

KIC 004753561

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})
004753561-01	OBS	5996.01	4.944913	131.613950	825.3	3.320	50.5	46.1	0.70	4428	3.60	66.68
004753561-02	OBS	No	4.944933	134.332836	765.8	3.584	48.8	45.3	0.70	4428	3.65	66.68
004753561-03	OBS	No	224.090642	268.303944	479.2	11.079	12.3	6.4	0.70	4428	1.73	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004753561-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST
004753561-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST
004753561-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

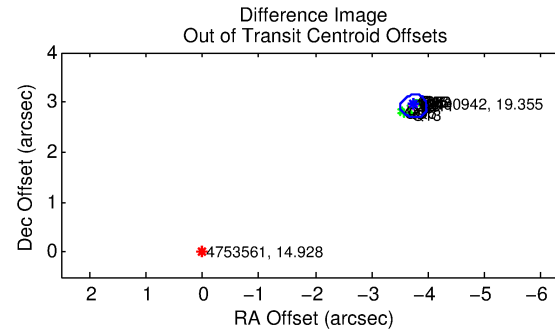
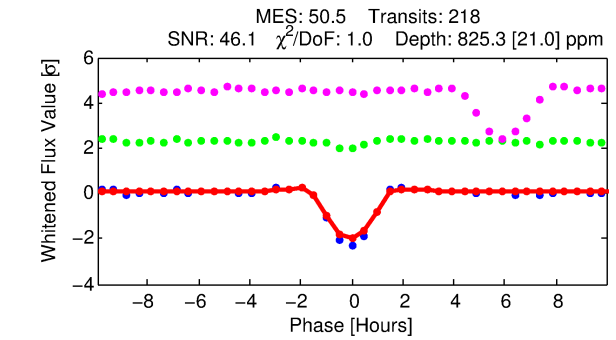
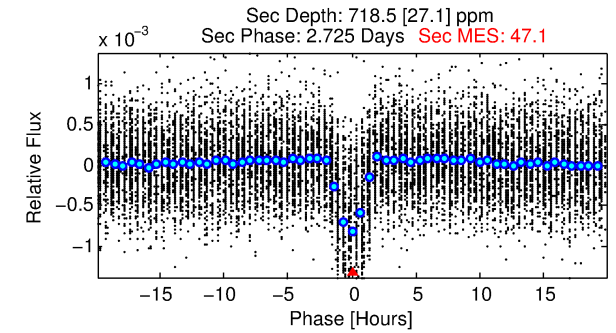
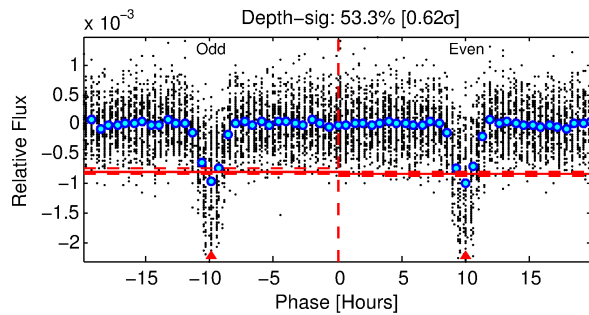
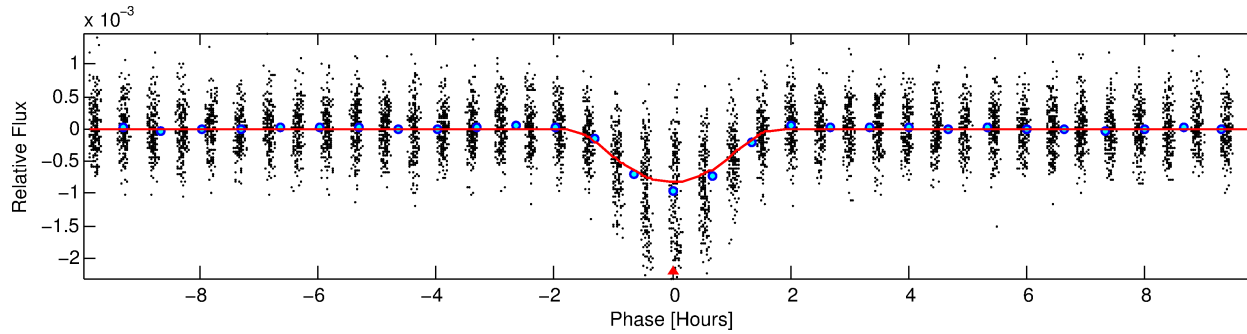
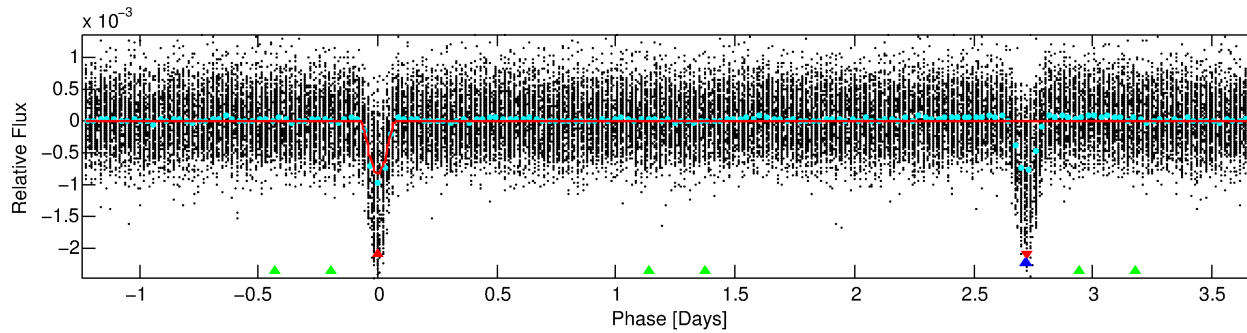
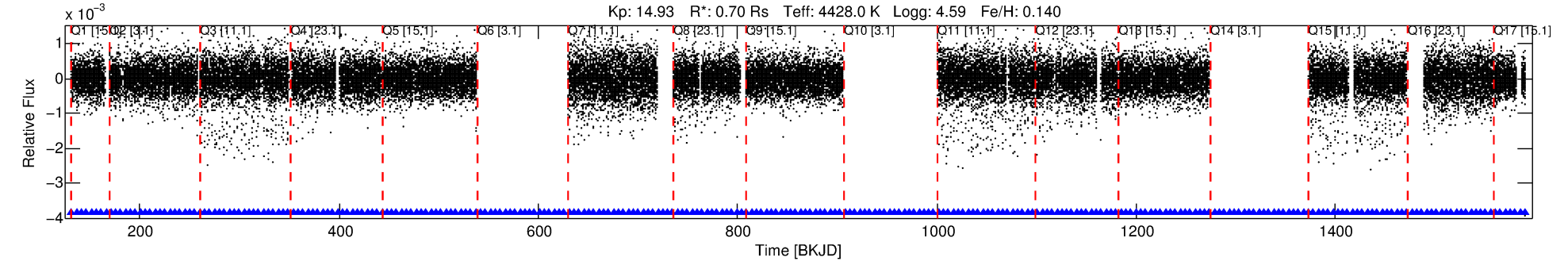
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004753561-01

No Significant Match Found

DV One-Page Summary

KIC: 4753561 Candidate: 1 of 3 Period: 4.945 d
KOI: K05996.01 Corr: 0.982



DV Fit Results:

Period = 4.94491 [0.00001] d
Epoch = 131.6140 [0.0014] BKJD
Rp/R* = 0.0470 [0.0202]
a/R* = 4.12 [0.51]
b = 0.99 [0.03]
Seff = 66.68 [6.77]
Teff = 729 [18] K
Rp = 3.59 [1.56] Re
a = 0.0504 [0.0023] AU
Ag = 77.65 [67.18] [1.14 σ]
Teffp = 3344 [723] K [3.62 σ]

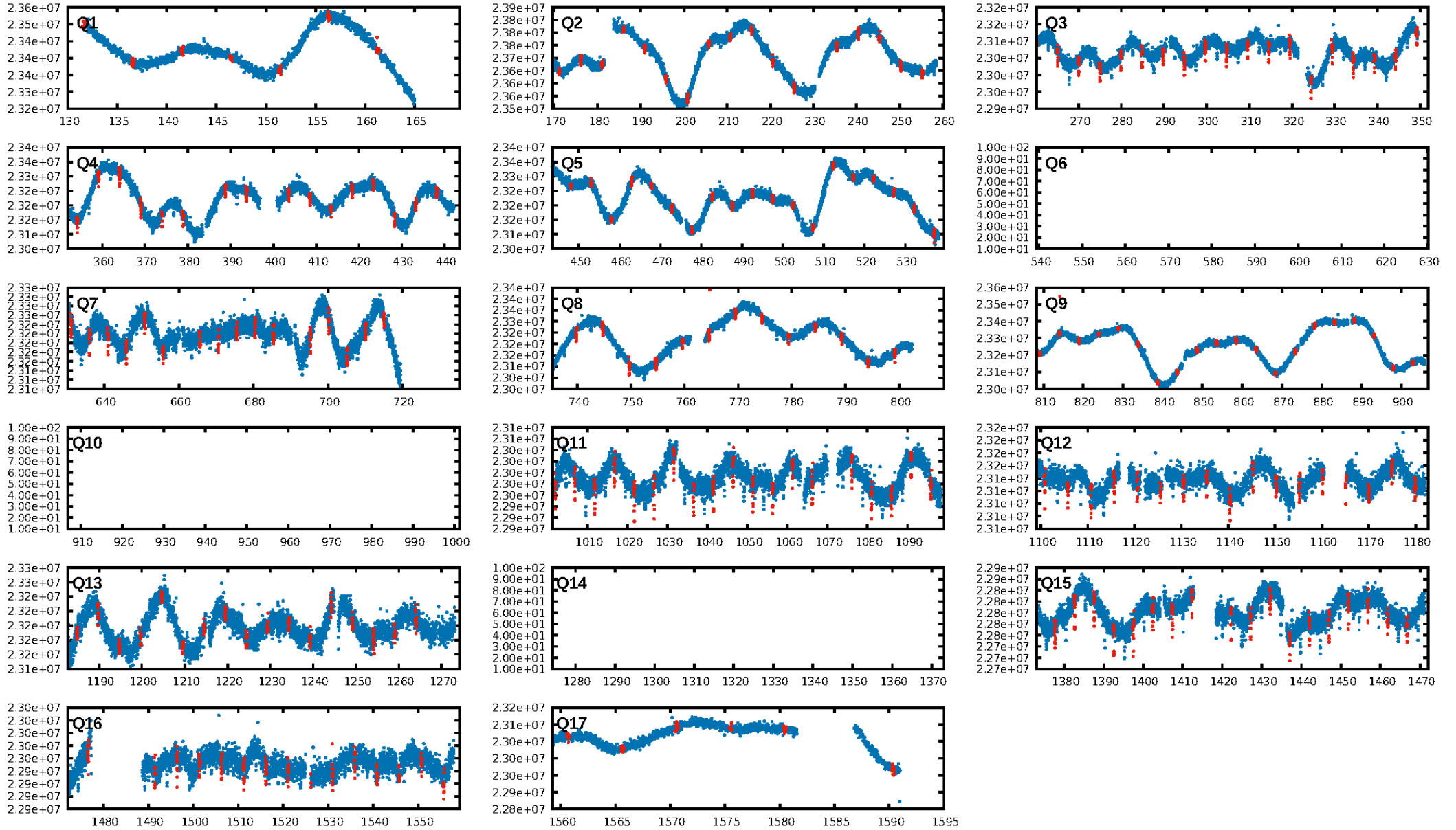
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [205/205]
GhostDiagnostic-chr: -0.05593
Centroid-sig: 0.0%
Centroid-so: 14.287 arcsec [61.17 σ]
OotOffset-rm: 4.749 arcsec [62.21 σ]
KicOffset-rm: 4.633 arcsec [65.65 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

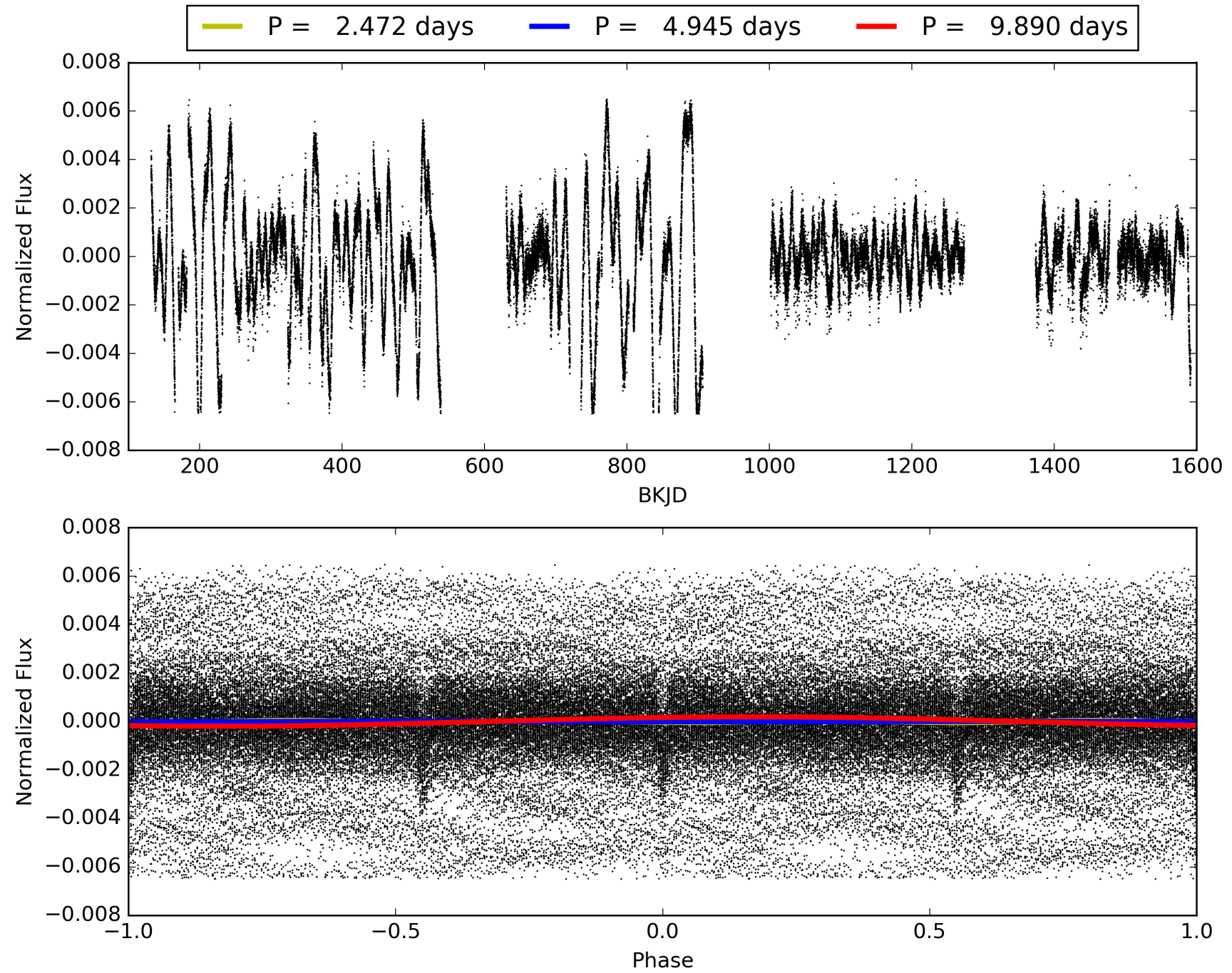
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:38:09 Z

