

KIC 005716472

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})
005716472-01	OBS	No	0.576198	131.534309	41.8	1.633	9.3	6.1	1.63	6556	1.21	20347.02
005716472-02	OBS	No	1.152424	131.824768	66.1	3.599	8.2	8.8	1.63	6556	1.68	8074.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005716472-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005716472-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

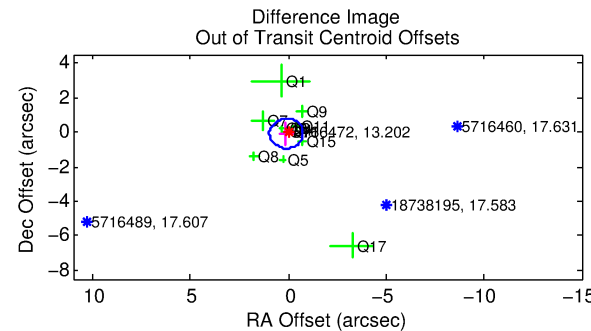
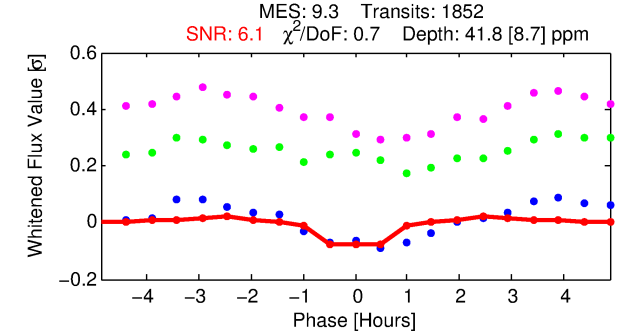
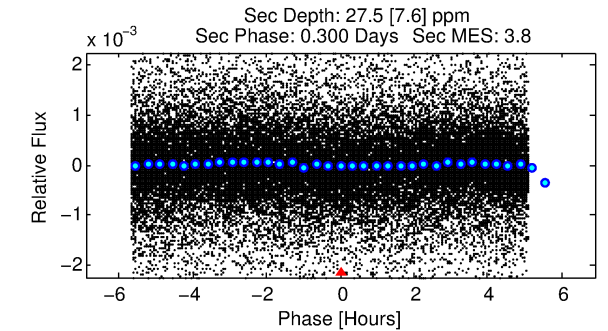
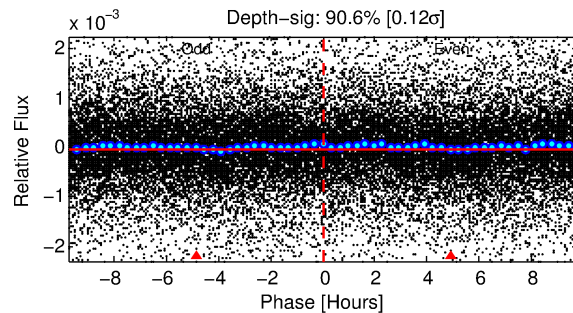
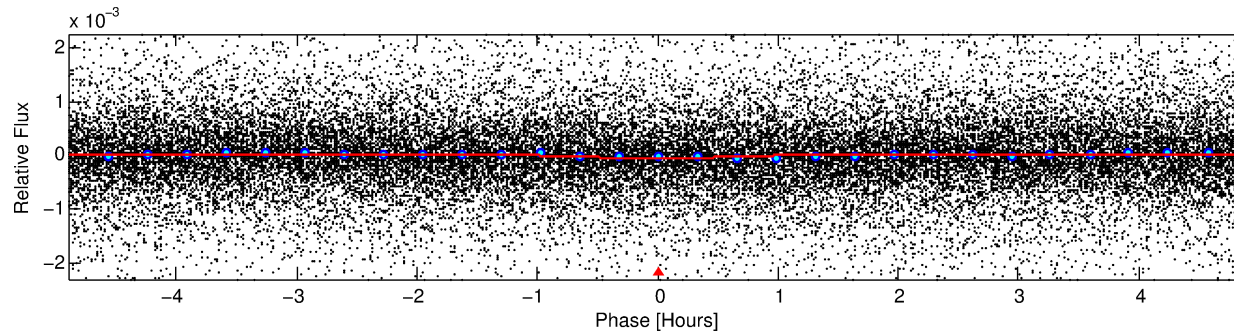
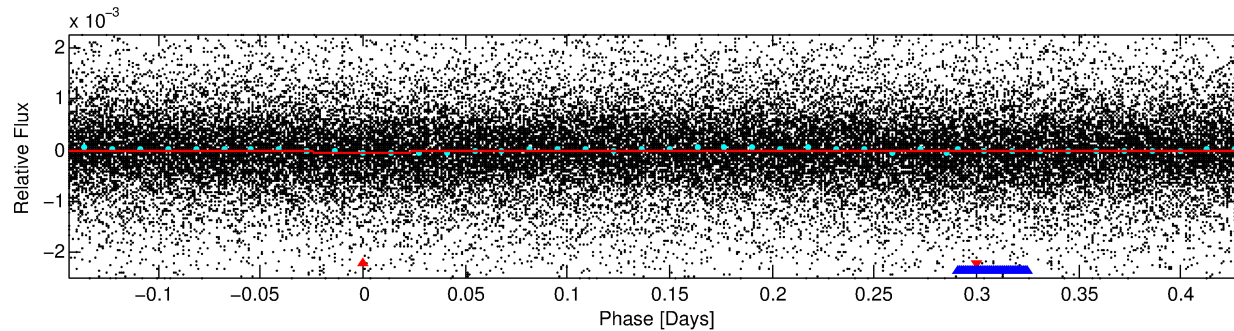
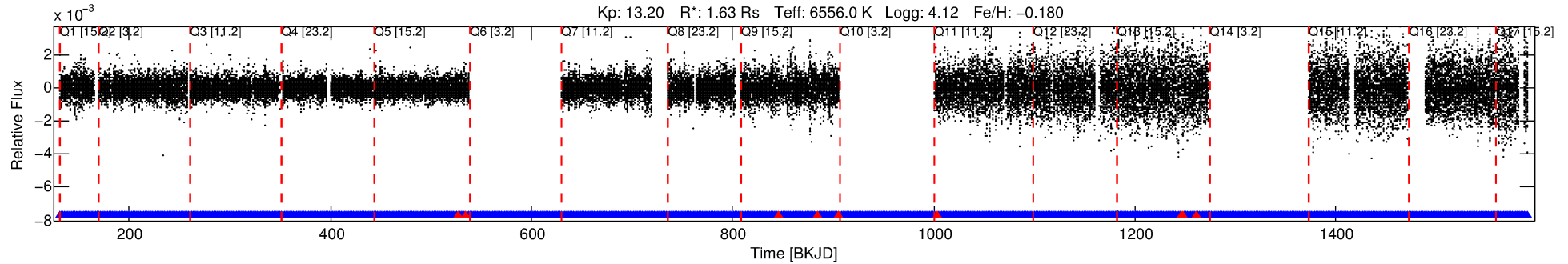
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005716472-01

No Significant Match Found

DV One-Page Summary

KIC: 5716472 Candidate: 1 of 2 Period: 0.576 d



DV Fit Results:

Period = 0.57620 [0.00002] d
Epoch = 131.5343 [0.0036] BKJD
Rp/R* = 0.0068 [0.0037]
a/R* = 1.62 [3.15]
b = 0.88 [0.84]
Seff = 20347.02 [8470.74]
Teq = 3045 [317] K
Rp = 1.21 [0.77] Re
a = 0.0147 [0.0039] AU
Ag = 2.22 [2.67] [0.46 σ]
Teffp = 5749 [1641] K [1.62 σ]

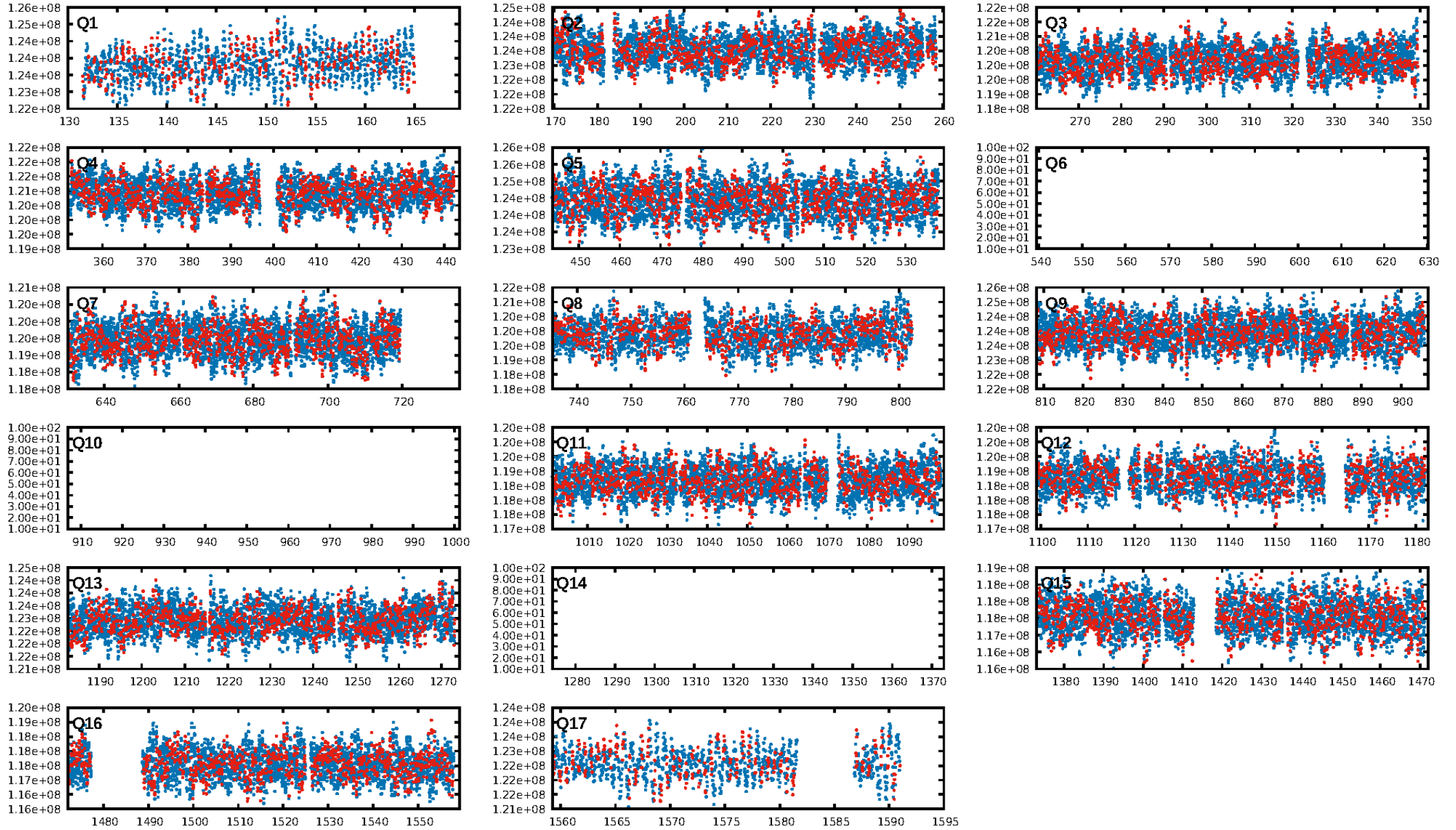
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [3.50 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.35e-26
RollingBand-fgt: 0.99 [1737/1746]
GhostDiagnostic-chr: -2.931
Centroid-sig: 4.6%
Centroid-so: 0.971 arcsec [1.59 σ]
OotOffset-rm: 0.133 arcsec [0.46 σ]
OotOffset-st: 1/4/3/4 [12]
KicOffset-rm: 0.179 arcsec [0.42 σ]
KicOffset-st: 1/4/3/4 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 0.64 [9/14]

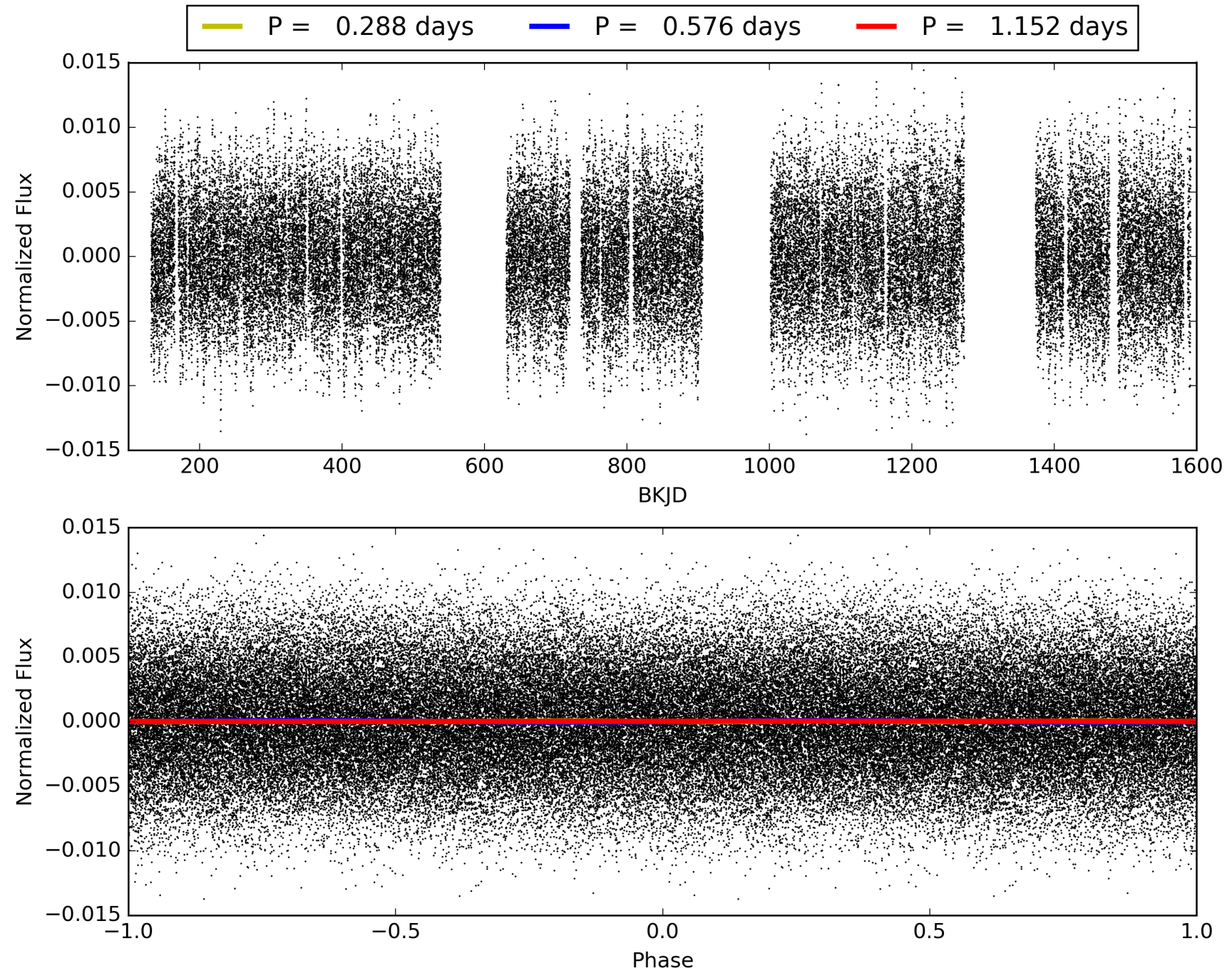
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:03:57 Z

