

KIC 009541573

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})
009541573-01	OBS	No	315.881132	251.465724	1722.5	15.485	11.3	7.3	0.57	3705	2.29	0.10
009541573-02	OBS	No	249.283762	206.183196	2645.2	3.440	11.1	8.2	0.57	3705	3.19	0.13
009541573-03	OBS	No	211.110533	149.334247	1207.3	16.442	9.9	5.8	0.57	3705	1.95	0.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009541573-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009541573-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009541573-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—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.

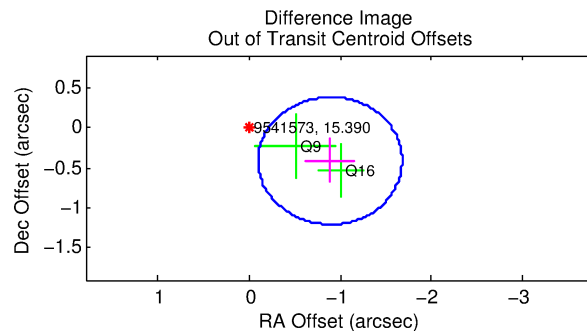
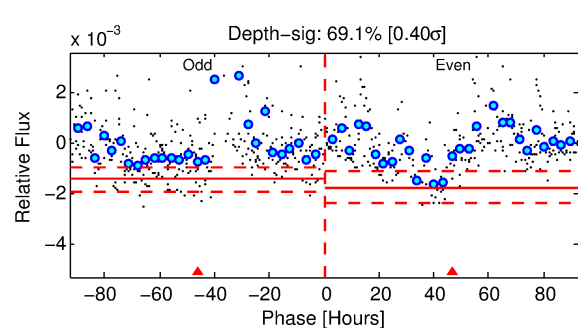
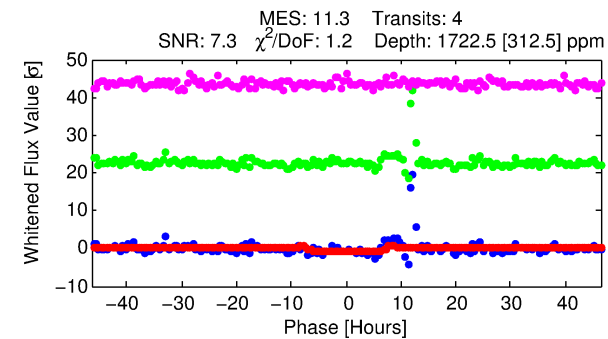
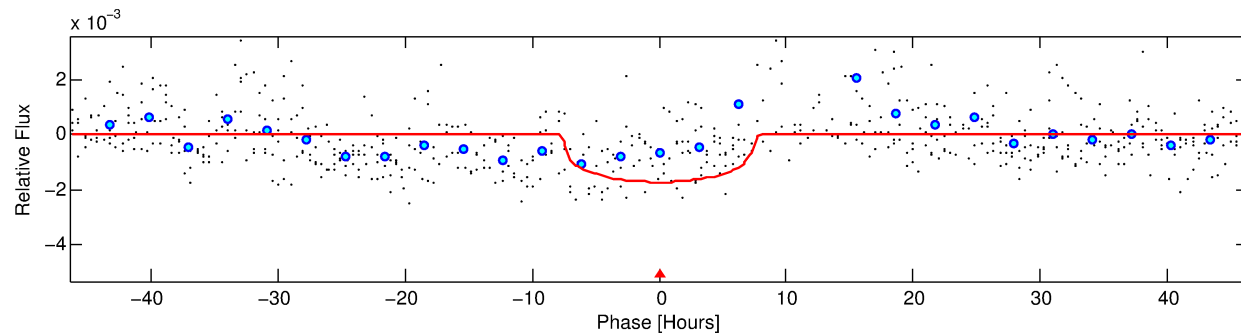
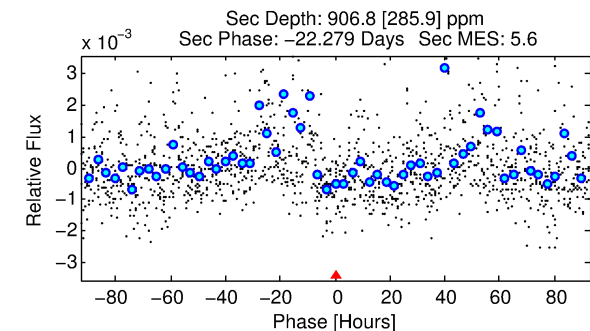
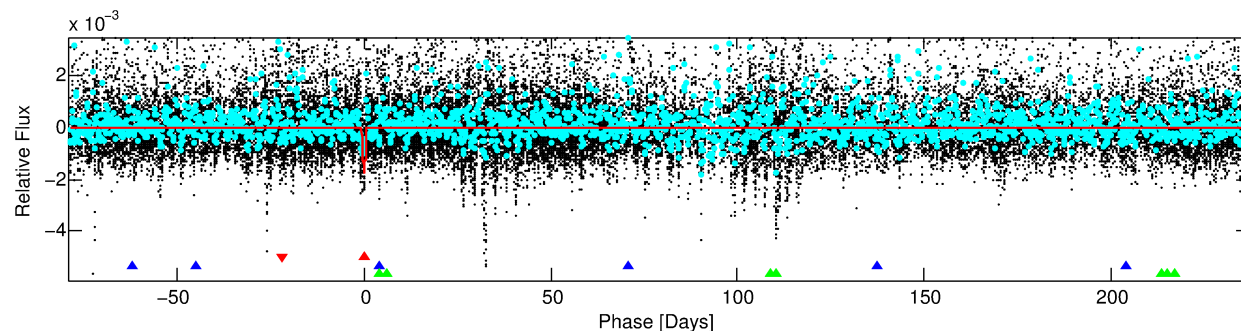
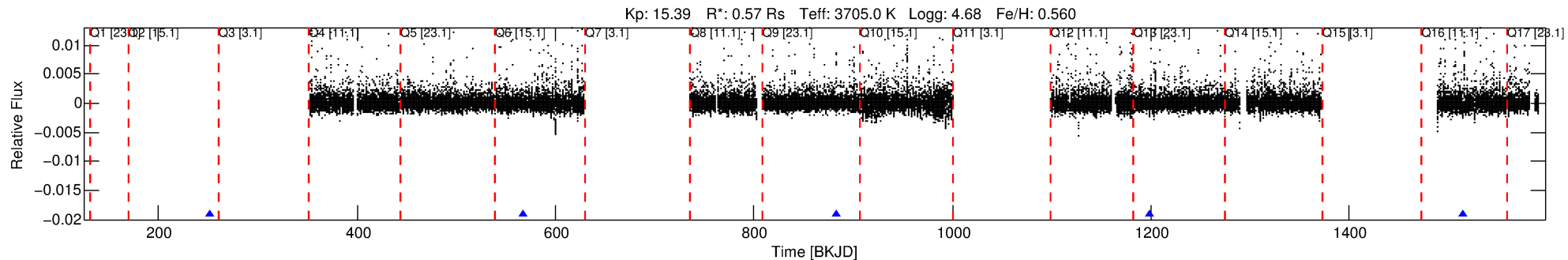
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009541573-01

No Significant Match Found

DV One-Page Summary

KIC: 9541573 Candidate: 1 of 3 Period: 315.881 d



DV Fit Results:

Period = 315.88113 [0.01042] d
Epoch = 251.4657 [0.0306] BKJD
Rp/R* = 0.0368 [0.0195]
a/R* = 156.75 [252.23]
b = 0.25 [6.03]
Seff = 0.10 [0.02]
Teq = 142 [8] K
Rp = 2.29 [1.25] Re
a = 0.7524 [0.0843] AU
Ag = 53949.73 [60061.09] [0.90σ]
Teffp = 3349 [933] K [3.44σ]

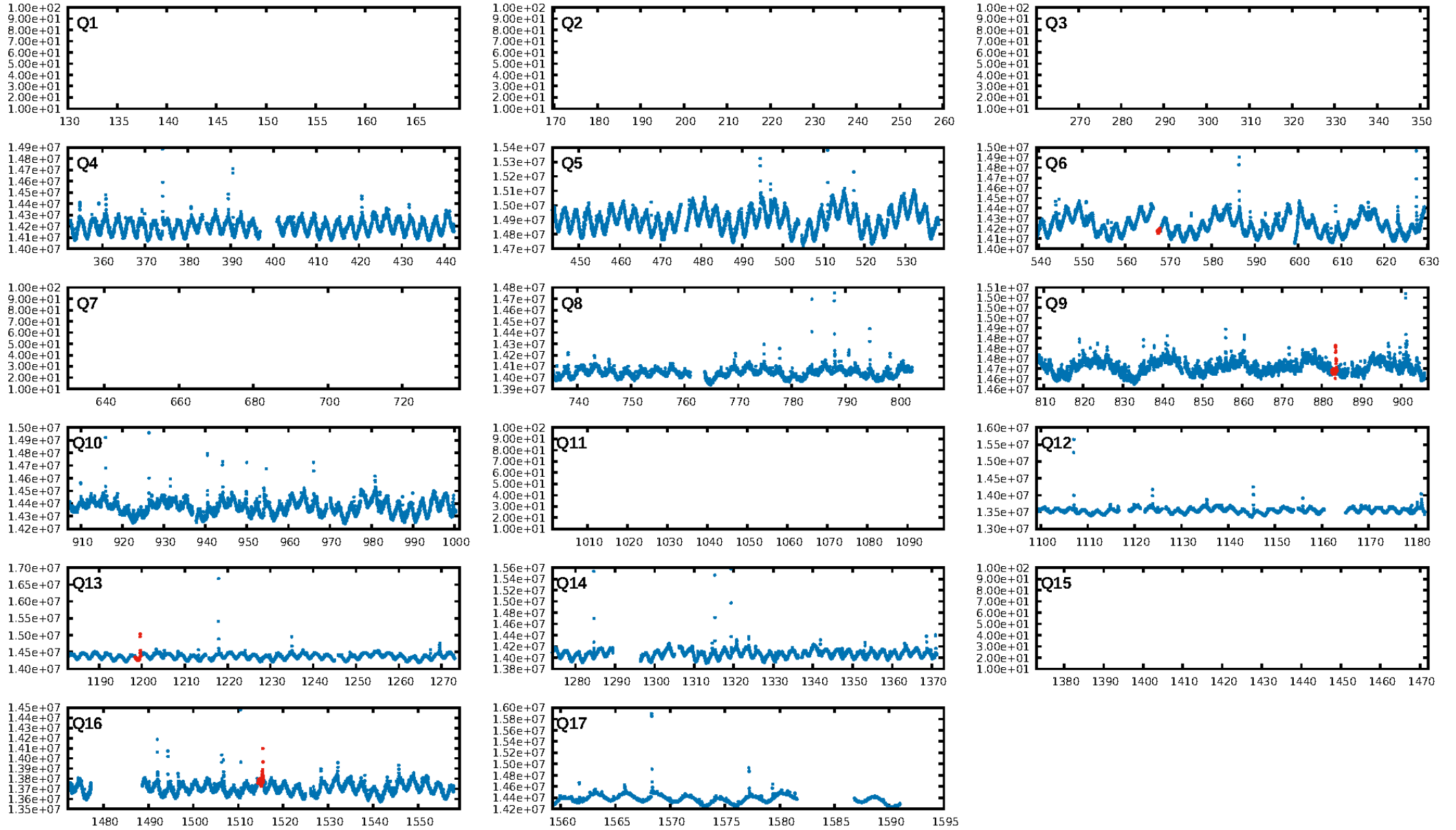
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [100.76σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.3%
ModelChiSquareGof-sig: 99.4%
Bootstrap-pfa: 5.42e-12
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.621
Centroid-sig: 7.8%
Centroid-so: 0.466 arcsec [0.91σ]
OotOffset-rm: 0.981 arcsec [3.71σ]
KicOffset-rm: 0.536 arcsec [2.03σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

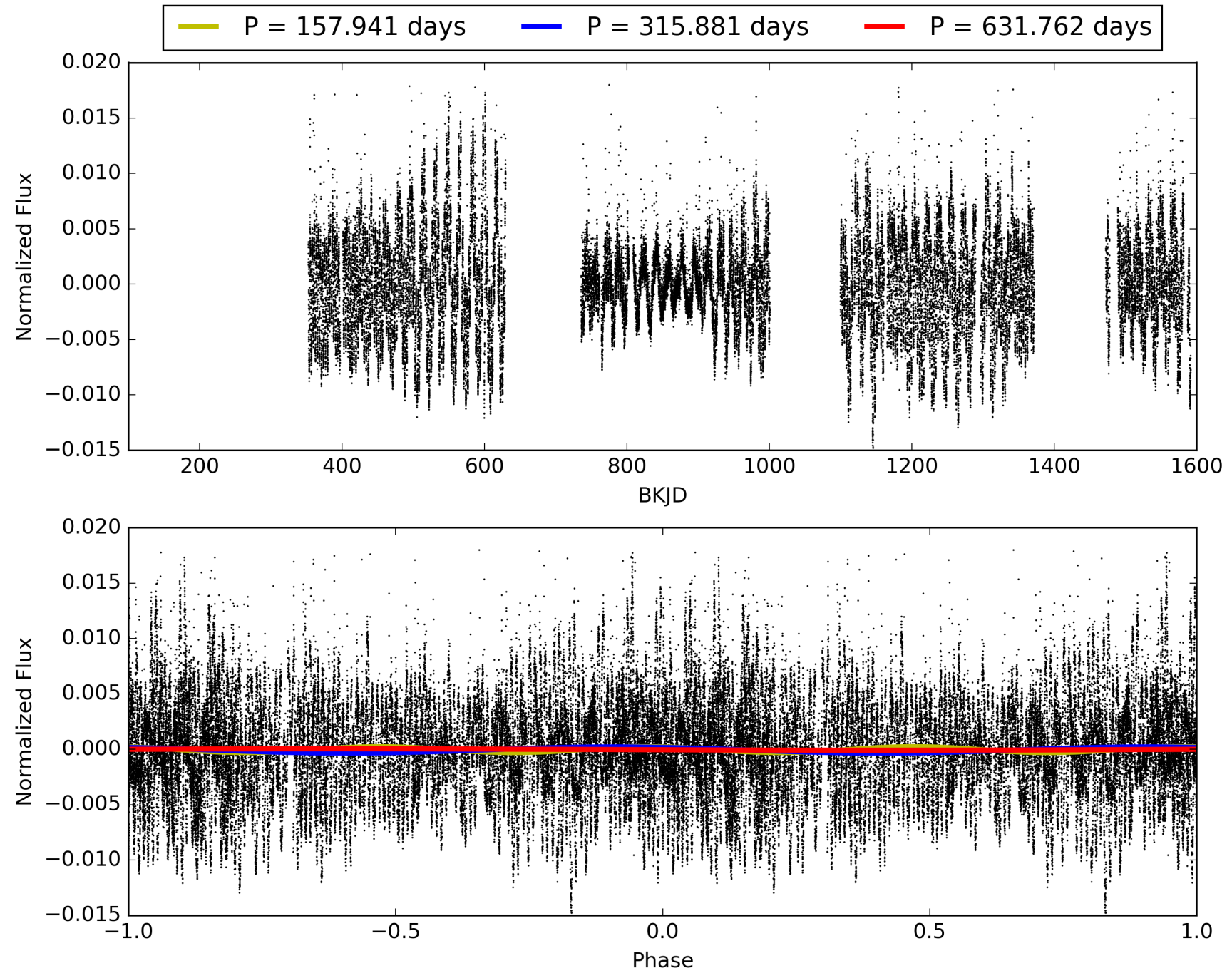
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:26:42 Z

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

TCE 009541573-01, PDC Light Curves

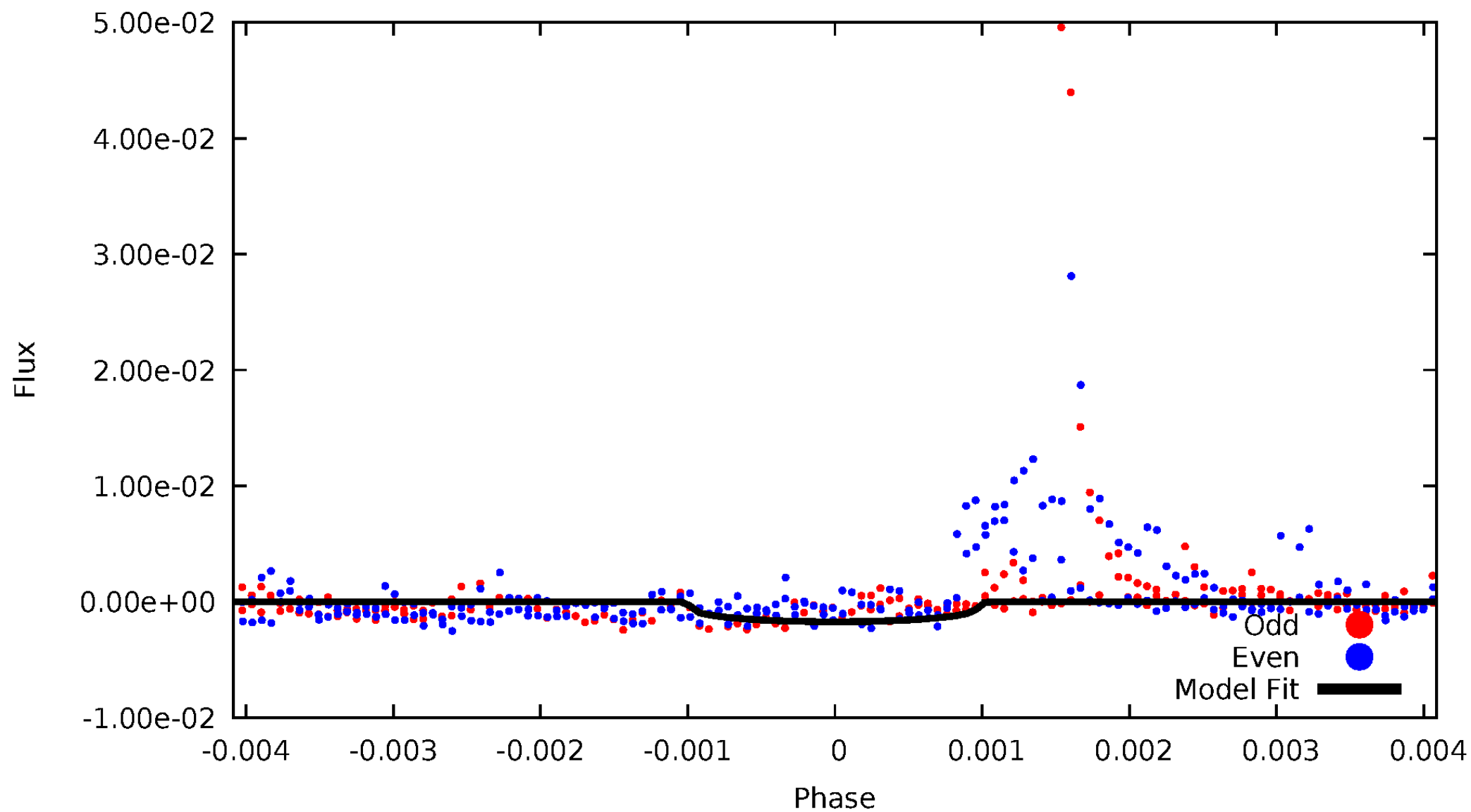


TCE 009541573-01



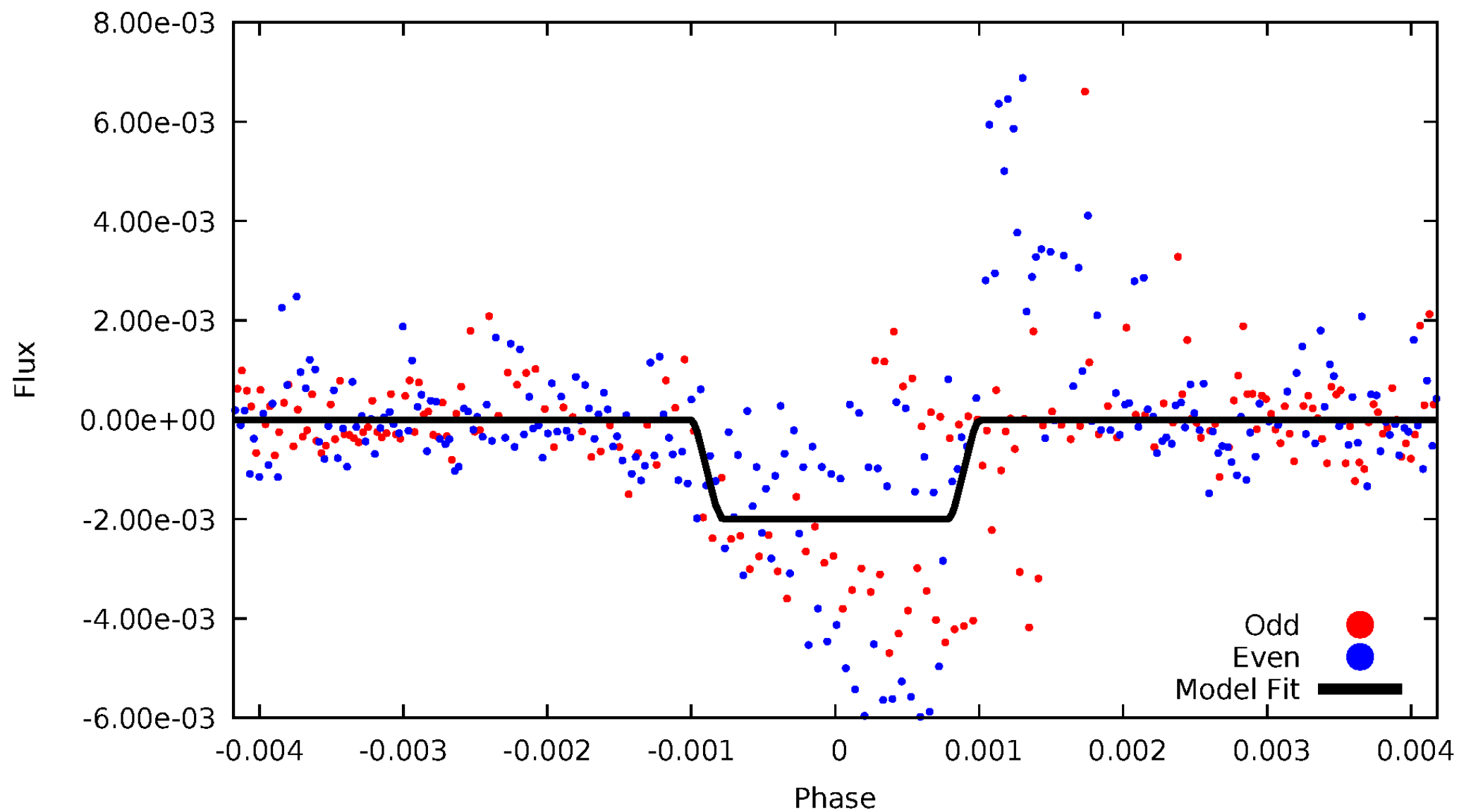
DV Odd/Even

TCE 009541573-01

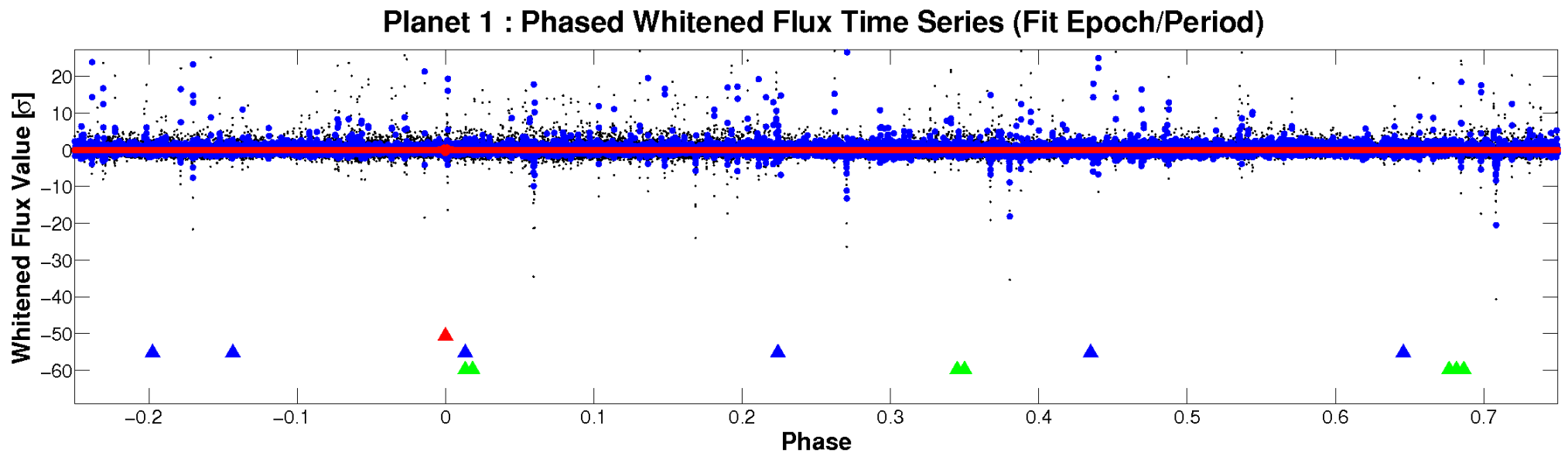
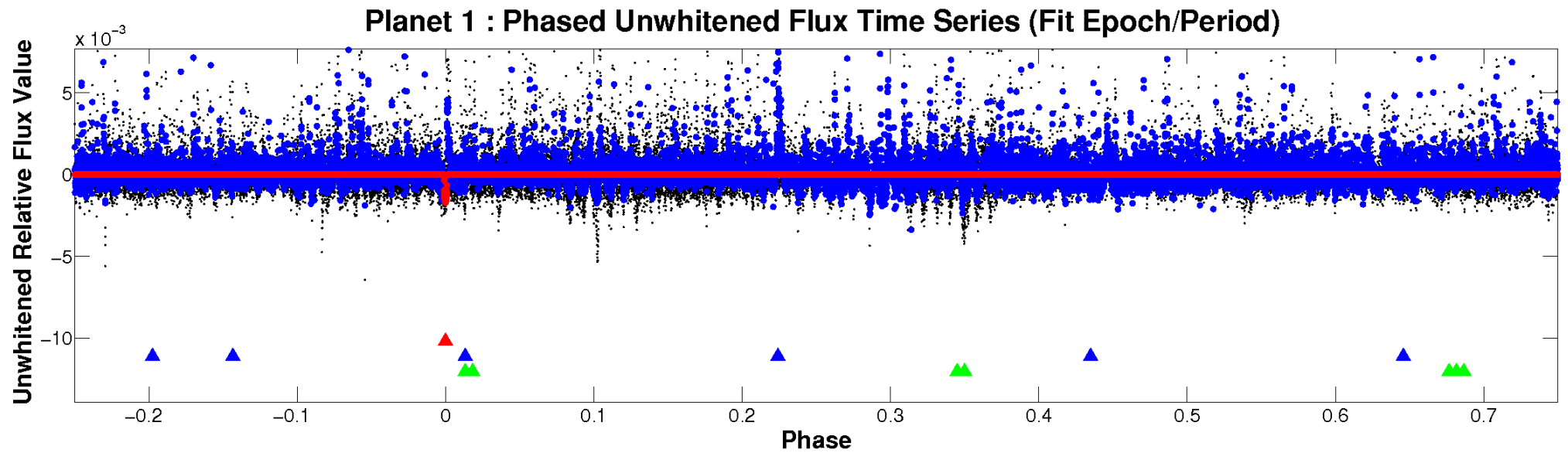


