

KIC 009753154

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})
009753154-01	OBS	2457.01	3.704269	132.220238	54.6	3.503	16.8	17.5	1.93	6732	1.66	2710.95
009753154-02	OBS	No	503.289851	194.804517	348.3	12.098	8.8	8.0	1.93	6732	3.72	3.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009753154-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009753154-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—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.

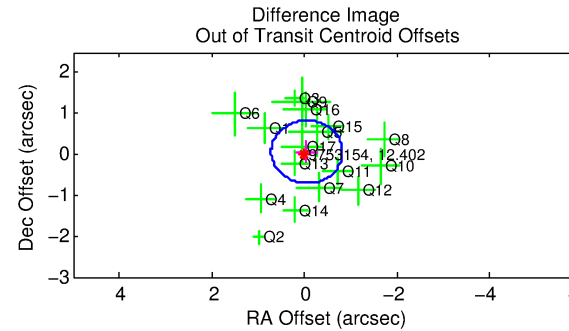
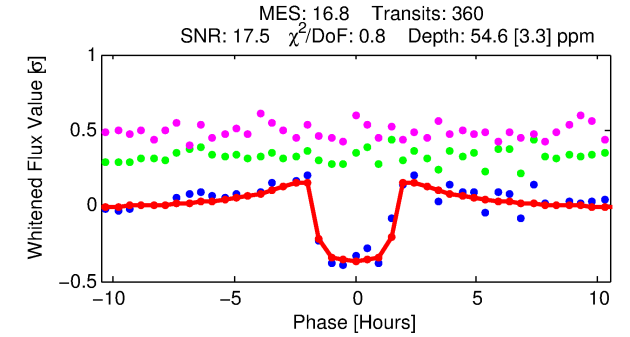
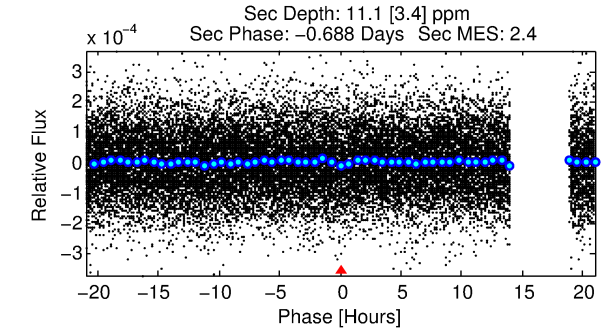
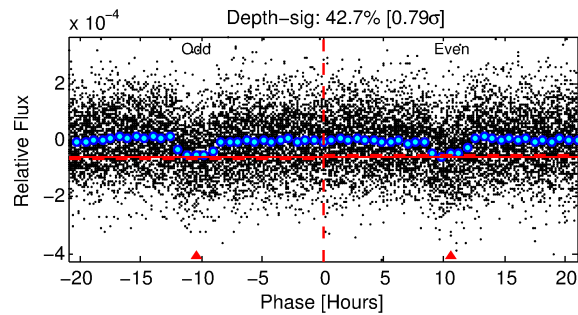
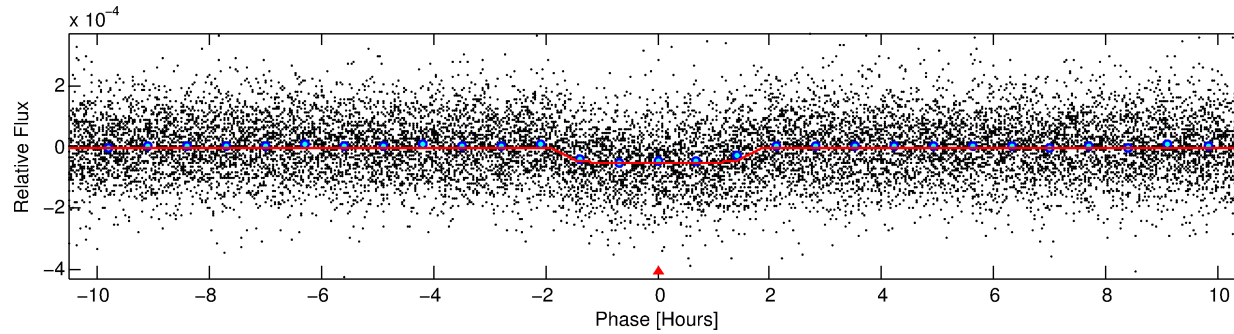
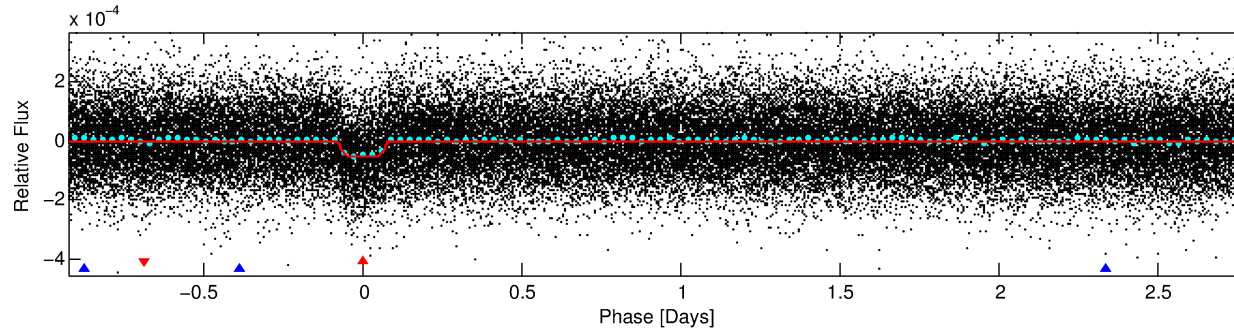
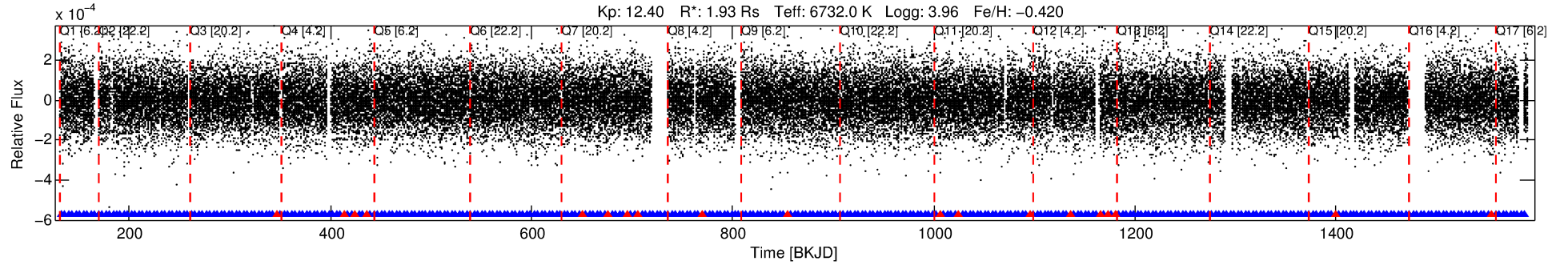
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009753154-01

No Significant Match Found

DV One-Page Summary

KIC: 9753154 Candidate: 1 of 2 Period: 3.704 d
KOI: K02457.01 Corr: 0.968



DV Fit Results:

Period = 3.70427 [0.00001] d
Epoch = 132.2202 [0.0021] BKJD
Rp/R* = 0.0079 [0.0015]
a/R* = 3.80 [3.91]
b = 0.90 [0.24]
Seff = 2710.95 [1310.91]
Teq = 1840 [222] K
Rp = 1.66 [0.60] Re
a = 0.0502 [0.0148] AU
Ag = 5.59 [3.75] [1.22 σ]
Teffp = 4374 [543] K [4.32 σ]

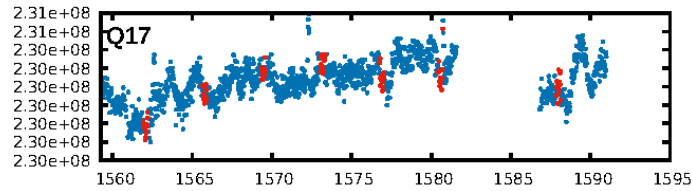
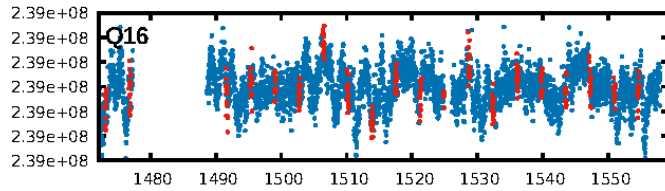
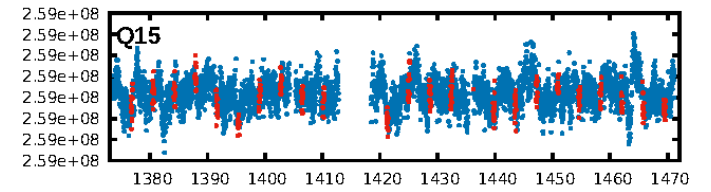
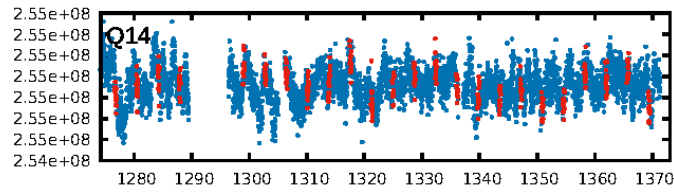
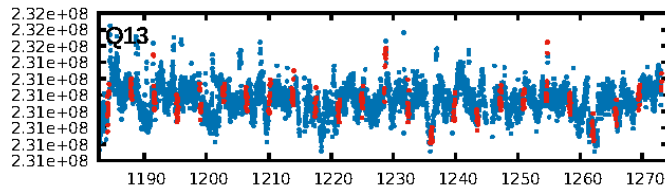
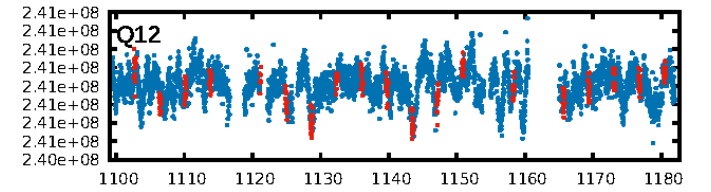
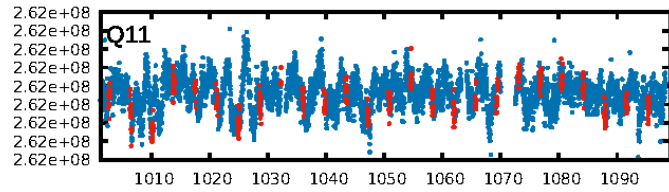
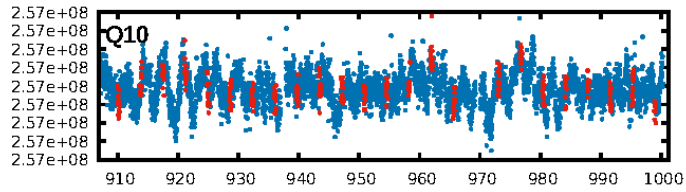
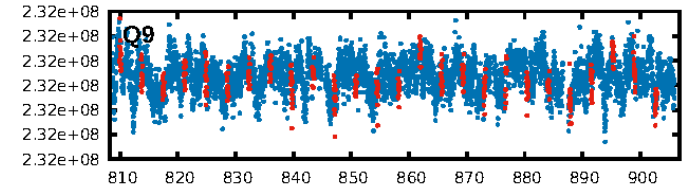
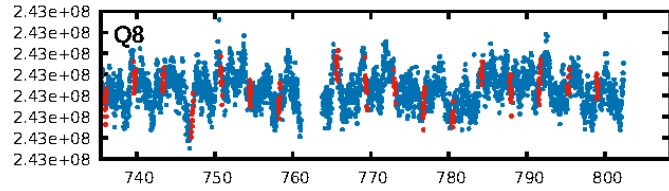
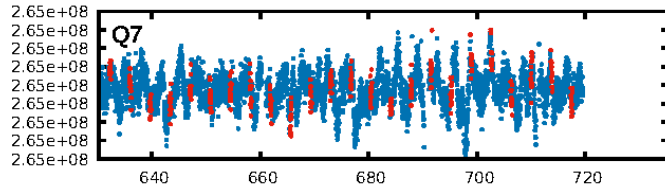
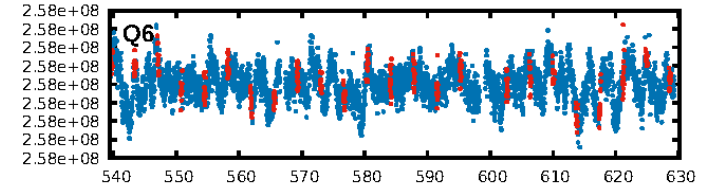
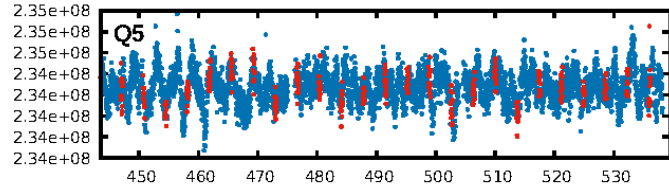
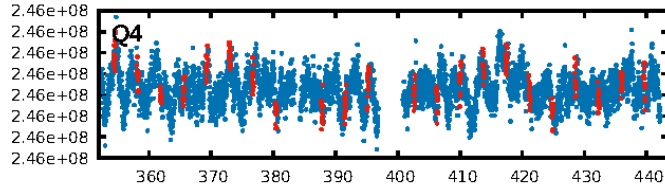
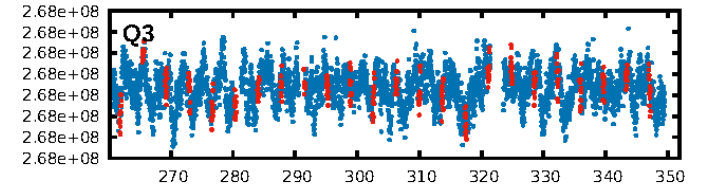
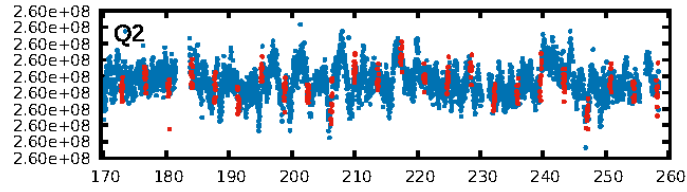
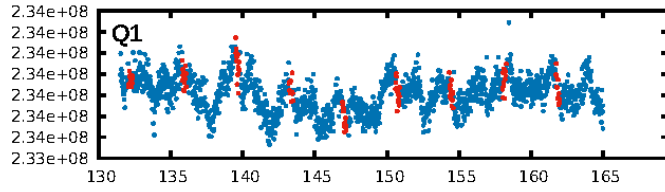
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [951.98 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.40e-58
RollingBand-fgt: 0.94 [325/344]
GhostDiagnostic-chr: -3.591
Centroid-sig: 4.3%
Centroid-so: 0.884 arcsec [1.47 σ]
OotOffset-rm: 0.080 arcsec [0.31 σ]
KicOffset-rm: 0.048 arcsec [0.20 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

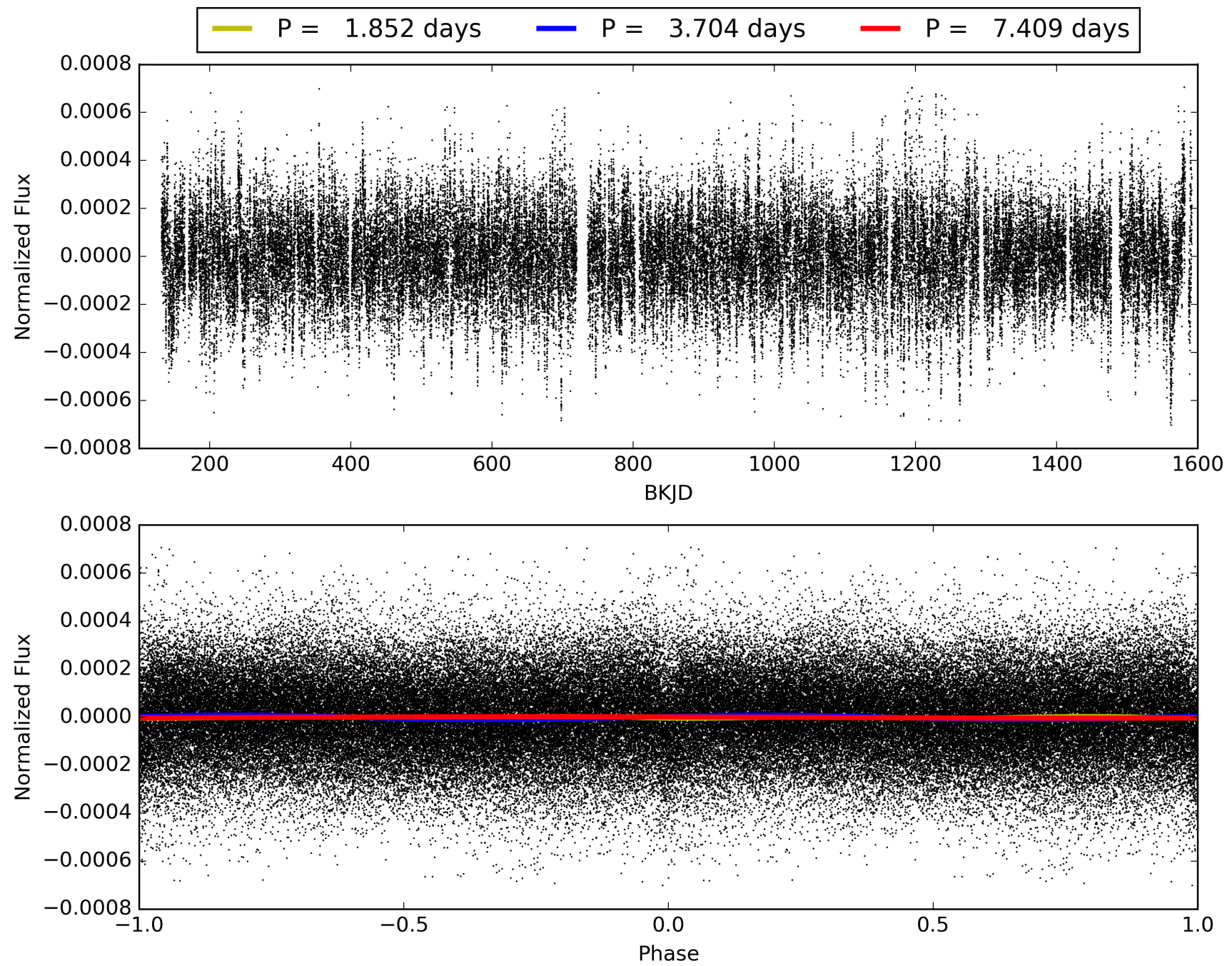
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:51:28 Z