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

TCE 005716472-01, PDC Light Curves

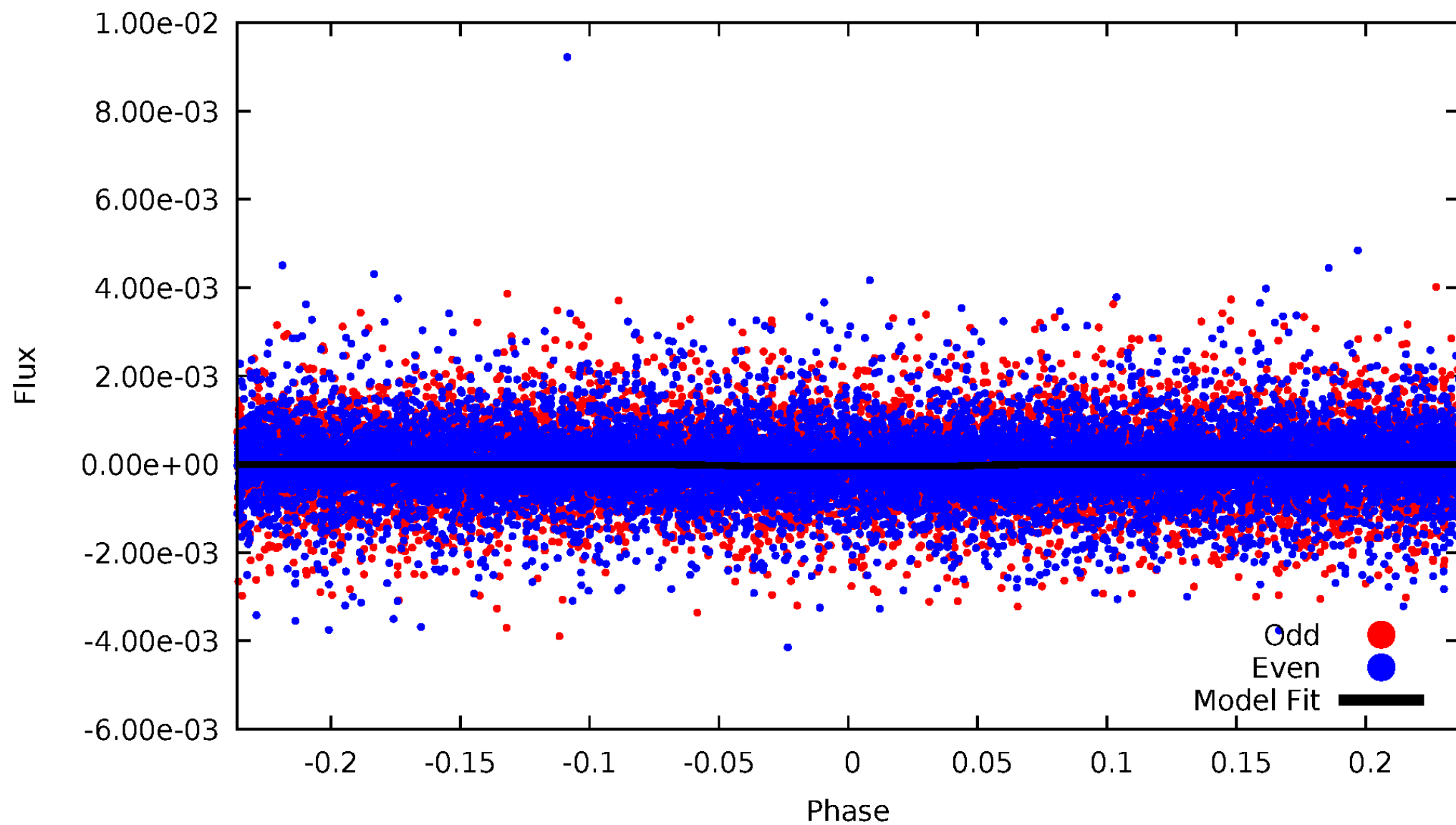


TCE 005716472-01



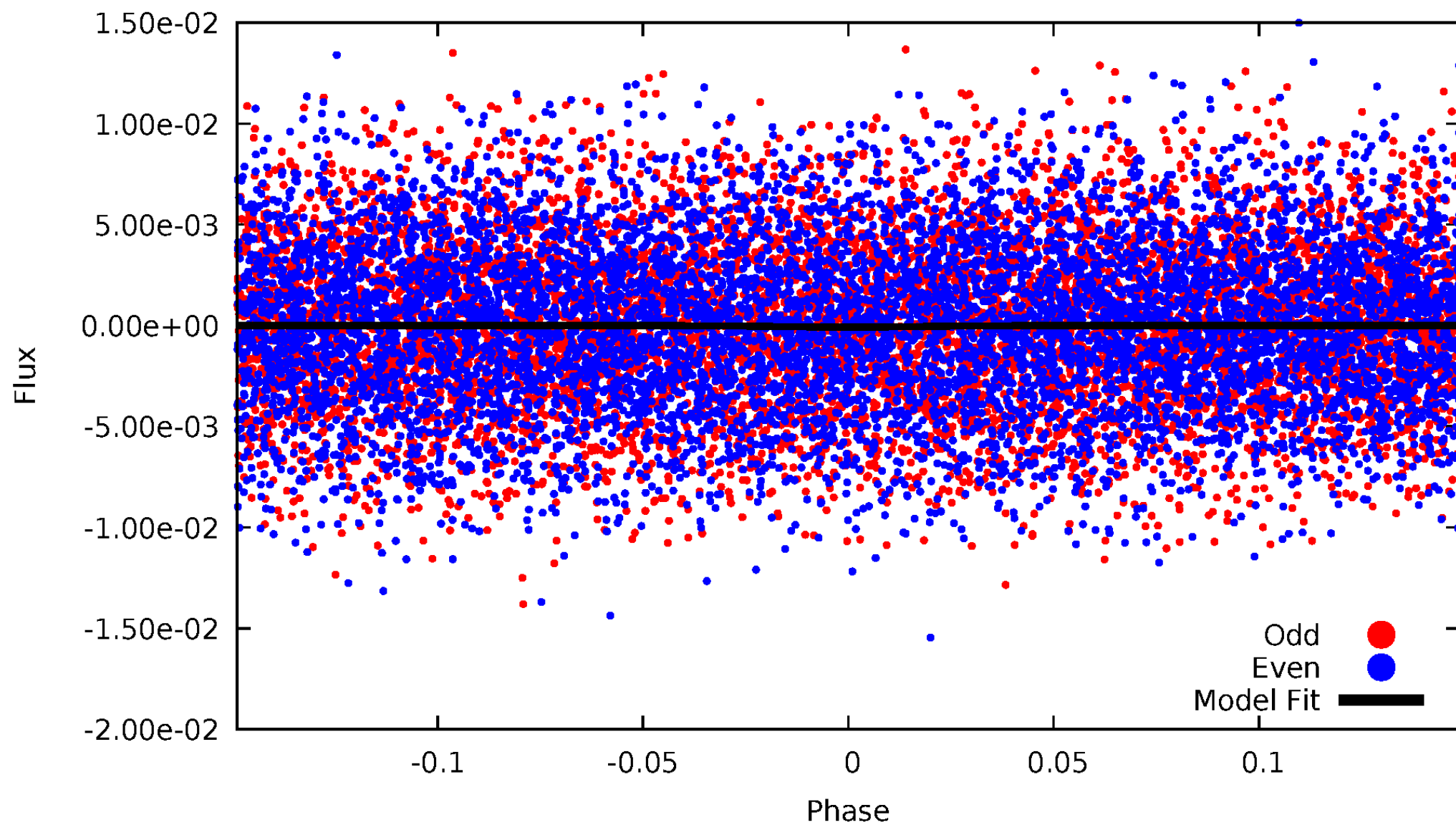
DV Odd/Even

TCE 005716472-01



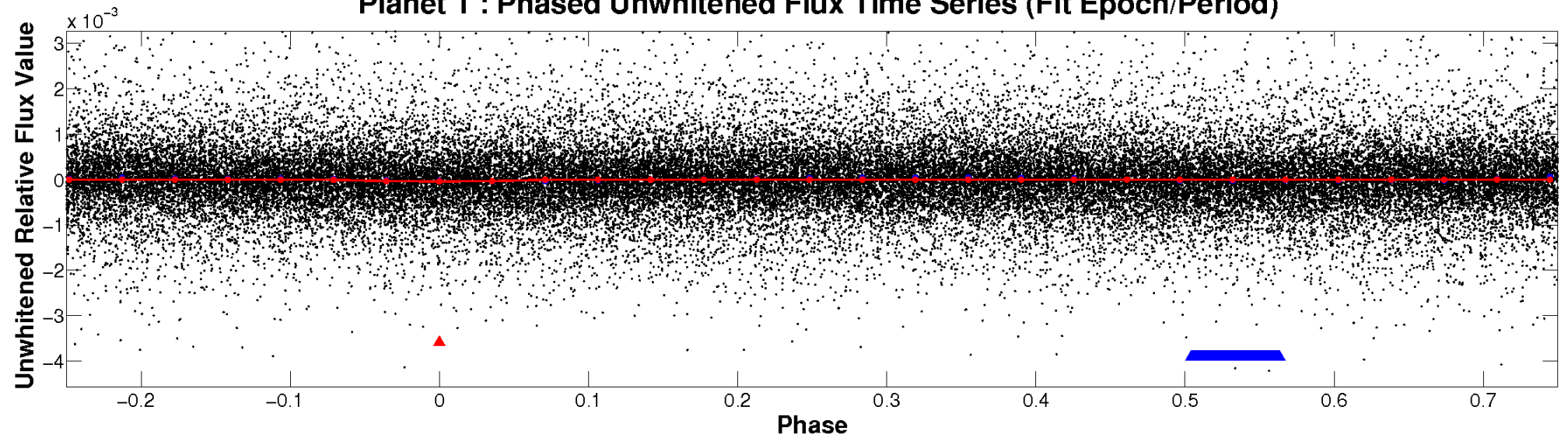
ALT Odd/Even

TCE 005716472-01

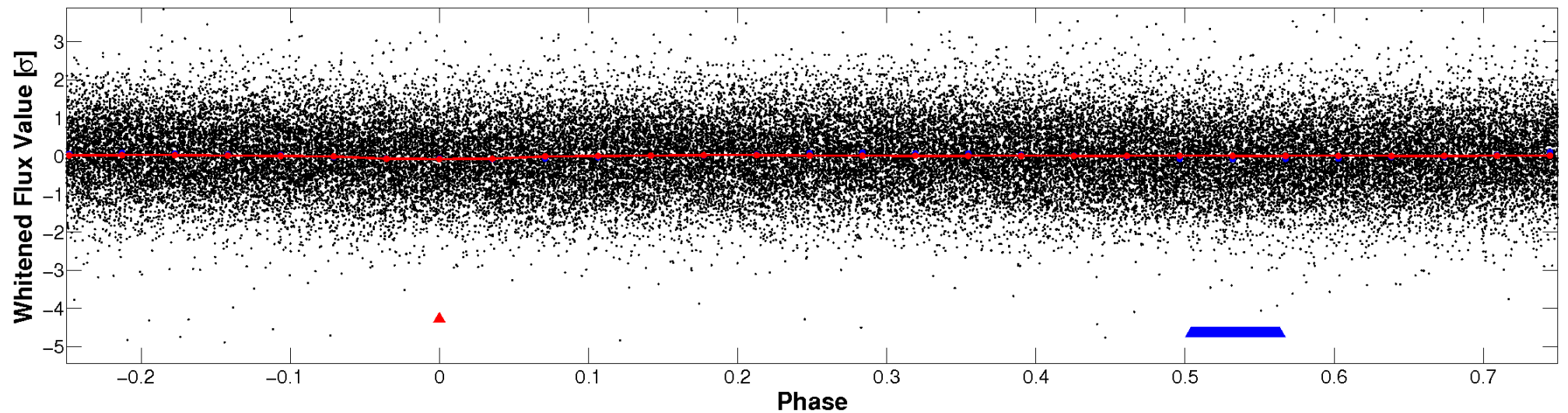


Non-Whitened Vs. Whitened Light Curve

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

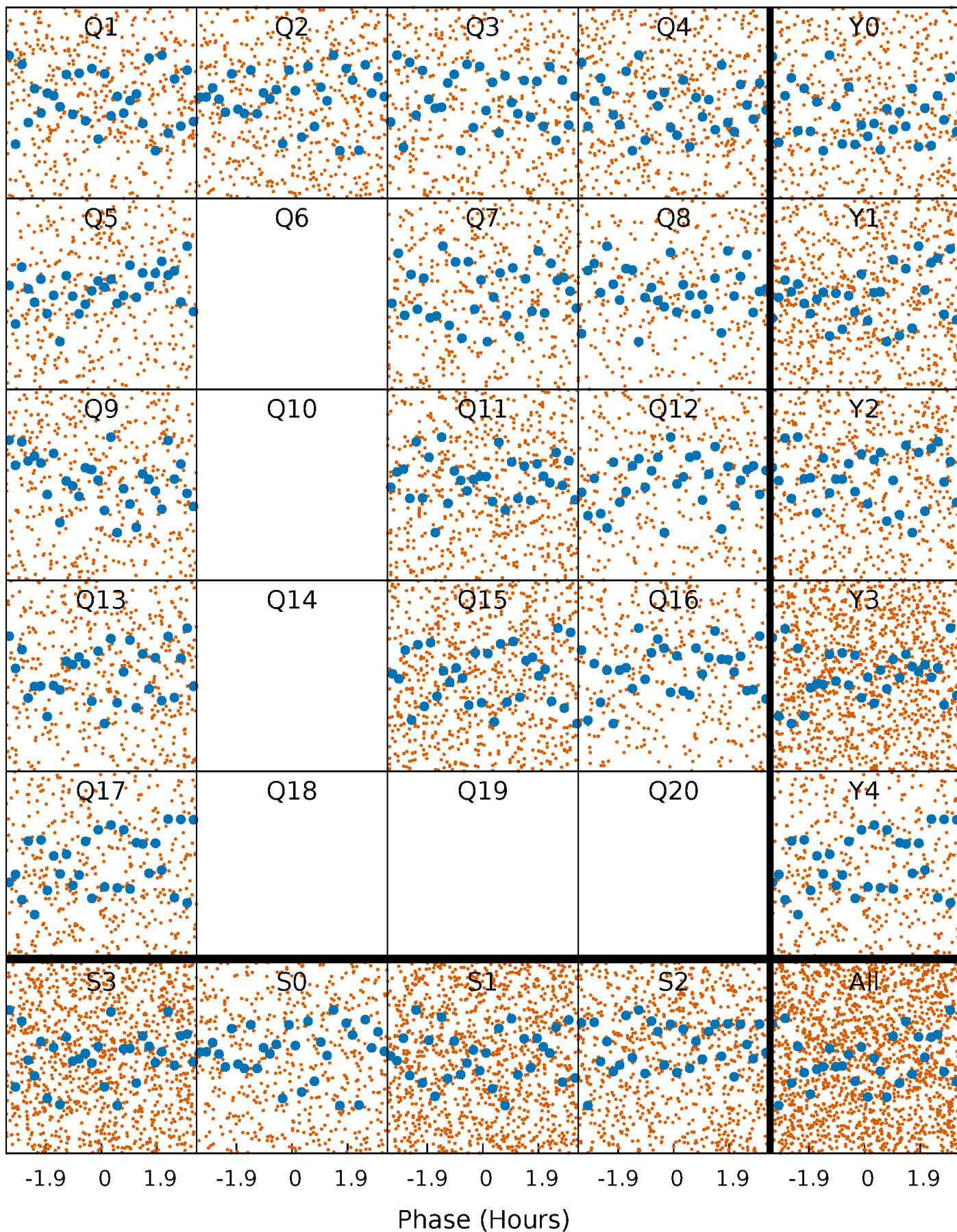


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



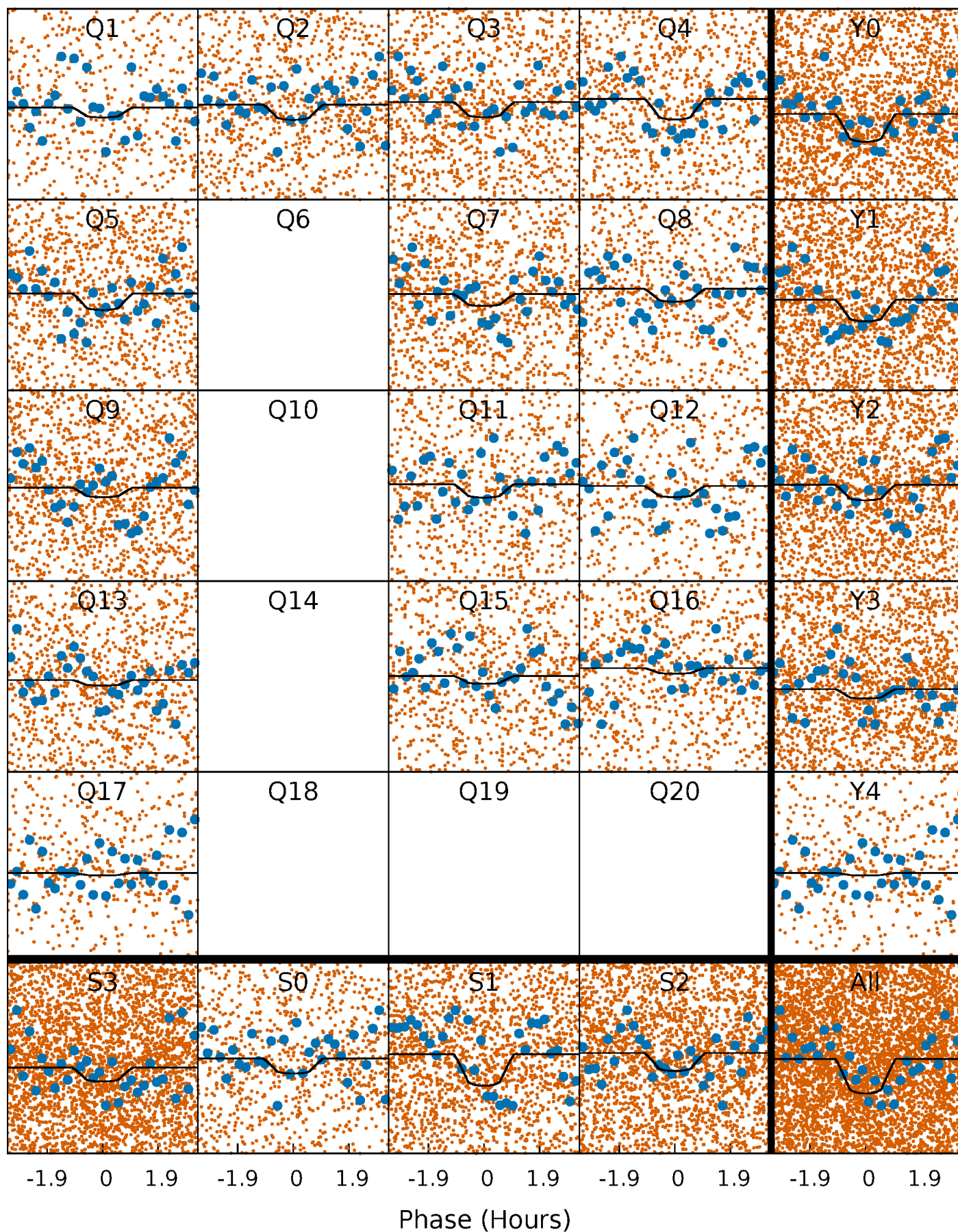
PDC Quarter-Phased Transit Curves

TCE 005716472-01 P= 0.576198 Days $T_0=131.534309$ (BKJD)



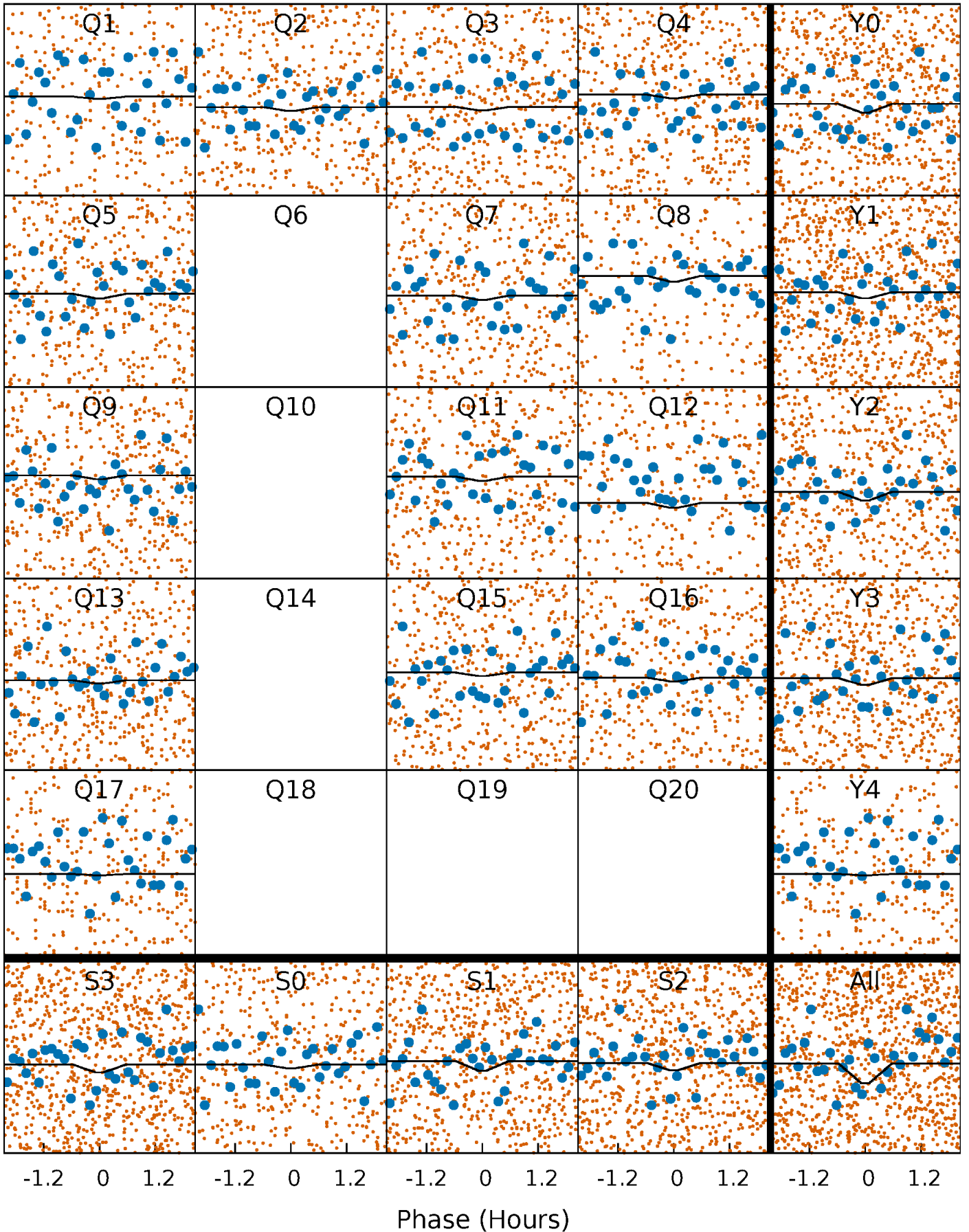
DV Quarter-Phased Transit Curves

TCE 005716472-01 P= 0.576198 Days $T_0=131.534309$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

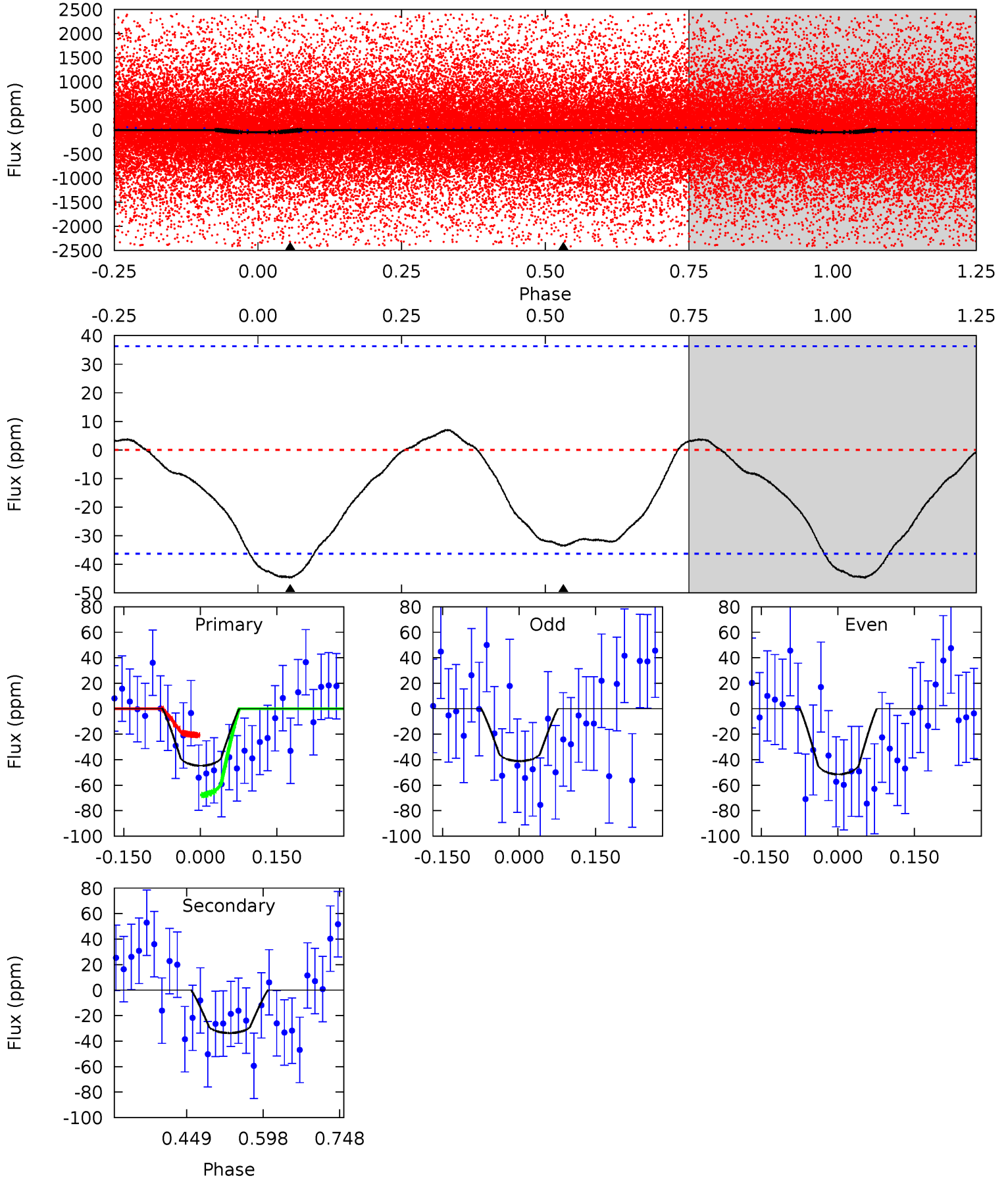
TCE 005716472-01 P= 0.576243 Days $T_0=131.533103$ (BKJD)



