

KIC 005474812

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})
005474812-01	OBS	No	482.688271	234.470277	859.2	5.431	17.0	4.1	0.53	4665	1.65	0.12
005474812-02	OBS	No	305.627296	195.554220	522.0	6.515	12.2	2.7	0.53	4665	1.19	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005474812-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005474812-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

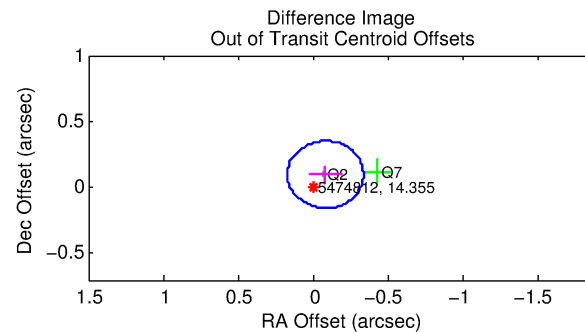
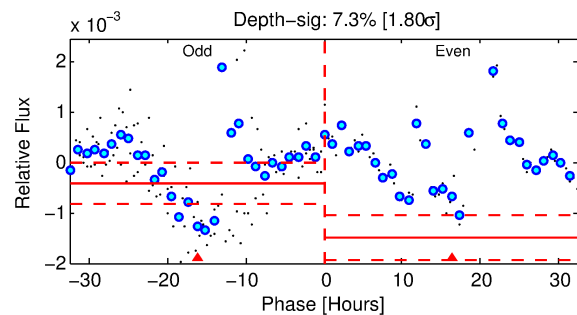
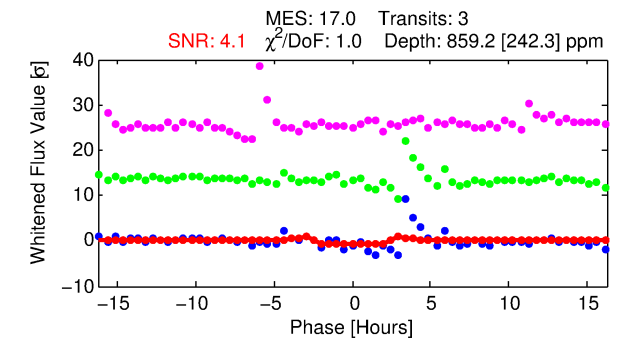
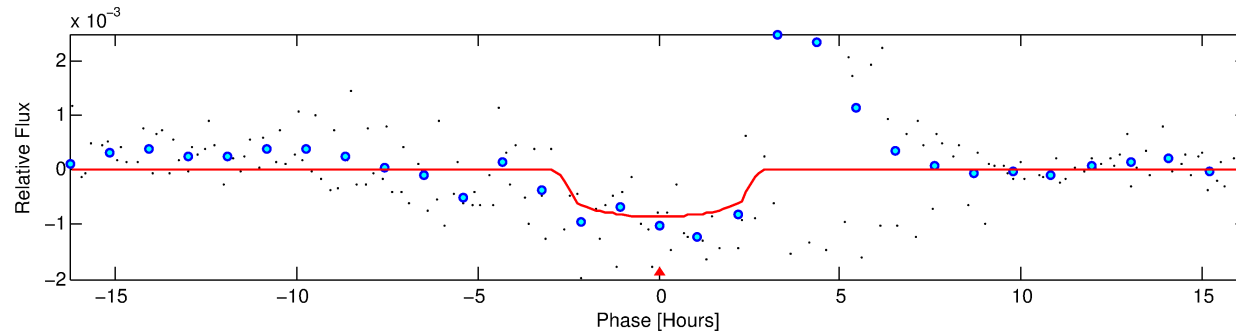
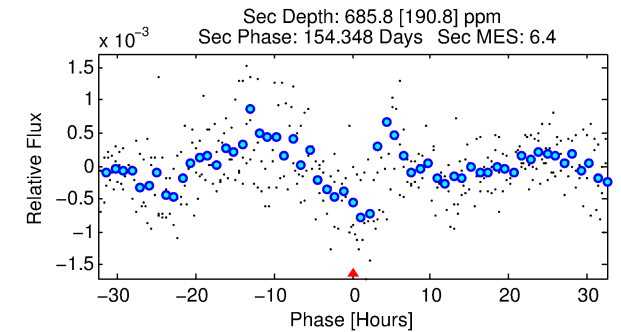
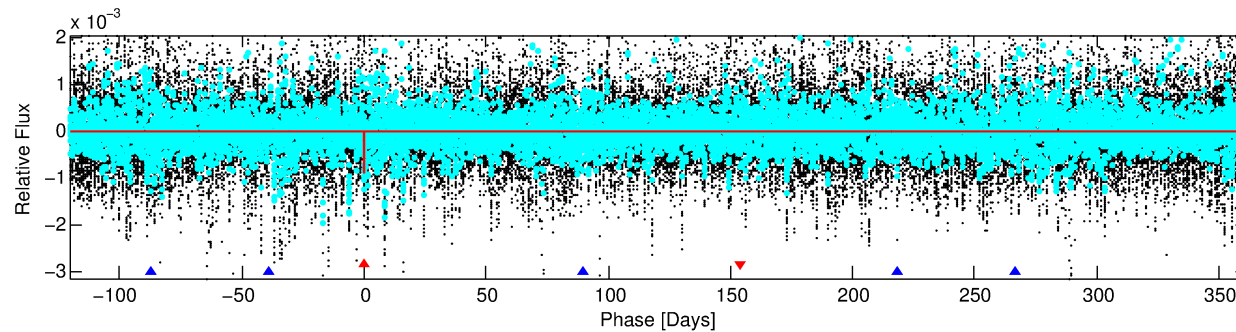
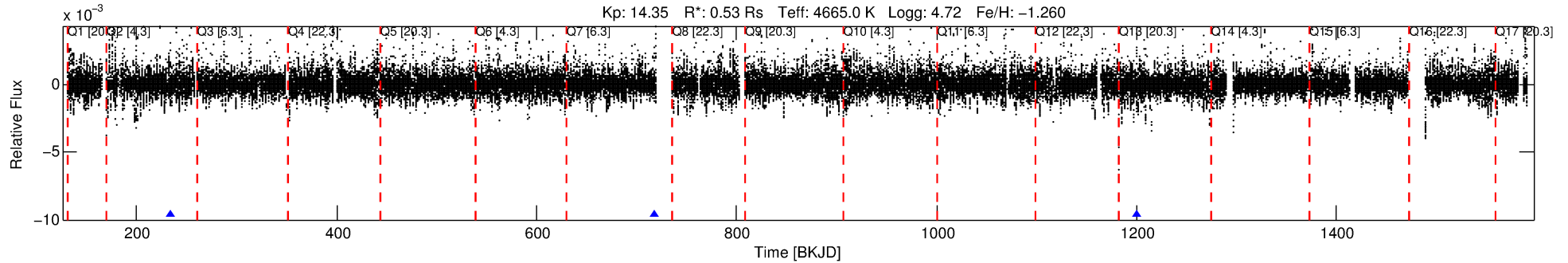
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005474812-01

No Significant Match Found

DV One-Page Summary

KIC: 5474812 Candidate: 1 of 2 Period: 482.688 d



DV Fit Results:

Period = 482.68827 [0.01082] d
Epoch = 234.4703 [0.0124] BKJD
Rp/R* = 0.0286 [0.0454]
a/R* = 513.62 [3149.96]
b = 0.70 [4.56]
Seff = 0.12 [0.02]
Teq = 152 [6] K
Rp = 1.65 [2.63] Re
a = 0.9772 [0.0552] AU
Ag = 131705.41 [419730.68] [0.31 σ]
Teffp = 4464 [3558] K [1.21 σ]

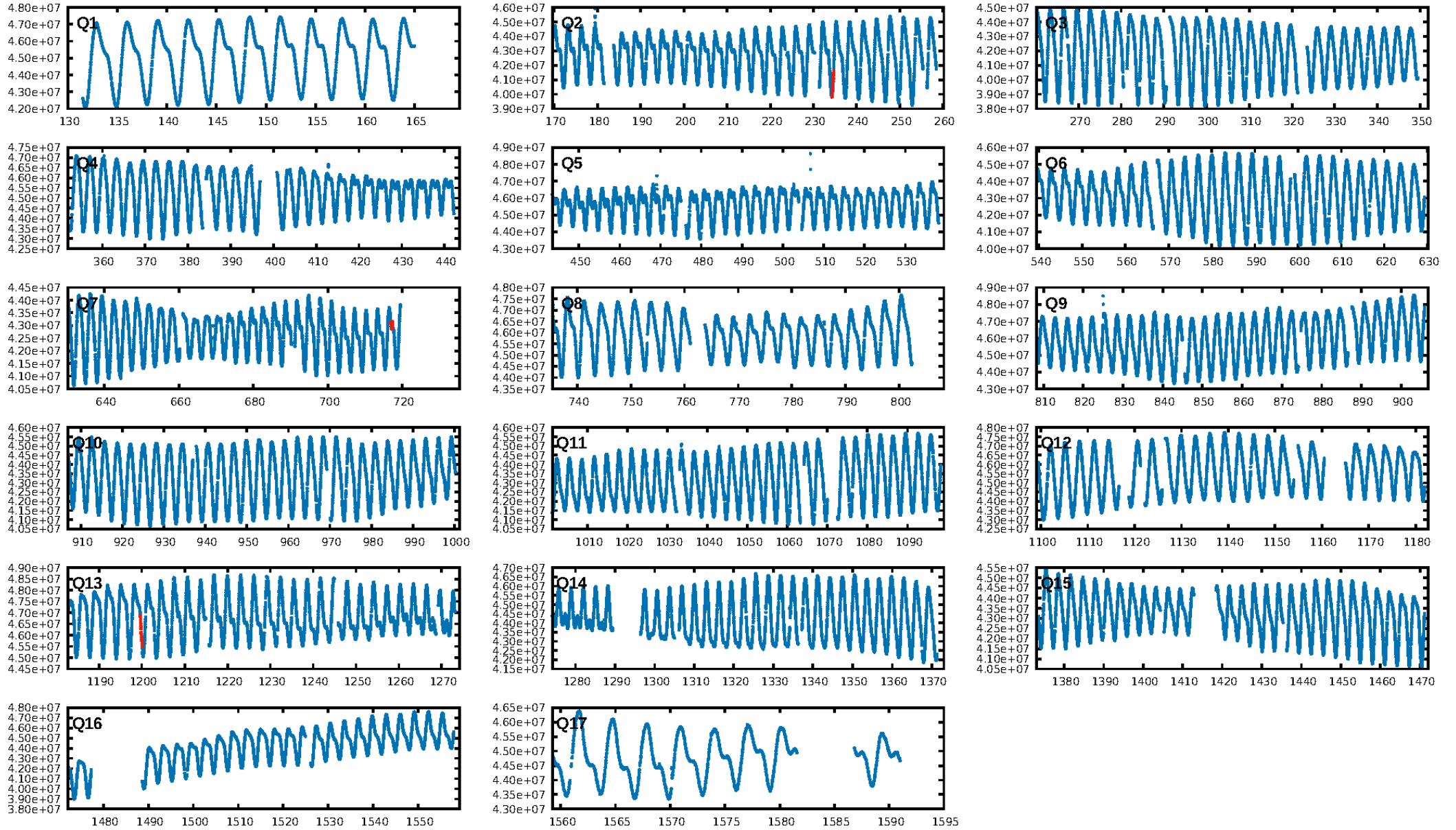
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [501.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 12.1%
ModelChiSquareGof-sig: 98.1%
Bootstrap-pfa: 1.23e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.5474
Centroid-sig: 10.0%
Centroid-so: 1.014 arcsec [0.76 σ]
OotOffset-rm: 0.129 arcsec [1.52 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-rm: 0.091 arcsec [0.81 σ]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

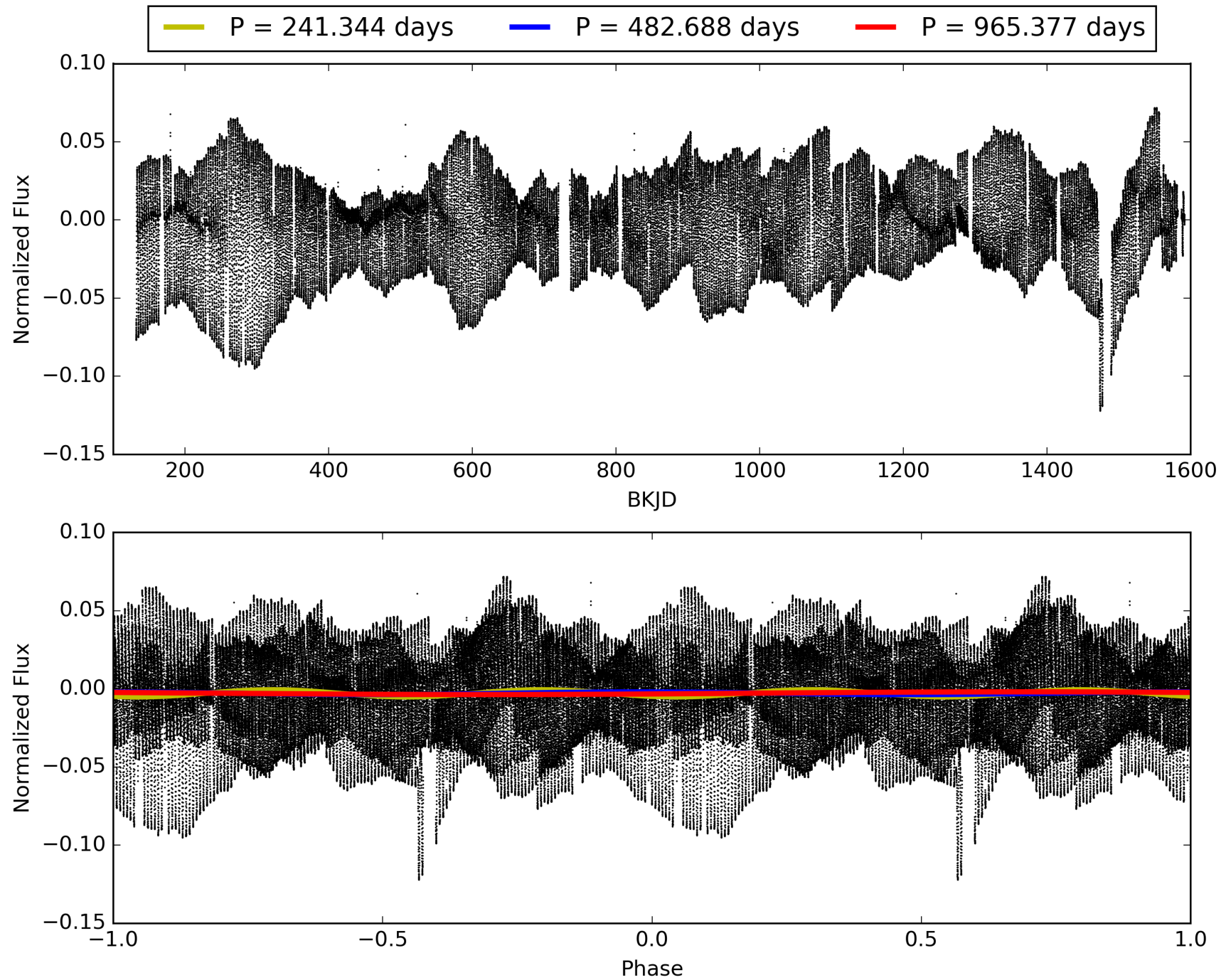
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:40:28 Z

