

KIC 008359569

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})
008359569-01	OBS	4667.01	152.823981	147.548032	452.4	7.855	8.6	8.9	1.14	6452	2.69	5.78
008359569-02	OBS	No	552.948005	408.709467	721.5	7.876	7.8	7.6	1.14	6452	3.60	1.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008359569-01	OBS	PC	0.88	0	0	0	0	CENT_FEW_DIFFS
008359569-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

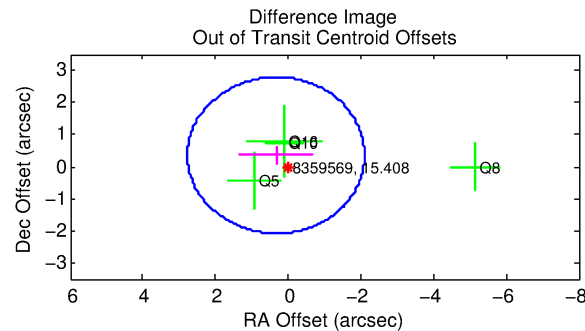
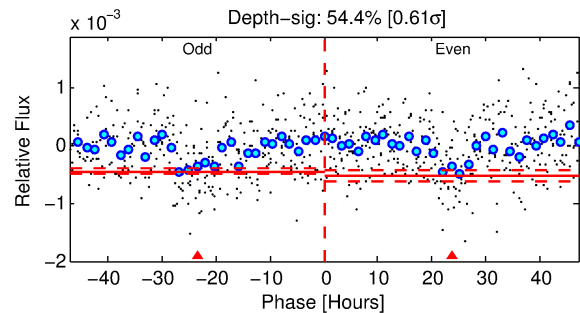
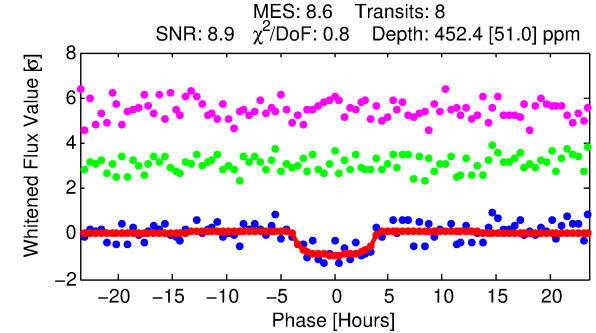
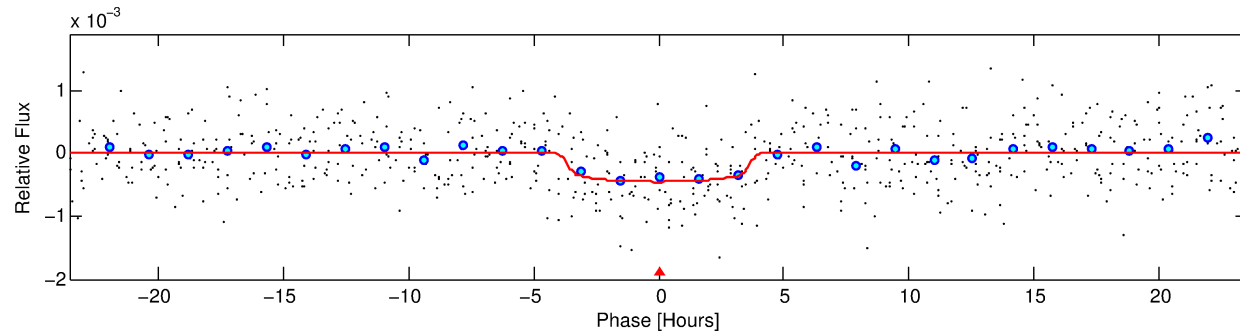
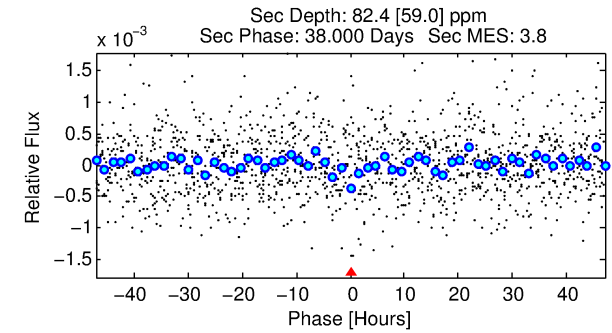
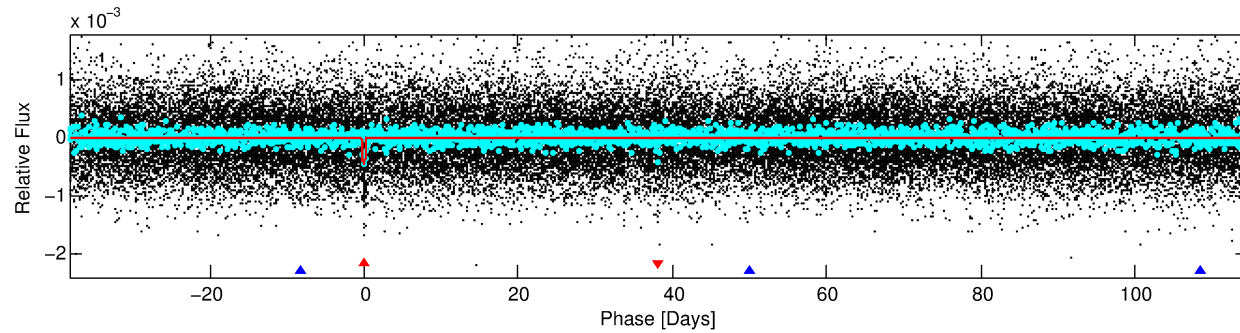
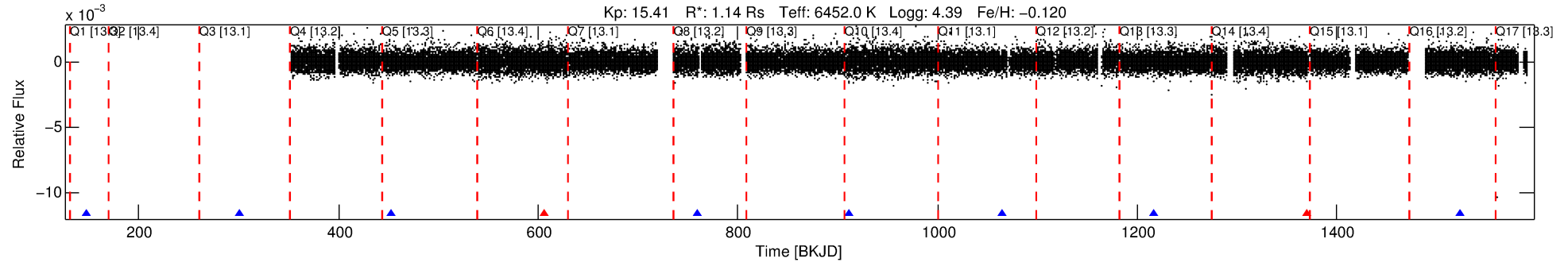
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008359569-01

No Significant Match Found

DV One-Page Summary

KIC: 8359569 Candidate: 1 of 2 Period: 152.824 d
KOI: K04667.01 Corr: 0.978



DV Fit Results:

Period = 152.82398 [0.00362] d
Epoch = 147.5480 [0.0217] BKJD
Rp/R* = 0.0217 [0.0055]
a/R* = 90.75 [122.13]
b = 0.82 [0.54]
Seff = 5.78 [2.31]
Teq = 395 [40] K
Rp = 2.69 [1.07] Re
a = 0.5893 [0.1502] AU
Ag = 2169.88 [2070.68] [1.05σ]
Teffp = 4172 [931] K [4.05σ]

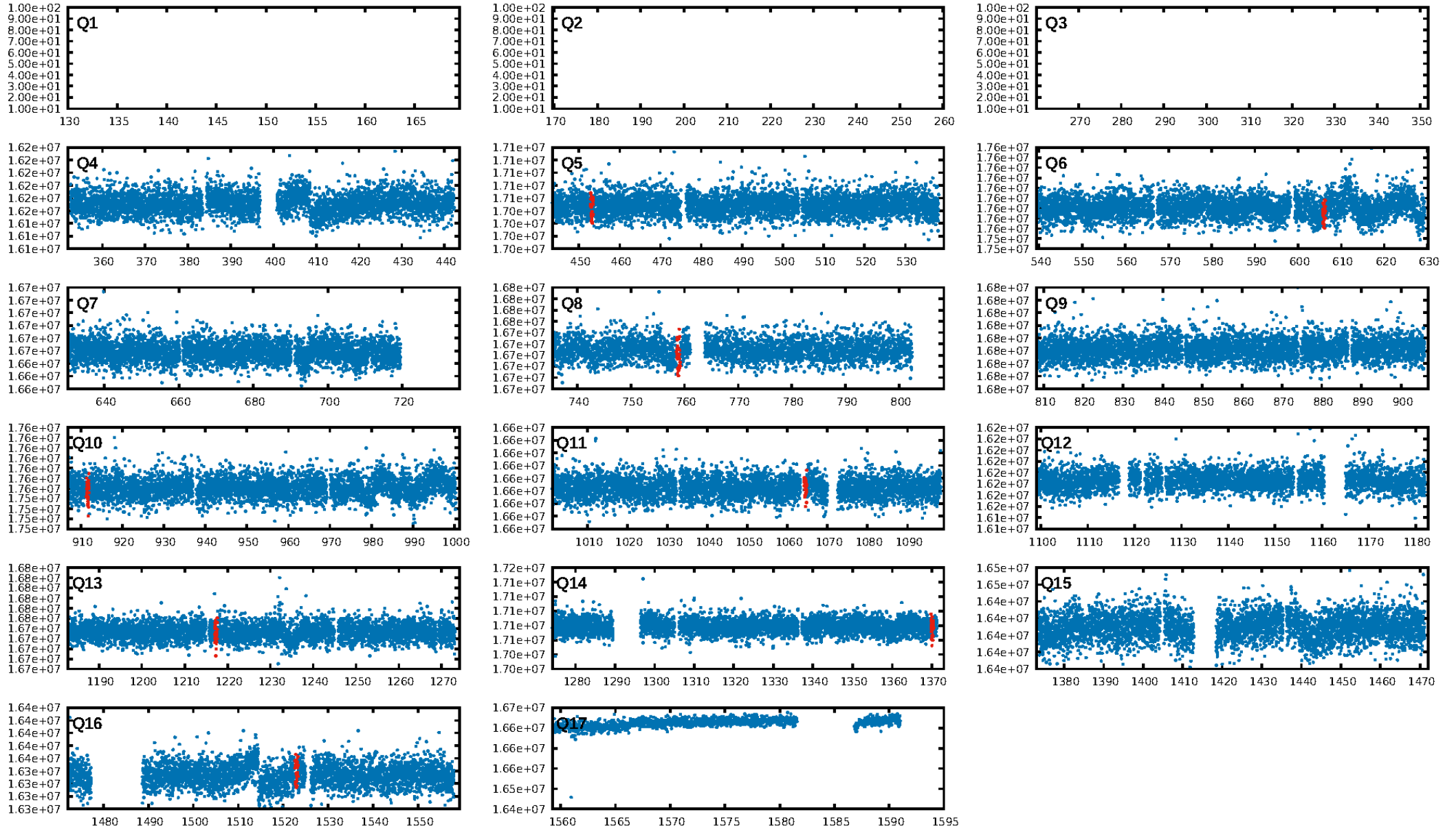
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [863.33σ]
ModelChiSquare2-sig: 48.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.67e-16
RollingBand-fgt: 0.75 [6/8]
GhostDiagnostic-chr: -3.577
Centroid-sig: 0.3%
Centroid-so: 2.352 arcsec [1.71σ]
OotOffset-rm: 0.489 arcsec [0.60σ]
KicOffset-rm: 0.650 arcsec [0.82σ]
OotOffset-st: 1/0/2/1 [4]
KicOffset-st: 1/0/2/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [5/5]

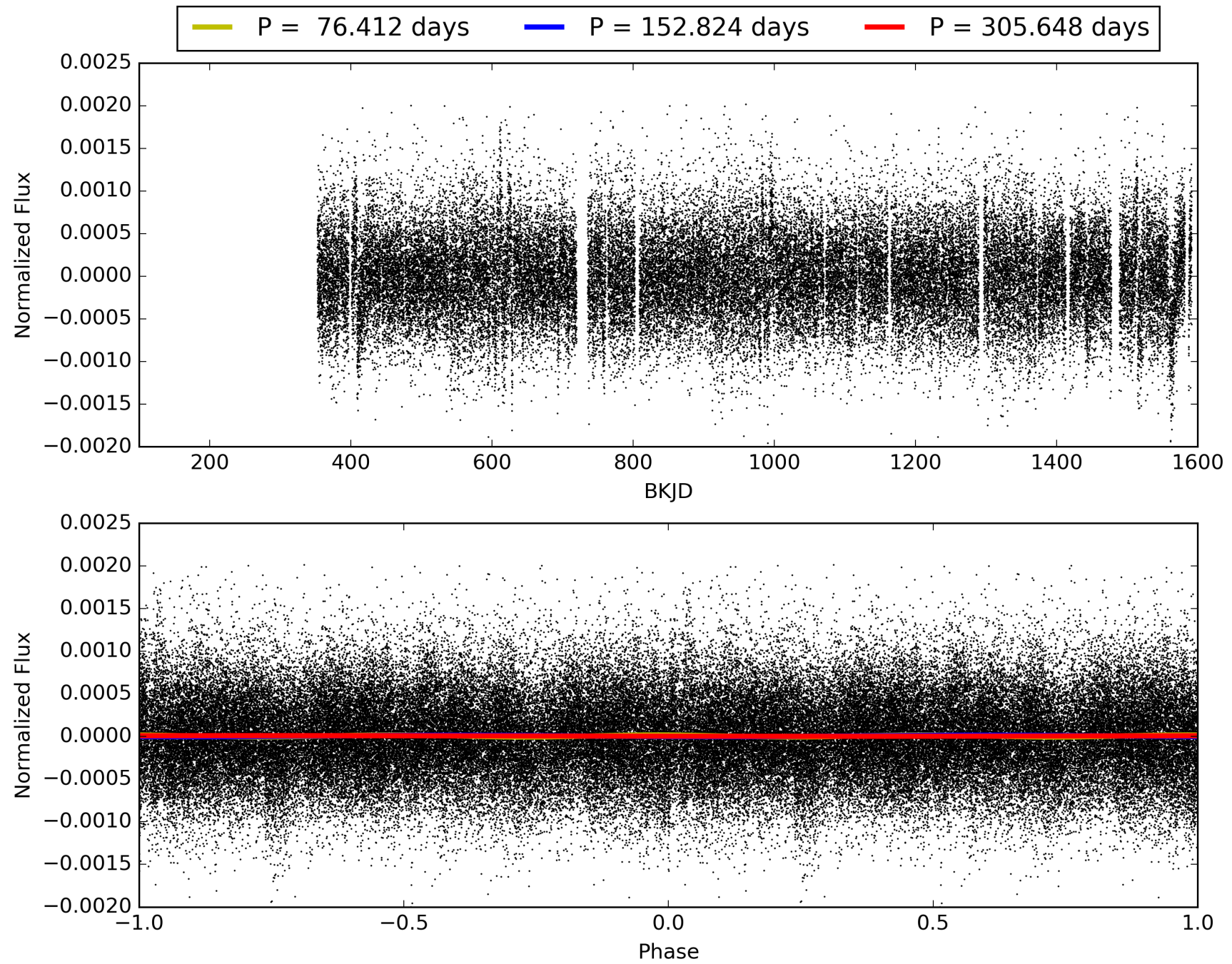
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:09:42 Z

