

KIC 007538176

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})
007538176-01	OBS	No	1.172385	132.167171	46.4	6.013	7.6	7.4	0.94	5881	0.63	2039.18
007538176-02	OBS	No	137.893583	263.566225	824.9	2.970	7.2	7.5	0.94	5881	3.12	3.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007538176-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
007538176-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

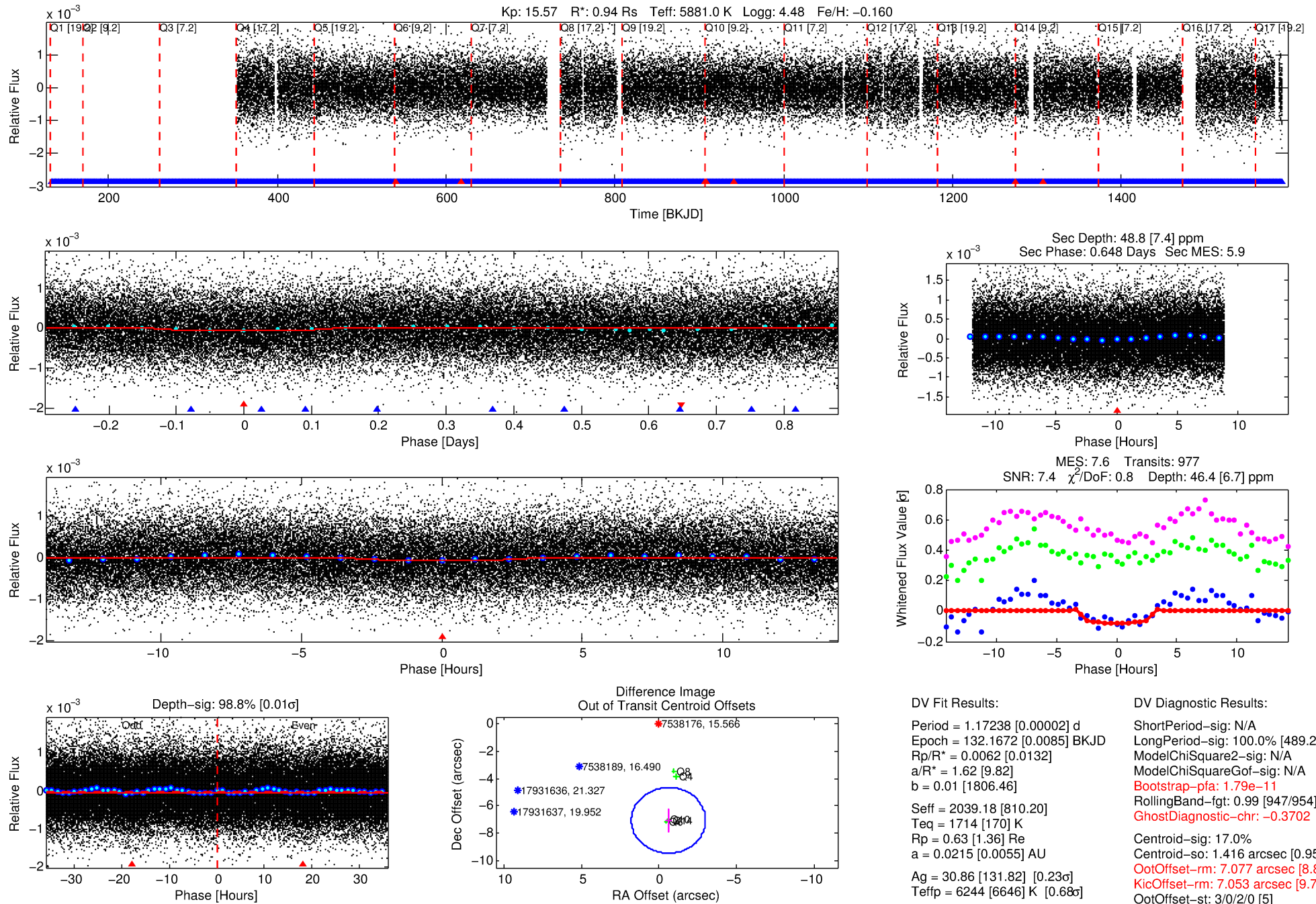
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007538176-01

No Significant Match Found

DV One-Page Summary

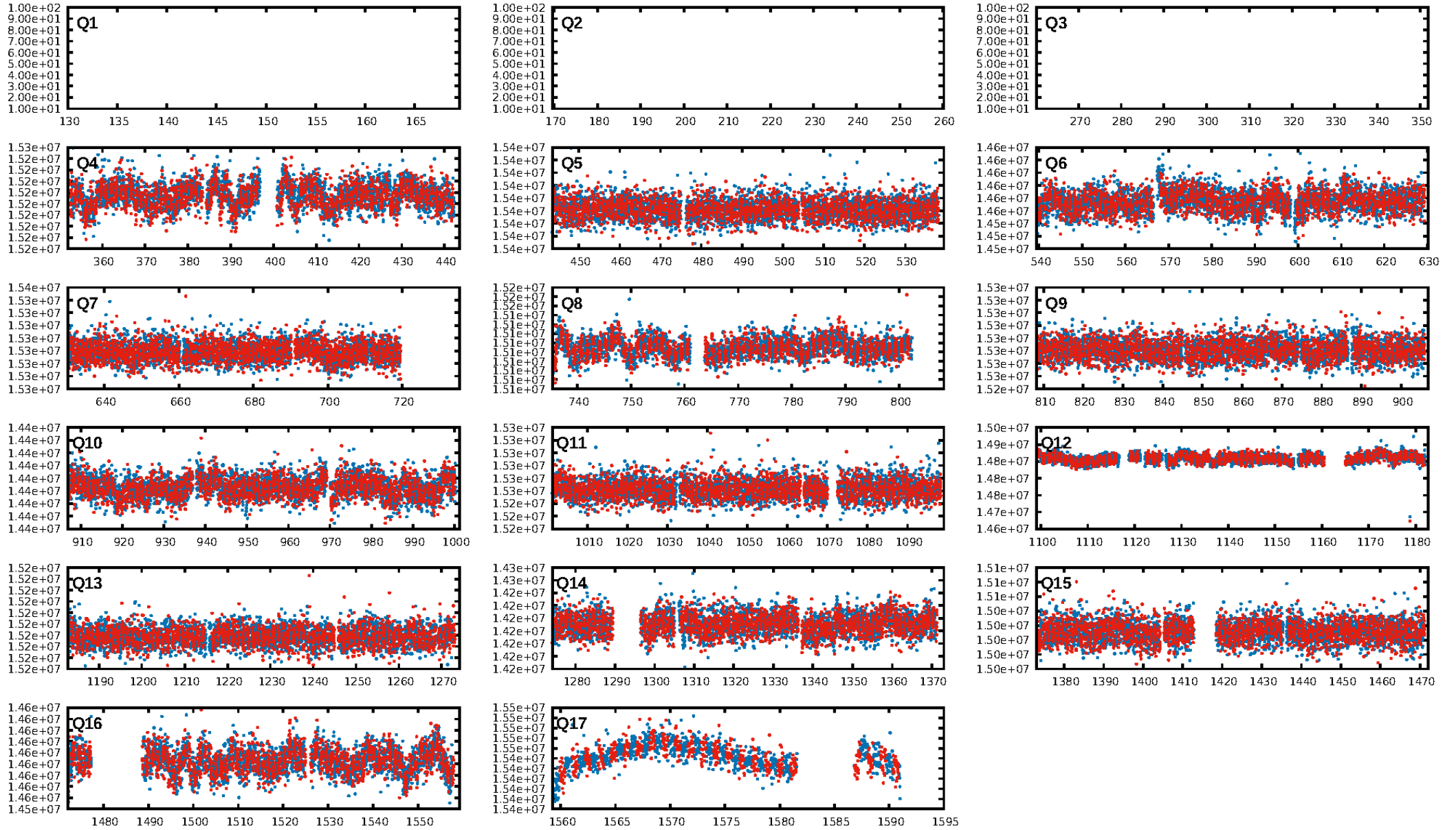
KIC: 7538176 Candidate: 1 of 2 Period: 1.172 d



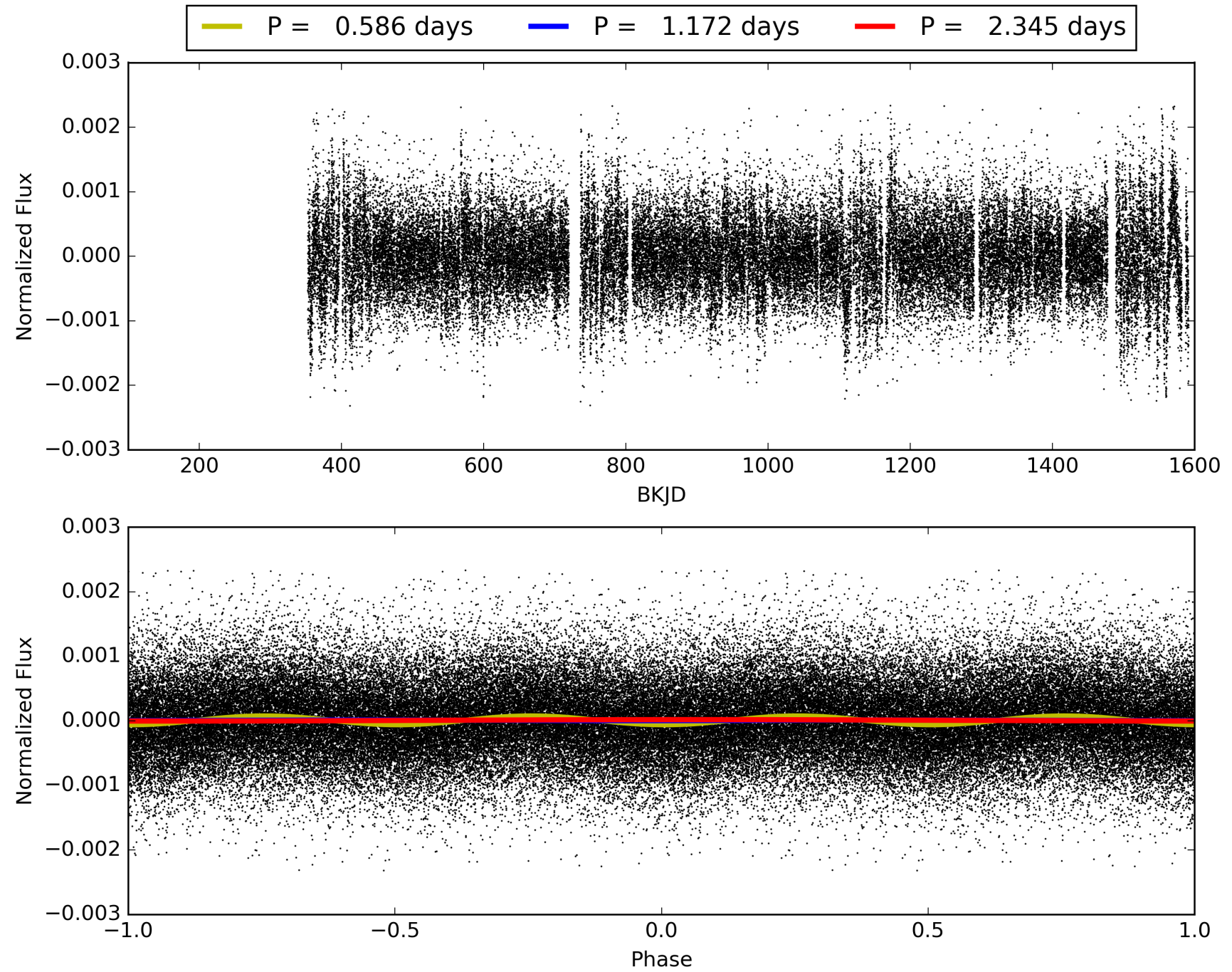
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:20:35 Z