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

TCE 005474812-01, PDC Light Curves

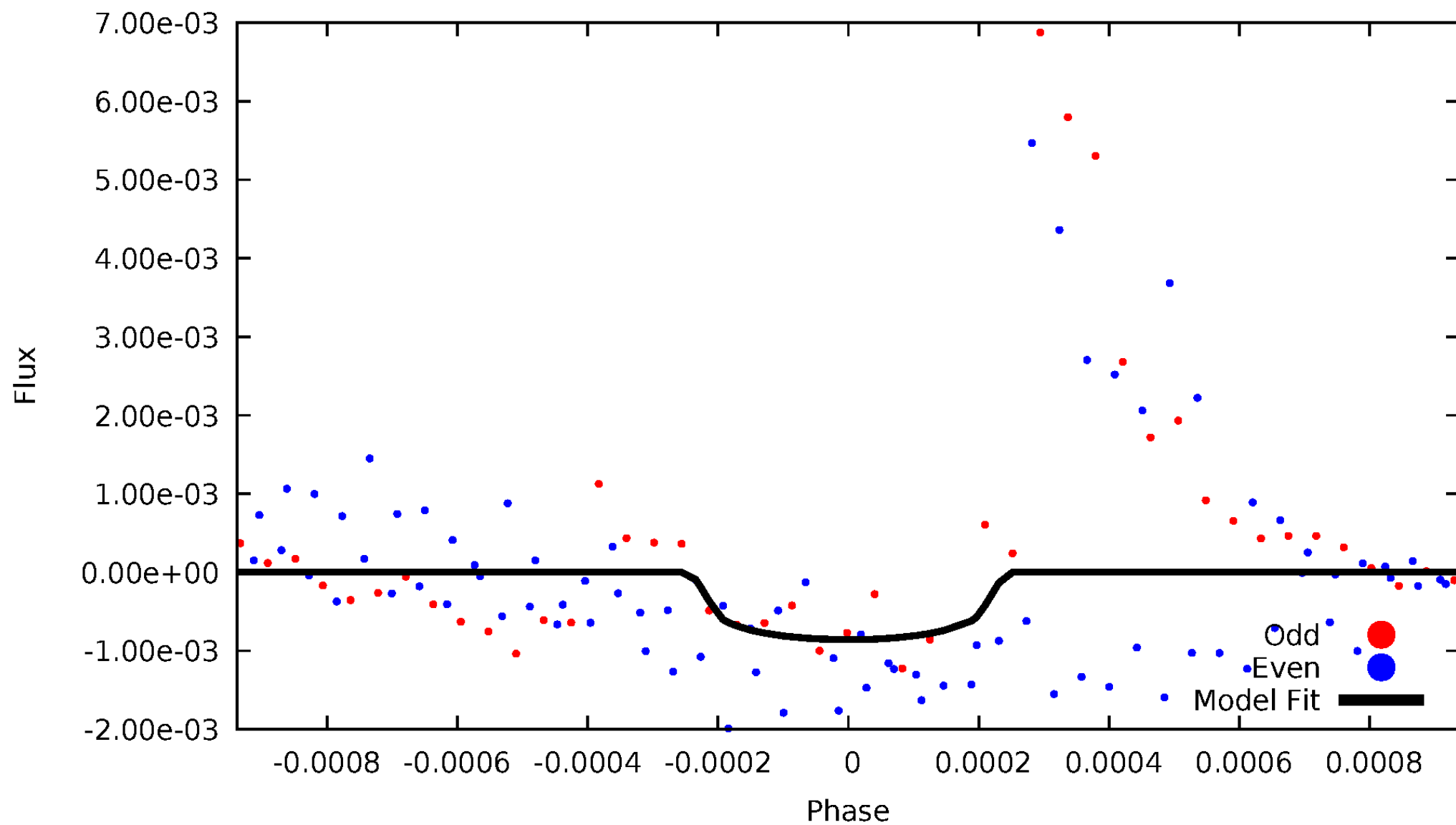


TCE 005474812-01



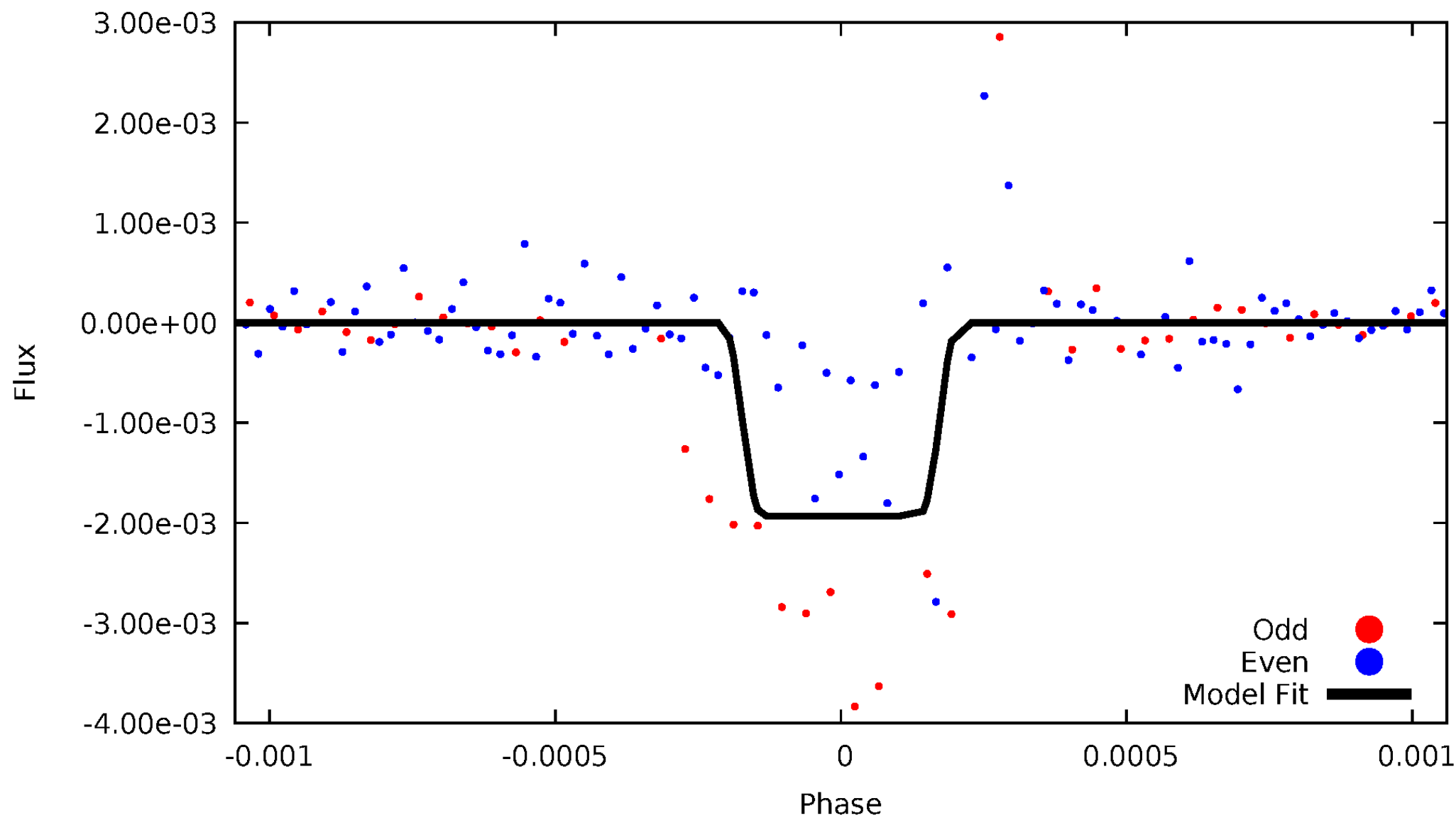
DV Odd/Even

TCE 005474812-01



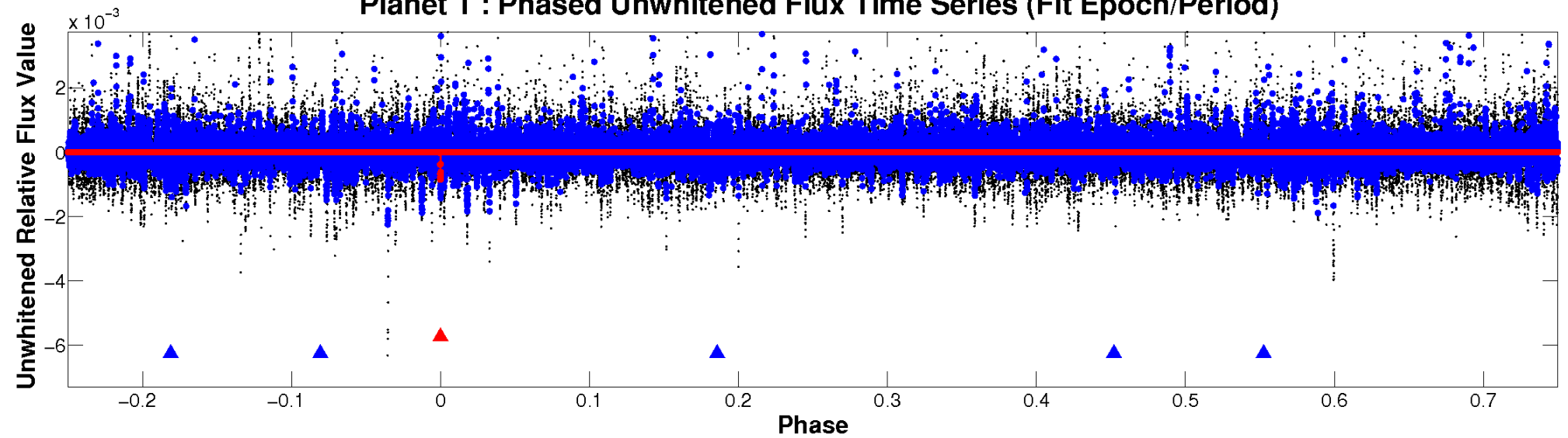
ALT Odd/Even

TCE 005474812-01

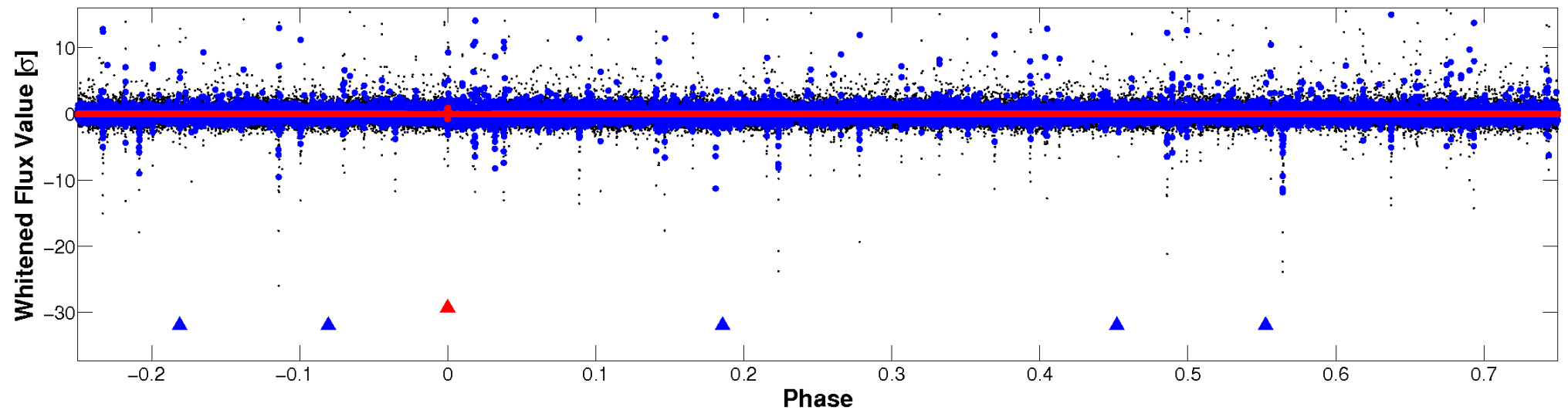


Non-Whitened Vs. Whitened Light Curve

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

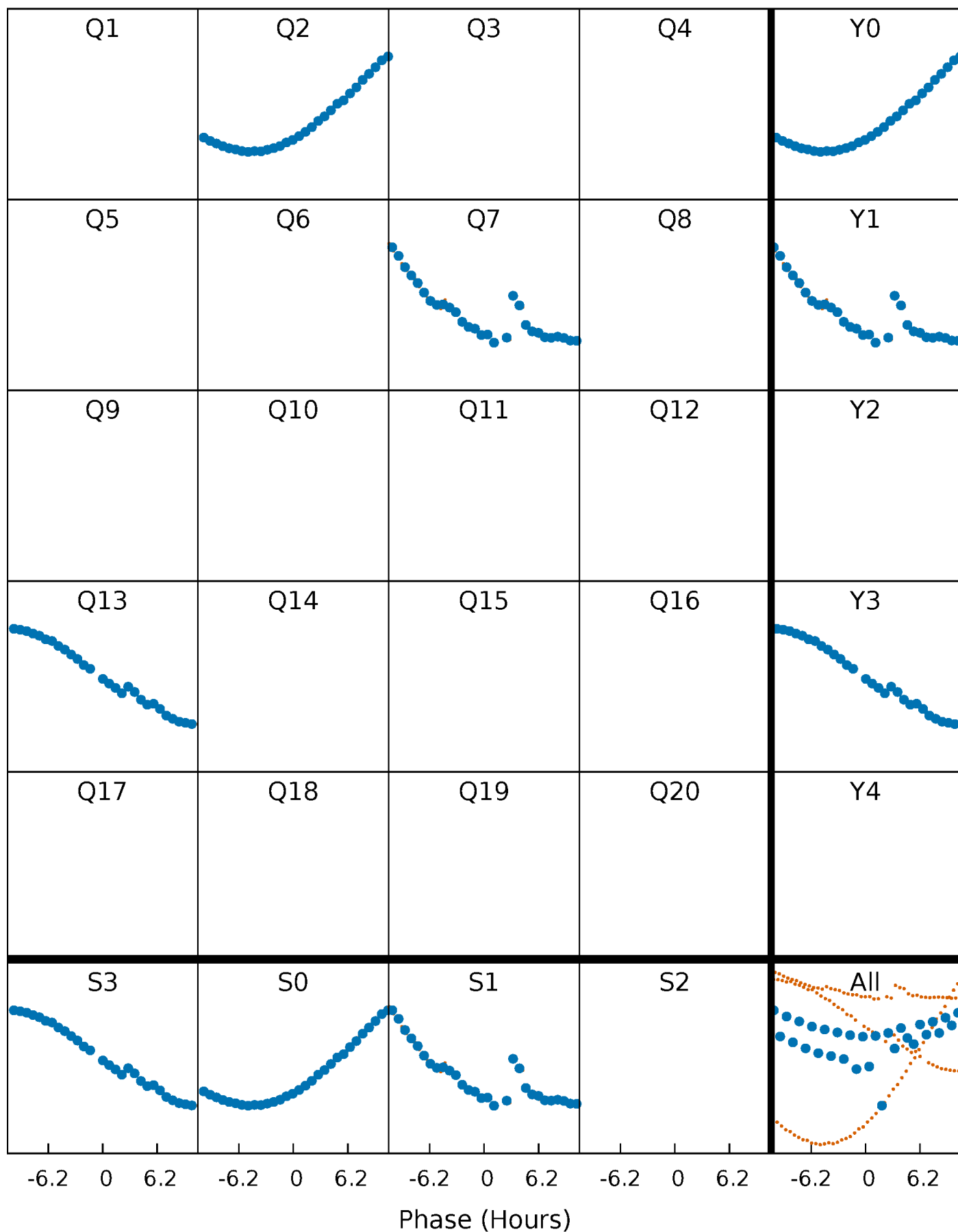


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



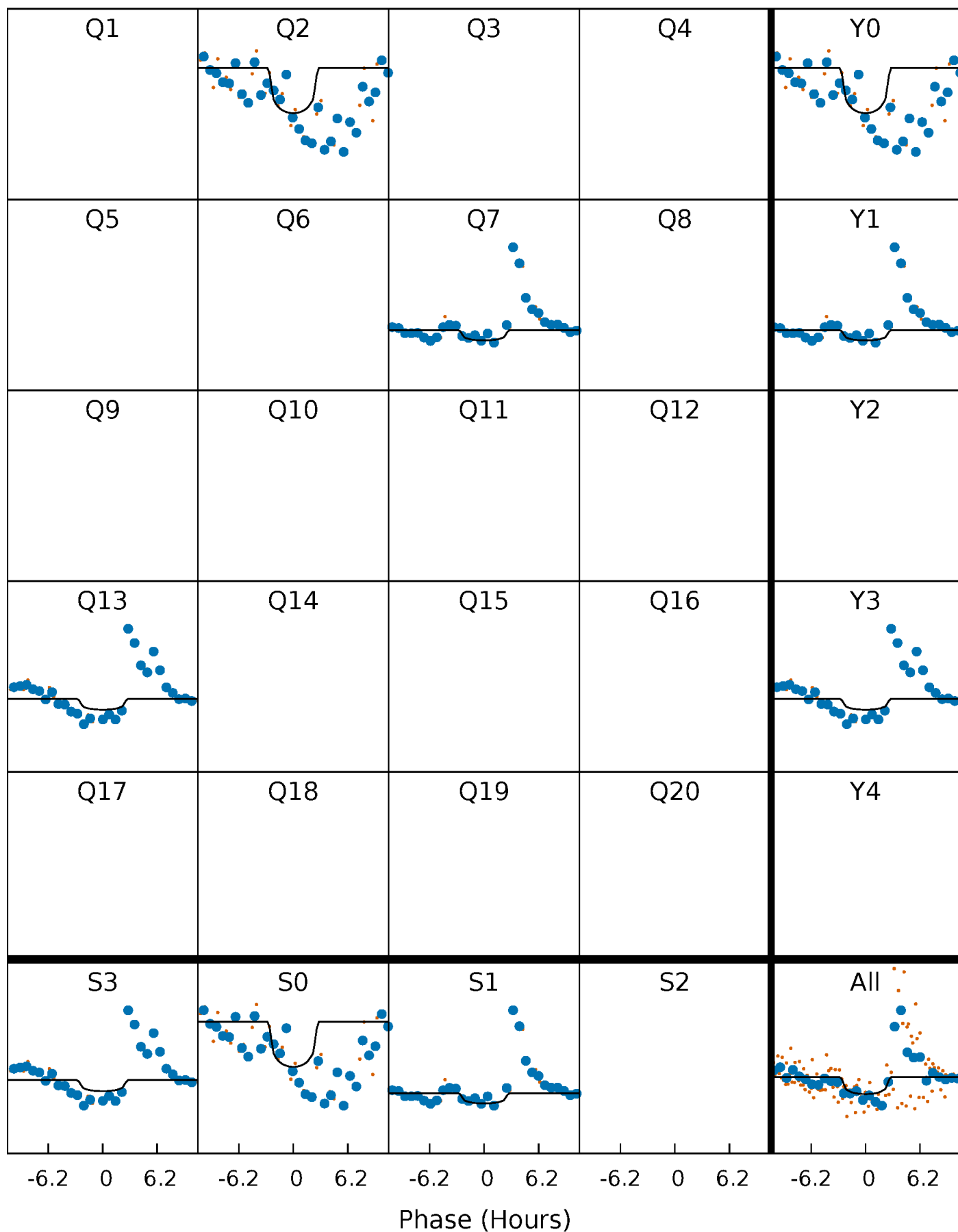
PDC Quarter-Phased Transit Curves

TCE 005474812-01 P=482.688271 Days $T_0=234.470277$ (BKJD)