DV Model-Shift Uniqueness Test

005716472-01, P = 0.576198 Days, E = 130.958111 Days

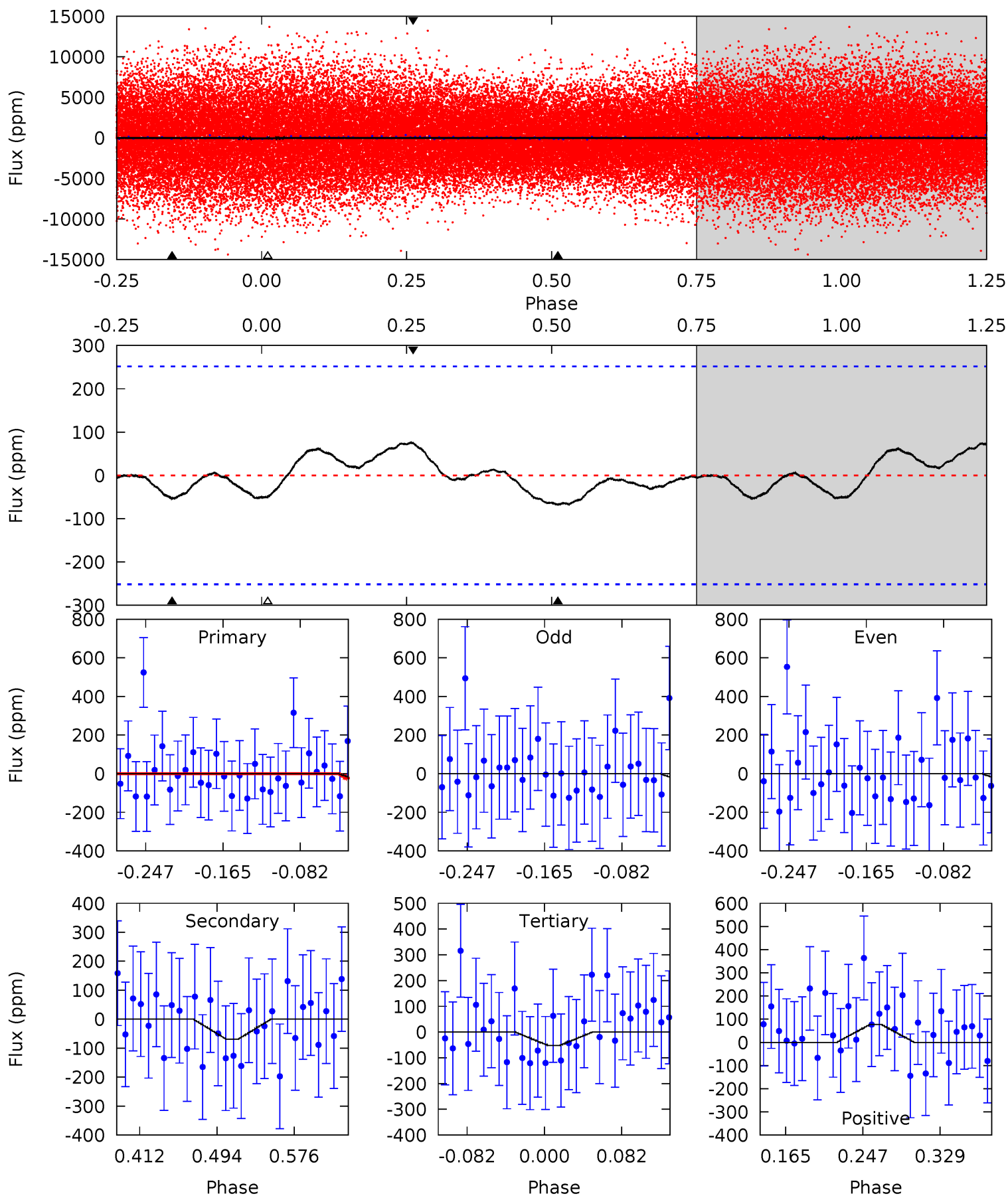
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.52	4.15	0	0	4.48	1.44	0.78	5.52	5.52	4.15	4.15	0.65	0.87	0.14	2.94



Alt Model-Shift Uniqueness Test

005716472-01, P = 0.576243 Days, E = 130.956860 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.03	1.27	0.95	1.41	4.61	1.74	0.62	0.07	-0.38	0.32	-0.14	0.00	0.46	0.53	0.53



Stellar Parameters For KIC 005716472

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6556^{+175}_{-214}	$4.120^{+0.220}_{-0.180}$	$-0.180^{+0.250}_{-0.300}$	$1.632^{+0.503}_{-0.457}$	$1.286^{+0.181}_{-0.221}$	$0.417^{+0.514}_{-0.200}$
	+3%/-3%	+5%/-4%	+139%/-167%	+31%/-28%	+14%/-17%	+123%/-48%
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 005716472-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-34 ± 8	$1.24^{+0.71}_{-0.63}$	4247^{+323}_{-358}	5711^{+2788}_{-1175}	$2.524^{+7.686}_{-1.513}$
Alt.	-69 ± 55	$1.52^{+0.73}_{-0.72}$	4226^{+341}_{-320}	6065^{+3118}_{-2416}	$3.086^{+8.615}_{-2.572}$

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 $A_{\text{obs}} \gg 1.0$

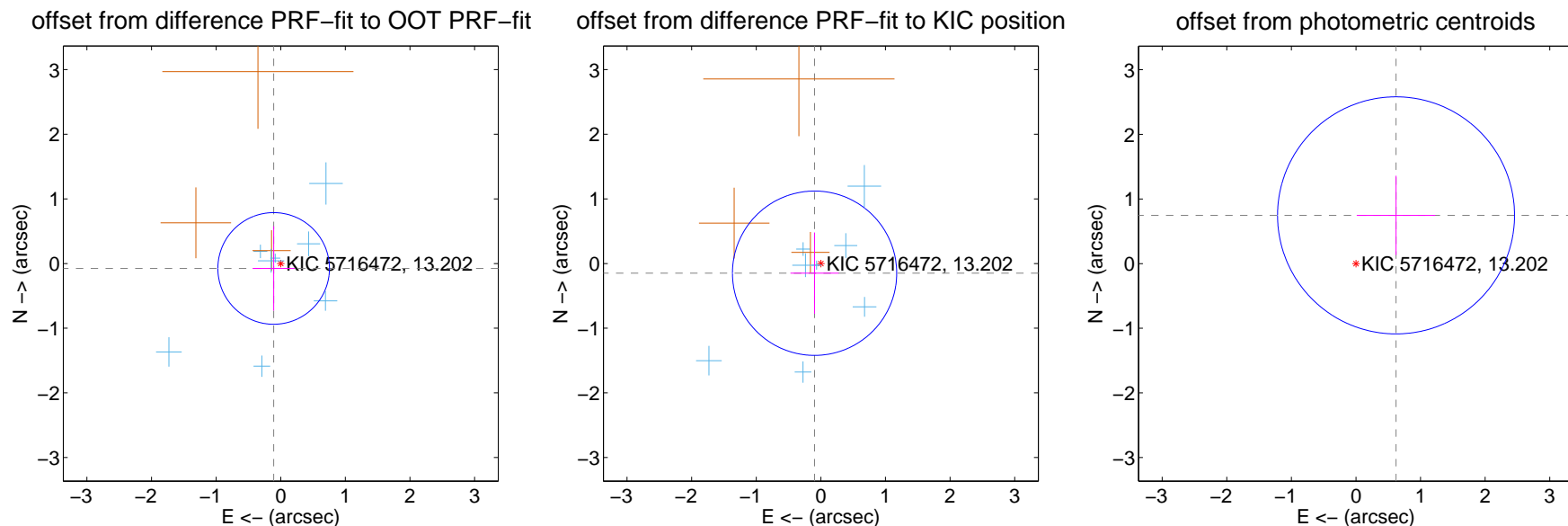
DV Centroid Data

Supplemental centroid analysis for 005716472-01. Kepler magnitude: 13.20. Transit SNR 6.10

There are 8 quarters with good PRF difference image offsets

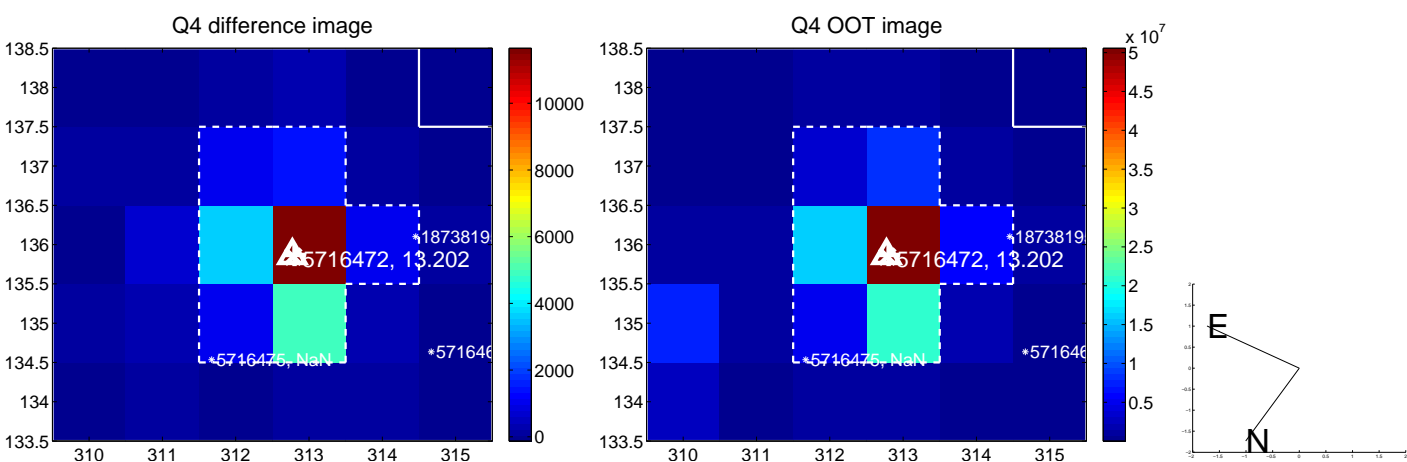
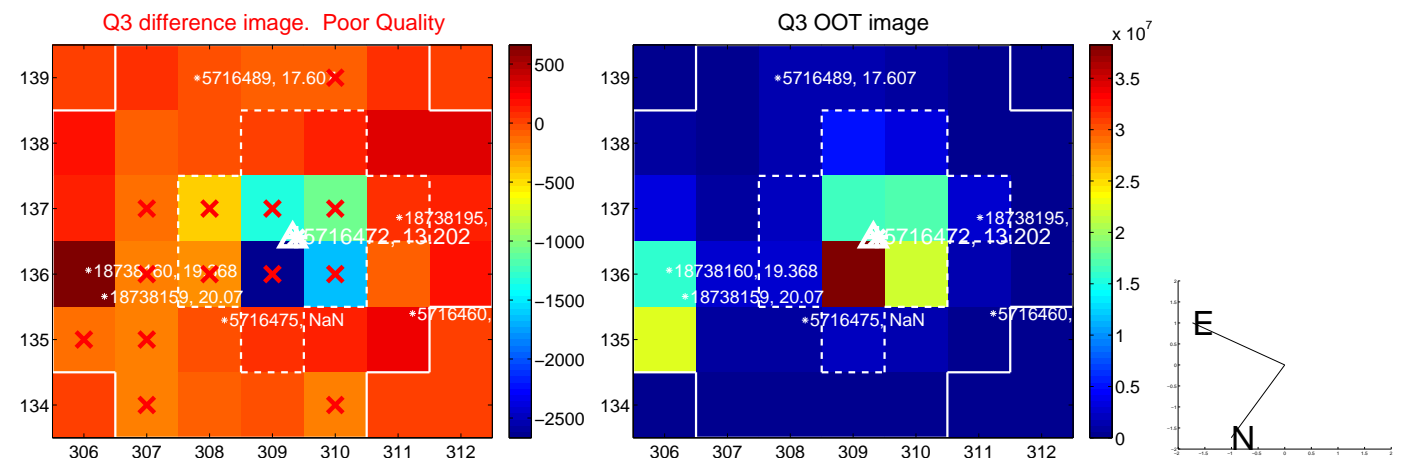
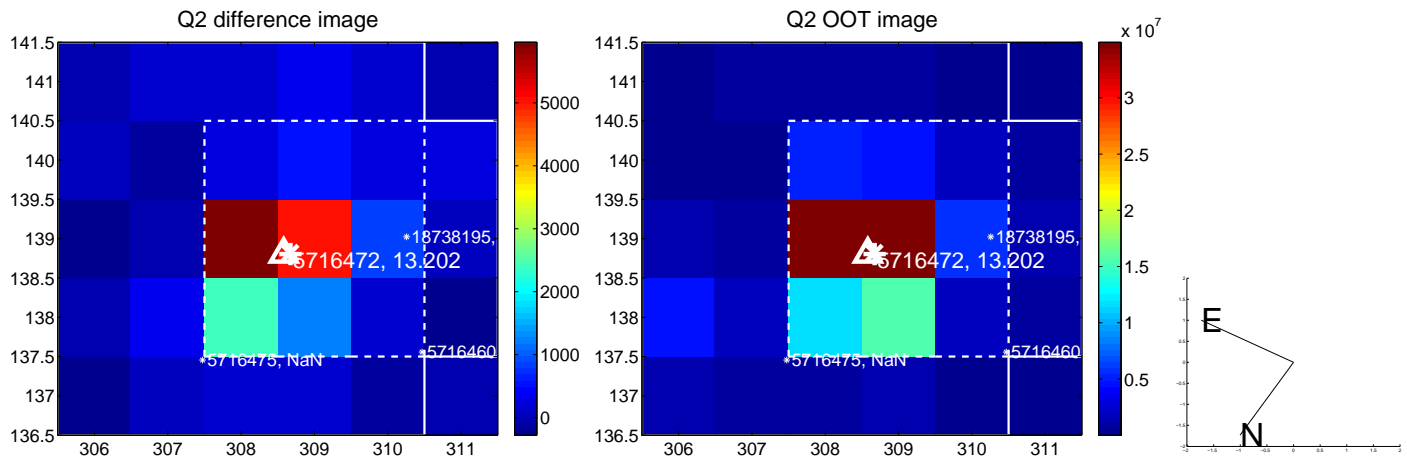
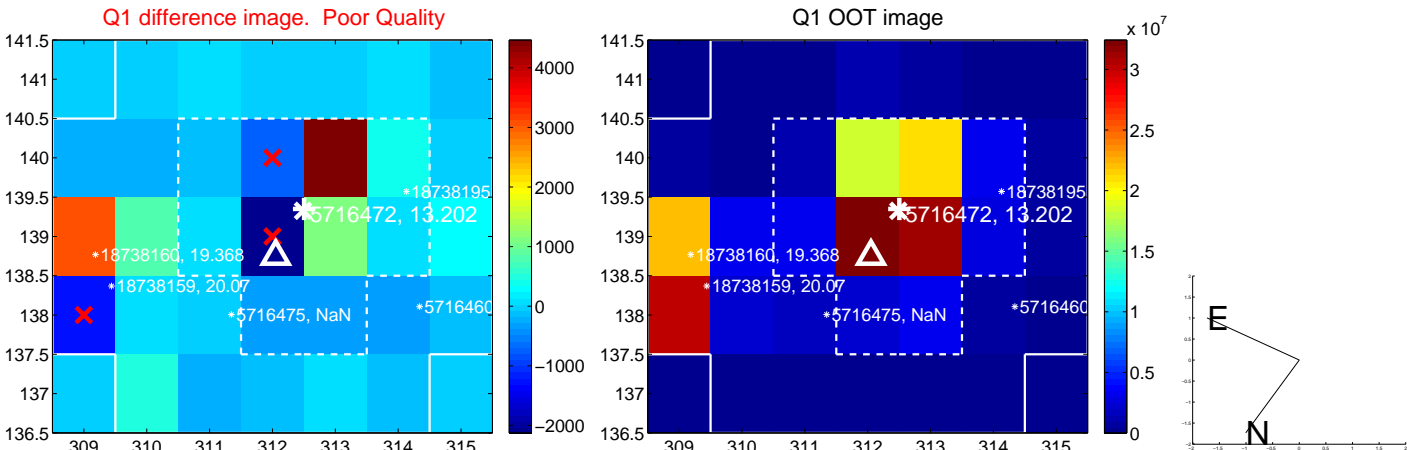
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.133 ± 0.288	0.46	0.110 ± 0.326	-0.076 ± 0.653
PRF-fit source offset from KIC position	0.179 ± 0.424	0.42	0.097 ± 0.373	-0.150 ± 0.629
photometric centroid source offset	0.97 ± 0.61	1.59	-0.62 ± 0.61	0.75 ± 0.61

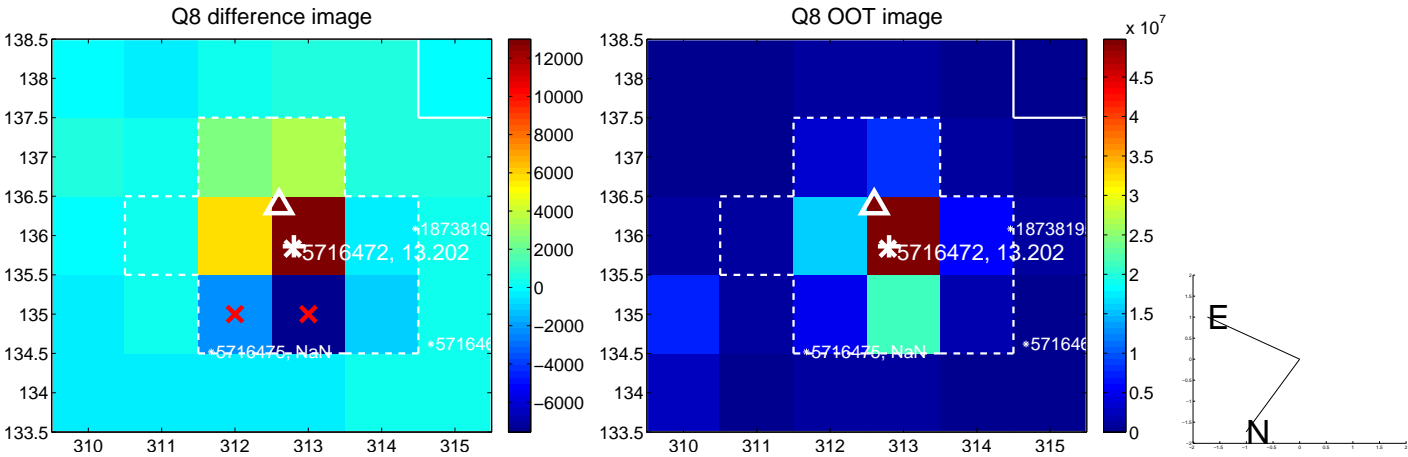
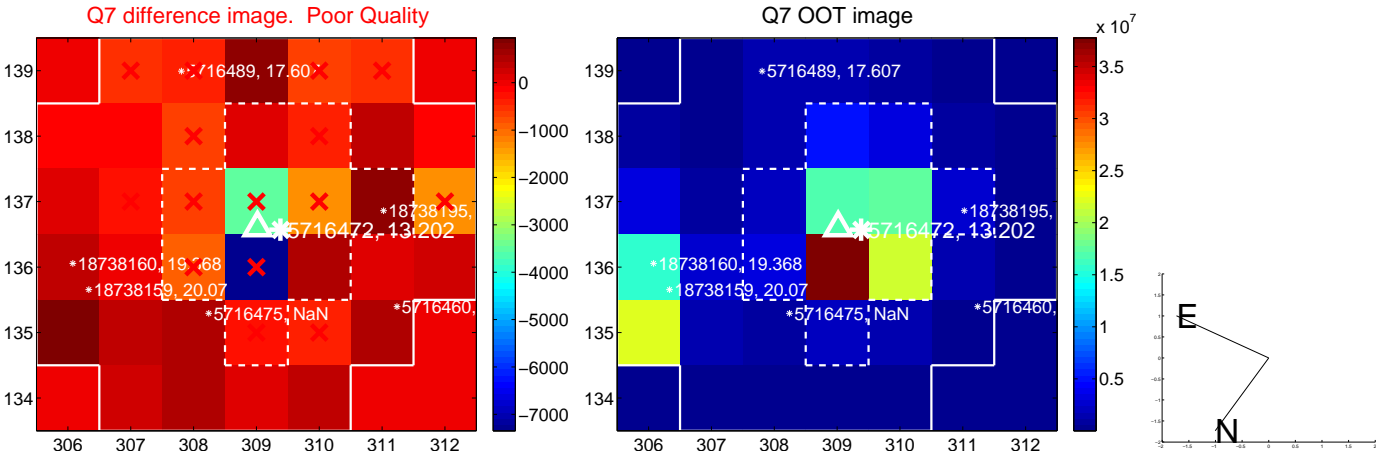
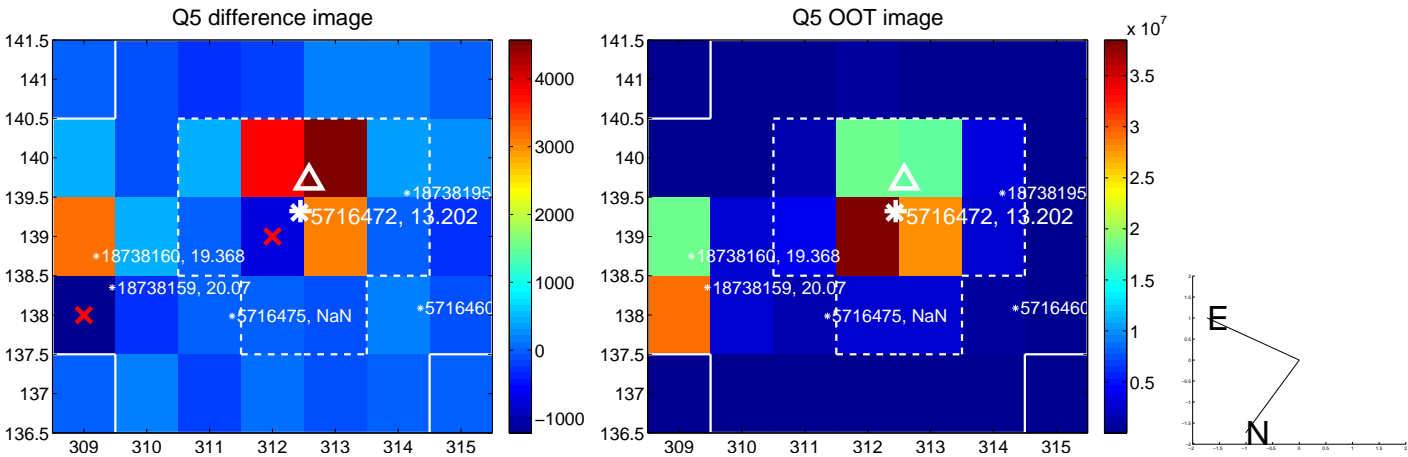