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

TCE 008359569-01, PDC Light Curves

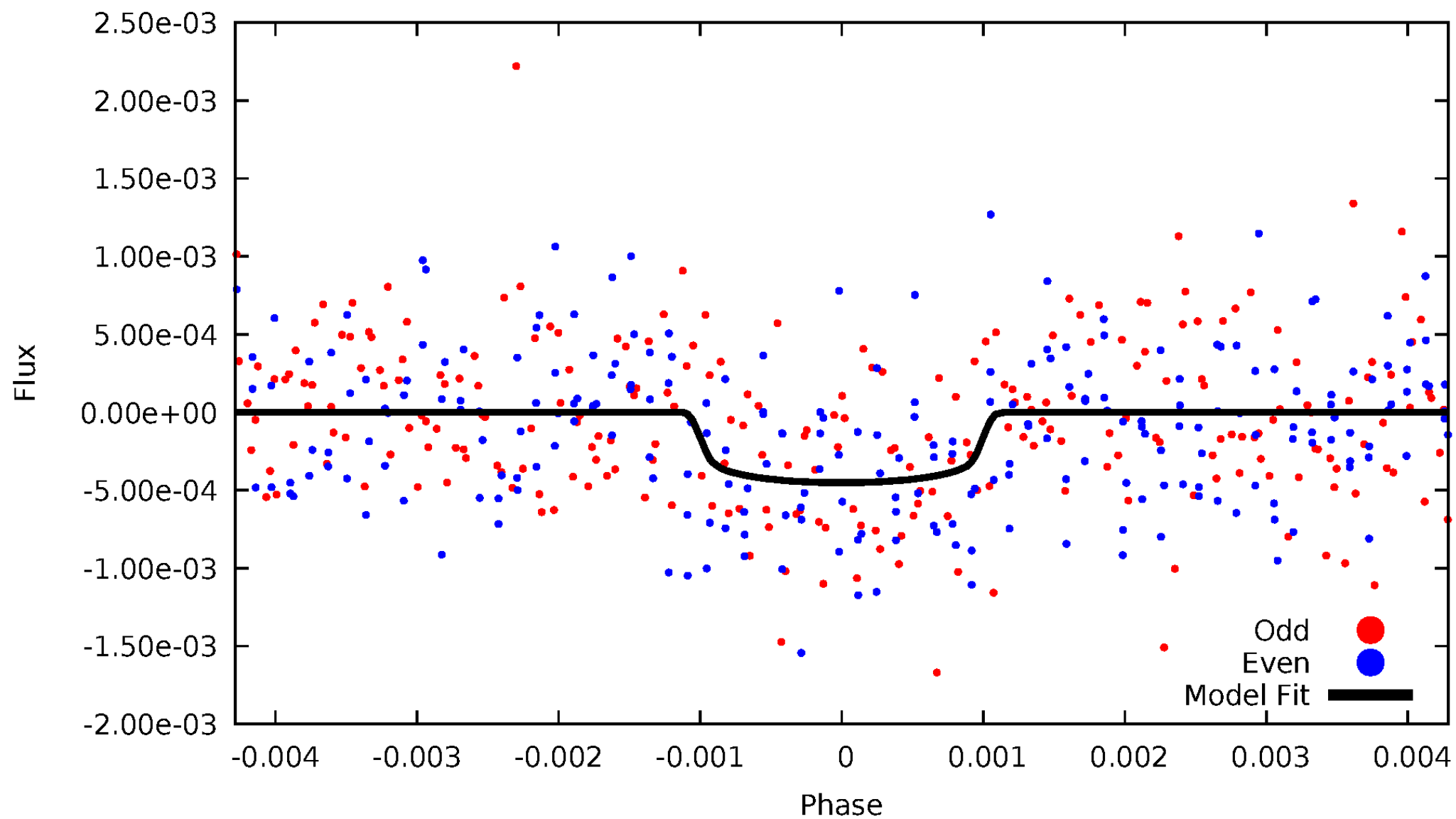


TCE 008359569-01



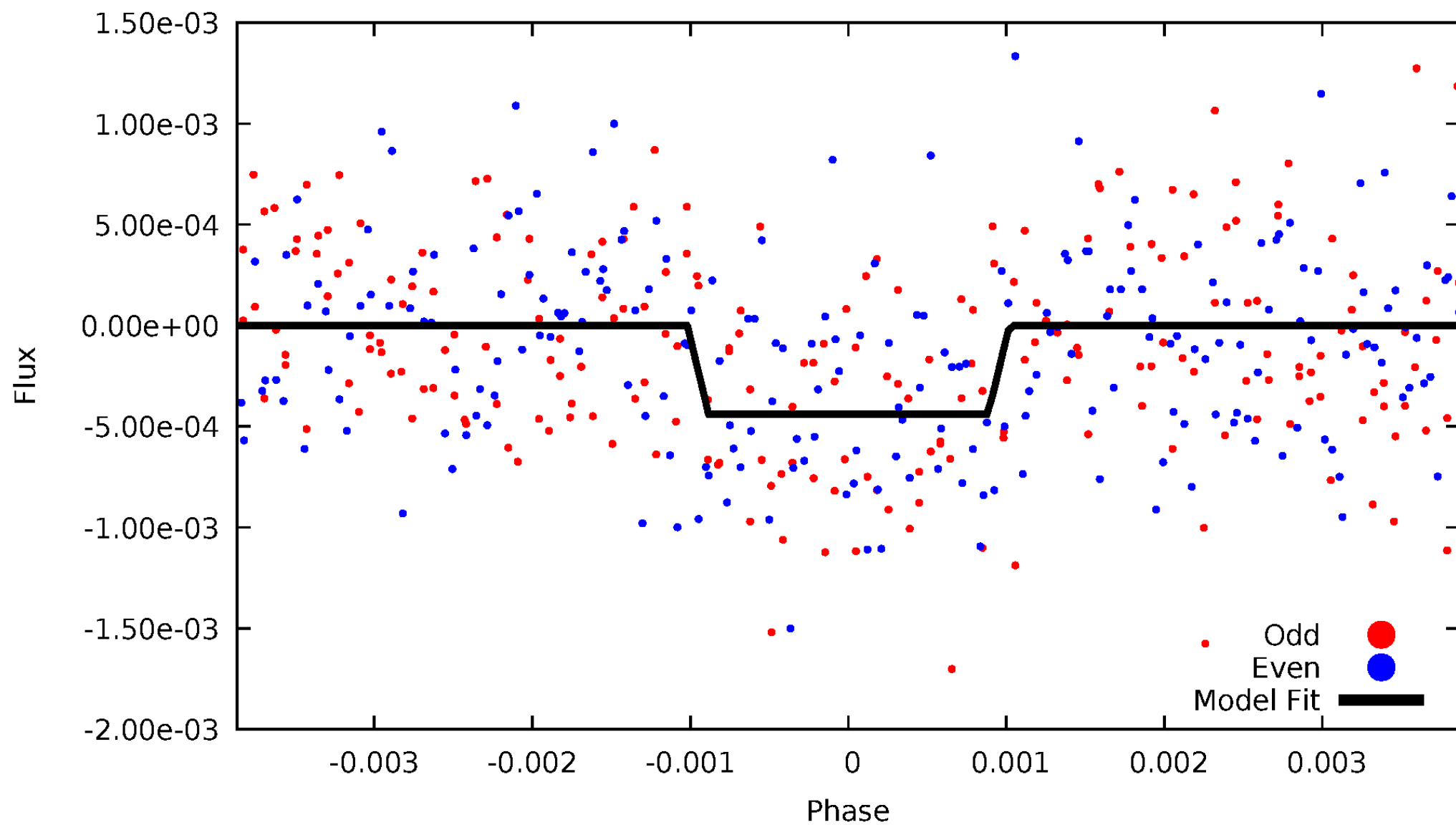
DV Odd/Even

TCE 008359569-01

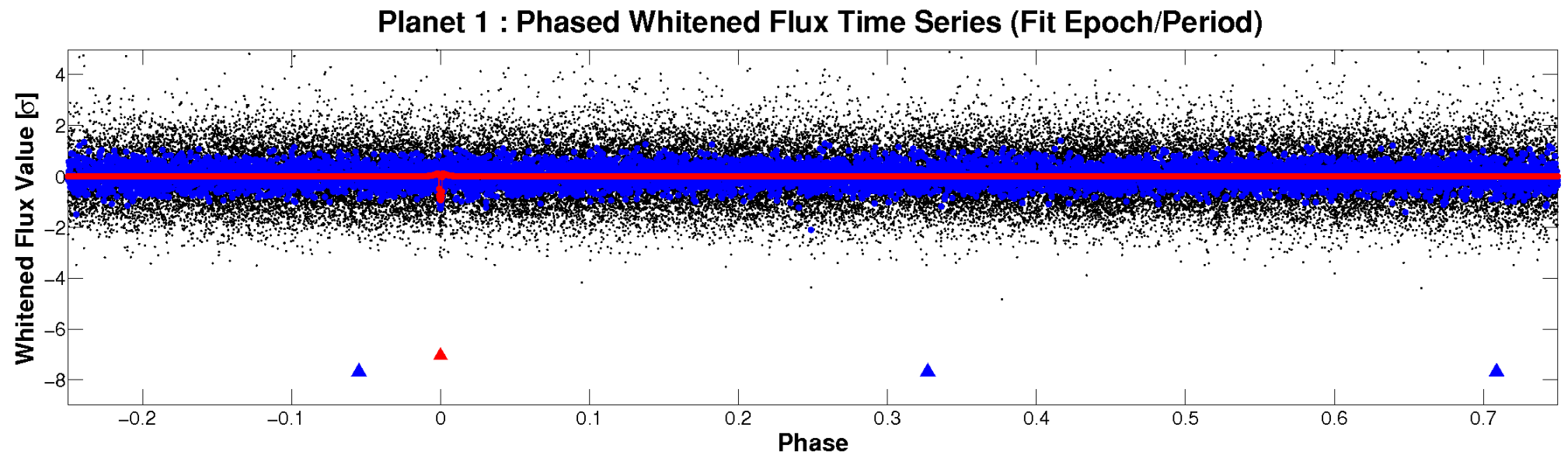
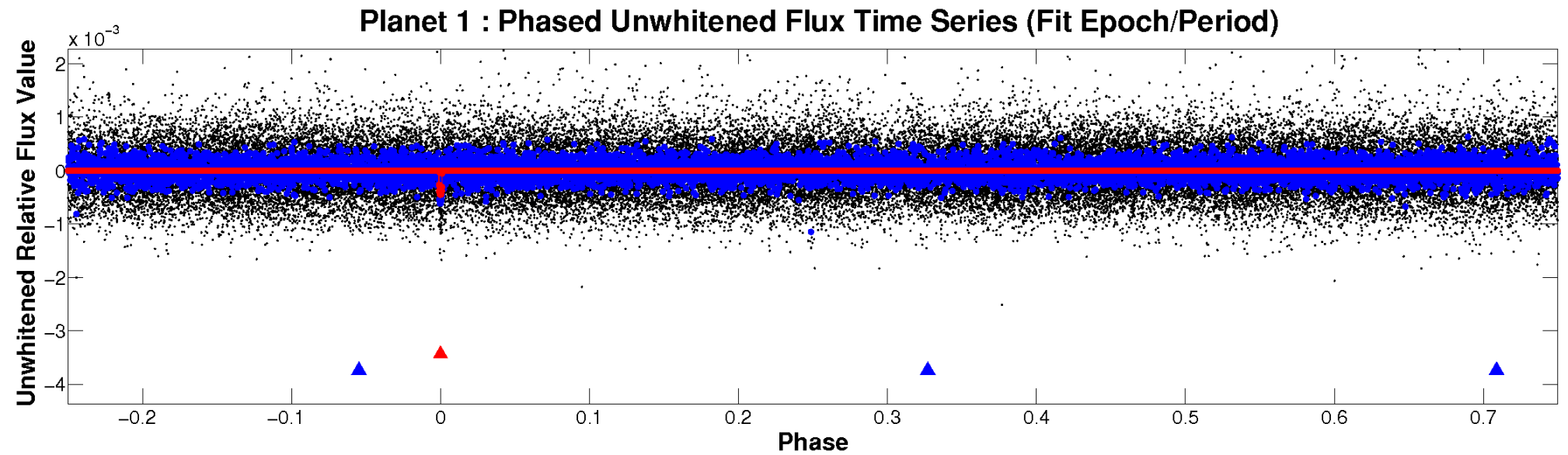


ALT Odd/Even

TCE 008359569-01

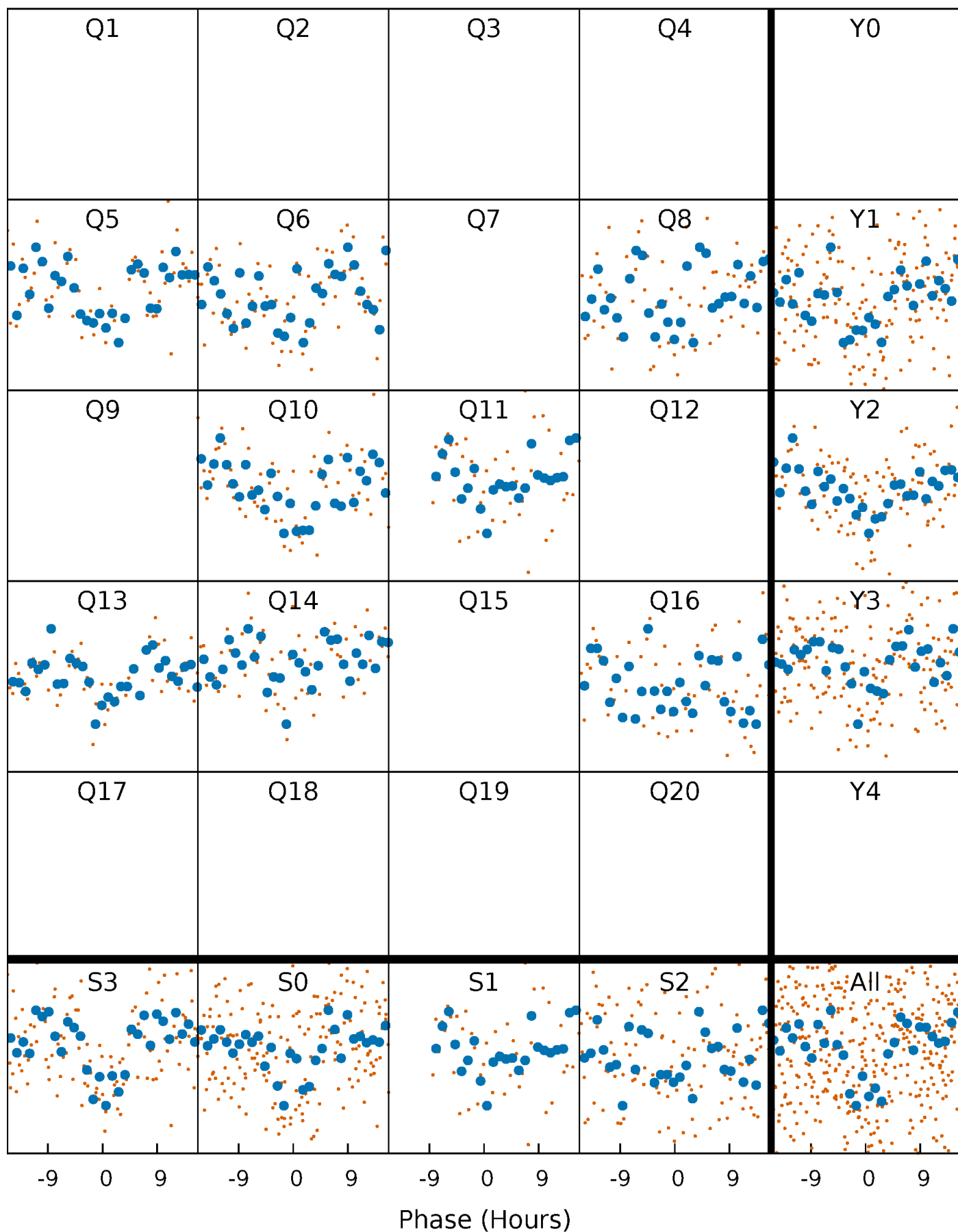


Non-Whitened Vs. Whitened Light Curve



PDC Quarter-Phased Transit Curves

TCE 008359569-01 P=152.823981 Days $T_0=147.548032$ (BKJD)



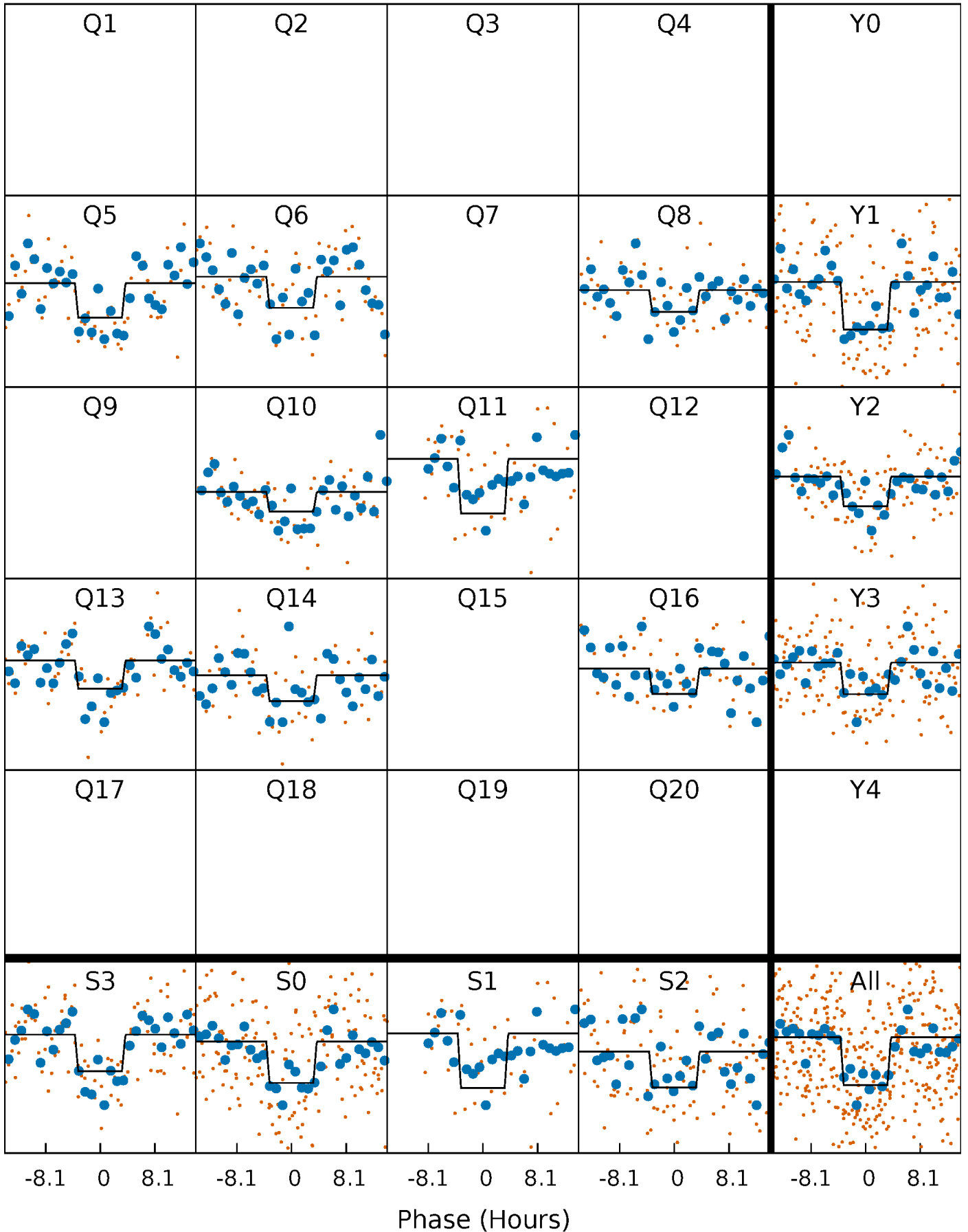
DV Quarter-Phased Transit Curves

TCE 008359569-01 P=152.823981 Days $T_0=147.548032$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

