

KIC 004375101

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})
004375101-01	OBS	6411.01	61.259576	140.698862	234750.2	12.274	3383.6	1850.7	0.89	5912	52.31	9.47
004375101-02	OBS	No	61.259563	179.481273	221090.9	12.874	3448.5	2579.4	0.89	5912	57.34	9.47
004375101-03	OBS	No	415.930554	373.051003	1222.2	20.001	8.6	9.7	0.89	5912	3.32	0.74

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004375101-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE
004375101-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004375101-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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 004375101-01

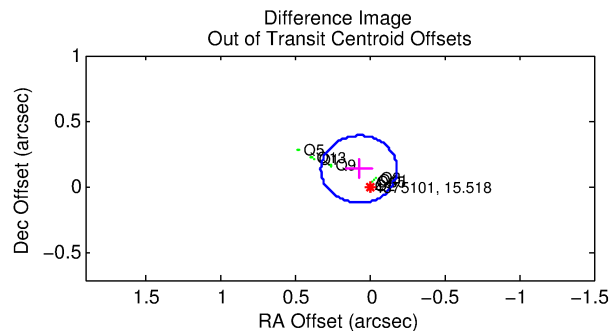
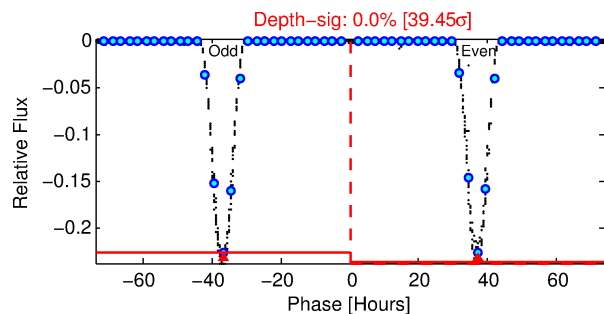
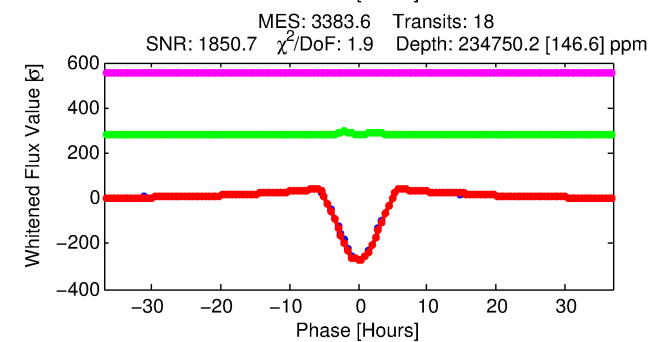
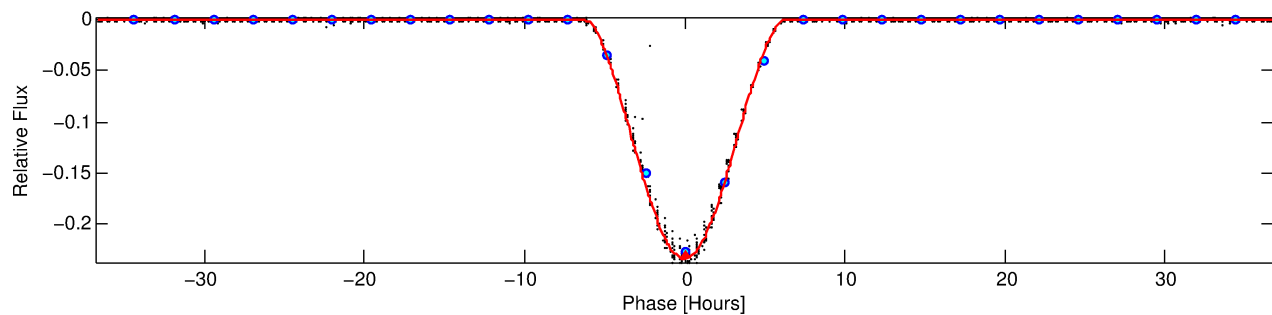
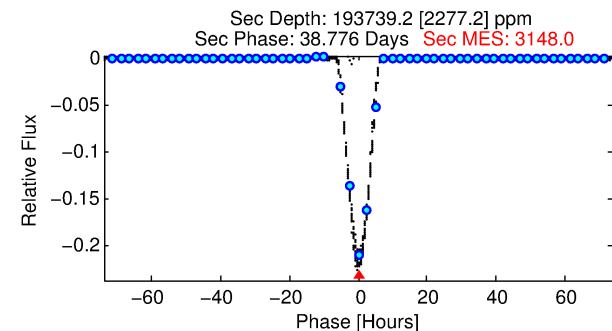
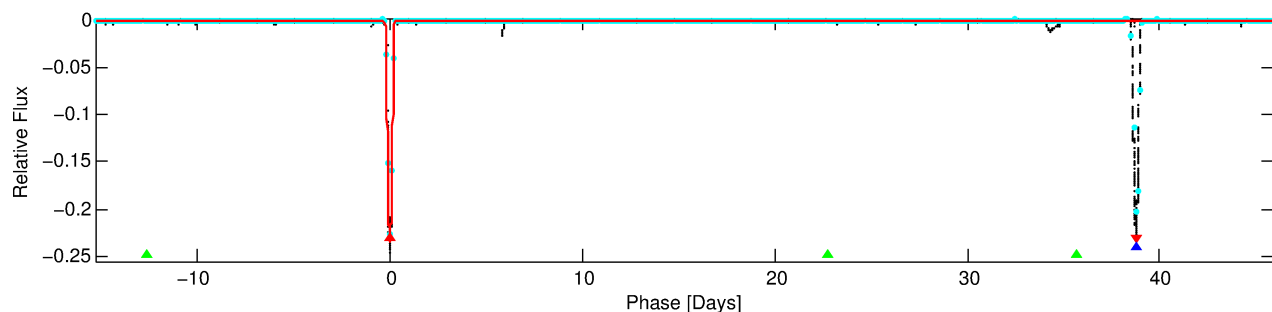
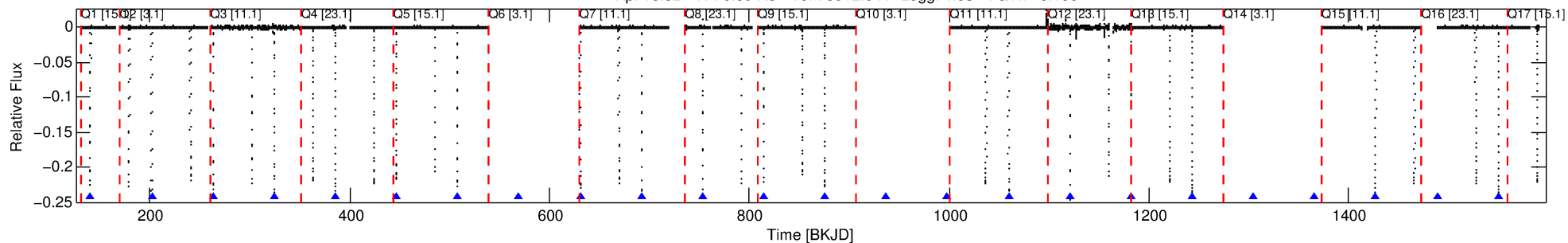
No Significant Match Found

DV One-Page Summary

KIC: 4375101 Candidate: 1 of 3 Period: 61.260 d

KOI: K06411.01 Corr: 0.998

Kp: 15.52 R*: 0.89 Rs Teff: 5912.0 K Logg: 4.53 Fe/H: -0.180



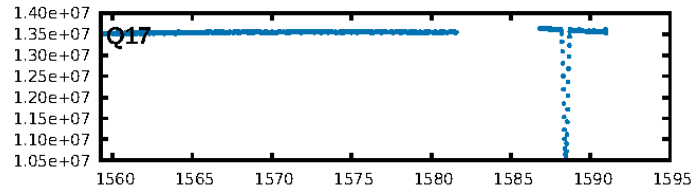
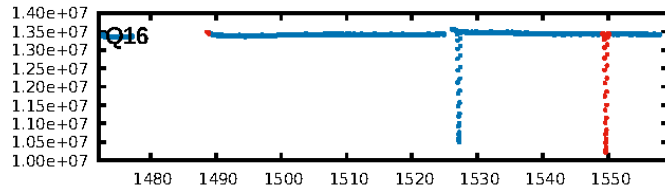
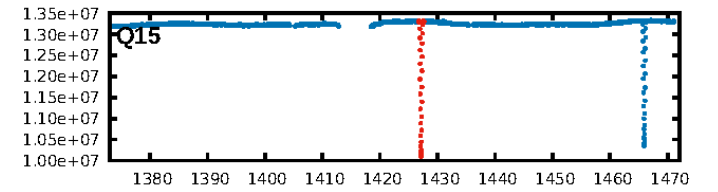
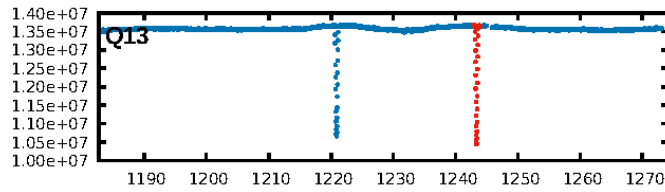
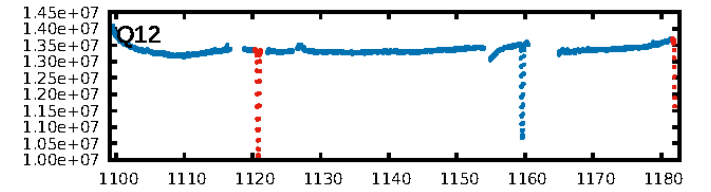
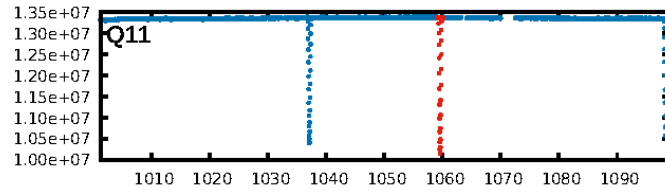
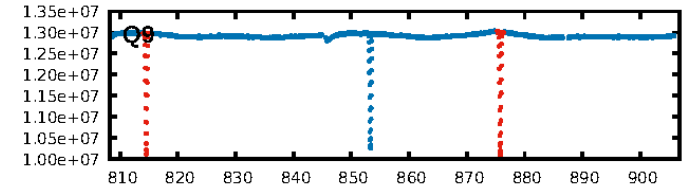
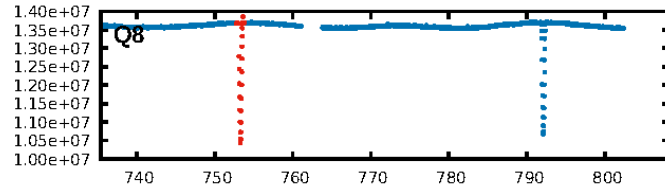
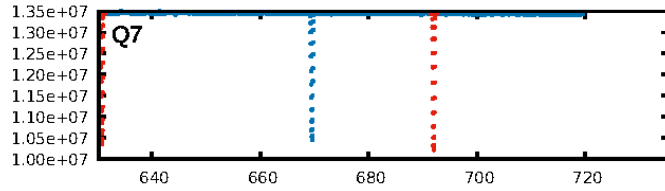
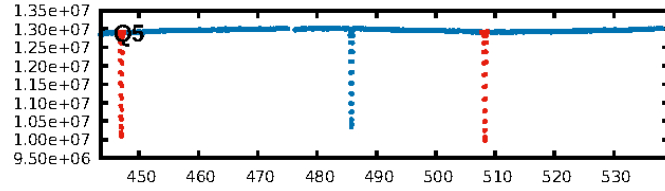
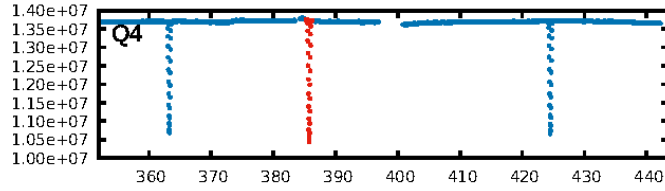
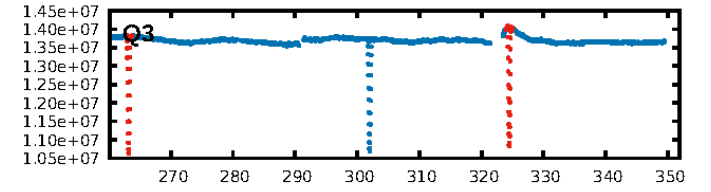
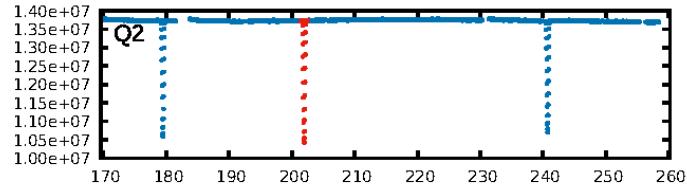
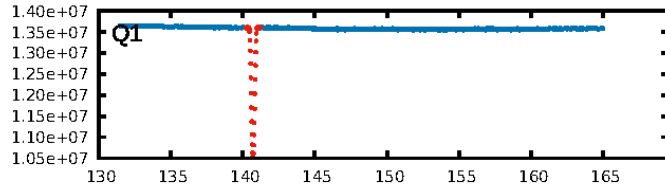
DV Fit Results:

Period = 61.25958 [0.00001] d
Epoch = 140.6989 [0.0001] BKJD
Rp/R* = 0.5392 [0.0155]
a/R* = 52.37 [0.14]
b = 0.70 [0.03]
Seff = 9.47 [3.71]
Teq = 447 [44] K
Rp = 52.31 [15.31] Re
a = 0.3023 [0.0754] AU
Ag = 3559.68 [1328.20] [2.68σ]
Teffp = 5342 [193] K [24.7σ]

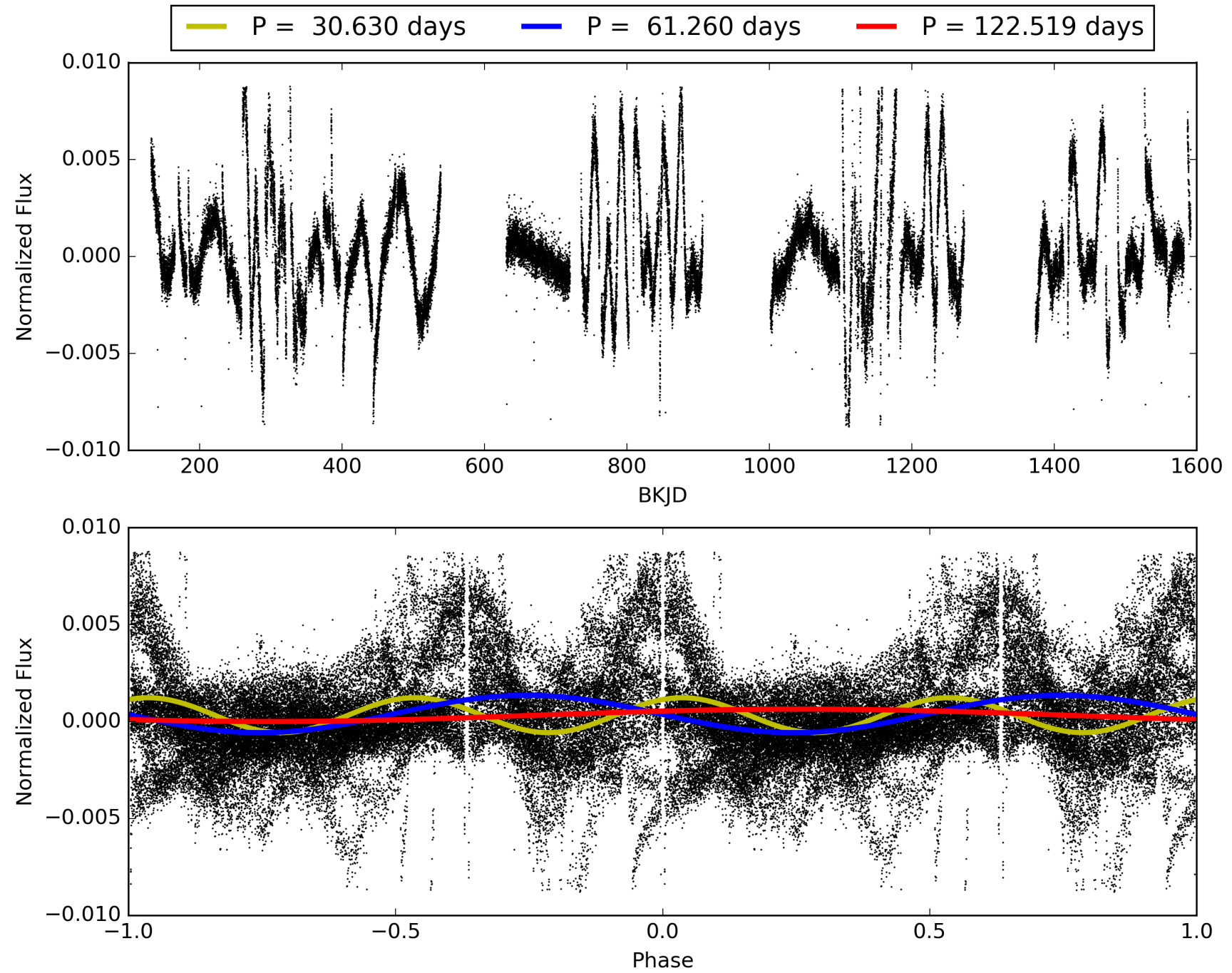
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [362.73σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [17/17]
GhostDiagnostic-chr: 1.638
Centroid-sig: 0.0%
Centroid-so: 0.009 arcsec [3.30σ]
OotOffset-rm: 0.155 arcsec [1.84σ]
KicOffset-rm: 0.210 arcsec [1.74σ]
OotOffset-st: 1/3/1/4 [9]
KicOffset-st: 1/3/1/4 [9]
DiffImageQuality-fgm: 1.00 [9/9]
DiffImageOverlap-fno: 1.00 [9/9]

