

KIC 011521793

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})
011521793-01	OBS	0352.01	27.082456	137.641590	425.3	5.062	35.6	39.1	1.30	5857	3.27	57.87
011521793-02	OBS	0352.02	16.007488	142.637659	270.1	1.073	13.5	15.5	1.30	5857	2.14	116.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011521793-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011521793-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

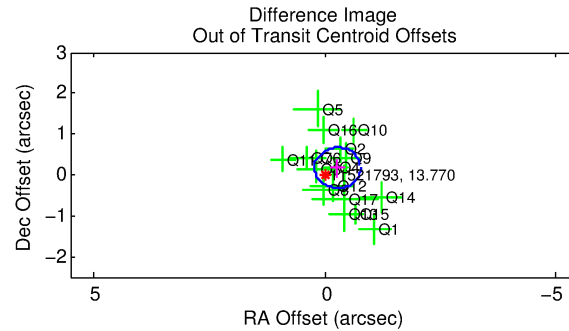
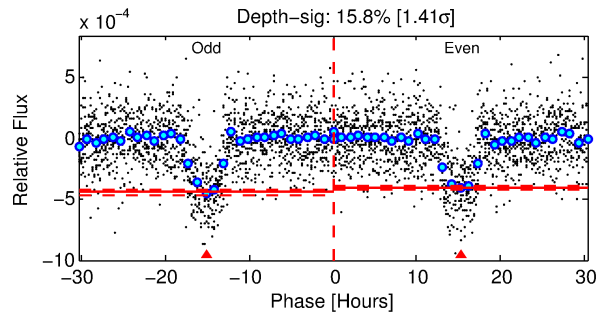
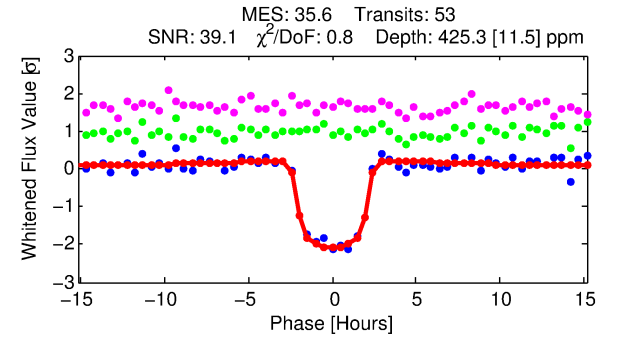
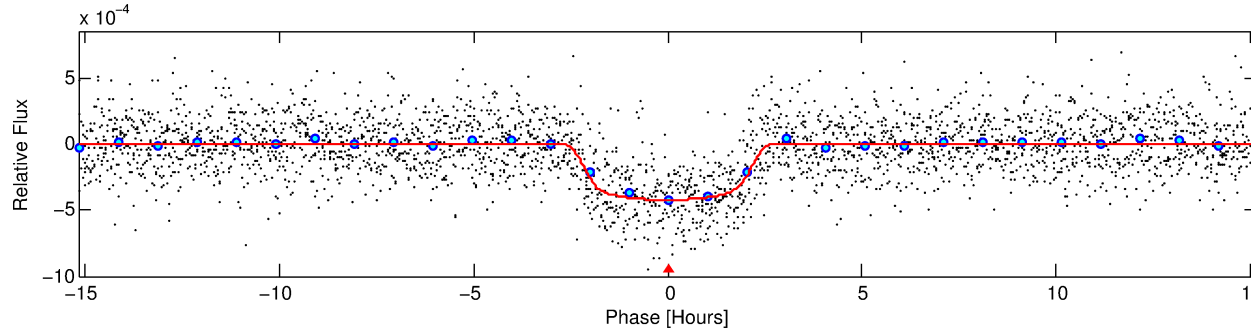
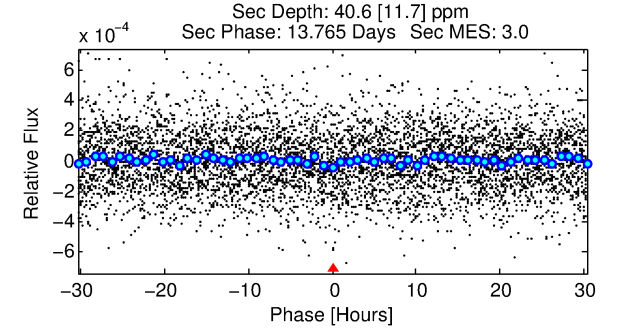
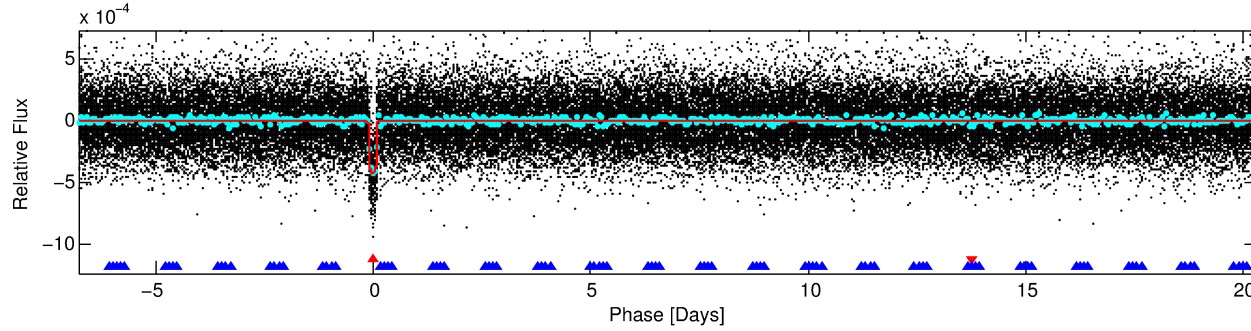
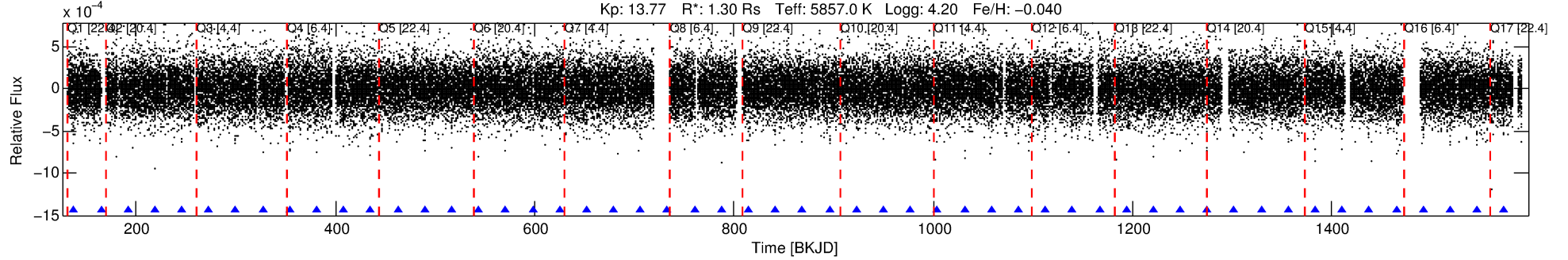
Ephemeris Match Information For 011521793-01

No Significant Match Found

DV One-Page Summary

KIC: 11521793 Candidate: 1 of 2 Period: 27.082 d
KOI: K00352.01 Name: Kepler-143c Corr: 0.967

Kp: 13.77 R*: 1.30 Rs Teff: 5857.0 K Logg: 4.20 Fe/H: -0.040



DV Fit Results:

Period = 27.08246 [0.00009] d
Epoch = 137.6416 [0.0027] BKJD
Rp/R* = 0.0230 [0.0009]
a/R* = 18.05 [3.04]
b = 0.92 [0.03]
Seff = 57.87 [17.97]
Teq = 703 [55] K
Rp = 3.27 [0.65] Re
a = 0.1762 [0.0331] AU
Ag = 64.85 [27.48] [2.32σ]
Teffp = 3086 [239] K [9.72σ]

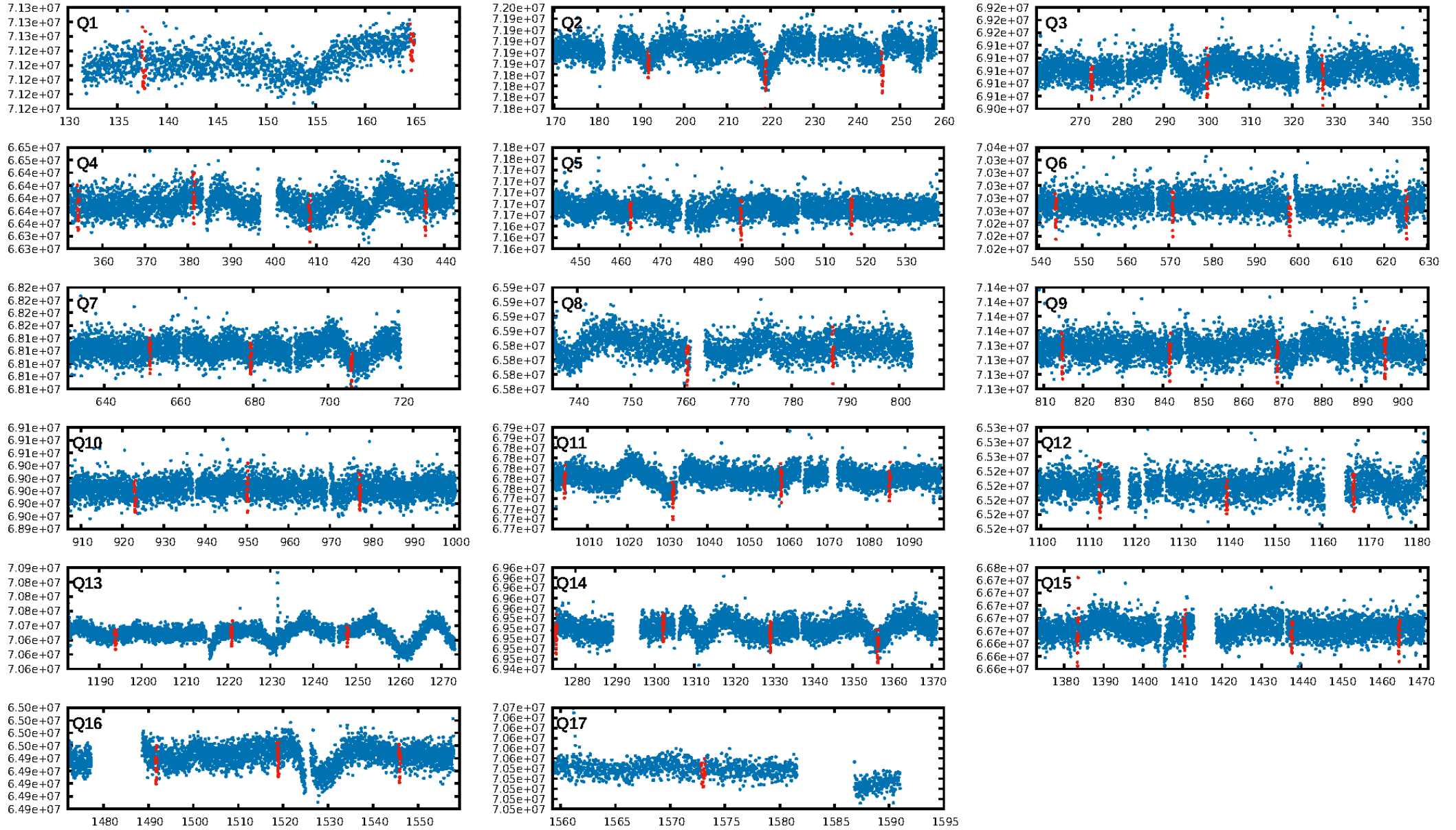
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [51.36σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.31e-262
RollingBand-fgt: 1.00 [50/50]
GhostDiagnostic-chr: 8.508
Centroid-sig: N/A
Centroid-so: 0.124 arcsec [0.33σ]
OotOffset-rm: 0.326 arcsec [1.97σ]
KicOffset-rm: 0.270 arcsec [1.64σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

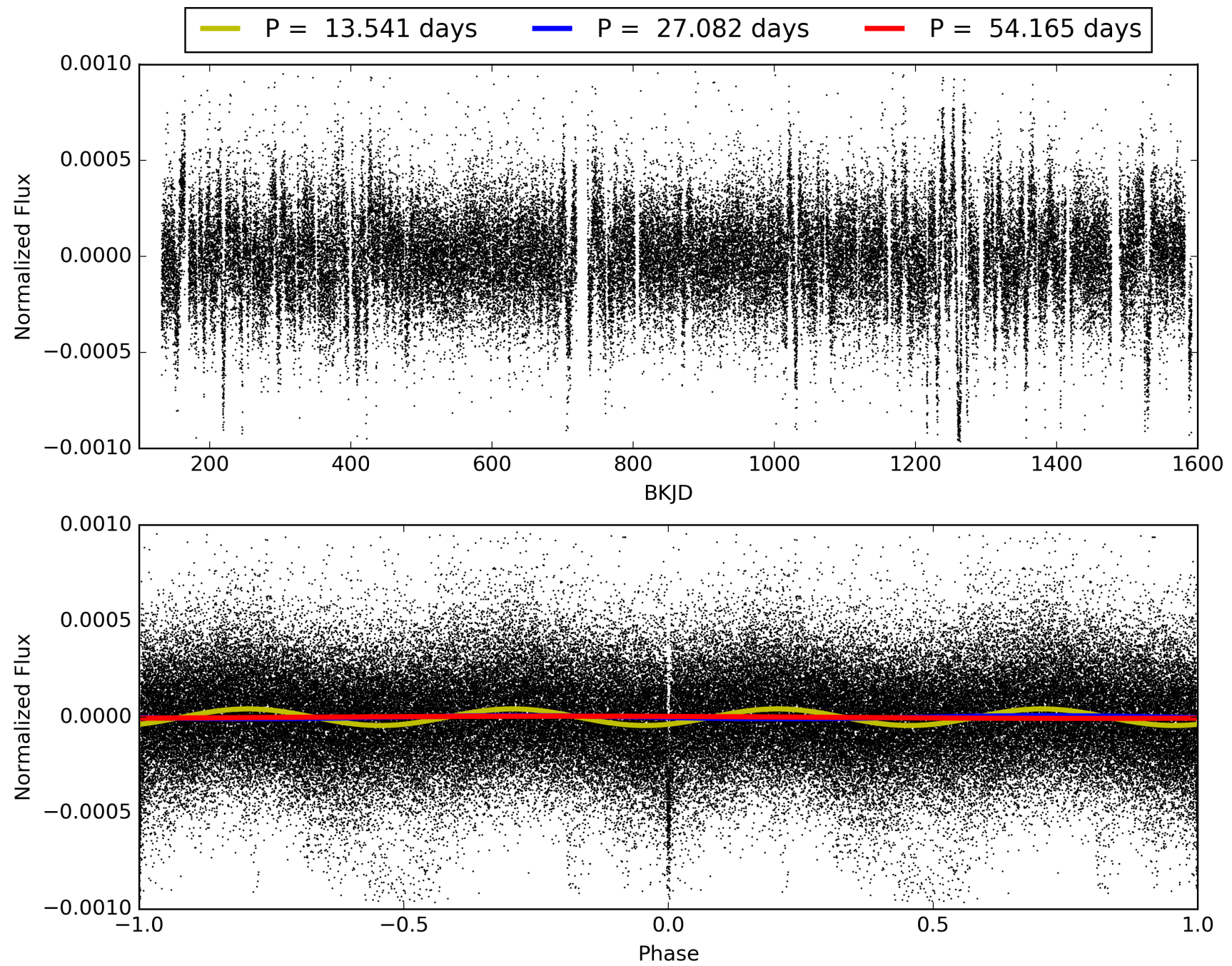
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:31:31 Z

