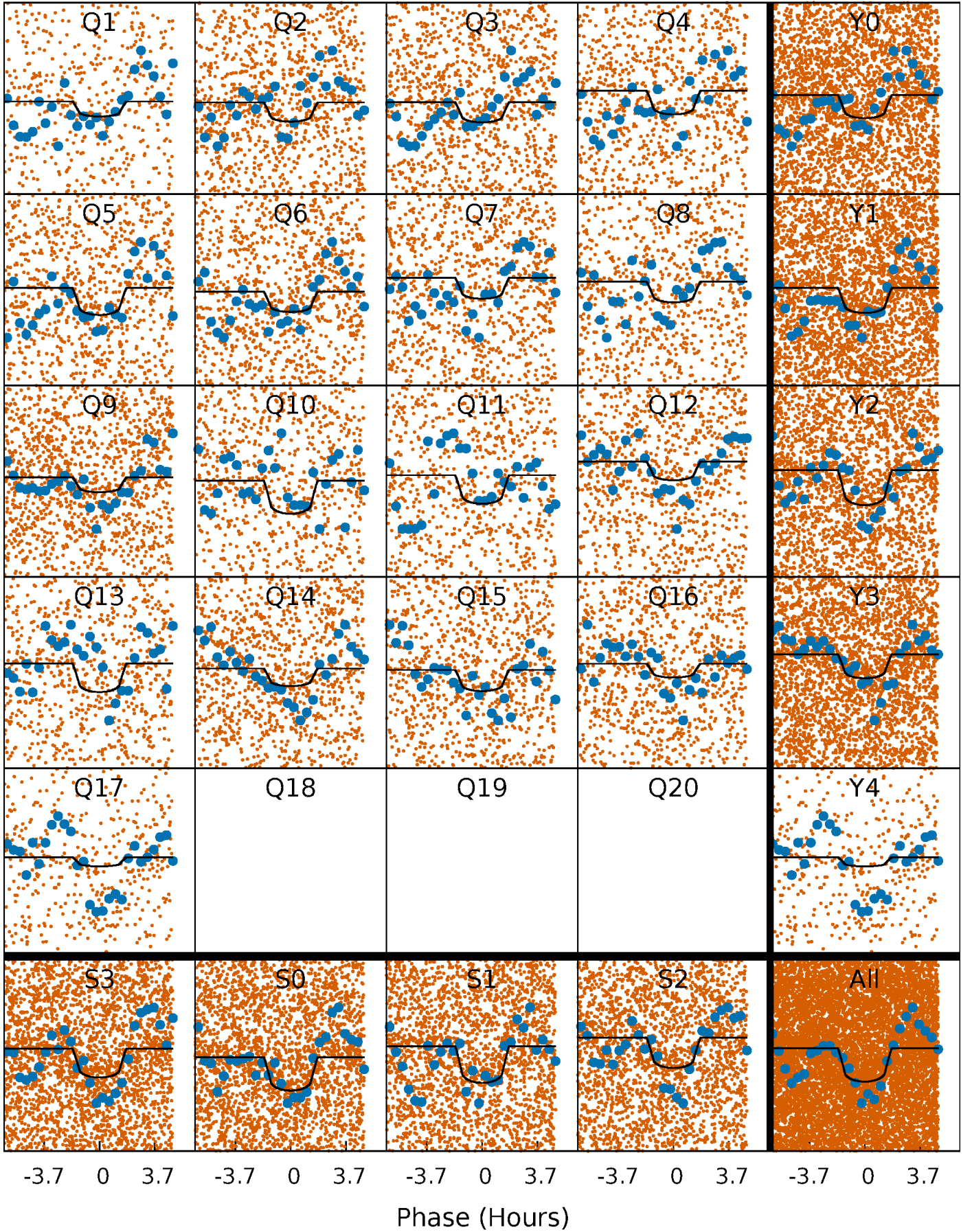
TCE 005737104-02 P= 1.063643 Days  $T_0=131.797615$  (BKJD)





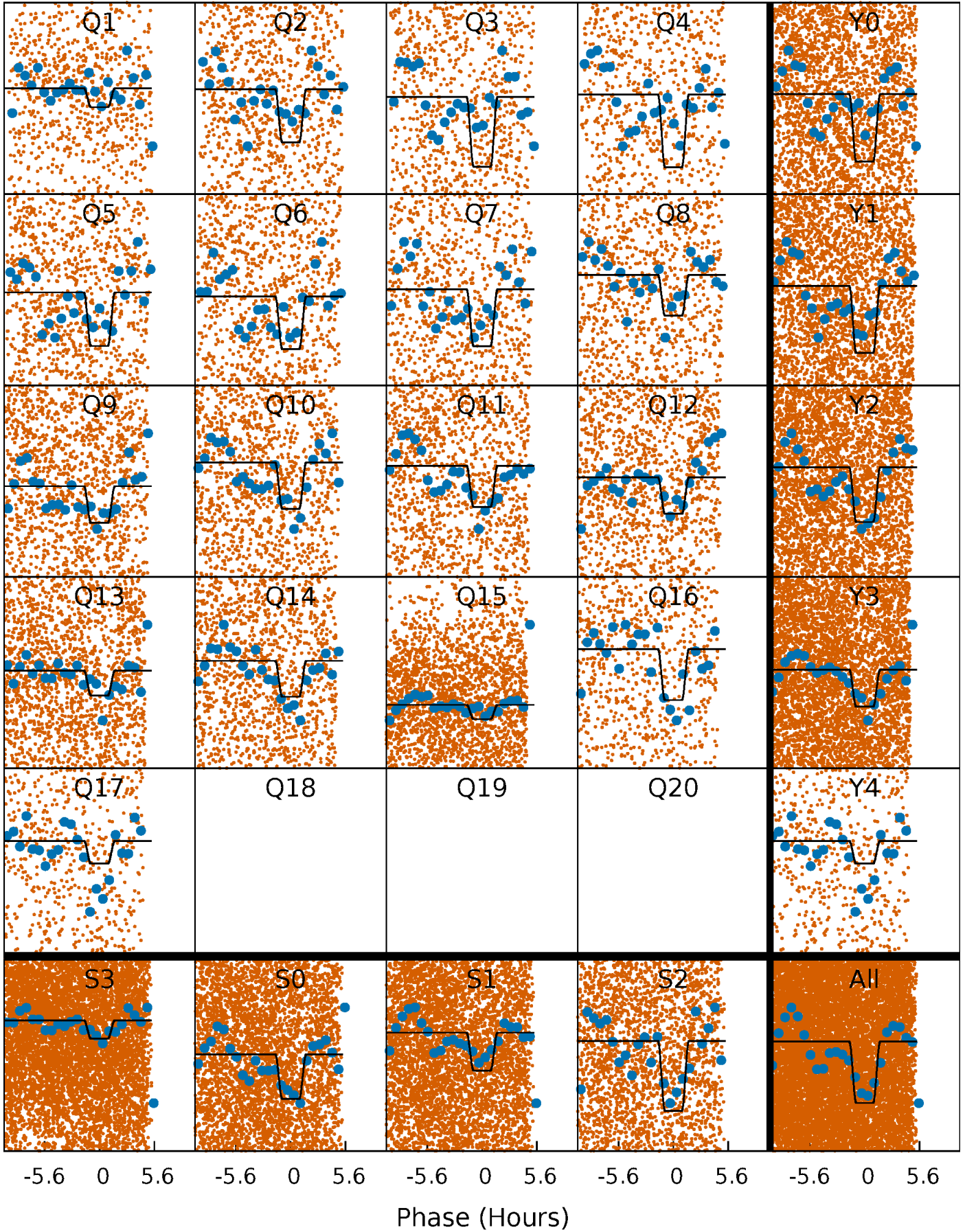
# DV Quarter-Phased Transit Curves

TCE 005737104-02   P= 1.063643 Days    $T_0=131.797615$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

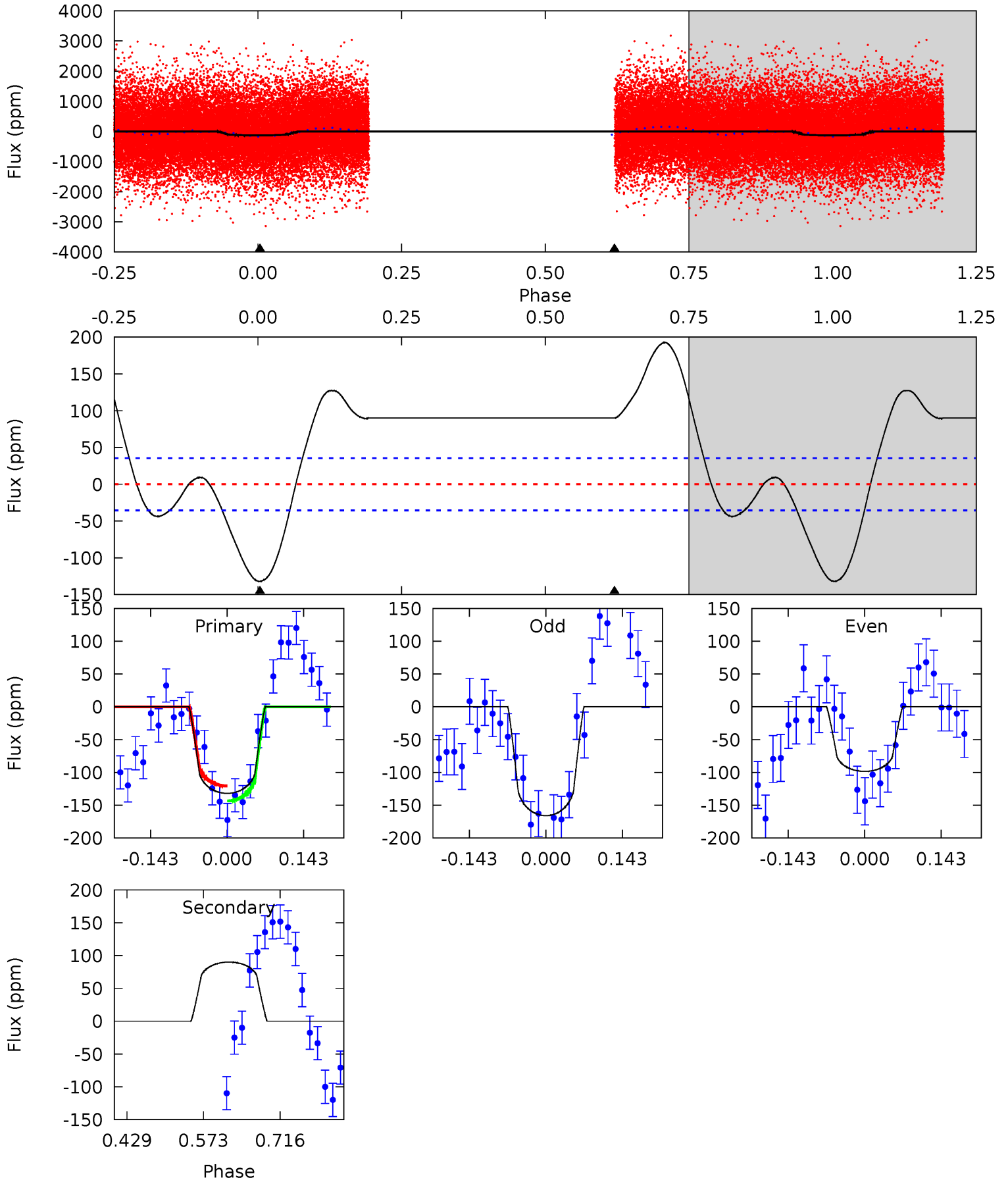
TCE 005737104-02 P= 1.063668 Days  $T_0=131.780663$  (BKJD)



# DV Model-Shift Uniqueness Test

005737104-02, P = 1.063643 Days, E = 130.733972 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
16.7	-11.4	0	0	4.49	1.46	7.57	16.7	16.7	-11.4	-11.4	4.28	1.09	0.59	1.43

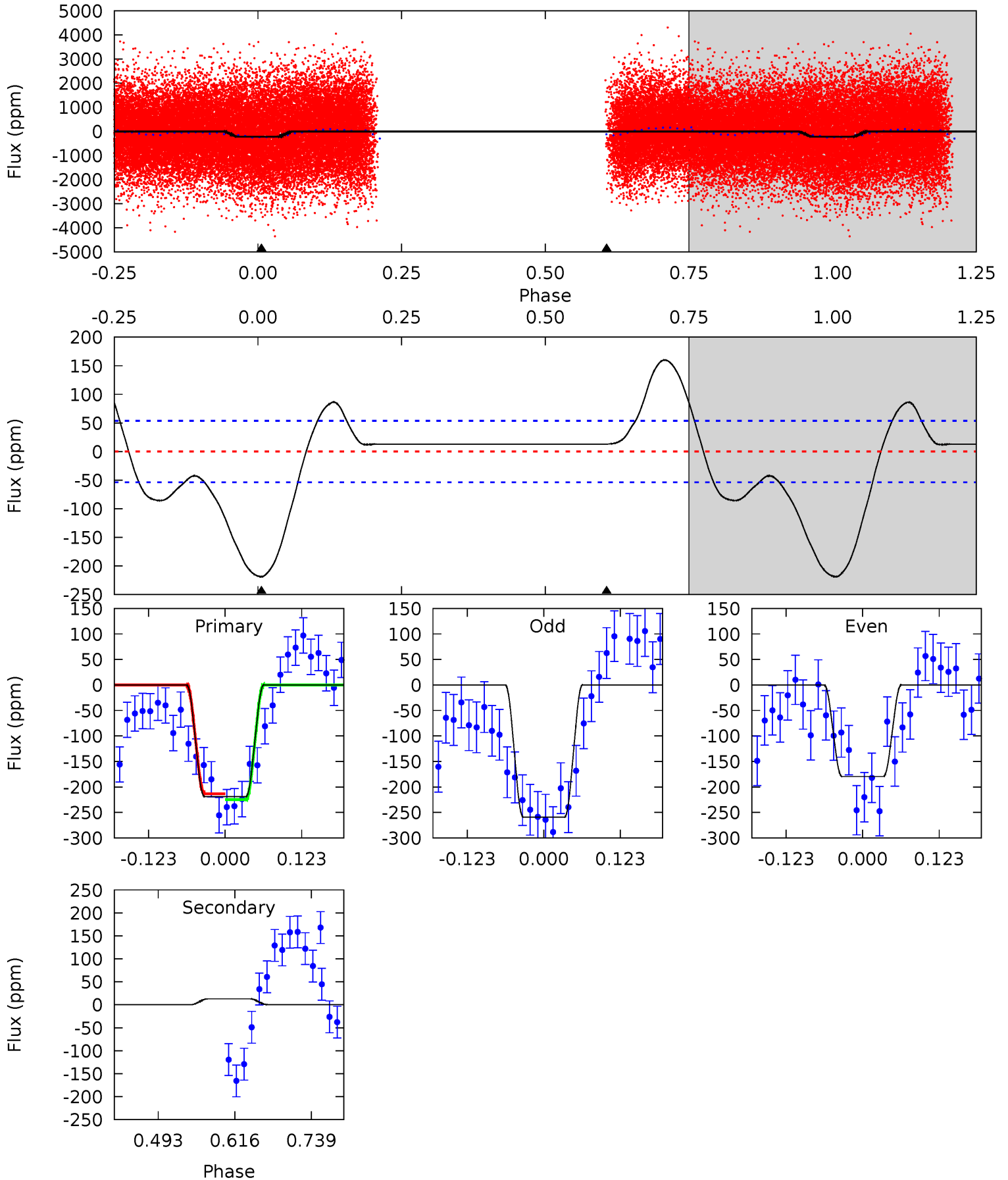




# Alt Model-Shift Uniqueness Test

005737104-02, P = 1.063668 Days, E = 130.716995 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
18.5	-1.09	0	0	4.52	1.54	5.71	18.5	18.5	-1.09	-1.09	3.36	1.03	0.42	0.46



### Stellar Parameters For KIC 005737104

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6572^{+187}_{-281}$	$4.365^{+0.065}_{-0.195}$	$0.070^{+0.200}_{-0.400}$	$1.238^{+0.363}_{-0.168}$	$1.298^{+0.150}_{-0.224}$	$0.964^{+0.328}_{-0.474}$
	+3%/-4%	+1%/-4%	+286%/-571%	+29%/-14%	+12%/-17%	+34%/-49%
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 005737104-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$90 \pm 8$	$1.46^{+0.97}_{-0.84}$	$3084^{+202}_{-184}$	$-6321^{+1269}_{-4362}$	$-11.314^{+7.124}_{-49.795}$
Alt.	$13 \pm 12$	$2.32^{+0.92}_{-0.93}$	$3071^{+220}_{-166}$	$-3682^{+521}_{-674}$	$-0.554^{+0.541}_{-1.365}$

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

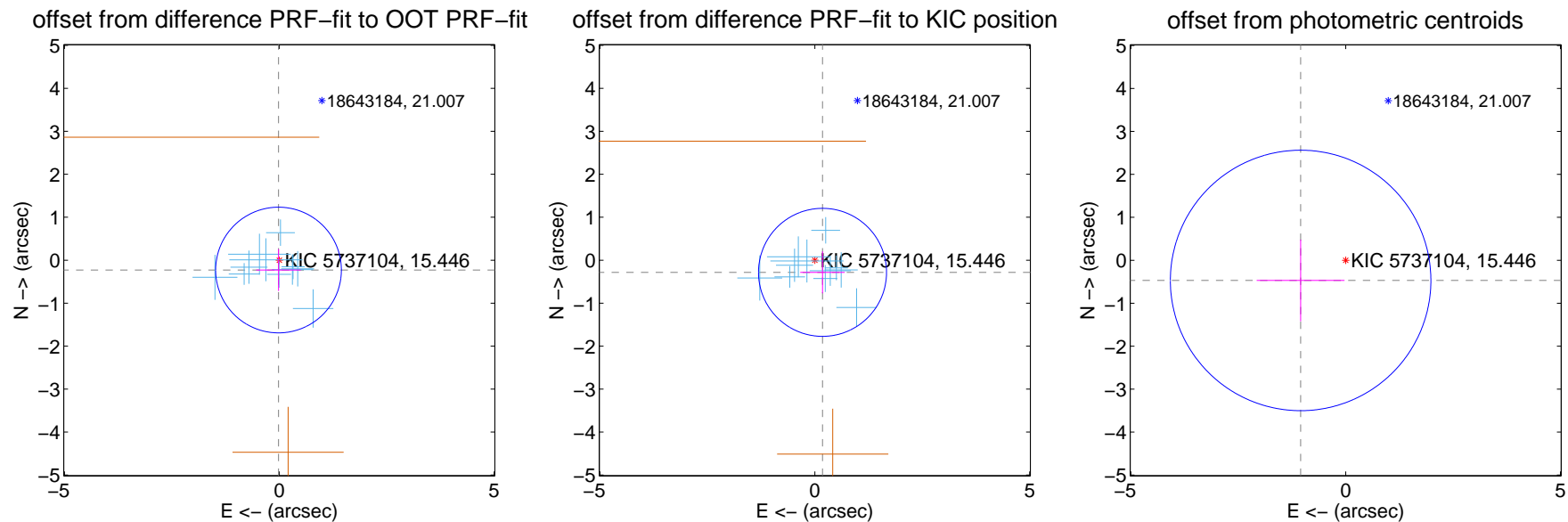
## DV Centroid Data

Supplemental centroid analysis for 005737104-02. Kepler magnitude: 15.45. Transit SNR 8.39

There are 11 quarters with good PRF difference image offsets

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

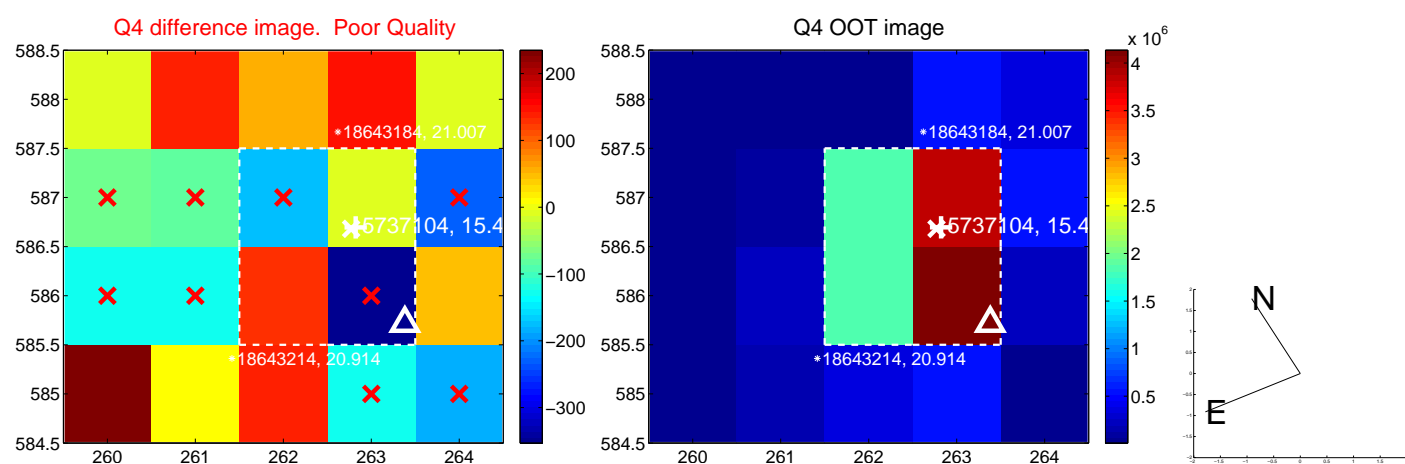
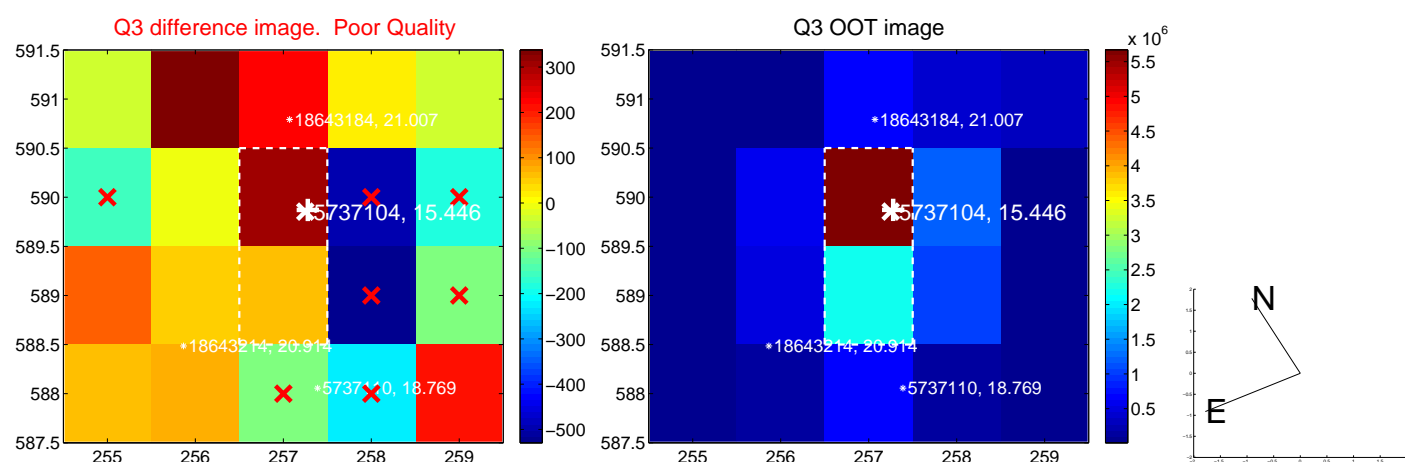
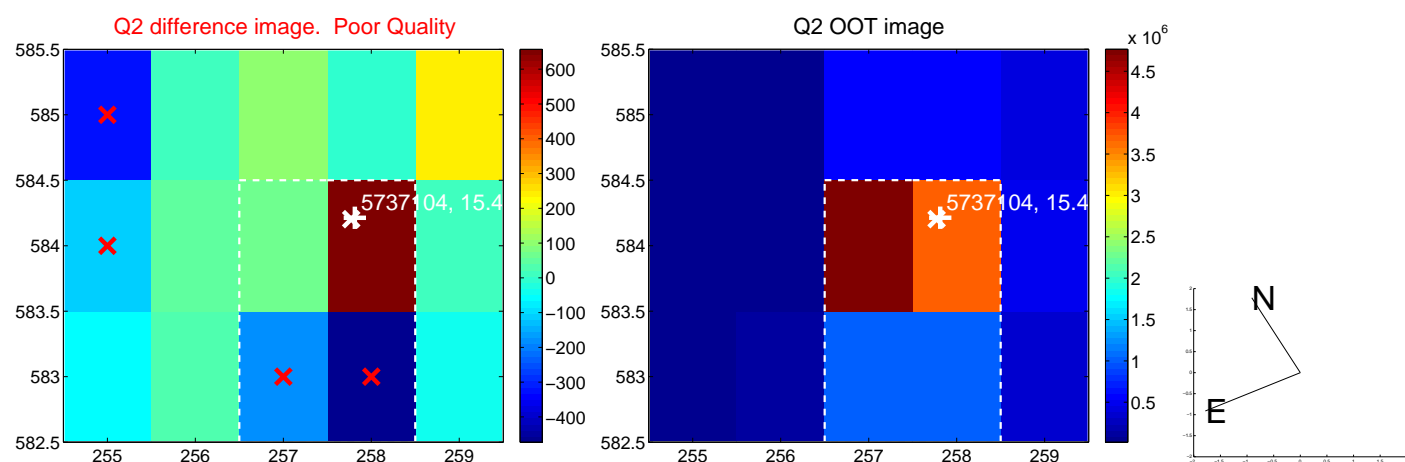
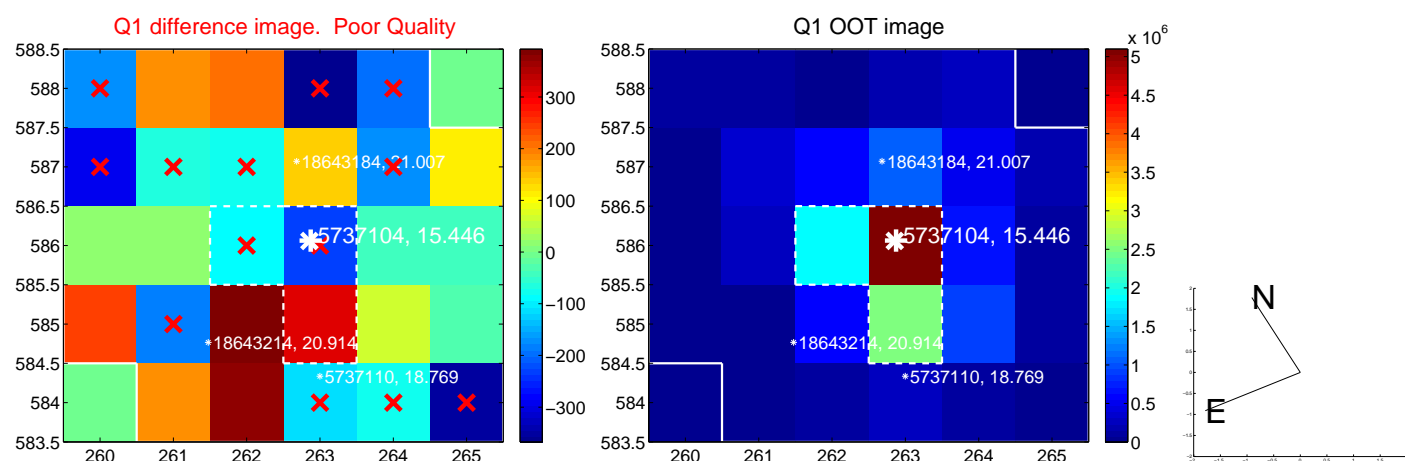
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.230 \pm 0.488$	0.47	$0.019 \pm 0.519$	$-0.229 \pm 0.487$
PRF-fit source offset from KIC position	$0.335 \pm 0.497$	0.67	$-0.179 \pm 0.519$	$-0.283 \pm 0.487$
photometric centroid source offset	$1.15 \pm 1.01$	1.14	$1.05 \pm 1.02$	$-0.47 \pm 0.95$



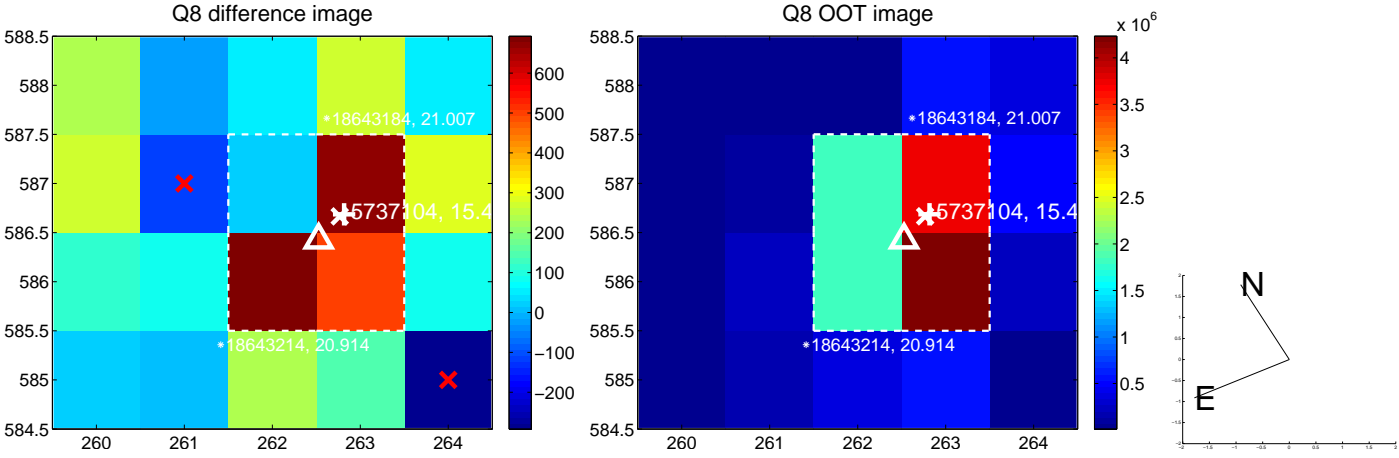
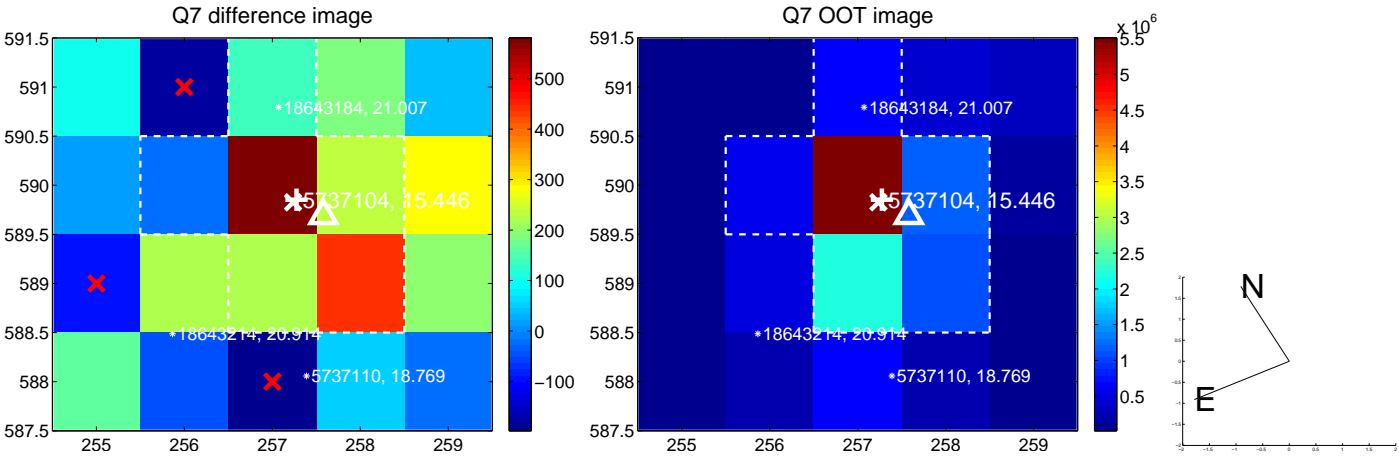
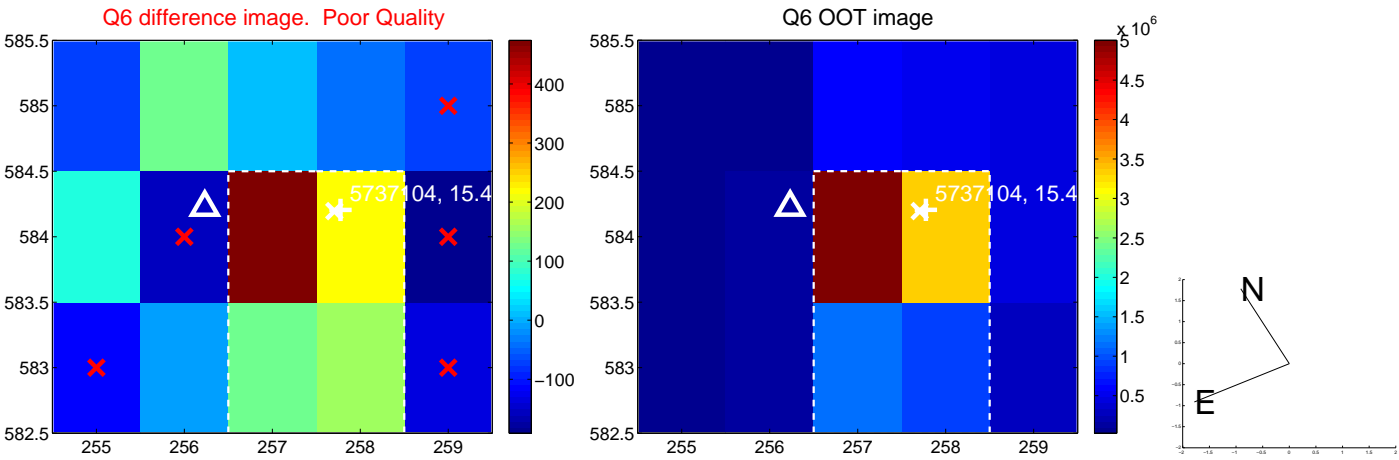
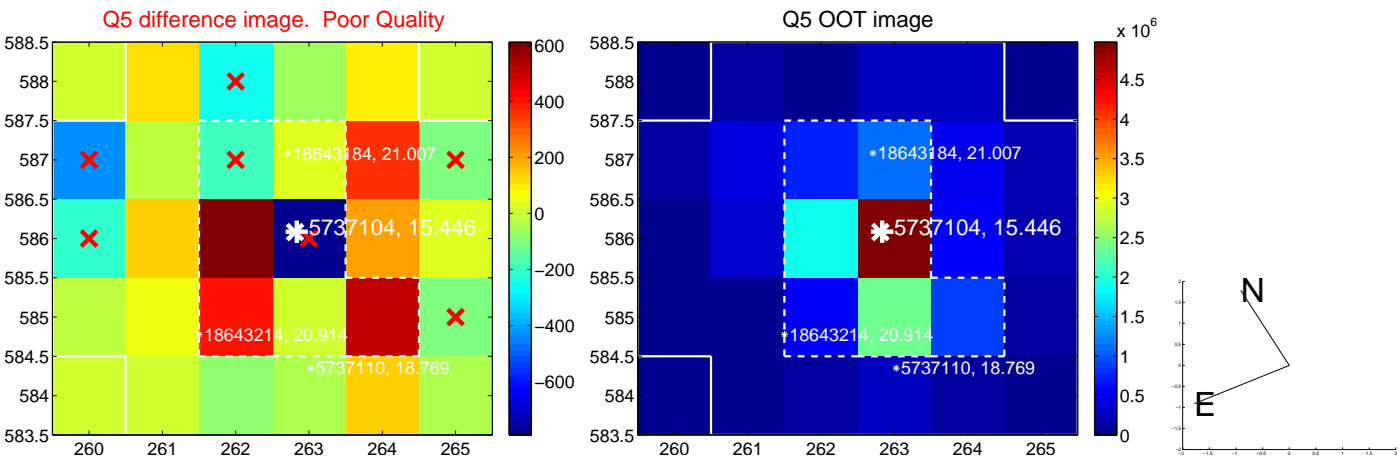
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



