

KIC 011546920

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})
011546920-01	OBS	No	2.409281	131.695660	43.4	7.067	9.3	10.0	2.00	6706	1.82	4960.18
011546920-02	OBS	No	320.595224	226.270732	207.8	21.619	7.7	6.5	2.00	6706	3.30	7.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011546920-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011546920-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—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.

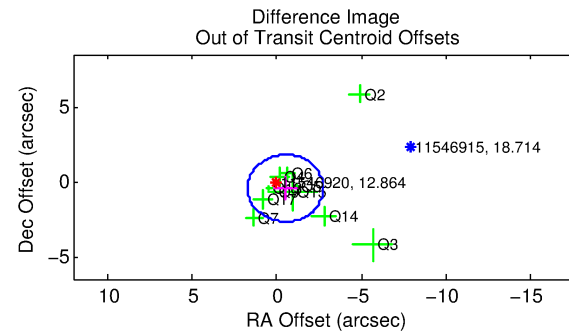
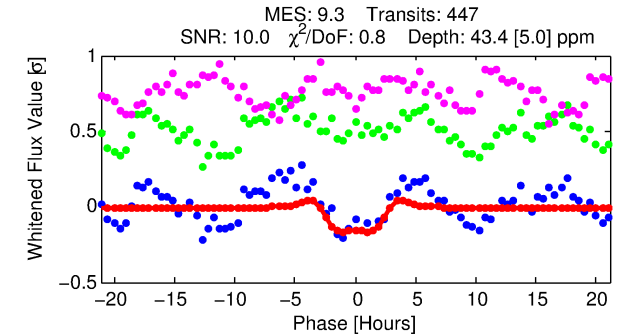
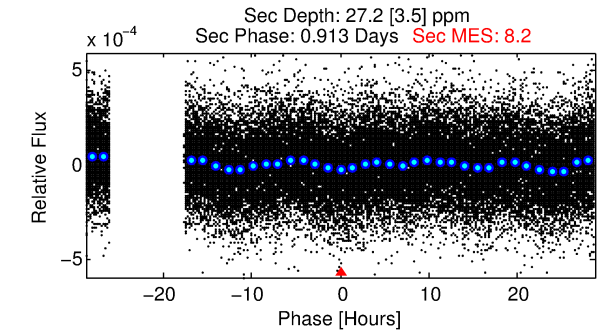
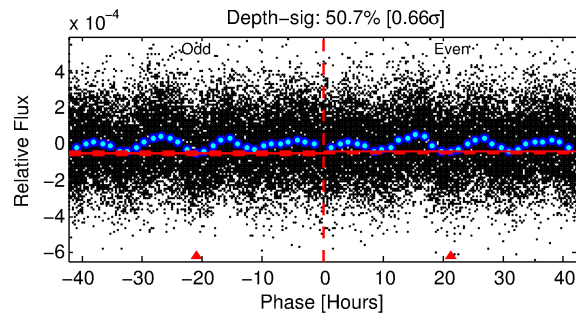
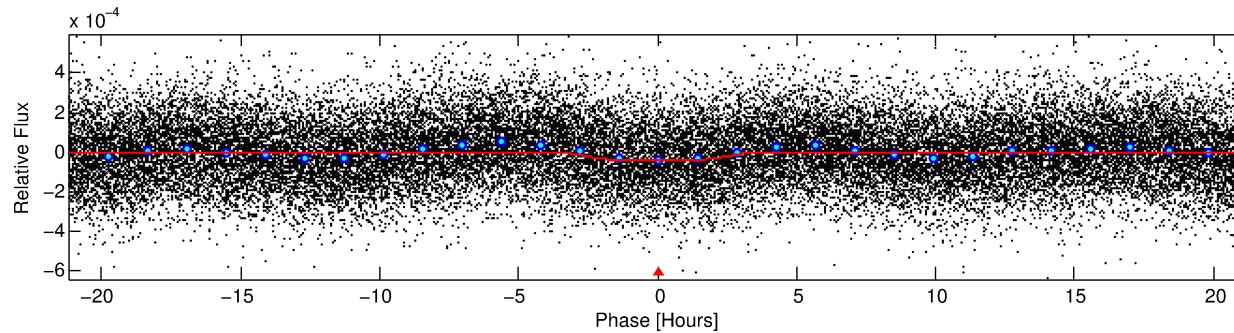
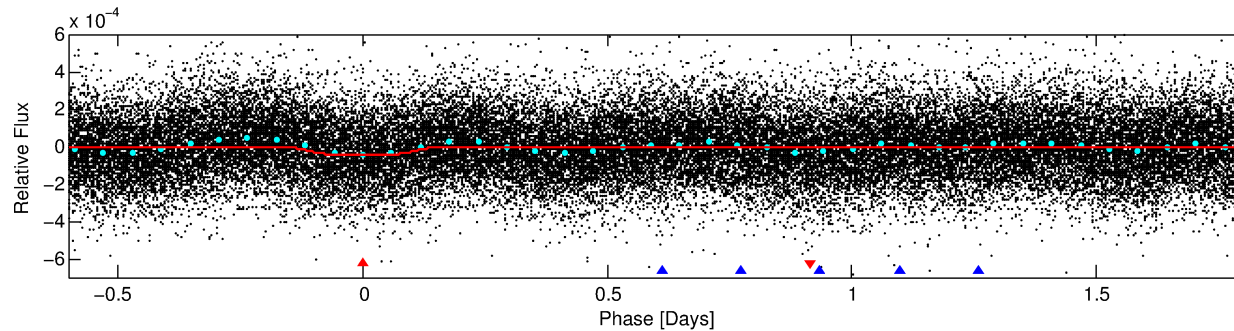
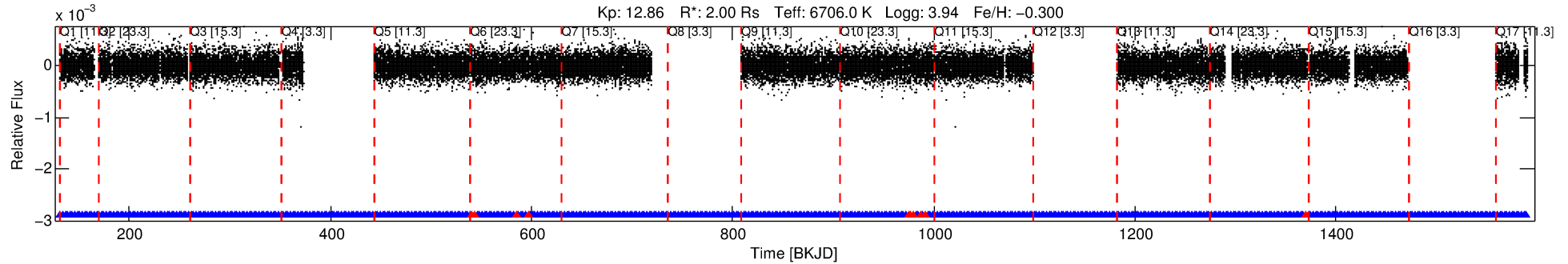
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011546920-01

No Significant Match Found

DV One-Page Summary

KIC: 11546920 Candidate: 1 of 2 Period: 2.409 d



DV Fit Results:

Period = 2.40928 [0.00003] d
Epoch = 131.6957 [0.0096] BKJD
Rp/R* = 0.0083 [0.0006]
a/R* = 1.12 [0.03]
b = 0.99 [0.00]
Seff = 4960.18 [3013.60]
Teq = 2140 [325] K
Rp = 1.82 [0.72] Re
a = 0.0383 [0.0142] AU
Ag = 6.61 [4.08] [1.38 σ]
Teffp = 5306 [324] K [6.90 σ]

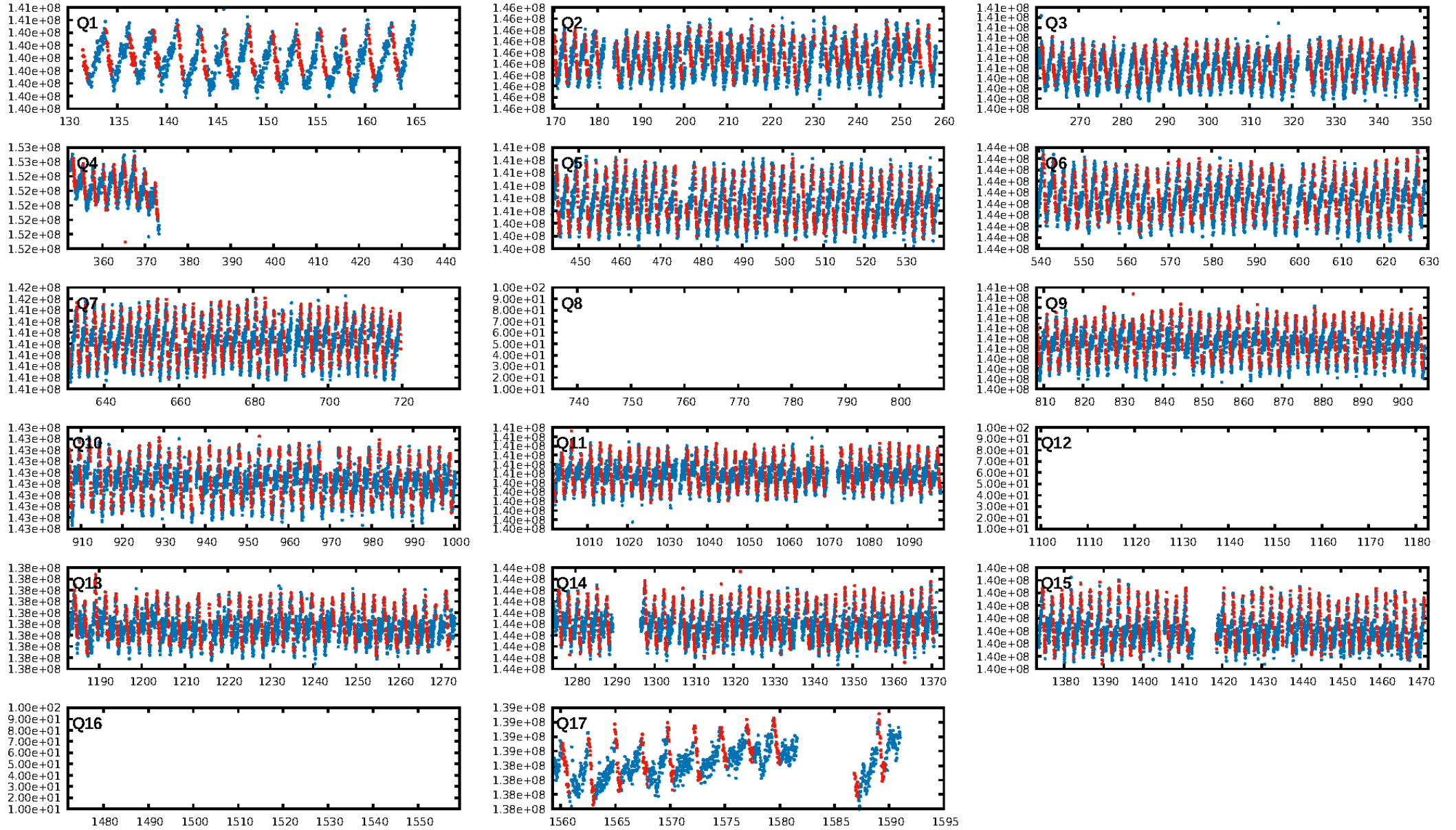
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [335.74 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.46e-14
RollingBand-fgt: 0.98 [403/413]
GhostDiagnostic-chr: 1.012
Centroid-sig: 46.5%
Centroid-so: 0.805 arcsec [1.08 σ]
OotOffset-rm: 0.678 arcsec [0.91 σ]
OotOffset-st: 3/3/1/4 [11]
KicOffset-rm: 0.624 arcsec [0.97 σ]
KicOffset-st: 3/3/1/4 [11]
DiffImageQuality-fgm: 0.36 [4/11]
DiffImageOverlap-fno: 1.00 [14/14]

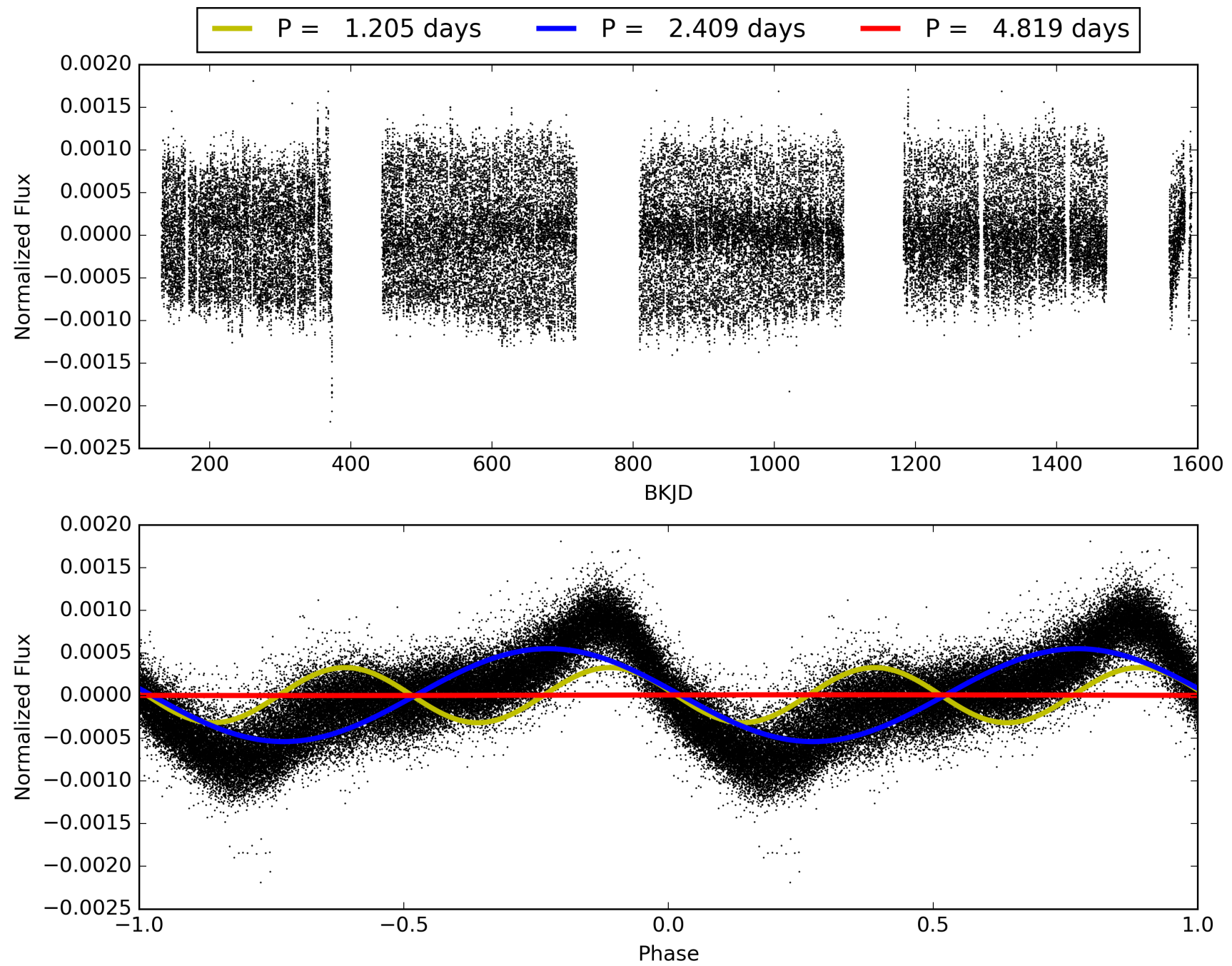
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:21:53 Z

