

KIC 012057840

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})
012057840-01	OBS	No	1.227146	132.568105	26.0	9.254	8.3	7.6	1.03	6173	0.53	2806.32
012057840-02	OBS	No	17.785727	146.142795	579.9	0.915	12.9	12.9	1.03	6173	2.59	79.42
012057840-03	OBS	No	21.453834	145.736380	423.8	1.194	11.2	9.2	1.03	6173	2.14	61.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012057840-01	OBS	FP	0.00	1	0	0	0	LPP_DV
012057840-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
012057840-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

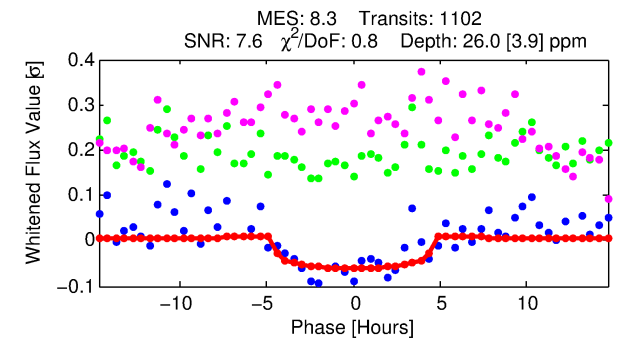
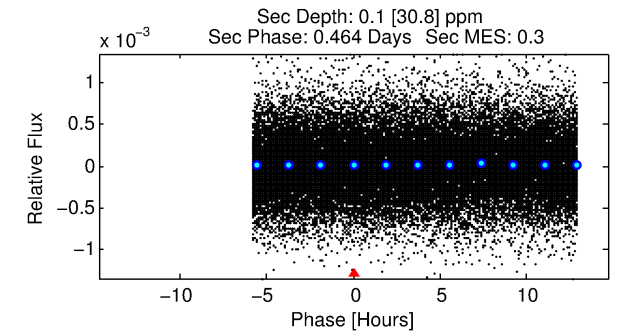
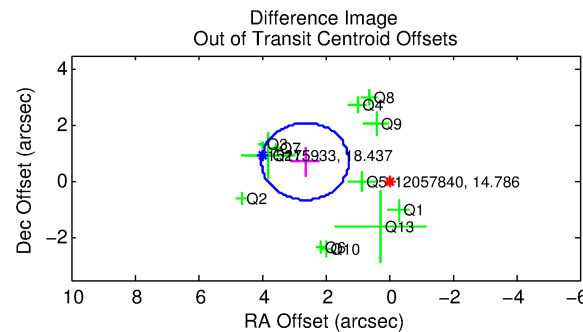
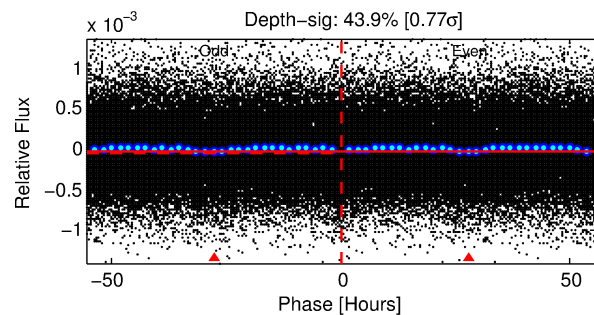
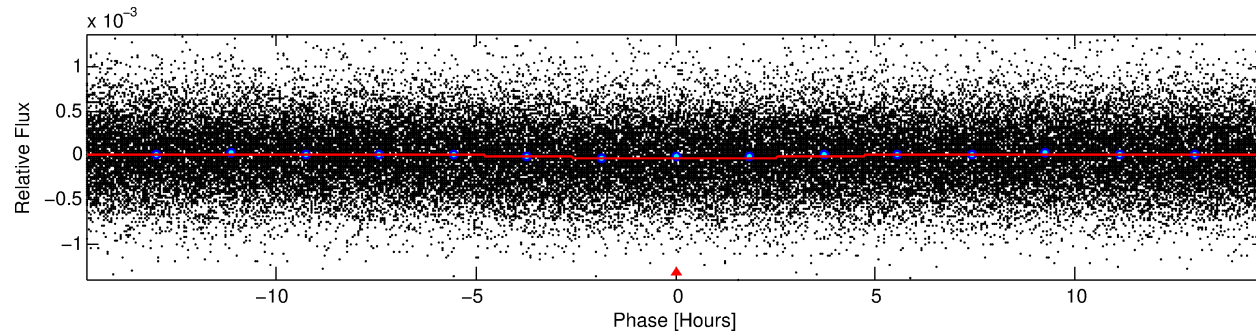
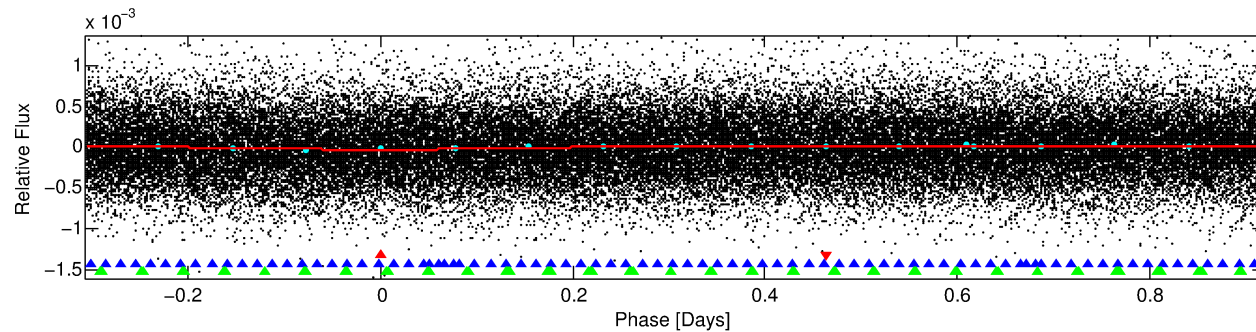
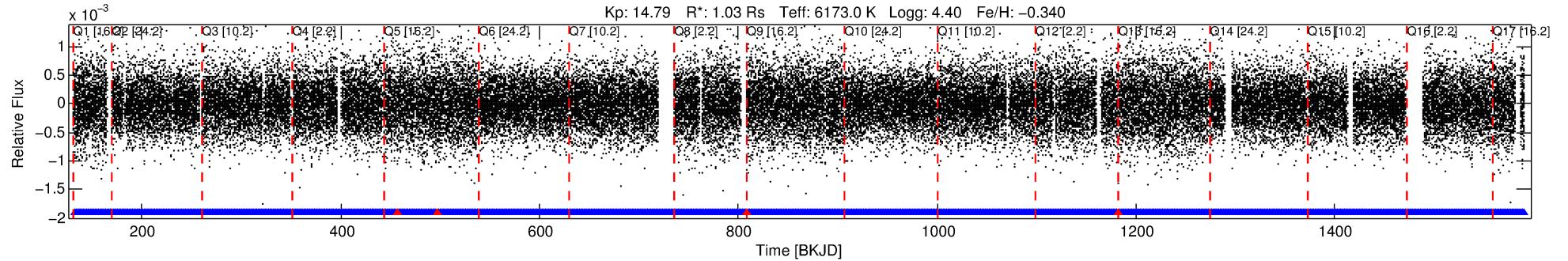
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012057840-01

No Significant Match Found

DV One-Page Summary

KIC: 12057840 Candidate: 1 of 3 Period: 1.227 d



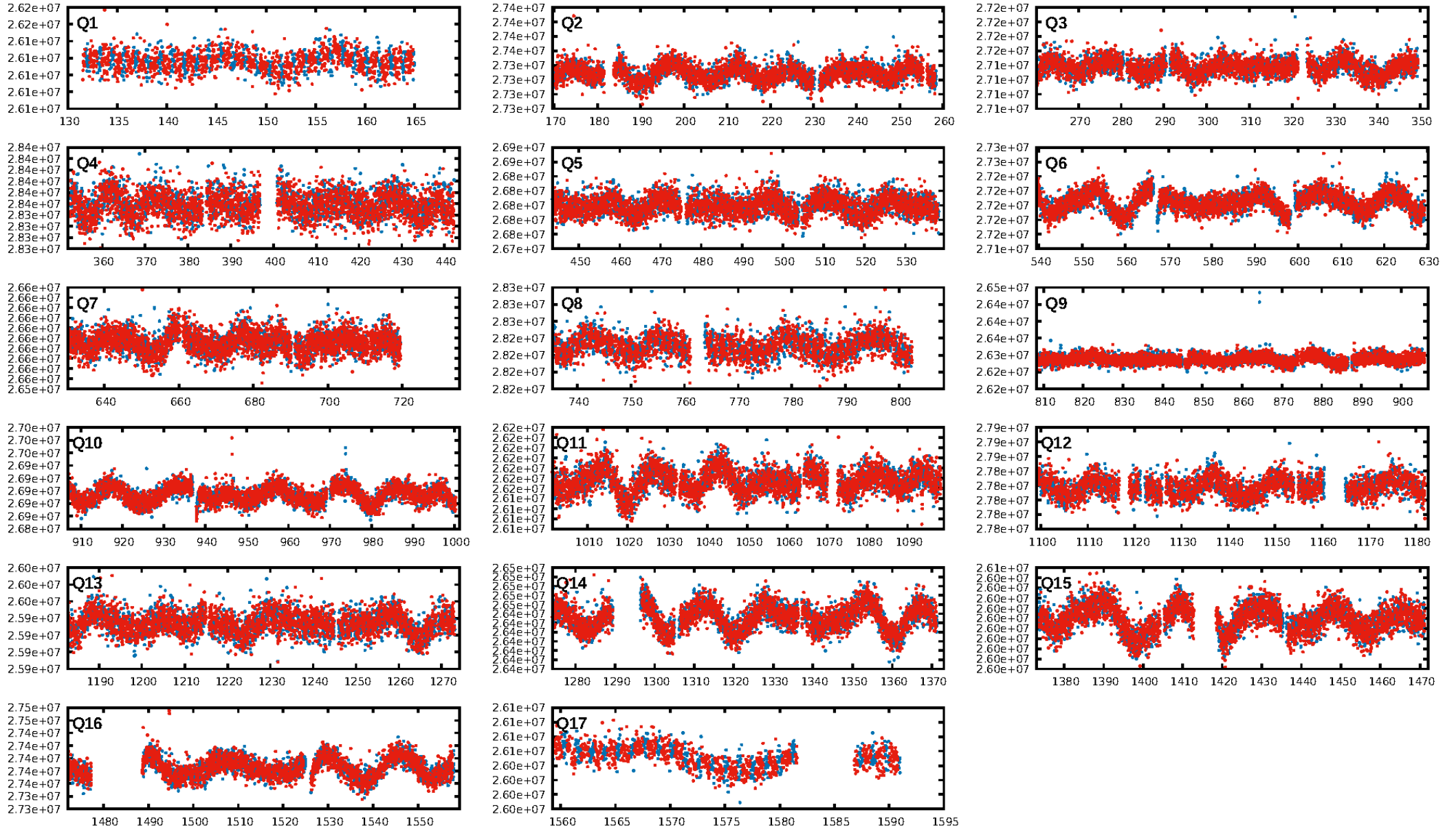
DV Fit Results:

Period = 1.22715 [0.00003] d
Epoch = 132.5681 [0.0108] BKJD
Rp/R* = 0.0047 [0.0083]
a/R* = 1.20 [3.36]
b = 0.07 [128.65]
Seff = 2806.32 [1071.31]
Teff = 1856 [177] K
Rp = 0.53 [0.95] Re
a = 0.0222 [0.0055] AU
Ag = 0.07 [30.12] [-0.03 σ]
Teffp = 1466 [162185] K [-0.00 σ]

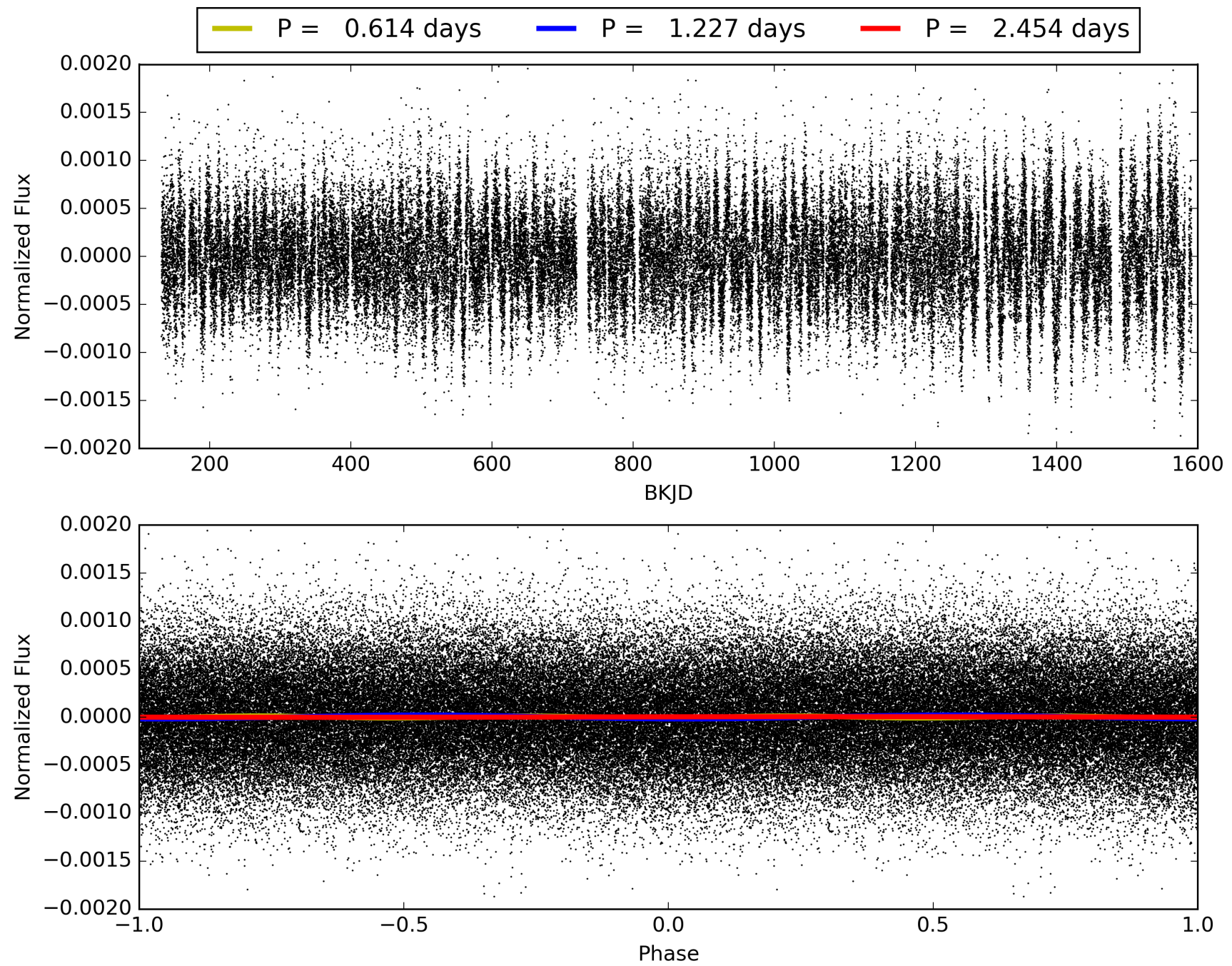
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [42.73 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.32e-90
RollingBand-fgt: 1.00 [1048/1052]
GhostDiagnostic-chr: 0.4582
Centroid-sig: 0.0%
Centroid-so: 13.908 arcsec [8.54 σ]
OotOffset-rm: 2.740 arcsec [6.00 σ]
KicOffset-rm: 2.707 arcsec [5.53 σ]
OotOffset-st: 3/2/2/5 [12]
KicOffset-st: 3/2/2/5 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 012057840-01, PDC Light Curves

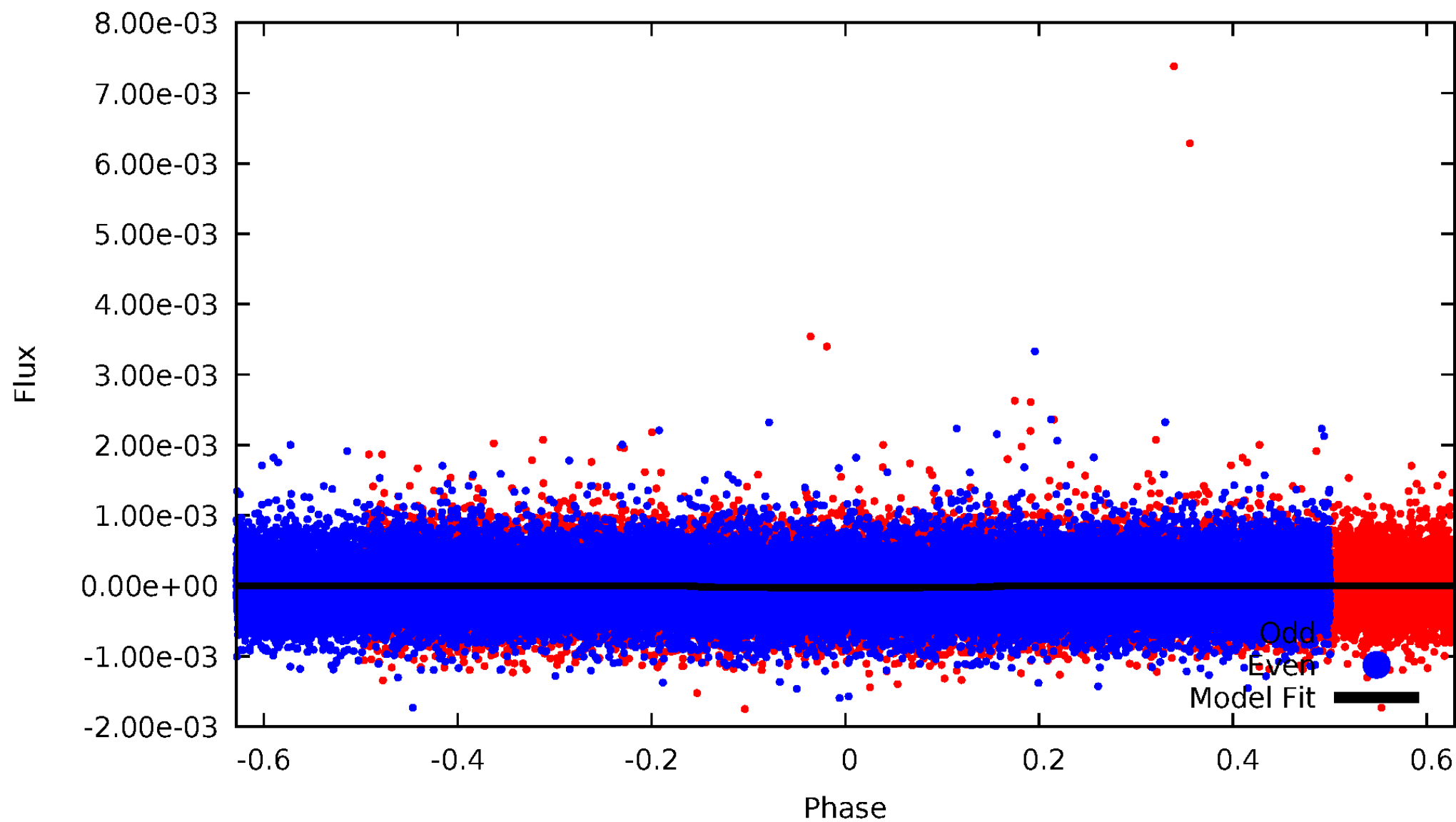


TCE 012057840-01



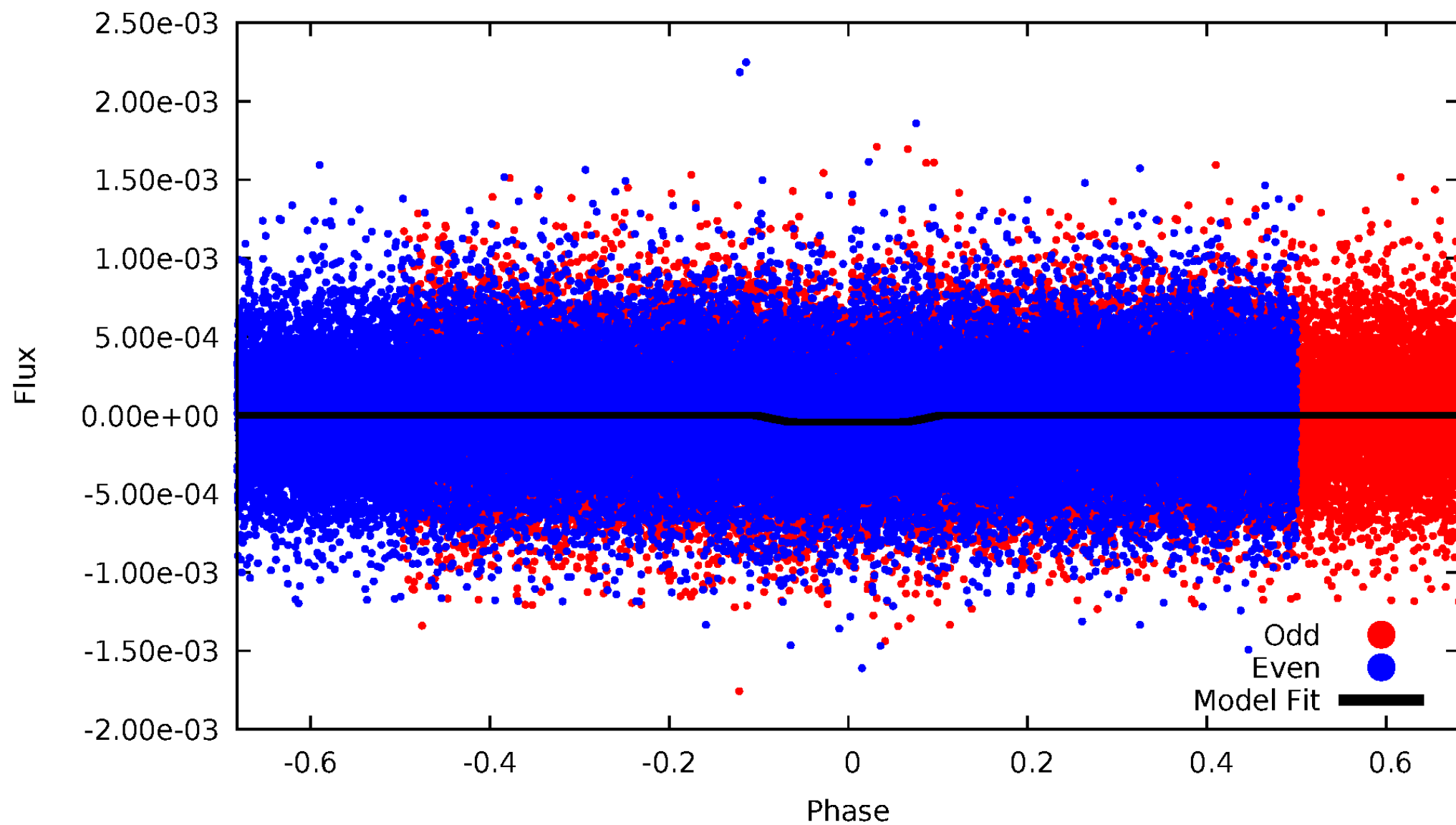
DV Odd/Even

TCE 012057840-01



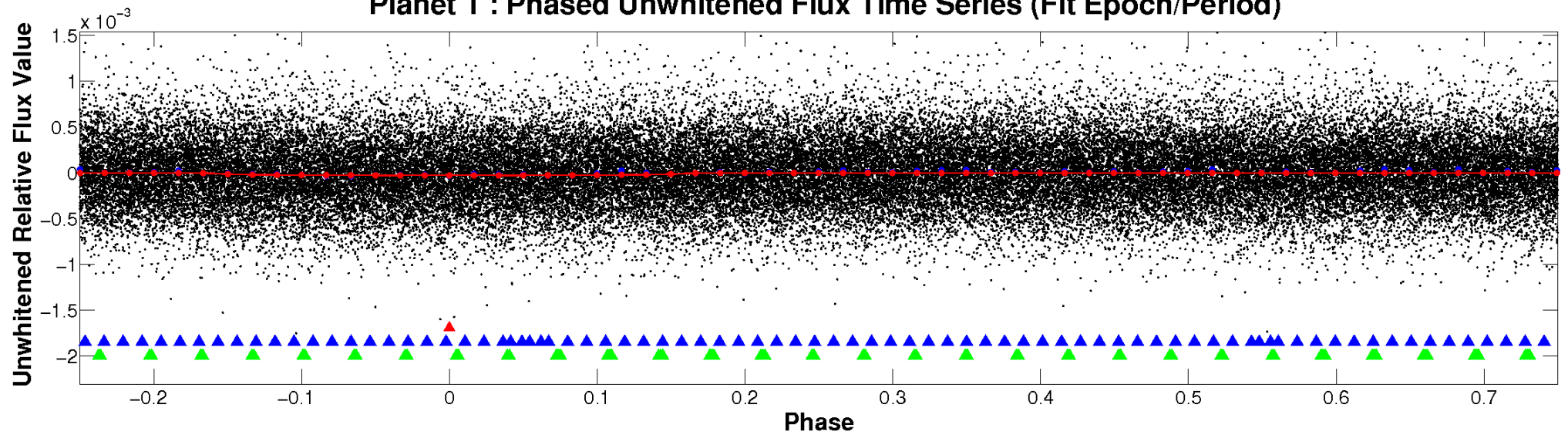
ALT Odd/Even

TCE 012057840-01

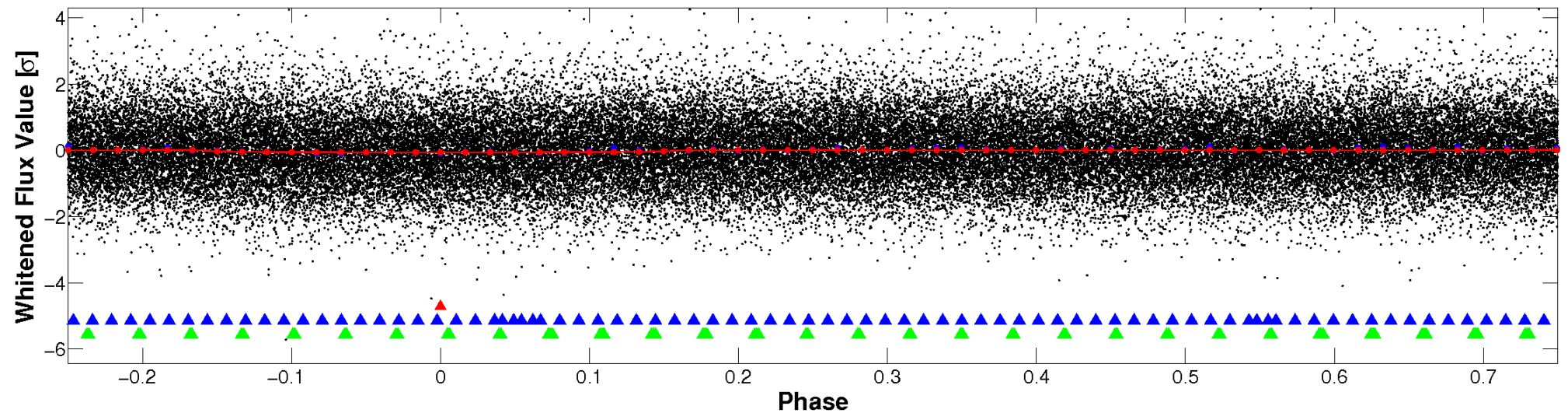


Non-Whitened Vs. Whitened Light Curve

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

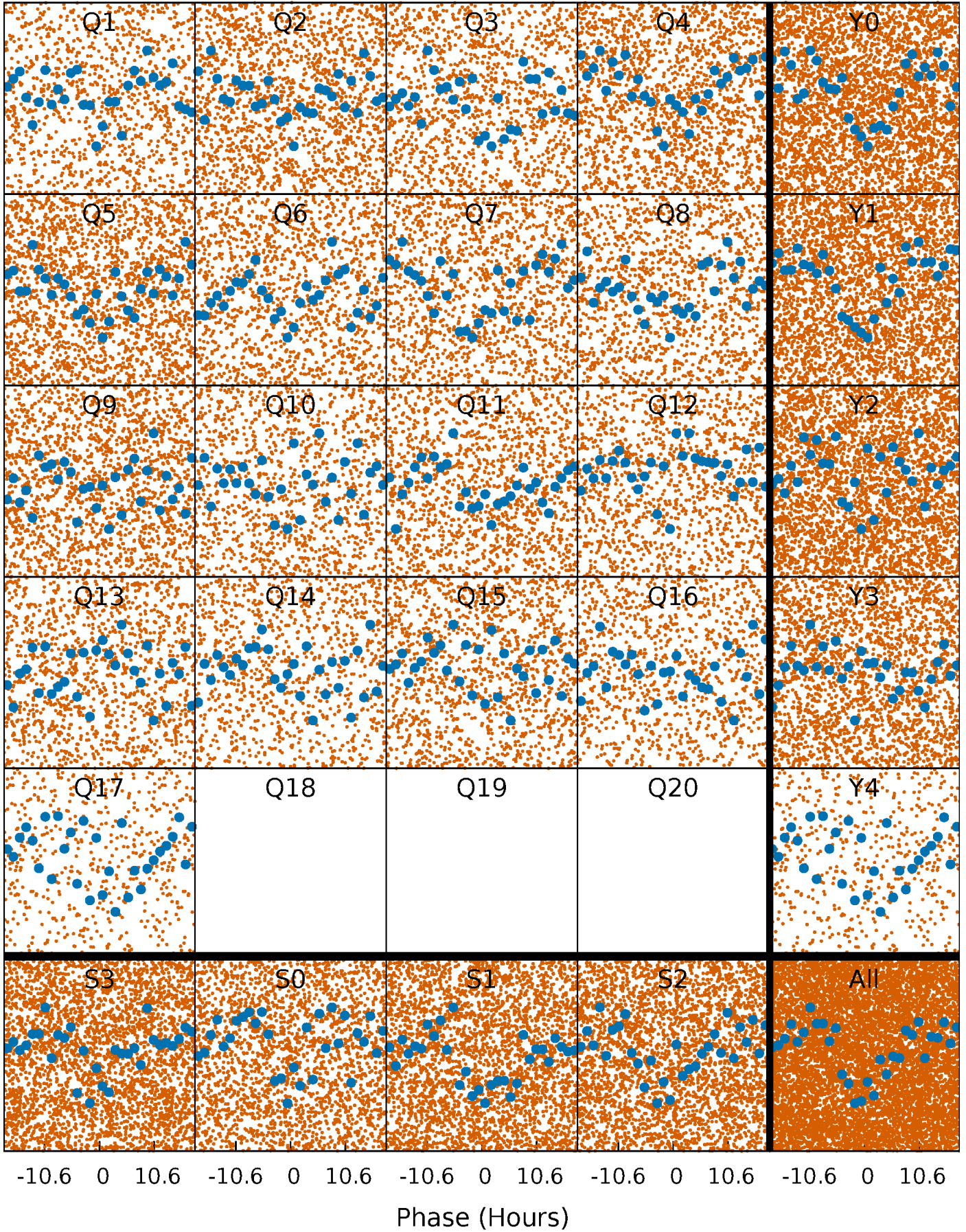


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



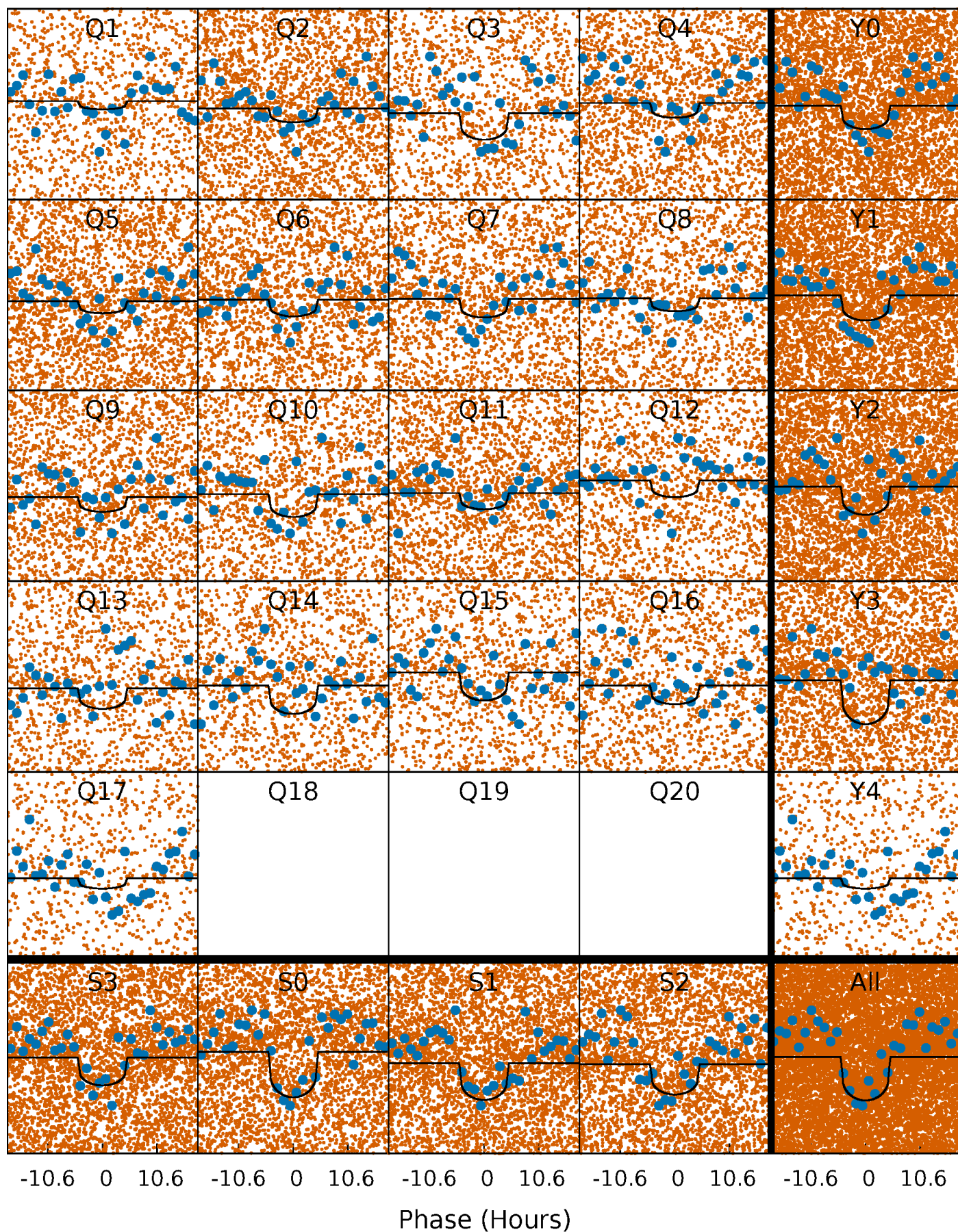
PDC Quarter-Phased Transit Curves

TCE 012057840-01 P= 1.227146 Days $T_0=132.568105$ (BKJD)



