

KIC 008880153

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})
008880153-01	OBS	No	1.088068	132.486199	6.1	3.660	10.8	8.9	2.89	8143	0.82	45851.64
008880153-02	OBS	No	232.237288	138.110387	32.3	9.299	8.2	3.2	2.89	8143	1.91	35.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008880153-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008880153-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

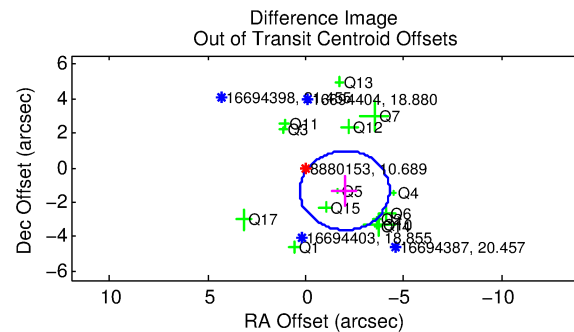
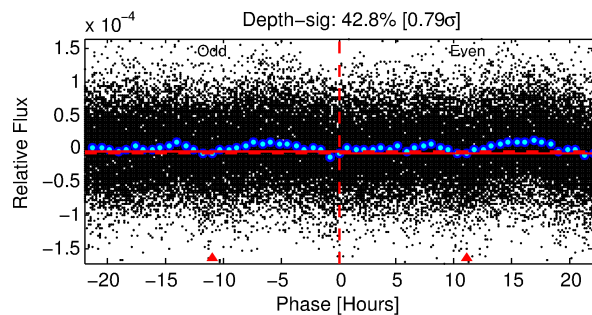
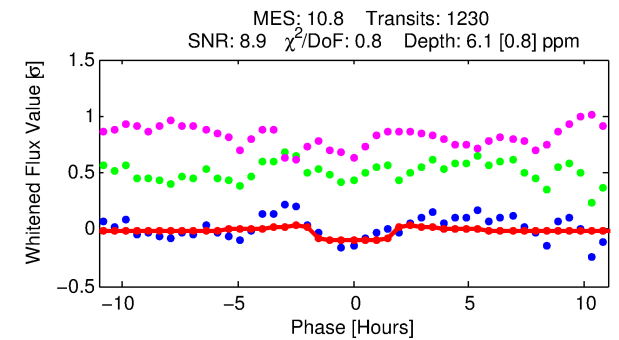
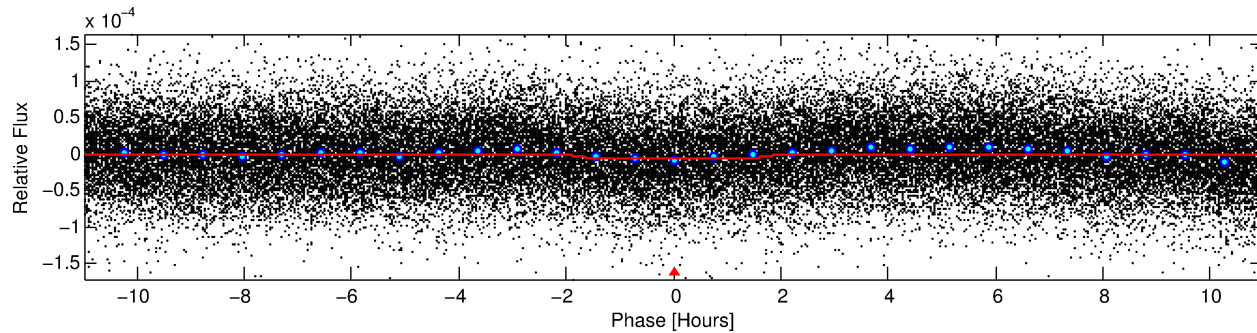
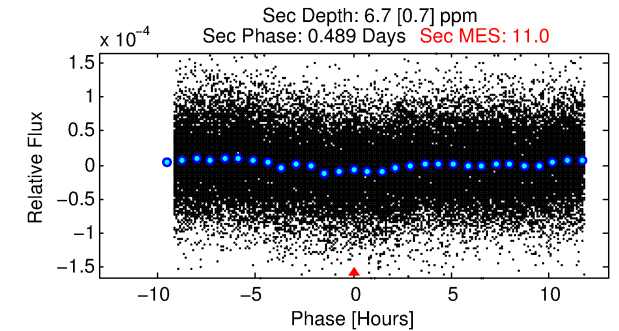
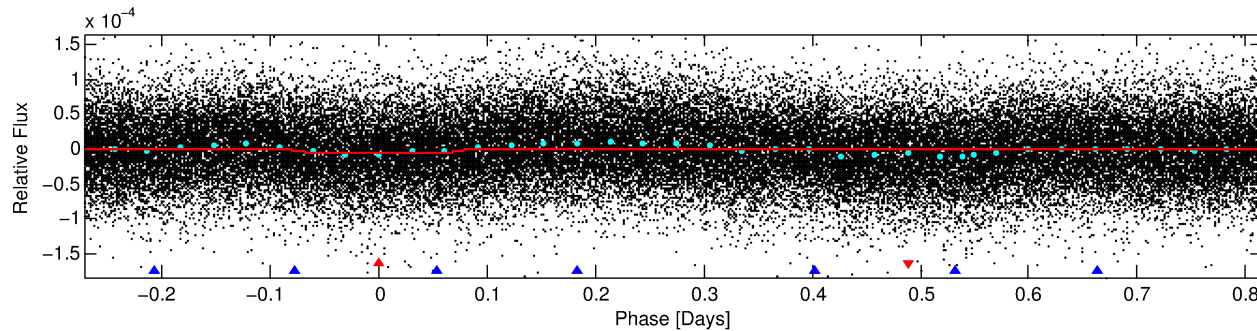
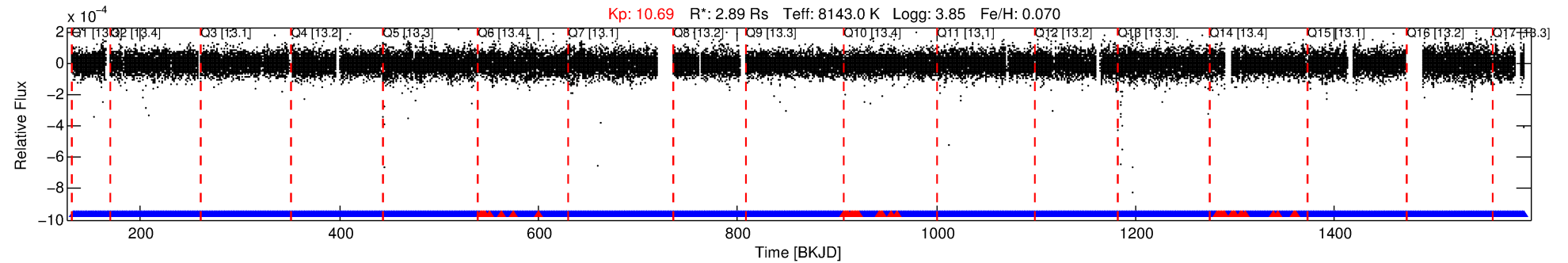
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008880153-01

No Significant Match Found

DV One-Page Summary

KIC: 8880153 Candidate: 1 of 2 Period: 1.088 d



DV Fit Results:

Period = 1.08807 [0.00001] d
Epoch = 132.4862 [0.0032] BKJD
Rp/R* = 0.0026 [0.0004]
a/R* = 1.38 [0.60]
b = 0.90 [0.20]
Seff = 45851.64 [26033.94]
Teff = 3731 [530] K
Rp = 0.82 [0.34] Re
a = 0.0268 [0.0094] AU
Ag = 3.90 [2.46] [1.18 σ]
Teffp = 8106 [762] K [4.71 σ]

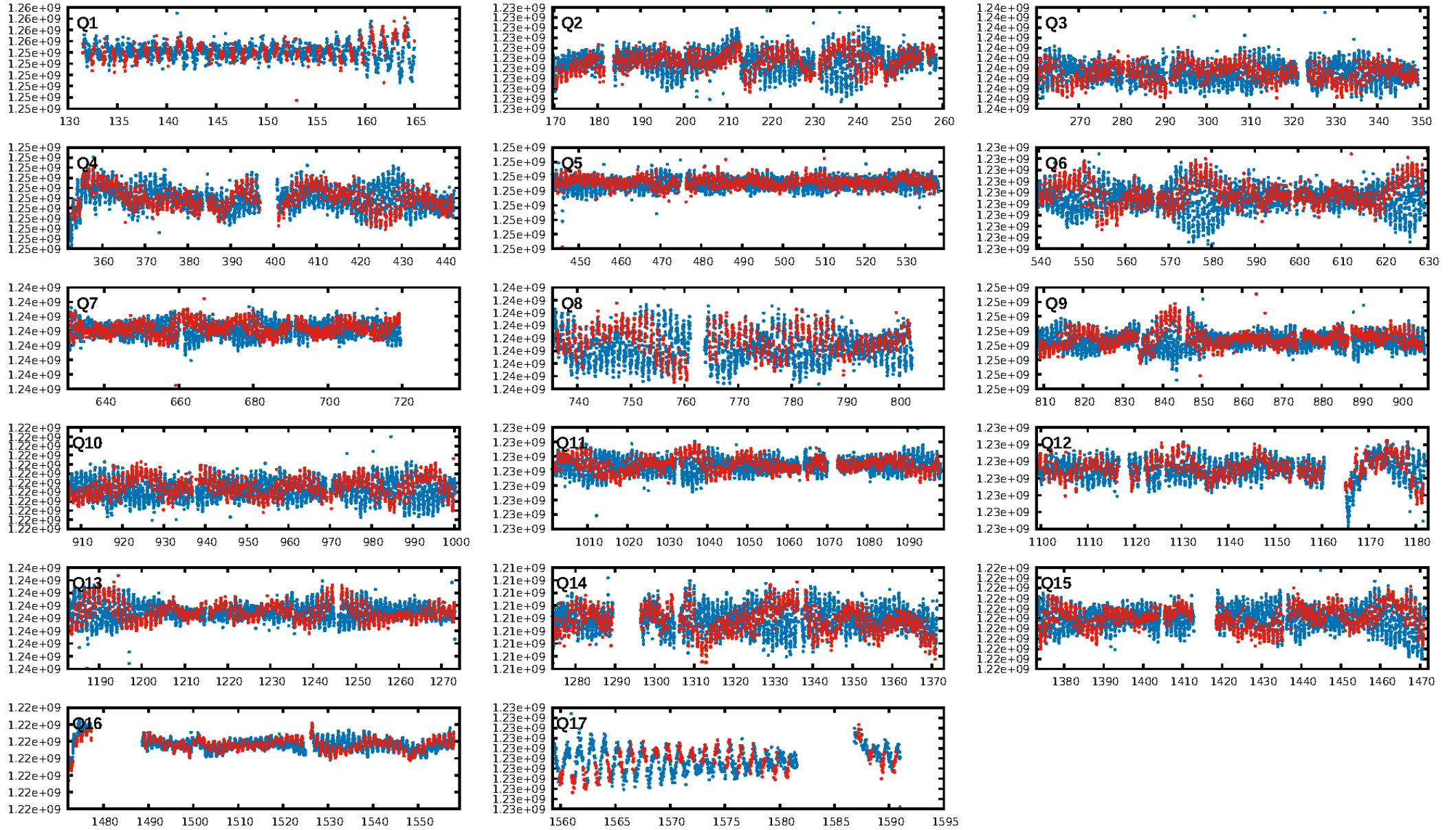
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [555.12 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.50e-23
RollingBand-fgt: 0.96 [1130/1176]
GhostDiagnostic-chr: -3.485
Centroid-sig: 2.8%
Centroid-so: 2.367 arcsec [1.78 σ]
OotOffset-rm: 2.377 arcsec [3.12 σ]
KicOffset-rm: 2.663 arcsec [3.32 σ]
OotOffset-st: 4/4/2/4 [14]
KicOffset-st: 4/4/2/4 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 1.00 [17/17]

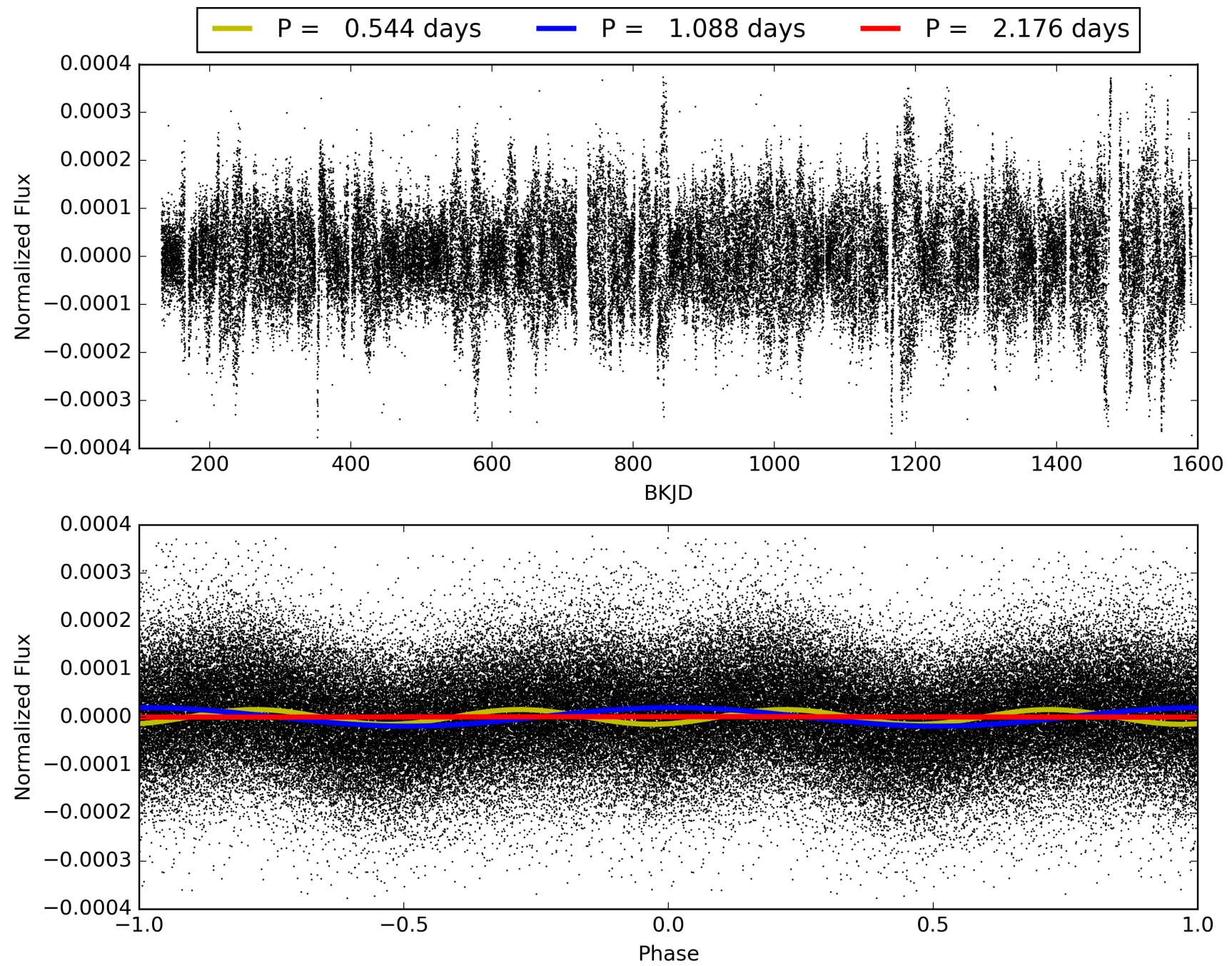
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:36:10 Z

