

KIC 004940092

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})
004940092-01	OBS	No	1.743508	132.550955	27.3	8.895	8.6	9.0	1.56	6888	0.84	5009.82
004940092-02	OBS	No	64.179763	184.274857	412.5	2.024	8.2	7.7	1.56	6888	3.41	40.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004940092-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
004940092-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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

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

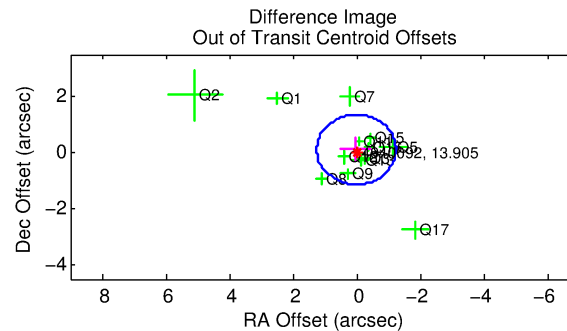
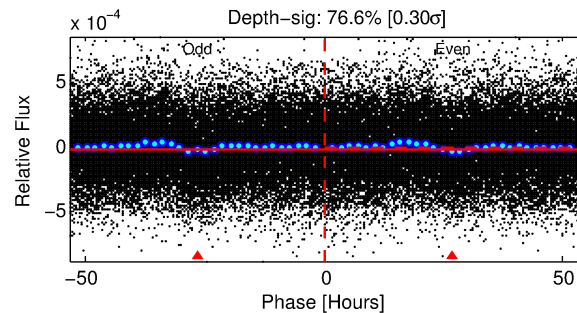
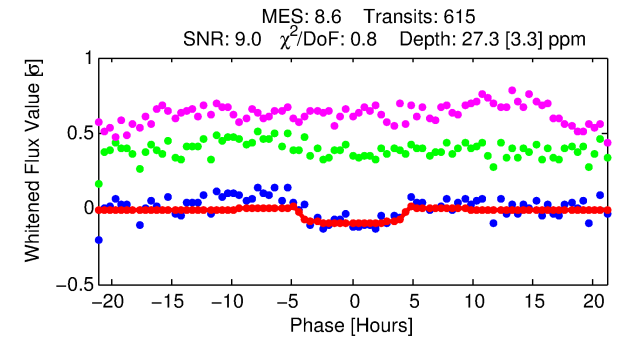
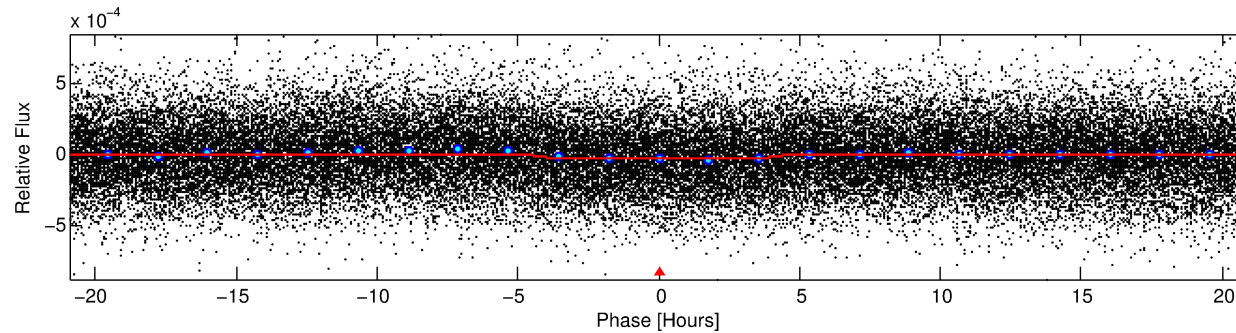
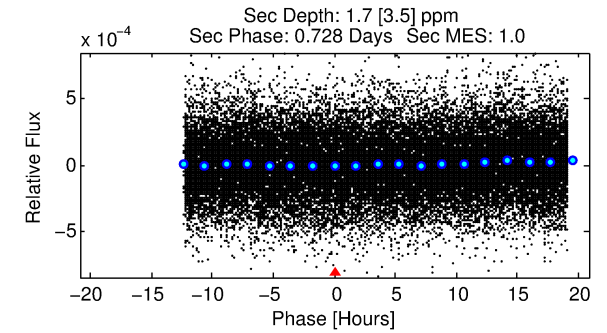
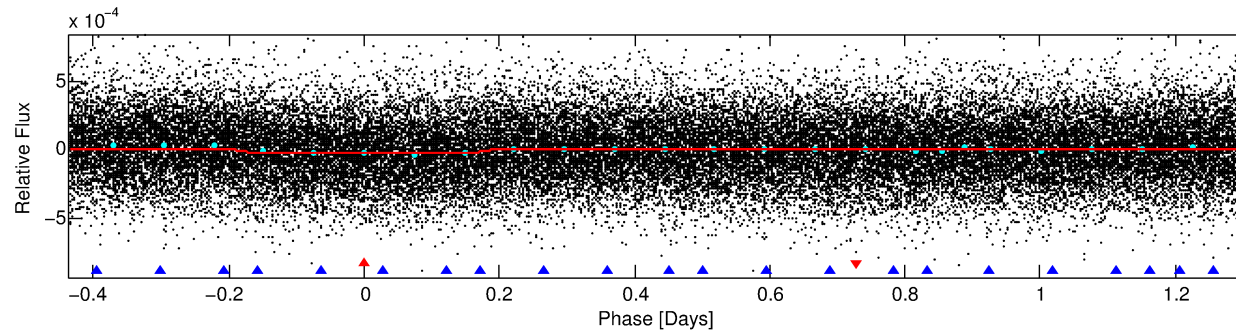
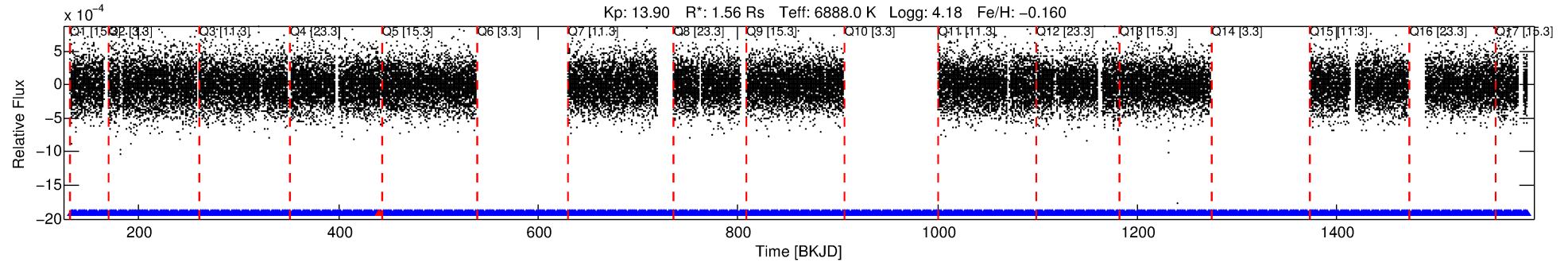
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004940092-01

No Significant Match Found

DV One-Page Summary

KIC: 4940092 Candidate: 1 of 2 Period: 1.744 d



DV Fit Results:

Period = 1.74351 [0.00003] d
Epoch = 132.5510 [0.0080] BKJD
Rp/R* = 0.0049 [0.0042]
a/R* = 1.54 [4.27]
b = 0.41 [9.83]
Seff = 5009.82 [1985.08]
Teq = 2145 [213] K
Rp = 0.84 [0.76] Re
a = 0.0313 [0.0080] AU
Ag = 1.29 [3.53] [0.08σ]
Teffp = 3538 [2393] K [0.58σ]

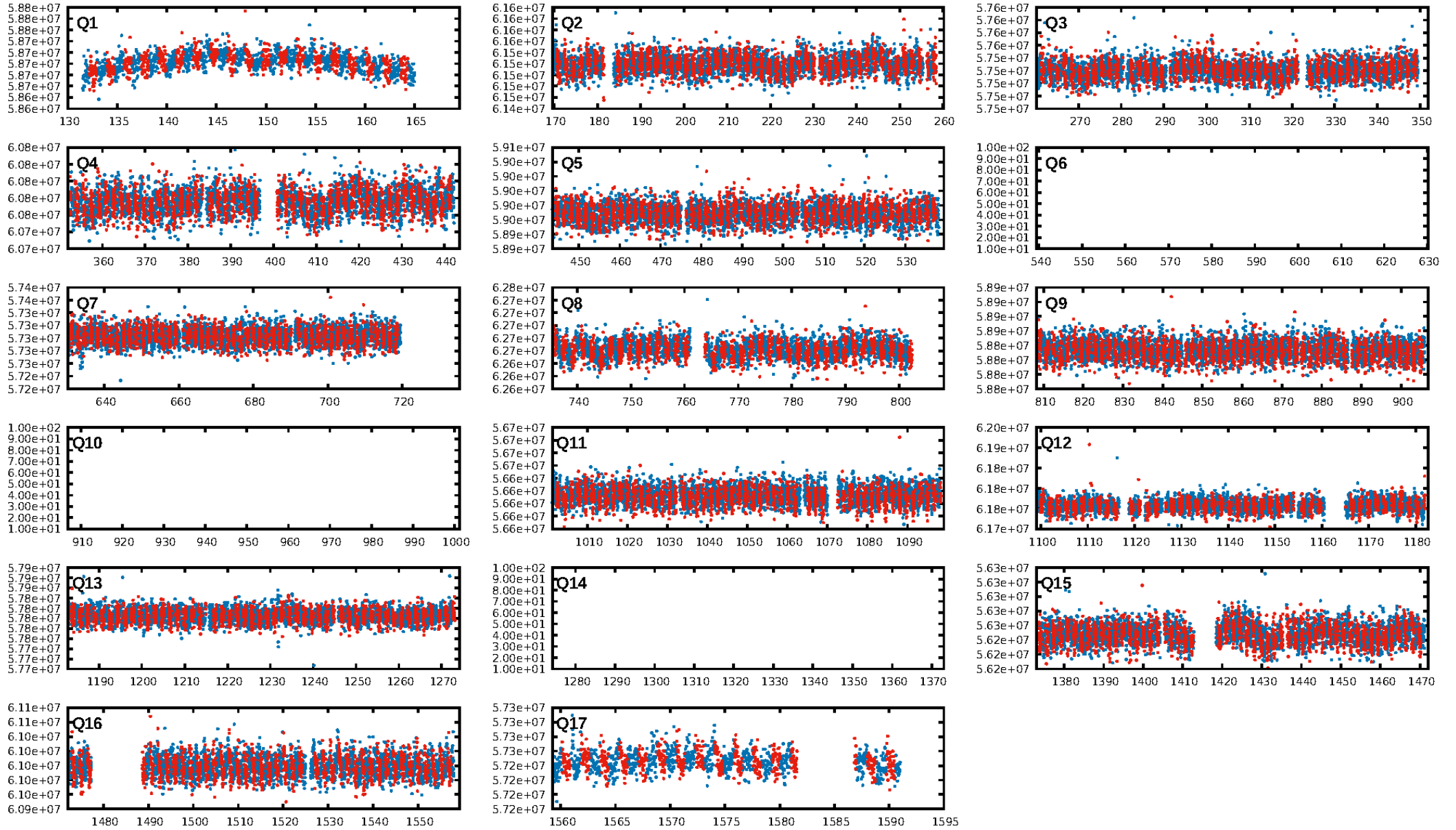
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [164.26σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 2.93e-12
RollingBand-fgt: 1.00 [580/581]
GhostDiagnostic-chr: 0.7608
Centroid-sig: 43.4%
Centroid-so: 0.940 arcsec [0.80σ]
OotOffset-rm: 0.107 arcsec [0.26σ]
OotOffset-st: 1/4/3/5 [13]
KicOffset-rm: 0.342 arcsec [0.90σ]
KicOffset-st: 1/4/3/5 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 1.00 [14/14]

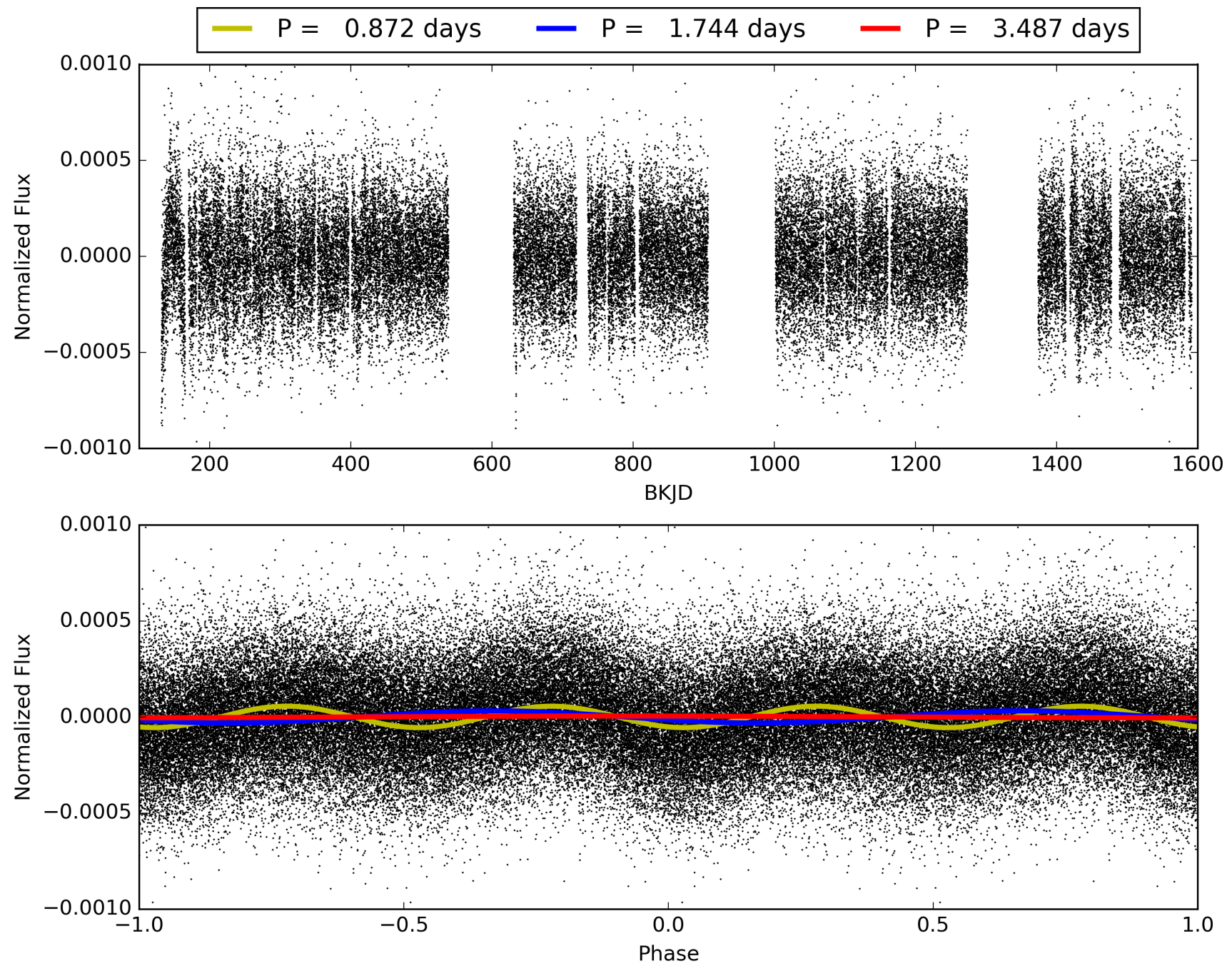
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:29:55 Z

