

KIC 005598216

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})
005598216-01	OBS	No	252.393065	355.749648	325.6	18.716	9.3	9.0	1.12	5846	2.09	2.43
005598216-02	OBS	8101.01	373.852514	186.683538	315.2	16.309	7.3	7.4	1.12	5846	2.18	1.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005598216-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005598216-02	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

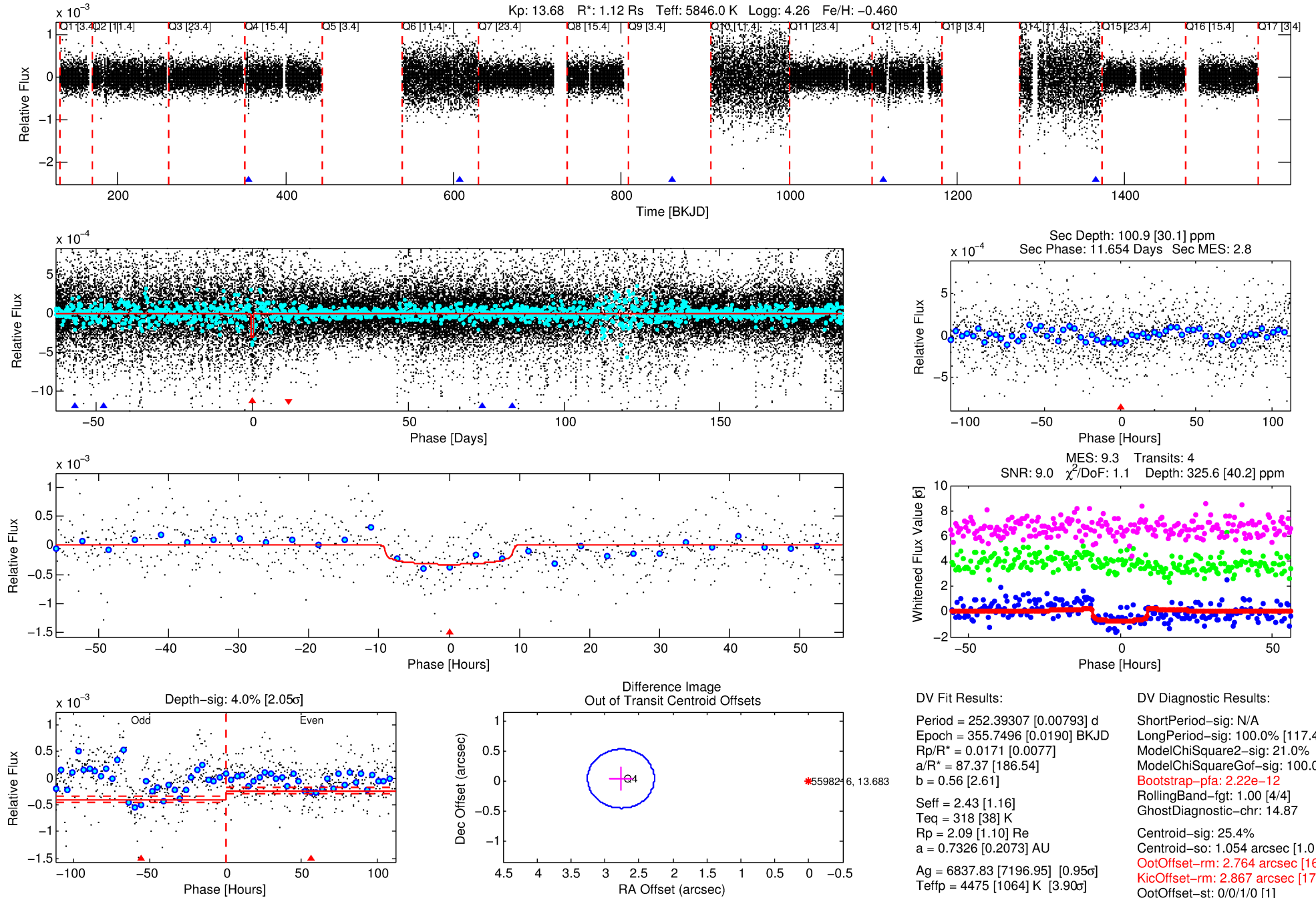
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005598216-01

No Significant Match Found

DV One-Page Summary

KIC: 5598216 Candidate: 1 of 2 Period: 252.393 d



DV Fit Results:

Period = 252.39307 [0.00793] d
Epoch = 355.7496 [0.0190] BKJD
Rp/R* = 0.0171 [0.0077]
a/R* = 87.37 [186.54]
b = 0.56 [2.61]
Seff = 2.43 [1.16]
Teq = 318 [38] K
Rp = 2.09 [1.10] Re
a = 0.7326 [0.2073] AU
Ag = 6837.83 [7196.95] [0.95σ]
Teffp = 4475 [1064] K [3.90σ]

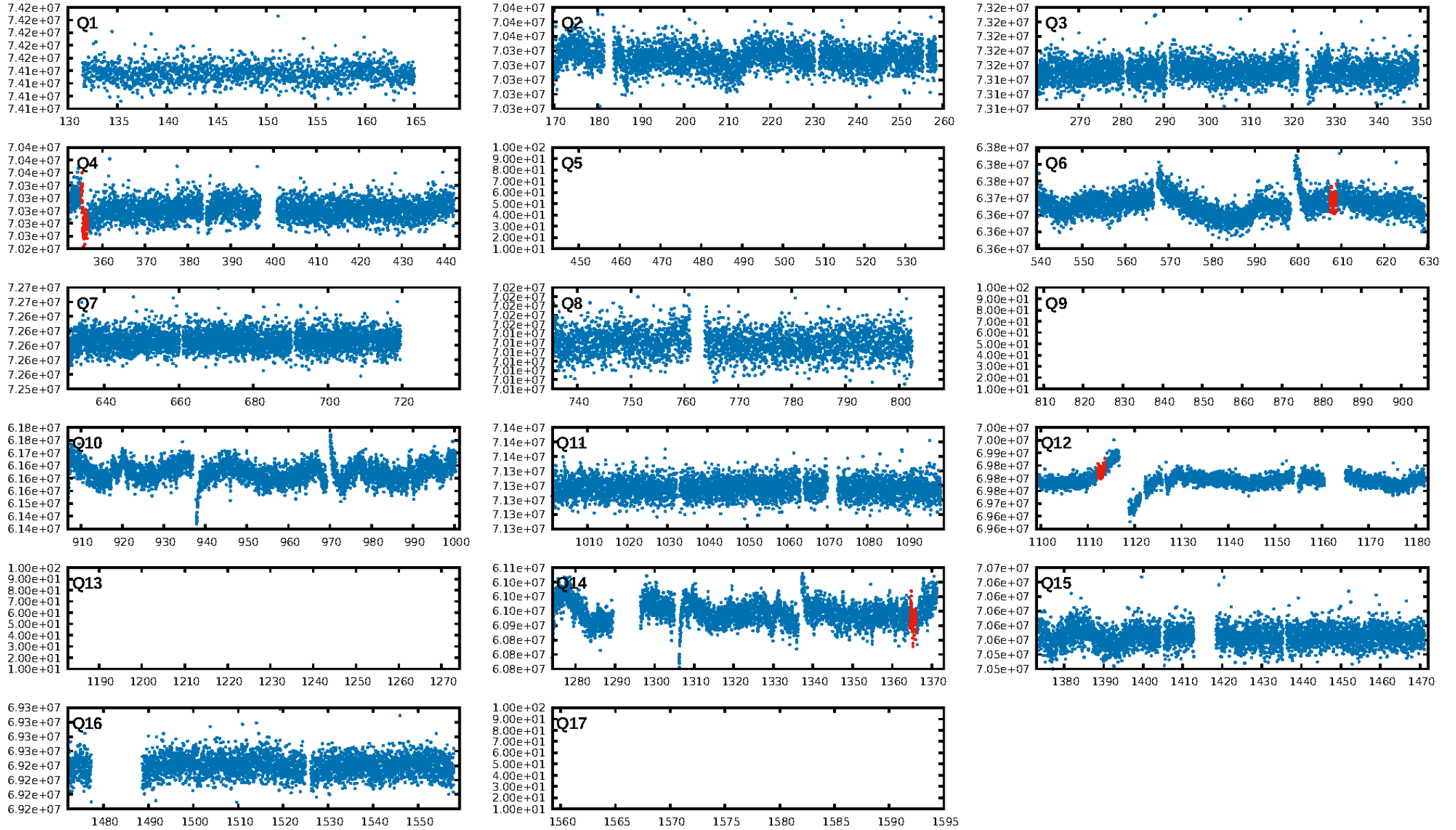
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [117.43σ]
ModelChiSquare2-sig: 21.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.22e-12
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 14.87
Centroid-sig: 25.4%
Centroid-so: 1.054 arcsec [1.01σ]
OotOffset-rm: 2.764 arcsec [16.89σ]
KicOffset-rm: 2.867 arcsec [17.51σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [3/3]

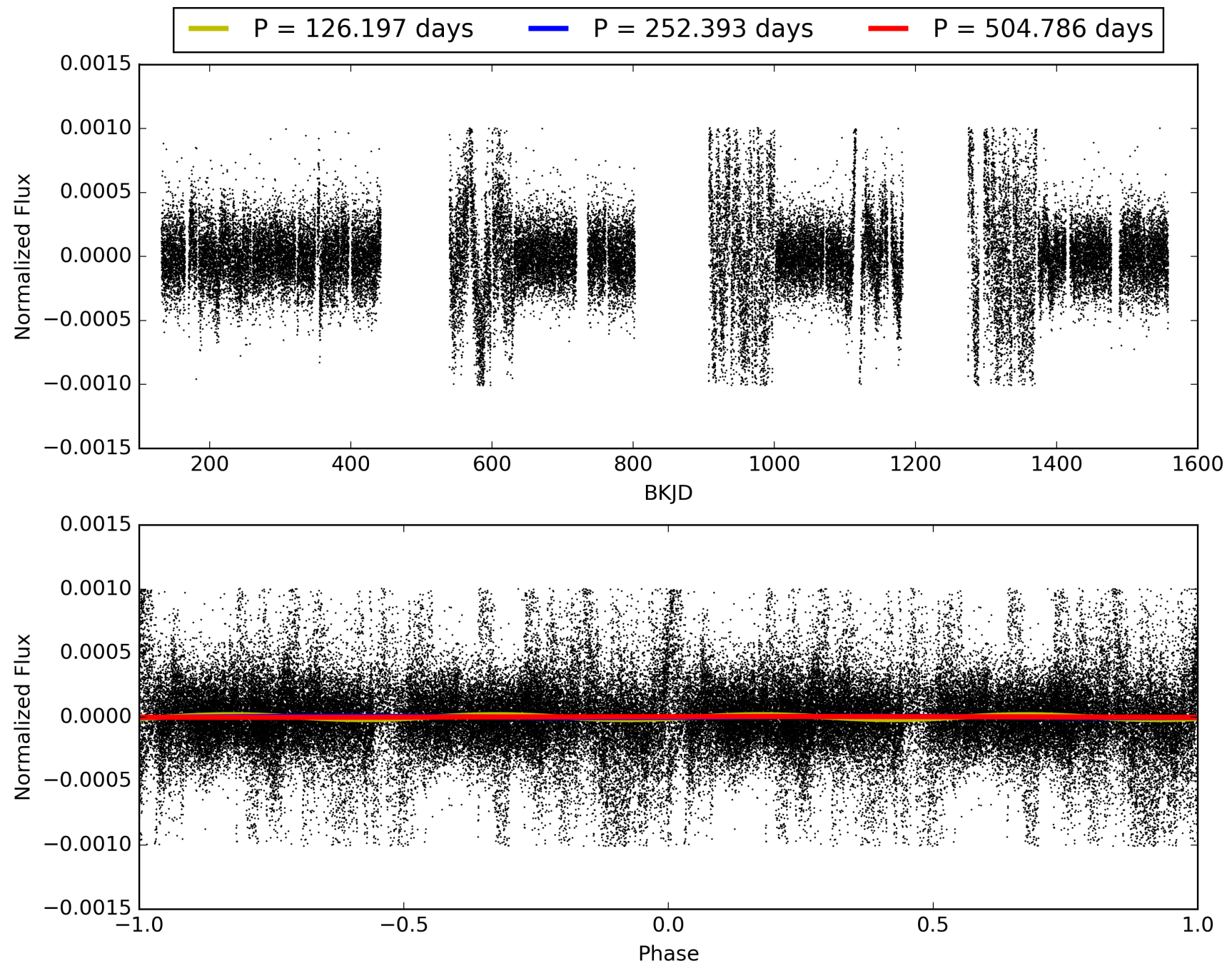
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:56:32 Z

