

KIC 008581393

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})
008581393-01	OBS	No	23.403294	150.928665	68.5	23.975	9.4	10.2	2.23	6319	1.94	227.88
008581393-02	OBS	No	23.400698	154.506460	125.0	48.630	8.8	16.2	2.23	6319	3.41	227.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008581393-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008581393-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

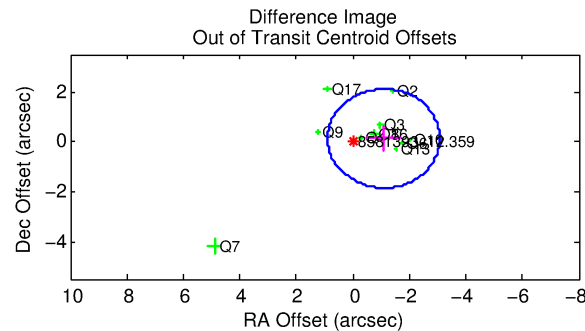
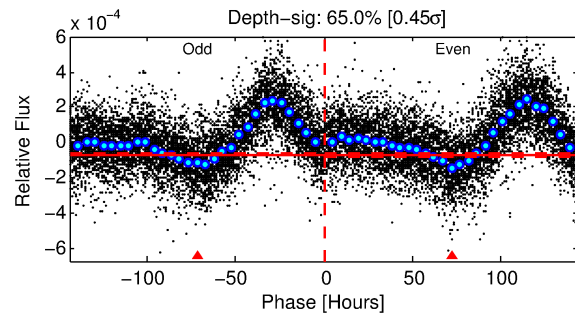
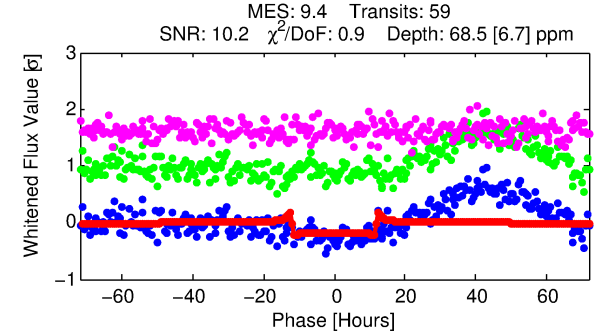
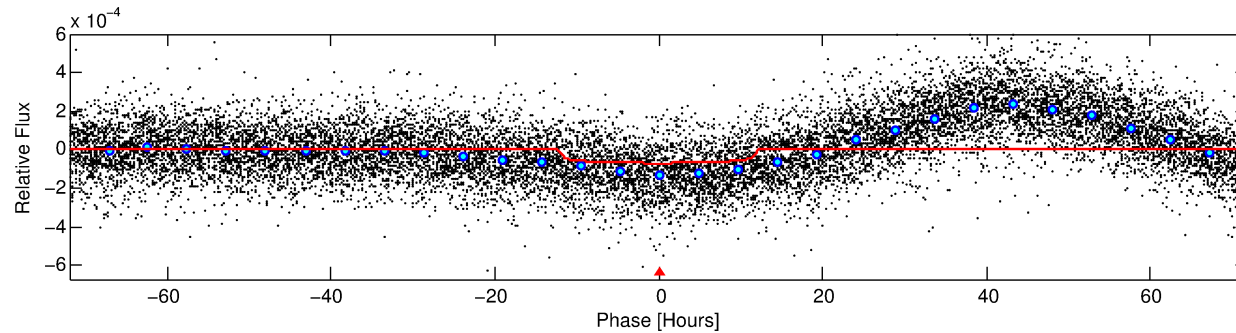
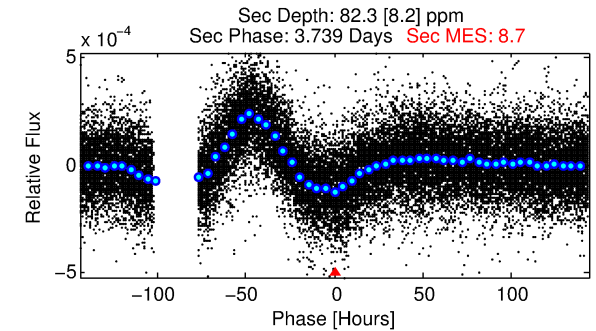
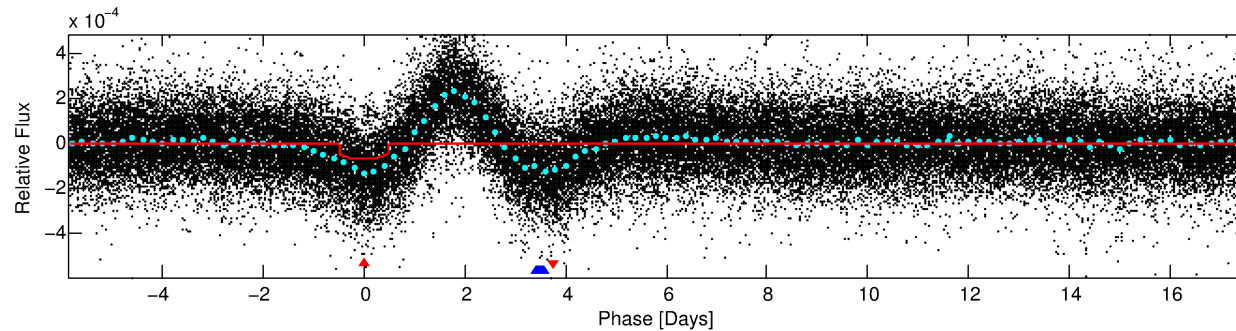
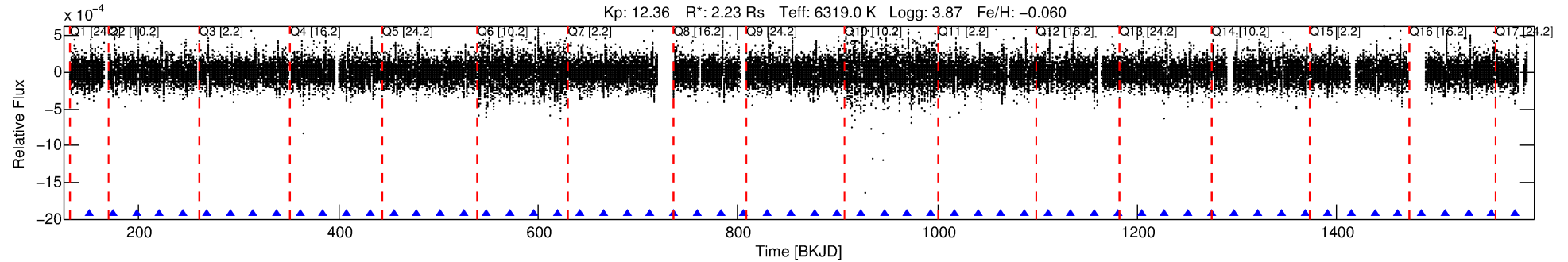
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008581393-01

No Significant Match Found

DV One-Page Summary

KIC: 8581393 Candidate: 1 of 2 Period: 23.403 d



DV Fit Results:

Period = 23.40329 [0.00030] d
Epoch = 150.9287 [0.0106] BKJD
Rp/R* = 0.0079 [0.0011]
a/R* = 6.04 [3.99]
b = 0.61 [0.70]
Seff = 227.88 [117.66]
Teff = 991 [128] K
Rp = 1.94 [0.73] Re
a = 0.1768 [0.0570] AU
Ag = 377.44 [221.67] [1.70σ]
Teffp = 6752 [540] K [10.38σ]

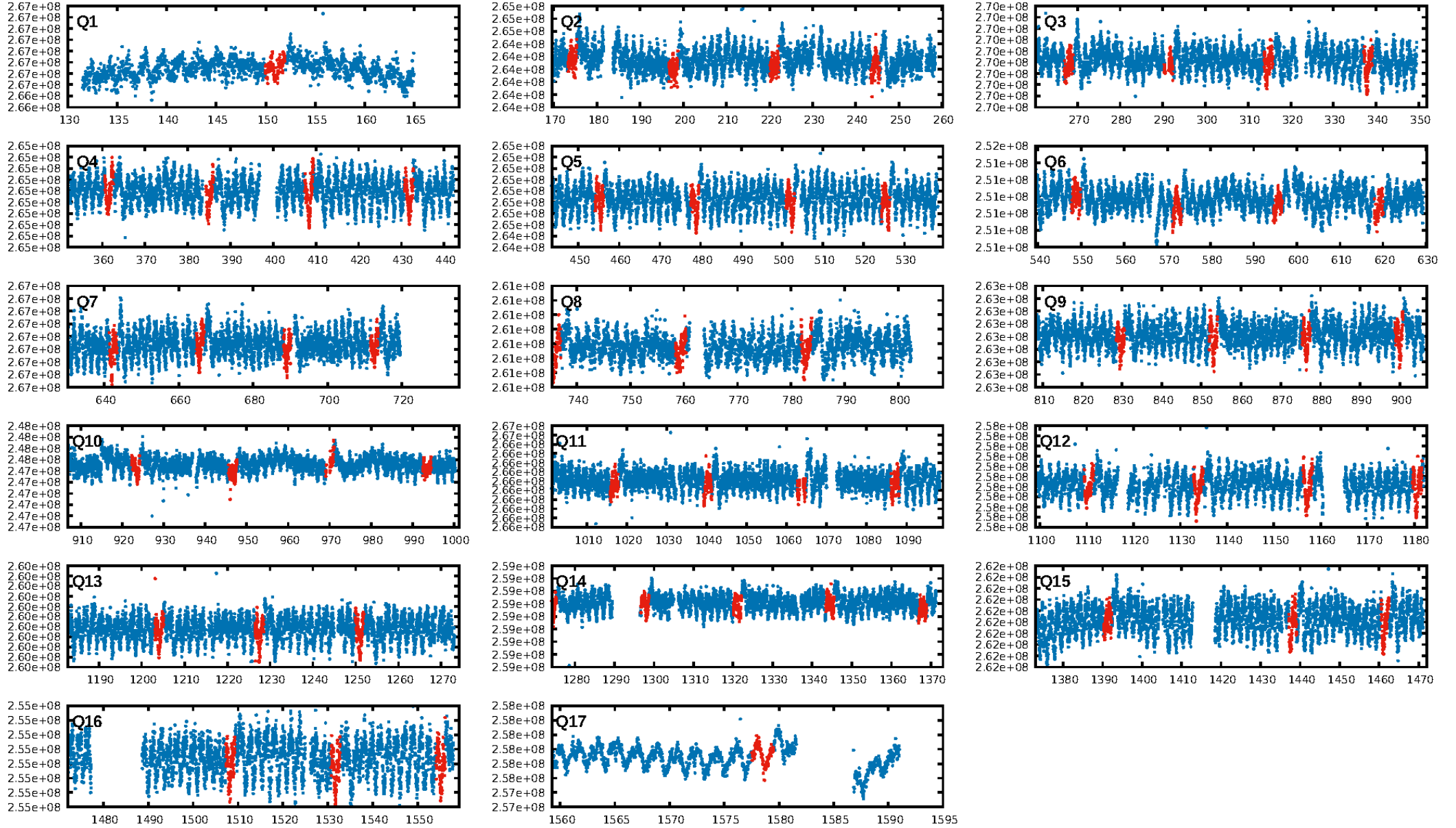
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 96.5%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 5.45e-19
RollingBand-fgt: 1.00 [57/57]
GhostDiagnostic-chr: 1.614
Centroid-sig: 62.8%
Centroid-so: 0.296 arcsec [0.57σ]
OotOffset-rm: 1.095 arcsec [1.66σ]
KicOffset-rm: 1.152 arcsec [2.15σ]
OotOffset-st: 3/2/3/3 [11]
KicOffset-st: 3/2/3/3 [11]
DiffImageQuality-fgm: 0.82 [9/11]
DiffImageOverlap-fno: 1.00 [16/16]

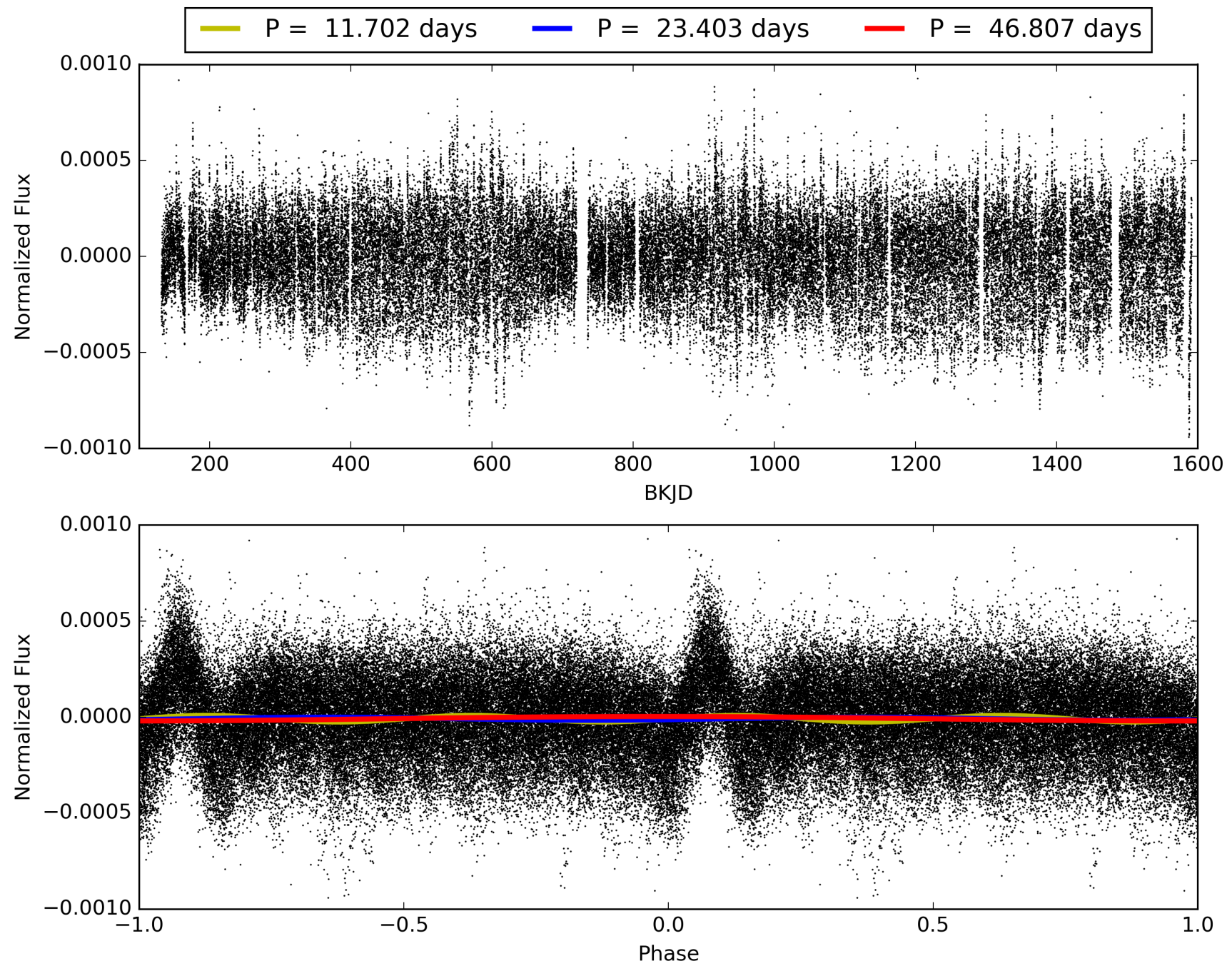
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:25:11 Z

