

KIC 009346253

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})
009346253-01	OBS	1388.01	34.064565	150.452063	28428.3	9.618	1048.9	1065.1	0.89	6161	15.61	25.04
009346253-02	OBS	No	34.064741	140.335266	1199.4	10.475	49.2	52.4	0.89	6161	3.58	25.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009346253-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
009346253-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

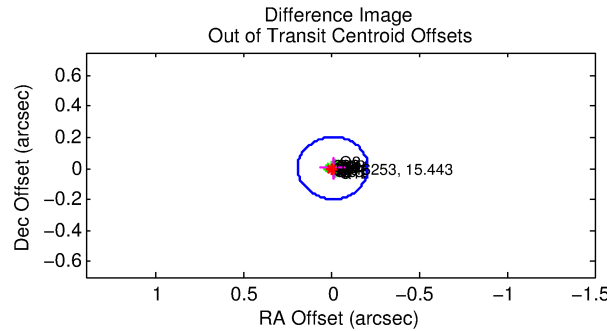
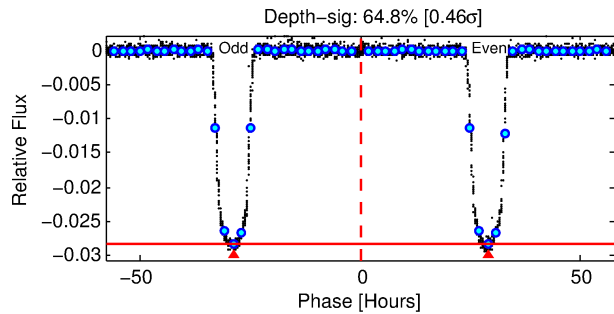
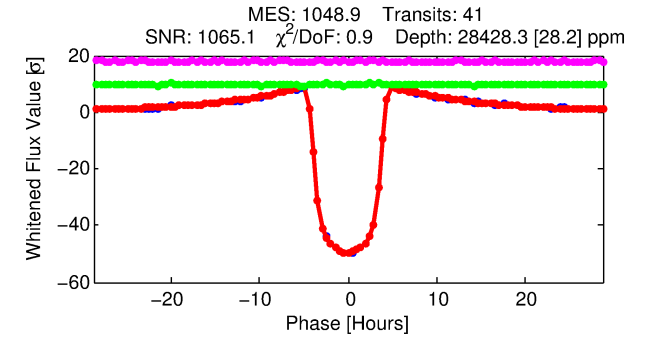
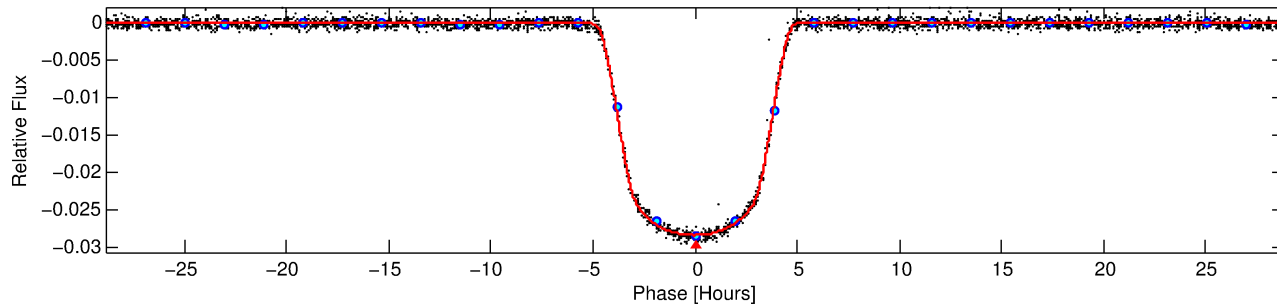
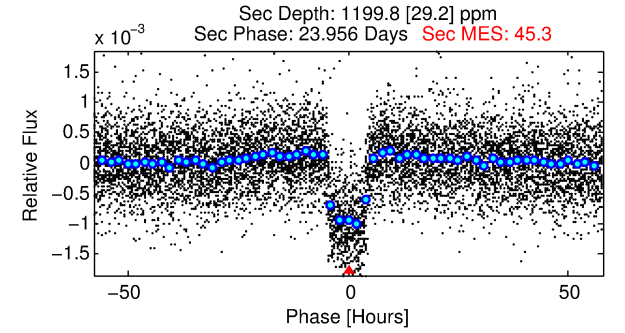
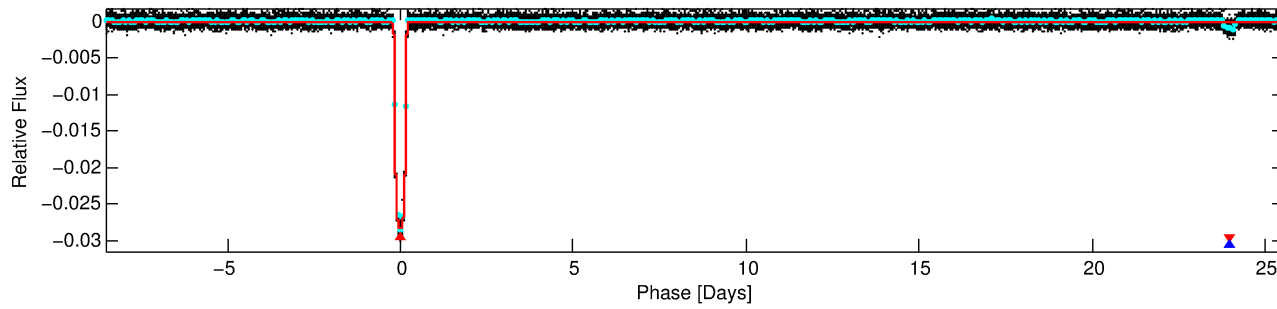
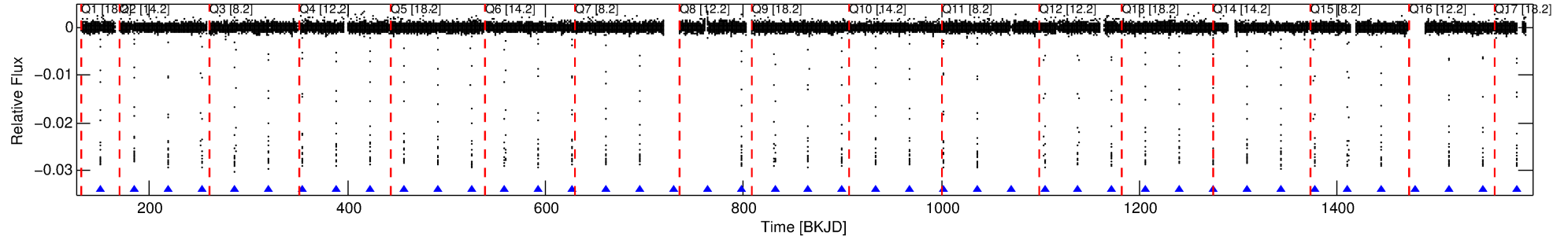
Ephemeris Match Information For 009346253-01

No Significant Match Found

DV One-Page Summary

KIC: 9346253 Candidate: 1 of 2 Period: 34.065 d
KOI: K01388.01 Corr: 1.000

Kp: 15.44 R*: 0.89 Rs Teff: 6161.0 K Logg: 4.52 Fe/H: -0.460



DV Fit Results:

Period = 34.06456 [0.00001] d
Epoch = 150.4521 [0.0002] BKJD
Rp/R* = 0.1603 [0.0001]
a/R* = 27.89 [0.09]
b = 0.53 [0.00]
Seff = 25.04 [10.07]
Teq = 570 [57] K
Rp = 15.61 [4.71] Re
a = 0.2025 [0.0520] AU
Ag = 111.15 [42.02] [2.62σ]
Teff = 2864 [101] K [19.68σ]

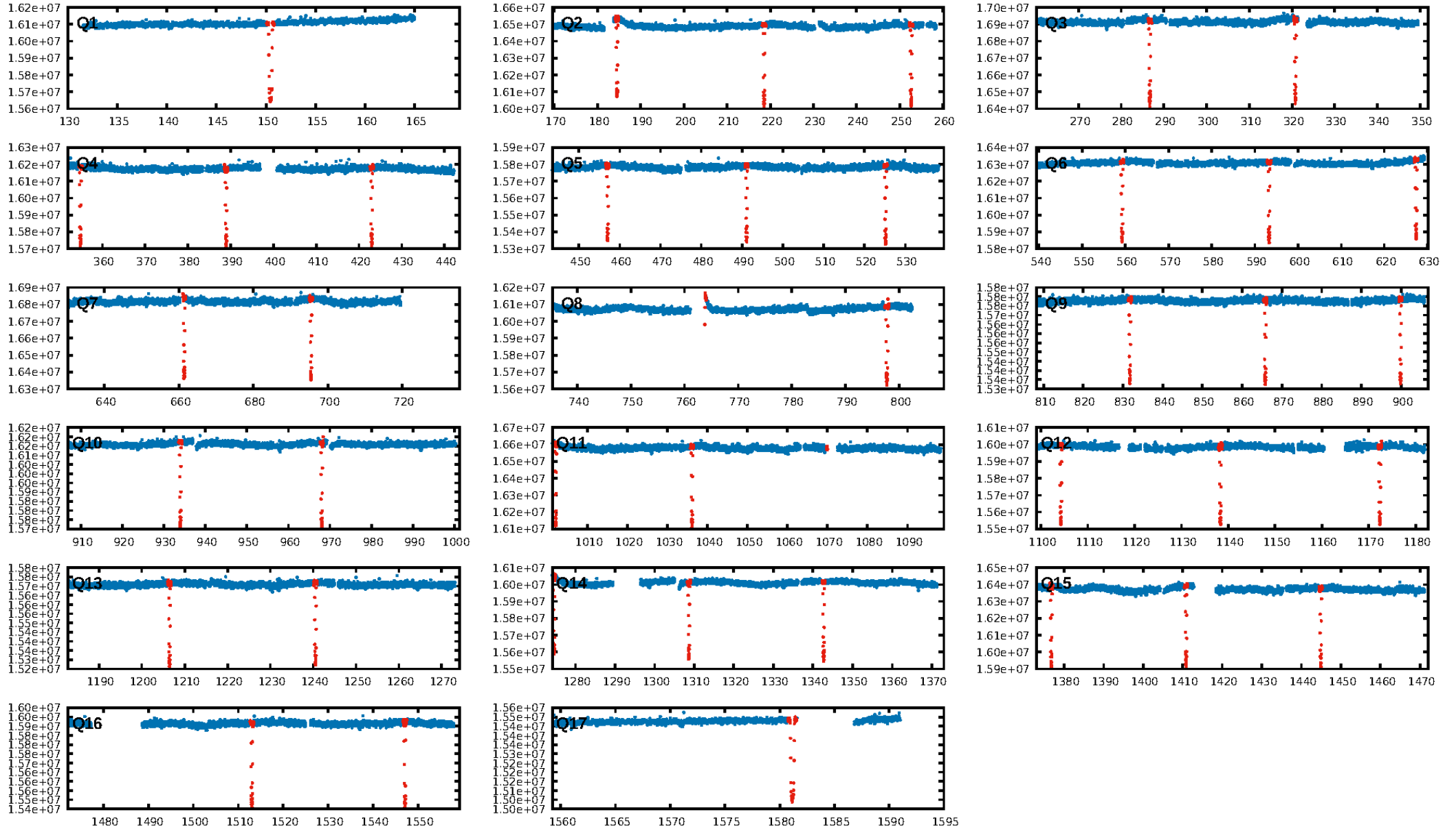
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [39/39]
GhostDiagnostic-chr: 4.932
Centroid-sig: 0.0%
Centroid-so: 0.060 arcsec [5.36σ]
OotOffset-rm: 0.008 arcsec [0.12σ]
KicOffset-rm: 0.071 arcsec [1.05σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

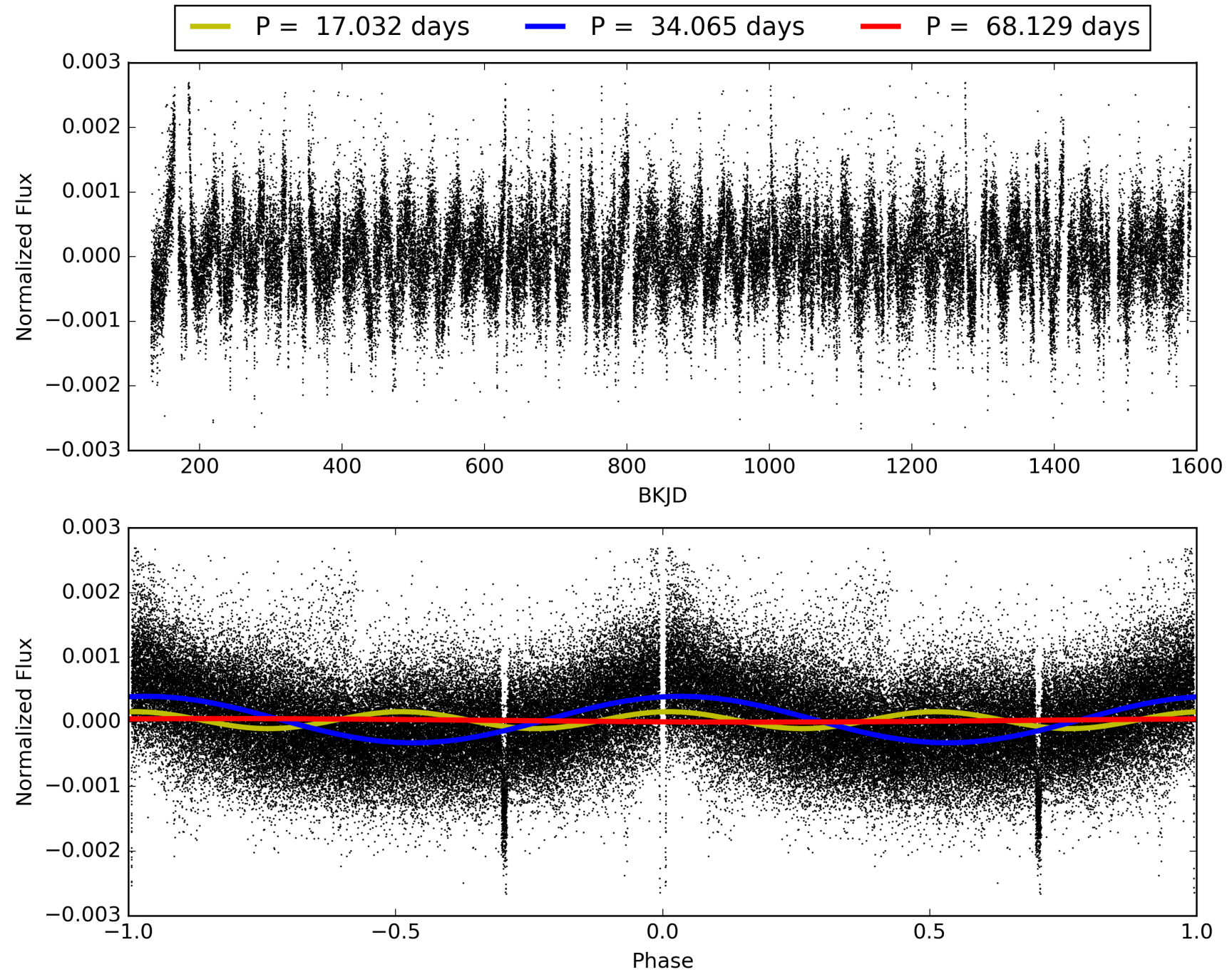
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:20:00 Z