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

TCE 007538176-01, PDC Light Curves

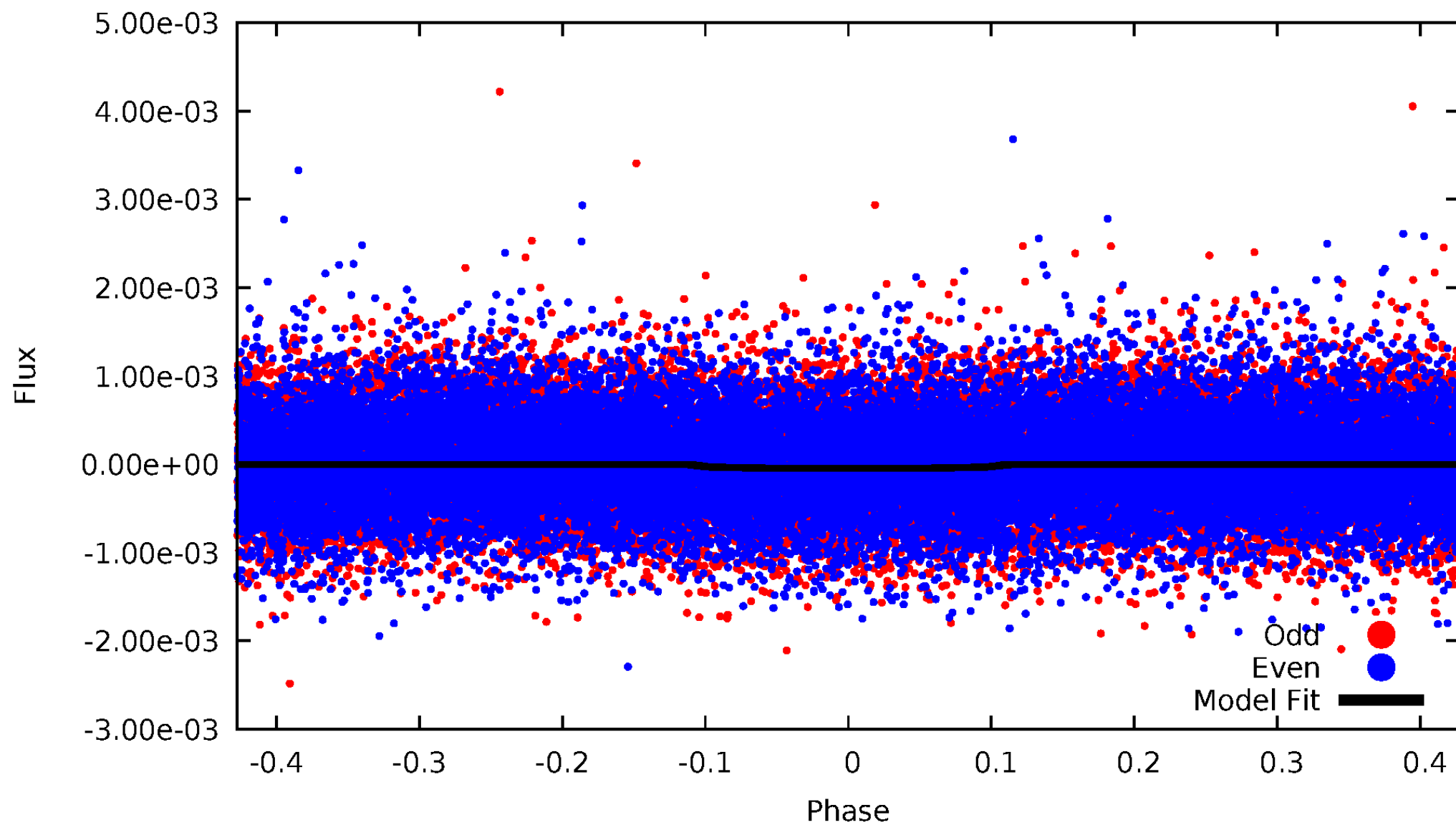


TCE 007538176-01



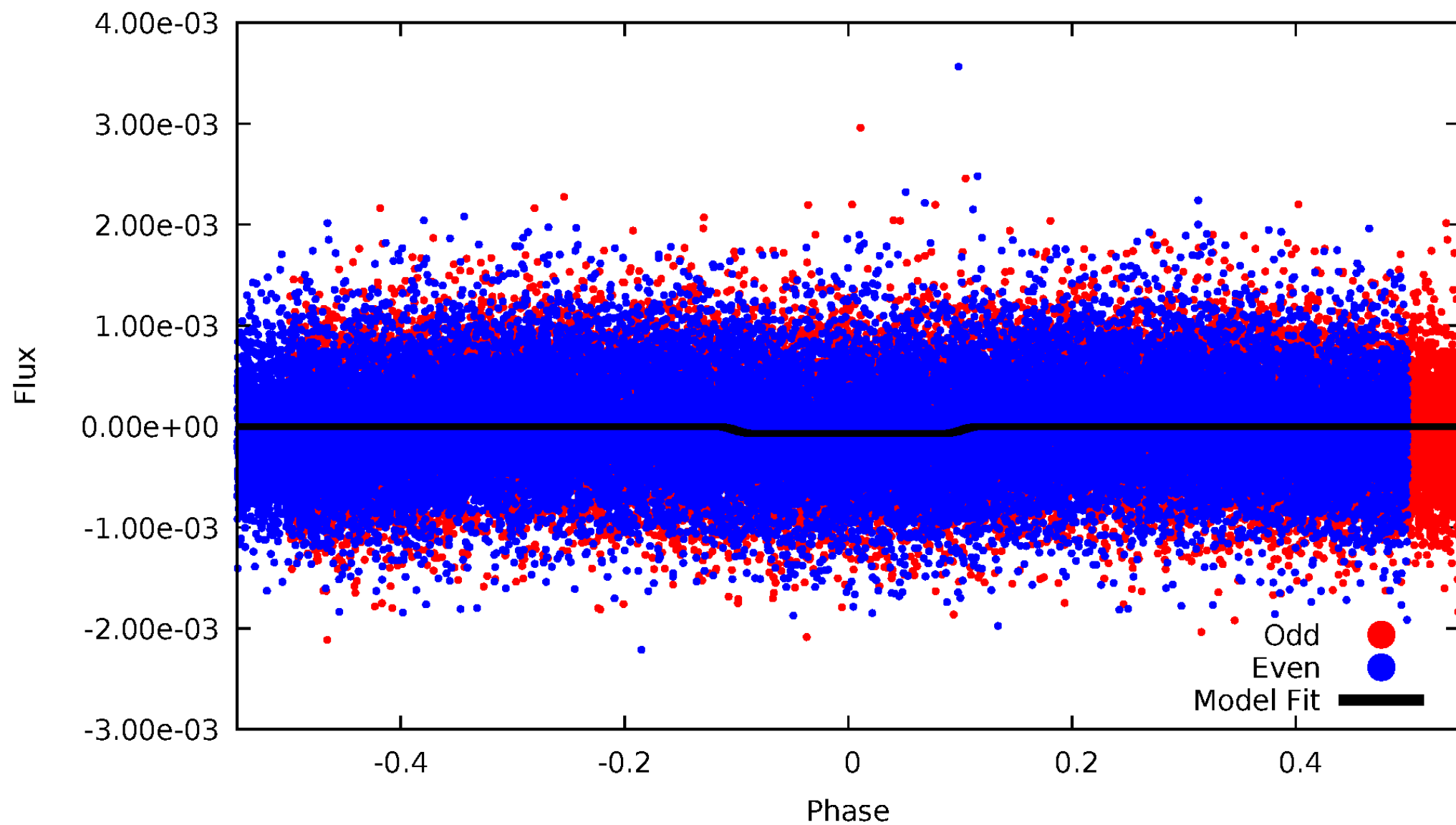
DV Odd/Even

TCE 007538176-01

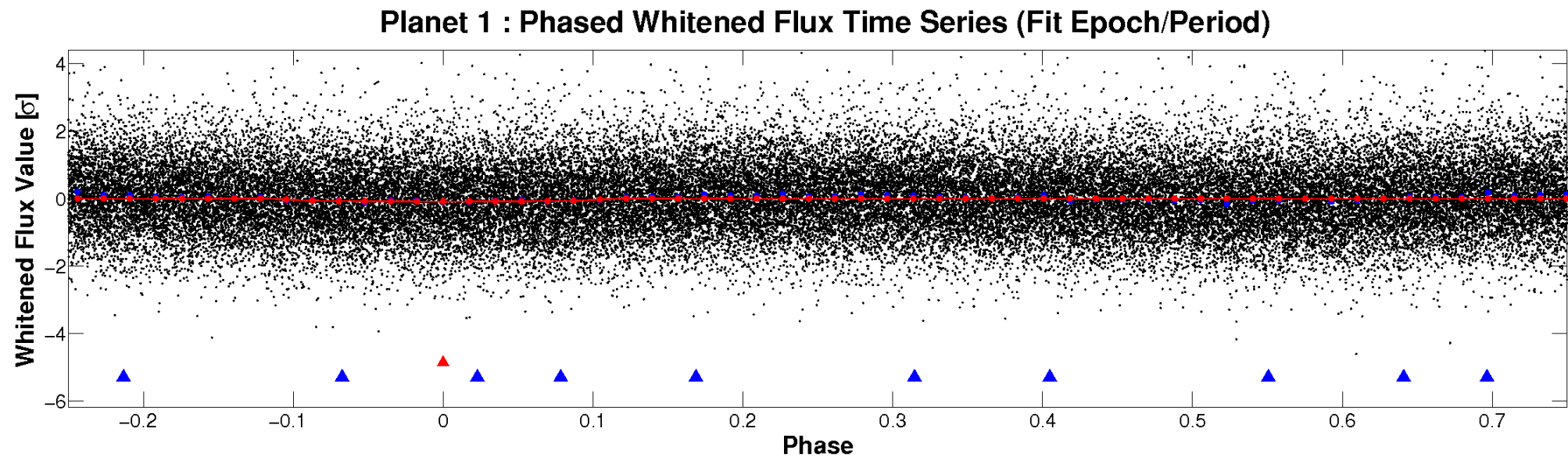
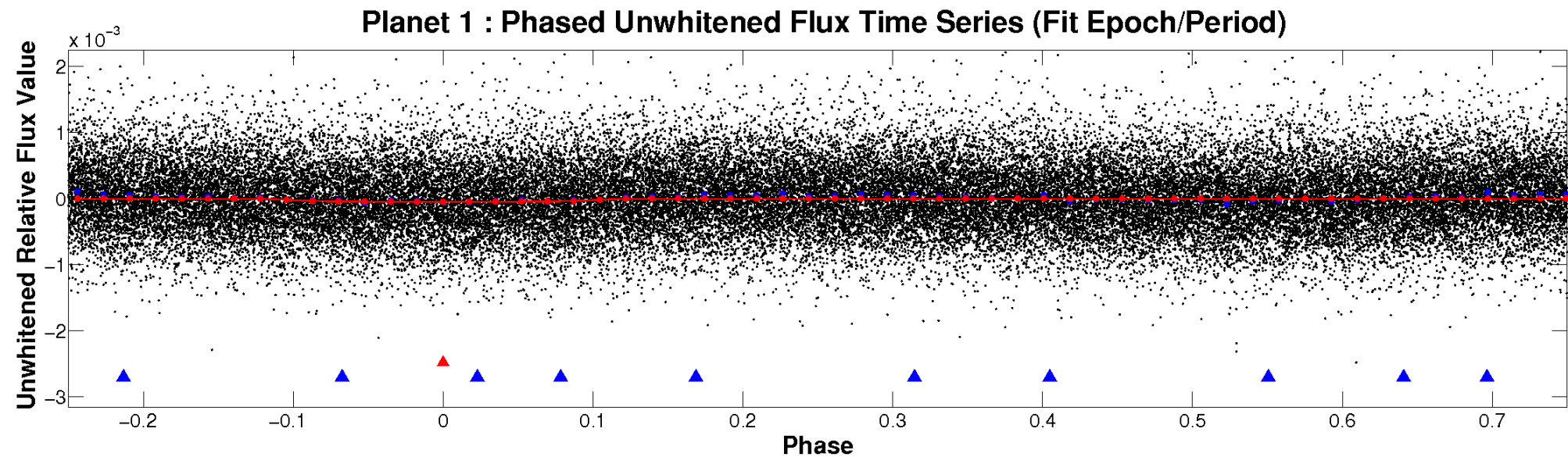


ALT Odd/Even

TCE 007538176-01

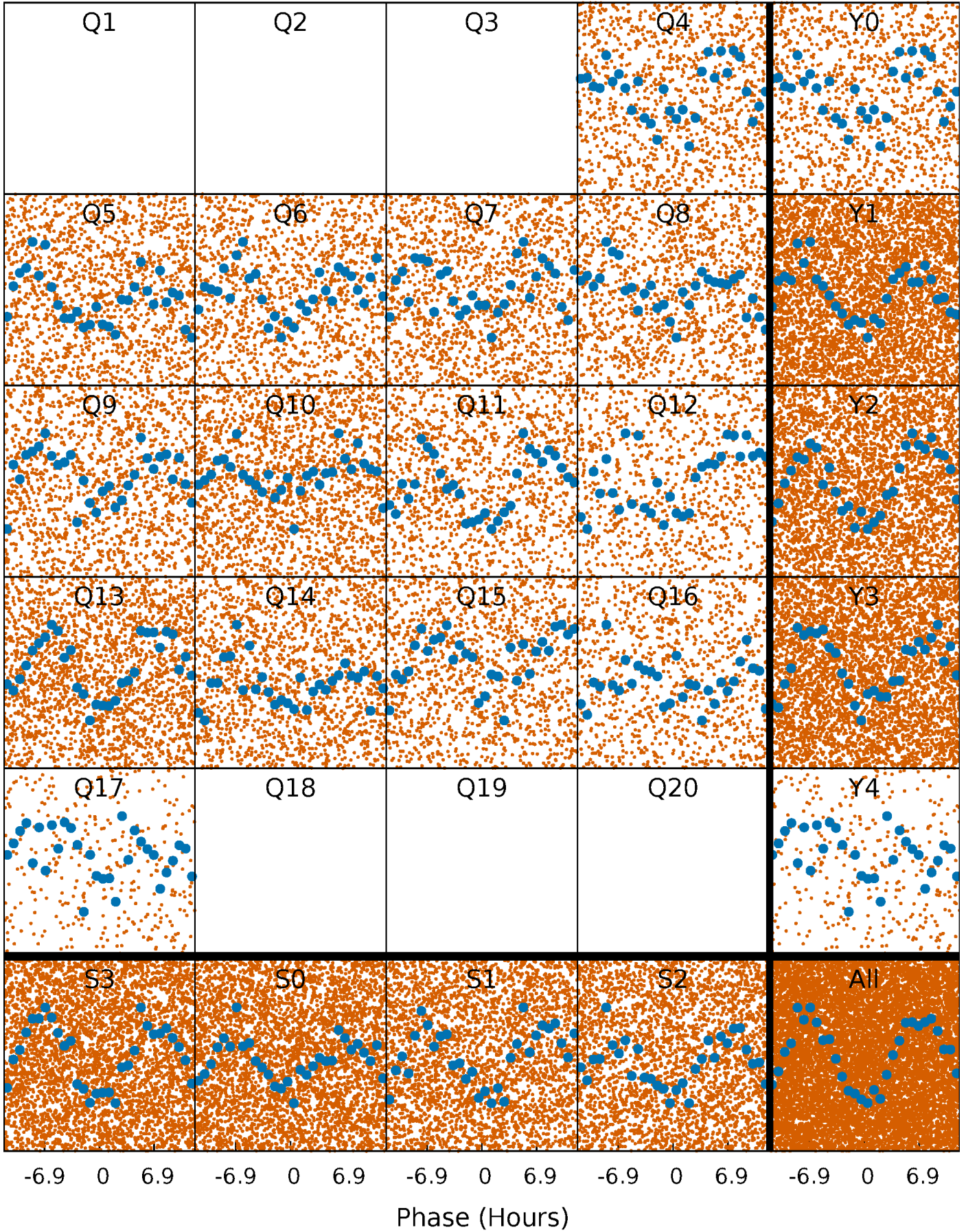


Non-Whitened Vs. Whitened Light Curve



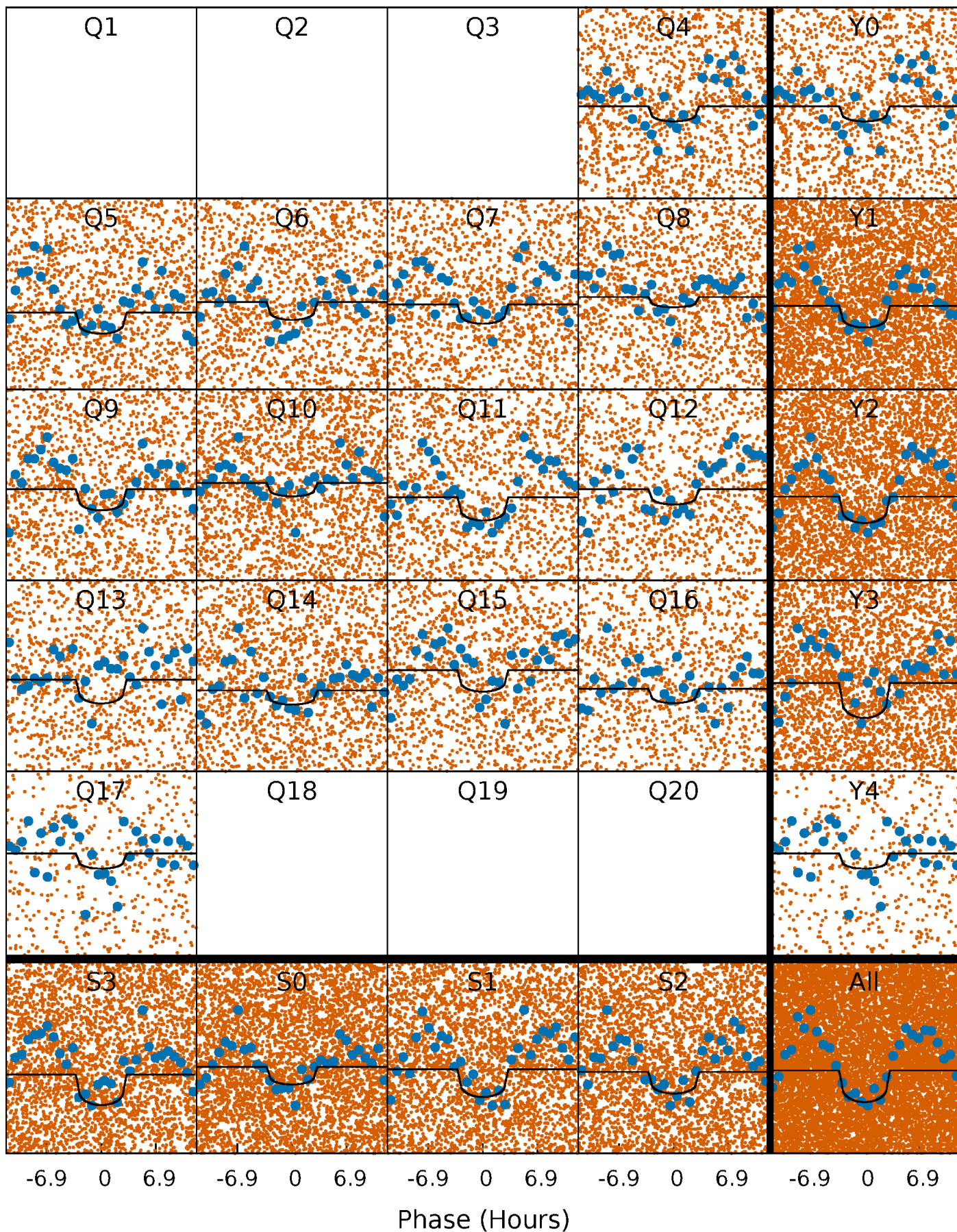
PDC Quarter-Phased Transit Curves

TCE 007538176-01 P= 1.172385 Days $T_0=132.167171$ (BKJD)



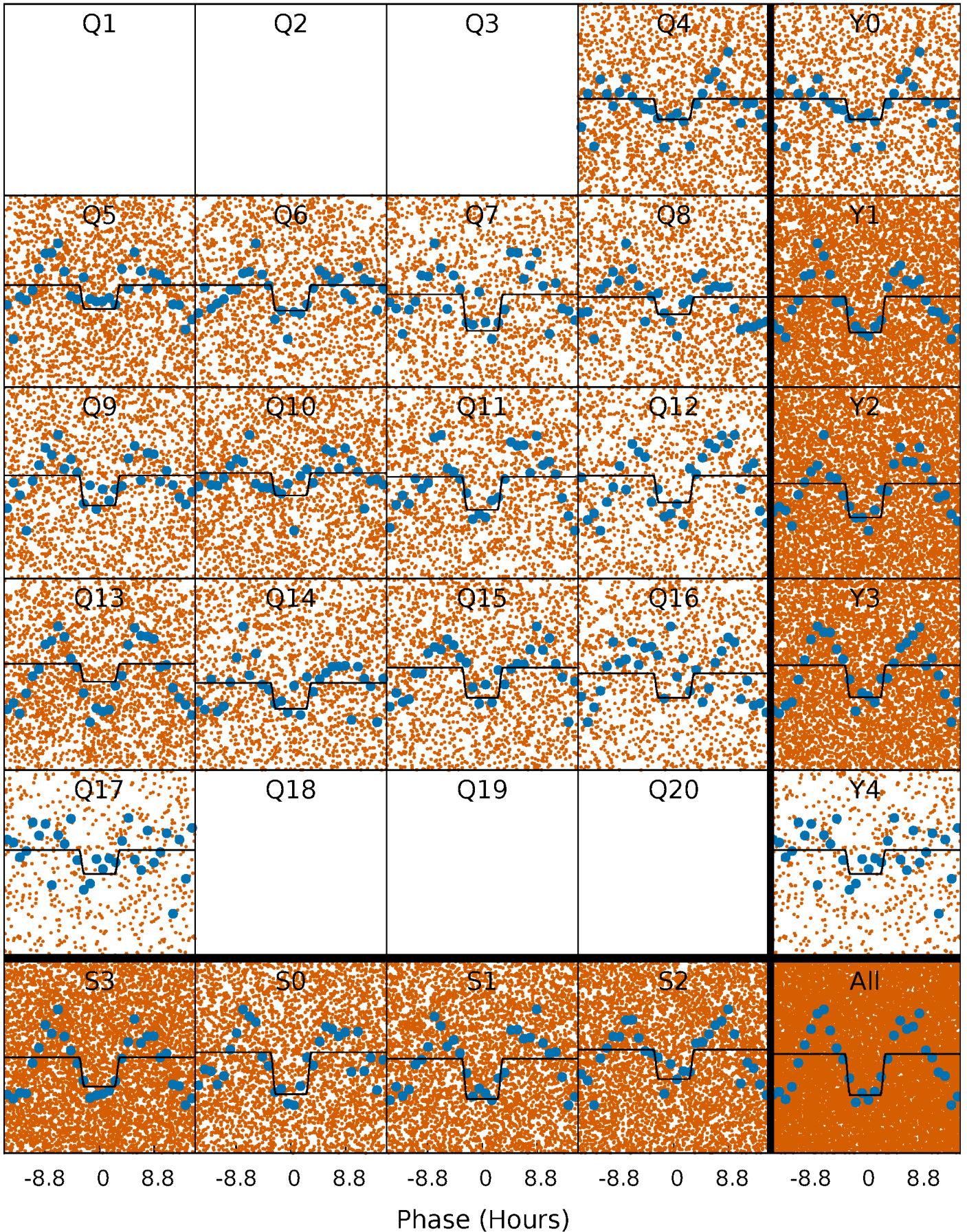
DV Quarter-Phased Transit Curves

TCE 007538176-01 P= 1.172385 Days $T_0=132.167171$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

