

KIC 010682720

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})
010682720-01	OBS	No	1.307176	132.819825	14.1	6.208	7.7	5.7	3.05	7105	1.24	28786.57
010682720-02	OBS	No	119.905953	227.211152	192.7	24.922	9.1	8.3	3.05	7105	4.54	69.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010682720-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
010682720-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

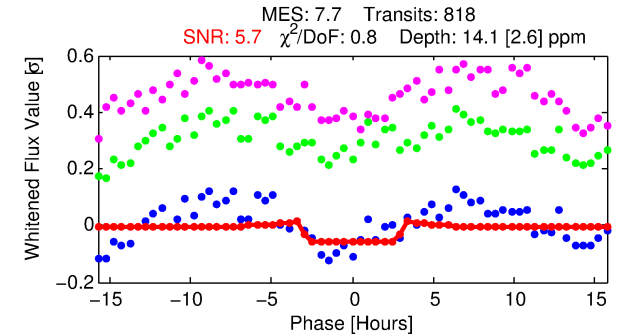
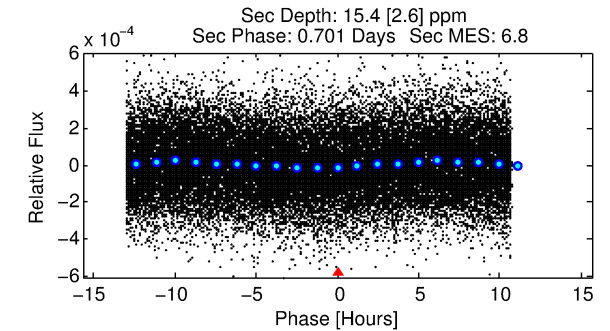
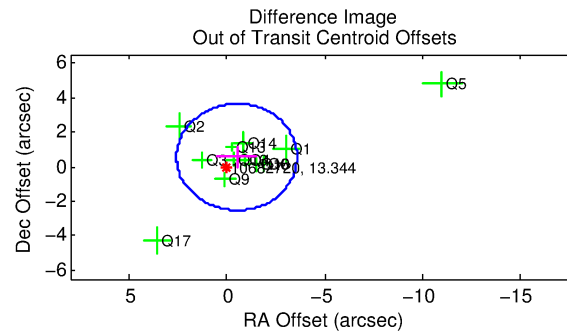
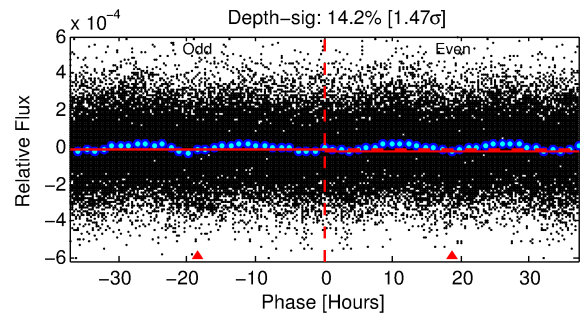
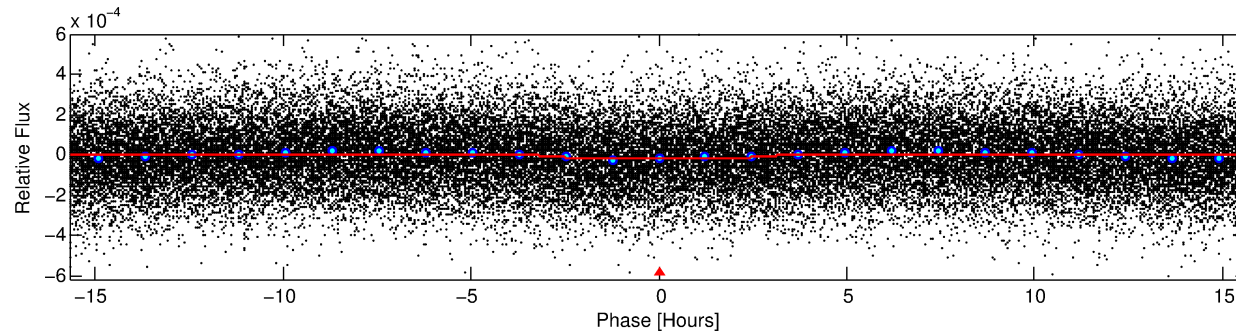
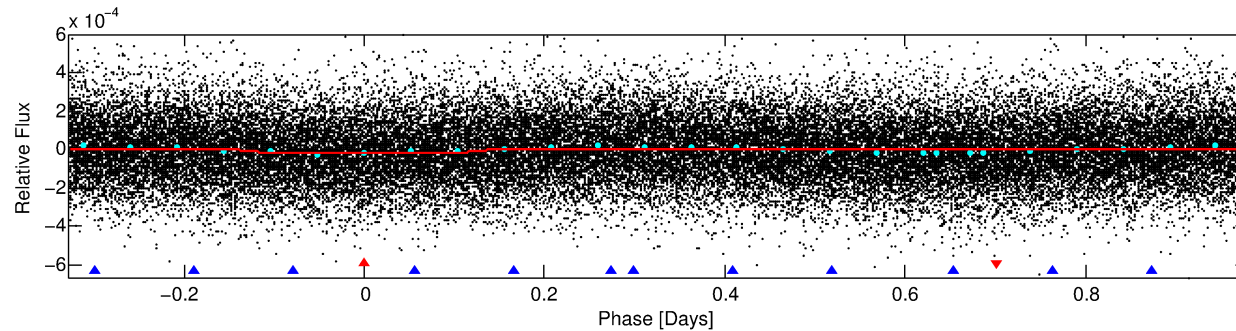
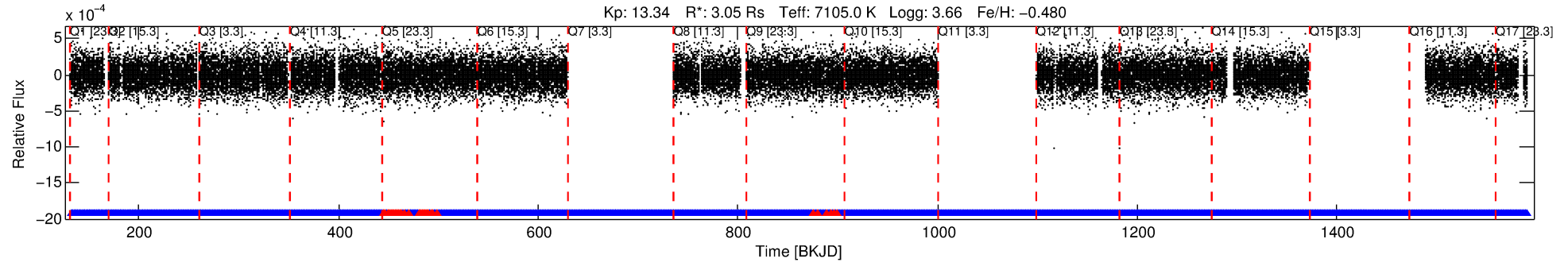
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010682720-01

No Significant Match Found

DV One-Page Summary

KIC: 10682720 Candidate: 1 of 2 Period: 1.307 d



DV Fit Results:

Period = 1.30718 [0.00003] d
Epoch = 132.8198 [0.0082] BKJD
Rp/R* = 0.0037 [0.0018]
a/R* = 1.39 [1.97]
b = 0.73 [1.91]
Seff = 28786.57 [17534.35]
Teq = 3321 [506] K
Rp = 1.23 [0.78] Re
a = 0.0272 [0.0101] AU
Ag = 4.10 [4.80] [0.65 σ]
Teffp = 7307 [1857] K [2.07 σ]

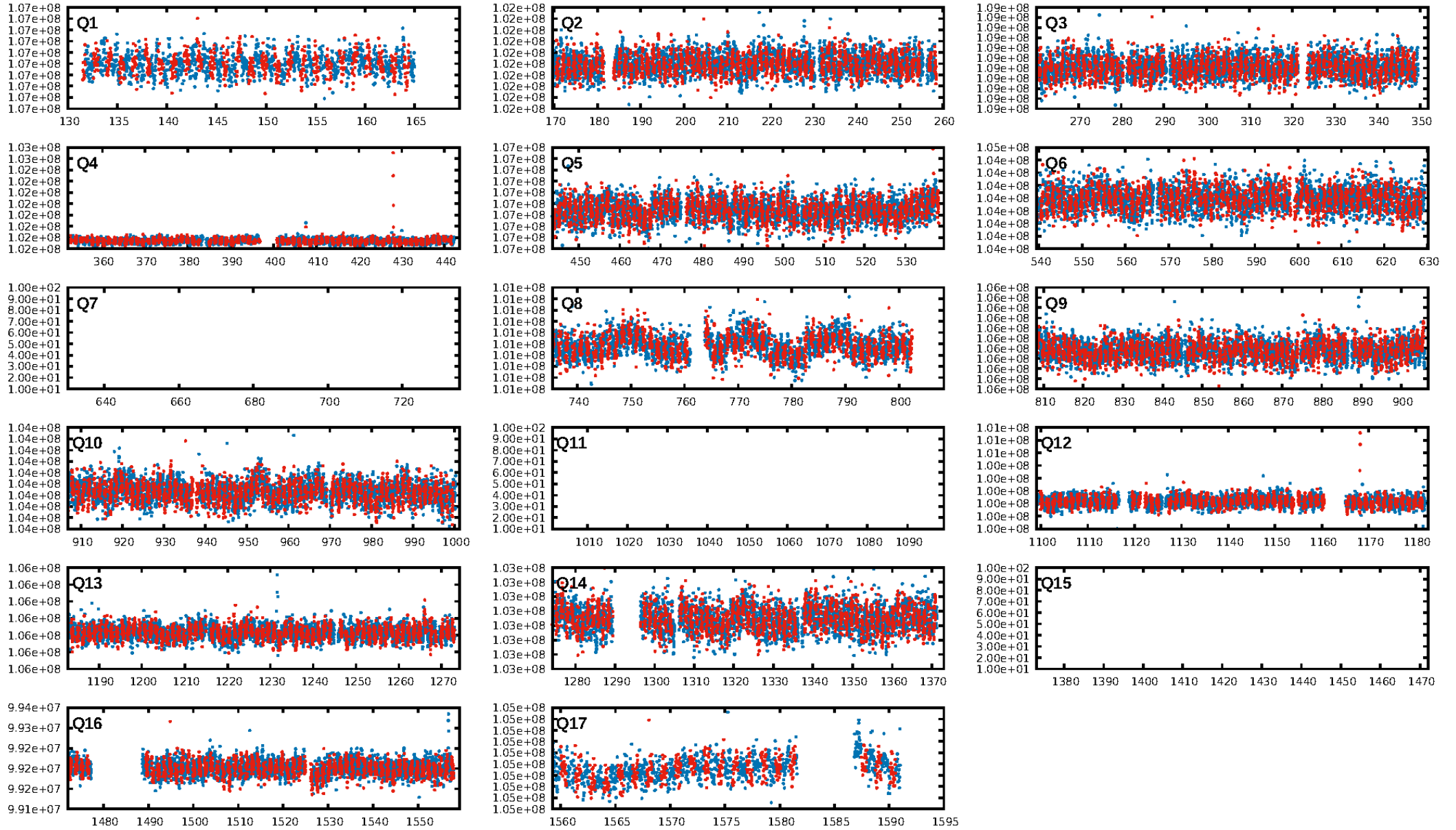
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [110.82 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.07e-09
RollingBand-fgt: 0.96 [740/772]
GhostDiagnostic-chr: 1.107
Centroid-sig: 43.8%
Centroid-so: 1.240 arcsec [0.69 σ]
OotOffset-rm: 0.753 arcsec [0.73 σ]
KicOffset-rm: 0.737 arcsec [0.74 σ]
OotOffset-st: 4/1/2/5 [12]
KicOffset-st: 4/1/2/5 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 1.00 [14/14]

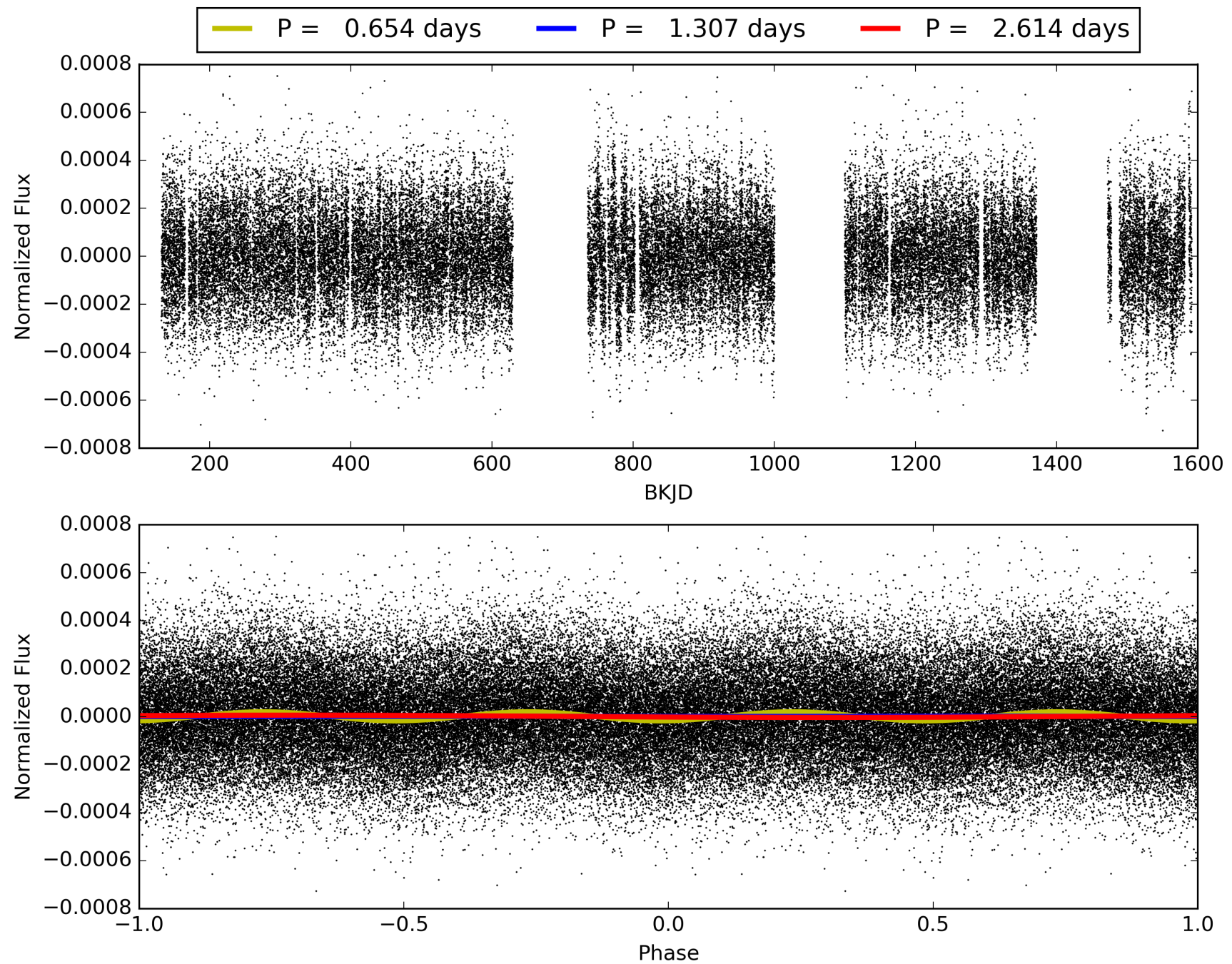
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:22:58 Z