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

TCE 004940092-01, PDC Light Curves

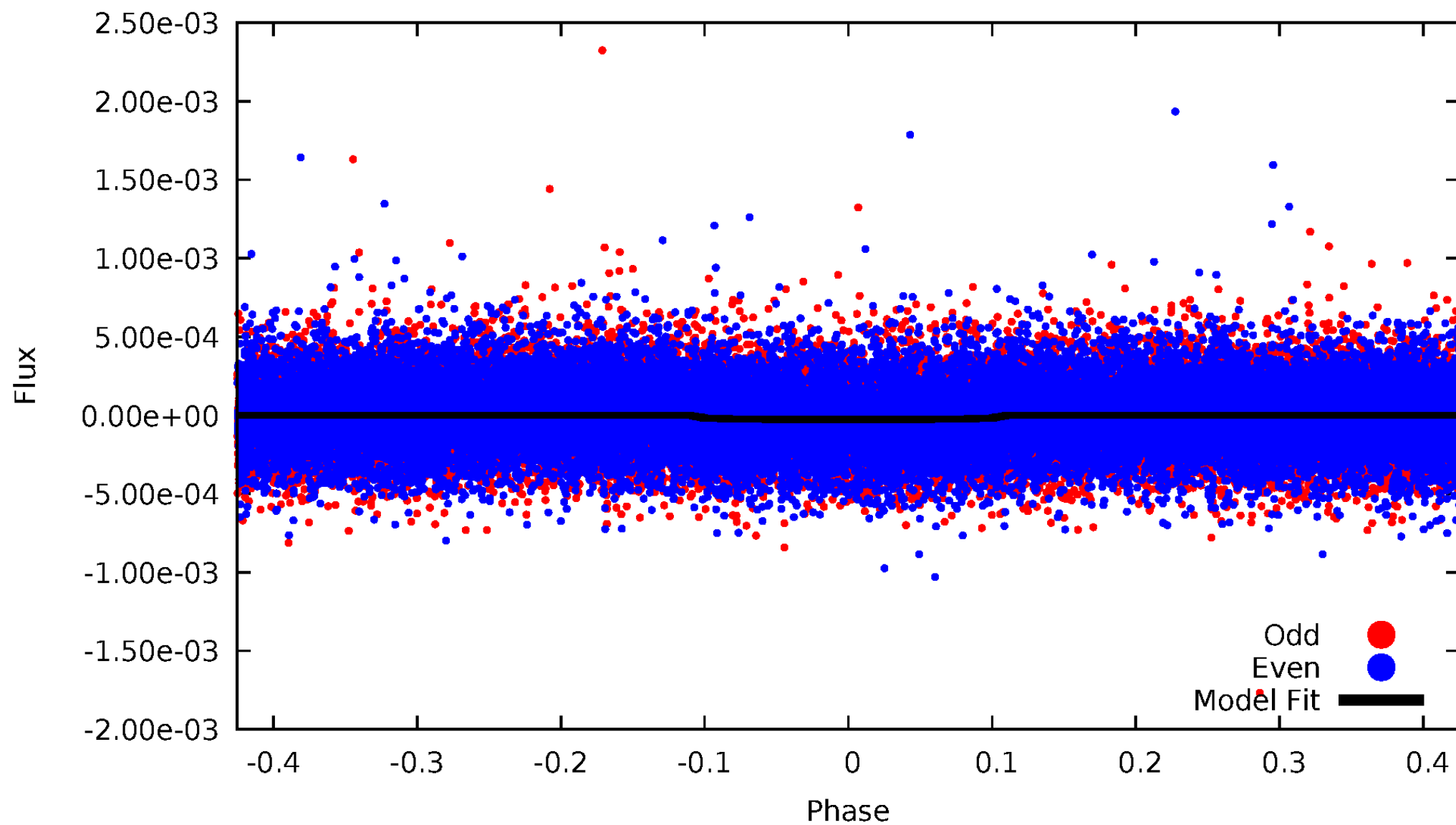


TCE 004940092-01



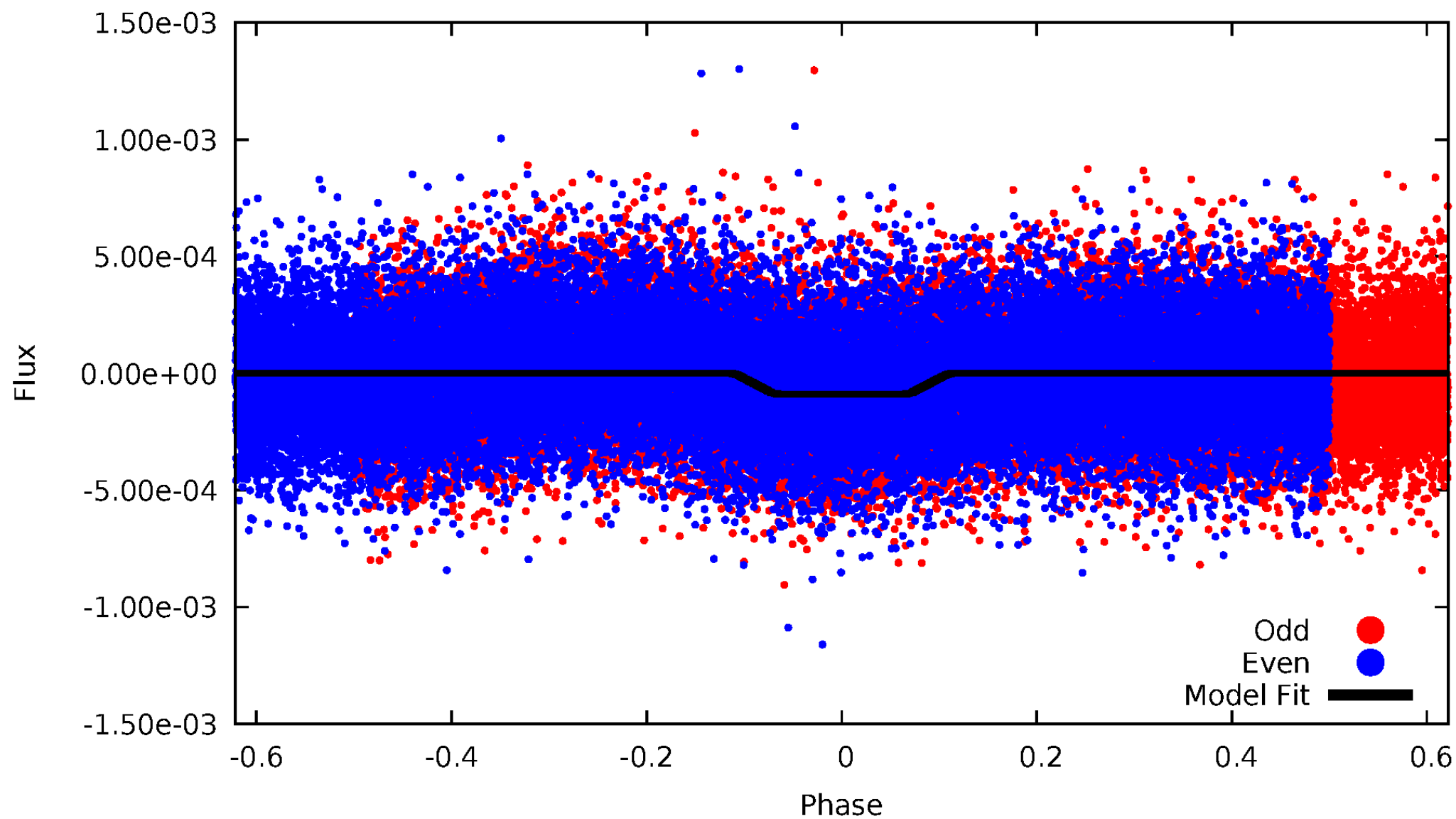
DV Odd/Even

TCE 004940092-01

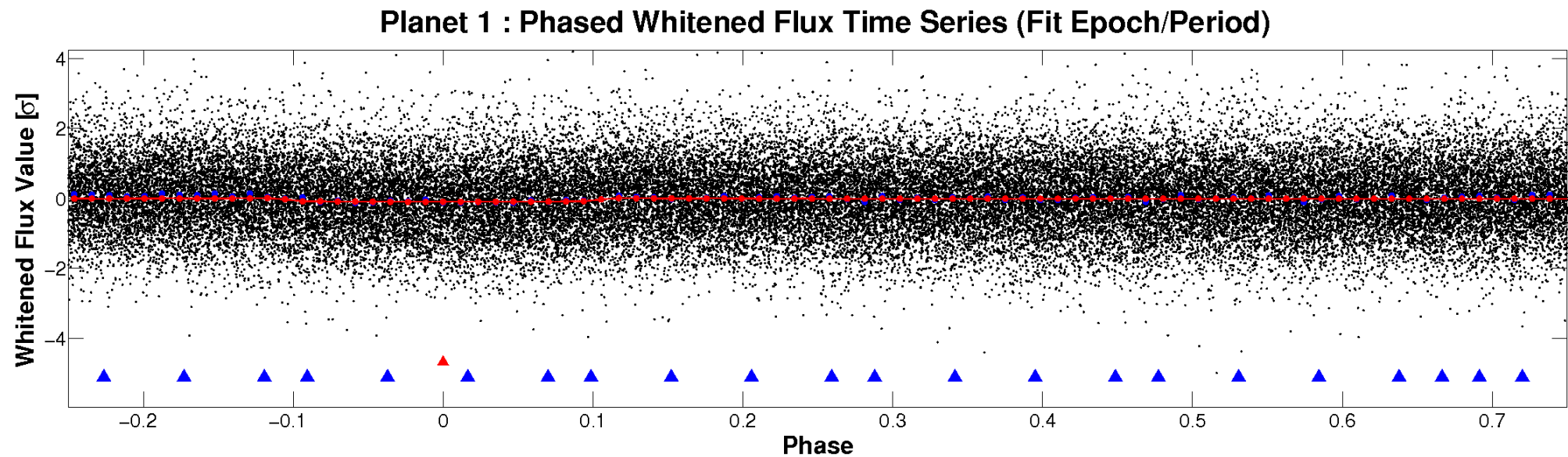
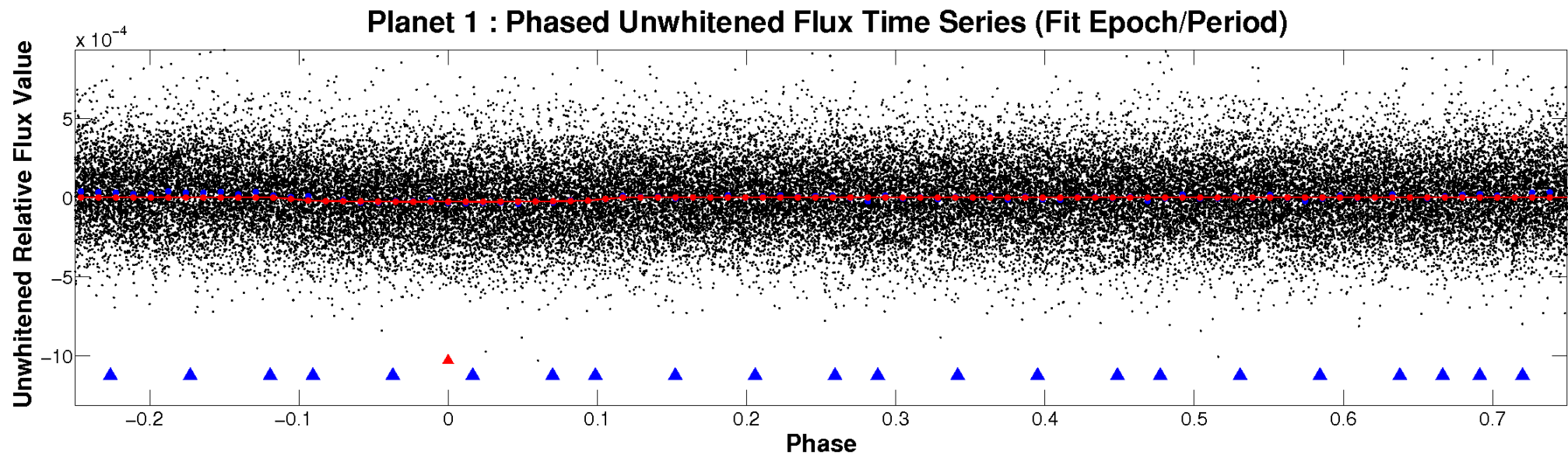


ALT Odd/Even

TCE 004940092-01

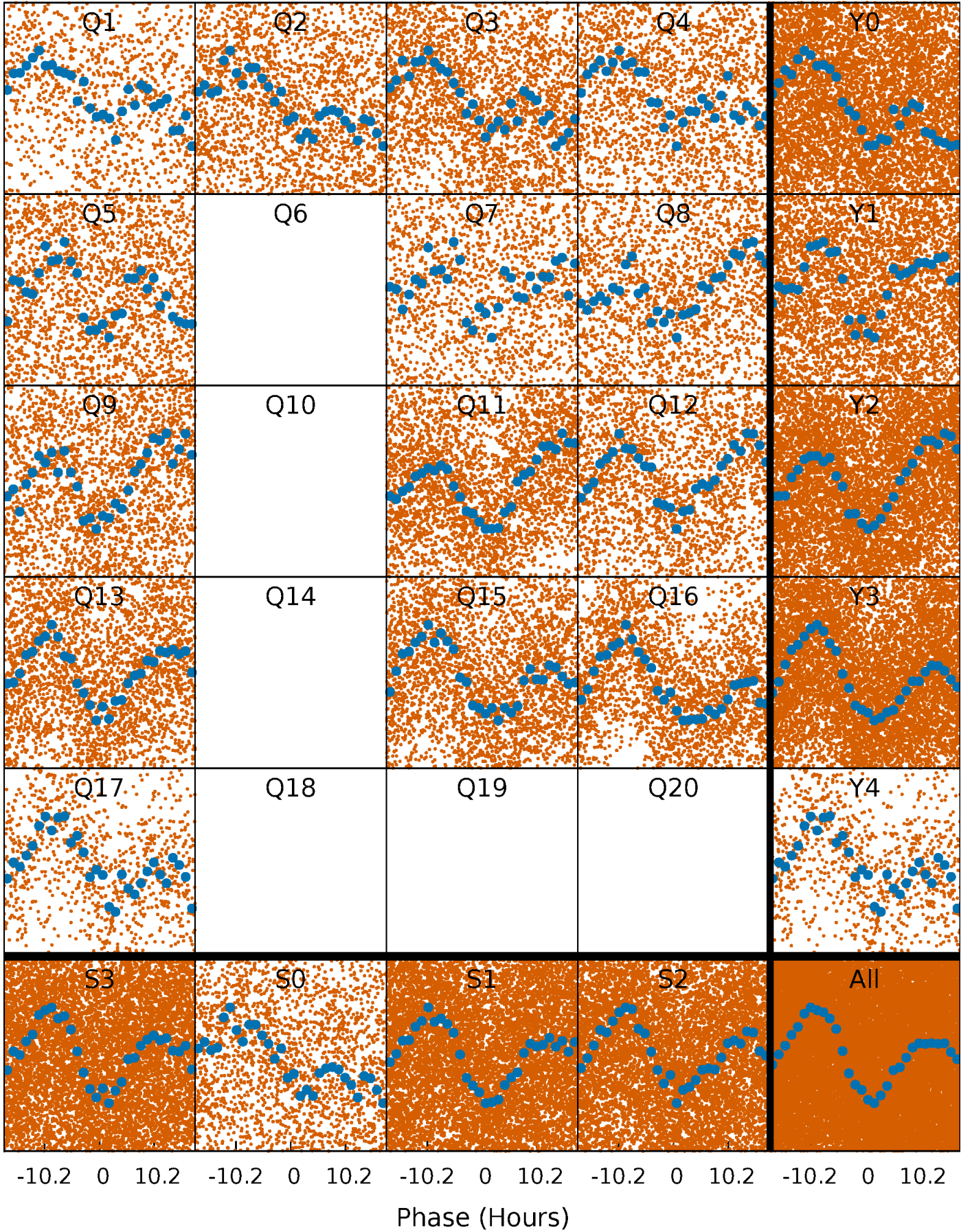


Non-Whitened Vs. Whitened Light Curve



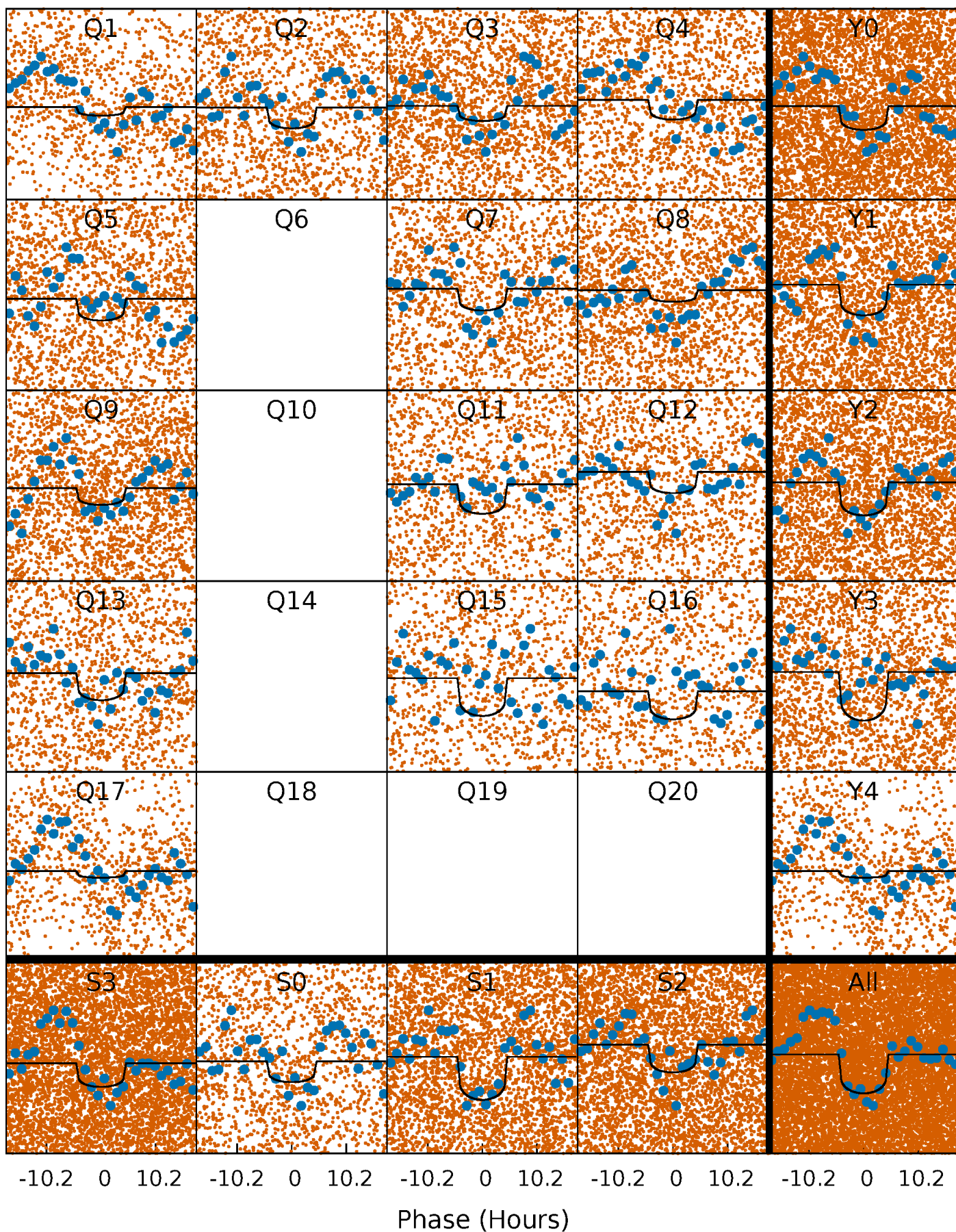
PDC Quarter-Phased Transit Curves

TCE 004940092-01 P= 1.743508 Days $T_0=132.550955$ (BKJD)



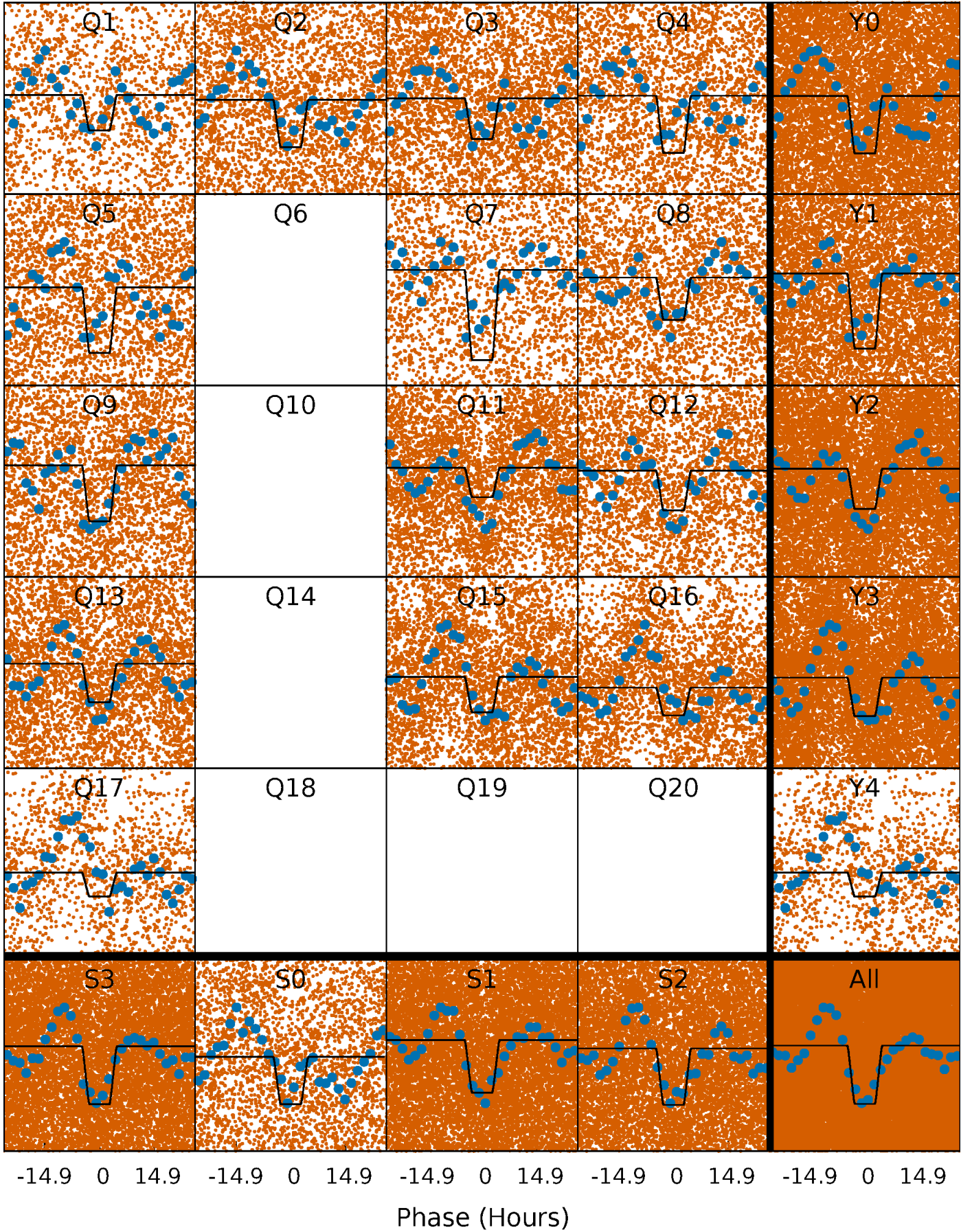
DV Quarter-Phased Transit Curves

TCE 004940092-01 P= 1.743508 Days $T_0=132.550955$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