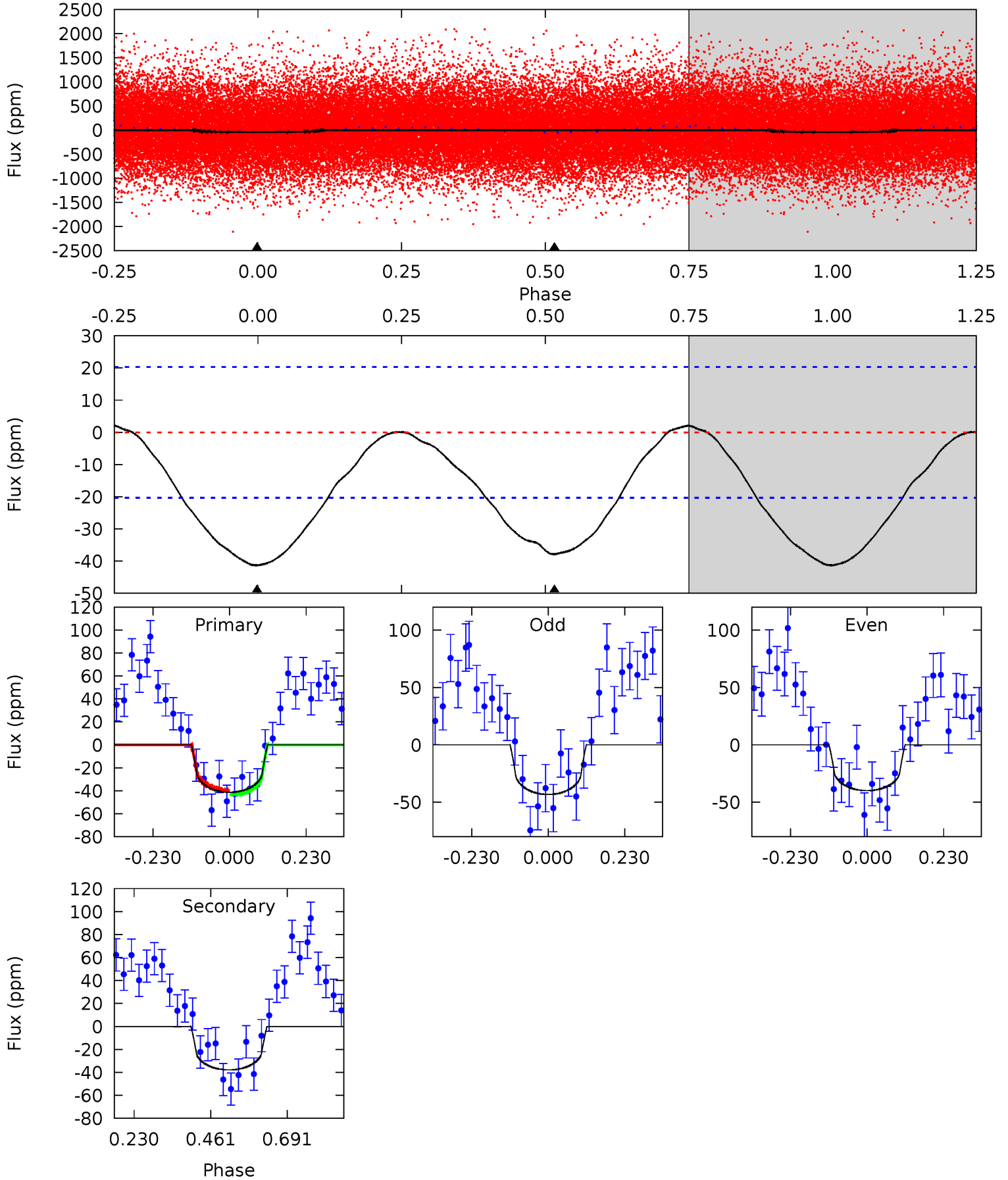
TCE 007538176-01 P= 1.172447 Days $T_0=132.127990$ (BKJD)



DV Model-Shift Uniqueness Test

007538176-01, P = 1.172385 Days, E = 132.167171 Days

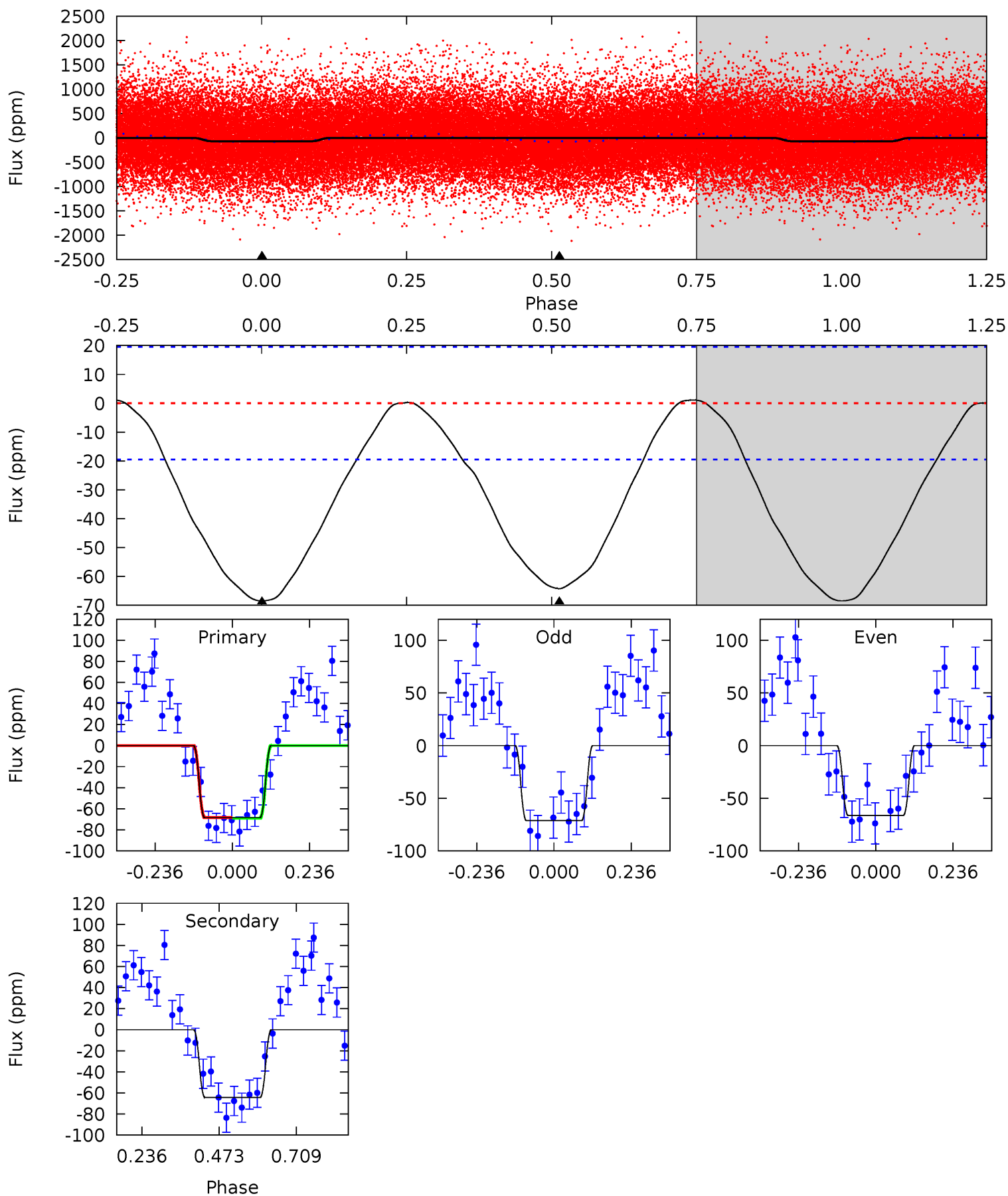
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.93	8.18	0	0	4.39	1.20	0.31	8.93	8.93	8.18	8.18	0.36	0.84	0.05	0.41



Alt Model-Shift Uniqueness Test

007538176-01, P = 1.172447 Days, E = 132.127990 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	14.4	0	0	4.38	1.18	0.28	15.4	15.4	14.4	14.4	0.55	0.93	0.02	0.08



Stellar Parameters For KIC 007538176

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5881^{+165}_{-206}	$4.477^{+0.067}_{-0.202}$	$-0.160^{+0.300}_{-0.300}$	$0.936^{+0.288}_{-0.096}$	$0.960^{+0.120}_{-0.120}$	$1.648^{+0.470}_{-0.877}$
	+3%/-4%	+1%/-5%	+188%/-188%	+31%/-10%	+12%/-12%	+29%/-53%
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 007538176-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-38 ± 5	$1.28^{+1.12}_{-0.87}$	2432^{+178}_{-119}	4407^{+3104}_{-974}	$5.928^{+45.691}_{-4.328}$
Alt.	-64 ± 4	$1.36^{+1.21}_{-0.85}$	2429^{+169}_{-125}	4696^{+3045}_{-984}	$8.747^{+52.333}_{-6.259}$

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 $A_{obs} \gg 1.0$

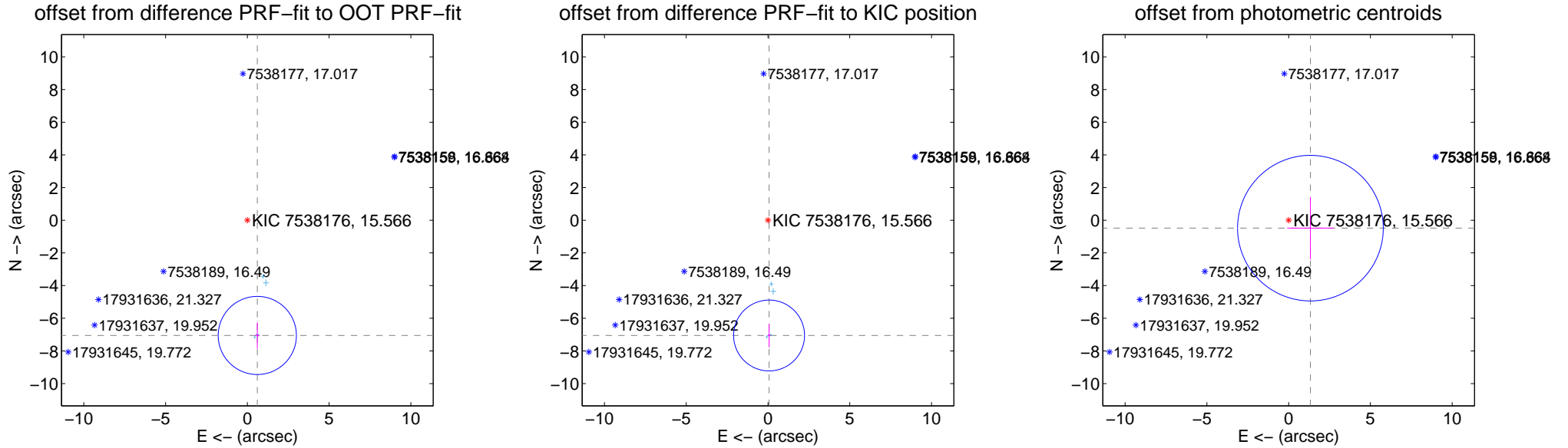
DV Centroid Data

Supplemental centroid analysis for 007538176-01. Kepler magnitude: 15.57. Transit SNR 7.45

There are 5 quarters with good PRF difference image offsets

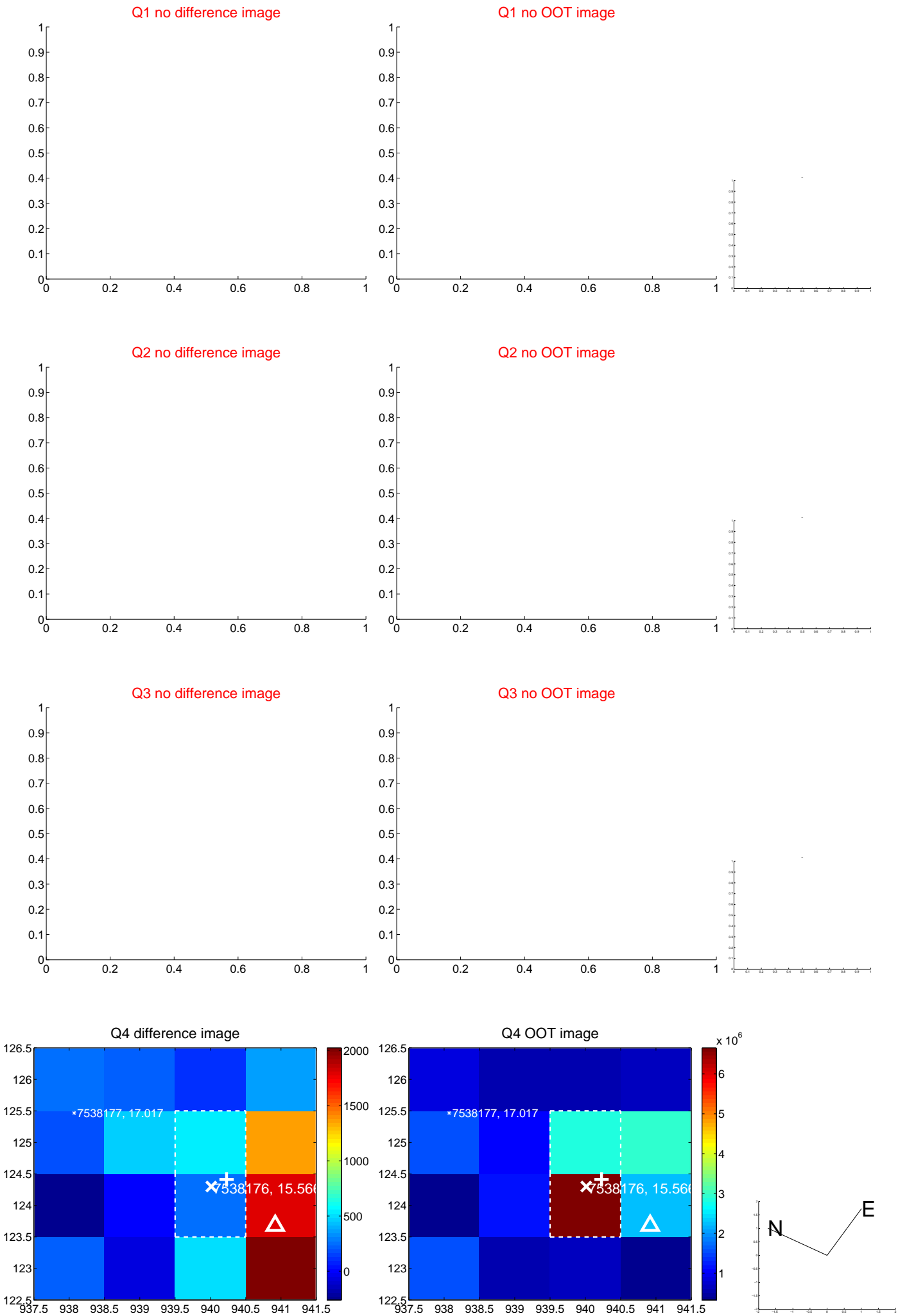
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.077 ± 0.797	8.88	-0.610 ± 0.134	-7.051 ± 0.809
PRF-fit source offset from KIC position	7.053 ± 0.723	9.76	-0.066 ± 0.092	-7.052 ± 0.723
photometric centroid source offset	1.42 ± 1.48	0.95	-1.33 ± 1.42	-0.48 ± 1.90

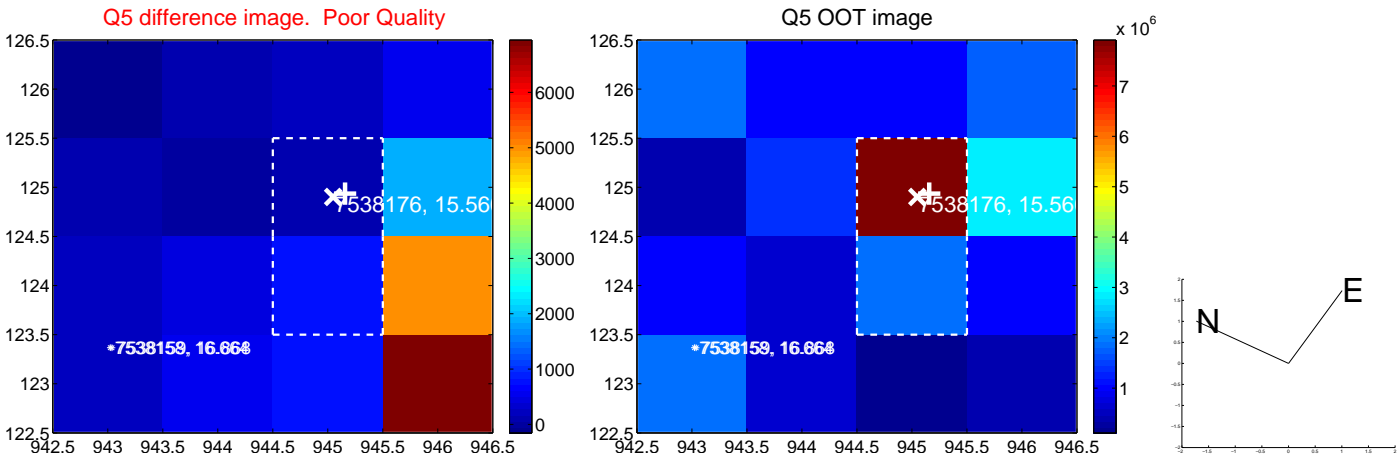


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

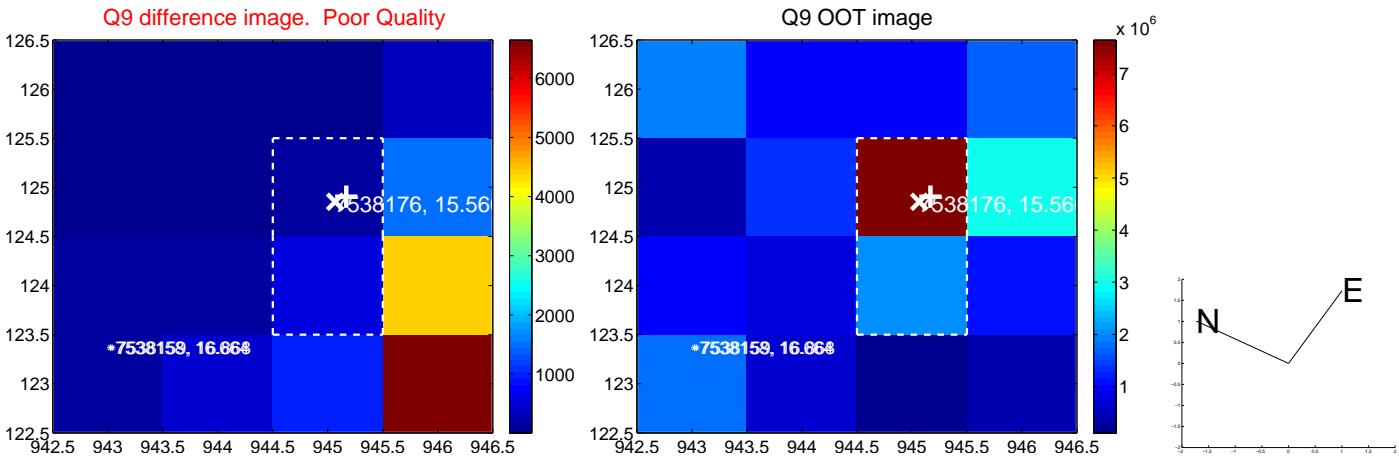
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