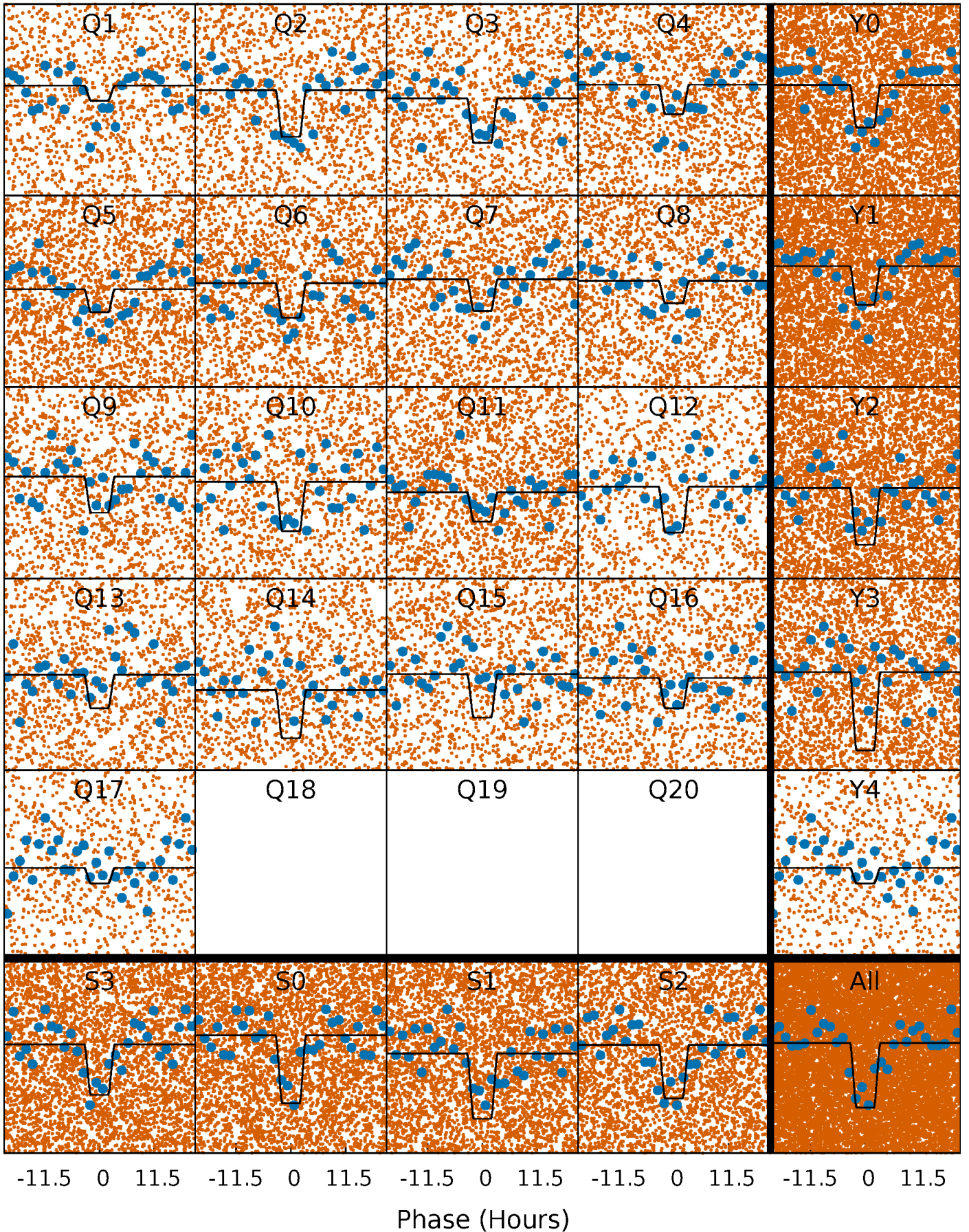
DV Quarter-Phased Transit Curves

TCE 012057840-01 P= 1.227146 Days $T_0=132.568105$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

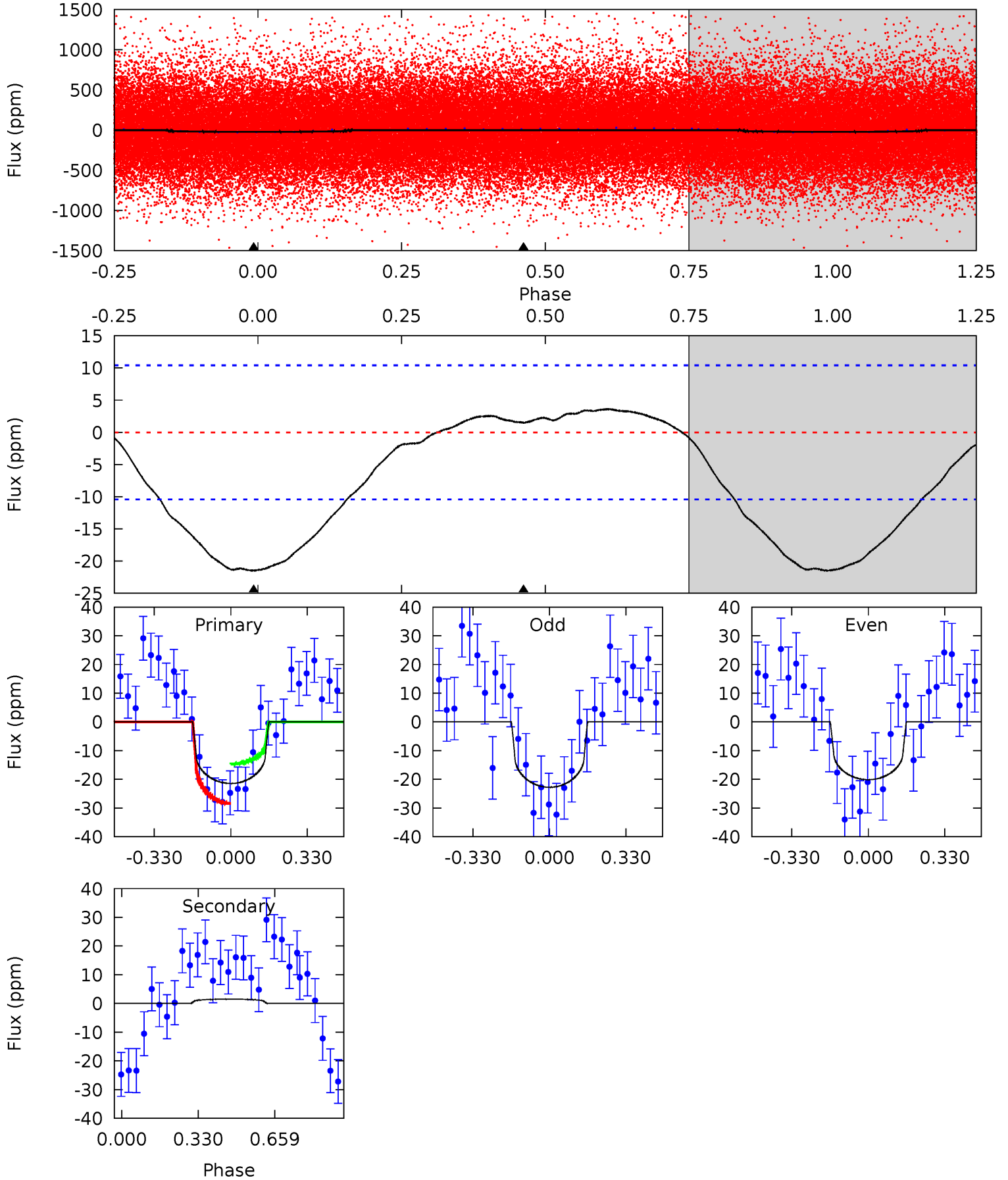
TCE 012057840-01 P= 1.227006 Days $T_0=132.611583$ (BKJD)



DV Model-Shift Uniqueness Test

012057840-01, P = 1.227146 Days, E = 131.340959 Days

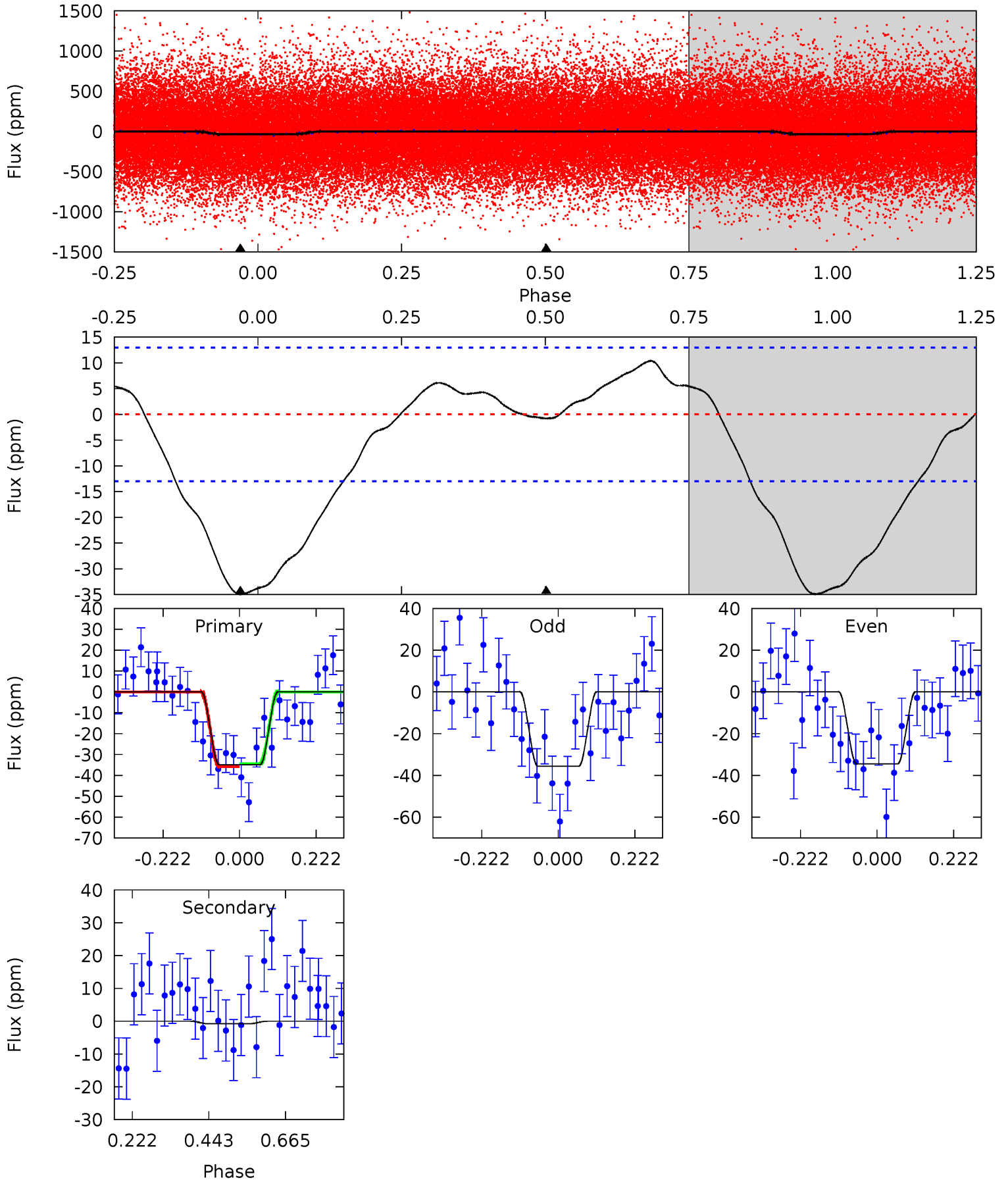
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.88	-0.63	0	0	4.31	0.98	0.85	8.88	8.88	-0.63	-0.63	0.55	0.95	0.14	2.81



Alt Model-Shift Uniqueness Test

012057840-01, P = 1.227006 Days, E = 131.384577 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	0.27	0	0	4.39	1.22	1.16	11.8	11.8	0.27	0.27	0.19	1.06	0.23	0.23



Stellar Parameters For KIC 012057840

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6173^{+169}_{-206}	$4.398^{+0.105}_{-0.195}$	$-0.340^{+0.300}_{-0.300}$	$1.032^{+0.303}_{-0.163}$	$0.970^{+0.136}_{-0.111}$	$1.244^{+0.584}_{-0.634}$
	+3%/-3%	+2%/-4%	+88%/-88%	+29%/-16%	+14%/-11%	+47%/-51%
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 012057840-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	2 ± 2	$0.90^{+0.89}_{-0.59}$	2610^{+174}_{-140}	-3164^{+968}_{-1060}	$-0.262^{+0.516}_{-2.793}$
Alt.	-1 ± 3	$0.98^{+0.86}_{-0.63}$	2608^{+196}_{-142}	-2636^{+6371}_{-794}	$0.149^{+2.044}_{-0.848}$

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

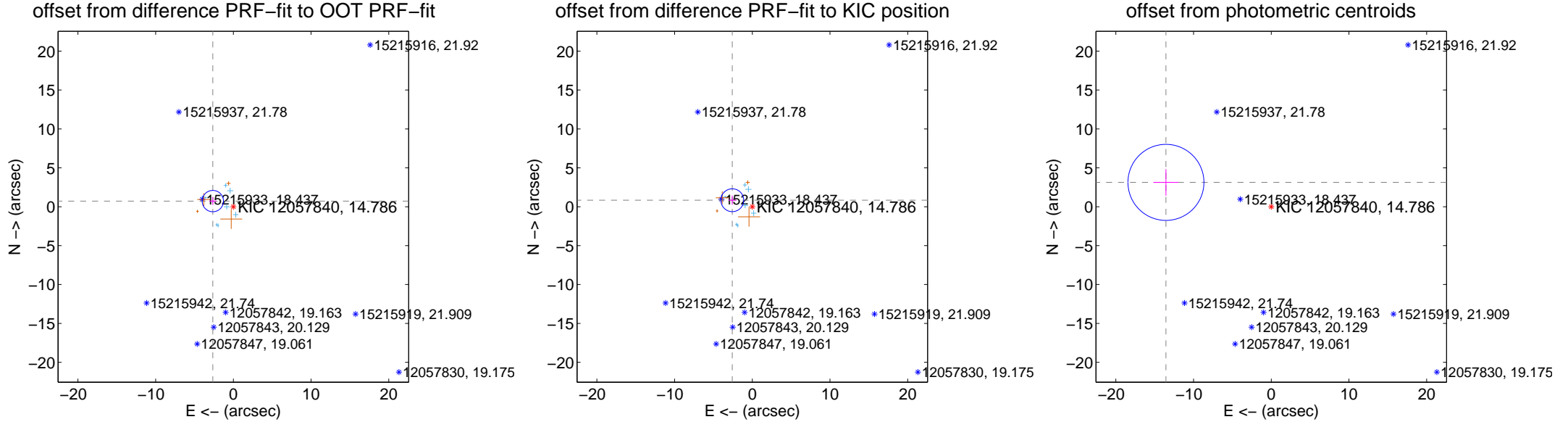
DV Centroid Data

Supplemental centroid analysis for 012057840-01. Kepler magnitude: 14.79. Transit SNR 7.57

There are 8 quarters with good PRF difference image offsets

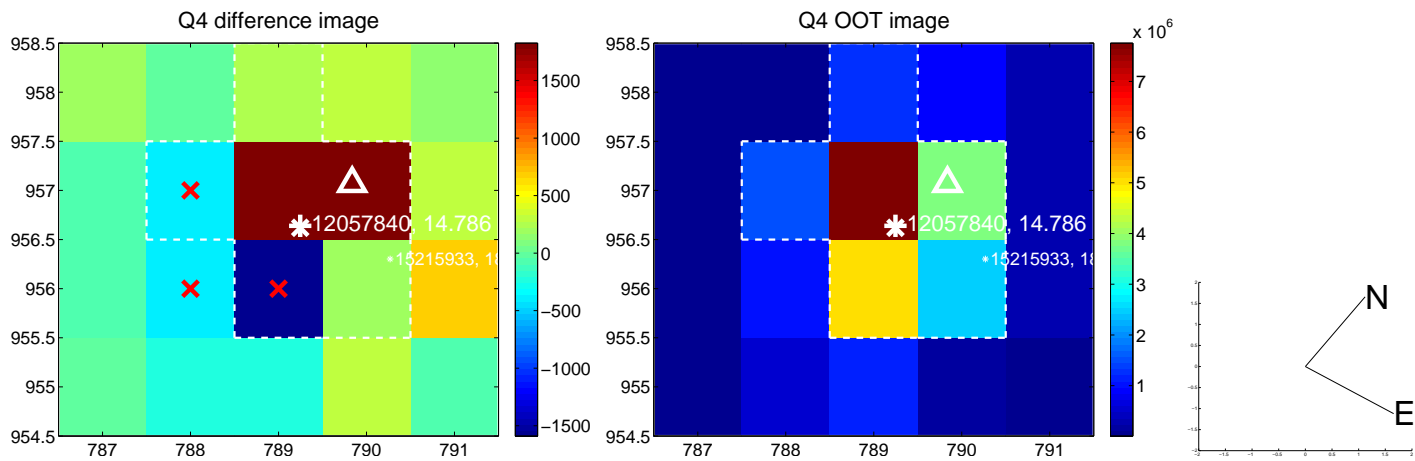
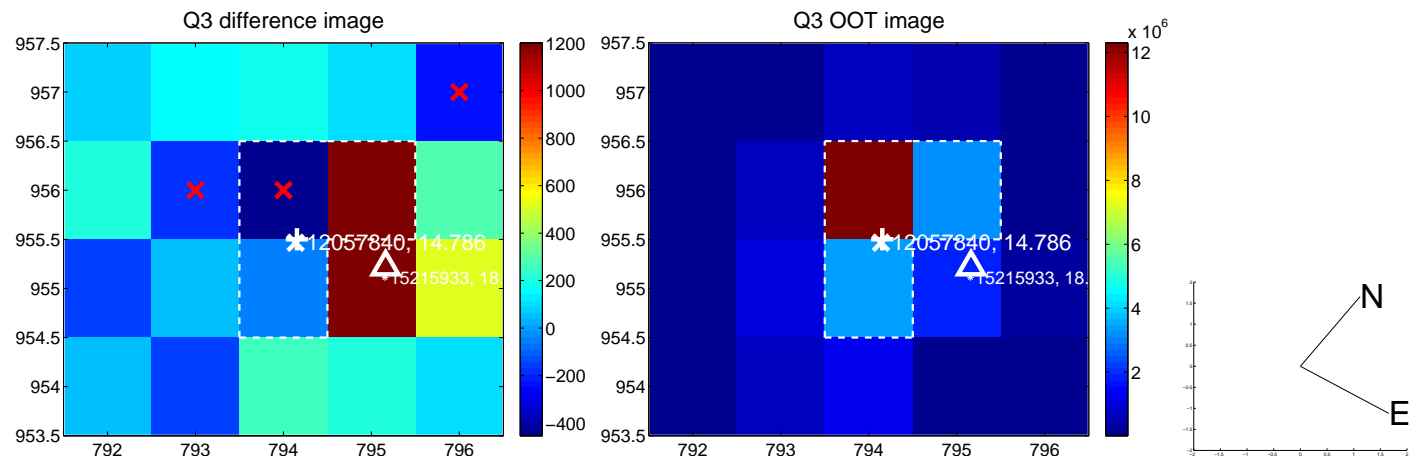
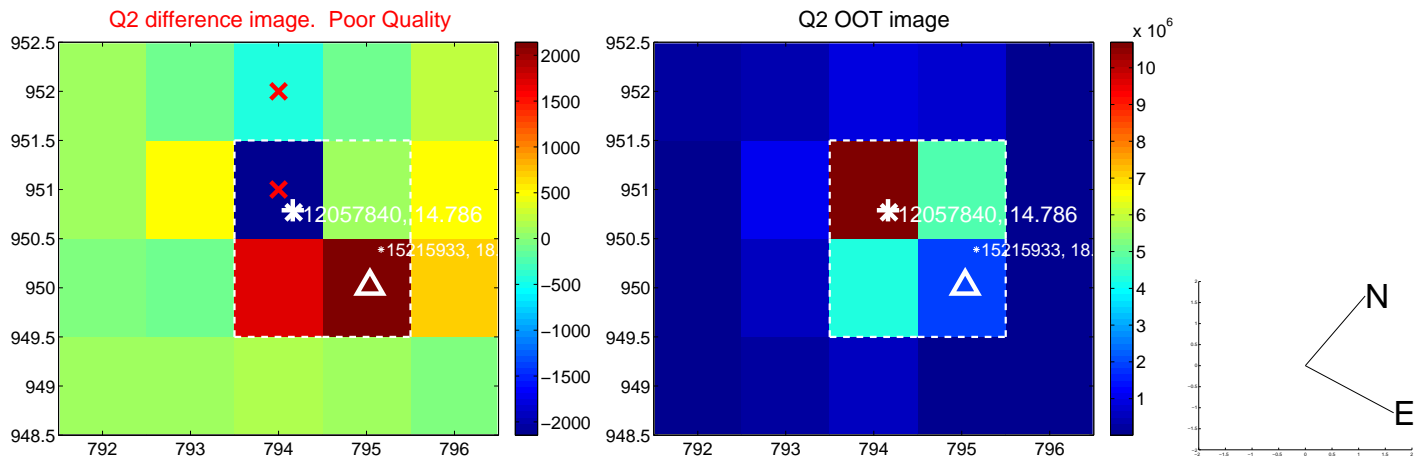
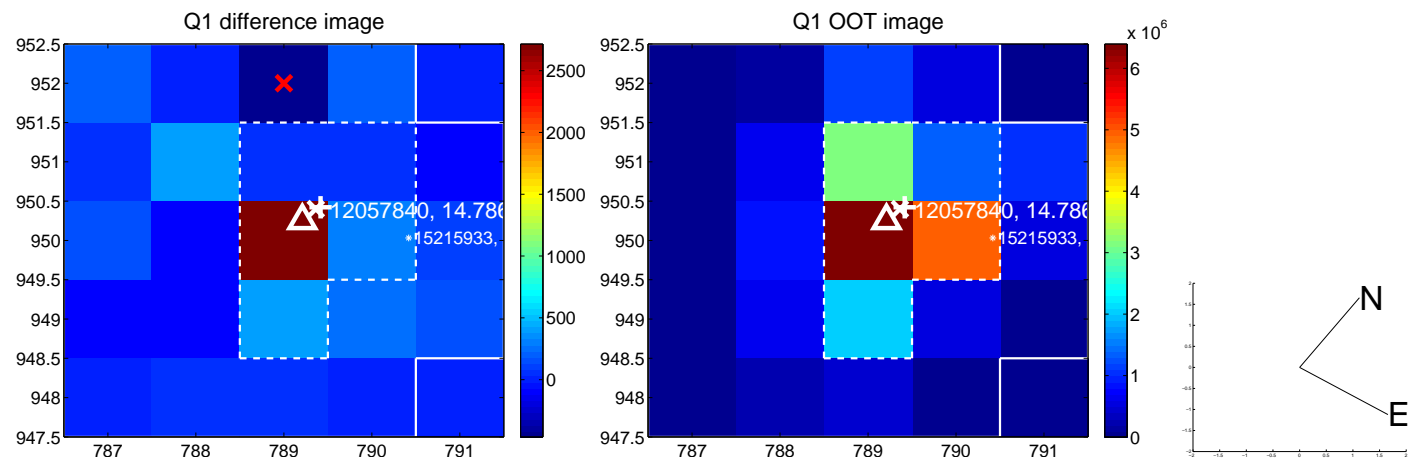
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.740 ± 0.457	6.00	2.642 ± 0.453	0.725 ± 0.508
PRF-fit source offset from KIC position	2.707 ± 0.490	5.53	2.574 ± 0.493	0.835 ± 0.587
photometric centroid source offset	13.91 ± 1.63	8.54	13.55 ± 1.63	3.13 ± 1.71

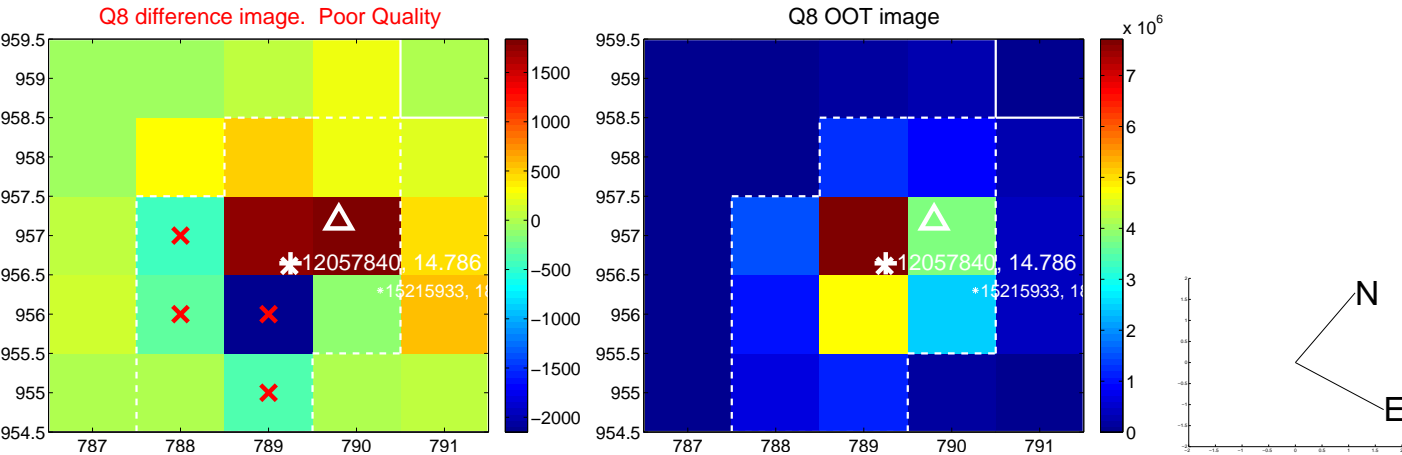
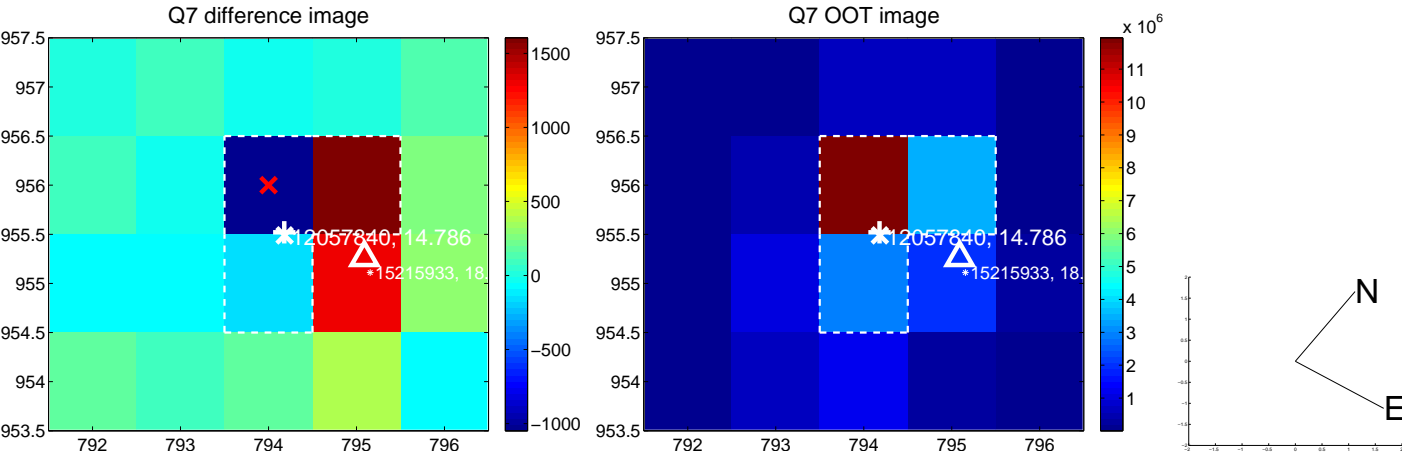
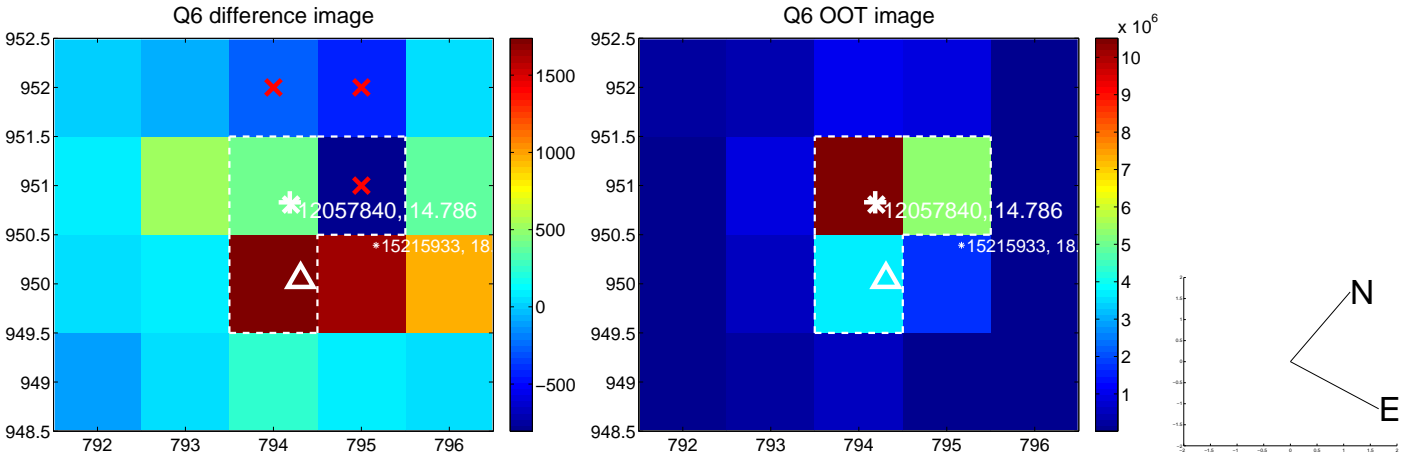
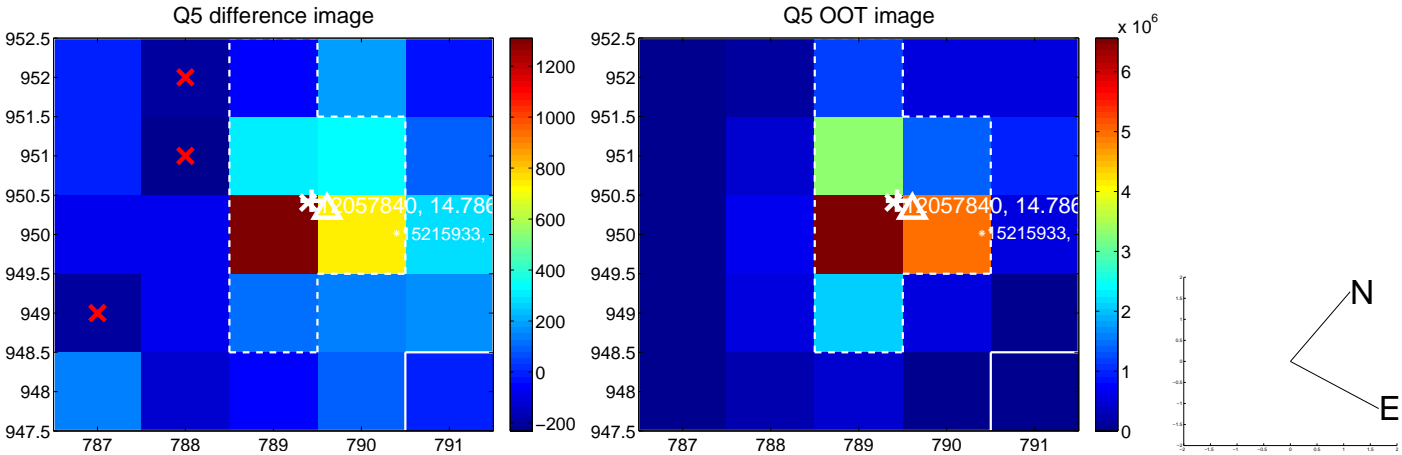