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

TCE 009346253-01, PDC Light Curves

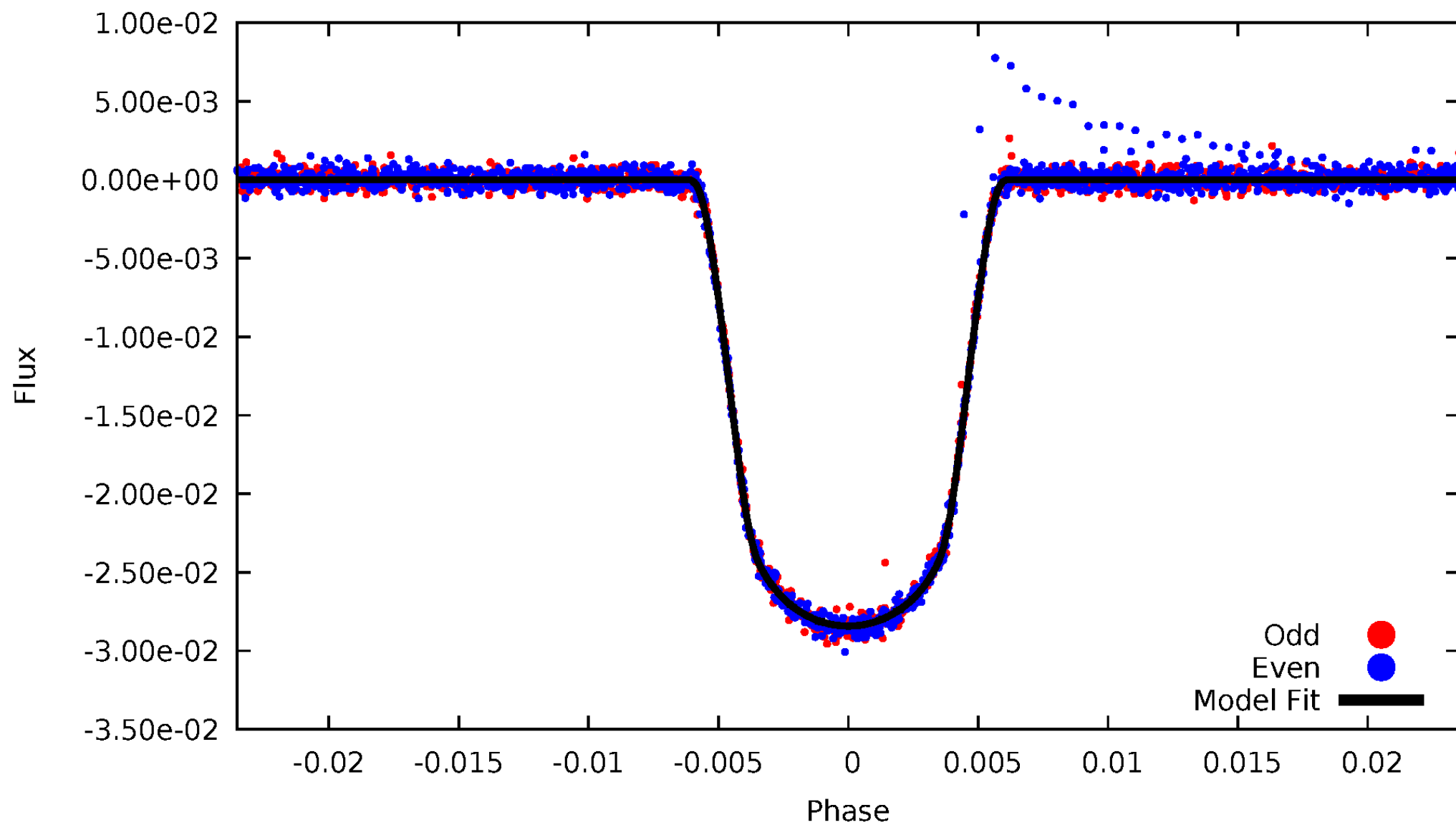


TCE 009346253-01



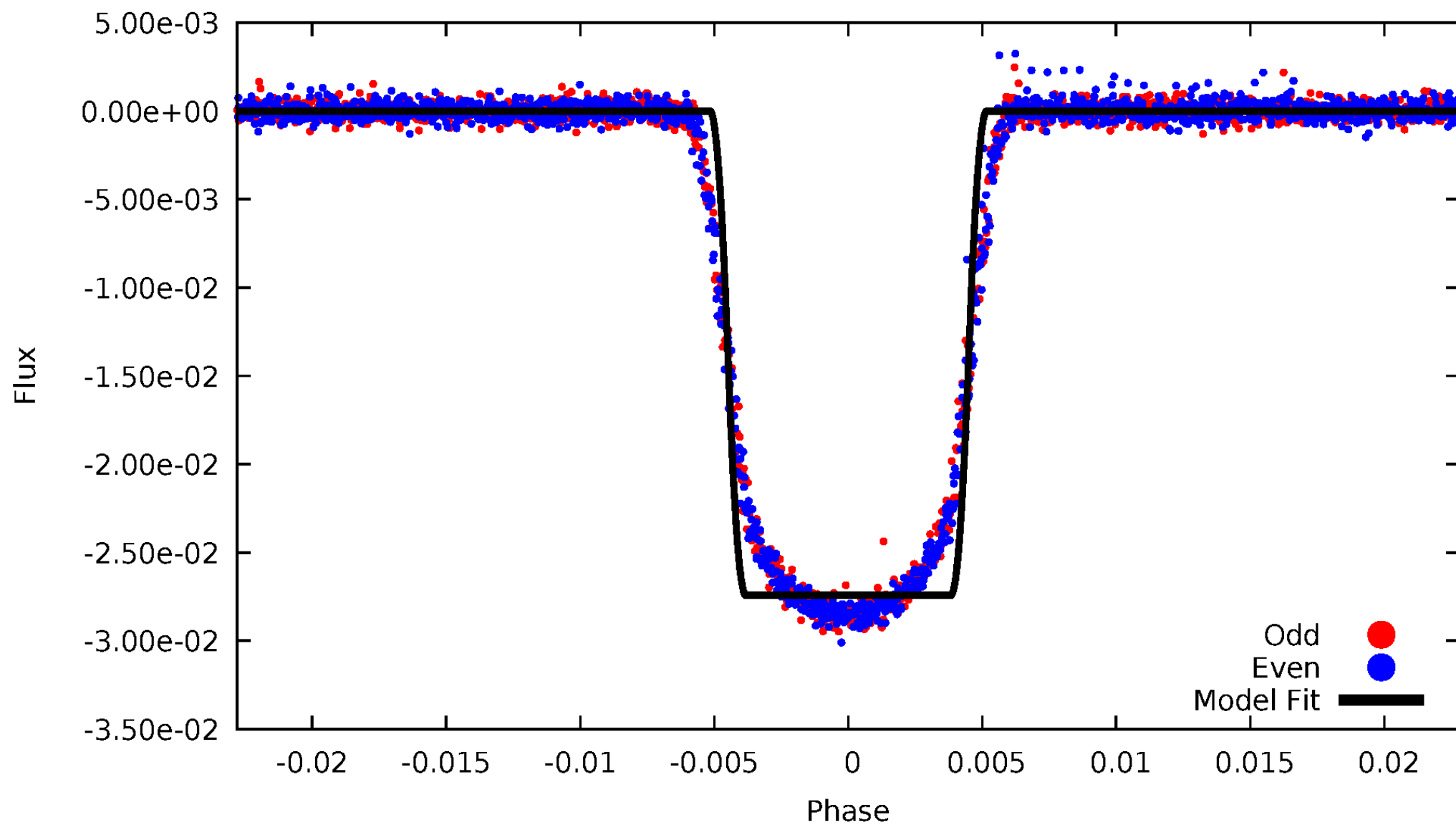
DV Odd/Even

TCE 009346253-01



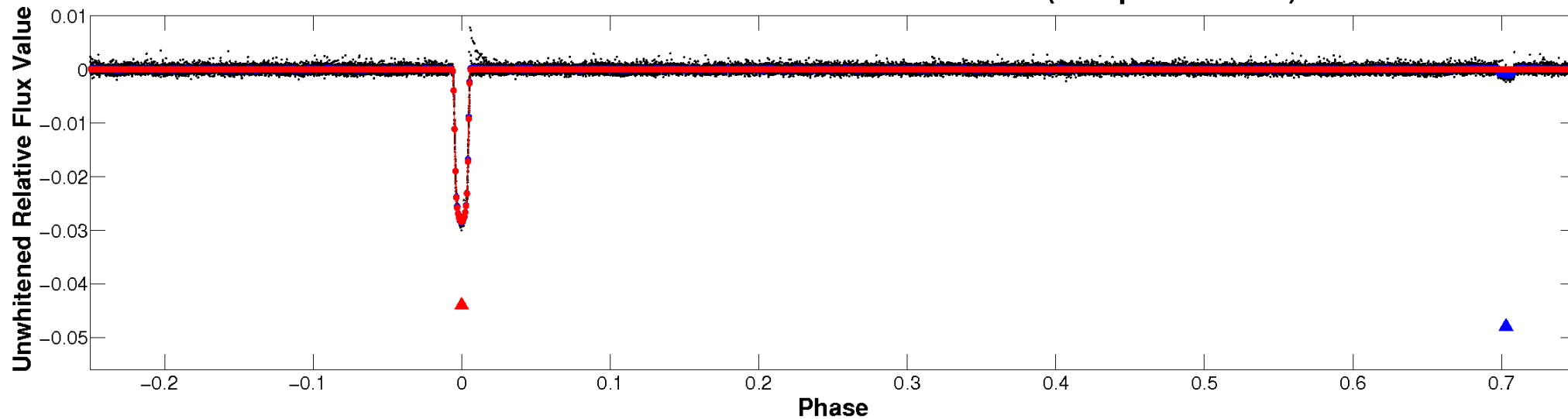
ALT Odd/Even

TCE 009346253-01

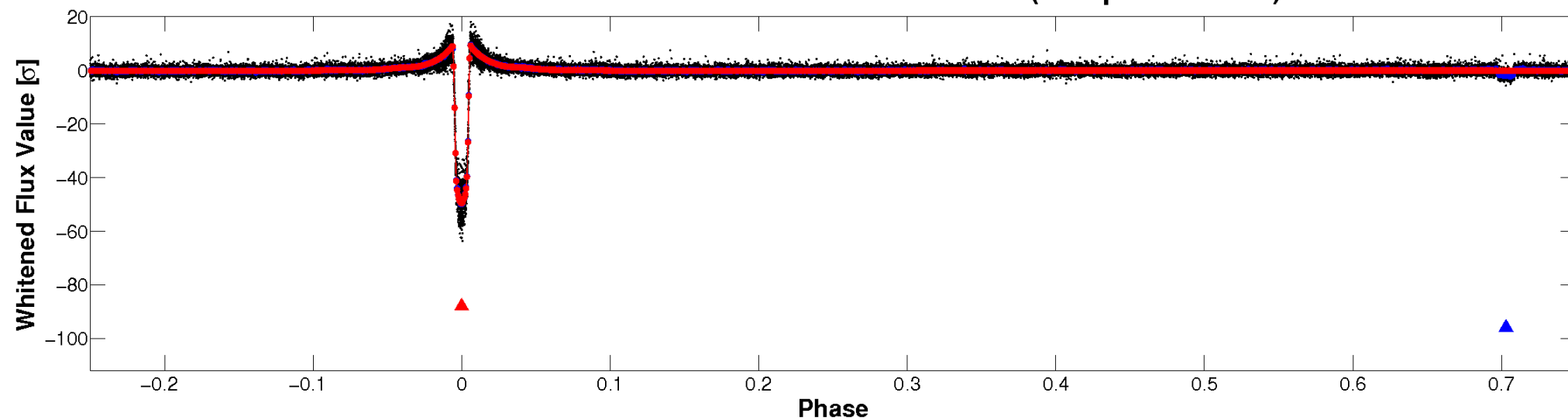


Non-Whitened Vs. Whitened Light Curve

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

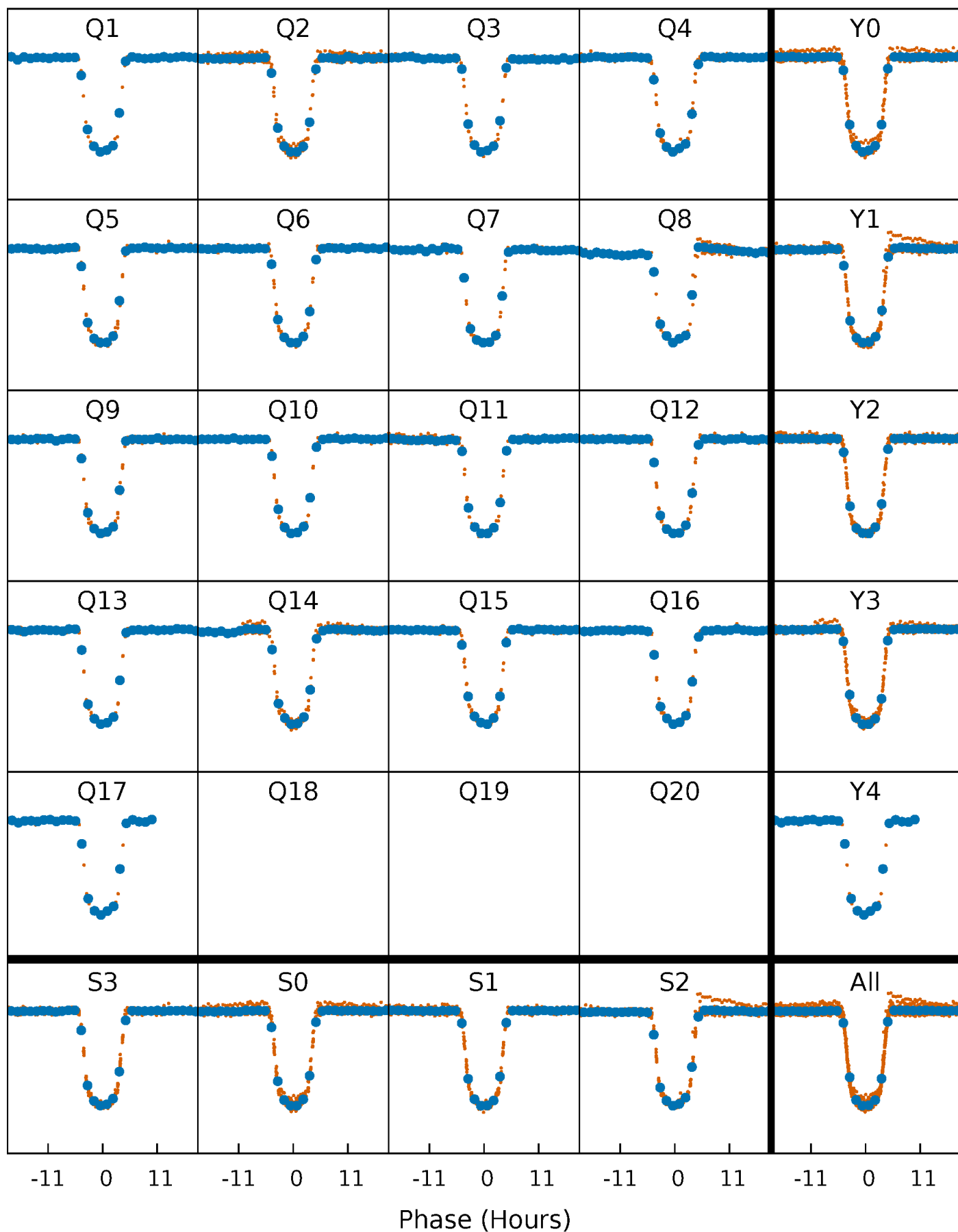


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



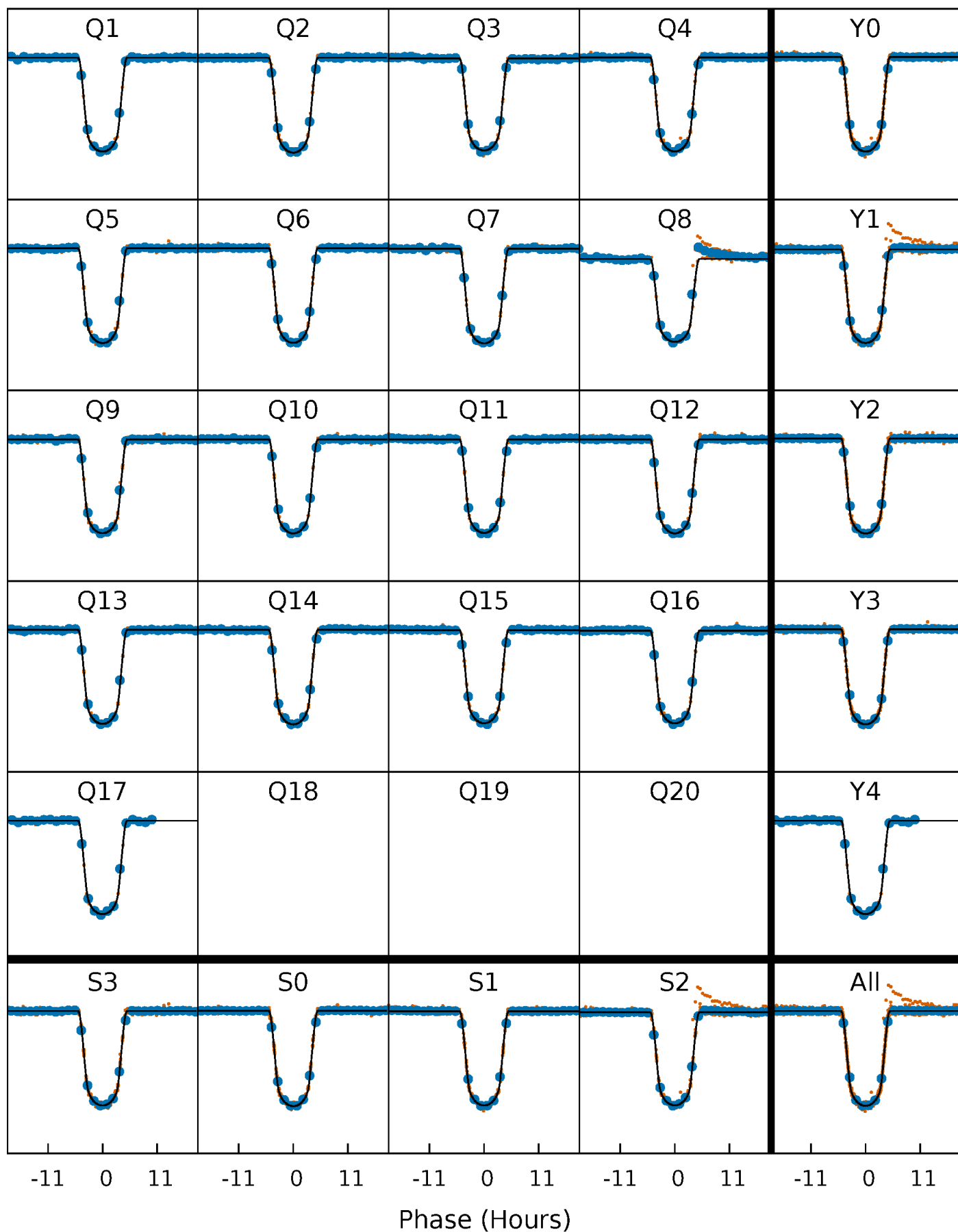
PDC Quarter-Phased Transit Curves

TCE 009346253-01 P= 34.064565 Days $T_0=150.452063$ (BKJD)



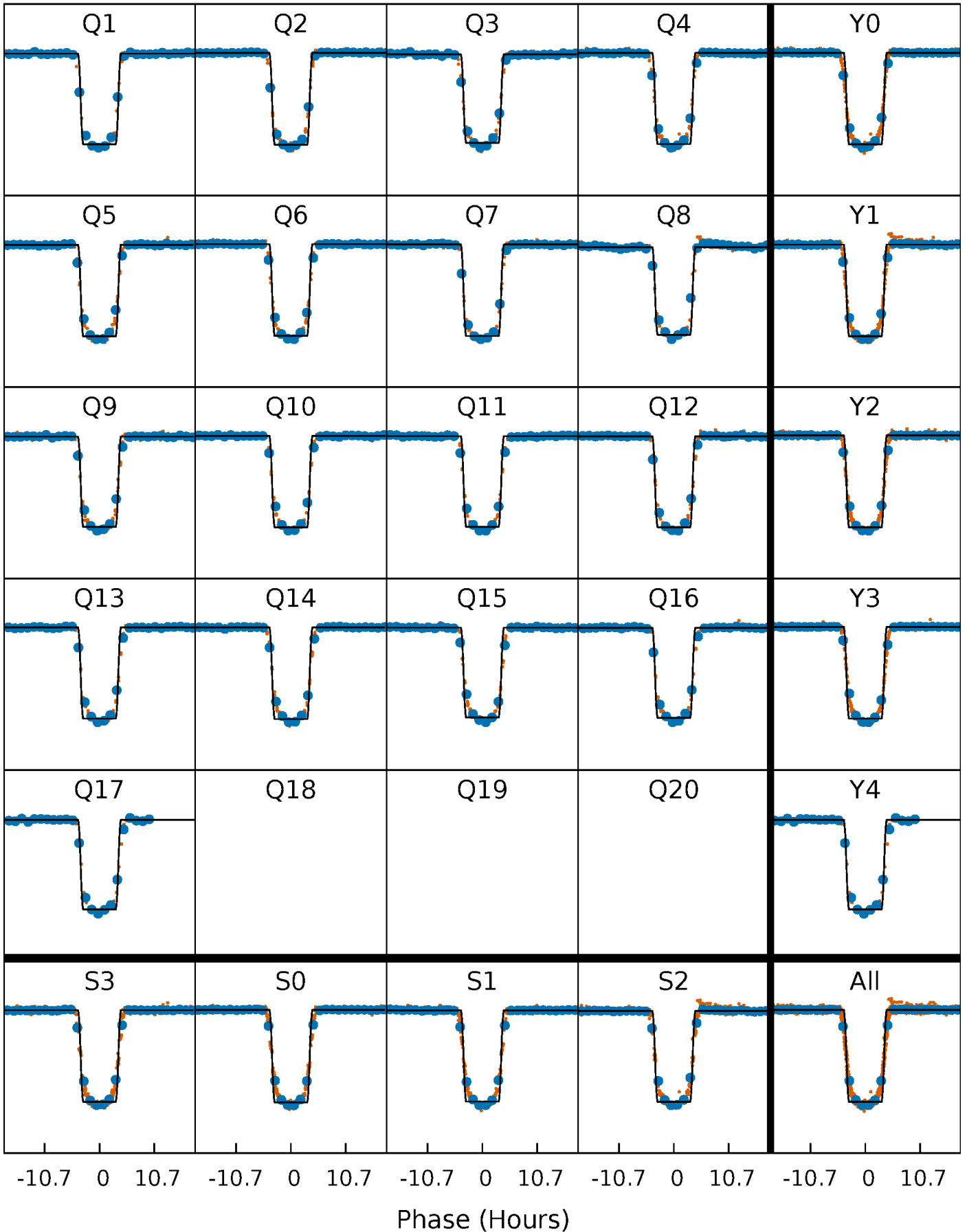
DV Quarter-Phased Transit Curves

TCE 009346253-01 P= 34.064565 Days $T_0=150.452063$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

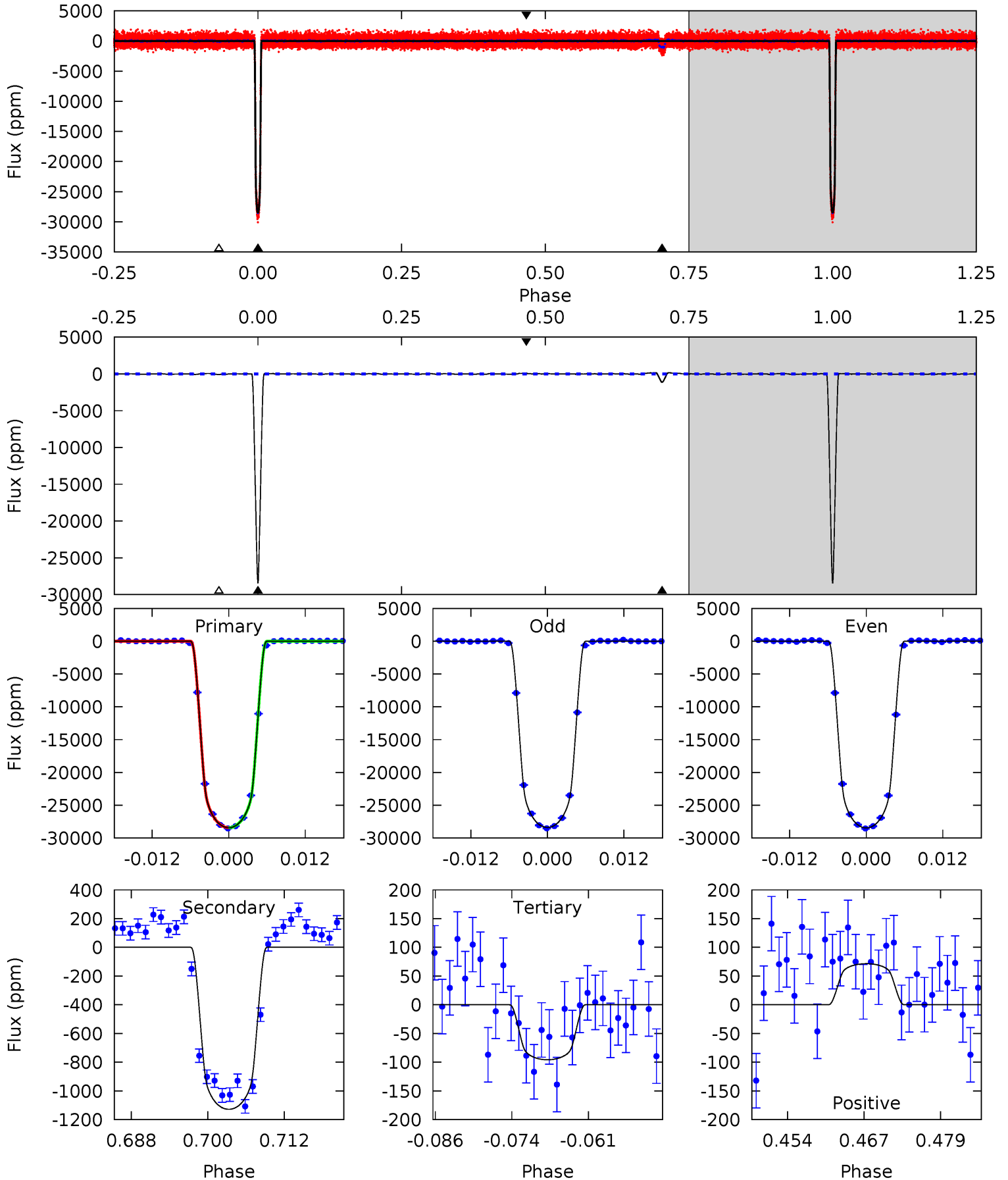
TCE 009346253-01 P= 34.064284 Days $T_0=150.457618$ (BKJD)