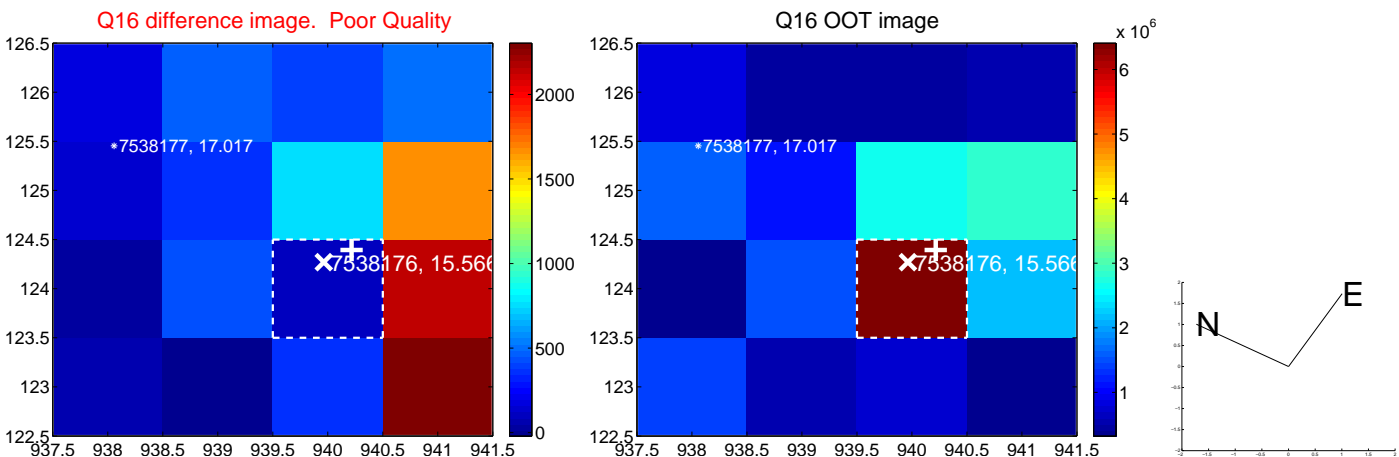
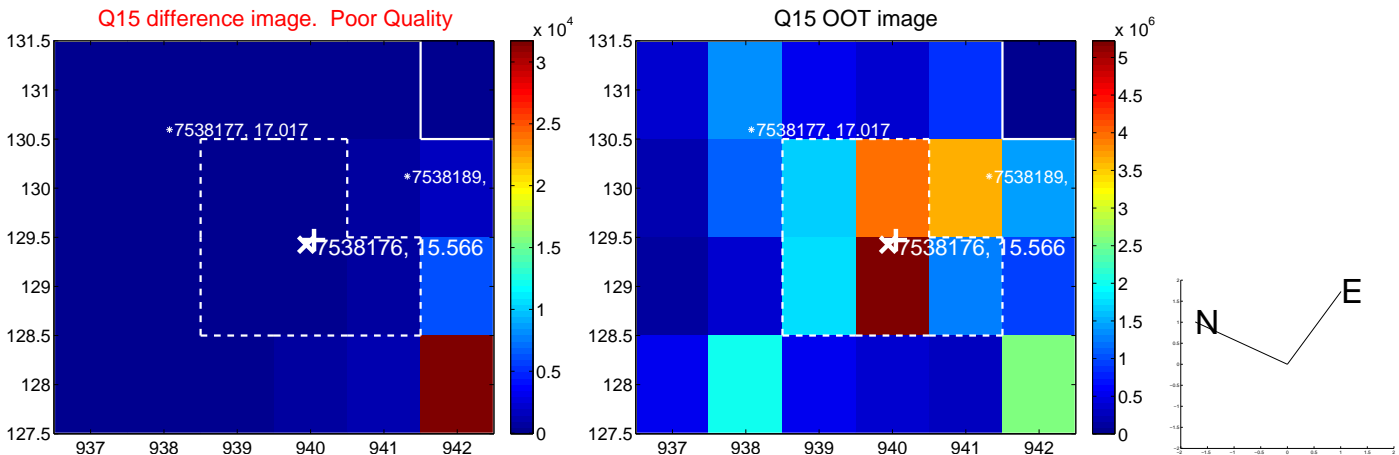
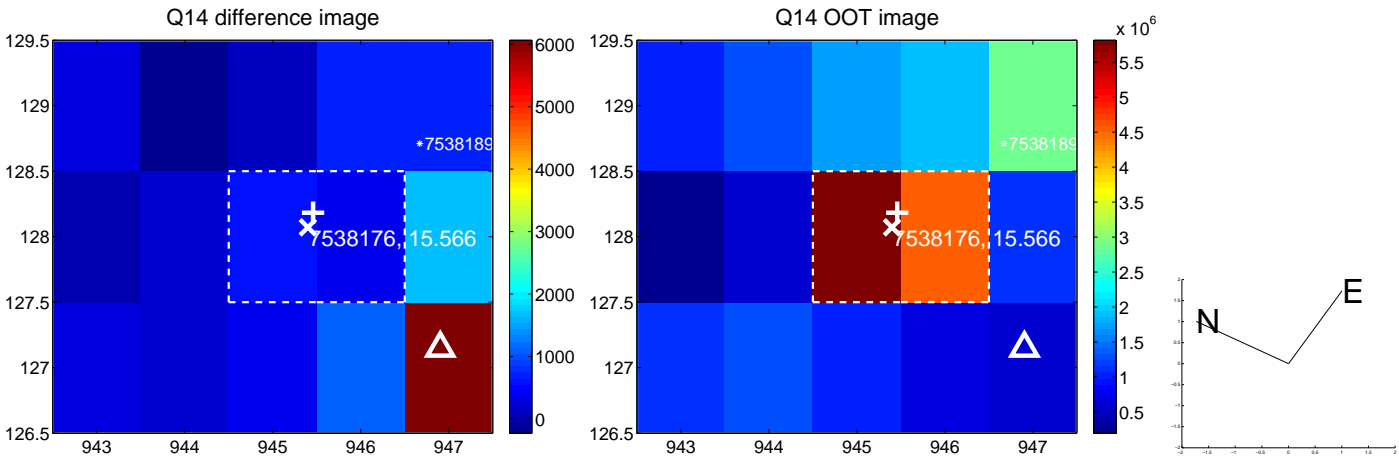
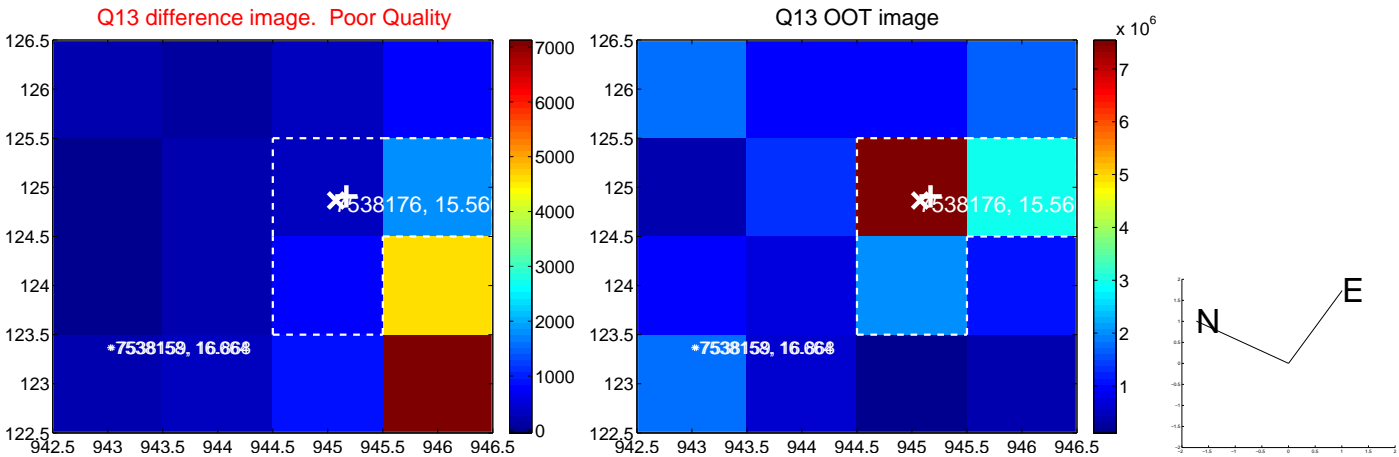
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



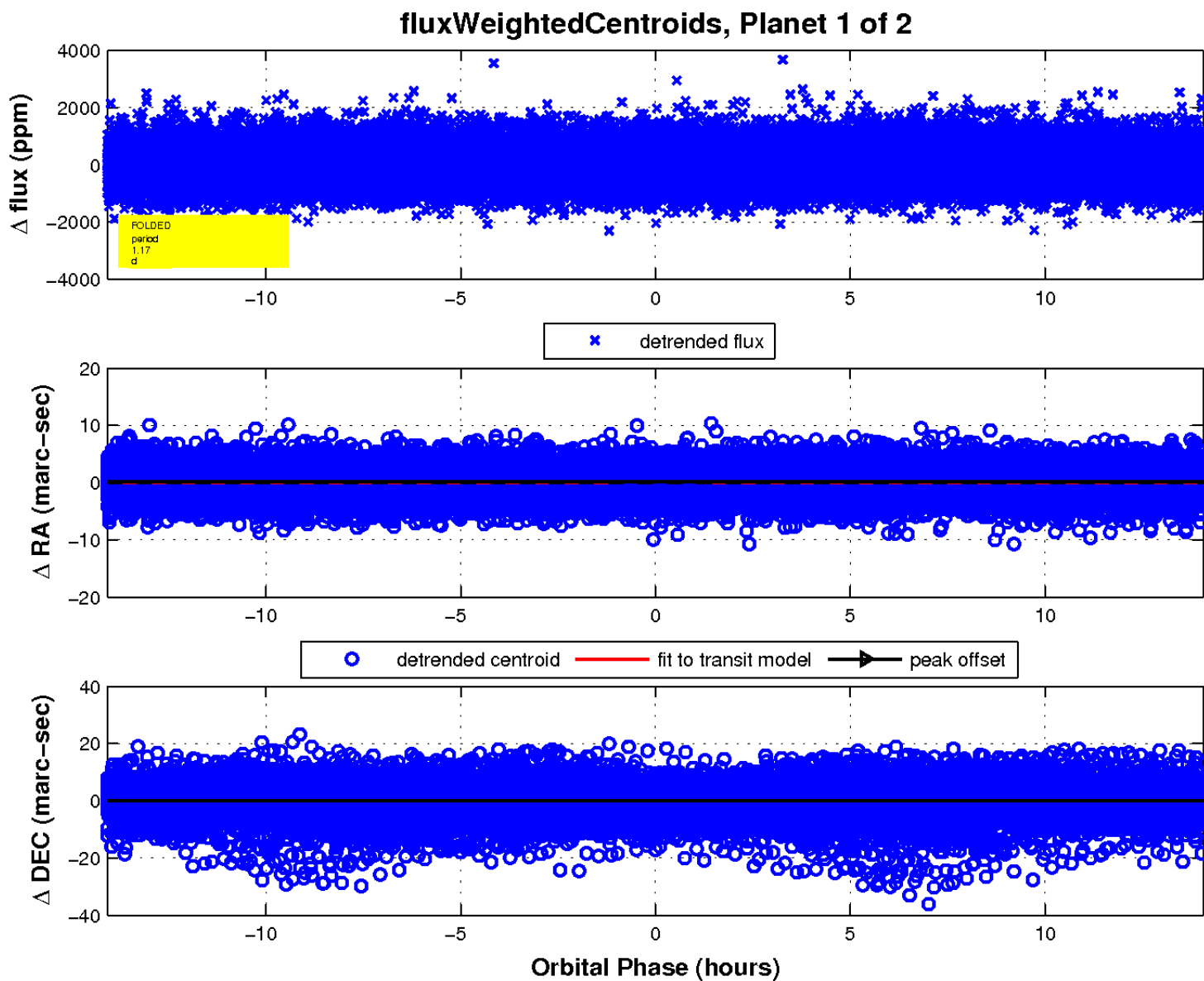
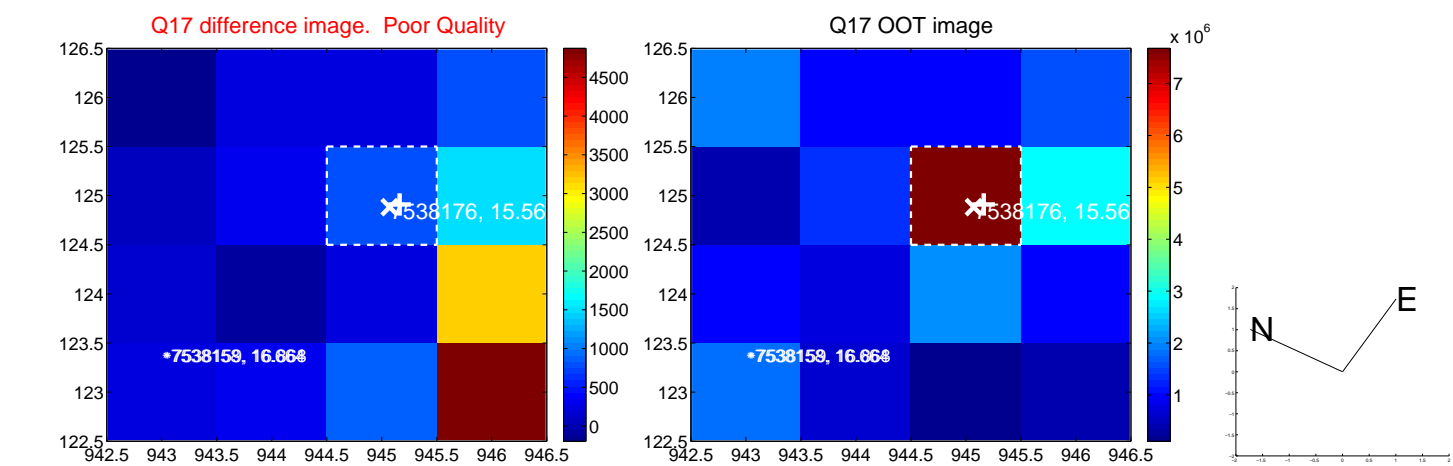
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

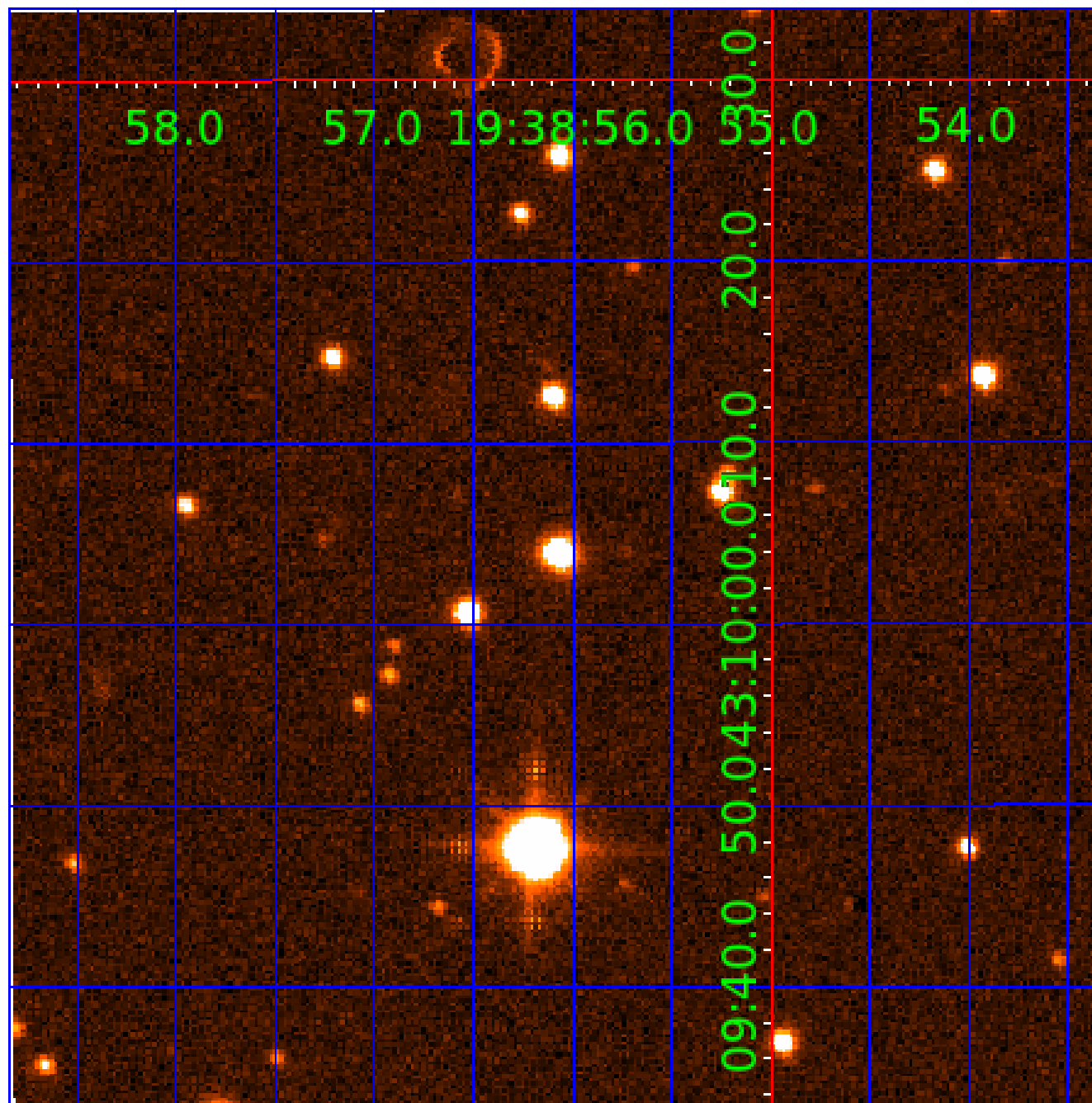


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



UKIRT Image

Declination



KIC 007538176

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})
007538176-01	OBS	No	1.172385	132.167171	46.4	6.013	7.6	7.4	0.94	5881	0.63	2039.18
007538176-02	OBS	No	137.893583	263.566225	824.9	2.970	7.2	7.5	0.94	5881	3.12	3.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007538176-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
007538176-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