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

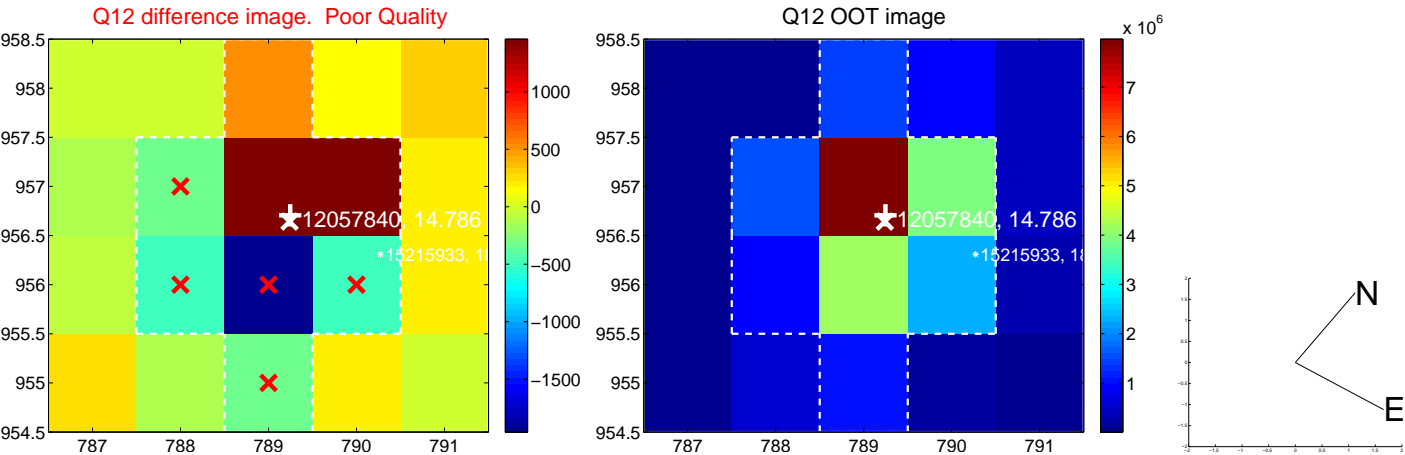
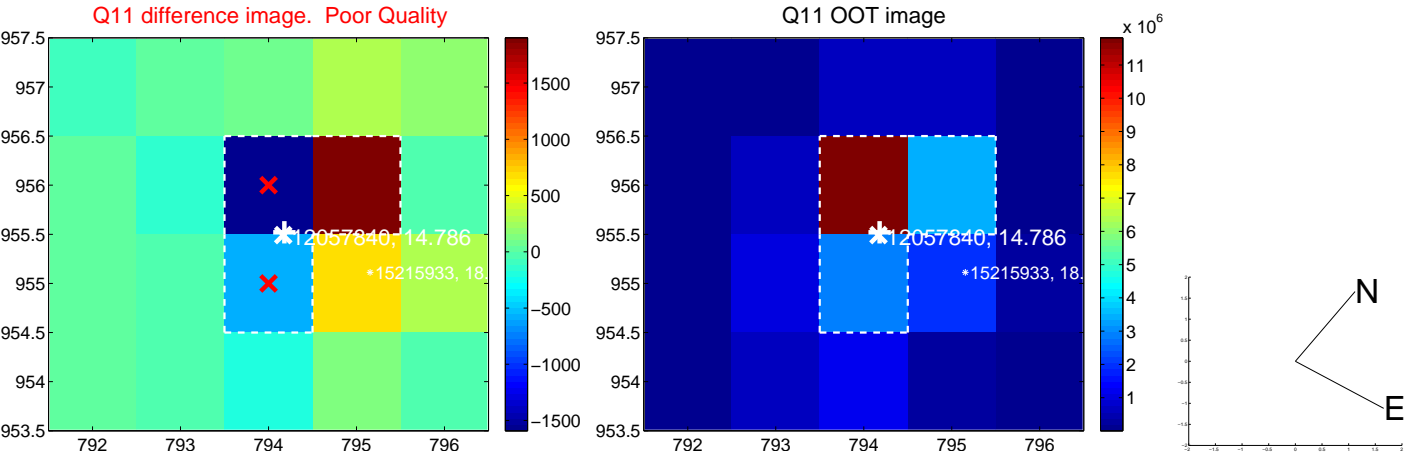
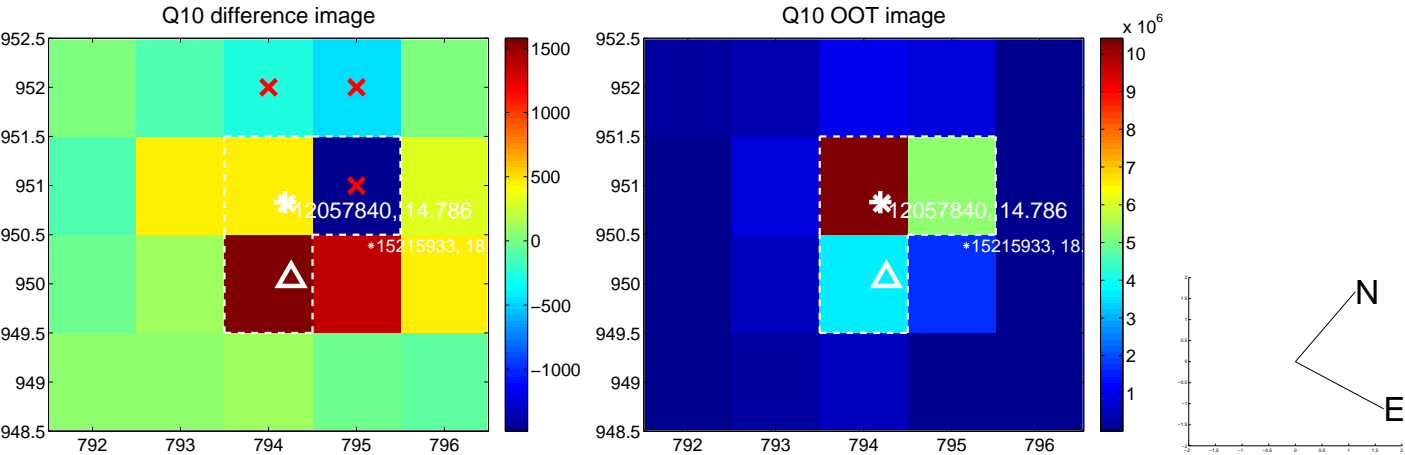
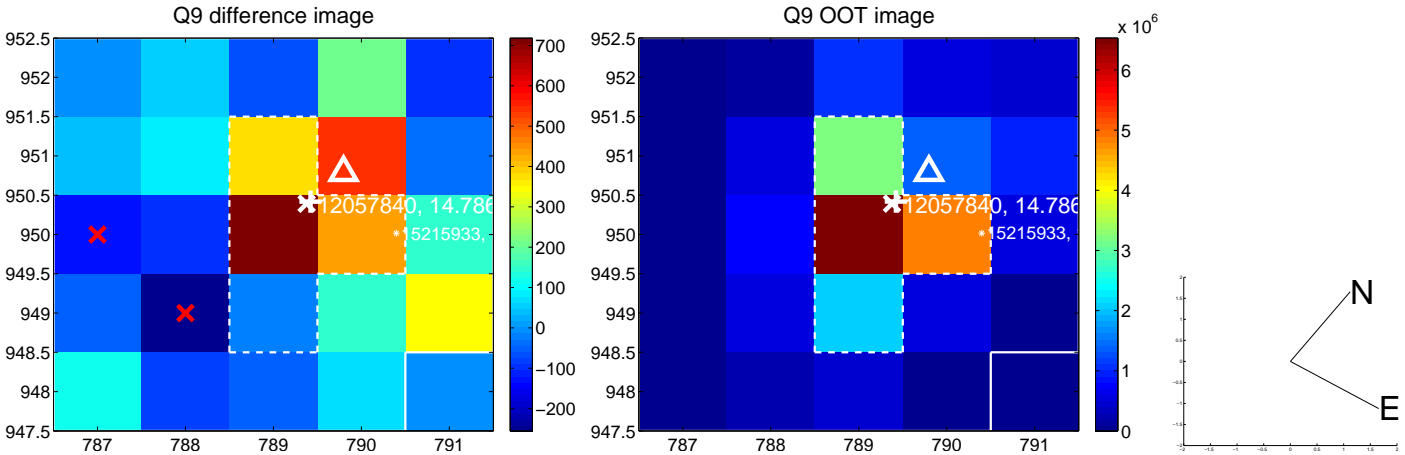
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



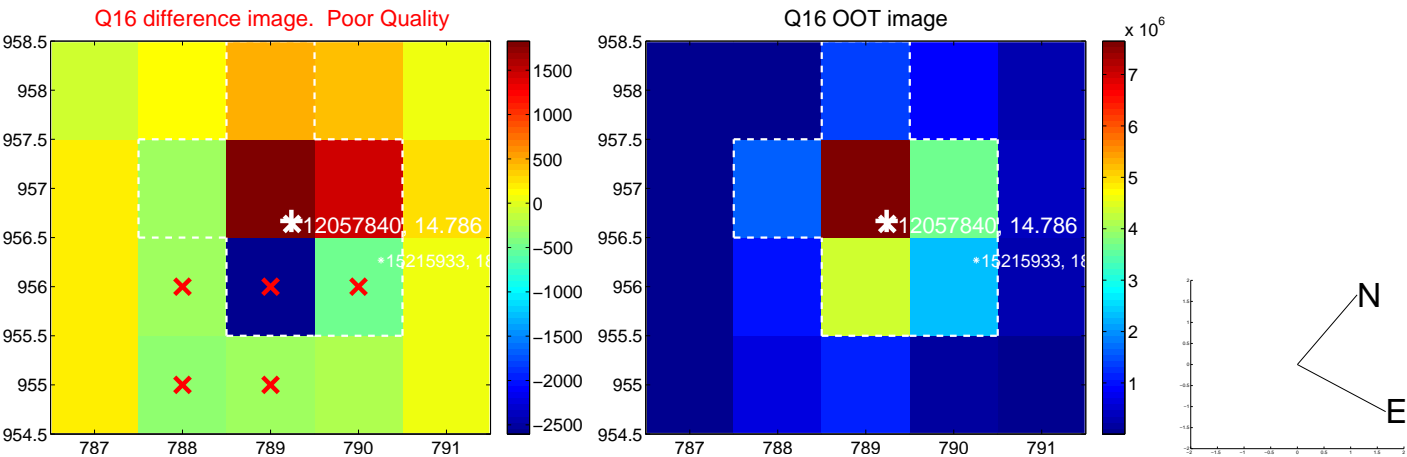
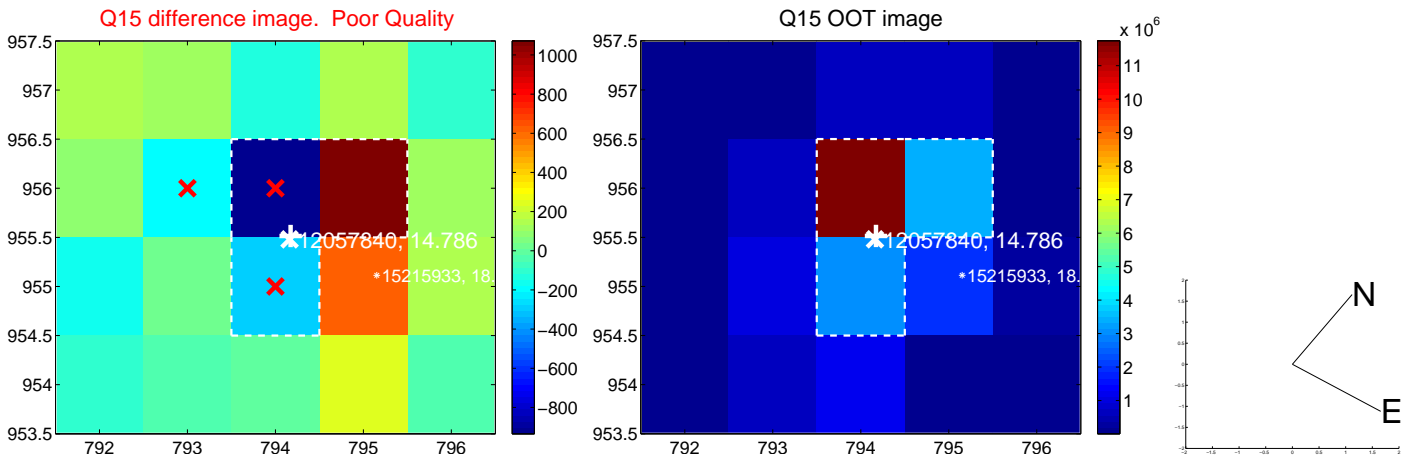
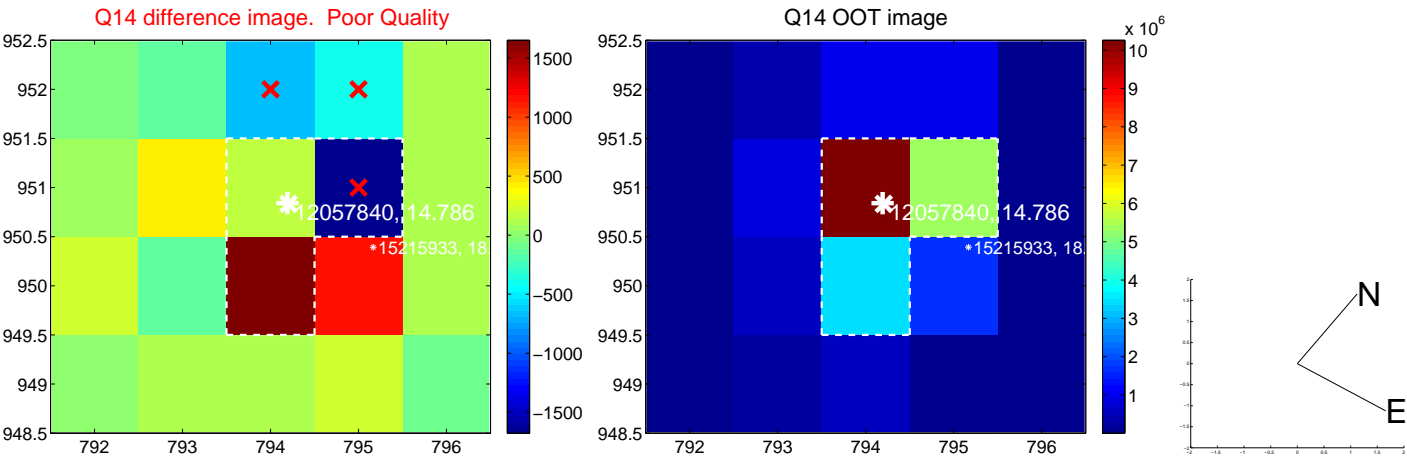
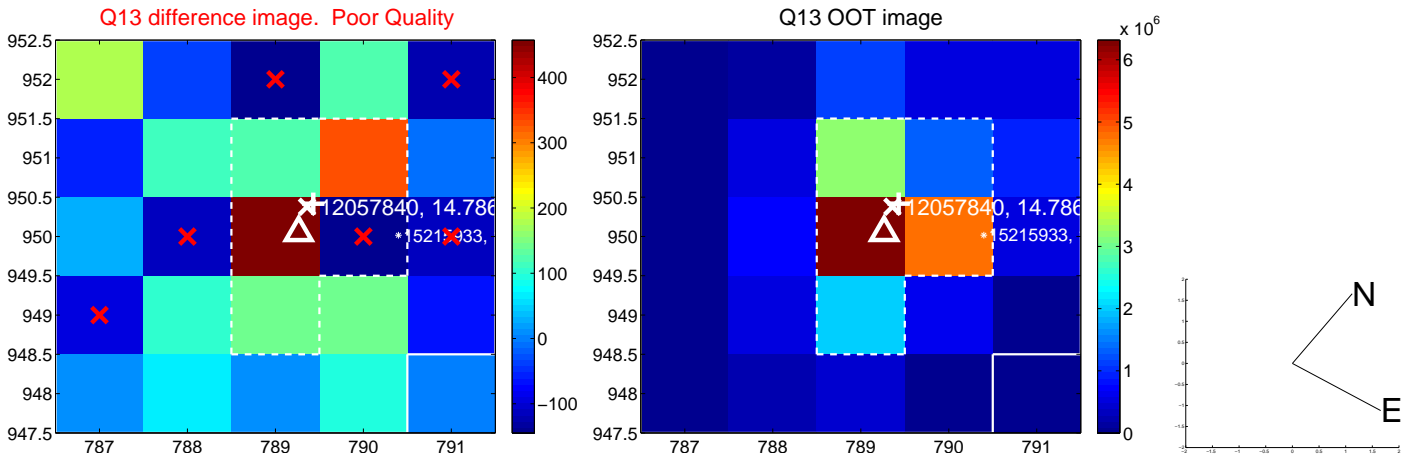
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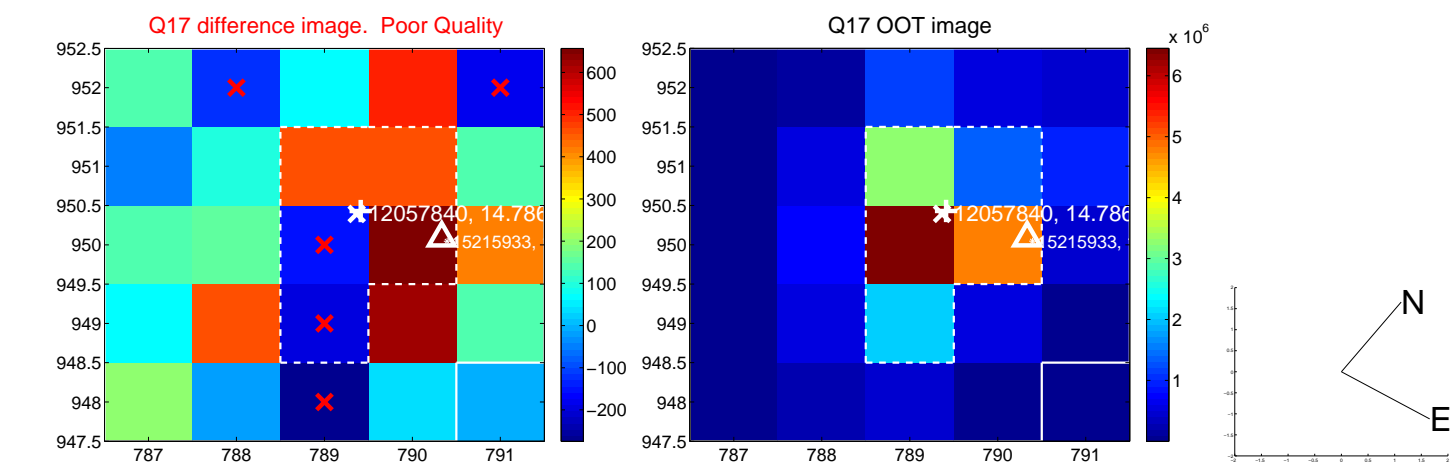
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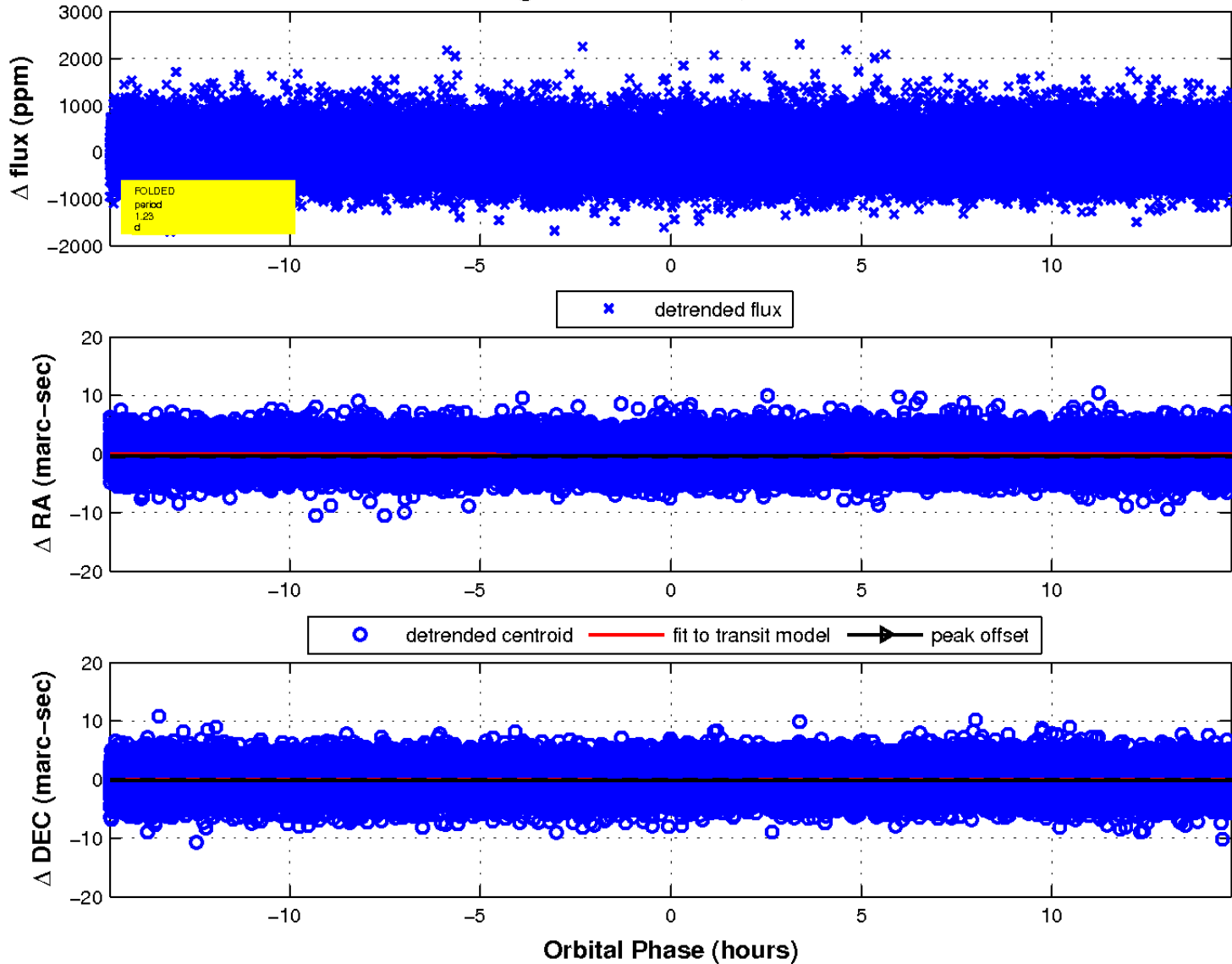
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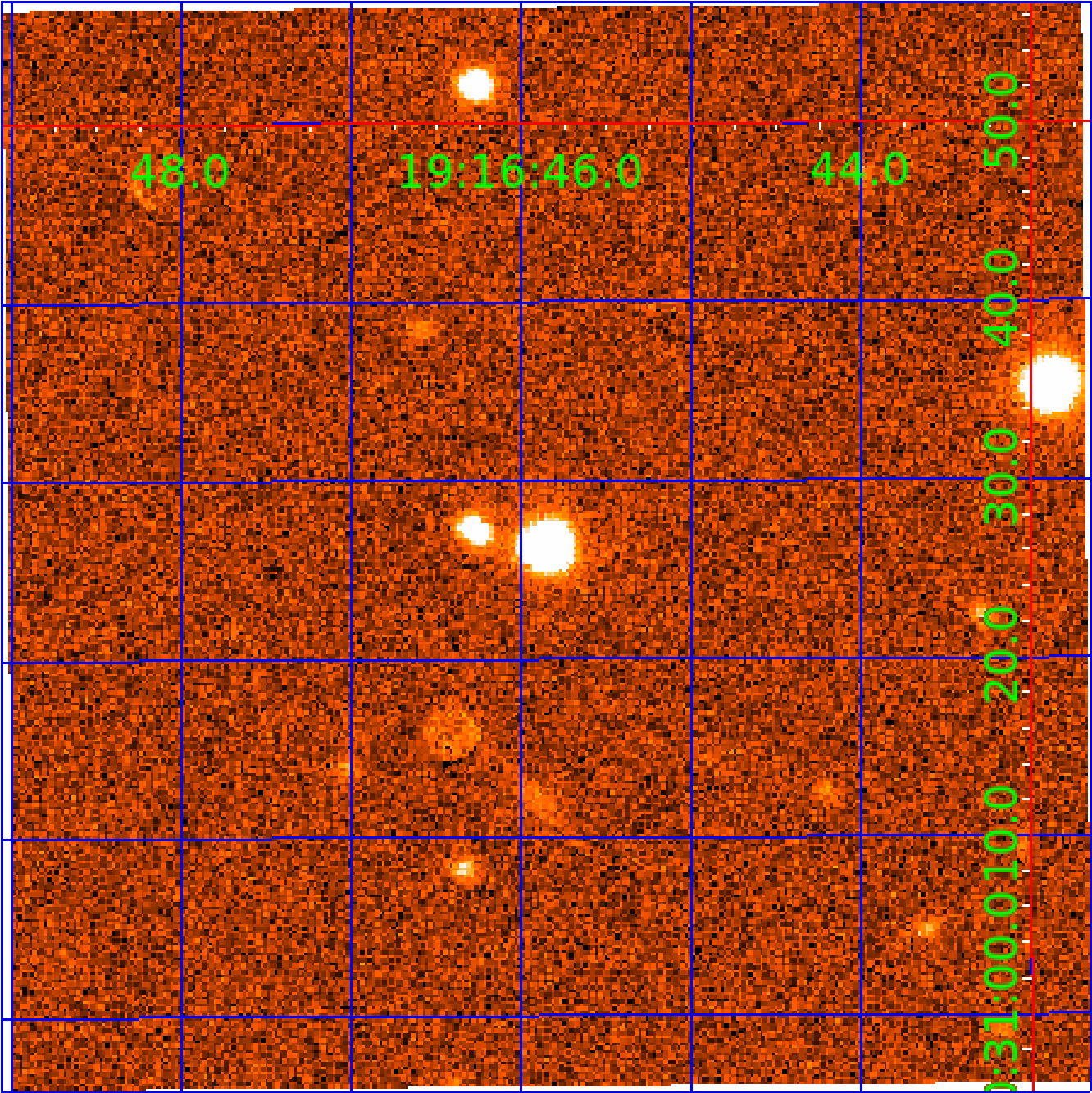


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 012057840

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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012057840-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS— HALO_GHOST
012057840-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_FEW_DIFFS

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

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

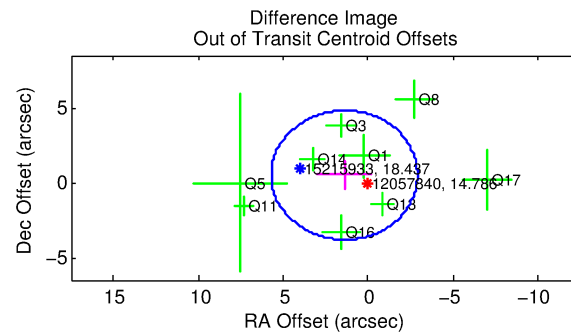
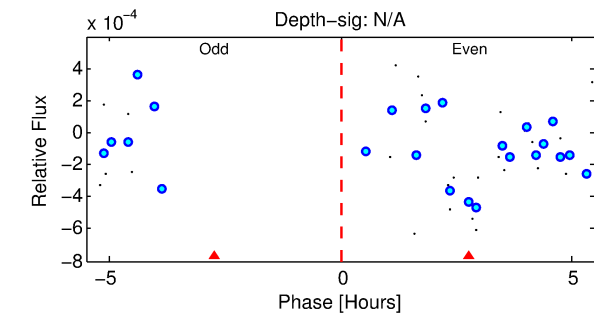
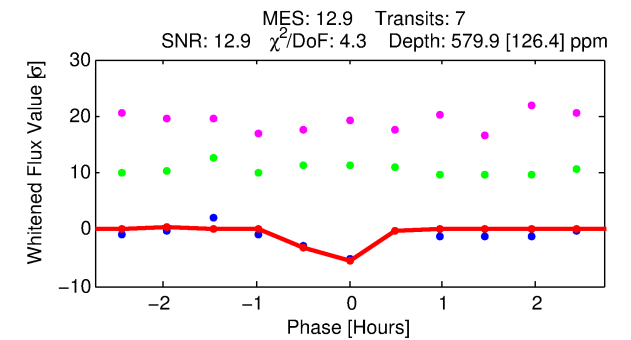
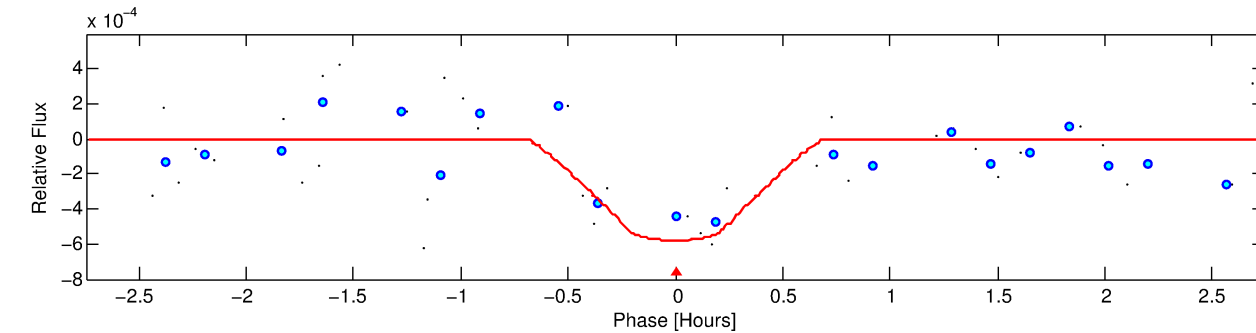
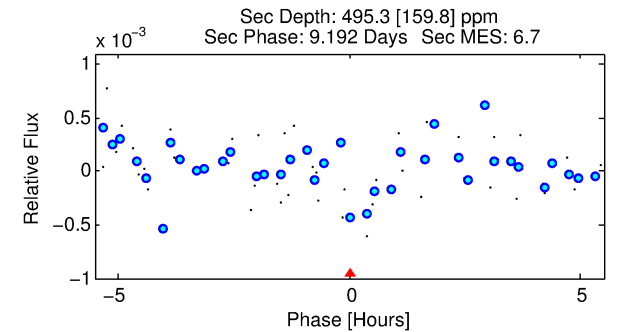
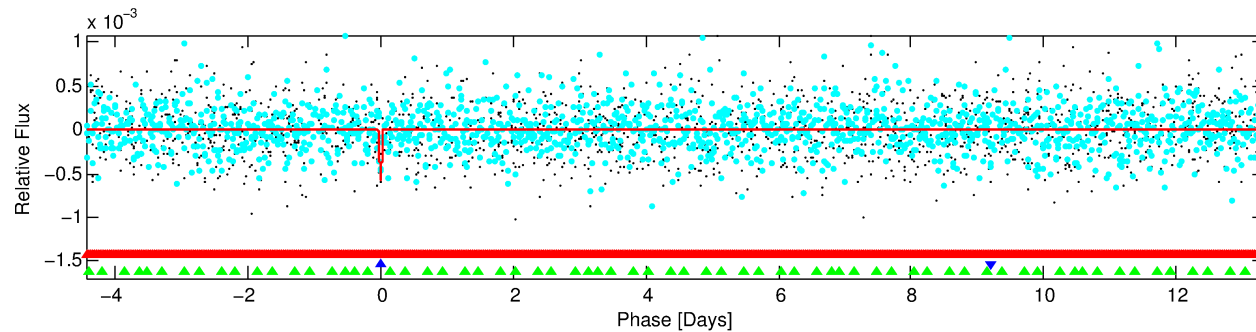
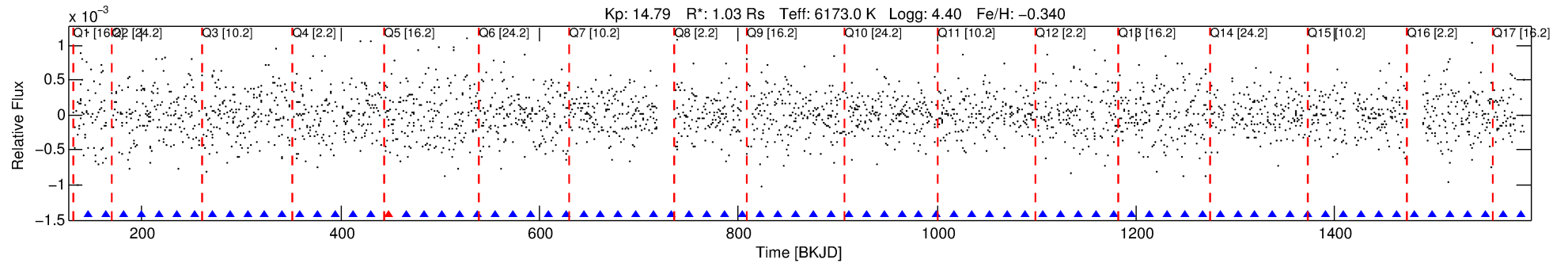
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012057840-02