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

TCE 005598216-01, PDC Light Curves

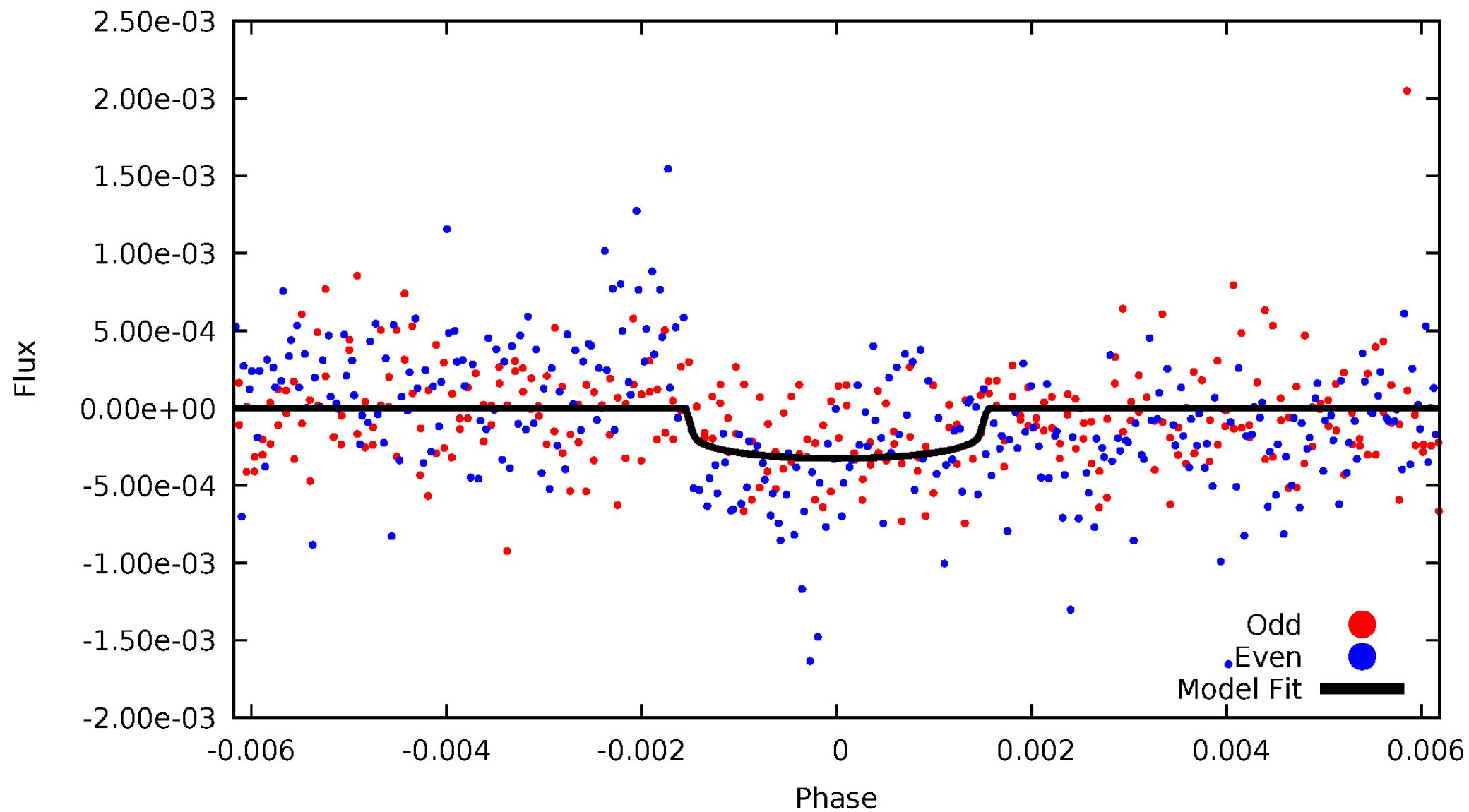


TCE 005598216-01



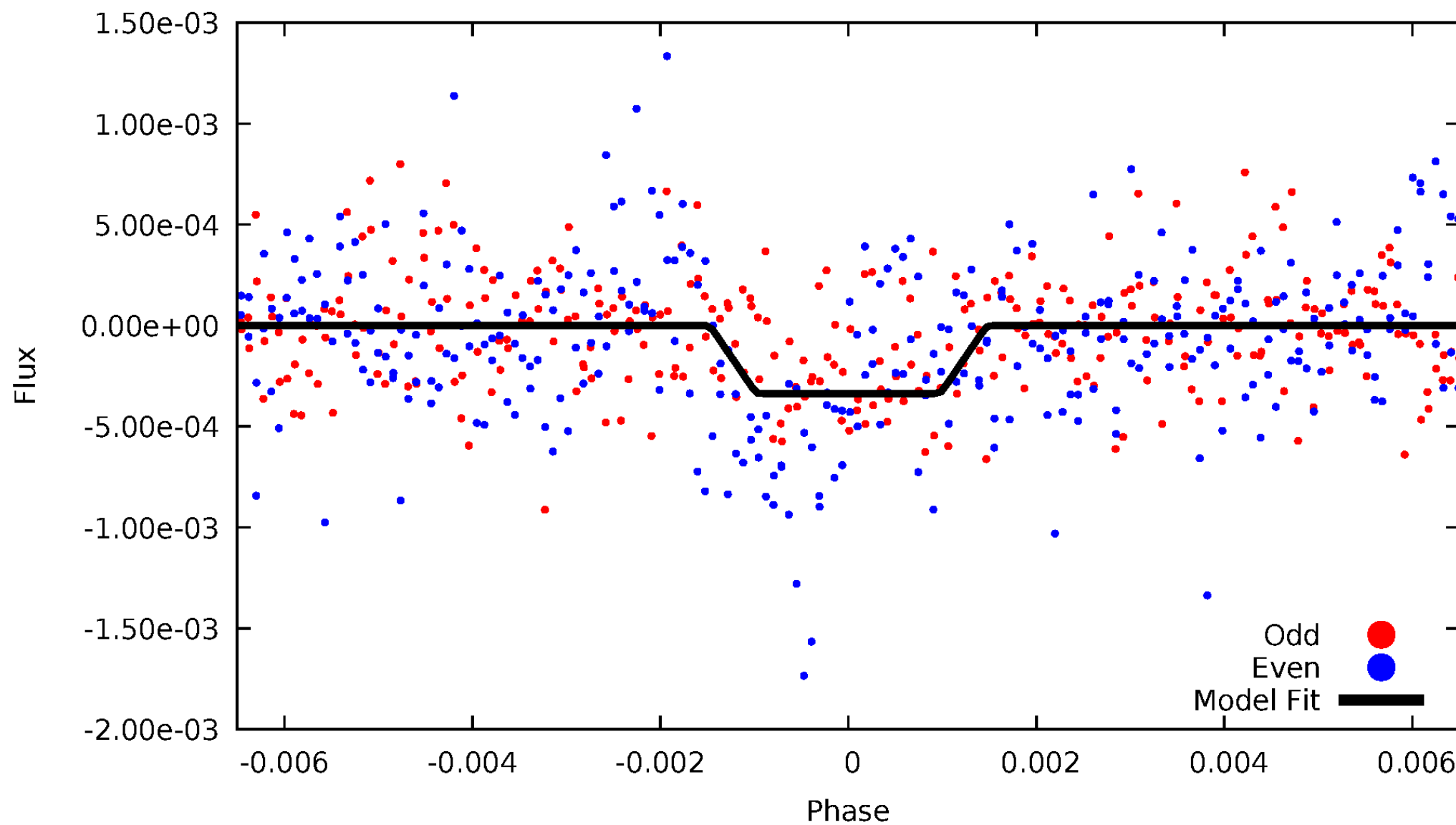
DV Odd/Even

TCE 005598216-01



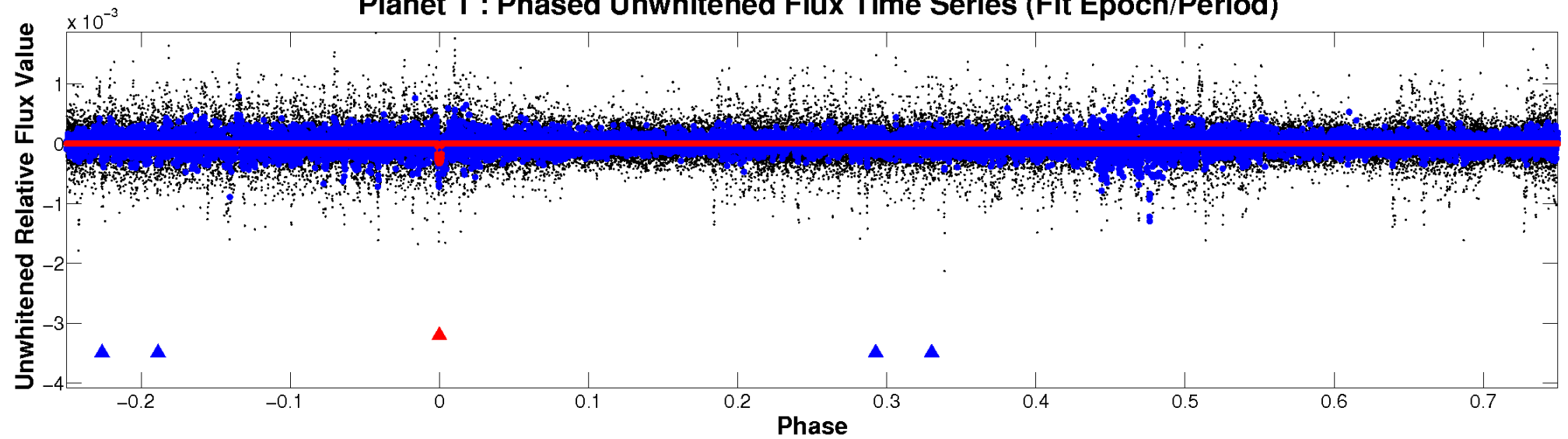
ALT Odd/Even

TCE 005598216-01

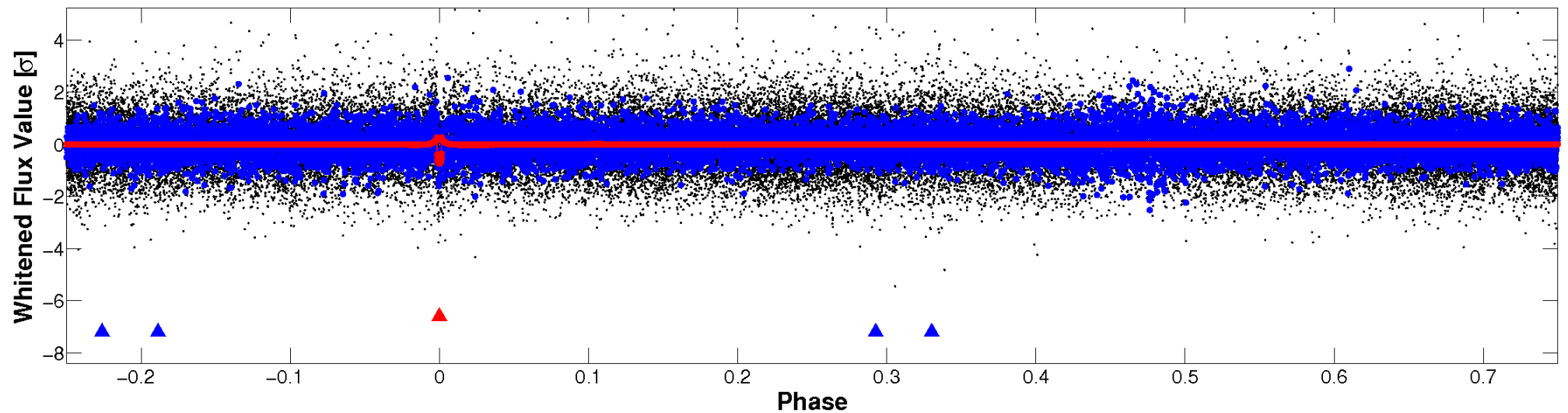


Non-Whitened Vs. Whitened Light Curve

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



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



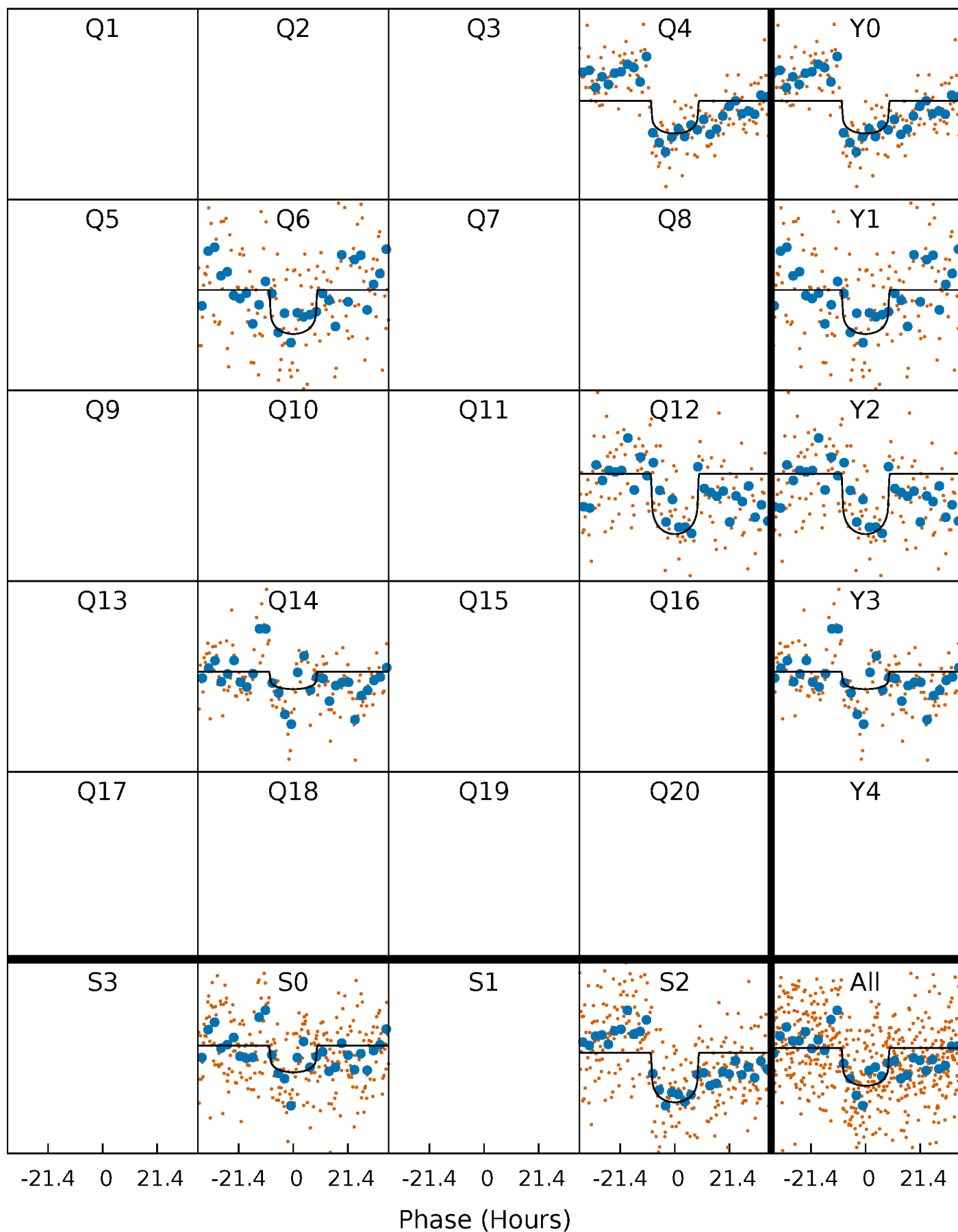
PDC Quarter-Phased Transit Curves

TCE 005598216-01 P=252.393065 Days $T_0=355.749648$ (BKJD)



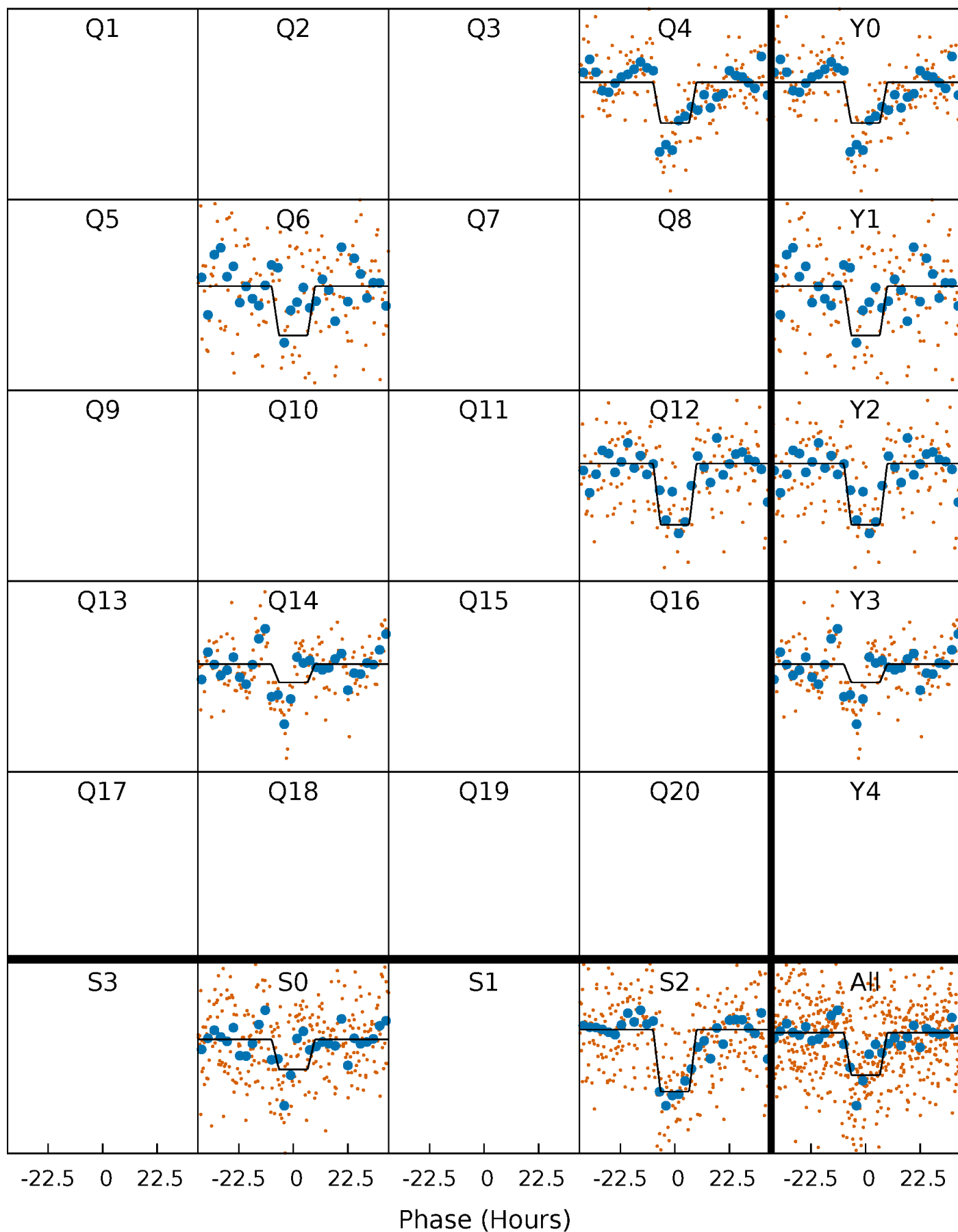
DV Quarter-Phased Transit Curves

TCE 005598216-01 P=252.393065 Days $T_0=355.749648$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

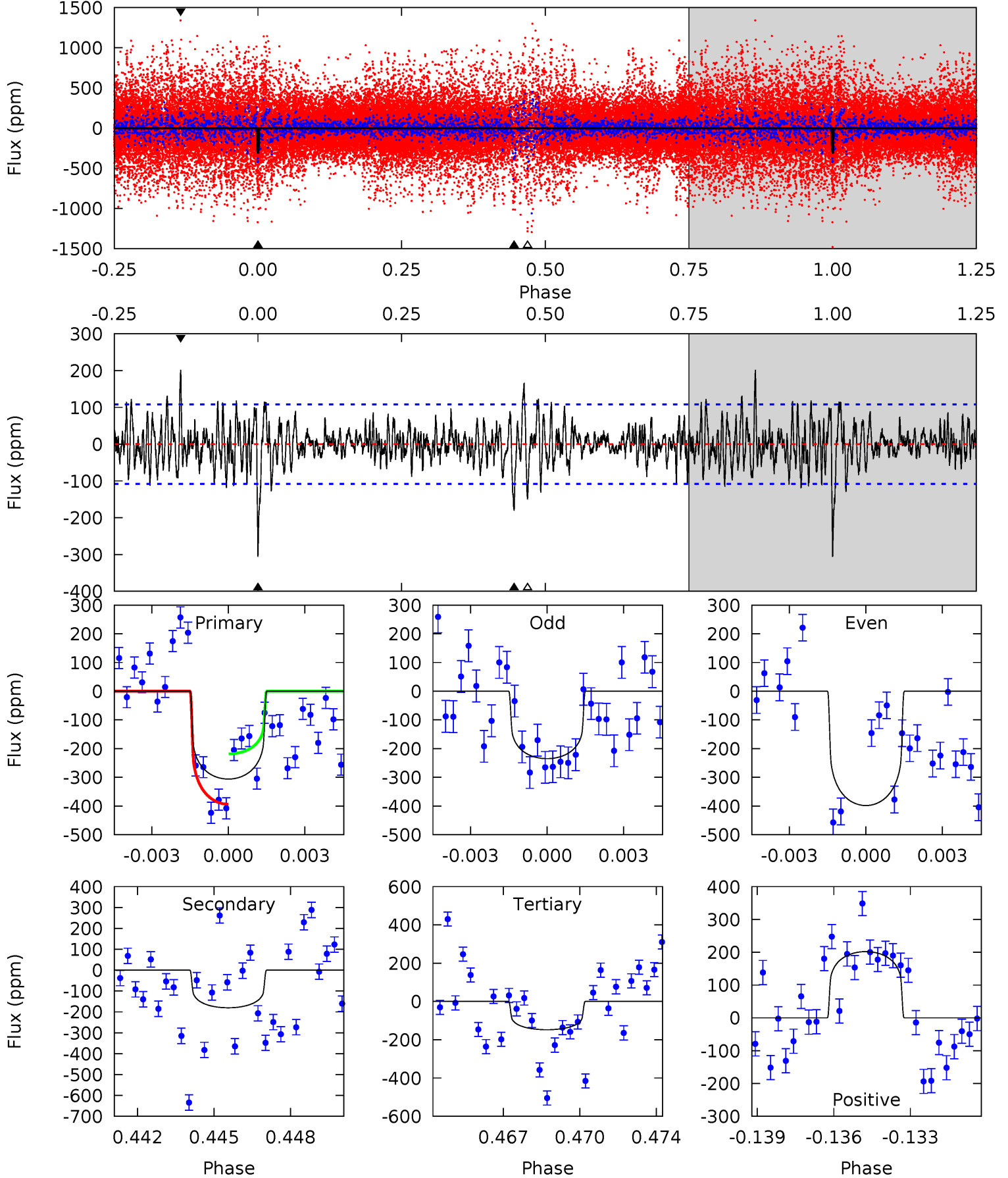
TCE 005598216-01 P=252.422578 Days $T_0=355.682131$ (BKJD)