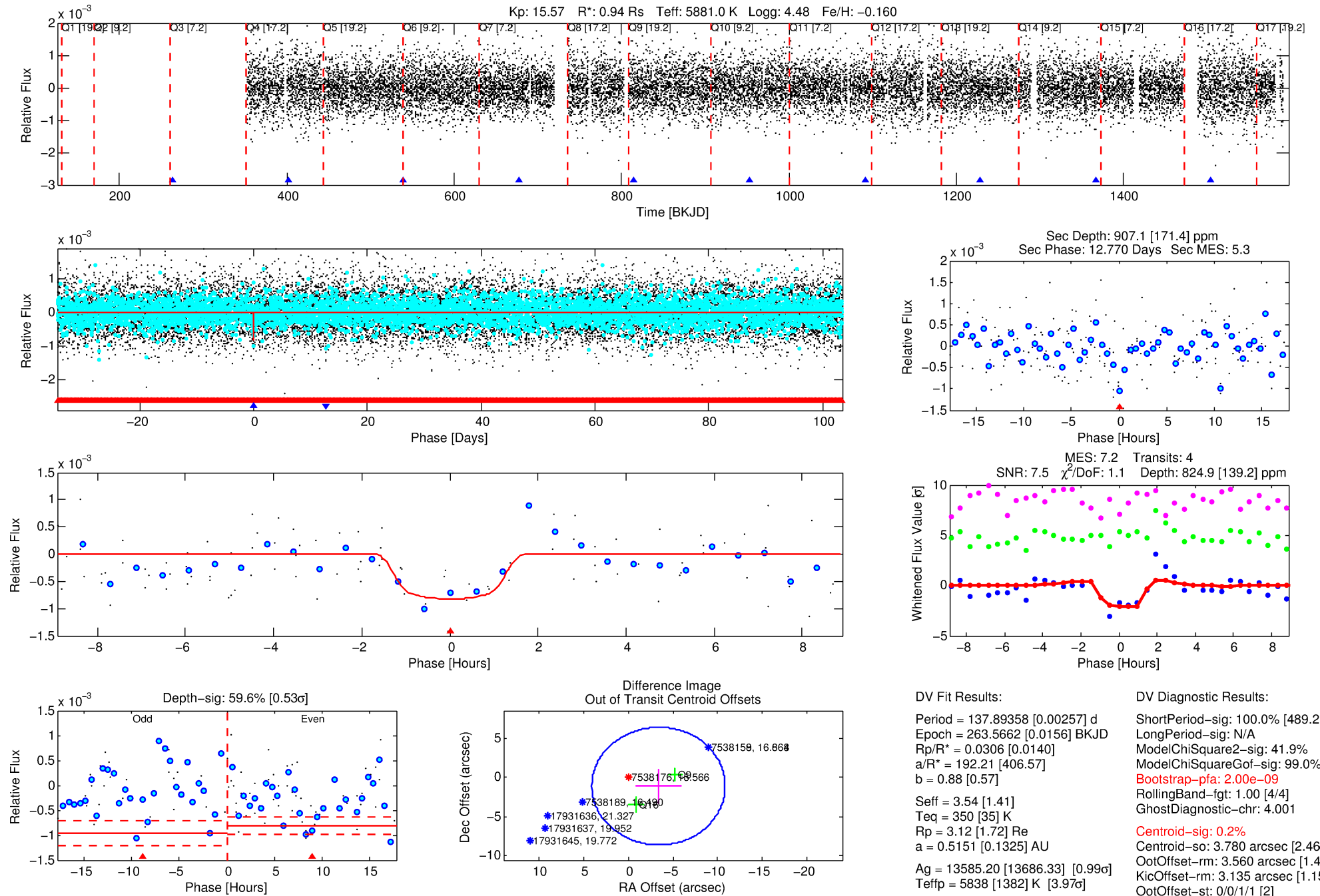
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007538176-02

No Significant Match Found

DV One-Page Summary

KIC: 7538176 Candidate: 2 of 2 Period: 137.894 d



DV Fit Results:

Period = 137.89358 [0.00257] d
Epoch = 263.5662 [0.0156] BKJD
Rp/R* = 0.0306 [0.0140]
a/R* = 192.21 [406.57]
b = 0.88 [0.57]
Seff = 3.54 [1.41]
Teq = 350 [35] K
Rp = 3.12 [1.72] Re
a = 0.5151 [0.1325] AU
Ag = 13585.20 [13686.33] [0.99 σ]
Teffp = 5838 [1382] K [3.97 σ]

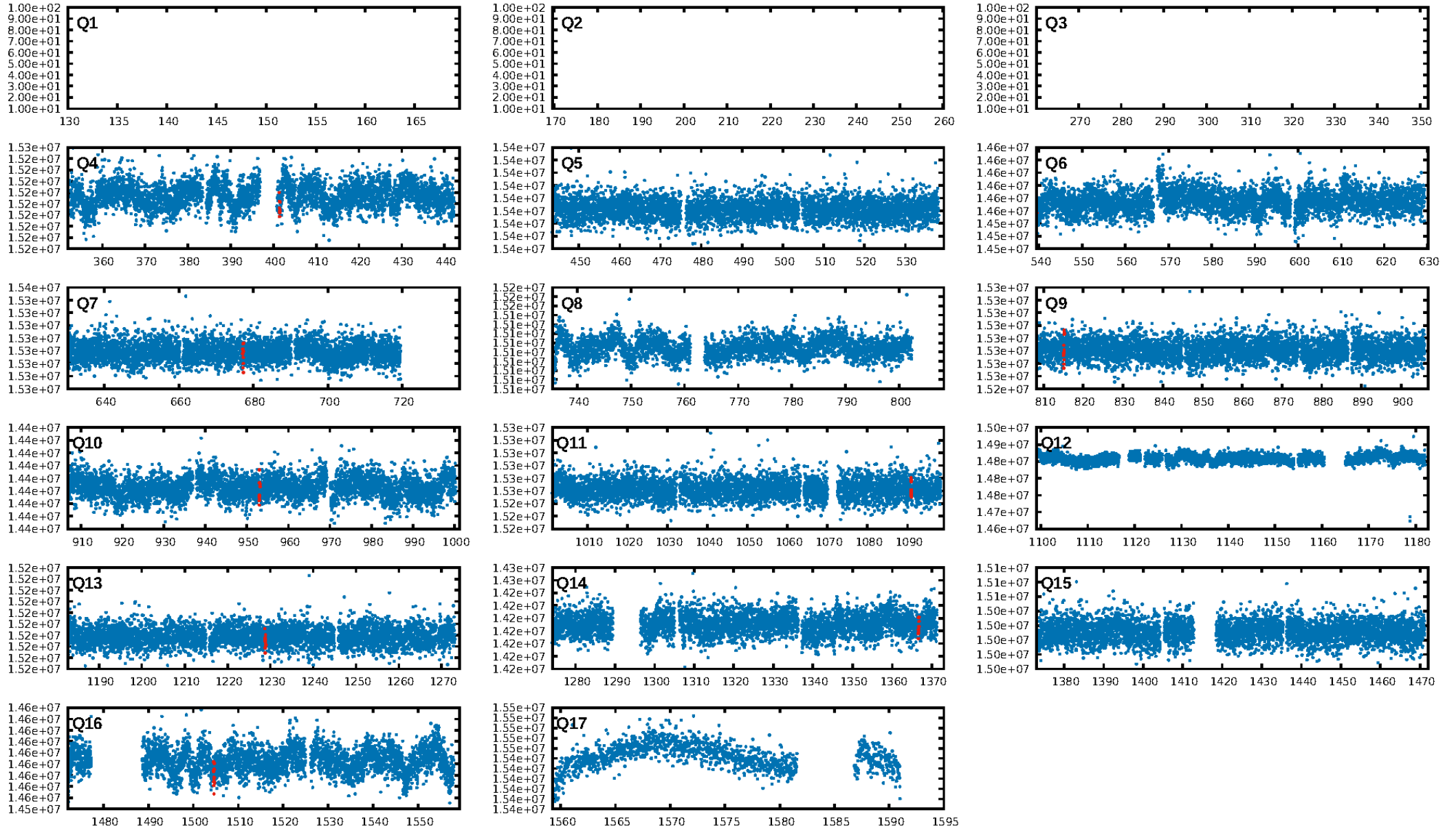
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [489.29 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 41.9%
ModelChiSquareGof-sig: 99.0%
Bootstrap-pfa: 2.00e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 4.001
Centroid-sig: 0.2%
Centroid-so: 3.780 arcsec [2.46 σ]
OotOffset-rm: 3.560 arcsec [1.43 σ]
KicOffset-rm: 3.135 arcsec [1.15 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.17 [1/6]

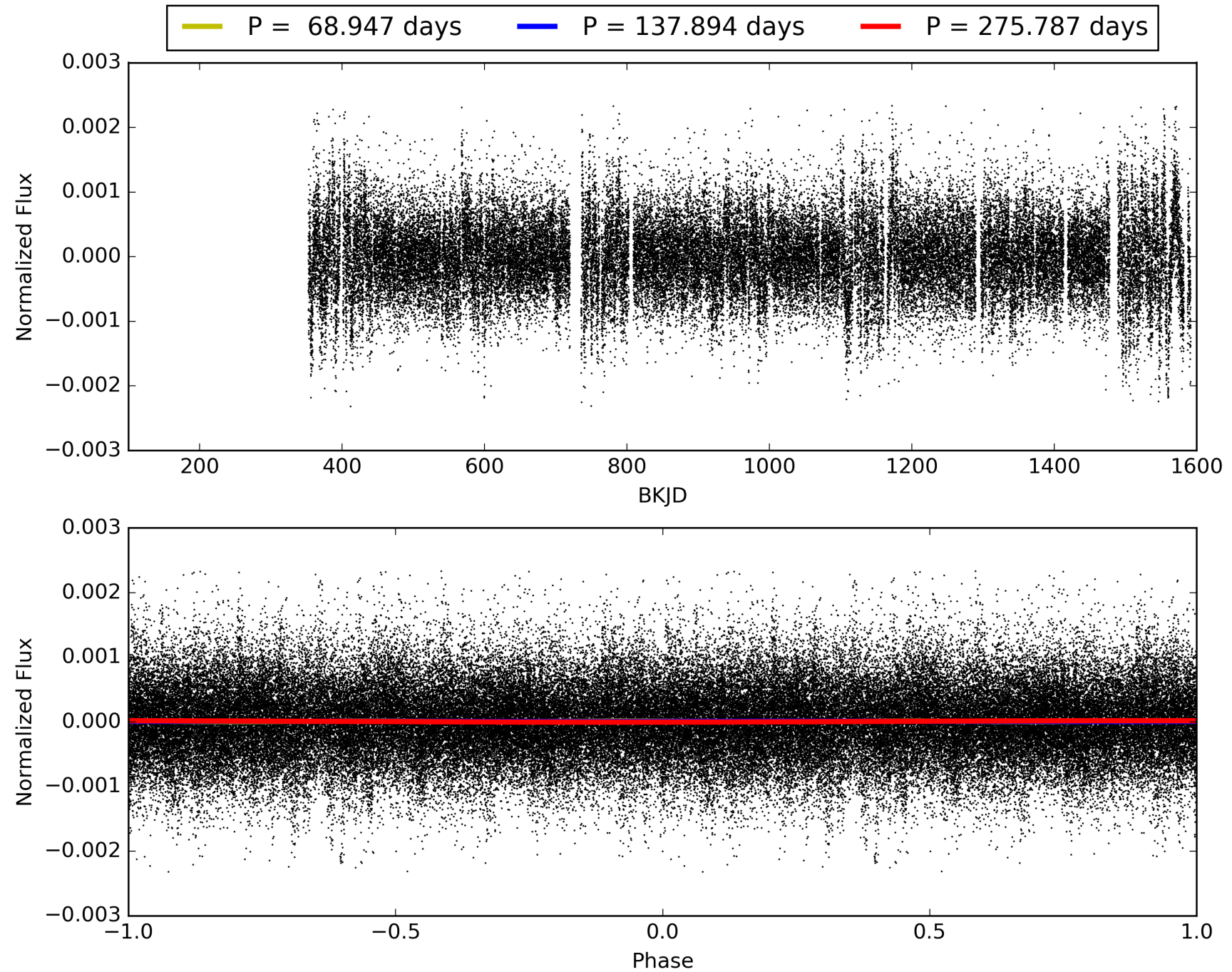
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007538176-02, PDC Light Curves

