

KIC 002012722

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})
002012722-01	OBS	No	2.326493	133.198379	22.6	4.566	8.9	9.5	2.72	7046	1.58	9258.36
002012722-02	OBS	6257.01	1.162876	132.081120	9.0	10.558	9.9	5.0	2.72	7046	0.92	23339.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002012722-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
002012722-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—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.

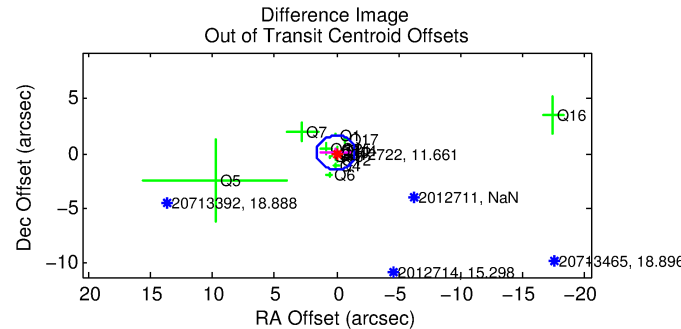
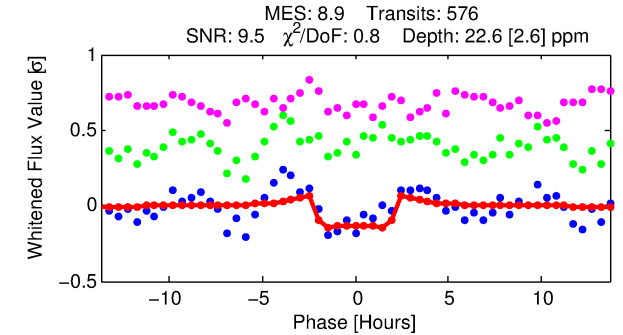
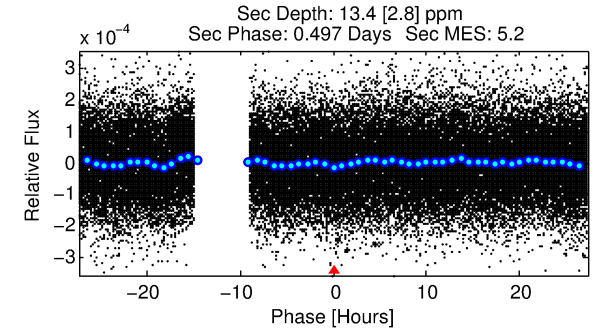
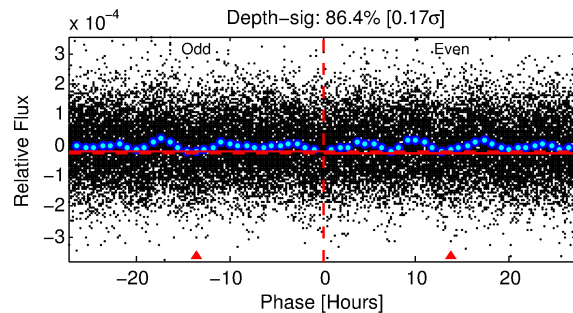
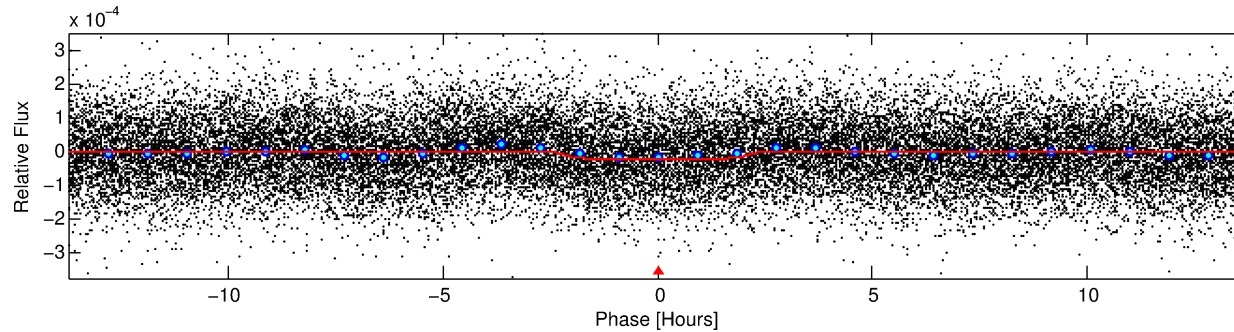
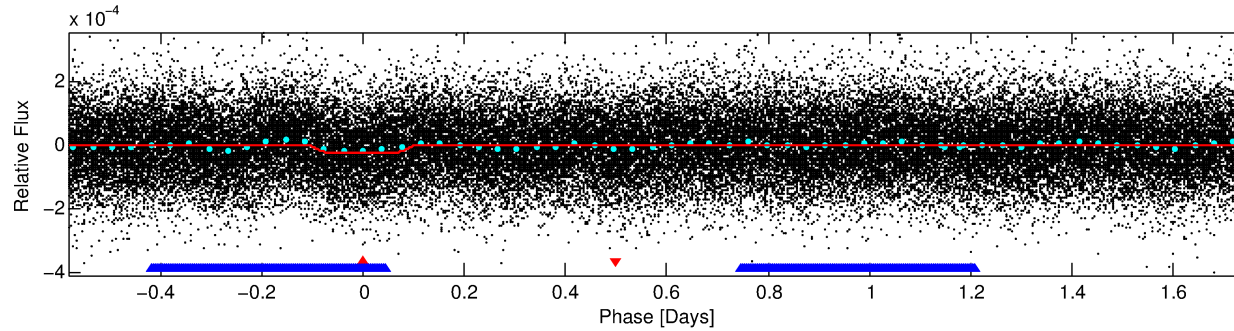
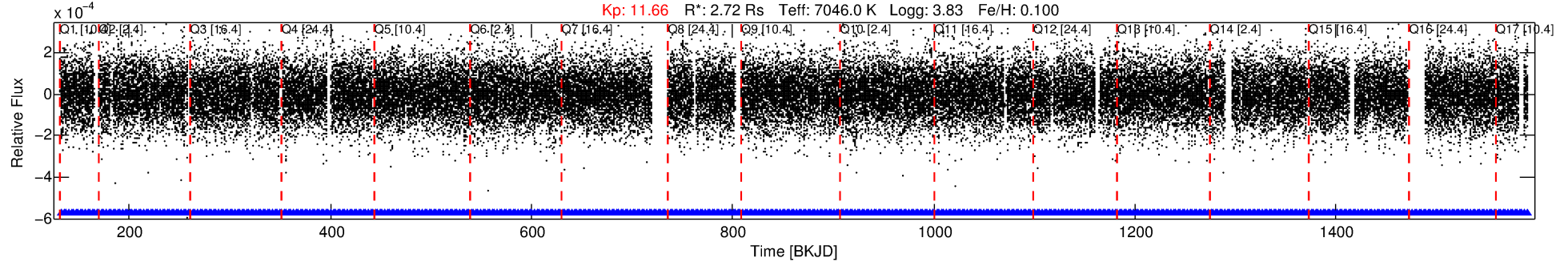
Ephemeris Match Information For 002012722-01

No Significant Match Found

DV One-Page Summary

KIC: 2012722 Candidate: 1 of 2 Period: 2.326 d
KOI: K06257 Corr: No Ephemeris Match

Kp: 11.66 R*: 2.72 Rs Teff: 7046.0 K Logg: 3.83 Fe/H: 0.100



DV Fit Results:

Period = 2.32649 [0.00002] d
Epoch = 133.1984 [0.0032] BKJD
Rp/R* = 0.0053 [0.0009]
a/R* = 1.62 [1.01]
b = 0.95 [0.11]
Seff = 9258.36 [4043.86]
Teq = 2501 [273] K
Rp = 1.58 [0.57] Re
a = 0.0421 [0.0116] AU
Ag = 5.24 [3.02] [1.41σ]
Teffp = 5852 [613] K [4.99σ]

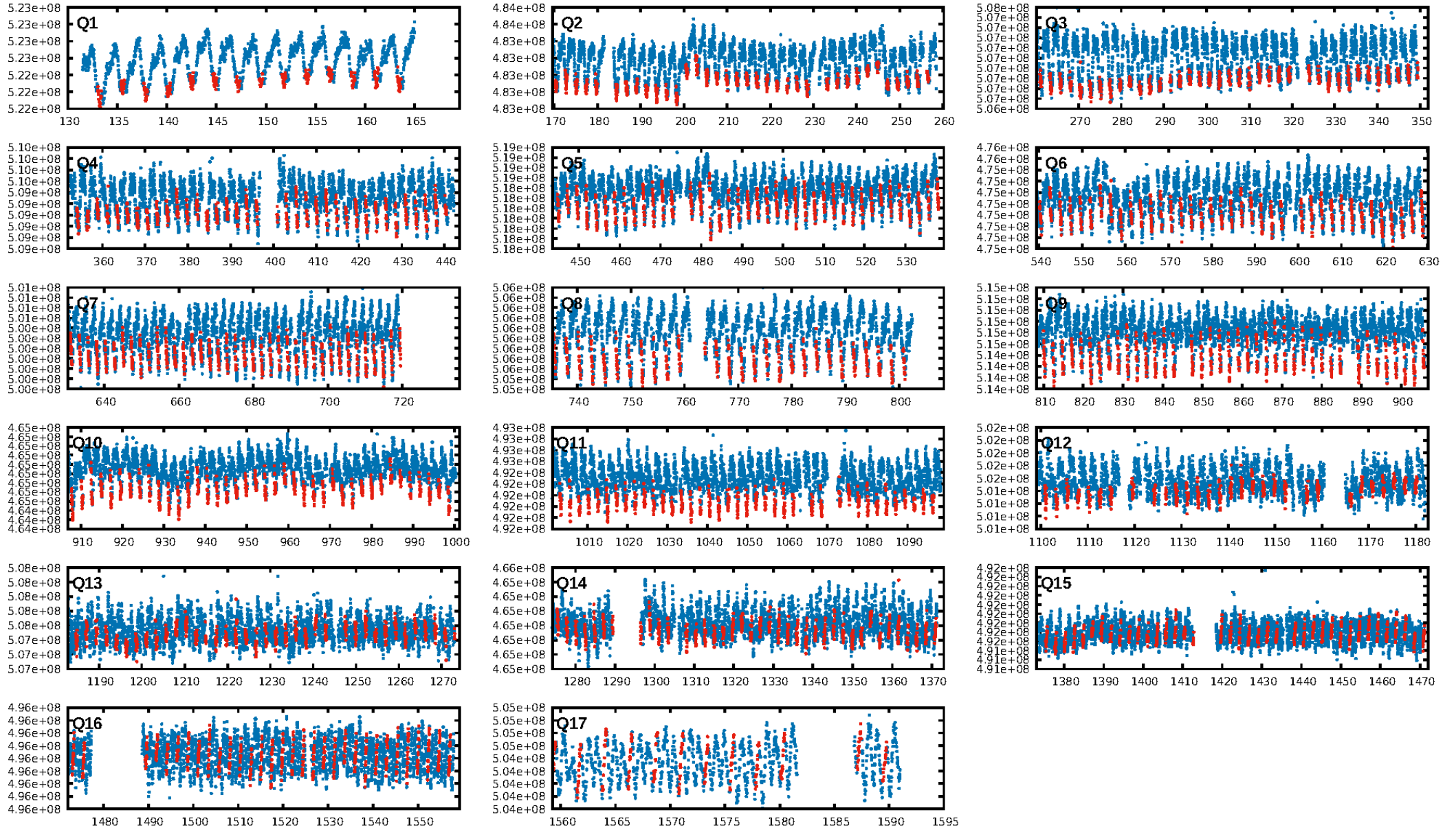
DV Diagnostic Results:

ShortPeriod-sig: 98.5% [2.43σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [550/550]
GhostDiagnostic-chr: 1.126
Centroid-sig: 0.0%
Centroid-so: 3.064 arcsec [3.29σ]
OotOffset-rm: 0.108 arcsec [0.21σ]
KicOffset-rm: 0.159 arcsec [0.22σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.65 [11/17]
DiffImageOverlap-fno: 0.00 [0/17]

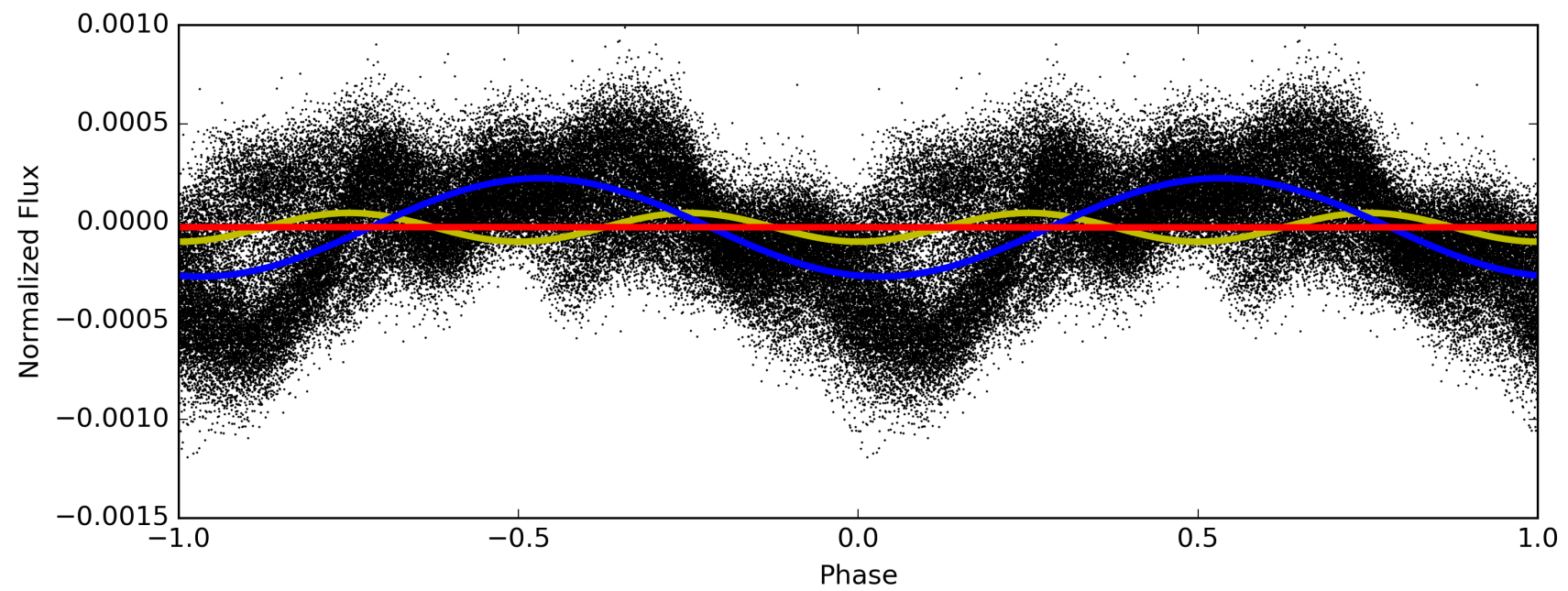
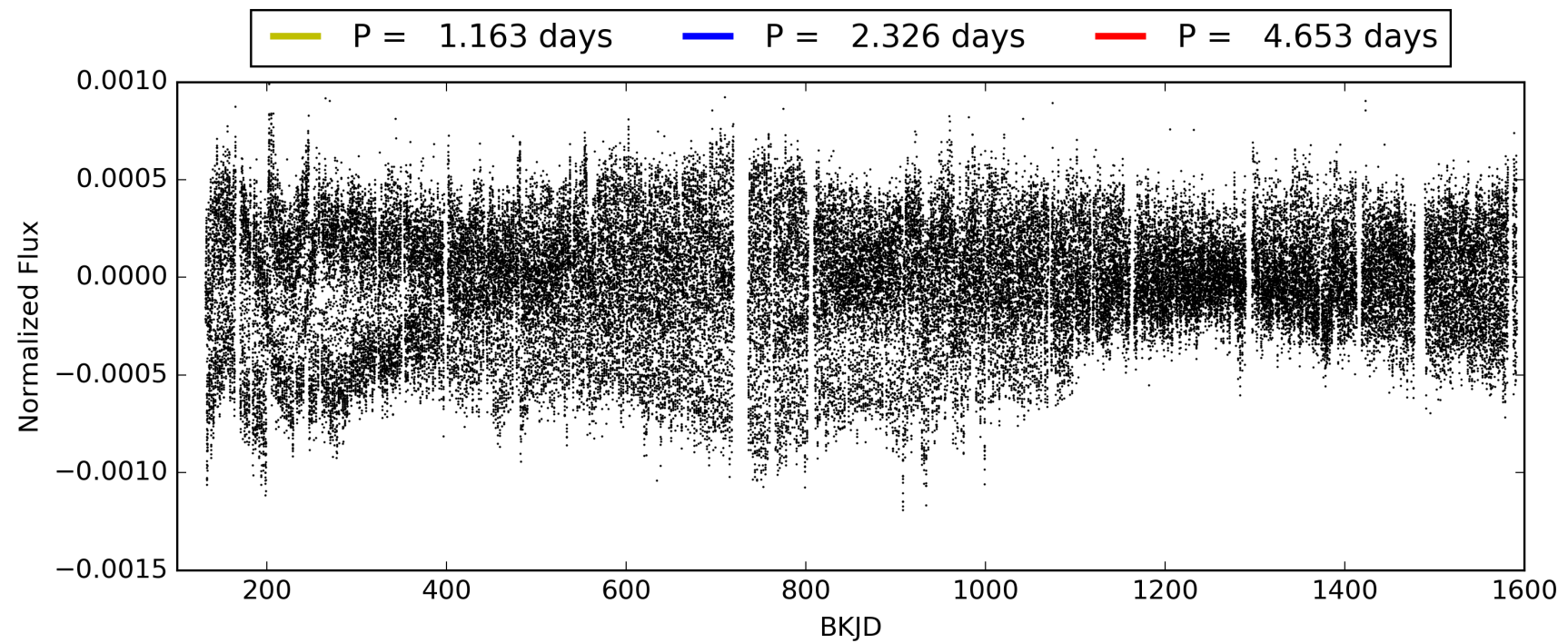
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:10:26 Z