TCE 004375101-01, PDC Light Curves

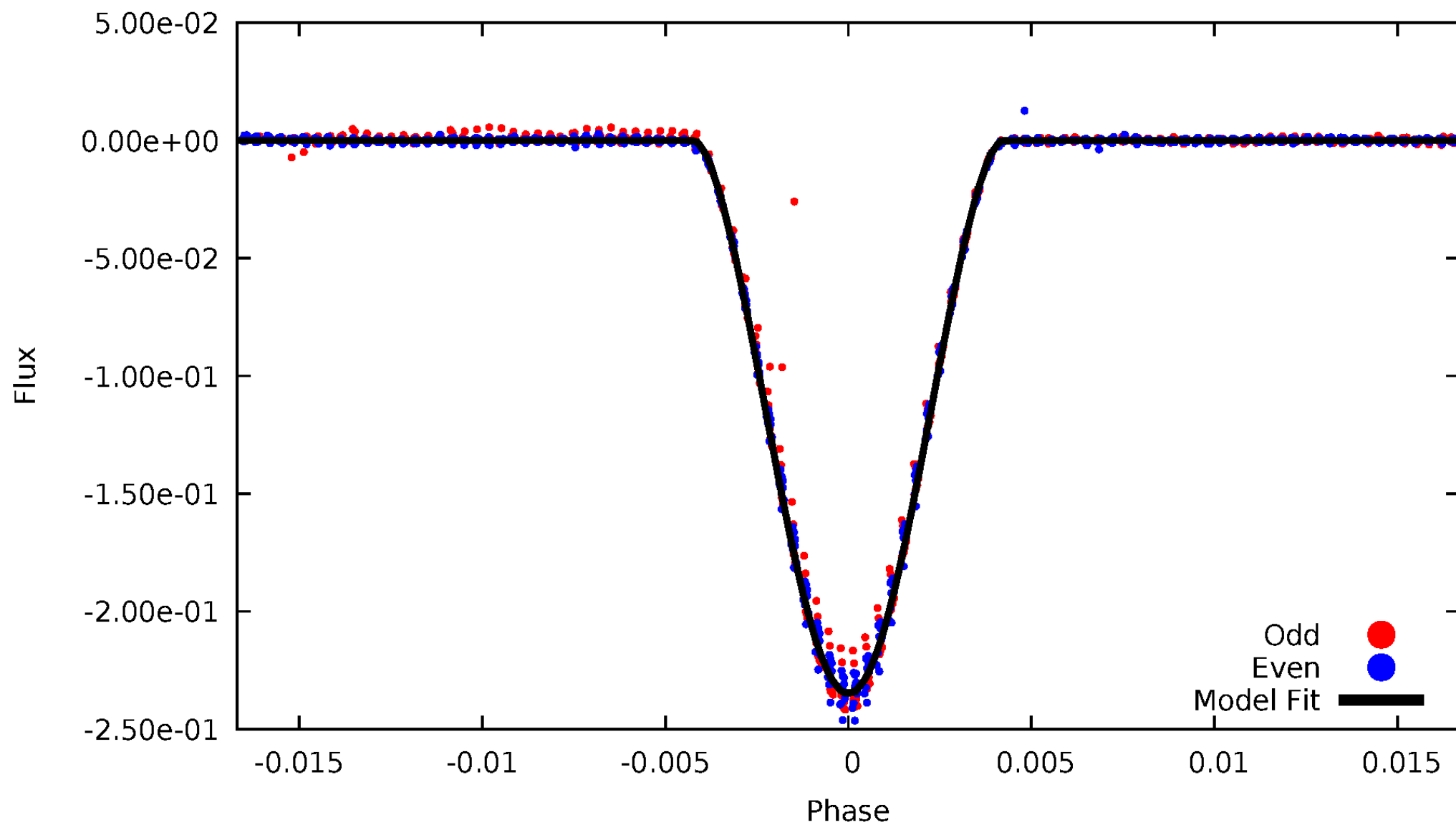


TCE 004375101-01



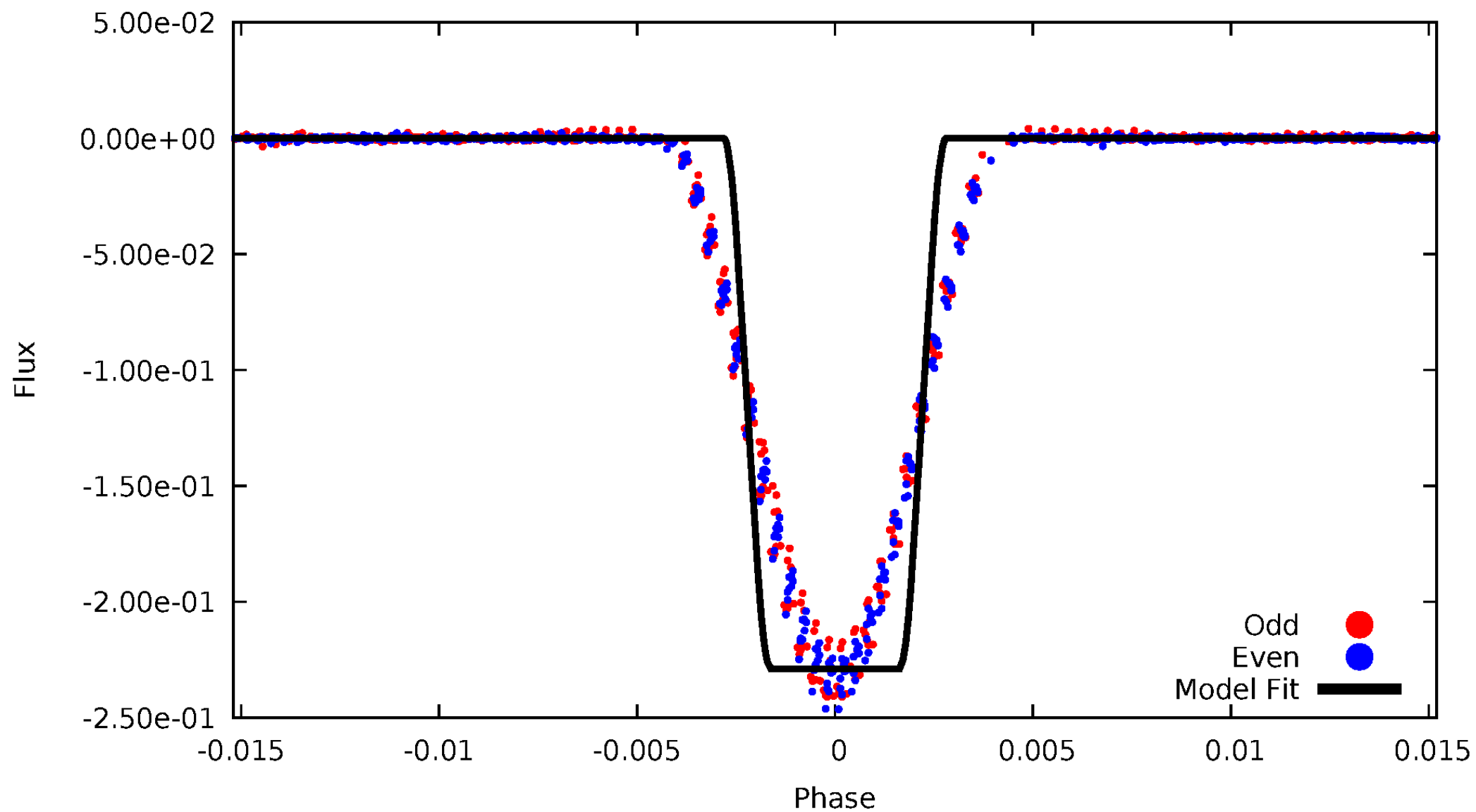
DV Odd/Even

TCE 004375101-01



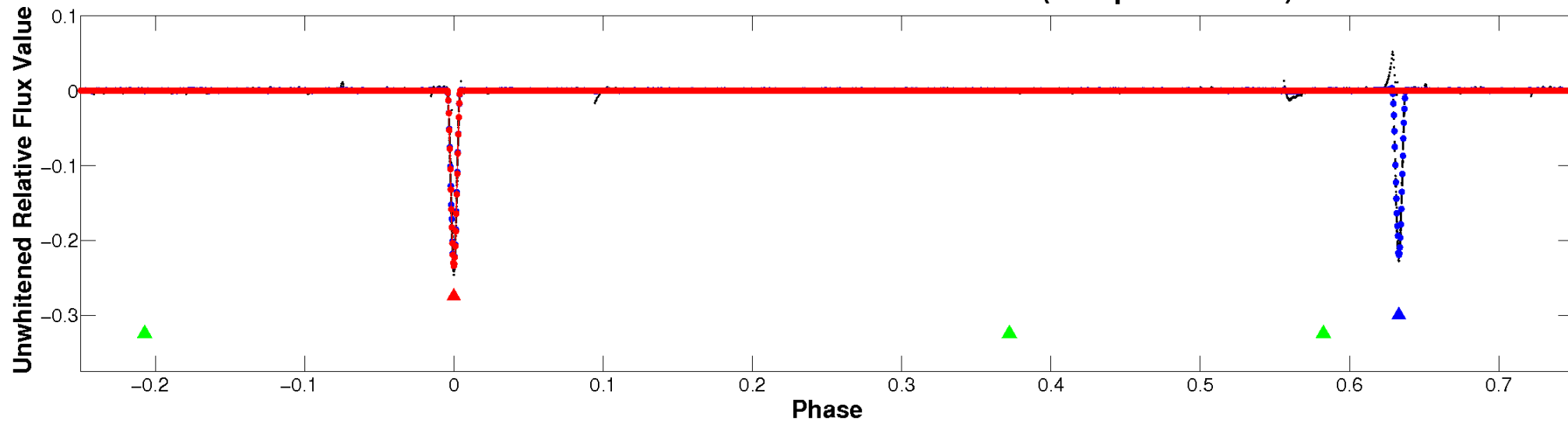
ALT Odd/Even

TCE 004375101-01

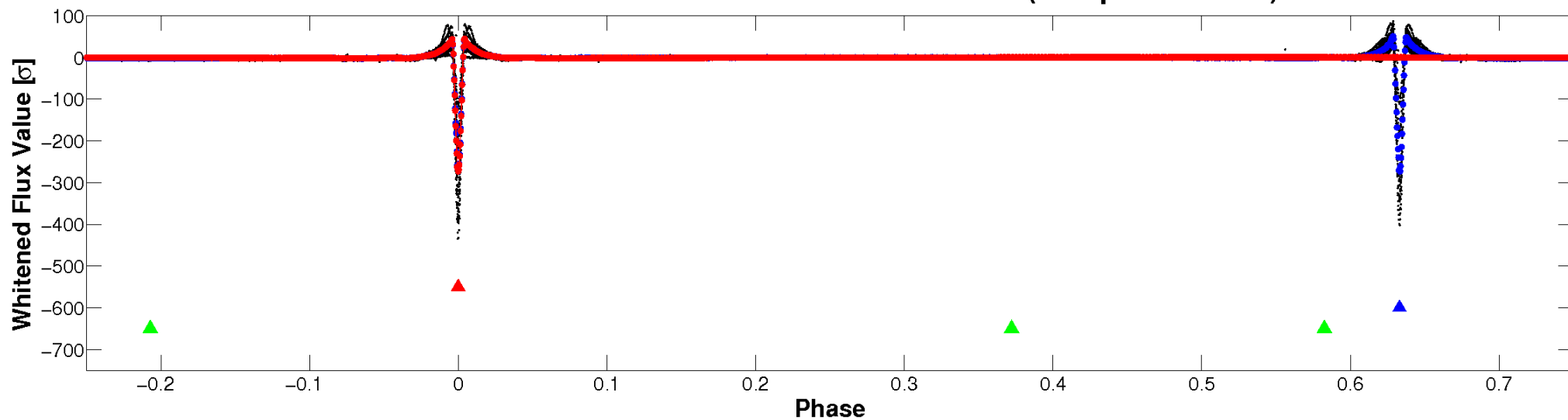


Non-Whitened Vs. Whitened Light Curve

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

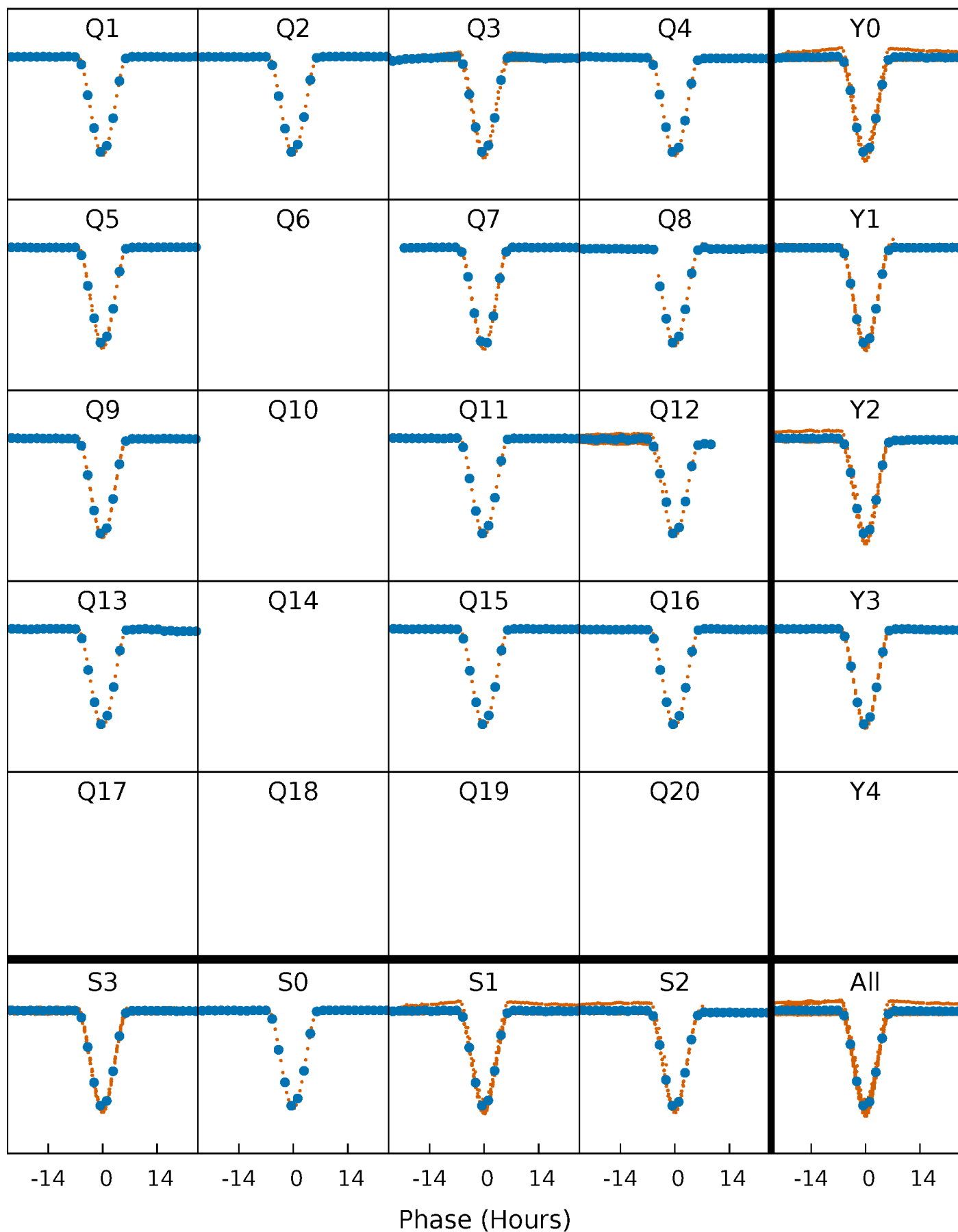


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



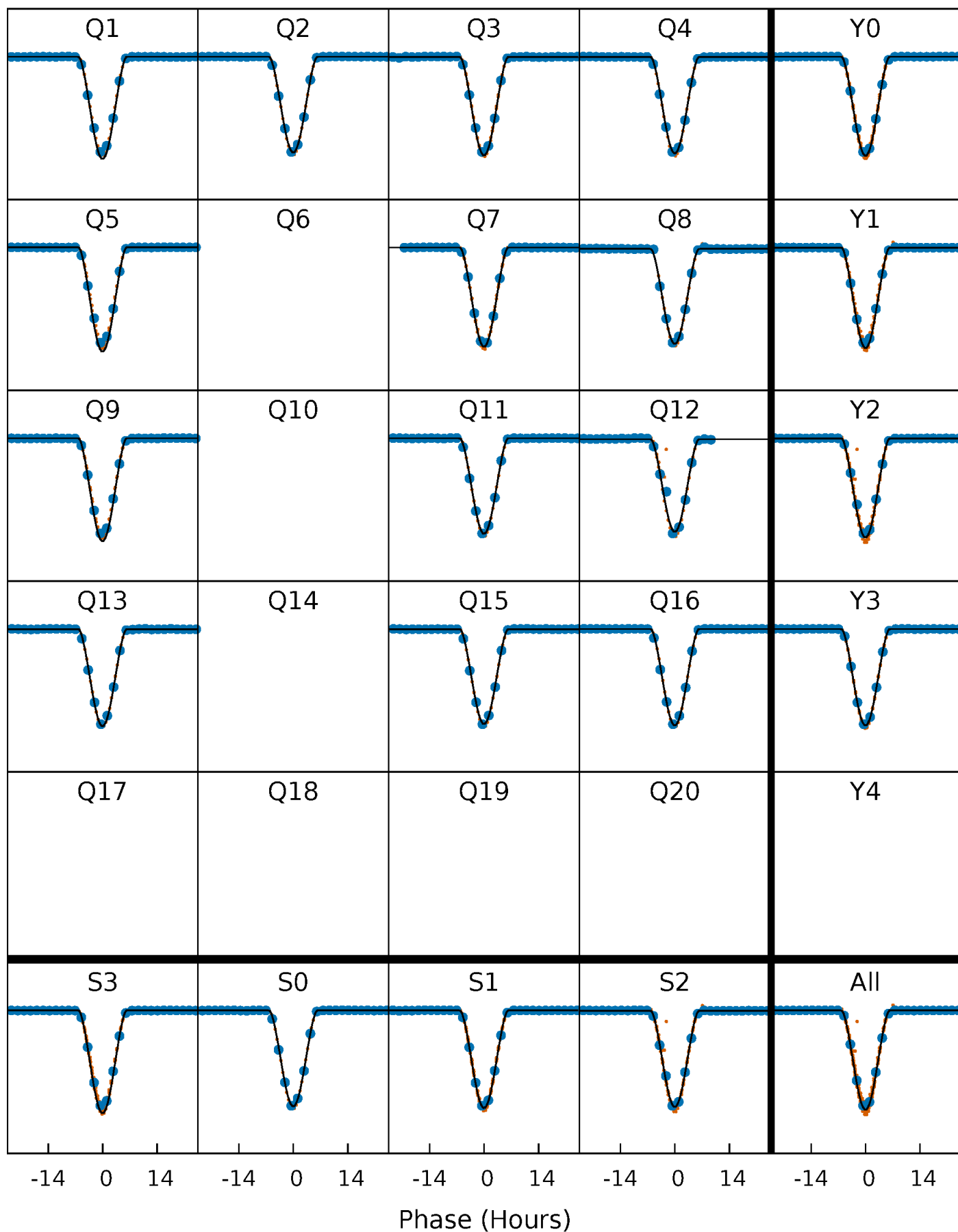
PDC Quarter-Phased Transit Curves

TCE 004375101-01 P= 61.259576 Days $T_0=140.698862$ (BKJD)



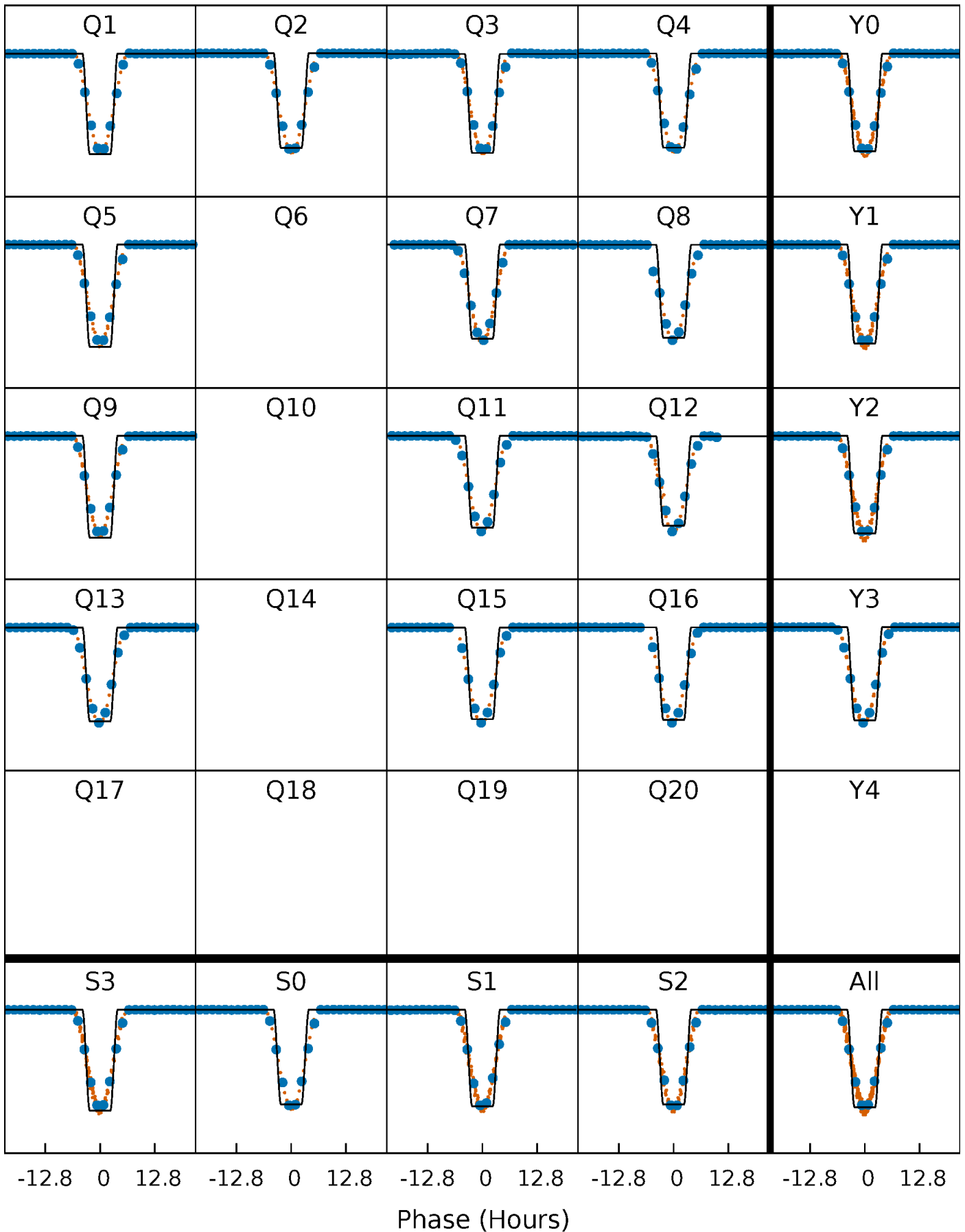
DV Quarter-Phased Transit Curves

TCE 004375101-01 P= 61.259576 Days $T_0=140.698862$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

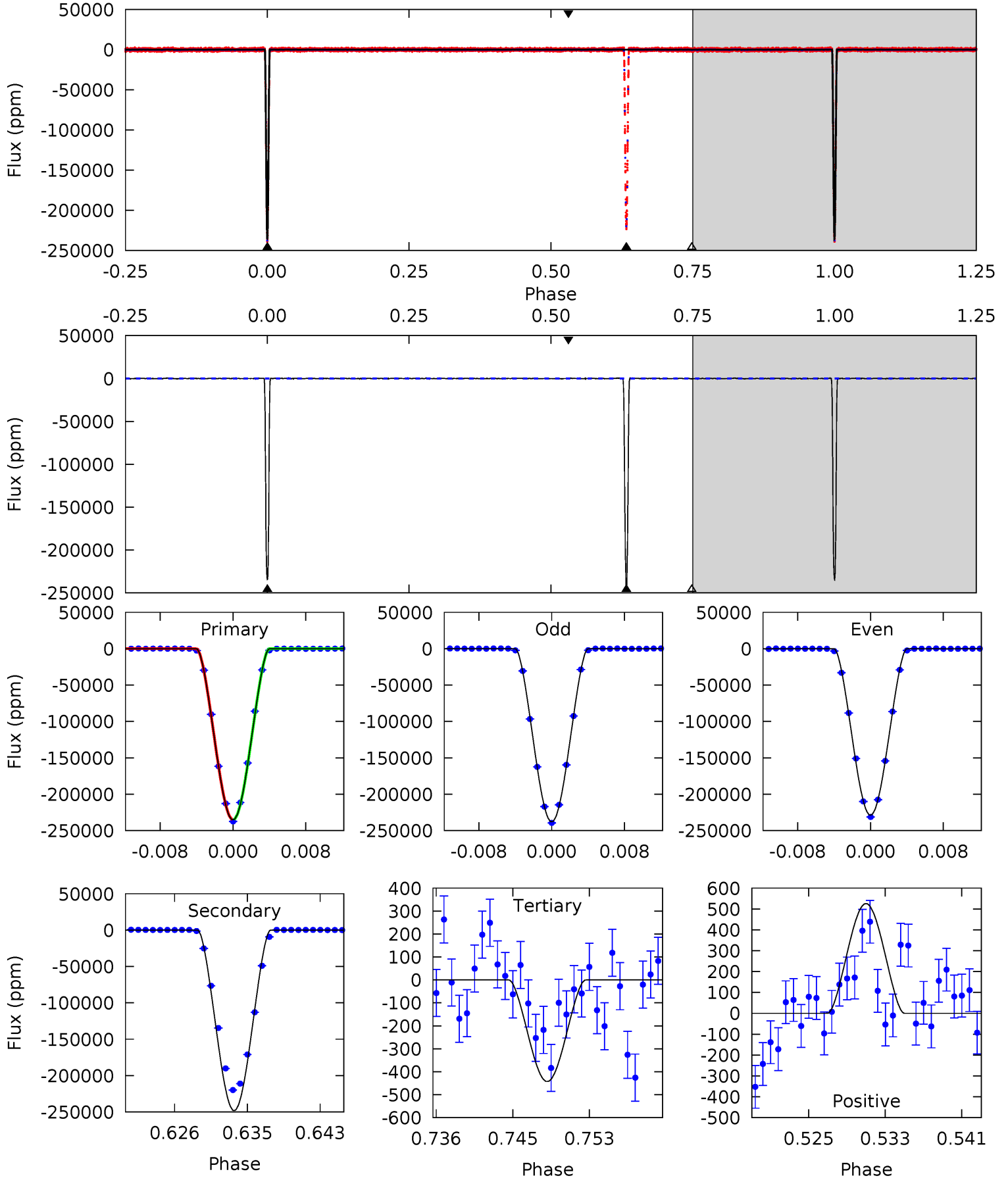
TCE 004375101-01 P= 61.260361 Days $T_0=140.691307$ (BKJD)



DV Model-Shift Uniqueness Test

004375101-01, P = 61.259576 Days, E = 79.439286 Days

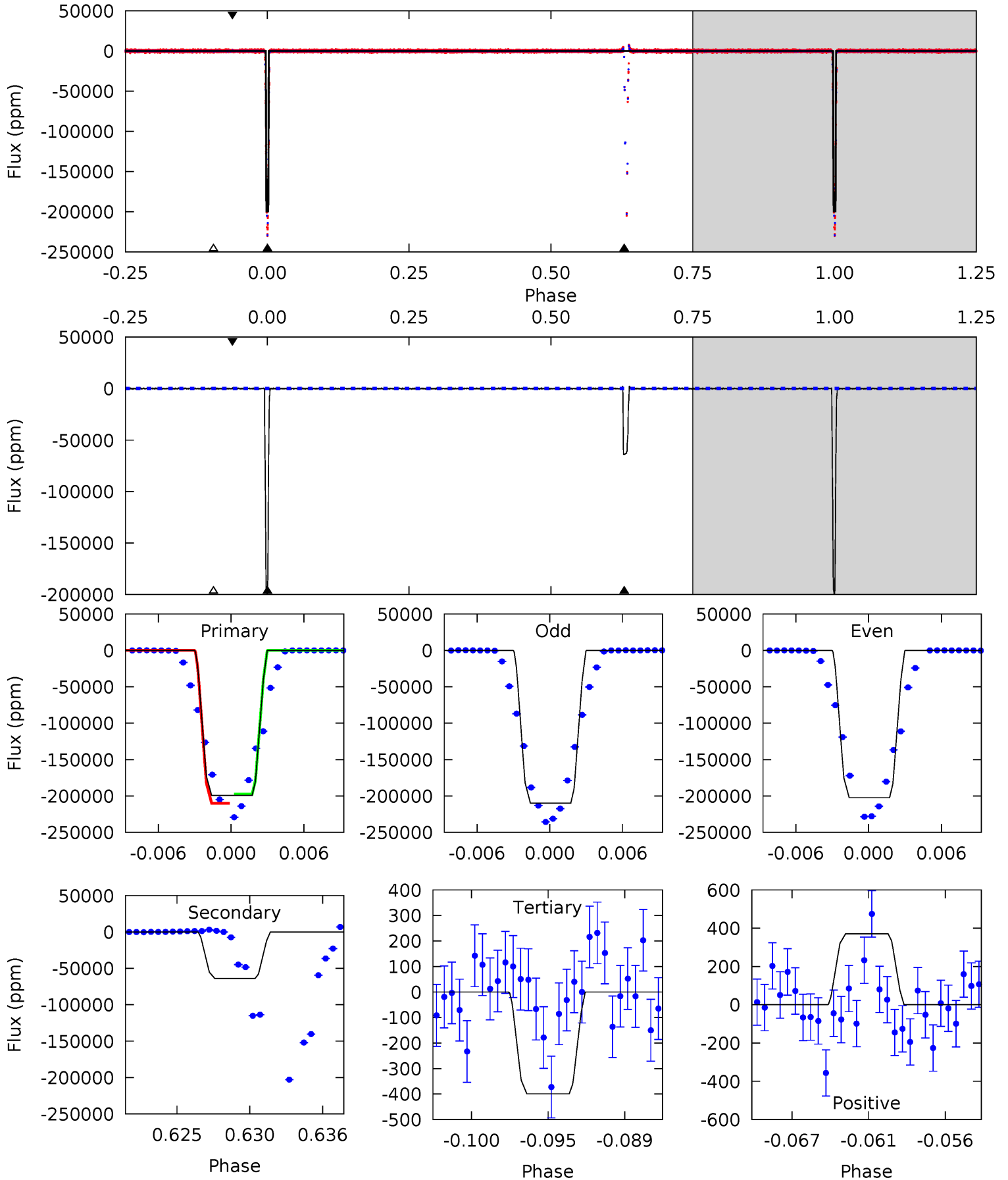
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5803	6120	10.9	13.0	5.06	2.63	3.50	5792	5790	6109	6107	119.0	0.97	0.00	0



Alt Model-Shift Uniqueness Test

004375101-01, P = 61.260361 Days, E = 79.430946 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1351	432.6	2.70	2.51	5.14	2.77	3.77	1348	1348	429.9	430.1	18.0	0.99	0.01	0



Stellar Parameters For KIC 004375101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5912^{+159}_{-195}	$4.532^{+0.036}_{-0.204}$	$-0.180^{+0.300}_{-0.300}$	$0.889^{+0.259}_{-0.086}$	$0.980^{+0.116}_{-0.129}$	$1.966^{+0.398}_{-1.026}$
	+3%/-3%	+1%/-5%	+167%/-167%	+29%/-10%	+12%/-13%	+20%/-52%
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 004375101-01 / KOI 6411.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-247599 ± 40	$54.29^{+8.54}_{-4.71}$	642^{+43}_{-29}	6106^{+201}_{-240}	5471^{+912}_{-1241}
Alt.	-63825 ± 148	$48.76^{+7.22}_{-4.39}$	642^{+42}_{-28}	4537^{+110}_{-127}	1423^{+234}_{-312}

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 $A_{obs} \gg 1.0$

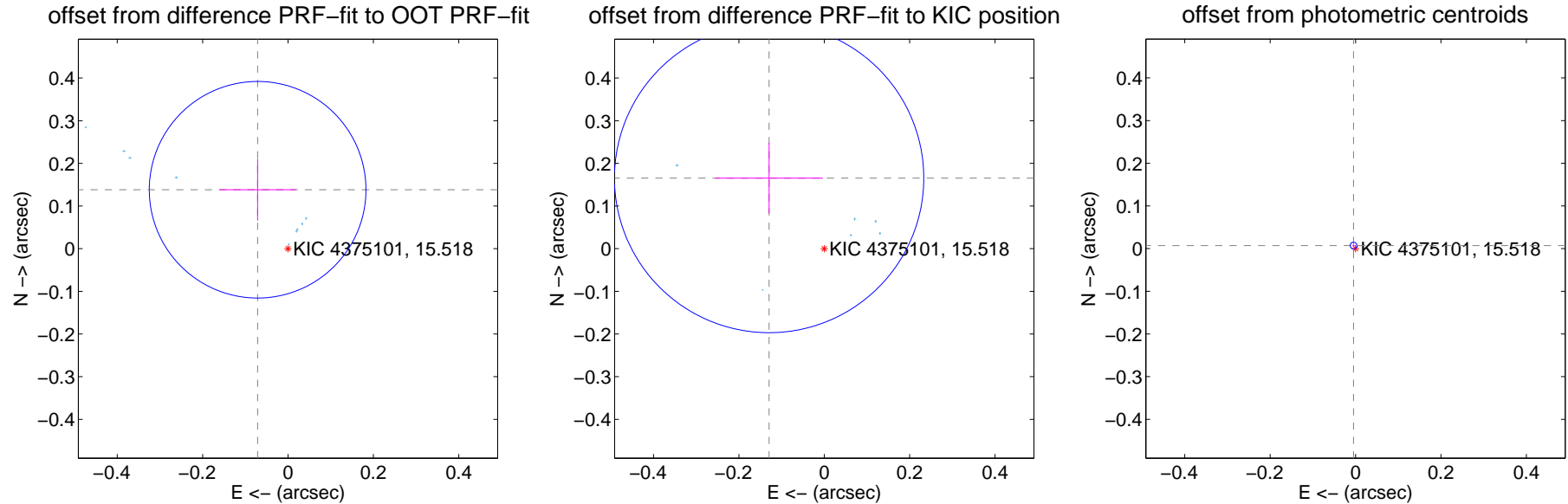
DV Centroid Data

Supplemental centroid analysis for 004375101-01. Kepler magnitude: 15.52. Transit SNR 1850.73

There are 9 quarters with good PRF difference image offsets

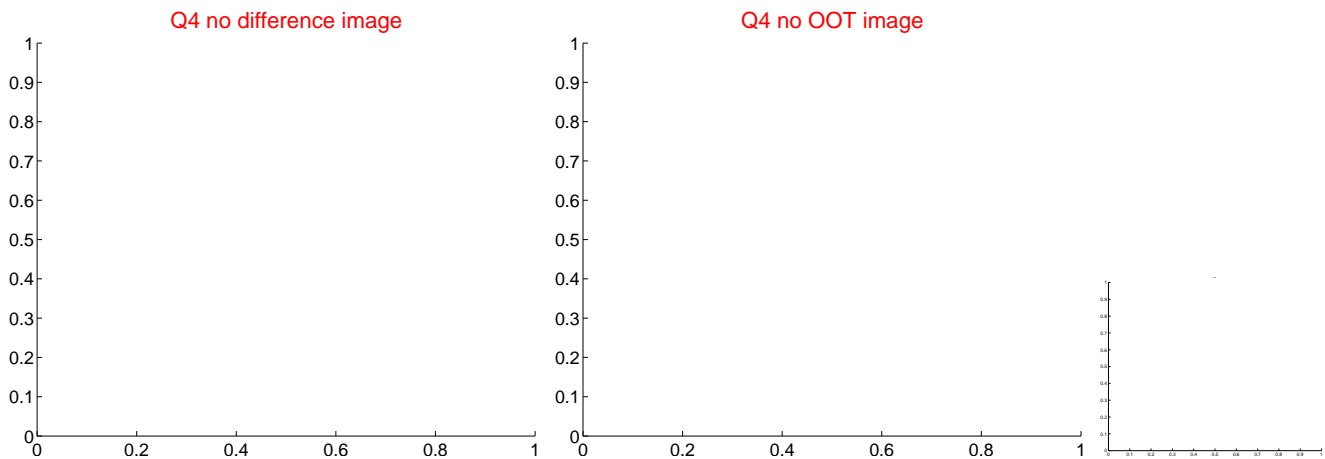
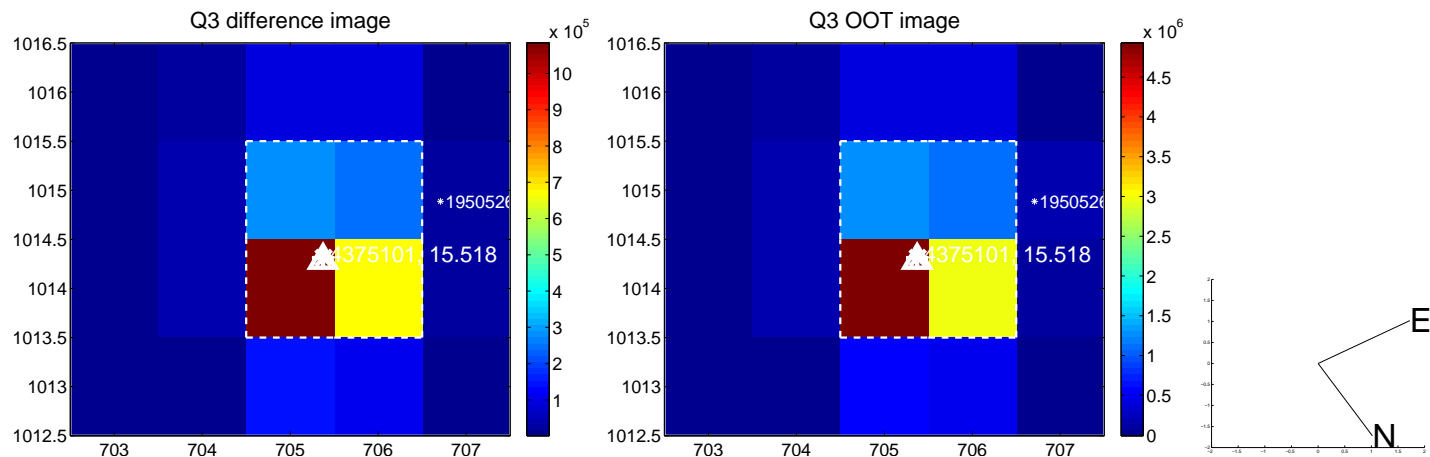
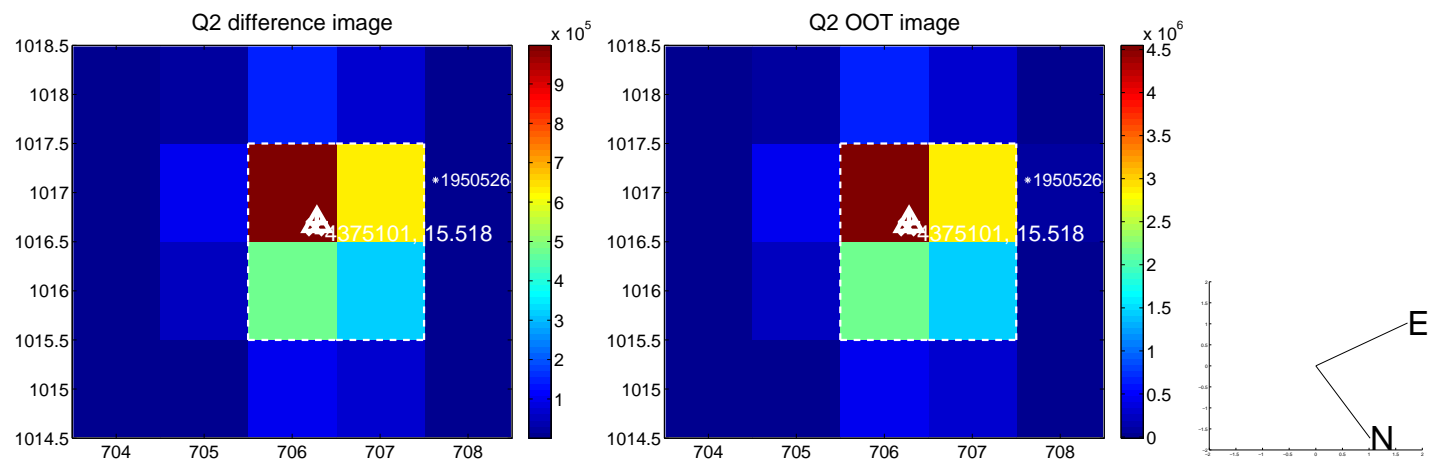
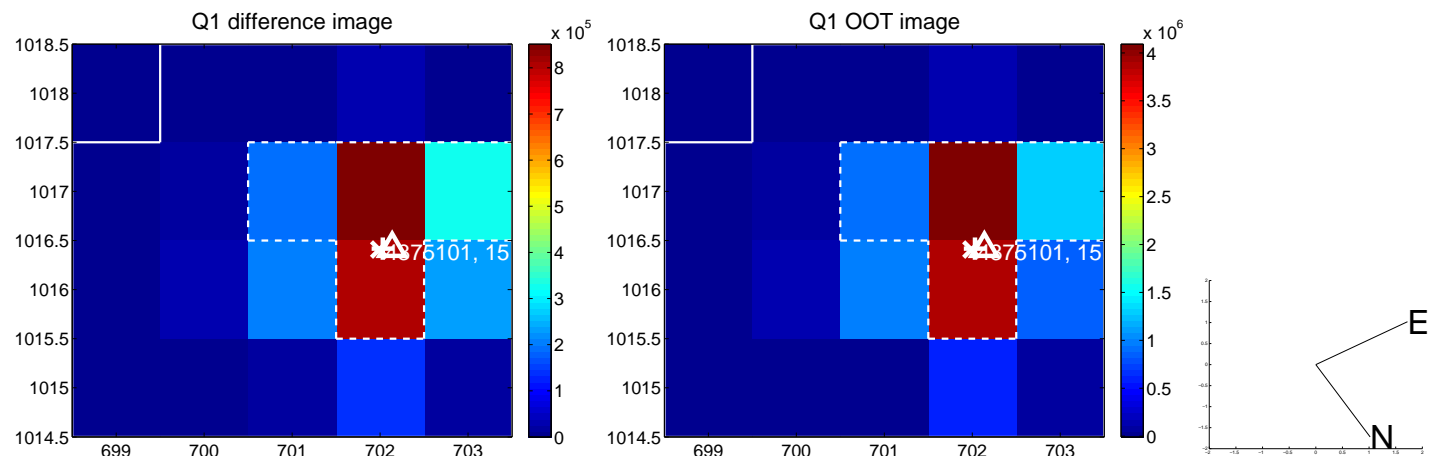
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.155 ± 0.085	1.84	0.071 ± 0.090	0.138 ± 0.072
PRF-fit source offset from KIC position	0.210 ± 0.121	1.74	0.129 ± 0.126	0.165 ± 0.082
photometric centroid source offset	0.01 ± 0.00	3.30	0.00 ± 0.00	0.01 ± 0.00