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

TCE 011546920-01, PDC Light Curves

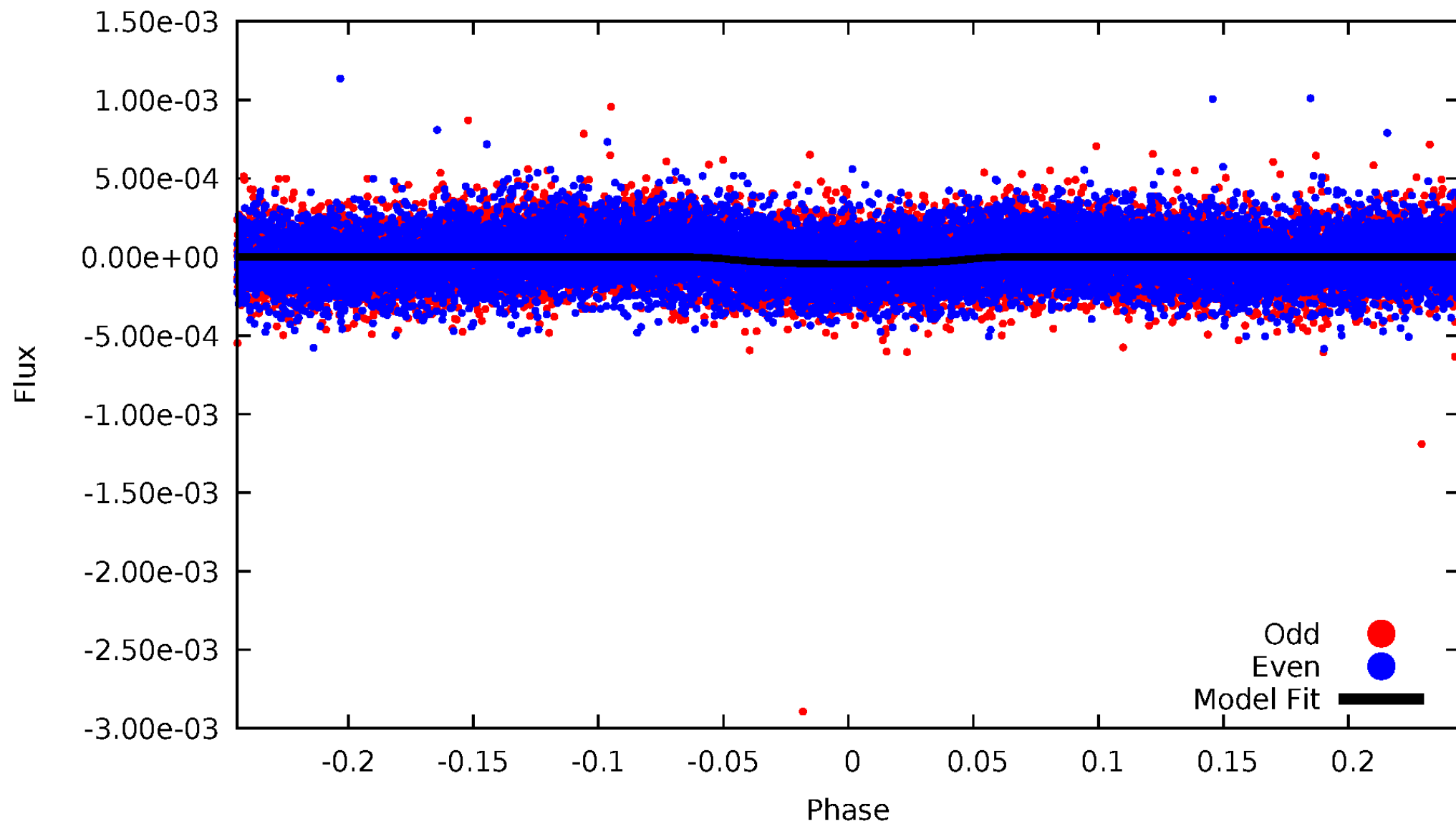


TCE 011546920-01



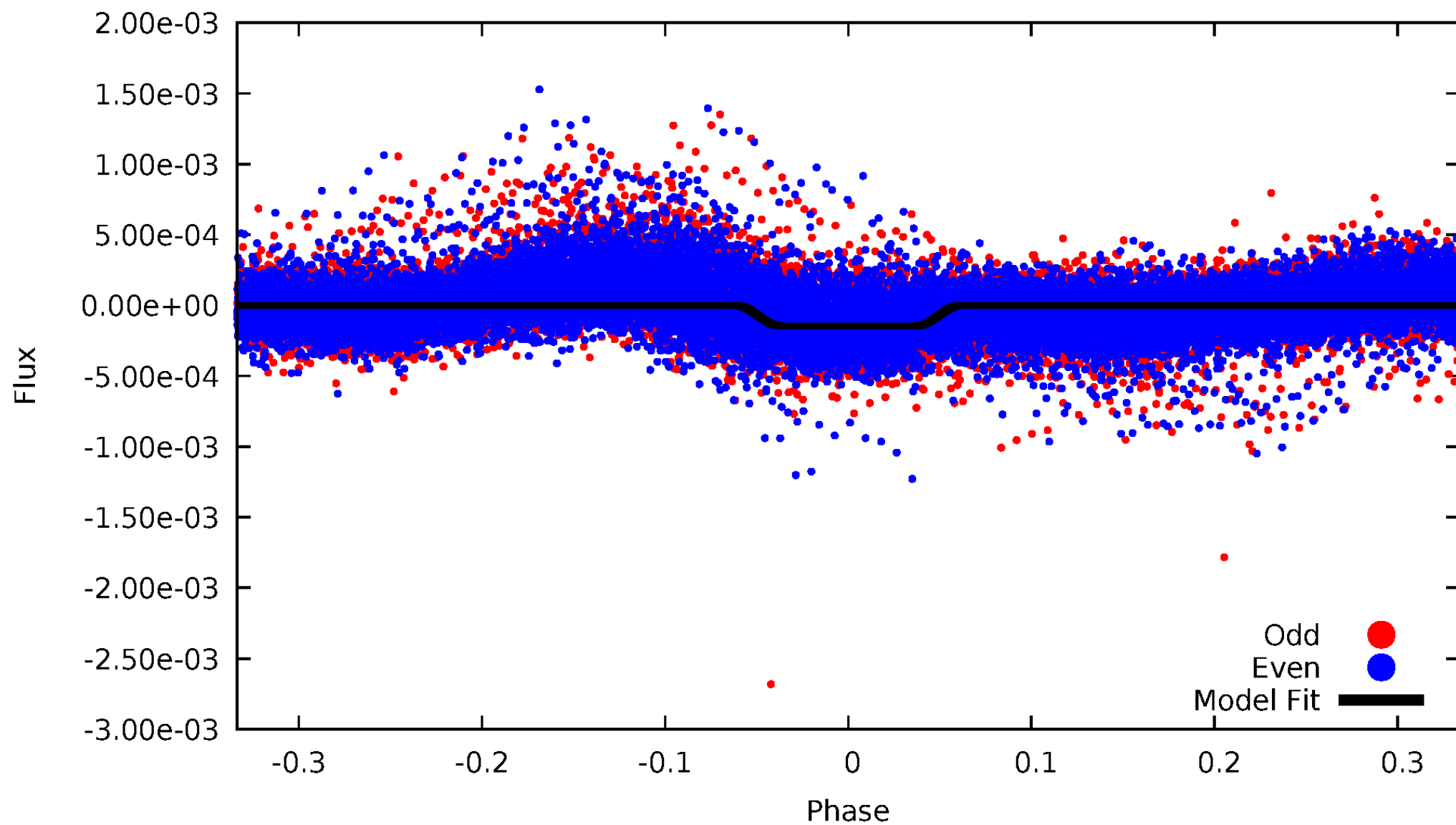
DV Odd/Even

TCE 011546920-01



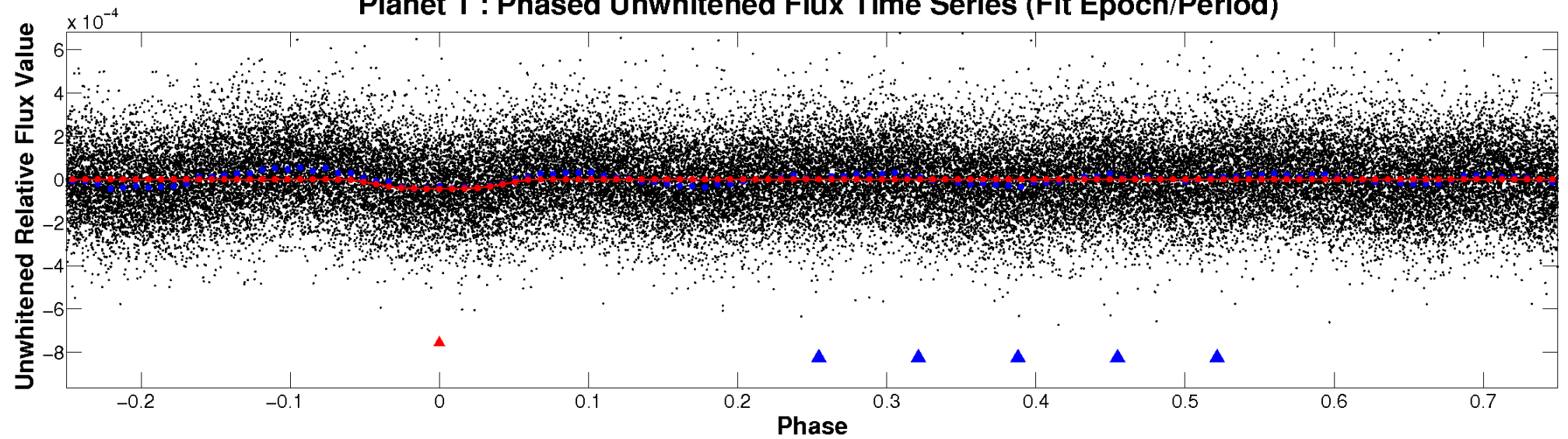
ALT Odd/Even

TCE 011546920-01

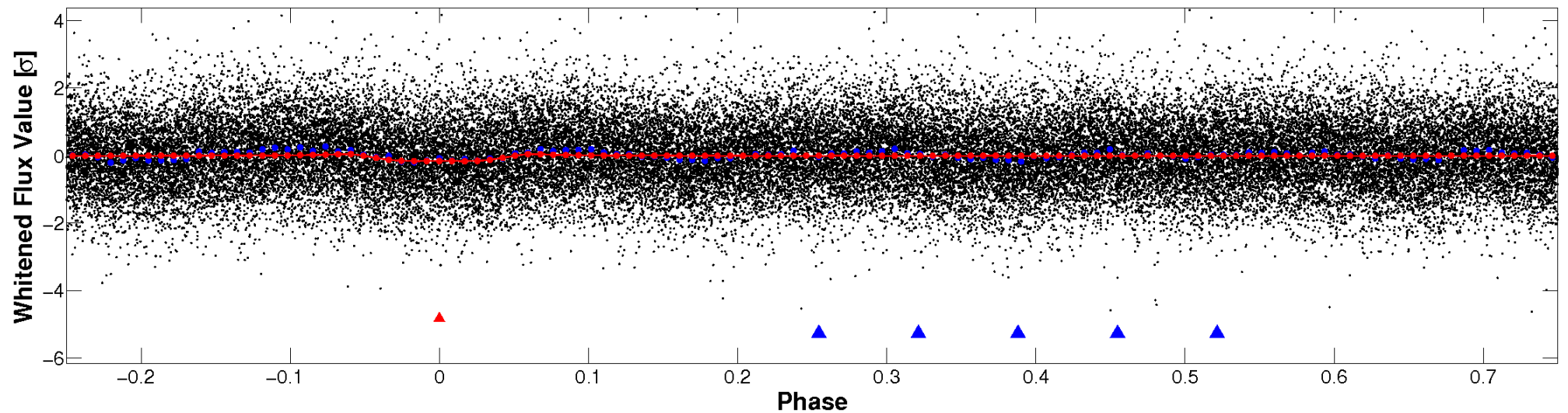


Non-Whitened Vs. Whitened Light Curve

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

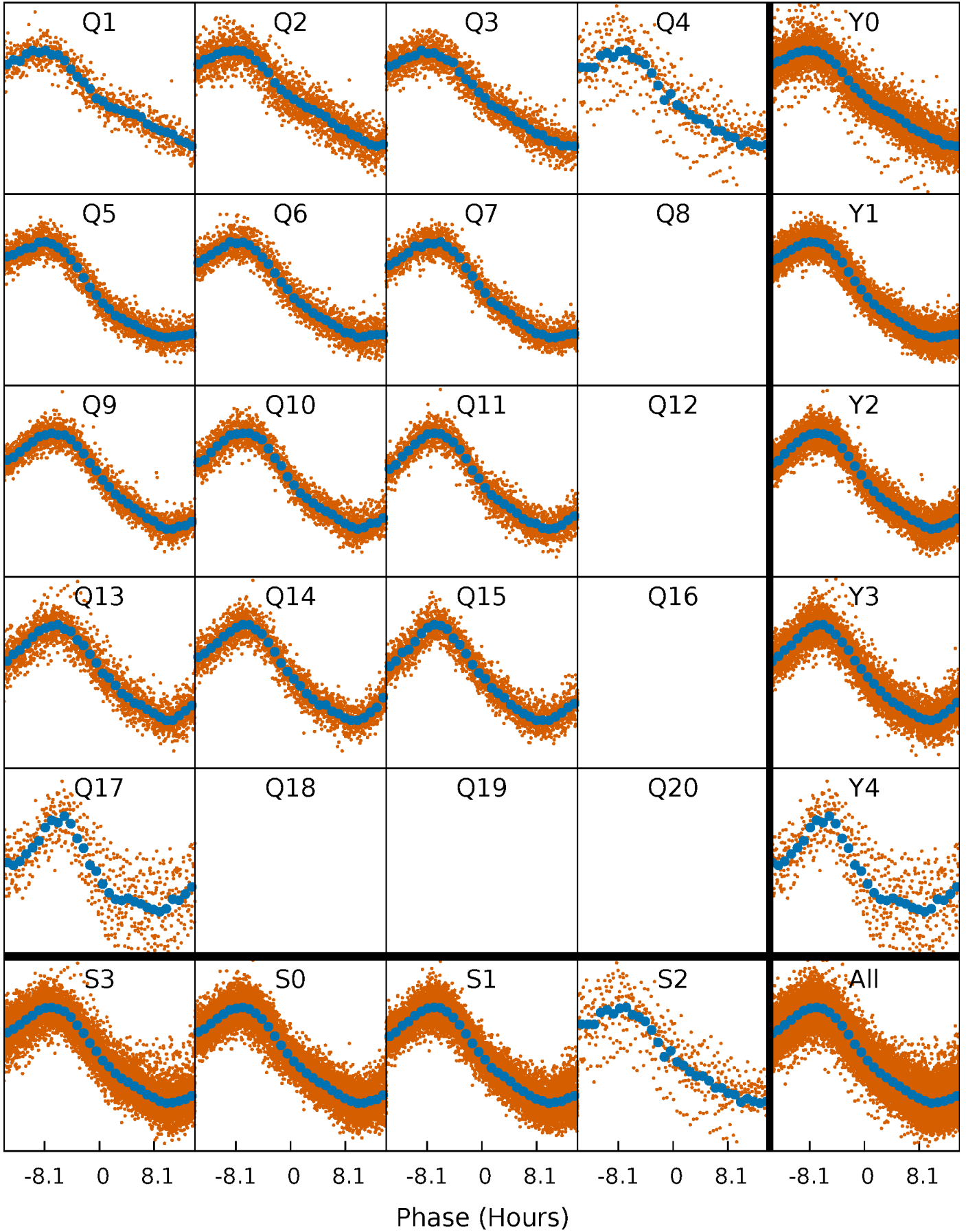


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



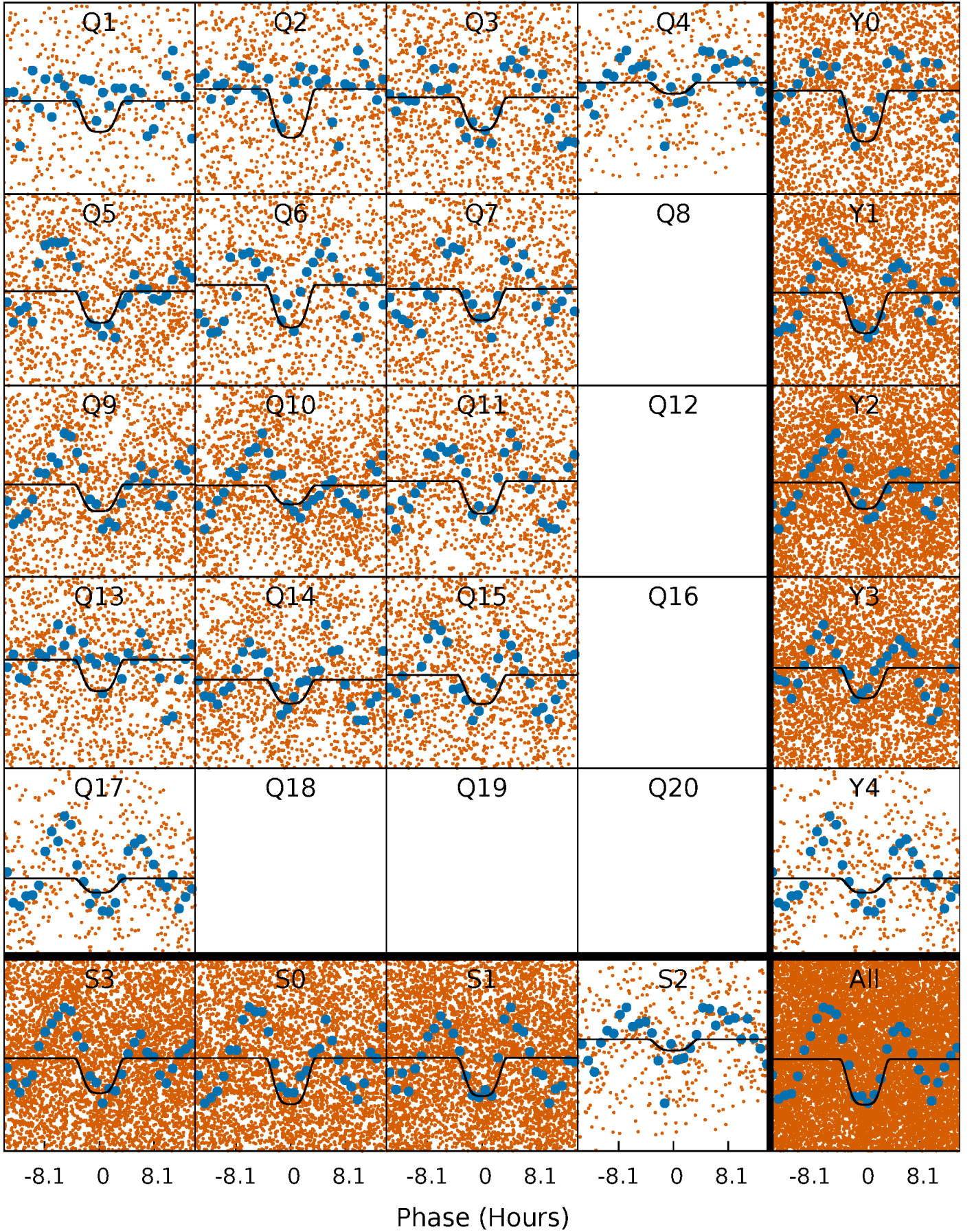
PDC Quarter-Phased Transit Curves

TCE 011546920-01 P= 2.409281 Days $T_0=131.695660$ (BKJD)



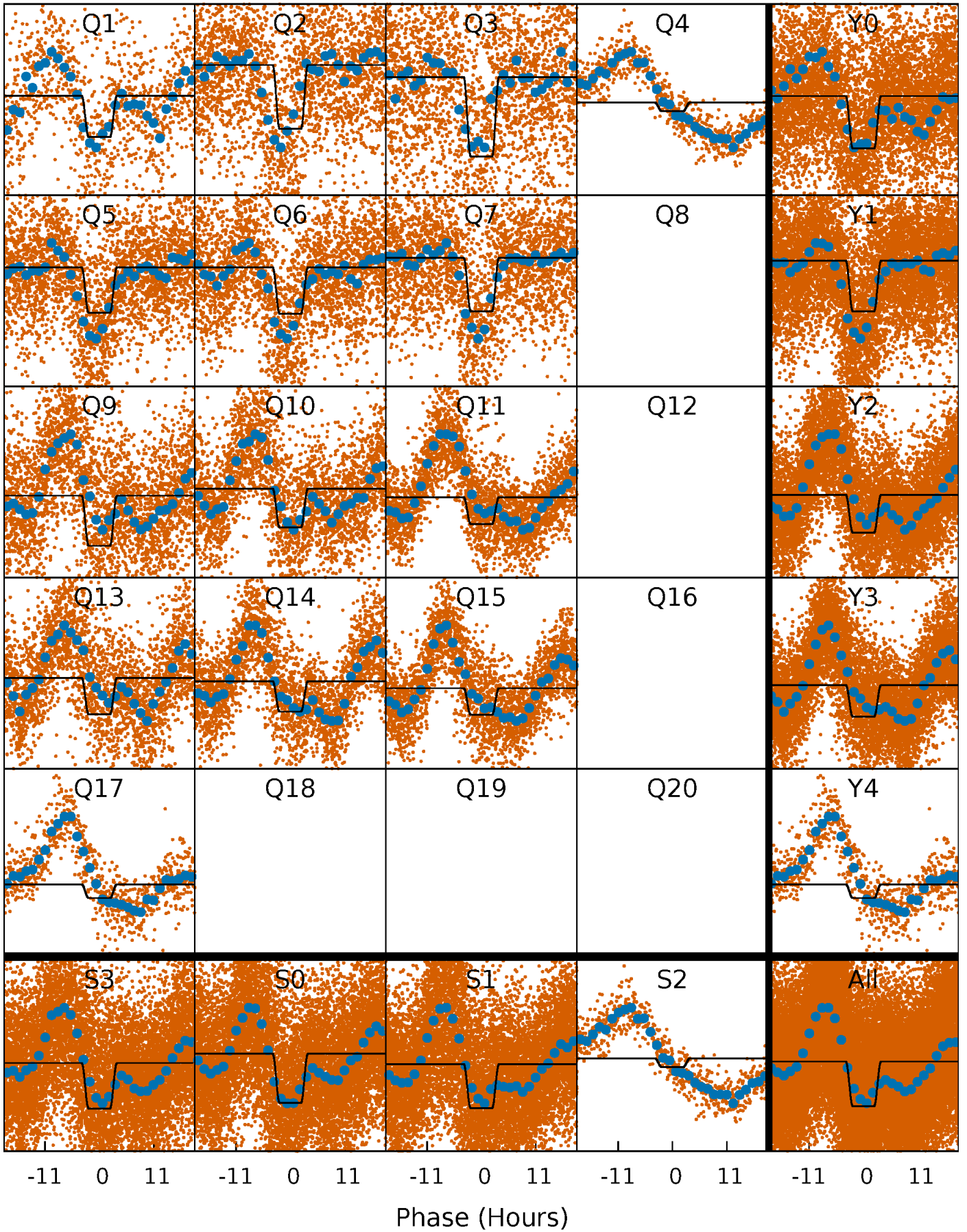
DV Quarter-Phased Transit Curves

TCE 011546920-01 P= 2.409281 Days $T_0=131.695660$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