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

TCE 011521793-01, PDC Light Curves

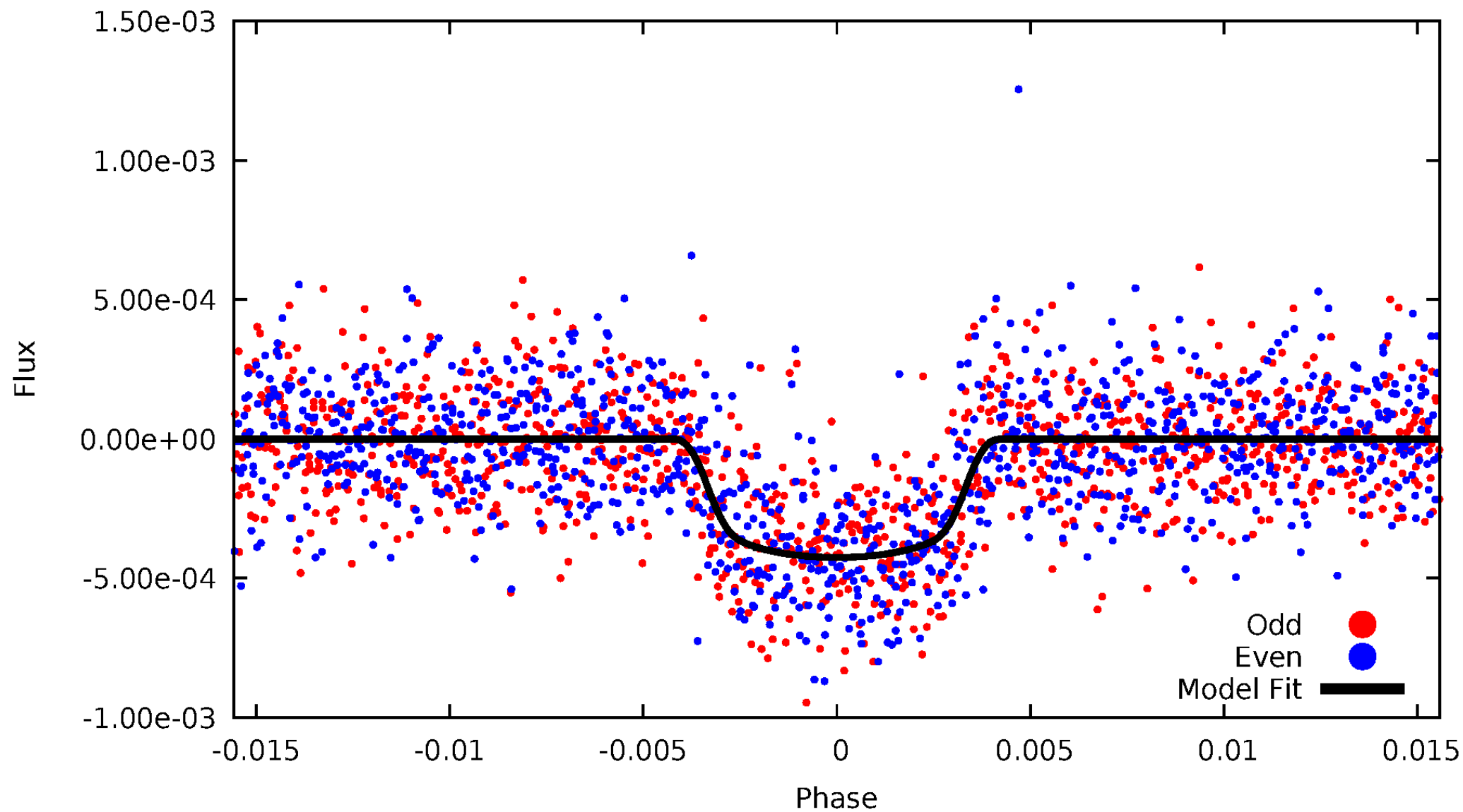


TCE 011521793-01



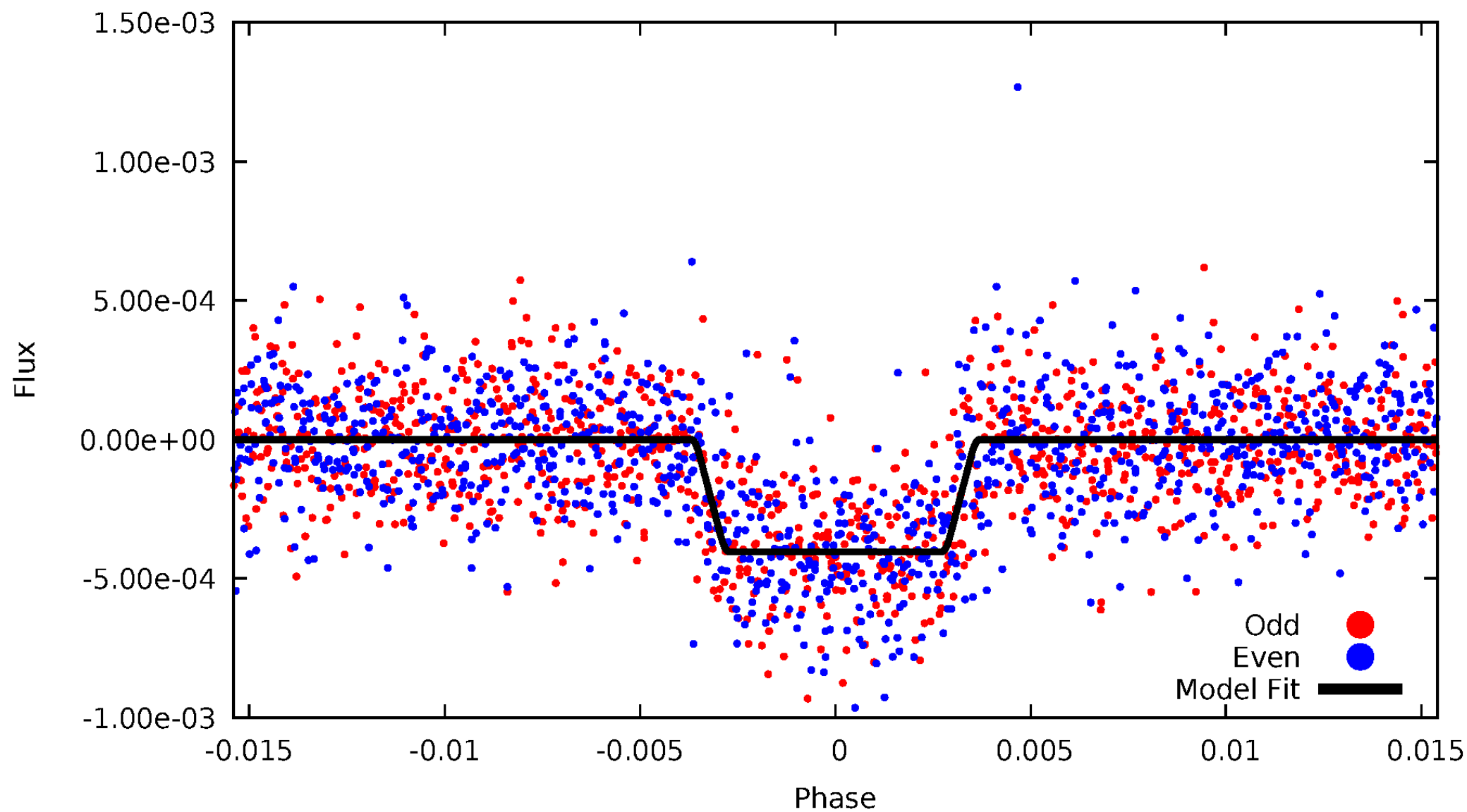
DV Odd/Even

TCE 011521793-01



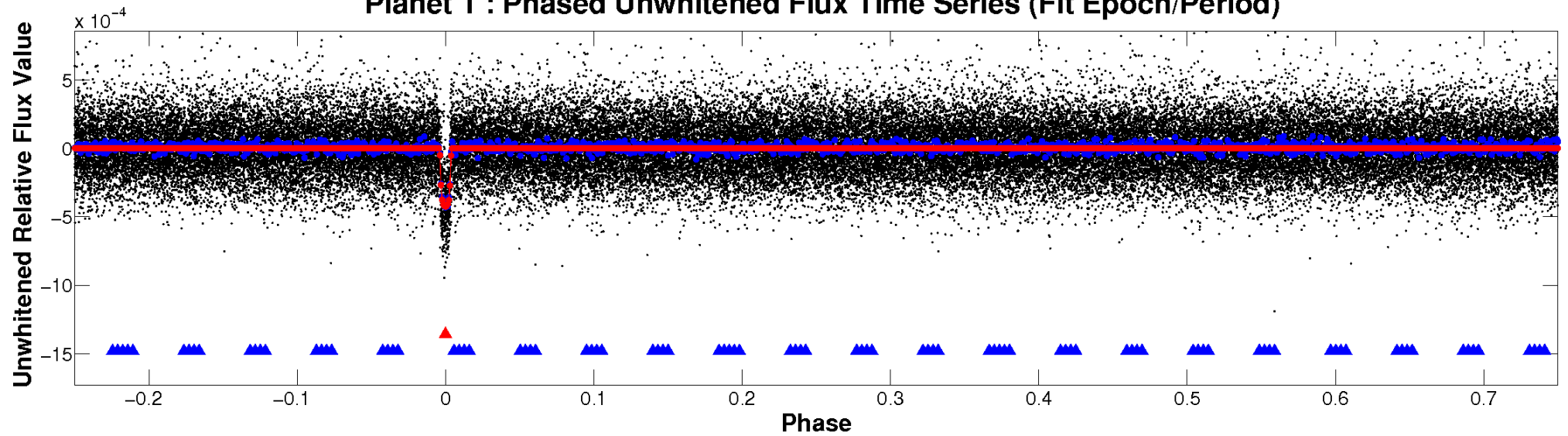
ALT Odd/Even

TCE 011521793-01

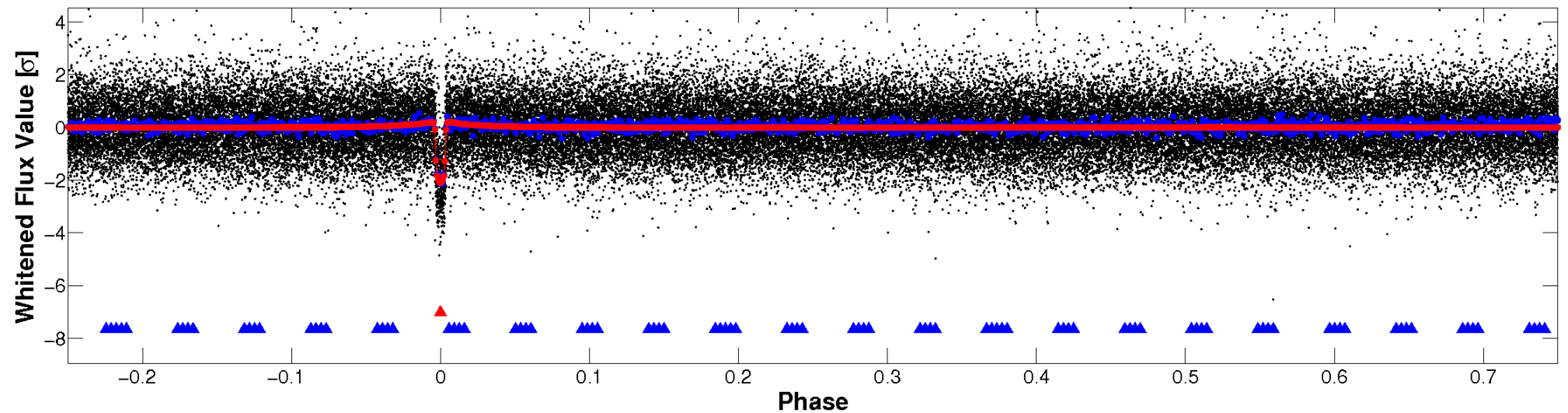


Non-Whitened Vs. Whitened Light Curve

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

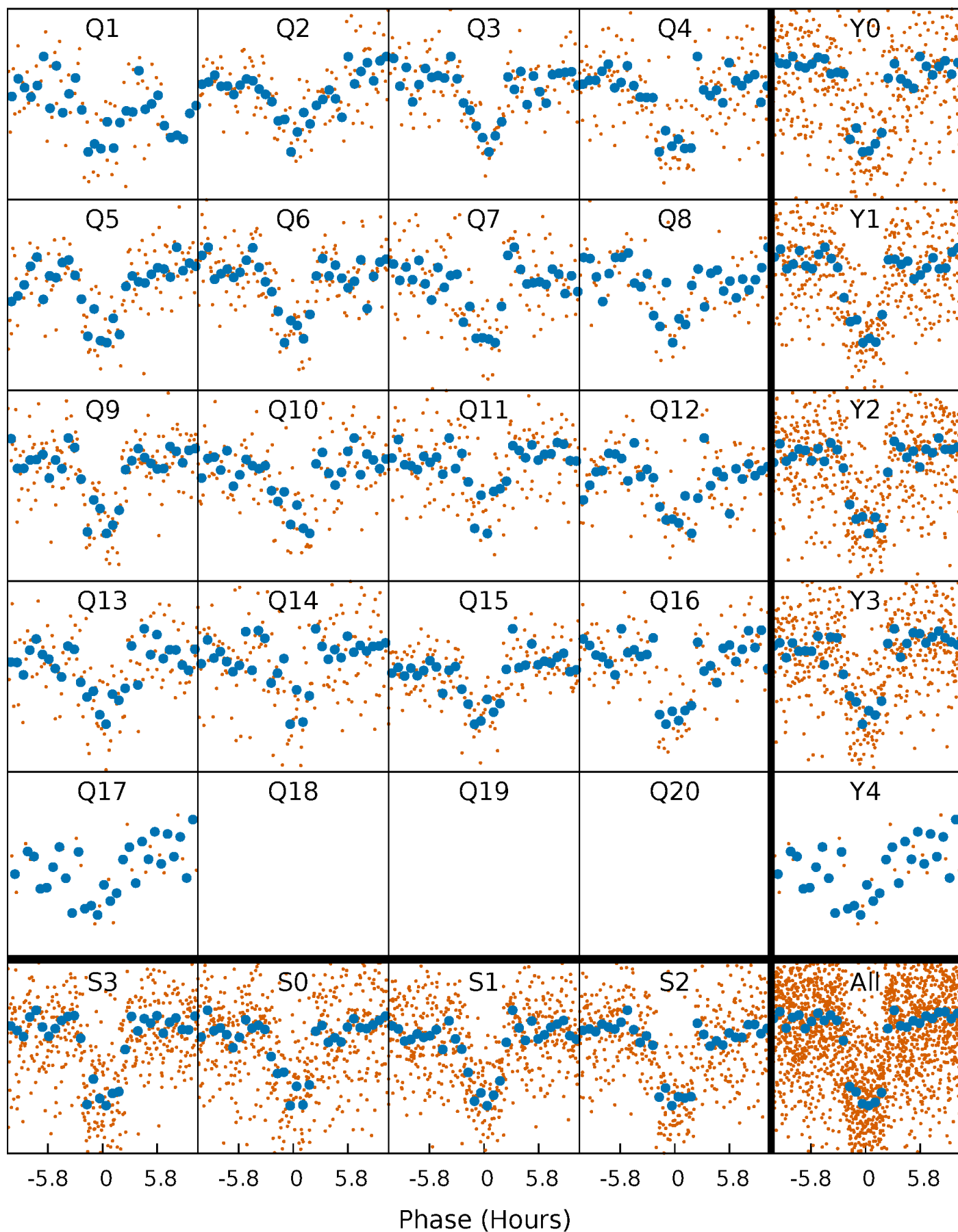


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



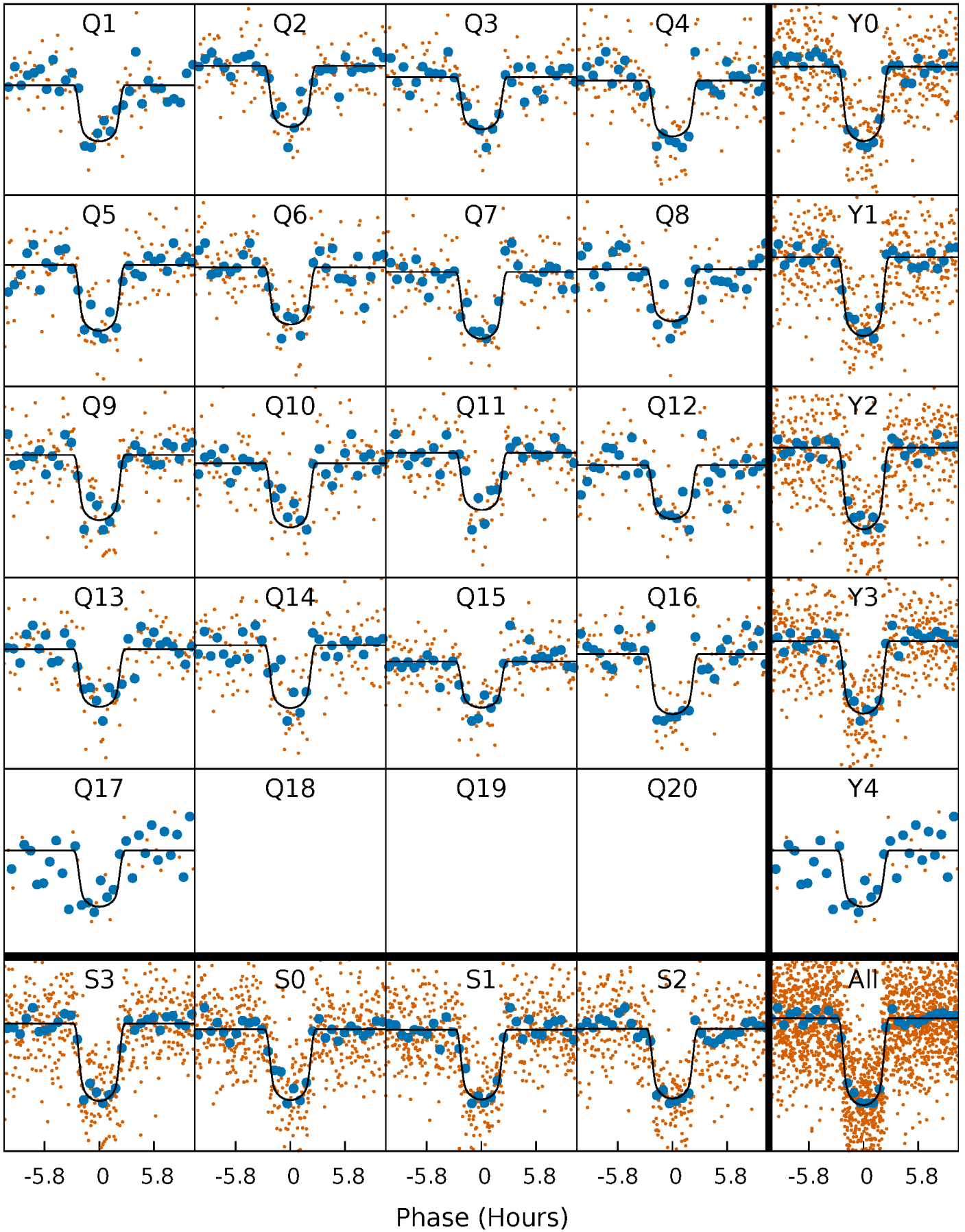
PDC Quarter-Phased Transit Curves

TCE 011521793-01 P= 27.082456 Days $T_0=137.641590$ (BKJD)



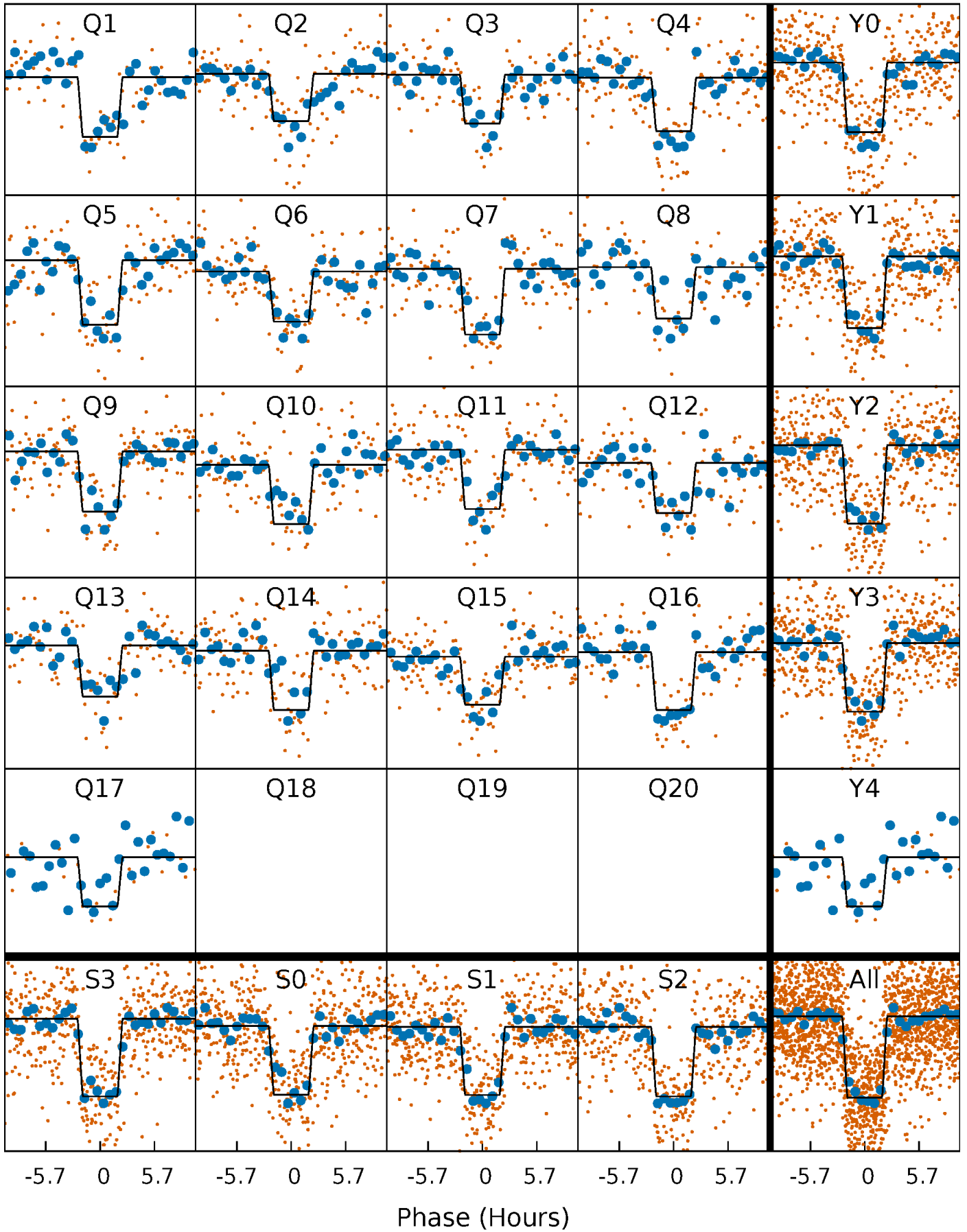
DV Quarter-Phased Transit Curves

TCE 011521793-01 P= 27.082456 Days $T_0=137.641590$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