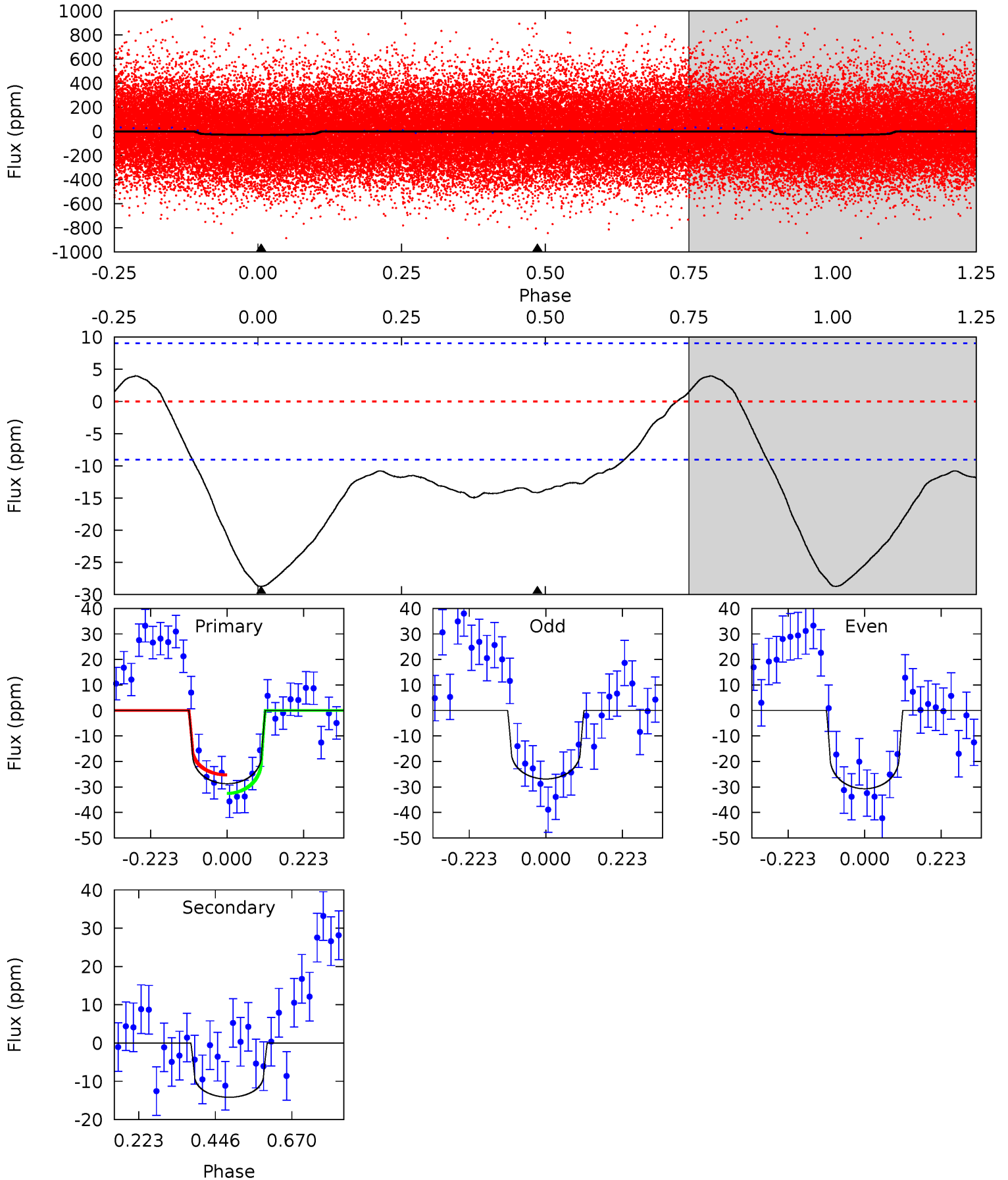
TCE 004940092-01 P= 1.743302 Days $T_0=132.696178$ (BKJD)



DV Model-Shift Uniqueness Test

004940092-01, P = 1.743508 Days, E = 130.807447 Days

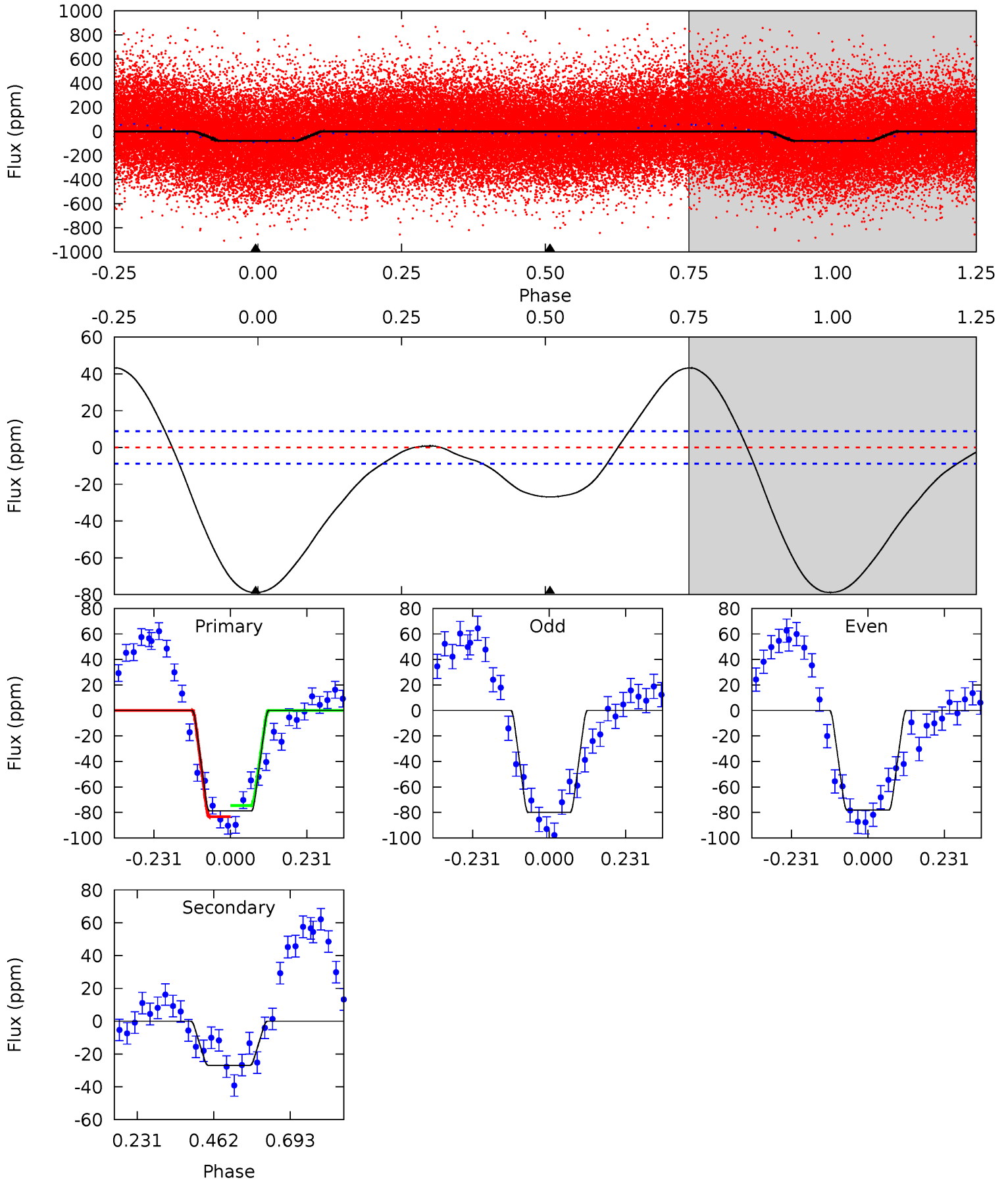
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	6.89	0	0	4.39	1.22	3.01	14.0	14.0	6.89	6.89	0.94	0.84	0.12	1.76



Alt Model-Shift Uniqueness Test

004940092-01, P = 1.743302 Days, E = 130.952876 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.3	13.4	0	0	4.39	1.20	11.1	39.3	39.3	13.4	13.4	0.49	1.03	0.35	2.16



Stellar Parameters For KIC 004940092

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6888^{+190}_{-299}	$4.181^{+0.153}_{-0.187}$	$-0.160^{+0.250}_{-0.350}$	$1.562^{+0.494}_{-0.329}$	$1.363^{+0.202}_{-0.247}$	$0.503^{+0.350}_{-0.263}$
	+3%/-4%	+4%/-4%	+156%/-219%	+32%/-21%	+15%/-18%	+70%/-52%
Source	PHO1	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 004940092-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-14 ± 2	$0.92^{+0.69}_{-0.57}$	2996^{+245}_{-202}	5715^{+4628}_{-1299}	$9.138^{+53.988}_{-6.163}$
Alt.	-27 ± 2	$1.64^{+0.79}_{-0.68}$	2998^{+227}_{-212}	5037^{+1506}_{-762}	$5.368^{+10.173}_{-2.869}$

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

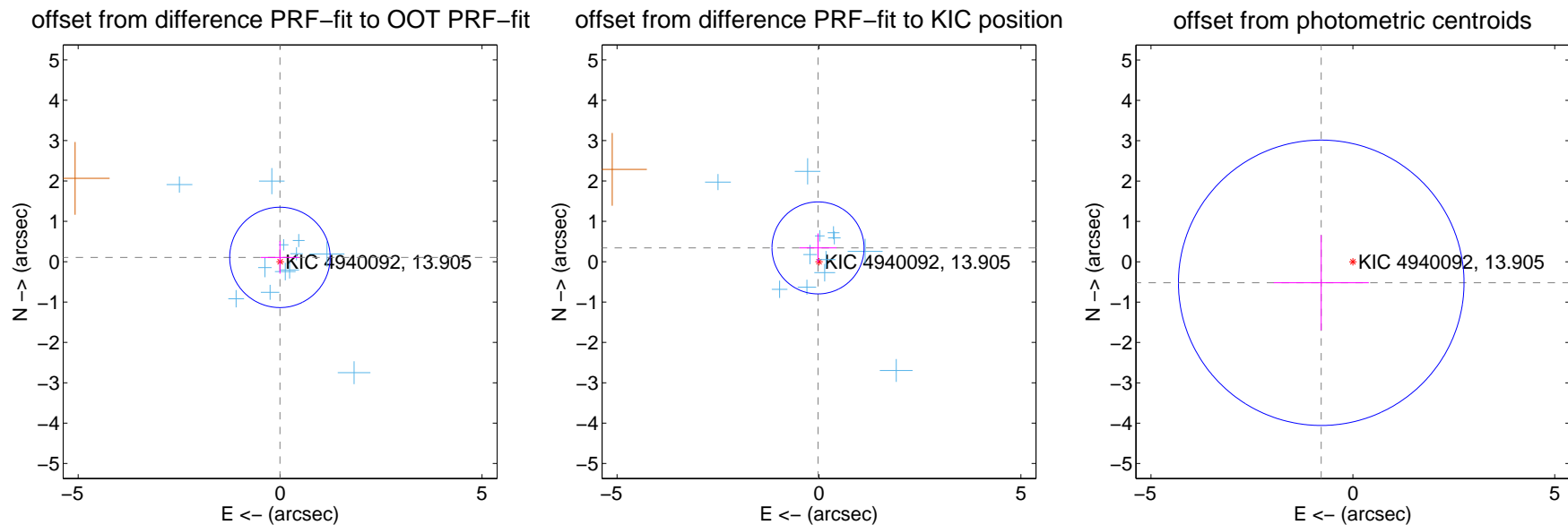
DV Centroid Data

Supplemental centroid analysis for 004940092-01. Kepler magnitude: 13.90. Transit SNR 9.02

There are 12 quarters with good PRF difference image offsets

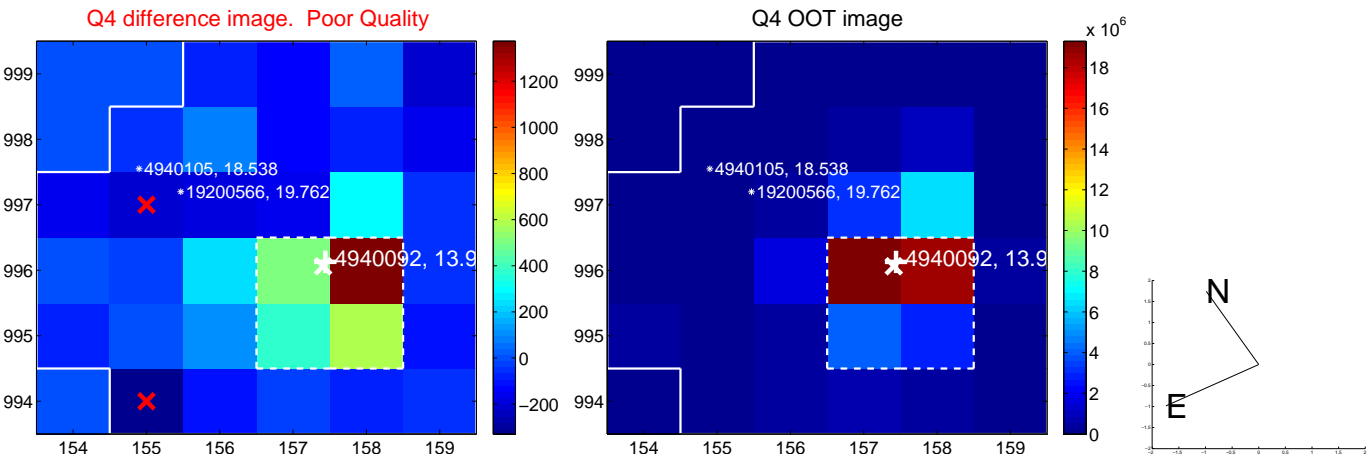
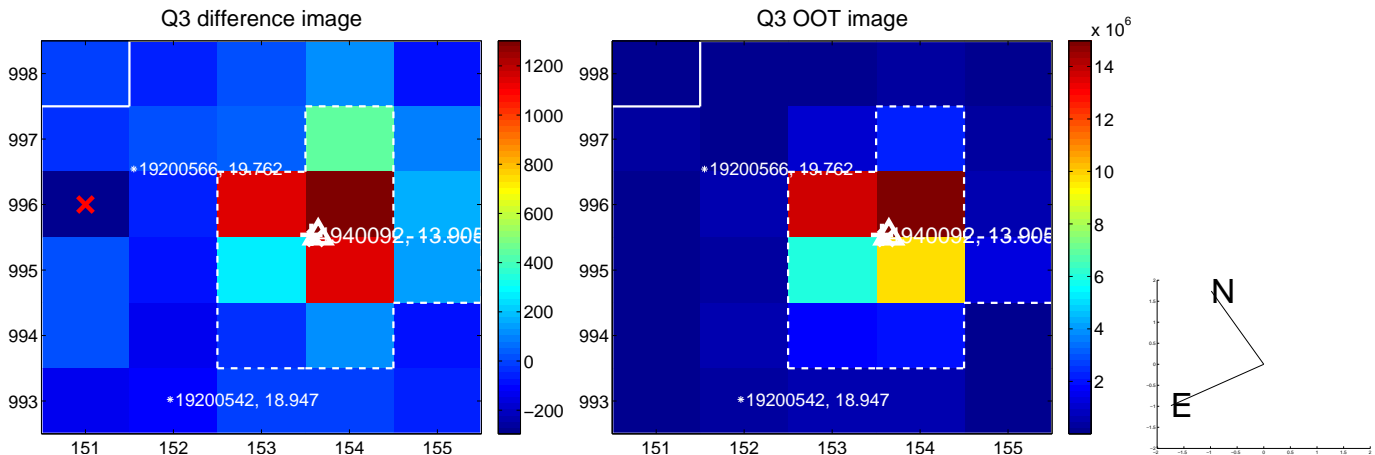
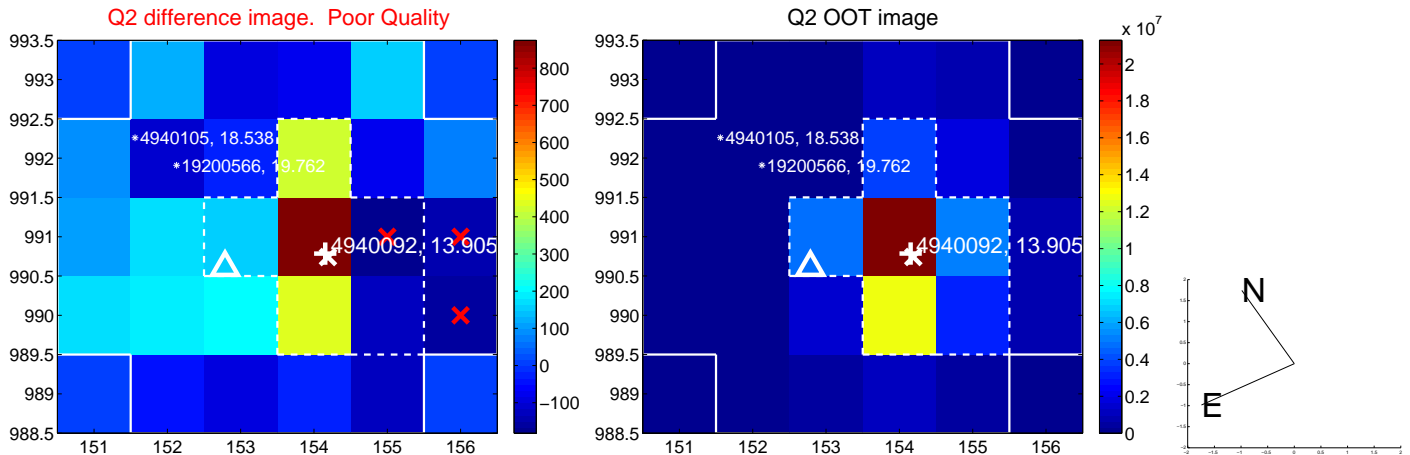
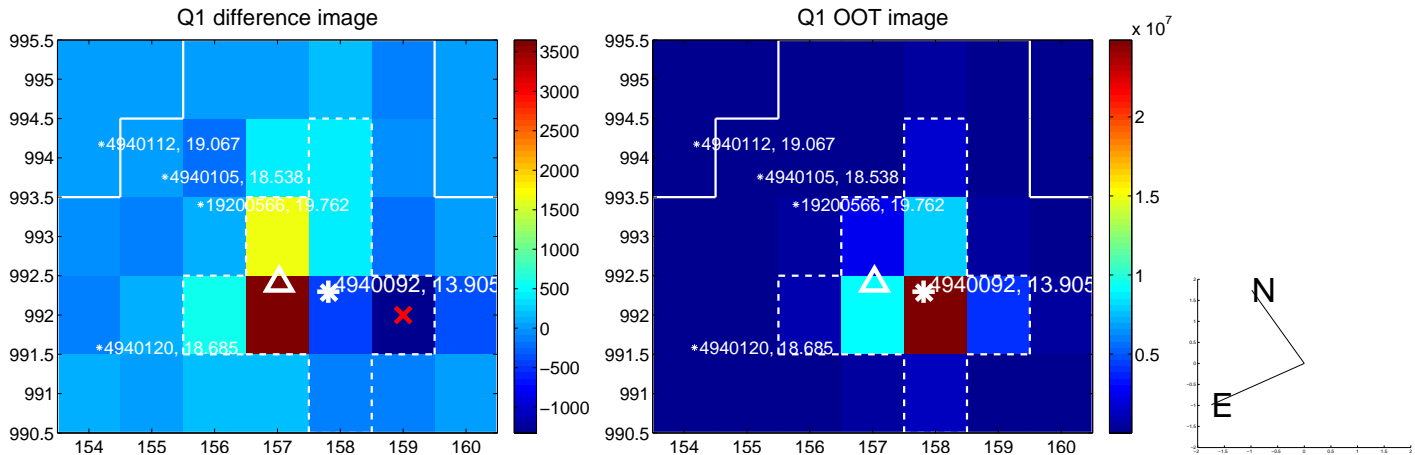
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.107 ± 0.414	0.26	0.004 ± 0.474	0.107 ± 0.402
PRF-fit source offset from KIC position	0.342 ± 0.380	0.90	0.024 ± 0.460	0.341 ± 0.359
photometric centroid source offset	0.94 ± 1.18	0.80	0.78 ± 1.18	-0.52 ± 1.18