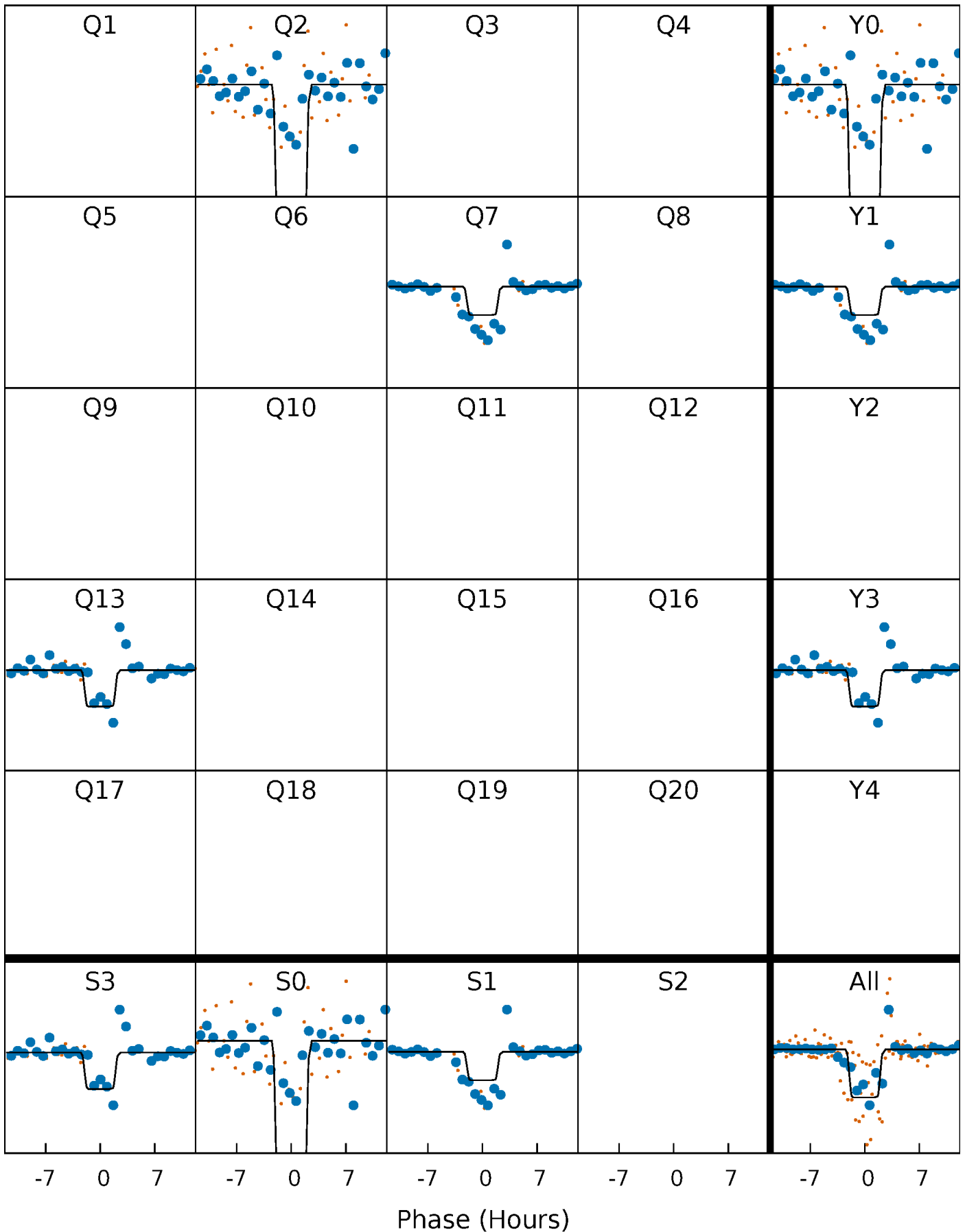
DV Quarter-Phased Transit Curves

TCE 005474812-01 P=482.688271 Days $T_0=234.470277$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

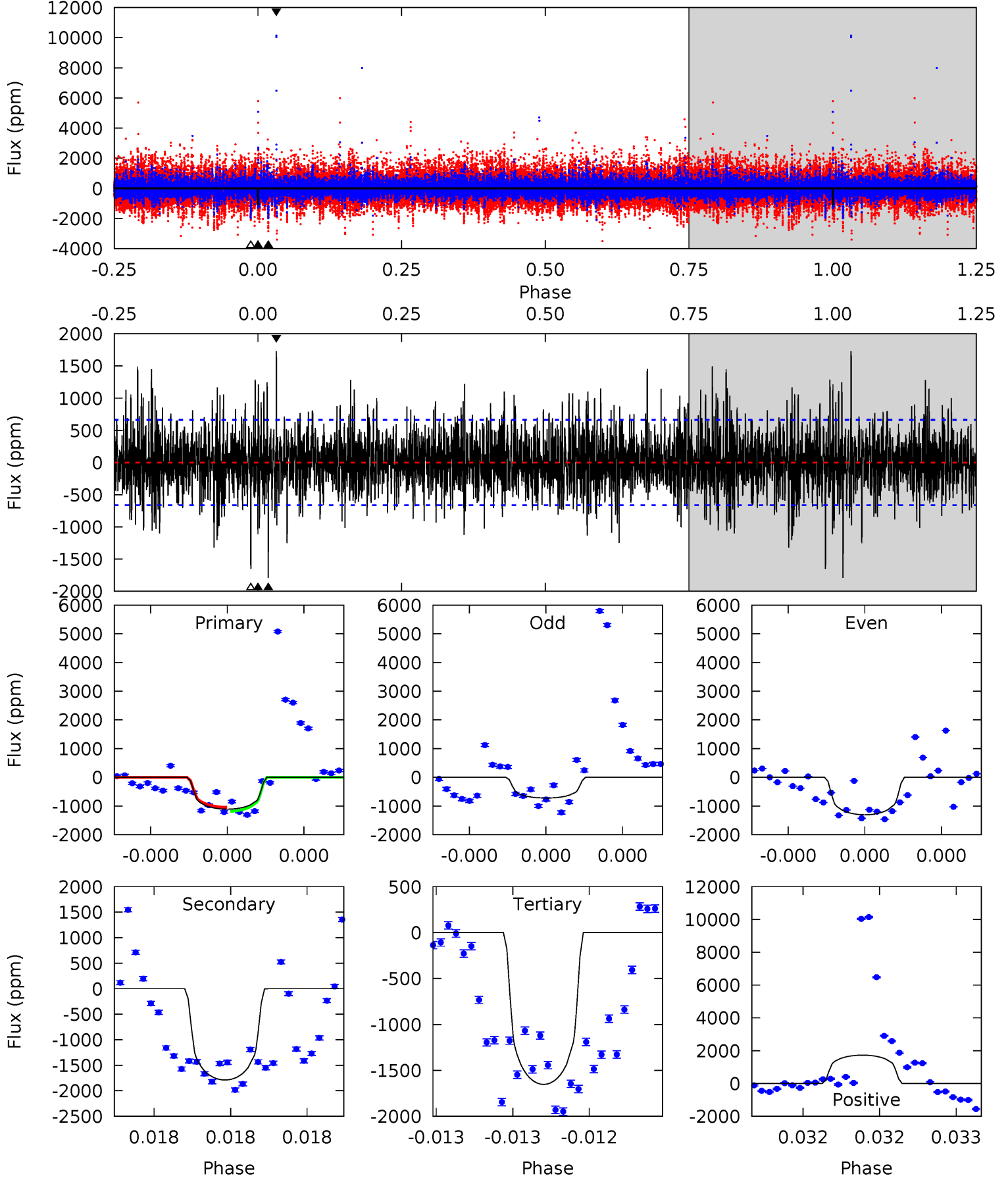
TCE 005474812-01 P=482.674743 Days $T_0=234.512212$ (BKJD)



DV Model-Shift Uniqueness Test

005474812-01, P = 482.688271 Days, E = 234.470277 Days

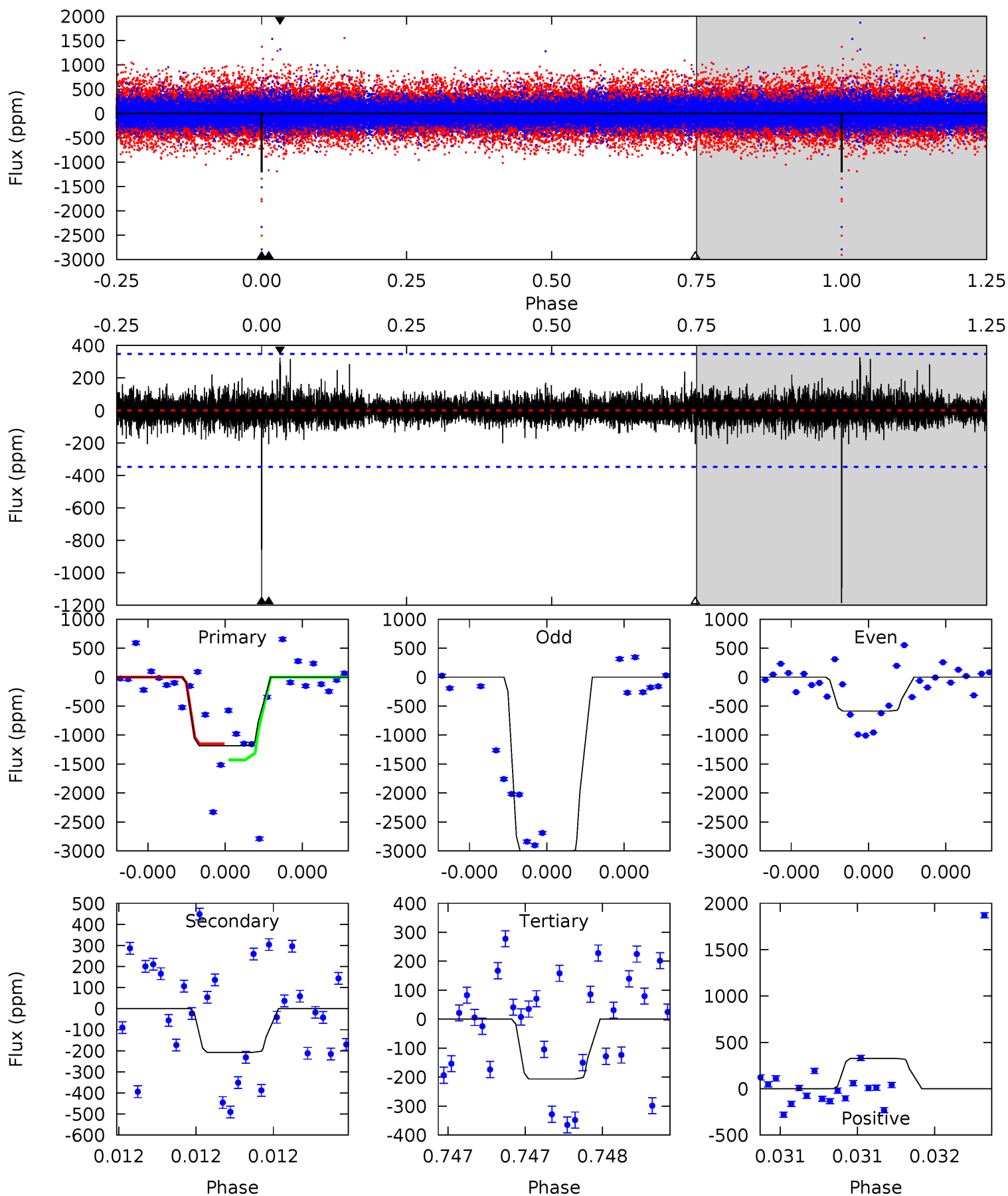
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.36	15.1	13.9	14.6	5.58	3.49	2.97	-4.56	-5.20	1.15	0.51	2.00	1.15	0.49	0.60



Alt Model-Shift Uniqueness Test

005474812-01, P = 482.674743 Days, E = 234.512212 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	3.35	3.34	5.27	5.62	3.55	0.67	15.8	13.9	0.01	-1.92	22.0	1.11	0.22	2.18



Stellar Parameters For KIC 005474812

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4665^{+139}_{-139}	$4.717^{+0.048}_{-0.028}$	$-1.260^{+0.300}_{-0.300}$	$0.530^{+0.031}_{-0.034}$	$0.535^{+0.039}_{-0.022}$	$5.053^{+0.990}_{-0.527}$
	+3%/-3%	+1%/-1%	+24%/-24%	+6%/-6%	+7%/-4%	+20%/-10%
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 005474812-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1789 ± 119	$2.57^{+2.27}_{-1.74}$	211^{+7}_{-7}	4584^{+3634}_{-942}	$144005^{+1300557}_{-103204}$
Alt.	-207 ± 62	$3.01^{+2.30}_{-1.94}$	211^{+7}_{-7}	3026^{+1210}_{-455}	12278^{+81333}_{-8673}

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

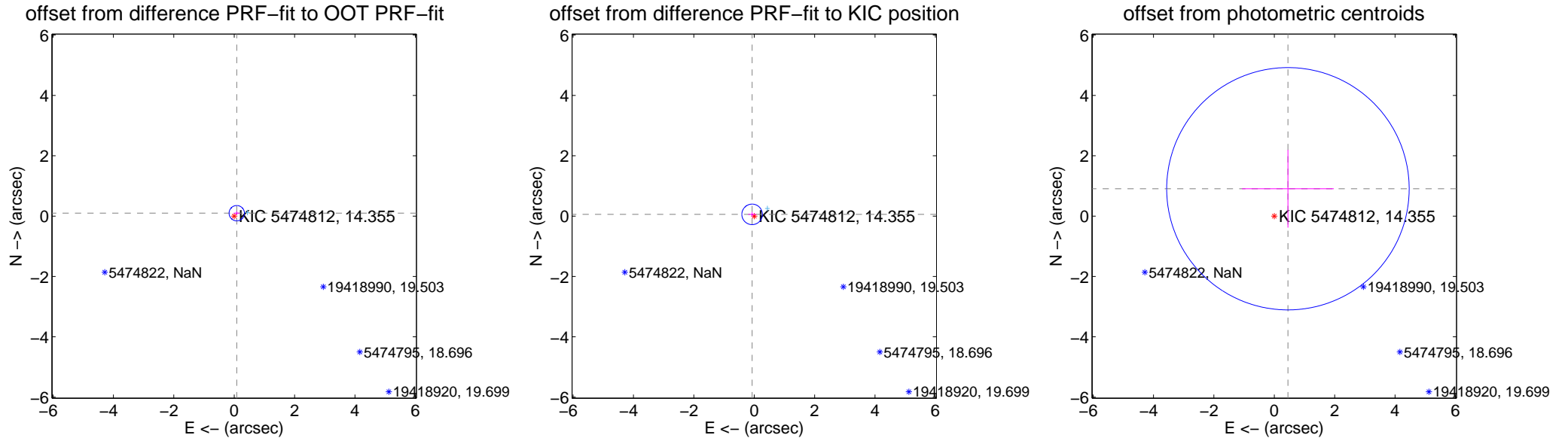
DV Centroid Data

Supplemental centroid analysis for 005474812-01. Kepler magnitude: 14.36. Transit SNR 4.13

There are 2 quarters with good PRF difference image offsets

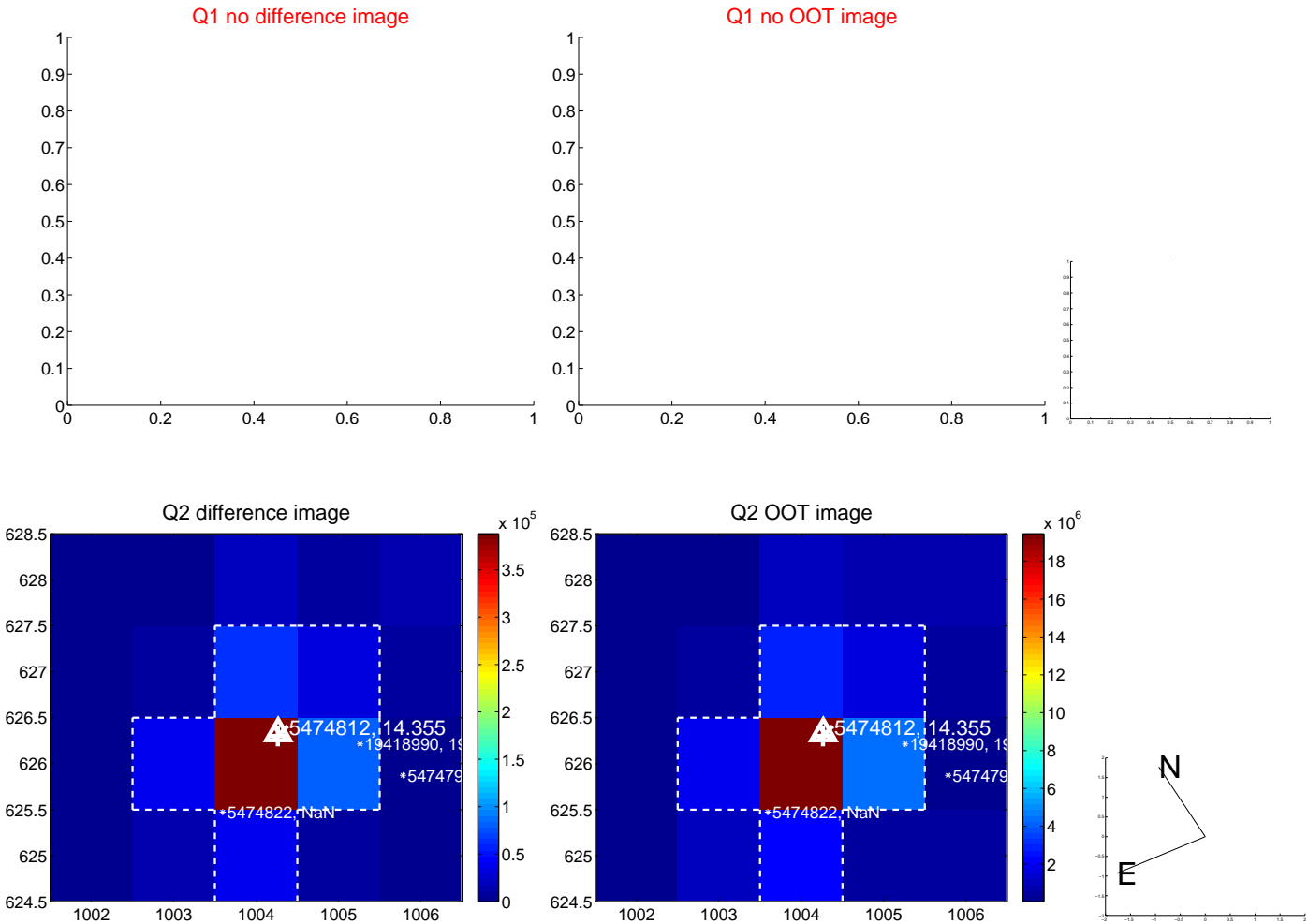
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.129 ± 0.085	1.52	-0.084 ± 0.104	0.097 ± 0.067
PRF-fit source offset from KIC position	0.091 ± 0.113	0.81	0.071 ± 0.132	0.058 ± 0.079
photometric centroid source offset	1.01 ± 1.34	0.76	-0.45 ± 1.52	0.91 ± 1.29



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.