ALT Odd/Even

TCE 009541573-01

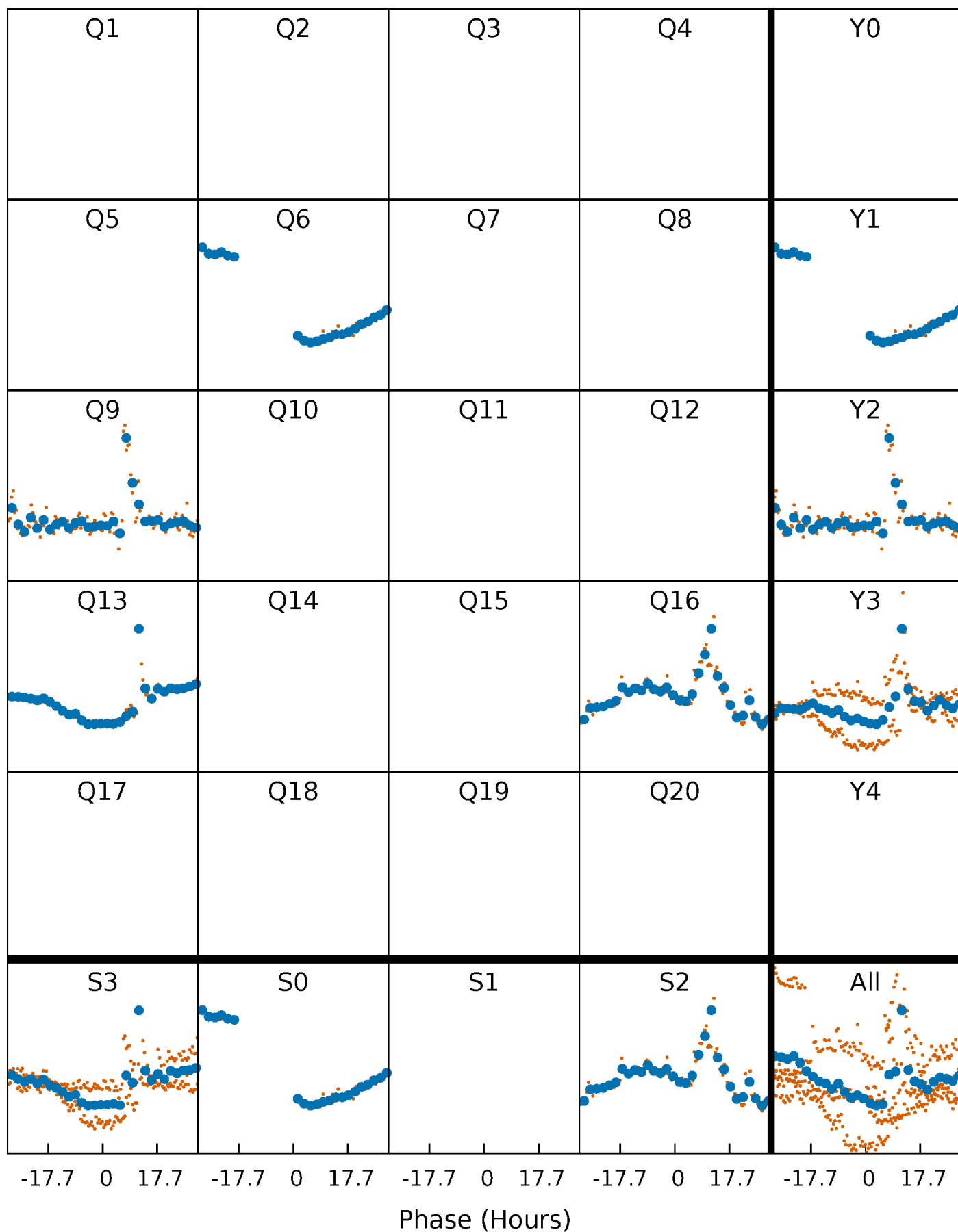


Non-Whitened Vs. Whitened Light Curve



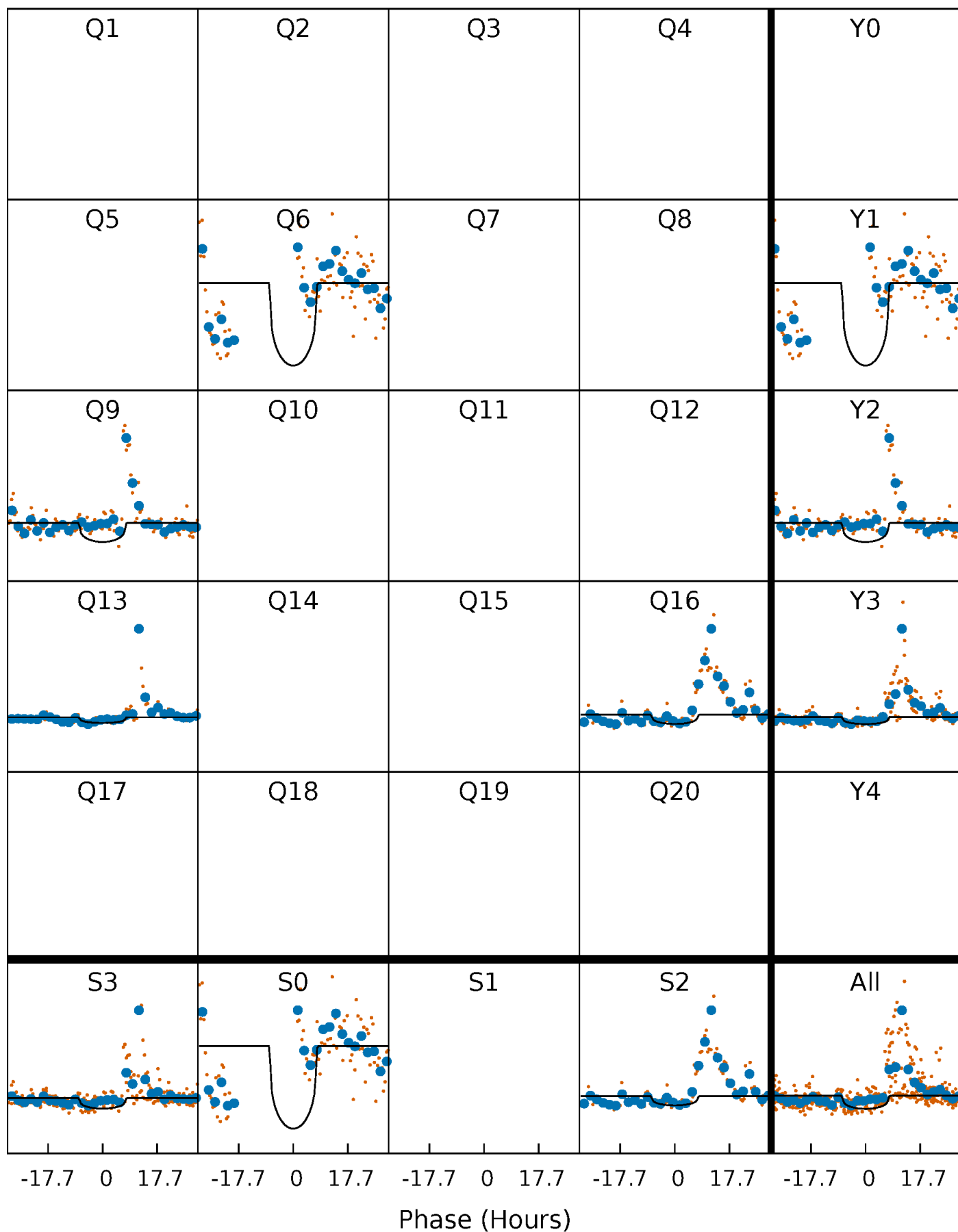
PDC Quarter-Phased Transit Curves

TCE 009541573-01 P=315.881132 Days $T_0=251.465724$ (BKJD)



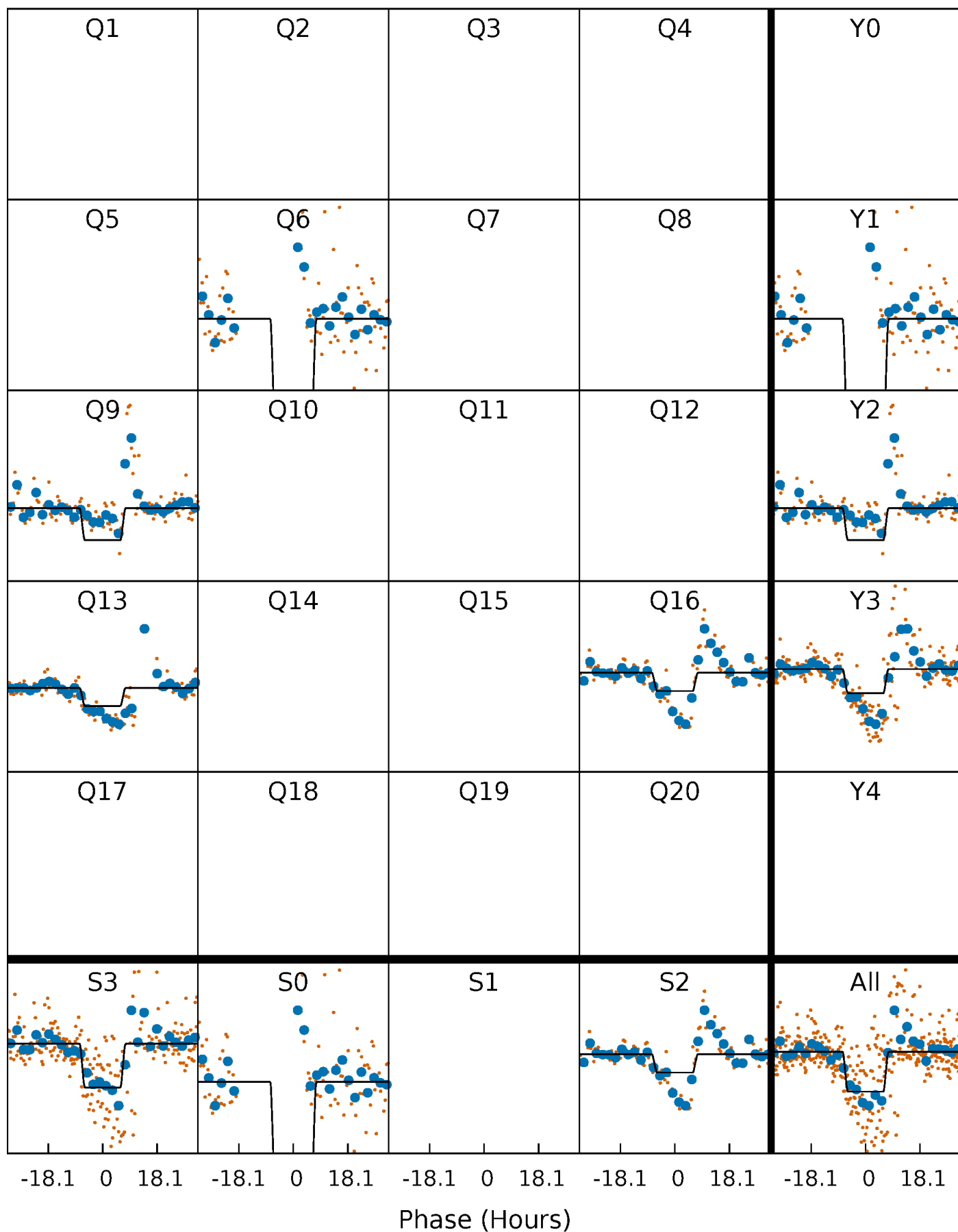
DV Quarter-Phased Transit Curves

TCE 009541573-01 P=315.881132 Days $T_0=251.465724$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

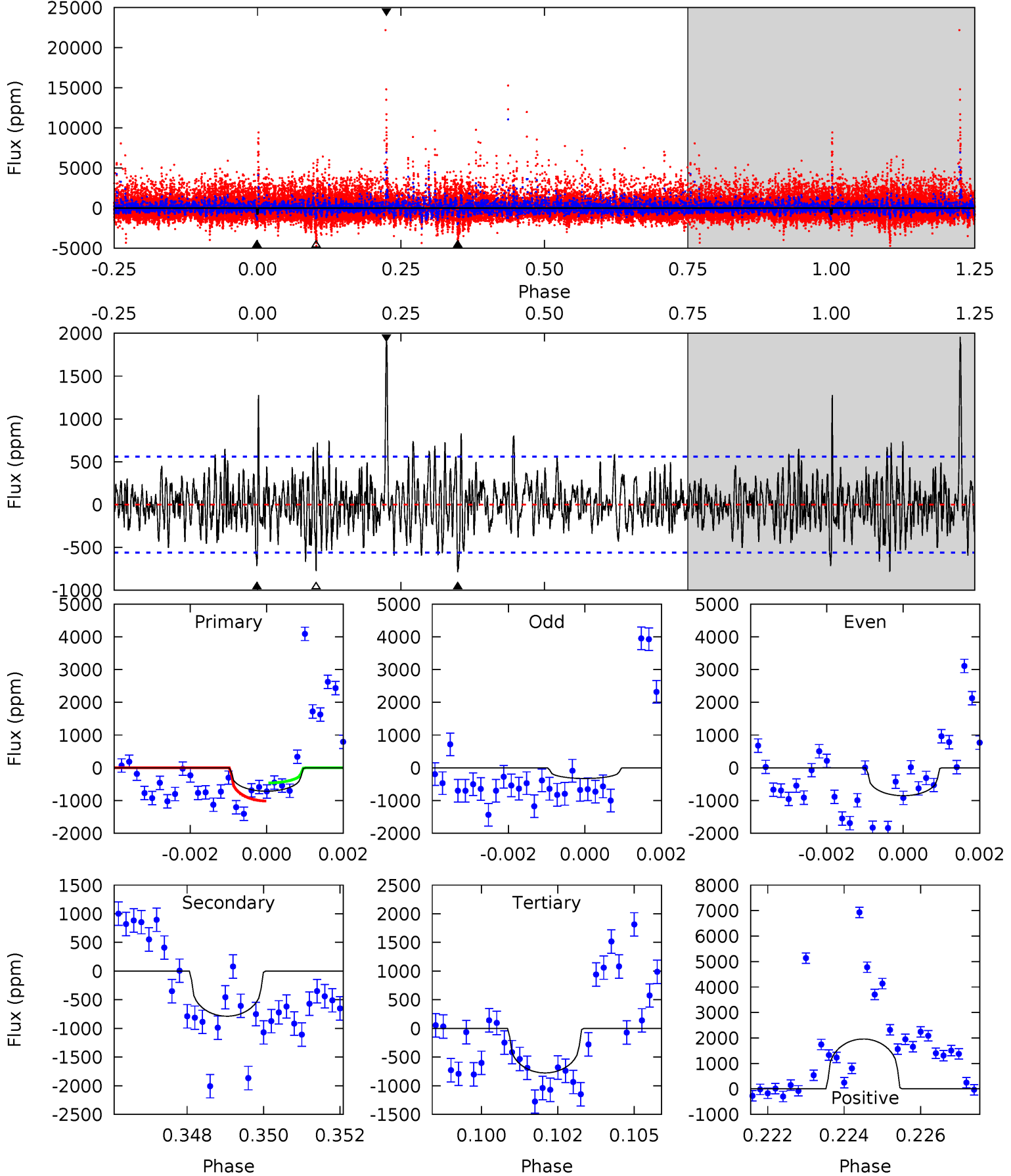
TCE 009541573-01 P=315.896026 Days $T_0=251.420087$ (BKJD)



DV Model-Shift Uniqueness Test

009541573-01, P = 315.881132 Days, E = 251.465724 Days

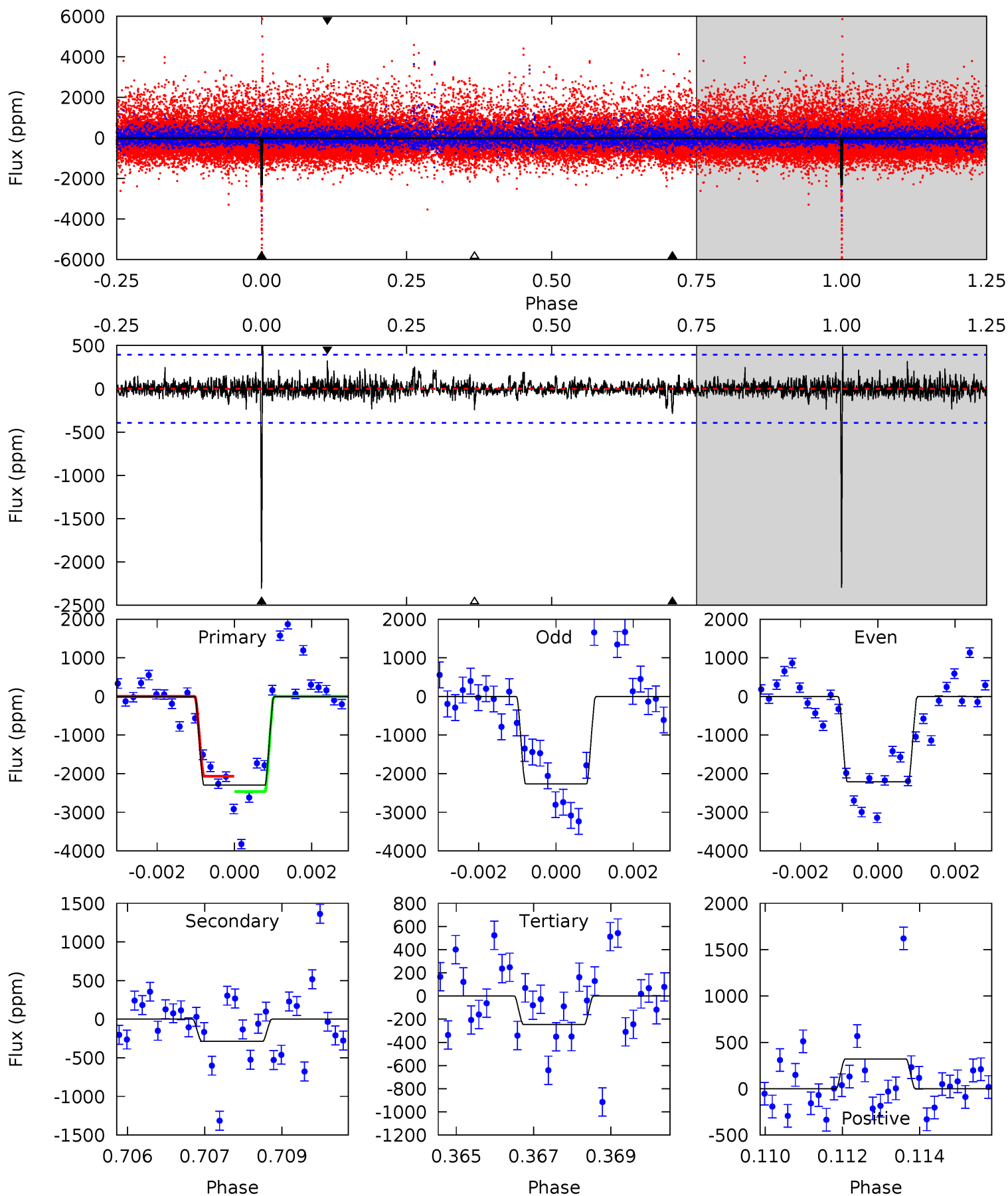
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.78	7.46	7.36	18.6	5.31	3.07	2.36	-0.58	-11.8	0.10	-11.1	1.68	1.14	0.71	2.64



Alt Model-Shift Uniqueness Test

009541573-01, P = 315.896026 Days, E = 251.420087 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.1	3.89	3.33	4.34	5.33	3.09	0.80	27.8	26.8	0.56	-0.45	0.36	0.89	0.18	2.67



Stellar Parameters For KIC 009541573

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3705^{+118}_{-148}	$4.683^{+0.075}_{-0.020}$	$0.560^{+0.050}_{-0.300}$	$0.569^{+0.033}_{-0.082}$	$0.570^{+0.036}_{-0.068}$	$4.352^{+1.705}_{-0.427}$
	+3%/-4%	+2%/-0%	+9%/-54%	+6%/-14%	+6%/-12%	+39%/-10%
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 009541573-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-787 ± 105	$2.32^{+1.18}_{-1.18}$	196^{+7}_{-9}	3346^{+903}_{-398}	$46534^{+143887}_{-27158}$
Alt.	-287 ± 74	$2.81^{+1.13}_{-1.15}$	197^{+7}_{-9}	2759^{+447}_{-289}	11362^{+21482}_{-6188}

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

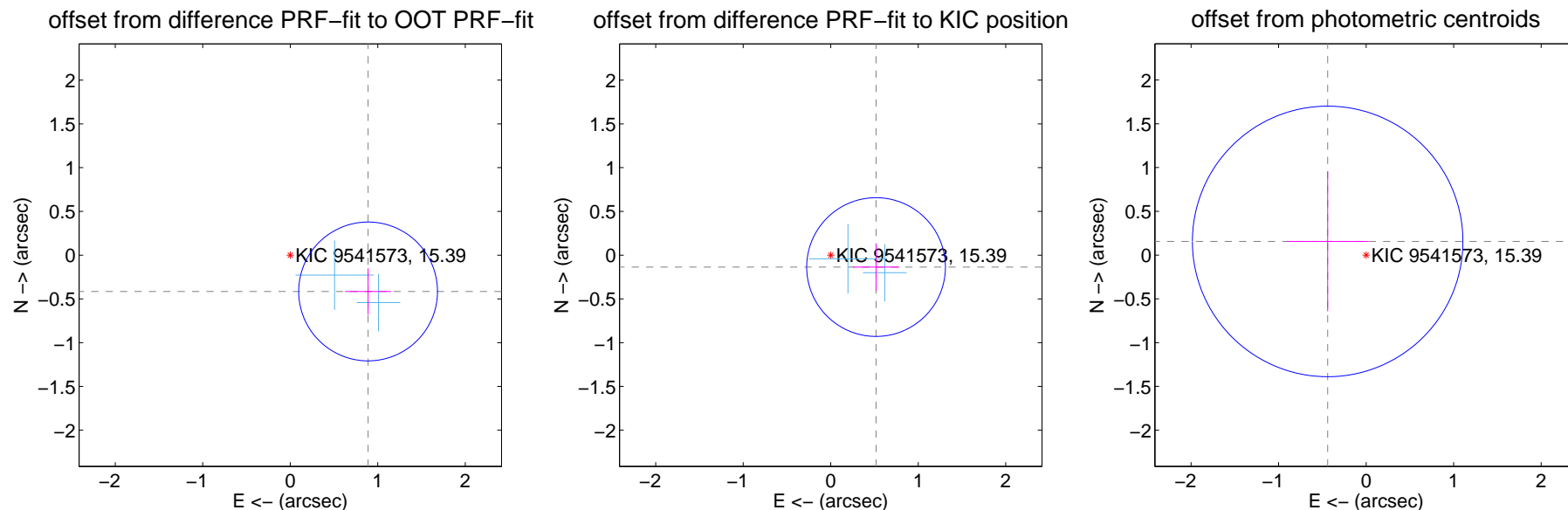
DV Centroid Data

Supplemental centroid analysis for 009541573-01. Kepler magnitude: 15.39. Transit SNR 7.28

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.981 ± 0.264	3.71	-0.890 ± 0.264	-0.415 ± 0.266
PRF-fit source offset from KIC position	0.536 ± 0.264	2.03	-0.518 ± 0.264	-0.136 ± 0.266
photometric centroid source offset	0.47 ± 0.52	0.91	0.44 ± 0.47	0.16 ± 0.80



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.