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

TCE 009753154-01, PDC Light Curves

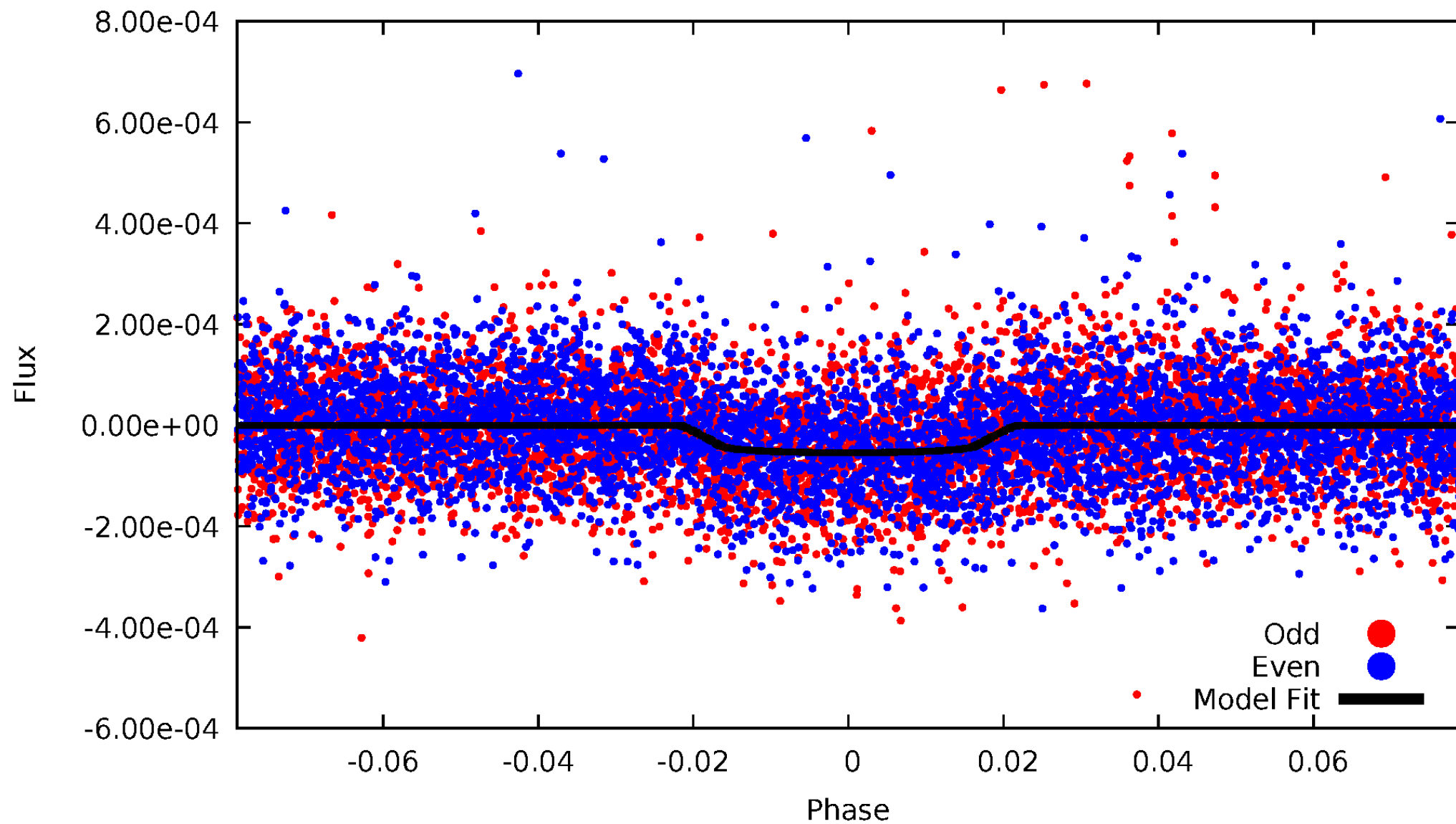


TCE 009753154-01



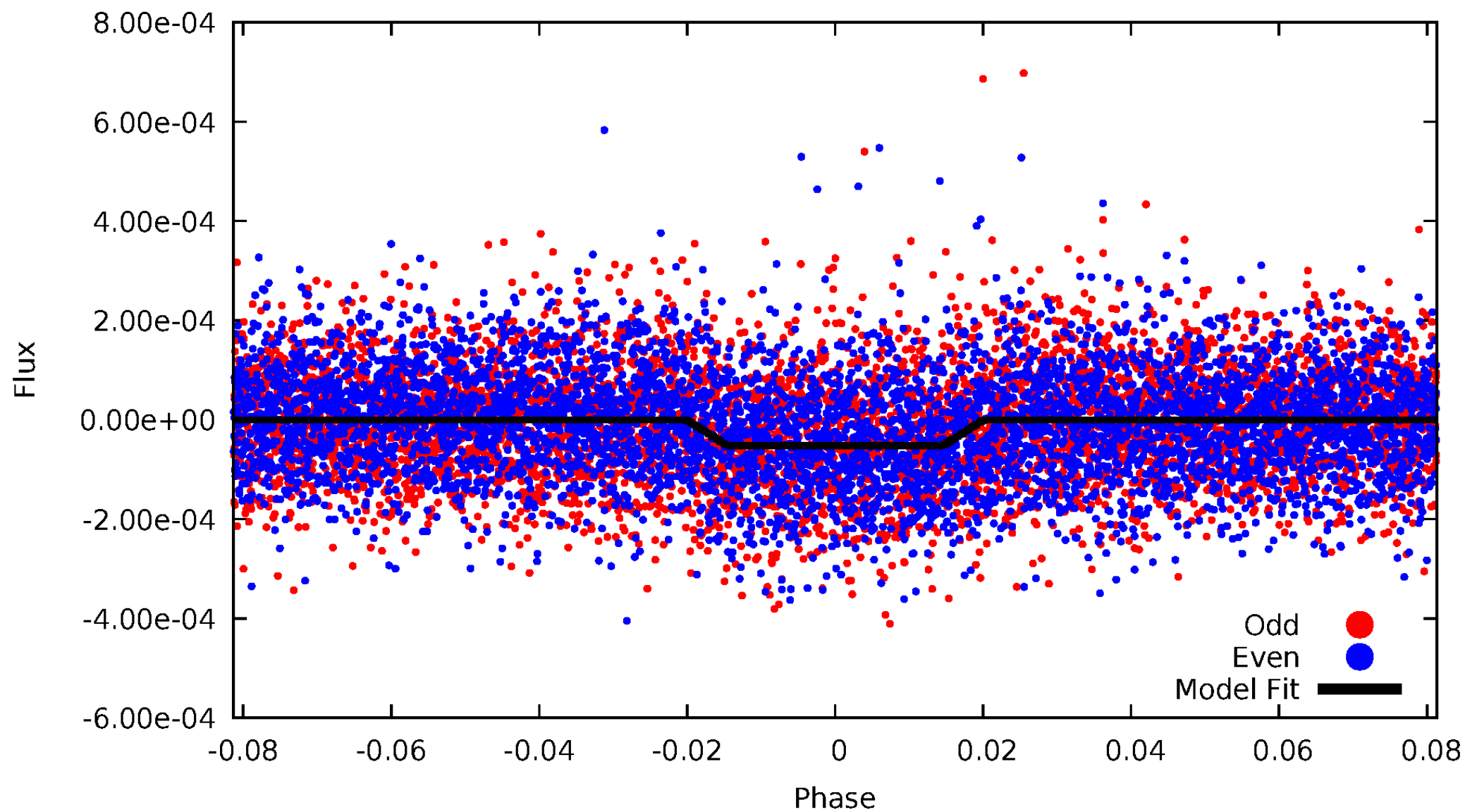
DV Odd/Even

TCE 009753154-01



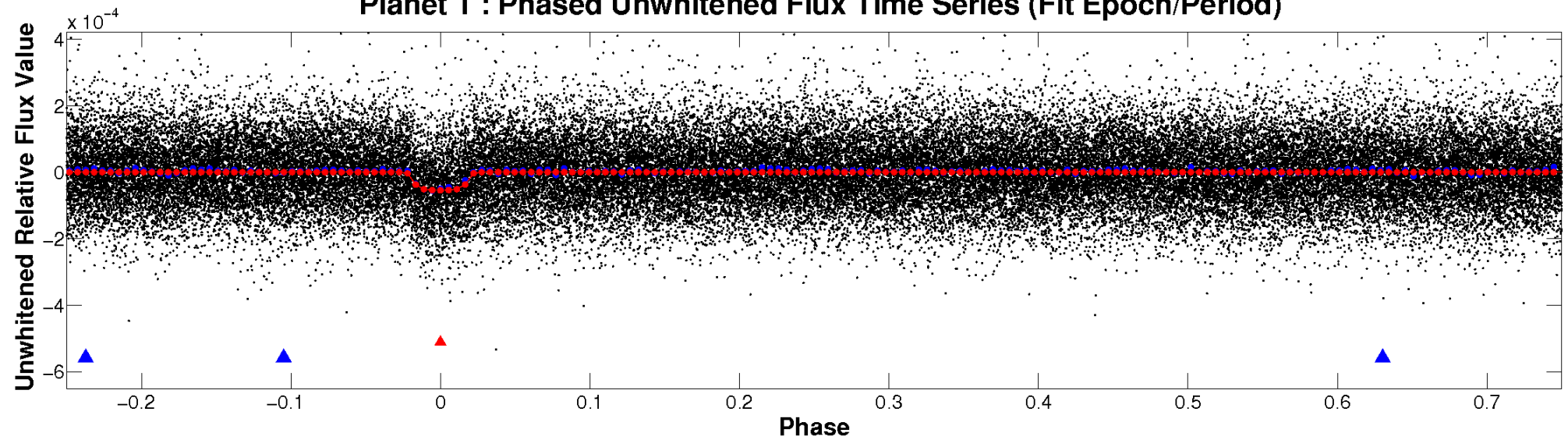
ALT Odd/Even

TCE 009753154-01

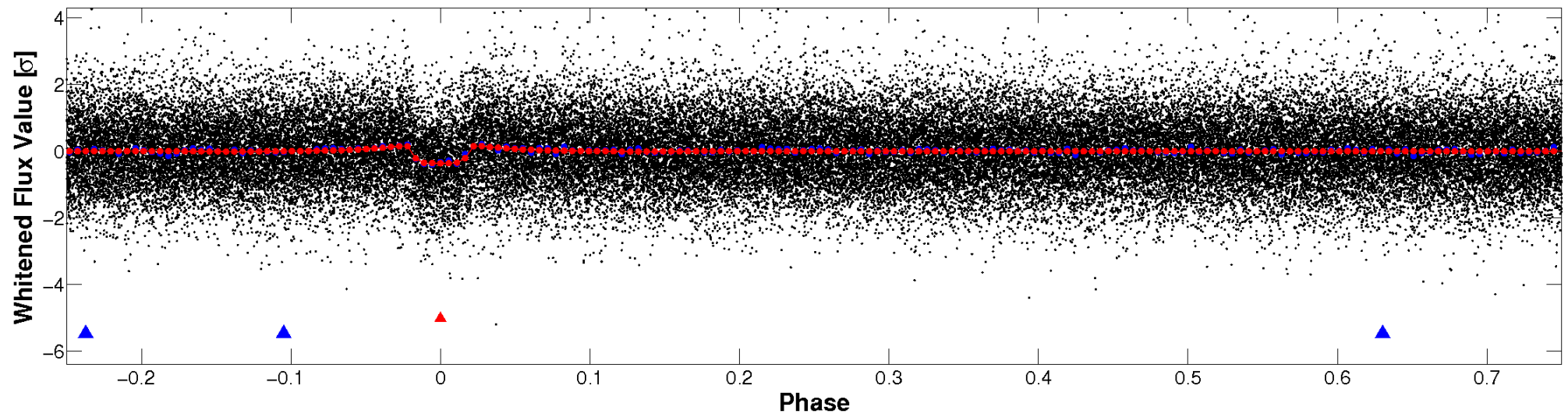


Non-Whitened Vs. Whitened Light Curve

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

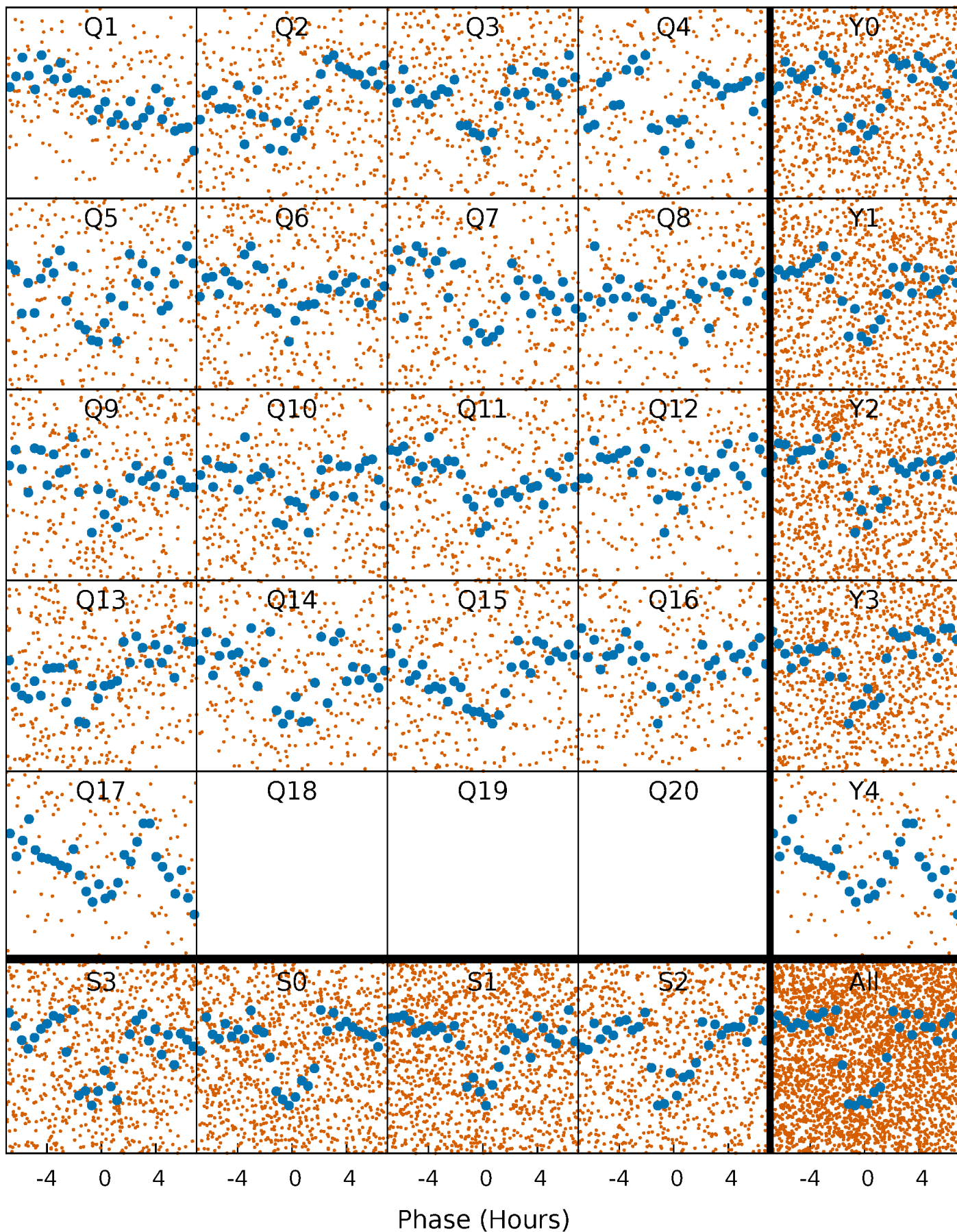


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



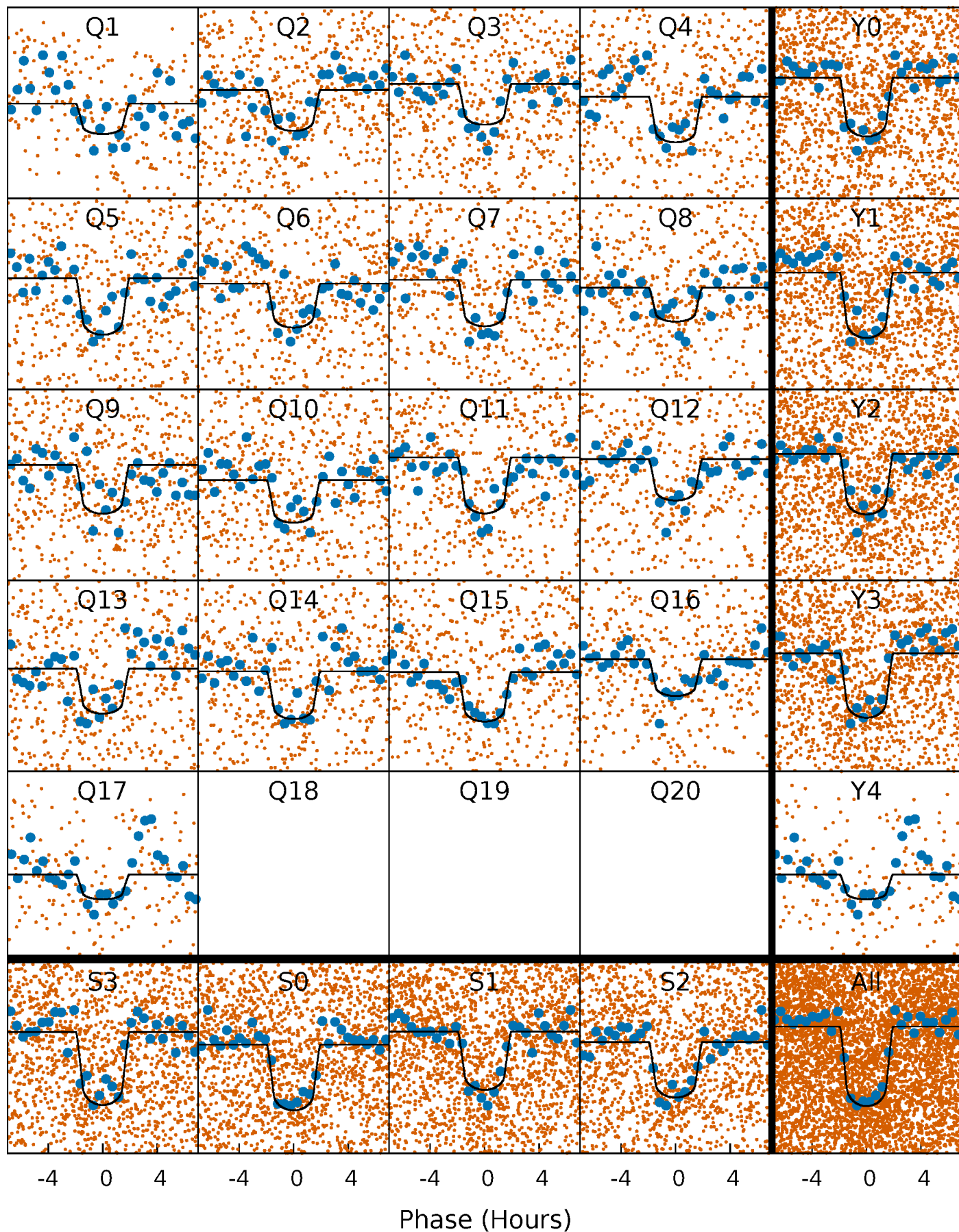
PDC Quarter-Phased Transit Curves

TCE 009753154-01 P= 3.704269 Days $T_0=132.220238$ (BKJD)