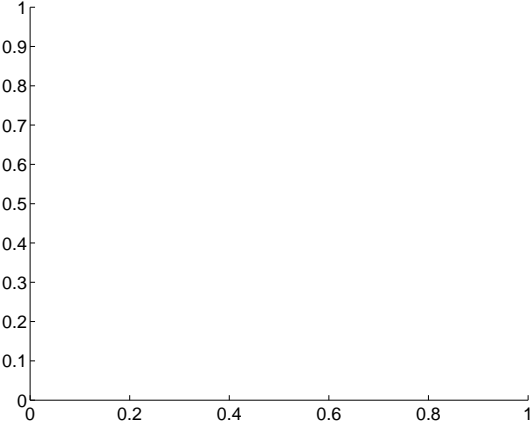
Q5 no difference image



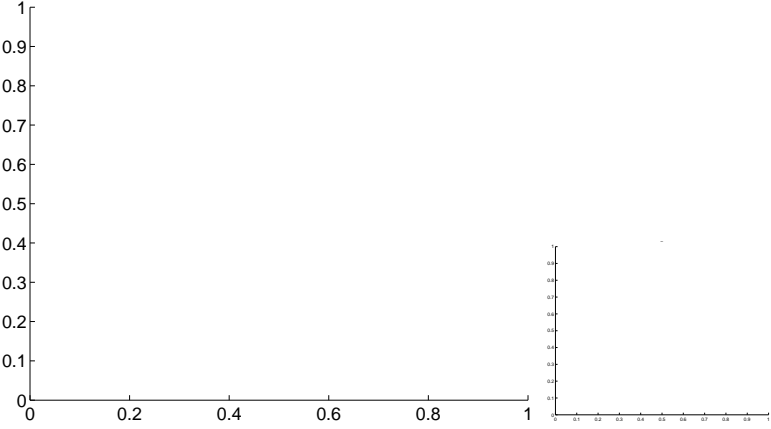
Q5 no OOT image



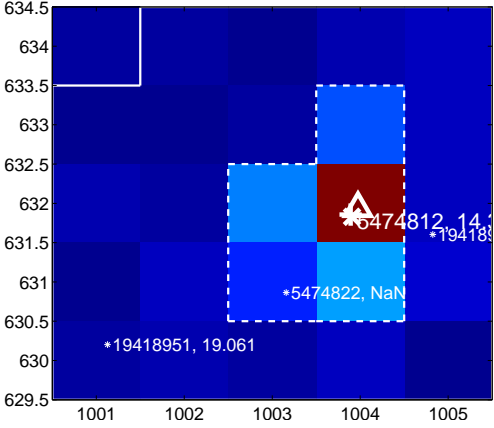
Q6 no difference image



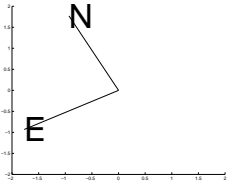
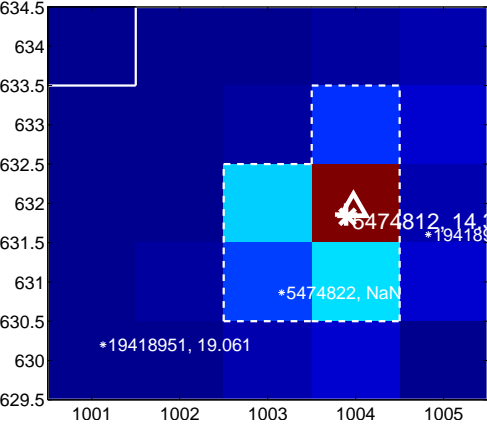
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image



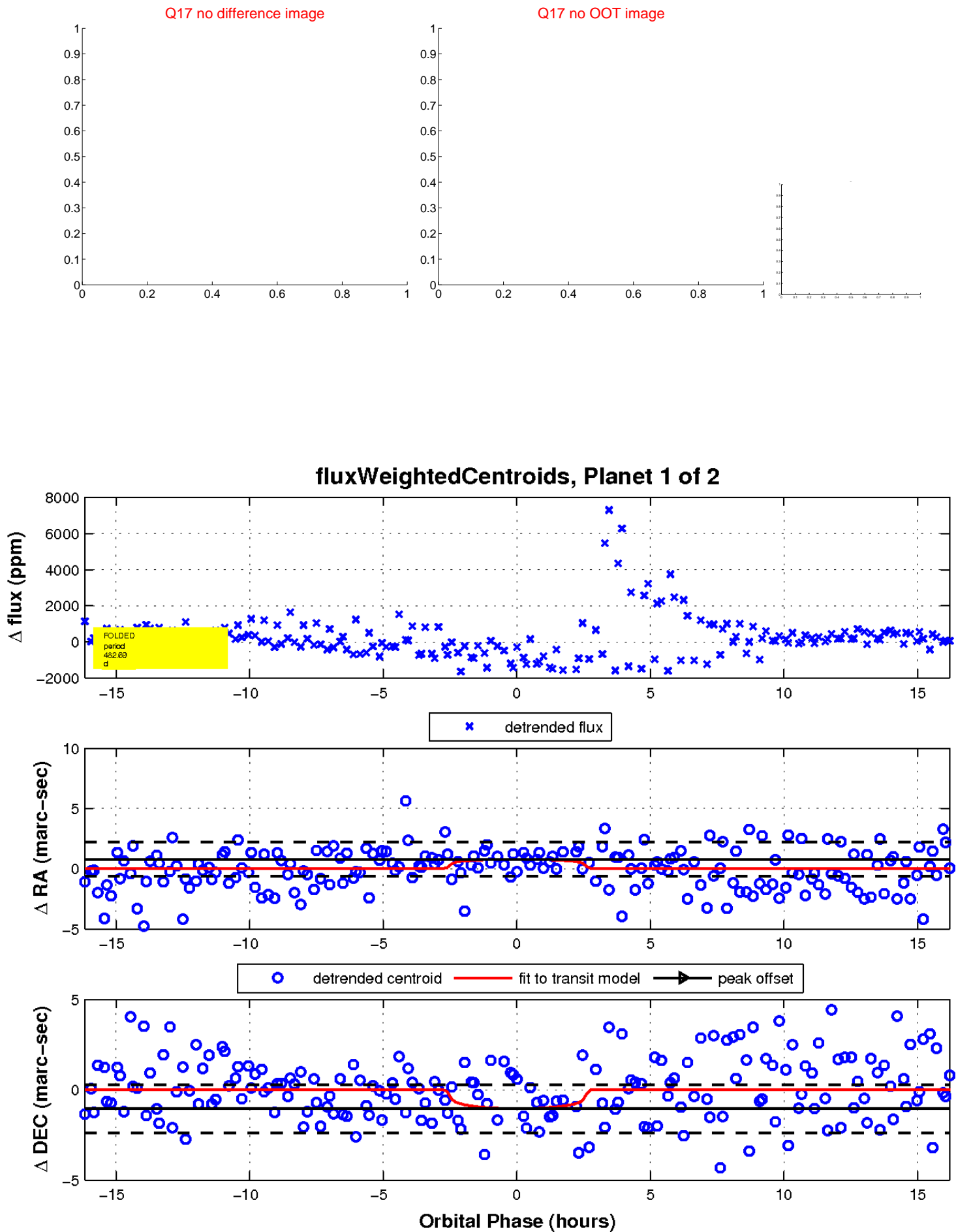
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

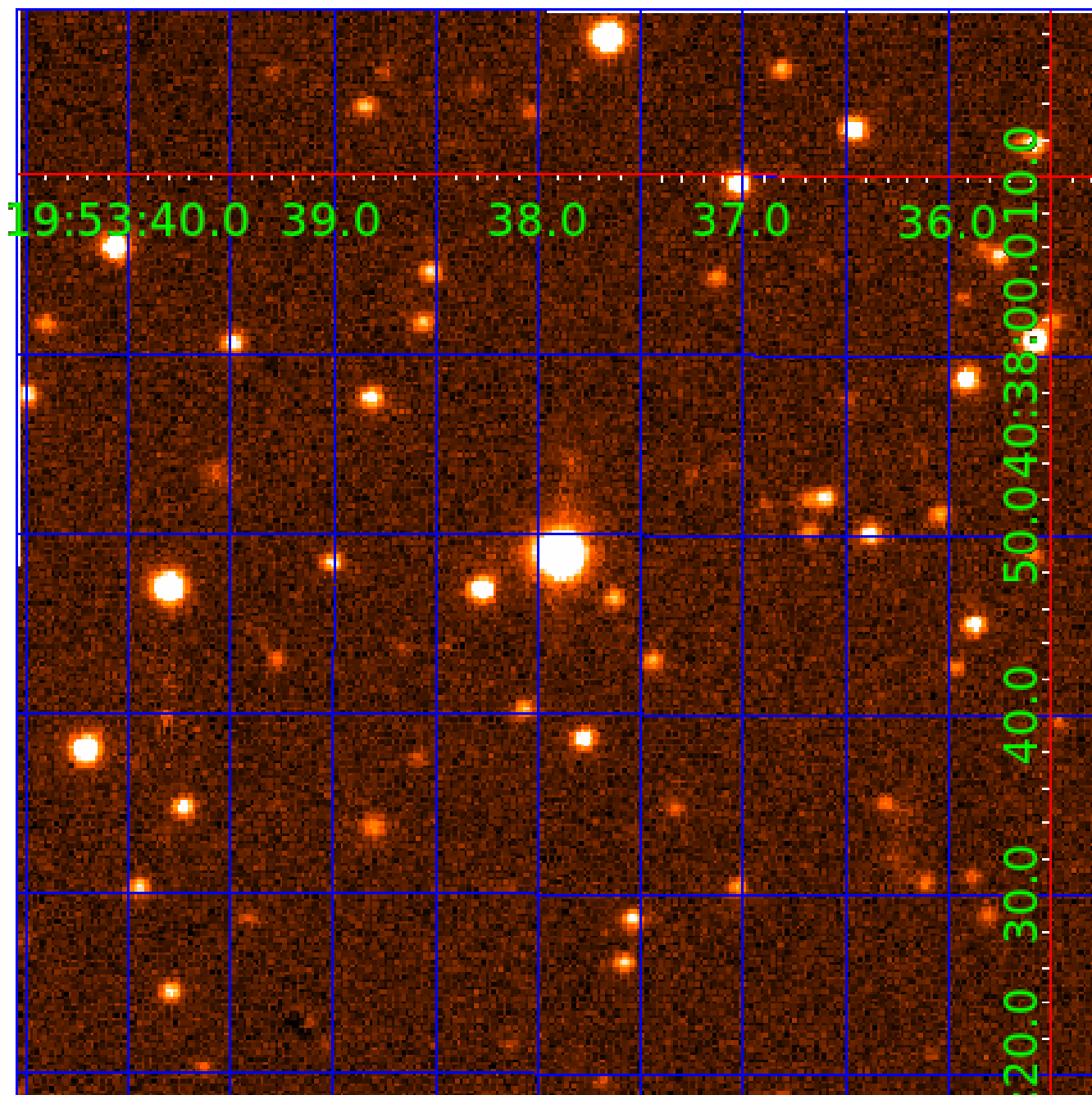


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005474812

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})
005474812-01	OBS	No	482.688271	234.470277	859.2	5.431	17.0	4.1	0.53	4665	1.65	0.12
005474812-02	OBS	No	305.627296	195.554220	522.0	6.515	12.2	2.7	0.53	4665	1.19	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005474812-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005474812-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

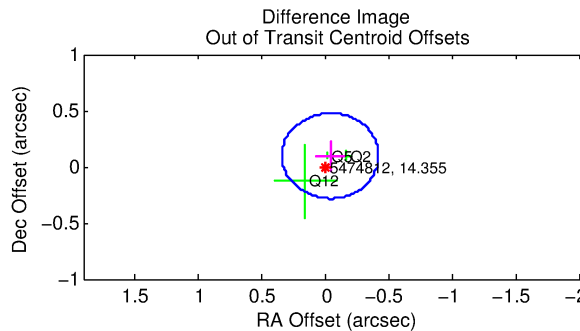
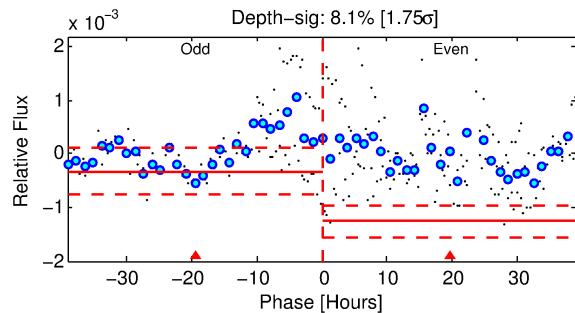
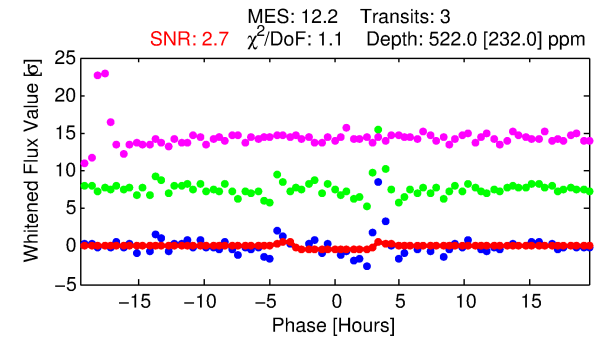
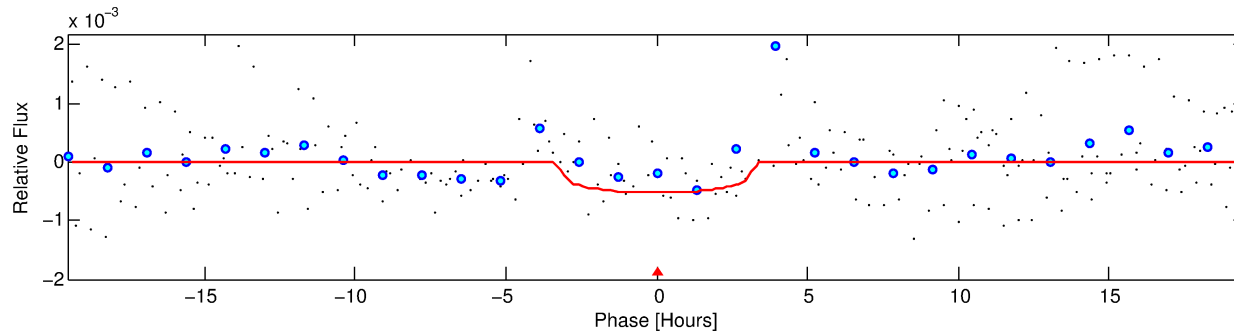
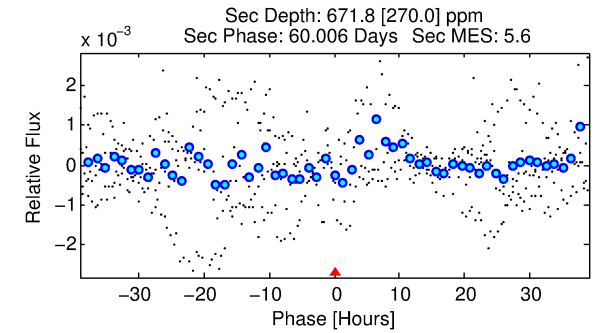
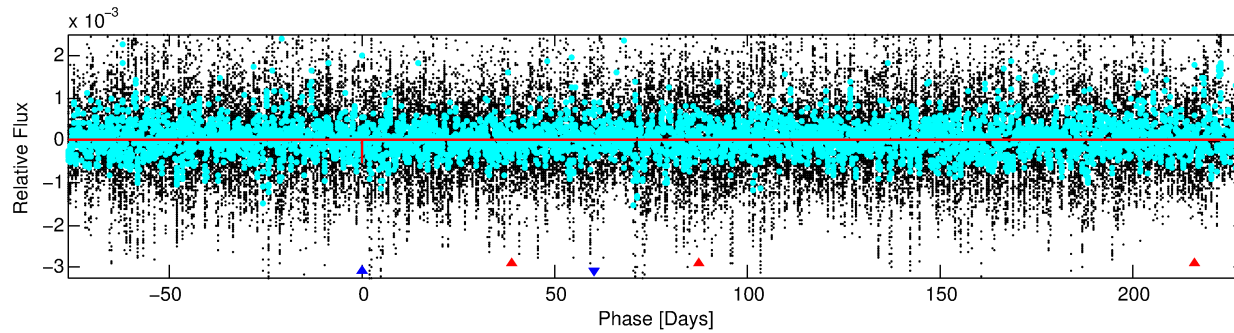
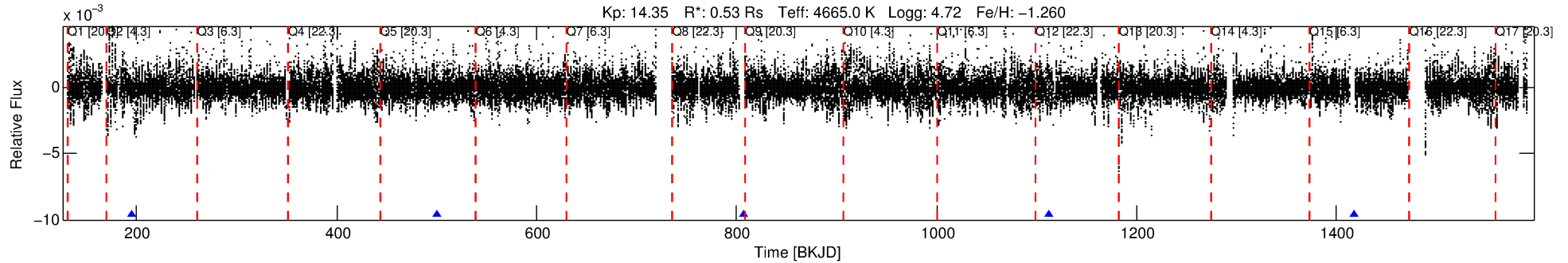
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005474812-02