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

TCE 008880153-01, PDC Light Curves

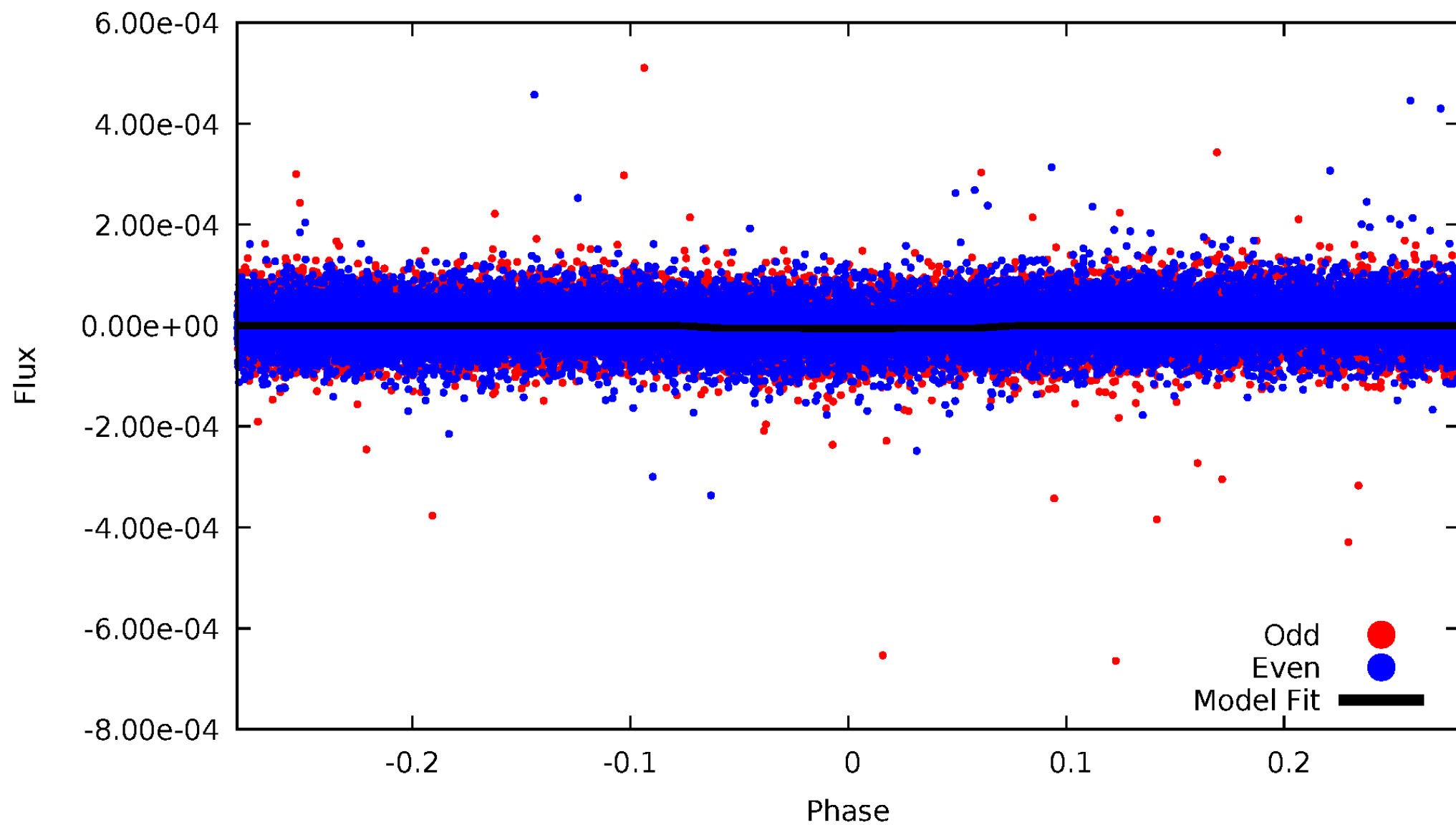


TCE 008880153-01



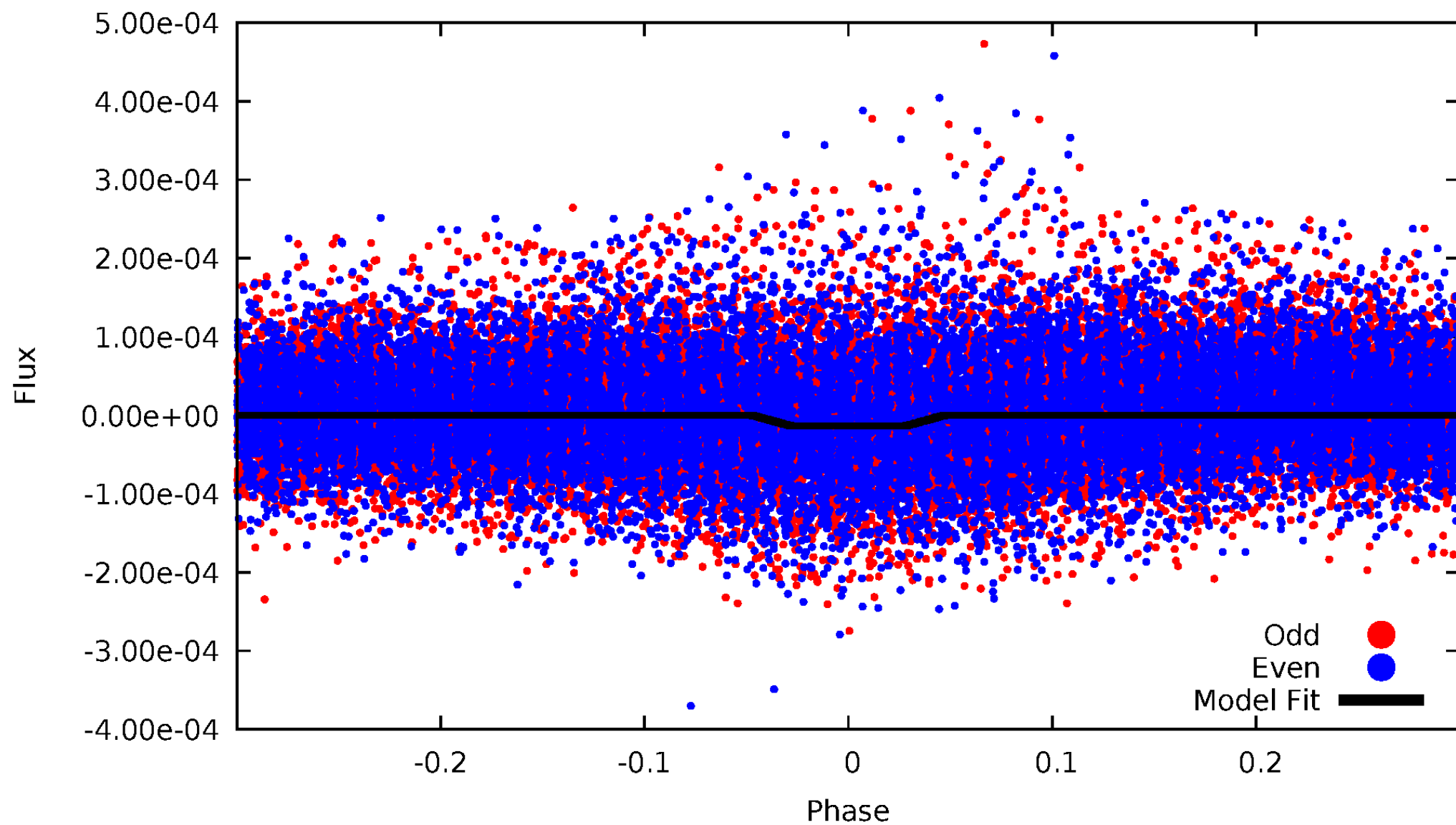
DV Odd/Even

TCE 008880153-01



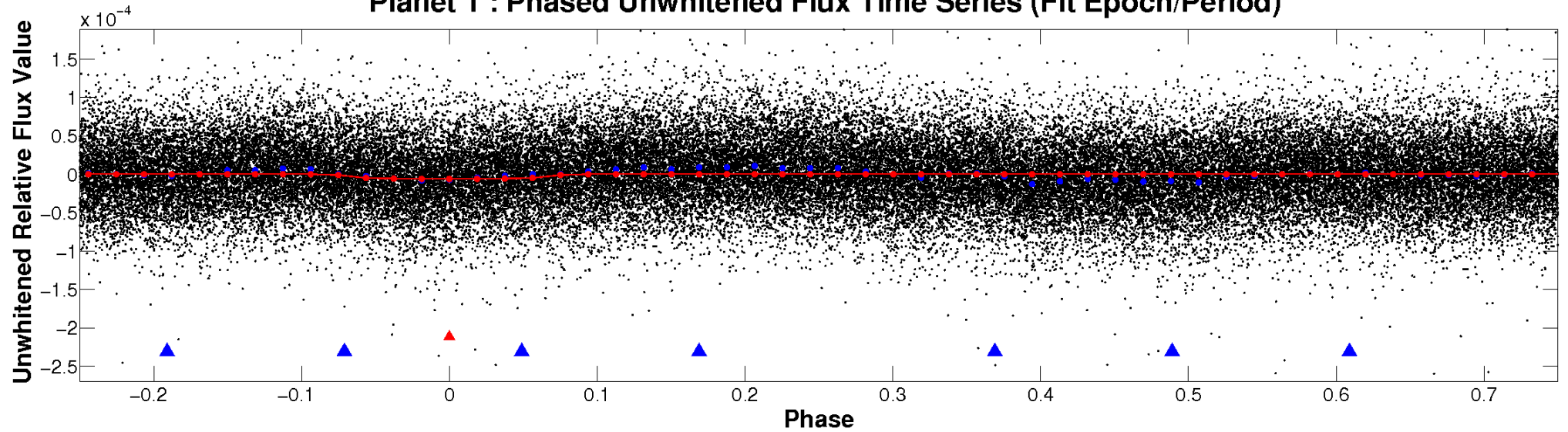
ALT Odd/Even

TCE 008880153-01

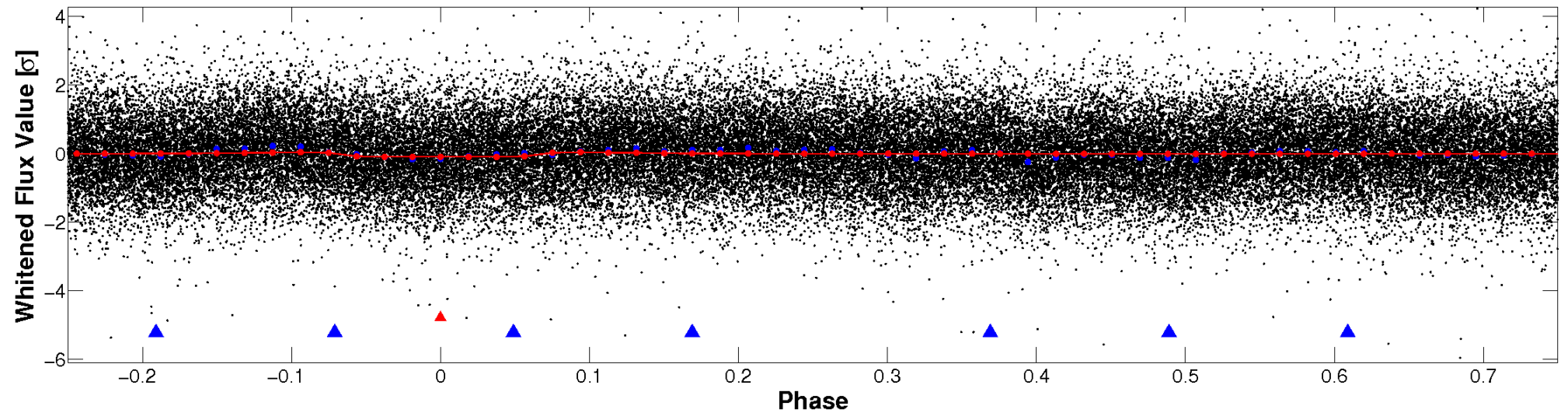


Non-Whitened Vs. Whitened Light Curve

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

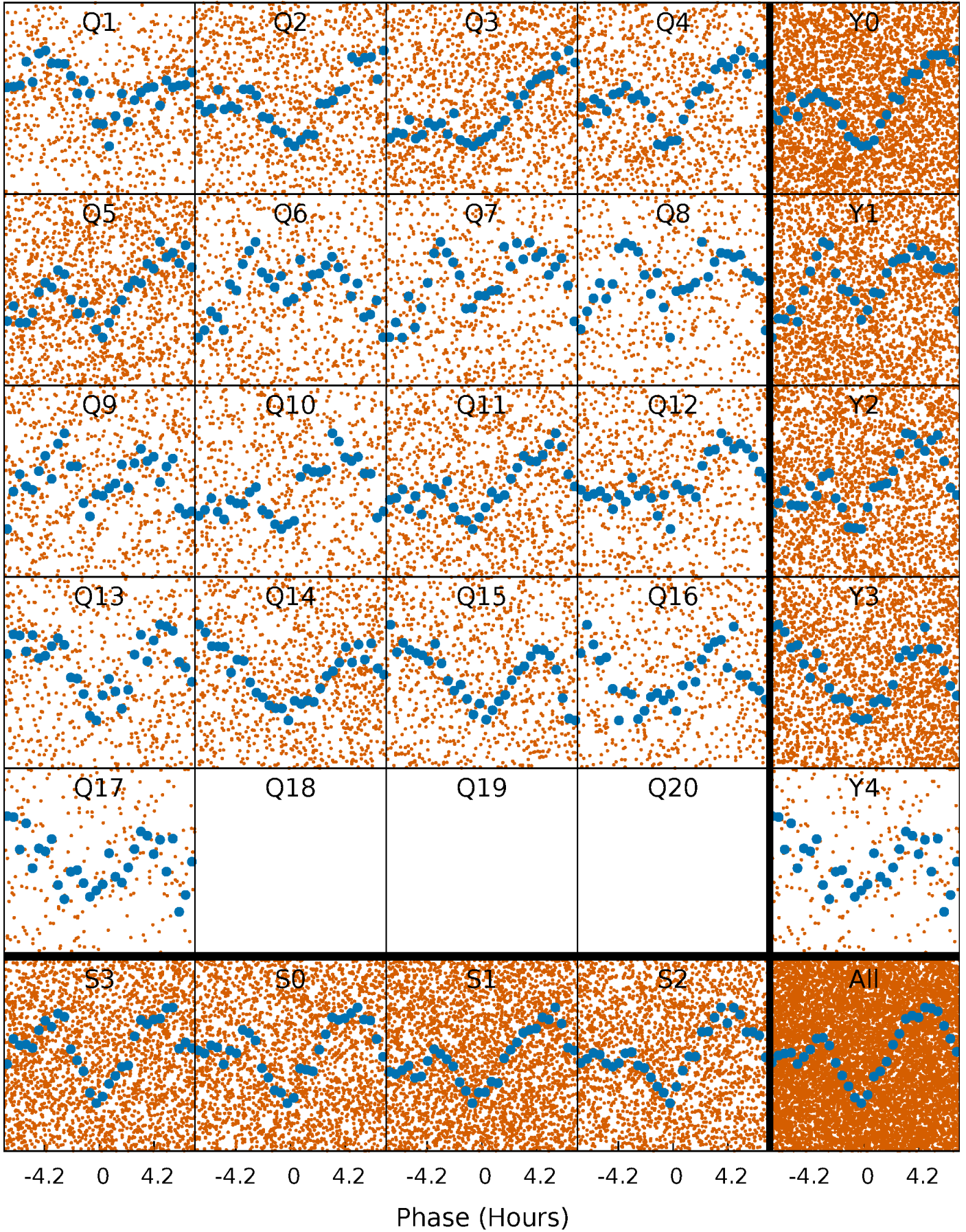


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



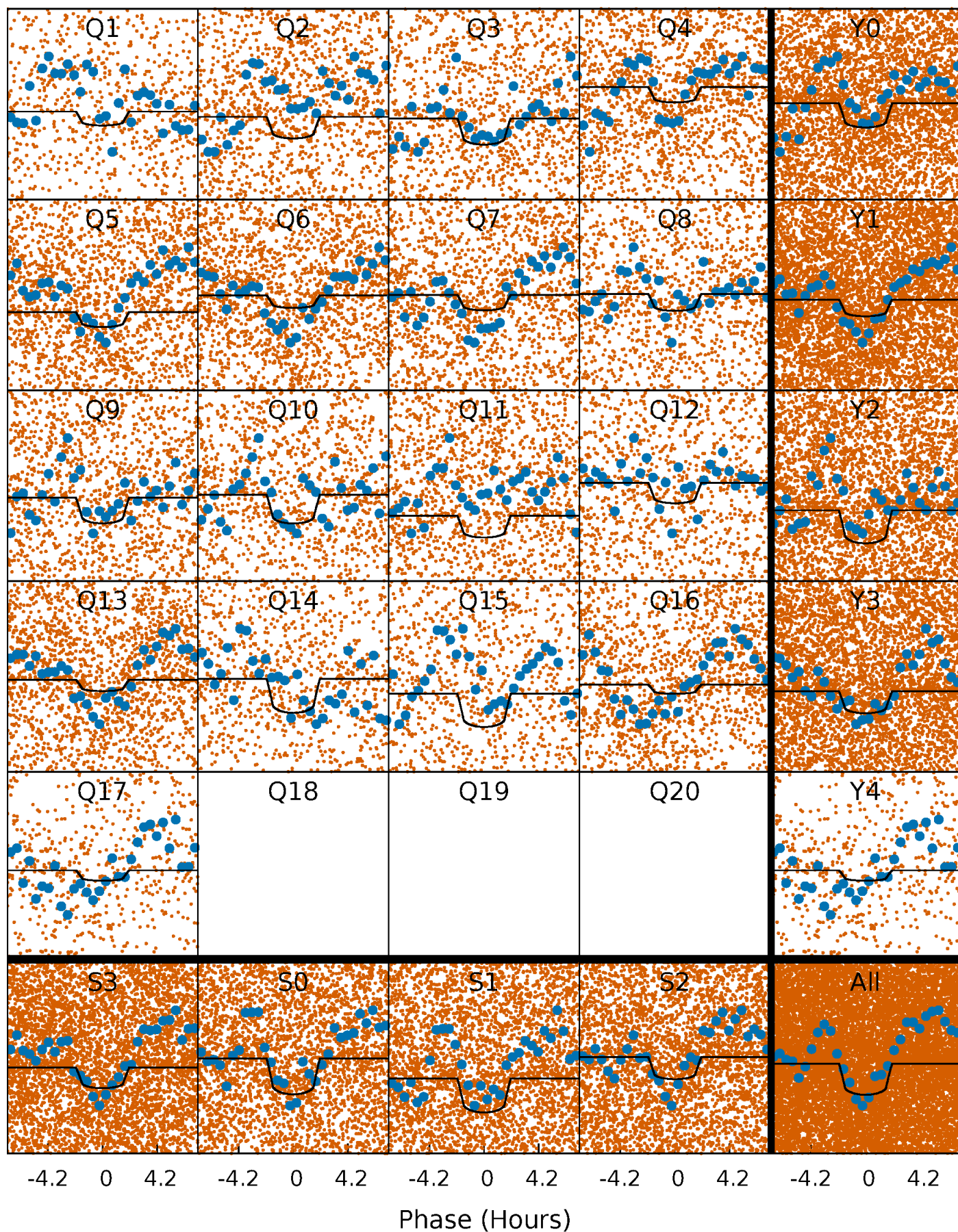
PDC Quarter-Phased Transit Curves

TCE 008880153-01 P= 1.088068 Days $T_0=132.486199$ (BKJD)