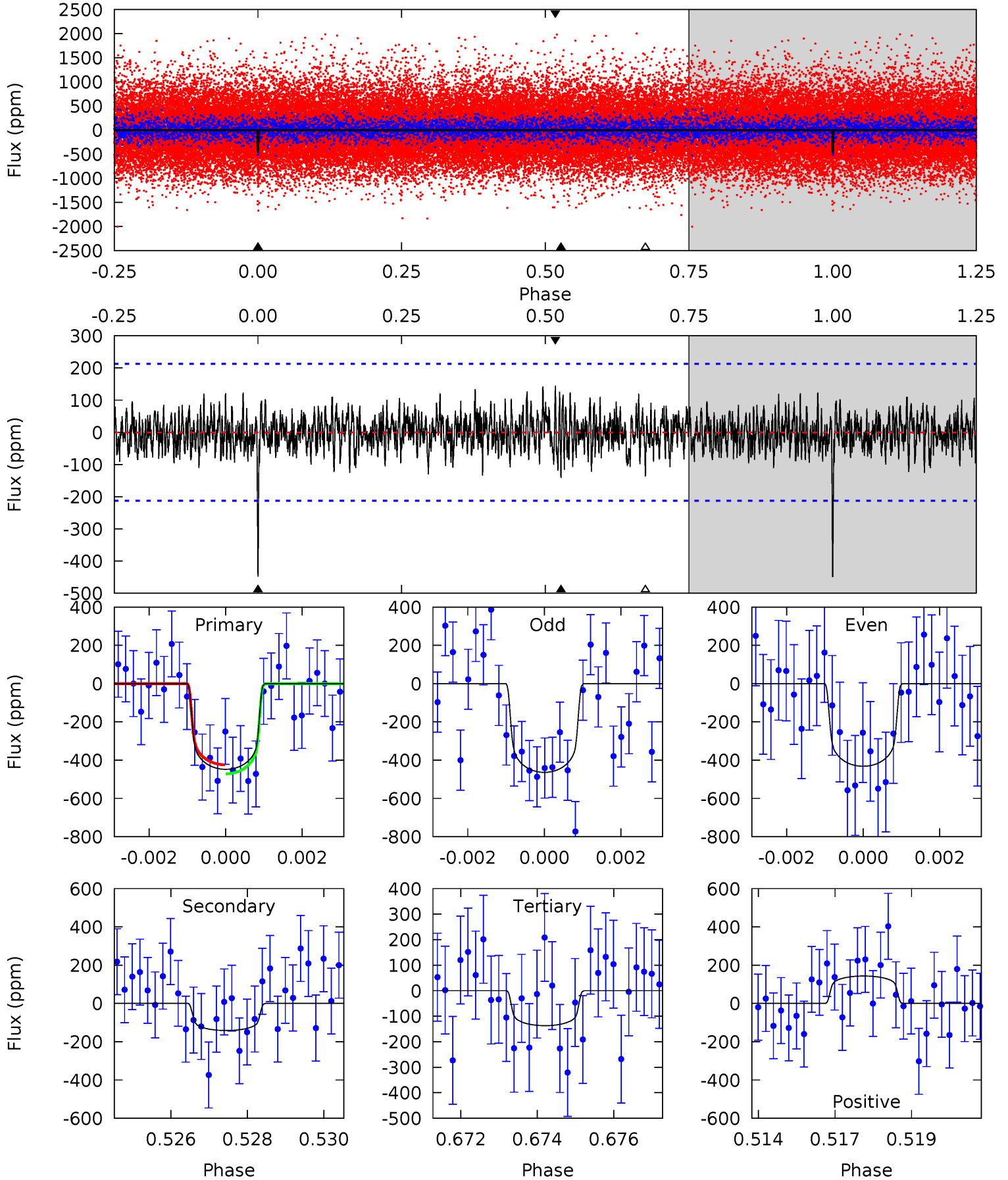
TCE 008359569-01 P=152.827281 Days $T_0=147.534051$ (BKJD)



DV Model-Shift Uniqueness Test

008359569-01, P = 152.823981 Days, E = 147.548032 Days

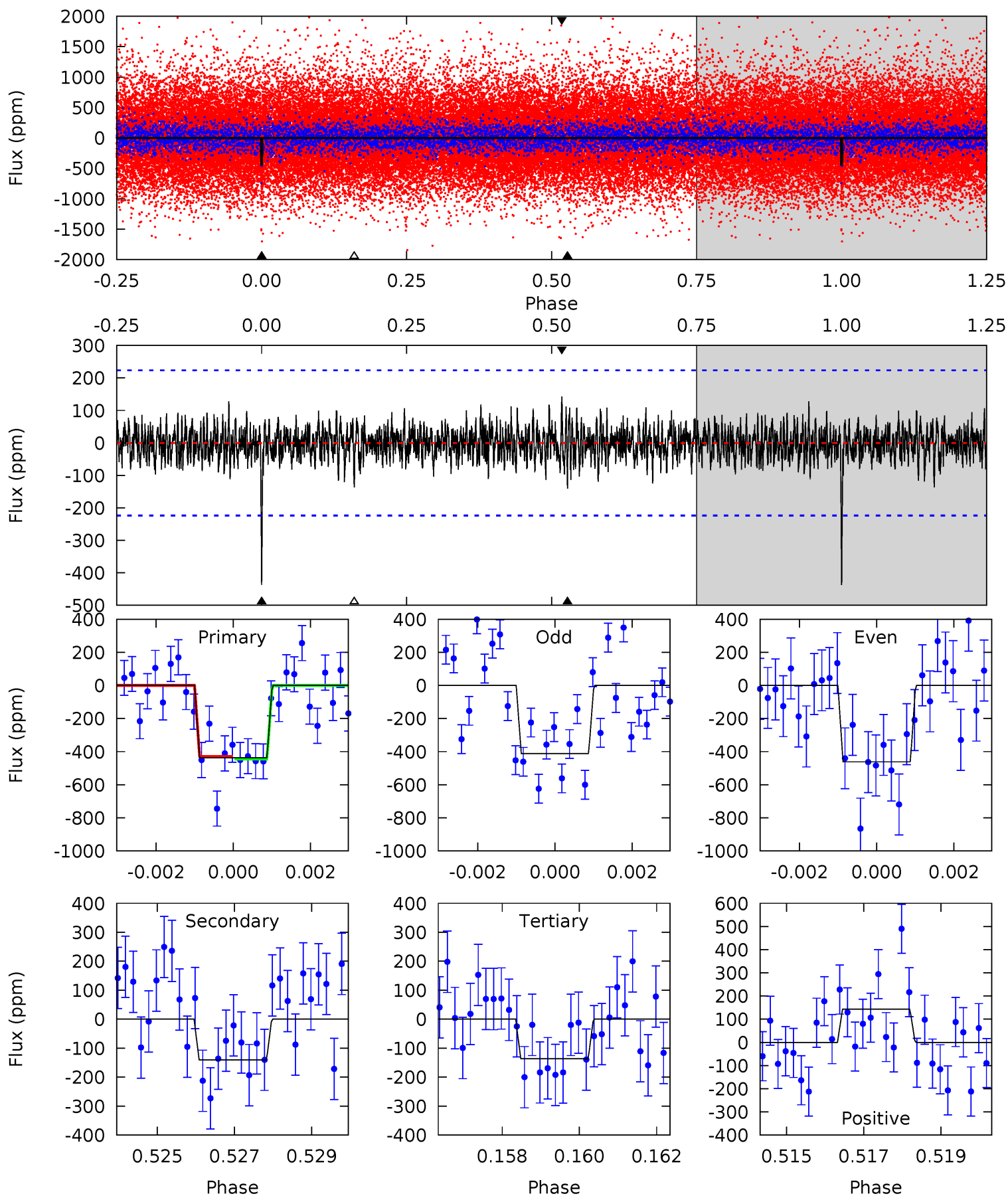
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	3.53	3.42	3.58	5.31	3.06	1.10	7.76	7.60	0.11	-0.05	0.40	0.95	0.24	0.59



Alt Model-Shift Uniqueness Test

008359569-01, P = 152.827281 Days, E = 147.534051 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	3.34	3.25	3.41	5.32	3.09	0.93	7.14	6.99	0.08	-0.07	0.60	0.99	0.25	0.20



Stellar Parameters For KIC 008359569

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6452^{+157}_{-246}	$4.394^{+0.067}_{-0.202}$	$-0.120^{+0.250}_{-0.300}$	$1.137^{+0.345}_{-0.148}$	$1.167^{+0.169}_{-0.169}$	$1.120^{+0.390}_{-0.558}$
	+2%/-4%	+2%/-5%	+208%/-250%	+30%/-13%	+14%/-14%	+35%/-50%
Source	KIC0	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 008359569-01 / KOI 4667.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-141 ± 40	$2.80^{+0.81}_{-0.76}$	562^{+37}_{-31}	4847^{+762}_{-557}	3262^{+3529}_{-1508}
Alt.	-140 ± 42	$2.71^{+0.81}_{-0.71}$	566^{+40}_{-33}	4940^{+751}_{-562}	3521^{+3278}_{-1625}

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 $A_{obs} \gg 1.0$

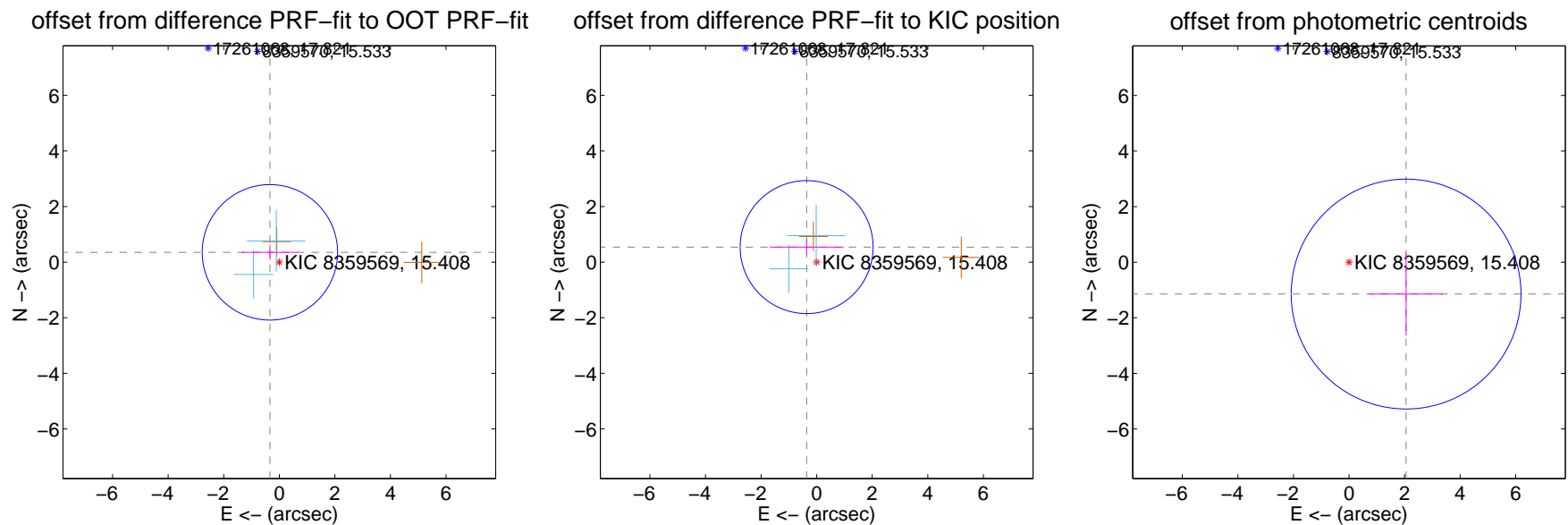
DV Centroid Data

Supplemental centroid analysis for 008359569-01. Kepler magnitude: 15.41. Transit SNR 8.87

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.489 ± 0.812	0.60	0.338 ± 1.020	0.353 ± 0.268
PRF-fit source offset from KIC position	0.650 ± 0.797	0.82	0.360 ± 1.328	0.541 ± 0.280
photometric centroid source offset	2.35 ± 1.38	1.71	-2.05 ± 1.34	-1.15 ± 1.49

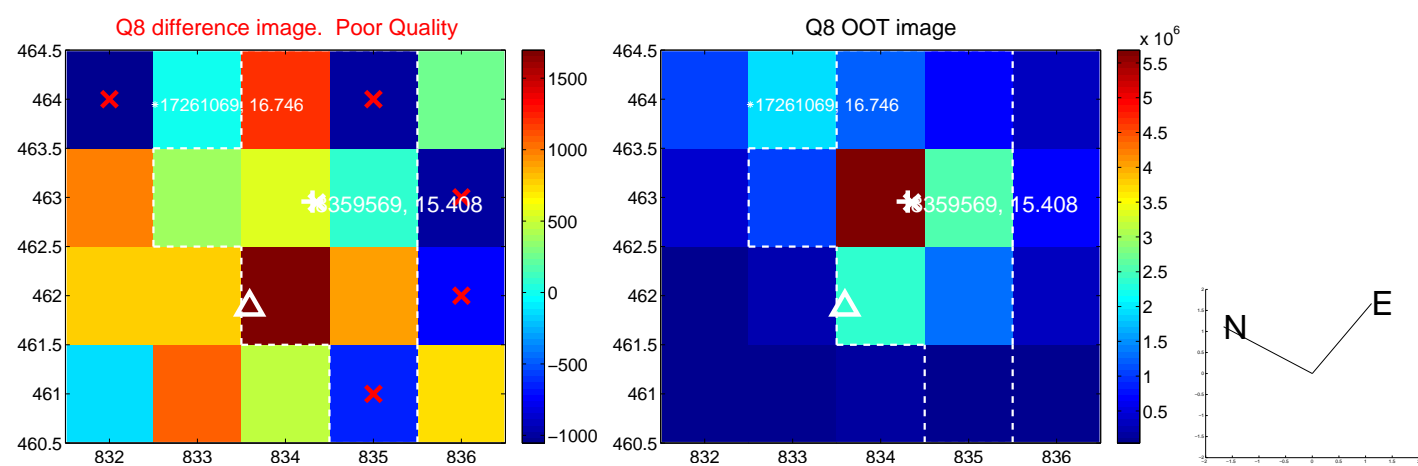
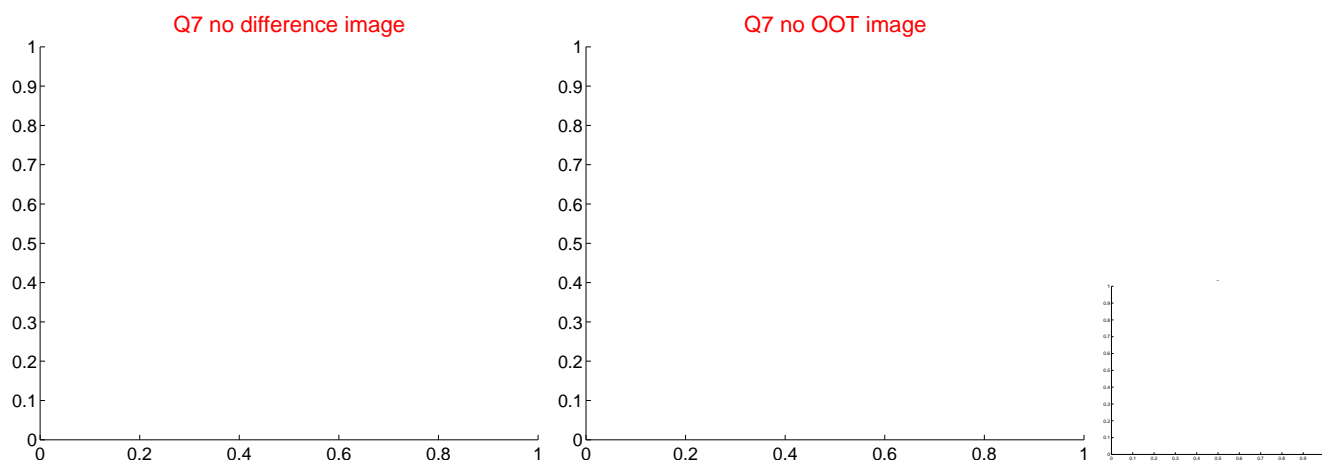
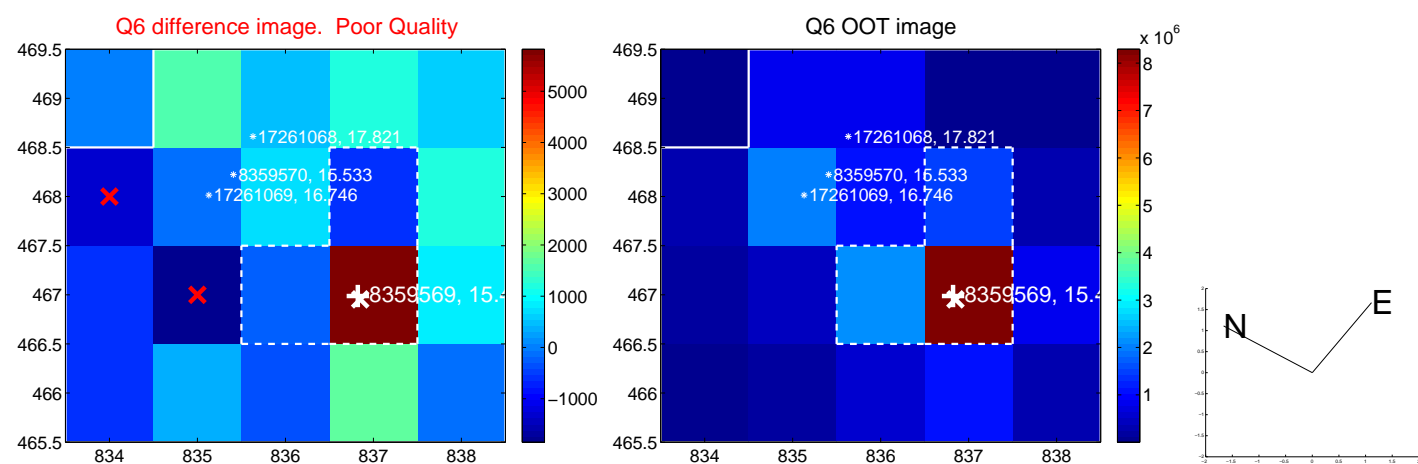
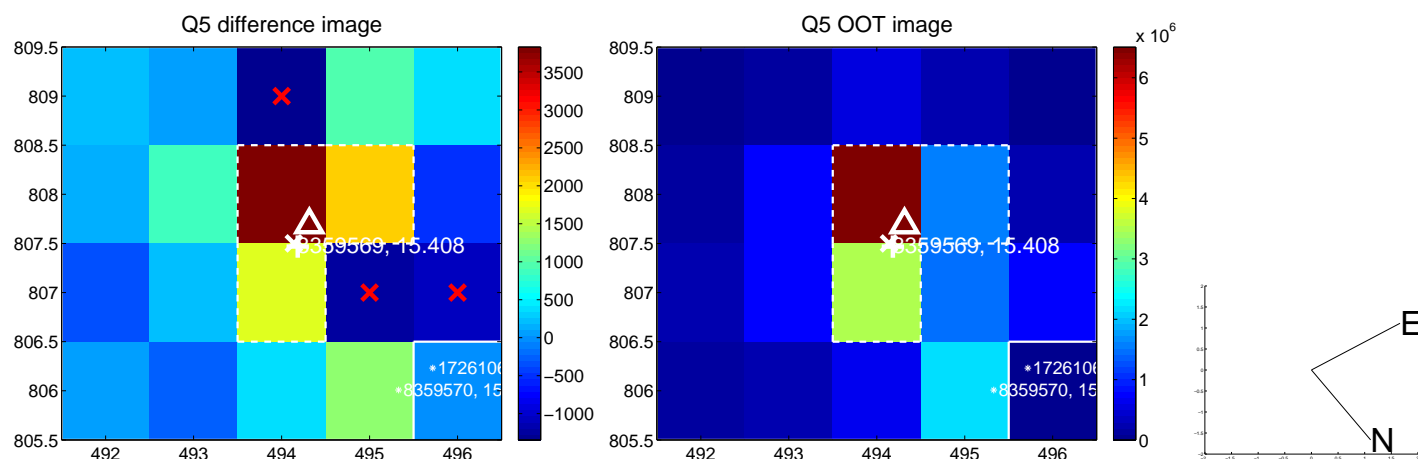