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

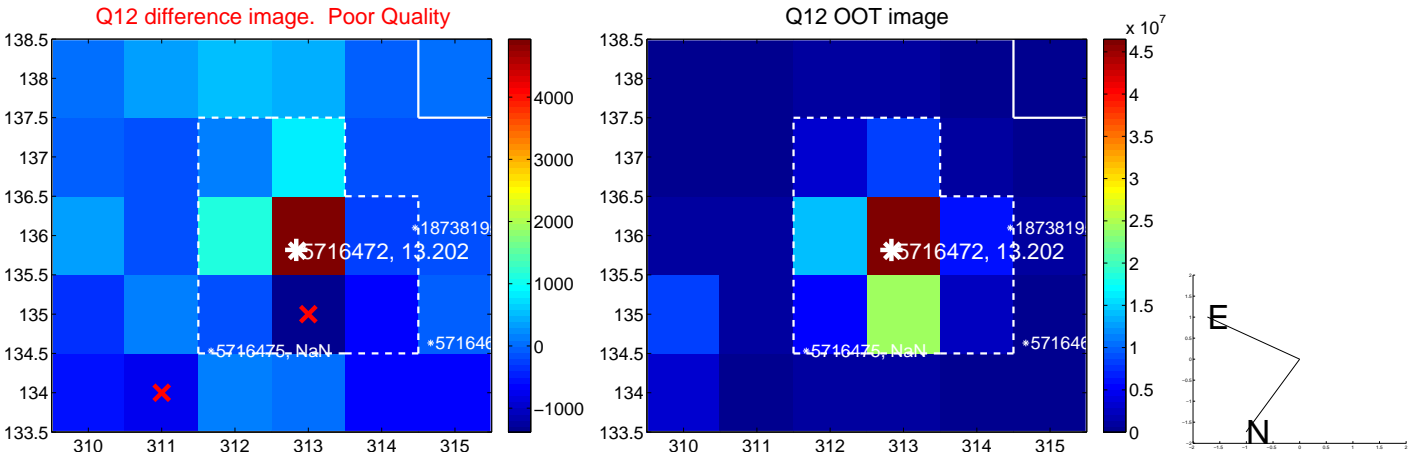
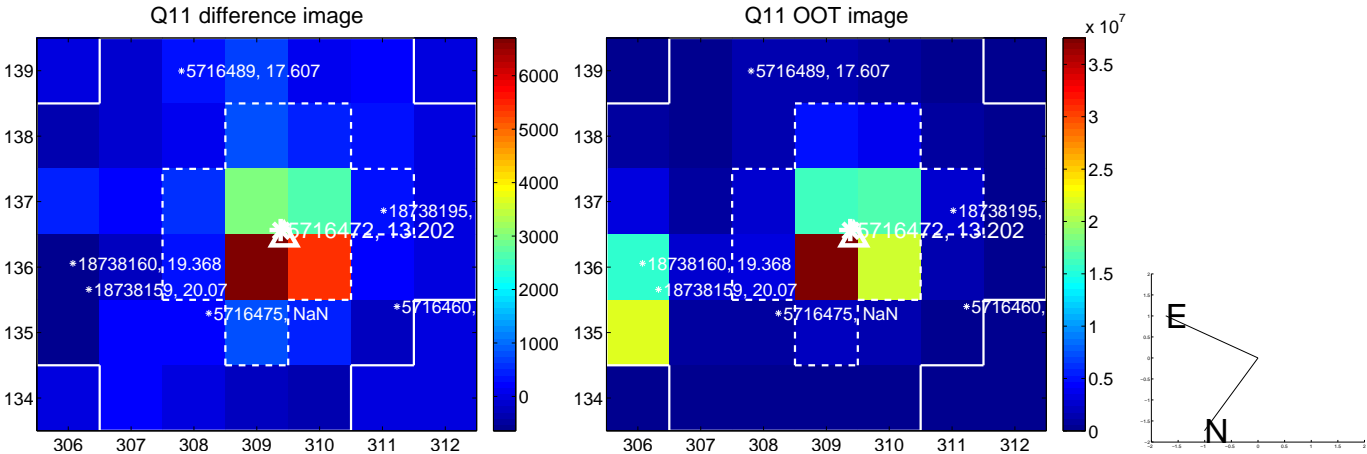
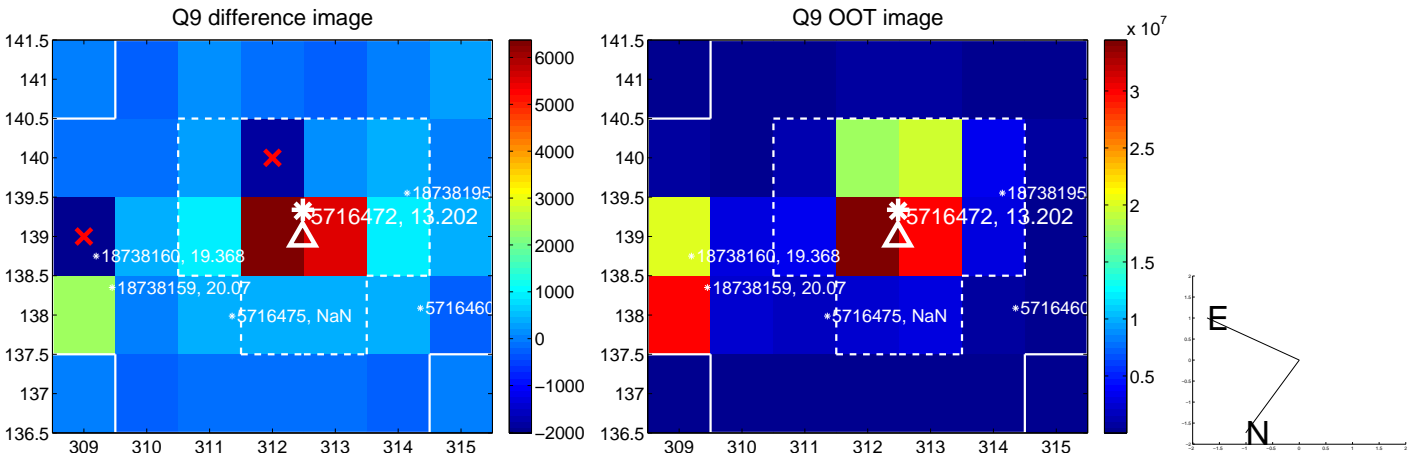
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



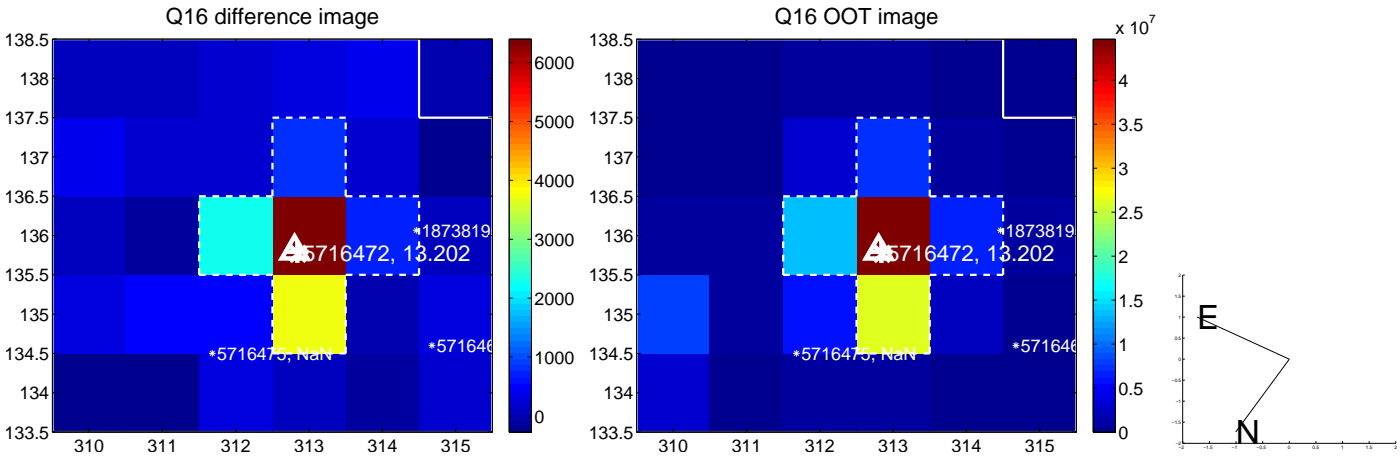
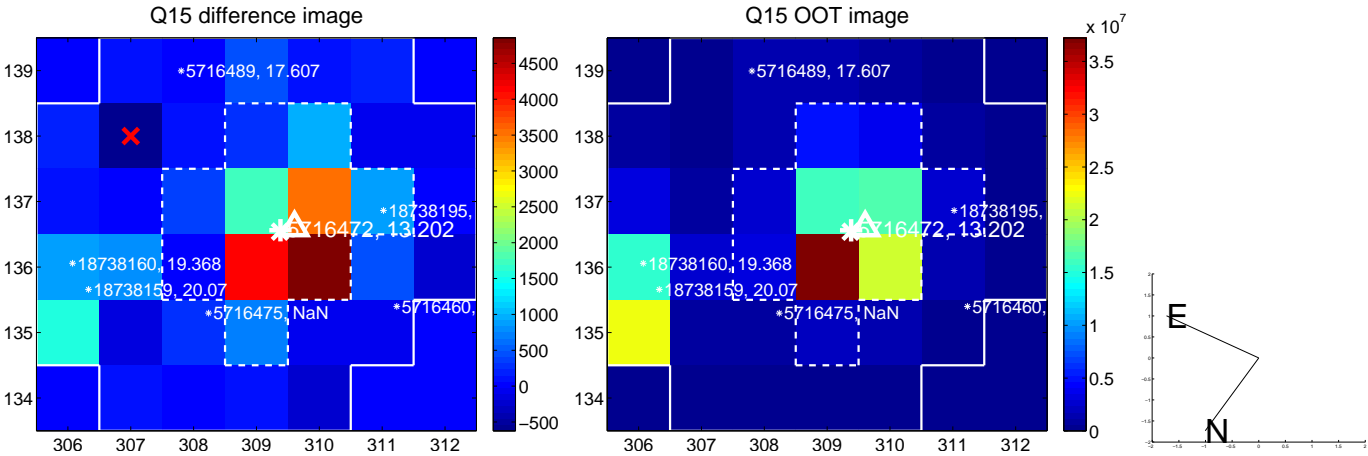
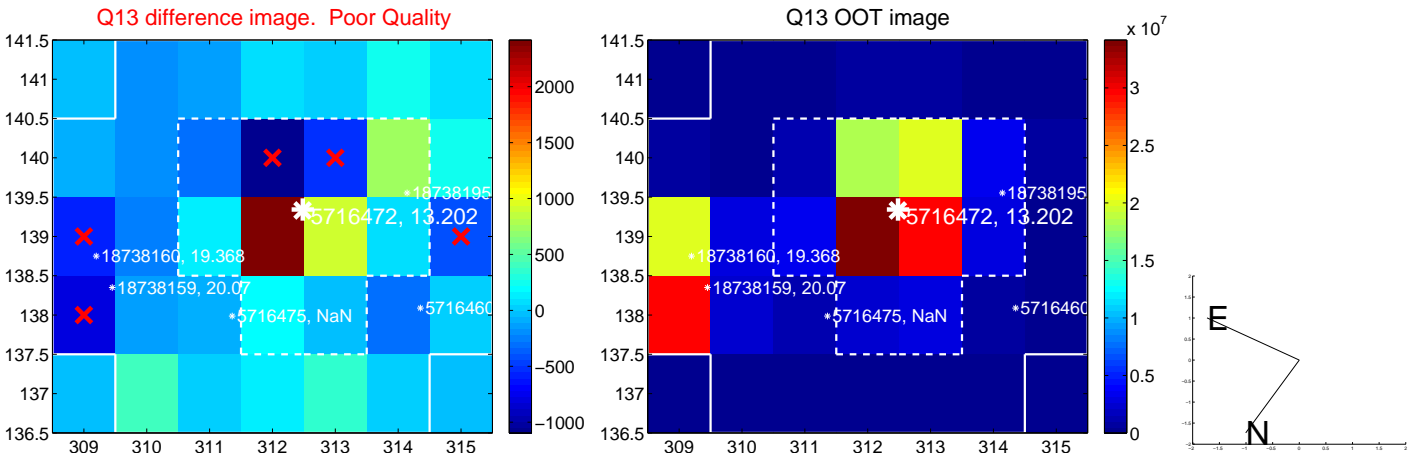
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



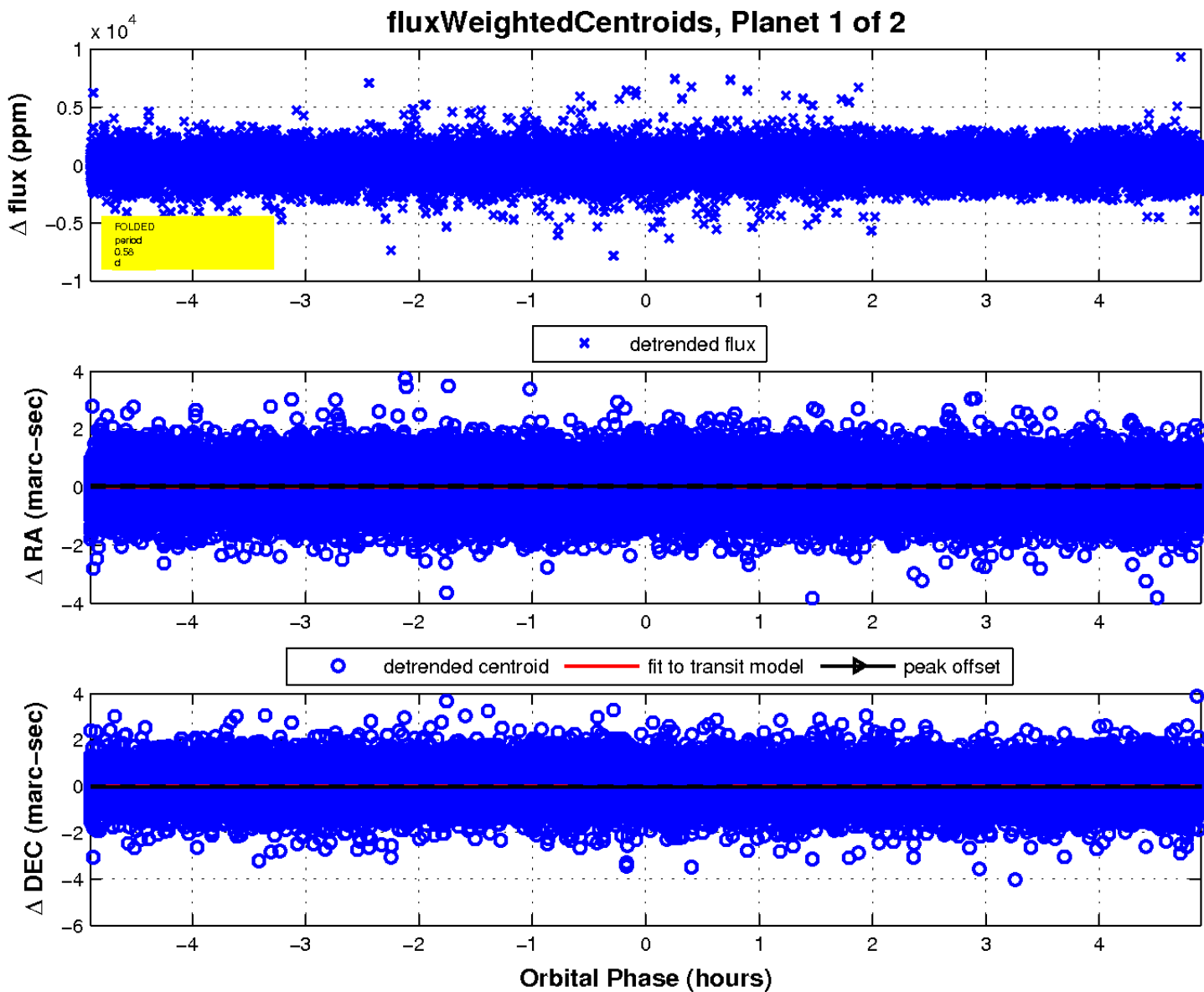
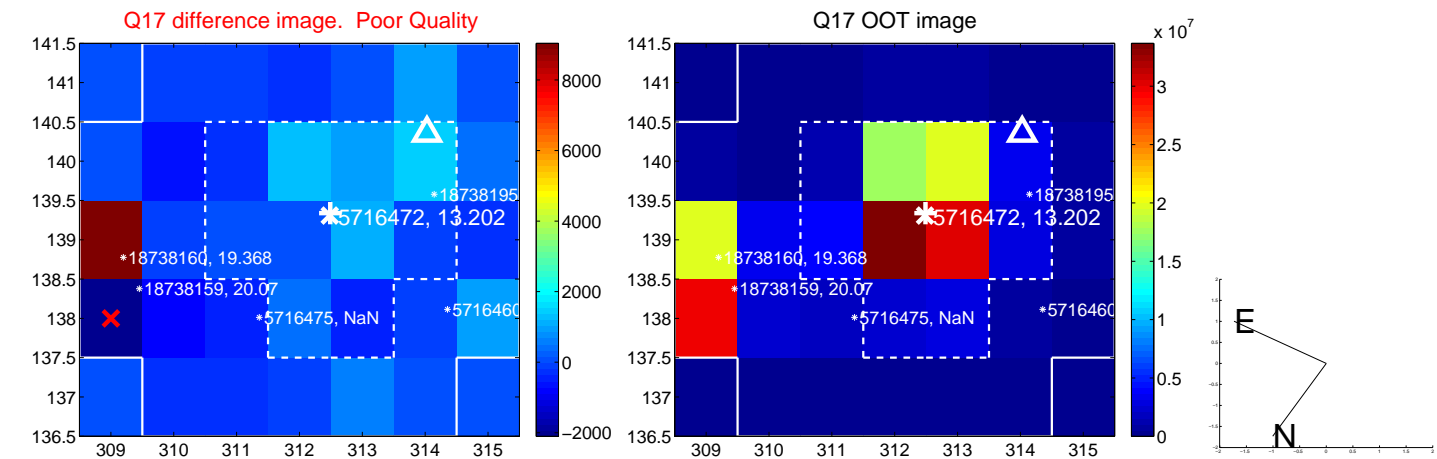
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

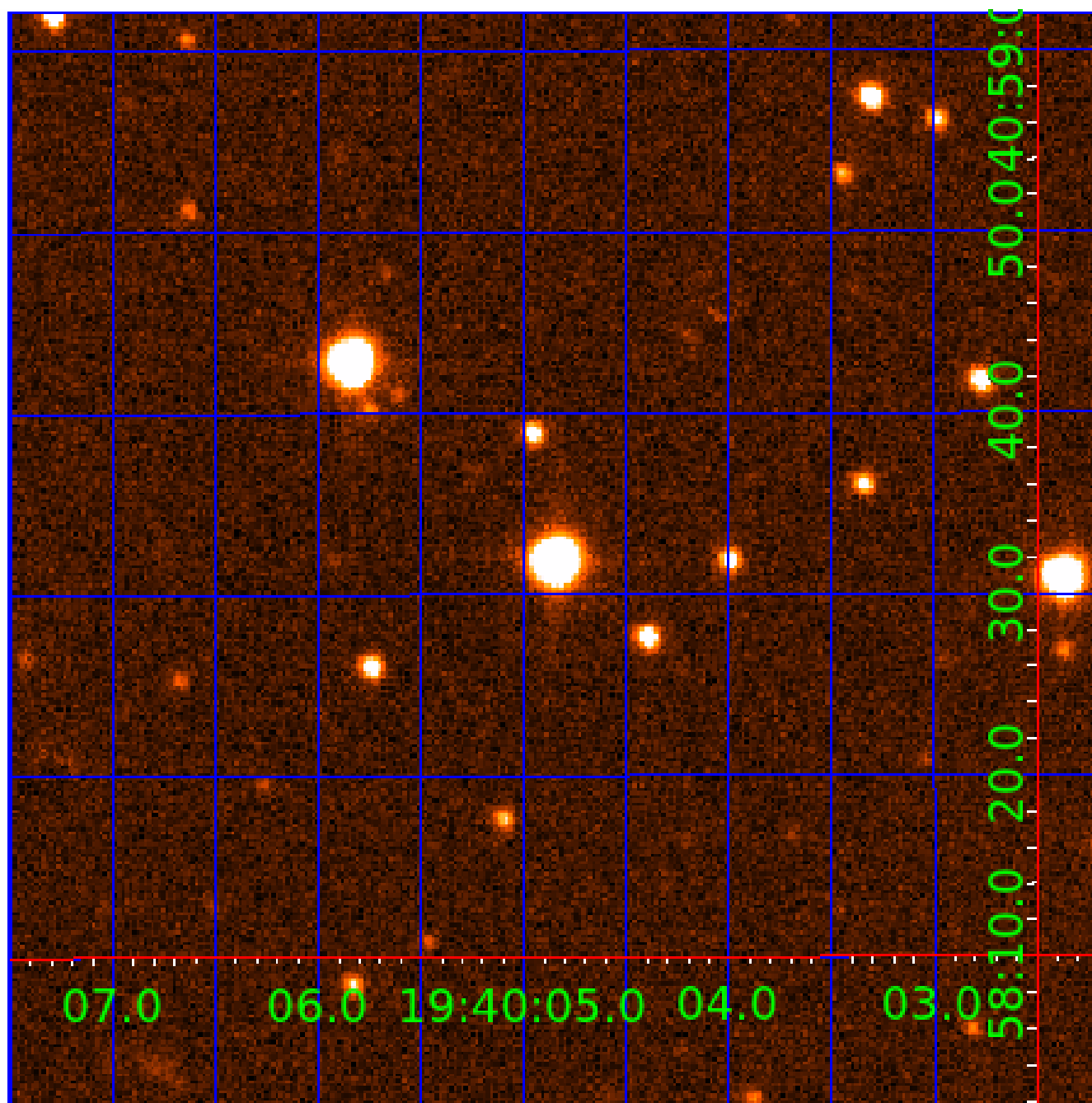


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005716472

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})
005716472-01	OBS	No	0.576198	131.534309	41.8	1.633	9.3	6.1	1.63	6556	1.21	20347.02
005716472-02	OBS	No	1.152424	131.824768	66.1	3.599	8.2	8.8	1.63	6556	1.68	8074.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005716472-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005716472-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