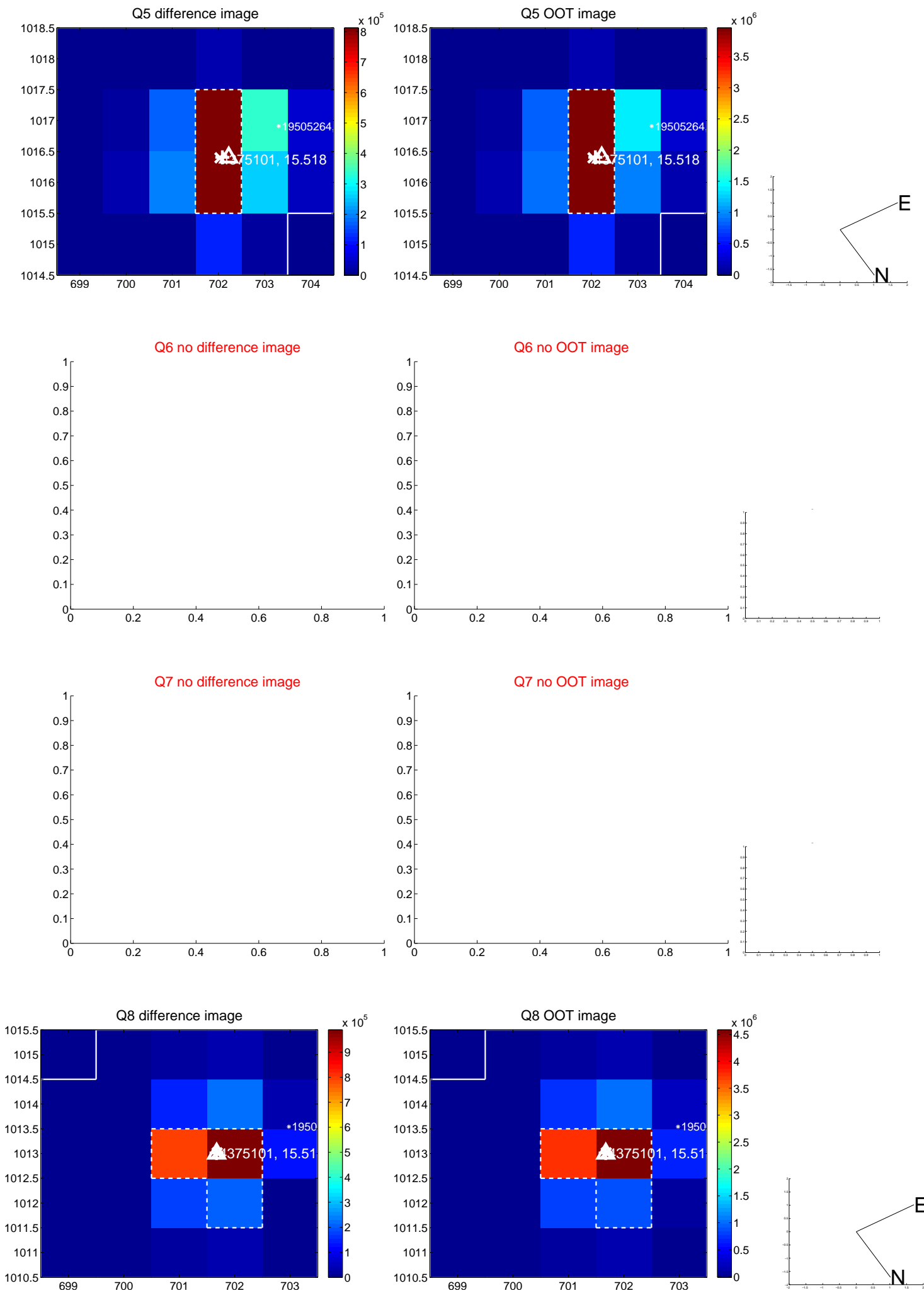


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

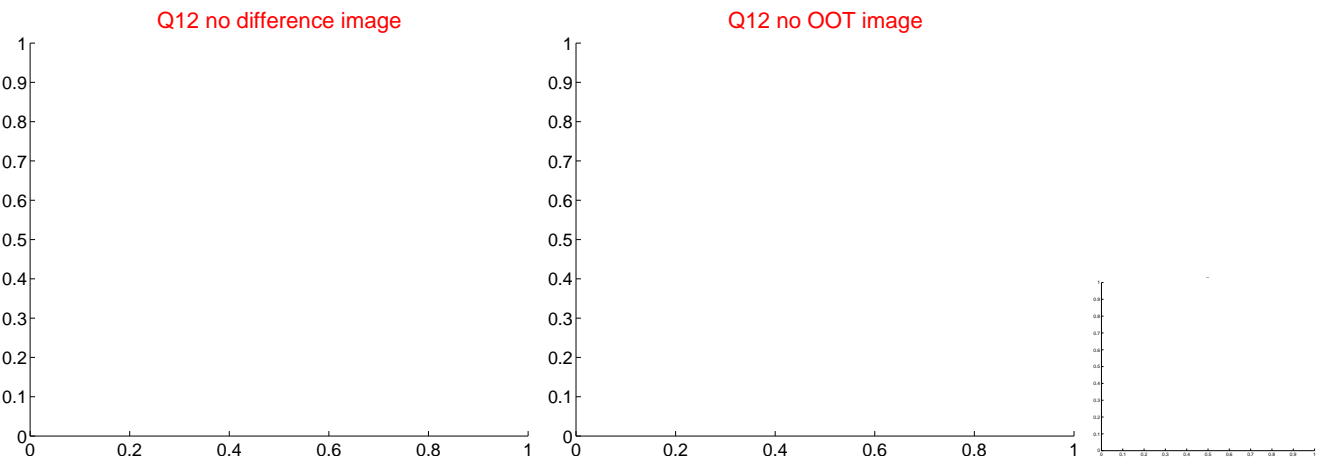
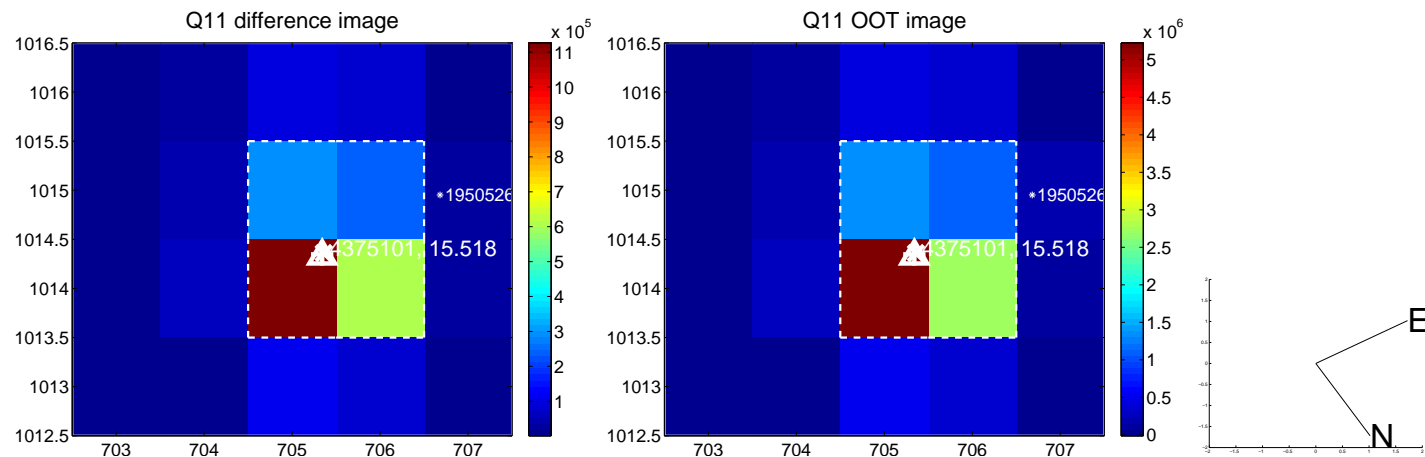
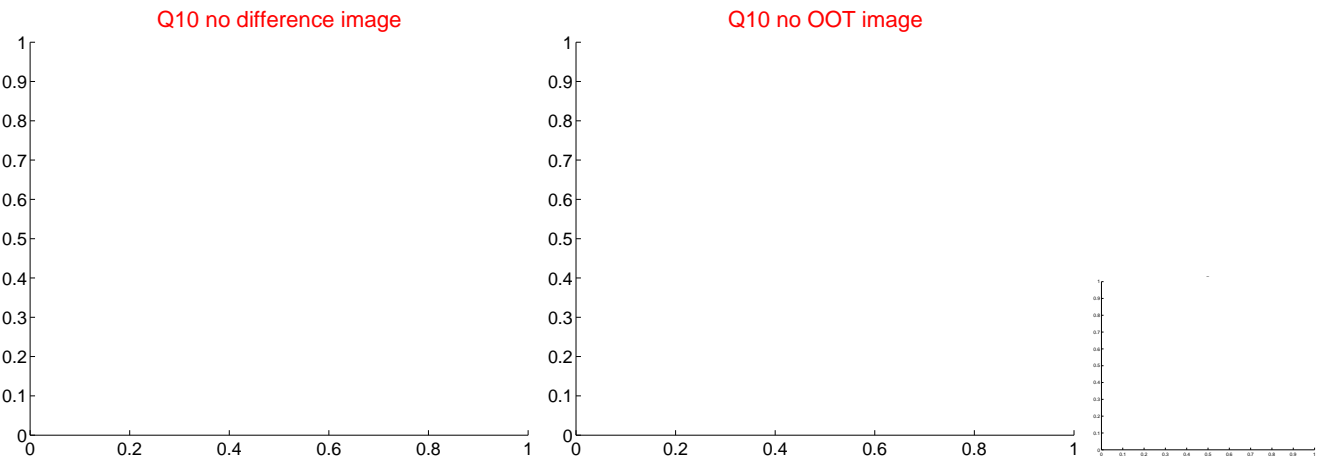
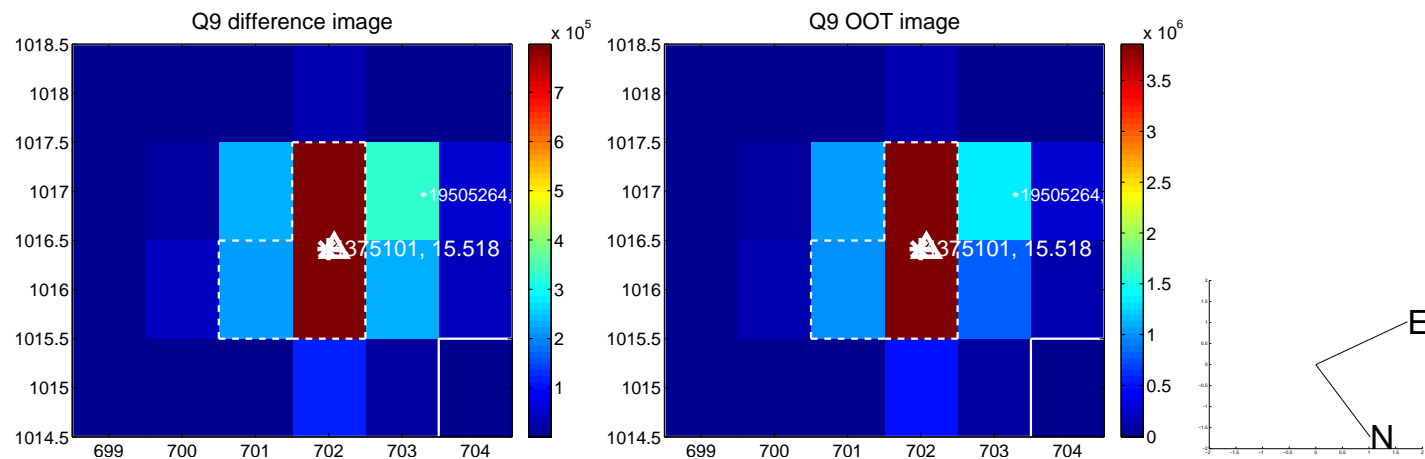
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



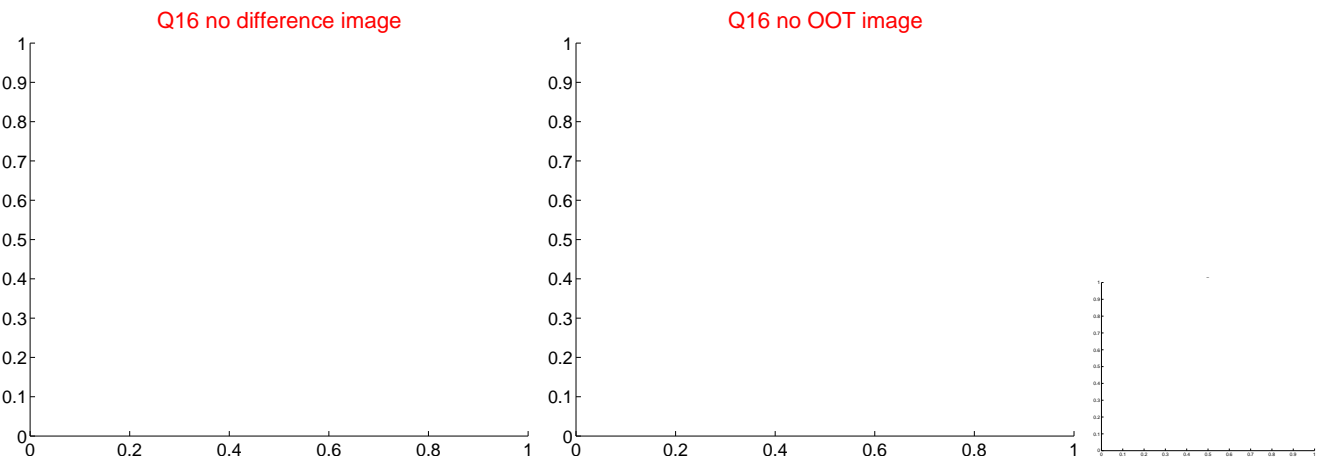
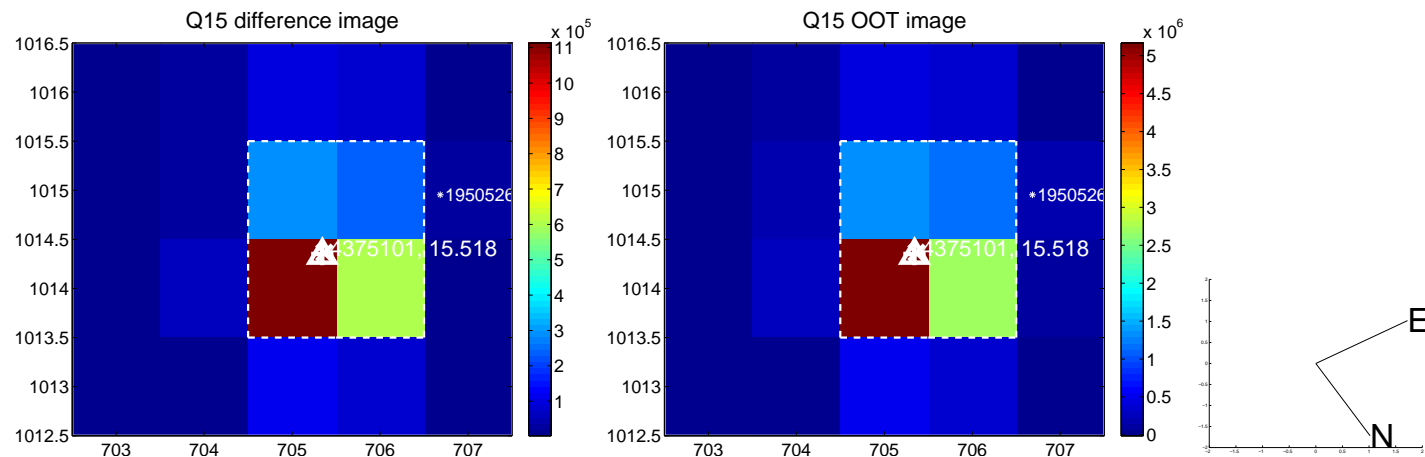
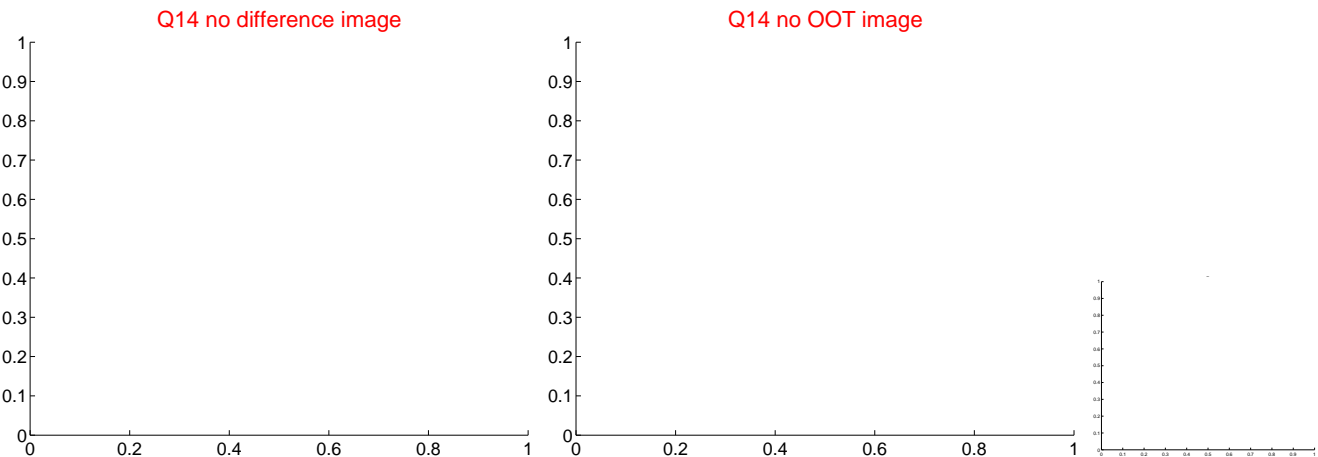
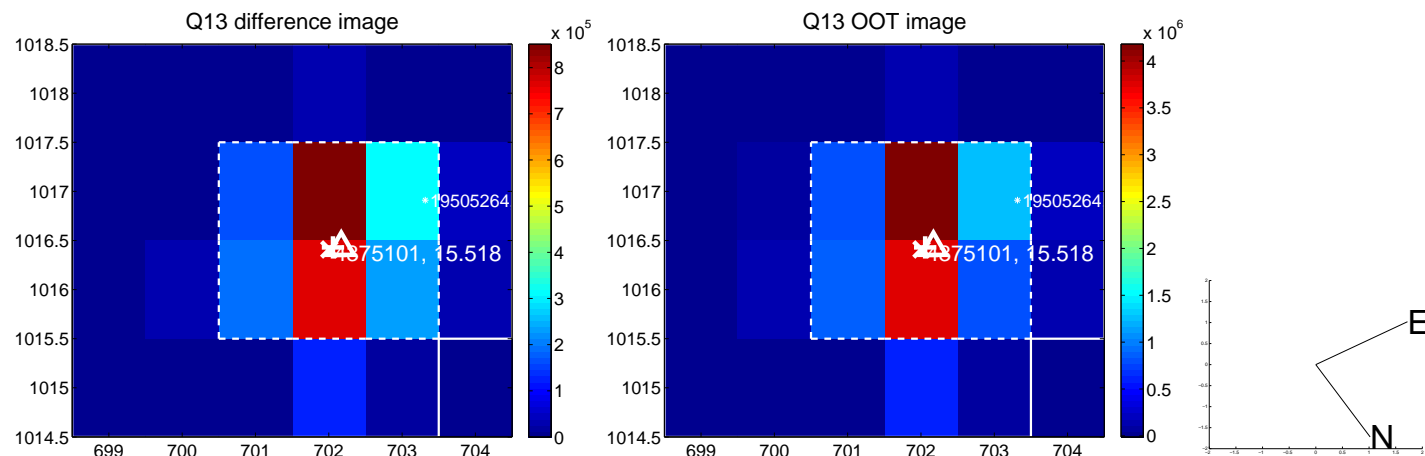
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



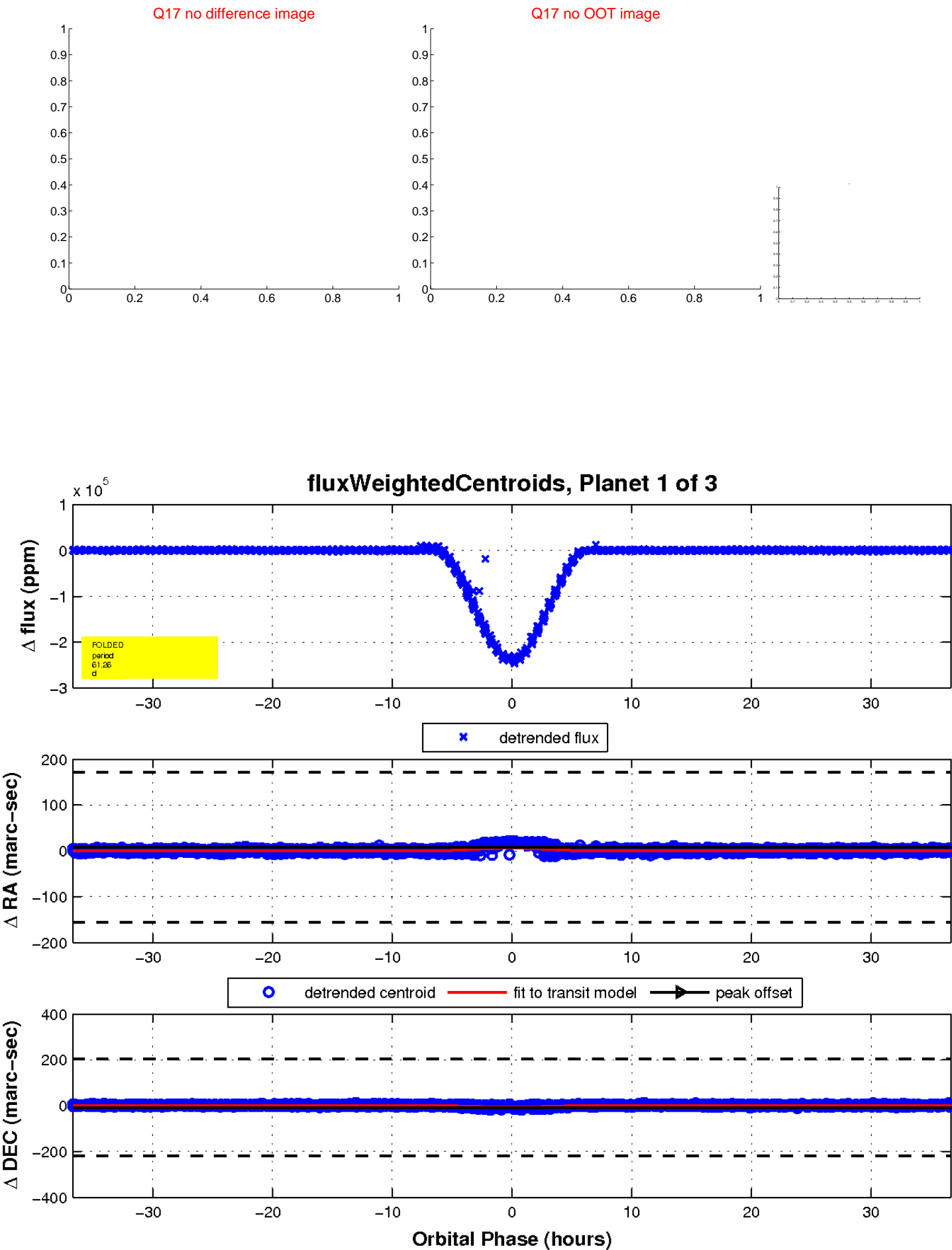
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