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

TCE 008581393-01, PDC Light Curves

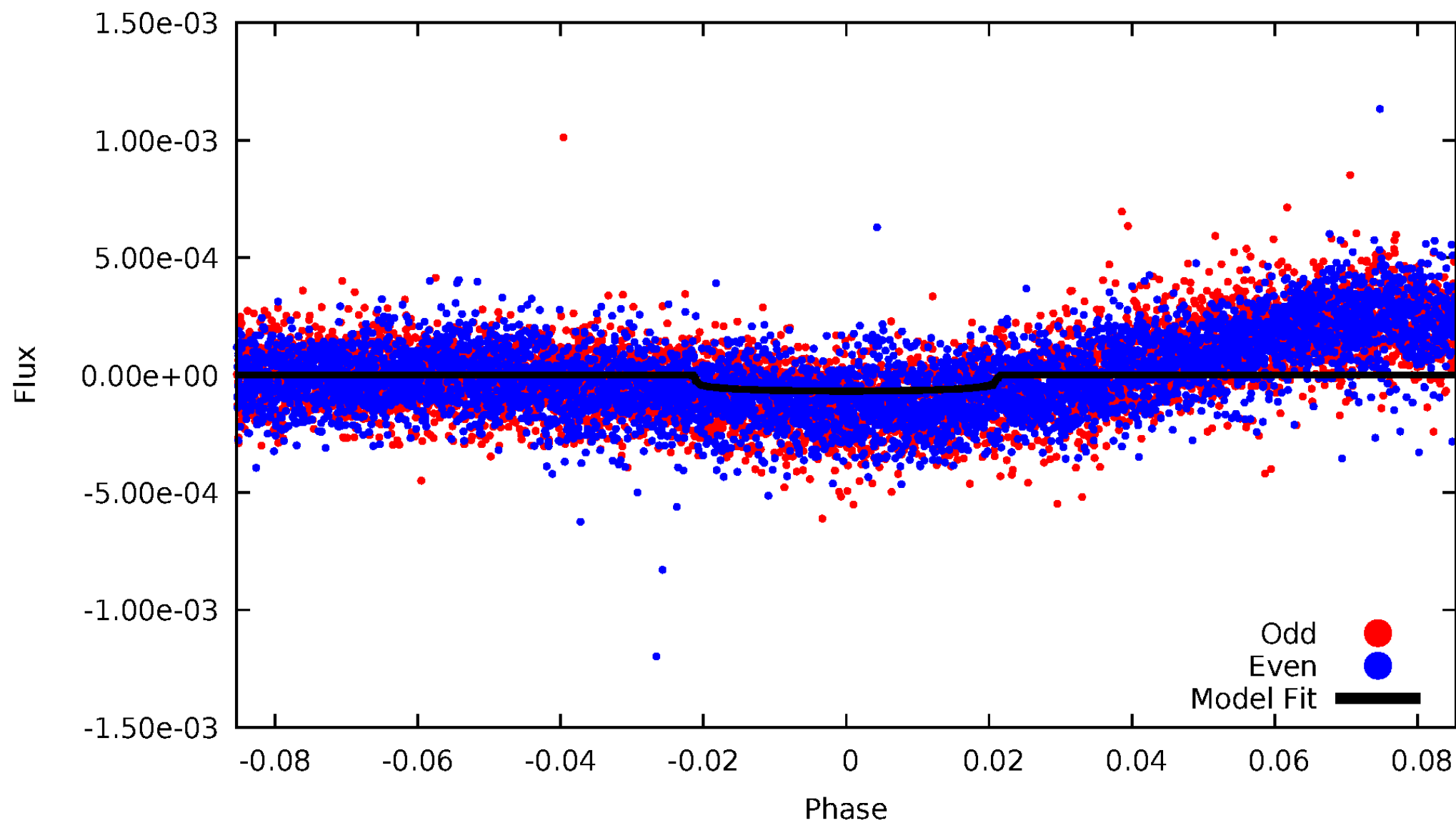


TCE 008581393-01



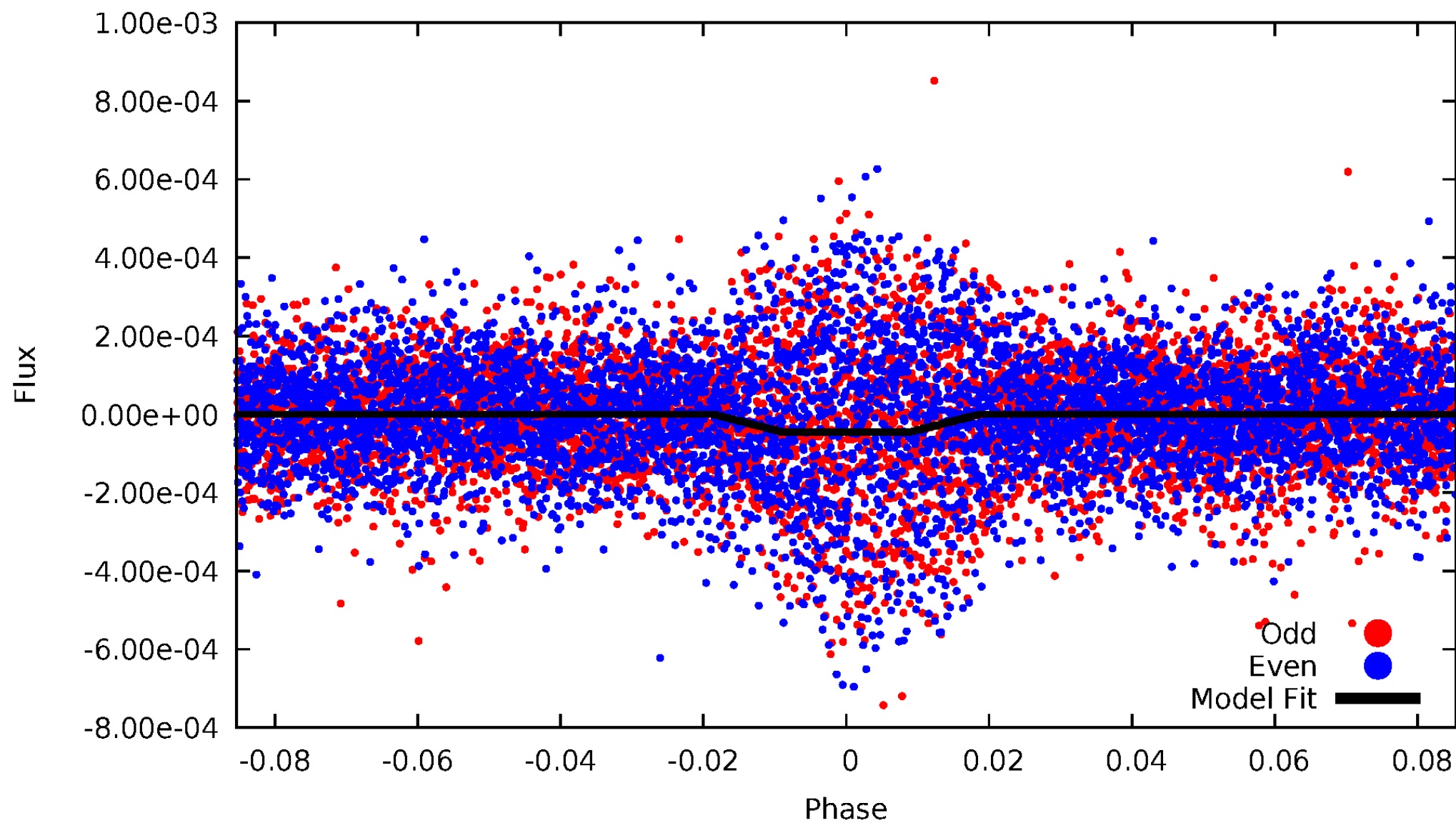
DV Odd/Even

TCE 008581393-01



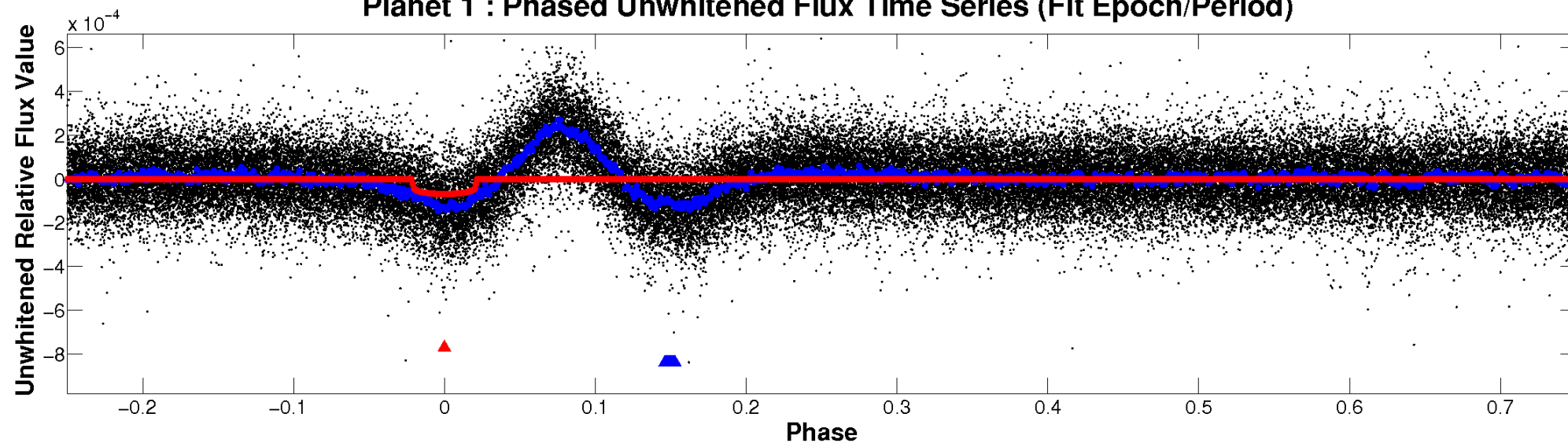
ALT Odd/Even

TCE 008581393-01

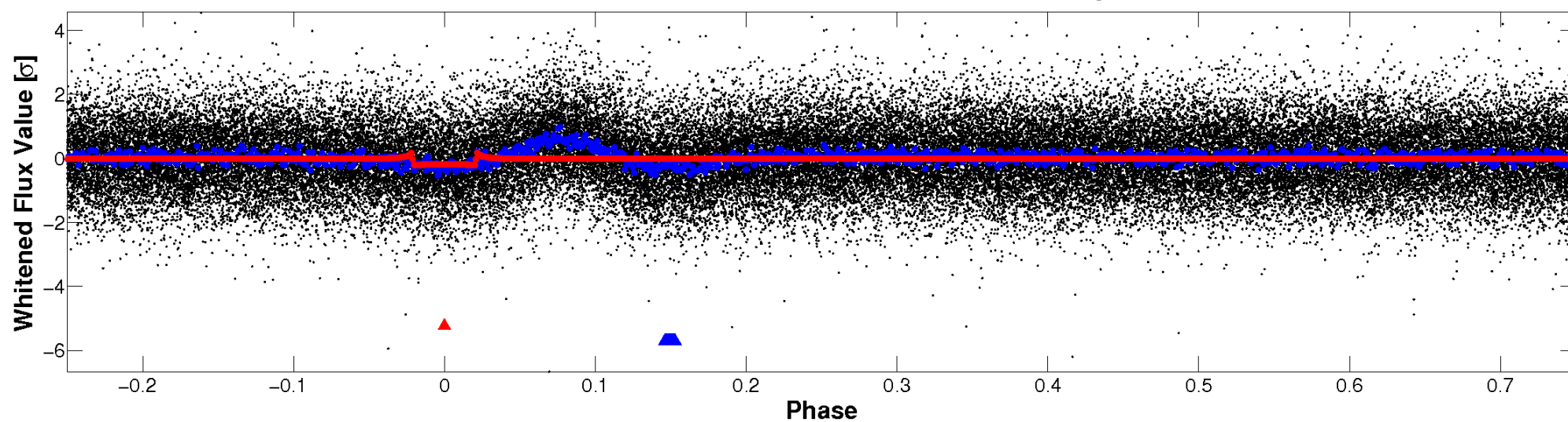


Non-Whitened Vs. Whitened Light Curve

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

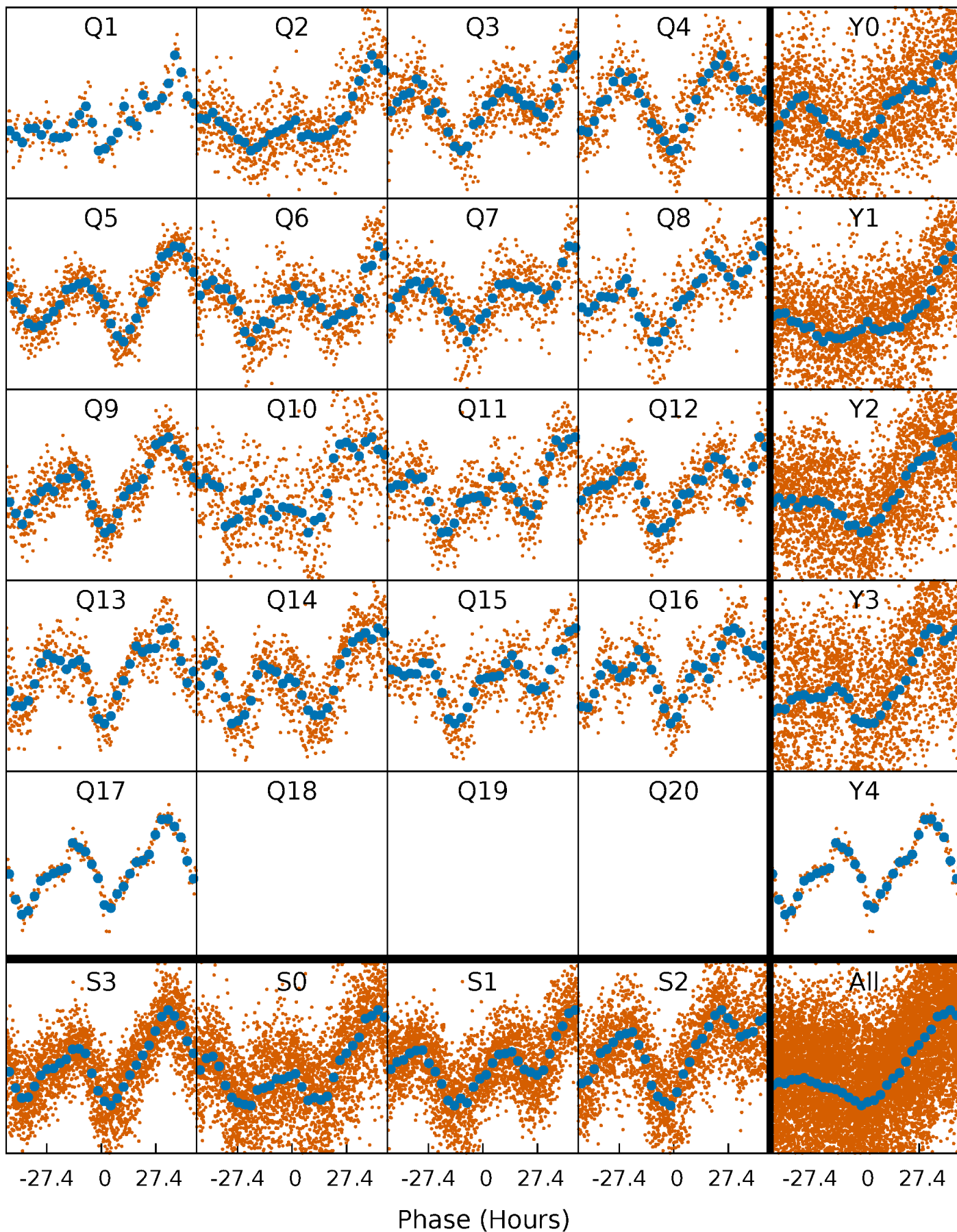


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



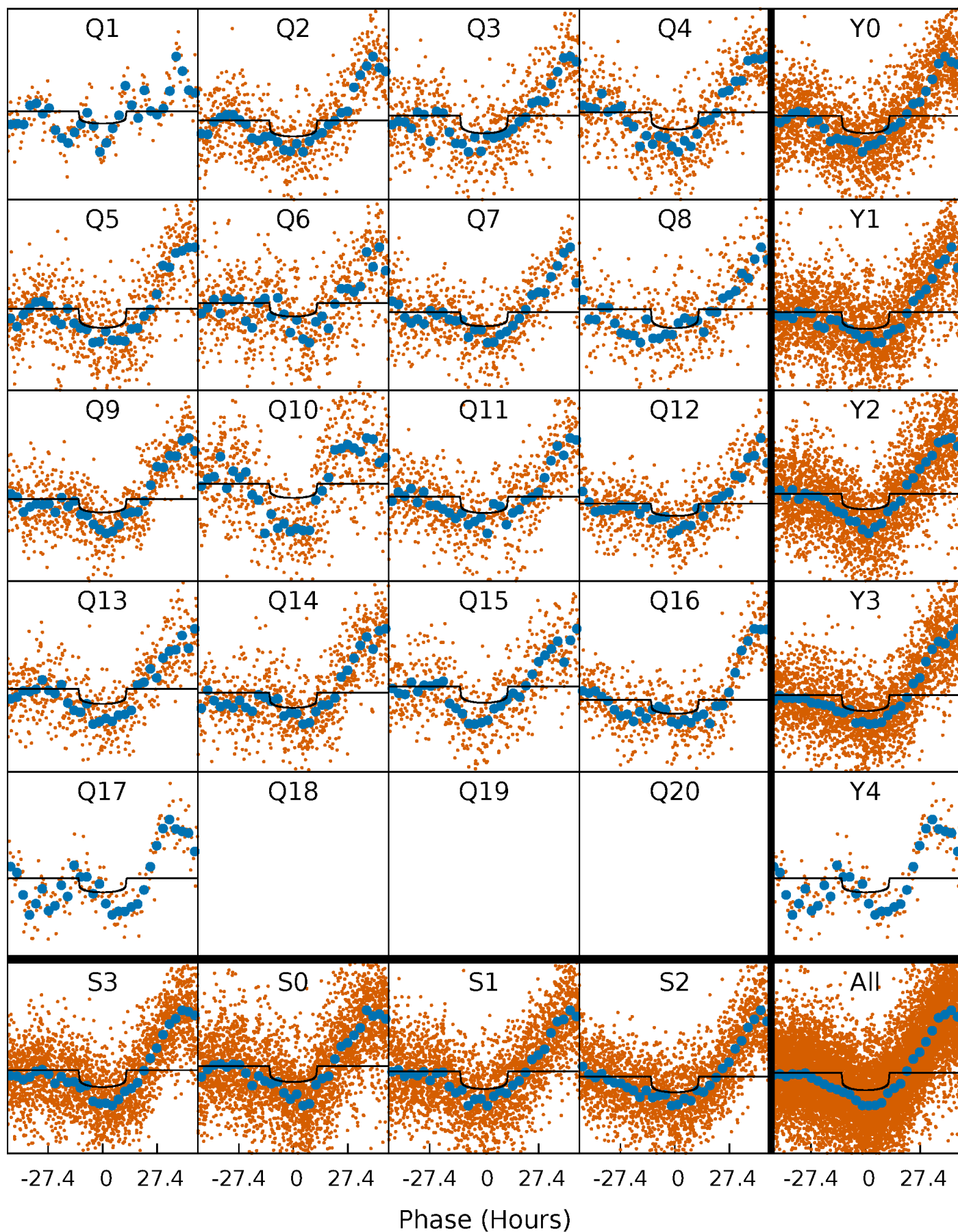
PDC Quarter-Phased Transit Curves

TCE 008581393-01 P= 23.403294 Days $T_0=150.928664$ (BKJD)



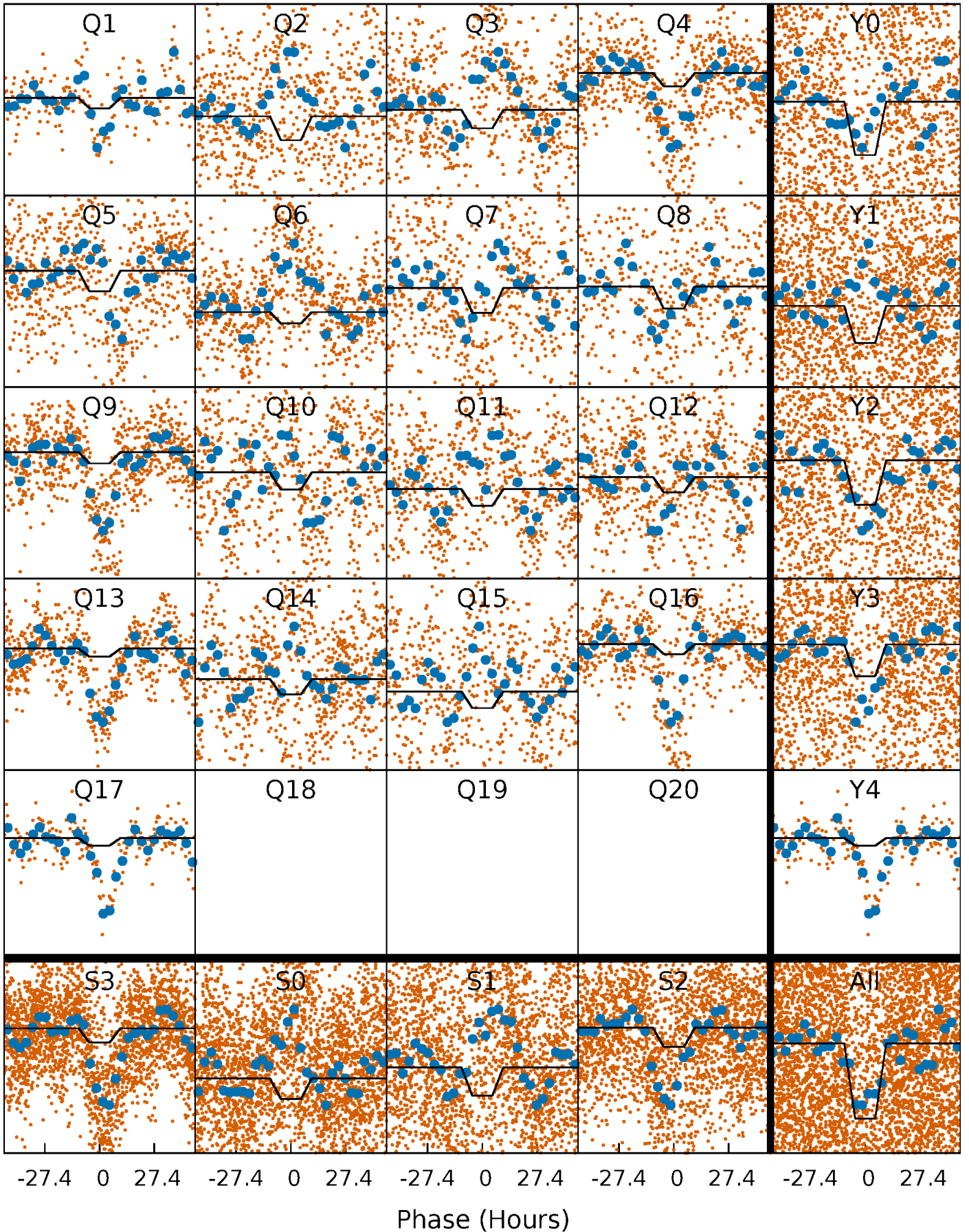
DV Quarter-Phased Transit Curves

TCE 008581393-01 P= 23.403294 Days $T_0=150.928664$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

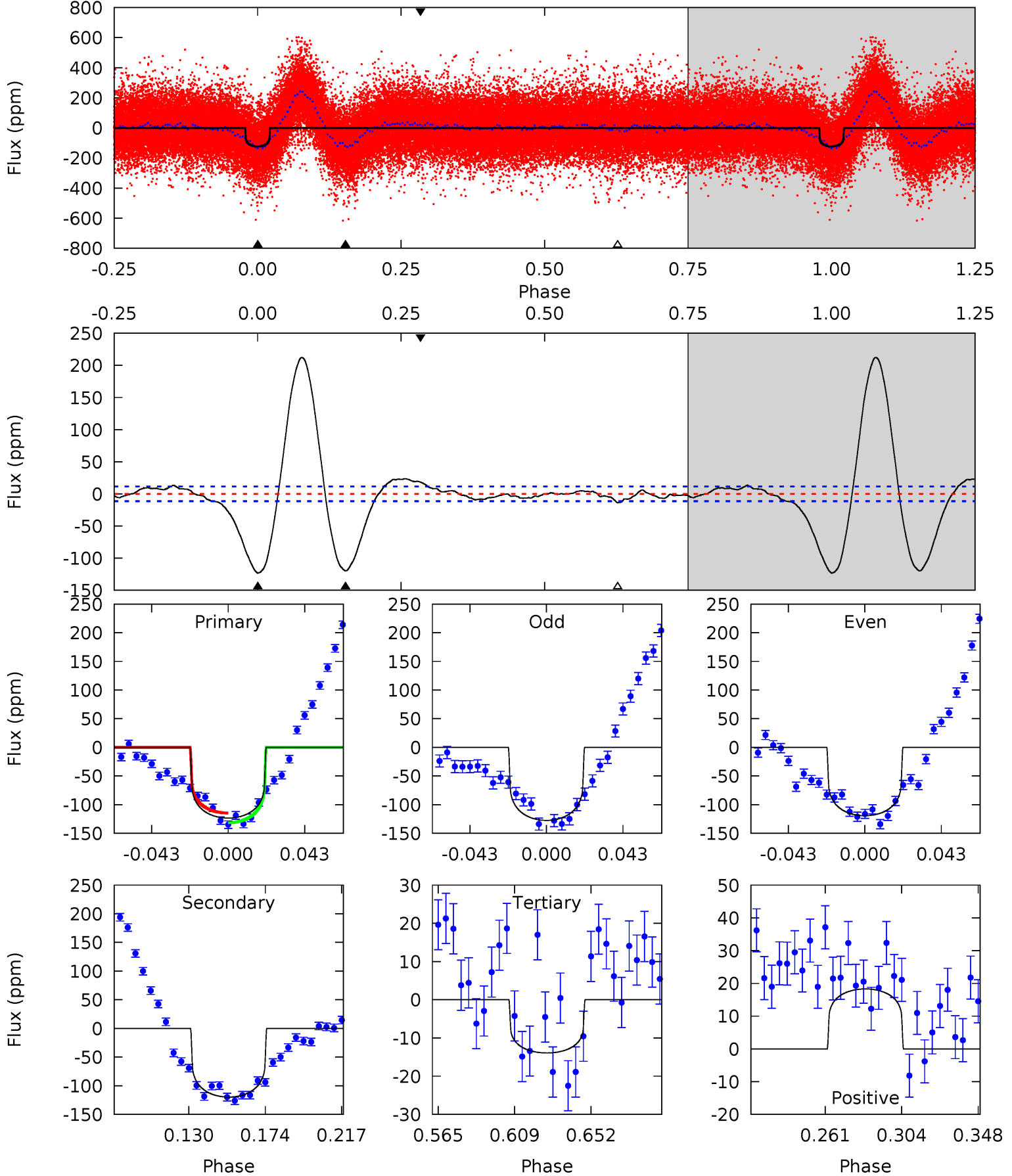
TCE 008581393-01 P= 23.402542 Days $T_0=150.961574$ (BKJD)