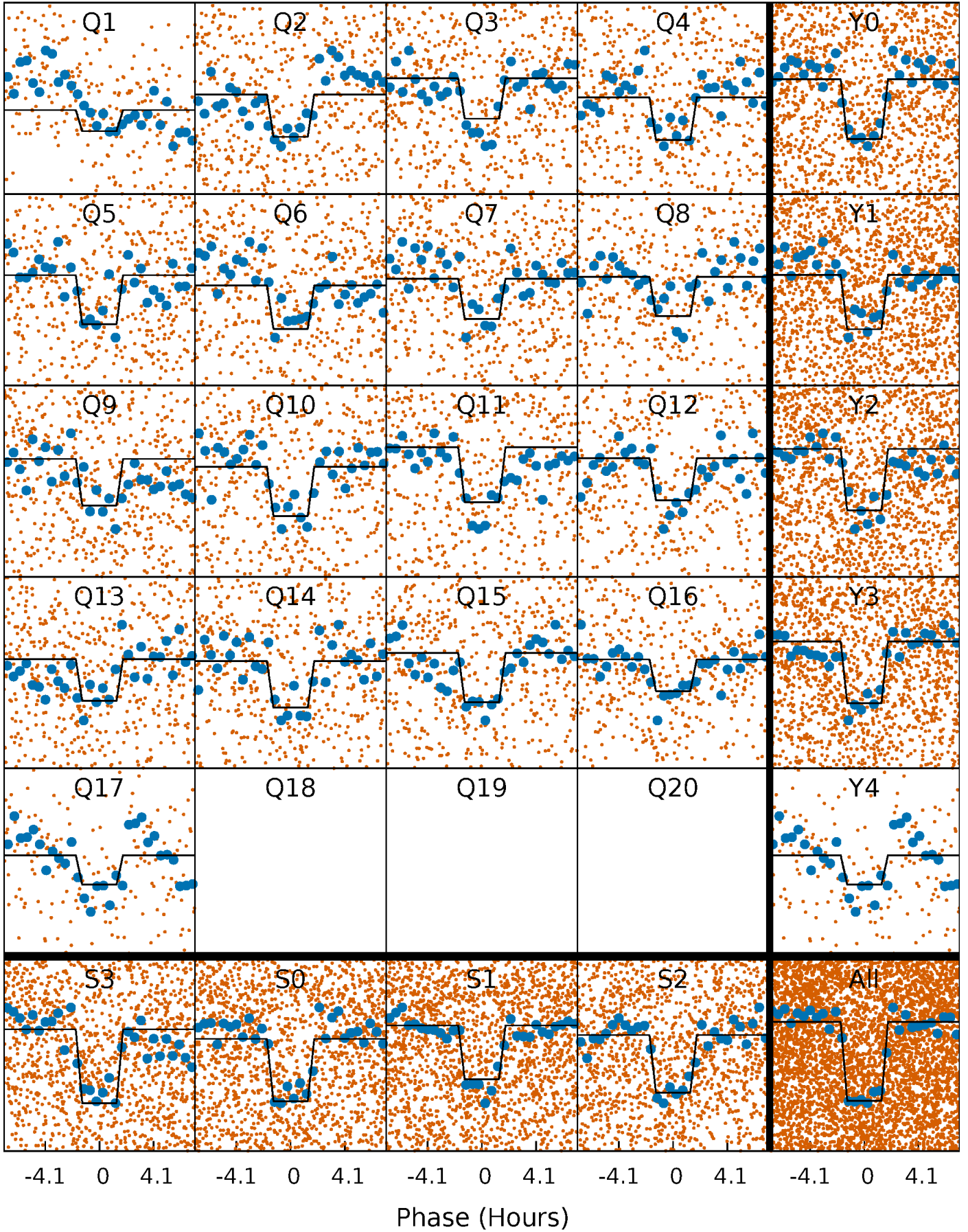
DV Quarter-Phased Transit Curves

TCE 009753154-01 P= 3.704269 Days $T_0=132.220238$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

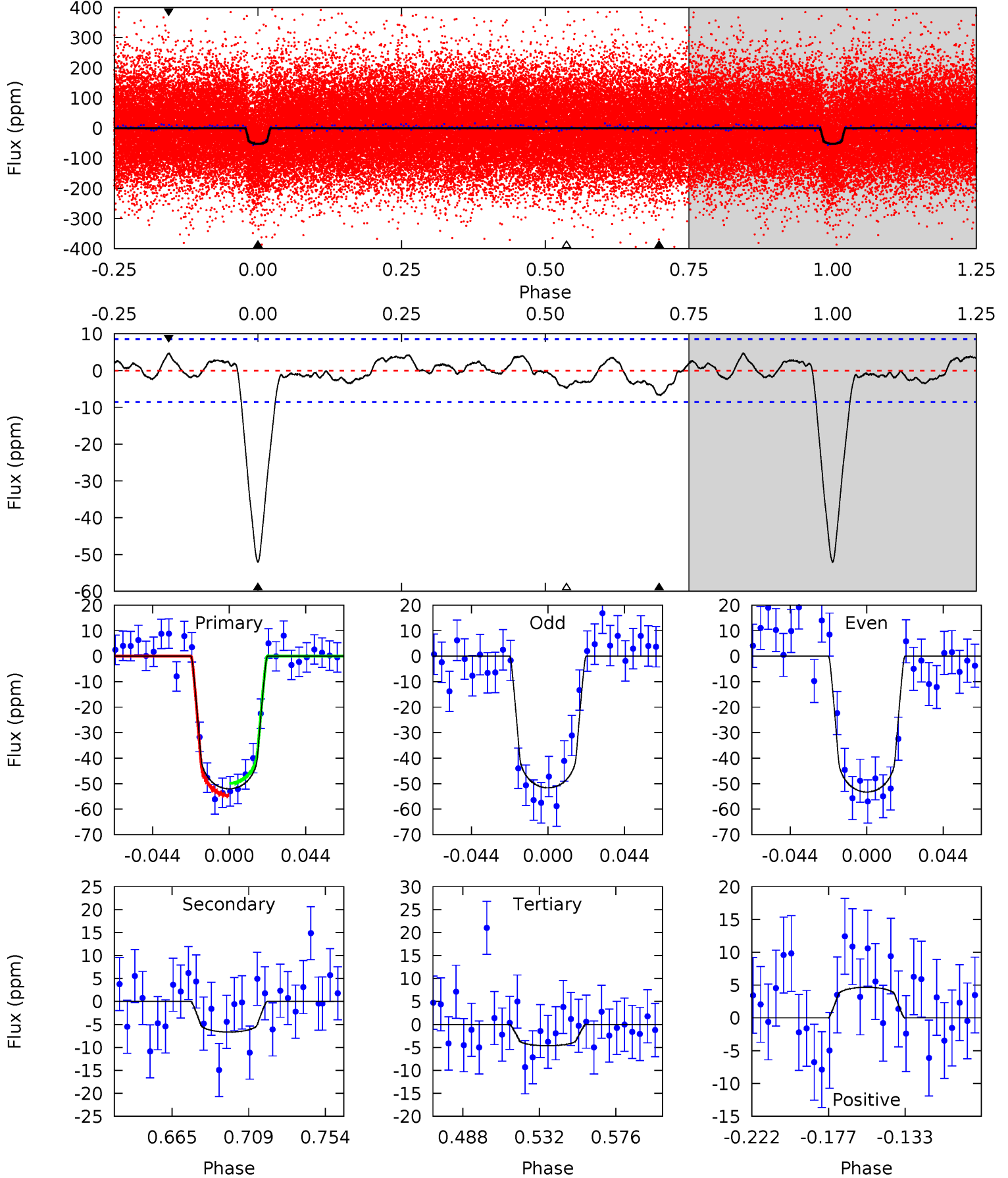
TCE 009753154-01 P= 3.704282 Days $T_0=132.215274$ (BKJD)



DV Model-Shift Uniqueness Test

009753154-01, P = 3.704269 Days, E = 128.515969 Days

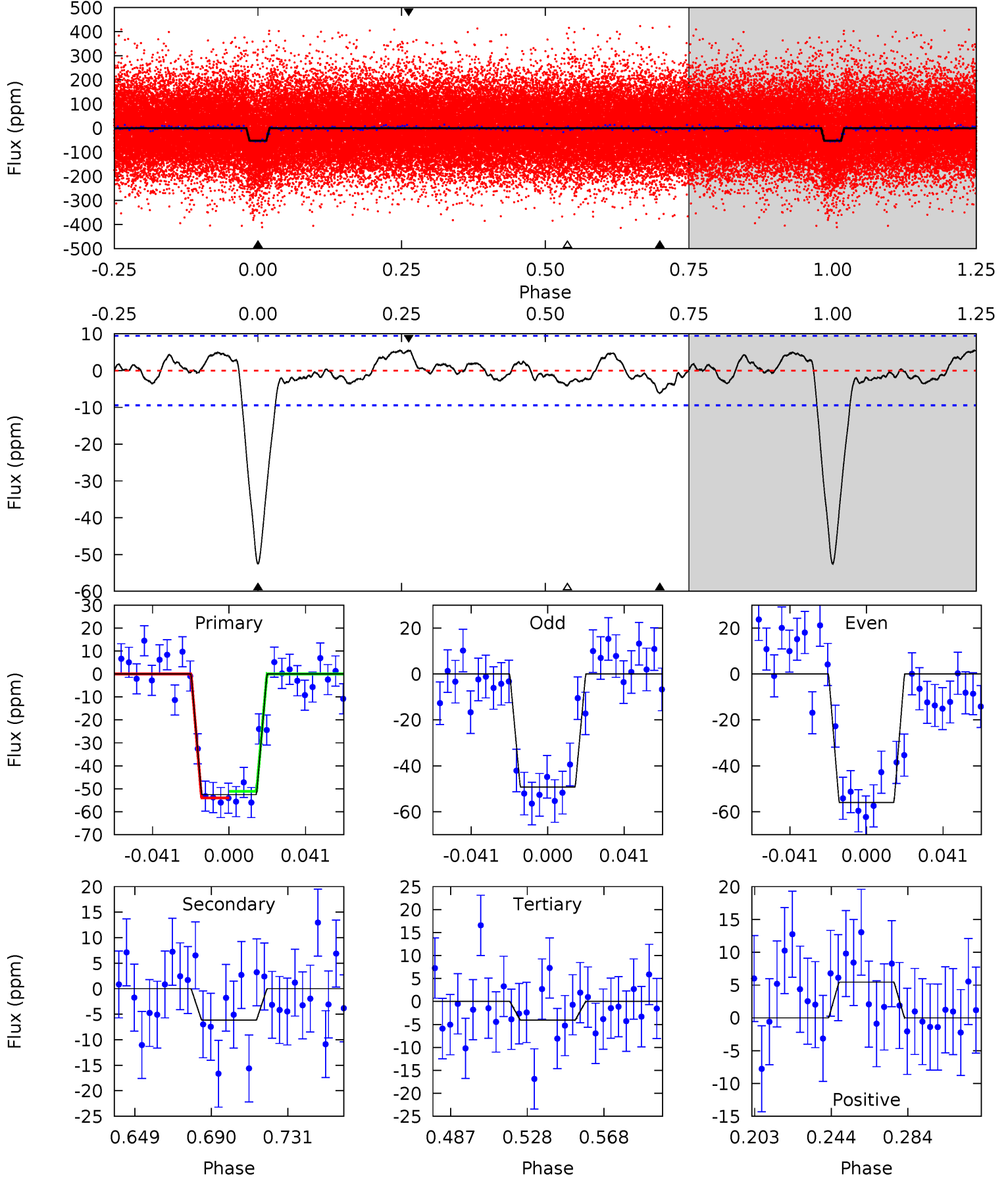
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.9	3.69	2.57	2.59	4.73	2.01	1.21	26.3	26.3	1.12	1.11	0.46	0.96	0.08	1.32



Alt Model-Shift Uniqueness Test

009753154-01, P = 3.704282 Days, E = 128.510992 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.4	3.09	2.05	2.74	4.75	2.05	1.23	24.4	23.7	1.04	0.35	1.68	0.84	0.09	0.72



Stellar Parameters For KIC 009753154

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6732^{+163}_{-204}	$3.958^{+0.273}_{-0.117}$	$-0.420^{+0.300}_{-0.250}$	$1.927^{+0.402}_{-0.603}$	$1.230^{+0.189}_{-0.189}$	$0.242^{+0.402}_{-0.082}$
	+2%/-3%	+7%/-3%	+71%/-60%	+21%/-31%	+15%/-15%	+166%/-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 009753154-01 / KOI 2457.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7 ± 2	$1.57^{+0.44}_{-0.37}$	2529^{+158}_{-210}	4052^{+401}_{-349}	$3.668^{+2.964}_{-1.520}$
Alt.	-6 ± 2	$1.45^{+0.40}_{-0.36}$	2528^{+161}_{-216}	4094^{+474}_{-389}	$3.938^{+3.422}_{-1.794}$

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 $A_{obs} \gg 1.0$

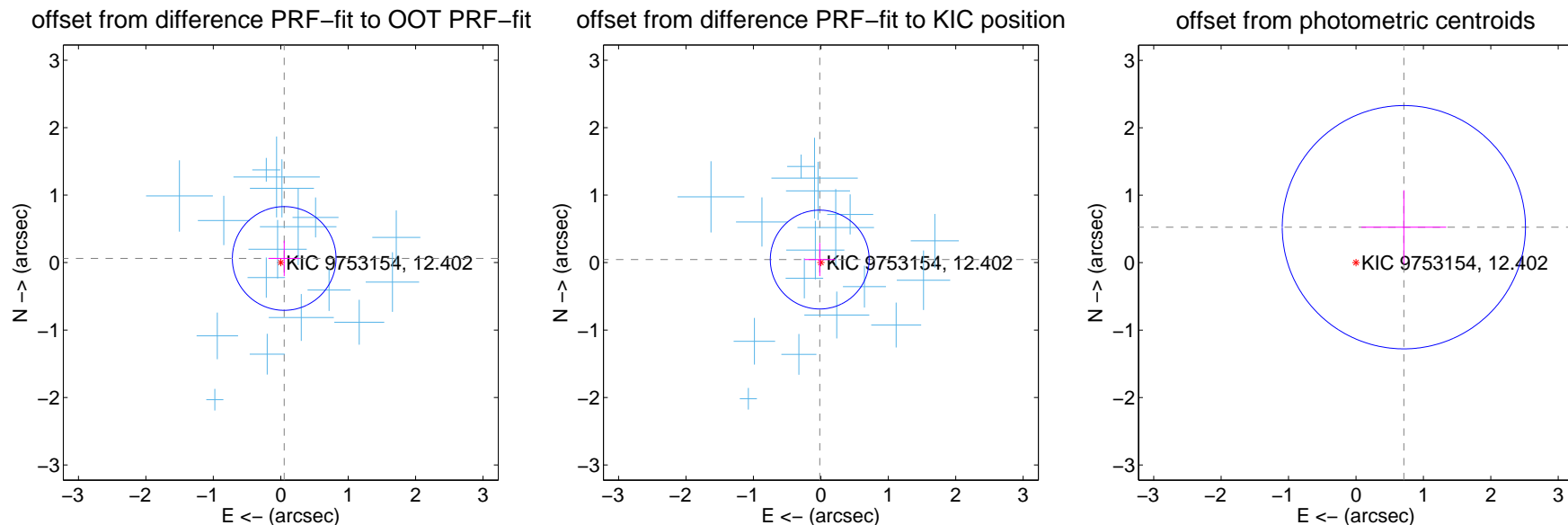
DV Centroid Data

Supplemental centroid analysis for 009753154-01. Kepler magnitude: 12.40. Transit SNR 17.48