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

TCE 010682720-01, PDC Light Curves

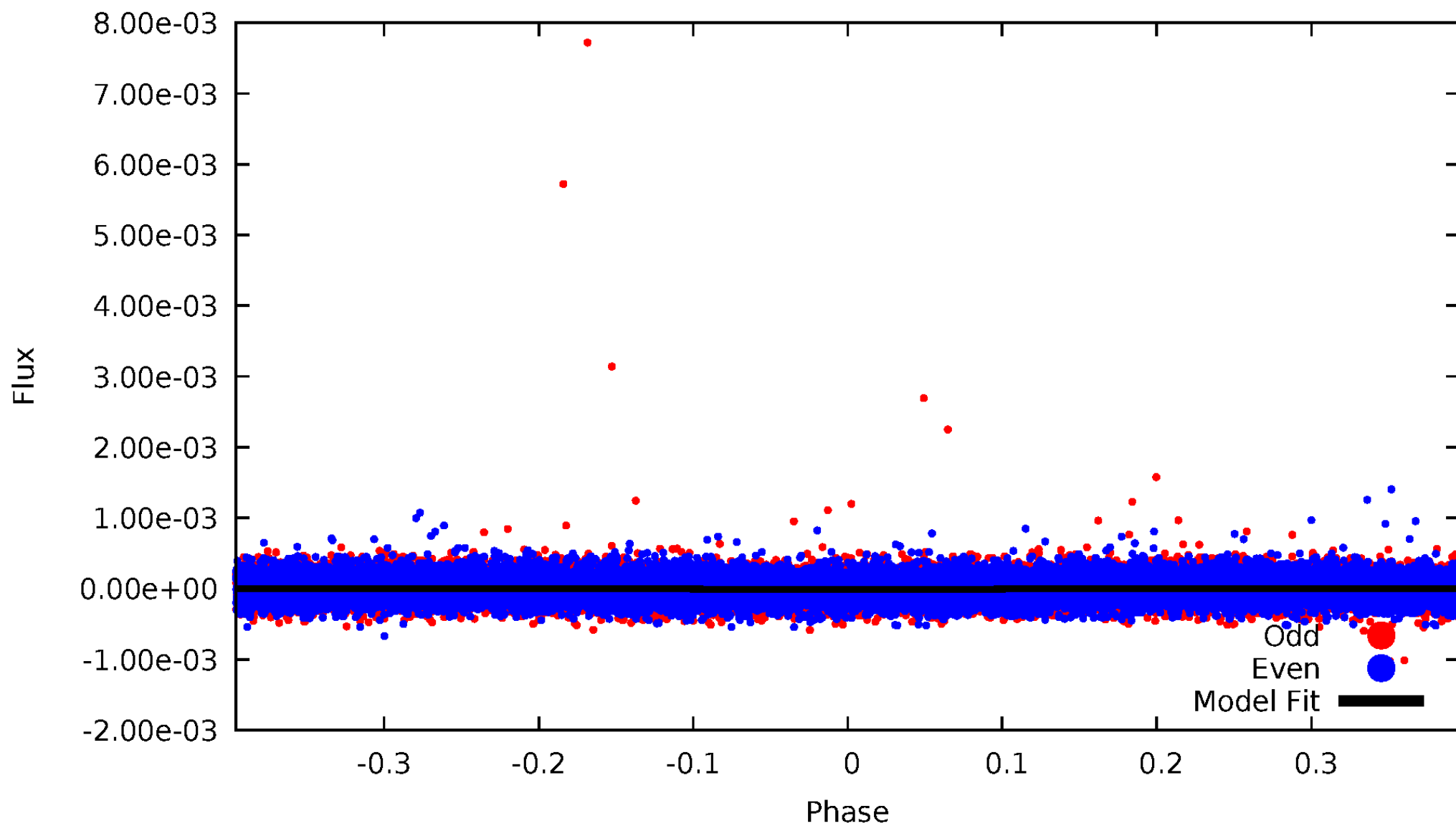


TCE 010682720-01



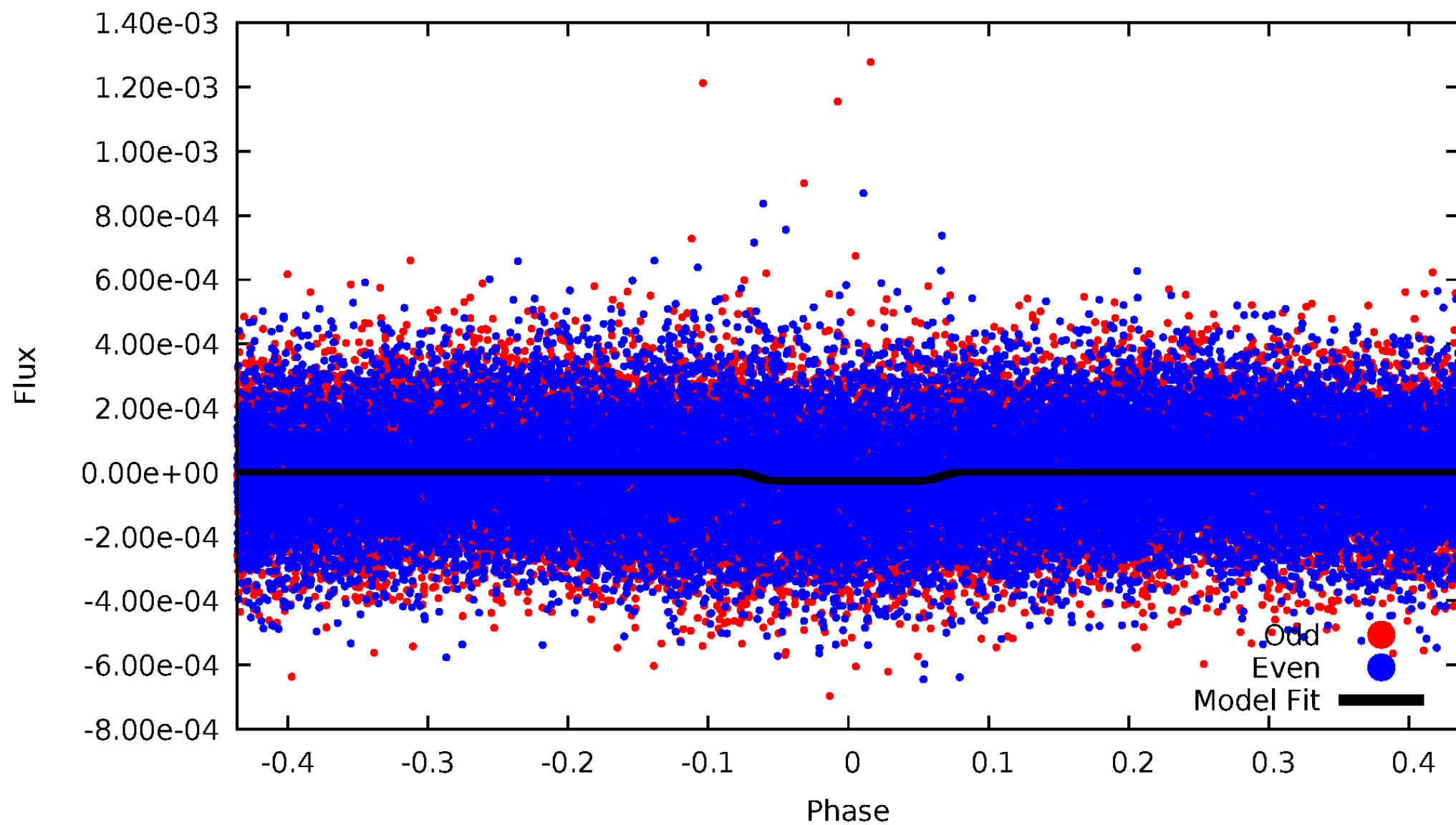
DV Odd/Even

TCE 010682720-01



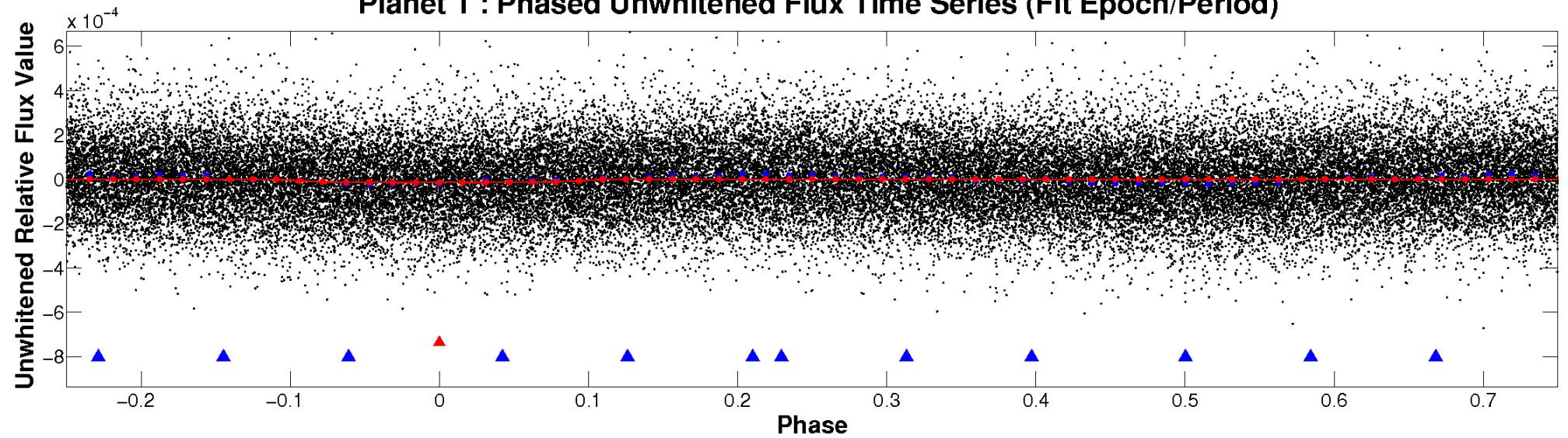
ALT Odd/Even

TCE 010682720-01

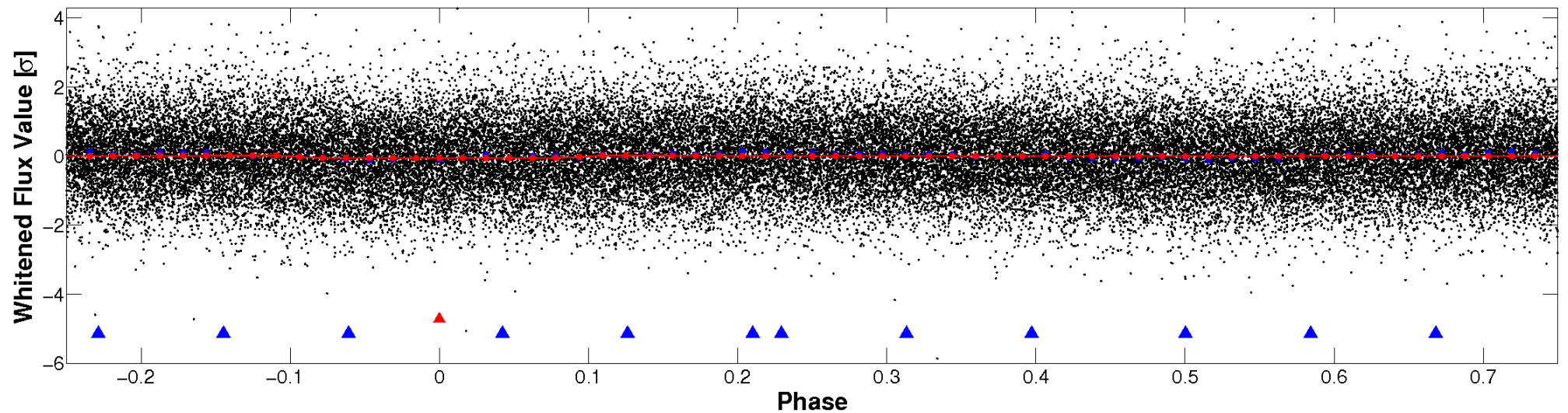


Non-Whitened Vs. Whitened Light Curve

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

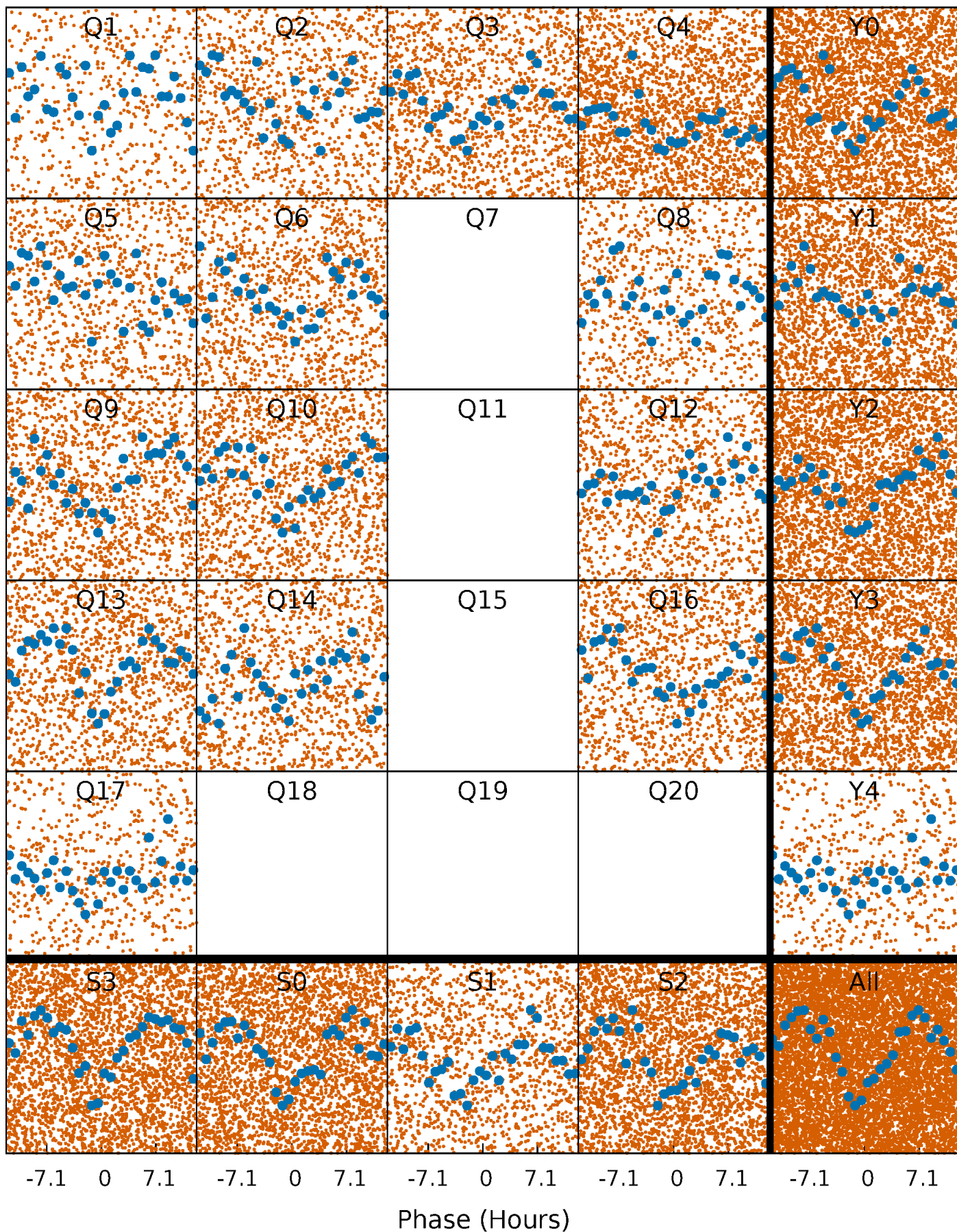


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



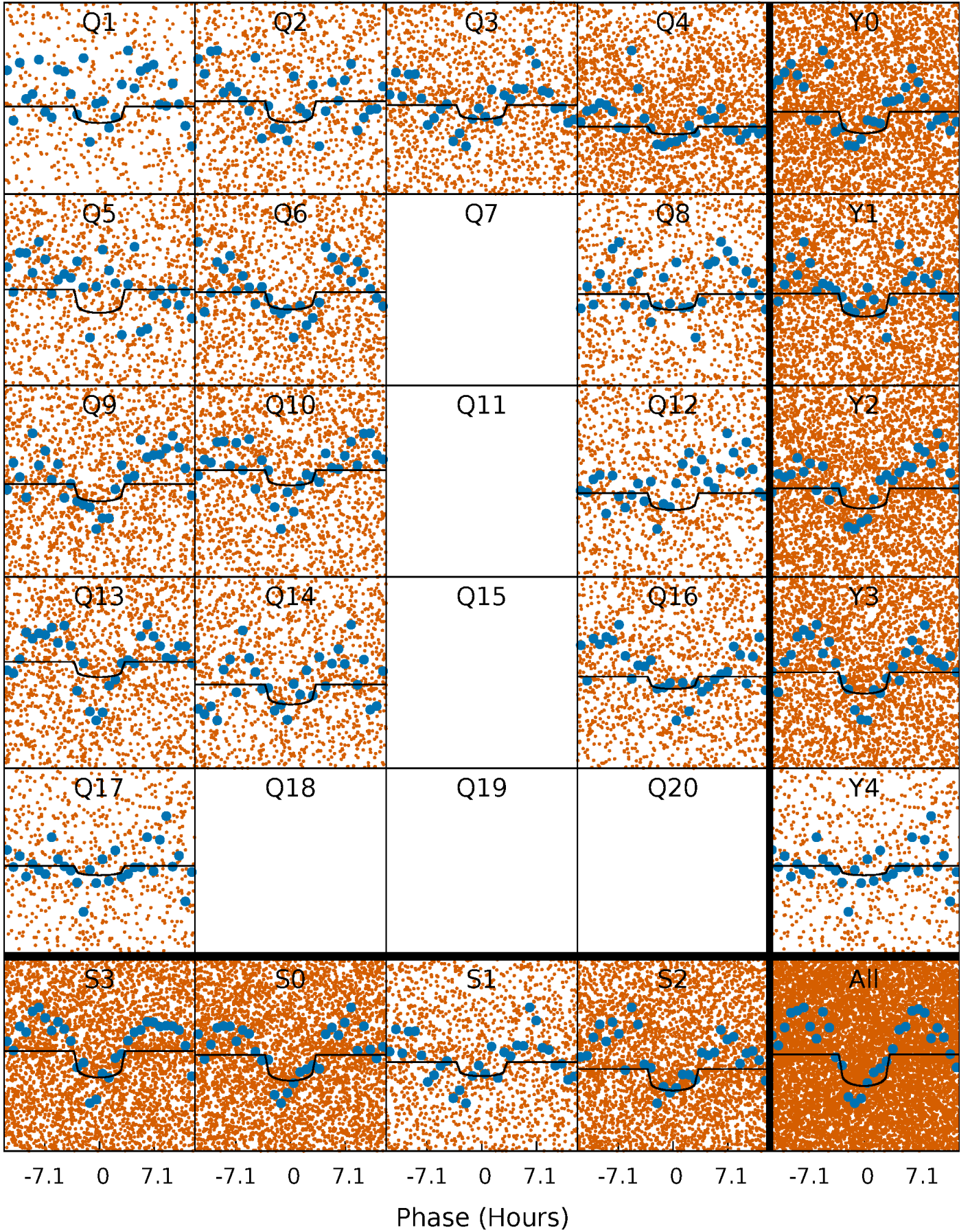
PDC Quarter-Phased Transit Curves

TCE 010682720-01 P= 1.307176 Days $T_0=132.819825$ (BKJD)



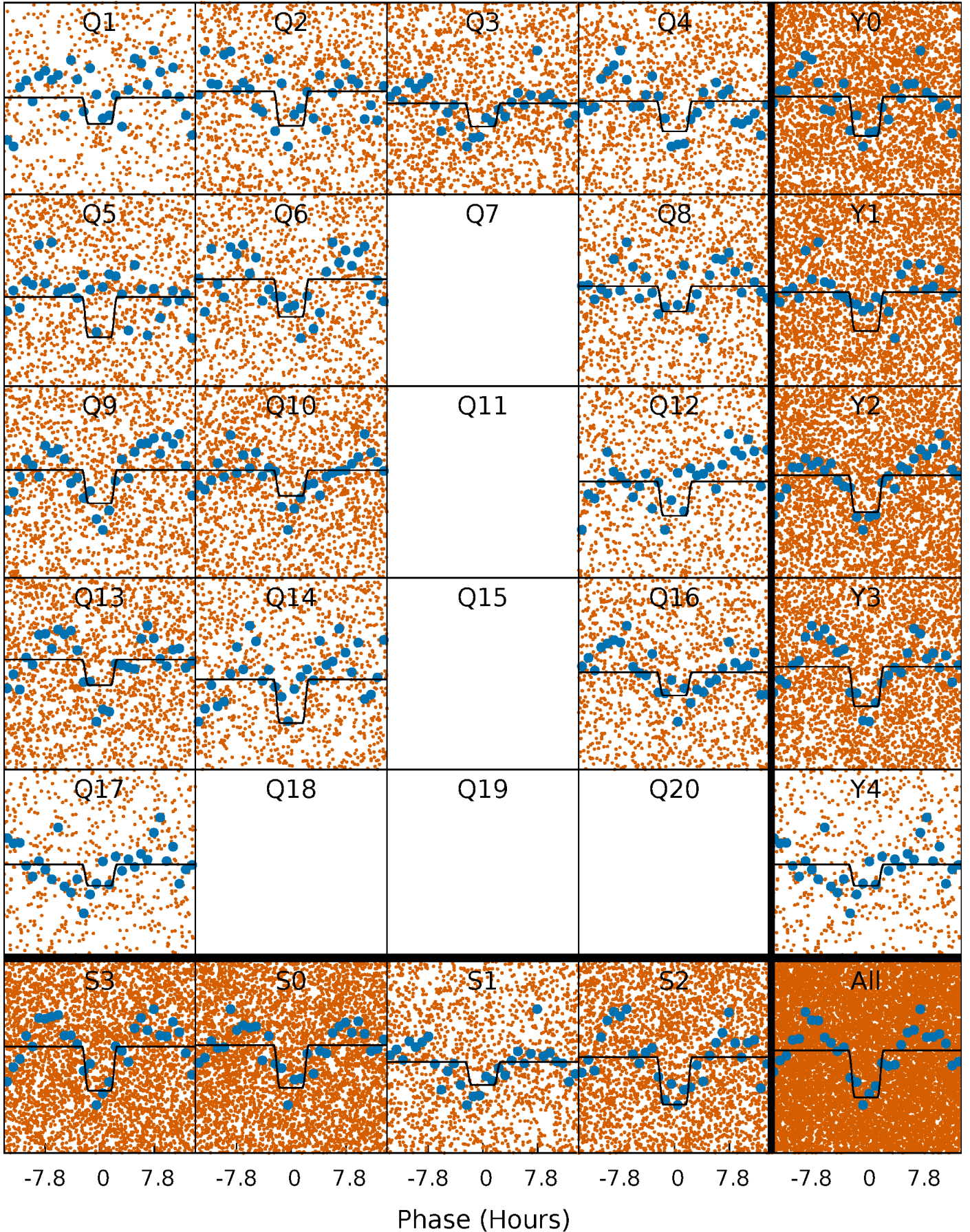
DV Quarter-Phased Transit Curves

TCE 010682720-01 P= 1.307176 Days $T_0=132.819825$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