No Significant Match Found

DV One-Page Summary

KIC: 12057840 Candidate: 2 of 3 Period: 17.786 d



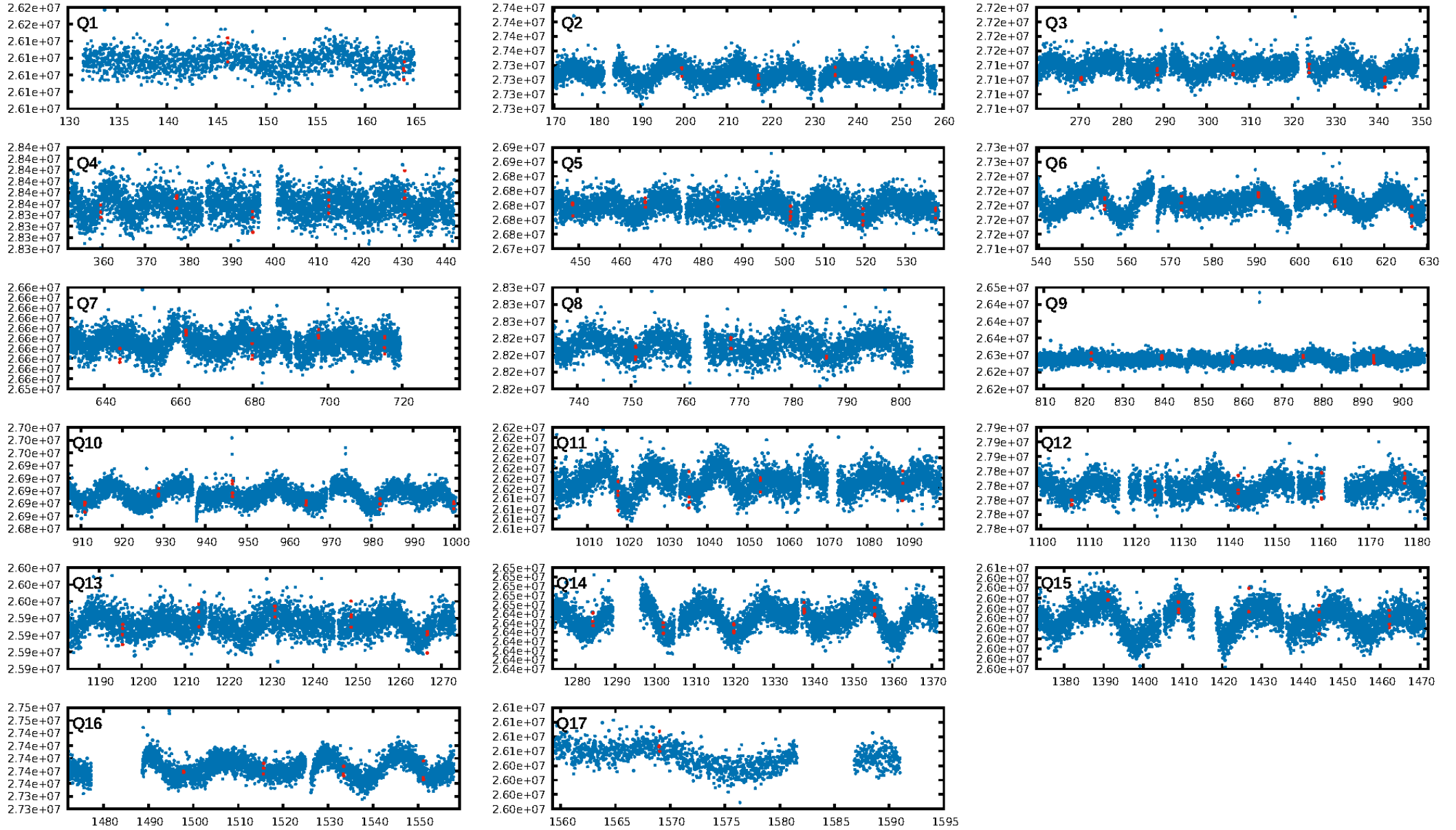
DV Fit Results:

Period = 17.78573 [0.00060] d
Epoch = 146.1428 [0.0074] BKJD
Rp/R* = 0.0230 [0.0314]
a/R* = 132.56 [947.69]
b = 0.50 [10.70]
Seff = 79.42 [30.32]
Teff = 761 [73] K
Rp = 2.59 [3.62] Re
a = 0.1321 [0.0325] AU
Ag = 710.11 [1972.94] [0.36σ]
Teffp = 6075 [4190] K [1.27σ]

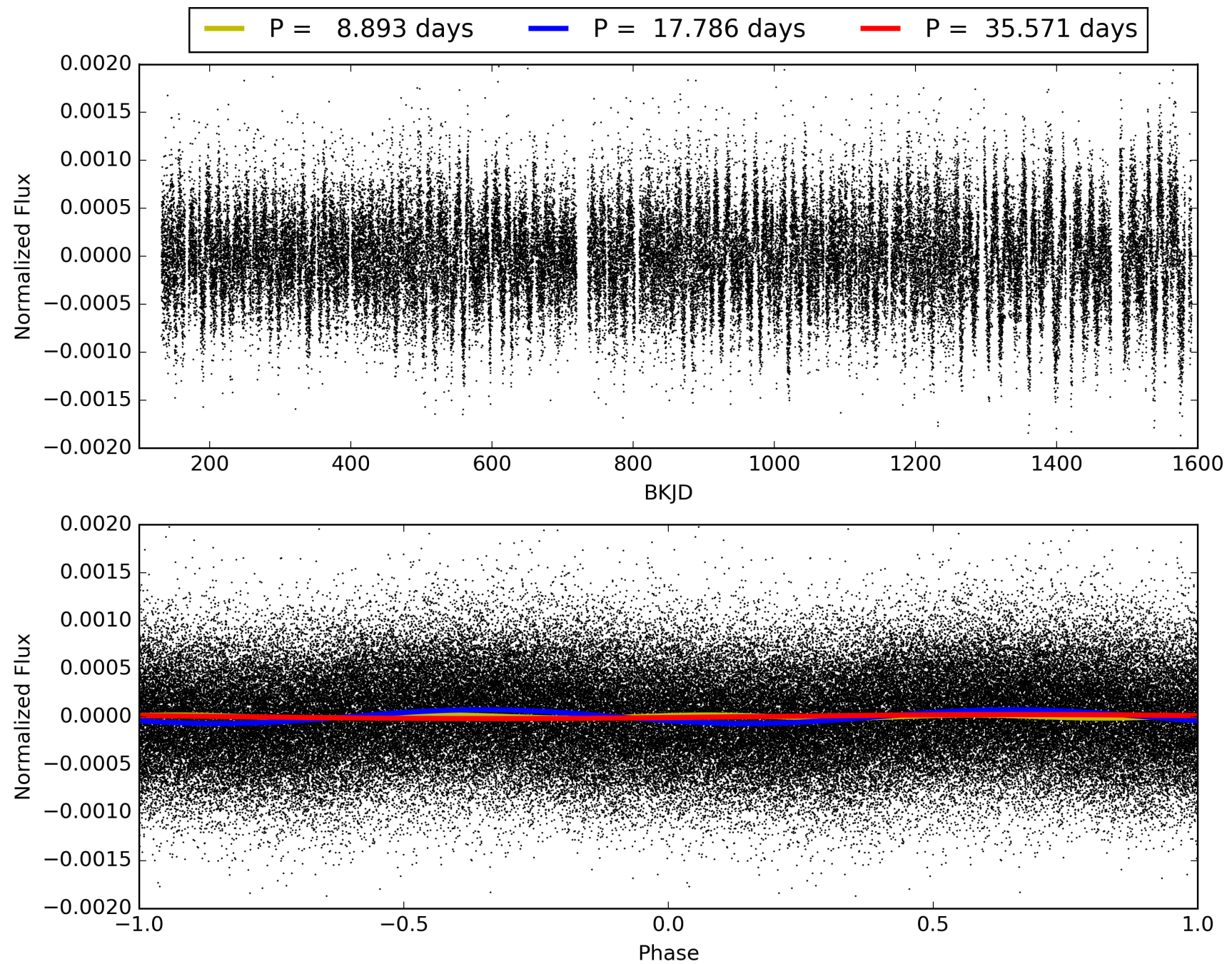
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [42.73σ]
LongPeriod-sig: 100.0% [58.53σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 6.7%
Bootstrap-pfa: 1.63e-13
RollingBand-fgt: 0.86 [6/7]
GhostDiagnostic-chr: -0.2124
Centroid-sig: 13.7%
Centroid-so: 1.437 arcsec [1.58σ]
OotOffset-rm: 1.475 arcsec [1.03σ]
OotOffset-st: 1/2/2/4 [9]
KicOffset-rm: 1.515 arcsec [1.18σ]
KicOffset-st: 1/2/2/4 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 0.71 [12/17]

TCE 012057840-02, PDC Light Curves

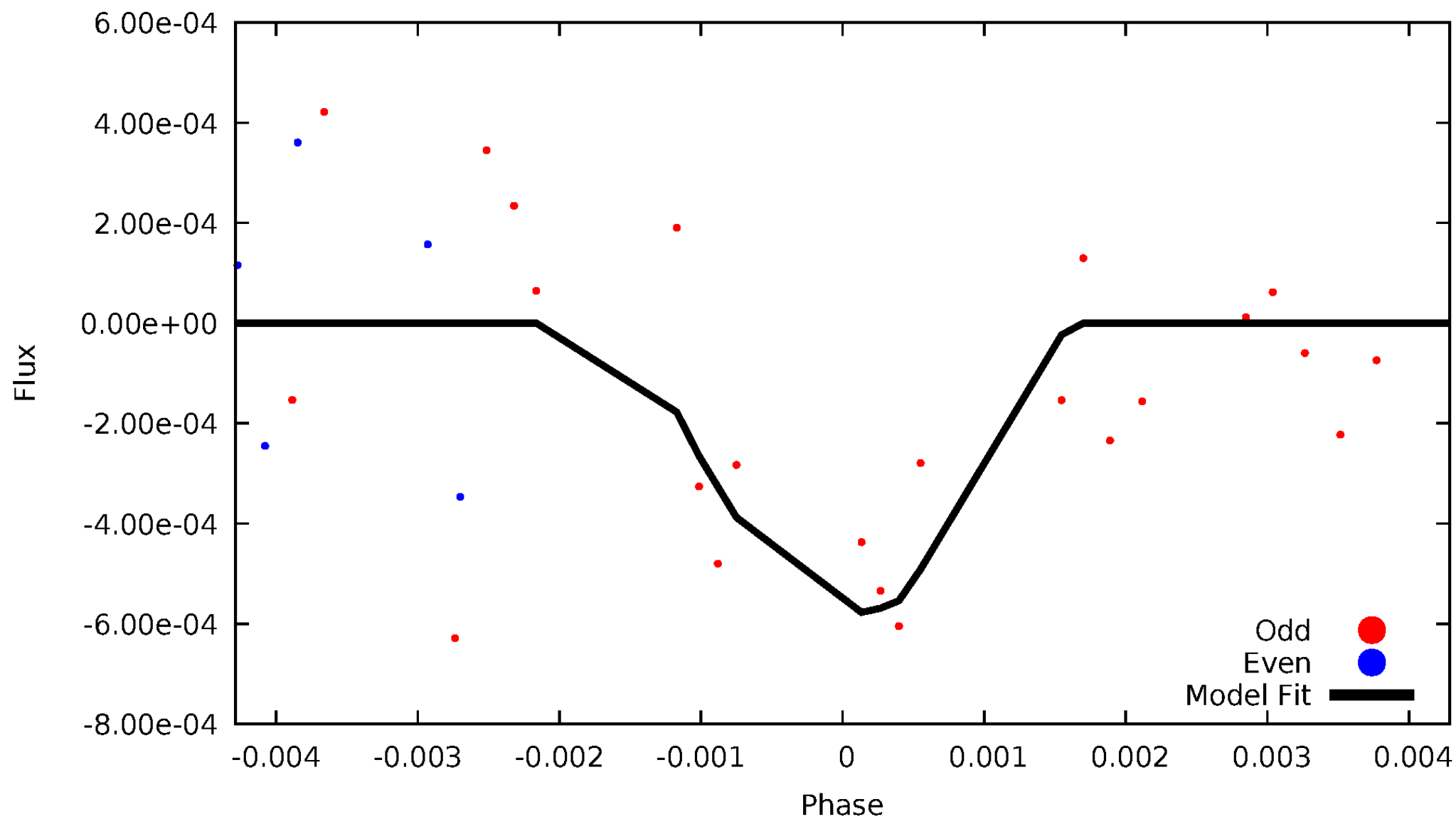


TCE 012057840-02



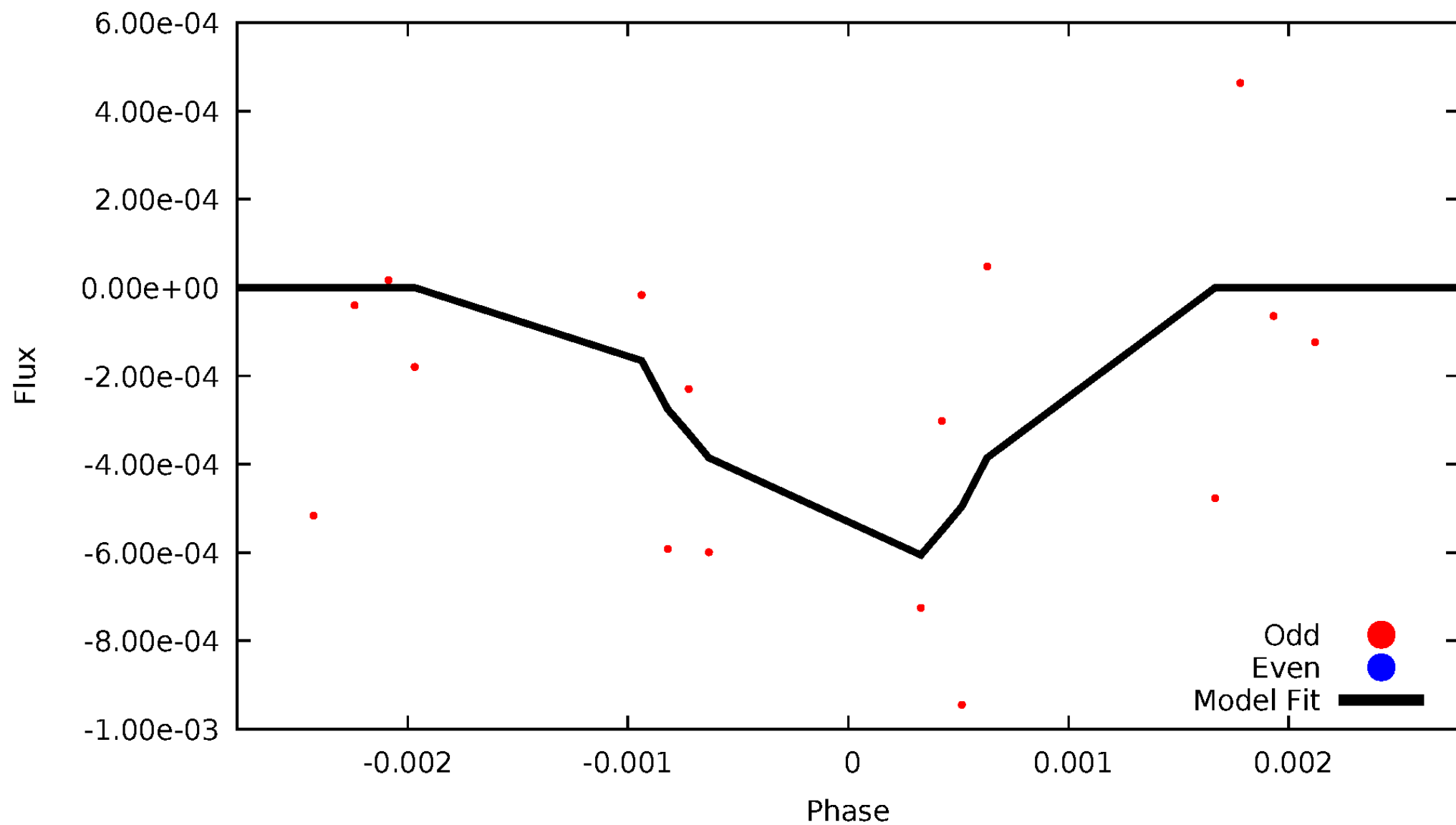
DV Odd/Even

TCE 012057840-02



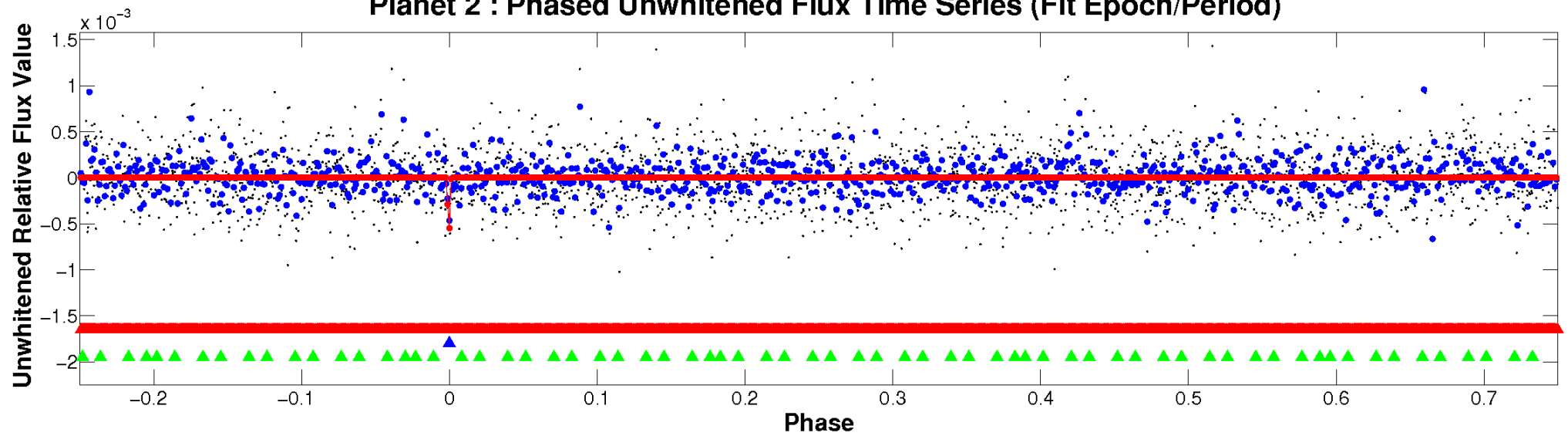
ALT Odd/Even

TCE 012057840-02

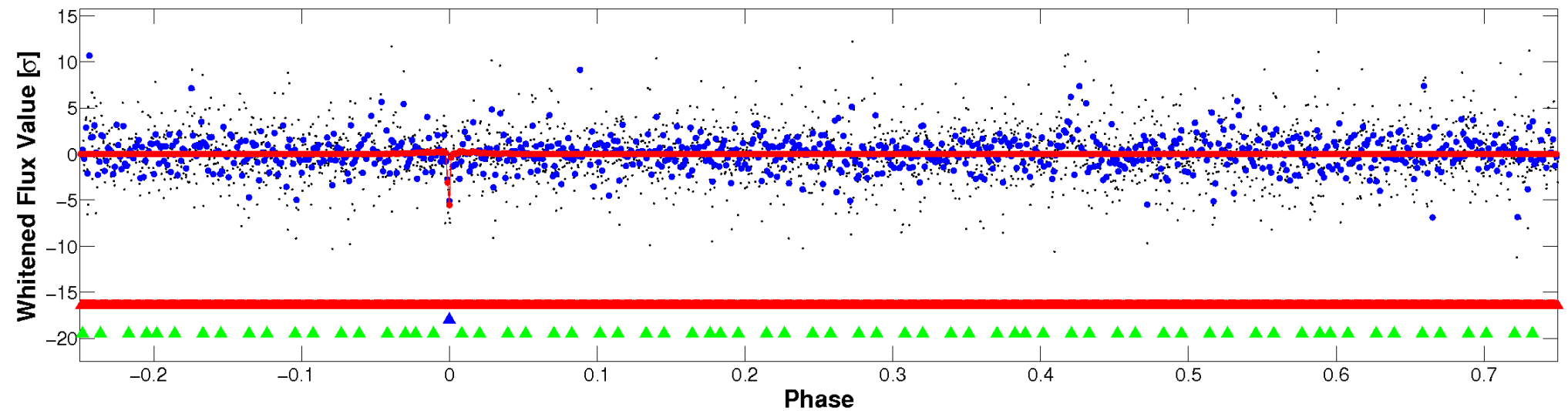


Non-Whitened Vs. Whitened Light Curve

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

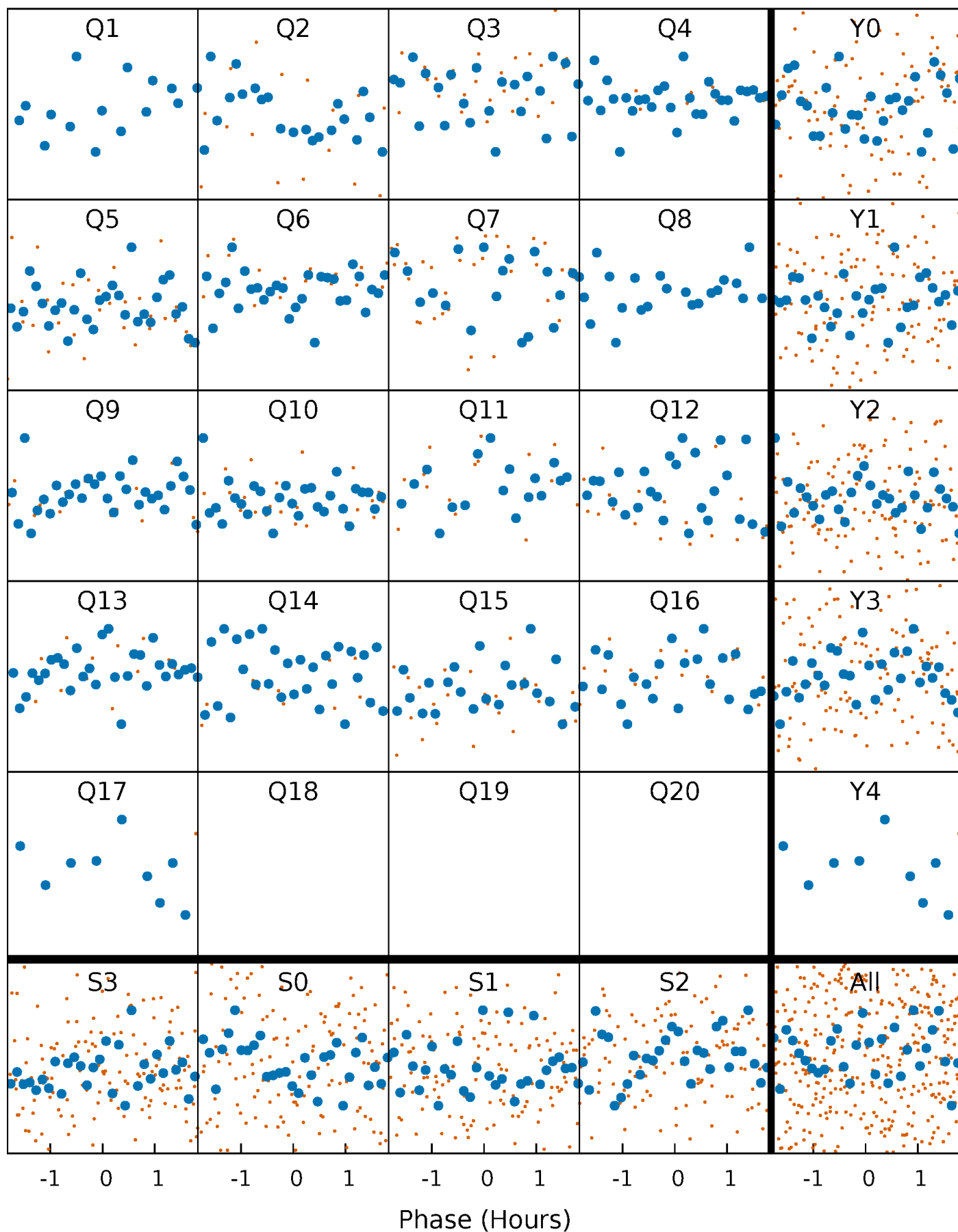


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



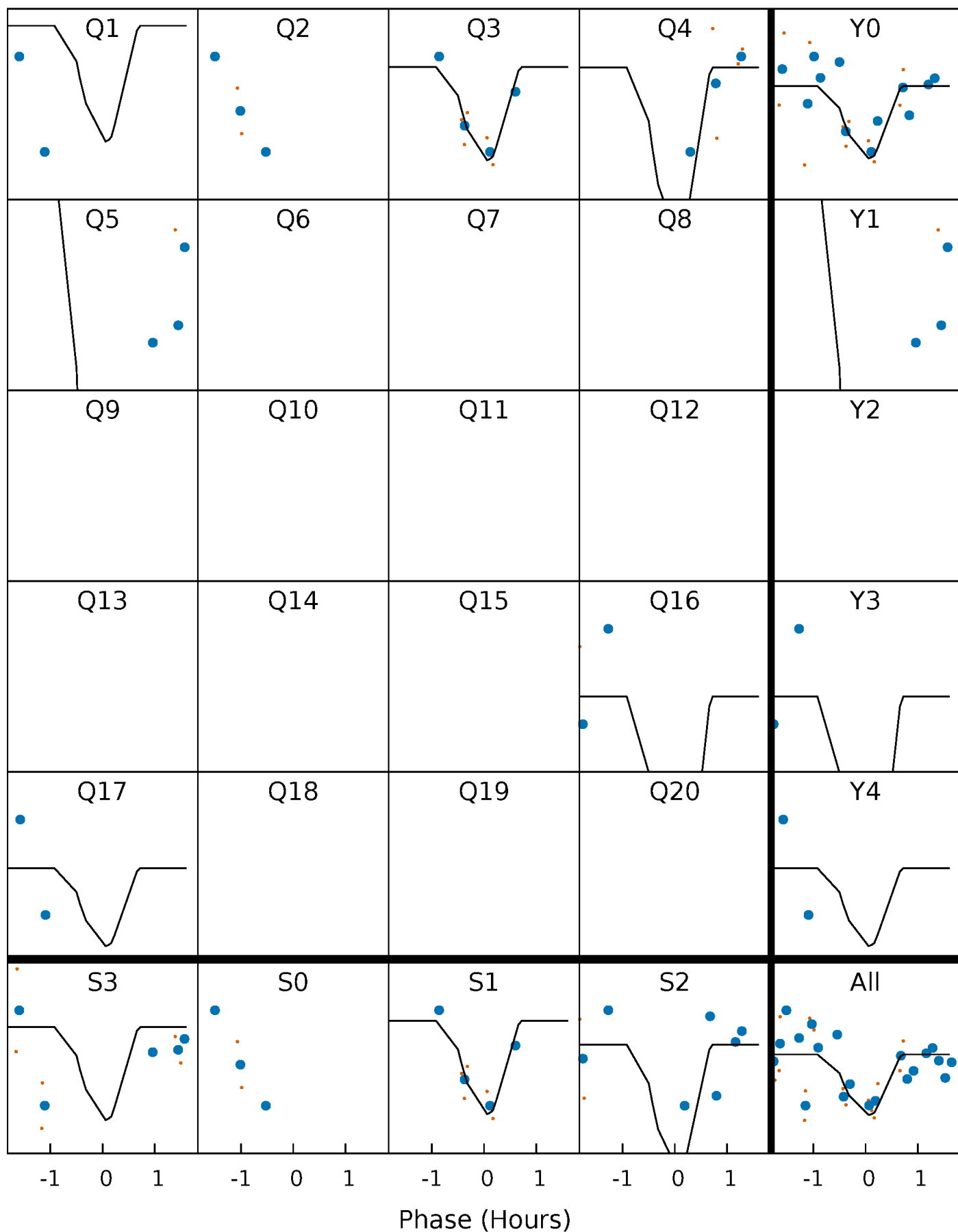
PDC Quarter-Phased Transit Curves

TCE 012057840-02 P= 17.785727 Days $T_0=146.142795$ (BKJD)



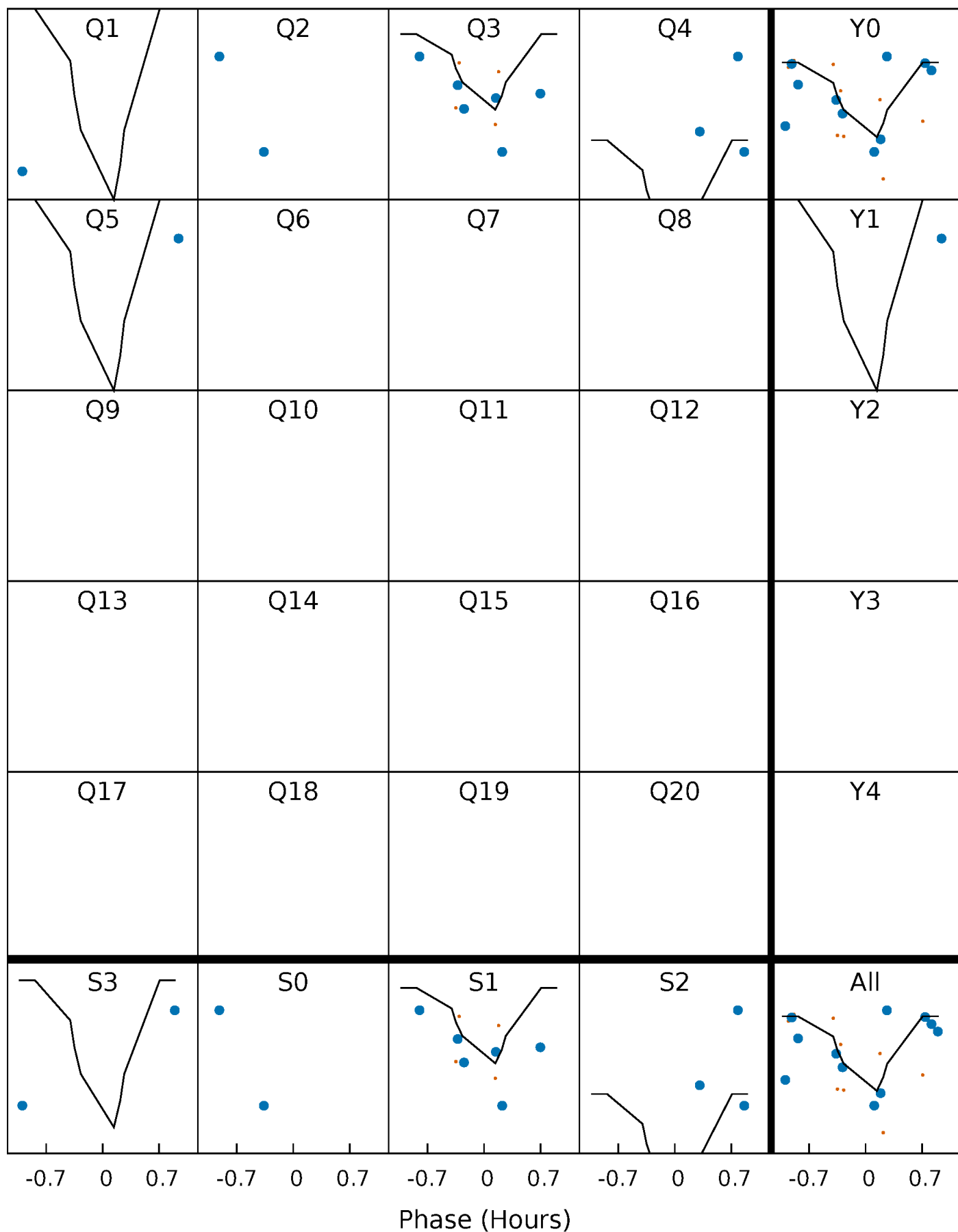
DV Quarter-Phased Transit Curves

TCE 012057840-02 P= 17.785727 Days $T_0=146.142795$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

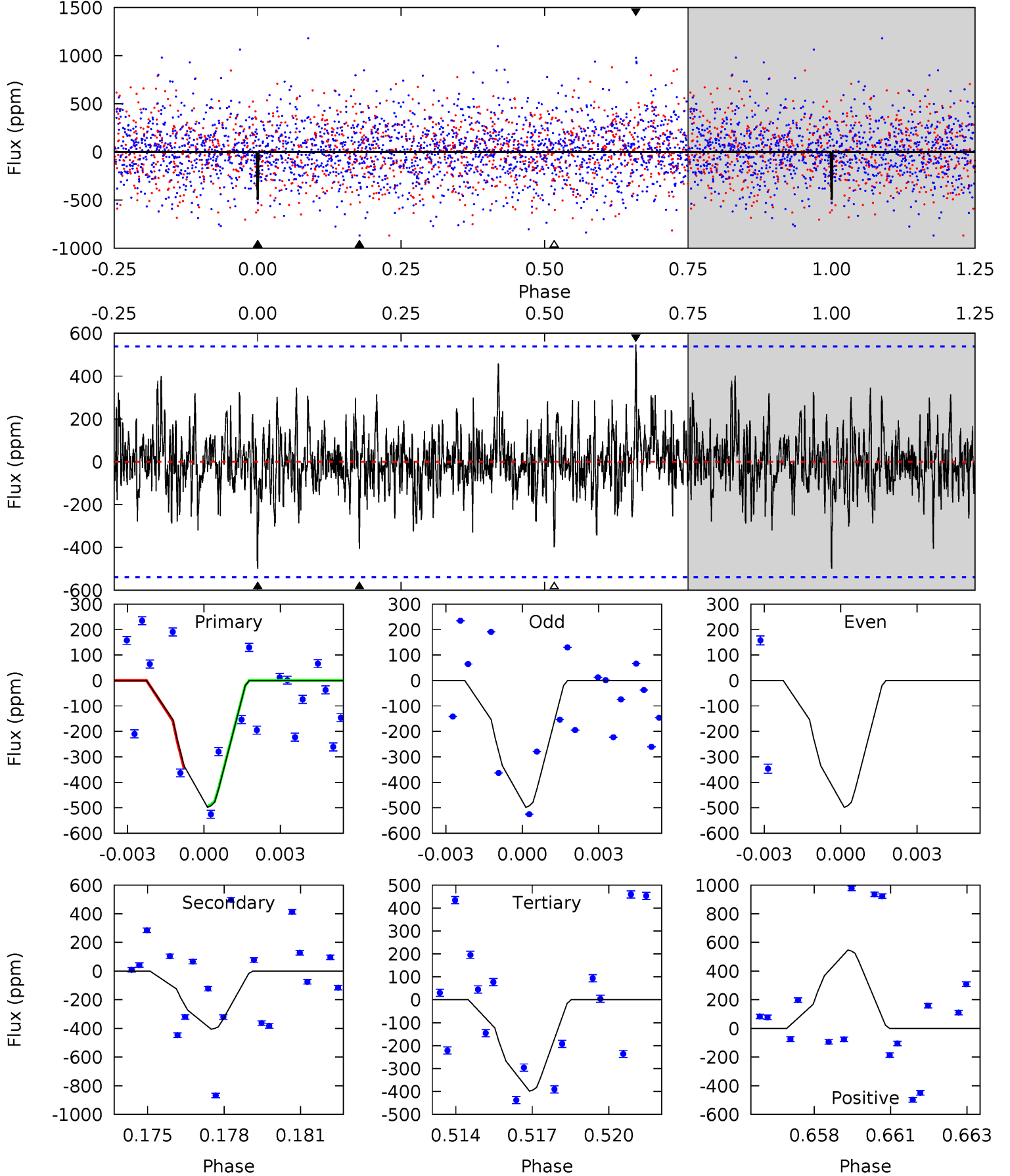
TCE 012057840-02 P= 17.786071 Days $T_0=146.136939$ (BKJD)