DV Model-Shift Uniqueness Test

009346253-01, P = 34.064565 Days, E = 116.387498 Days

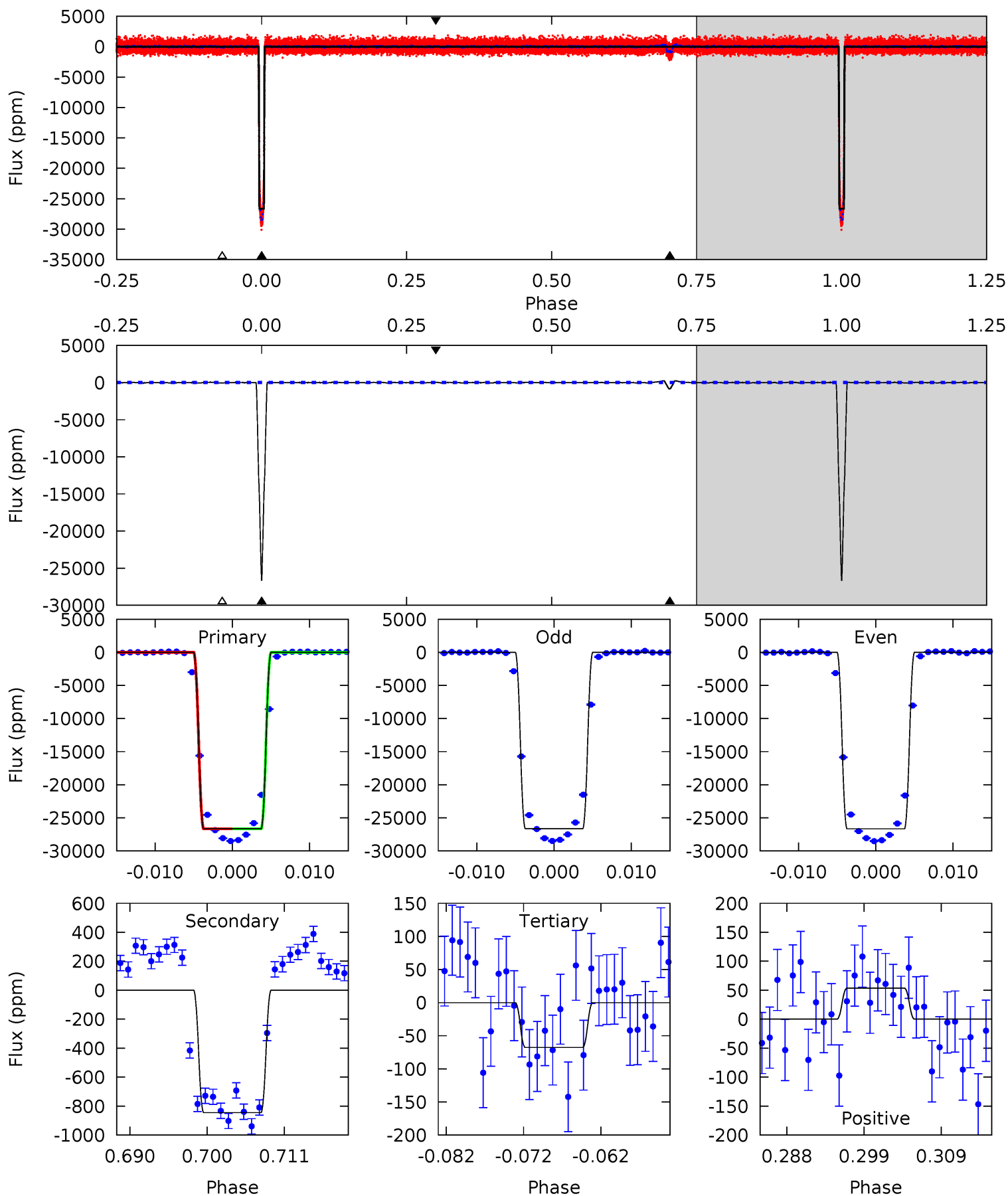
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1752	69.5	5.90	4.41	4.99	2.50	2.18	1746	1748	63.6	65.1	1.96	0.97	0.01	0.18



Alt Model-Shift Uniqueness Test

009346253-01, P = 34.064284 Days, E = 116.393334 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1444	45.8	3.67	2.91	5.02	2.57	1.85	1441	1441	42.1	42.9	0.51	0.99	0.01	0.36



Stellar Parameters For KIC 009346253

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6161^{+172}_{-215}	$4.517^{+0.052}_{-0.208}$	$-0.460^{+0.300}_{-0.300}$	$0.892^{+0.269}_{-0.090}$	$0.955^{+0.116}_{-0.116}$	$1.895^{+0.498}_{-0.949}$
	+3%/-3%	+1%/-5%	+65%/-65%	+30%/-10%	+12%/-12%	+26%/-50%
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 009346253-01 / KOI 1388.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1128 ± 16	$15.85^{+3.10}_{-0.99}$	811^{+62}_{-38}	3355^{+59}_{-73}	99^{+13}_{-26}
Alt.	-845 ± 18	$16.47^{+2.84}_{-1.17}$	816^{+58}_{-41}	3185^{+56}_{-66}	68^{+10}_{-16}

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

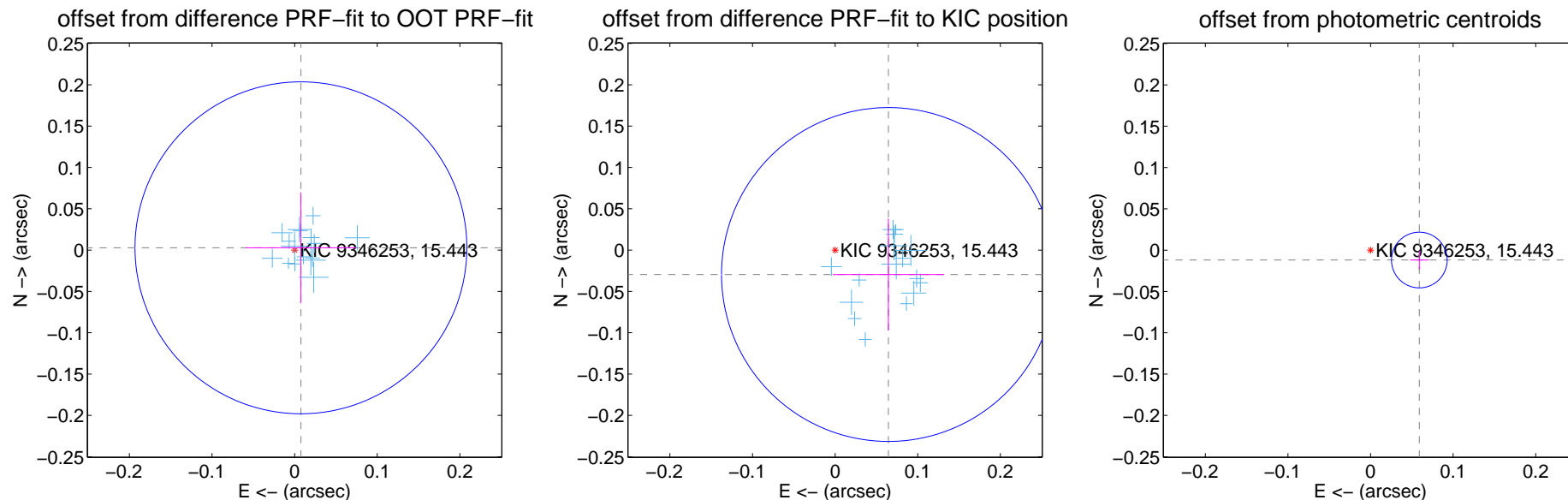
DV Centroid Data

Supplemental centroid analysis for 009346253-01. Kepler magnitude: 15.44. Transit SNR 1065.15

There are 16 quarters with good PRF difference image offsets

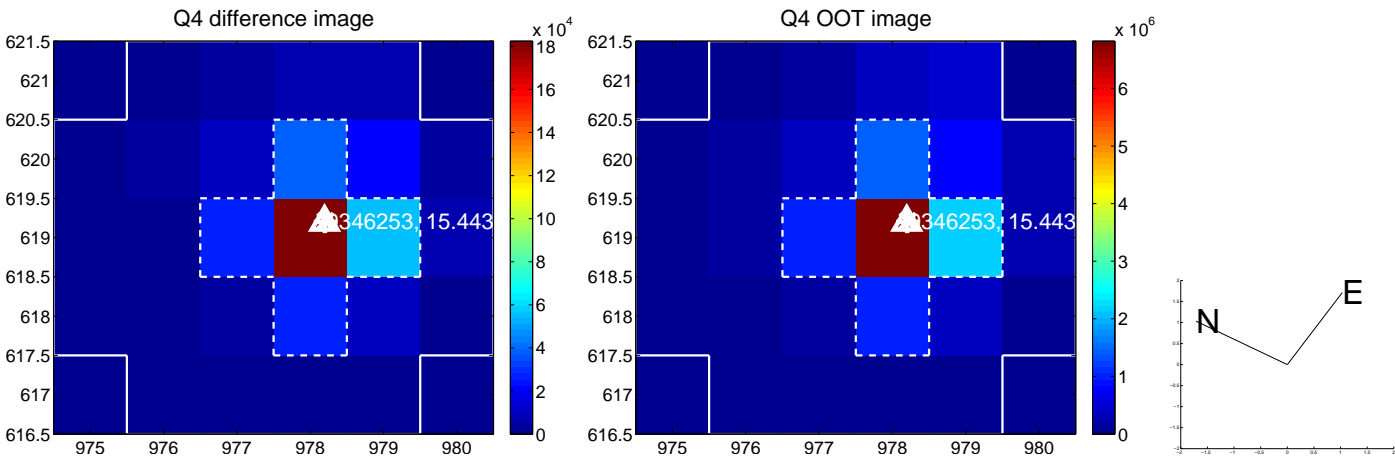
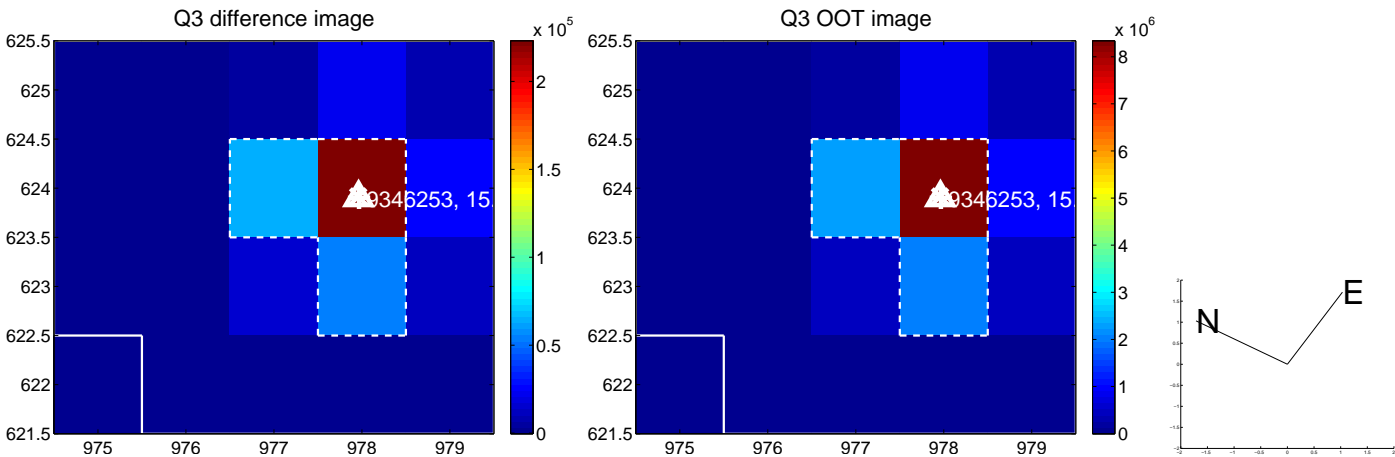
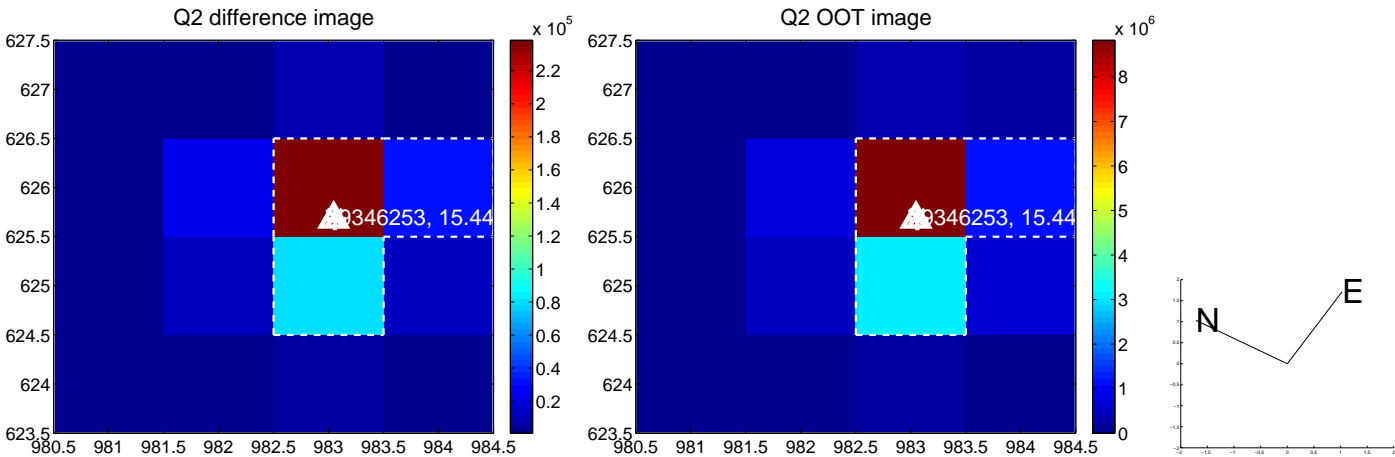
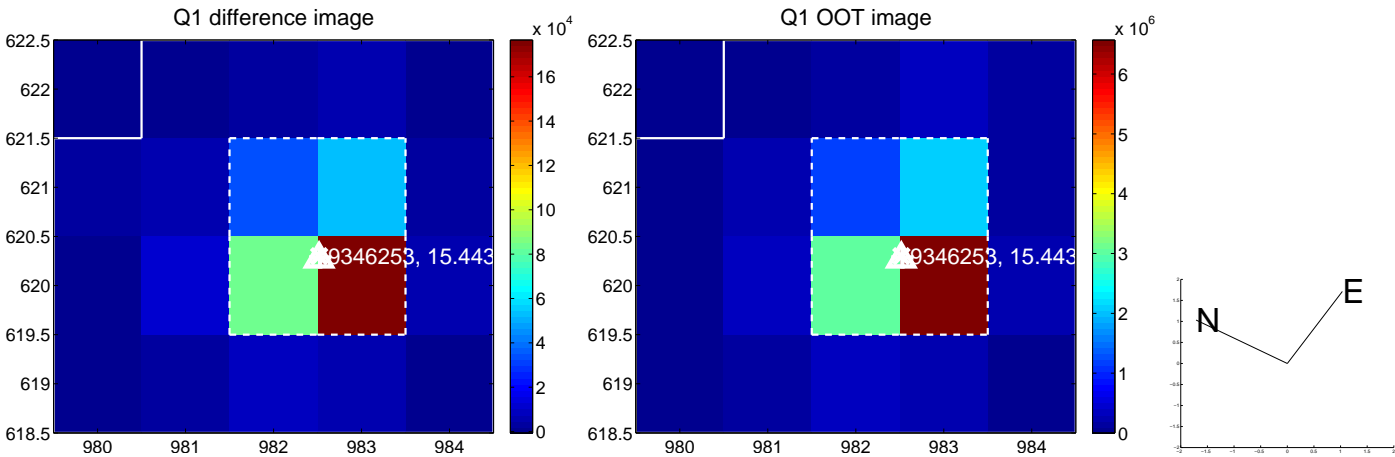
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.008 ± 0.067	0.12	-0.008 ± 0.067	0.003 ± 0.067
PRF-fit source offset from KIC position	0.071 ± 0.067	1.05	-0.064 ± 0.067	-0.030 ± 0.068
photometric centroid source offset	0.06 ± 0.01	5.36	-0.06 ± 0.01	-0.01 ± 0.01