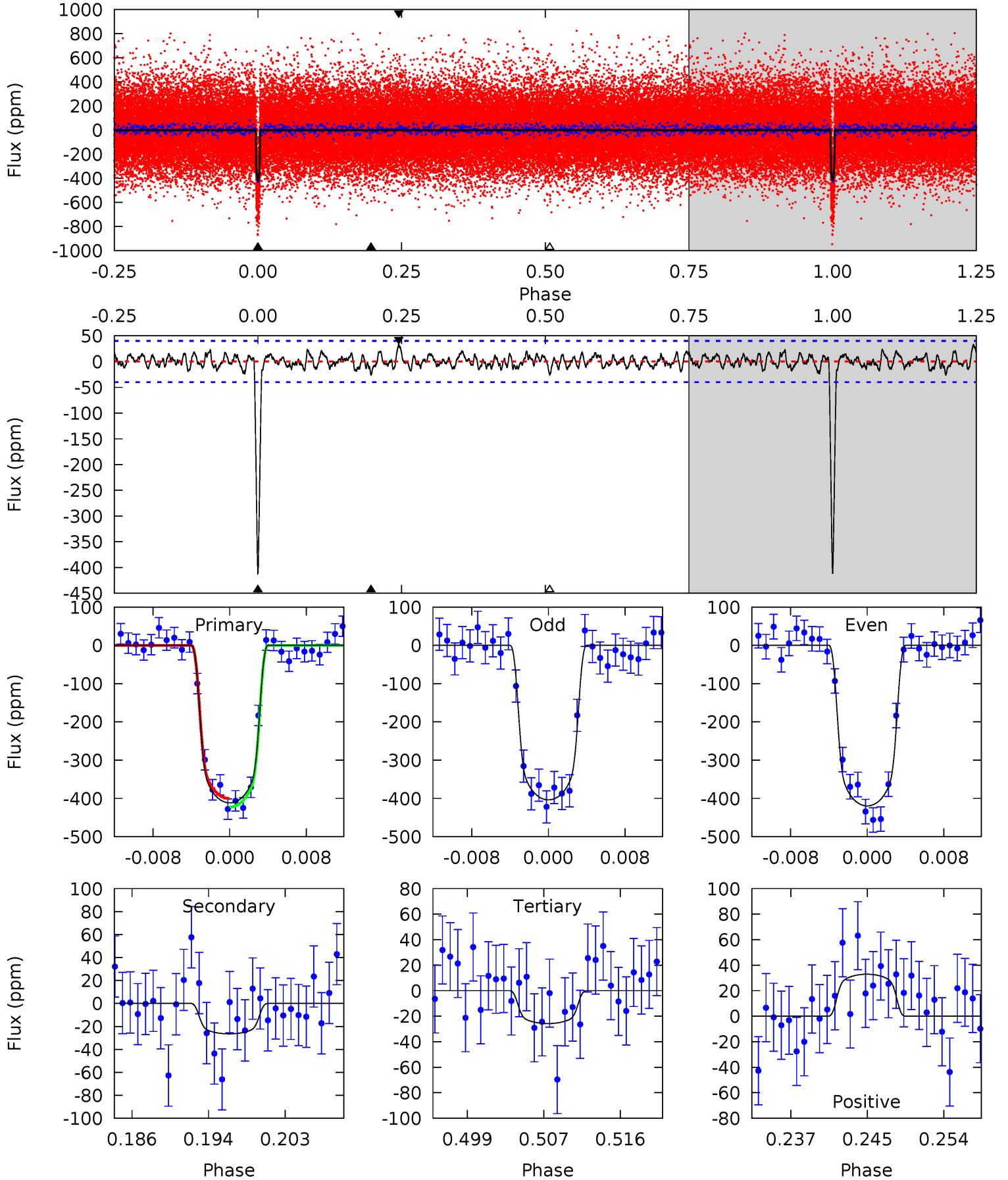
TCE 011521793-01 P= 27.082530 Days $T_0=137.639235$ (BKJD)



DV Model-Shift Uniqueness Test

011521793-01, $P = 27.082456$ Days, $E = 110.559134$ Days

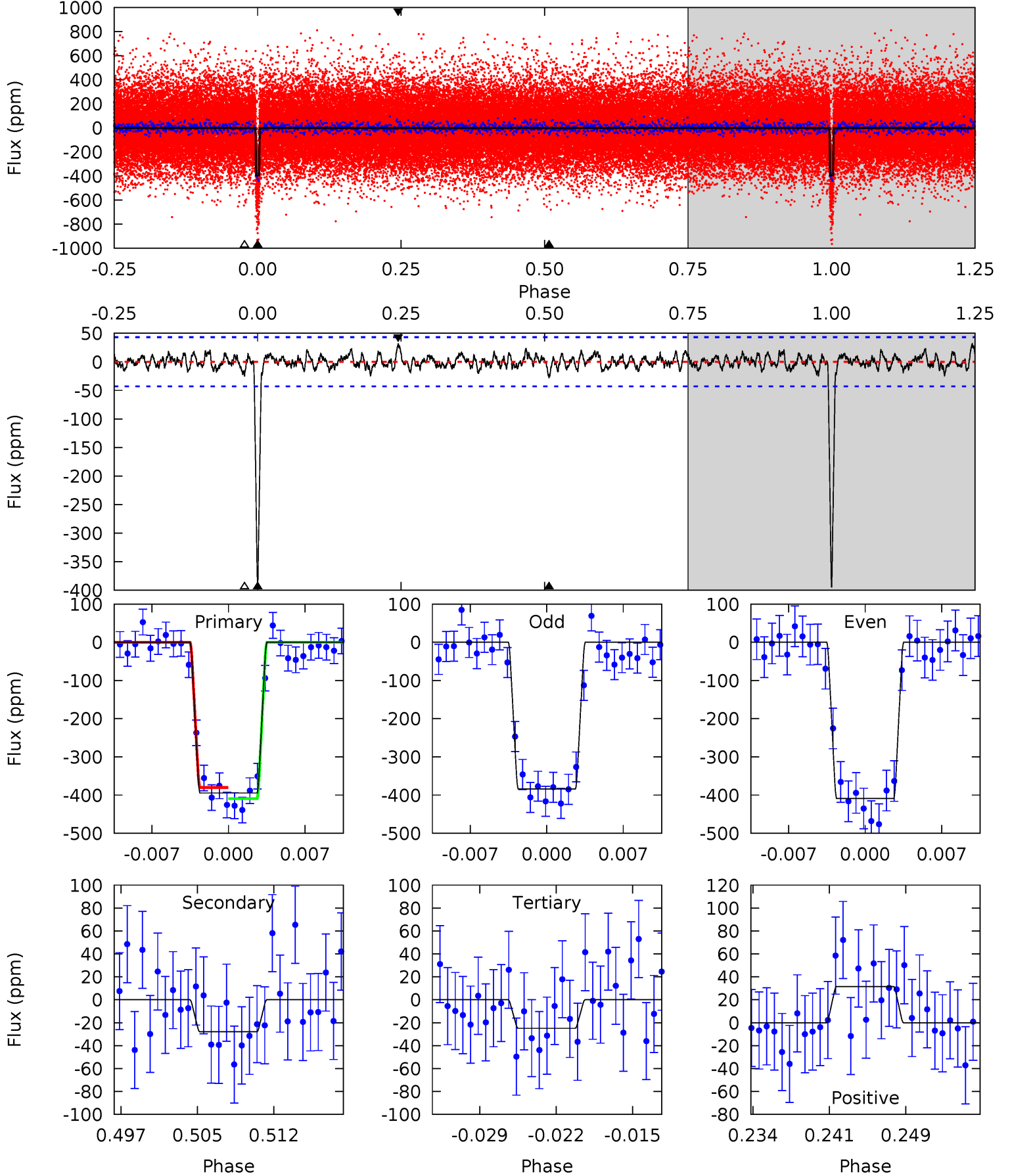
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.9	3.34	3.24	4.15	5.06	2.63	1.20	48.7	47.8	0.09	-0.81	1.00	0.99	0.07	1.41



Alt Model-Shift Uniqueness Test

011521793-01, P = 27.082530 Days, E = 110.556705 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.7	3.30	2.95	3.72	5.09	2.68	1.05	43.7	43.0	0.36	-0.42	1.47	1.00	0.07	1.71



Stellar Parameters For KIC 011521793

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5857^{+105}_{-117}	$4.204^{+0.176}_{-0.108}$	$-0.040^{+0.150}_{-0.150}$	$1.305^{+0.209}_{-0.256}$	$0.993^{+0.081}_{-0.073}$	$0.629^{+0.511}_{-0.206}$
	+2%/-2%	+4%/-3%	+375%/-375%	+16%/-20%	+8%/-7%	+81%/-33%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 011521793-01 / KOI 0352.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-26 ± 8	$3.25^{+0.35}_{-0.38}$	974^{+48}_{-50}	3322^{+137}_{-185}	44^{+18}_{-16}
Alt.	-28 ± 8	$2.83^{+0.30}_{-0.35}$	977^{+46}_{-54}	3489^{+159}_{-199}	59^{+26}_{-18}

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 $A_{obs} \gg 1.0$

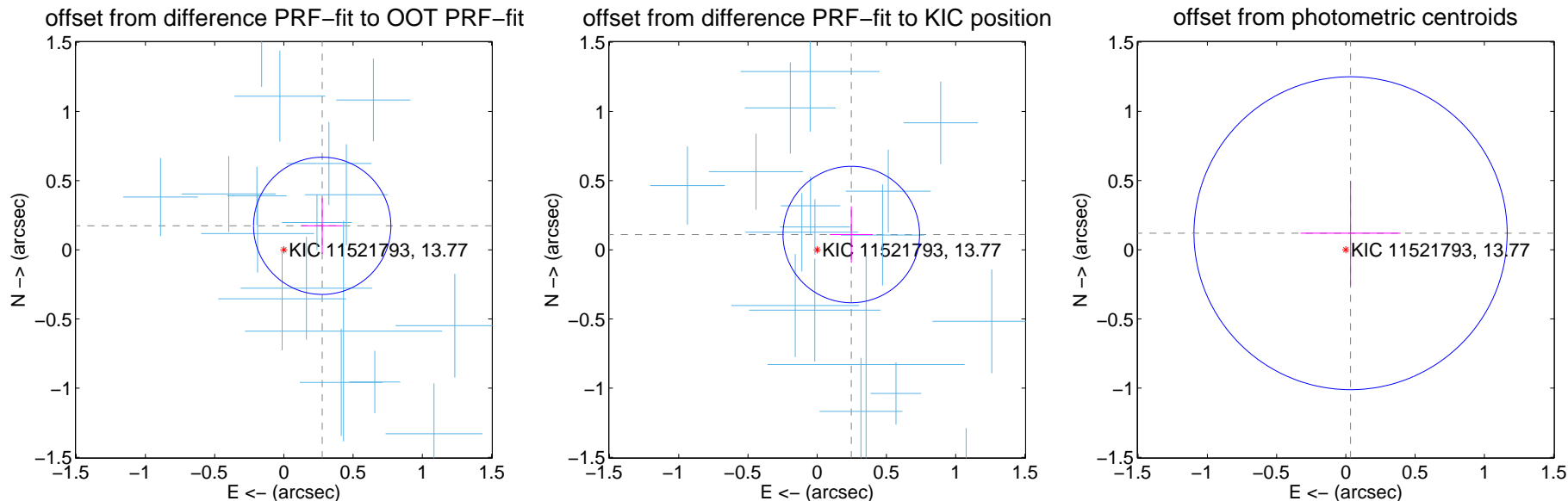
DV Centroid Data

Supplemental centroid analysis for 011521793-01. Kepler magnitude: 13.77. Transit SNR 39.07

There are 17 quarters with good PRF difference image offsets

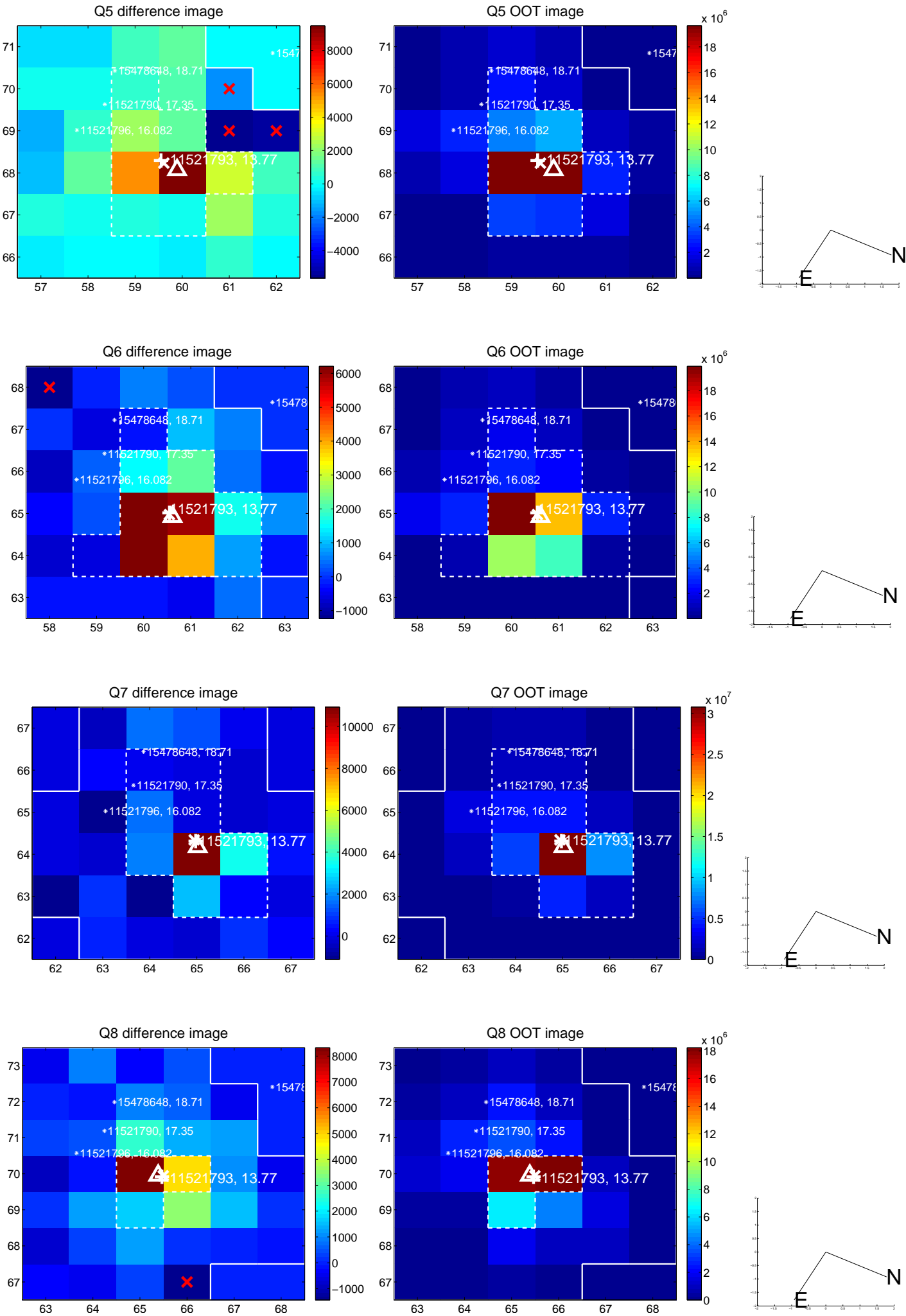
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.326 ± 0.165	1.97	-0.277 ± 0.148	0.173 ± 0.203
PRF-fit source offset from KIC position	0.270 ± 0.164	1.64	-0.246 ± 0.155	0.110 ± 0.204
photometric centroid source offset	0.12 ± 0.38	0.33	-0.03 ± 0.36	0.12 ± 0.38

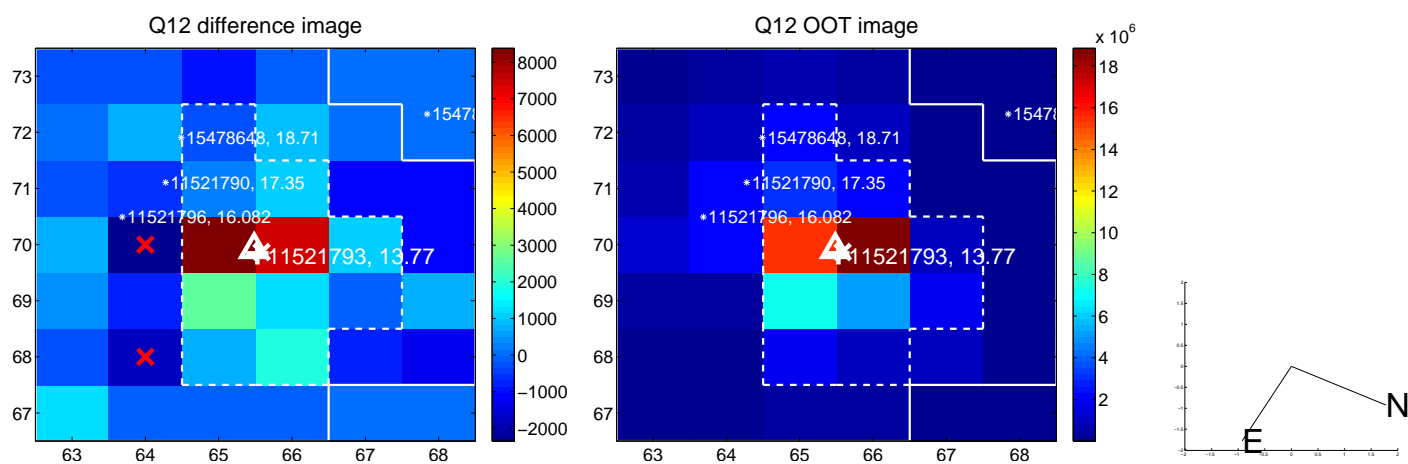
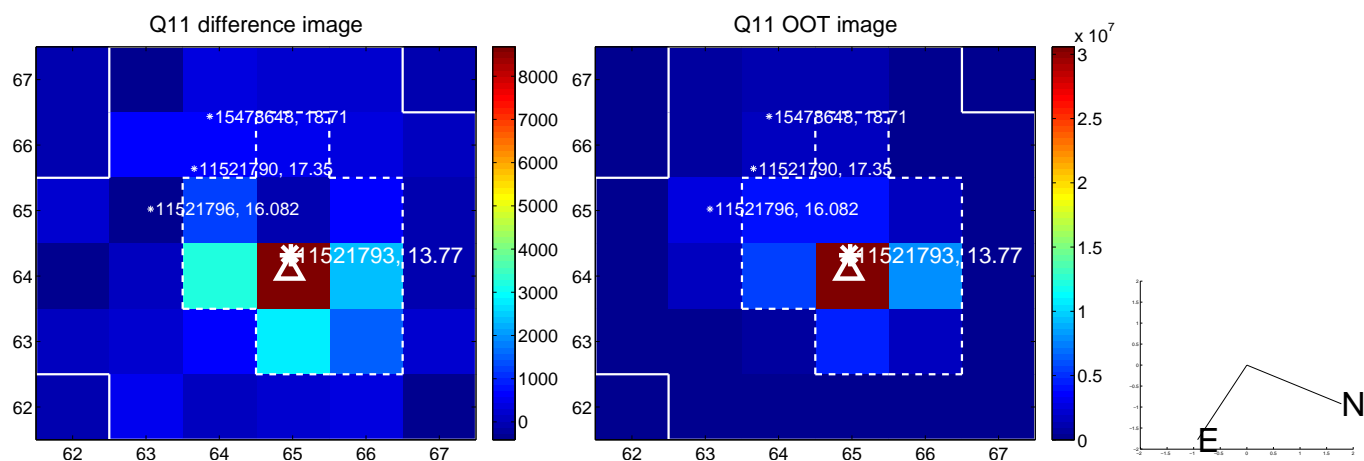
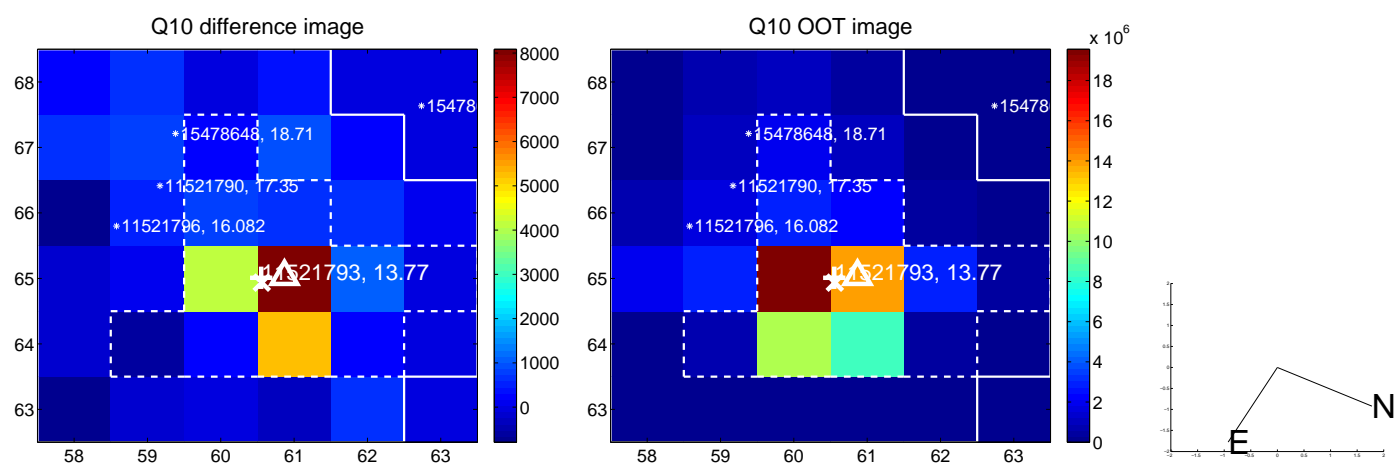
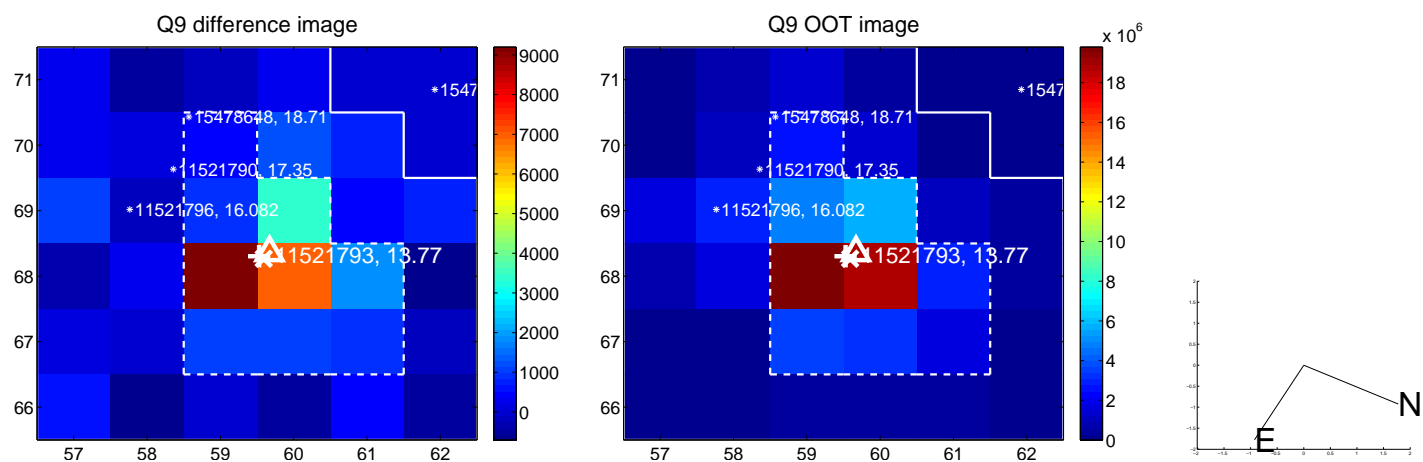