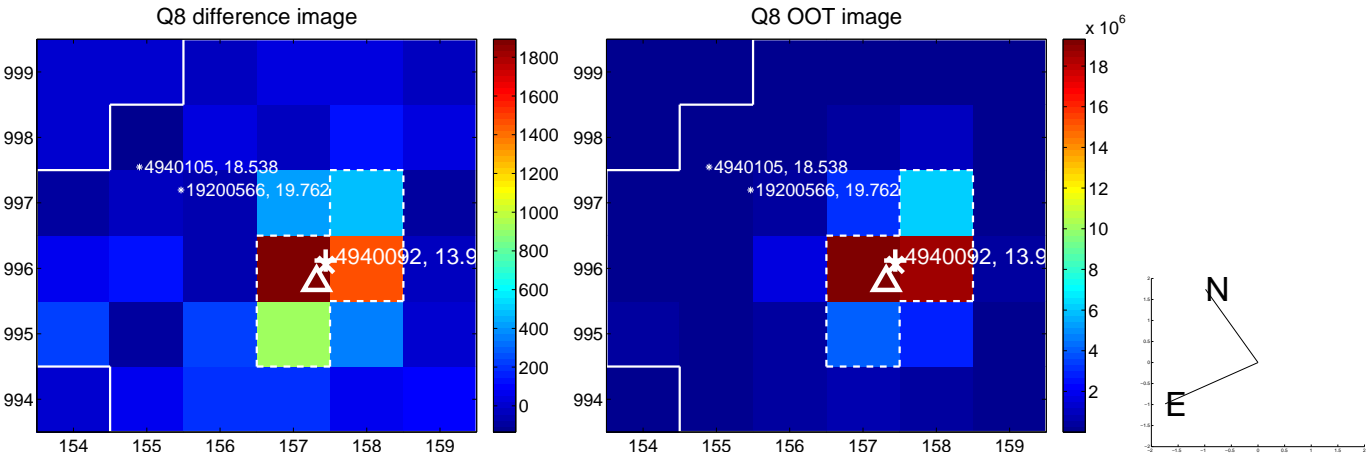
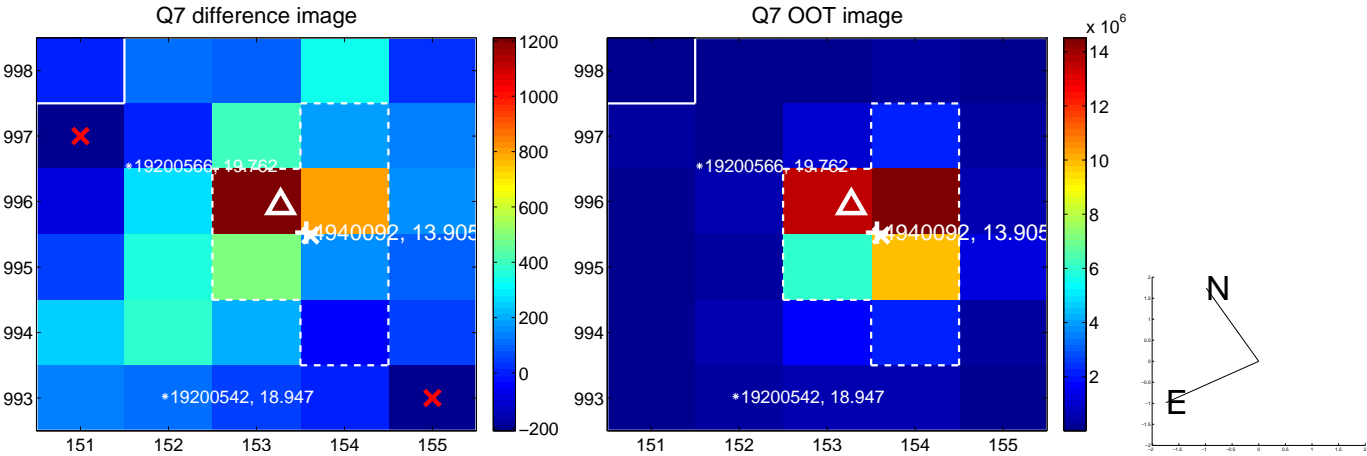
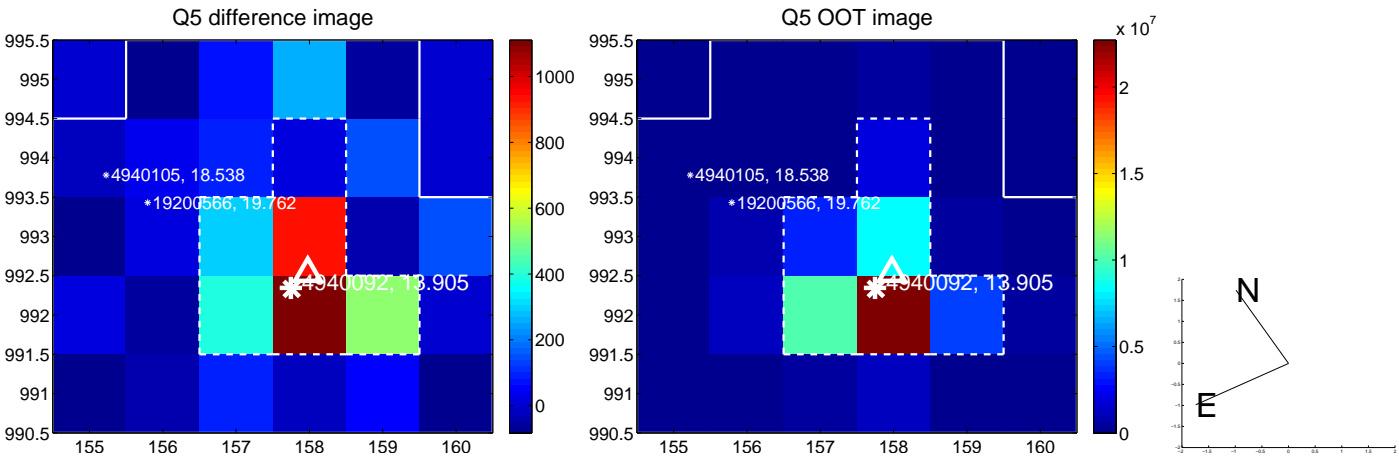


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

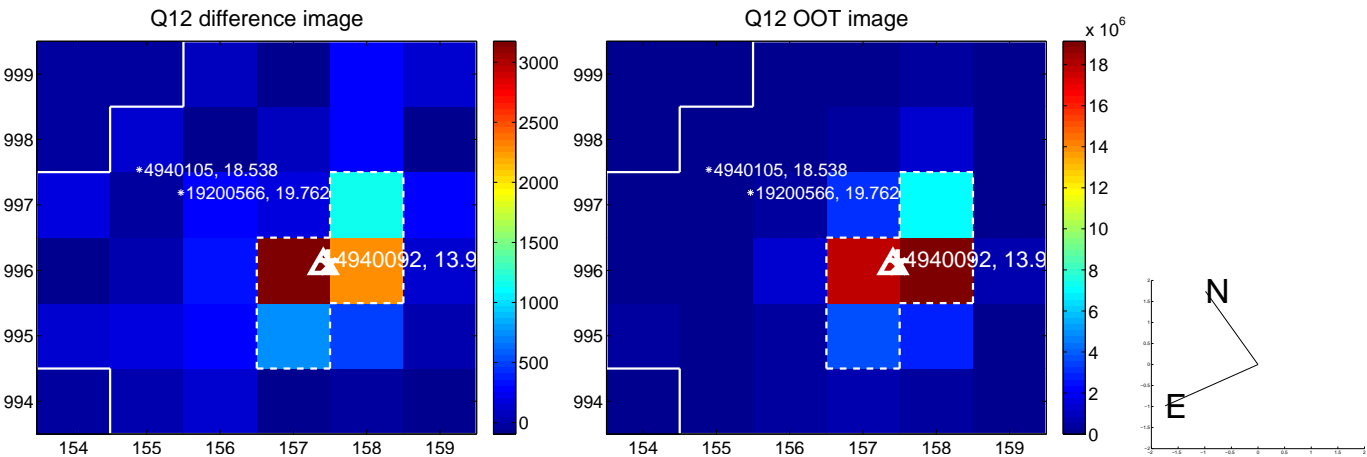
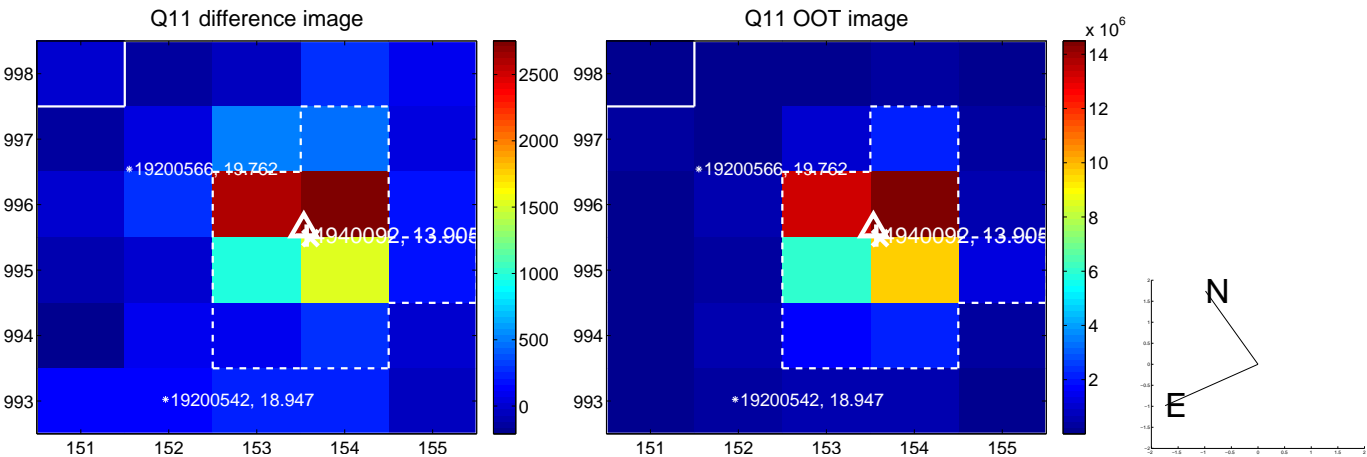
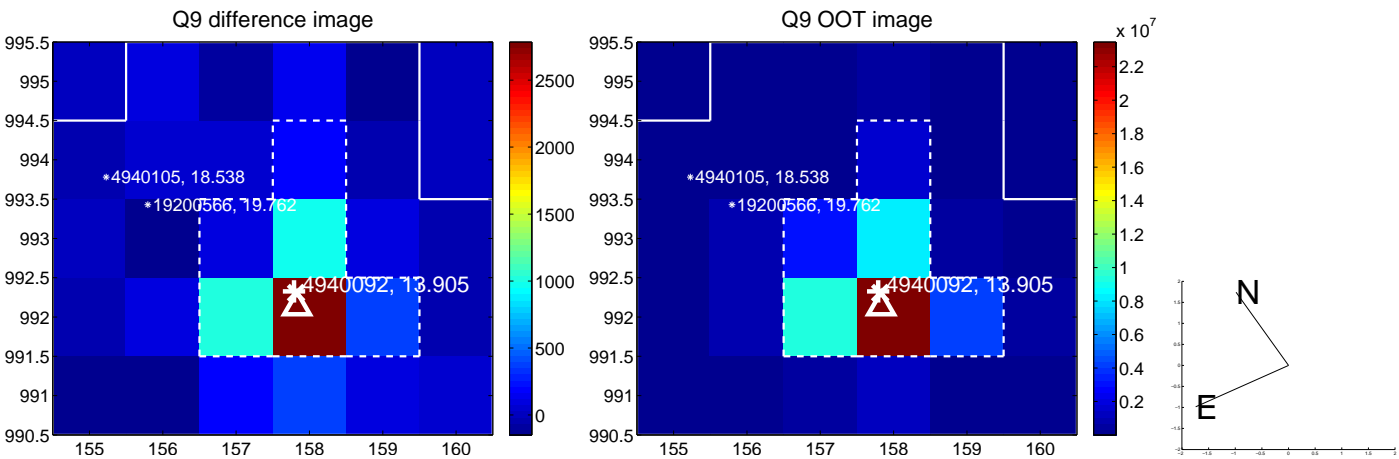
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



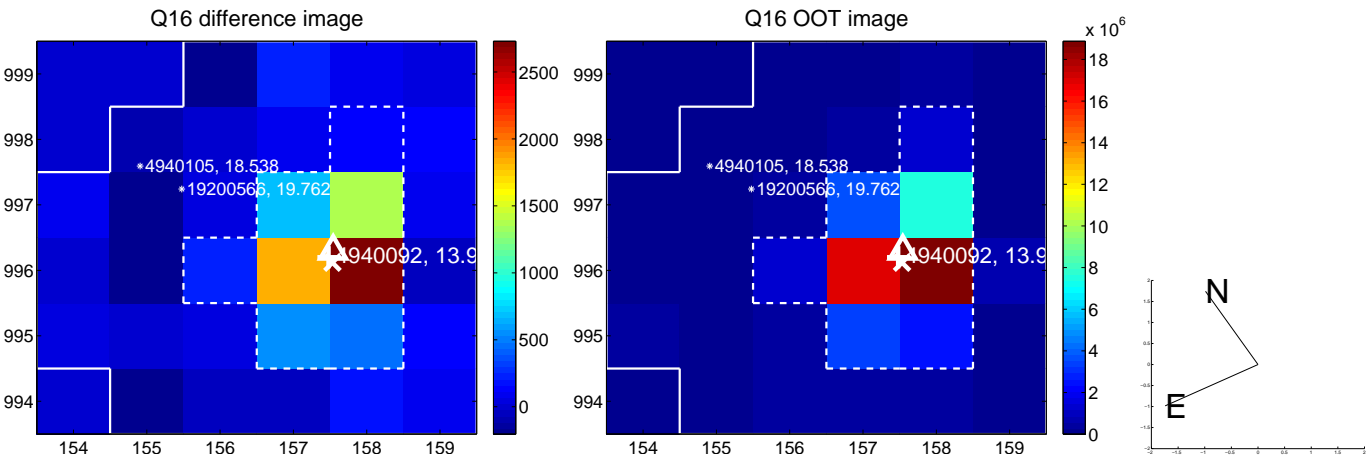
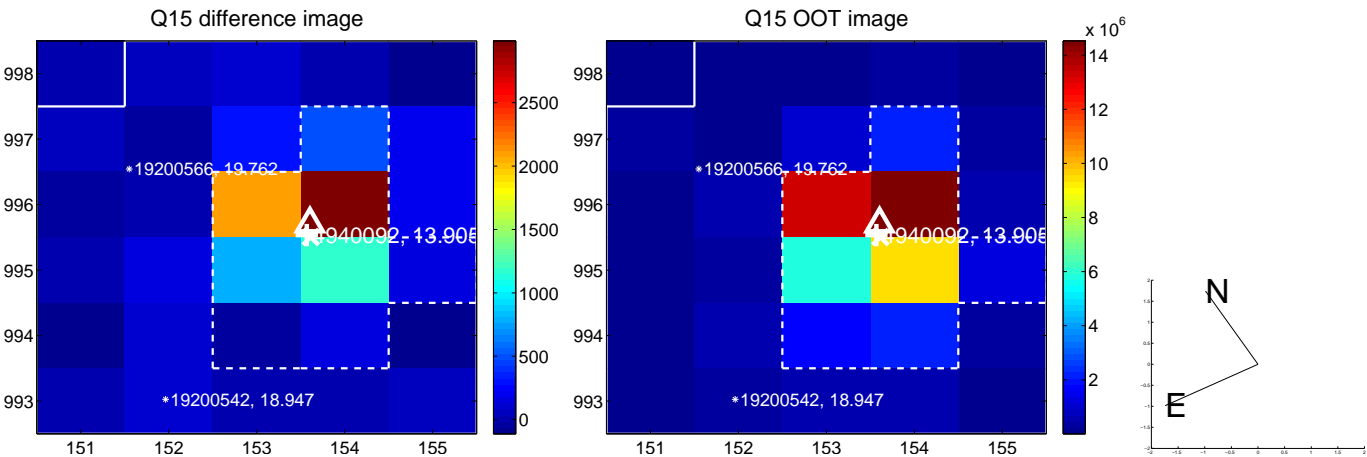
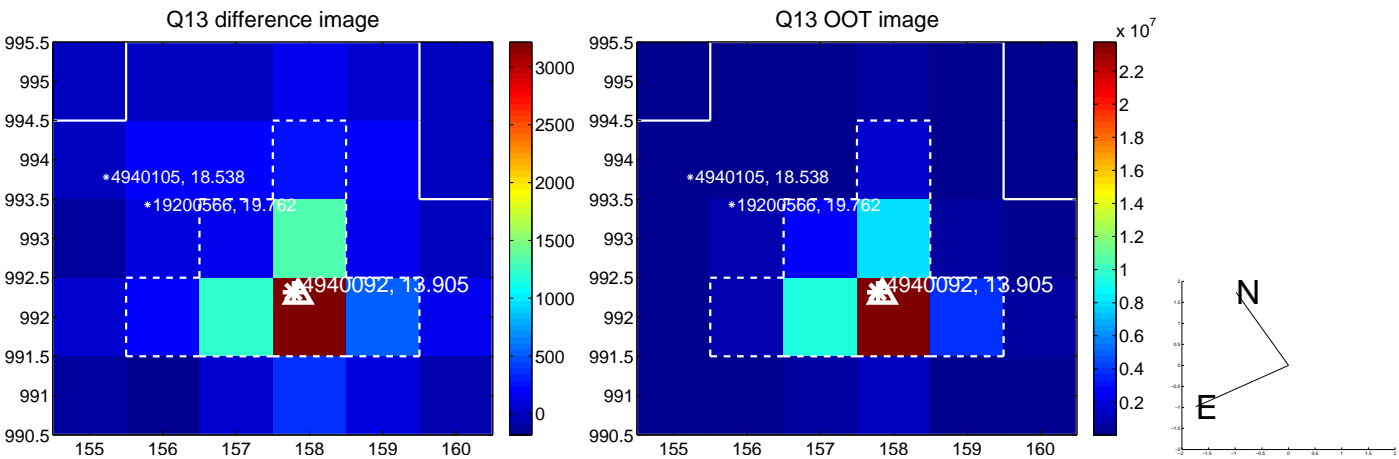
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



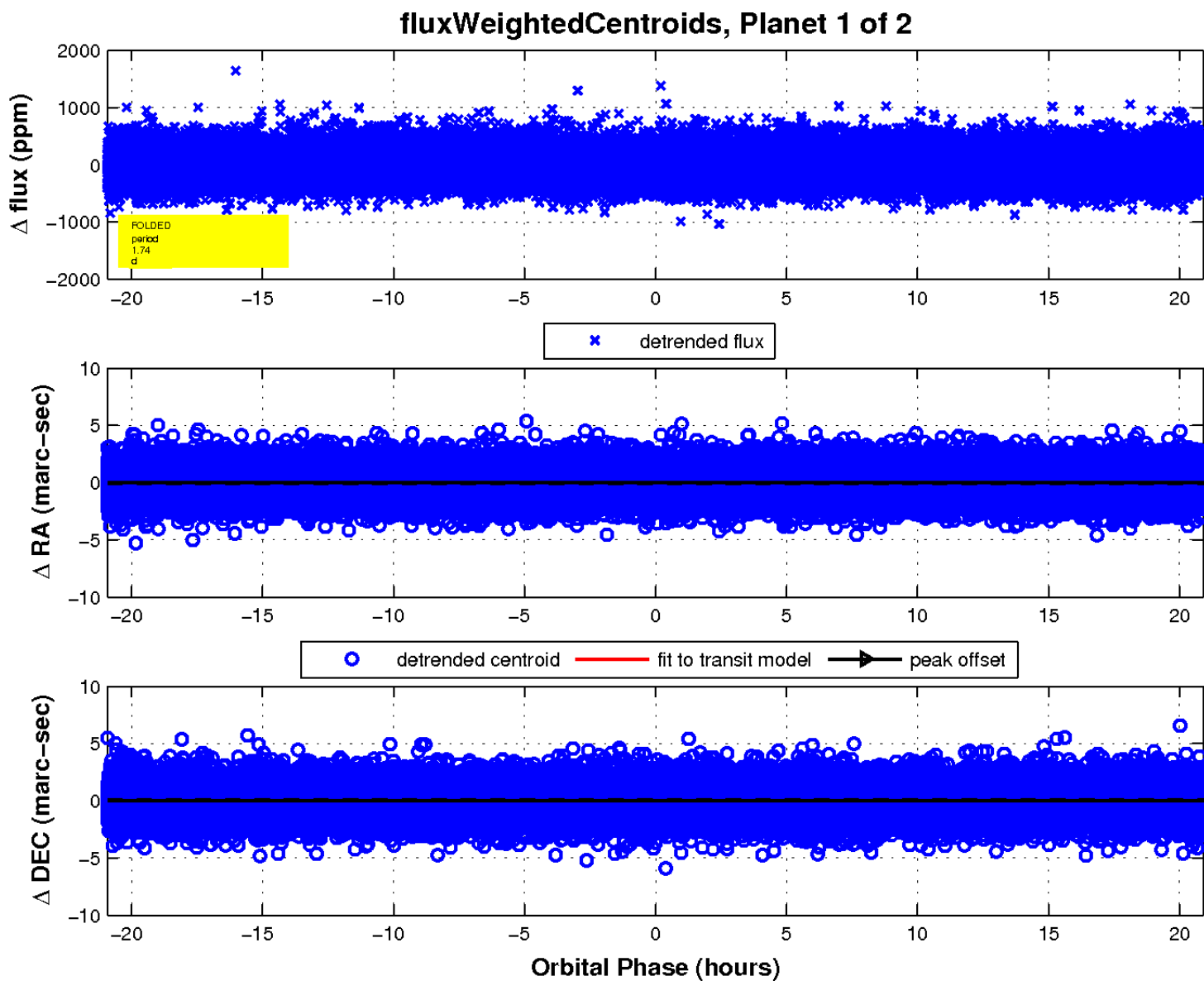
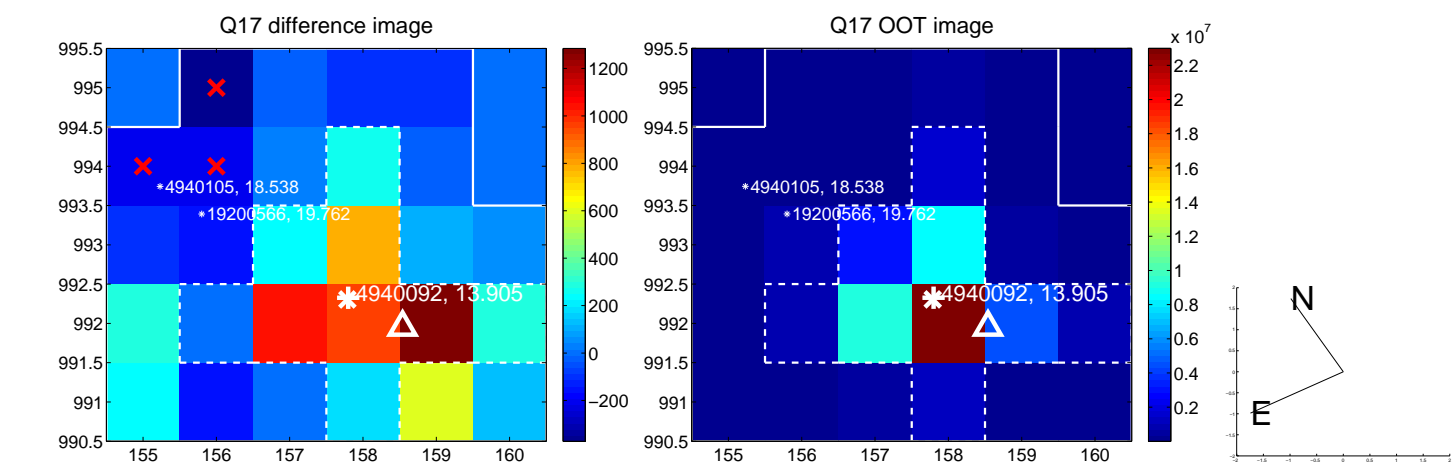
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

