

KIC 002852941

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})
002852941-01	OBS	4298.01	2.894928	132.626580	45.1	3.288	12.1	12.7	1.68	7087	1.30	3212.10
002852941-02	OBS	No	422.332293	194.028814	218.0	15.144	11.0	7.0	1.68	7087	2.69	4.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002852941-01	OBS	PC	0.85	0	0	0	0	NO_COMMENT
002852941-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—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.

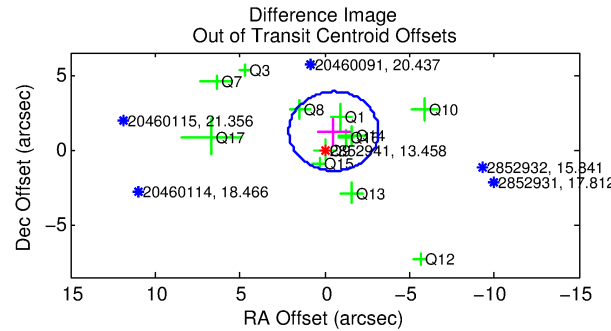
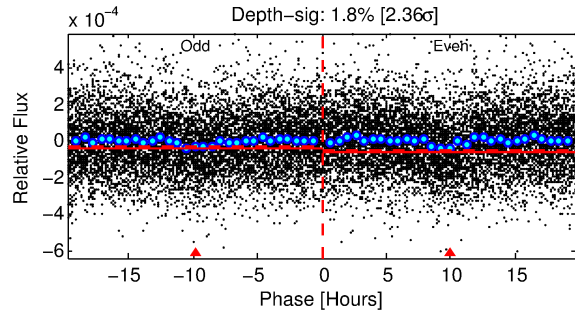
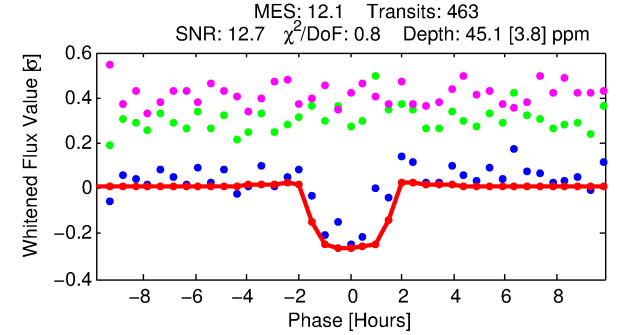
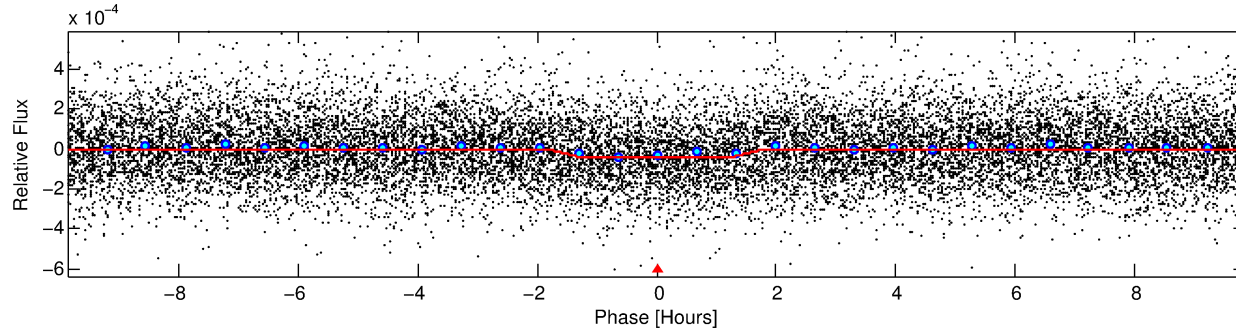
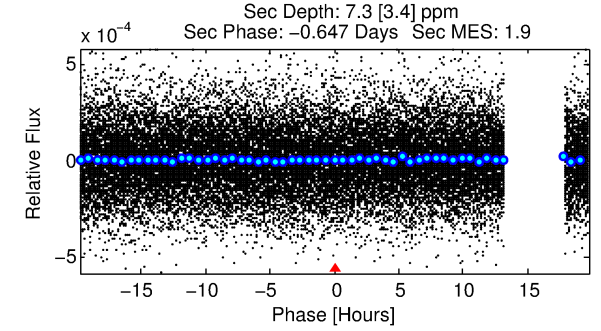
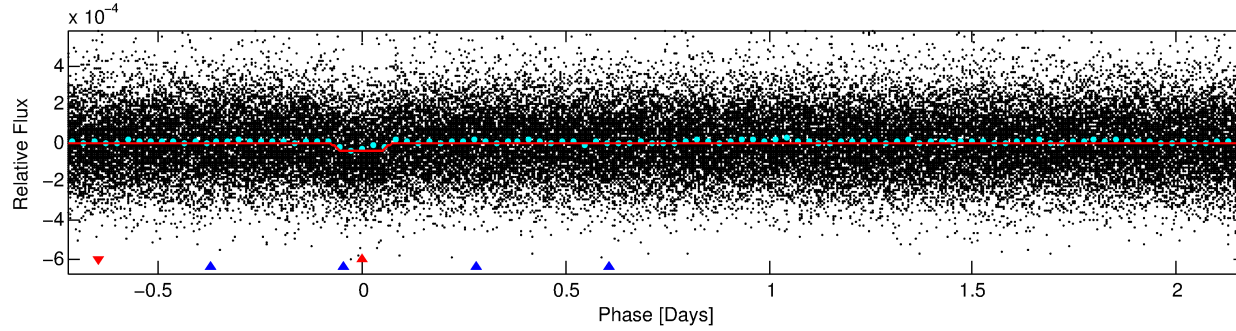
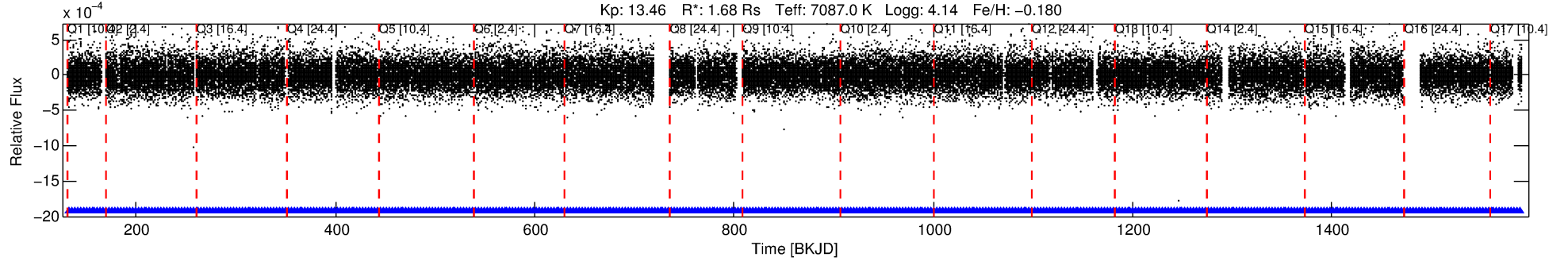
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002852941-01

No Significant Match Found

DV One-Page Summary

KIC: 2852941 Candidate: 1 of 2 Period: 2.895 d
KOI: K04298.01 Corr: 0.970



DV Fit Results:

Period = 2.89493 [0.00002] d
Epoch = 132.6266 [0.0035] BKJD
Rp/R* = 0.0071 [0.0023]
a/R* = 3.40 [6.26]
b = 0.88 [0.51]
Seff = 3212.10 [1363.13]
Teq = 1920 [204] K
Rp = 1.30 [0.57] Re
a = 0.0447 [0.0109] AU
Ag = 4.76 [4.14] [0.91σ]
Teffp = 4384 [914] K [2.63σ]

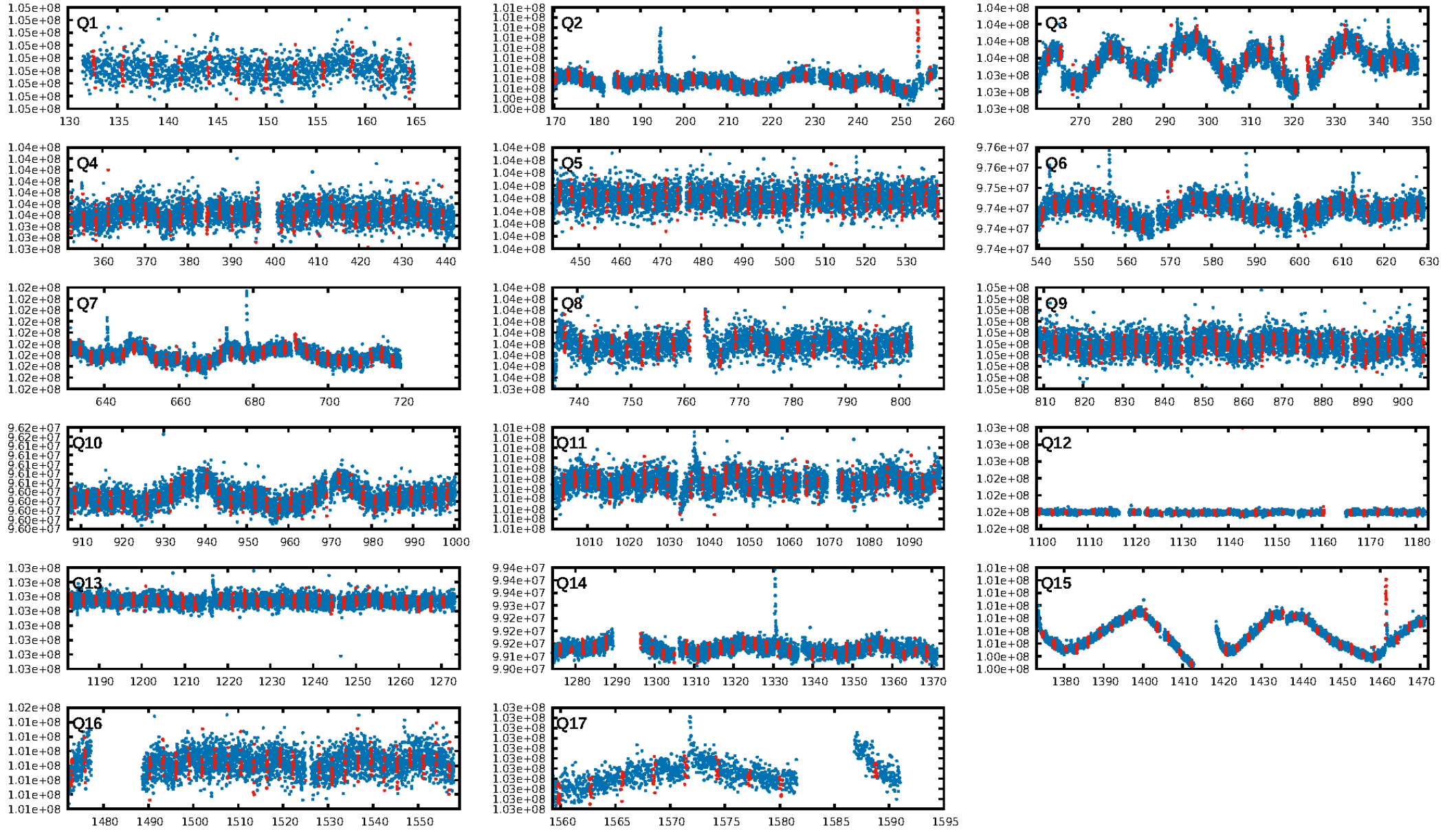
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [649.58σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.94e-29
RollingBand-fgt: 1.00 [442/442]
GhostDiagnostic-chr: 4.318
Centroid-sig: 1.1%
Centroid-so: 1.508 arcsec [1.24σ]
OotOffset-rm: 1.342 arcsec [1.52σ]
KicOffset-rm: 1.351 arcsec [1.54σ]
OotOffset-st: 2/3/3/4 [12]
KicOffset-st: 2/3/3/4 [12]
DiffImageQuality-fgm: 0.50 [6/12]
DiffImageOverlap-fno: 1.00 [17/17]

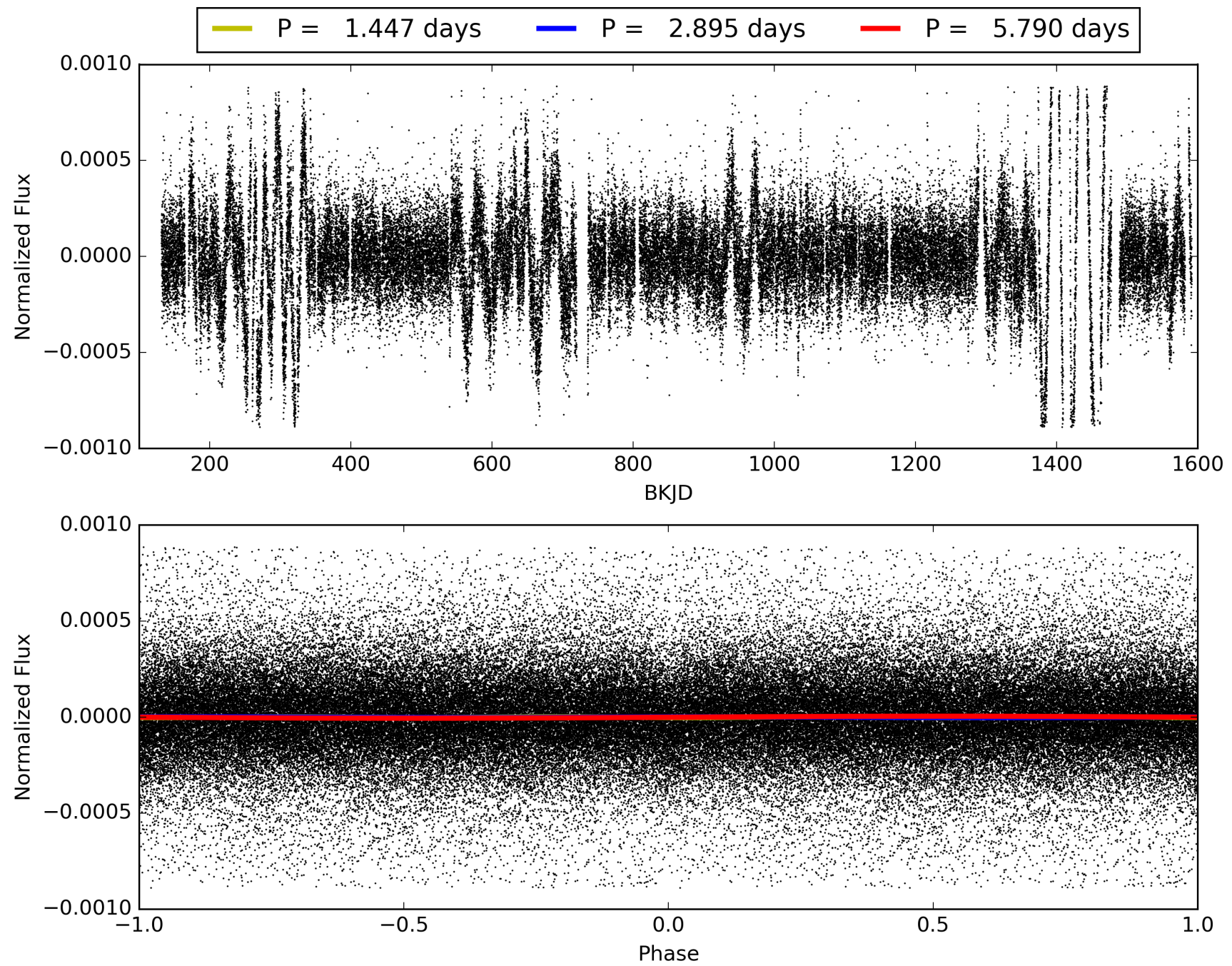
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:05:01 Z