No Significant Match Found

DV One-Page Summary

KIC: 5474812 Candidate: 2 of 2 Period: 305.627 d



DV Fit Results:

Period = 305.62730 [0.00833] d
Epoch = 195.5542 [0.0151] BKJD
Rp/R* = 0.0207 [0.0689]
a/R* = 354.97 [4587.41]
b = 0.25 [49.72]
Seff = 0.23 [0.03]
Teq = 177 [6] K
Rp = 1.19 [3.98] Re
a = 0.7206 [0.0407] AU
Ag = 134521.04 [899079.05] [0.15σ]
Teffp = 5226 [8733] K [0.58σ]

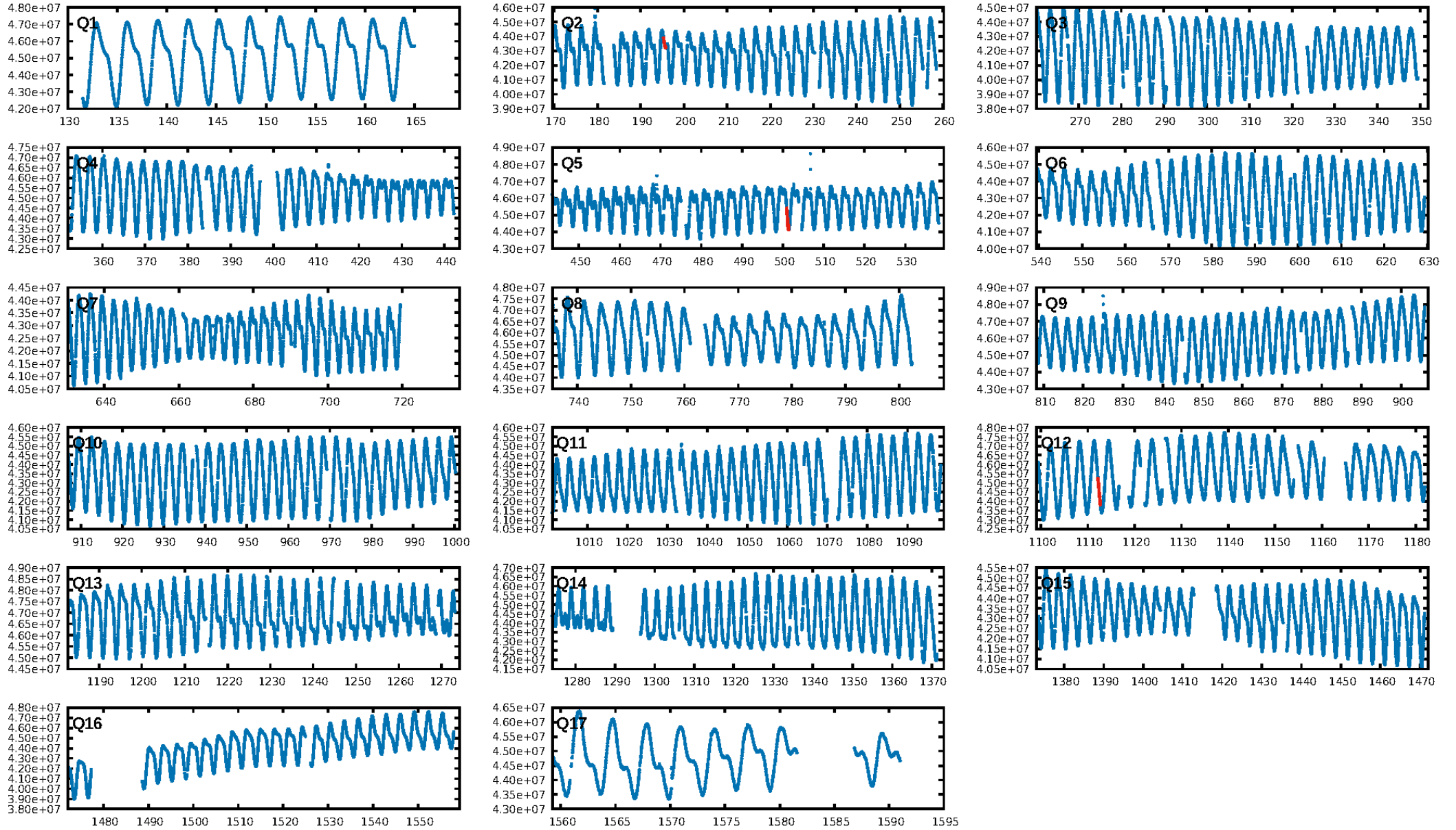
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [501.00σ]
ModelChiSquare2-sig: 1.0%
a/R* = 354.97 [4587.41]
Bootstrap-pfa: 2.70e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.299
Centroid-sig: 0.9%
Centroid-so: 4.071 arcsec [1.97σ]
OotOffset-rm: 0.105 arcsec [0.83σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-rm: 0.116 arcsec [0.97σ]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

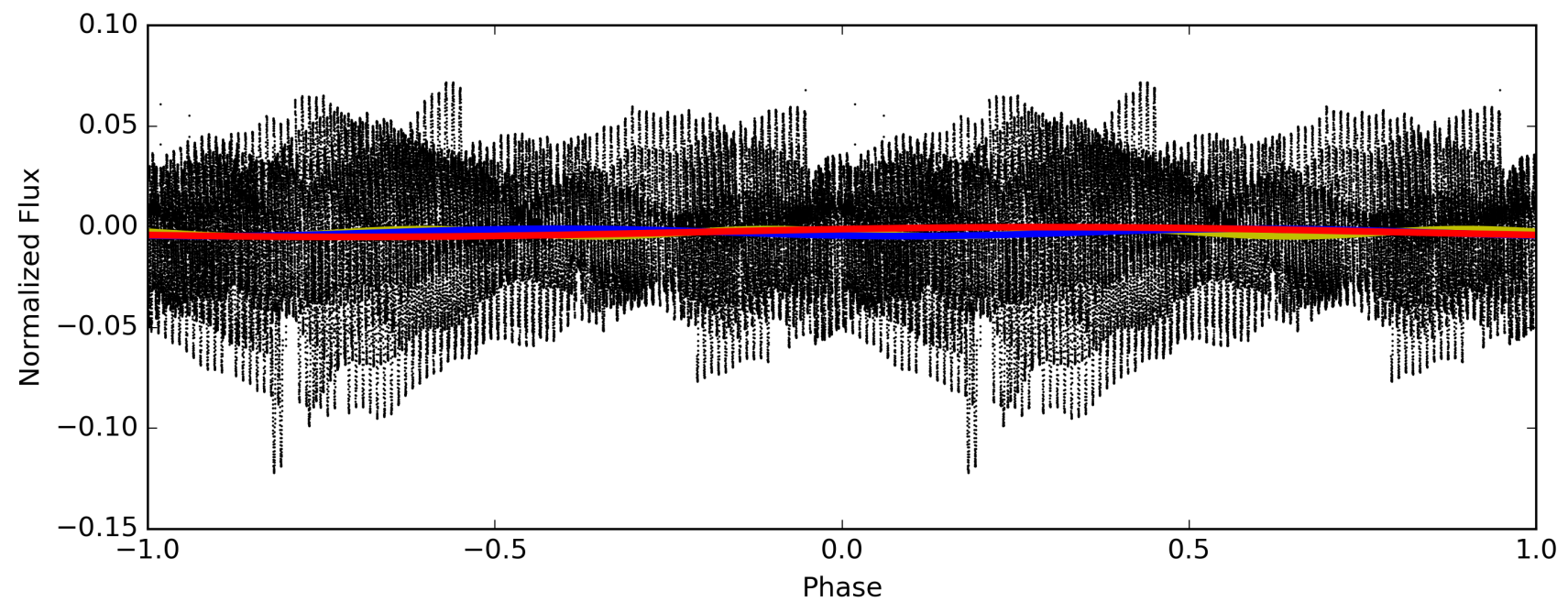
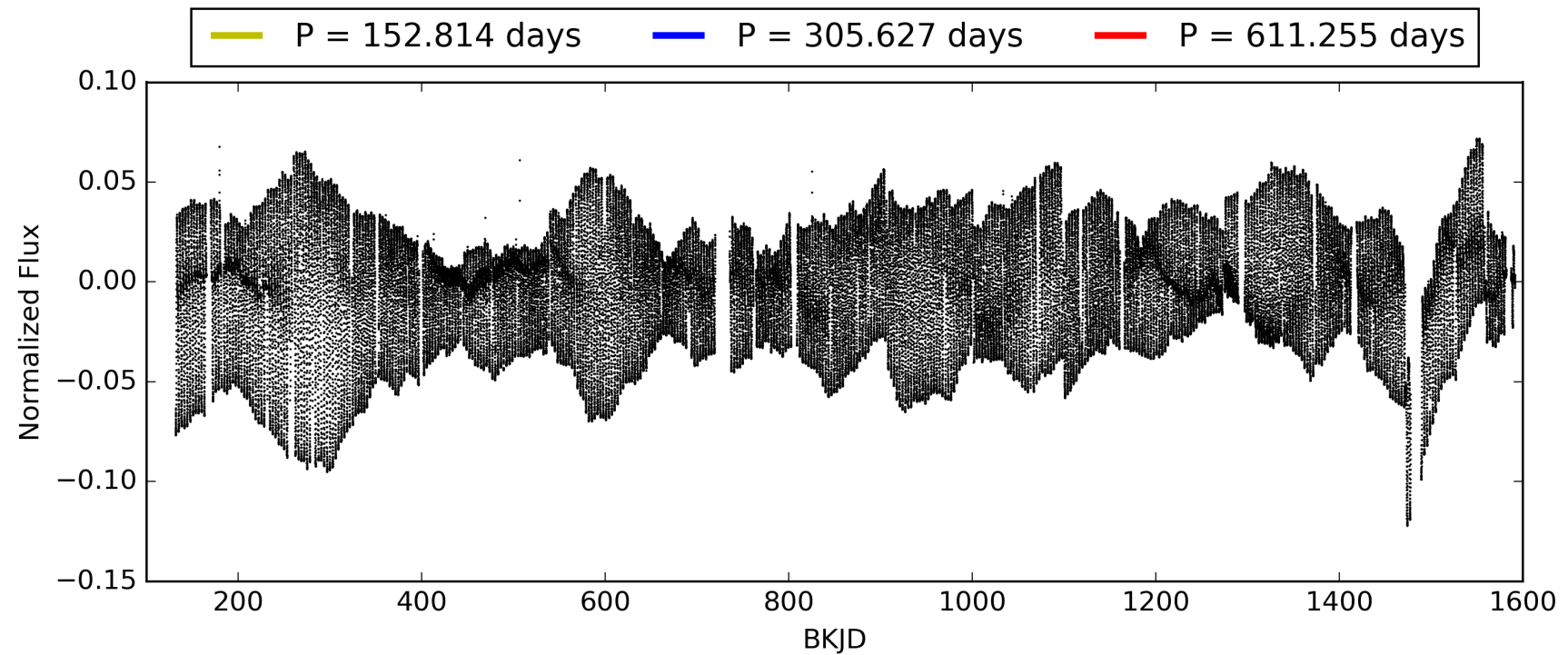
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:40:44 Z