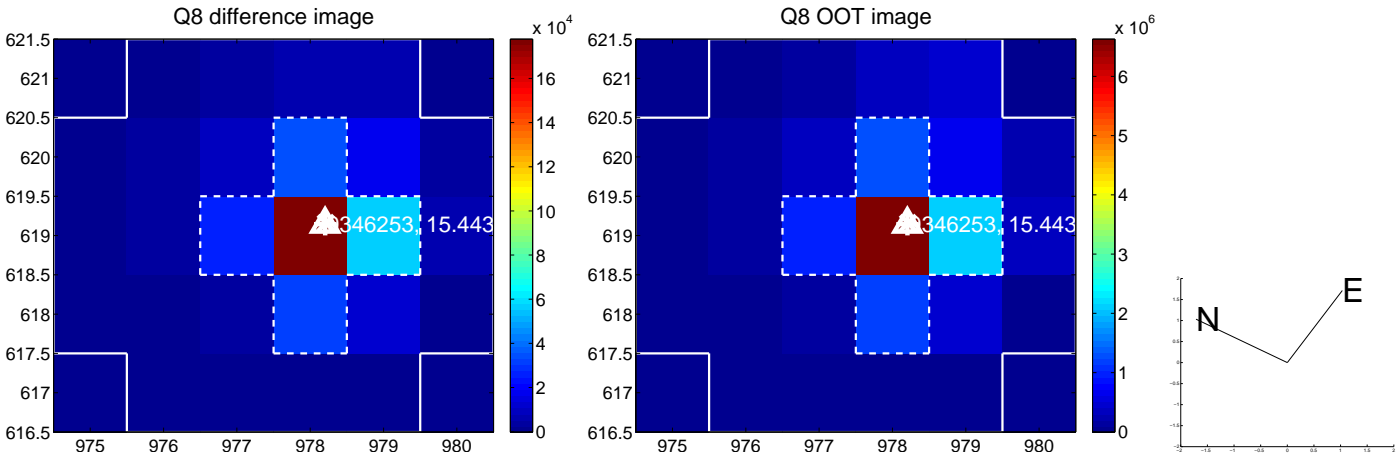
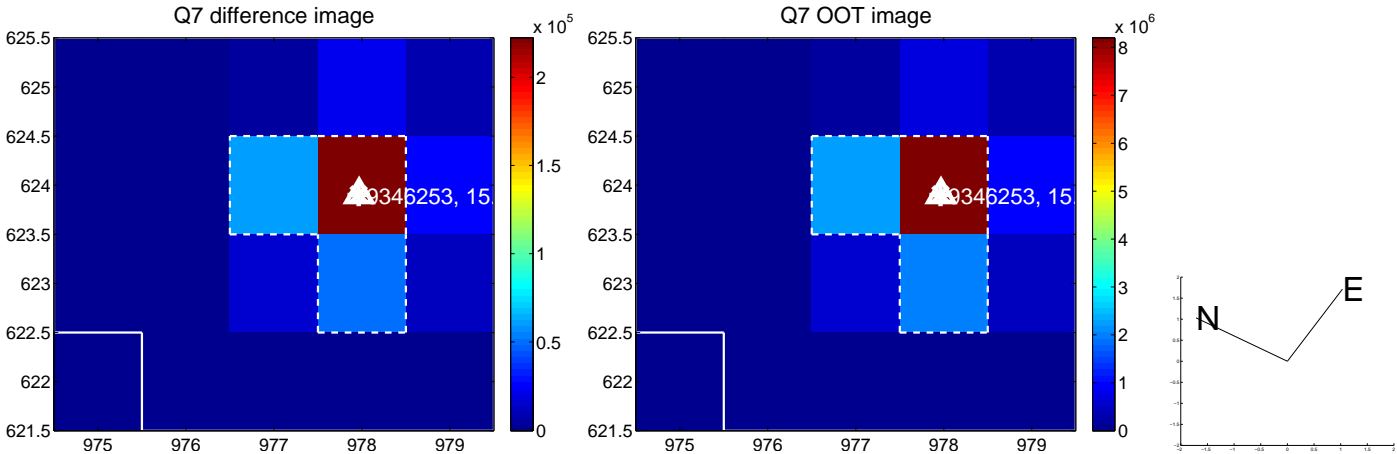
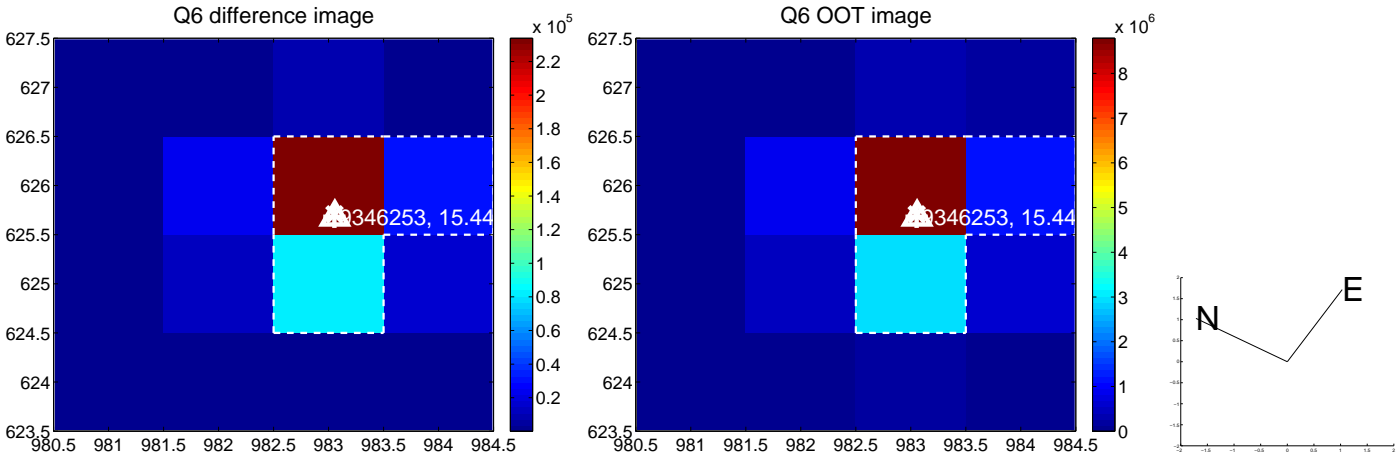
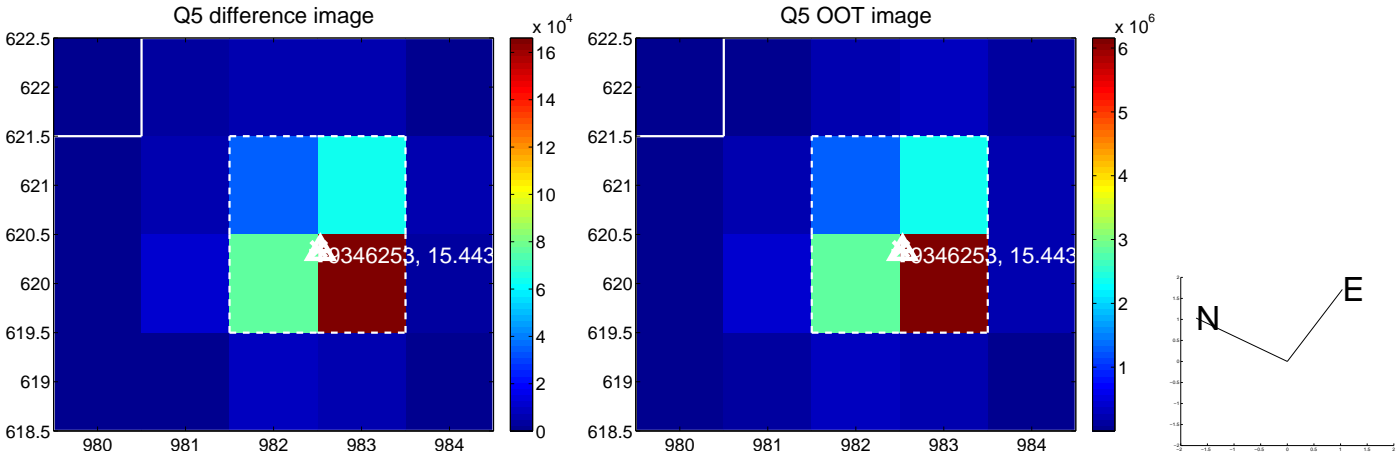


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

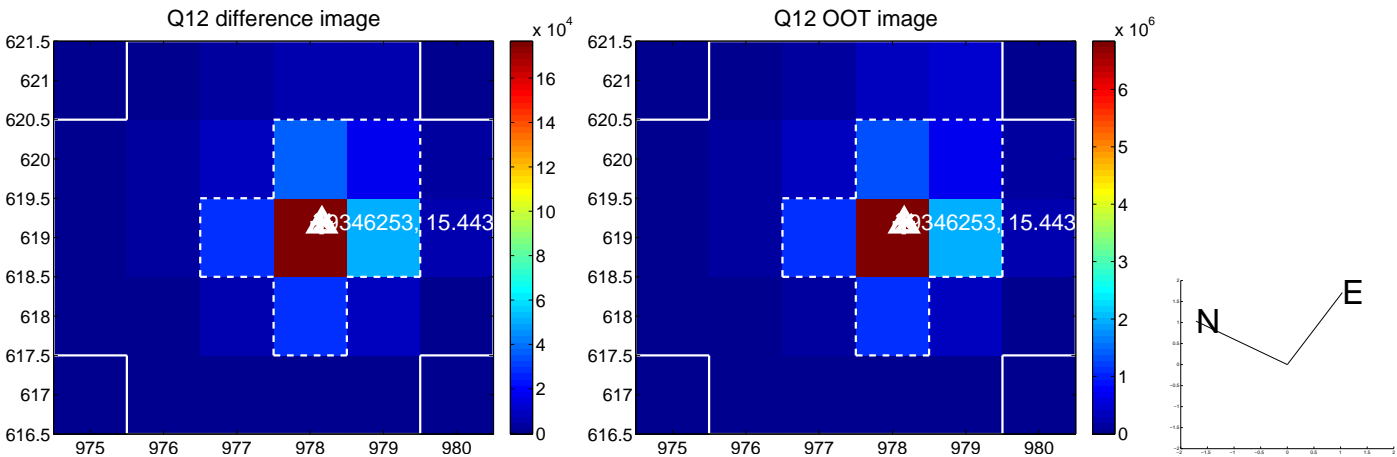
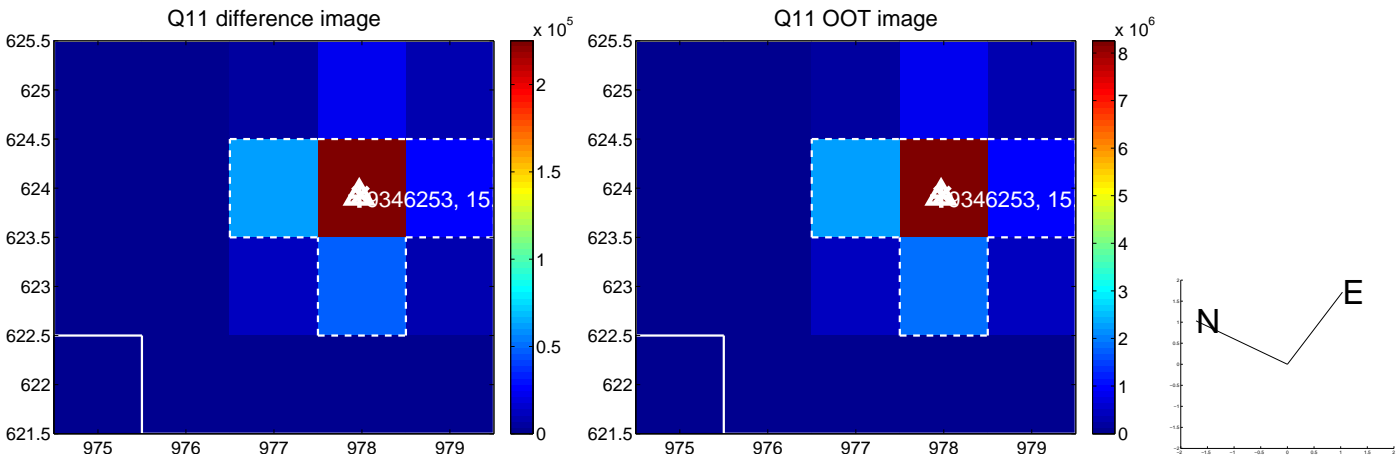
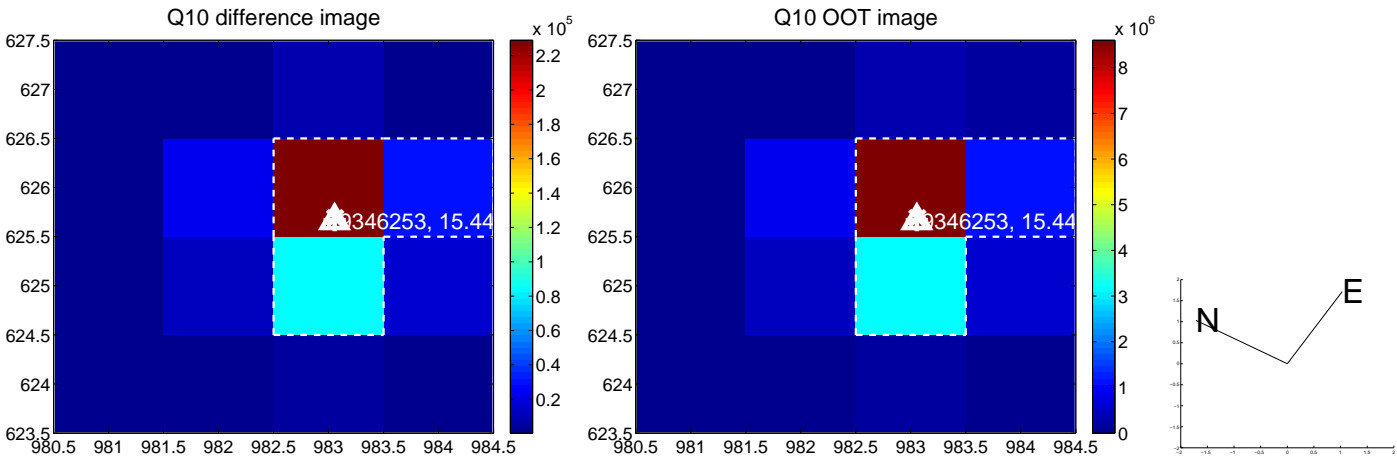
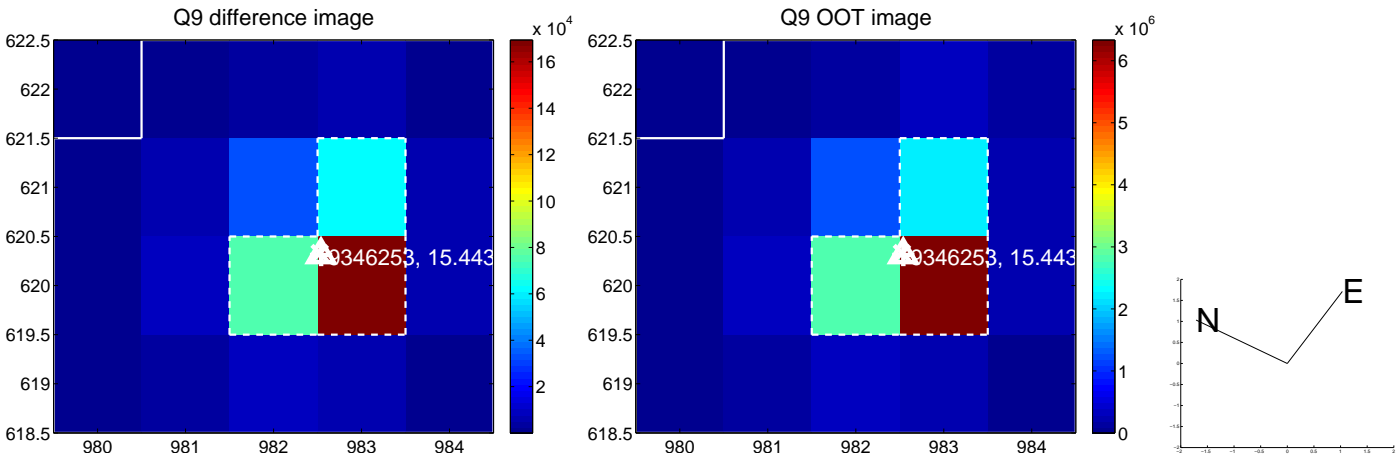
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



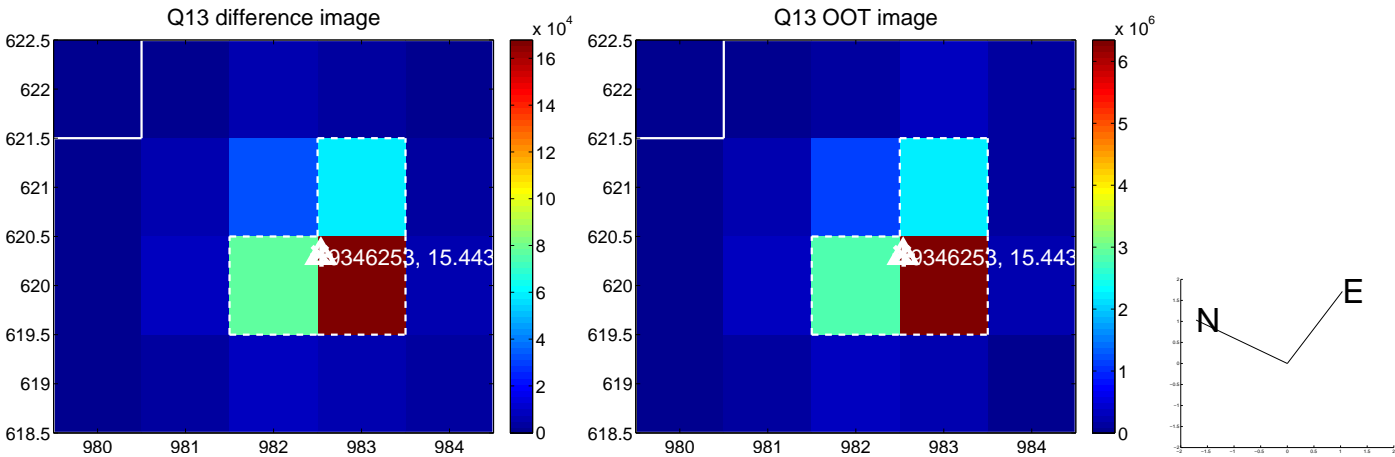
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



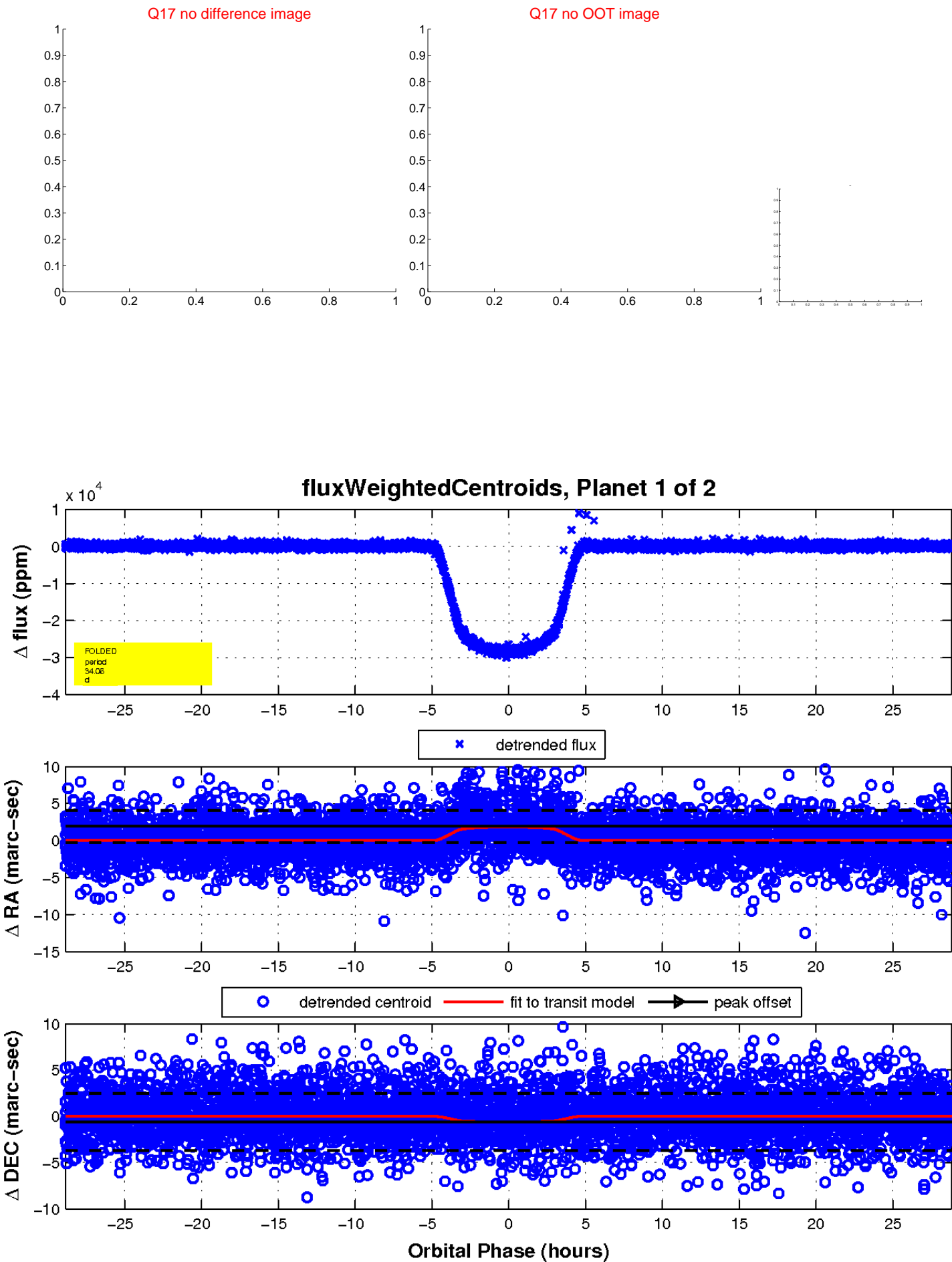
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

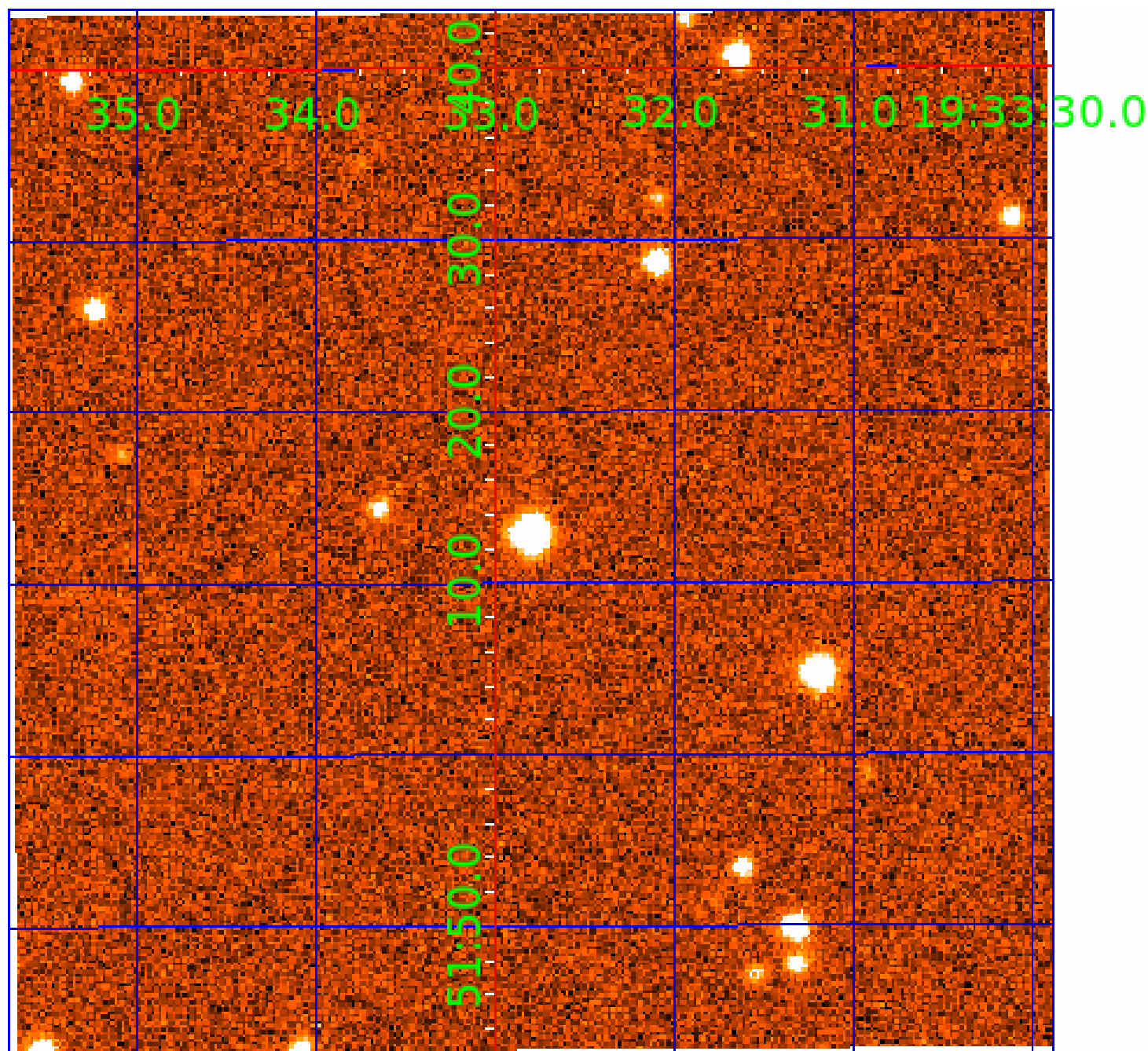


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009346253

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})
009346253-01	OBS	1388.01	34.064565	150.452063	28428.3	9.618	1048.9	1065.1	0.89	6161	15.61	25.04
009346253-02	OBS	No	34.064741	140.335266	1199.4	10.475	49.2	52.4	0.89	6161	3.58	25.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009346253-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
009346253-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