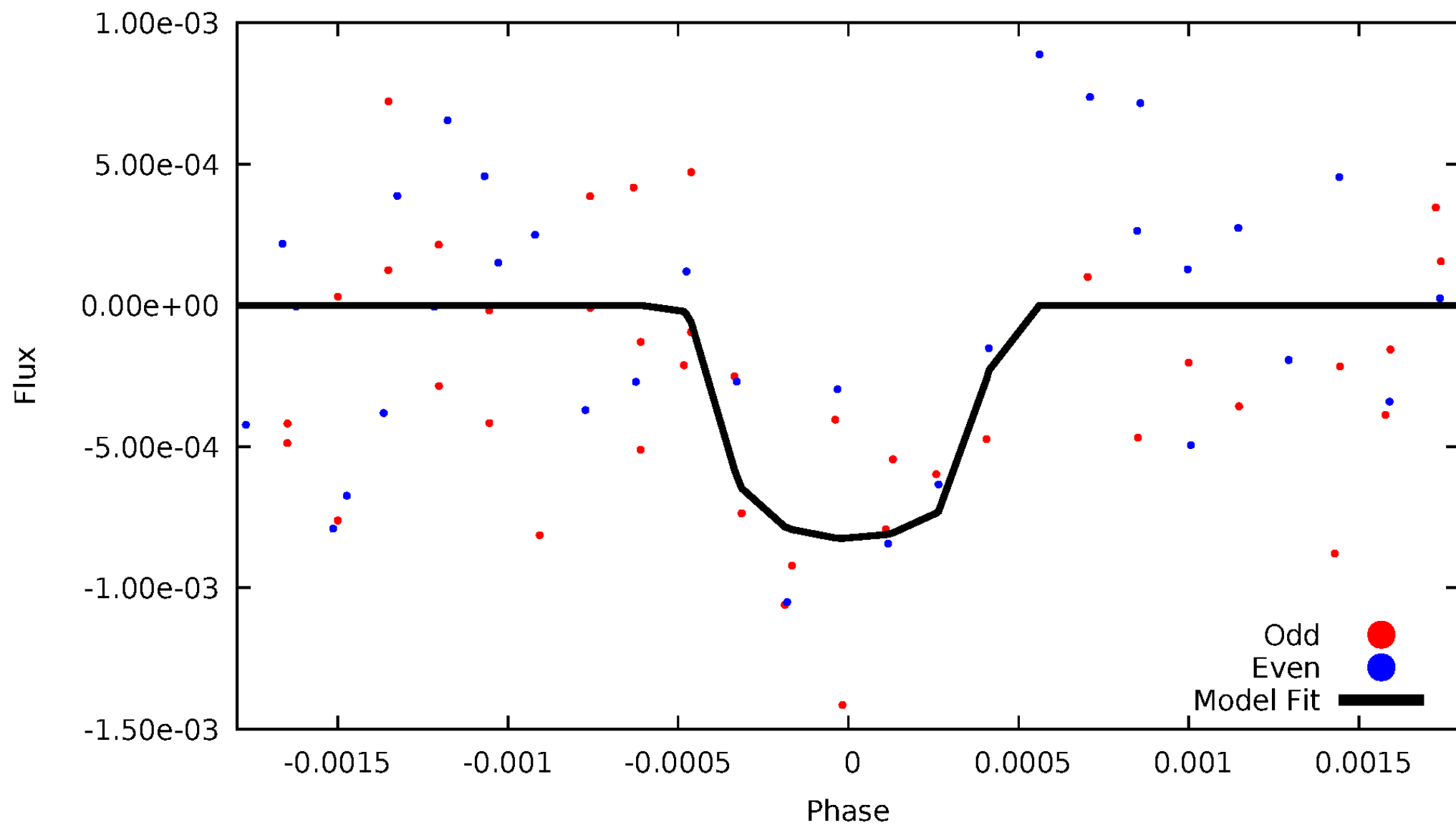


TCE 007538176-02



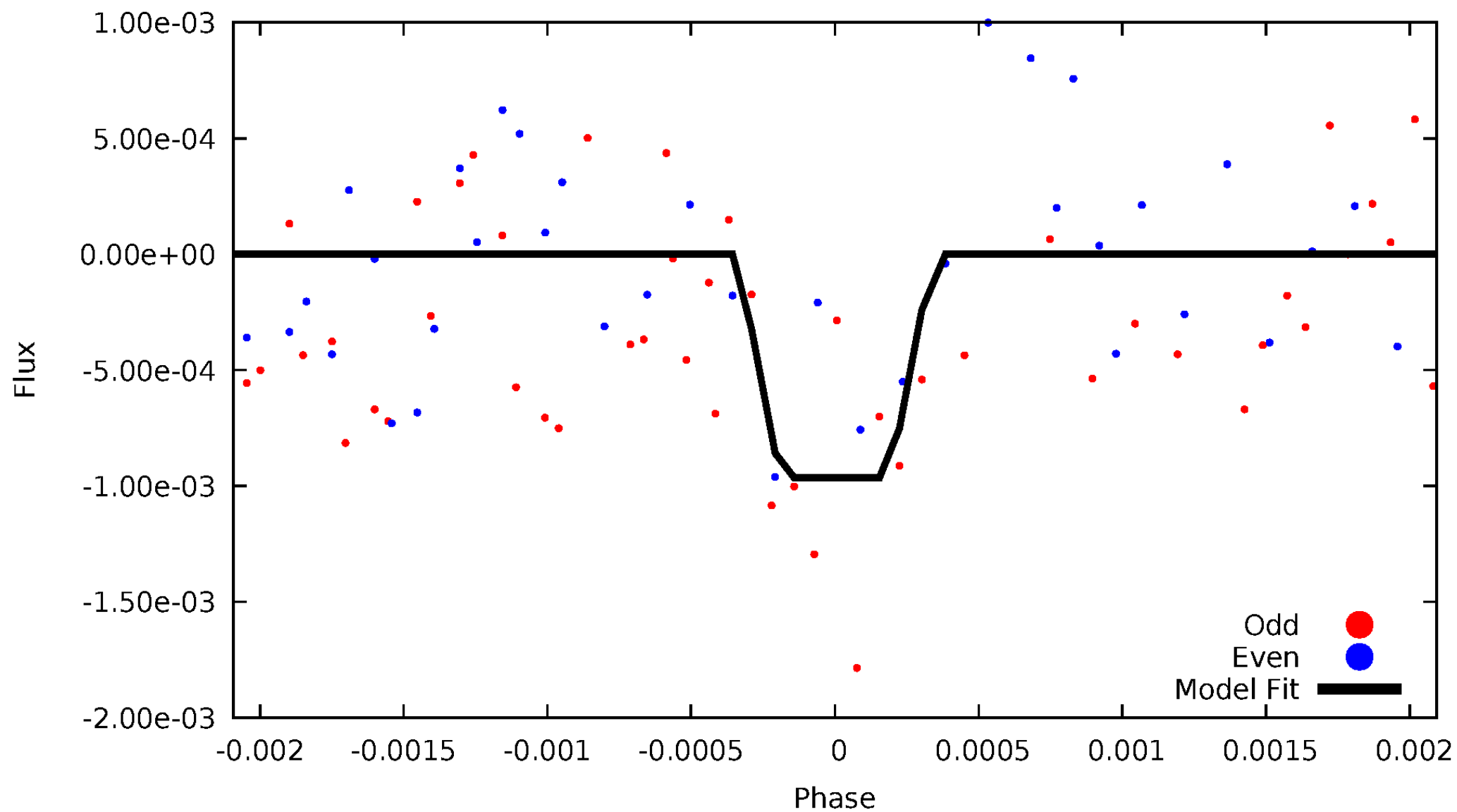
DV Odd/Even

TCE 007538176-02



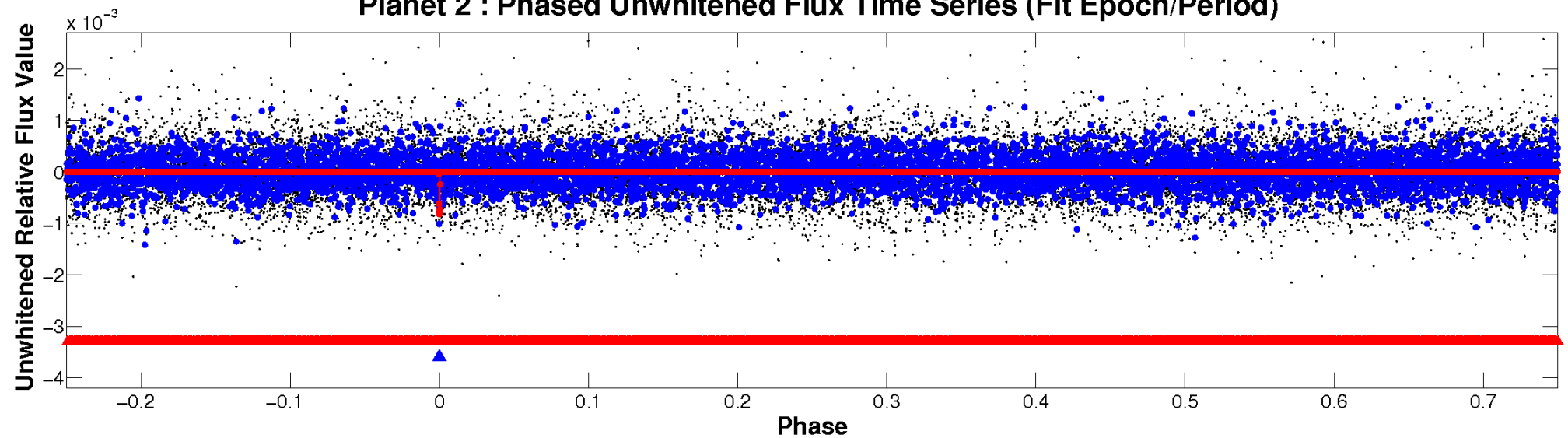
ALT Odd/Even

TCE 007538176-02

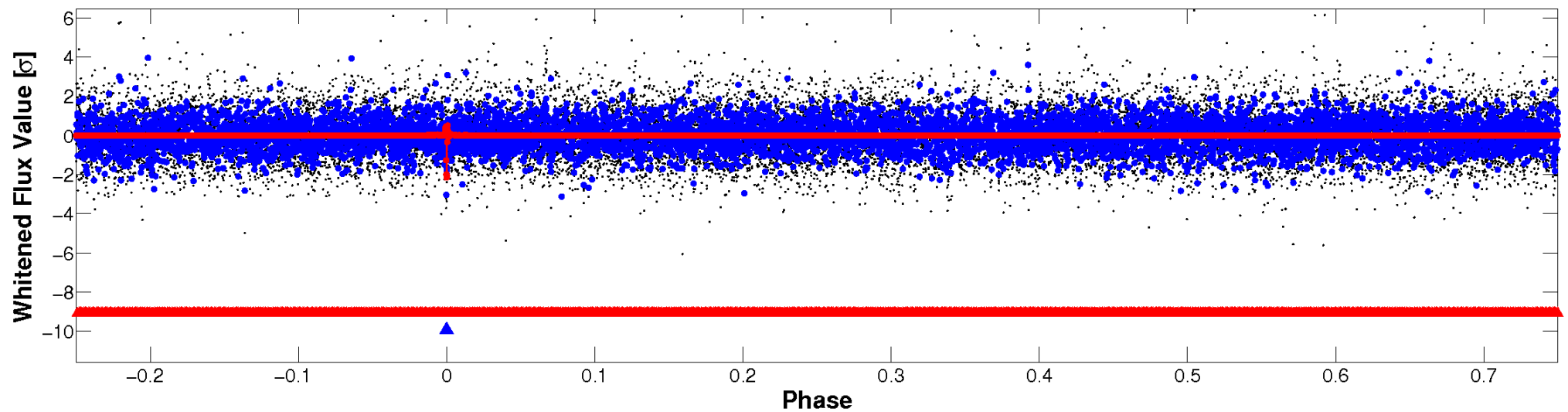


Non-Whitened Vs. Whitened Light Curve

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

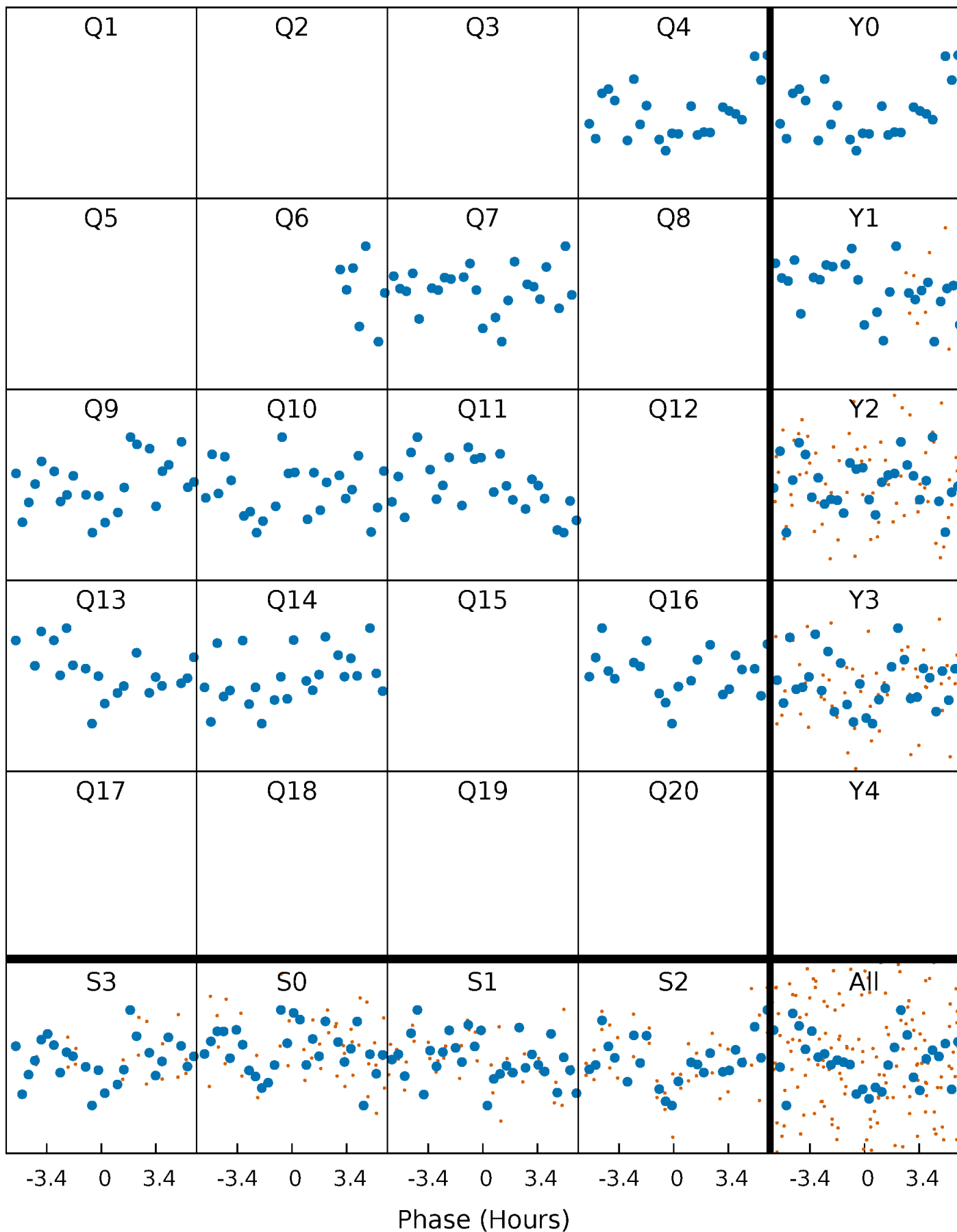


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



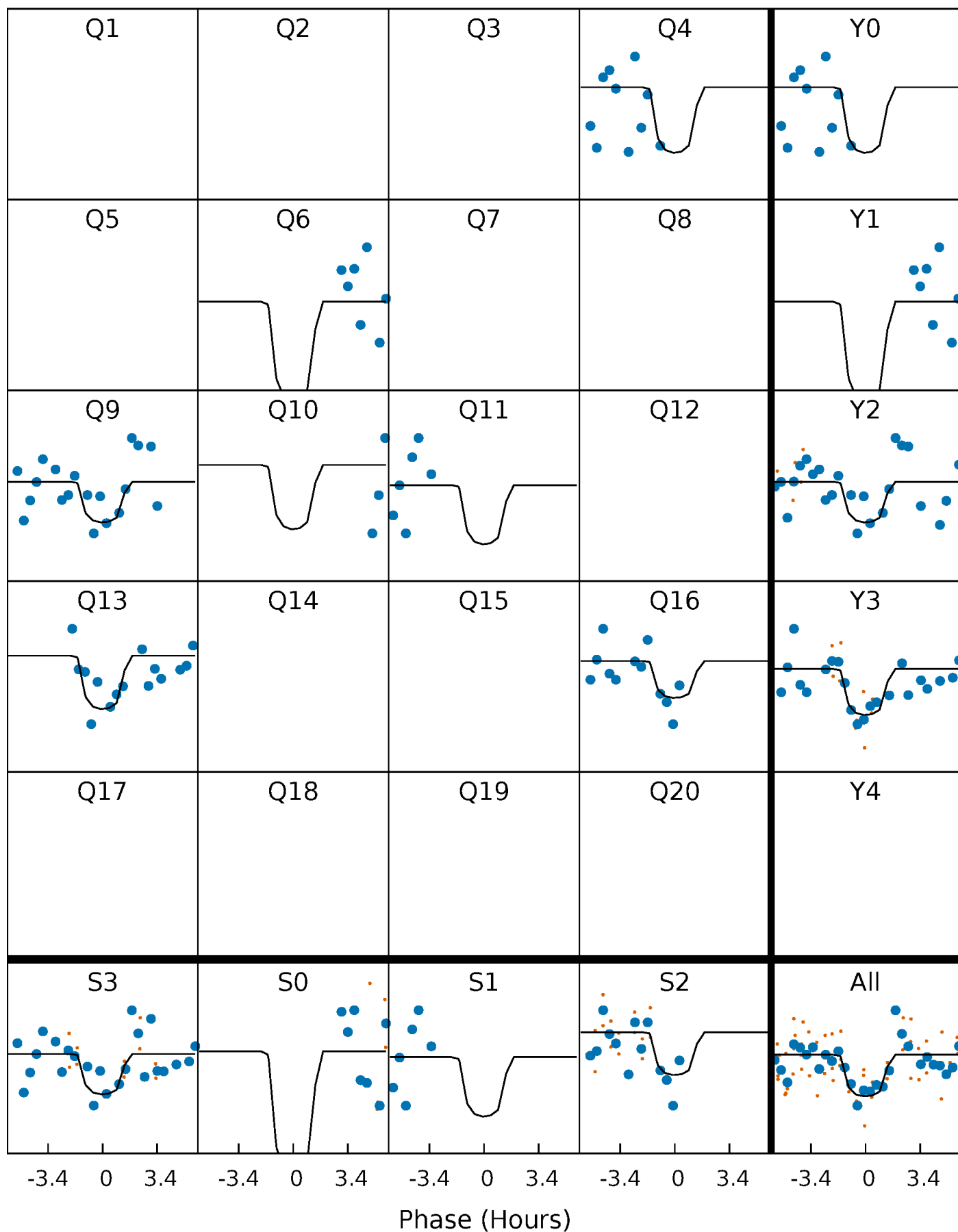
PDC Quarter-Phased Transit Curves

TCE 007538176-02 P=137.893583 Days $T_0=263.566225$ (BKJD)



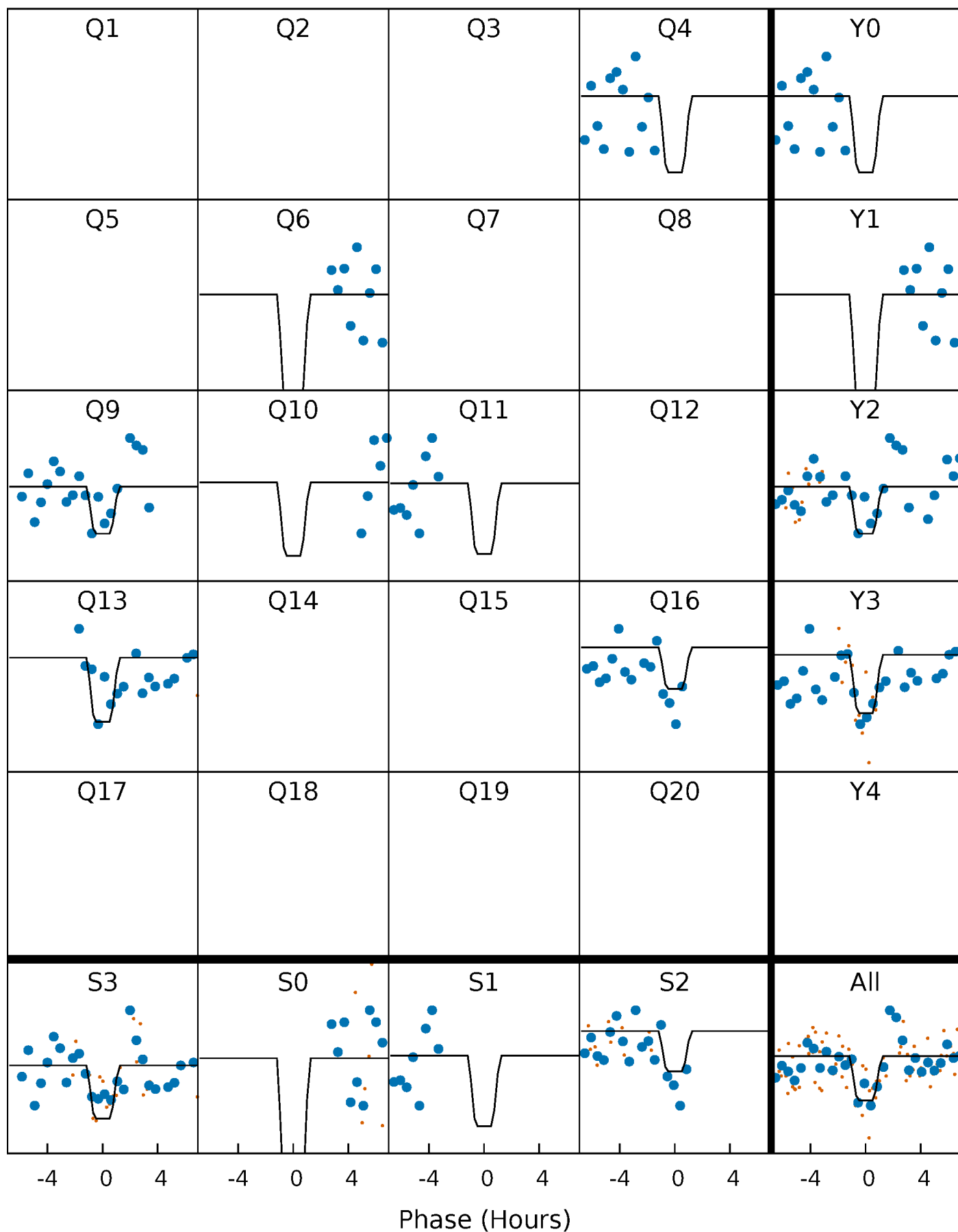
DV Quarter-Phased Transit Curves

TCE 007538176-02 P=137.893583 Days $T_0=263.566225$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