There are 17 quarters with good PRF difference image offsets

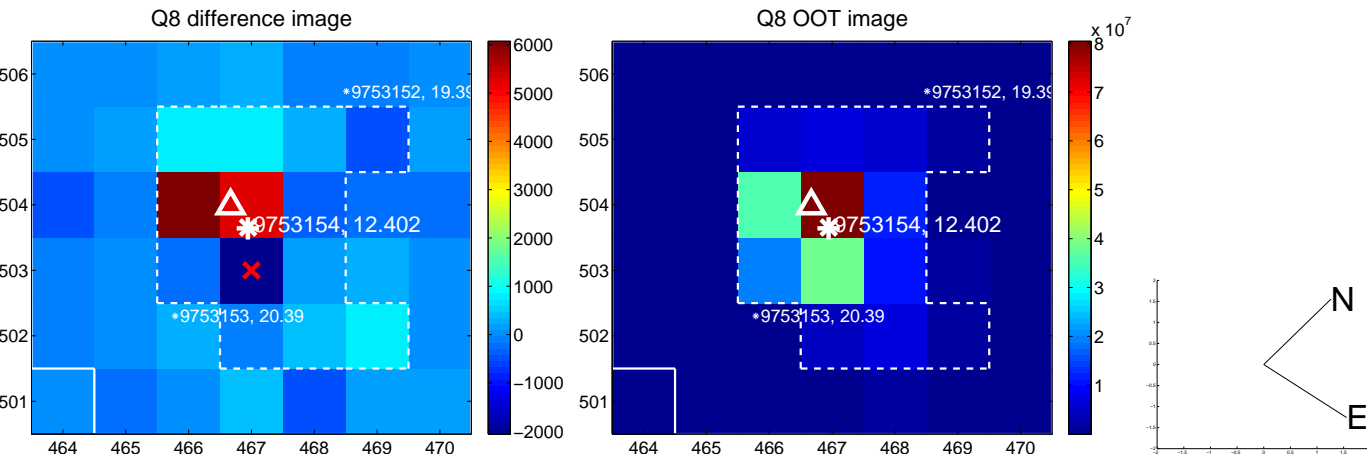
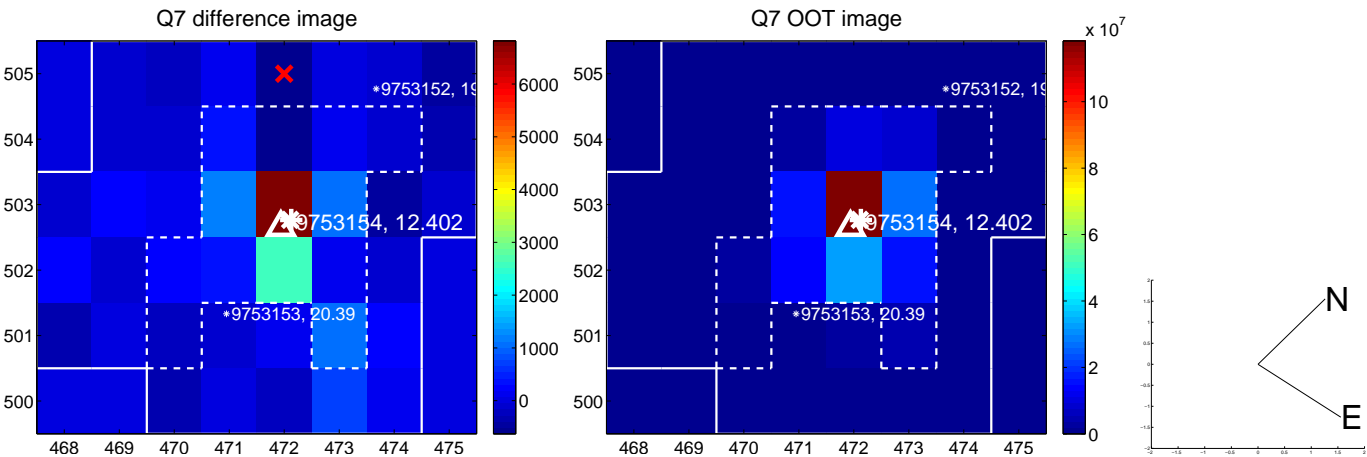
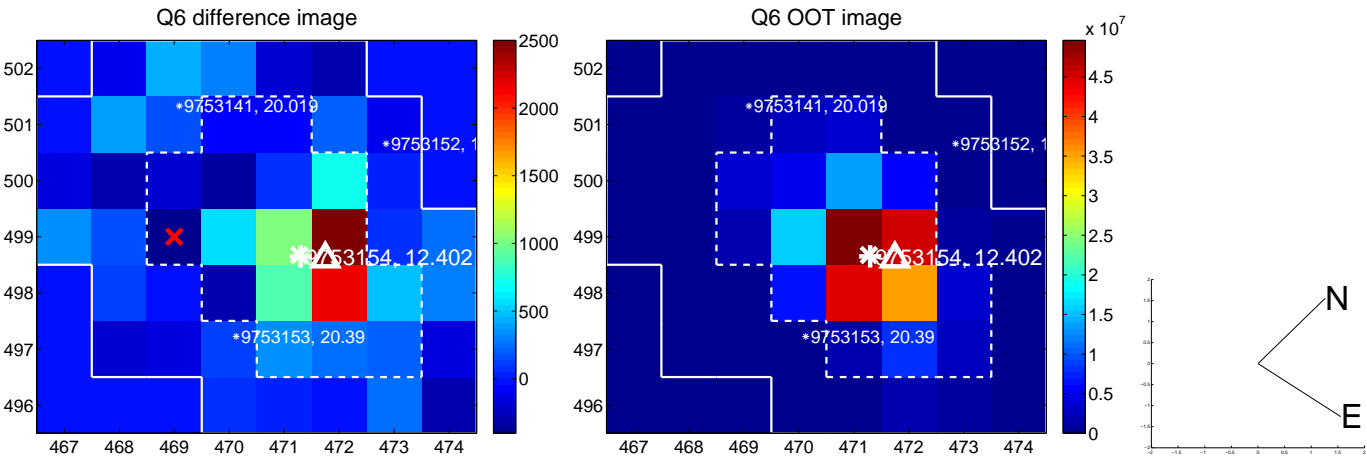
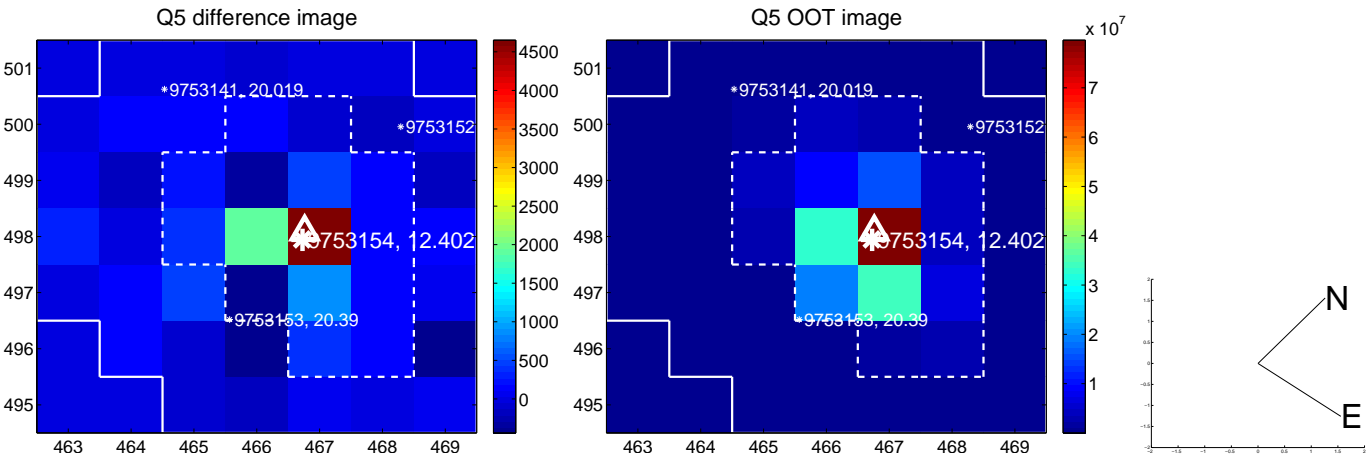
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.080 ± 0.256	0.31	-0.051 ± 0.232	0.061 ± 0.263
PRF-fit source offset from KIC position	0.048 ± 0.244	0.20	0.017 ± 0.227	0.045 ± 0.246
photometric centroid source offset	0.88 ± 0.60	1.47	-0.71 ± 0.63	0.53 ± 0.55

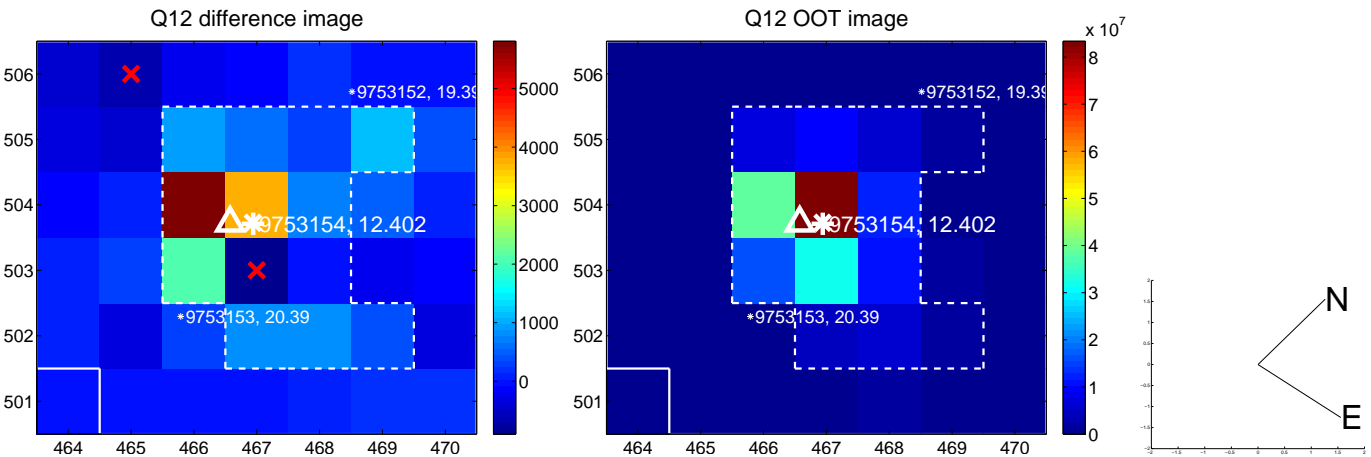
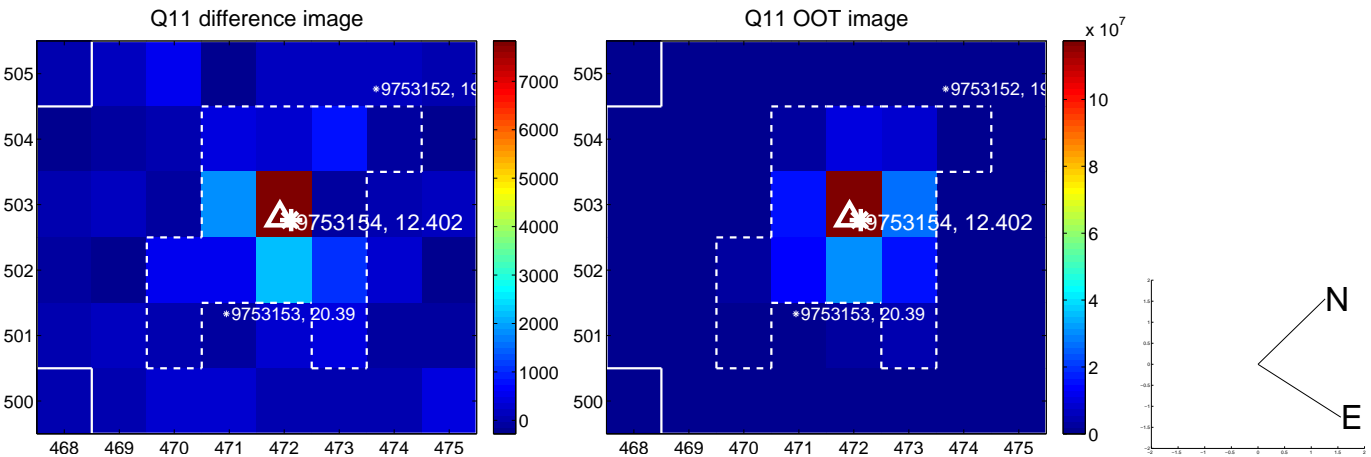
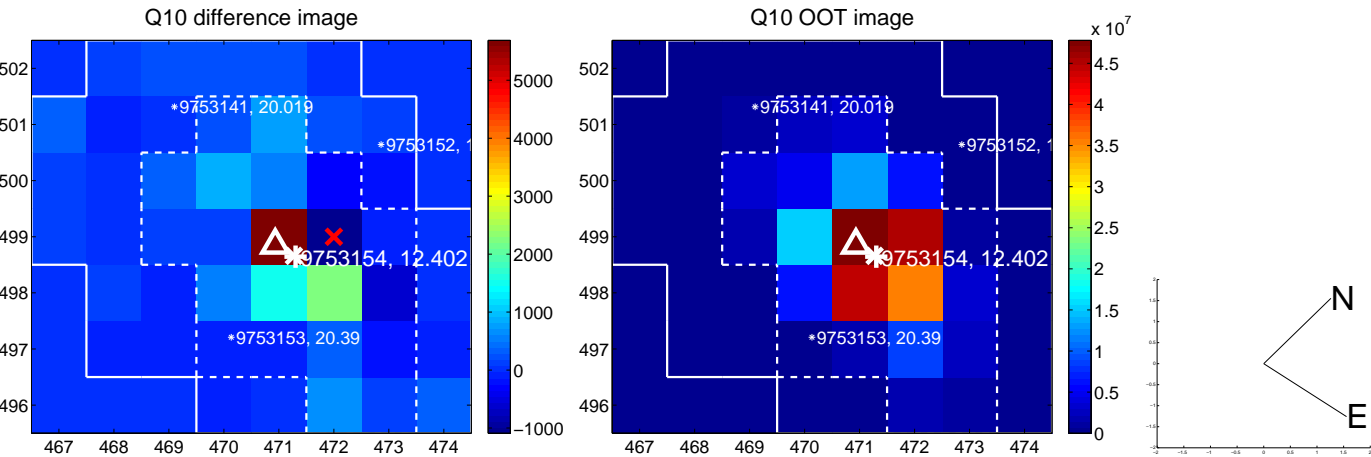
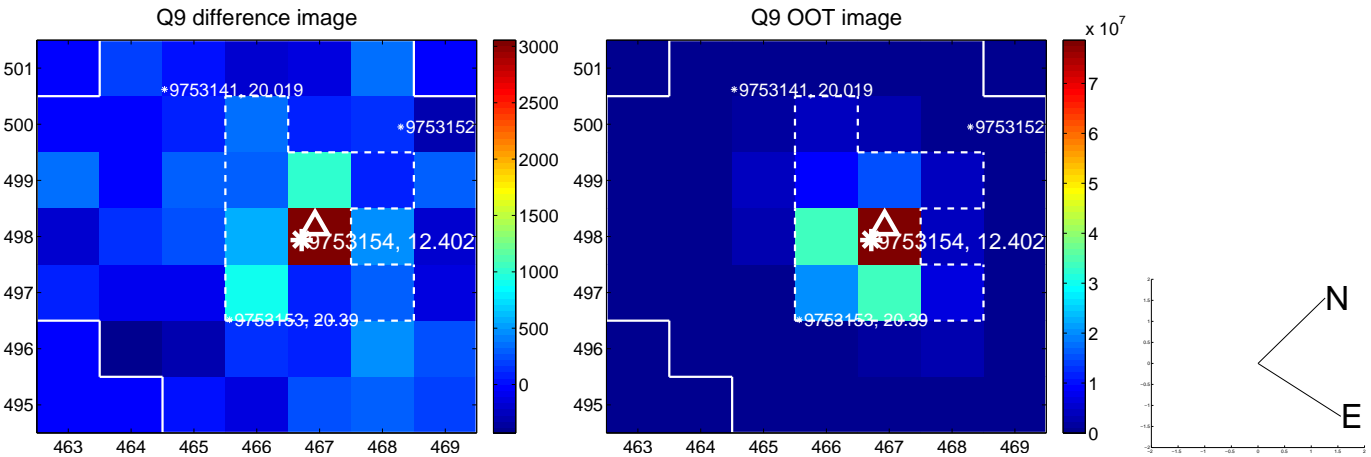


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

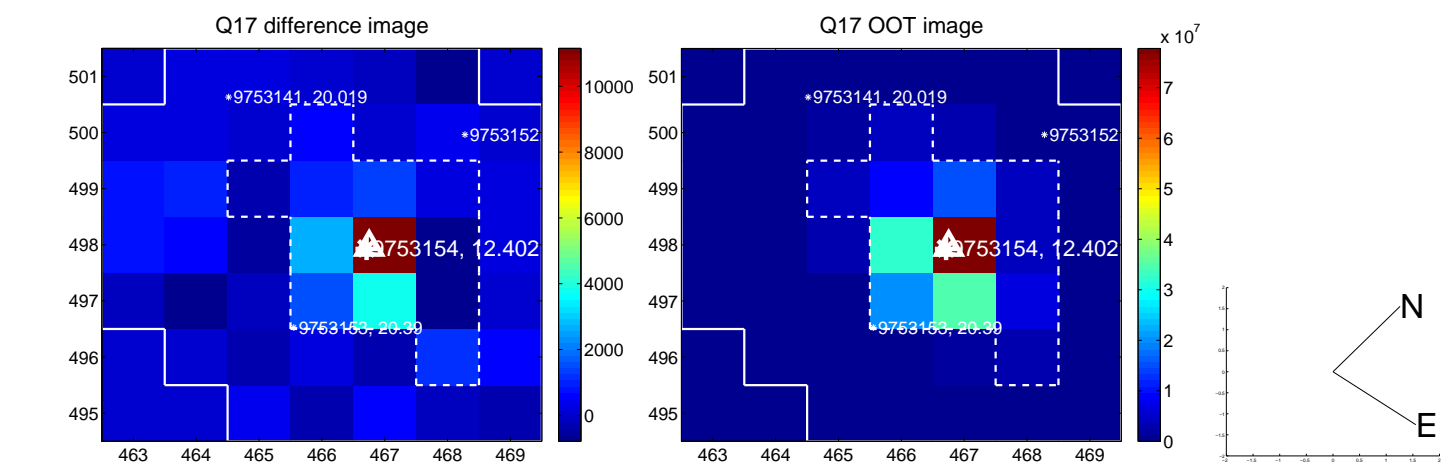
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



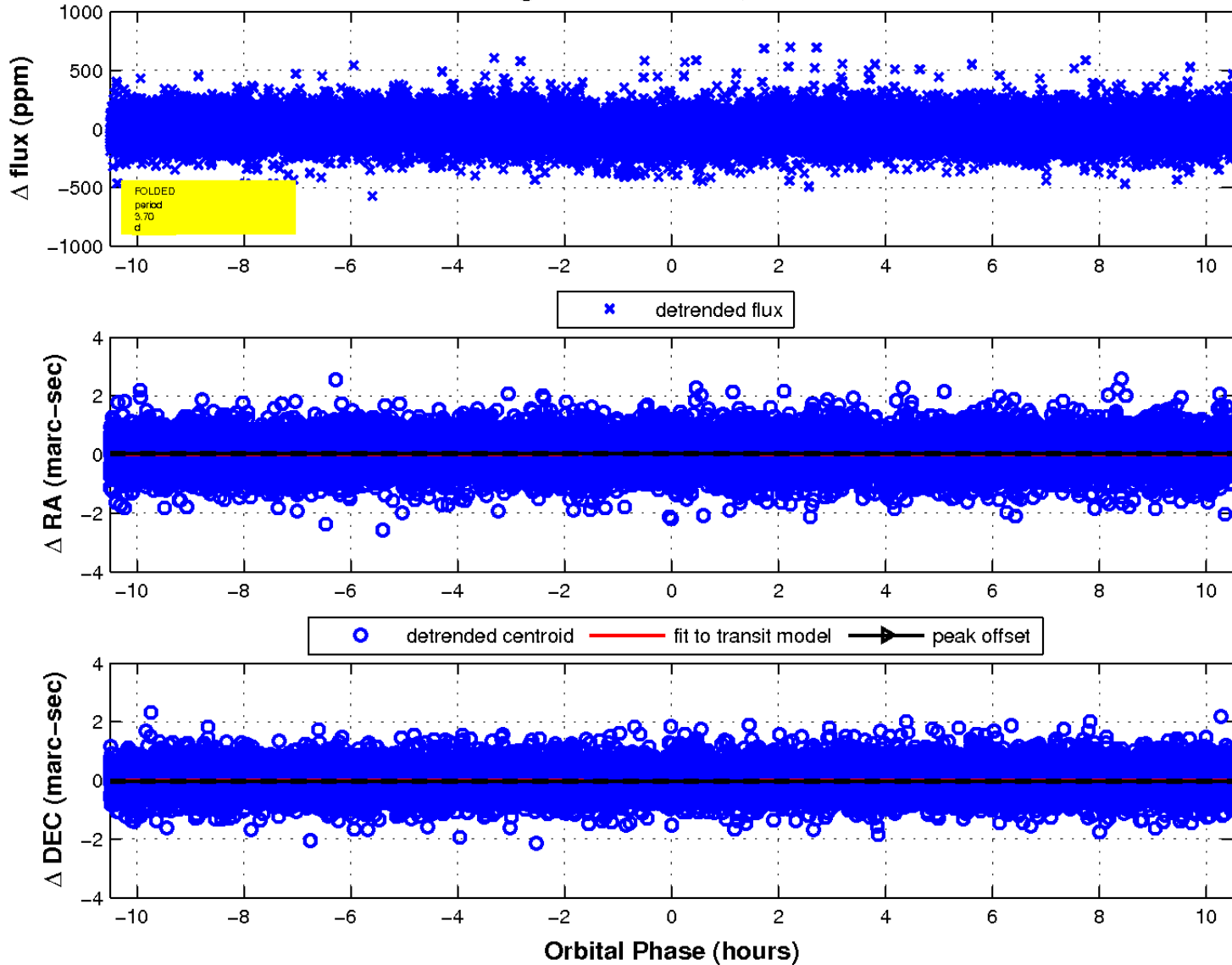
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