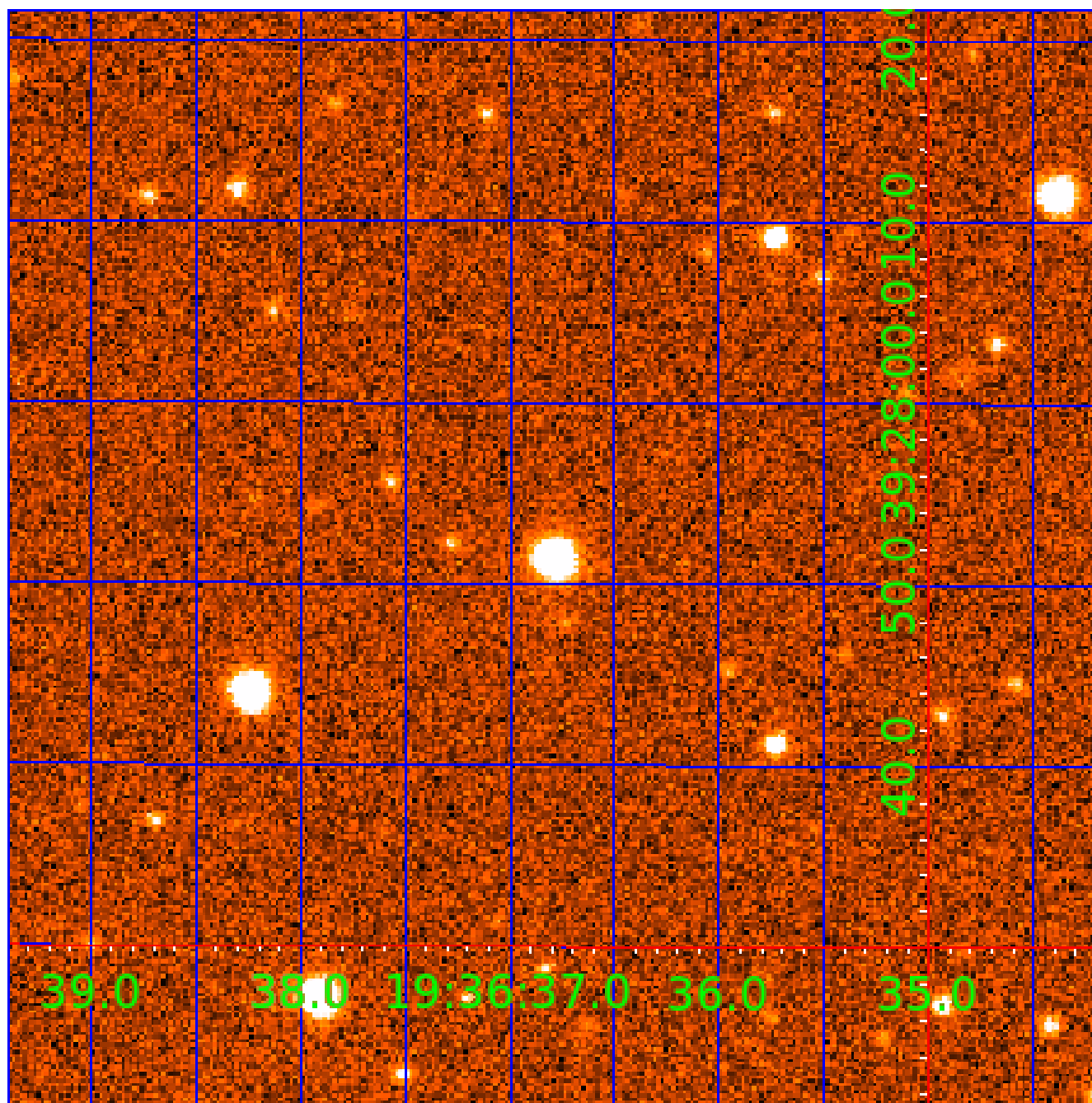


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004375101

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004375101-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE
004375101-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004375101-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

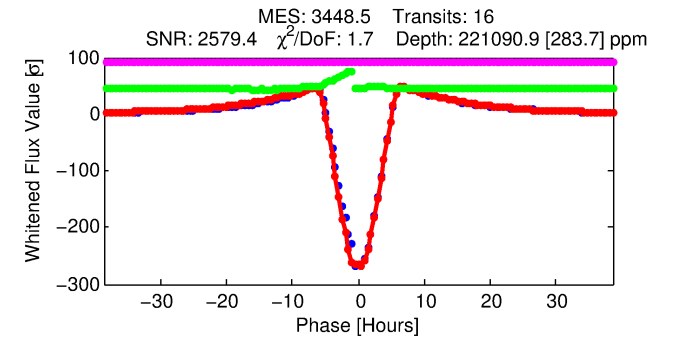
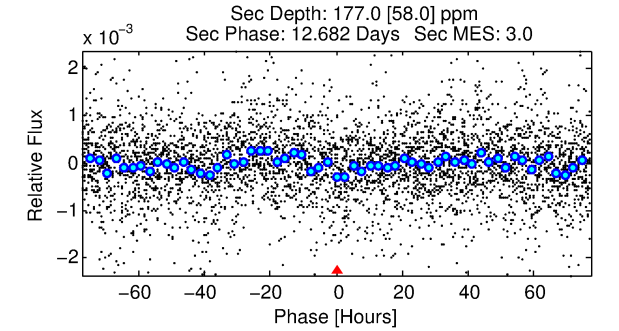
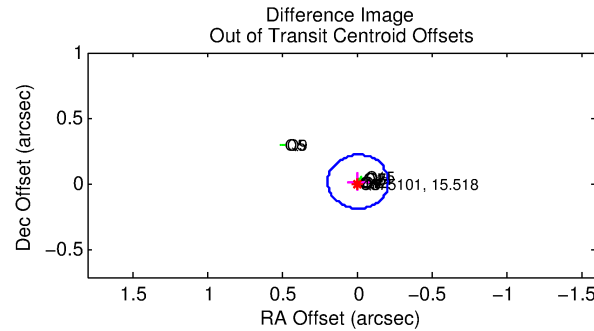
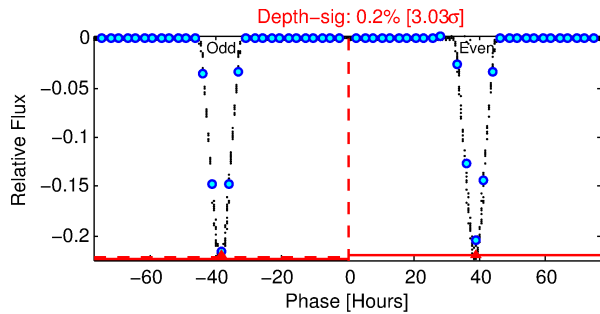
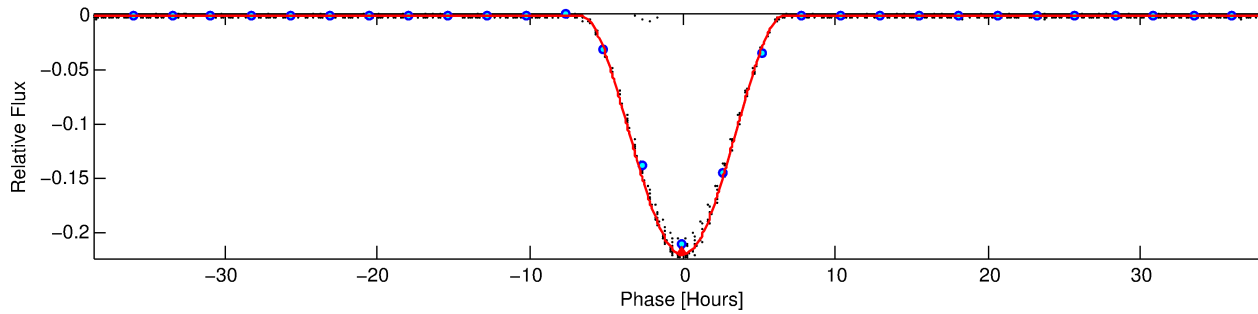
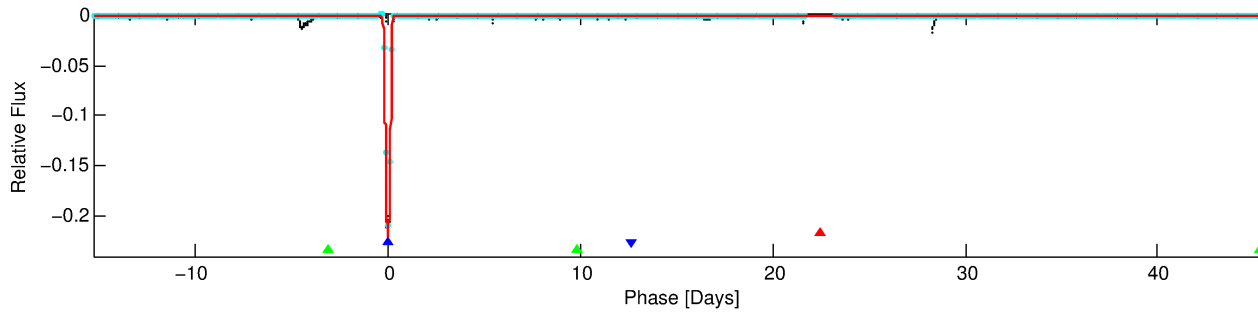
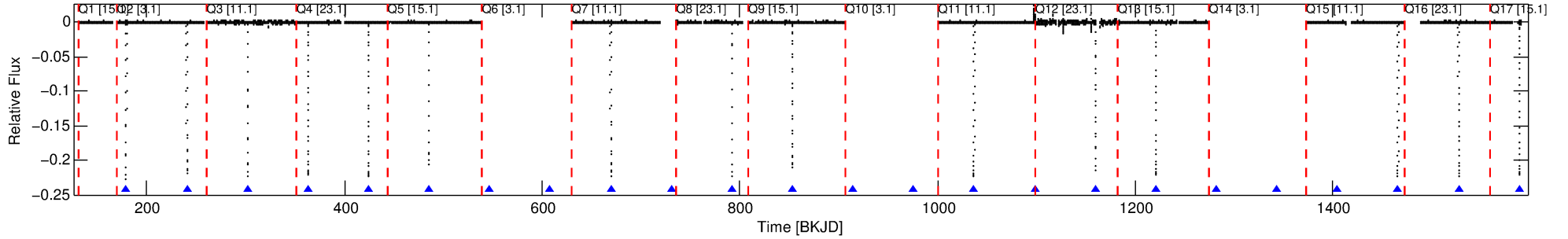
Ephemeris Match Information For 004375101-02

No Significant Match Found

DV One-Page Summary

KIC: 4375101 Candidate: 2 of 3 Period: 61.260 d
KOI: K06411 Corr: No Ephemeris Match

Kp: 15.52 R*: 0.89 Rs Teff: 5912.0 K Logg: 4.53 Fe/H: -0.180



DV Fit Results:

Period = 61.25956 [0.00001] d
Epoch = 179.4813 [0.0002] BKJD
Rp/R* = 0.5911 [0.0468]
a/R* = 49.76 [0.58]
b = 0.81 [0.07]
Seff = 9.47 [3.71]
Teq = 447 [44] K
Rp = 57.34 [17.31] Re
a = 0.3023 [0.0754] AU
Ag = 2.71 [1.40] [1.22σ]
Teffp = 887 [86] K [4.56σ]

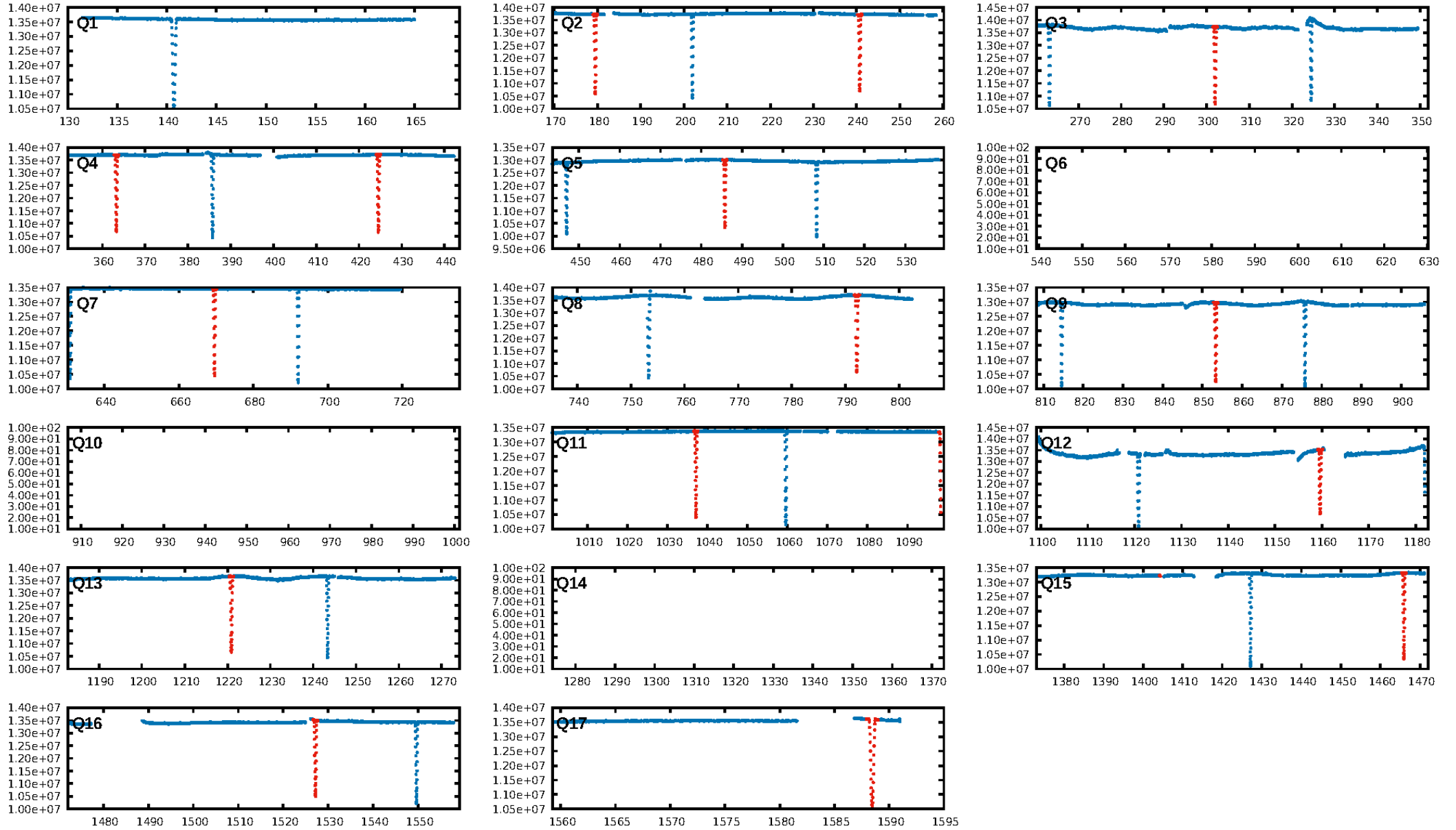
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: 2.281
Centroid-sig: 0.0%
Centroid-so: 0.021 arcsec [6.85σ]
OotOffset-rm: 0.023 arcsec [0.34σ]
KicOffset-rm: 0.011 arcsec [0.15σ]
OotOffset-st: 1/4/3/2 [10]
KicOffset-st: 1/4/3/2 [10]
DiffImageQuality-fgm: 1.00 [10/10]
DiffImageOverlap-fno: 1.00 [10/10]

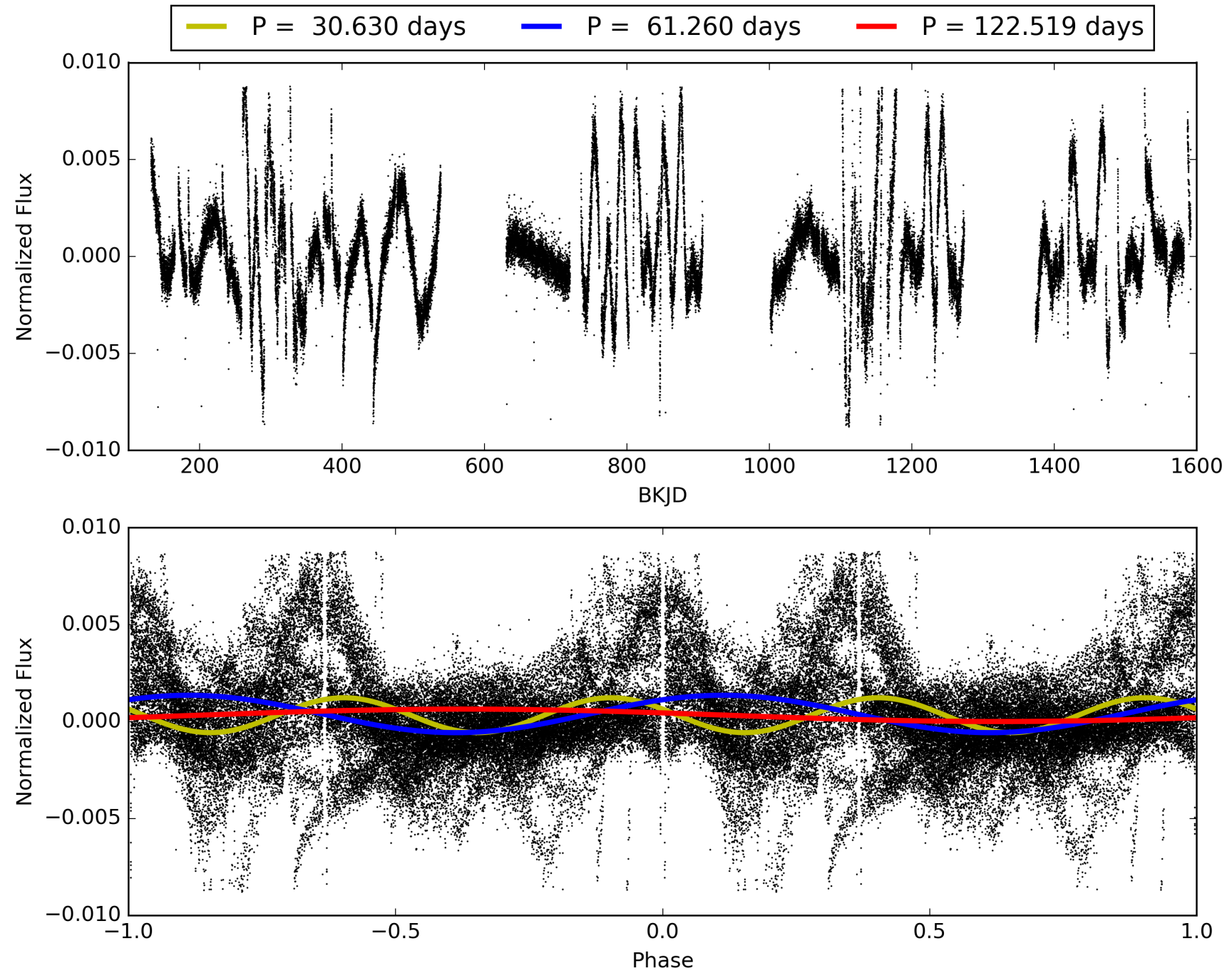
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:26:07 Z