DV Model-Shift Uniqueness Test

012057840-02, P = 17.785727 Days, E = 128.357068 Days

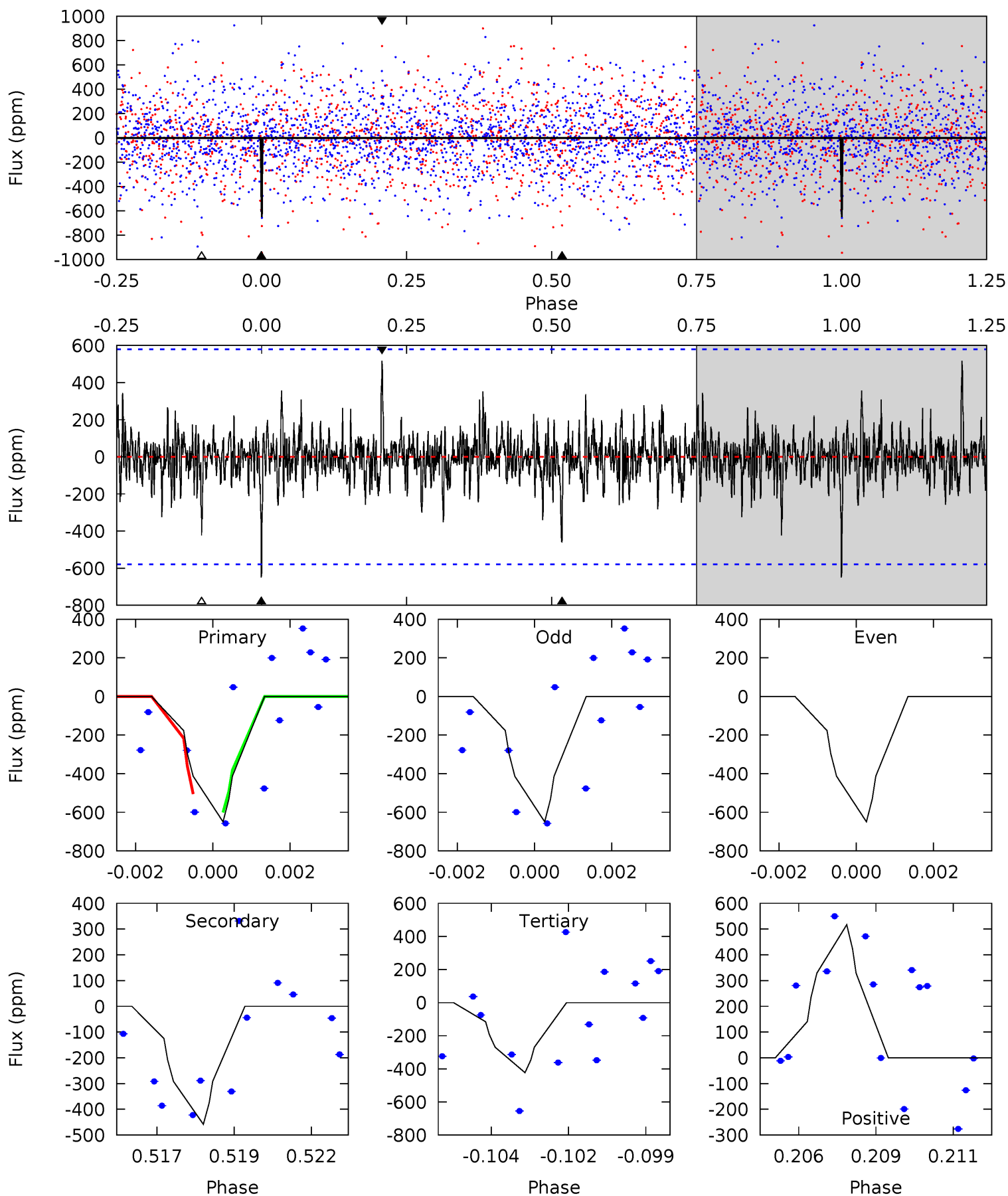
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.86	3.96	3.89	5.34	5.26	2.98	1.13	0.97	-0.47	0.07	-1.38	0	0.98	0.52	0.71



Alt Model-Shift Uniqueness Test

012057840-02, P = 17.786071 Days, E = 128.350868 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.92	4.18	3.86	4.71	5.29	3.03	0.92	2.06	1.21	0.32	-0.53	0	0.91	0.44	0.42



Stellar Parameters For KIC 012057840

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6173^{+169}_{-206}	$4.398^{+0.105}_{-0.195}$	$-0.340^{+0.300}_{-0.300}$	$1.032^{+0.303}_{-0.163}$	$0.970^{+0.136}_{-0.111}$	$1.244^{+0.584}_{-0.634}$
	+3%/-3%	+2%/-4%	+88%/-88%	+29%/-16%	+14%/-11%	+47%/-51%
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 012057840-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-406 ± 103	$3.49^{+3.18}_{-2.31}$	1074^{+82}_{-60}	5102^{+3784}_{-1169}	311^{+2268}_{-227}
Alt.	-458 ± 110	$4.21^{+3.33}_{-2.53}$	1076^{+84}_{-62}	4839^{+2677}_{-973}	229^{+1353}_{-156}

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

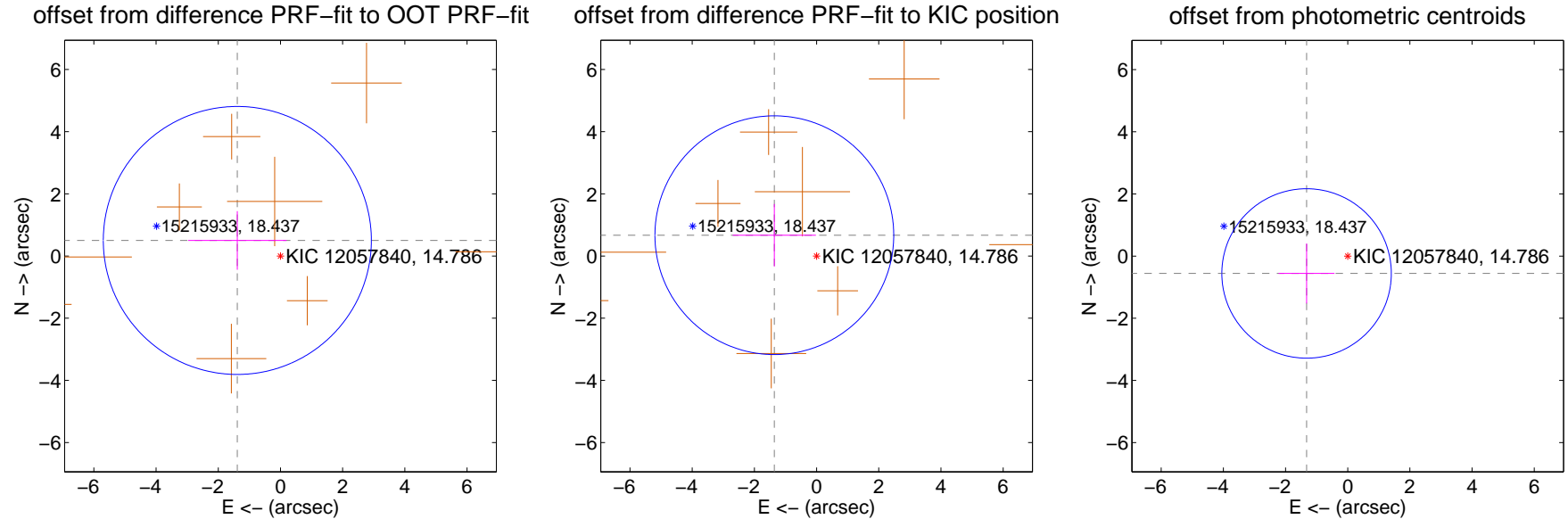
DV Centroid Data

Supplemental centroid analysis for 012057840-02. Kepler magnitude: 14.79. Transit SNR 12.88

There are 0 quarters with good PRF difference image offsets

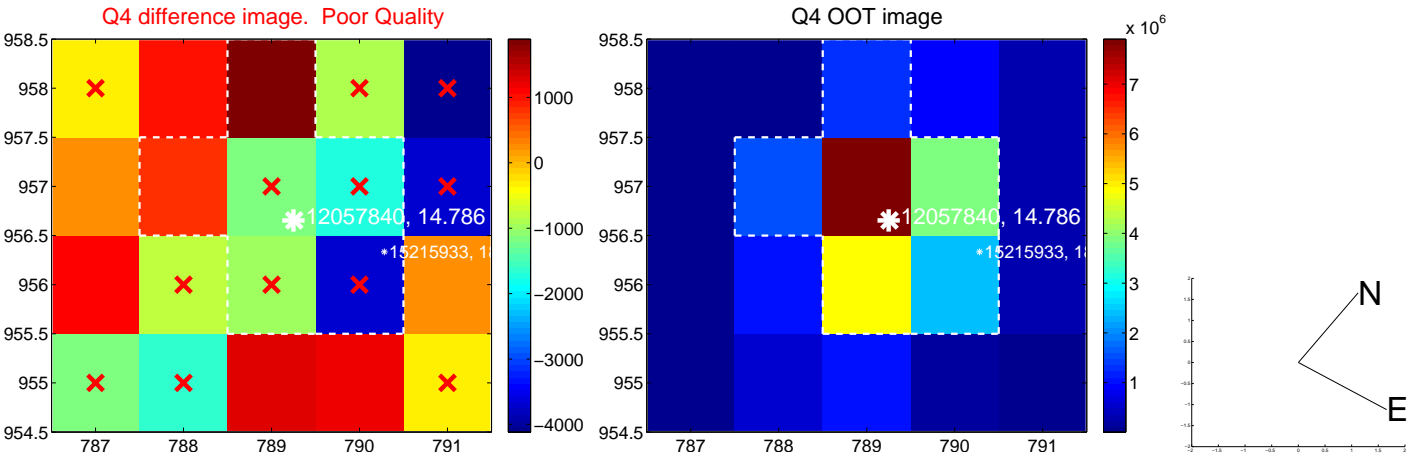
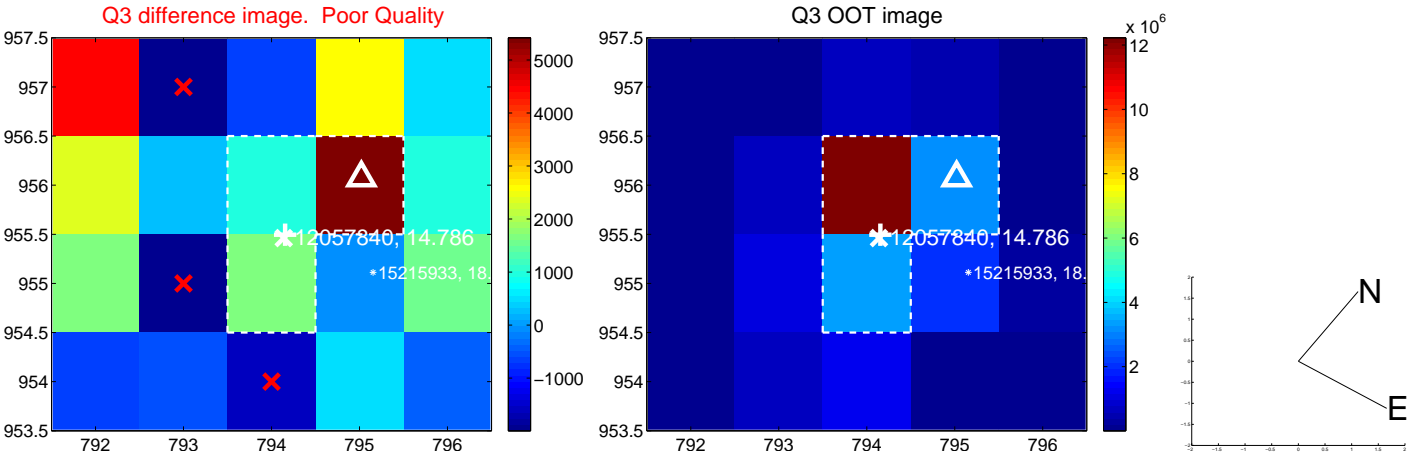
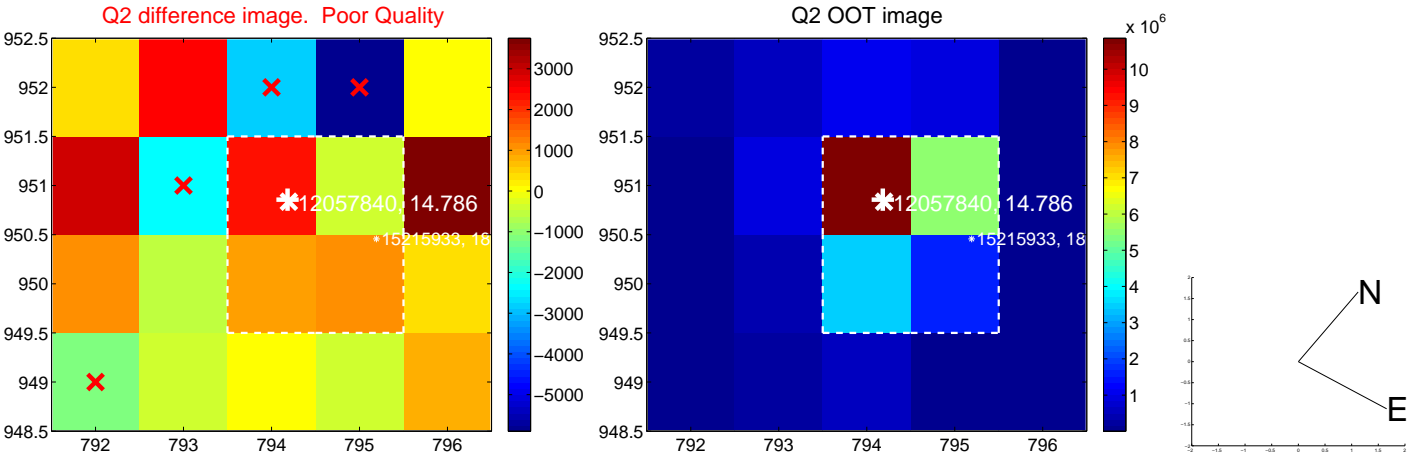
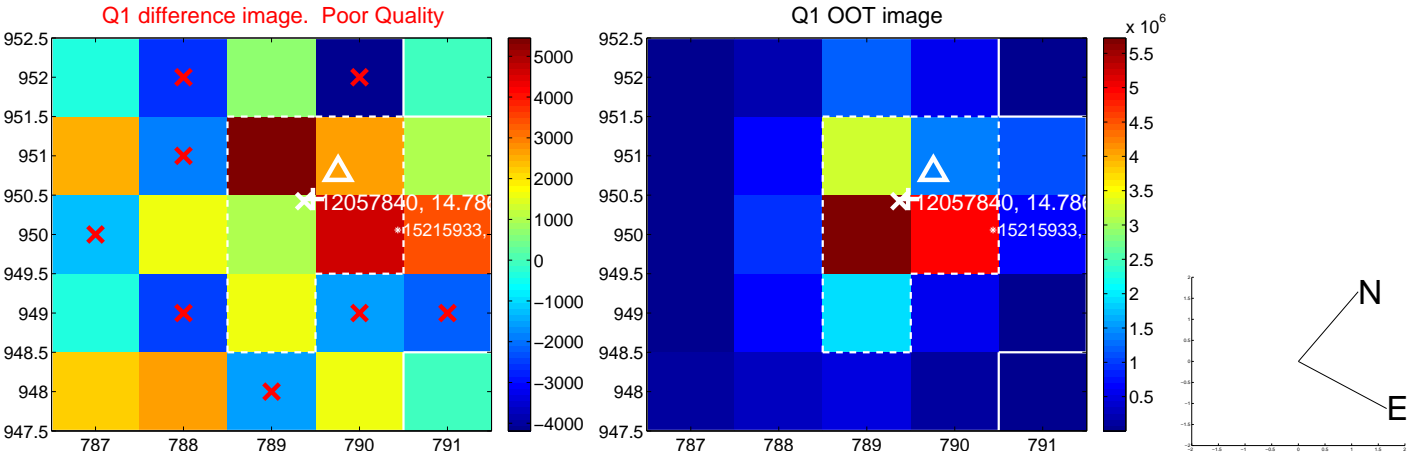
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.475 ± 1.437	1.03	1.387 ± 1.583	0.501 ± 0.944
PRF-fit source offset from KIC position	1.515 ± 1.280	1.18	1.359 ± 1.338	0.670 ± 1.005
photometric centroid source offset	1.44 ± 0.91	1.58	1.32 ± 0.90	-0.56 ± 0.96

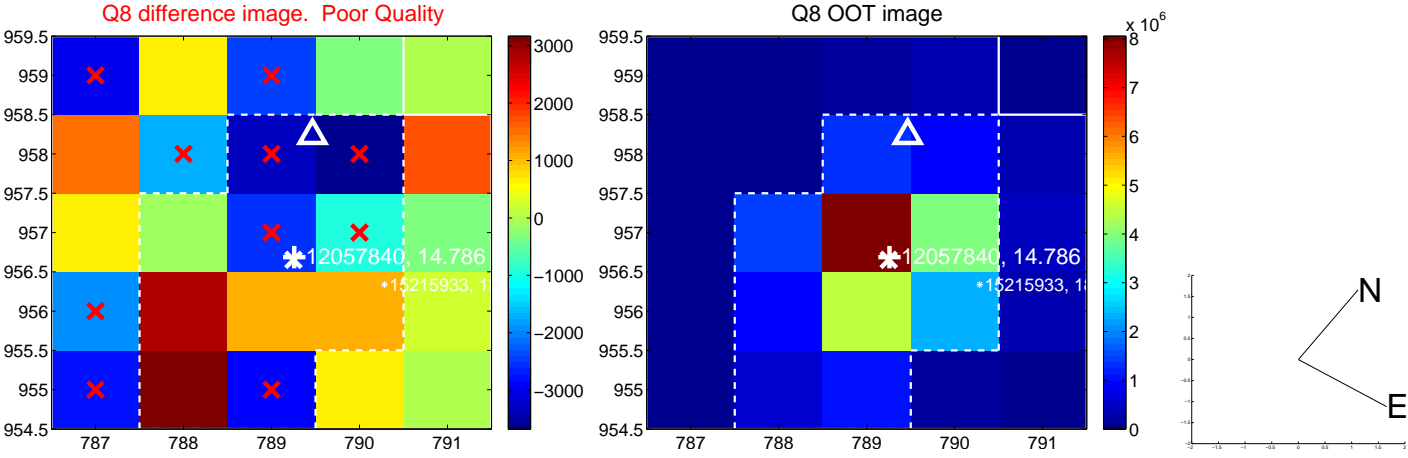
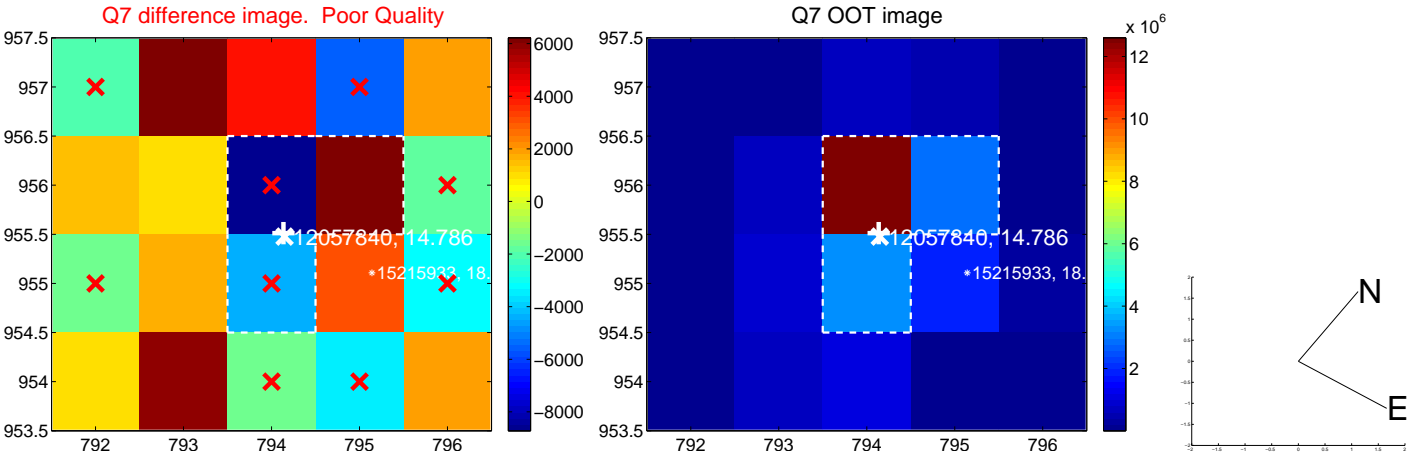
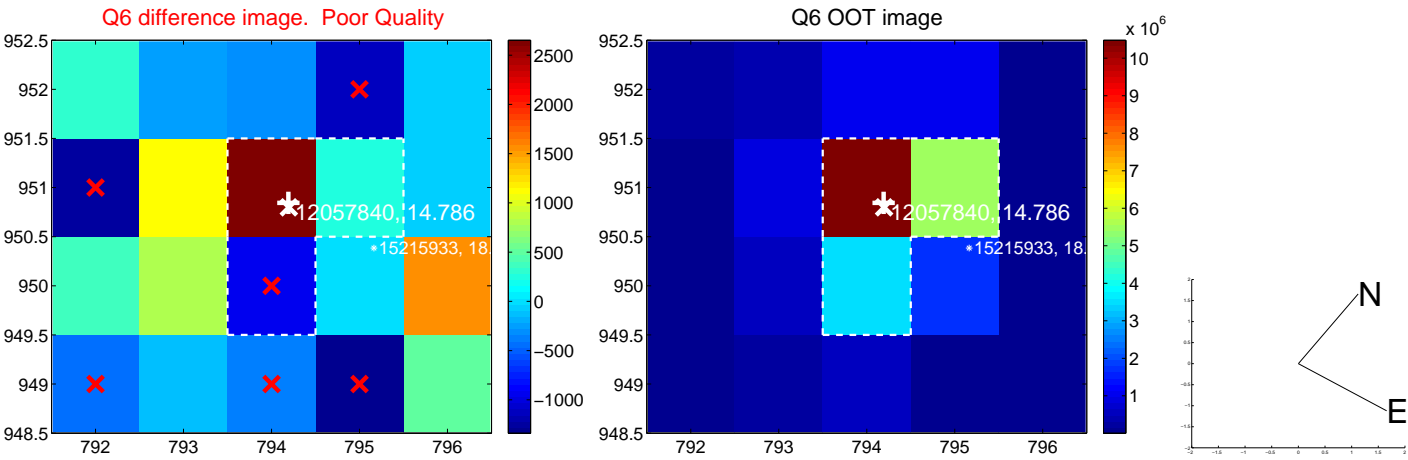
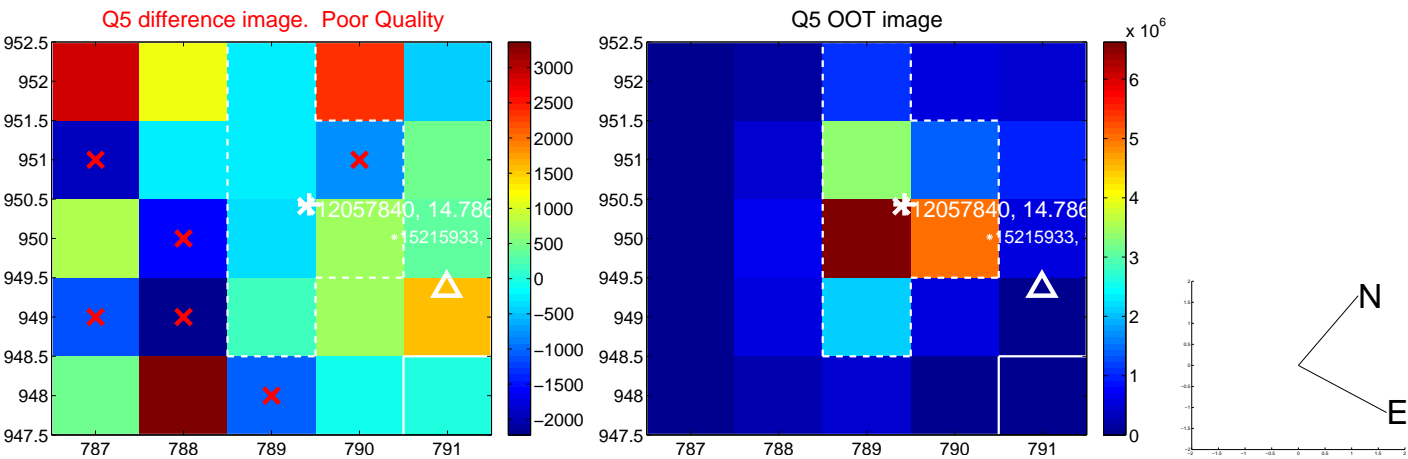


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

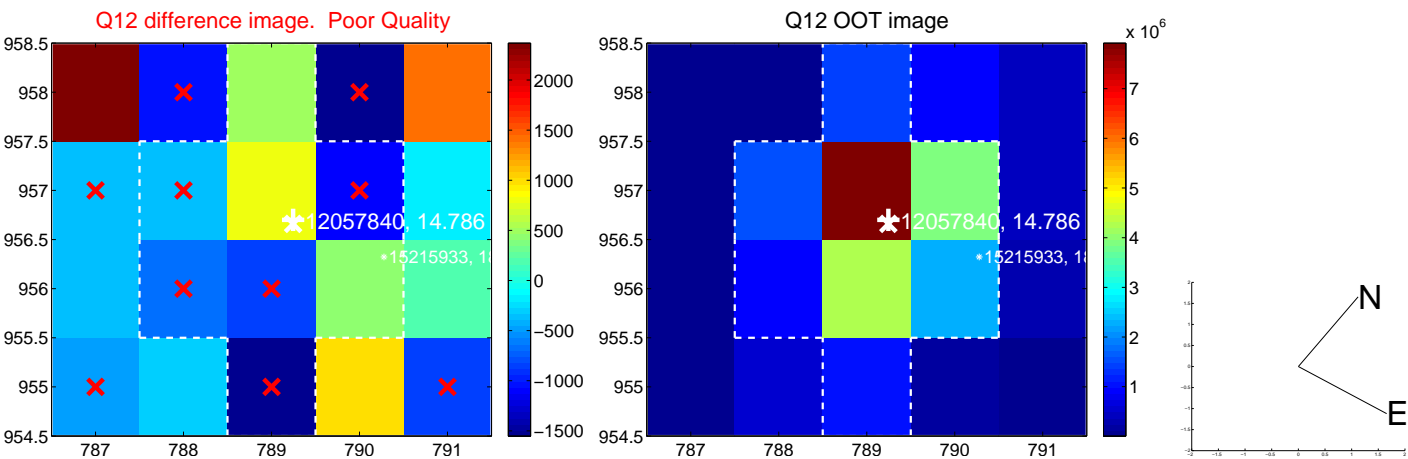
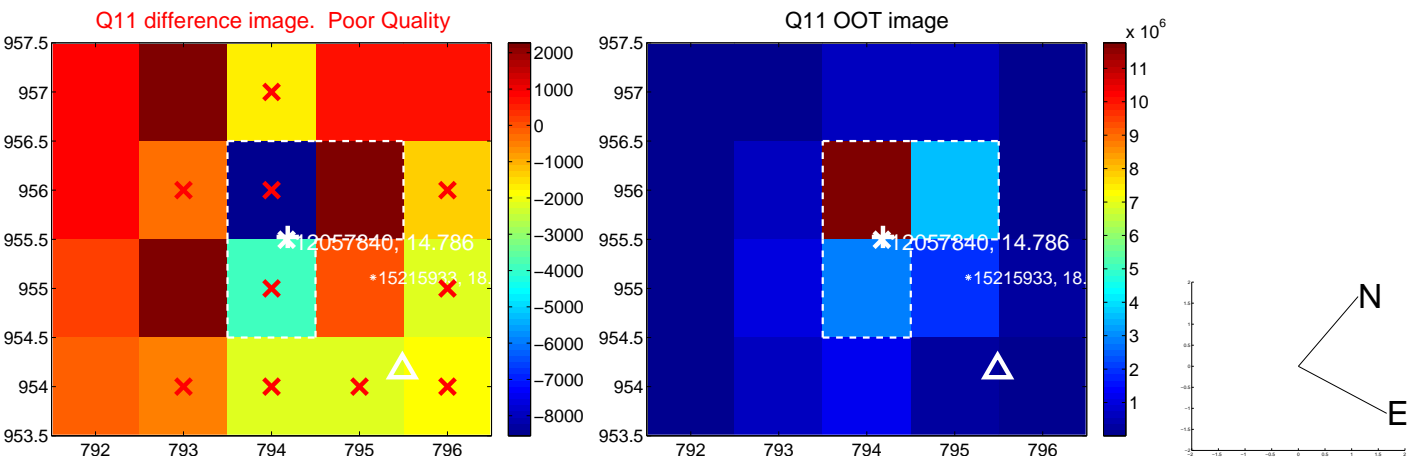
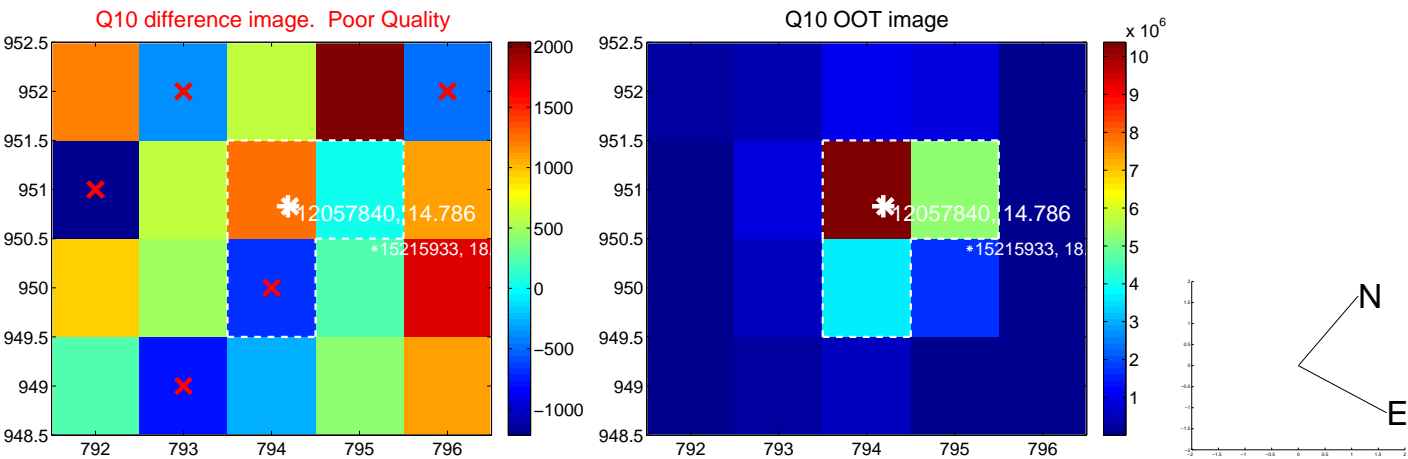
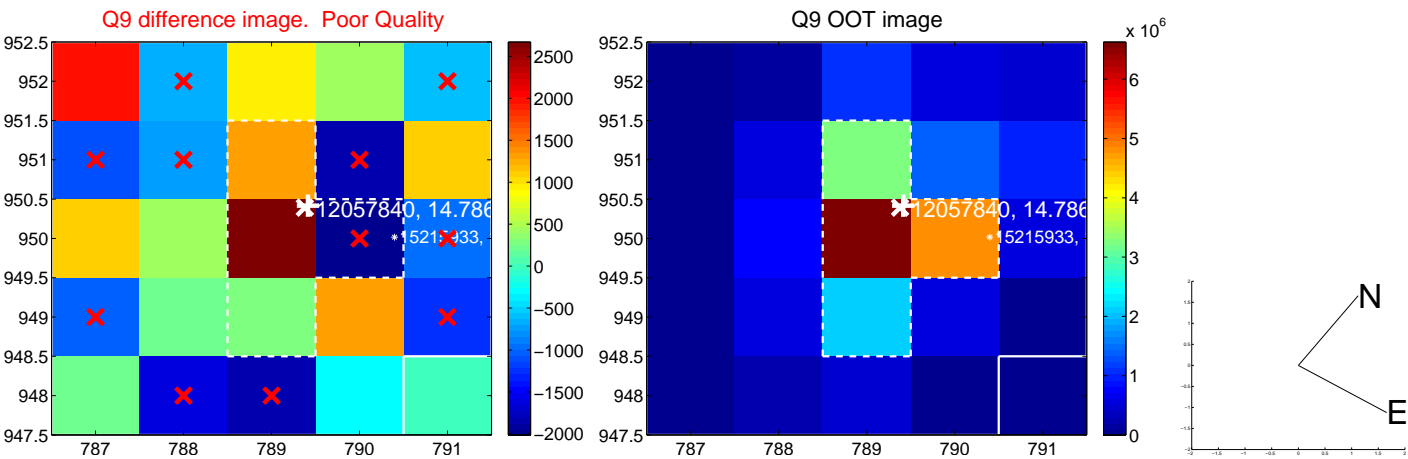
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