DV Model-Shift Uniqueness Test

008581393-01, P = 23.403294 Days, E = 127.525370 Days

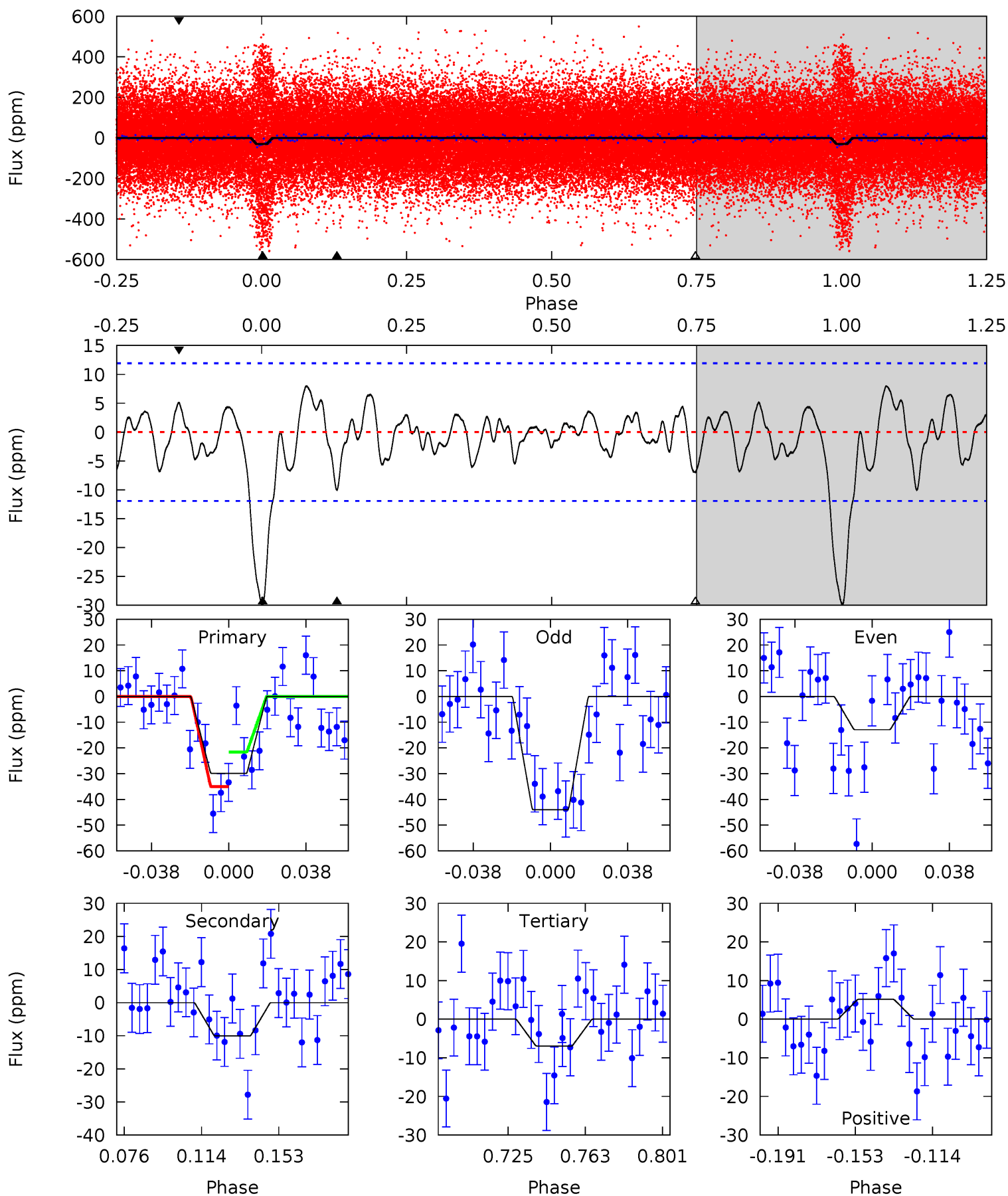
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.3	49.8	5.78	7.60	4.74	2.02	18.5	45.5	43.7	44.0	42.2	1.71	1.03	0.63	3.44



Alt Model-Shift Uniqueness Test

008581393-01, P = 23.402542 Days, E = 127.559032 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	4.01	2.77	2.05	4.76	2.07	1.23	9.15	9.87	1.24	1.96	6.21	2.20	0.21	2.67



Stellar Parameters For KIC 008581393

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6319^{+173}_{-173}	$3.869^{+0.292}_{-0.097}$	$-0.060^{+0.300}_{-0.250}$	$2.233^{+0.478}_{-0.776}$	$1.344^{+0.215}_{-0.239}$	$0.170^{+0.308}_{-0.061}$
	+3%/-3%	+8%/-3%	+500%/-417%	+21%/-35%	+16%/-18%	+181%/-36%
Source	PHO1	FLK73	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 008581393-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-120 ± 2	$1.83^{+0.41}_{-0.39}$	1361^{+83}_{-124}	7546^{+805}_{-619}	618^{+355}_{-199}
Alt.	-10 ± 3	$1.55^{+0.37}_{-0.33}$	1354^{+85}_{-125}	4492^{+424}_{-361}	71^{+48}_{-27}

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

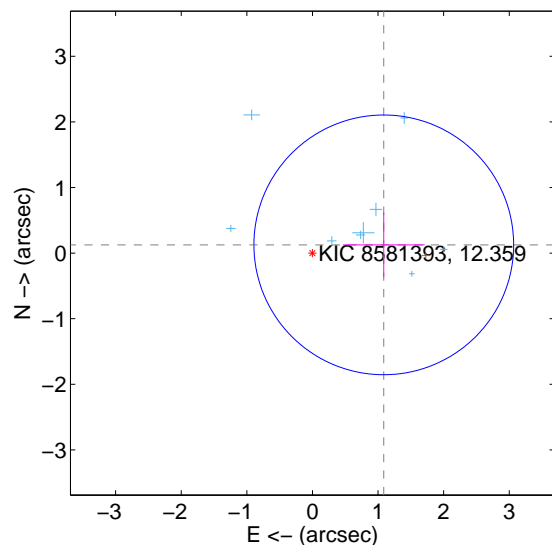
Supplemental centroid analysis for 008581393-01. Kepler magnitude: 12.36. Transit SNR 10.21

There are 9 quarters with good PRF difference image offsets

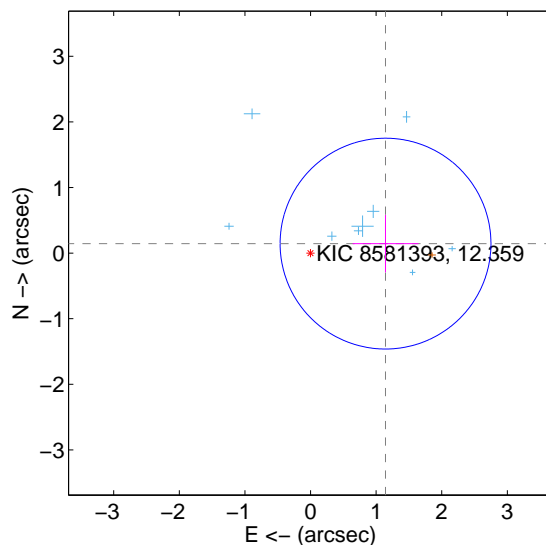
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.095 ± 0.660	1.66	-1.087 ± 0.623	0.125 ± 0.491
PRF-fit source offset from KIC position	1.152 ± 0.536	2.15	-1.143 ± 0.502	0.145 ± 0.438
photometric centroid source offset	0.30 ± 0.52	0.57	0.07 ± 0.64	0.29 ± 0.51

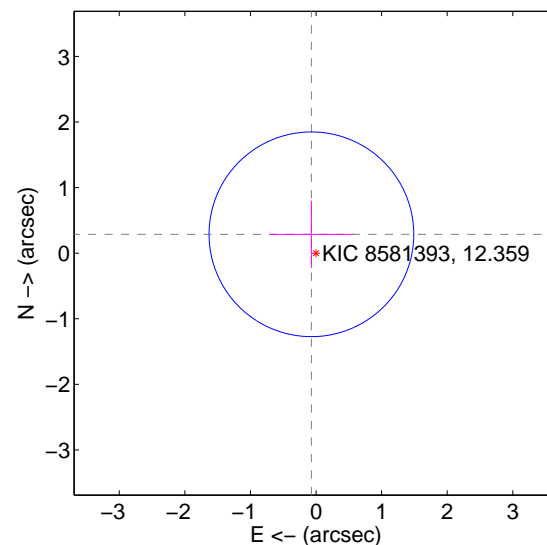
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

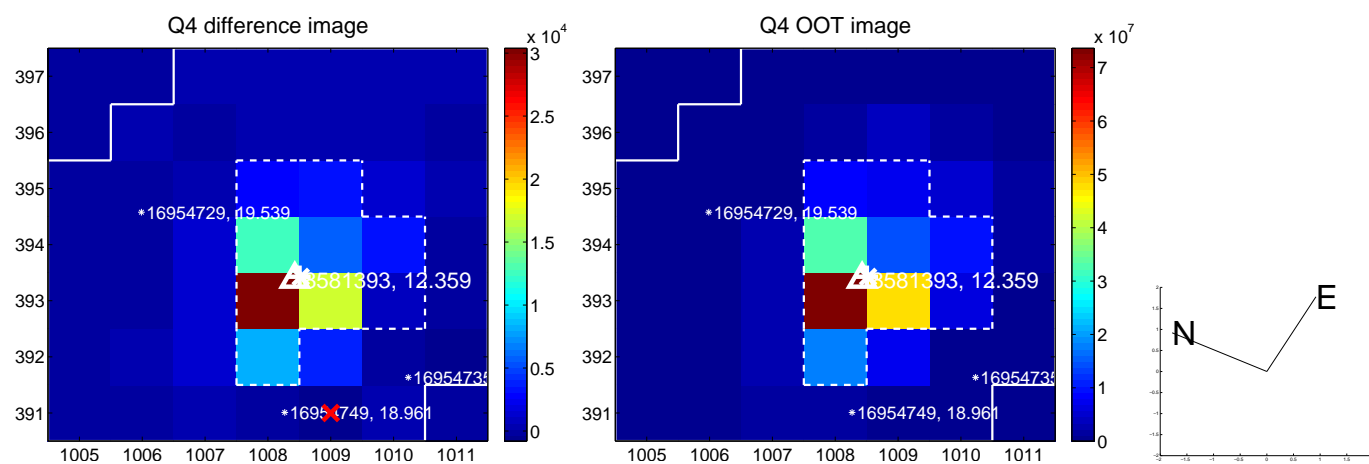
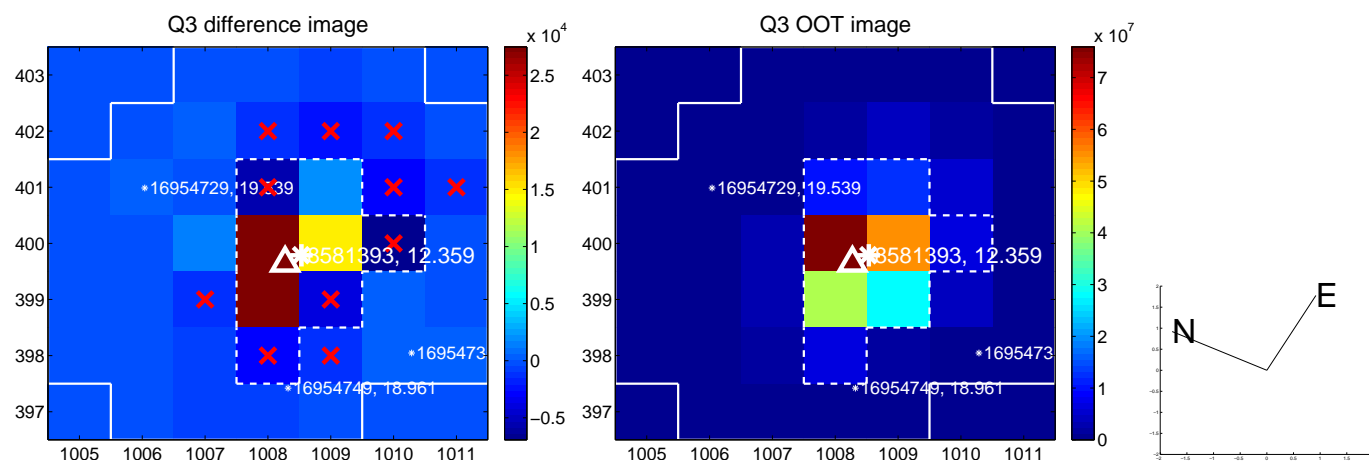
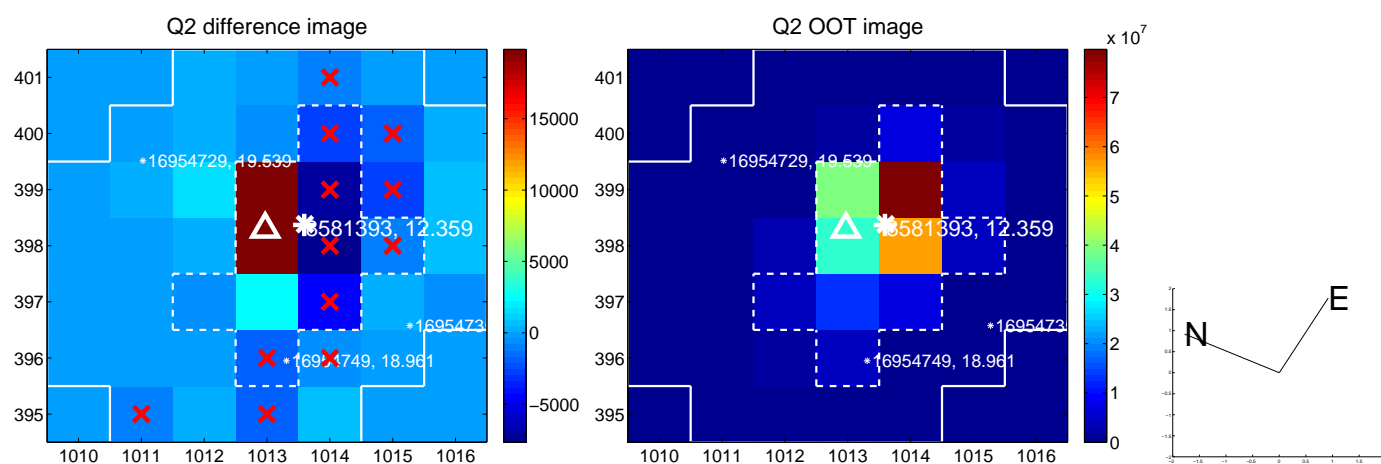
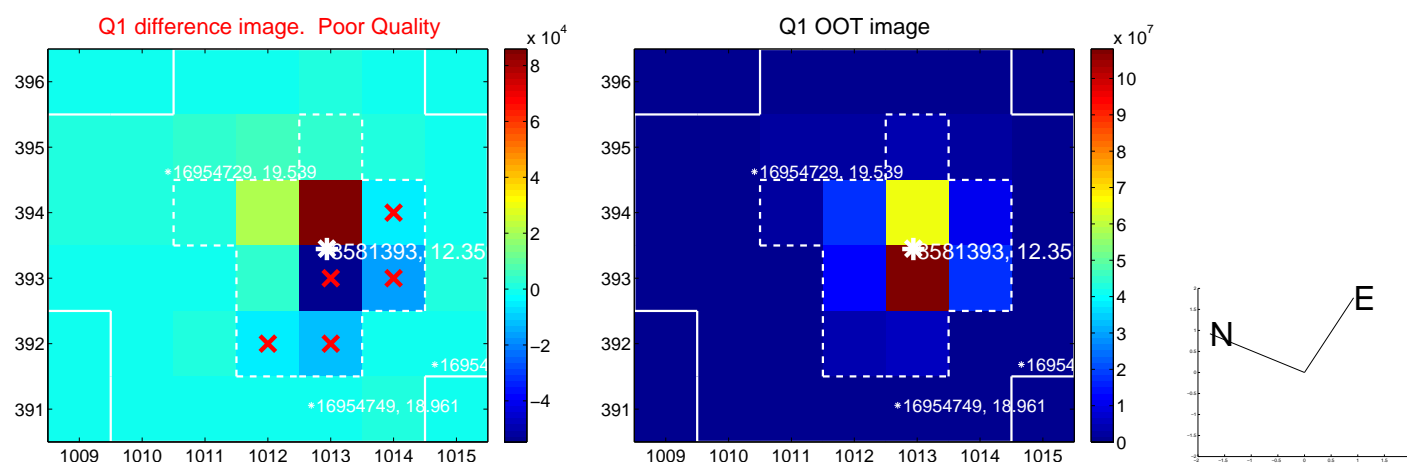


offset from photometric centroids

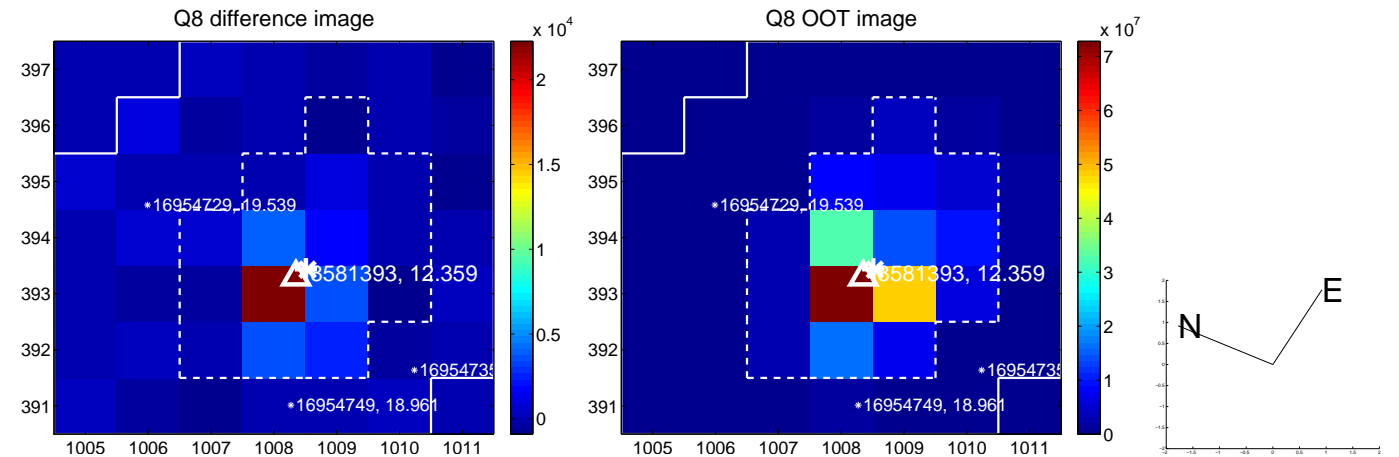
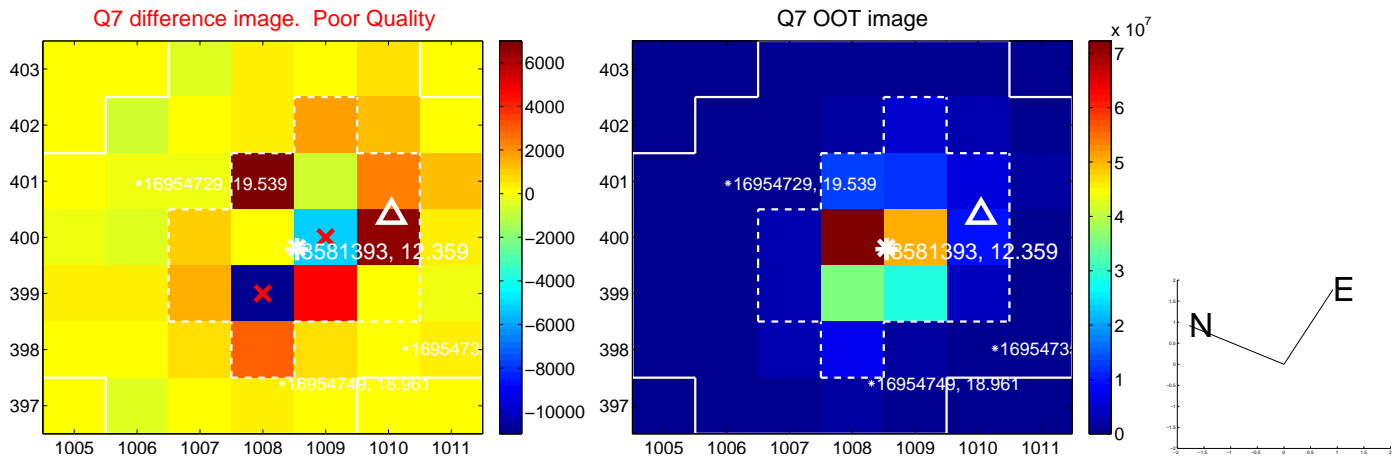
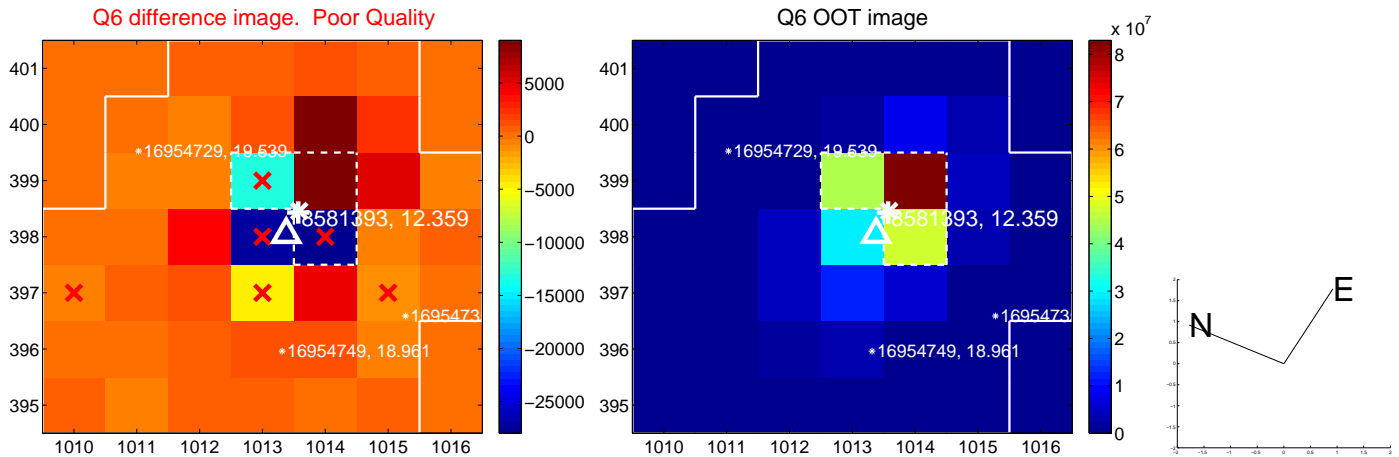
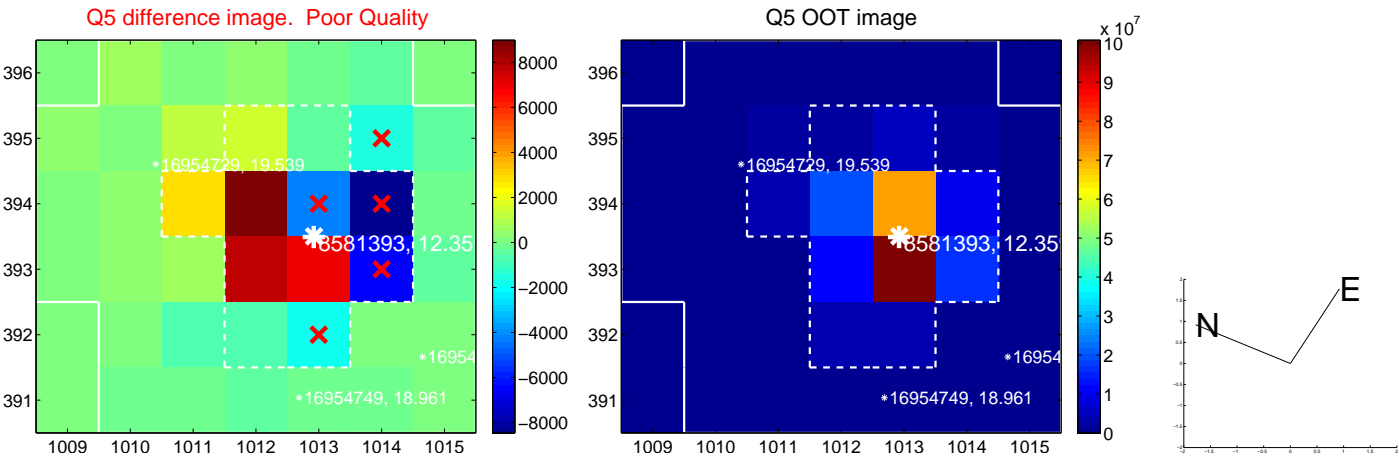