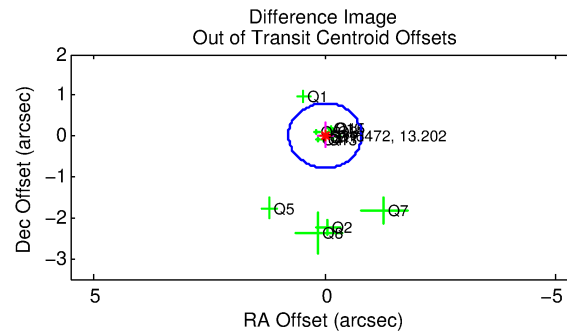
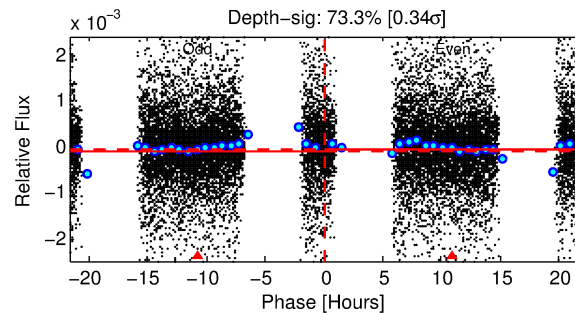
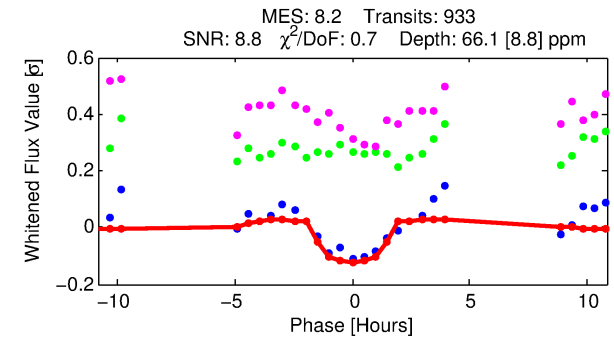
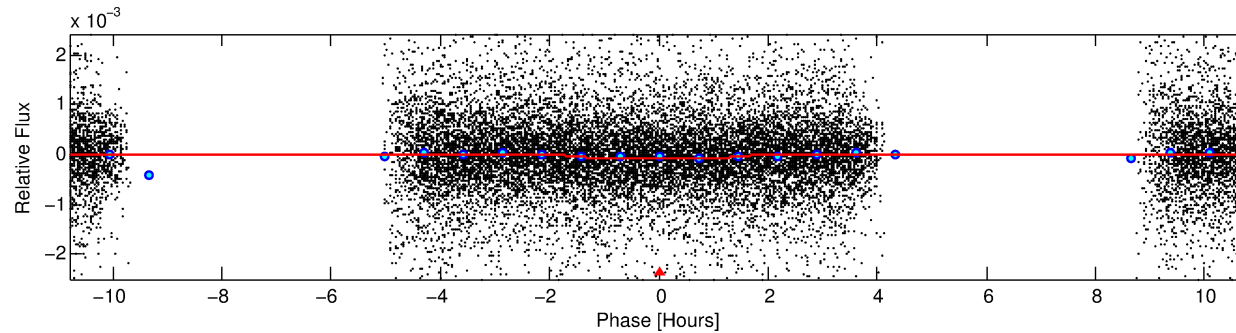
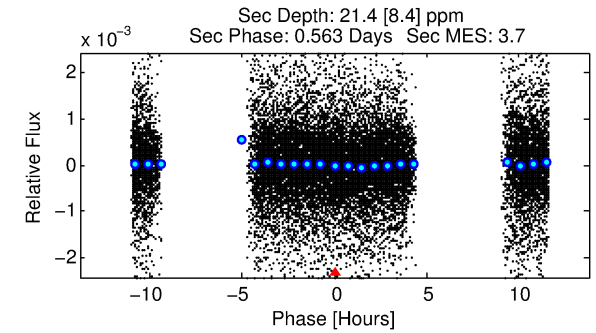
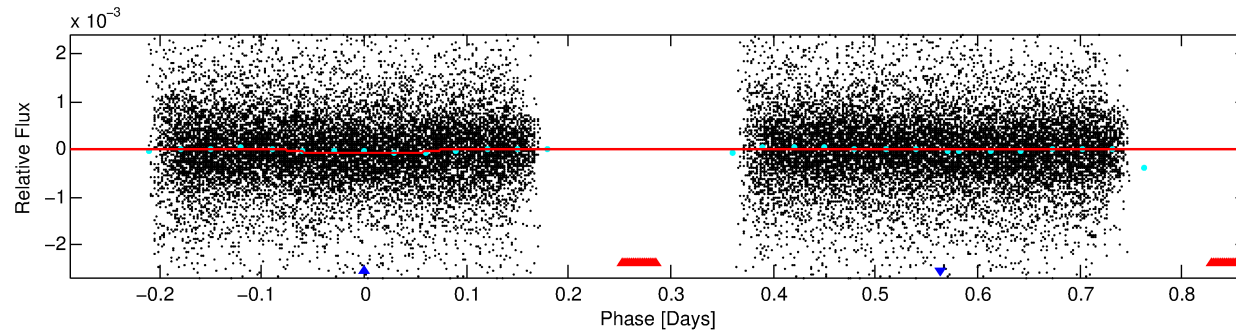
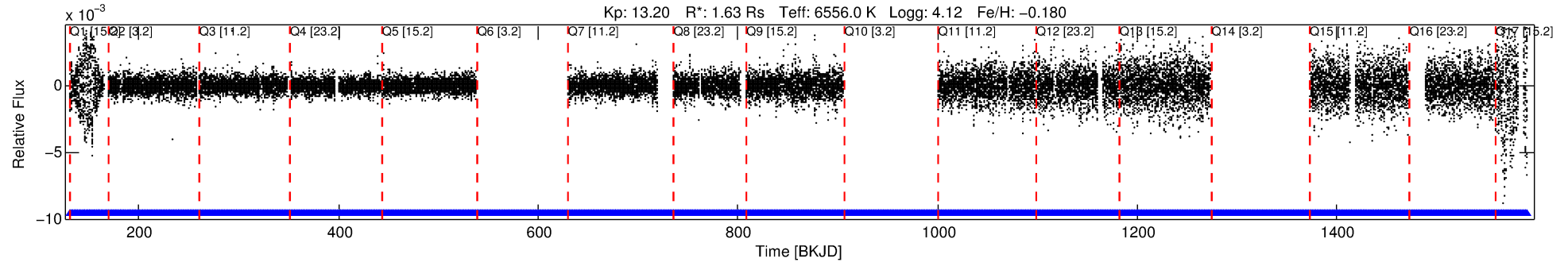
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005716472-02

No Significant Match Found

DV One-Page Summary

KIC: 5716472 Candidate: 2 of 2 Period: 1.152 d



DV Fit Results:

Period = 1.15242 [0.00002] d
Epoch = 131.8248 [0.0048] BKJD
Rp/R* = 0.0094 [0.0017]
a/R* = 1.23 [0.40]
b = 0.96 [0.07]
Seff = 8074.47 [3361.51]
Teq = 2417 [252] K
Rp = 1.68 [0.59] Re
a = 0.0234 [0.0062] AU
Ag = 2.29 [1.51] [0.85σ]
Teffp = 4597 [624] K [3.24σ]

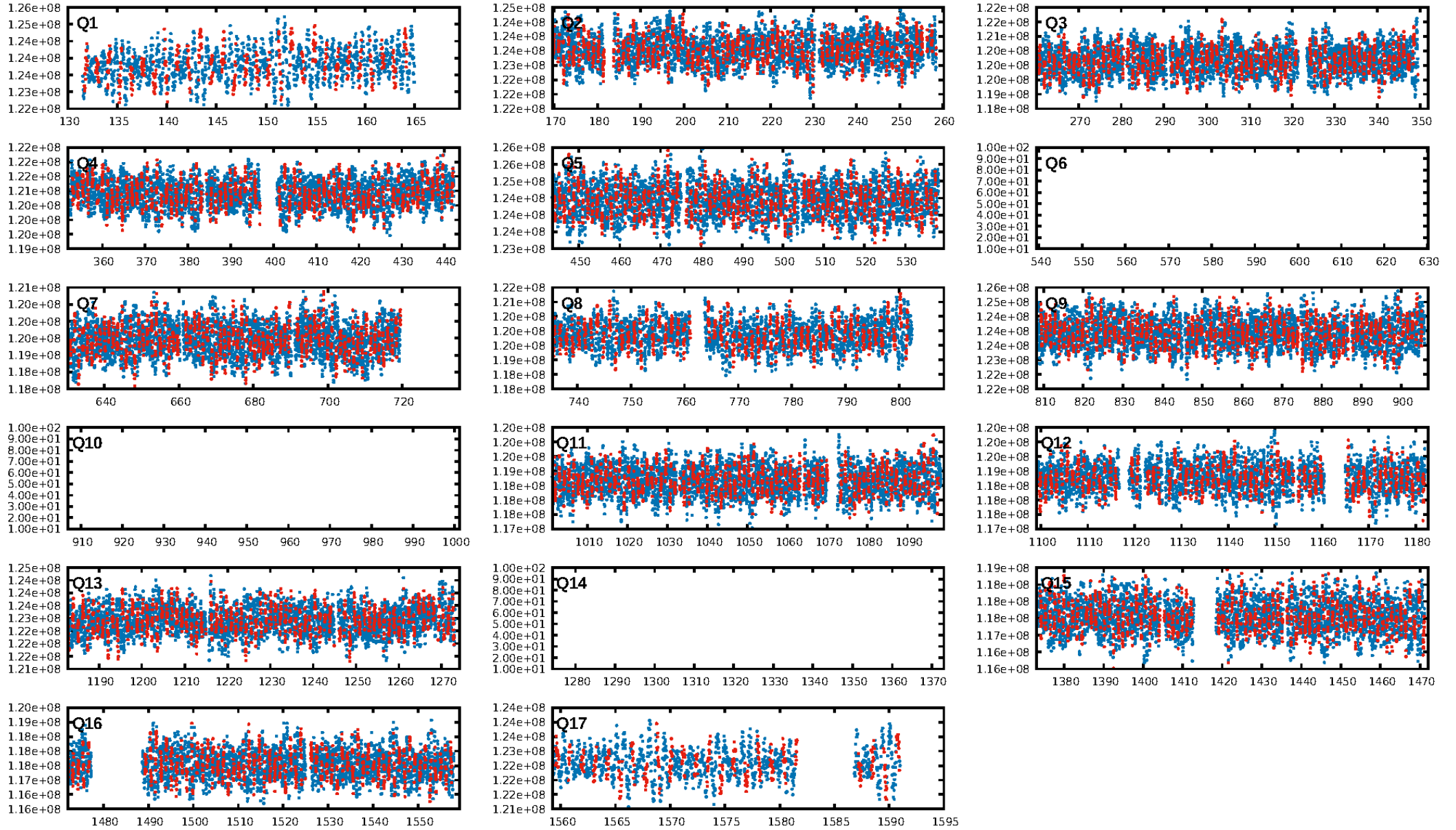
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.50σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.26e-20
RollingBand-fgt: 1.00 [880/880]
GhostDiagnostic-chr: 1.864
Centroid-sig: 0.0%
Centroid-so: 0.942 arcsec [2.37σ]
OotOffset-rm: 0.014 arcsec [0.05σ]
KicOffset-rm: 0.084 arcsec [0.29σ]
OotOffset-st: 1/4/3/5 [13]
KicOffset-st: 1/4/3/5 [13]
DiffImageQuality-fgm: 0.69 [9/13]
DiffImageOverlap-fno: 0.00 [0/14]

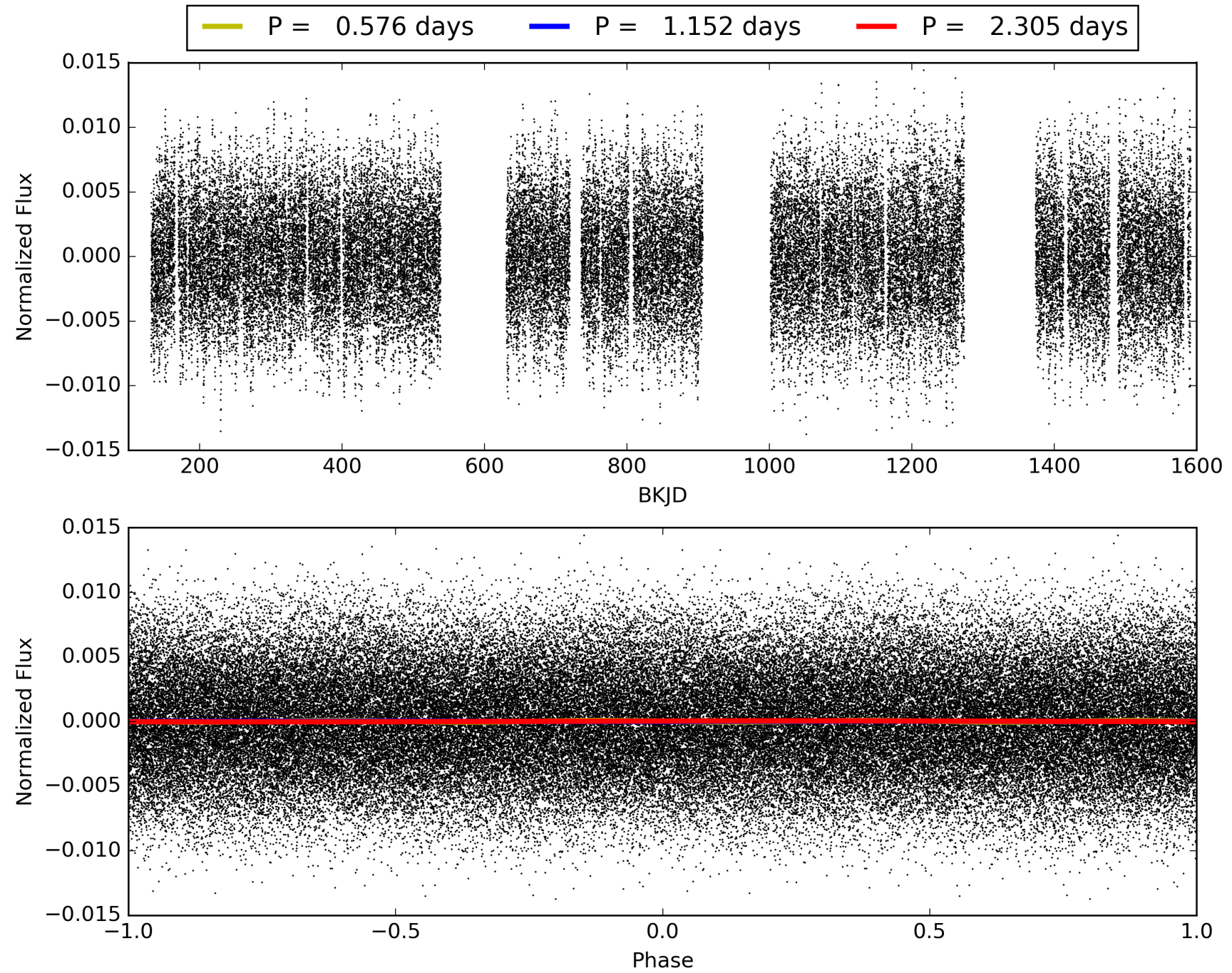
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:04:07 Z