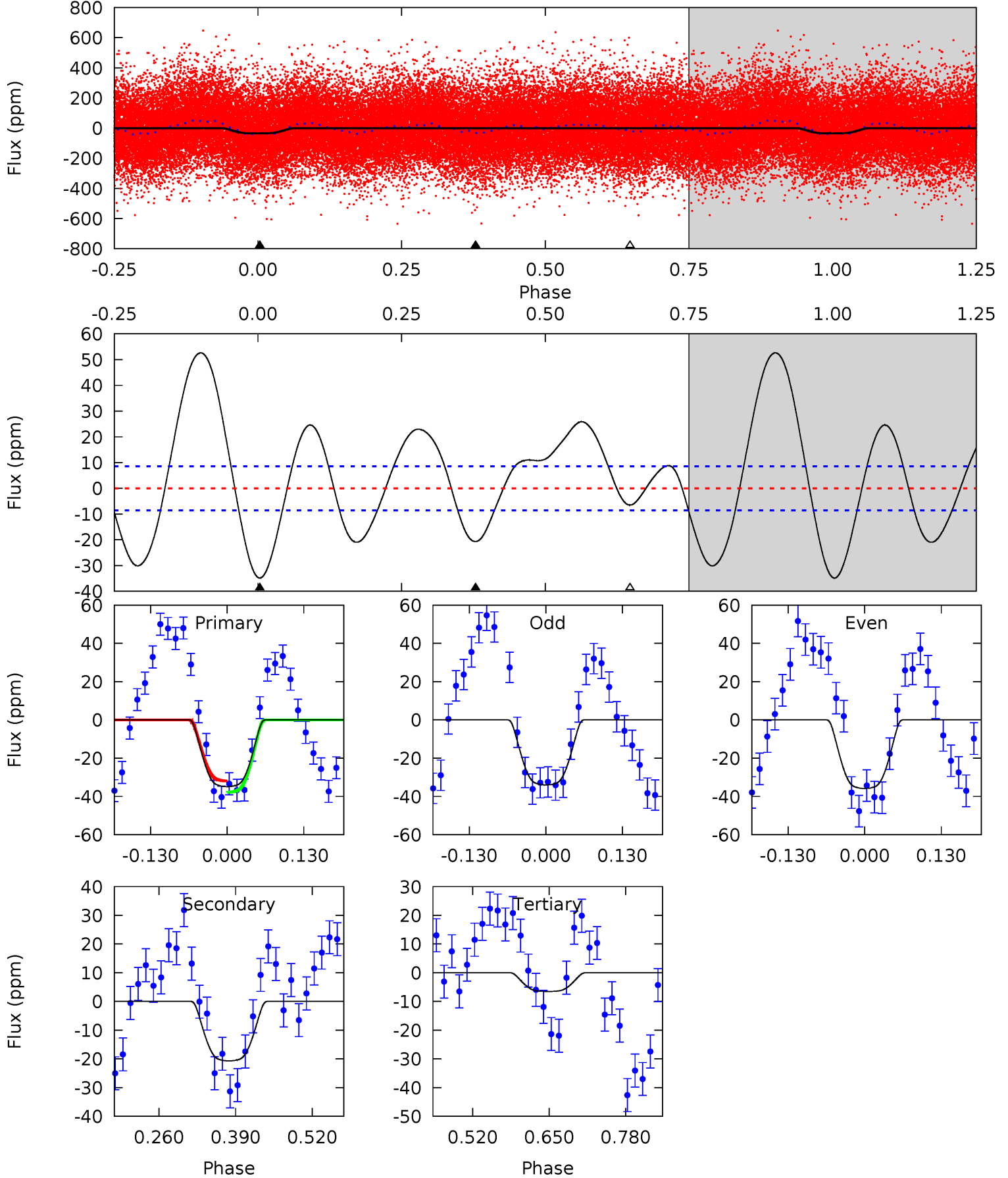
TCE 011546920-01 P= 2.409262 Days $T_0=131.755433$ (BKJD)



DV Model-Shift Uniqueness Test

011546920-01, P = 2.409281 Days, E = 129.286379 Days

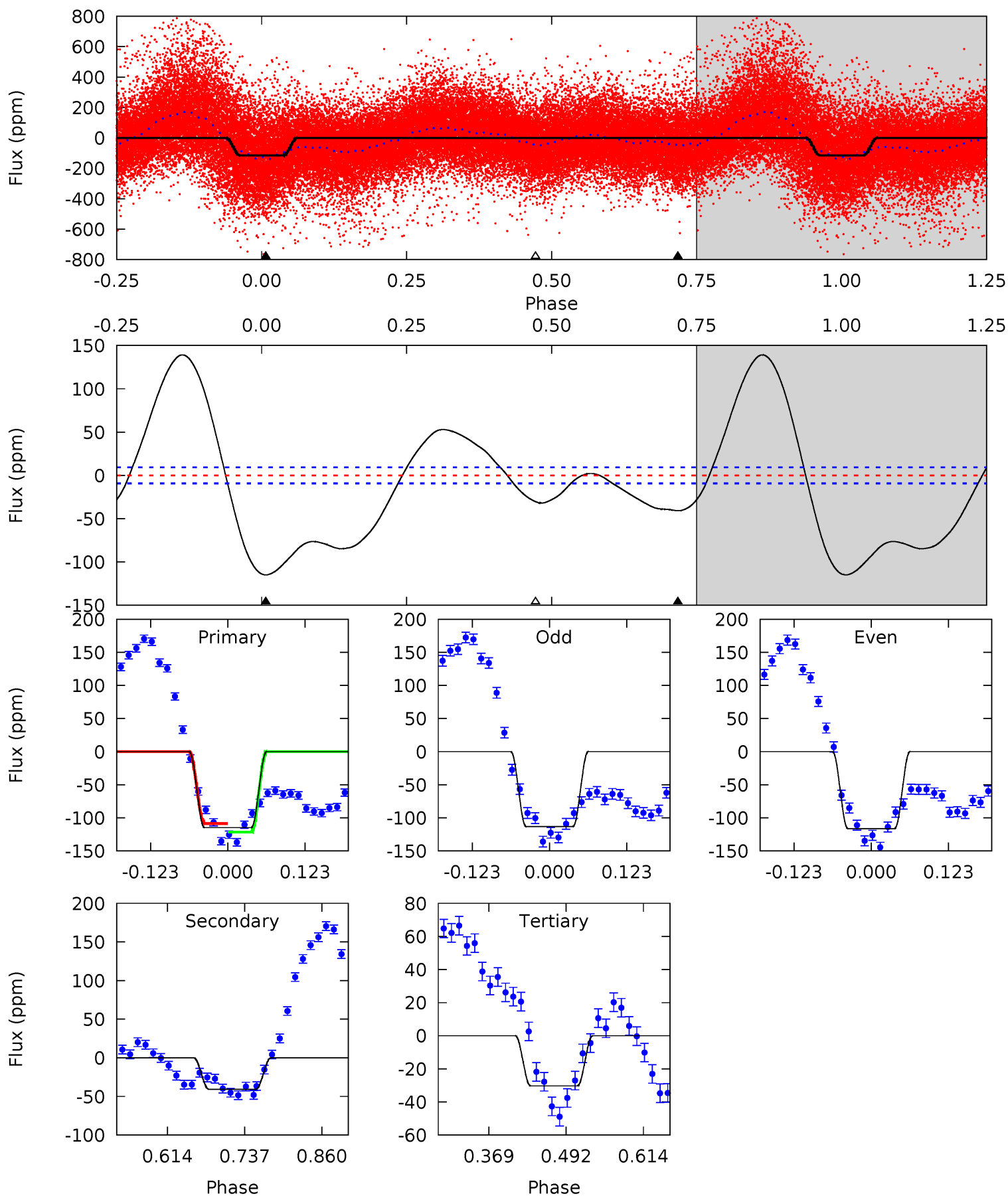
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	10.9	3.44	0	4.51	1.51	8.76	15.0	18.4	7.48	10.9	0.49	1.03	0.60	1.58



Alt Model-Shift Uniqueness Test

011546920-01, P = 2.409262 Days, E = 129.346171 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.4	20.0	14.9	0	4.52	1.54	26.7	41.5	56.4	5.13	20.0	0.73	1.02	0.55	3.12



Stellar Parameters For KIC 011546920

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6706^{+189}_{-260}	$3.945^{+0.343}_{-0.147}$	$-0.300^{+0.300}_{-0.300}$	$2.004^{+0.522}_{-0.783}$	$1.291^{+0.194}_{-0.237}$	$0.226^{+0.576}_{-0.093}$
	+3%/-4%	+9%/-4%	+100%/-100%	+26%/-39%	+15%/-18%	+255%/-41%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 011546920-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-21 ± 2	$1.75^{+0.31}_{-0.36}$	2930^{+225}_{-340}	4942^{+234}_{-225}	$5.443^{+3.040}_{-1.596}$
Alt.	-41 ± 2	$2.52^{+0.43}_{-0.47}$	2924^{+228}_{-278}	4900^{+156}_{-182}	$5.107^{+2.417}_{-1.297}$

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

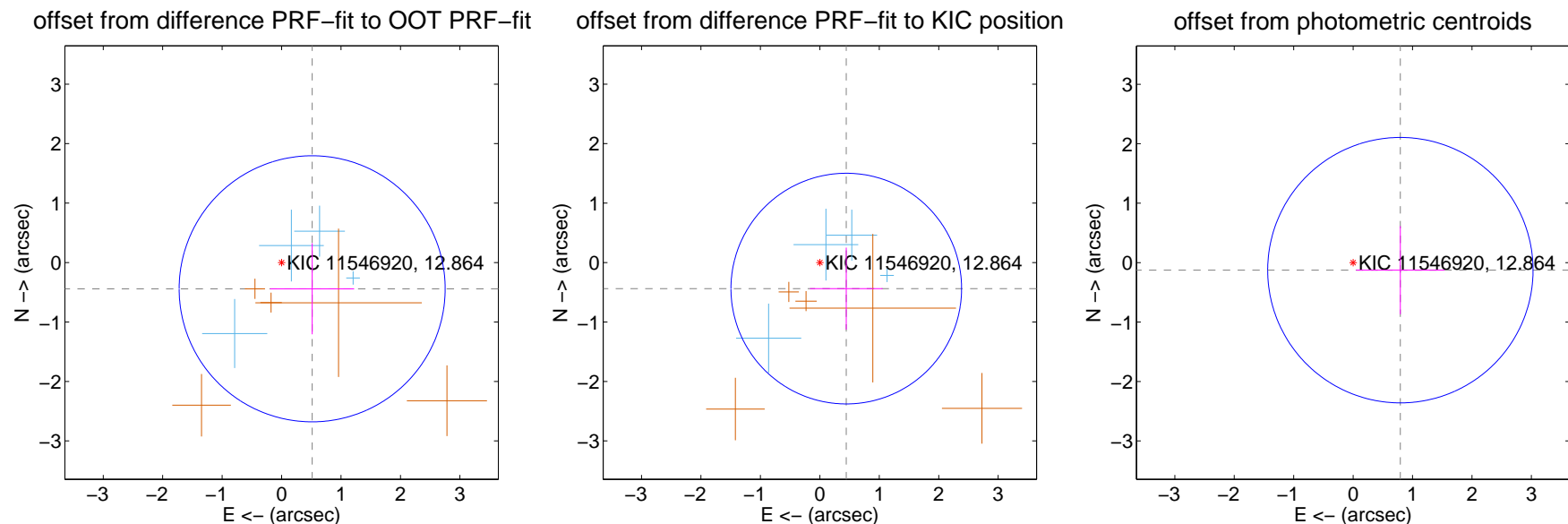
DV Centroid Data

Supplemental centroid analysis for 011546920-01. Kepler magnitude: 12.86. Transit SNR 9.97

There are 4 quarters with good PRF difference image offsets

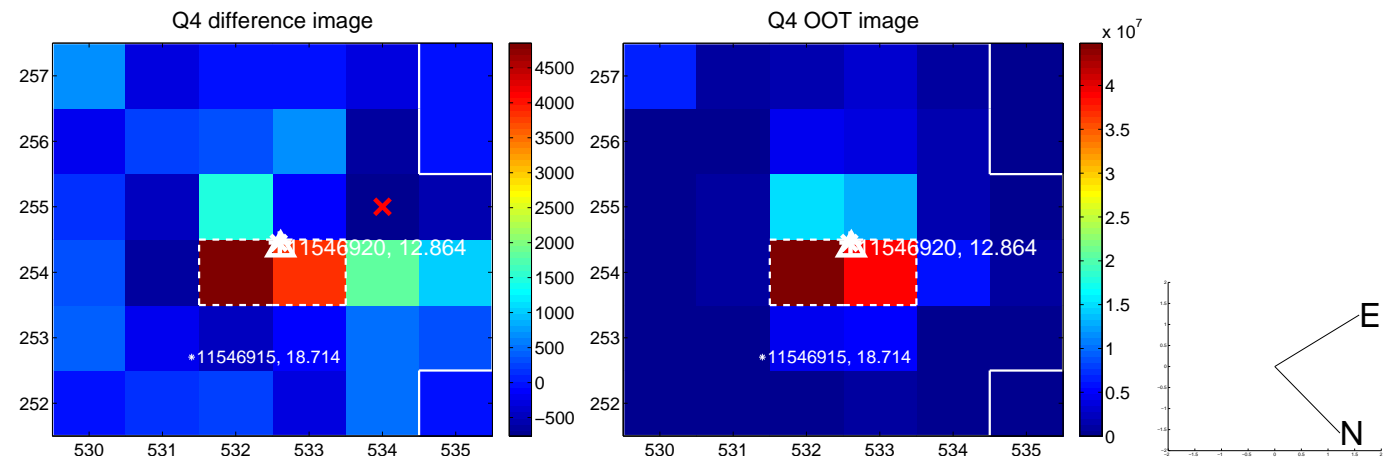
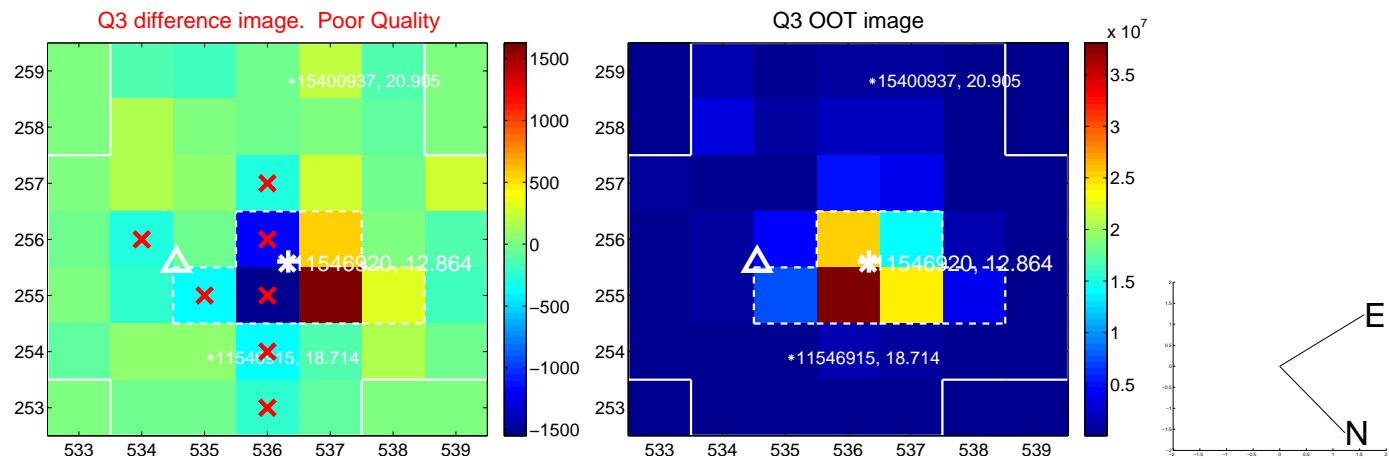
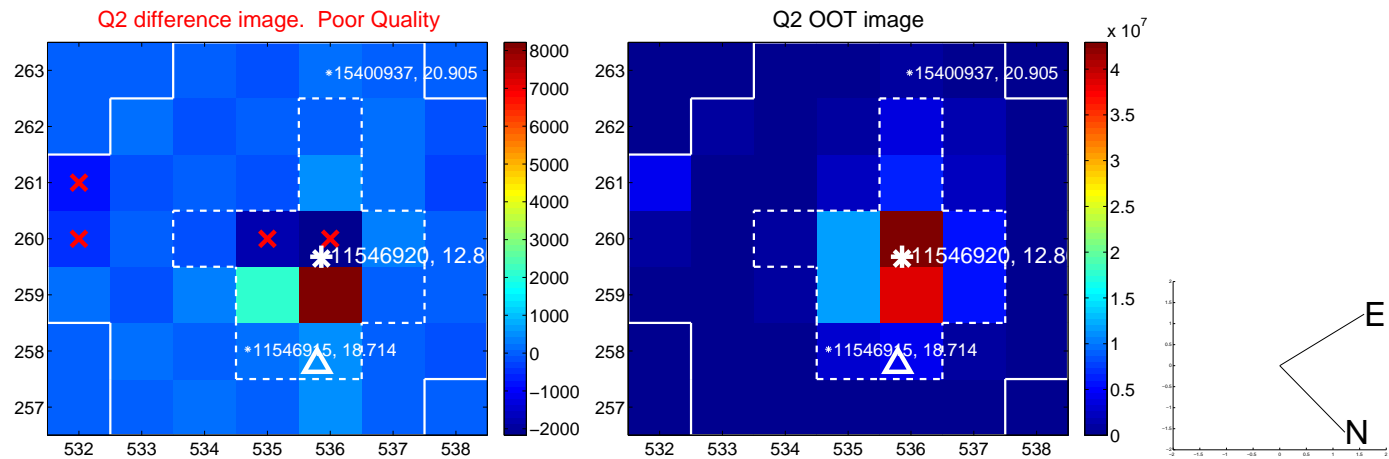
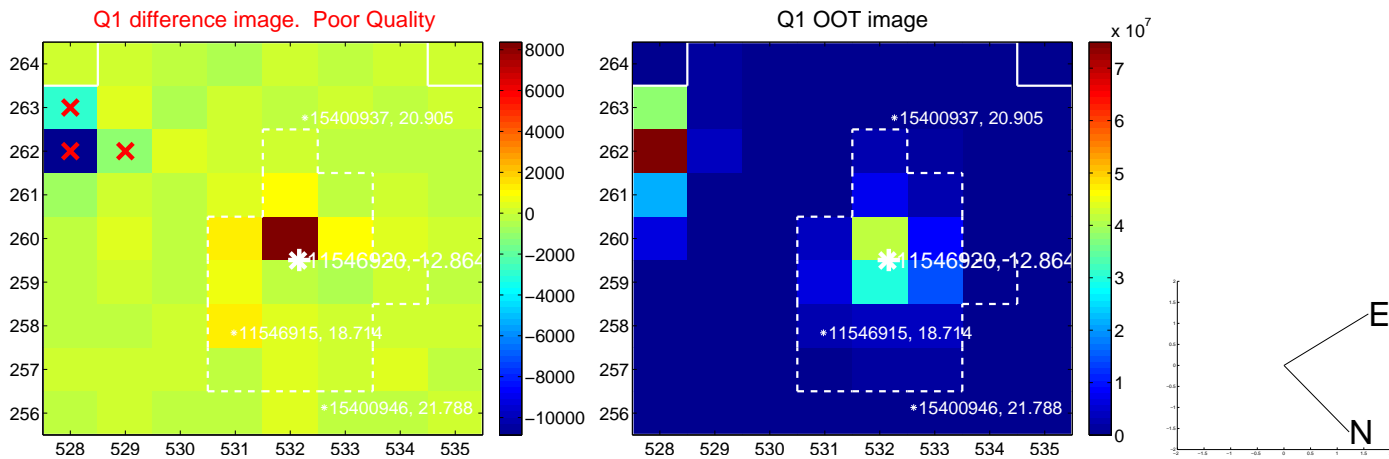
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.678 ± 0.746	0.91	-0.514 ± 0.707	-0.442 ± 0.765
PRF-fit source offset from KIC position	0.624 ± 0.647	0.97	-0.445 ± 0.611	-0.438 ± 0.689
photometric centroid source offset	0.81 ± 0.74	1.08	-0.80 ± 0.74	-0.13 ± 0.74