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

TCE 004753561-01, PDC Light Curves

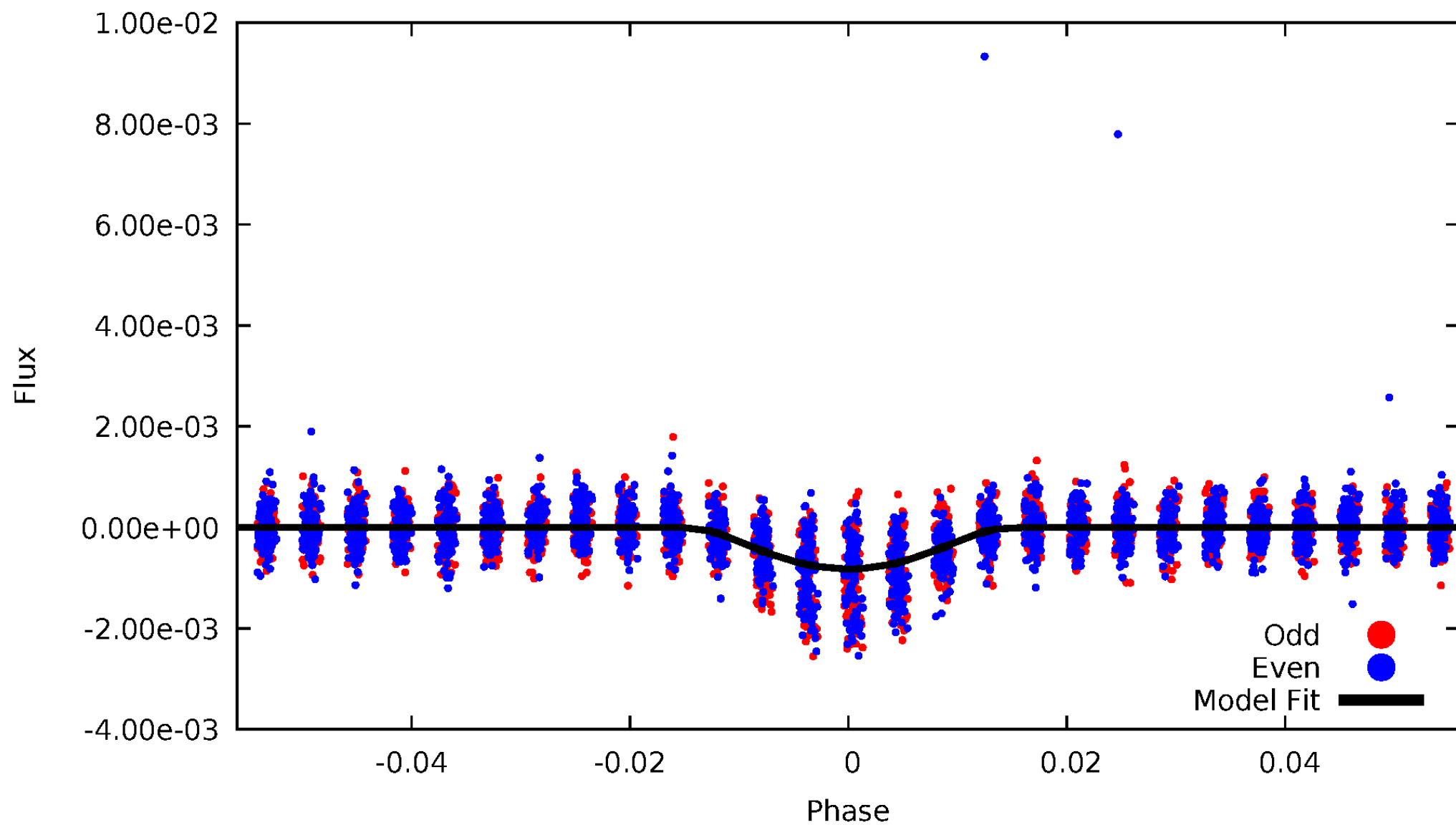


TCE 004753561-01



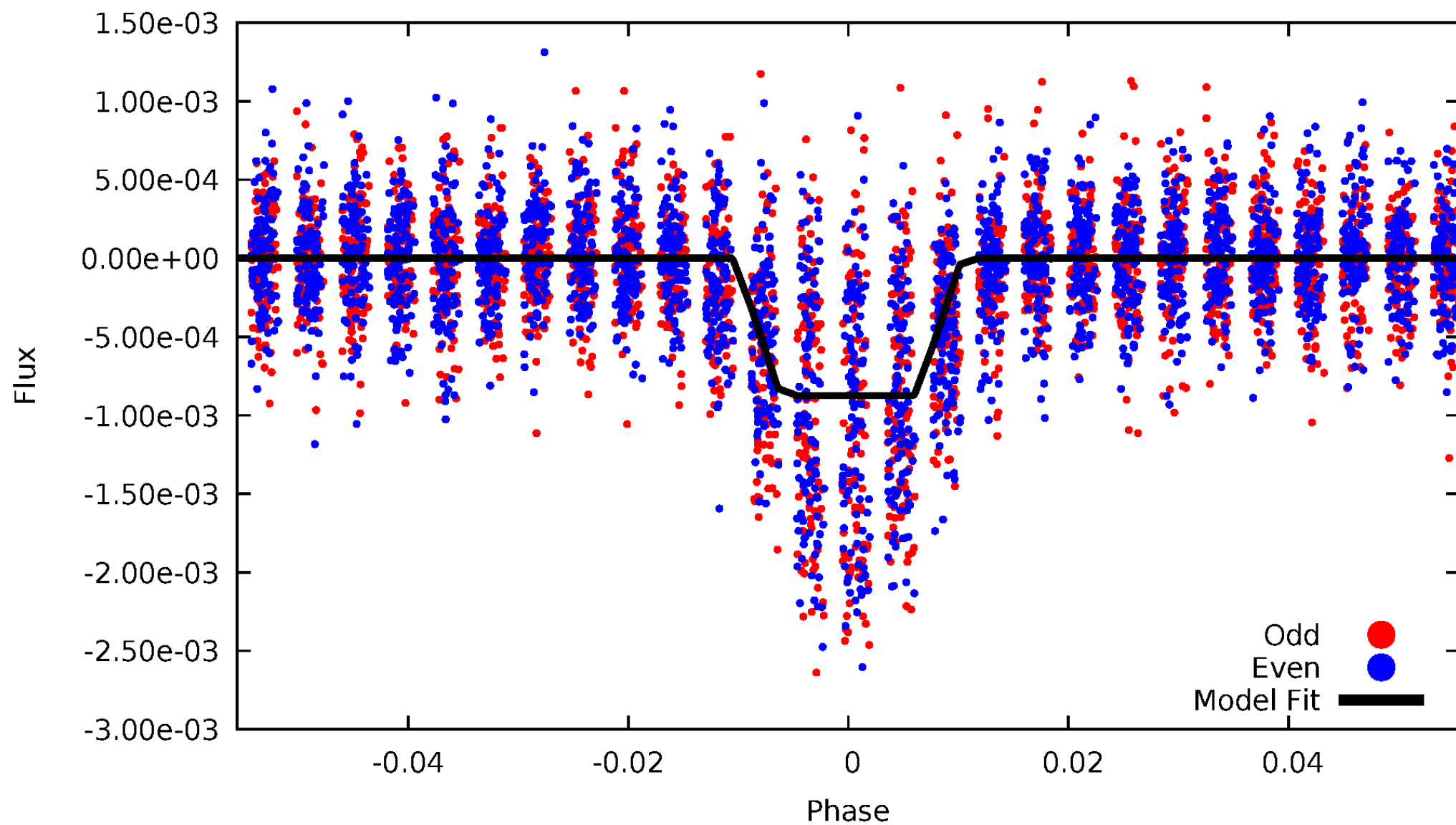
DV Odd/Even

TCE 004753561-01



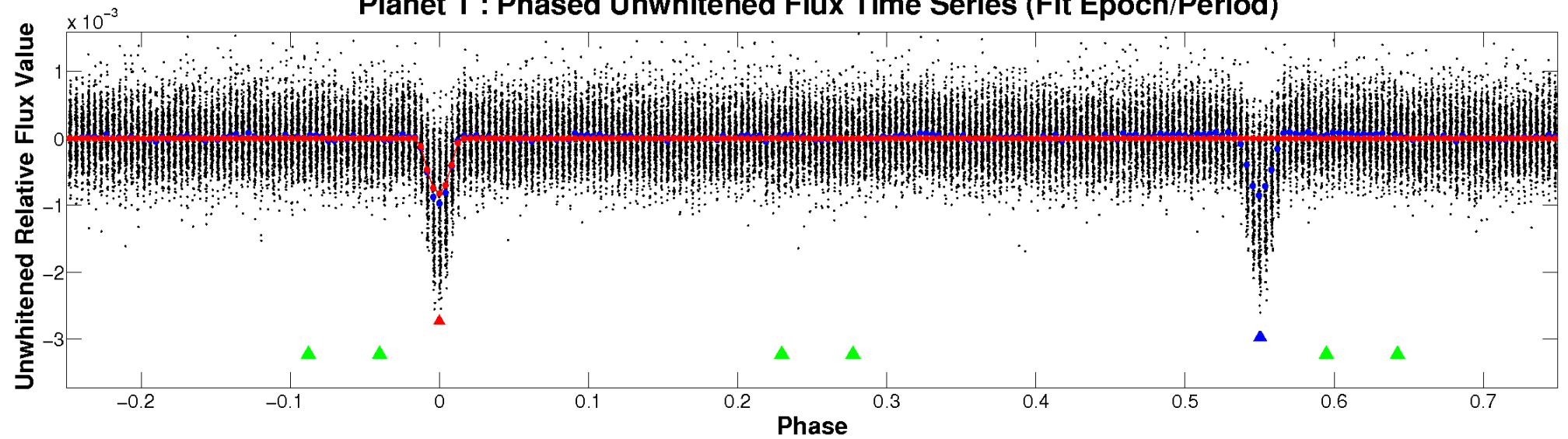
ALT Odd/Even

TCE 004753561-01

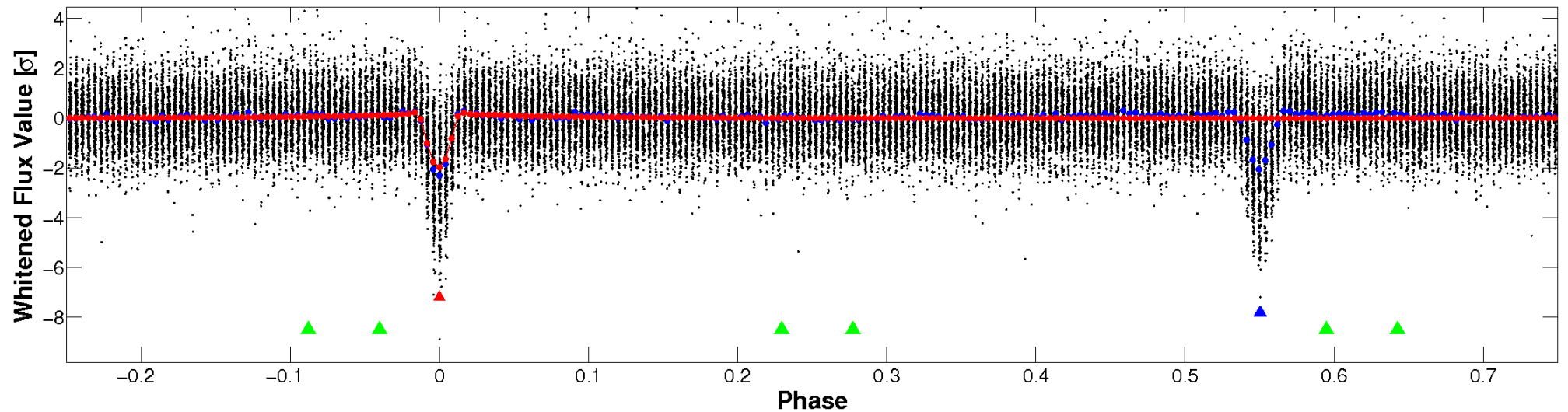


Non-Whitened Vs. Whitened Light Curve

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

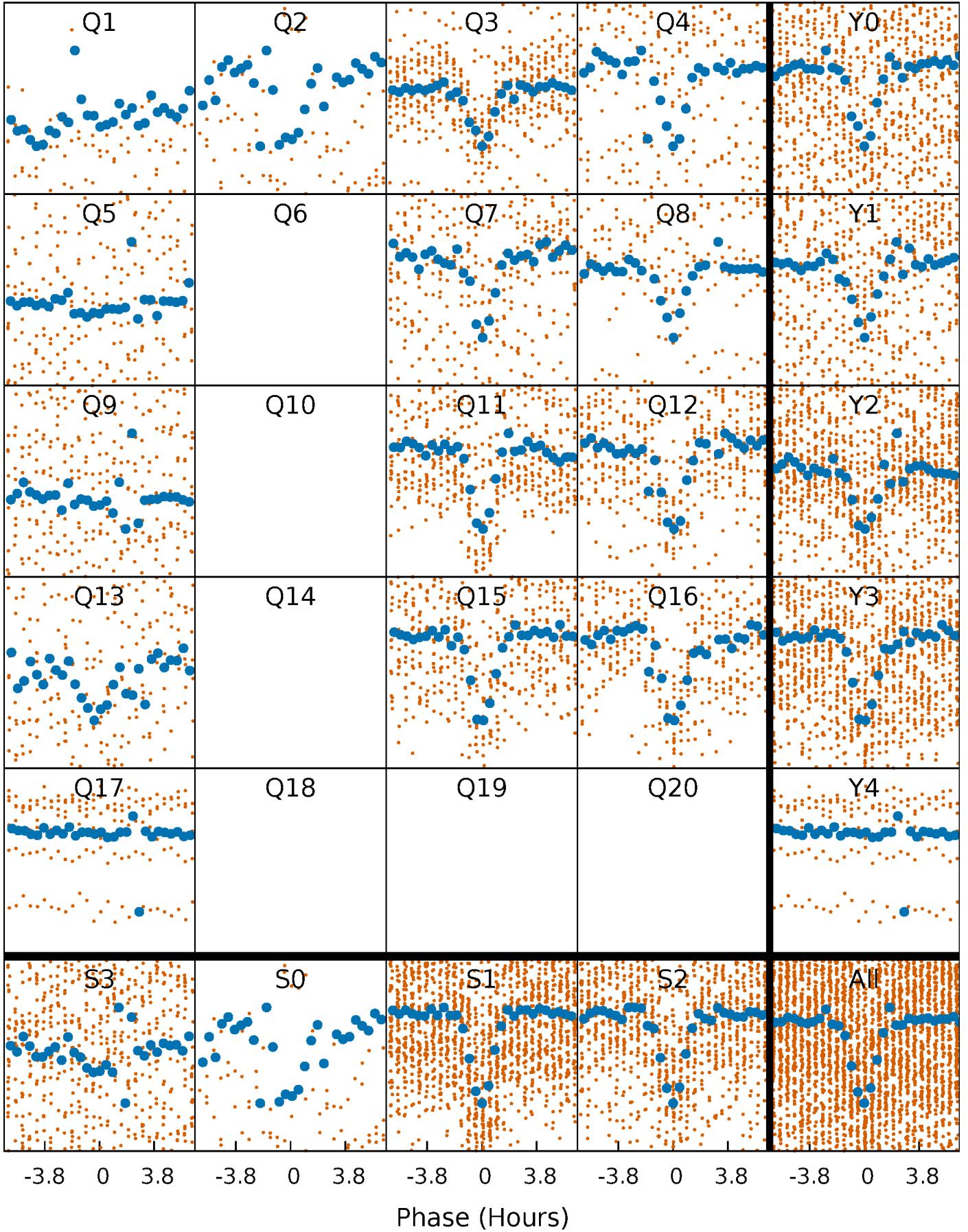


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



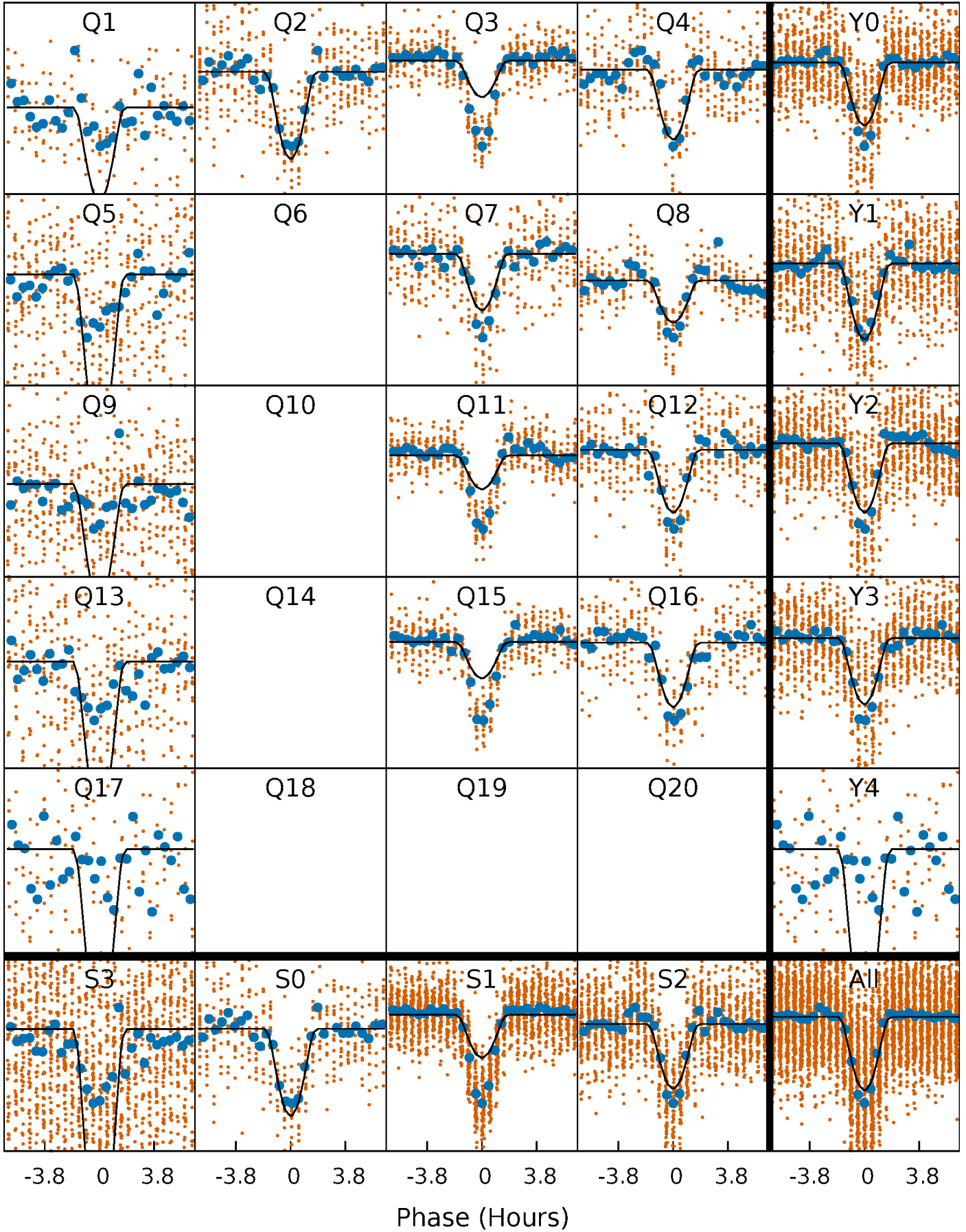
PDC Quarter-Phased Transit Curves

TCE 004753561-01 P= 4.944913 Days $T_0=131.613950$ (BKJD)



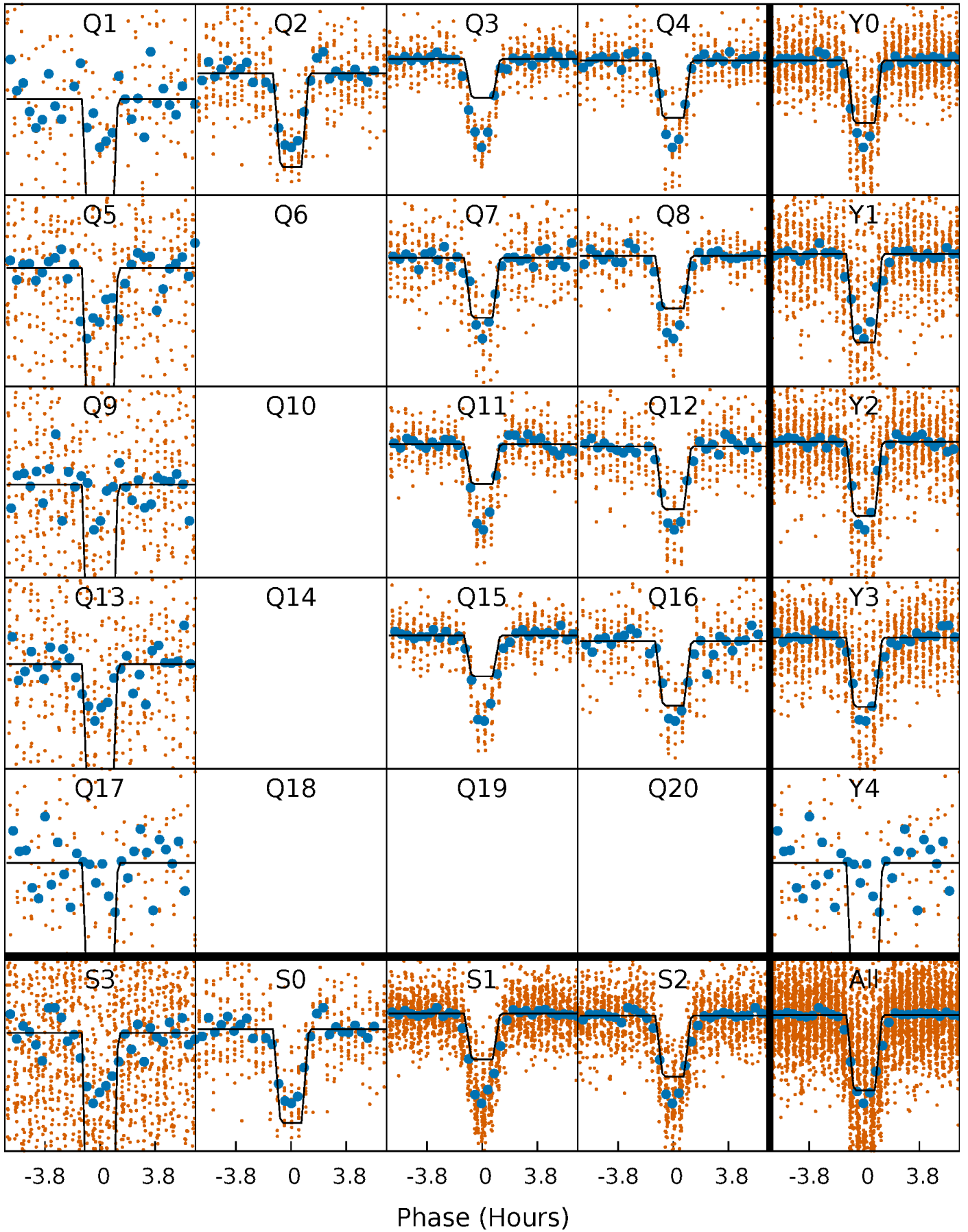
DV Quarter-Phased Transit Curves

TCE 004753561-01 P= 4.944913 Days $T_0=131.613950$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

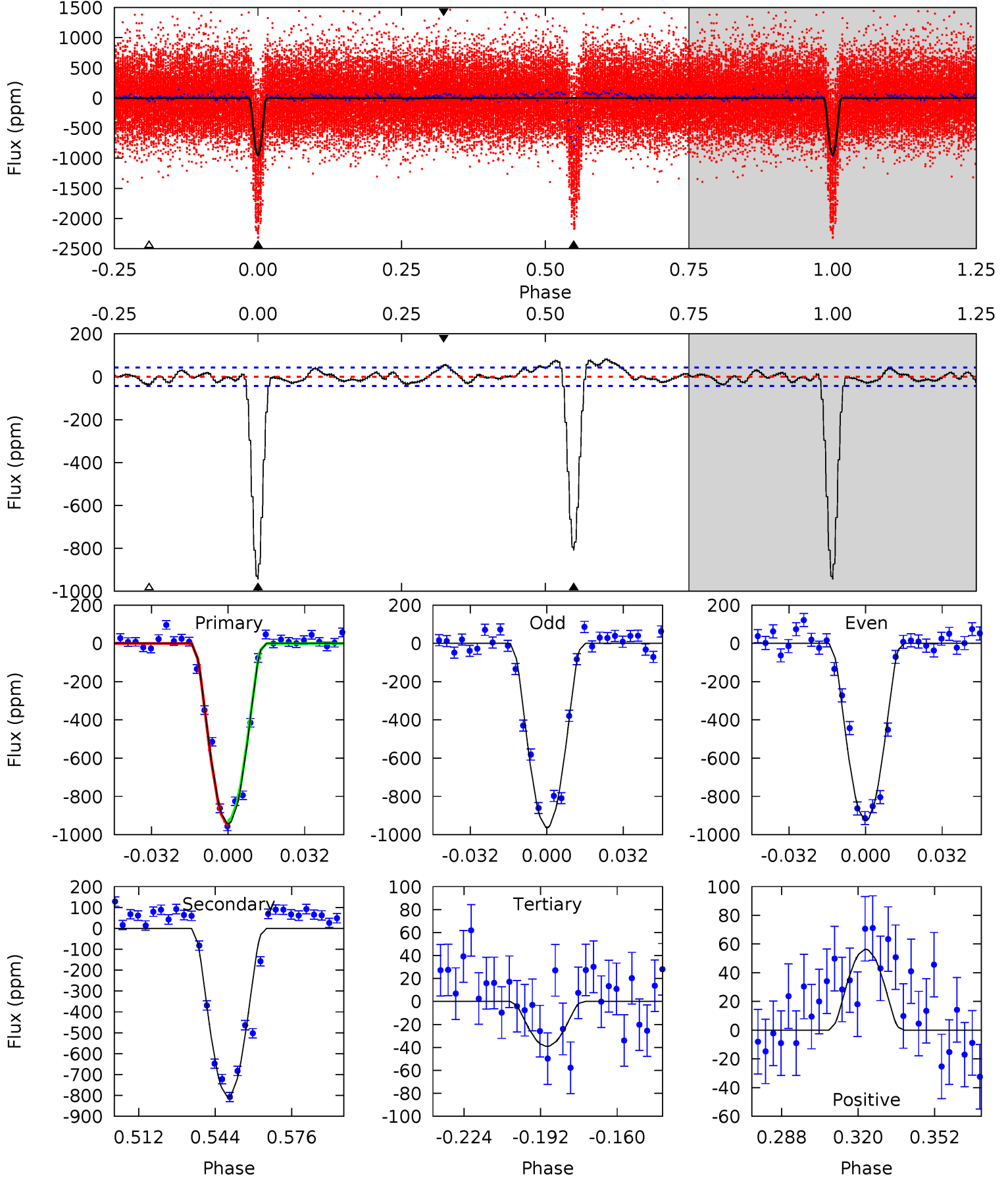
TCE 004753561-01 P= 4.944895 Days $T_0=131.615588$ (BKJD)



DV Model-Shift Uniqueness Test

004753561-01, P = 4.944913 Days, E = 126.669037 Days

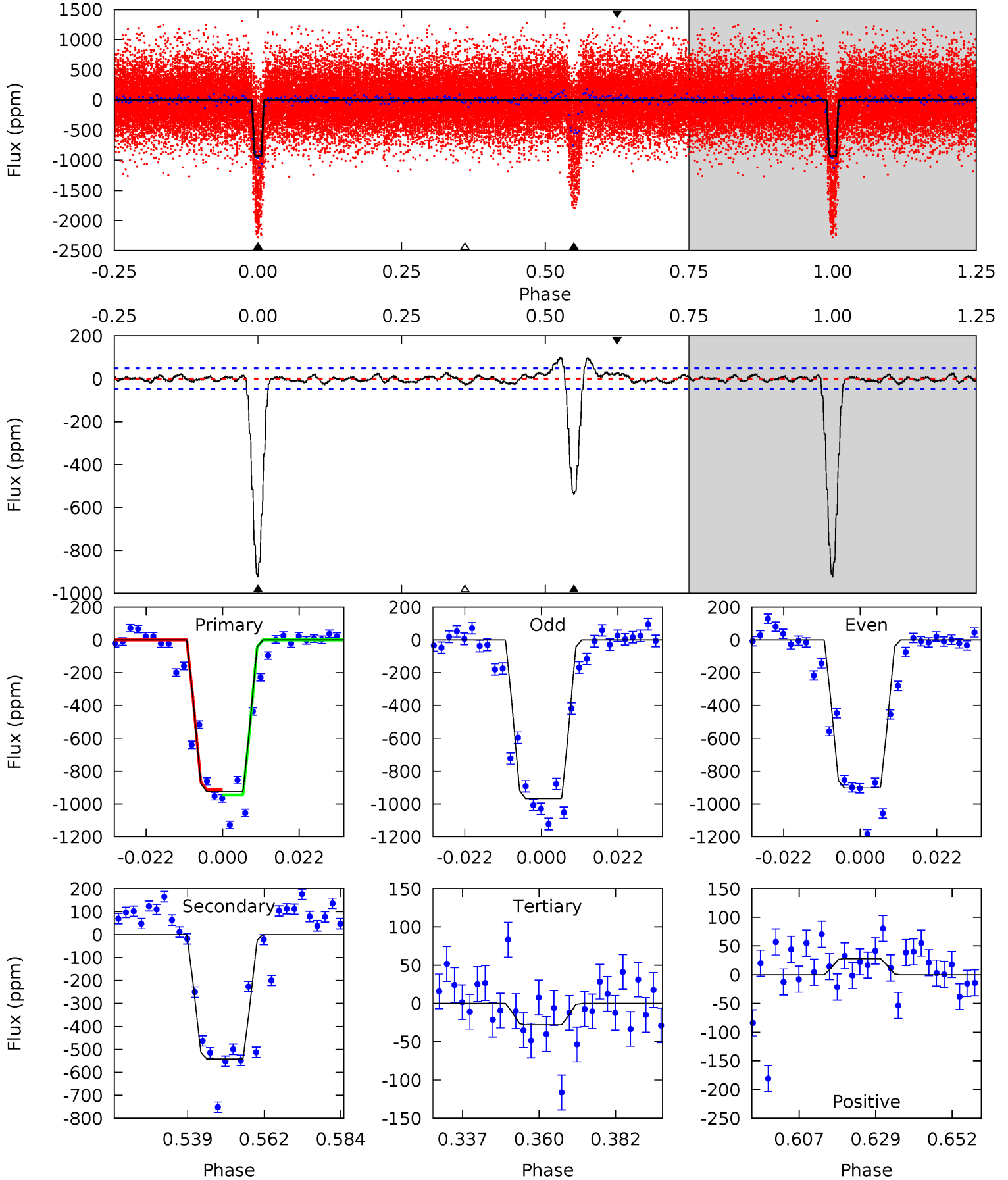
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
106.1	90.8	4.40	6.33	4.80	2.14	2.87	101.7	99.7	86.4	84.5	2.10	1.09	0.08	1.35



Alt Model-Shift Uniqueness Test

004753561-01, P = 4.944895 Days, E = 126.670693 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
93.2	54.6	2.81	2.83	4.87	2.28	1.87	90.4	90.4	51.8	51.7	3.23	0.94	0.10	1.49



Stellar Parameters For KIC 004753561

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4428^{+79}_{-79}	$4.590^{+0.042}_{-0.012}$	$0.140^{+0.150}_{-0.150}$	$0.701^{+0.020}_{-0.034}$	$0.697^{+0.040}_{-0.026}$	$2.849^{+0.446}_{-0.144}$
	+2%/-2%	+1%/-0%	+107%/-107%	+3%/-5%	+6%/-4%	+16%/-5%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 004753561-01 / KOI 5996.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-807 ± 9	$3.61^{+1.50}_{-1.49}$	1012^{+21}_{-19}	3700^{+732}_{-402}	88^{+165}_{-44}
Alt.	-541 ± 10	$2.31^{+1.39}_{-1.29}$	1012^{+22}_{-21}	4029^{+1575}_{-617}	143^{+596}_{-87}

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 $A_{obs} \gg 1.0$

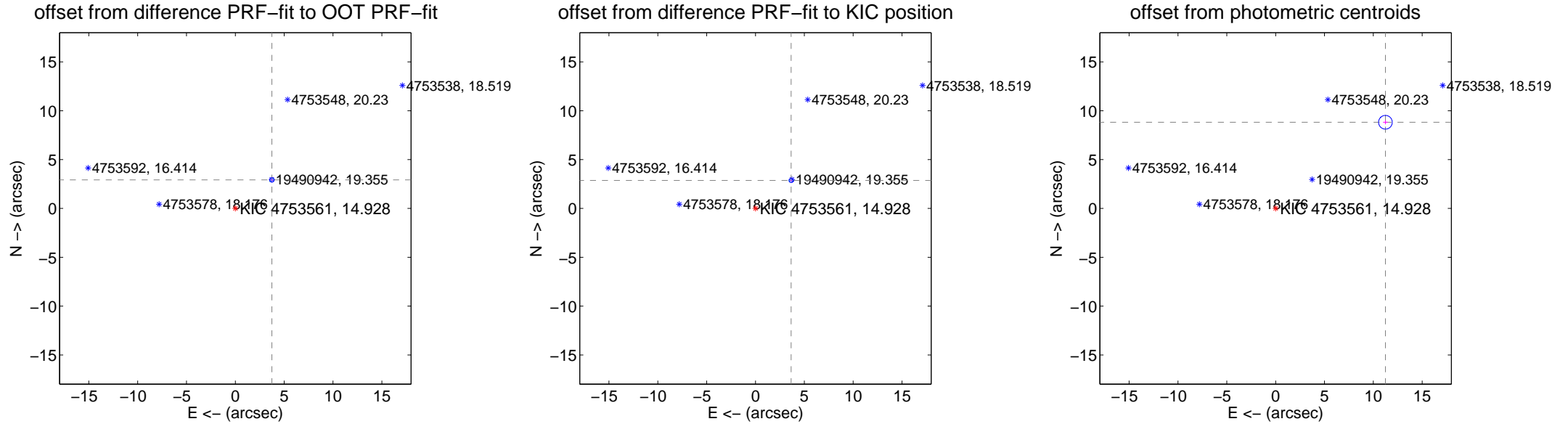
DV Centroid Data

Supplemental centroid analysis for 004753561-01. Kepler magnitude: 14.93. Transit SNR 46.15

There are 14 quarters with good PRF difference image offsets

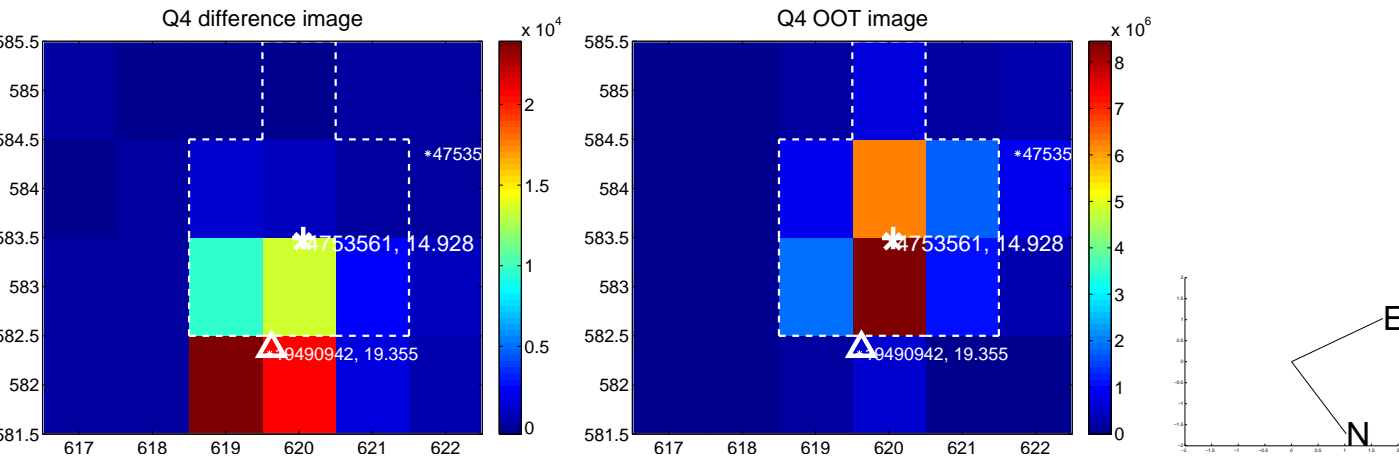
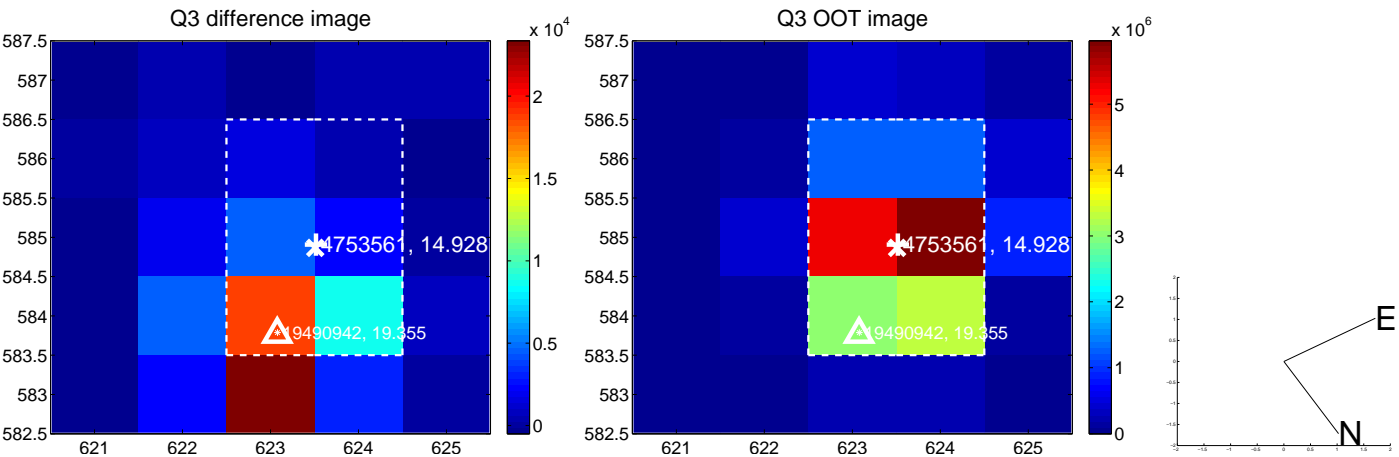
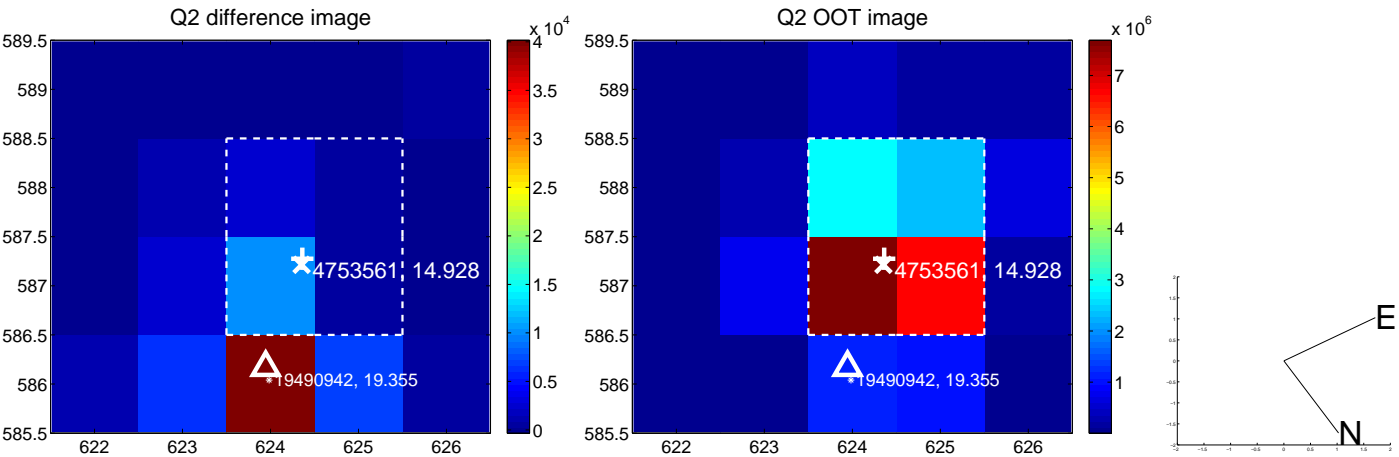
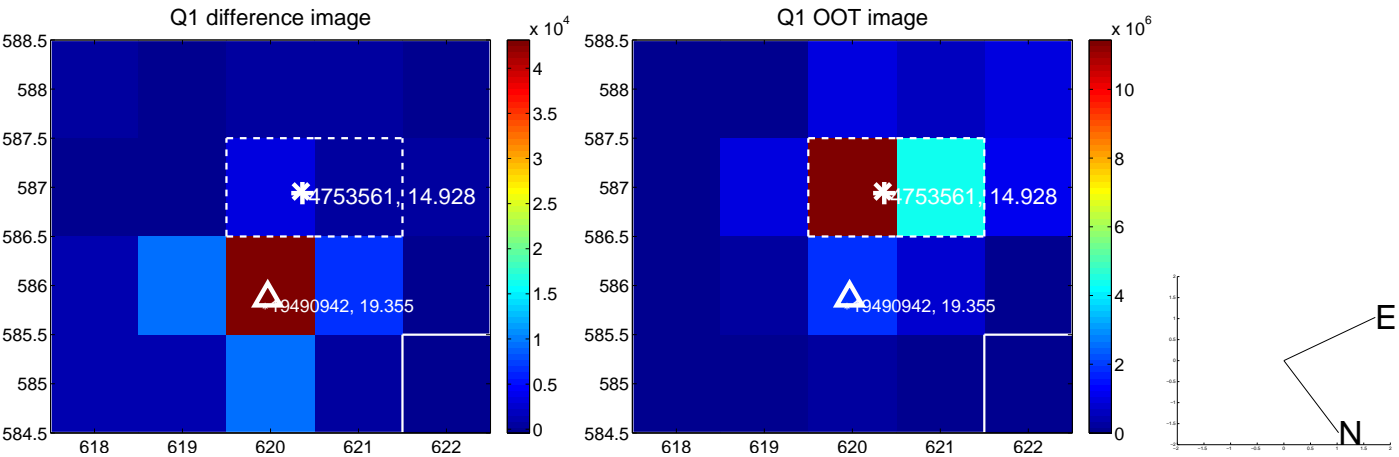
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.749 \pm 0.076	62.21	-3.742 \pm 0.073	2.924 \pm 0.071
PRF-fit source offset from KIC position	4.633 \pm 0.071	65.65	-3.644 \pm 0.071	2.862 \pm 0.068
photometric centroid source offset	14.29 \pm 0.23	61.17	-11.24 \pm 0.24	8.82 \pm 0.21