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

TCE 005716472-02, PDC Light Curves

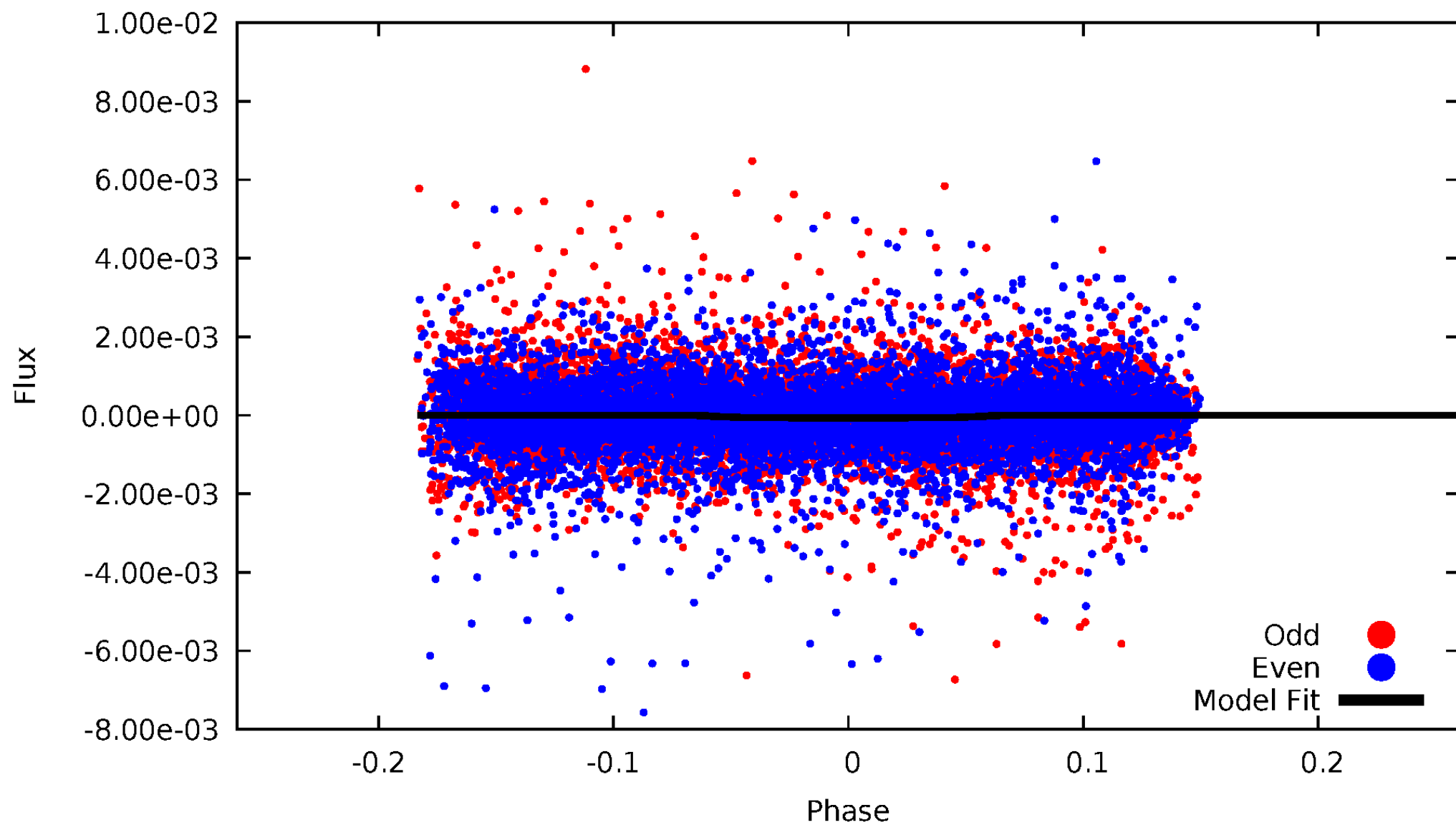


TCE 005716472-02



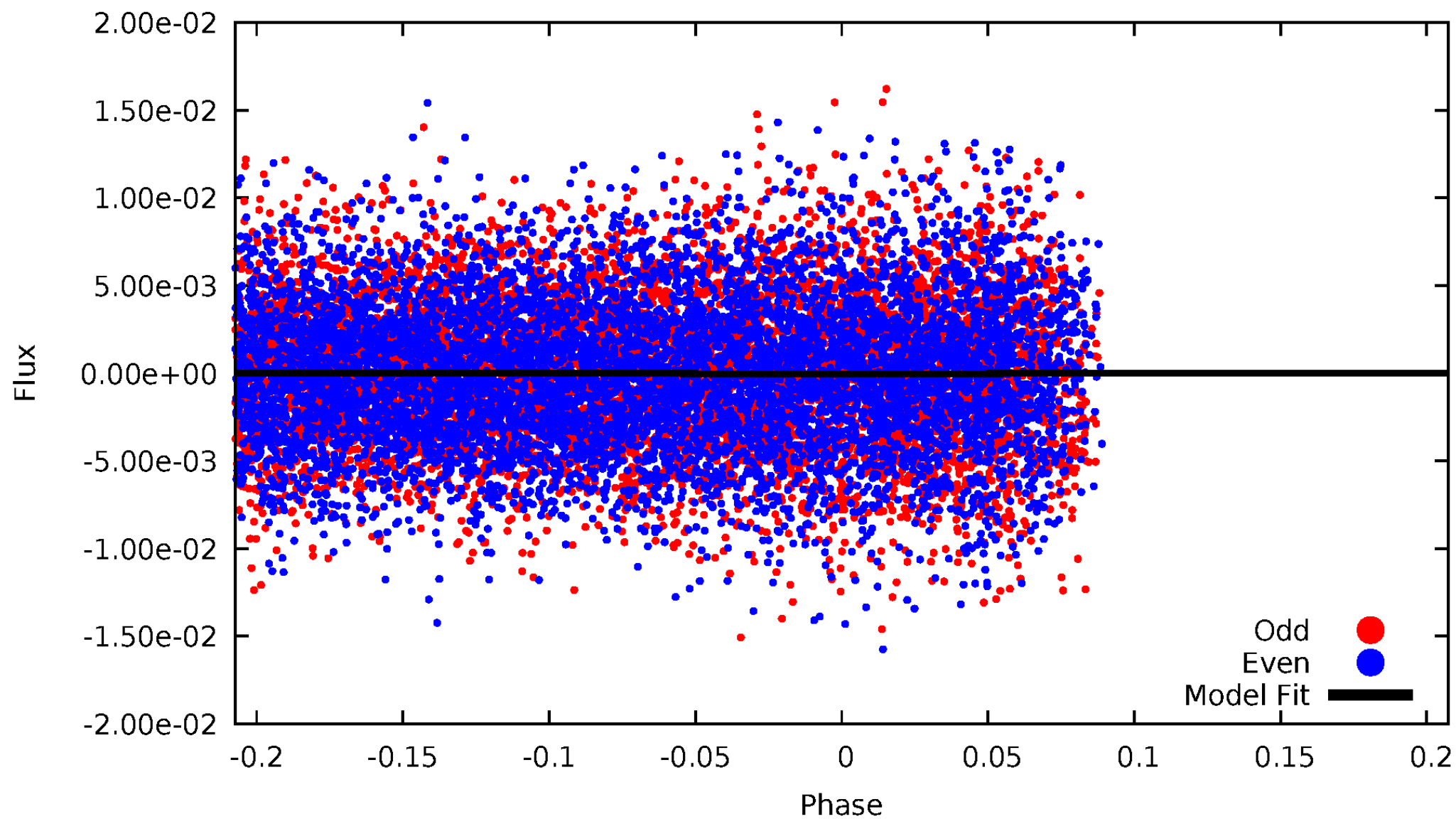
DV Odd/Even

TCE 005716472-02



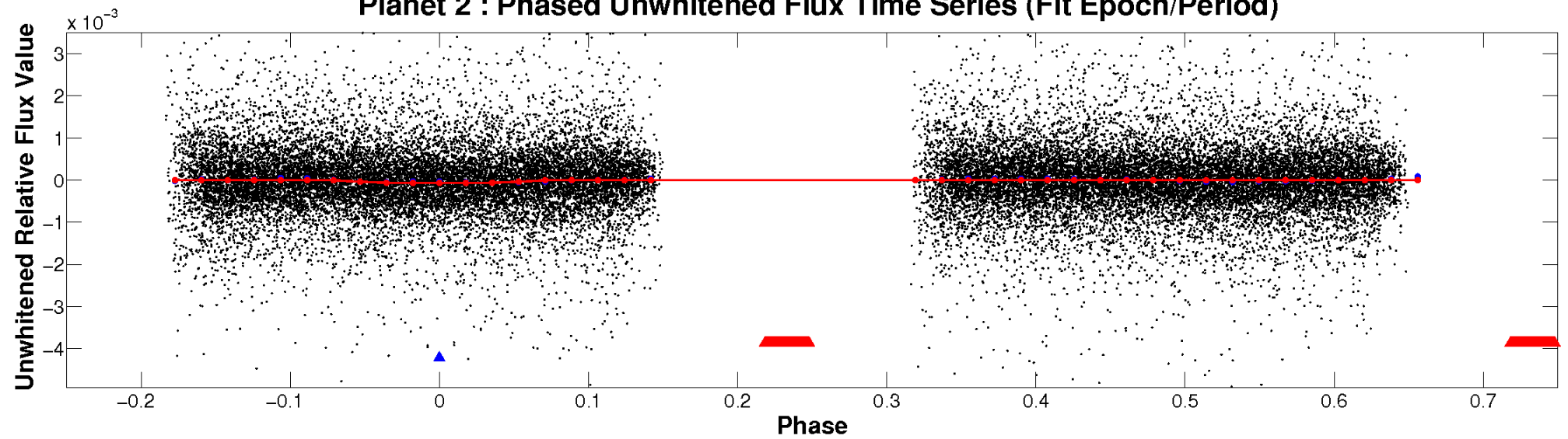
ALT Odd/Even

TCE 005716472-02

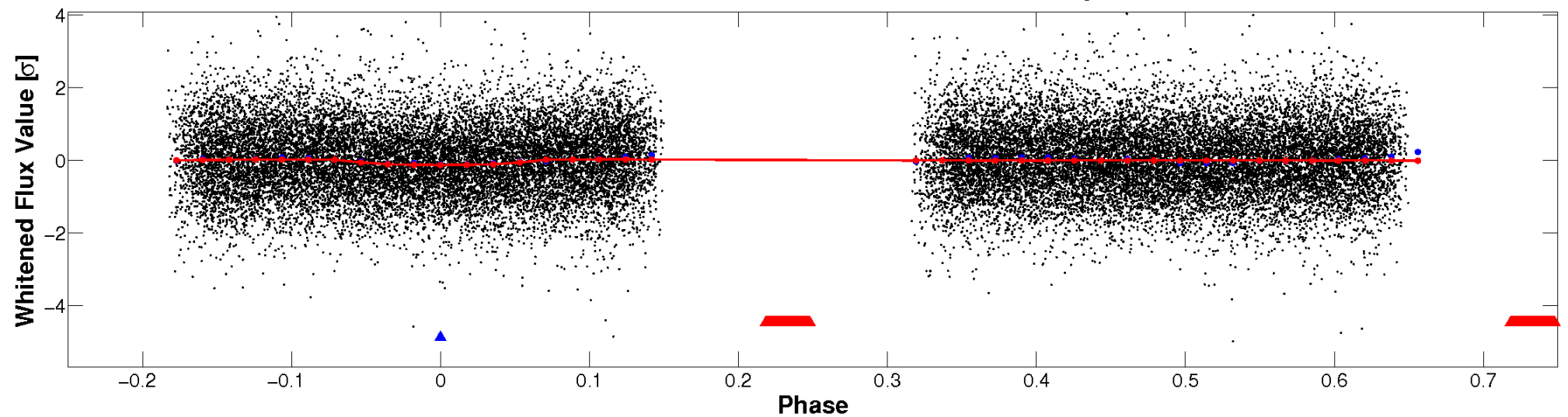


Non-Whitened Vs. Whitened Light Curve

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

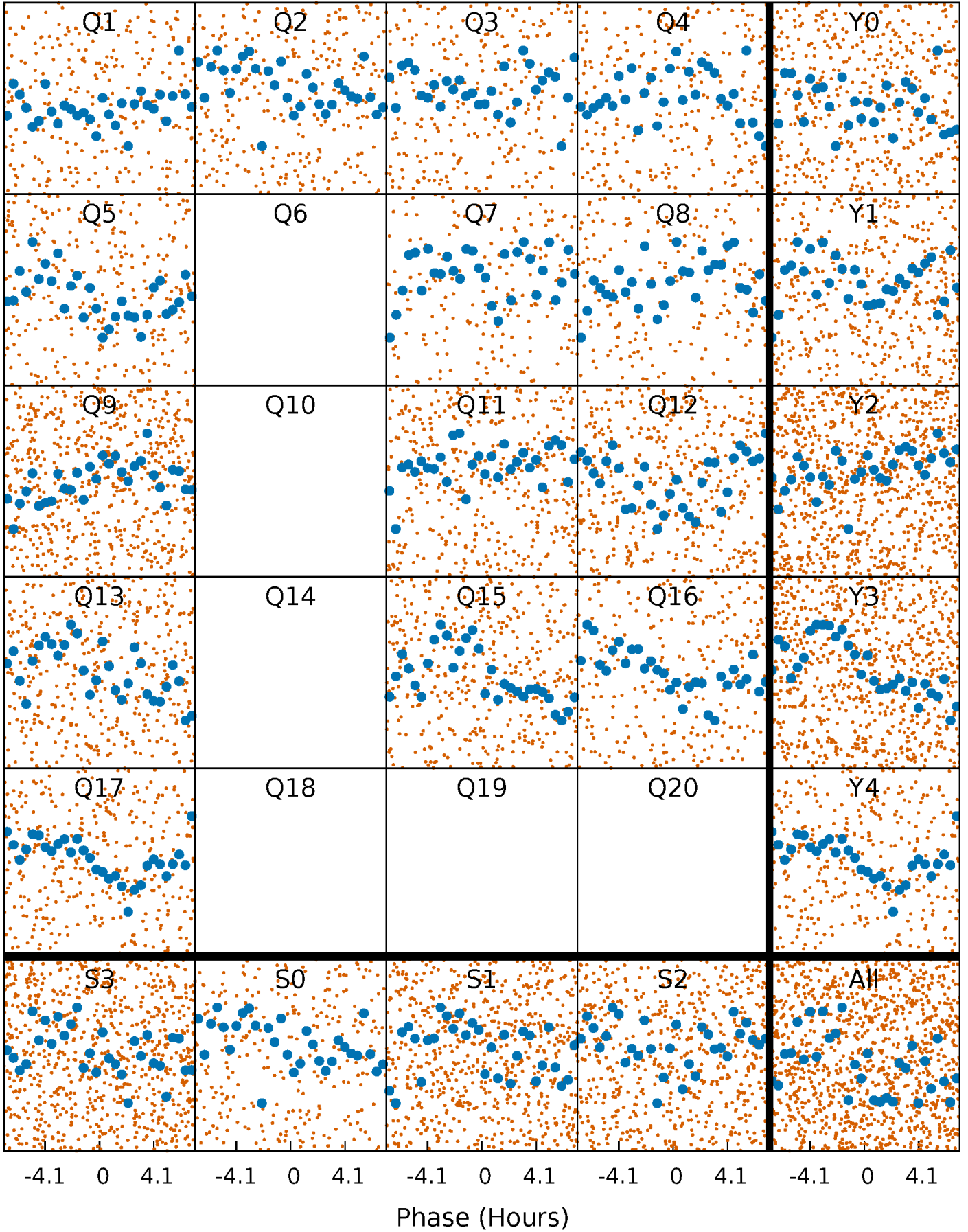


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



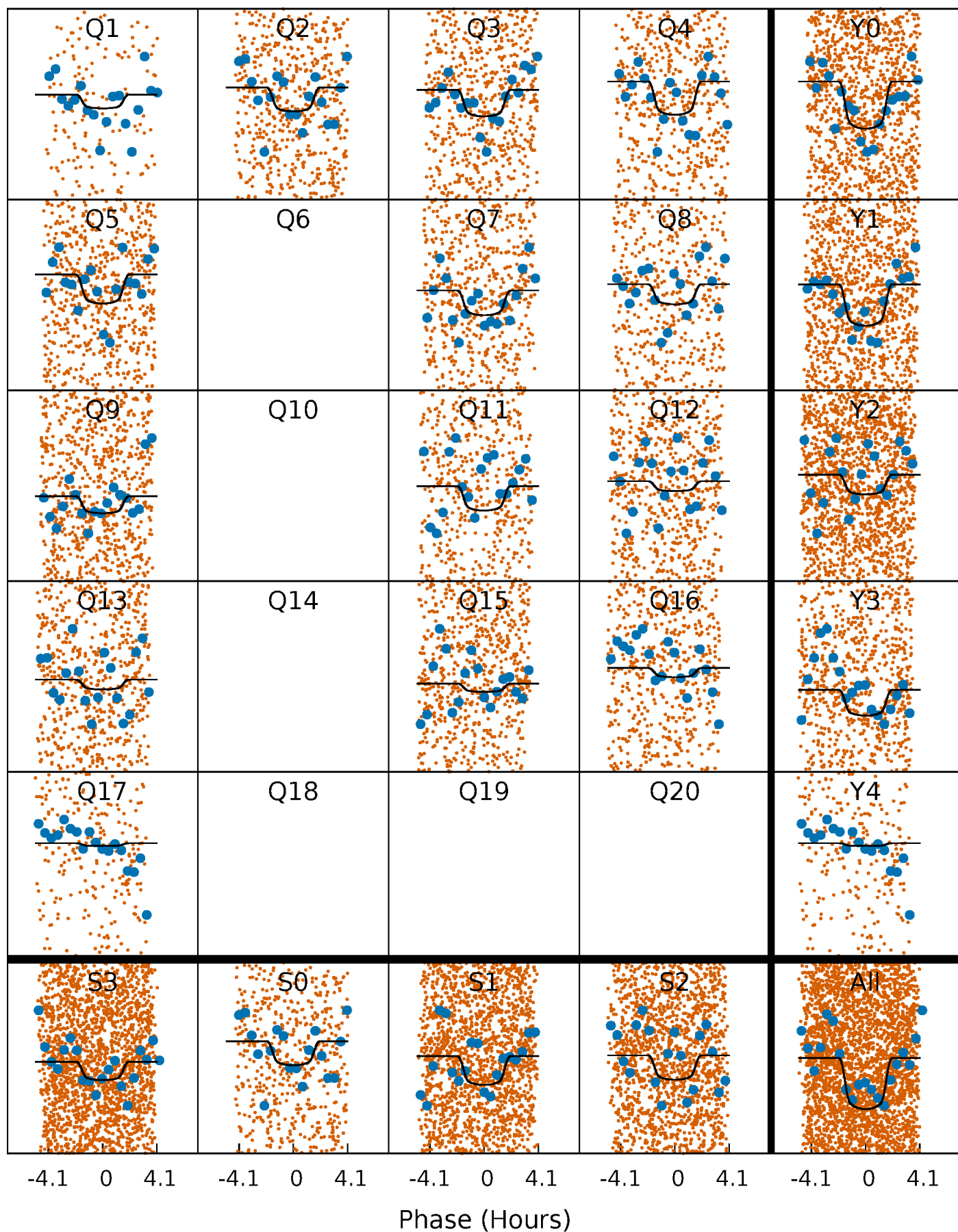
PDC Quarter-Phased Transit Curves

TCE 005716472-02 $P = 1.152424$ Days $T_0 = 131.824768$ (BKJD)



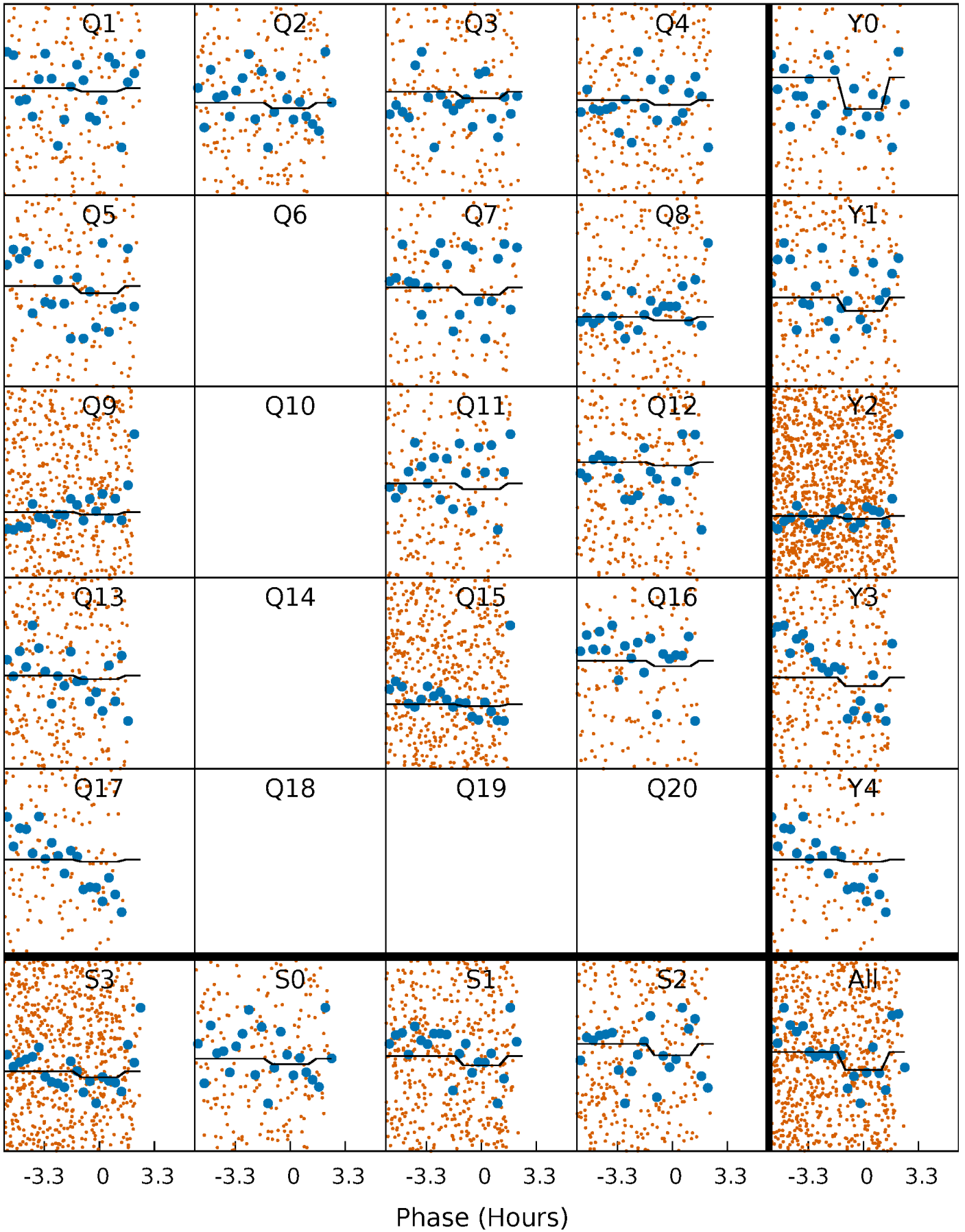
DV Quarter-Phased Transit Curves

TCE 005716472-02 P= 1.152424 Days $T_0=131.824768$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

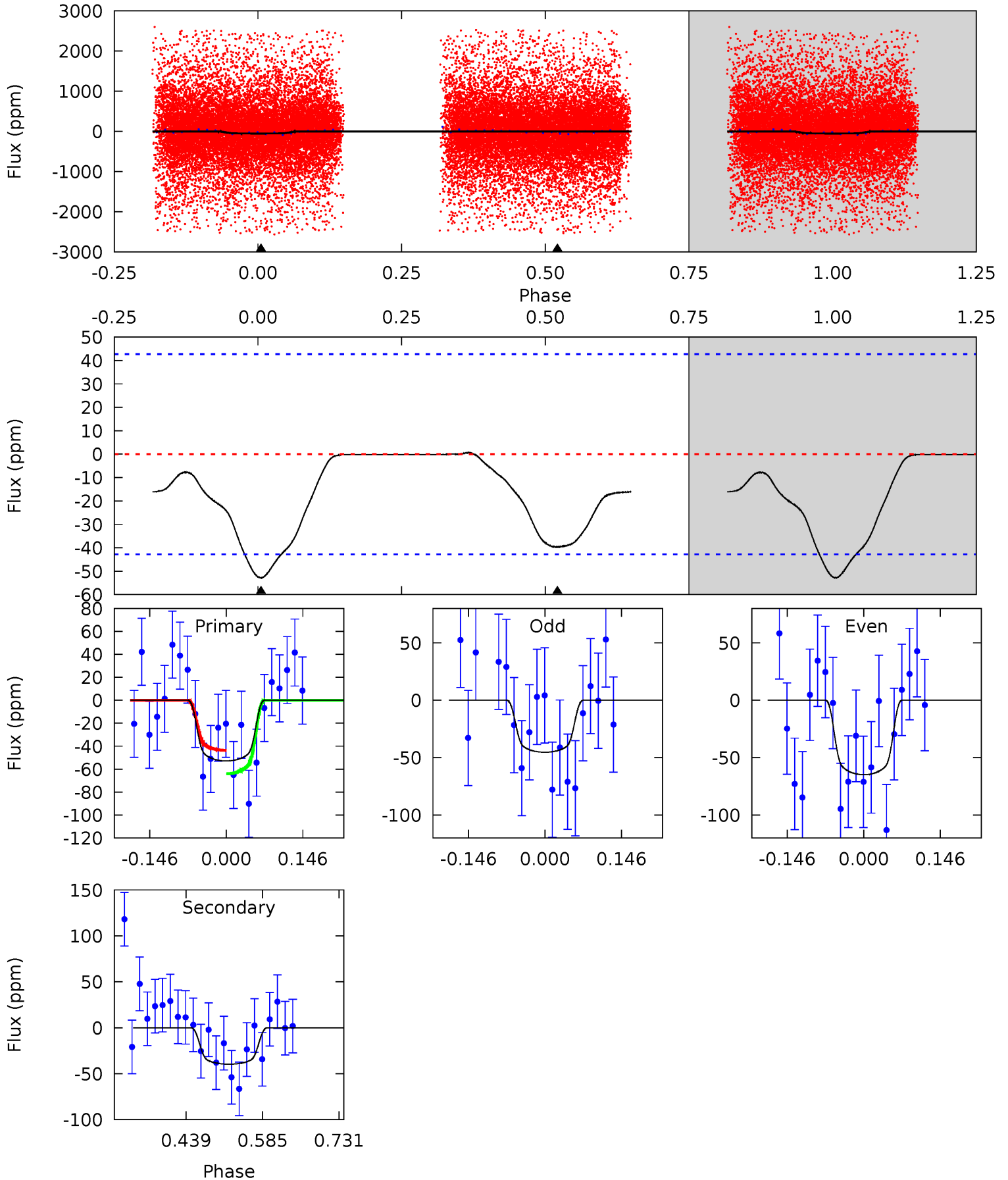
TCE 005716472-02 P= 1.152431 Days $T_0=131.894499$ (BKJD)