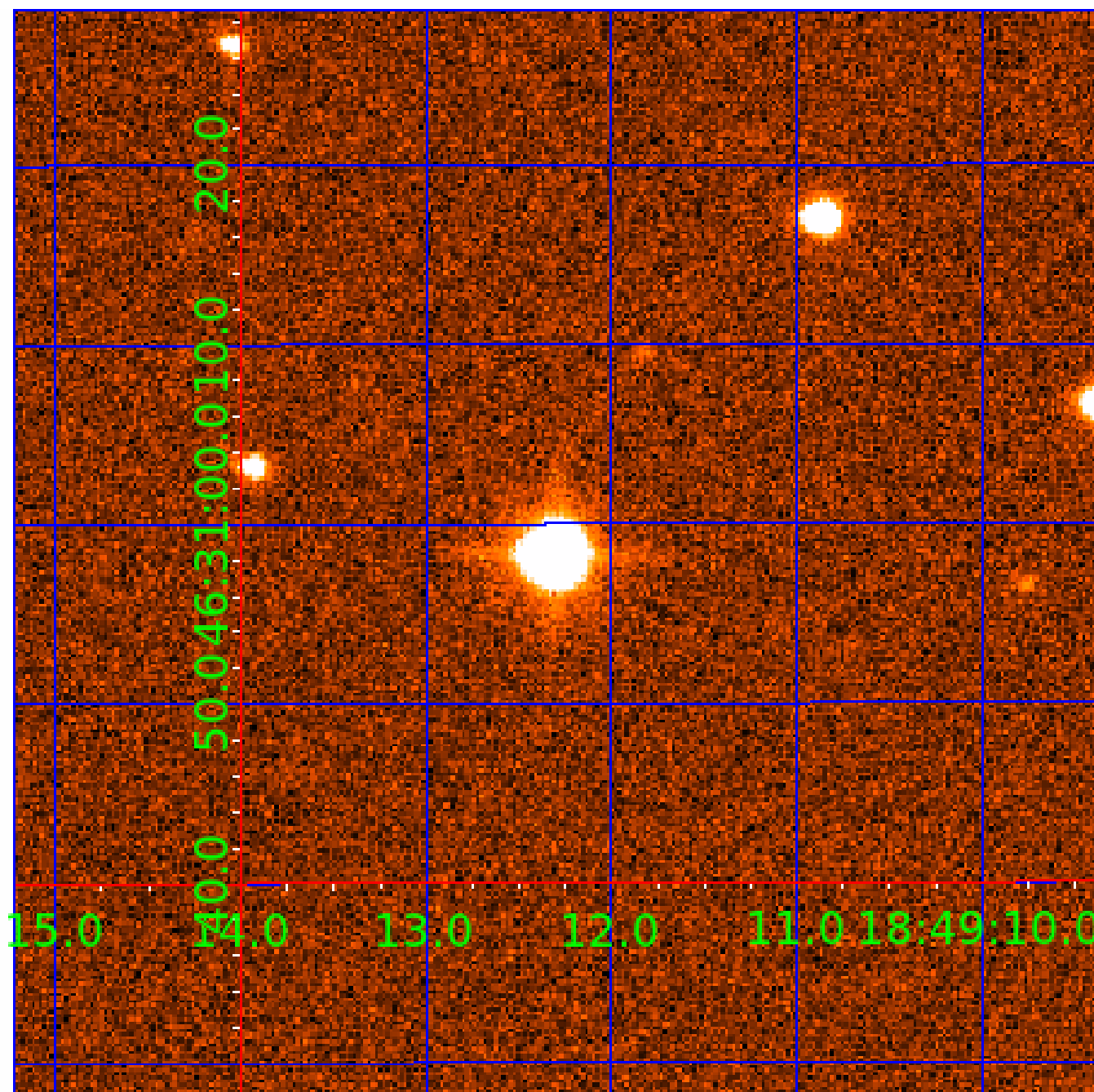


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009753154

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009753154-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009753154-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—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 009753154-02

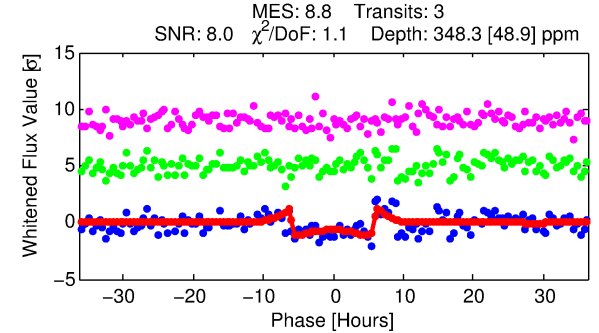
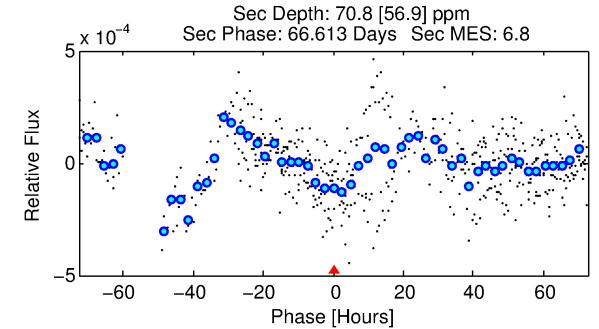
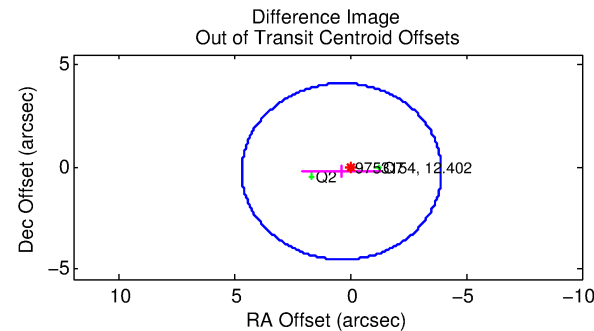
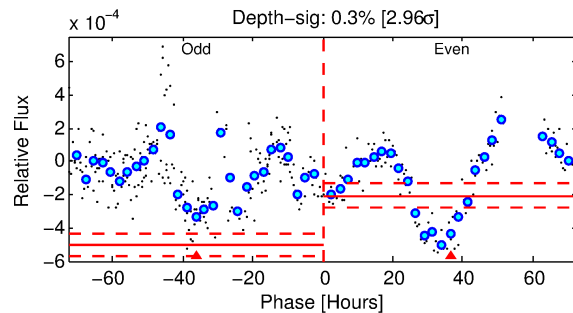
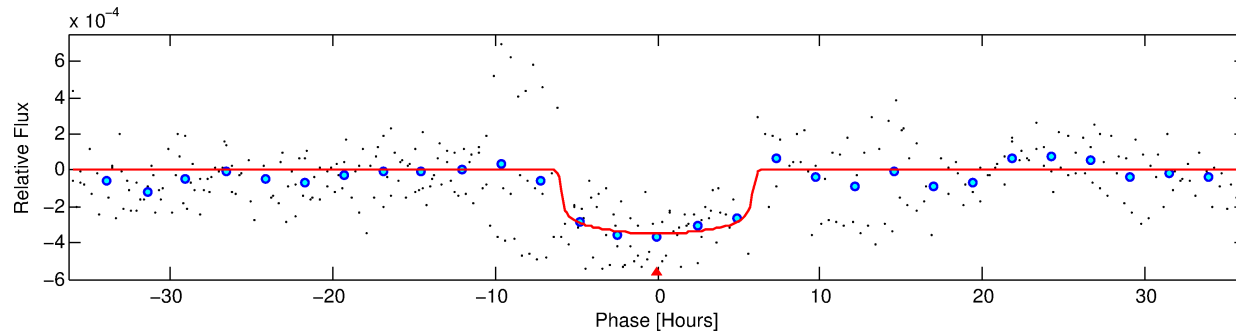
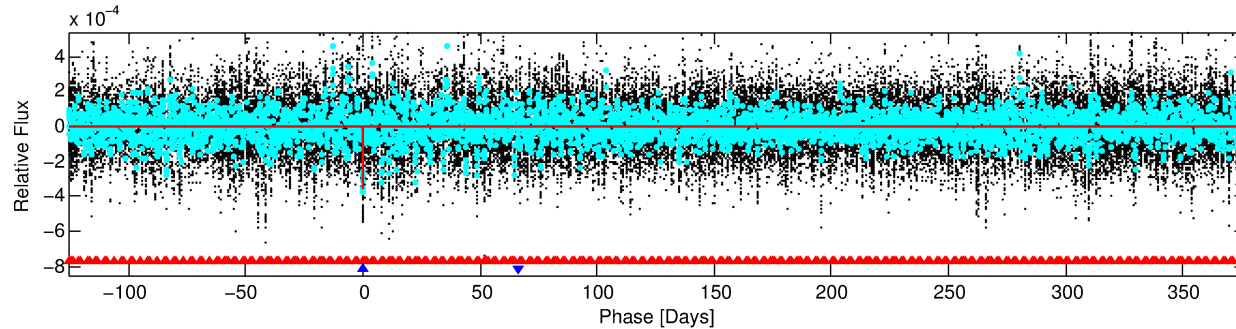
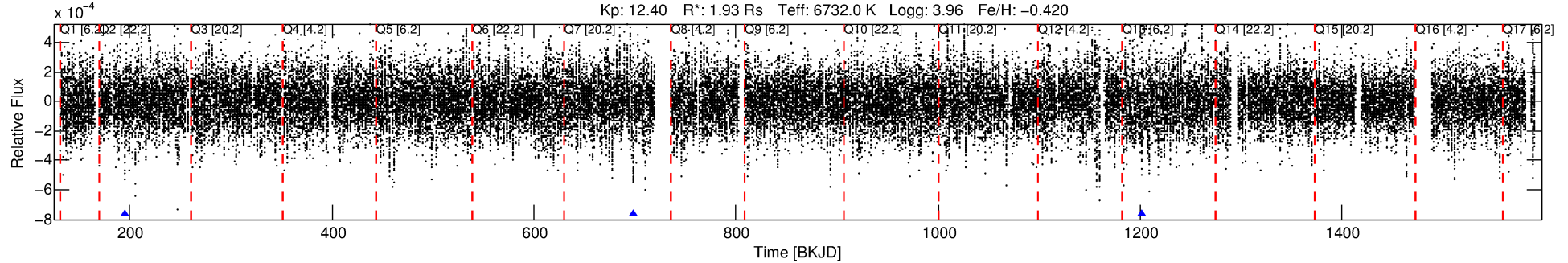
No Significant Match Found

DV One-Page Summary

KIC: 9753154 Candidate: 2 of 2 Period: 503.290 d

KOI: K02457 Corr: No Ephemeris Match

Kp: 12.40 R*: 1.93 Rs Teff: 6732.0 K Logg: 3.96 Fe/H: -0.420



DV Fit Results:

Period = 503.28985 [0.00853] d
 Epoch = 194.8045 [0.0108] BKJD
 Rp/R* = 0.0177 [0.0067]
 a/R* = 283.61 [576.97]
 b = 0.49 [3.18]
 Seff = 3.88 [1.88]
 Teq = 358 [43] K
 Rp = 3.72 [1.82] Re
 a = 1.3269 [0.3923] AU
 Ag = 4963.14 [5943.09] [0.83σ]
 Teffp = 4645 [1287] K [3.33σ]

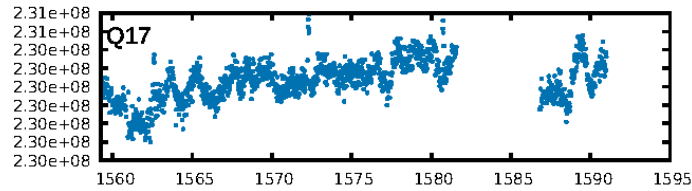
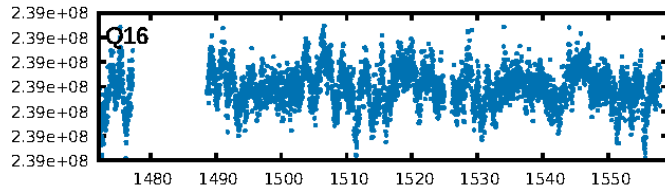
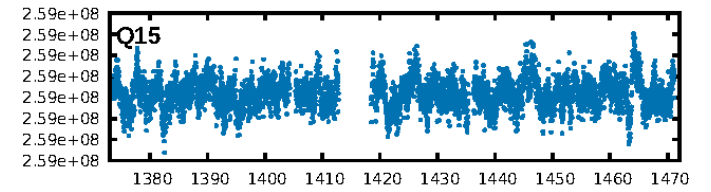
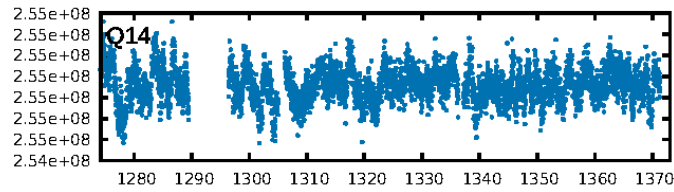
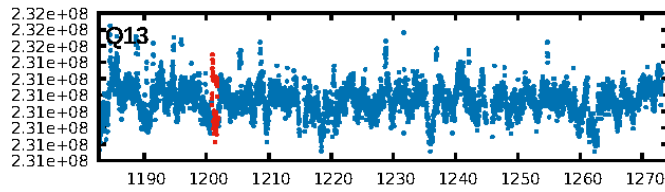
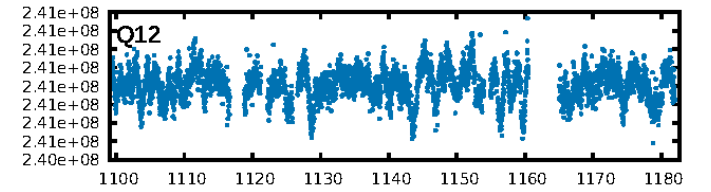
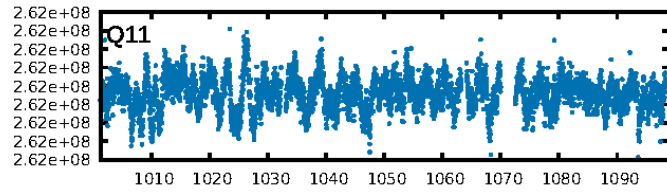
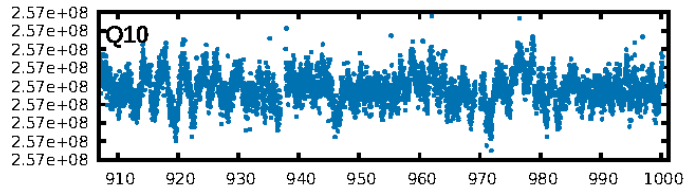
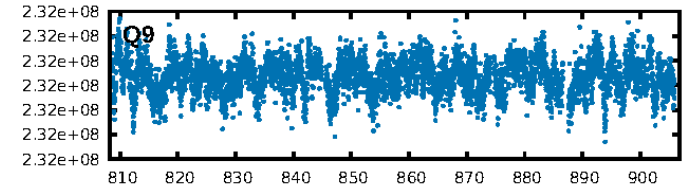
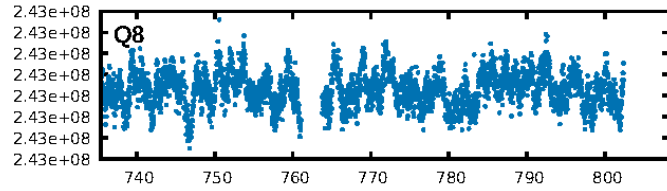
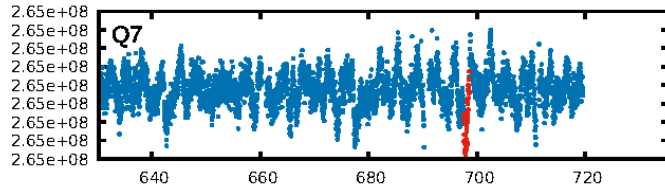
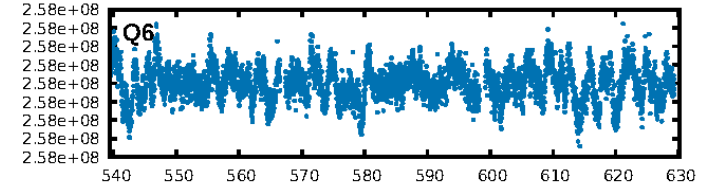
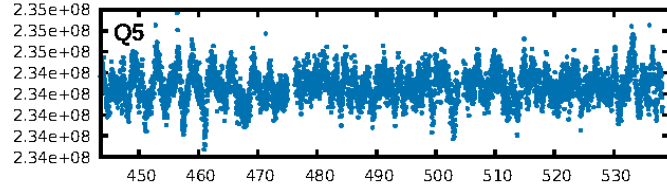
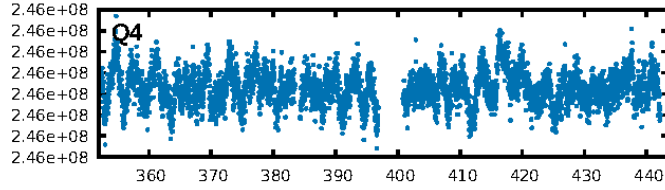
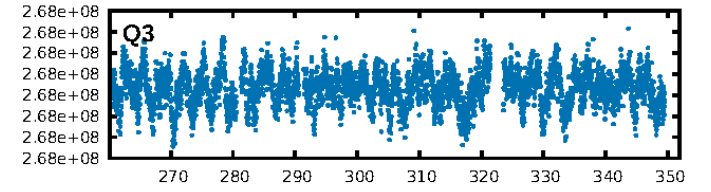
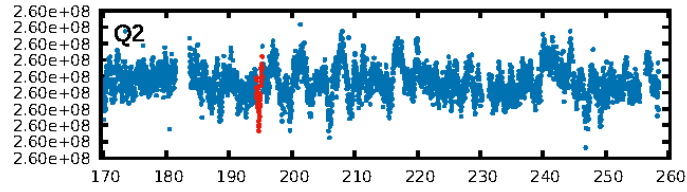
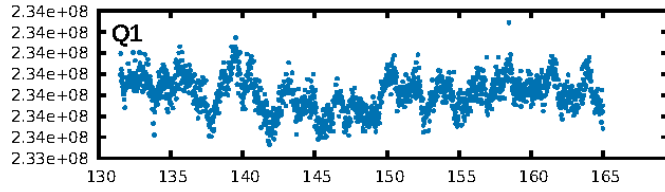
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [951.98σ]
 LongPeriod-sig: N/A
 ModelChiSquare2-sig: 15.8%
 ModelChiSquareGof-sig: 99.7%
 Bootstrap-pfa: 5.19e-10
 RollingBand-fgt: 1.00 [3/3]
 GhostDiagnostic-chr: -10.9
 Centroid-sig: 85.1%
 Centroid-so: 0.269 arcsec [0.40σ]
 OotOffset-rm: 0.453 arcsec [0.31σ]
 OotOffset-st: 1/1/0/0 [2]
 KicOffset-rm: 0.502 arcsec [0.32σ]
 KicOffset-st: 1/1/0/0 [2]
 DiffImageQuality-fgm: 1.00 [2/2]
 DiffImageOverlap-fno: 0.00 [0/2]