DV Model-Shift Uniqueness Test

005598216-01, P = 252.393065 Days, E = 103.356583 Days

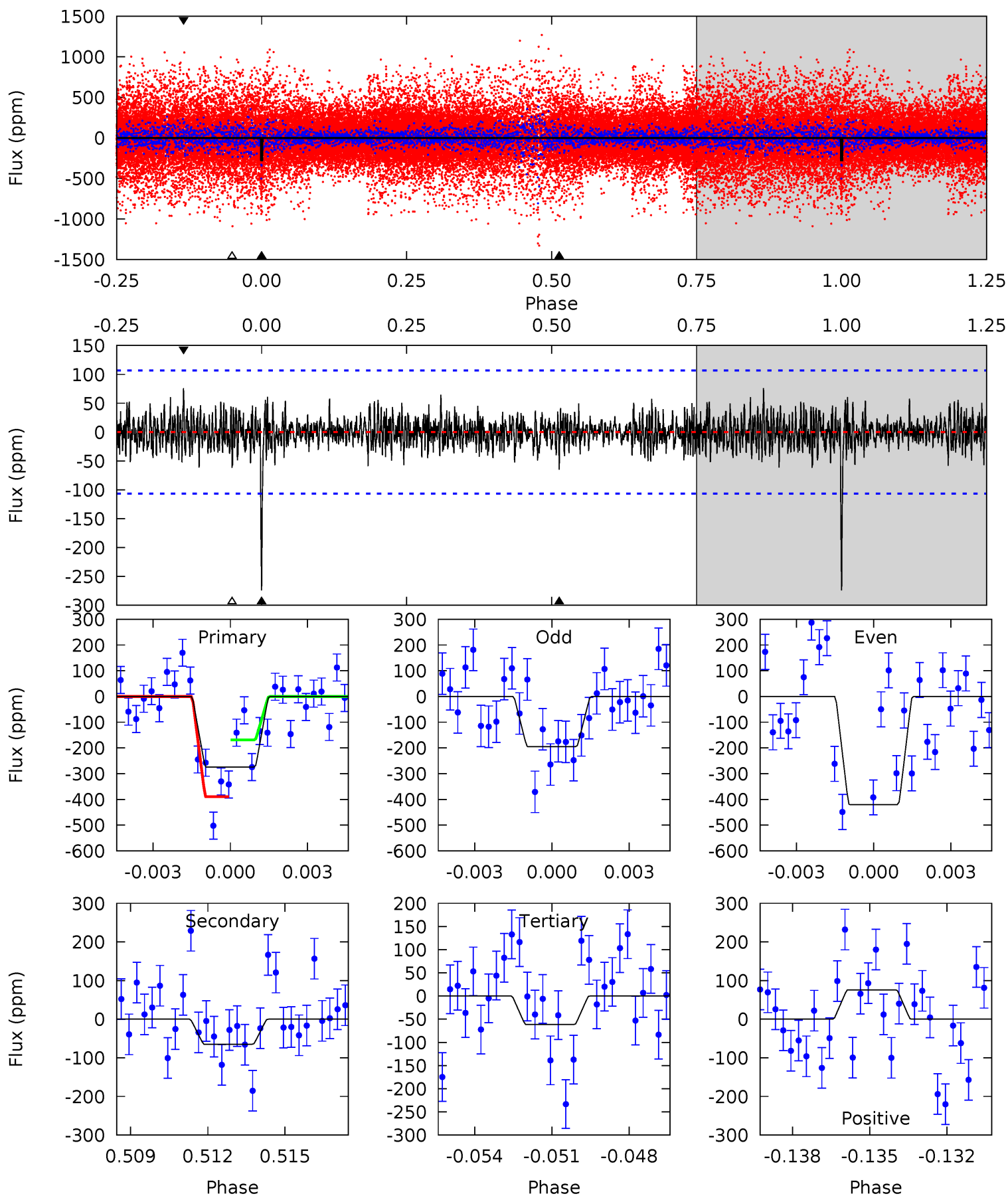
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	8.75	7.17	9.79	5.24	2.95	1.99	7.68	5.06	1.58	-1.05	3.88	0.98	0.40	4.28



Alt Model-Shift Uniqueness Test

005598216-01, P = 252.422578 Days, E = 103.259553 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	3.19	3.03	3.73	5.25	2.97	0.95	10.5	9.77	0.16	-0.54	5.54	0.92	0.22	5.46



Stellar Parameters For KIC 005598216

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5846^{+158}_{-158}	$4.258^{+0.276}_{-0.184}$	$-0.460^{+0.300}_{-0.250}$	$1.116^{+0.314}_{-0.283}$	$0.821^{+0.117}_{-0.063}$	$0.833^{+1.314}_{-0.416}$
	+3%/-3%	+6%/-4%	+65%/-54%	+28%/-25%	+14%/-8%	+158%/-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 005598216-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-180 ± 21	$2.06^{+1.03}_{-0.92}$	441^{+39}_{-32}	5187^{+1655}_{-728}	12761^{+28094}_{-7346}
Alt.	-65 ± 20	$2.16^{+1.04}_{-0.96}$	443^{+36}_{-37}	4165^{+1054}_{-556}	3969^{+9006}_{-2278}

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

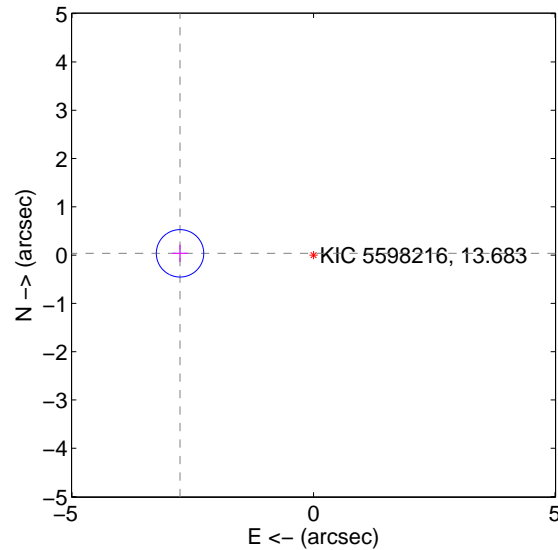
Supplemental centroid analysis for 005598216-01. Kepler magnitude: 13.68. Transit SNR 9.01

There are 1 quarters with good PRF difference image offsets

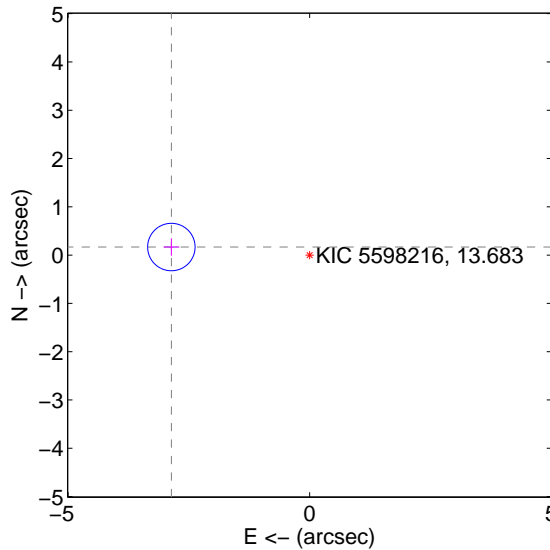
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.764 ± 0.164	16.89	2.764 ± 0.164	0.037 ± 0.180
PRF-fit source offset from KIC position	2.867 ± 0.164	17.51	2.863 ± 0.164	0.167 ± 0.180
photometric centroid source offset	1.05 ± 1.04	1.01	0.95 ± 1.05	-0.47 ± 0.99

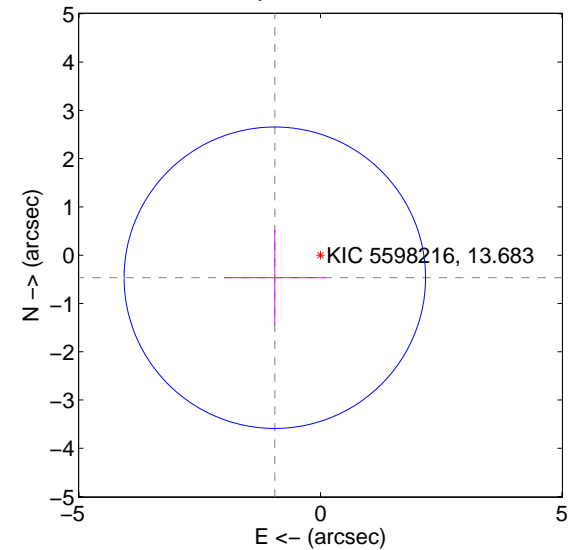
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