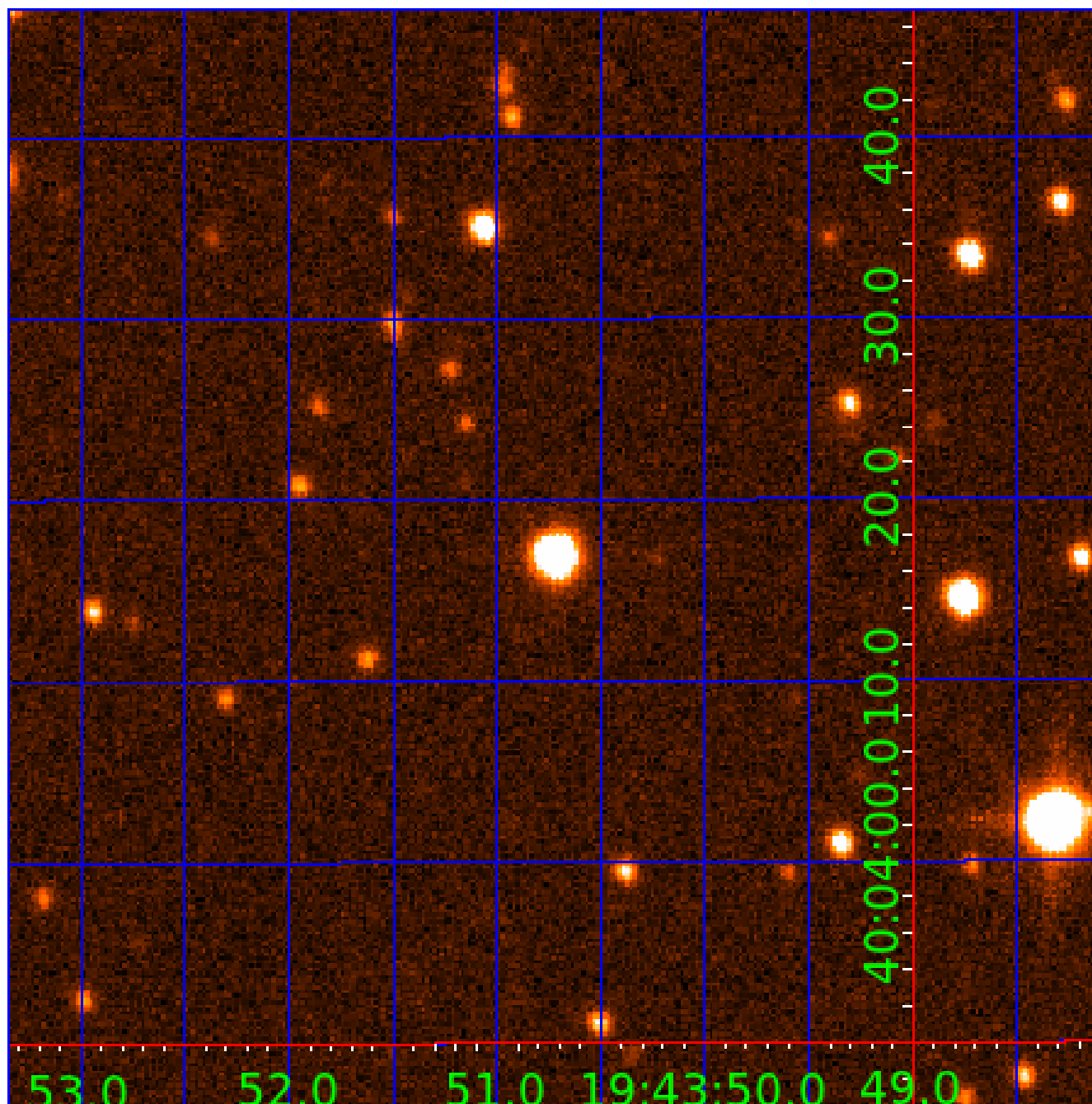


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



UKIRT Image

Declination



KIC 004940092

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})
004940092-01	OBS	No	1.743508	132.550955	27.3	8.895	8.6	9.0	1.56	6888	0.84	5009.82
004940092-02	OBS	No	64.179763	184.274857	412.5	2.024	8.2	7.7	1.56	6888	3.41	40.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004940092-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
004940092-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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

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

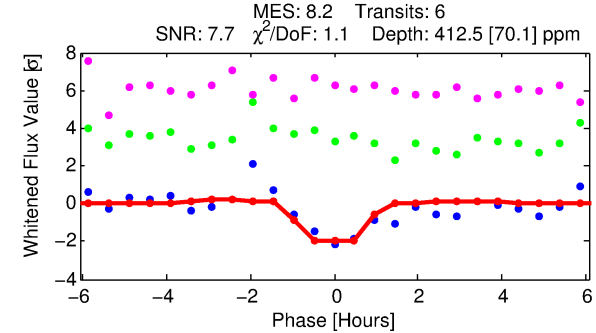
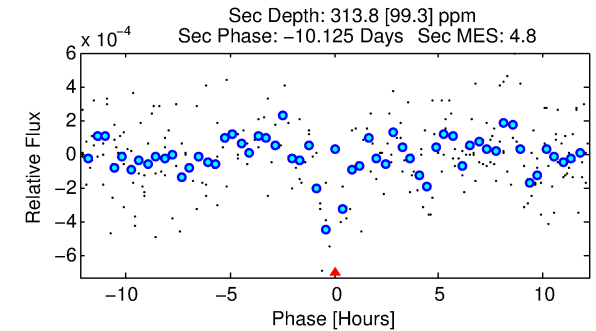
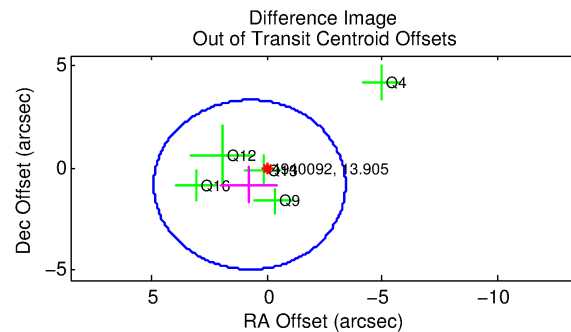
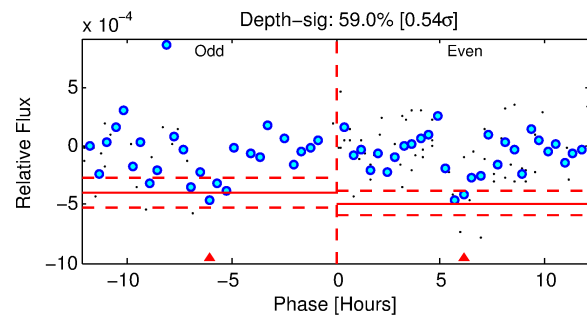
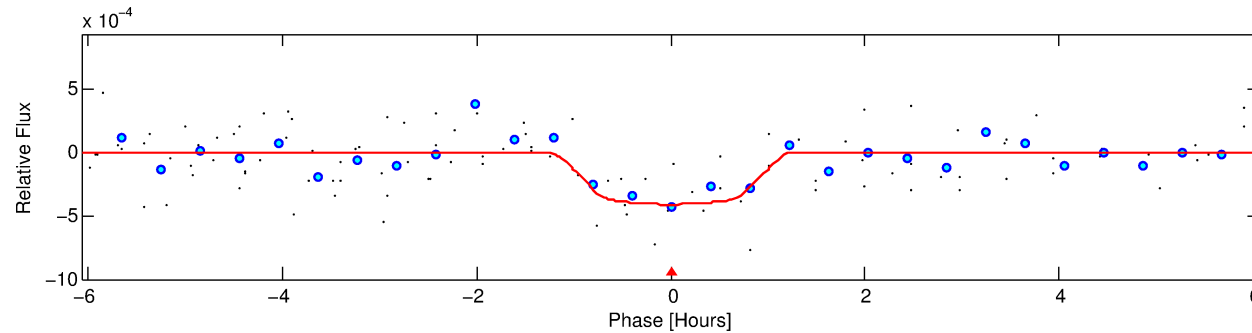
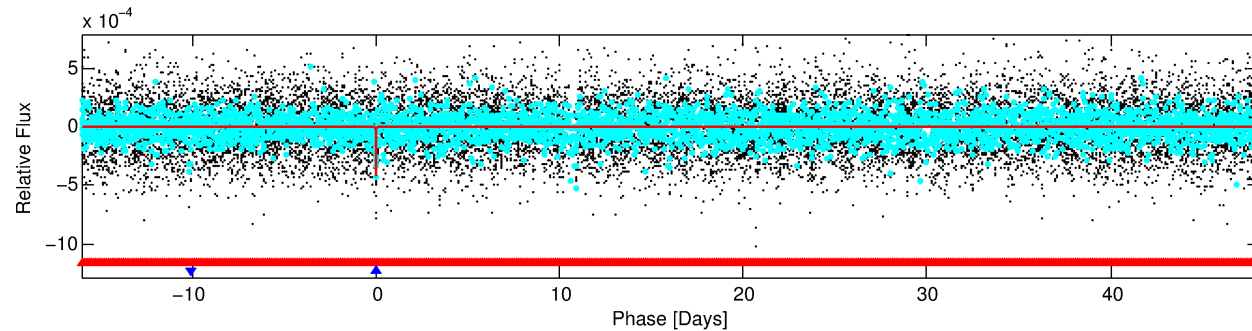
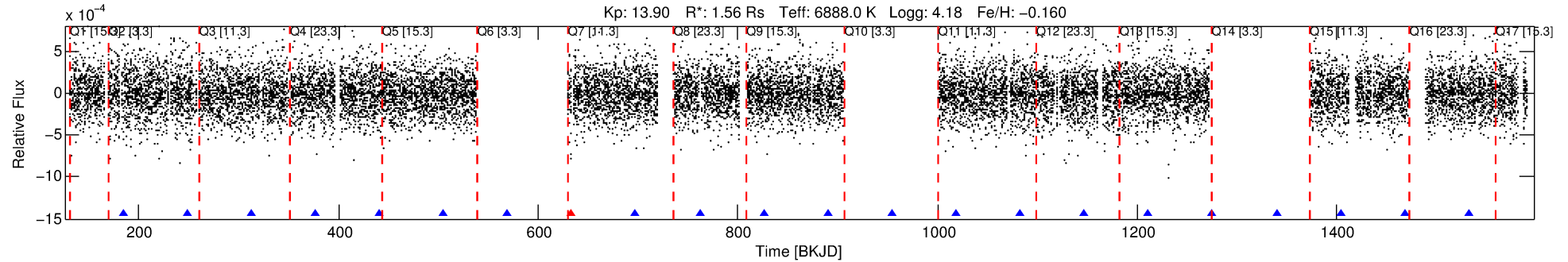
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004940092-02

No Significant Match Found

DV One-Page Summary

KIC: 4940092 Candidate: 2 of 2 Period: 64.180 d



DV Fit Results:

Period = 64.17976 [0.00062] d
Epoch = 184.2749 [0.0080] BKJD
Rp/R* = 0.0200 [0.0287]
a/R* = 177.26 [1450.27]
b = 0.71 [5.79]
Seff = 40.91 [16.21]
Teq = 645 [64] K
Rp = 3.41 [5.01] Re
a = 0.3468 [0.0885] AU
Ag = 1783.73 [5184.19] [0.34 σ]
Teffp = 6480 [4681] K [1.25 σ]

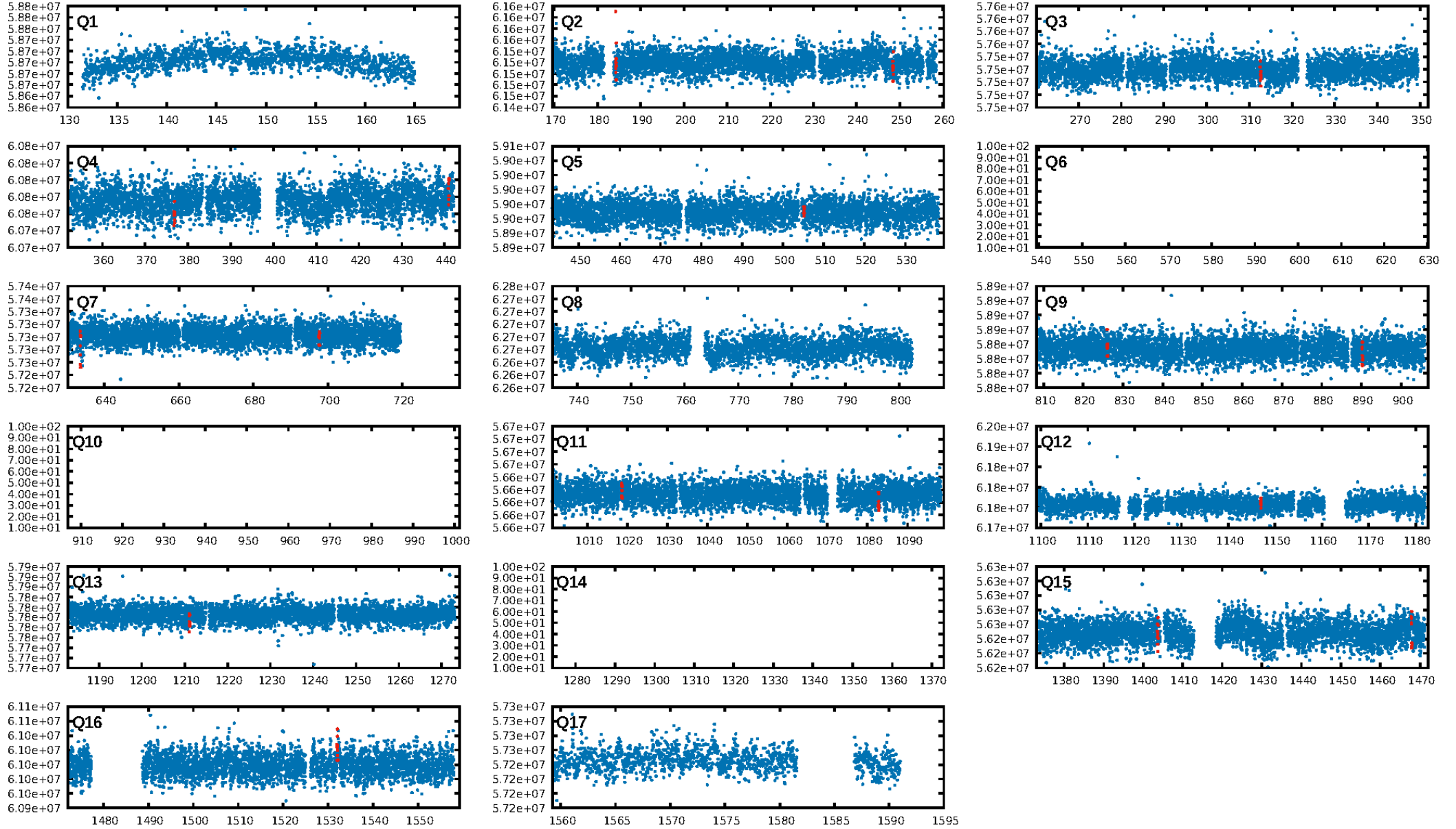
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [164.26 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 37.9%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: 2.80e-11
RollingBand-fgt: 0.83 [5/6]
GhostDiagnostic-chr: -1.69
Centroid-sig: 51.1%
Centroid-so: 0.730 arcsec [0.75 σ]
OotOffset-rm: 1.115 arcsec [0.81 σ]
OotOffset-st: 0/0/3/2 [5]
KicOffset-rm: 1.083 arcsec [0.63 σ]
KicOffset-st: 0/0/3/2 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.50 [5/10]

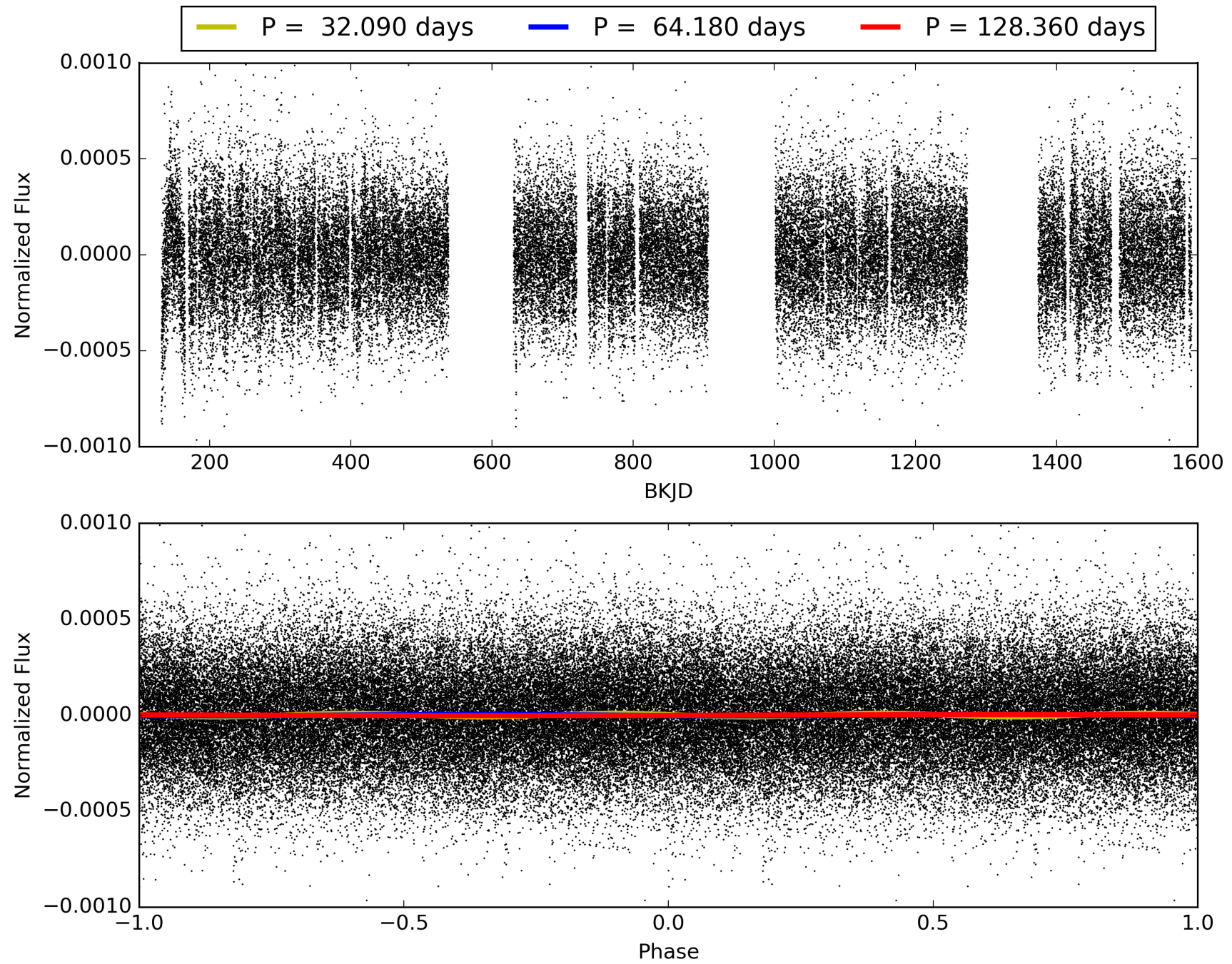
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:30:05 Z