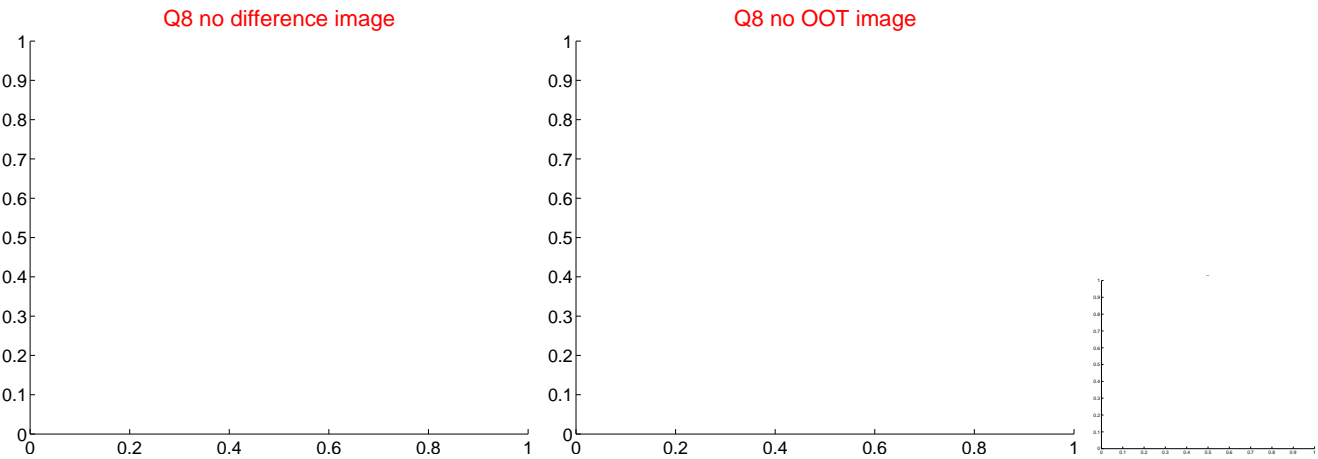
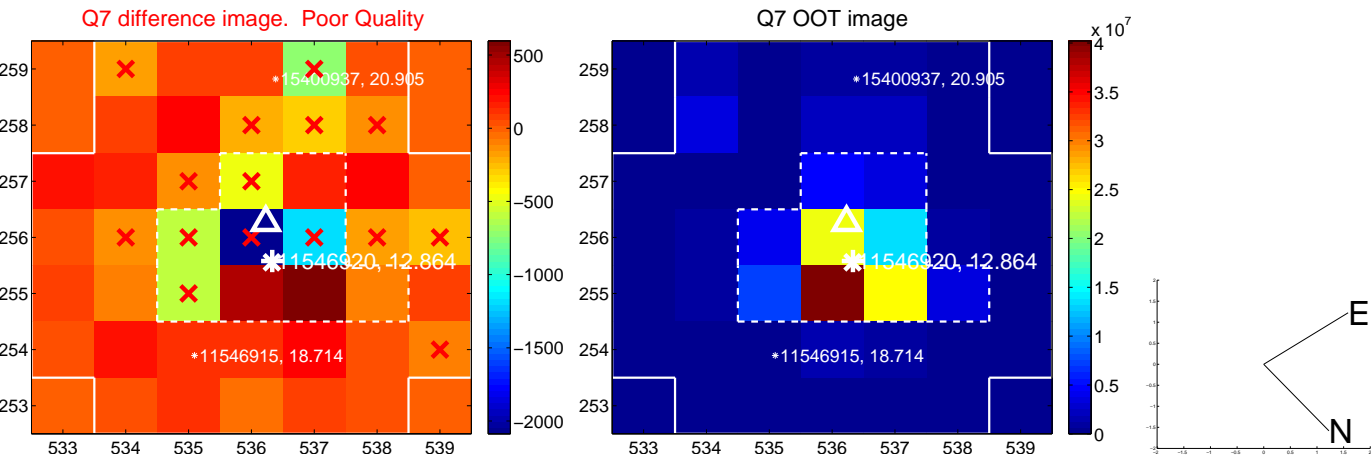
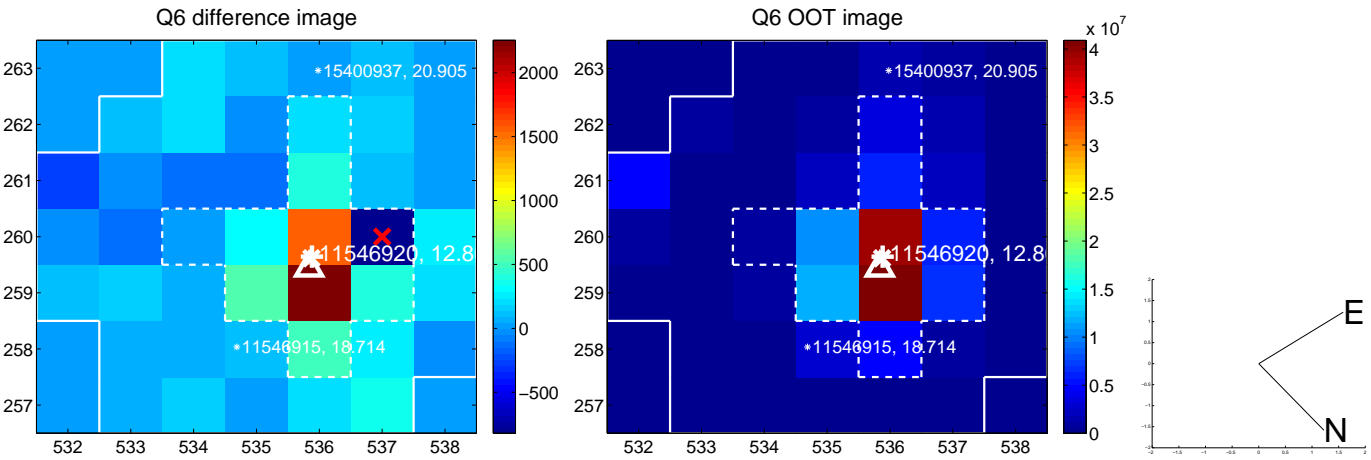
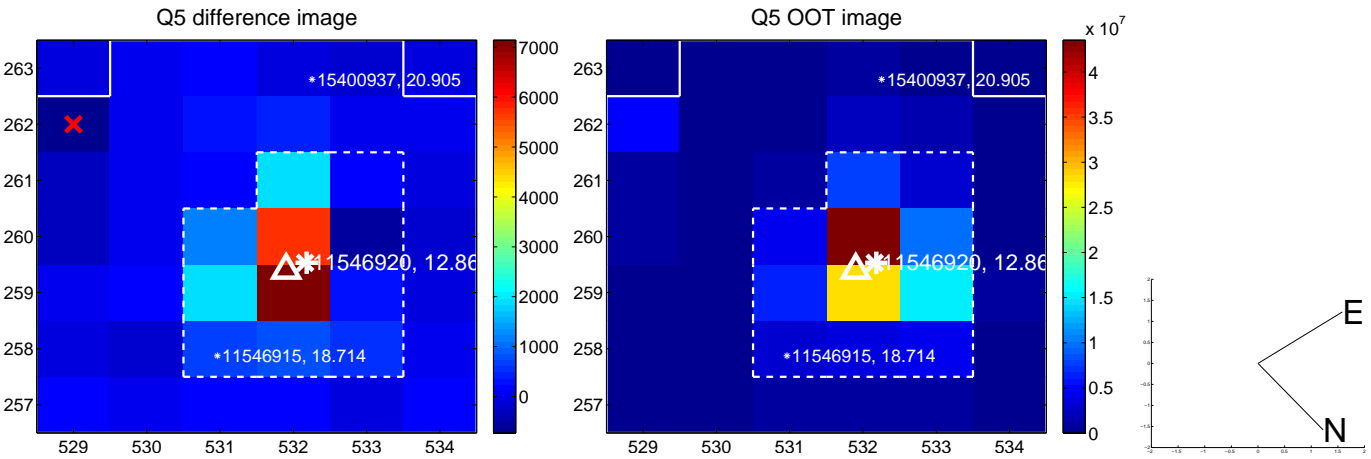


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

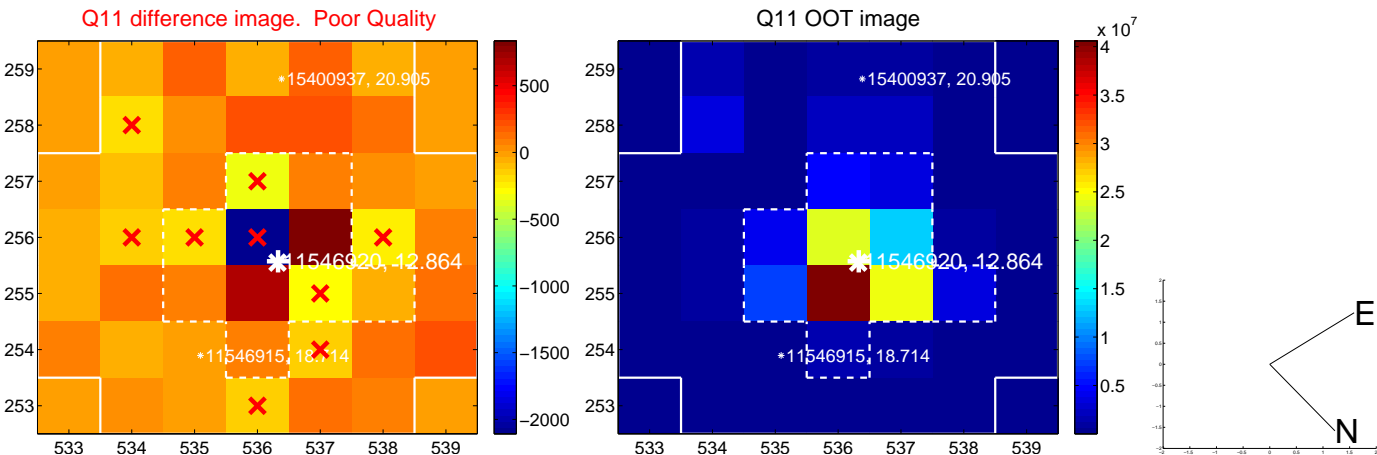
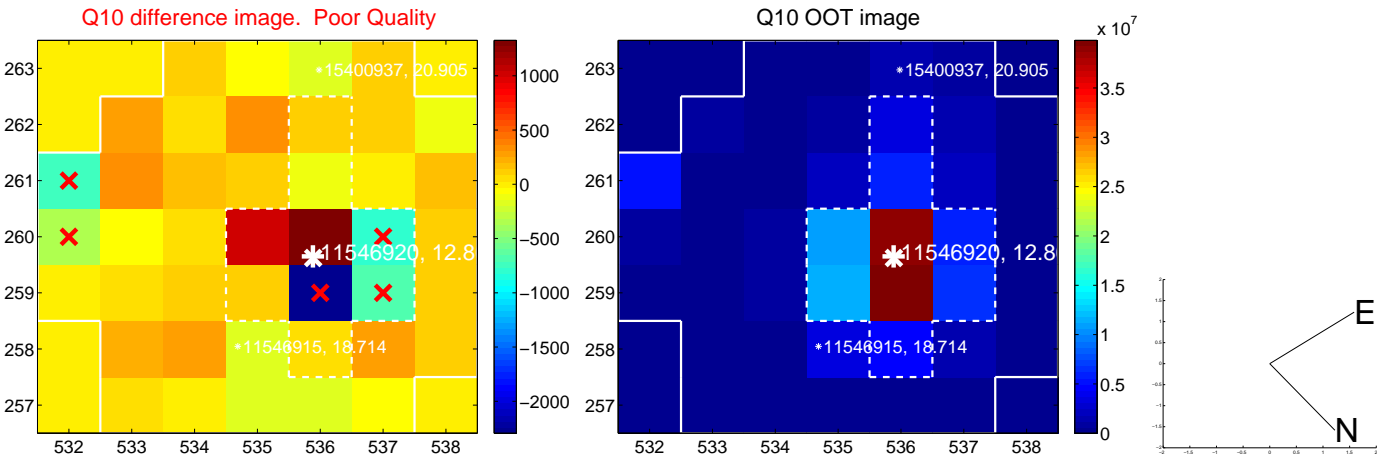
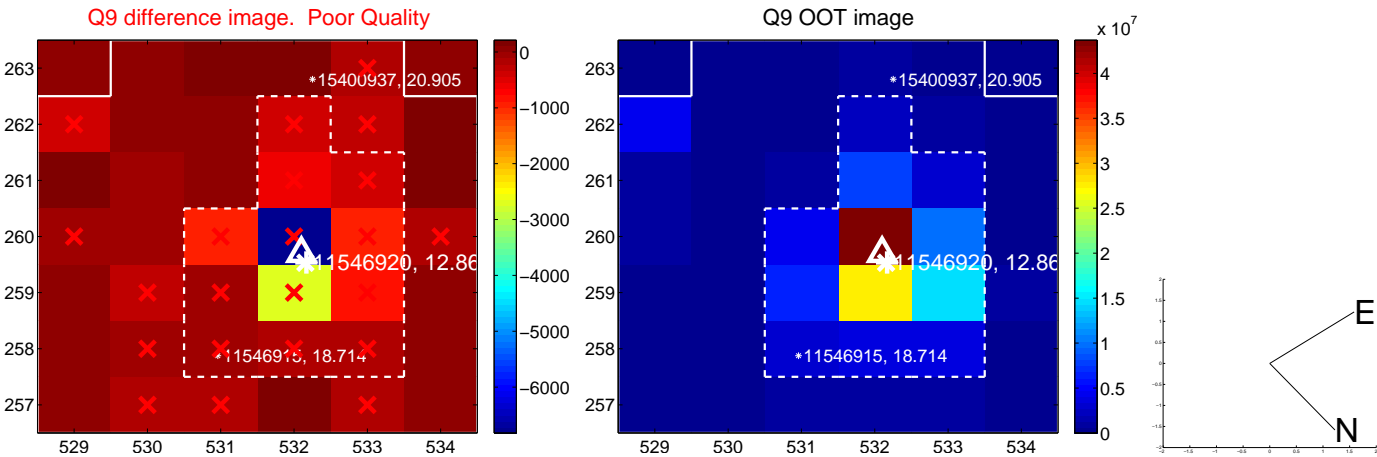
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