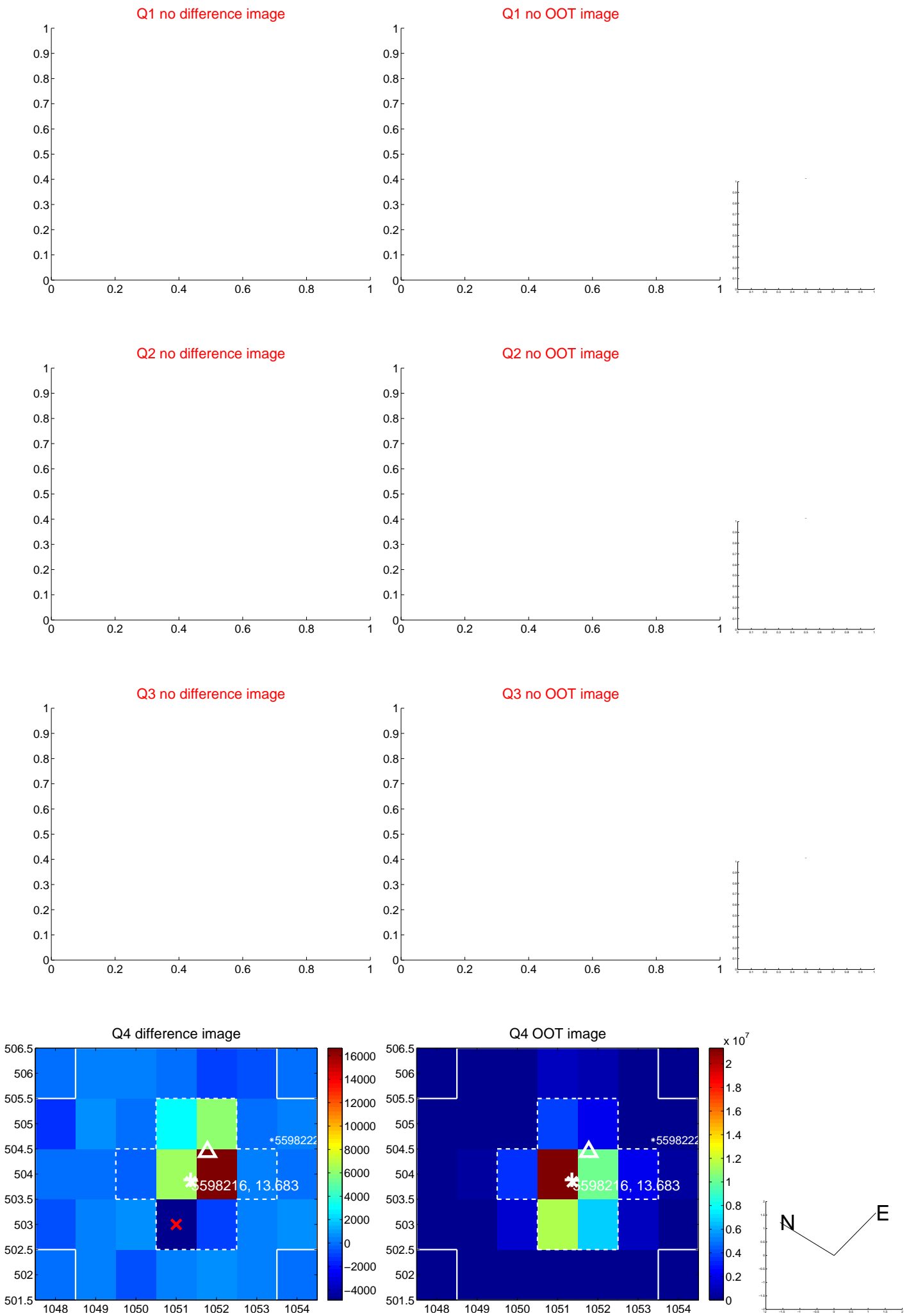


offset from photometric centroids

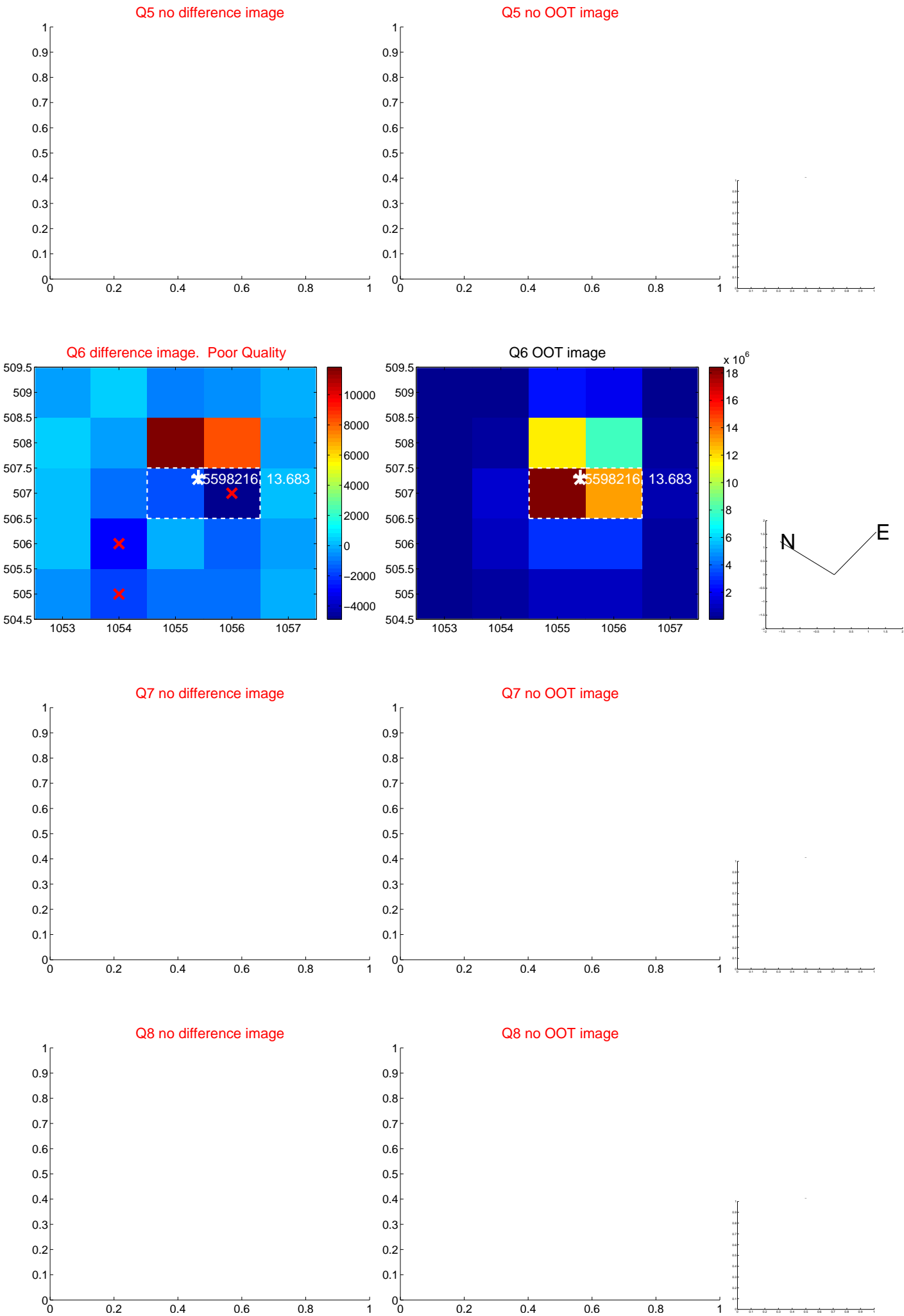


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



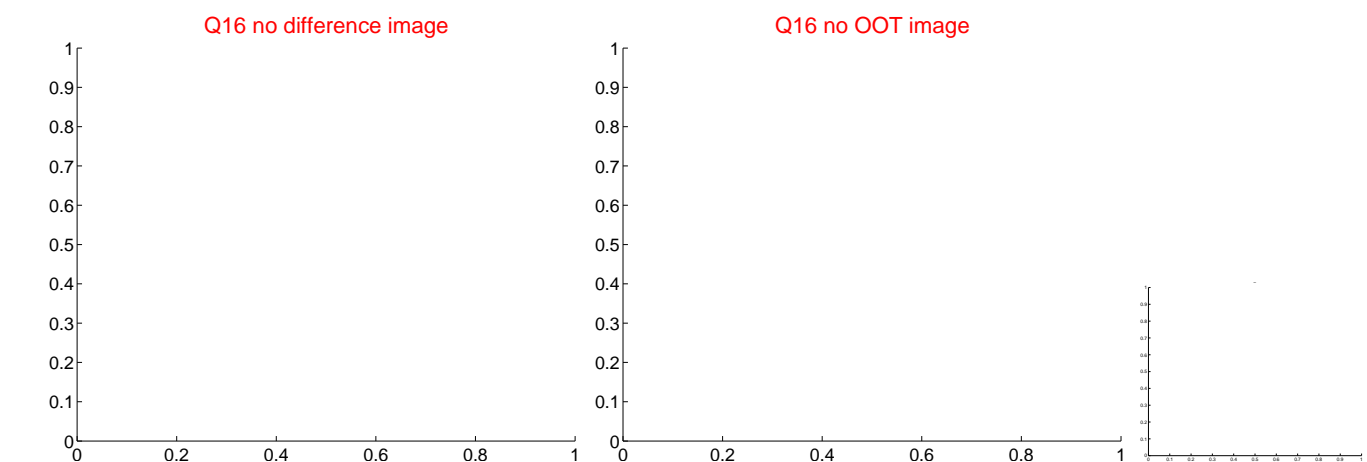
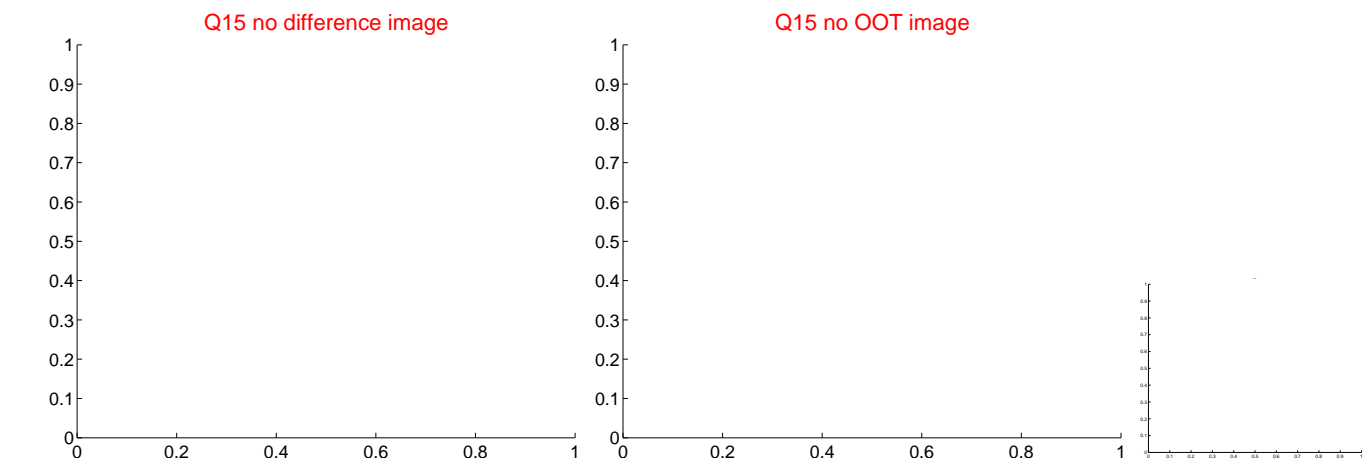
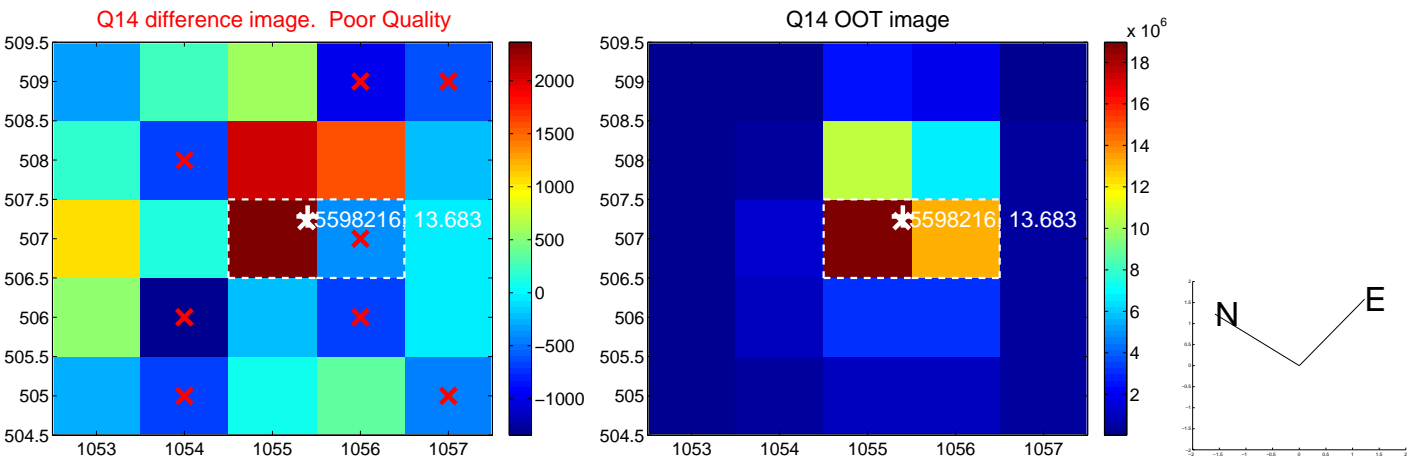
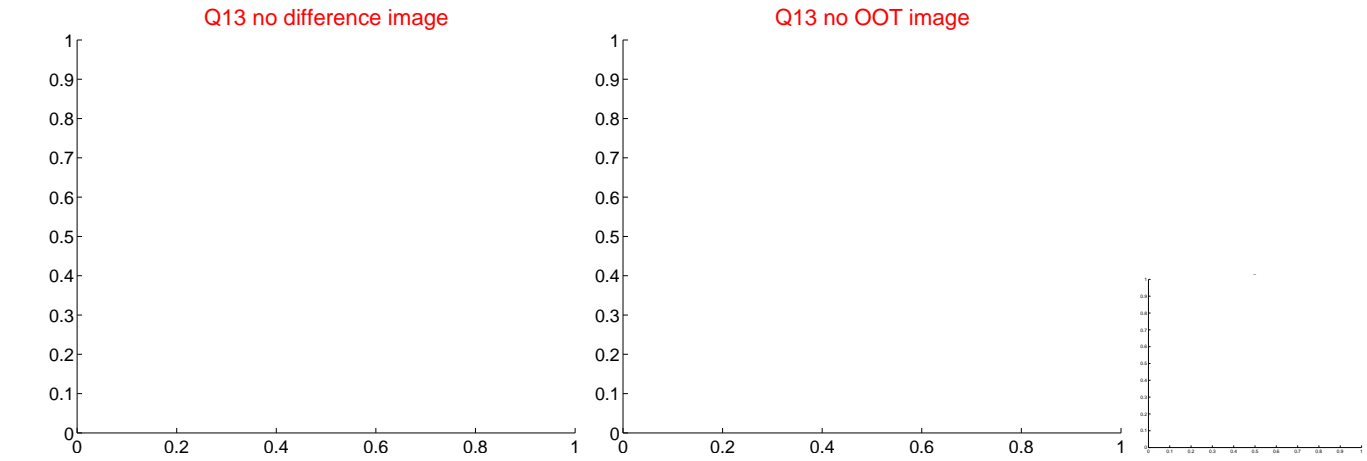
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



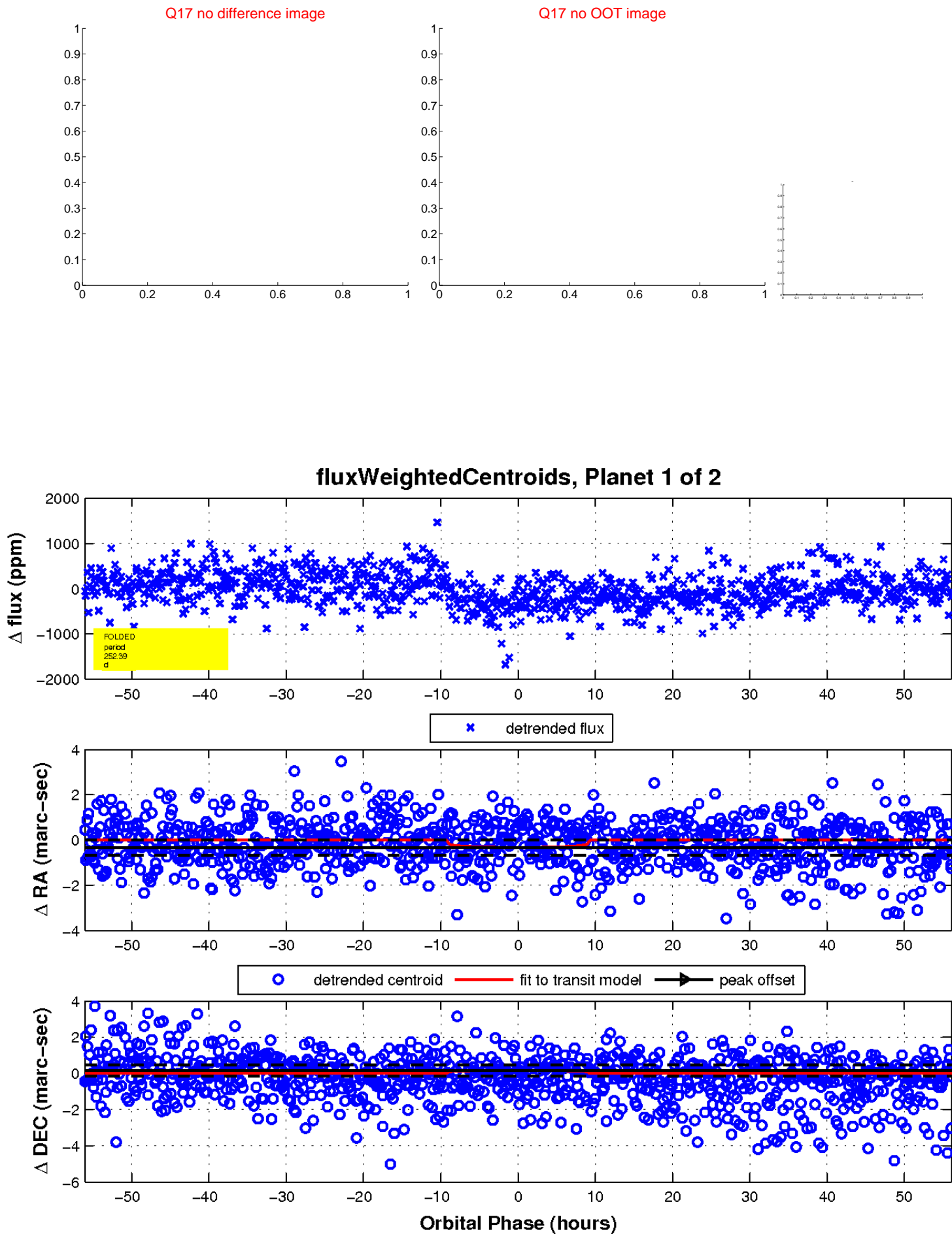
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

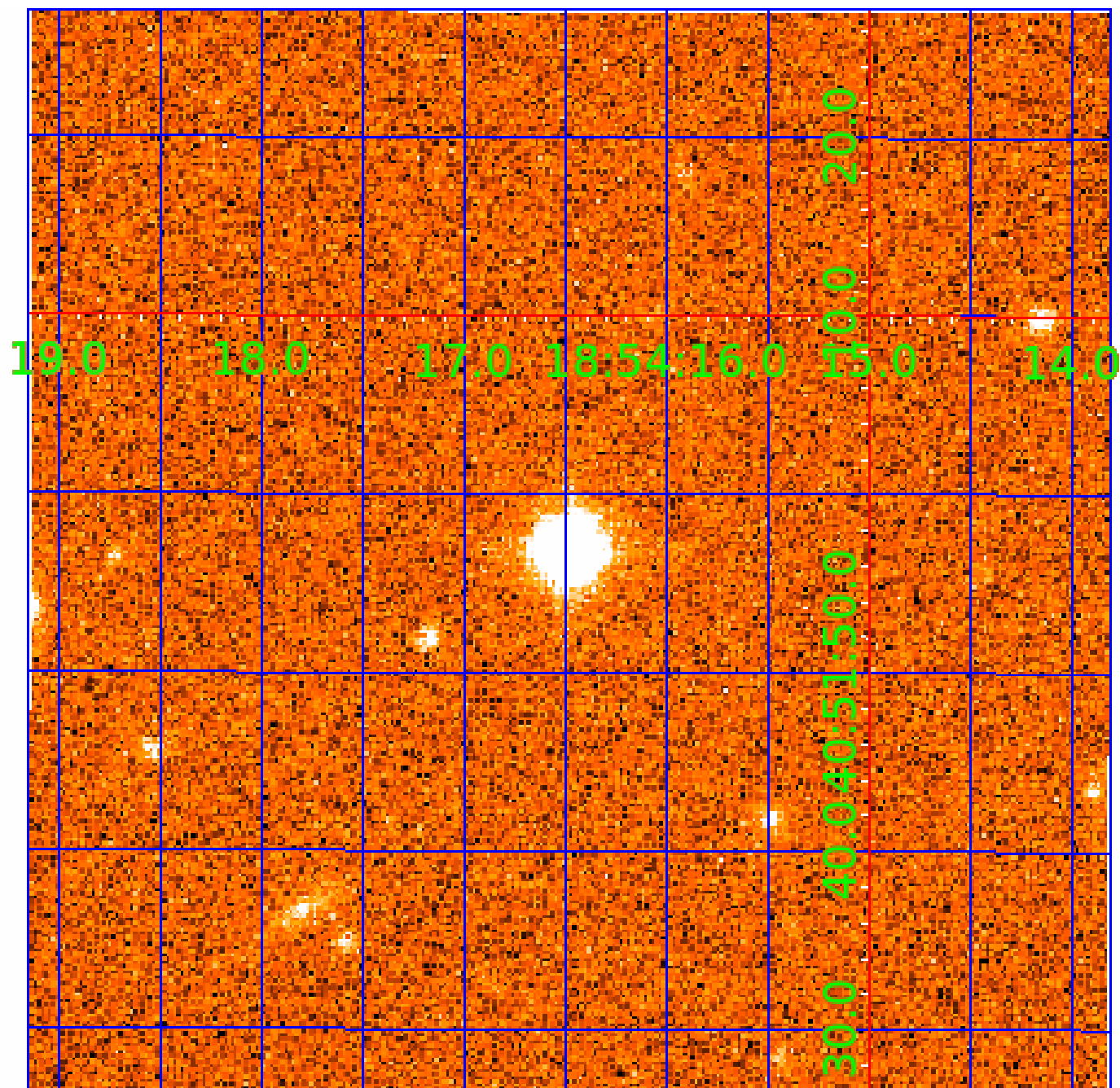


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005598216

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})
005598216-01	OBS	No	252.393065	355.749648	325.6	18.716	9.3	9.0	1.12	5846	2.09	2.43
005598216-02	OBS	8101.01	373.852514	186.683538	315.2	16.309	7.3	7.4	1.12	5846	2.18	1.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005598216-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005598216-02	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