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

TCE 002012722-01, PDC Light Curves

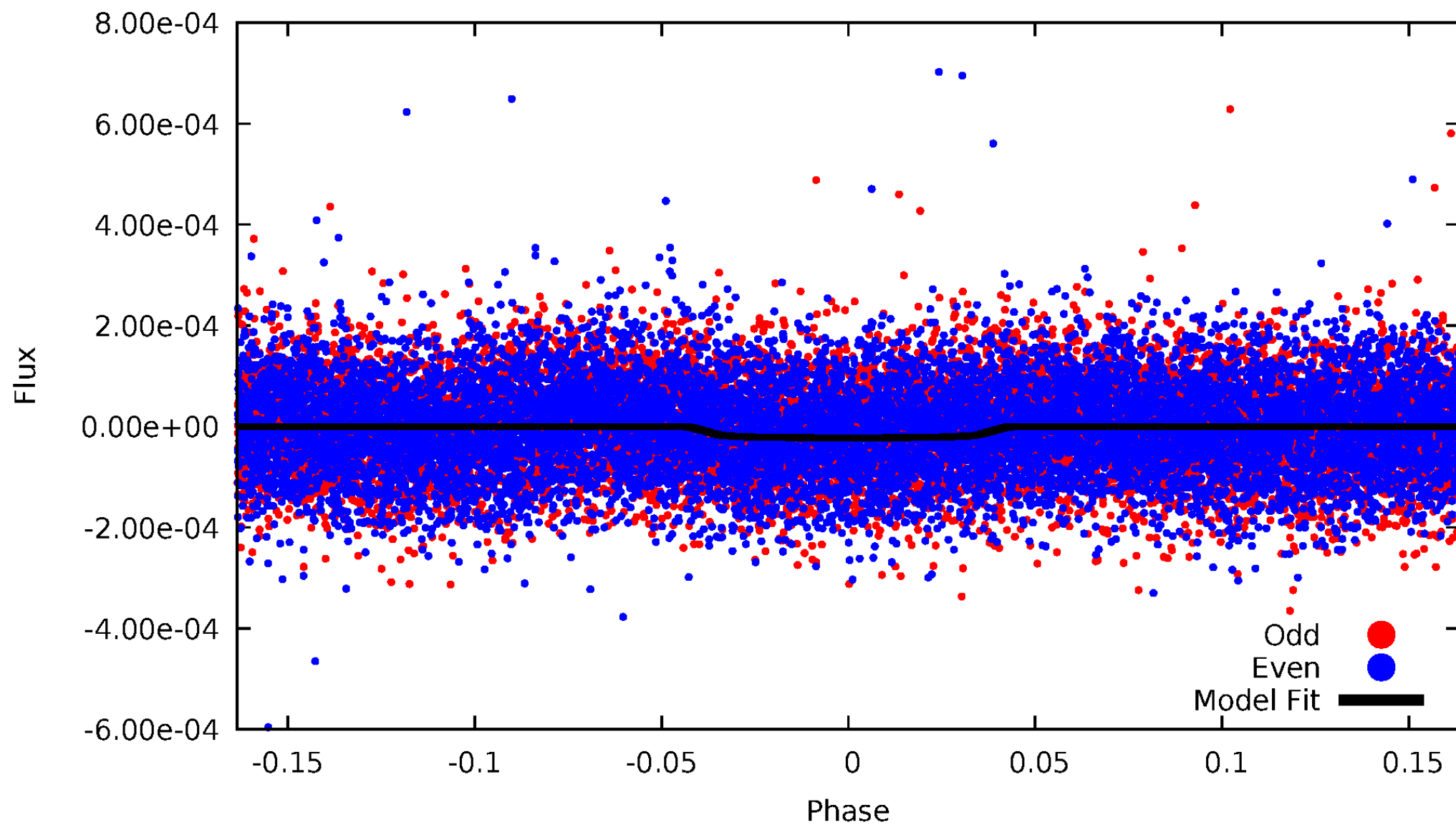


TCE 002012722-01



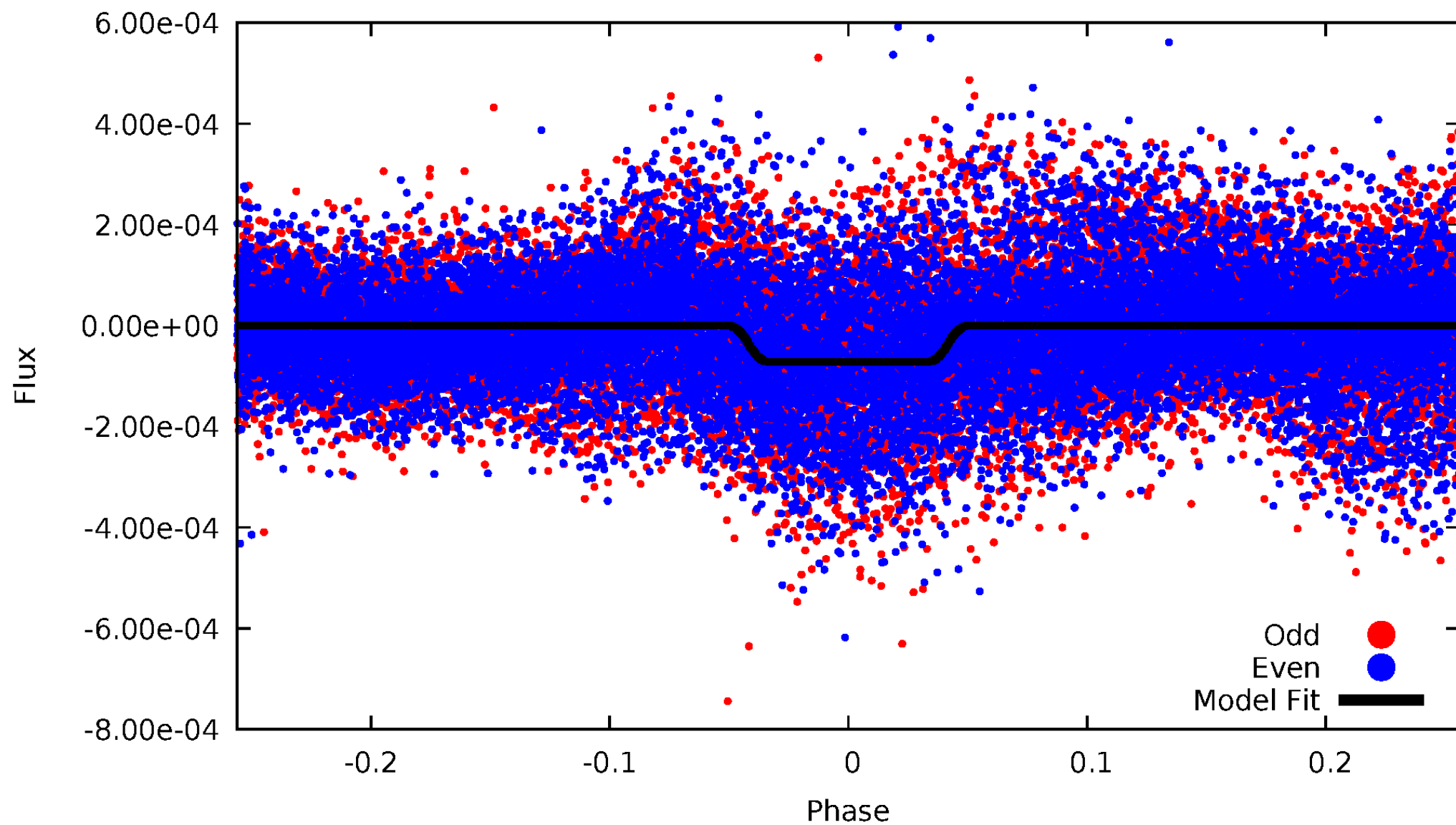
DV Odd/Even

TCE 002012722-01



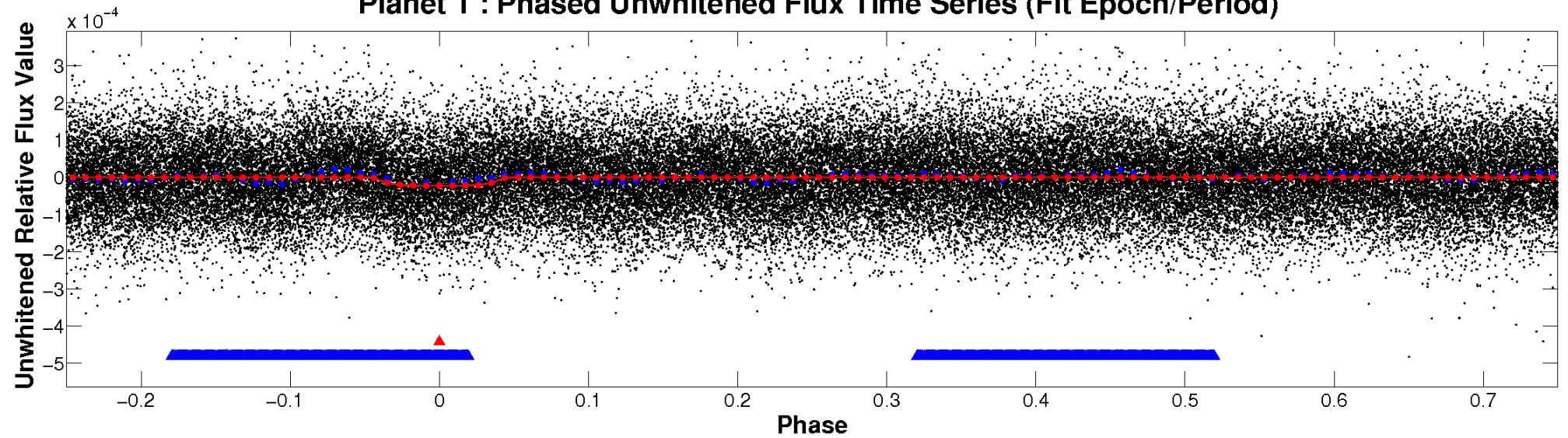
ALT Odd/Even

TCE 002012722-01

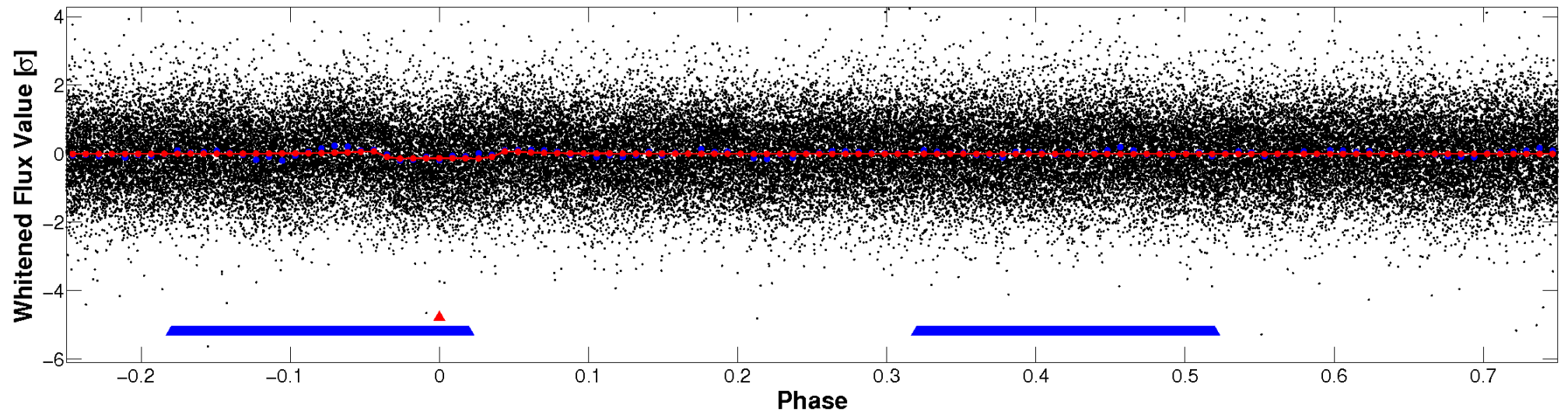


Non-Whitened Vs. Whitened Light Curve

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

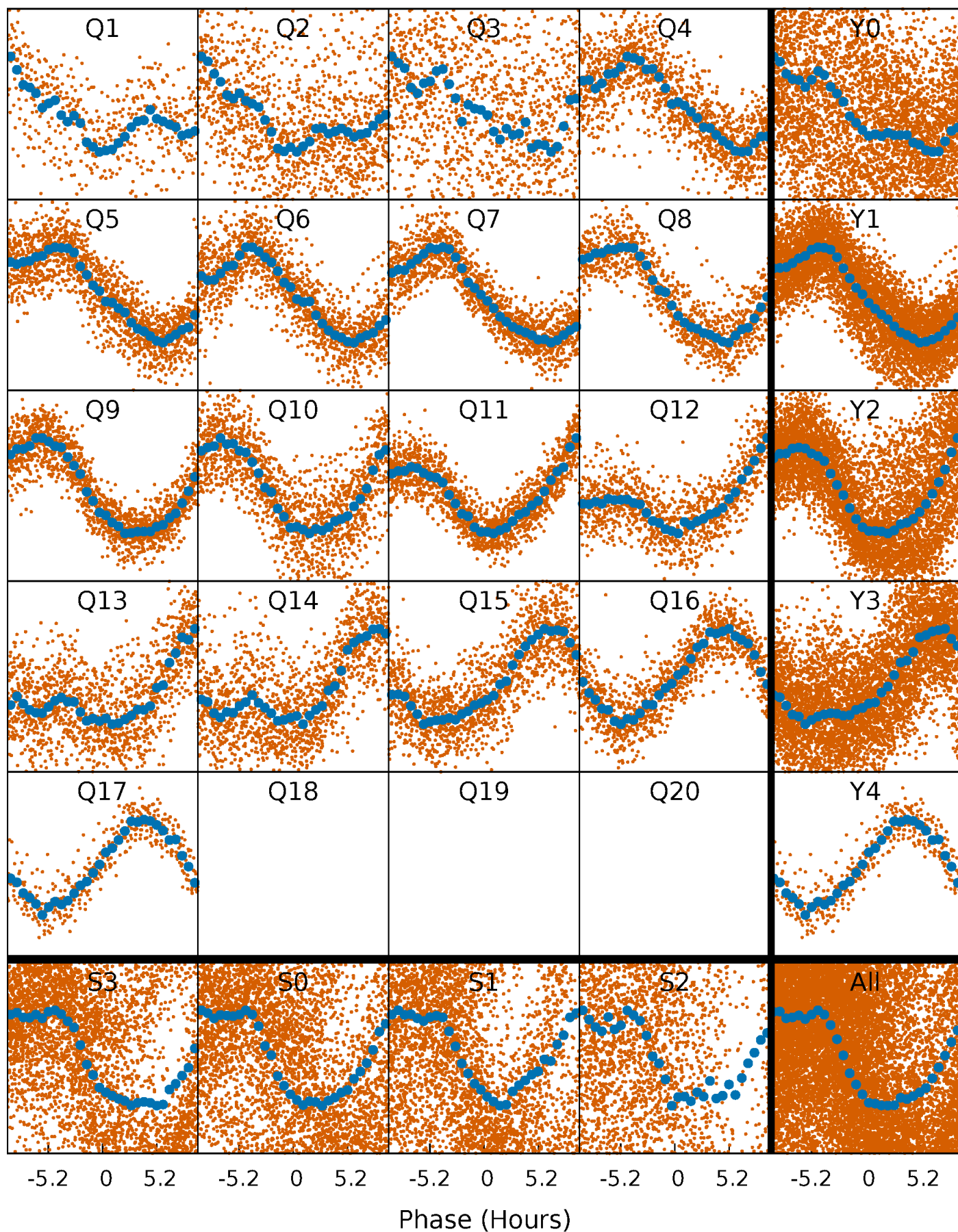


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



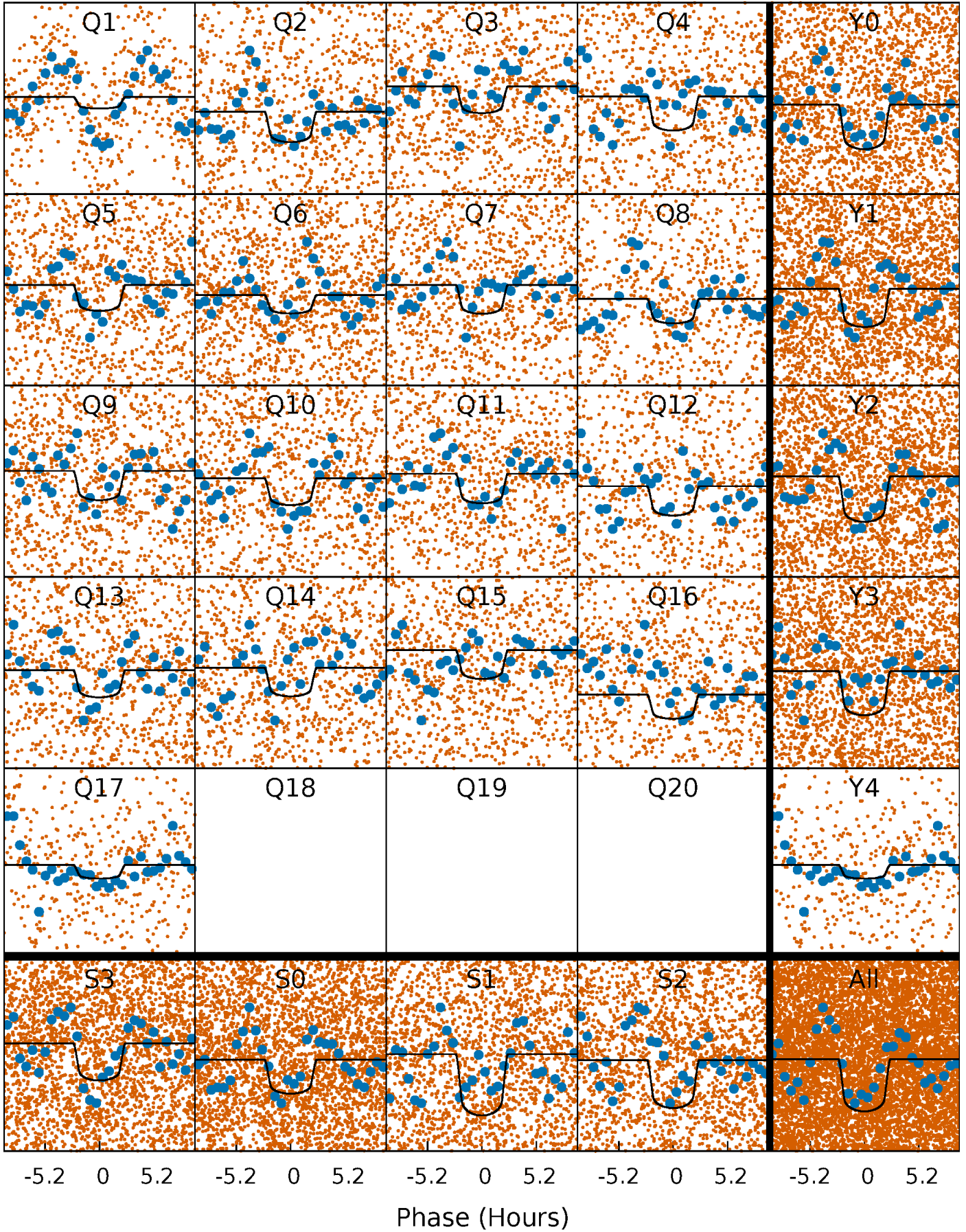
PDC Quarter-Phased Transit Curves

TCE 002012722-01 P= 2.326493 Days $T_0=133.198378$ (BKJD)



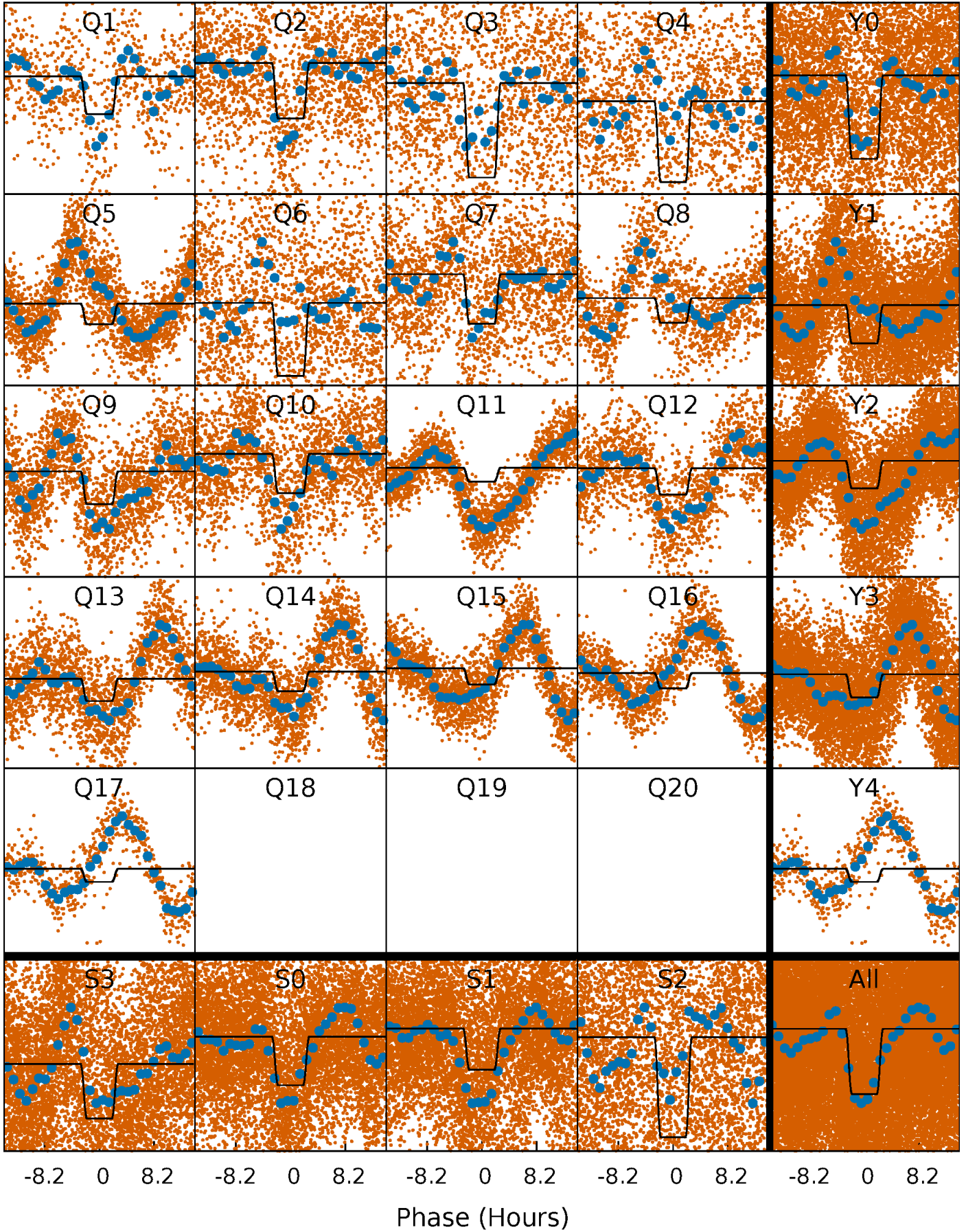
DV Quarter-Phased Transit Curves

TCE 002012722-01 P= 2.326493 Days $T_0=133.198378$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

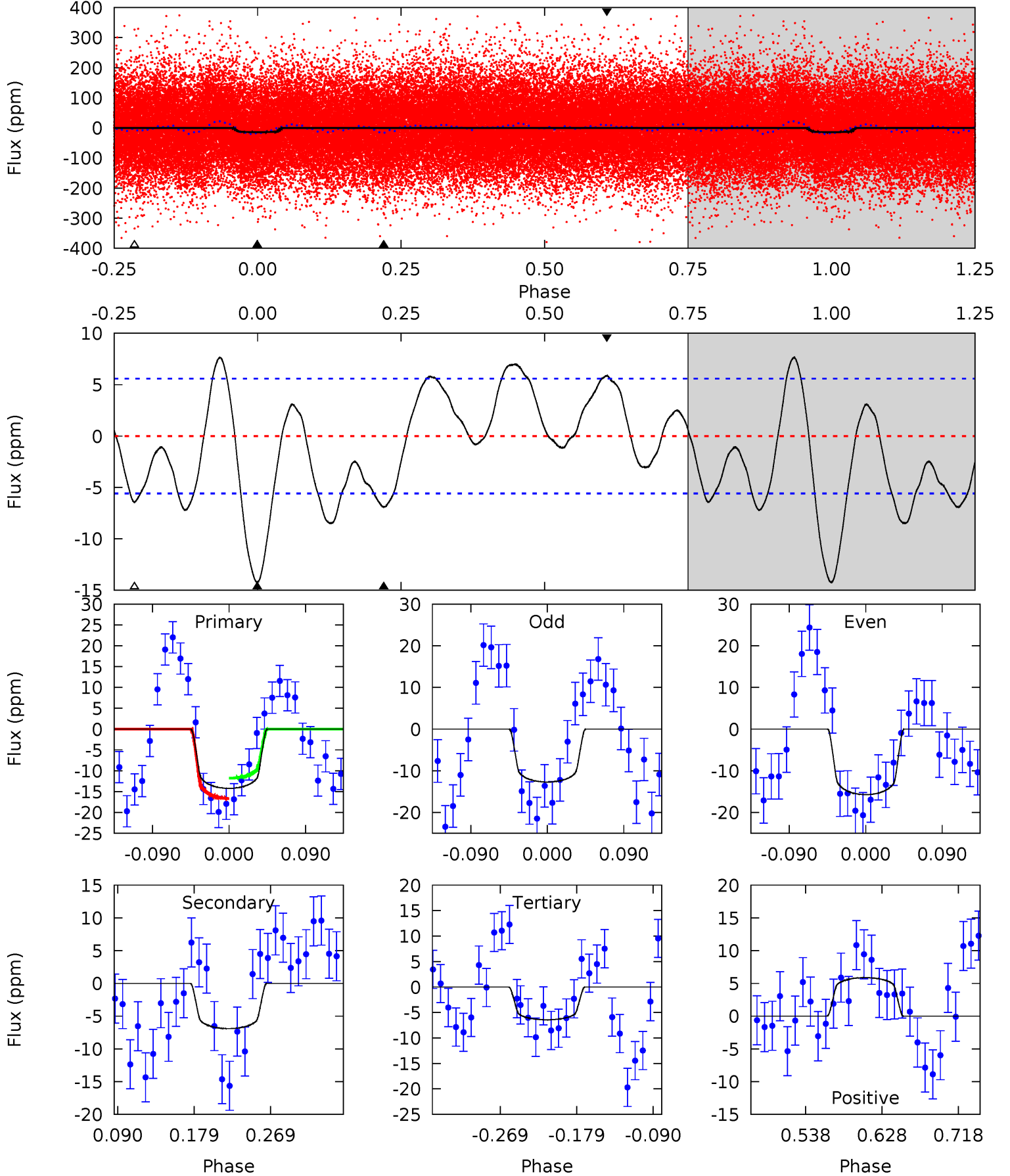
TCE 002012722-01 P= 2.326522 Days $T_0=133.205983$ (BKJD)