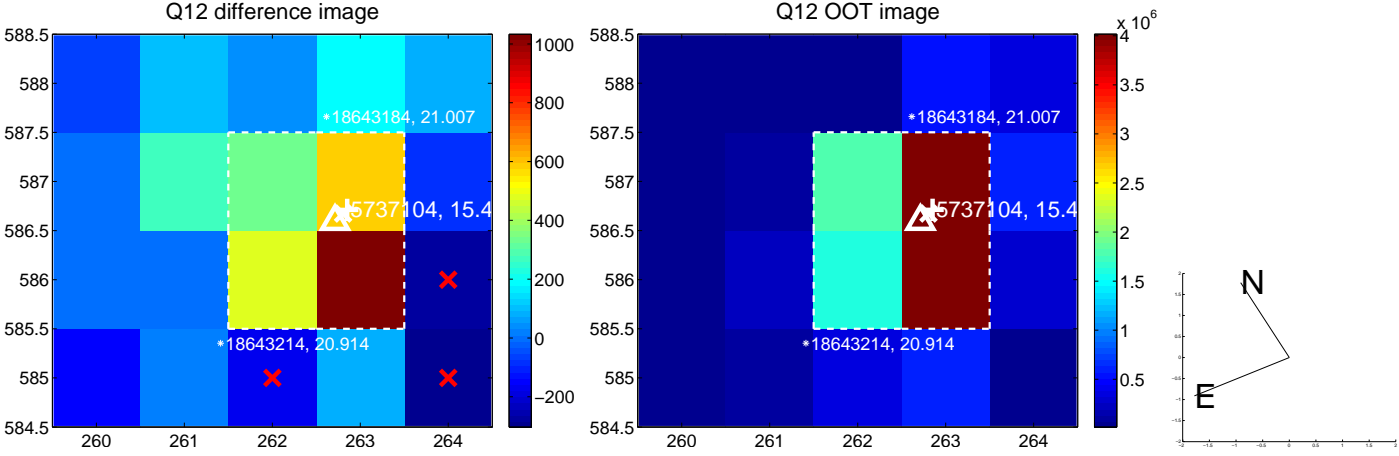
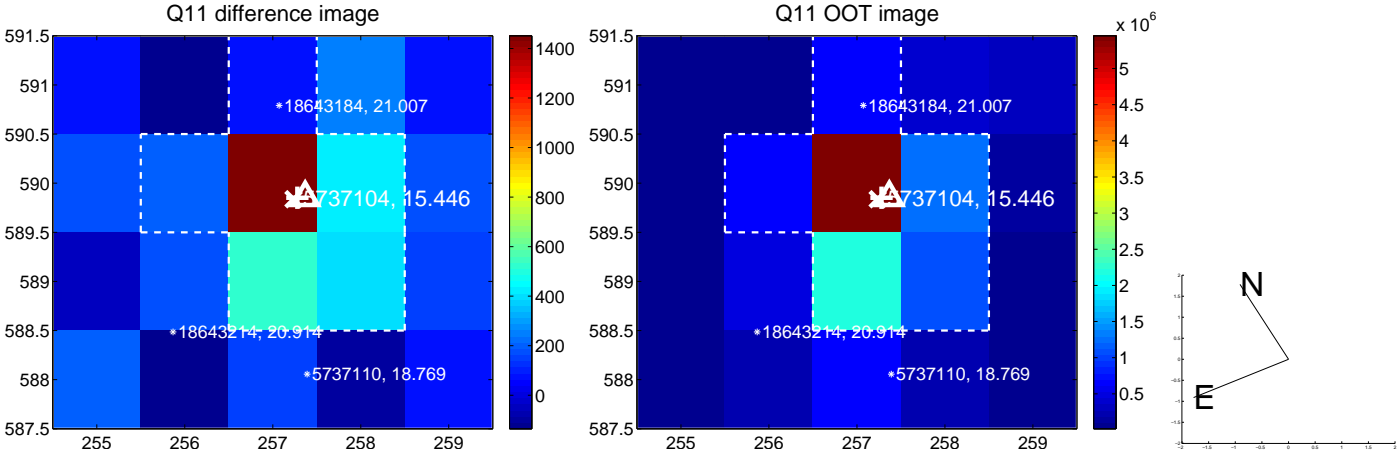
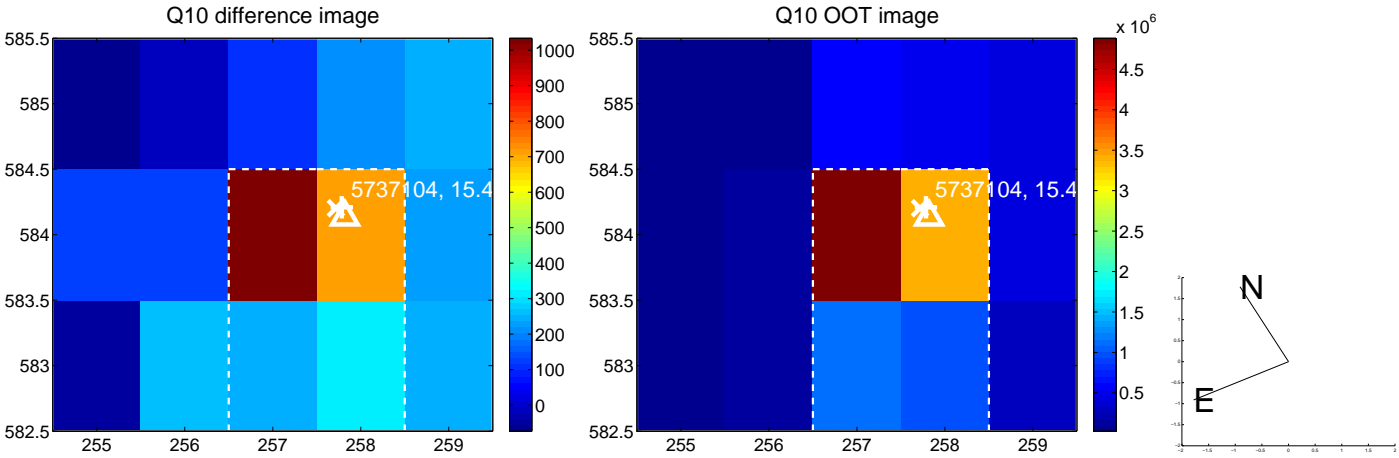
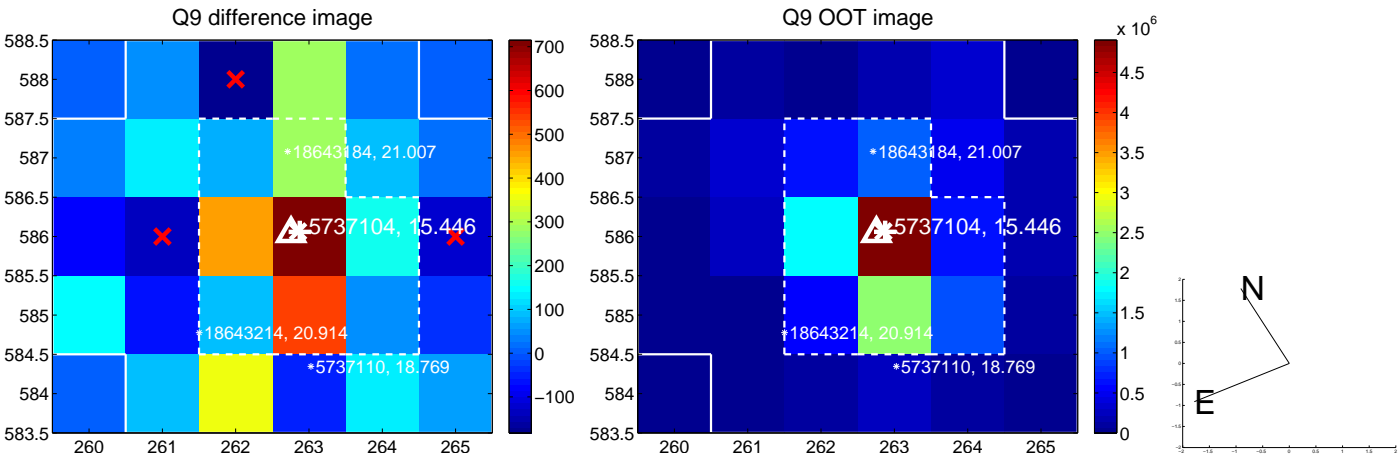
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



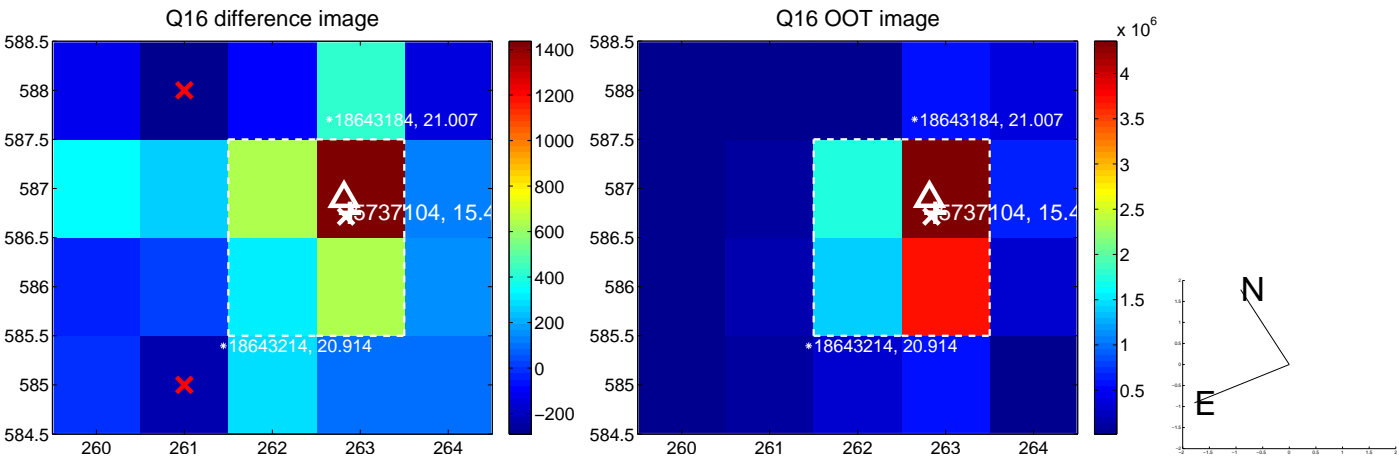
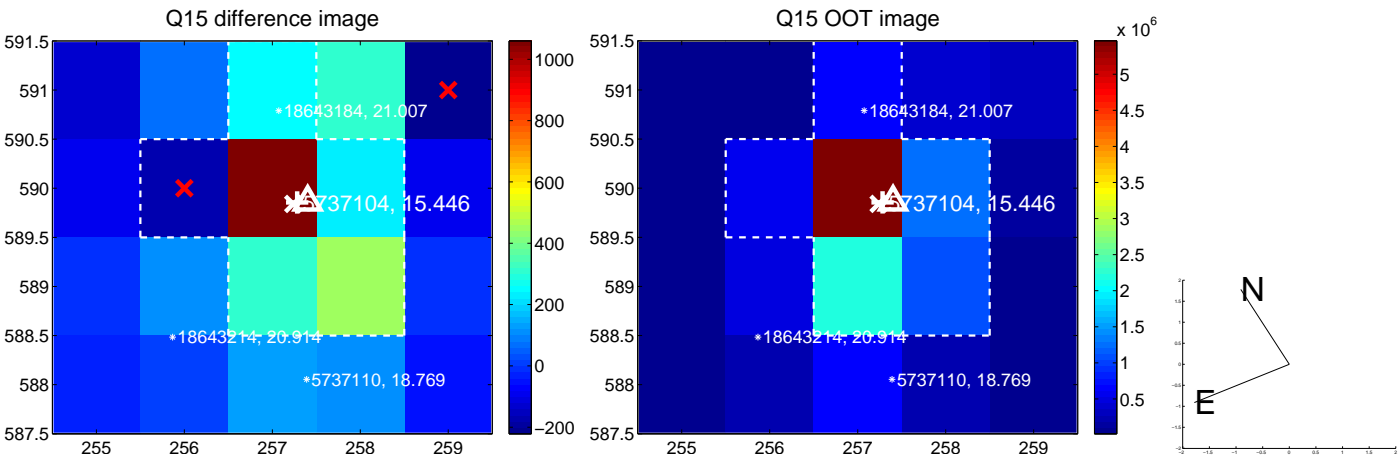
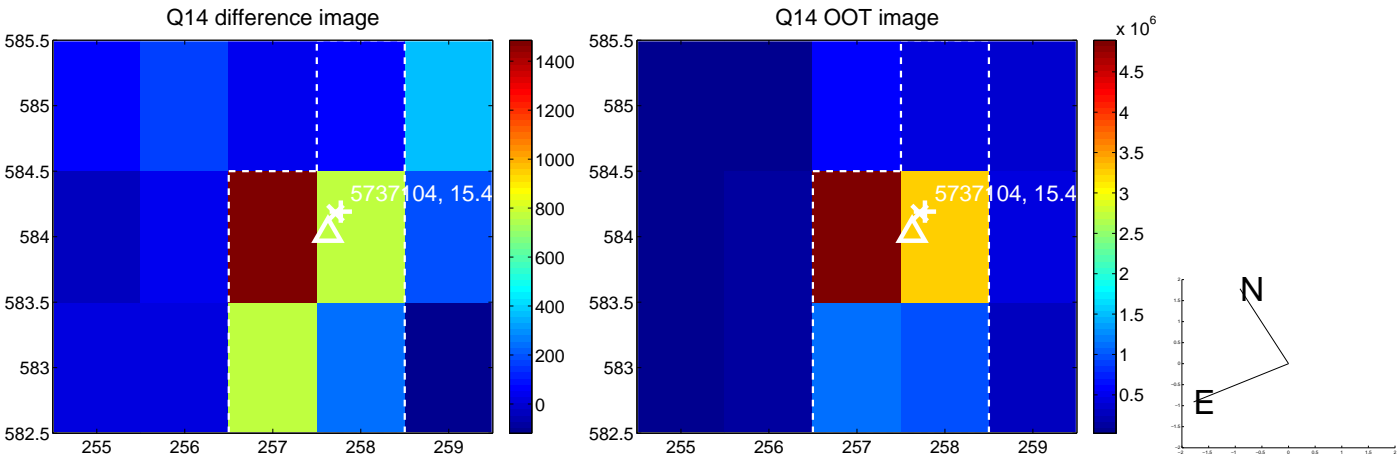
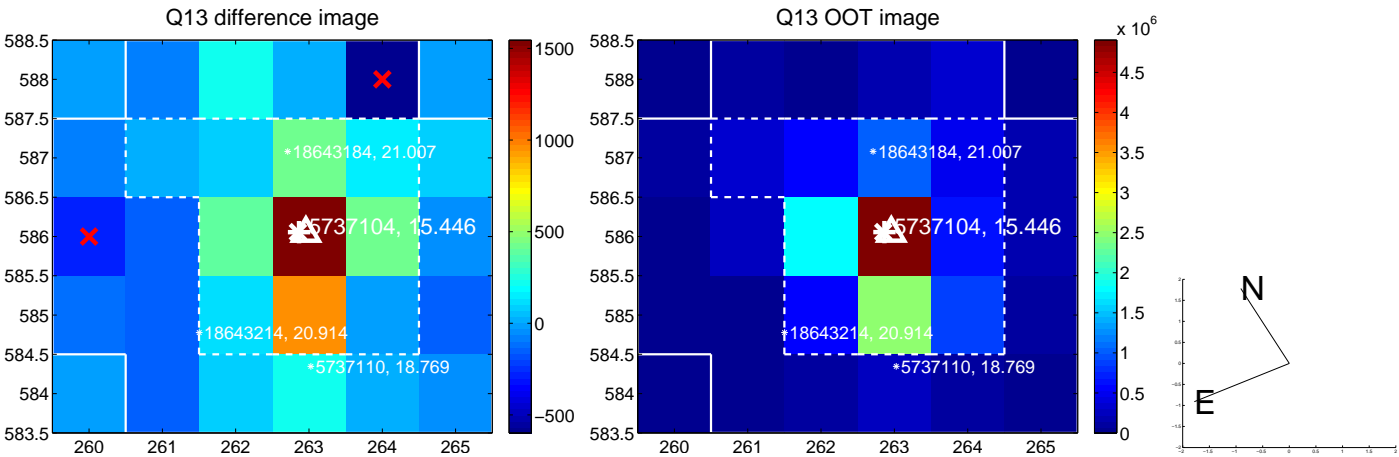
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

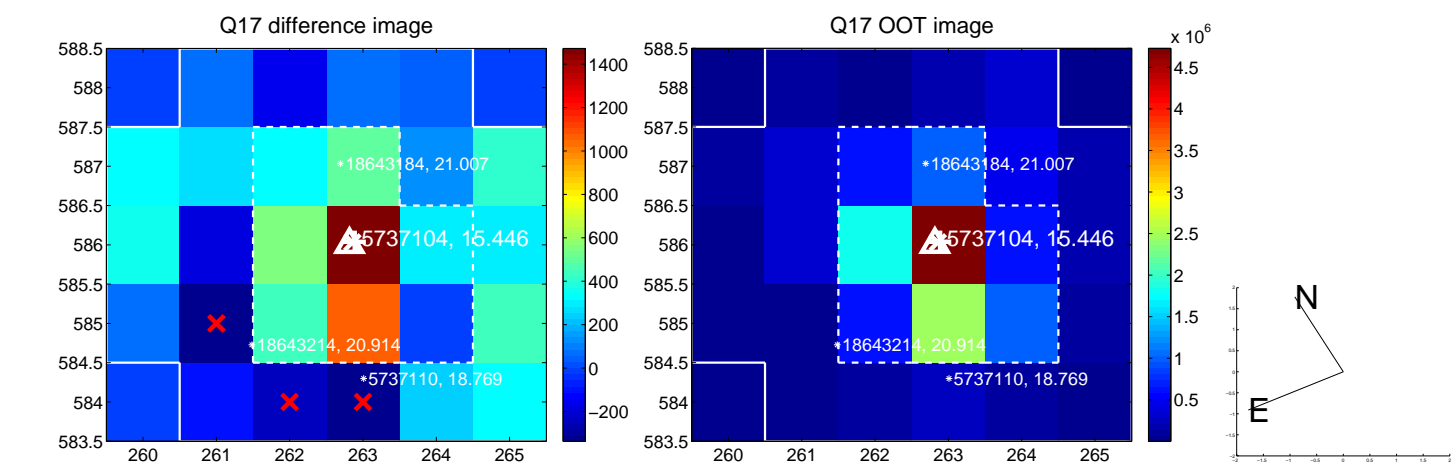


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

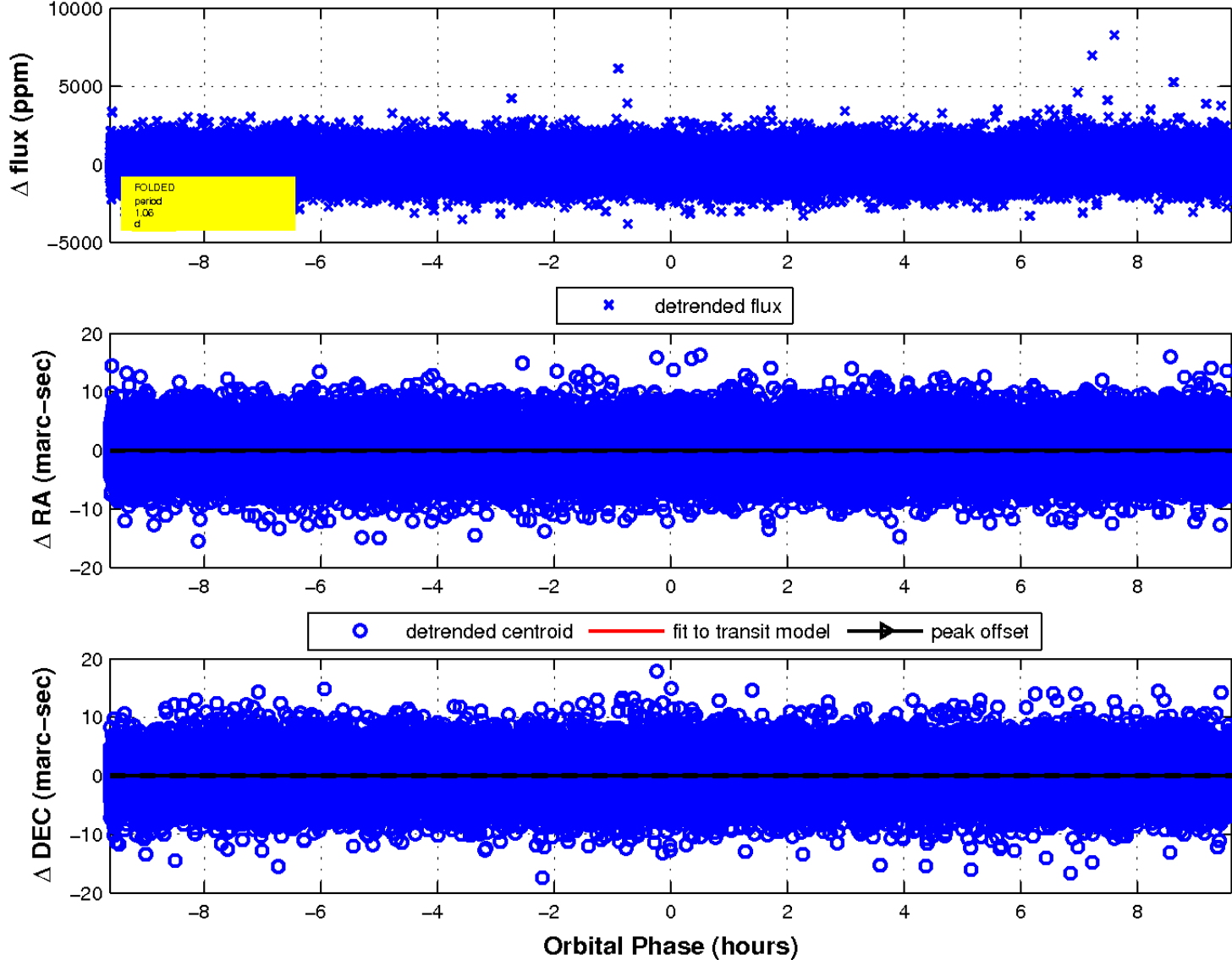




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

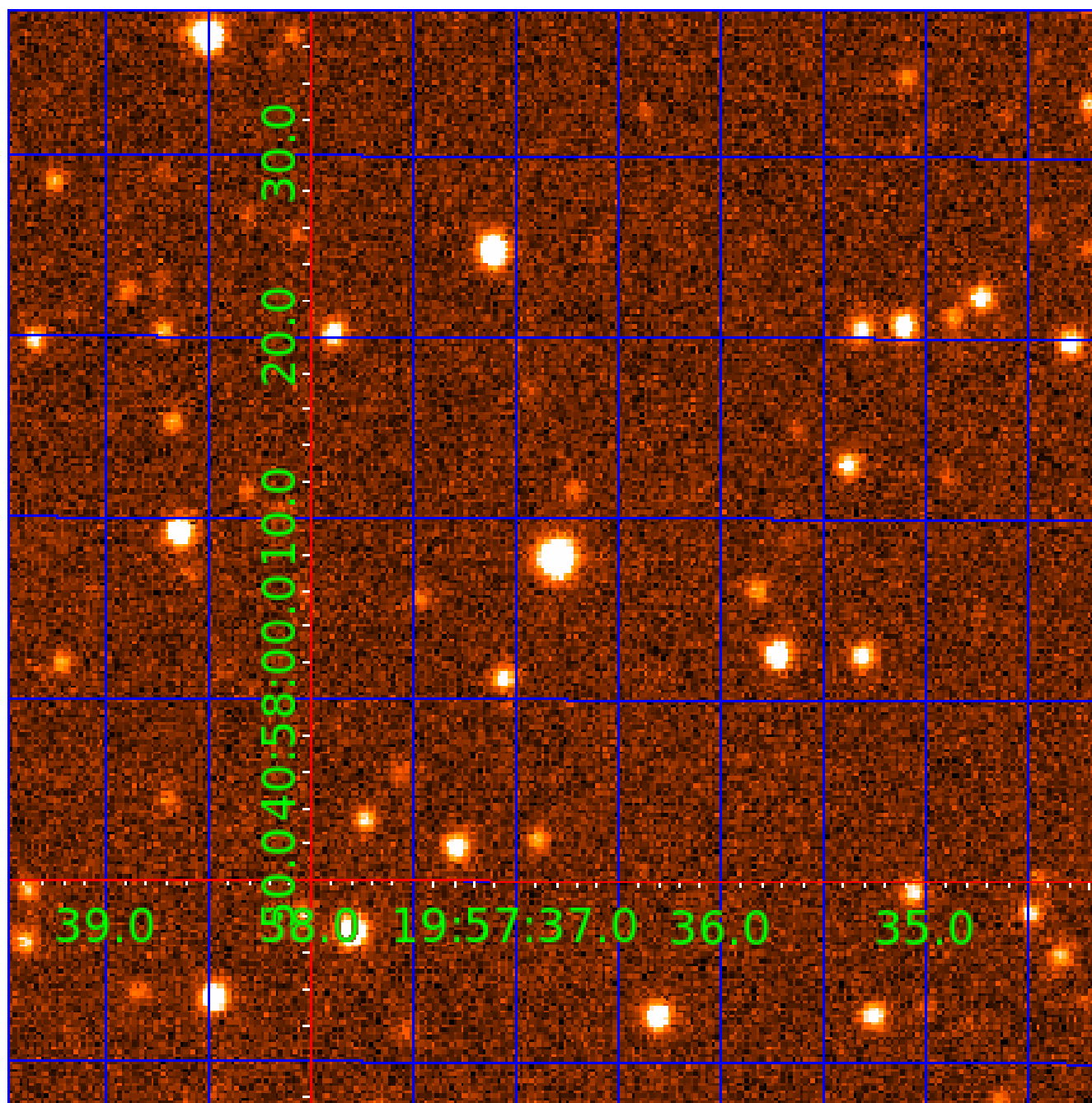


fluxWeightedCentroids, Planet 2 of 5



UKIRT Image

Declination



# KIC 005737104

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005737104-01	OBS	No	1.063640	132.232283	114.2	3.492	10.0	8.9	1.24	6572	1.55	5181.30
005737104-02	OBS	No	1.063643	131.797615	104.1	3.205	9.6	8.4	1.24	6572	1.36	5181.28
005737104-03	OBS	No	83.450027	208.214585	1757.3	5.279	8.3	8.9	1.24	6572	7.85	15.43
005737104-04	OBS	No	35.982625	133.742455	1233.0	5.256	7.8	8.9	1.24	6572	5.63	47.36
005737104-05	OBS	No	57.860582	186.318311	1579.9	1.837	7.3	7.1	1.24	6572	5.18	25.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005737104-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005737104-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005737104-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
005737104-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT
005737104-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

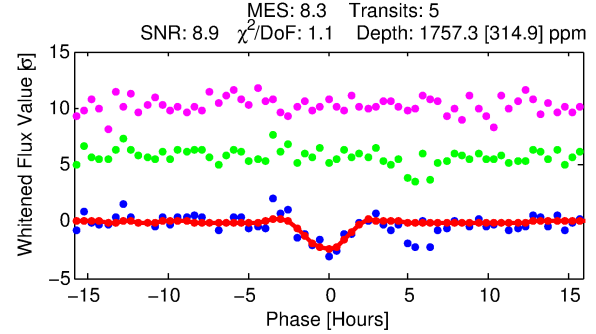
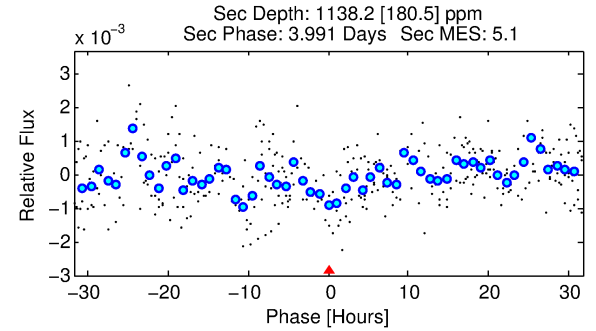
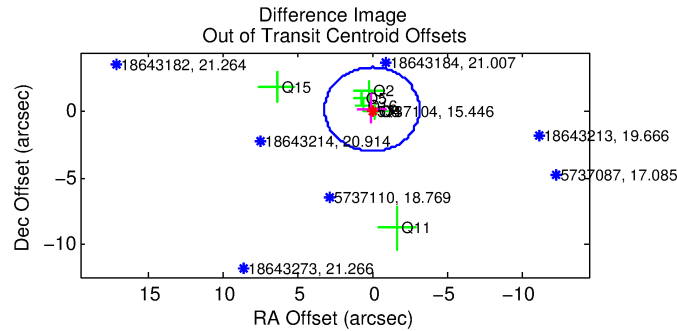
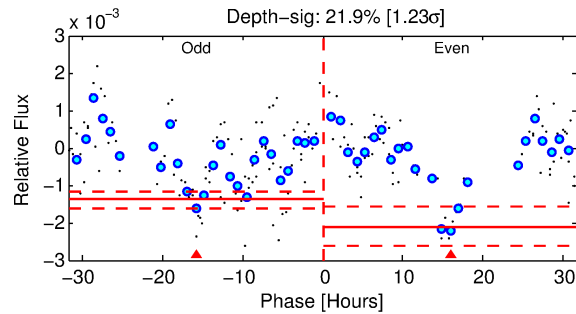
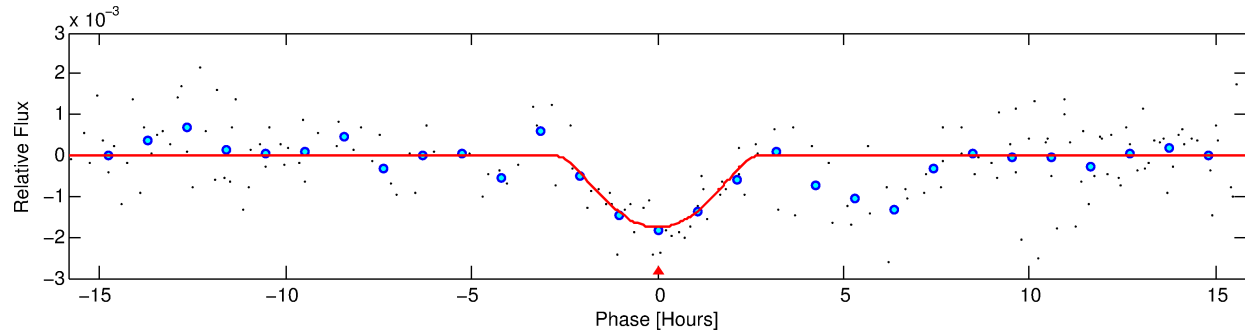
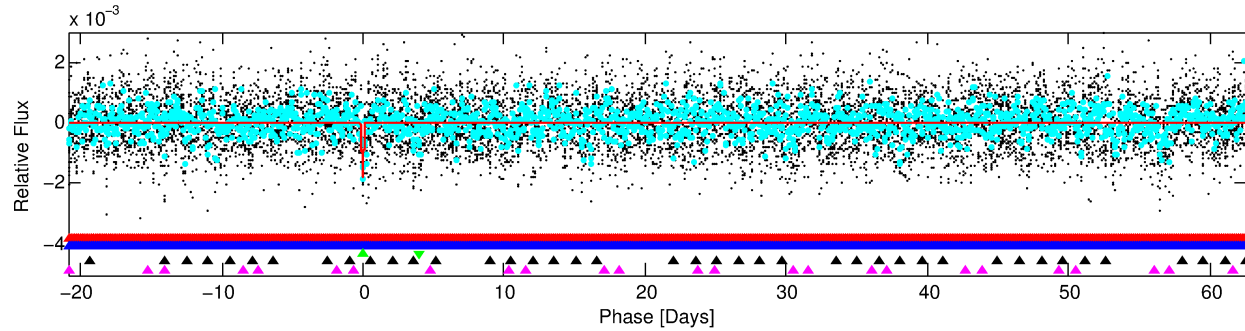
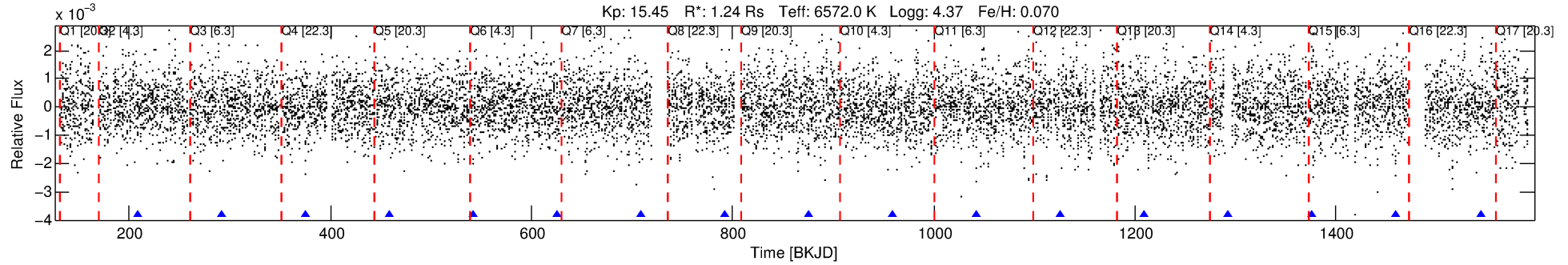
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005737104-03

No Significant Match Found

# DV One-Page Summary

KIC: 5737104 Candidate: 3 of 5 Period: 83.450 d



## DV Fit Results:

Period = 83.45003 [0.00156] d  
Epoch = 208.2146 [0.0124] BKJD  
Rp/R\* = 0.0581 [0.0092]  
a/R\* = 48.75 [29.92]  
b = 0.98 [0.18]  
Seff = 15.43 [6.11]  
Teq = 505 [50] K  
Rp = 7.85 [13.60] Re  
a = 0.4075 [0.1003] AU  
Ag = 1686.87 [5795.54] [0.29σ]  
Teffp = 5007 [4283] K [1.05σ]

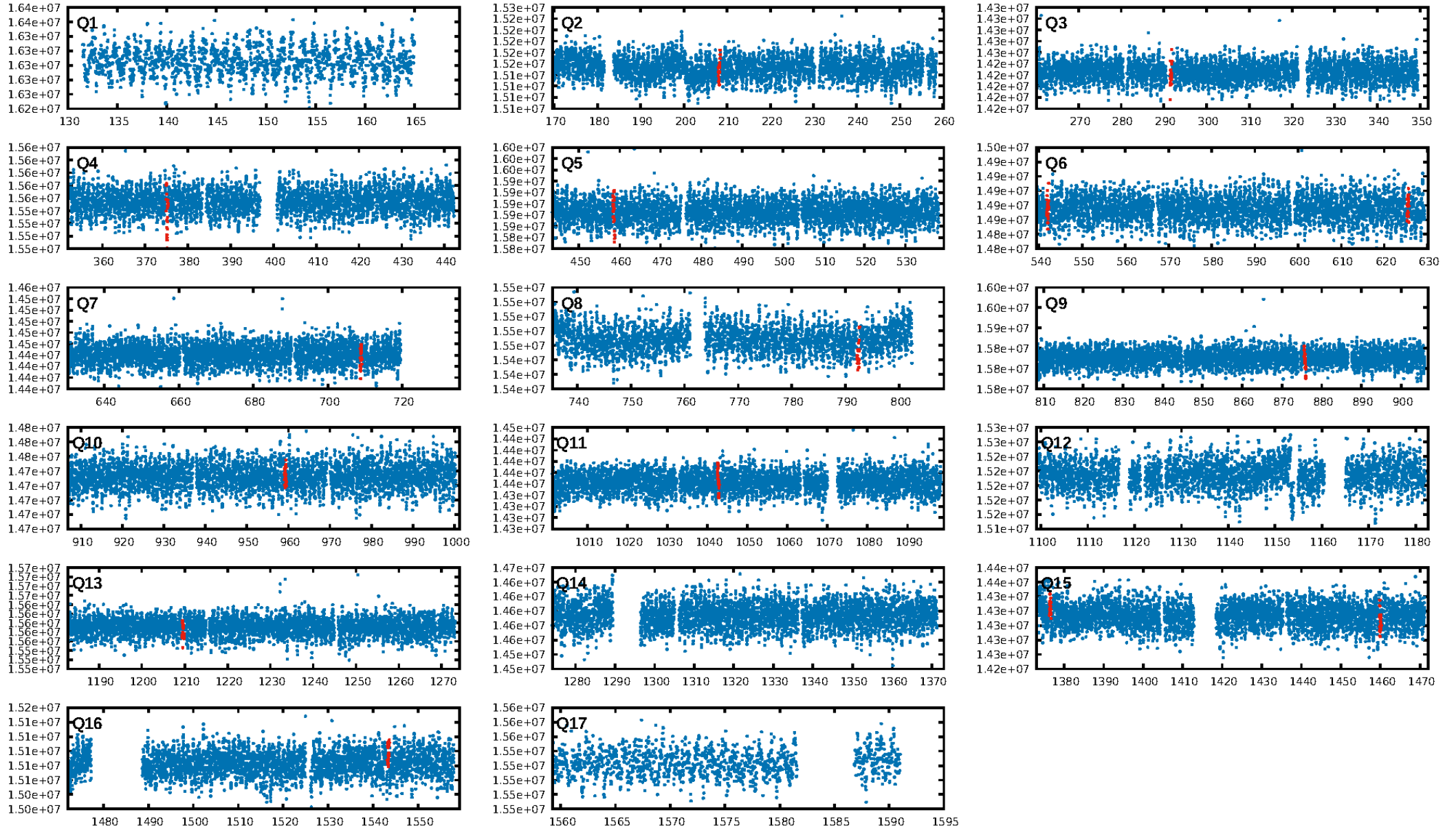
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [109.88σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 75.8%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.75e-12**  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 5.405  
**Centroid-sig: 0.0%**  
Centroid-so: 0.646 arcsec [1.23σ]  
OotOffset-rm: 0.193 arcsec [0.18σ]  
OotOffset-st: 1/2/3/1 [7]  
KicOffset-rm: 0.228 arcsec [0.32σ]  
KicOffset-st: 1/2/3/1 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 0.00 [0/11]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:41:33 Z

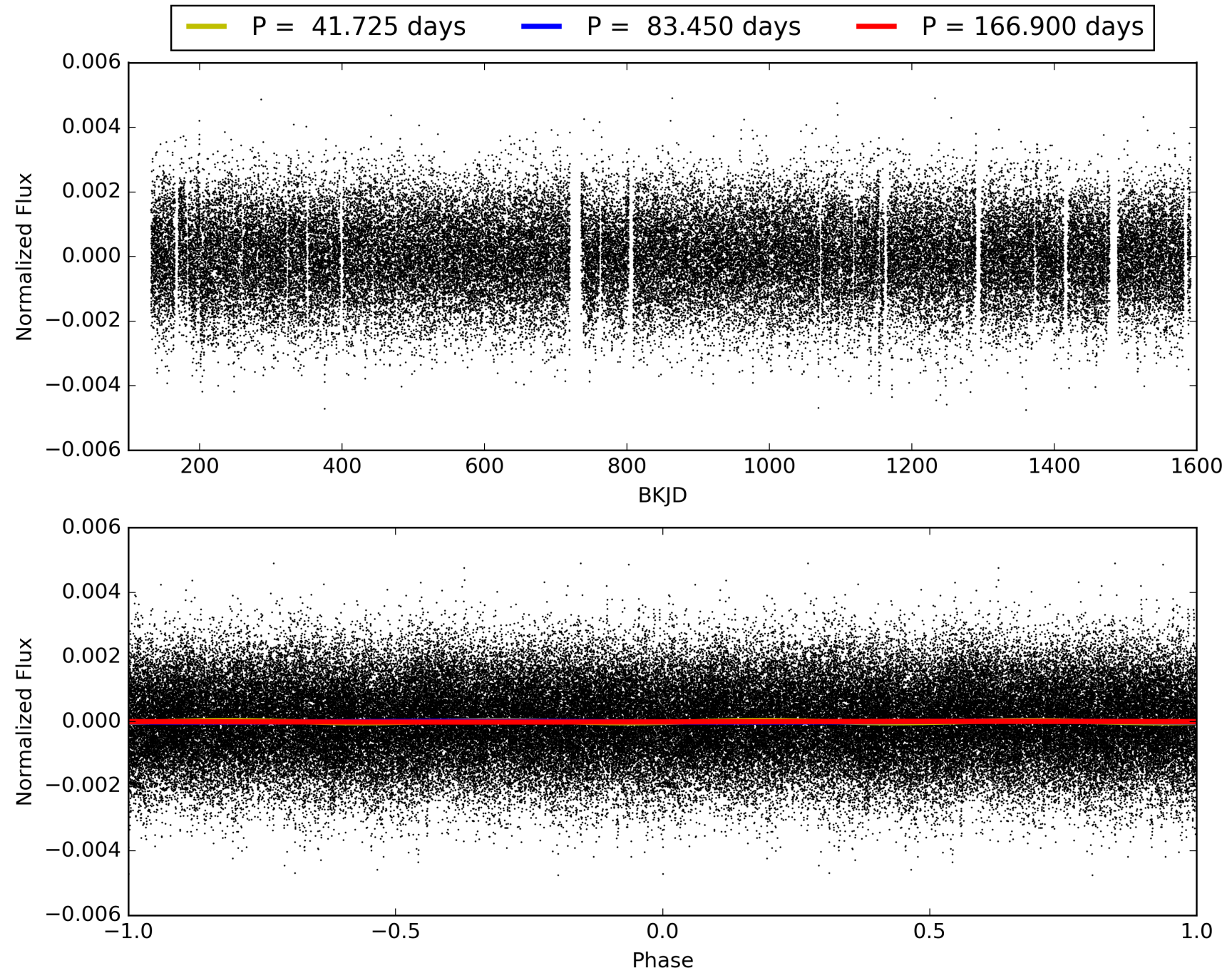
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005737104-03, PDC Light Curves