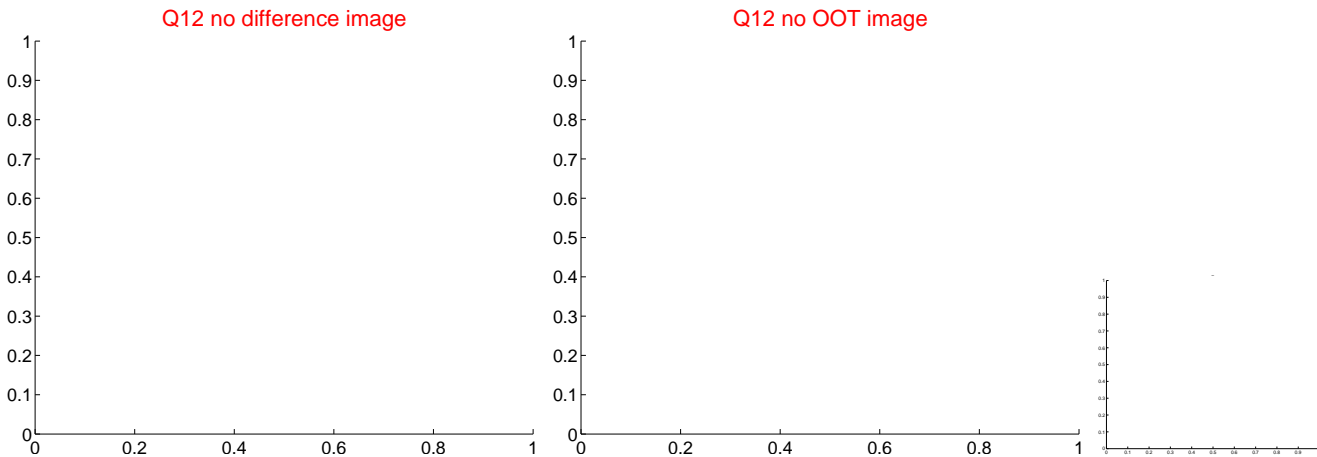
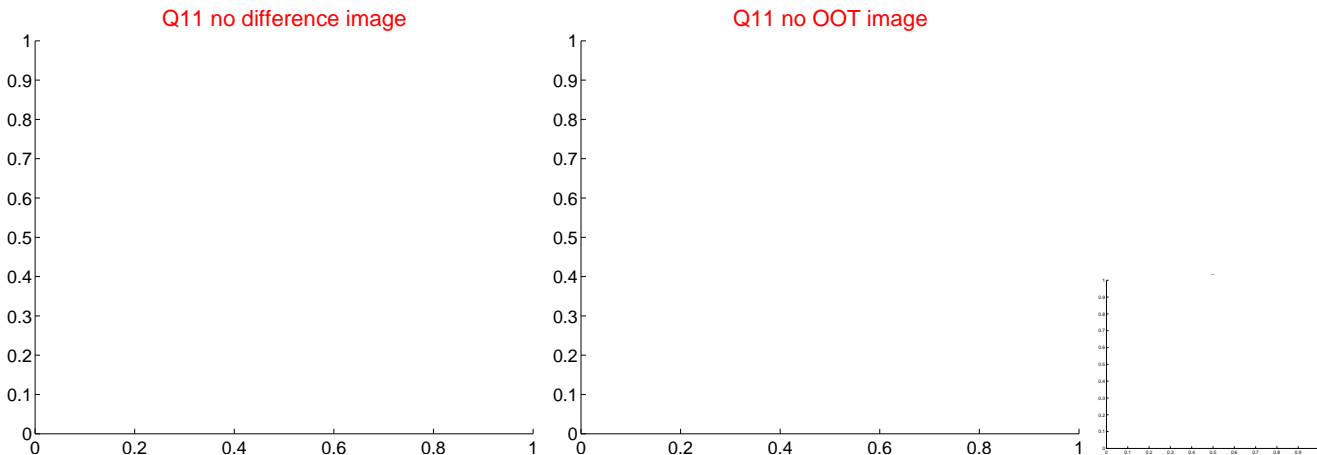
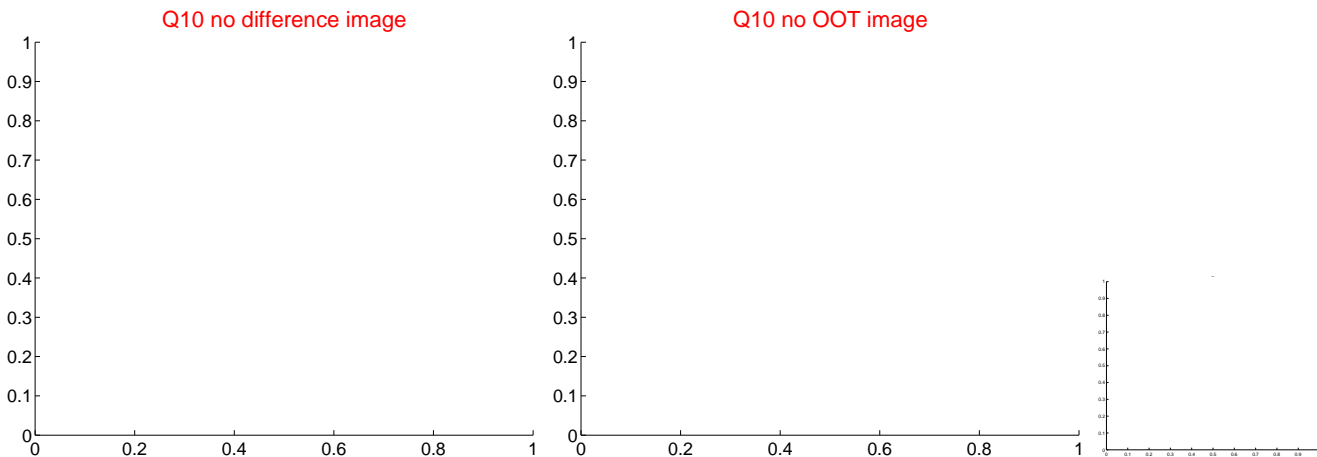
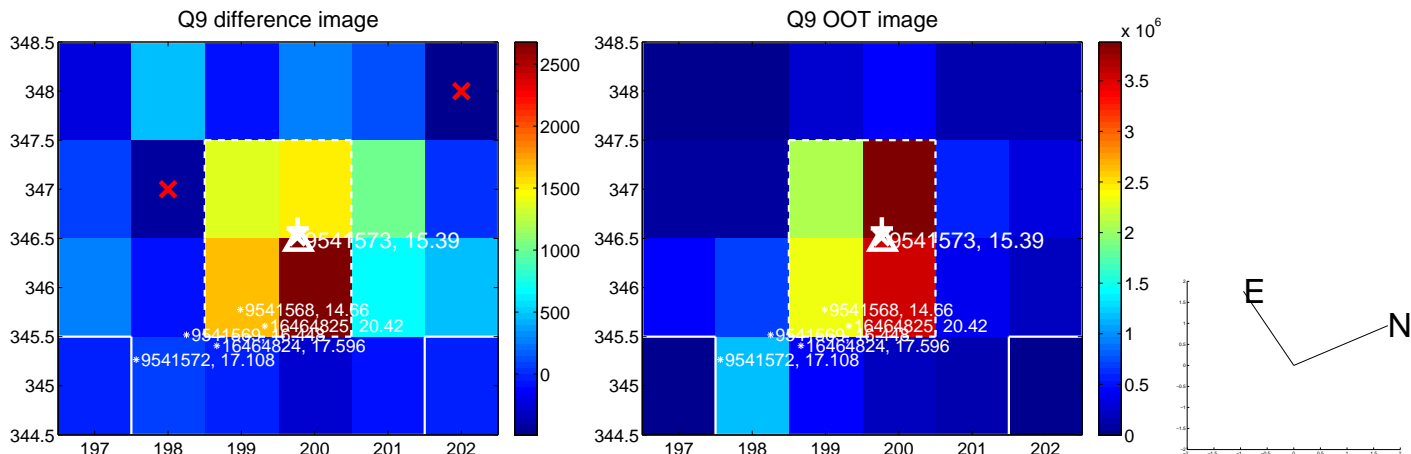
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



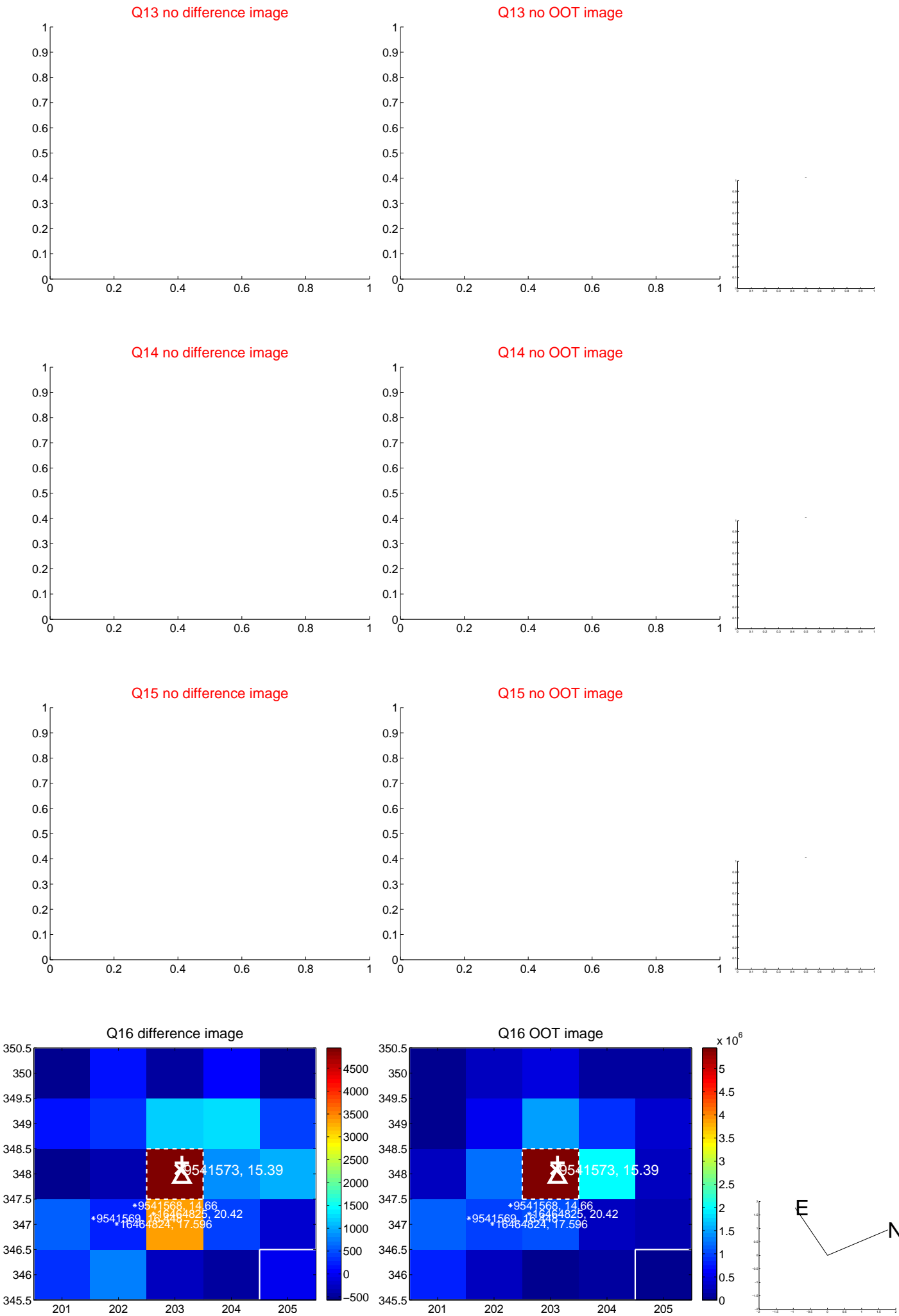
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



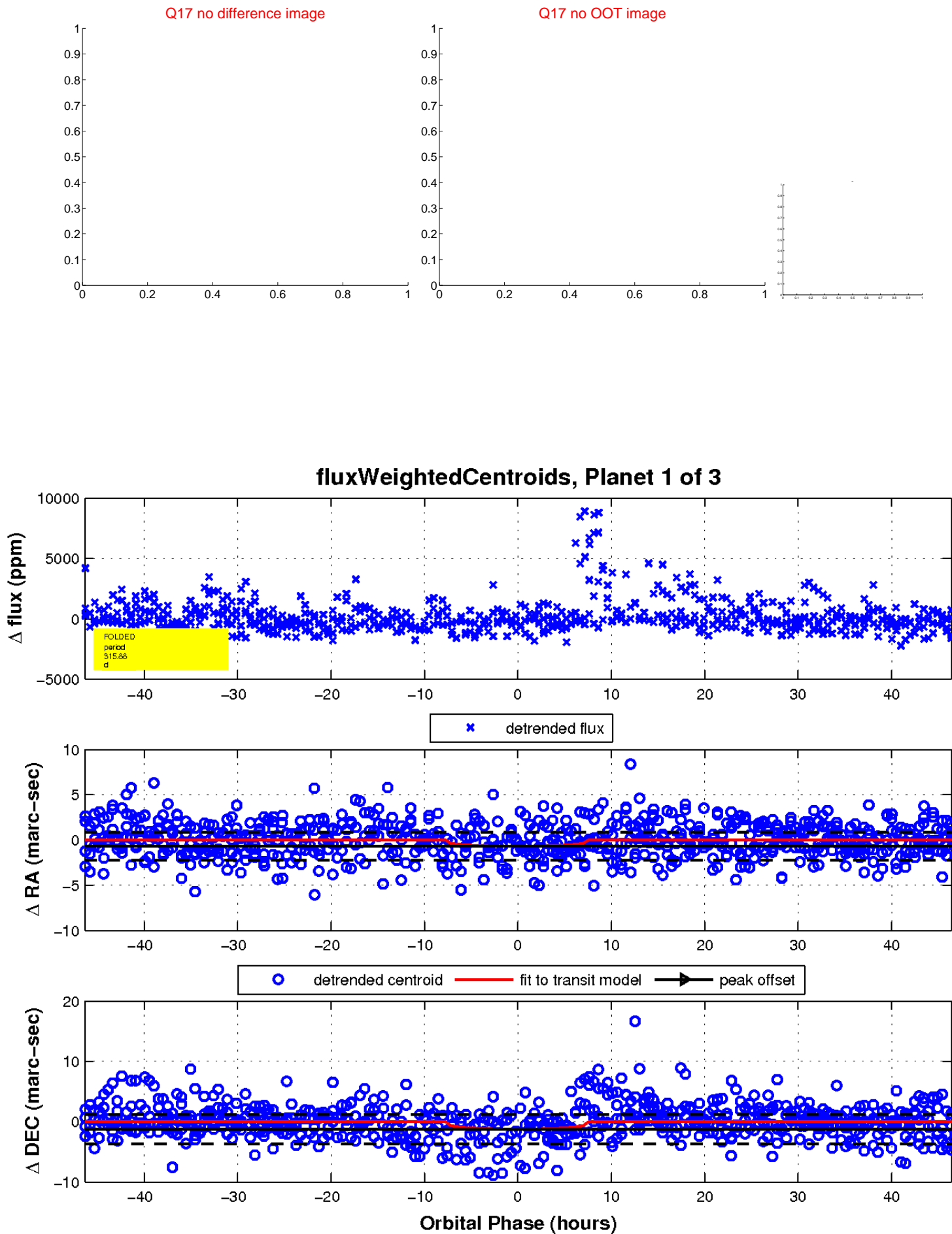
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



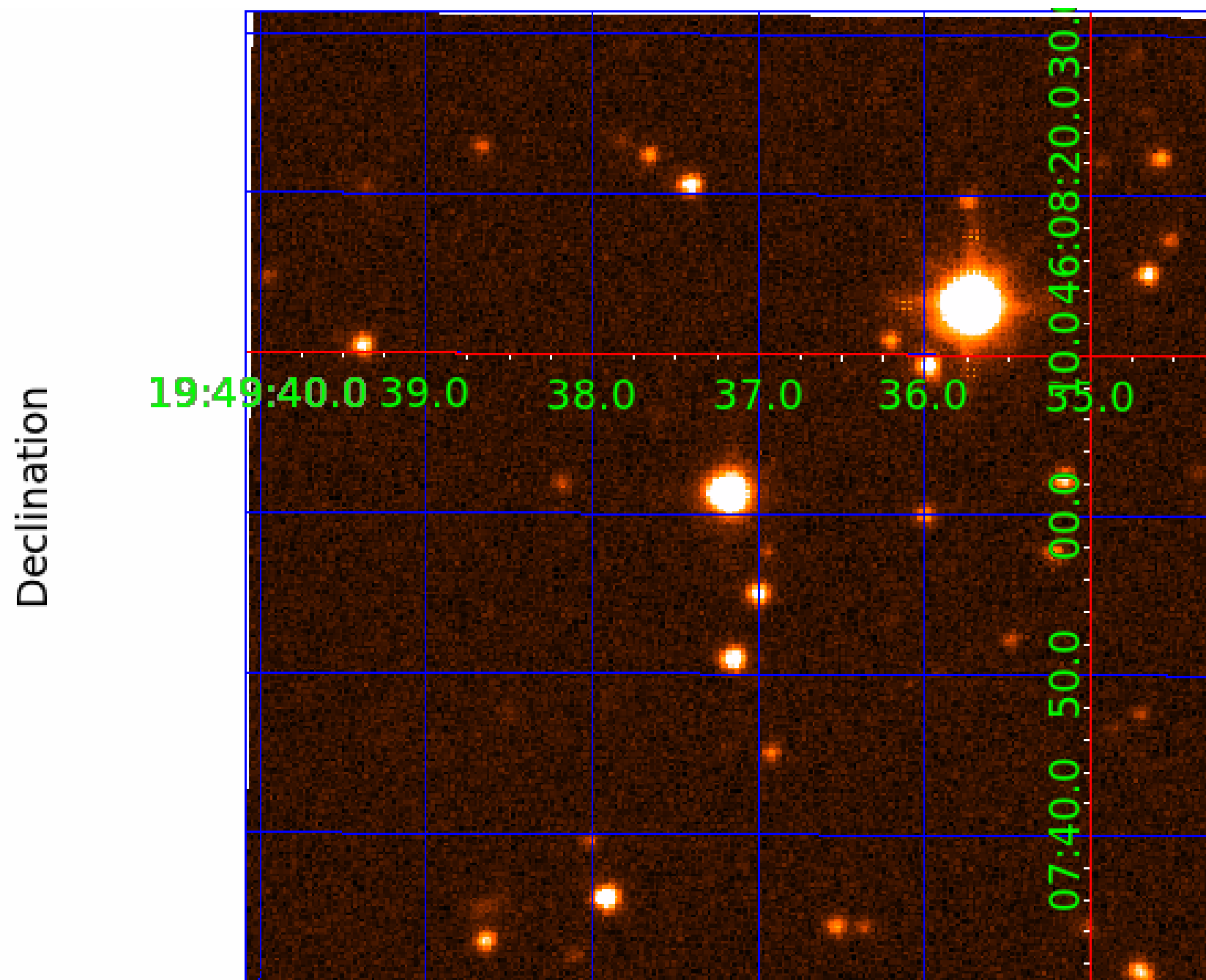
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009541573

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})
009541573-01	OBS	No	315.881132	251.465724	1722.5	15.485	11.3	7.3	0.57	3705	2.29	0.10
009541573-02	OBS	No	249.283762	206.183196	2645.2	3.440	11.1	8.2	0.57	3705	3.19	0.13
009541573-03	OBS	No	211.110533	149.334247	1207.3	16.442	9.9	5.8	0.57	3705	1.95	0.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009541573-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009541573-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009541573-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—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.

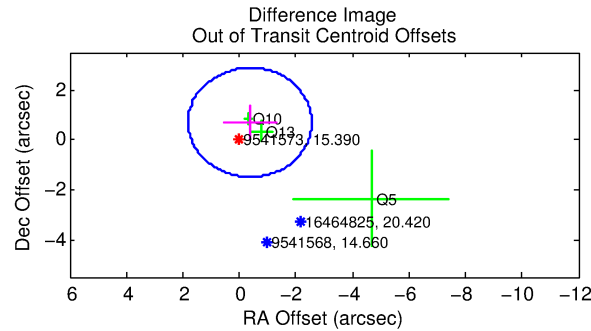
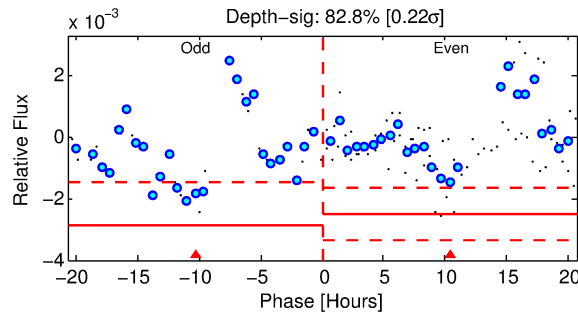
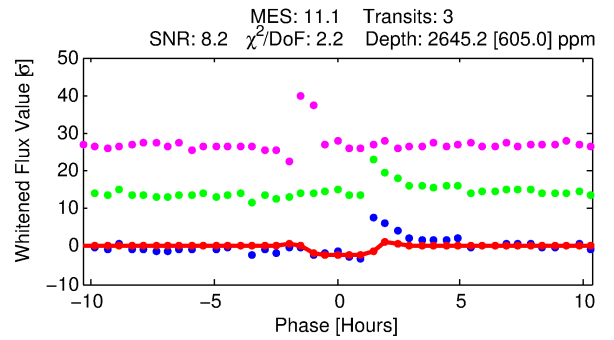
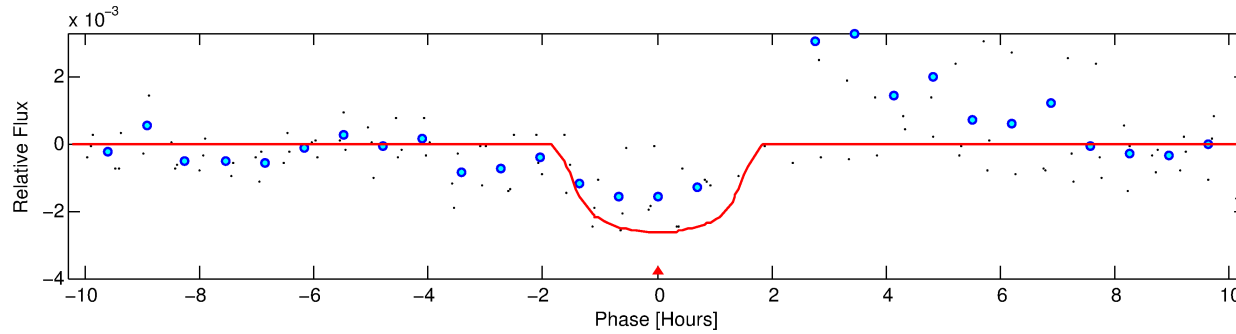
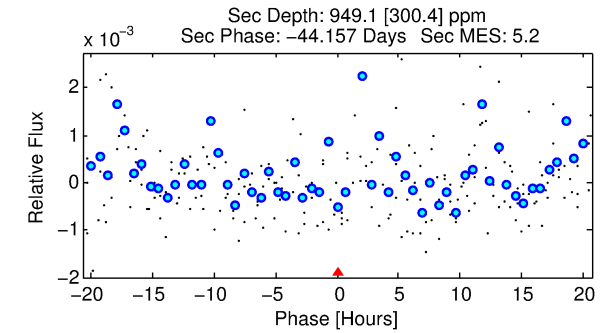
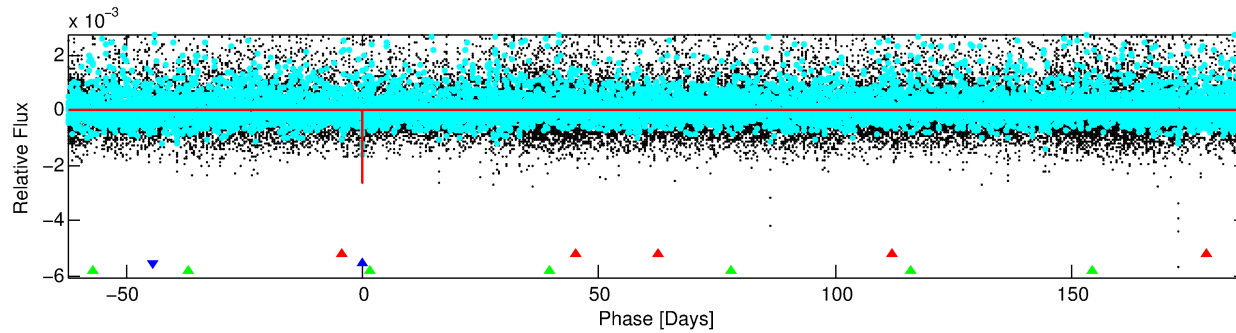
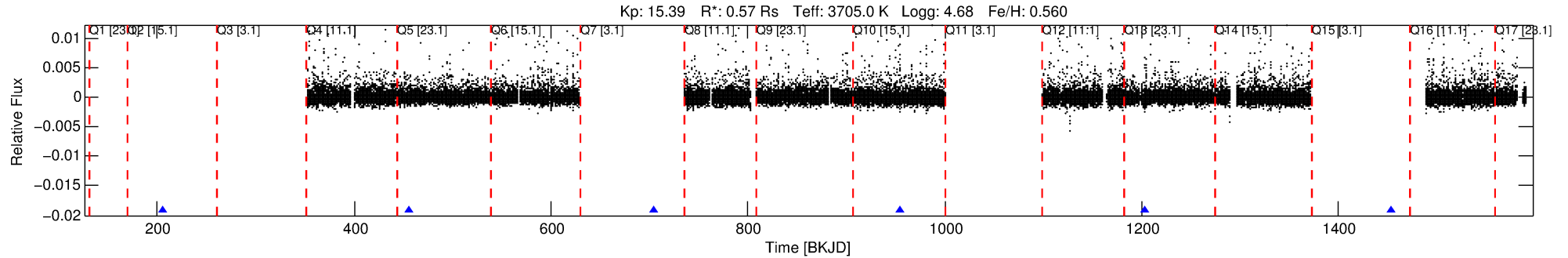
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009541573-02

No Significant Match Found

DV One-Page Summary

KIC: 9541573 Candidate: 2 of 3 Period: 249.284 d



DV Fit Results:

Period = 249.28376 [0.00482] d
Epoch = 206.1832 [0.0136] BKJD
Rp/R* = 0.0513 [0.0486]
a/R* = 412.78 [1271.57]
b = 0.74 [1.91]
Seff = 0.13 [0.03]
Teq = 154 [8] K
Rp = 3.19 [3.05] Re
a = 0.6425 [0.0720] AU
Ag = 21225.65 [40889.56] [0.52σ]
Teffp = 2870 [1383] K [1.96σ]