DV Model-Shift Uniqueness Test

002012722-01, P = 2.326493 Days, E = 130.871885 Days

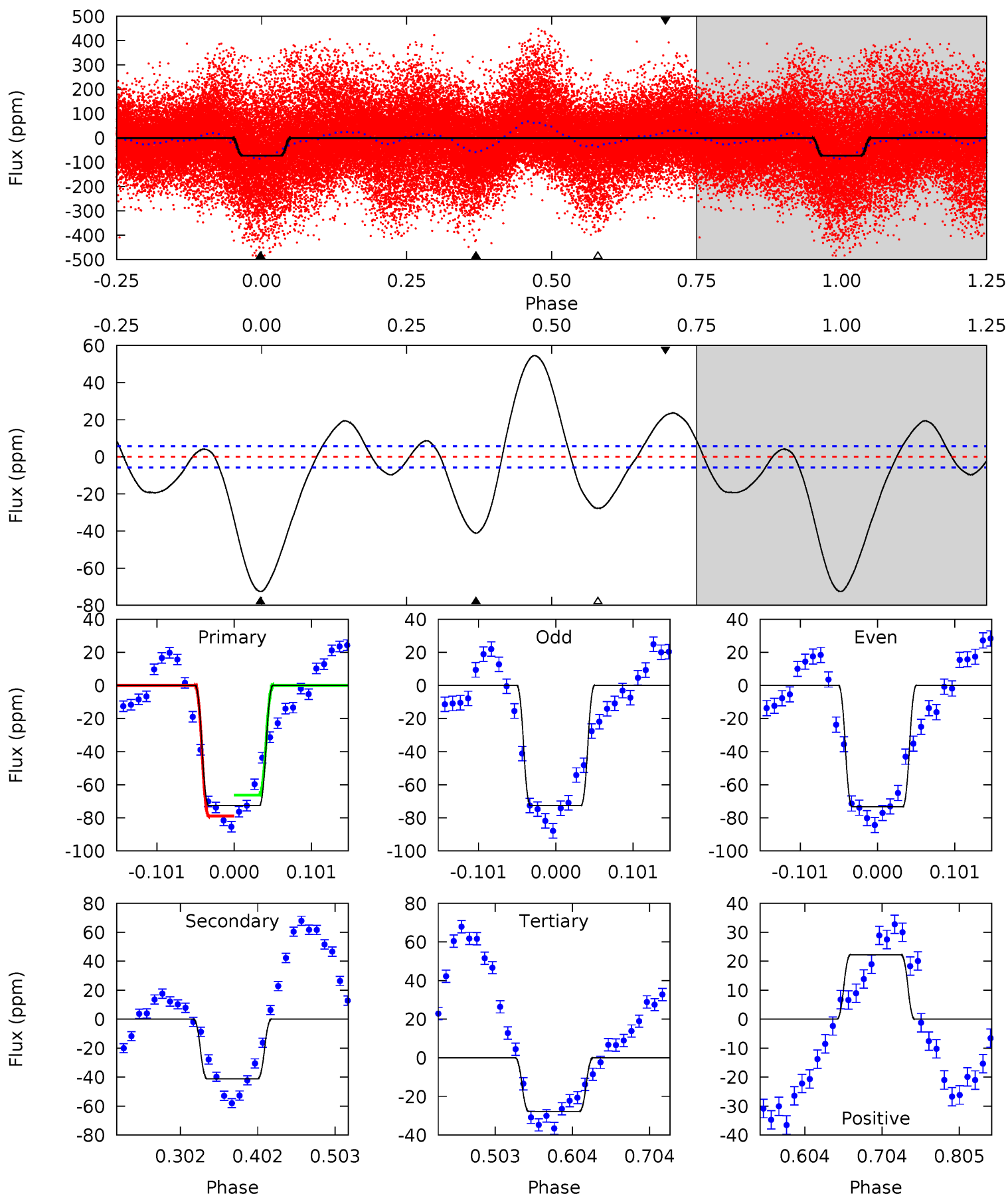
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	5.67	5.28	4.83	4.59	1.70	3.26	6.41	6.86	0.39	0.85	1.24	0.81	0.35	2.00



Alt Model-Shift Uniqueness Test

002012722-01, P = 2.326522 Days, E = 130.879461 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
57.3	32.5	21.9	17.6	4.56	1.64	14.6	35.4	39.8	10.6	14.9	0.29	1.09	0.43	4.93



Stellar Parameters For KIC 002012722

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7046^{+168}_{-232}	$3.831^{+0.234}_{-0.108}$	$0.100^{+0.200}_{-0.300}$	$2.724^{+0.464}_{-0.861}$	$1.834^{+0.177}_{-0.329}$	$0.128^{+0.208}_{-0.044}$
	+2%/-3%	+6%/-3%	+200%/-300%	+17%/-32%	+10%/-18%	+163%/-34%
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 002012722-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-7 ± 1	$1.52^{+0.33}_{-0.34}$	3445^{+200}_{-240}	4873^{+504}_{-386}	$2.887^{+1.901}_{-0.995}$
Alt.	-41 ± 1	$2.43^{+0.41}_{-0.41}$	3441^{+213}_{-267}	6009^{+371}_{-375}	$6.711^{+2.834}_{-1.731}$

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

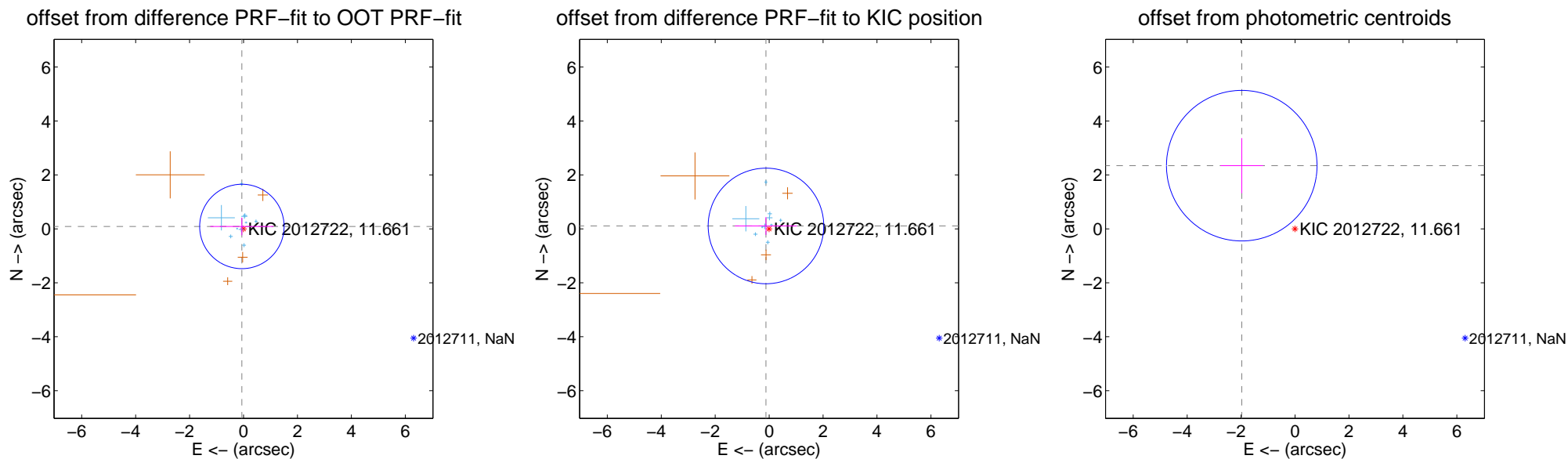
DV Centroid Data

Supplemental centroid analysis for 002012722-01. **Kepler magnitude: 11.66**. Transit SNR 9.51

There are 11 quarters with good PRF difference image offsets

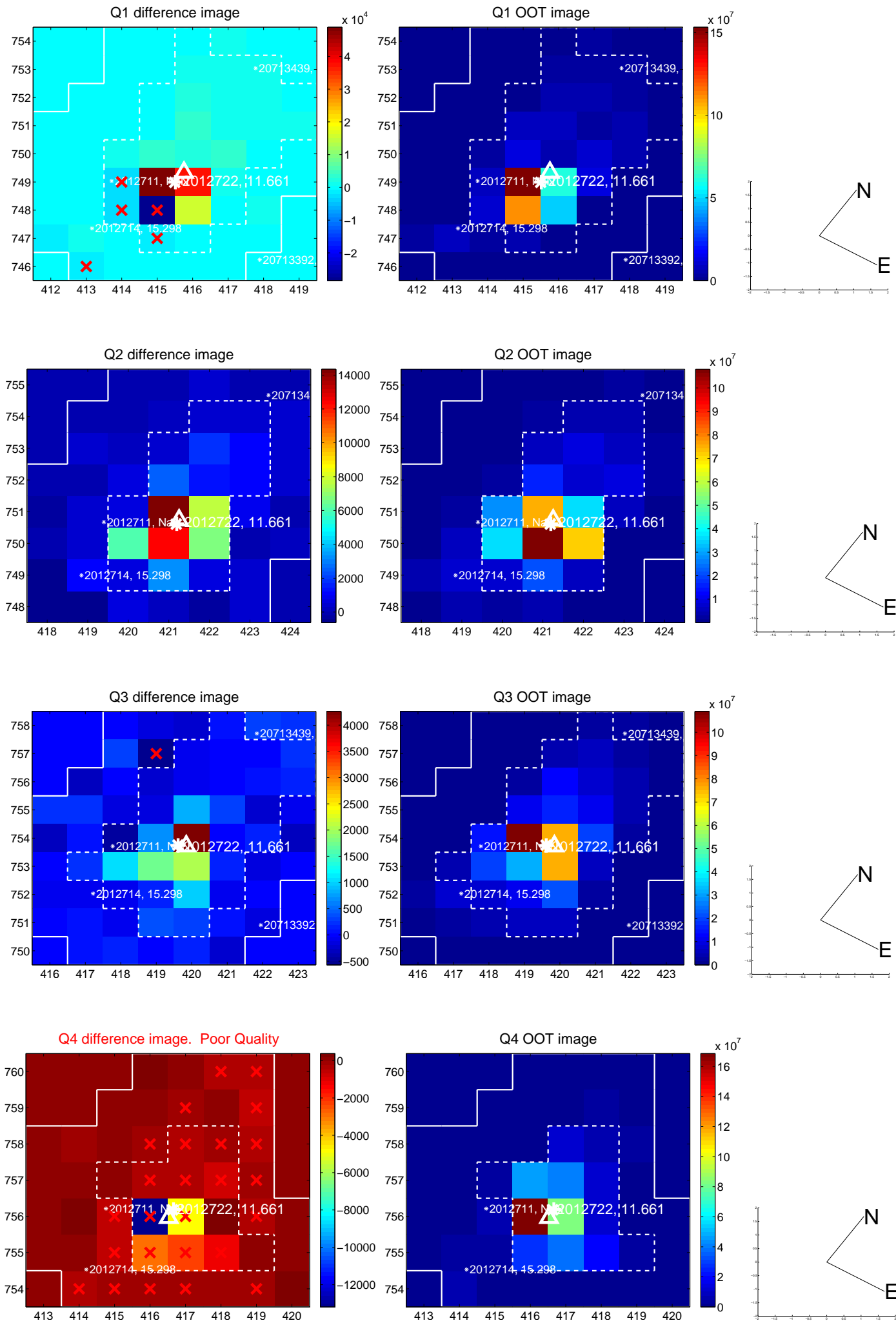
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.108 ± 0.522	0.21	0.060 ± 1.171	0.089 ± 0.328
PRF-fit source offset from KIC position	0.159 ± 0.714	0.22	0.117 ± 1.151	0.107 ± 0.331
photometric centroid source offset	3.06 ± 0.93	3.29	1.98 ± 0.79	2.34 ± 1.02

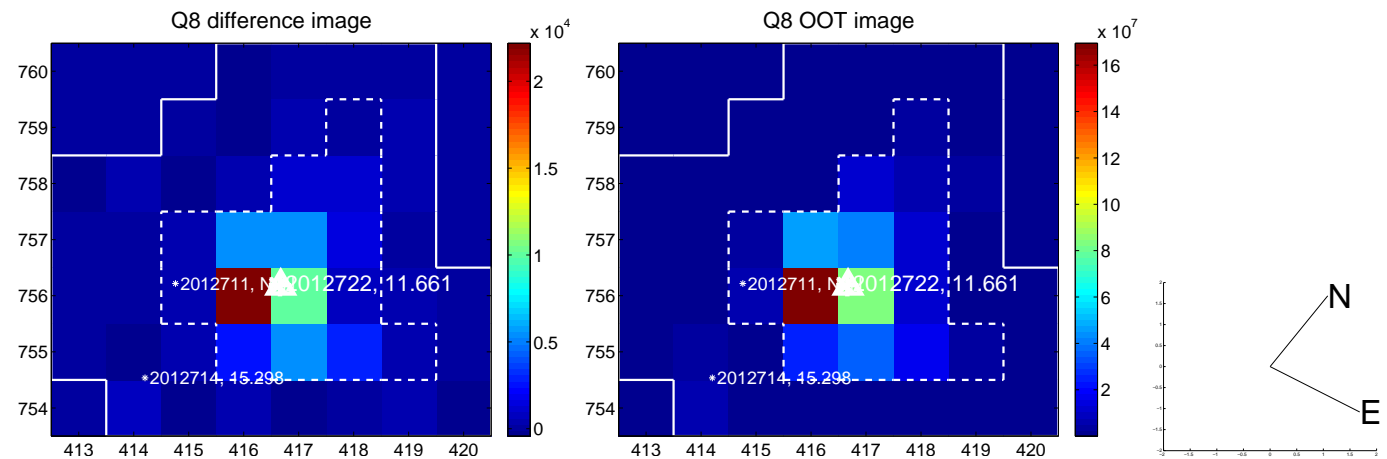
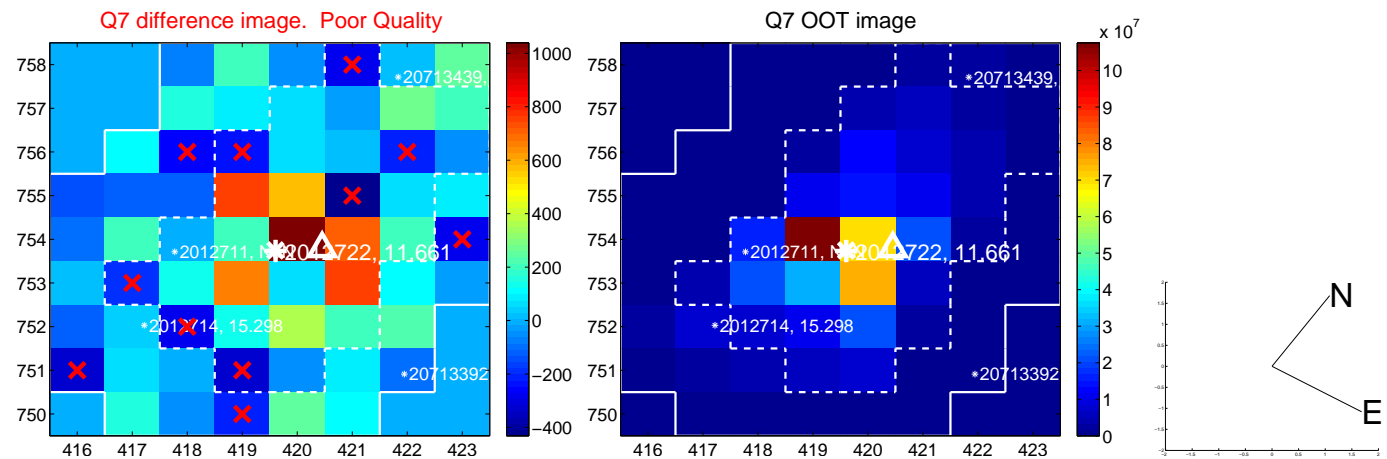
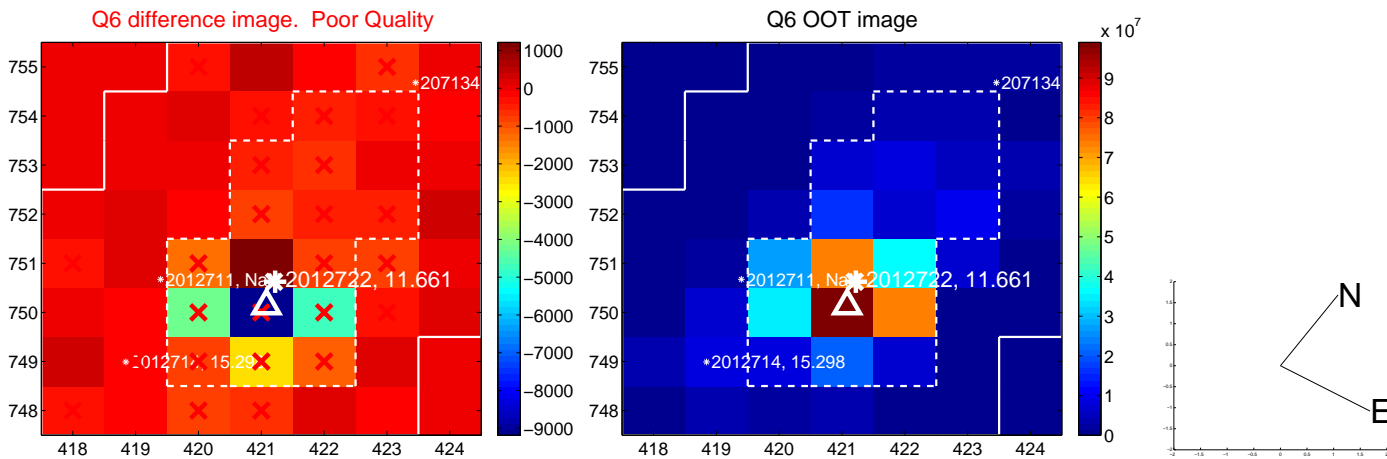
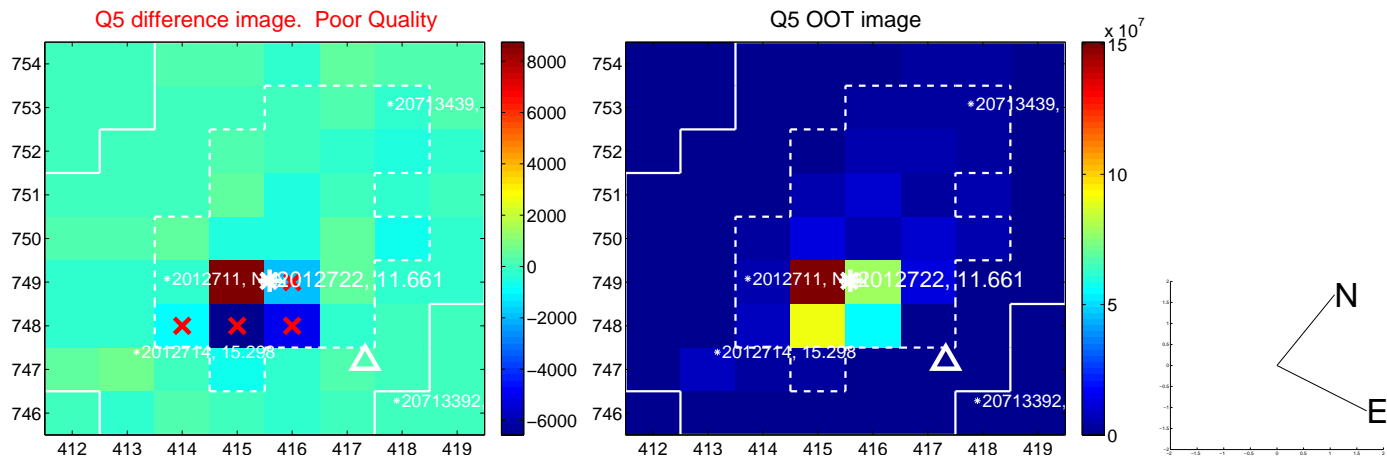


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

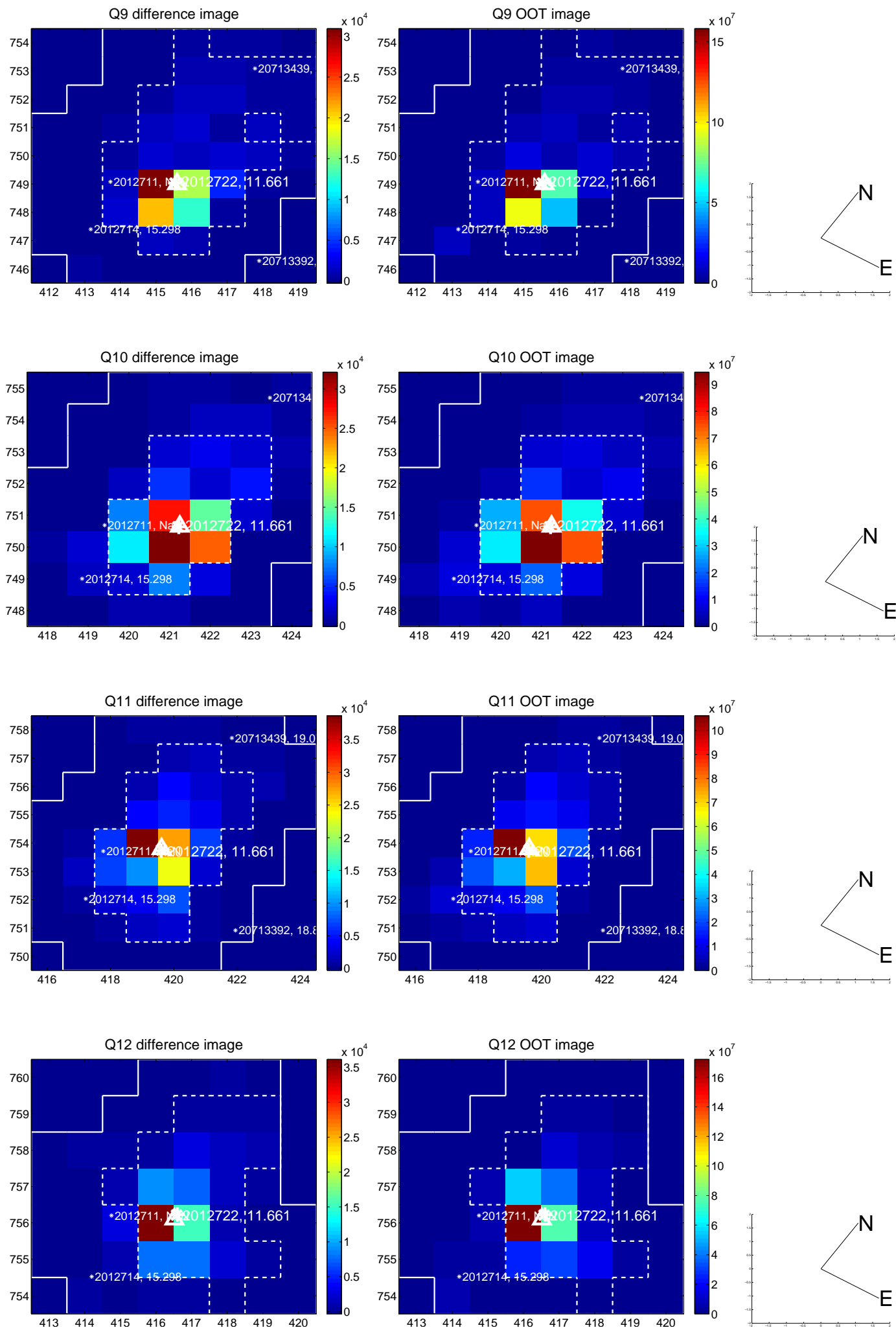
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