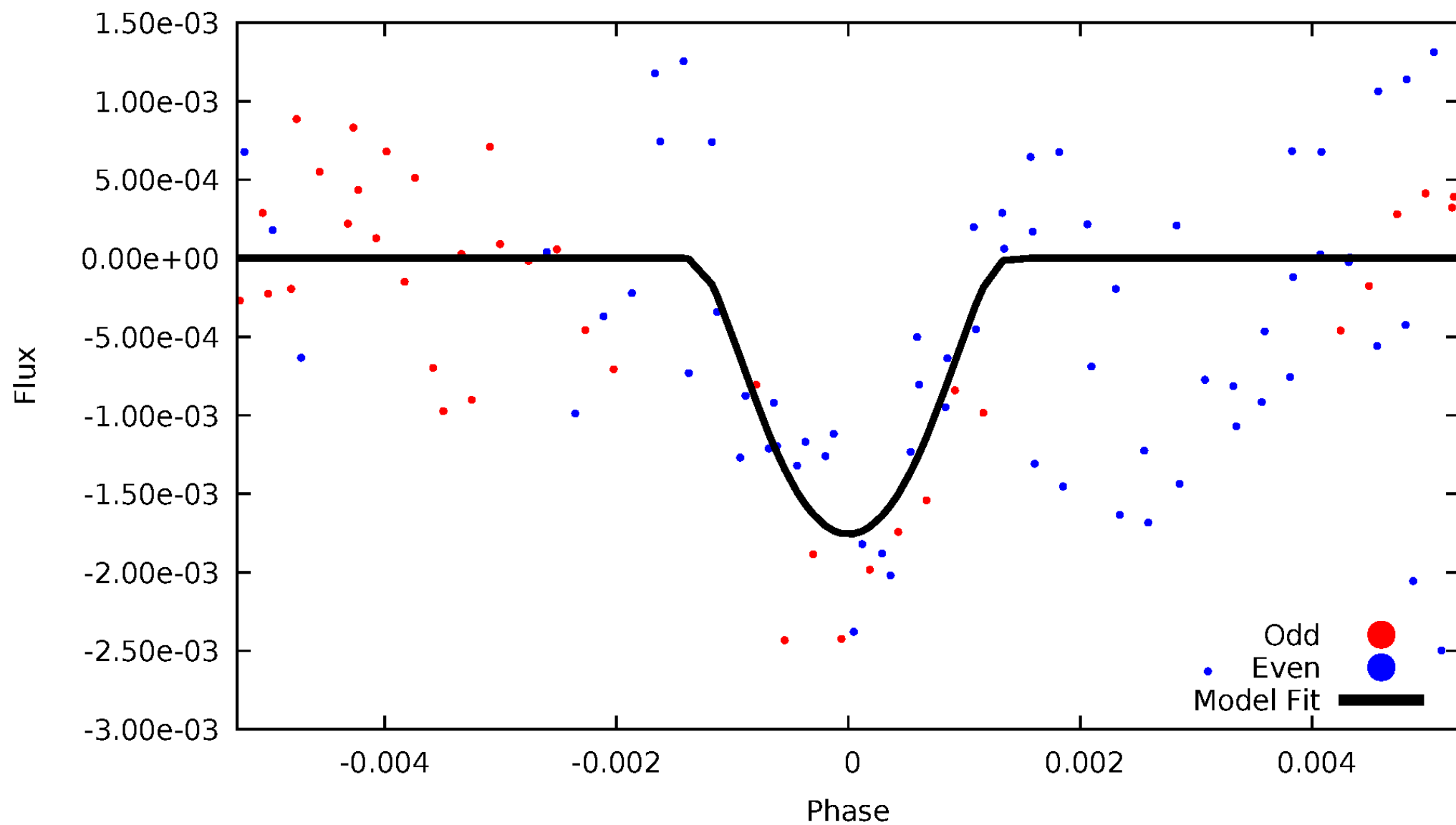


TCE 005737104-03



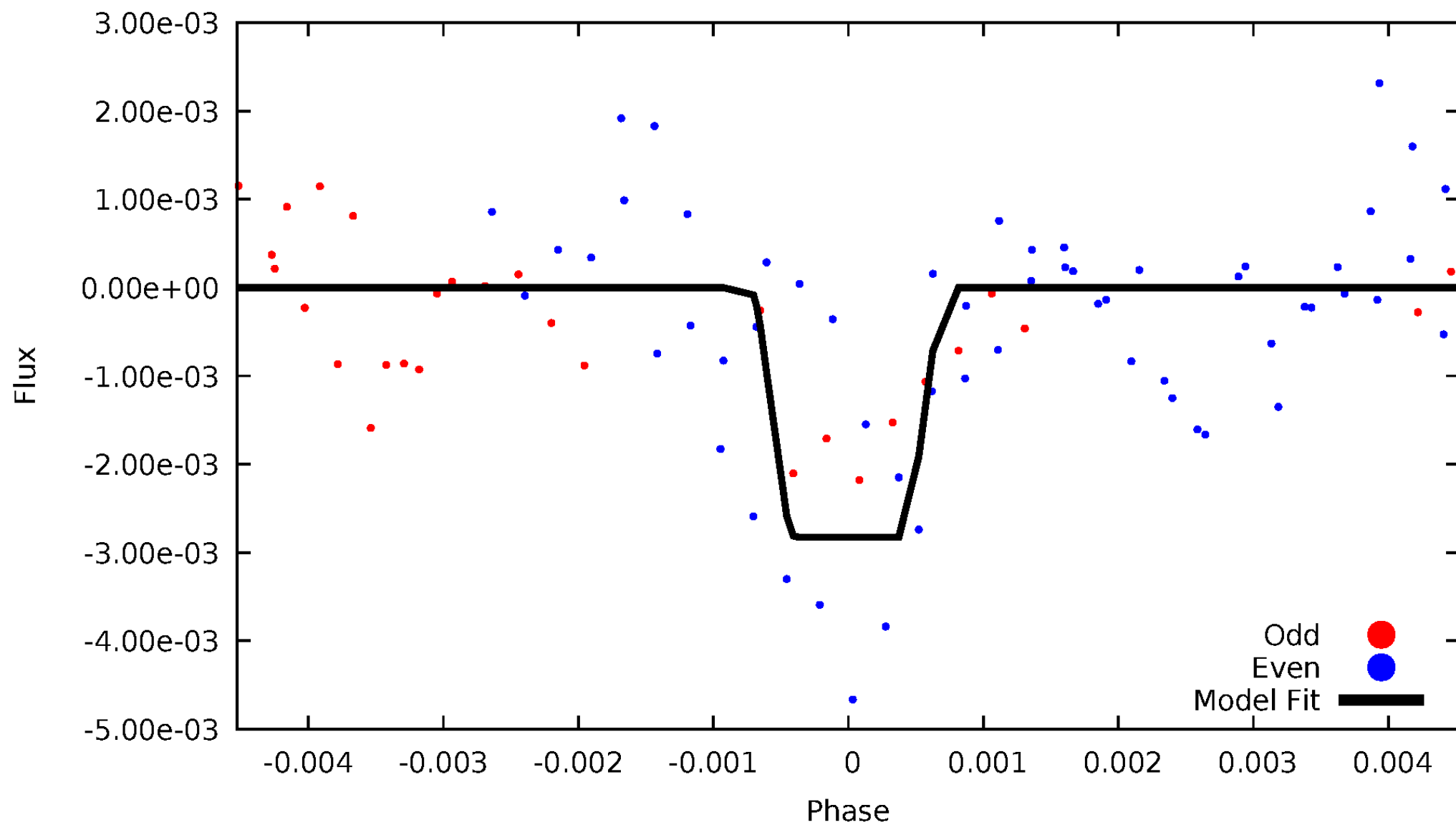
# DV Odd/Even

TCE 005737104-03



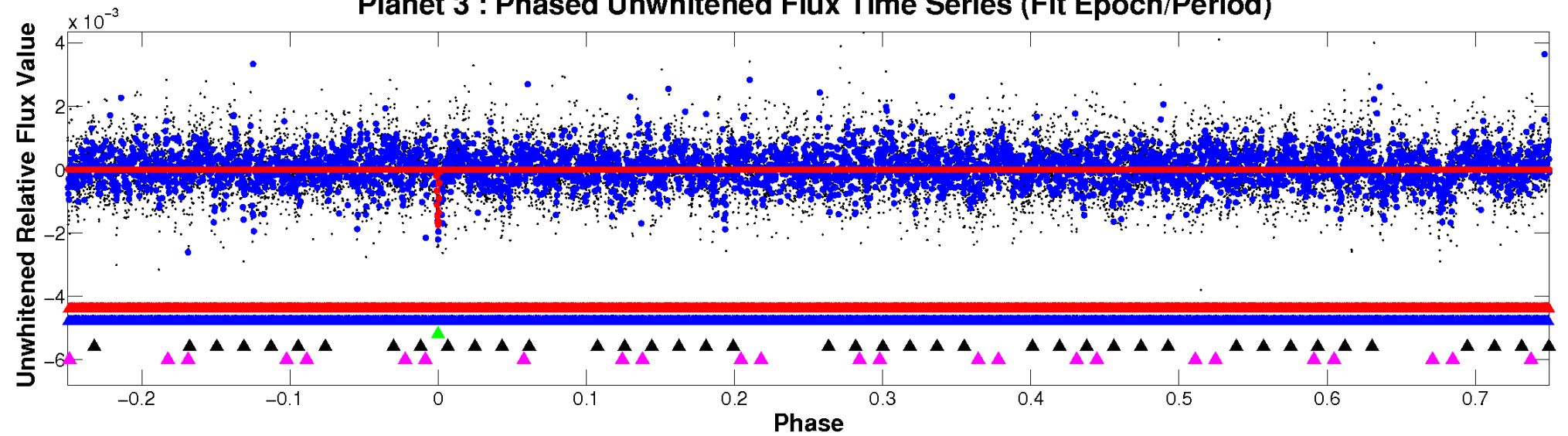
# ALT Odd/Even

TCE 005737104-03

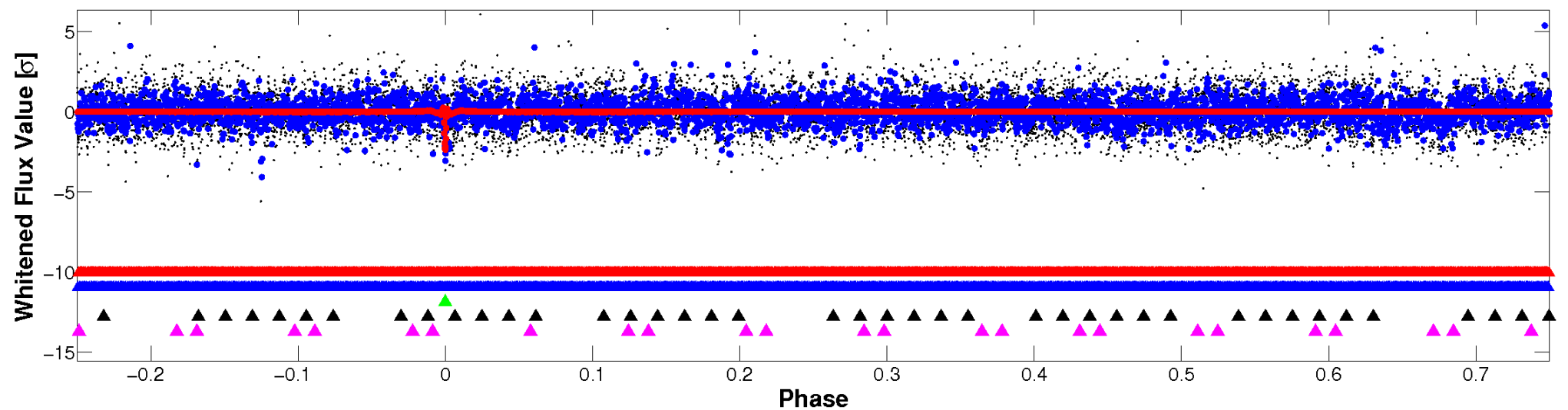


# Non-Whitened Vs. Whitened Light Curve

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

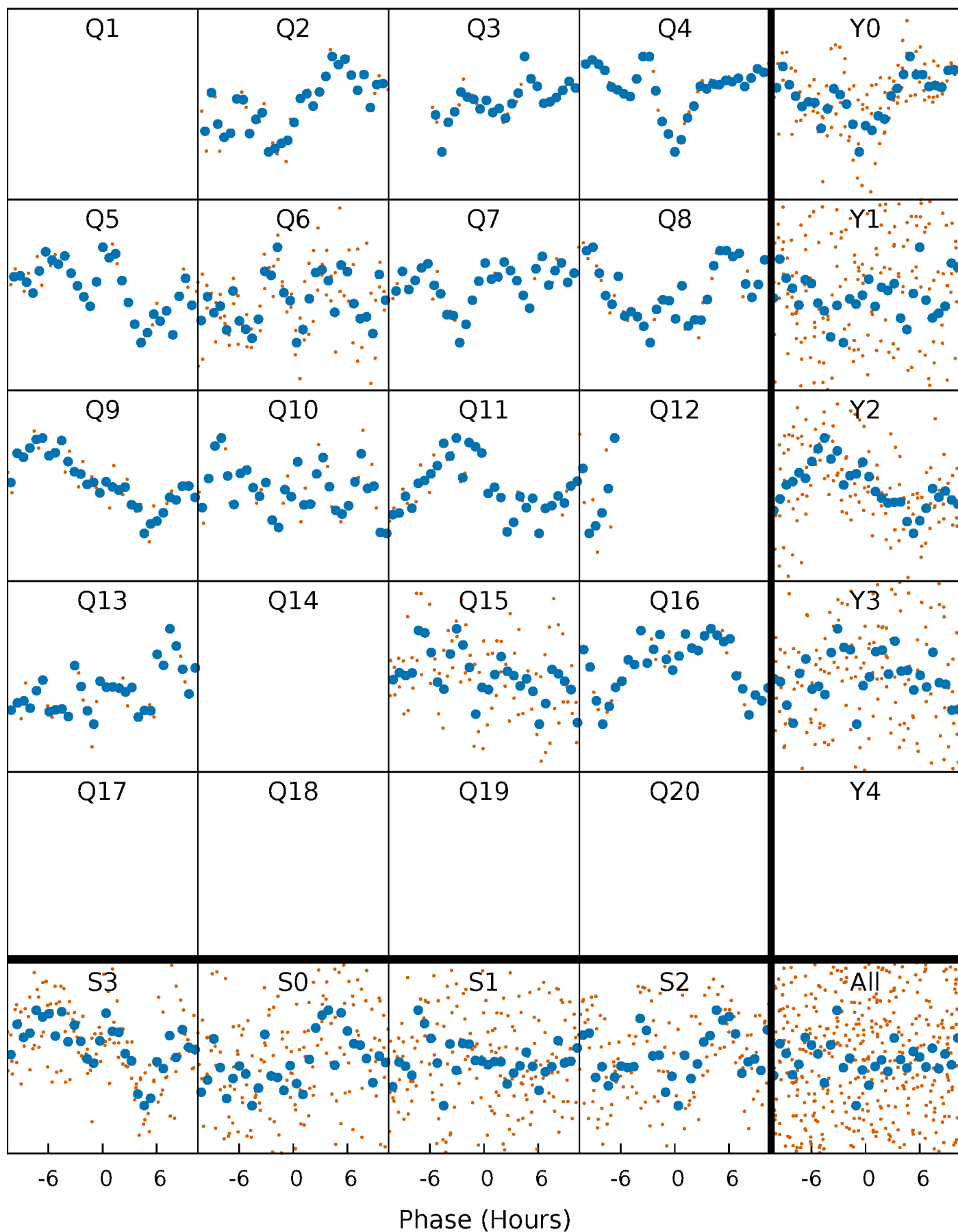


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

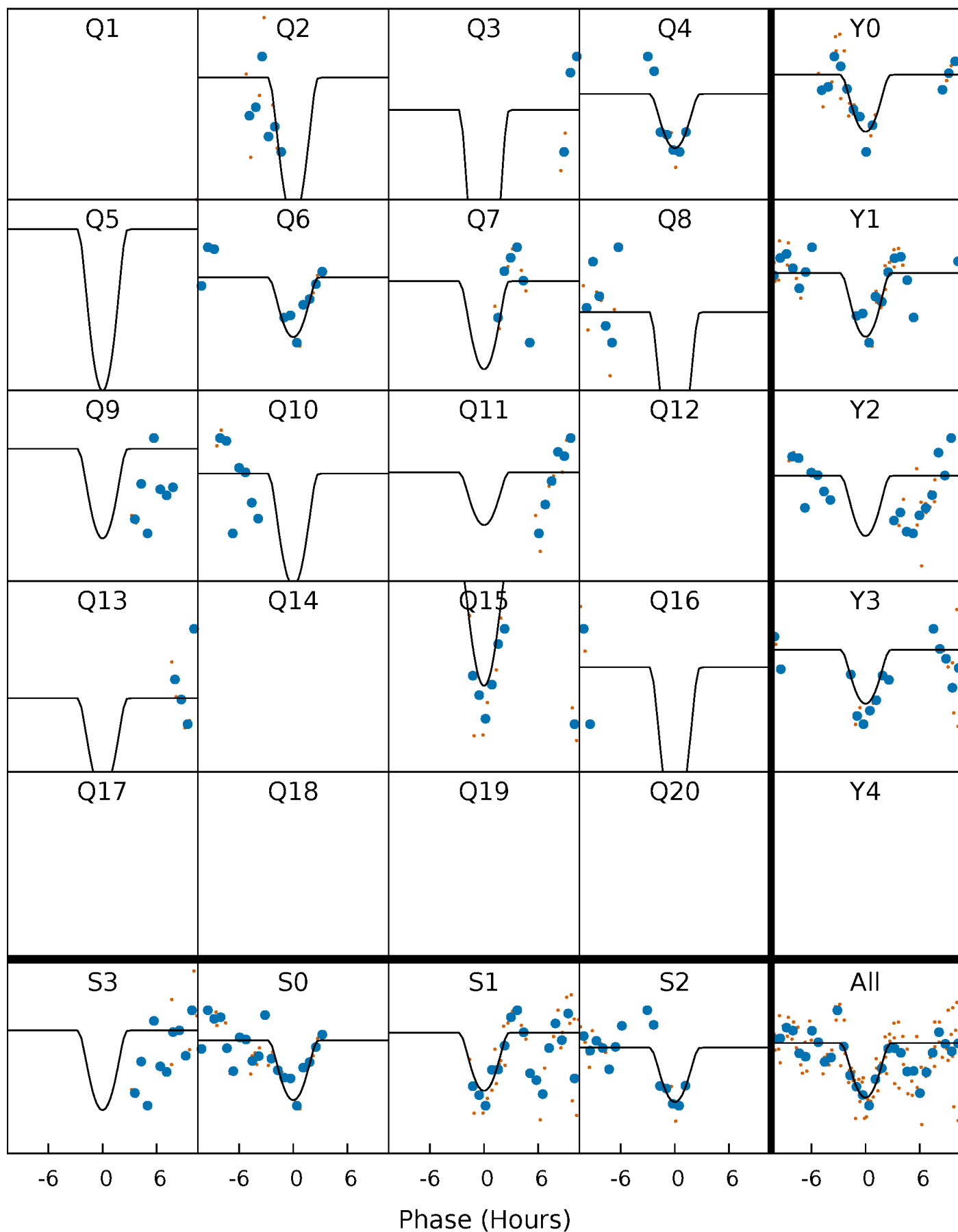
TCE 005737104-03   P= 83.450027 Days    $T_0=208.214585$  (BKJD)





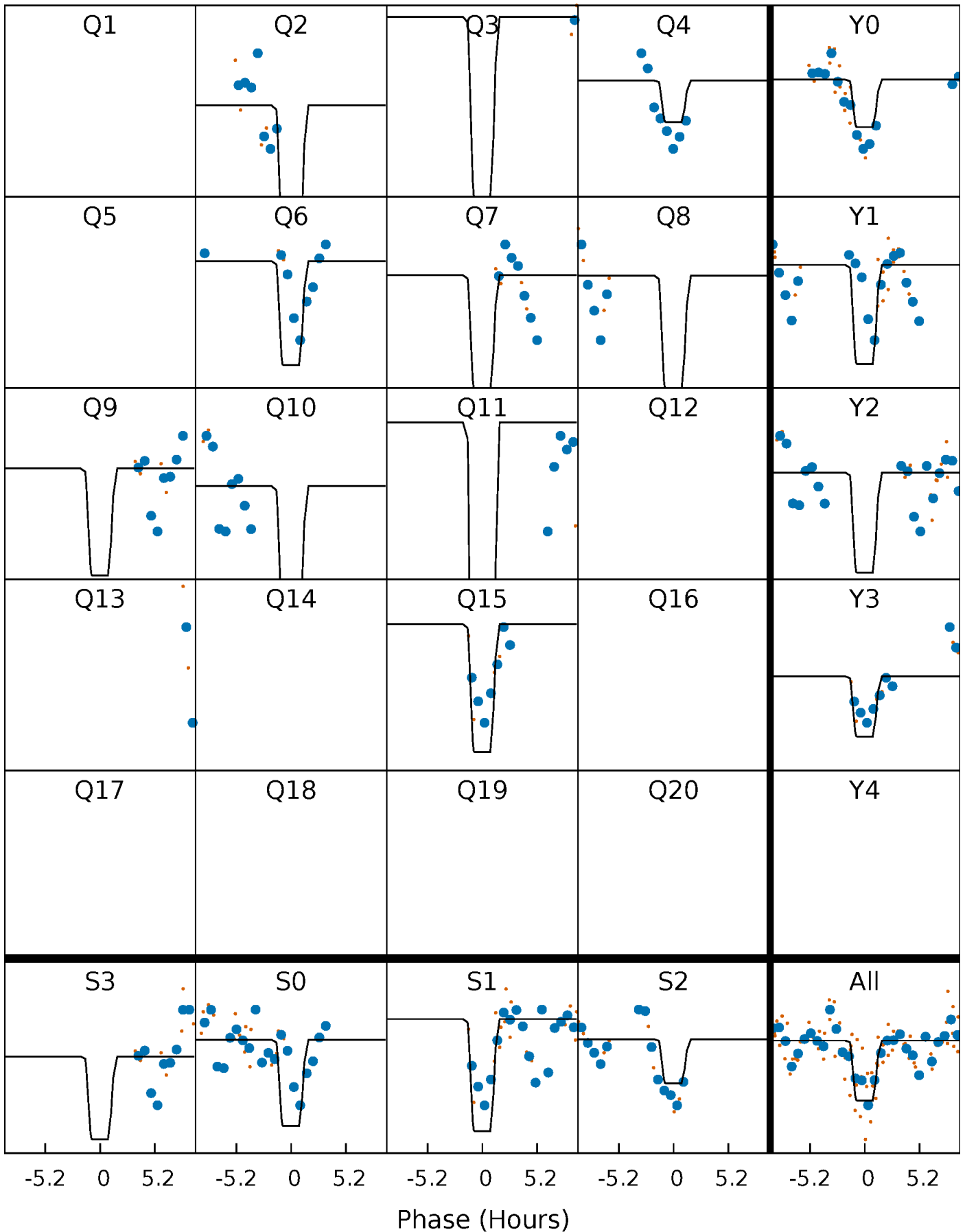
# DV Quarter-Phased Transit Curves

TCE 005737104-03   P= 83.450027 Days    $T_0=208.214585$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

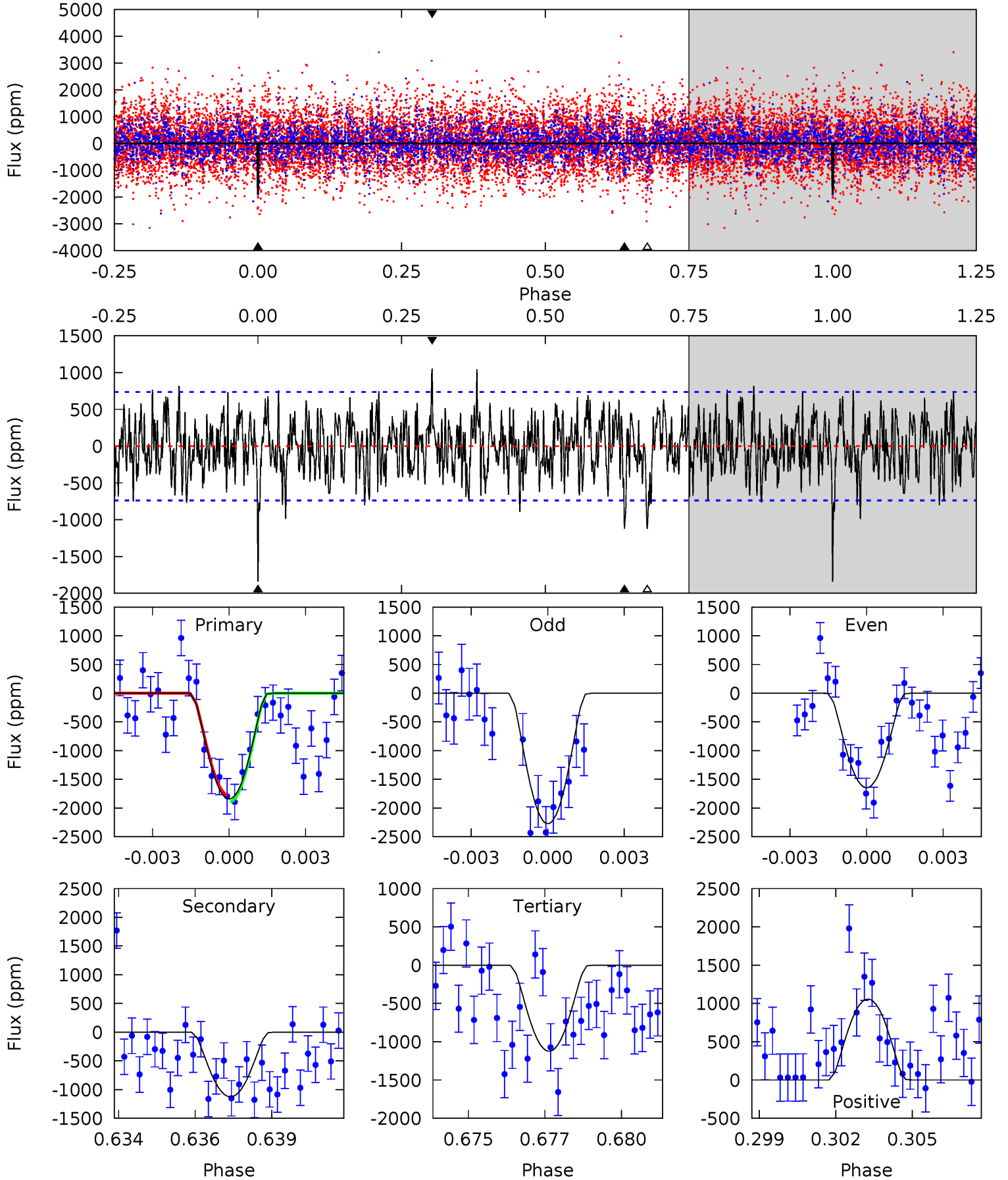
TCE 005737104-03 P= 83.449017 Days  $T_0=208.217836$  (BKJD)



# DV Model-Shift Uniqueness Test

005737104-03, P = 83.450027 Days, E = 124.764558 Days

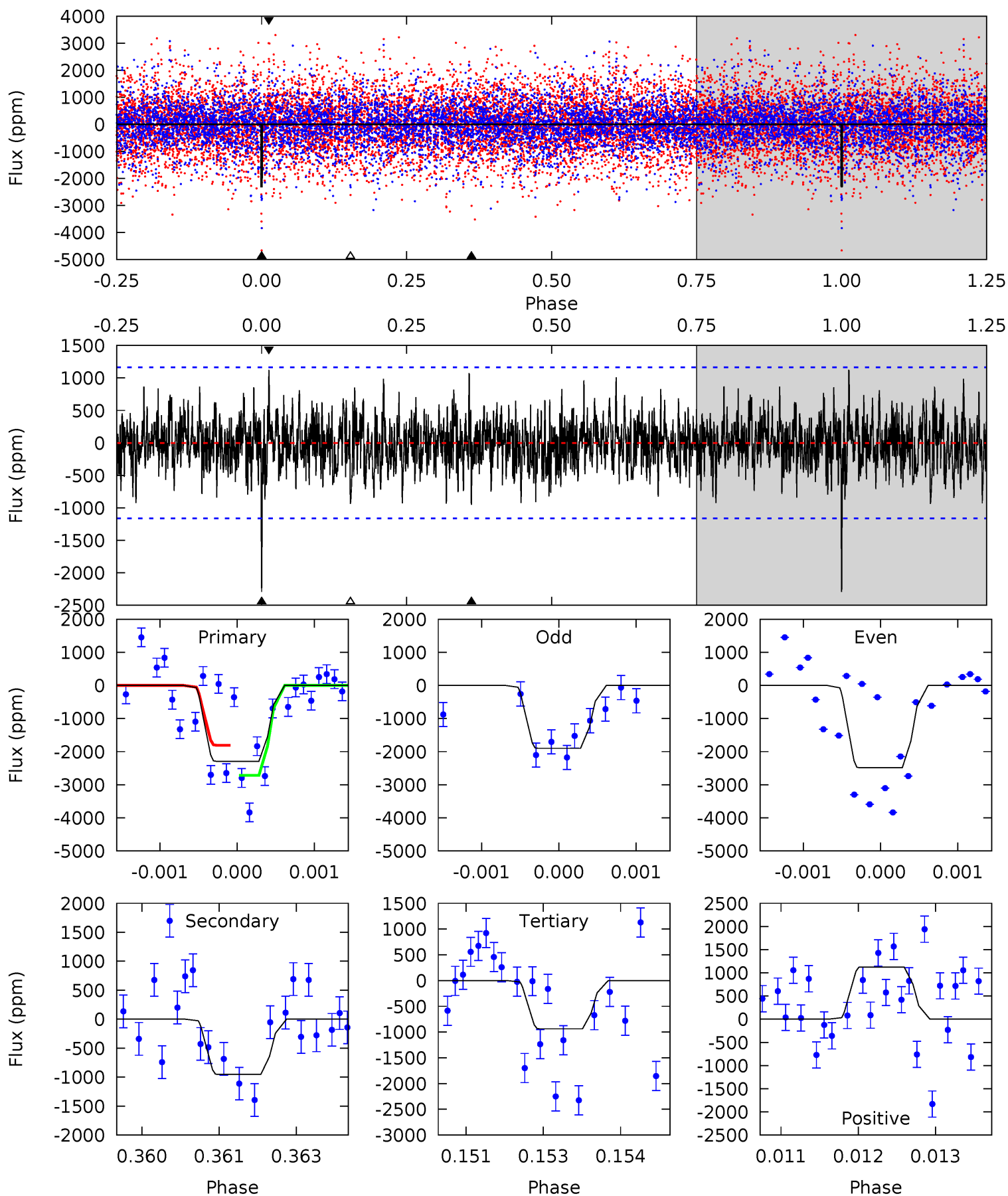
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	8.03	8.03	7.54	5.27	3.00	2.21	5.13	5.62	0.00	0.49	2.04	1.04	0.36	0.42



# Alt Model-Shift Uniqueness Test

005737104-03, P = 83.449017 Days, E = 124.768819 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	4.43	4.35	5.23	5.40	3.21	1.43	6.29	5.42	0.07	-0.80	1.29	1.21	0.33	2.12



### Stellar Parameters For KIC 005737104

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6572^{+187}_{-281}$	$4.365^{+0.065}_{-0.195}$	$0.070^{+0.200}_{-0.400}$	$1.238^{+0.363}_{-0.168}$	$1.298^{+0.150}_{-0.224}$	$0.964^{+0.328}_{-0.474}$
	+3%/-4%	+1%/-4%	+286%/-571%	+29%/-14%	+12%/-17%	+34%/-49%
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 005737104-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1123 \pm 140$	$13.42^{+12.75}_{-9.36}$	$719^{+47}_{-41}$	$4141^{+2857}_{-811}$	$563^{+5397}_{-417}$
Alt.	$-953 \pm 215$	$12.89^{+11.55}_{-8.38}$	$720^{+51}_{-42}$	$4072^{+2484}_{-777}$	$491^{+3919}_{-351}$

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



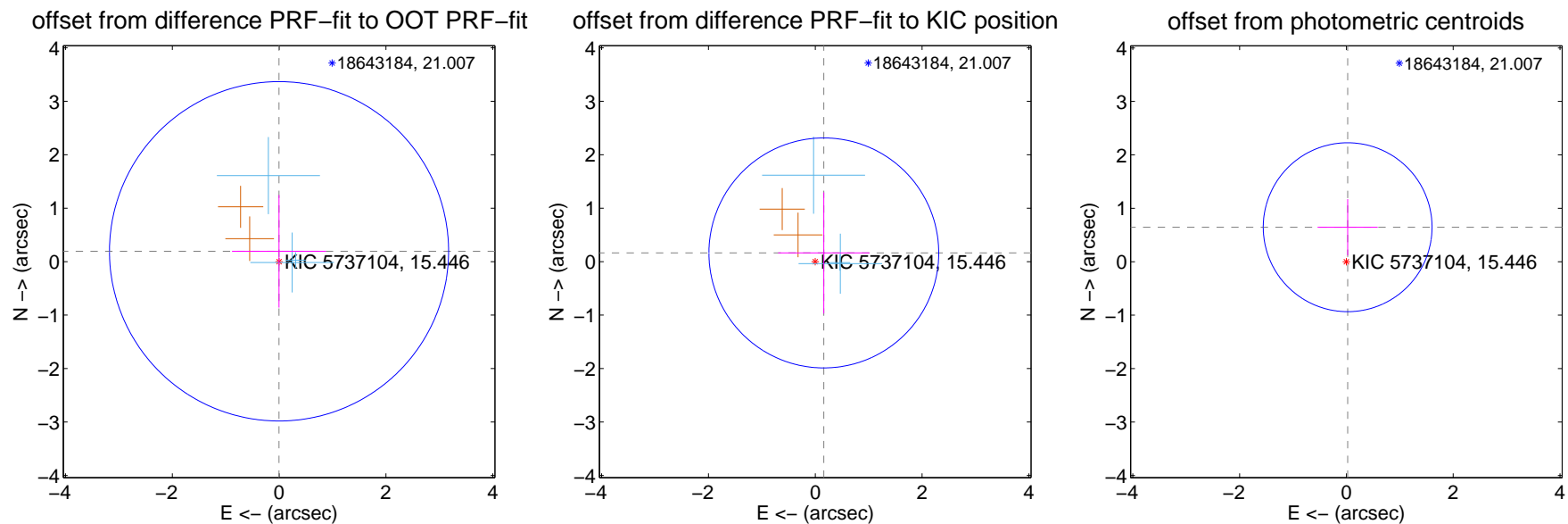
## DV Centroid Data

Supplemental centroid analysis for 005737104-03. Kepler magnitude: 15.45. Transit SNR 8.93

There are 3 quarters with good PRF difference image offsets

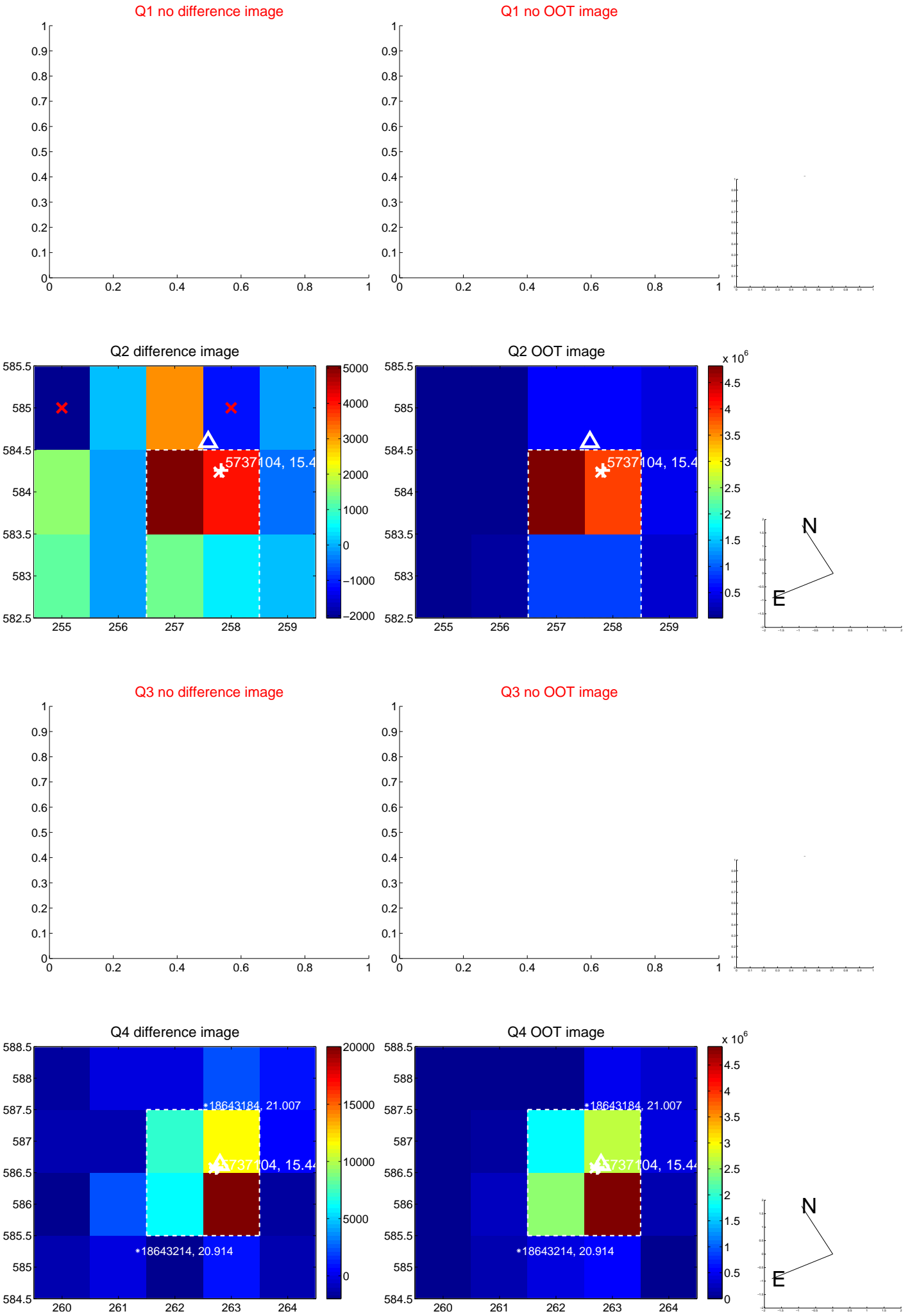
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.193 \pm 1.058$	0.18	$0.002 \pm 0.881$	$0.193 \pm 1.052$
PRF-fit source offset from KIC position	$0.228 \pm 0.717$	0.32	$-0.160 \pm 0.856$	$0.163 \pm 1.133$
photometric centroid source offset	$0.65 \pm 0.53$	1.23	$-0.02 \pm 0.56$	$0.65 \pm 0.53$