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

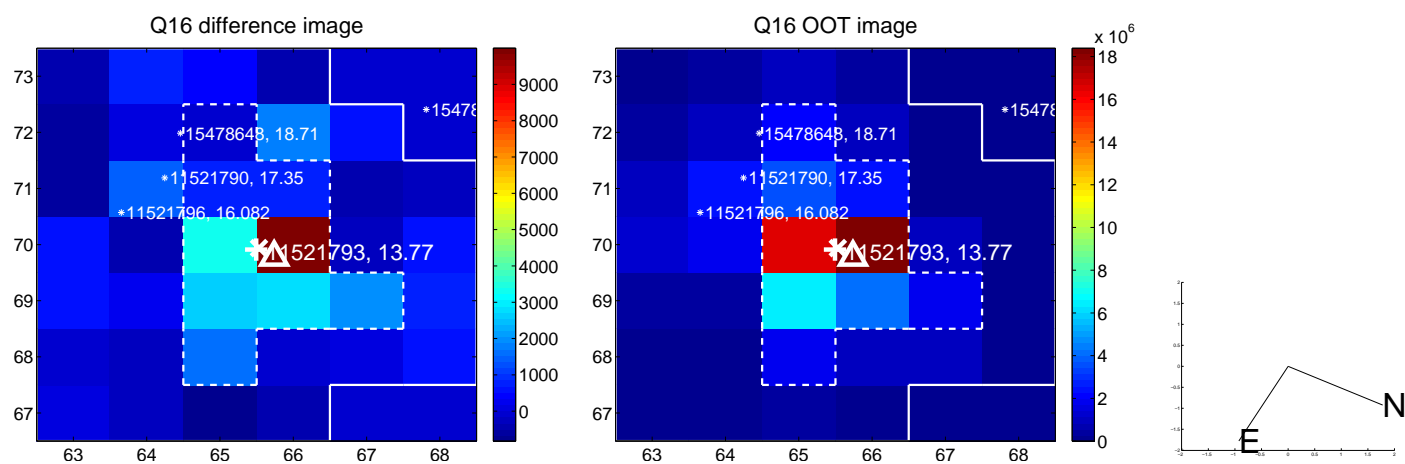
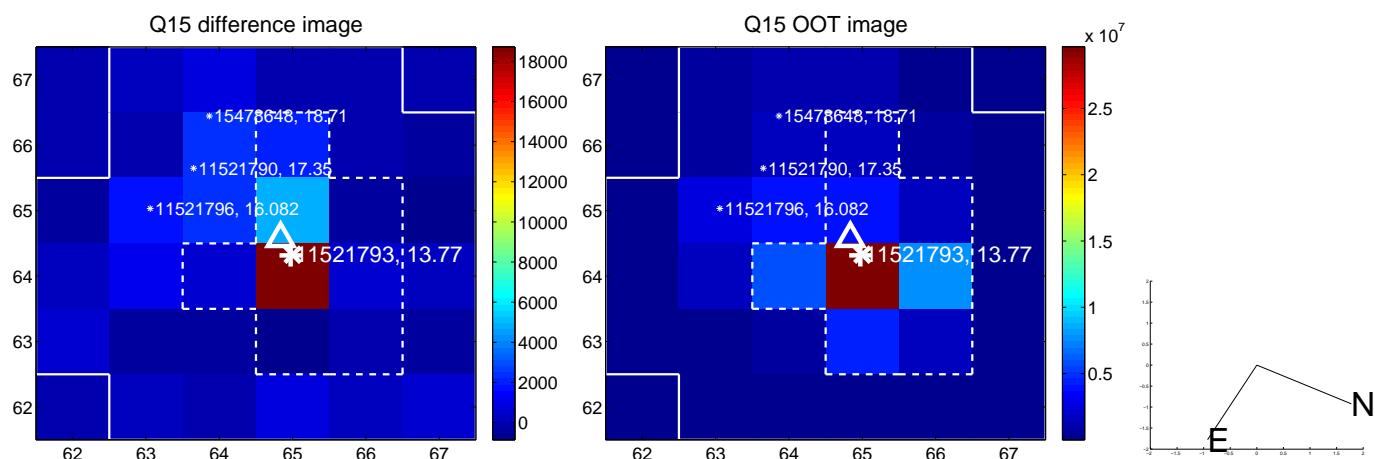
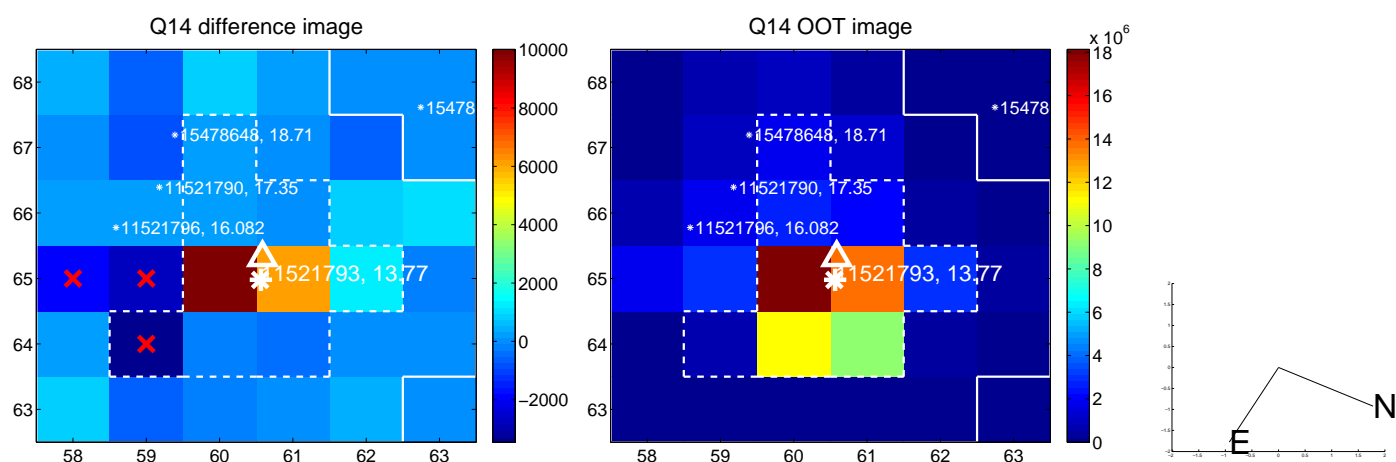
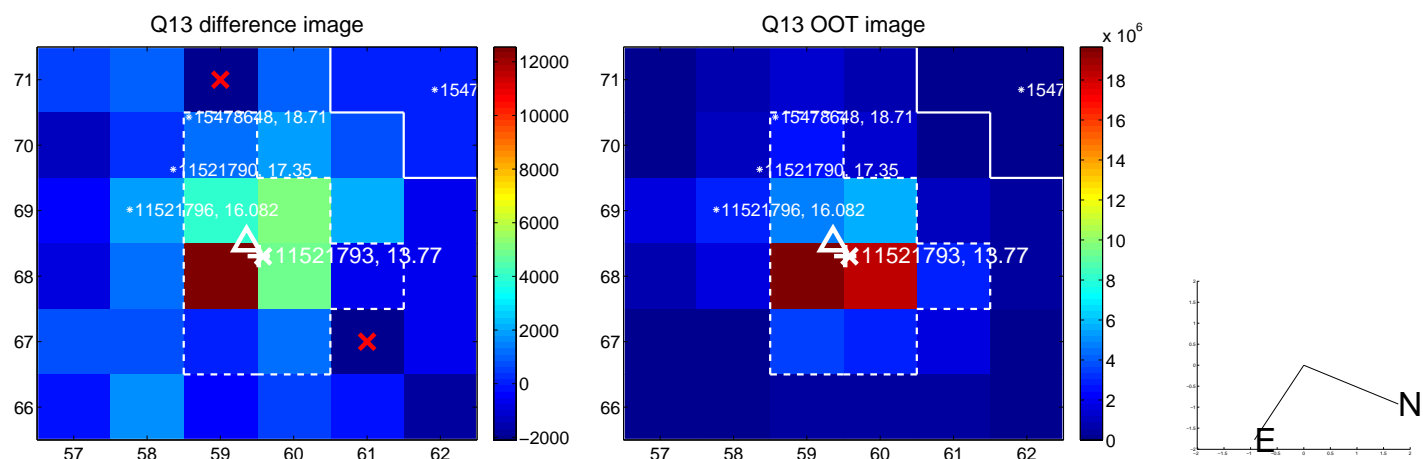
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



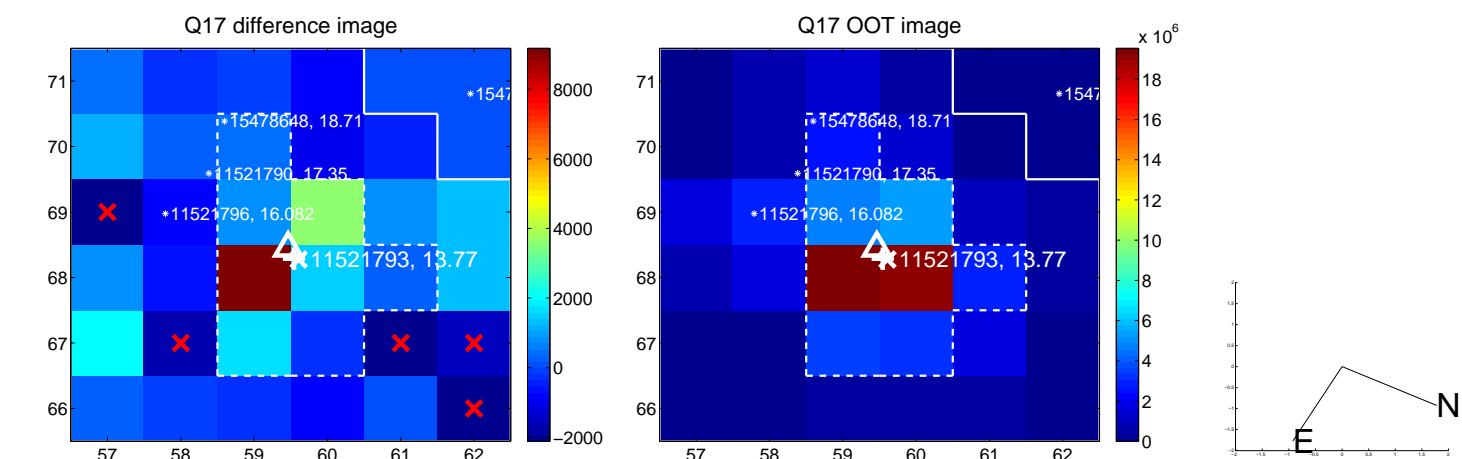
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



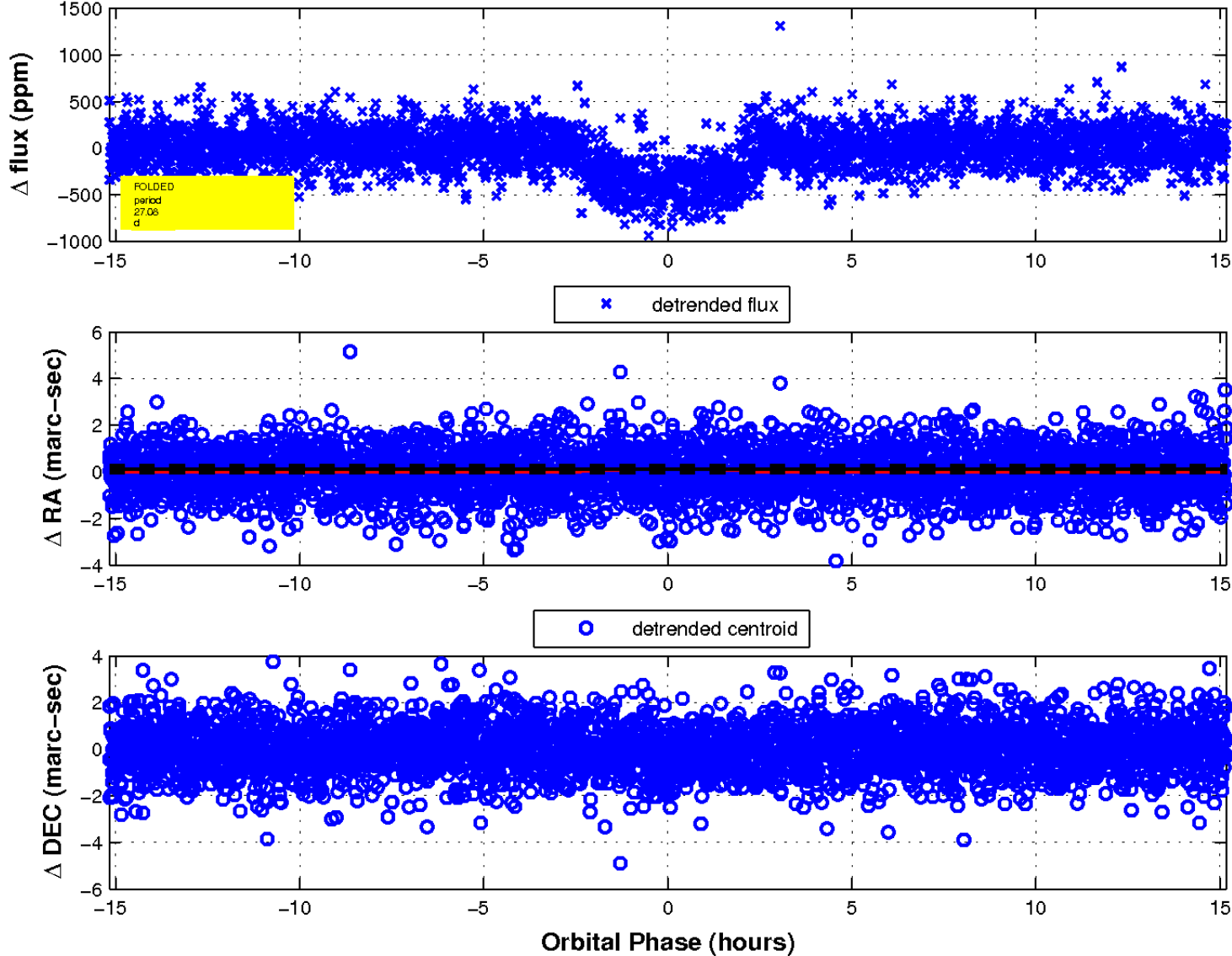
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

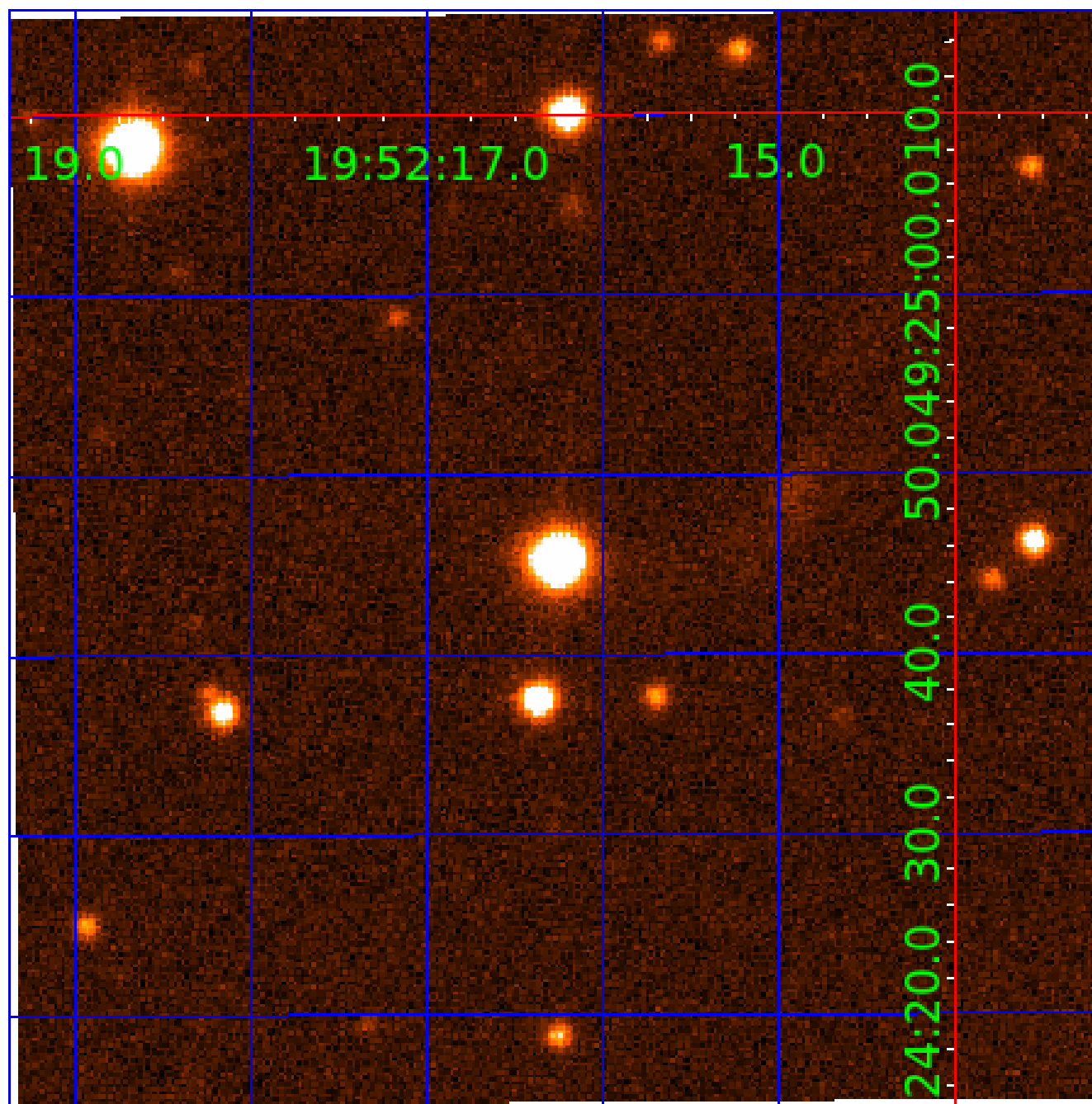


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 011521793

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})
011521793-01	OBS	0352.01	27.082456	137.641590	425.3	5.062	35.6	39.1	1.30	5857	3.27	57.87
011521793-02	OBS	0352.02	16.007488	142.637659	270.1	1.073	13.5	15.5	1.30	5857	2.14	116.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011521793-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011521793-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