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

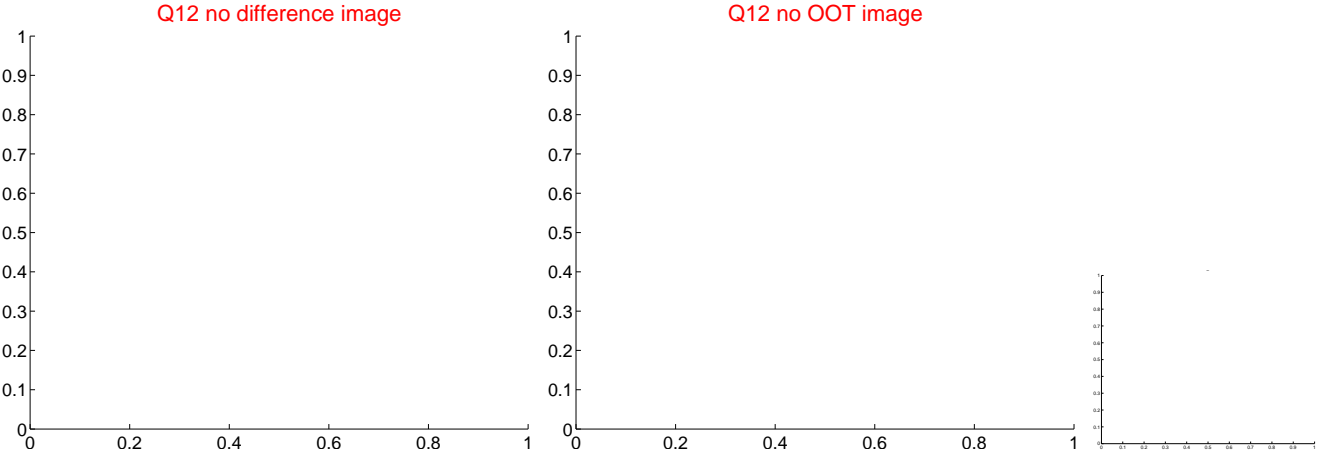
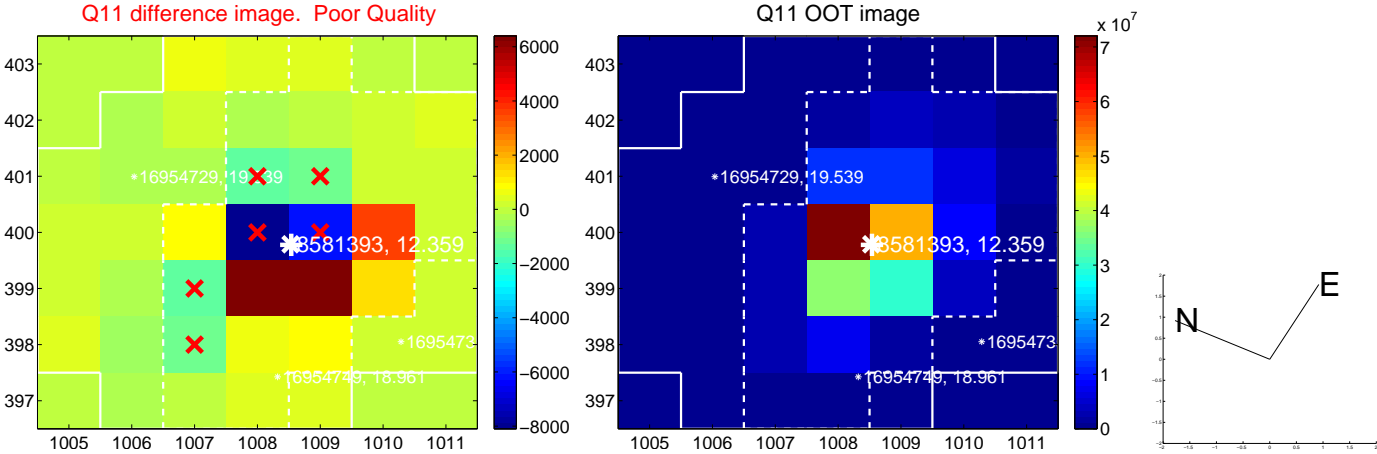
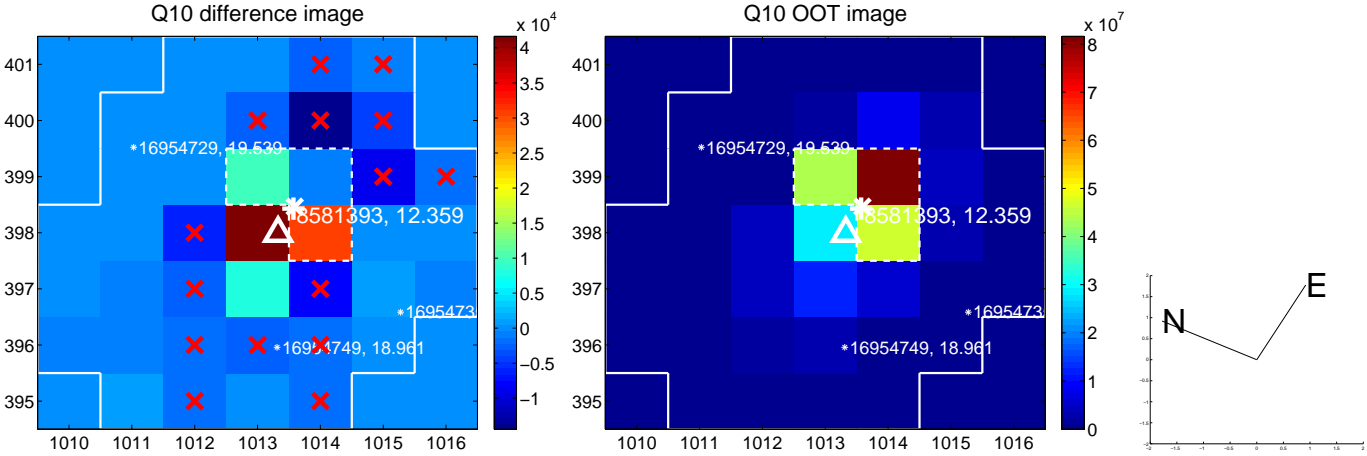
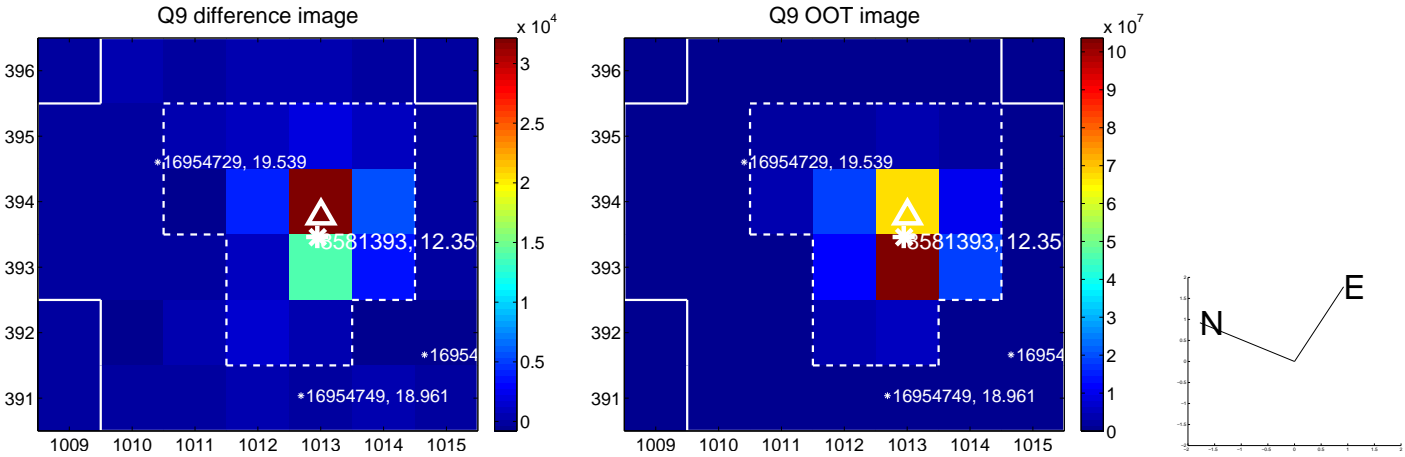
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



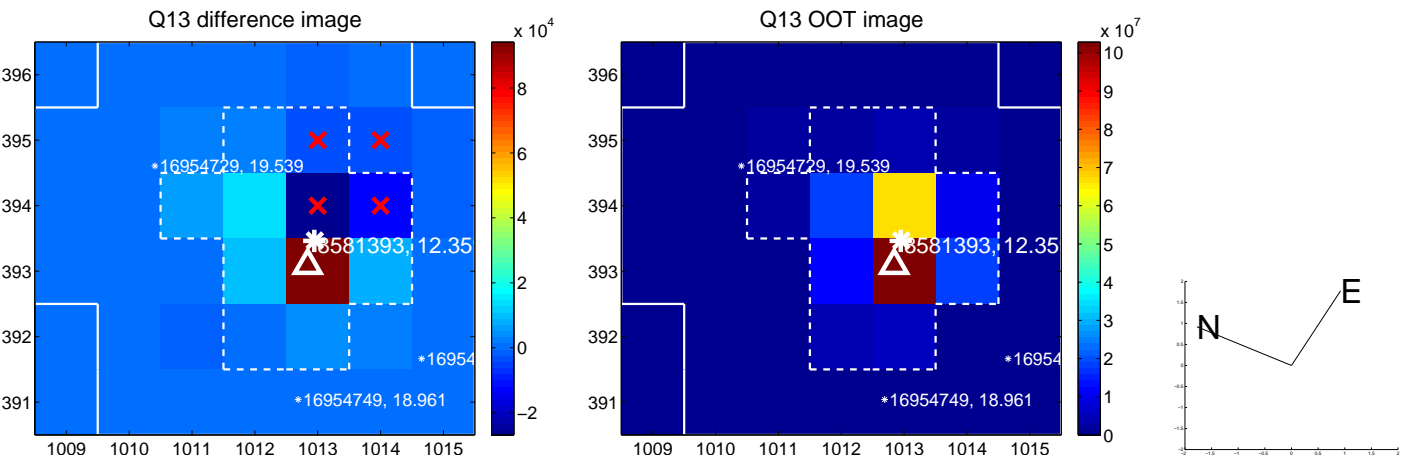
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



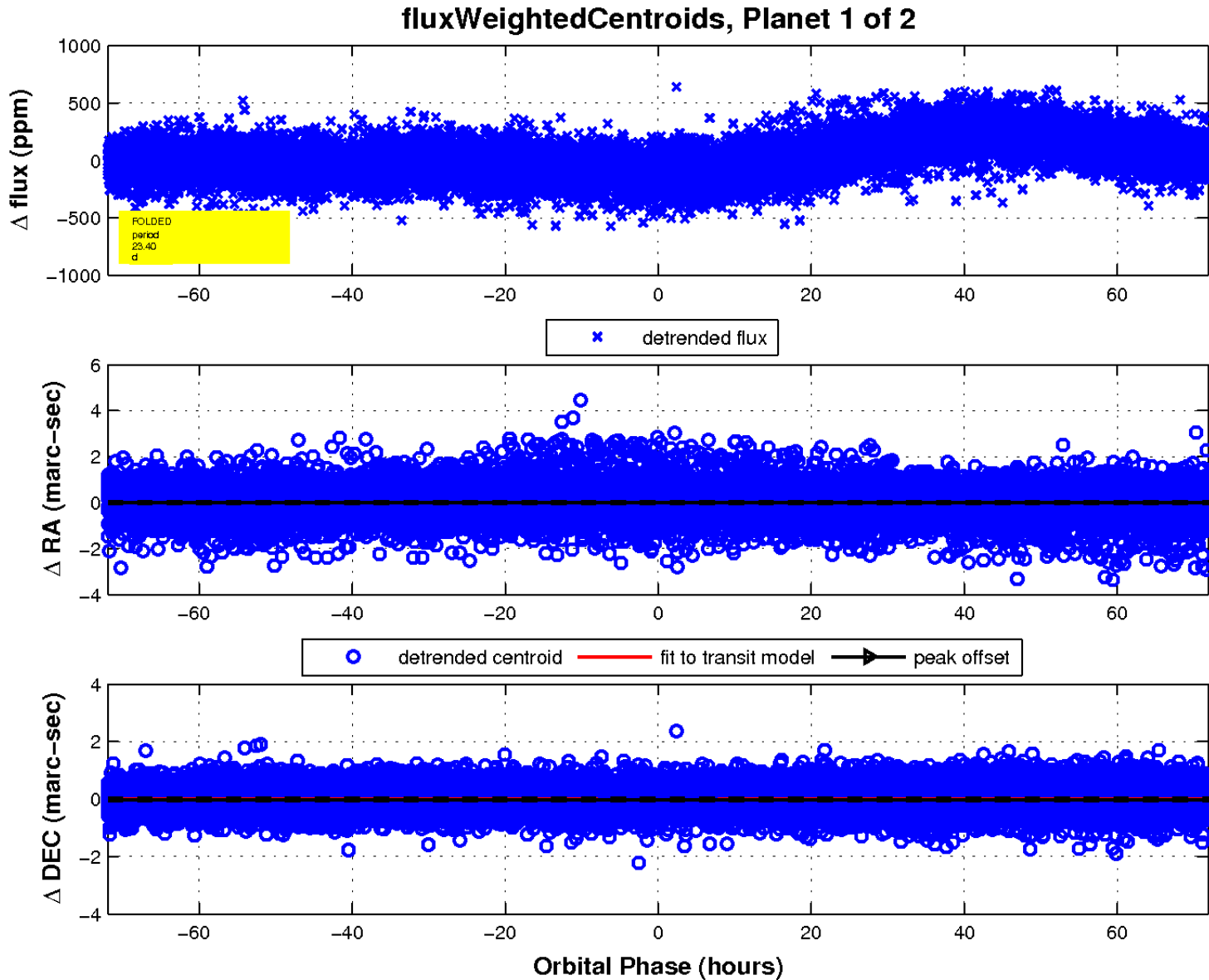
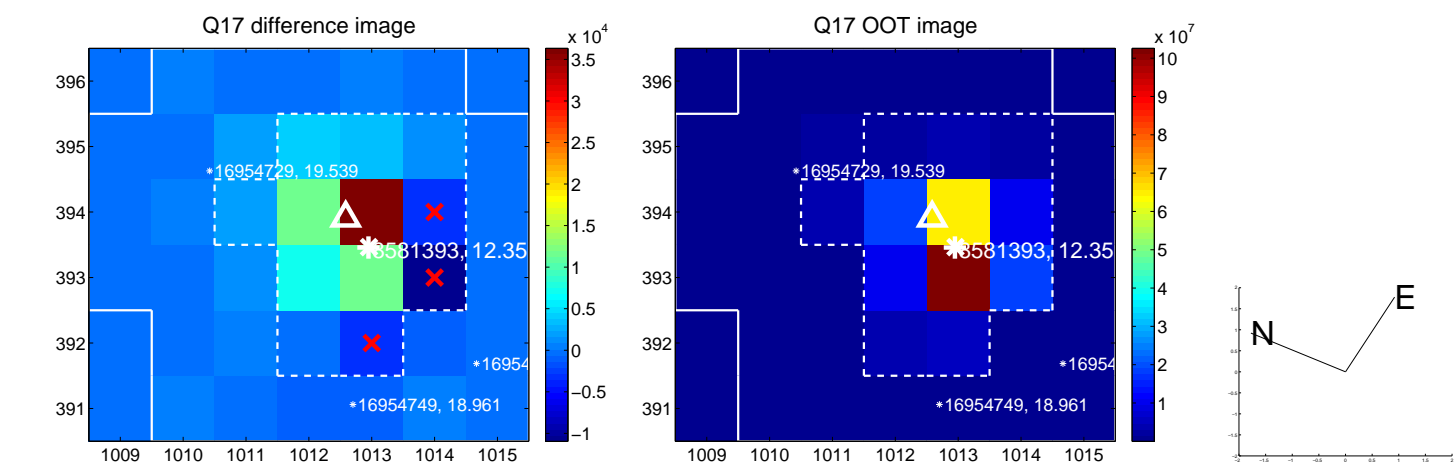
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

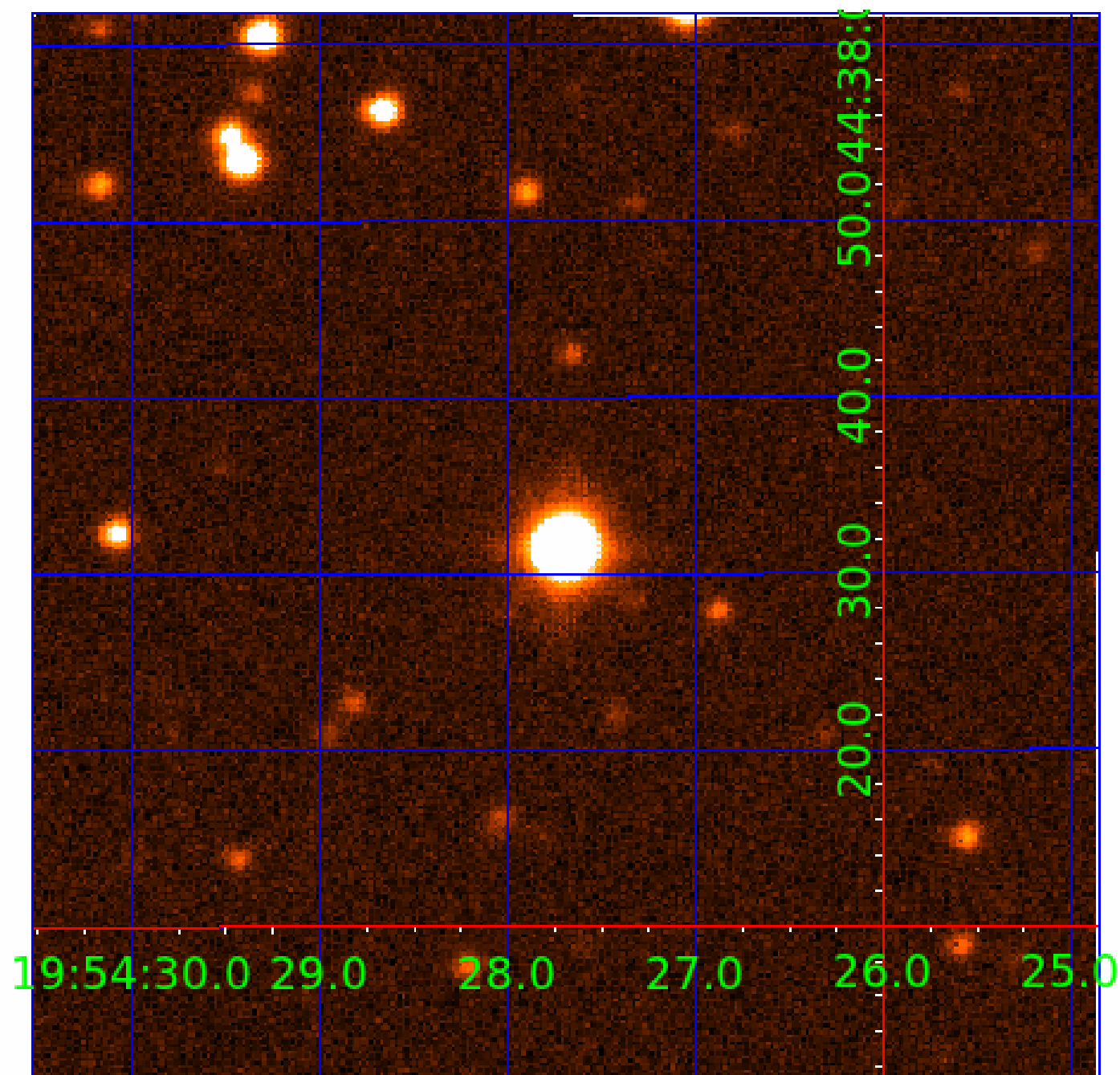


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008581393

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})
008581393-01	OBS	No	23.403294	150.928665	68.5	23.975	9.4	10.2	2.23	6319	1.94	227.88
008581393-02	OBS	No	23.400698	154.506460	125.0	48.630	8.8	16.2	2.23	6319	3.41	227.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008581393-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008581393-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