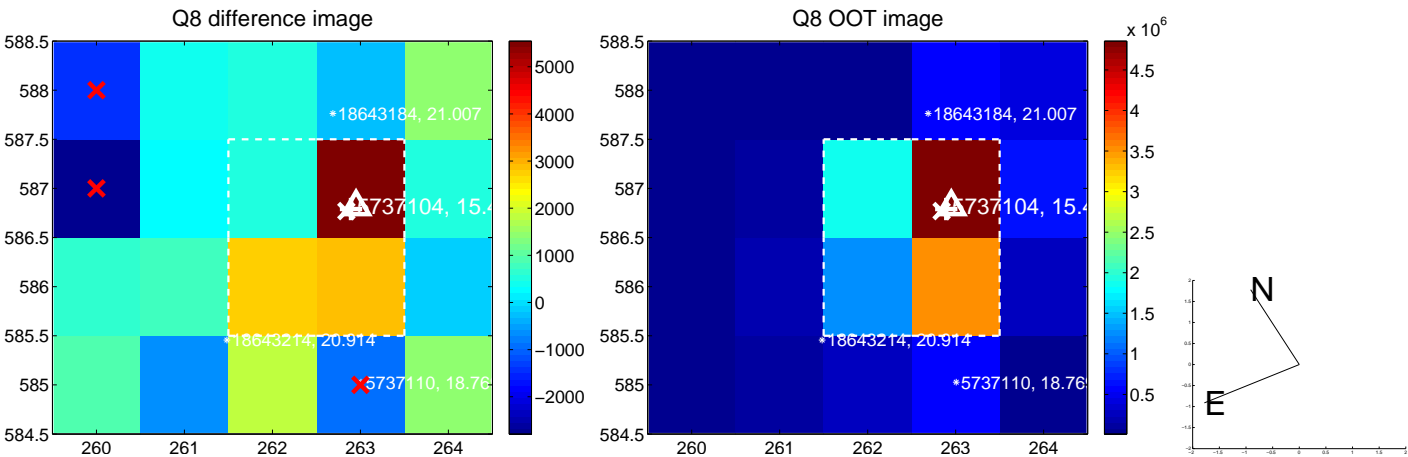
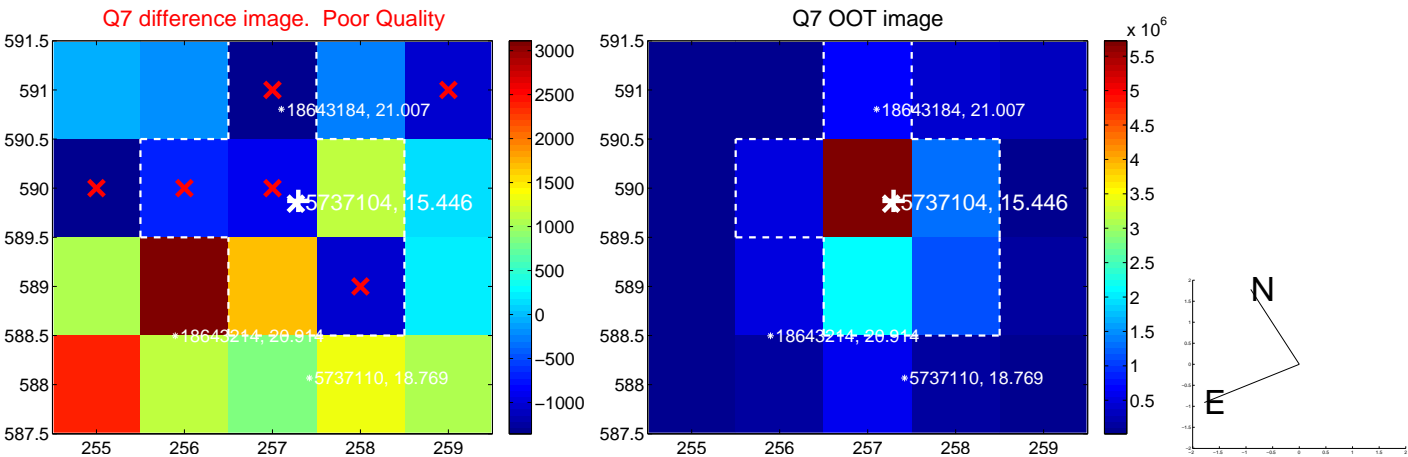
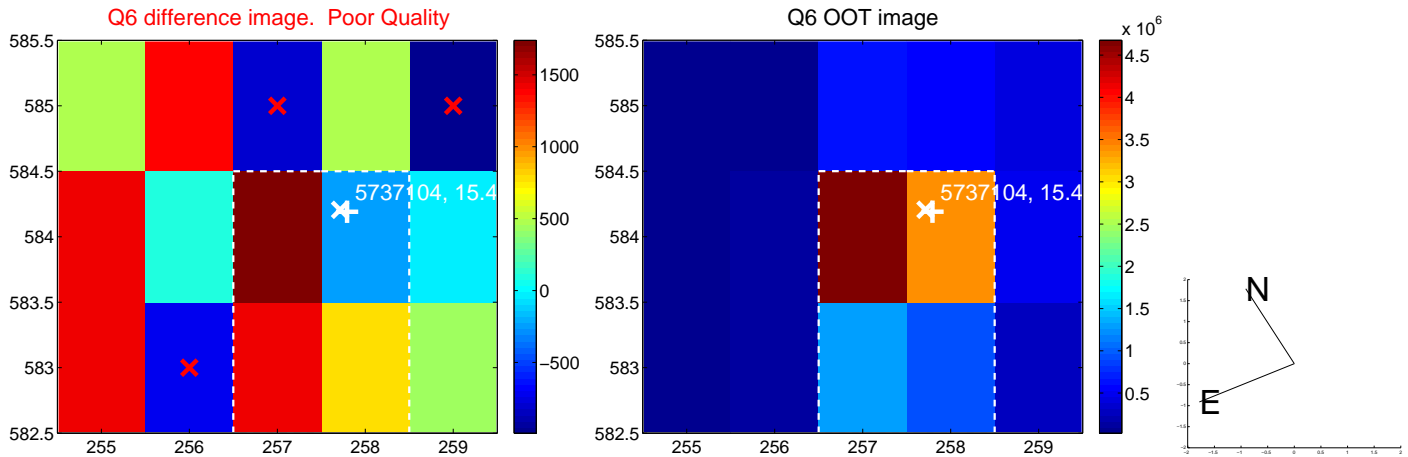
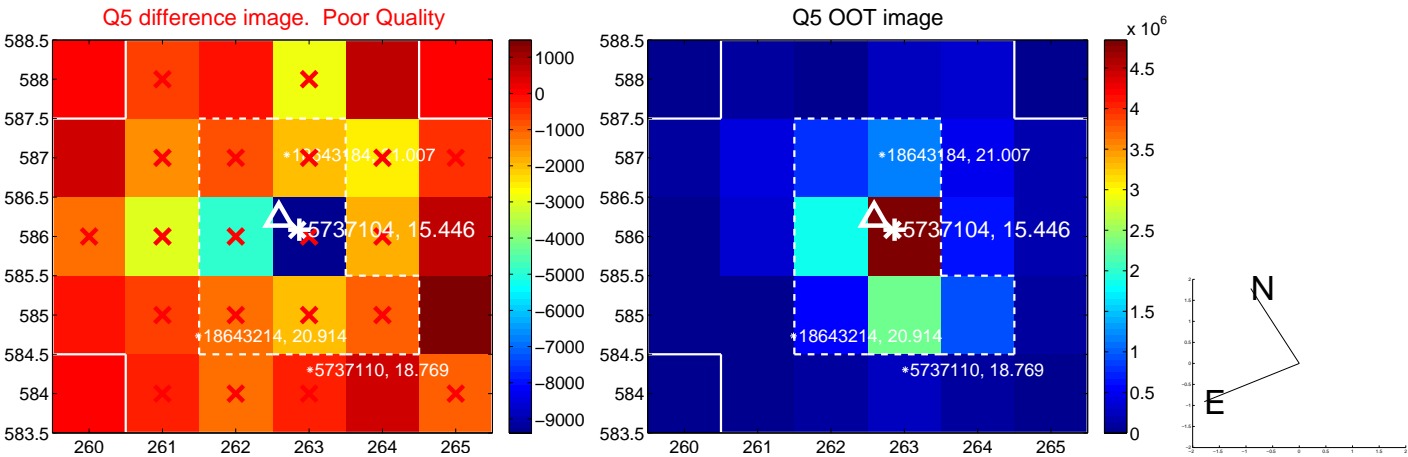


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

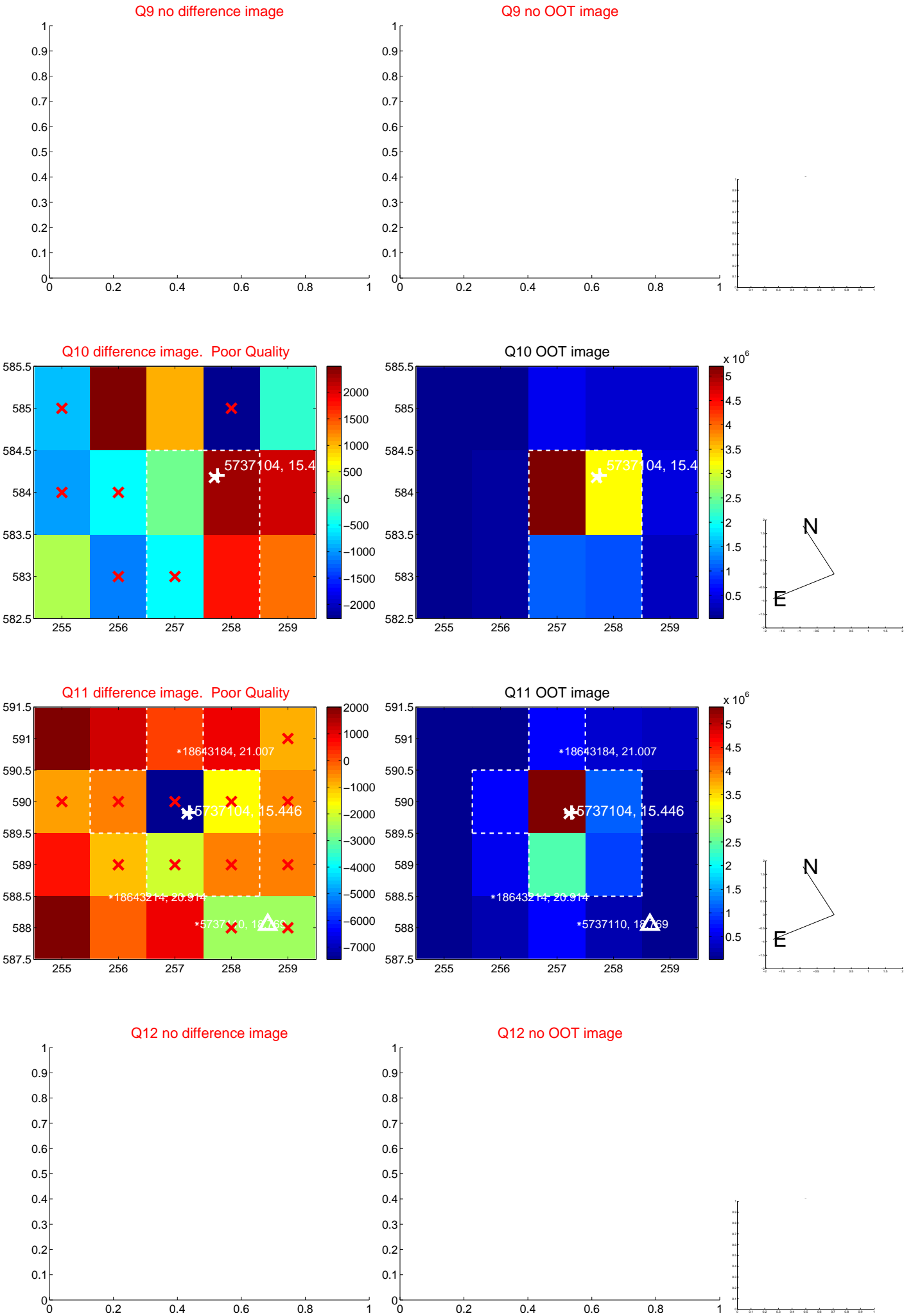
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



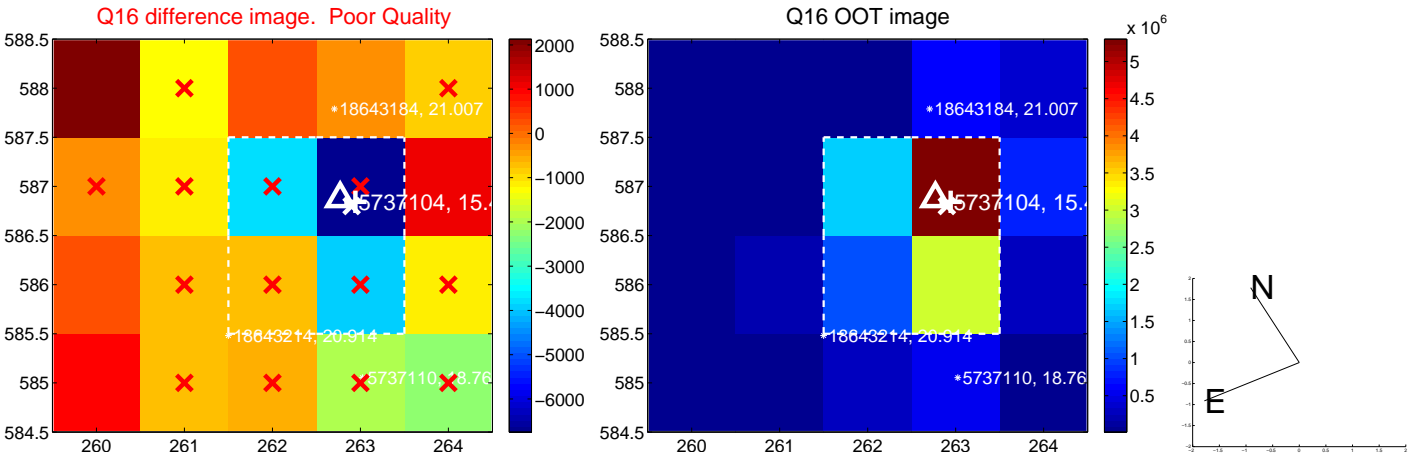
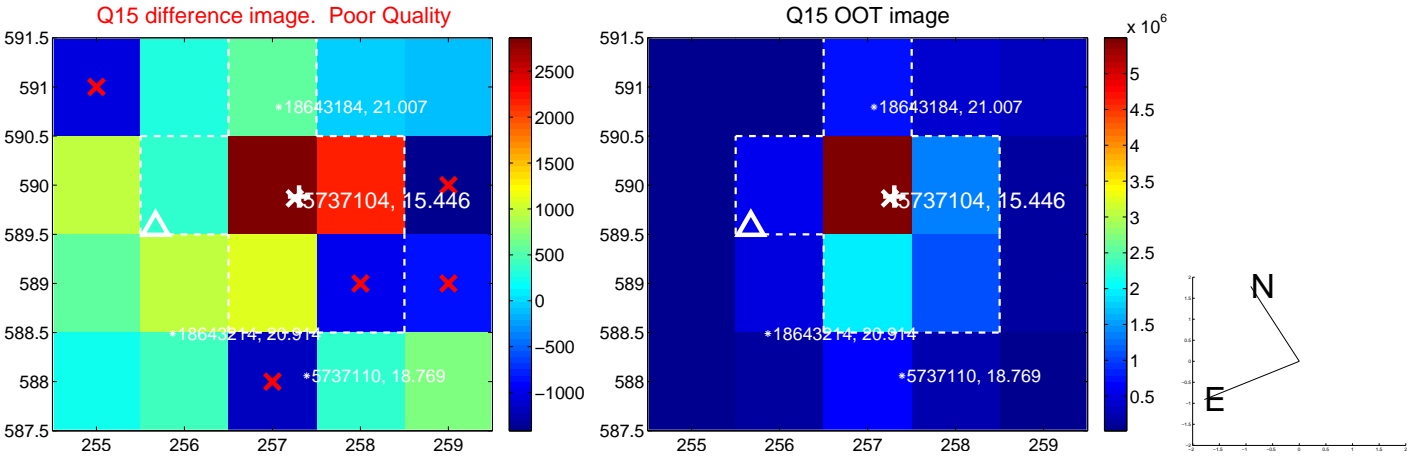
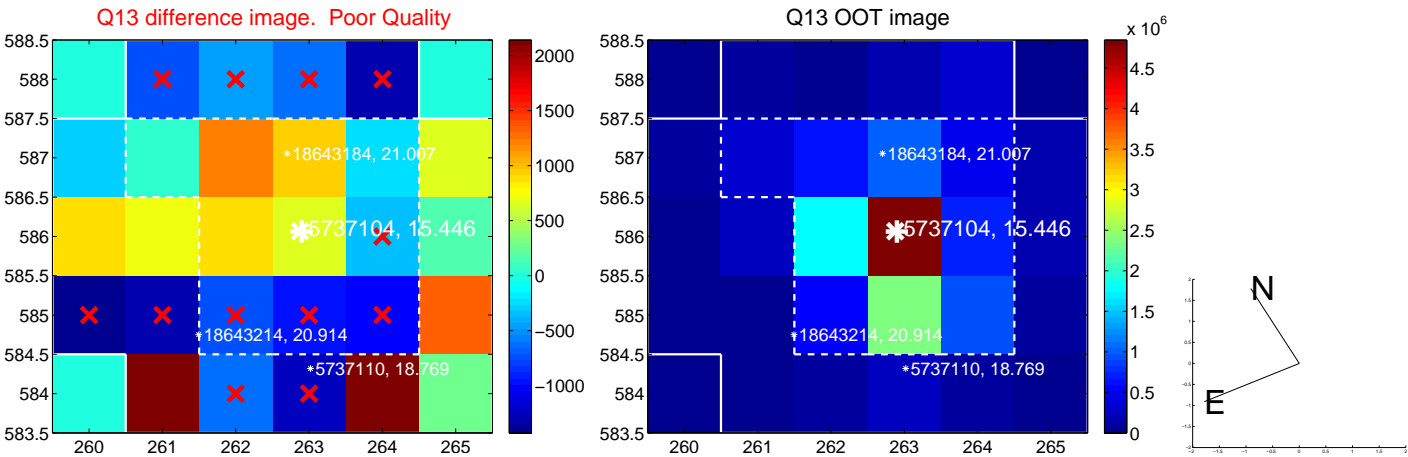
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

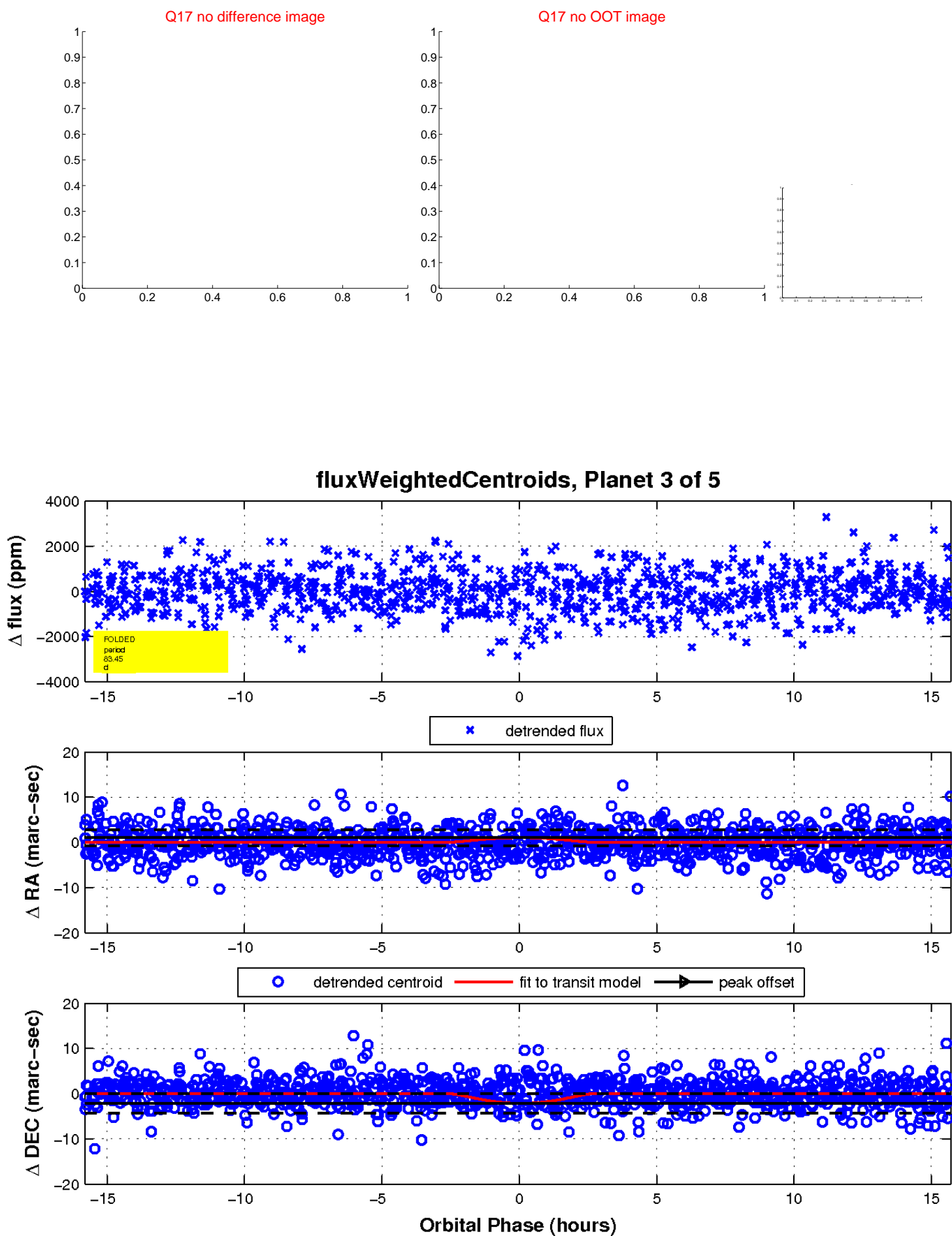


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



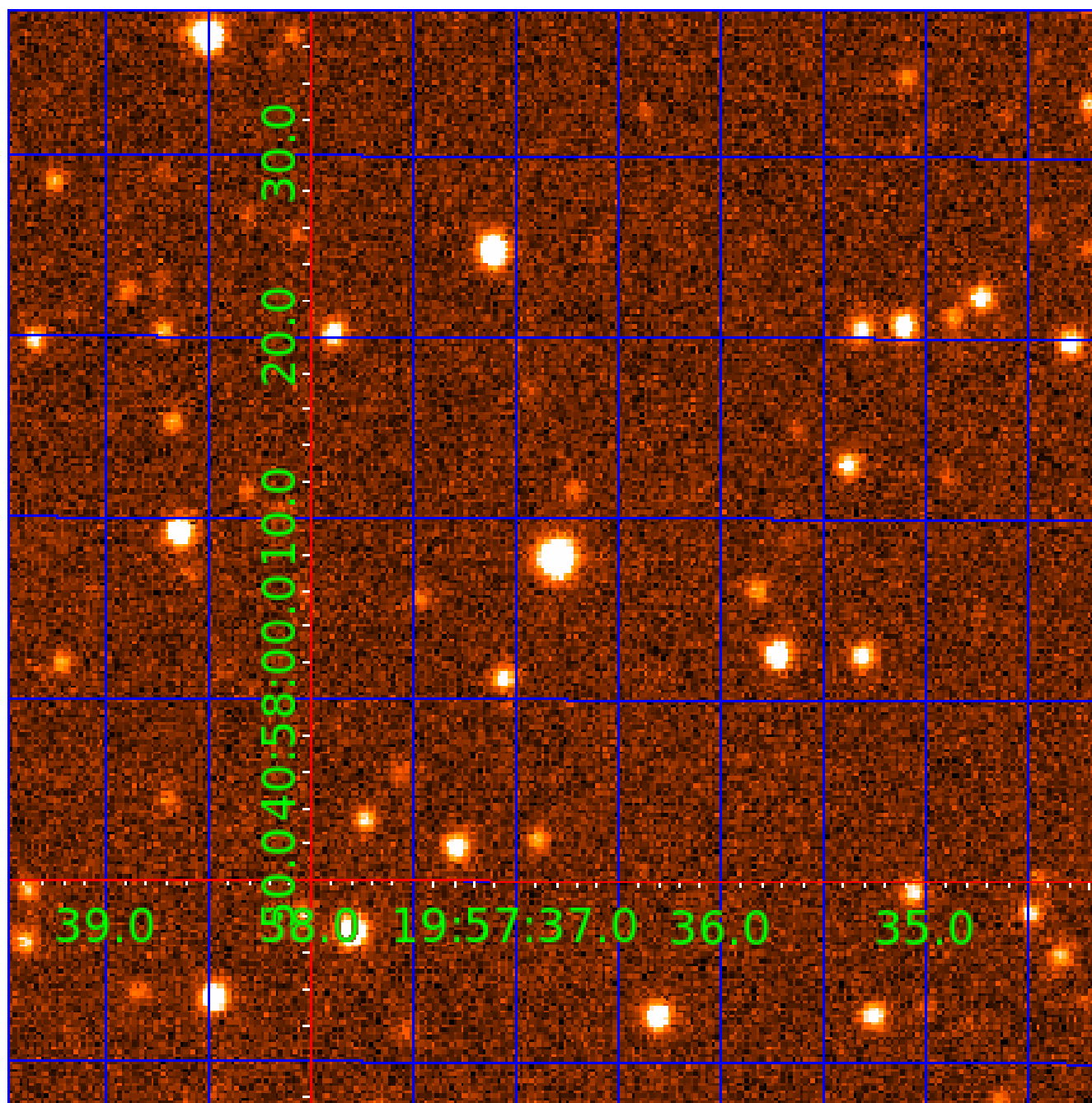


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005737104

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005737104-01	OBS	No	1.063640	132.232283	114.2	3.492	10.0	8.9	1.24	6572	1.55	5181.30
005737104-02	OBS	No	1.063643	131.797615	104.1	3.205	9.6	8.4	1.24	6572	1.36	5181.28
005737104-03	OBS	No	83.450027	208.214585	1757.3	5.279	8.3	8.9	1.24	6572	7.85	15.43
005737104-04	OBS	No	35.982625	133.742455	1233.0	5.256	7.8	8.9	1.24	6572	5.63	47.36
005737104-05	OBS	No	57.860582	186.318311	1579.9	1.837	7.3	7.1	1.24	6572	5.18	25.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005737104-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005737104-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005737104-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
005737104-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT
005737104-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

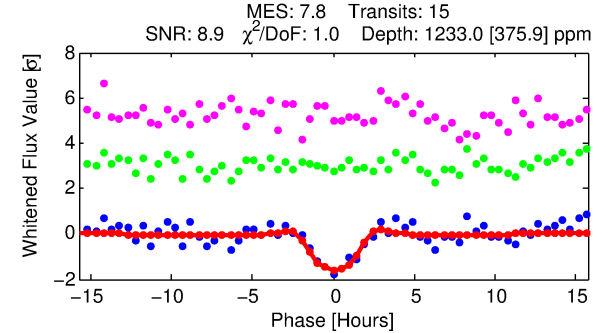
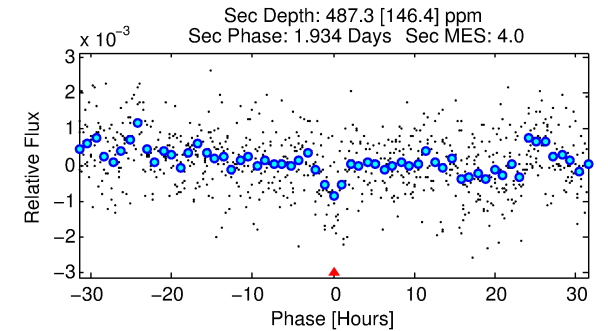
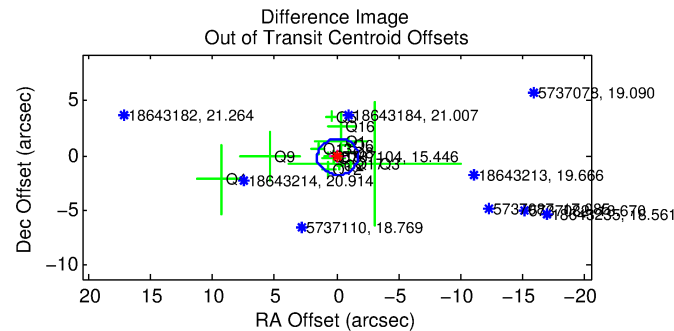
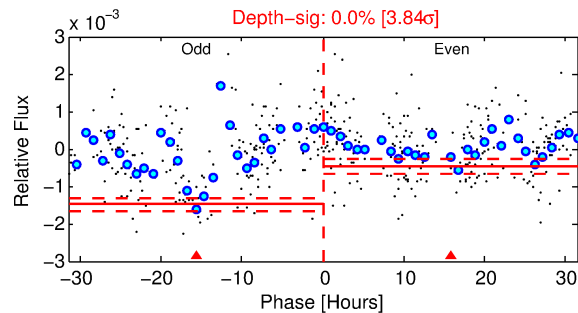
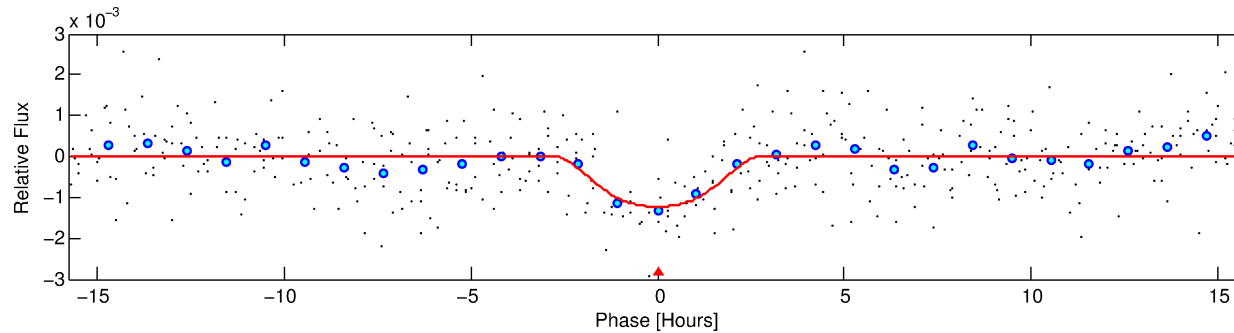
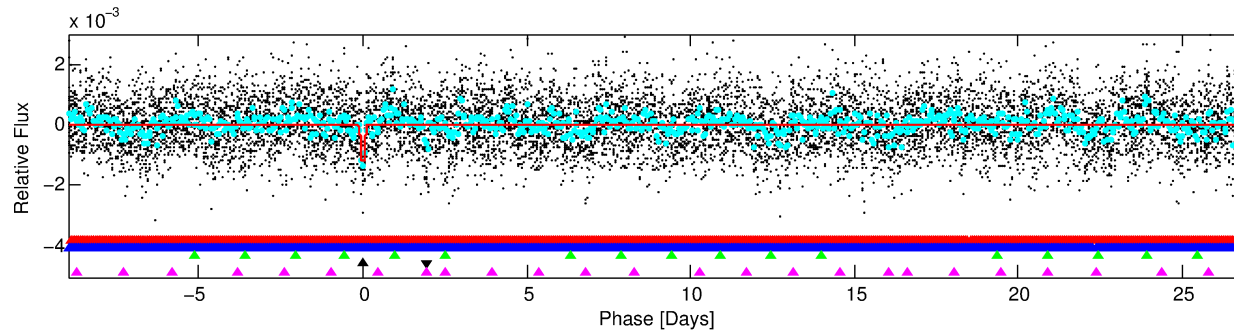
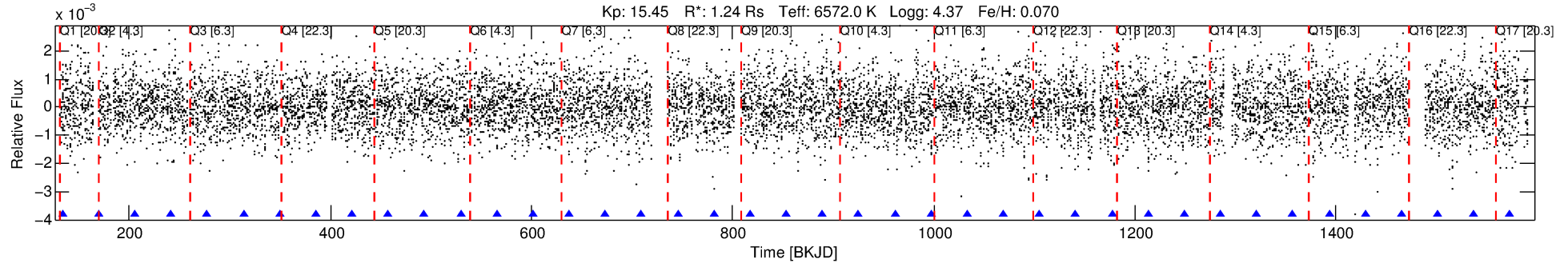
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005737104-04

No Significant Match Found

# DV One-Page Summary

KIC: 5737104 Candidate: 4 of 5 Period: 35.983 d



## DV Fit Results:

Period = 35.98263 [0.00056] d  
Epoch = 133.7425 [0.0129] BKJD  
Rp/R\* = 0.0417 [0.0146]  
a/R\* = 20.77 [6.21]  
b = 0.96 [0.04]  
Seff = 47.36 [18.77]  
Teq = 669 [66] K  
Rp = 5.63 [2.57] Re  
a = 0.2326 [0.0573] AU  
Ag = 457.89 [384.97] [1.19 $\sigma$ ]  
Teffp = 4784 [933] K [4.40 $\sigma$ ]

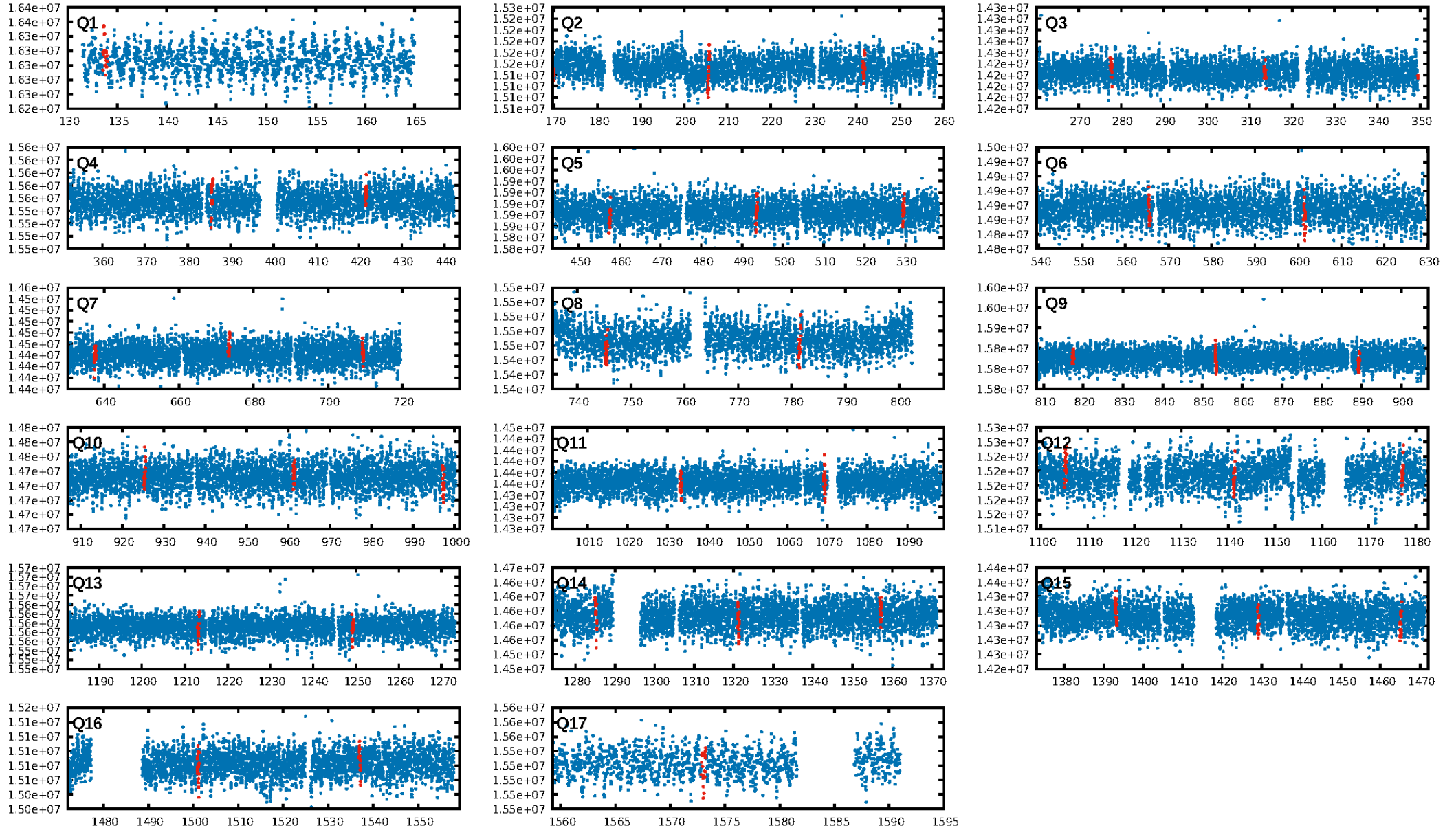
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [136.13 $\sigma$ ]  
LongPeriod-sig: 100.0% [94.30 $\sigma$ ]  
ModelChiSquare2-sig: 63.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 7.57e-13  
RollingBand-fgt: 1.00 [14/14]  
**GhostDiagnostic-chr: 0.3693**  
Centroid-sig: 73.3%  
Centroid-so: 0.671 arcsec [1.45 $\sigma$ ]  
OotOffset-rm: 0.129 arcsec [0.23 $\sigma$ ]  
OotOffset-st: 2/3/4/5 [14]  
KicOffset-rm: 0.258 arcsec [0.41 $\sigma$ ]  
KicOffset-st: 2/3/4/5 [14]  
DiffImageQuality-fgm: 0.50 [7/14]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:41:37 Z