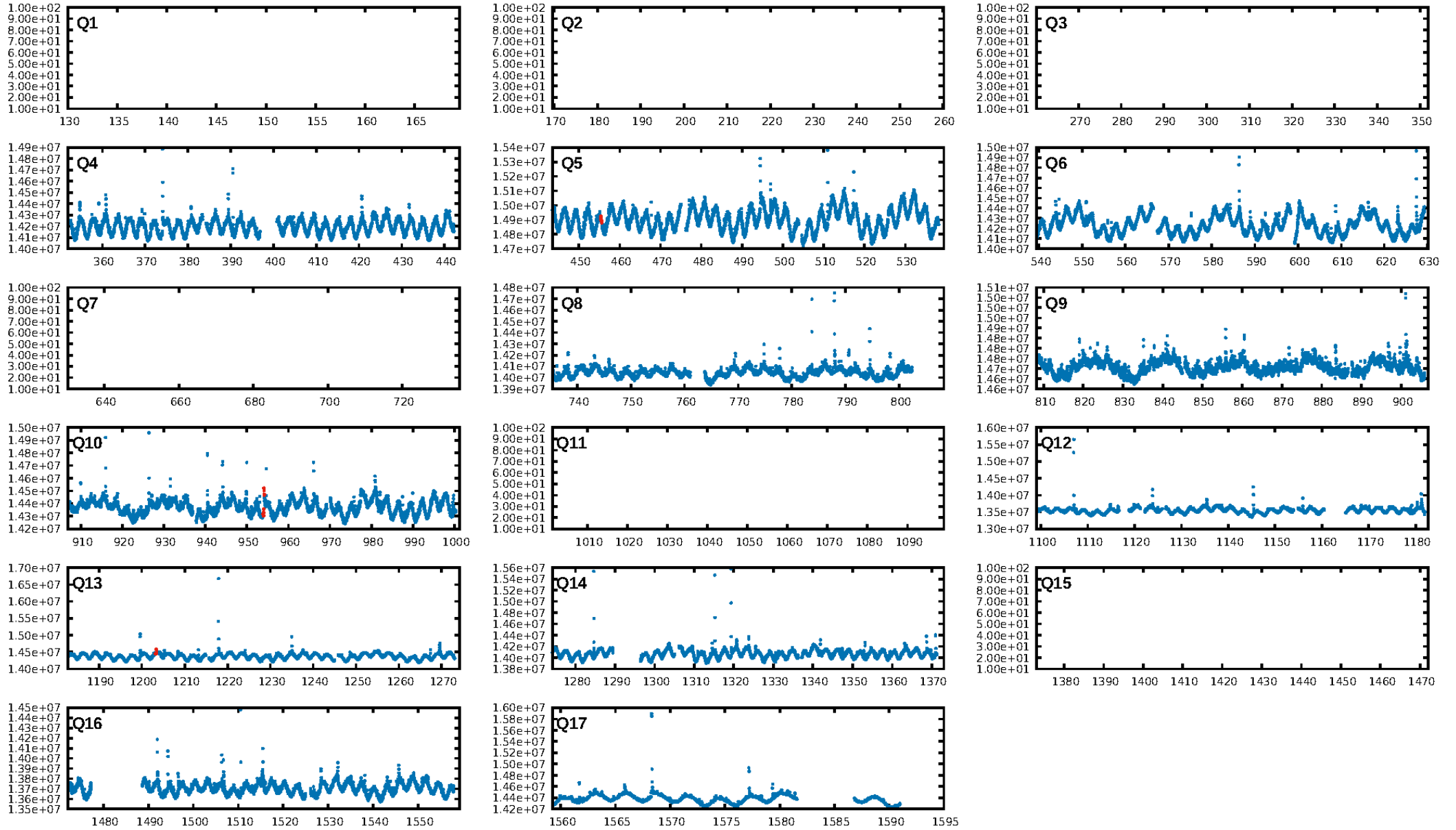
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [54.54σ]
LongPeriod-sig: 100.0% [100.76σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 30.9%
Bootstrap-pfa: 2.48e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -22.96
Centroid-sig: 44.0%
Centroid-so: 0.863 arcsec [1.01σ]
OotOffset-rm: 0.788 arcsec [1.08σ]
KicOffset-rm: 1.088 arcsec [1.11σ]
OotOffset-st: 1/0/0/2 [3]
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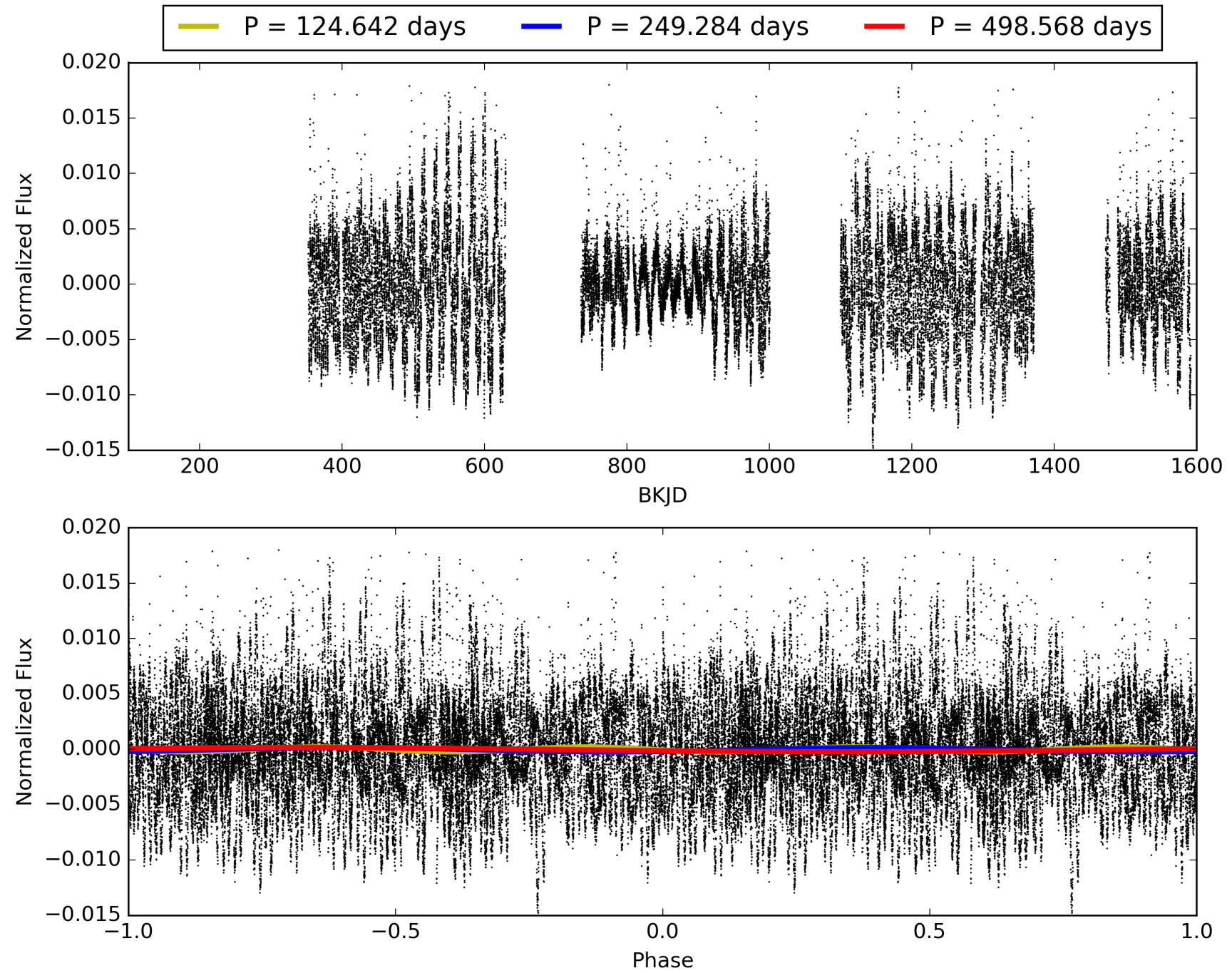
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:26:51 Z

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

TCE 009541573-02, PDC Light Curves

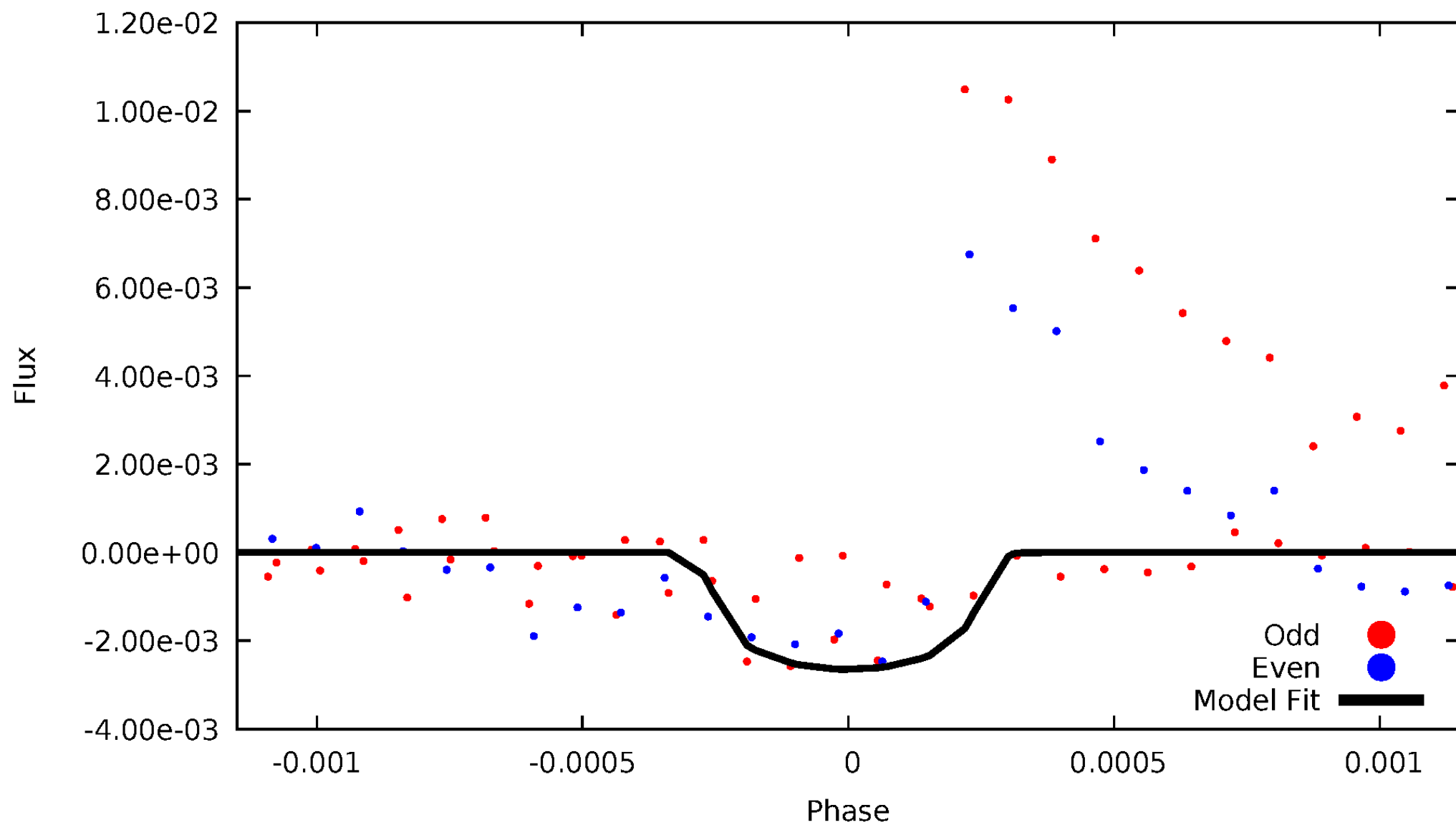


TCE 009541573-02



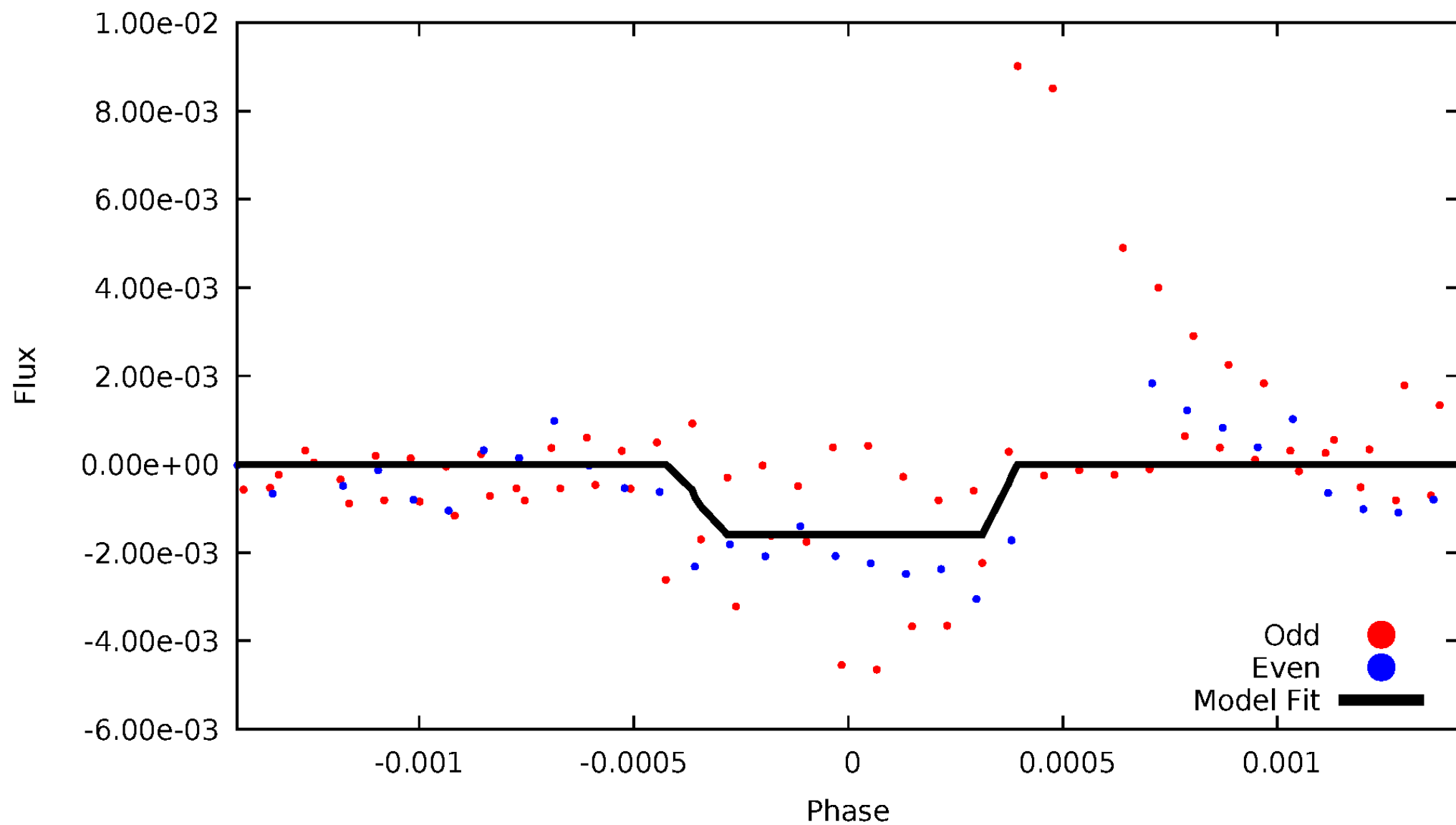
DV Odd/Even

TCE 009541573-02



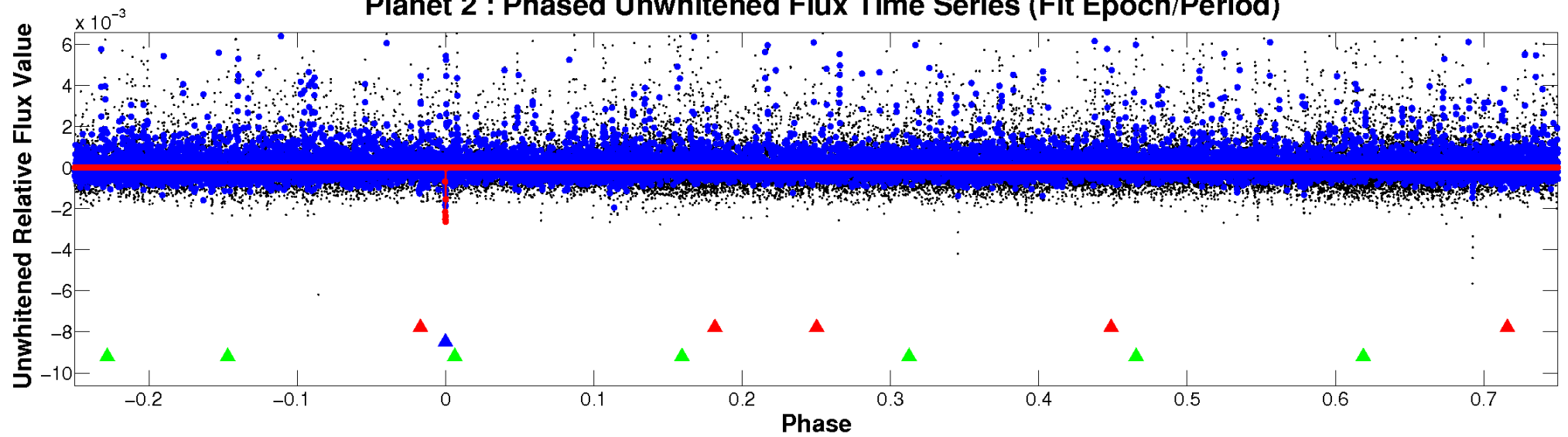
ALT Odd/Even

TCE 009541573-02

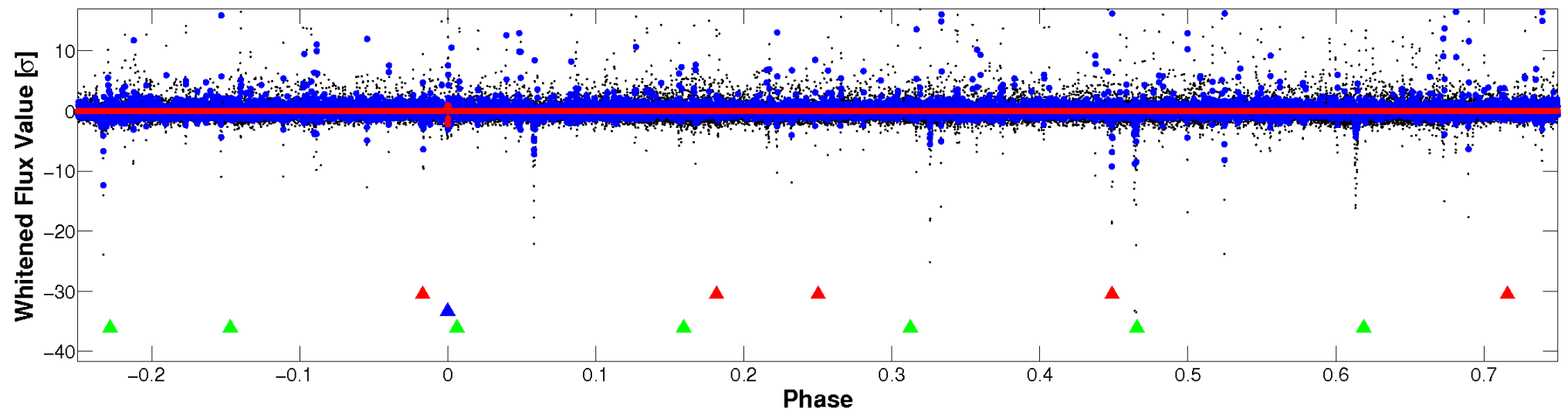


Non-Whitened Vs. Whitened Light Curve

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

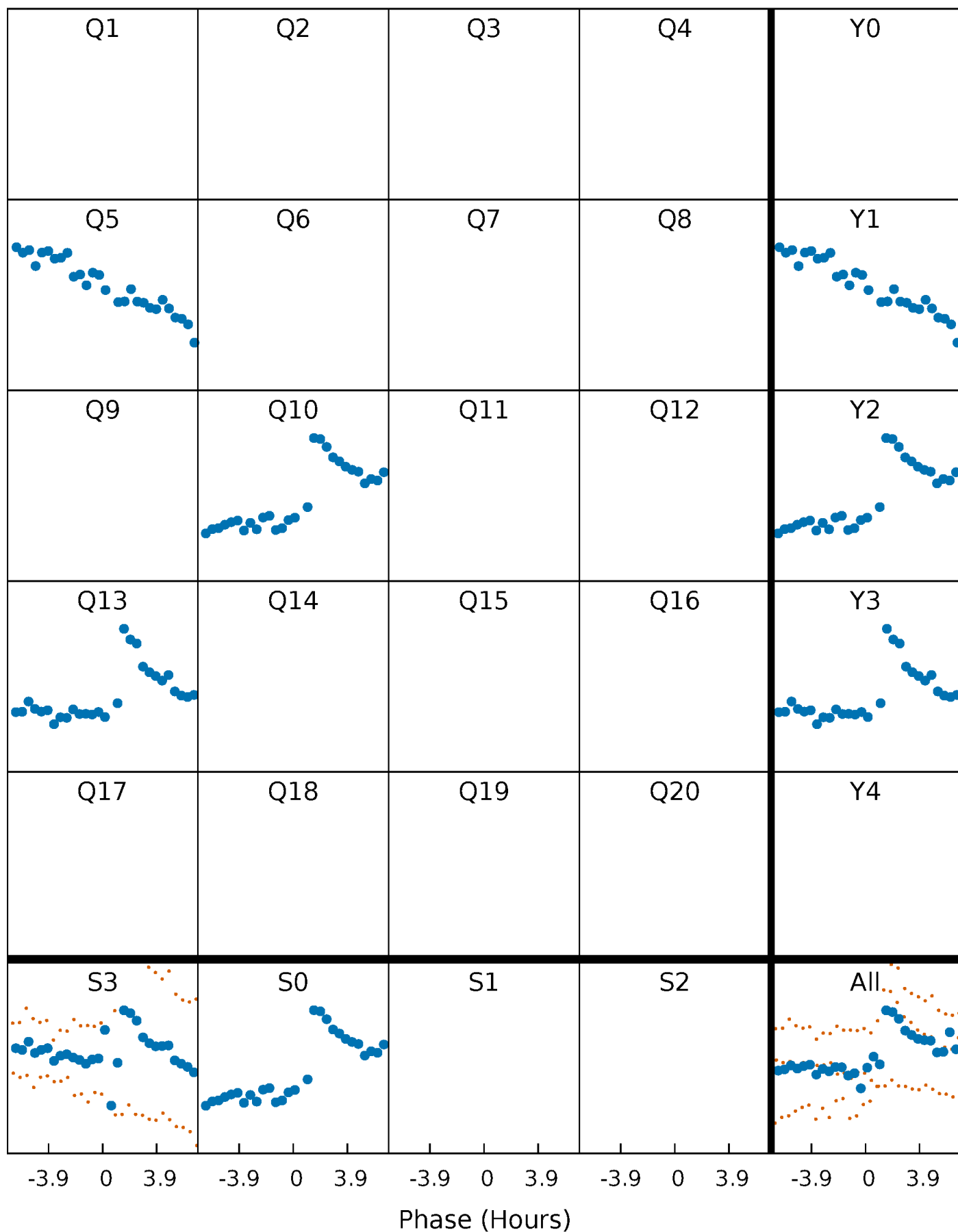


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



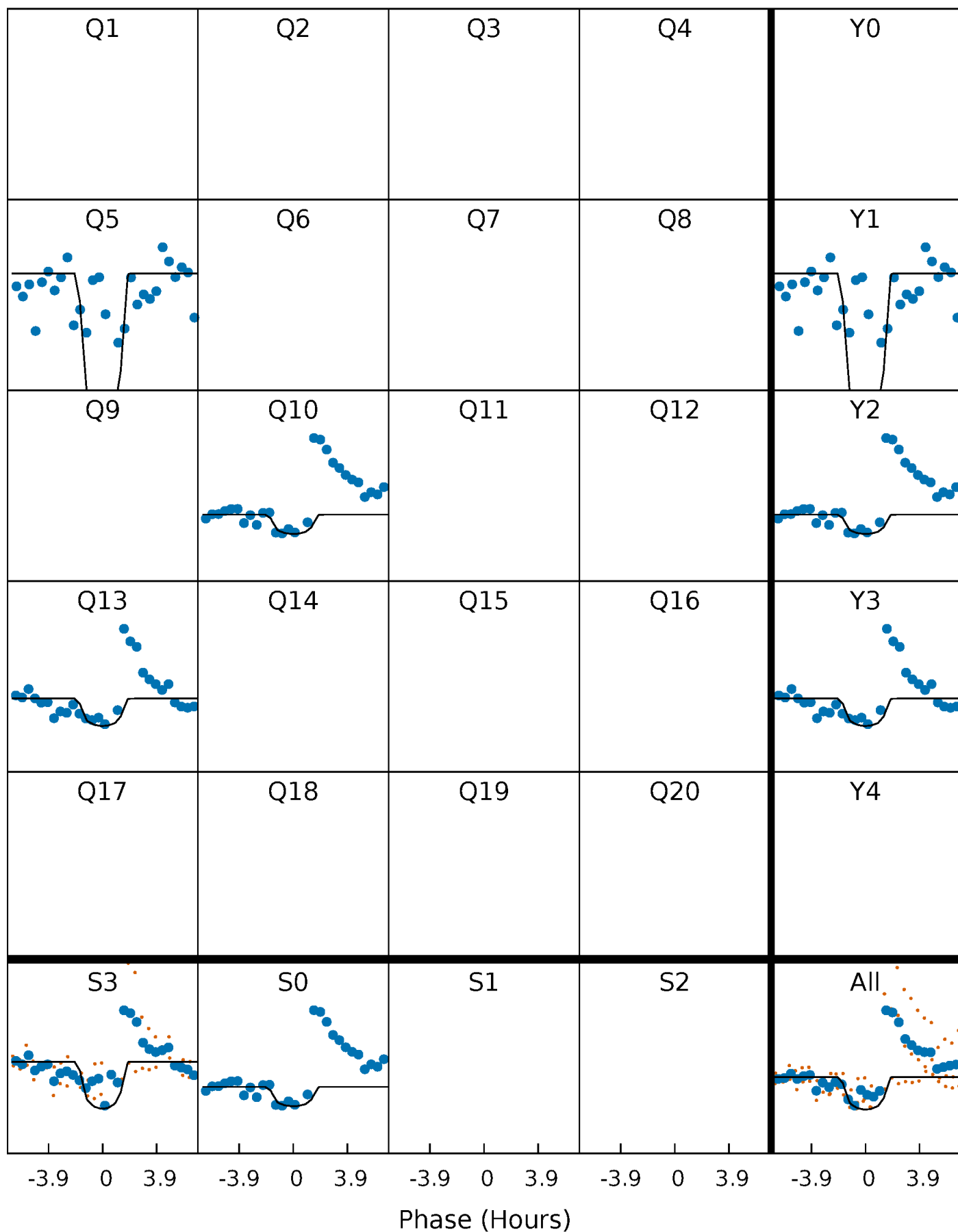
PDC Quarter-Phased Transit Curves

TCE 009541573-02 P=249.283762 Days $T_0=206.183196$ (BKJD)



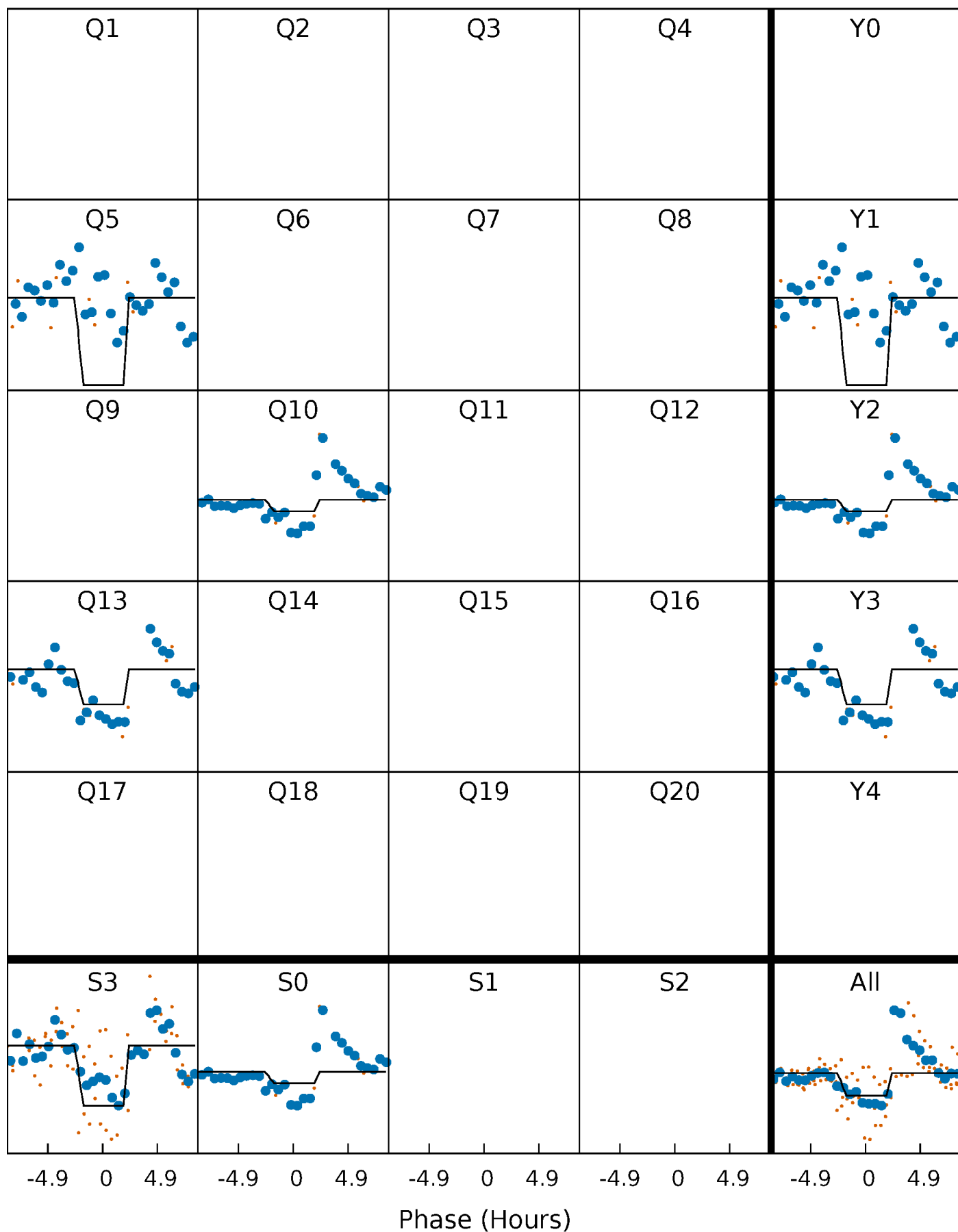
DV Quarter-Phased Transit Curves

TCE 009541573-02 $P=249.283762$ Days $T_0=206.183196$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