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

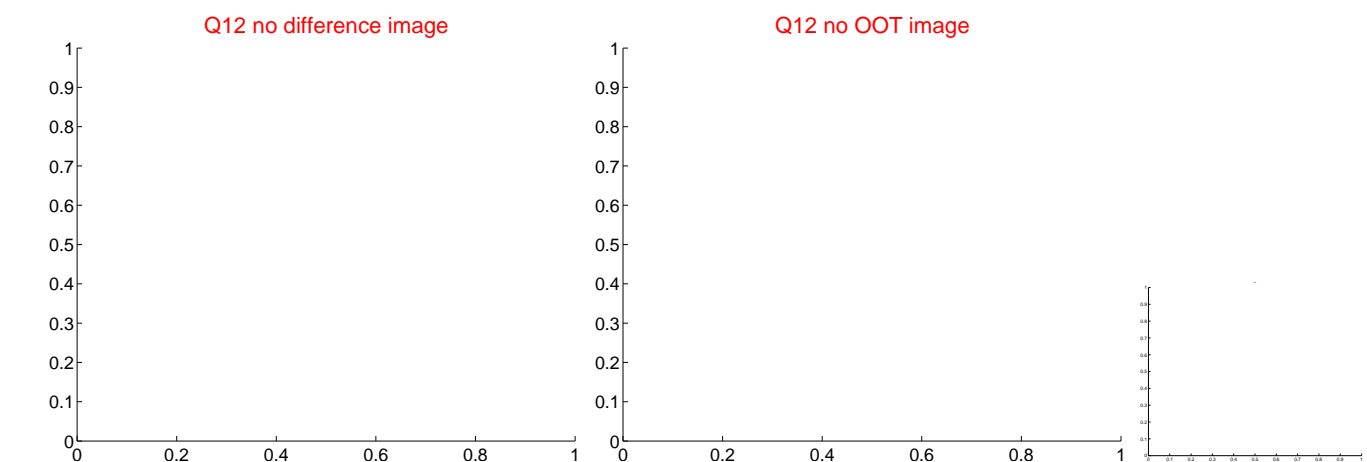
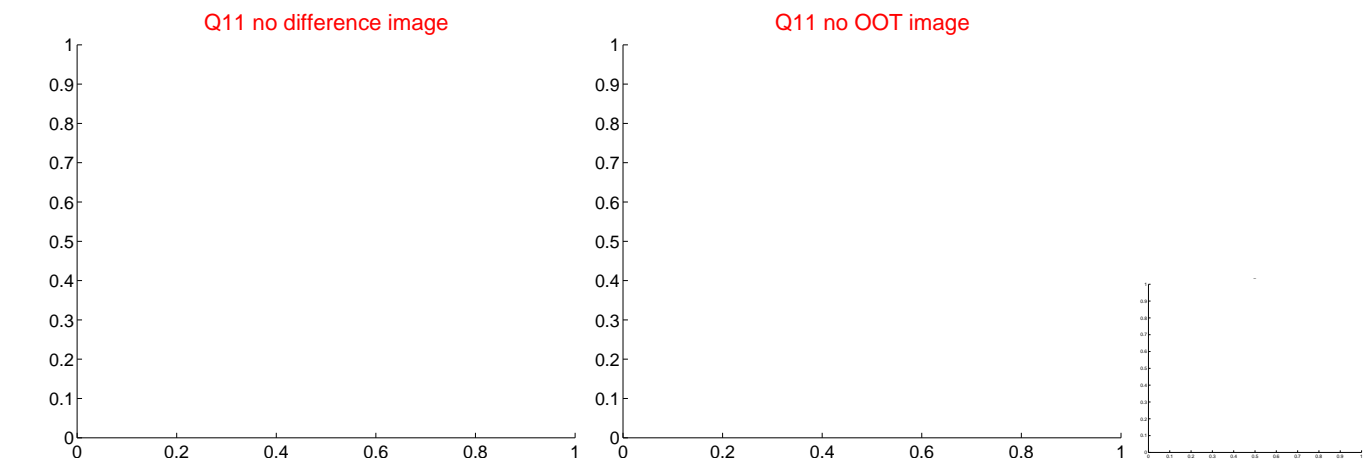
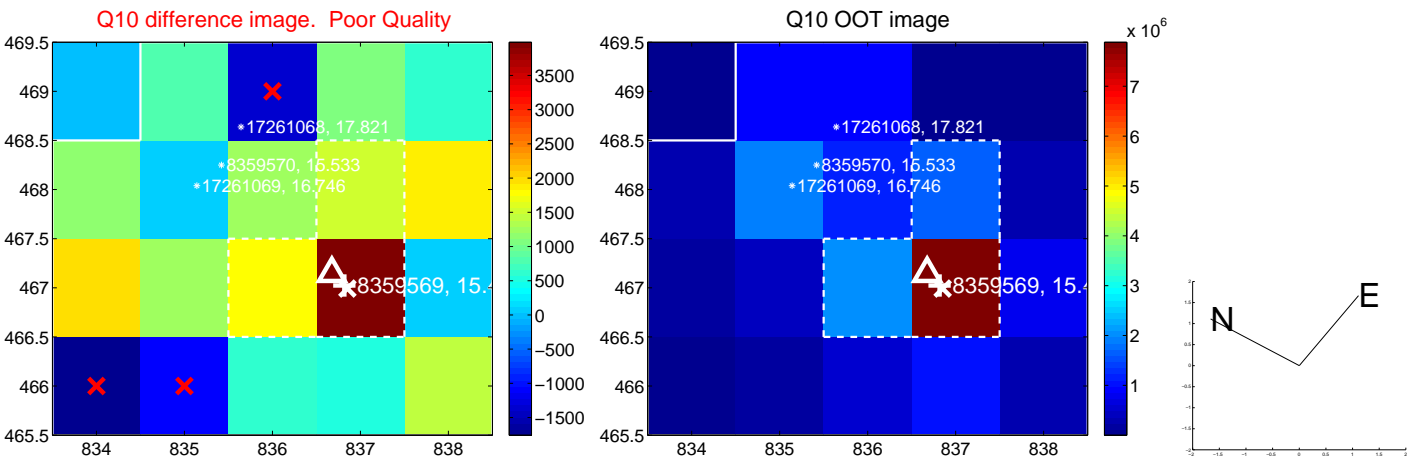
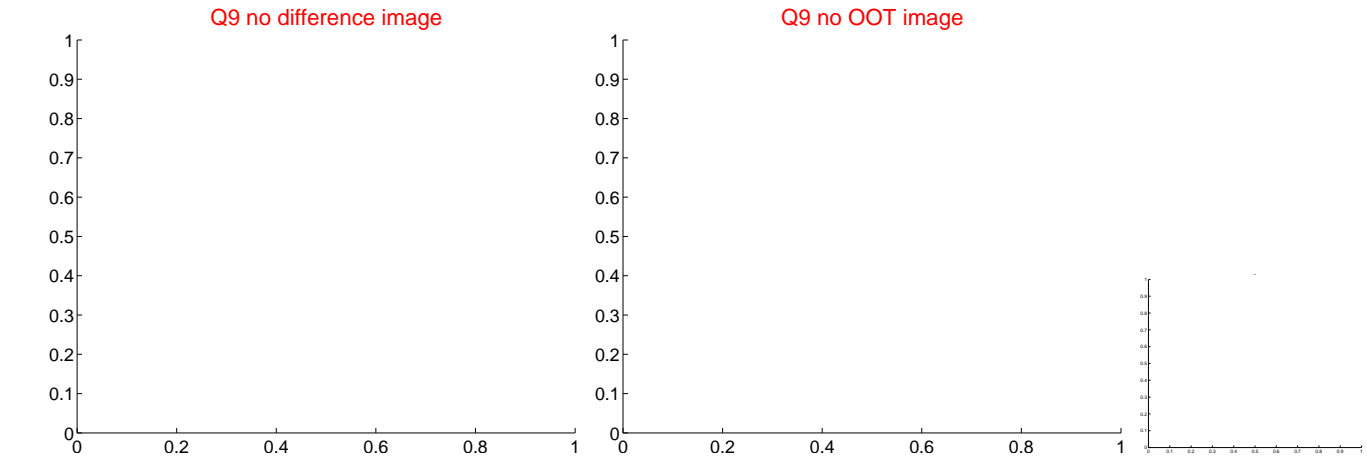
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



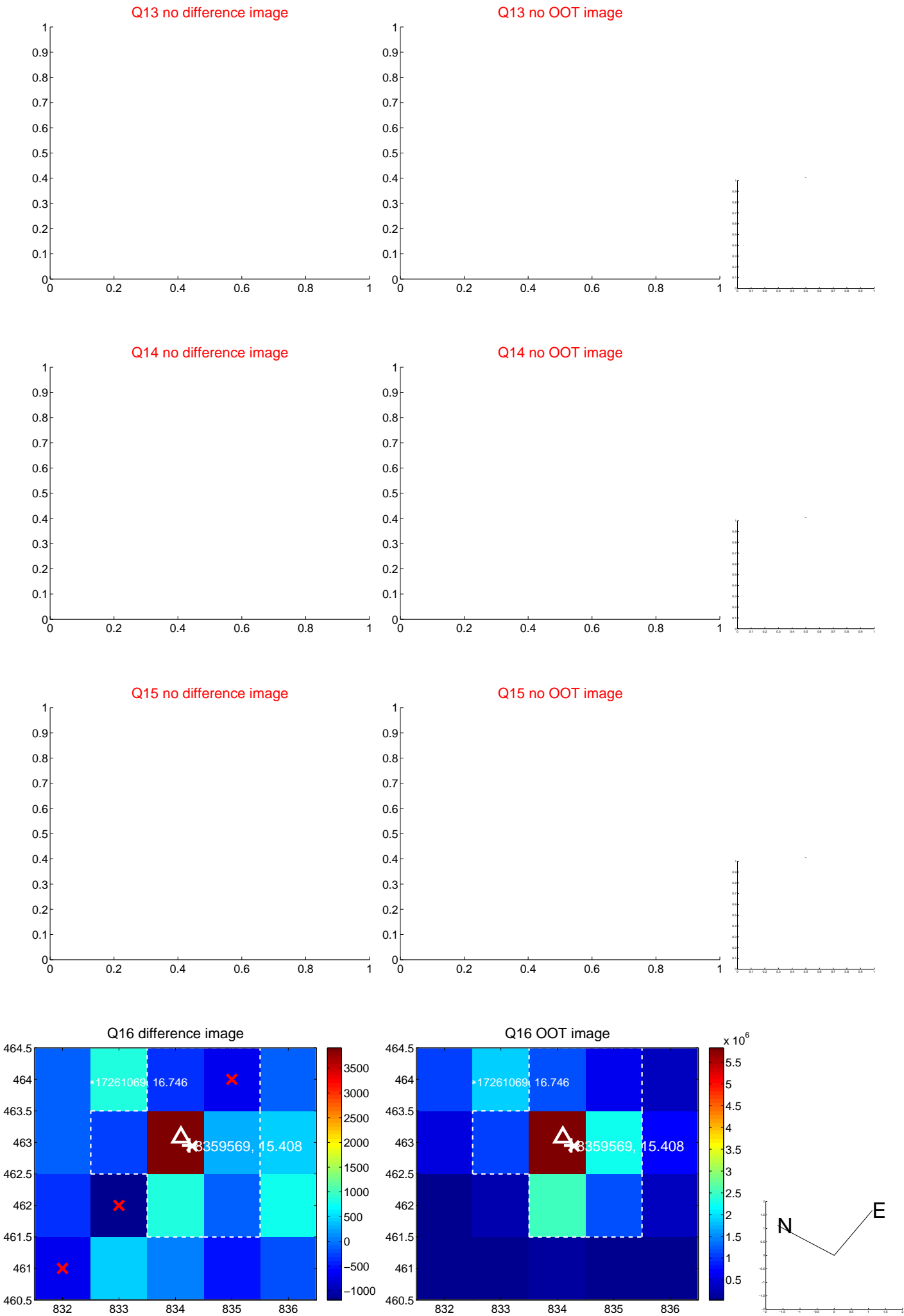
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



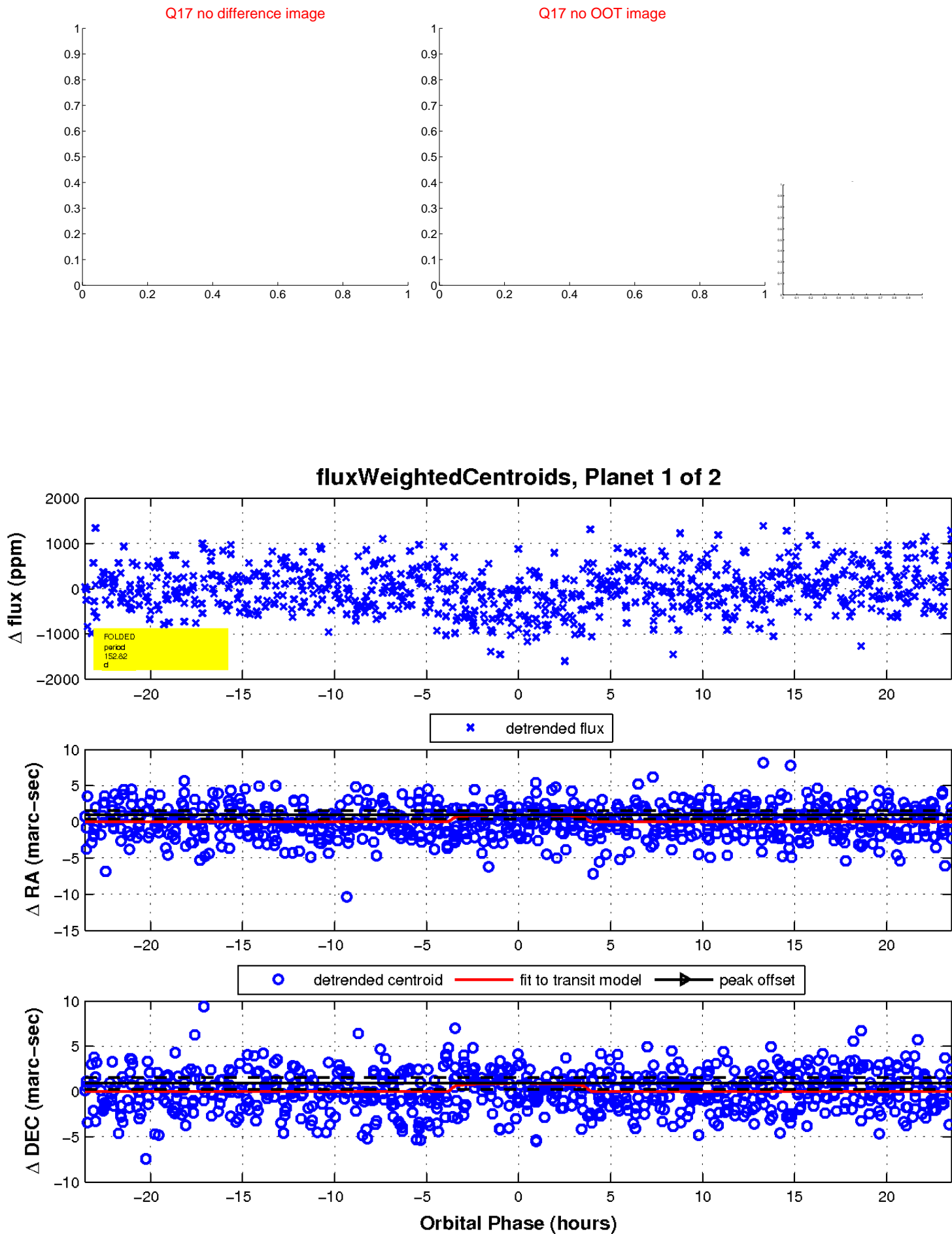
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