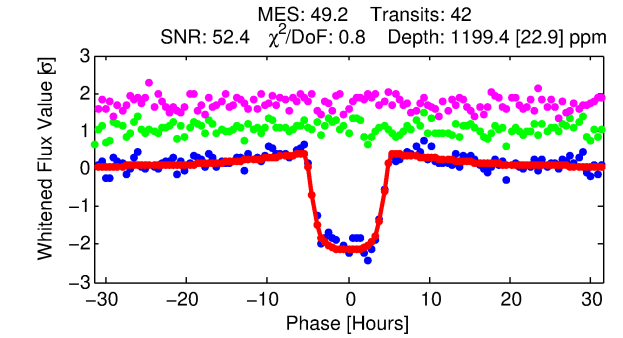
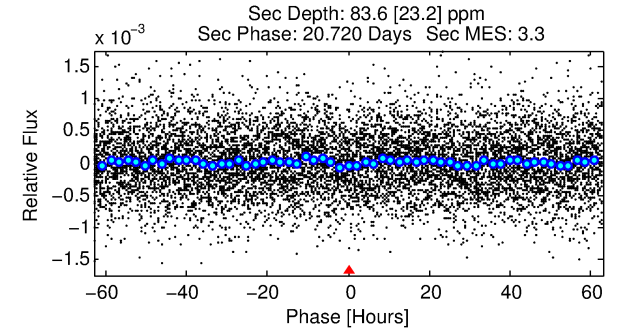
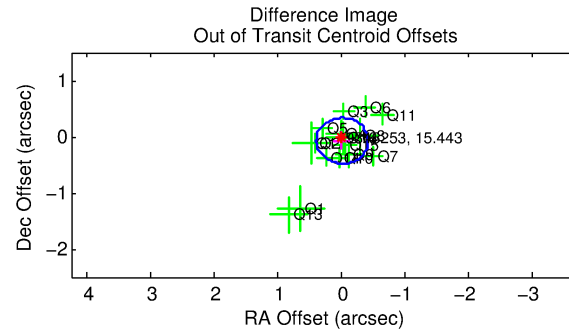
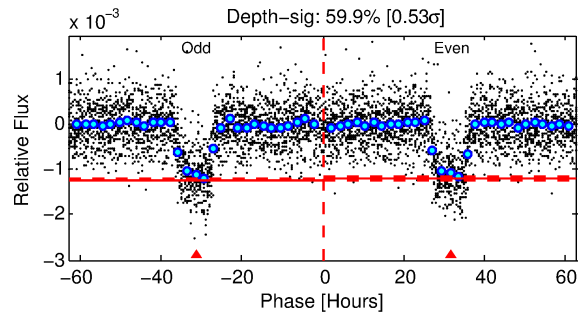
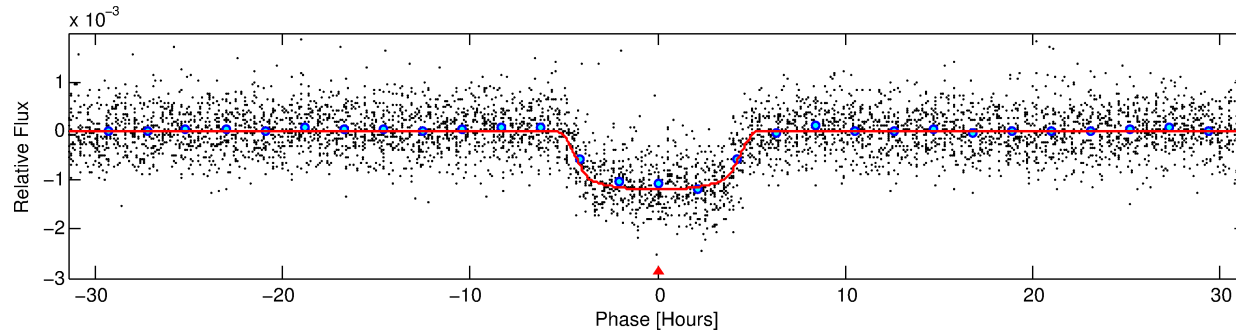
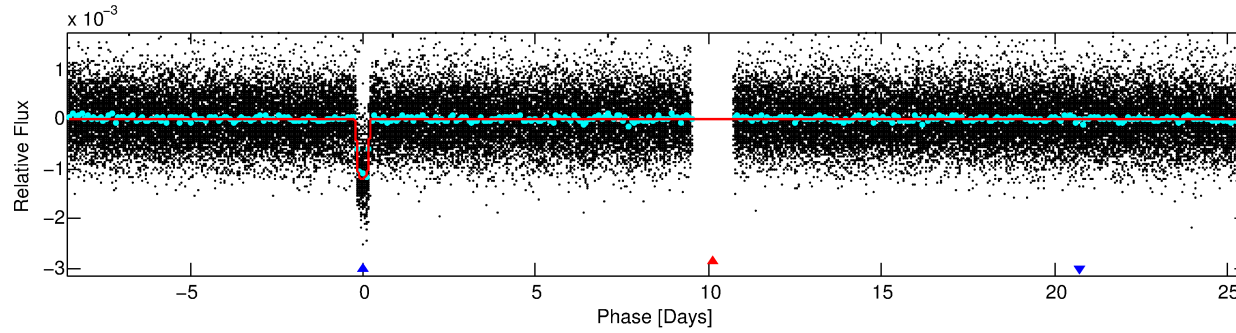
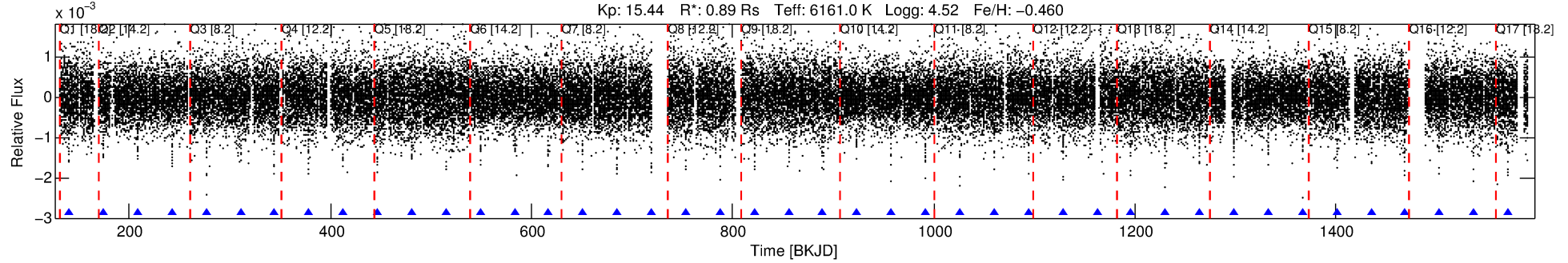
Ephemeris Match Information For 009346253-02

No Significant Match Found

DV One-Page Summary

KIC: 9346253 Candidate: 2 of 2 Period: 34.065 d
KOI: K01388 Corr: No Ephemeris Match

Kp: 15.44 R*: 0.89 Rs Teff: 6161.0 K Logg: 4.52 Fe/H: -0.460



DV Fit Results:

Period = 34.06474 [0.00014] d
Epoch = 140.3353 [0.0035] BKJD
Rp/R* = 0.0368 [0.0006]
a/R* = 13.39 [0.94]
b = 0.89 [0.02]
Seff = 25.04 [10.07]
Teq = 570 [57] K
Rp = 3.58 [1.08] Re
a = 0.2025 [0.0520] AU
Ag = 146.89 [68.98] [2.12σ]
Teffp = 3070 [240] K [10.14σ]

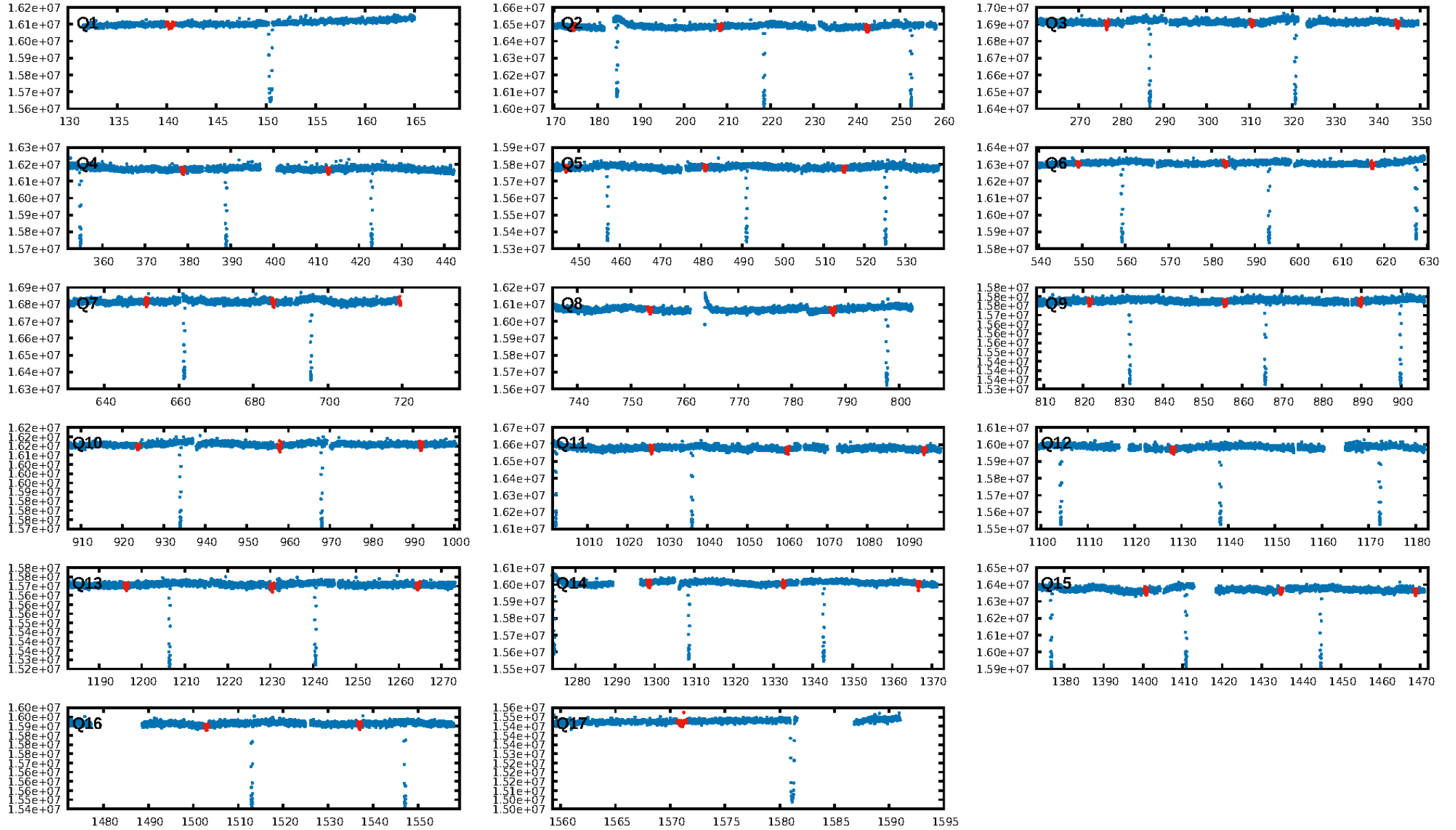
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [40/40]
GhostDiagnostic-chr: 2.633
Centroid-sig: 58.9%
Centroid-so: 0.136 arcsec [0.58σ]
OotOffset-rm: 0.074 arcsec [0.55σ]
KicOffset-rm: 0.120 arcsec [0.92σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

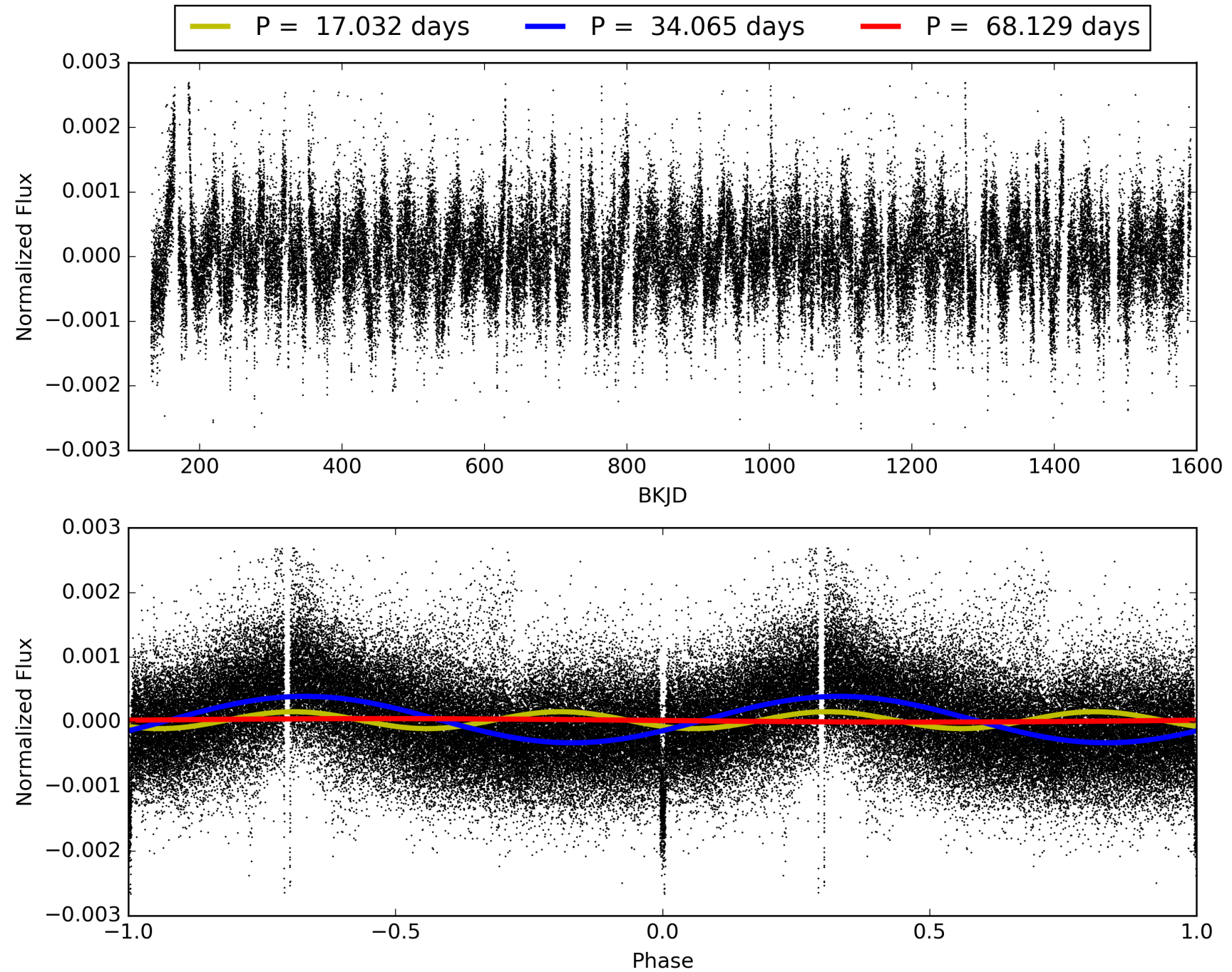
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:20:11 Z