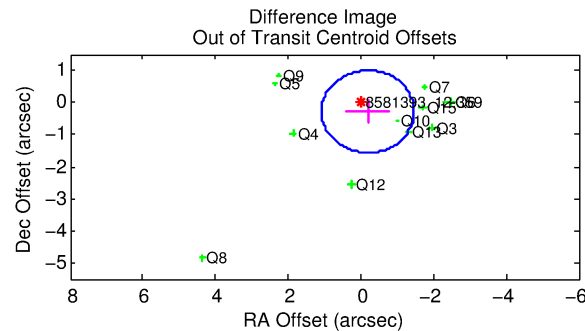
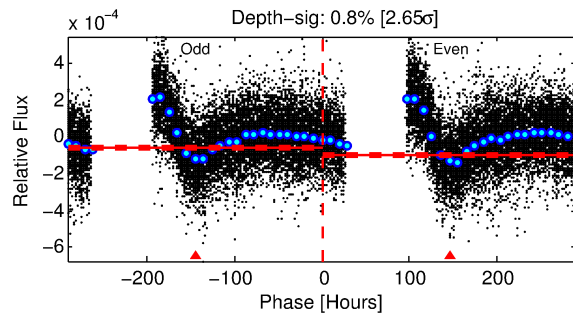
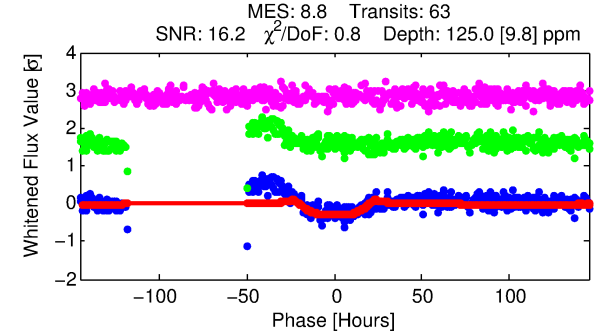
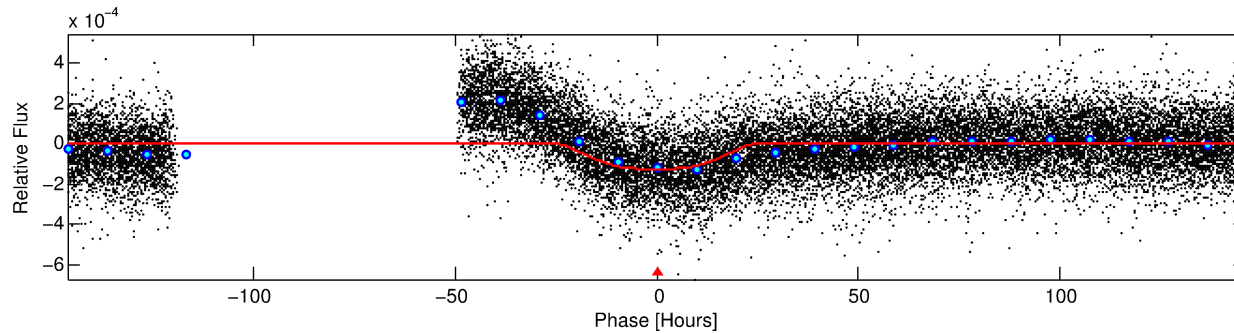
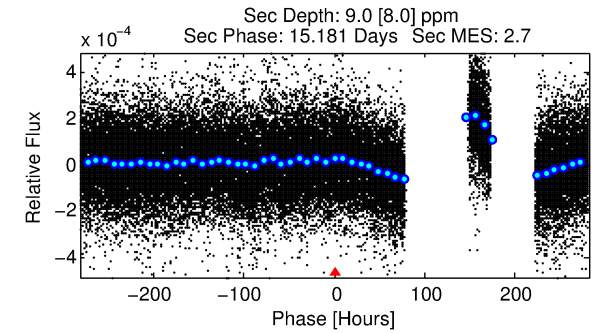
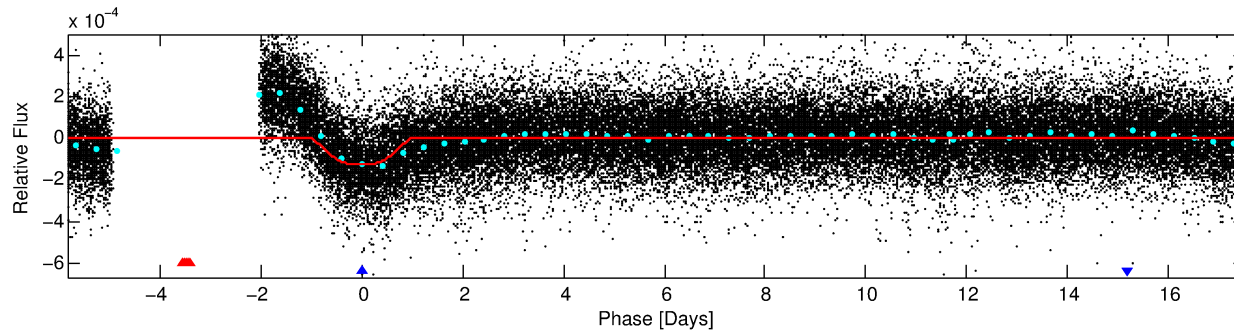
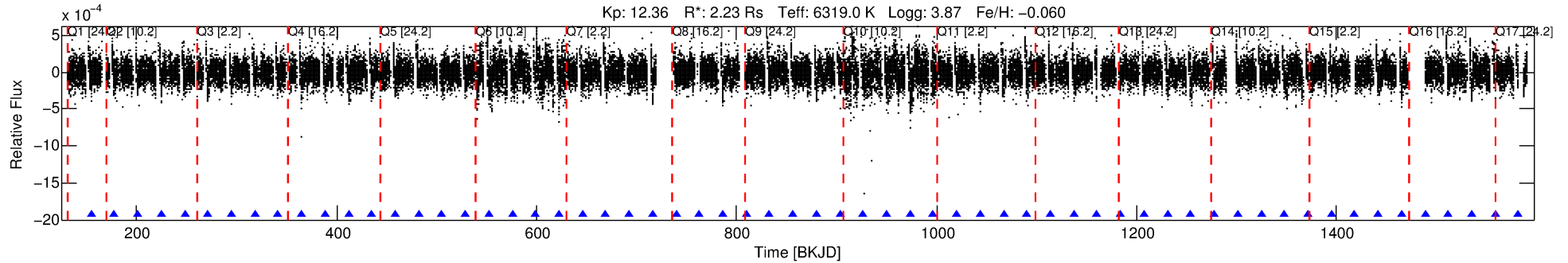
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008581393-02

No Significant Match Found

DV One-Page Summary

KIC: 8581393 Candidate: 2 of 2 Period: 23.401 d



DV Fit Results:

Period = 23.40070 [0.00142] d
Epoch = 154.5065 [0.0479] BKJD
Rp/R* = 0.0140 [0.0006]
a/R* = 1.33 [0.04]
b = 0.98 [0.00]
Seff = 227.92 [117.68]
Teq = 991 [128] K
Rp = 3.41 [1.19] Re
a = 0.1768 [0.0570] AU
Ag = 13.39 [13.70] [0.90σ]
Teffp = 2930 [657] K [2.90σ]

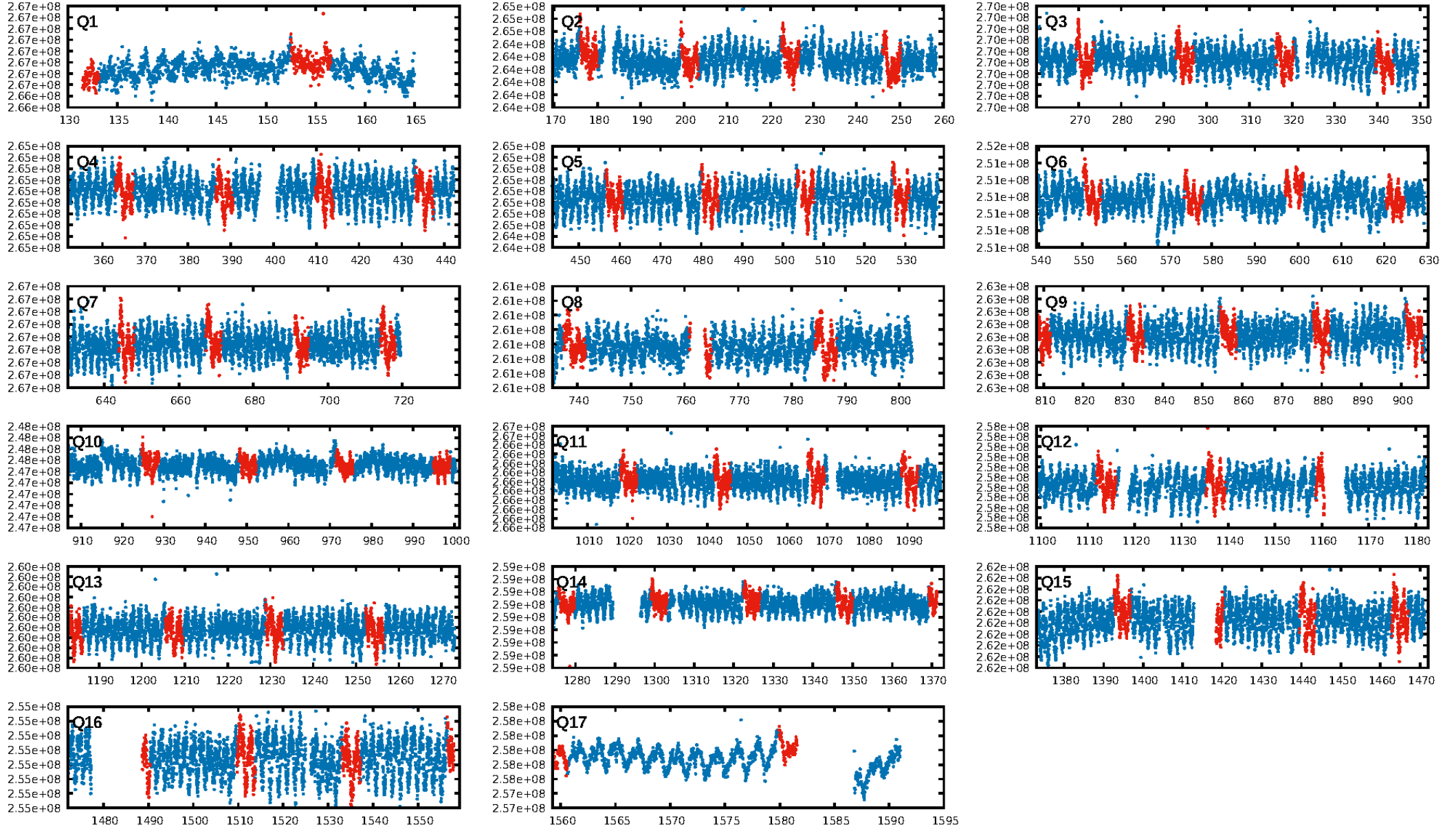
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: 89.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.66e-17
RollingBand-fgt: 1.00 [60/60]
GhostDiagnostic-chr: 1.094
Centroid-sig: 0.0%
Centroid-so: 0.669 arcsec [2.26σ]
OotOffset-rm: 0.341 arcsec [0.80σ]
KicOffset-rm: 0.385 arcsec [0.79σ]
OotOffset-st: 2/3/3/3 [11]
KicOffset-st: 2/3/3/3 [11]
DiffImageQuality-fgm: 0.73 [8/11]
DiffImageOverlap-fno: 0.00 [0/14]

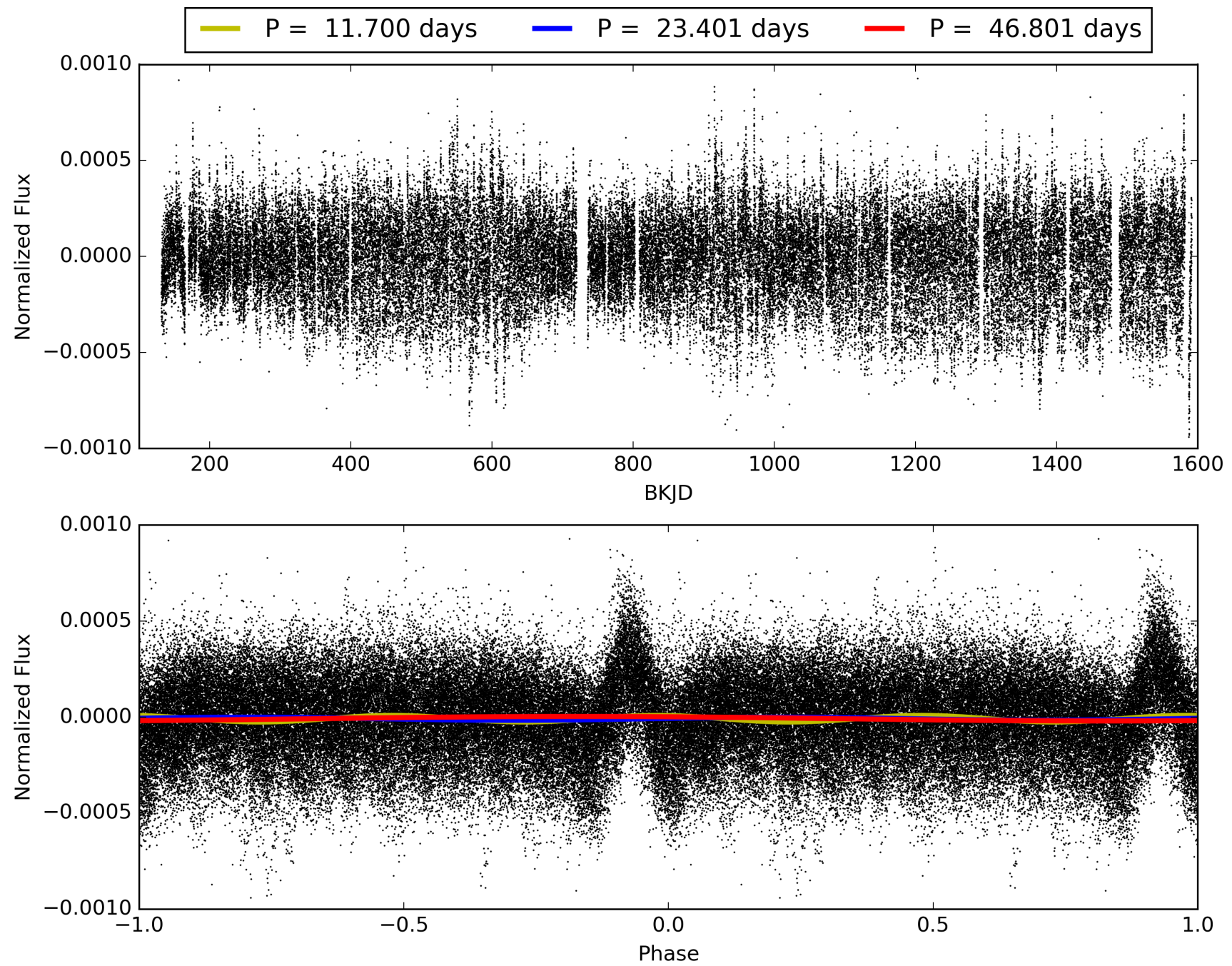
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:25:21 Z