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

TCE 005474812-02, PDC Light Curves

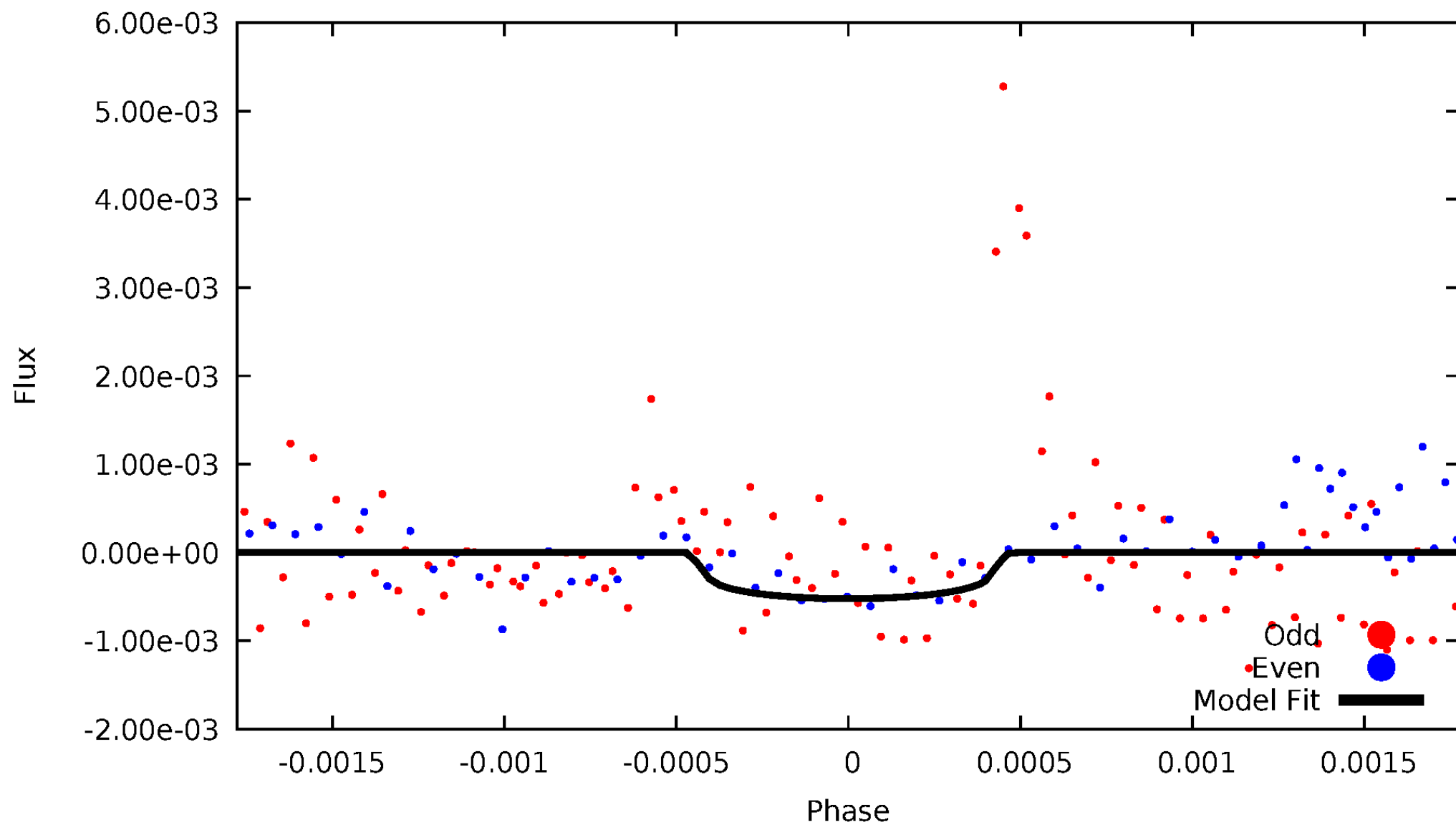


TCE 005474812-02



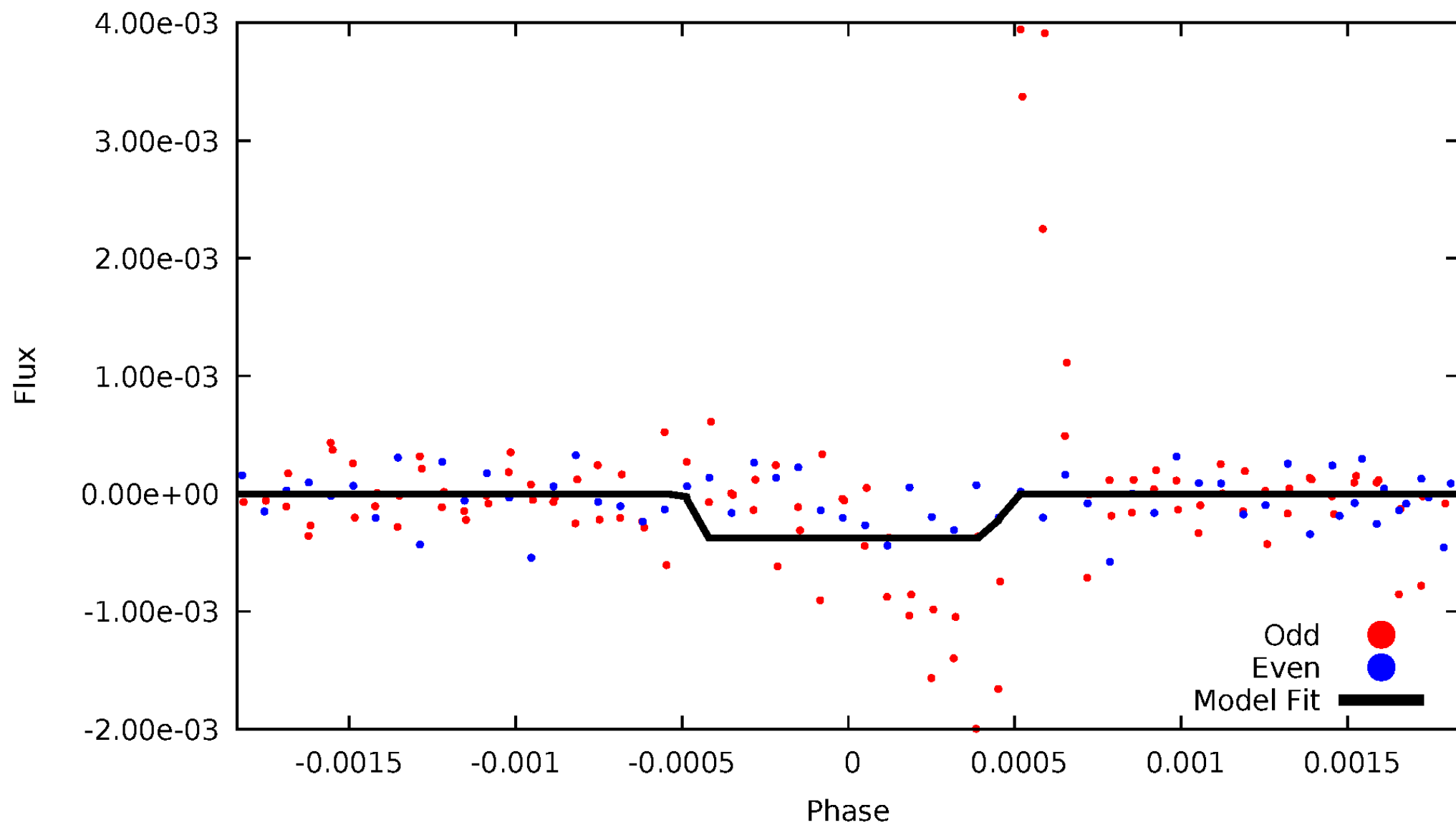
DV Odd/Even

TCE 005474812-02



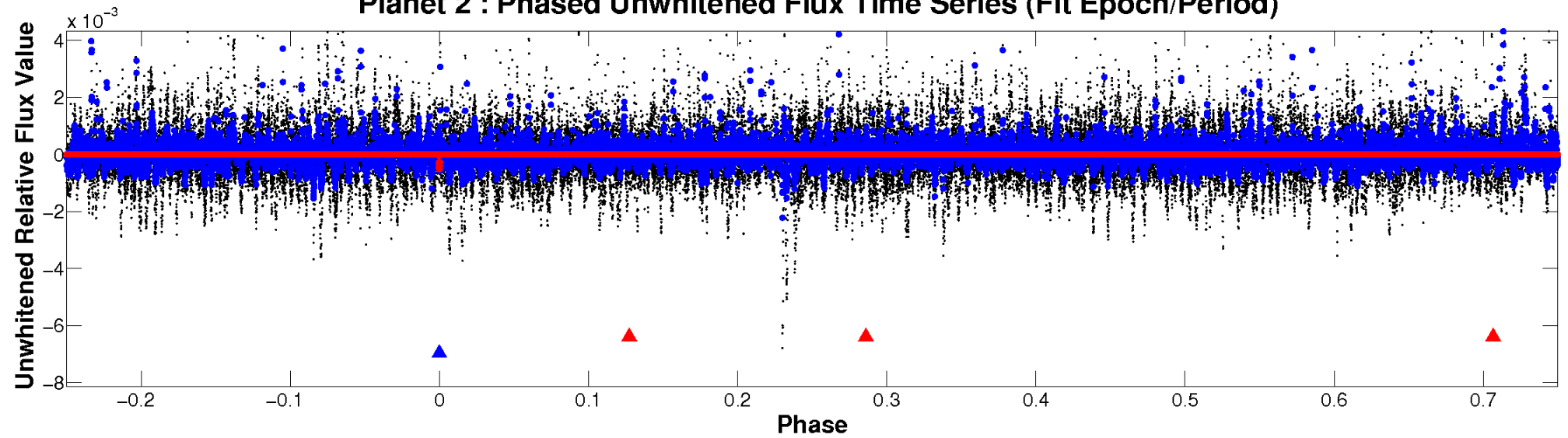
ALT Odd/Even

TCE 005474812-02

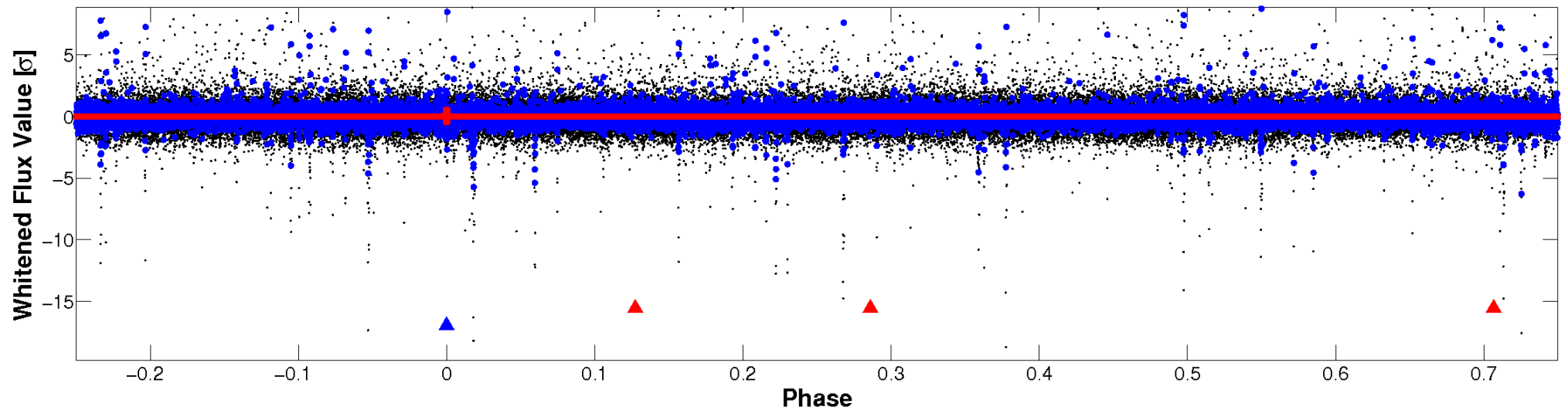


Non-Whitened Vs. Whitened Light Curve

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

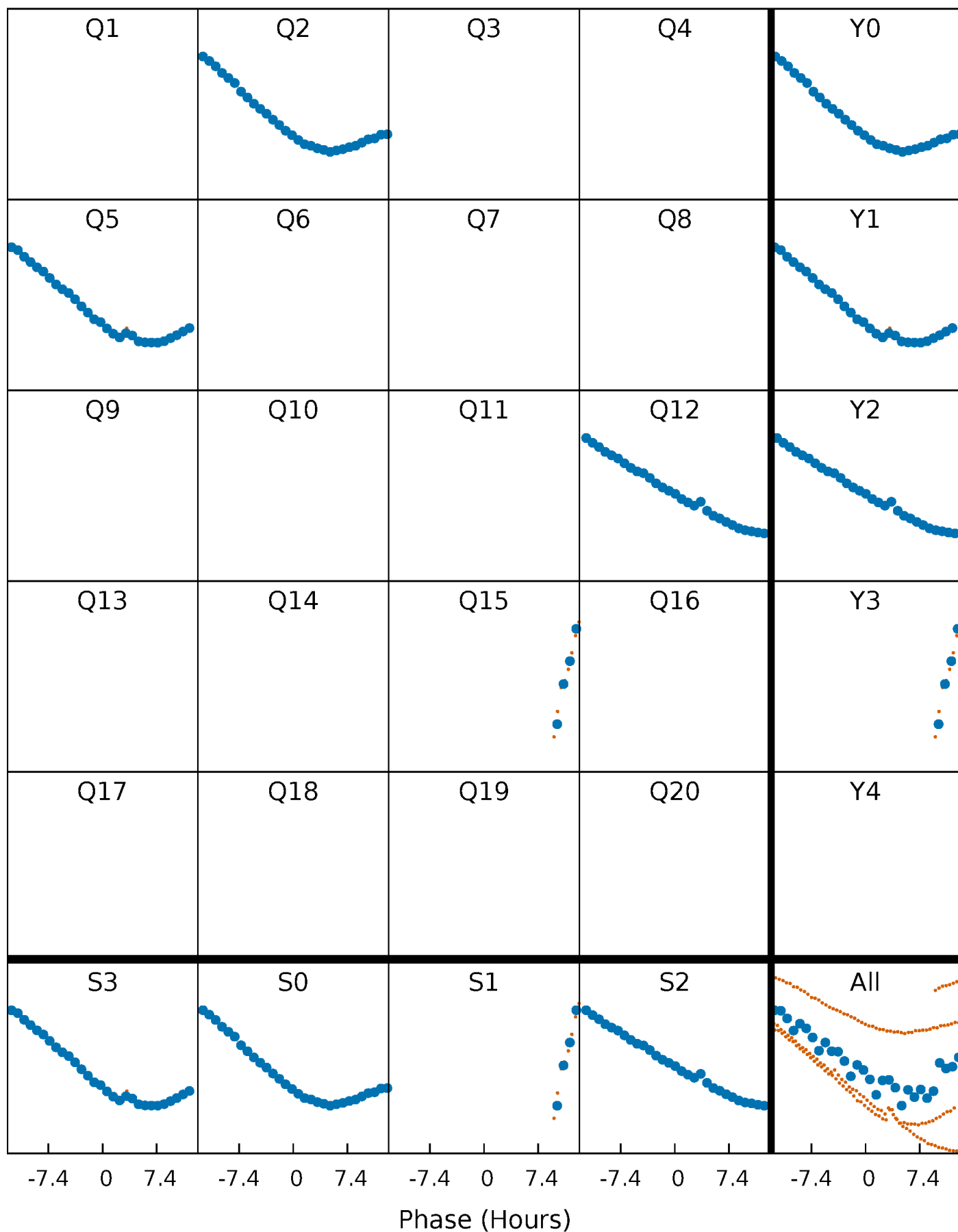


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



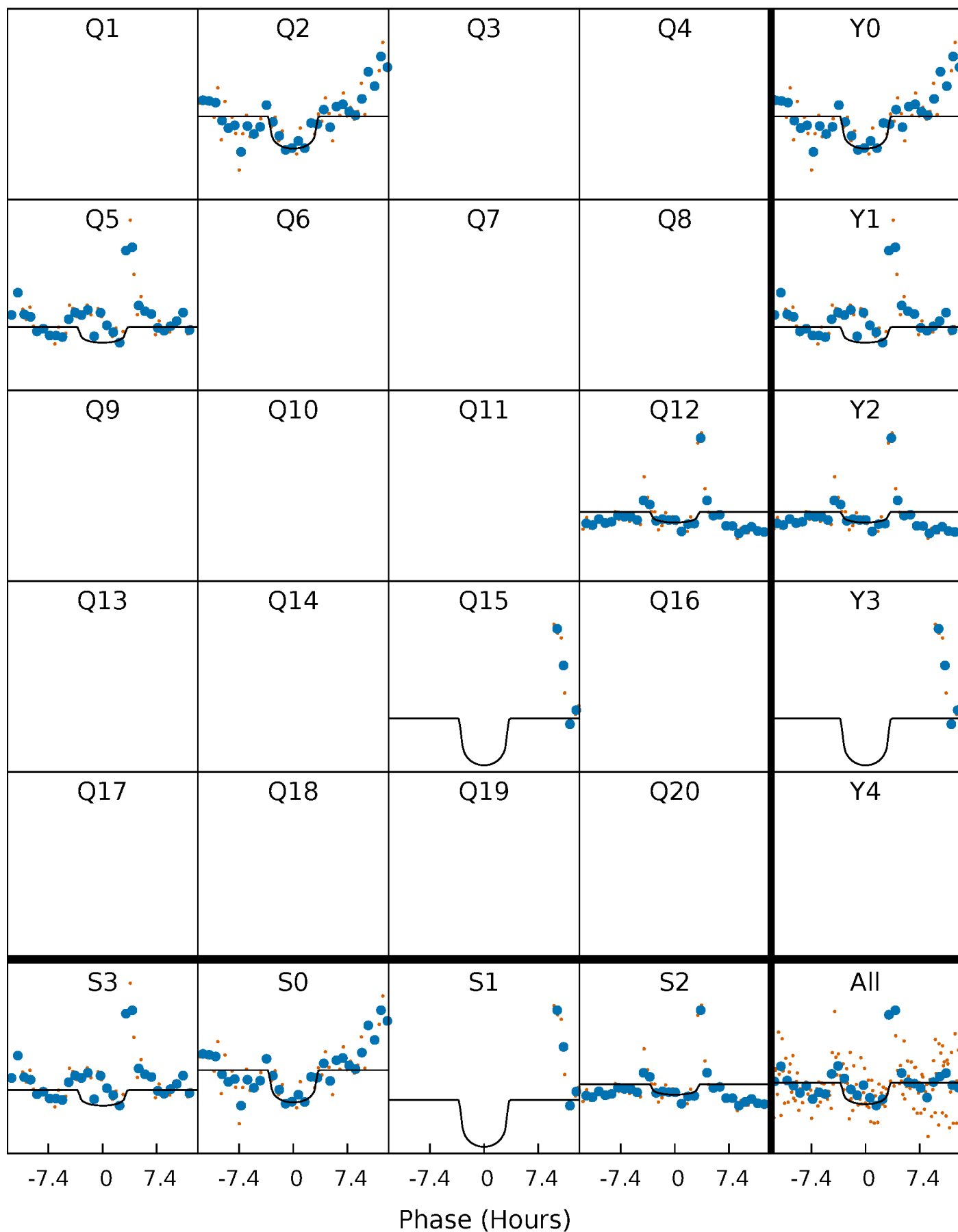
PDC Quarter-Phased Transit Curves

TCE 005474812-02 P=305.627296 Days $T_0=195.554220$ (BKJD)