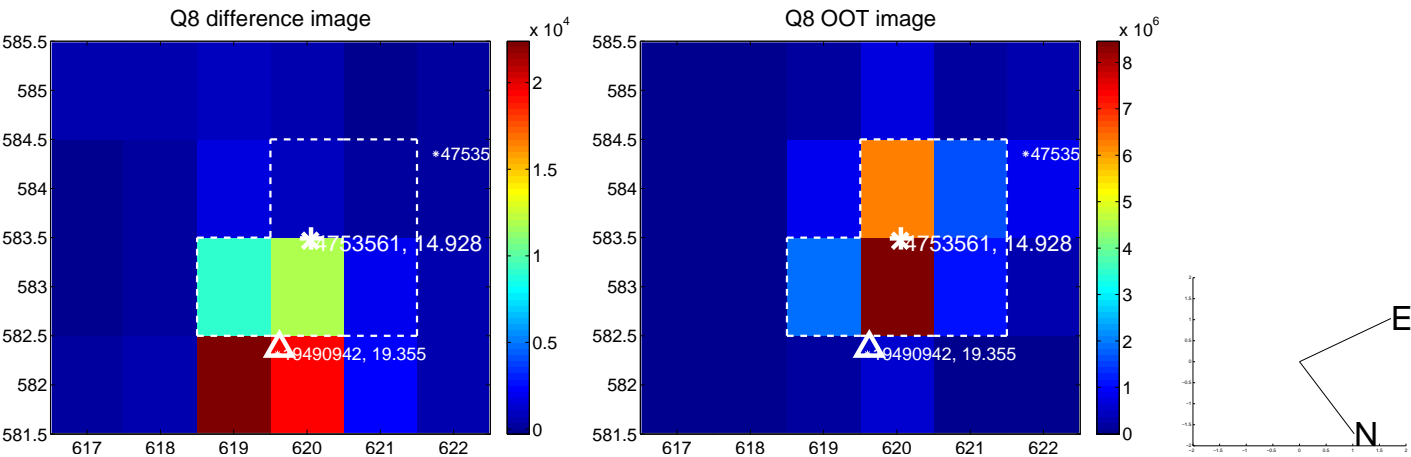
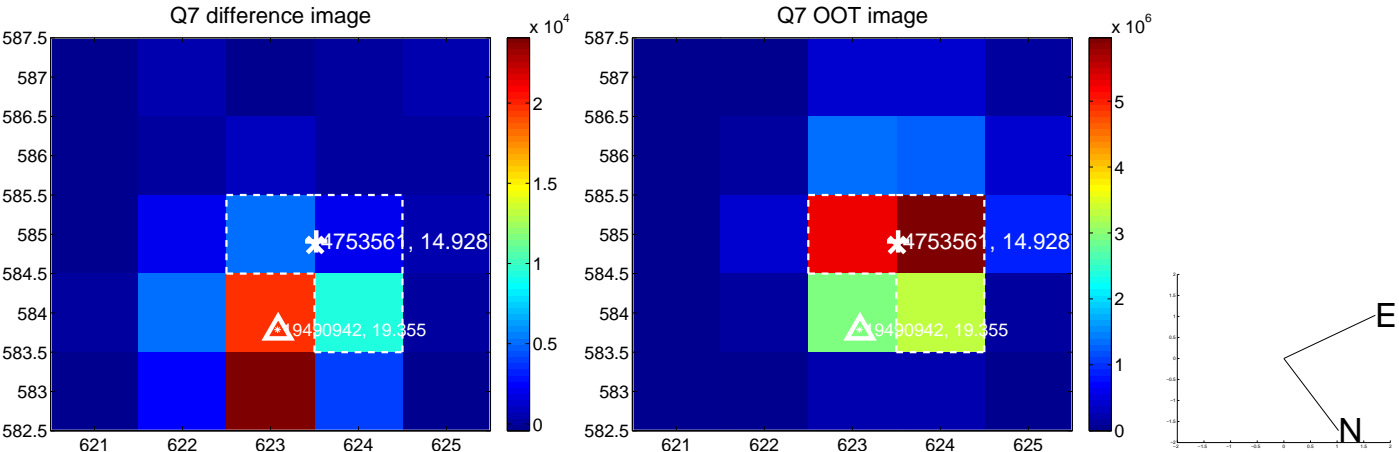
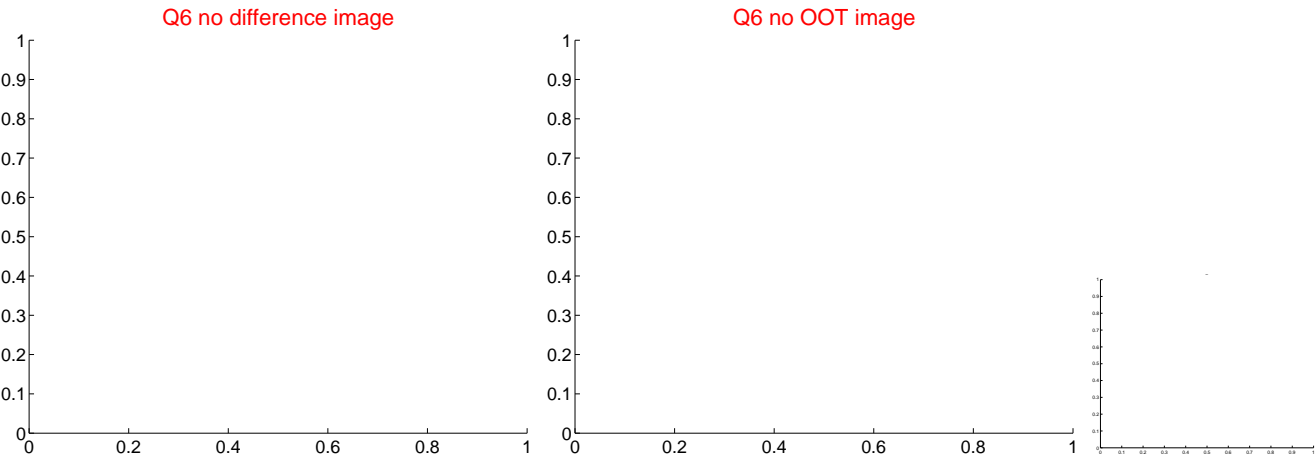
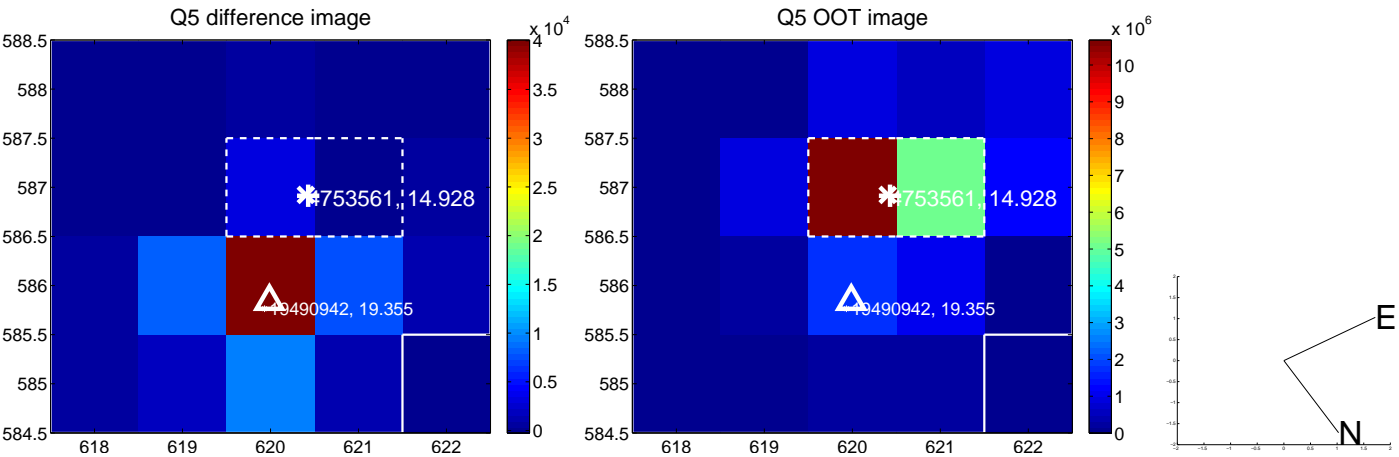


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

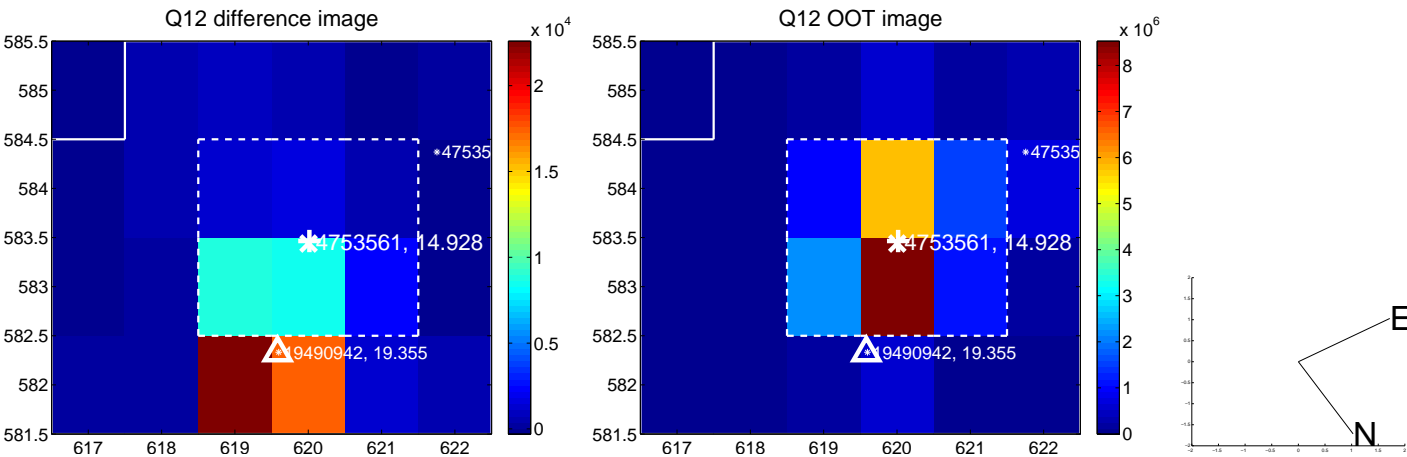
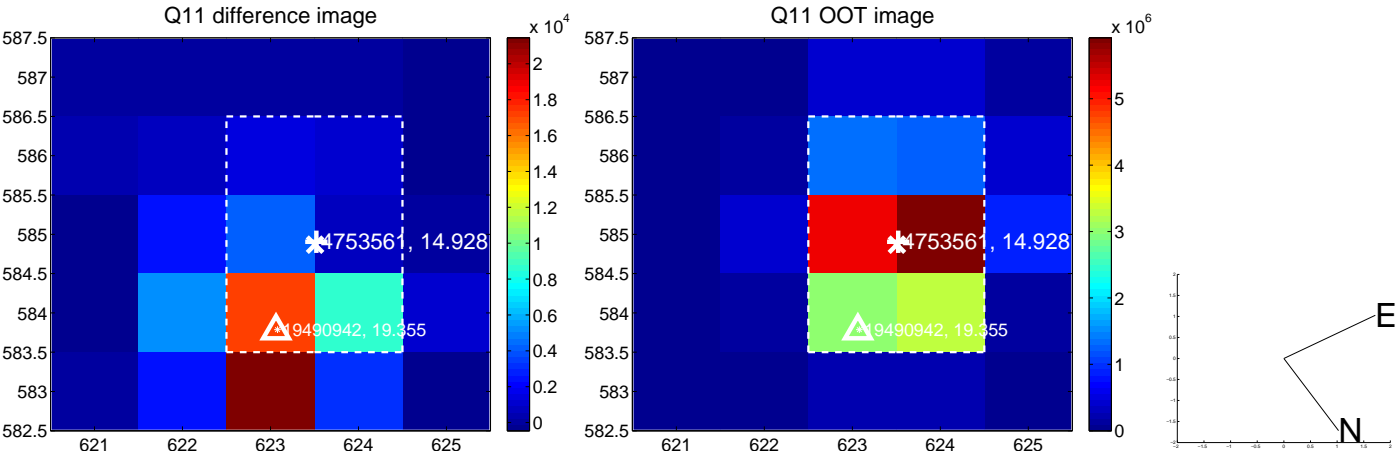
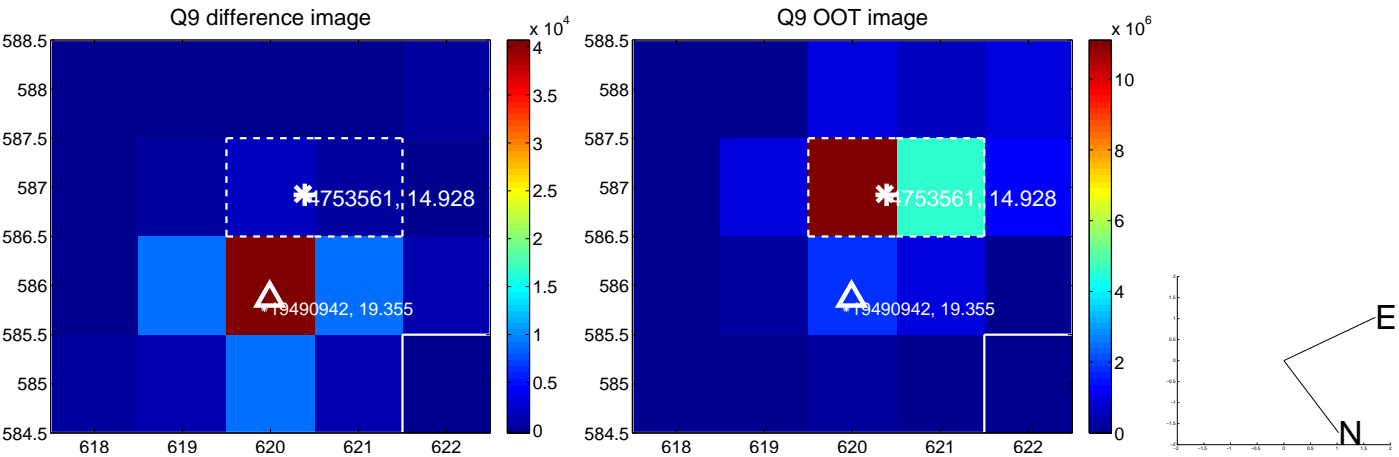
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



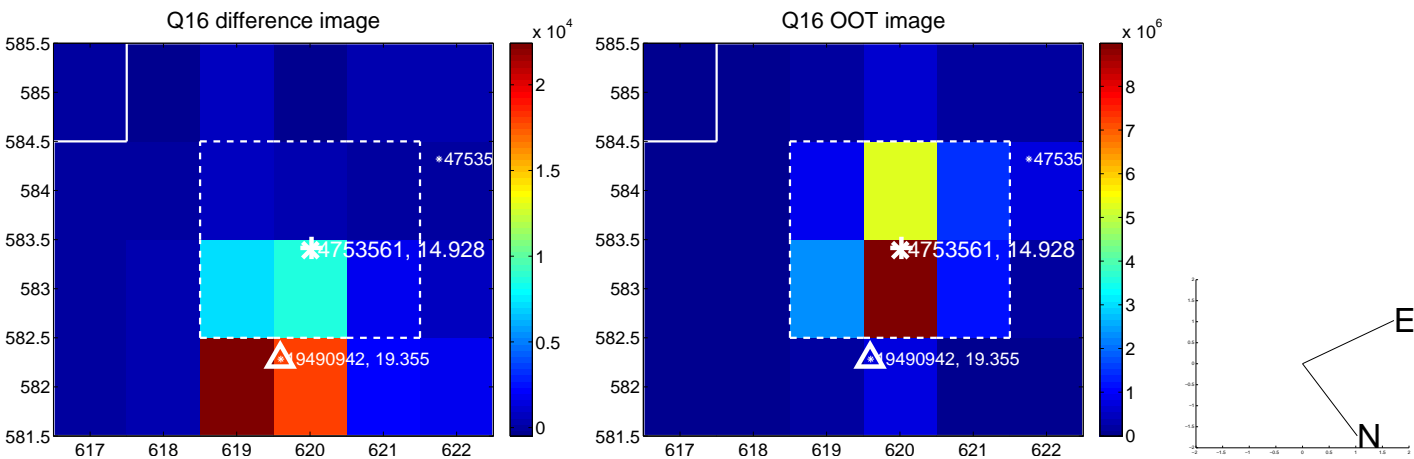
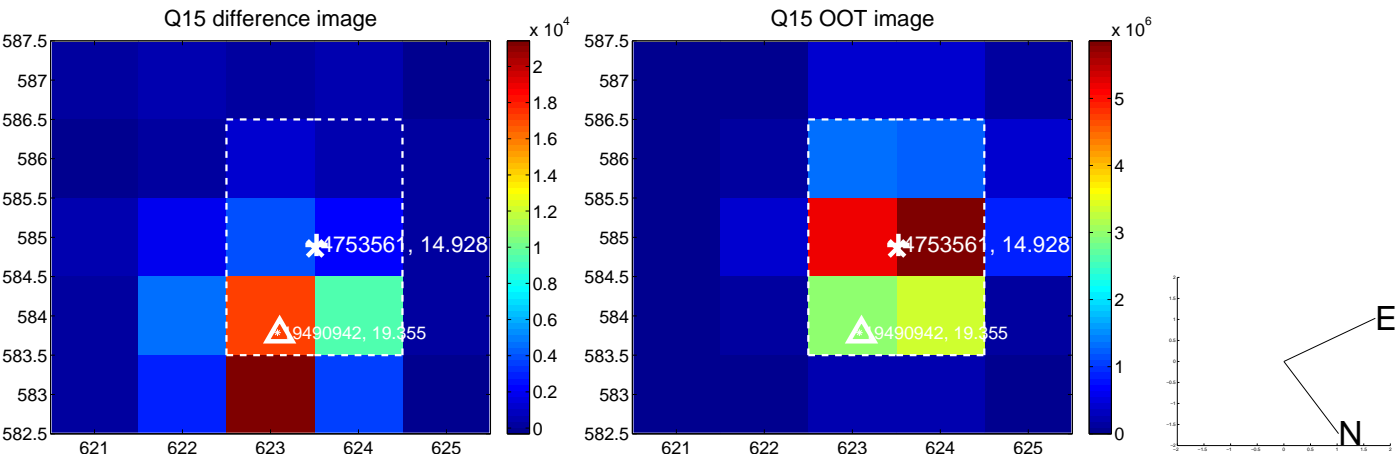
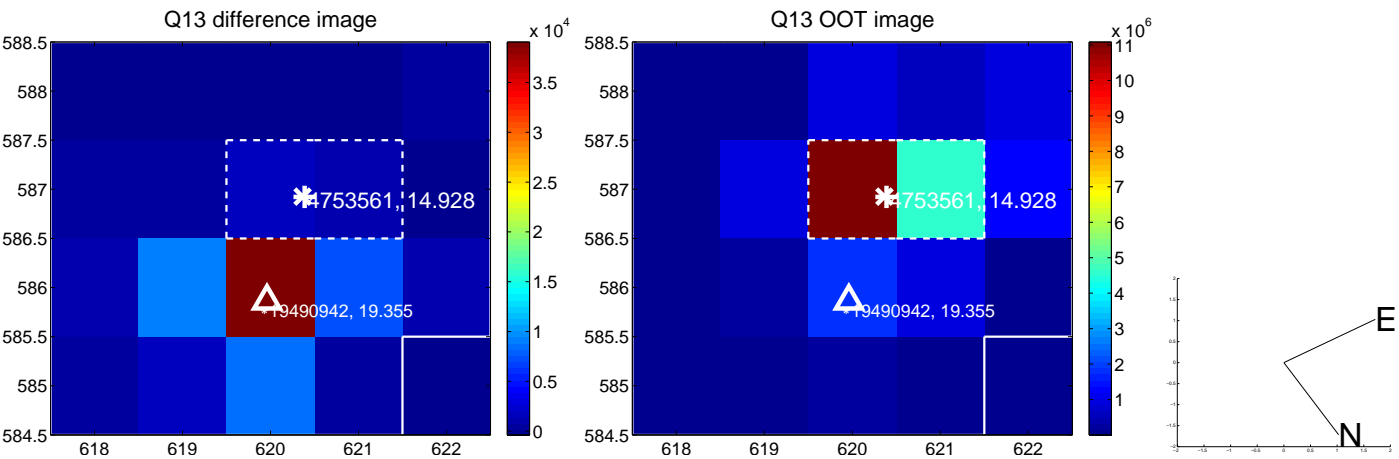
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



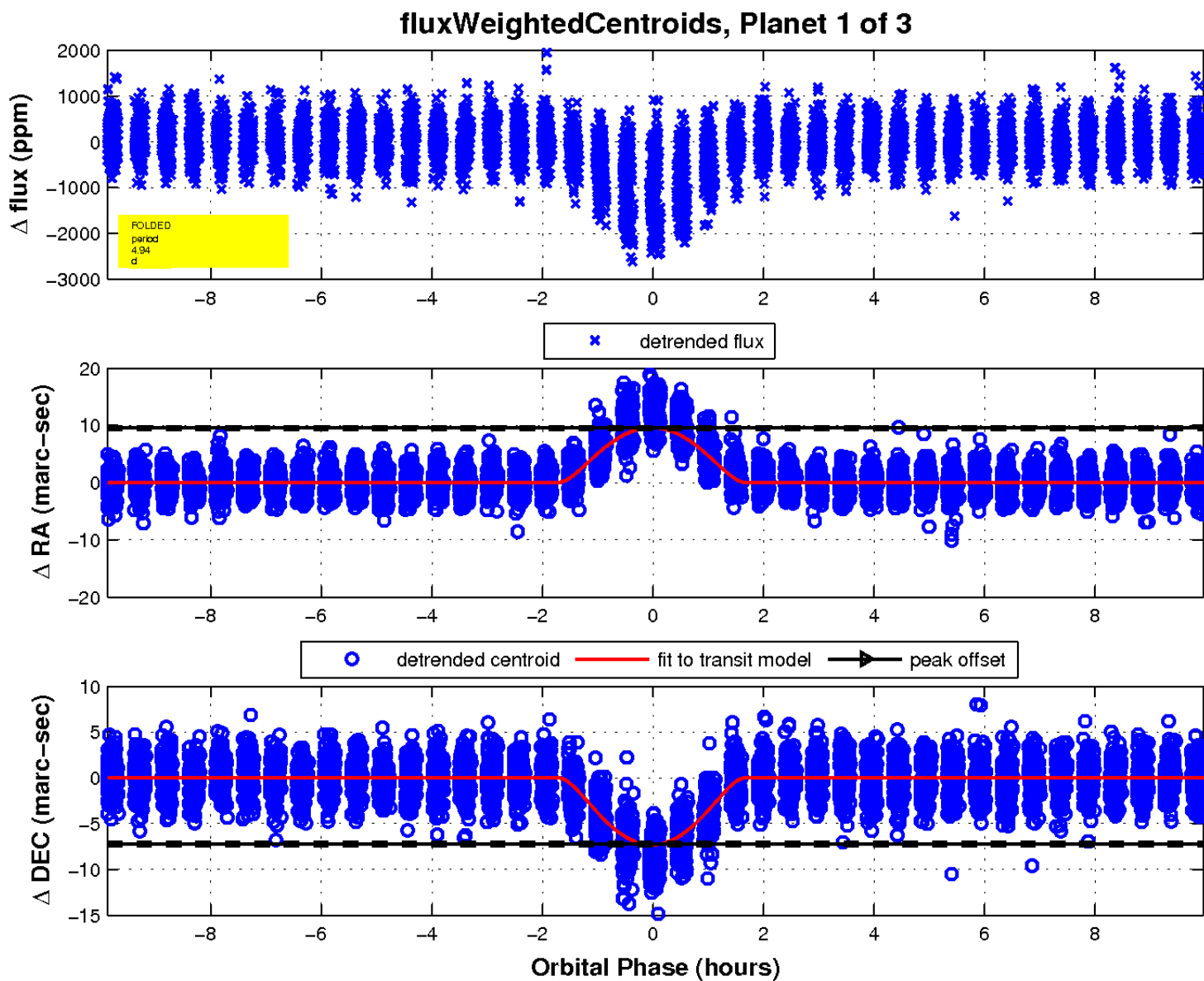
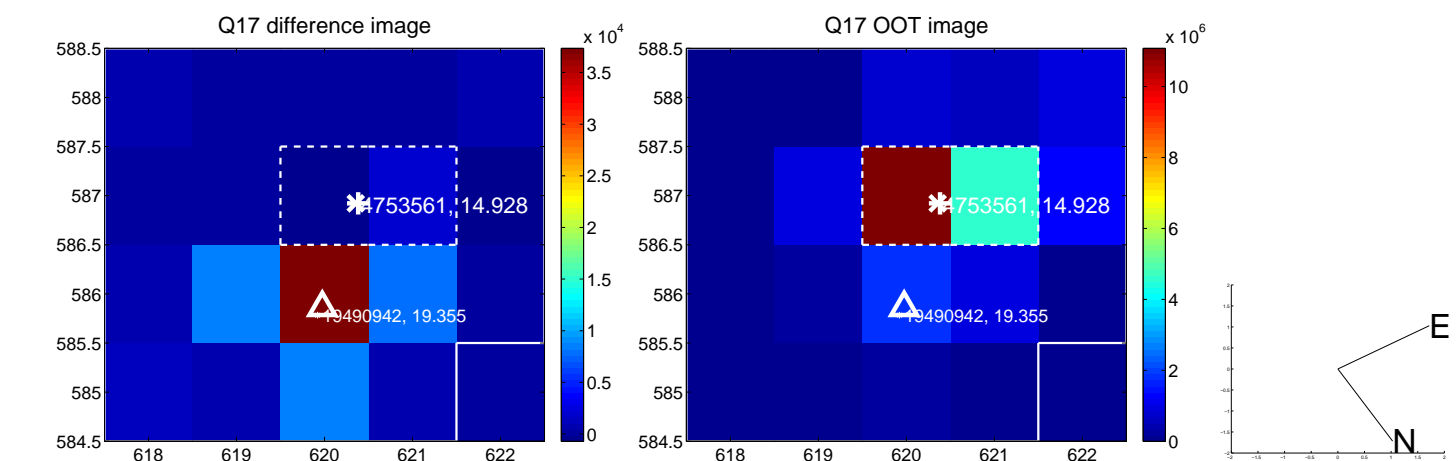
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

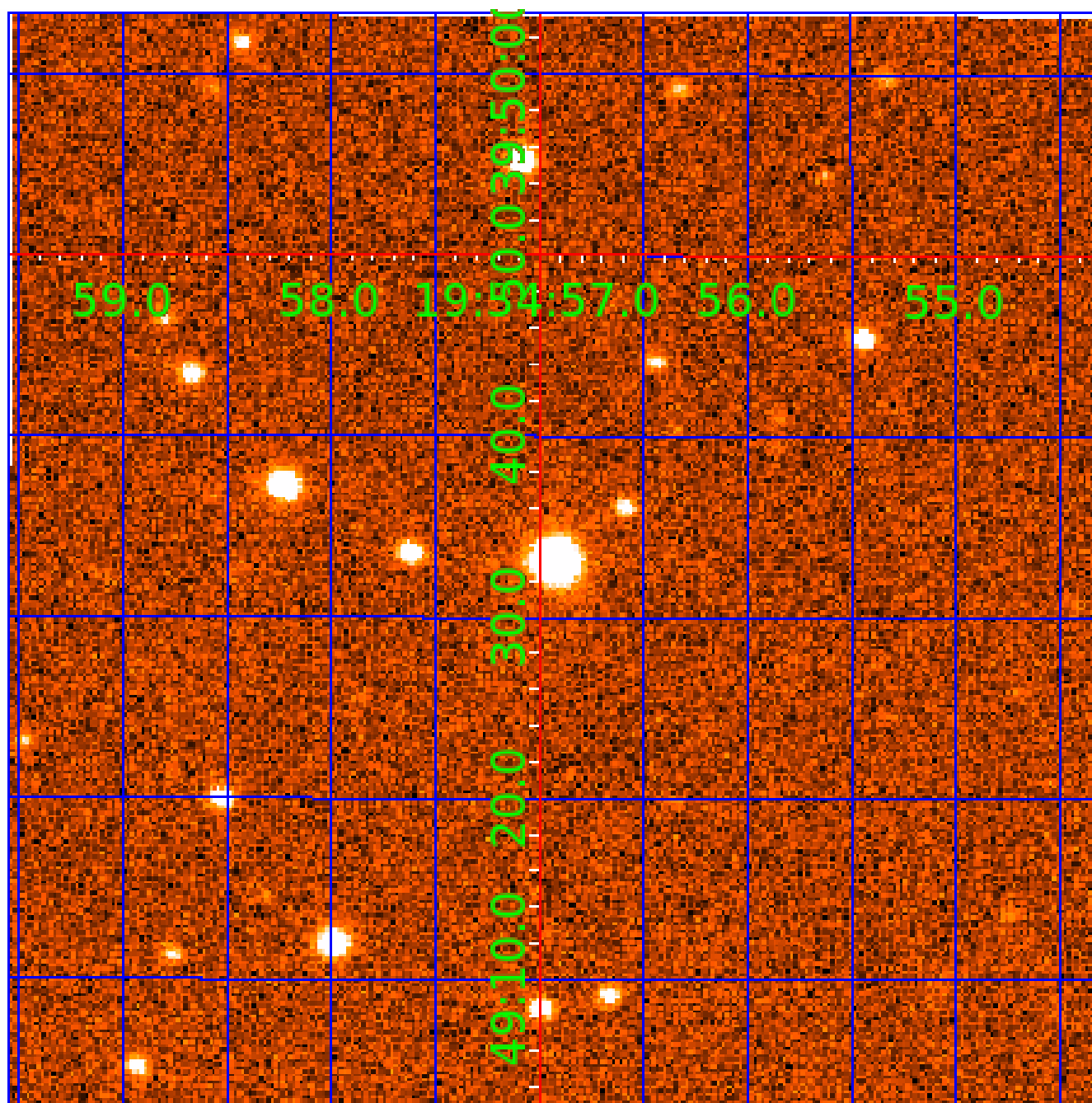


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004753561

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})
004753561-01	OBS	5996.01	4.944913	131.613950	825.3	3.320	50.5	46.1	0.70	4428	3.60	66.68
004753561-02	OBS	No	4.944933	134.332836	765.8	3.584	48.8	45.3	0.70	4428	3.65	66.68
004753561-03	OBS	No	224.090642	268.303944	479.2	11.079	12.3	6.4	0.70	4428	1.73	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004753561-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST
004753561-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST
004753561-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