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

TCE 00581393-02, PDC Light Curves

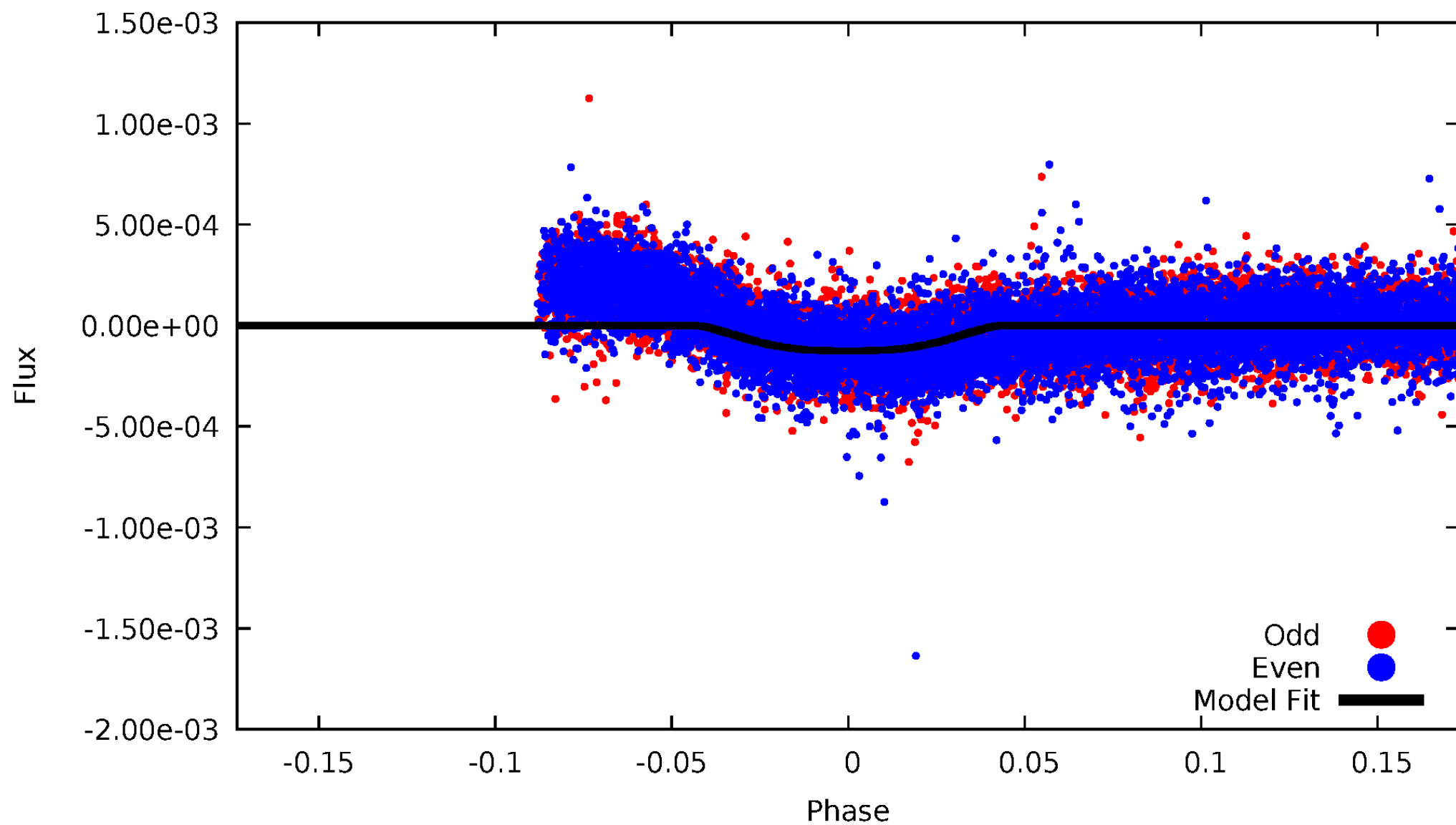


TCE 008581393-02



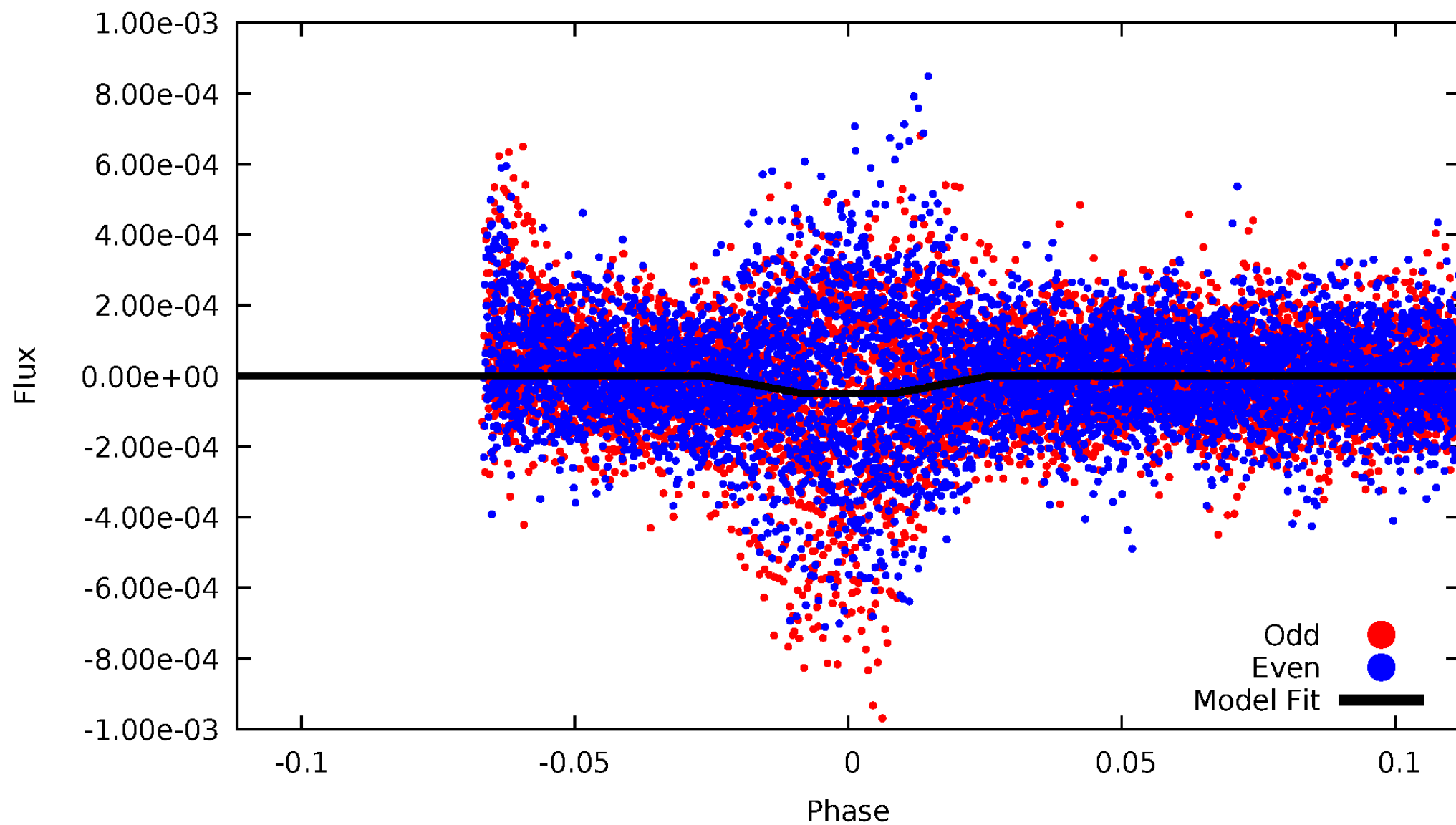
DV Odd/Even

TCE 008581393-02



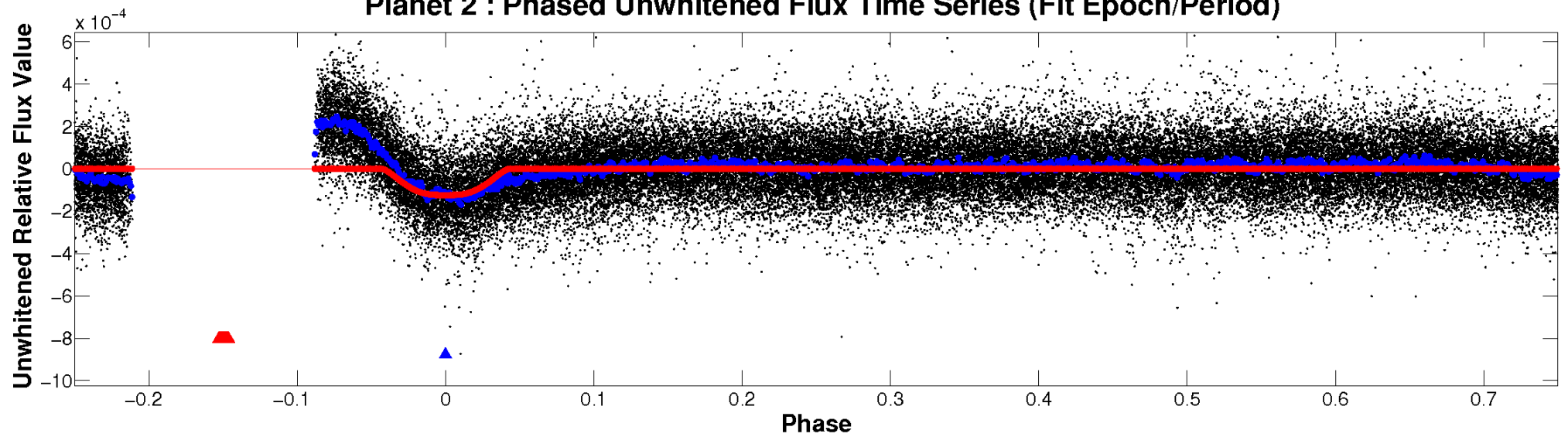
ALT Odd/Even

TCE 008581393-02

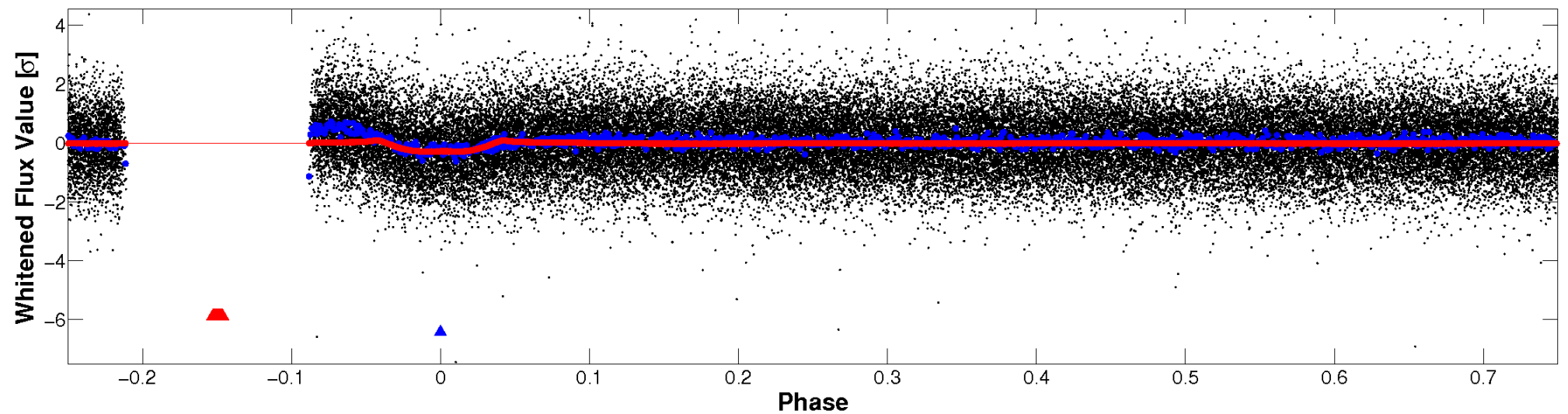


Non-Whitened Vs. Whitened Light Curve

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

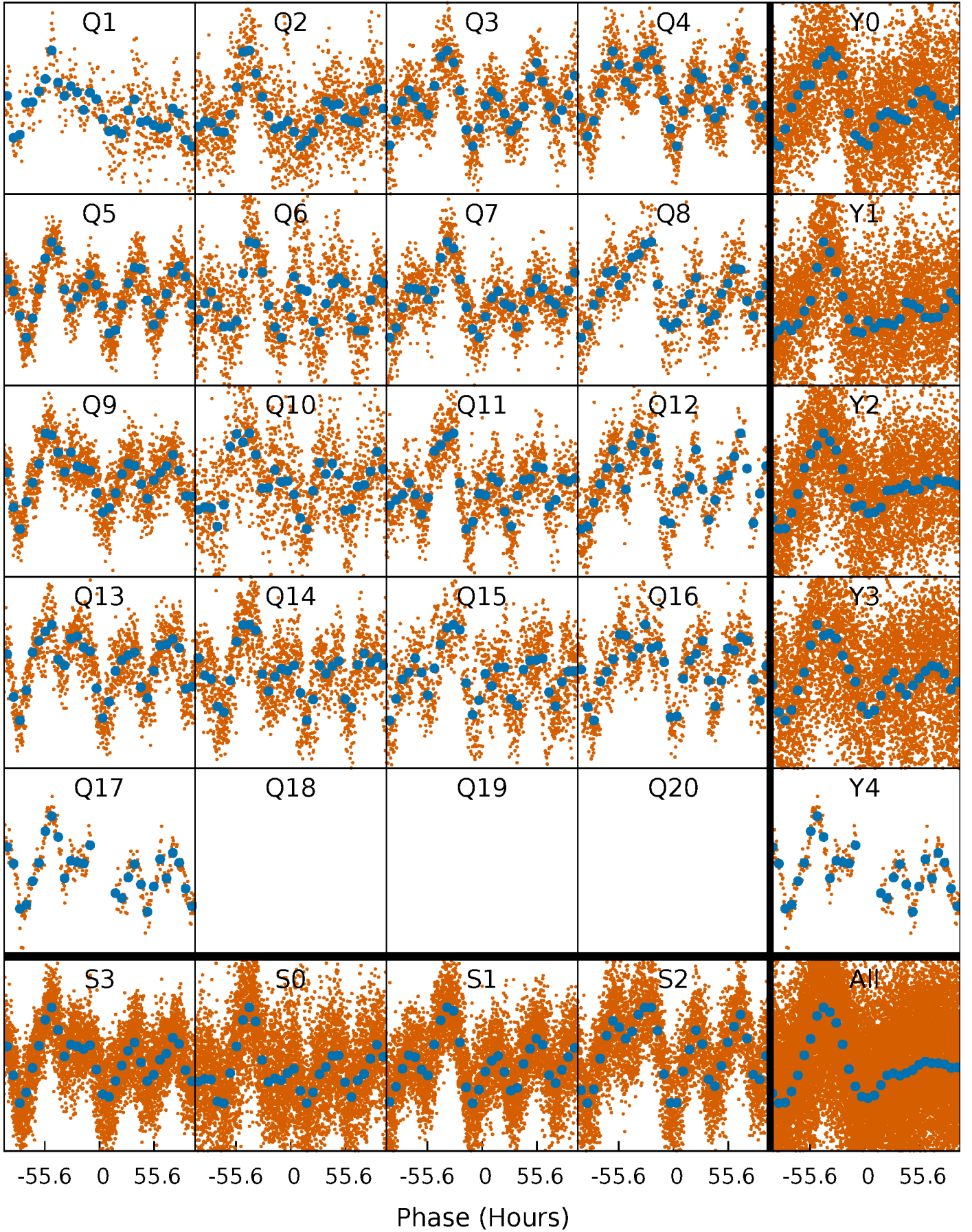


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



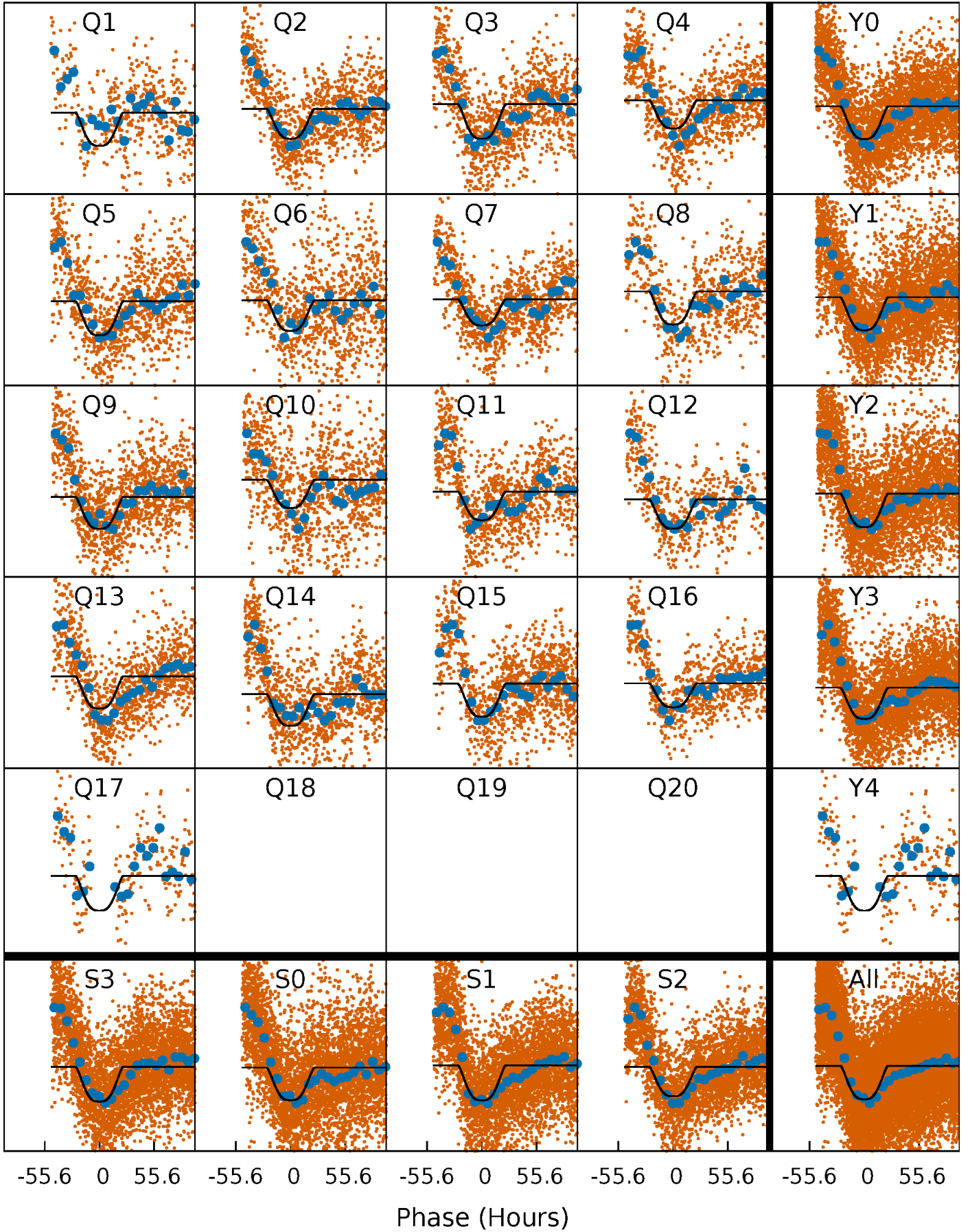
PDC Quarter-Phased Transit Curves

TCE 008581393-02 P= 23.400698 Days $T_0=154.506460$ (BKJD)



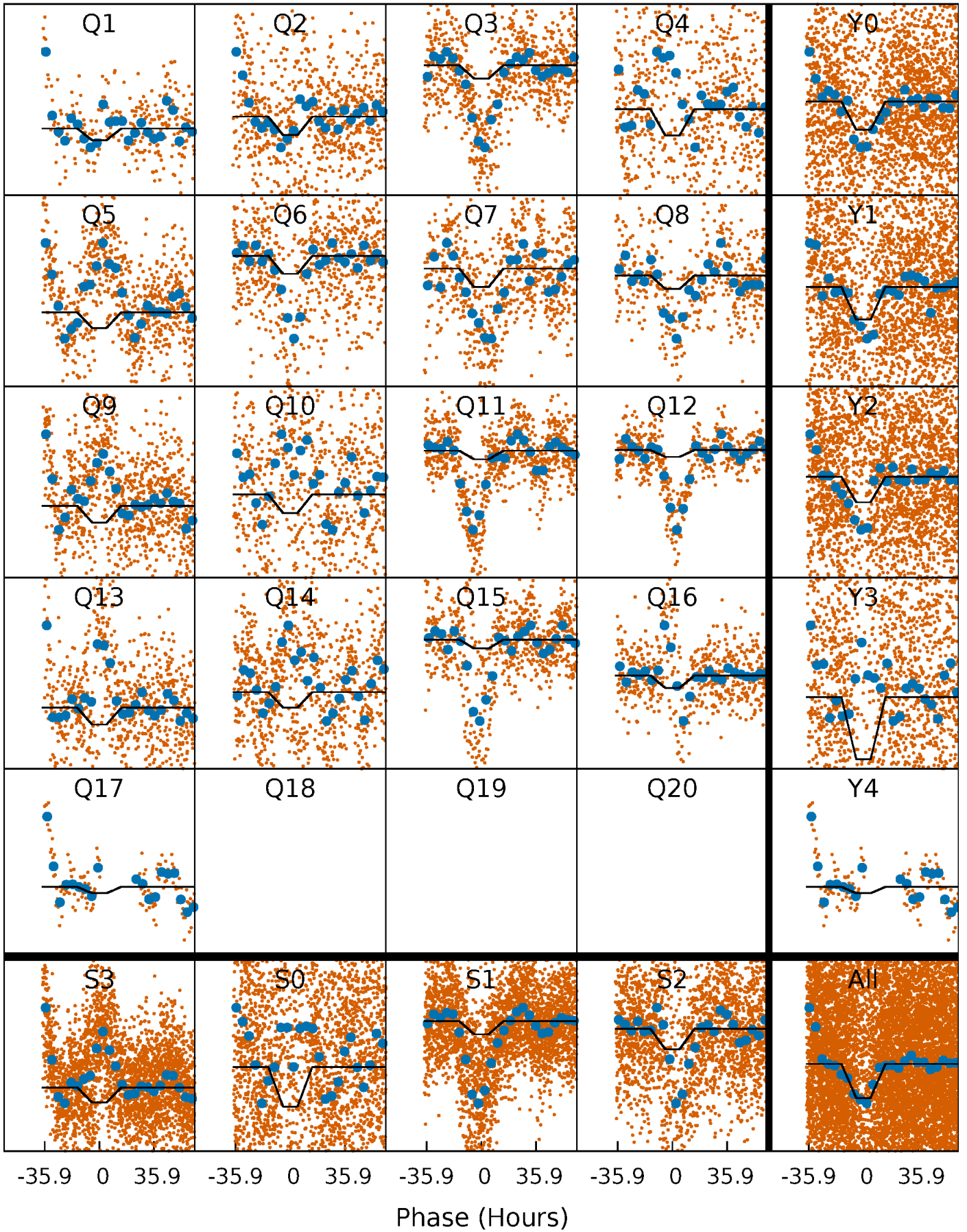
DV Quarter-Phased Transit Curves

TCE 008581393-02 $P = 23.400698$ Days $T_0 = 154.506460$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

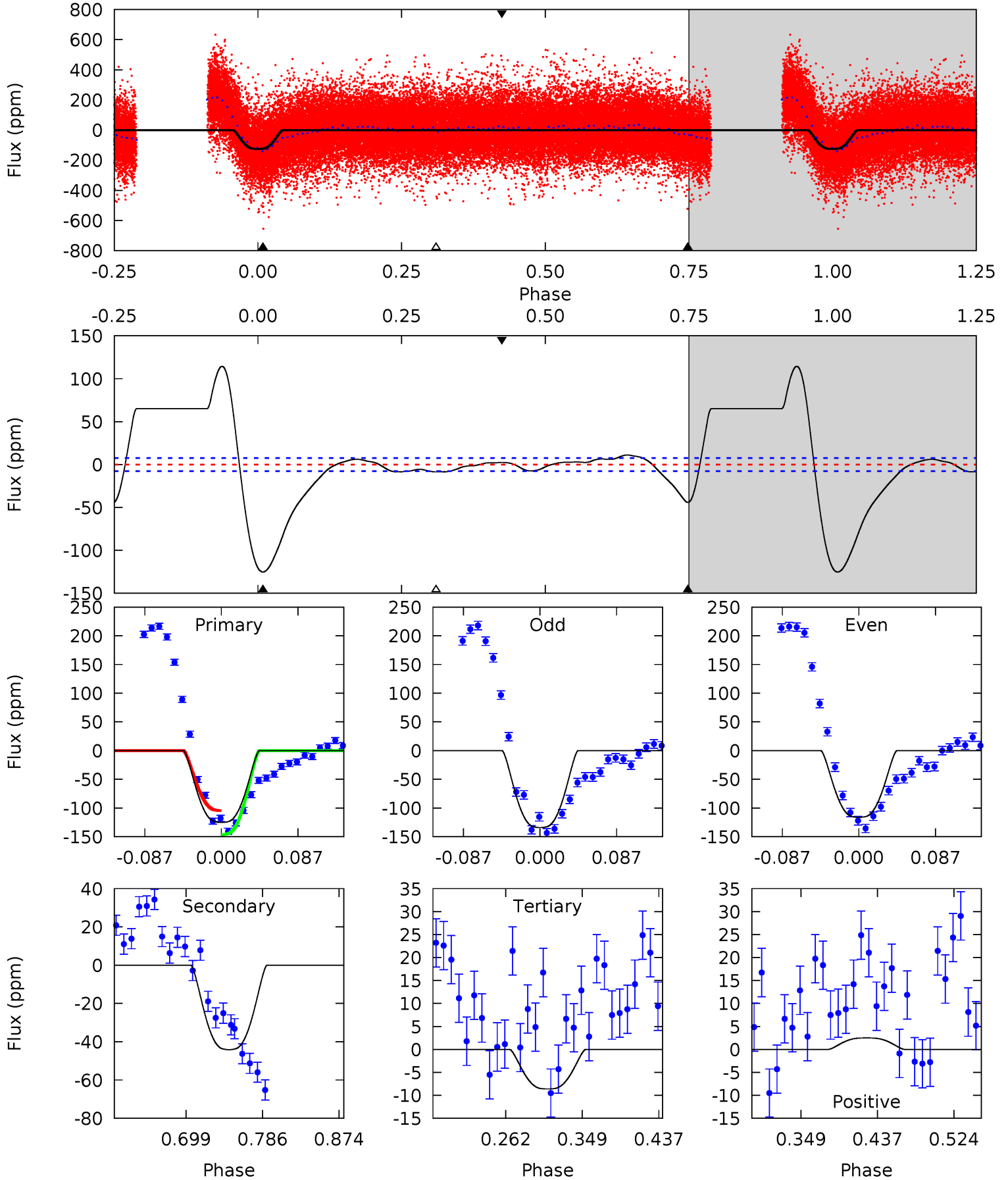
TCE 008581393-02 P= 23.402542 Days $T_0=154.007999$ (BKJD)