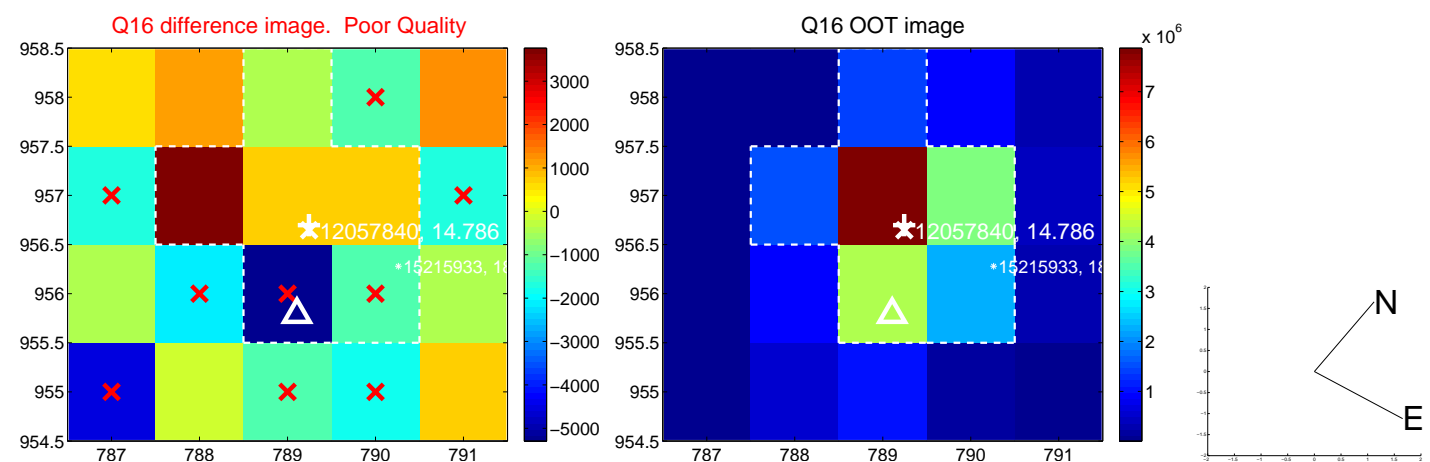
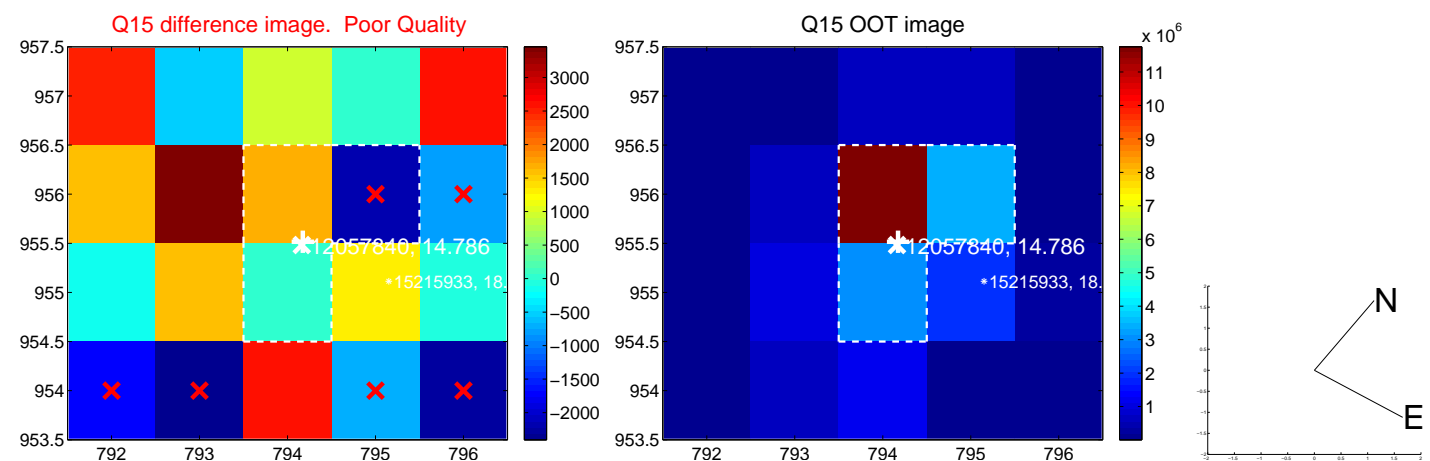
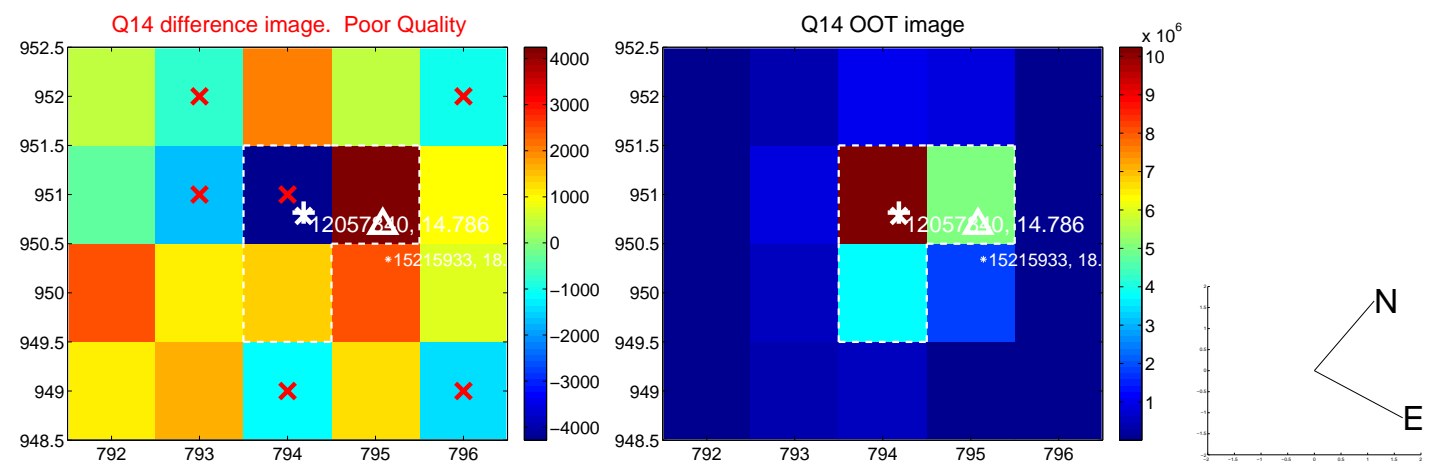
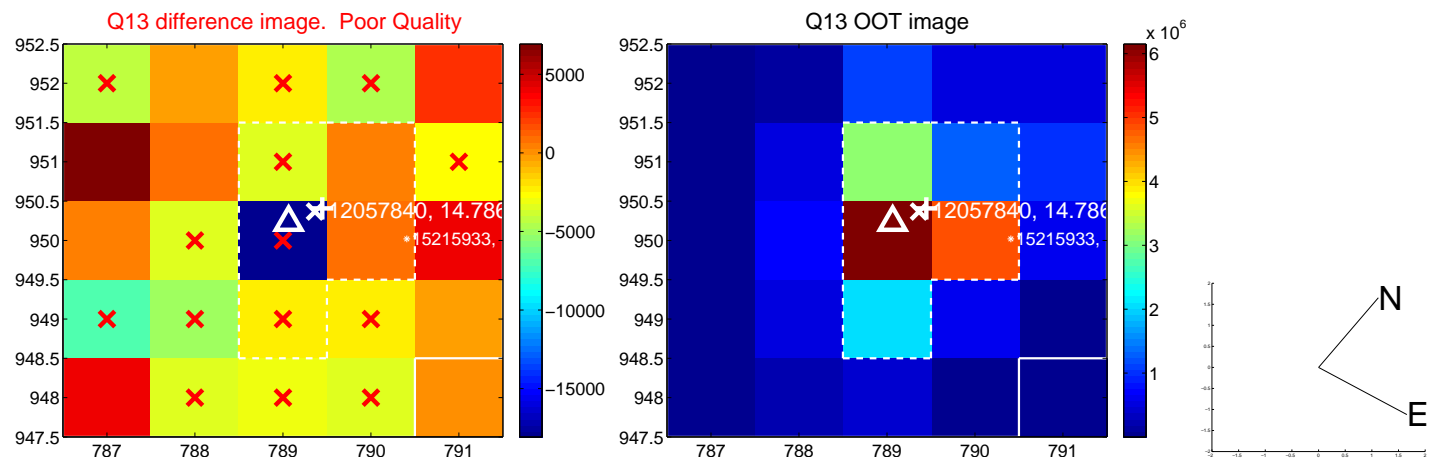
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



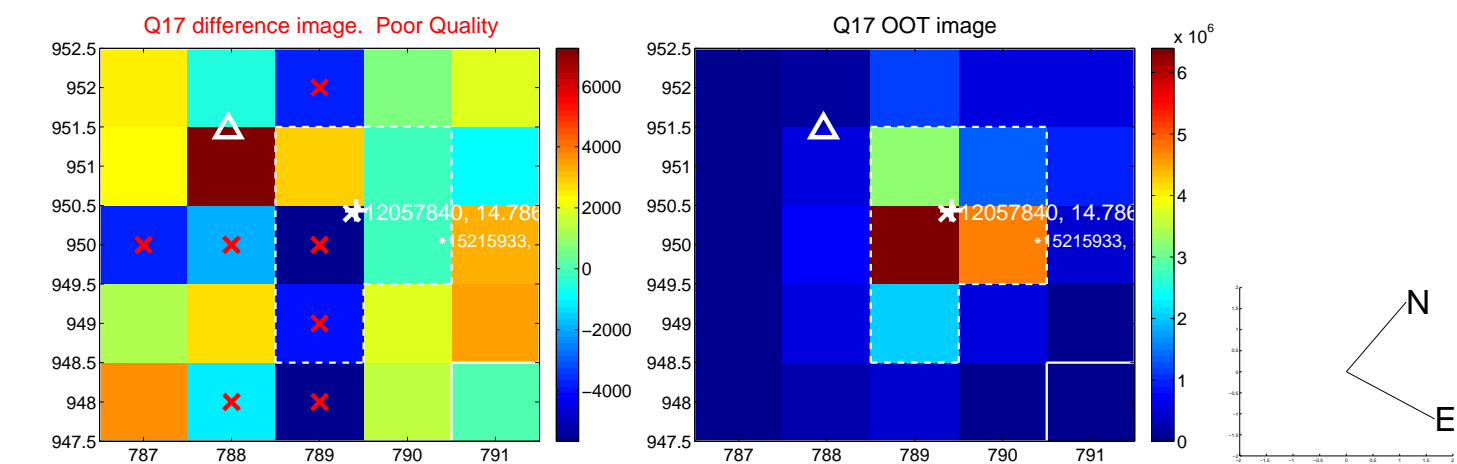
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



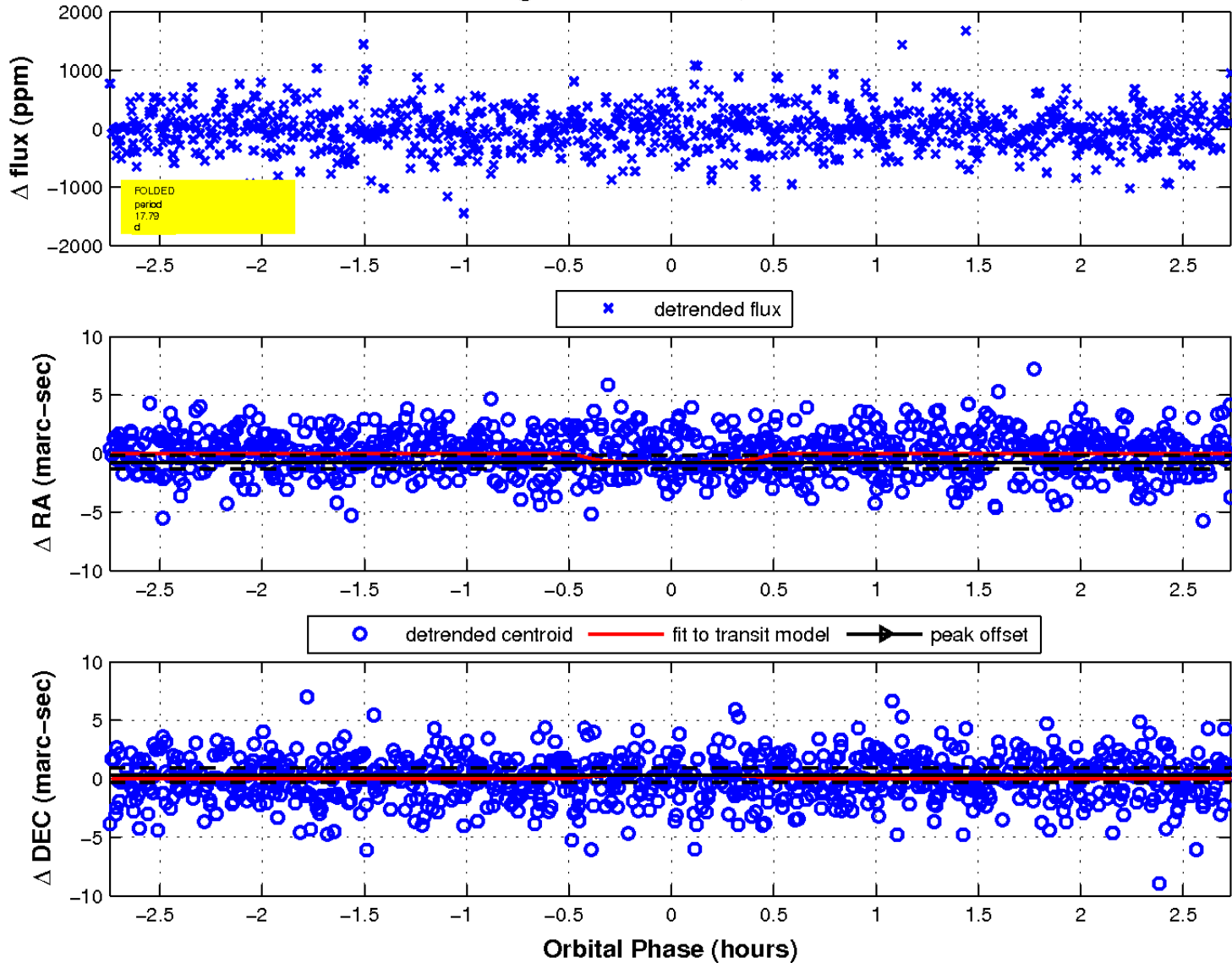
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

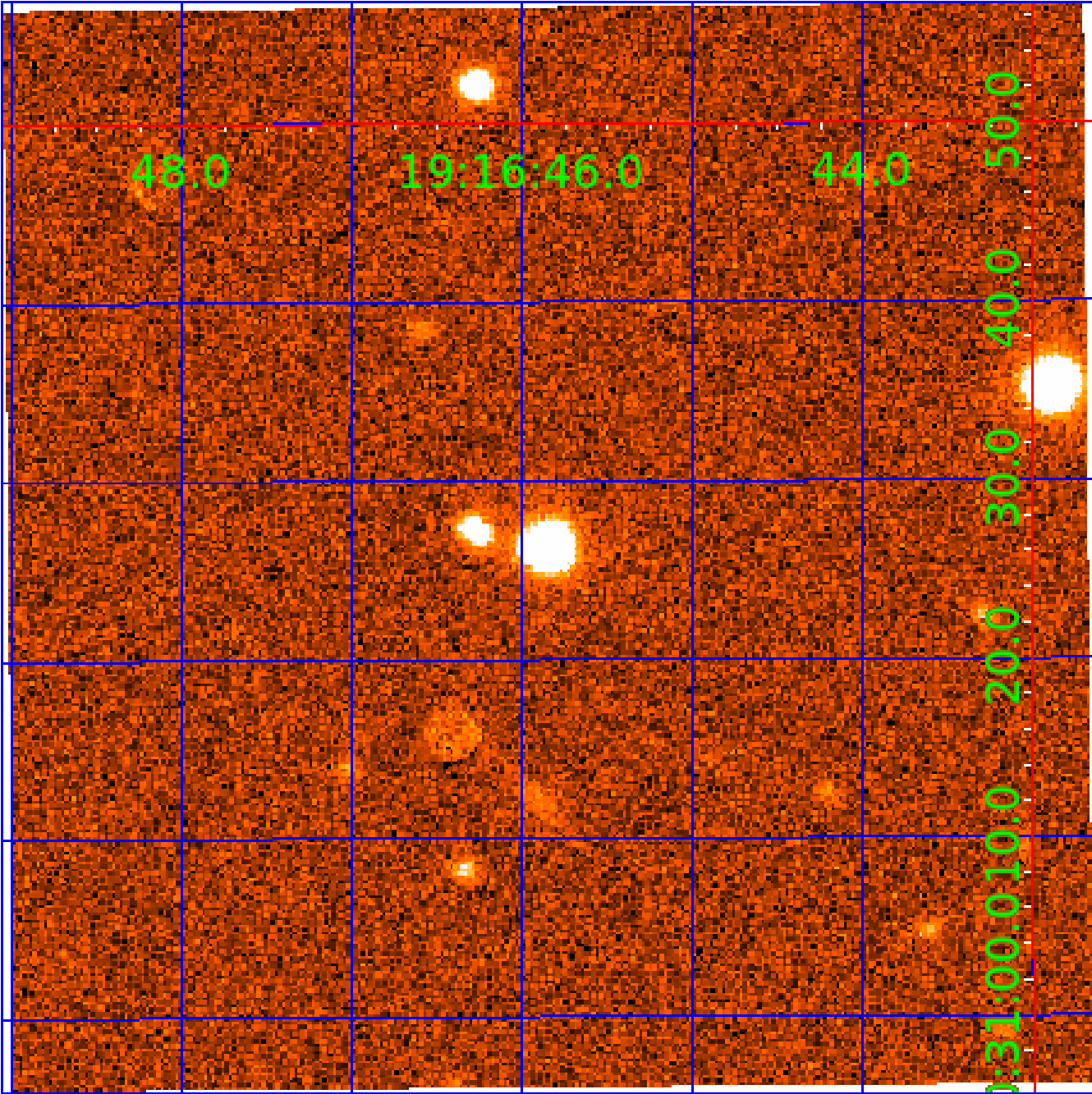


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 012057840

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})
012057840-01	OBS	No	1.227146	132.568105	26.0	9.254	8.3	7.6	1.03	6173	0.53	2806.32
012057840-02	OBS	No	17.785727	146.142795	579.9	0.915	12.9	12.9	1.03	6173	2.59	79.42
012057840-03	OBS	No	21.453834	145.736380	423.8	1.194	11.2	9.2	1.03	6173	2.14	61.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012057840-01	OBS	FP	0.00	1	0	0	0	LPP_DV
012057840-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS— HALO_GHOST
012057840-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_FEW_DIFFS

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

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

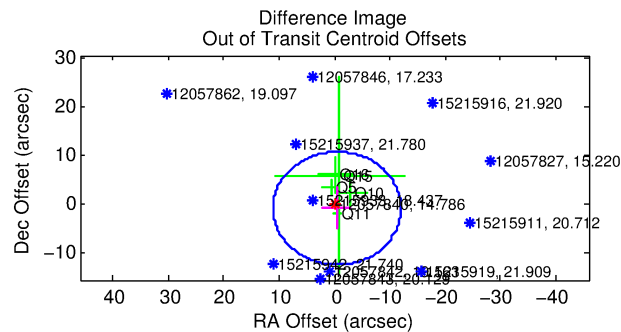
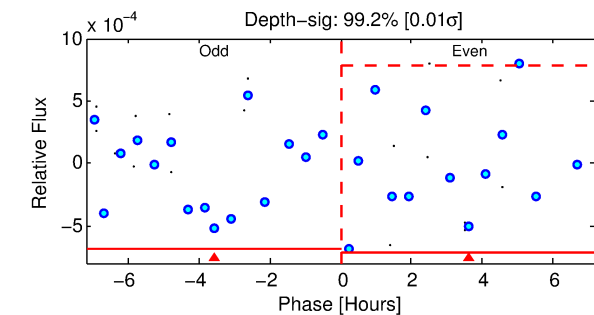
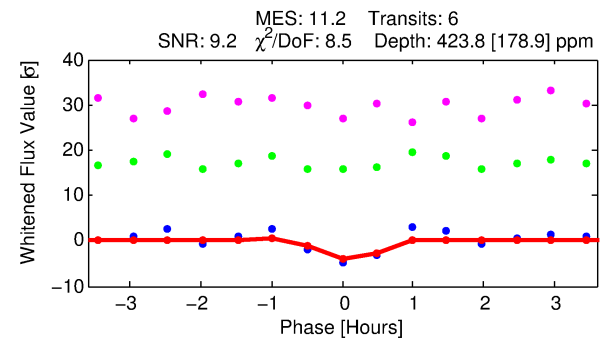
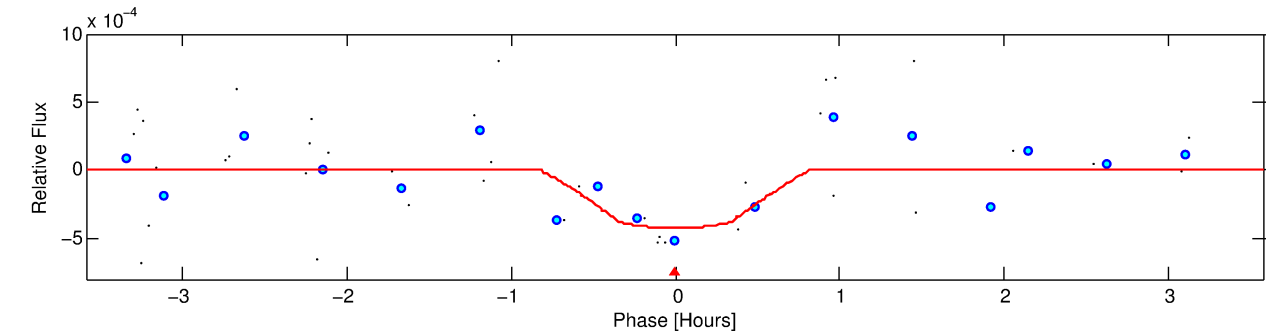
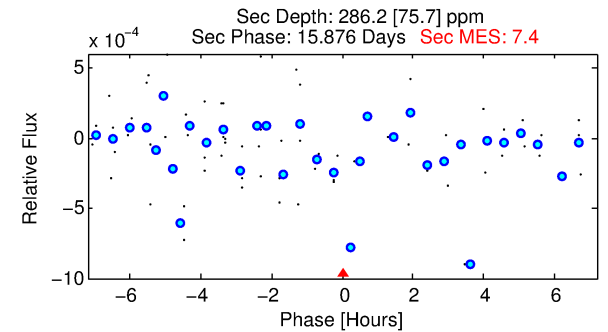
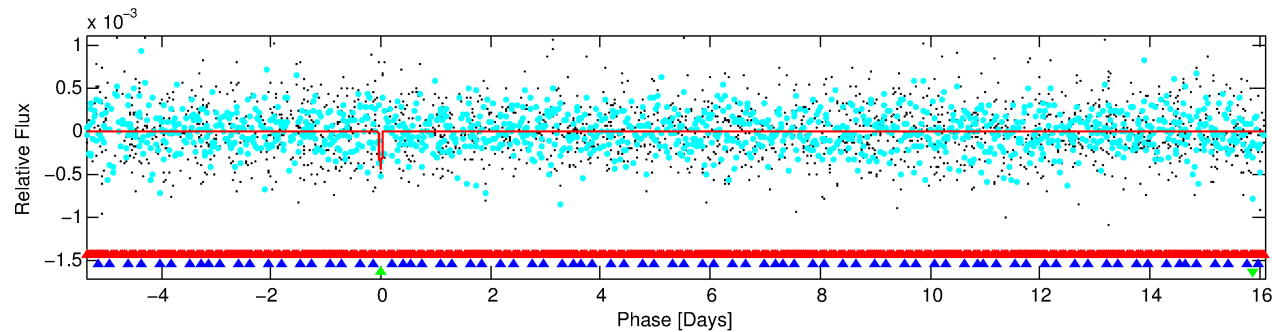
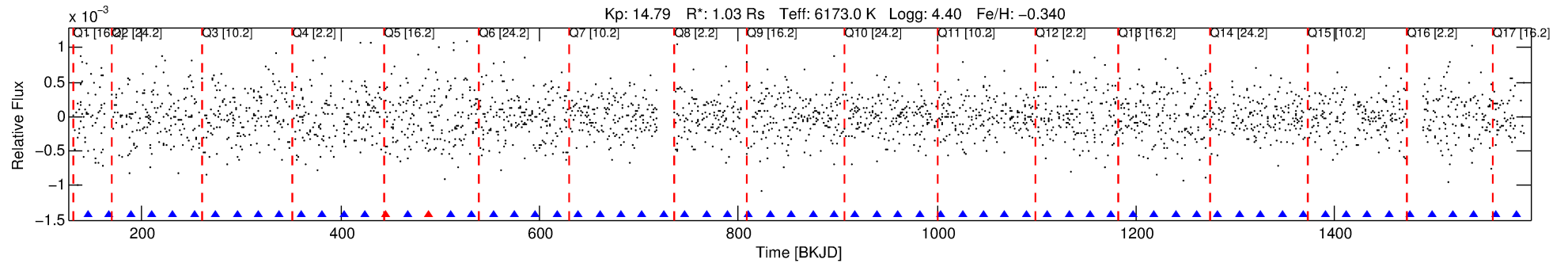
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012057840-03

No Significant Match Found

DV One-Page Summary

KIC: 12057840 Candidate: 3 of 3 Period: 21.454 d



DV Fit Results:

Period = 21.45383 [0.00065] d
Epoch = 145.7364 [0.0222] BKJD
Rp/R* = 0.0190 [0.4949]
a/R* = 139.88 [18098.38]
b = 0.00 [27146.38]
Seff = 61.85 [23.61]
Teff = 715 [68] K
Rp = 2.14 [55.74] Re
a = 0.1497 [0.0369] AU
Ag = 770.26 [40120.50] [0.02 σ]
Teffp = 5824 [75843] K [0.07 σ]

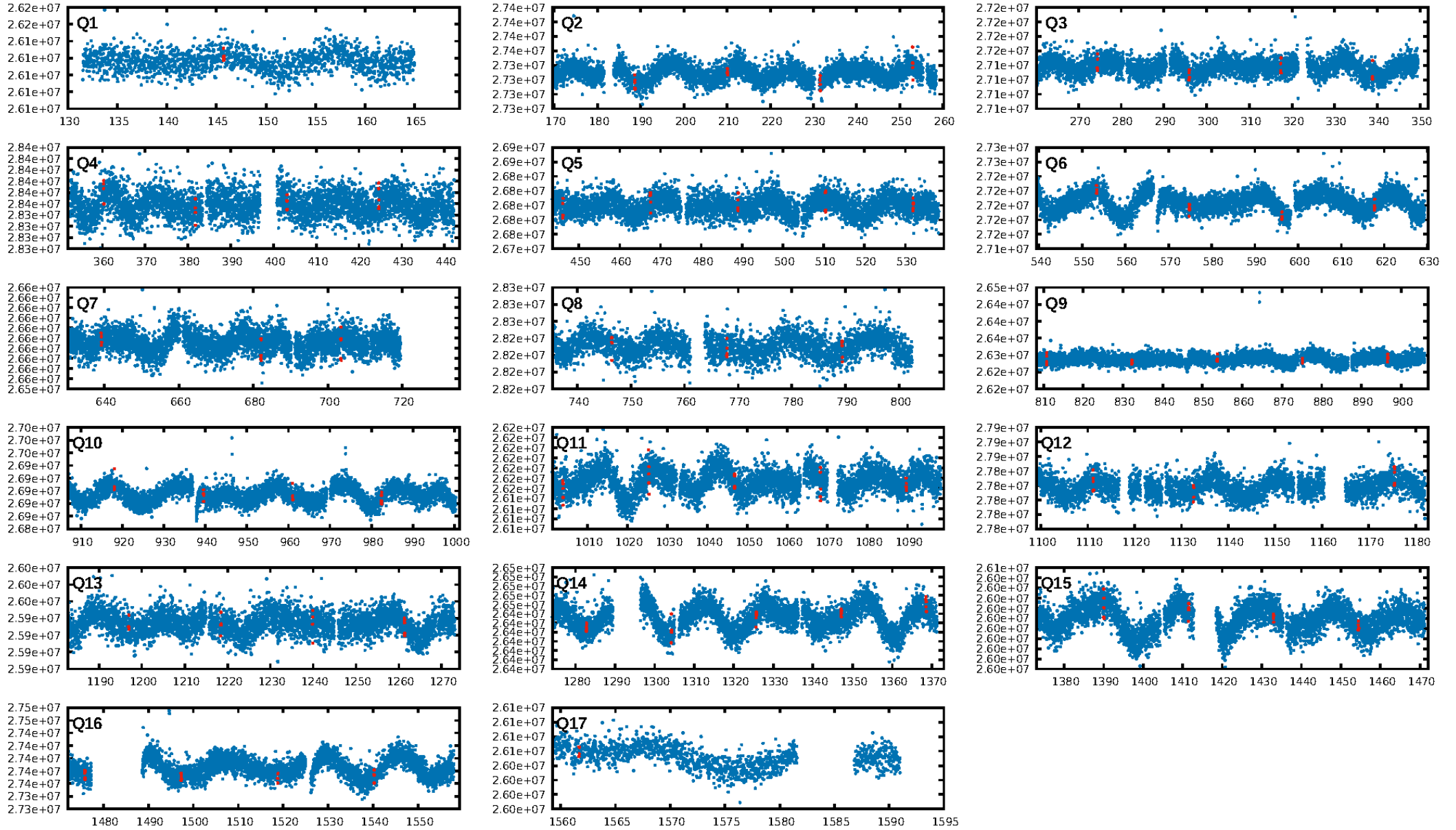
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [58.53 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 29.7%
ModelChiSquareGof-sig: 53.7%
Bootstrap-pfa: 8.24e-11
RollingBand-fgt: 0.67 [4/6]
GhostDiagnostic-chr: -0.2789
Centroid-sig: 30.7%
Centroid-so: 1.130 arcsec [0.94 σ]
OotOffset-rm: 0.949 arcsec [0.25 σ]
OotOffset-st: 1/2/1/1 [5]
KicOffset-rm: 0.948 arcsec [0.26 σ]
KicOffset-st: 1/2/1/1 [5]
DiffImageQuality-fgm: 0.20 [1/5]
DiffImageOverlap-fno: 0.65 [11/17]

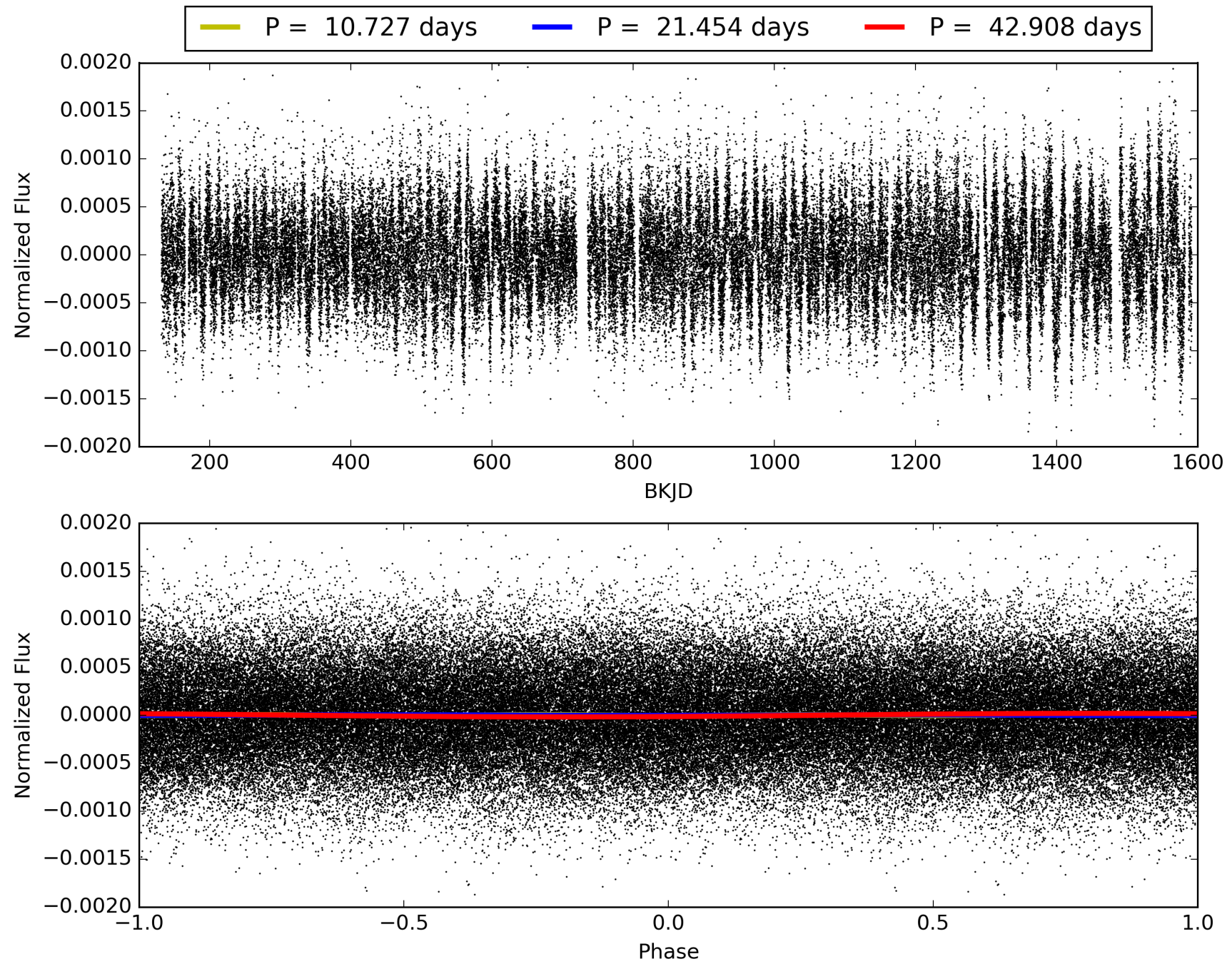
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:15:28 Z