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

TCE 009346253-02, PDC Light Curves

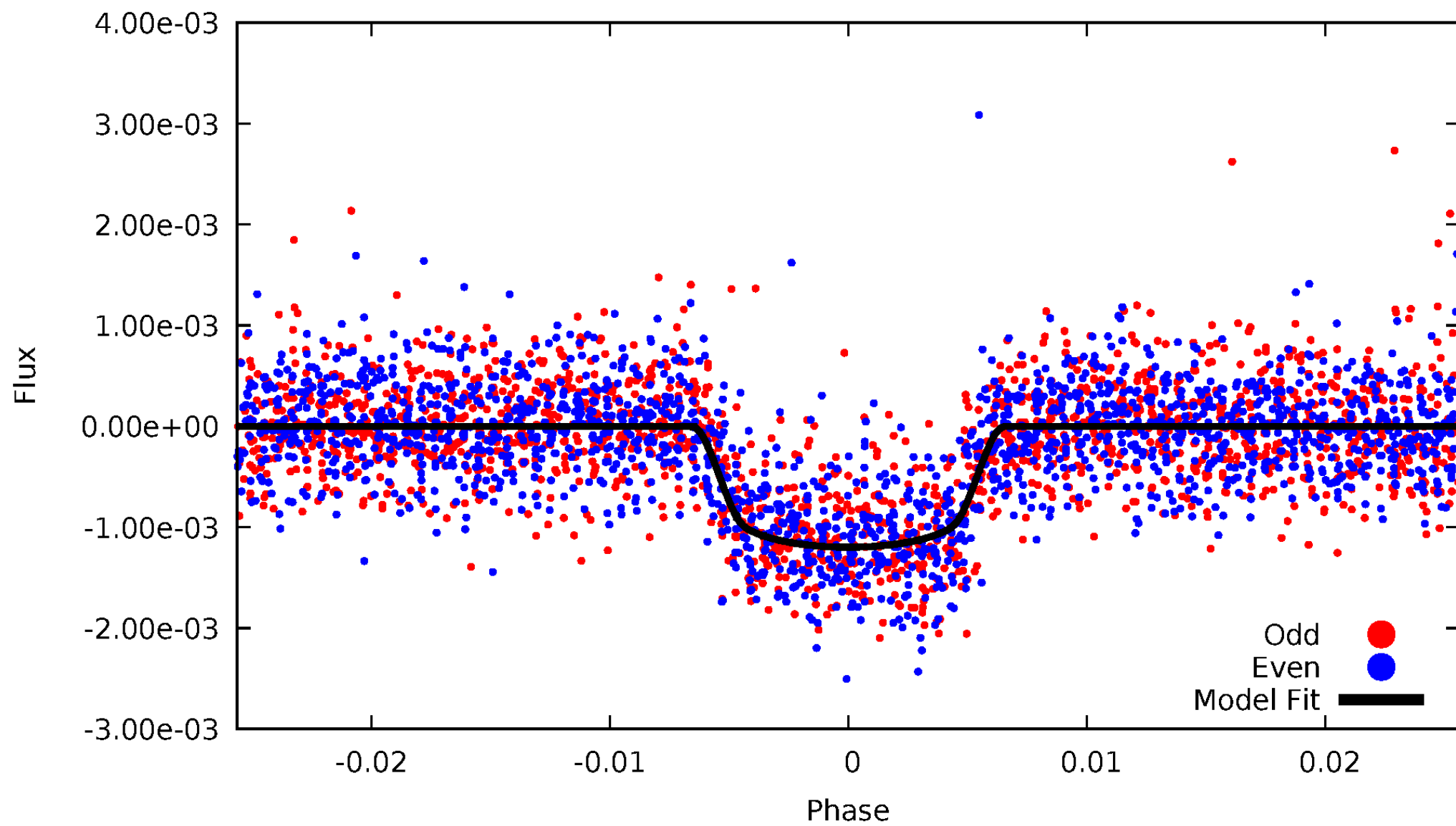


TCE 009346253-02



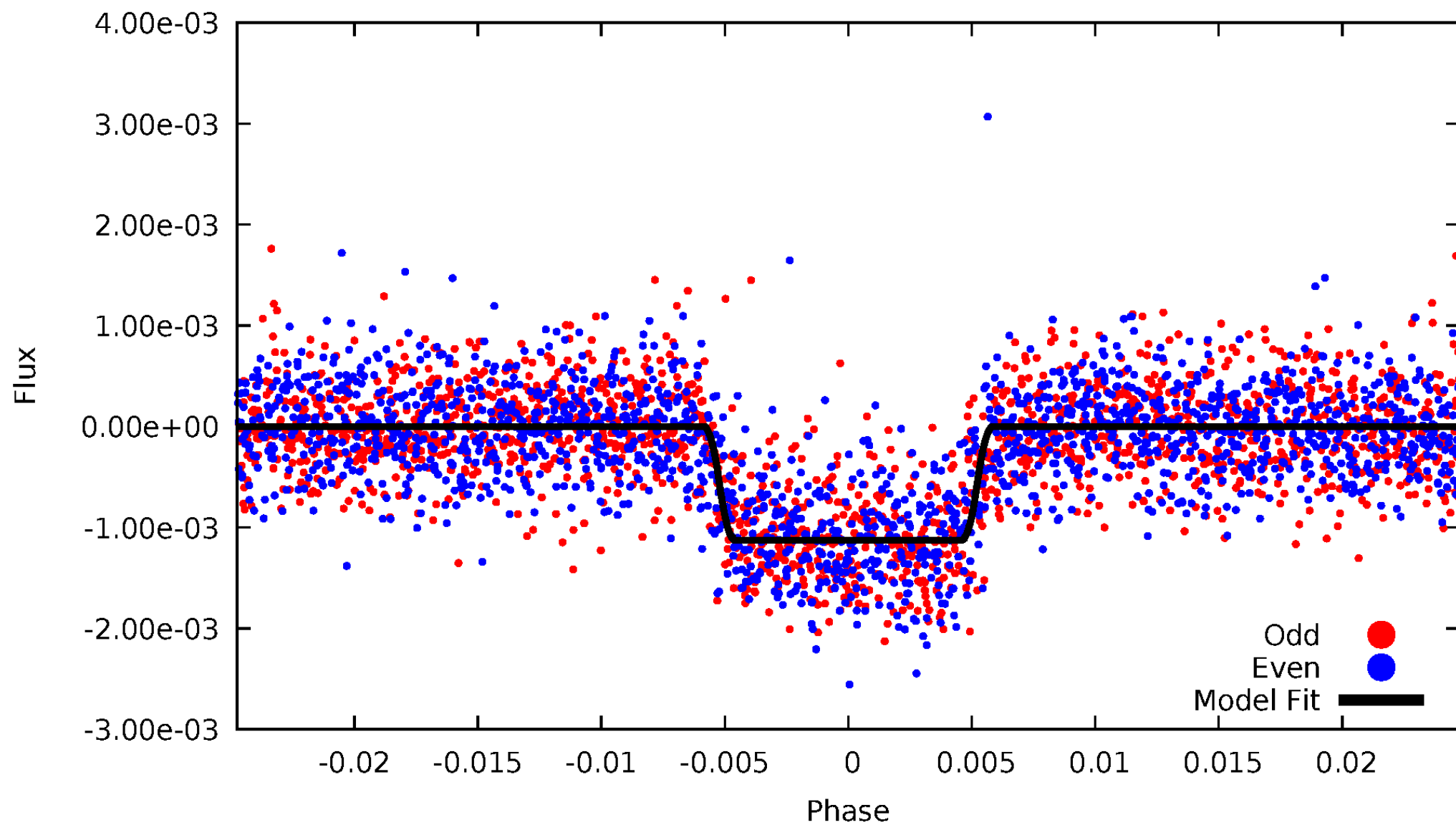
DV Odd/Even

TCE 009346253-02



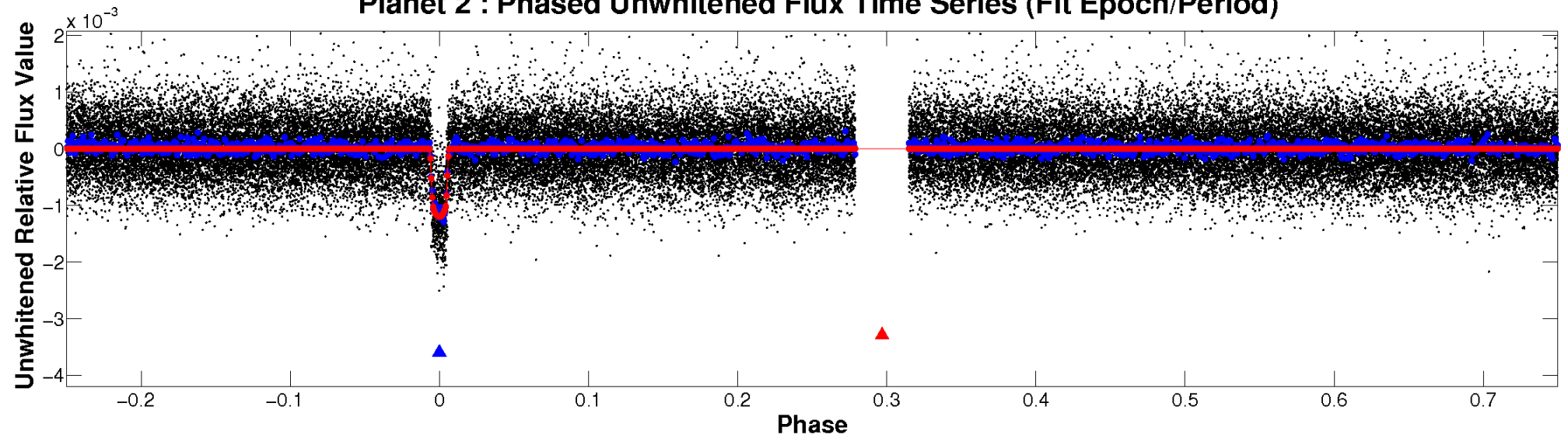
ALT Odd/Even

TCE 009346253-02

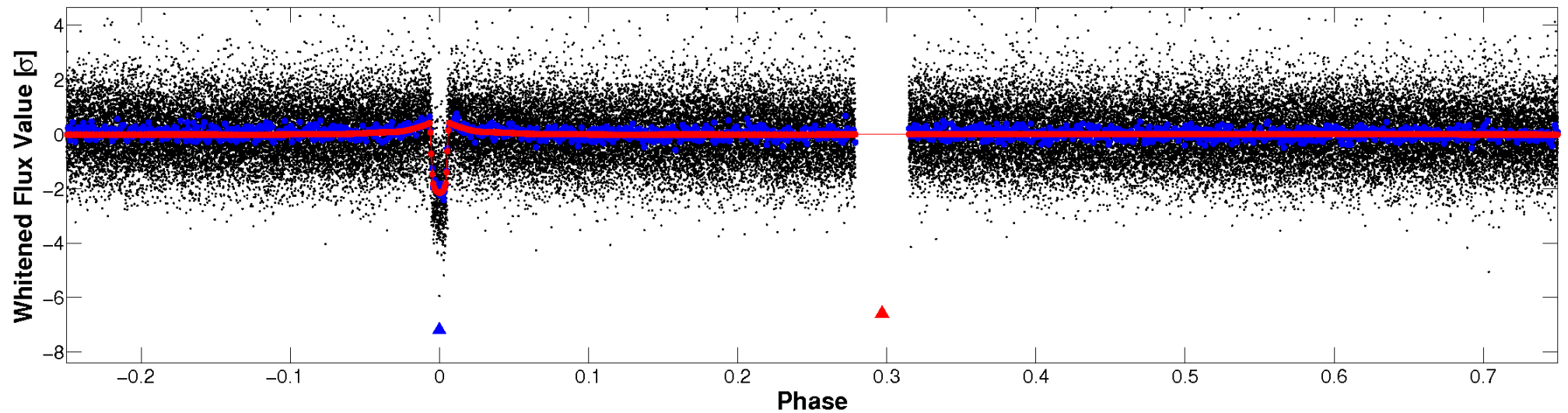


Non-Whitened Vs. Whitened Light Curve

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

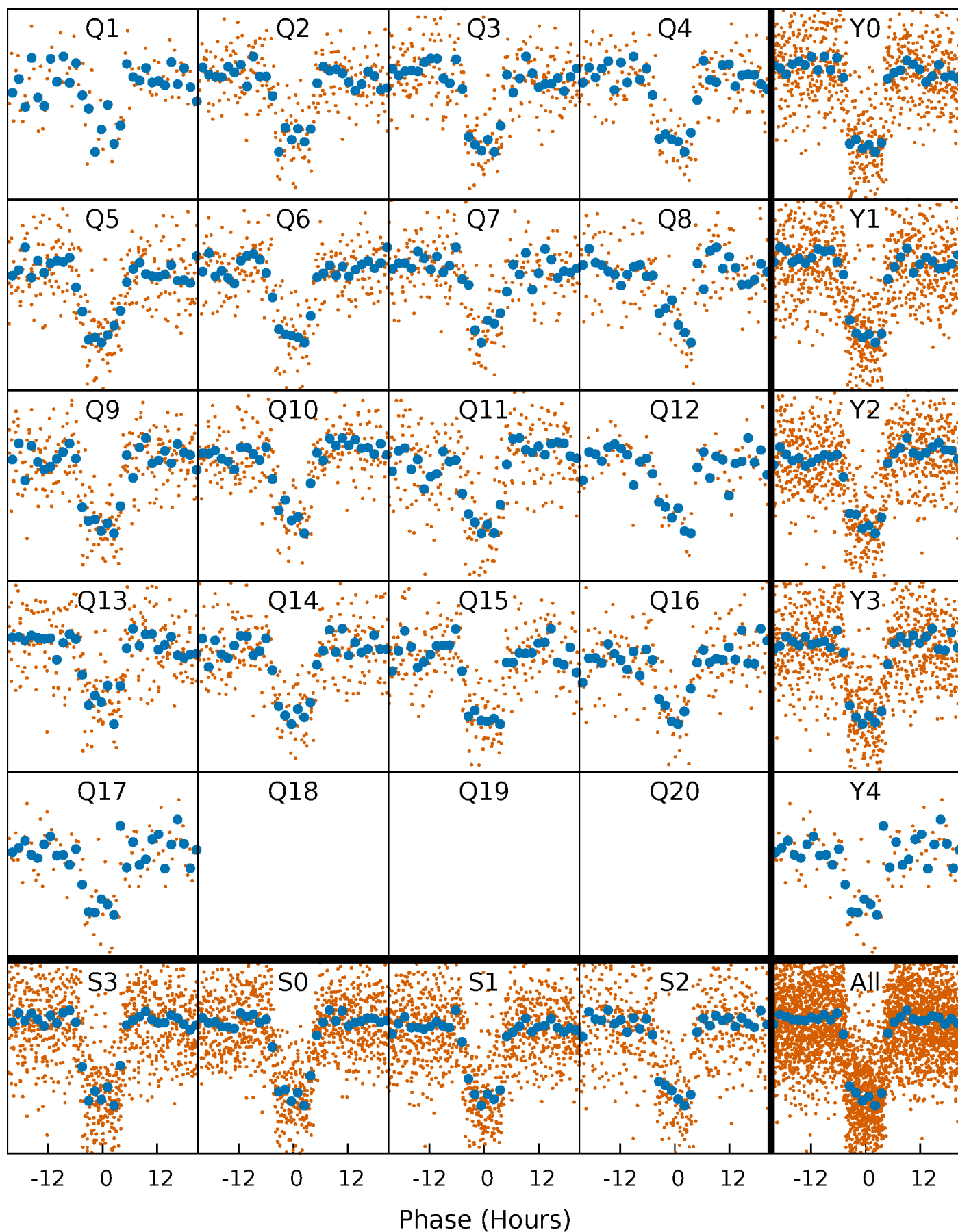


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



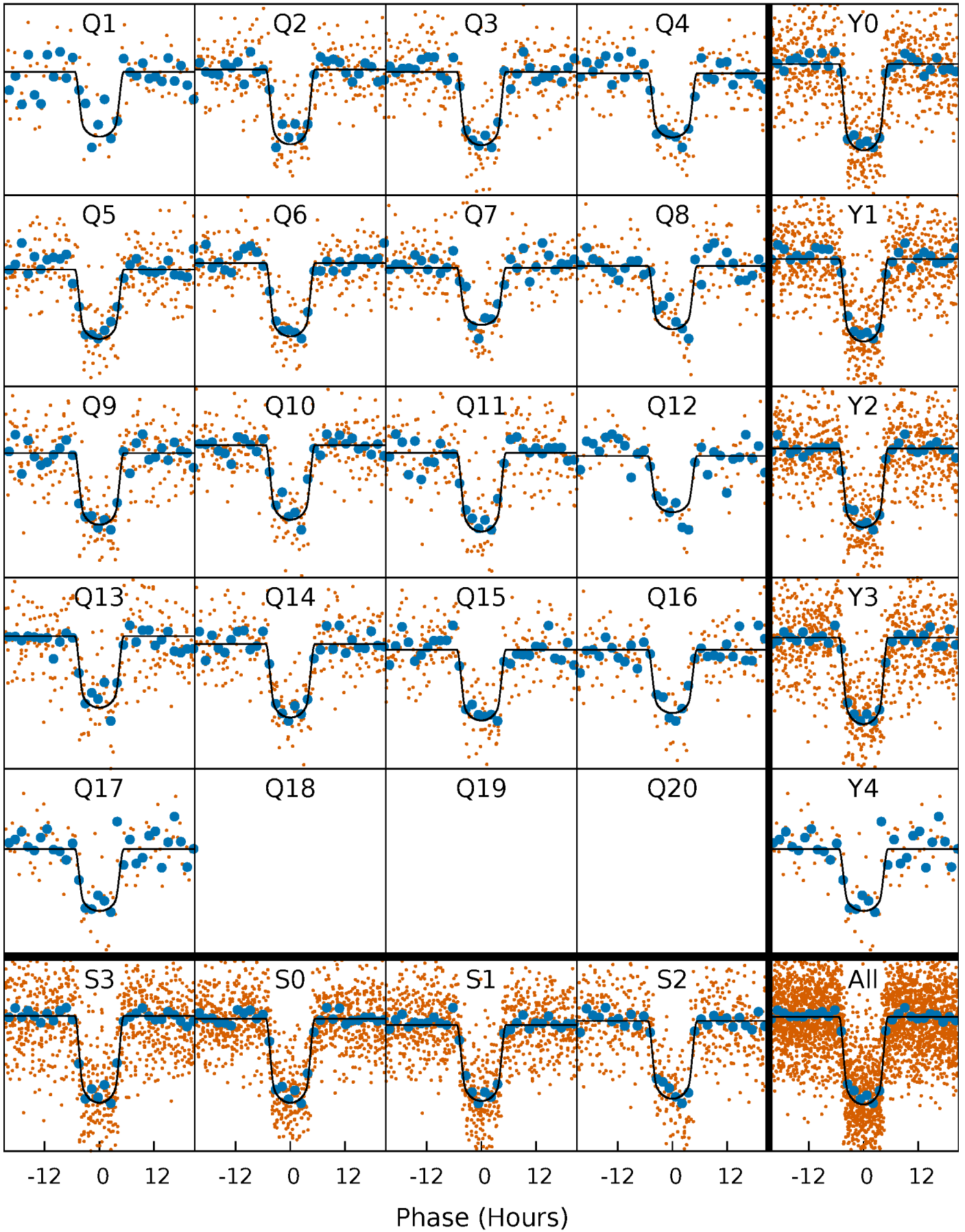
PDC Quarter-Phased Transit Curves

TCE 009346253-02 P= 34.064741 Days $T_0=140.335266$ (BKJD)



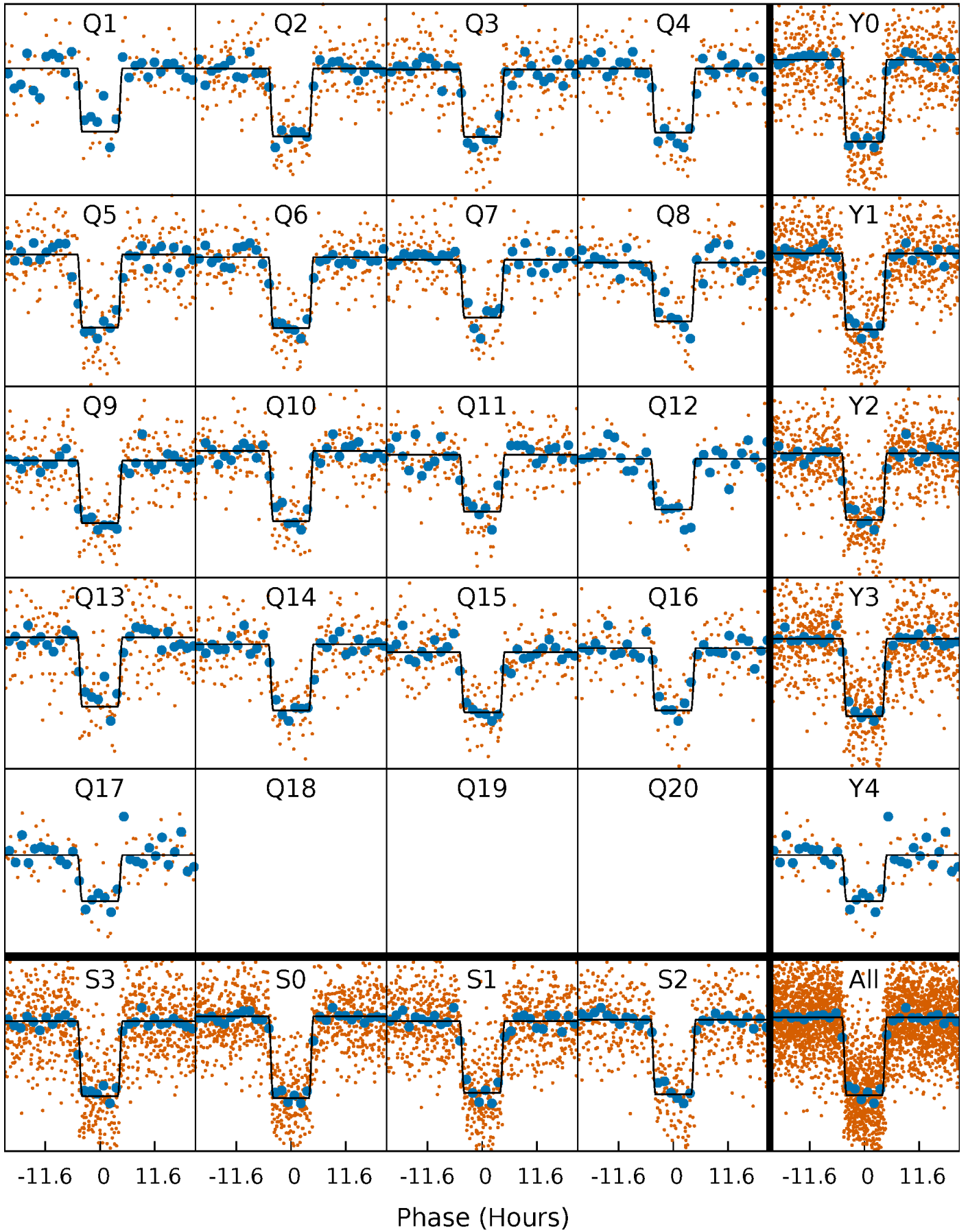
DV Quarter-Phased Transit Curves

TCE 009346253-02 P= 34.064741 Days $T_0=140.335266$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