Ephemeris Match Information For 004753561-02

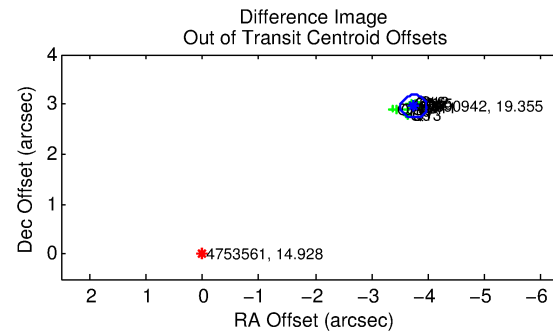
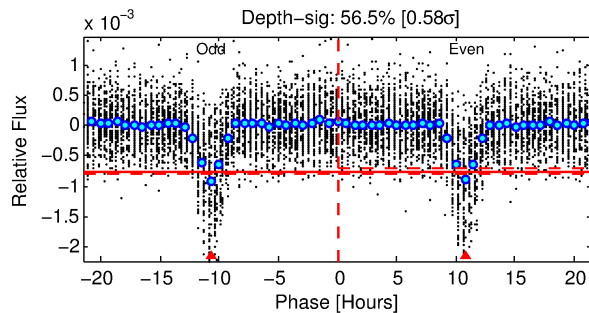
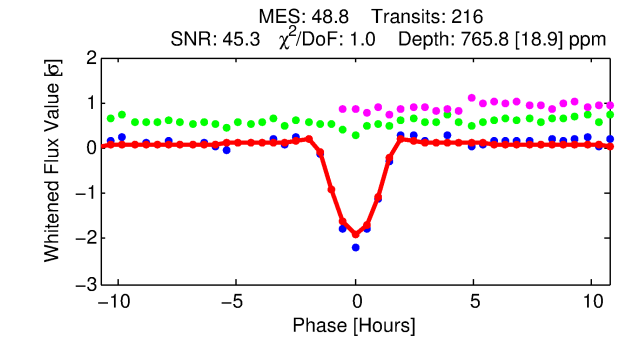
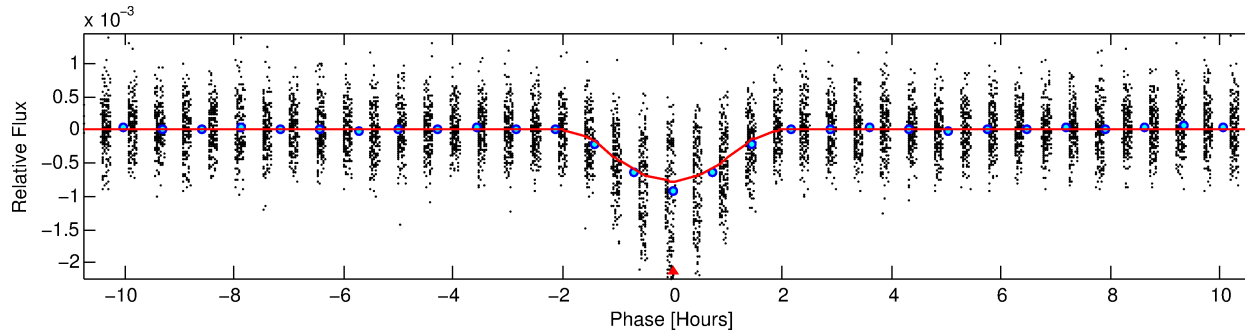
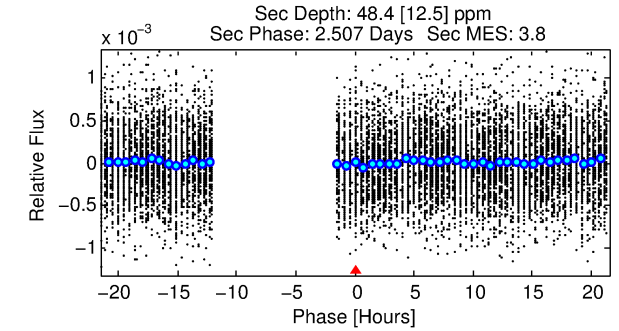
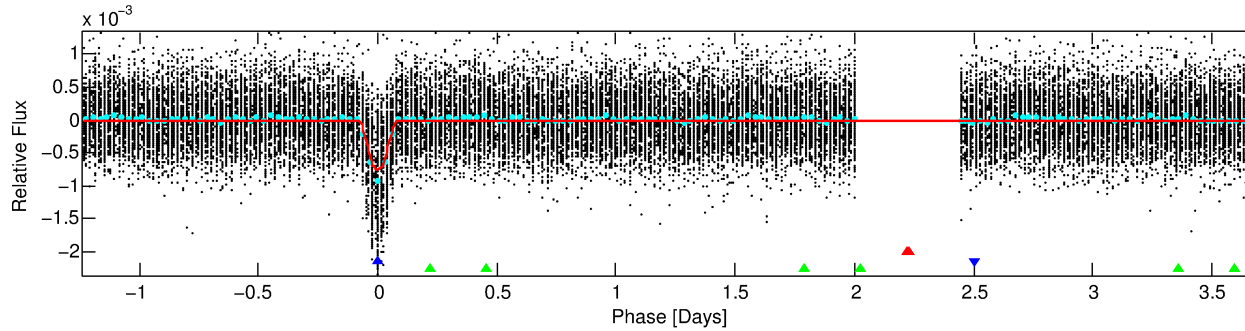
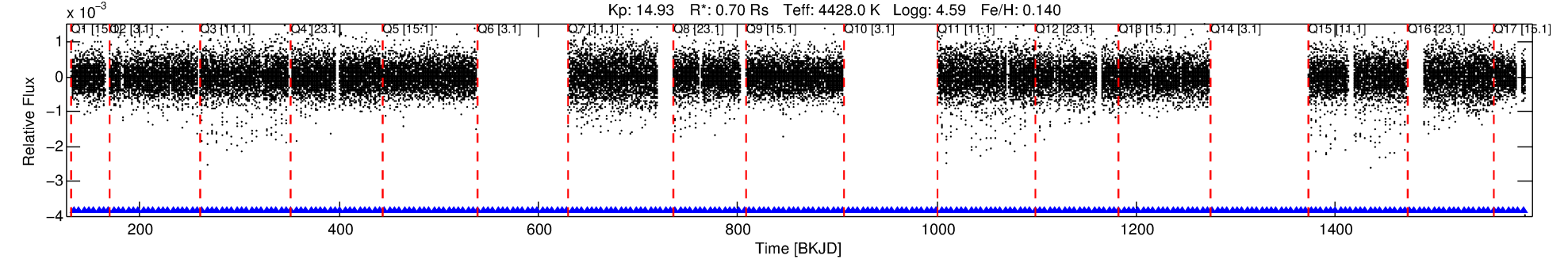
No Significant Match Found

DV One-Page Summary

KIC: 4753561 Candidate: 2 of 3 Period: 4.945 d

KOI: K05996 Corr: No Ephemeris Match

Kp: 14.93 R*: 0.70 Rs Teff: 4428.0 K Logg: 4.59 Fe/H: 0.140



DV Fit Results:

Period = 4.94493 [0.00001] d
Epoch = 134.3328 [0.0015] BKJD
Rp/R* = 0.0478 [0.0283]
a/R* = 3.73 [0.56]
b = 0.99 [0.05]
Seff = 66.68 [6.77]
Teff = 729 [18] K
Rp = 3.65 [2.17] Re
a = 0.0504 [0.0023] AU
Ag = 5.06 [6.15] [0.66σ]
Teffp = 1689 [513] K [1.87σ]

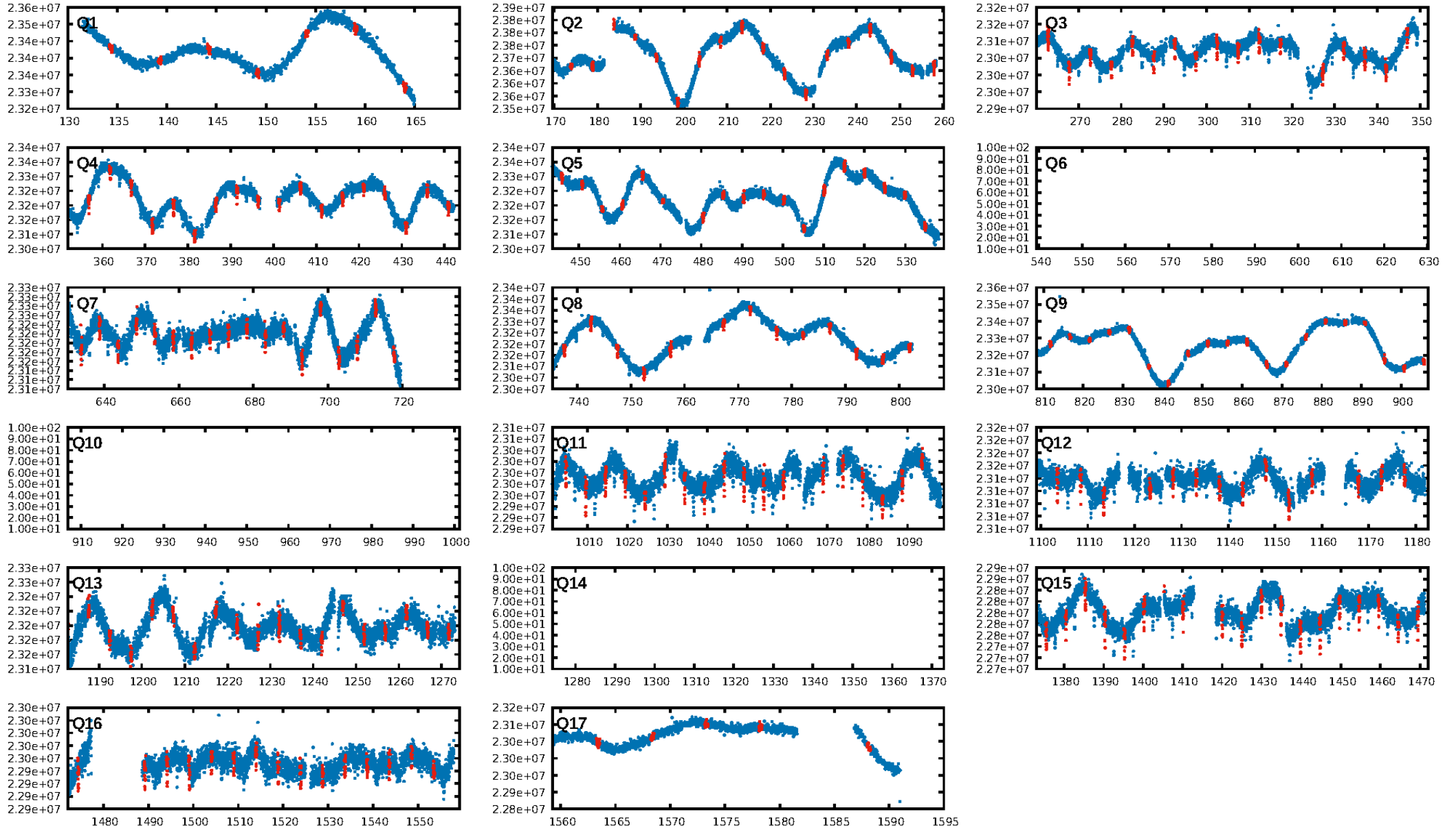
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [451.69σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [204/204]
GhostDiagnostic-chr: 0.03935
Centroid-sig: 0.0%
Centroid-so: 17.900 arcsec [72.22σ]
OotOffset-rm: 4.766 arcsec [62.14σ]
KicOffset-rm: 4.646 arcsec [65.32σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

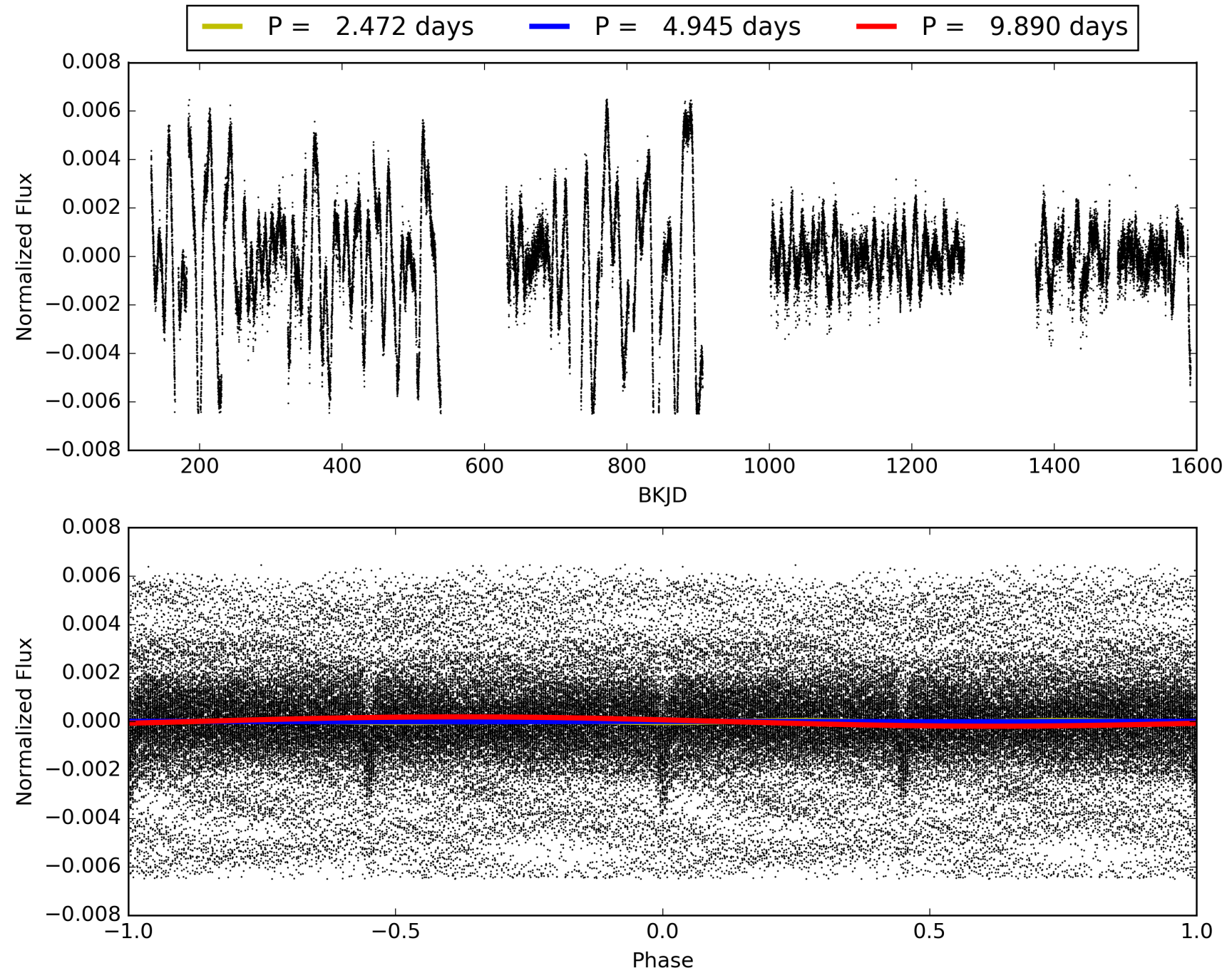
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:38:16 Z

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

TCE 004753561-02, PDC Light Curves

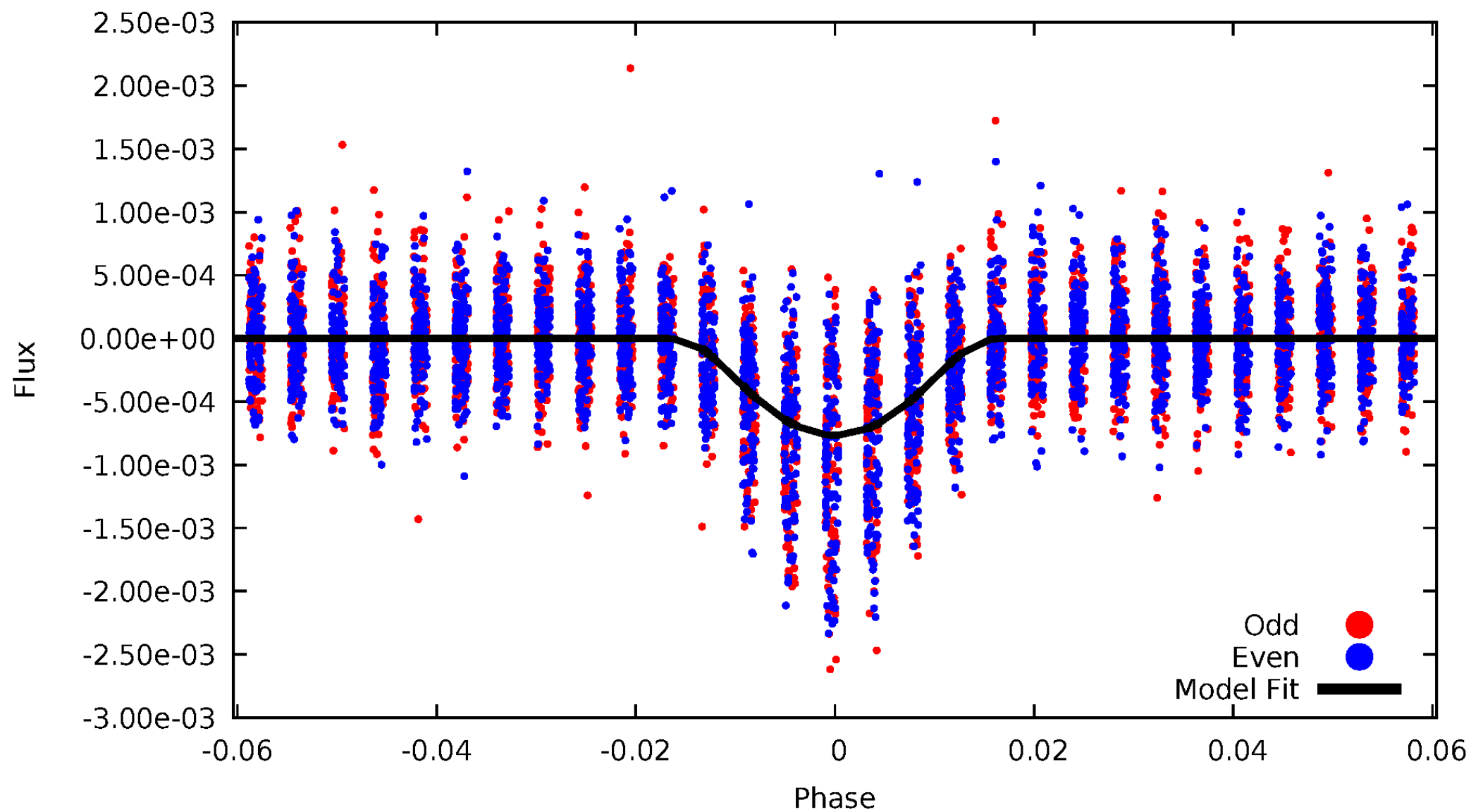


TCE 004753561-02



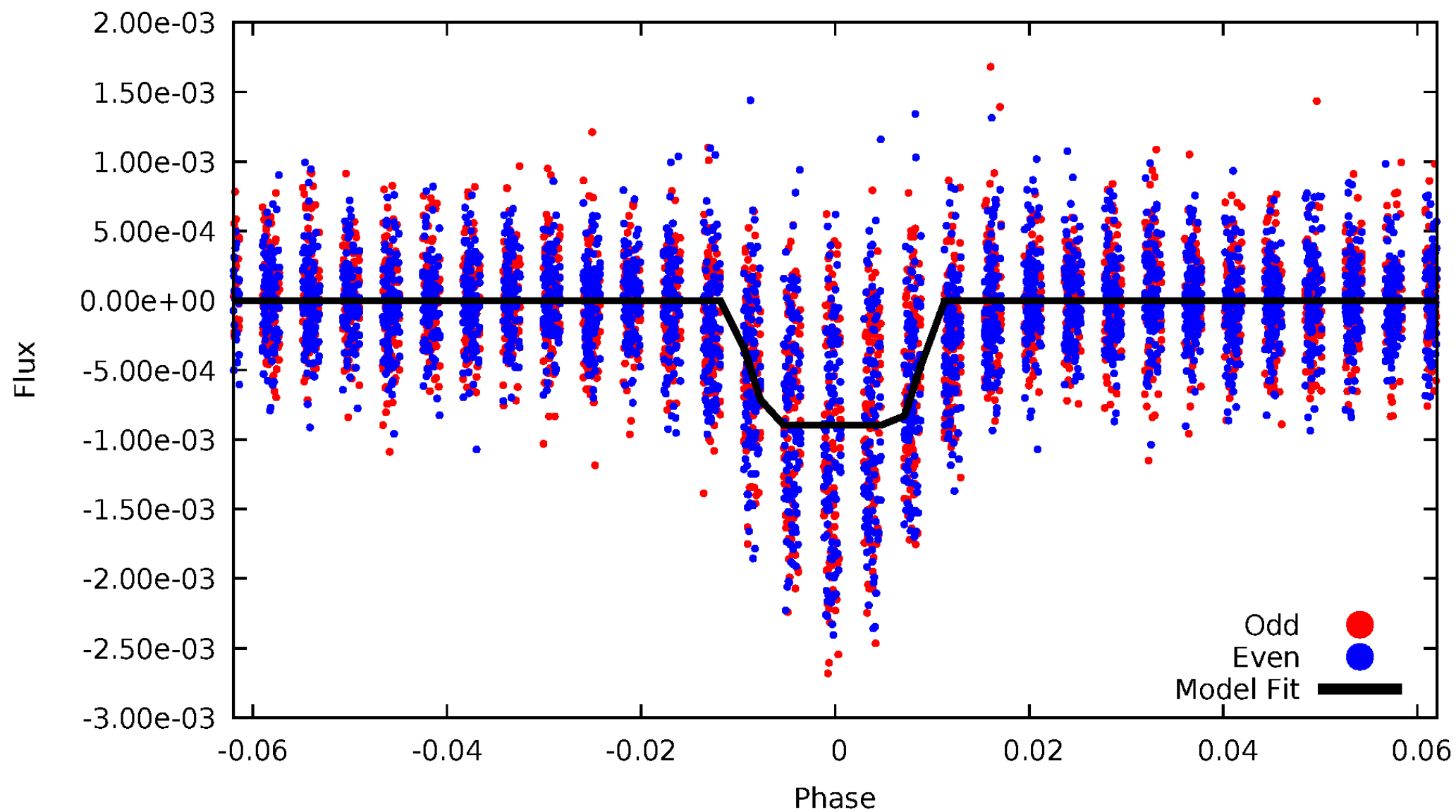
DV Odd/Even

TCE 004753561-02



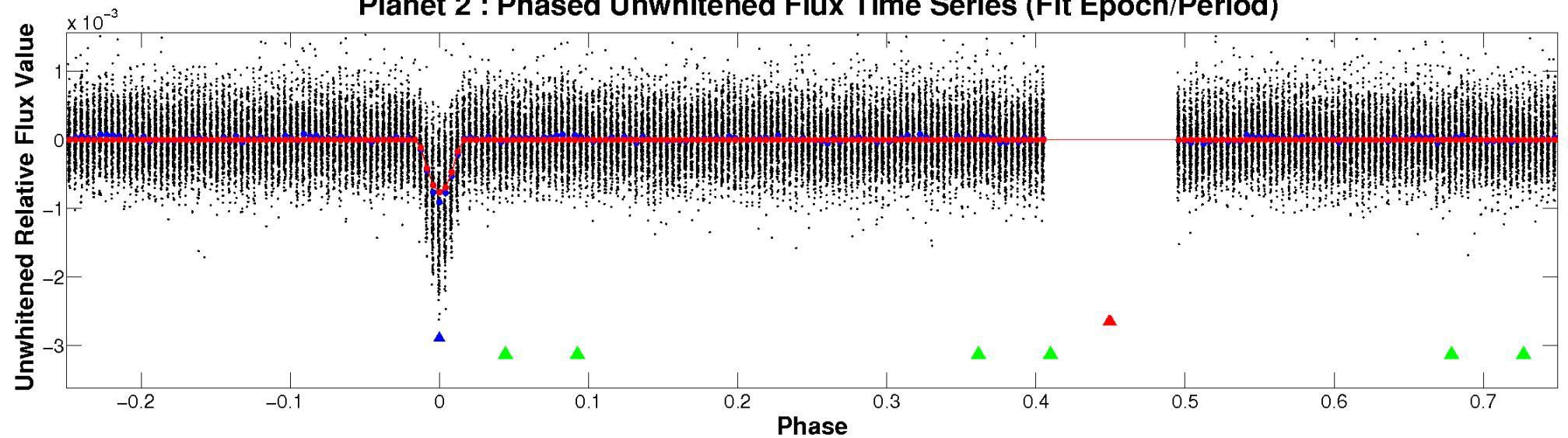
ALT Odd/Even

TCE 004753561-02

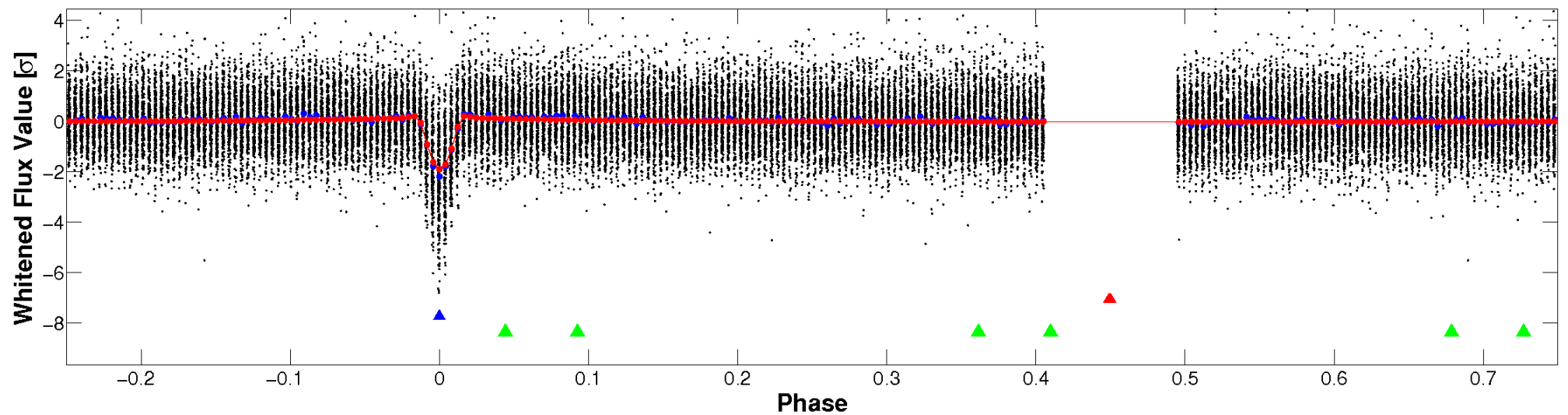


Non-Whitened Vs. Whitened Light Curve

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

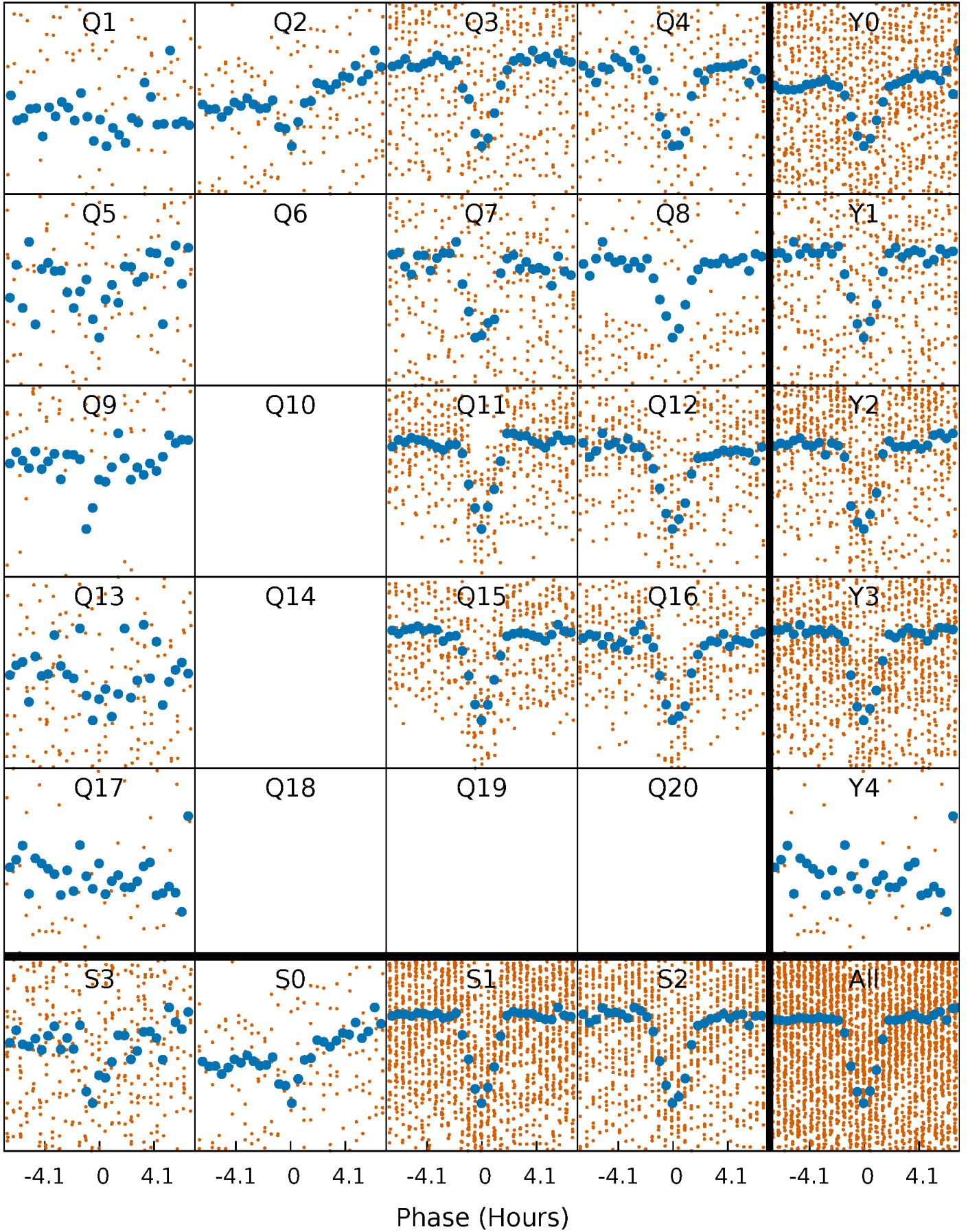


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



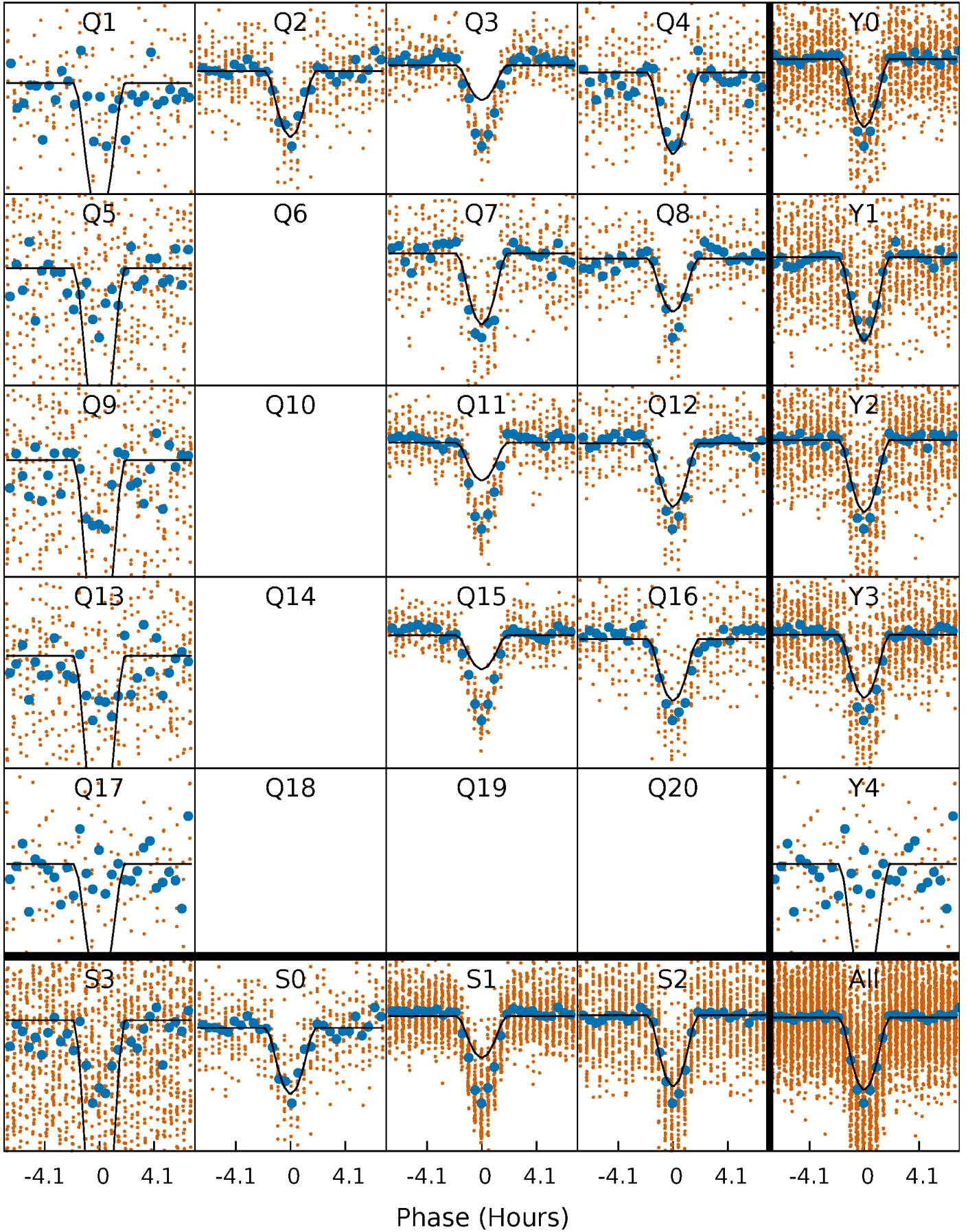
PDC Quarter-Phased Transit Curves

TCE 004753561-02 $P = 4.944933$ Days $T_0 = 134.332836$ (BKJD)