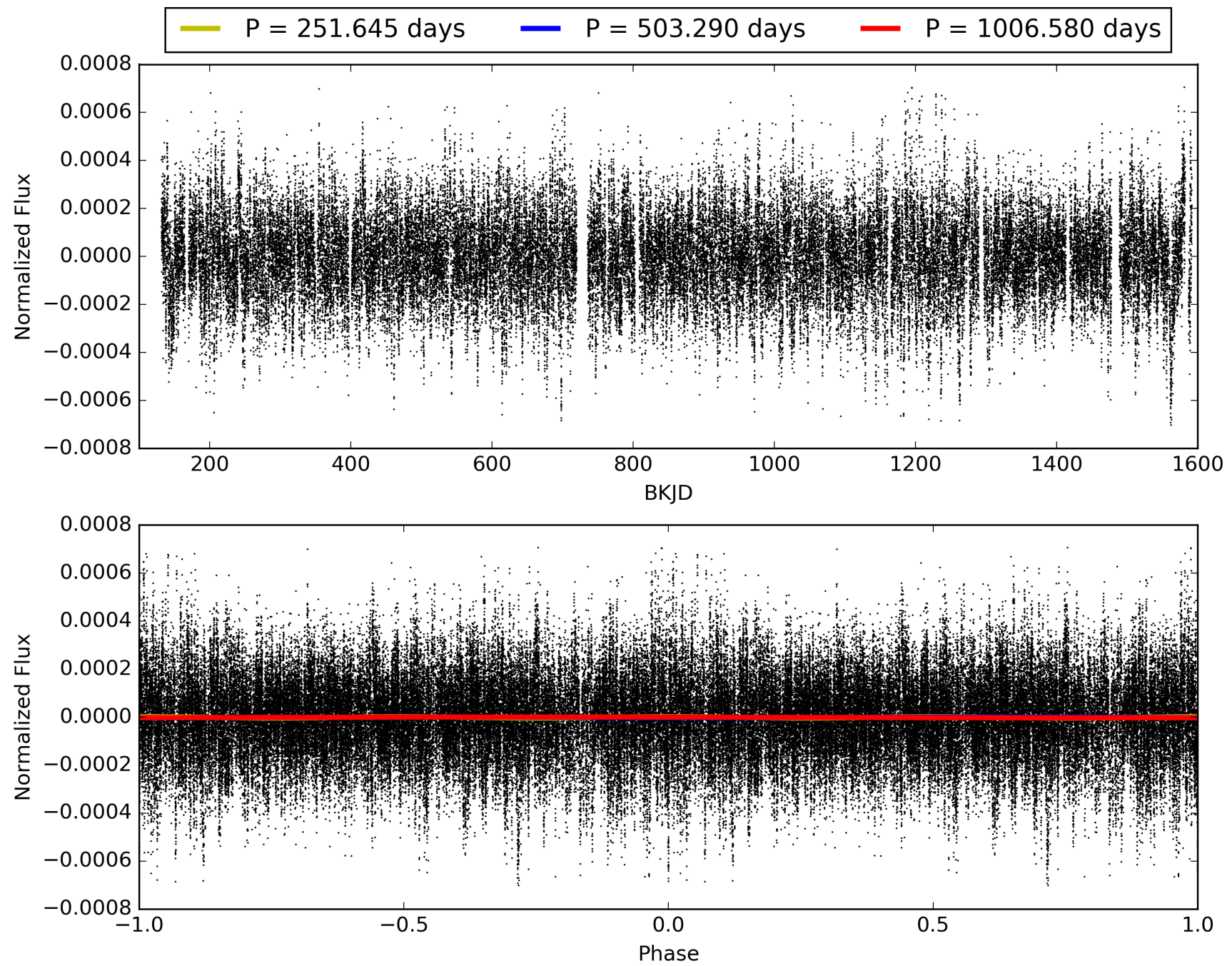
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:51:39 Z