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

TCE 002852941-01, PDC Light Curves

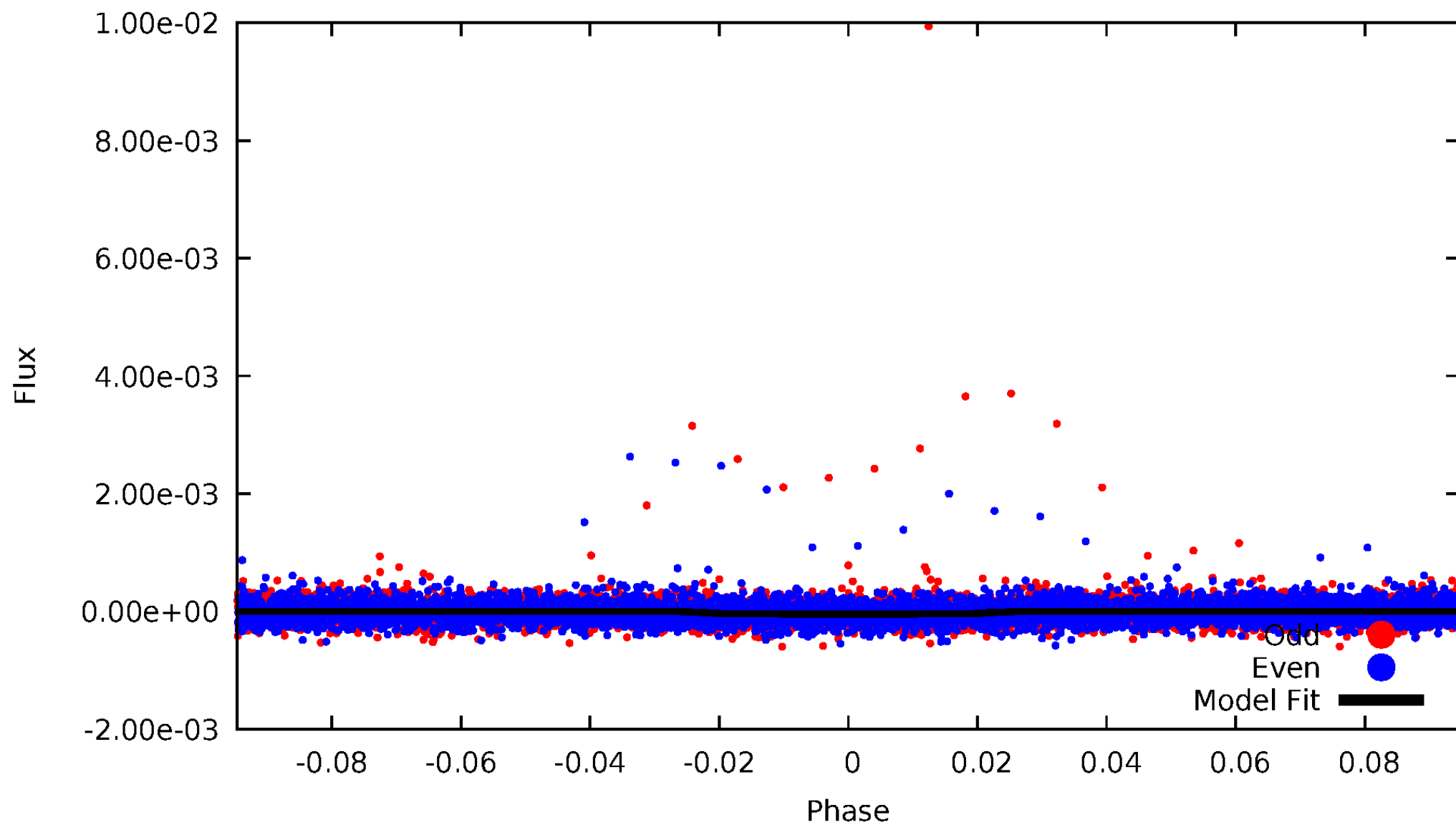


TCE 002852941-01



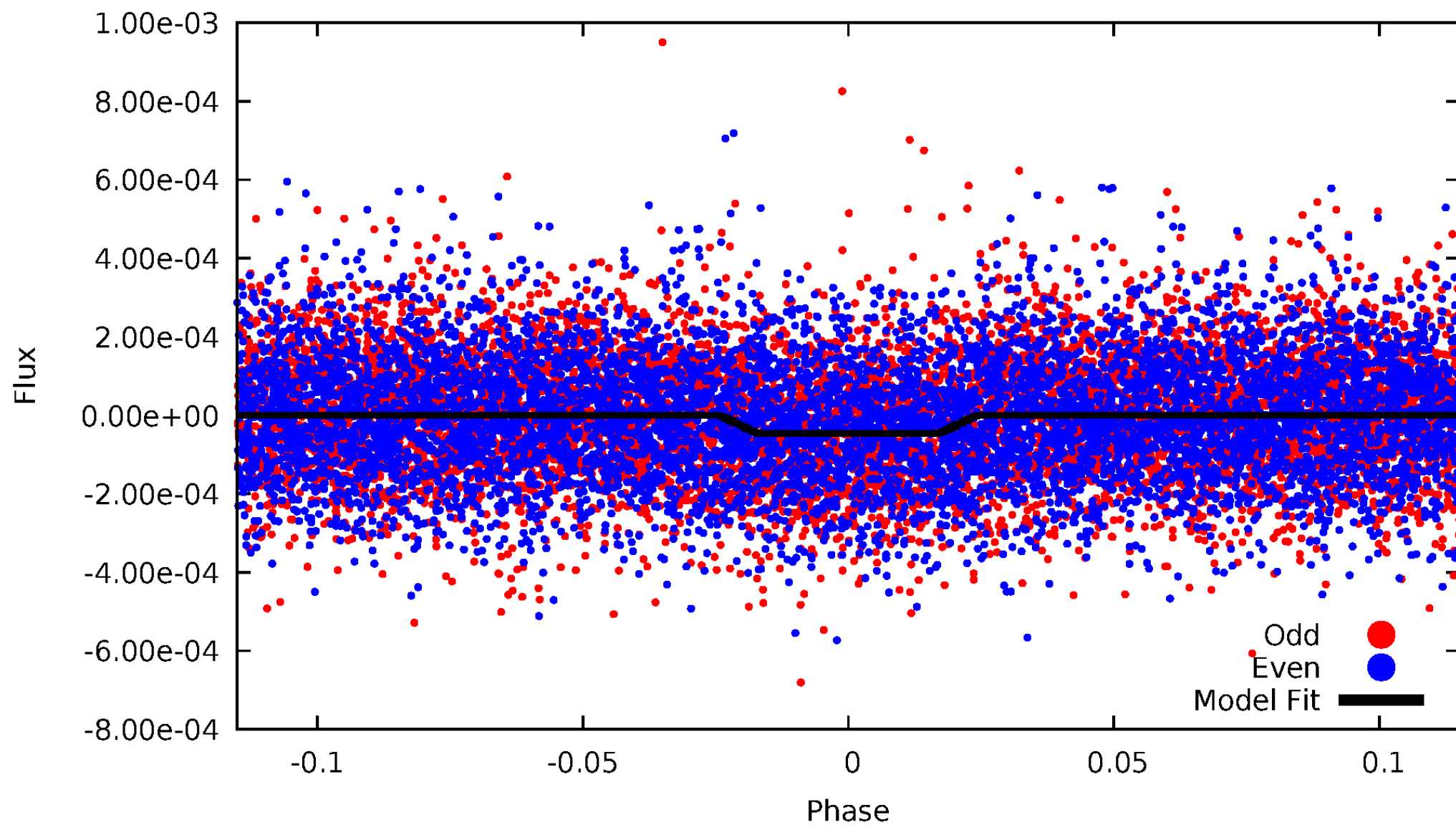
DV Odd/Even

TCE 002852941-01



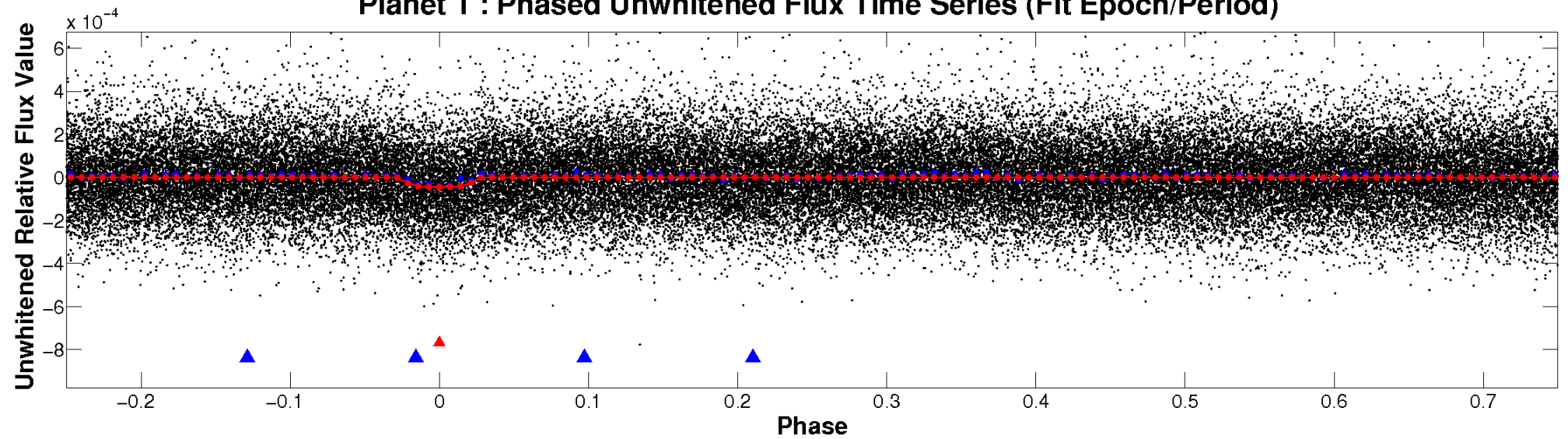
ALT Odd/Even

TCE 002852941-01

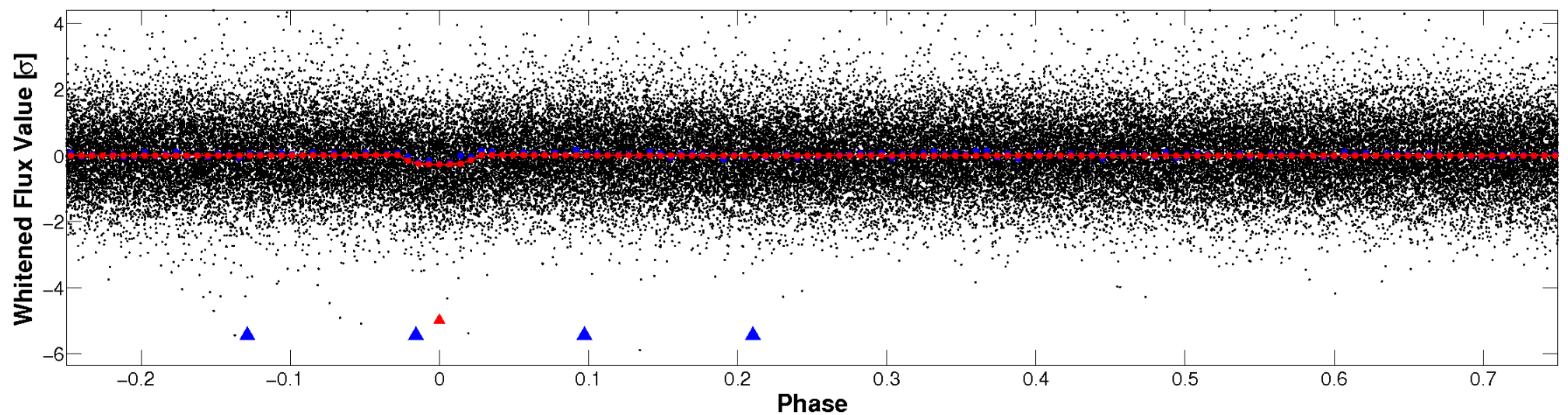


Non-Whitened Vs. Whitened Light Curve

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

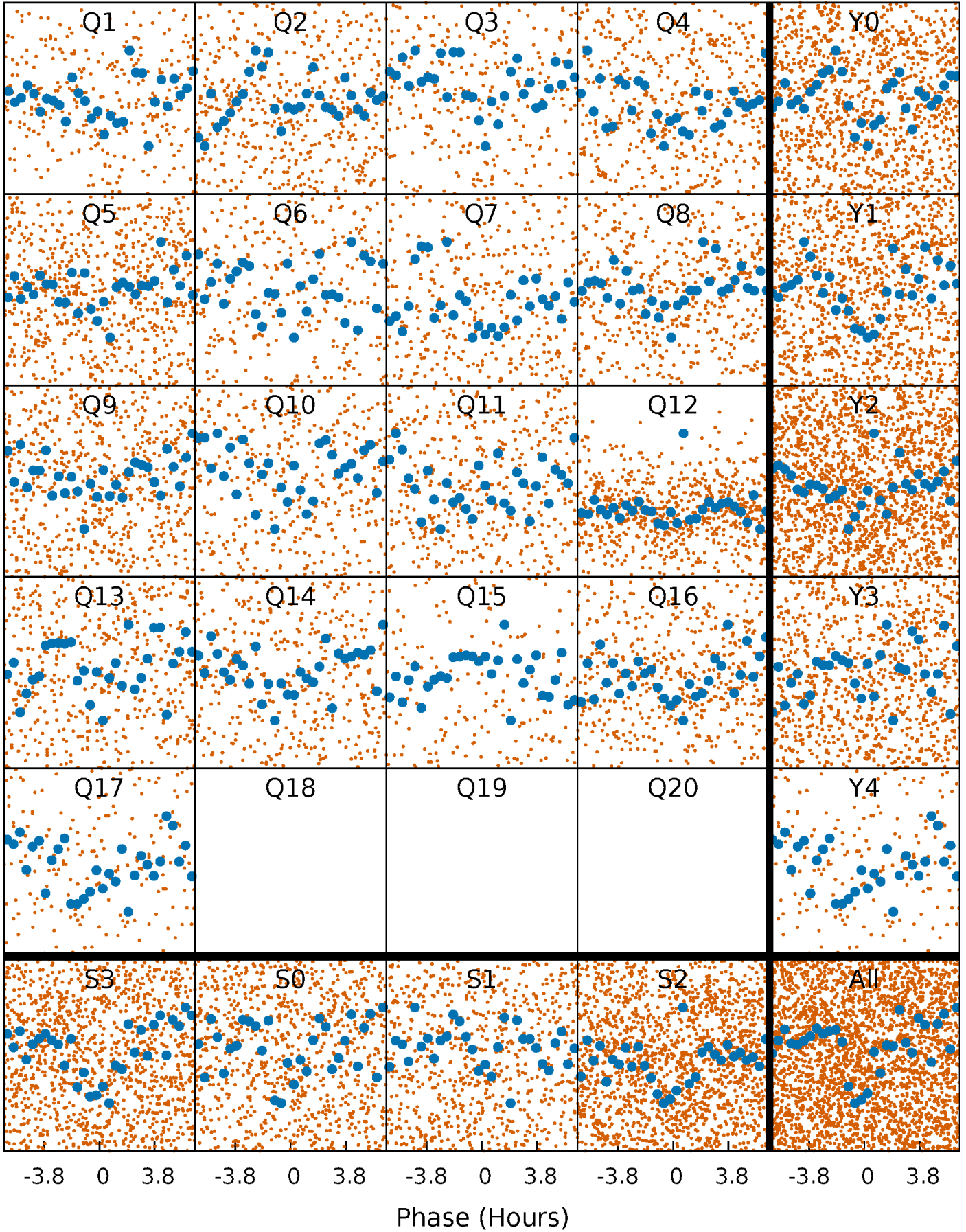


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



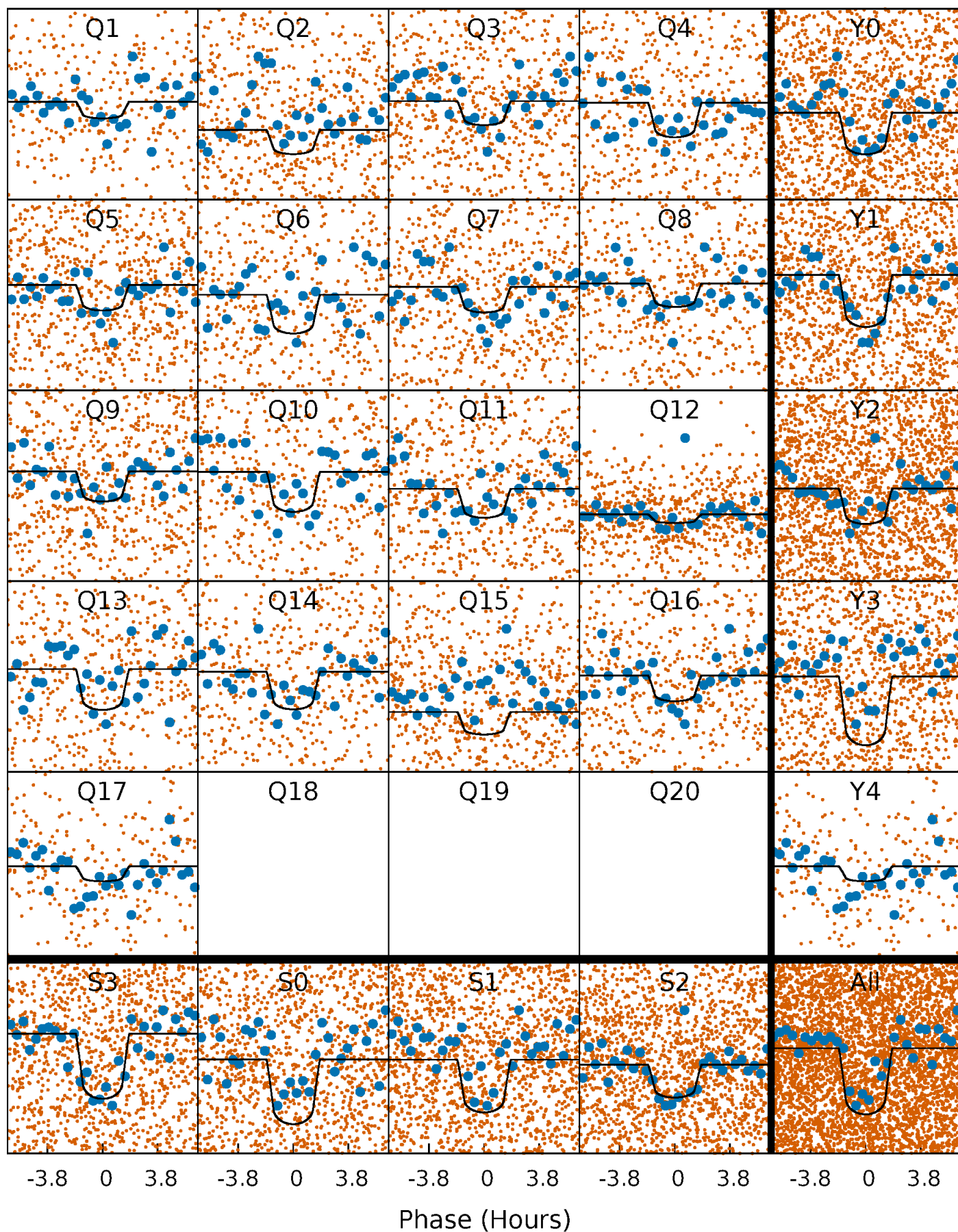
PDC Quarter-Phased Transit Curves

TCE 002852941-01 P= 2.894928 Days $T_0=132.626580$ (BKJD)