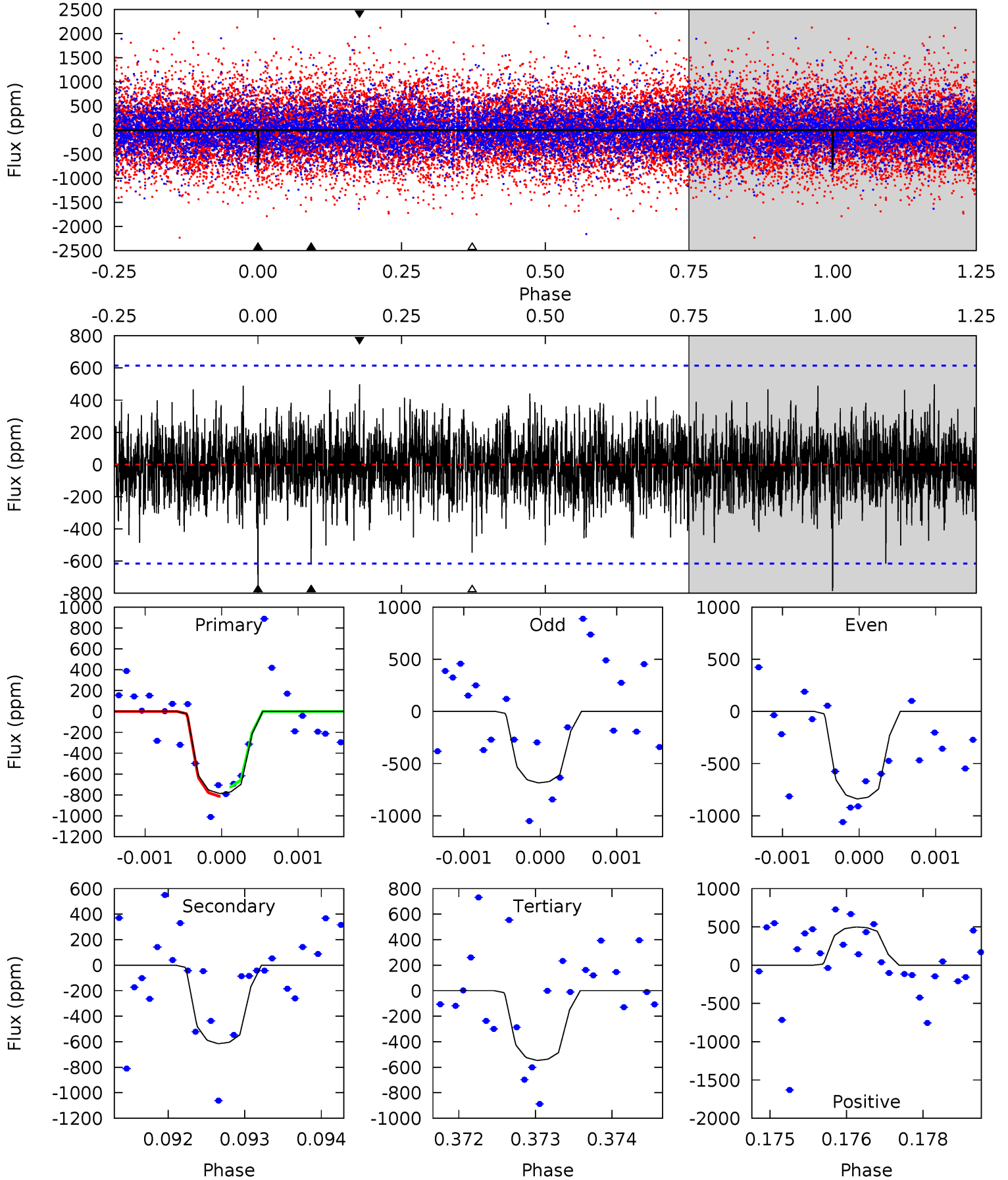
TCE 007538176-02 P=137.890225 Days $T_0=263.583614$ (BKJD)



DV Model-Shift Uniqueness Test

007538176-02, P = 137.893583 Days, E = 263.566225 Days

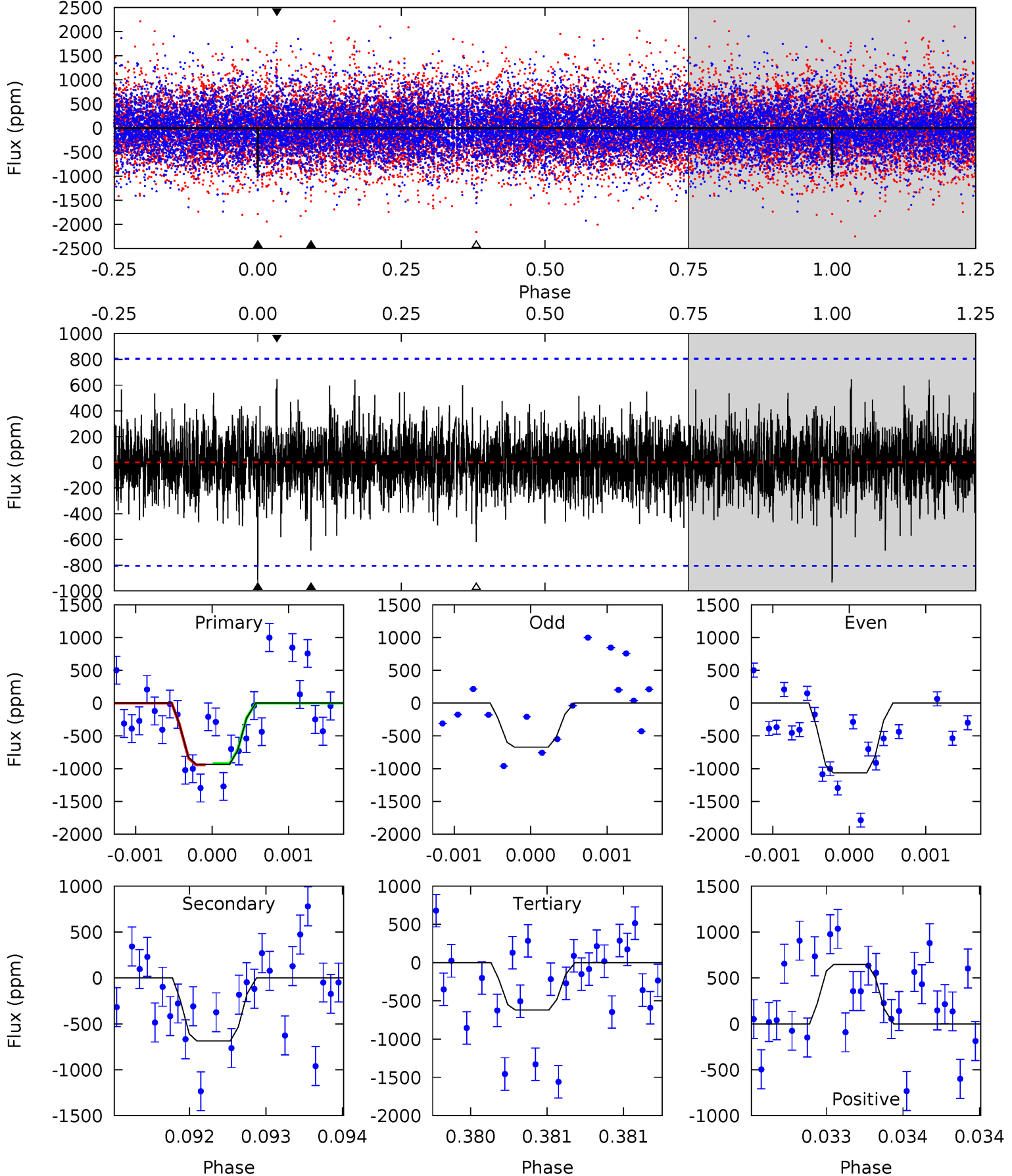
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.95	5.45	4.84	4.41	5.44	3.28	1.29	2.12	2.54	0.61	1.03	0.65	1.00	0.39	0.37



Alt Model-Shift Uniqueness Test

007538176-02, P = 137.890225 Days, E = 263.583614 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.40	4.70	4.24	4.44	5.52	3.40	1.14	2.15	1.96	0.46	0.27	1.28	1.35	0.41	0.07



Stellar Parameters For KIC 007538176

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5881^{+165}_{-206}	$4.477^{+0.067}_{-0.202}$	$-0.160^{+0.300}_{-0.300}$	$0.936^{+0.288}_{-0.096}$	$0.960^{+0.120}_{-0.120}$	$1.648^{+0.470}_{-0.877}$
	+3%/-4%	+1%/-5%	+188%/-188%	+31%/-10%	+12%/-12%	+29%/-53%
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 007538176-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-615 ± 113	$3.23^{+1.53}_{-1.42}$	495^{+37}_{-23}	5309^{+1714}_{-807}	8385^{+18120}_{-4585}
Alt.	-686 ± 146	$3.25^{+1.50}_{-1.43}$	495^{+33}_{-25}	5463^{+1691}_{-853}	9282^{+19233}_{-5045}

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 $A_{obs} \gg 1.0$

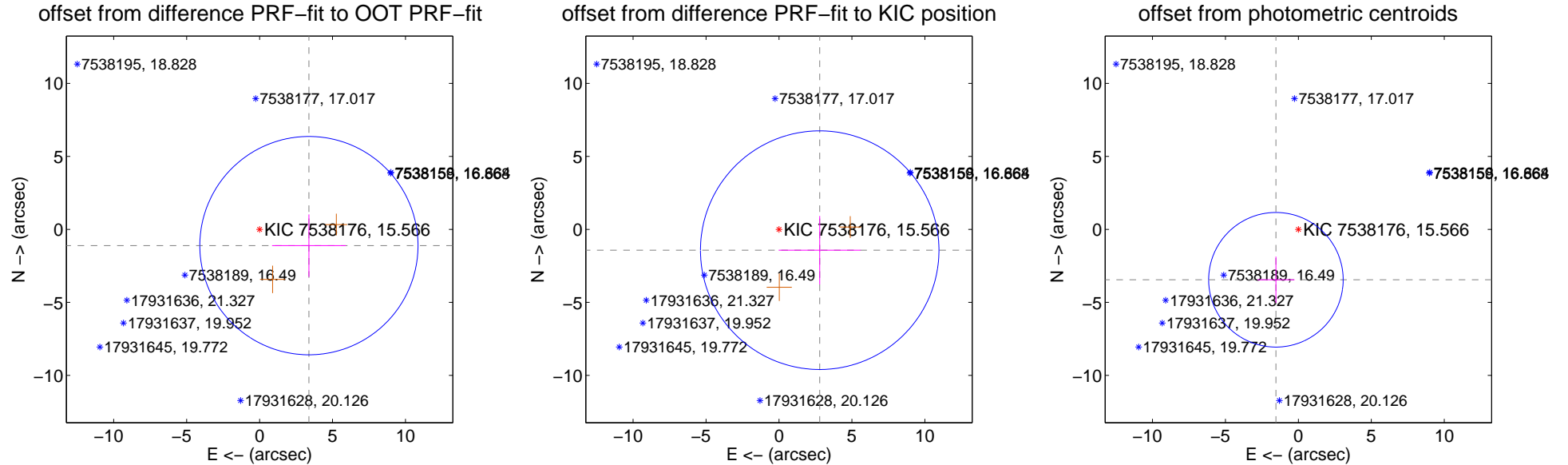
DV Centroid Data

Supplemental centroid analysis for 007538176-02. Kepler magnitude: 15.57. Transit SNR 7.47

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.560 ± 2.493	1.43	-3.382 ± 2.529	-1.113 ± 2.138
PRF-fit source offset from KIC position	3.135 ± 2.725	1.15	-2.792 ± 2.815	-1.425 ± 2.346
photometric centroid source offset	3.78 ± 1.54	2.46	1.54 ± 1.27	-3.45 ± 1.58