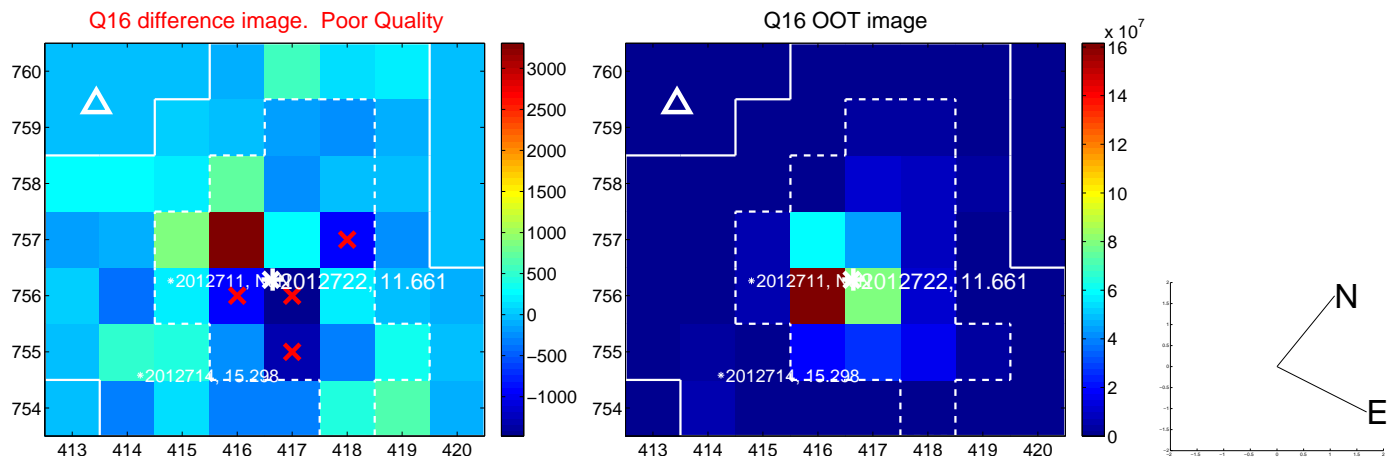
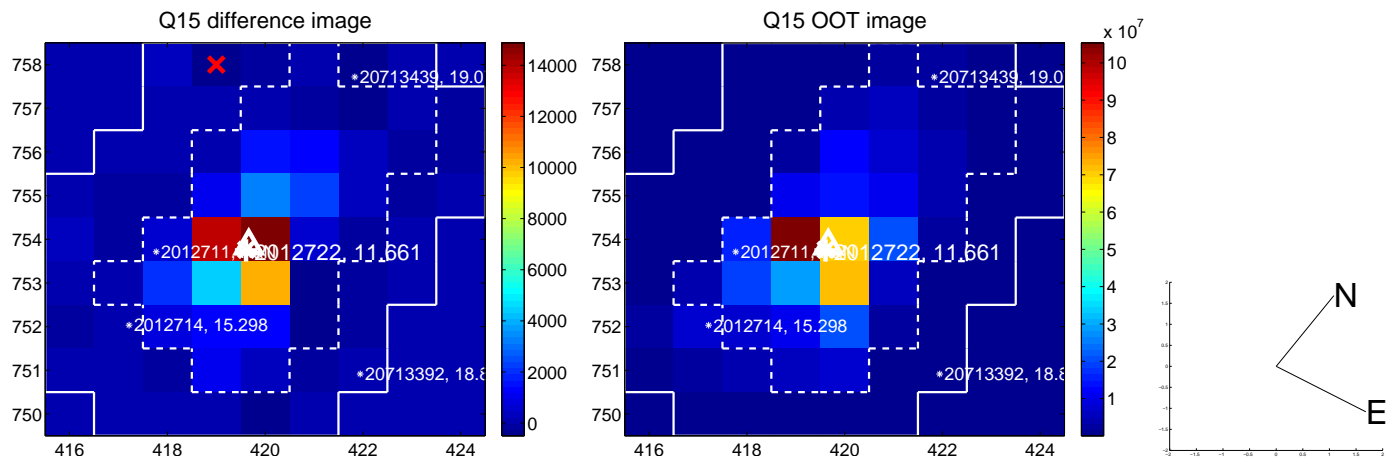
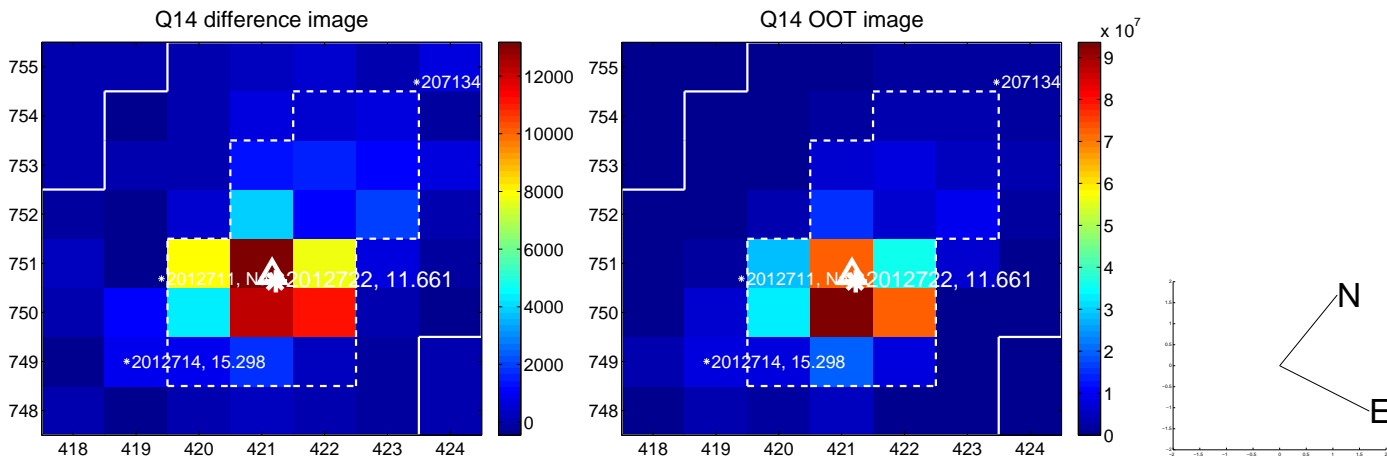
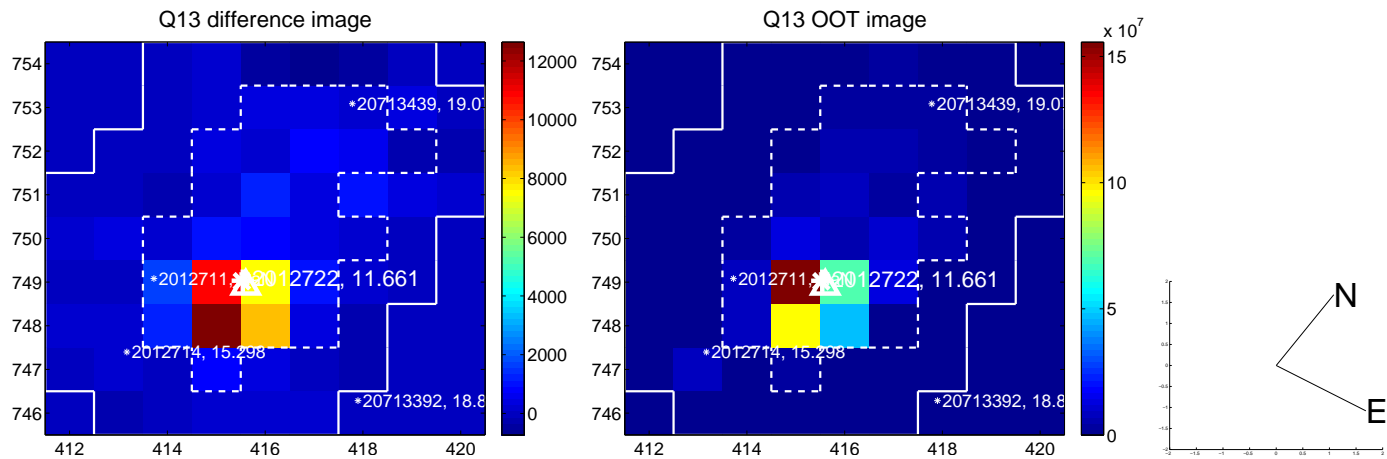
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



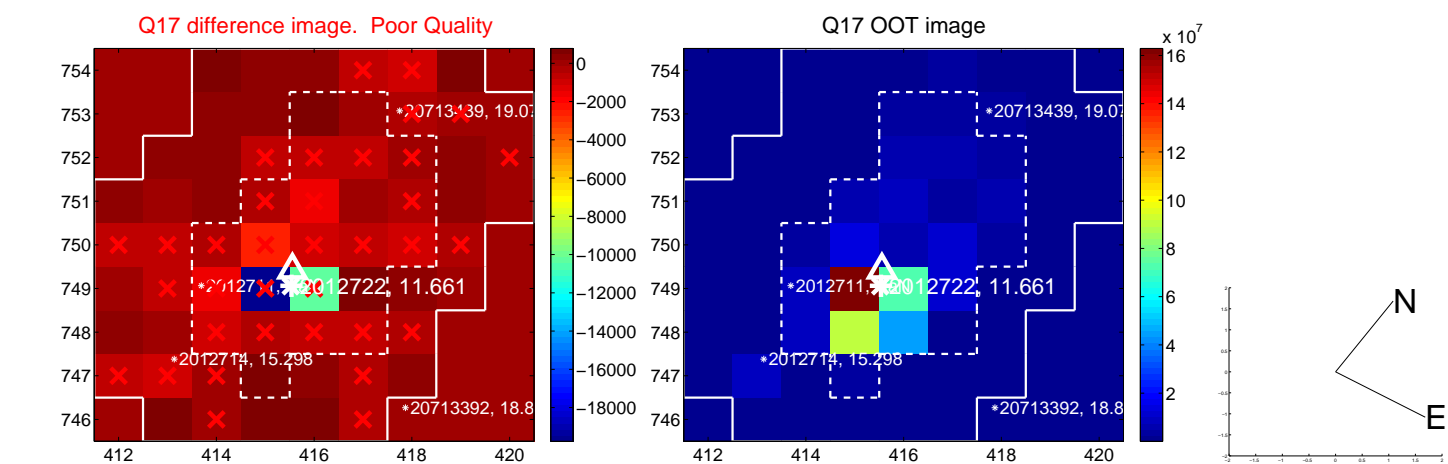
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



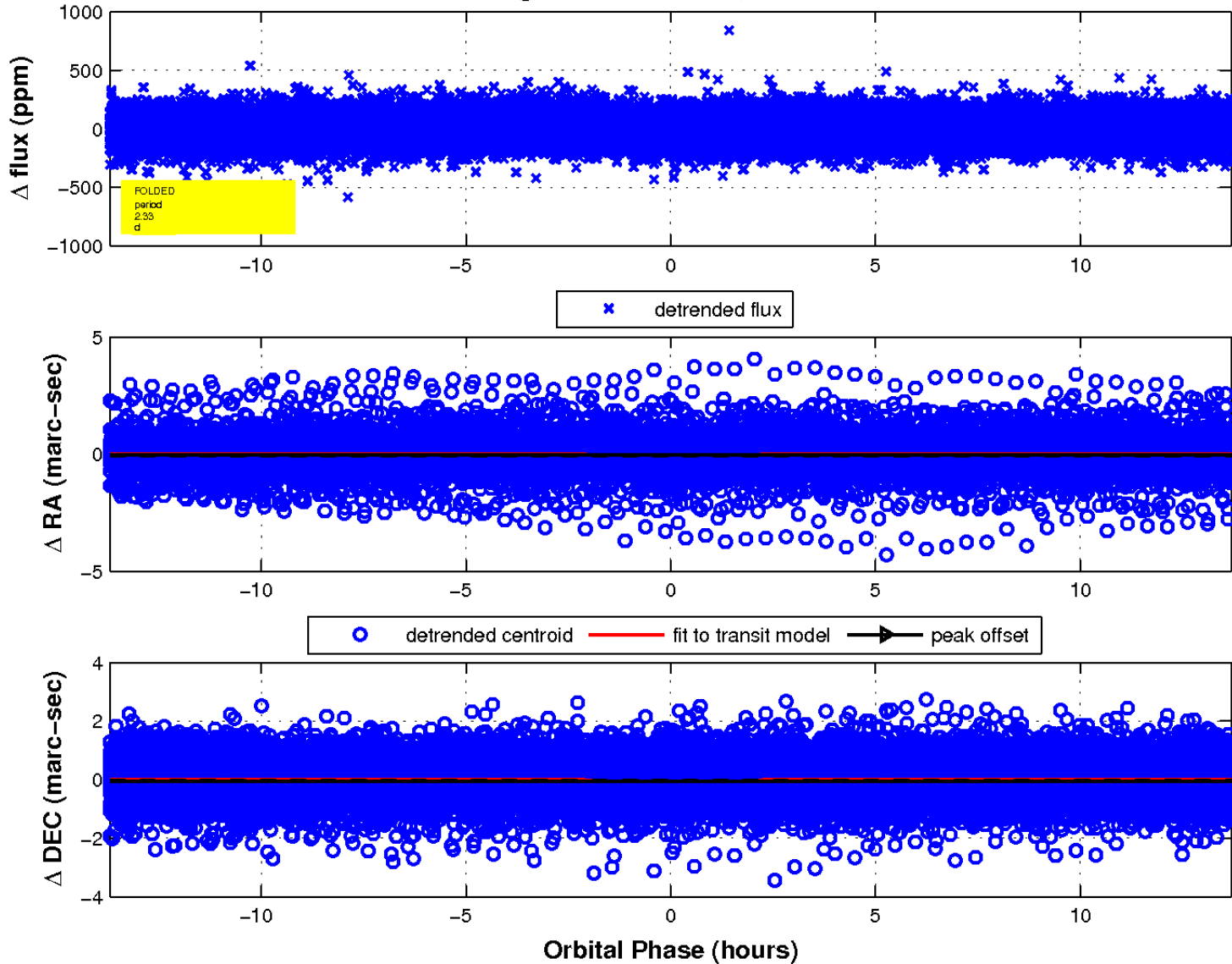
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

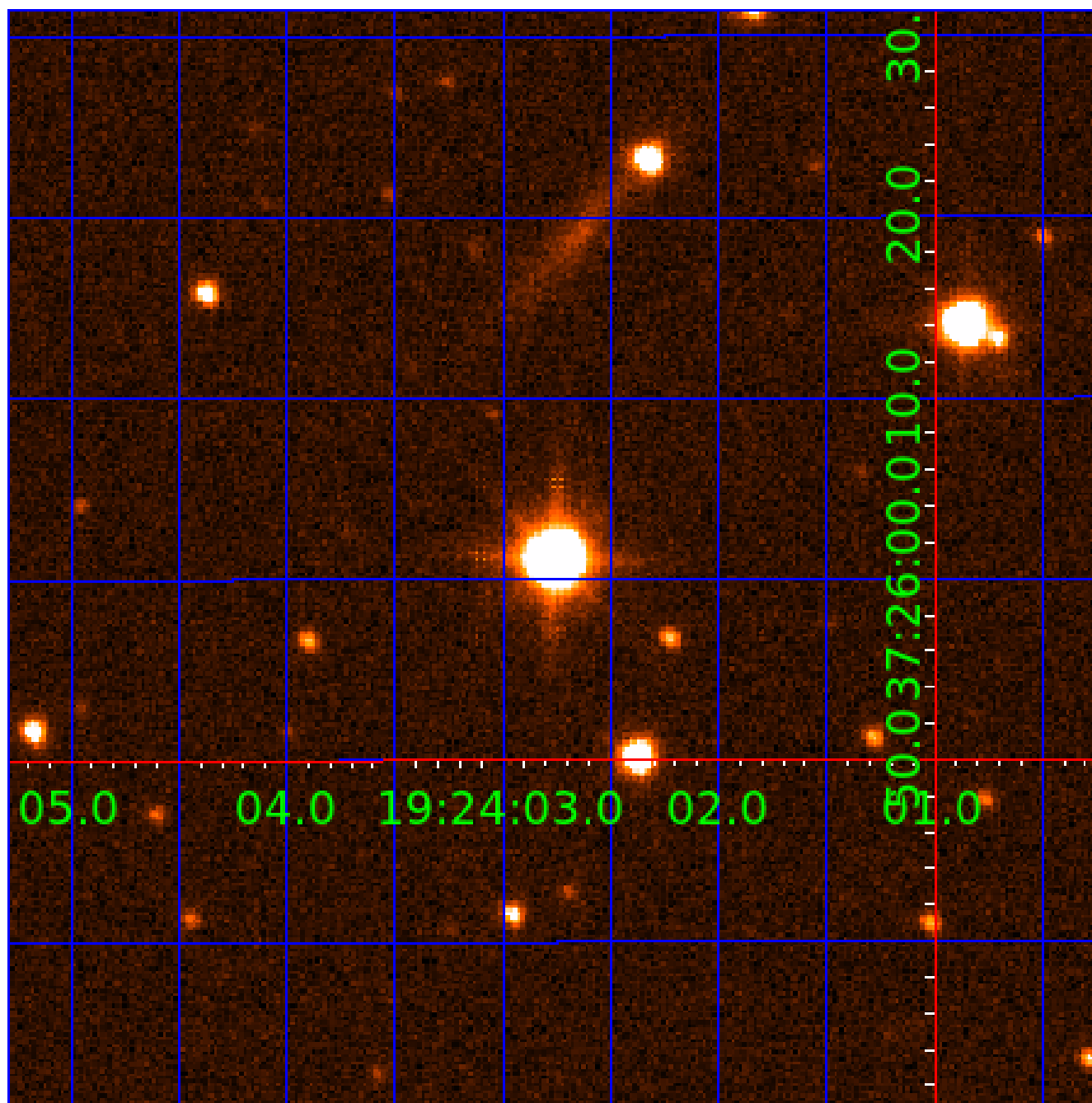


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 002012722

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})
002012722-01	OBS	No	2.326493	133.198379	22.6	4.566	8.9	9.5	2.72	7046	1.58	9258.36
002012722-02	OBS	6257.01	1.162876	132.081120	9.0	10.558	9.9	5.0	2.72	7046	0.92	23339.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002012722-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
002012722-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—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.