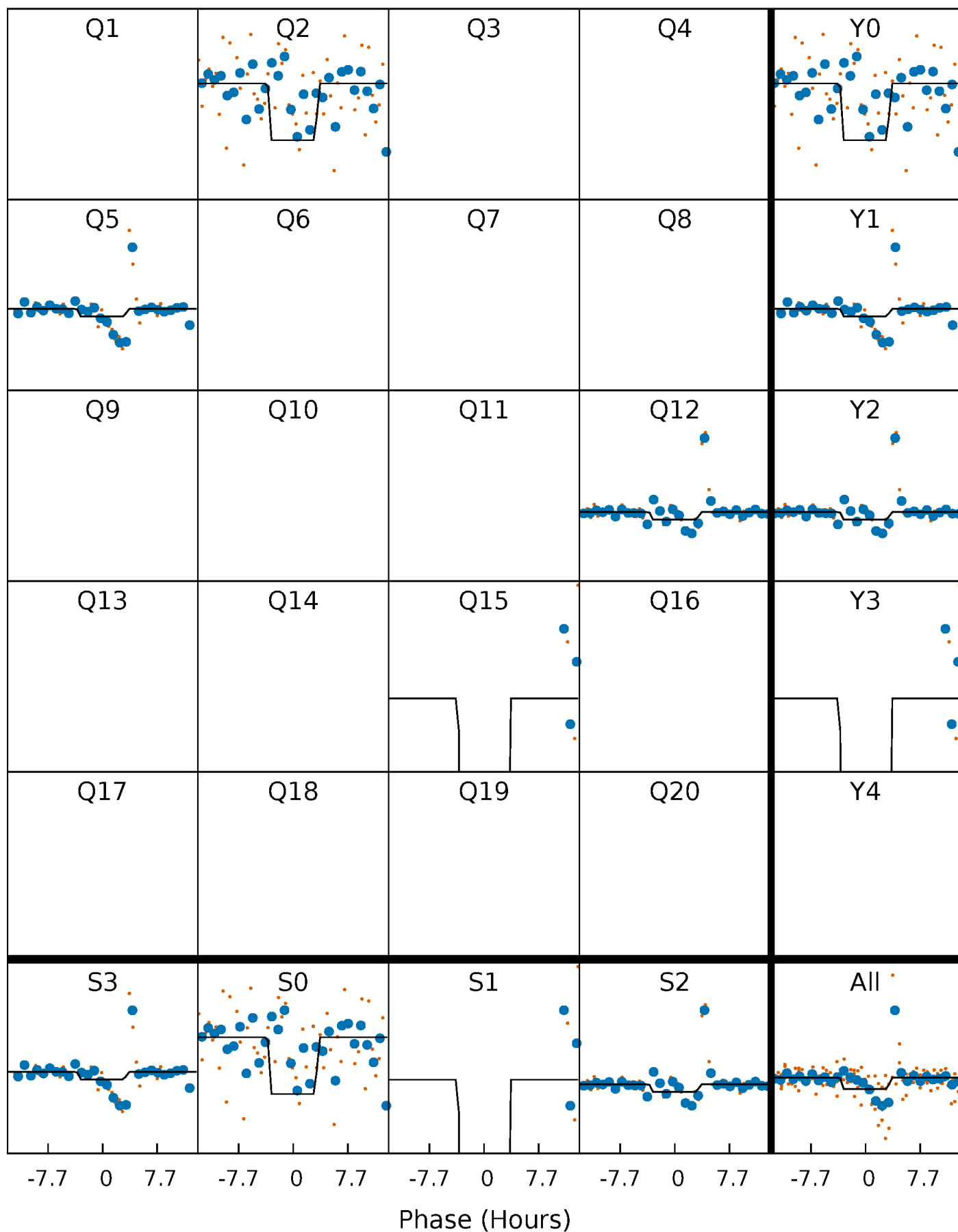
DV Quarter-Phased Transit Curves

TCE 005474812-02 $P=305.627296$ Days $T_0=195.554220$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

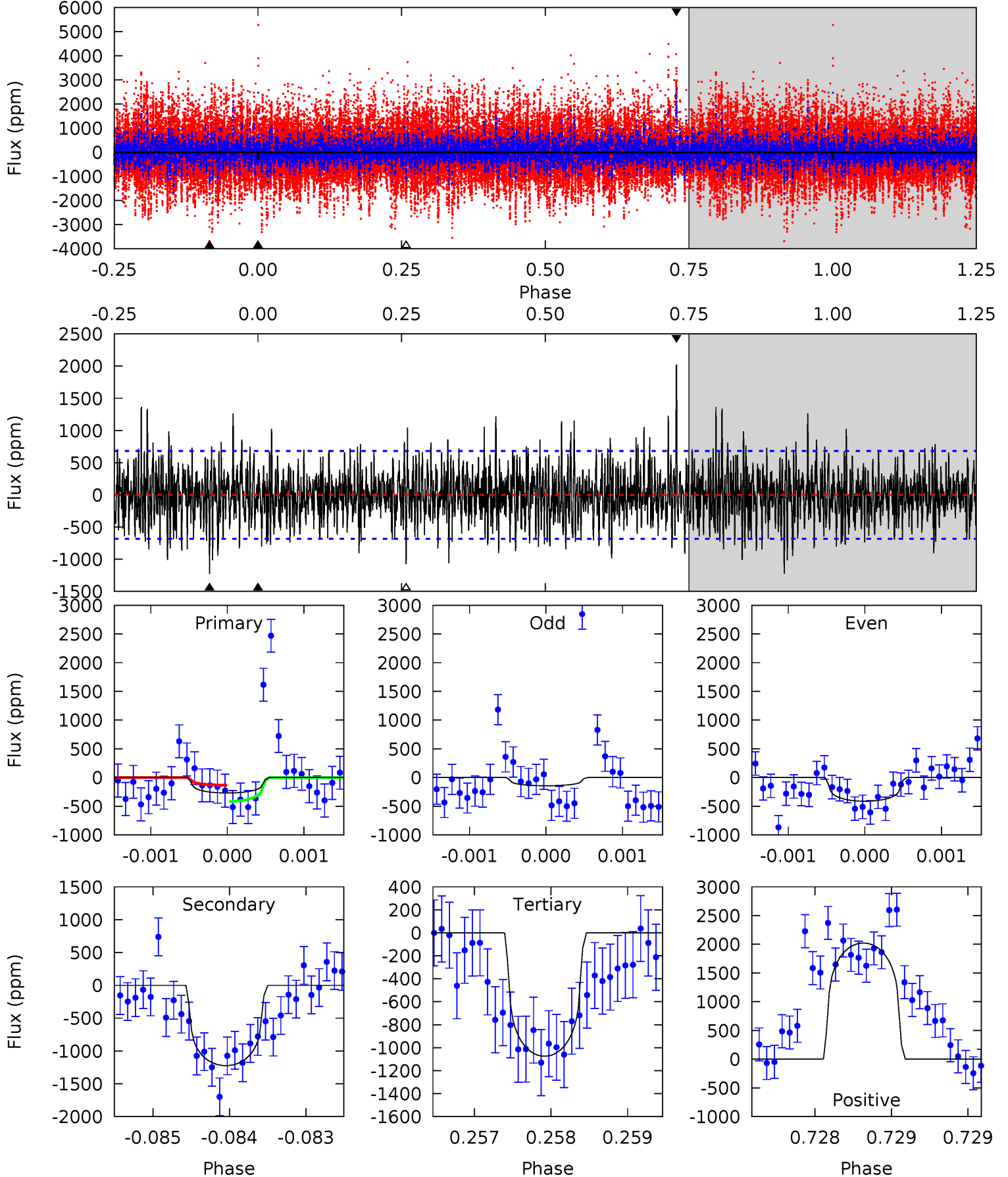
TCE 005474812-02 P=305.623173 Days $T_0=195.537959$ (BKJD)



DV Model-Shift Uniqueness Test

005474812-02, P = 305.627296 Days, E = 195.554220 Days

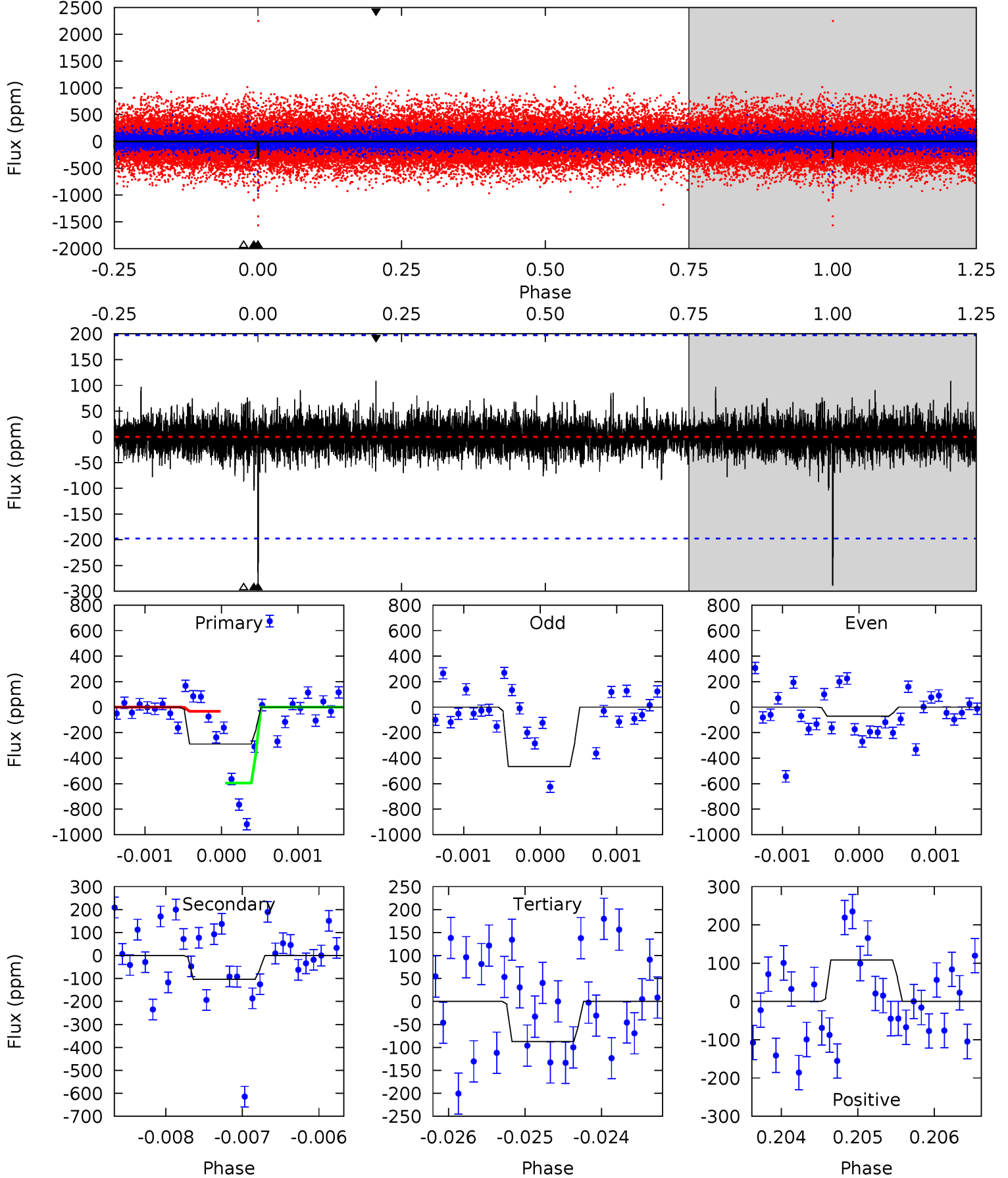
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.17	9.82	8.63	16.2	5.47	3.32	2.70	-6.46	-14.1	1.20	-6.41	0.99	0.57	0.62	1.15



Alt Model-Shift Uniqueness Test

005474812-02, P = 305.623173 Days, E = 195.537959 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.98	2.87	2.41	2.99	5.45	3.29	0.56	5.57	4.99	0.46	-0.12	5.17	1.21	0.27	7.81



Stellar Parameters For KIC 005474812

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4665^{+139}_{-139}	$4.717^{+0.048}_{-0.028}$	$-1.260^{+0.300}_{-0.300}$	$0.530^{+0.031}_{-0.034}$	$0.535^{+0.039}_{-0.022}$	$5.053^{+0.990}_{-0.527}$
	+3%/-3%	+1%/-1%	+24%/-24%	+6%/-6%	+7%/-4%	+20%/-10%
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 005474812-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1223 ± 125	$3.21^{+2.90}_{-2.17}$	245^{+8}_{-8}	3929^{+2394}_{-759}	$34335^{+285803}_{-24724}$
Alt.	-104 ± 36	$3.09^{+2.99}_{-2.09}$	246^{+8}_{-9}	2740^{+1087}_{-457}	3073^{+26159}_{-2362}

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 $A_{obs} \gg 1.0$

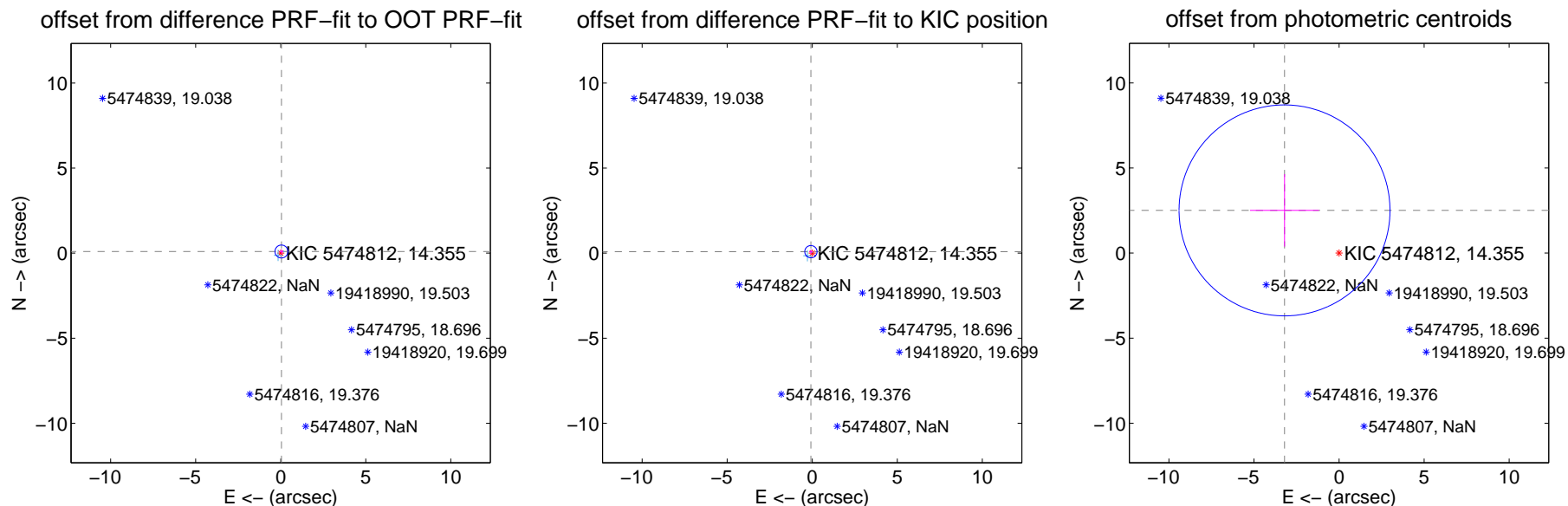
DV Centroid Data

Supplemental centroid analysis for 005474812-02. Kepler magnitude: 14.36. Transit SNR 2.71

There are 3 quarters with good PRF difference image offsets

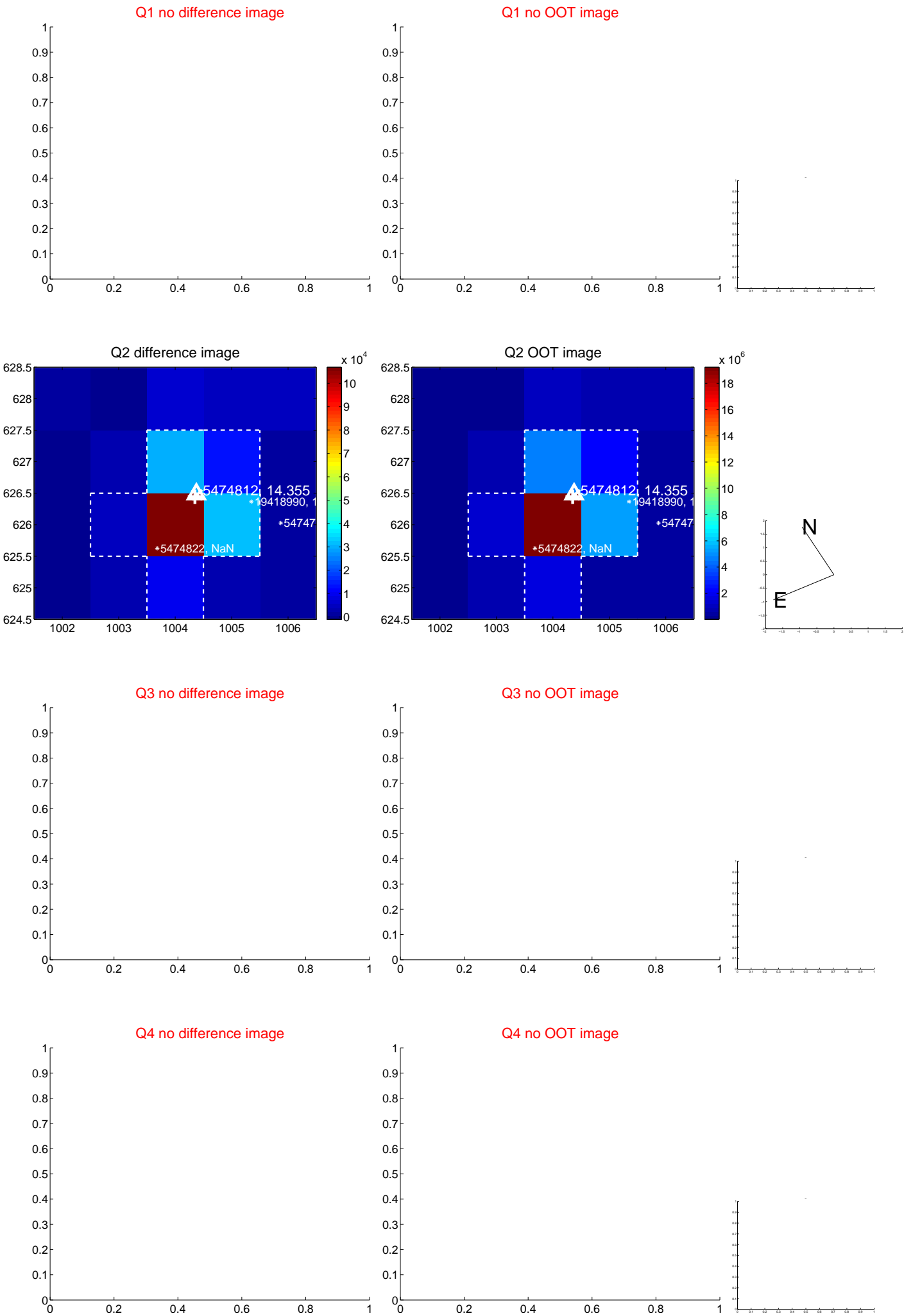
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.105 ± 0.127	0.83	-0.042 ± 0.106	0.096 ± 0.130
PRF-fit source offset from KIC position	0.116 ± 0.120	0.97	0.078 ± 0.106	0.087 ± 0.130
photometric centroid source offset	4.07 ± 2.07	1.97	3.21 ± 2.03	2.51 ± 2.13