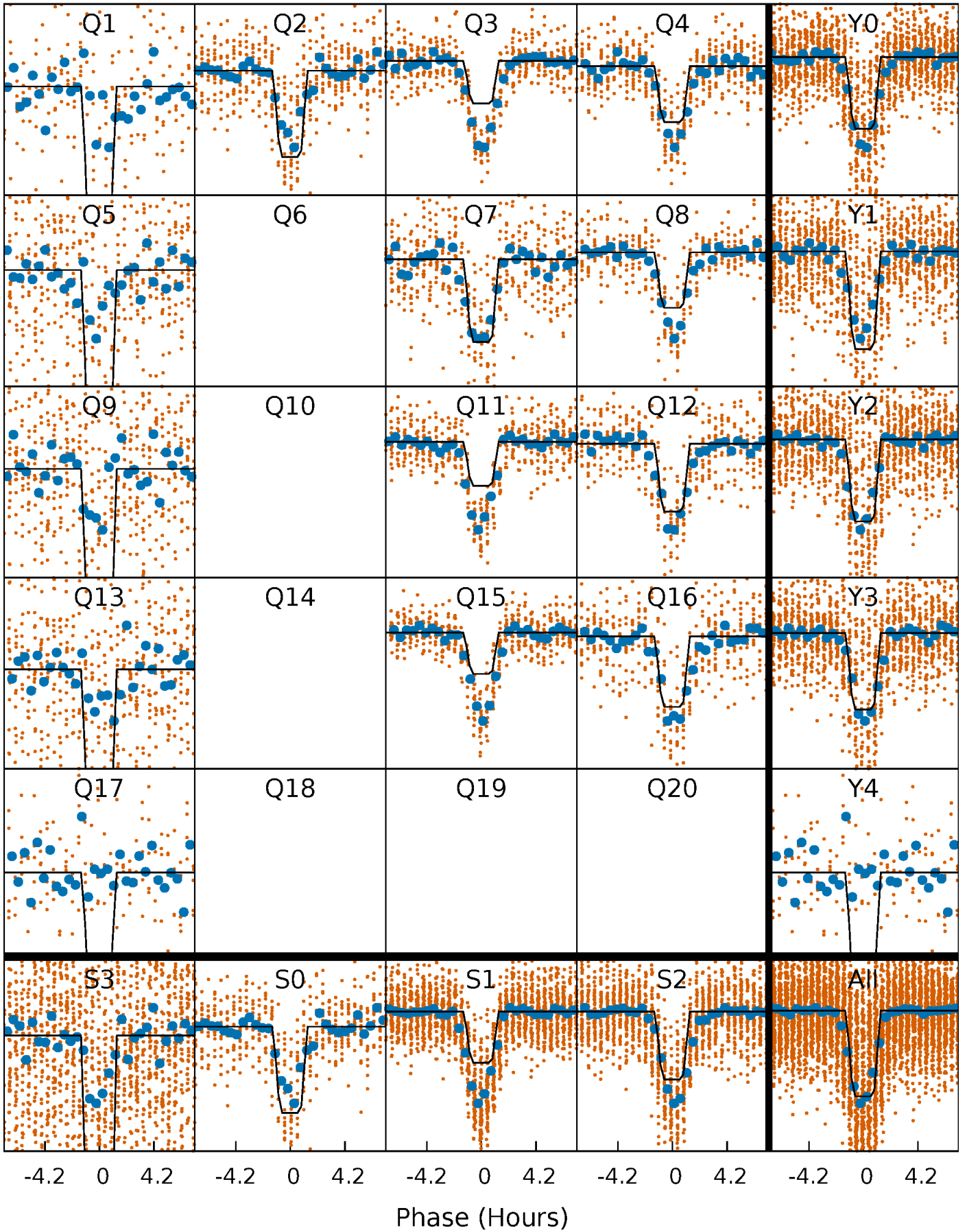
DV Quarter-Phased Transit Curves

TCE 004753561-02 P= 4.944933 Days $T_0=134.332836$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

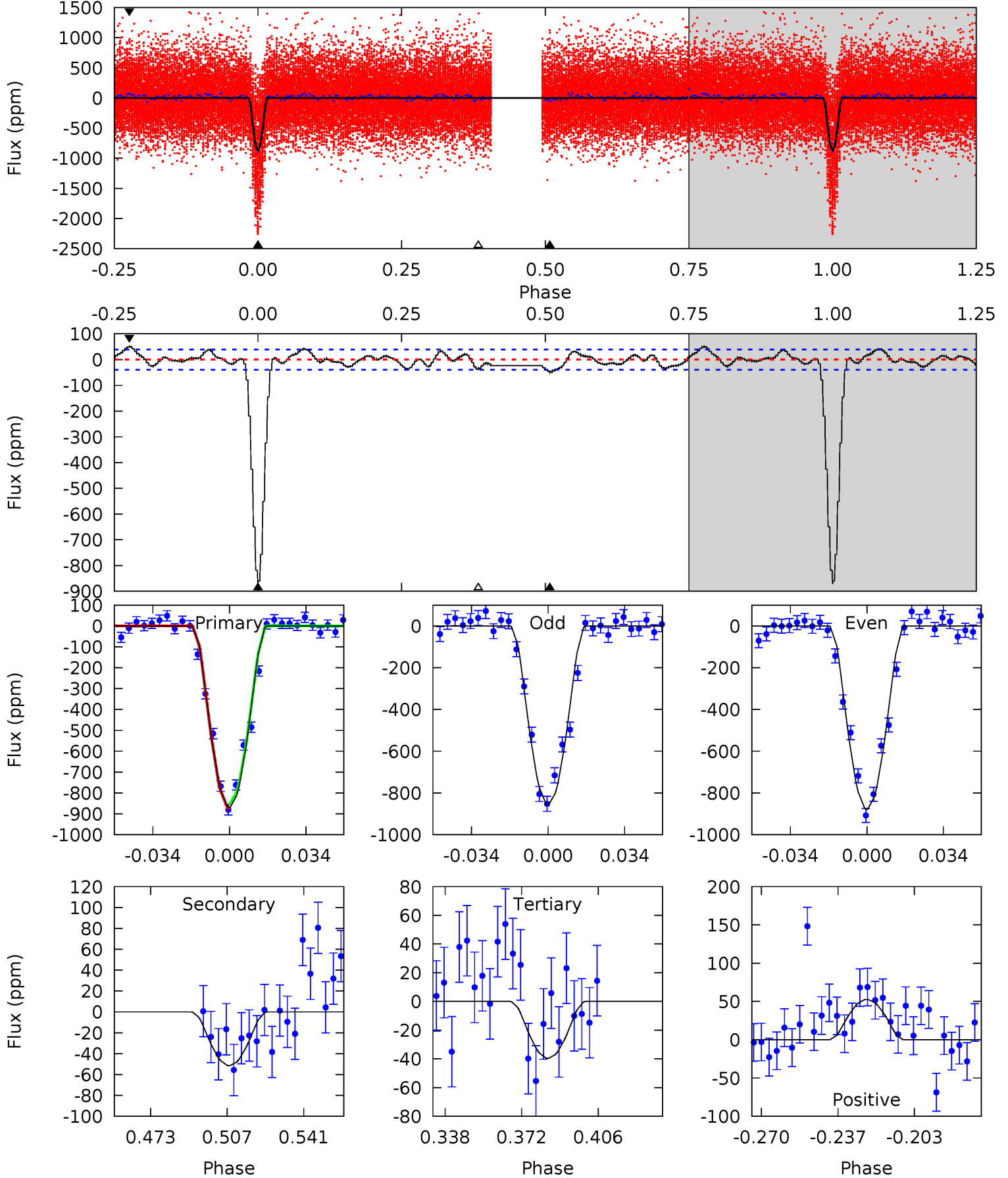
TCE 004753561-02 P= 4.944941 Days $T_0=134.331583$ (BKJD)



DV Model-Shift Uniqueness Test

004753561-02, P = 4.944933 Days, E = 129.387903 Days

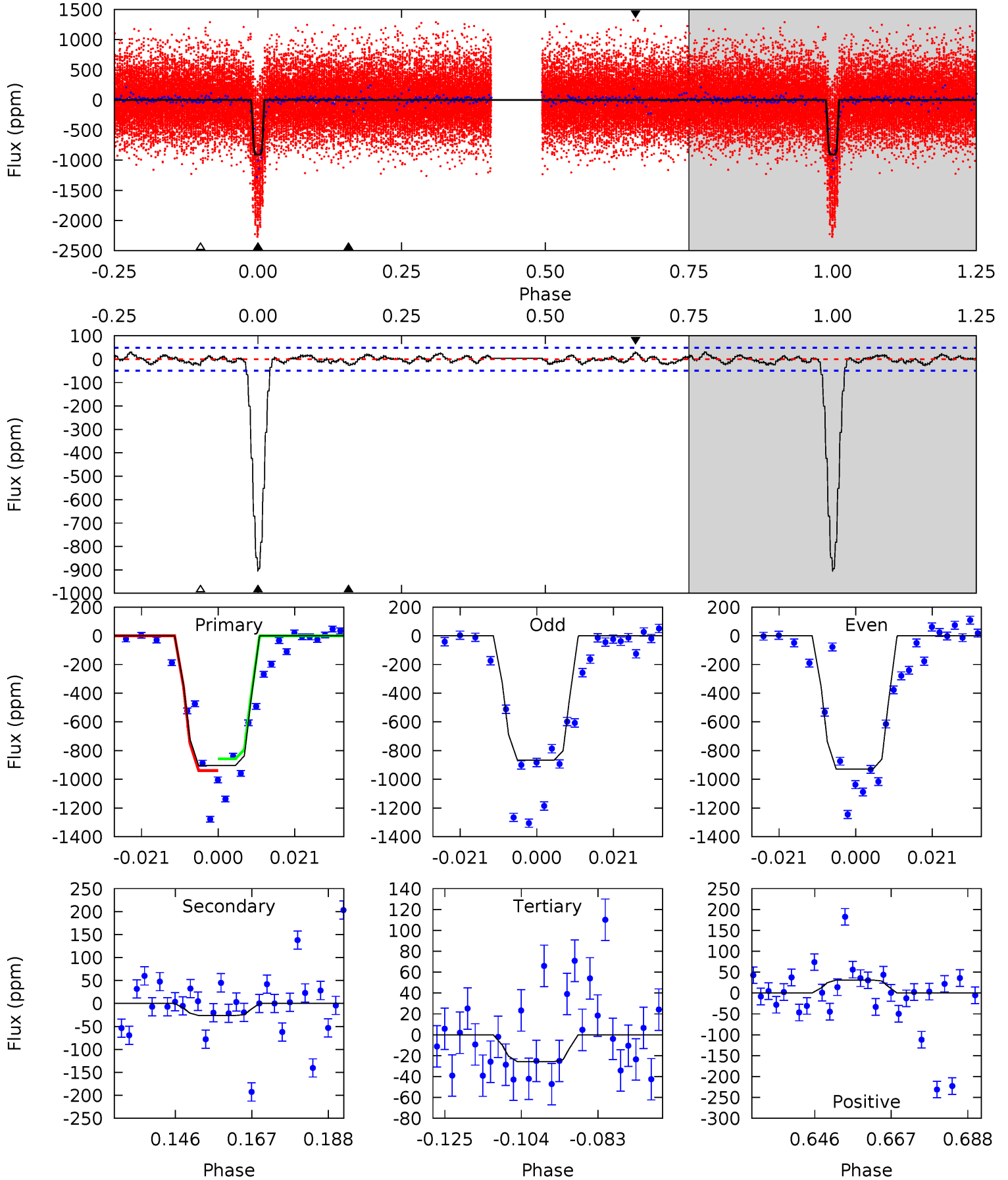
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
105.5	6.25	4.81	6.40	4.79	2.12	2.29	100.7	99.1	1.44	-0.15	1.38	1.06	0.06	1.29



Alt Model-Shift Uniqueness Test

004753561-02, P = 4.944941 Days, E = 129.386642 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
90.0	2.62	2.57	3.10	4.88	2.31	1.13	87.4	86.9	0.05	-0.47	3.12	0.94	0.03	4.03



Stellar Parameters For KIC 004753561

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4428^{+79}_{-79}	$4.590^{+0.042}_{-0.012}$	$0.140^{+0.150}_{-0.150}$	$0.701^{+0.020}_{-0.034}$	$0.697^{+0.040}_{-0.026}$	$2.849^{+0.446}_{-0.144}$
	+2%/-2%	+1%/-0%	+107%/-107%	+3%/-5%	+6%/-4%	+16%/-5%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 004753561-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-51 ± 8	$3.88^{+2.01}_{-1.96}$	1012^{+20}_{-20}	2439^{+502}_{-254}	$4.799^{+14.408}_{-2.778}$
Alt.	-26 ± 10	$2.79^{+1.87}_{-1.65}$	1012^{+21}_{-20}	2427^{+656}_{-321}	$4.747^{+22.490}_{-3.187}$

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 $A_{obs} \gg 1.0$

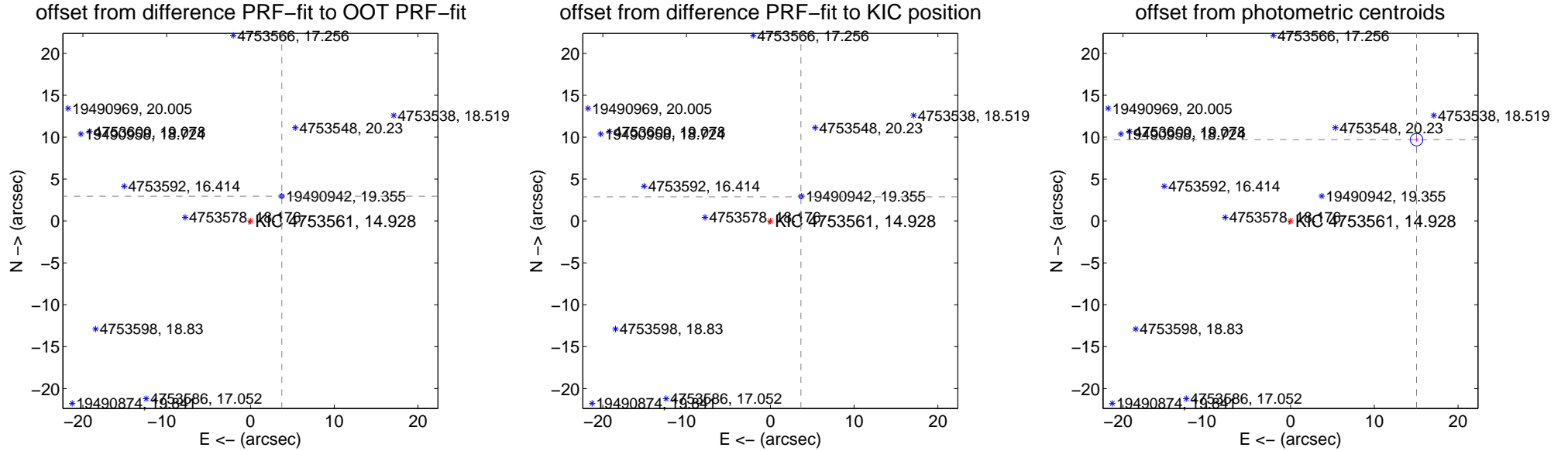
DV Centroid Data

Supplemental centroid analysis for 004753561-02. Kepler magnitude: 14.93. Transit SNR 45.33

There are 14 quarters with good PRF difference image offsets

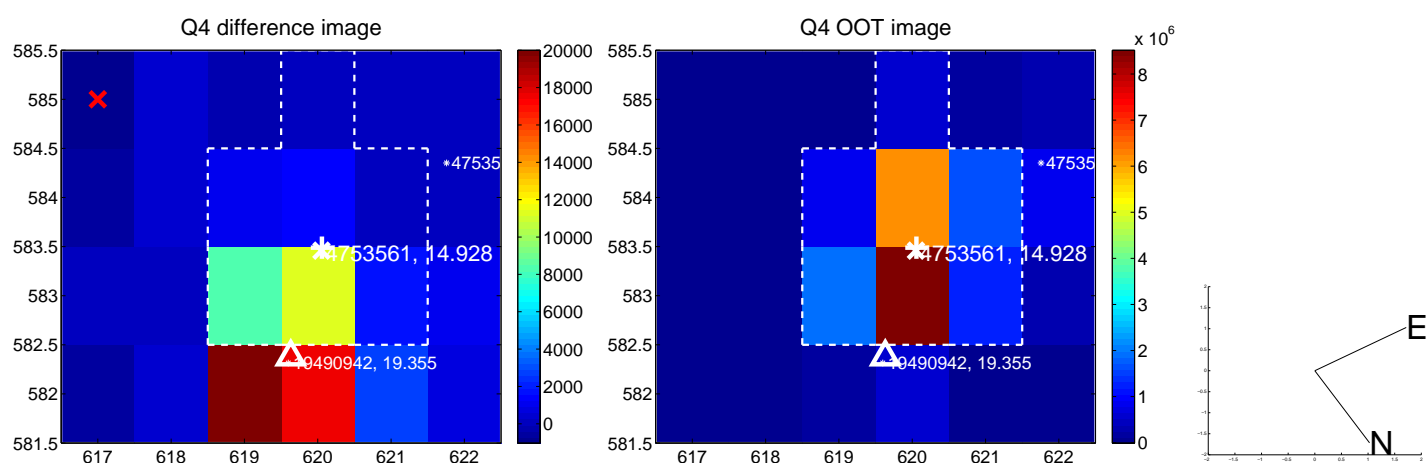
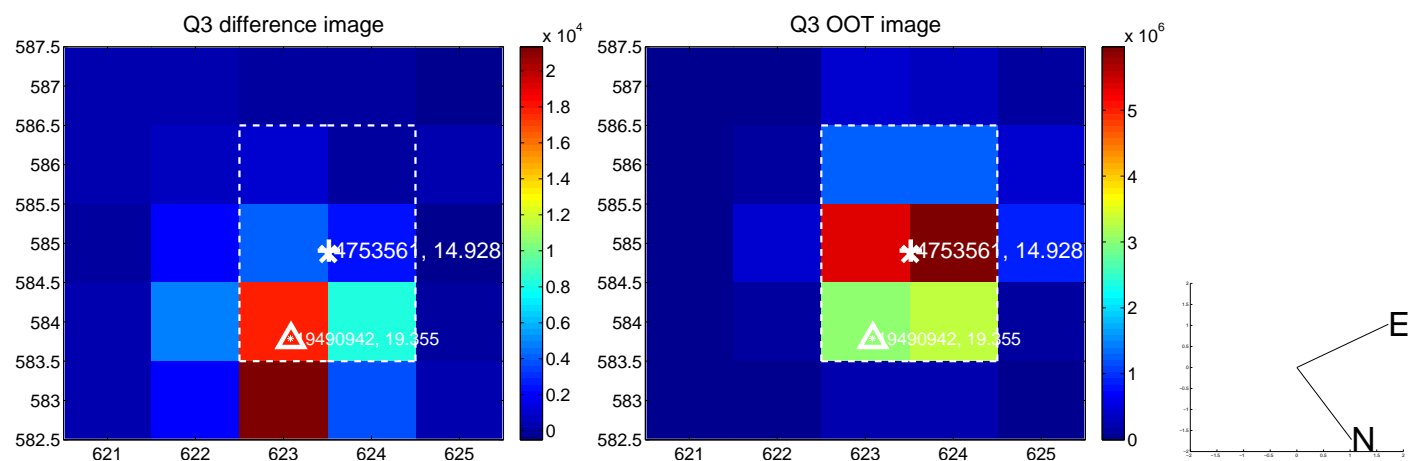
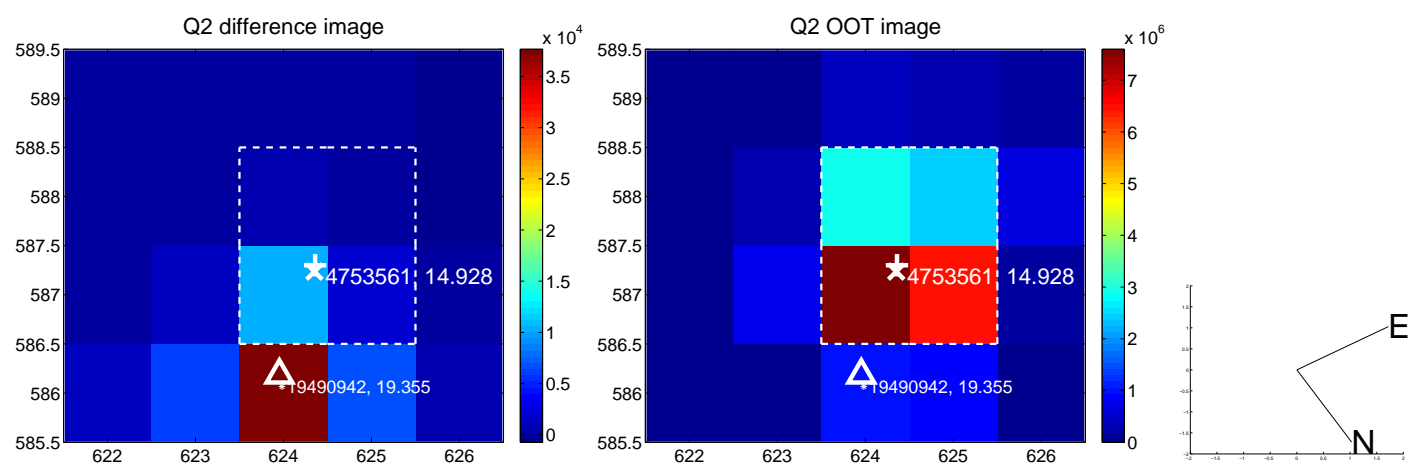
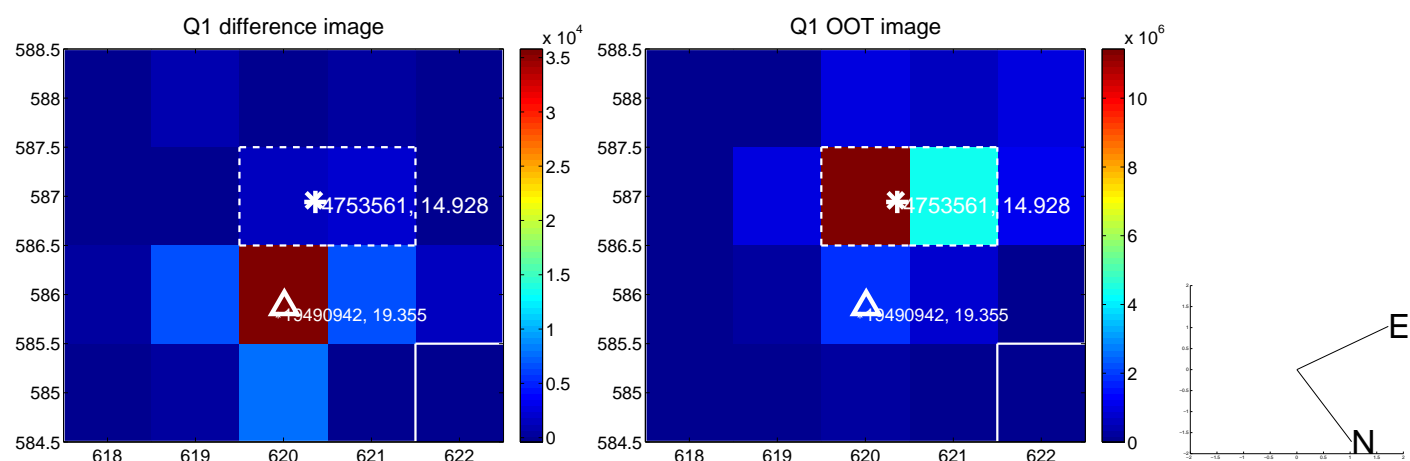
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.766 ± 0.077	62.14	-3.739 ± 0.076	2.956 ± 0.070
PRF-fit source offset from KIC position	4.646 ± 0.071	65.32	-3.643 ± 0.075	2.884 ± 0.069
photometric centroid source offset	17.90 ± 0.25	72.22	-15.04 ± 0.26	9.70 ± 0.22