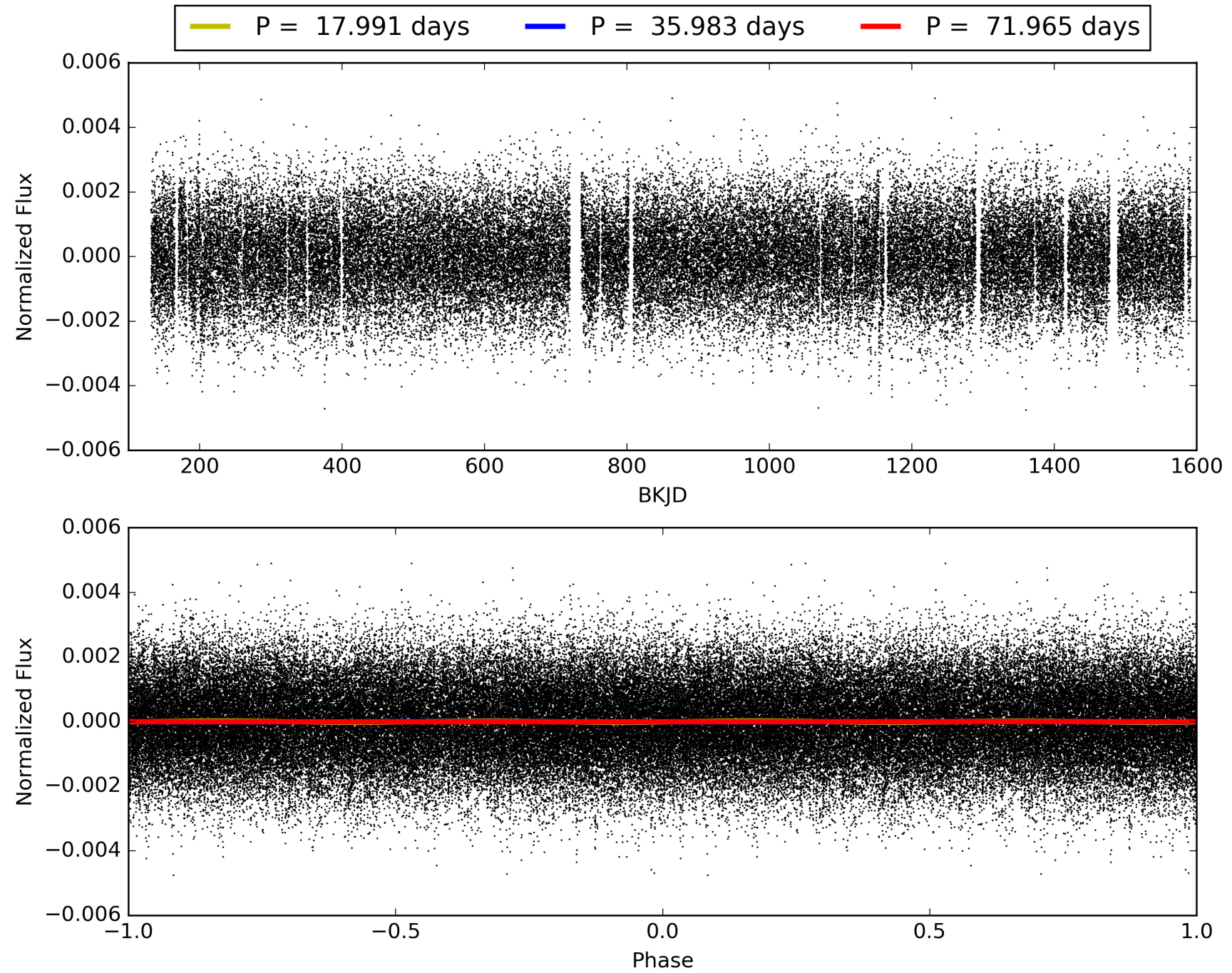
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005737104-04, PDC Light Curves



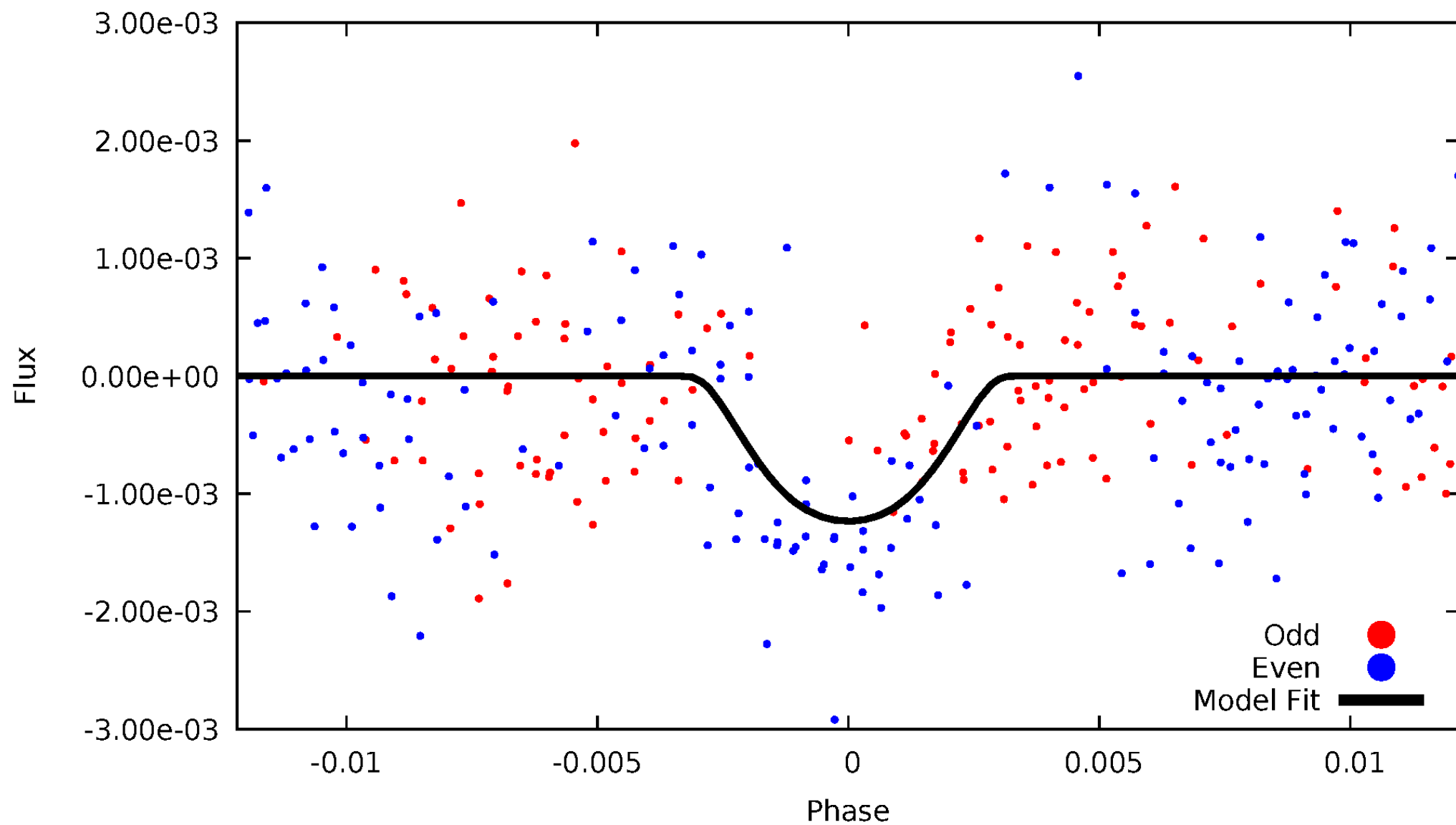


TCE 005737104-04



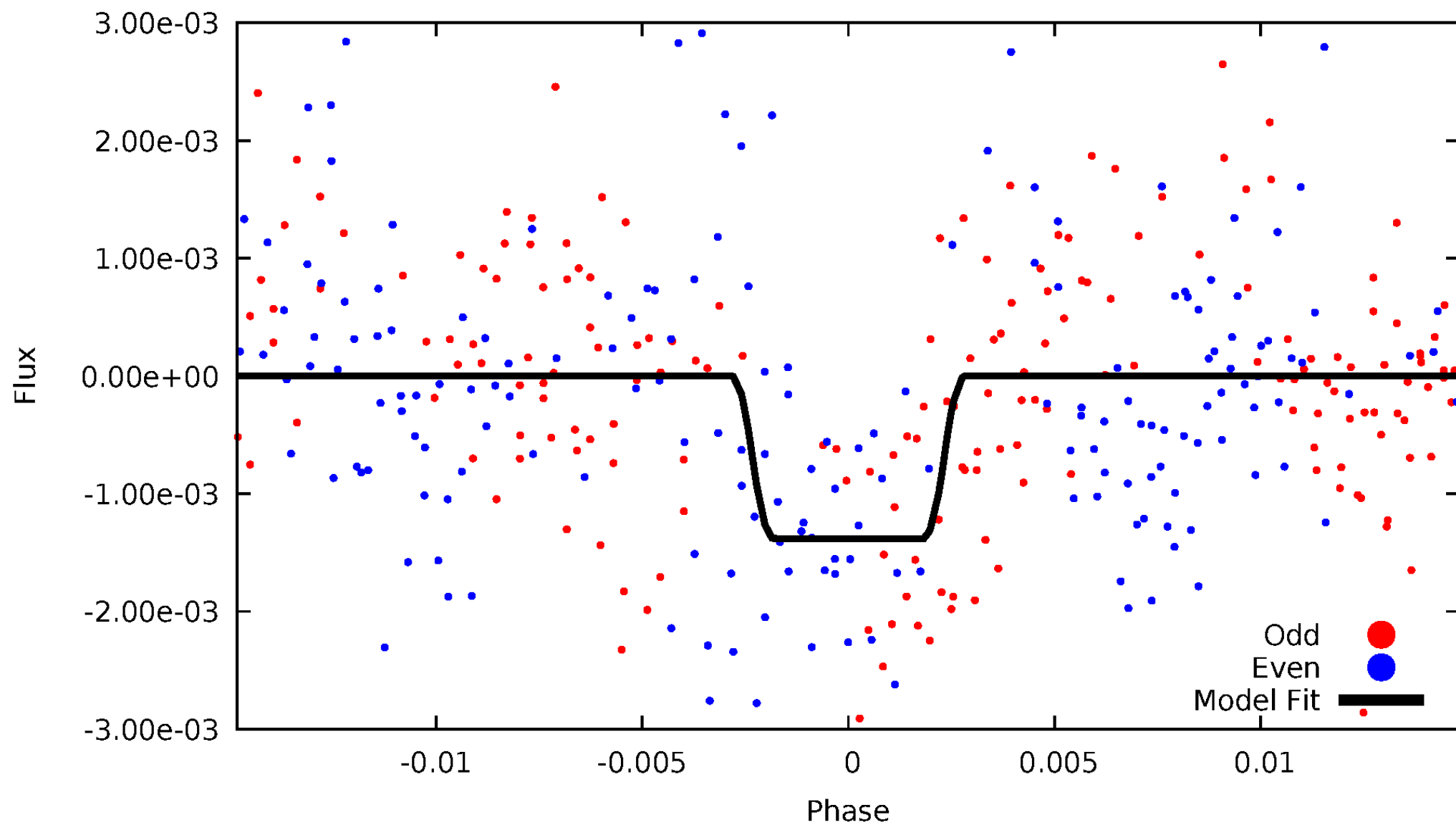
# DV Odd/Even

TCE 005737104-04



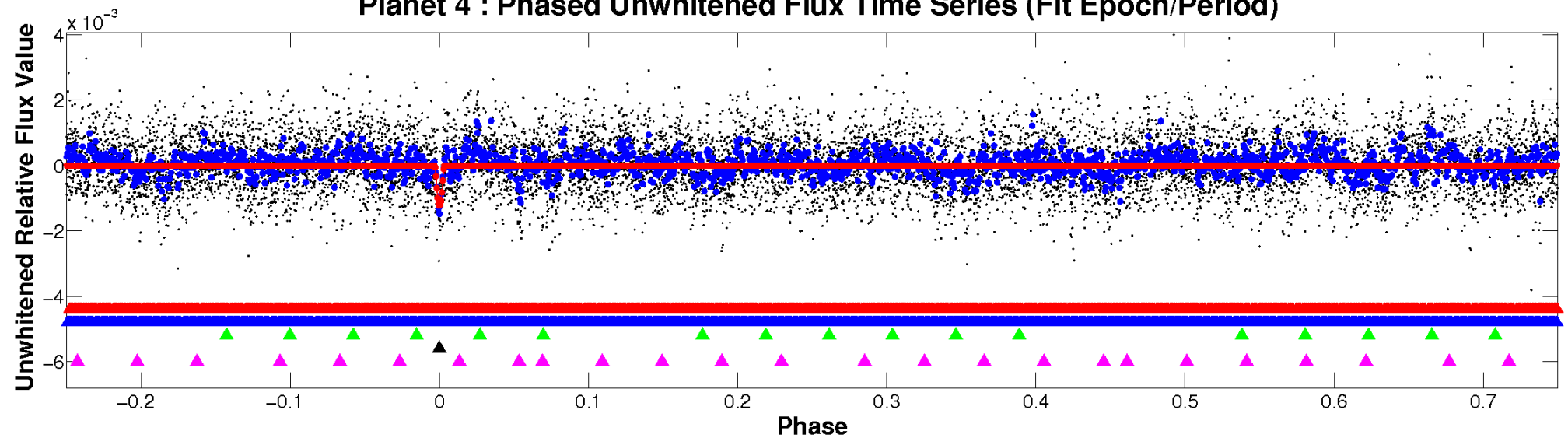
# ALT Odd/Even

TCE 005737104-04

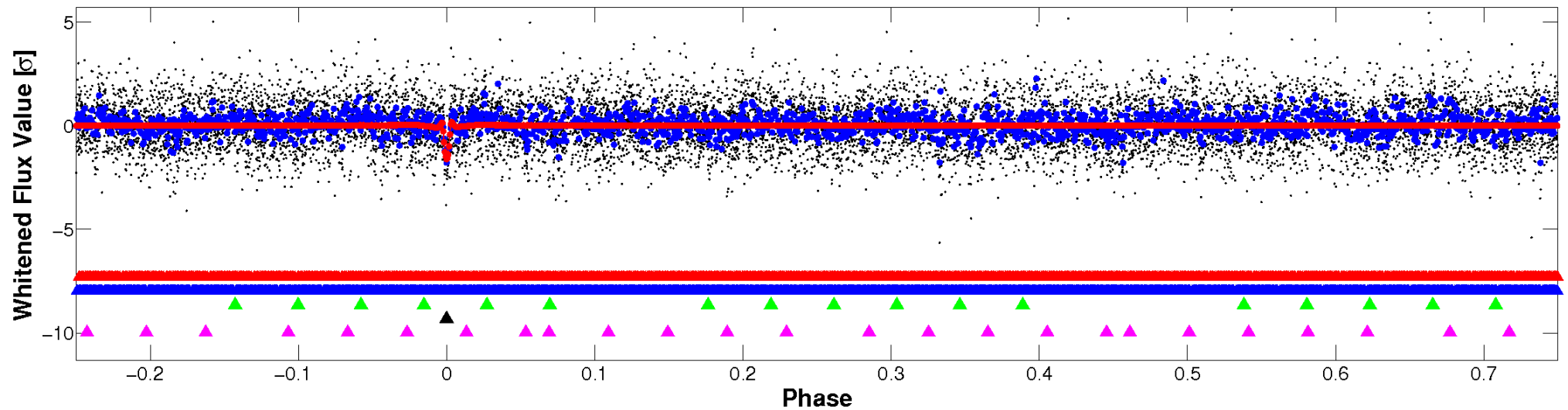


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

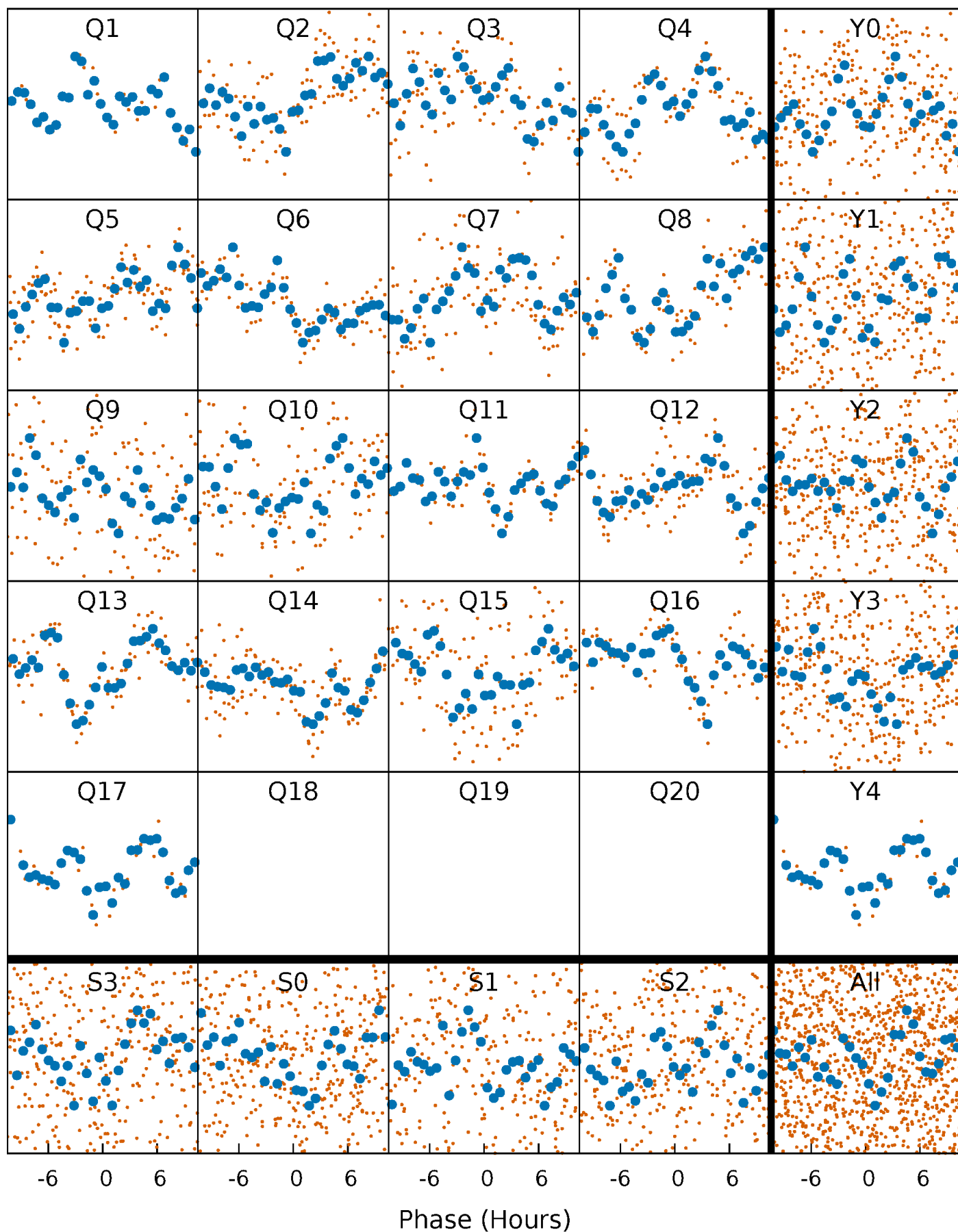


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



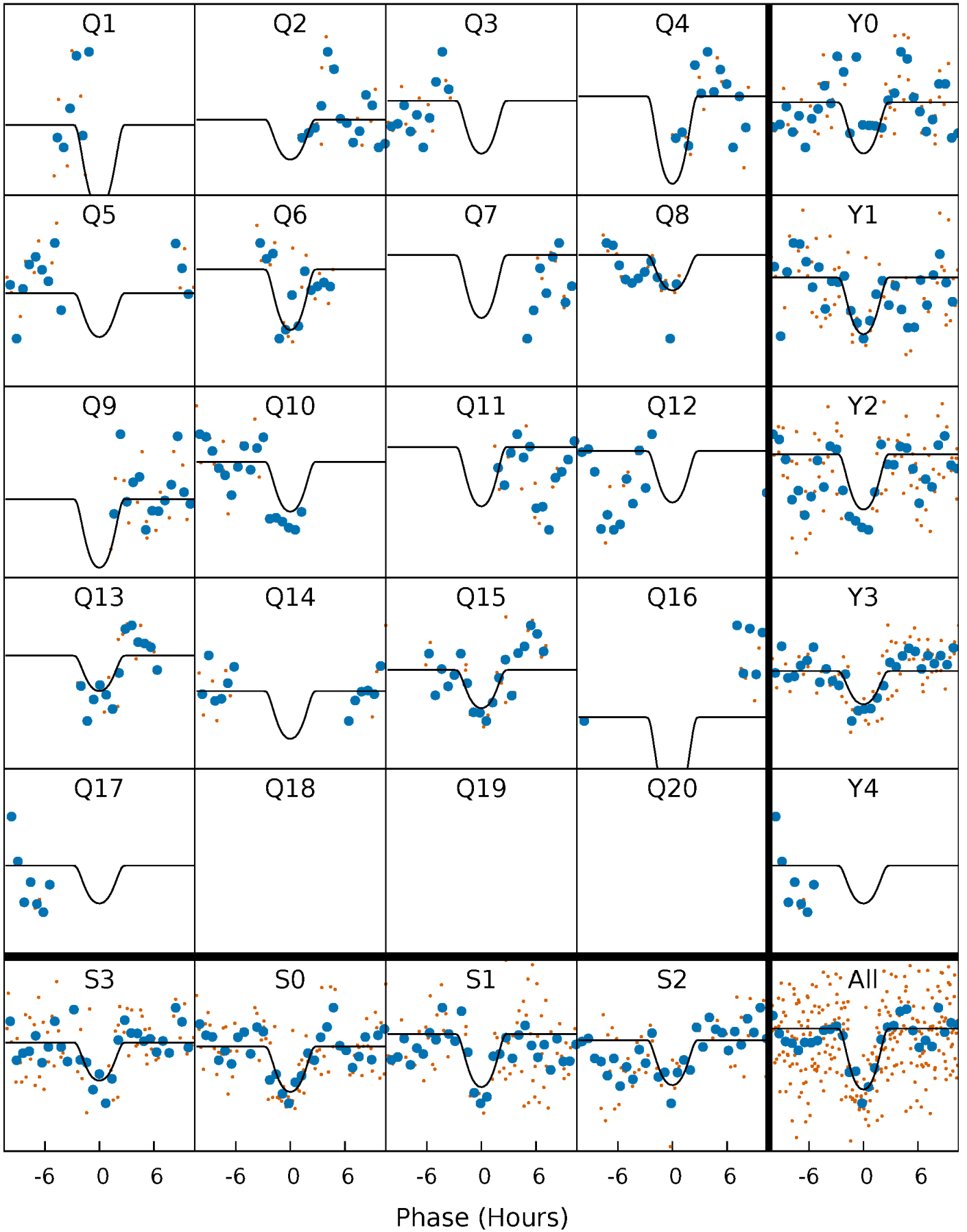
# PDC Quarter-Phased Transit Curves

TCE 005737104-04 P= 35.982625 Days  $T_0=133.742455$  (BKJD)



# DV Quarter-Phased Transit Curves

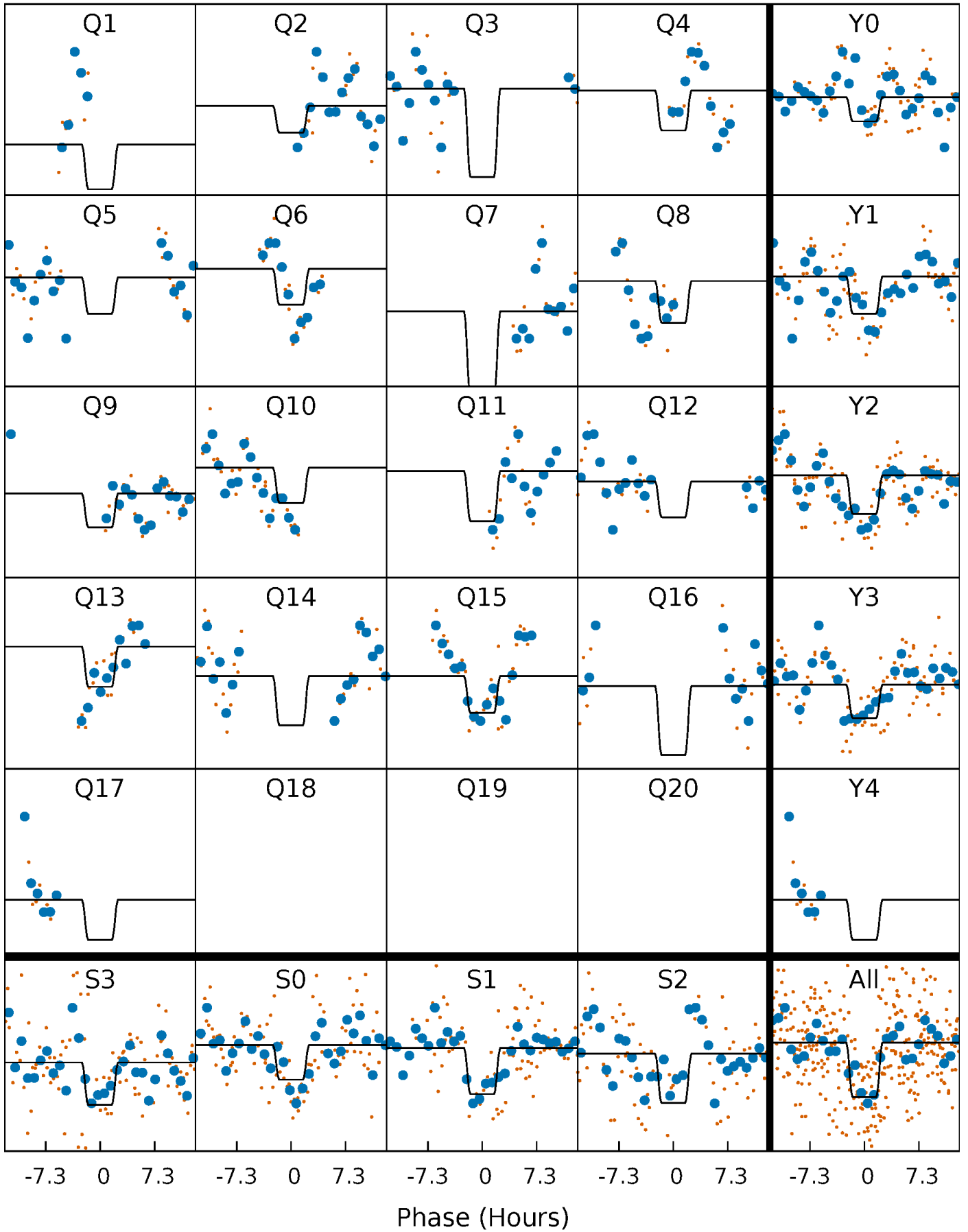
TCE 005737104-04   P= 35.982625 Days    $T_0=133.742455$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

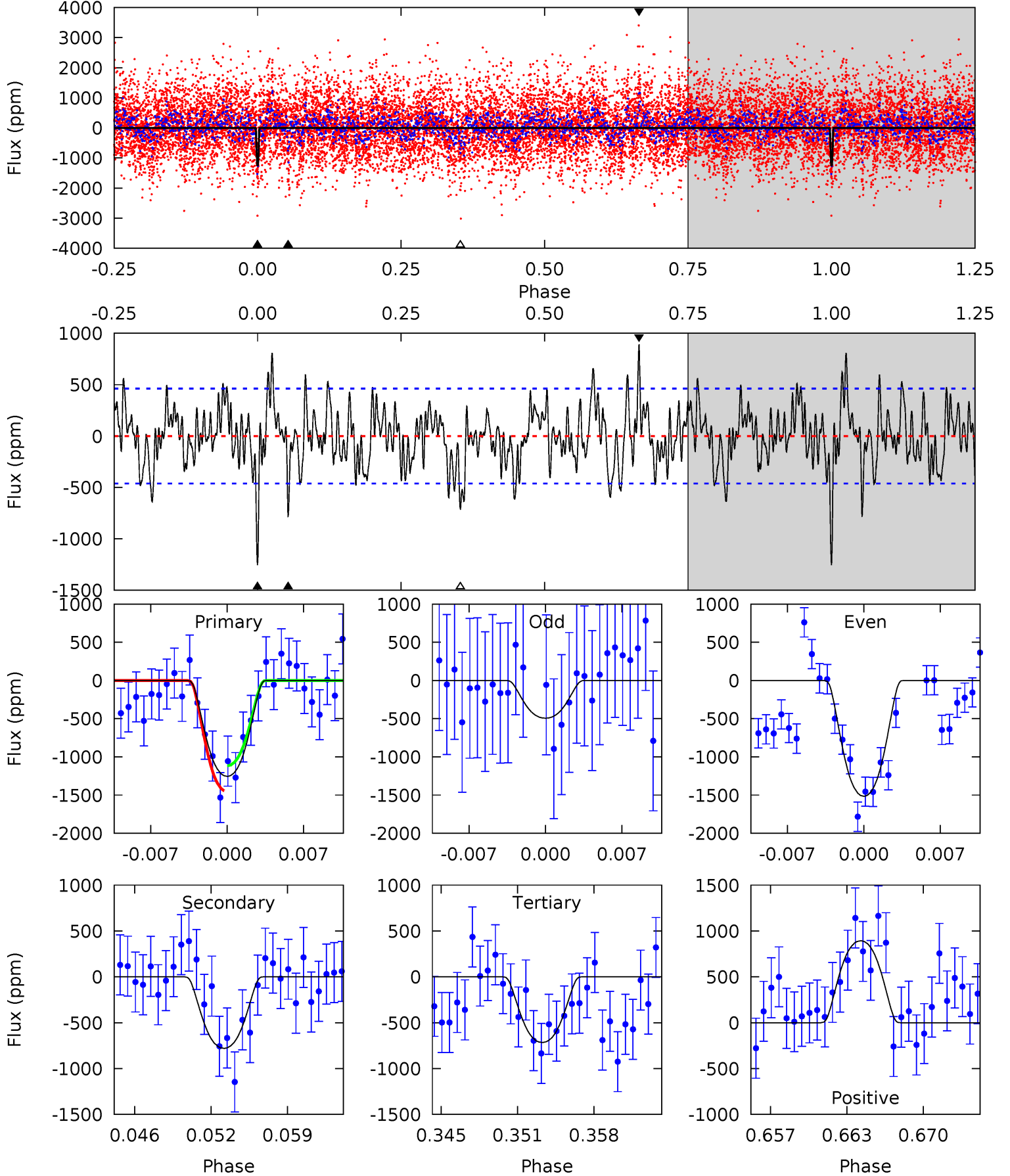
TCE 005737104-04   P= 35.982595 Days    $T_0=133.765119$  (BKJD)



# DV Model-Shift Uniqueness Test

005737104-04, P = 35.982625 Days, E = 97.759830 Days

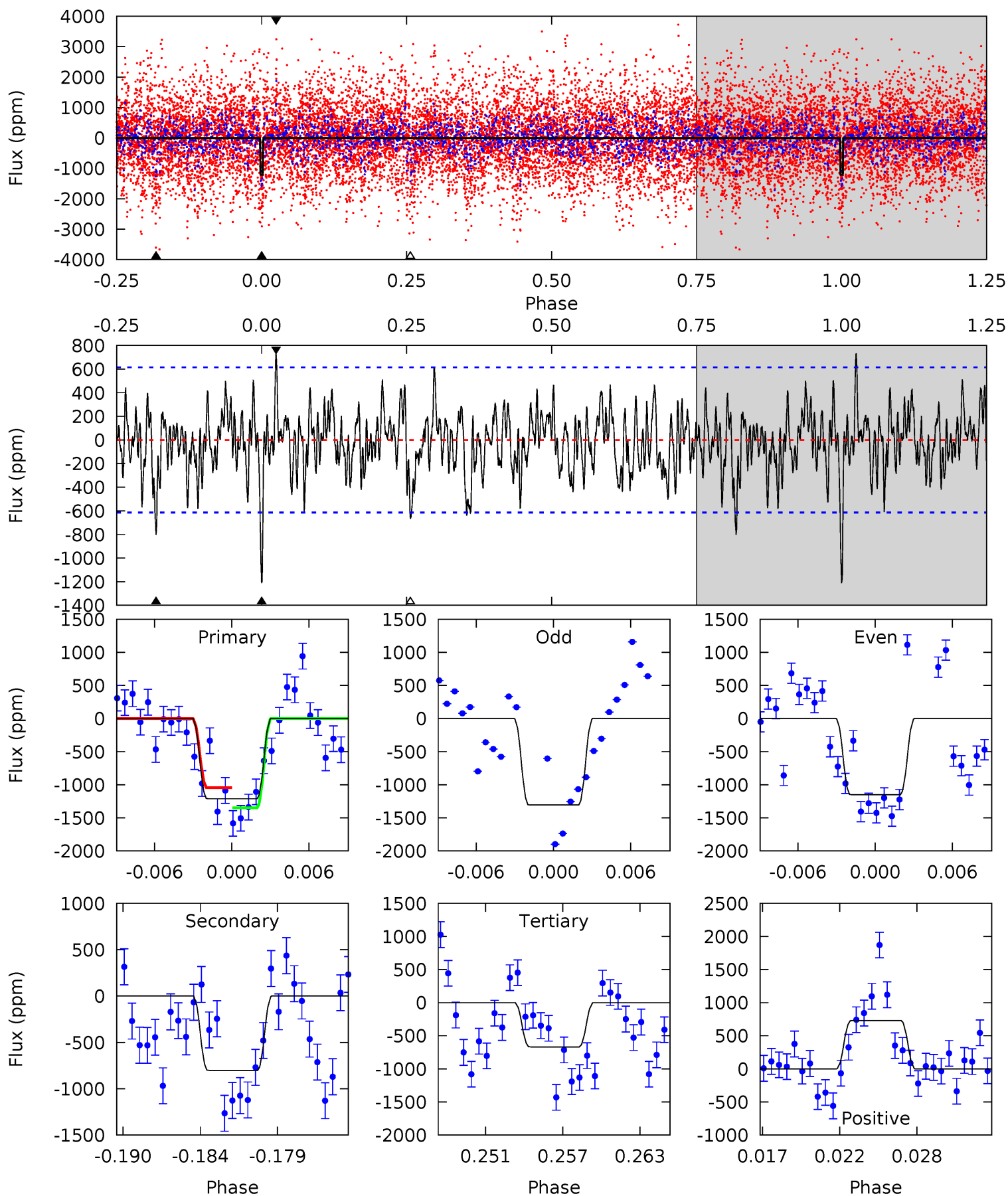
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	8.62	7.92	9.88	5.11	2.72	2.75	5.96	4.00	0.70	-1.25	5.53	0.78	0.42	1.78



# Alt Model-Shift Uniqueness Test

005737104-04, P = 35.982595 Days, E = 97.782524 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
10.1	6.70	5.59	6.10	5.14	2.77	1.85	4.54	4.03	1.12	0.60	0.64	0.84	0.38	1.27



### Stellar Parameters For KIC 005737104

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6572^{+187}_{-281}$	$4.365^{+0.065}_{-0.195}$	$0.070^{+0.200}_{-0.400}$	$1.238^{+0.363}_{-0.168}$	$1.298^{+0.150}_{-0.224}$	$0.964^{+0.328}_{-0.474}$
	+3%/-4%	+1%/-4%	+286%/-571%	+29%/-14%	+12%/-17%	+34%/-49%
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 005737104-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-780 \pm 90$	$5.95^{+2.03}_{-2.23}$	$947^{+67}_{-51}$	$5329^{+1258}_{-620}$	$646^{+938}_{-301}$
Alt.	$-802 \pm 120$	$5.30^{+2.12}_{-2.23}$	$949^{+69}_{-52}$	$5692^{+1703}_{-820}$	$833^{+1513}_{-412}$

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

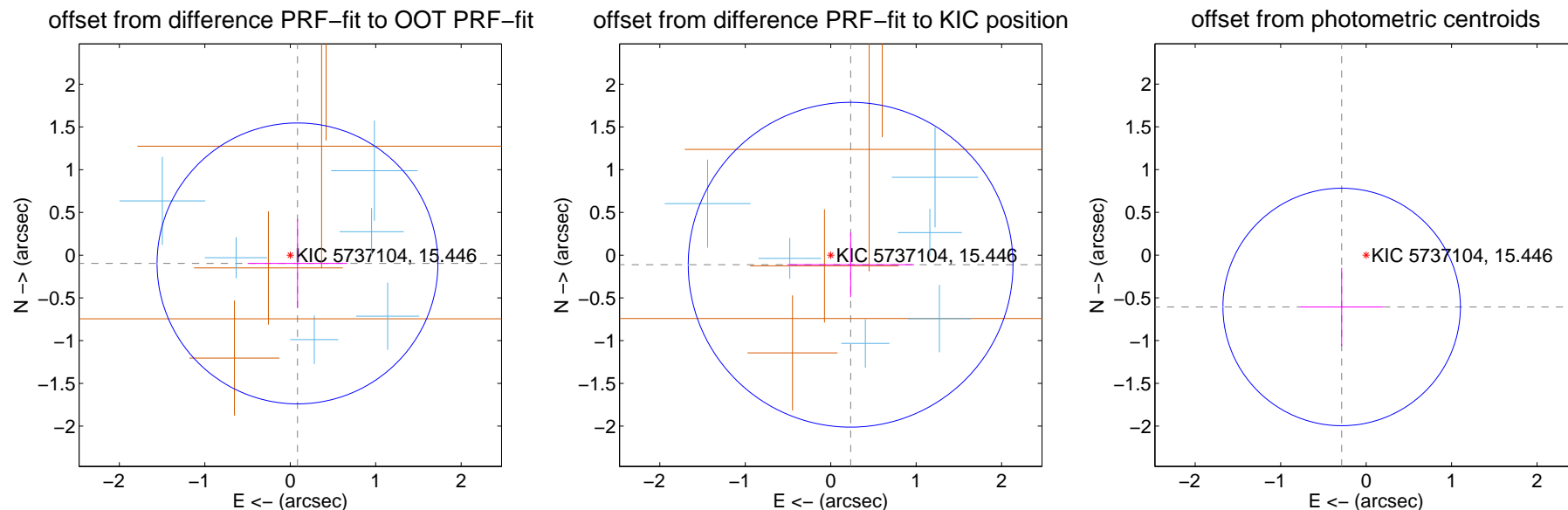
## DV Centroid Data

Supplemental centroid analysis for 005737104-04. Kepler magnitude: 15.45. Transit SNR 8.86