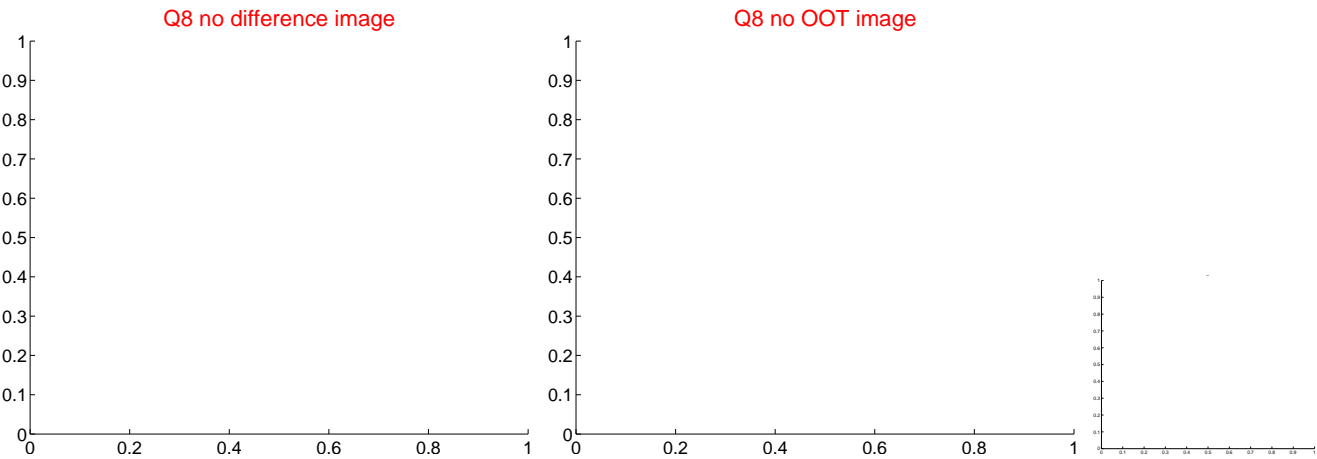
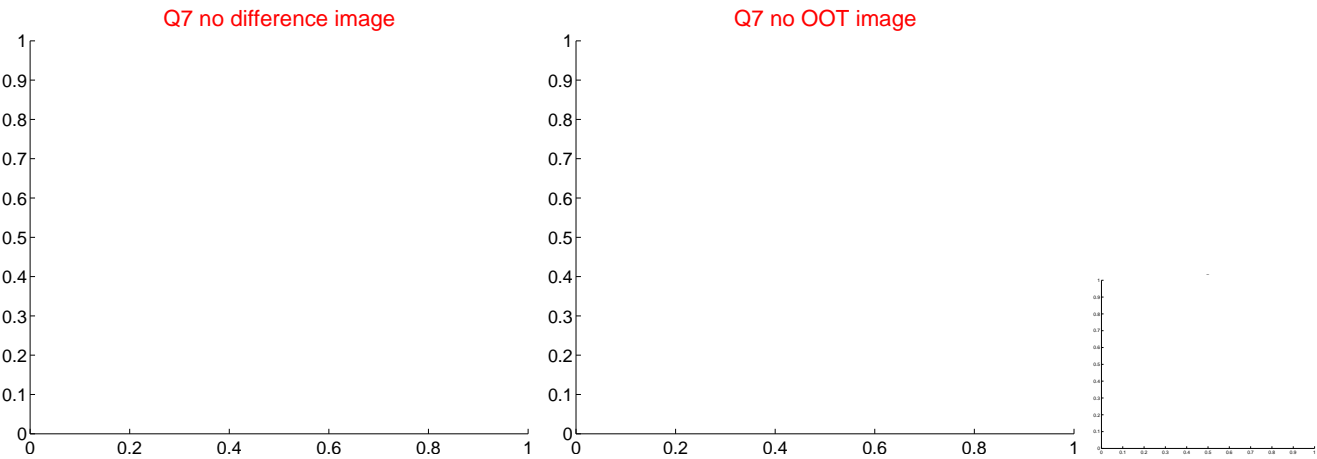
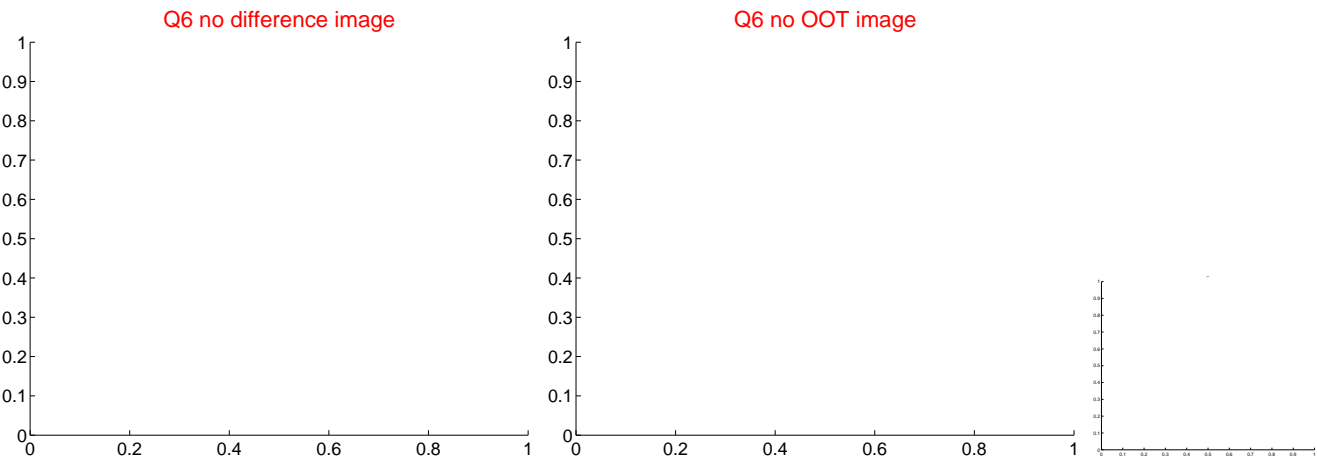
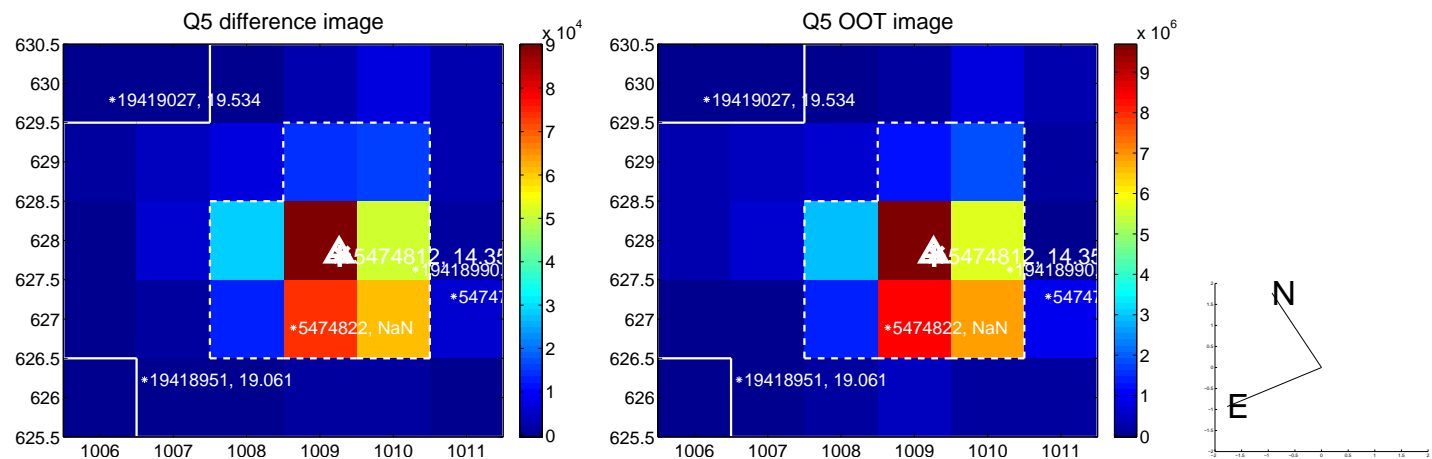


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

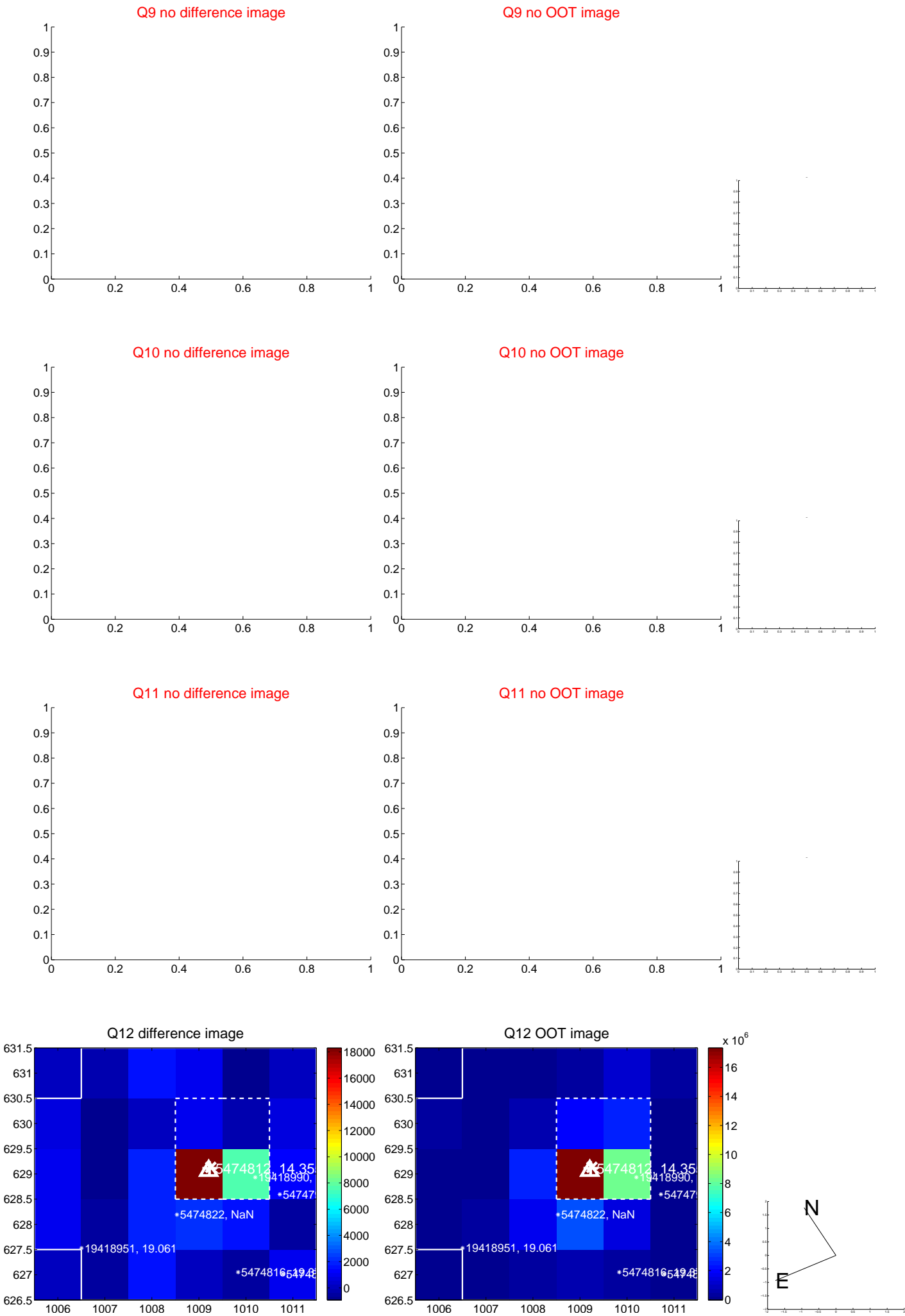
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



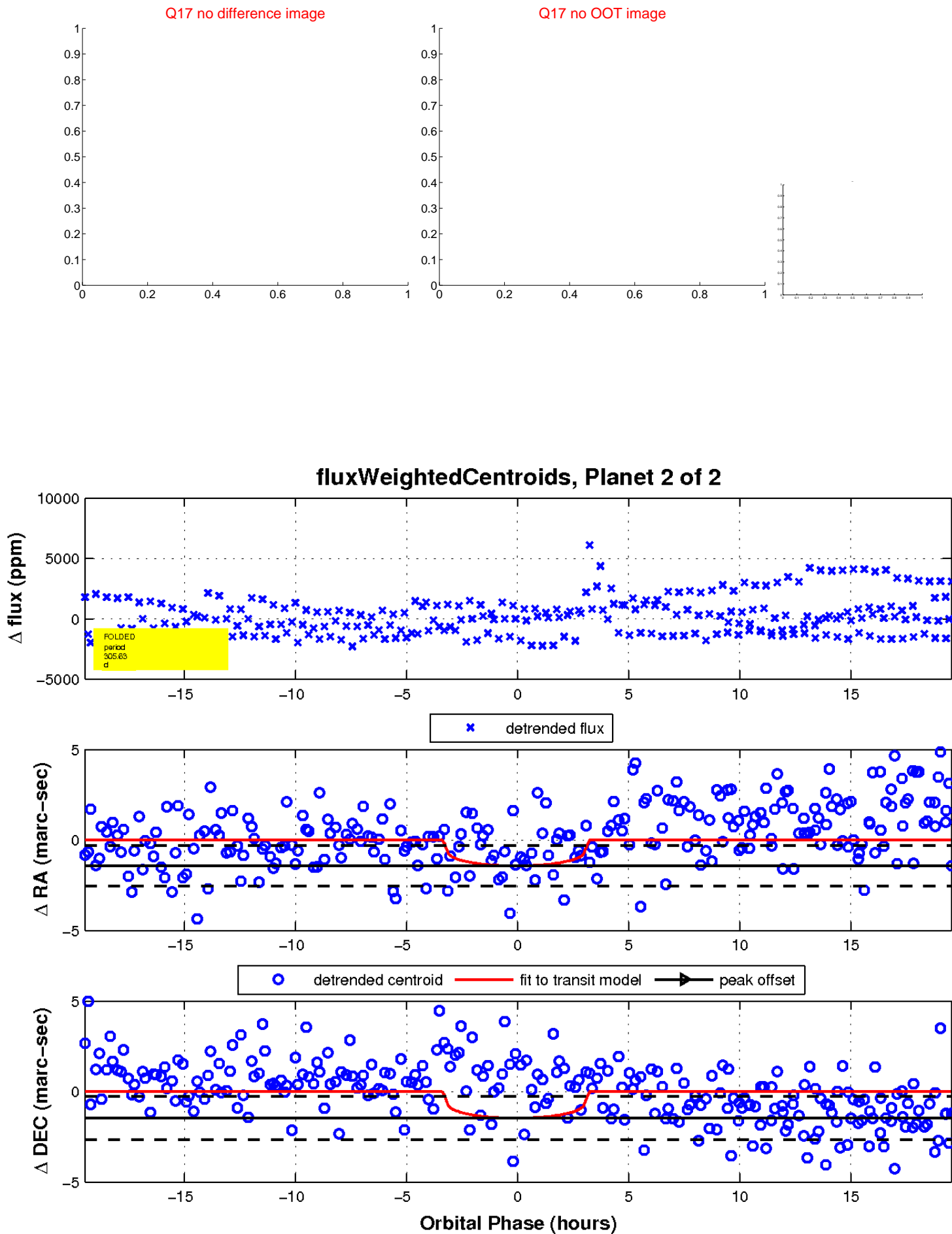
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