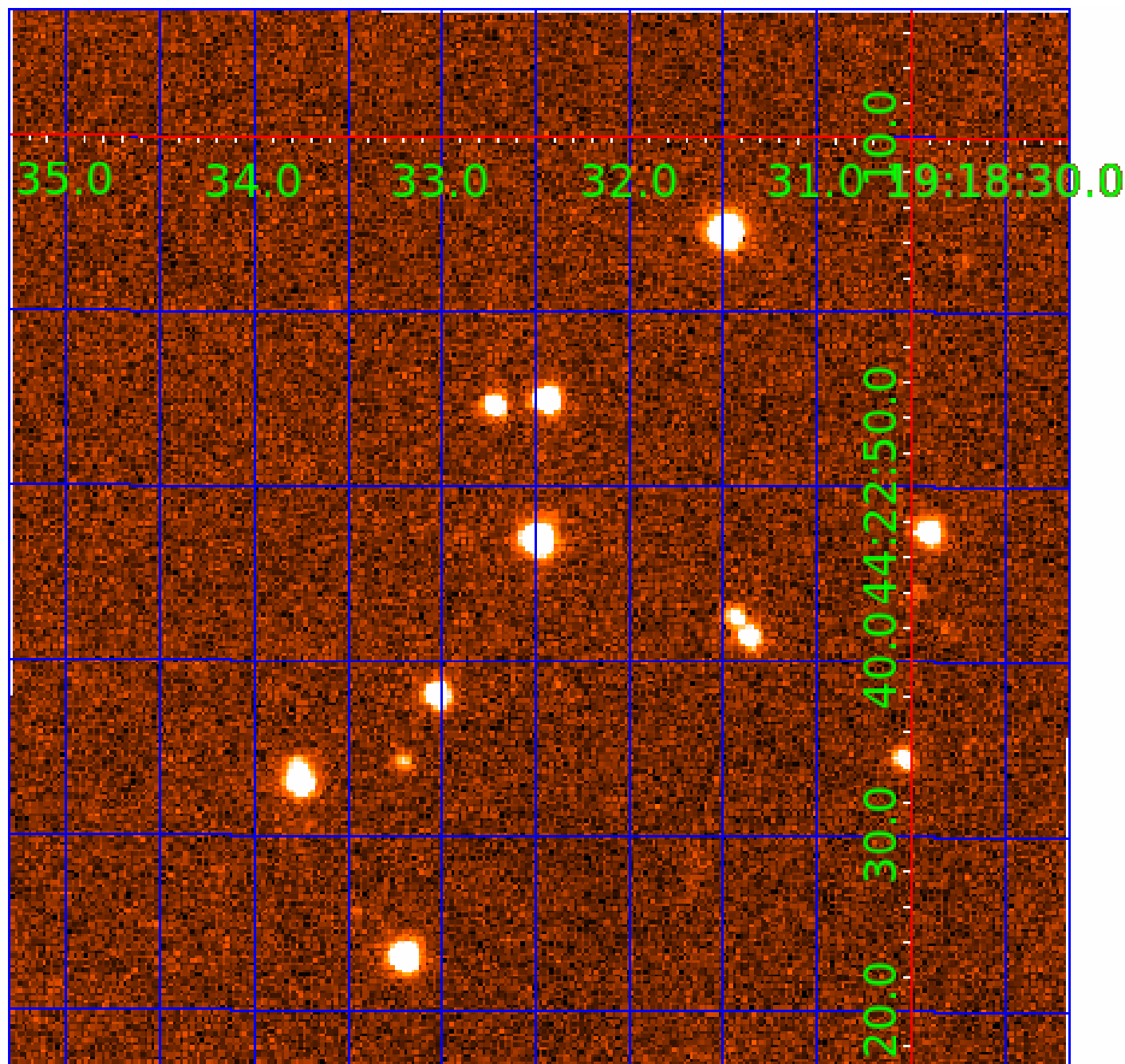


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008359569

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})
008359569-01	OBS	4667.01	152.823981	147.548032	452.4	7.855	8.6	8.9	1.14	6452	2.69	5.78
008359569-02	OBS	No	552.948005	408.709467	721.5	7.876	7.8	7.6	1.14	6452	3.60	1.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008359569-01	OBS	PC	0.88	0	0	0	0	CENT_FEW_DIFFS
008359569-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

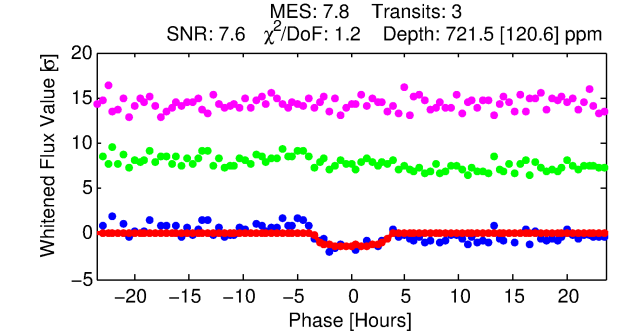
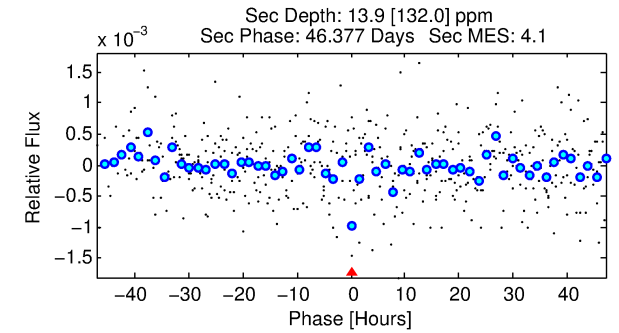
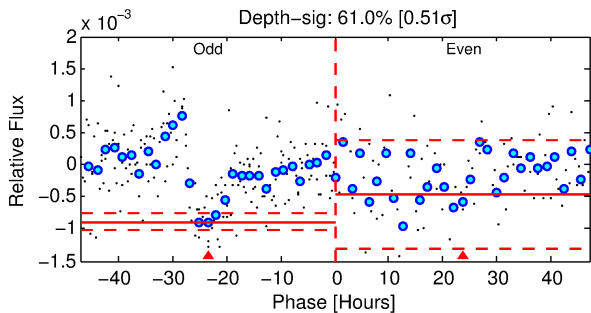
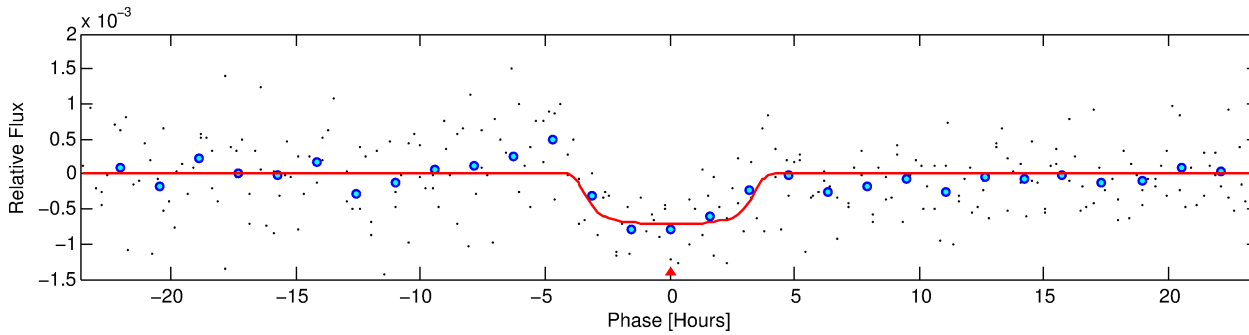
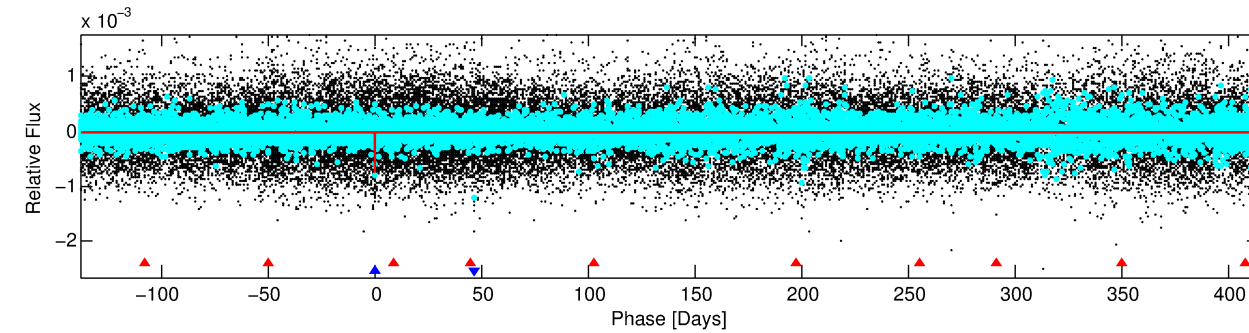
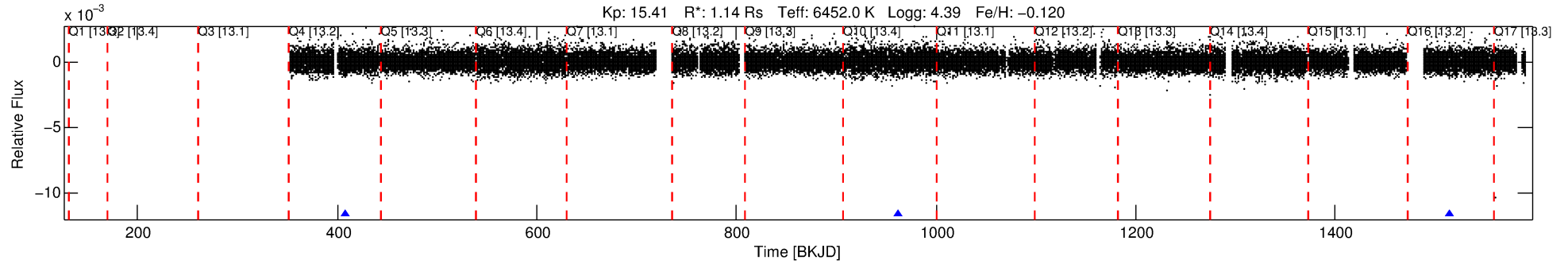
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008359569-02

No Significant Match Found

DV One-Page Summary

KIC: 8359569 Candidate: 2 of 2 Period: 552.948 d
KOI: K04667 Corr: No Ephemeris Match



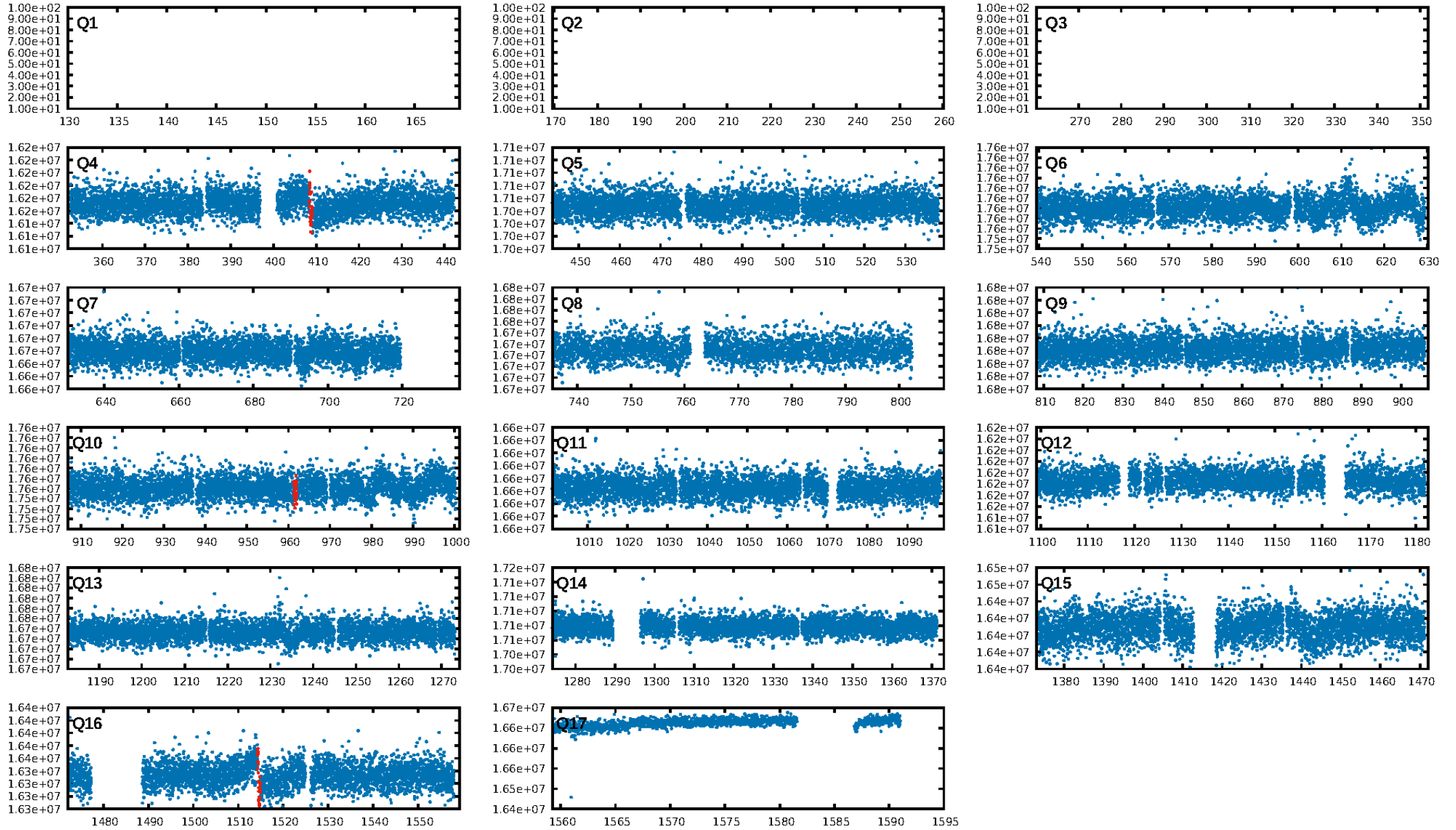
DV Fit Results:

Period = 552.94801 [0.01633] d
Epoch = 408.7095 [0.0191] BKJD
Rp/R* = 0.0290 [0.0053]
a/R* = 260.34 [213.48]
b = 0.91 [0.16]
Seff = 1.04 [0.42]
Teq = 258 [26] K
Rp = 3.60 [1.28] Re
a = 1.3889 [0.3540] AU
Ag = 1138.17 [10843.59] [0.10 σ]
Teffp = 2313 [5505] K [0.37 σ]

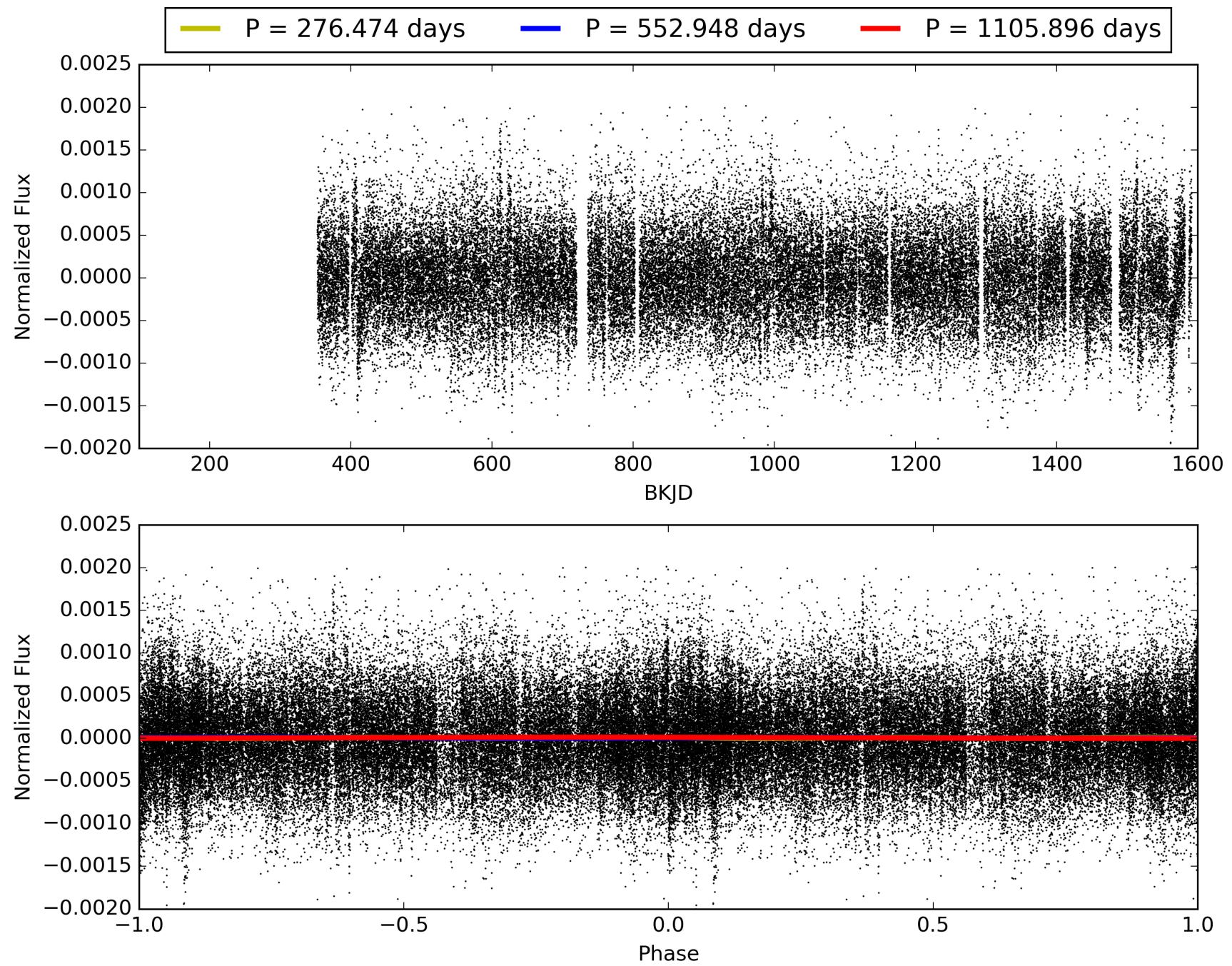
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [863.33 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.1%
ModelChiSquareGof-sig: 98.8%
Bootstrap-pfa: 1.80e-15
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 4.87
Centroid-sig: 3.1%
Centroid-so: 2.526 arcsec [1.65 σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
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TCE 008359569-02, PDC Light Curves