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

TCE 004375101-02, PDC Light Curves

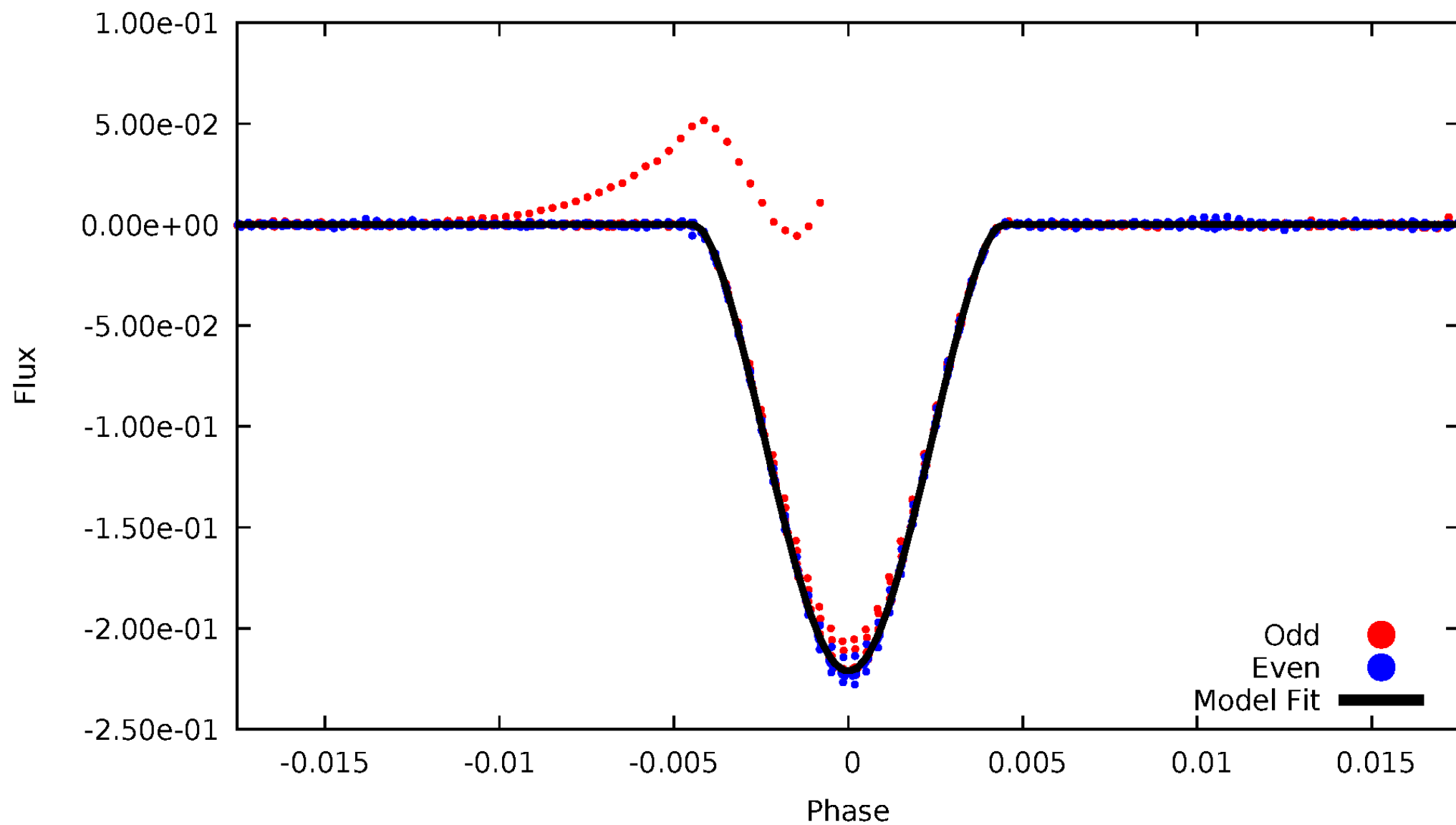


TCE 004375101-02



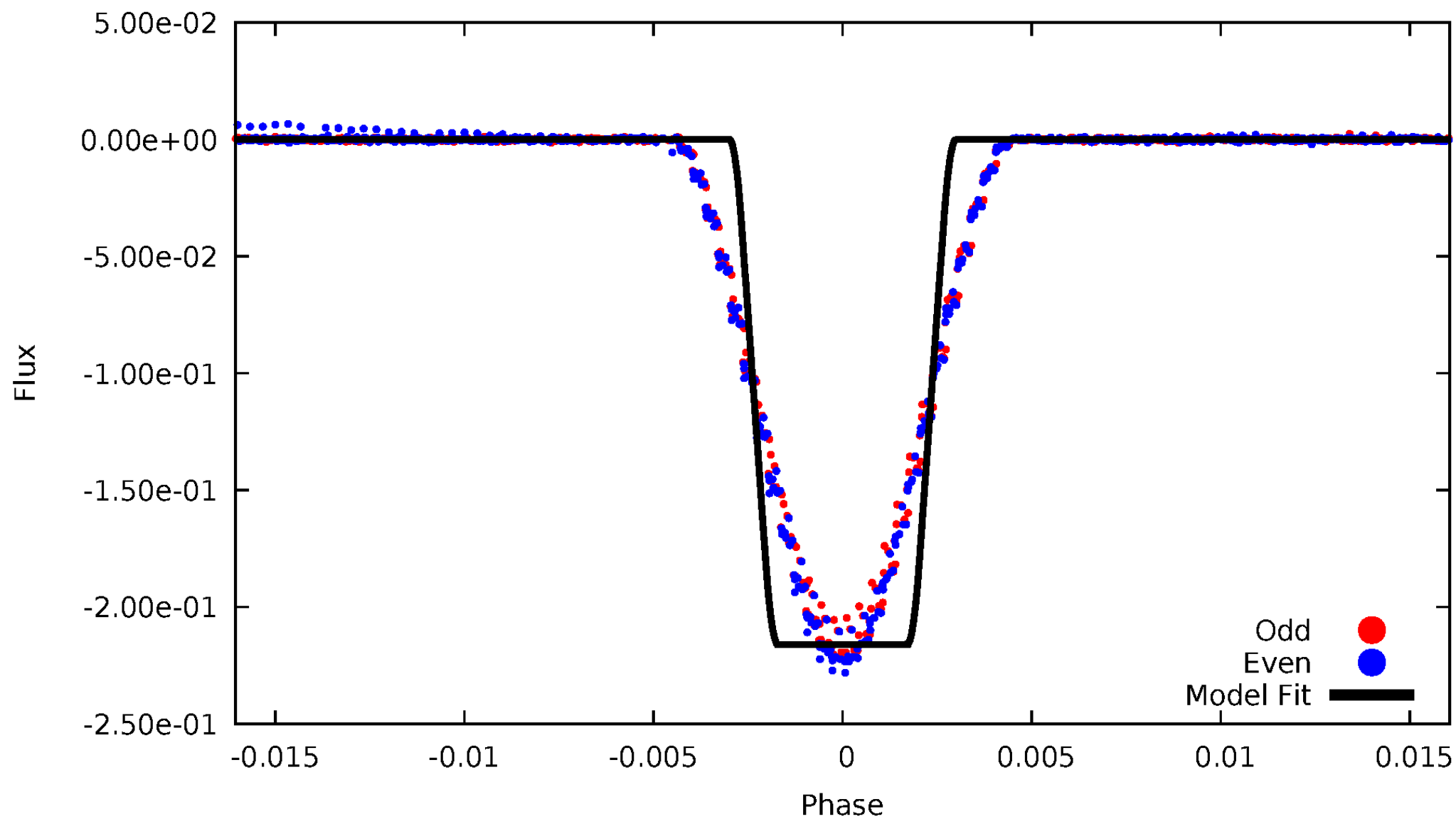
DV Odd/Even

TCE 004375101-02



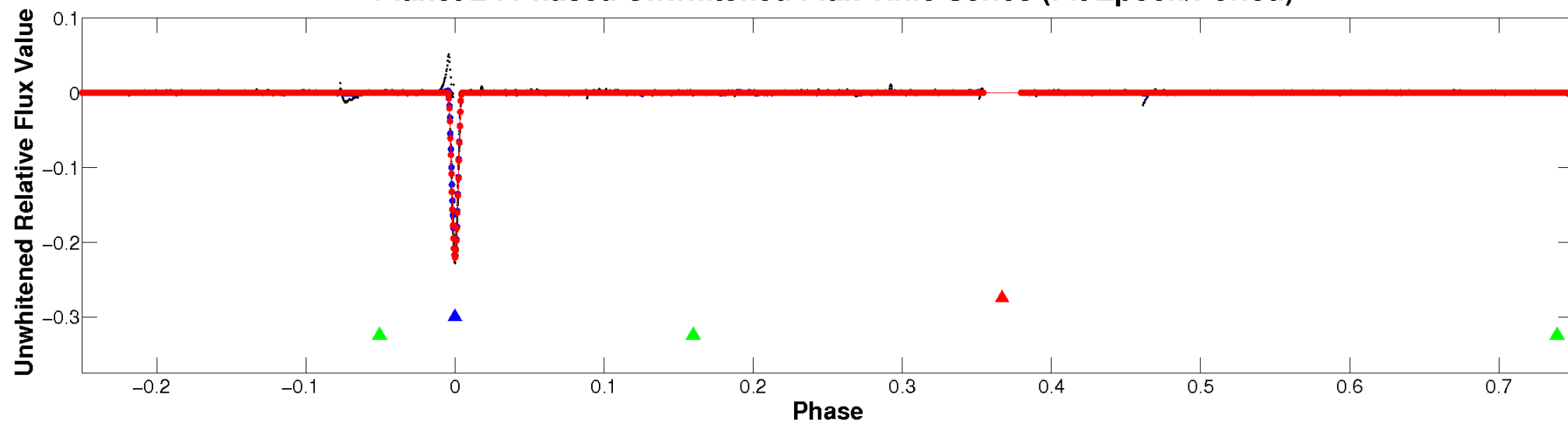
ALT Odd/Even

TCE 004375101-02

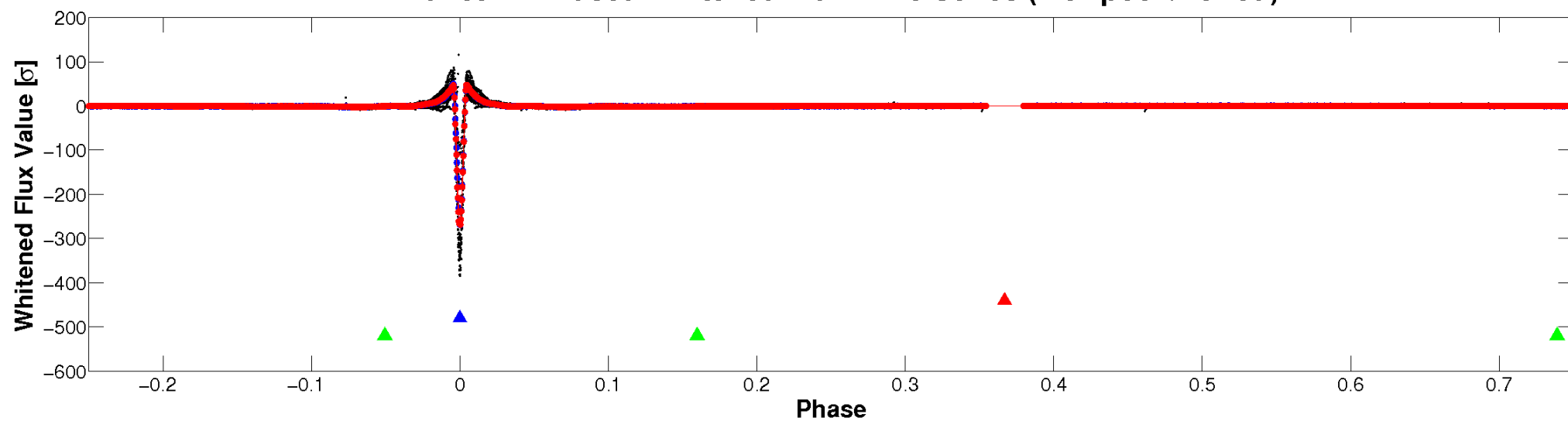


Non-Whitened Vs. Whitened Light Curve

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

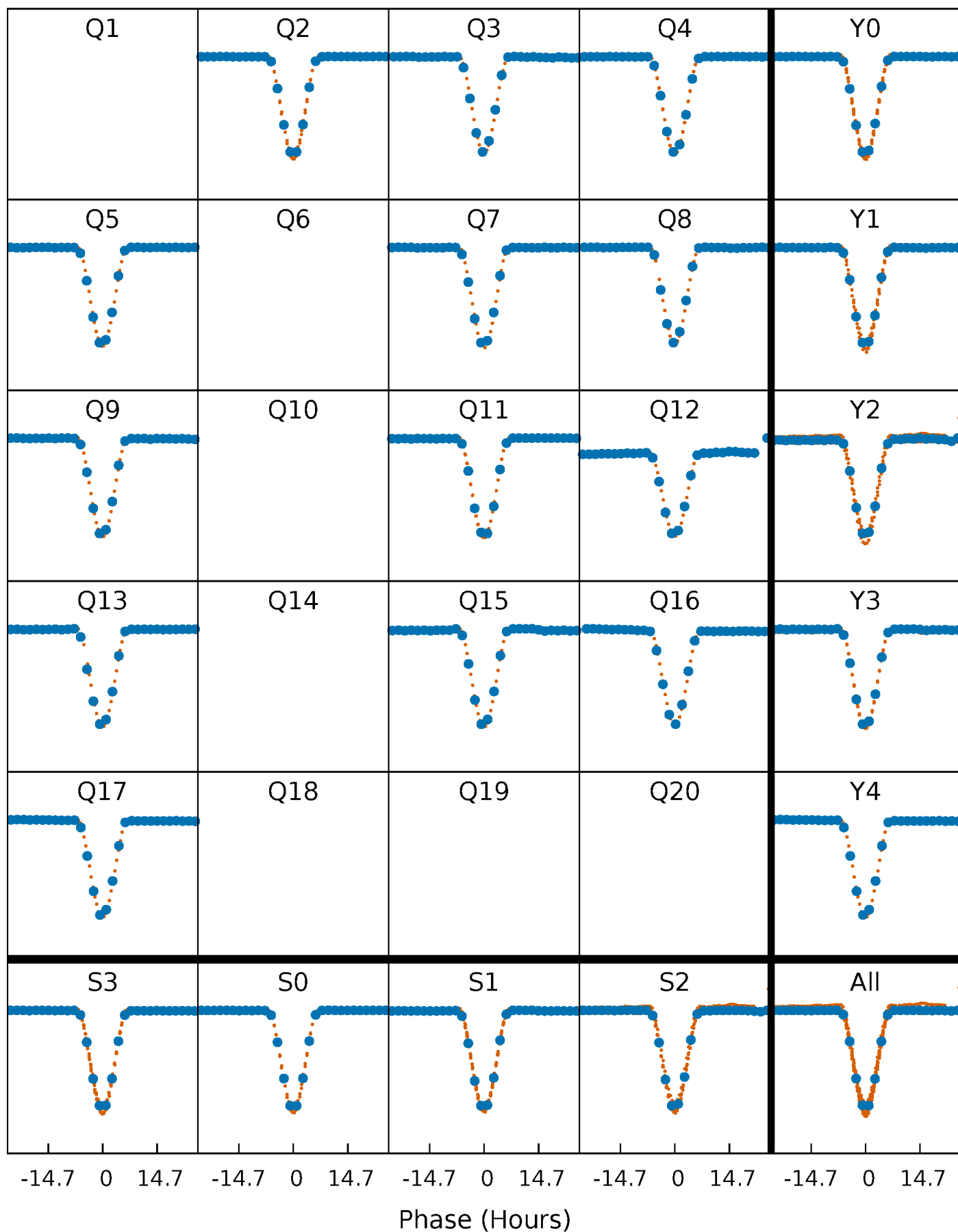


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



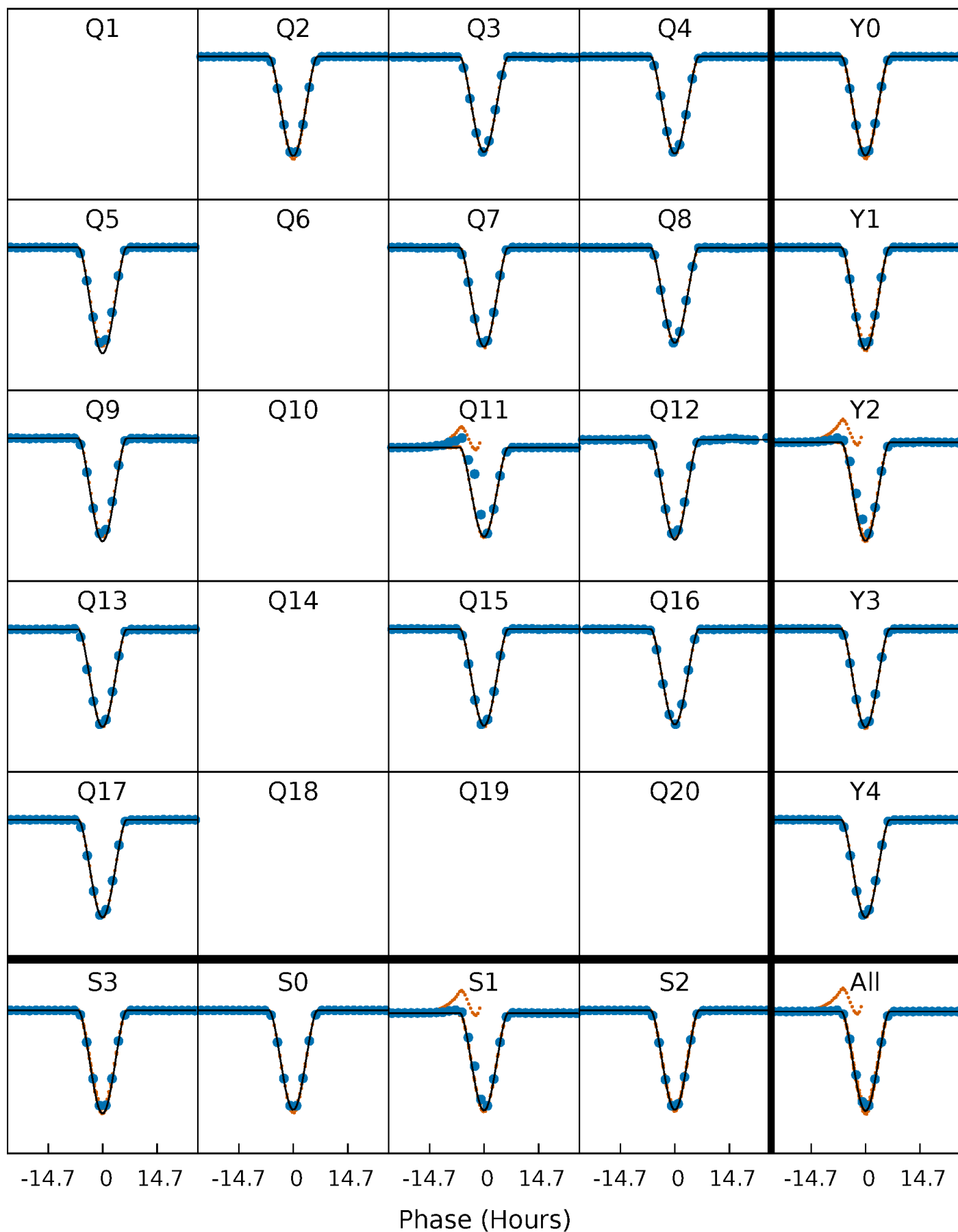
PDC Quarter-Phased Transit Curves

TCE 004375101-02 P= 61.259563 Days $T_0=179.481273$ (BKJD)



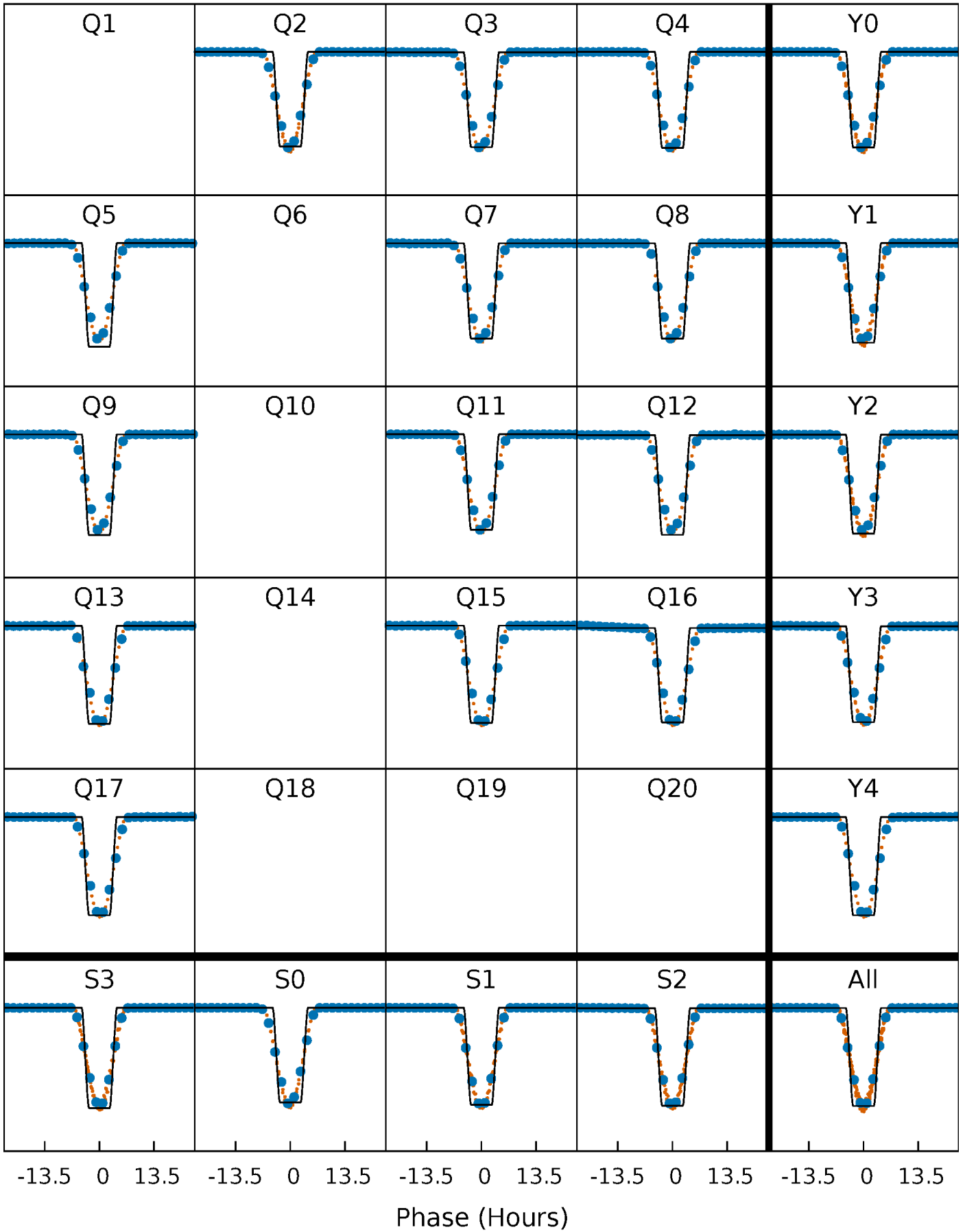
DV Quarter-Phased Transit Curves

TCE 004375101-02 P= 61.259563 Days $T_0=179.481273$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

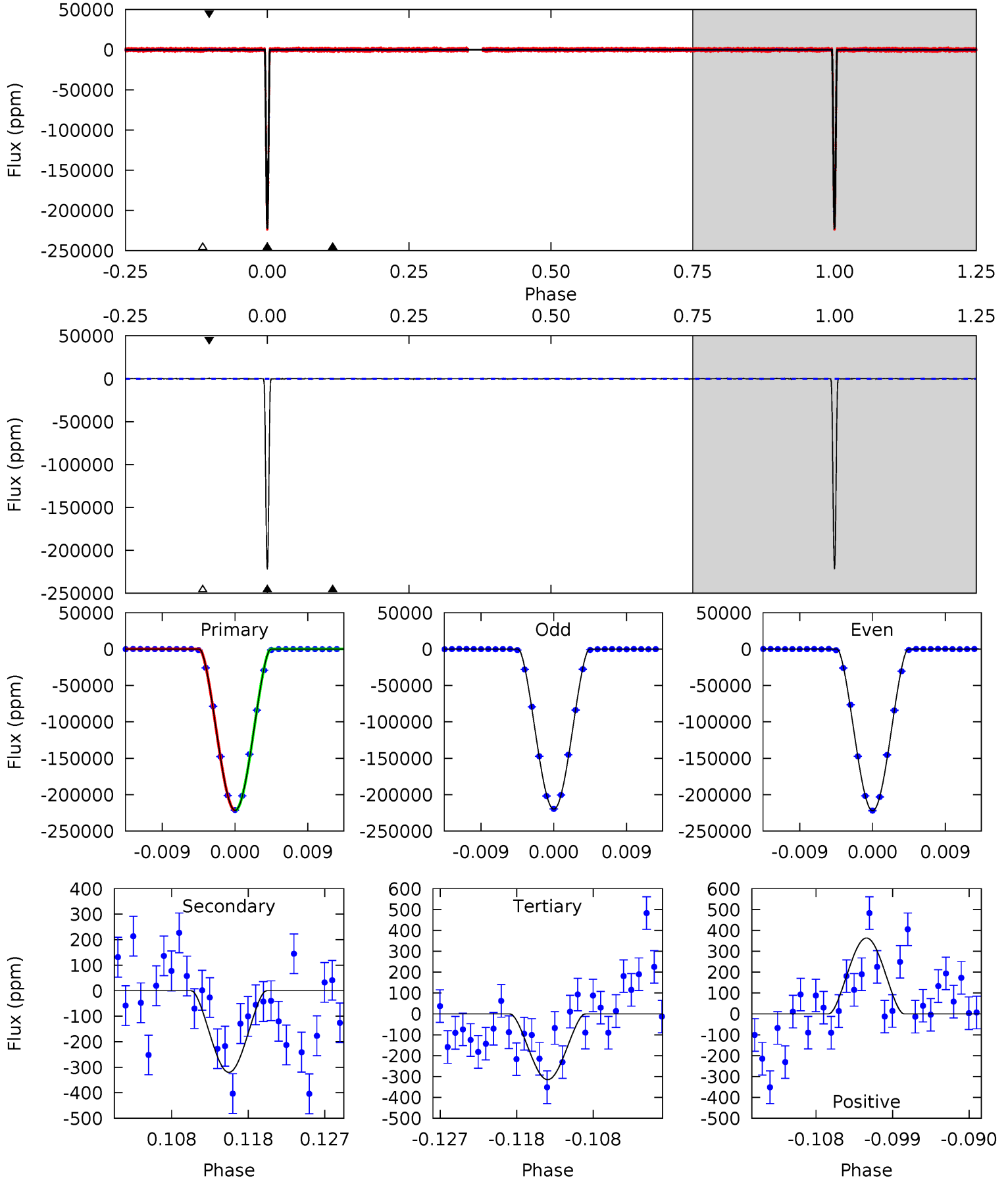
TCE 004375101-02 P= 61.258912 Days $T_0=179.488036$ (BKJD)



DV Model-Shift Uniqueness Test

004375101-02, P = 61.259563 Days, E = 118.221710 Days

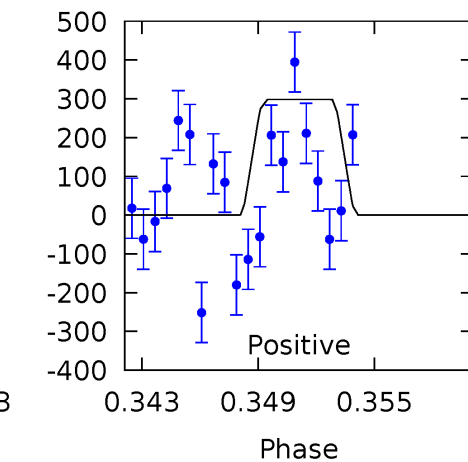
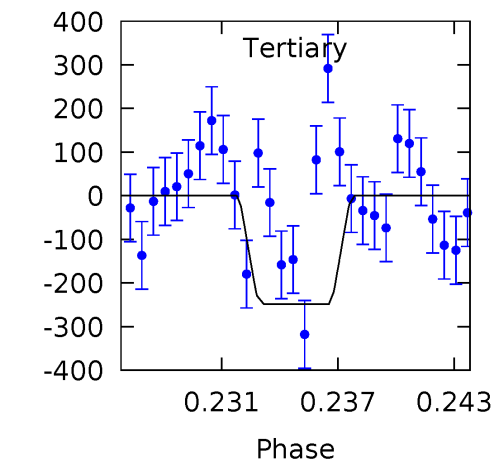
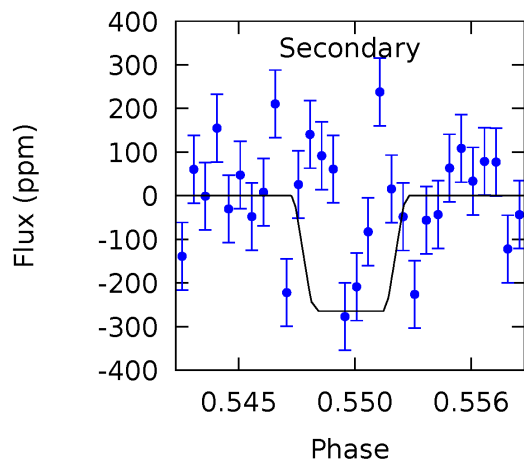
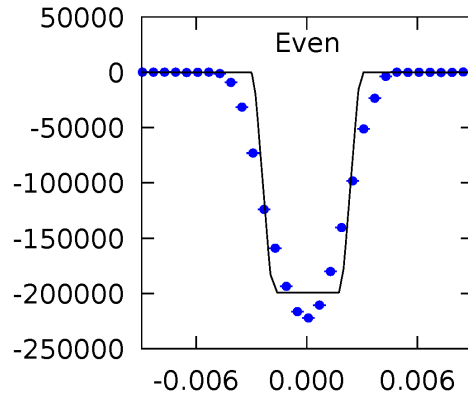
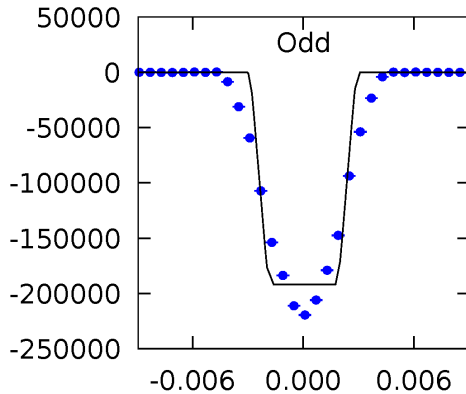
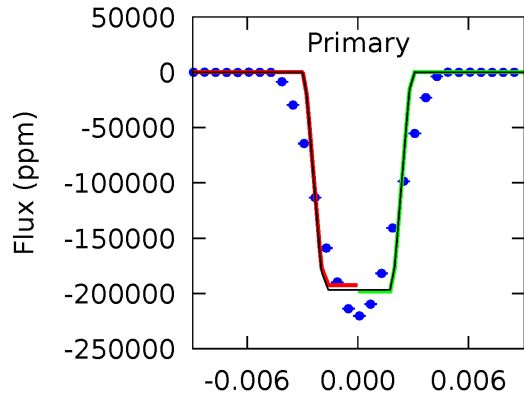
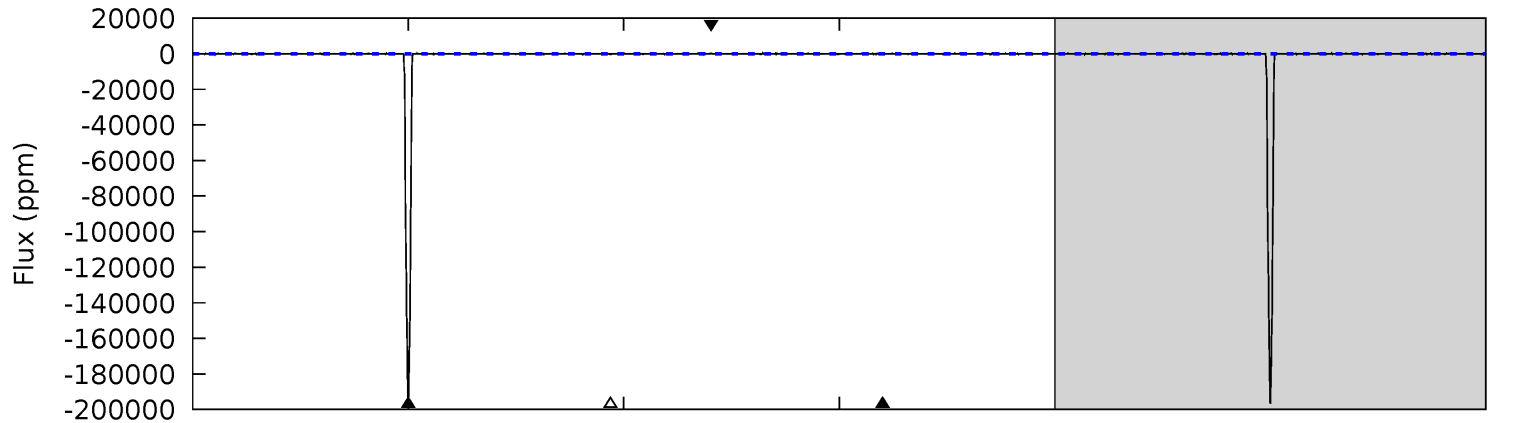
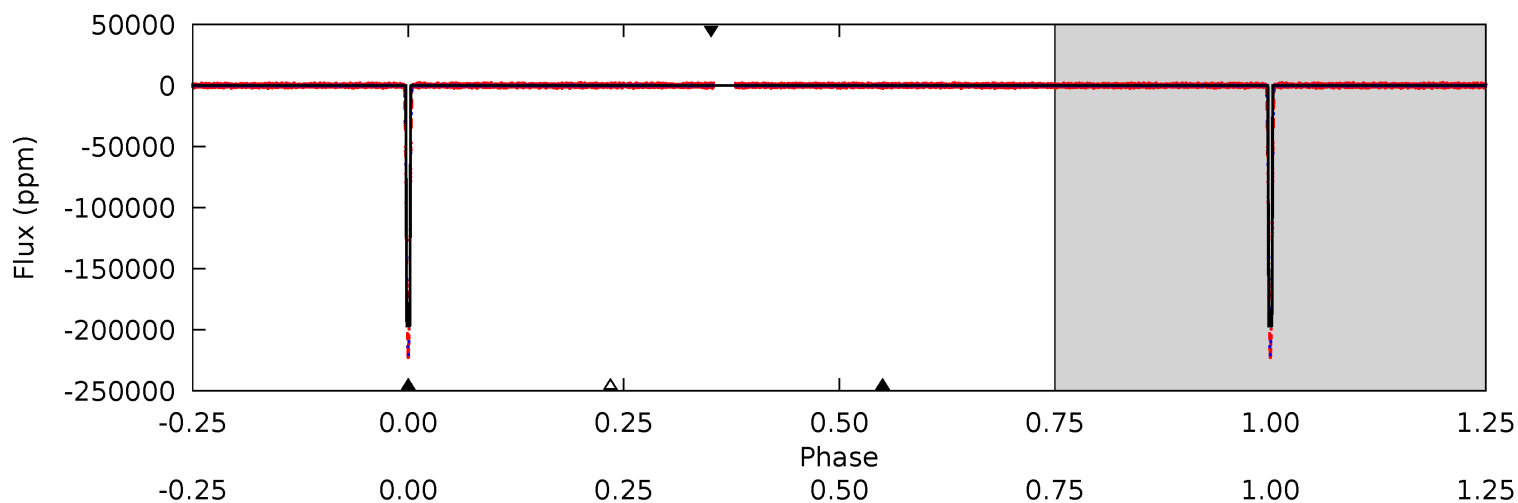
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6161	8.90	8.76	10.1	5.05	2.61	2.82	6152	6151	0.14	-1.22	28.3	0.93	0.00	2.98



Alt Model-Shift Uniqueness Test

004375101-02, P = 61.258912 Days, E = 118.229124 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3512	4.72	4.44	5.32	5.13	2.75	1.32	3507	3506	0.28	-0.60	68.7	0.99	0.00	49.7



Stellar Parameters For KIC 004375101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5912^{+159}_{-195}	$4.532^{+0.036}_{-0.204}$	$-0.180^{+0.300}_{-0.300}$	$0.889^{+0.259}_{-0.086}$	$0.980^{+0.116}_{-0.129}$	$1.966^{+0.398}_{-1.026}$
	+3%/-3%	+1%/-5%	+167%/-167%	+29%/-10%	+12%/-13%	+20%/-52%
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 004375101-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-320 ± 36	$59.75^{+8.57}_{-7.04}$	640^{+42}_{-31}	2008^{+56}_{-50}	$4.374^{+1.331}_{-1.049}$
Alt.	-265 ± 56	$47.41^{+8.51}_{-6.61}$	641^{+47}_{-30}	2074^{+70}_{-71}	$5.697^{+2.364}_{-1.722}$

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 $A_{obs} \gg 1.0$

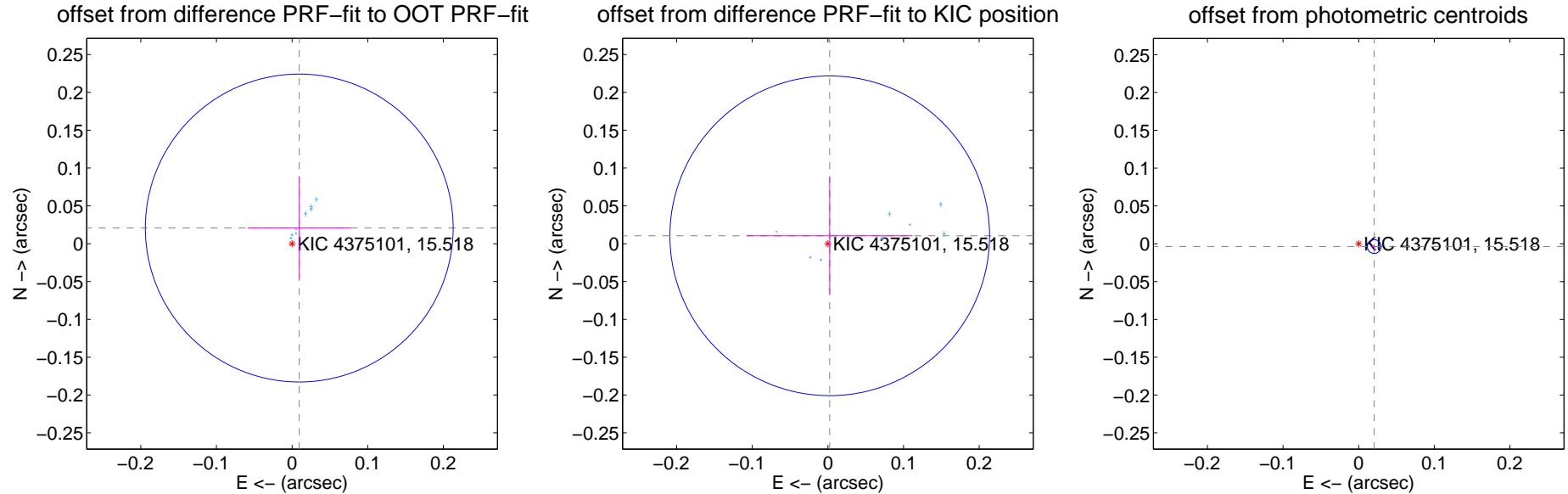
DV Centroid Data

Supplemental centroid analysis for 004375101-02. Kepler magnitude: 15.52. Transit SNR 2579.35