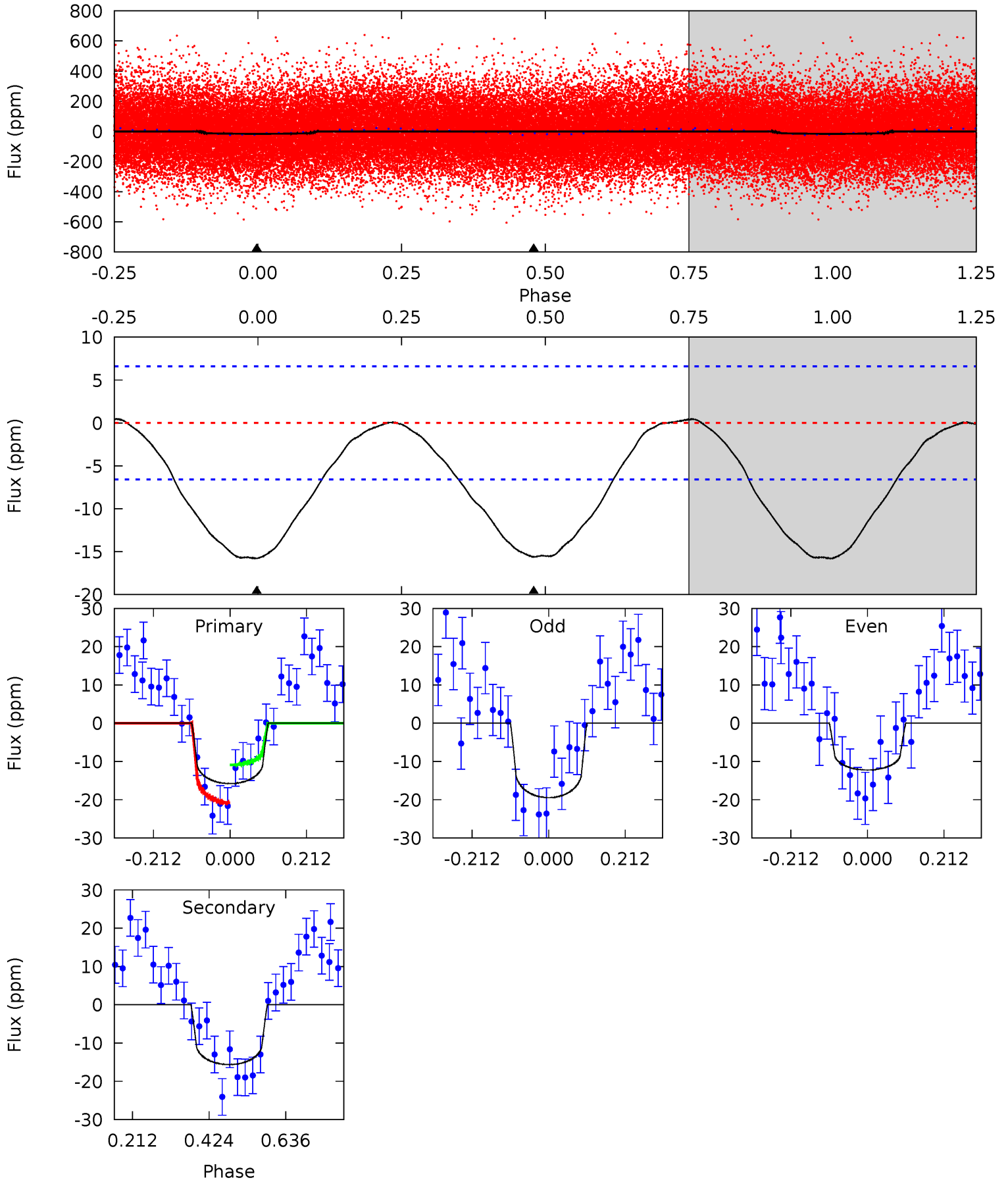
TCE 010682720-01 P= 1.307221 Days $T_0=132.765927$ (BKJD)



DV Model-Shift Uniqueness Test

010682720-01, P = 1.307176 Days, E = 130.205473 Days

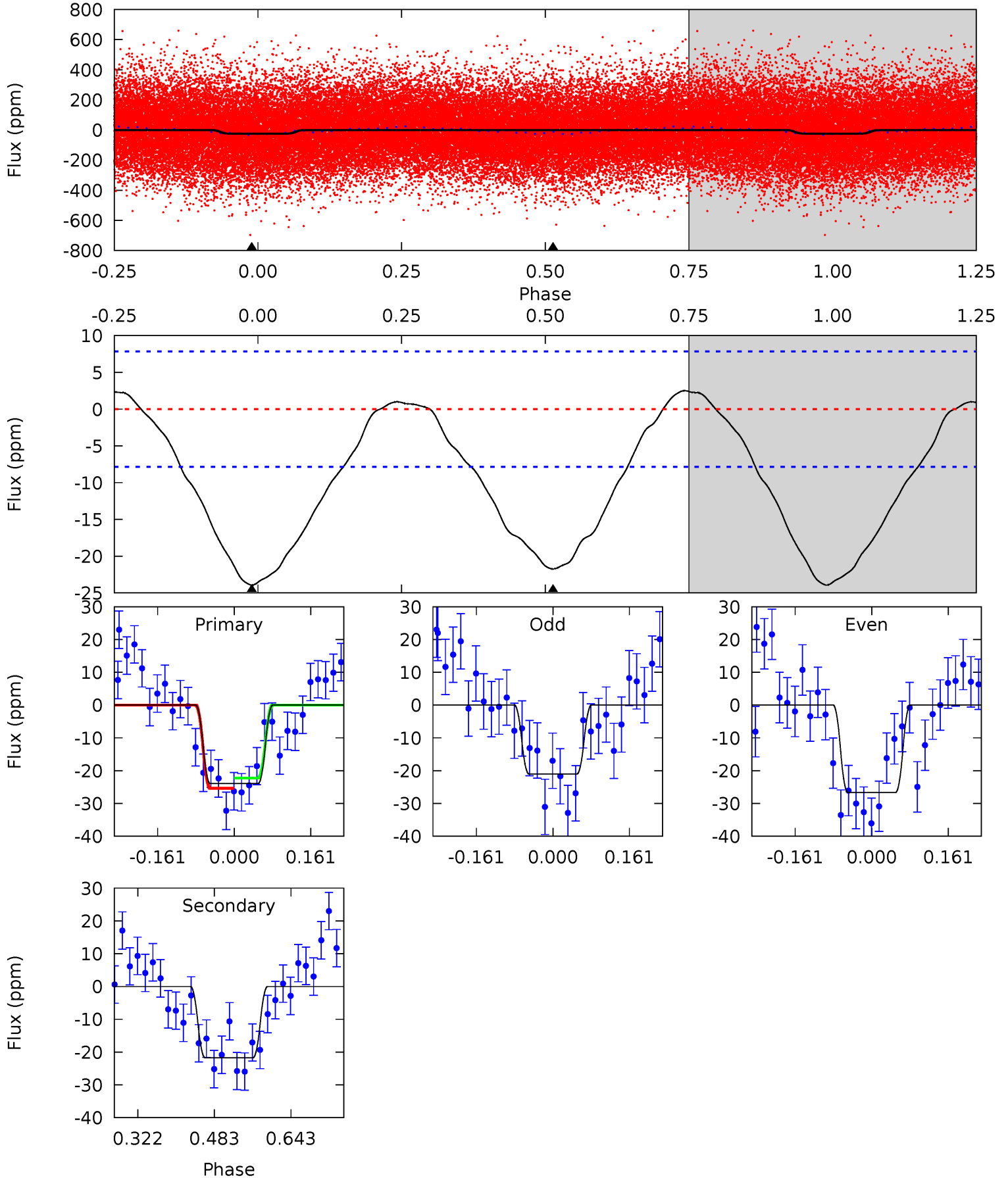
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	10.5	0	0	4.40	1.25	0.20	10.6	10.6	10.5	10.5	2.41	0.97	0.03	3.34



Alt Model-Shift Uniqueness Test

010682720-01, P = 1.307221 Days, E = 131.458706 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	12.3	0	0	4.46	1.40	1.44	13.6	13.6	12.3	12.3	1.59	1.05	0.10	0.88



Stellar Parameters For KIC 010682720

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7105^{+192}_{-235}	$3.664^{+0.349}_{-0.082}$	$-0.480^{+0.300}_{-0.250}$	$3.053^{+0.394}_{-1.181}$	$1.567^{+0.228}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+3%/-3%	+10%/-2%	+62%/-52%	+13%/-39%	+15%/-20%	+243%/-26%
Source	PHO1	FLK73	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 010682720-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-16 ± 1	$1.19^{+0.61}_{-0.56}$	4525^{+273}_{-431}	7035^{+3314}_{-1363}	$4.412^{+11.790}_{-2.433}$
Alt.	-22 ± 2	$1.55^{+0.67}_{-0.59}$	4523^{+278}_{-421}	6583^{+2155}_{-1094}	$3.713^{+5.783}_{-1.930}$

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

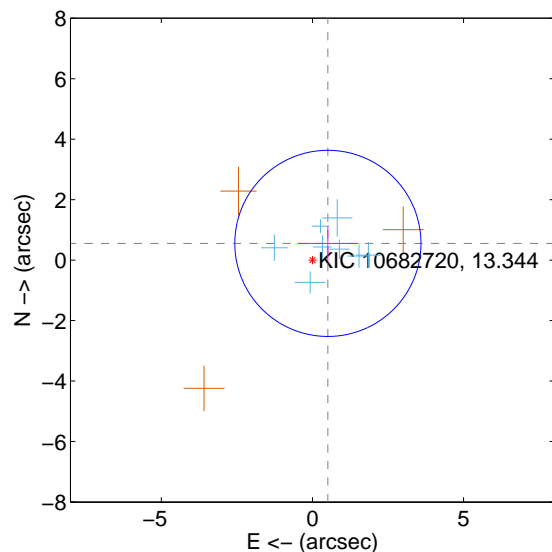
Supplemental centroid analysis for 010682720-01. Kepler magnitude: 13.34. Transit SNR 5.66

There are 8 quarters with good PRF difference image offsets

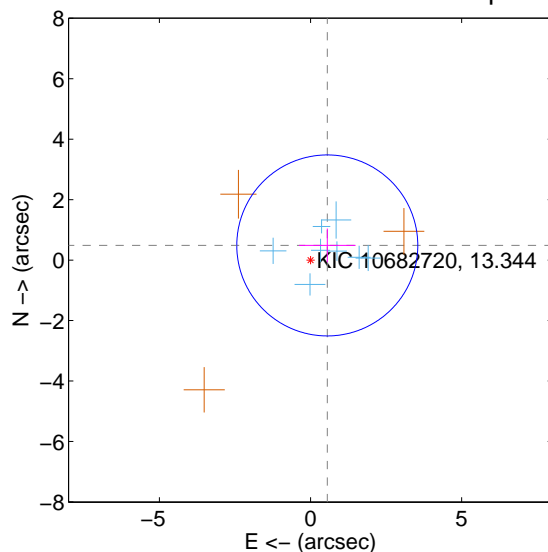
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.753 ± 1.026	0.73	-0.511 ± 1.010	0.553 ± 0.577
PRF-fit source offset from KIC position	0.737 ± 0.998	0.74	-0.555 ± 0.936	0.485 ± 0.560
photometric centroid source offset	1.24 ± 1.81	0.69	0.80 ± 1.88	0.95 ± 1.76

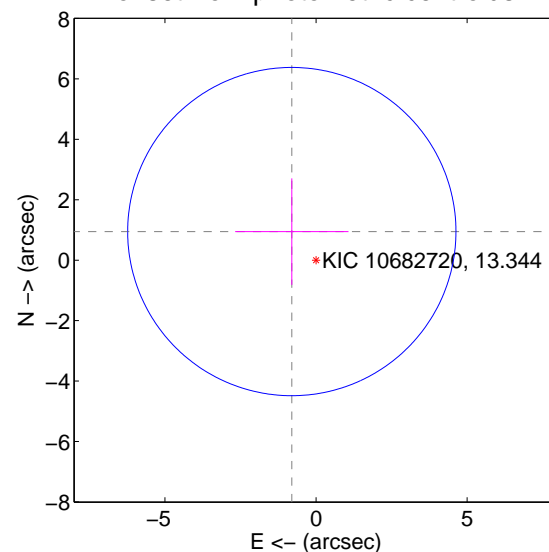
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