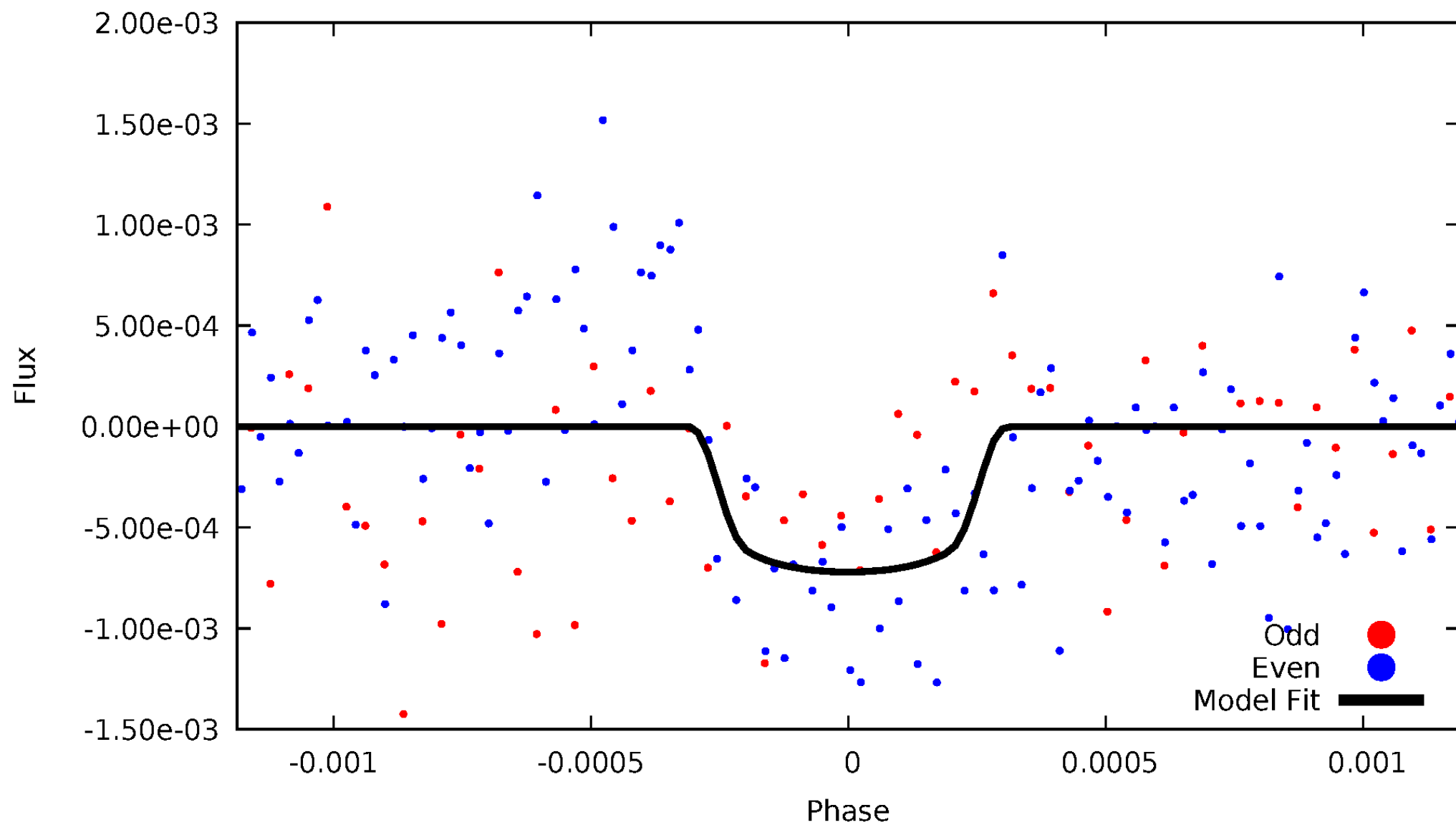


TCE 008359569-02



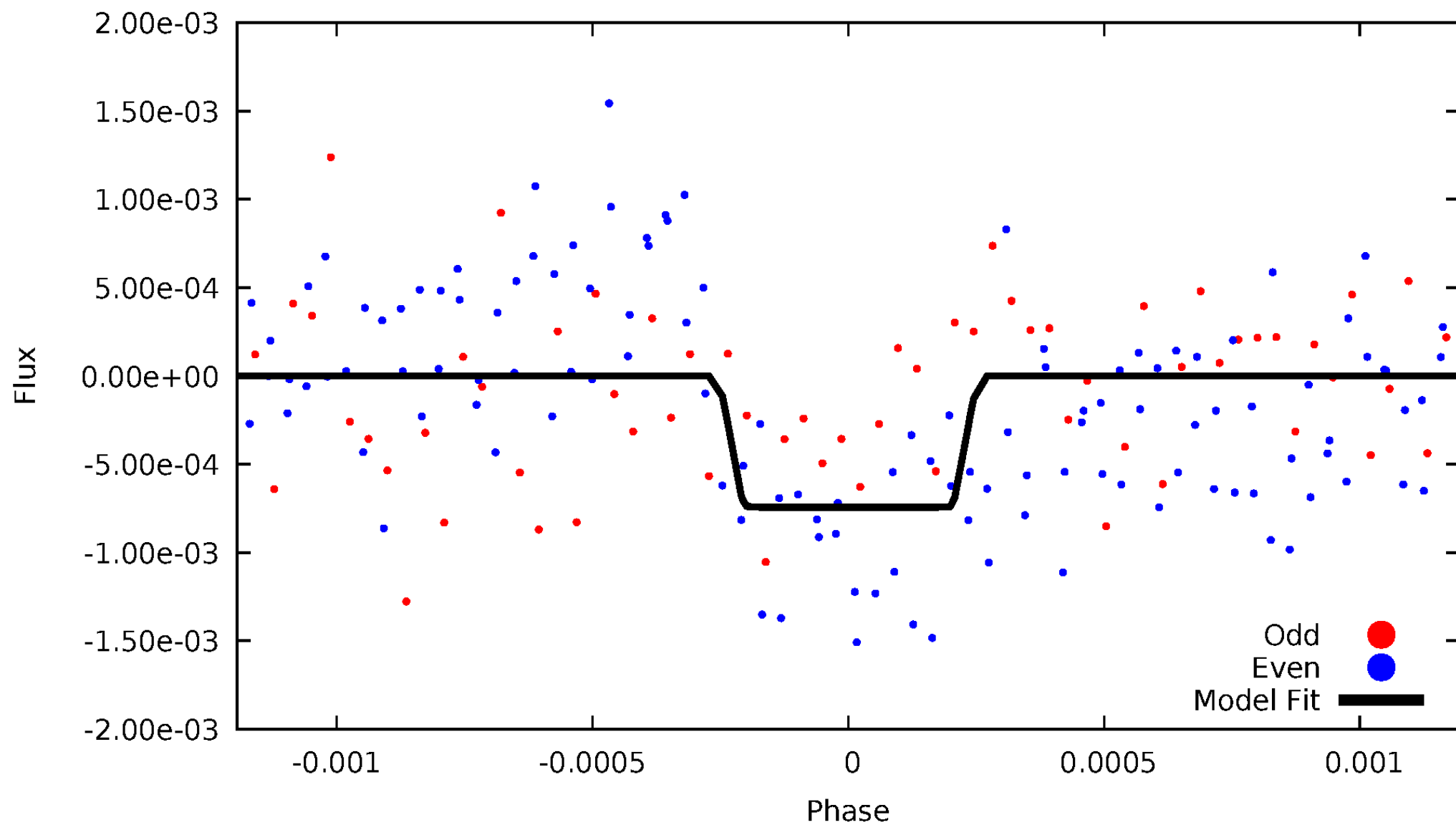
DV Odd/Even

TCE 008359569-02



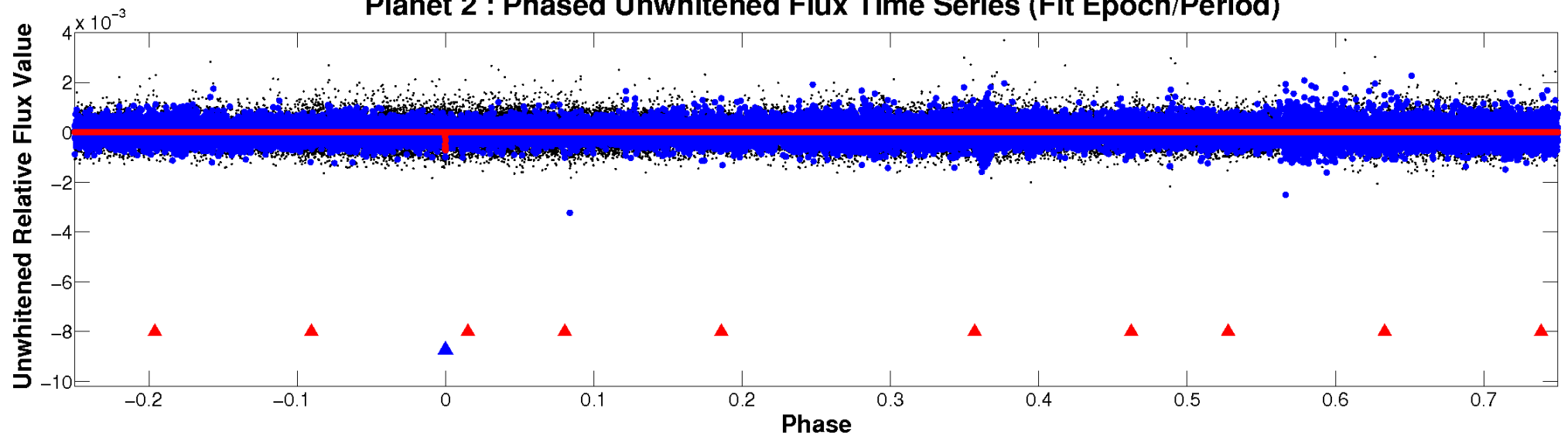
ALT Odd/Even

TCE 008359569-02

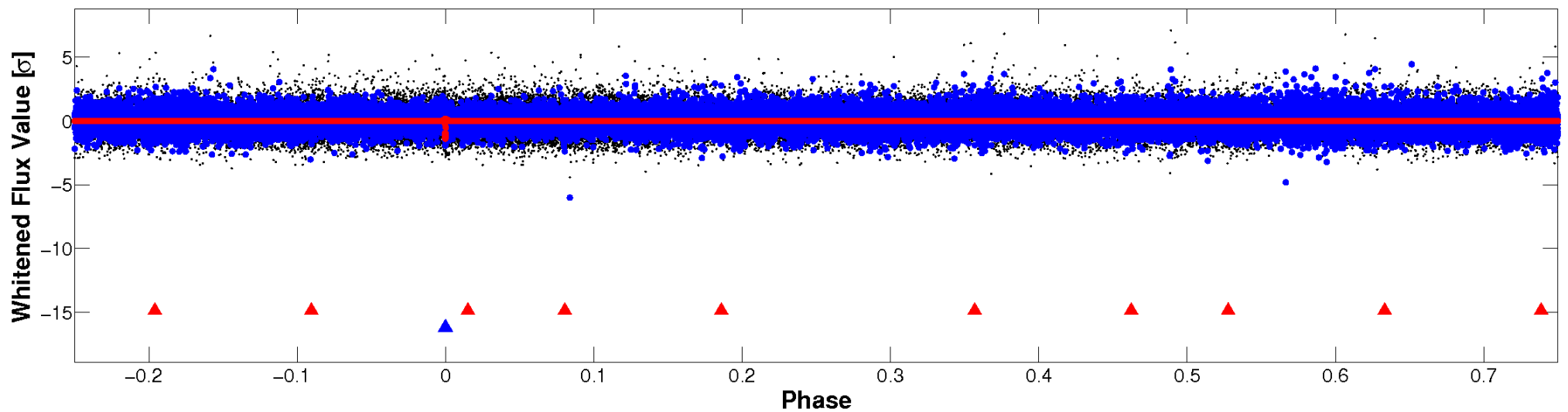


Non-Whitened Vs. Whitened Light Curve

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

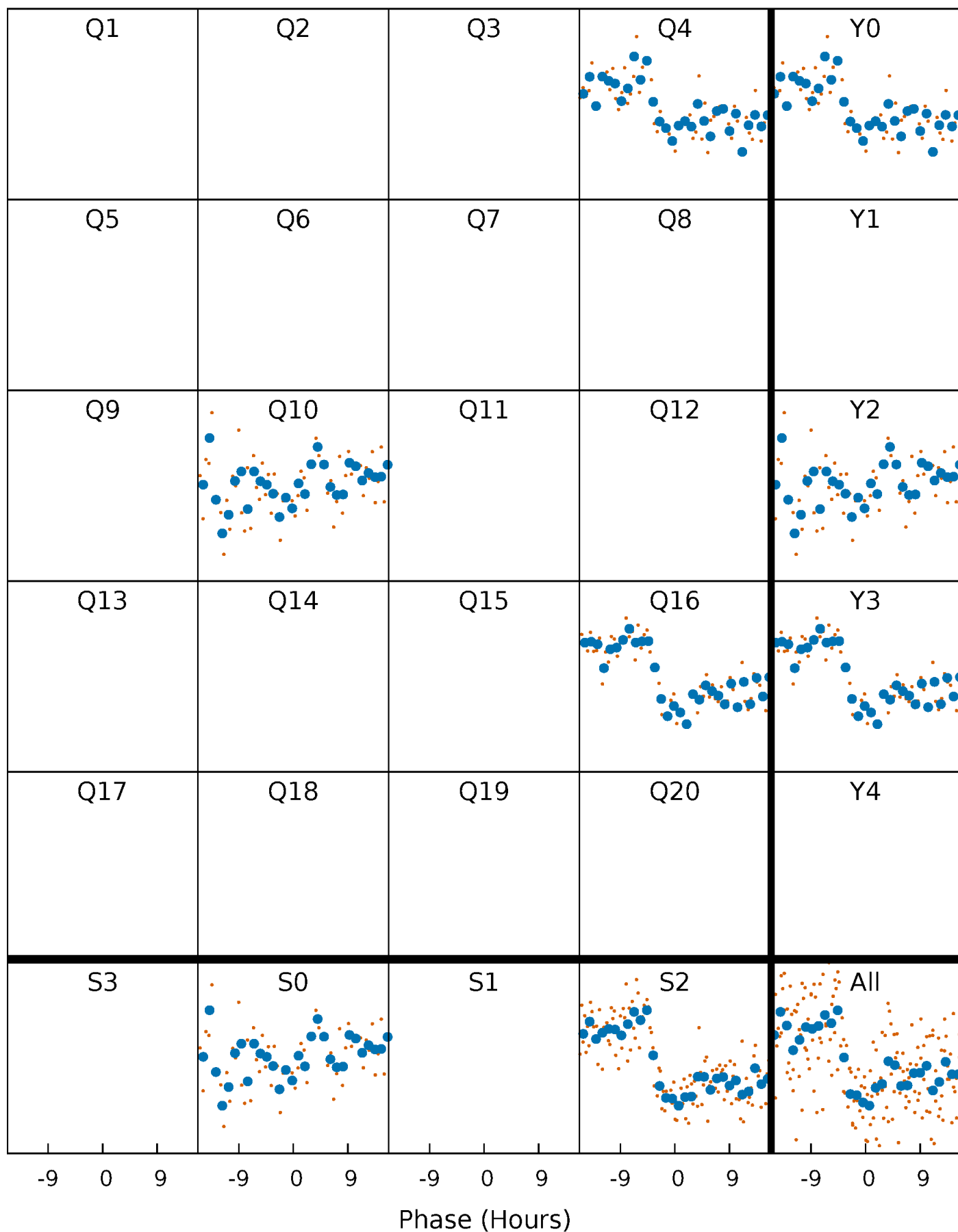


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



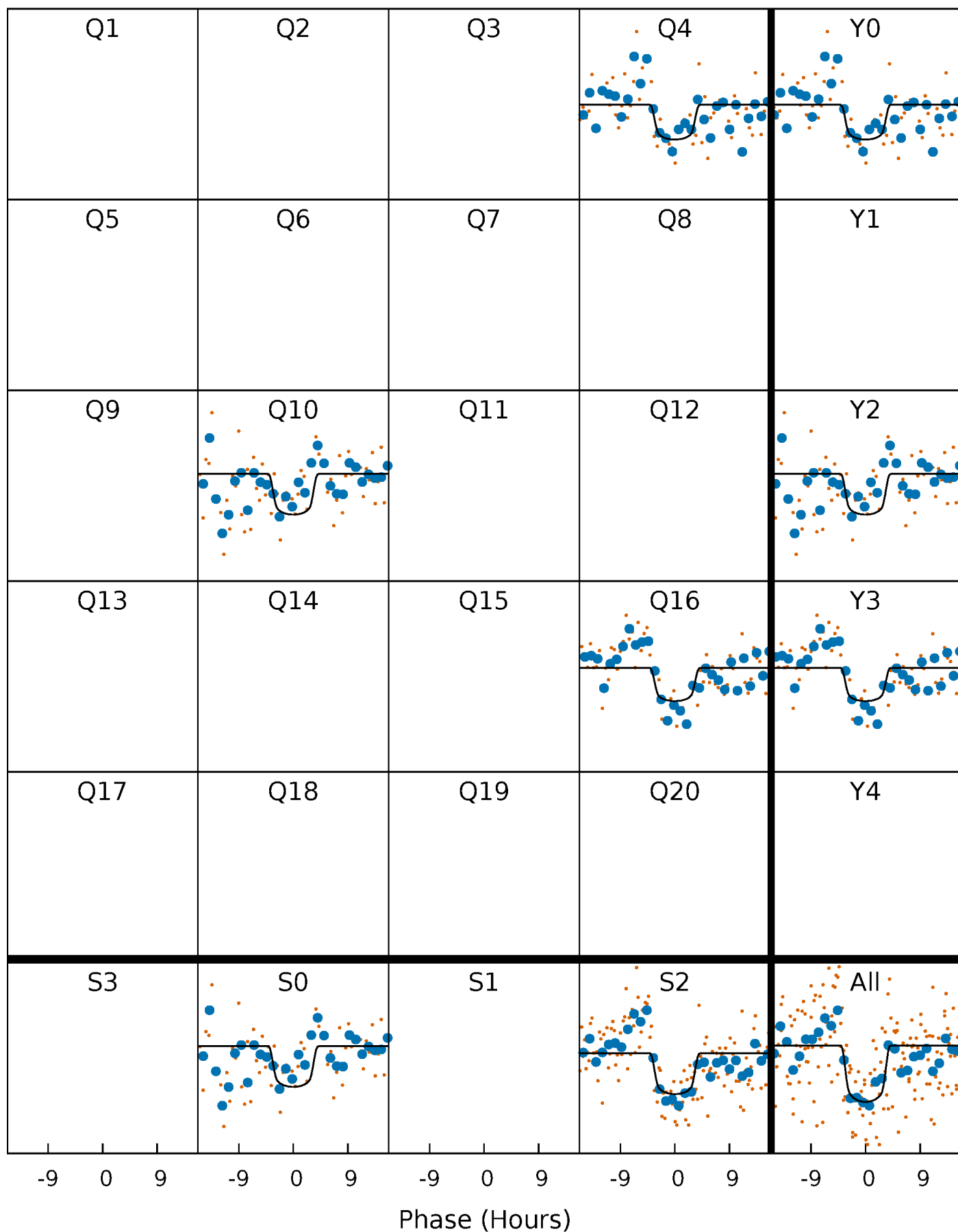
PDC Quarter-Phased Transit Curves

TCE 008359569-02 P=552.948005 Days $T_0=408.709467$ (BKJD)