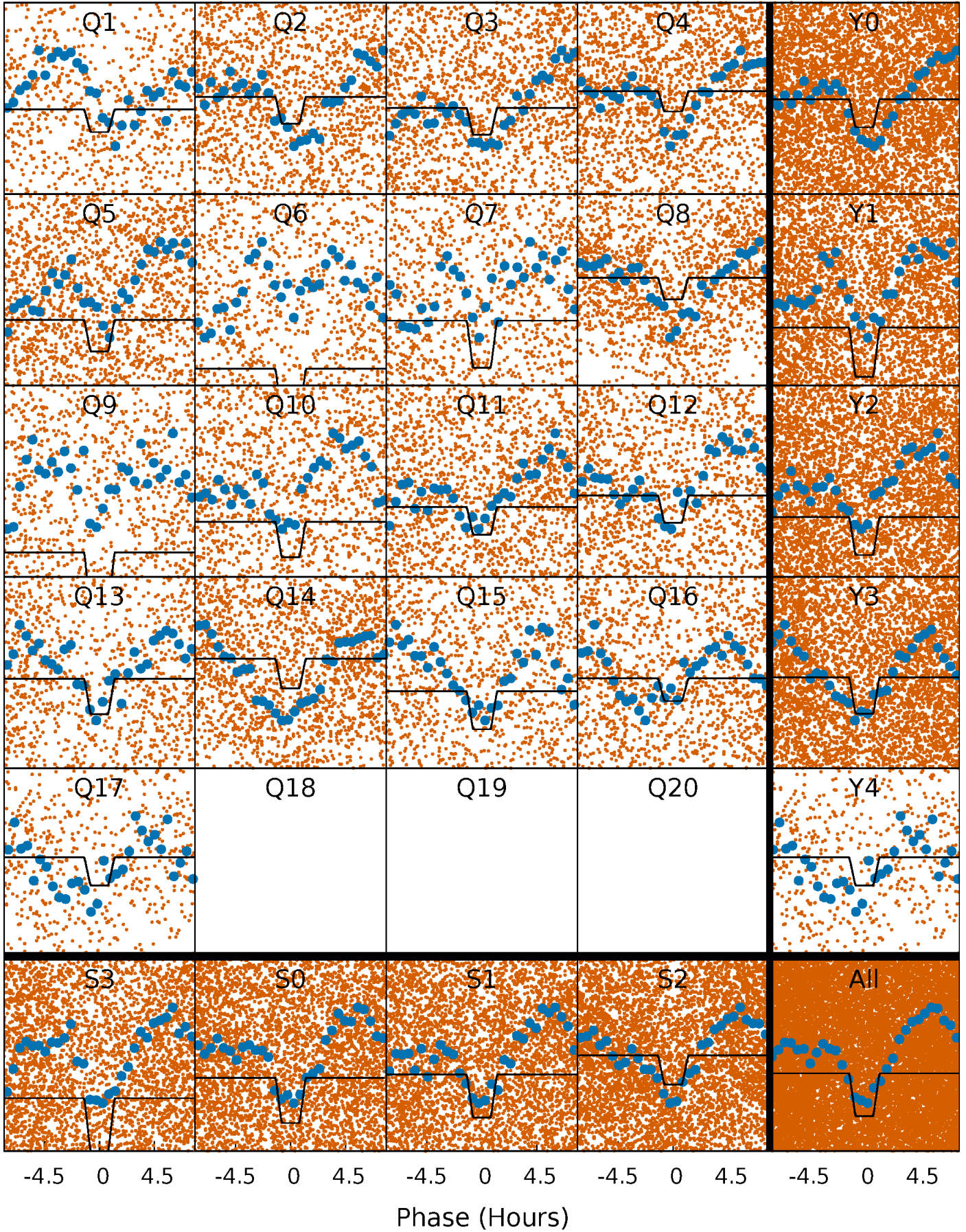
DV Quarter-Phased Transit Curves

TCE 008880153-01 P= 1.088068 Days $T_0=132.486199$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

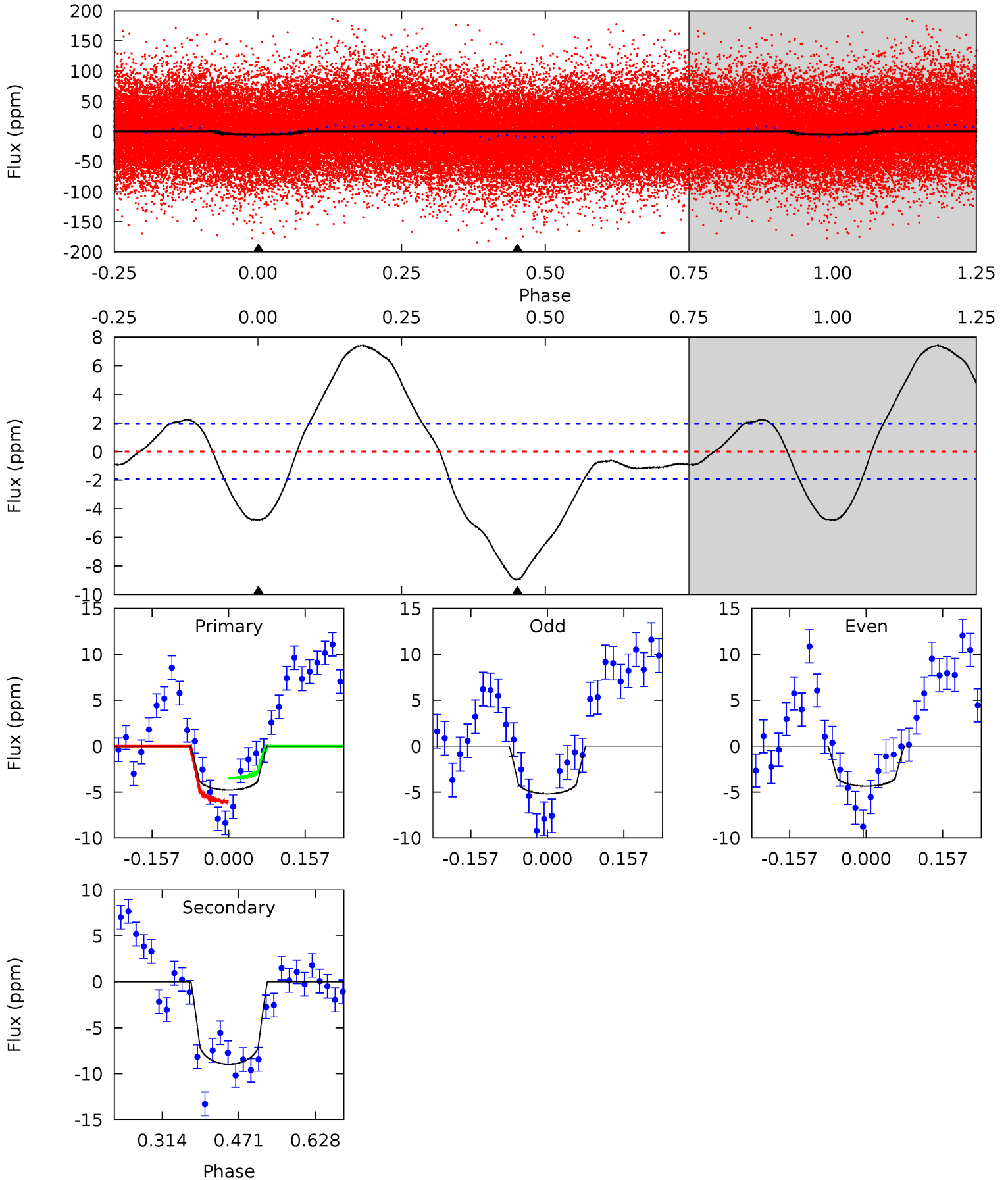
TCE 008880153-01 P= 1.088092 Days $T_0=132.456890$ (BKJD)



DV Model-Shift Uniqueness Test

008880153-01, P = 1.088068 Days, E = 131.398131 Days

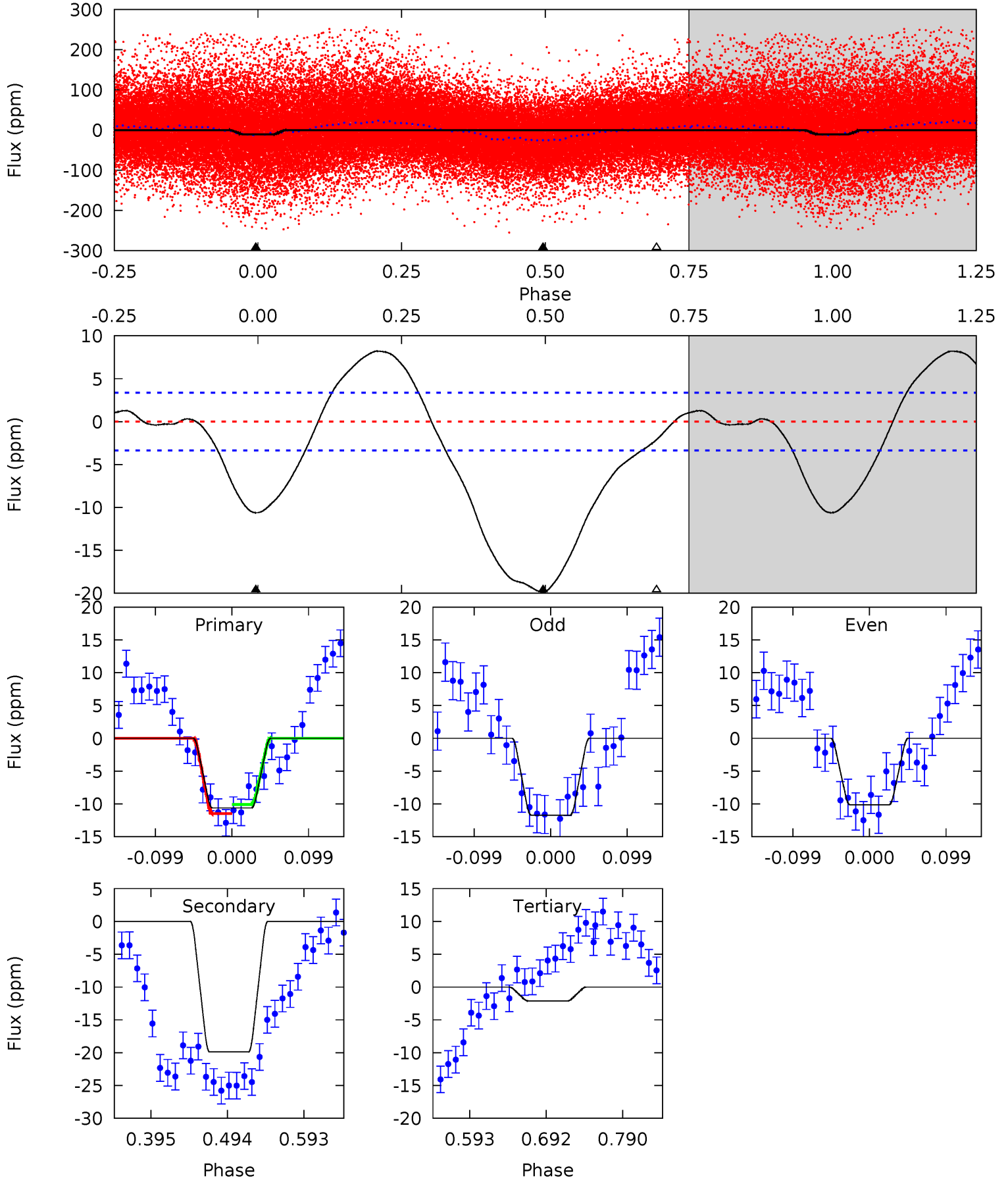
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	20.8	0	0	4.47	1.41	7.41	11.0	11.0	20.8	20.8	0.96	1.10	0.45	2.93



Alt Model-Shift Uniqueness Test

008880153-01, P = 1.088092 Days, E = 131.368798 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	27.0	2.87	0	4.57	1.65	6.80	11.6	14.4	24.2	27.0	1.07	0.73	0.29	0.92



Stellar Parameters For KIC 008880153

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8143^{+224}_{-365}	$3.851^{+0.308}_{-0.132}$	$0.070^{+0.250}_{-0.450}$	$2.886^{+0.652}_{-1.118}$	$2.154^{+0.317}_{-0.543}$	$0.126^{+0.288}_{-0.051}$
	+3%/-4%	+8%/-3%	+357%/-643%	+23%/-39%	+15%/-25%	+228%/-40%
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 008880153-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-9 ± 0	$0.78^{+0.19}_{-0.18}$	5106^{+375}_{-526}	8700^{+1229}_{-888}	$5.783^{+3.760}_{-1.961}$
Alt.	-20 ± 1	$1.12^{+0.23}_{-0.25}$	5106^{+385}_{-513}	9003^{+942}_{-769}	$6.264^{+3.605}_{-1.914}$

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

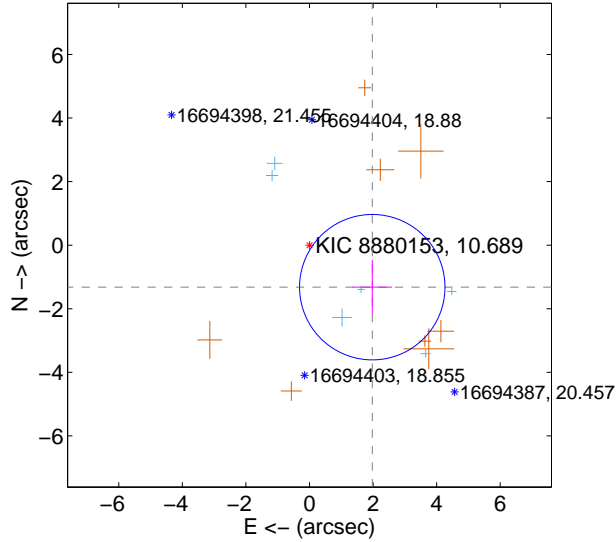
Supplemental centroid analysis for 008880153-01. **Kepler magnitude: 10.69.** Transit SNR 8.90

There are 6 quarters with good PRF difference image offsets

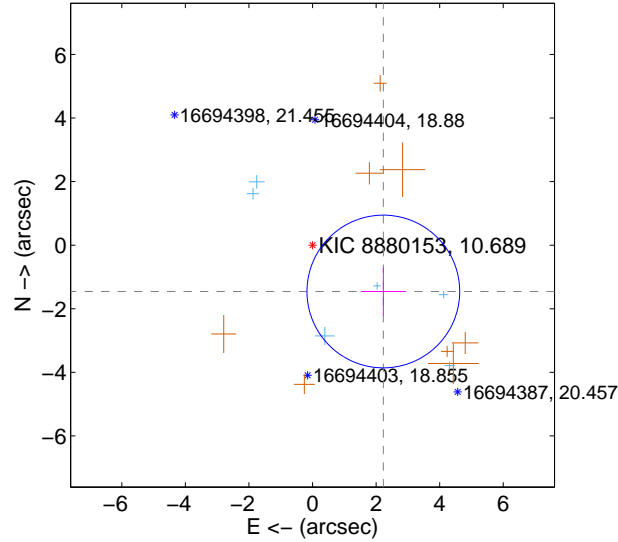
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.377 ± 0.763	3.12	-1.976 ± 0.623	-1.322 ± 0.859
PRF-fit source offset from KIC position	2.663 ± 0.801	3.32	-2.228 ± 0.707	-1.458 ± 0.758
photometric centroid source offset	2.37 ± 1.33	1.78	-1.81 ± 1.29	-1.52 ± 1.38

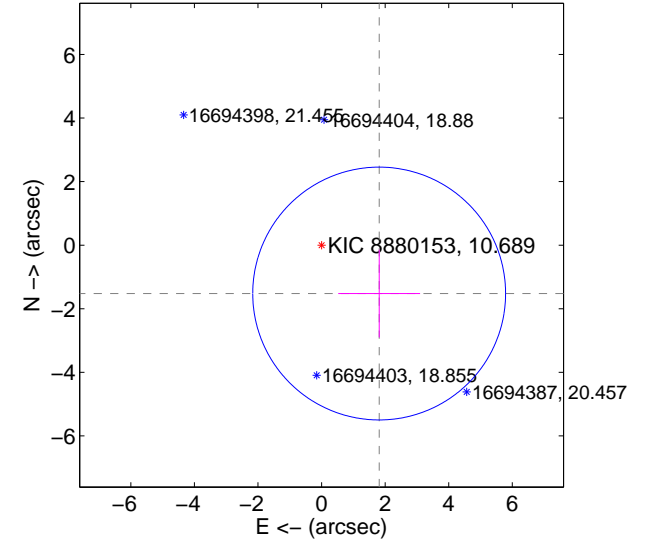
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