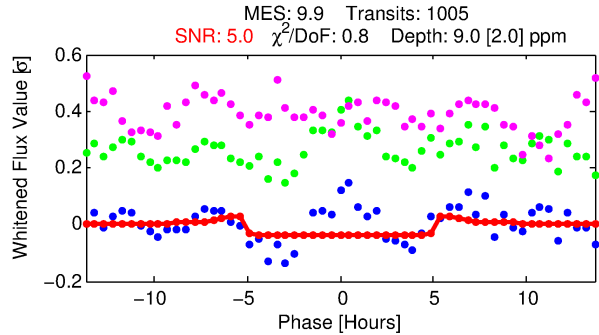
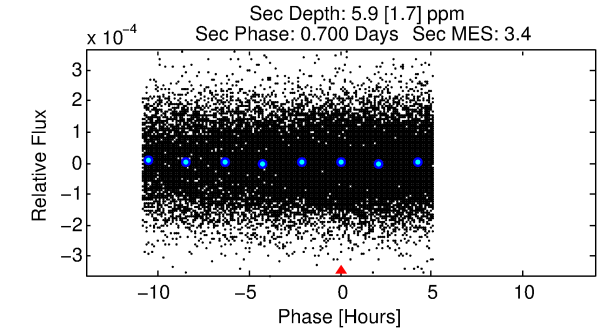
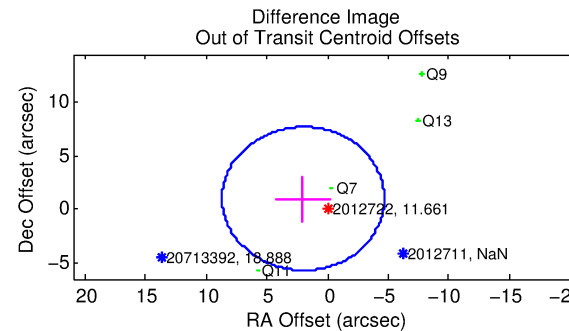
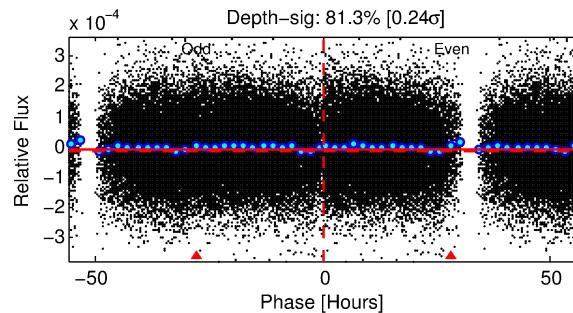
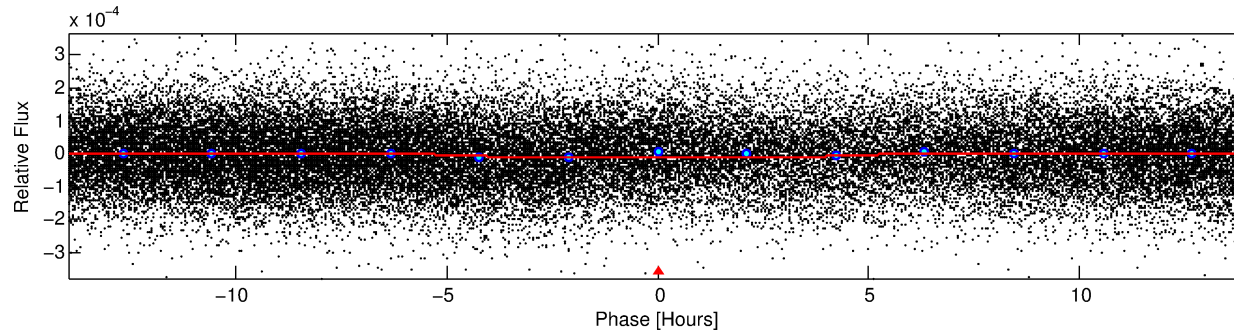
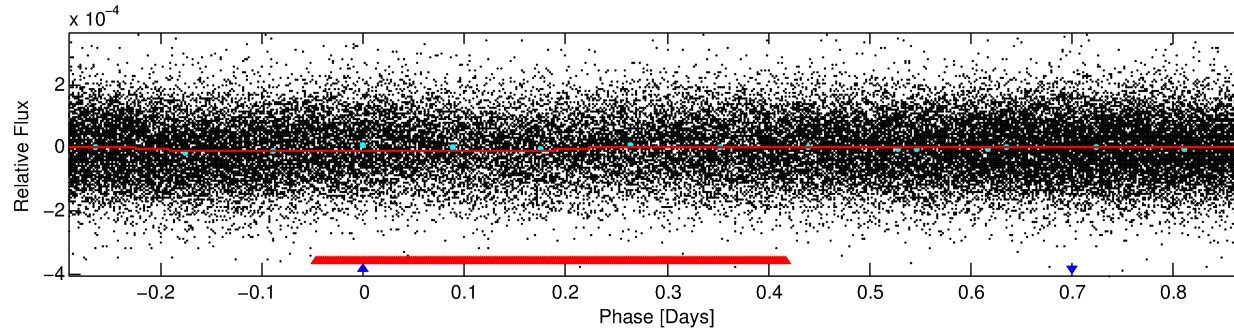
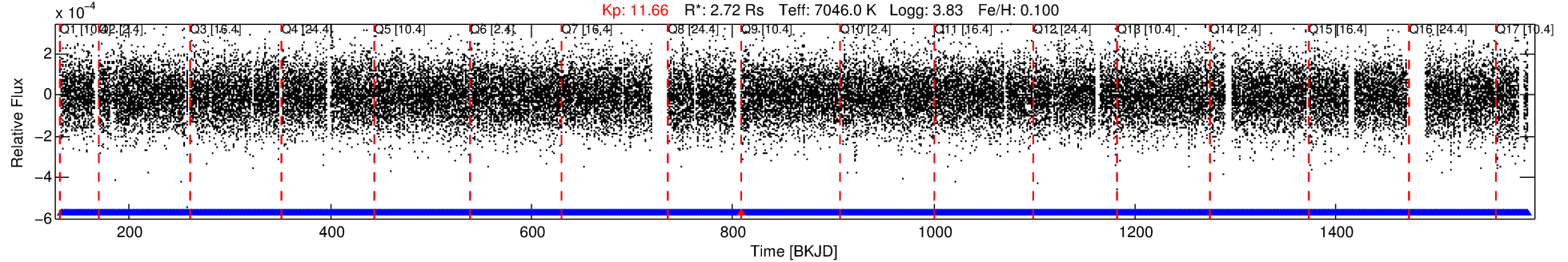
Ephemeris Match Information For 002012722-02

No Significant Match Found

DV One-Page Summary

KIC: 2012722 Candidate: 2 of 2 Period: 1.163 d
KOI: K06257 Corr: No Ephemeris Match

Kp: 11.66 R*: 2.72 Rs Teff: 7046.0 K Logg: 3.83 Fe/H: 0.100



DV Fit Results:

Period = 1.16288 [0.00003] d
Epoch = 132.0811 [0.0083] BKJD
Rp/R* = 0.0031 [0.0021]
a/R* = 1.02 [0.20]
b = 0.86 [1.30]
Seff = 23339.50 [10194.21]
Teq = 3152 [344] K
Rp = 0.92 [0.69] Re
a = 0.0265 [0.0073] AU
Ag = 2.68 [3.87] [0.43σ]
Teffp = 6234 [2168] K [1.40σ]

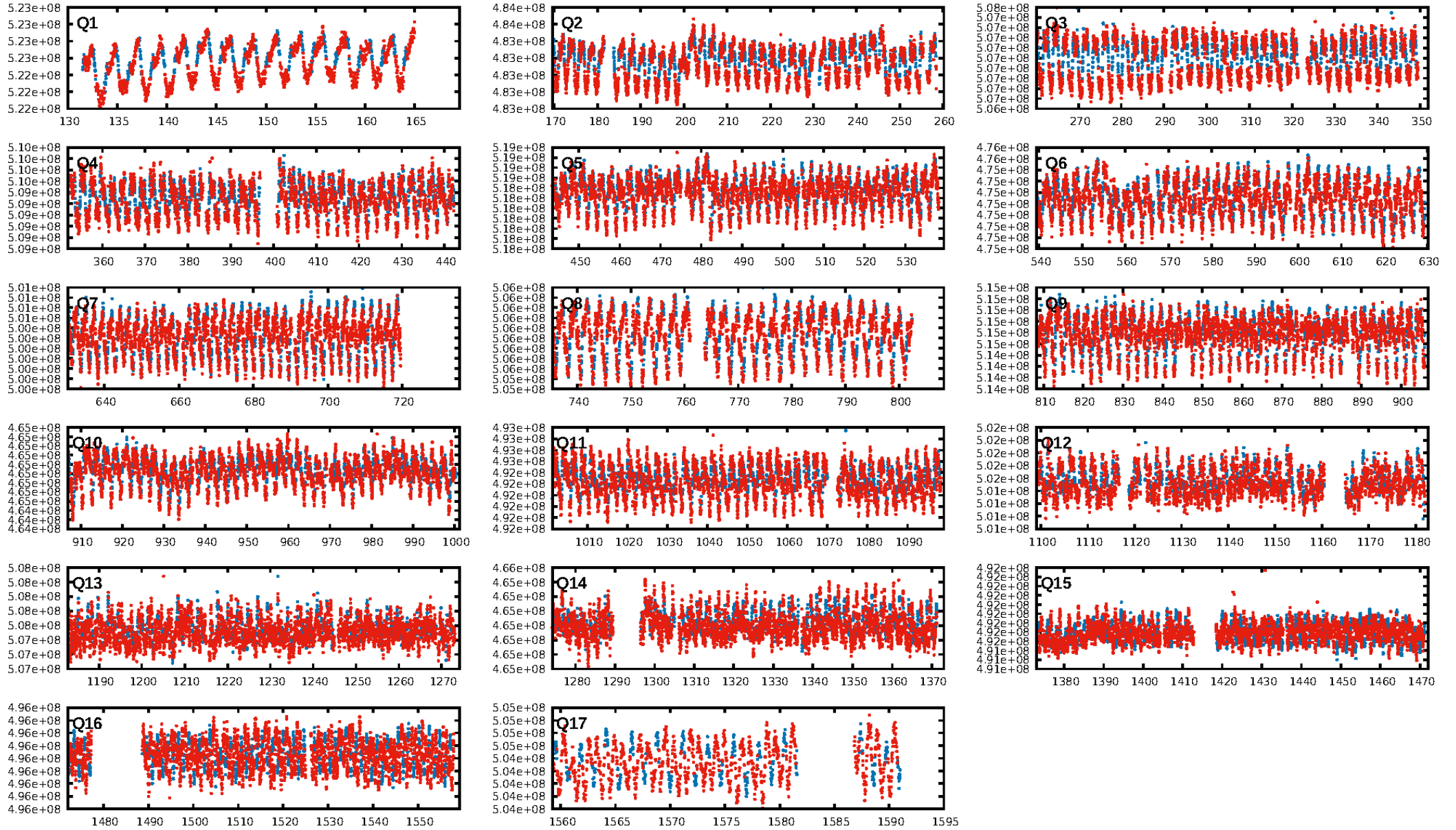
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 98.5% [2.43σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [966/967]
GhostDiagnostic-chr: 0.3271
Centroid-sig: 0.0%
Centroid-so: 4.614 arcsec [3.90σ]
OotOffset-rm: 2.248 arcsec [1.01σ]
KicOffset-rm: 2.252 arcsec [1.01σ]
OotOffset-st: 0/2/0/2 [4]
KicOffset-st: 0/2/0/2 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.71 [12/17]

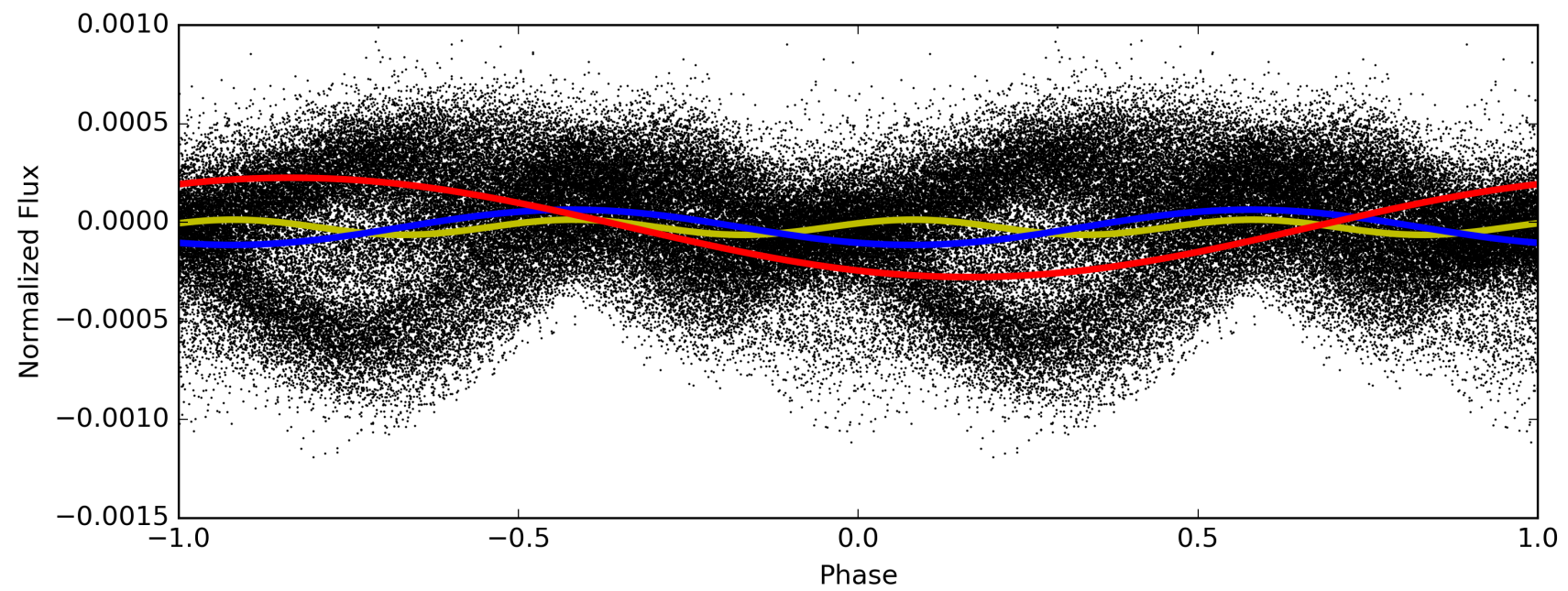
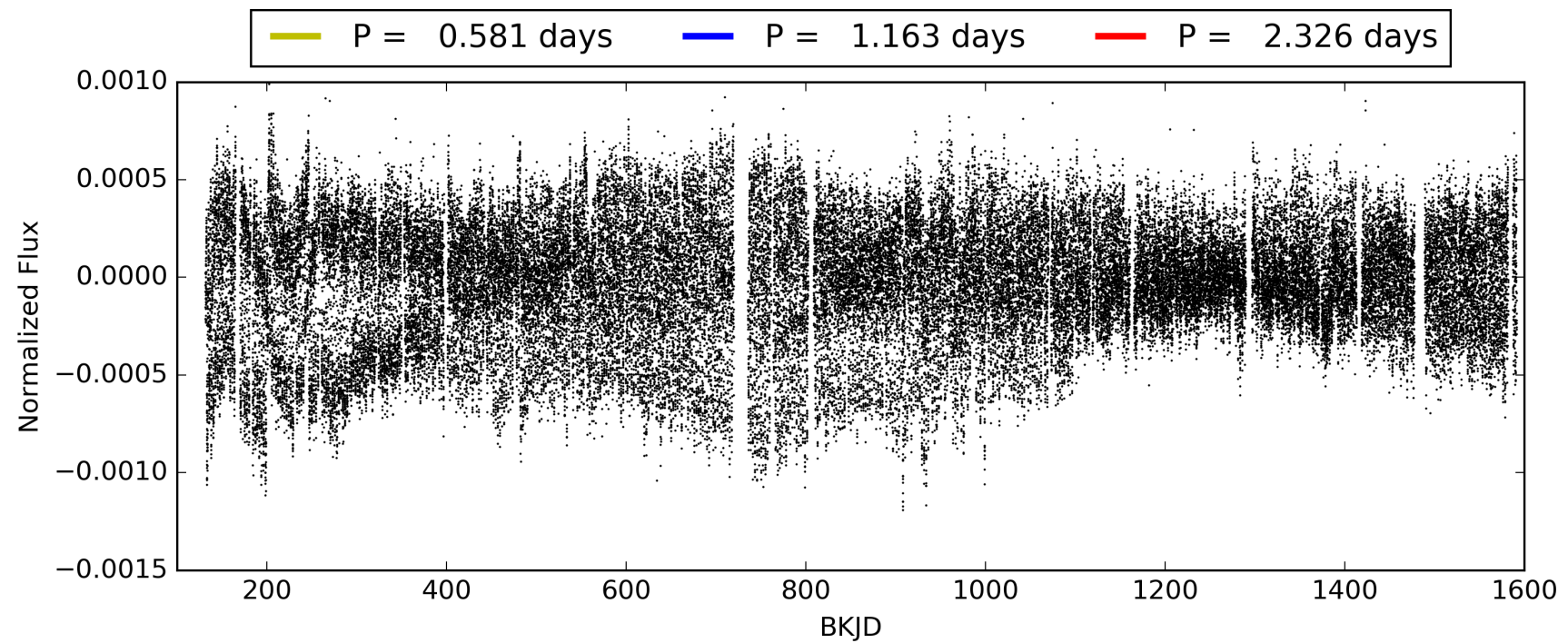
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:10:40 Z