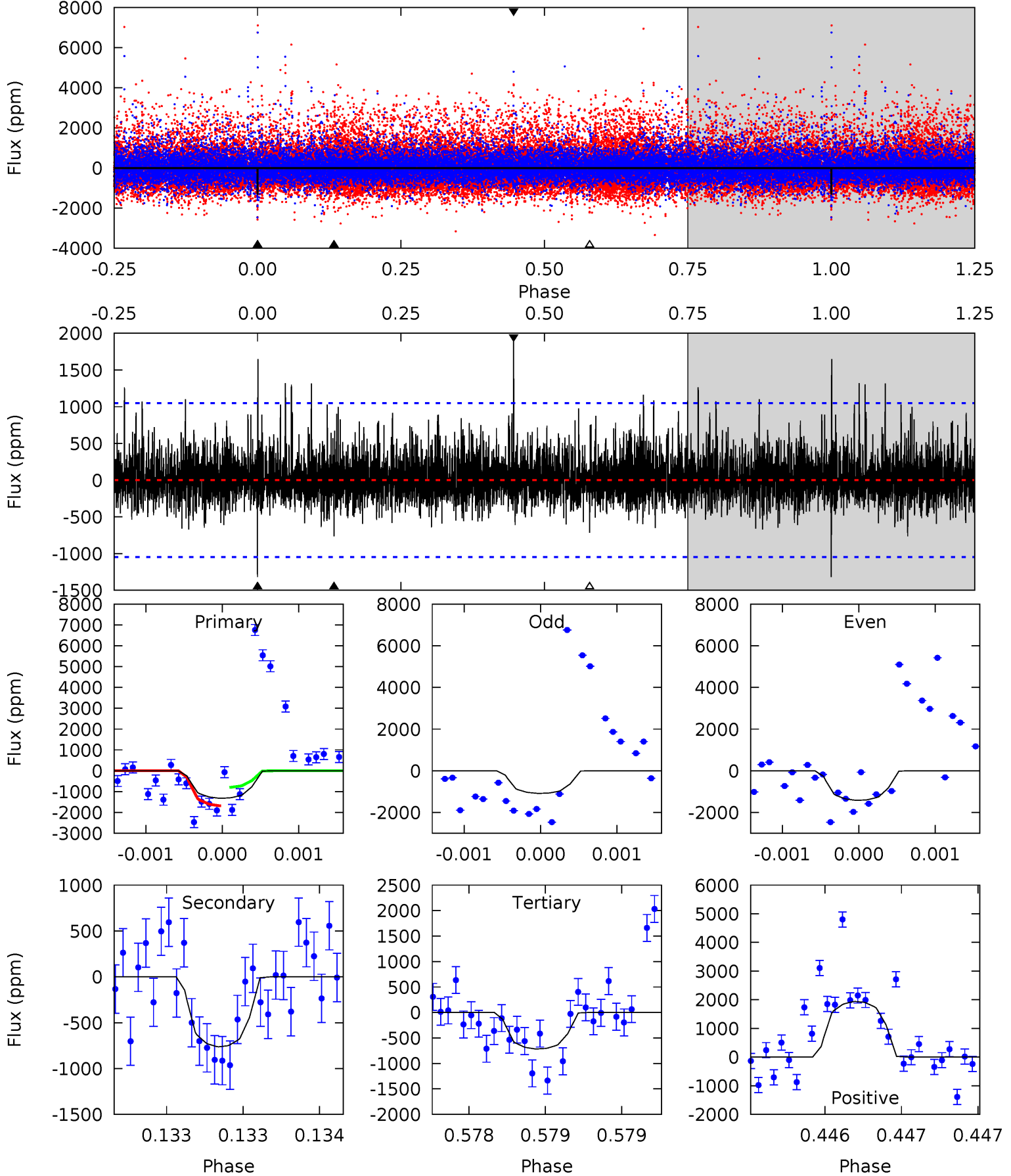
TCE 009541573-02 P=249.268998 Days $T_0=206.183865$ (BKJD)



DV Model-Shift Uniqueness Test

009541573-02, P = 249.283762 Days, E = 206.183196 Days

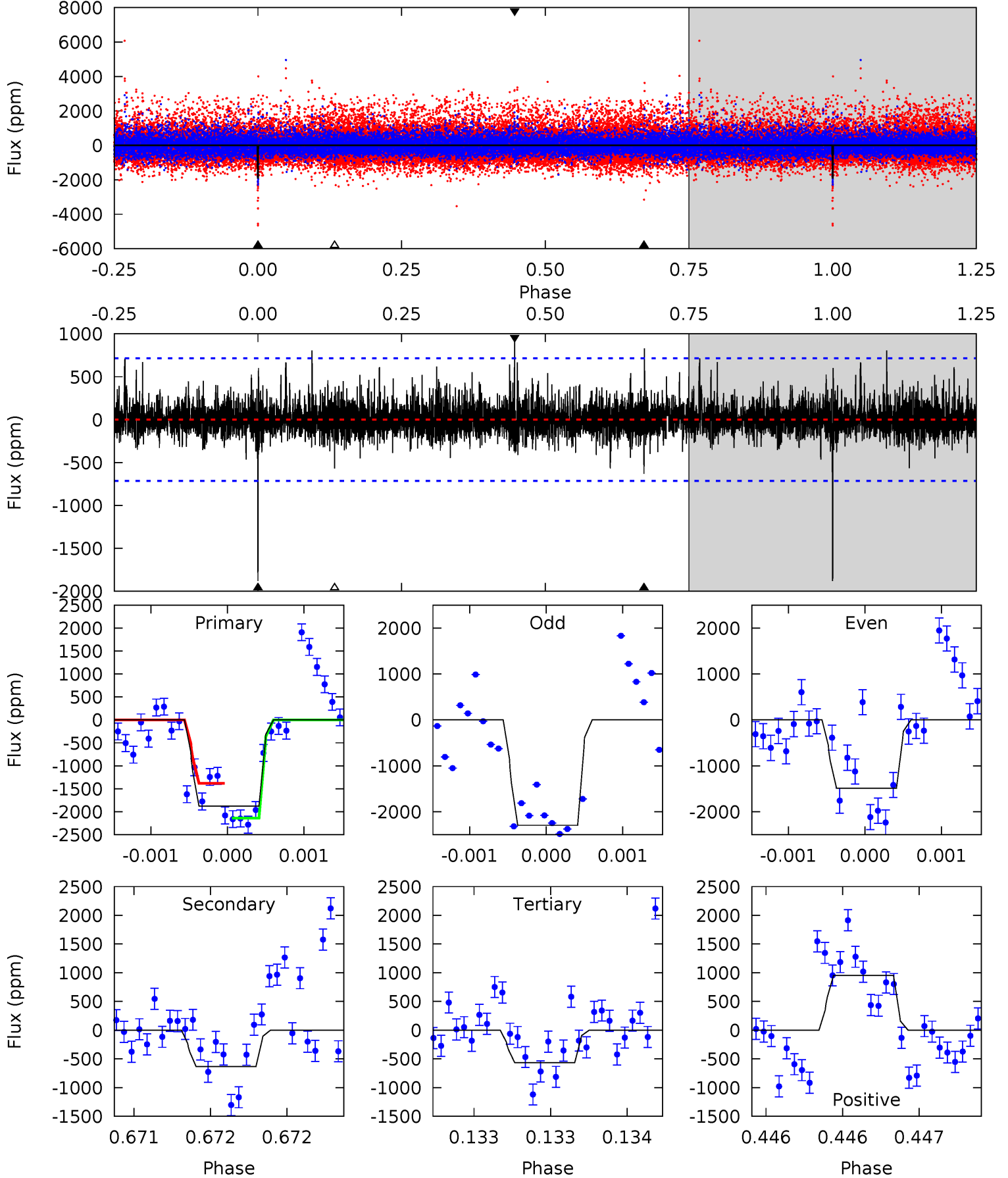
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.98	4.04	3.79	10.3	5.54	3.44	1.32	3.19	-3.29	0.25	-6.23	0.58	1.05	0.60	2.35



Alt Model-Shift Uniqueness Test

009541573-02, P = 249.268998 Days, E = 206.183865 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	4.86	4.36	7.34	5.50	3.37	1.12	10.1	7.11	0.50	-2.48	2.80	0.81	0.34	0



Stellar Parameters For KIC 009541573

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3705^{+118}_{-148}	$4.683^{+0.075}_{-0.020}$	$0.560^{+0.050}_{-0.300}$	$0.569^{+0.033}_{-0.082}$	$0.570^{+0.036}_{-0.068}$	$4.352^{+1.705}_{-0.427}$
	+3%/-4%	+2%/-0%	+9%/-54%	+6%/-14%	+6%/-12%	+39%/-10%
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 009541573-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-763 ± 189	$3.56^{+2.68}_{-2.11}$	213^{+8}_{-10}	2925^{+975}_{-407}	13268^{+68820}_{-8994}
Alt.	-632 ± 130	$3.31^{+2.55}_{-2.22}$	213^{+8}_{-10}	2926^{+1175}_{-420}	$13030^{+106904}_{-9138}$

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

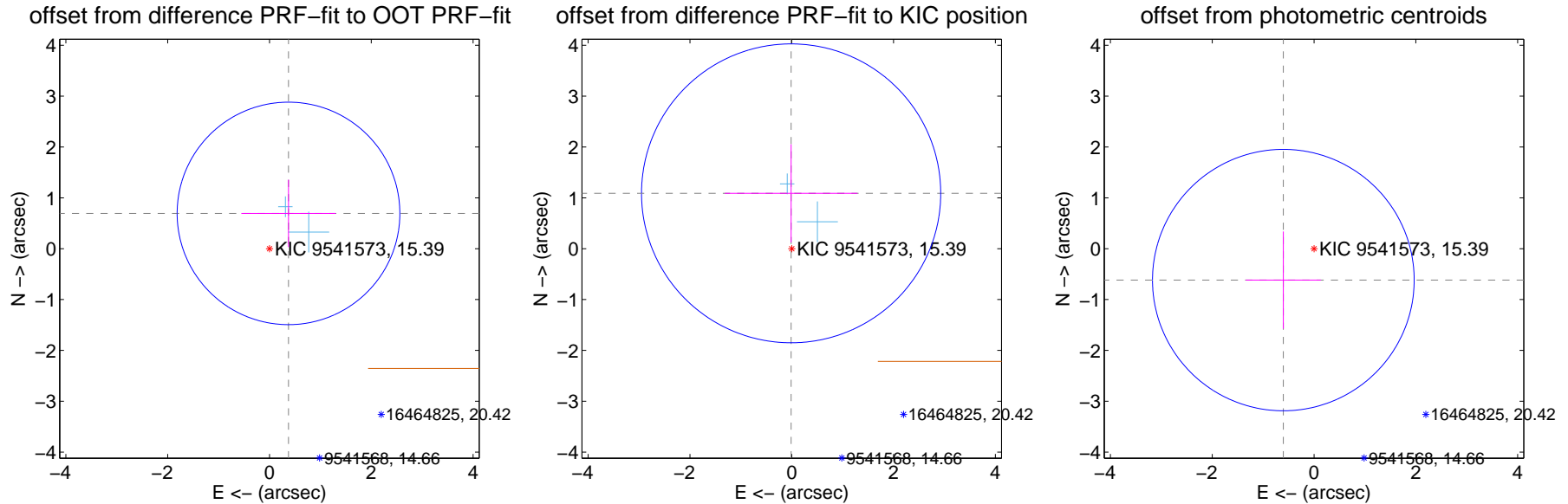
DV Centroid Data

Supplemental centroid analysis for 009541573-02. Kepler magnitude: 15.39. Transit SNR 8.20

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.788 ± 0.729	1.08	-0.373 ± 0.925	0.694 ± 0.661
PRF-fit source offset from KIC position	1.088 ± 0.979	1.11	0.013 ± 1.305	1.088 ± 0.964
photometric centroid source offset	0.86 ± 0.86	1.01	0.60 ± 0.74	-0.62 ± 0.96

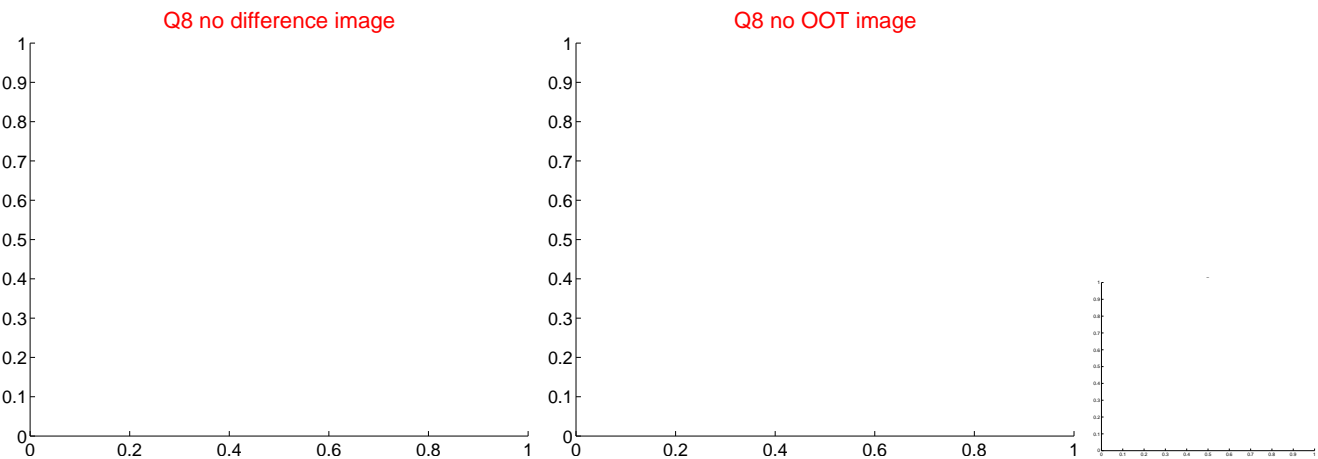
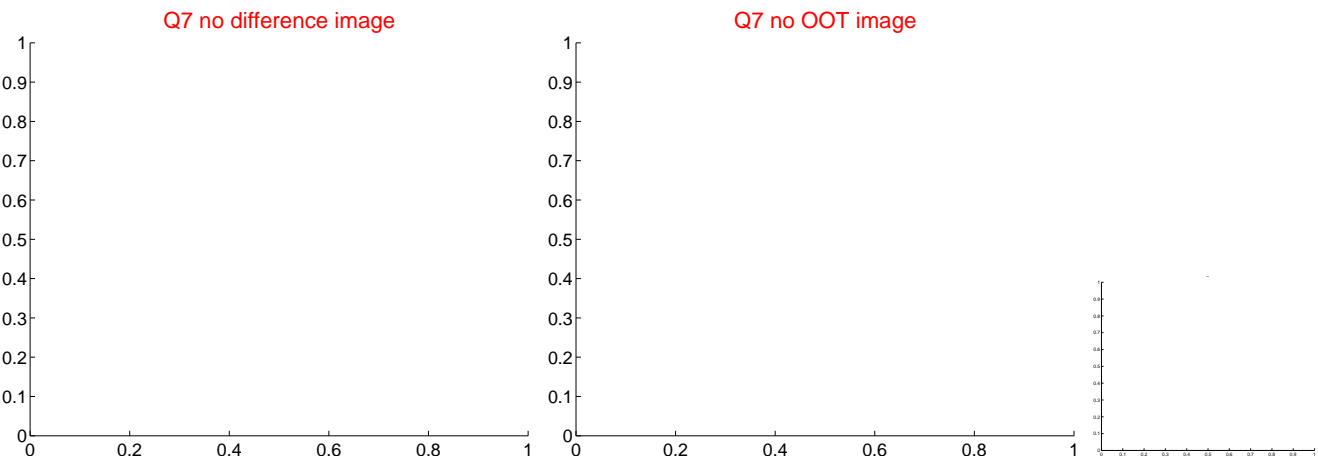
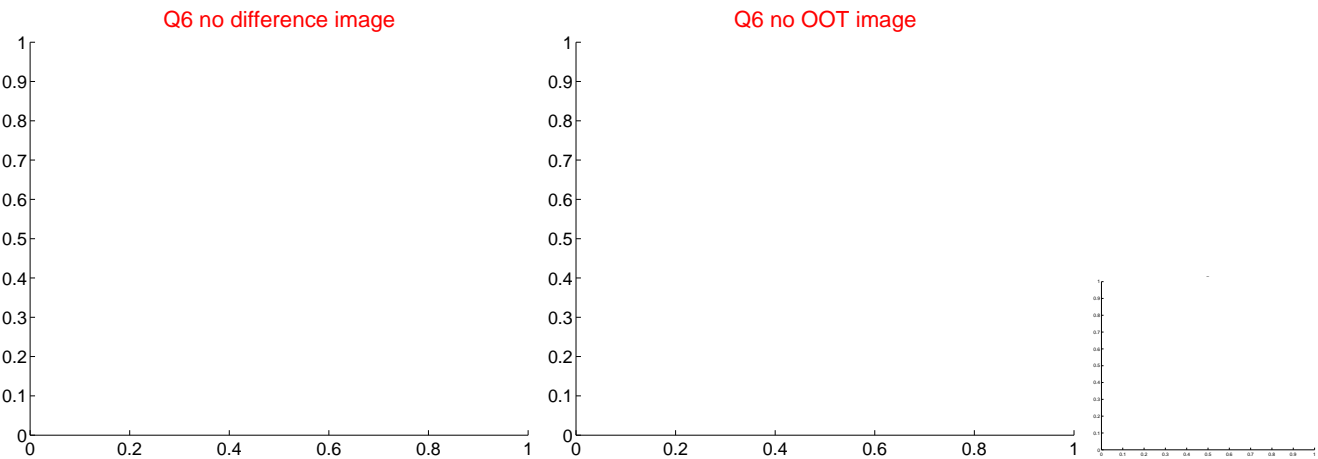
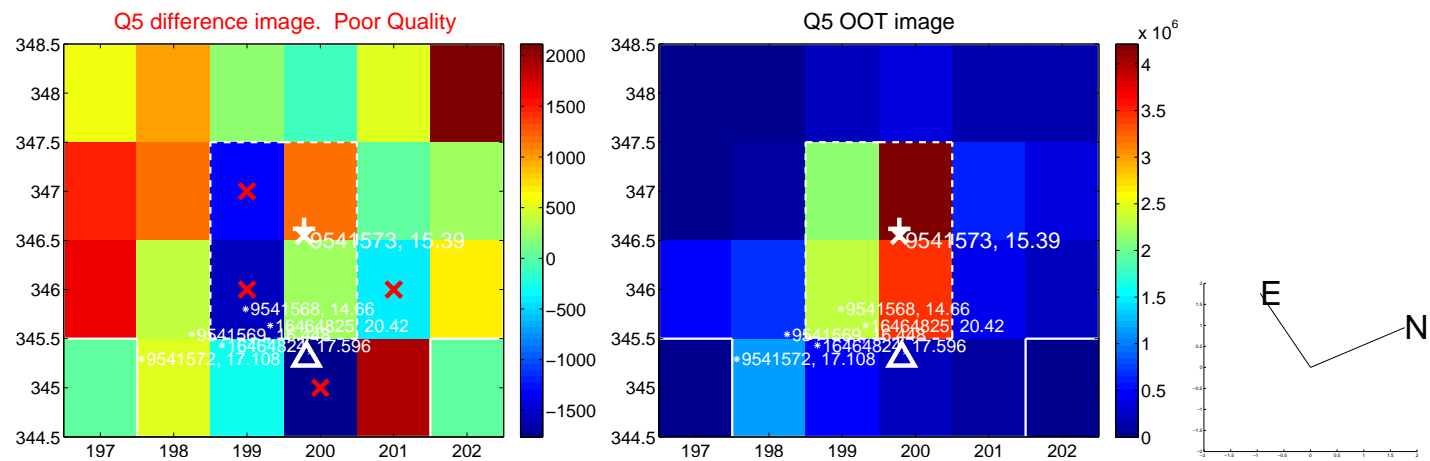


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

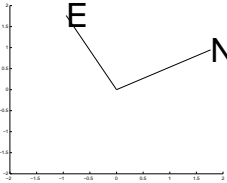
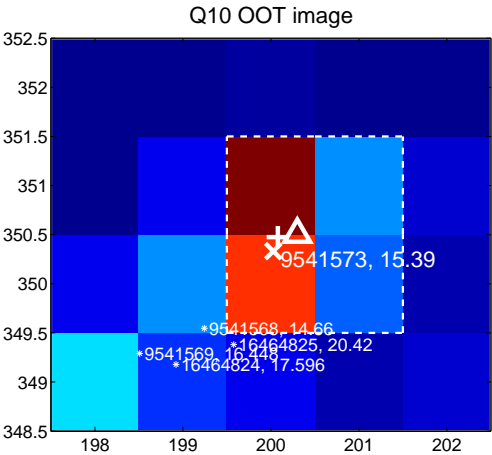
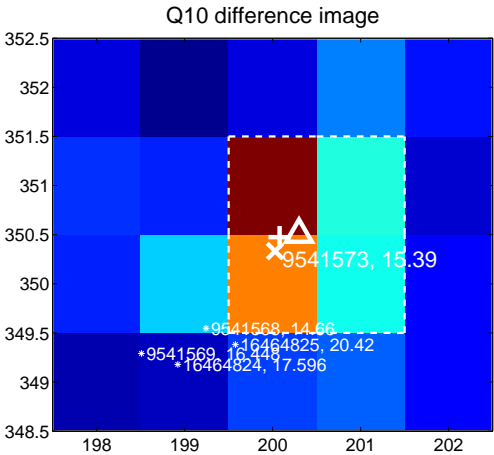