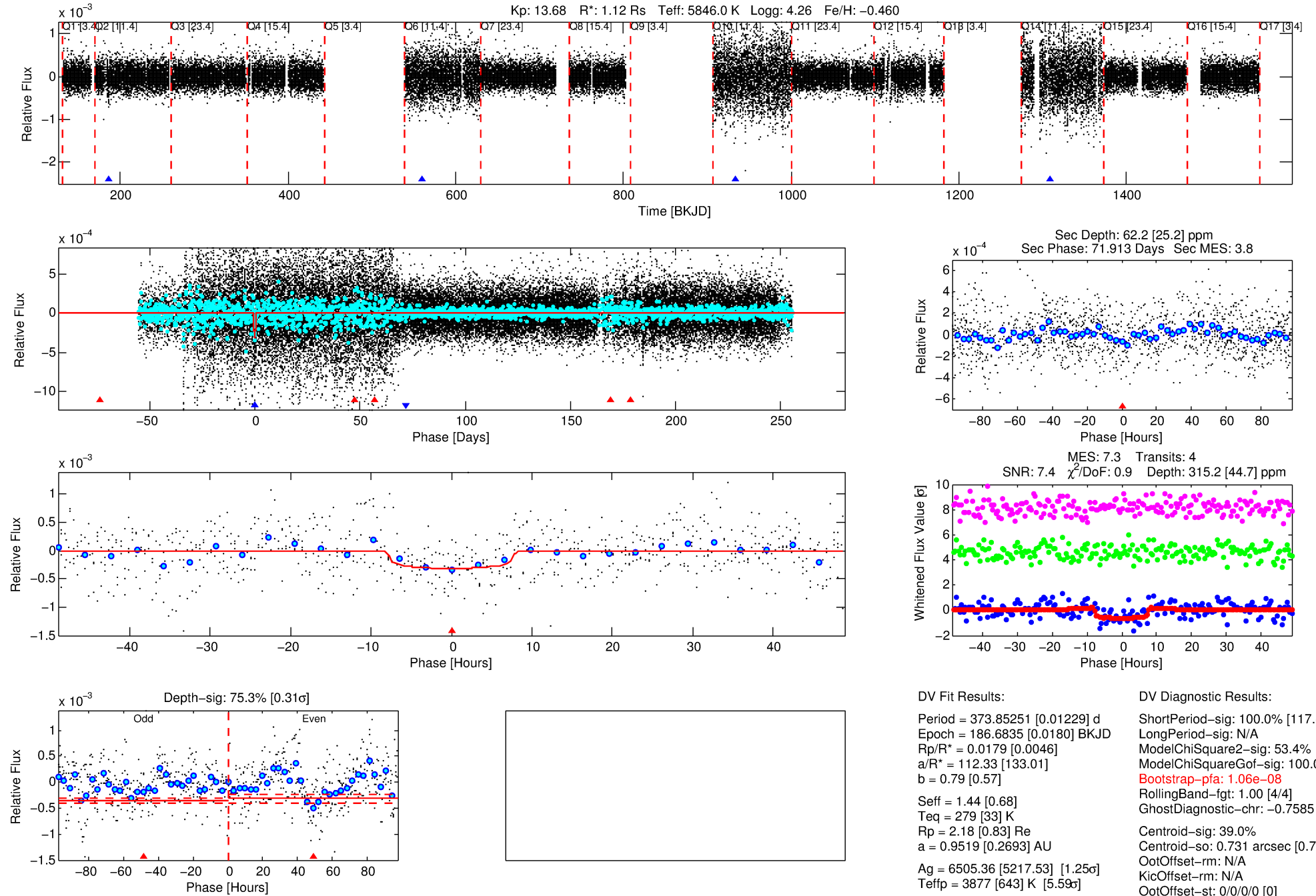
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005598216-02

No Significant Match Found

DV One-Page Summary

KIC: 5598216 Candidate: 2 of 2 Period: 373.853 d



DV Fit Results:

Period = 373.85251 [0.01229] d
Epoch = 186.6835 [0.0180] BKJD
Rp/R* = 0.0179 [0.0046]
a/R* = 112.33 [133.01]
b = 0.79 [0.57]
Seff = 1.44 [0.68]
Teq = 279 [33] K
Rp = 2.18 [0.83] Re
a = 0.9519 [0.2693] AU
Ag = 6505.36 [5217.53] [1.25 σ]
Teffp = 3877 [643] K [5.59 σ]

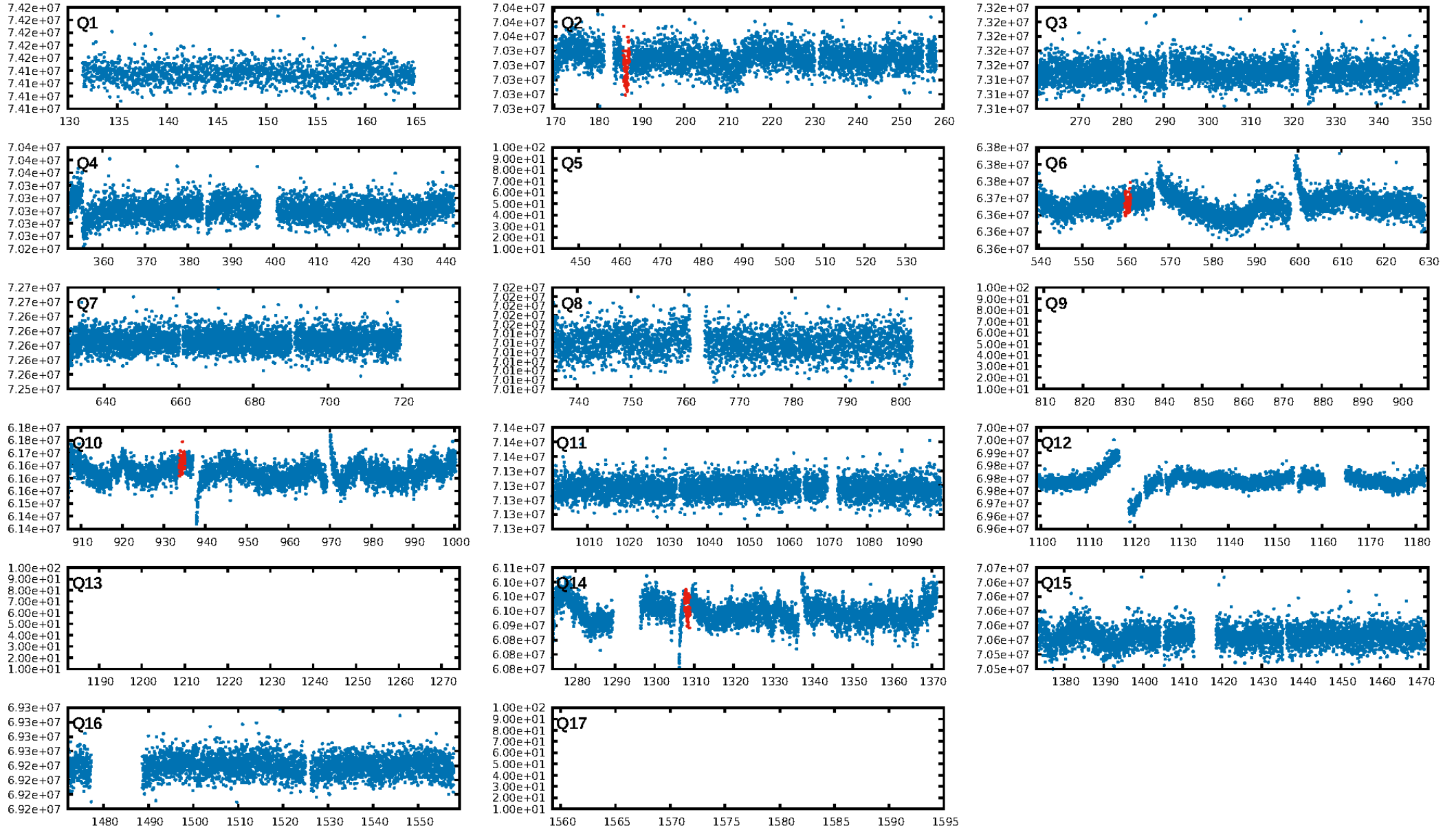
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [117.43 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 53.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.06e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.7585
Centroid-sig: 39.0%
Centroid-so: 0.731 arcsec [0.74 σ]
OotOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-rm: N/A
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [4/4]

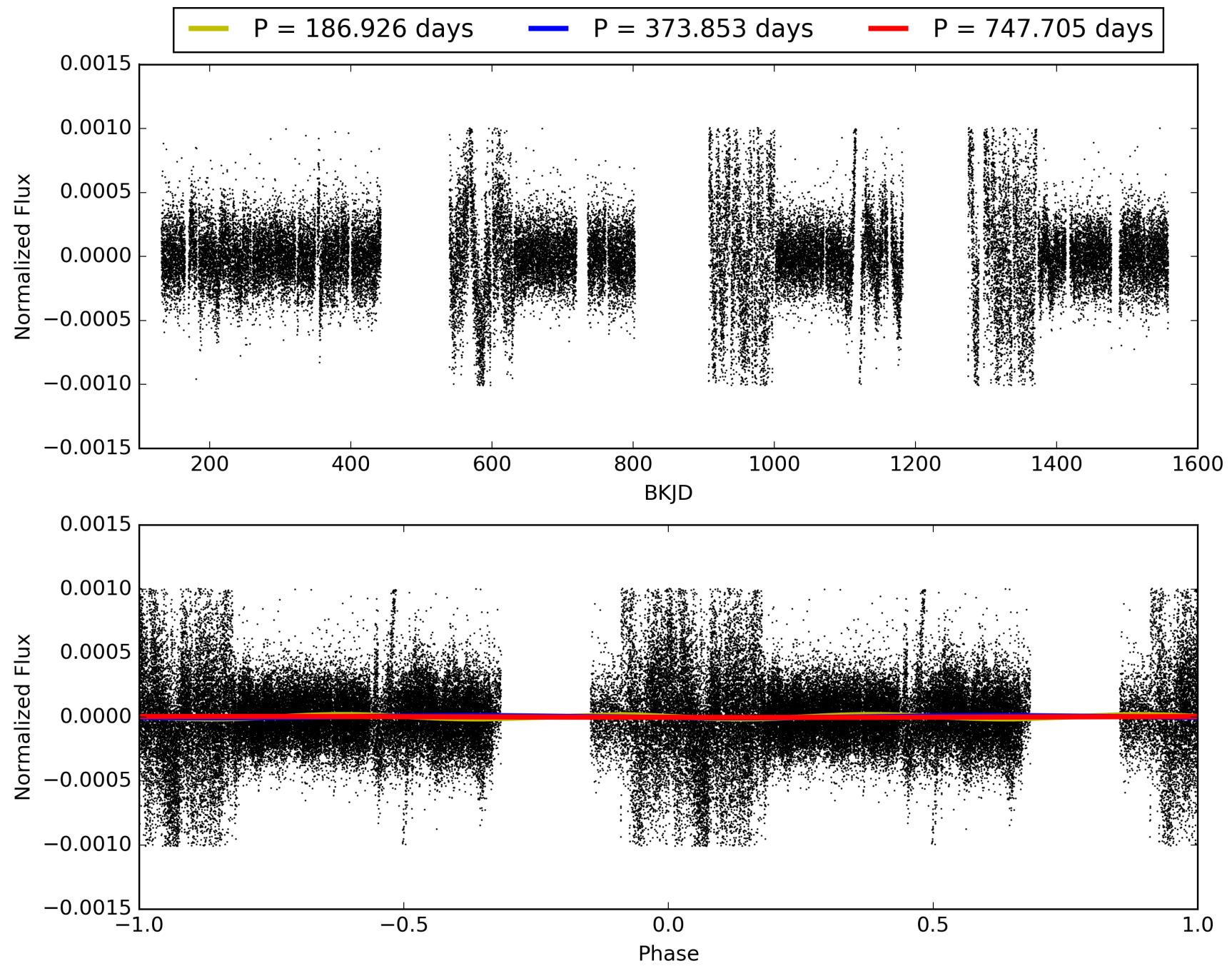
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:56:47 Z