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

TCE 002012722-02, PDC Light Curves

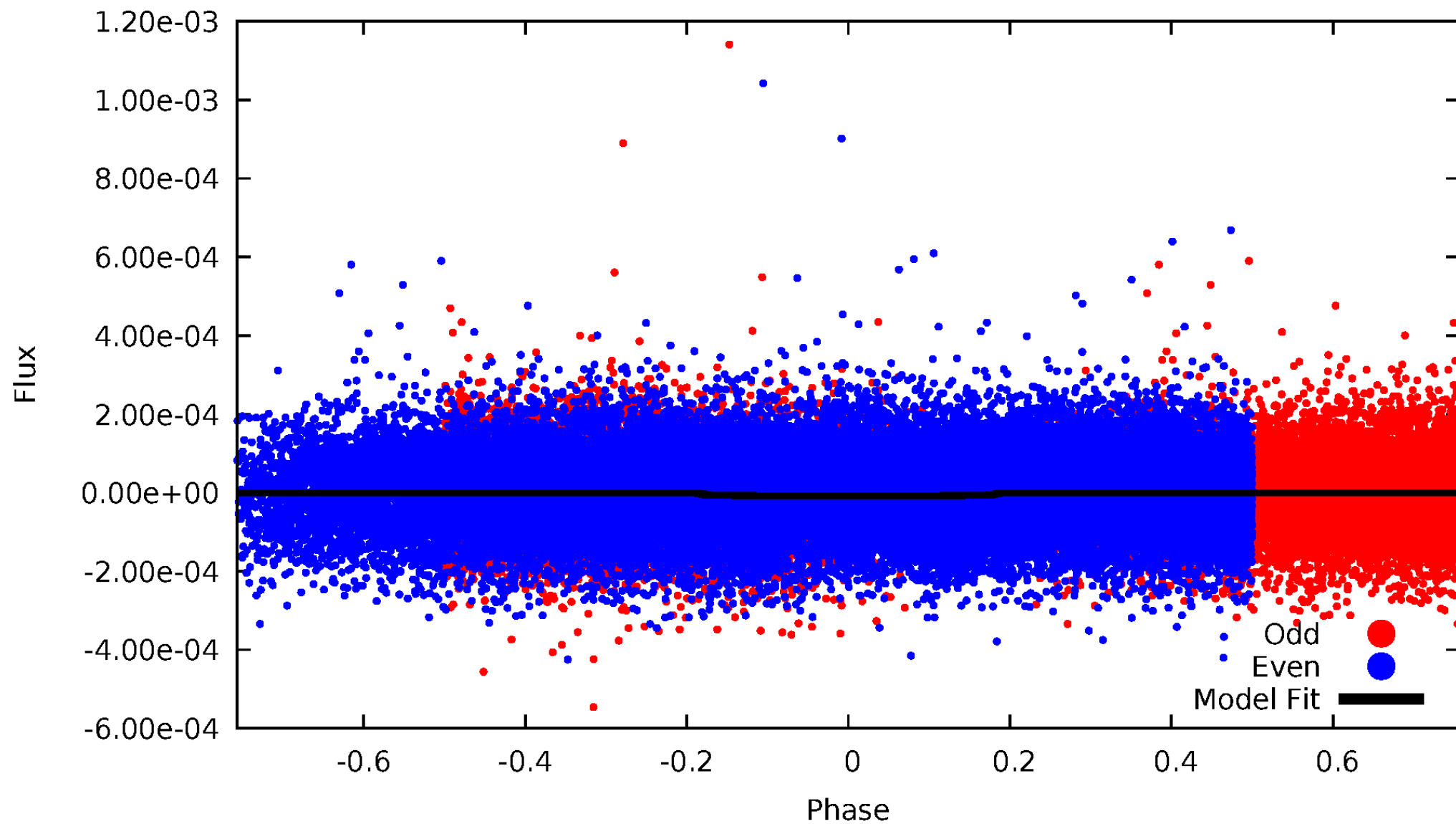


TCE 002012722-02



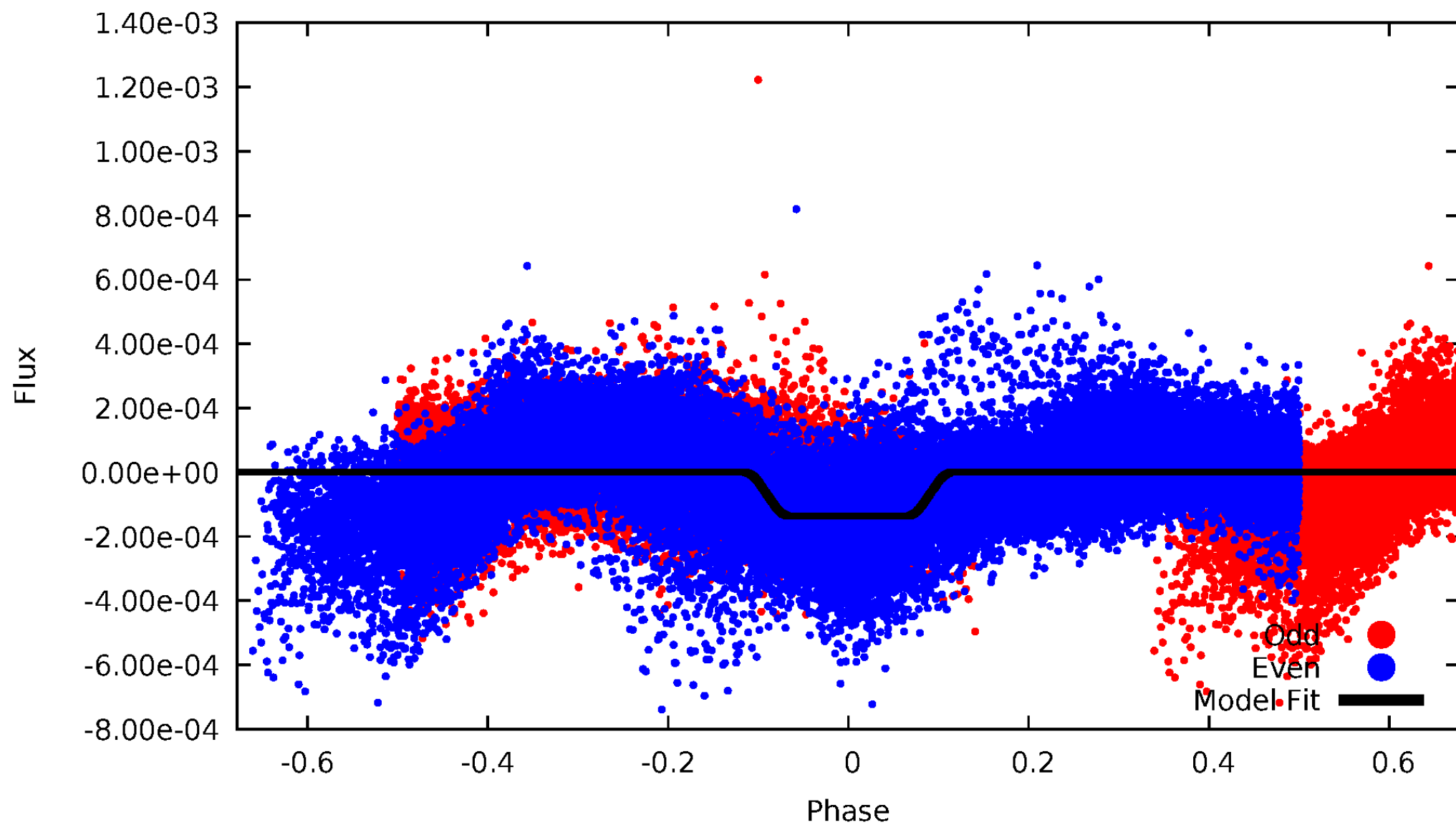
DV Odd/Even

TCE 002012722-02



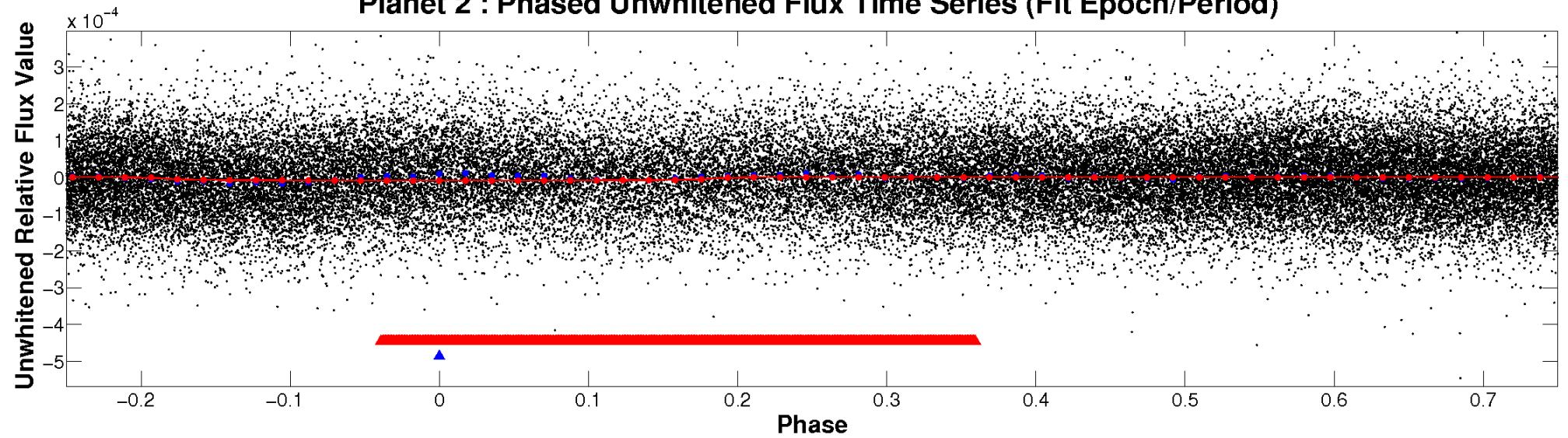
ALT Odd/Even

TCE 002012722-02

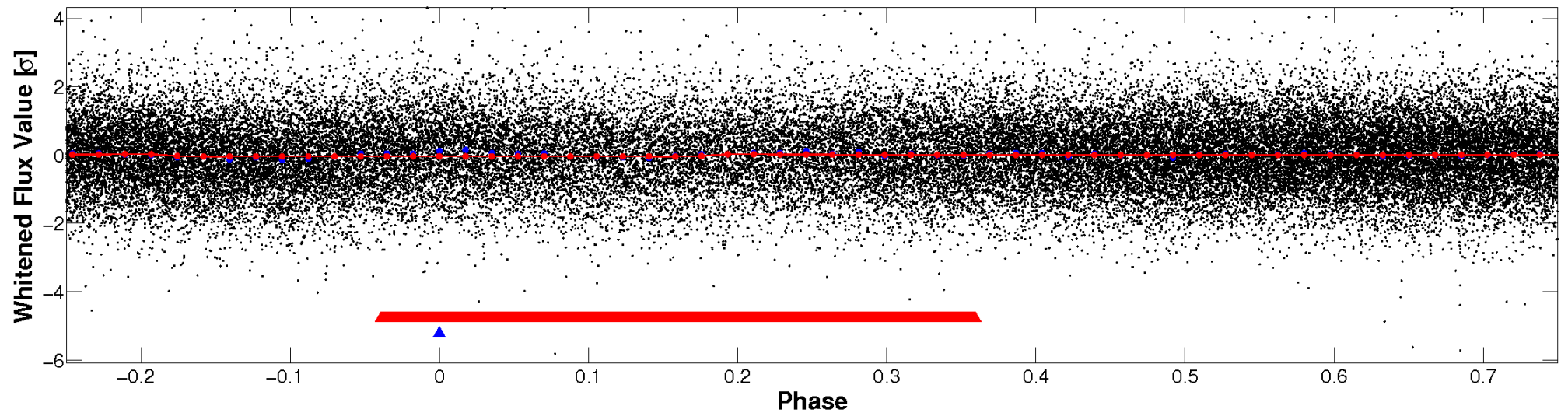


Non-Whitened Vs. Whitened Light Curve

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

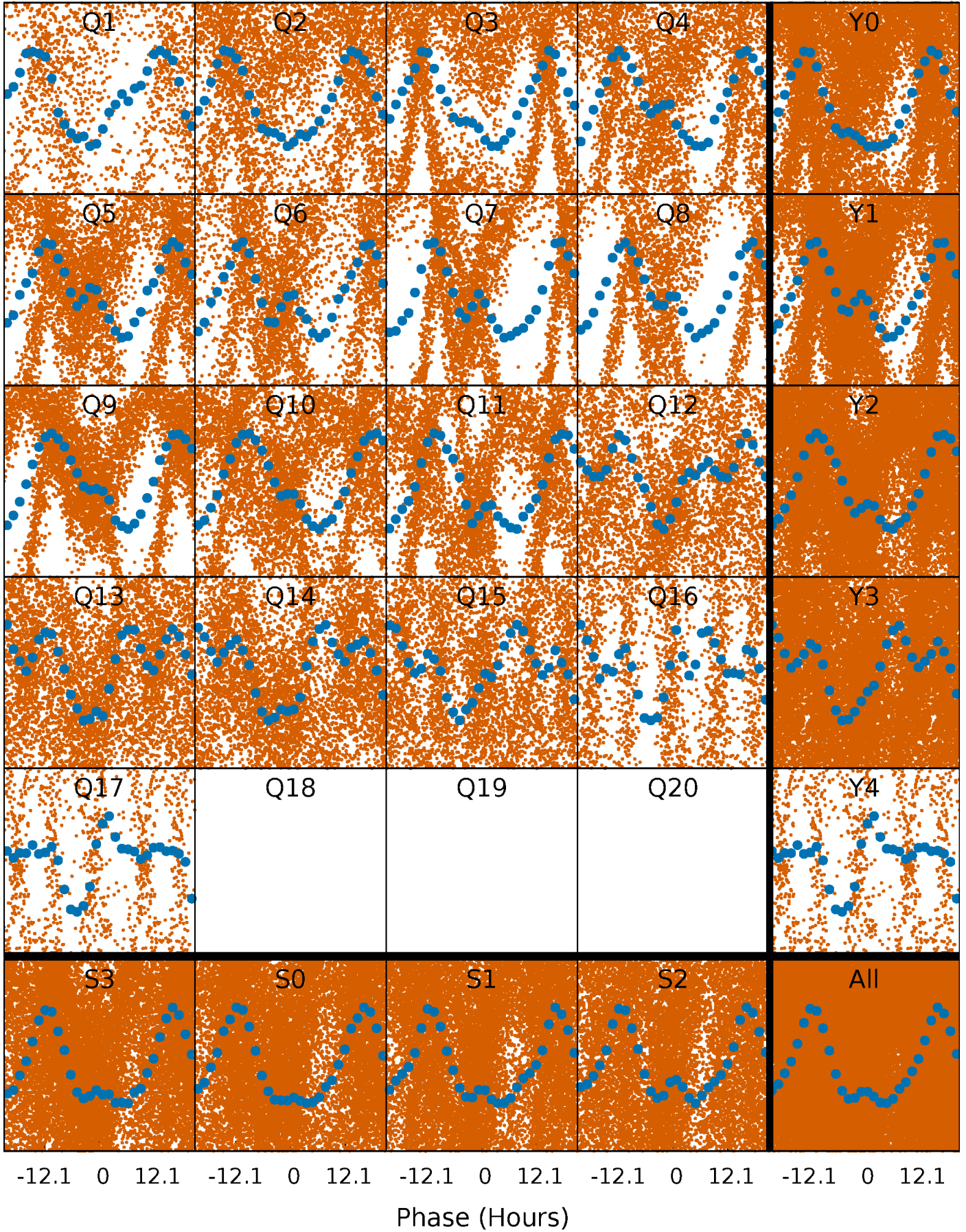


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



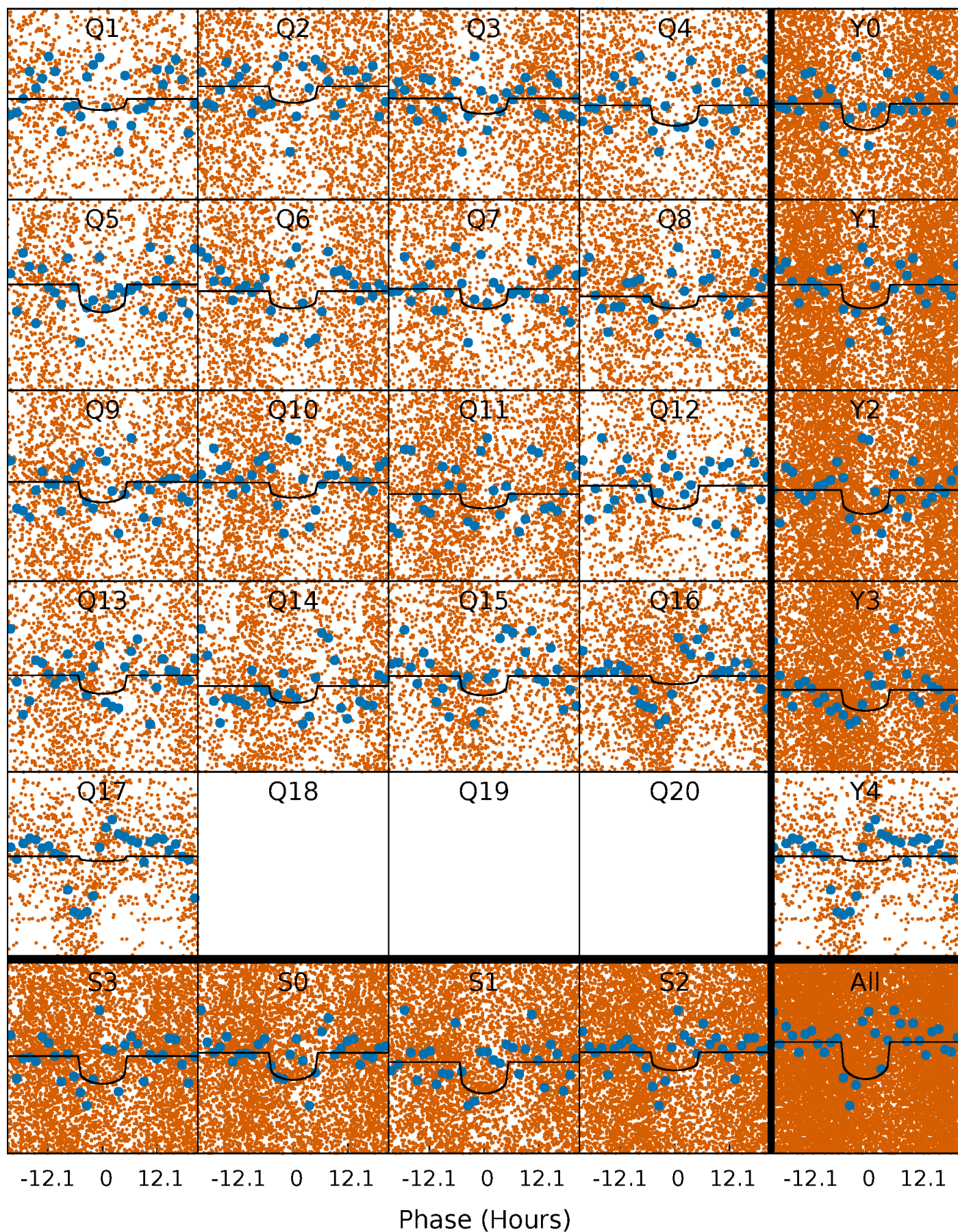
PDC Quarter-Phased Transit Curves

TCE 002012722-02 P= 1.162876 Days $T_0=132.081120$ (BKJD)



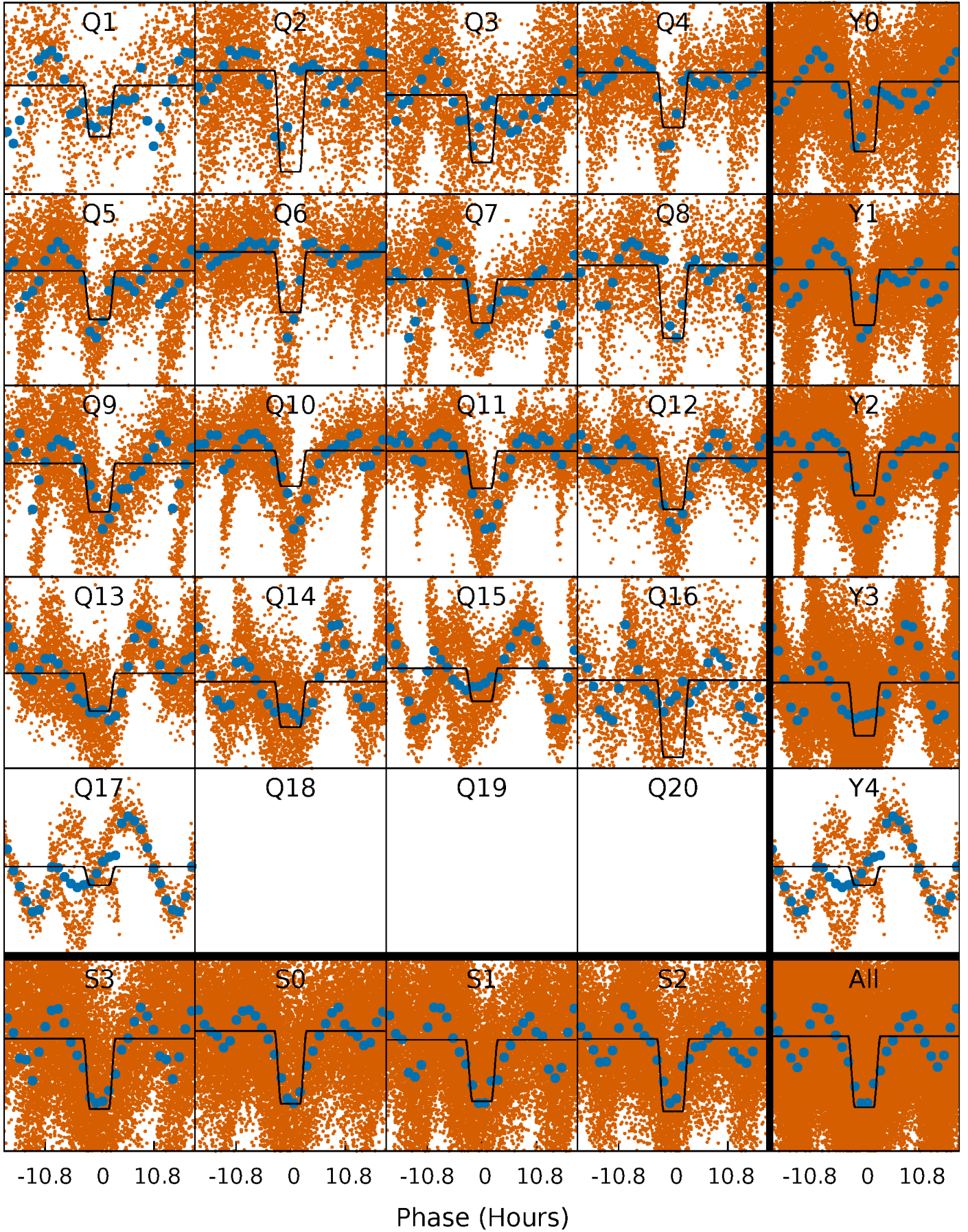
DV Quarter-Phased Transit Curves

TCE 002012722-02 P= 1.162876 Days $T_0=132.081120$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

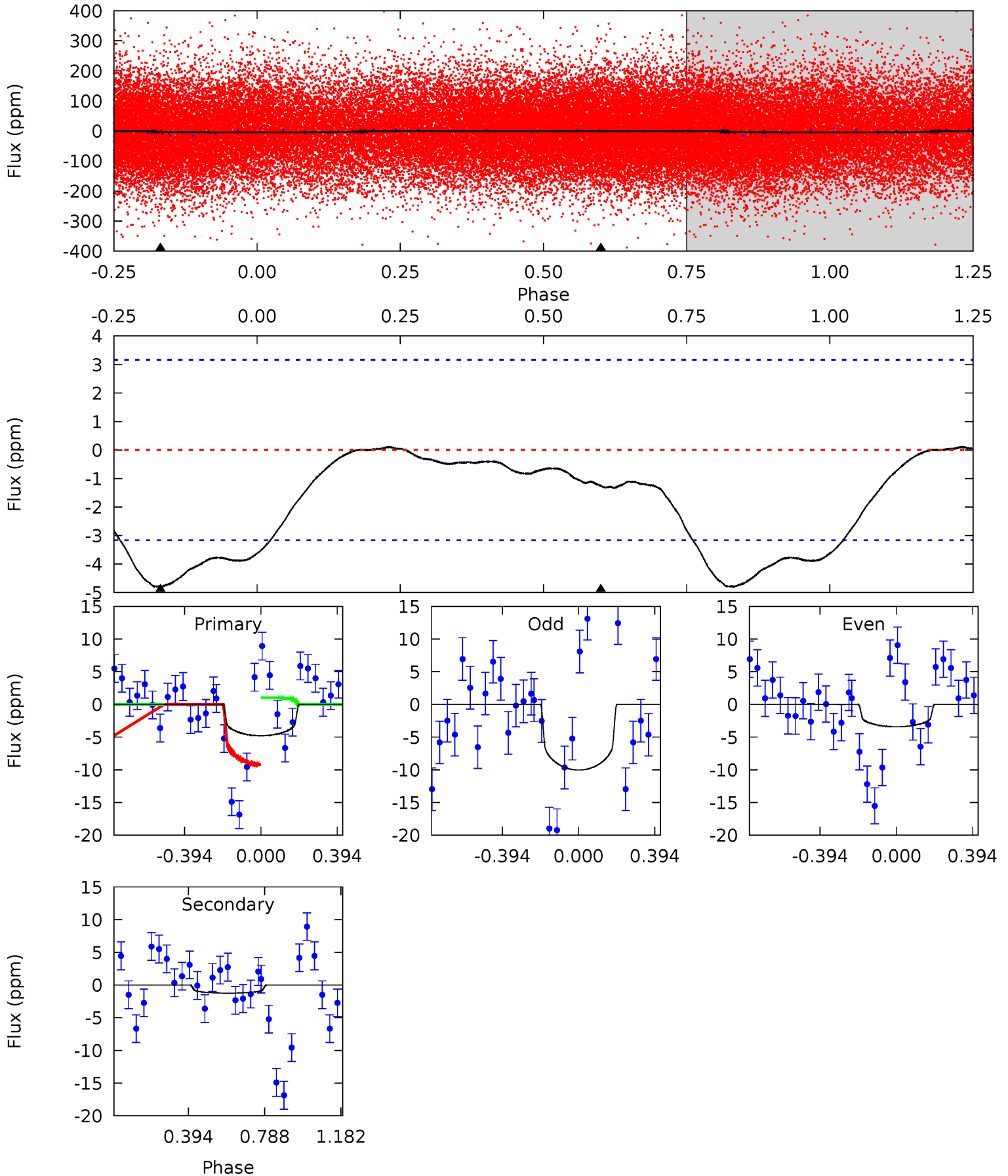
TCE 002012722-02 P= 1.162956 Days $T_0=131.937122$ (BKJD)



DV Model-Shift Uniqueness Test

002012722-02, P = 1.162876 Days, E = 130.918244 Days

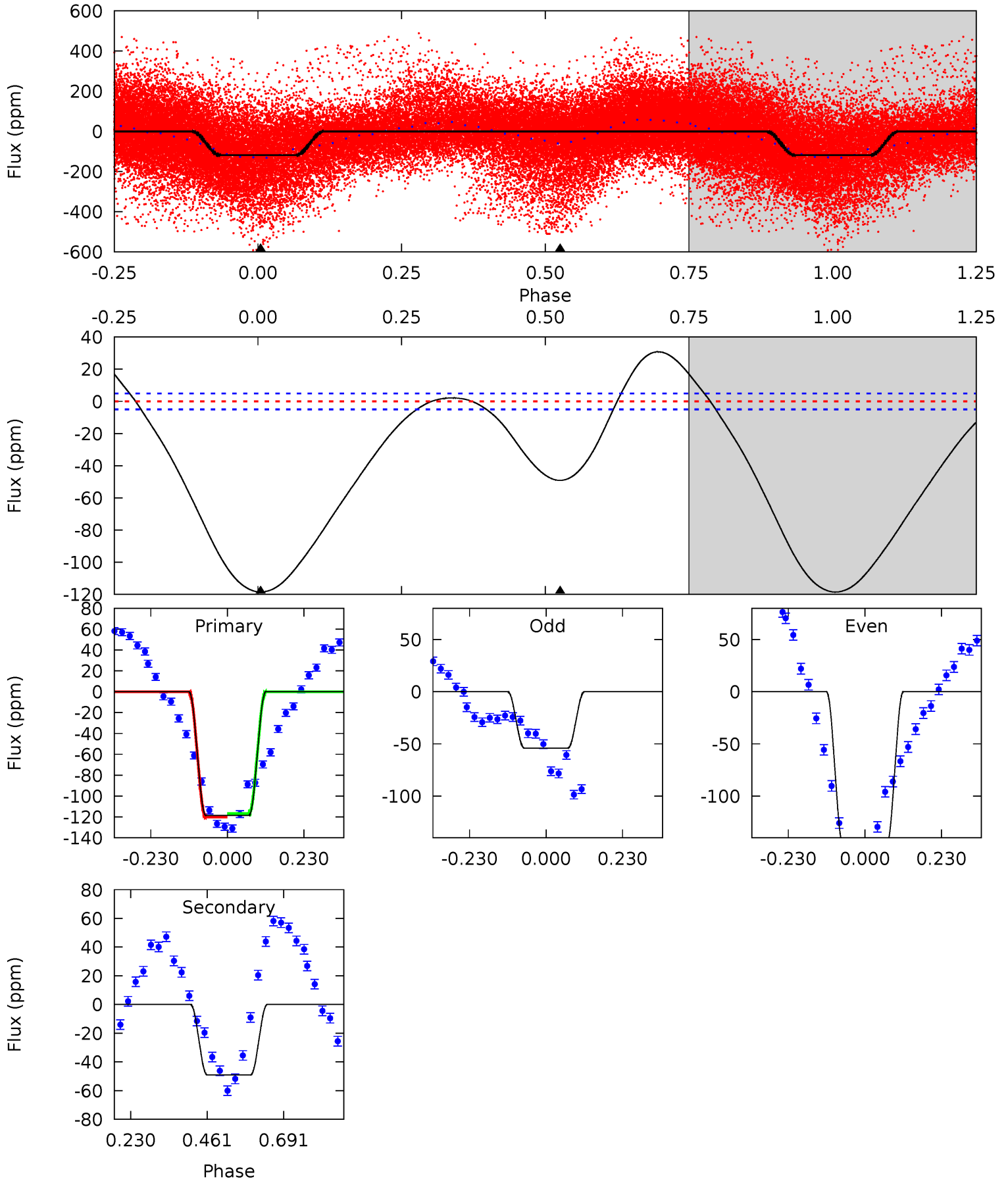
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.46	1.69	0	0	4.27	0.85	0.15	6.46	6.46	1.69	1.69	3.76	1.37	0.02	5.42