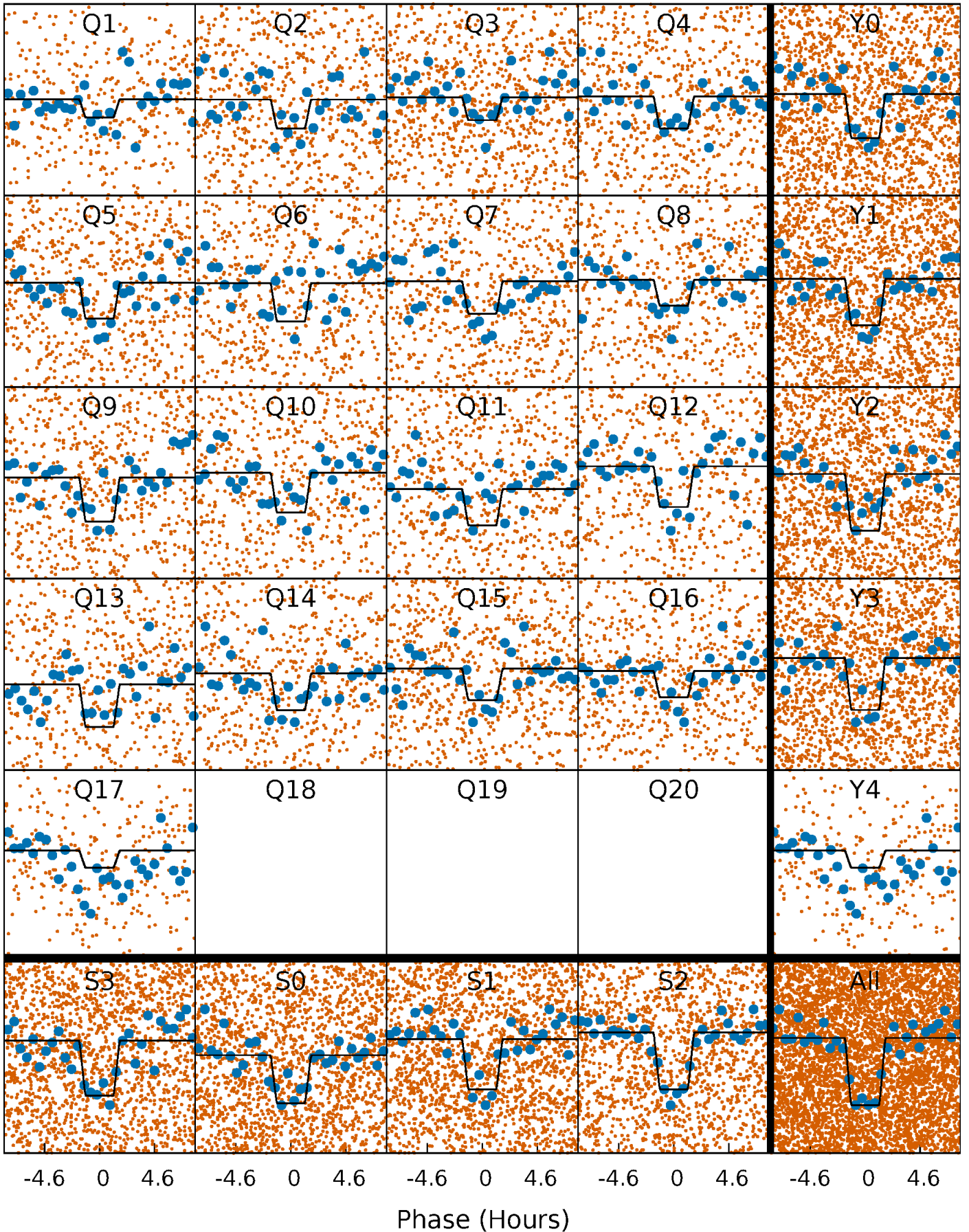
DV Quarter-Phased Transit Curves

TCE 002852941-01 P= 2.894928 Days $T_0=132.626580$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

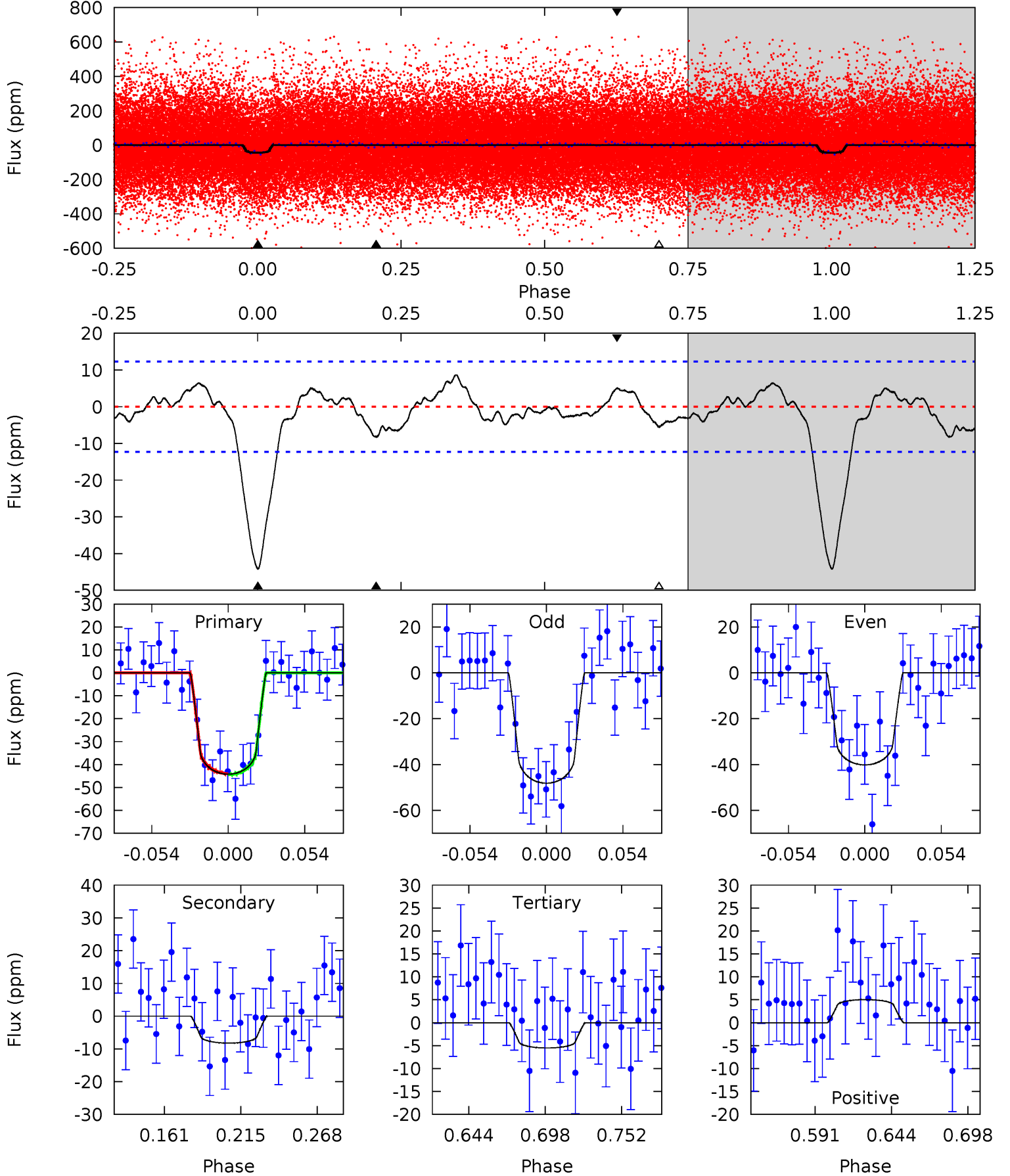
TCE 002852941-01 P= 2.894894 Days $T_0=132.632643$ (BKJD)



DV Model-Shift Uniqueness Test

002852941-01, P = 2.894928 Days, E = 129.731652 Days

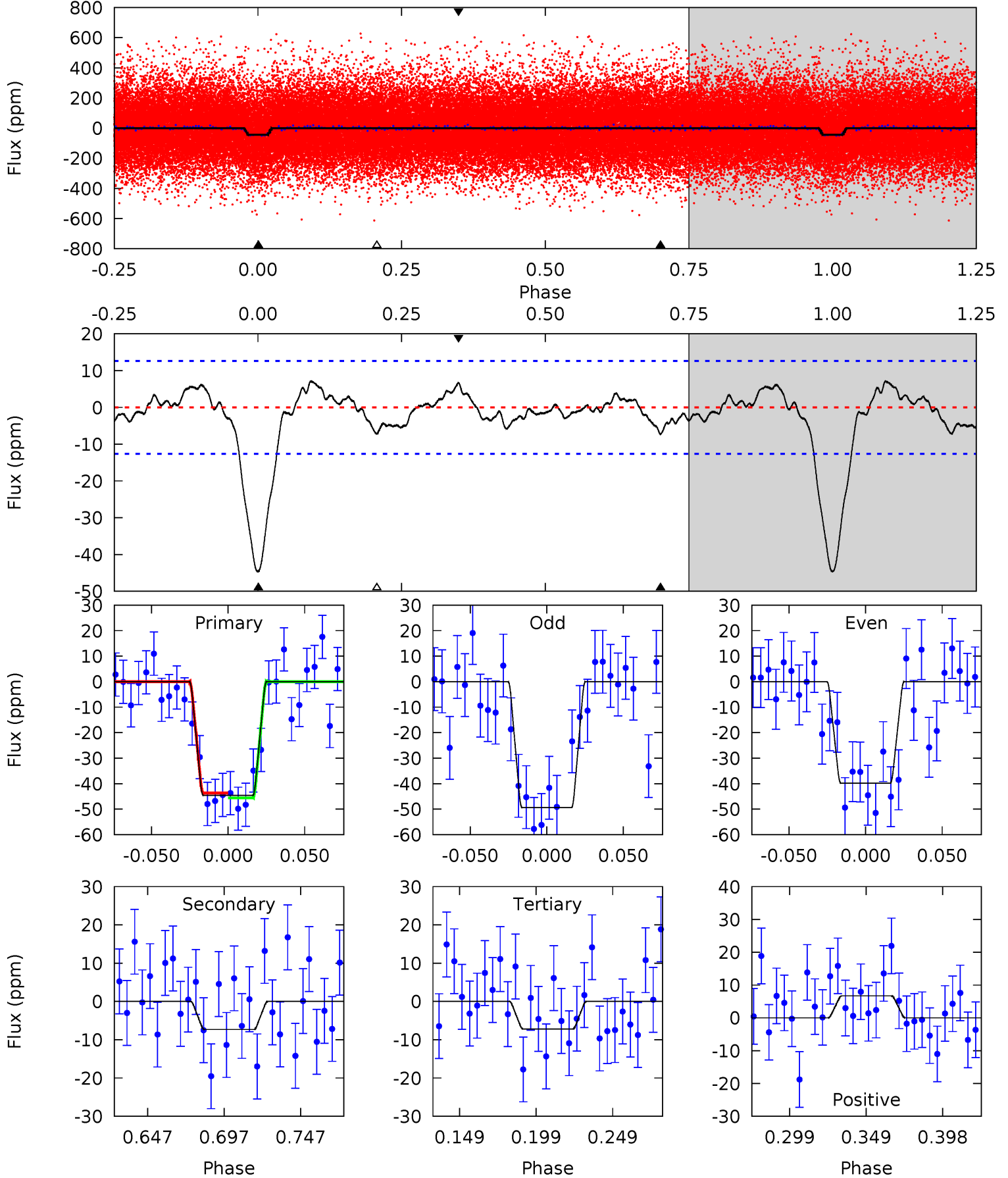
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	3.14	2.11	1.92	4.69	1.93	1.22	14.8	15.0	1.04	1.22	1.53	0.69	0.16	0.08



Alt Model-Shift Uniqueness Test

002852941-01, P = 2.894894 Days, E = 129.737749 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	2.73	2.69	2.51	4.71	1.96	1.17	14.0	14.2	0.04	0.22	1.79	0.93	0.14	0.35



Stellar Parameters For KIC 002852941

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7087^{+250}_{-428}	$4.137^{+0.170}_{-0.187}$	$-0.180^{+0.250}_{-0.350}$	$1.684^{+0.501}_{-0.410}$	$1.418^{+0.209}_{-0.255}$	$0.419^{+0.385}_{-0.197}$
	+4%/-6%	+4%/-5%	+139%/-194%	+30%/-24%	+15%/-18%	+92%/-47%
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 002852941-01 / KOI 4298.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-8 ± 3	$1.28^{+0.51}_{-0.42}$	2678^{+212}_{-229}	4547^{+964}_{-602}	$5.280^{+7.425}_{-2.823}$
Alt.	-7 ± 3	$1.27^{+0.48}_{-0.45}$	2678^{+240}_{-217}	4441^{+890}_{-655}	$4.684^{+7.120}_{-2.670}$

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 $A_{obs} \gg 1.0$

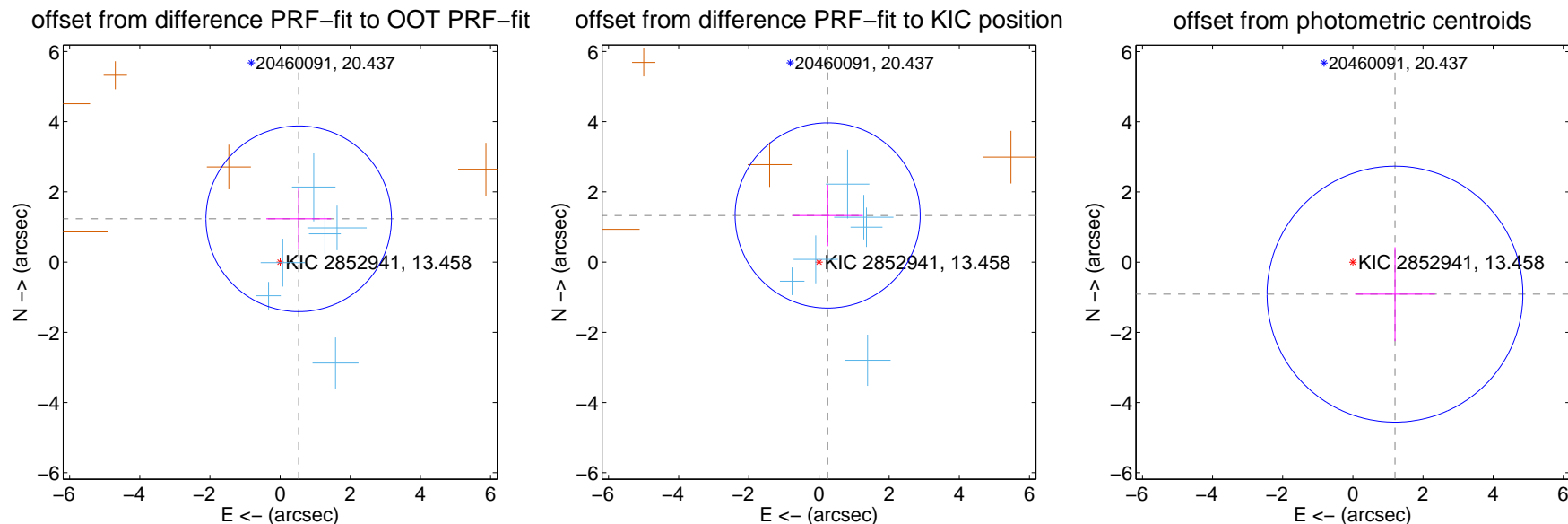
DV Centroid Data

Supplemental centroid analysis for 002852941-01. Kepler magnitude: 13.46. Transit SNR 12.66

There are 6 quarters with good PRF difference image offsets

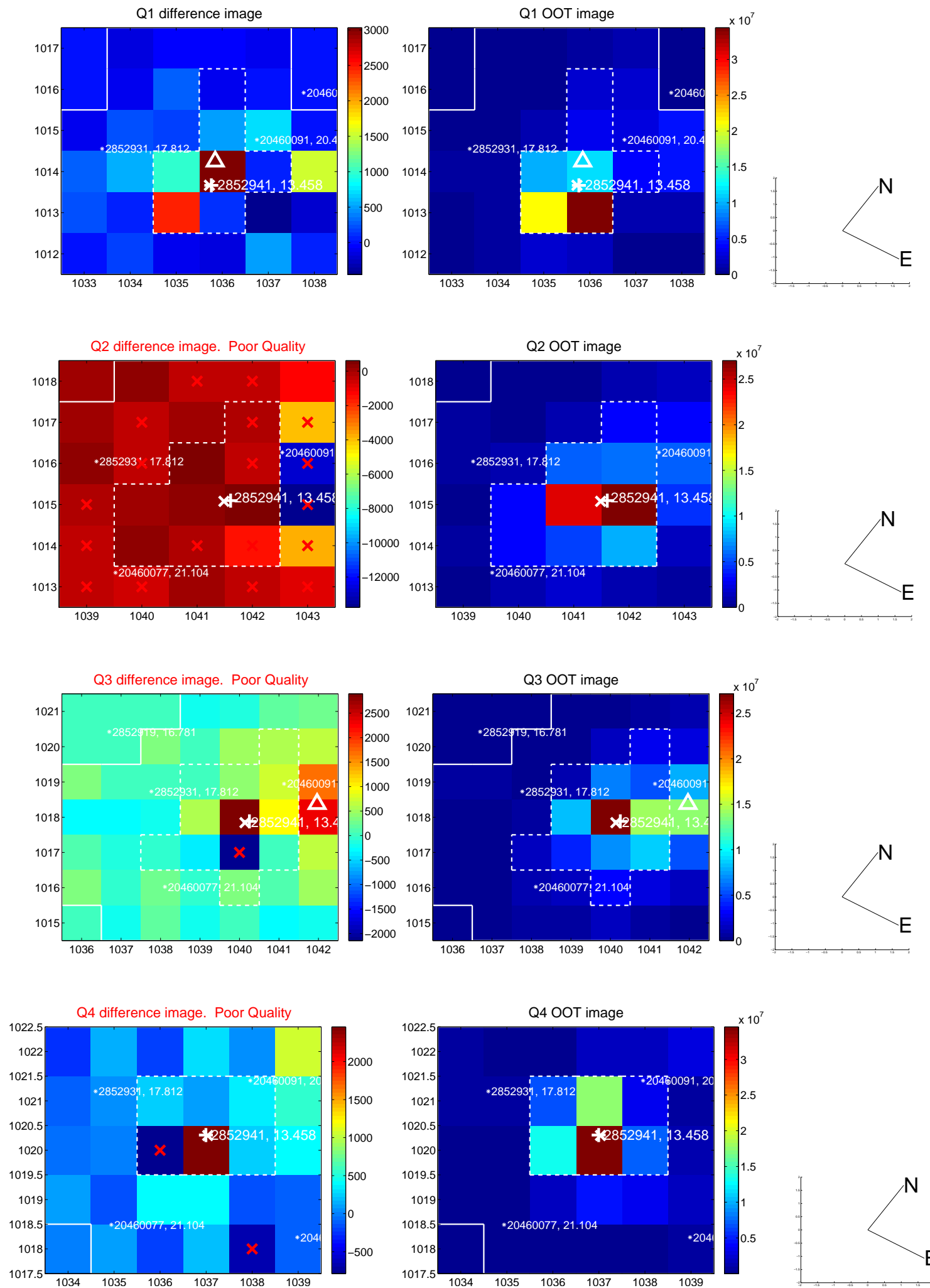
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.342 ± 0.881	1.52	-0.530 ± 0.923	1.233 ± 0.873
PRF-fit source offset from KIC position	1.351 ± 0.879	1.54	-0.247 ± 1.003	1.328 ± 0.875
photometric centroid source offset	1.51 ± 1.22	1.24	-1.20 ± 1.14	-0.91 ± 1.34