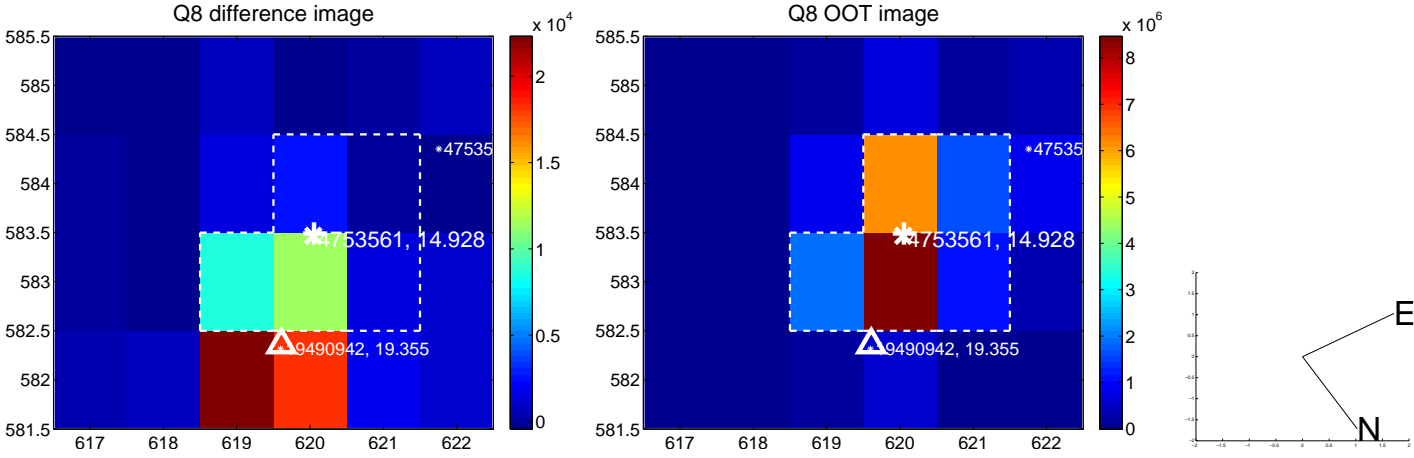
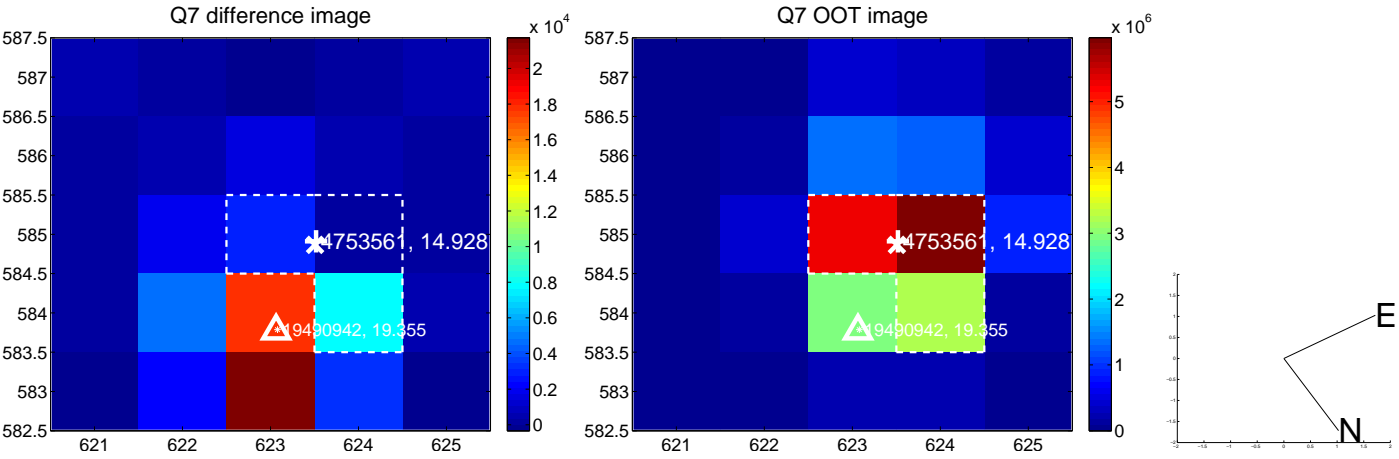
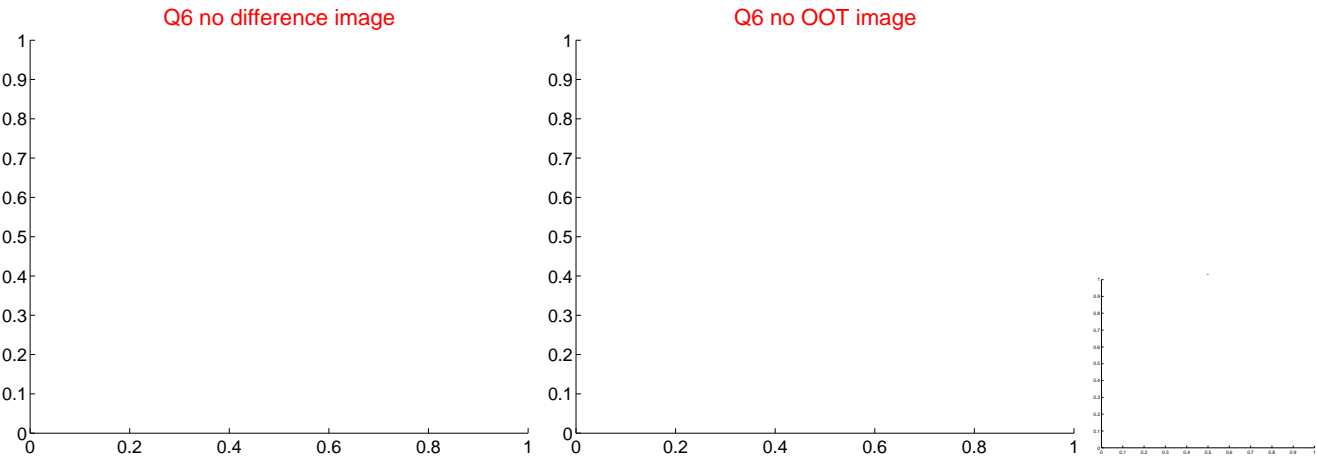
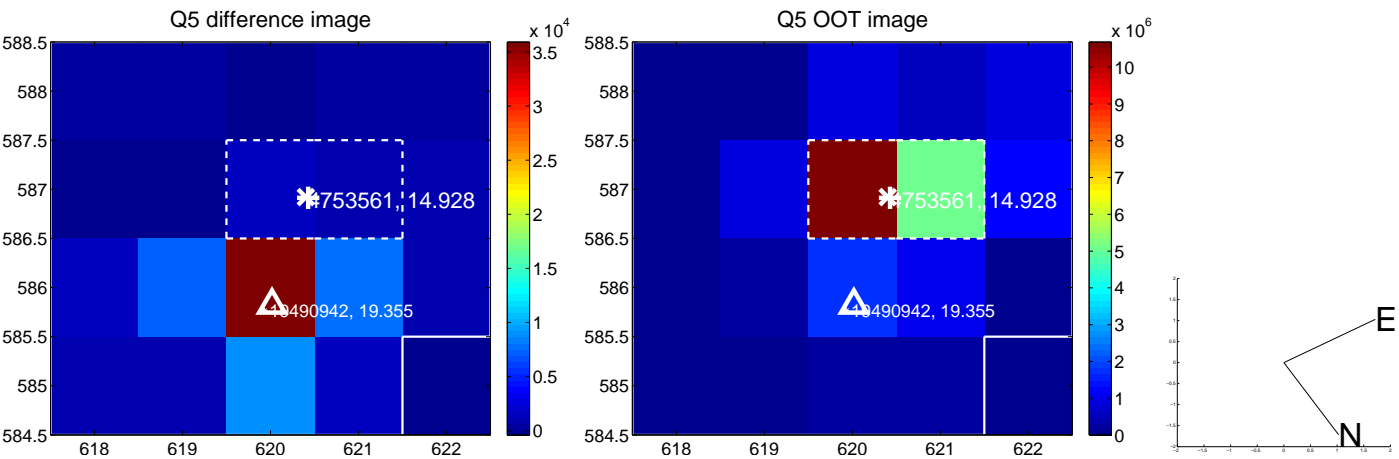


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

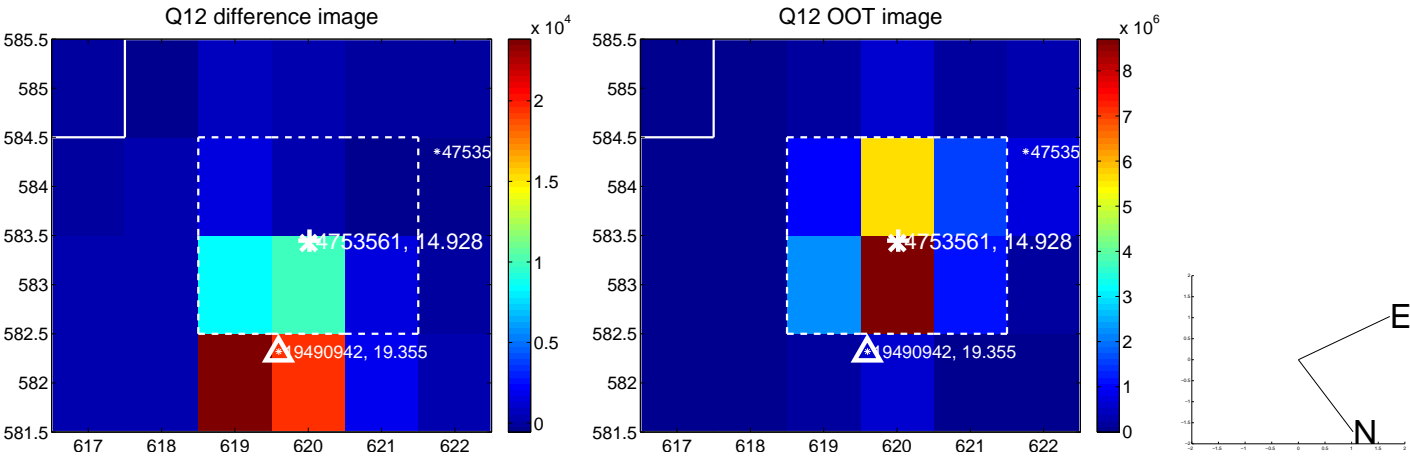
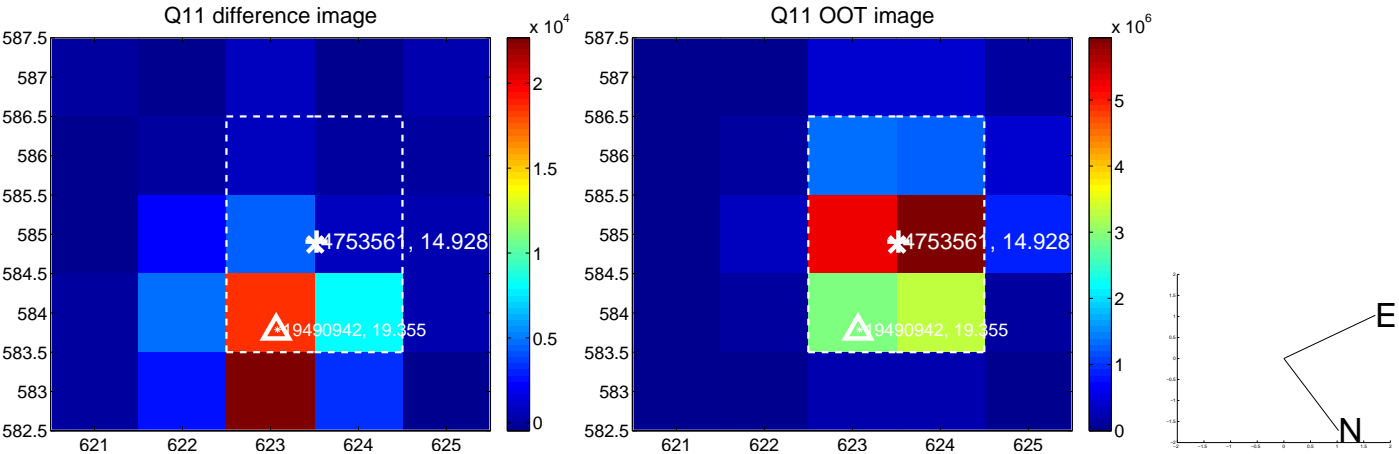
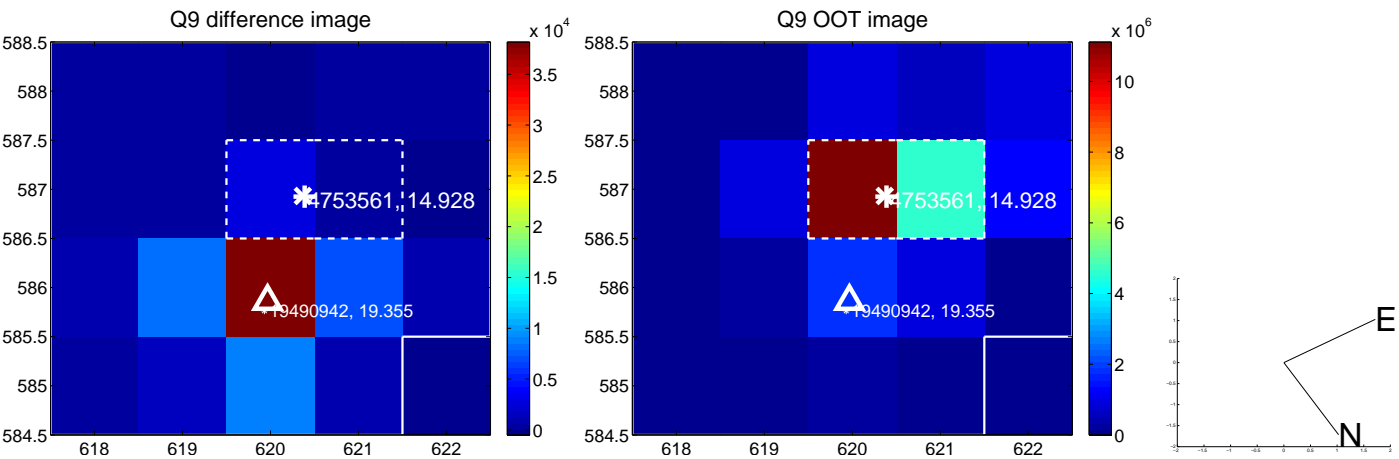
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



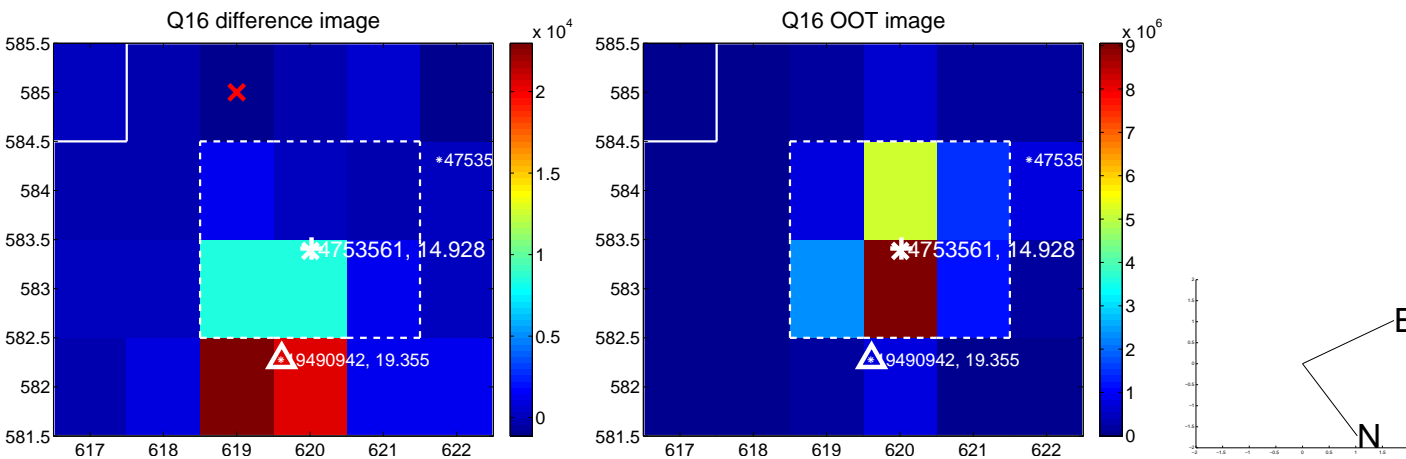
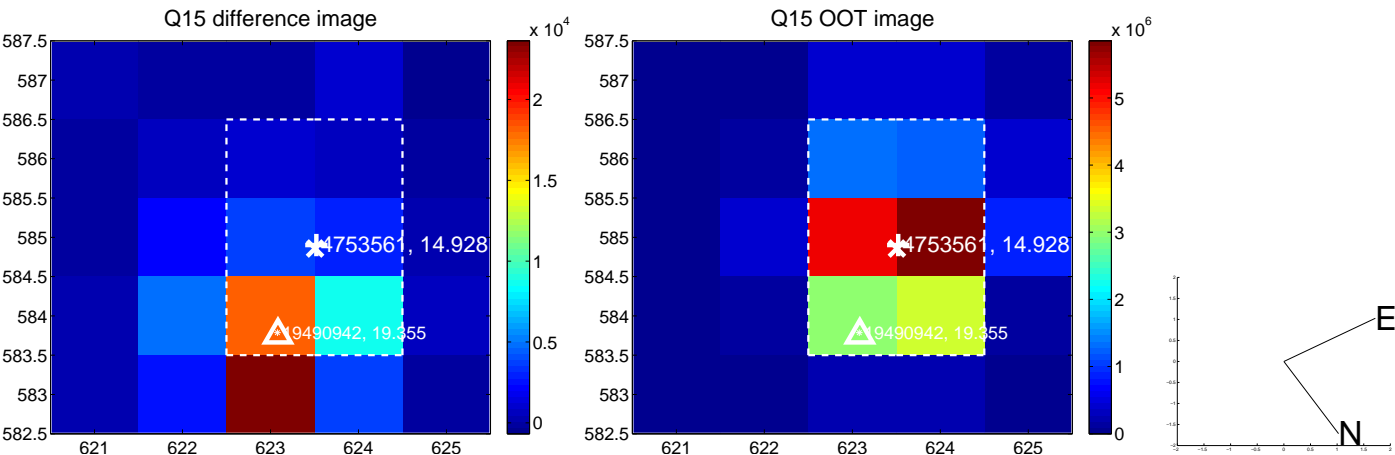
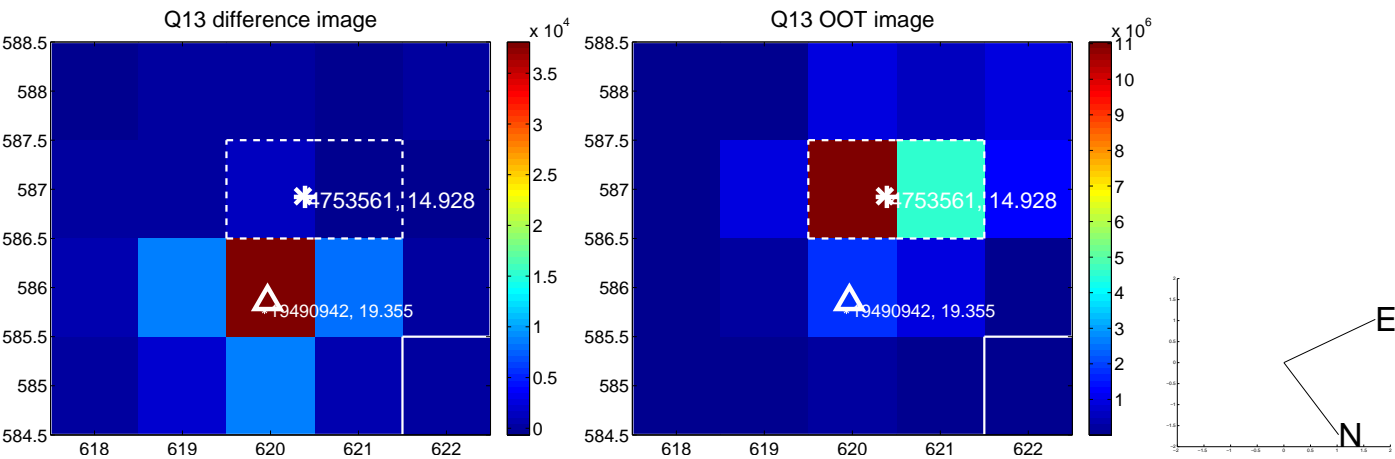
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



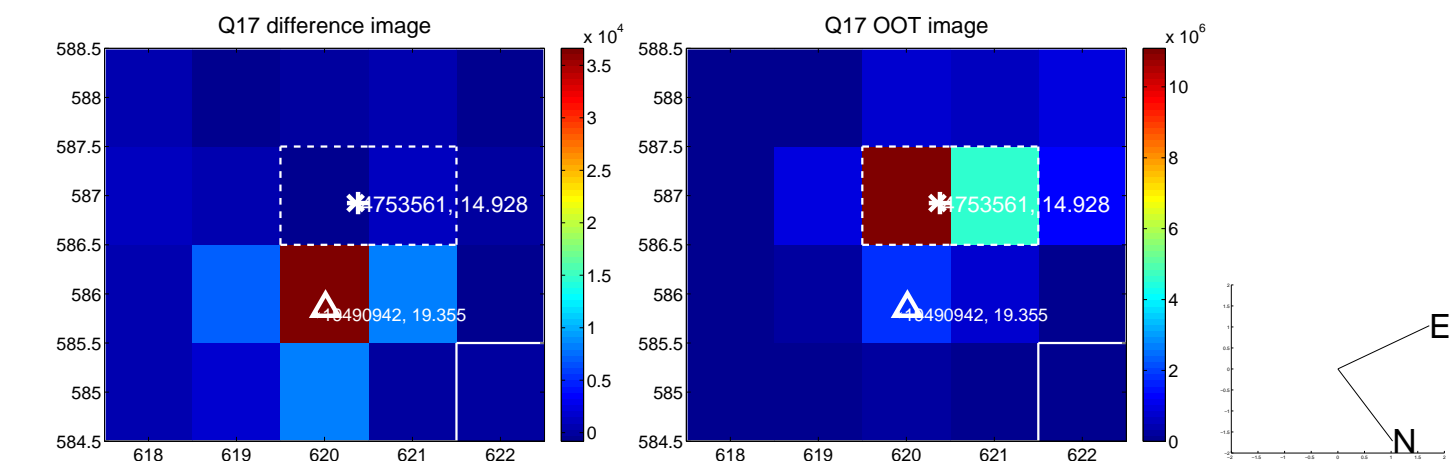
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



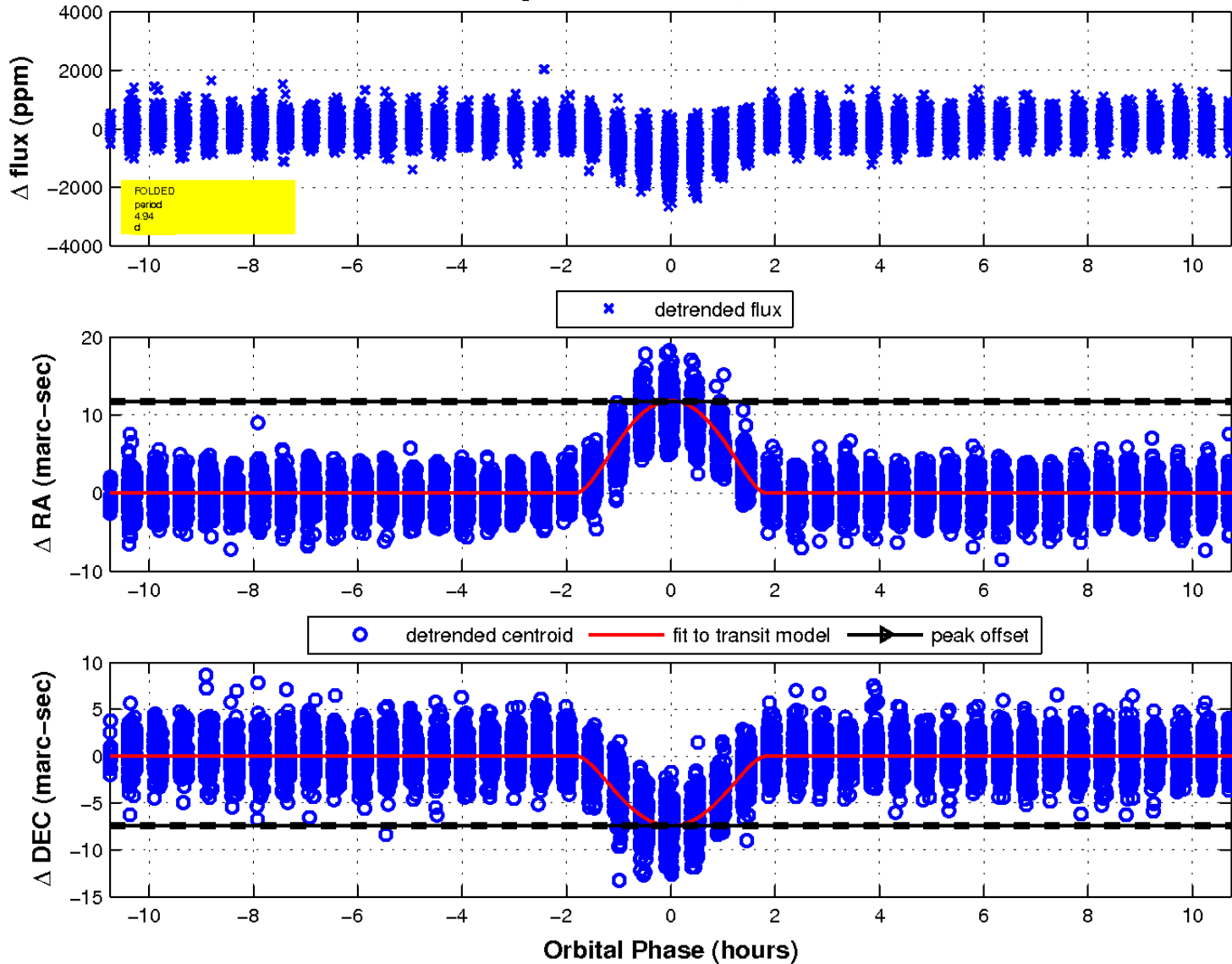
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

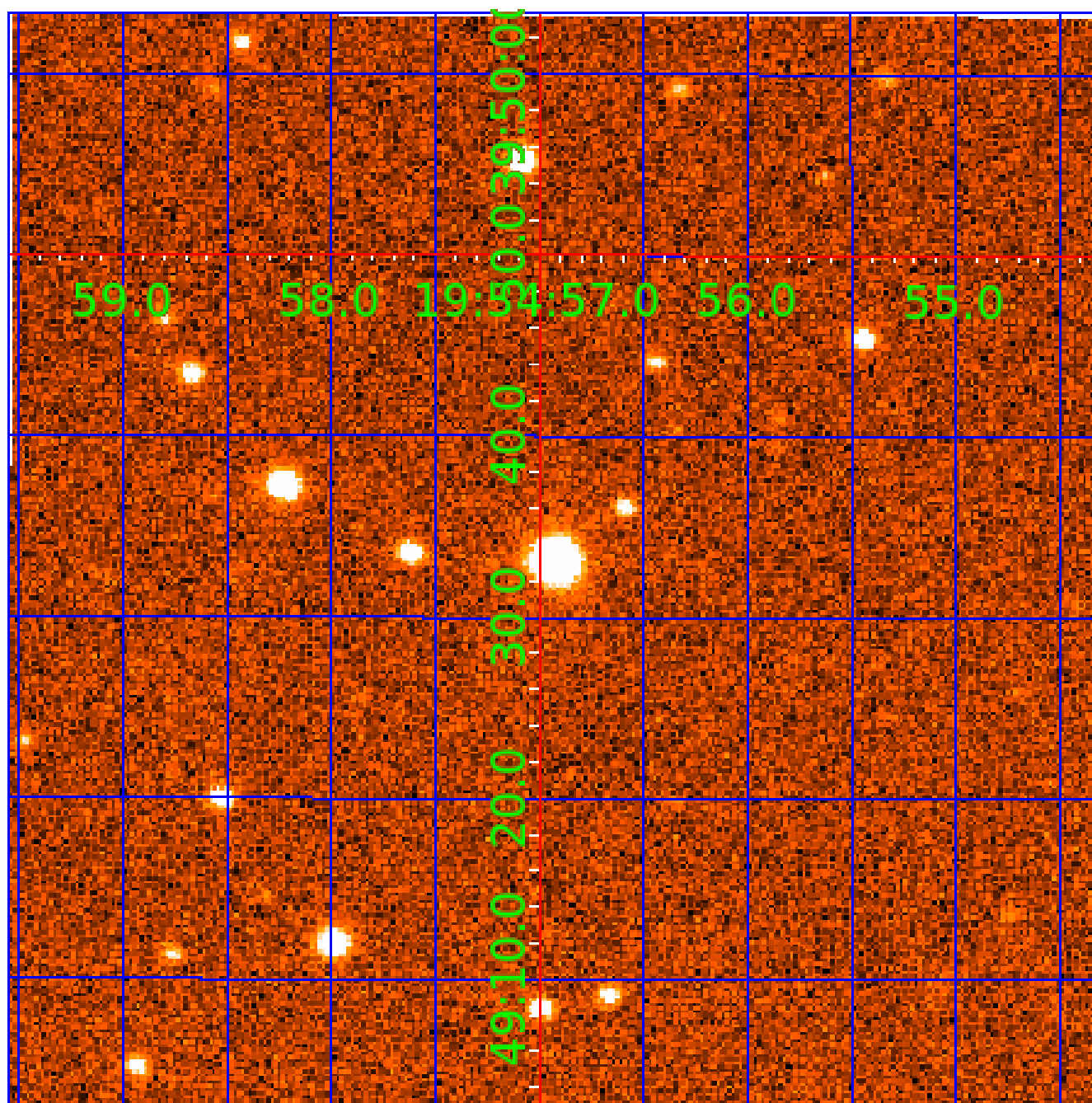


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 004753561

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})
004753561-01	OBS	5996.01	4.944913	131.613950	825.3	3.320	50.5	46.1	0.70	4428	3.60	66.68
004753561-02	OBS	No	4.944933	134.332836	765.8	3.584	48.8	45.3	0.70	4428	3.65	66.68
004753561-03	OBS	No	224.090642	268.303944	479.2	11.079	12.3	6.4	0.70	4428	1.73	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004753561-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST
004753561-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST
004753561-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