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

TCE 005598216-02, PDC Light Curves

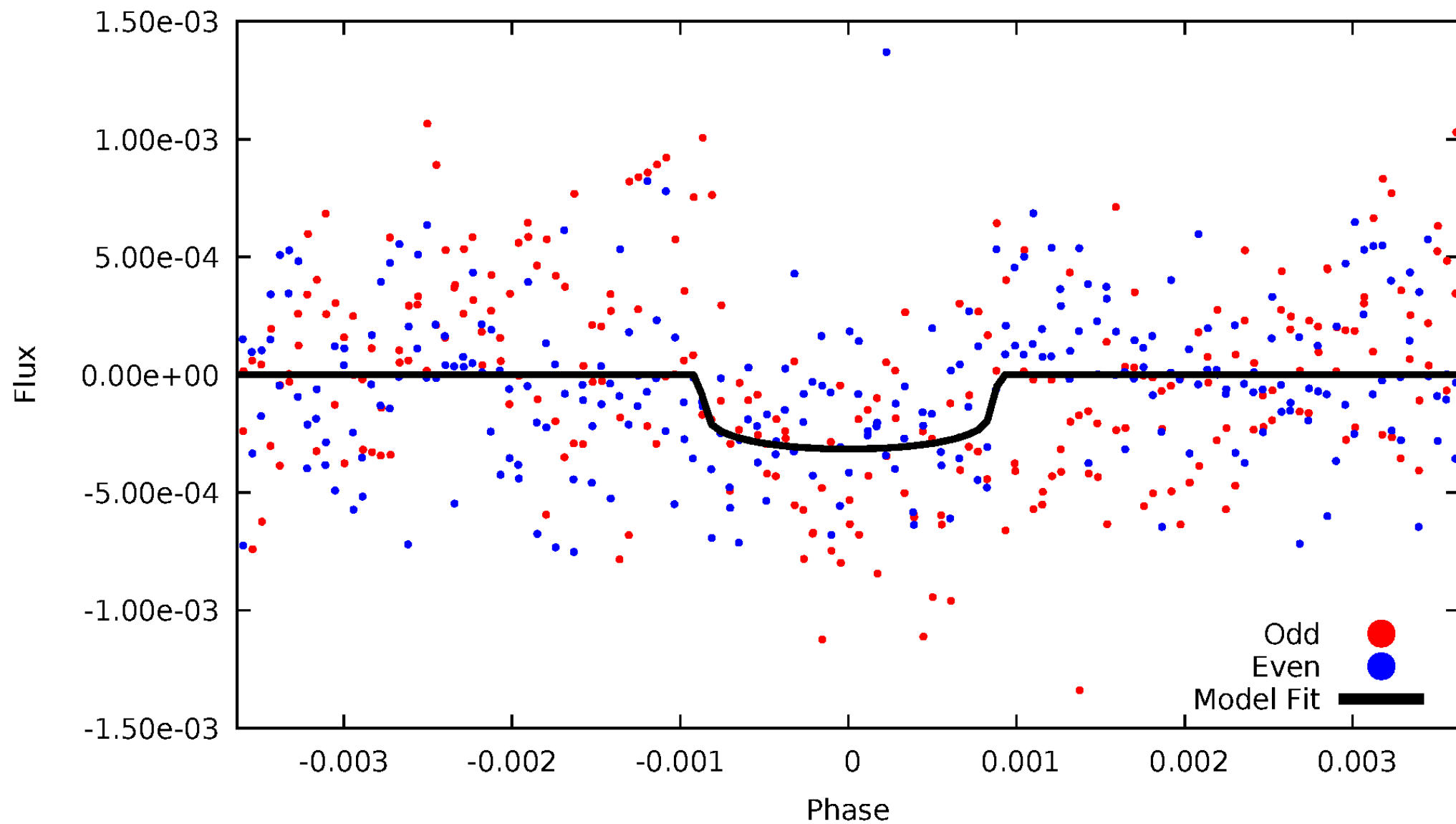


TCE 005598216-02



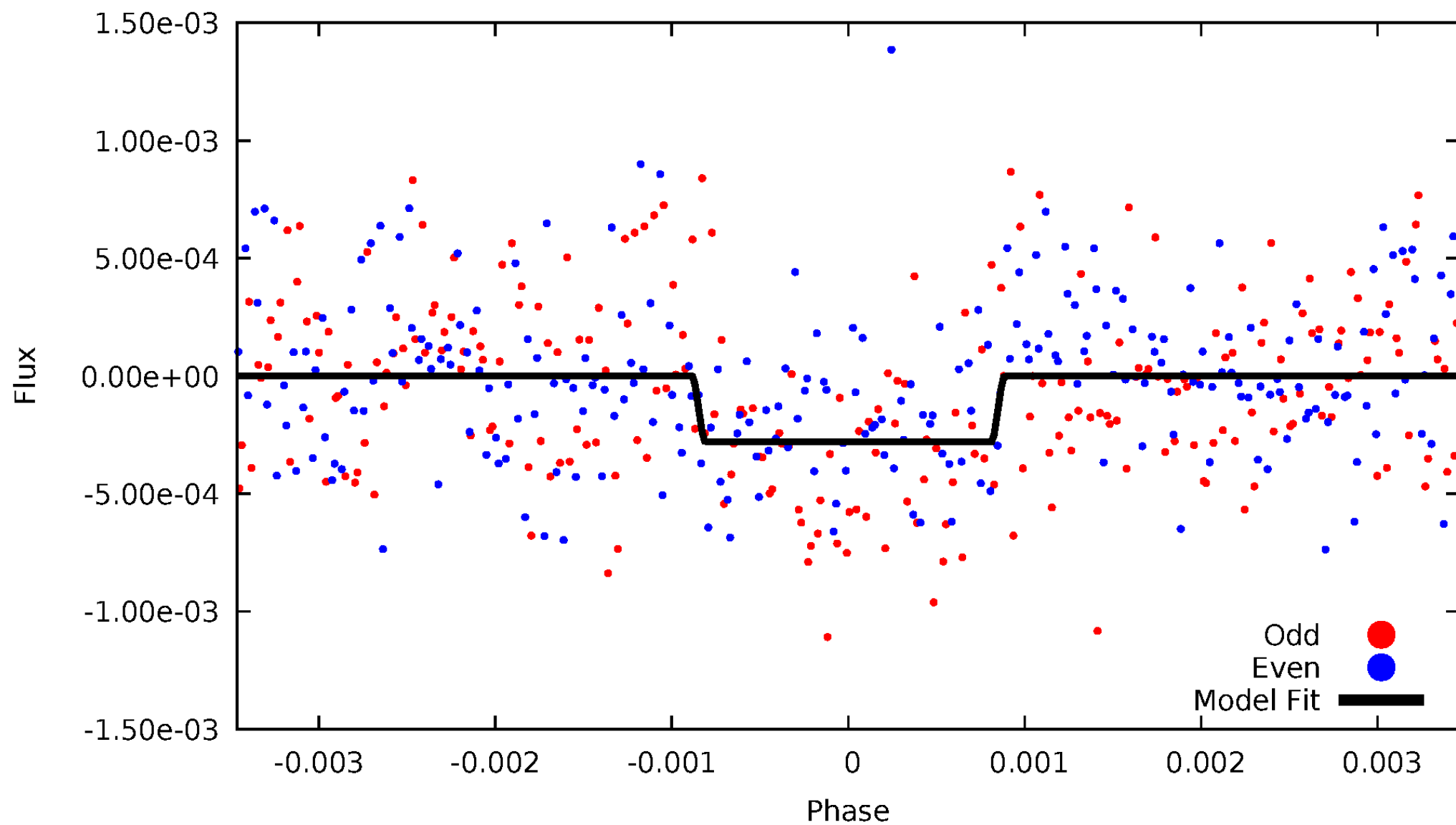
DV Odd/Even

TCE 005598216-02



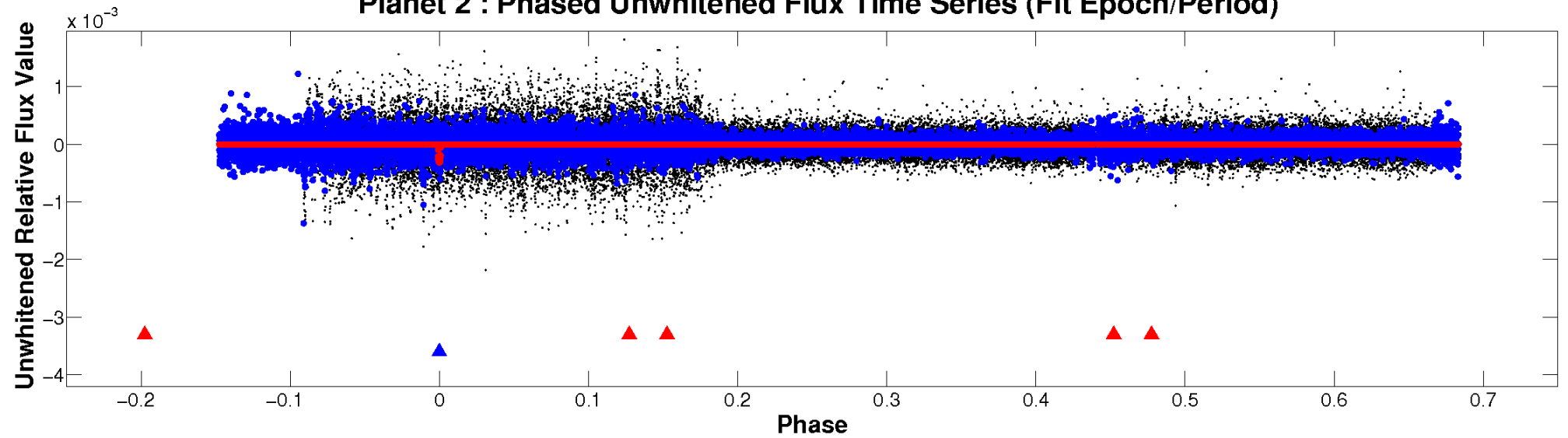
ALT Odd/Even

TCE 005598216-02

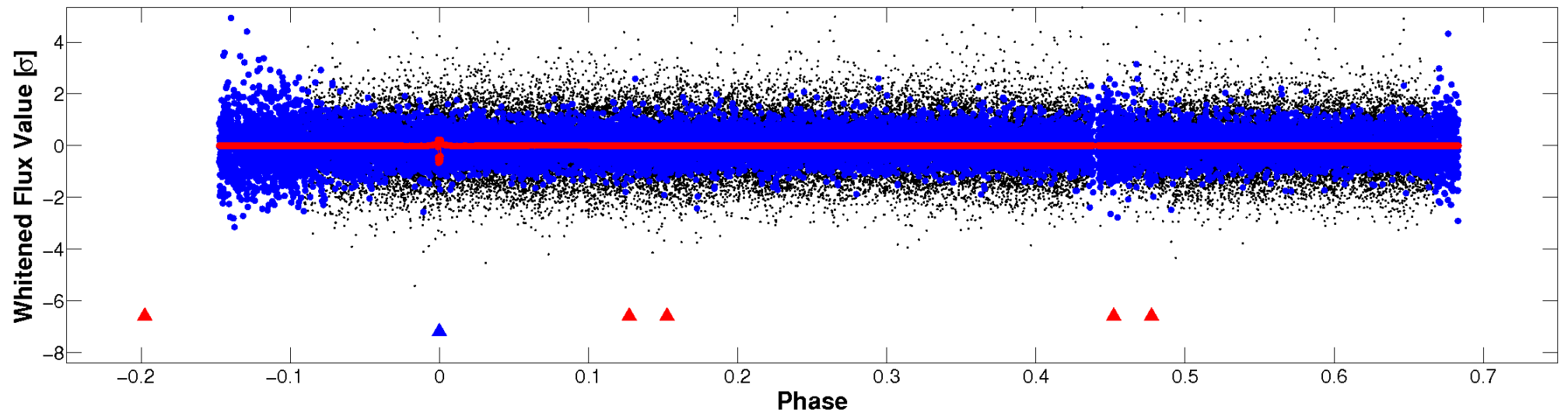


Non-Whitened Vs. Whitened Light Curve

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

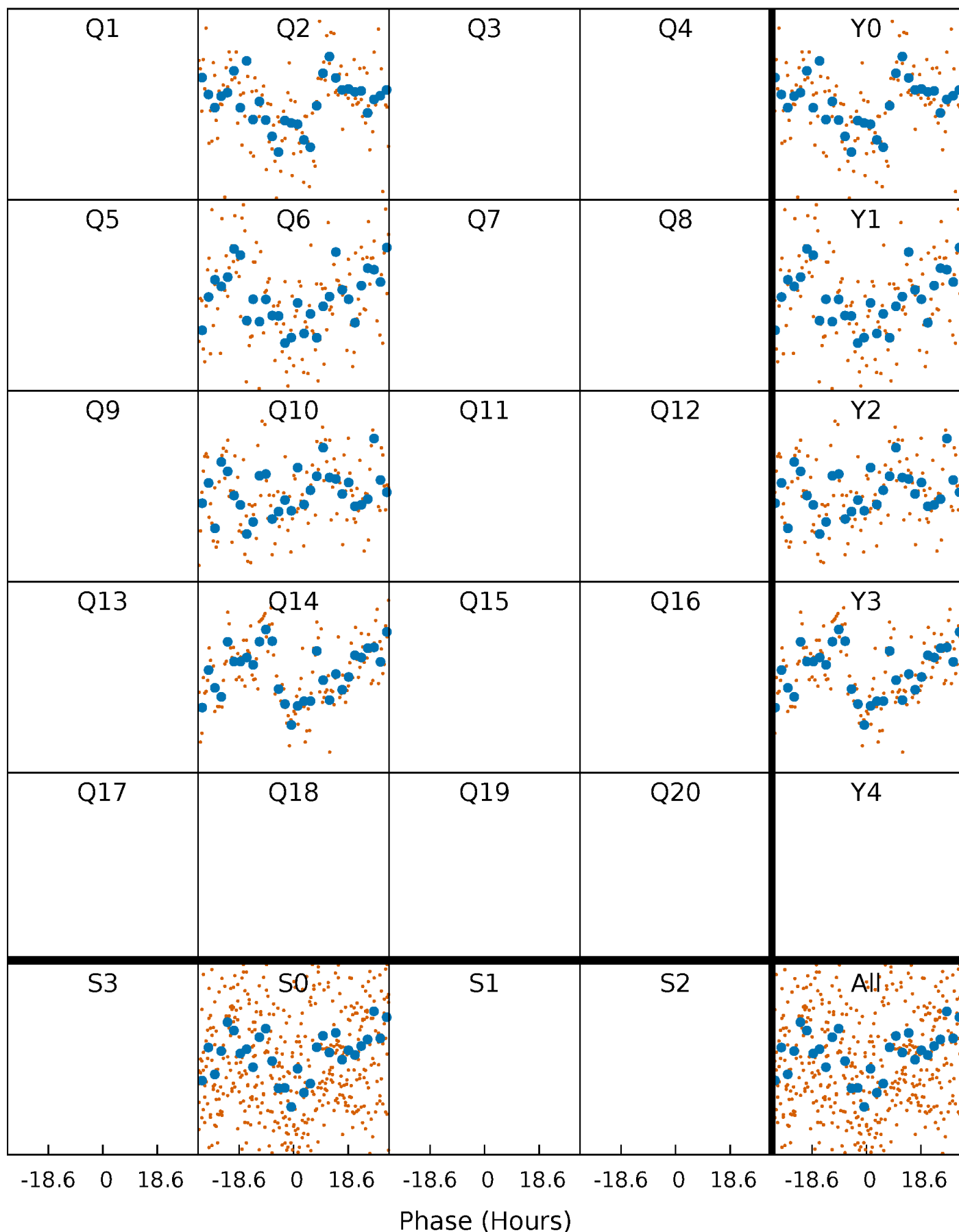


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



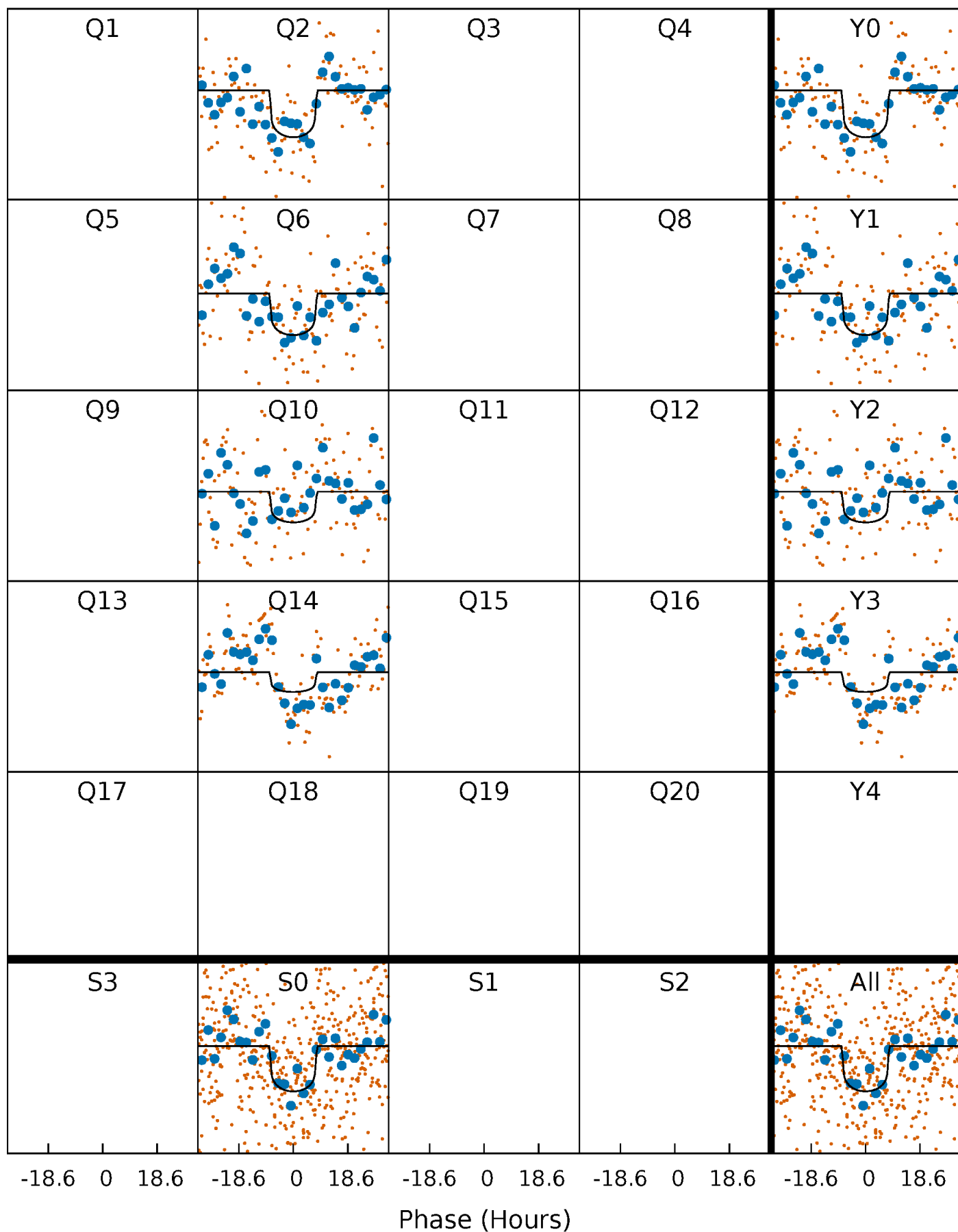
PDC Quarter-Phased Transit Curves

TCE 005598216-02 P=373.852514 Days $T_0=186.683538$ (BKJD)



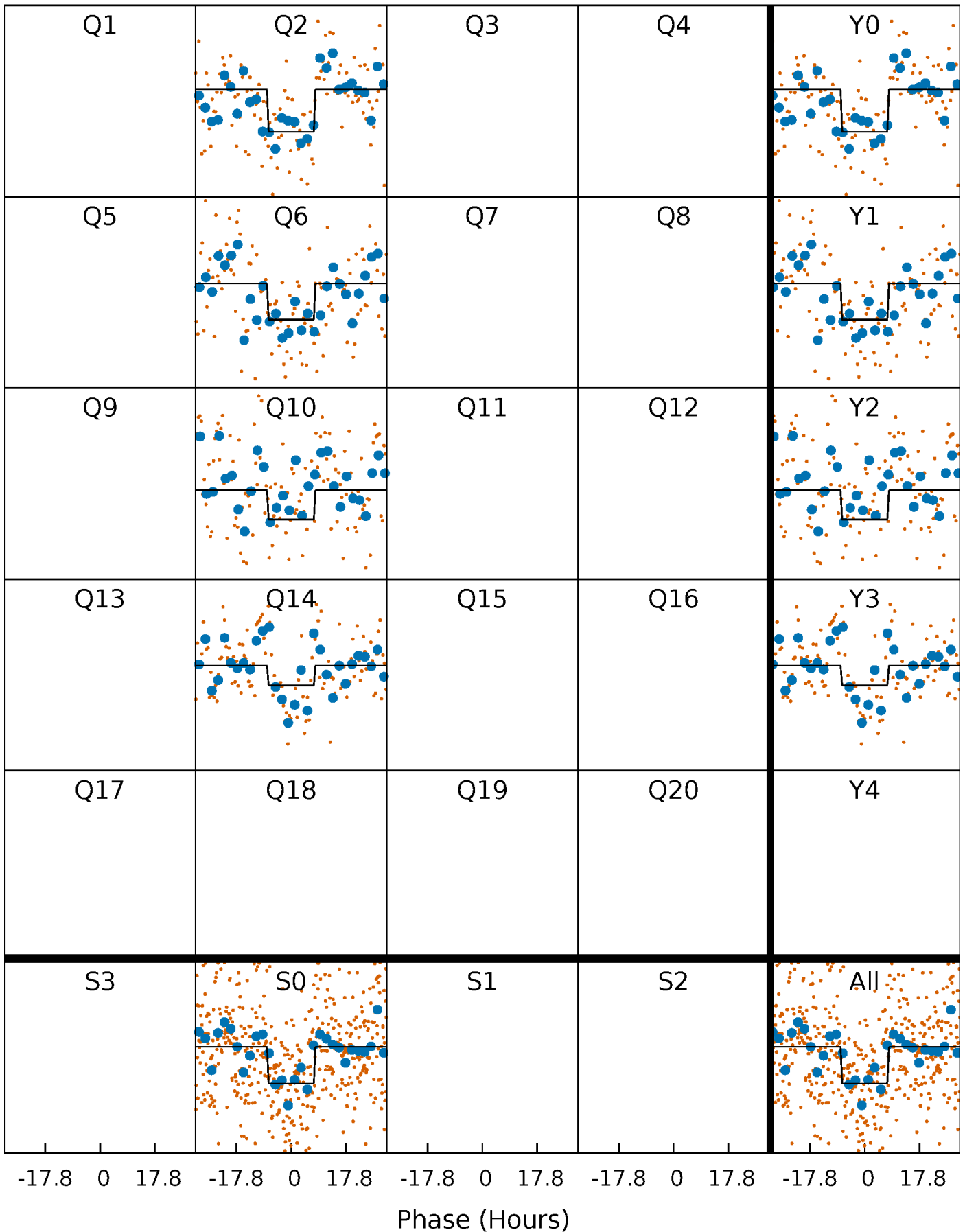
DV Quarter-Phased Transit Curves

TCE 005598216-02 P=373.852514 Days $T_0=186.683538$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