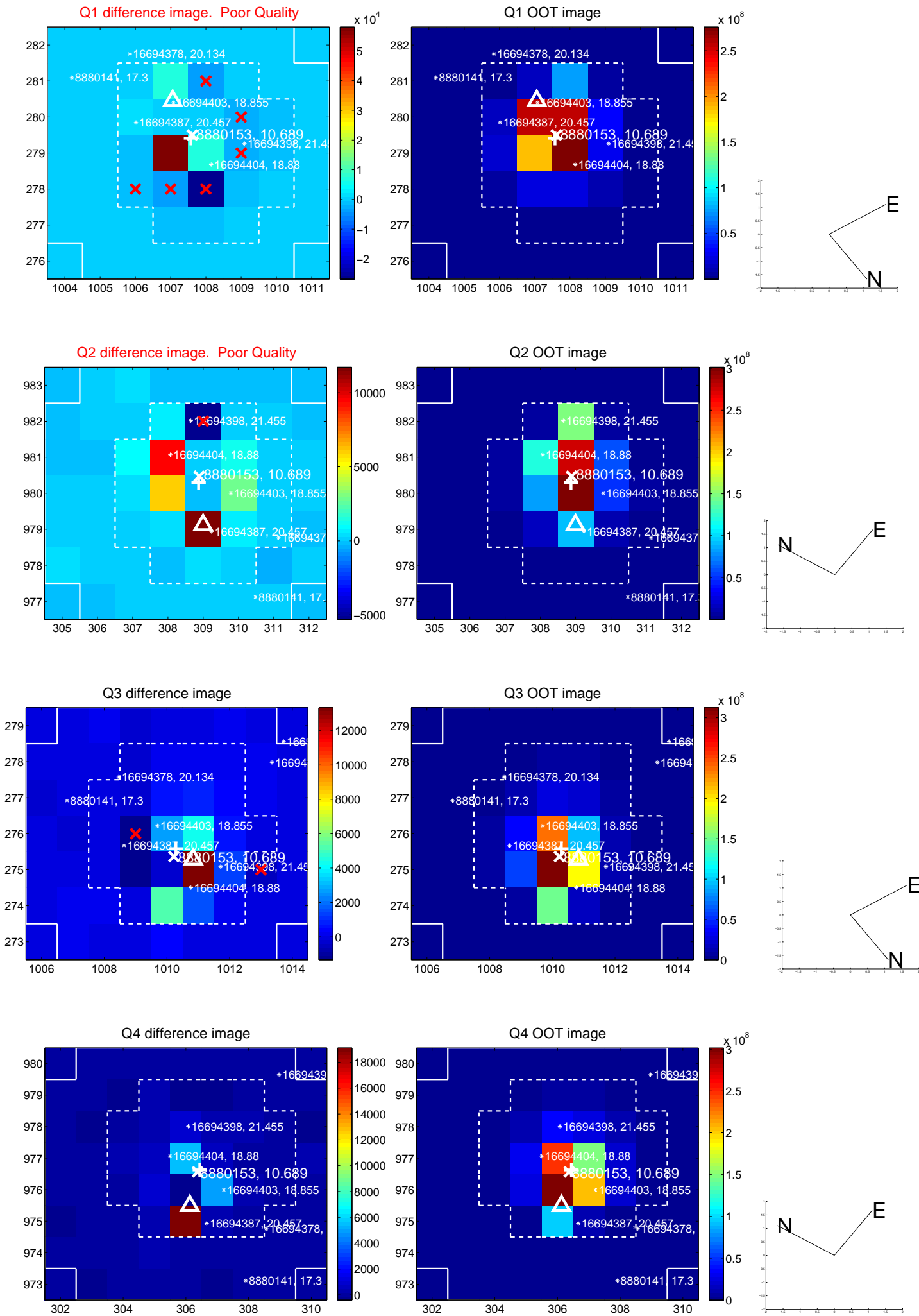


offset from photometric centroids

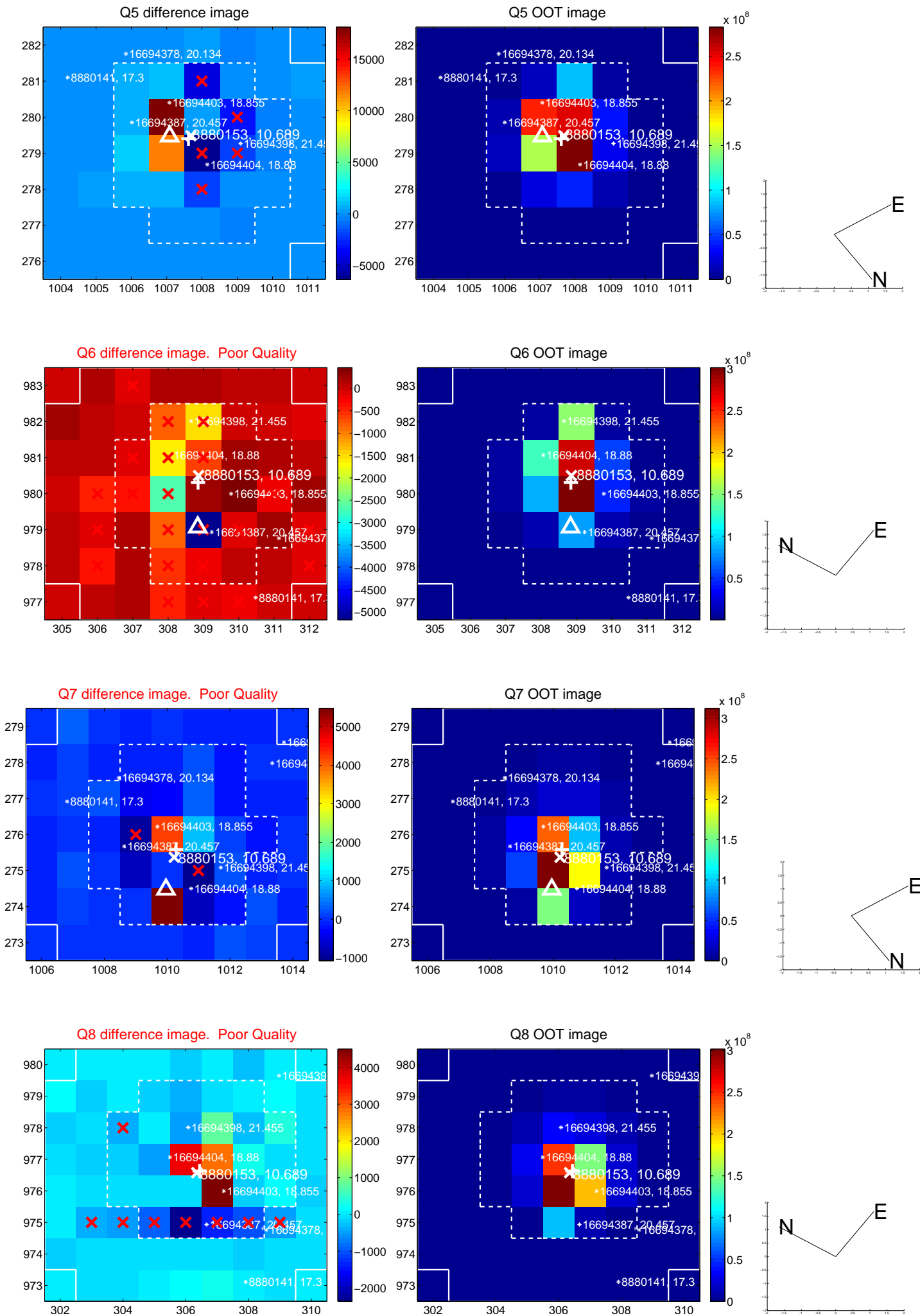


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

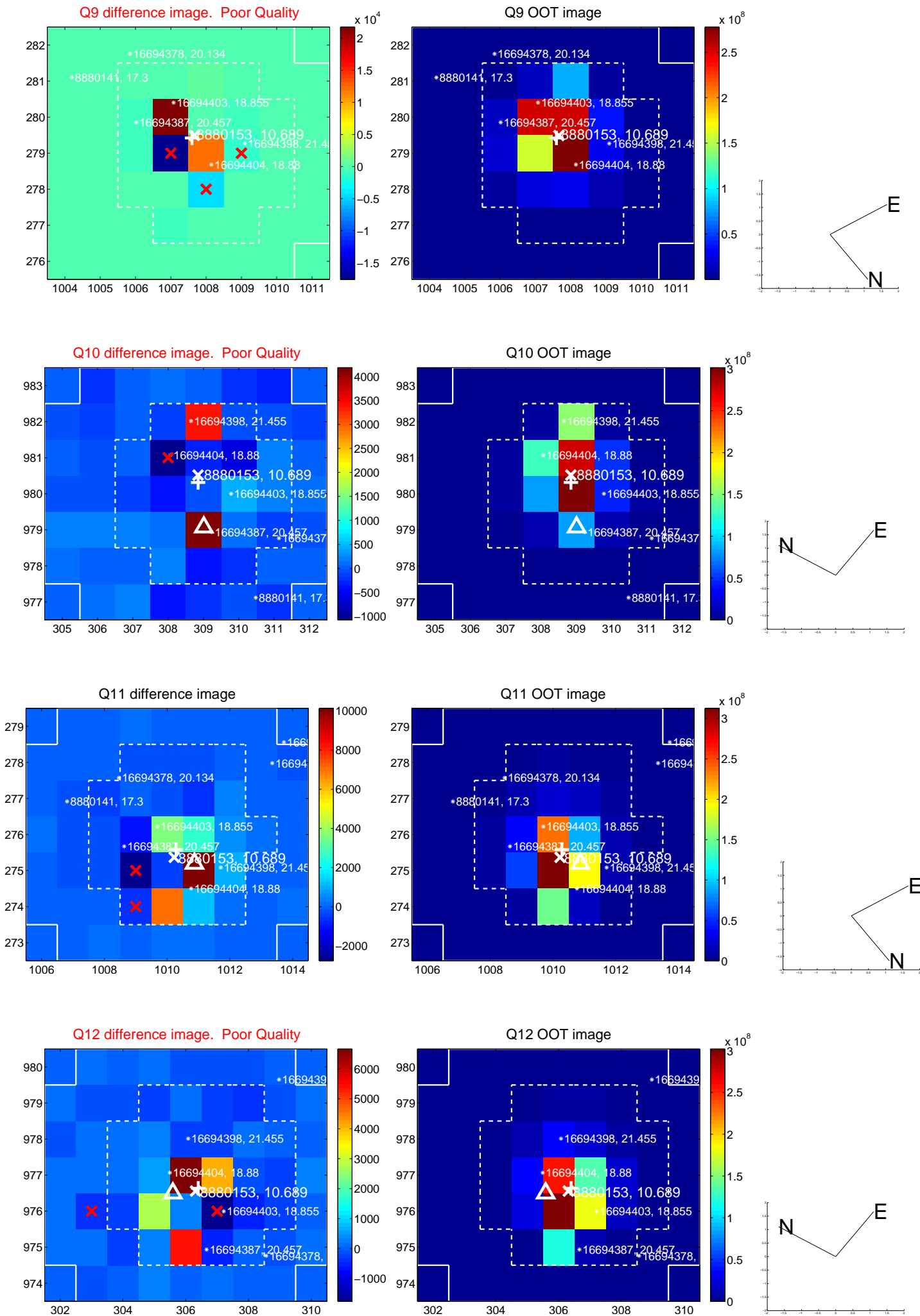
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



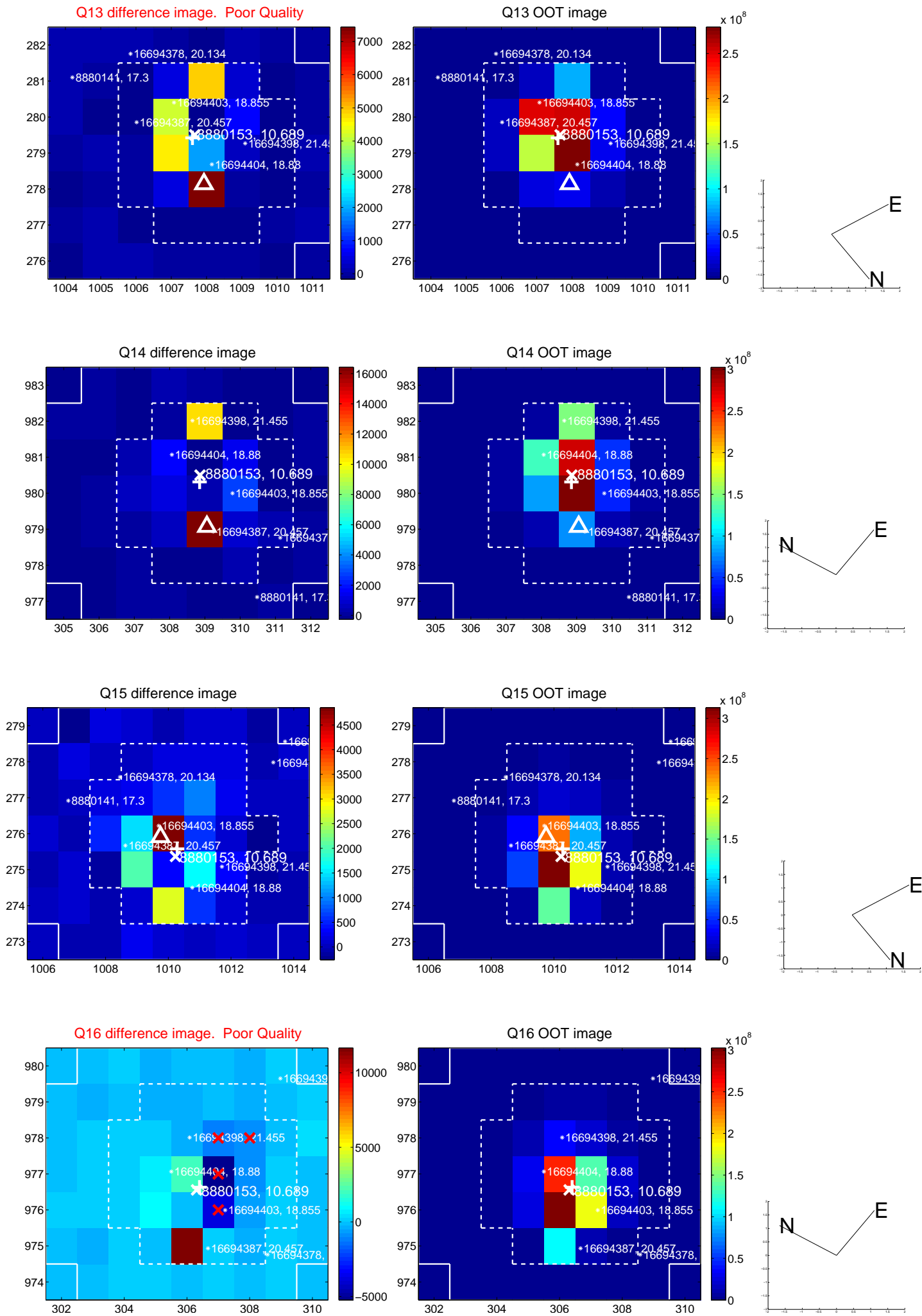
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



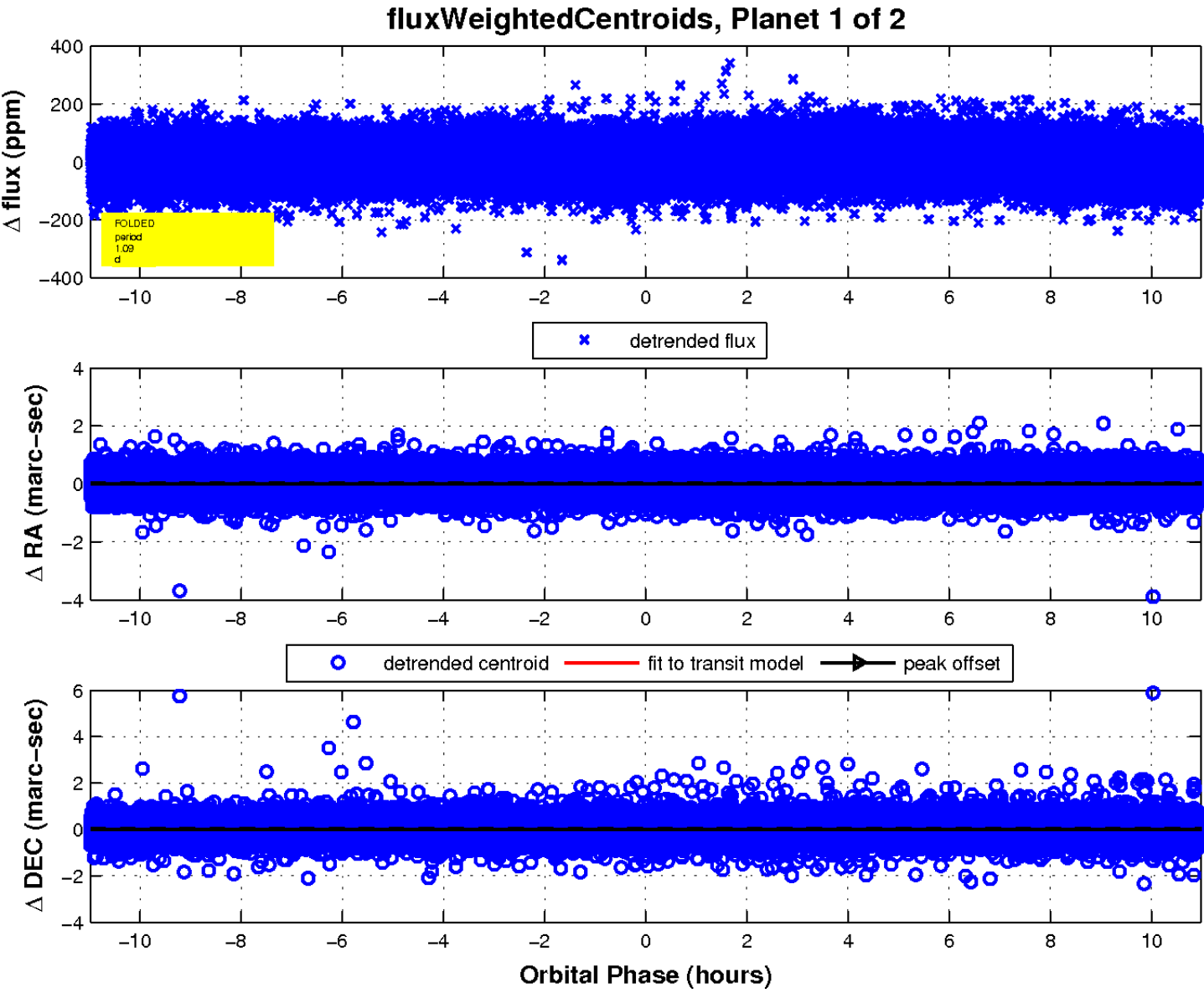
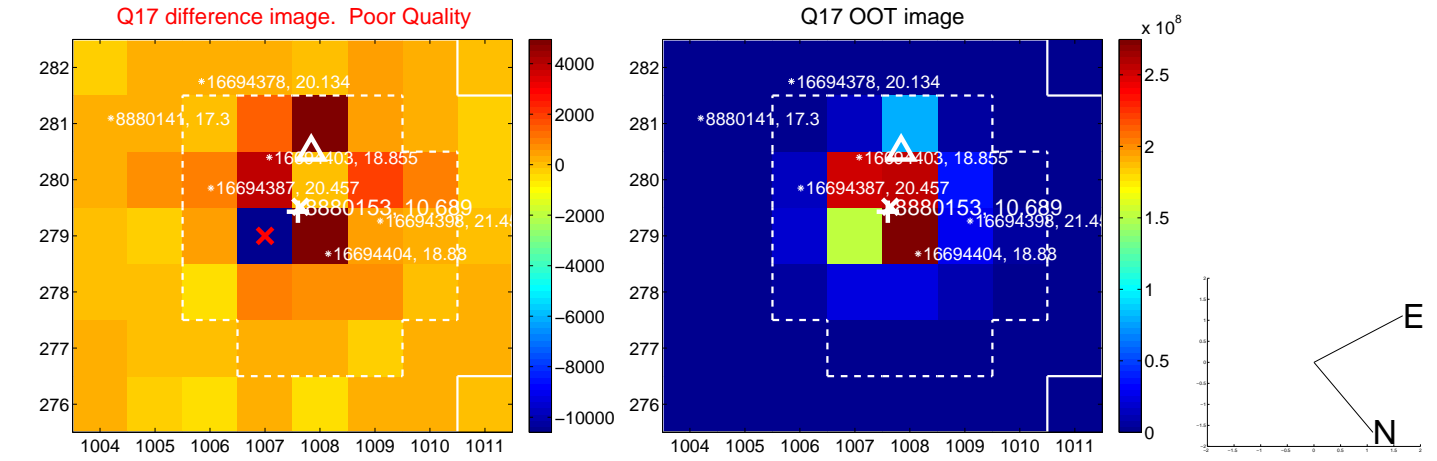
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