DV Model-Shift Uniqueness Test

008581393-02, P = 23.400698 Days, E = 131.105762 Days

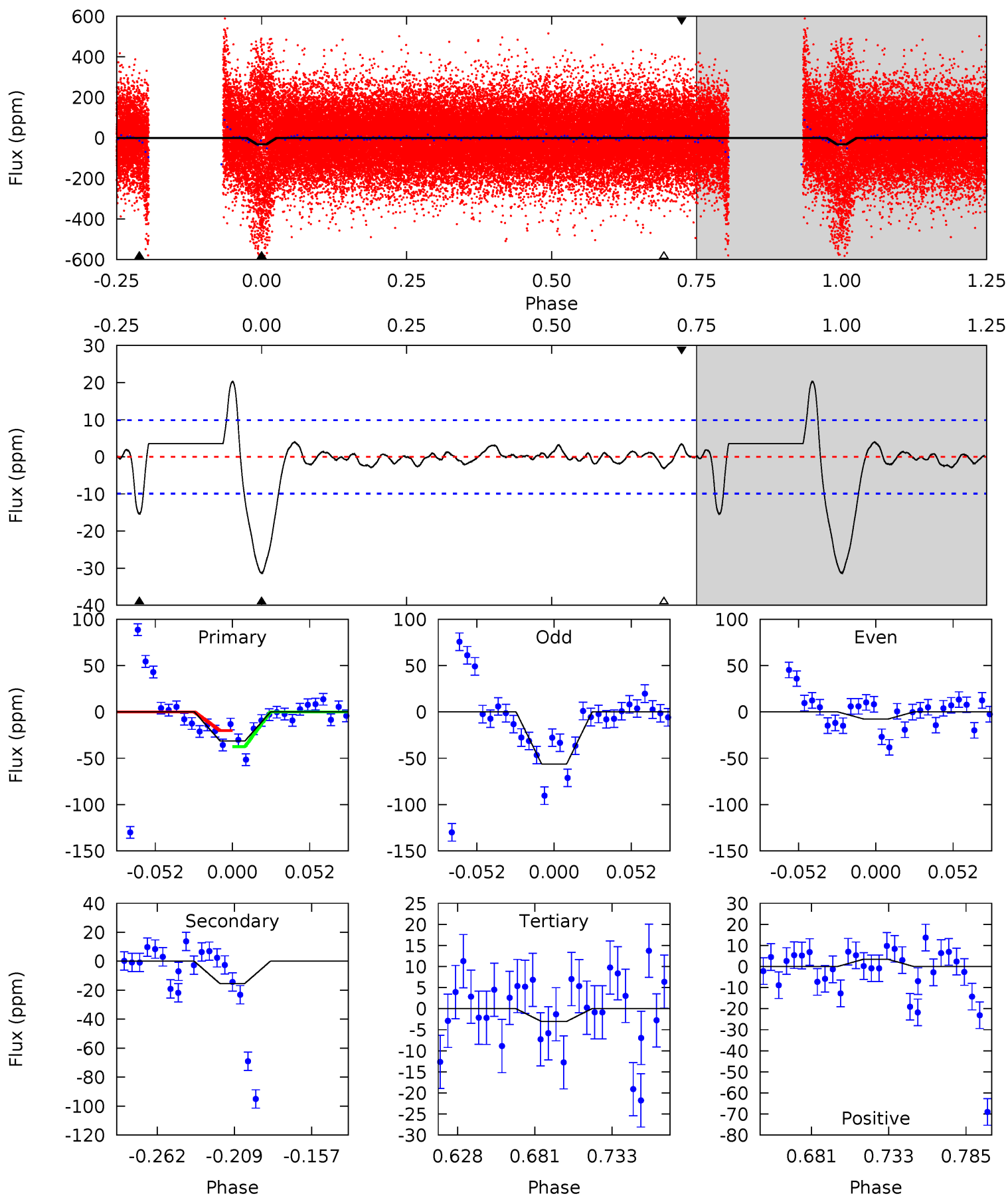
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
75.9	26.7	5.22	1.51	4.59	1.71	6.25	70.6	74.4	21.5	25.2	5.43	0.84	0.48	13.0



Alt Model-Shift Uniqueness Test

008581393-02, P = 23.402542 Days, E = 130.605457 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	7.31	1.45	1.62	4.70	1.94	1.08	13.4	13.3	5.86	5.69	11.6	-11.1	0.39	4.04



Stellar Parameters For KIC 008581393

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6319^{+173}_{-173}	$3.869^{+0.292}_{-0.097}$	$-0.060^{+0.300}_{-0.250}$	$2.233^{+0.478}_{-0.776}$	$1.344^{+0.215}_{-0.239}$	$0.170^{+0.308}_{-0.061}$
	+3%/-3%	+8%/-3%	+500%/-417%	+21%/-35%	+16%/-18%	+181%/-36%
Source	PHO1	FLK73	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 008581393-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-44 ± 2	$3.32^{+0.45}_{-0.64}$	1368^{+78}_{-130}	4529^{+143}_{-123}	71^{+31}_{-16}
Alt.	-15 ± 2	$1.67^{+0.28}_{-0.30}$	1363^{+78}_{-118}	4809^{+296}_{-247}	96^{+48}_{-28}

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 $A_{obs} \gg 1.0$

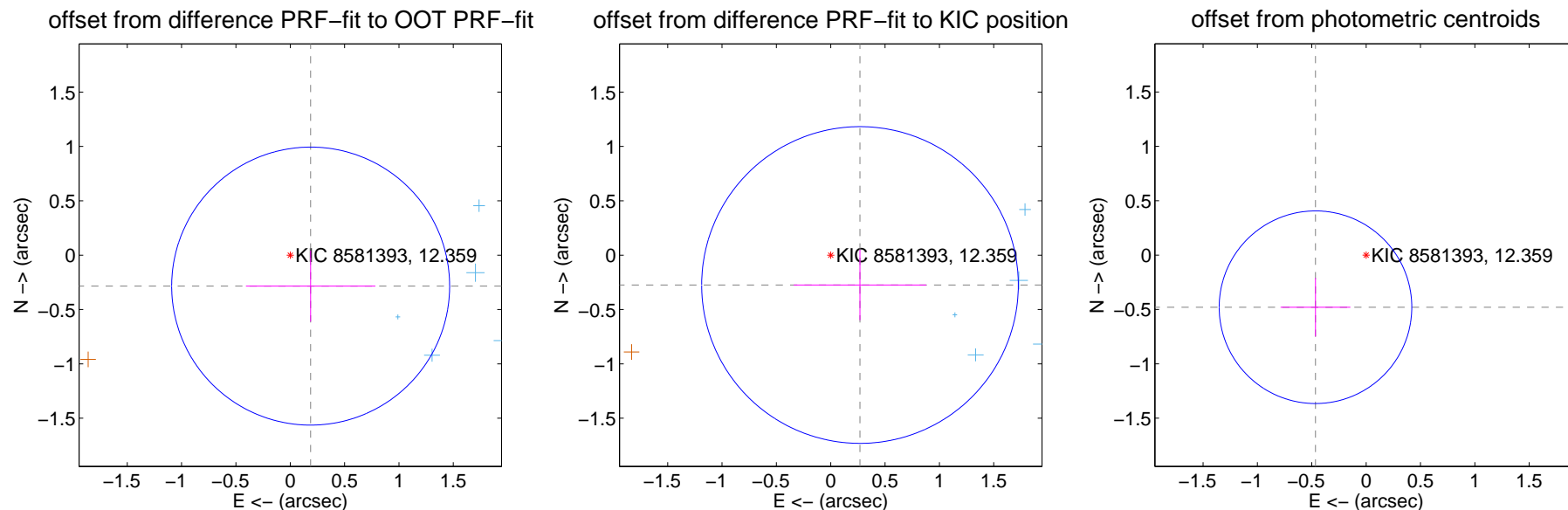
DV Centroid Data

Supplemental centroid analysis for 008581393-02. Kepler magnitude: 12.36. Transit SNR 16.20

There are 8 quarters with good PRF difference image offsets

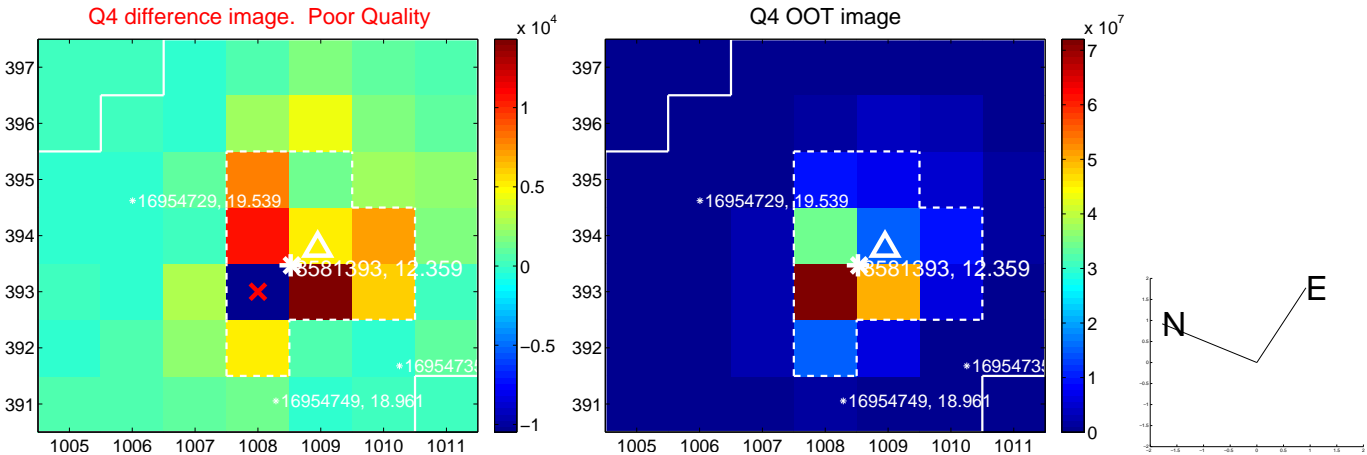
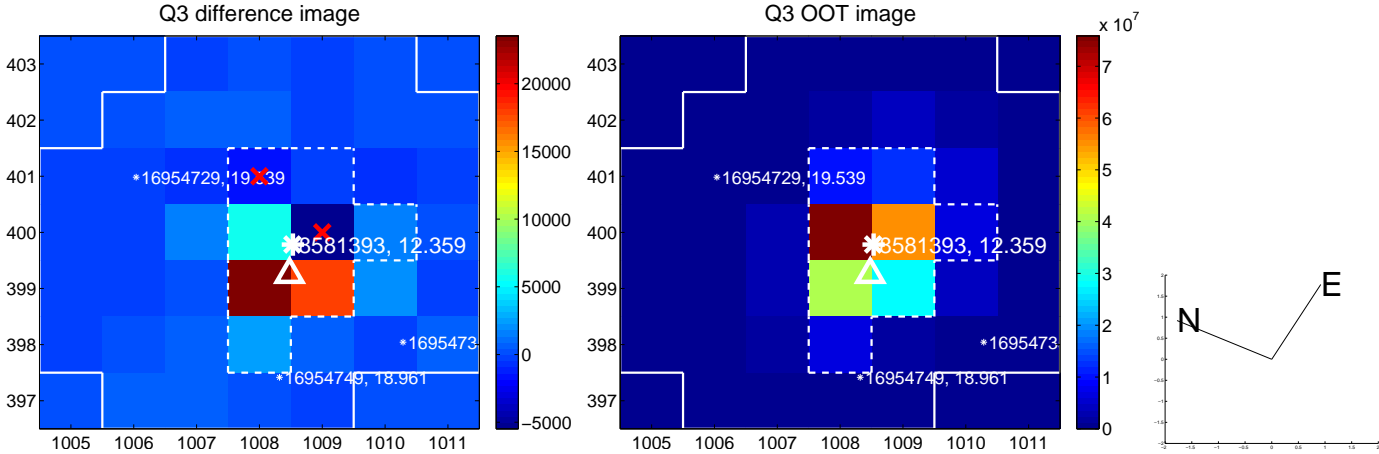
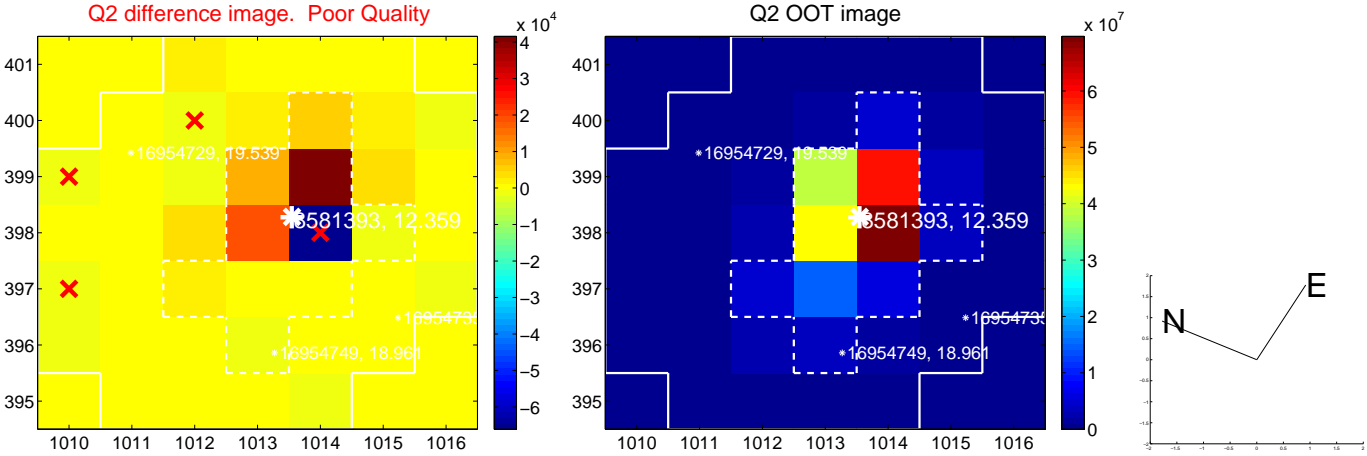
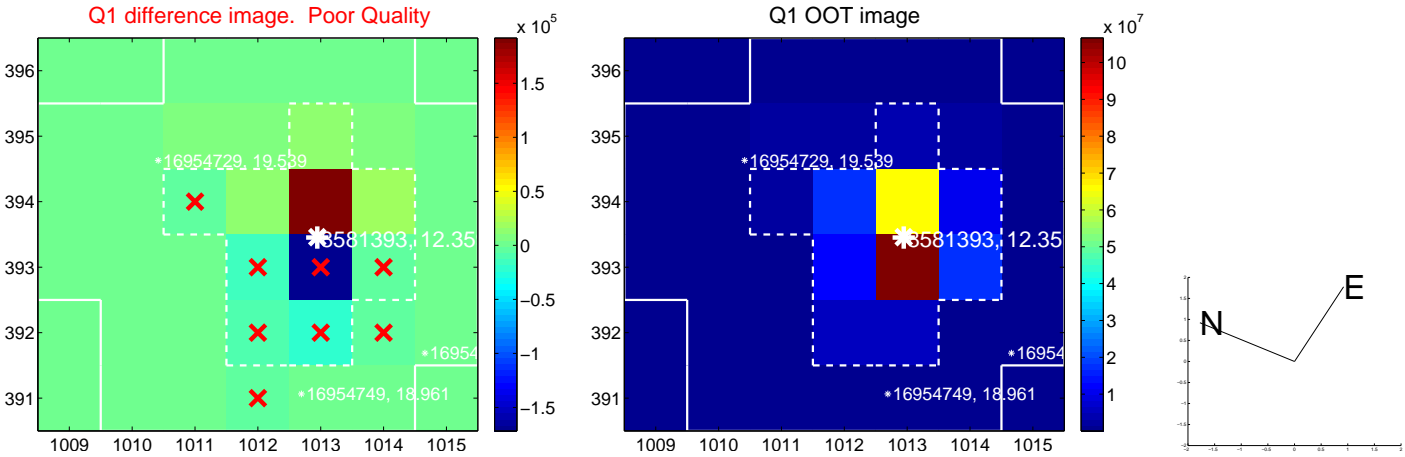
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.341 ± 0.426	0.80	-0.188 ± 0.595	-0.285 ± 0.327
PRF-fit source offset from KIC position	0.385 ± 0.486	0.79	-0.269 ± 0.610	-0.275 ± 0.324
photometric centroid source offset	0.67 ± 0.30	2.26	0.47 ± 0.32	-0.48 ± 0.27

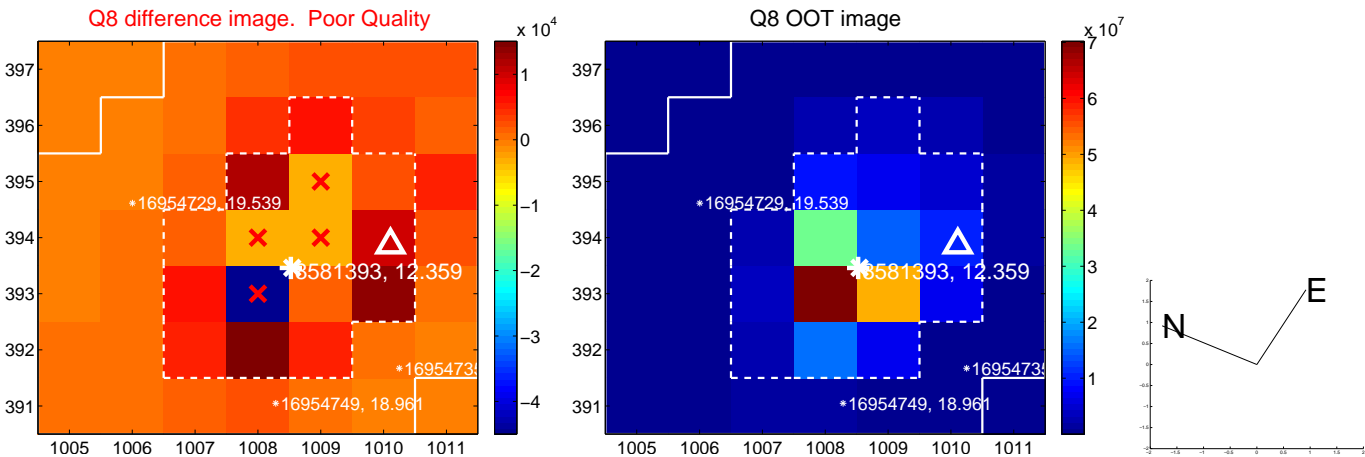
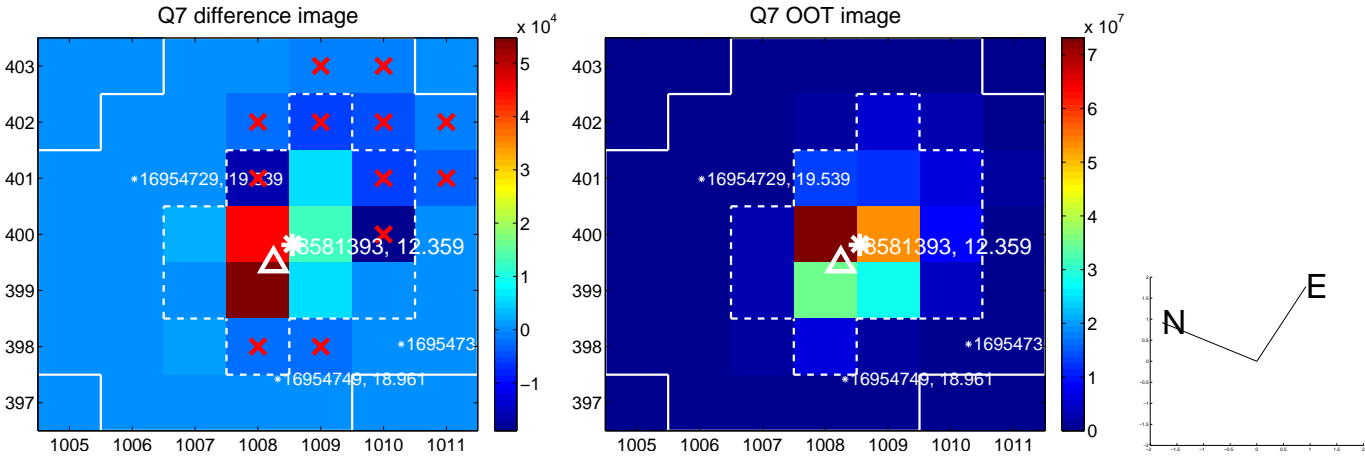
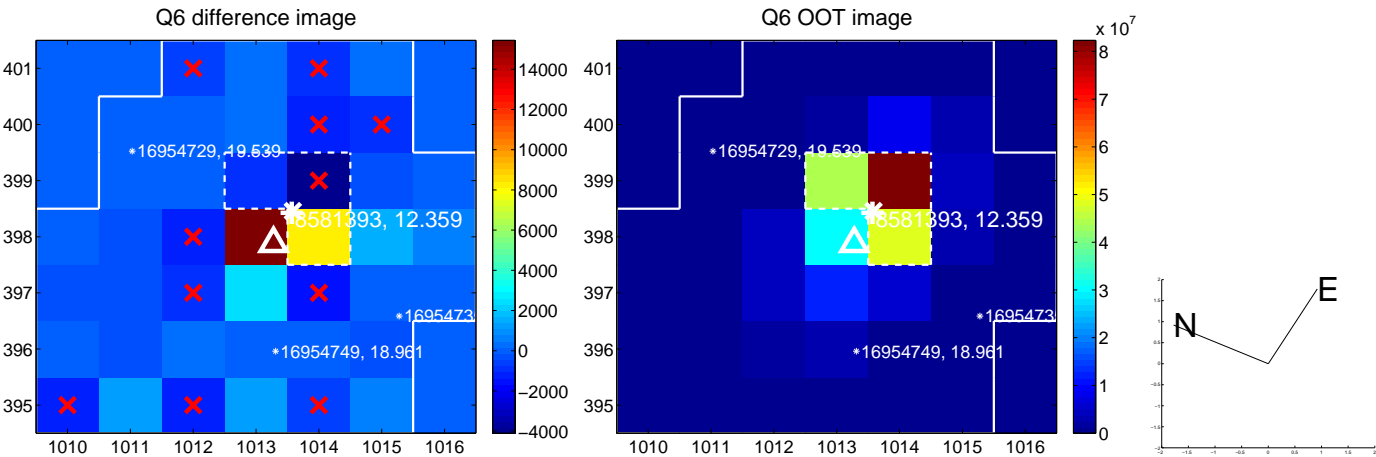
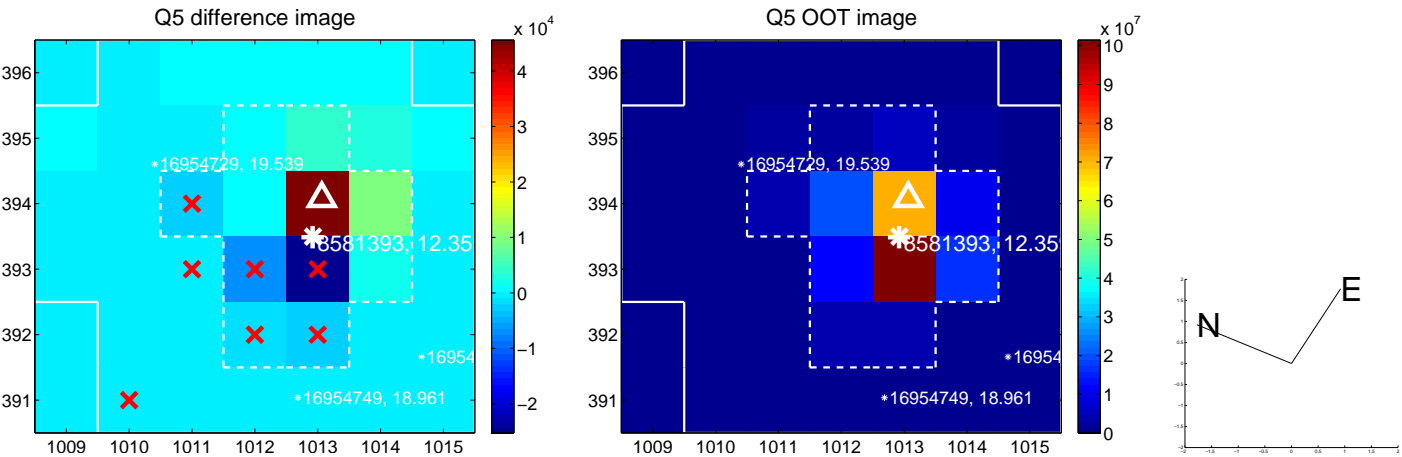