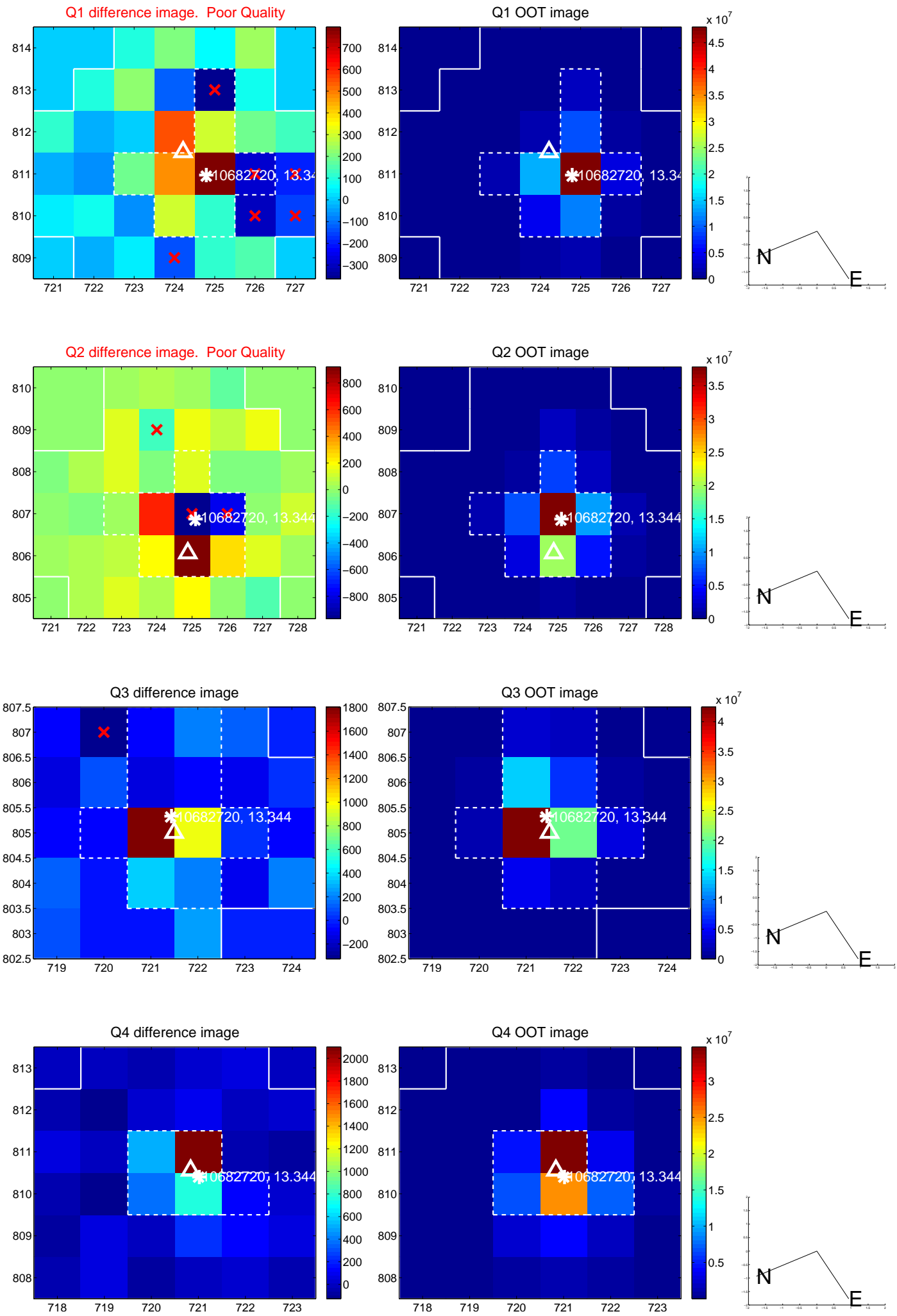


offset from photometric centroids

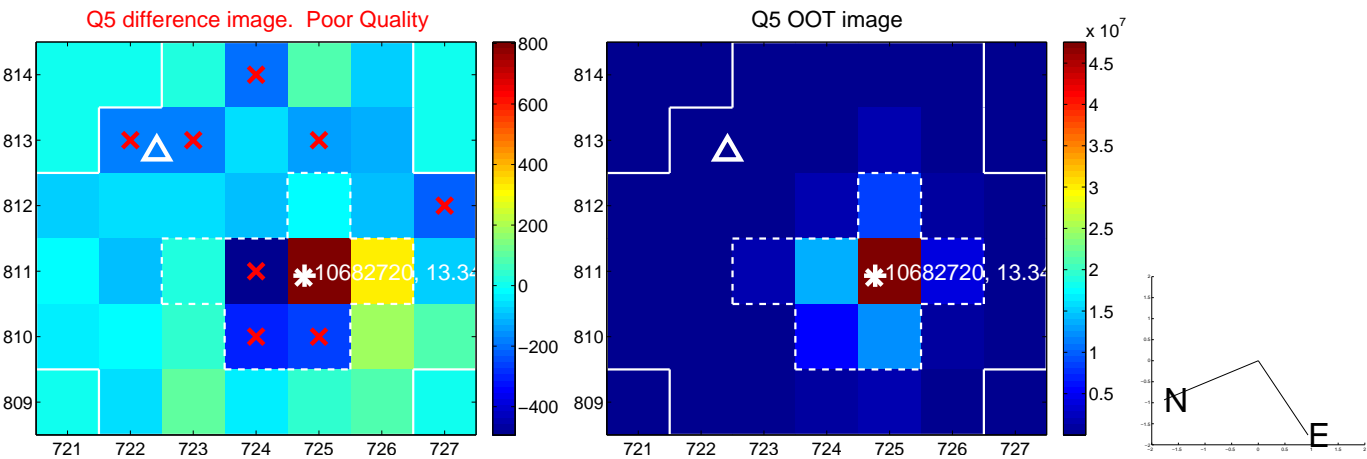


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

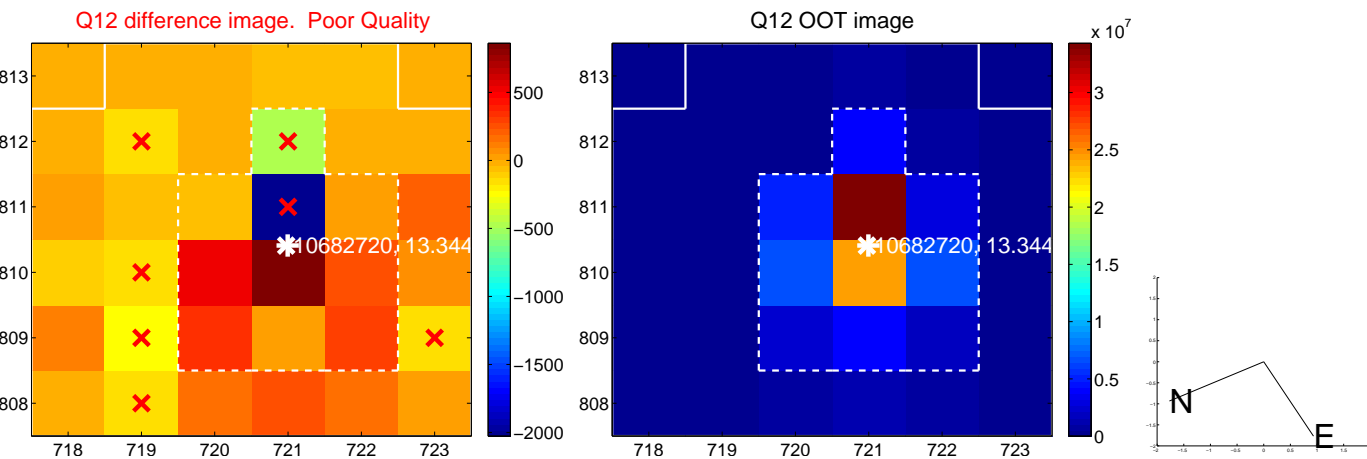
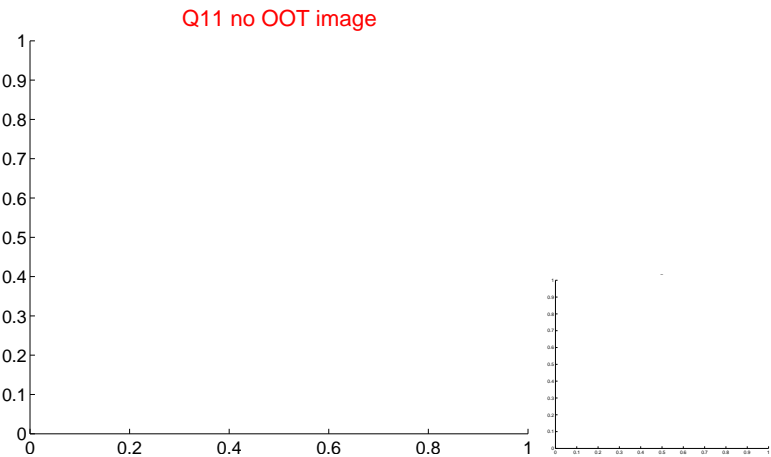
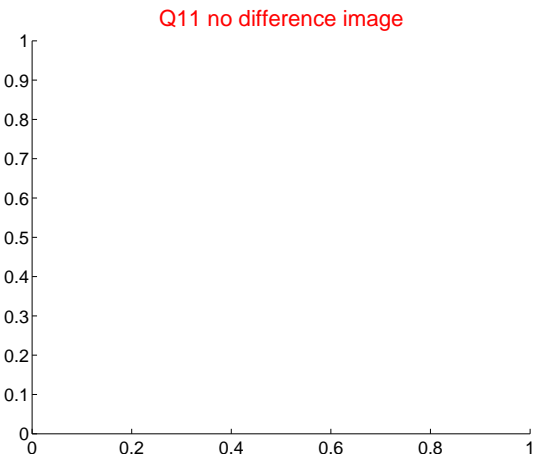
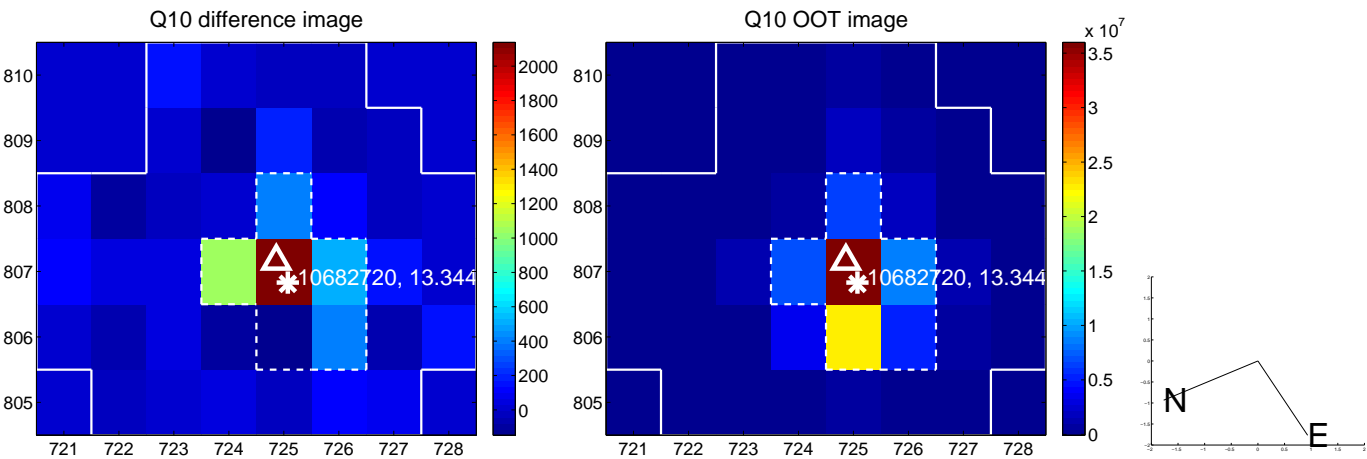
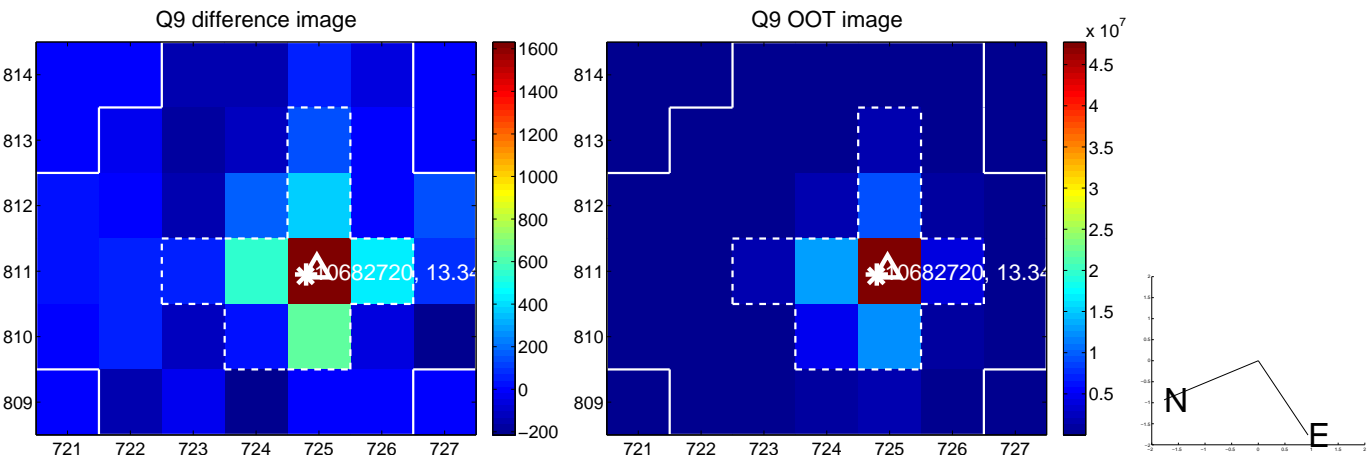
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



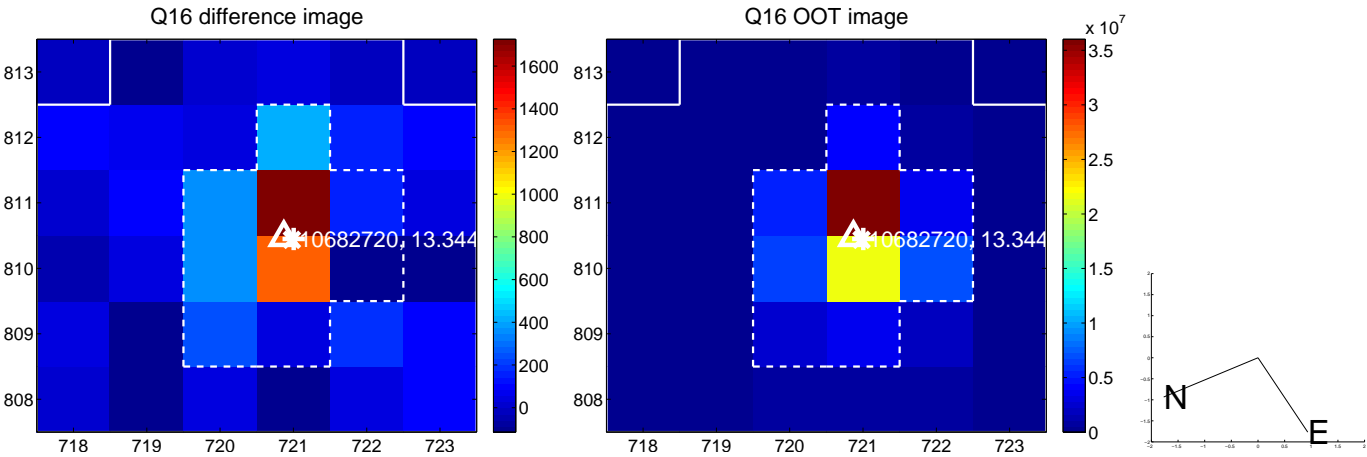
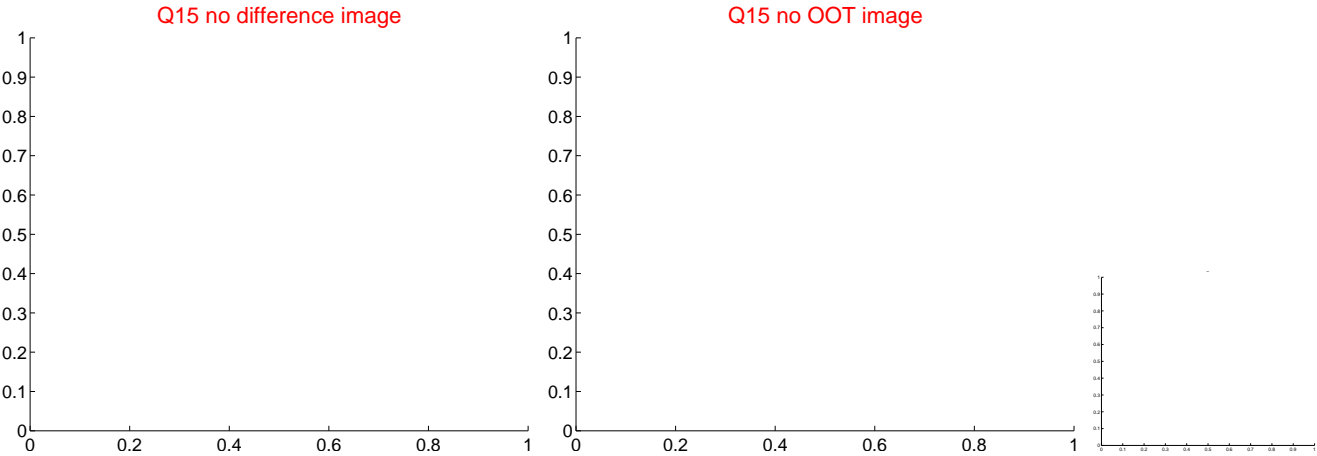
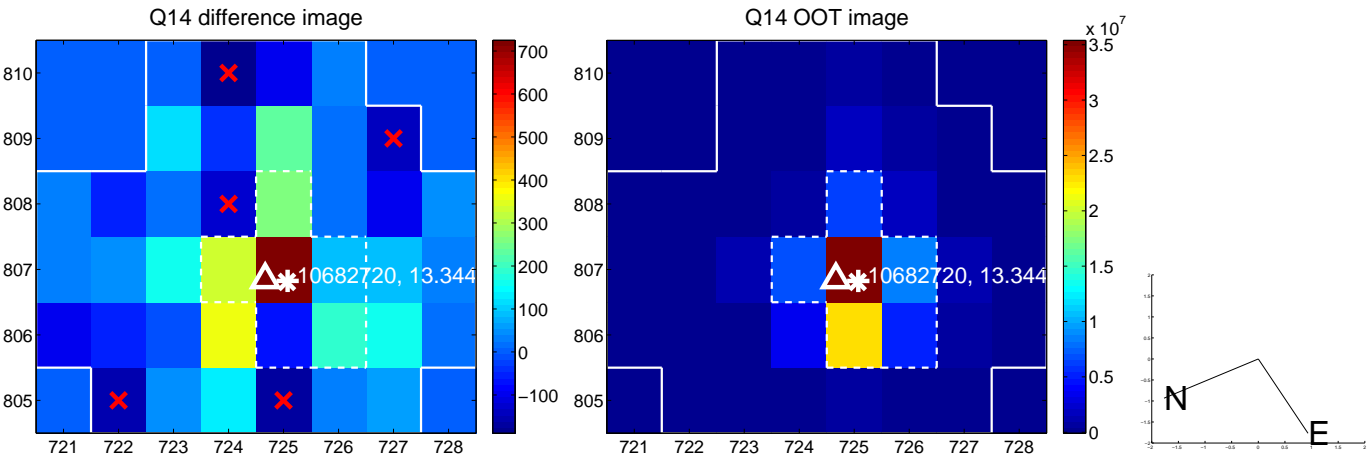
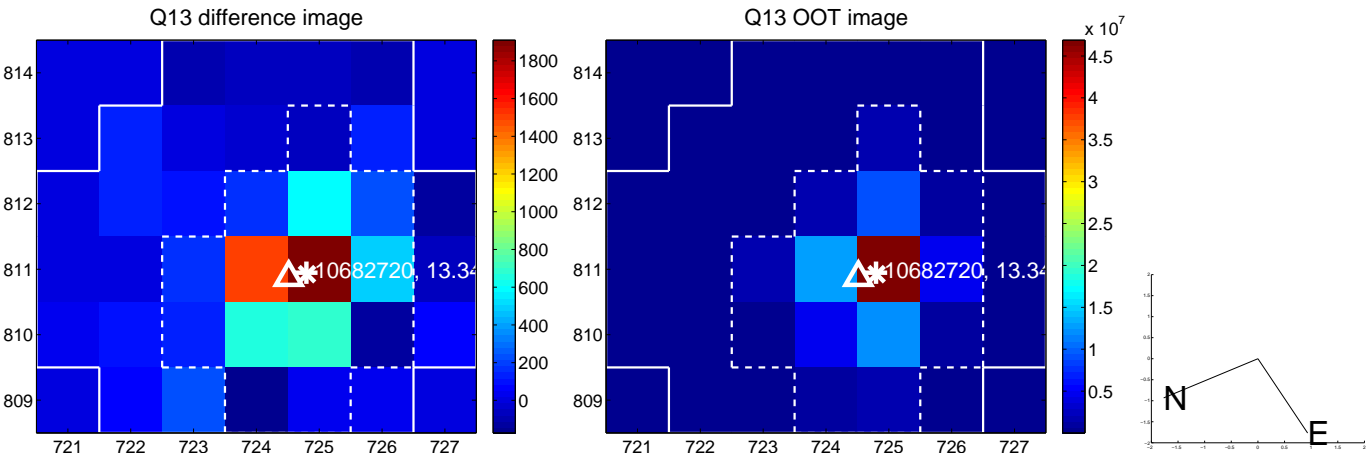
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



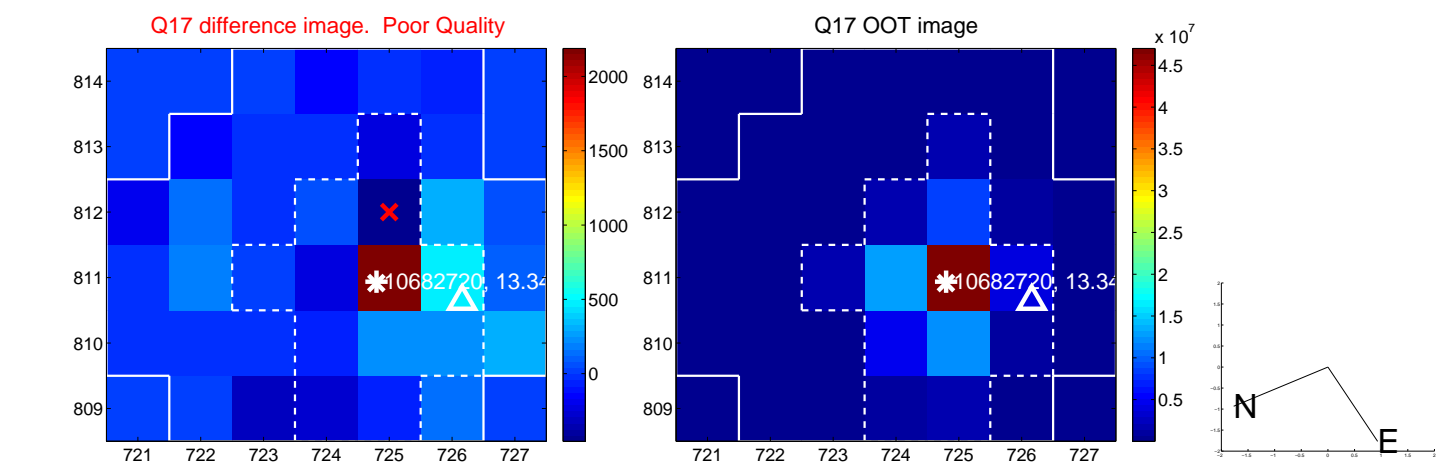
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