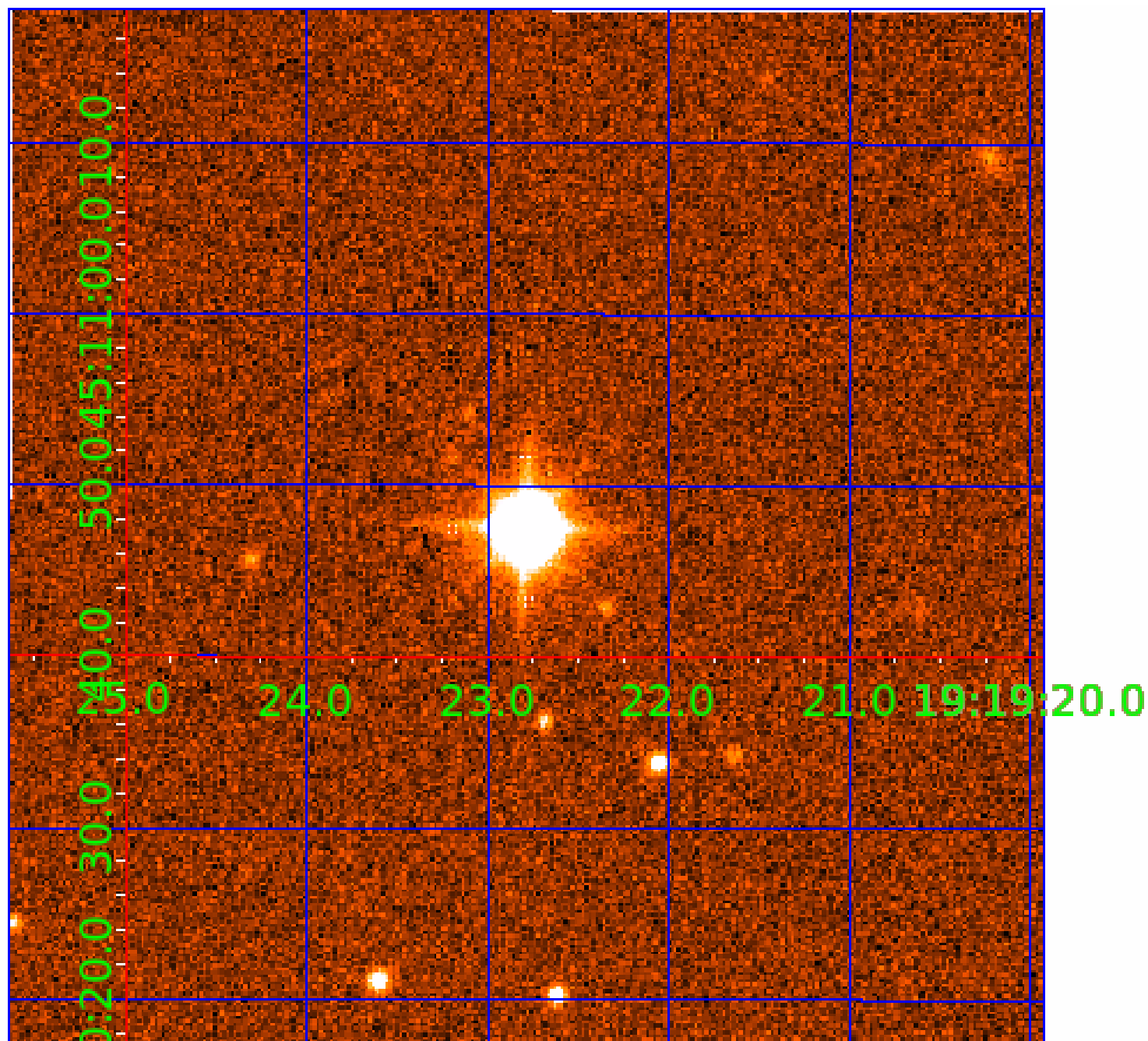


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008880153

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})
008880153-01	OBS	No	1.088068	132.486199	6.1	3.660	10.8	8.9	2.89	8143	0.82	45851.64
008880153-02	OBS	No	232.237288	138.110387	32.3	9.299	8.2	3.2	2.89	8143	1.91	35.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008880153-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008880153-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

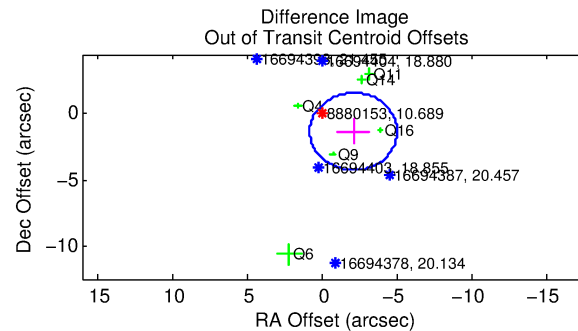
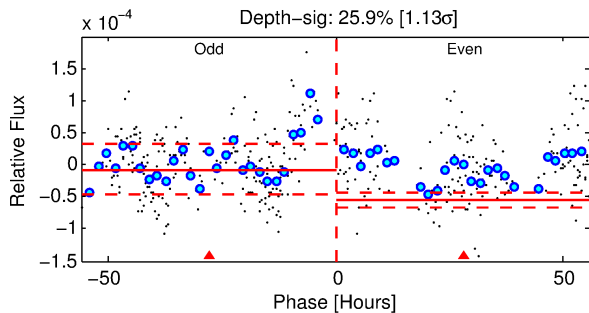
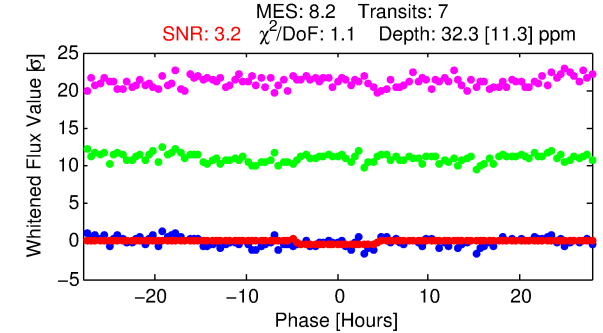
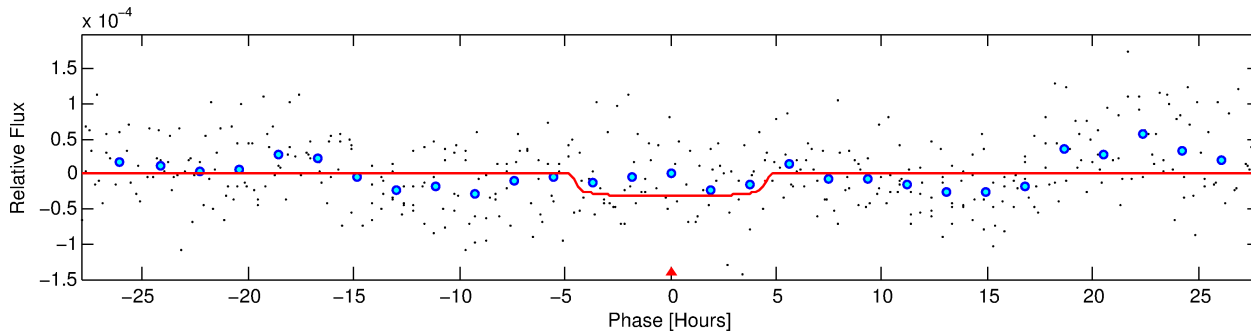
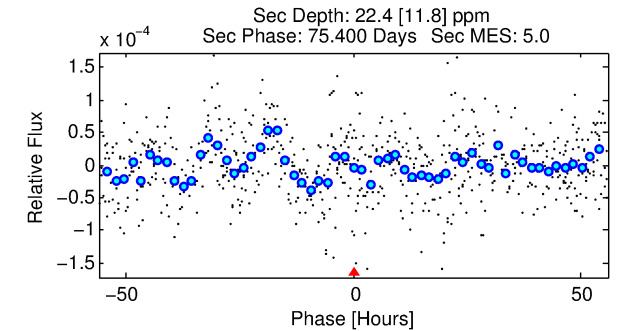
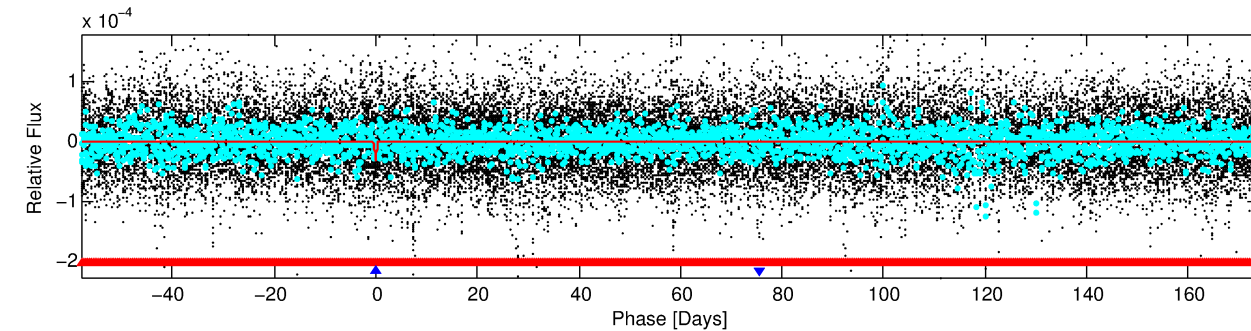
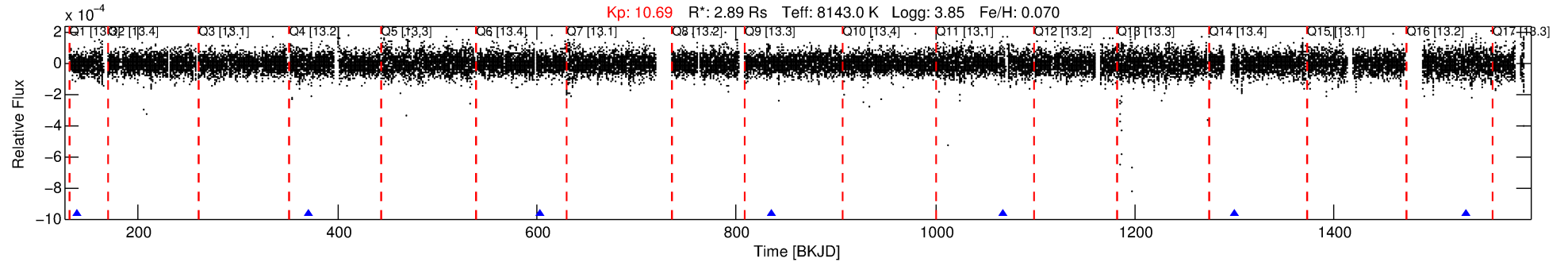
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008880153-02

No Significant Match Found

DV One-Page Summary

KIC: 8880153 Candidate: 2 of 2 Period: 232.237 d



DV Fit Results:

Period = 232.23729 [0.00777] d
Epoch = 138.1104 [0.0268] BKJD
 $R_p/R^* = 0.0061$ [0.0024]
 $a/R^* = 85.75$ [187.07]
 $b = 0.90$ [0.46]
 $\text{Seff} = 35.95$ [20.41]
 $T_{\text{eq}} = 624$ [89] K
 $R_p = 1.91$ [1.06] R_e
 $a = 0.9554$ [0.3345] AU
 $A_g = 3094.50$ [3405.17] [0.91σ]
 $T_{\text{eff}} = 7200$ [1757] K [3.74σ]

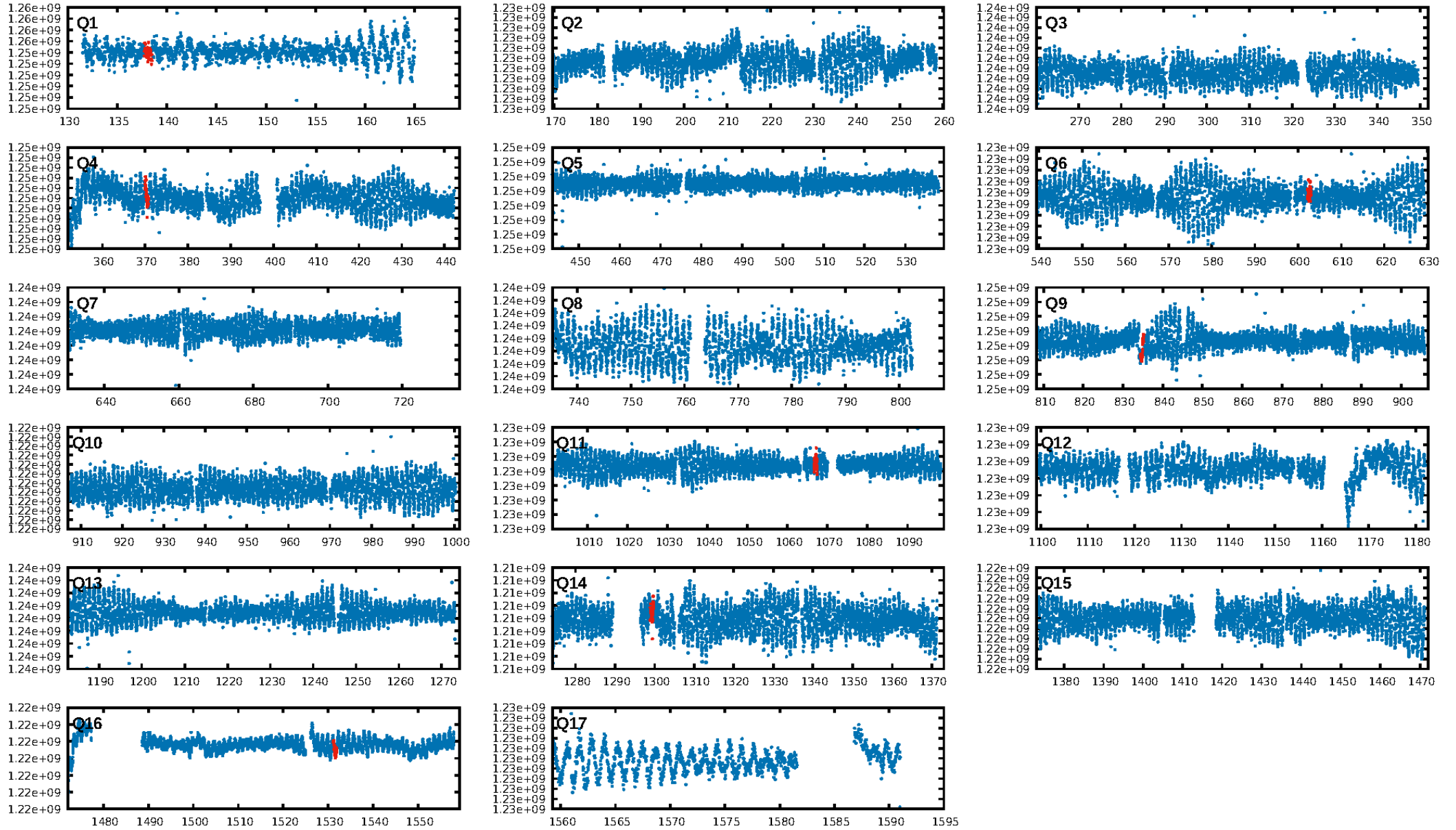
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [555.12σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.26e-12
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.2961
Centroid-sig: 2.3%
Centroid-so: 5.013 arcsec [1.60σ]
OotOffset-rm: 2.514 arcsec [2.58σ]
KicOffset-rm: 2.578 arcsec [2.83σ]
OotOffset-st: 2/1/2/1 [6]
KicOffset-st: 2/1/2/1 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.00 [0/7]

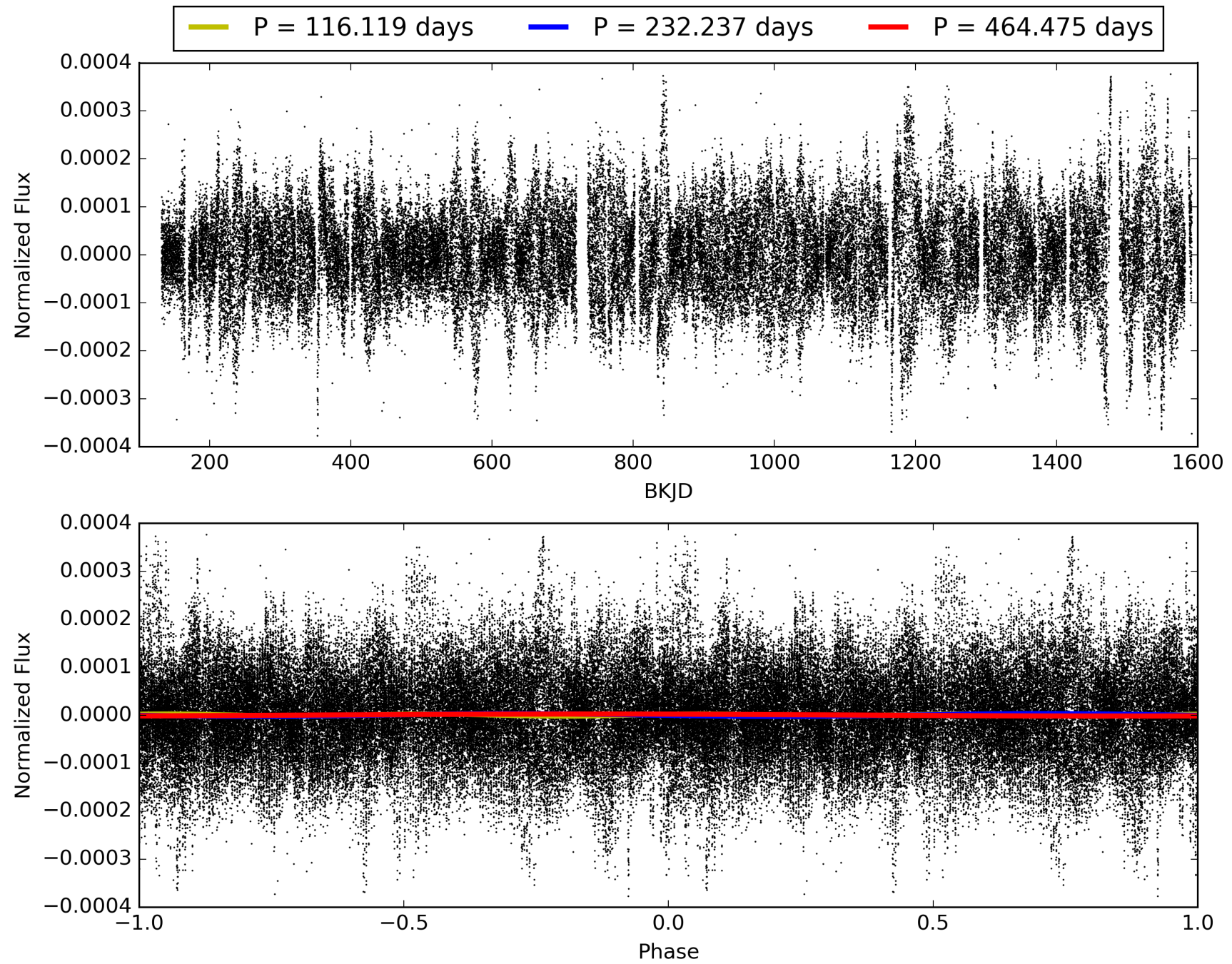
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:36:27 Z