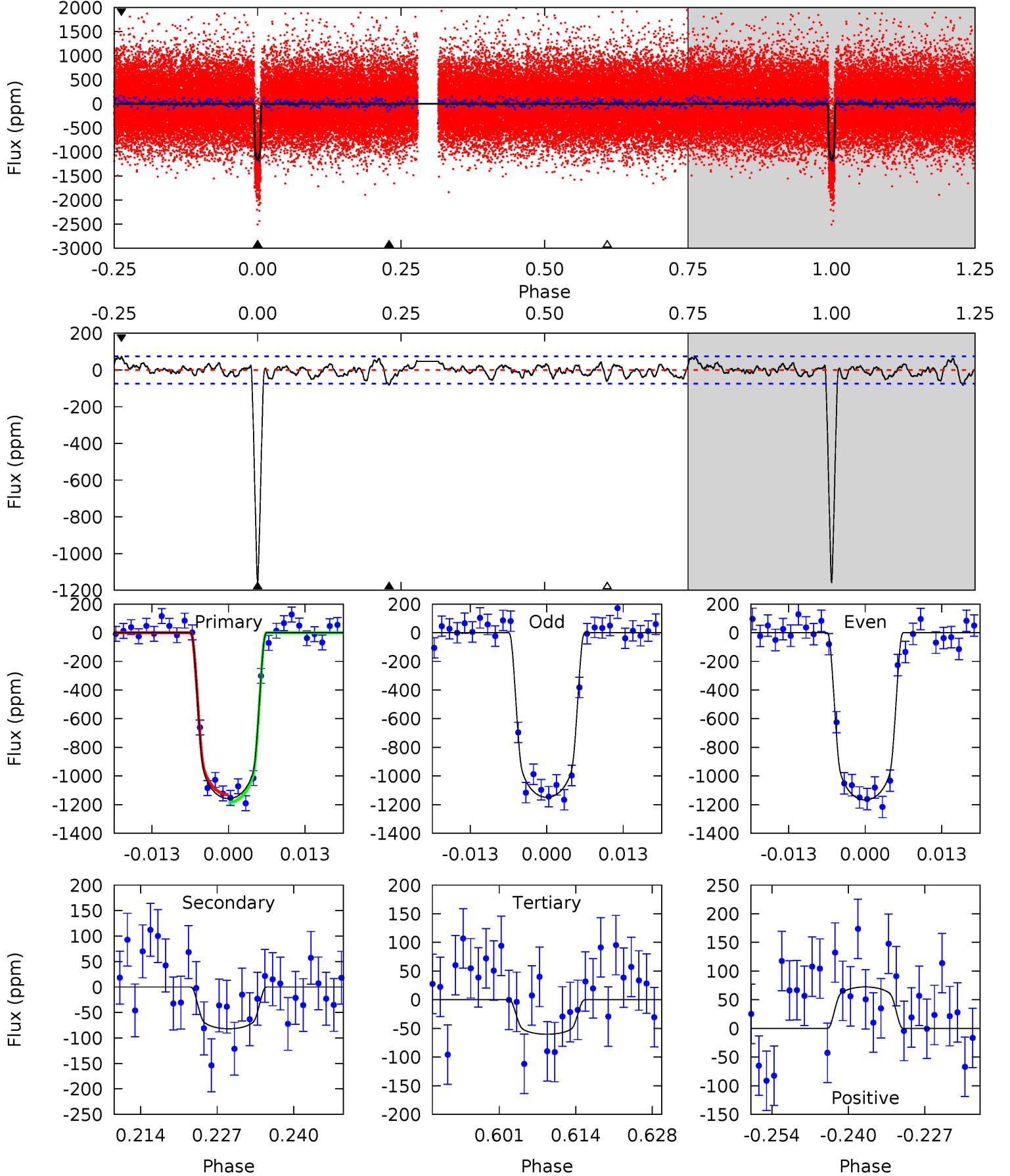
TCE 009346253-02 P= 34.064442 Days $T_0=140.342208$ (BKJD)



DV Model-Shift Uniqueness Test

009346253-02, P = 34.064741 Days, E = 106.270525 Days

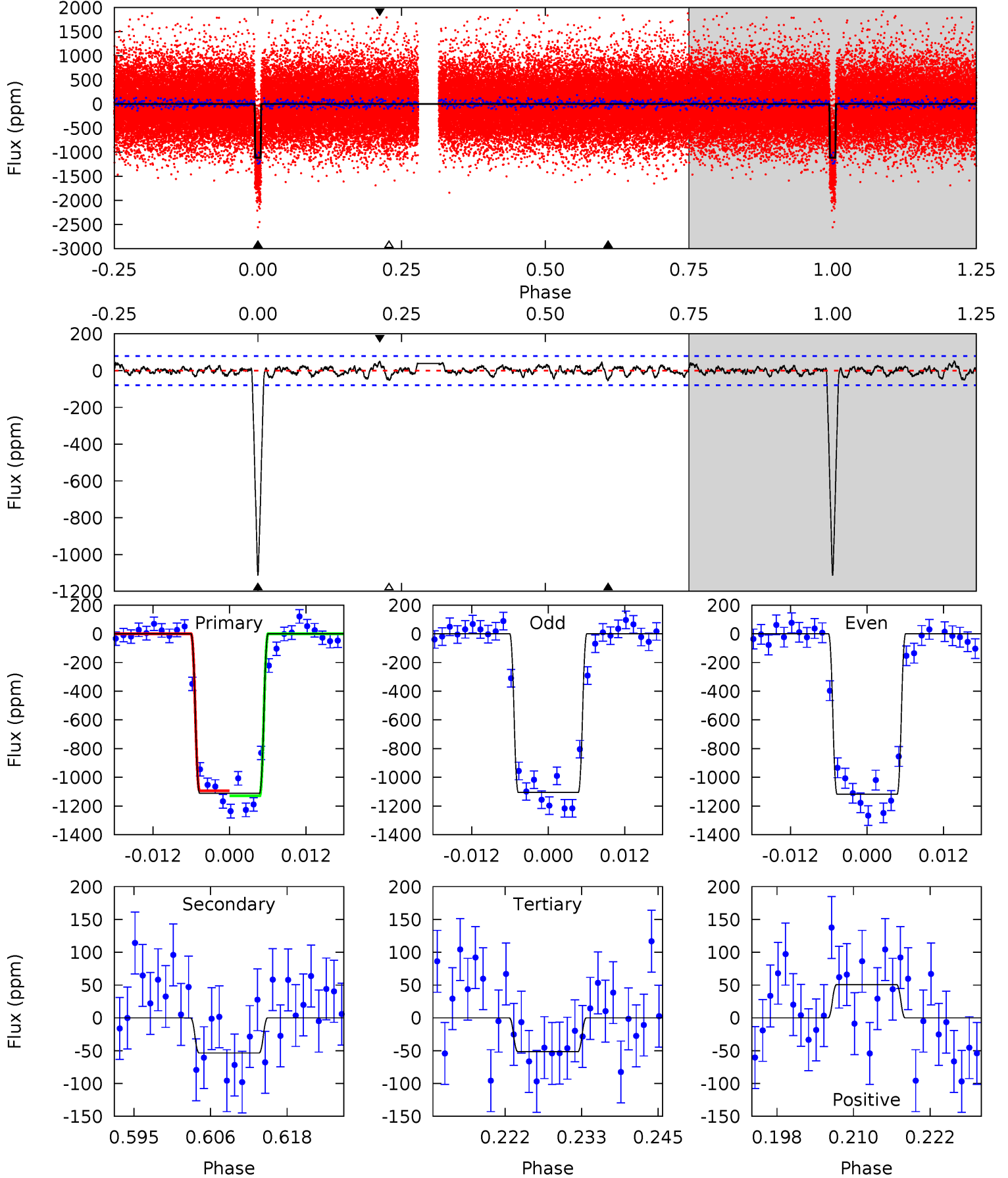
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
77.0	5.45	4.00	4.81	4.97	2.47	1.61	73.0	72.2	1.45	0.64	0.61	1.01	0.06	1.79



Alt Model-Shift Uniqueness Test

009346253-02, P = 34.064442 Days, E = 106.277766 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
70.3	3.38	3.26	3.20	5.00	2.52	1.08	67.0	67.1	0.13	0.19	0.42	0.99	0.04	1.15



Stellar Parameters For KIC 009346253

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6161^{+172}_{-215}	$4.517^{+0.052}_{-0.208}$	$-0.460^{+0.300}_{-0.300}$	$0.892^{+0.269}_{-0.090}$	$0.955^{+0.116}_{-0.116}$	$1.895^{+0.498}_{-0.949}$
	+3%/-3%	+1%/-5%	+65%/-65%	+30%/-10%	+12%/-12%	+26%/-50%
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 009346253-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-82 ± 15	$3.68^{+0.66}_{-0.29}$	817^{+59}_{-40}	3529^{+117}_{-127}	129^{+35}_{-35}
Alt.	-54 ± 16	$3.37^{+0.51}_{-0.27}$	815^{+55}_{-44}	3388^{+159}_{-190}	98^{+42}_{-30}

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

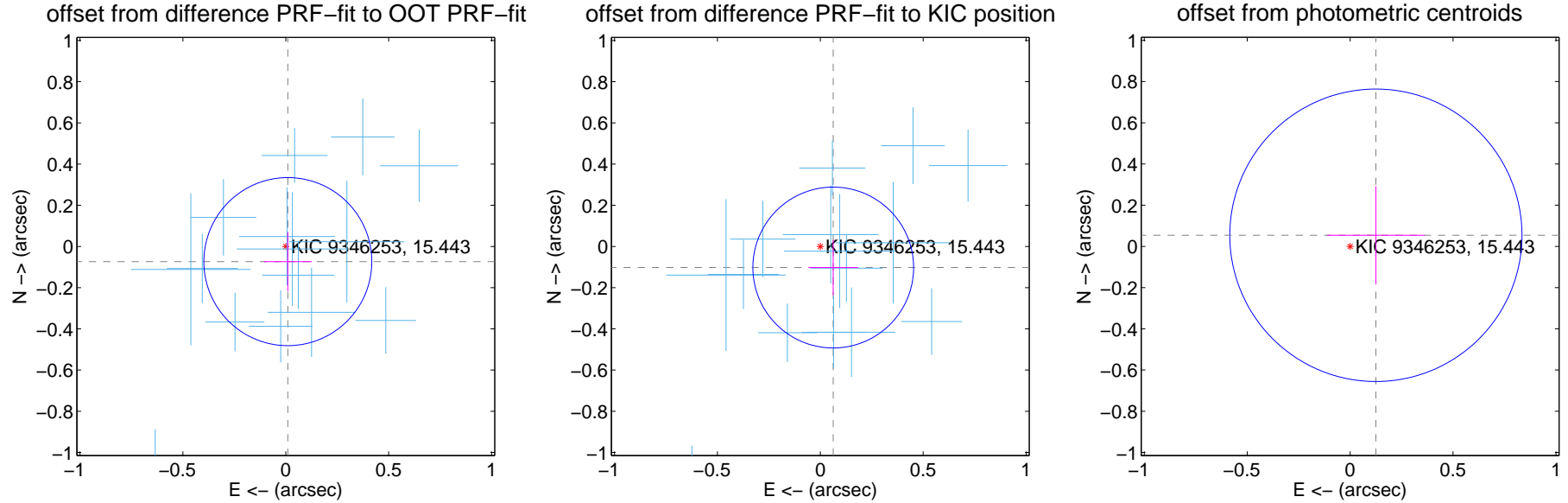
DV Centroid Data

Supplemental centroid analysis for 009346253-02. Kepler magnitude: 15.44. Transit SNR 52.36

There are 16 quarters with good PRF difference image offsets

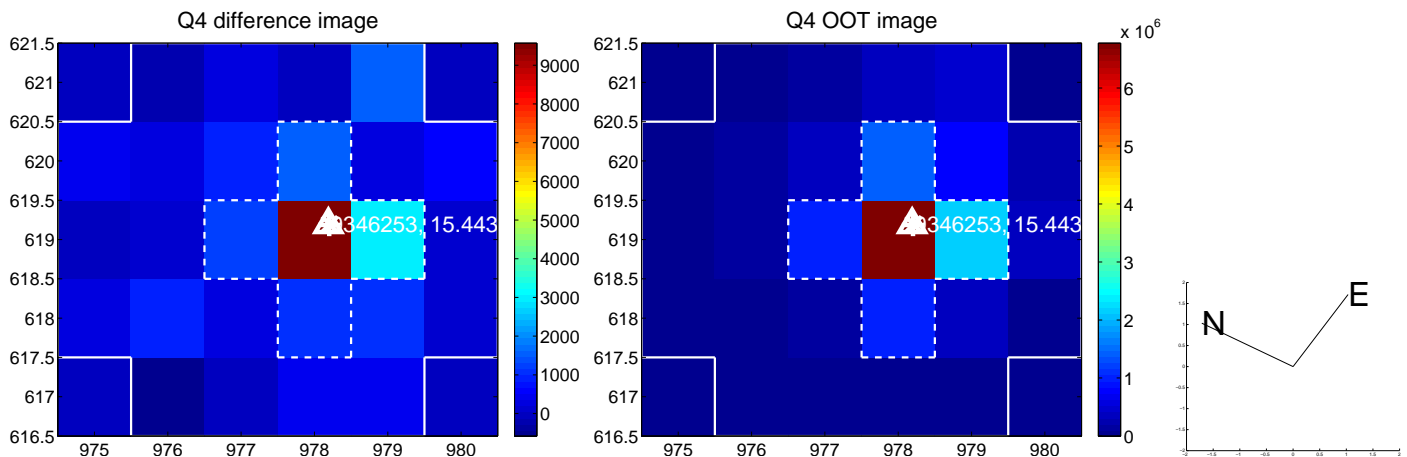
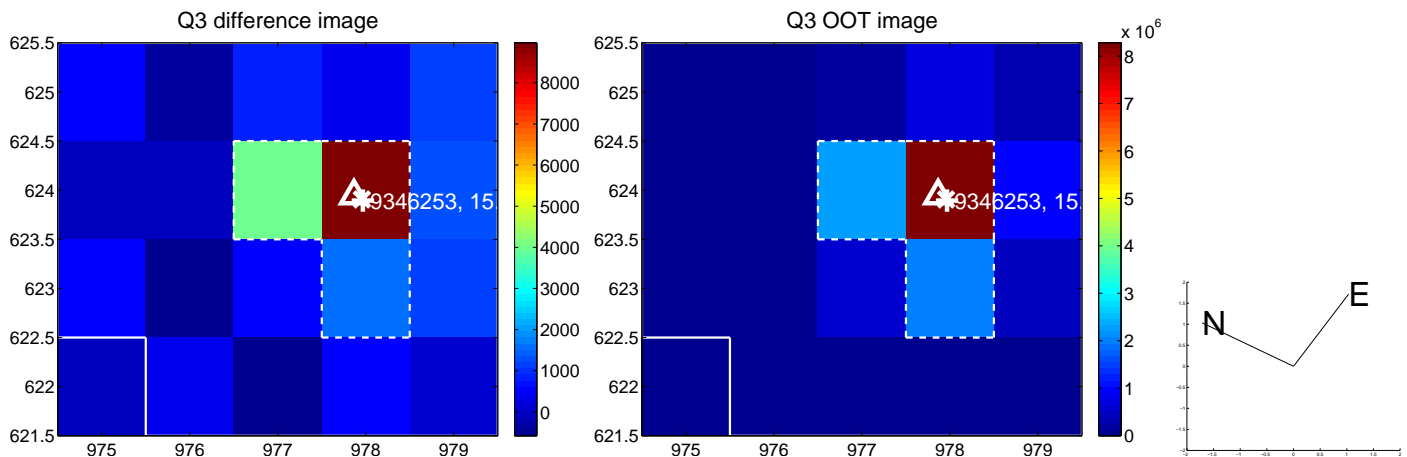
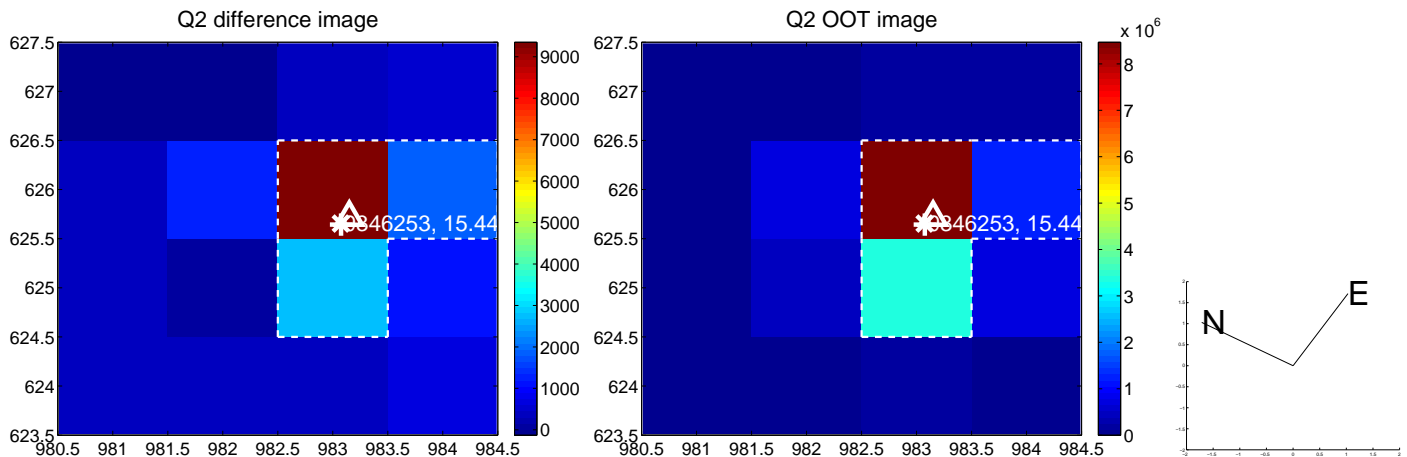
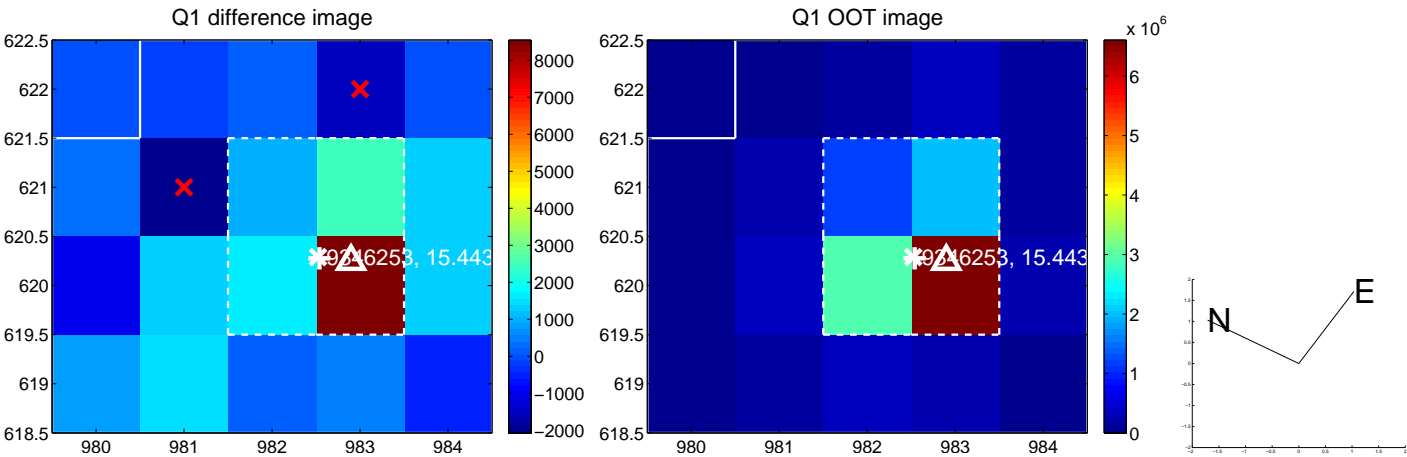
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.074 ± 0.136	0.55	-0.010 ± 0.117	-0.074 ± 0.144
PRF-fit source offset from KIC position	0.120 ± 0.130	0.92	-0.063 ± 0.120	-0.102 ± 0.134
photometric centroid source offset	0.14 ± 0.24	0.58	-0.13 ± 0.24	0.05 ± 0.24