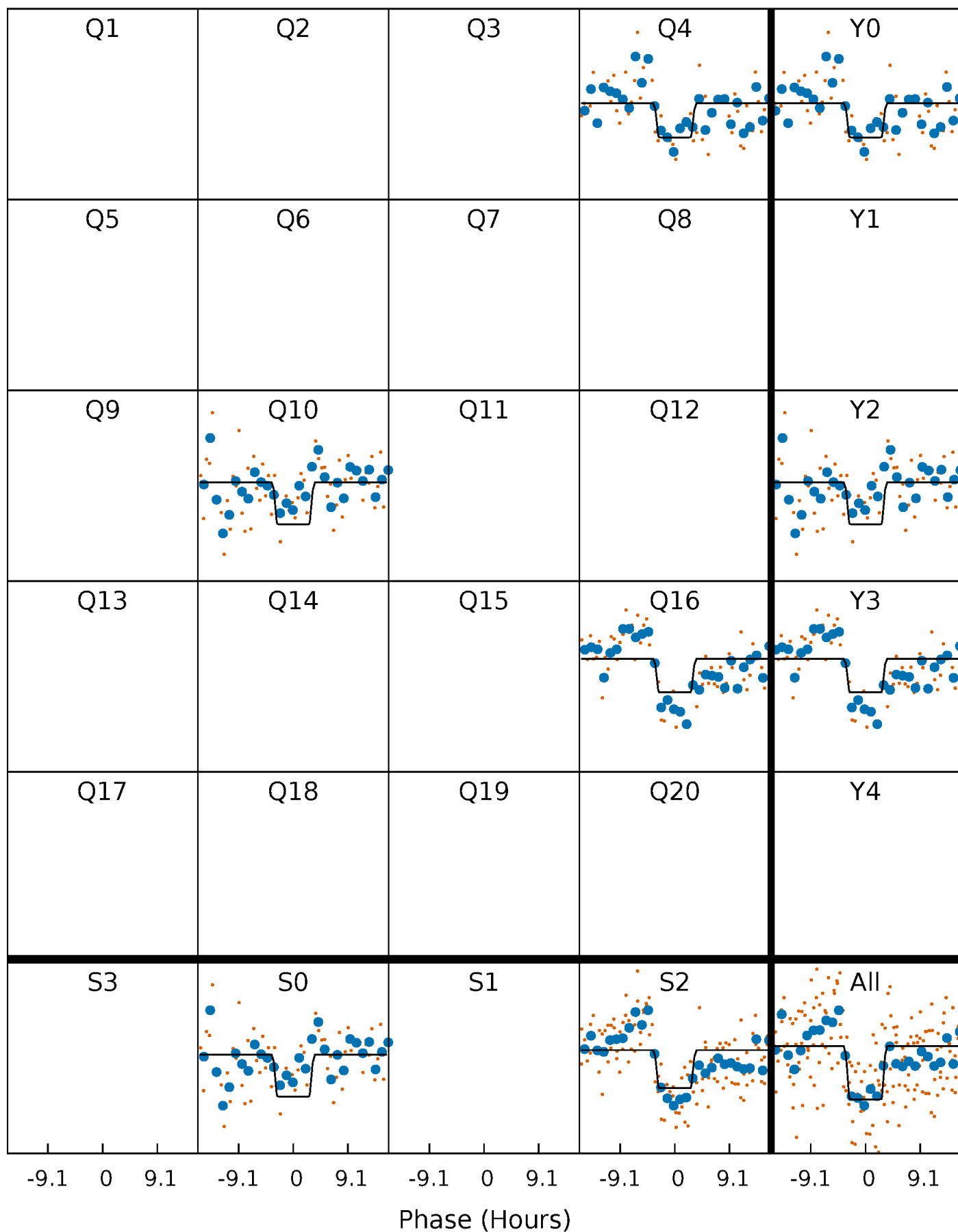
DV Quarter-Phased Transit Curves

TCE 008359569-02 P=552.948005 Days $T_0=408.709467$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

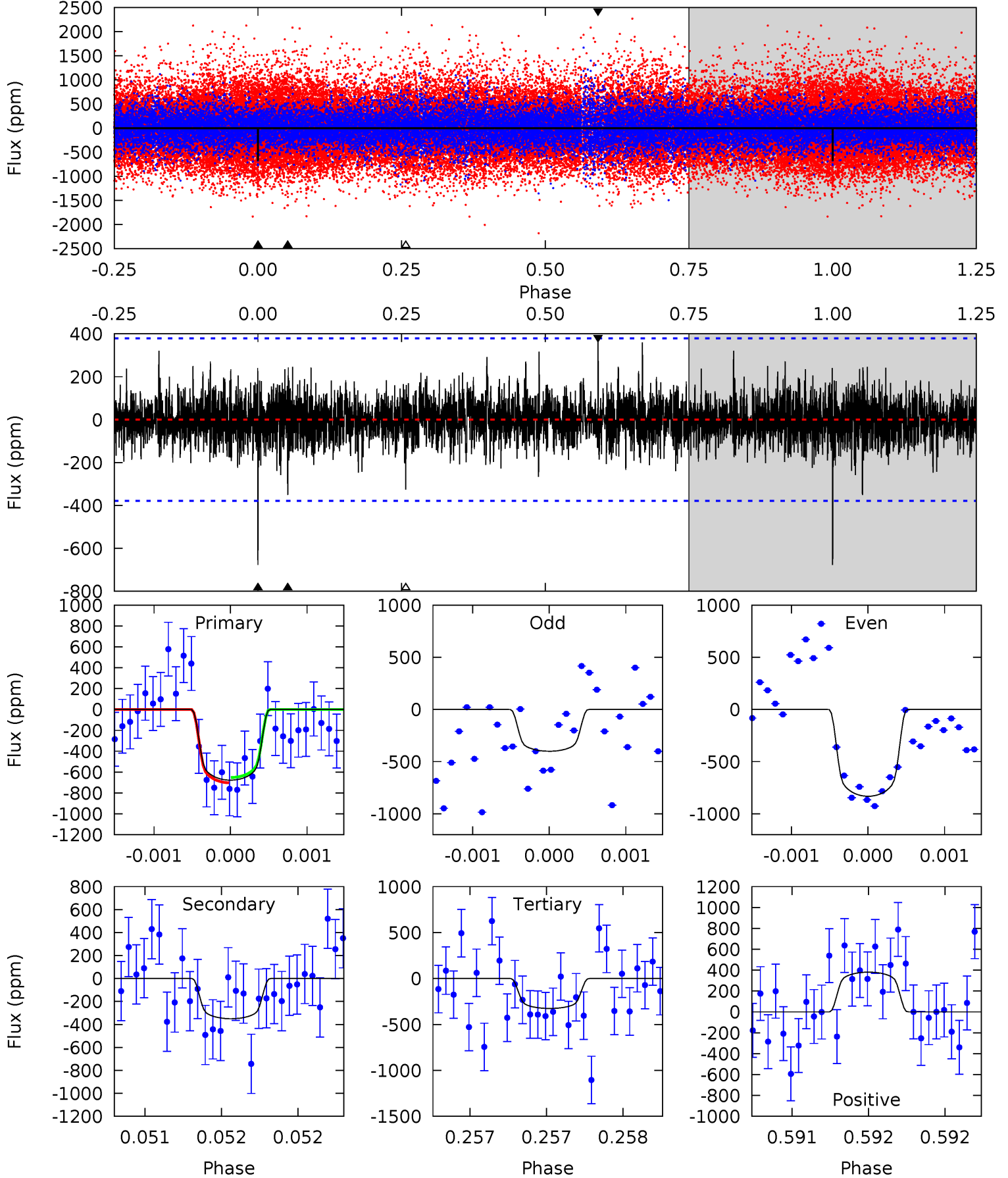
TCE 008359569-02 P=552.952567 Days $T_0=408.704635$ (BKJD)



DV Model-Shift Uniqueness Test

008359569-02, P = 552.948005 Days, E = 408.709467 Days

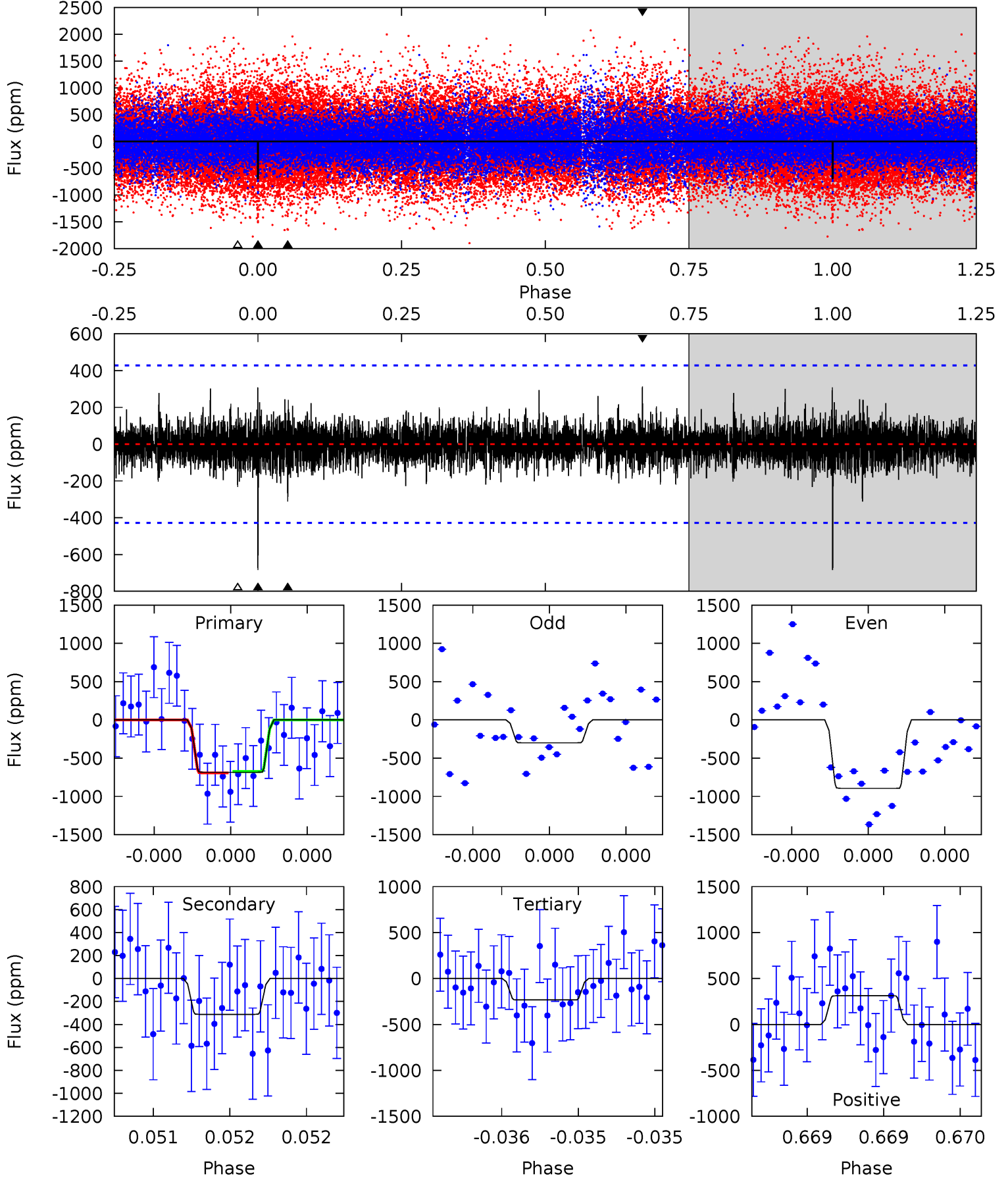
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.90	5.12	4.77	5.57	5.54	3.43	1.13	5.13	4.34	0.35	-0.45	3.01	0.95	0.36	0.37



Alt Model-Shift Uniqueness Test

008359569-02, P = 552.952567 Days, E = 408.704635 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.93	4.07	3.03	4.08	5.58	3.49	0.87	5.90	4.85	1.04	-0.00	3.67	1.05	0.31	0.11



Stellar Parameters For KIC 008359569

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6452^{+157}_{-246}	$4.394^{+0.067}_{-0.202}$	$-0.120^{+0.250}_{-0.300}$	$1.137^{+0.345}_{-0.148}$	$1.167^{+0.169}_{-0.169}$	$1.120^{+0.390}_{-0.558}$
	+2%/-4%	+2%/-5%	+208%/-250%	+30%/-13%	+14%/-14%	+35%/-50%
Source	KIC0	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 008359569-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-350 ± 68	$3.72^{+0.88}_{-0.72}$	366^{+27}_{-19}	5217^{+509}_{-468}	25643^{+14889}_{-9370}
Alt.	-312 ± 77	$3.51^{+0.87}_{-0.73}$	367^{+28}_{-18}	5229^{+681}_{-517}	26113^{+18024}_{-10690}

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

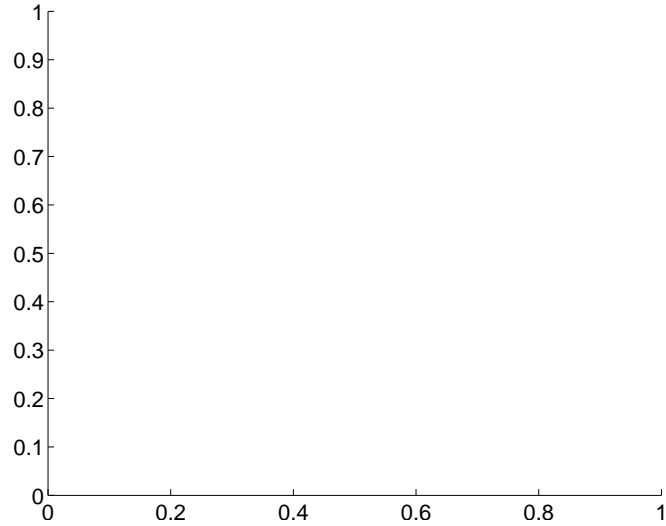
Supplemental centroid analysis for 008359569-02. Kepler magnitude: 15.41. Transit SNR 7.59

There are 0 quarters with good PRF difference image offsets

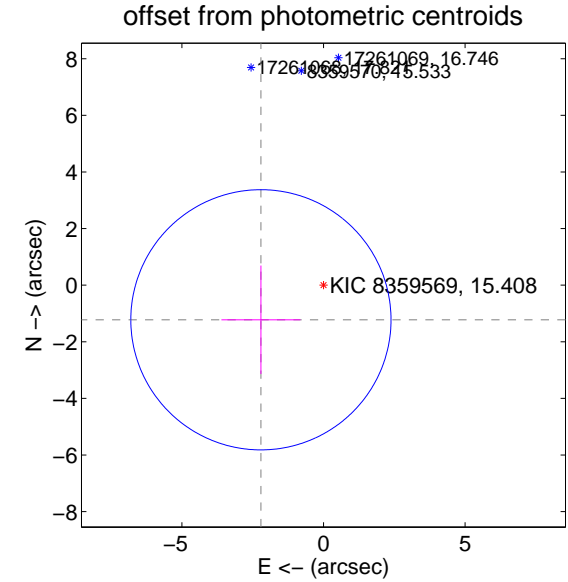
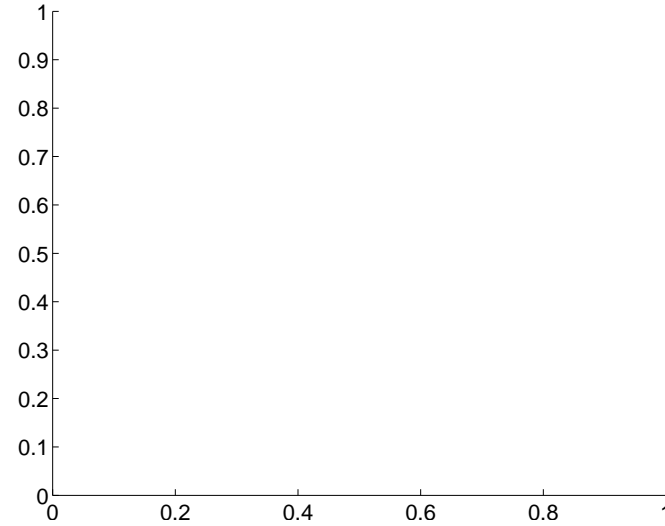
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	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	2.53 ± 1.53	1.65	2.21 ± 1.39	-1.22 ± 1.91

There is no PRF-fit offset from OOT-fit

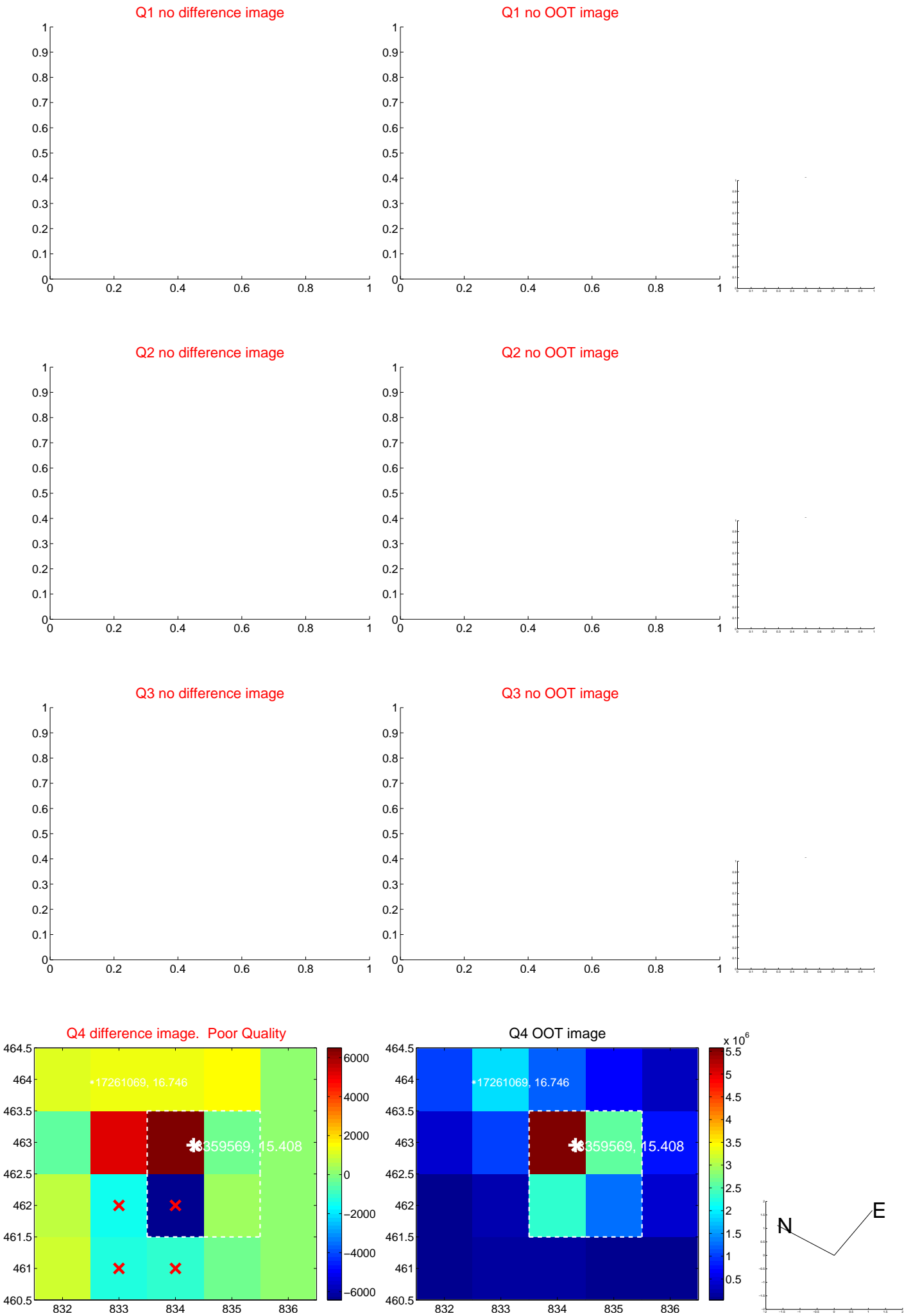


There is no PRF-fit offset from KIC



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.