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

TCE 008880153-02, PDC Light Curves

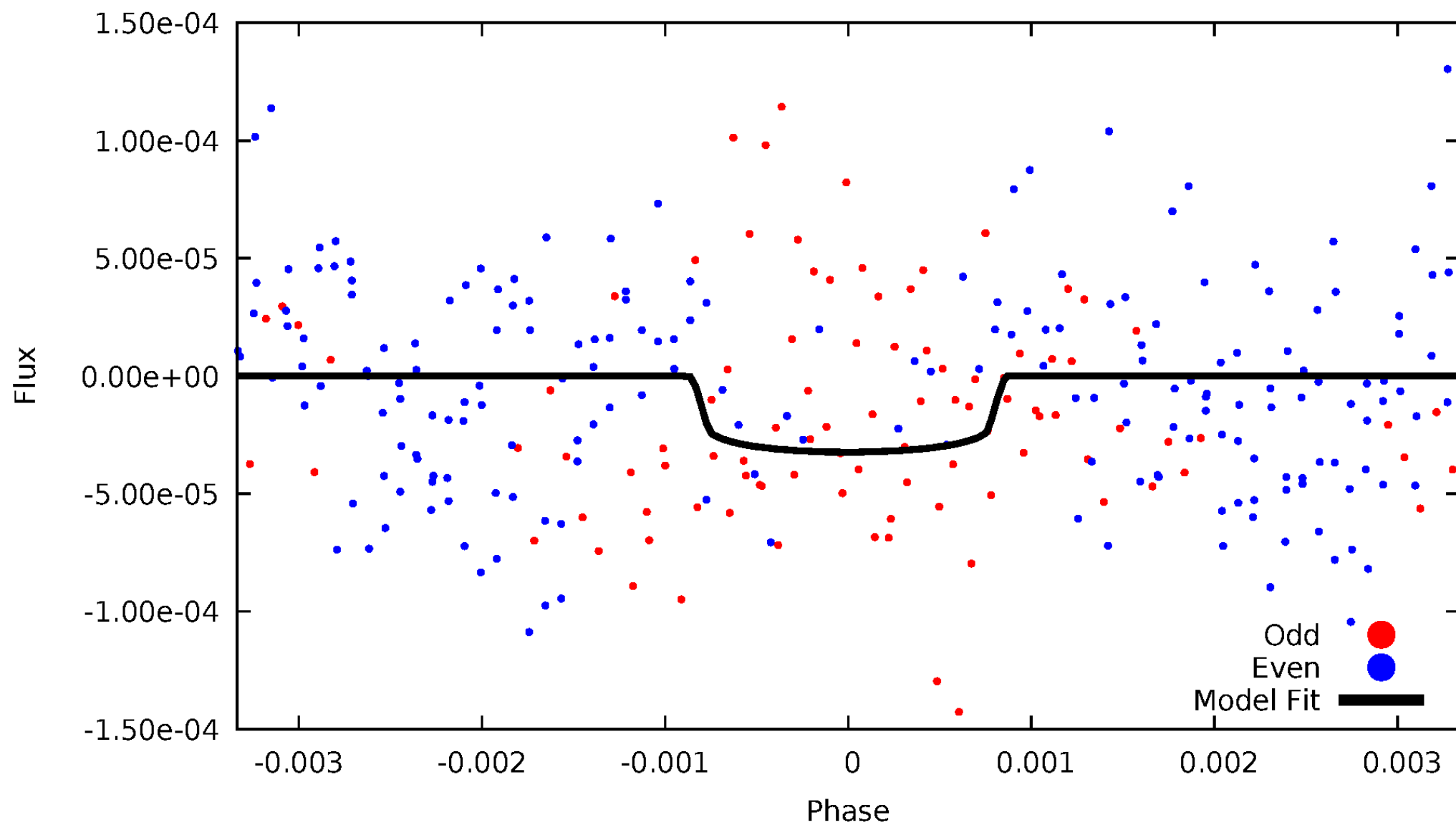


TCE 008880153-02



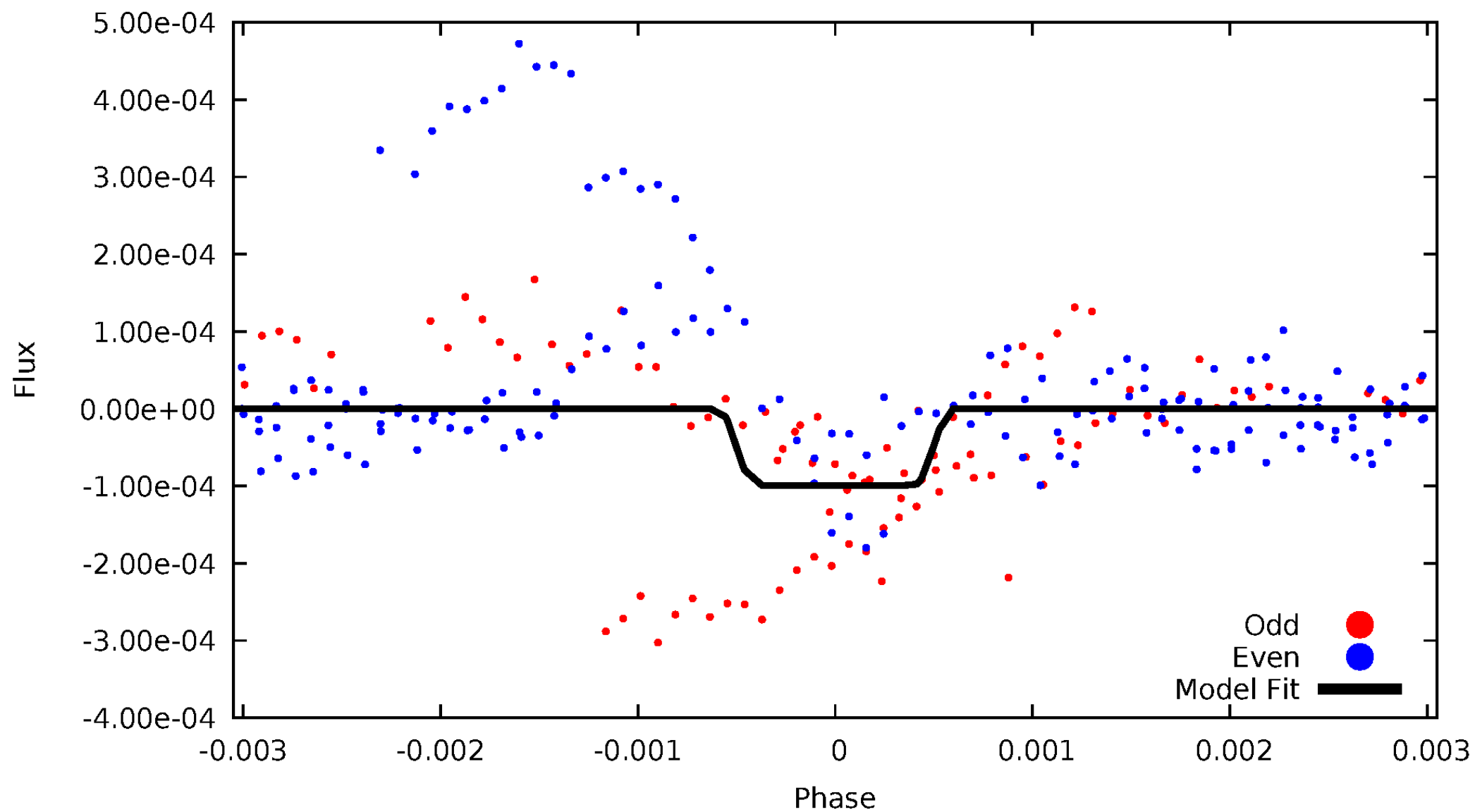
DV Odd/Even

TCE 008880153-02



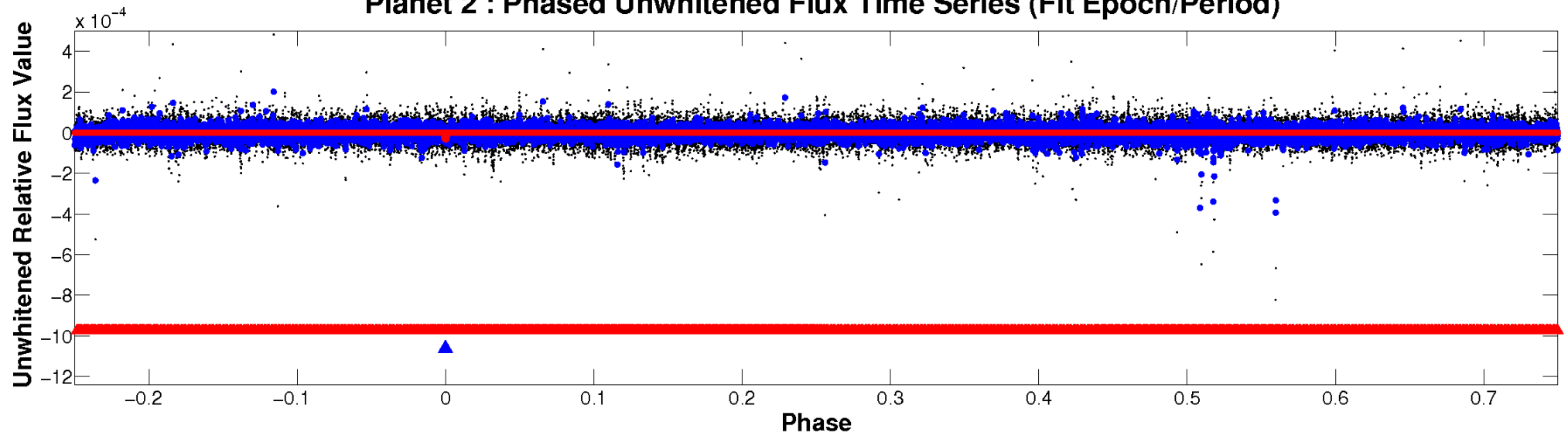
ALT Odd/Even

TCE 008880153-02

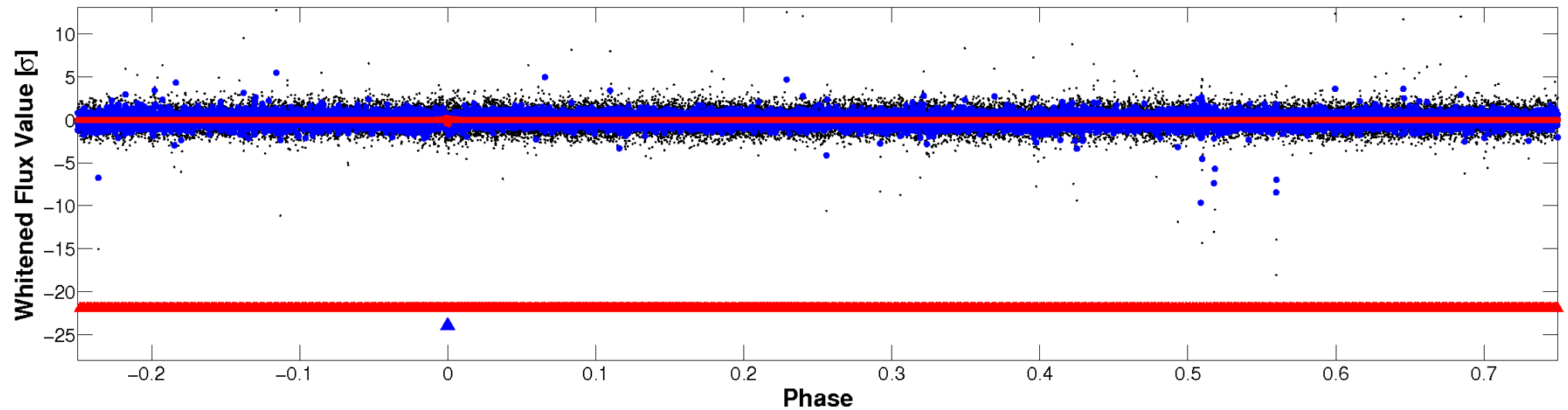


Non-Whitened Vs. Whitened Light Curve

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

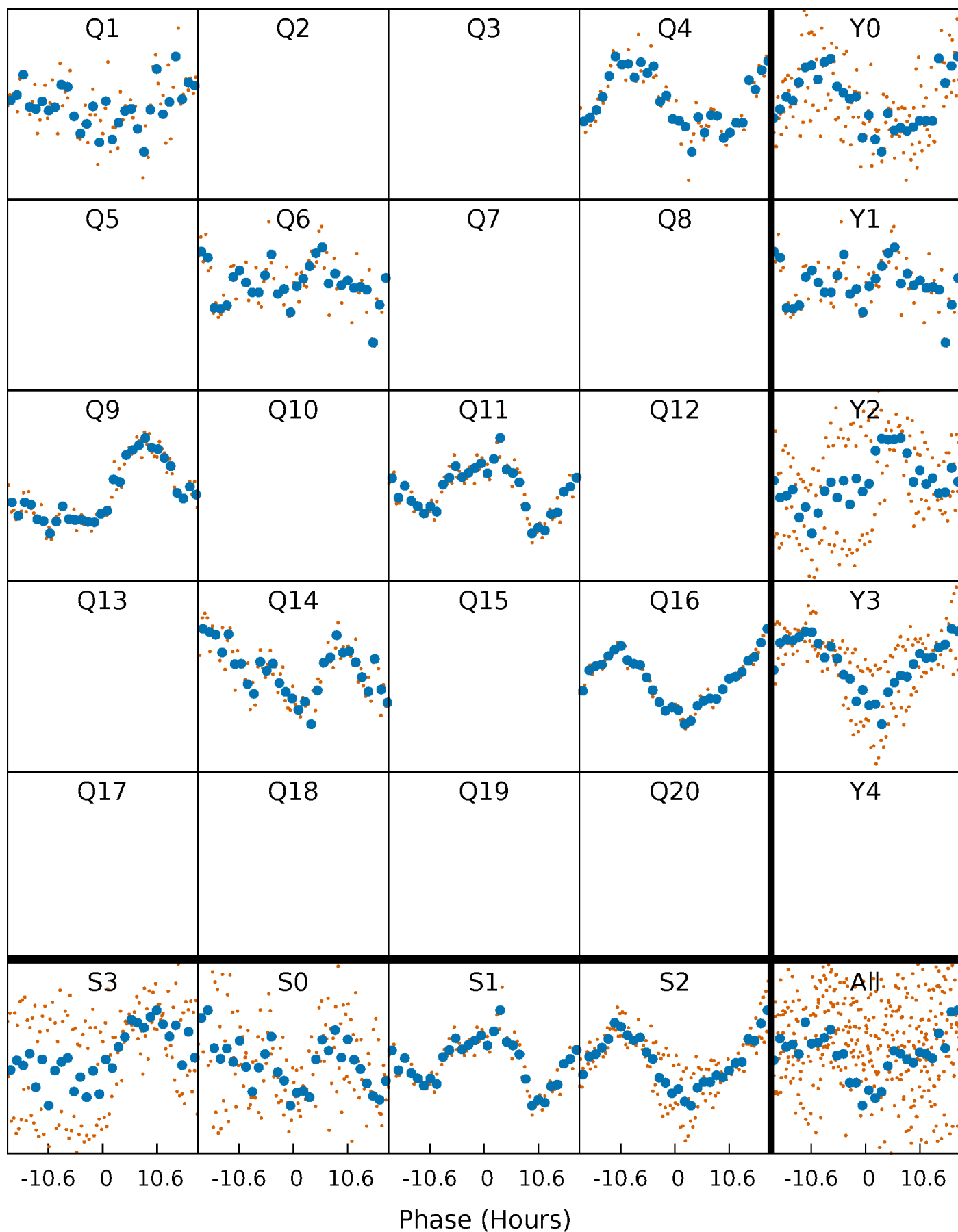


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



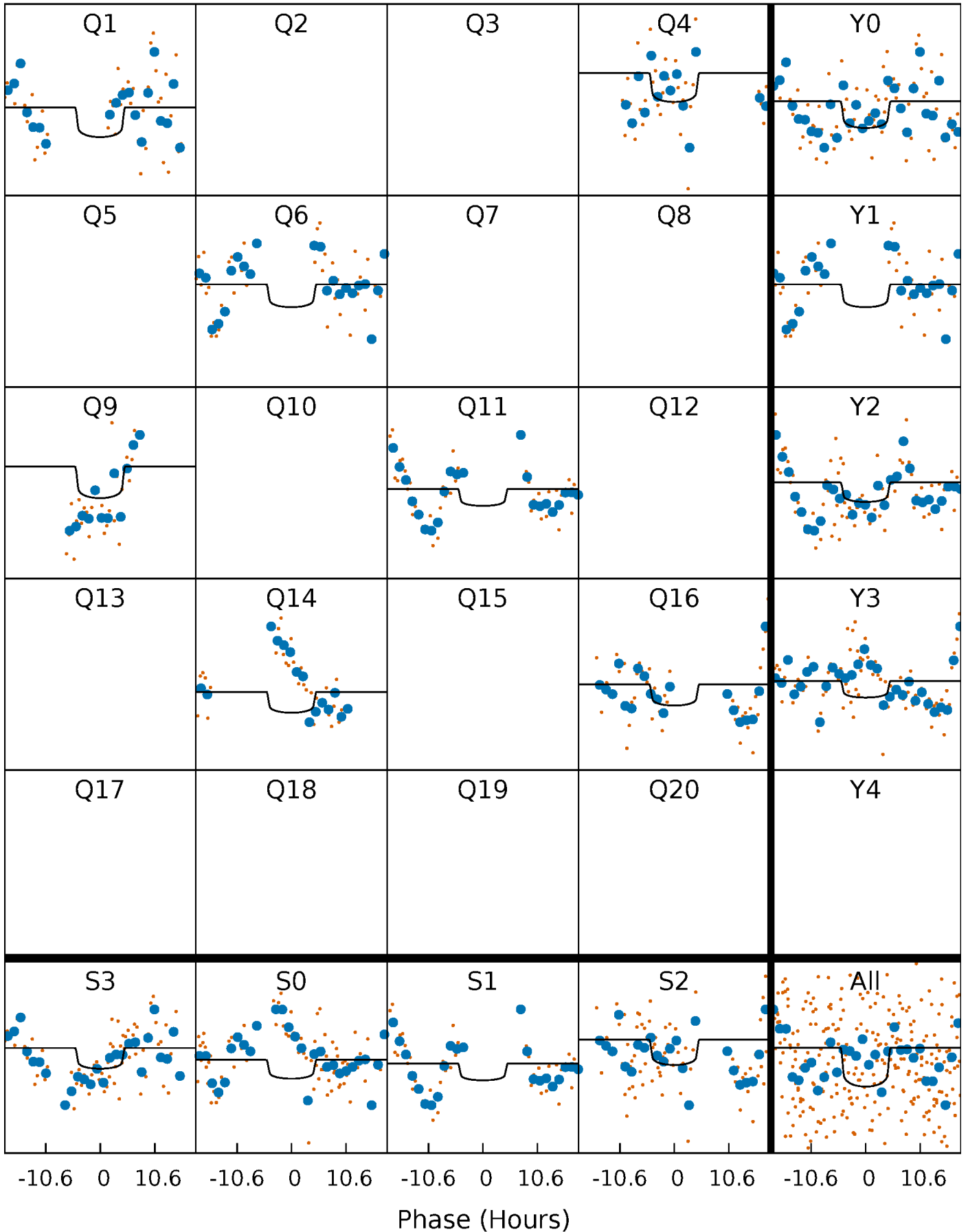
PDC Quarter-Phased Transit Curves

TCE 008880153-02 $P=232.237288$ Days $T_0=138.110387$ (BKJD)



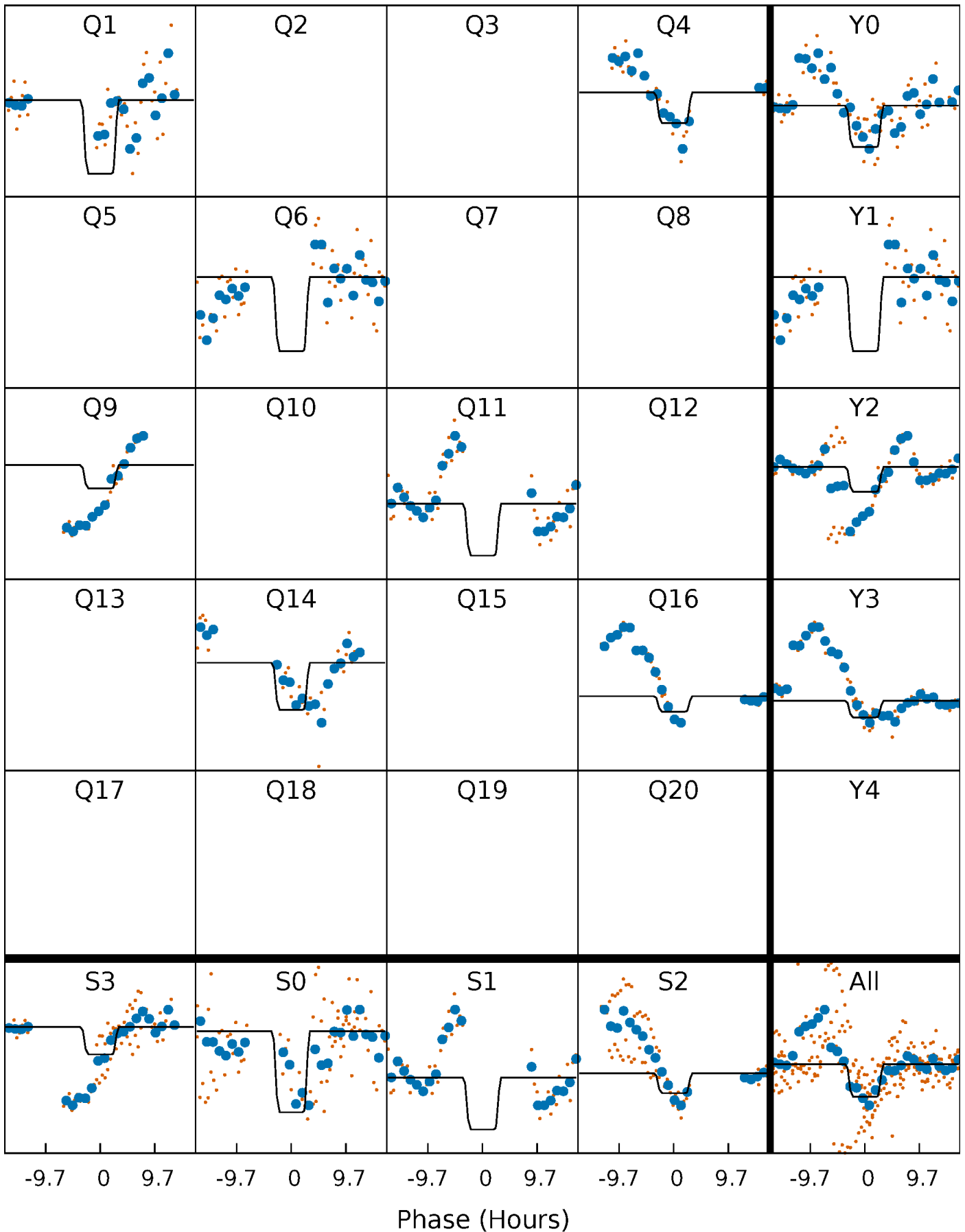
DV Quarter-Phased Transit Curves

TCE 008880153-02 P=232.237288 Days $T_0=138.110387$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

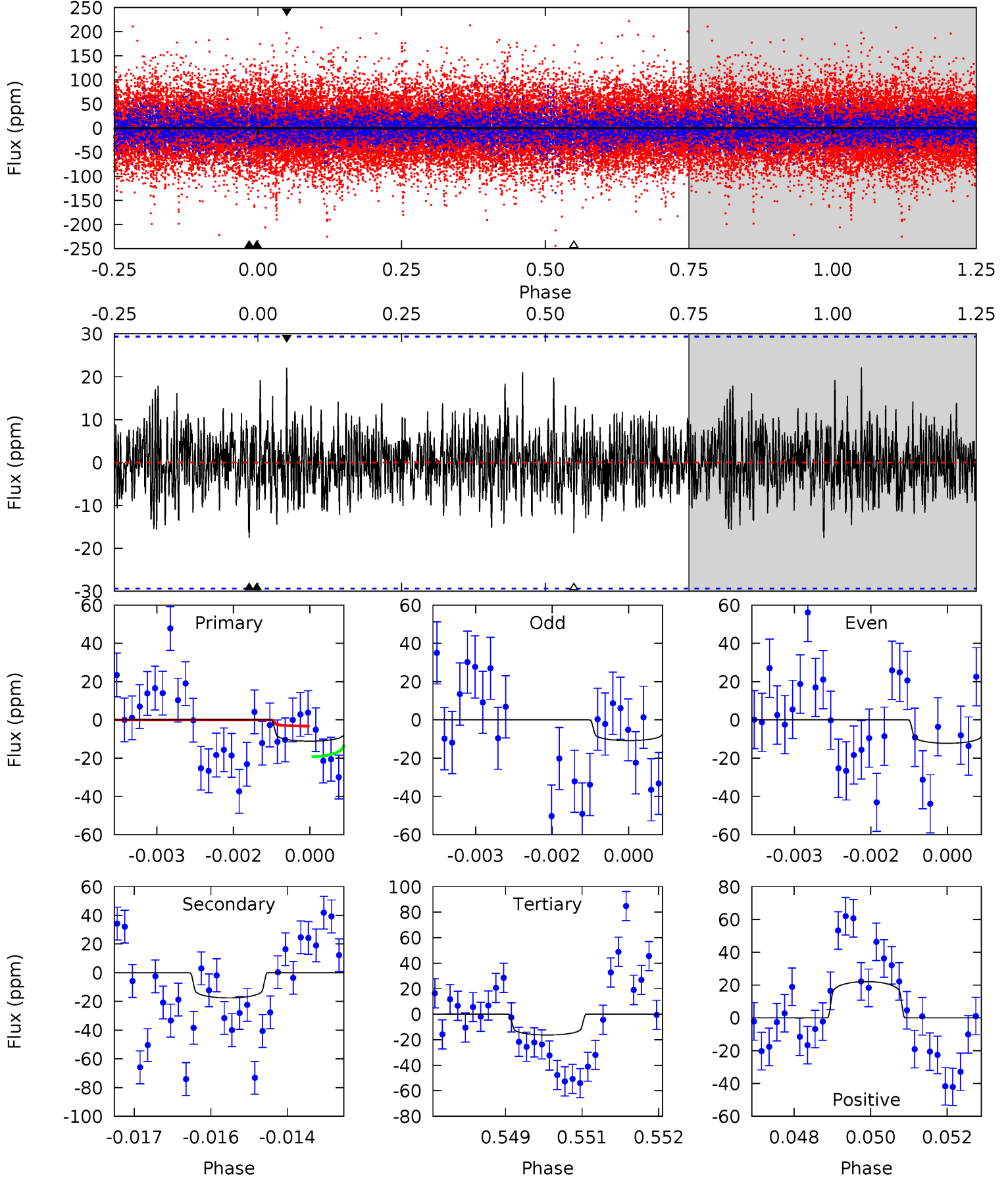
TCE 008880153-02 P=232.206976 Days $T_0=138.198205$ (BKJD)



DV Model-Shift Uniqueness Test

008880153-02, $P = 232.237288$ Days, $E = 138.110387$ Days

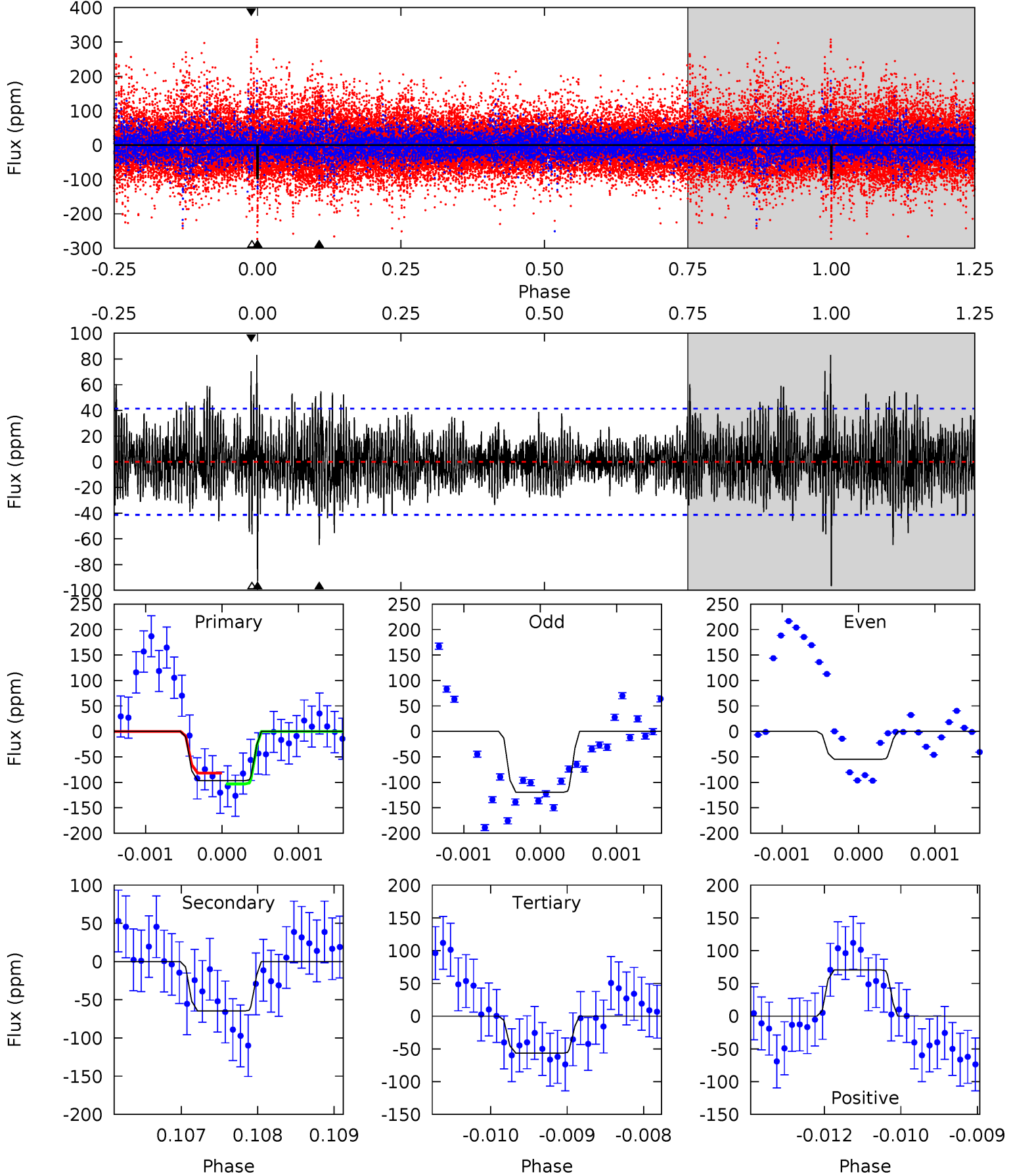