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

TCE 004940092-02, PDC Light Curves

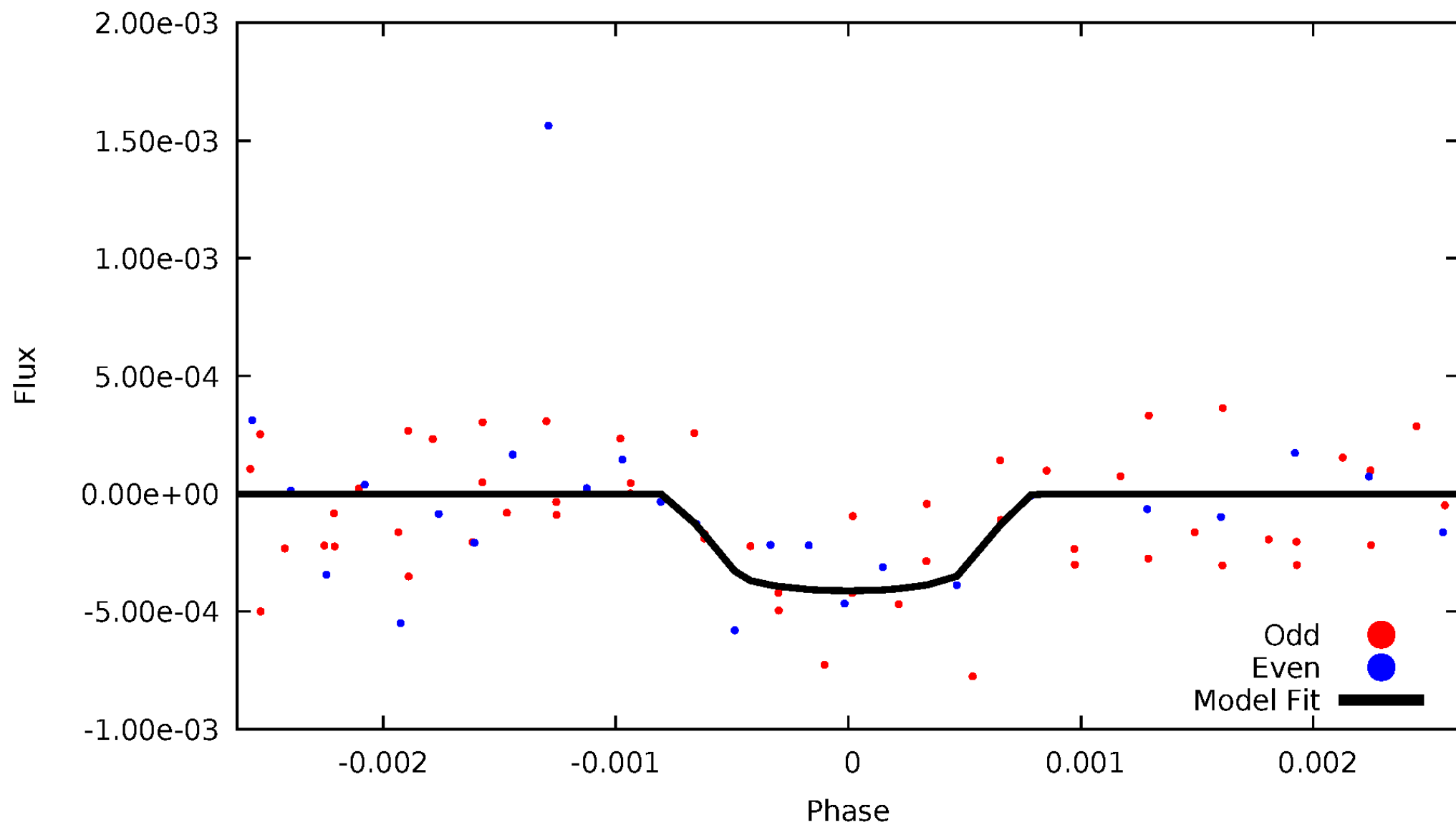


TCE 004940092-02



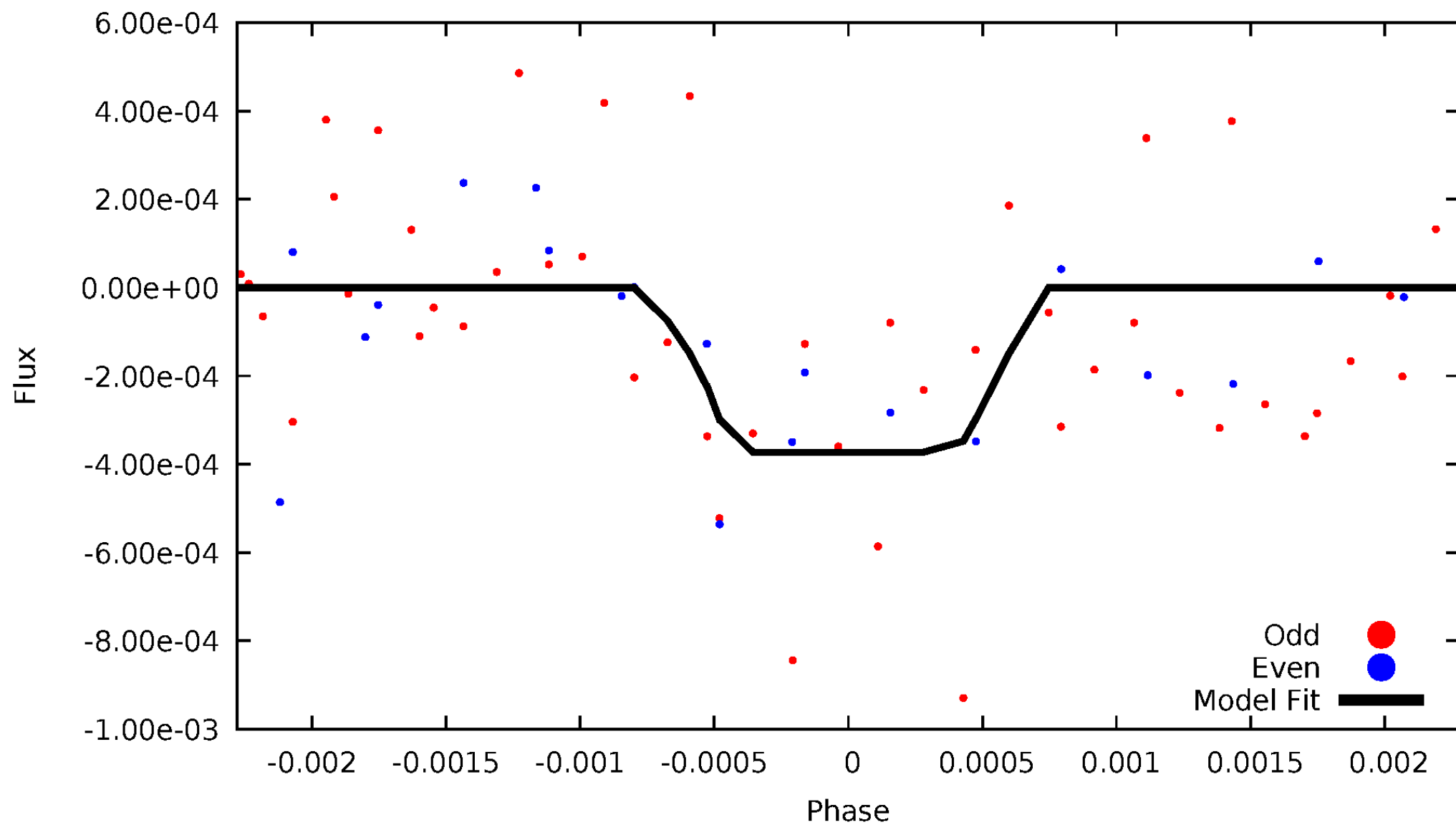
DV Odd/Even

TCE 004940092-02



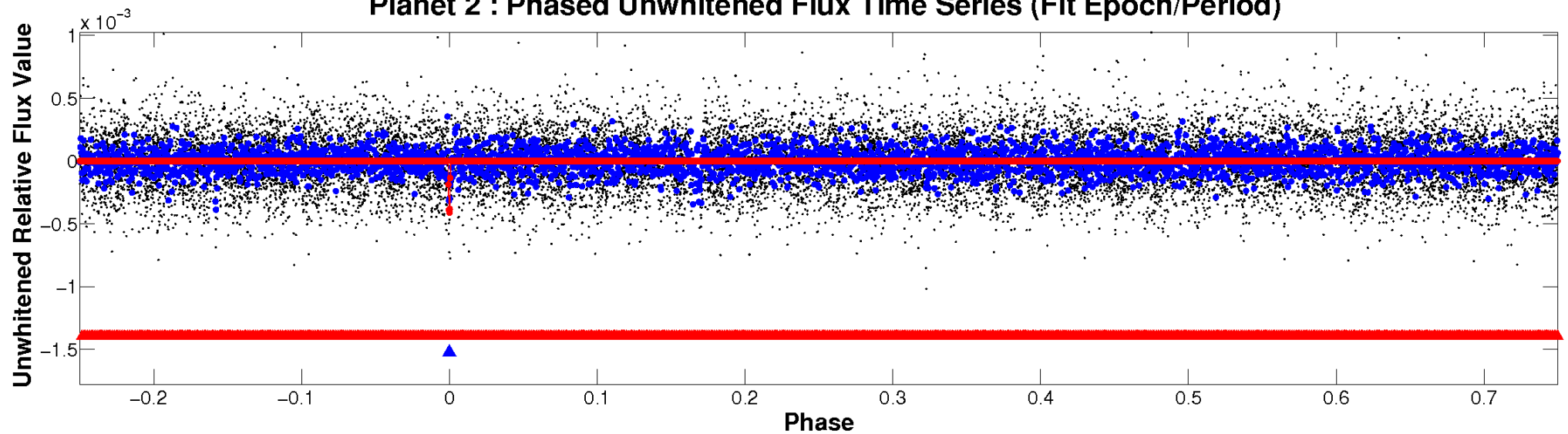
ALT Odd/Even

TCE 004940092-02

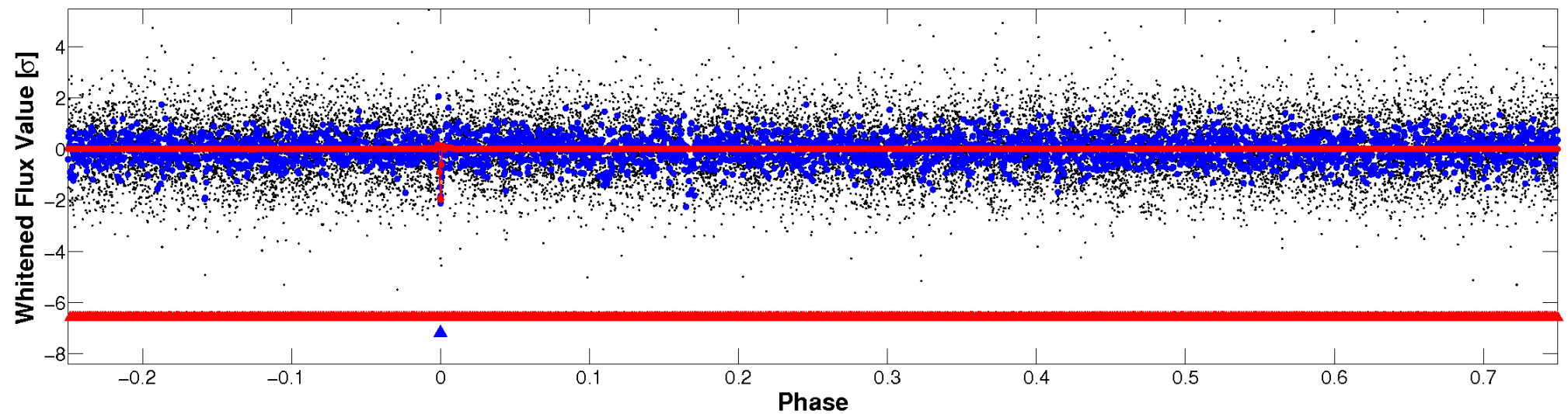


Non-Whitened Vs. Whitened Light Curve

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

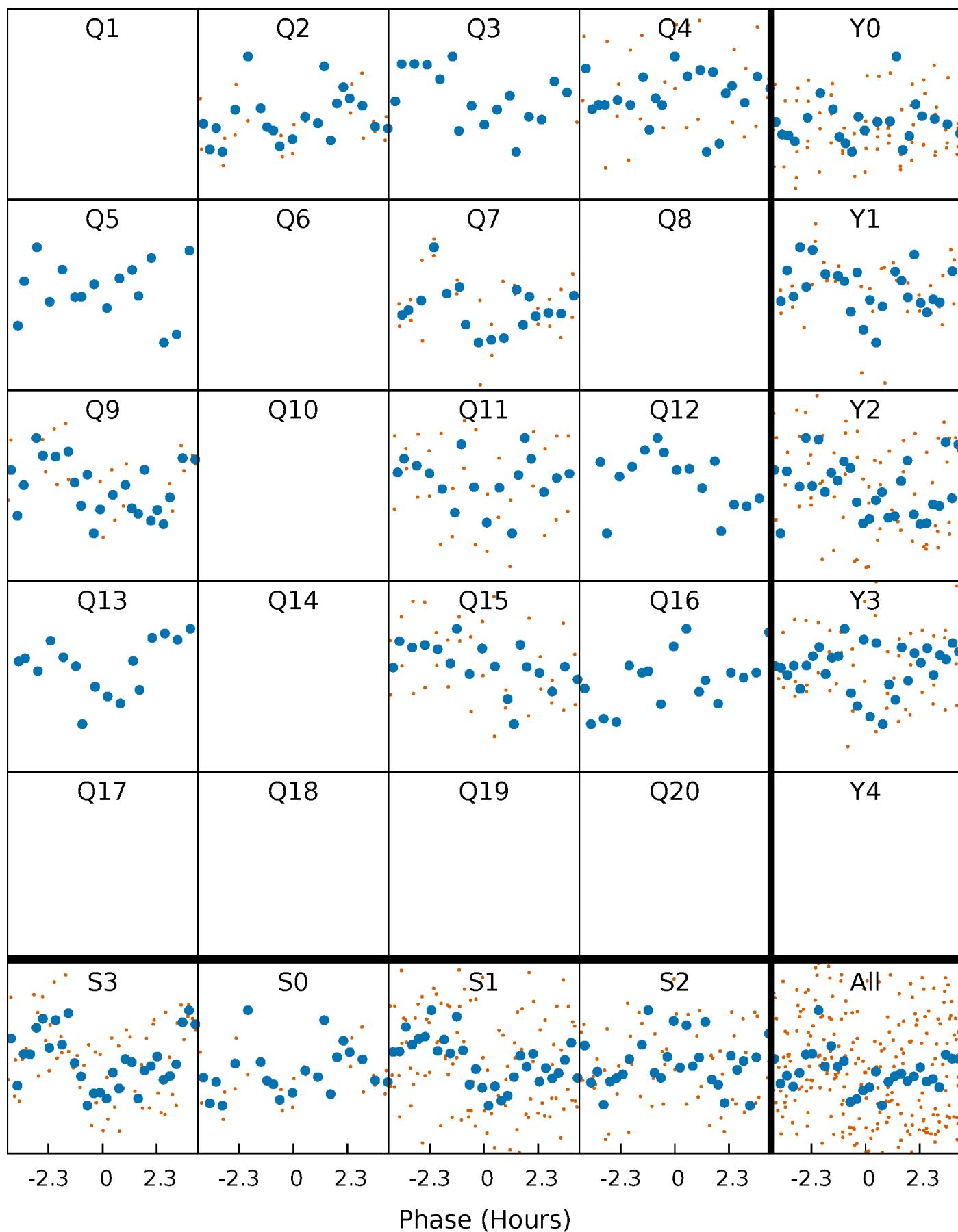


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



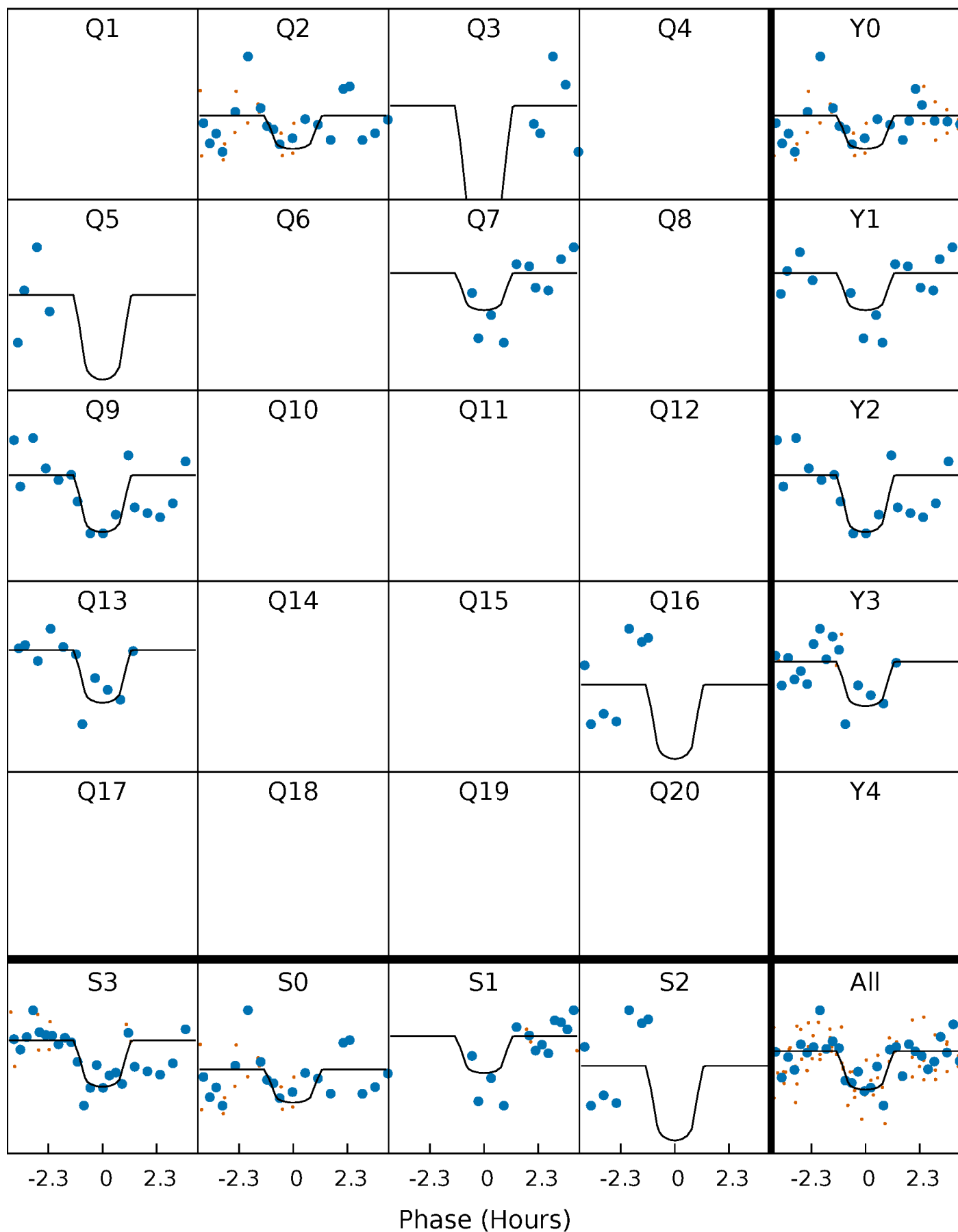
PDC Quarter-Phased Transit Curves

TCE 004940092-02 P= 64.179763 Days $T_0=184.274857$ (BKJD)