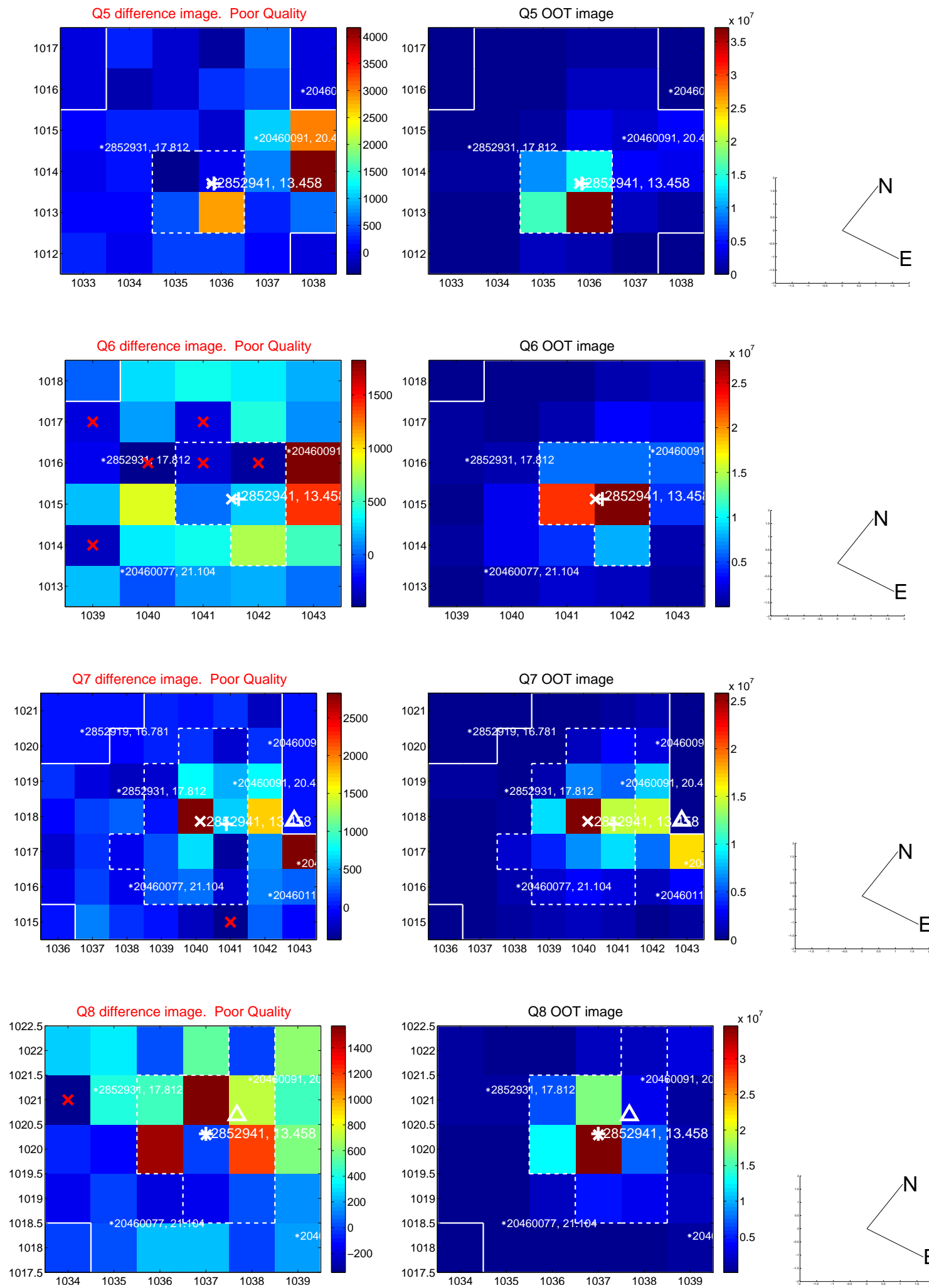


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

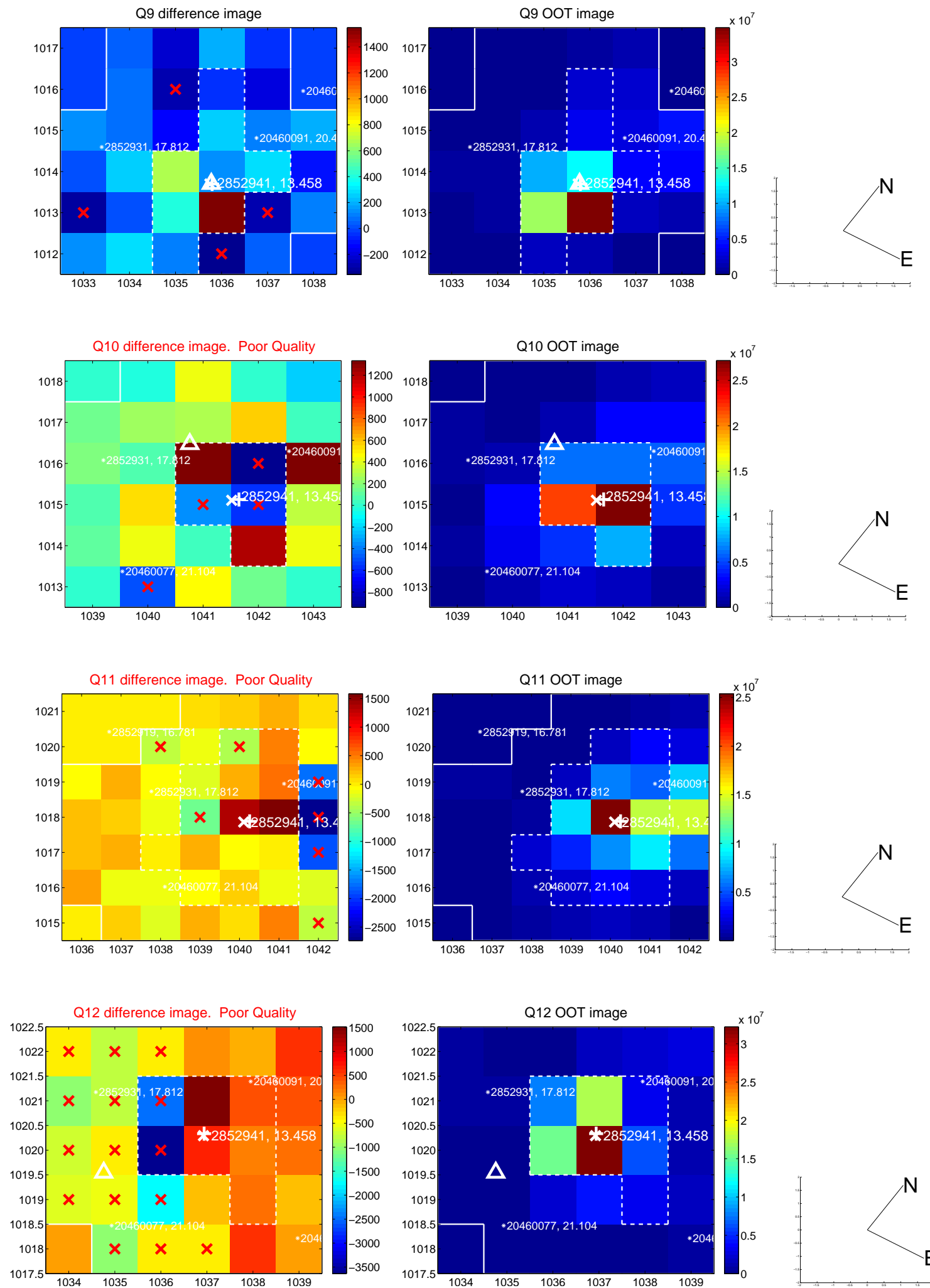
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



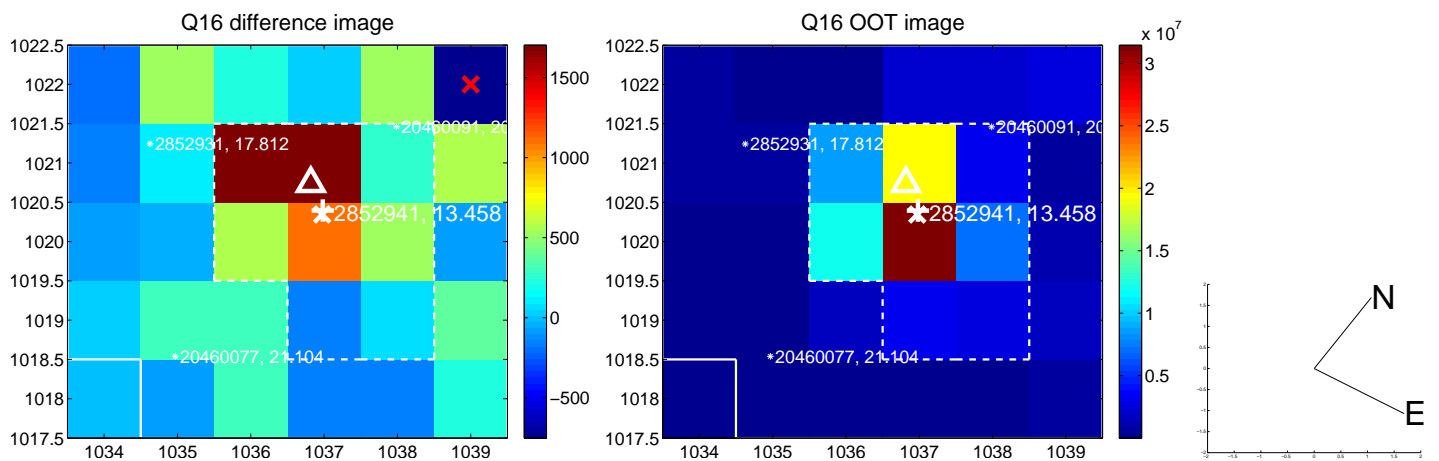
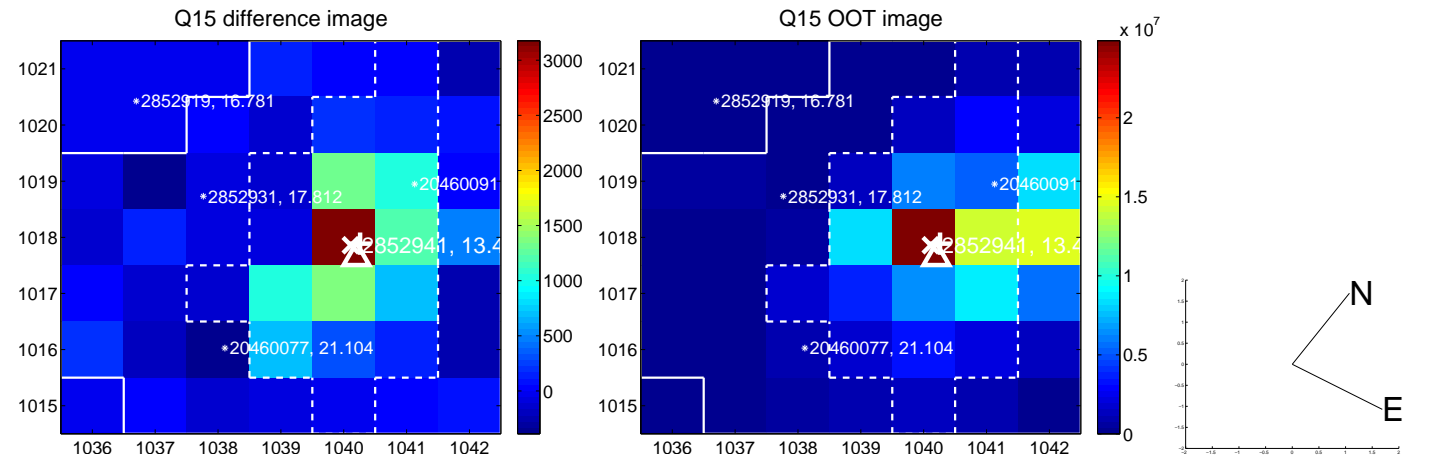
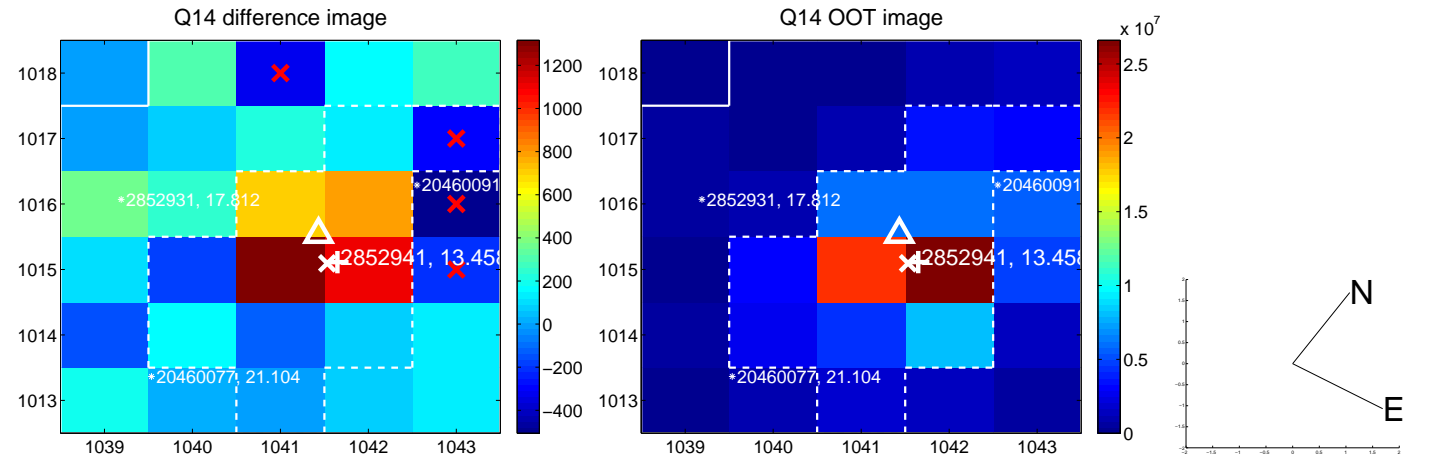
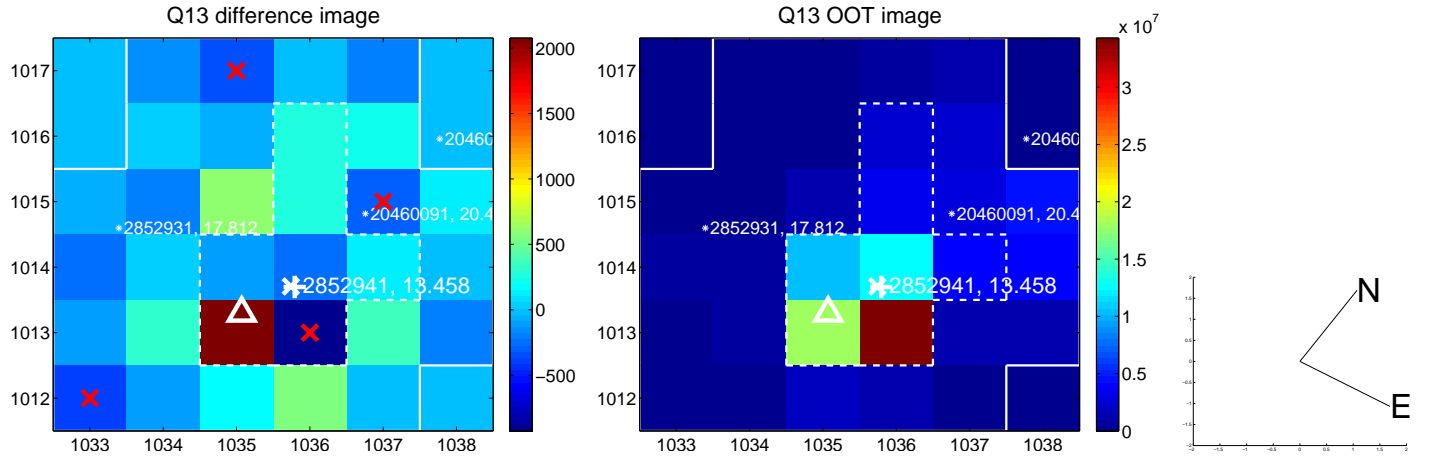
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