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

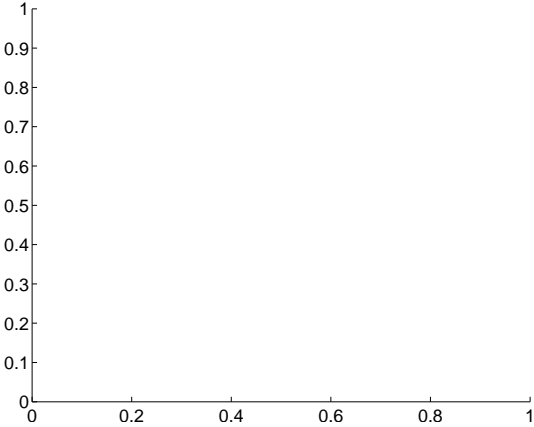
Q9 no difference image



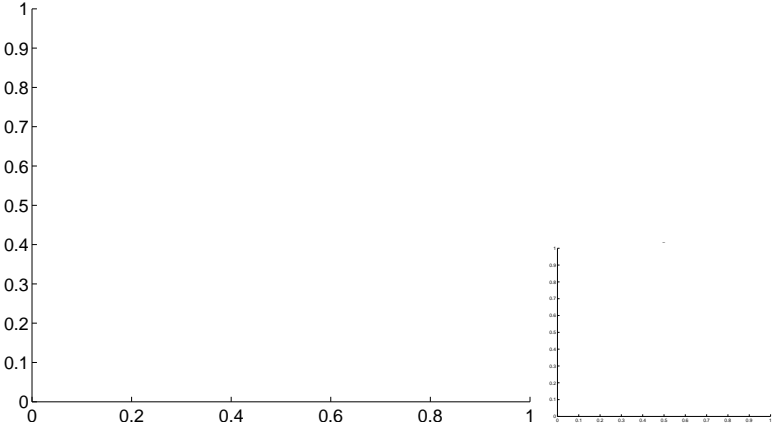
Q9 no OOT image



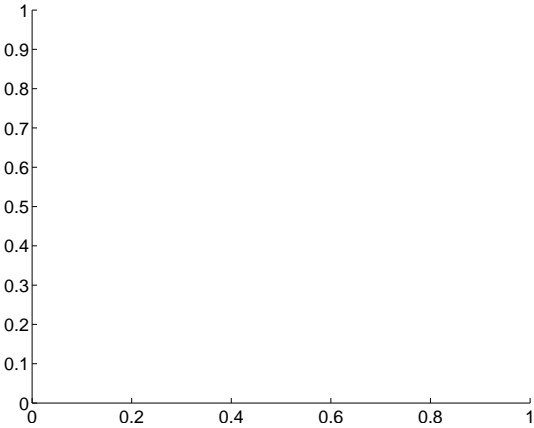
Q11 no difference image



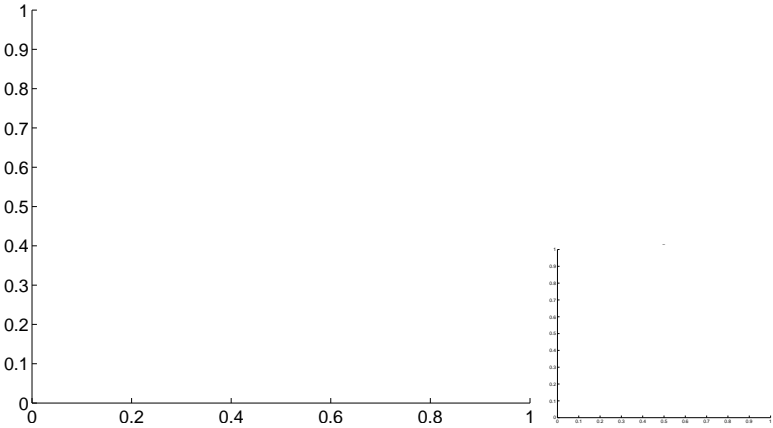
Q11 no OOT image



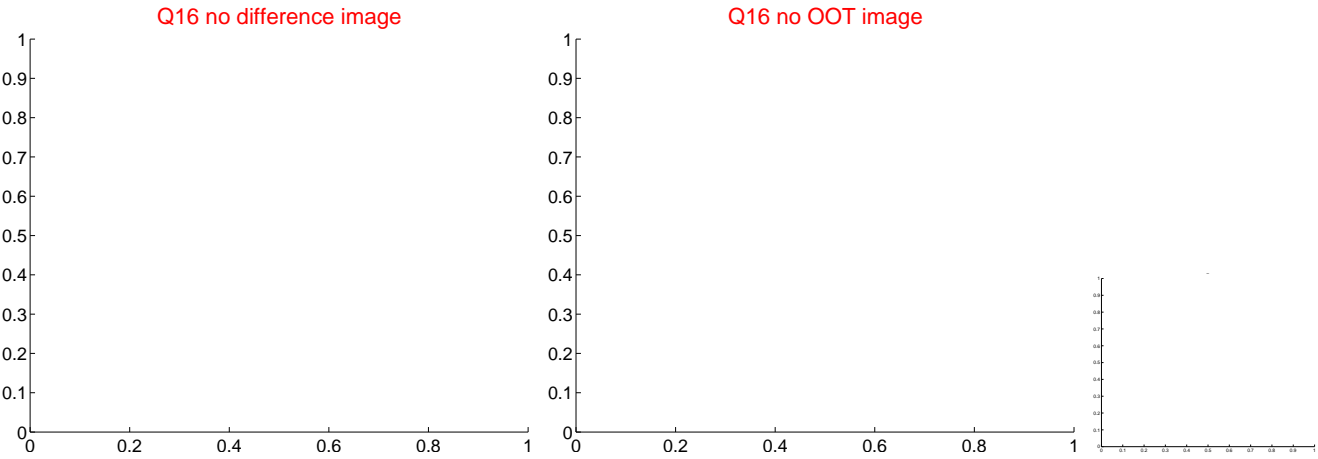
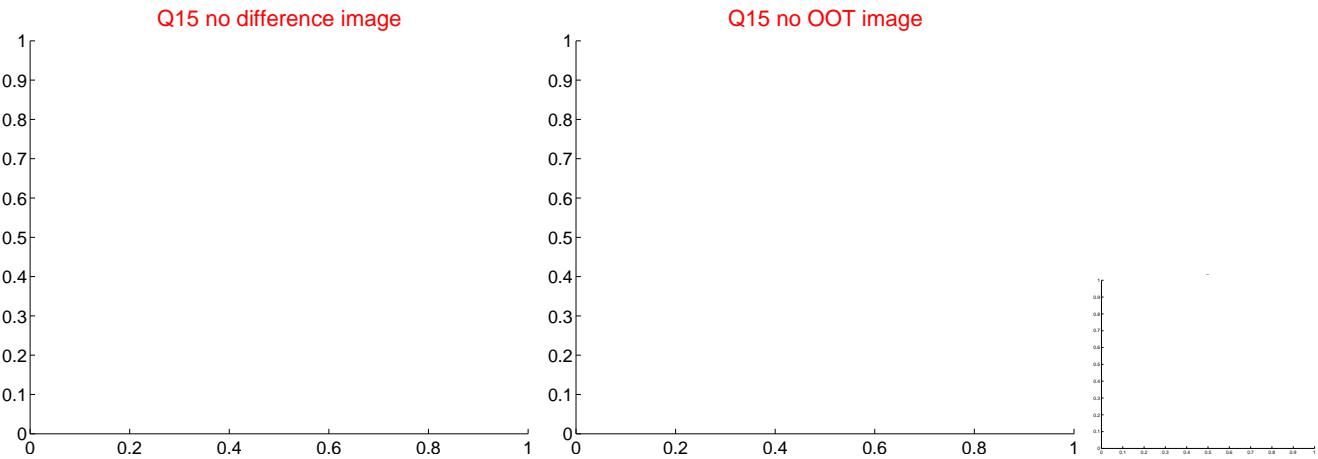
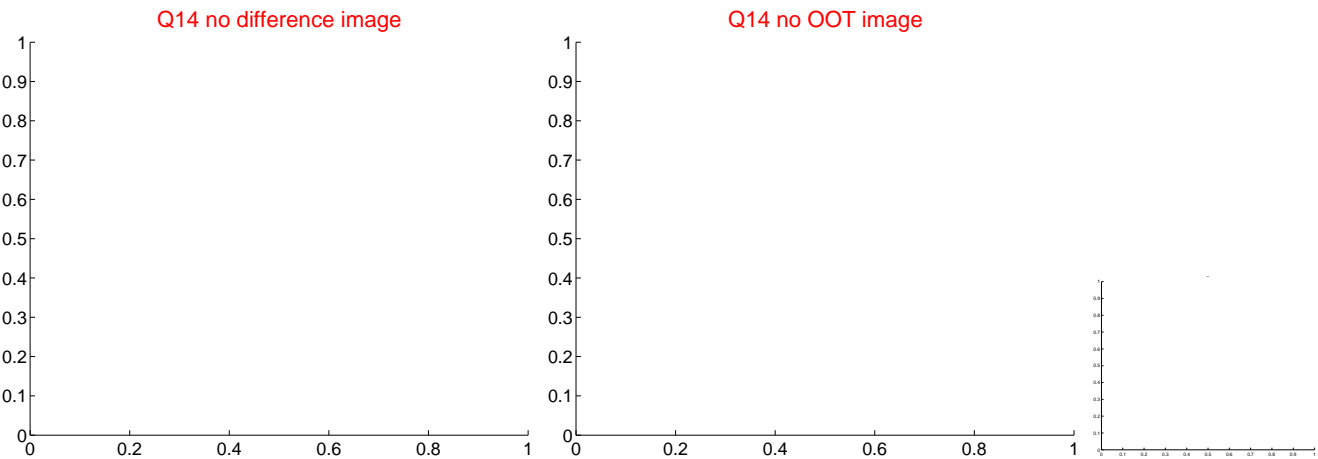
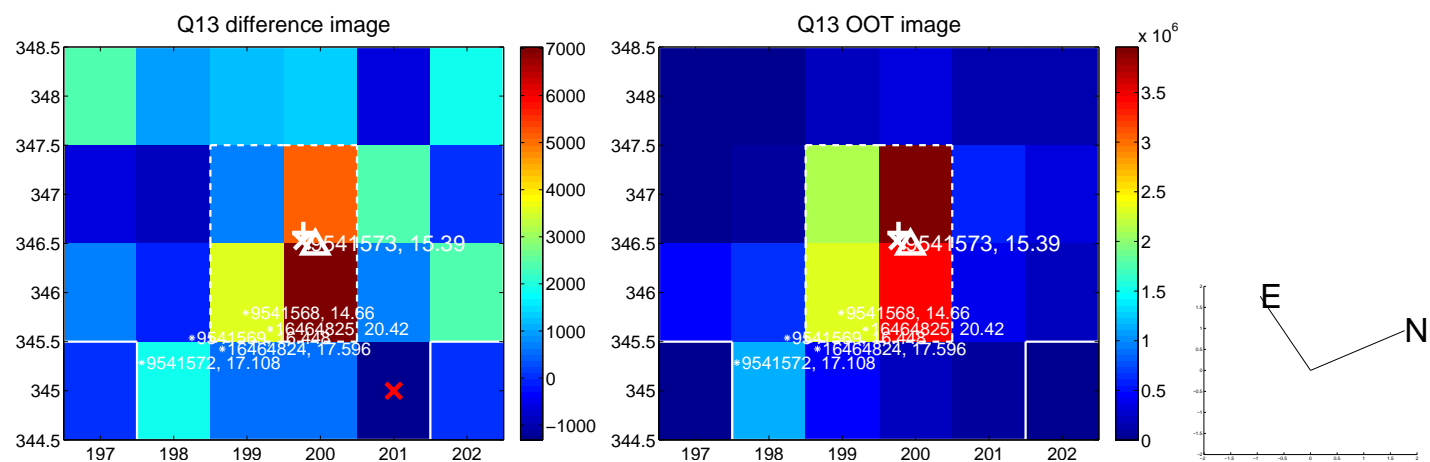
Q12 no difference image



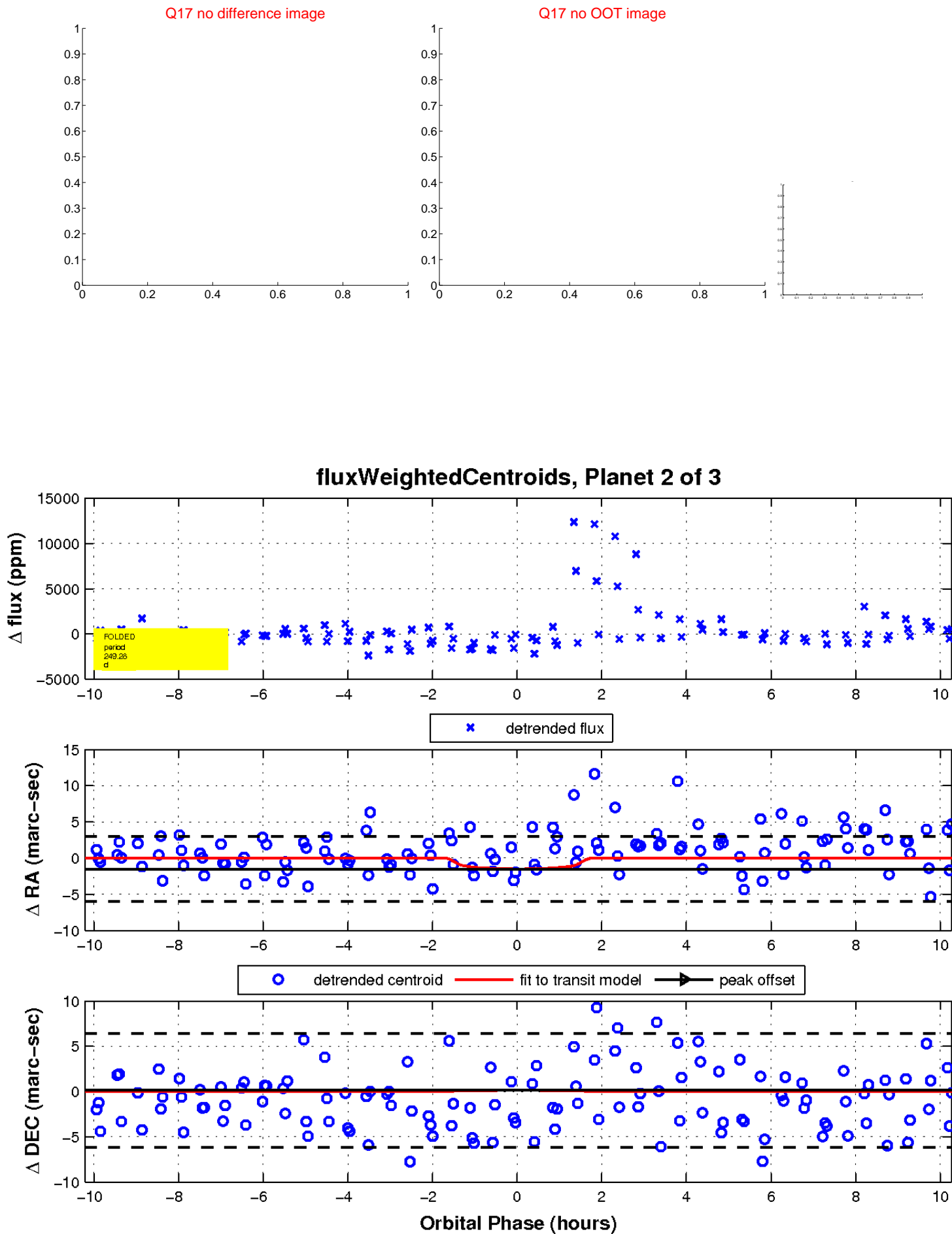
Q12 no OOT image



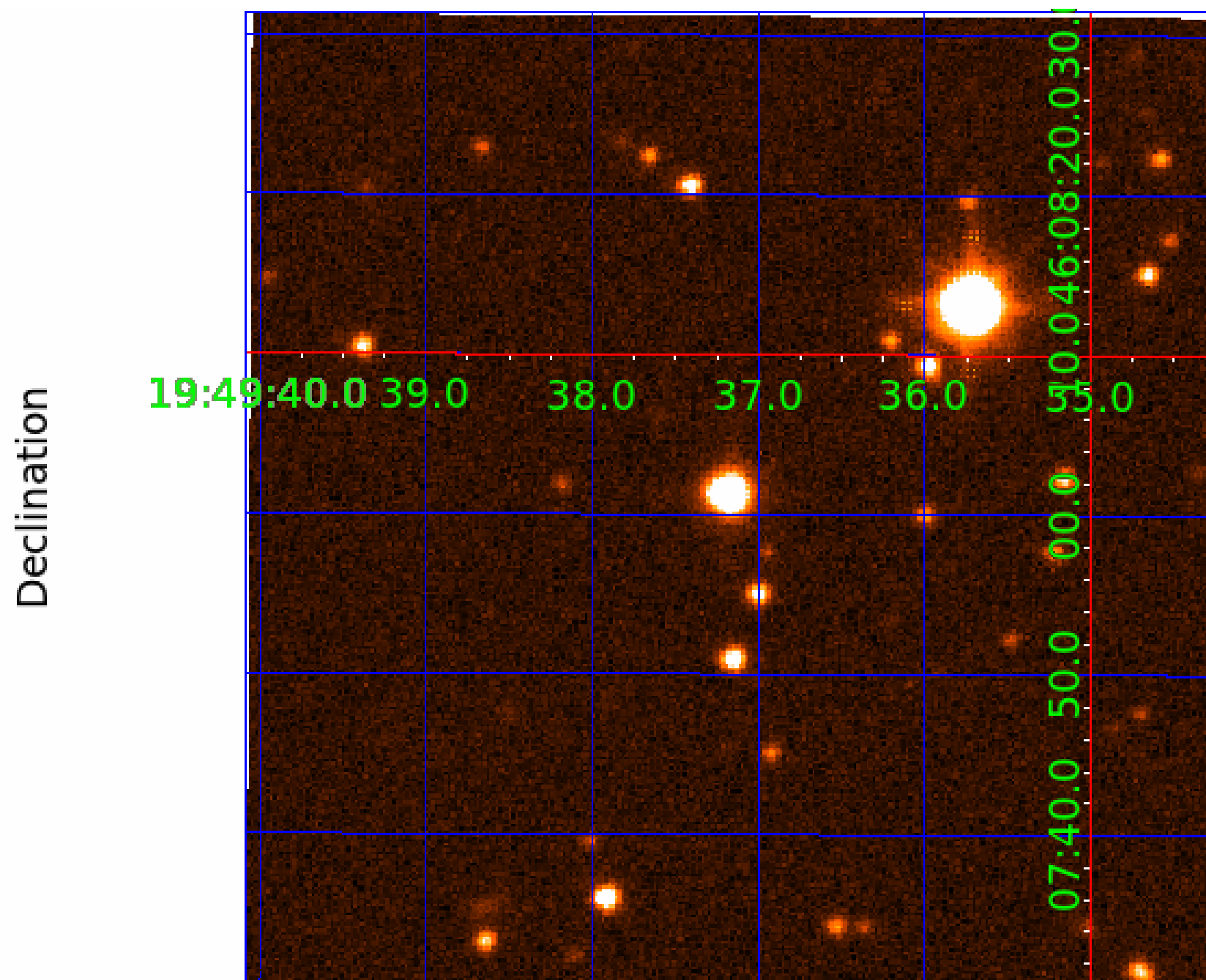
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009541573

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})
009541573-01	OBS	No	315.881132	251.465724	1722.5	15.485	11.3	7.3	0.57	3705	2.29	0.10
009541573-02	OBS	No	249.283762	206.183196	2645.2	3.440	11.1	8.2	0.57	3705	3.19	0.13
009541573-03	OBS	No	211.110533	149.334247	1207.3	16.442	9.9	5.8	0.57	3705	1.95	0.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009541573-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009541573-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009541573-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—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.

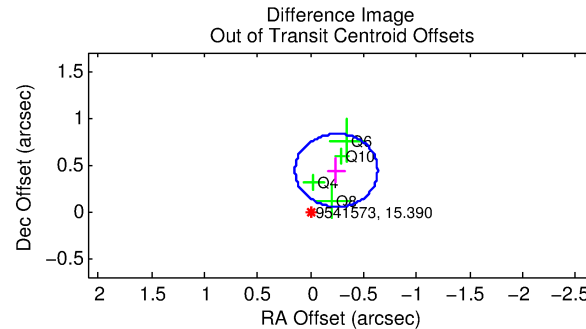
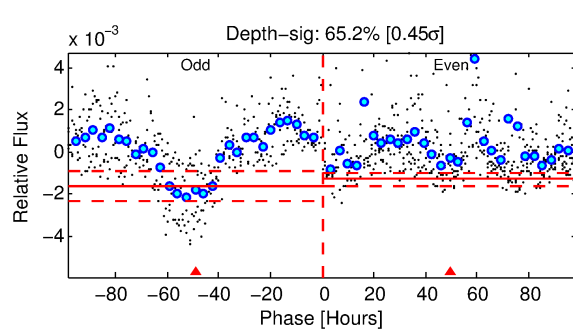
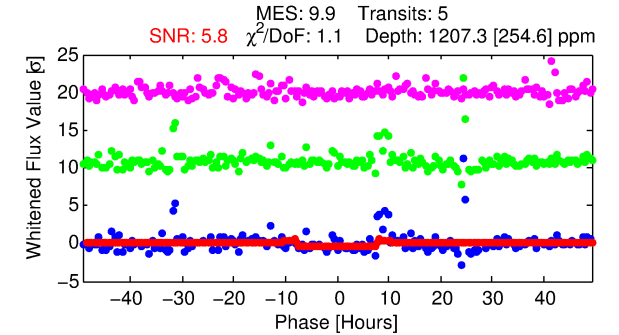
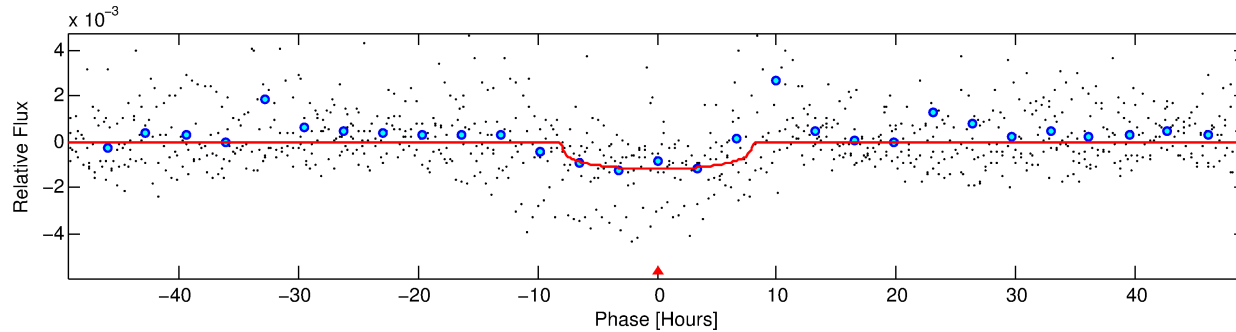
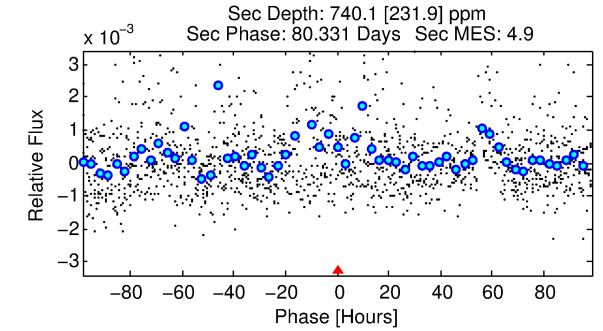
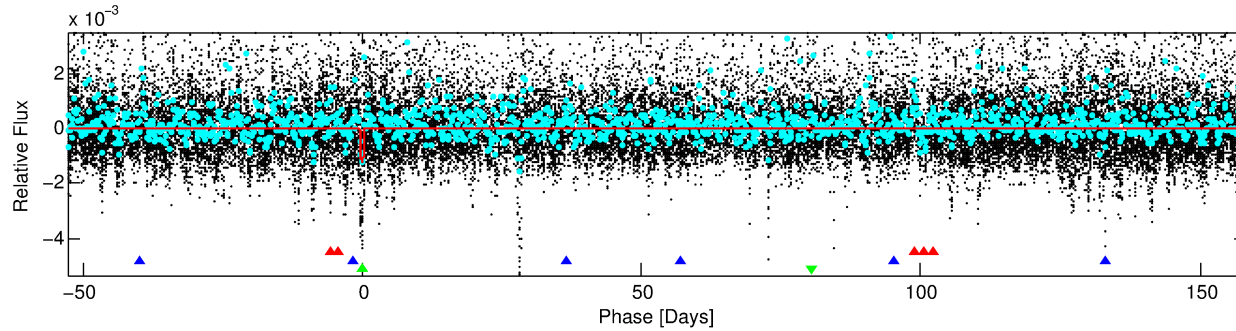
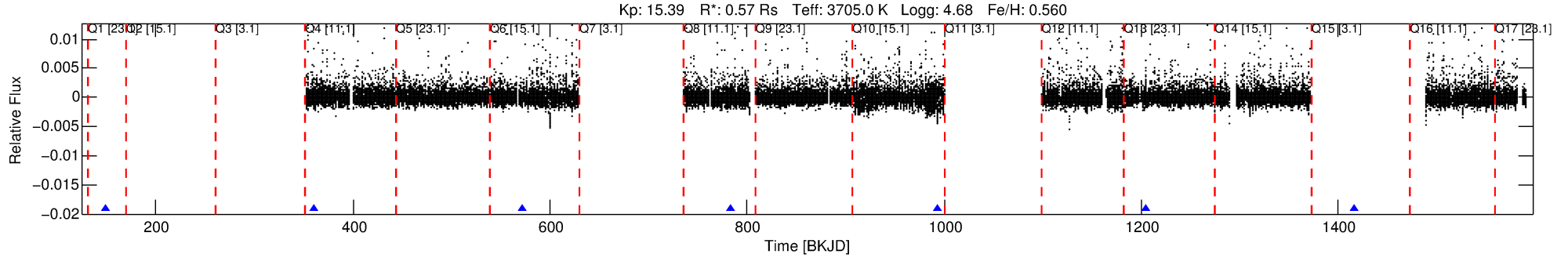
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009541573-03

No Significant Match Found

DV One-Page Summary

KIC: 9541573 Candidate: 3 of 3 Period: 211.111 d



DV Fit Results:

Period = 211.11053 [0.00752] d
Epoch = 149.3342 [0.0258] BKJD
Rp/R* = 0.0314 [0.0180]
a/R* = 93.41 [166.83]
b = 0.40 [3.83]
Seff = 0.17 [0.04]
Teq = 163 [9] K
Rp = 1.95 [1.15] Re
a = 0.5751 [0.0644] AU
Ag = 35469.32 [42554.33] [0.83σ]
Teffp = 3450 [1036] K [3.17σ]

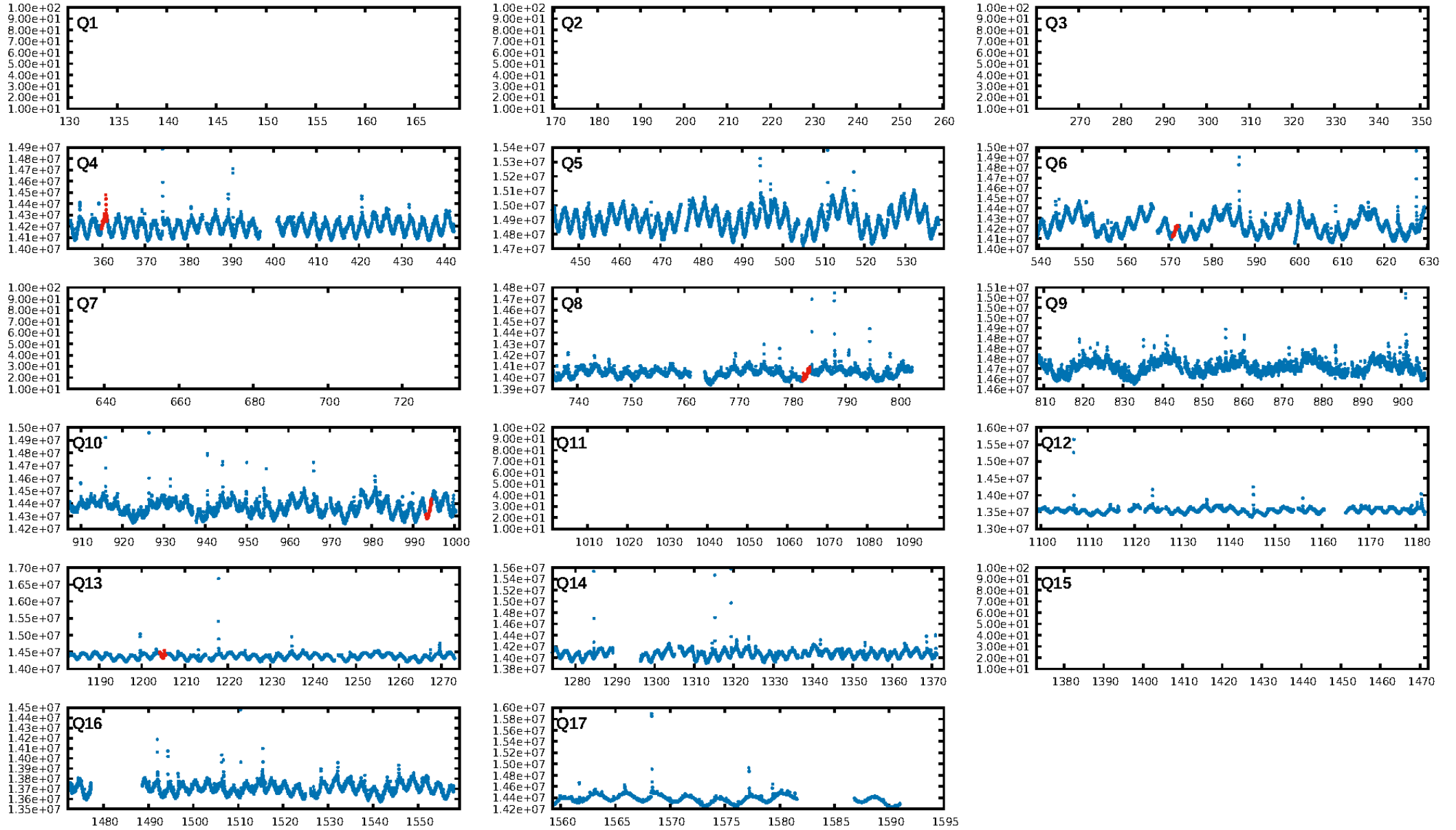
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [54.54σ]
ModelChiSquare2-sig: 34.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.92e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.638
Centroid-sig: 22.4%
Centroid-so: 0.291 arcsec [0.29σ]
OotOffset-rm: 0.502 arcsec [3.86σ]
KicOffset-rm: 0.725 arcsec [4.27σ]
OotOffset-st: 2/0/2/0 [4]
KicOffset-st: 2/0/2/0 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