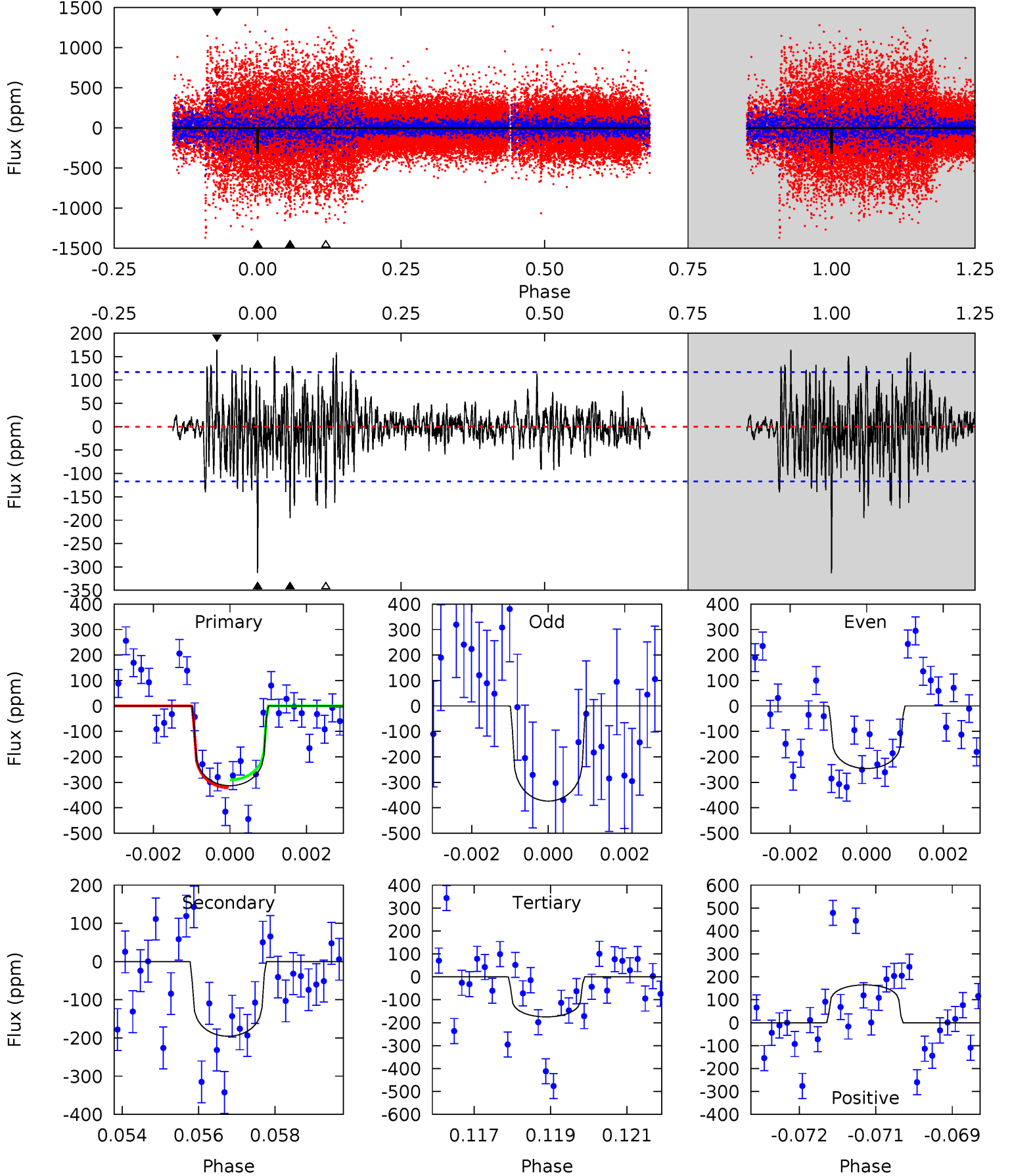
TCE 005598216-02 P=373.845603 Days $T_0=186.690484$ (BKJD)



DV Model-Shift Uniqueness Test

005598216-02, P = 373.852514 Days, E = 186.683538 Days

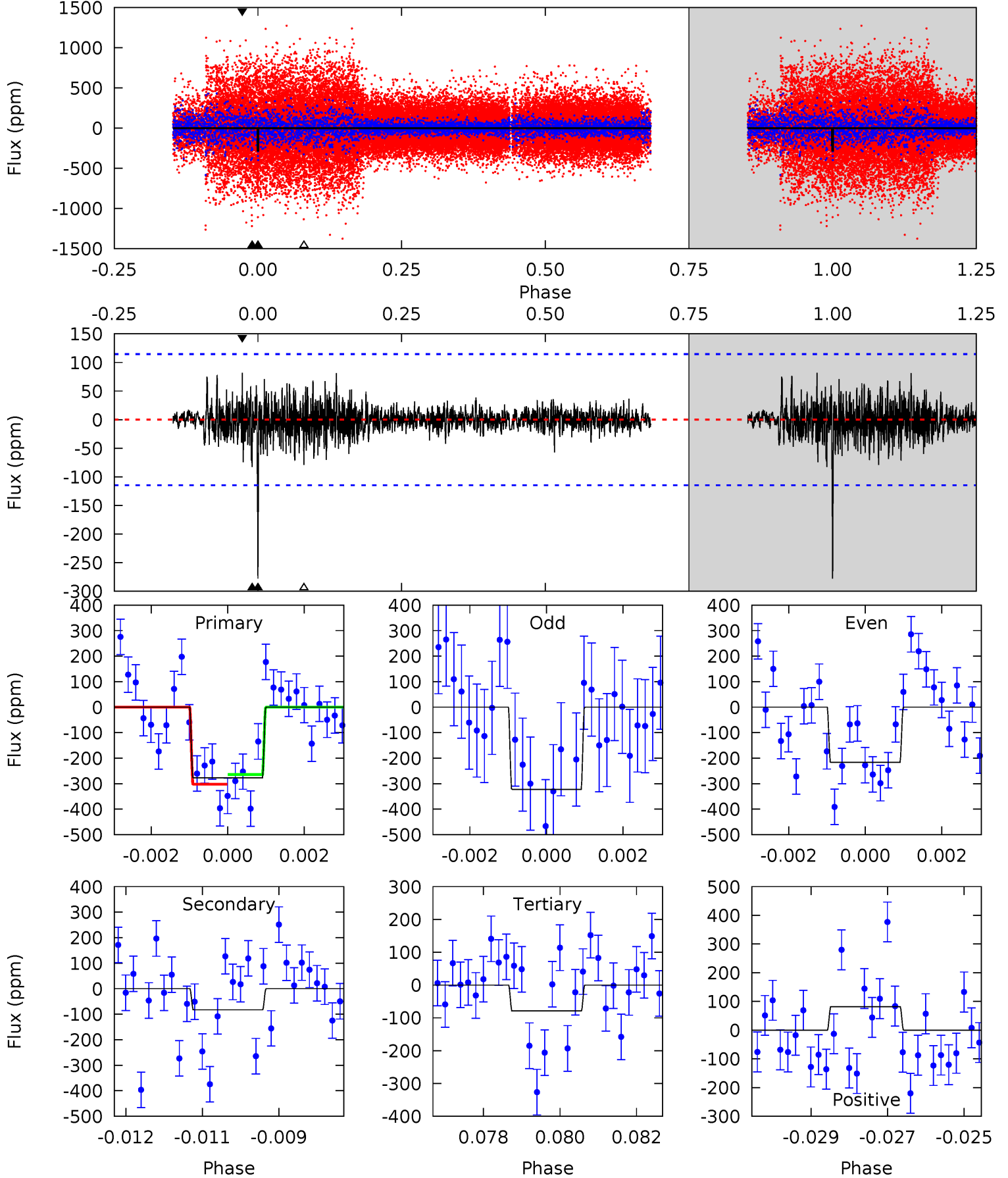
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	8.92	7.98	7.53	5.34	3.11	1.85	6.32	6.77	0.94	1.39	2.83	0.96	0.34	0.72



Alt Model-Shift Uniqueness Test

005598216-02, P = 373.845603 Days, E = 186.690484 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	3.86	3.69	3.82	5.35	3.12	0.81	9.26	9.13	0.17	0.04	2.42	0.85	0.23	0.90



Stellar Parameters For KIC 005598216

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5846^{+158}_{-158}	$4.258^{+0.276}_{-0.184}$	$-0.460^{+0.300}_{-0.250}$	$1.116^{+0.314}_{-0.283}$	$0.821^{+0.117}_{-0.063}$	$0.833^{+1.314}_{-0.416}$
	+3%/-3%	+6%/-4%	+65%/-54%	+28%/-25%	+14%/-8%	+158%/-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 005598216-02 / KOI 8101.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-195 ± 22	$2.17^{+0.69}_{-0.64}$	387^{+30}_{-33}	5185^{+847}_{-500}	21568^{+21393}_{-9853}
Alt.	-83 ± 21	$1.99^{+0.71}_{-0.63}$	388^{+31}_{-30}	4505^{+650}_{-480}	10529^{+12324}_{-5308}

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

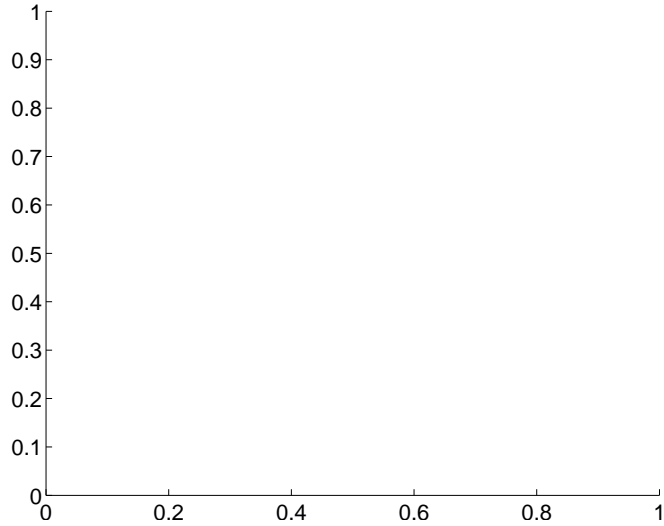
Supplemental centroid analysis for 005598216-02. Kepler magnitude: 13.68. Transit SNR 7.38

There are 0 quarters with good PRF difference image offsets

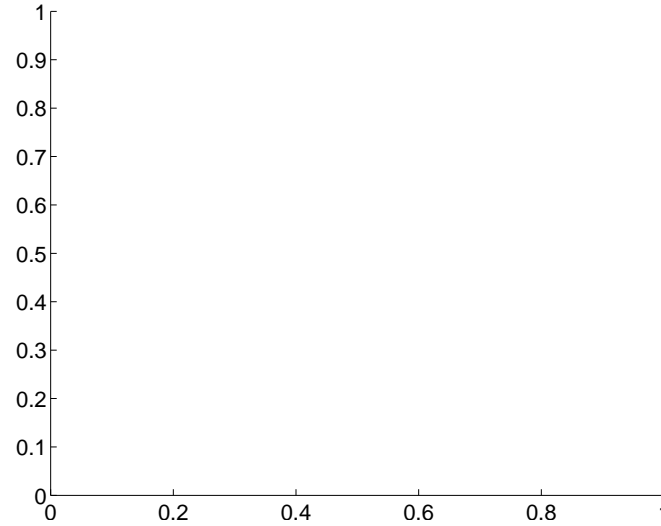
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	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	0.73 ± 0.98	0.74	0.30 ± 1.06	-0.66 ± 0.97

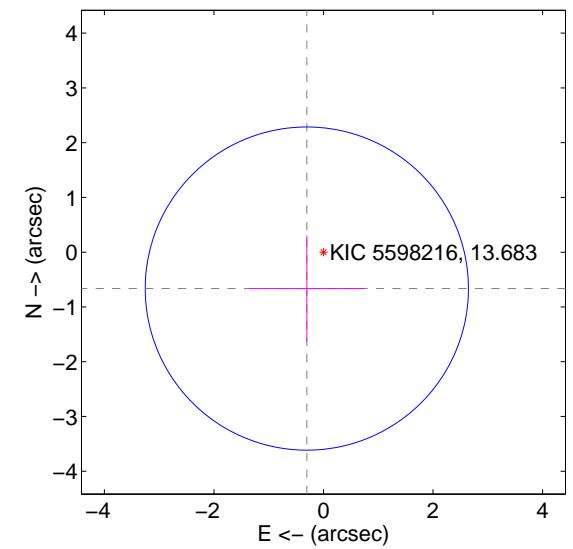
There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC