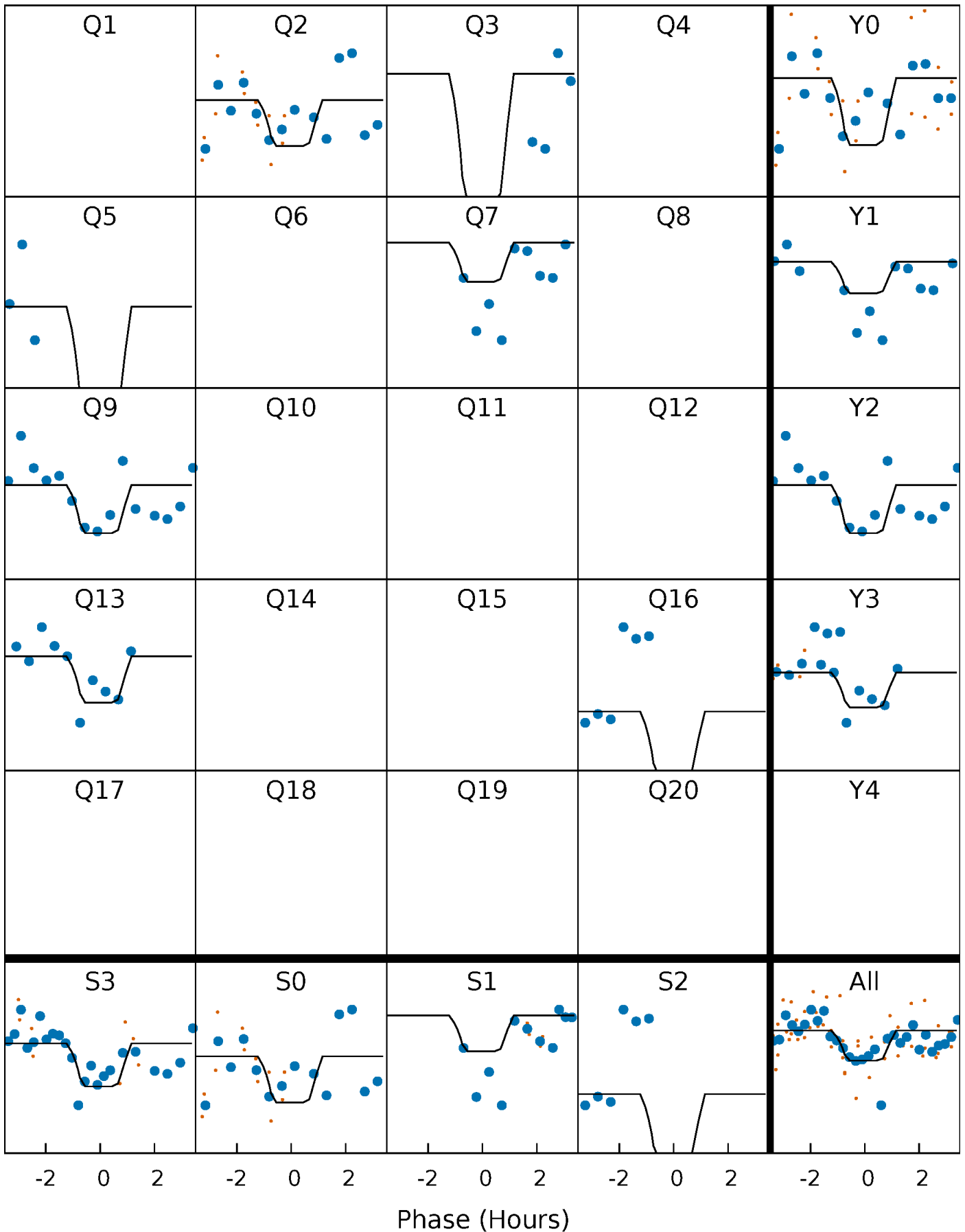
DV Quarter-Phased Transit Curves

TCE 004940092-02 P= 64.179763 Days $T_0=184.274857$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

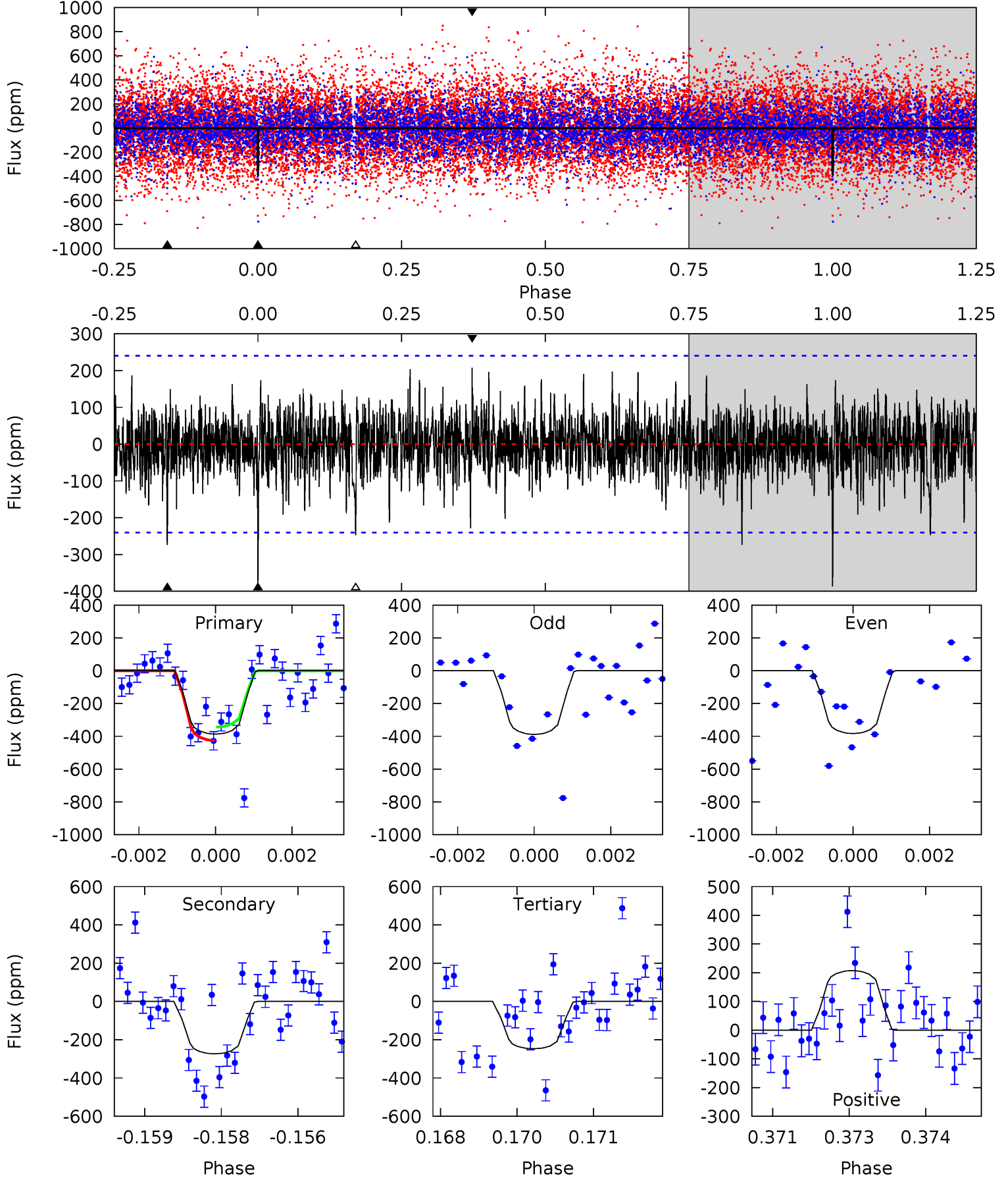
TCE 004940092-02 $P = 64.178953$ Days $T_0 = 184.287278$ (BKJD)



DV Model-Shift Uniqueness Test

004940092-02, P = 64.179763 Days, E = 120.095094 Days

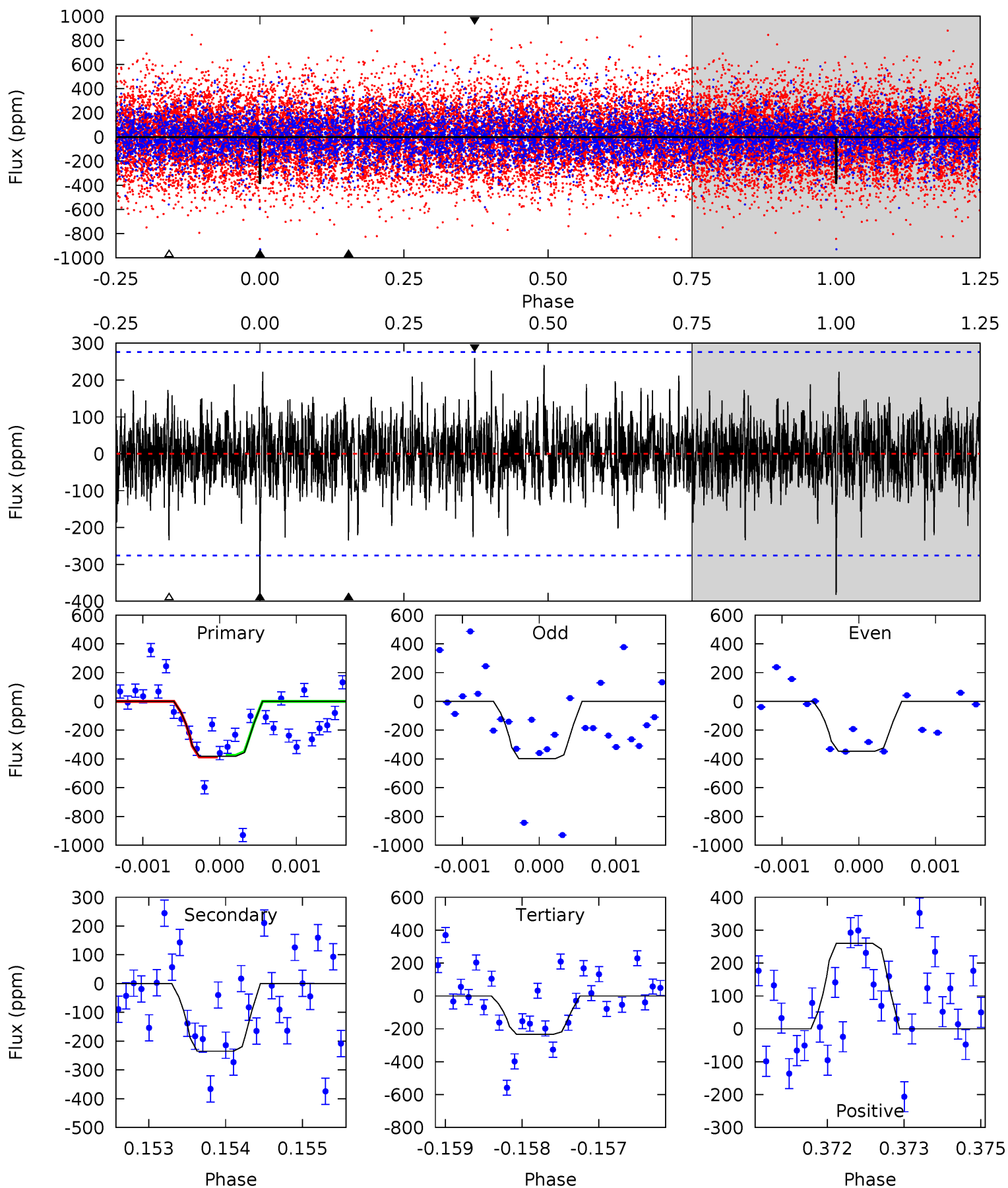
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.65	6.12	5.53	4.64	5.38	3.17	1.29	3.13	4.01	0.60	1.48	0.06	1.06	0.35	0.93



Alt Model-Shift Uniqueness Test

004940092-02, P = 64.178953 Days, E = 120.108325 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.47	4.59	4.58	5.08	5.40	3.21	1.20	2.89	2.39	0.01	-0.49	0.48	1.24	0.40	0.12



Stellar Parameters For KIC 004940092

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6888^{+190}_{-299}	$4.181^{+0.153}_{-0.187}$	$-0.160^{+0.250}_{-0.350}$	$1.562^{+0.494}_{-0.329}$	$1.363^{+0.202}_{-0.247}$	$0.503^{+0.350}_{-0.263}$
	+3%/-4%	+4%/-4%	+156%/-219%	+32%/-21%	+15%/-18%	+70%/-52%
Source	PHO1	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 004940092-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-274 ± 45	$4.66^{+4.55}_{-3.05}$	902^{+68}_{-62}	5332^{+4437}_{-1243}	841^{+5949}_{-635}
Alt.	-235 ± 51	$4.62^{+4.56}_{-3.08}$	901^{+75}_{-62}	5169^{+4126}_{-1199}	683^{+5436}_{-510}

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

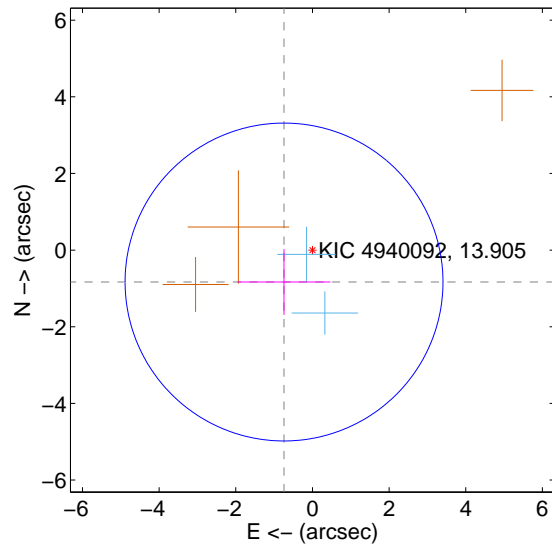
Supplemental centroid analysis for 004940092-02. Kepler magnitude: 13.90. Transit SNR 7.68

There are 2 quarters with good PRF difference image offsets

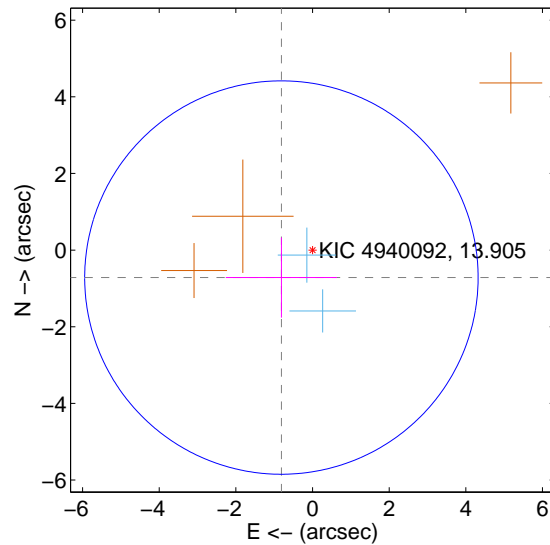
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.115 ± 1.383	0.81	0.742 ± 1.214	-0.833 ± 0.858
PRF-fit source offset from KIC position	1.083 ± 1.711	0.63	0.812 ± 1.452	-0.717 ± 1.045
photometric centroid source offset	0.73 ± 0.97	0.75	0.67 ± 0.97	-0.28 ± 0.97

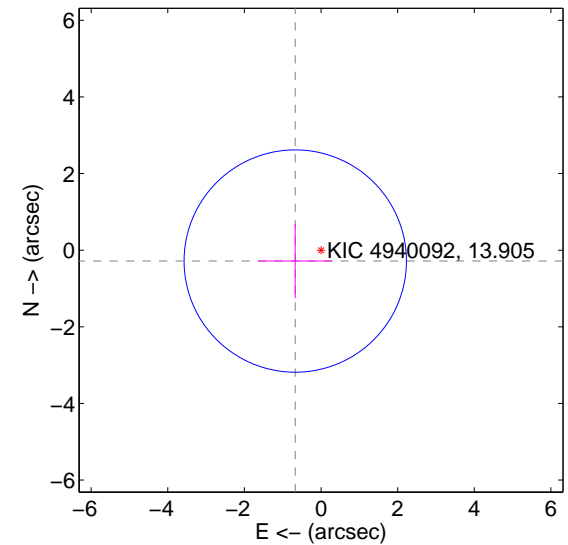
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