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

TCE 012057840-03, PDC Light Curves

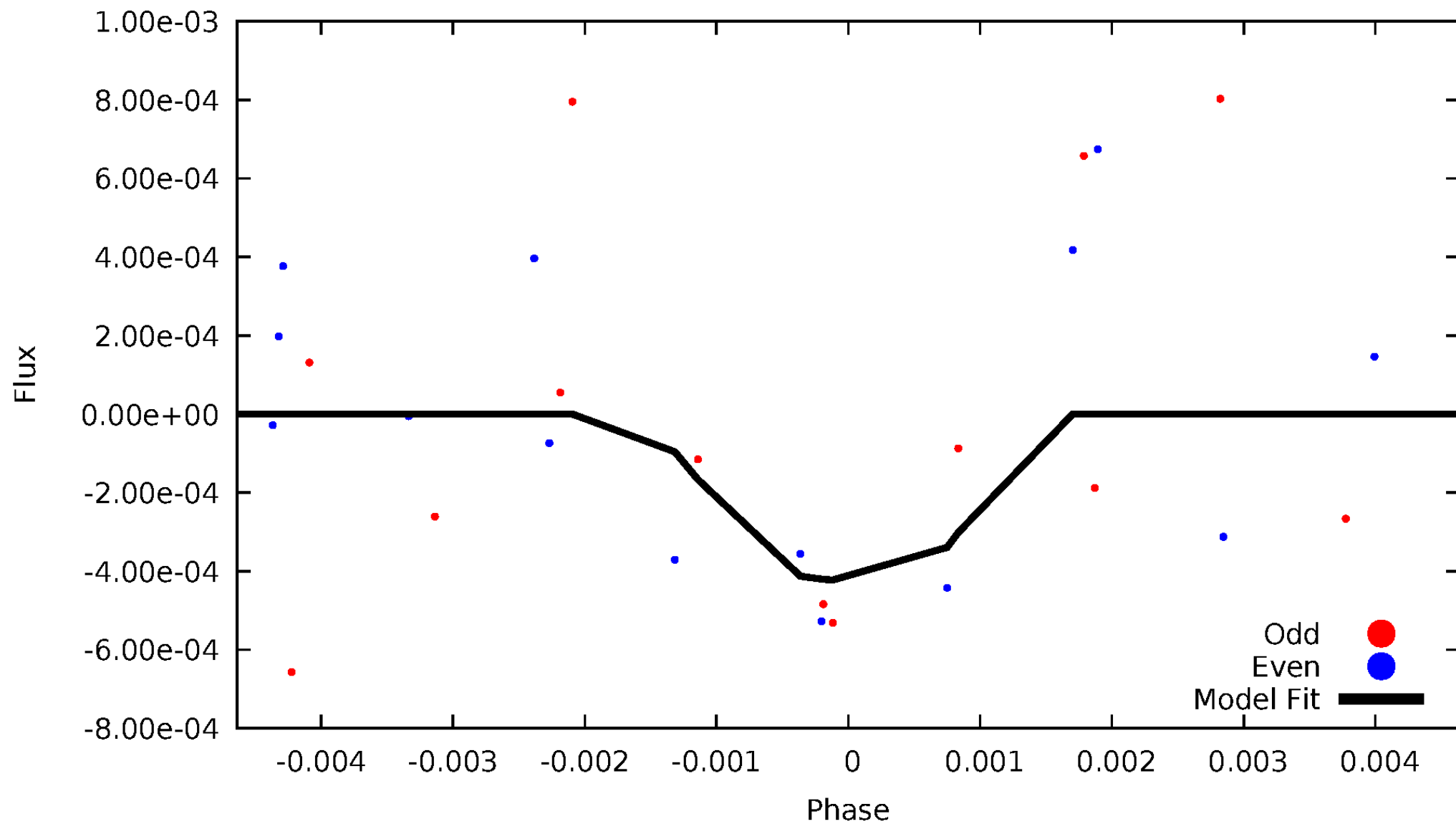


TCE 012057840-03



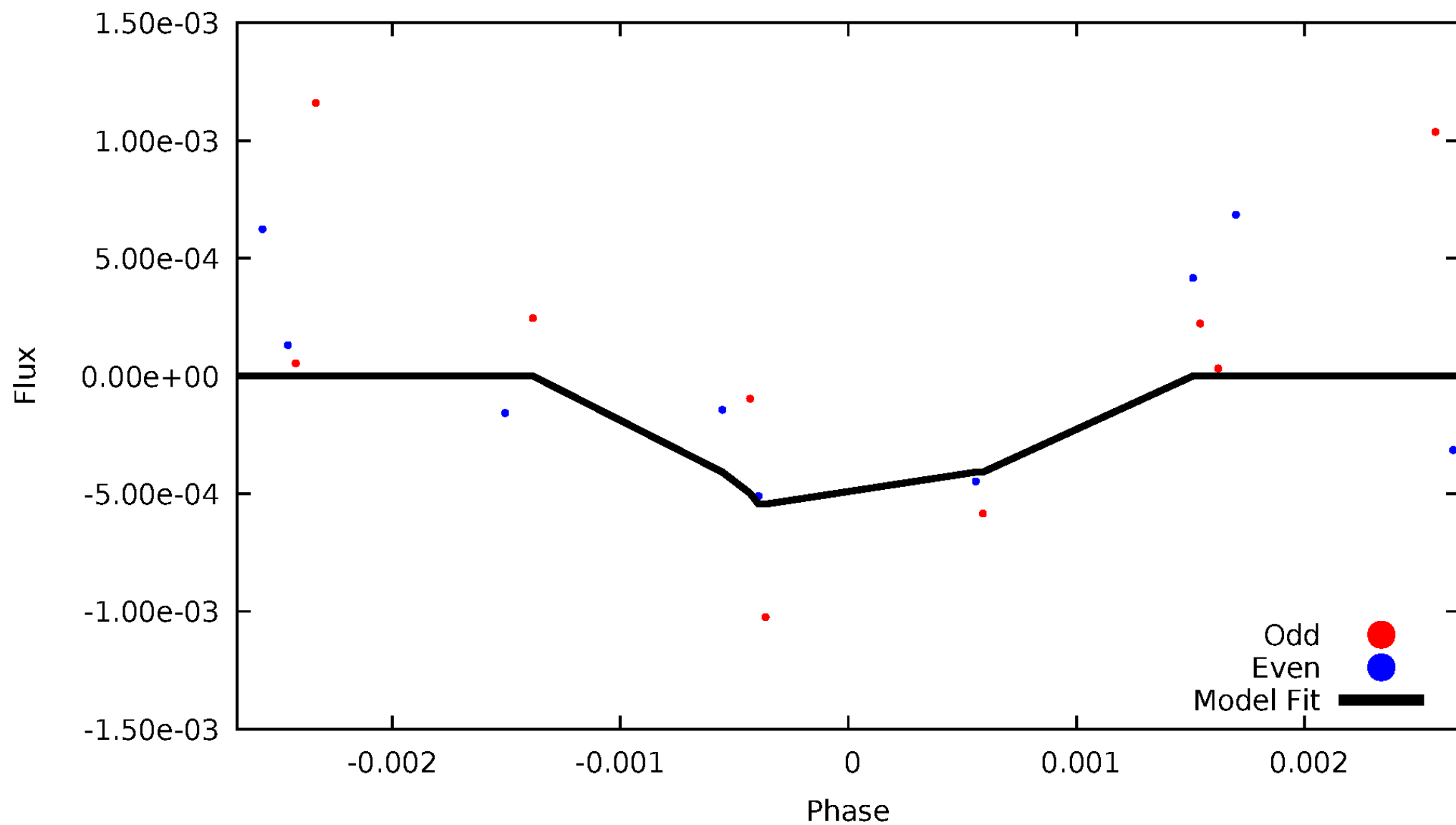
DV Odd/Even

TCE 012057840-03



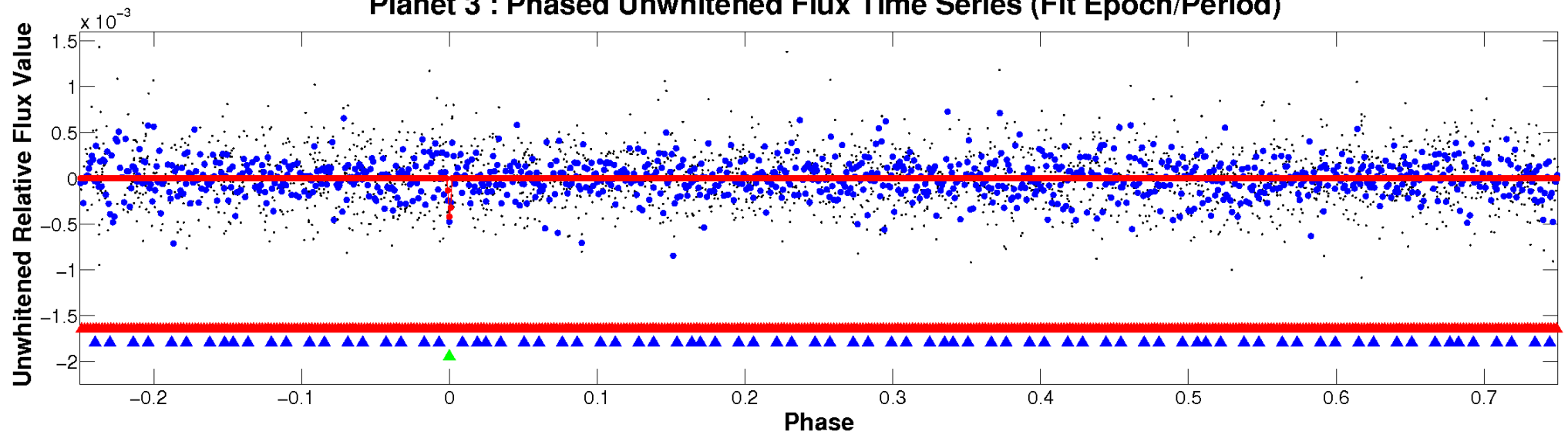
ALT Odd/Even

TCE 012057840-03

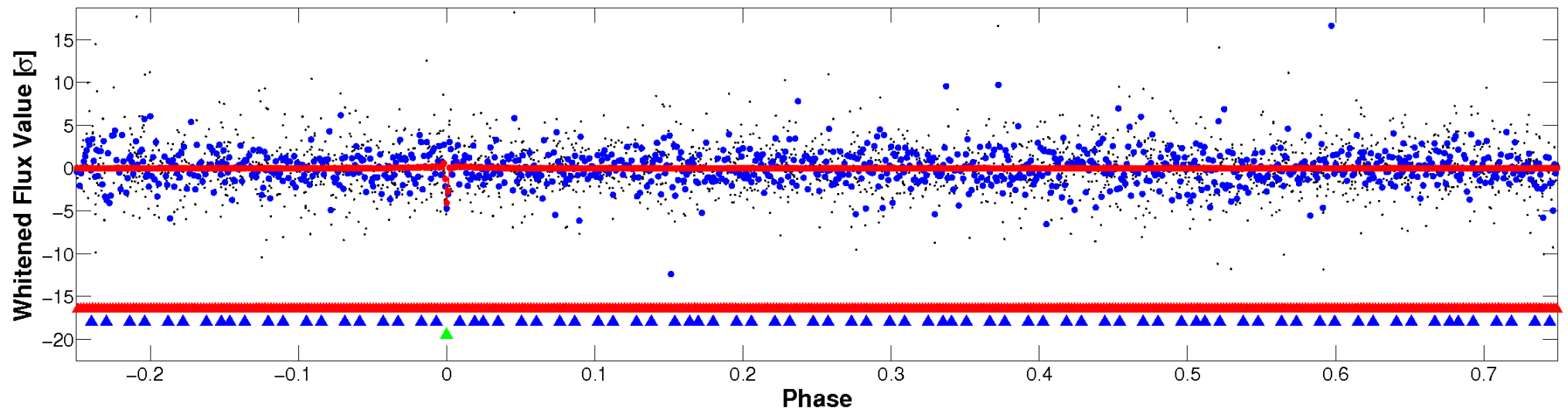


Non-Whitened Vs. Whitened Light Curve

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

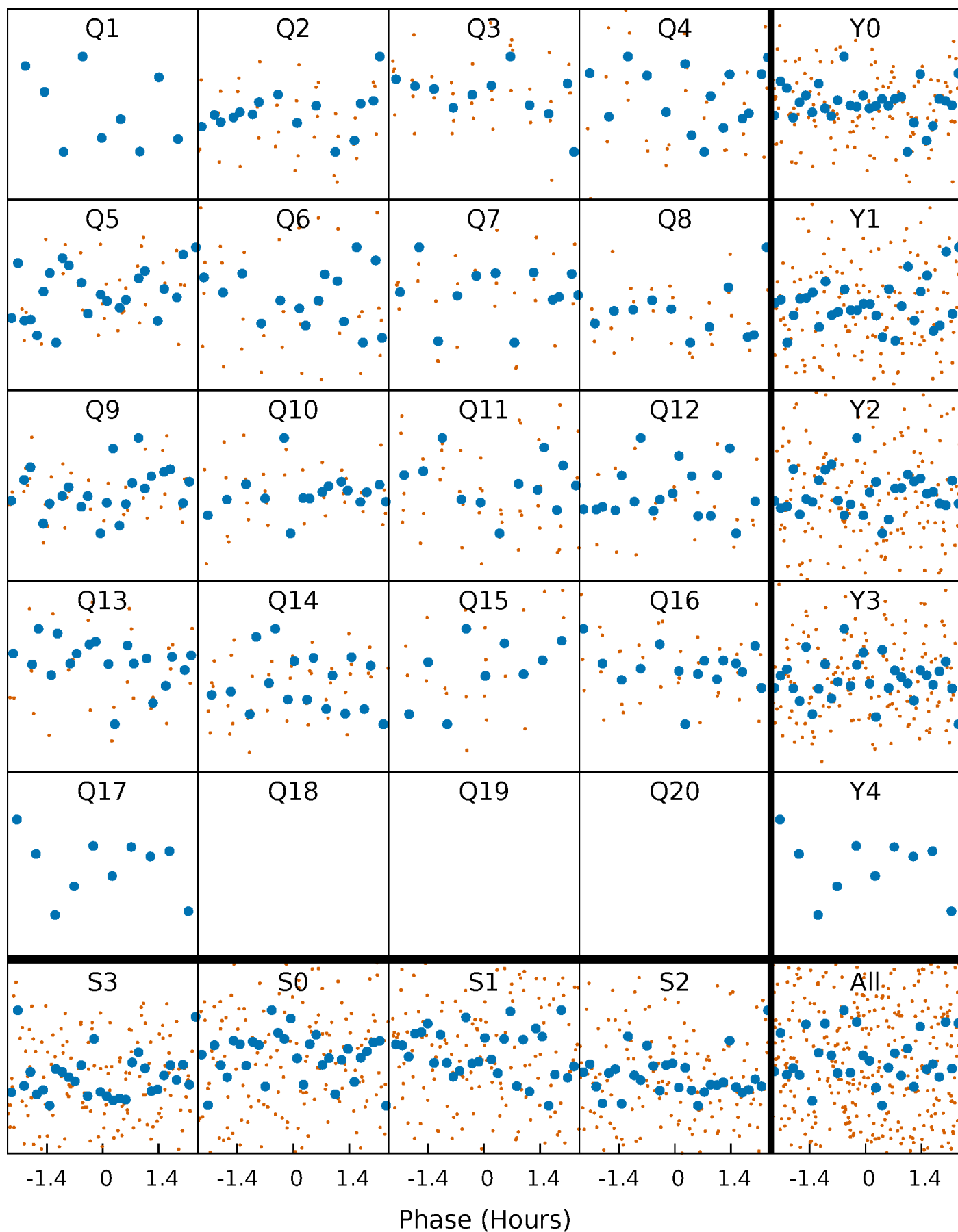


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



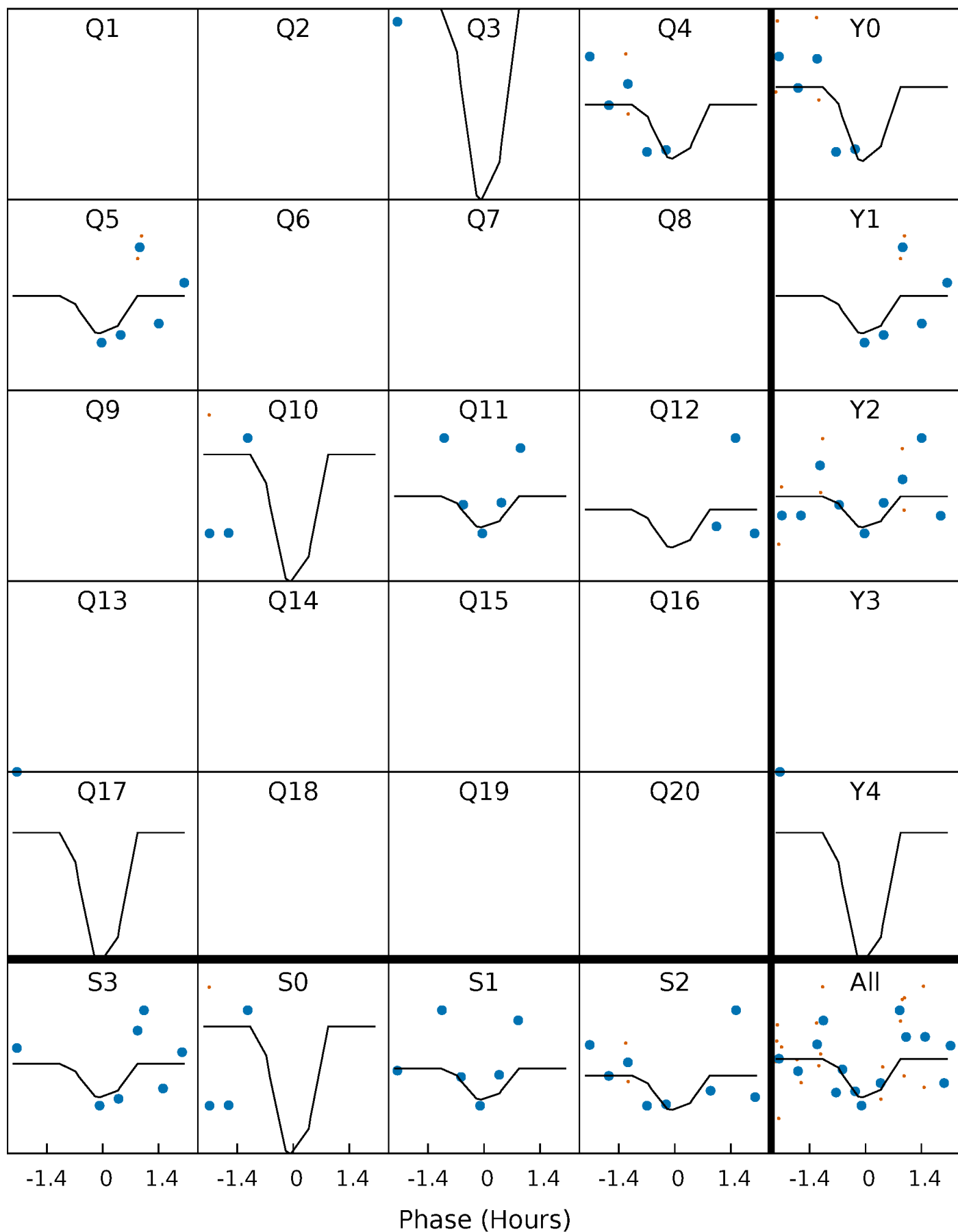
PDC Quarter-Phased Transit Curves

TCE 012057840-03 P= 21.453834 Days $T_0=145.736380$ (BKJD)



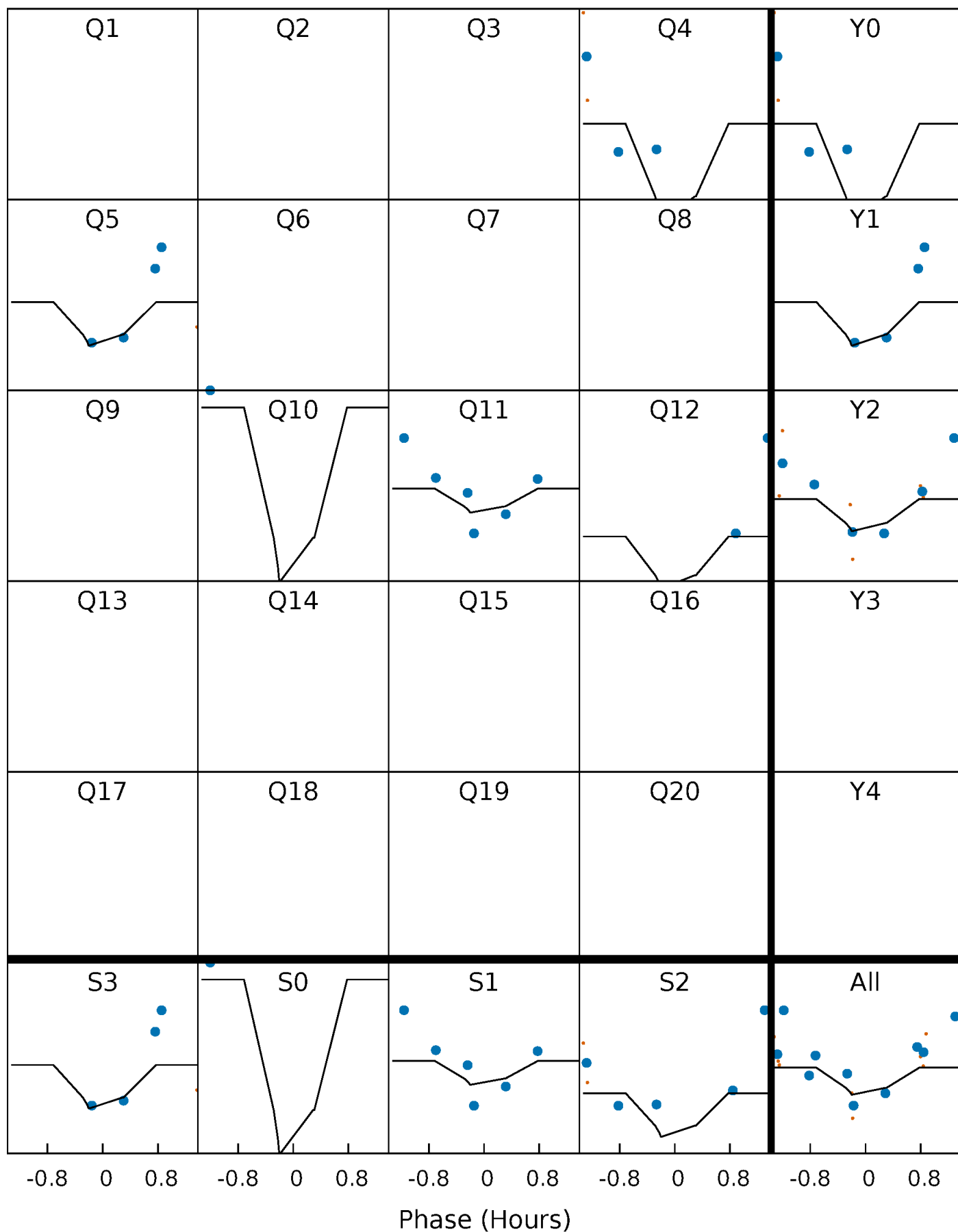
DV Quarter-Phased Transit Curves

TCE 012057840-03 P= 21.453834 Days $T_0=145.736380$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

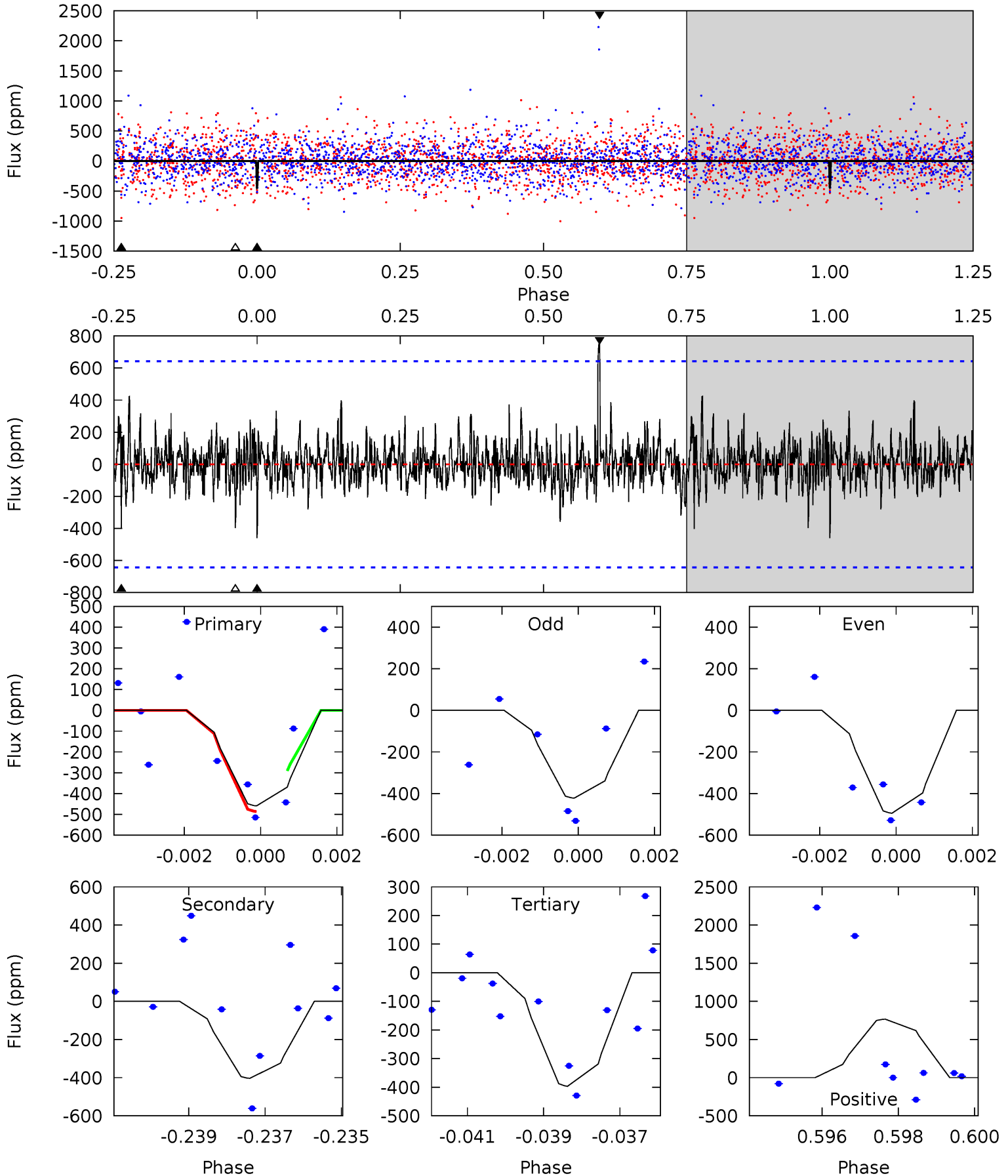
TCE 012057840-03 P= 21.453873 Days $T_0=145.739939$ (BKJD)



DV Model-Shift Uniqueness Test

012057840-03, P = 21.453834 Days, E = 124.282546 Days

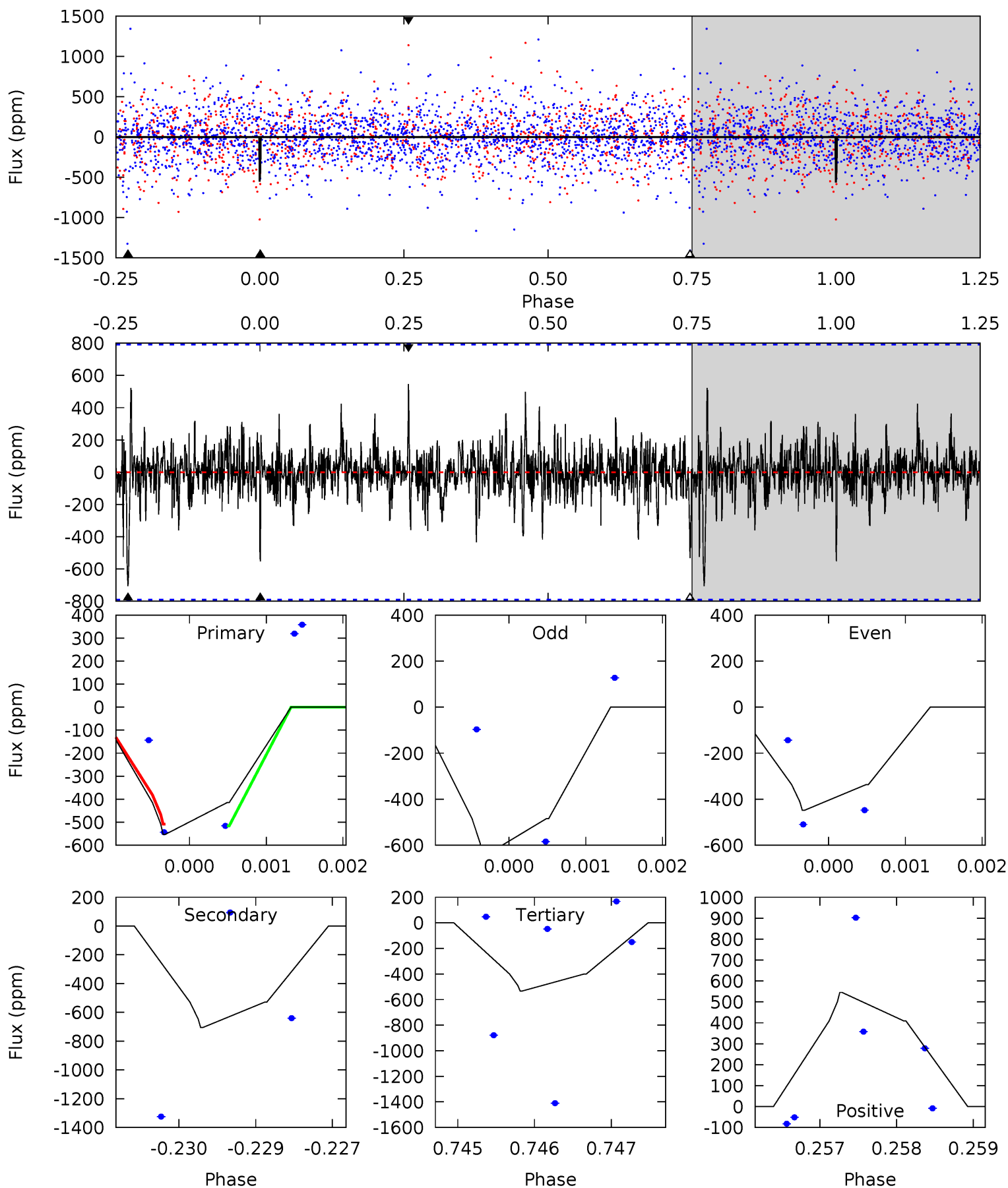
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.80	3.34	3.28	6.34	5.31	3.07	0.94	0.52	-2.54	0.06	-3.01	0.32	1.02	0.63	0.64



Alt Model-Shift Uniqueness Test

012057840-03, P = 21.453873 Days, E = 124.286066 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.79	4.84	3.66	3.74	5.43	3.25	0.83	0.14	0.05	1.18	1.10	0.67	1.00	0.44	0.02



Stellar Parameters For KIC 012057840

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6173^{+169}_{-206}	$4.398^{+0.105}_{-0.195}$	$-0.340^{+0.300}_{-0.300}$	$1.032^{+0.303}_{-0.163}$	$0.970^{+0.136}_{-0.111}$	$1.244^{+0.584}_{-0.634}$
	+3%/-3%	+2%/-4%	+88%/-88%	+29%/-16%	+14%/-11%	+47%/-51%
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 012057840-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-404 ± 121	$39.95^{+43.66}_{-27.40}$	1008^{+74}_{-55}	2348^{+920}_{-459}	$3.104^{+28.339}_{-2.484}$
Alt.	-706 ± 146	$38.03^{+45.17}_{-27.37}$	1009^{+77}_{-58}	2545^{+1187}_{-454}	$5.702^{+66.906}_{-4.456}$

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

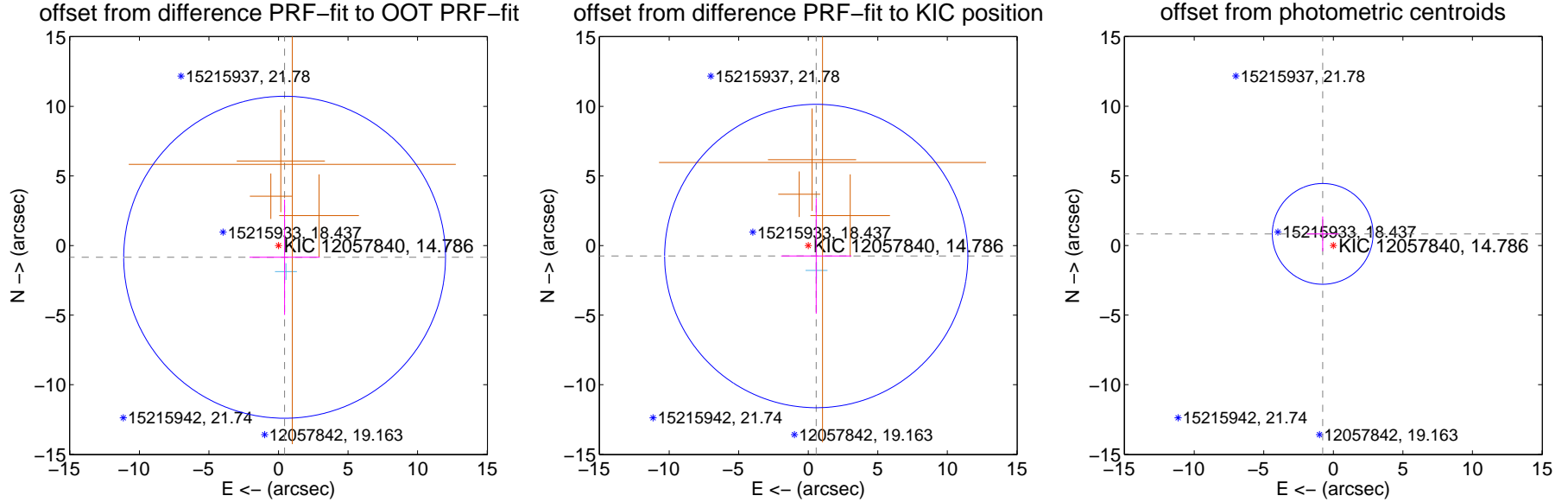
DV Centroid Data

Supplemental centroid analysis for 012057840-03. Kepler magnitude: 14.79. Transit SNR 9.22