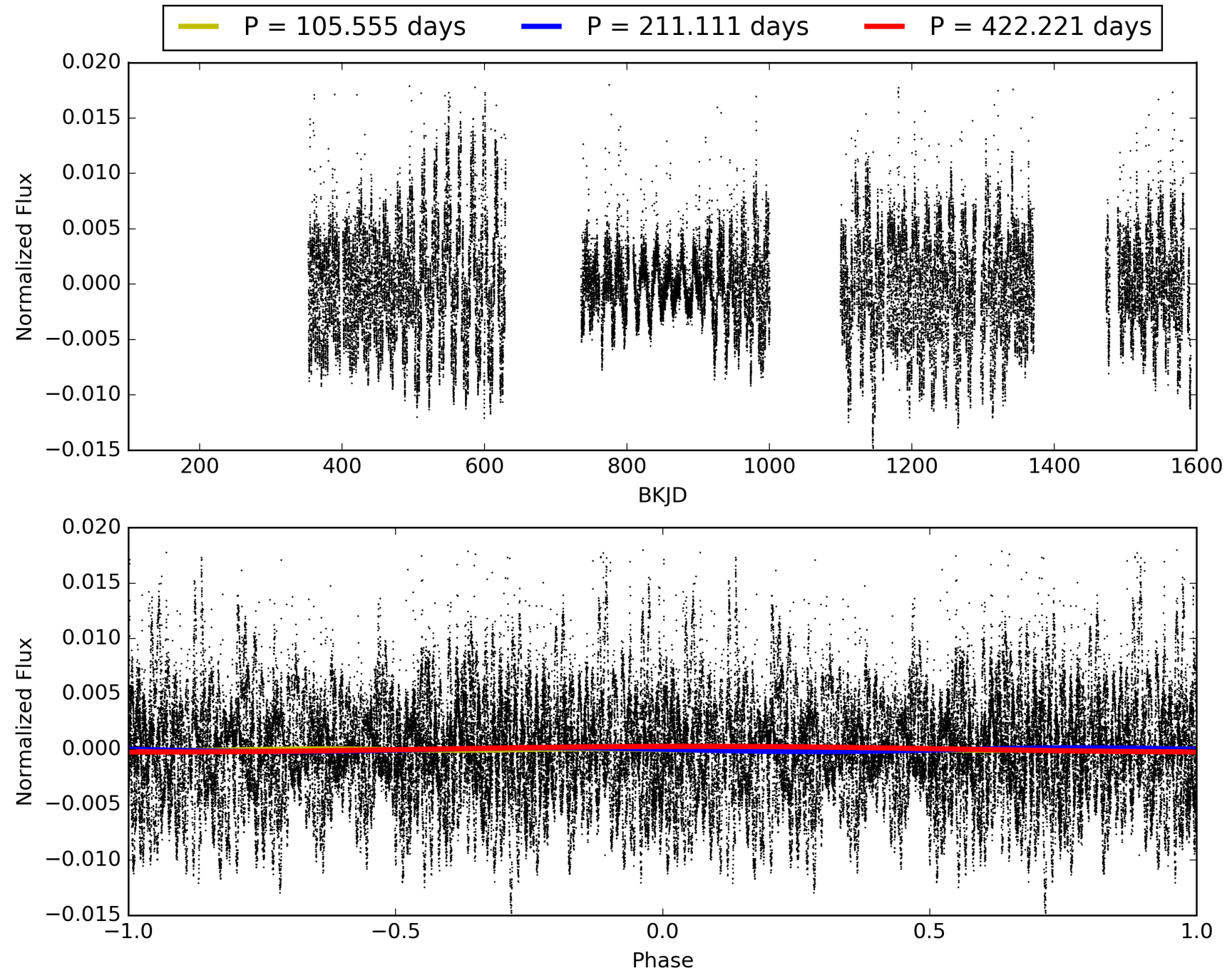
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:26:57 Z

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

TCE 009541573-03, PDC Light Curves

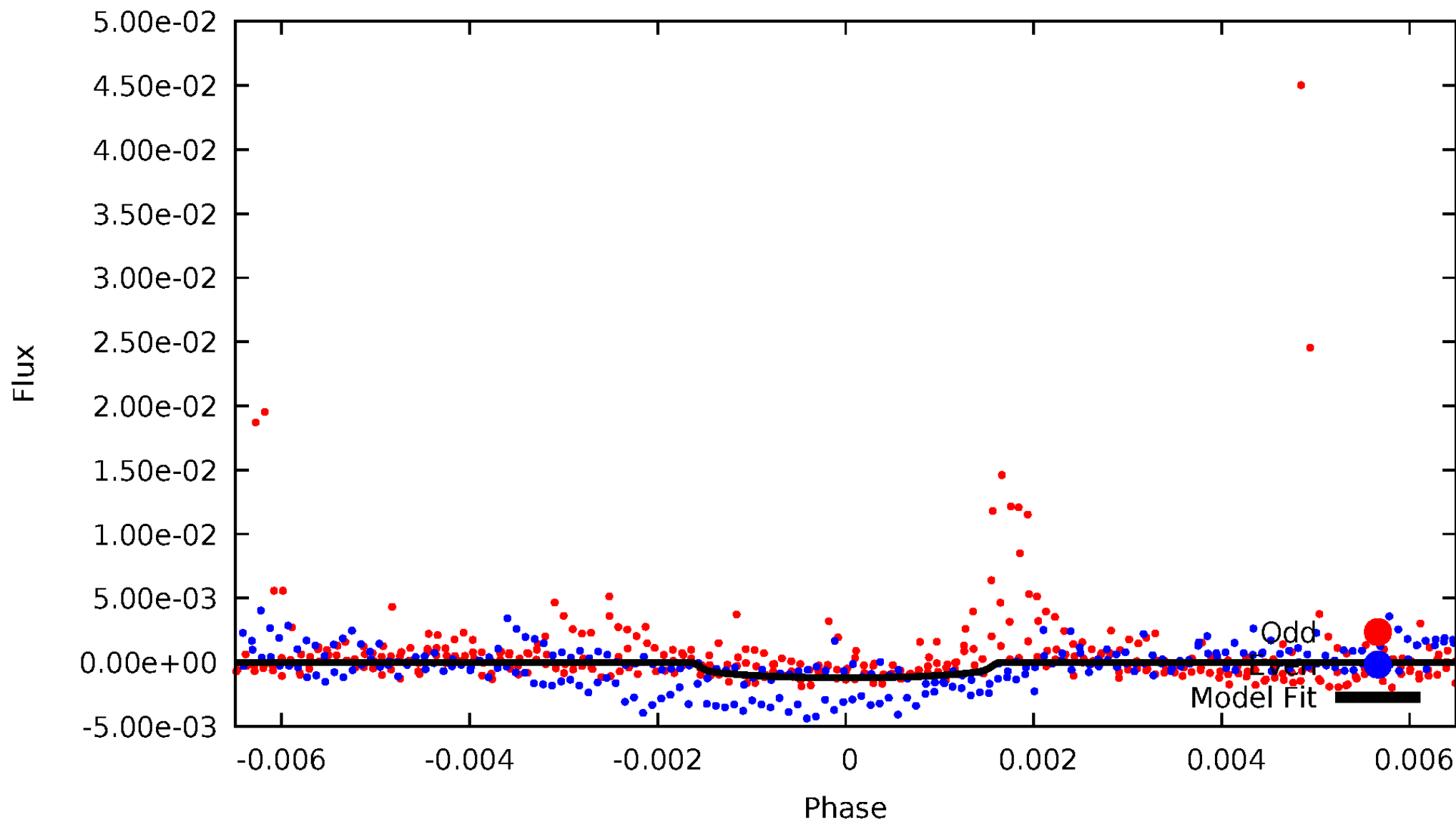


TCE 009541573-03



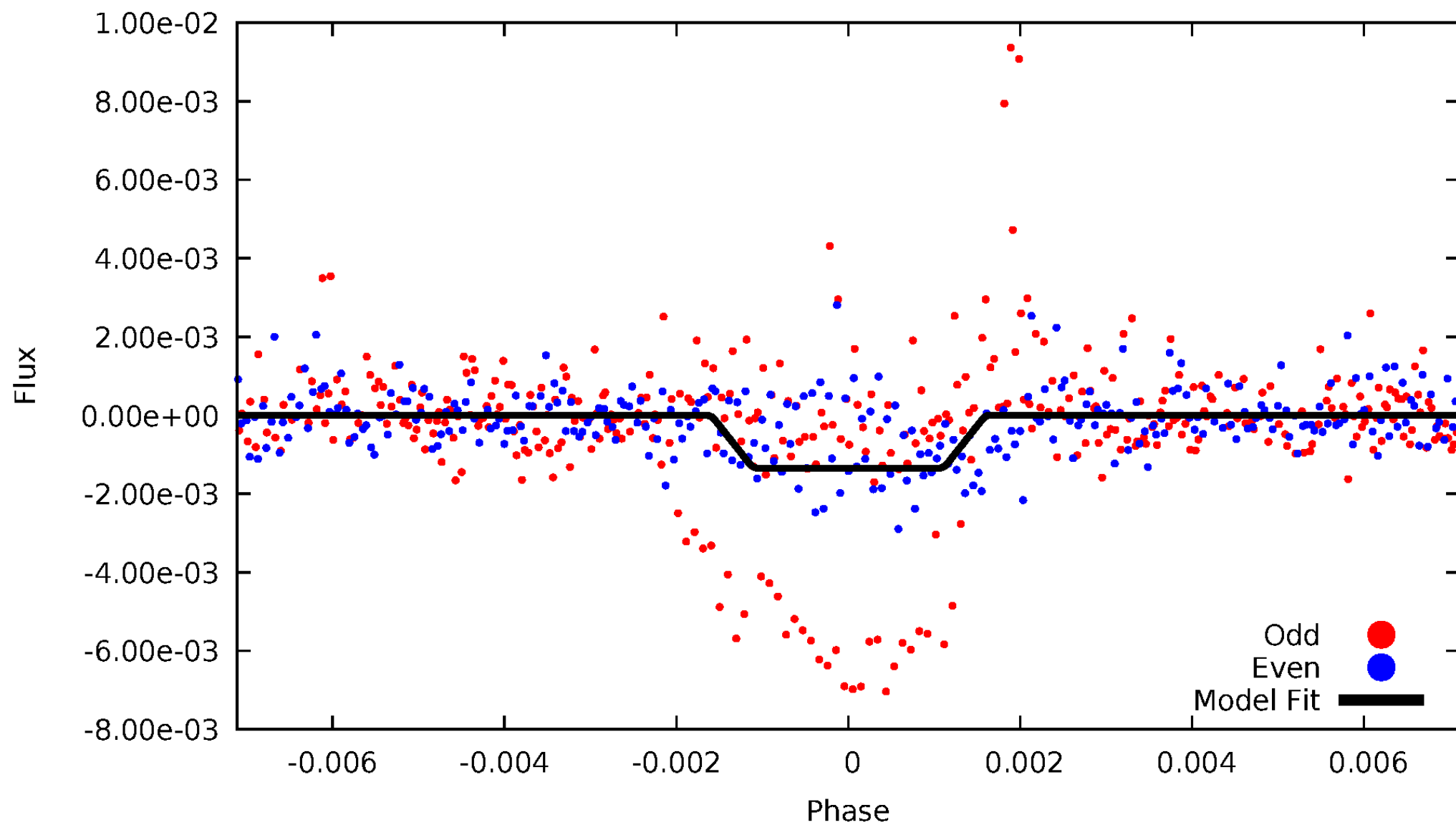
DV Odd/Even

TCE 009541573-03

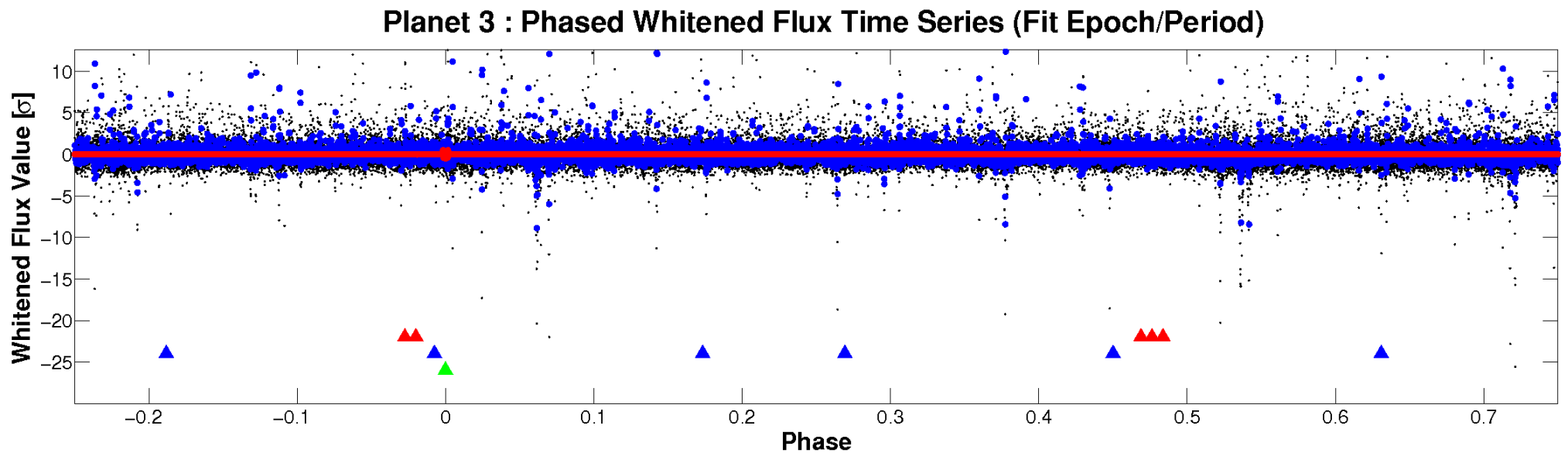
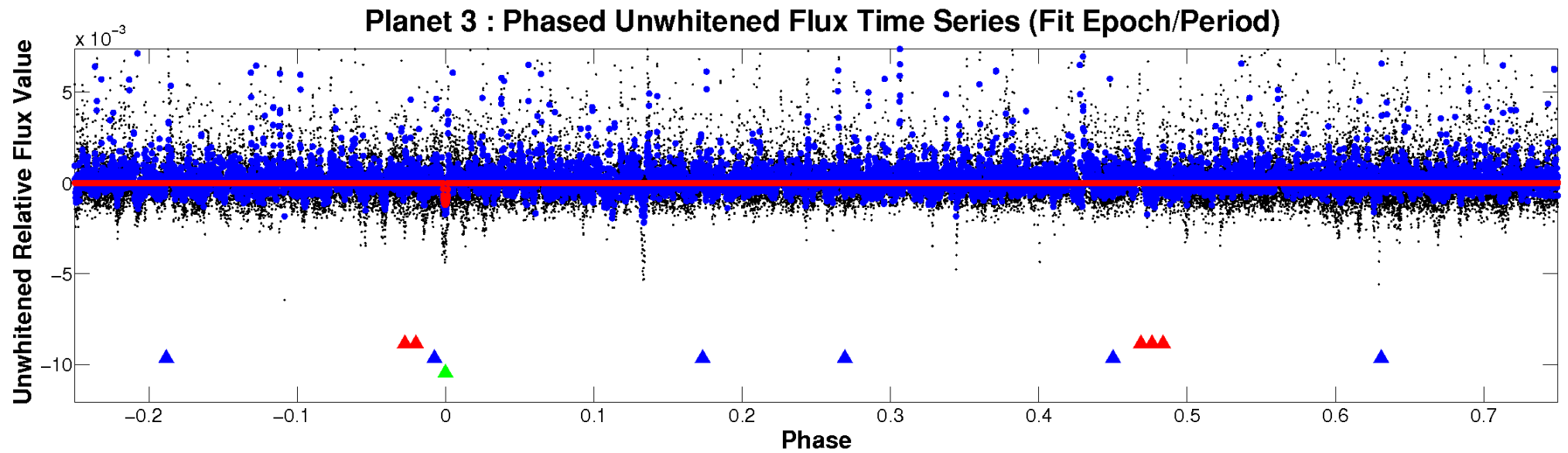


ALT Odd/Even

TCE 009541573-03

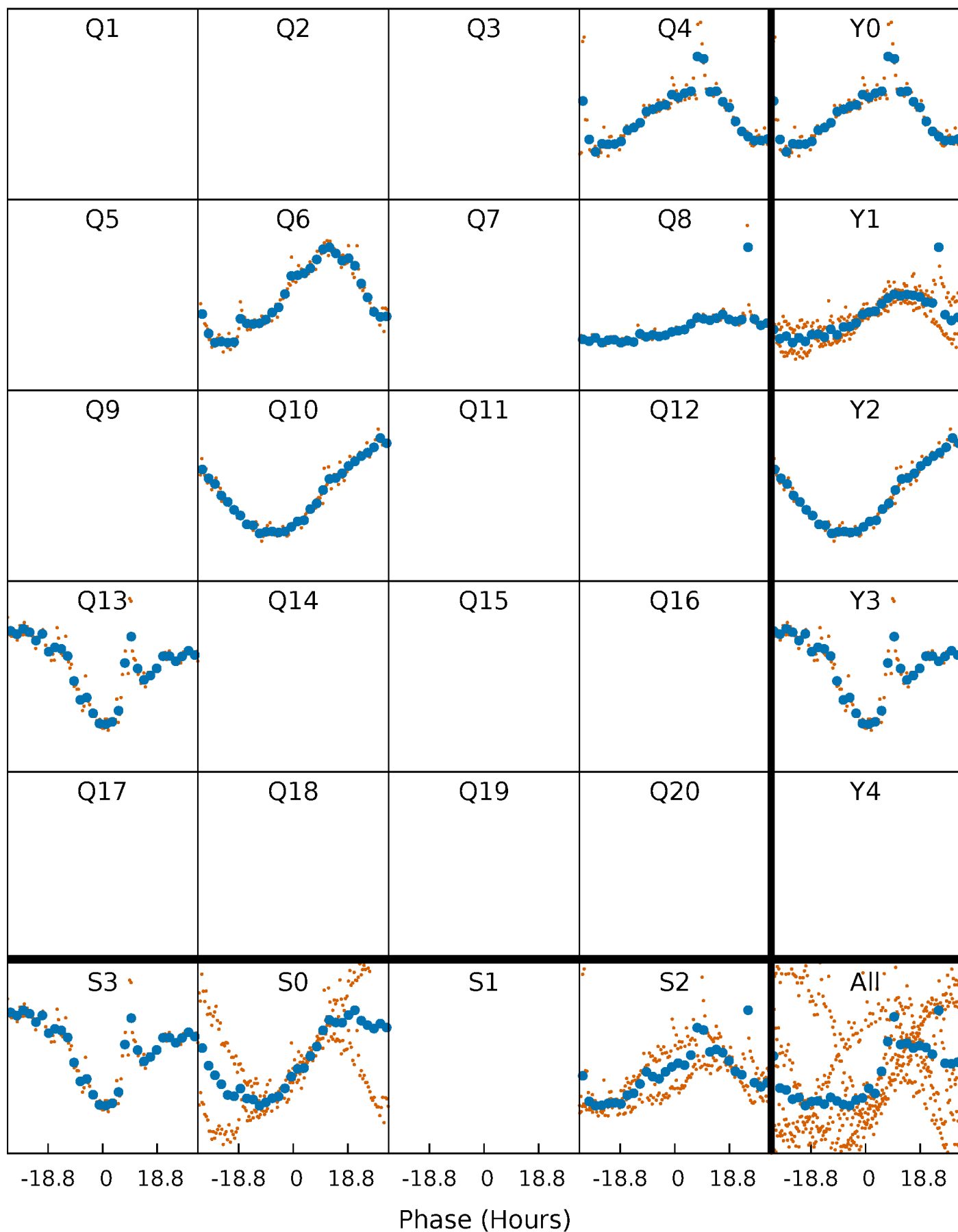


Non-Whitened Vs. Whitened Light Curve



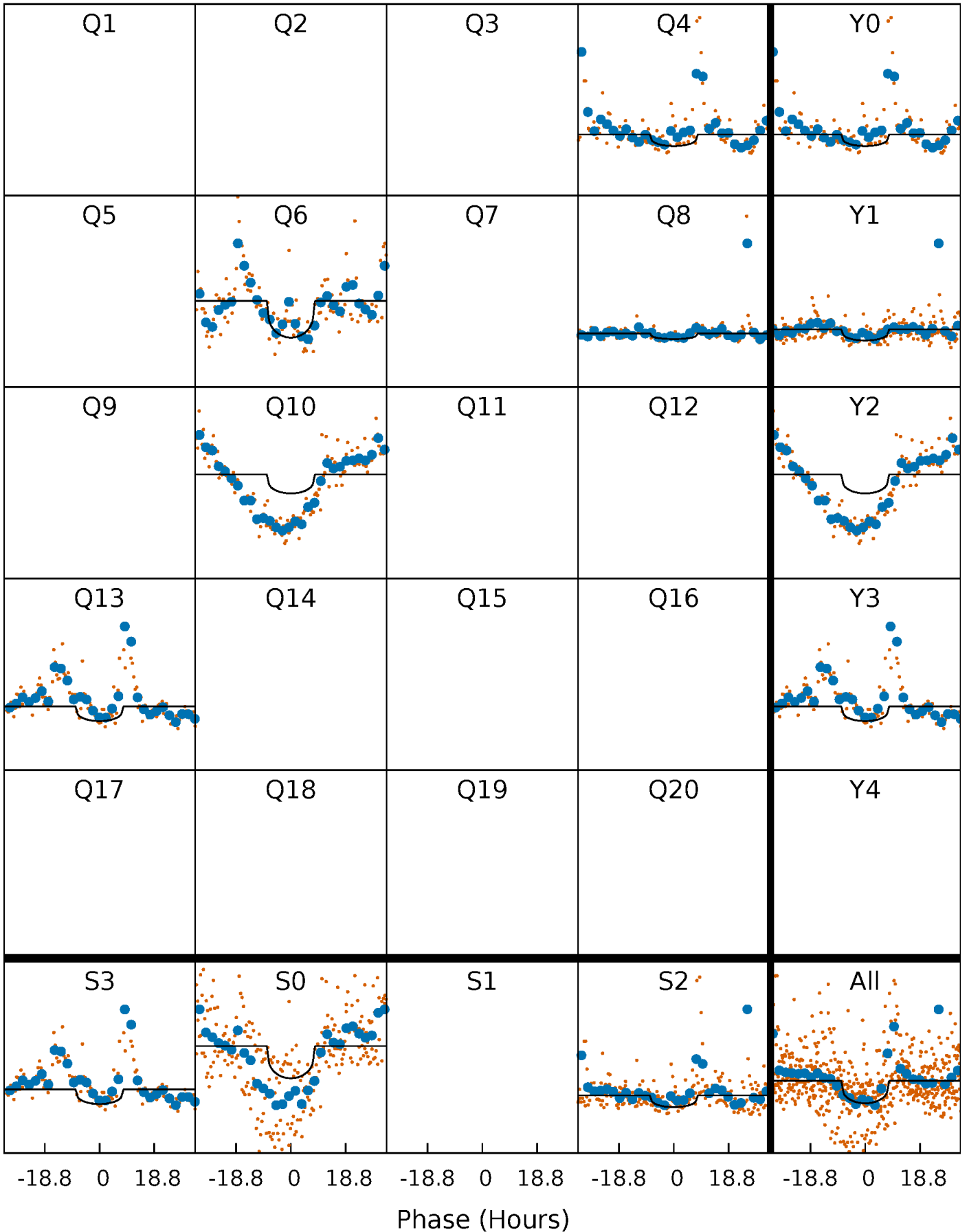
PDC Quarter-Phased Transit Curves

TCE 009541573-03 P=211.110533 Days $T_0=149.334247$ (BKJD)



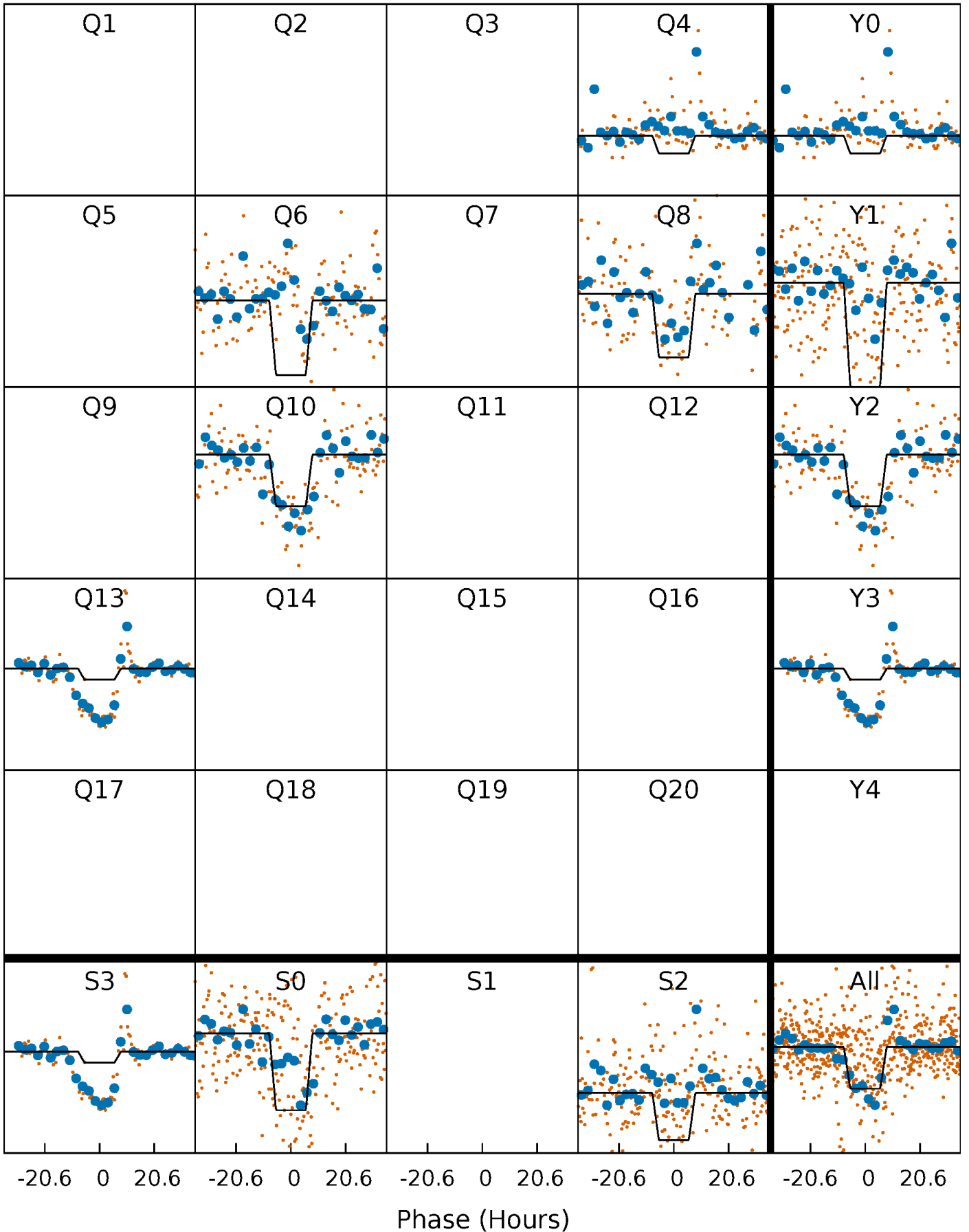
DV Quarter-Phased Transit Curves

TCE 009541573-03 $P=211.110533$ Days $T_0=149.334247$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