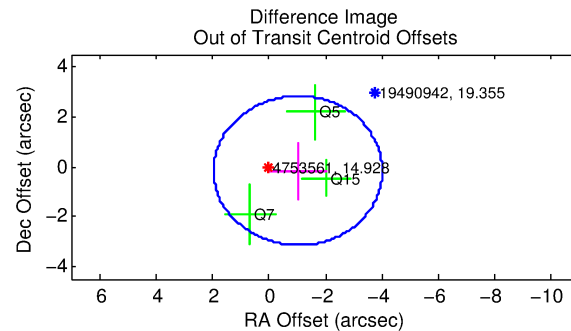
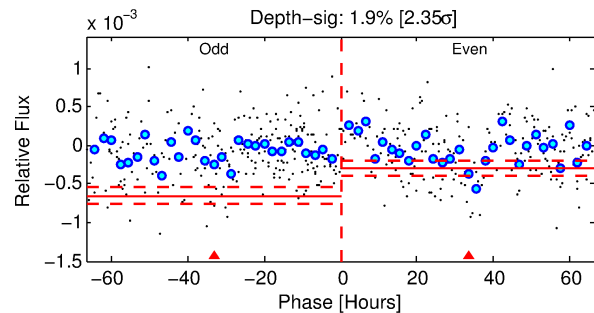
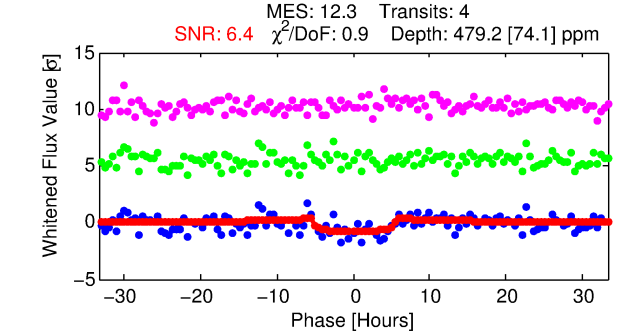
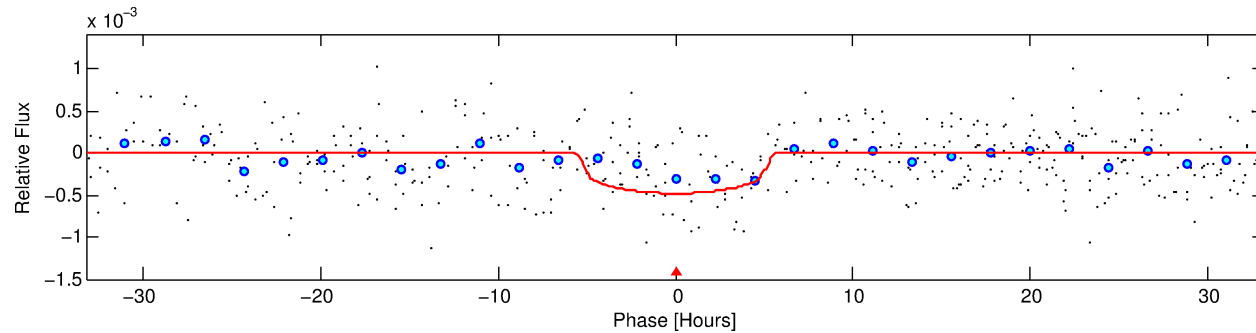
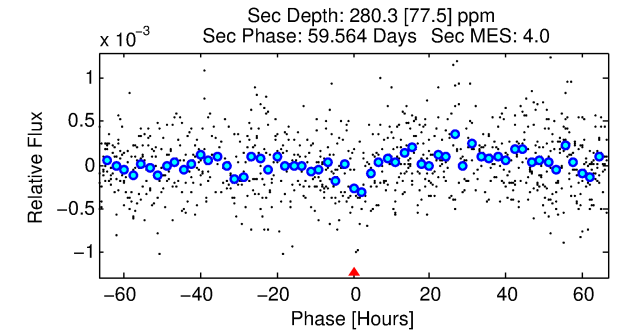
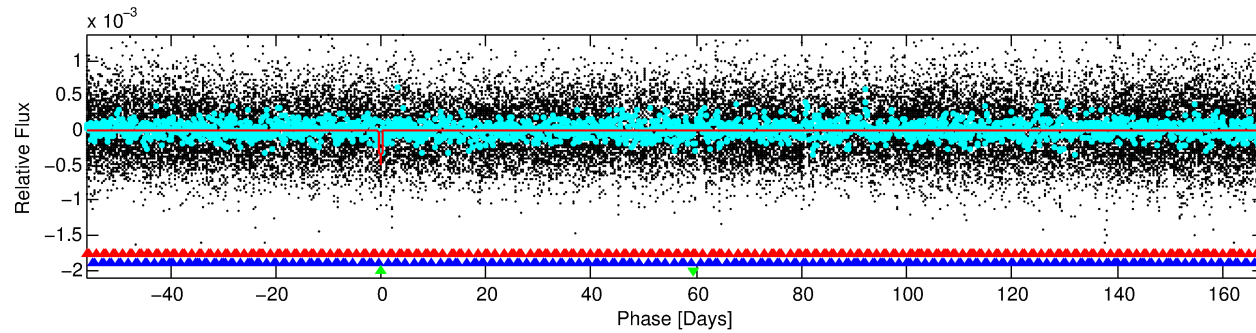
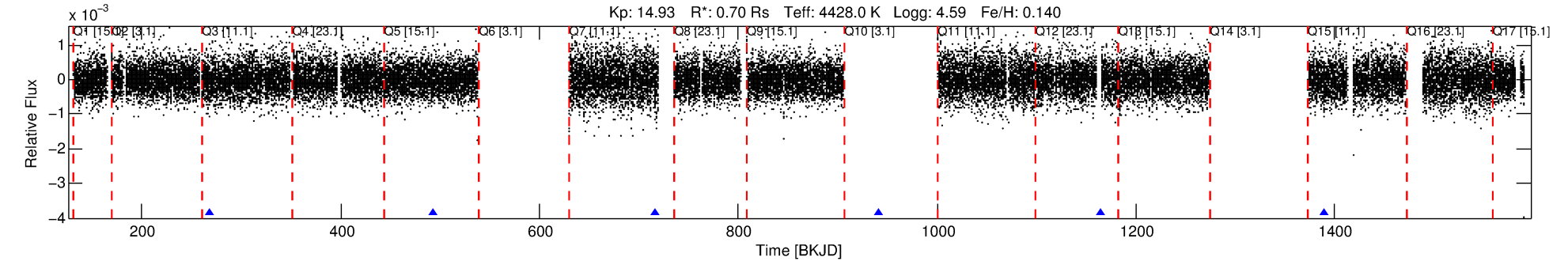
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004753561-03

No Significant Match Found

DV One-Page Summary

KIC: 4753561 Candidate: 3 of 3 Period: 224.091 d
KOI: K05996 Corr: No Ephemeris Match



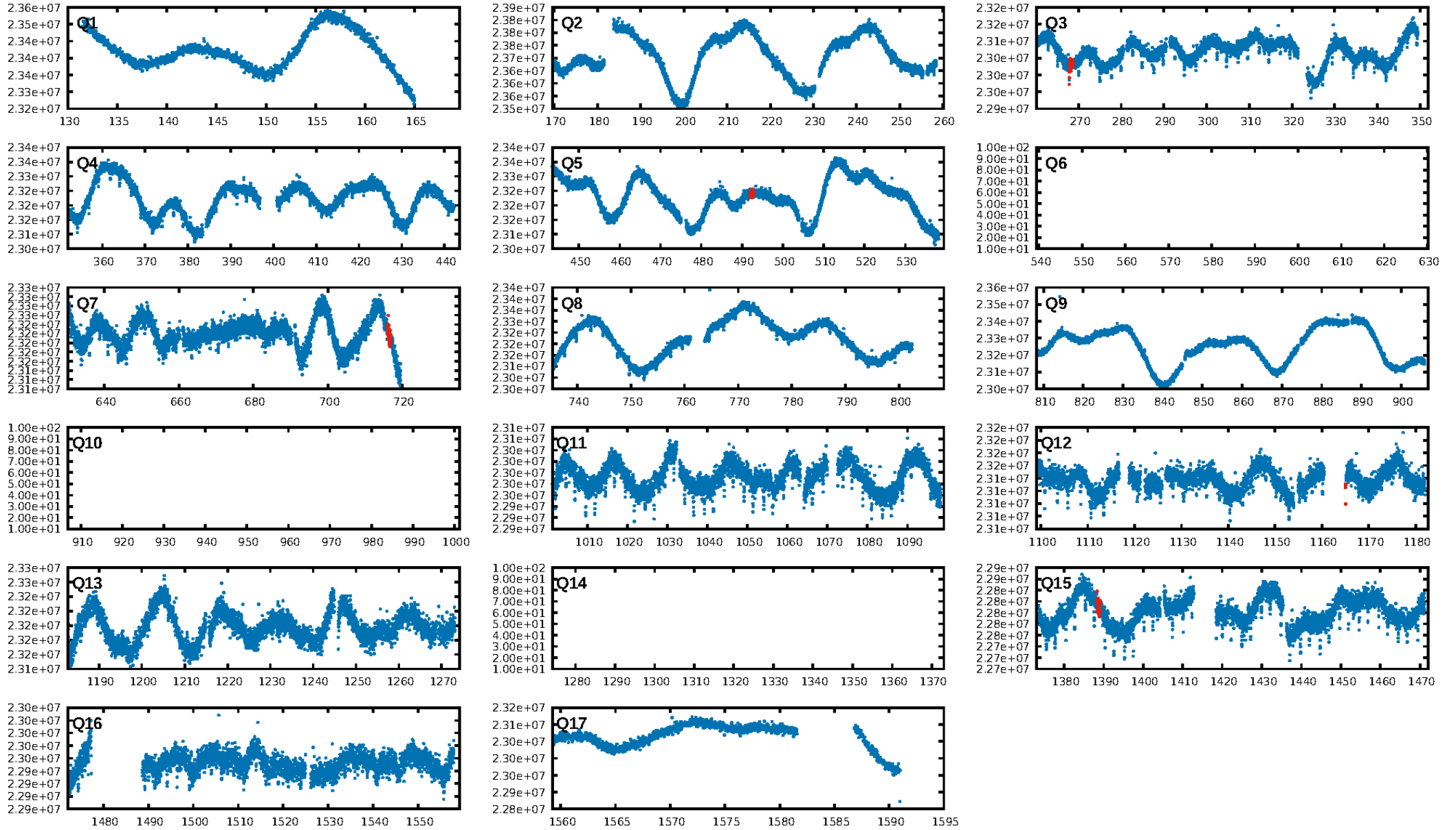
DV Fit Results:

Period = 224.09064 [0.00580] d
Epoch = 268.3039 [0.0173] BKJD
Rp/R* = 0.0226 [0.0108]
a/R* = 98.21 [150.91]
b = 0.80 [0.70]
Seff = 0.41 [0.04]
Teq = 204 [5] K
Rp = 1.73 [0.83] Re
a = 0.6404 [0.0292] AU
Ag = 21082.81 [20967.68] [1.01 σ]
Teffp = 3808 [947] K [3.81 σ]

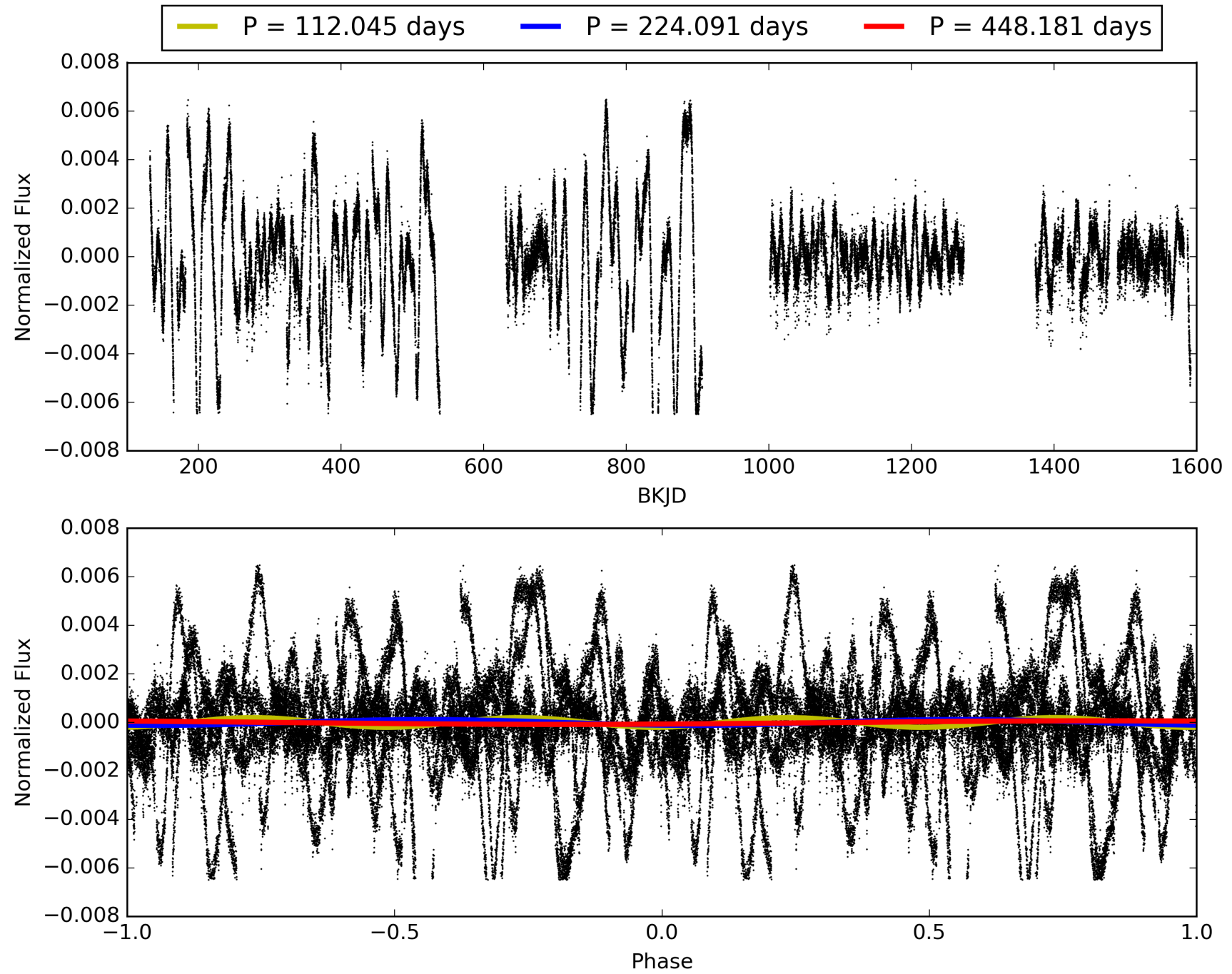
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [451.69 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.55e-24
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.8072
Centroid-sig: 26.7%
Centroid-so: 1.215 arcsec [0.84 σ]
OotOffset-rm: 1.040 arcsec [1.04 σ]
KicOffset-rm: 0.939 arcsec [0.93 σ]
OotOffset-st: 0/2/0/1 [3]
KicOffset-st: 0/2/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.67 [2/3]

TCE 004753561-03, PDC Light Curves

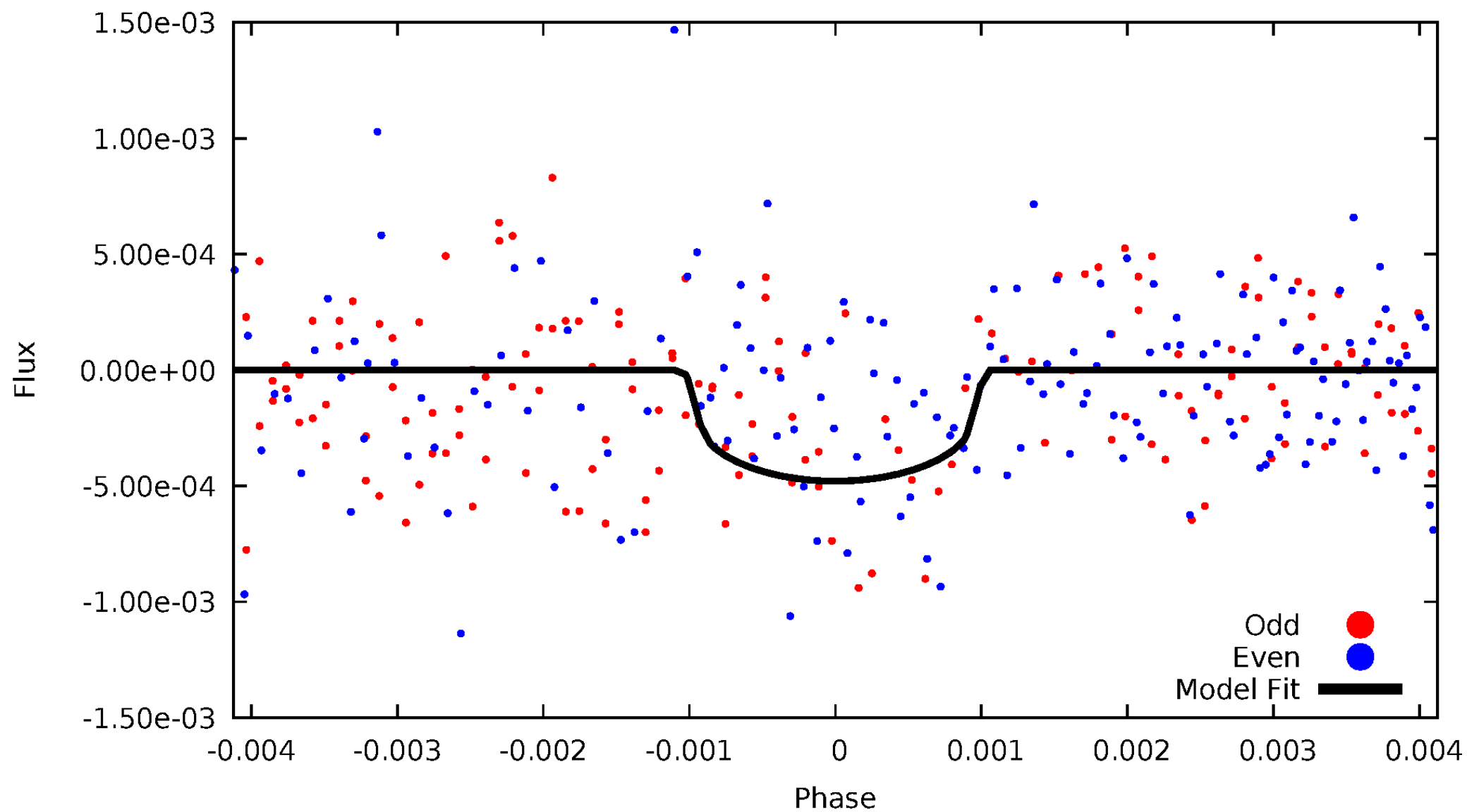


TCE 004753561-03



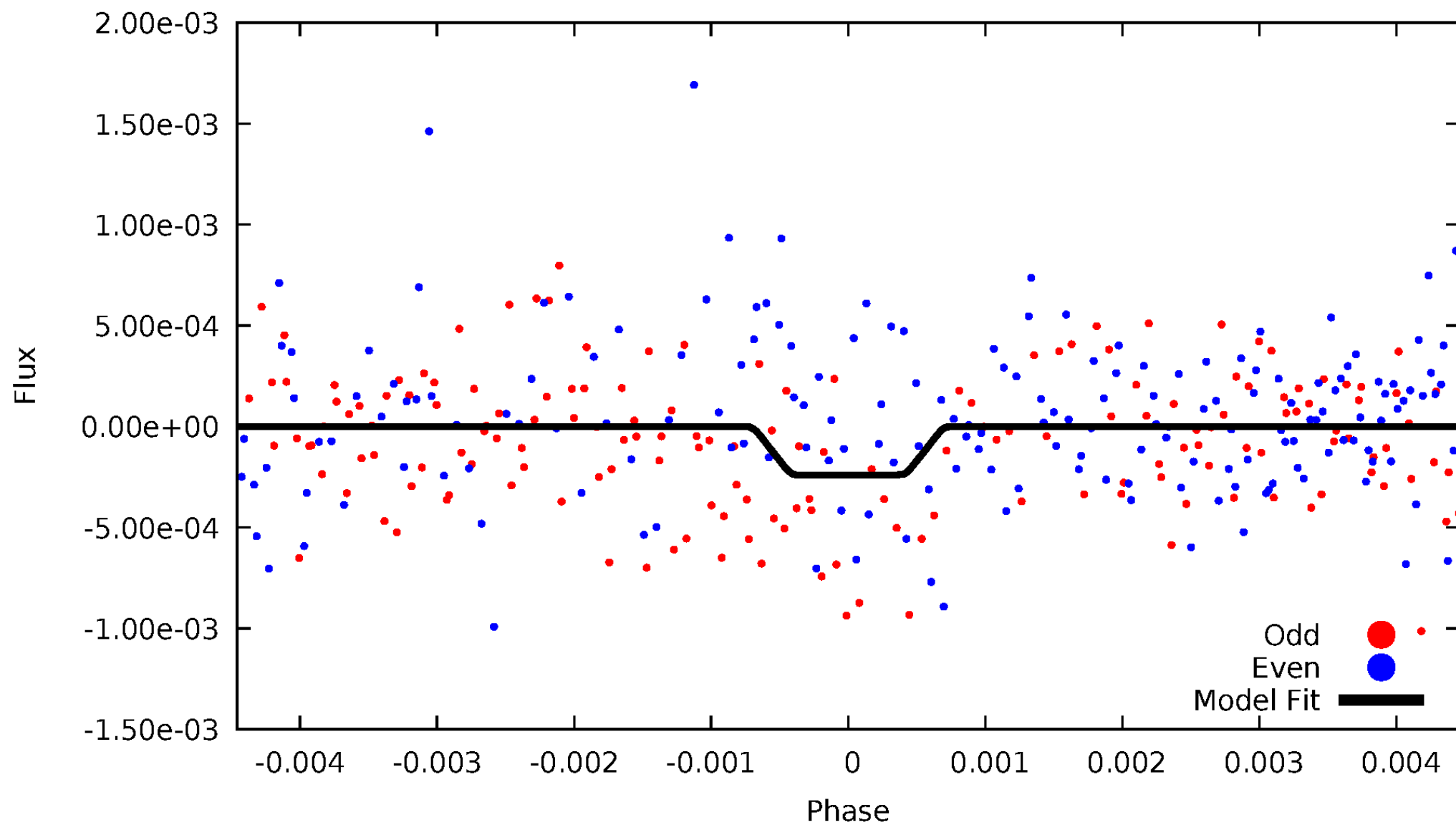
DV Odd/Even

TCE 004753561-03



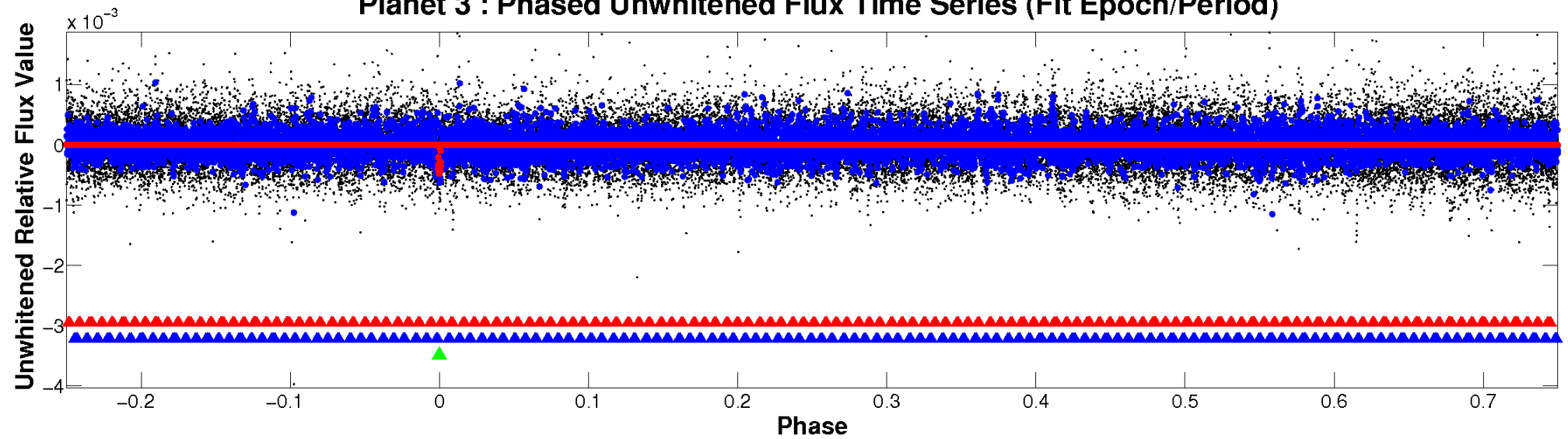
ALT Odd/Even

TCE 004753561-03

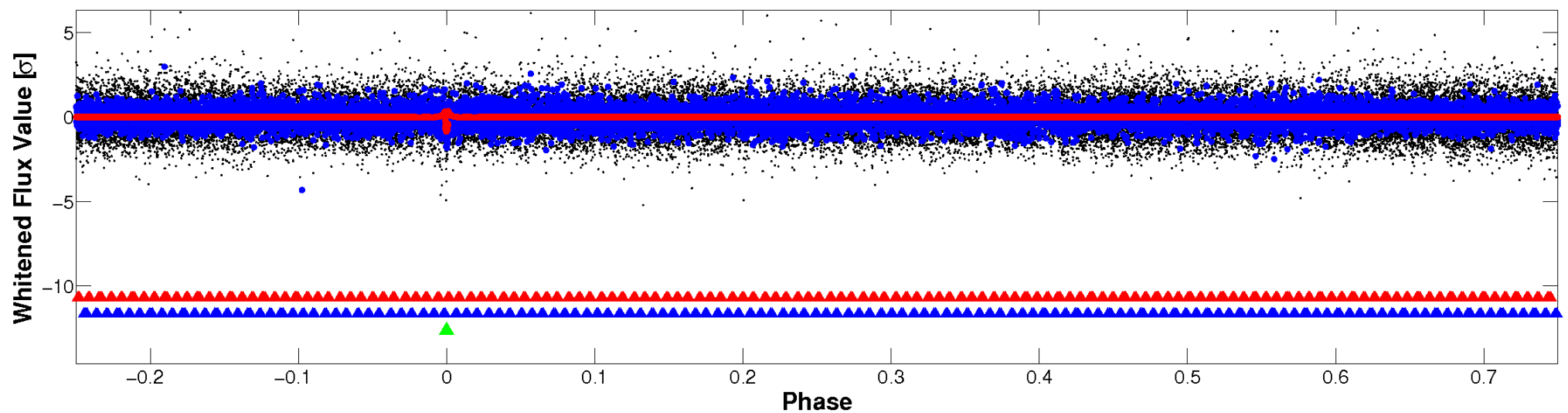


Non-Whitened Vs. Whitened Light Curve

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

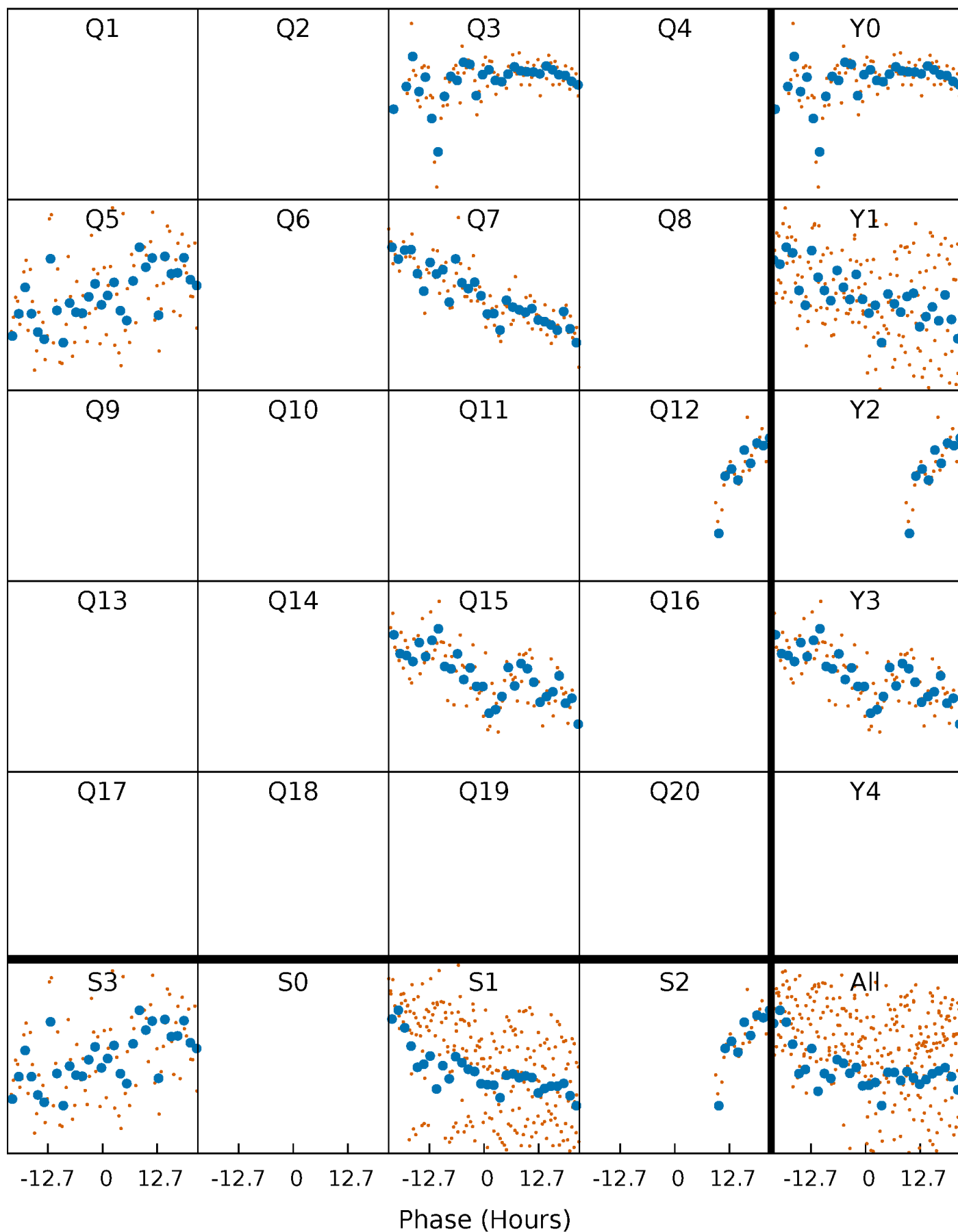


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



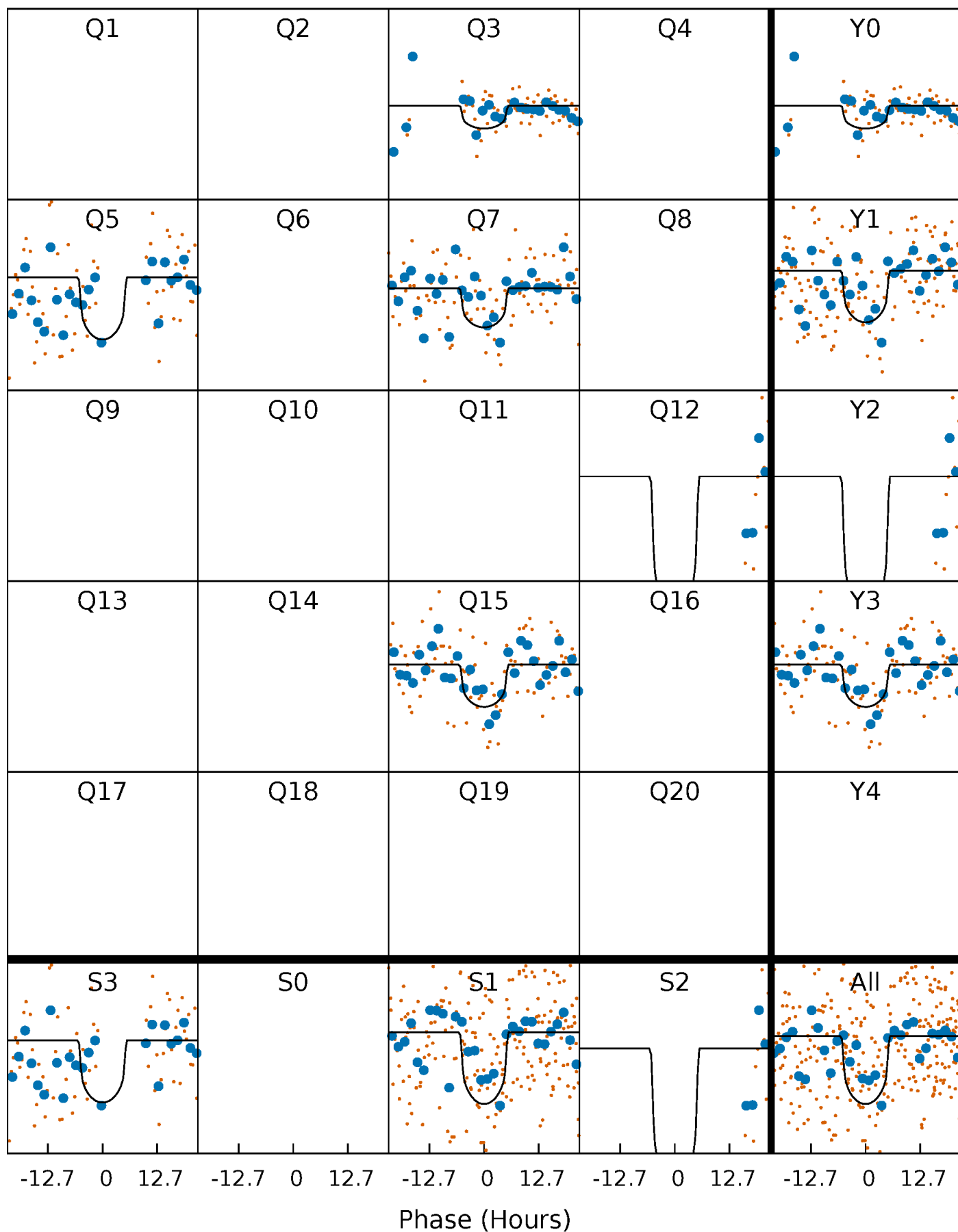
PDC Quarter-Phased Transit Curves

TCE 004753561-03 P=224.090642 Days $T_0=268.303944$ (BKJD)