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.03	3.20	2.97	4.03	5.35	3.13	1.02	-0.94	-2.00	0.23	-0.83	0.11	0.10	0.56	1.47



Alt Model-Shift Uniqueness Test

008880153-02, P = 232.206976 Days, E = 138.198205 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	8.49	7.41	9.24	5.42	3.25	2.12	5.27	3.44	1.09	-0.74	3.98	1.21	0.46	1.38



Stellar Parameters For KIC 008880153

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8143^{+224}_{-365}	$3.851^{+0.308}_{-0.132}$	$0.070^{+0.250}_{-0.450}$	$2.886^{+0.652}_{-1.118}$	$2.154^{+0.317}_{-0.543}$	$0.126^{+0.288}_{-0.051}$
	+3%/-4%	+8%/-3%	+357%/-643%	+23%/-39%	+15%/-25%	+228%/-40%
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 008880153-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-18 ± 5	$1.78^{+0.88}_{-0.70}$	854^{+65}_{-85}	6517^{+2144}_{-1167}	2628^{+4944}_{-1520}
Alt.	-65 ± 8	$2.93^{+1.01}_{-0.88}$	852^{+67}_{-85}	7079^{+1392}_{-840}	3750^{+3659}_{-1680}

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

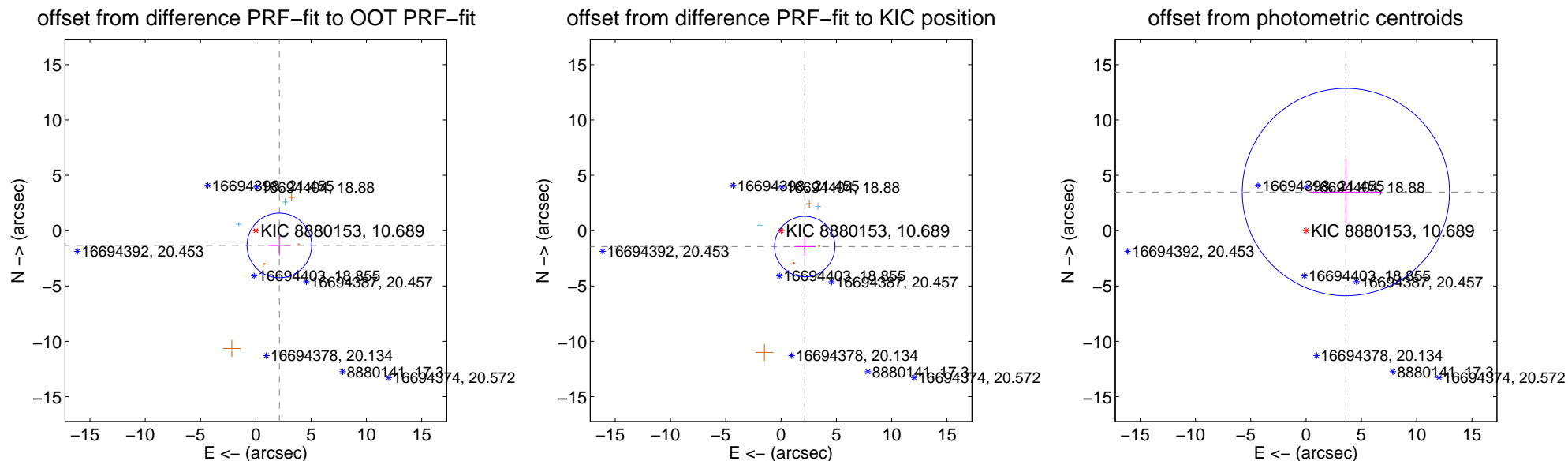
DV Centroid Data

Supplemental centroid analysis for 008880153-02. **Kepler magnitude: 10.69.** Transit SNR 3.19