There are 10 quarters with good PRF difference image offsets

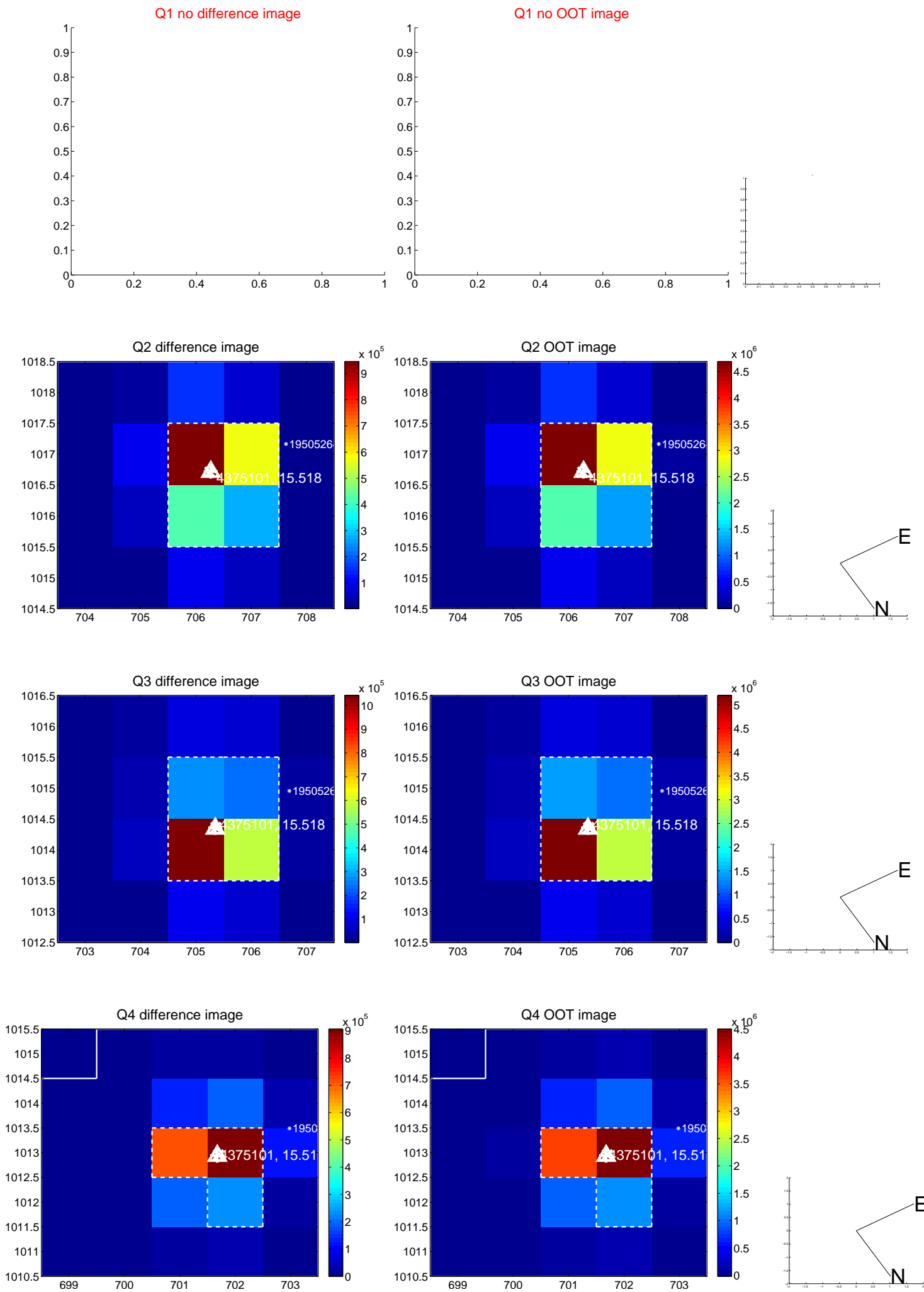
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.023 ± 0.068	0.34	-0.009 ± 0.068	0.021 ± 0.068
PRF-fit source offset from KIC position	0.011 ± 0.070	0.15	-0.002 ± 0.110	0.010 ± 0.077
photometric centroid source offset	0.02 ± 0.00	6.85	-0.02 ± 0.00	-0.00 ± 0.00

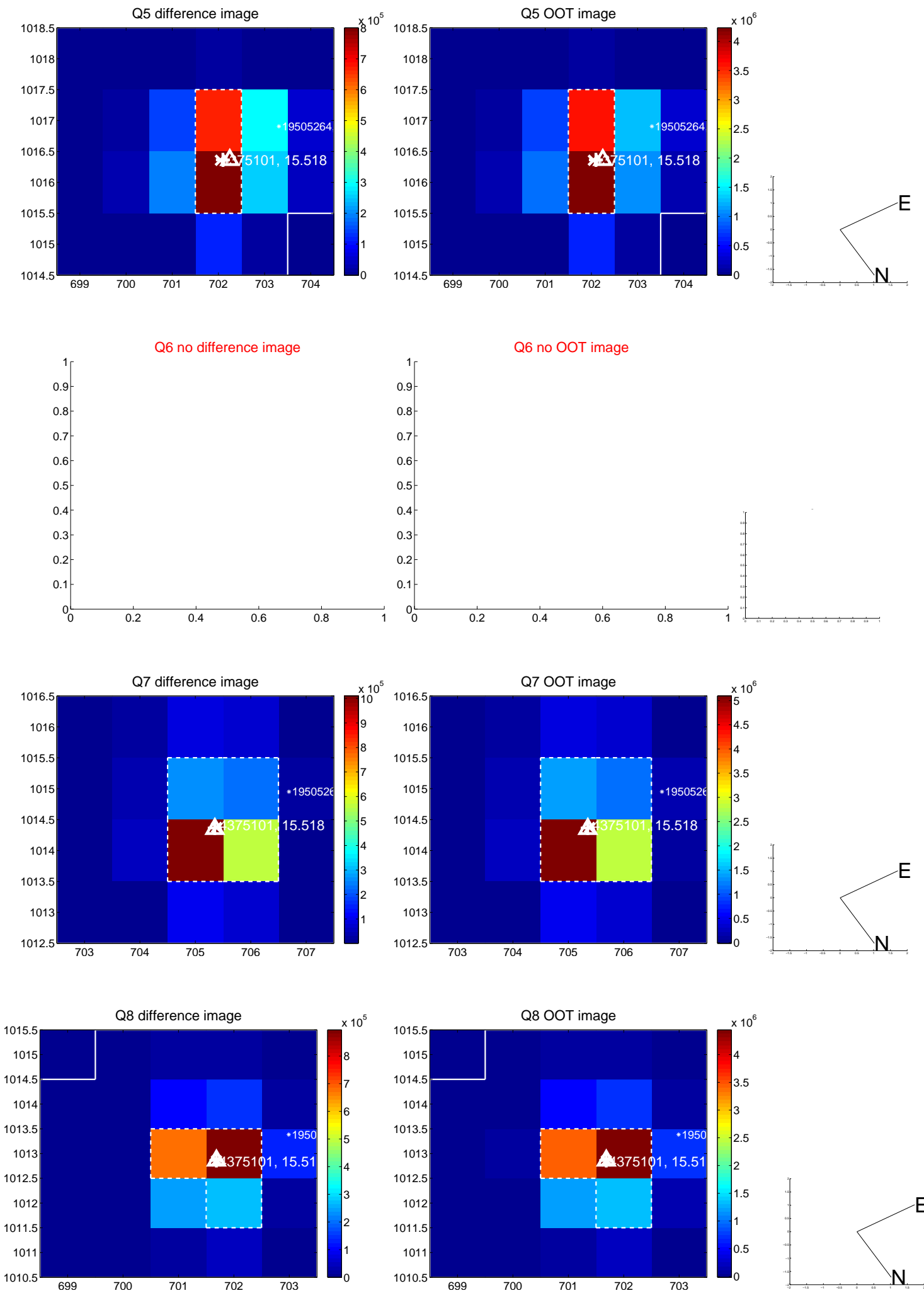


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

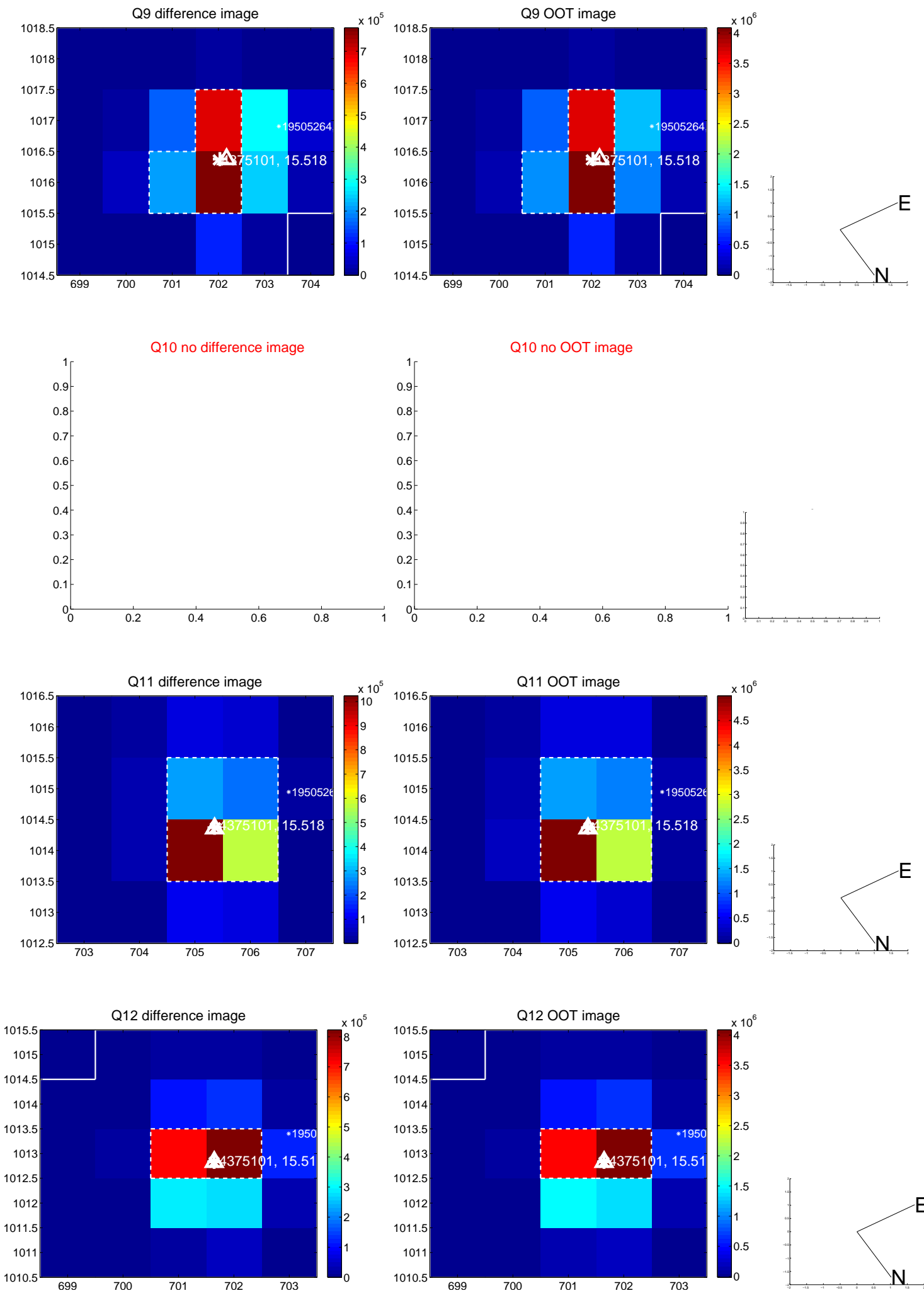
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

Q13 no difference image



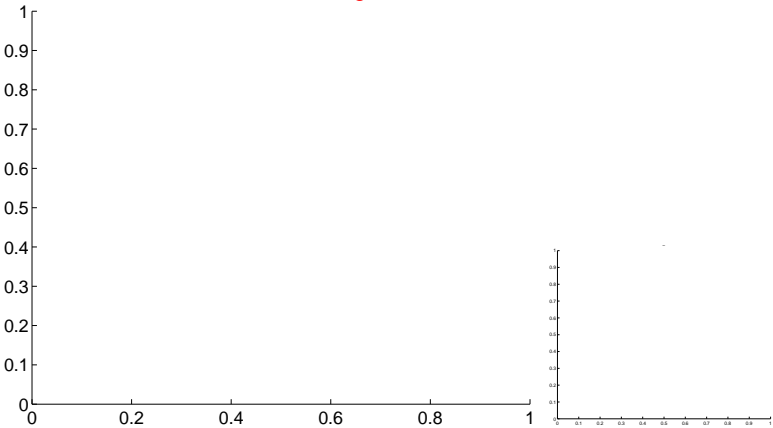
Q13 no OOT image



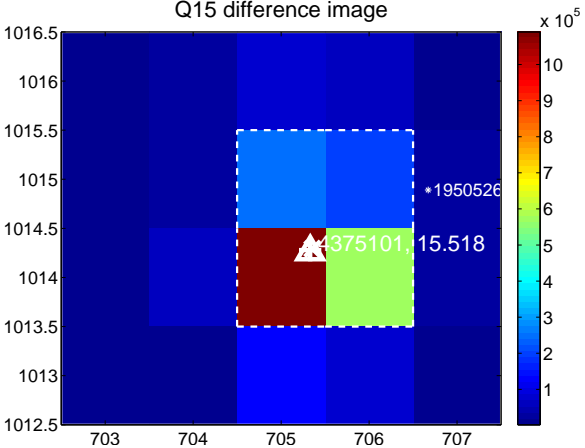
Q14 no difference image



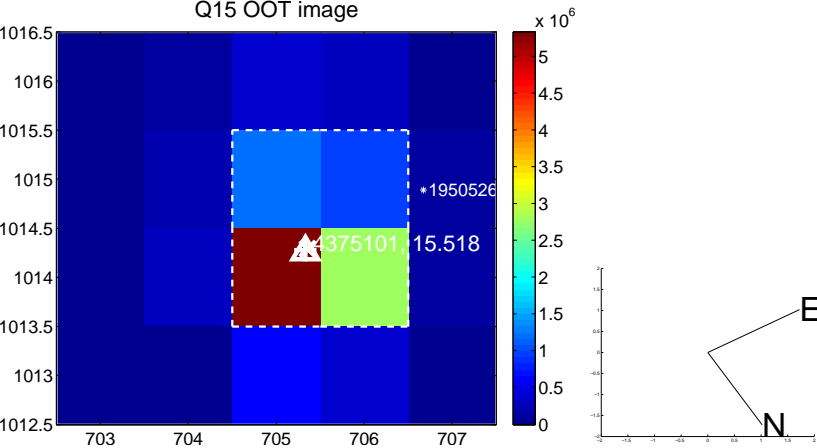
Q14 no OOT image



Q15 difference image



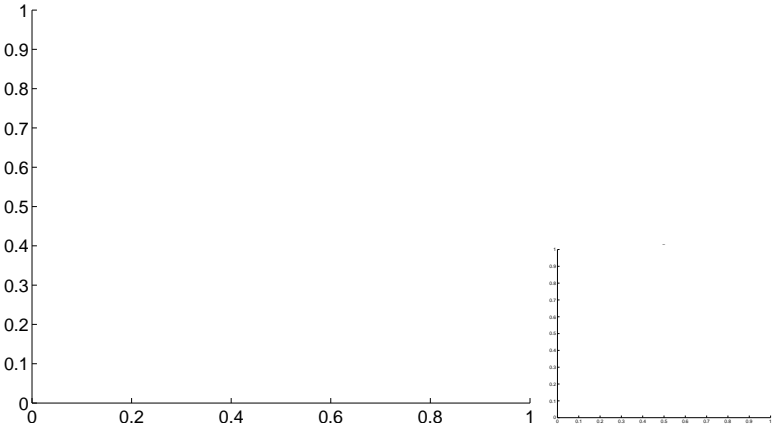
Q15 OOT image



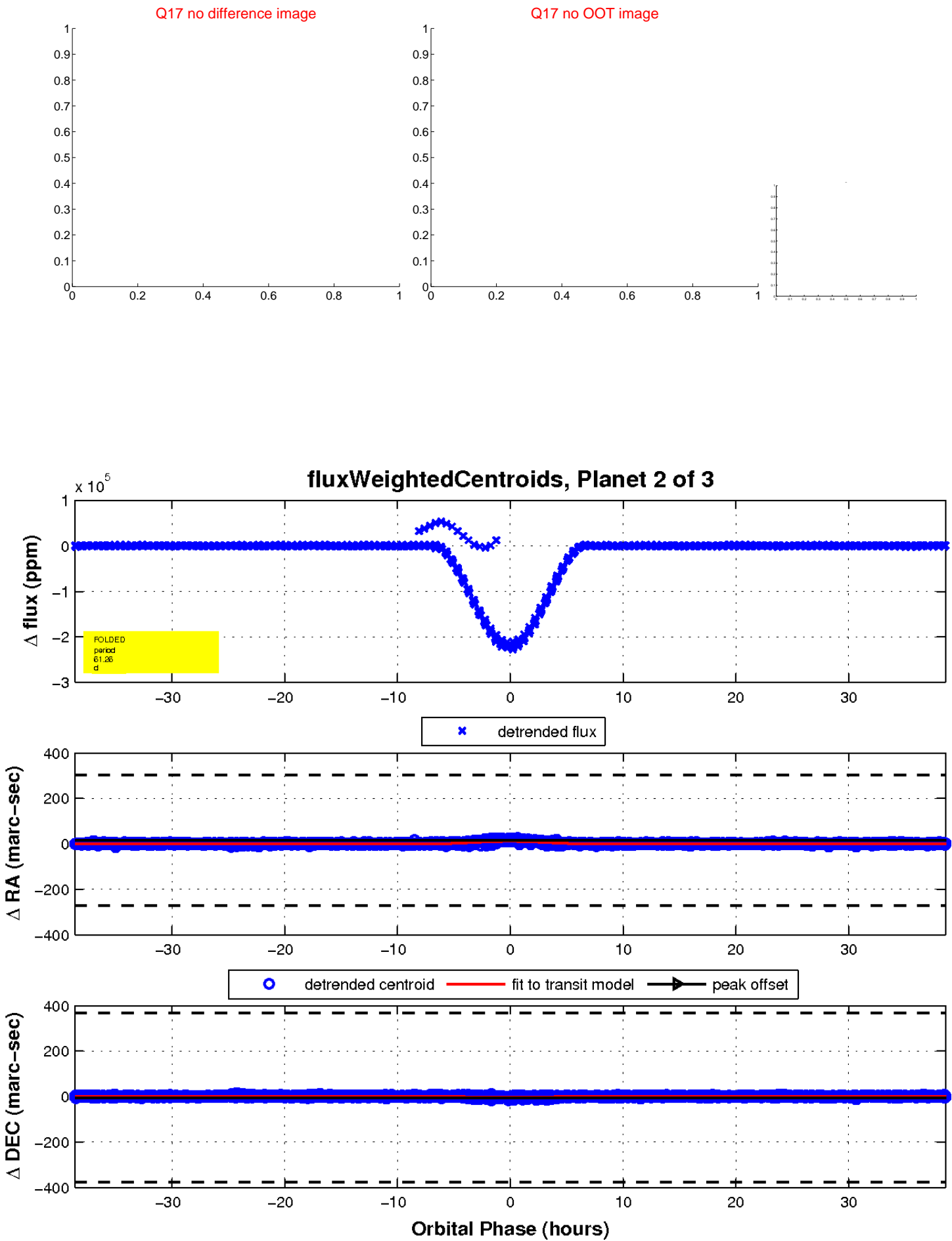
Q16 no difference image



Q16 no OOT image

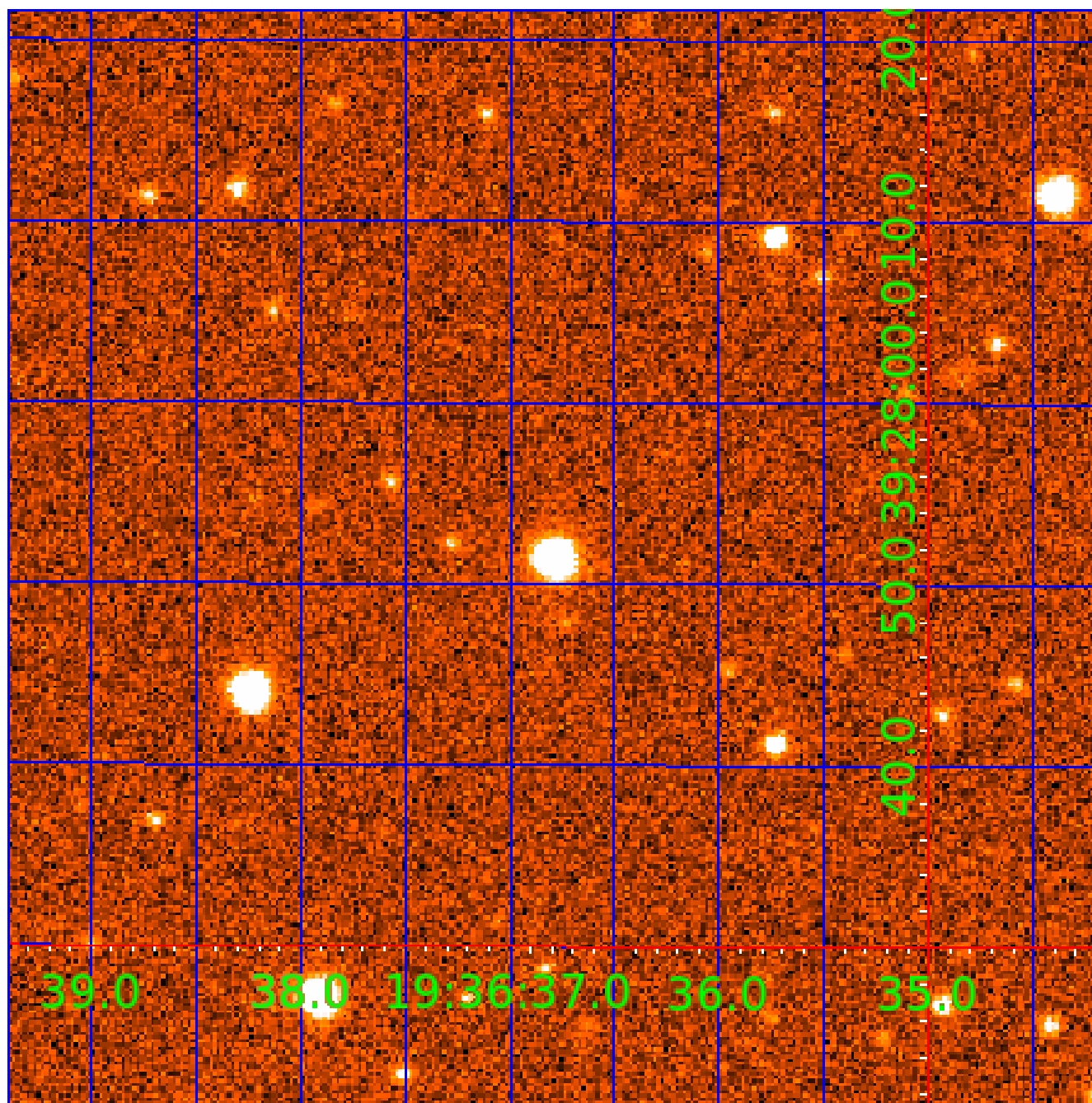


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004375101

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})
004375101-01	OBS	6411.01	61.259576	140.698862	234750.2	12.274	3383.6	1850.7	0.89	5912	52.31	9.47
004375101-02	OBS	No	61.259563	179.481273	221090.9	12.874	3448.5	2579.4	0.89	5912	57.34	9.47
004375101-03	OBS	No	415.930554	373.051003	1222.2	20.001	8.6	9.7	0.89	5912	3.32	0.74

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004375101-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE
004375101-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004375101-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

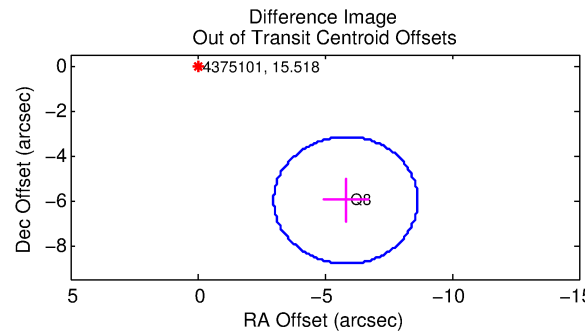
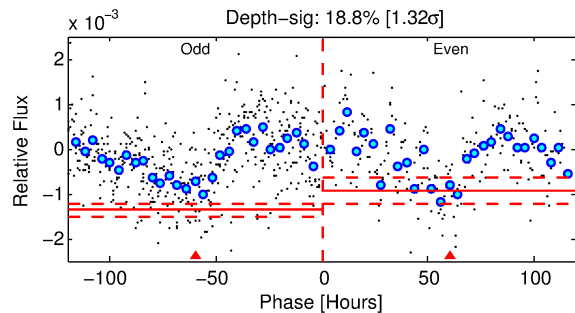
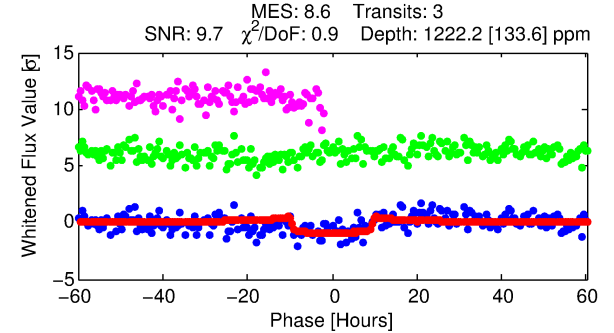
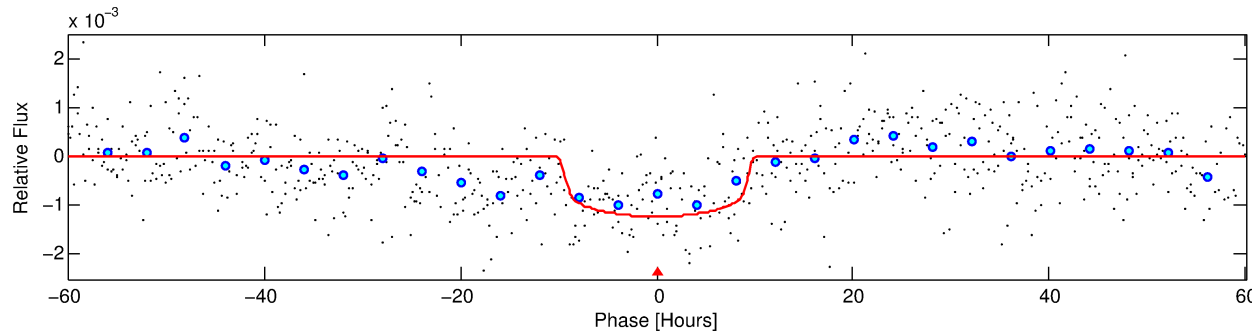
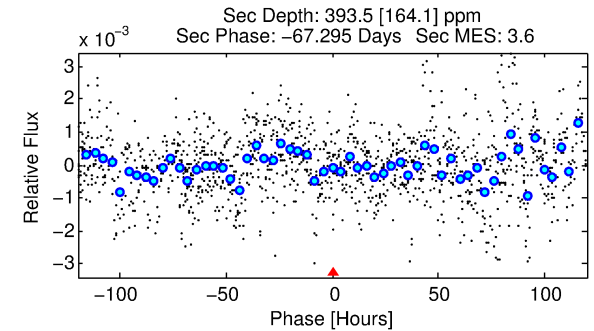
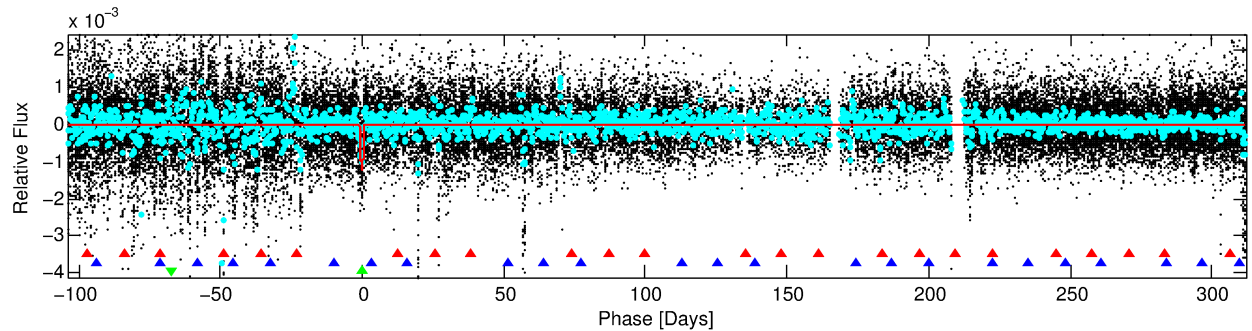
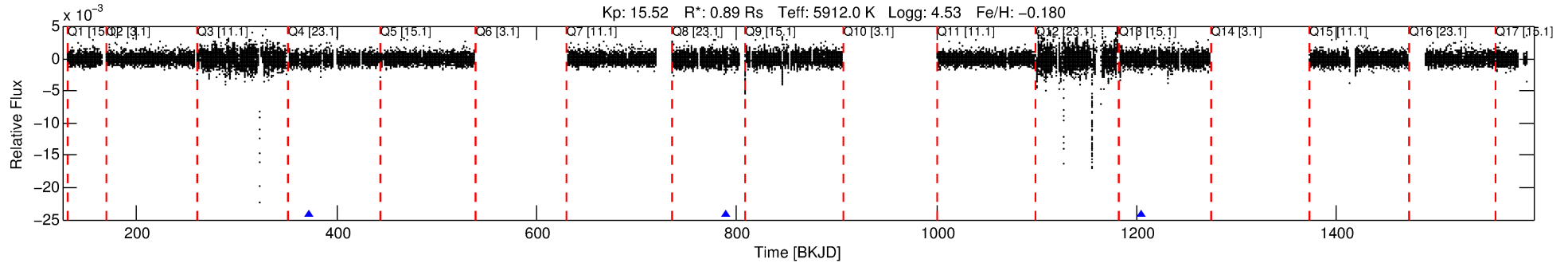
Ephemeris Match Information For 004375101-03