DV Model-Shift Uniqueness Test

005716472-02, P = 1.152424 Days, E = 130.672344 Days

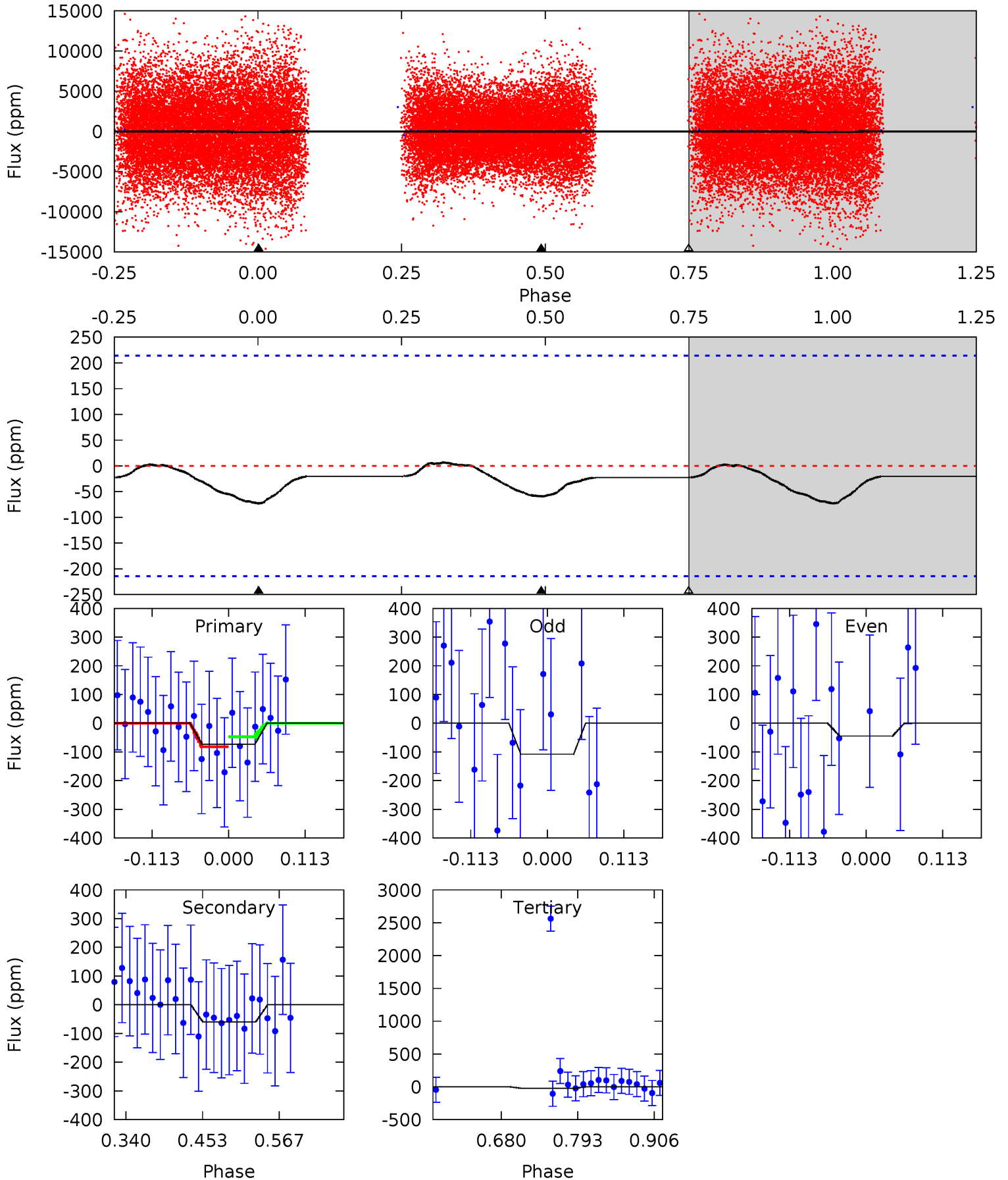
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.54	4.16	0	0	4.48	1.45	0.71	5.54	5.54	4.16	4.16	1.10	1.31	0.01	1.07



Alt Model-Shift Uniqueness Test

005716472-02, P = 1.152431 Days, E = 130.742068 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.55	1.26	0.48	0	4.54	1.58	0.16	1.07	1.55	0.78	1.26	0.64	-1.70	0.09	0.37



Stellar Parameters For KIC 005716472

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6556^{+175}_{-214}	$4.120^{+0.220}_{-0.180}$	$-0.180^{+0.250}_{-0.300}$	$1.632^{+0.503}_{-0.457}$	$1.286^{+0.181}_{-0.221}$	$0.417^{+0.514}_{-0.200}$
	+3%/-3%	+5%/-4%	+139%/-167%	+31%/-28%	+14%/-17%	+123%/-48%
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 005716472-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-40 ± 10	$1.64^{+0.41}_{-0.36}$	3345^{+293}_{-265}	5251^{+649}_{-493}	$4.274^{+3.058}_{-1.756}$
Alt.	-60 ± 47	$1.23^{+0.39}_{-0.34}$	3361^{+266}_{-266}	6756^{+1890}_{-2100}	11^{+18}_{-8}

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 $A_{\text{obs}} \gg 1.0$

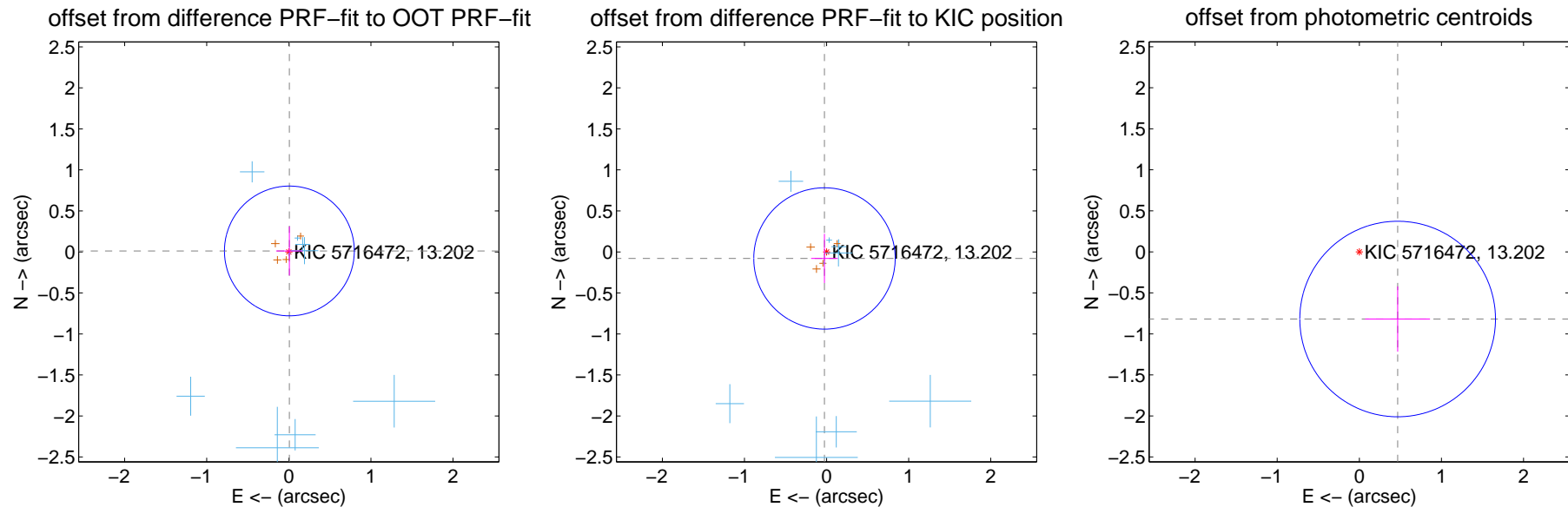
DV Centroid Data

Supplemental centroid analysis for 005716472-02. Kepler magnitude: 13.20. Transit SNR 8.77

There are 9 quarters with good PRF difference image offsets

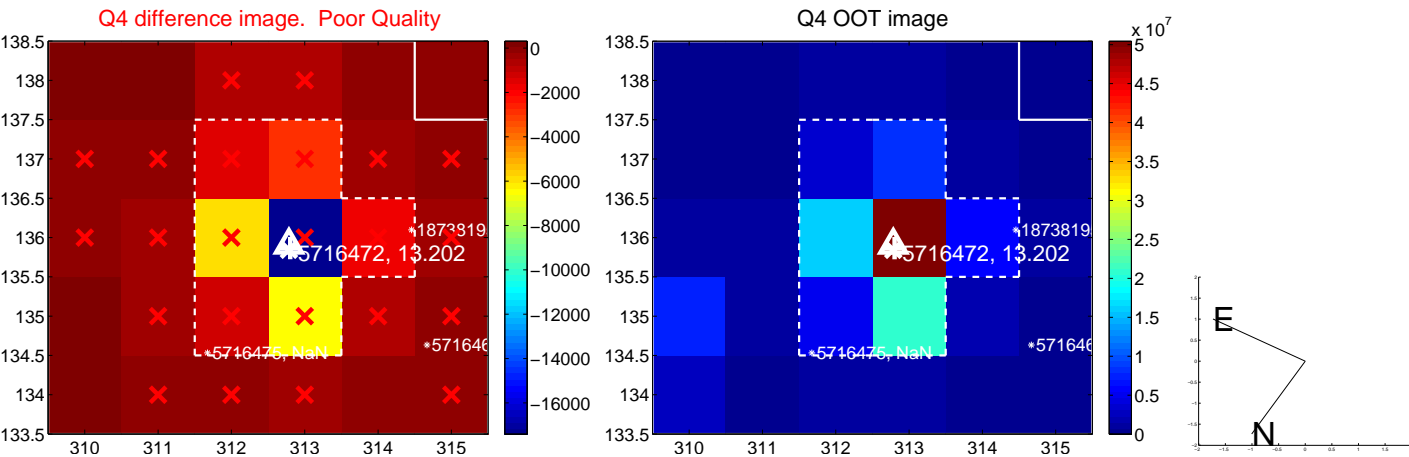
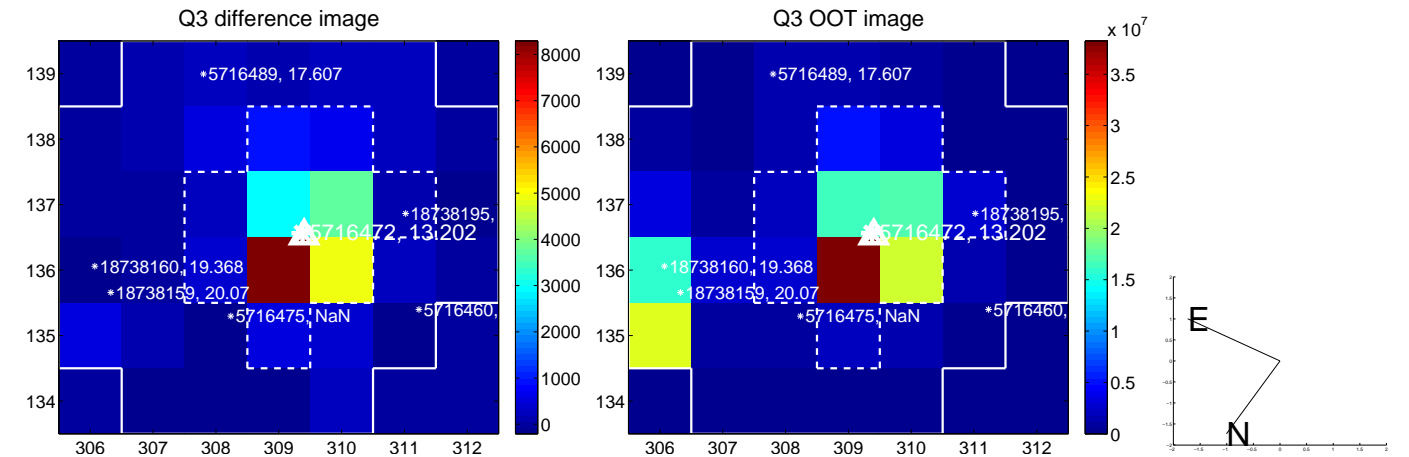
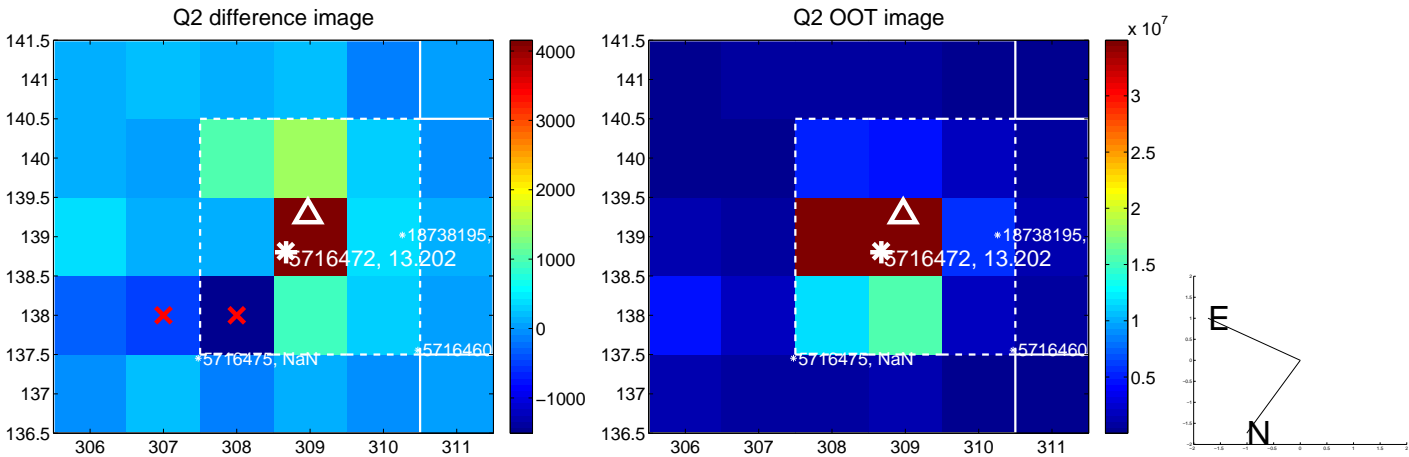
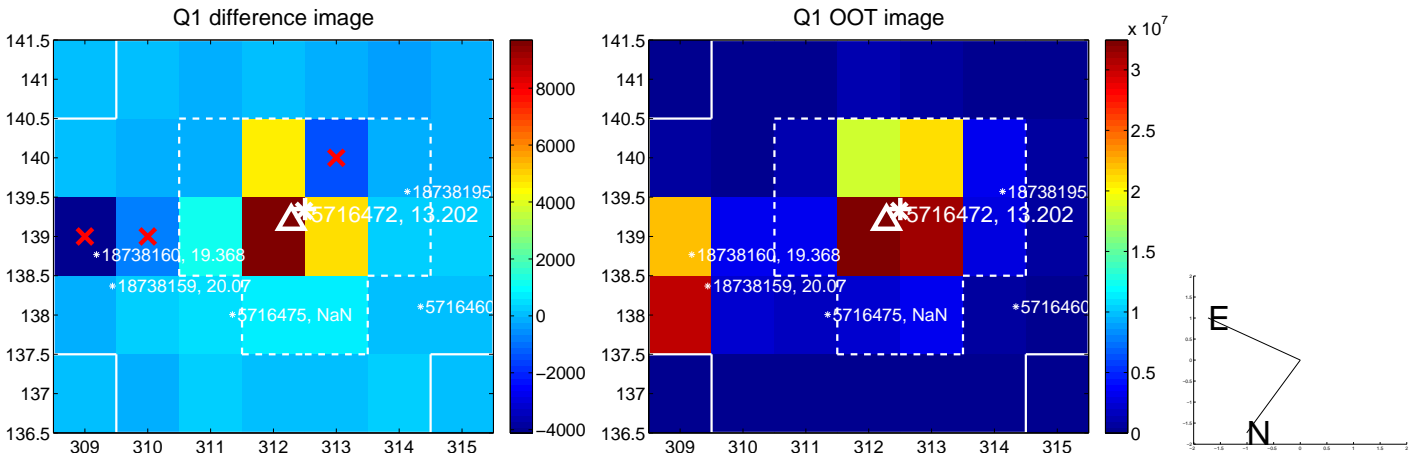
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.014 ± 0.264	0.05	-0.007 ± 0.162	0.012 ± 0.298
PRF-fit source offset from KIC position	0.084 ± 0.287	0.29	0.026 ± 0.163	-0.080 ± 0.299
photometric centroid source offset	0.94 ± 0.40	2.37	-0.47 ± 0.39	-0.82 ± 0.40

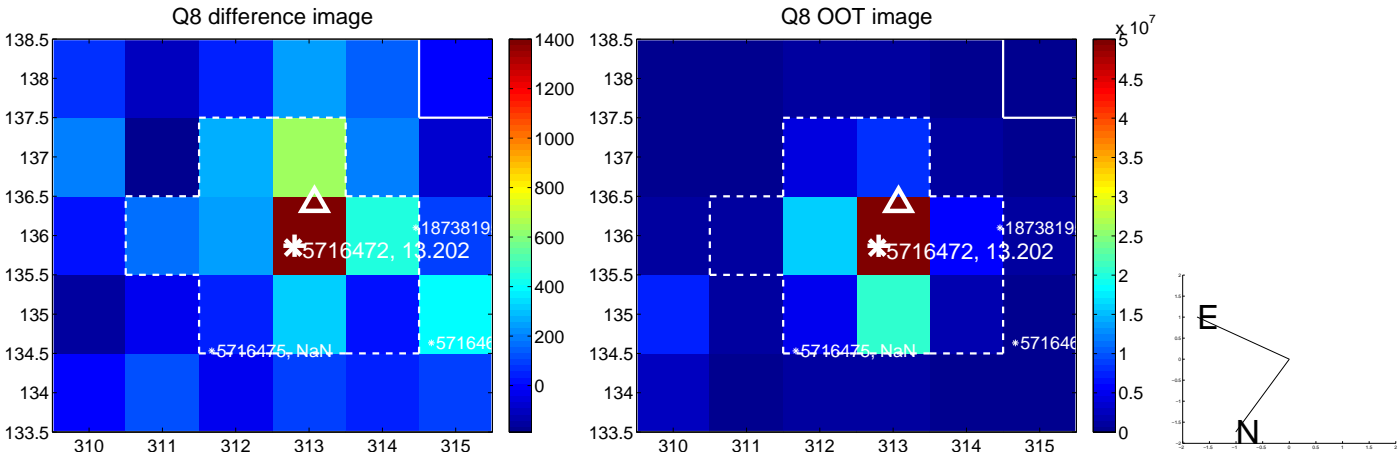
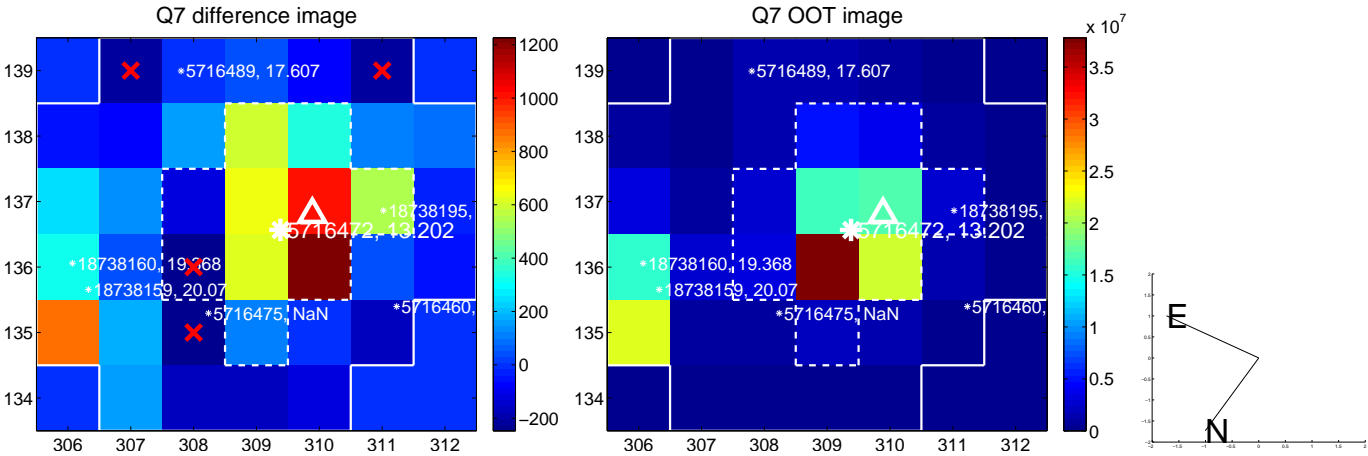
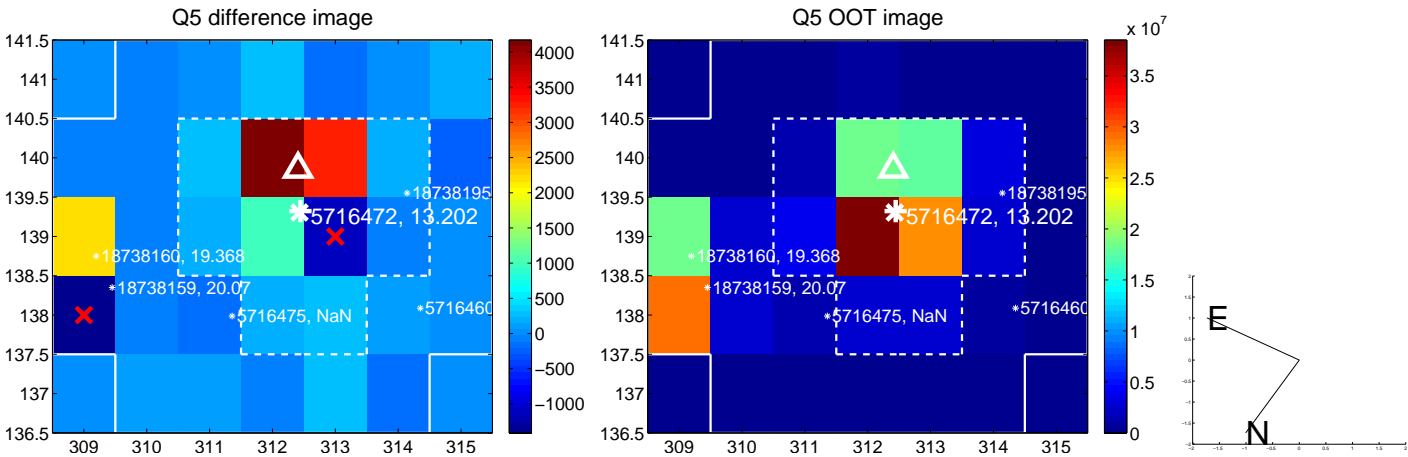