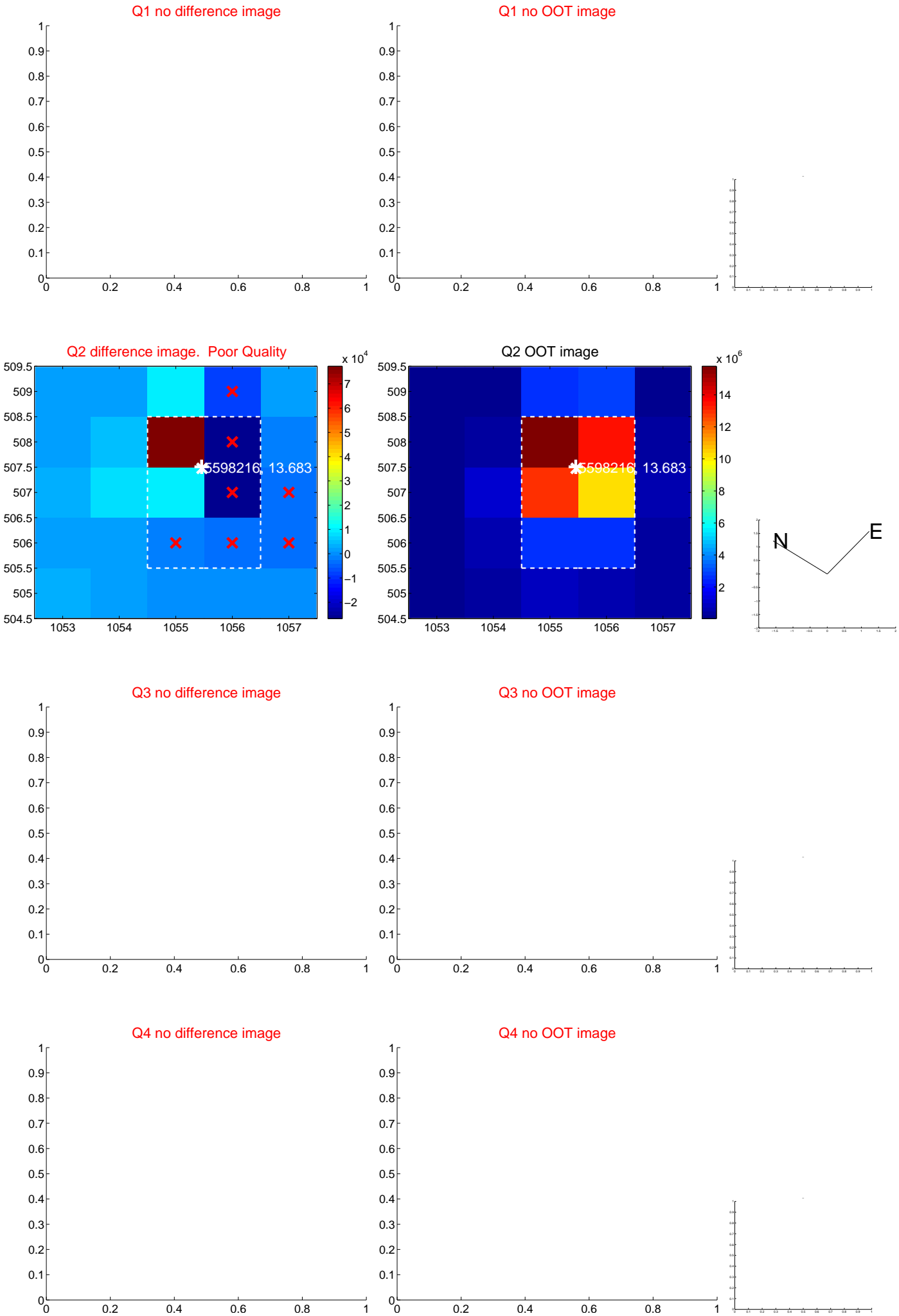


offset from photometric centroids

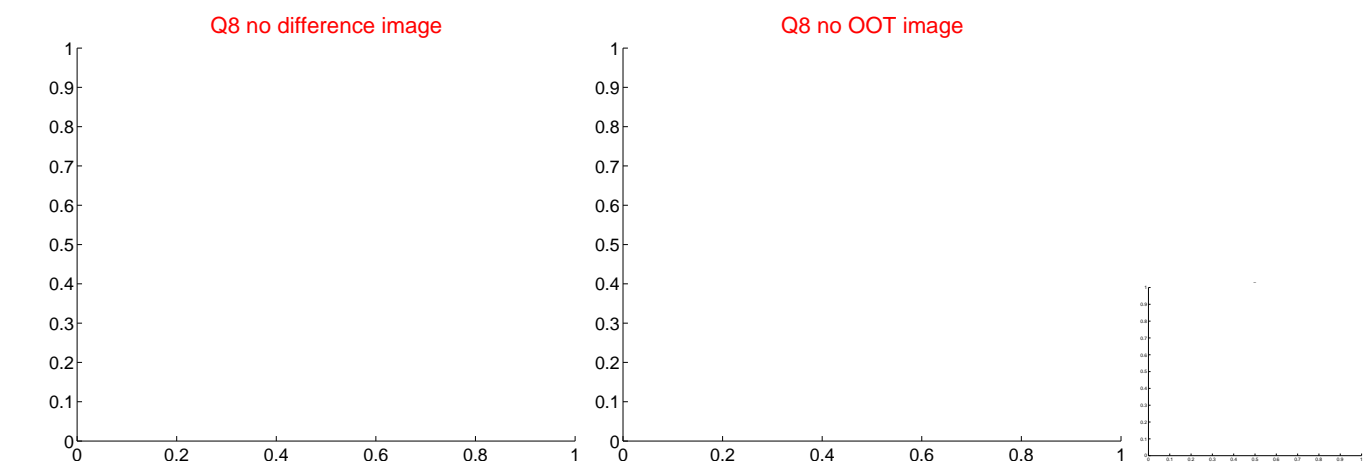
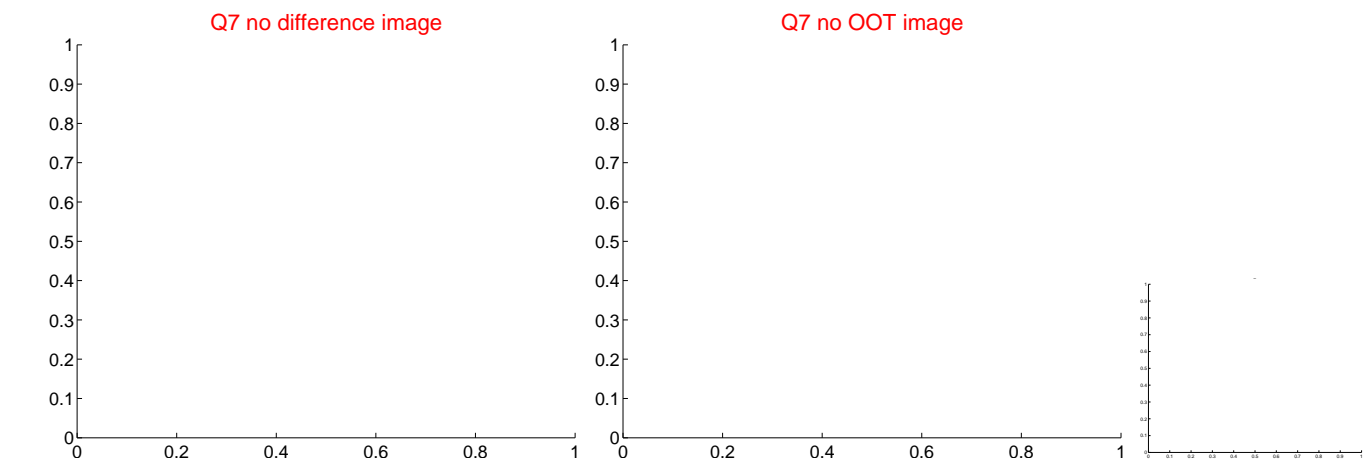
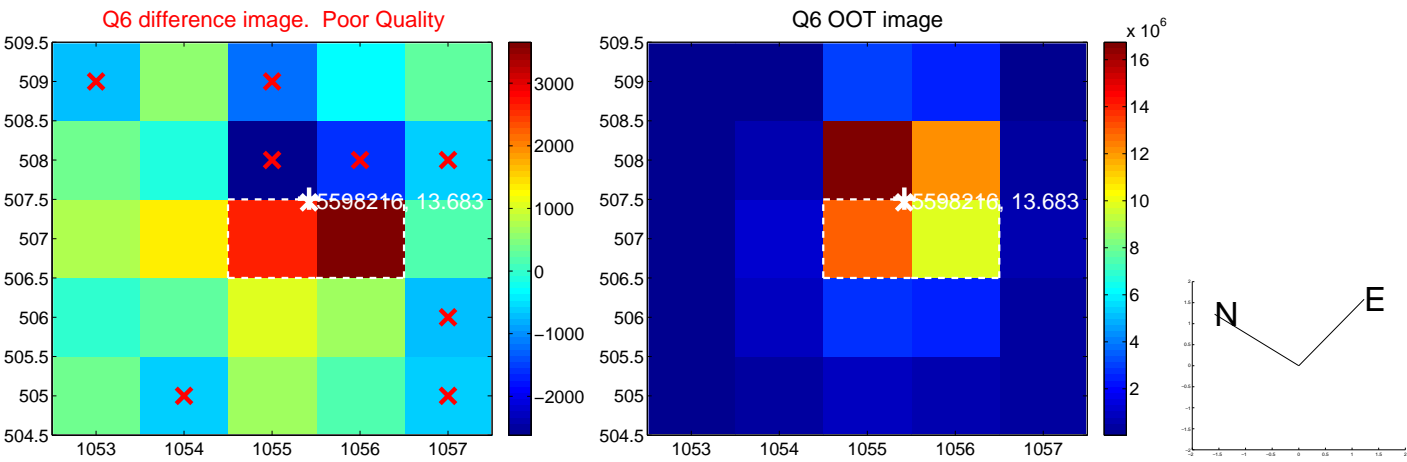
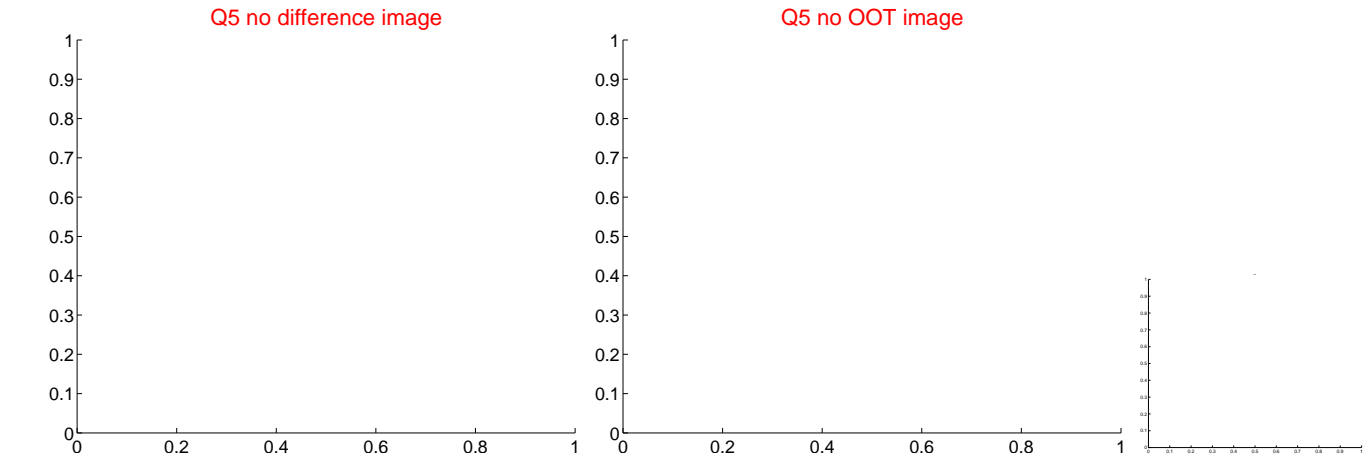


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

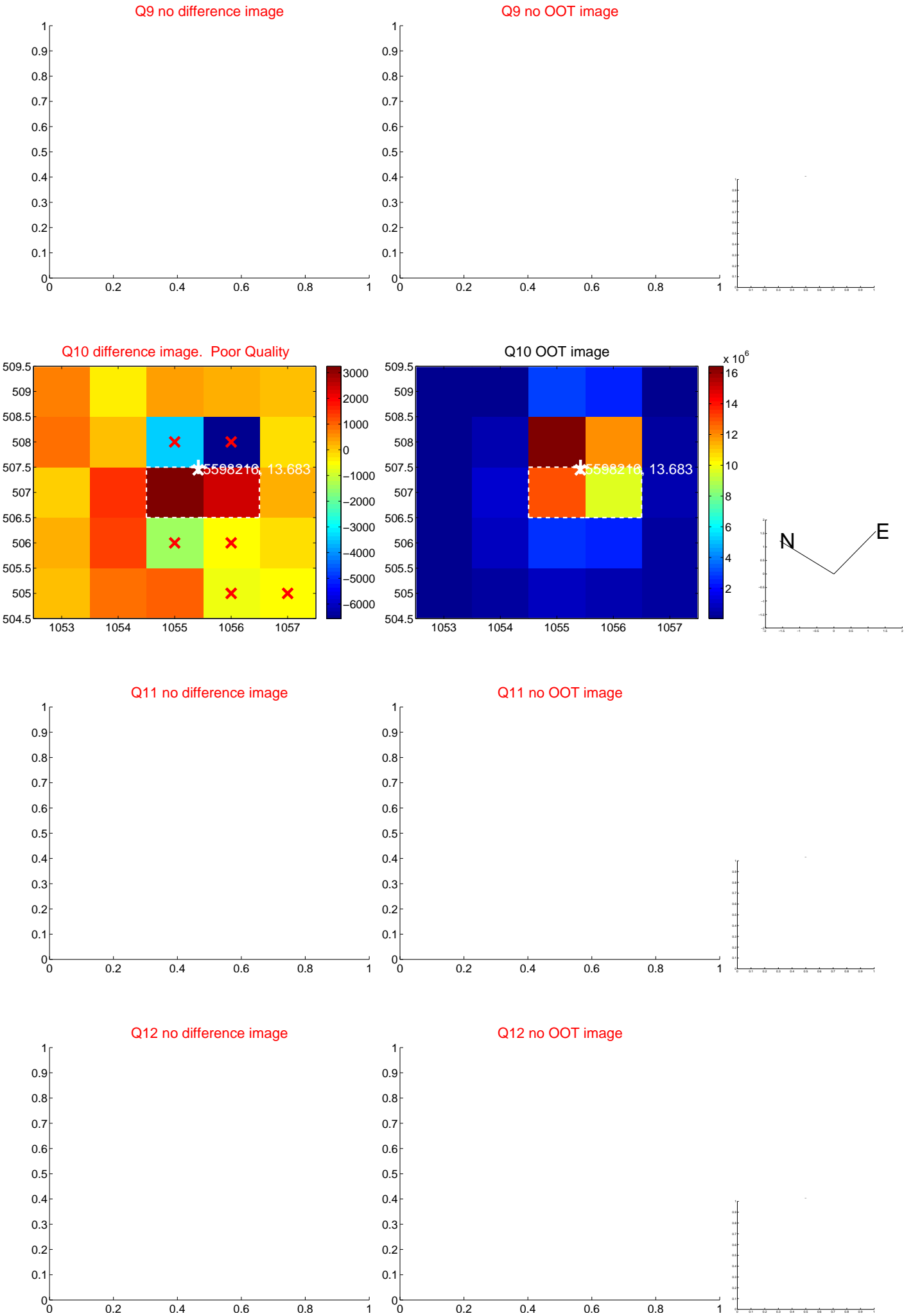
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



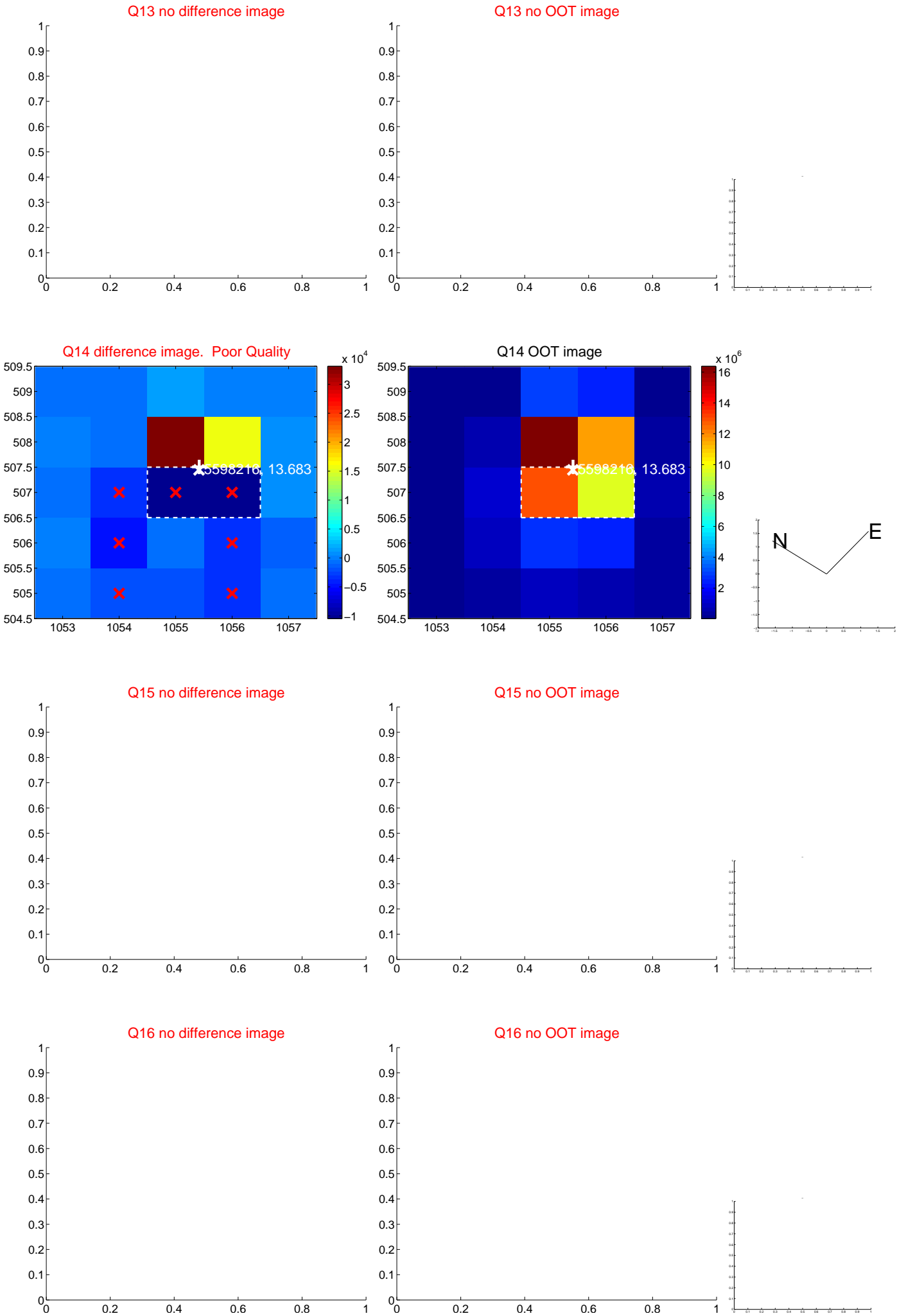
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



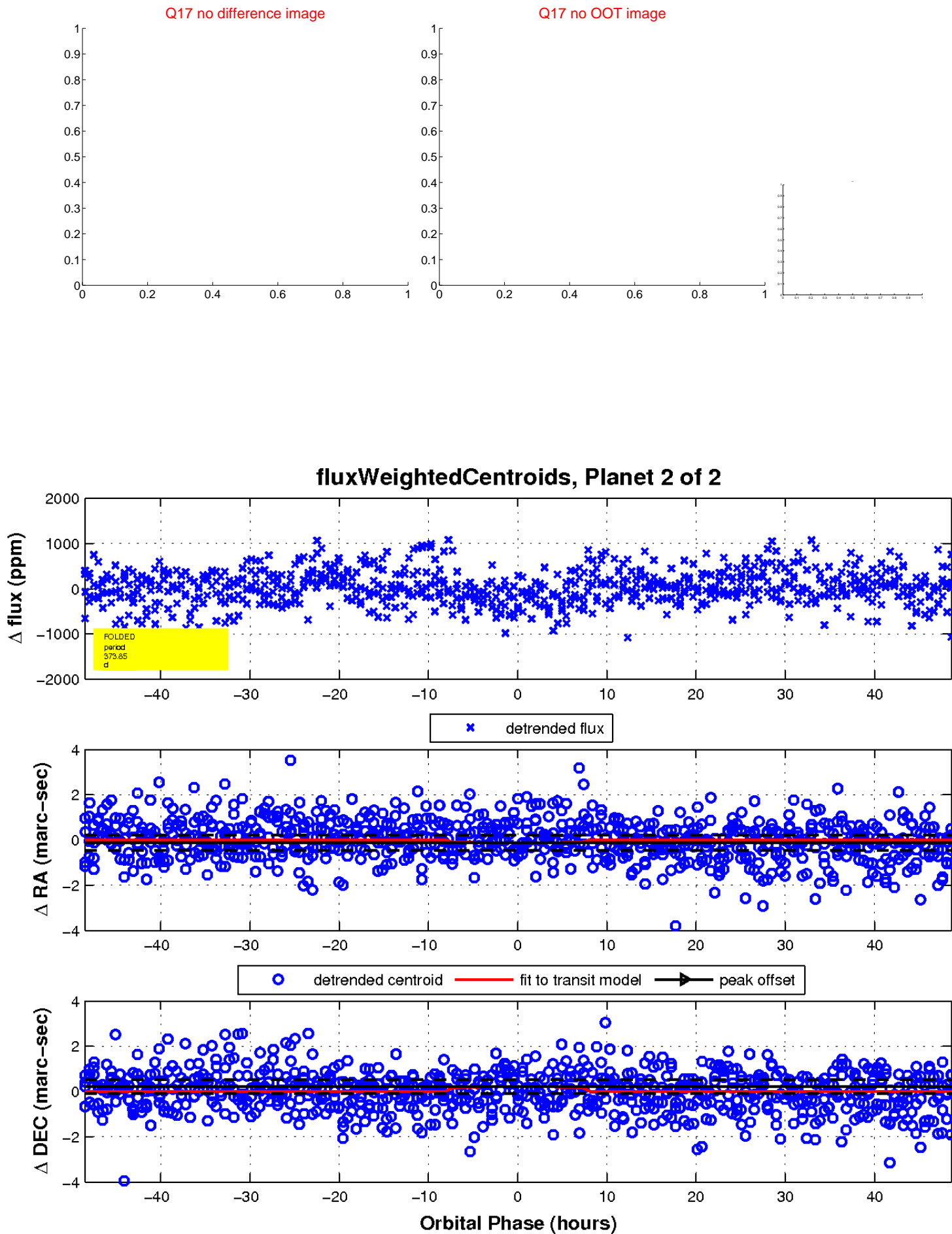
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