No Significant Match Found

DV One-Page Summary

KIC: 4375101 Candidate: 3 of 3 Period: 415.931 d
KOI: K06411 Corr: No Ephemeris Match

Kp: 15.52 R*: 0.89 Rs Teff: 5912.0 K Logg: 4.53 Fe/H: -0.180



DV Fit Results:

Period = 415.93055 [0.01408] d
Epoch = 373.0510 [0.0156] BKJD
Rp/R* = 0.0342 [0.0042]
a/R* = 121.48 [60.63]
b = 0.70 [0.37]
Seff = 0.74 [0.29]
Teq = 236 [23] K
Rp = 3.32 [1.05] Re
a = 1.0839 [0.2704] AU
Ag = 23126.05 [14090.12] [1.64σ]
Teffp = 4504 [566] K [7.53σ]

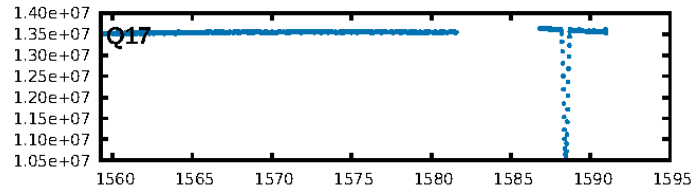
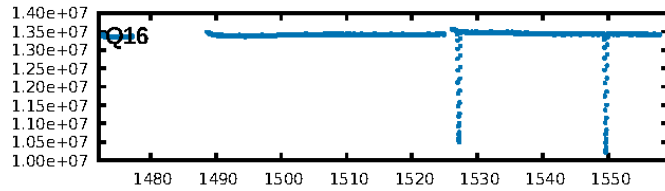
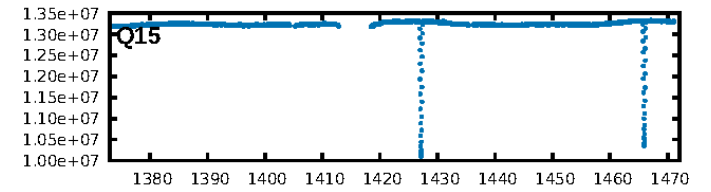
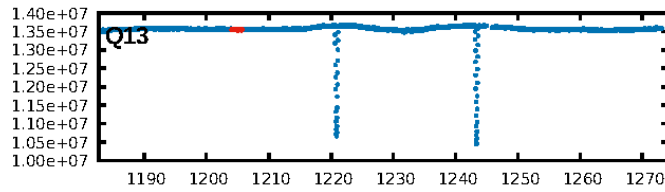
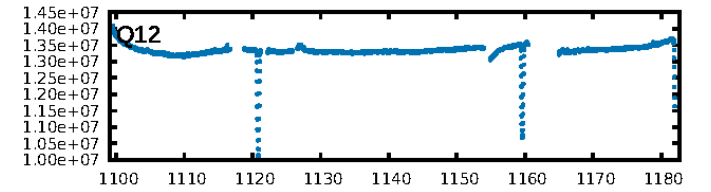
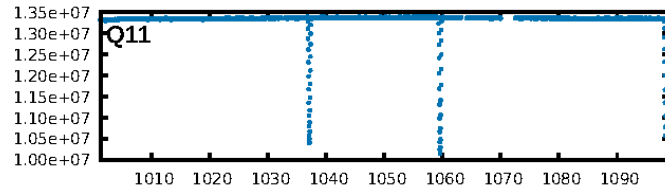
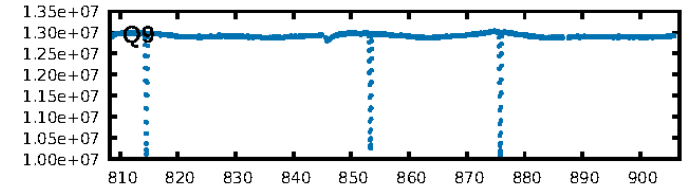
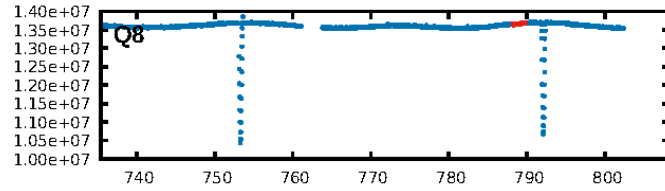
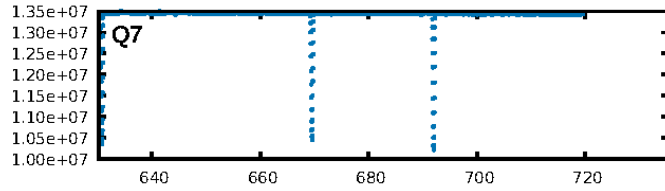
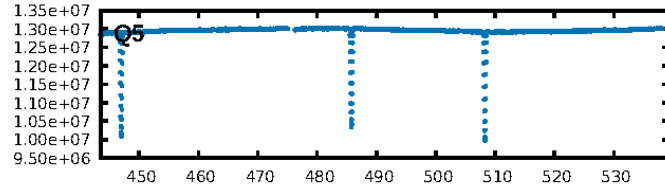
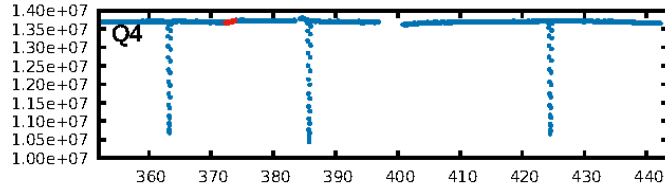
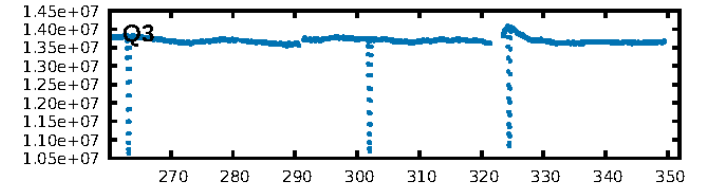
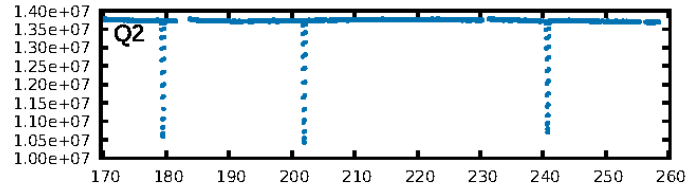
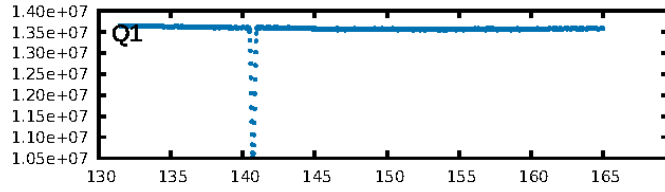
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [362.73σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.84e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 346.1
Centroid-sig: 8.2%
Centroid-so: 1.052 arcsec [1.44σ]
OotOffset-rm: 8.366 arcsec [8.87σ]
KicOffset-rm: 8.382 arcsec [8.88σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [1/1]

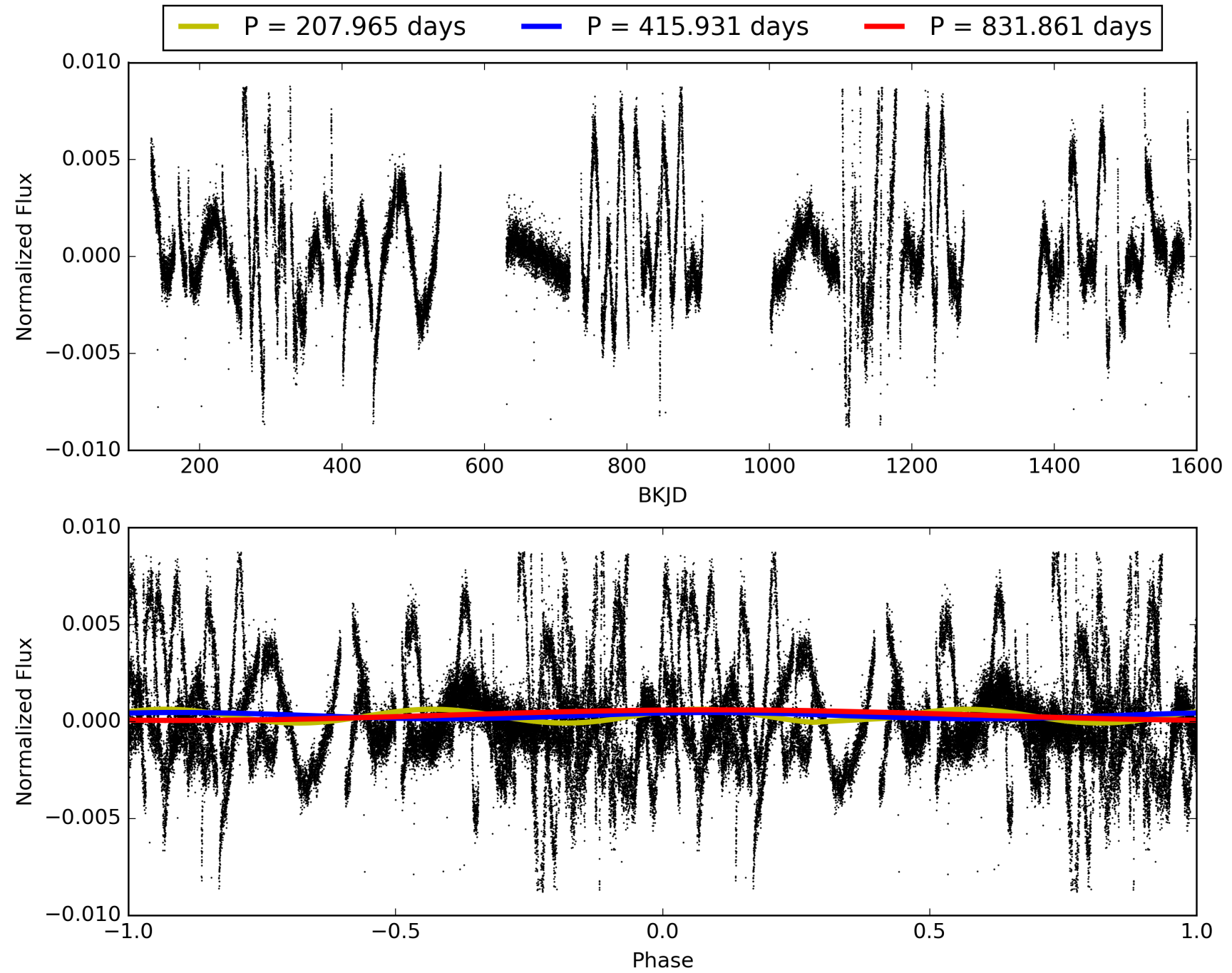
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:26:13 Z

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

TCE 004375101-03, PDC Light Curves

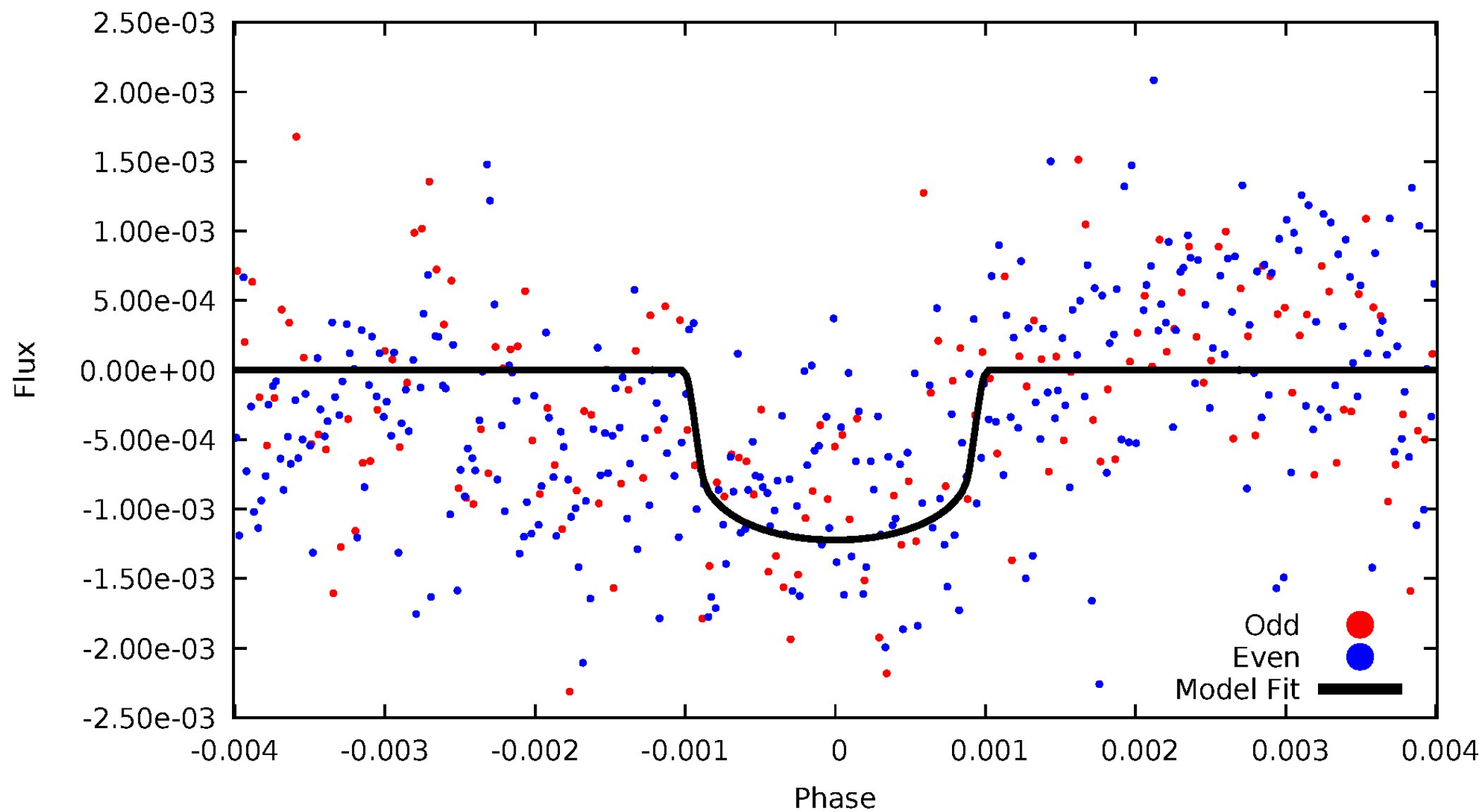


TCE 004375101-03



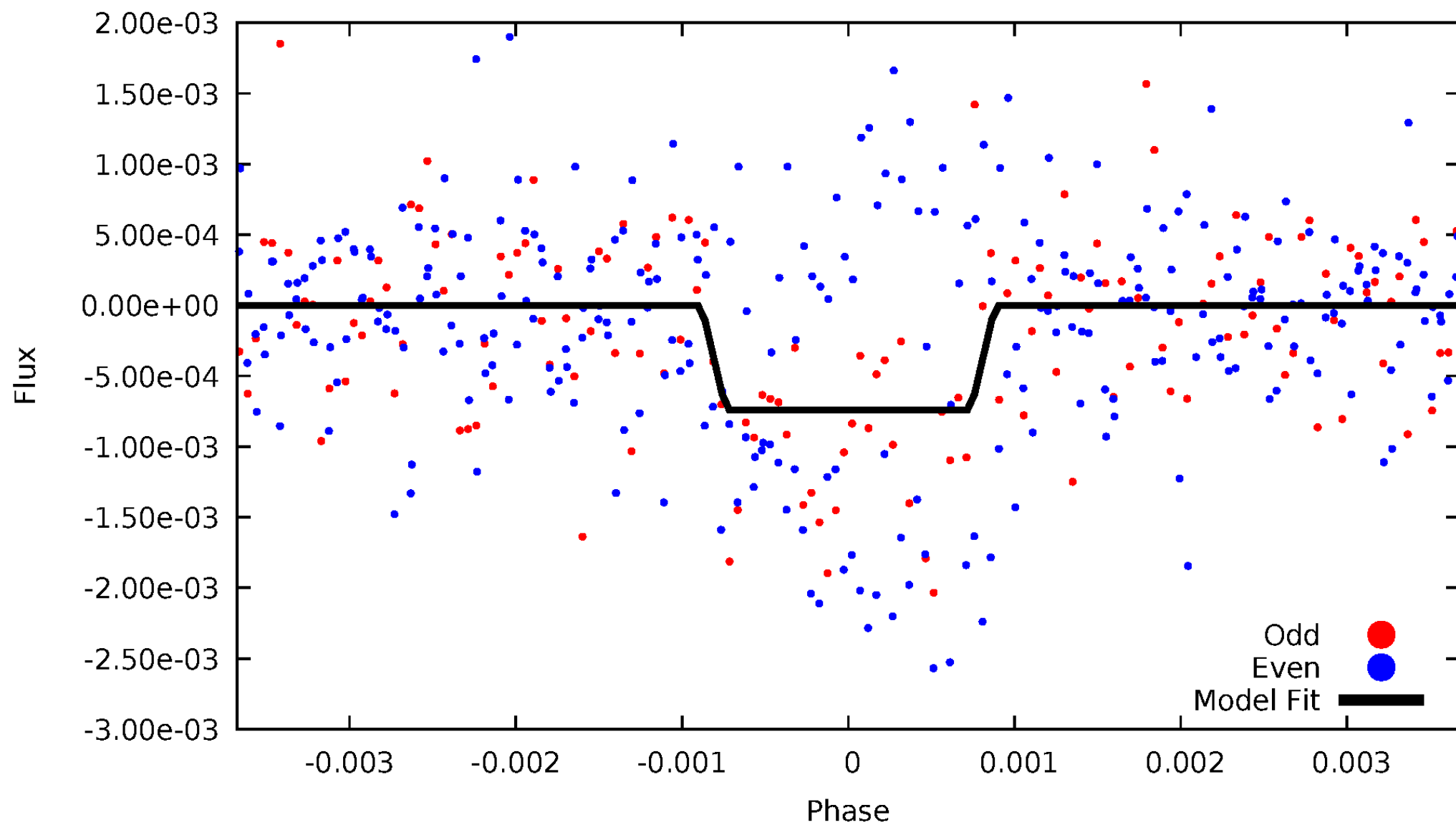
DV Odd/Even

TCE 004375101-03



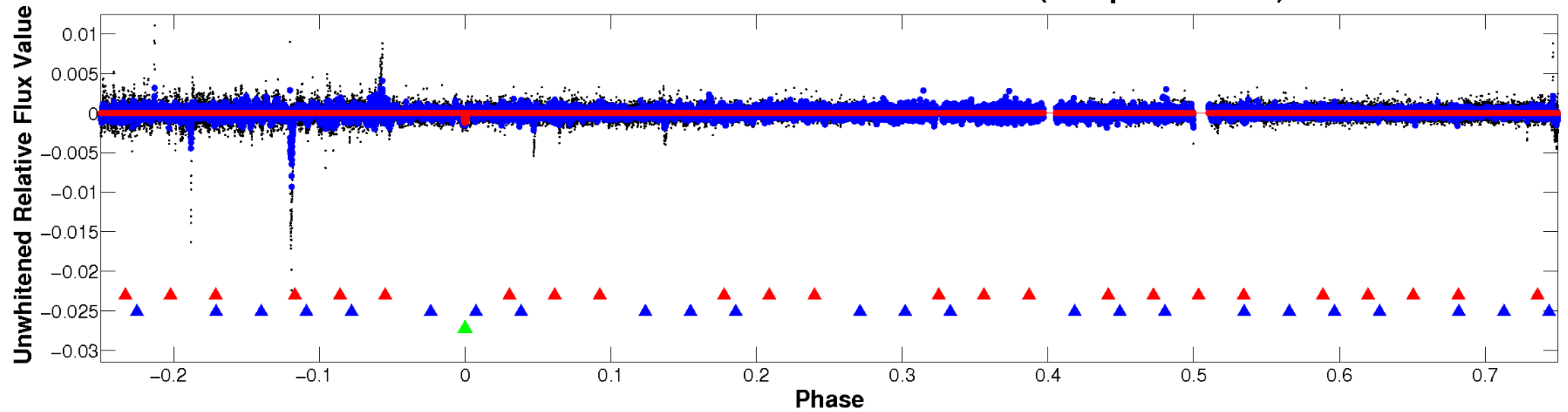
ALT Odd/Even

TCE 004375101-03

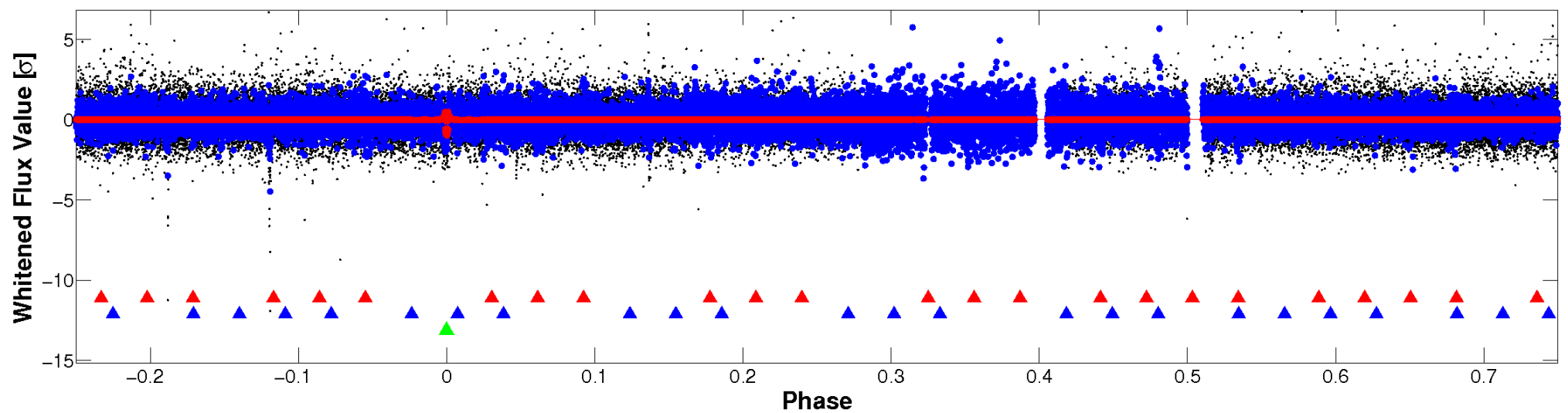


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

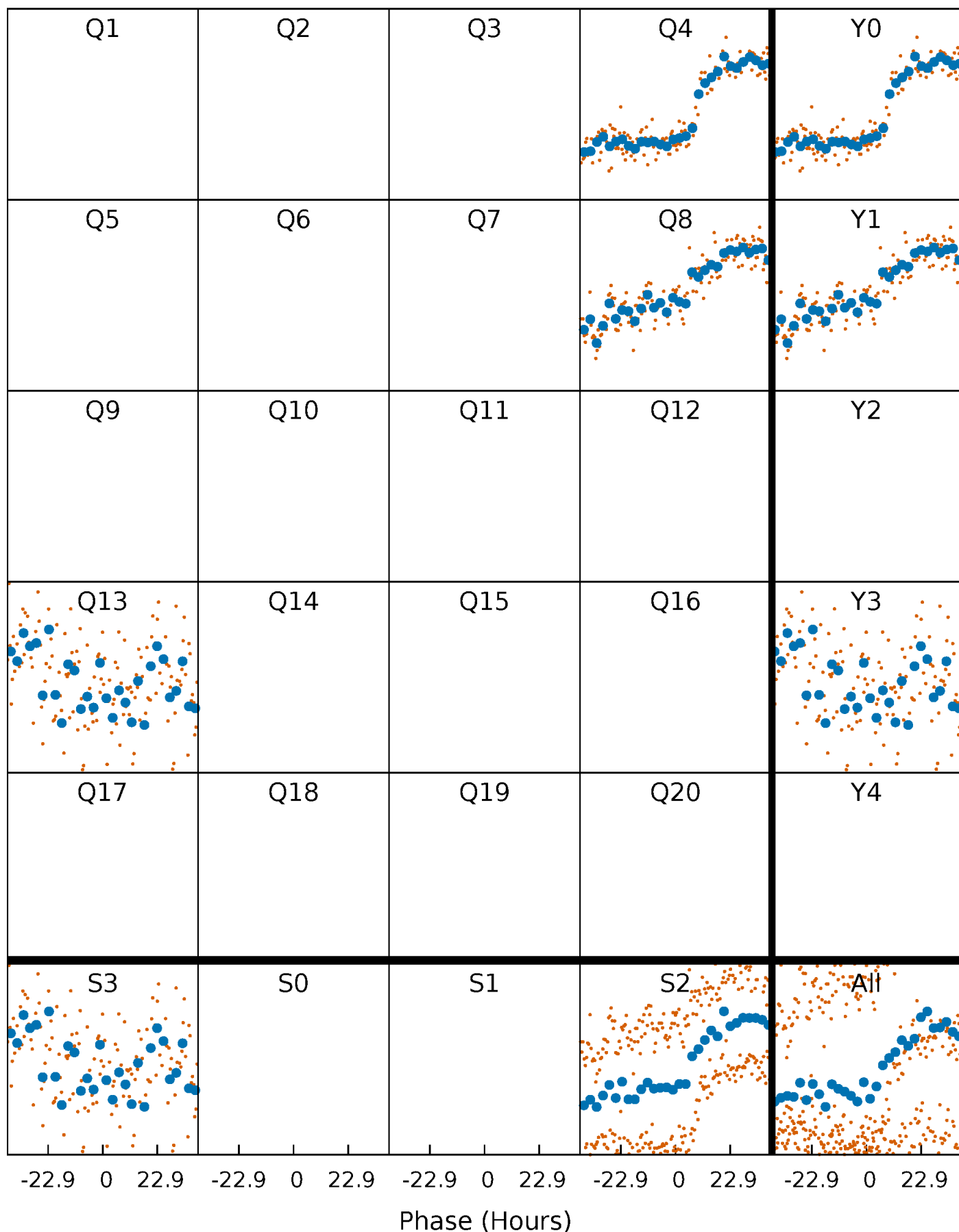


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



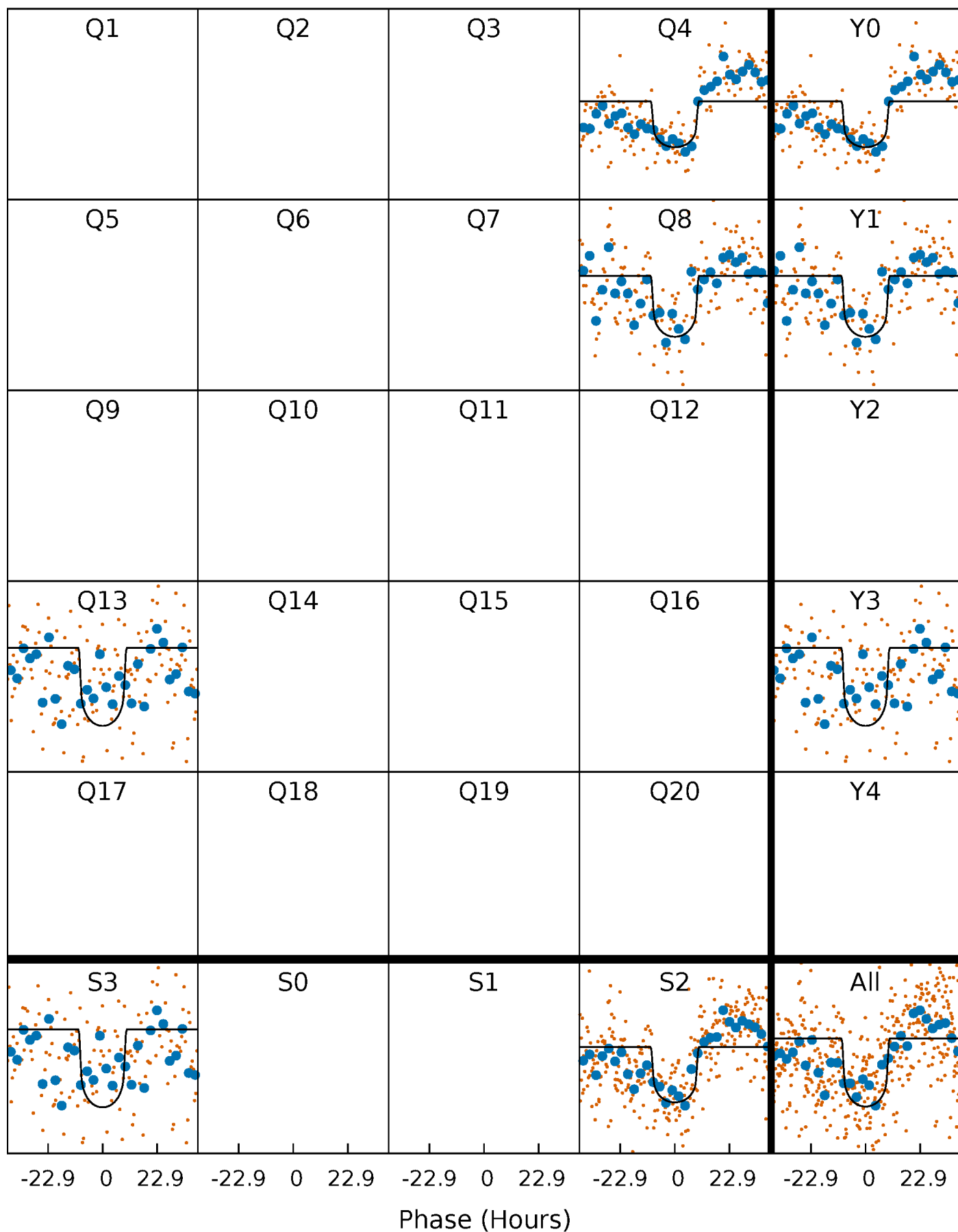
PDC Quarter-Phased Transit Curves

TCE 004375101-03 P=415.930554 Days $T_0=373.051003$ (BKJD)