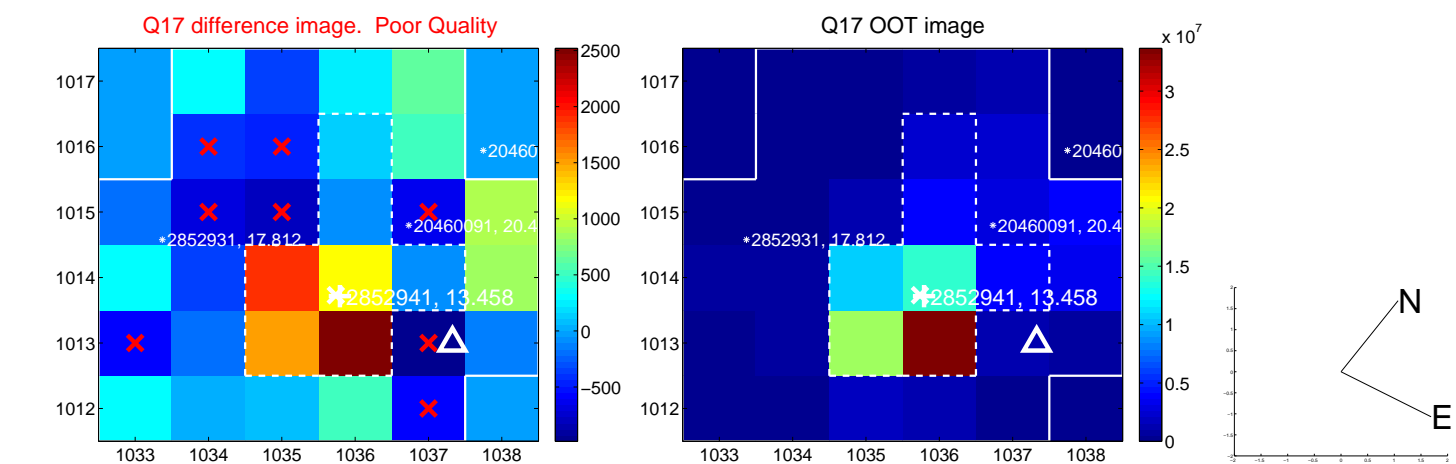
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



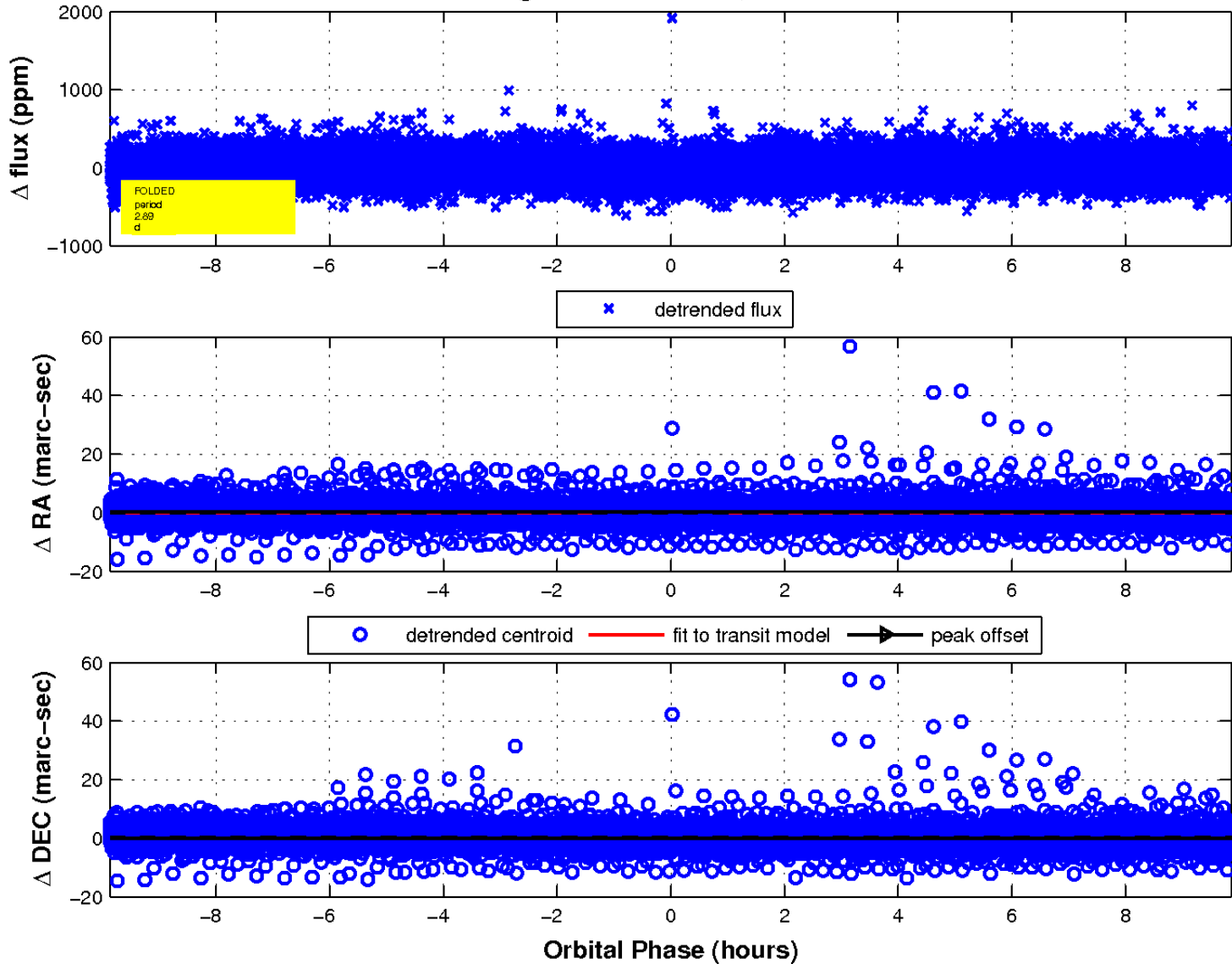
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

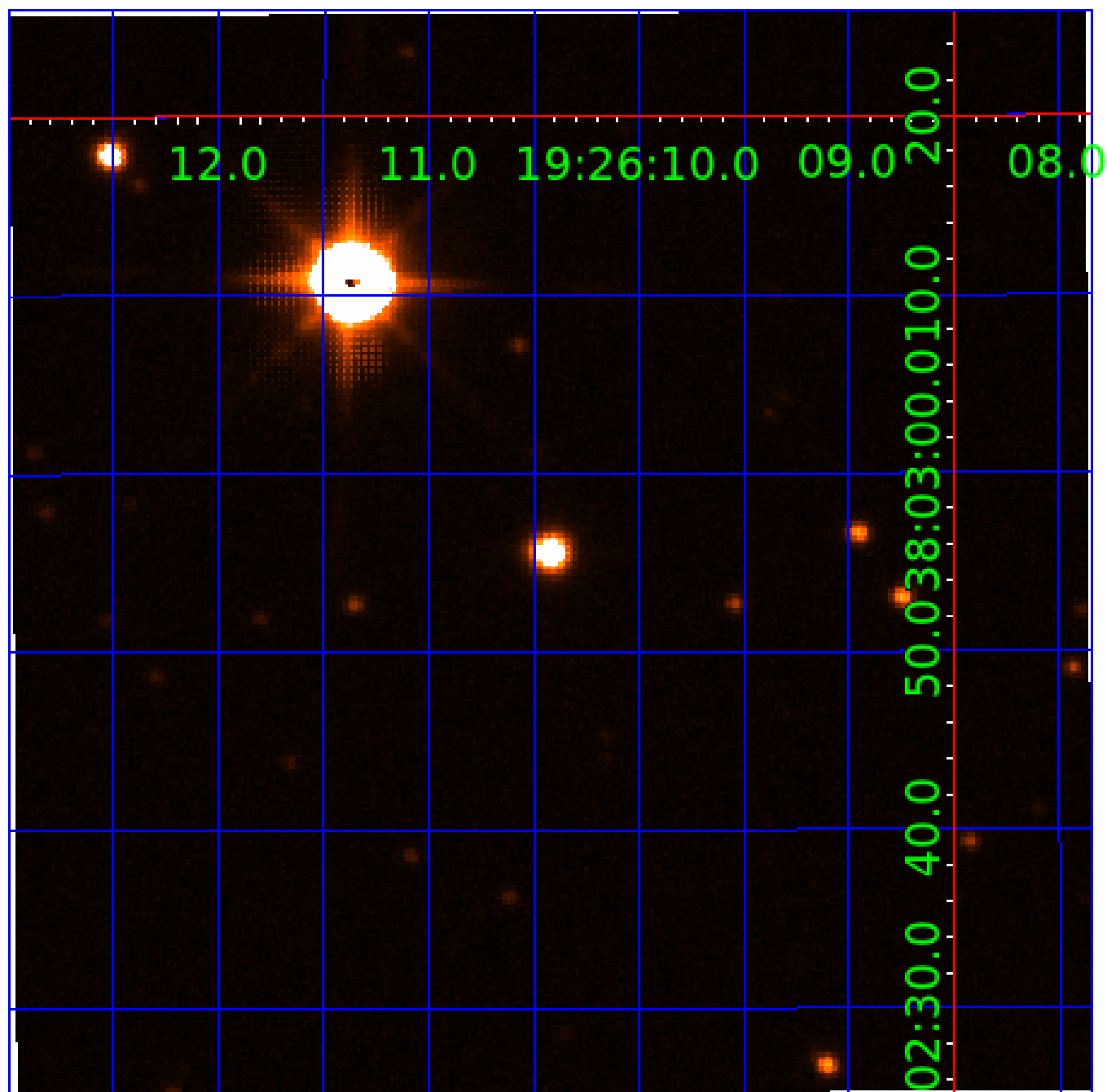


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 002852941

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})
002852941-01	OBS	4298.01	2.894928	132.626580	45.1	3.288	12.1	12.7	1.68	7087	1.30	3212.10
002852941-02	OBS	No	422.332293	194.028814	218.0	15.144	11.0	7.0	1.68	7087	2.69	4.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002852941-01	OBS	PC	0.85	0	0	0	0	NO_COMMENT
002852941-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—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.

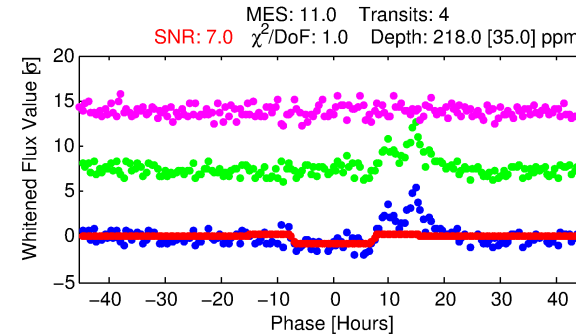
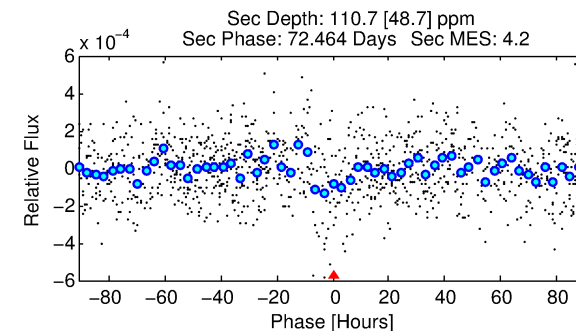
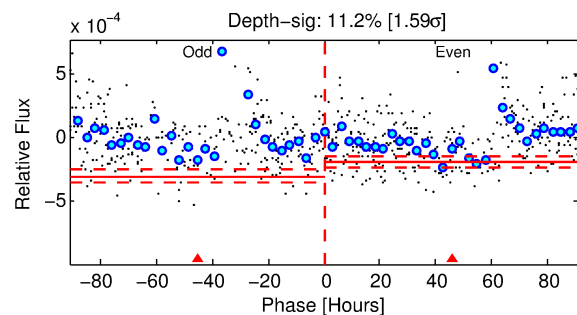
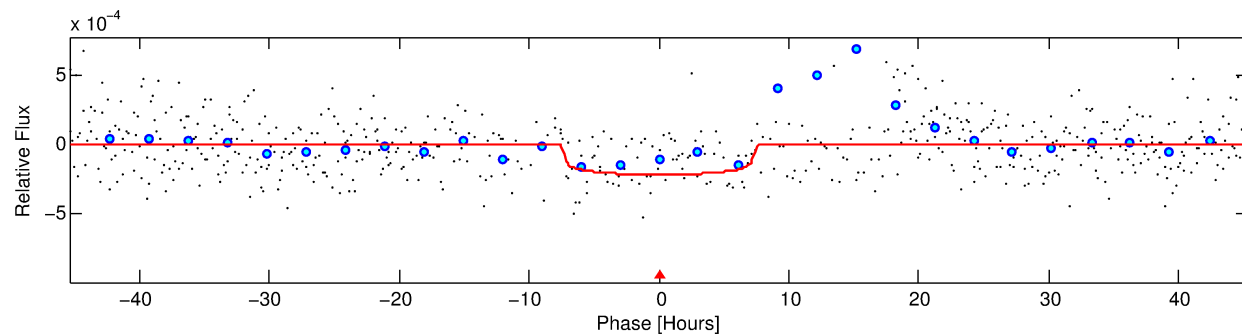
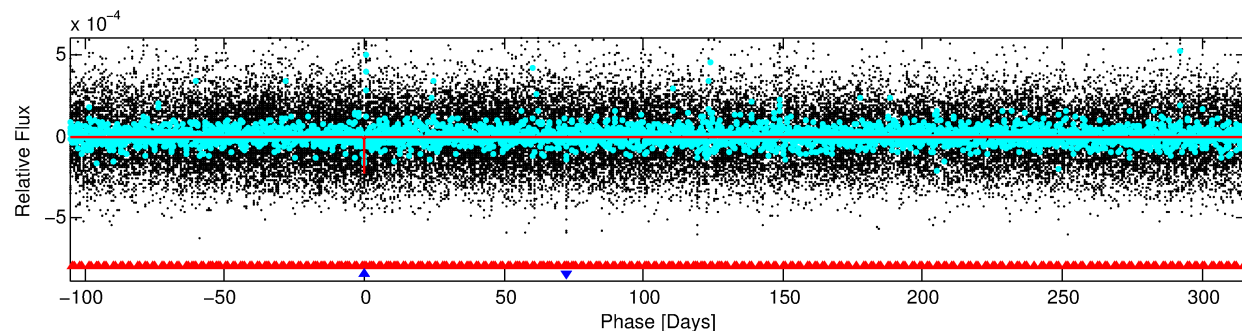
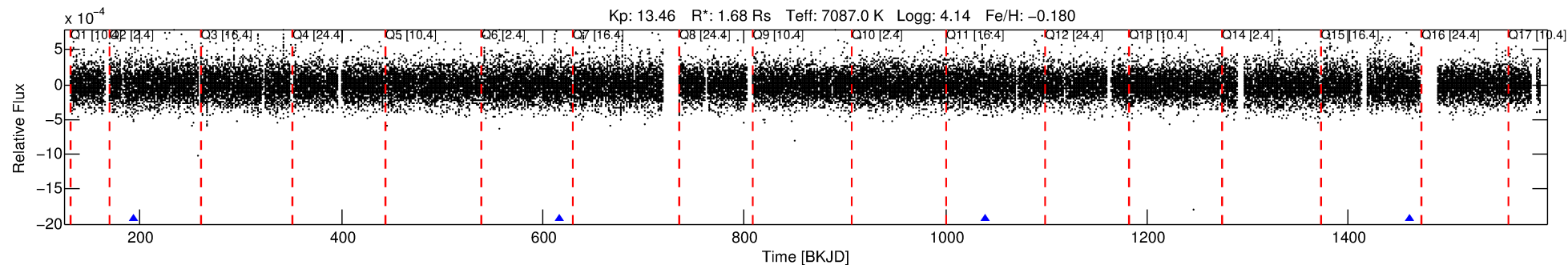
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002852941-02

No Significant Match Found

DV One-Page Summary

KIC: 2852941 Candidate: 2 of 2 Period: 422.332 d
KOI: K04298 Corr: No Ephemeris Match



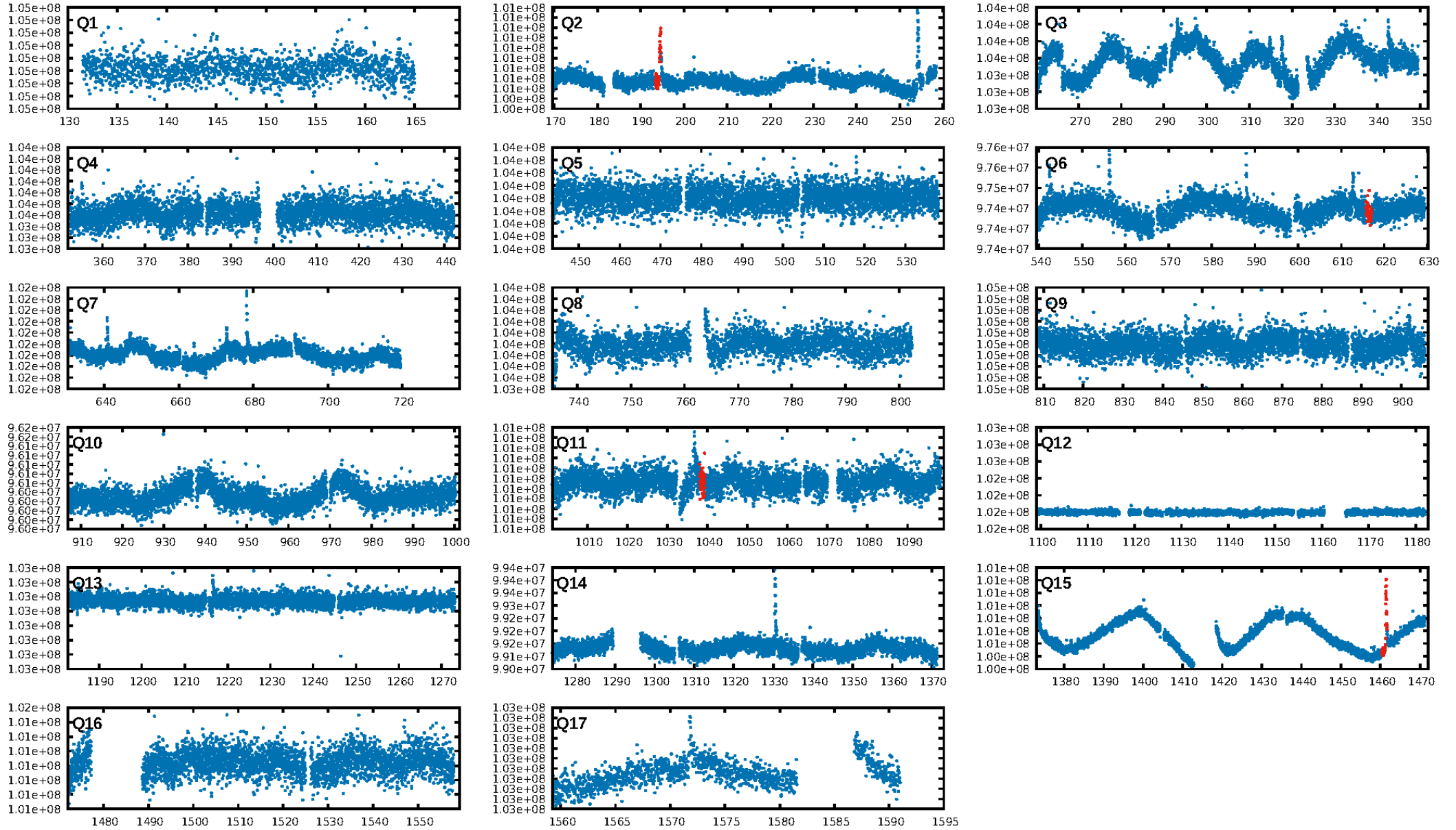
DV Fit Results:

Period = 422.33229 [0.01346] d
Epoch = 194.0288 [0.0229] BKJD
Rp/R* = 0.0146 [0.0048]
a/R* = 149.32 [280.98]
b = 0.73 [1.19]
Seff = 4.18 [1.77]
Teq = 365 [39] K
Rp = 2.69 [1.19] Re
a = 1.2379 [0.3031] AU
Ag = 12941.02 [11175.78] [1.16 σ]
Teffp = 6013 [1242] K [4.55 σ]

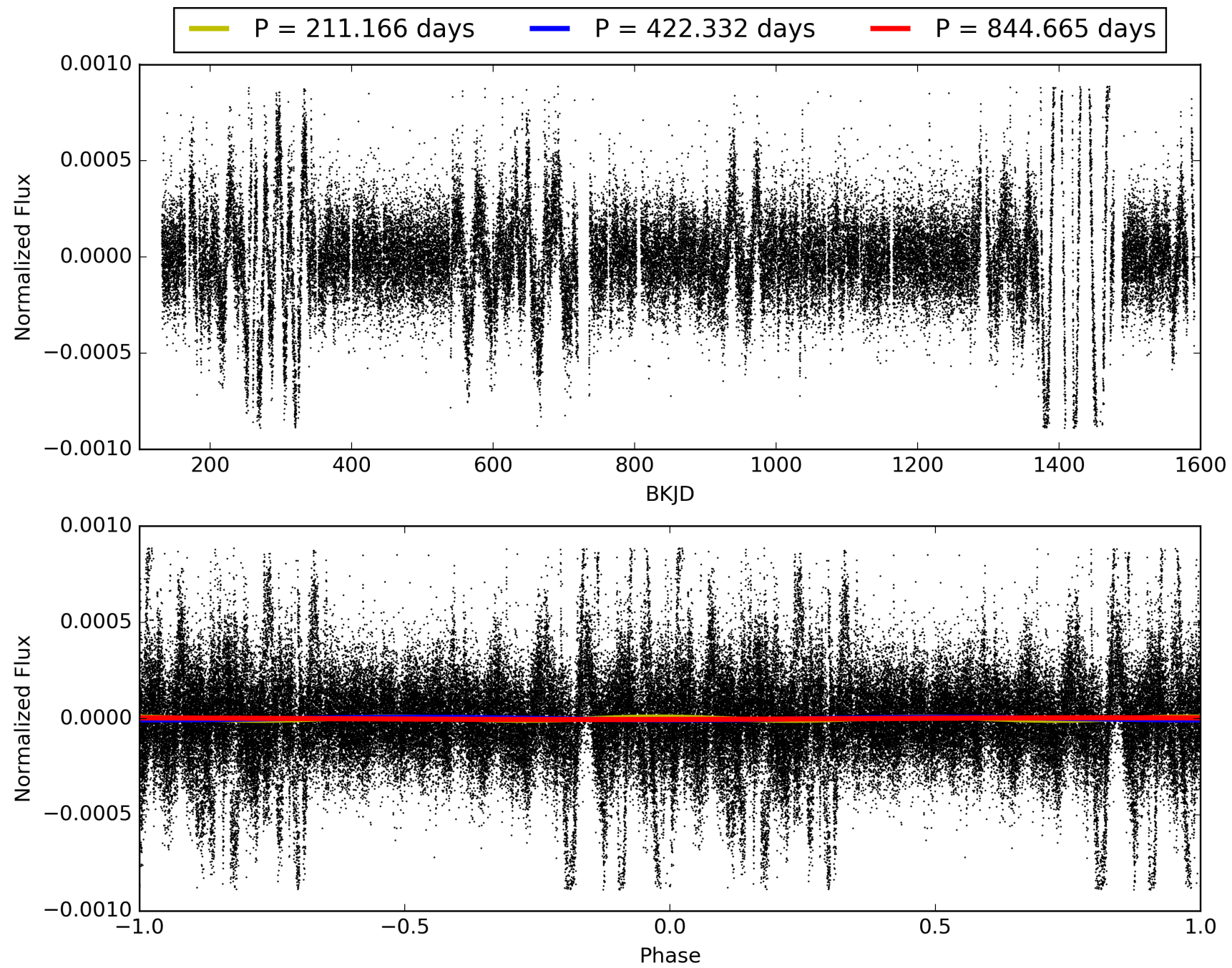
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [649.58 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 3.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.88e-14
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 3.634
Centroid-sig: 0.0%
Centroid-so: 12.949 arcsec [3.52 σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.00 [0/3]