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

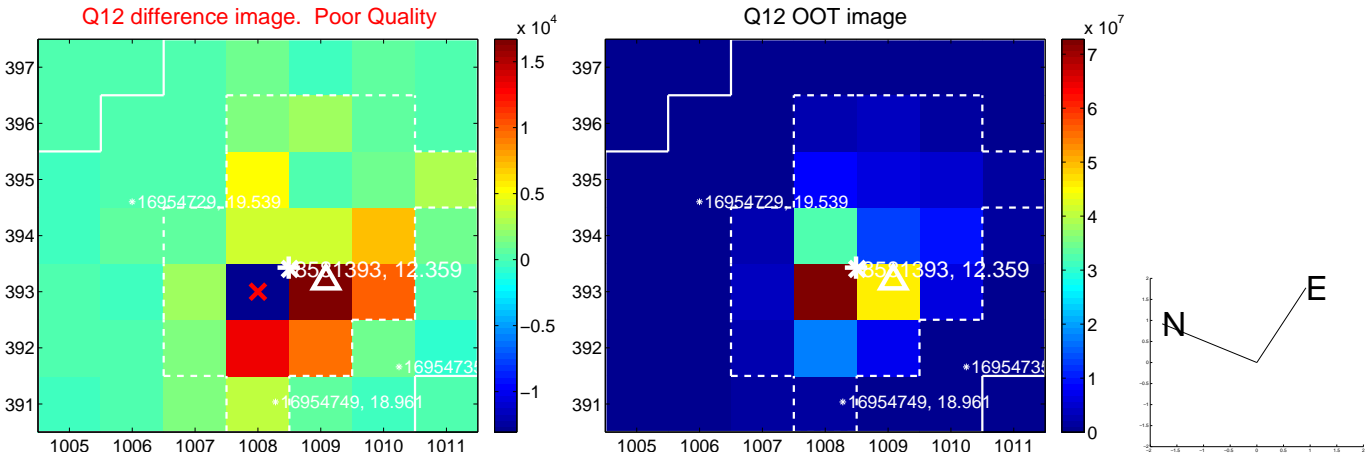
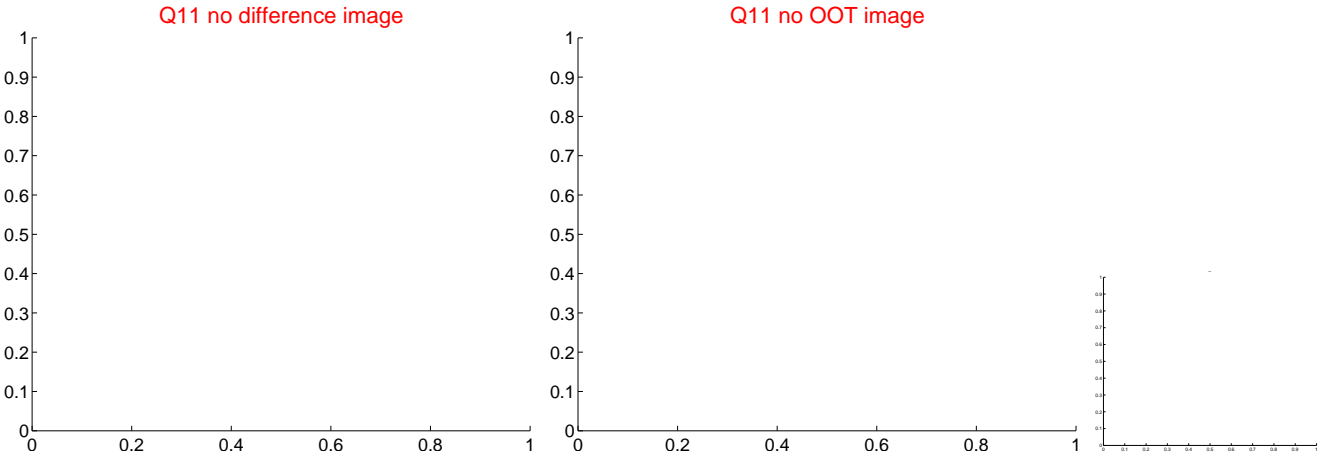
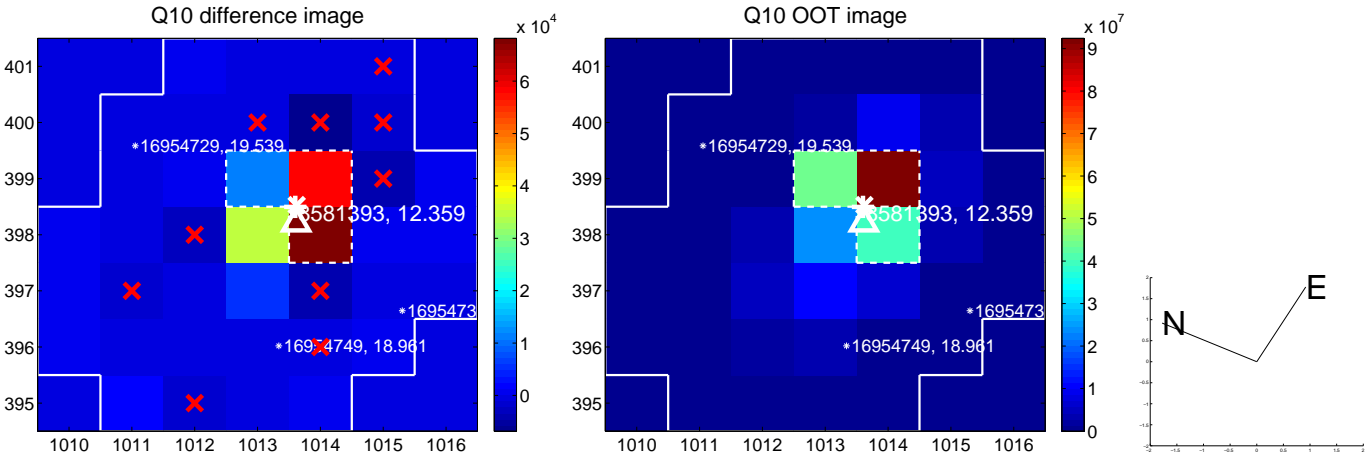
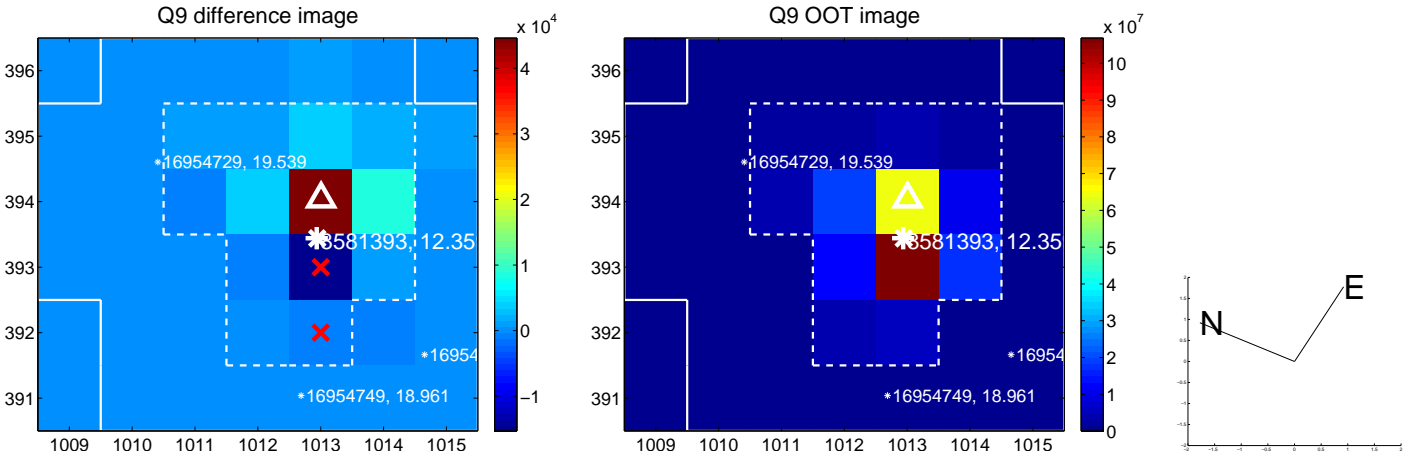
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



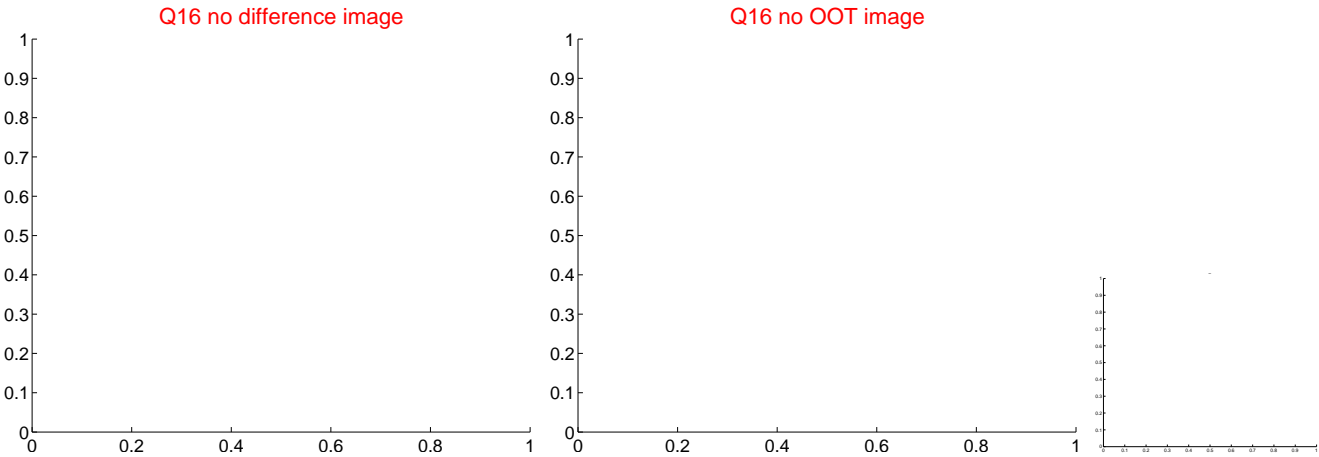
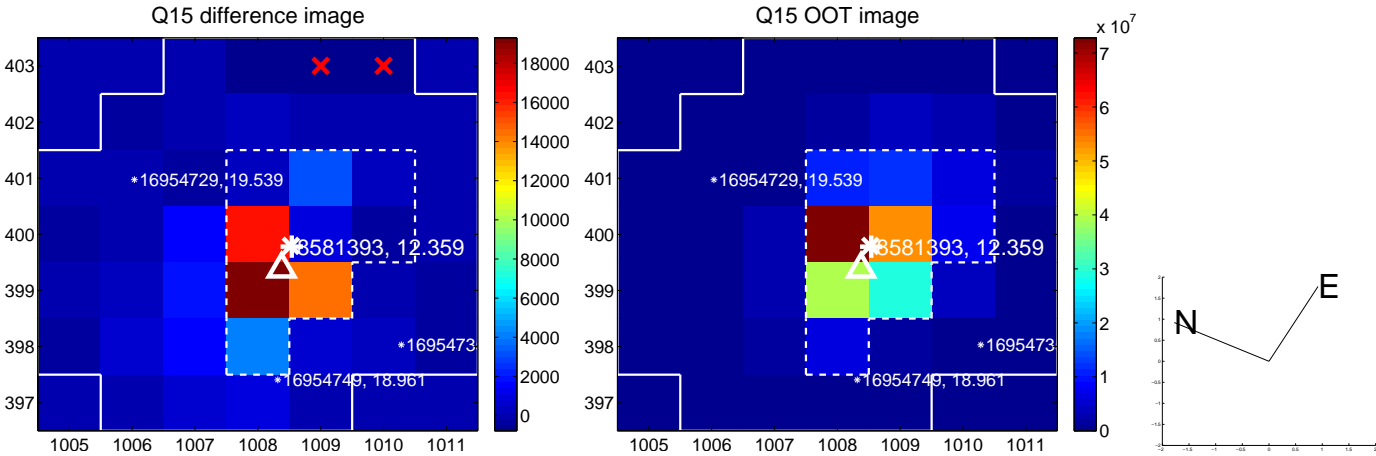
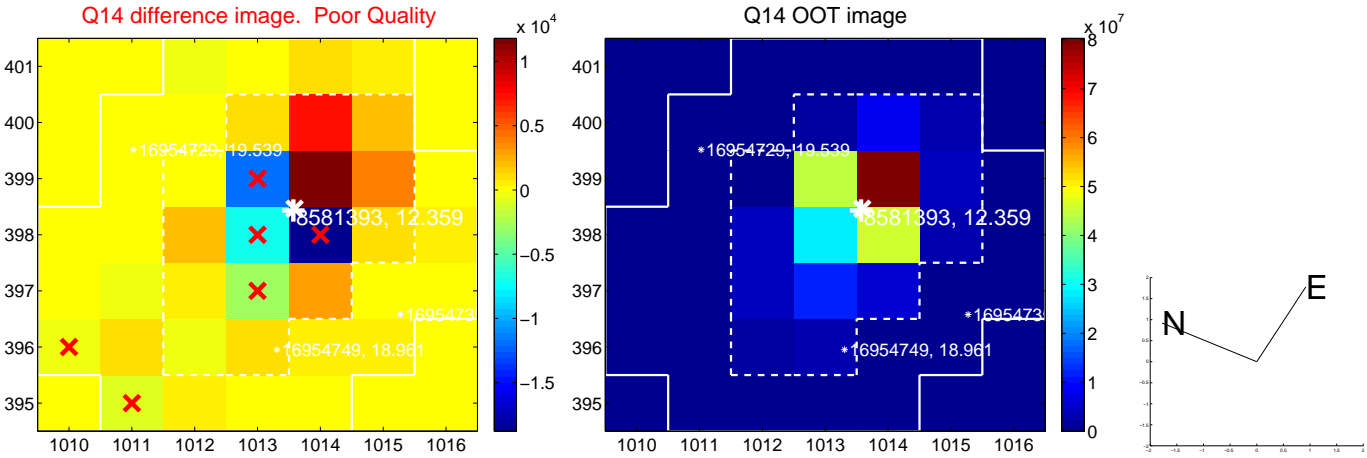
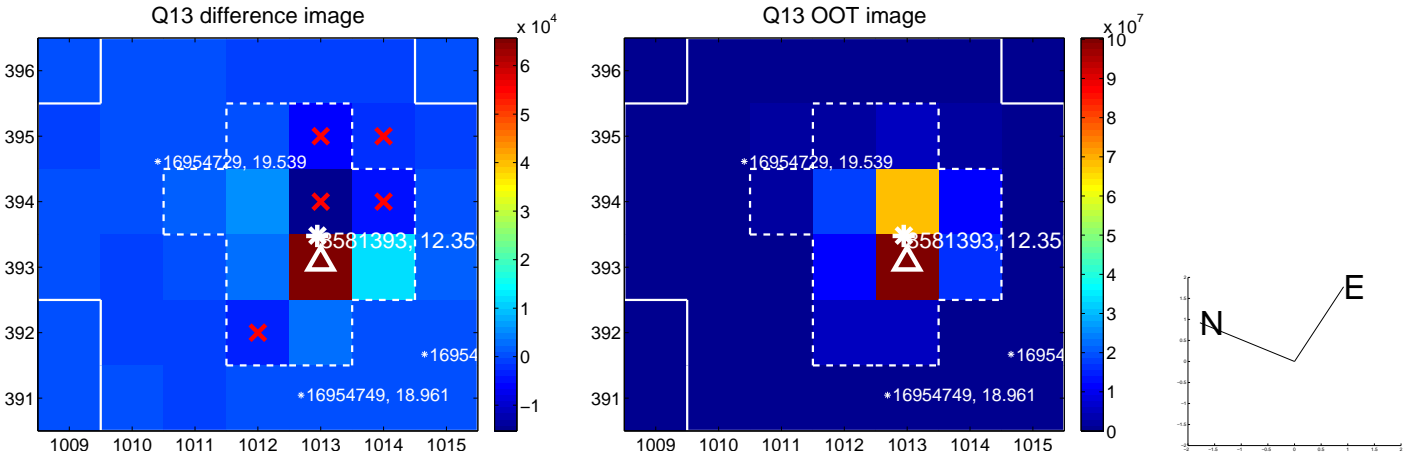
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



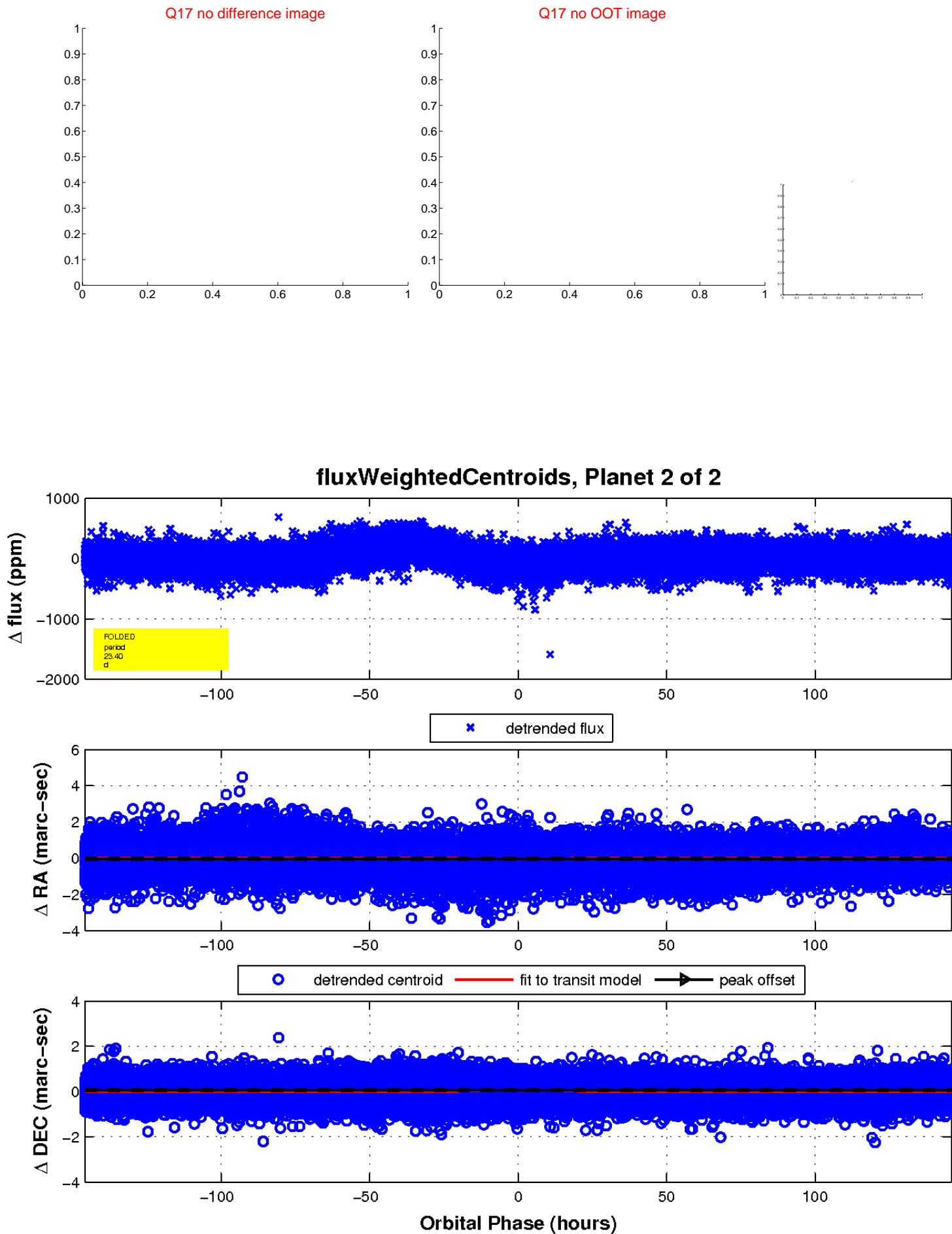
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