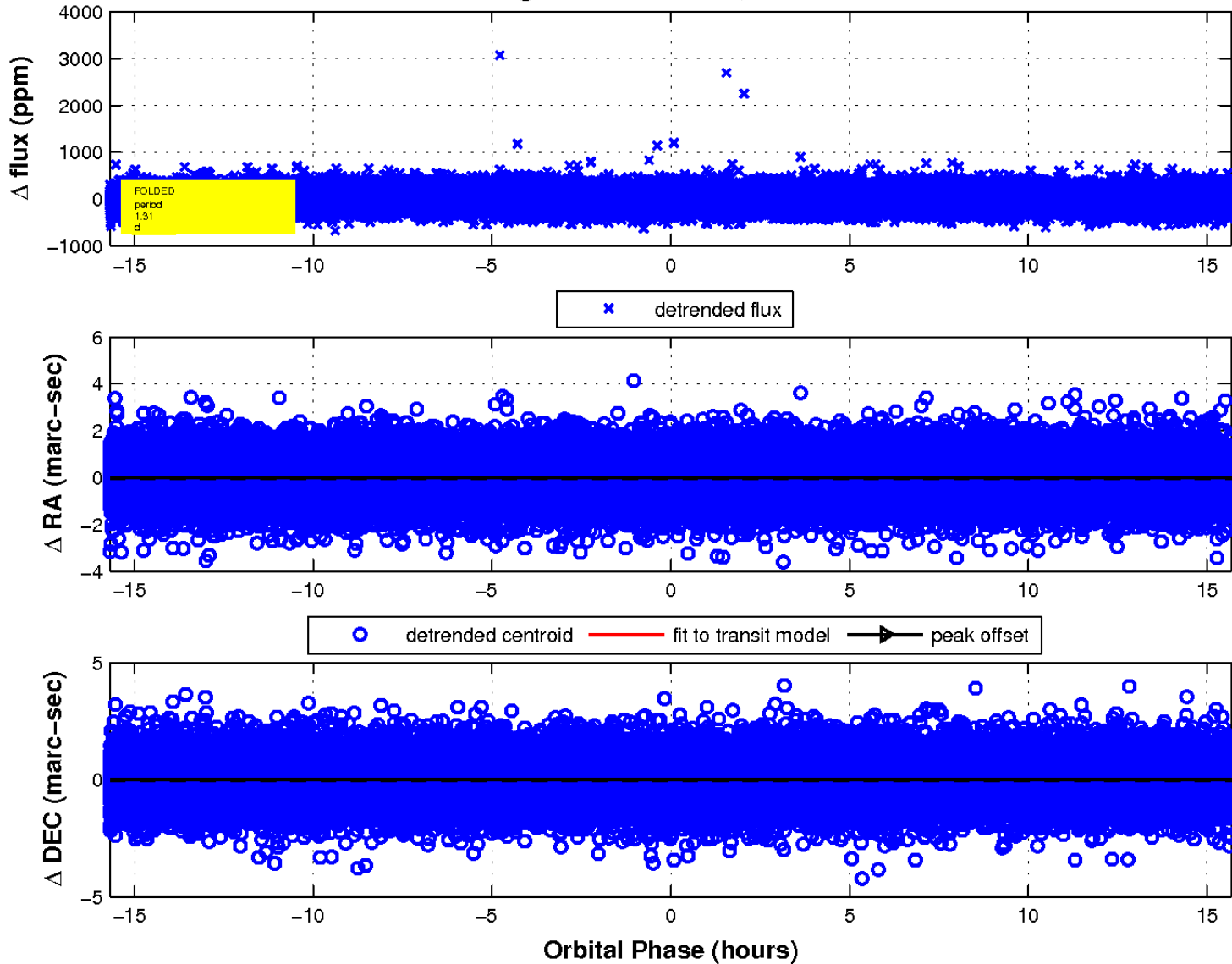
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

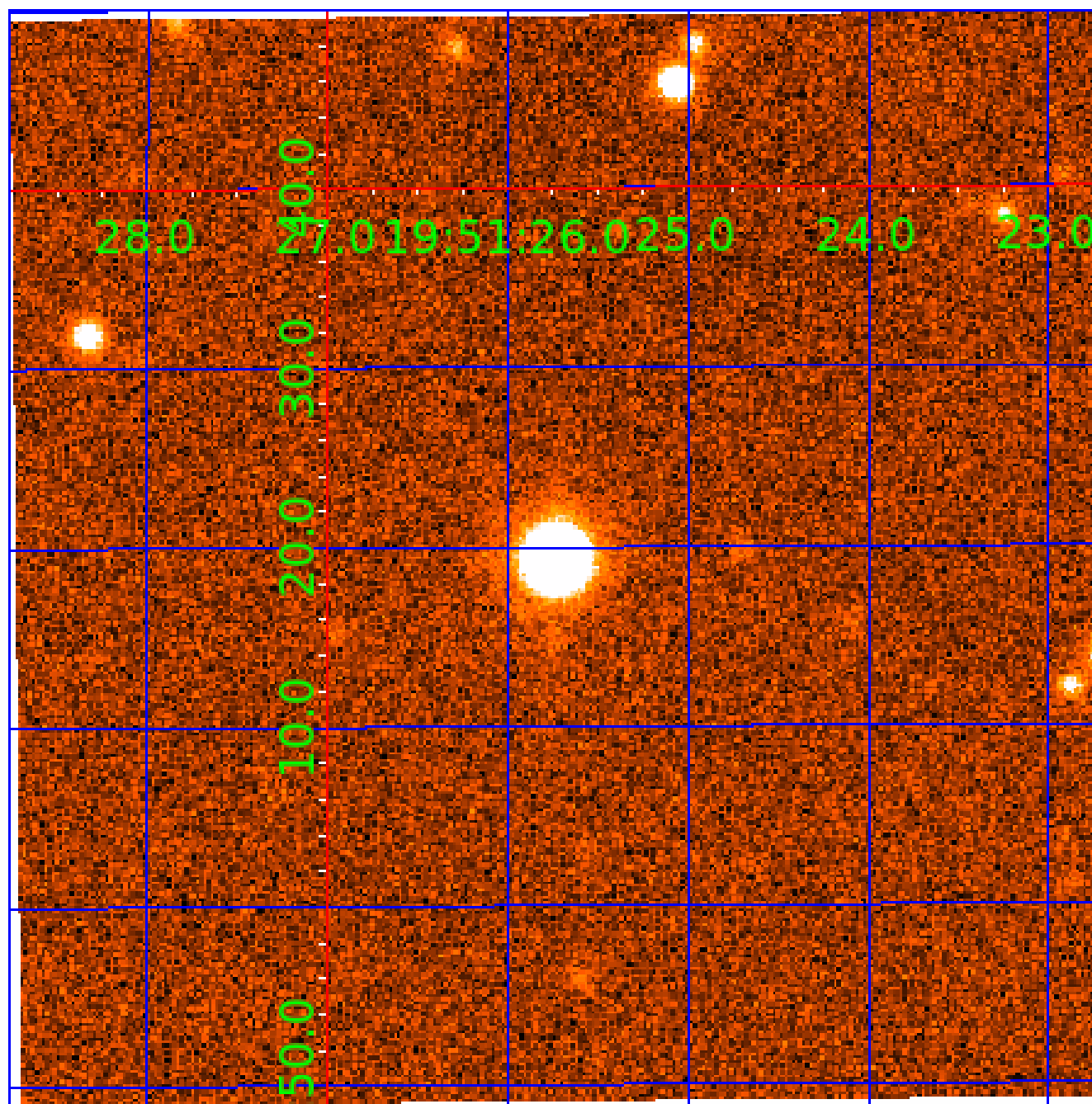


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010682720

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})
010682720-01	OBS	No	1.307176	132.819825	14.1	6.208	7.7	5.7	3.05	7105	1.24	28786.57
010682720-02	OBS	No	119.905953	227.211152	192.7	24.922	9.1	8.3	3.05	7105	4.54	69.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010682720-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
010682720-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

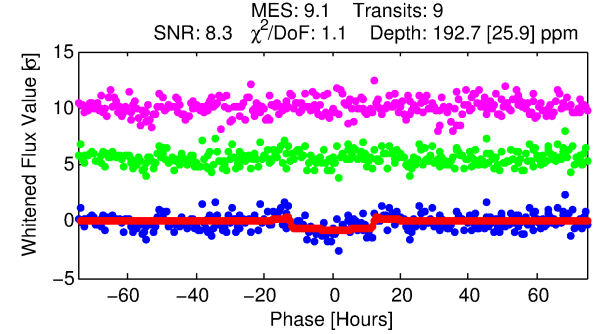
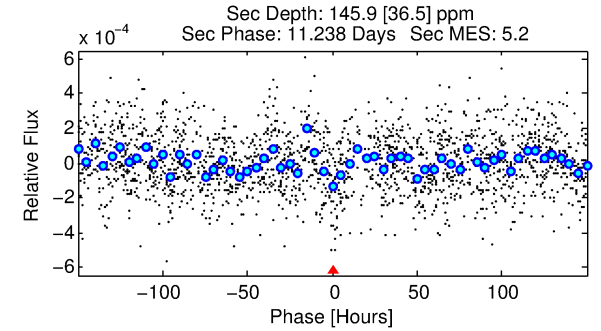
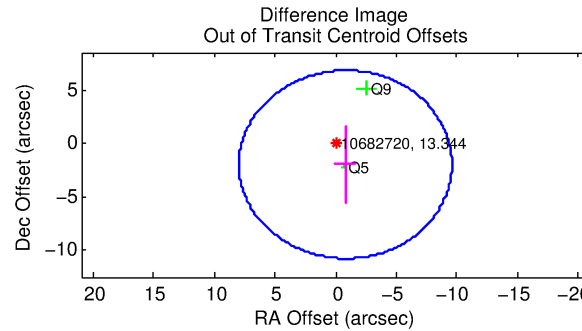
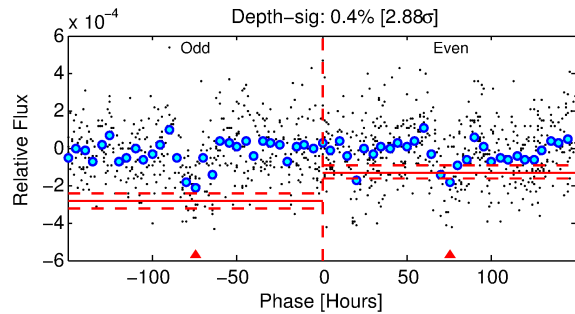
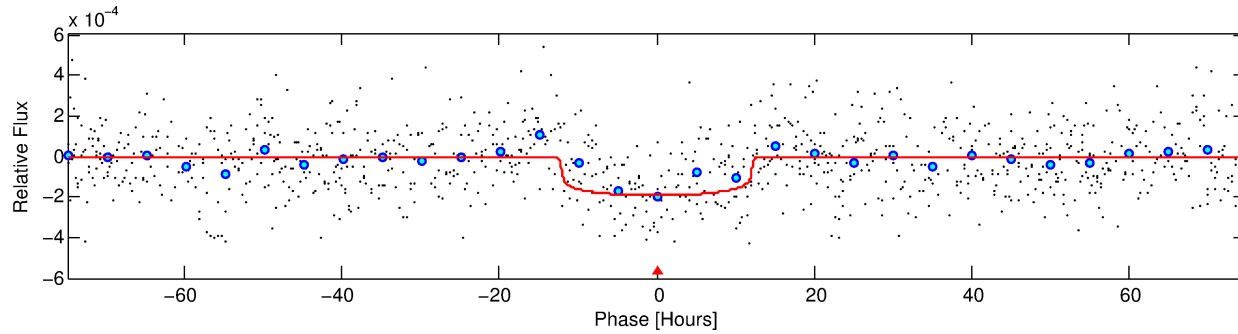
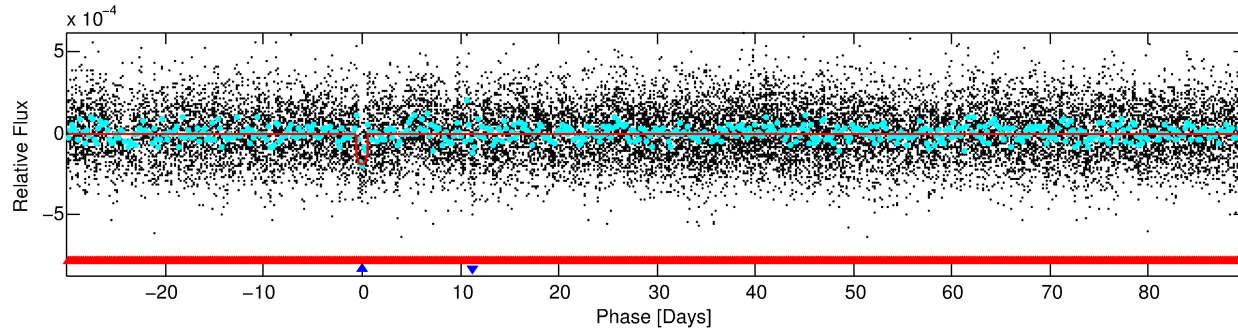
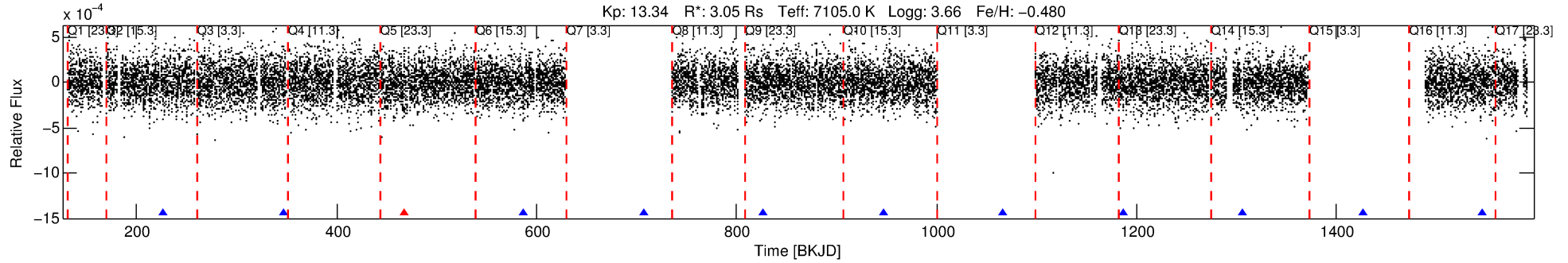
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010682720-02

No Significant Match Found

DV One-Page Summary

KIC: 10682720 Candidate: 2 of 2 Period: 119.906 d



DV Fit Results:

Period = 119.90595 [0.00296] d
Epoch = 227.2112 [0.0194] BKJD
Rp/R* = 0.0136 [0.0024]
a/R* = 26.80 [24.51]
b = 0.70 [0.66]
Seff = 69.58 [42.39]
Teq = 736 [112] K
Rp = 4.54 [1.93] Re
a = 0.5530 [0.2056] AU
Ag = 1189.05 [870.80] [1.36 σ]
Teffp = 6686 [748] K [7.86 σ]

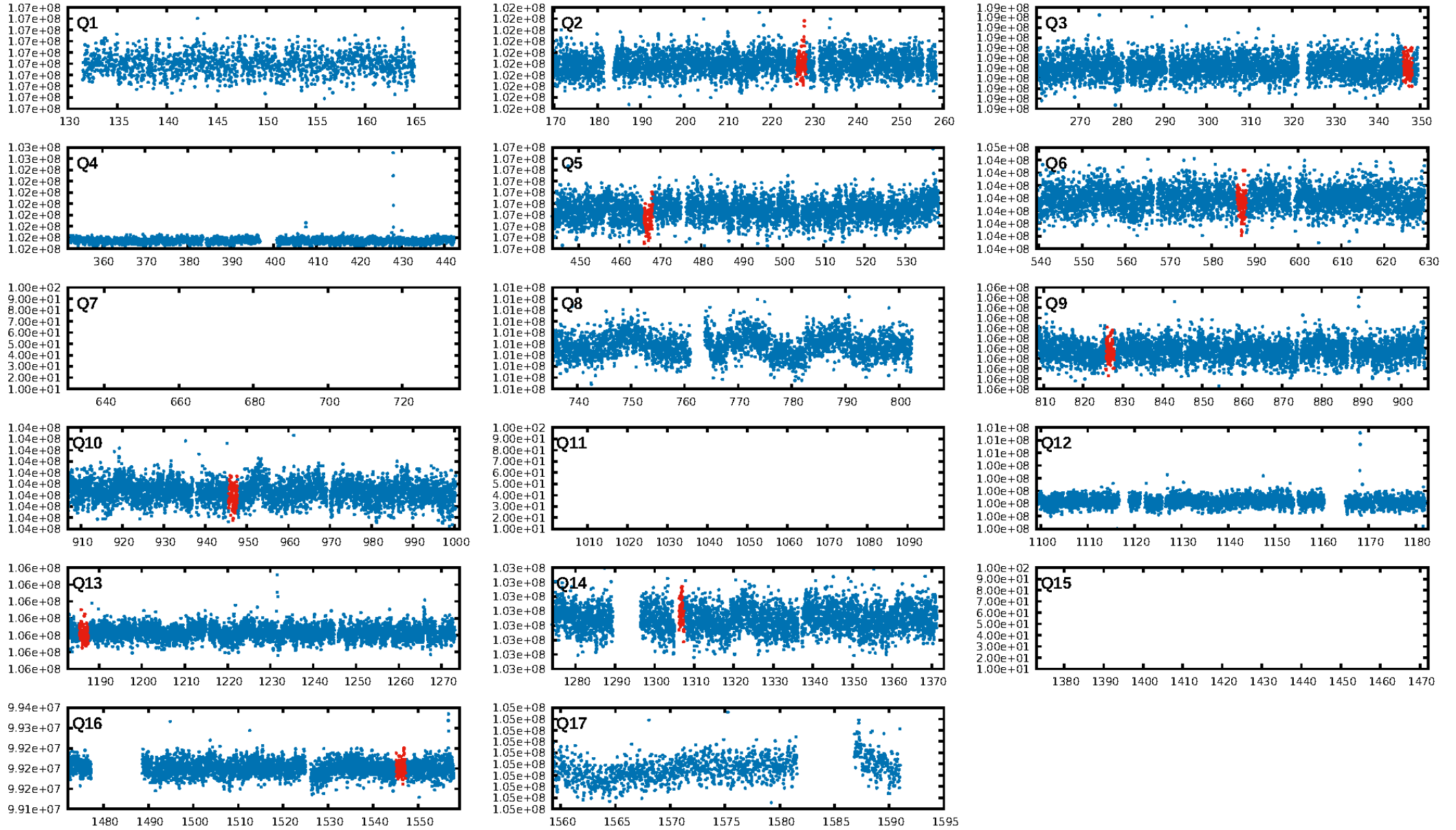
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [110.82 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 16.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.71e-17
RollingBand-fgt: 0.89 [8/9]
GhostDiagnostic-chr: -0.9332
Centroid-sig: 56.9%
Centroid-so: 0.616 arcsec [0.62 σ]
OotOffset-rm: 2.143 arcsec [0.73 σ]
KicOffset-rm: 2.280 arcsec [0.78 σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/6]

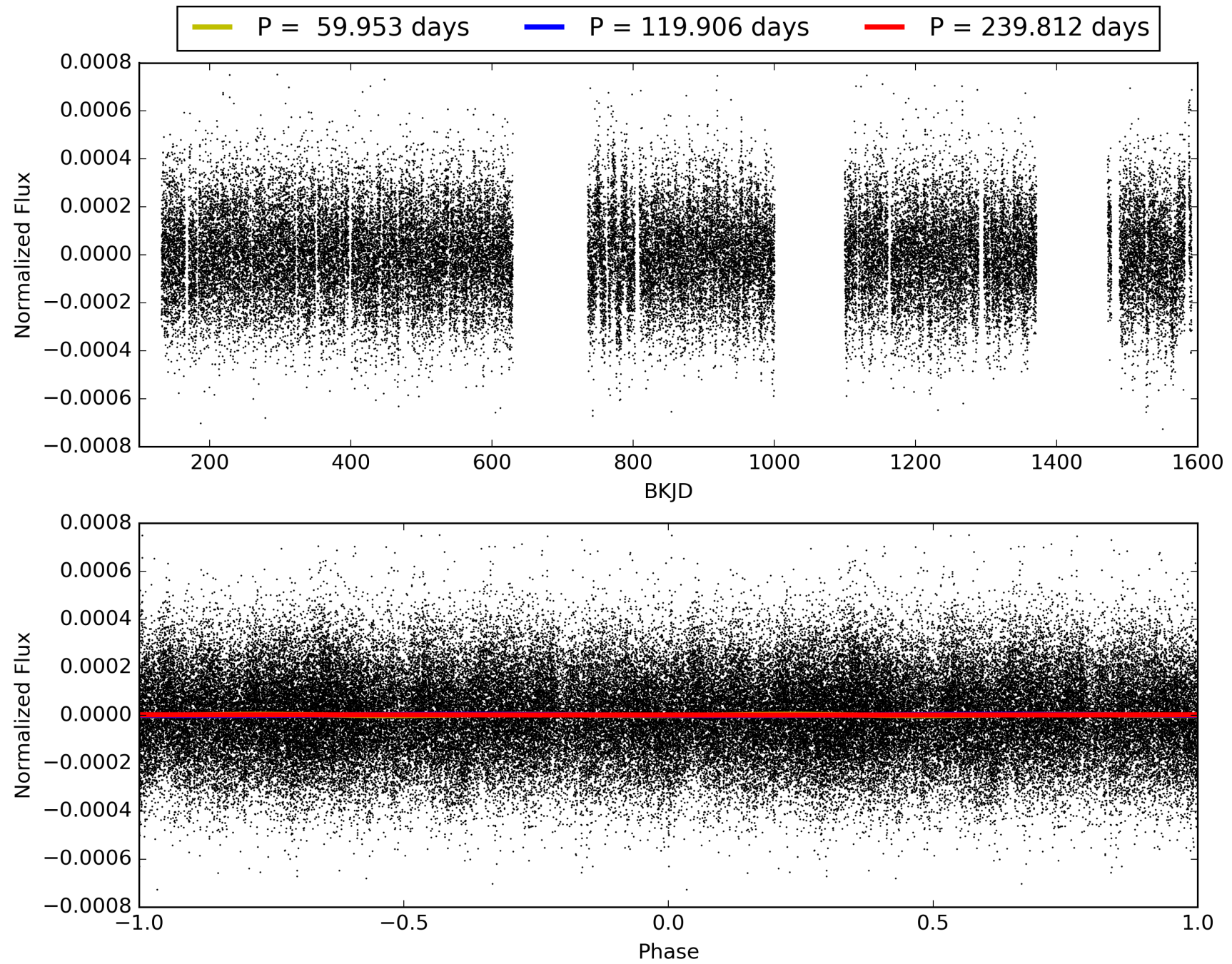
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:23:08 Z