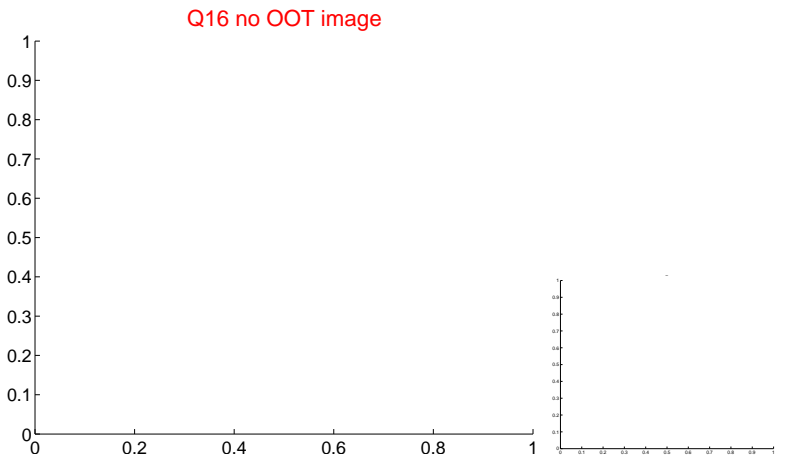
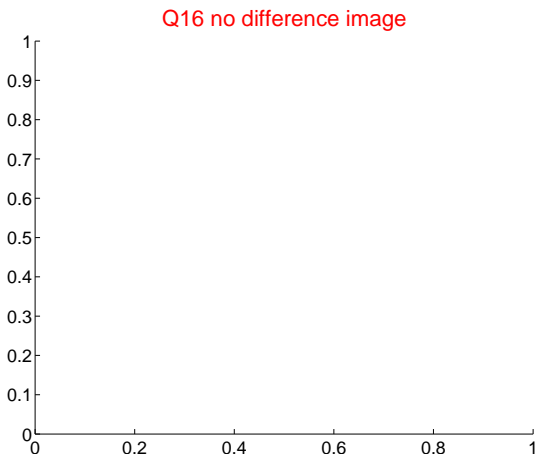
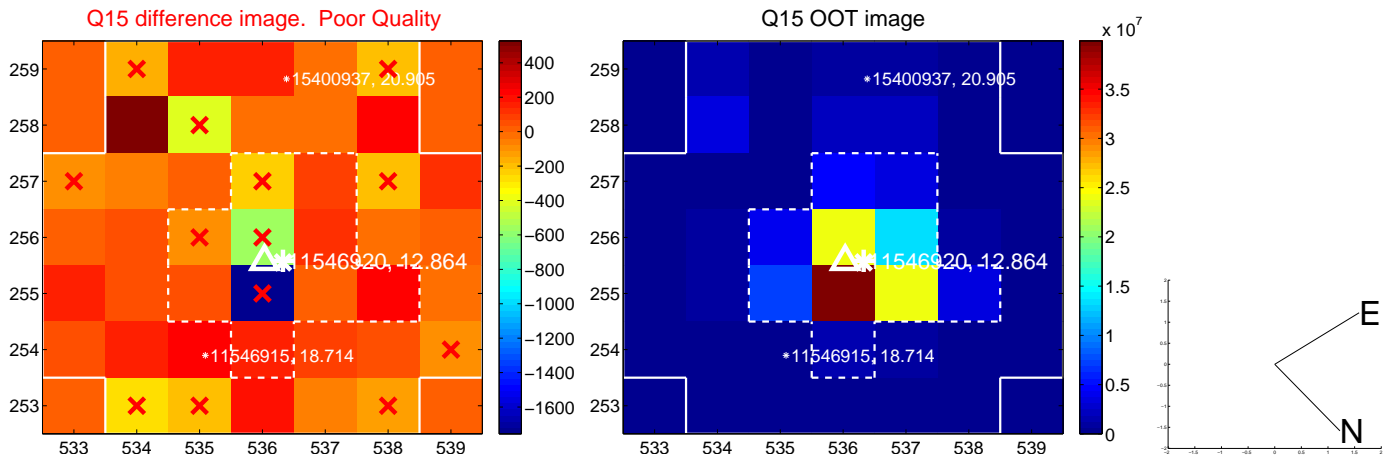
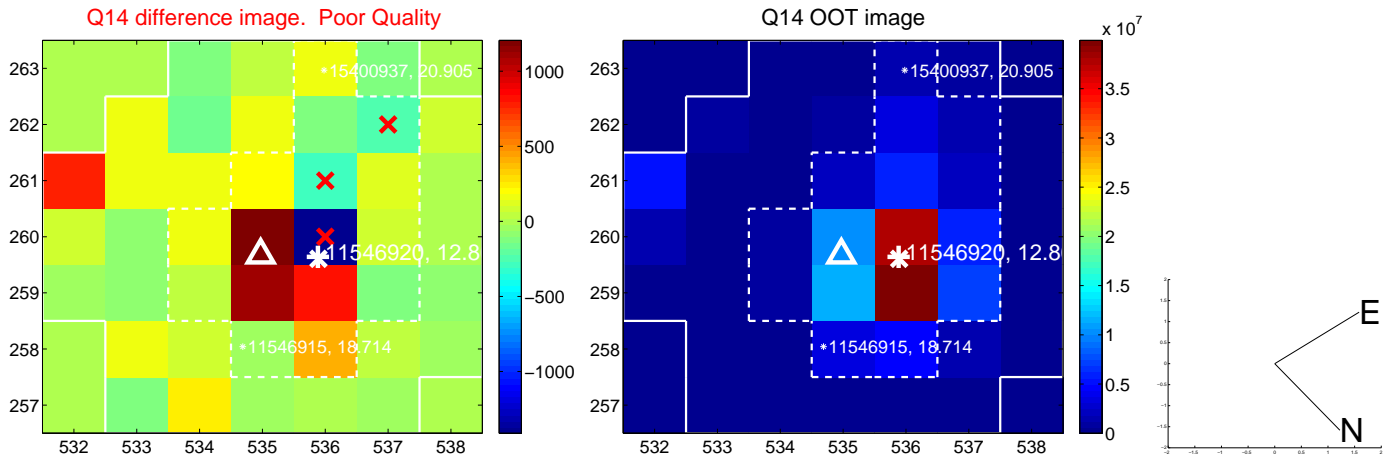
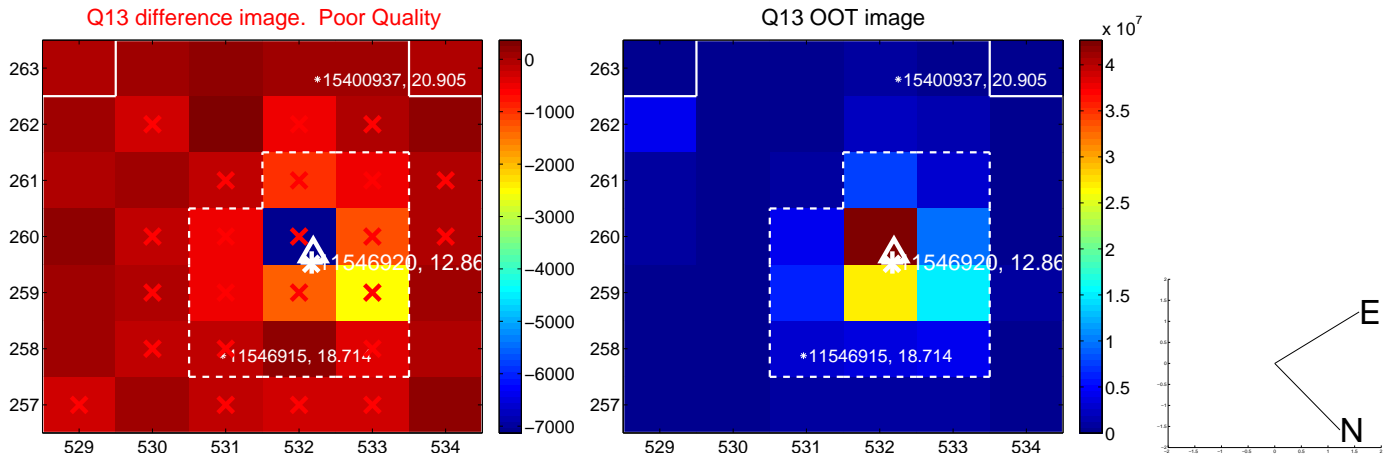
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



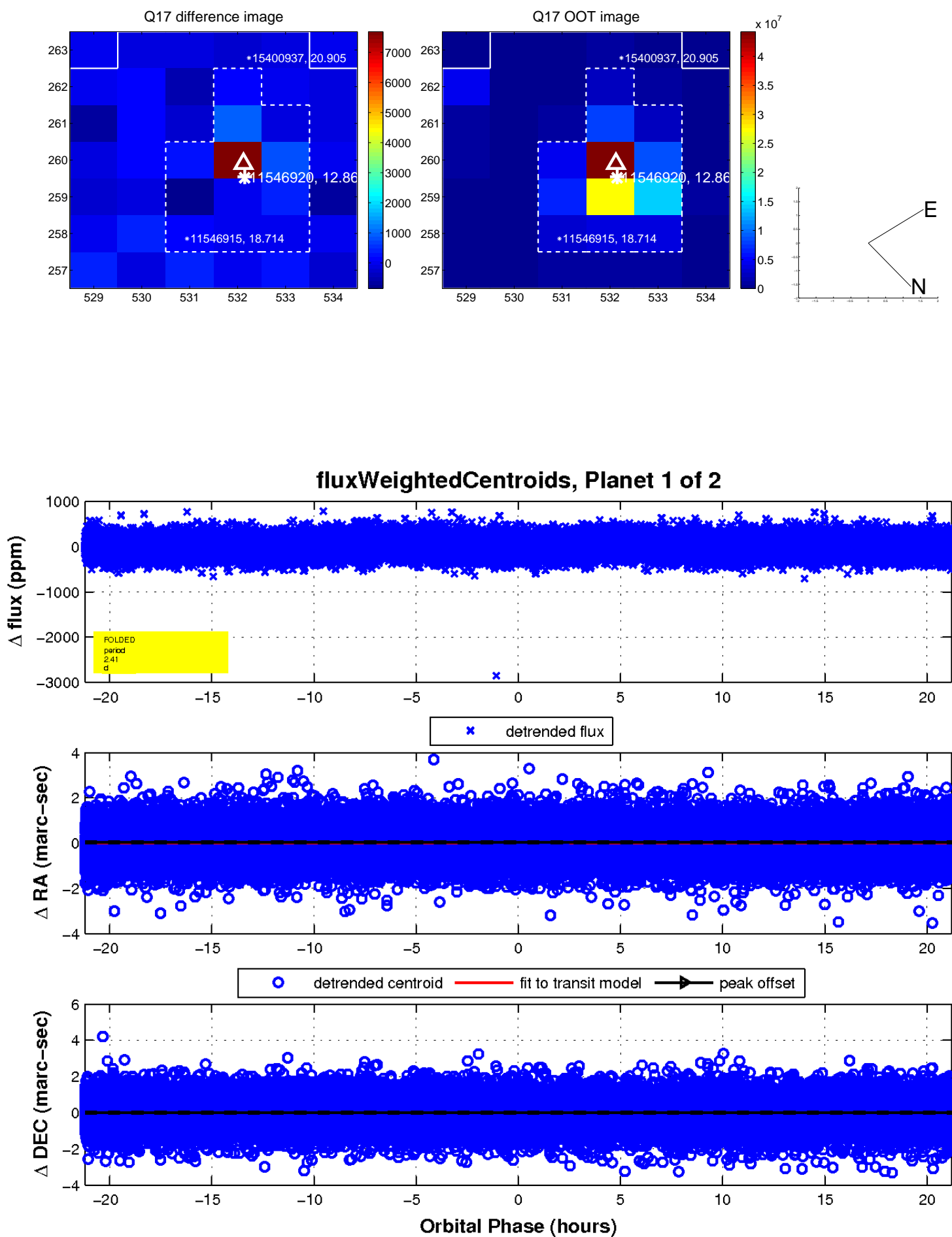
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



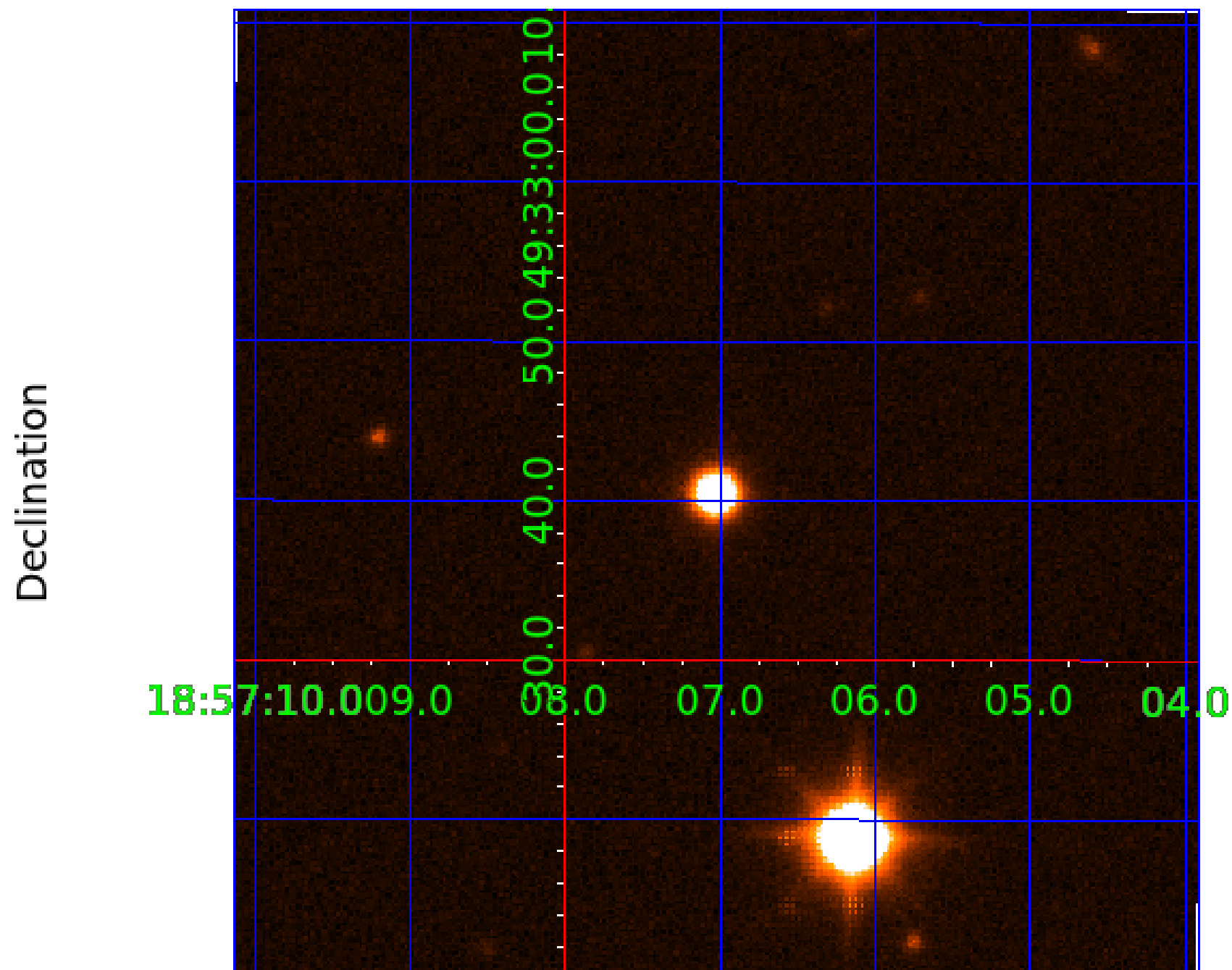
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011546920

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})
011546920-01	OBS	No	2.409281	131.695660	43.4	7.067	9.3	10.0	2.00	6706	1.82	4960.18
011546920-02	OBS	No	320.595224	226.270732	207.8	21.619	7.7	6.5	2.00	6706	3.30	7.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011546920-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011546920-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—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.

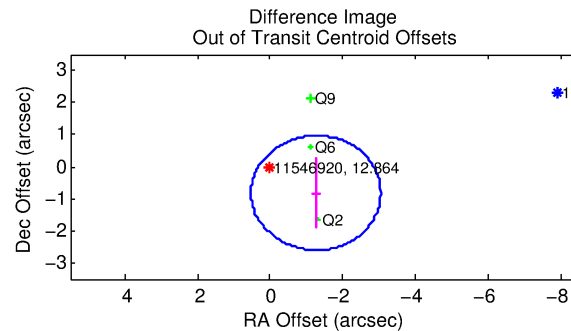
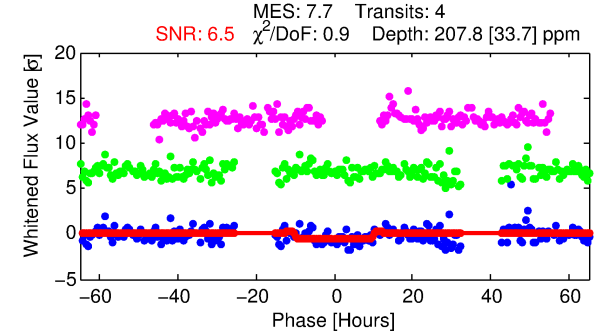
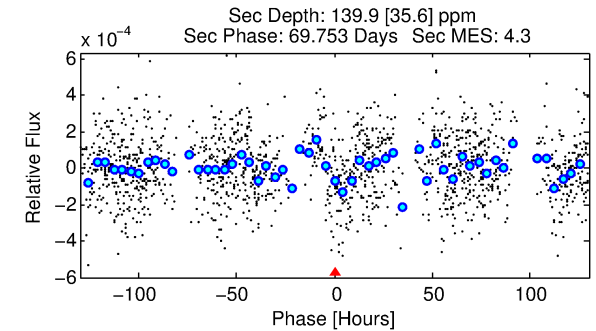
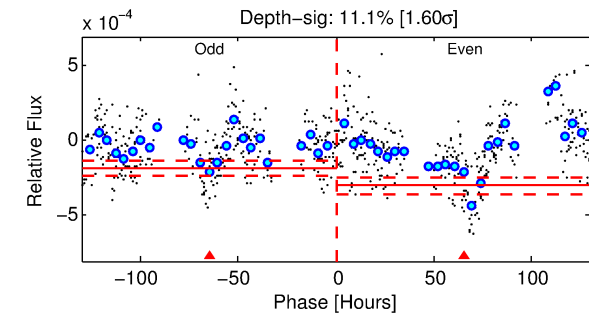
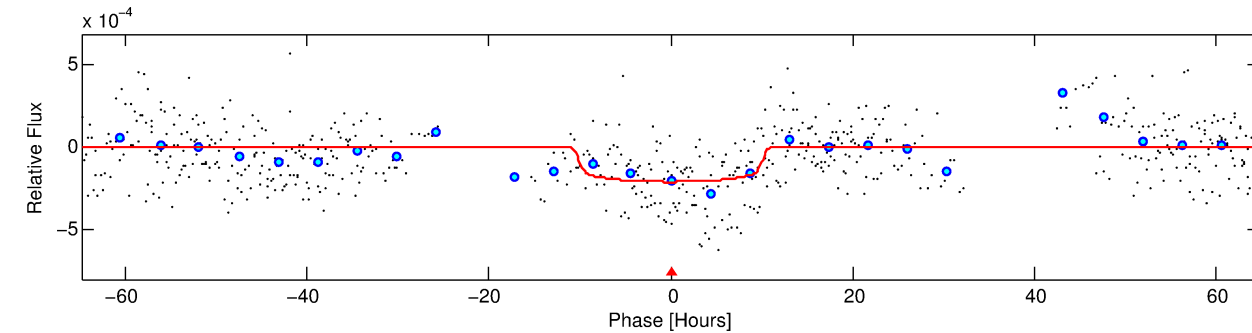
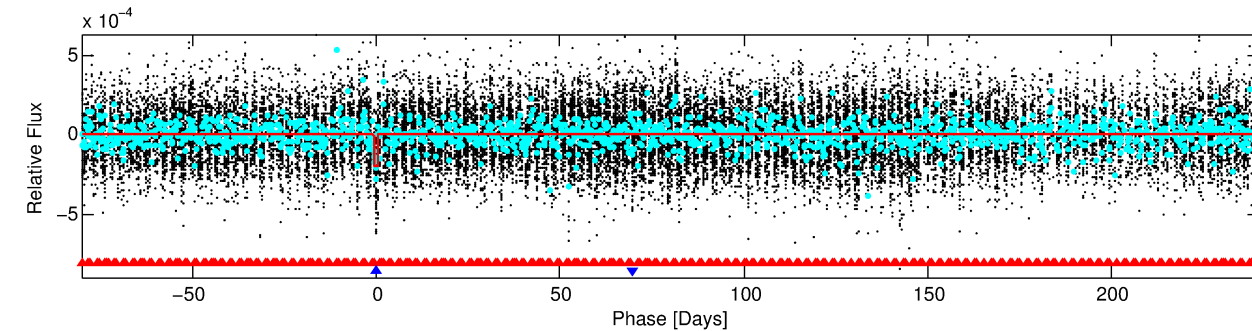
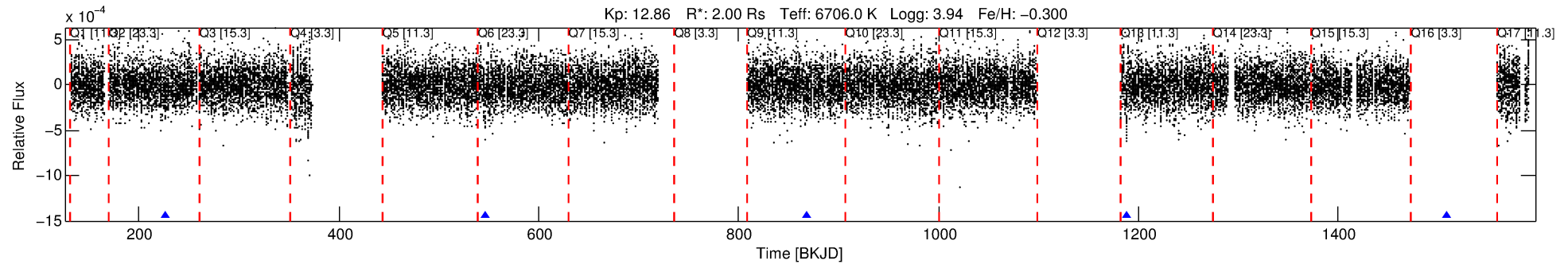
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011546920-02