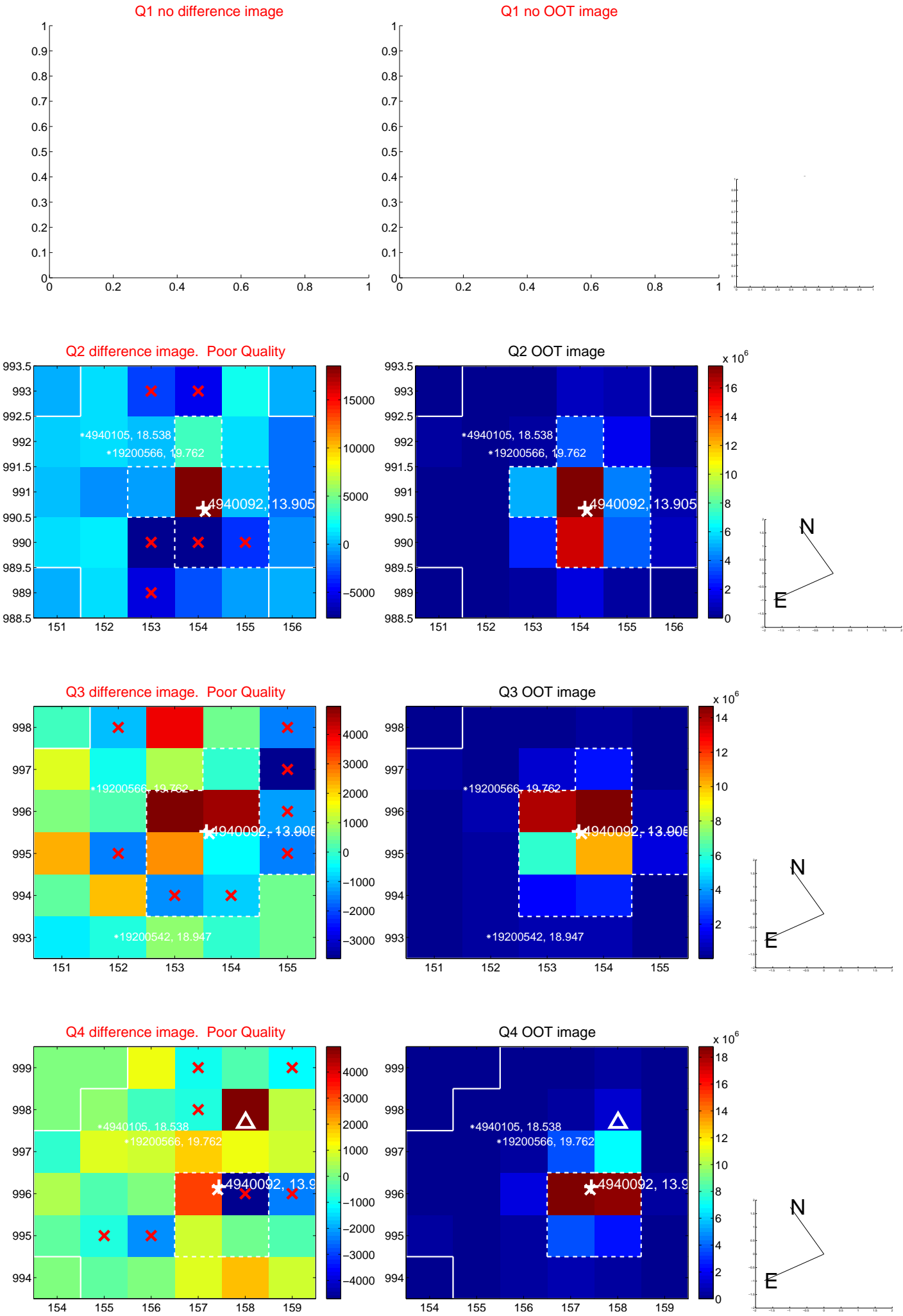


offset from photometric centroids

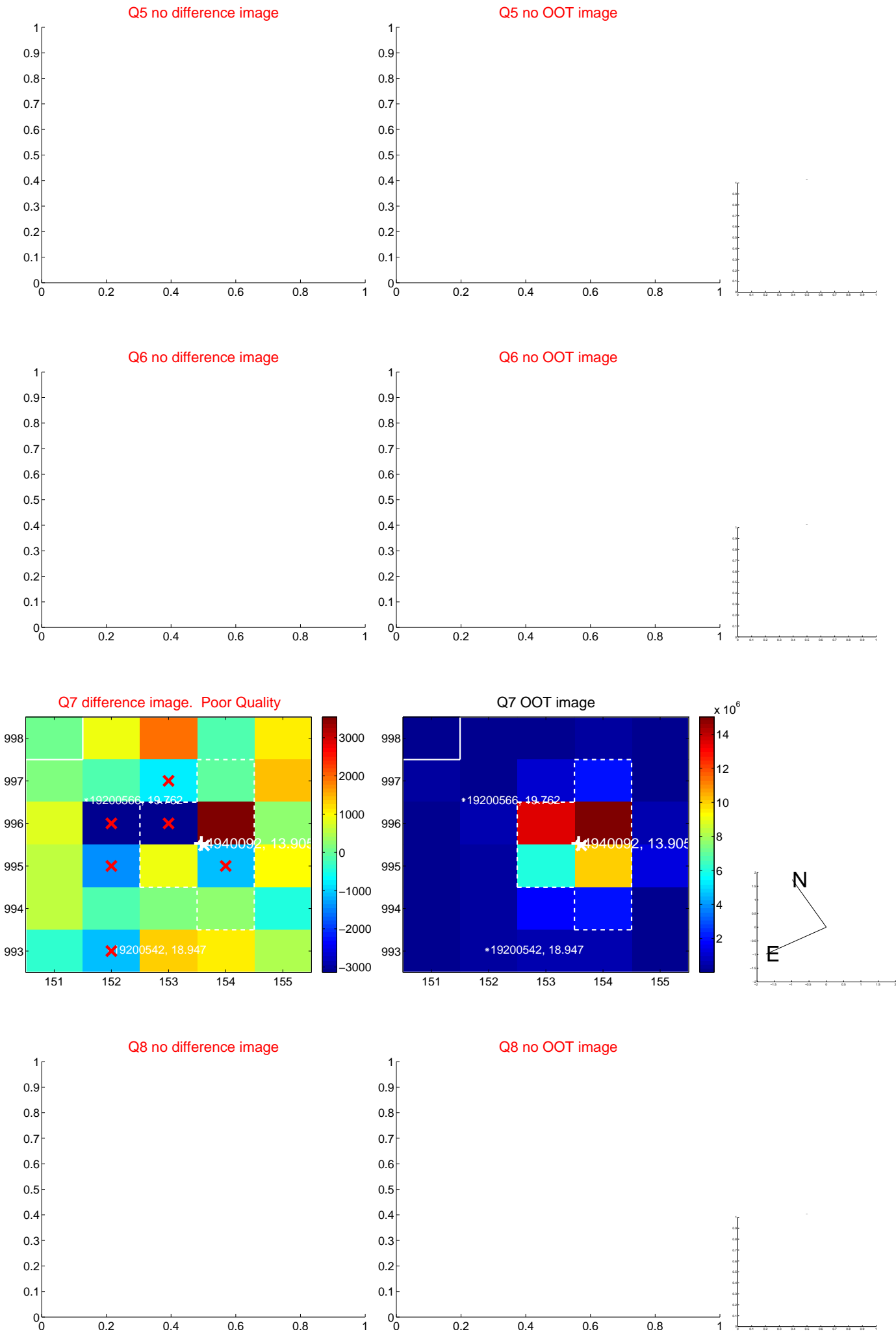


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

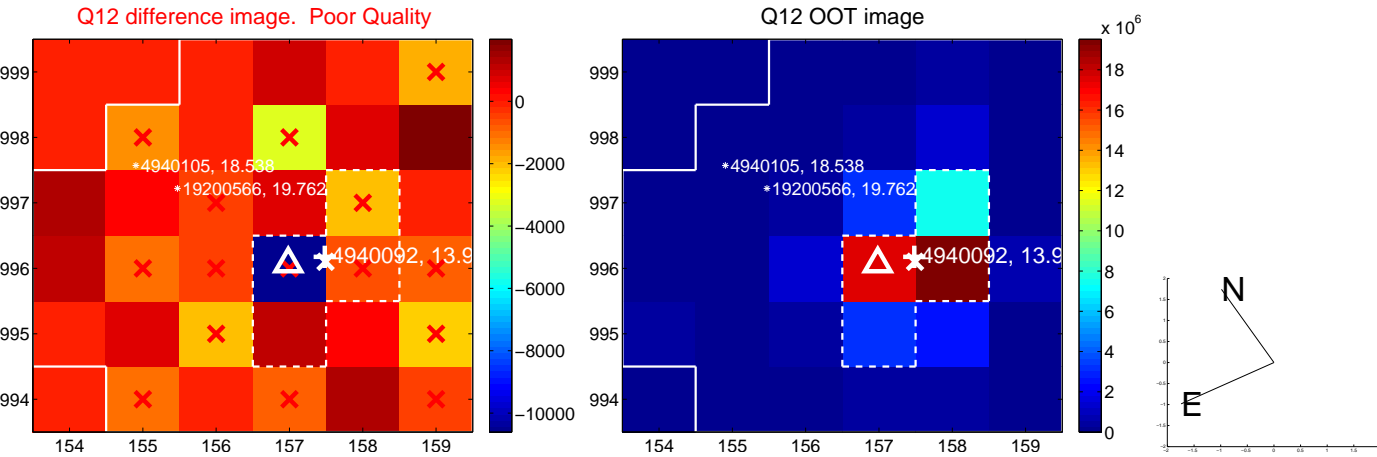
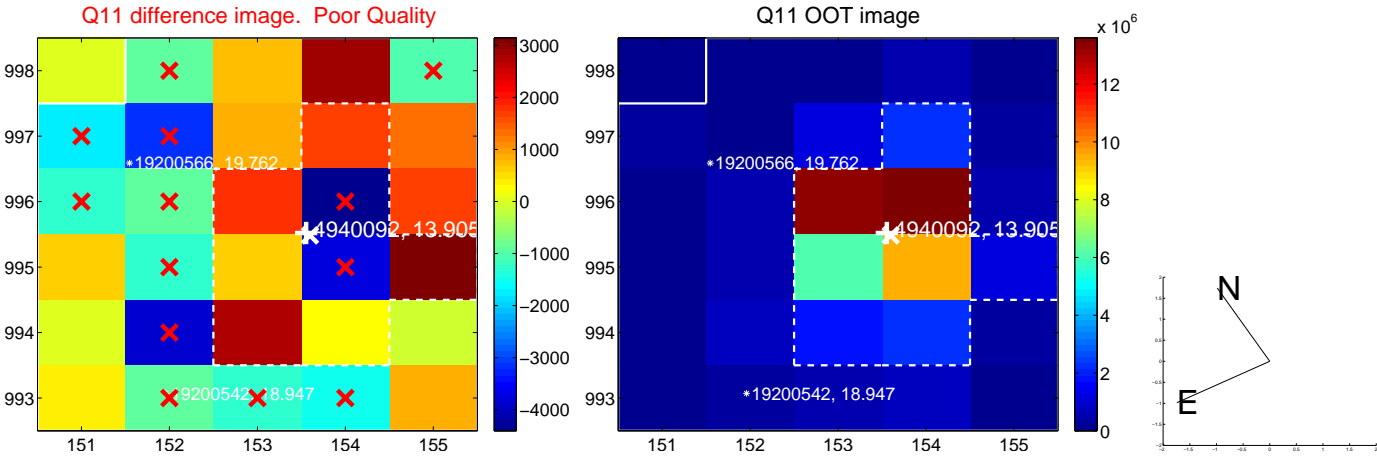
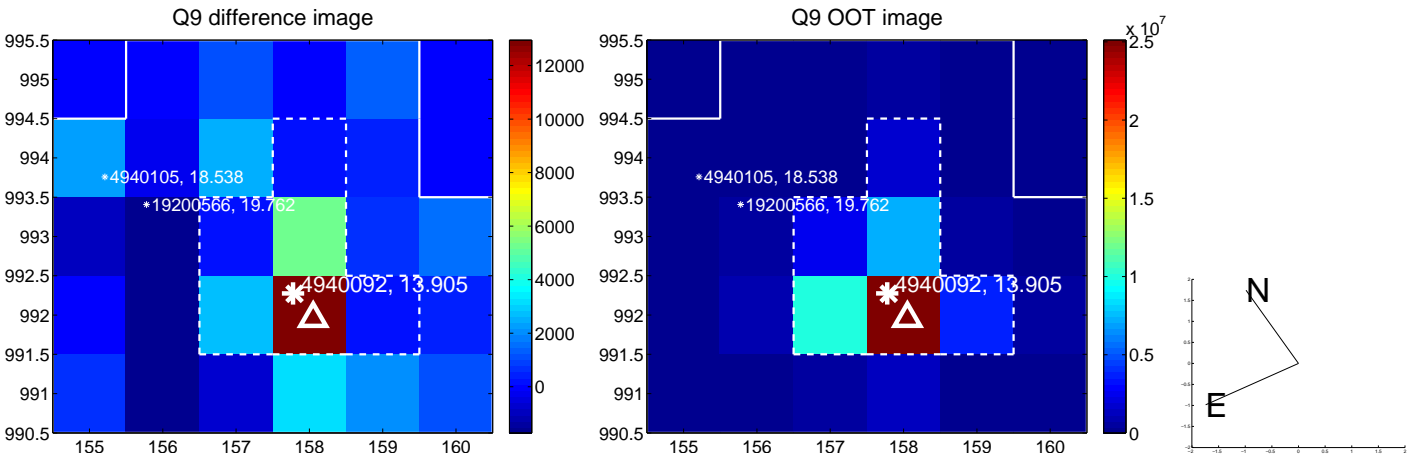
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



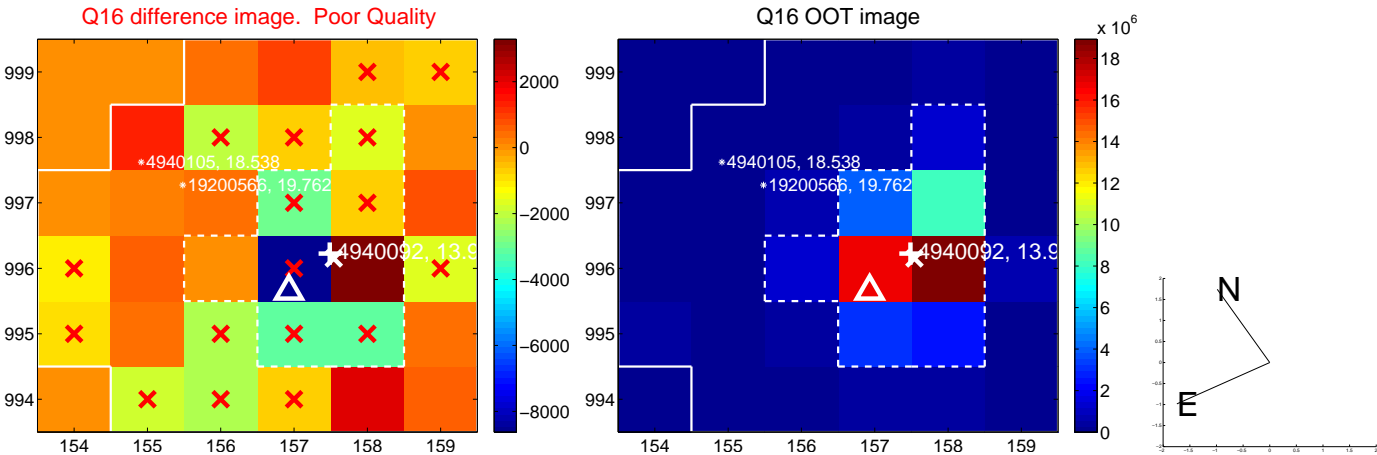
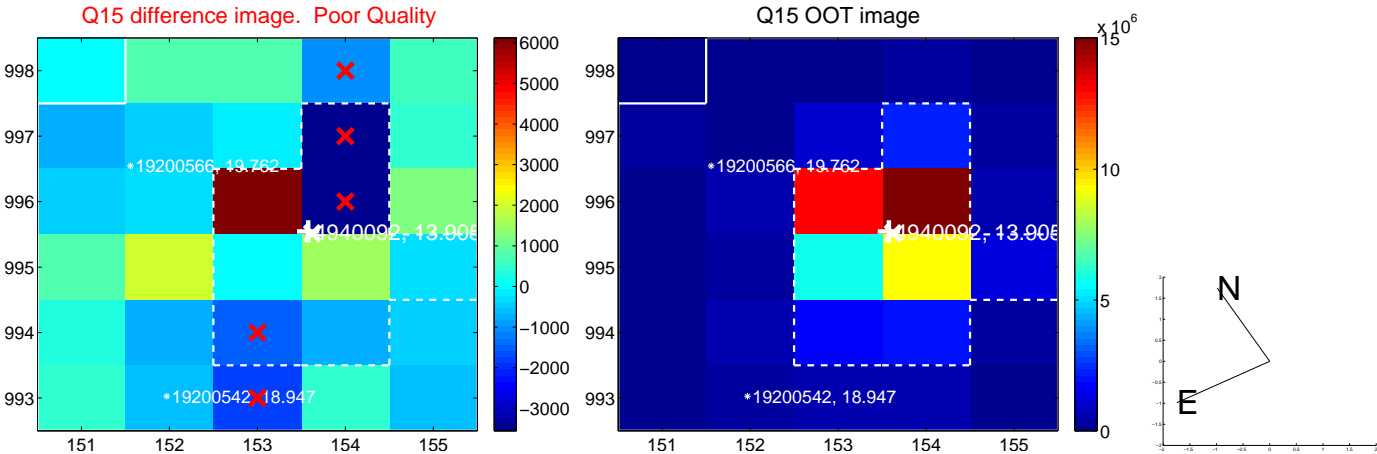
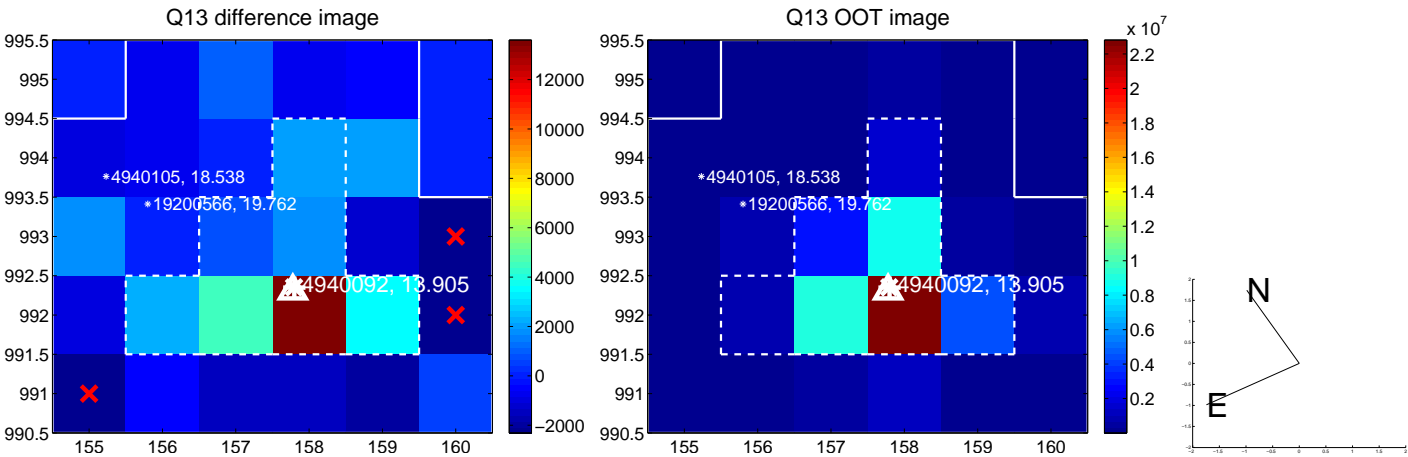
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



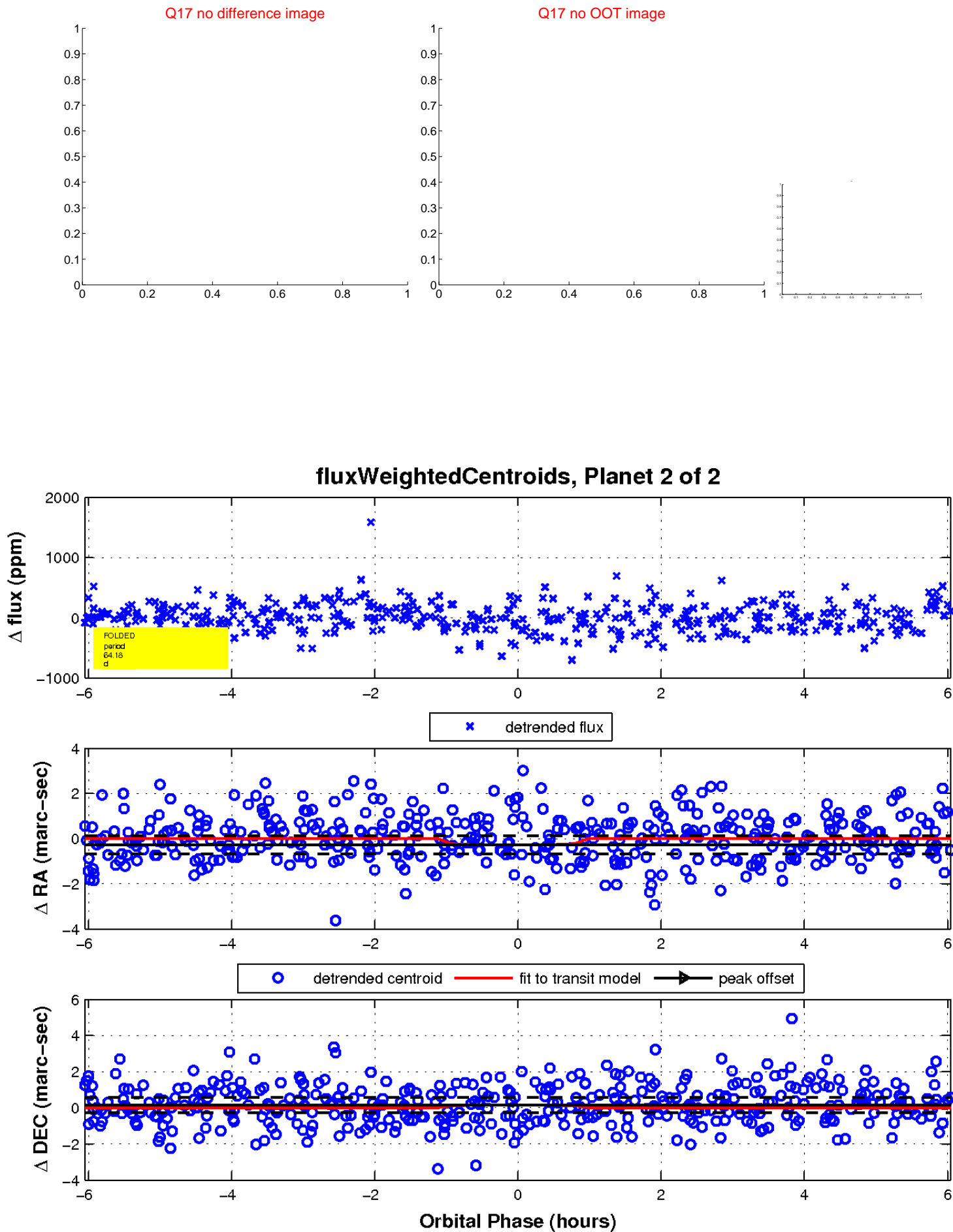
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