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

TCE 010682720-02, PDC Light Curves

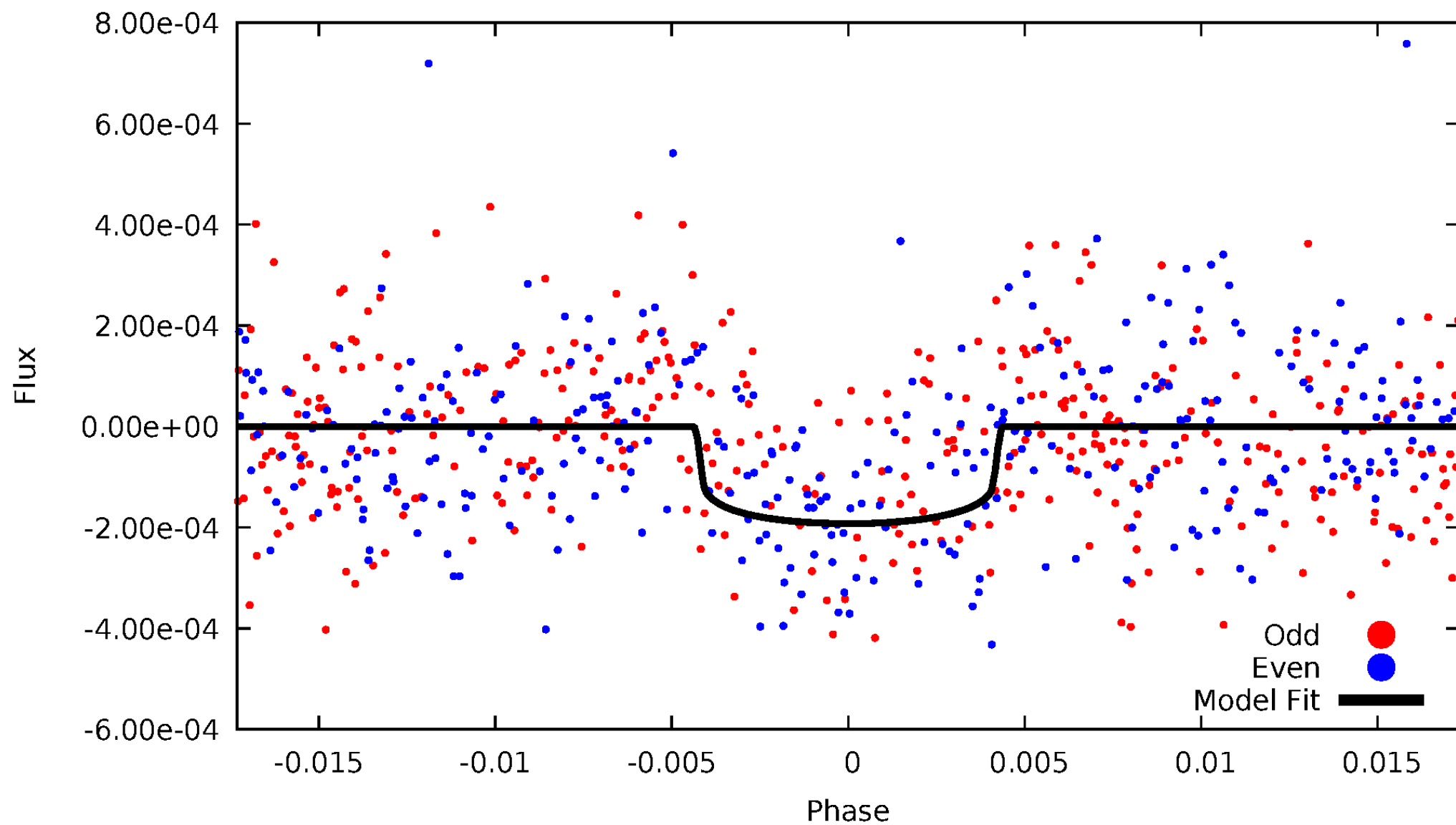


TCE 010682720-02



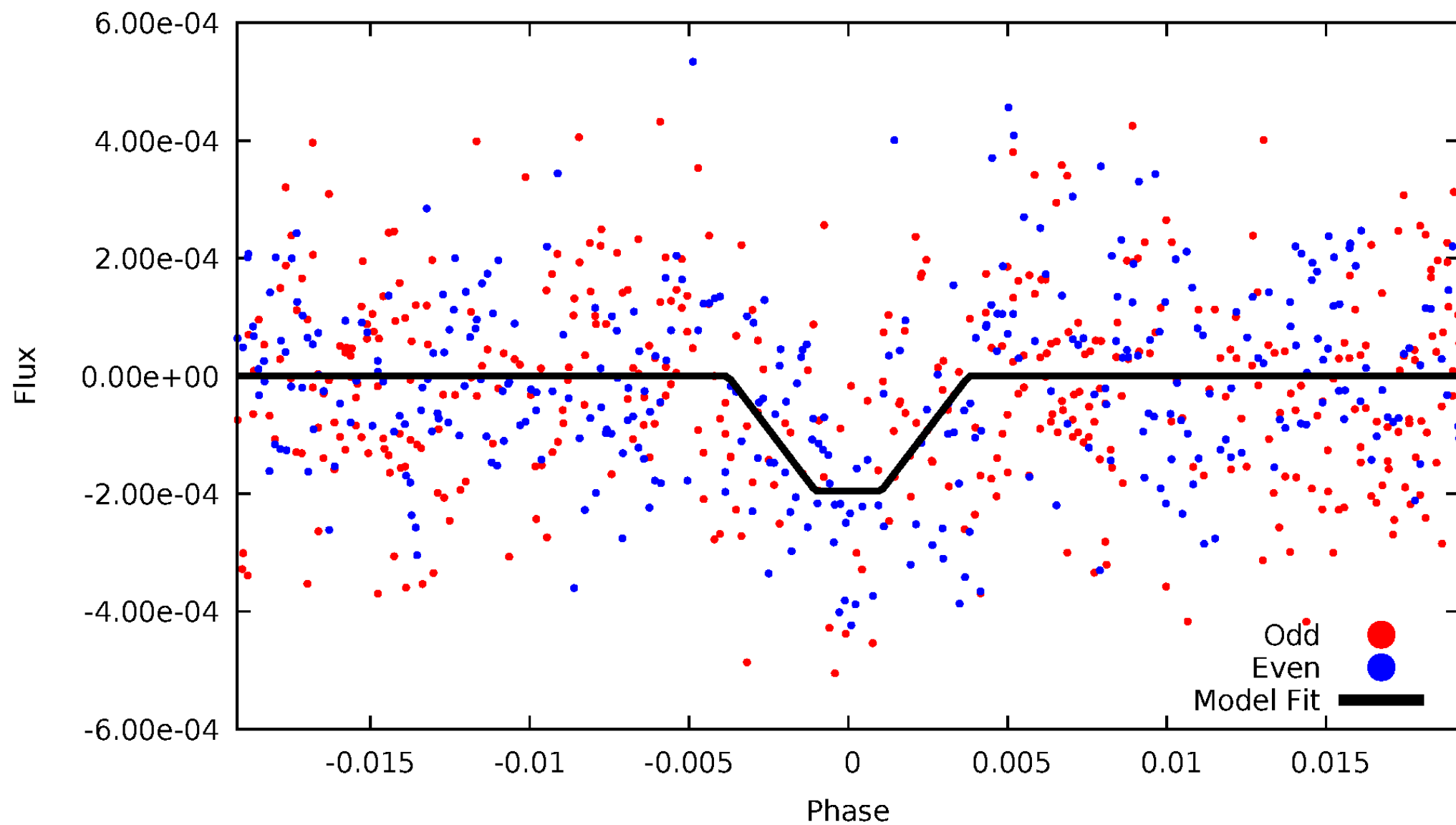
DV Odd/Even

TCE 010682720-02



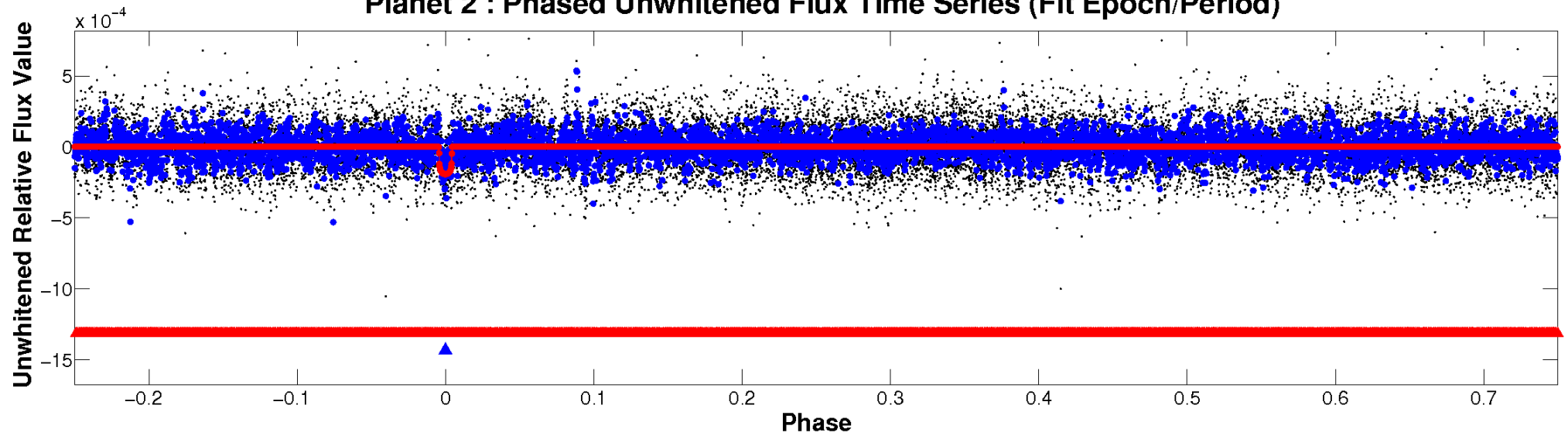
ALT Odd/Even

TCE 010682720-02

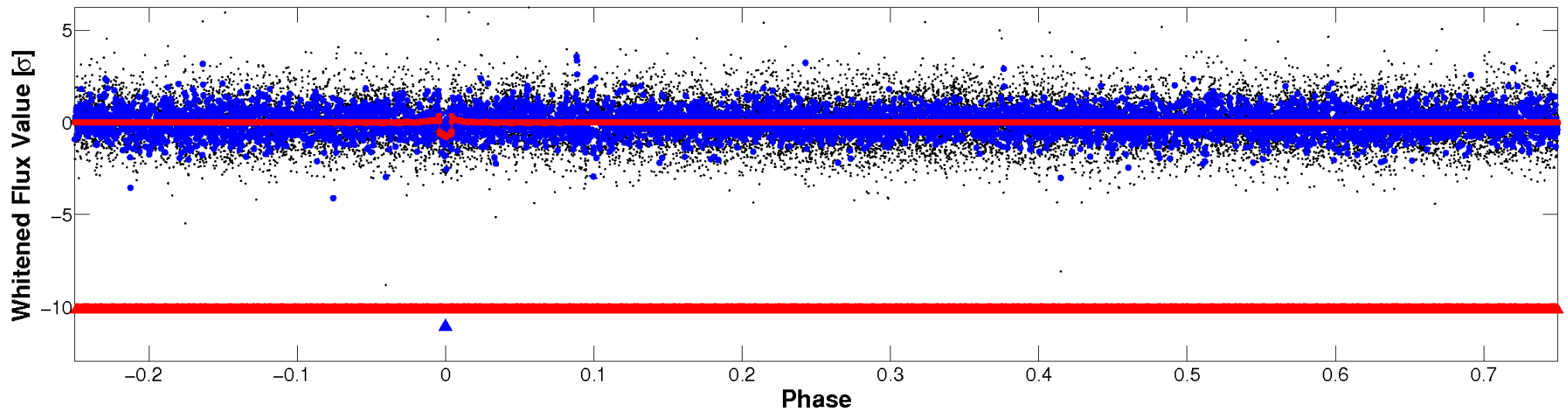


Non-Whitened Vs. Whitened Light Curve

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



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



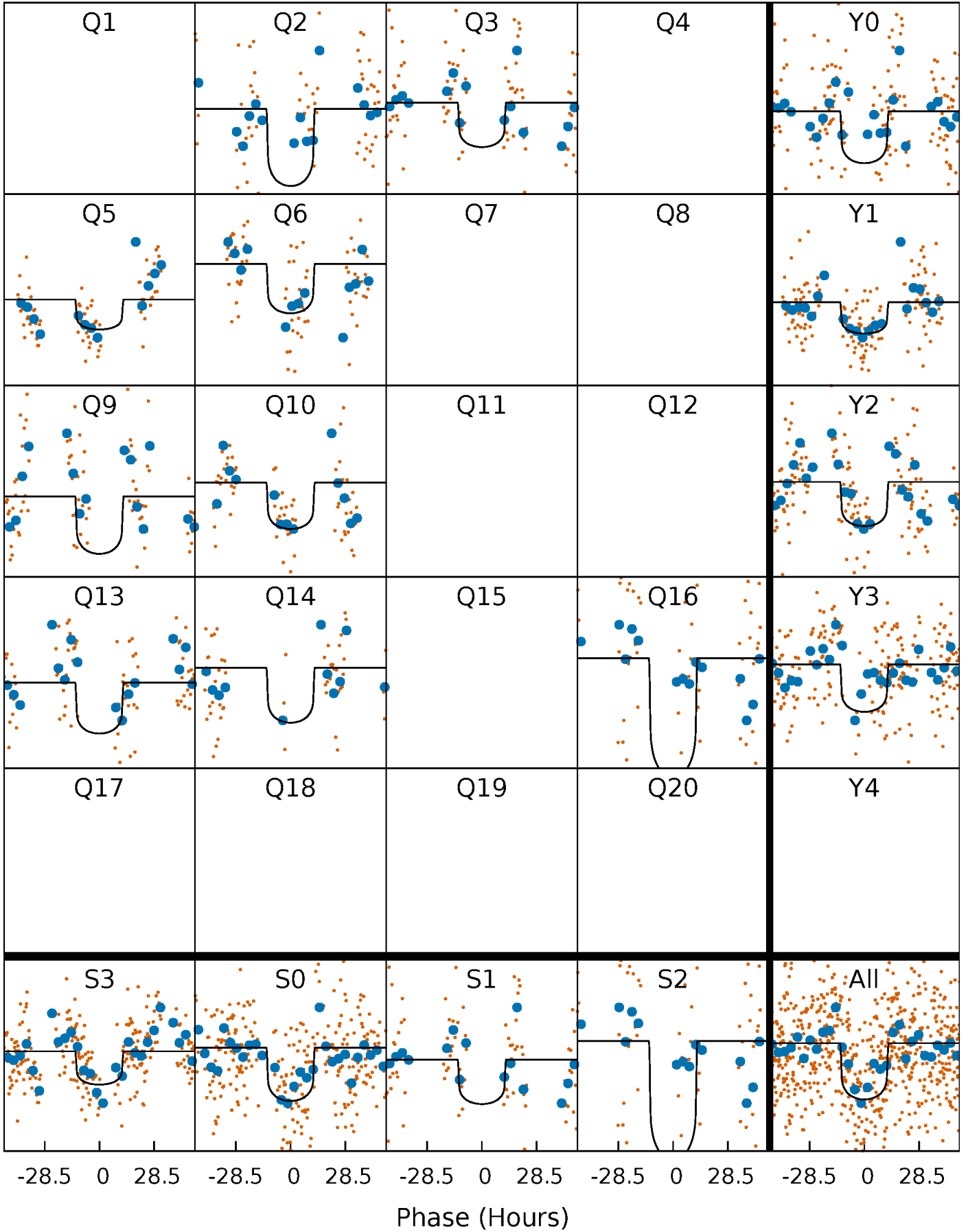
PDC Quarter-Phased Transit Curves

TCE 010682720-02 P=119.905953 Days $T_0=227.211152$ (BKJD)