There are 7 quarters with good PRF difference image offsets

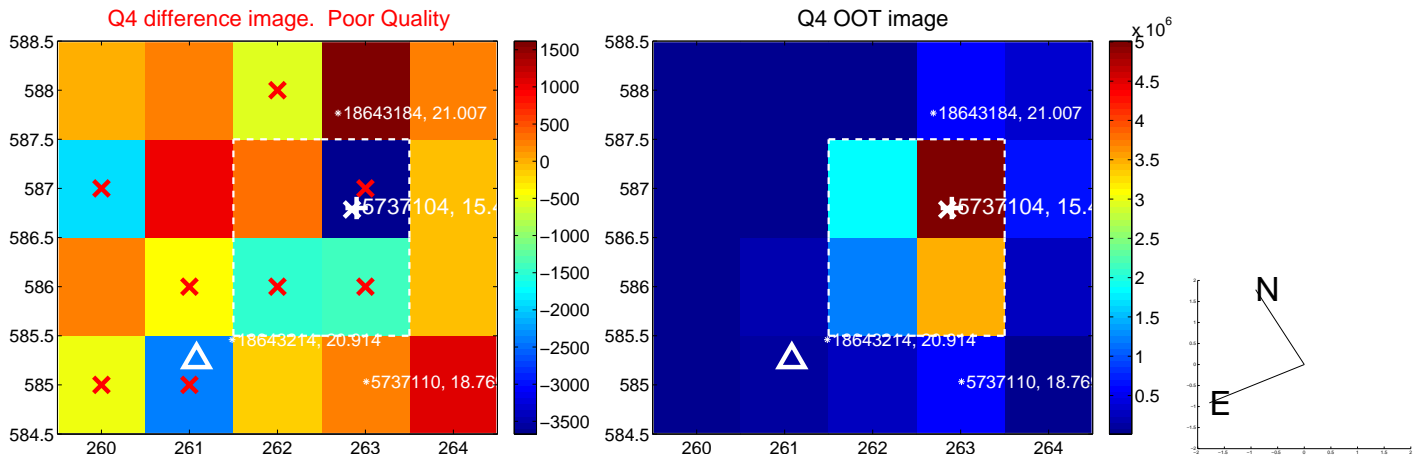
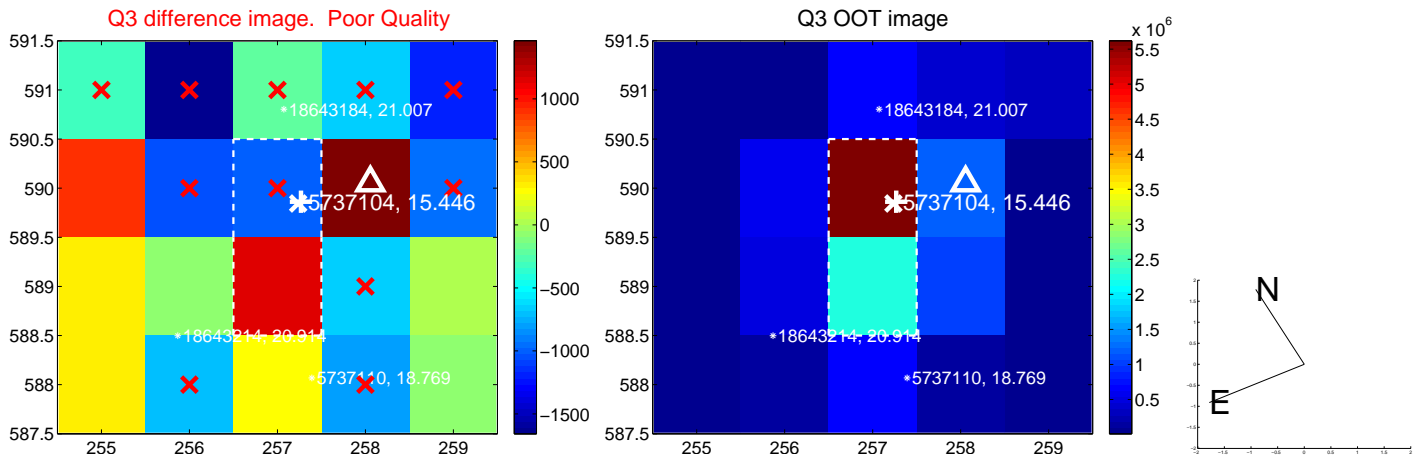
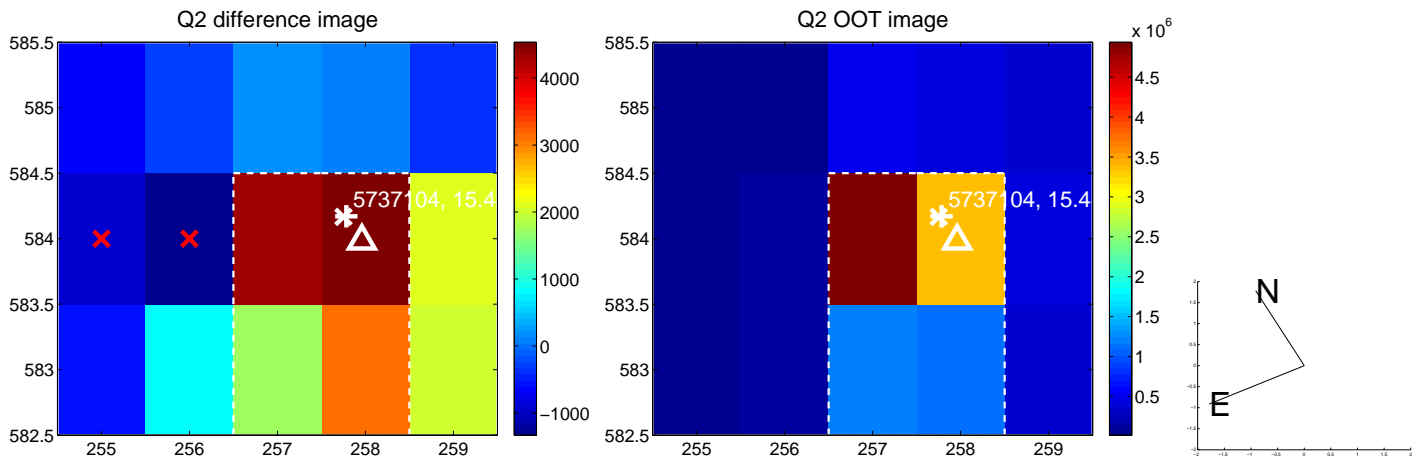
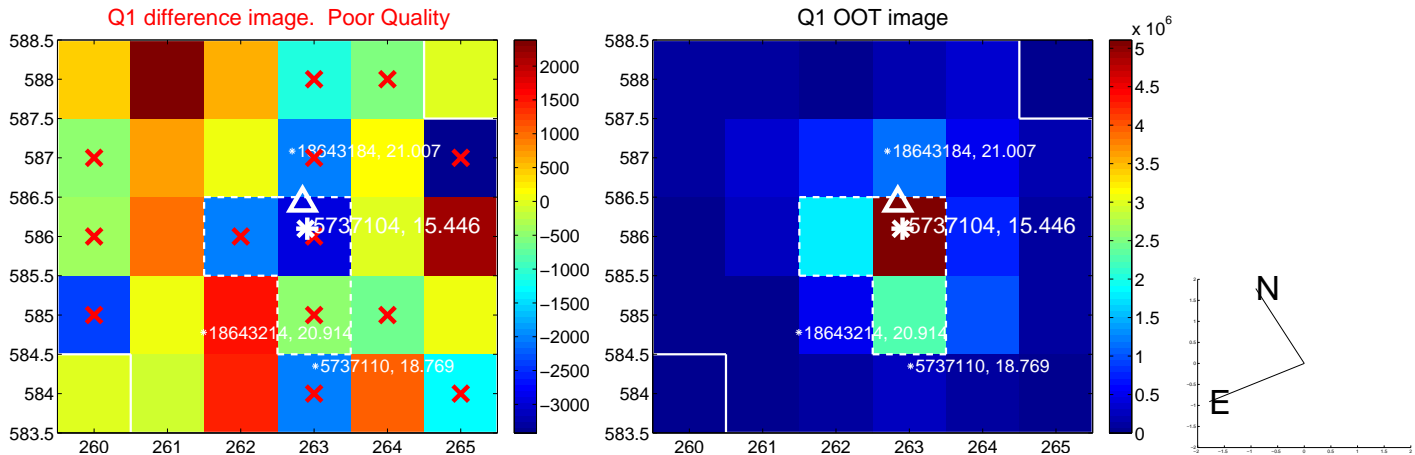
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.129 \pm 0.548$	0.23	$-0.085 \pm 0.583$	$-0.097 \pm 0.519$
PRF-fit source offset from KIC position	$0.258 \pm 0.633$	0.41	$-0.233 \pm 0.743$	$-0.112 \pm 0.378$
photometric centroid source offset	$0.67 \pm 0.46$	1.45	$0.29 \pm 0.49$	$-0.61 \pm 0.46$



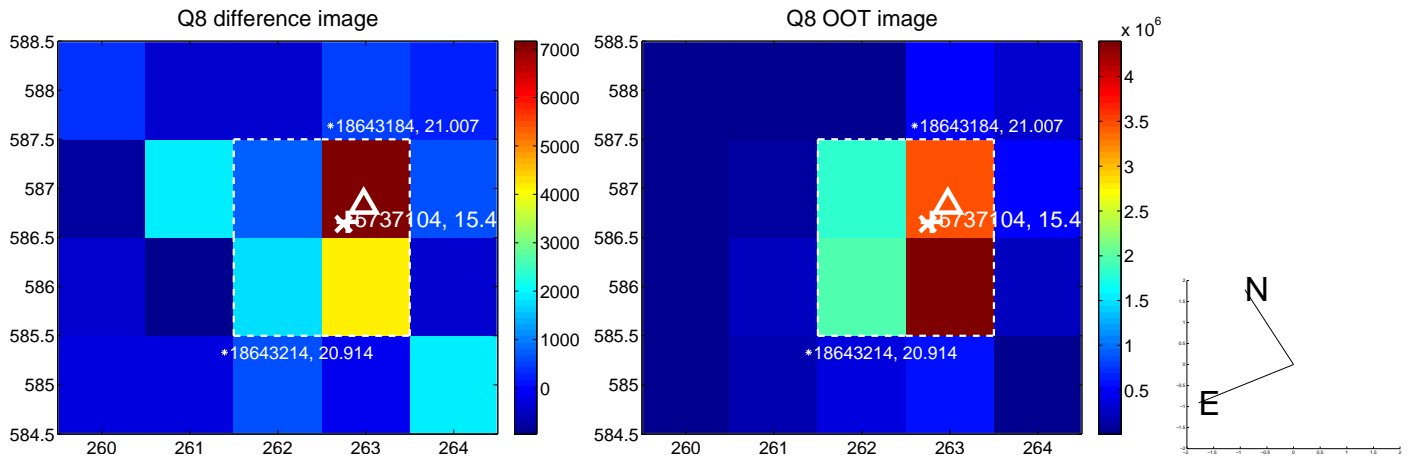
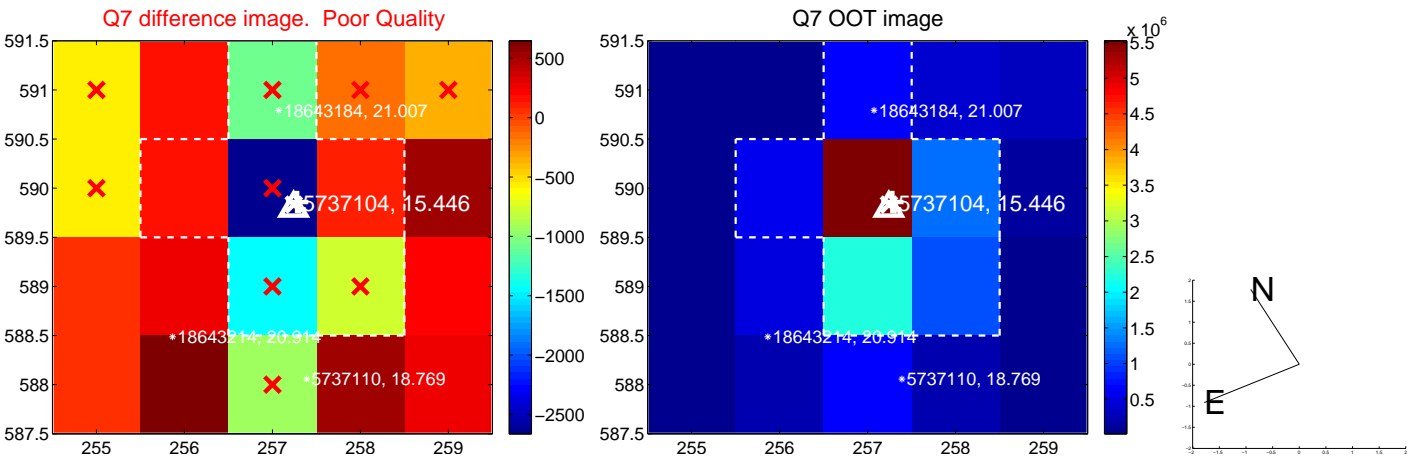
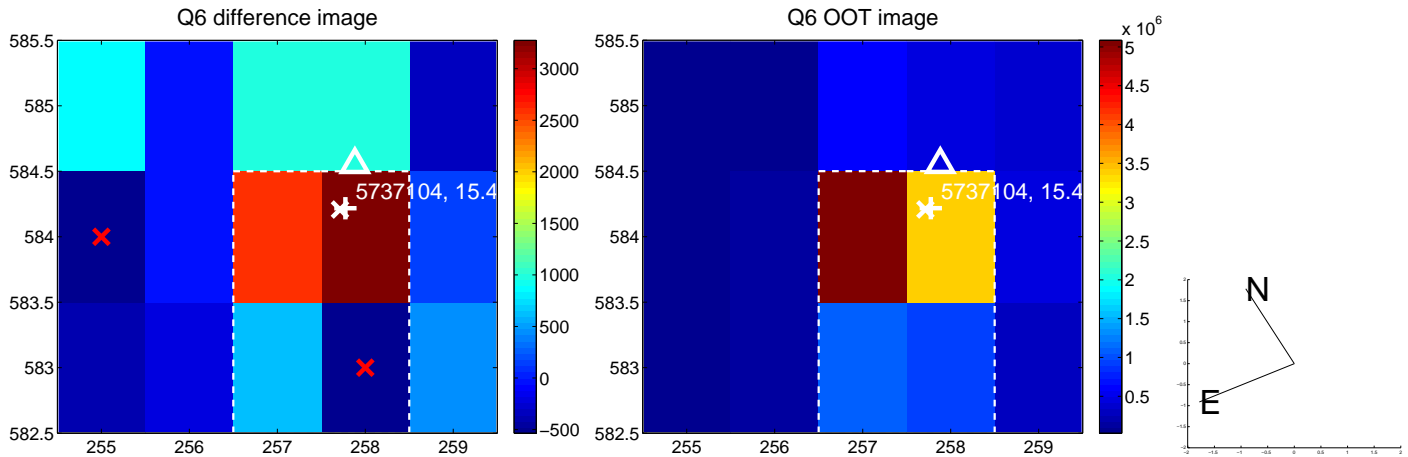
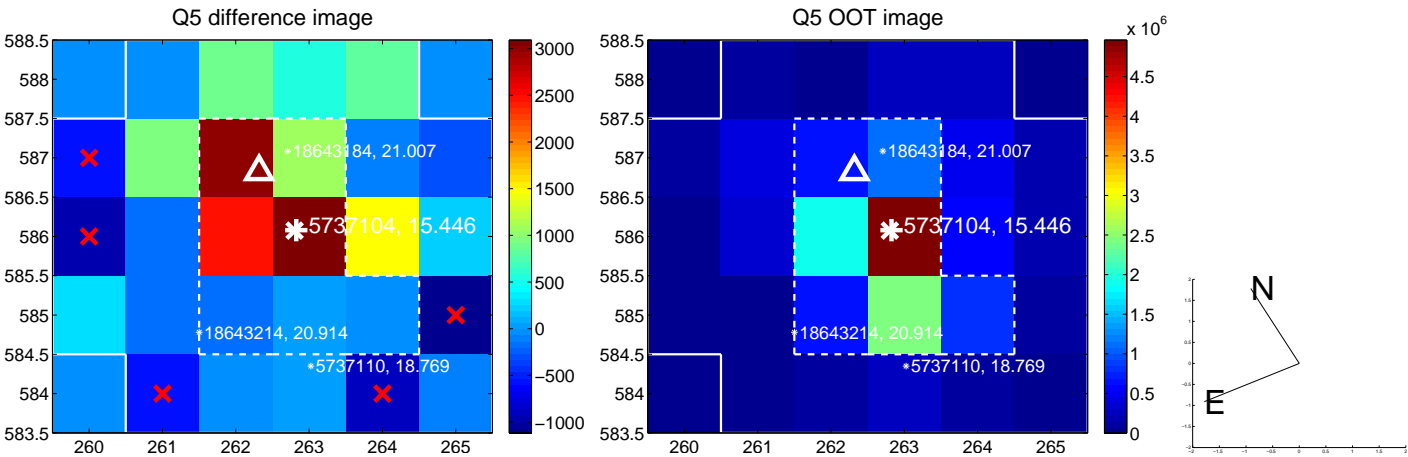
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

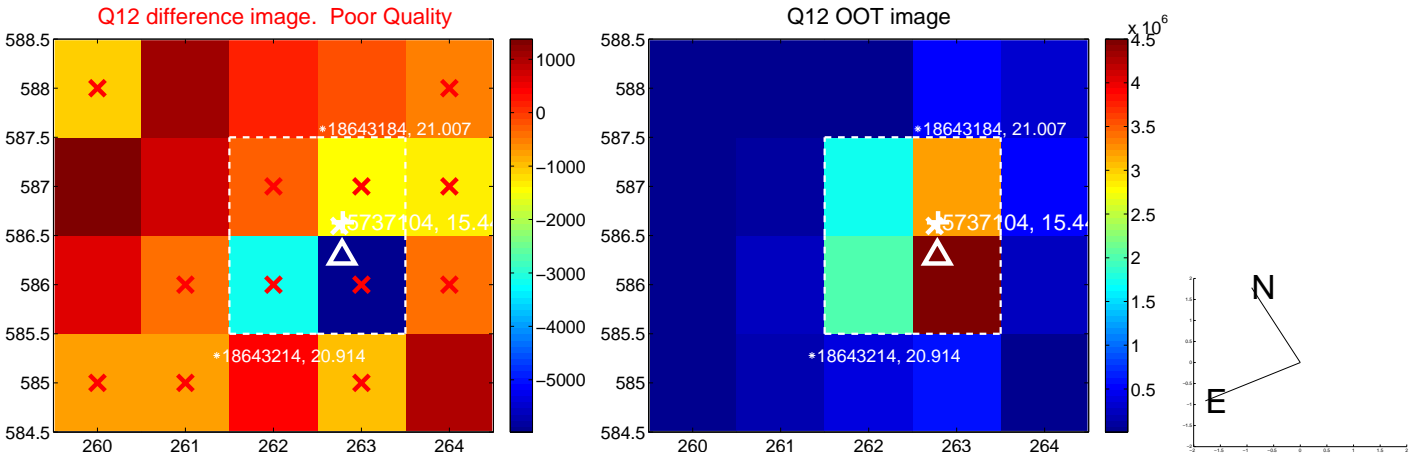
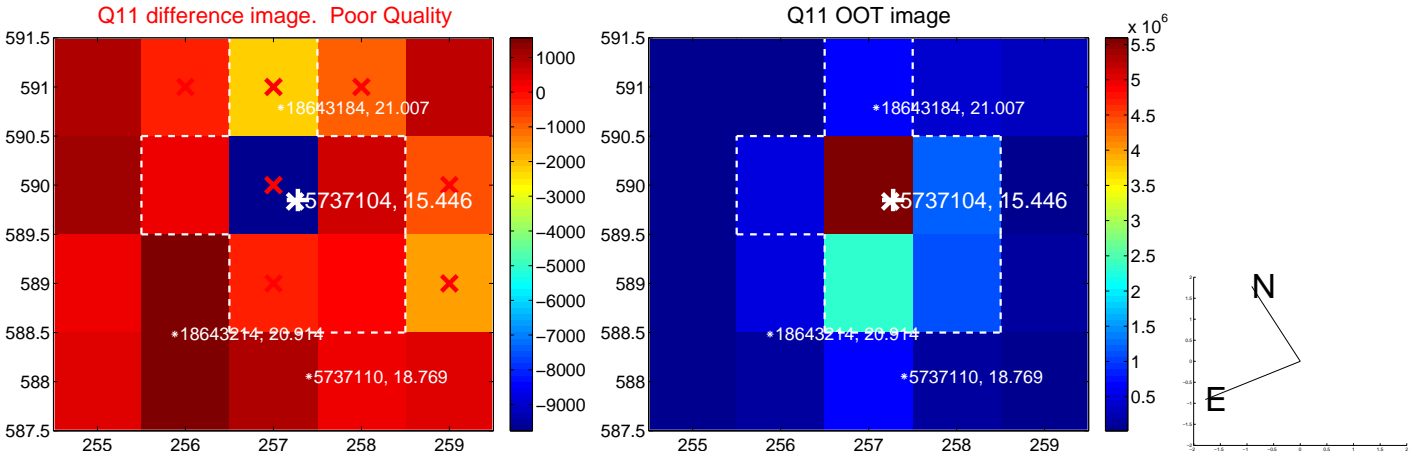
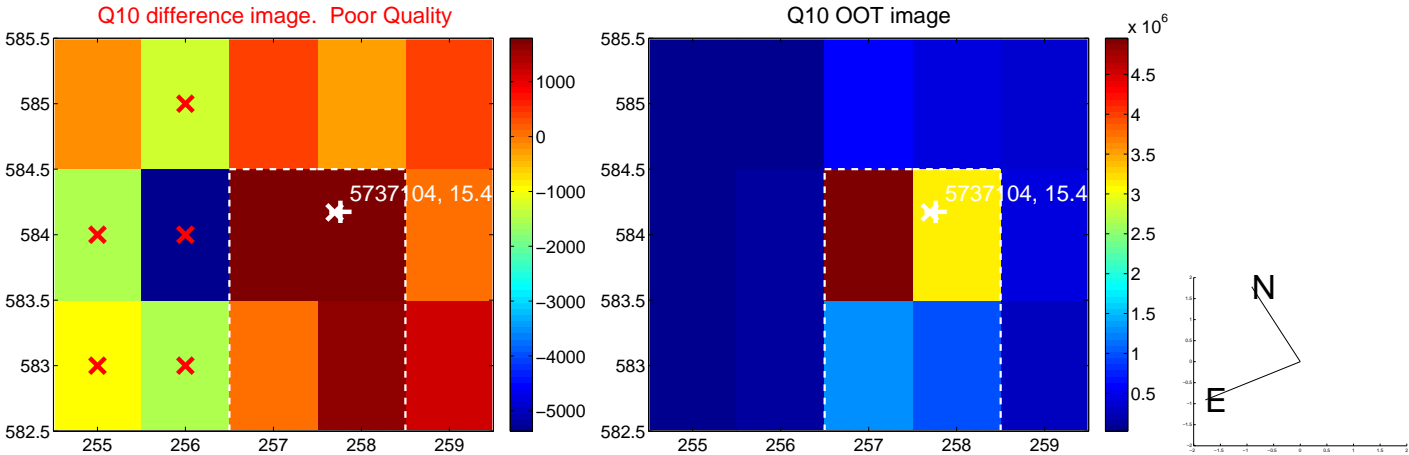
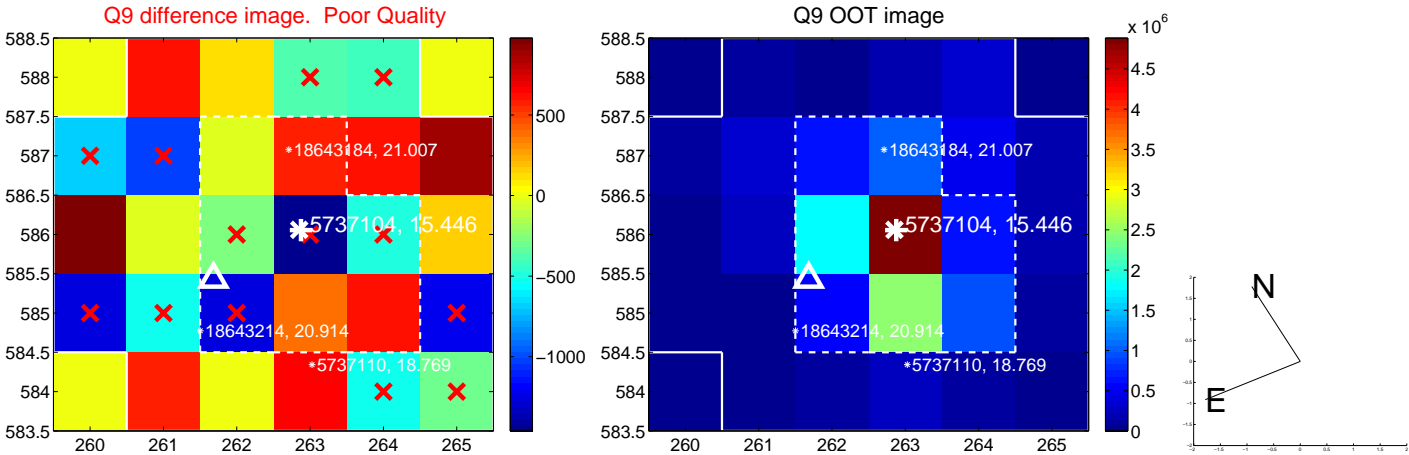




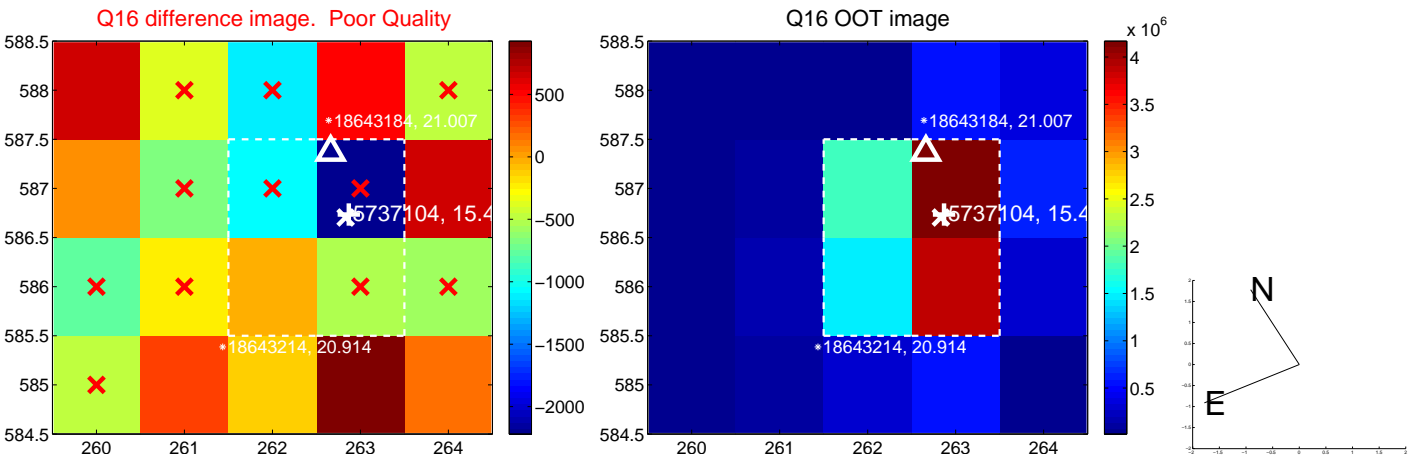
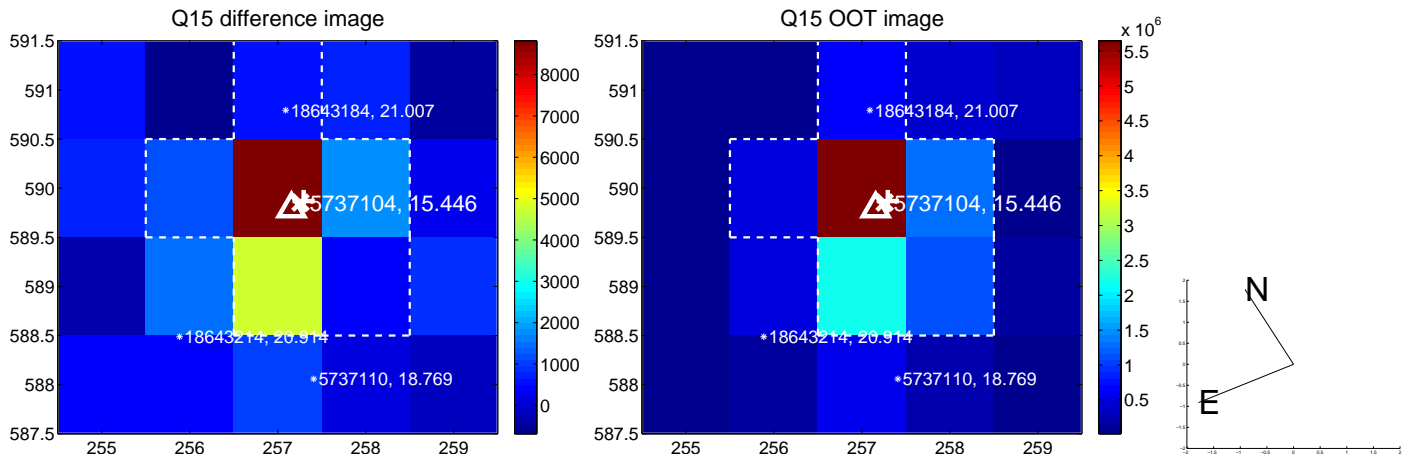
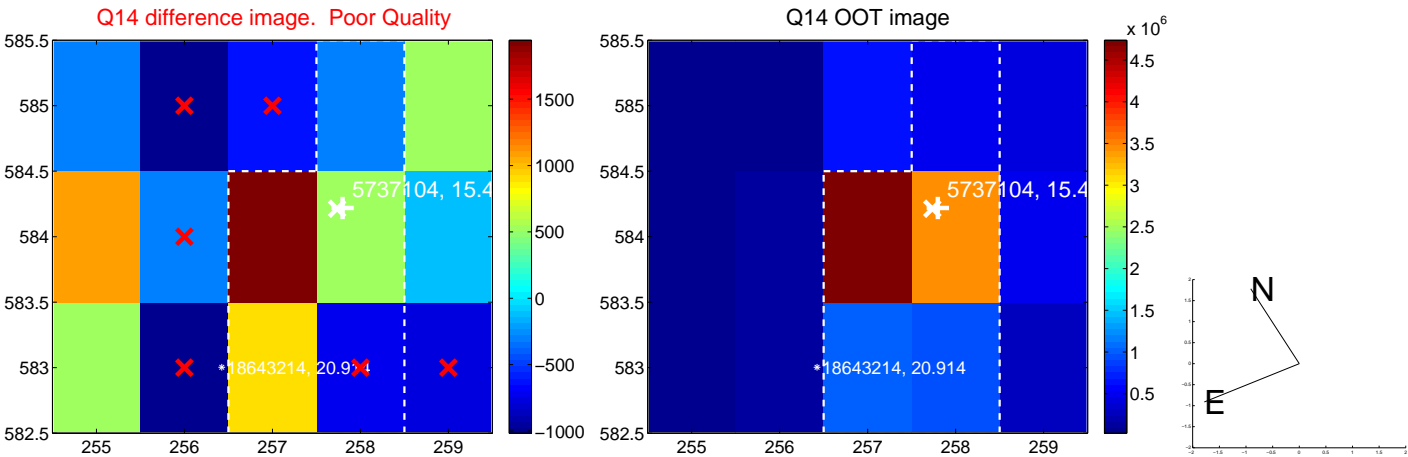
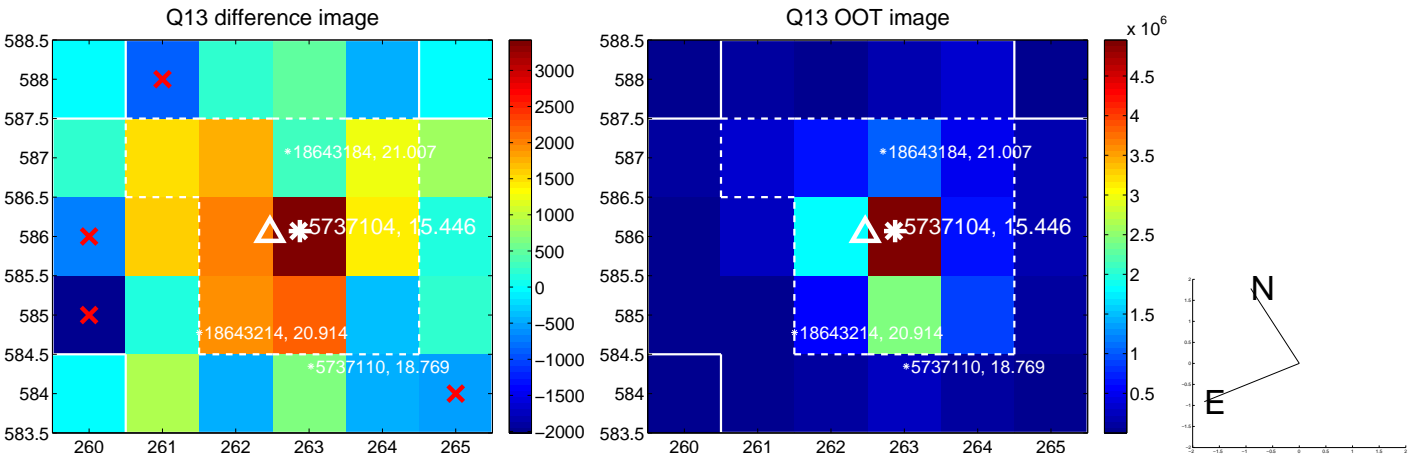
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



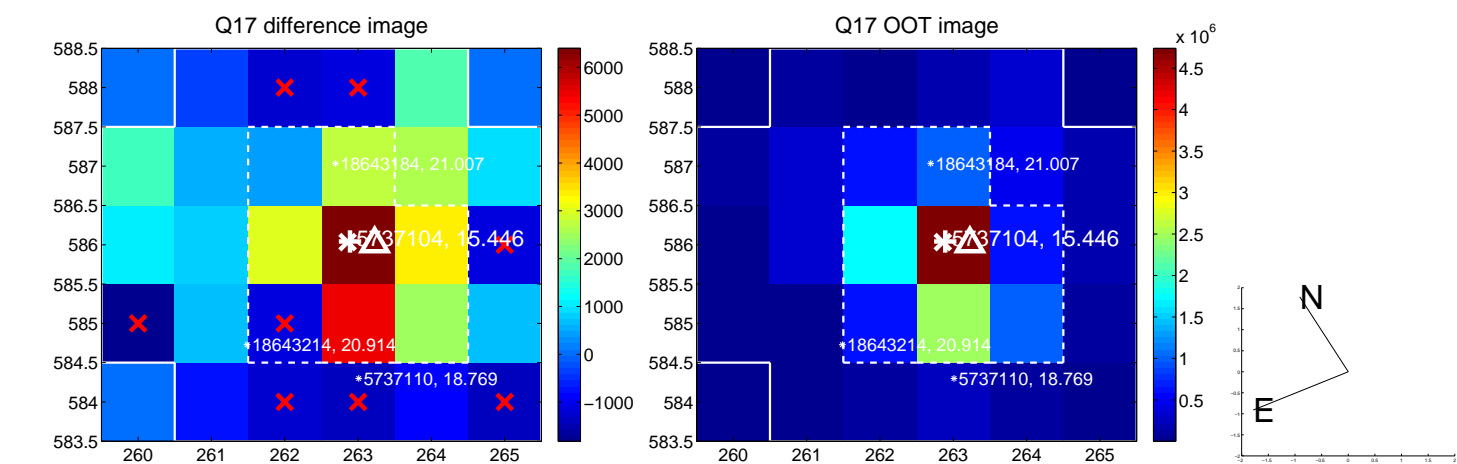
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



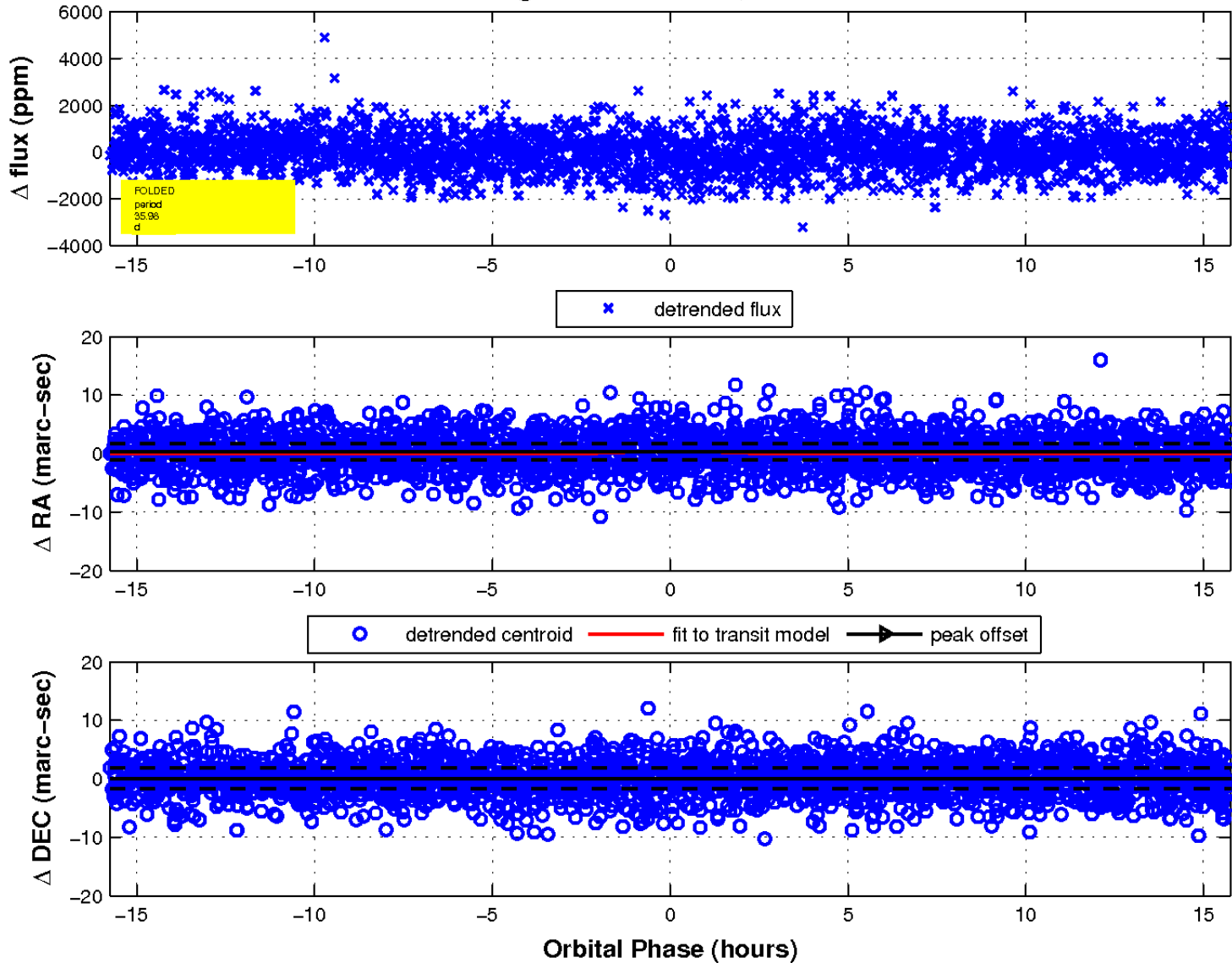
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