No Significant Match Found

DV One-Page Summary

KIC: 11546920 Candidate: 2 of 2 Period: 320.595 d



DV Fit Results:

Period = 320.59522 [0.01544] d
Epoch = 226.2707 [0.0342] BKJD
Rp/R* = 0.0151 [0.0018]
a/R* = 58.80 [28.82]
b = 0.87 [0.13]
Seff = 7.30 [4.44]
Teq = 419 [64] K
Rp = 3.30 [1.35] Re
a = 0.9983 [0.3697] AU
Ag = 7044.87 [4824.56] [1.46 σ]
Teffp = 5937 [571] K [9.60 σ]

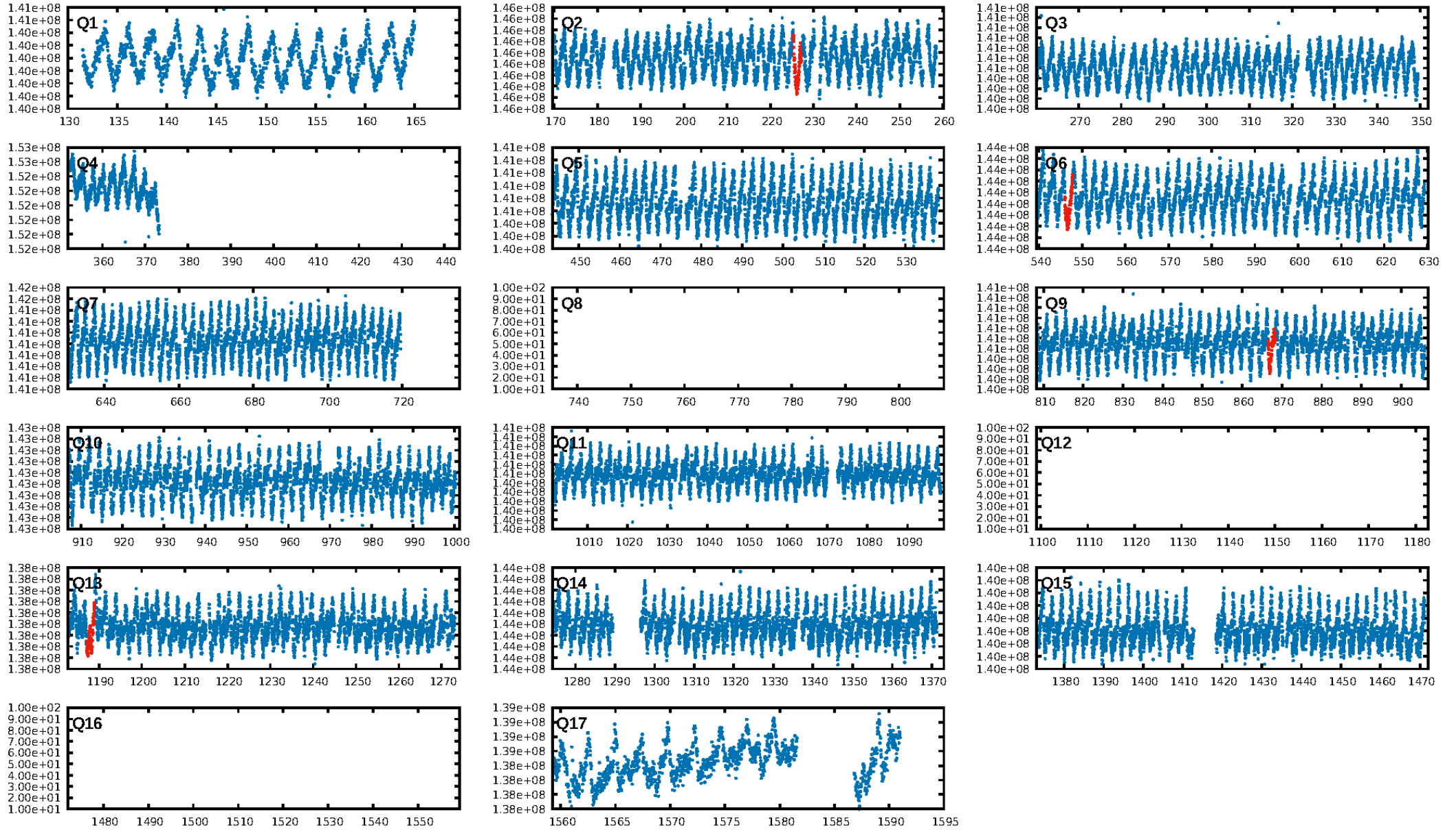
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [335.74 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 56.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.28e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.013
Centroid-sig: 18.1%
Centroid-so: 1.941 arcsec [1.47 σ]
OotOffset-rm: 1.504 arcsec [2.53 σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-rm: 1.502 arcsec [2.22 σ]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

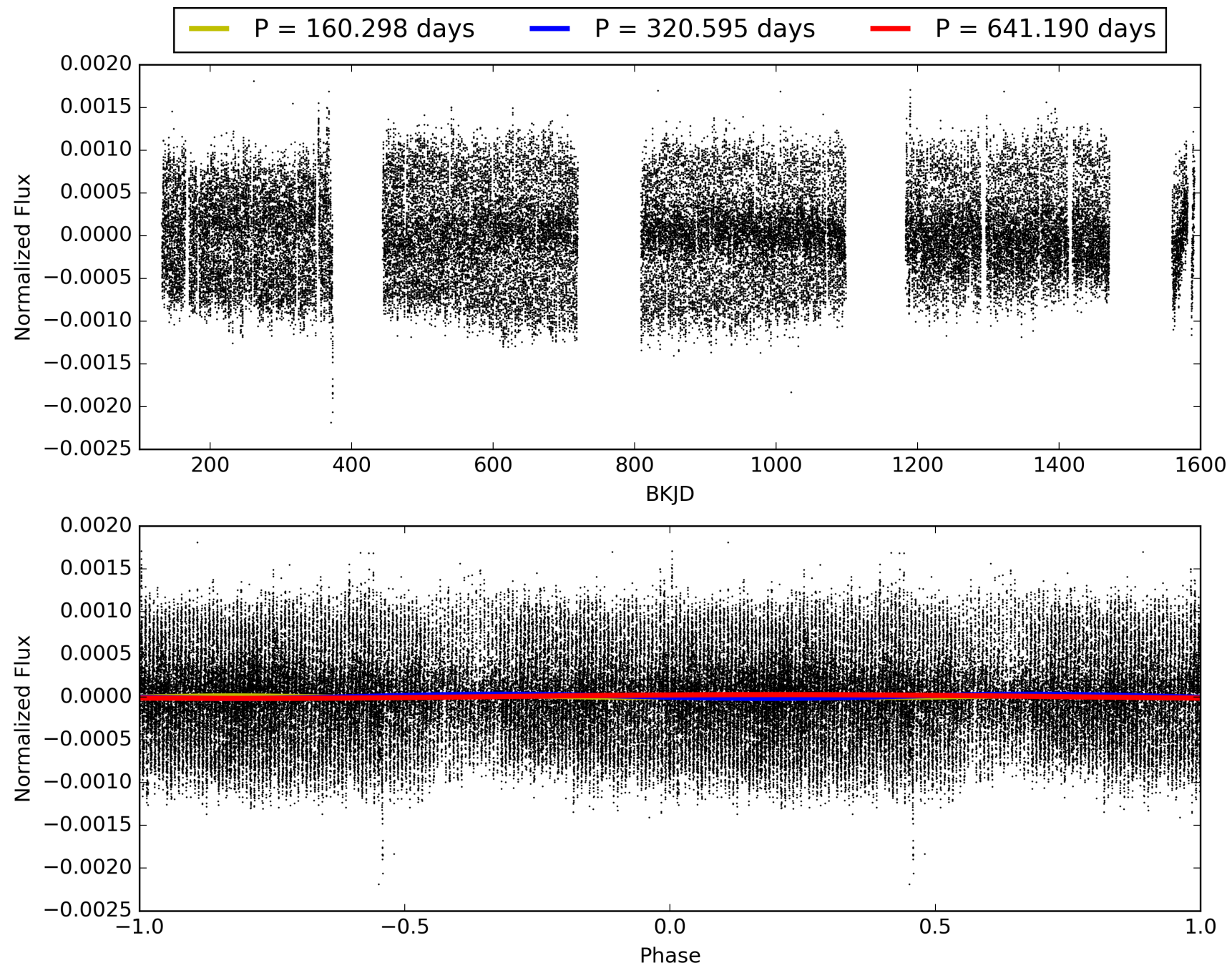
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:22:02 Z