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

TCE 009753154-02, PDC Light Curves

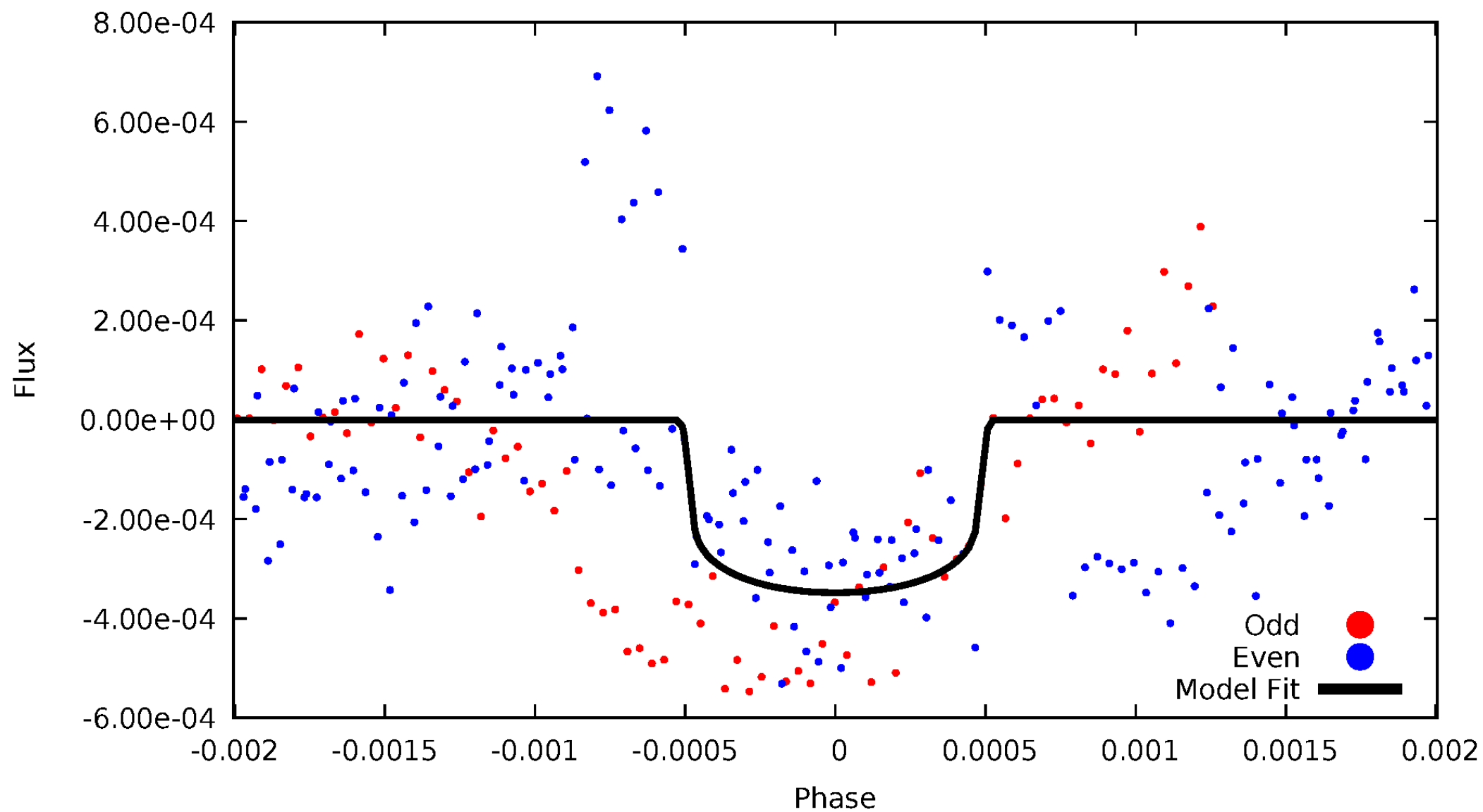


TCE 009753154-02



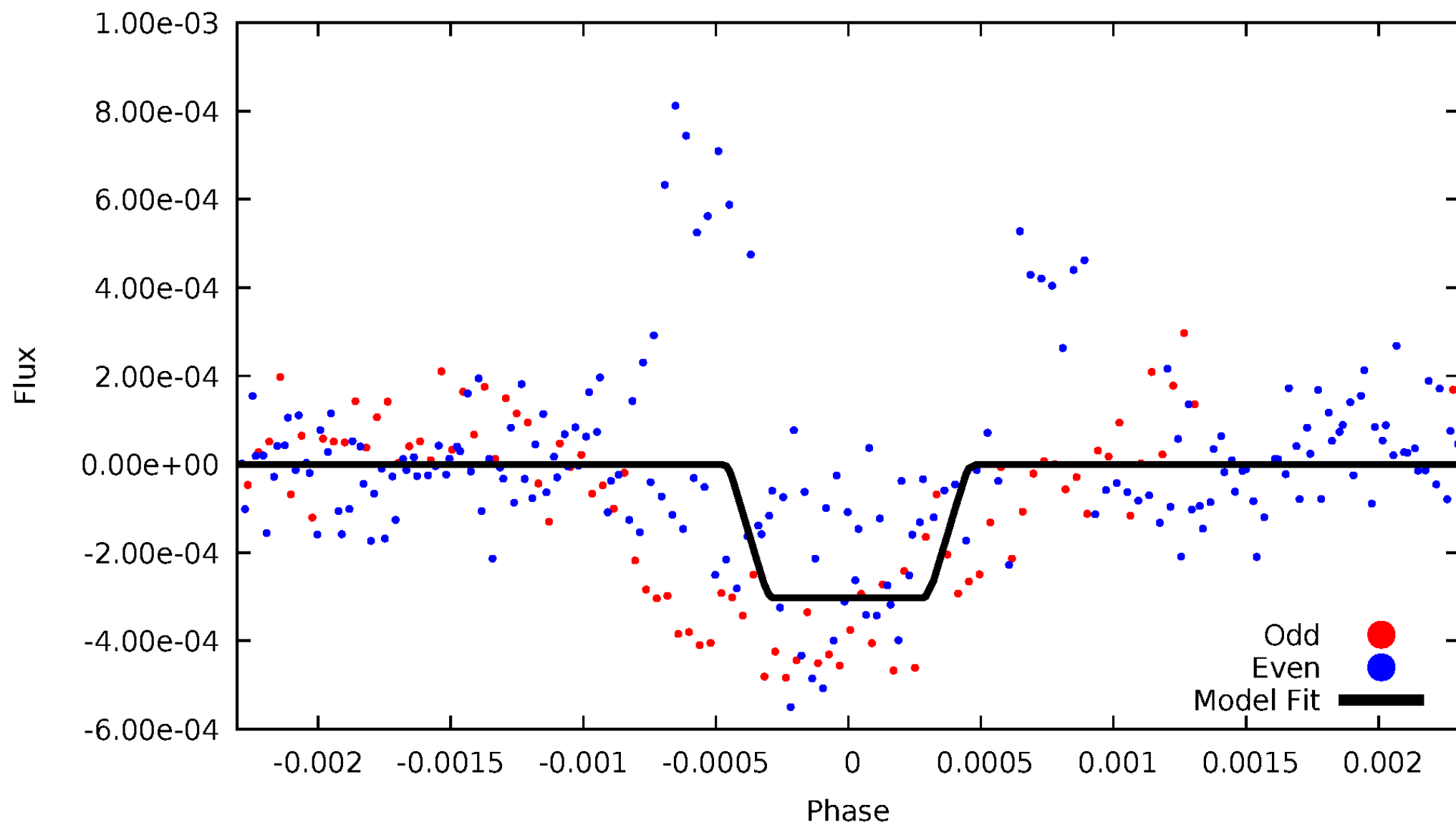
DV Odd/Even

TCE 009753154-02



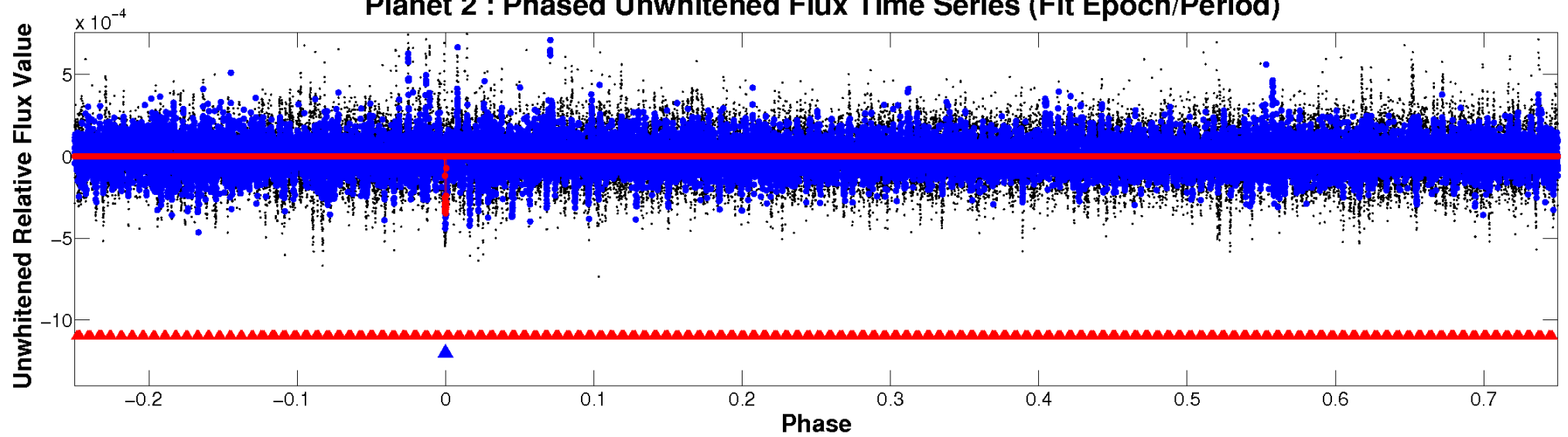
ALT Odd/Even

TCE 009753154-02

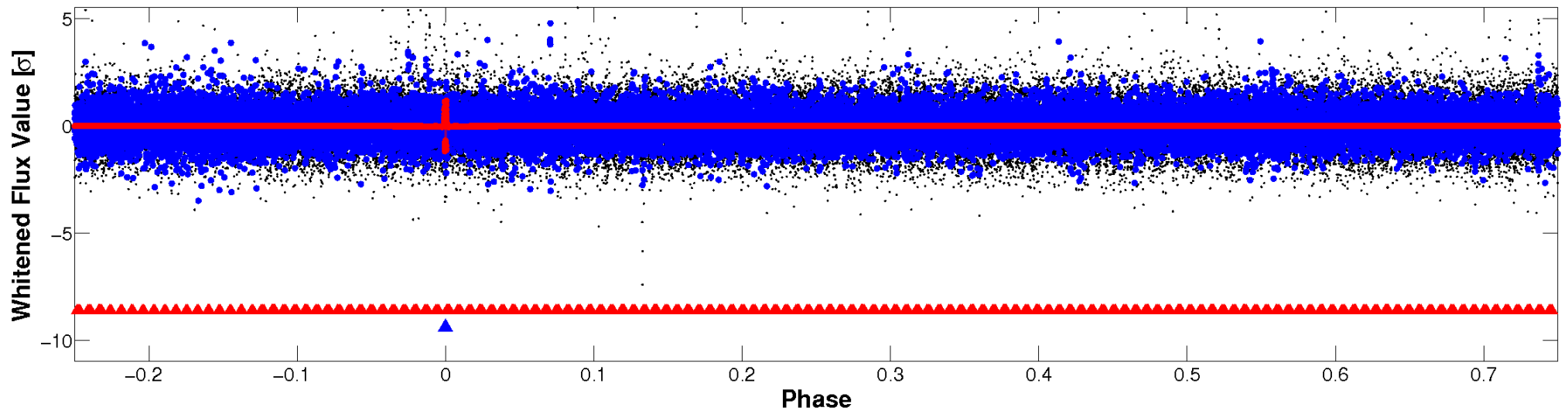


Non-Whitened Vs. Whitened Light Curve

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

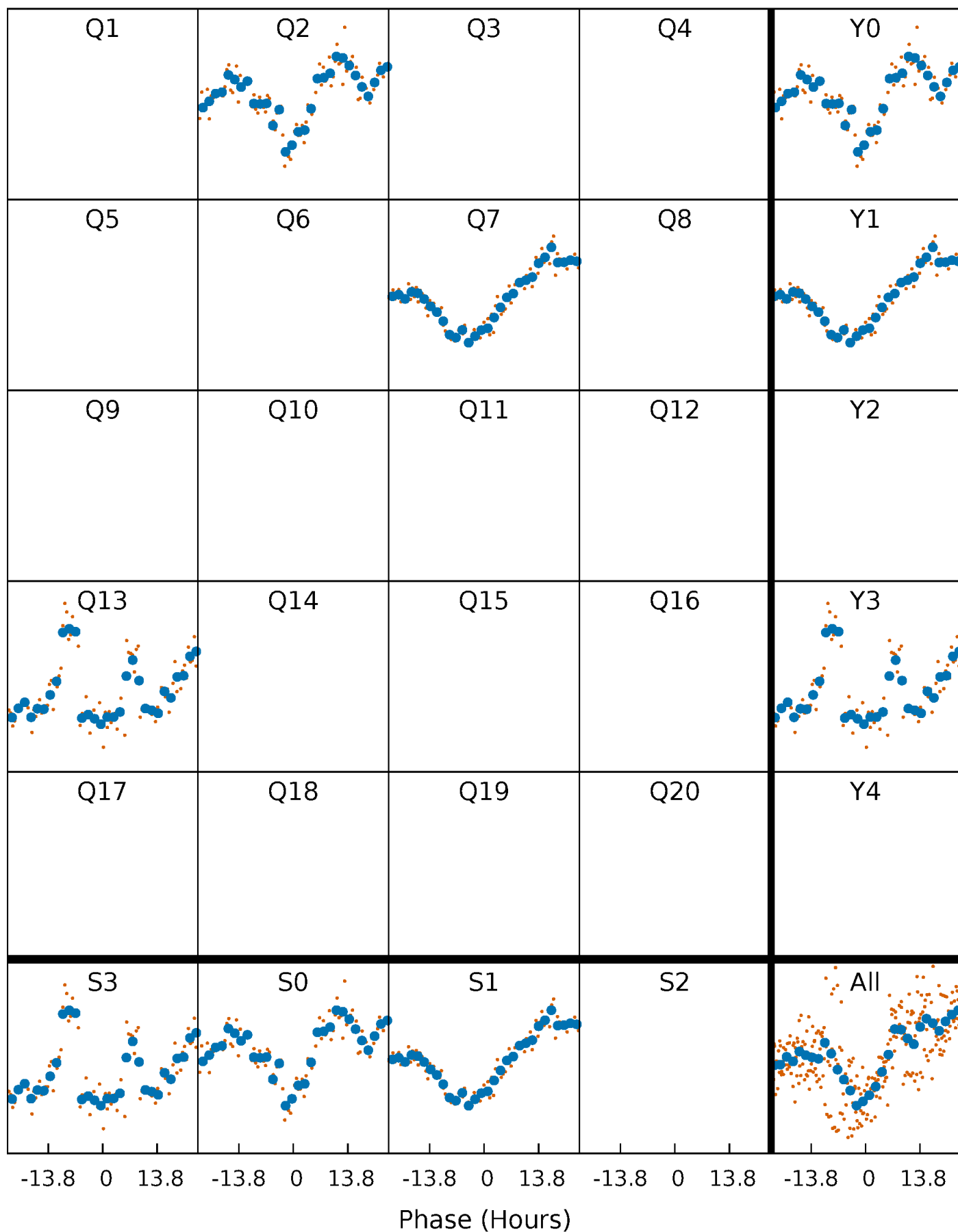


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



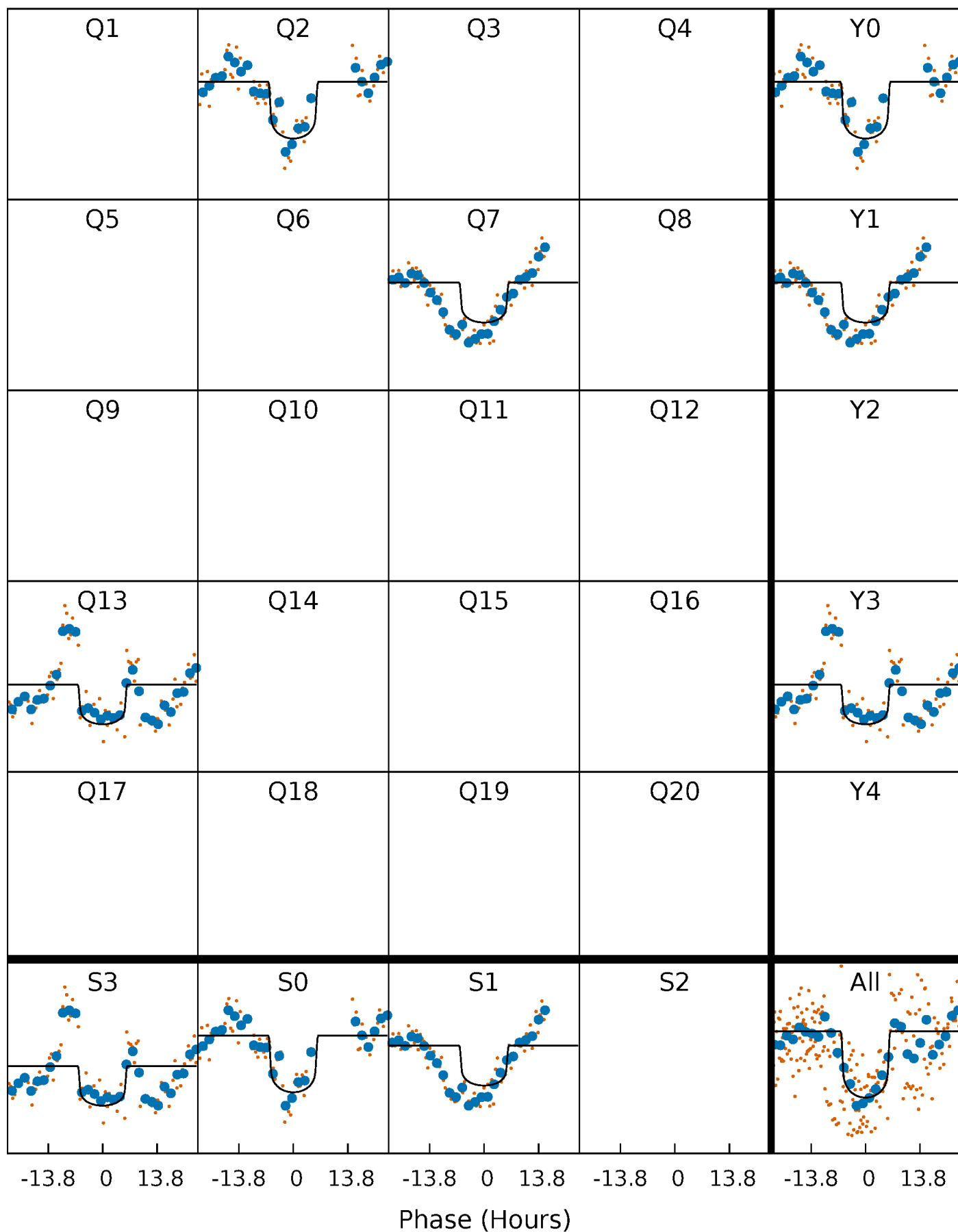
PDC Quarter-Phased Transit Curves

TCE 009753154-02 $P=503.289851$ Days $T_0=194.804517$ (BKJD)



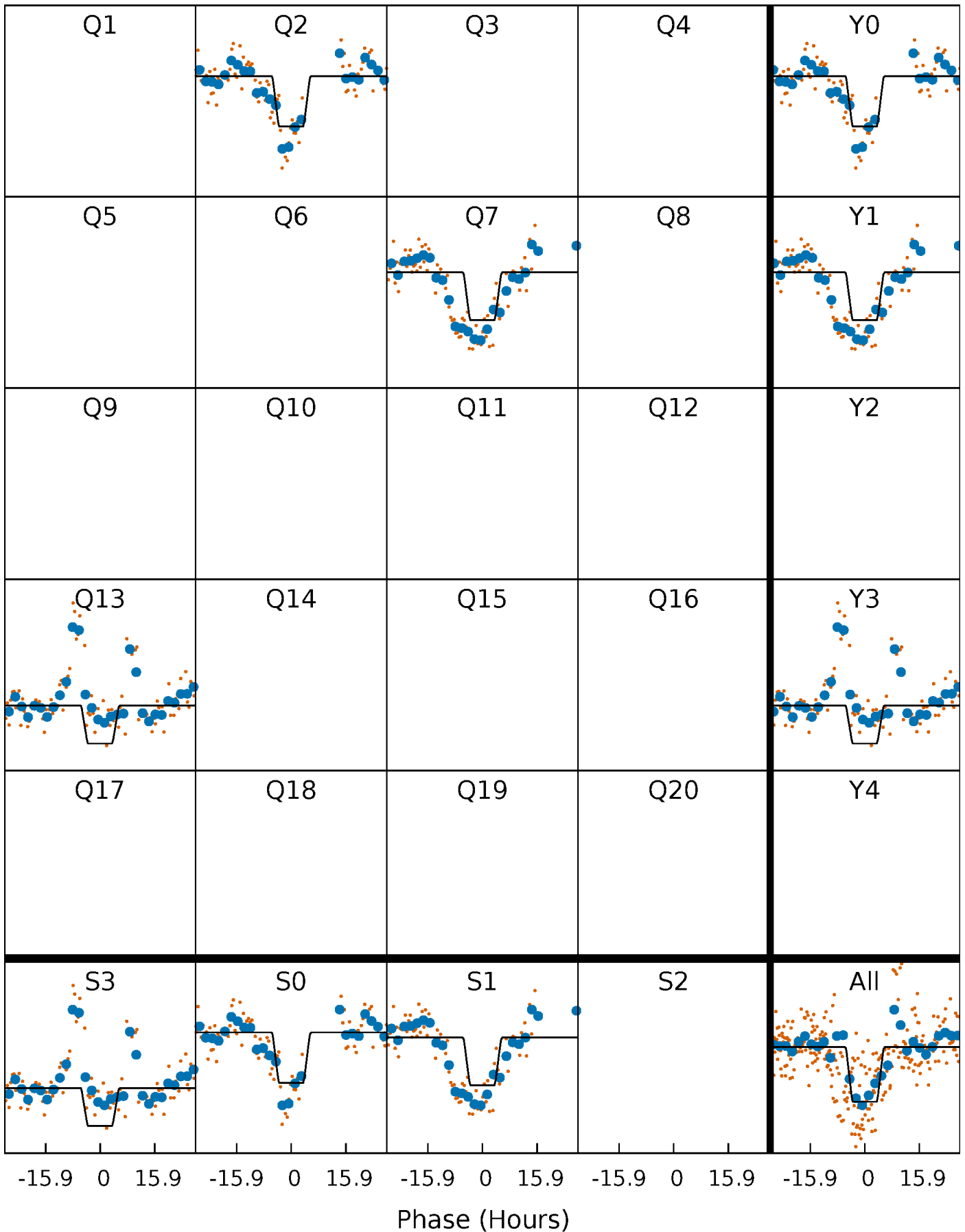
DV Quarter-Phased Transit Curves

TCE 009753154-02 P=503.289851 Days $T_0=194.804517$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

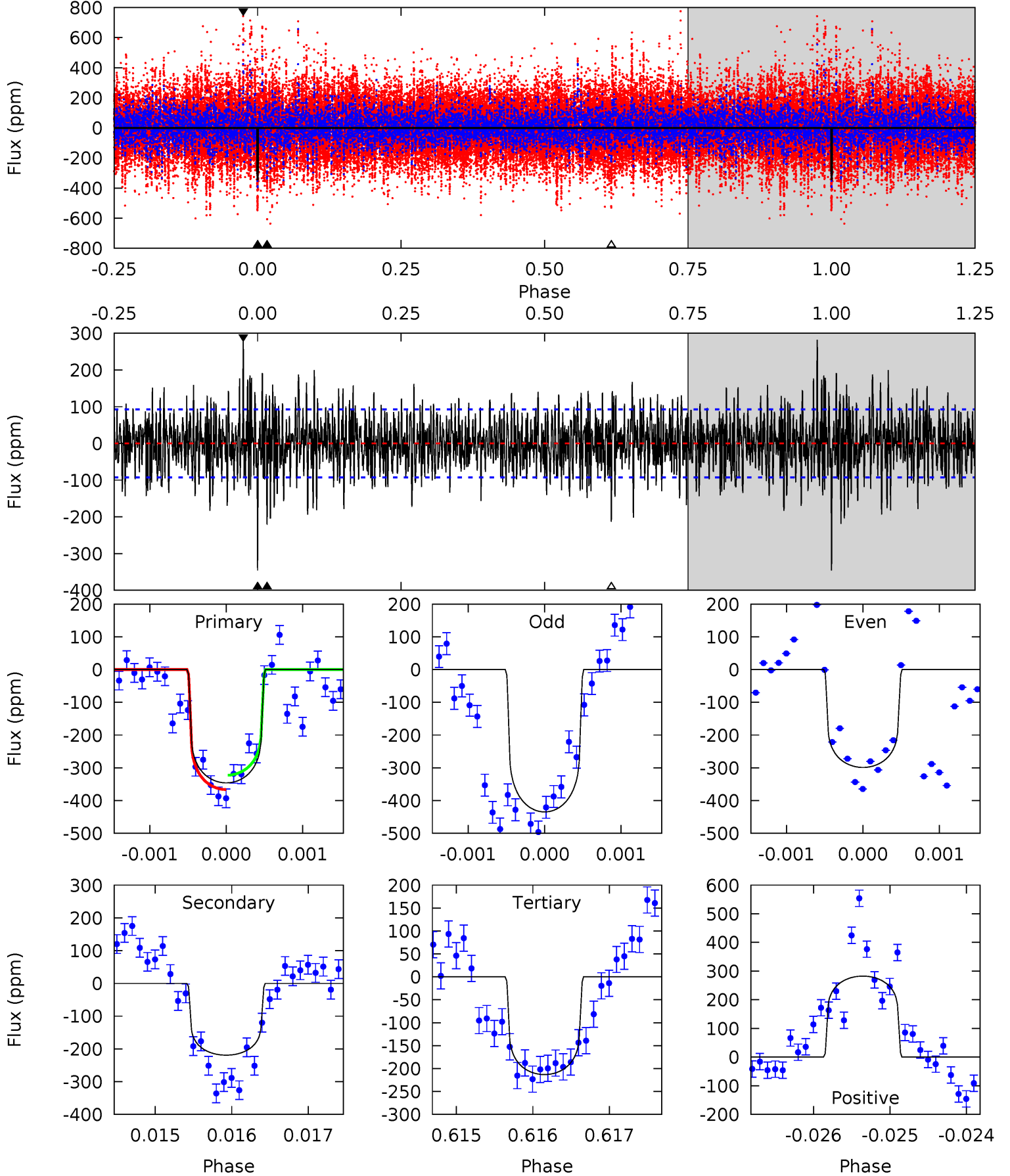
TCE 009753154-02 P=503.244527 Days $T_0=194.824519$ (BKJD)



DV Model-Shift Uniqueness Test

009753154-02, P = 503.289851 Days, E = 194.804517 Days

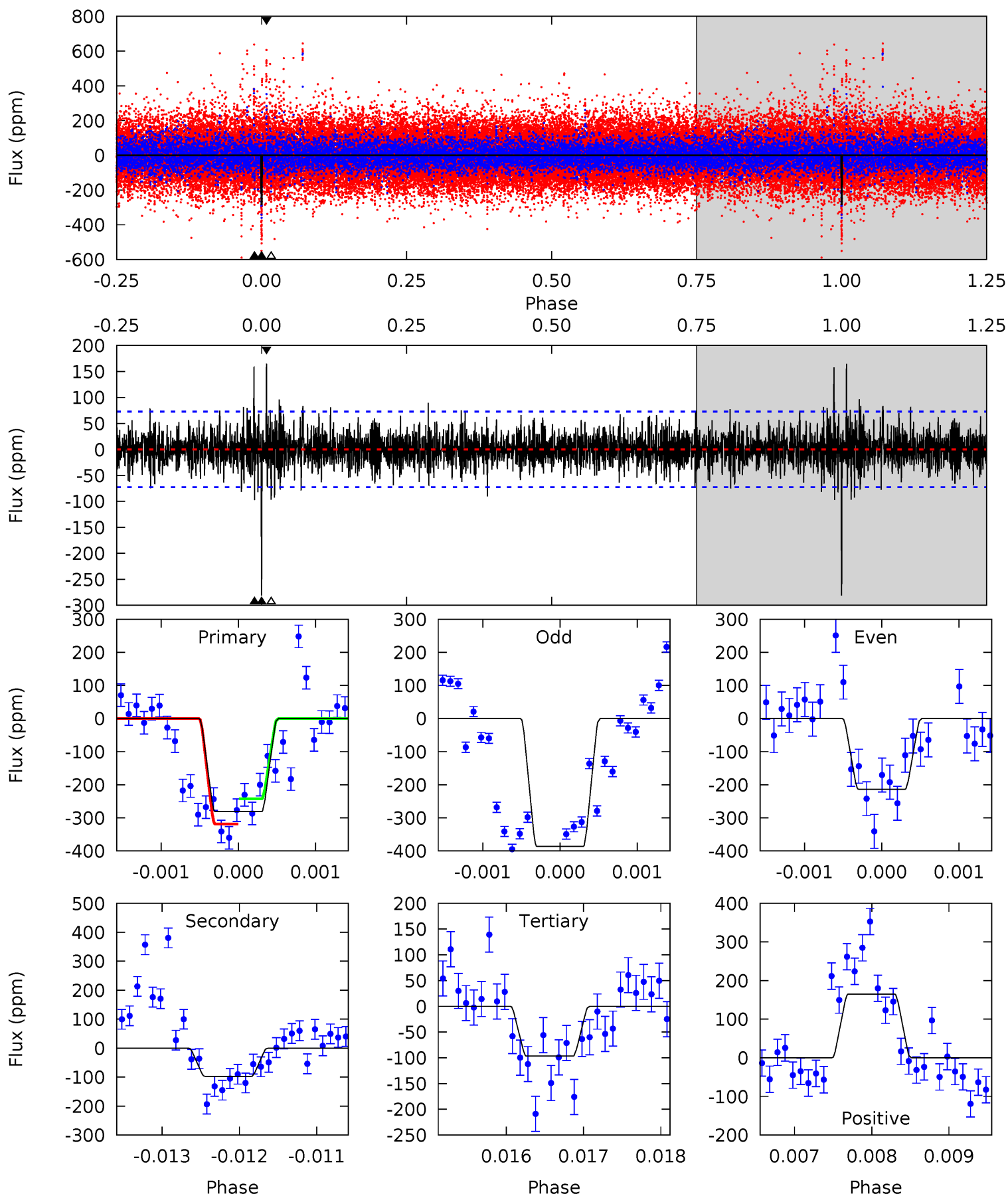
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	12.9	12.5	16.6	5.45	3.28	3.60	7.80	3.73	0.35	-3.72	3.82	1.12	0.45	1.28



Alt Model-Shift Uniqueness Test

009753154-02, P = 503.244527 Days, E = 194.824519 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.2	7.31	7.27	12.4	5.46	3.31	1.89	13.9	8.75	0.04	-5.09	6.42	0.79	0.37	2.85



Stellar Parameters For KIC 009753154

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6732^{+163}_{-204}	$3.958^{+0.273}_{-0.117}$	$-0.420^{+0.300}_{-0.250}$	$1.927^{+0.402}_{-0.603}$	$1.230^{+0.189}_{-0.189}$	$0.242^{+0.402}_{-0.082}$
	+2%/-3%	+7%/-3%	+71%/-60%	+21%/-31%	+15%/-15%	+166%/-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 009753154-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-219 ± 17	$3.56^{+1.47}_{-1.44}$	492^{+30}_{-42}	6118^{+1924}_{-878}	17012^{+29391}_{-8616}
Alt.	-97 ± 13	$3.53^{+1.60}_{-1.38}$	492^{+32}_{-39}	5106^{+1239}_{-687}	7596^{+13553}_{-4052}