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

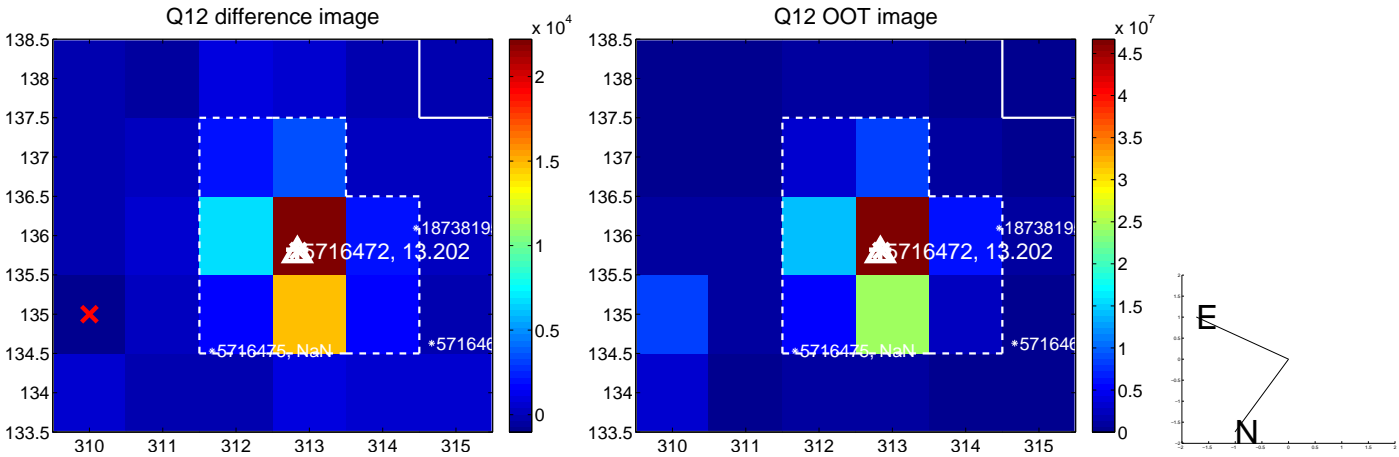
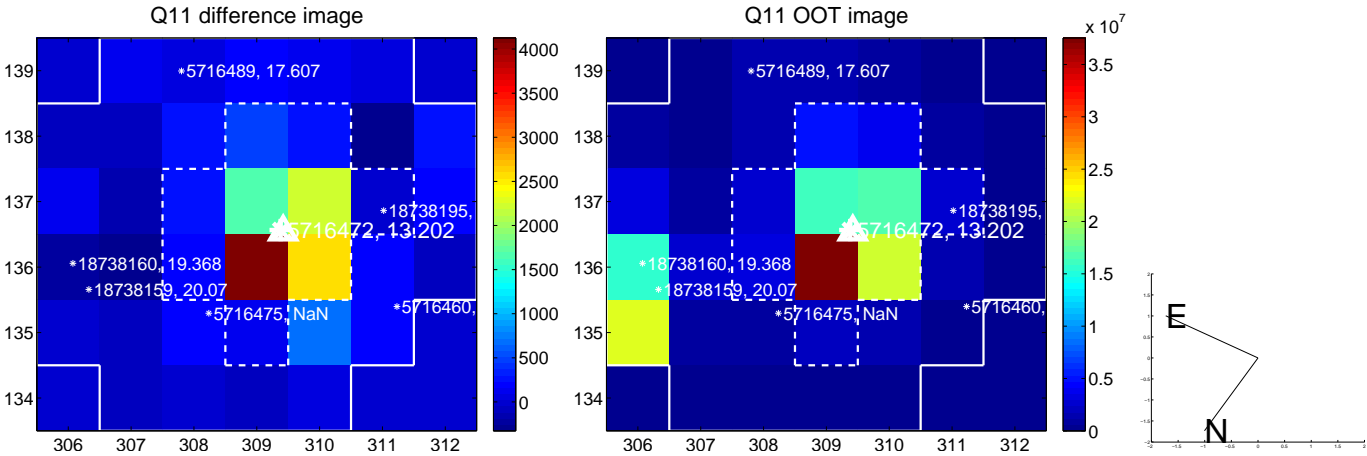
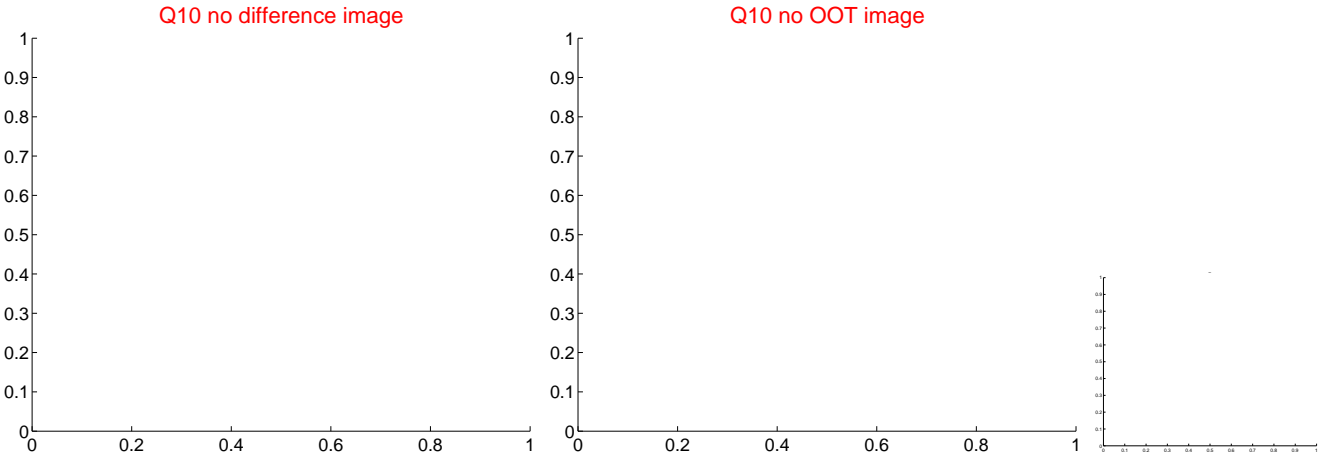
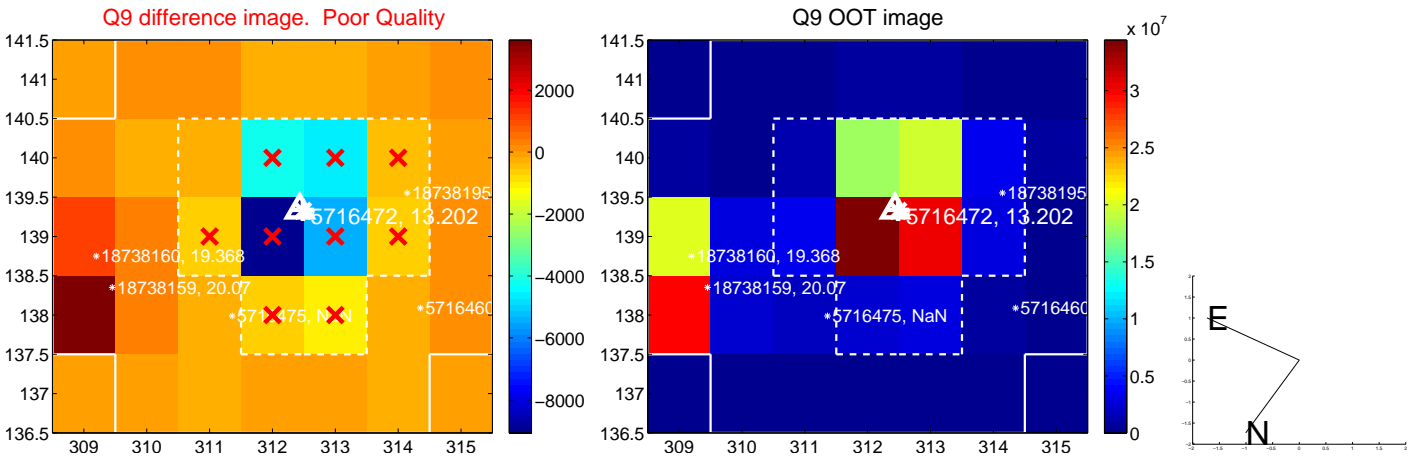
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



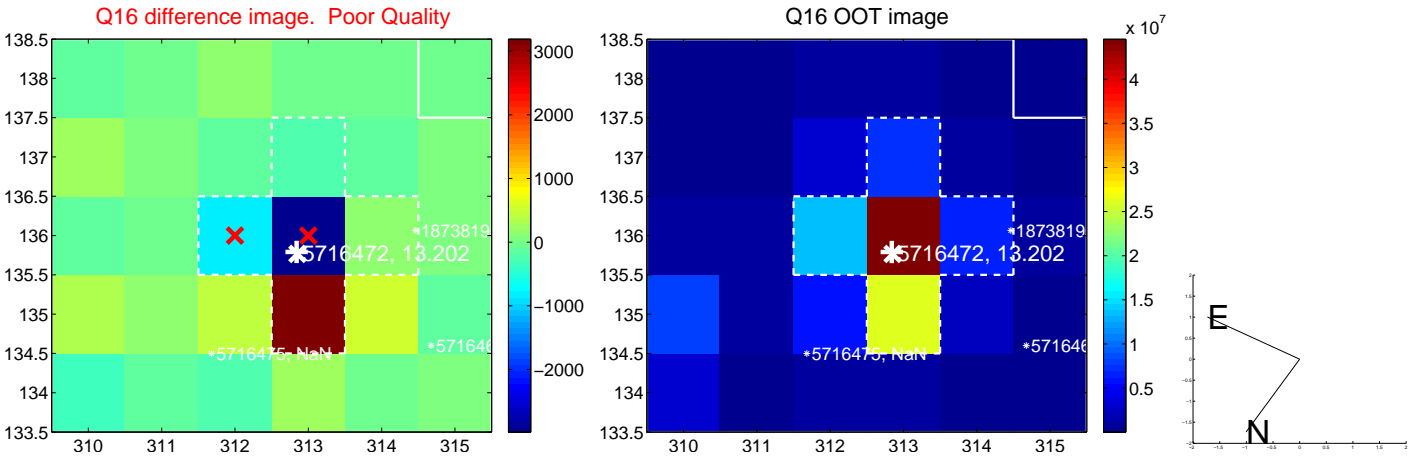
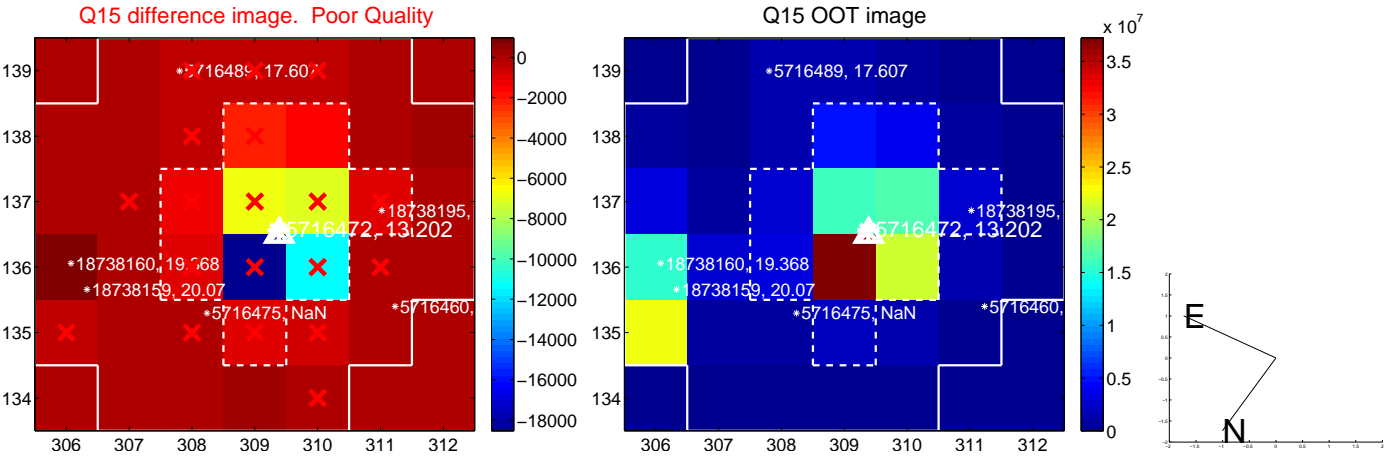
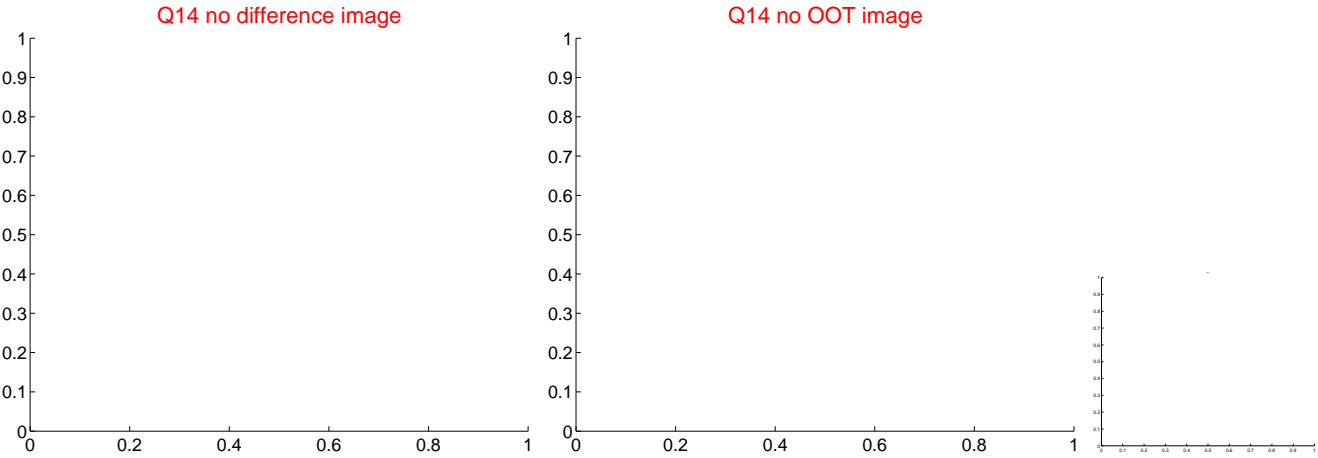
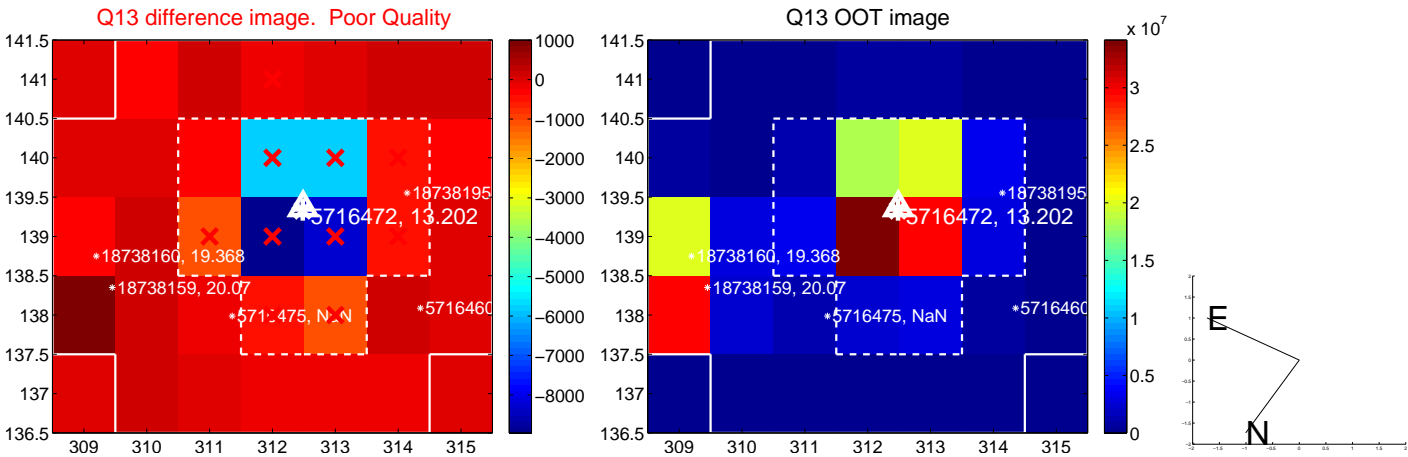
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



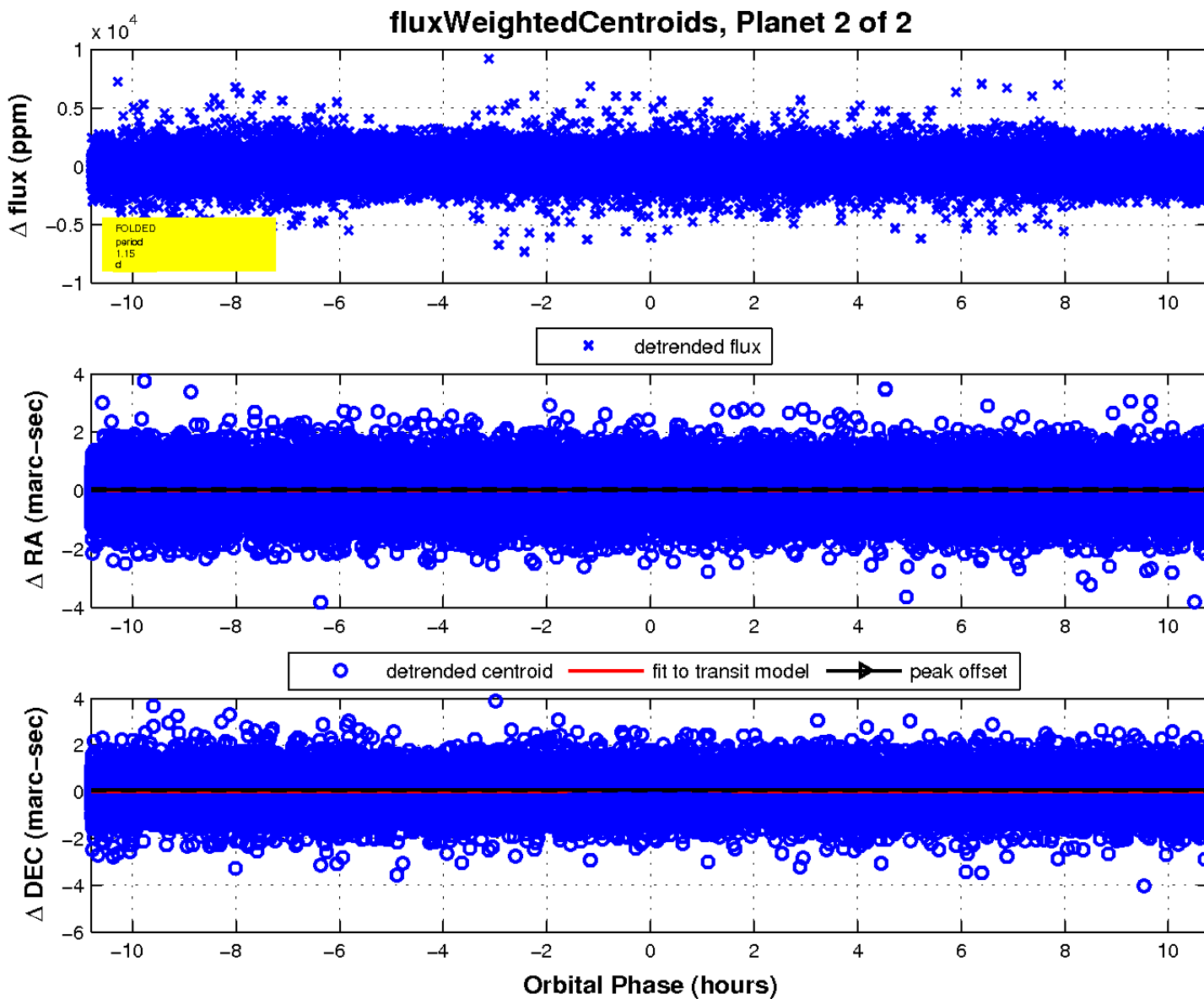
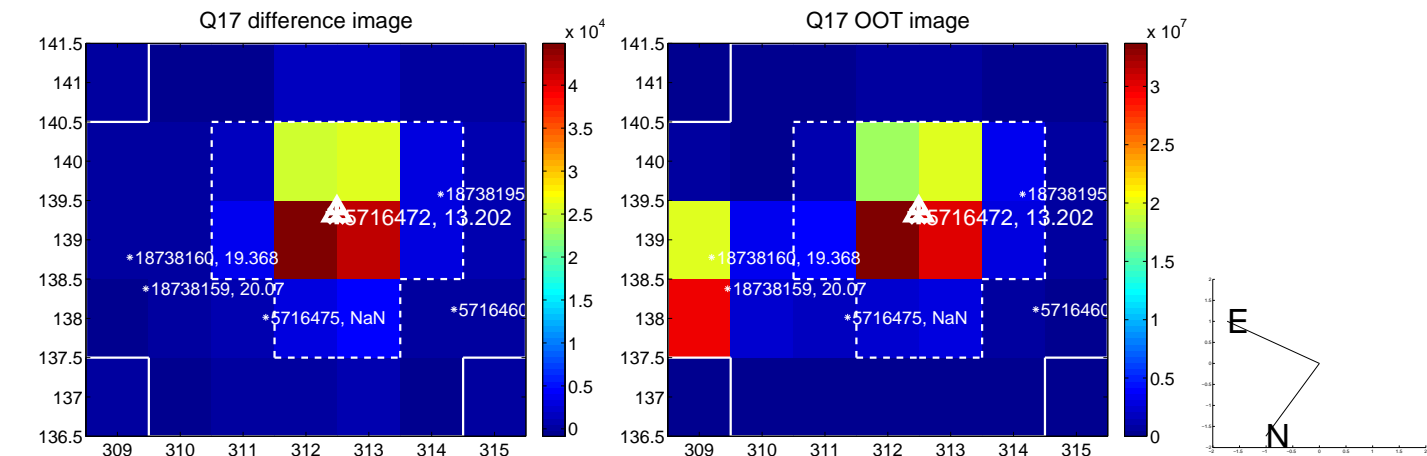
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