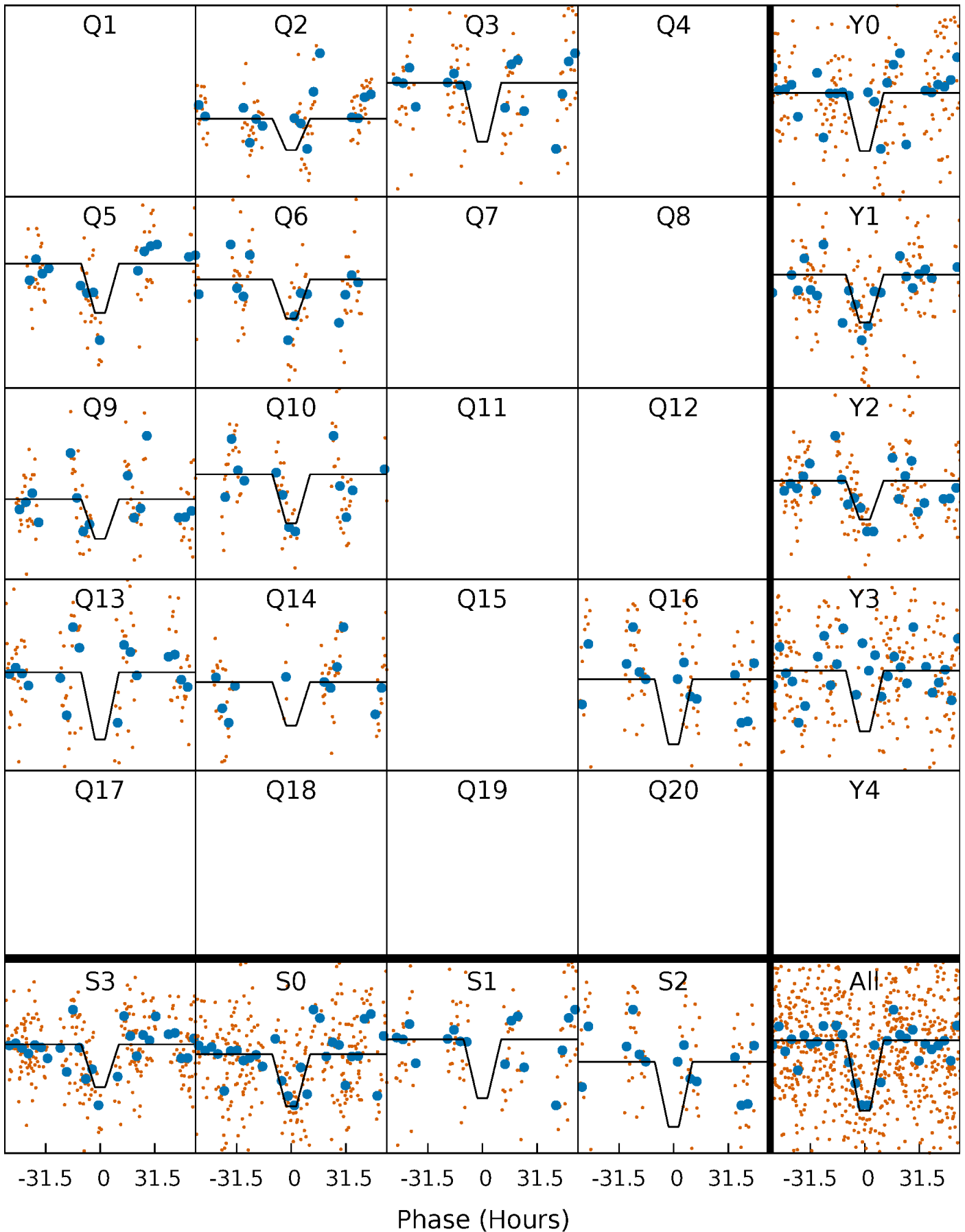
DV Quarter-Phased Transit Curves

TCE 010682720-02 $P=119.905953$ Days $T_0=227.211152$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

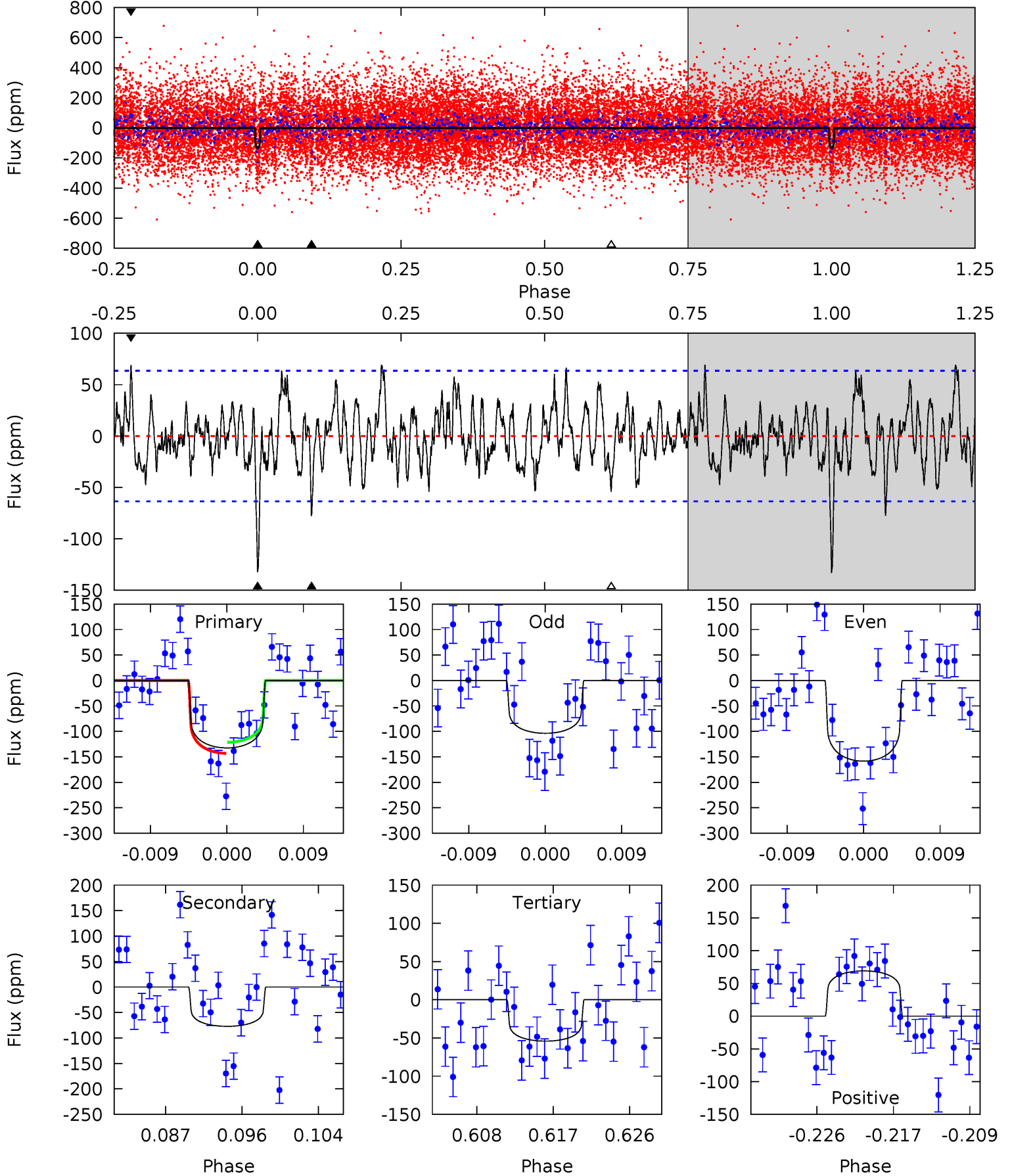
TCE 010682720-02 P=119.904130 Days $T_0=227.215272$ (BKJD)



DV Model-Shift Uniqueness Test

010682720-02, P = 119.905953 Days, E = 107.305199 Days

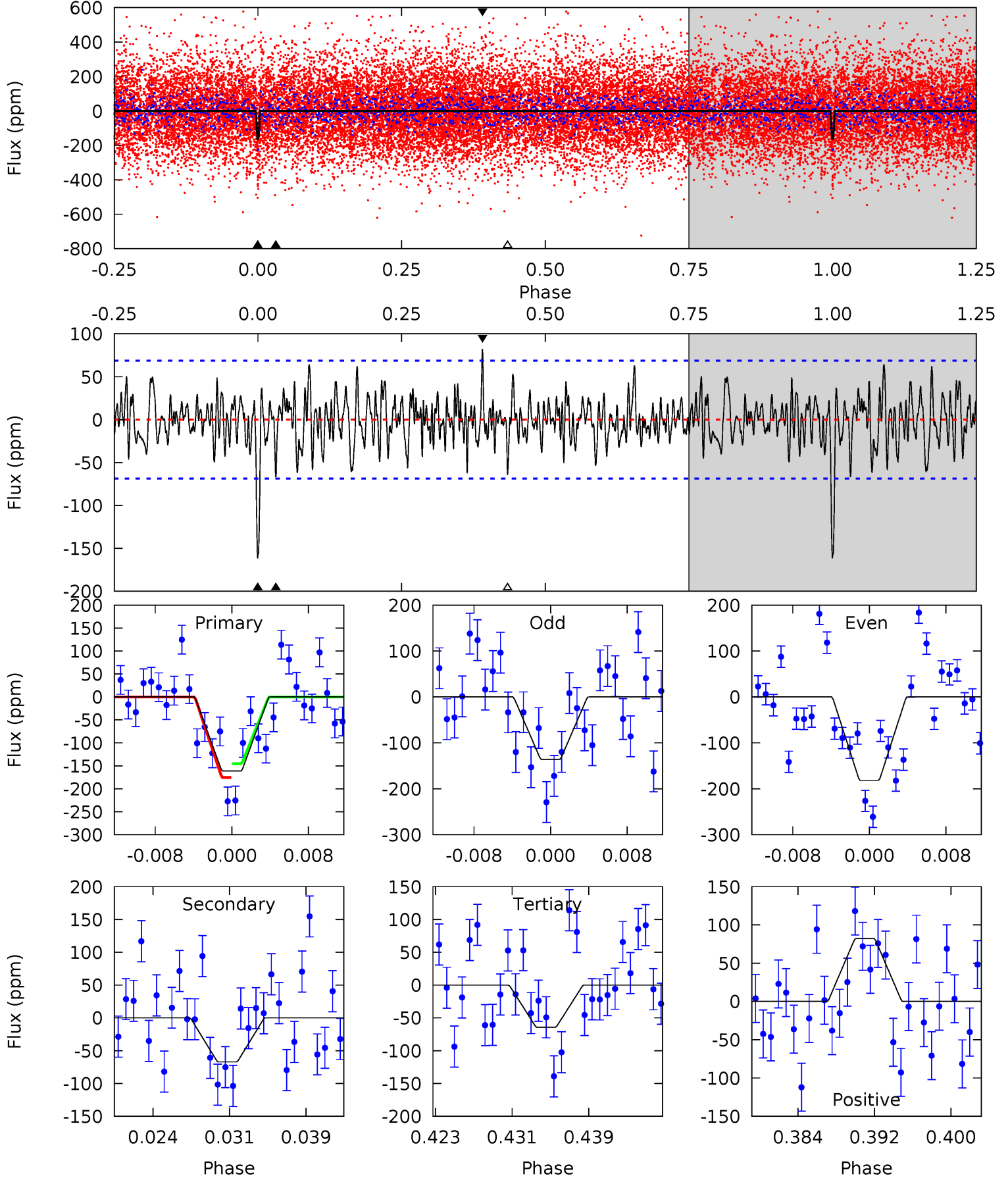
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	6.14	4.31	5.50	5.05	2.62	1.90	6.23	5.04	1.84	0.65	2.17	0.75	0.34	0.86



Alt Model-Shift Uniqueness Test

010682720-02, P = 119.904130 Days, E = 107.311142 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	4.95	4.76	6.06	5.07	2.66	1.60	7.15	5.85	0.19	-1.11	1.69	0.76	0.34	1.11



Stellar Parameters For KIC 010682720

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7105^{+192}_{-235}	$3.664^{+0.349}_{-0.082}$	$-0.480^{+0.300}_{-0.250}$	$3.053^{+0.394}_{-1.181}$	$1.567^{+0.228}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+3%/-3%	+10%/-2%	+62%/-52%	+13%/-39%	+15%/-20%	+243%/-26%
Source	PHO1	FLK73	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 010682720-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-77 ± 13	$4.31^{+1.02}_{-1.10}$	1003^{+66}_{-83}	5629^{+681}_{-437}	720^{+530}_{-260}
Alt.	-67 ± 14	$4.44^{+0.99}_{-1.07}$	1005^{+59}_{-95}	5396^{+590}_{-459}	586^{+409}_{-211}

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 $A_{obs} \gg 1.0$

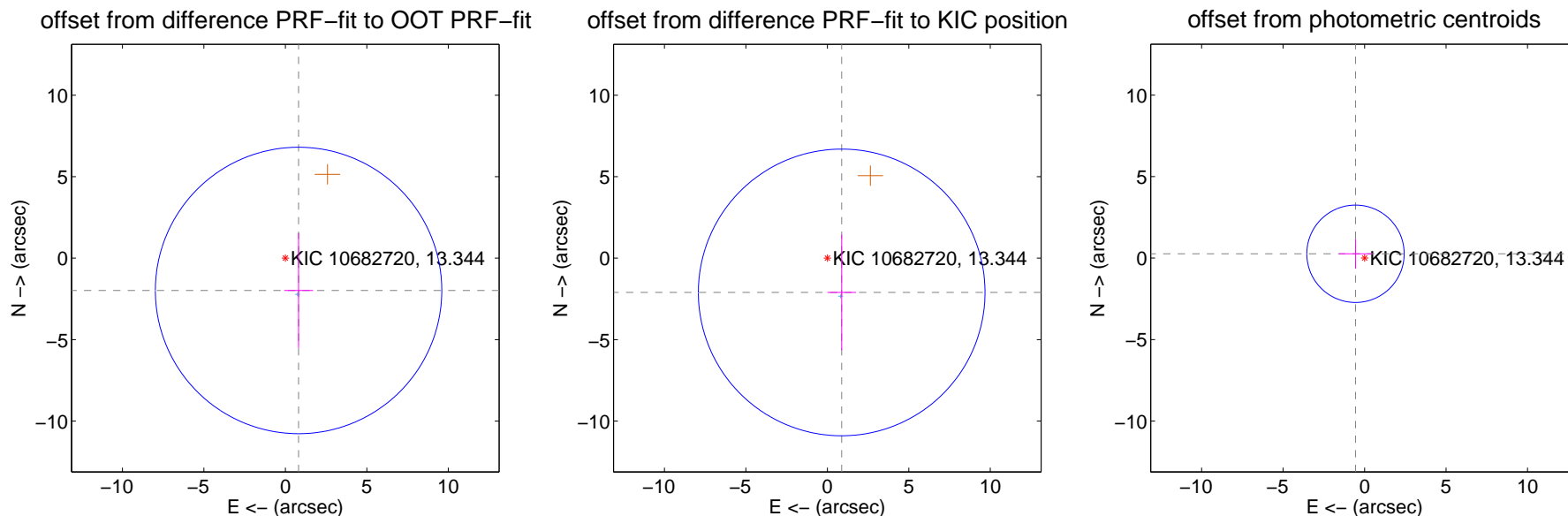
DV Centroid Data

Supplemental centroid analysis for 010682720-02. Kepler magnitude: 13.34. Transit SNR 8.28

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.143 ± 2.930	0.73	-0.811 ± 0.885	-1.983 ± 3.526
PRF-fit source offset from KIC position	2.280 ± 2.932	0.78	-0.879 ± 0.878	-2.104 ± 3.544
photometric centroid source offset	0.62 ± 1.00	0.62	0.56 ± 1.01	0.26 ± 0.91



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- σ uncertainty. Blue circle: three- σ . 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.