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

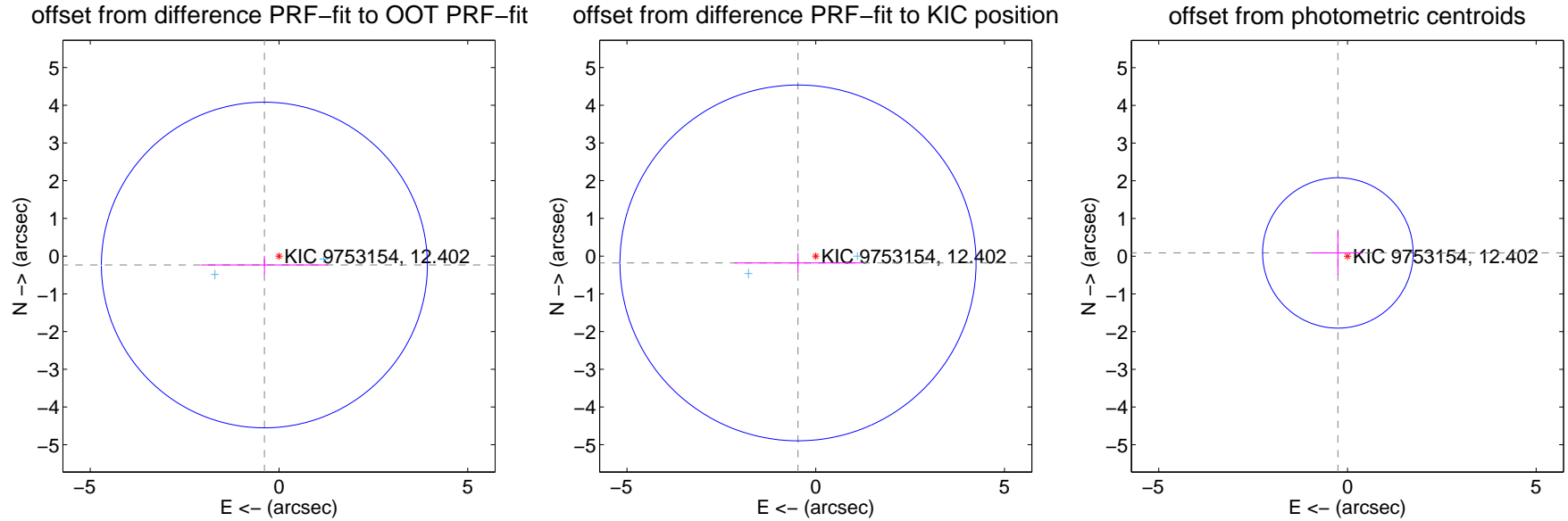
DV Centroid Data

Supplemental centroid analysis for 009753154-02. Kepler magnitude: 12.40. Transit SNR 7.97

There are 2 quarters with good PRF difference image offsets

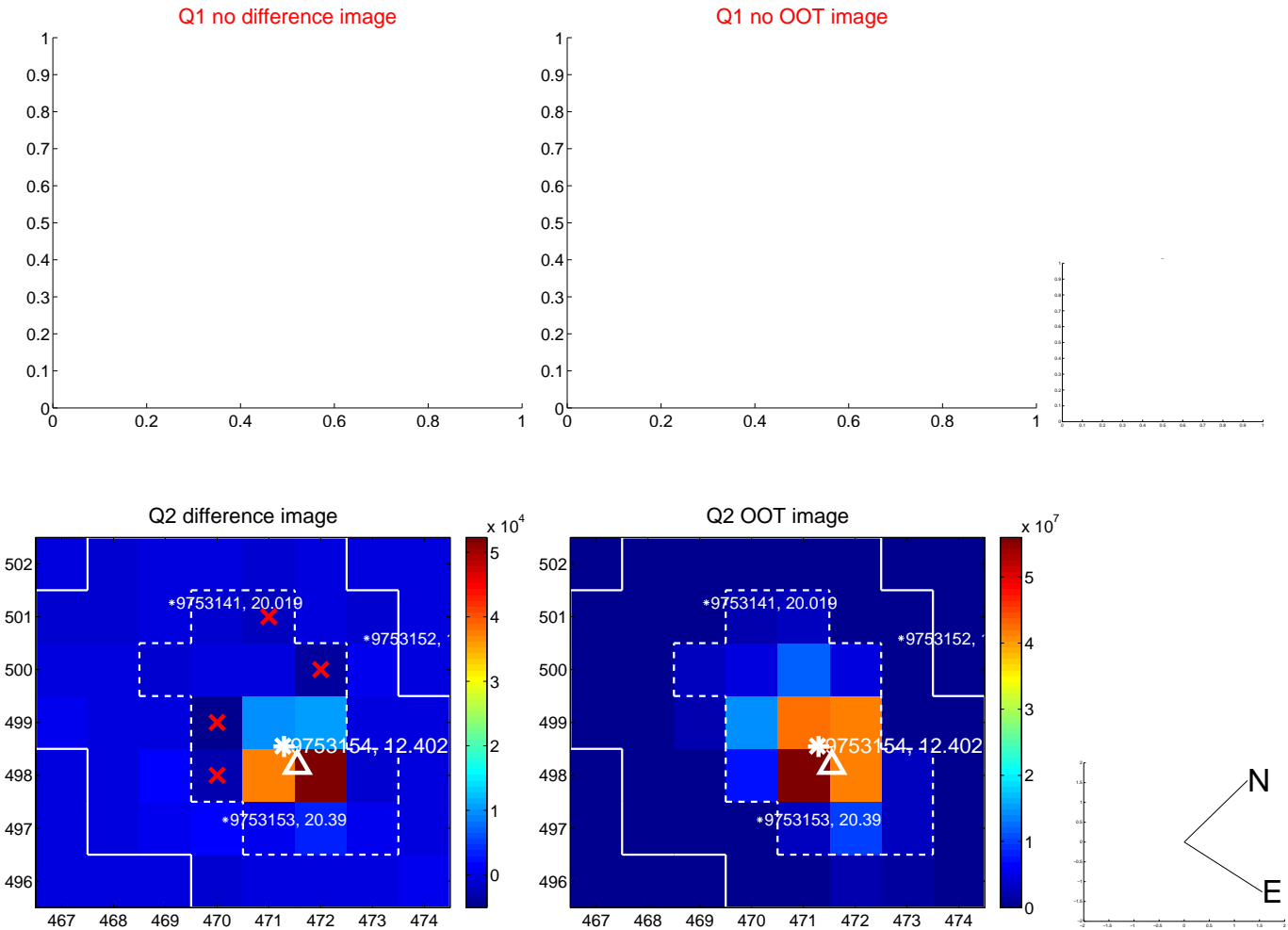
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.453 ± 1.439	0.31	0.387 ± 1.678	-0.236 ± 0.243
PRF-fit source offset from KIC position	0.502 ± 1.572	0.32	0.469 ± 1.680	-0.180 ± 0.271
photometric centroid source offset	0.27 ± 0.66	0.40	0.25 ± 0.67	0.09 ± 0.58

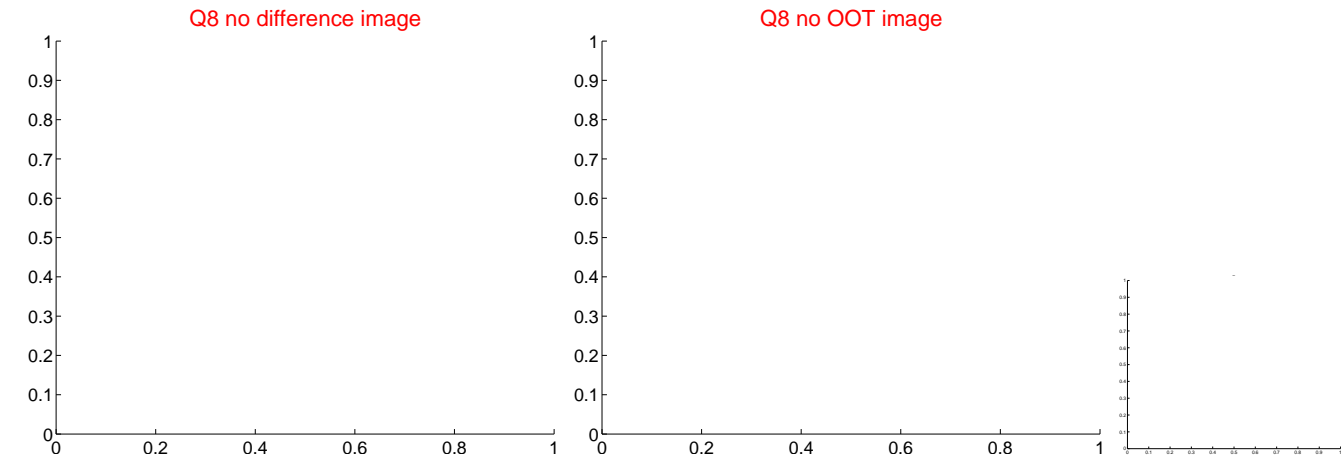
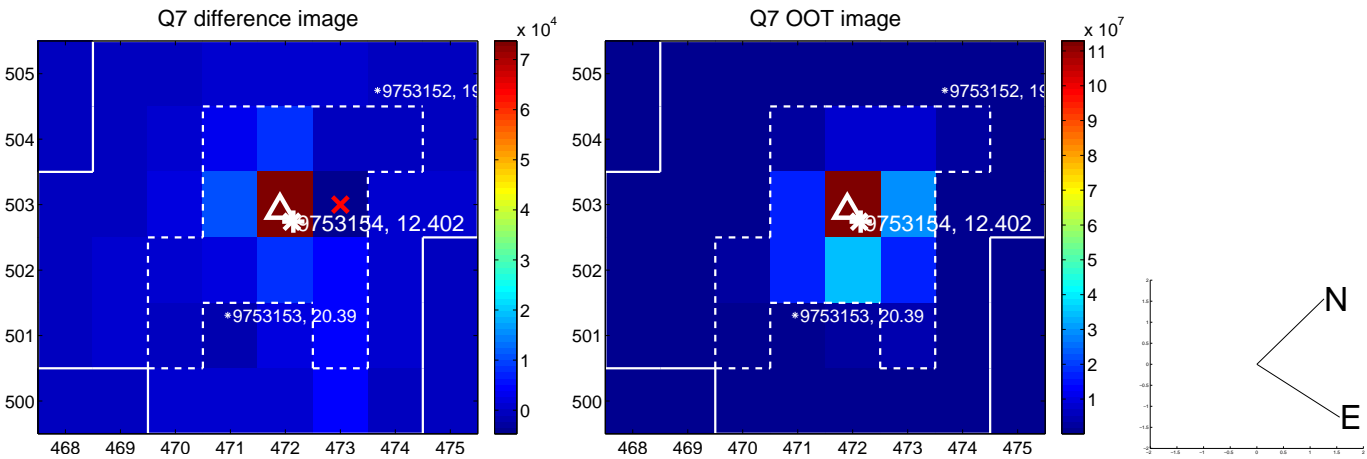
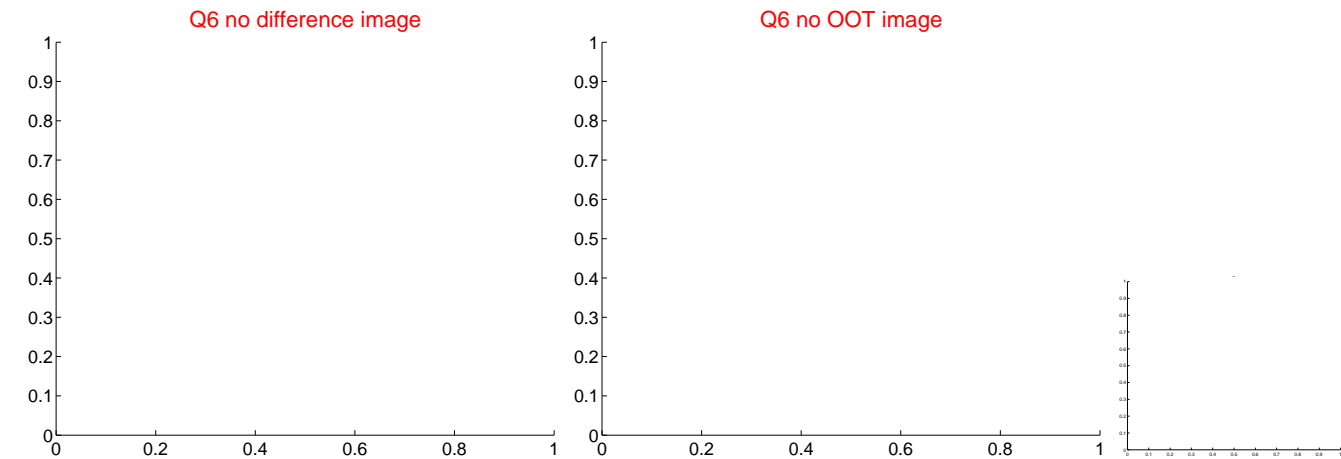
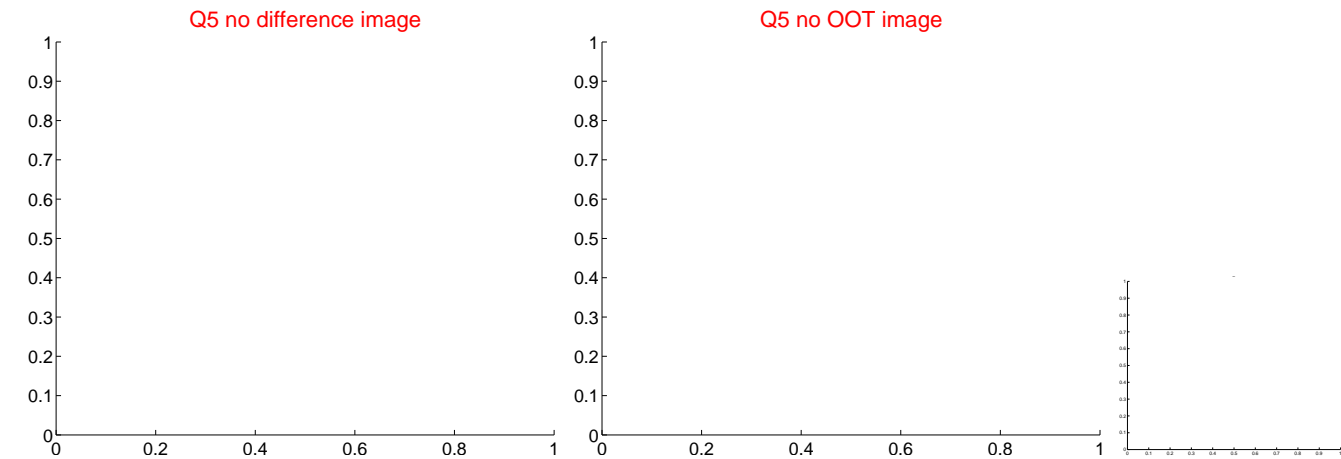


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



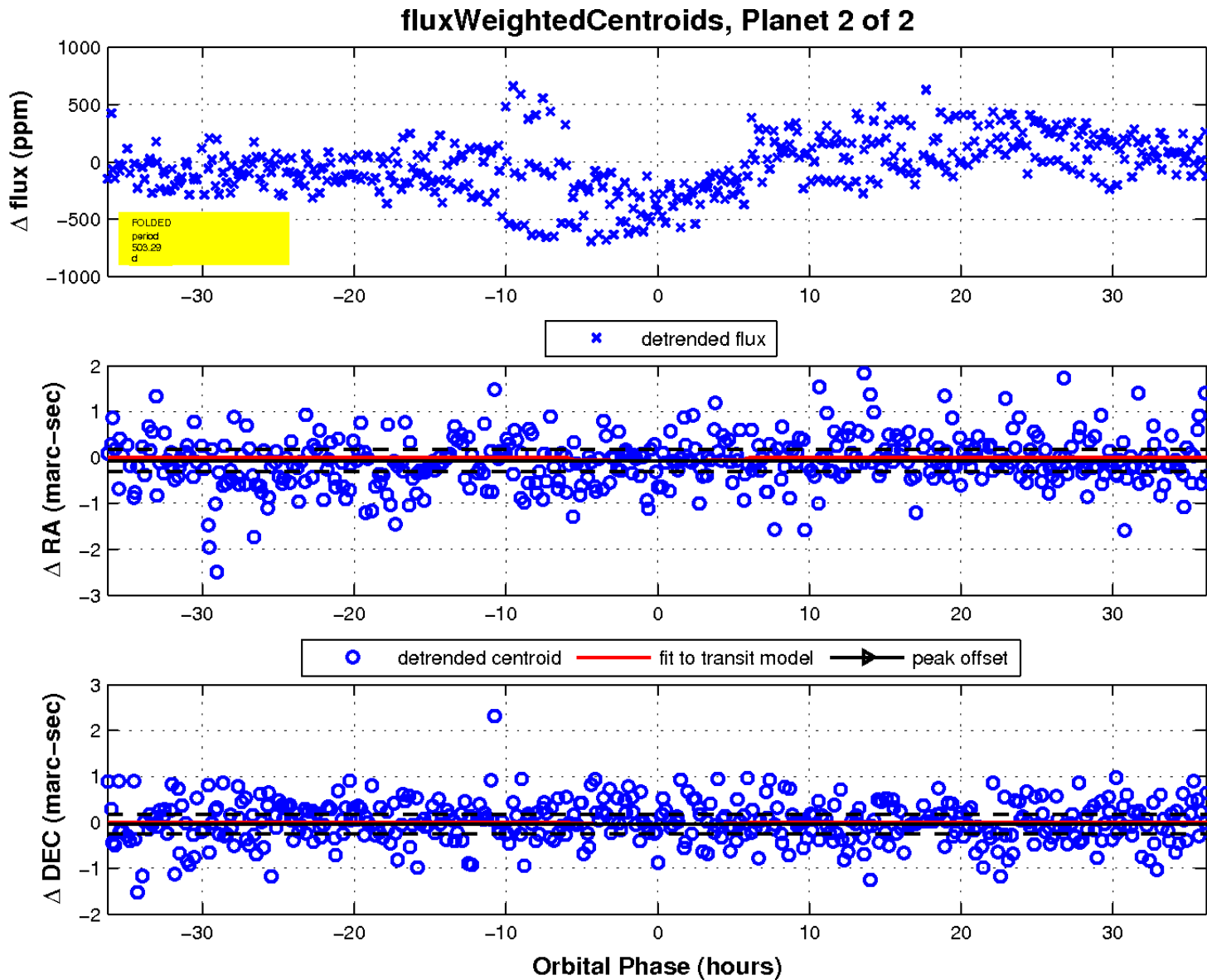
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