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

TCE 011546920-02, PDC Light Curves

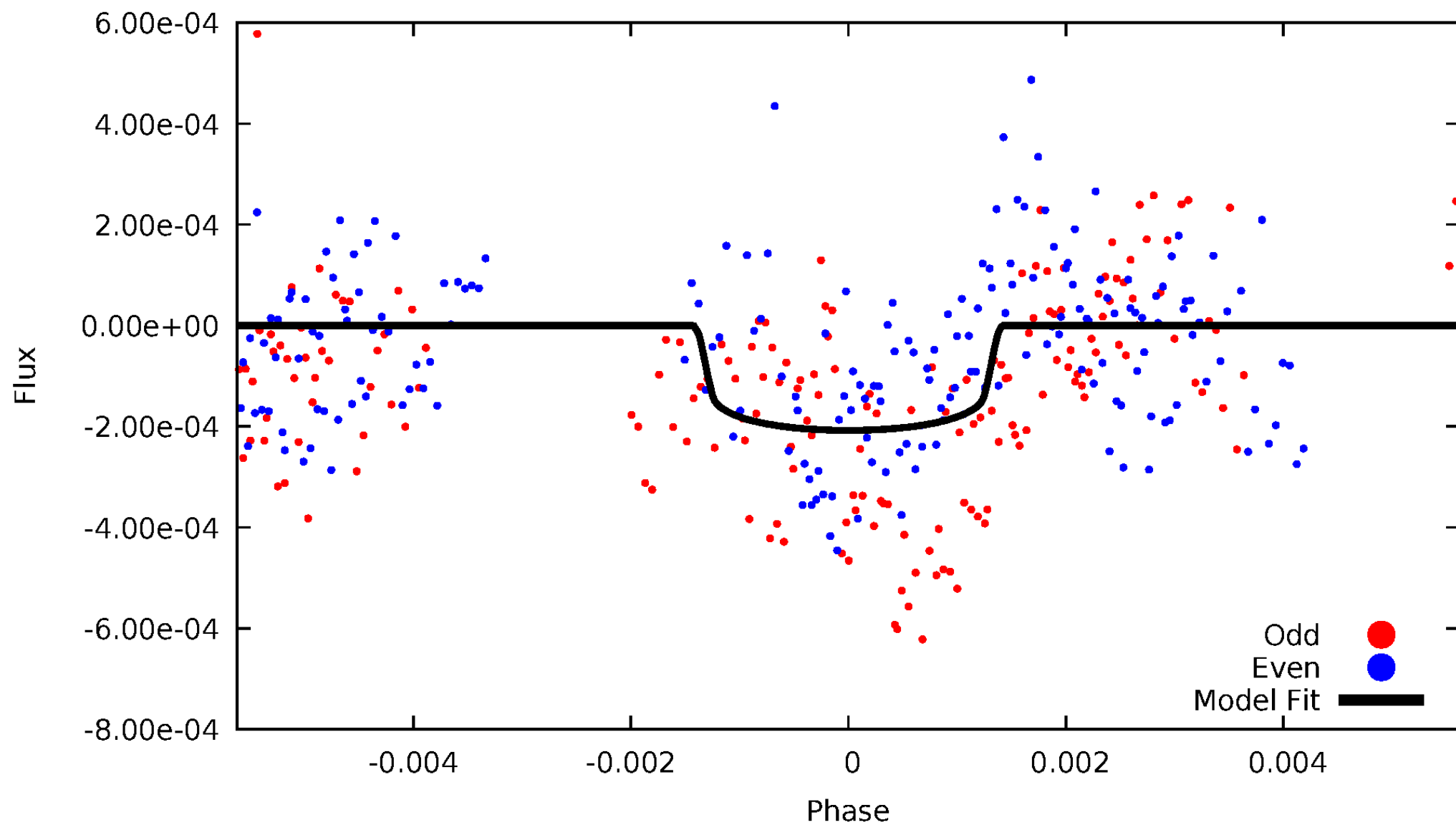


TCE 011546920-02



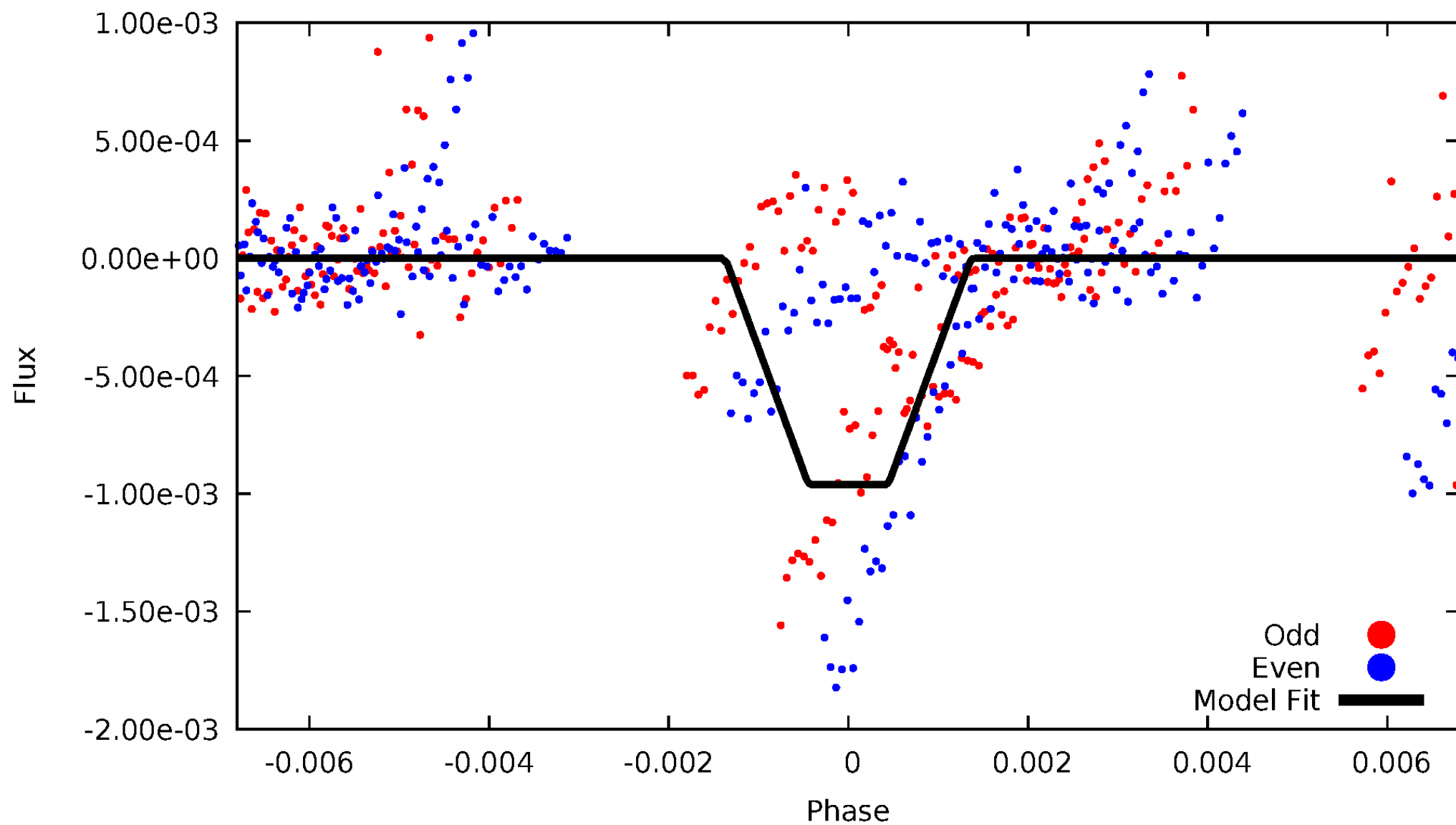
DV Odd/Even

TCE 011546920-02



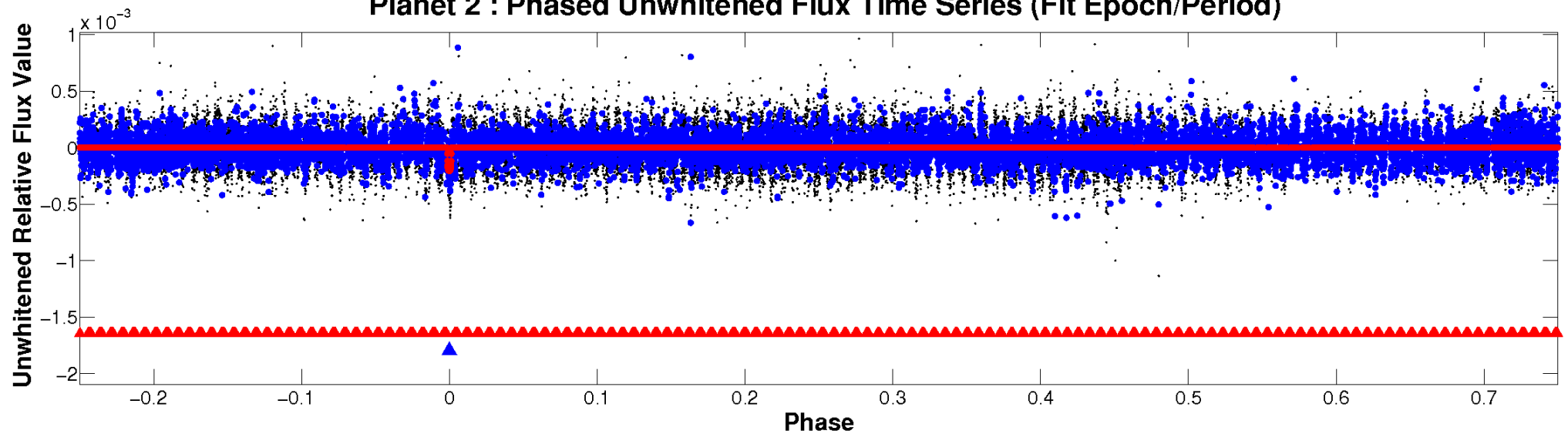
ALT Odd/Even

TCE 011546920-02

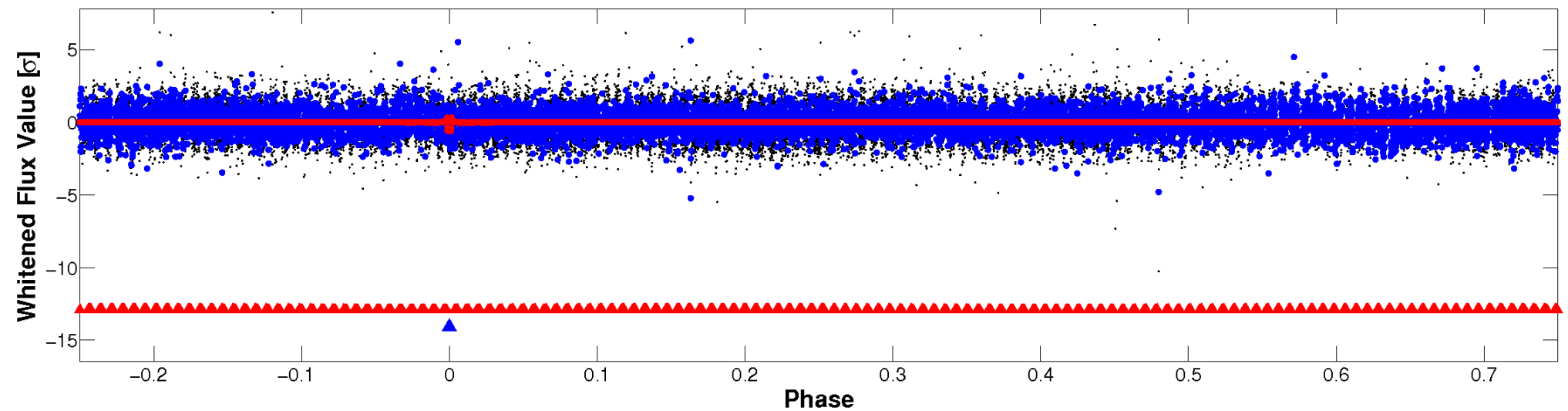


Non-Whitened Vs. Whitened Light Curve

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

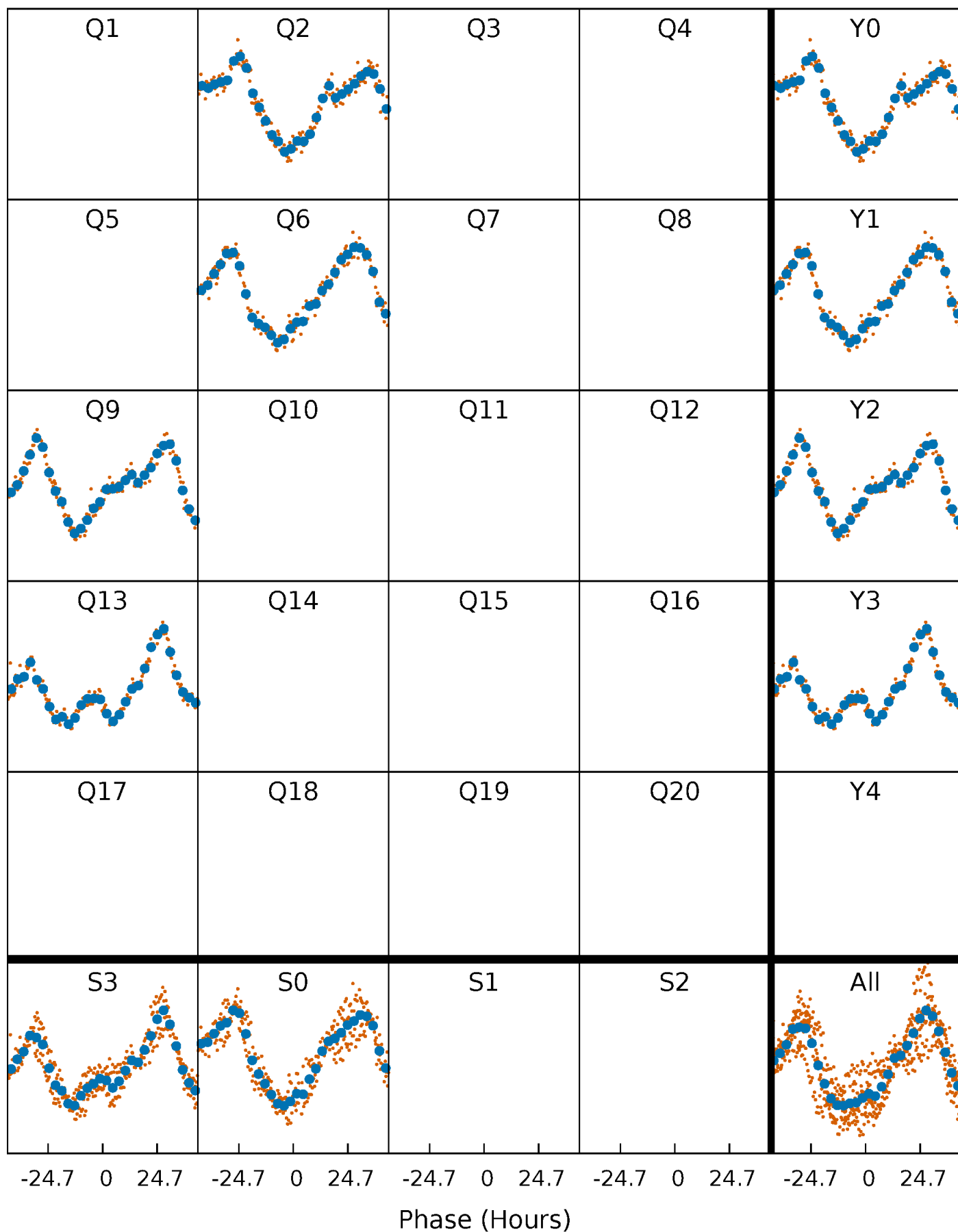


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



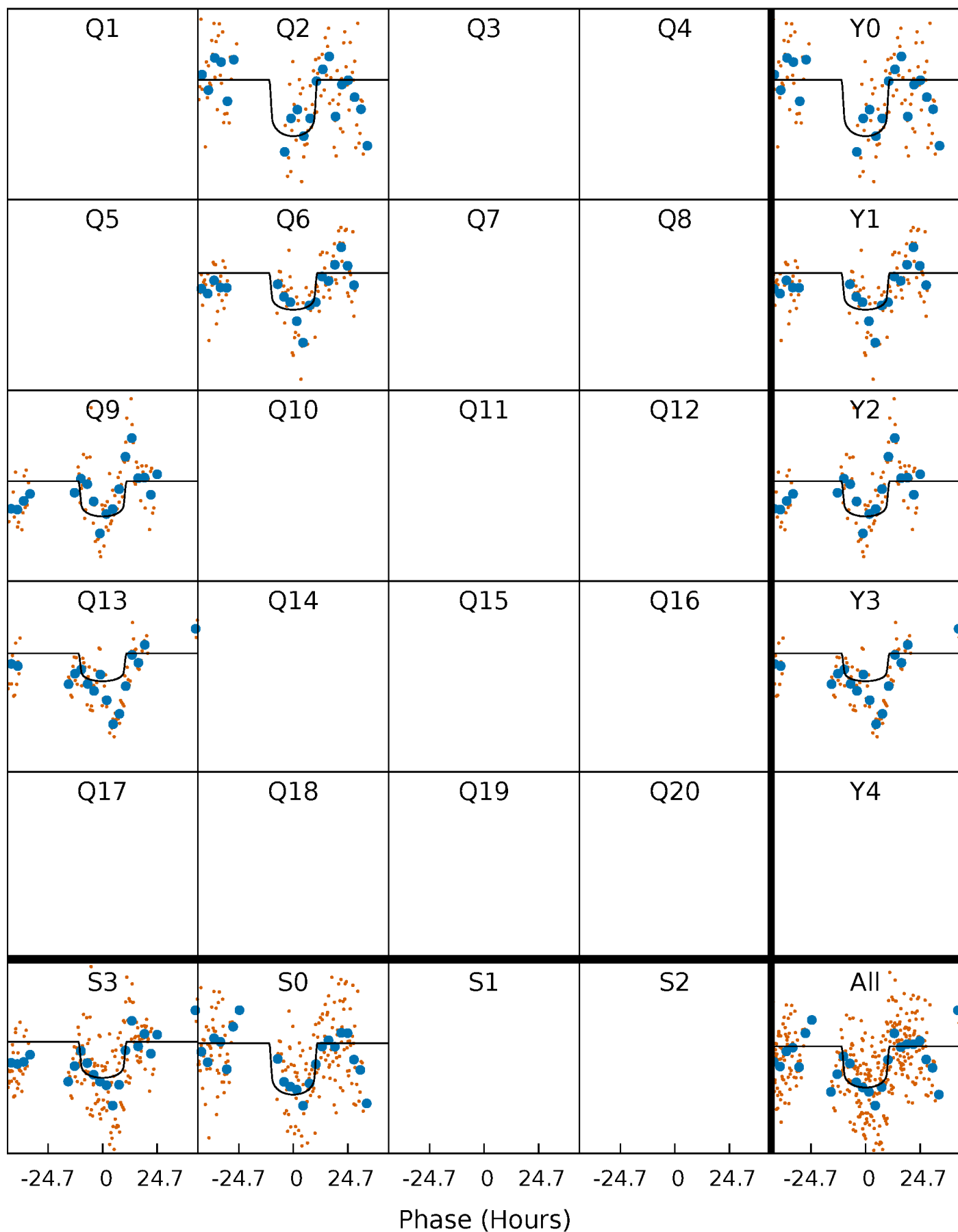
PDC Quarter-Phased Transit Curves

TCE 011546920-02 P=320.595224 Days $T_0=226.270732$ (BKJD)



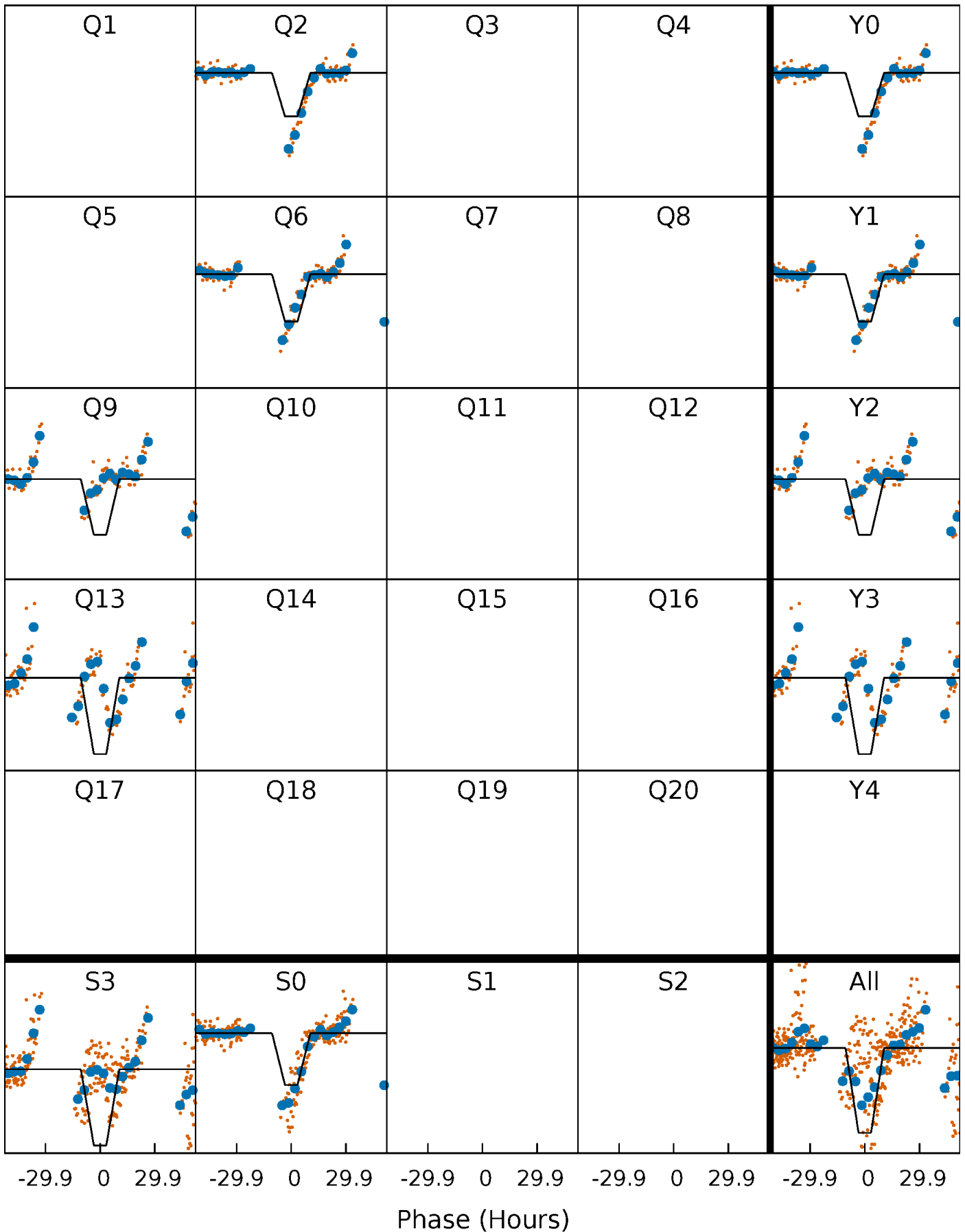
DV Quarter-Phased Transit Curves

TCE 011546920-02 $P=320.595224$ Days $T_0=226.270732$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

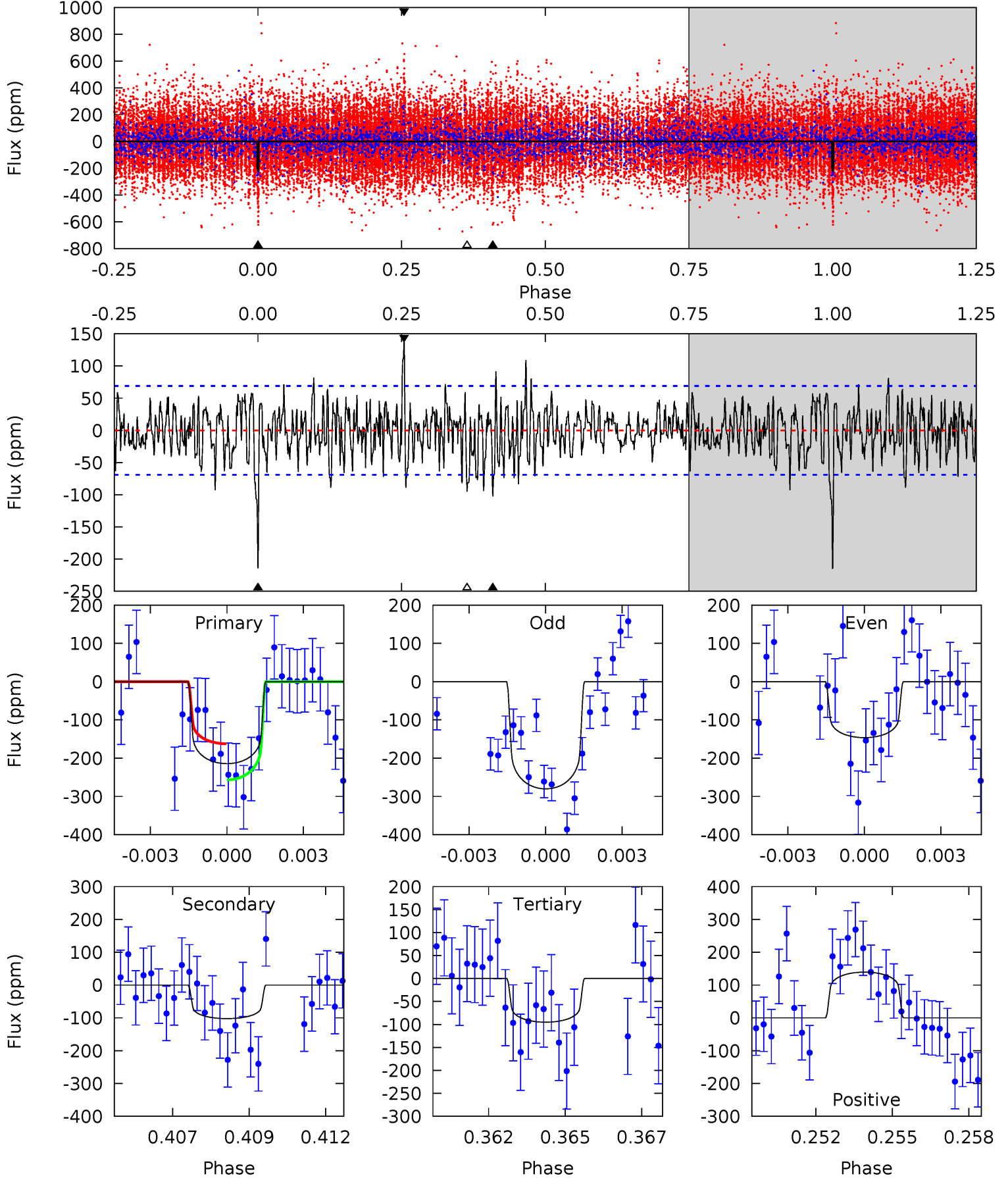
TCE 011546920-02 $P=320.595745$ Days $T_0=226.205664$ (BKJD)



DV Model-Shift Uniqueness Test

011546920-02, P = 320.595224 Days, E = 226.270732 Days

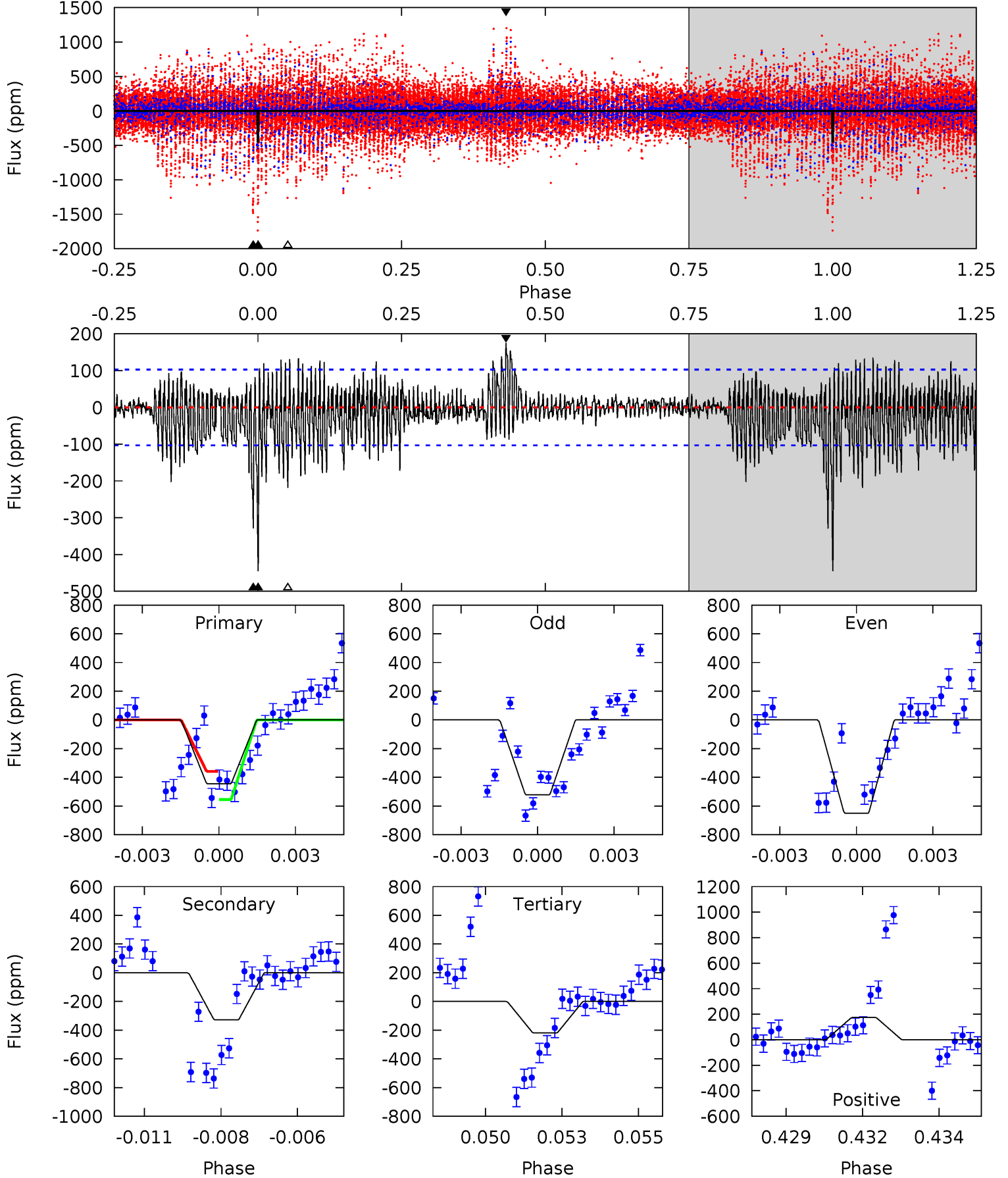
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	7.79	7.25	10.6	5.26	2.99	2.39	9.08	5.71	0.55	-2.83	5.13	1.15	0.39	3.58