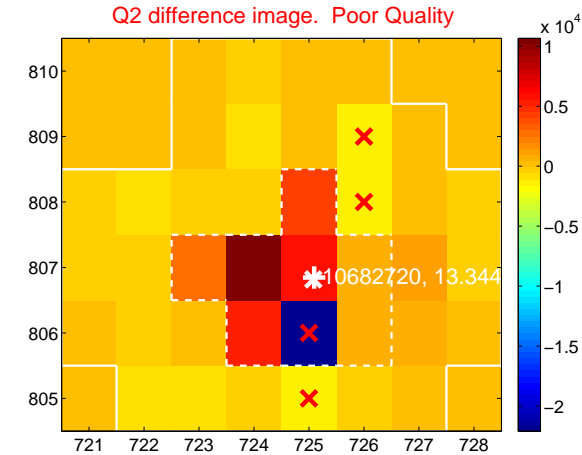
Q1 no difference image



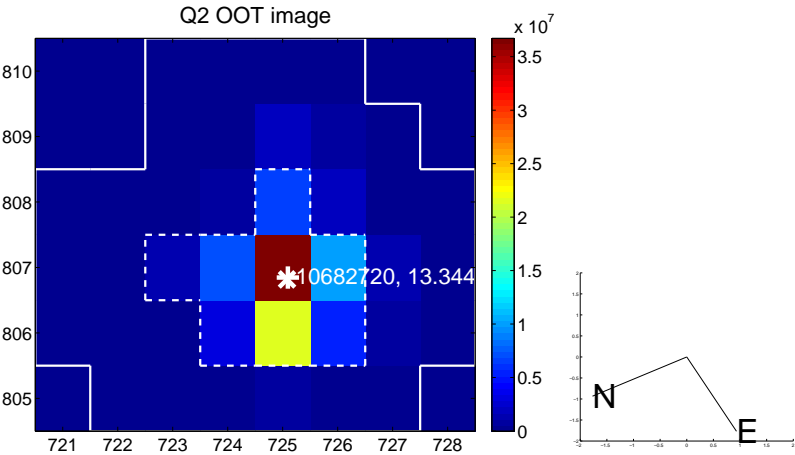
Q1 no OOT image



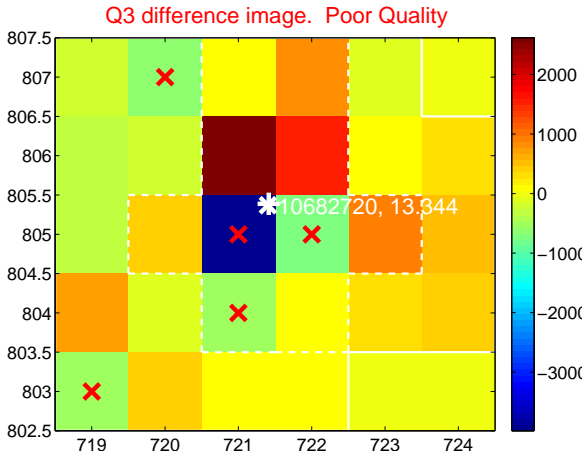
Q2 difference image. Poor Quality



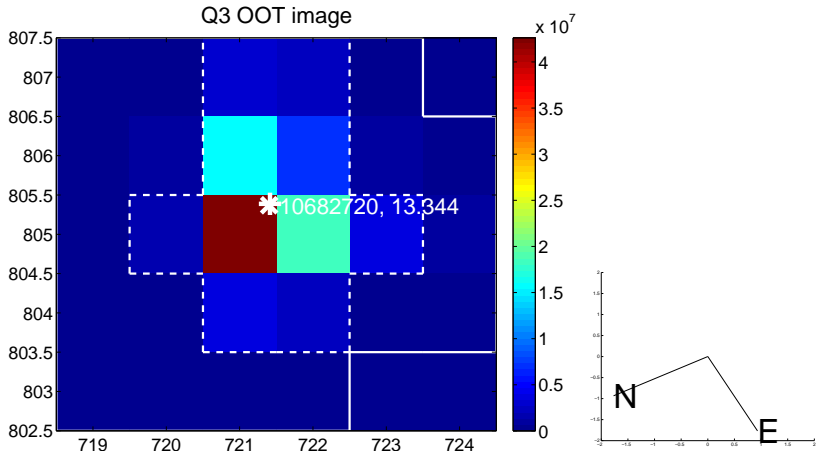
Q2 OOT image



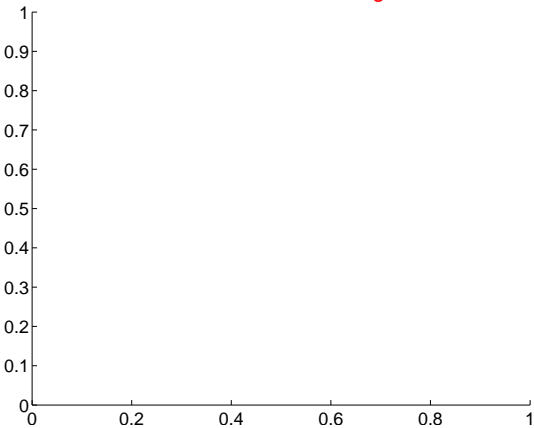
Q3 difference image. Poor Quality



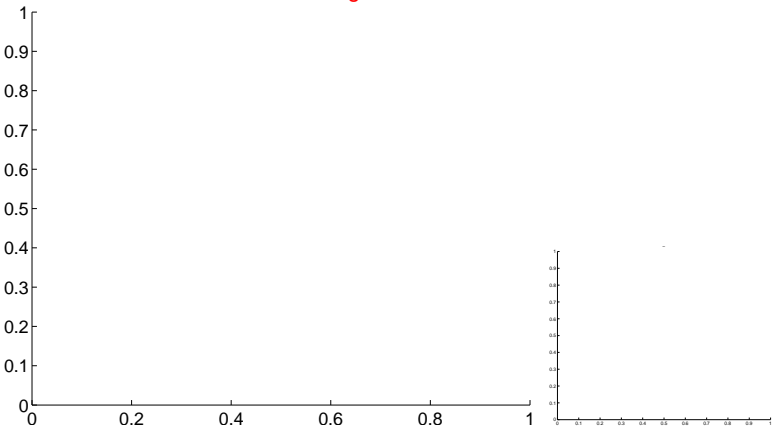
Q3 OOT image



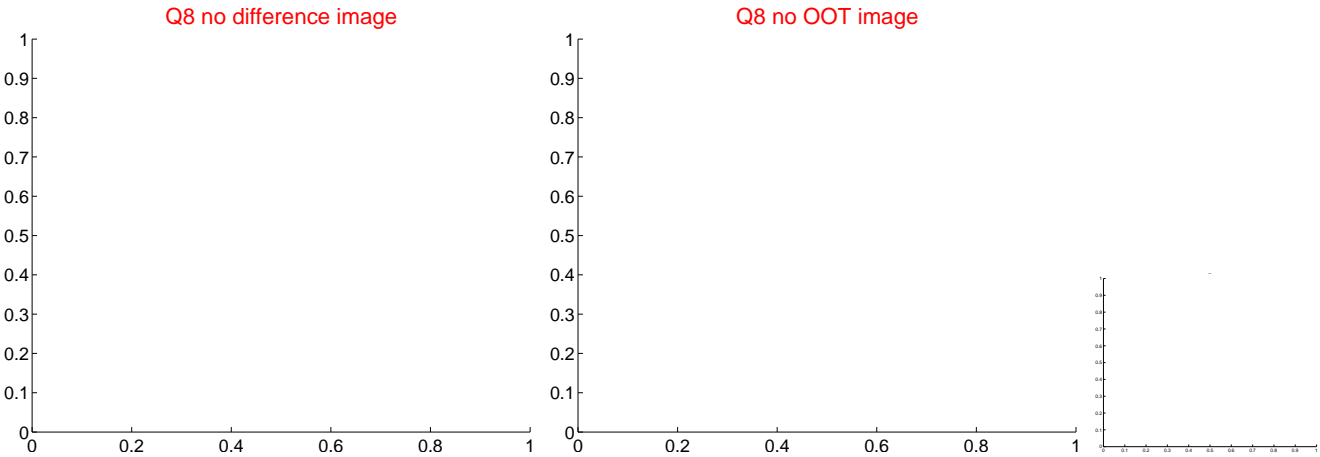
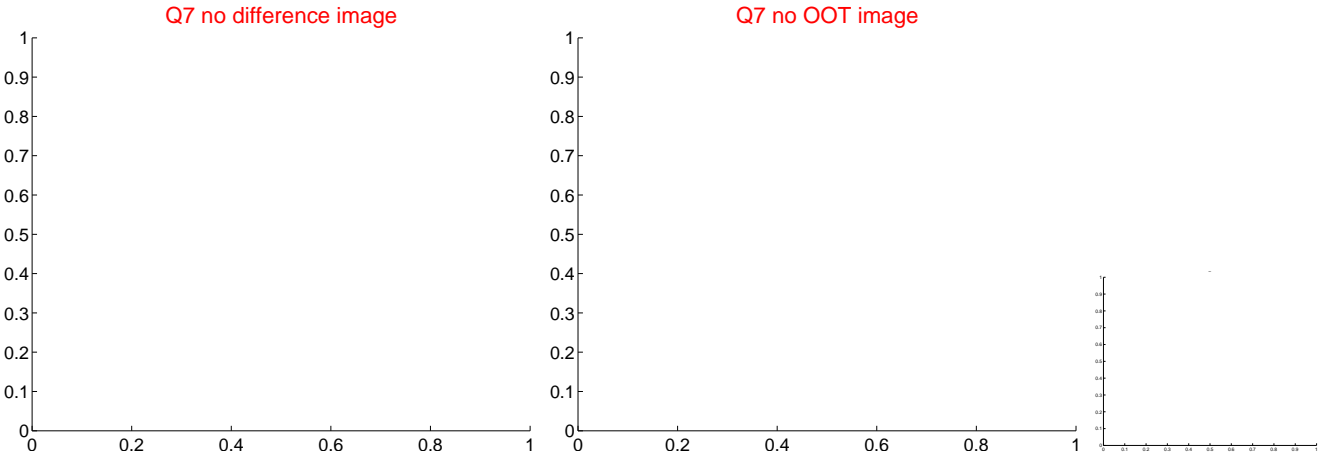
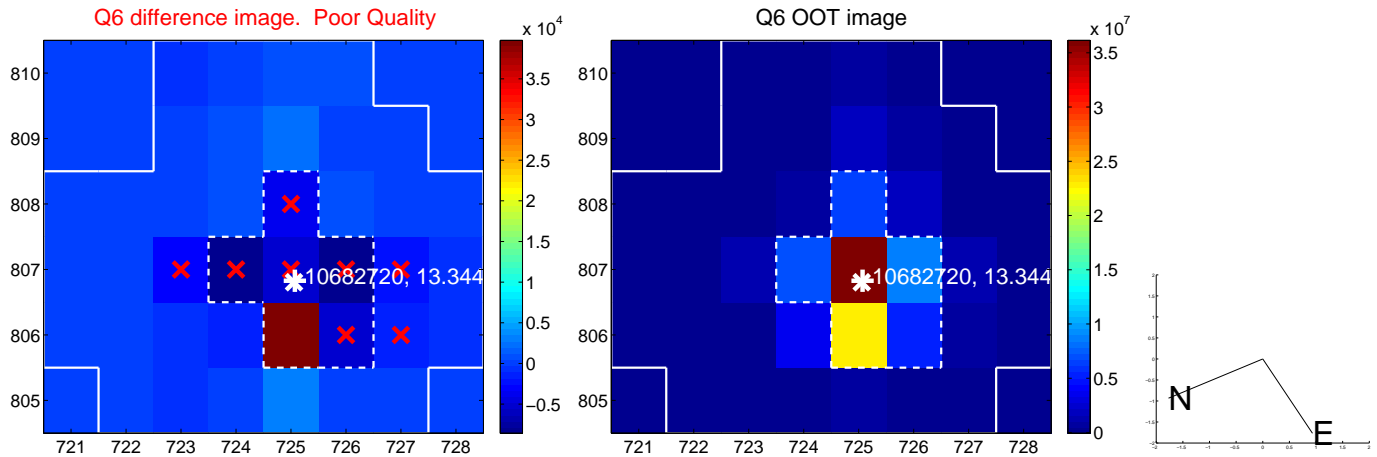
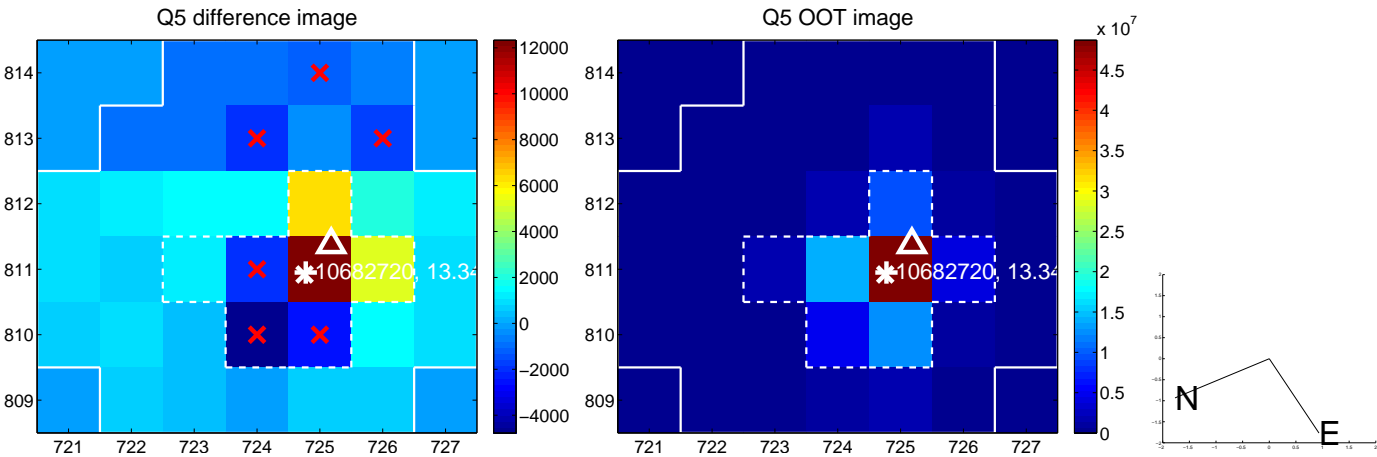
Q4 no difference image



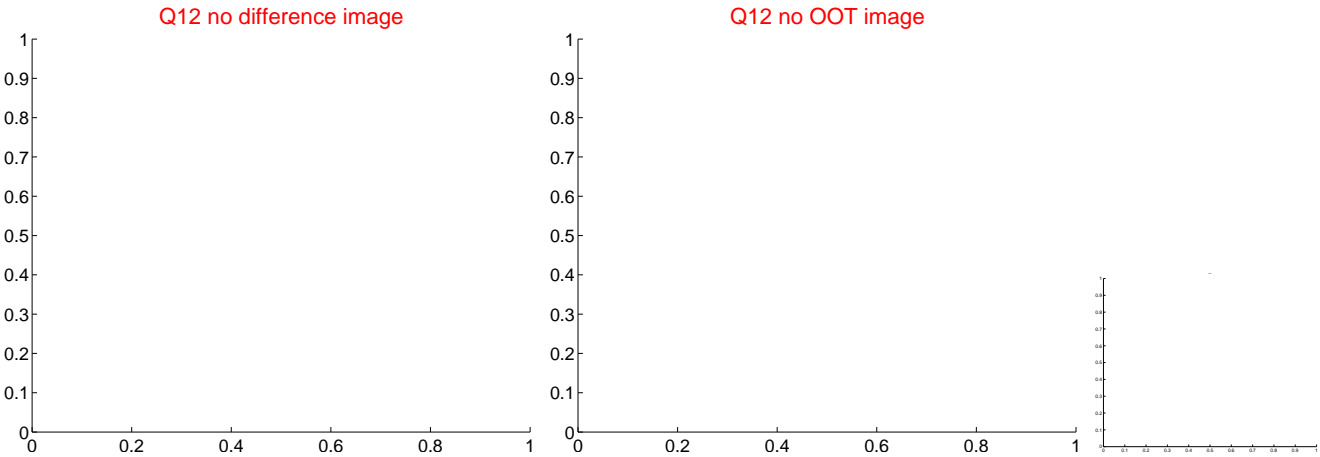
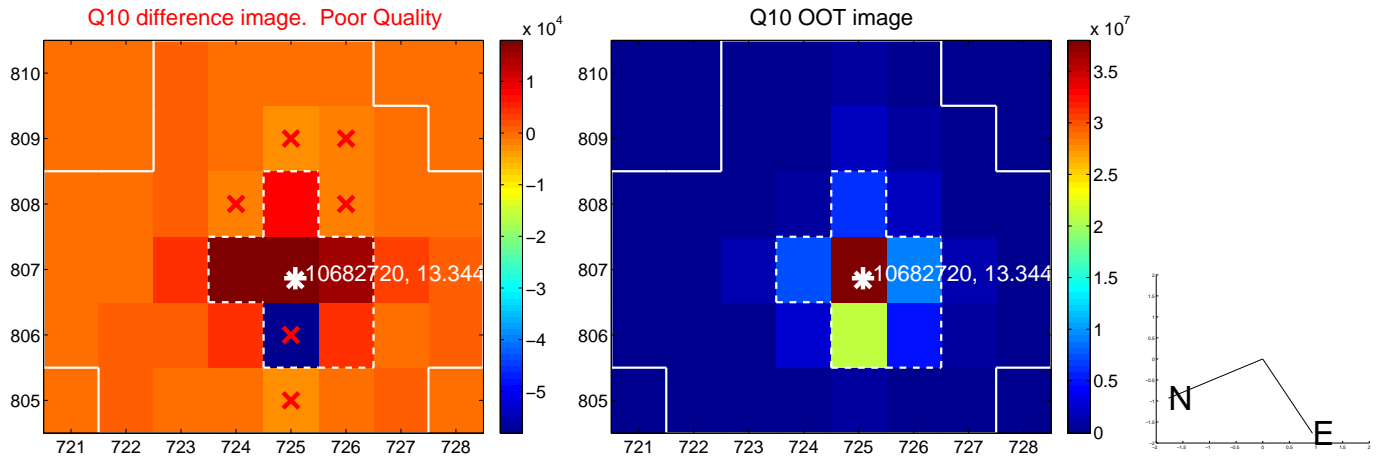
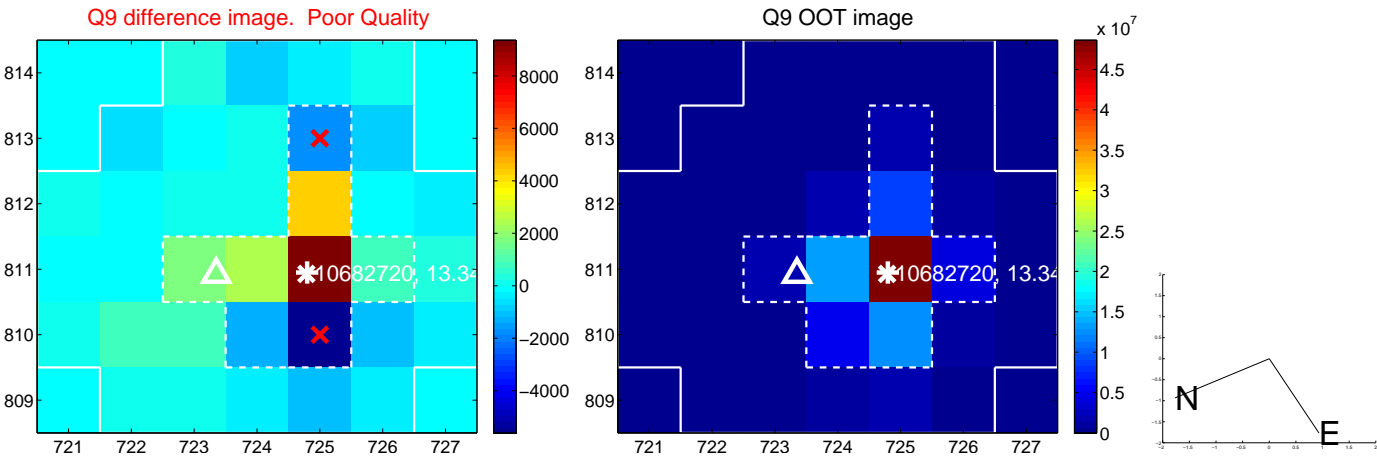
Q4 no OOT image



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



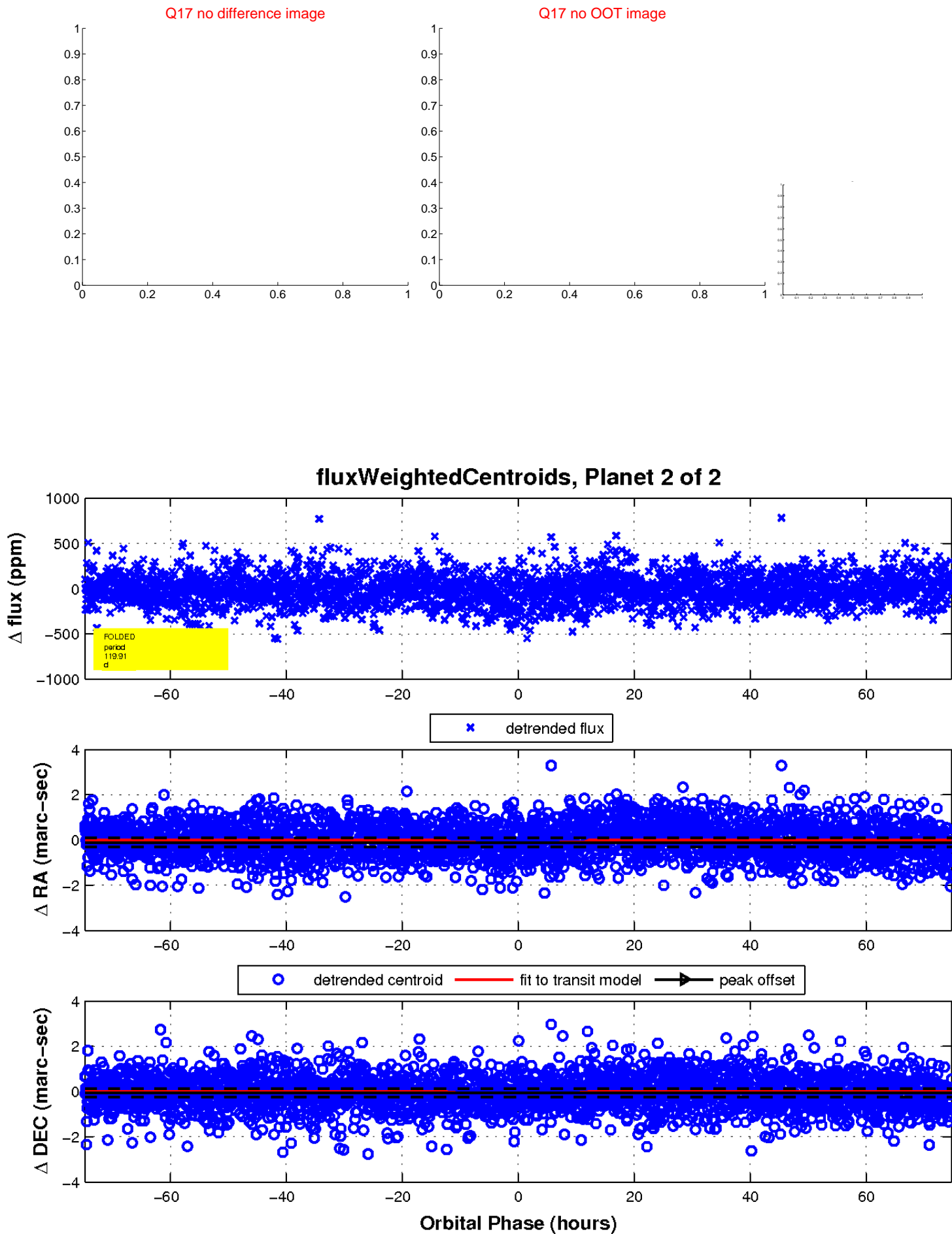
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