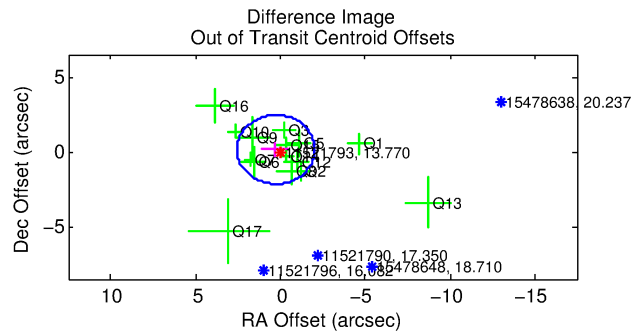
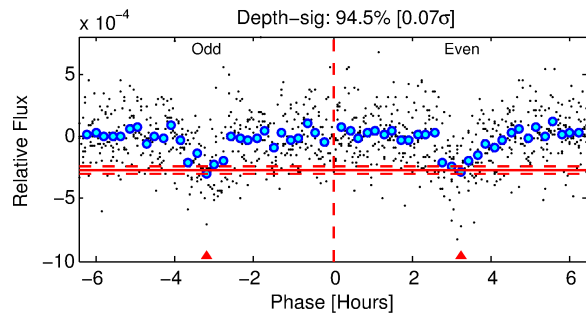
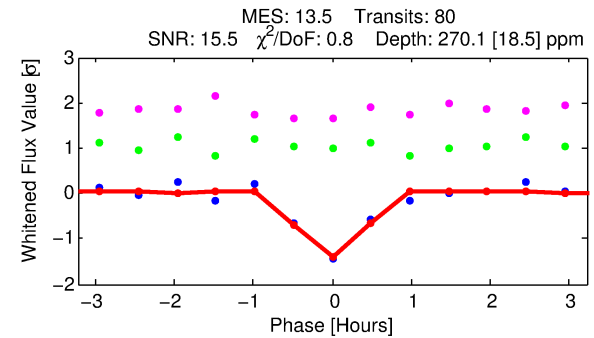
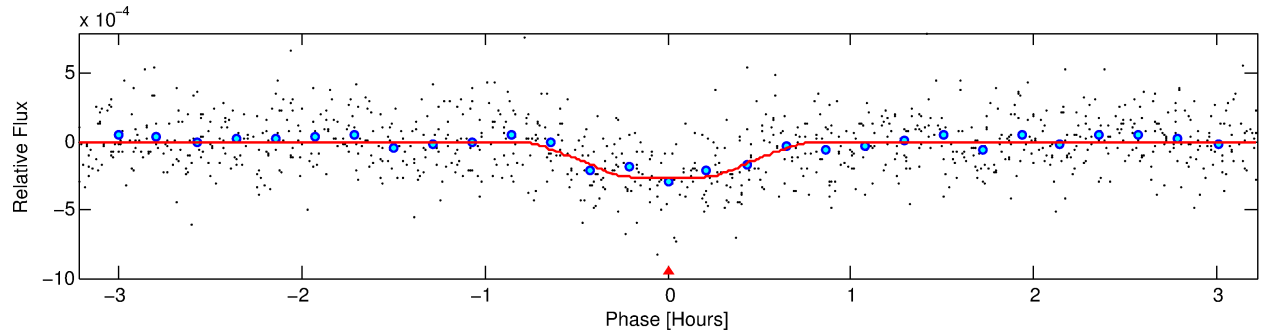
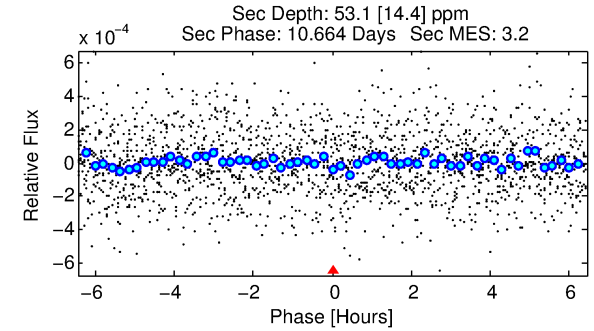
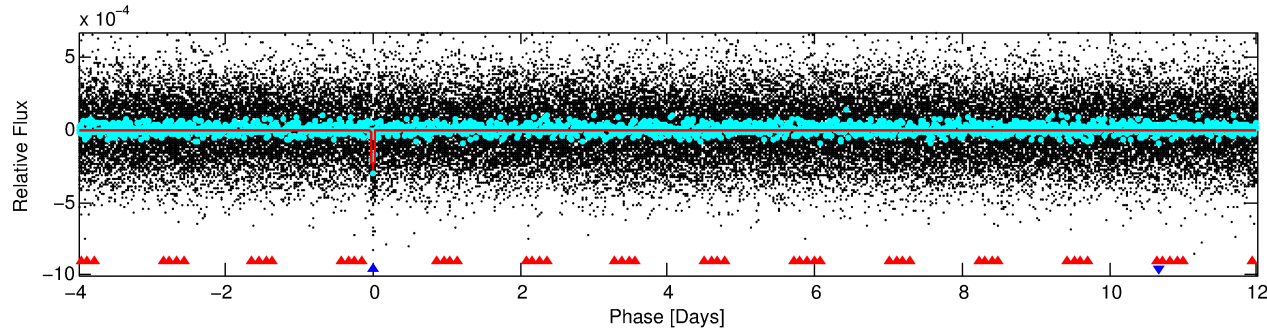
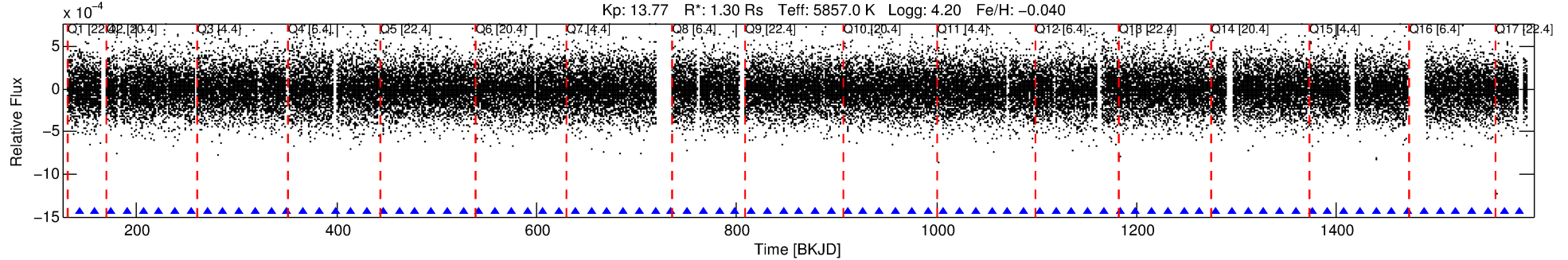
Ephemeris Match Information For 011521793-02

No Significant Match Found

DV One-Page Summary

KIC: 11521793 Candidate: 2 of 2 Period: 16.007 d
KOI: K00352.02 Name: Kepler-143b Corr: 0.964

Kp: 13.77 R*: 1.30 Rs Teff: 5857.0 K Logg: 4.20 Fe/H: -0.040



DV Fit Results:

Period = 16.00749 [0.00005] d
Epoch = 142.6377 [0.0023] BKJD
Rp/R* = 0.0151 [0.0154]
a/R* = 115.68 [538.04]
b = 0.00 [947.49]
Seff = 116.66 [36.23]
Teq = 838 [65] K
Rp = 2.14 [2.24] Re
a = 0.1241 [0.0233] AU
Ag = 97.69 [204.23] [0.47σ]
Teffp = 4073 [2108] K [1.53σ]

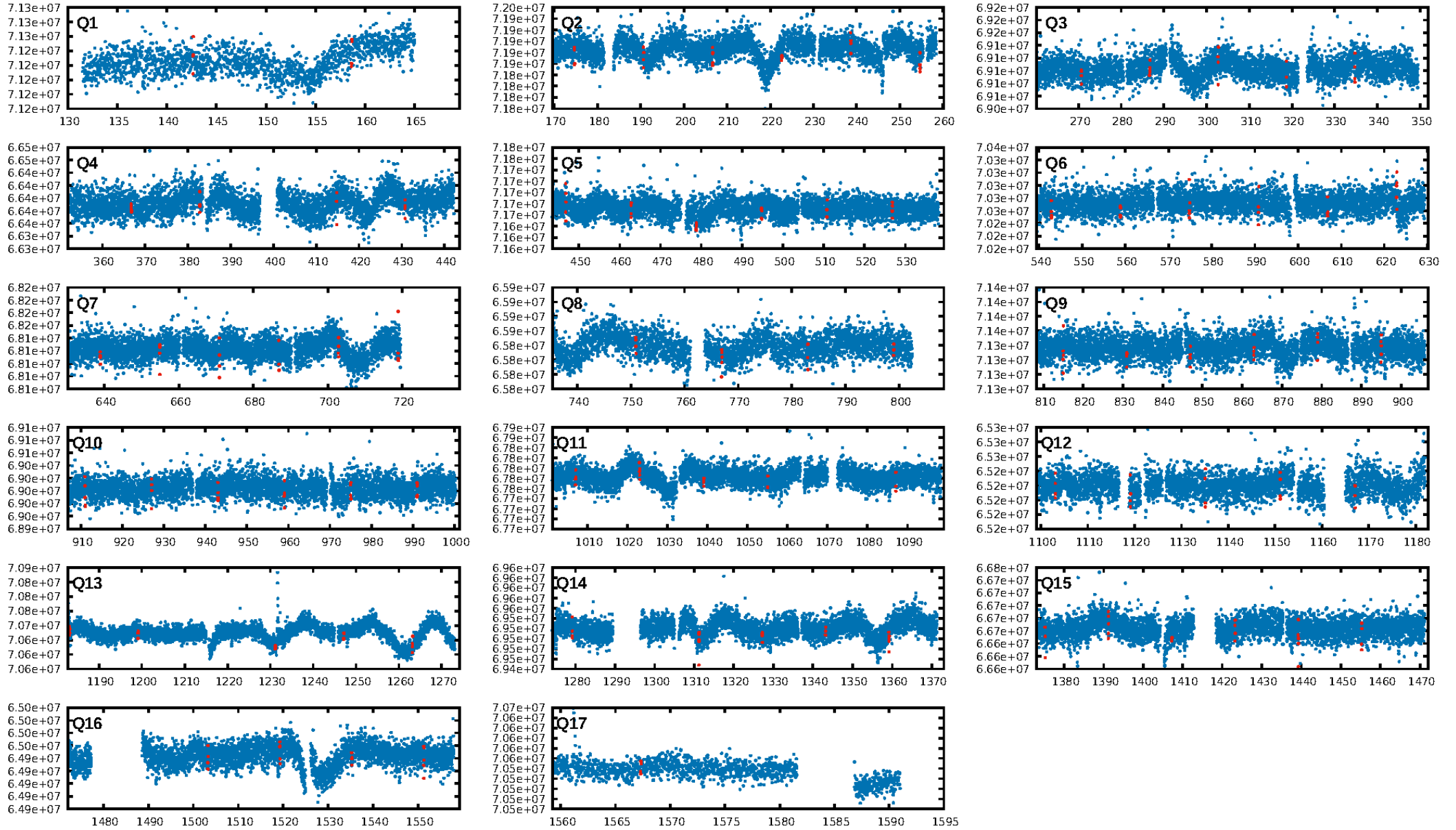
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [51.36σ]
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.04e-40
RollingBand-fgt: 1.00 [77/77]
GhostDiagnostic-chr: 2.282
Centroid-sig: N/A
Centroid-so: 0.487 arcsec [0.51σ]
OotOffset-rm: 0.308 arcsec [0.40σ]
KicOffset-rm: 0.263 arcsec [0.33σ]
OotOffset-st: 4/3/3/5 [15]
KicOffset-st: 4/3/3/5 [15]
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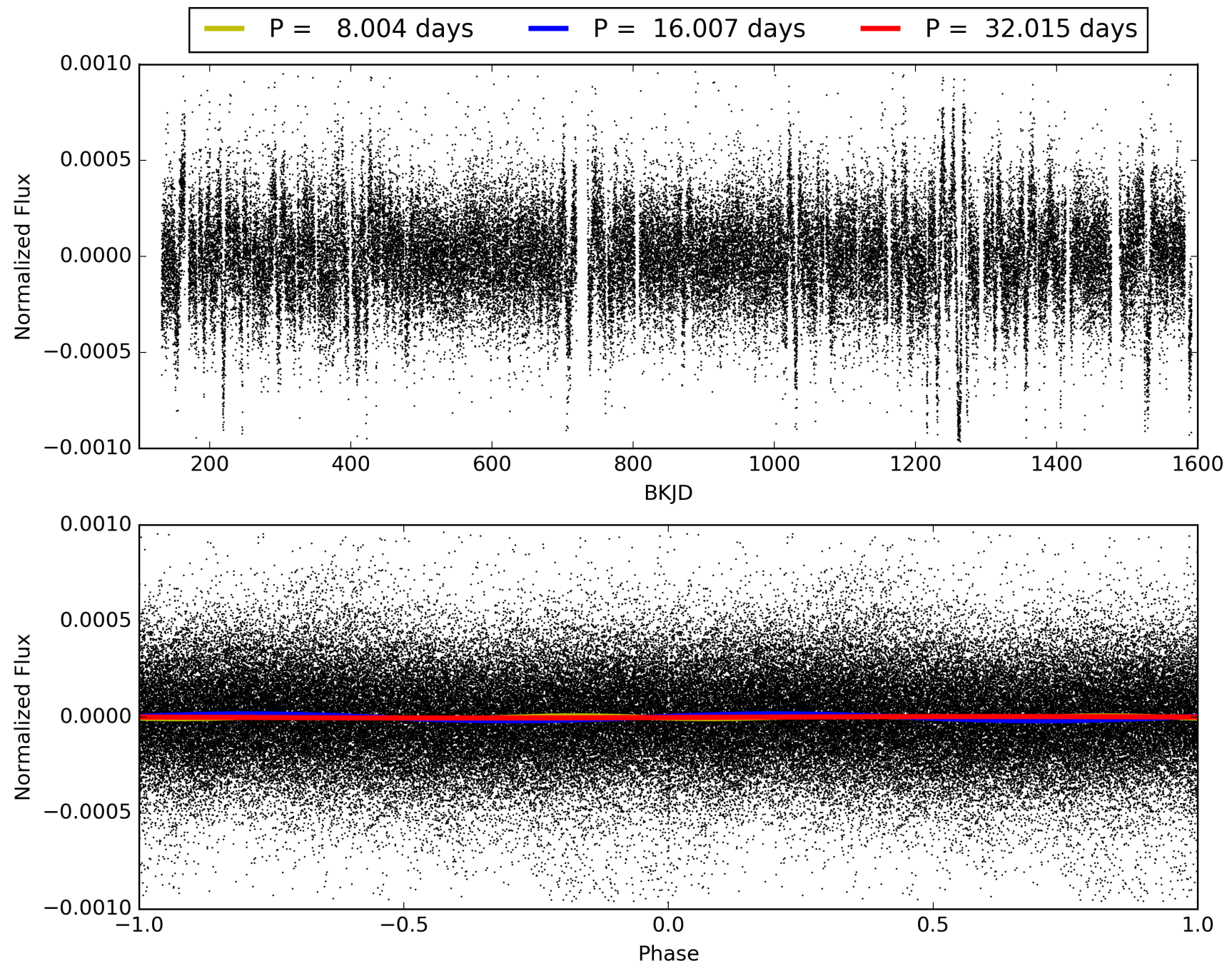
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 011521793-02, PDC Light Curves