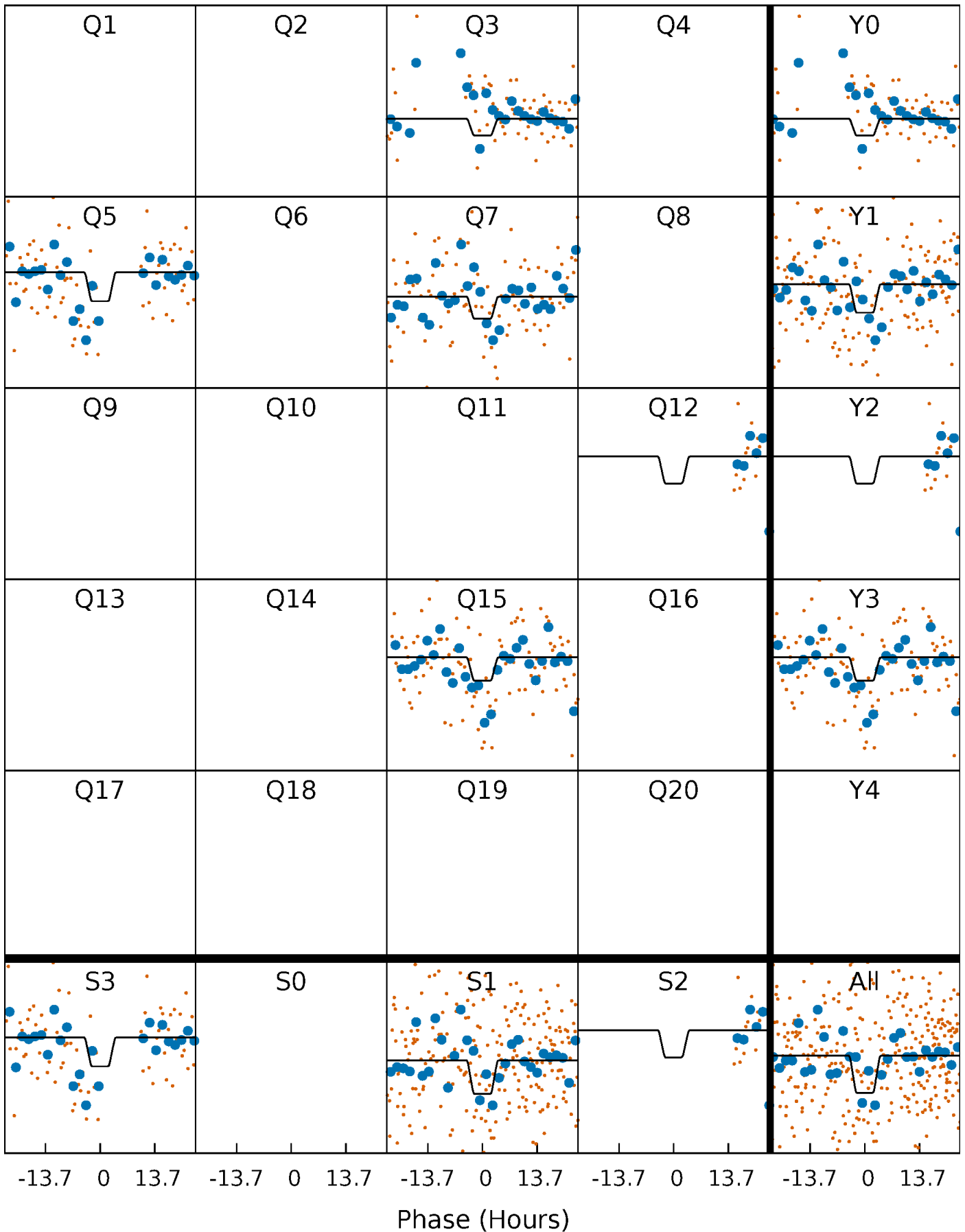
DV Quarter-Phased Transit Curves

TCE 004753561-03 $P=224.090642$ Days $T_0=268.303944$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

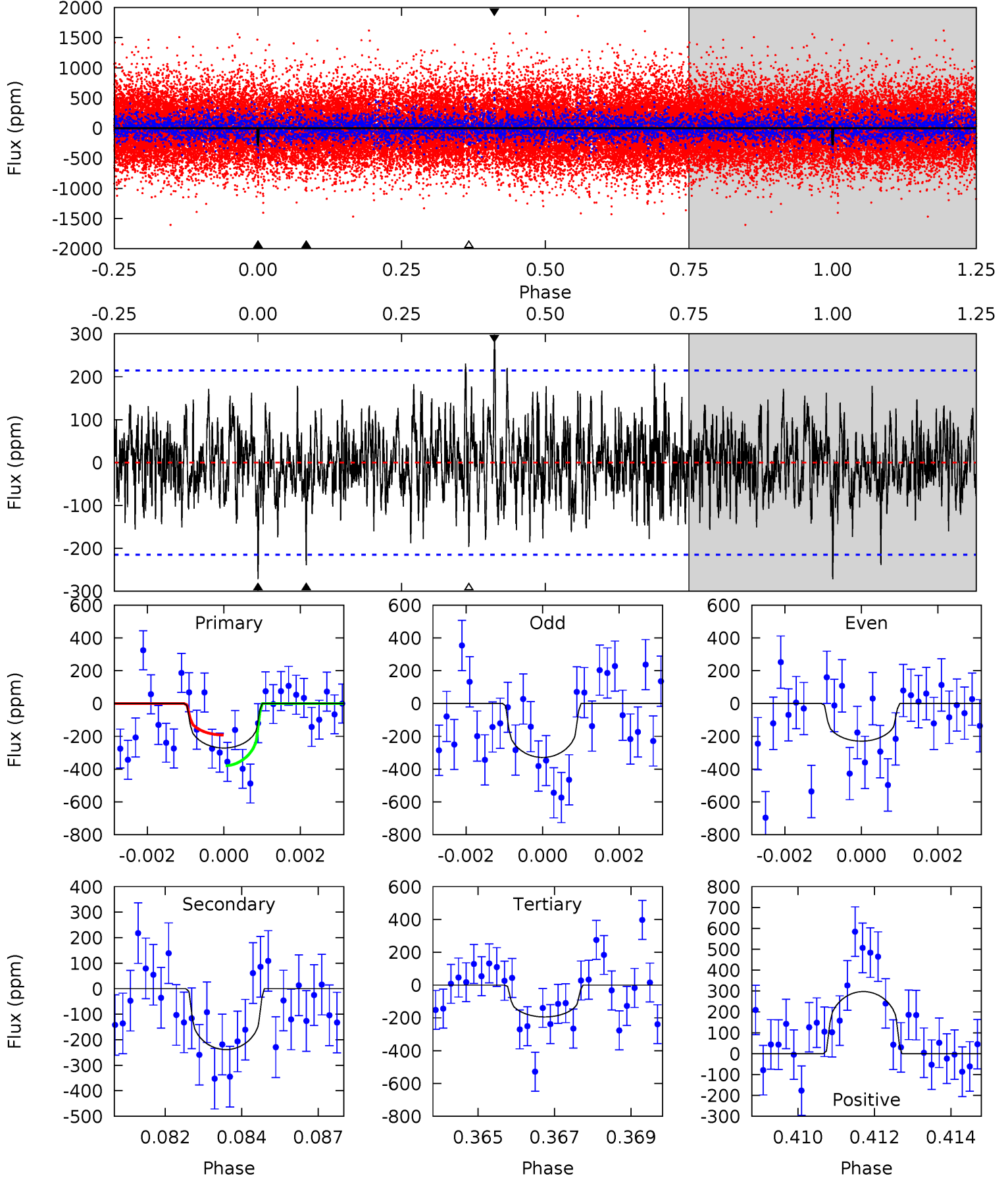
TCE 004753561-03 $P=224.101664$ Days $T_0=268.287143$ (BKJD)



DV Model-Shift Uniqueness Test

004753561-03, P = 224.090642 Days, E = 44.213302 Days

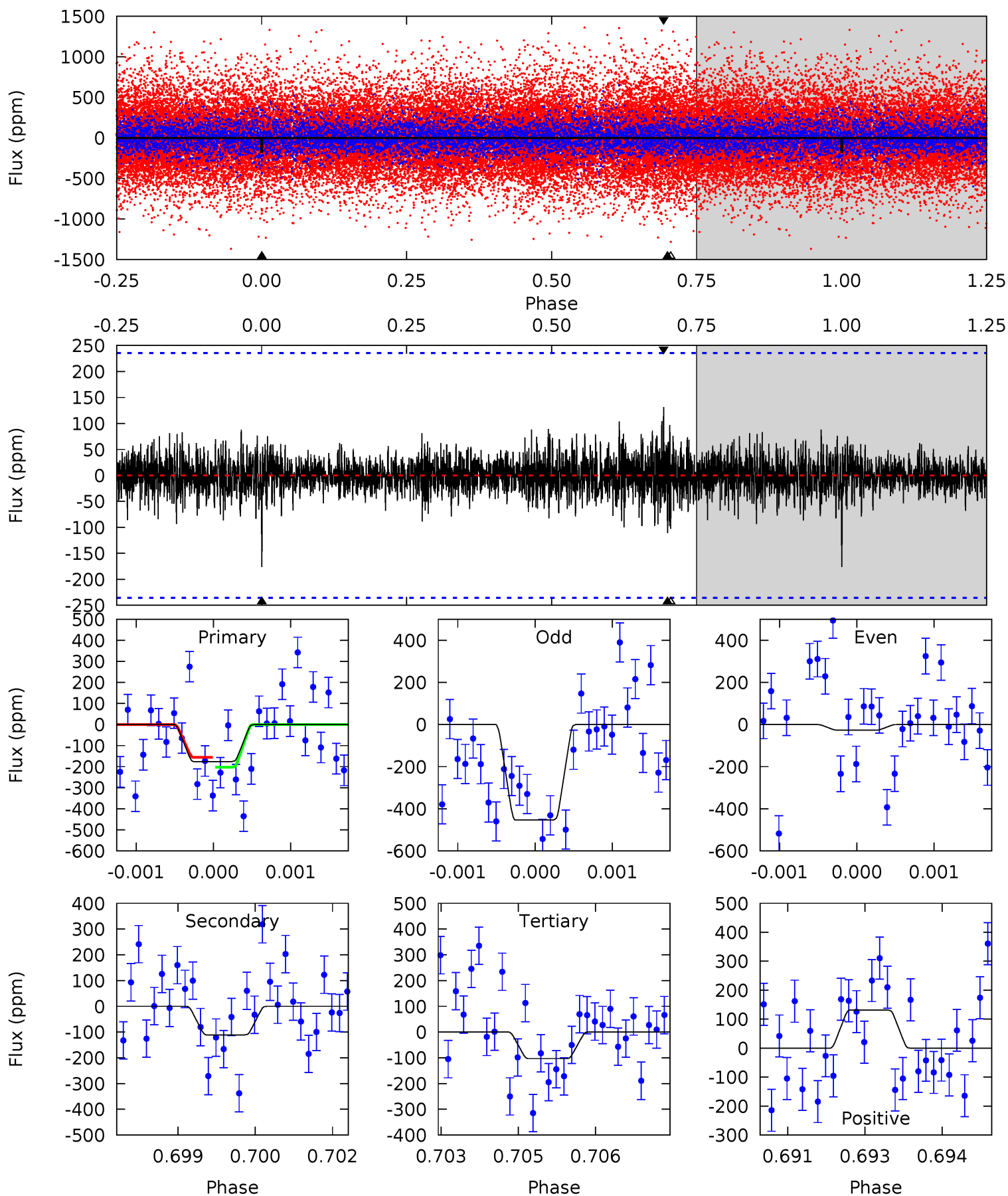
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.72	5.91	4.82	7.37	5.32	3.07	1.61	1.90	-0.64	1.09	-1.46	1.24	1.11	0.52	2.32



Alt Model-Shift Uniqueness Test

004753561-03, P = 224.101664 Days, E = 44.185479 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.02	2.53	2.35	3.00	5.38	3.18	0.63	1.67	1.02	0.18	-0.47	4.91	0.94	0.43	0.54



Stellar Parameters For KIC 004753561

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4428^{+79}_{-79}	$4.590^{+0.042}_{-0.012}$	$0.140^{+0.150}_{-0.150}$	$0.701^{+0.020}_{-0.034}$	$0.697^{+0.040}_{-0.026}$	$2.849^{+0.446}_{-0.144}$
	+2%/-2%	+1%/-0%	+107%/-107%	+3%/-5%	+6%/-4%	+16%/-5%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 004753561-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-239 ± 40	$1.77^{+0.84}_{-0.85}$	284^{+6}_{-6}	3812^{+1047}_{-462}	17526^{+45884}_{-9886}
Alt.	-111 ± 44	$1.27^{+0.79}_{-0.73}$	284^{+6}_{-6}	3750^{+1403}_{-615}	15656^{+67763}_{-10634}

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 $A_{obs} \gg 1.0$

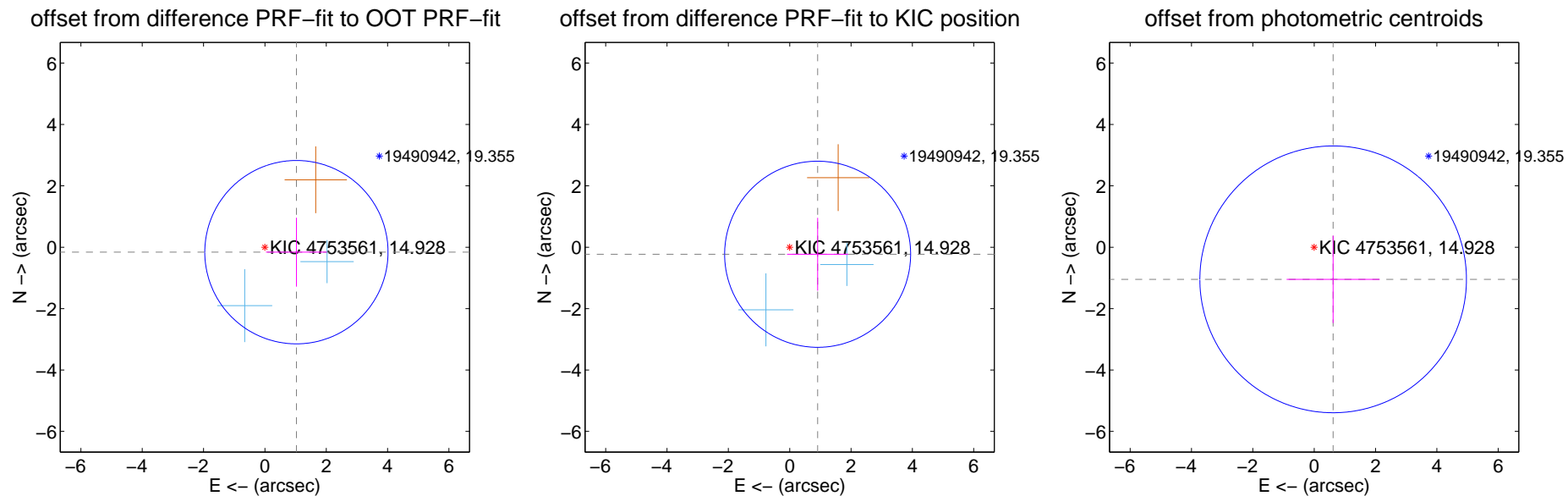
DV Centroid Data

Supplemental centroid analysis for 004753561-03. Kepler magnitude: 14.93. Transit SNR 6.40

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.040 ± 0.996	1.04	-1.027 ± 0.992	-0.161 ± 1.124
PRF-fit source offset from KIC position	0.939 ± 1.011	0.93	-0.911 ± 0.999	-0.229 ± 1.187
photometric centroid source offset	1.22 ± 1.45	0.84	-0.62 ± 1.52	-1.05 ± 1.42

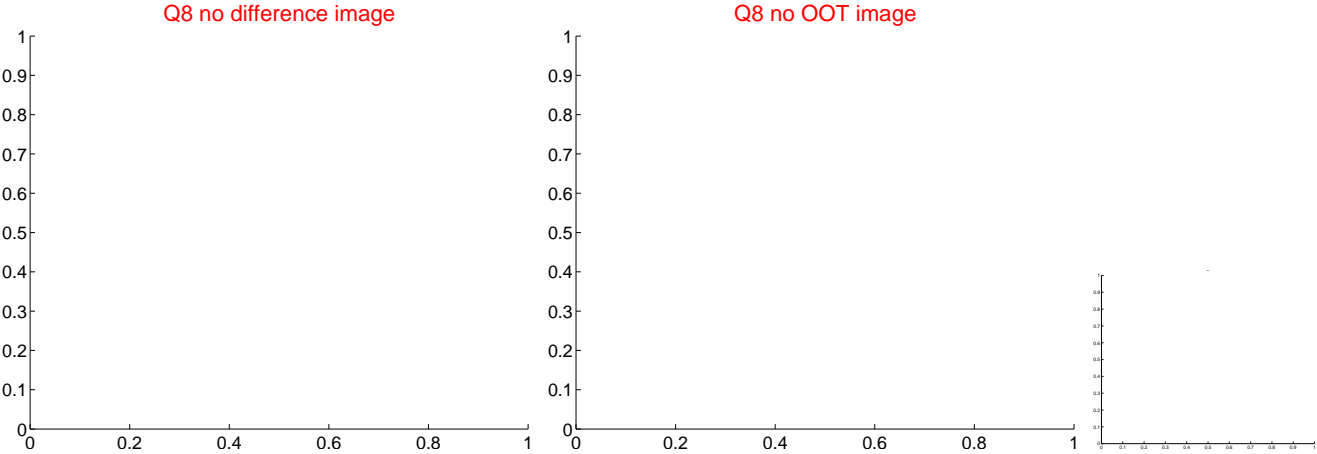
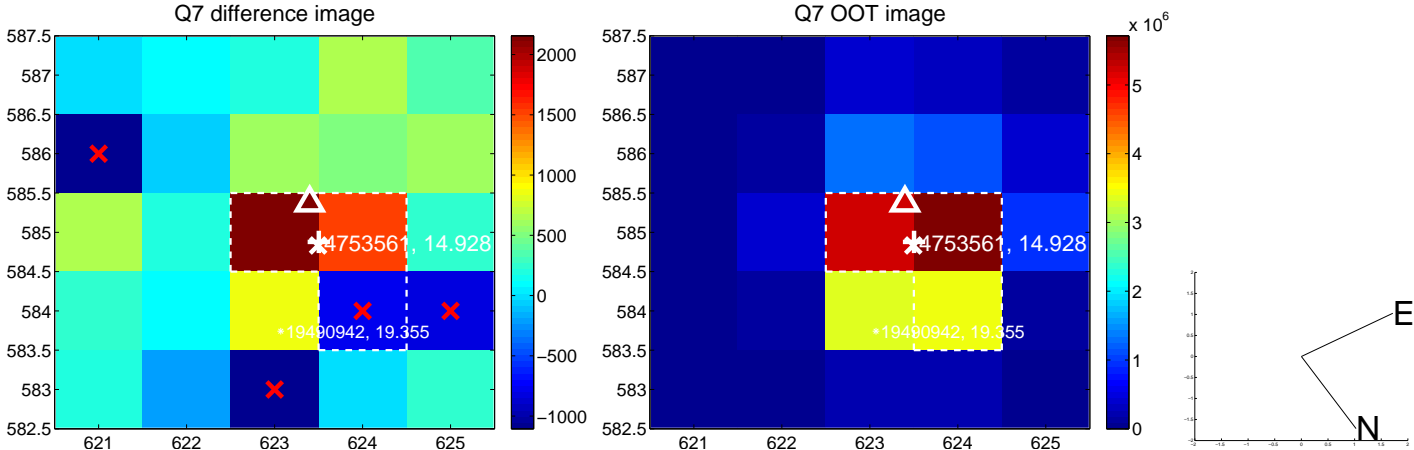
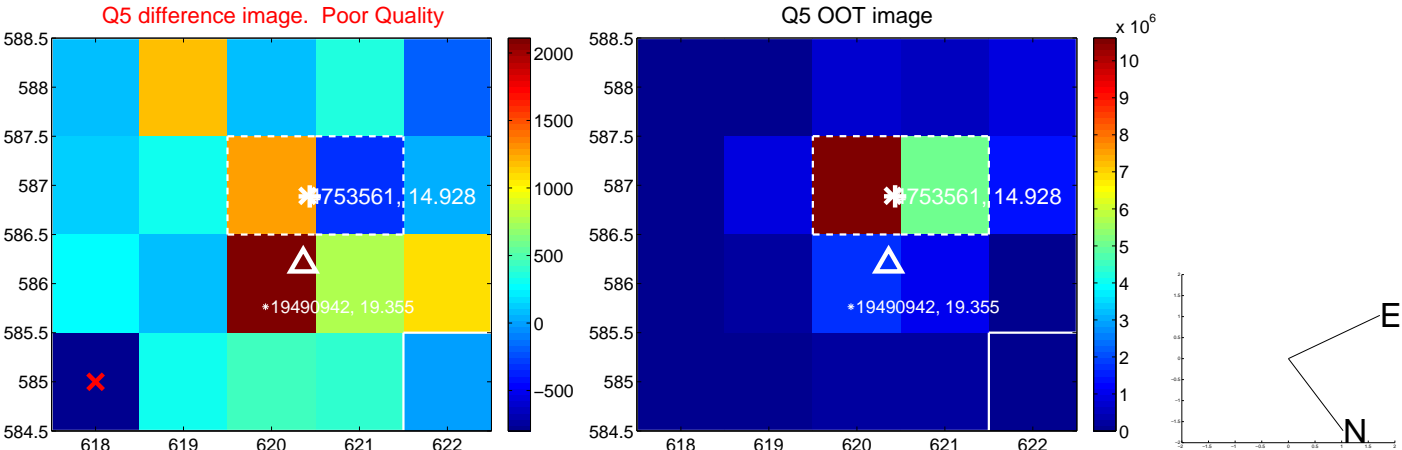


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

Q13 no difference image



Q13 no OOT image



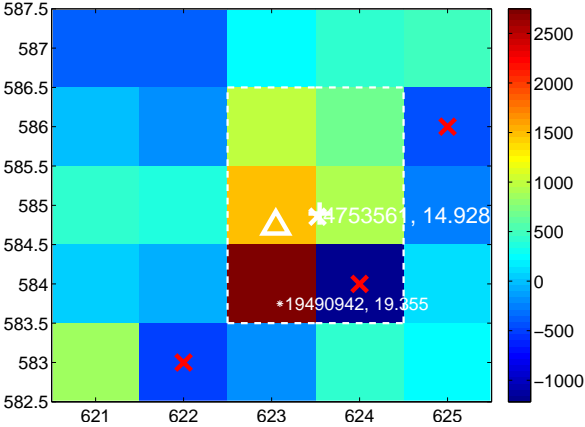
Q14 no difference image



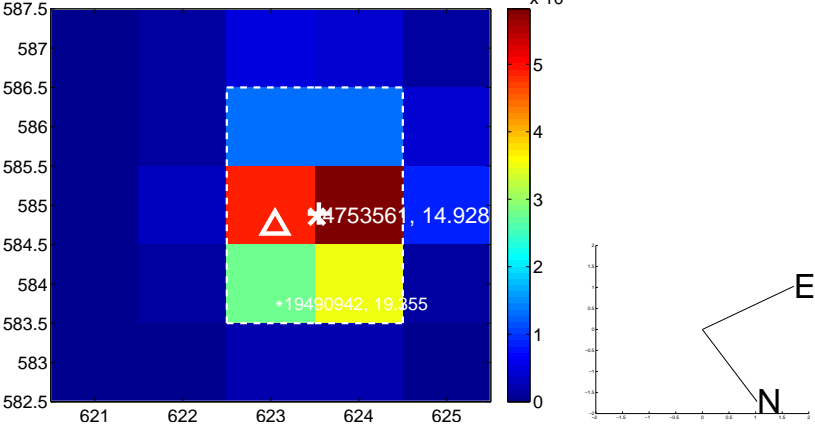
Q14 no OOT image



Q15 difference image



Q15 OOT image



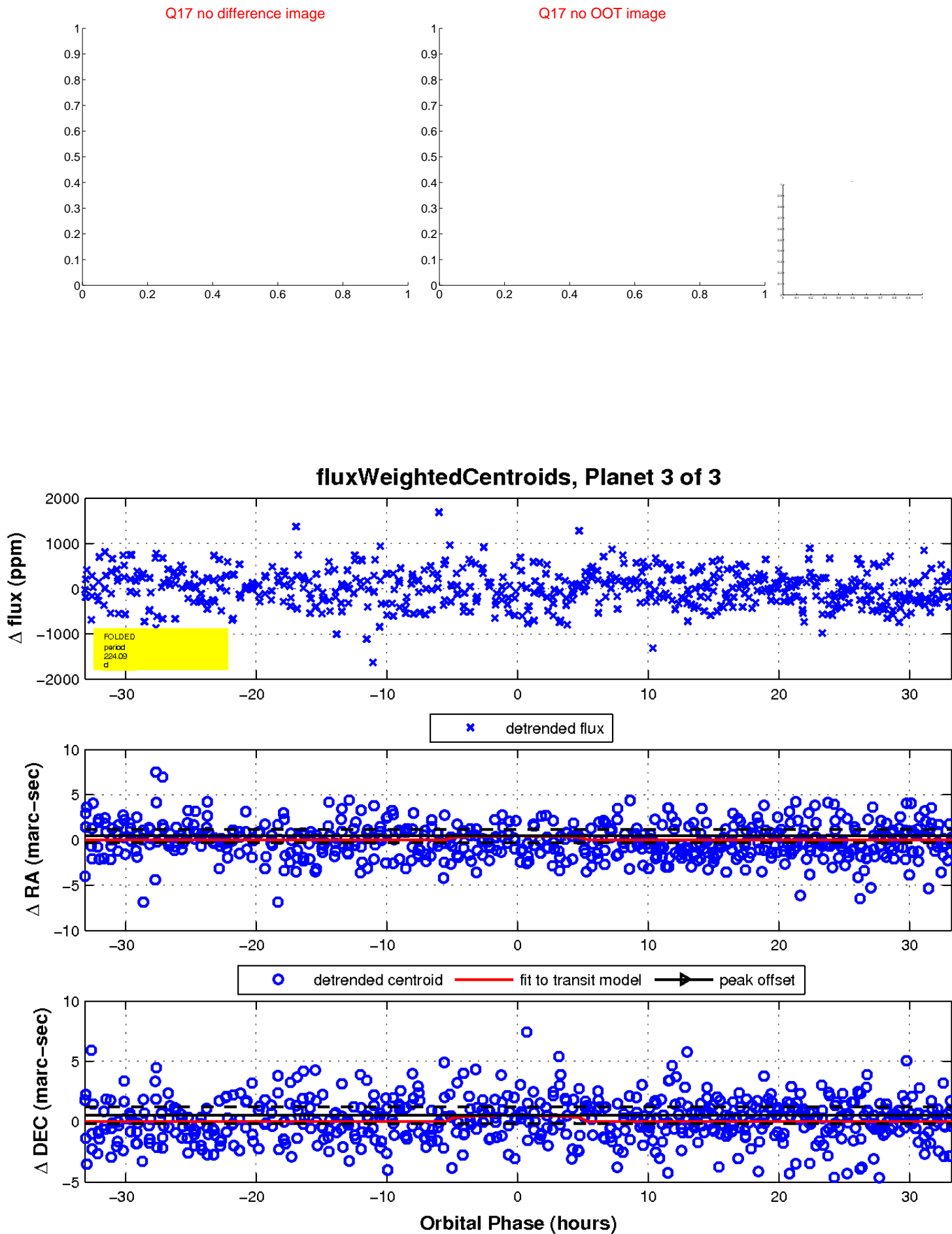
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