TCE 002852941-02, PDC Light Curves

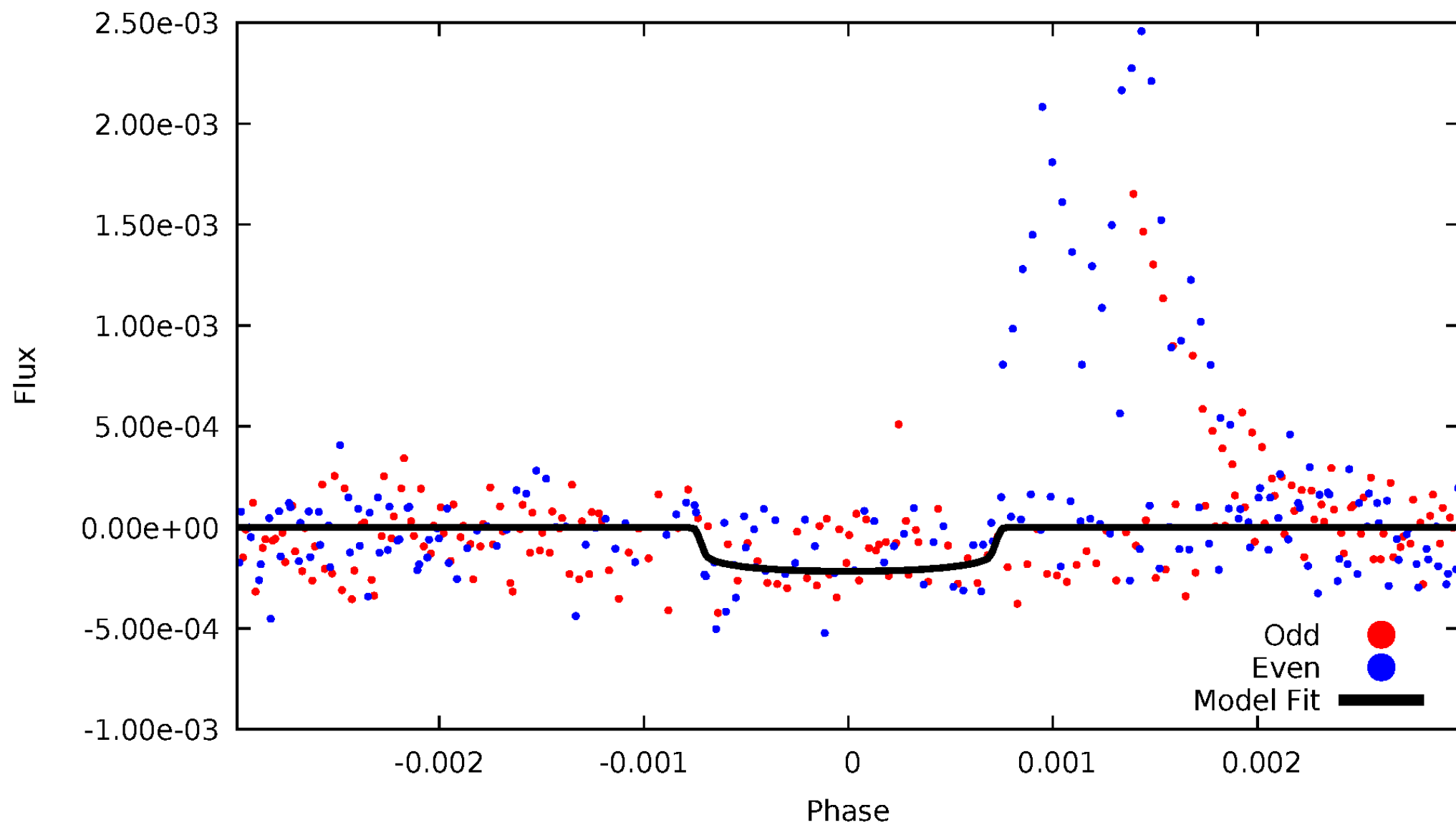


TCE 002852941-02



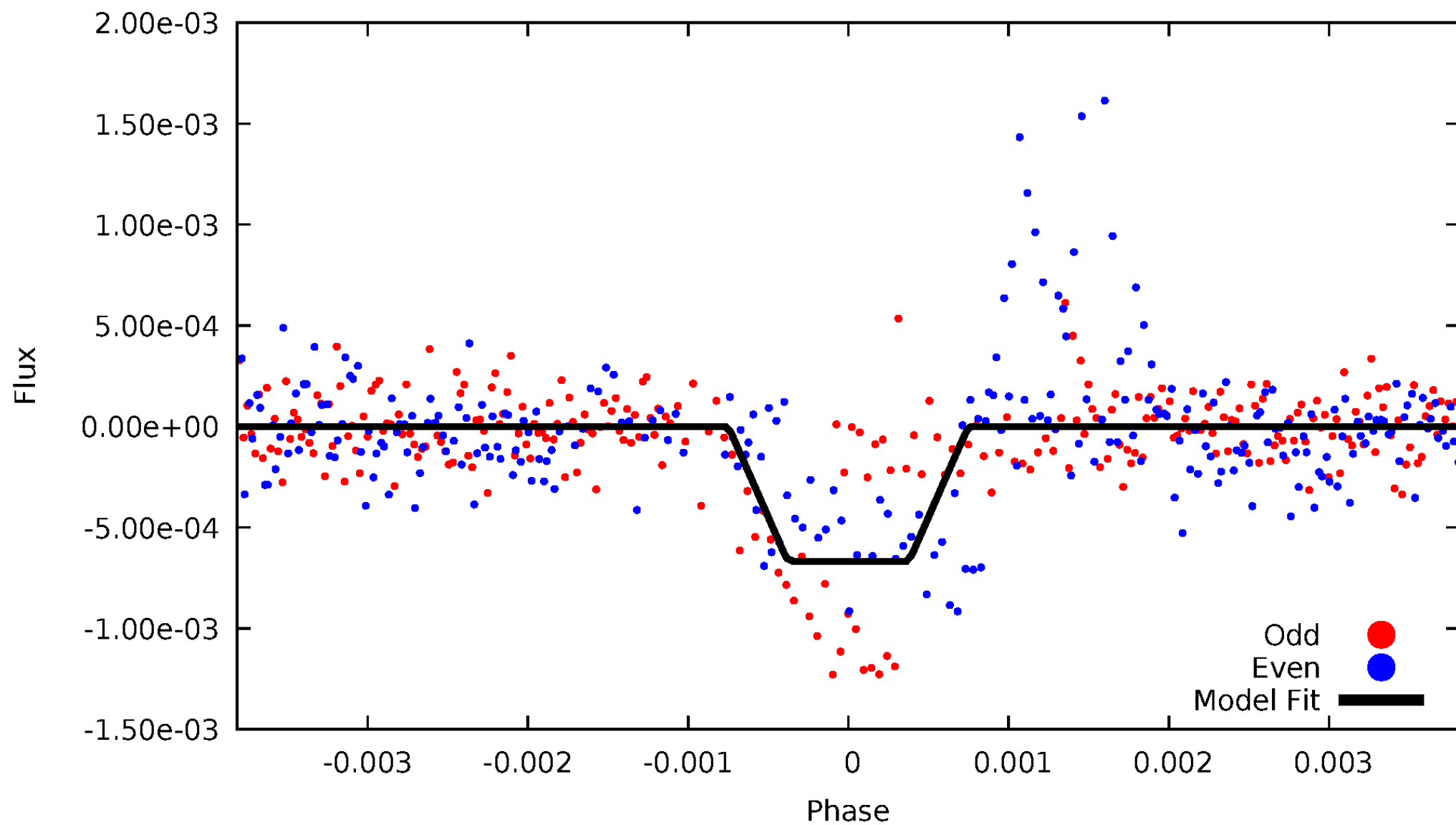
DV Odd/Even

TCE 002852941-02



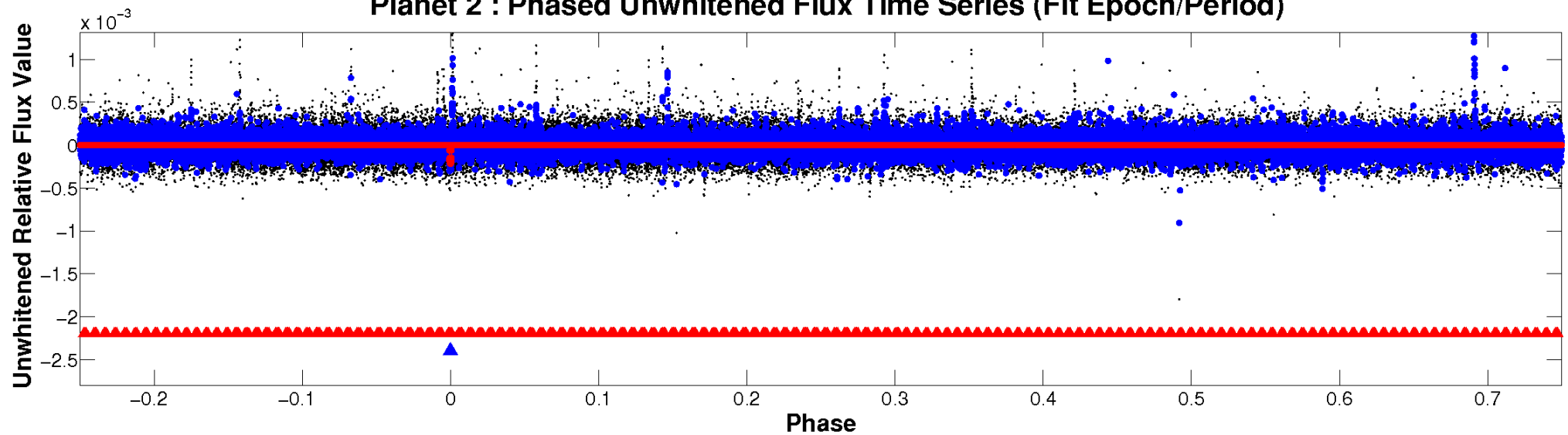
ALT Odd/Even

TCE 002852941-02

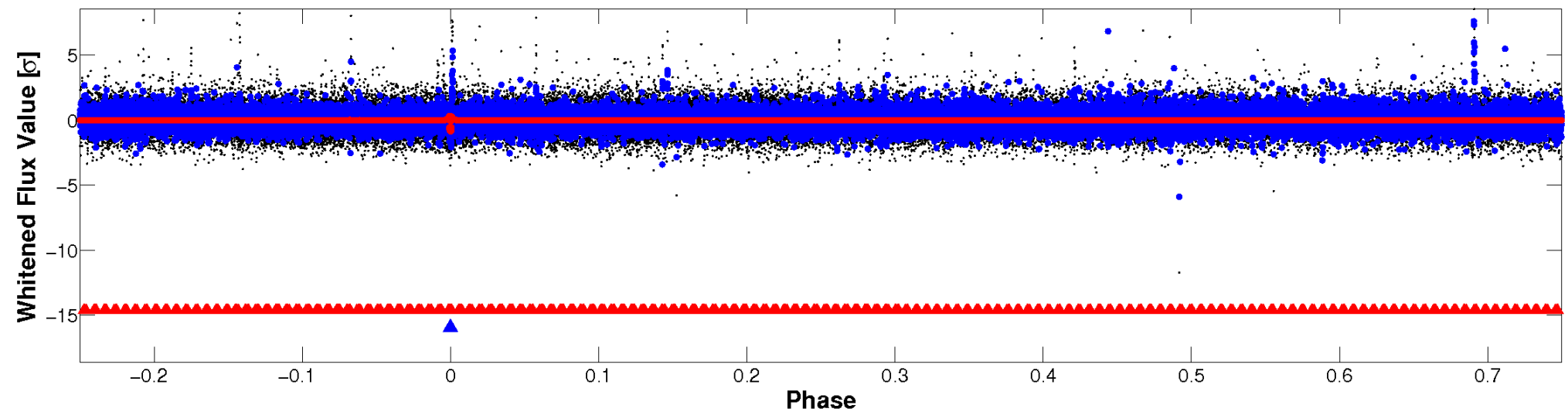


Non-Whitened Vs. Whitened Light Curve

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

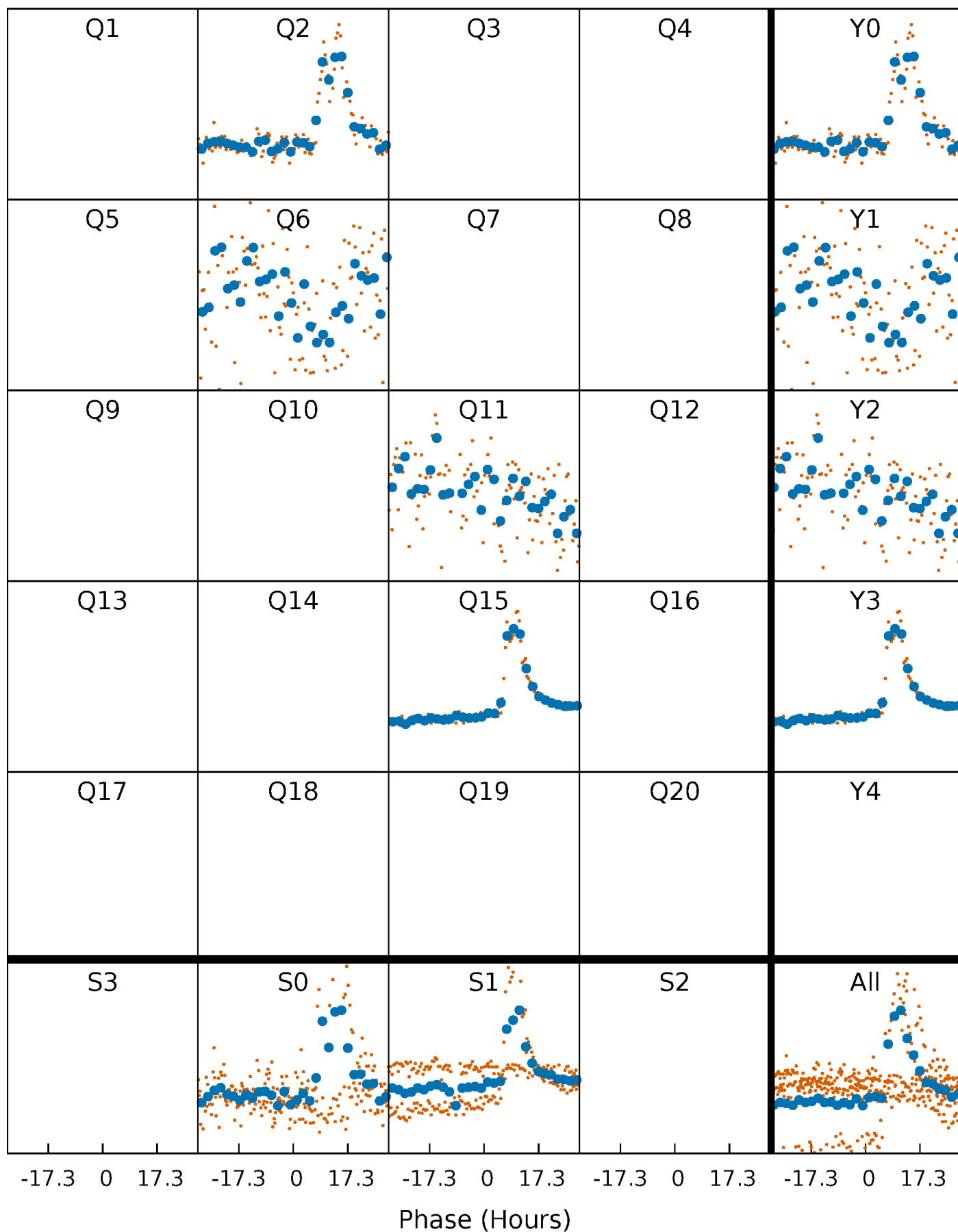


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



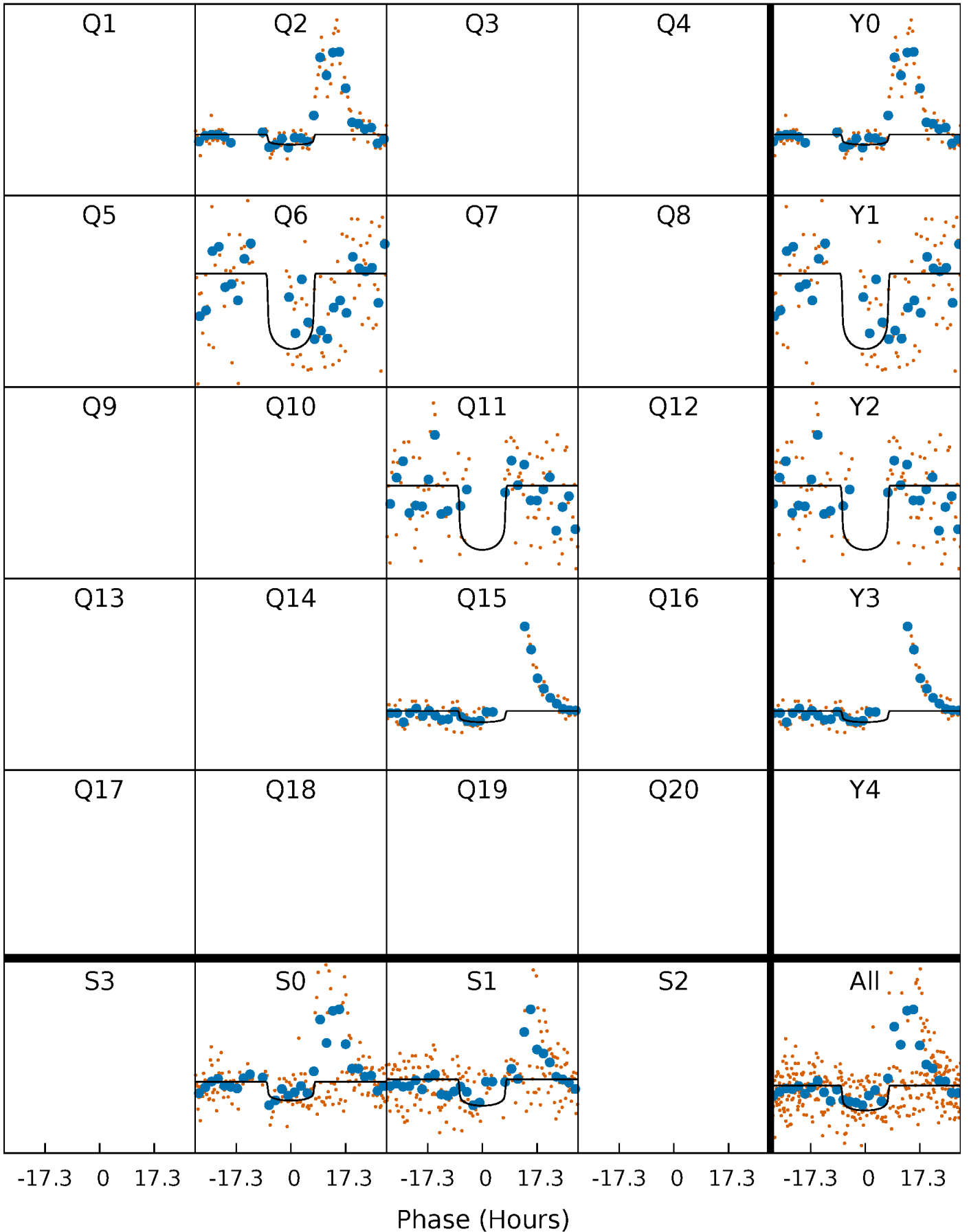
PDC Quarter-Phased Transit Curves

TCE 002852941-02 P=422.332293 Days $T_0=194.028814$ (BKJD)



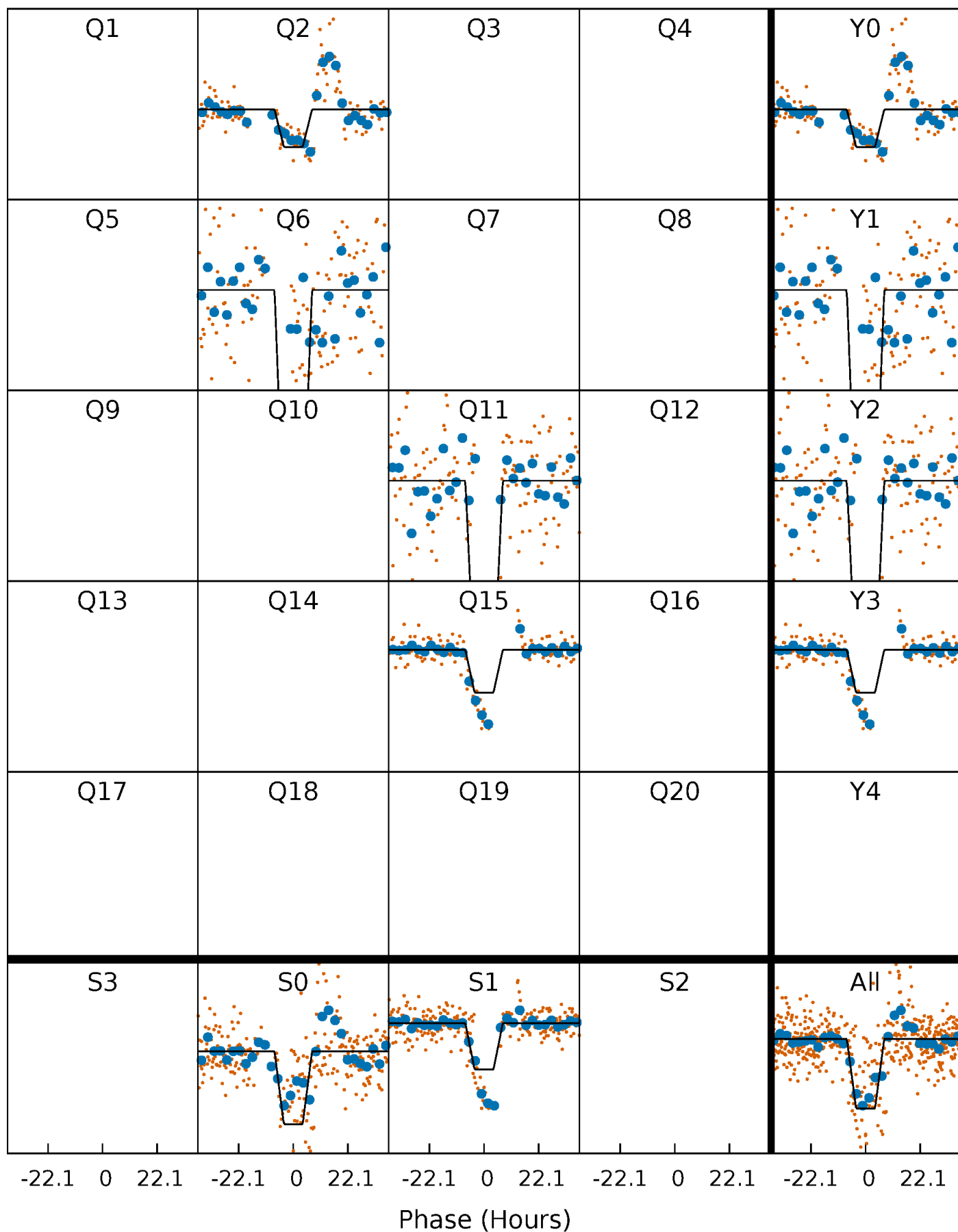
DV Quarter-Phased Transit Curves

TCE 002852941-02 $P=422.332293$ Days $T_0=194.028814$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

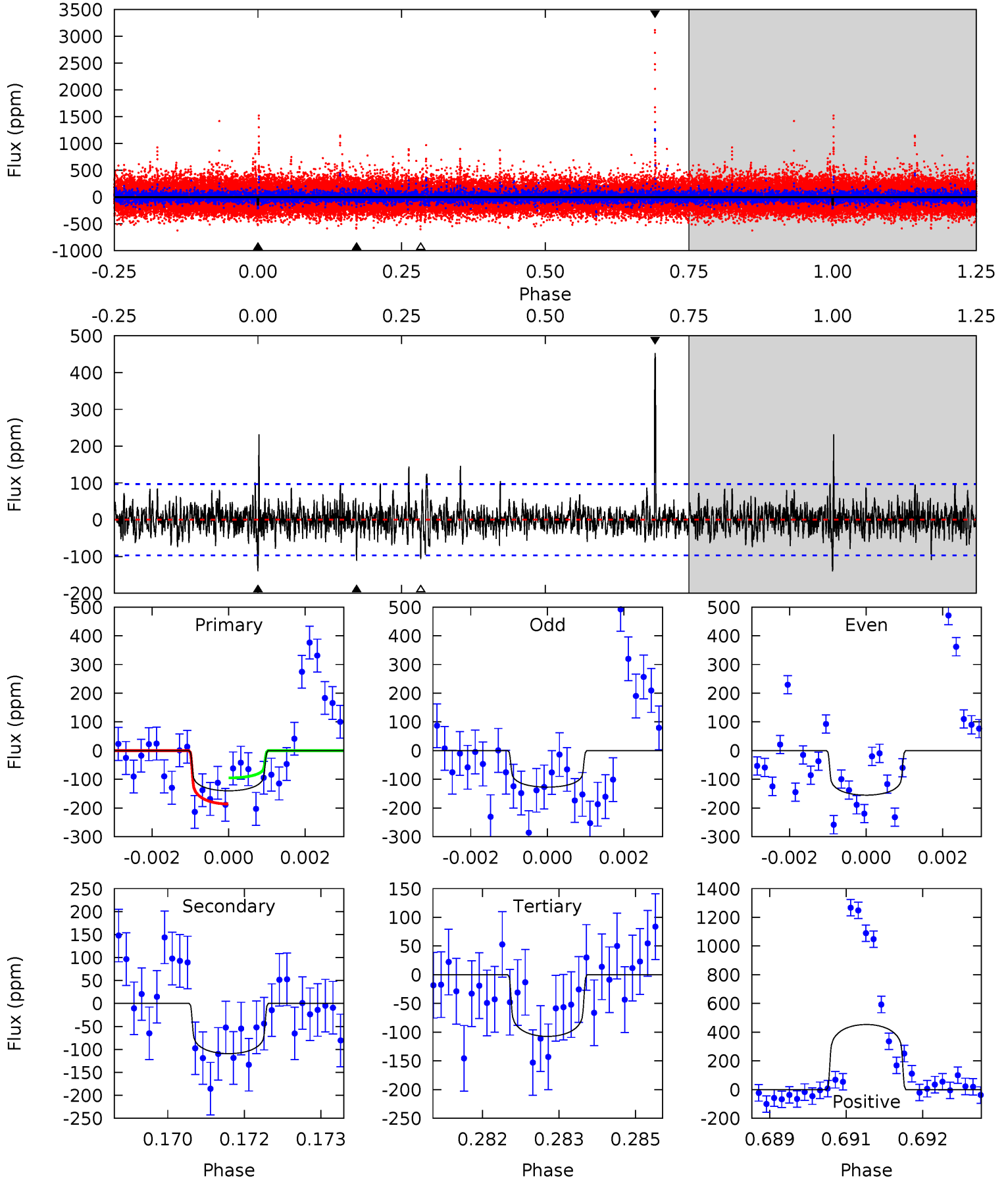
TCE 002852941-02 P=422.354874 Days $T_0=193.978004$ (BKJD)



DV Model-Shift Uniqueness Test

002852941-02, P = 422.332293 Days, E = 194.028814 Days

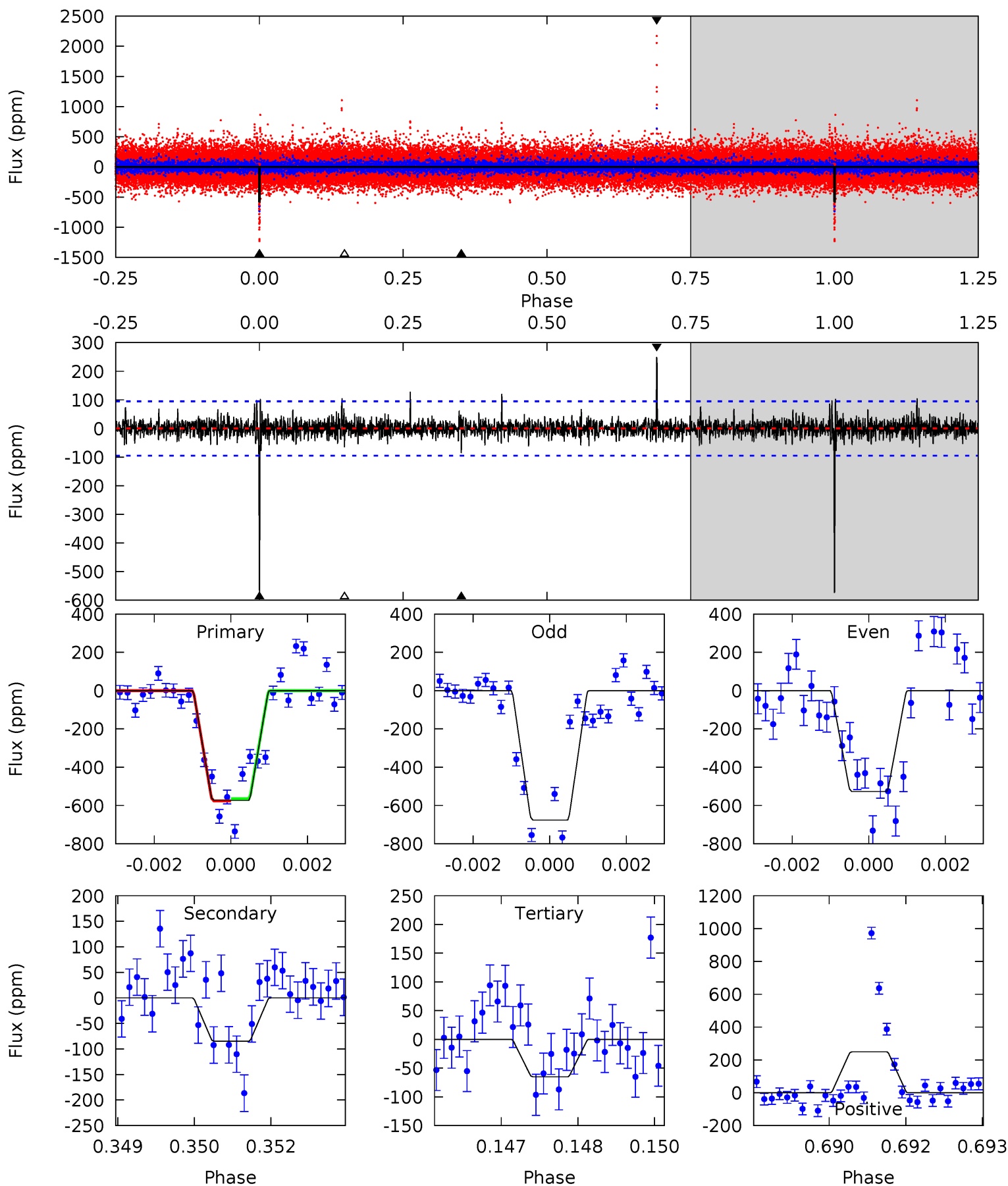
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.78	6.07	5.96	25.2	5.38	3.17	1.74	1.82	-17.4	0.10	-19.1	0.77	1.01	0.76	2.54