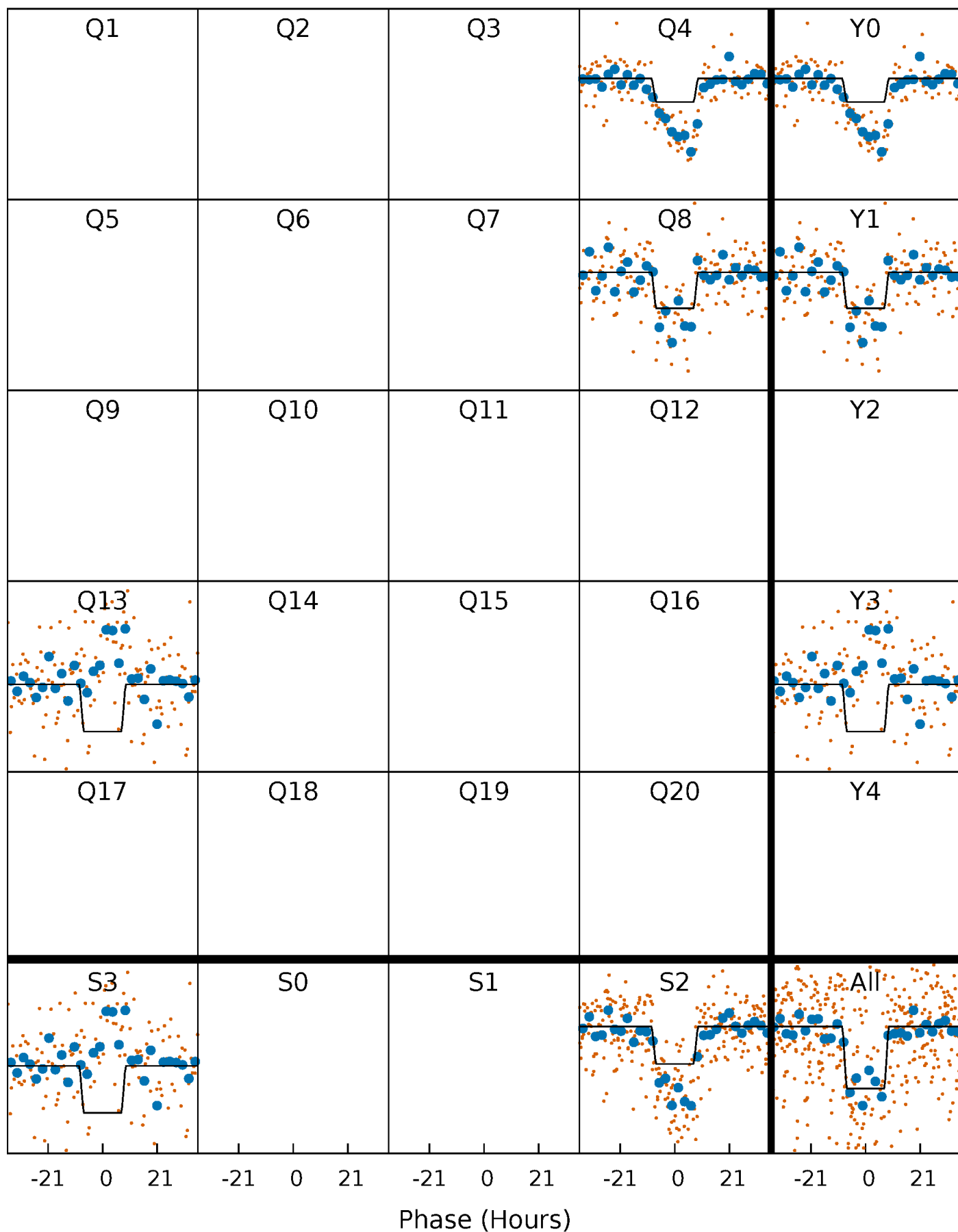
DV Quarter-Phased Transit Curves

TCE 004375101-03 $P=415.930554$ Days $T_0=373.051003$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

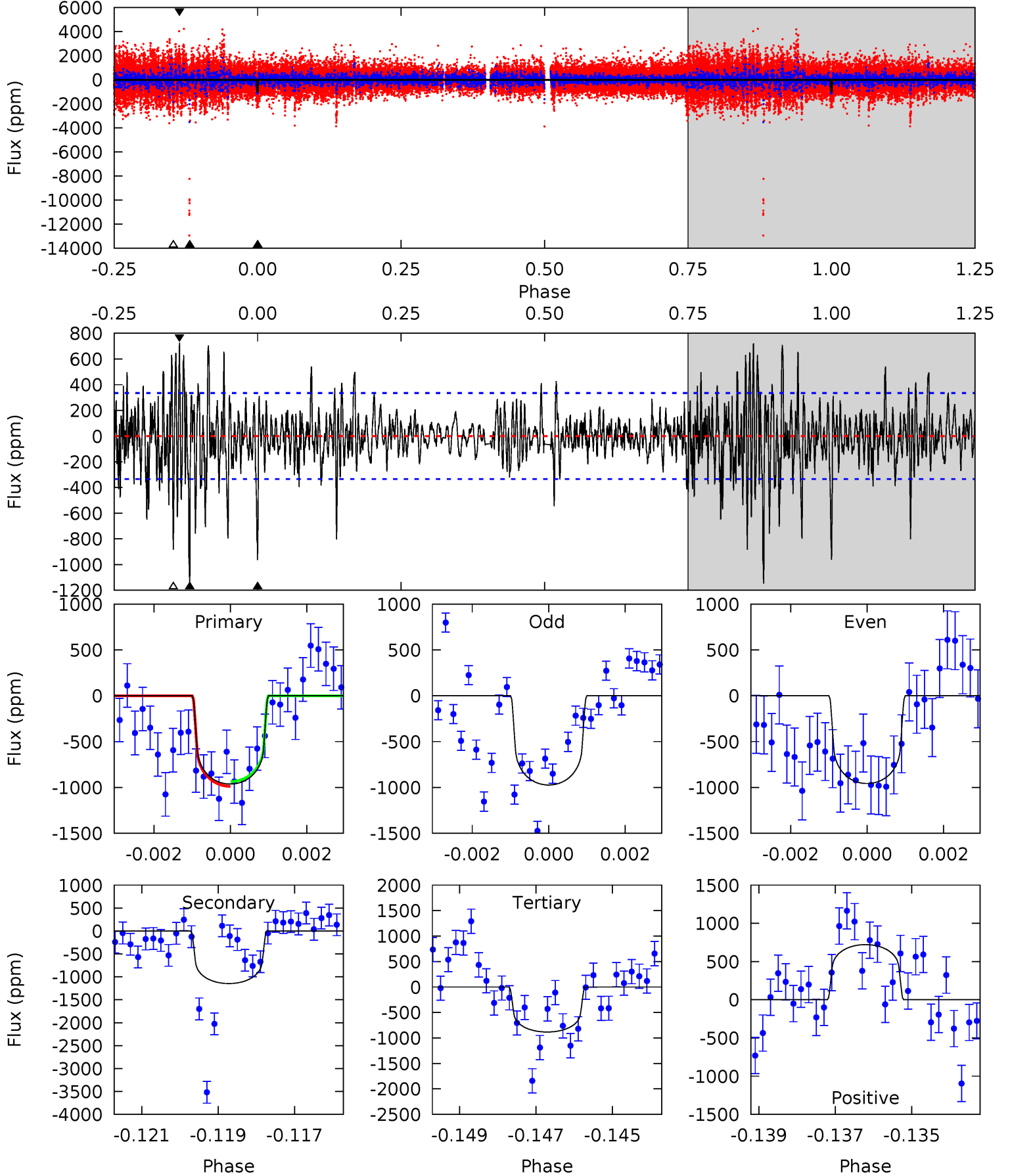
TCE 004375101-03 $P=415.884247$ Days $T_0=373.025518$ (BKJD)



DV Model-Shift Uniqueness Test

004375101-03, P = 415.930554 Days, E = 373.051003 Days

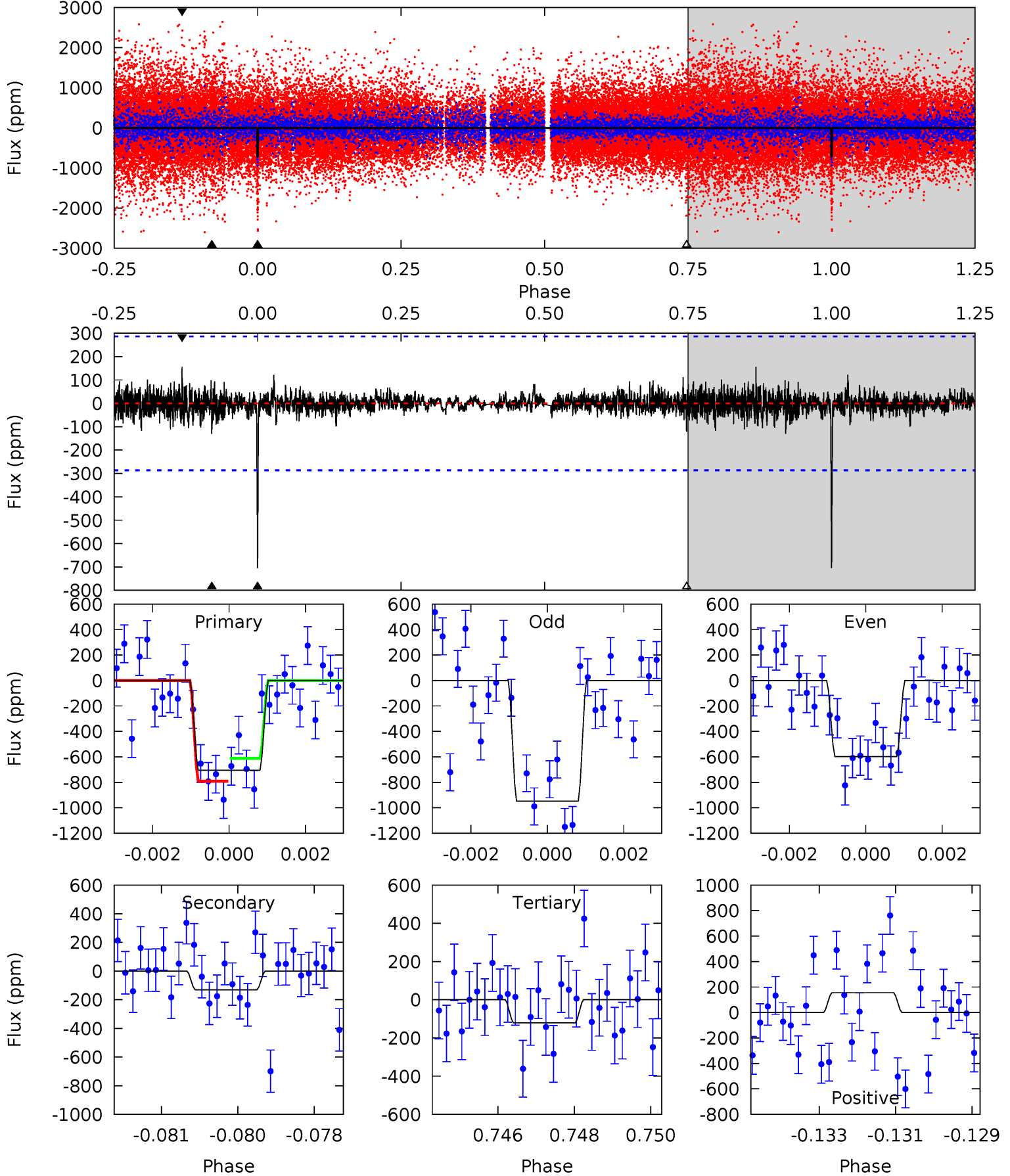
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	18.2	14.0	11.5	5.32	3.08	2.90	1.26	3.83	4.18	6.75	0.12	0.99	0.39	0.42



Alt Model-Shift Uniqueness Test

004375101-03, P = 415.884247 Days, E = 373.025518 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	2.44	2.26	2.90	5.35	3.13	0.52	10.9	10.2	0.18	-0.46	3.14	0.78	0.18	1.69



Stellar Parameters For KIC 004375101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5912^{+159}_{-195}	$4.532^{+0.036}_{-0.204}$	$-0.180^{+0.300}_{-0.300}$	$0.889^{+0.259}_{-0.086}$	$0.980^{+0.116}_{-0.129}$	$1.966^{+0.398}_{-1.026}$
	+3%/-3%	+1%/-5%	+167%/-167%	+29%/-10%	+12%/-13%	+20%/-52%
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 004375101-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1147 ± 63	$3.49^{+0.63}_{-0.55}$	339^{+22}_{-17}	5878^{+491}_{-364}	60172^{+21715}_{-16136}
Alt.	-131 ± 54	$2.82^{+0.58}_{-0.53}$	339^{+23}_{-16}	4066^{+450}_{-387}	10112^{+7565}_{-4921}

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

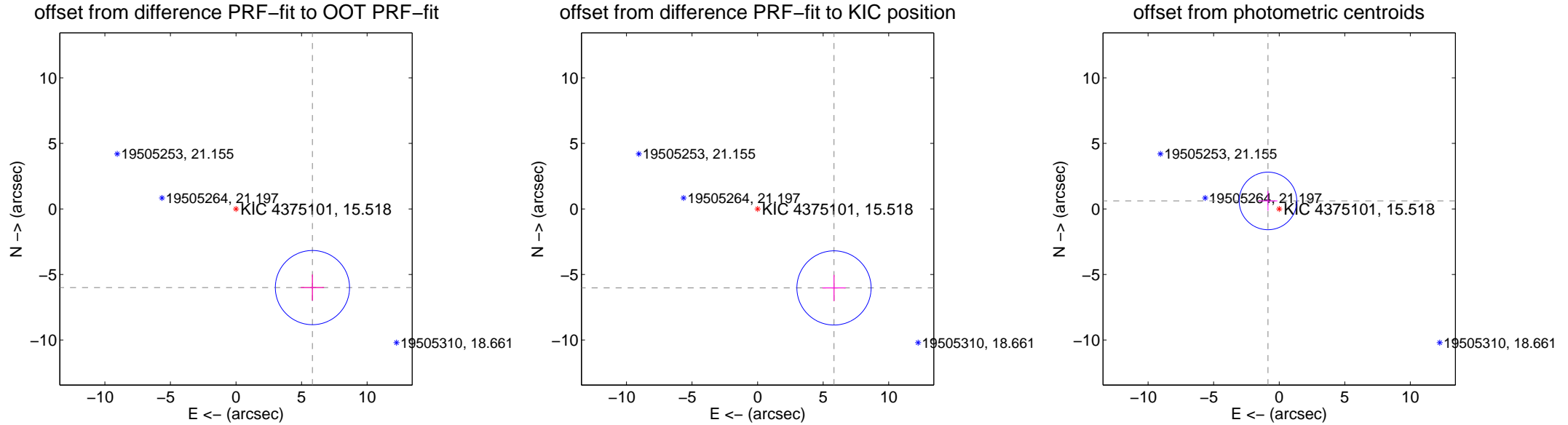
DV Centroid Data

Supplemental centroid analysis for 004375101-03. Kepler magnitude: 15.52. Transit SNR 9.66

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.366 ± 0.943	8.87	-5.830 ± 0.884	-6.000 ± 0.996
PRF-fit source offset from KIC position	8.382 ± 0.943	8.88	-5.827 ± 0.884	-6.026 ± 0.996
photometric centroid source offset	1.05 ± 0.73	1.44	0.86 ± 0.72	0.61 ± 0.75

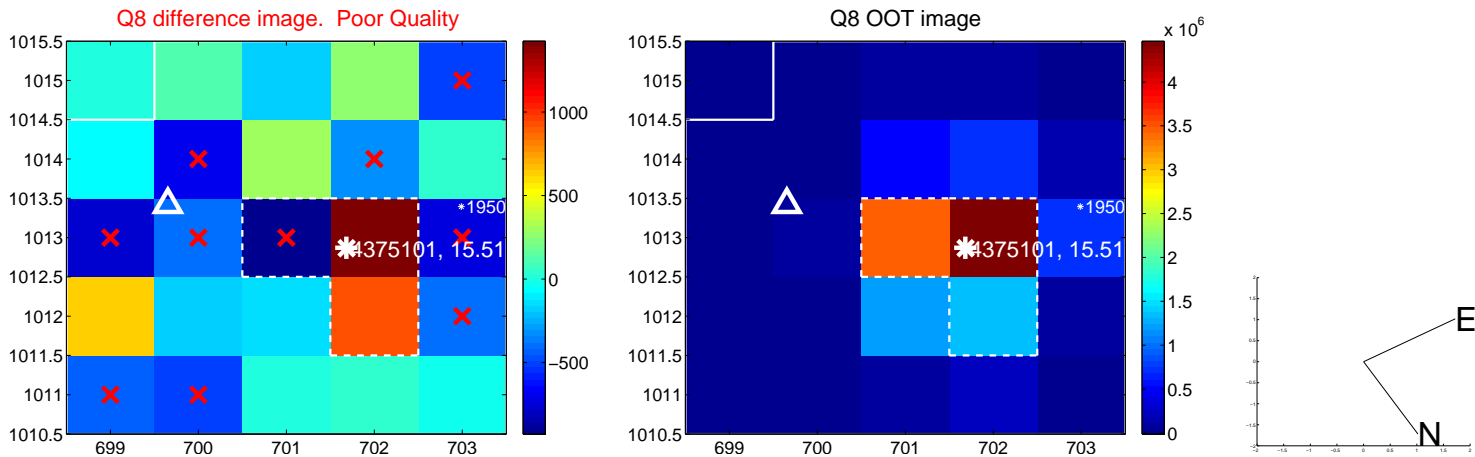
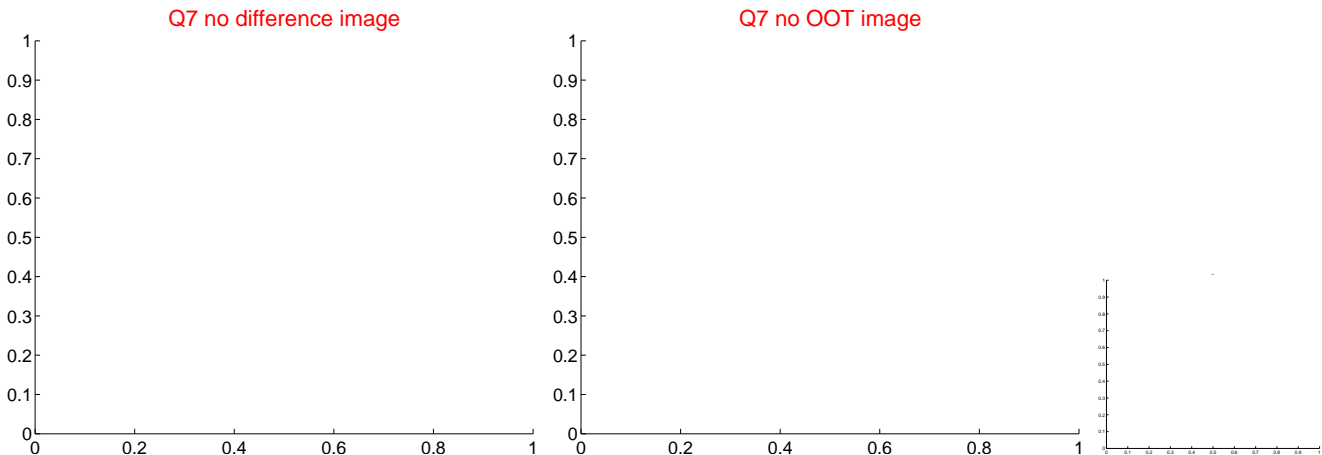
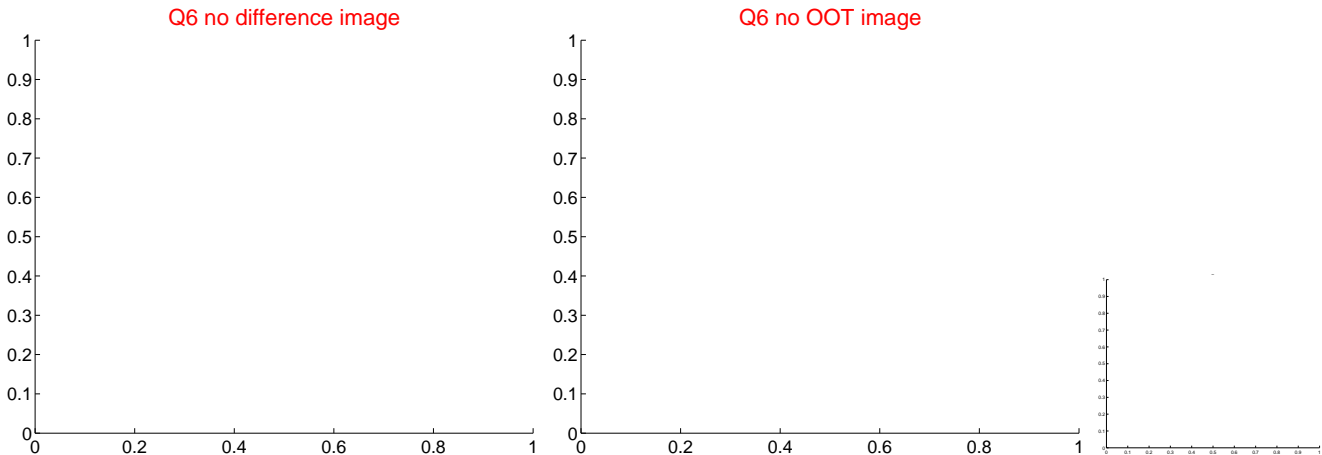
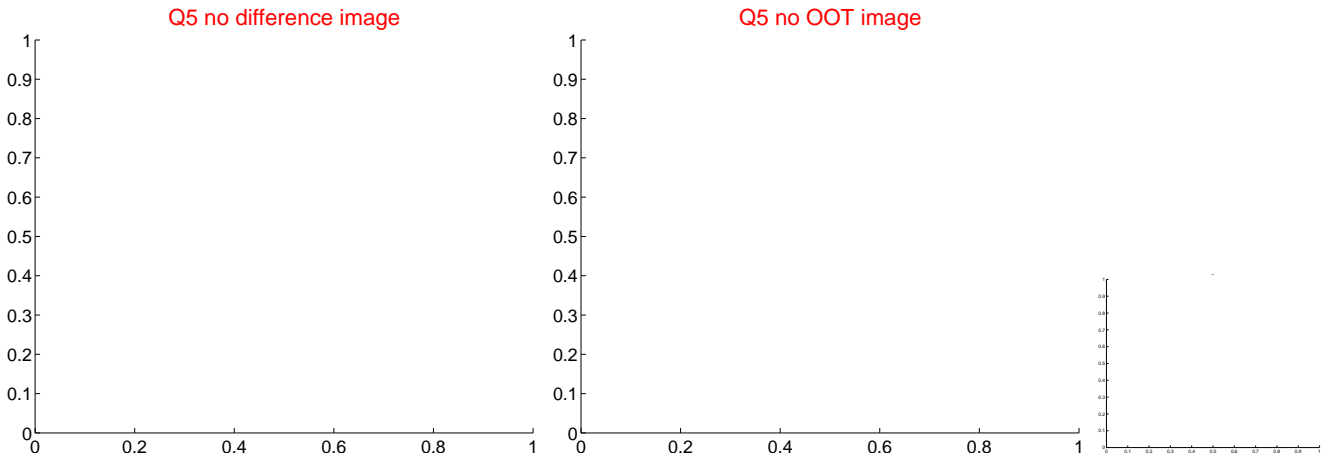


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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



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



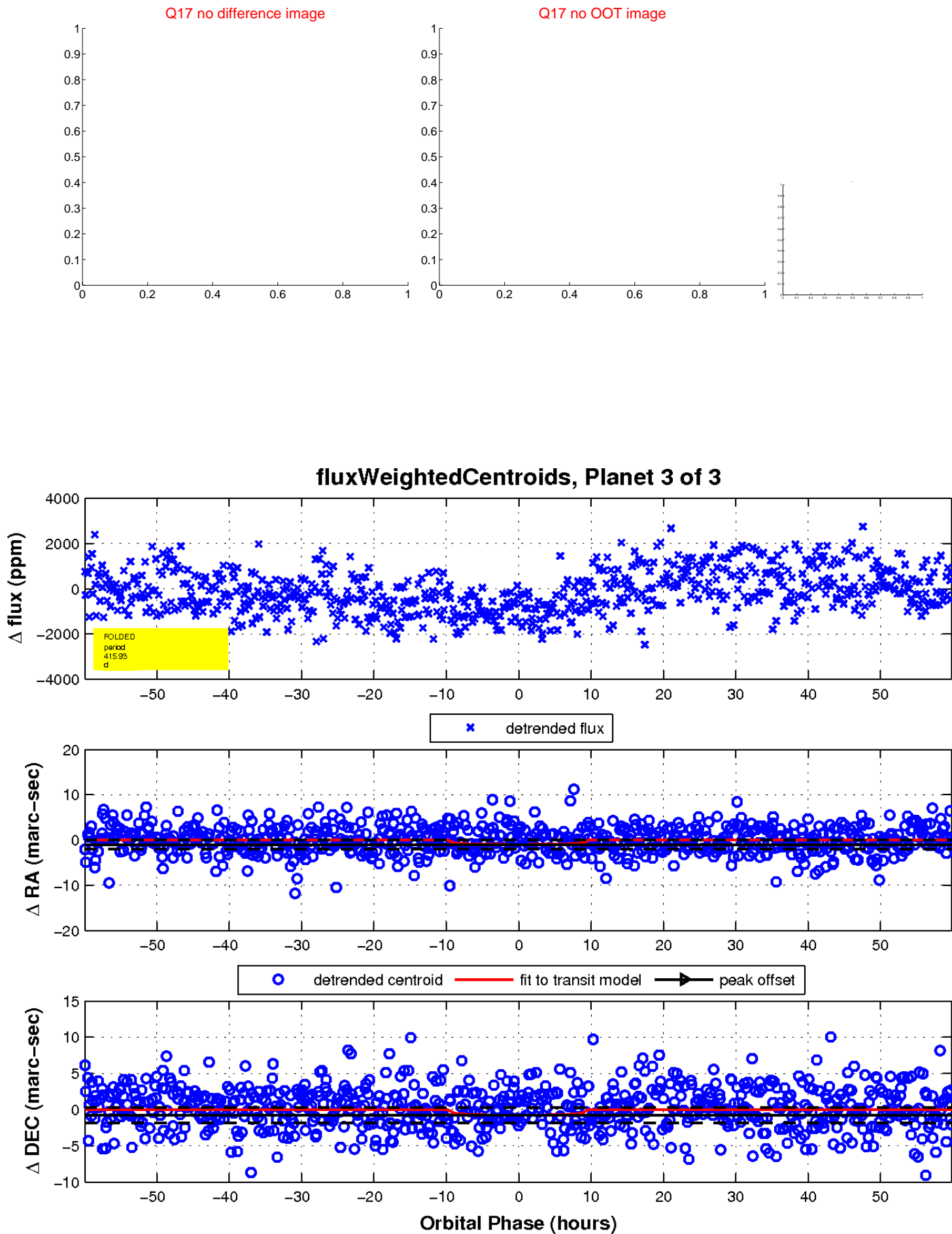
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