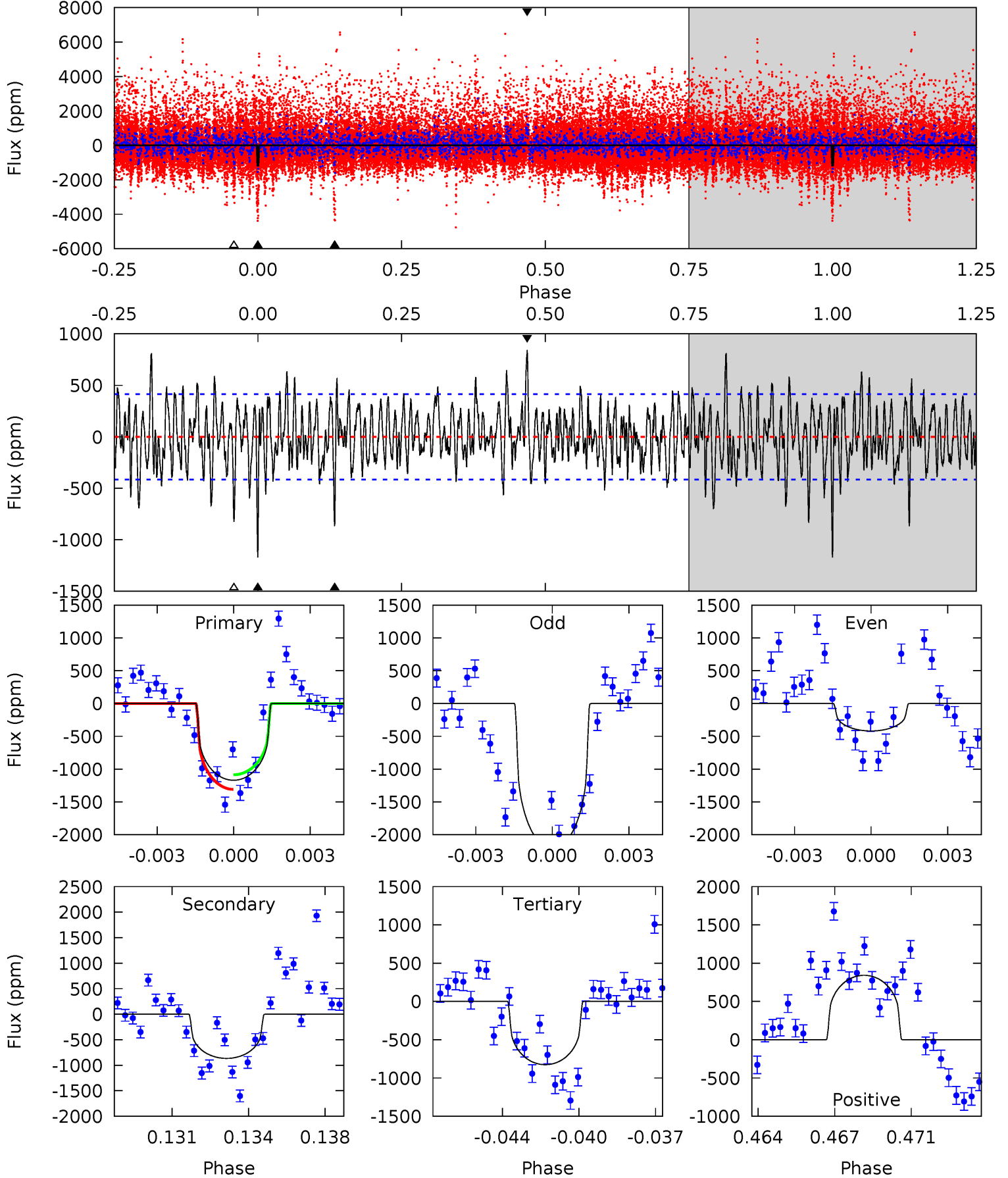
TCE 009541573-03 P=211.105919 Days $T_0=149.346971$ (BKJD)



DV Model-Shift Uniqueness Test

009541573-03, P = 211.110533 Days, E = 149.334247 Days

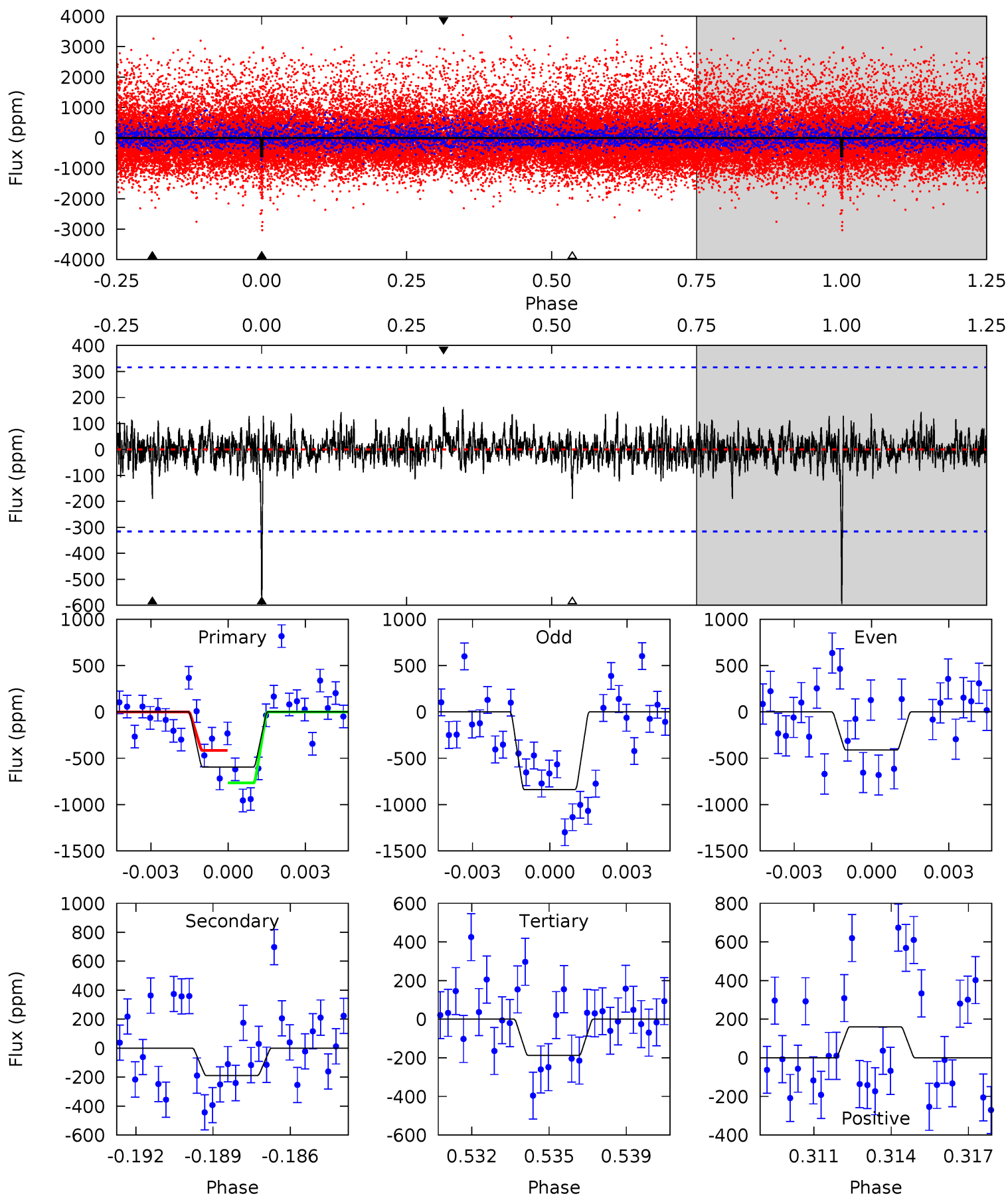
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	10.9	10.4	10.6	5.23	2.93	2.95	4.34	4.15	0.50	0.31	9.06	1.73	0.42	1.42



Alt Model-Shift Uniqueness Test

009541573-03, P = 211.105919 Days, E = 149.346971 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.86	3.14	3.11	2.66	5.24	2.95	0.70	6.74	7.19	0.03	0.48	3.48	2.18	0.21	2.92



Stellar Parameters For KIC 009541573

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3705^{+118}_{-148}	$4.683^{+0.075}_{-0.020}$	$0.560^{+0.050}_{-0.300}$	$0.569^{+0.033}_{-0.082}$	$0.570^{+0.036}_{-0.068}$	$4.352^{+1.705}_{-0.427}$
	+3%/-4%	+2%/-0%	+9%/-54%	+6%/-14%	+6%/-12%	+39%/-10%
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 009541573-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-866 ± 79	$1.95^{+1.10}_{-0.97}$	224^{+9}_{-10}	3584^{+1024}_{-483}	$41418^{+120319}_{-24482}$
Alt.	-189 ± 60	$2.27^{+1.07}_{-1.04}$	225^{+8}_{-10}	2758^{+578}_{-305}	6692^{+16912}_{-3952}

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

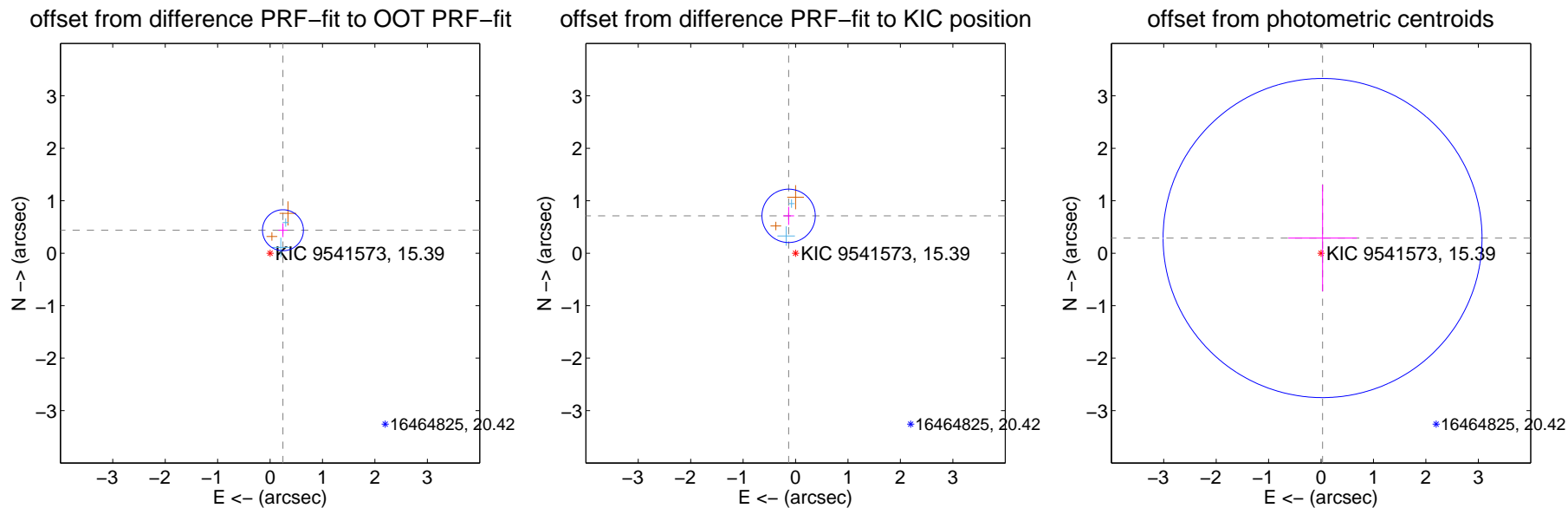
DV Centroid Data

Supplemental centroid analysis for 009541573-03. Kepler magnitude: 15.39. Transit SNR 5.77

There are 2 quarters with good PRF difference image offsets

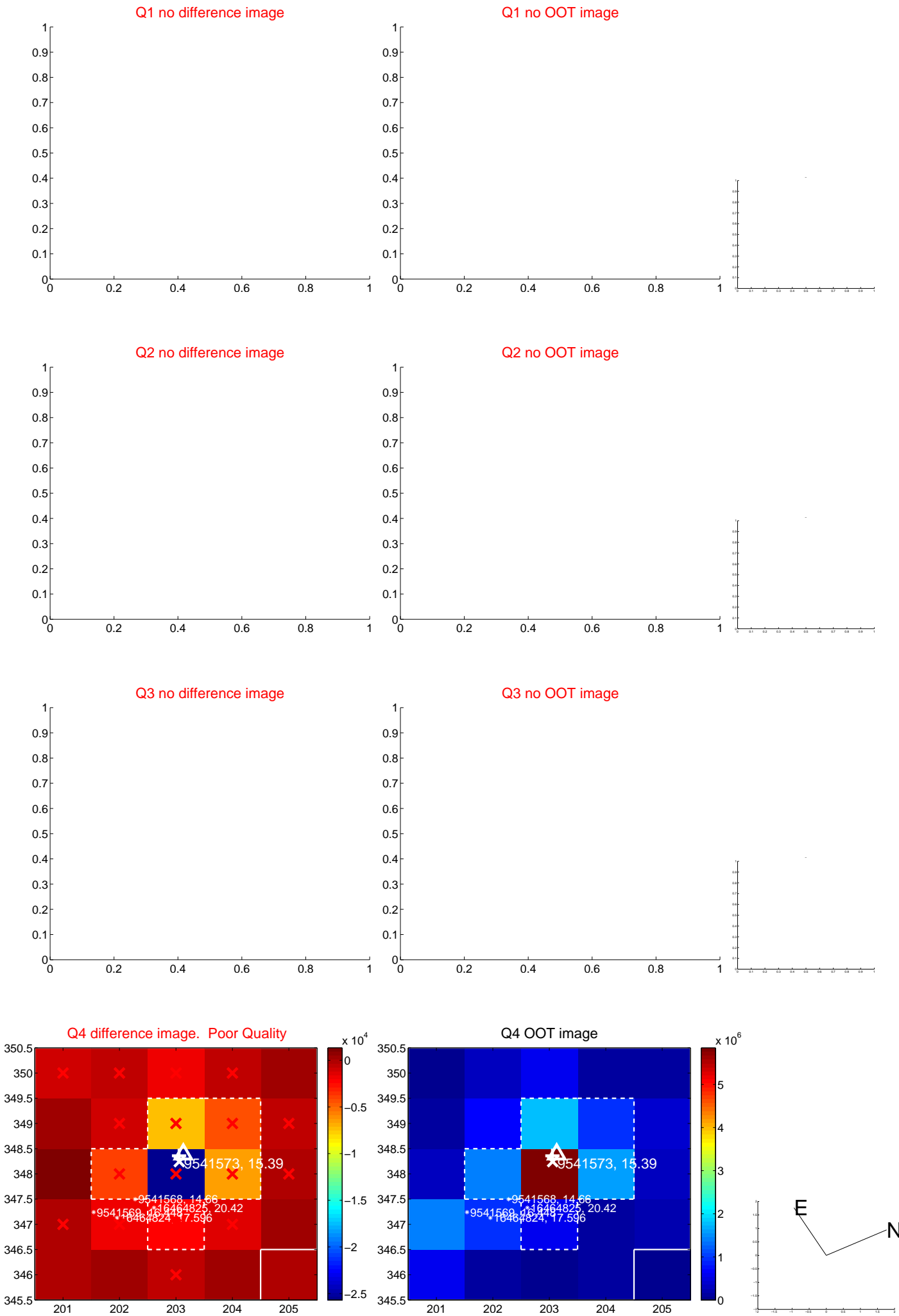
The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.502 ± 0.130	3.86	-0.245 ± 0.086	0.438 ± 0.130
PRF-fit source offset from KIC position	0.725 ± 0.170	4.27	0.132 ± 0.106	0.713 ± 0.171
photometric centroid source offset	0.29 ± 1.01	0.29	-0.03 ± 0.66	0.29 ± 1.02



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.

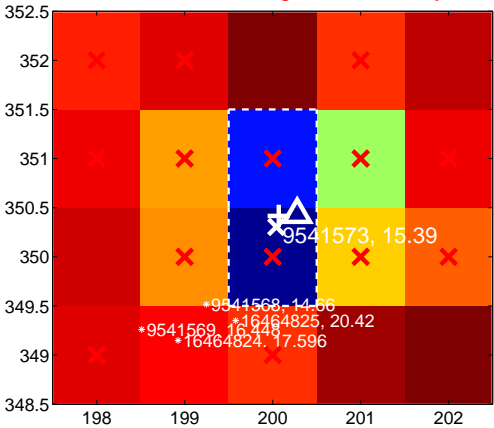
Q5 no difference image



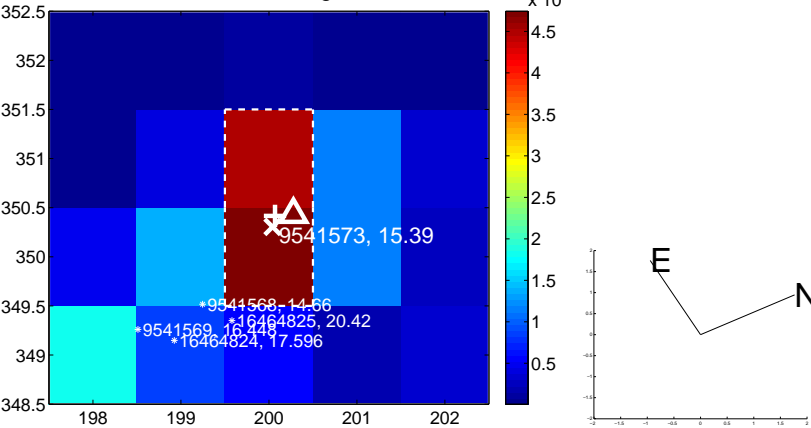
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



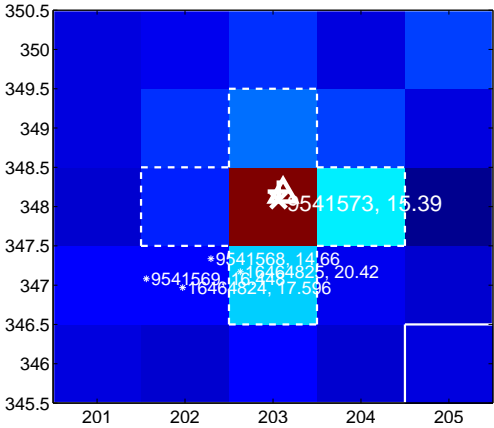
Q7 no difference image



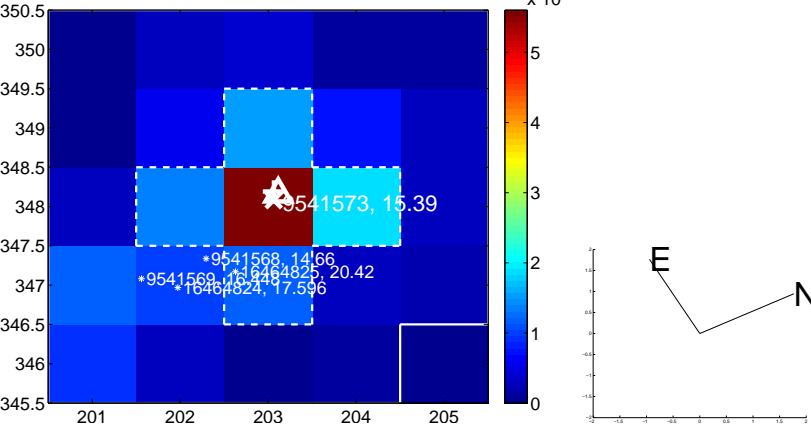
Q7 no OOT image



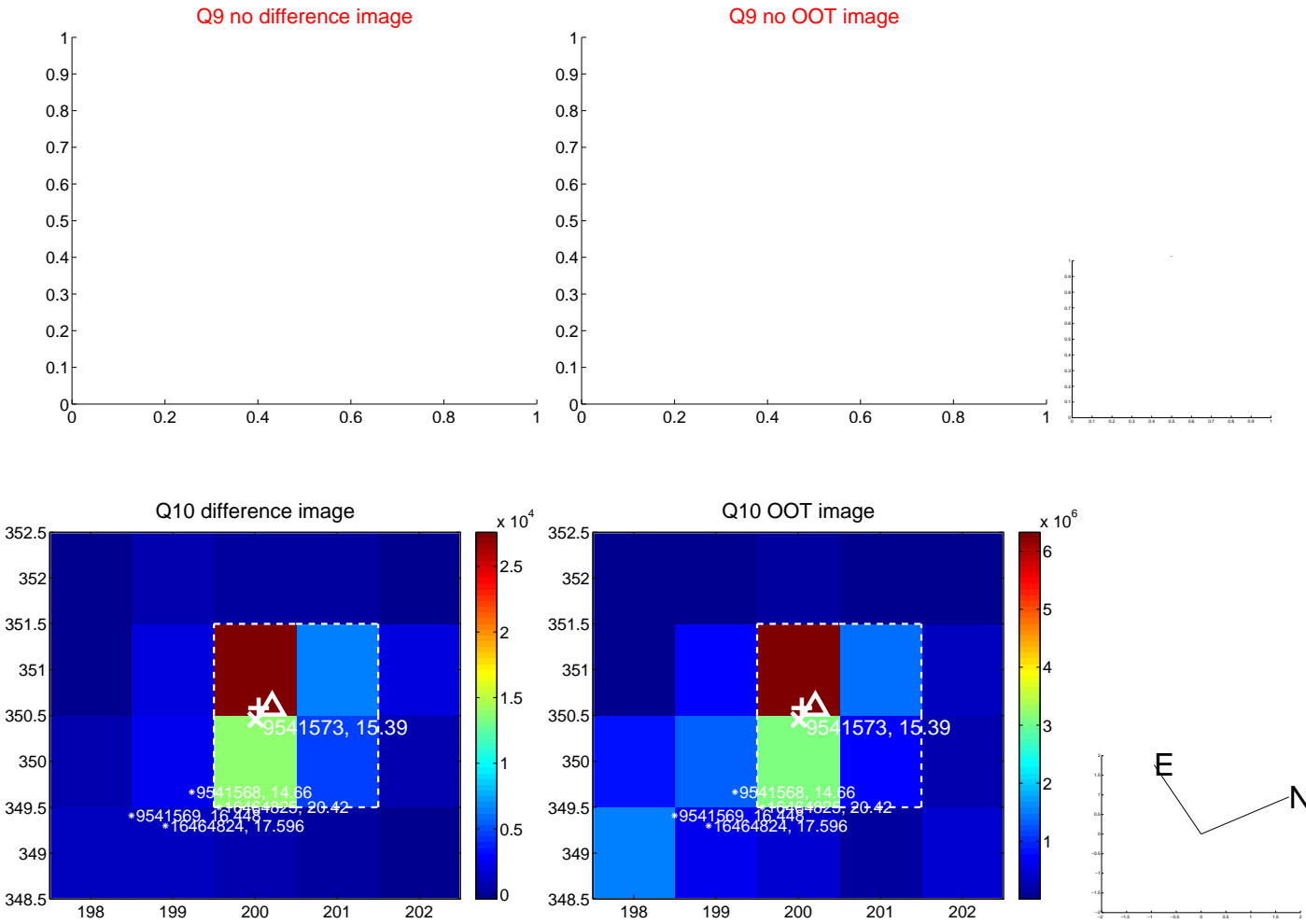
Q8 difference image



Q8 OOT image



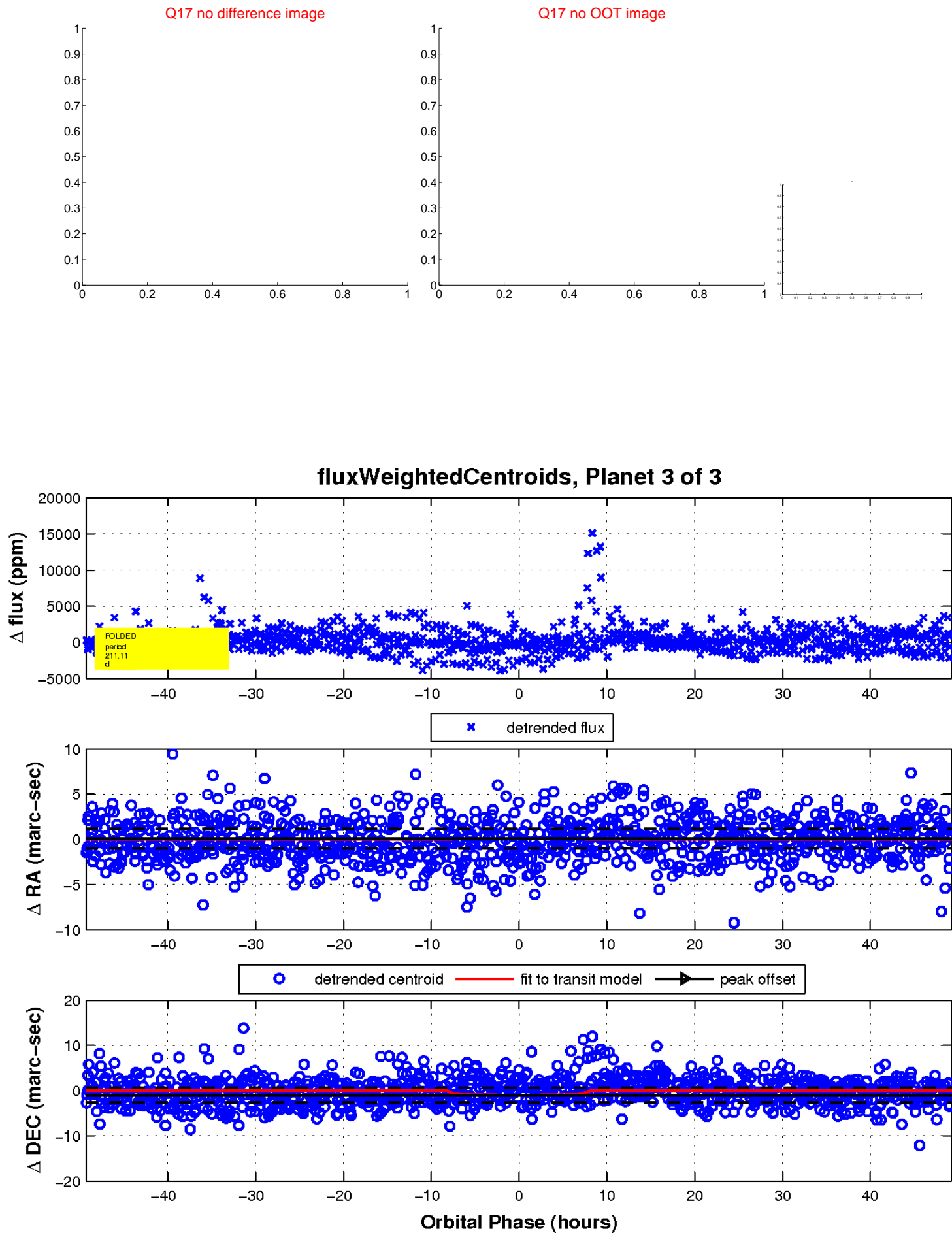
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