Alt Model-Shift Uniqueness Test

002852941-02, P = 422.354874 Days, E = 193.978004 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.6	4.82	3.70	14.2	5.38	3.17	1.19	28.9	18.4	1.12	-9.33	4.27	1.25	0.30	0.30



Stellar Parameters For KIC 002852941

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7087^{+250}_{-428}	$4.137^{+0.170}_{-0.187}$	$-0.180^{+0.250}_{-0.350}$	$1.684^{+0.501}_{-0.410}$	$1.418^{+0.209}_{-0.255}$	$0.419^{+0.385}_{-0.197}$
	+4%/-6%	+4%/-5%	+139%/-194%	+30%/-24%	+15%/-18%	+92%/-47%
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 002852941-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-109±18	$2.63^{+1.02}_{-0.98}$	506^{+42}_{-40}	5915^{+1757}_{-760}	12969^{+21549}_{-6240}
Alt.	-85±18	$4.71^{+1.19}_{-0.99}$	506^{+40}_{-40}	4353^{+436}_{-318}	3099^{+2092}_{-1202}

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 $A_{obs} \gg 1.0$

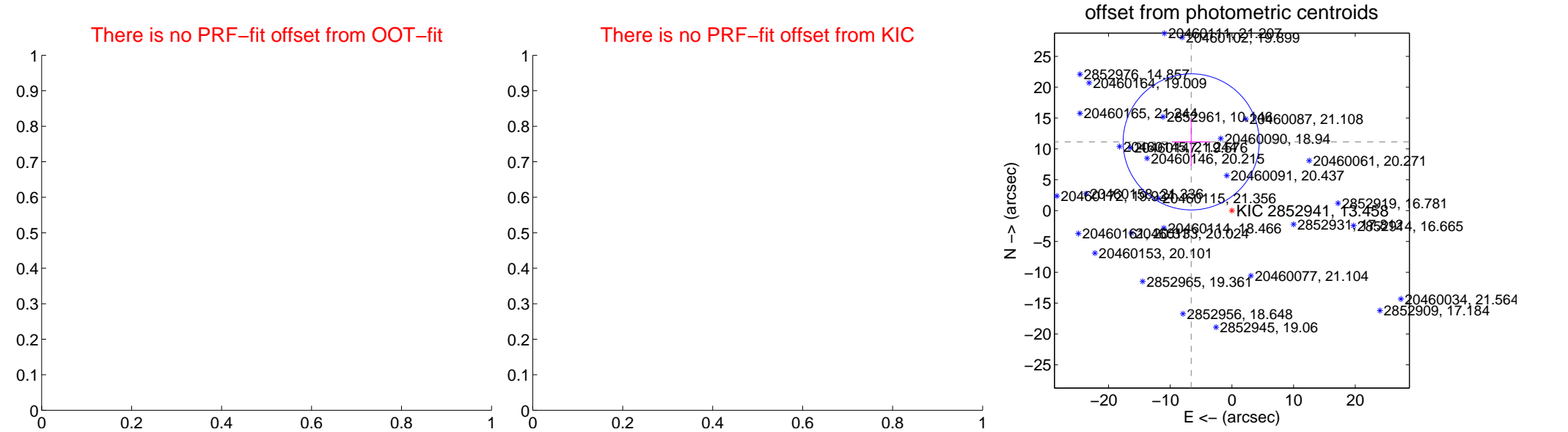
DV Centroid Data

Supplemental centroid analysis for 002852941-02. Kepler magnitude: 13.46. Transit SNR 6.98

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	12.95 ± 3.68	3.52	6.60 ± 3.11	11.14 ± 3.86



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.

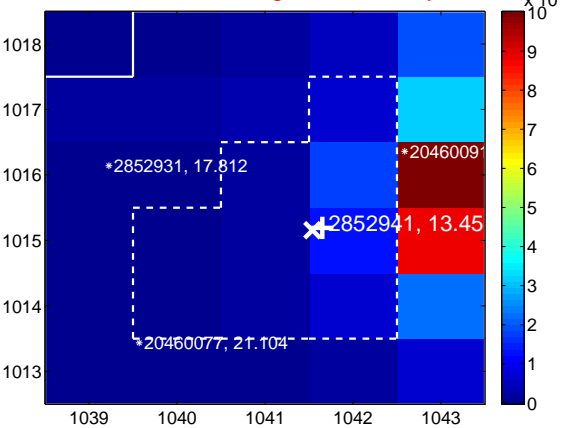
Q1 no difference image



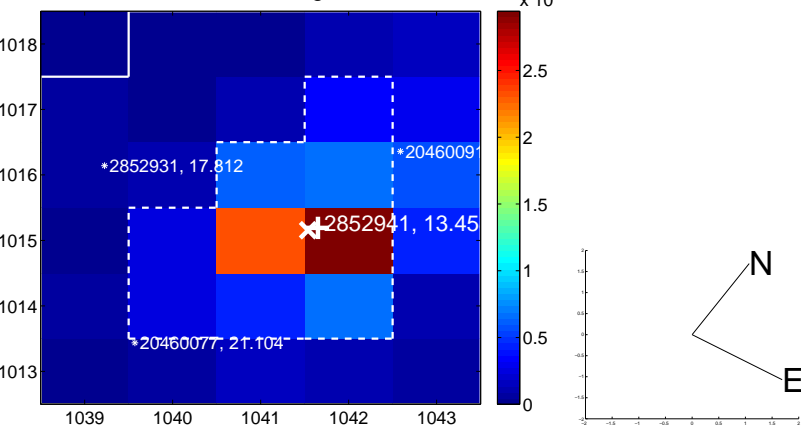
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



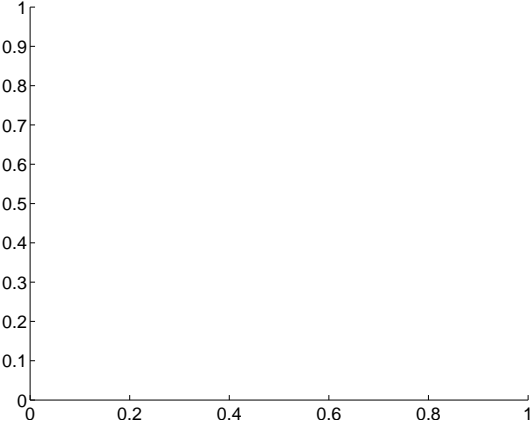
Q3 no difference image



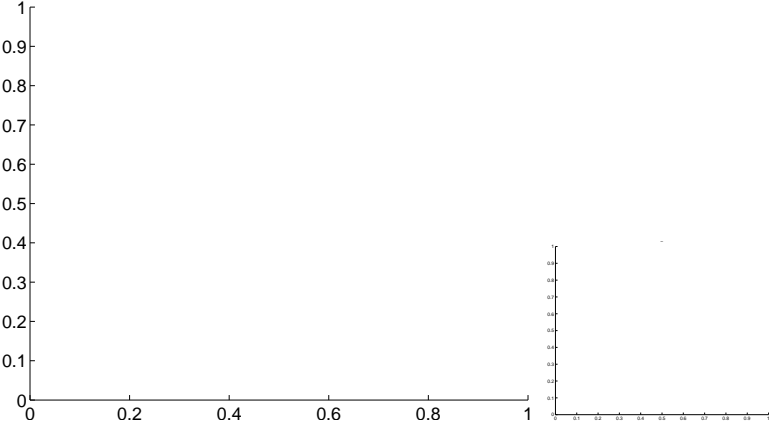
Q3 no OOT image



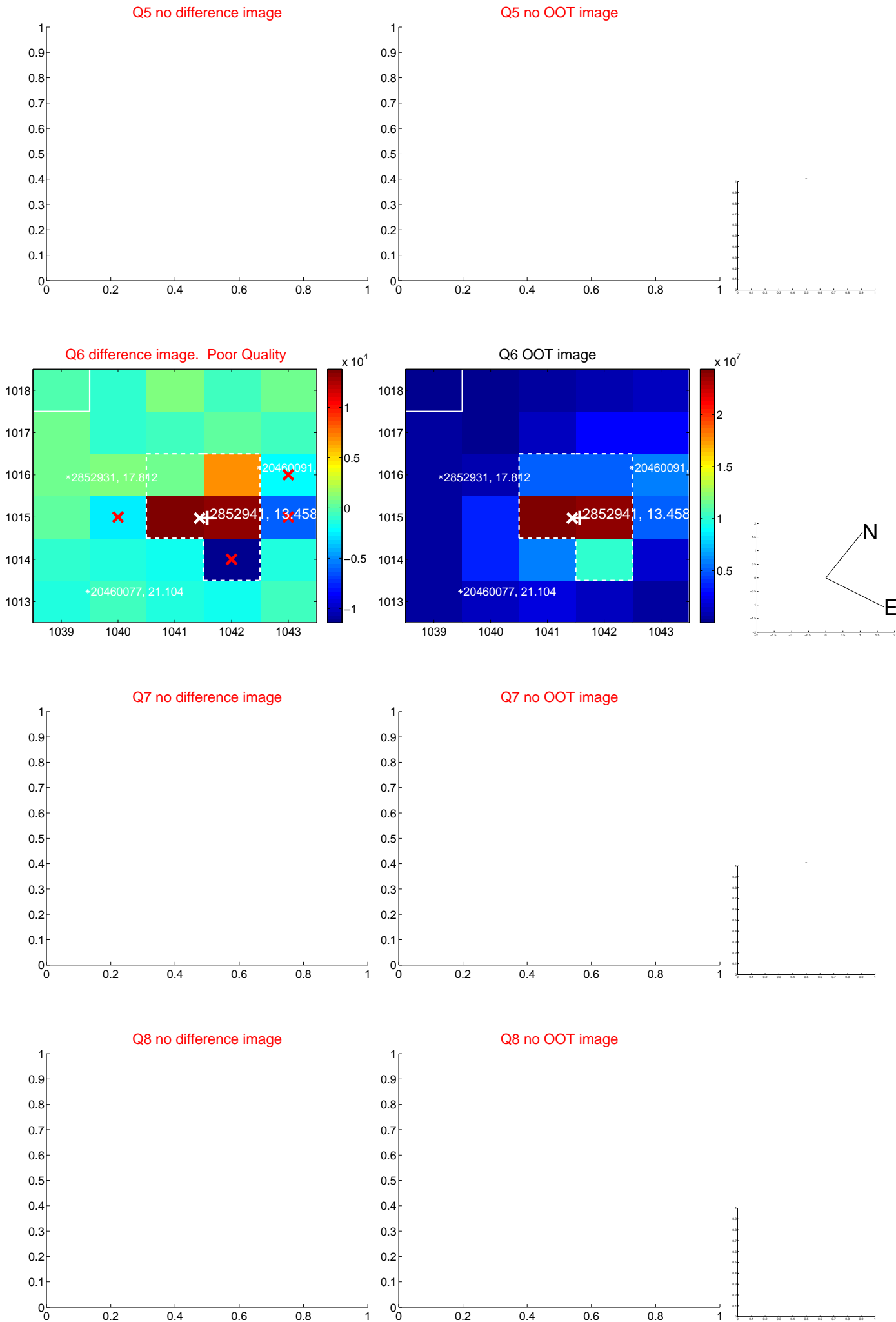
Q4 no difference image



Q4 no OOT image



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

Q13 no difference image



Q13 no OOT image



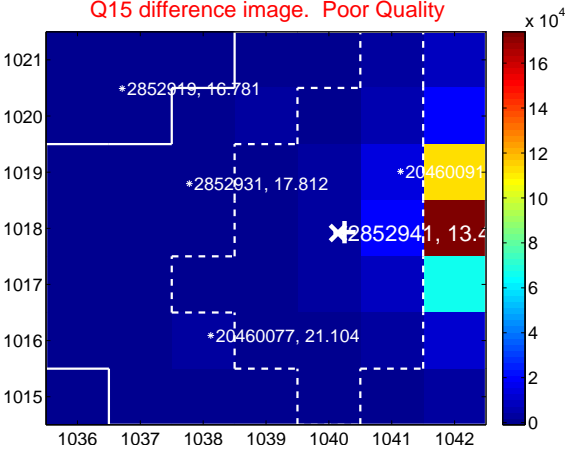
Q14 no difference image



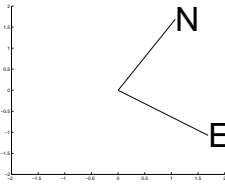
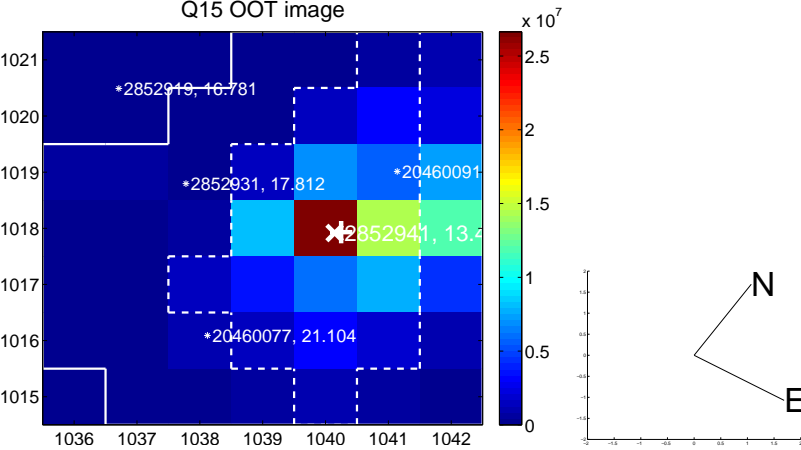
Q14 no OOT image



Q15 difference image. Poor Quality



Q15 OOT image



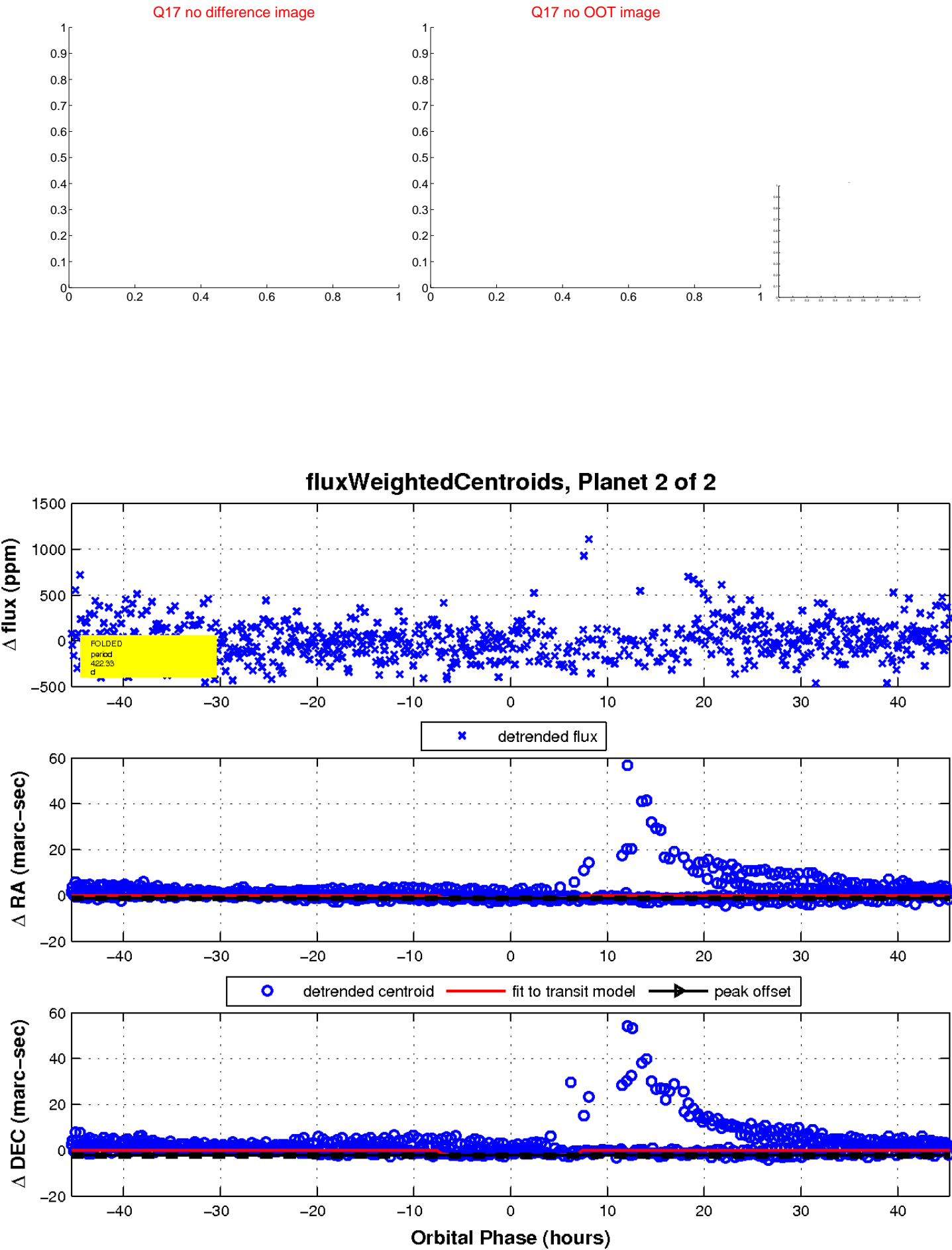
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