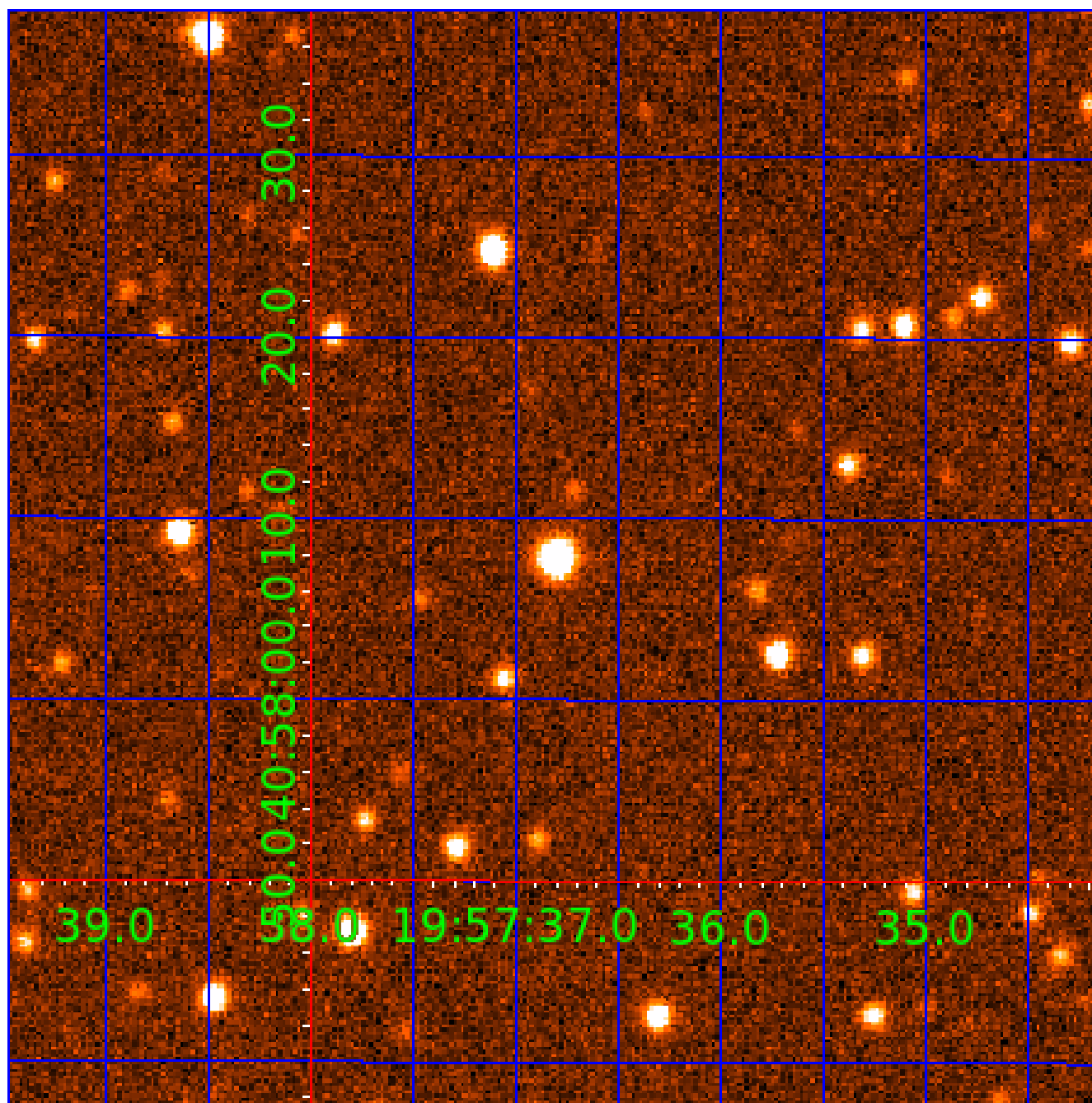


fluxWeightedCentroids, Planet 4 of 5



UKIRT Image

Declination



# KIC 005737104

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005737104-01	OBS	No	1.063640	132.232283	114.2	3.492	10.0	8.9	1.24	6572	1.55	5181.30
005737104-02	OBS	No	1.063643	131.797615	104.1	3.205	9.6	8.4	1.24	6572	1.36	5181.28
005737104-03	OBS	No	83.450027	208.214585	1757.3	5.279	8.3	8.9	1.24	6572	7.85	15.43
005737104-04	OBS	No	35.982625	133.742455	1233.0	5.256	7.8	8.9	1.24	6572	5.63	47.36
005737104-05	OBS	No	57.860582	186.318311	1579.9	1.837	7.3	7.1	1.24	6572	5.18	25.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005737104-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005737104-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005737104-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
005737104-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT
005737104-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES

**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.

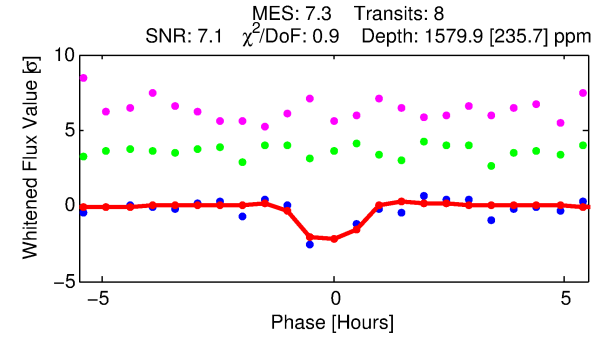
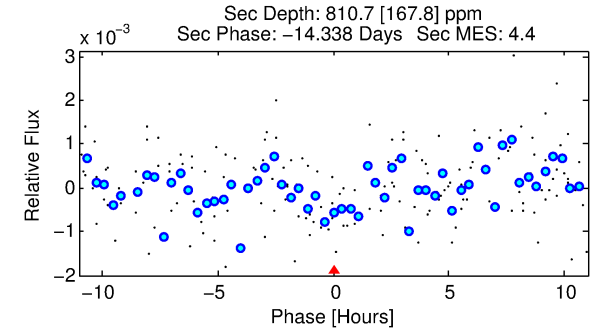
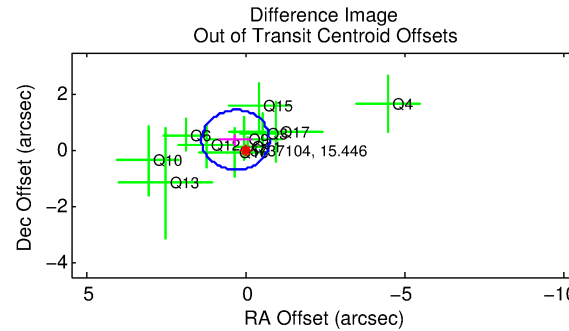
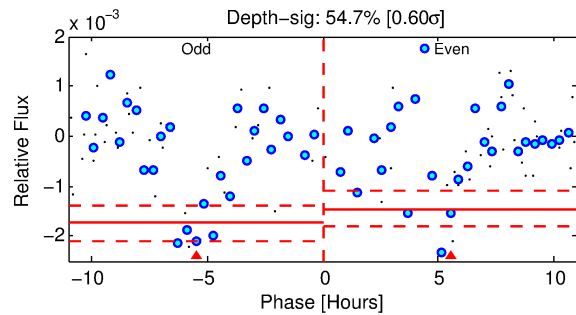
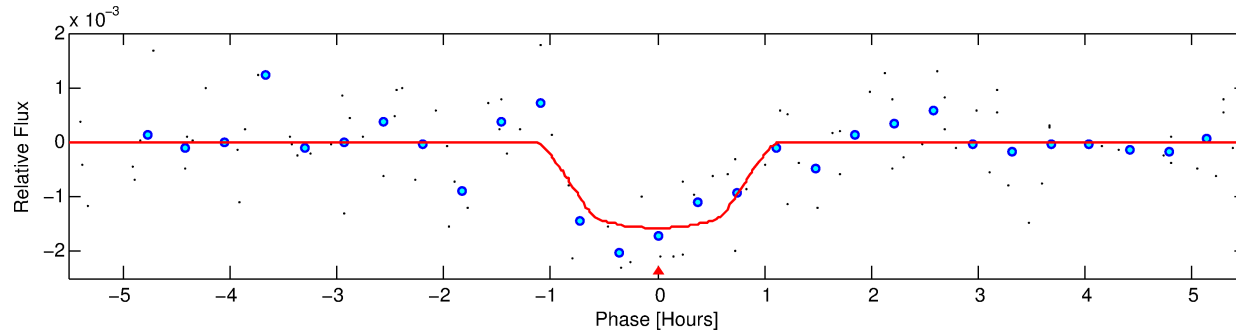
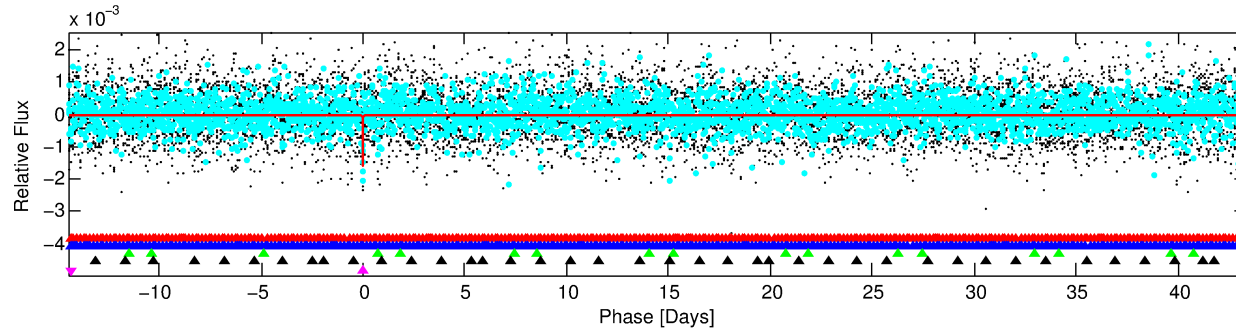
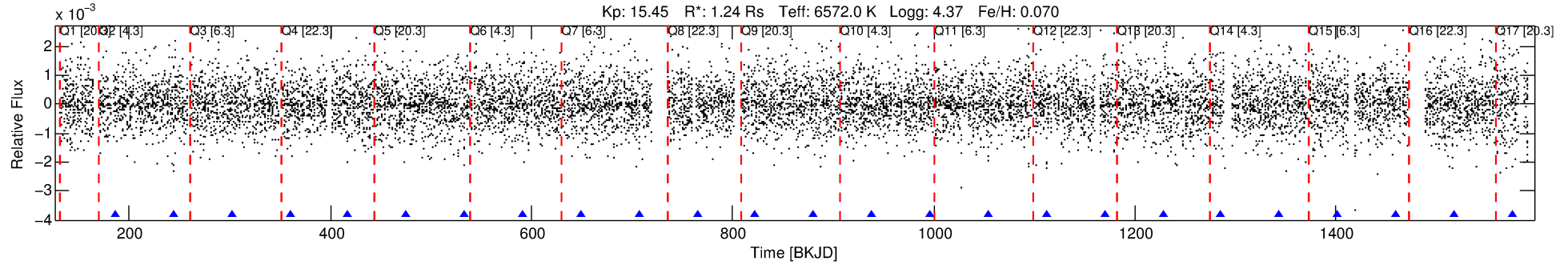
## Ephemeris Match Information For 005737104-05

No Significant Match Found



# DV One-Page Summary

KIC: 5737104 Candidate: 5 of 5 Period: 57.861 d



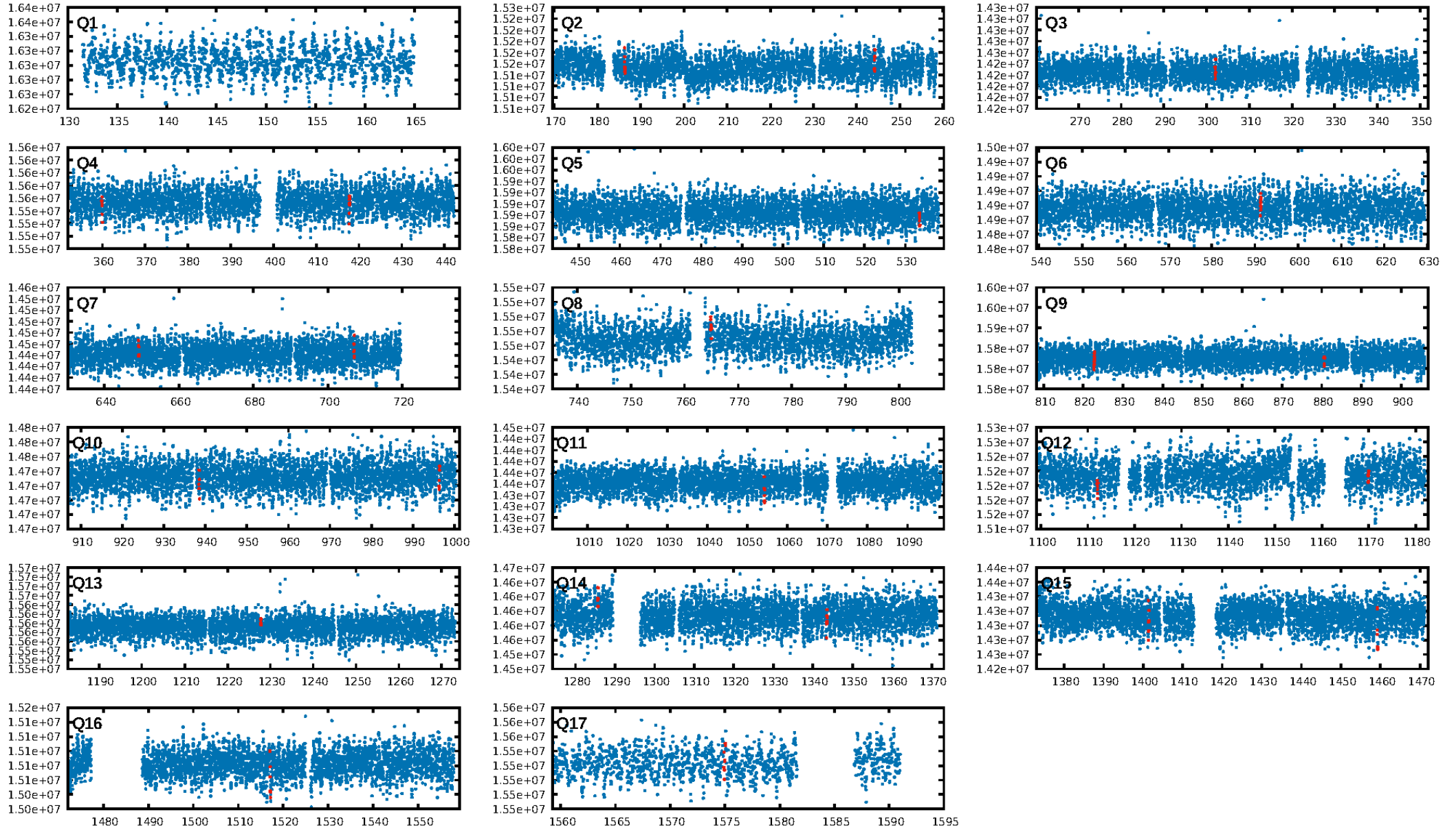
## DV Fit Results:

Period = 57.86058 [0.00047] d  
Epoch = 186.3183 [0.0071] BKJD  
Rp/R\* = 0.0383 [0.0545]  
a/R\* = 201.87 [1513.42]  
b = 0.61 [7.74]  
Seff = 25.14 [9.96]  
Teq = 571 [57] K  
Rp = 5.18 [7.52] Re  
a = 0.3192 [0.0786] AU  
Ag = 1694.68 [4871.70] [0.35 $\sigma$ ]  
Teffp = 5664 [4046] K [1.26 $\sigma$ ]

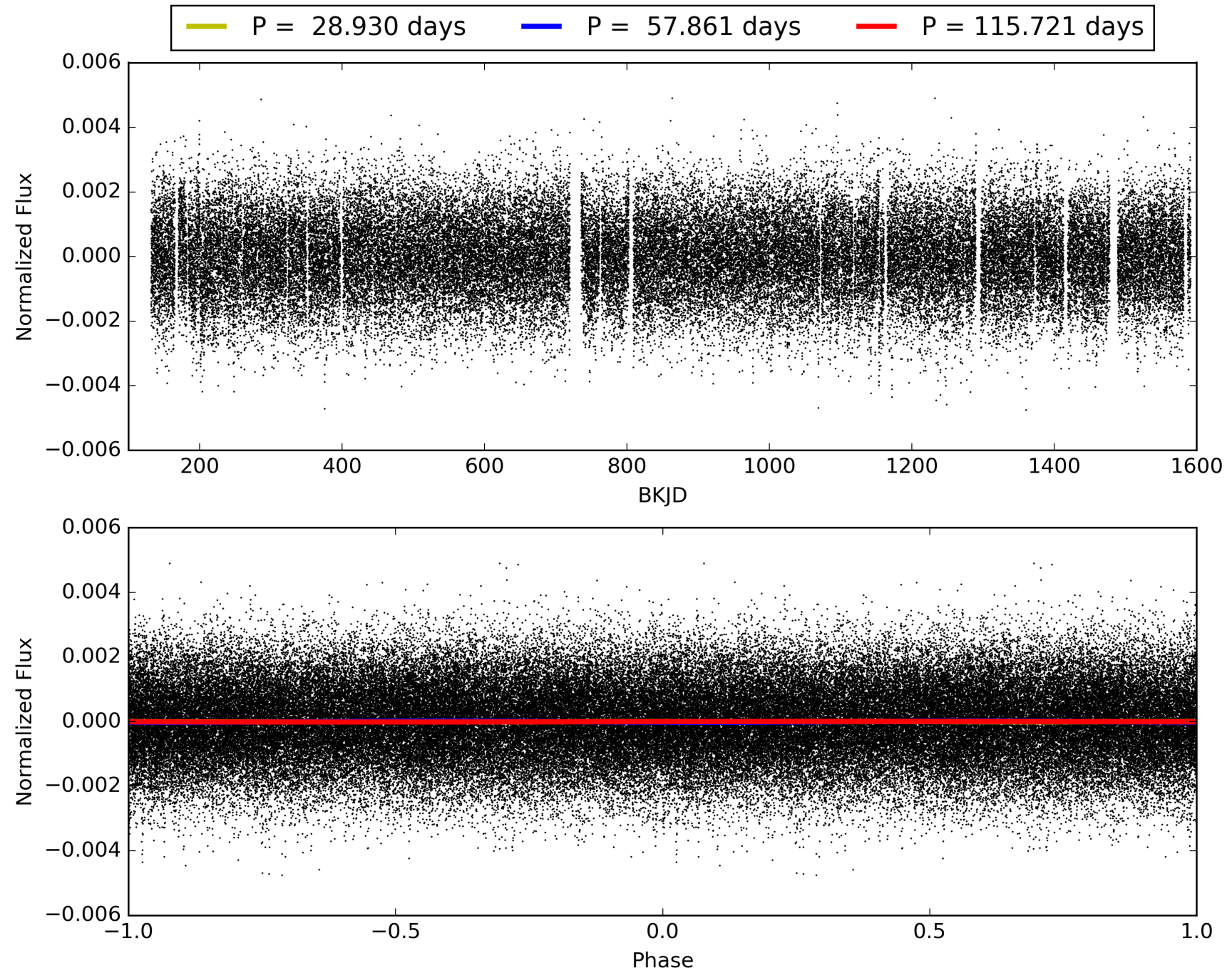
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [94.30 $\sigma$ ]  
LongPeriod-sig: 100.0% [109.88 $\sigma$ ]  
ModelChiSquare2-sig: 36.4%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 2.91e-10**  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: -5.198  
Centroid-sig: 27.9%  
Centroid-so: 0.385 arcsec [0.62 $\sigma$ ]  
OotOffset-rm: 0.500 arcsec [1.40 $\sigma$ ]  
KicOffset-rm: 0.398 arcsec [1.28 $\sigma$ ]  
OotOffset-st: 2/3/3/3 [11]  
KicOffset-st: 2/3/3/3 [11]  
DiffImageQuality-fgm: 0.36 [4/11]  
DiffImageOverlap-fno: 0.00 [0/16]

# TCE 005737104-05, PDC Light Curves

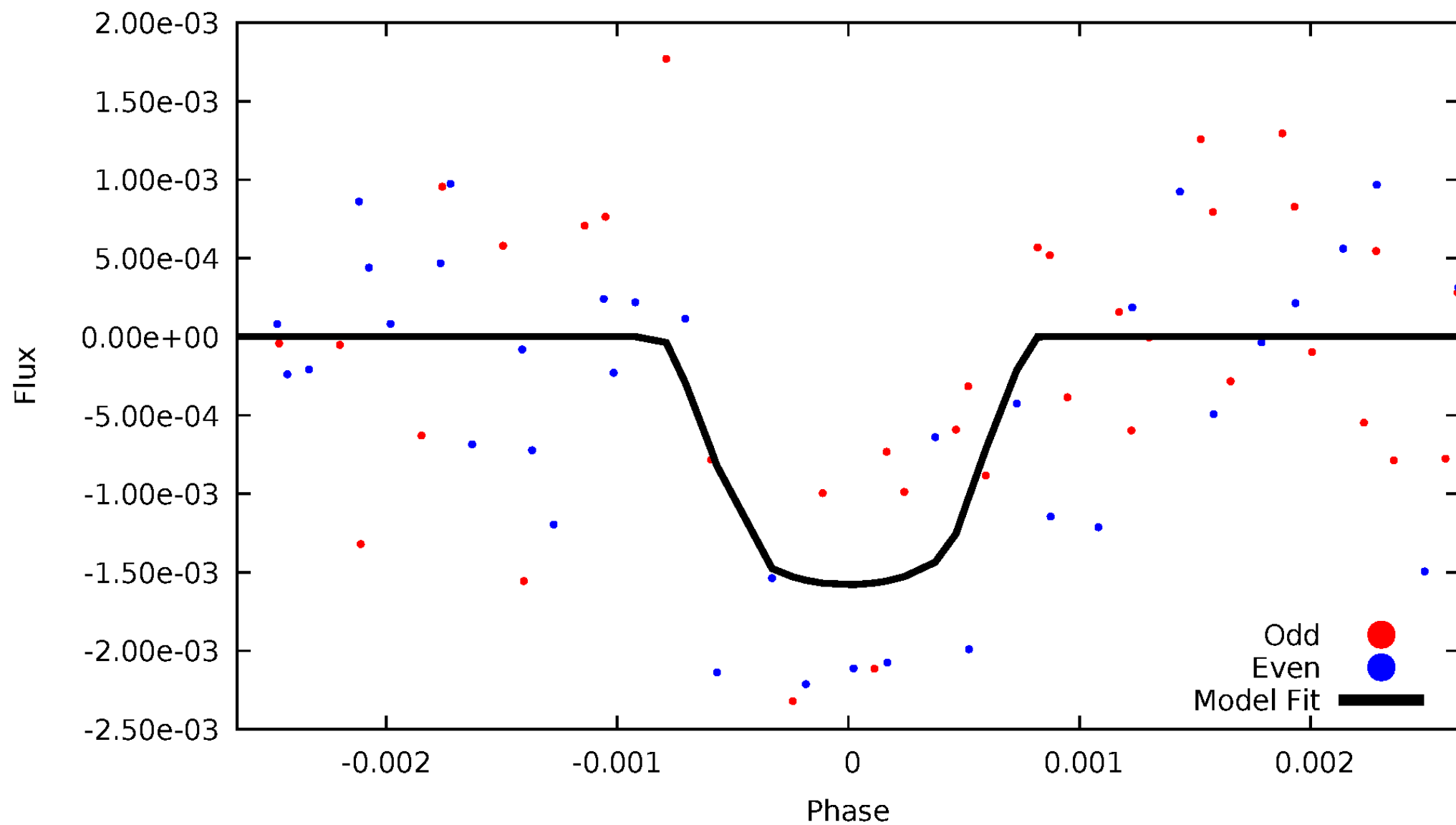


TCE 005737104-05



# DV Odd/Even

TCE 005737104-05





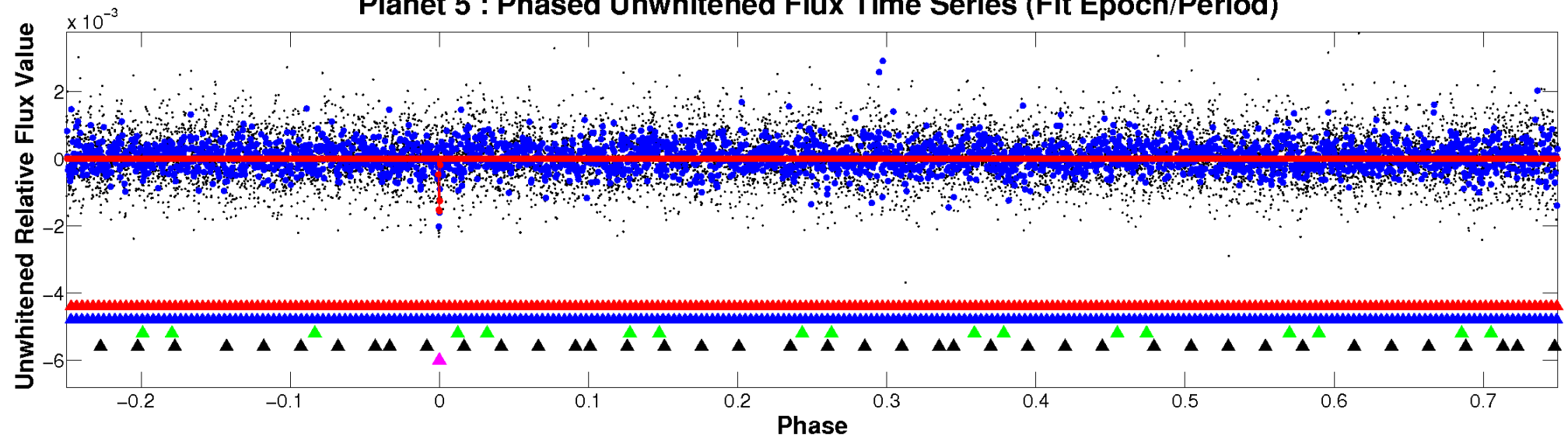
ALT Odd/Even

This plot does not exist for this TCE.

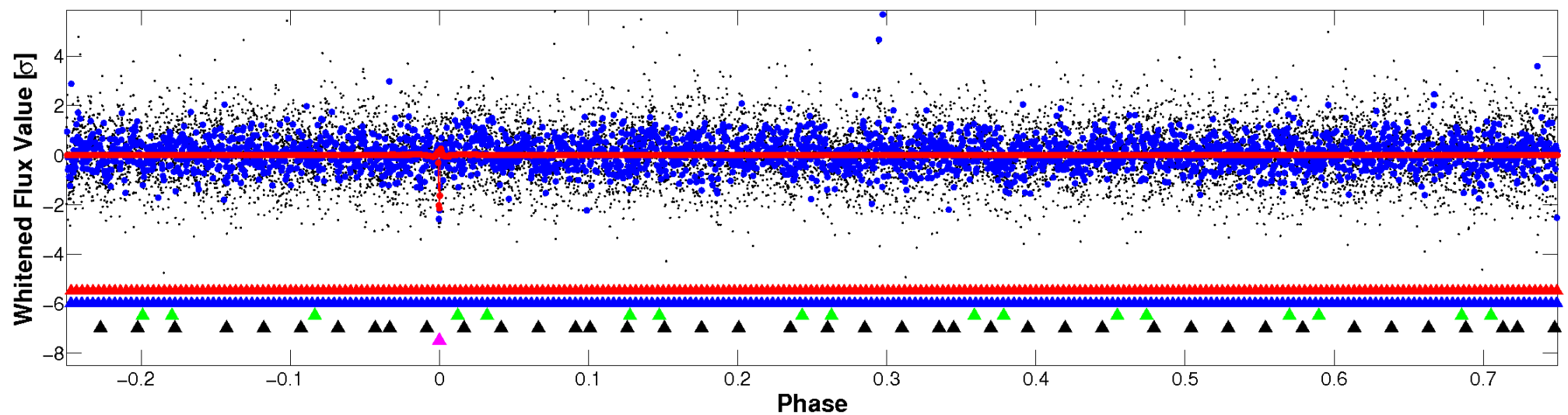


# Non-Whitened Vs. Whitened Light Curve

## Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

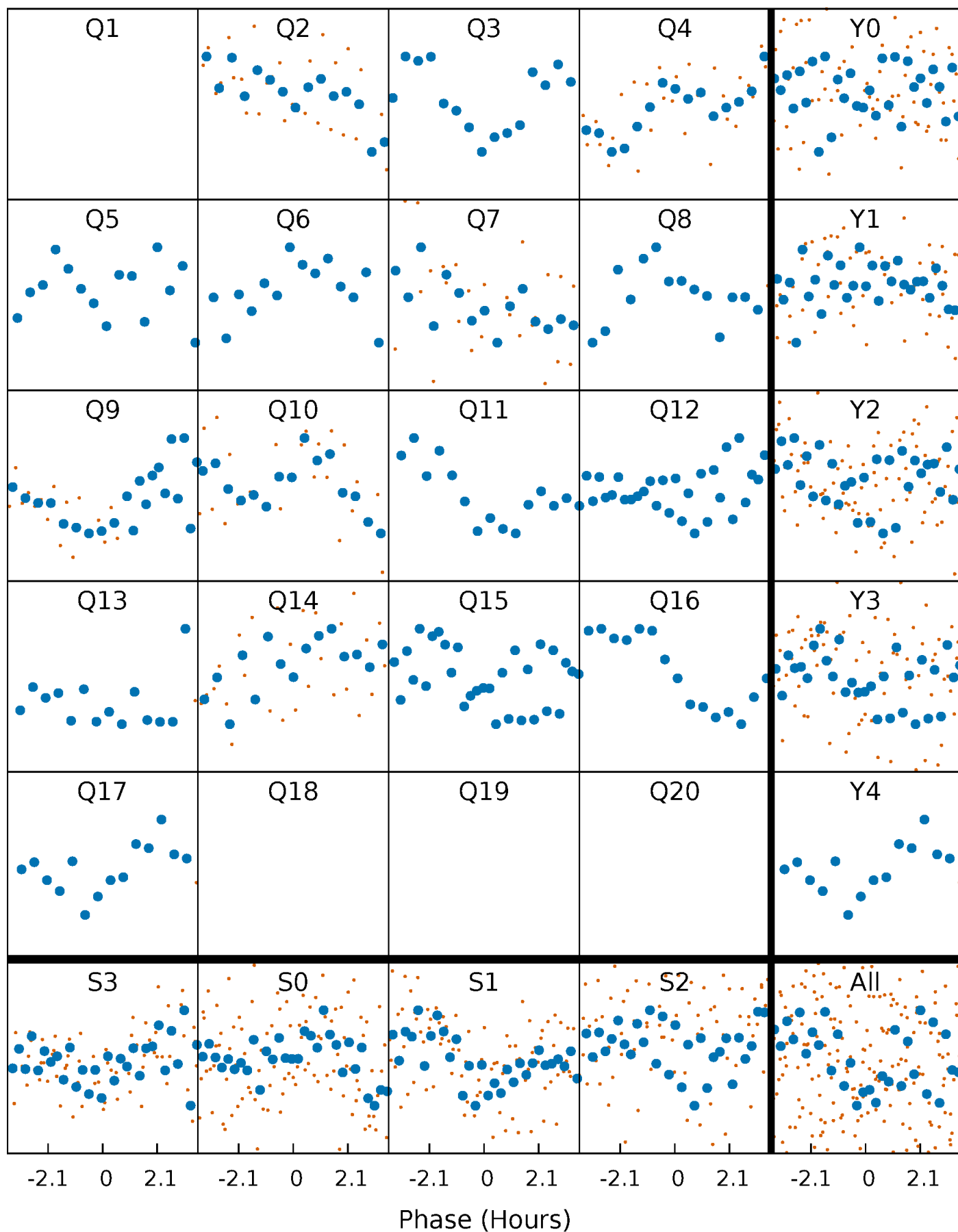


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



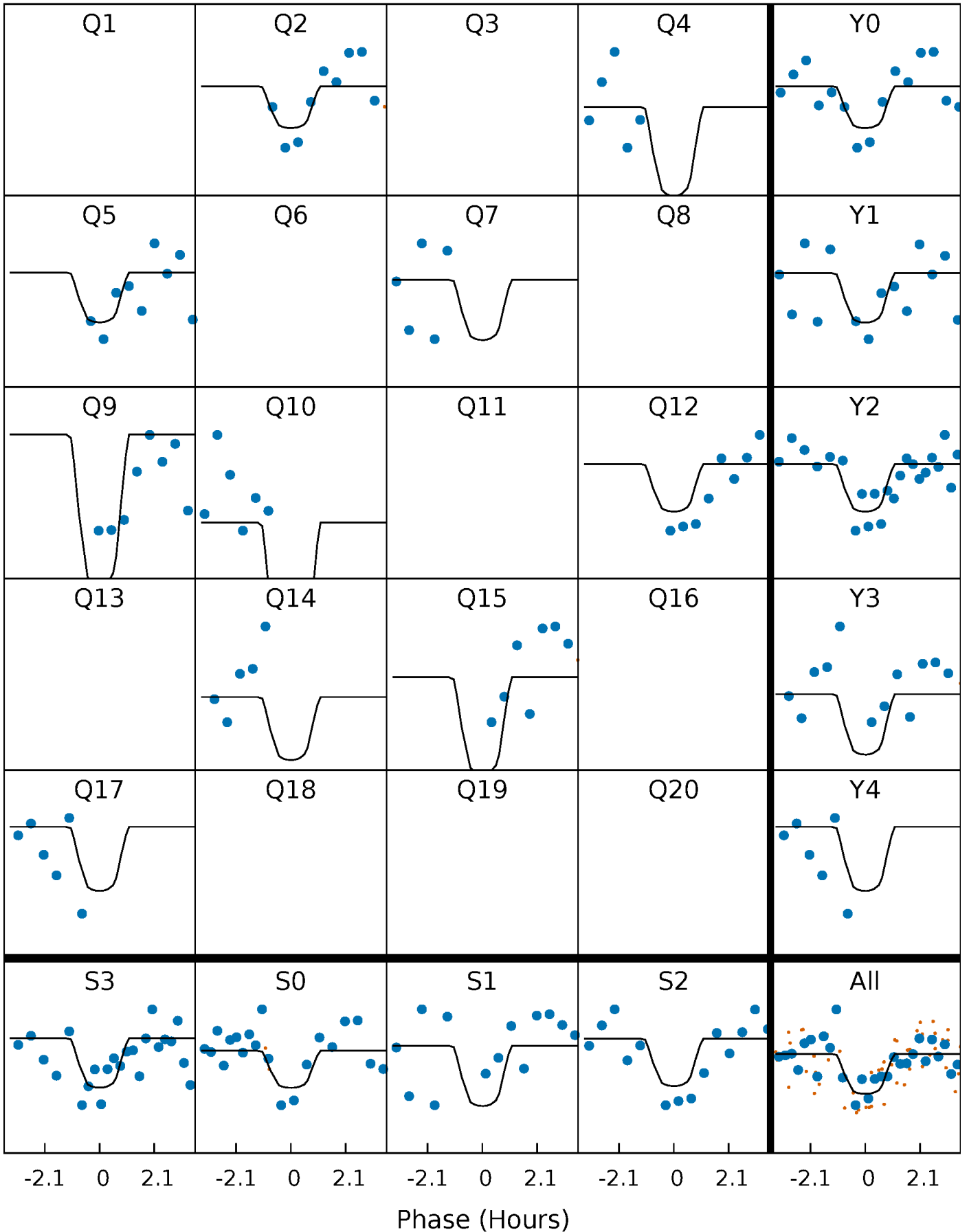
# PDC Quarter-Phased Transit Curves

TCE 005737104-05   P= 57.860582 Days    $T_0=186.318311$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 005737104-05   P= 57.860582 Days    $T_0=186.318311$  (BKJD)

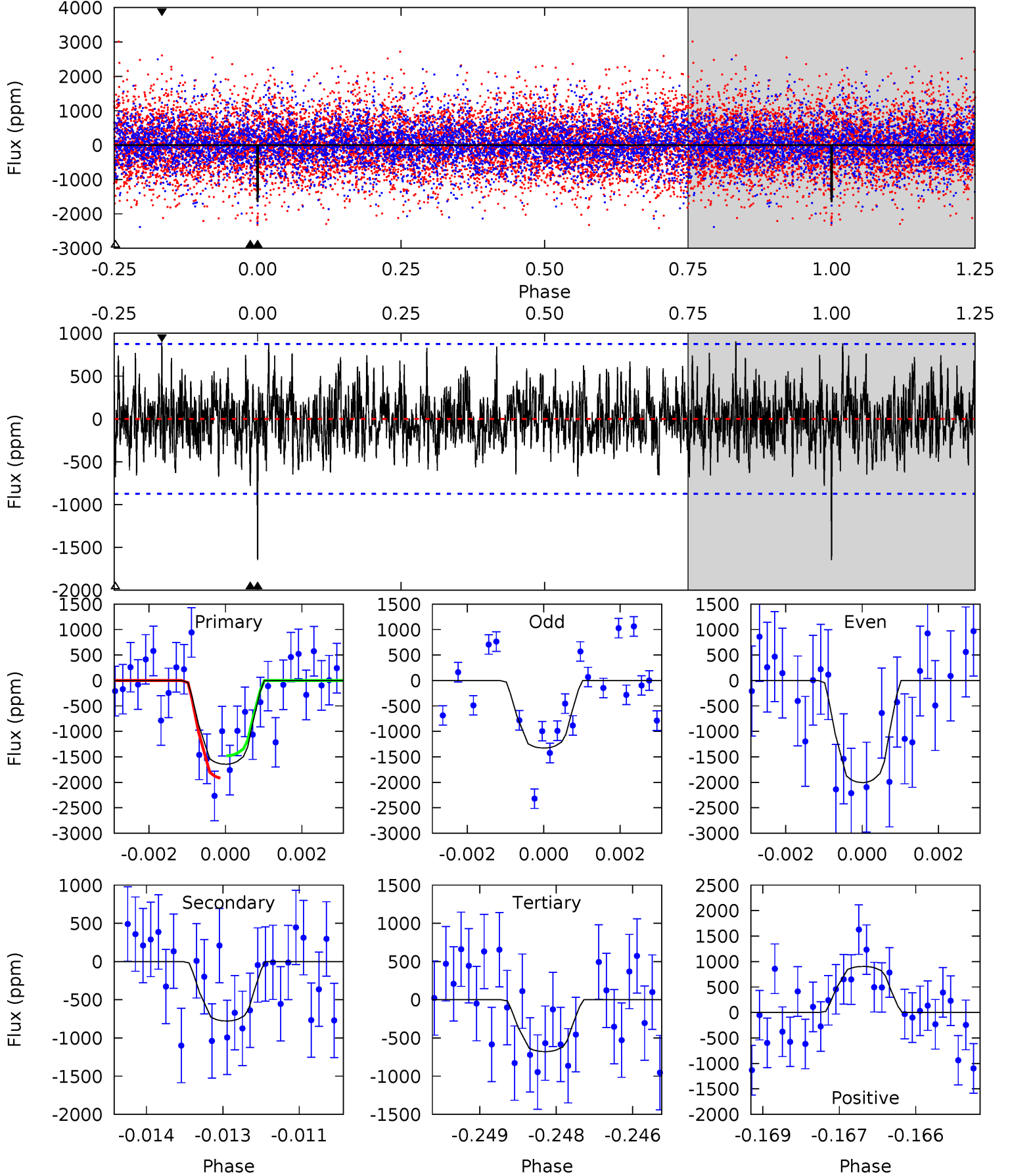


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

005737104-05,  $P = 57.860582$  Days,  $E = 128.457729$  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
10.1	4.78	4.17	5.55	5.37	3.15	1.56	5.93	4.55	0.61	-0.77	2.08	0.98	0.35	1.31



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.