Alt Model-Shift Uniqueness Test

002012722-02, P = 1.162956 Days, E = 130.774166 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
104.7	43.4	0	0	4.39	1.20	9.78	104.7	104.7	43.4	43.4	38.9	0.89	0.21	1.59



Stellar Parameters For KIC 002012722

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7046^{+168}_{-232}	$3.831^{+0.234}_{-0.108}$	$0.100^{+0.200}_{-0.300}$	$2.724^{+0.464}_{-0.861}$	$1.834^{+0.177}_{-0.329}$	$0.128^{+0.208}_{-0.044}$
	+2%/-3%	+6%/-3%	+200%/-300%	+17%/-32%	+10%/-18%	+163%/-34%
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 002012722-02 / KOI 6257.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1 ± 1	$0.95^{+0.59}_{-0.58}$	4344^{+253}_{-342}	3593^{+2455}_{-7159}	$0.493^{+2.676}_{-0.363}$
Alt.	-49 ± 1	$3.39^{+0.82}_{-0.79}$	4371^{+241}_{-342}	5175^{+659}_{-455}	$1.636^{+1.120}_{-0.554}$

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

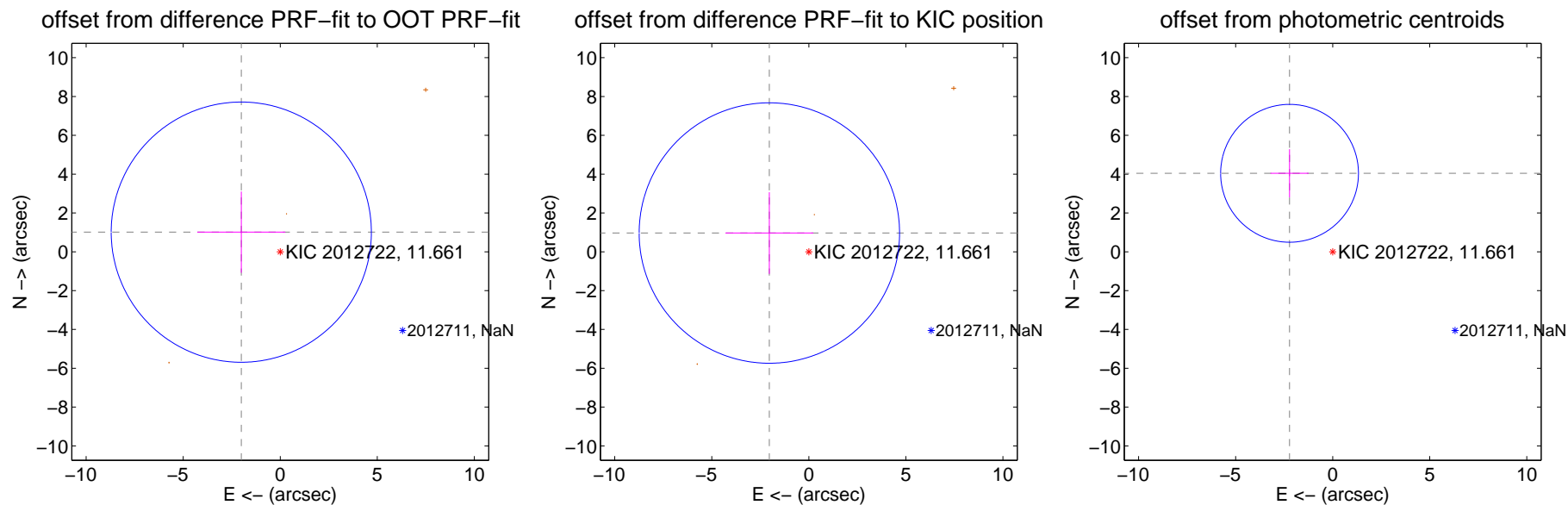
DV Centroid Data

Supplemental centroid analysis for 002012722-02. **Kepler magnitude: 11.66.** Transit SNR 5.01

There are 0 quarters with good PRF difference image offsets

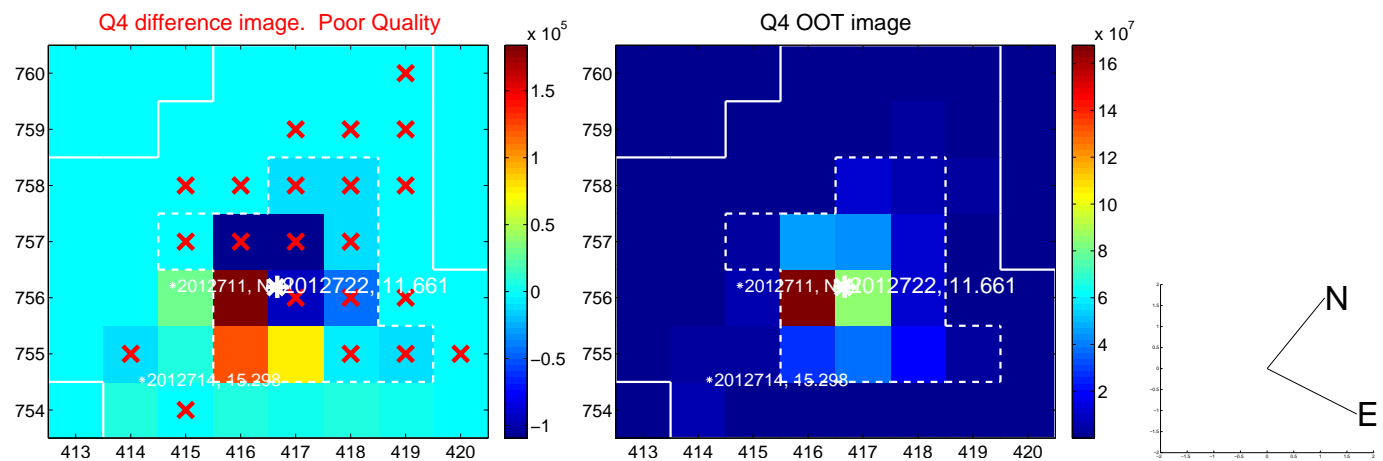
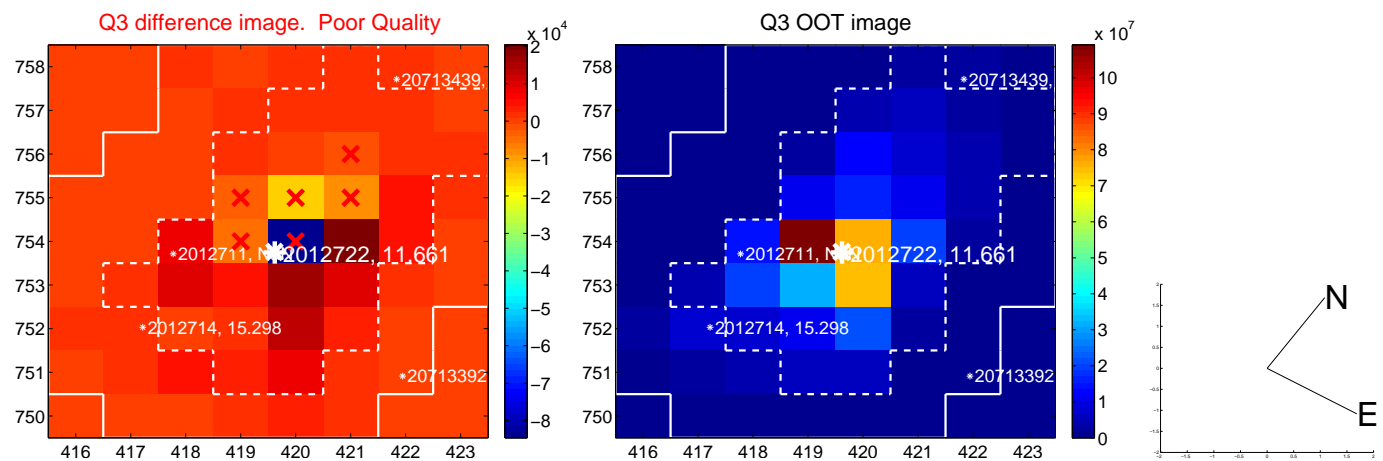
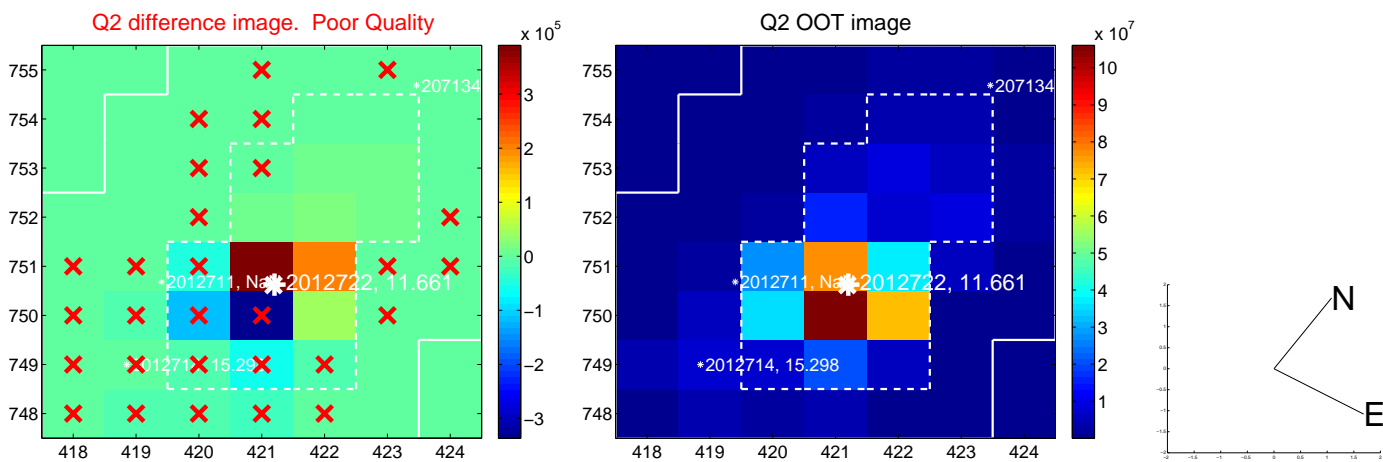
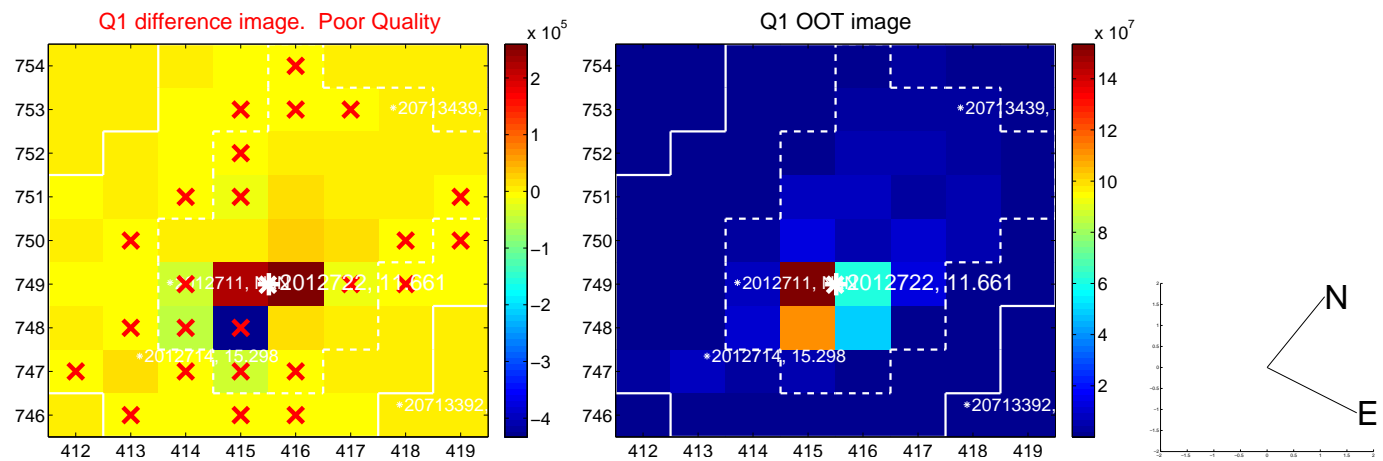
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.248 ± 2.234	1.01	2.008 ± 2.269	1.012 ± 2.091
PRF-fit source offset from KIC position	2.252 ± 2.236	1.01	2.034 ± 2.265	0.967 ± 2.103
photometric centroid source offset	4.61 ± 1.18	3.90	2.22 ± 0.98	4.04 ± 1.24

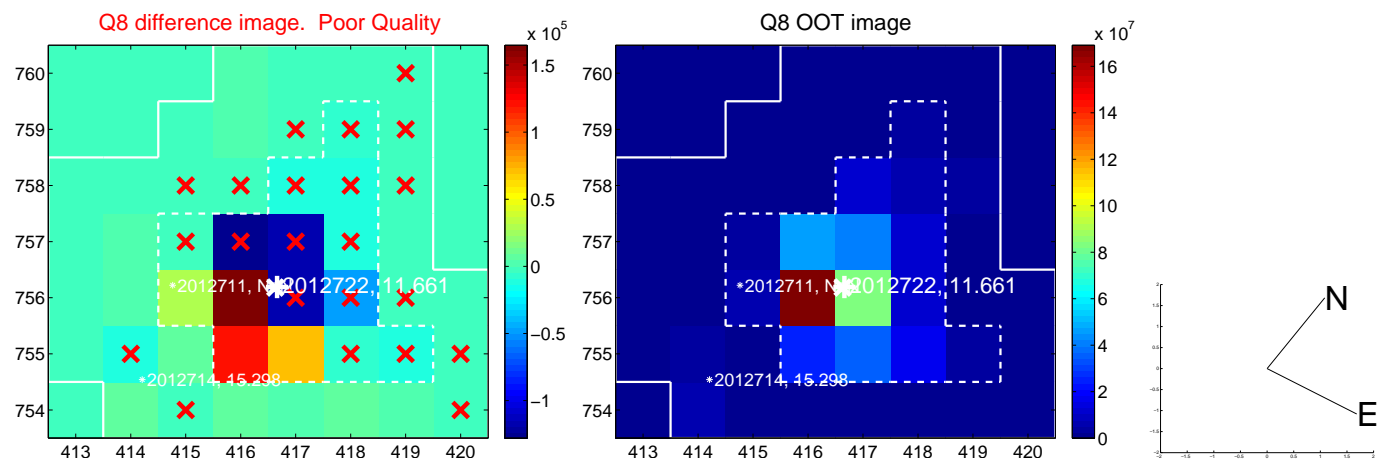
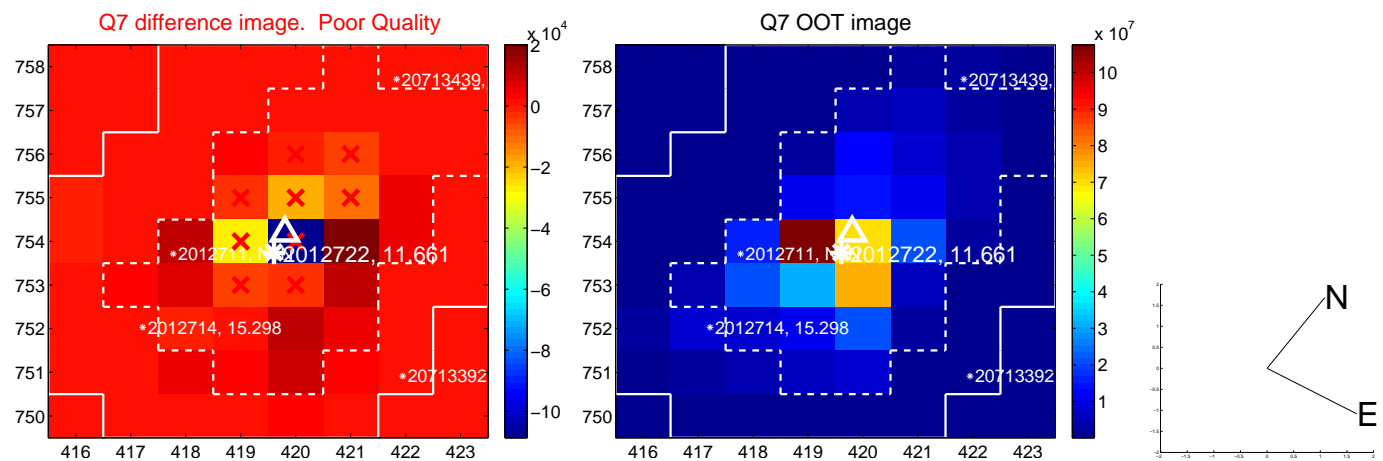
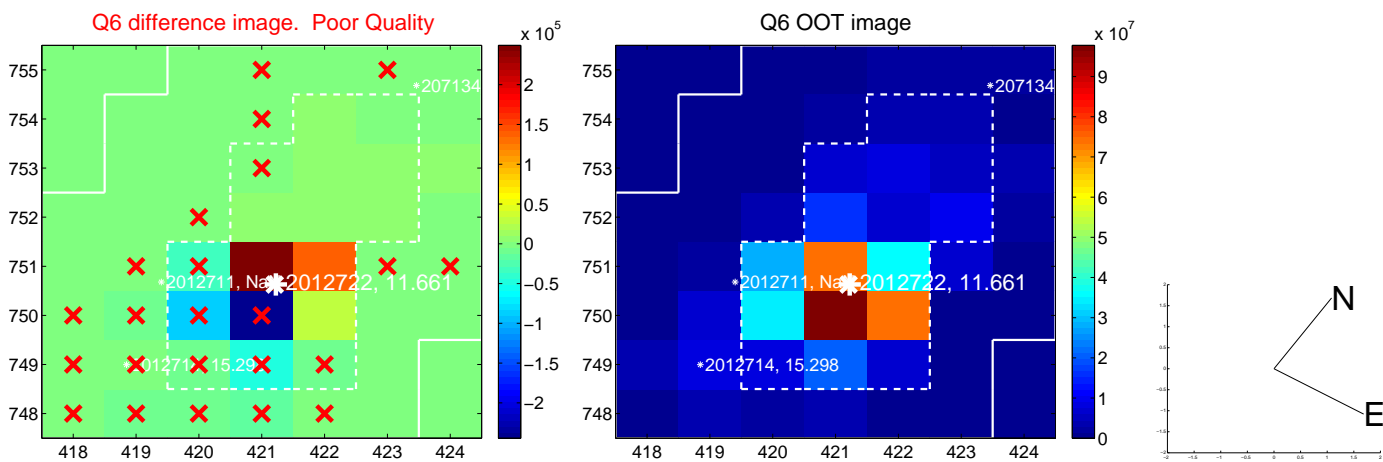
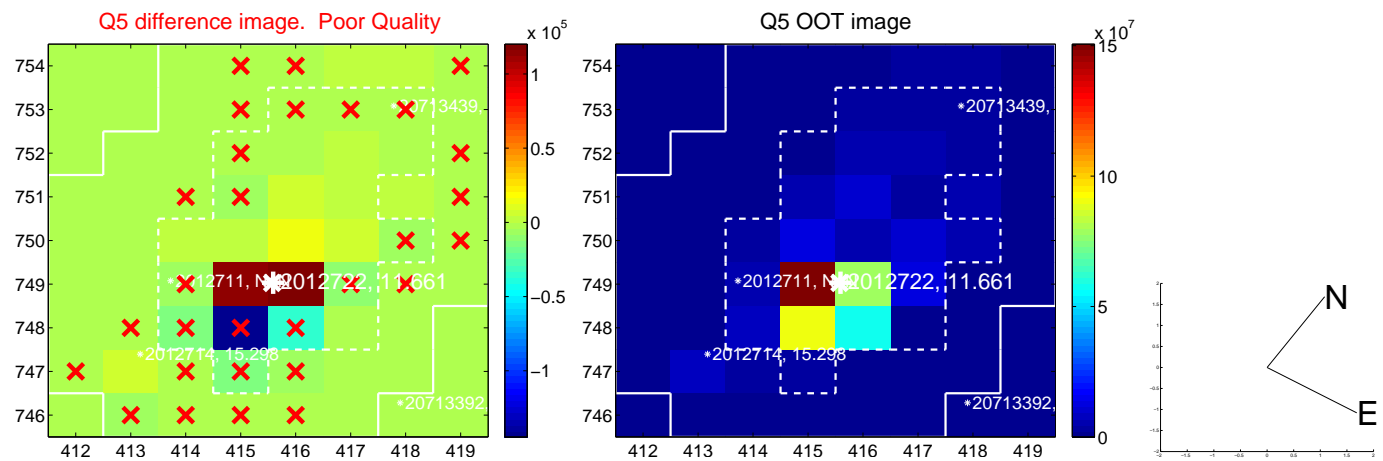