There are 2 quarters with good PRF difference image offsets

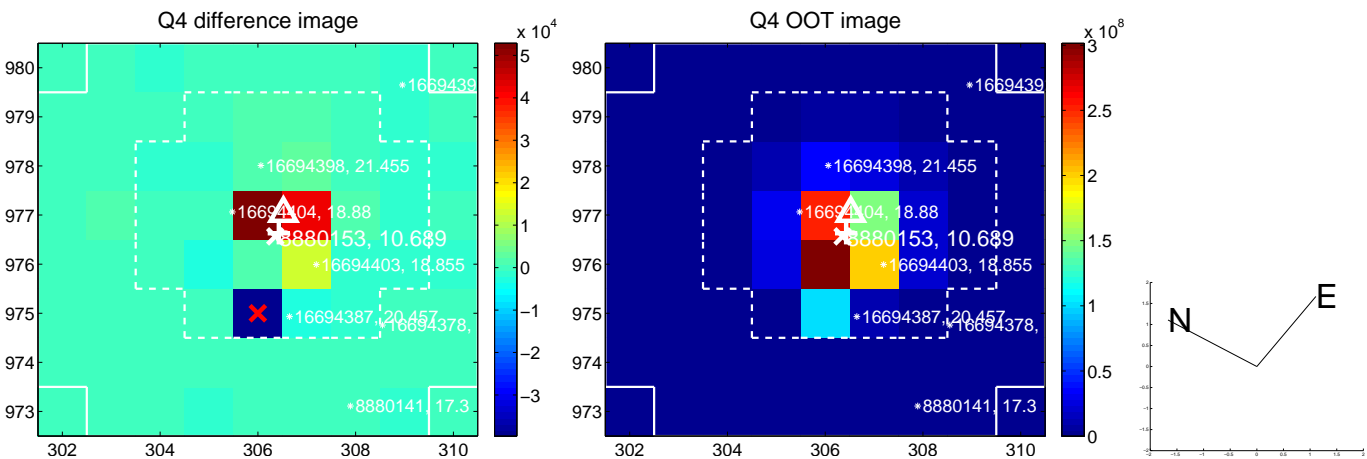
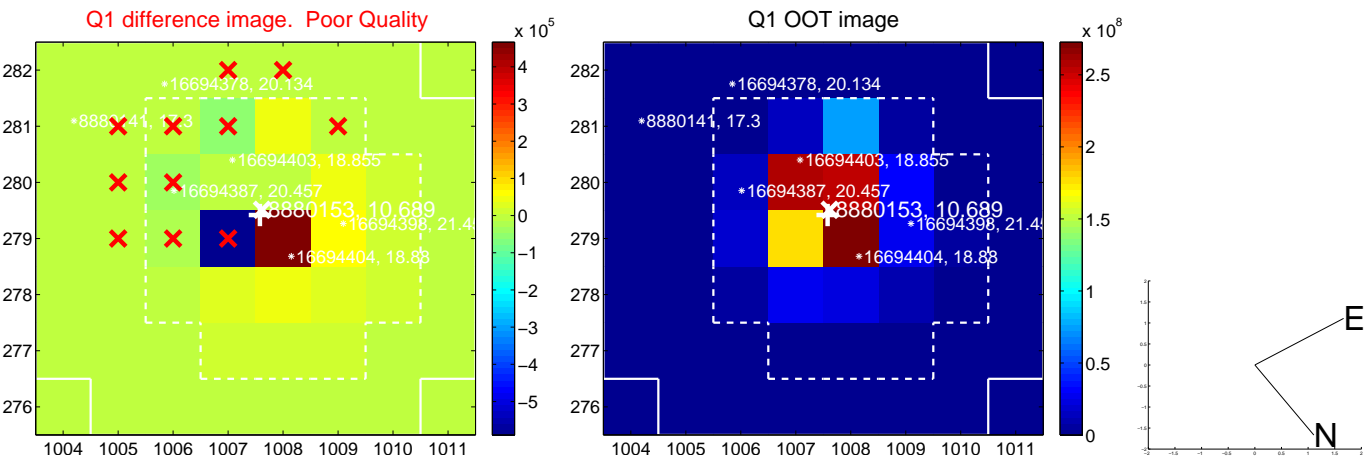
The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.514 ± 0.974	2.58	-2.129 ± 1.007	-1.337 ± 0.886
PRF-fit source offset from KIC position	2.578 ± 0.911	2.83	-2.139 ± 0.942	-1.439 ± 0.839
photometric centroid source offset	5.01 ± 3.12	1.60	-3.60 ± 3.25	3.49 ± 2.98



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.

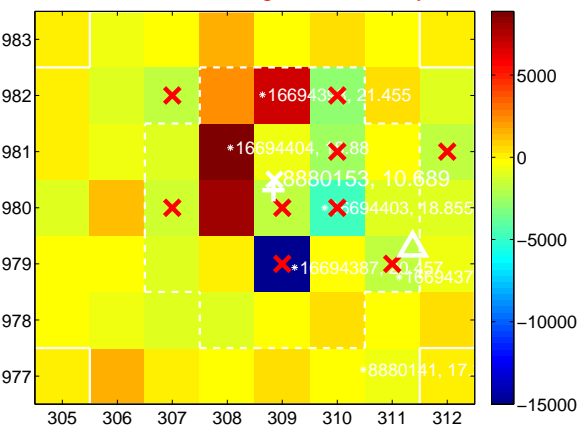
Q5 no difference image



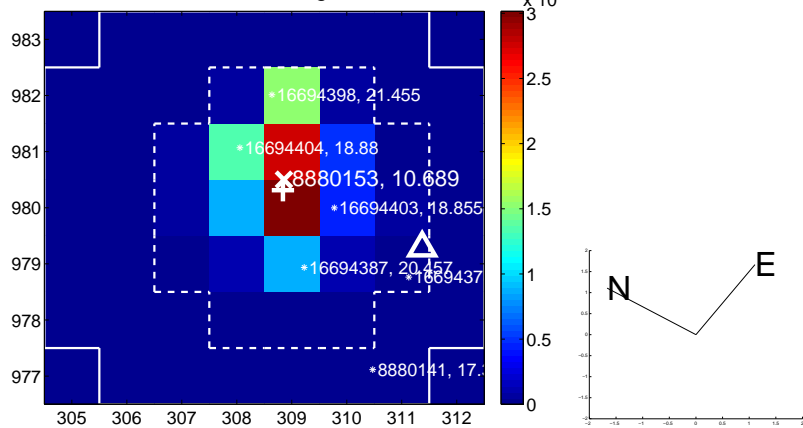
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



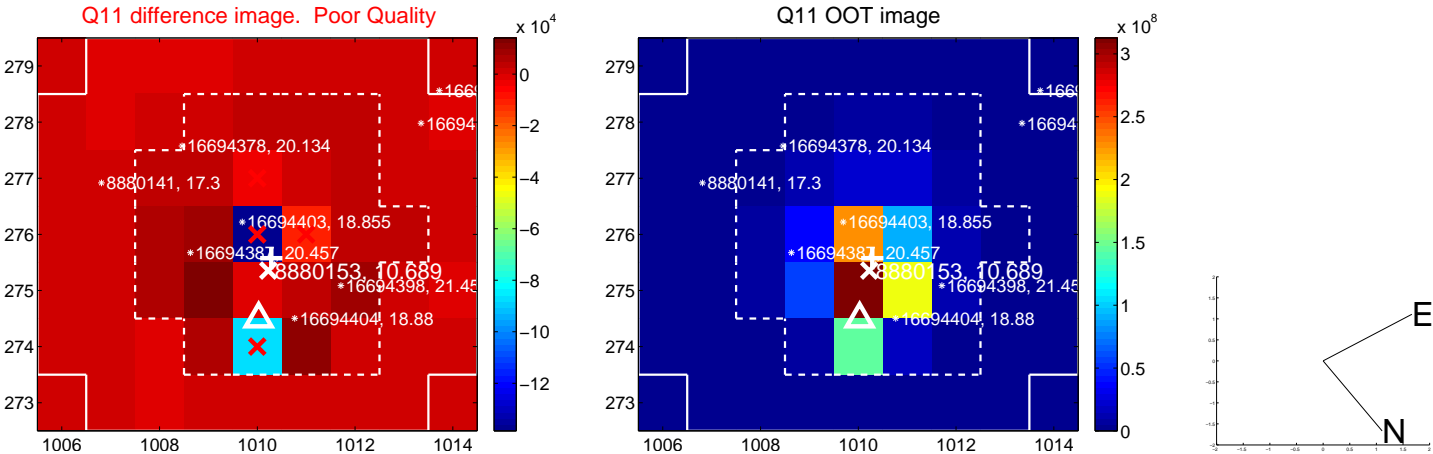
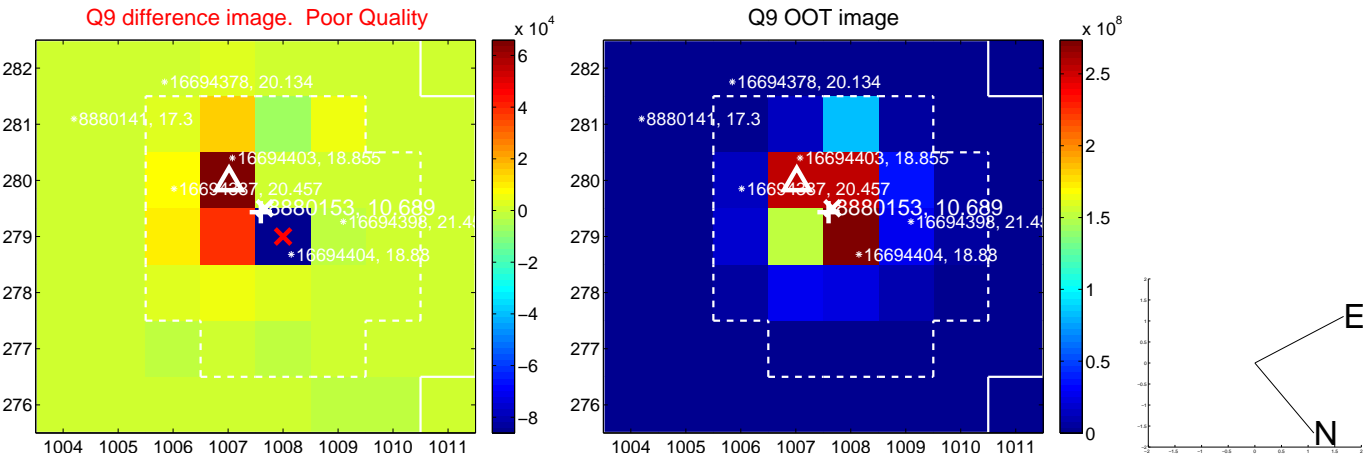
Q8 no difference image



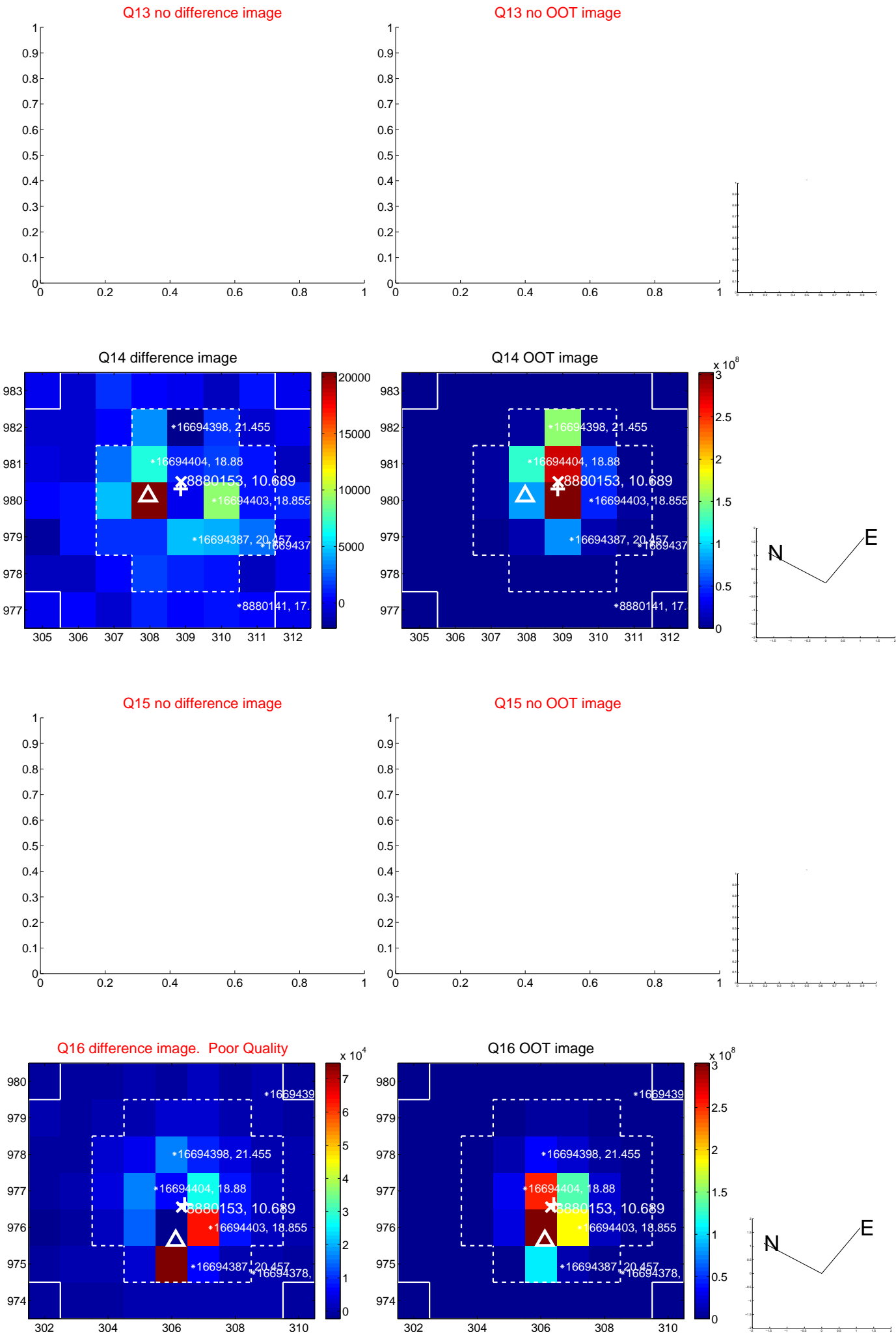
Q8 no OOT image



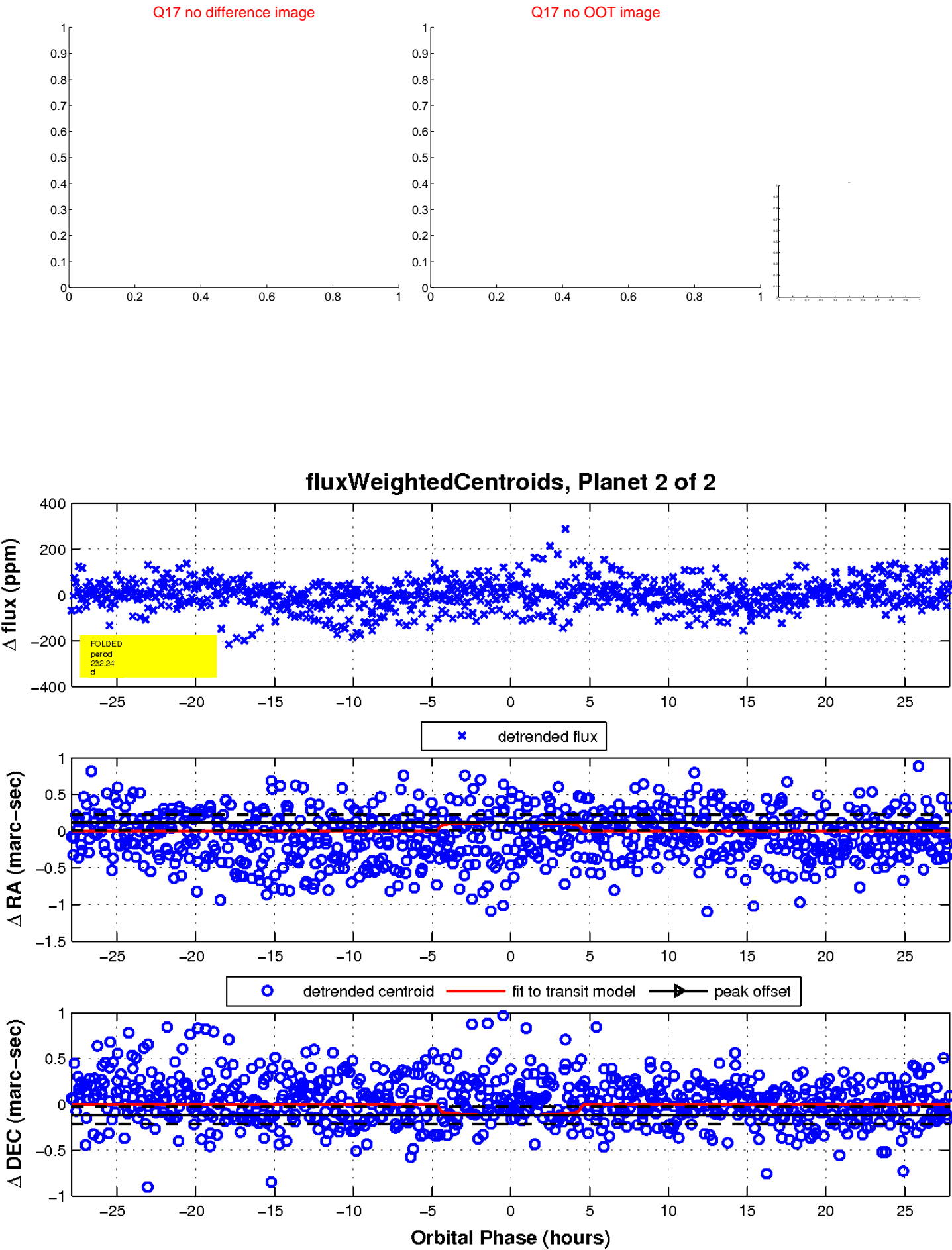
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