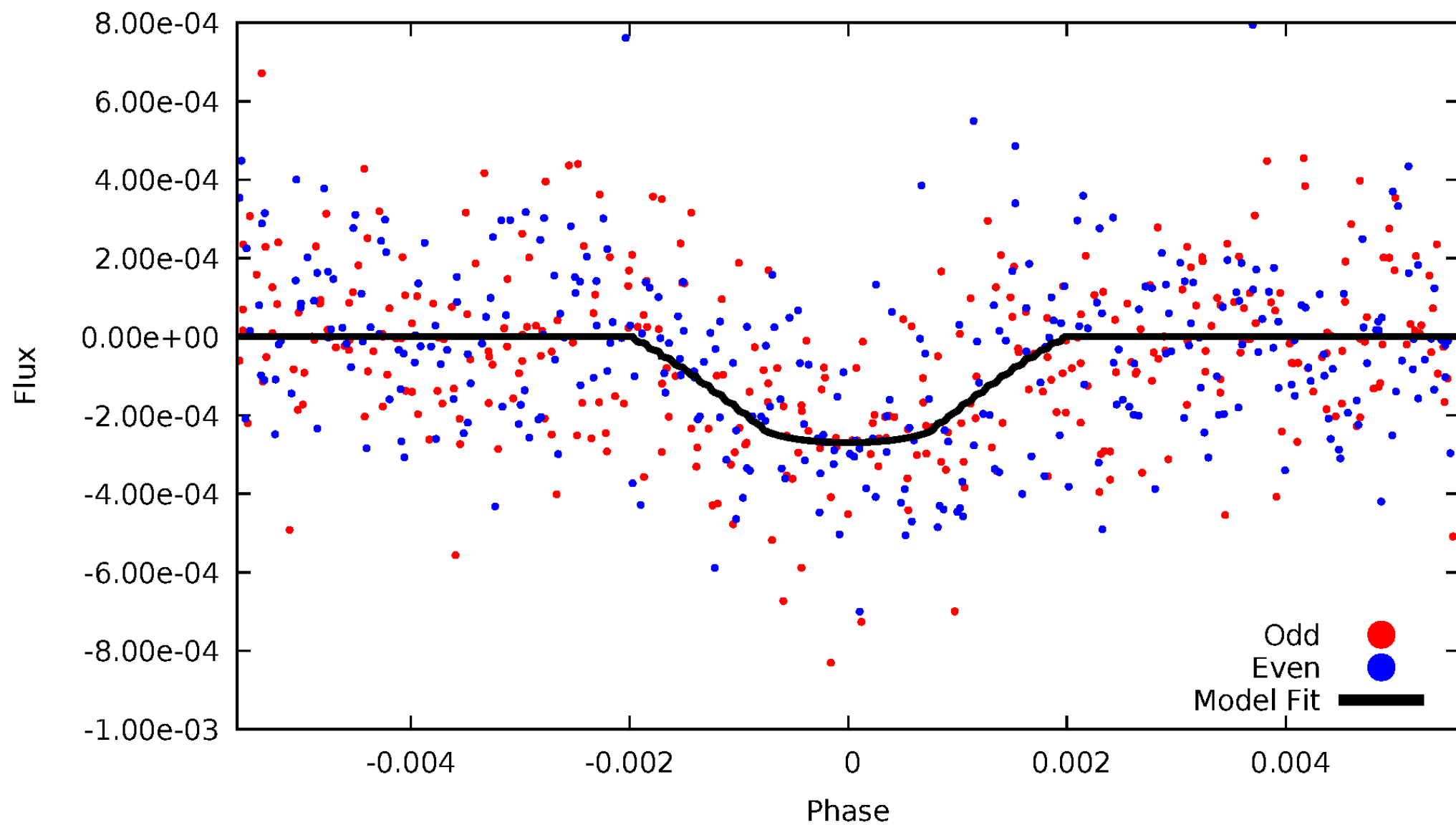


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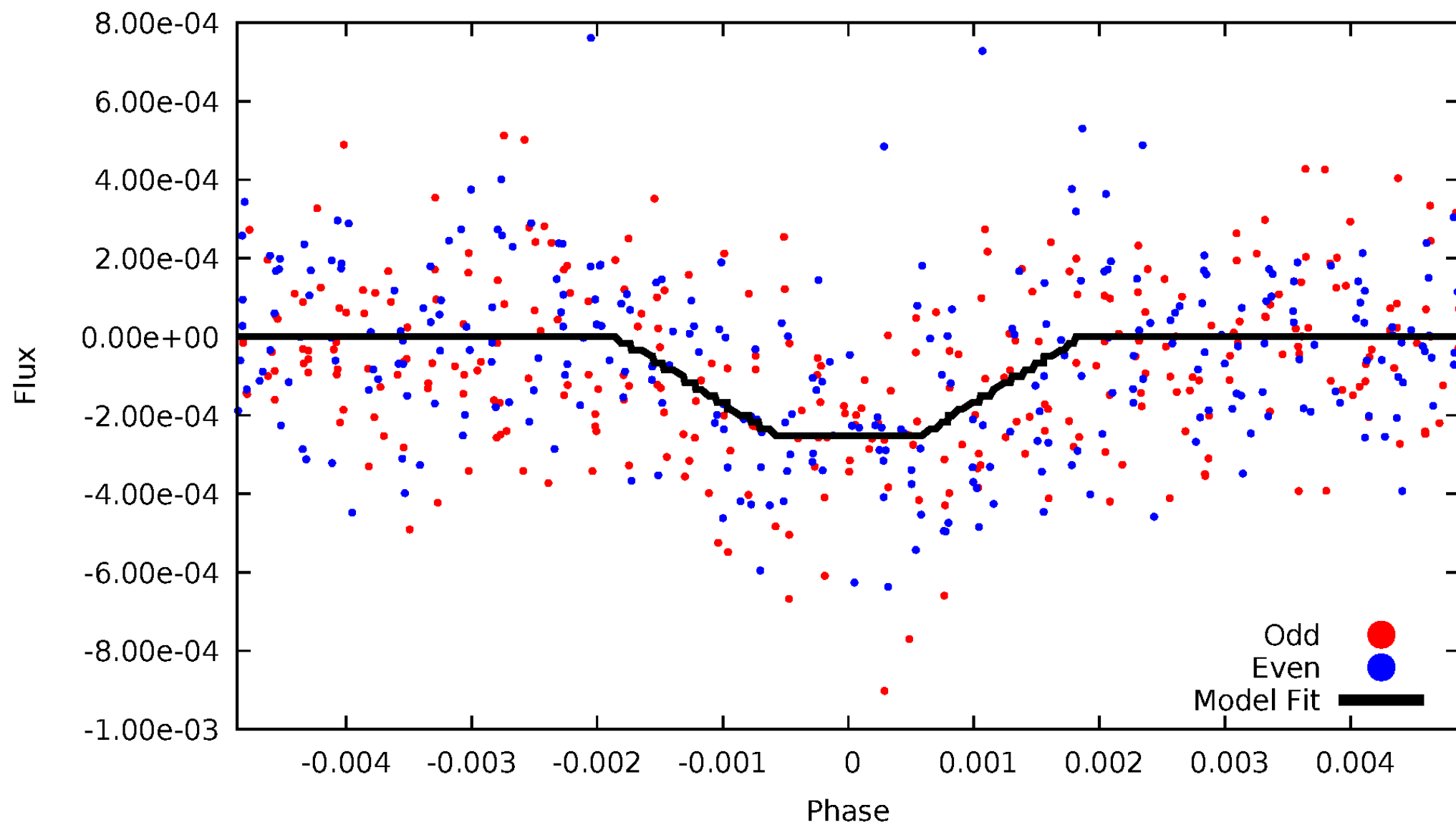
DV Odd/Even

TCE 011521793-02



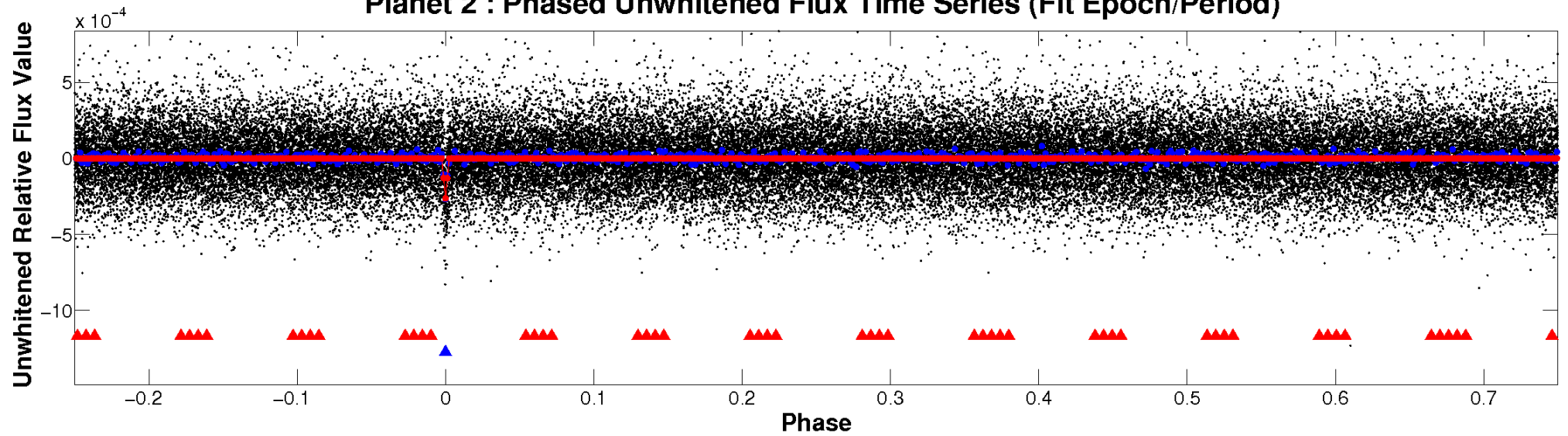
ALT Odd/Even

TCE 011521793-02

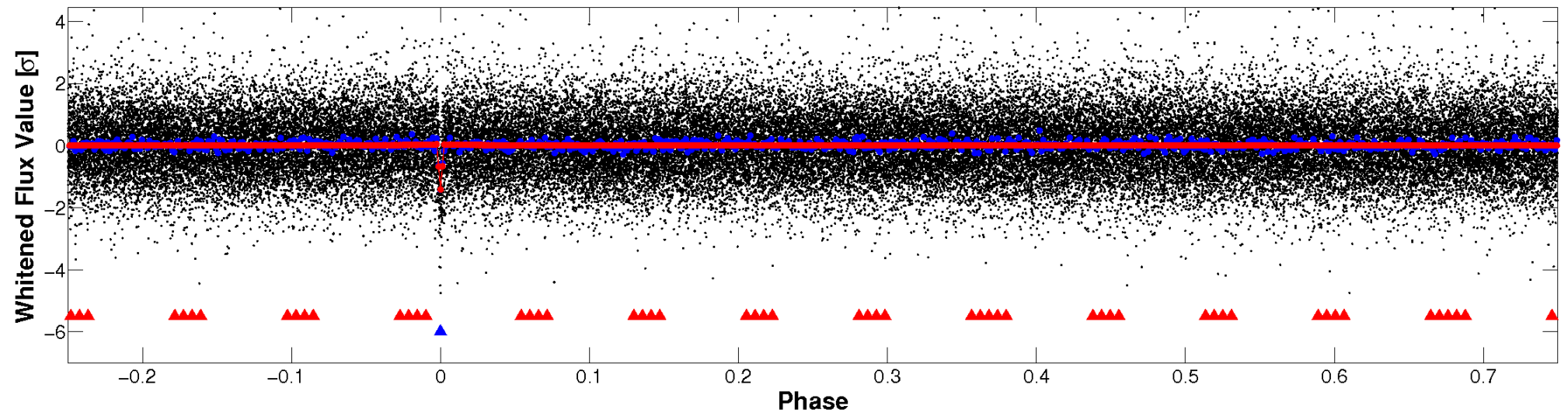


Non-Whitened Vs. Whitened Light Curve

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

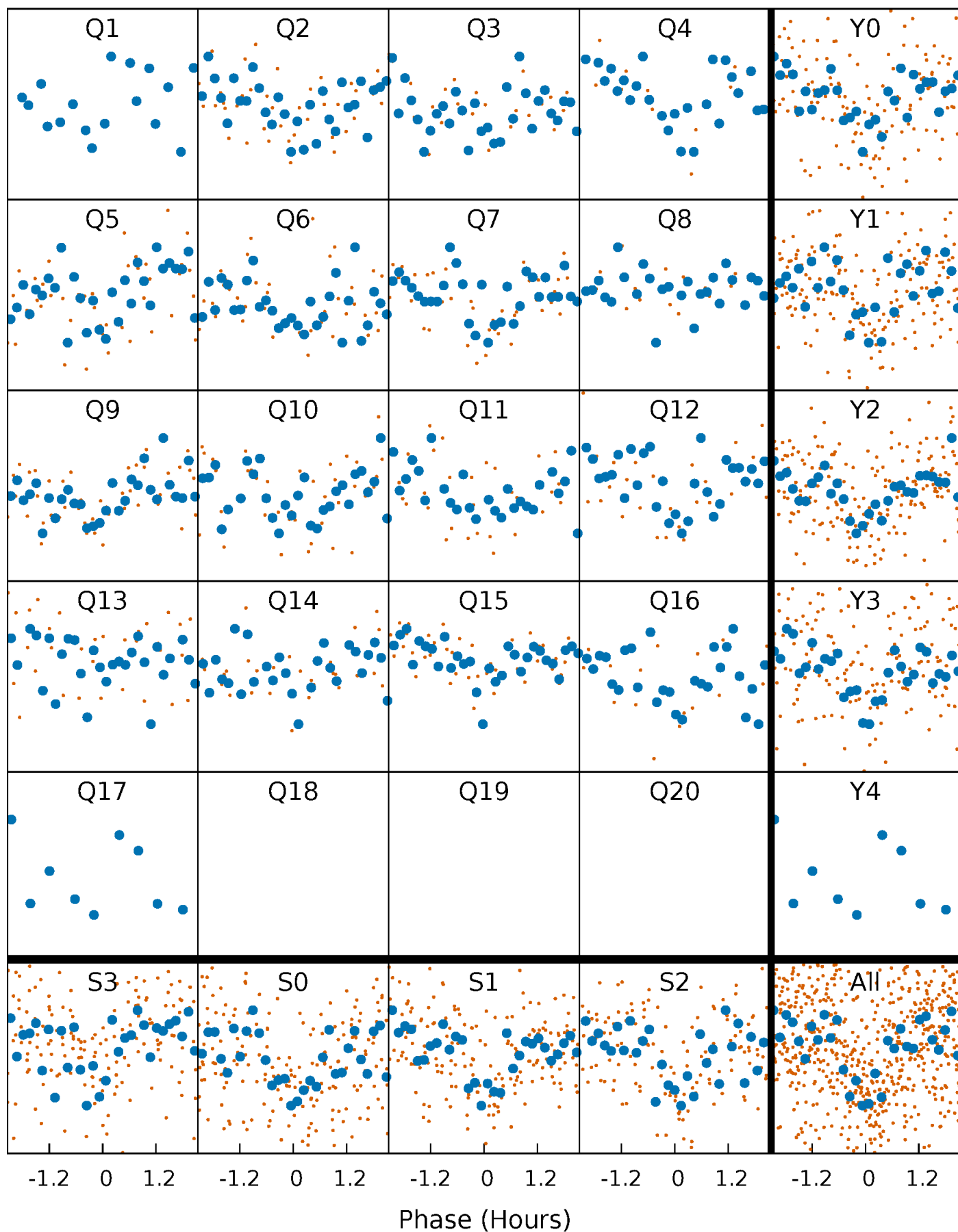


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



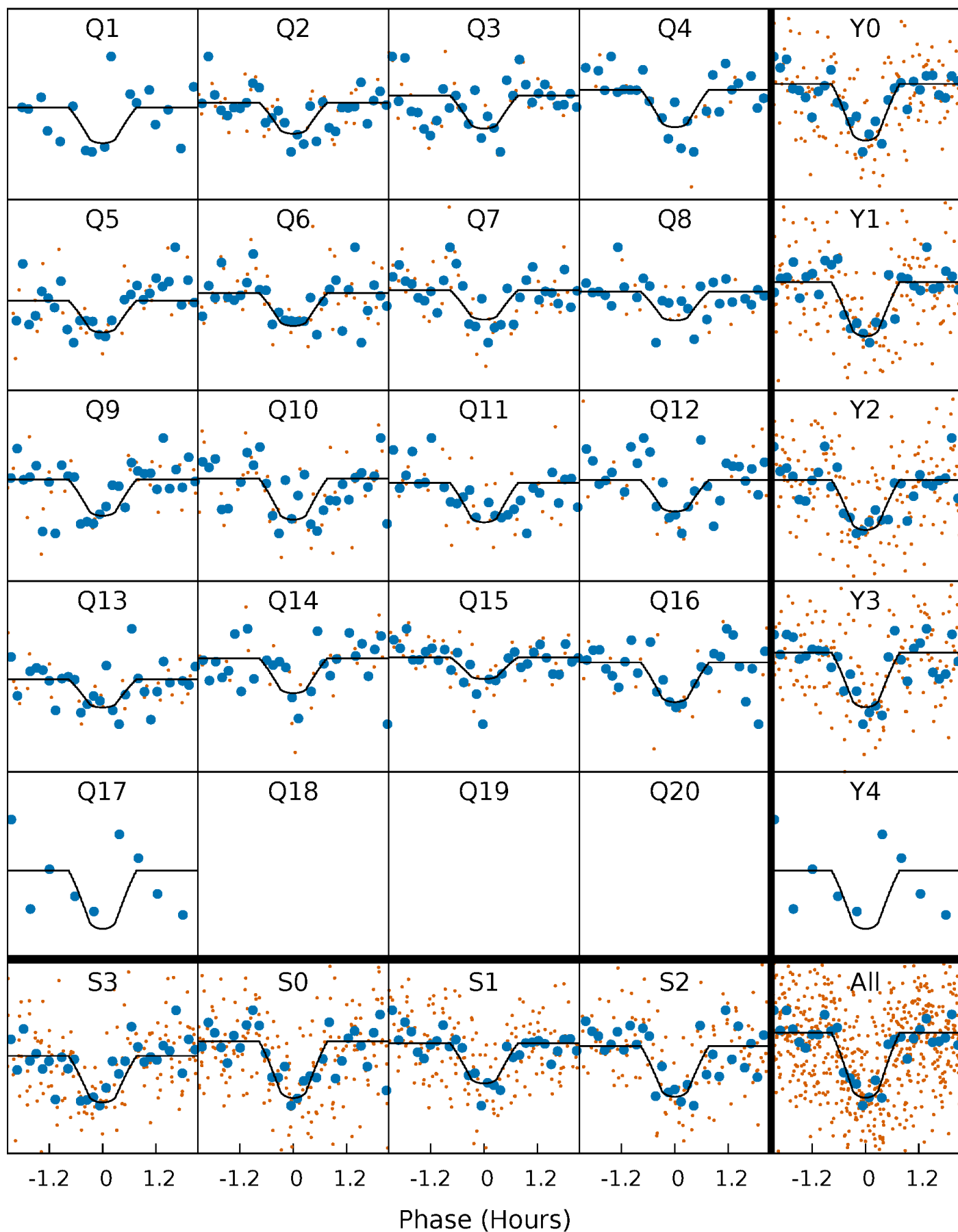
PDC Quarter-Phased Transit Curves

TCE 011521793-02 P= 16.007488 Days $T_0=142.637660$ (BKJD)



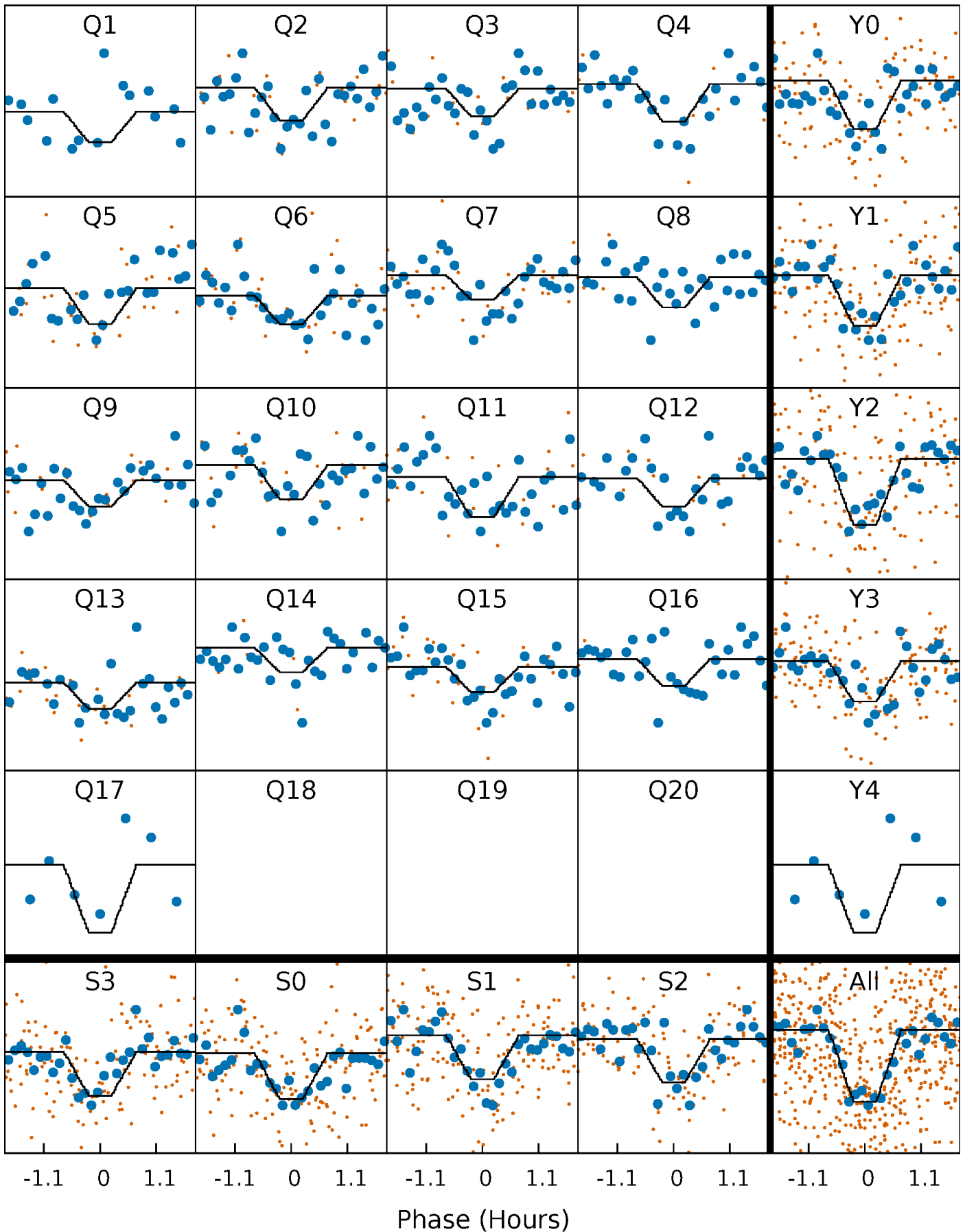
DV Quarter-Phased Transit Curves

TCE 011521793-02 P= 16.007488 Days $T_0=142.637660$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