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



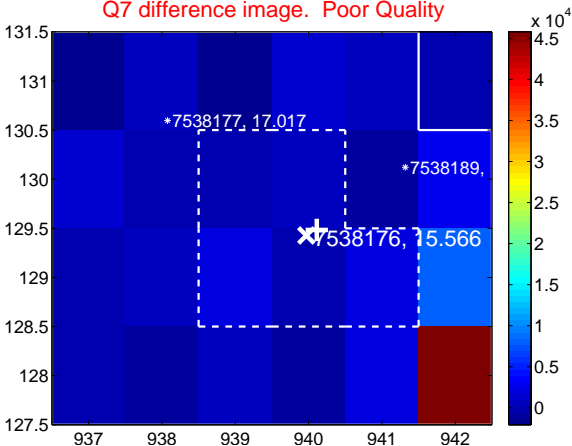
Q6 no difference image



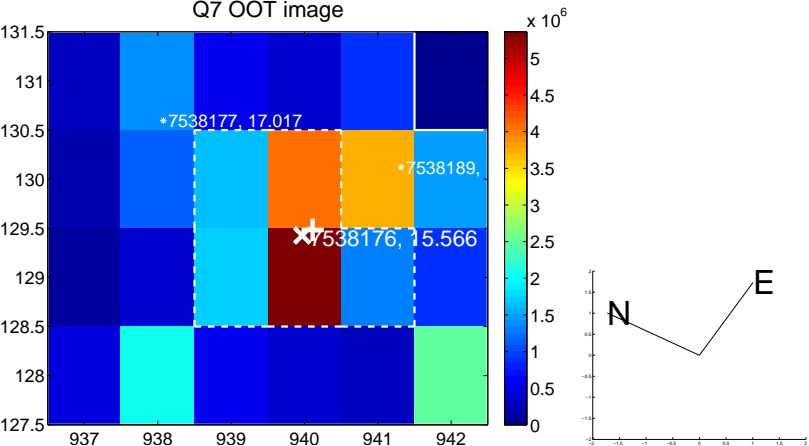
Q6 no OOT image



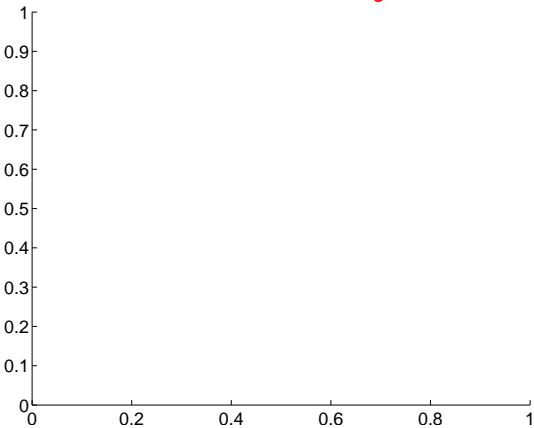
Q7 difference image. Poor Quality



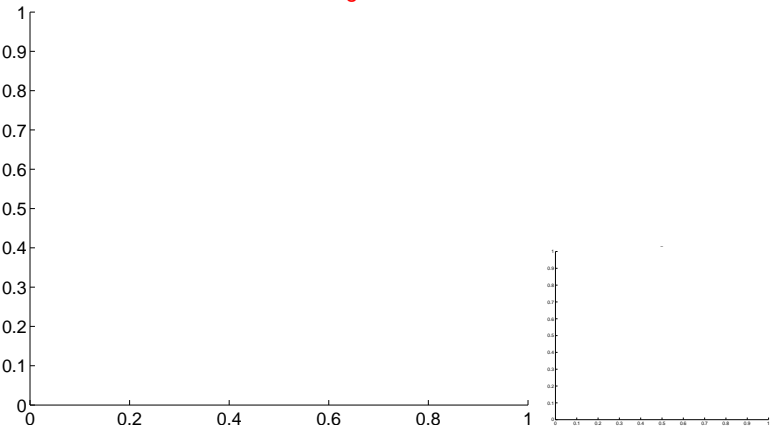
Q7 OOT image



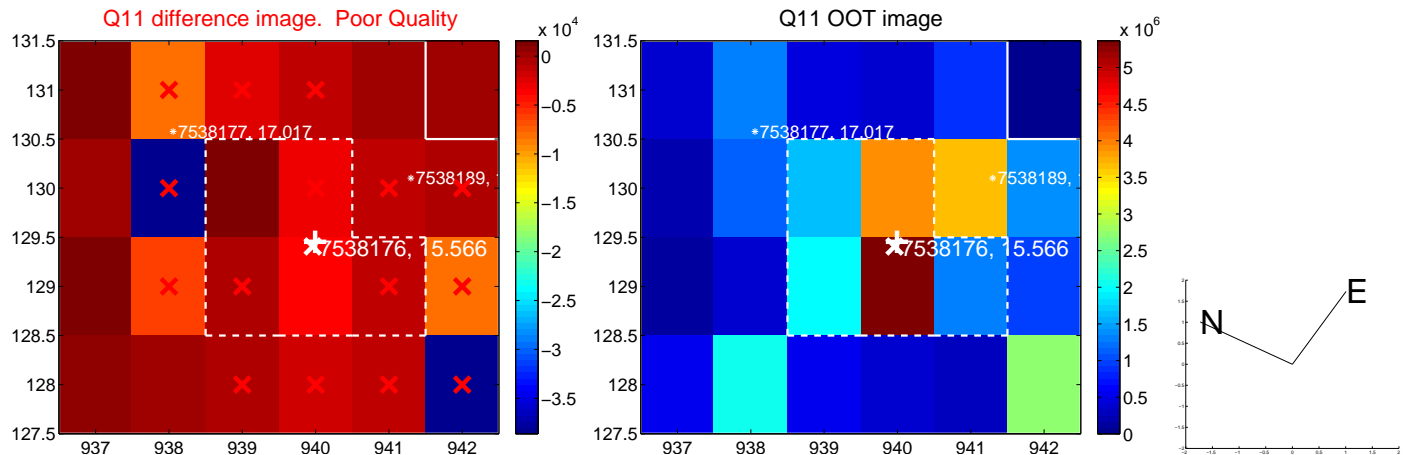
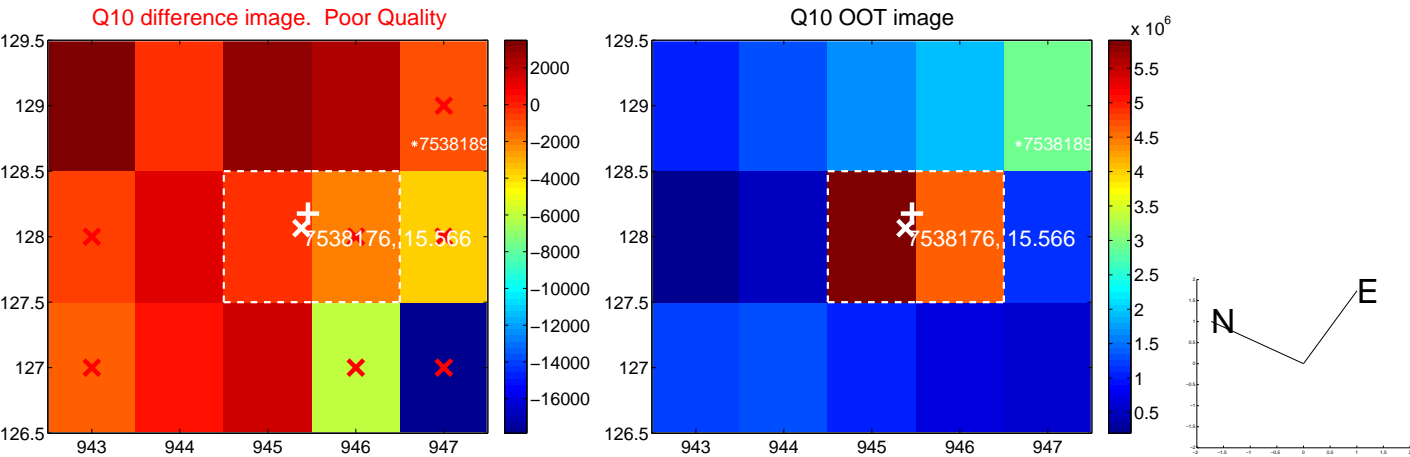
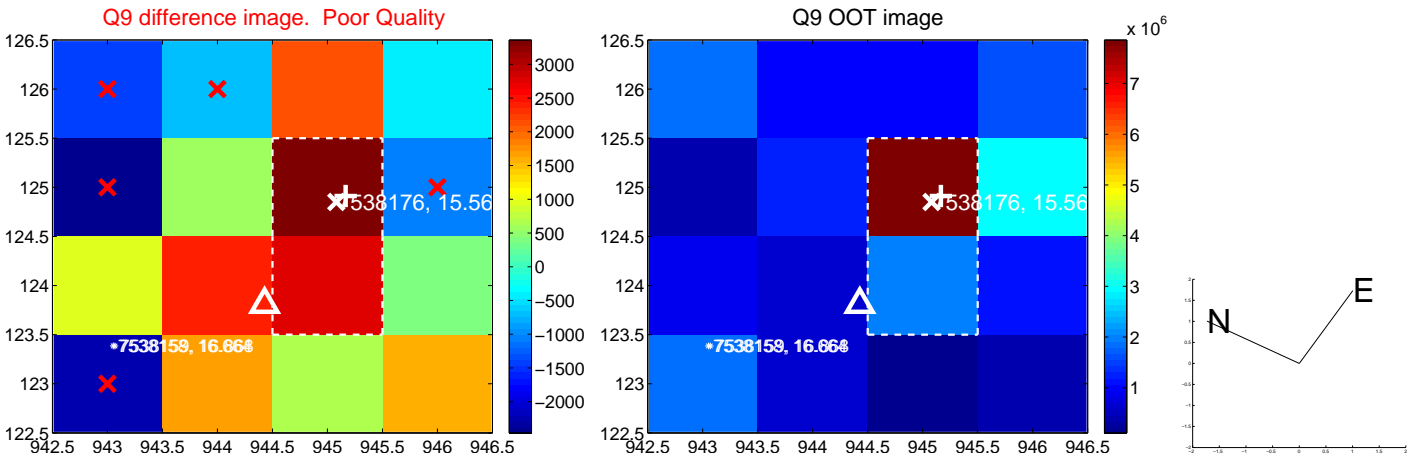
Q8 no difference image



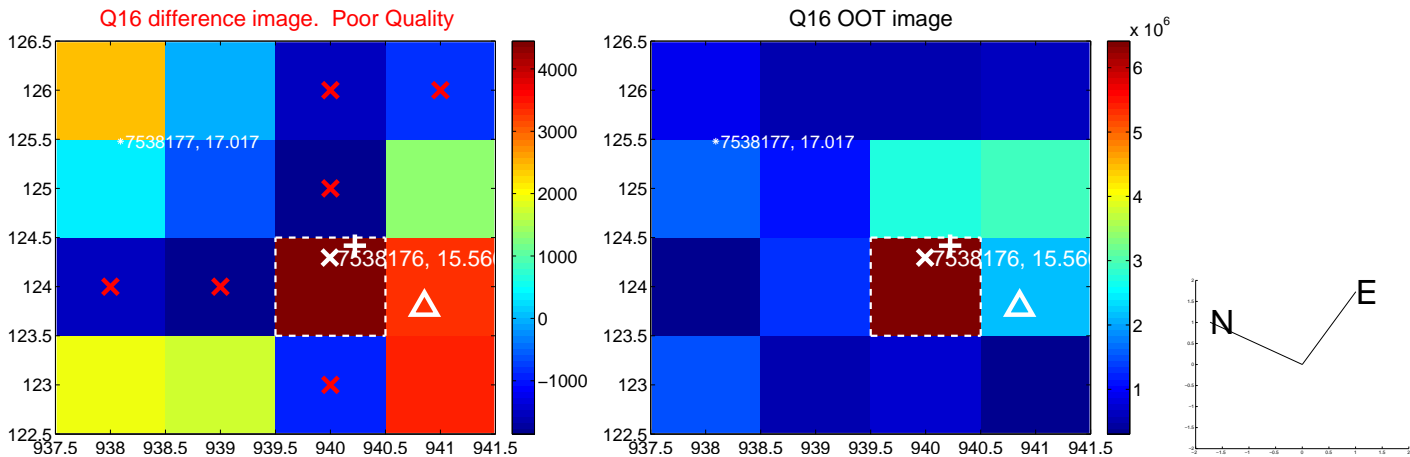
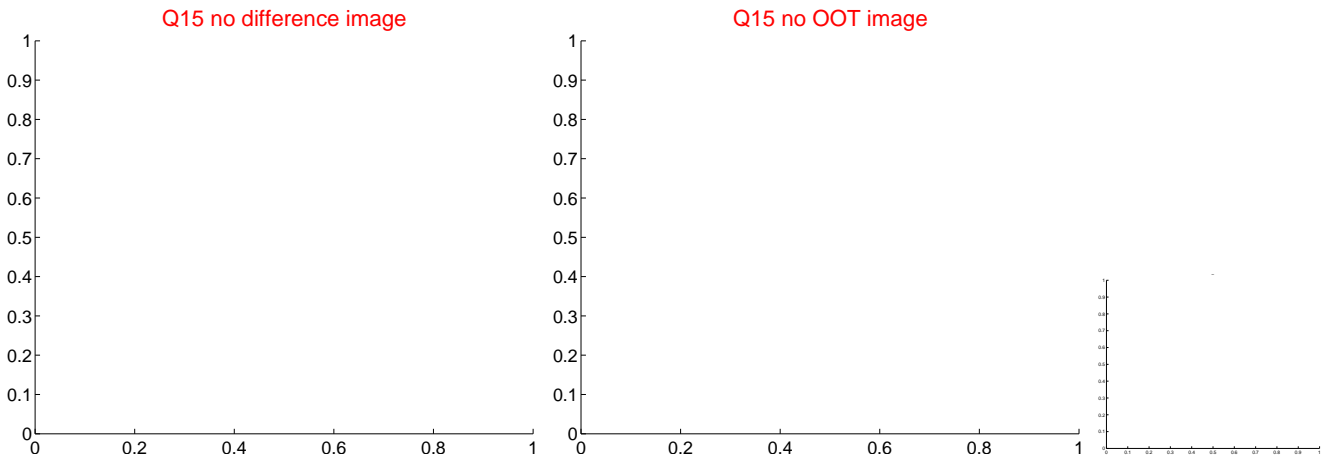
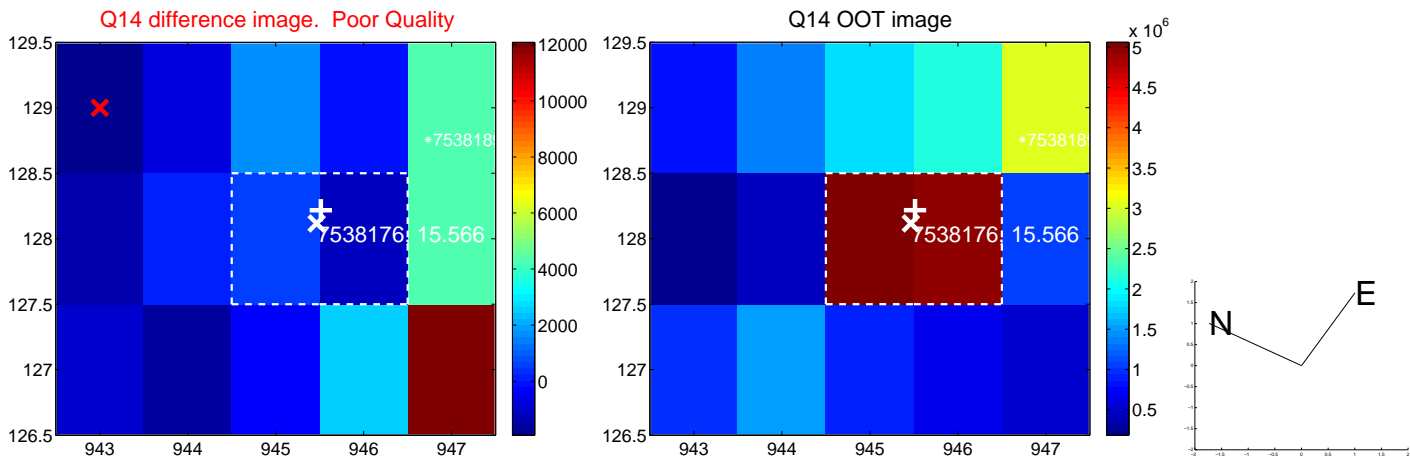
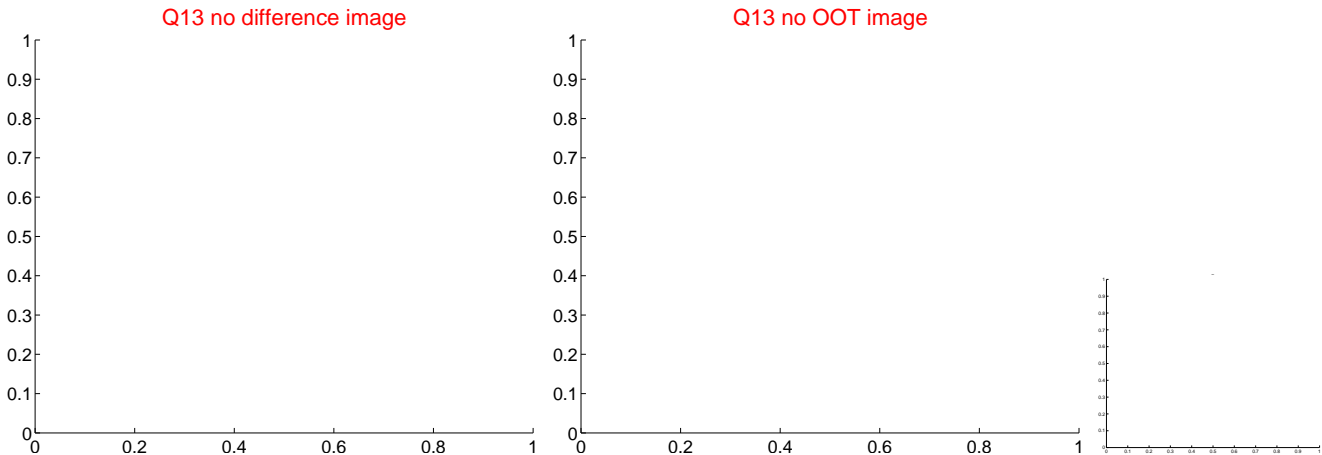
Q8 no OOT image



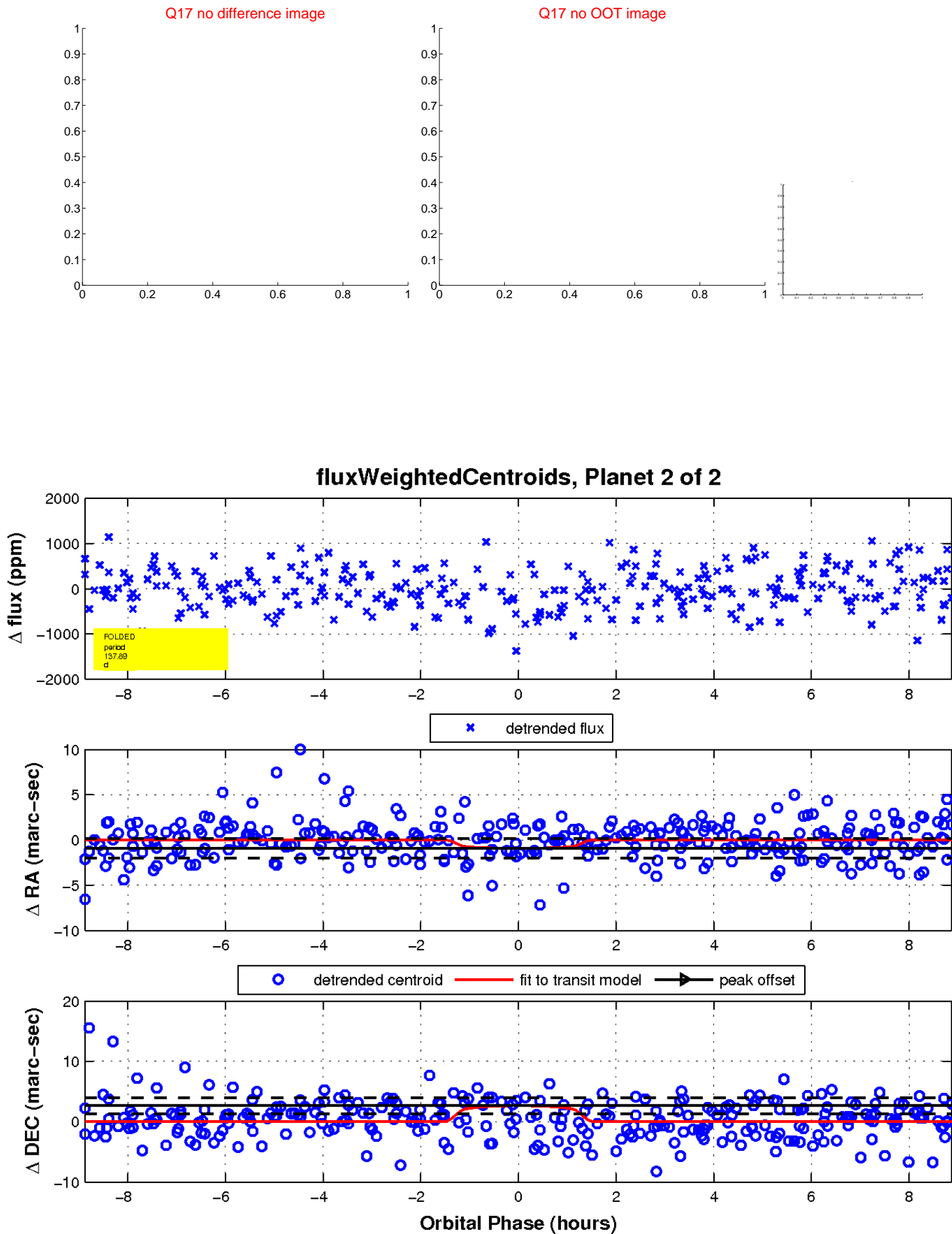
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