### Stellar Parameters For KIC 005737104

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6572^{+187}_{-281}$	$4.365^{+0.065}_{-0.195}$	$0.070^{+0.200}_{-0.400}$	$1.238^{+0.363}_{-0.168}$	$1.298^{+0.150}_{-0.224}$	$0.964^{+0.328}_{-0.474}$
	+3%/-4%	+1%/-4%	+286%/-571%	+29%/-14%	+12%/-17%	+34%/-49%
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 005737104-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-779 \pm 163$	$8.00^{+7.14}_{-5.15}$	$809^{+59}_{-46}$	$4734^{+3162}_{-1000}$	$636^{+4406}_{-457}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{max}$  = Theoretical Maximum Planetary Temperature  
 $T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

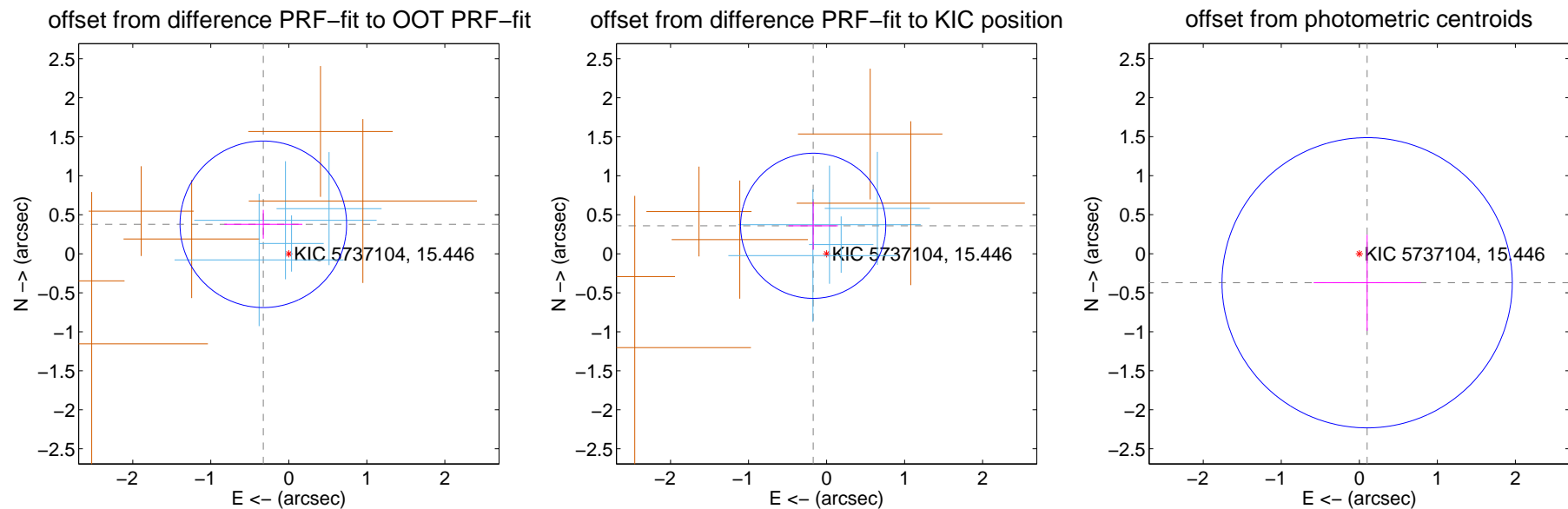
## DV Centroid Data

Supplemental centroid analysis for 005737104-05. Kepler magnitude: 15.45. Transit SNR 7.14

There are 4 quarters with good PRF difference image offsets

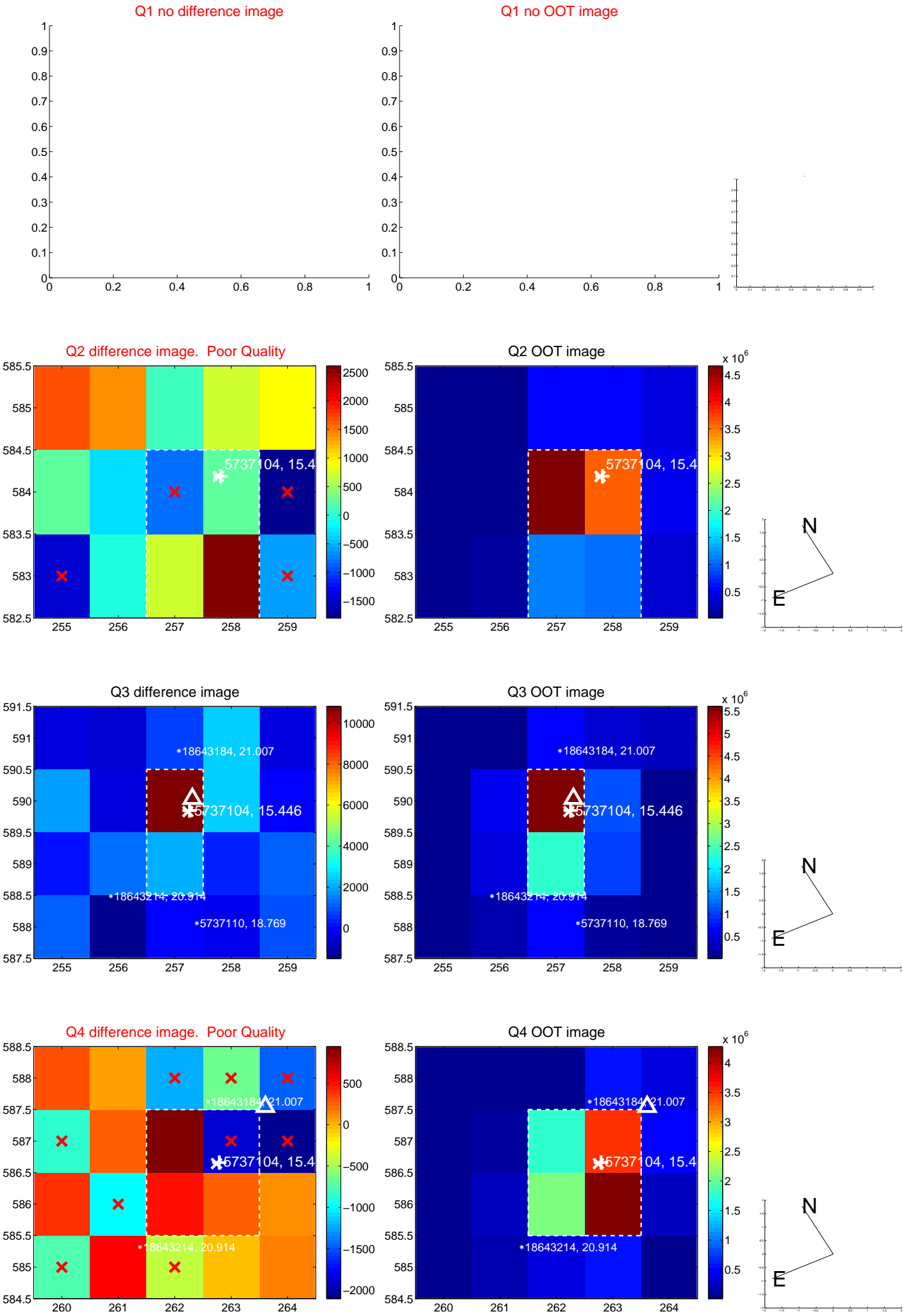
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.500 \pm 0.356$	1.40	$0.327 \pm 0.500$	$0.378 \pm 0.185$
PRF-fit source offset from KIC position	$0.398 \pm 0.310$	1.28	$0.172 \pm 0.316$	$0.359 \pm 0.309$
photometric centroid source offset	$0.39 \pm 0.62$	0.62	$-0.10 \pm 0.69$	$-0.37 \pm 0.61$

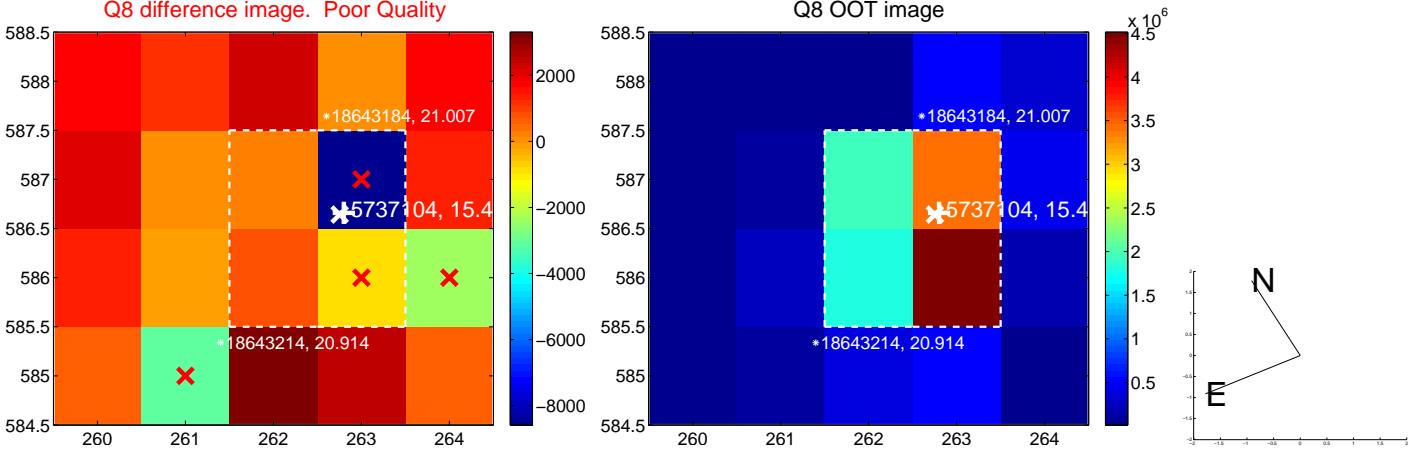
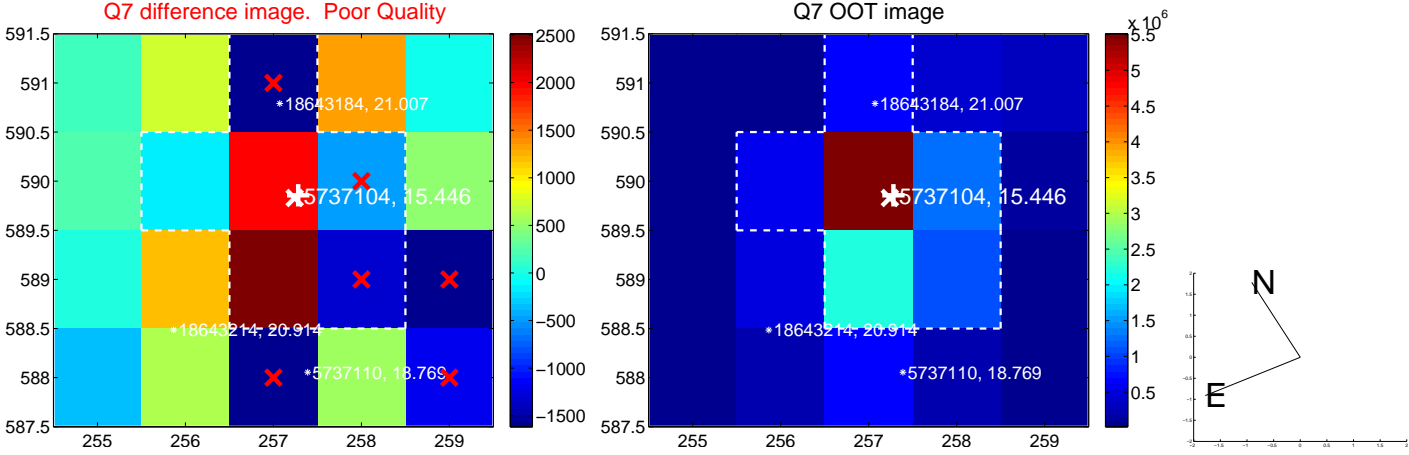
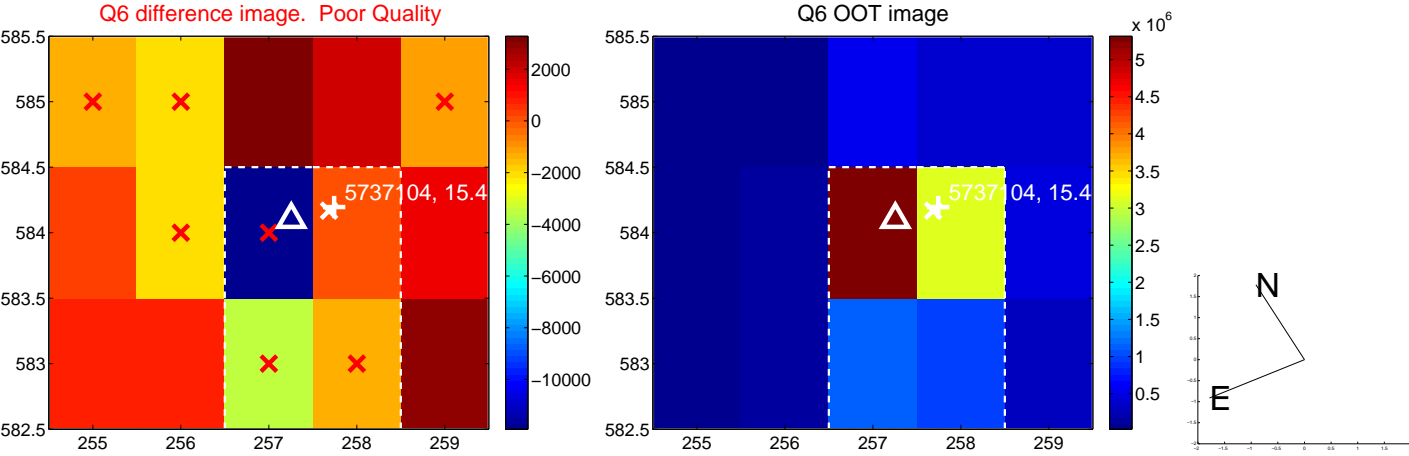
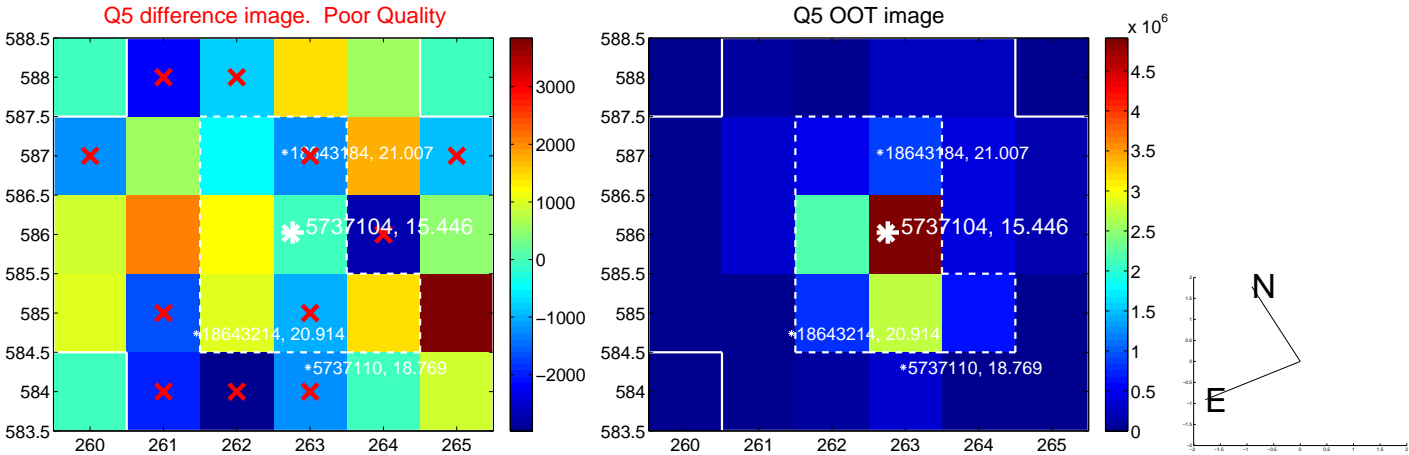


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

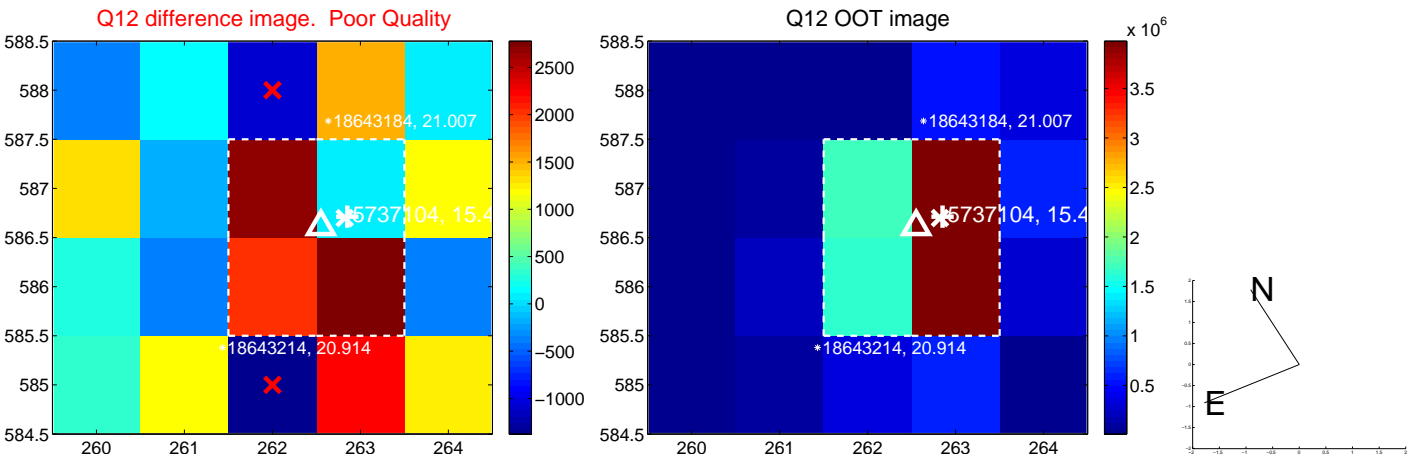
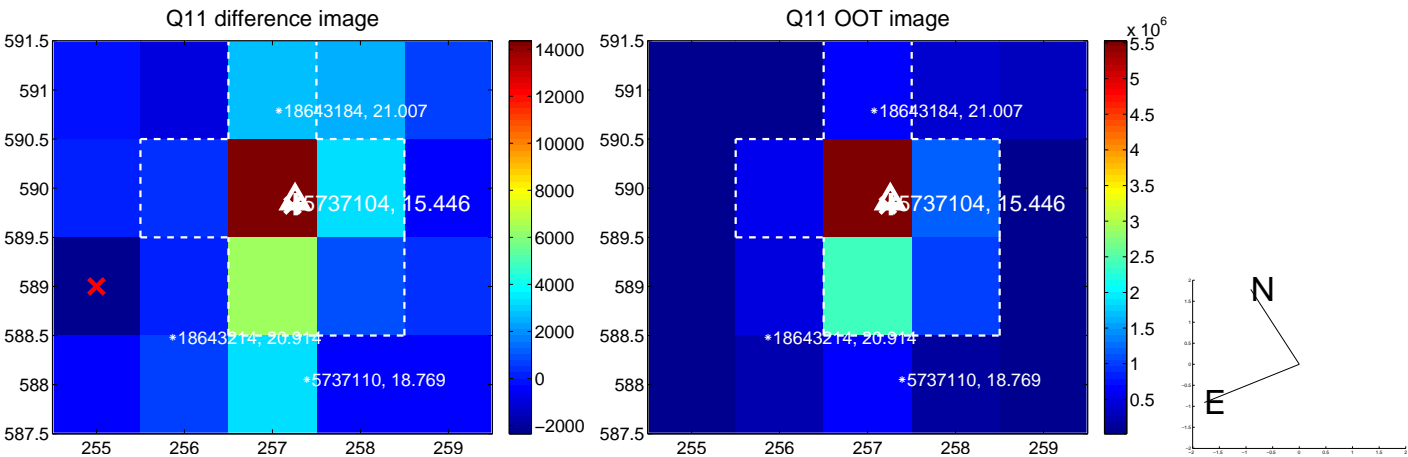
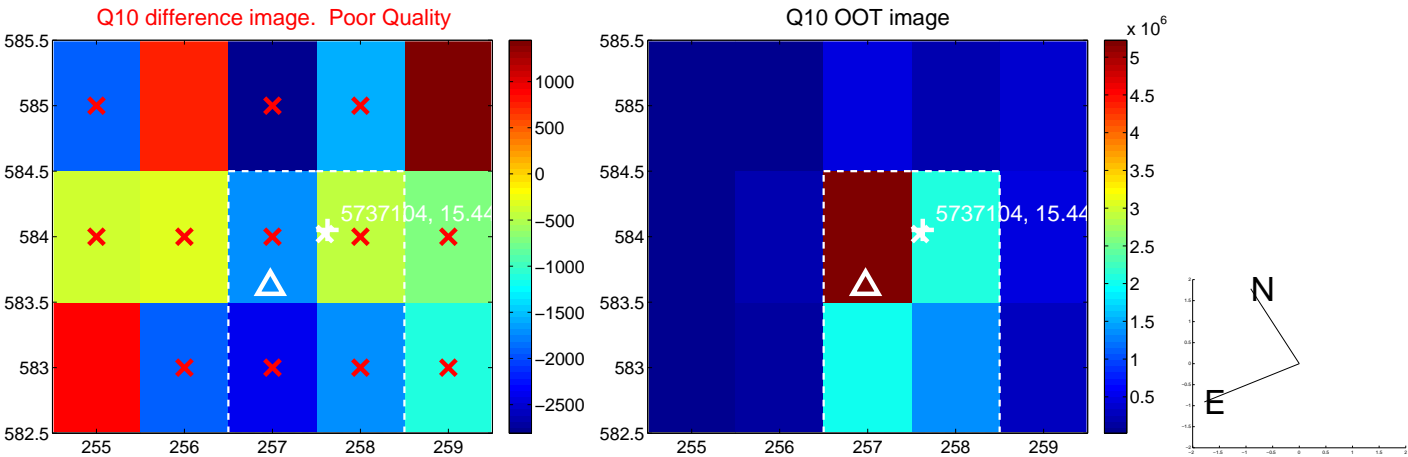
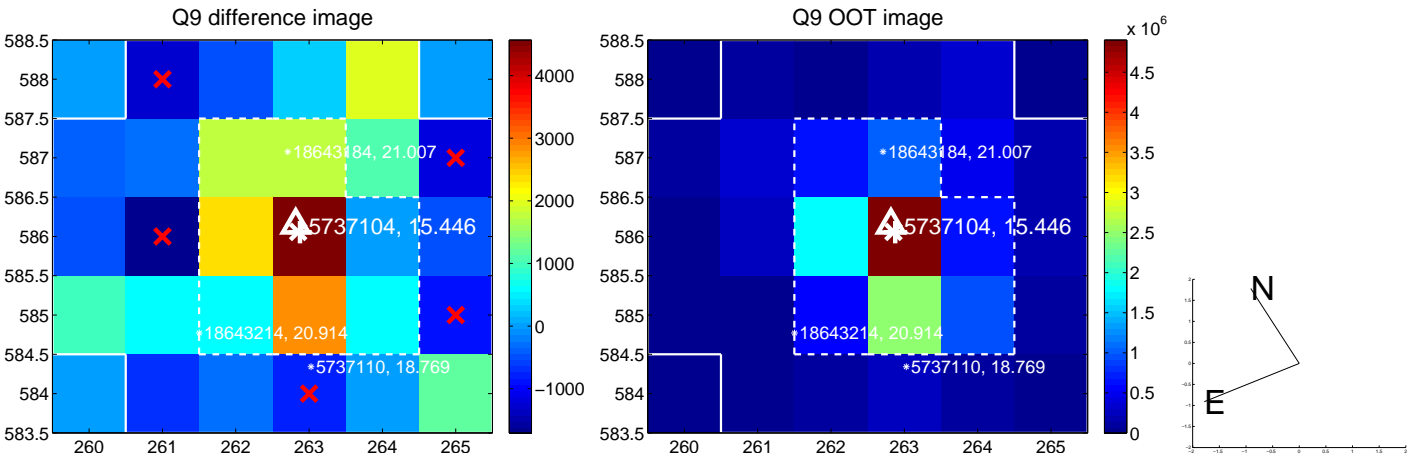
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



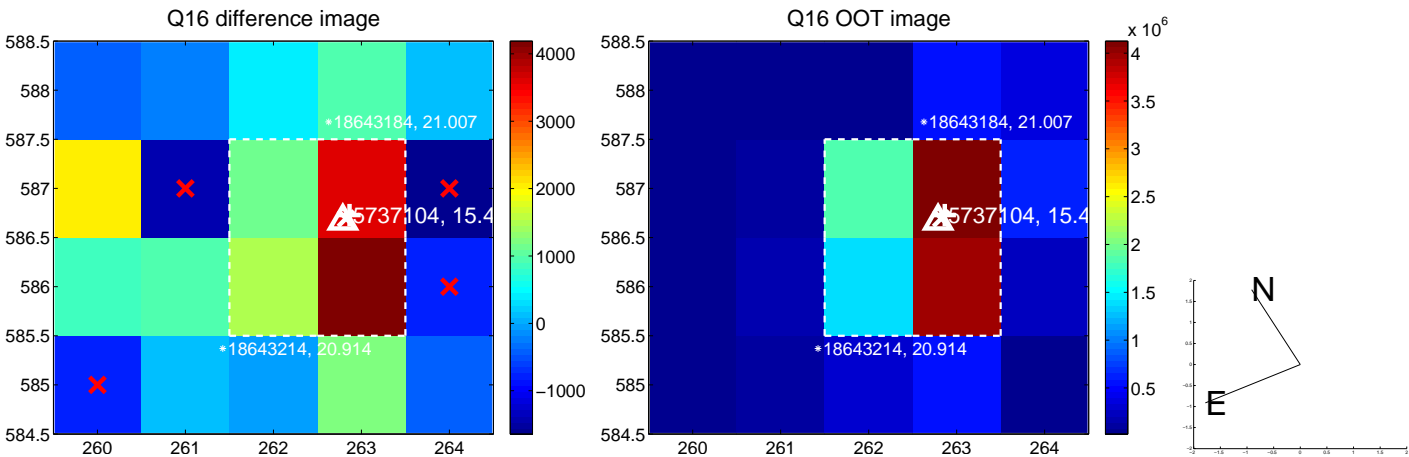
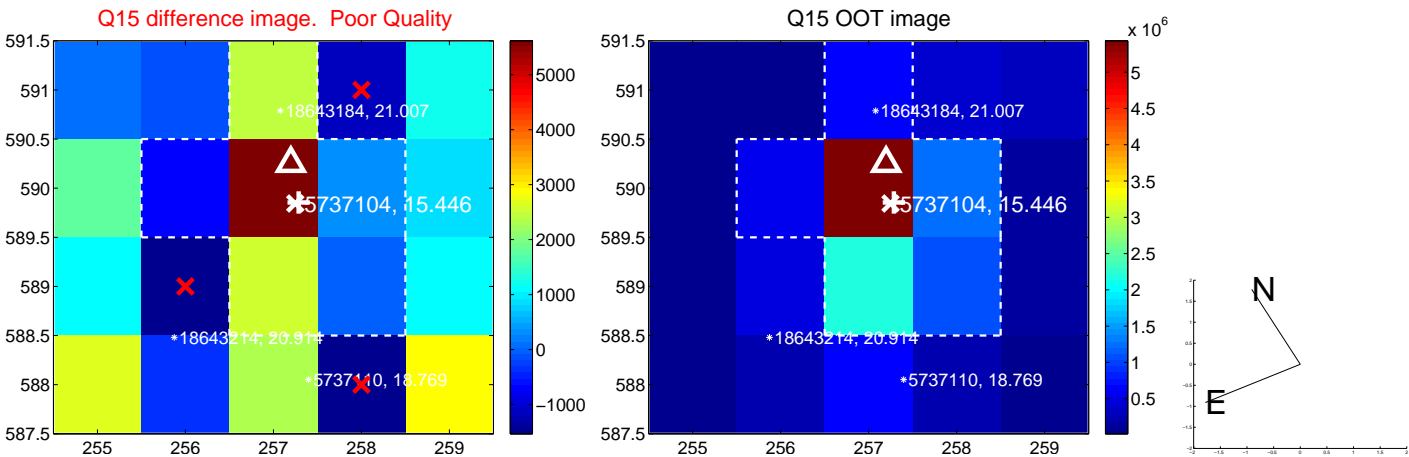
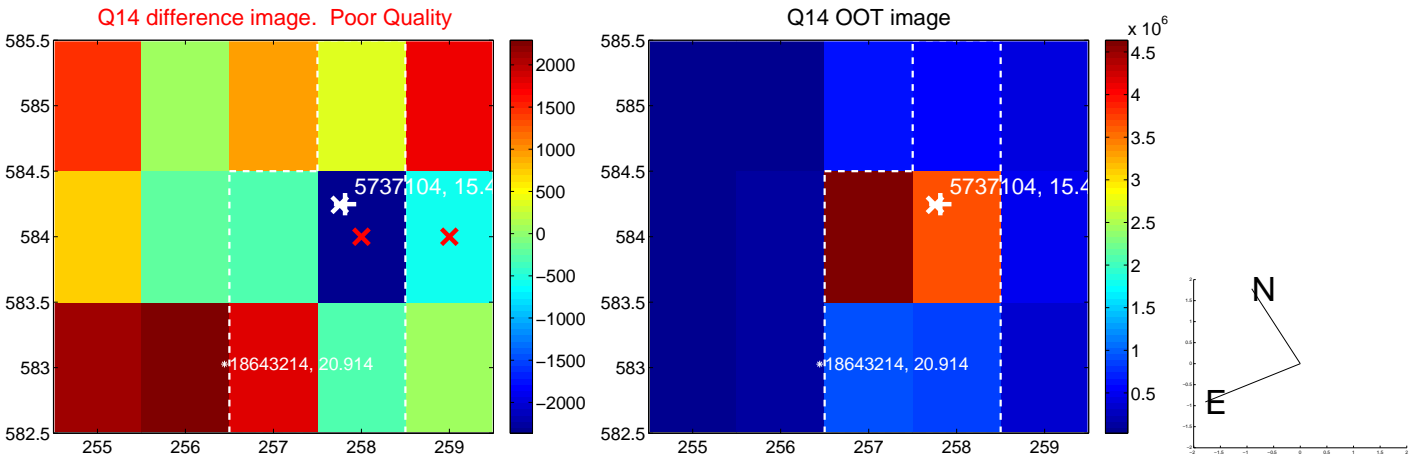
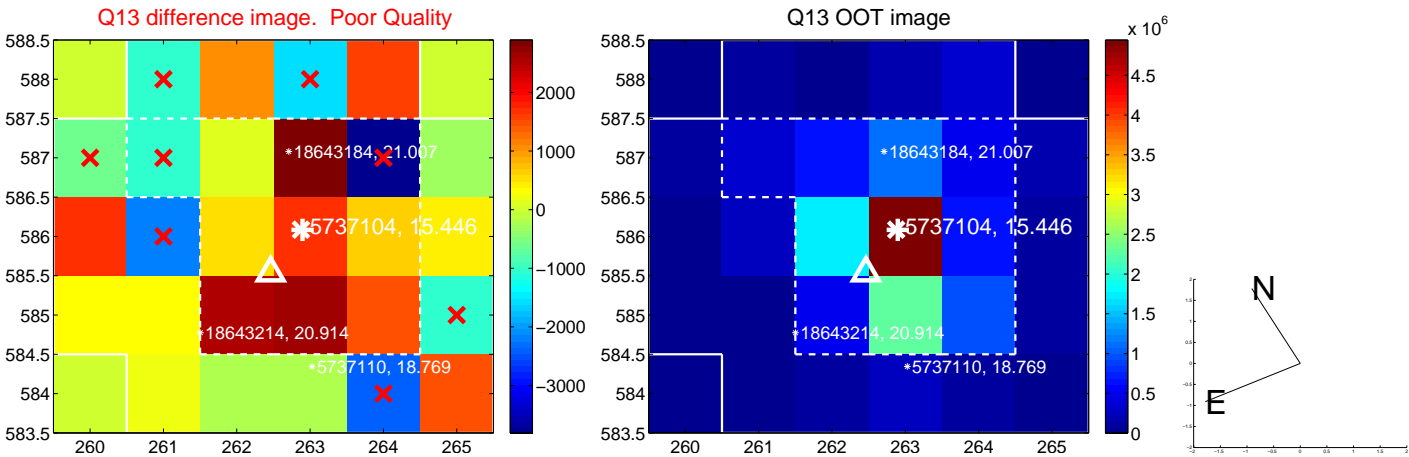
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



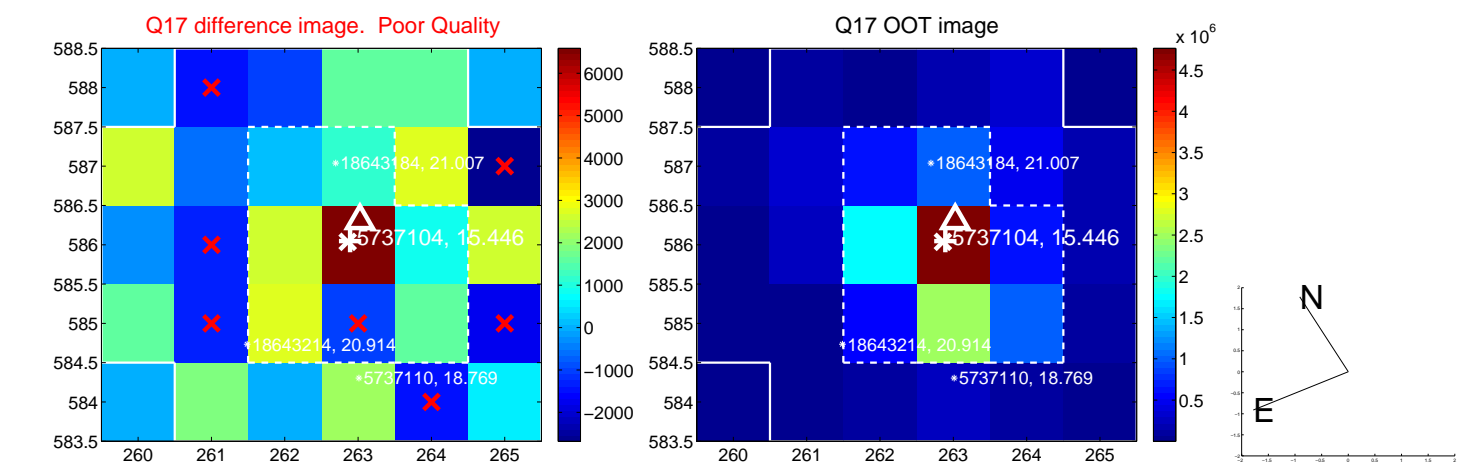
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



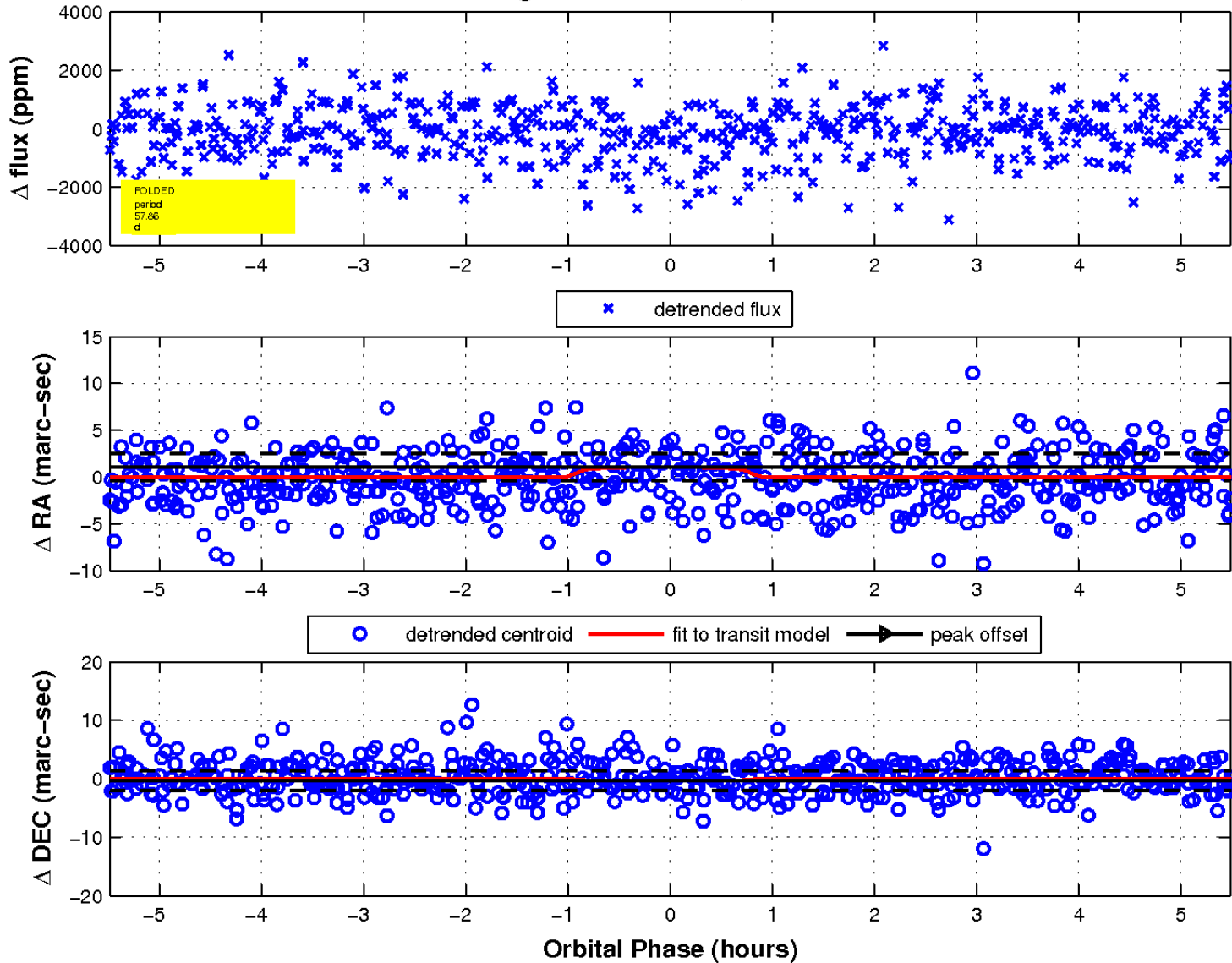
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5





UKIRT Image

Declination