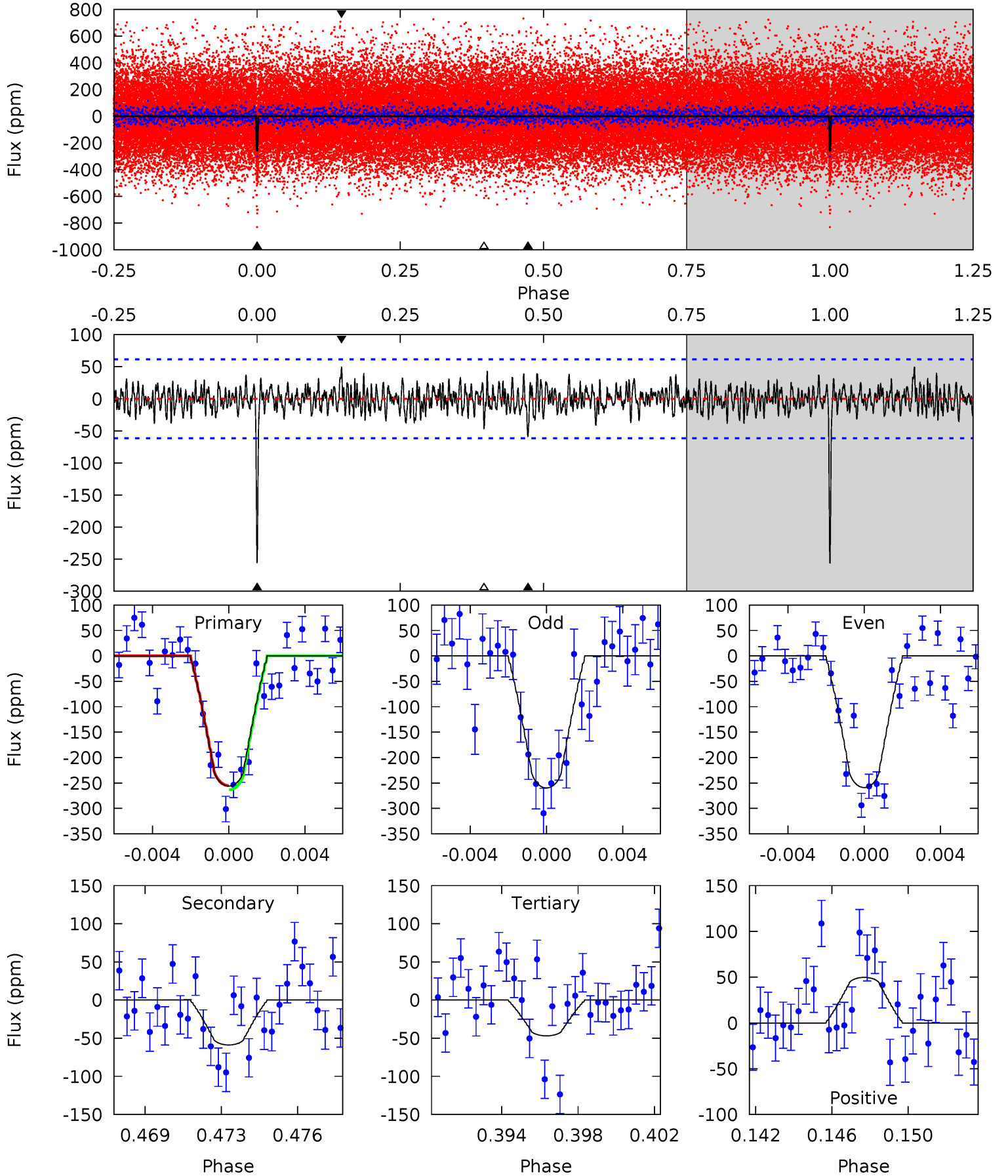
TCE 011521793-02 P= 16.007323 Days $T_0=142.643796$ (BKJD)



DV Model-Shift Uniqueness Test

011521793-02, $P = 16.007488$ Days, $E = 126.630172$ Days

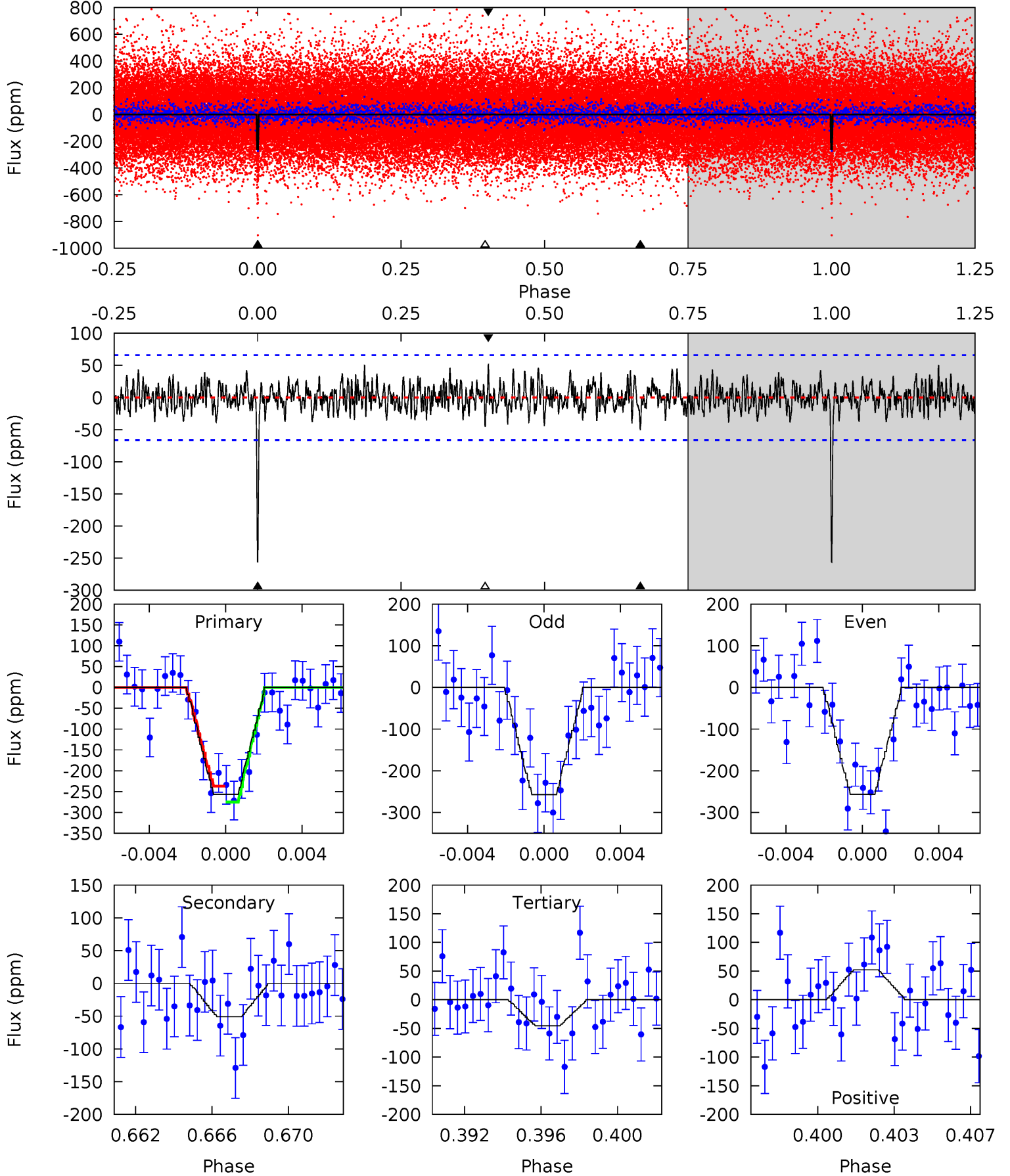
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.7	4.98	3.97	4.21	5.20	2.88	1.27	17.7	17.5	1.01	0.77	0.03	0.97	0.16	0.35



Alt Model-Shift Uniqueness Test

011521793-02, P = 16.007323 Days, E = 126.636473 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	4.03	3.60	4.14	5.22	2.91	1.28	16.7	16.2	0.43	-0.11	0.04	1.06	0.17	1.52



Stellar Parameters For KIC 011521793

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5857^{+105}_{-117}	$4.204^{+0.176}_{-0.108}$	$-0.040^{+0.150}_{-0.150}$	$1.305^{+0.209}_{-0.256}$	$0.993^{+0.081}_{-0.073}$	$0.629^{+0.511}_{-0.206}$
	+2%/-2%	+4%/-3%	+375%/-375%	+16%/-20%	+8%/-7%	+81%/-33%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 011521793-02 / KOI 0352.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-59 ± 12	$2.59^{+1.90}_{-1.65}$	1169^{+54}_{-70}	4094^{+2182}_{-710}	77^{+486}_{-53}
Alt.	-51 ± 13	$2.47^{+2.06}_{-1.47}$	1163^{+59}_{-64}	3994^{+1802}_{-697}	70^{+338}_{-49}

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 $A_{obs} \gg 1.0$

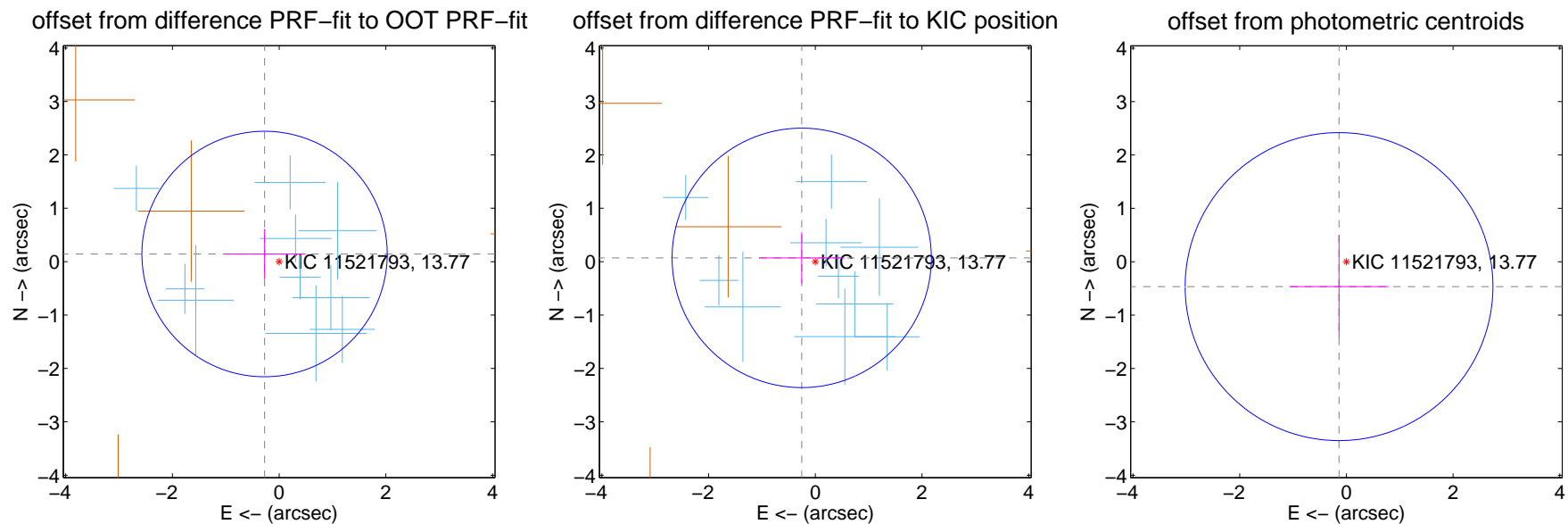
DV Centroid Data

Supplemental centroid analysis for 011521793-02. Kepler magnitude: 13.77. Transit SNR 15.53

There are 10 quarters with good PRF difference image offsets

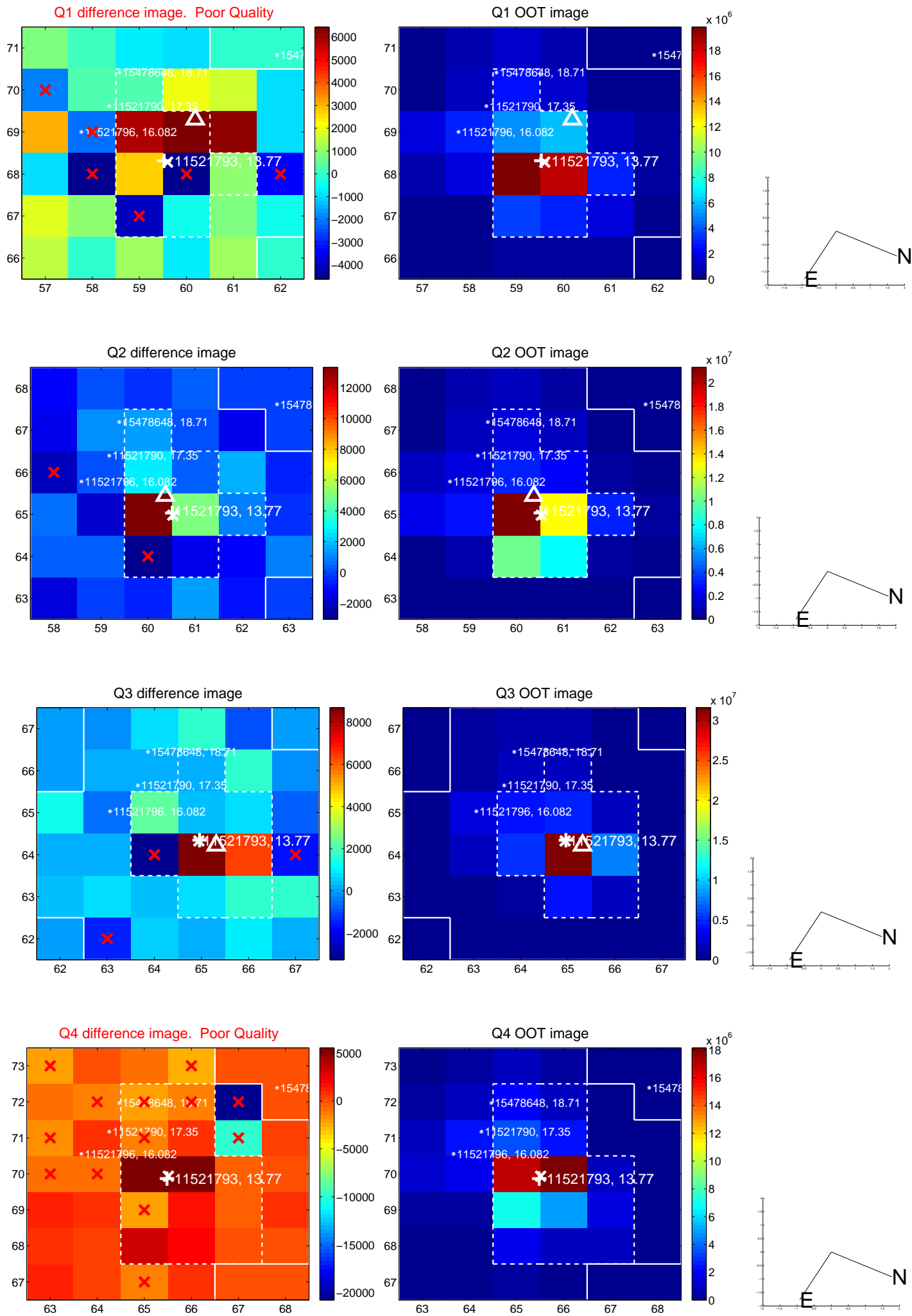
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.308 ± 0.766	0.40	0.273 ± 0.770	0.143 ± 0.467
PRF-fit source offset from KIC position	0.263 ± 0.810	0.33	0.254 ± 0.801	0.071 ± 0.479
photometric centroid source offset	0.49 ± 0.96	0.51	0.14 ± 0.93	-0.47 ± 0.96

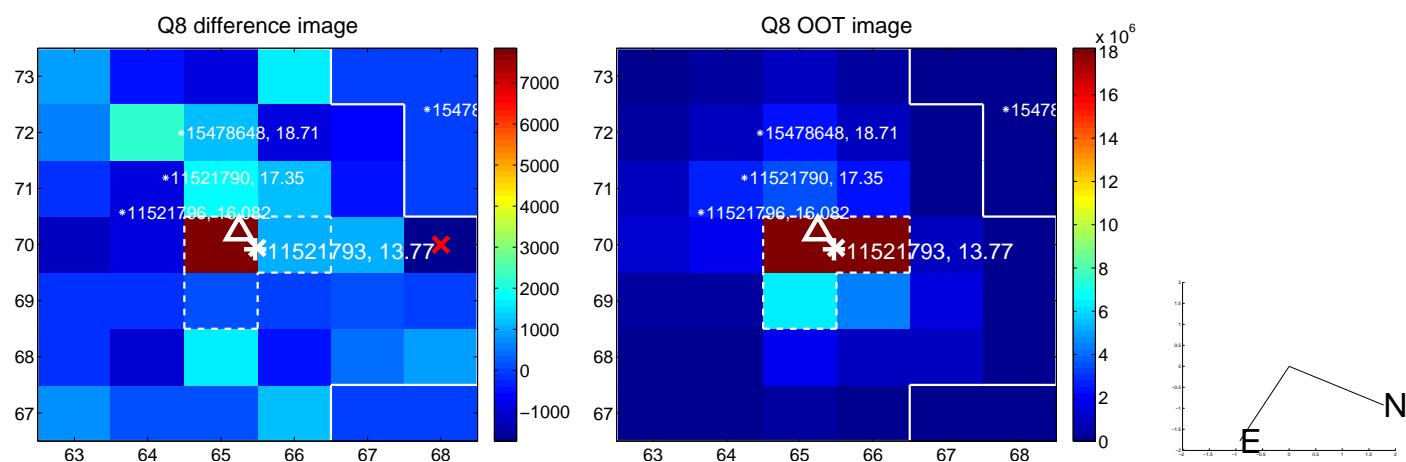
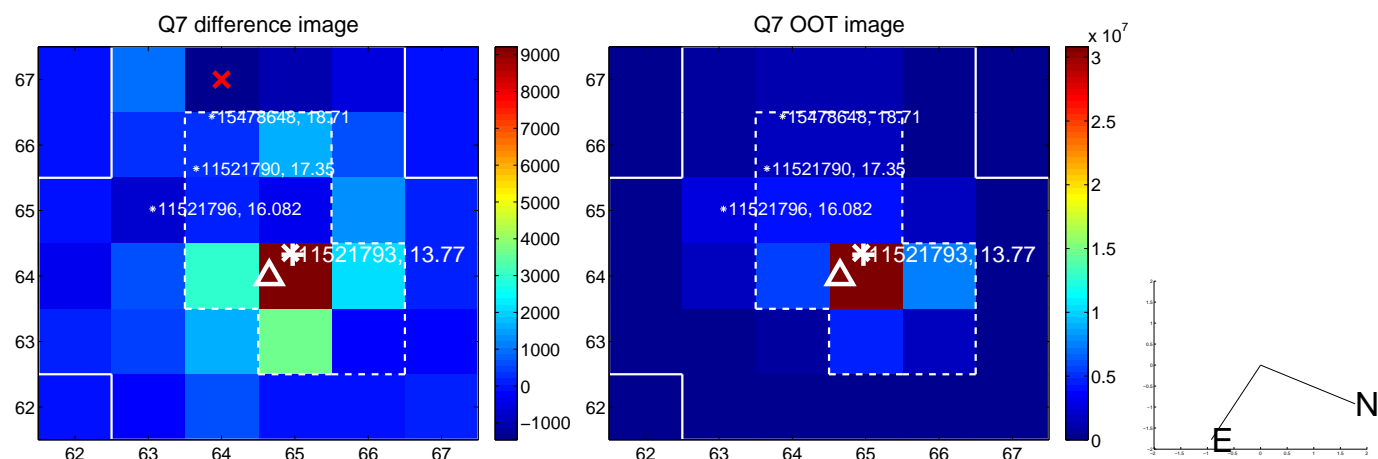
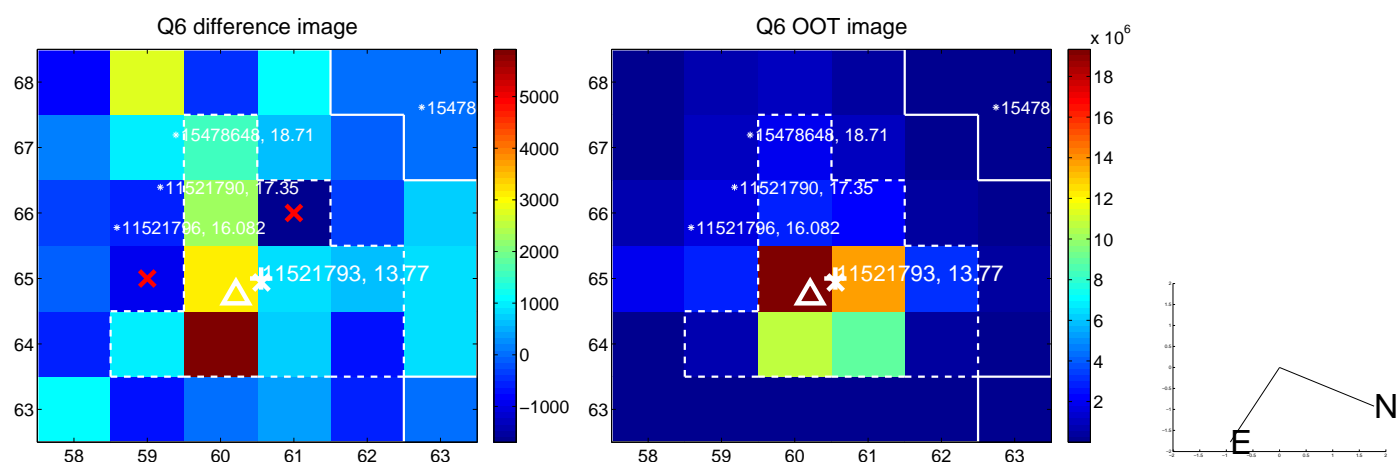
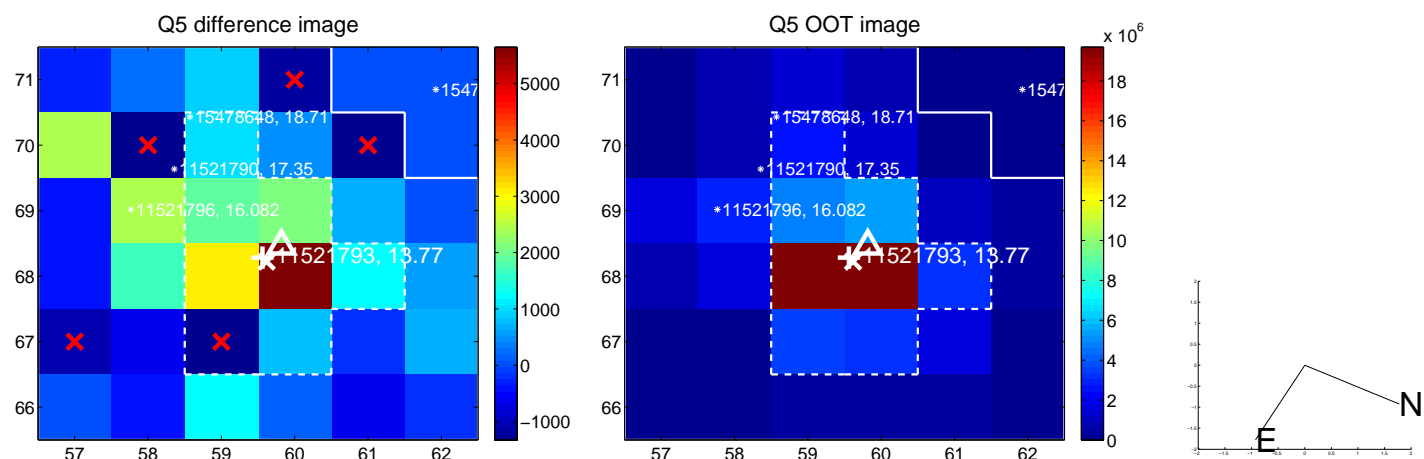