Alt Model-Shift Uniqueness Test

011546920-02, P = 320.595745 Days, E = 226.205664 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.8	16.8	11.2	8.92	5.27	2.99	2.54	11.6	13.8	5.62	7.90	3.43	1.23	0.28	0



Stellar Parameters For KIC 011546920

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6706^{+189}_{-260}	$3.945^{+0.343}_{-0.147}$	$-0.300^{+0.300}_{-0.300}$	$2.004^{+0.522}_{-0.783}$	$1.291^{+0.194}_{-0.237}$	$0.226^{+0.576}_{-0.093}$
	+3%/-4%	+9%/-4%	+100%/-100%	+26%/-39%	+15%/-18%	+255%/-41%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 011546920-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-102 ± 13	$3.21^{+0.69}_{-0.70}$	577^{+44}_{-57}	5481^{+402}_{-354}	5523^{+3180}_{-1847}
Alt.	-329 ± 20	$6.58^{+1.25}_{-1.39}$	576^{+50}_{-57}	5177^{+205}_{-220}	4186^{+2186}_{-1156}

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

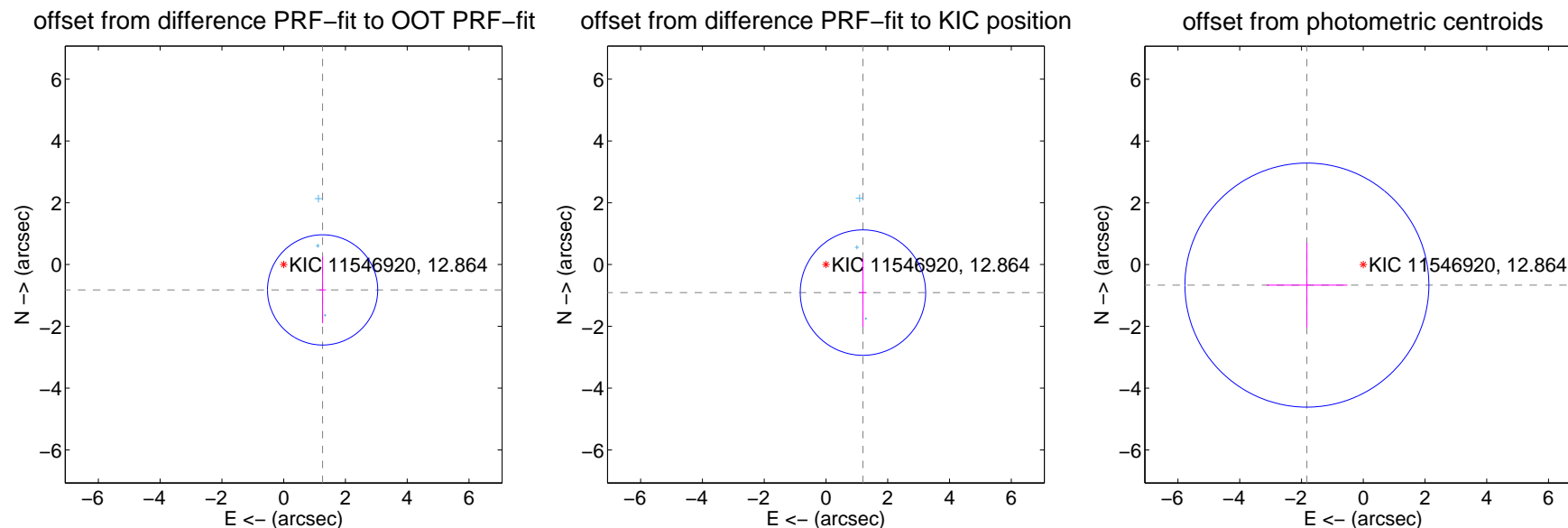
DV Centroid Data

Supplemental centroid analysis for 011546920-02. Kepler magnitude: 12.86. Transit SNR 6.49

There are 3 quarters with good PRF difference image offsets

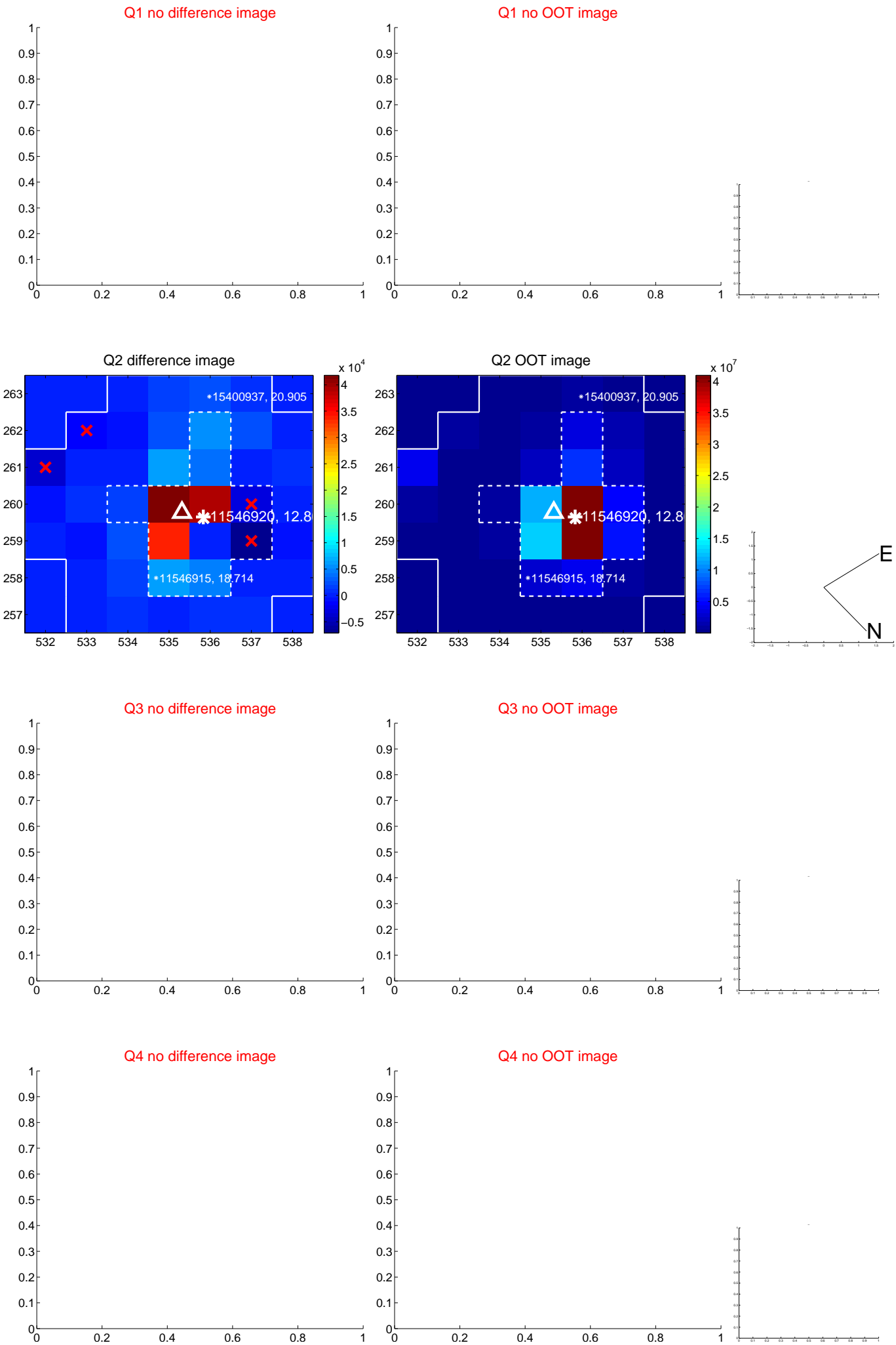
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.504 ± 0.595	2.53	-1.261 ± 0.109	-0.821 ± 1.077
PRF-fit source offset from KIC position	1.502 ± 0.677	2.22	-1.197 ± 0.120	-0.908 ± 1.108
photometric centroid source offset	1.94 ± 1.32	1.47	1.82 ± 1.31	-0.66 ± 1.36

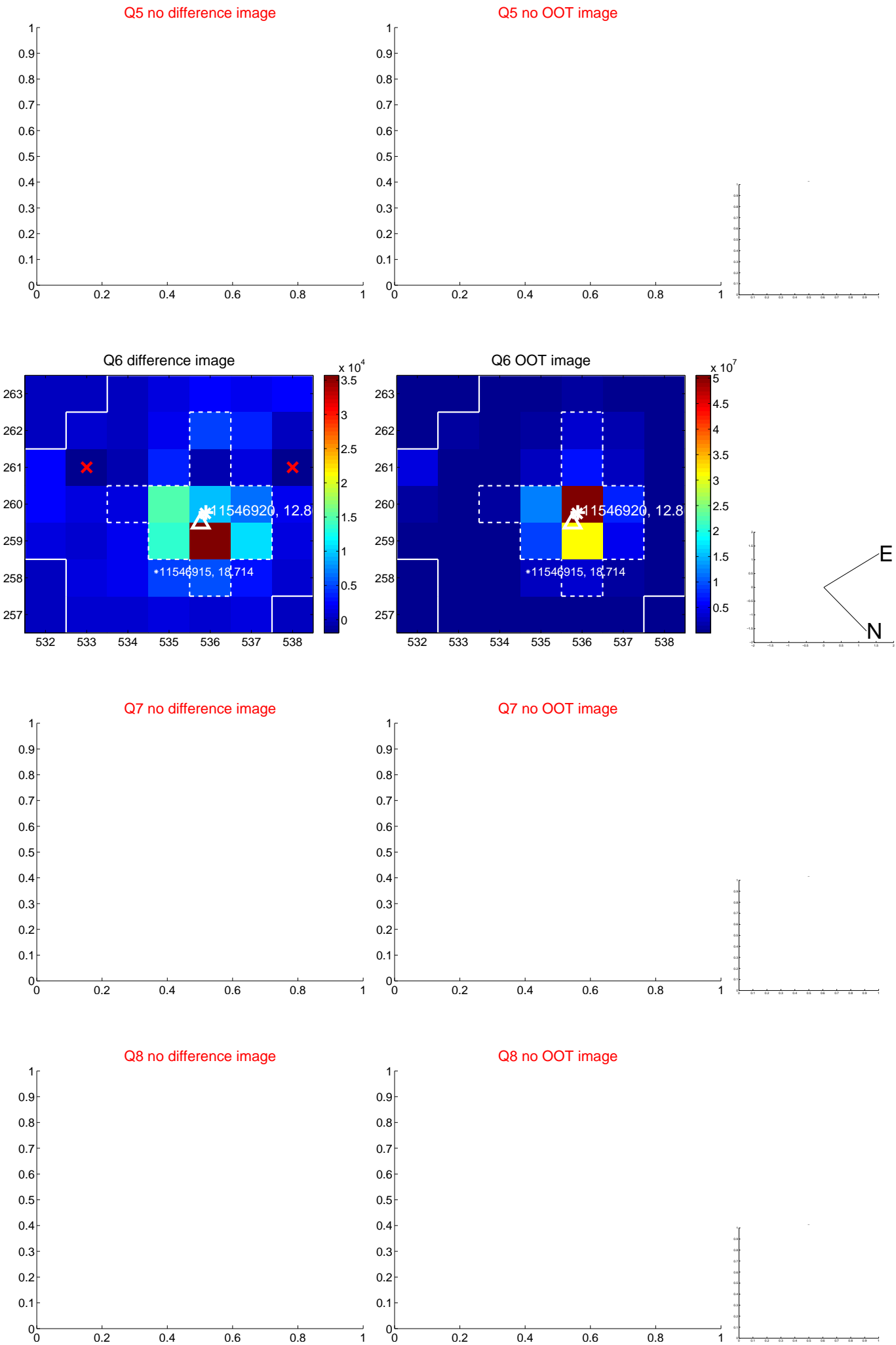


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

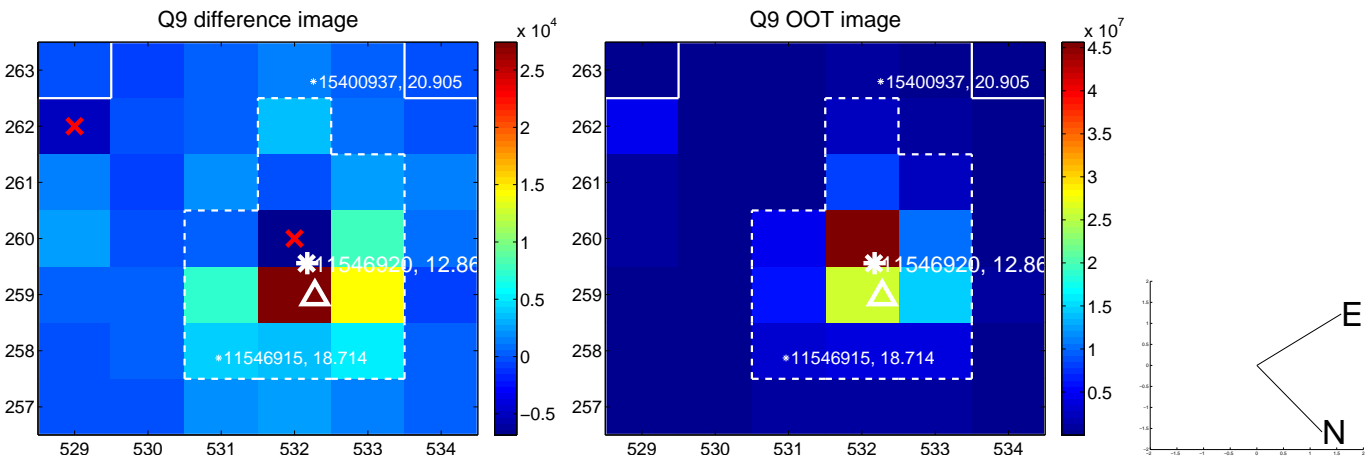
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



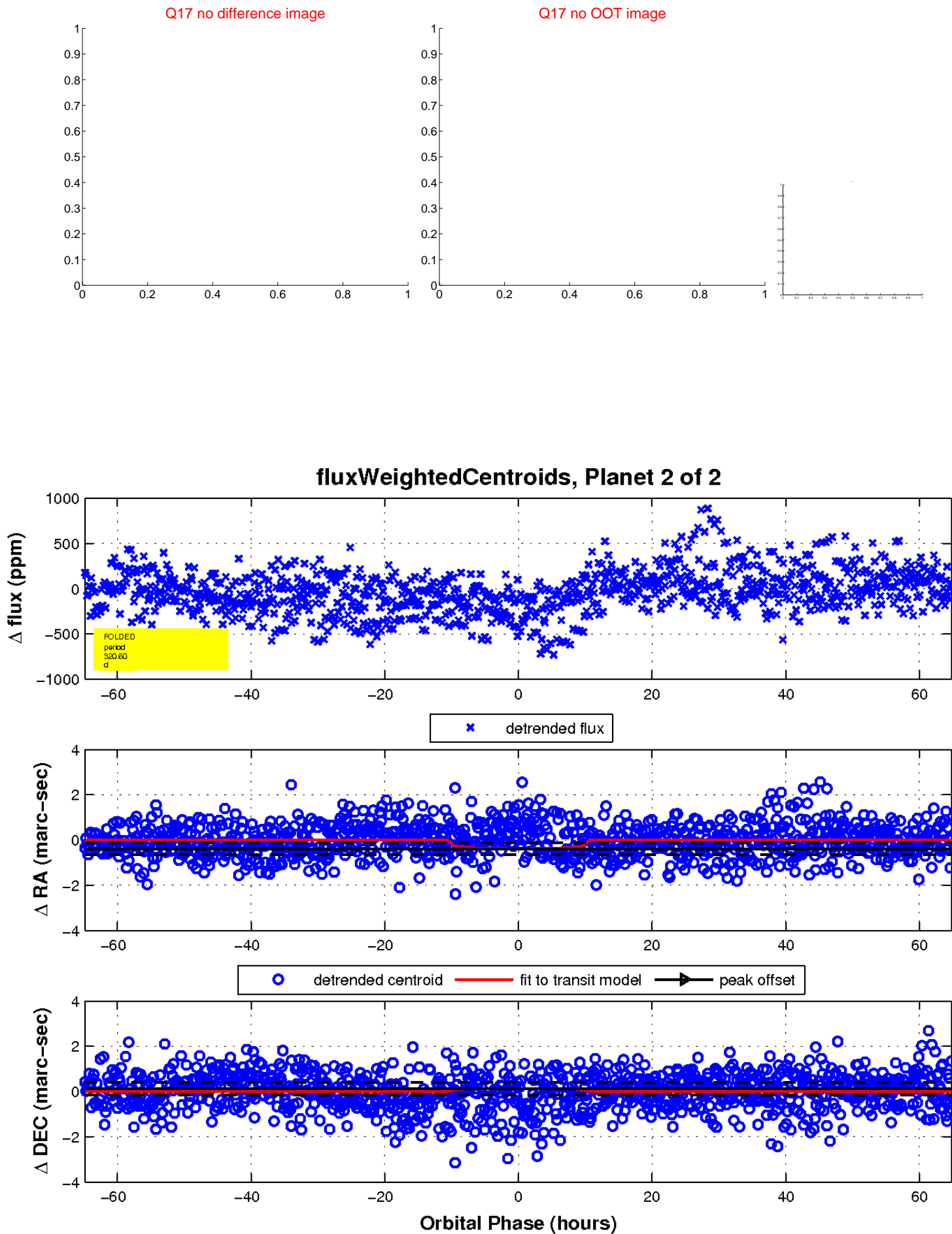
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