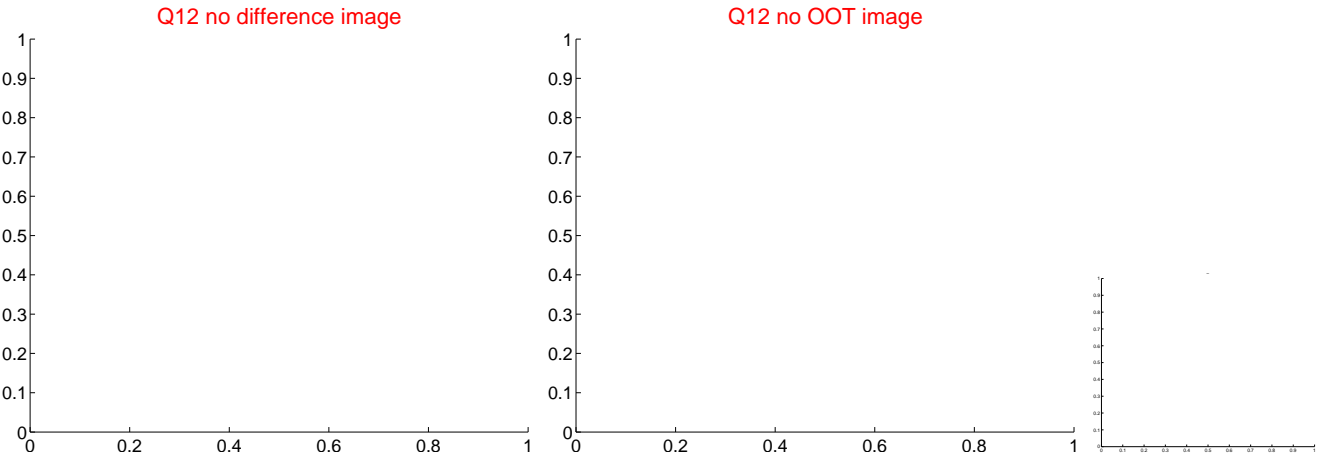
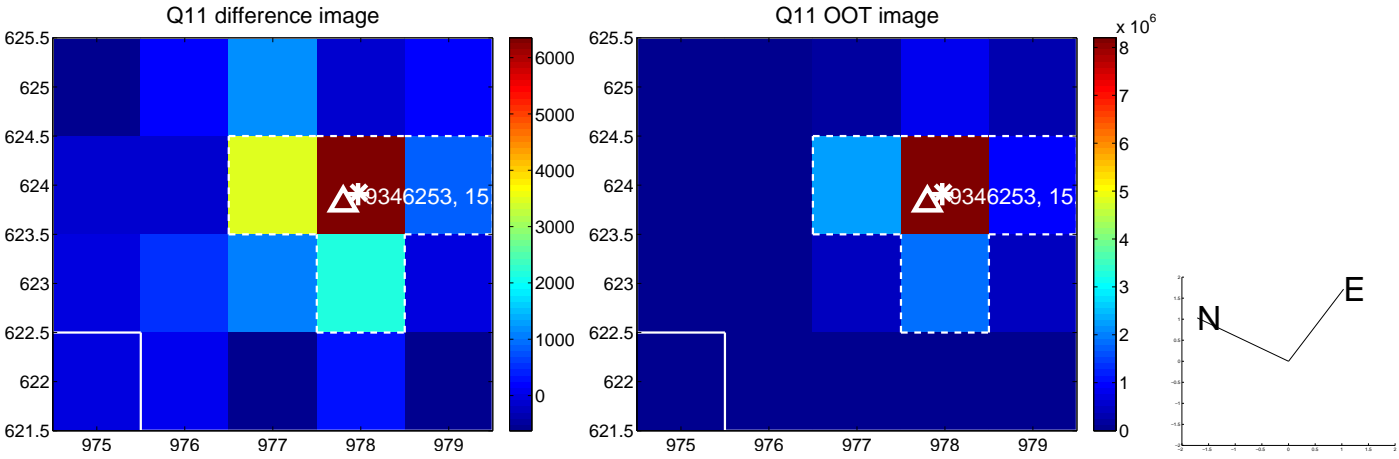
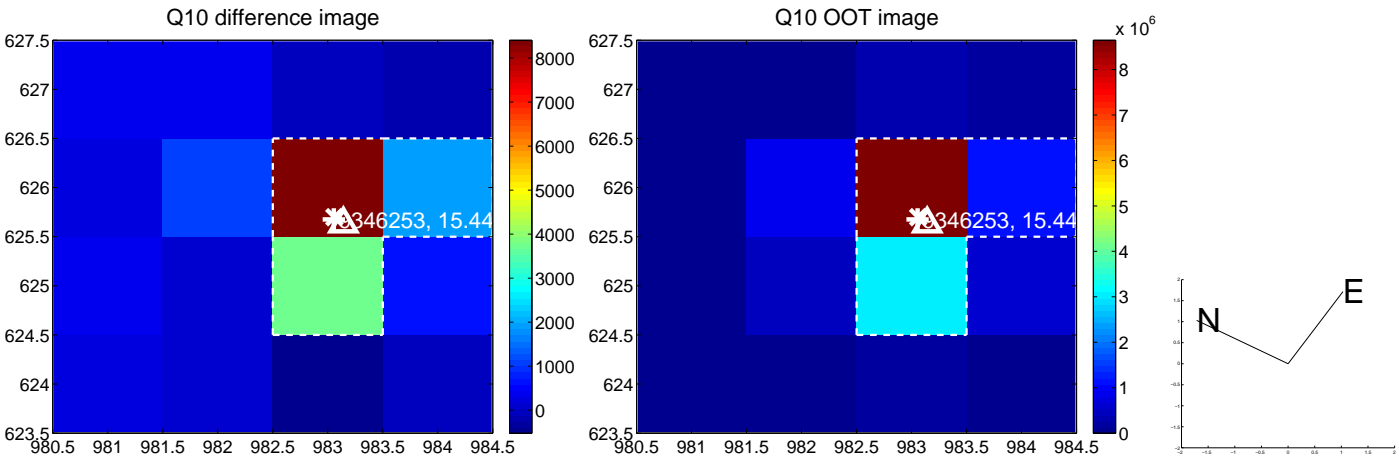
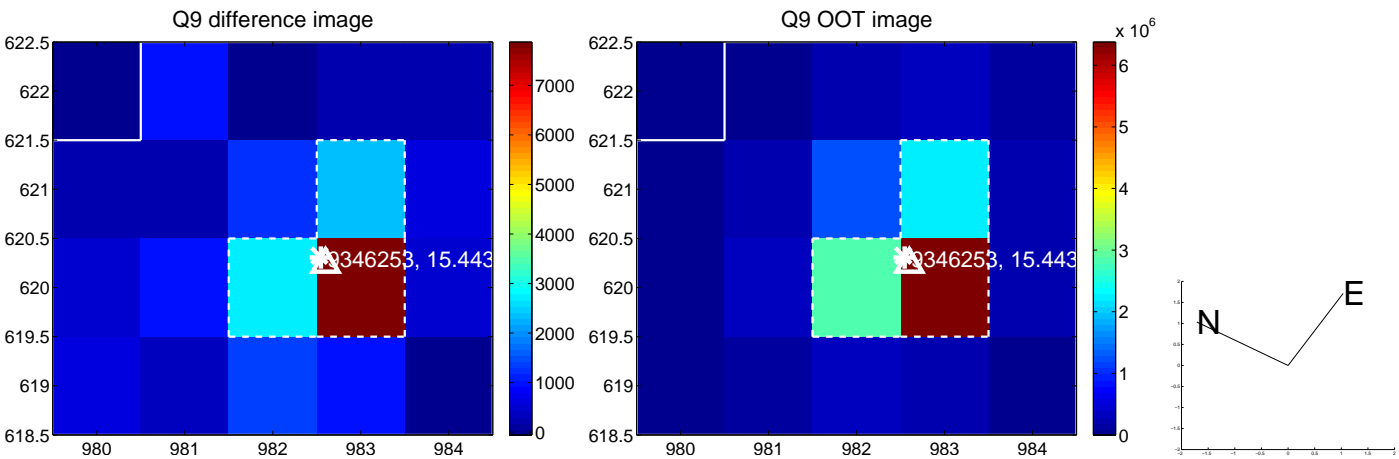


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

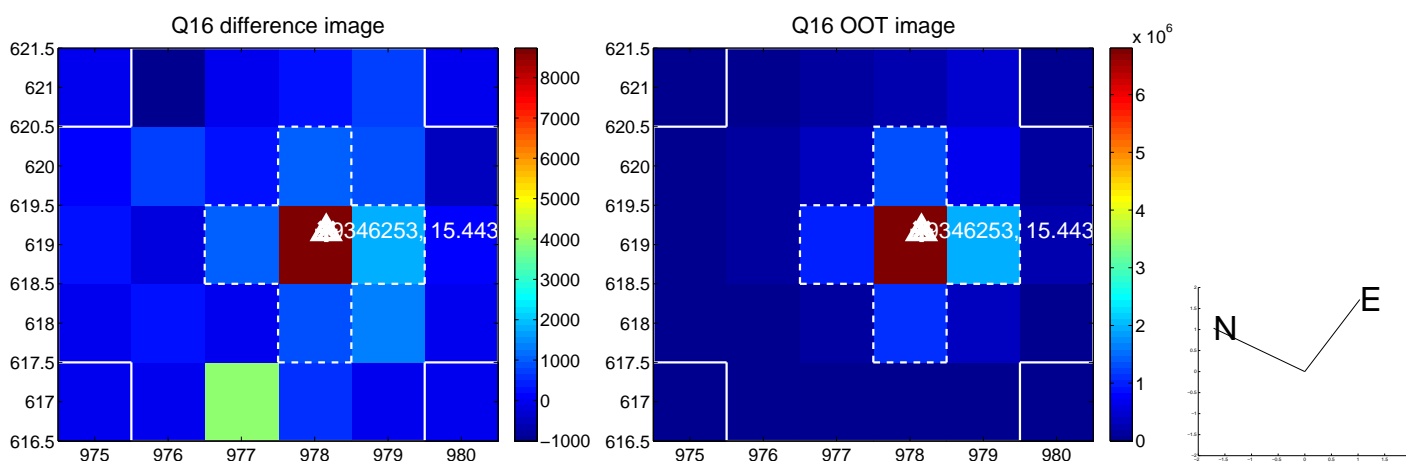
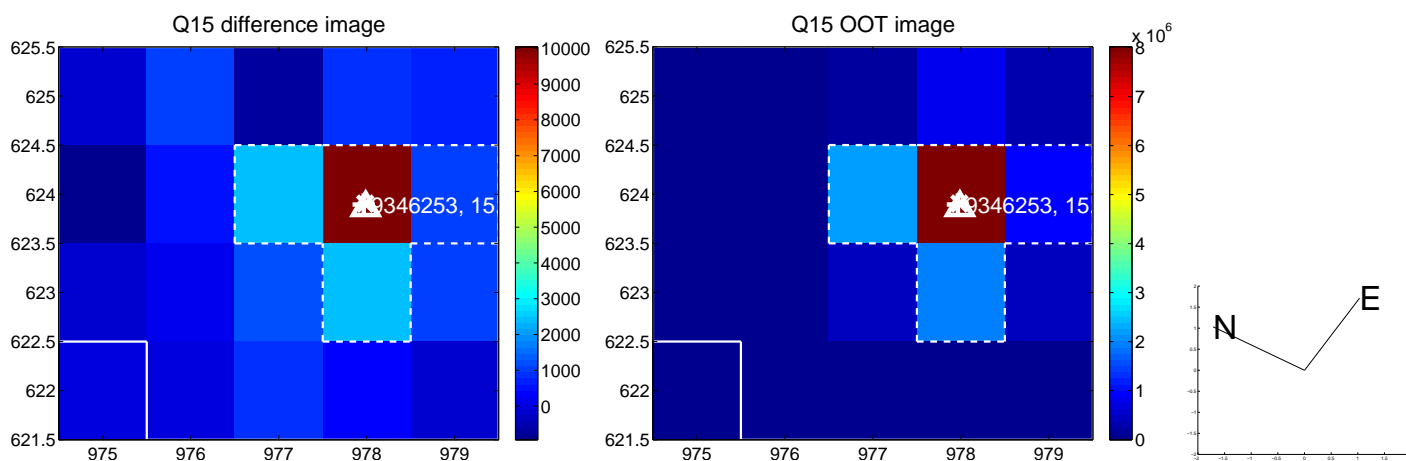
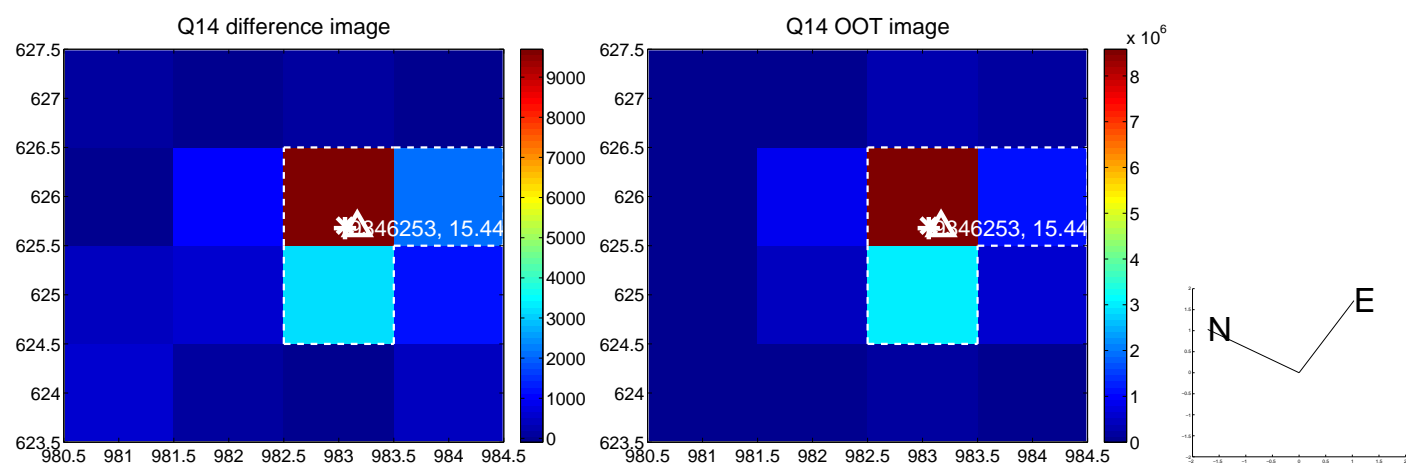
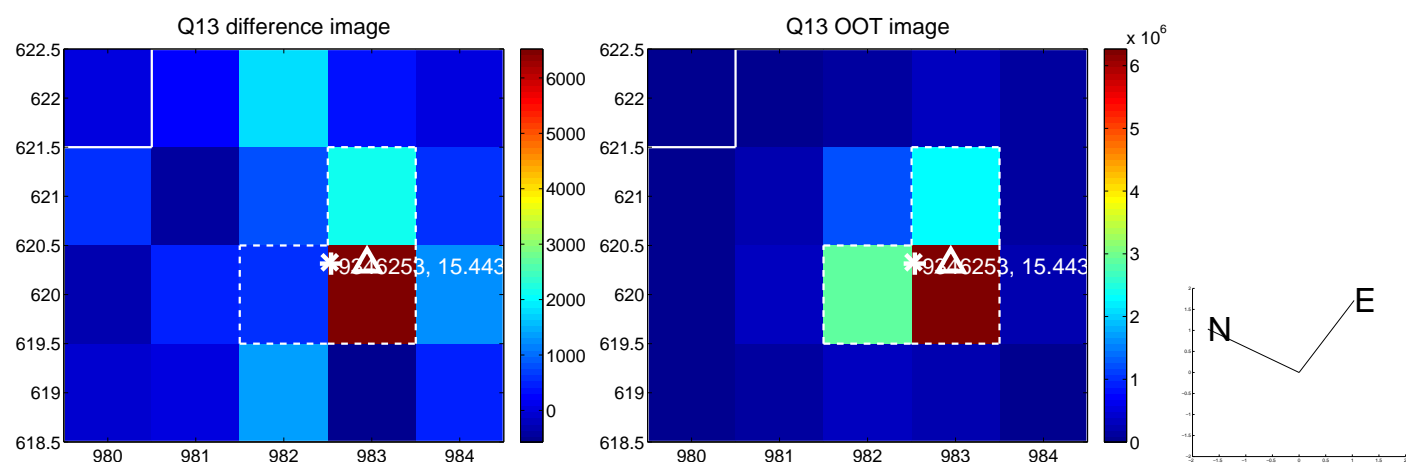
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



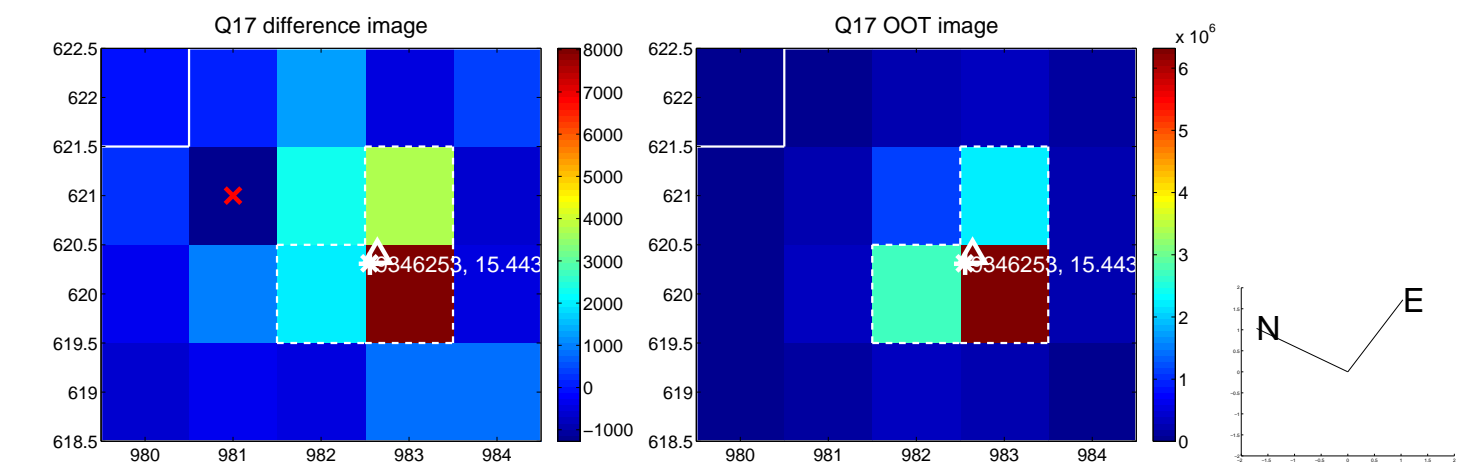
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



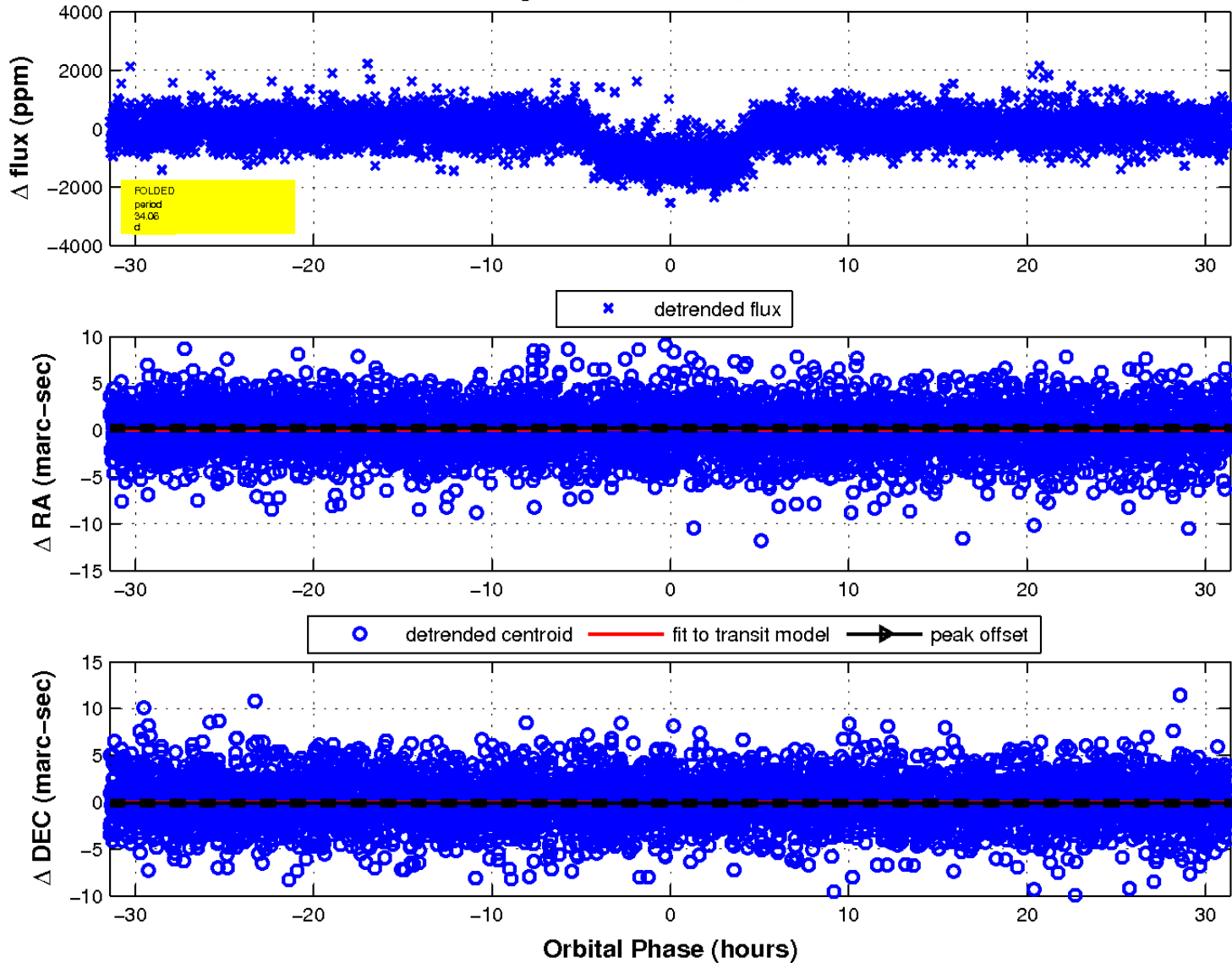
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