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

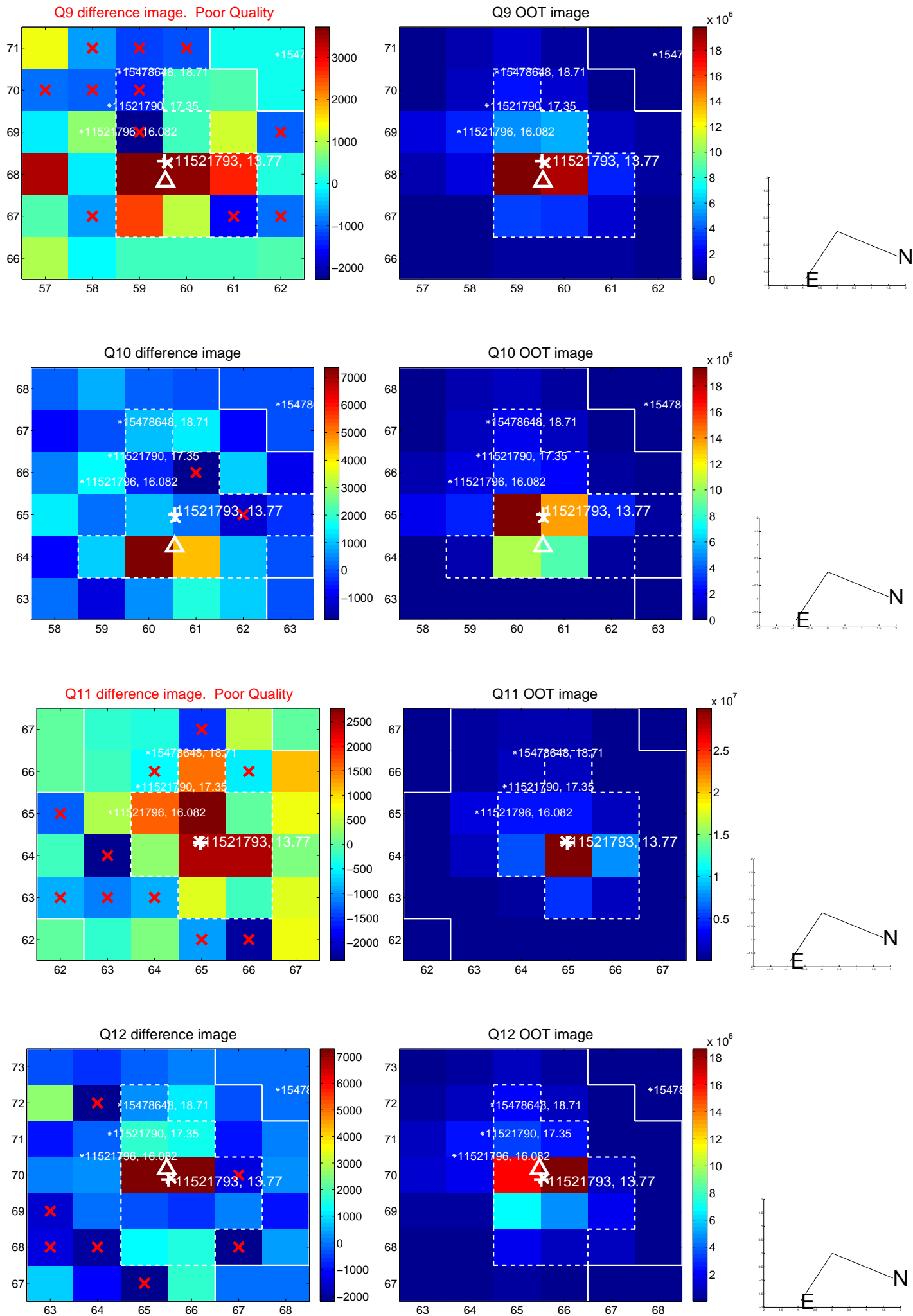
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



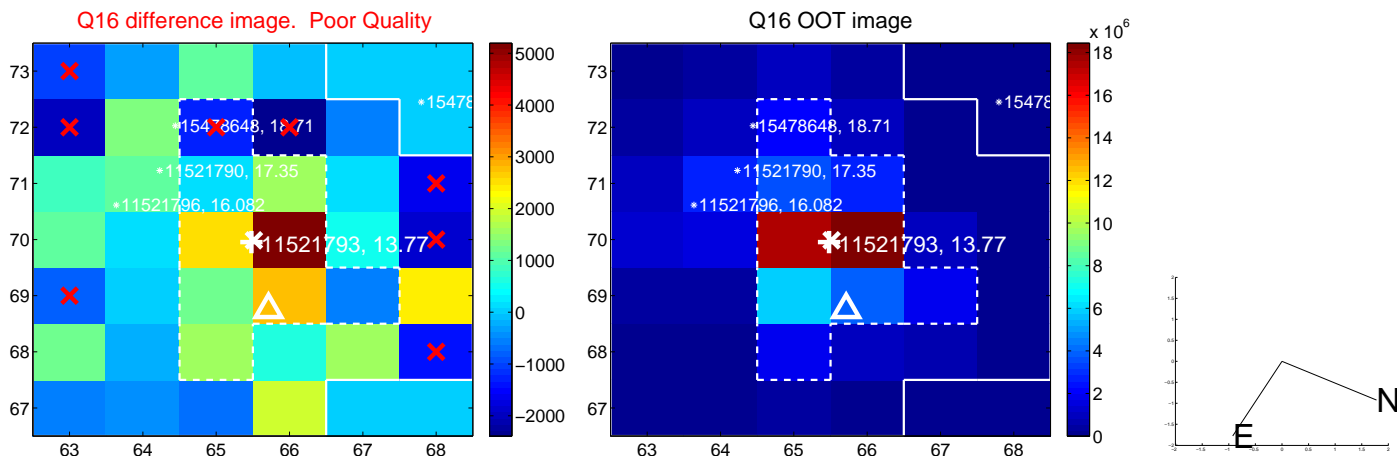
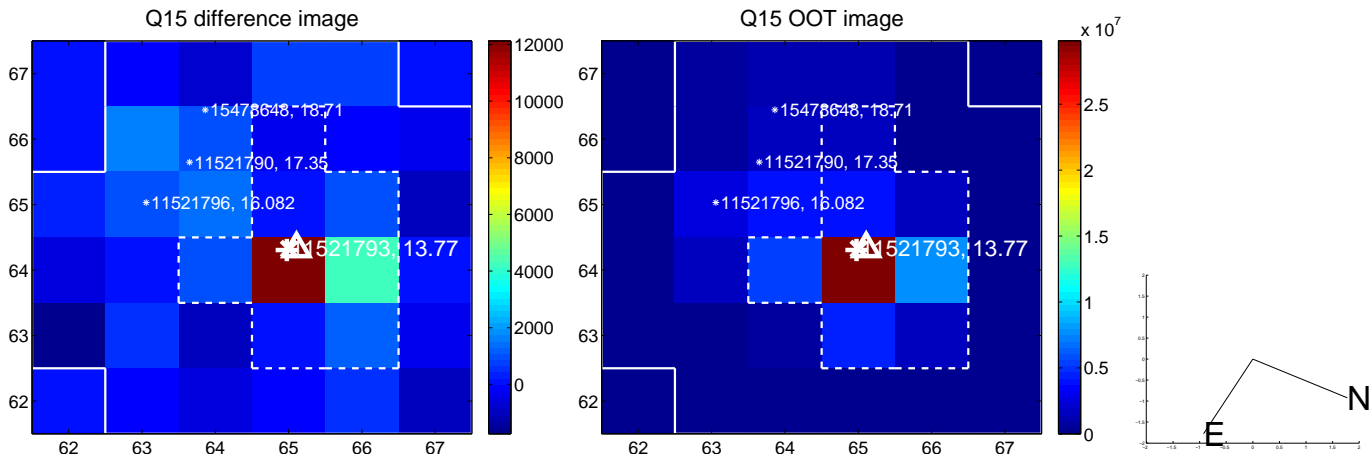
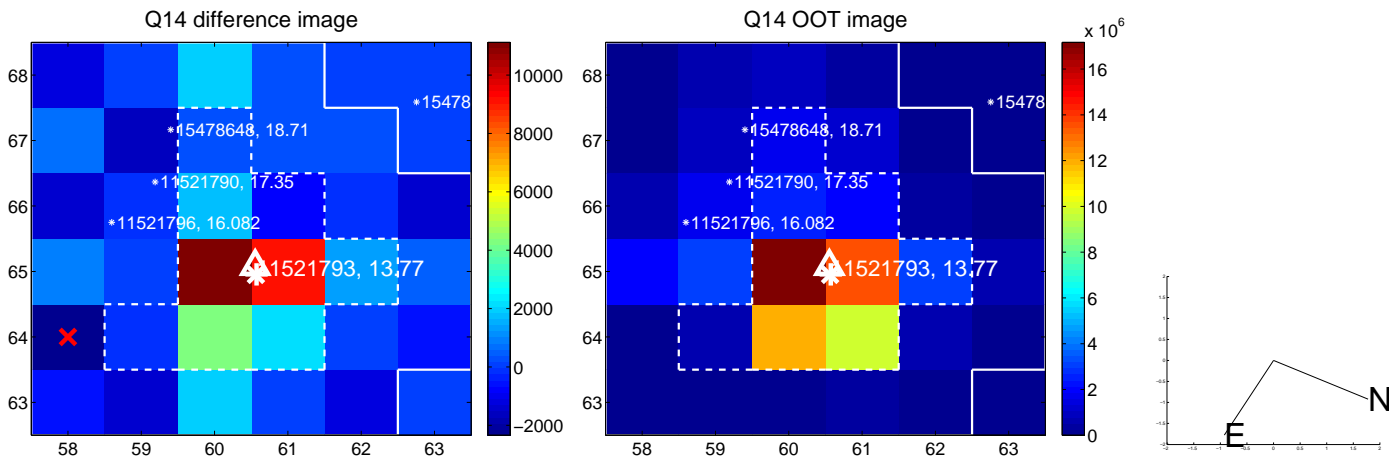
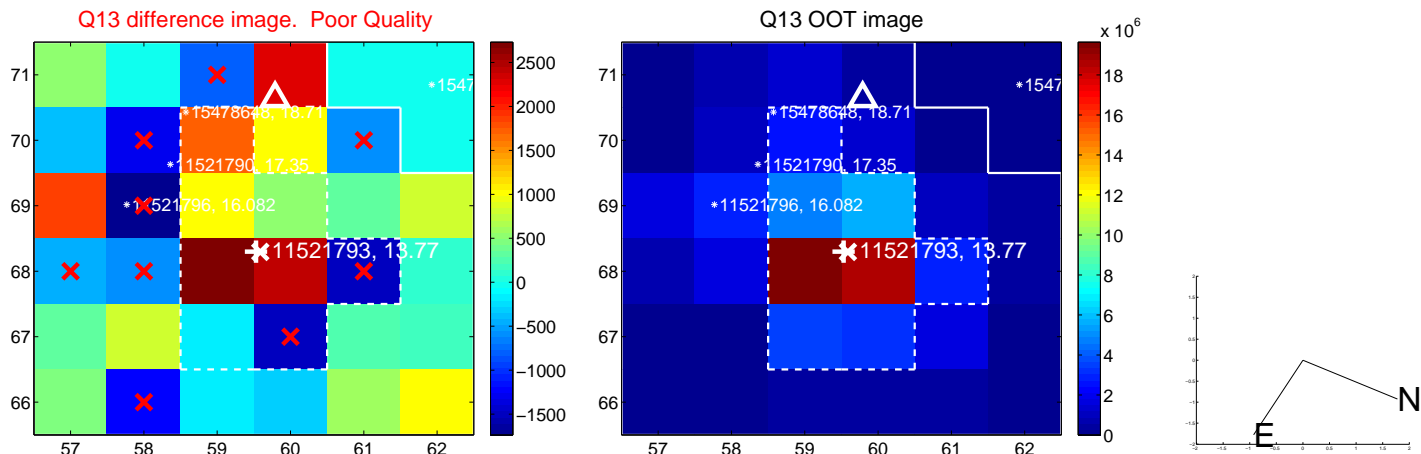
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



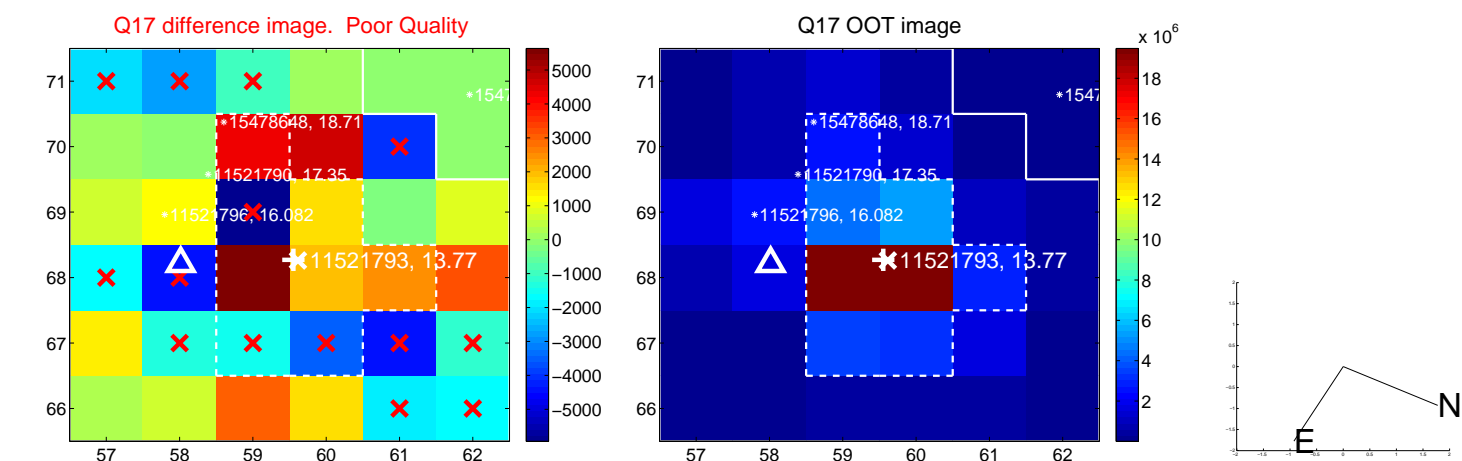
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



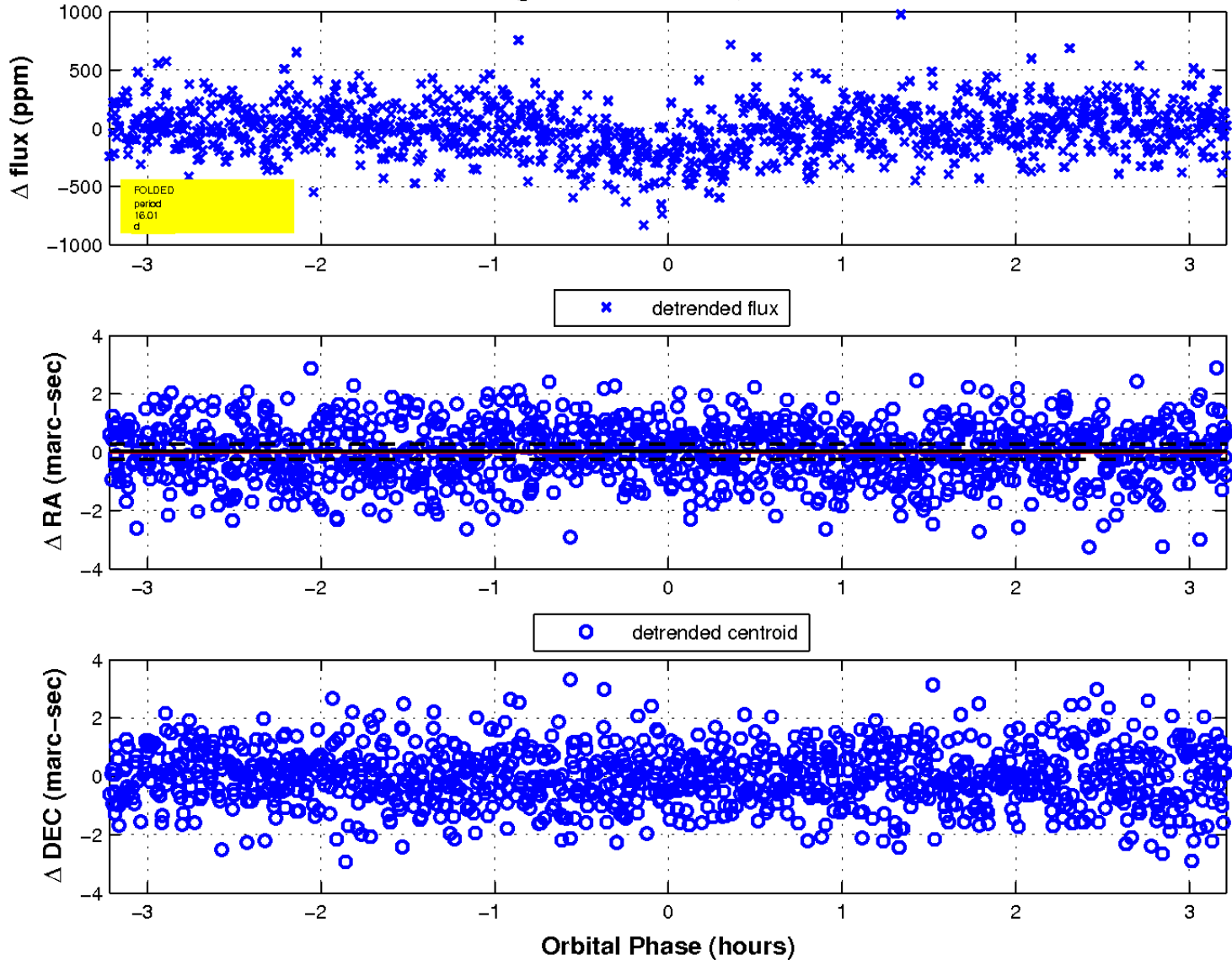
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fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