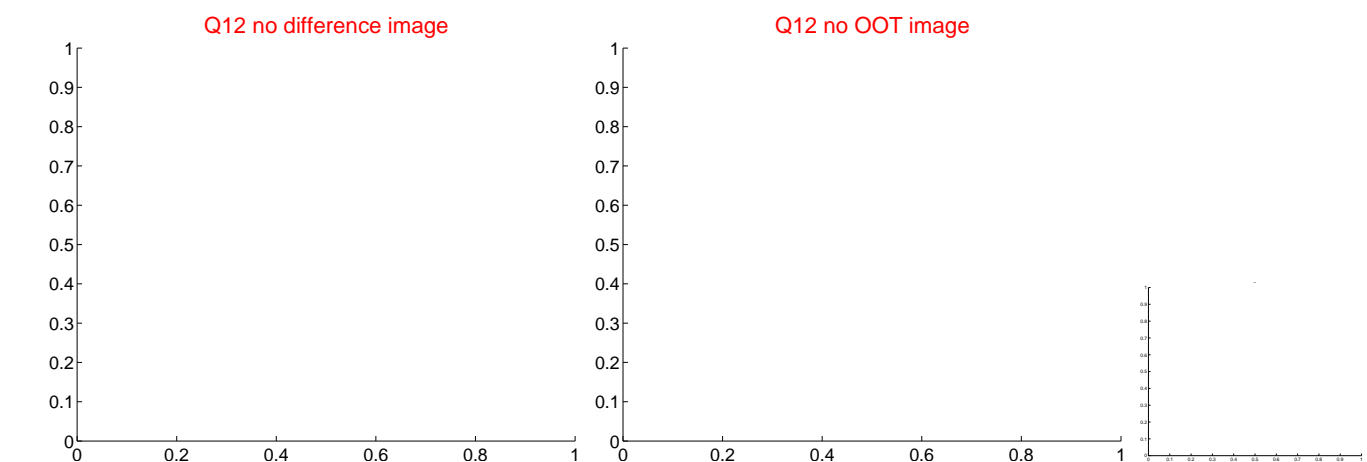
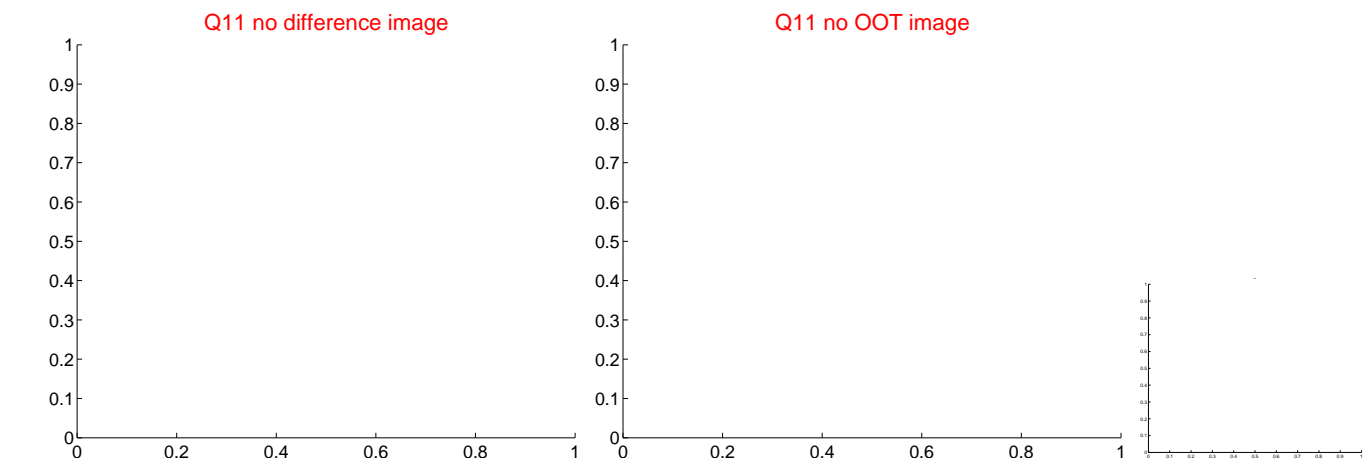
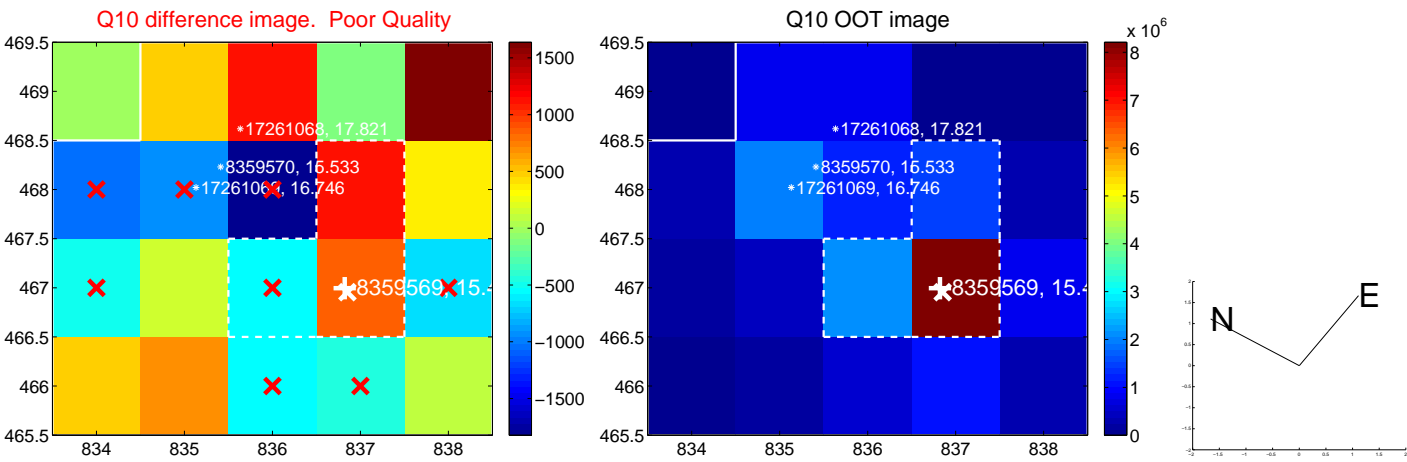
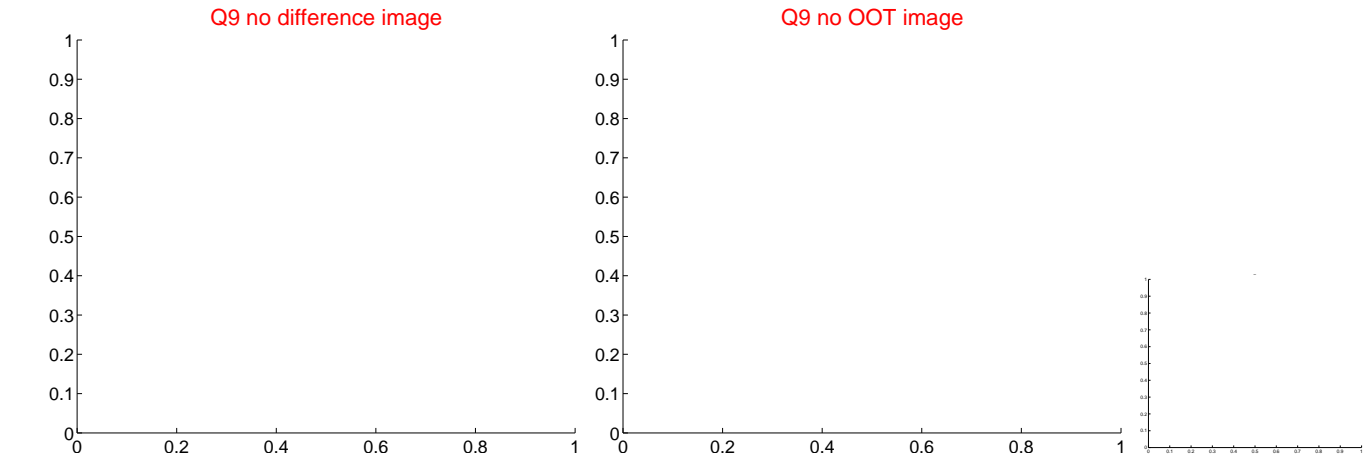
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



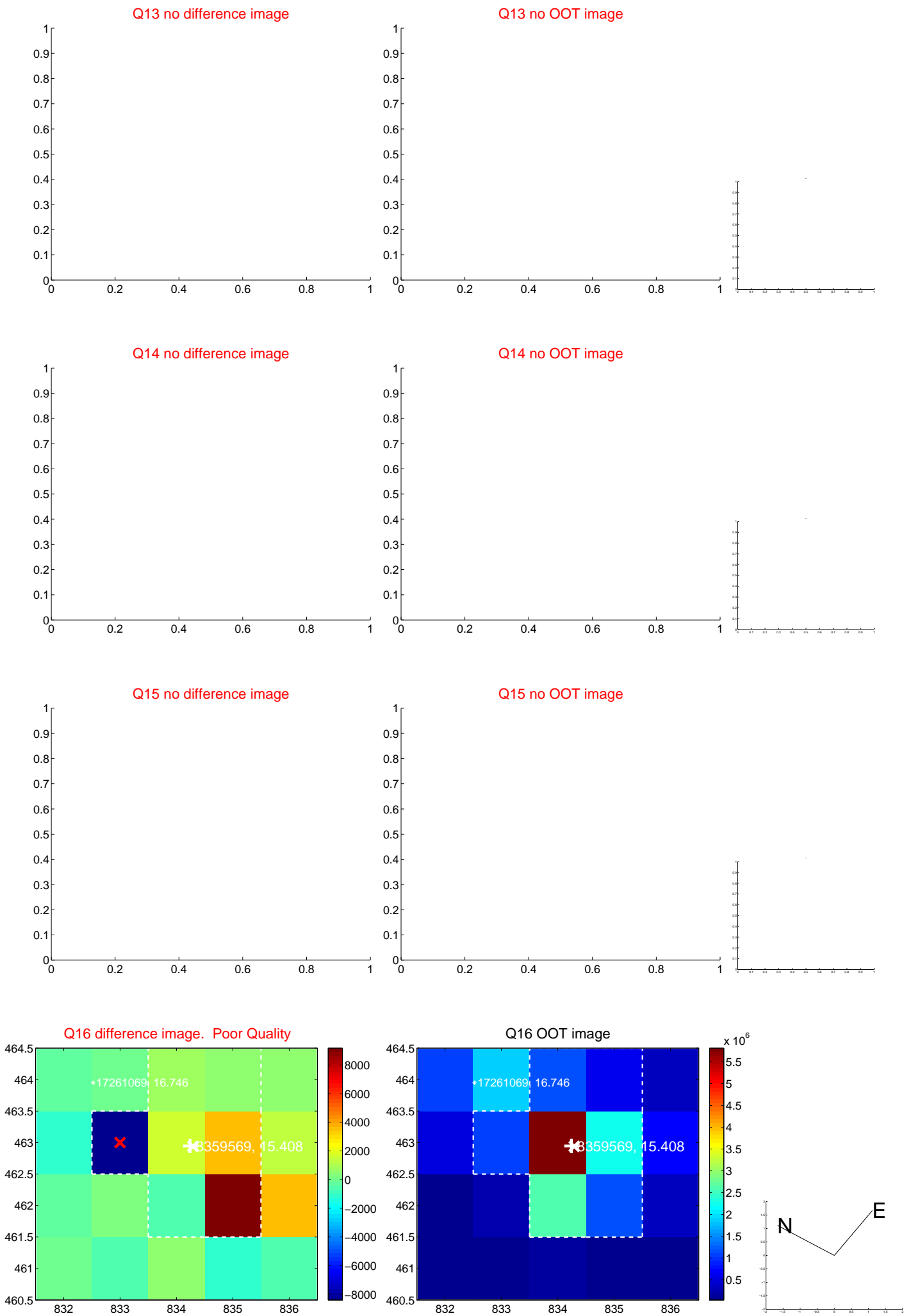
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



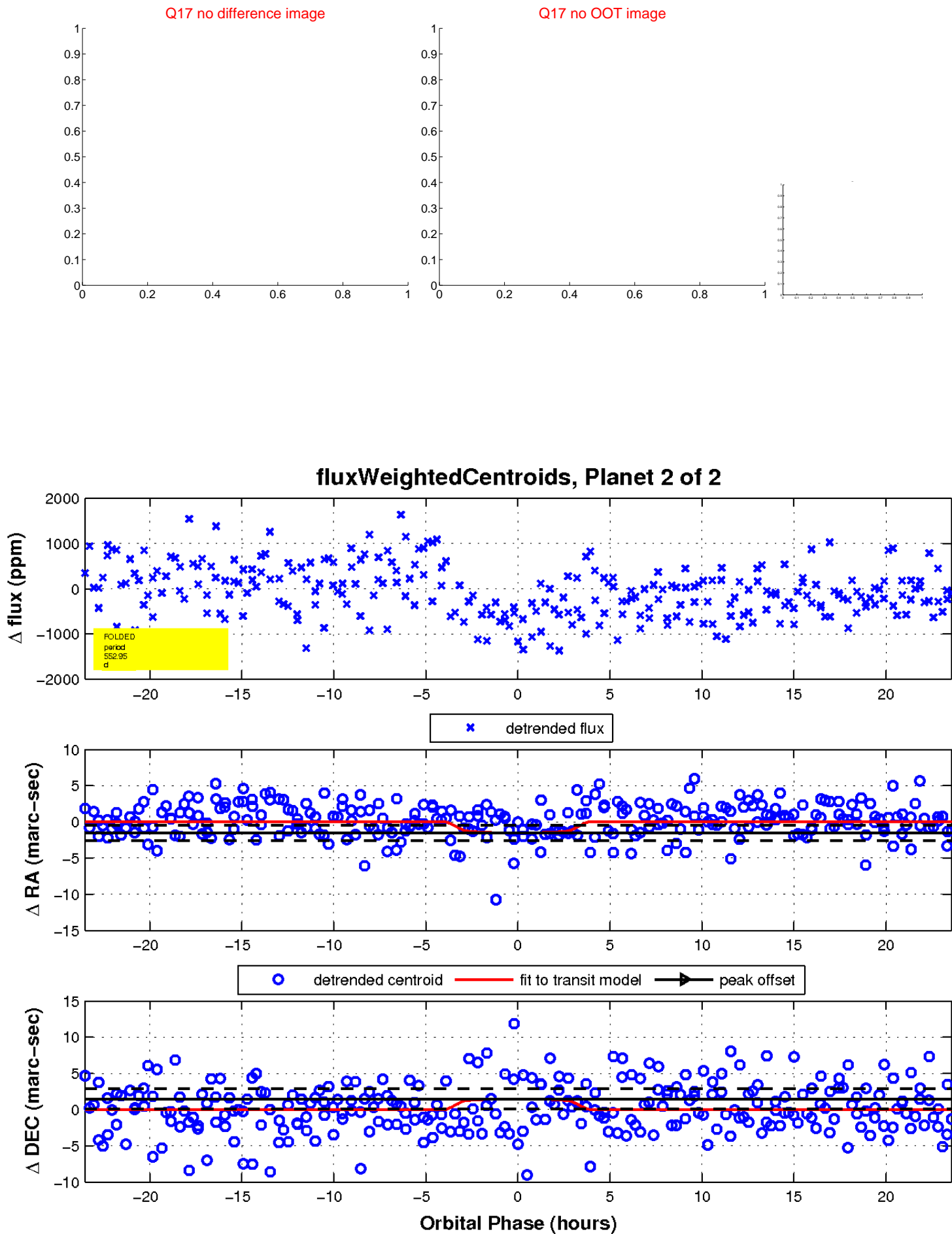
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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.



UKIRT Image

Declination