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

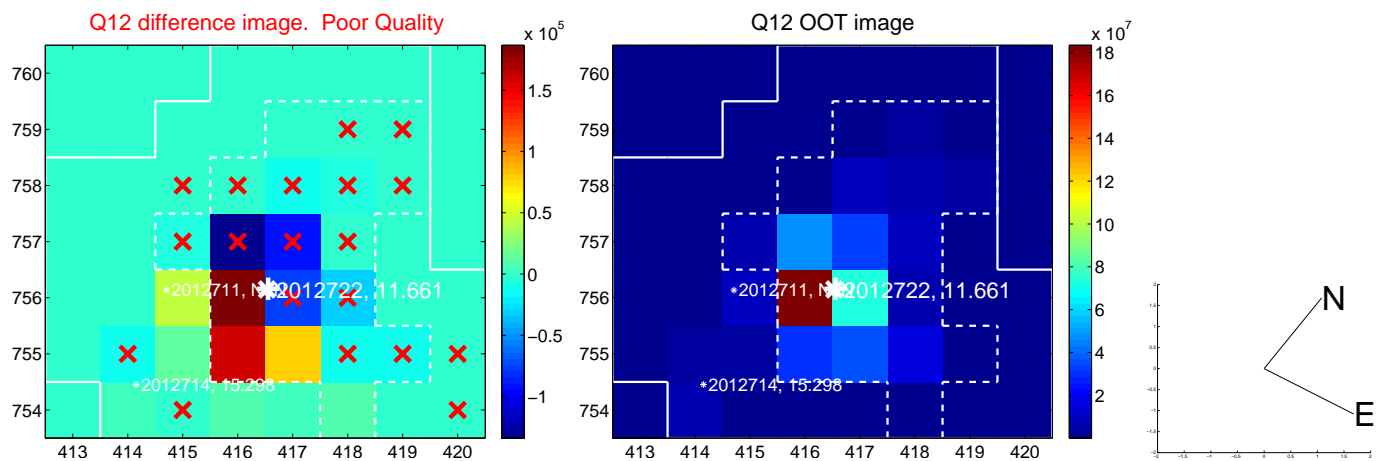
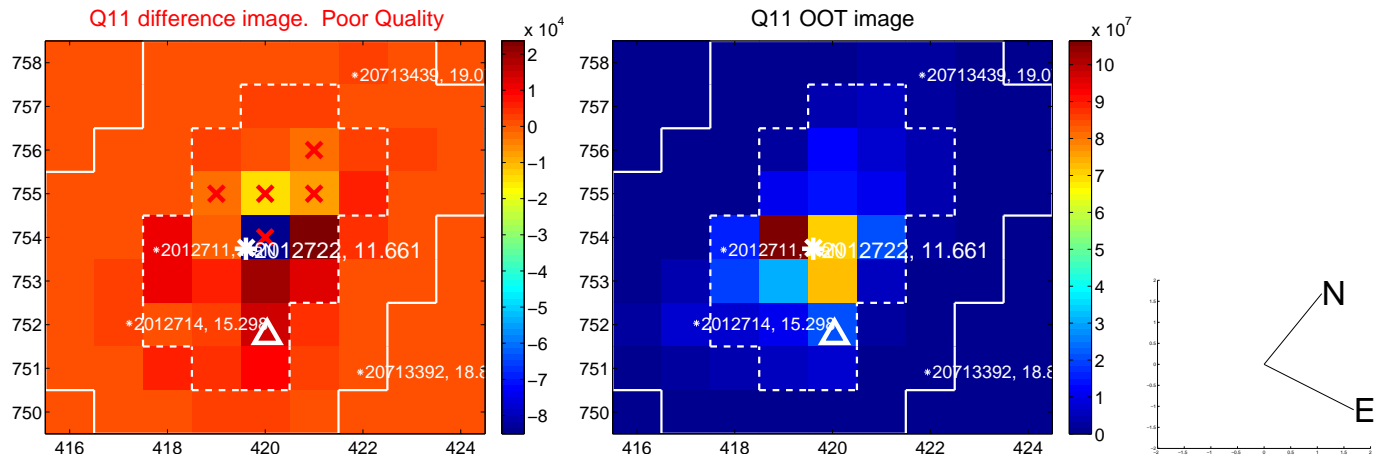
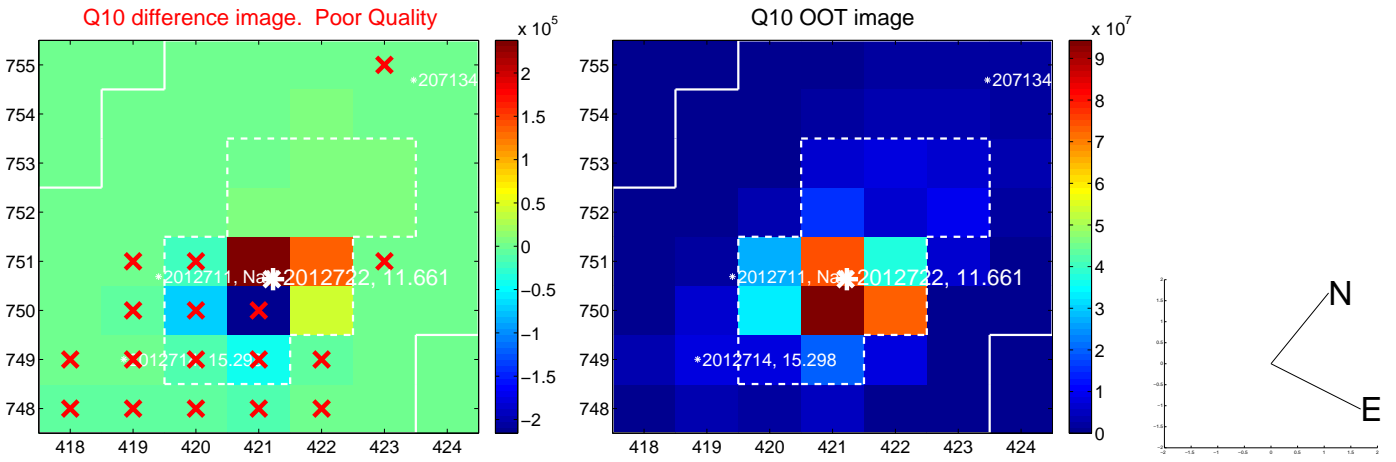
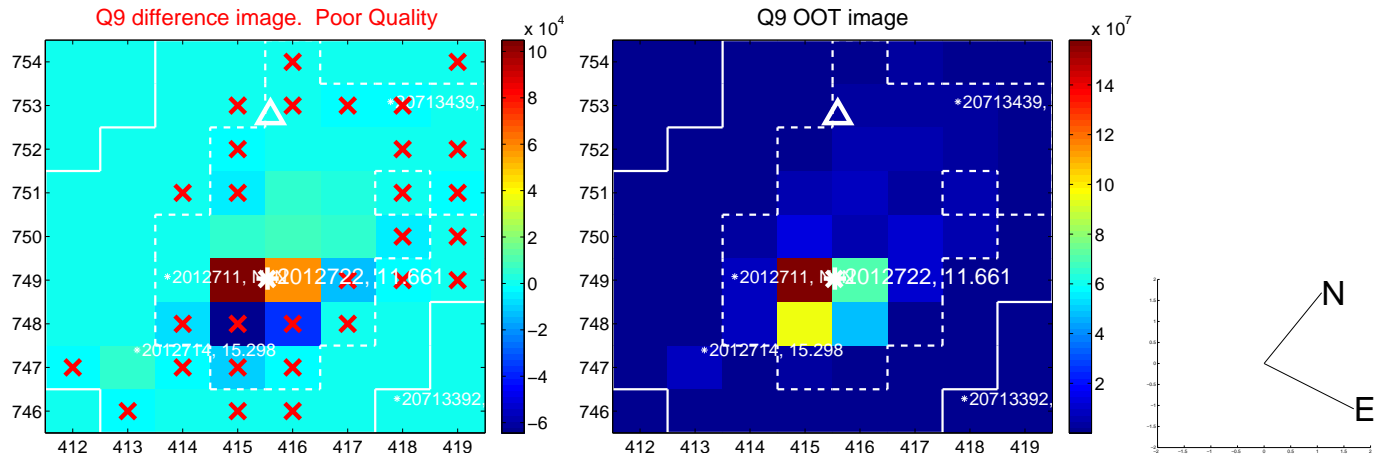
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



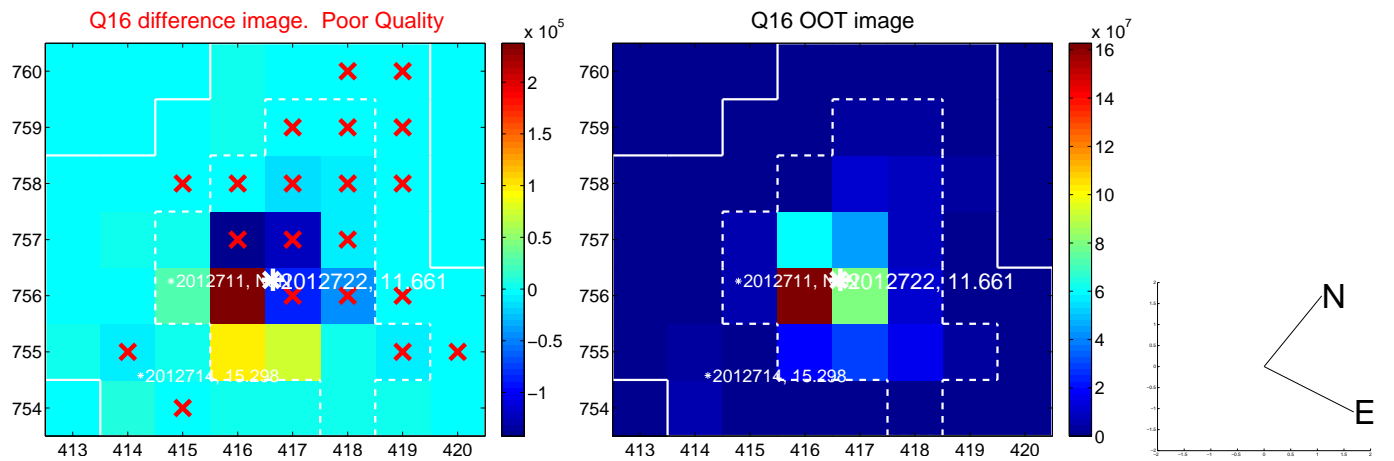
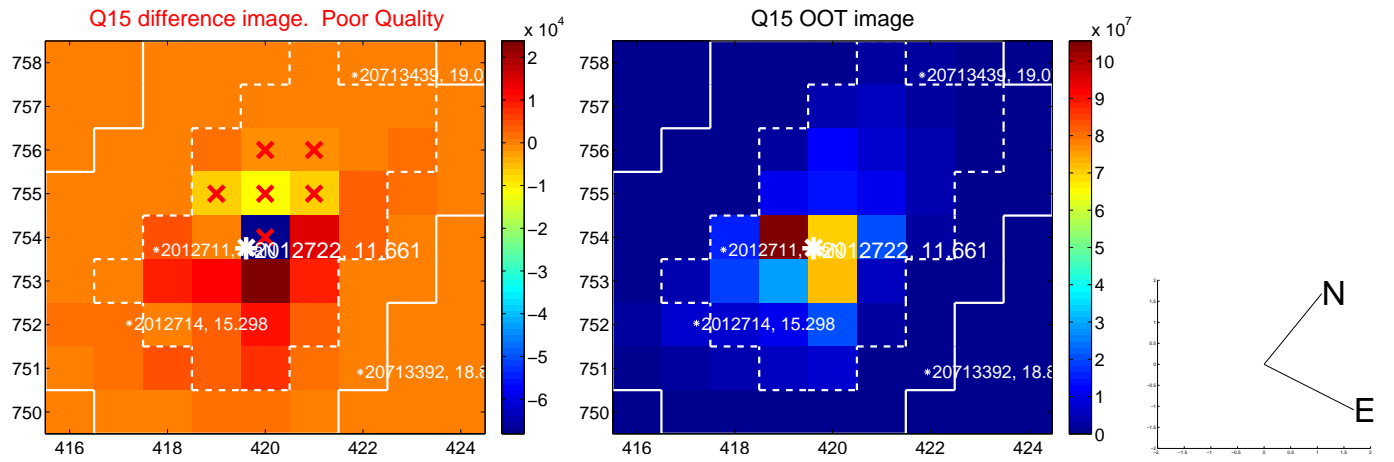
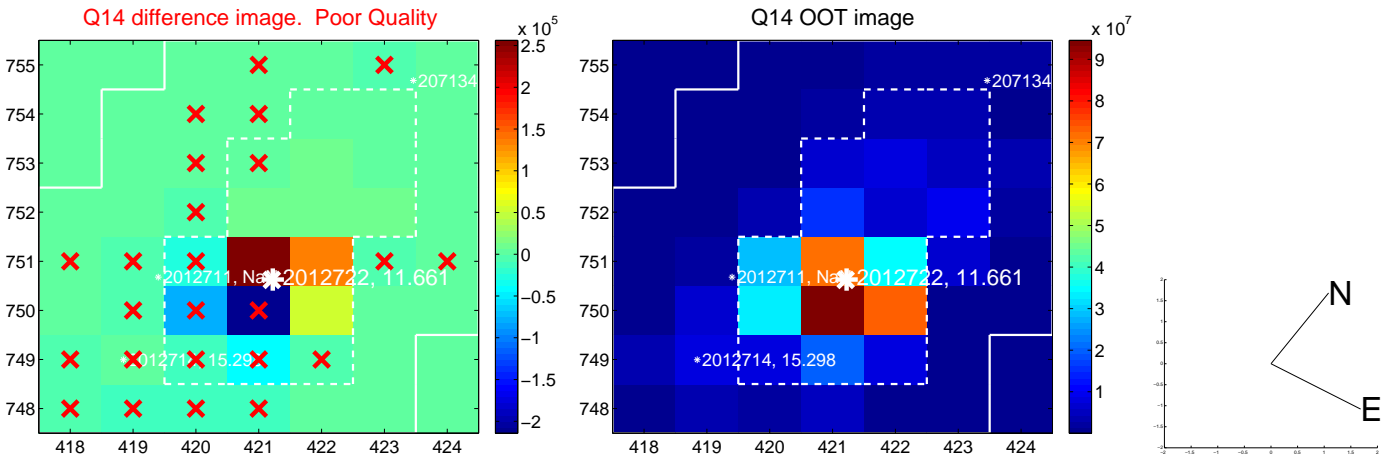
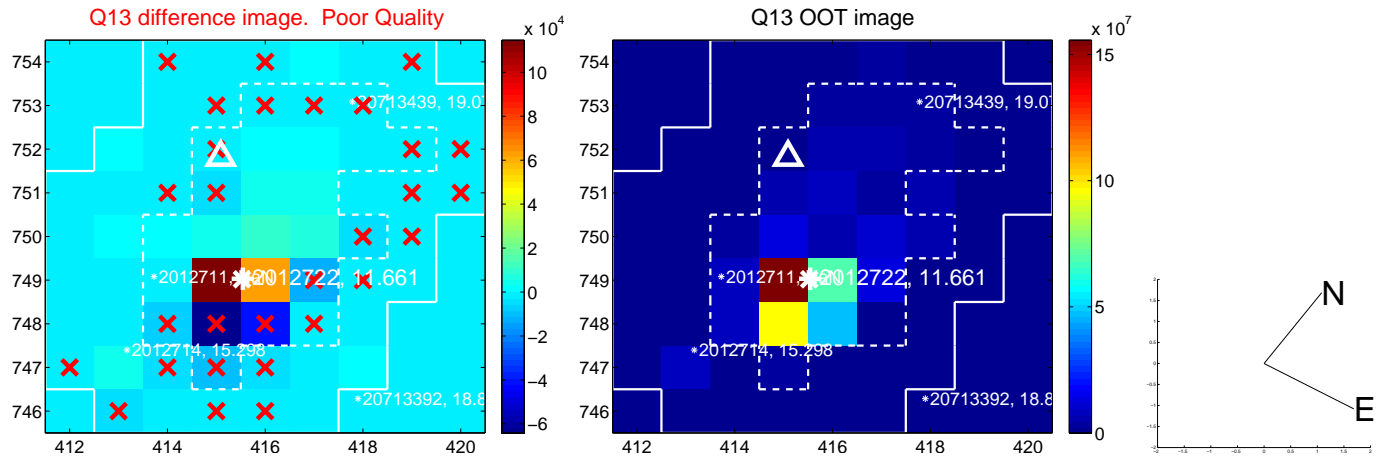
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



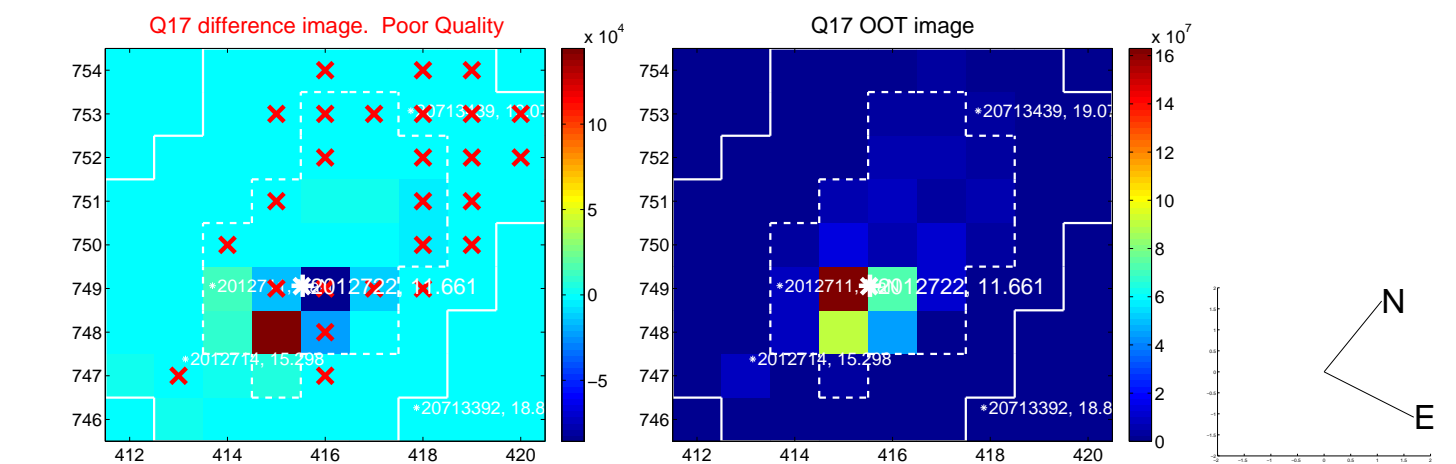
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



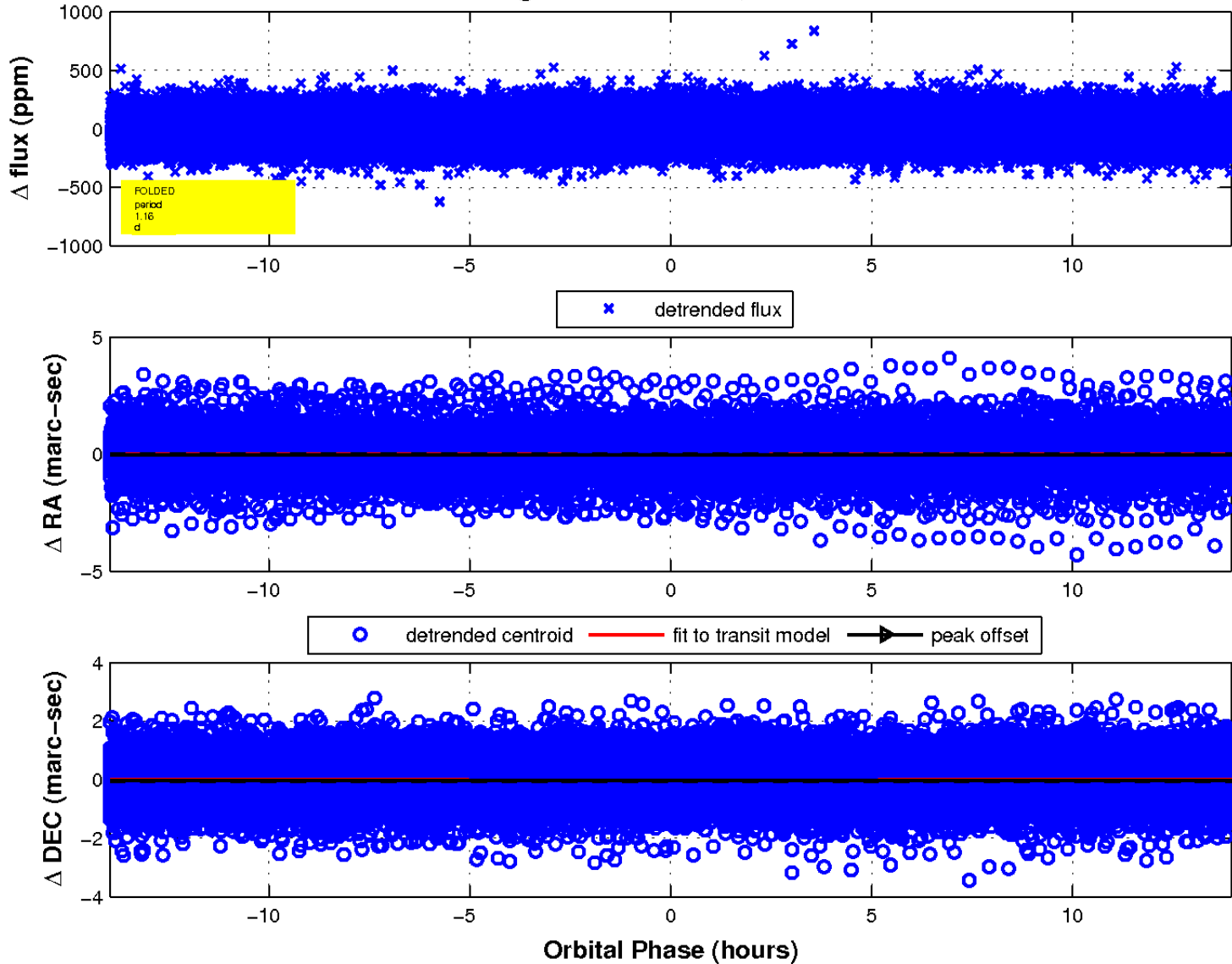
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