There are 1 quarters with good PRF difference image offsets

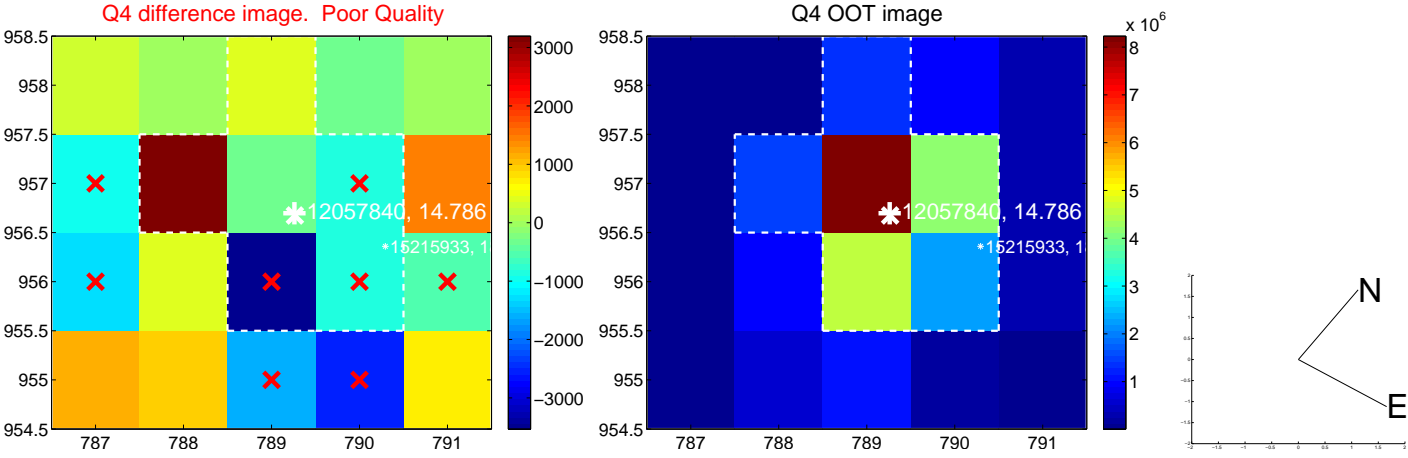
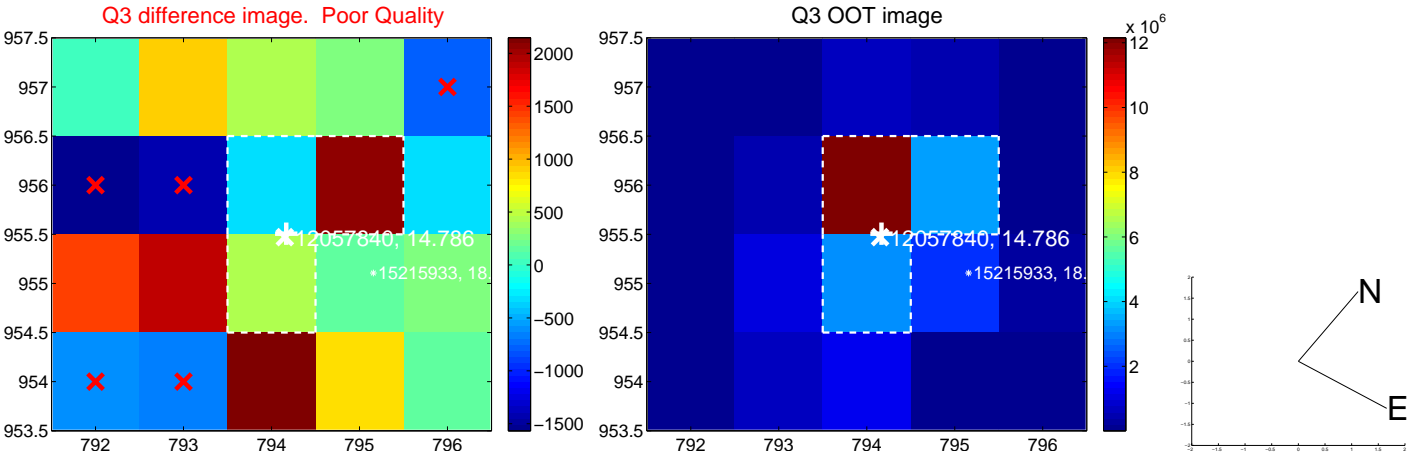
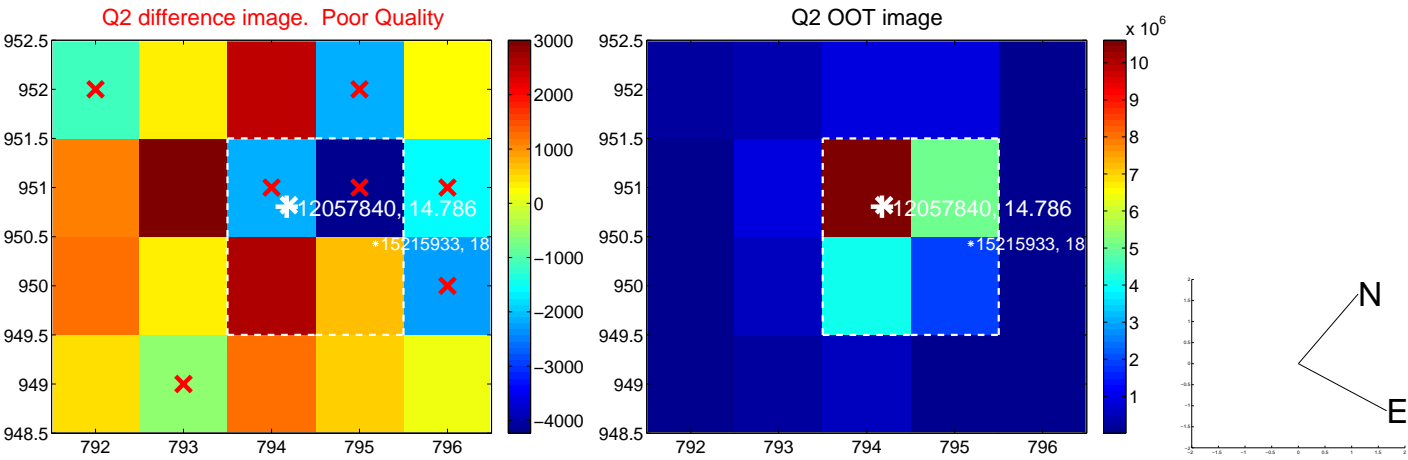
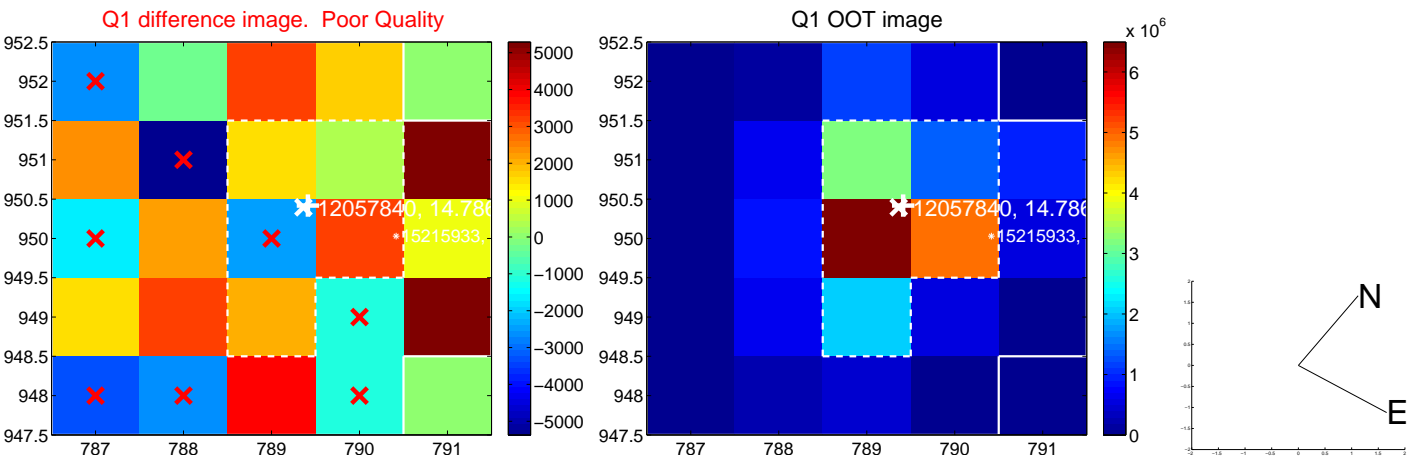
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.949 ± 3.855	0.25	-0.440 ± 2.526	-0.841 ± 4.145
PRF-fit source offset from KIC position	0.948 ± 3.633	0.26	-0.576 ± 2.526	-0.753 ± 4.145
photometric centroid source offset	1.13 ± 1.21	0.94	0.76 ± 1.15	0.83 ± 1.25

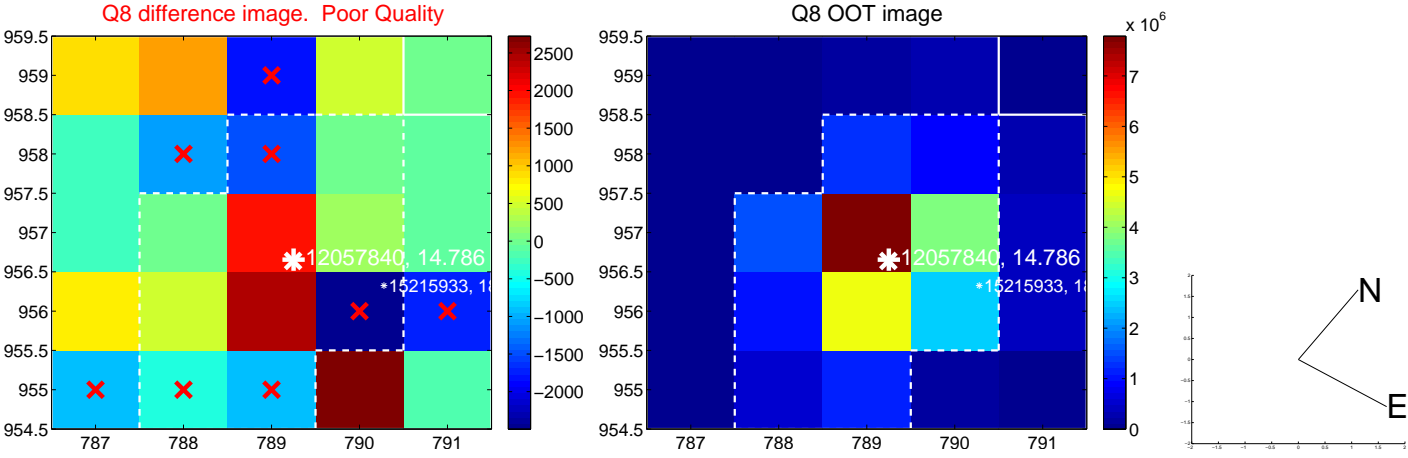
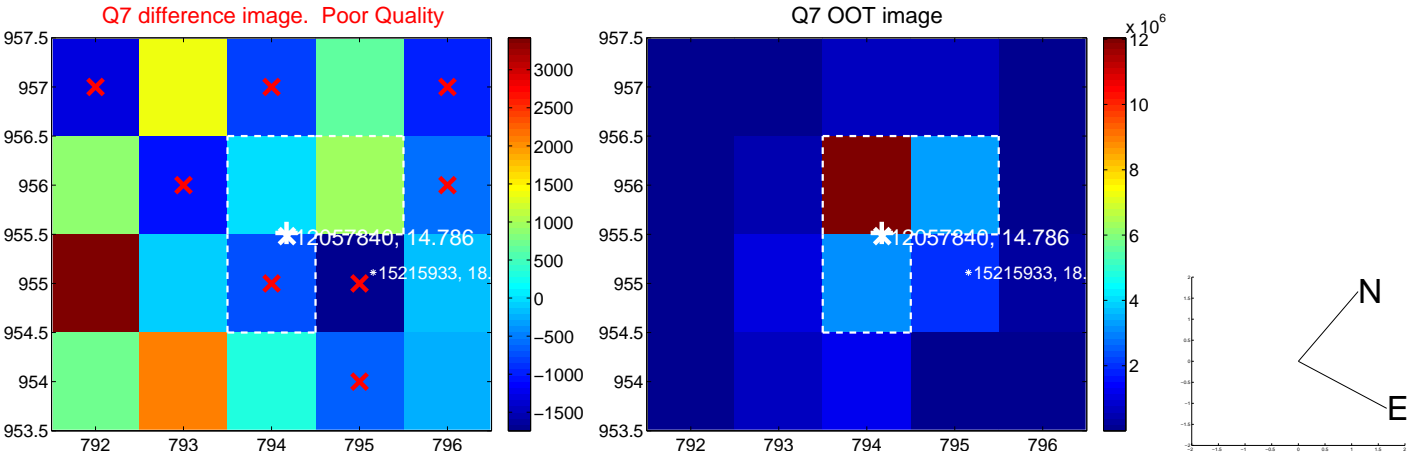
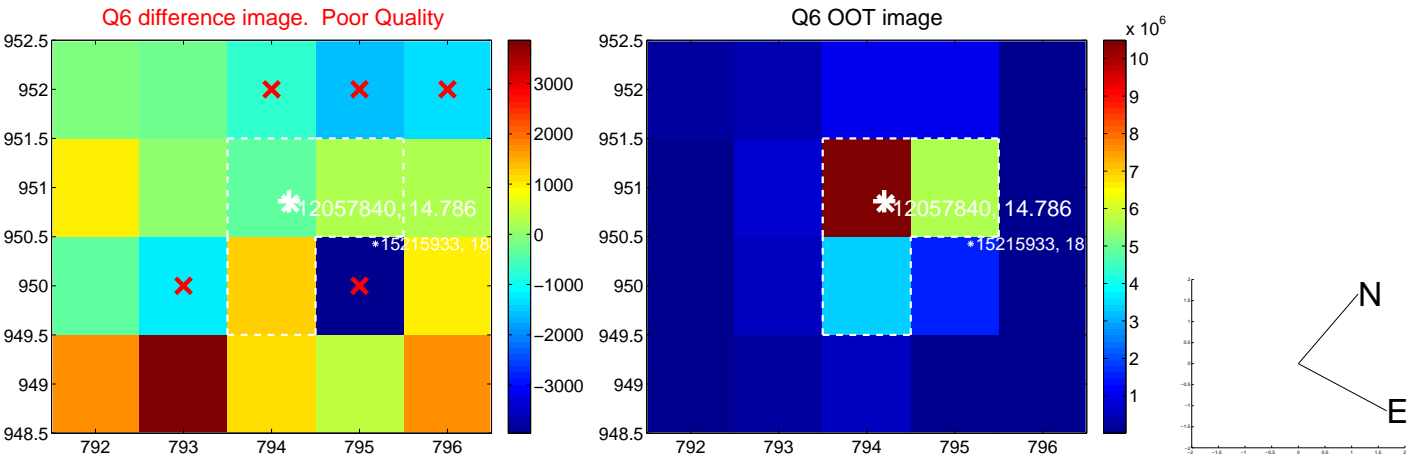
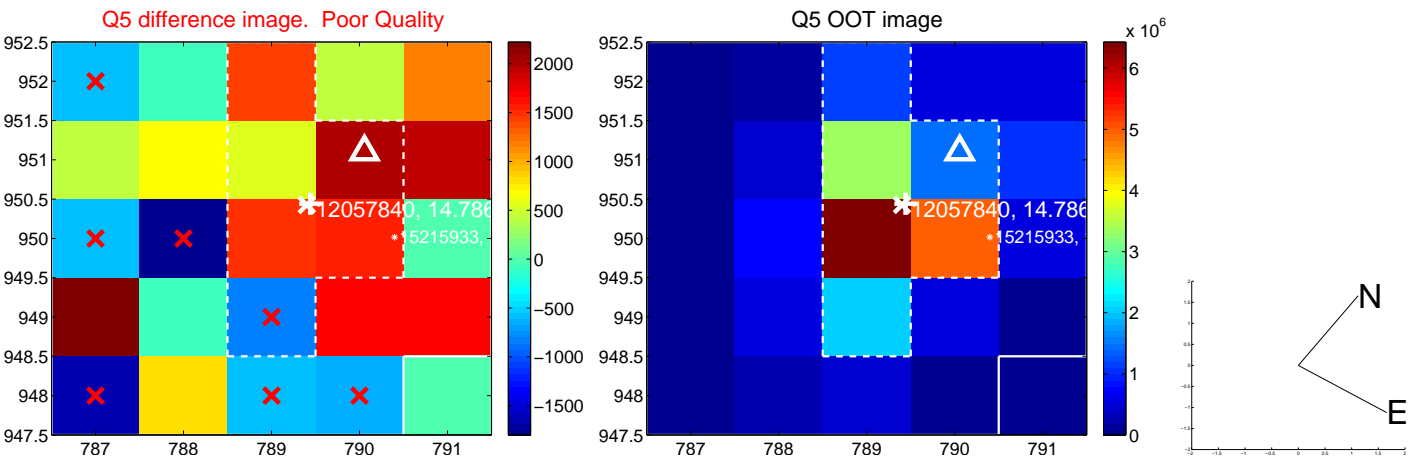


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

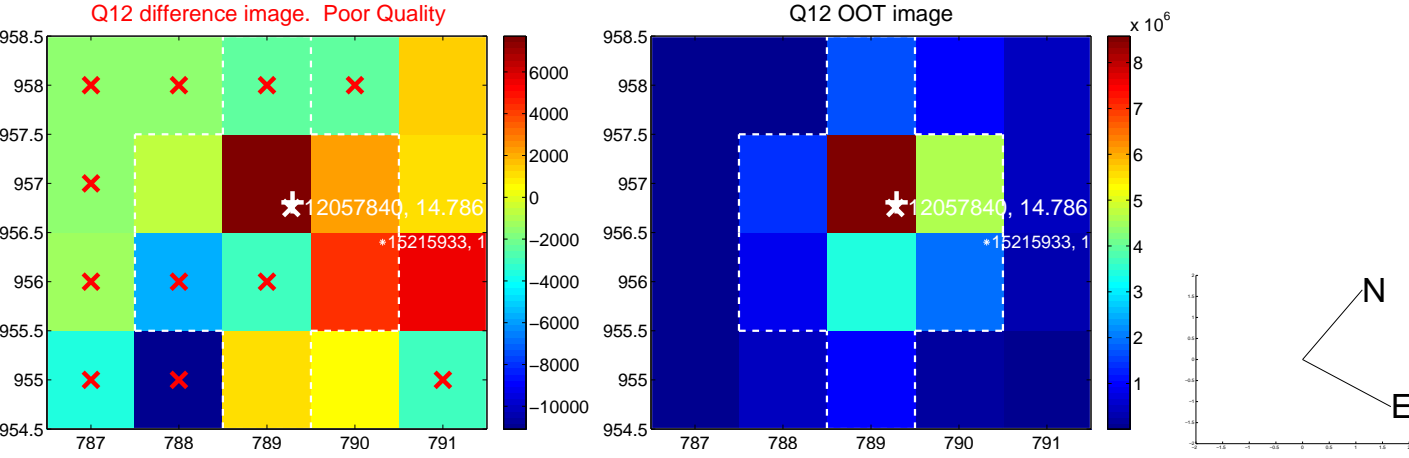
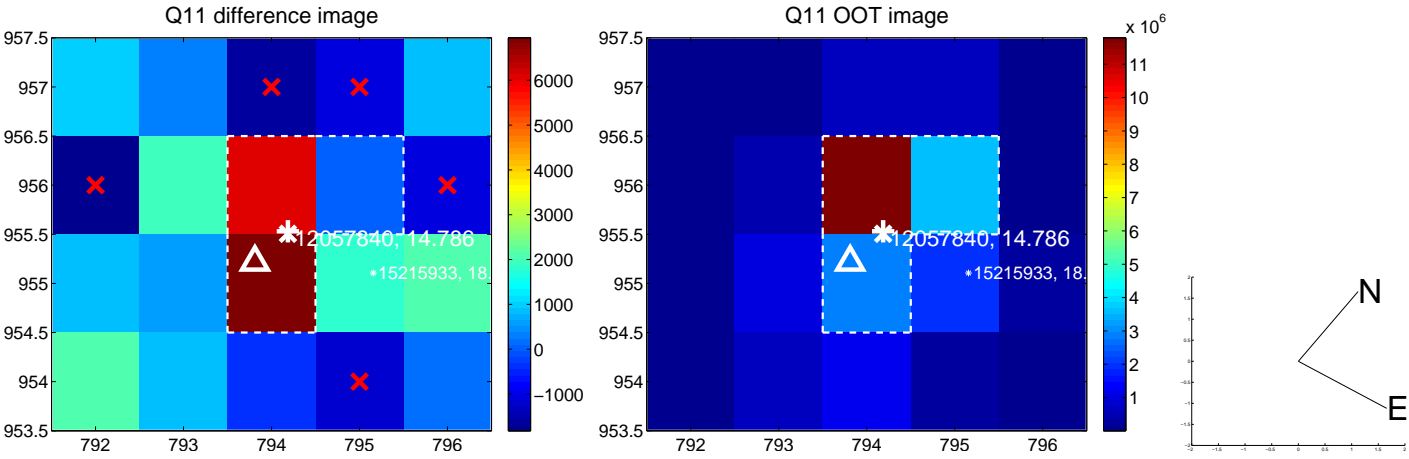
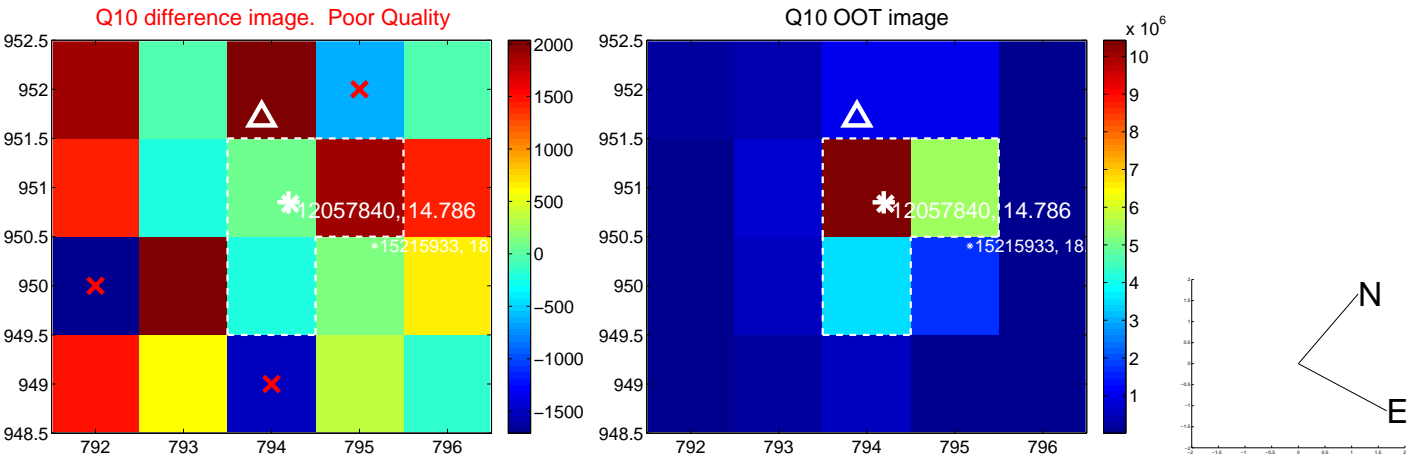
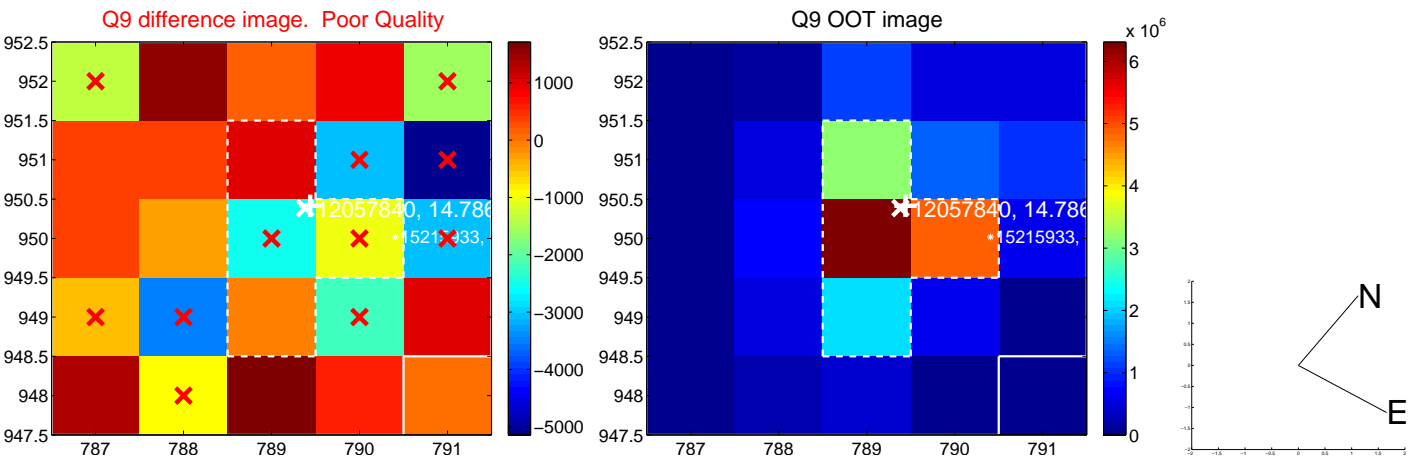
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



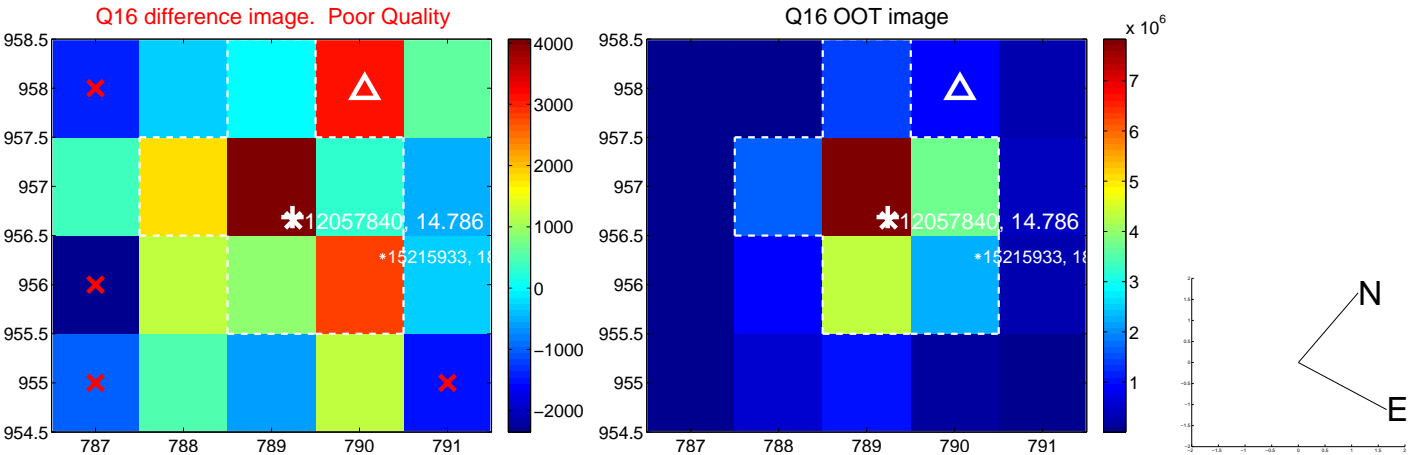
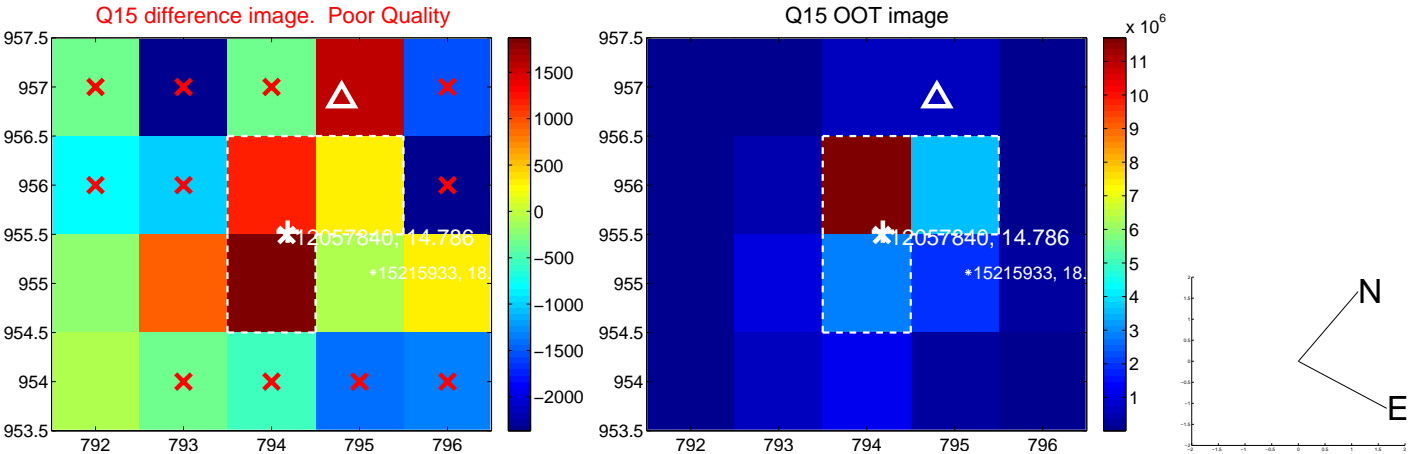
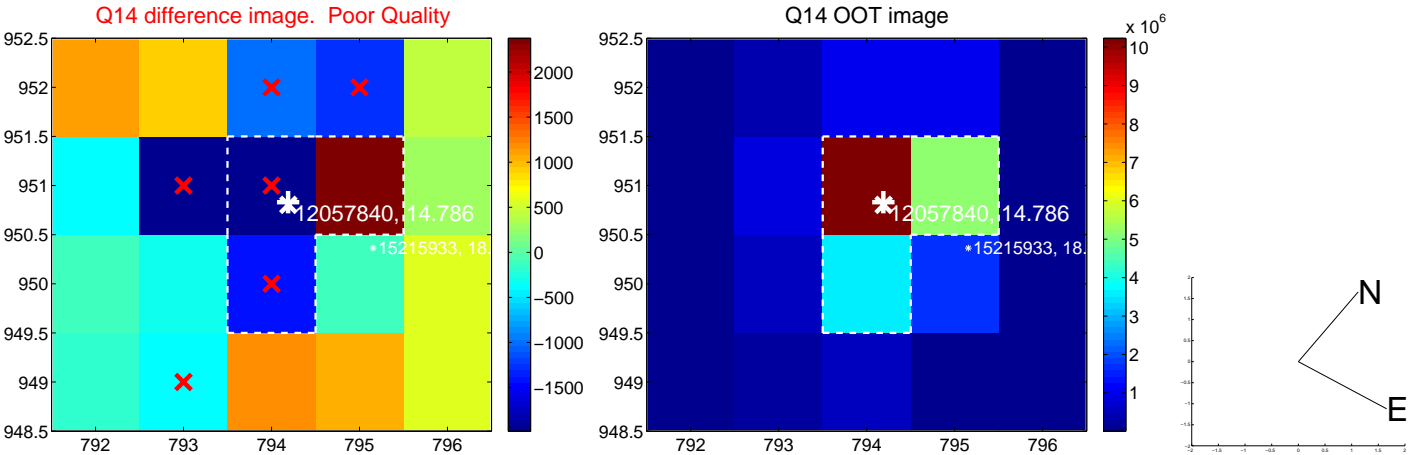
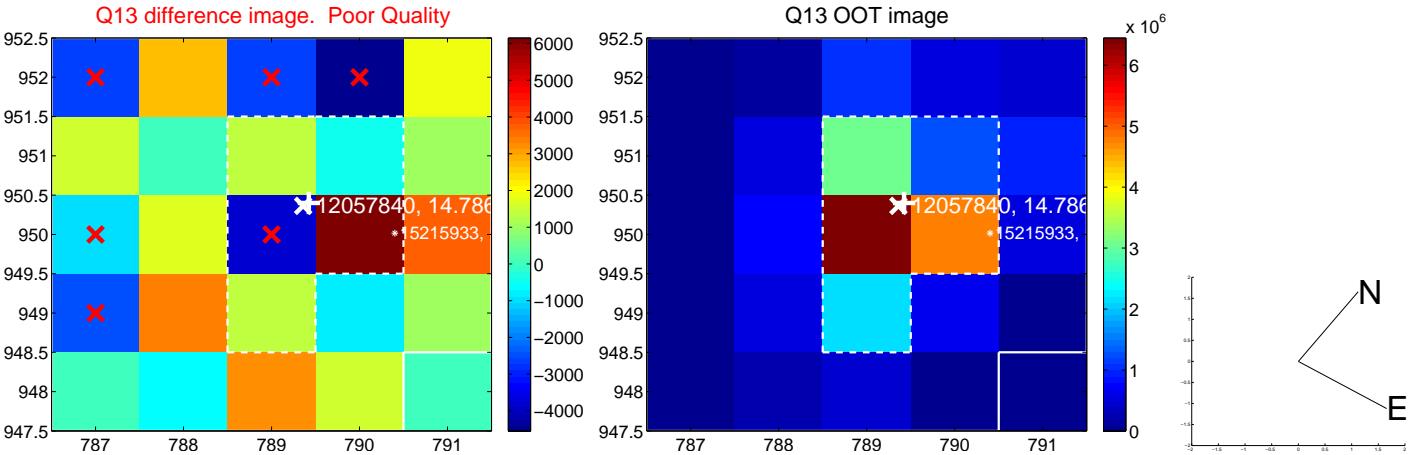
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



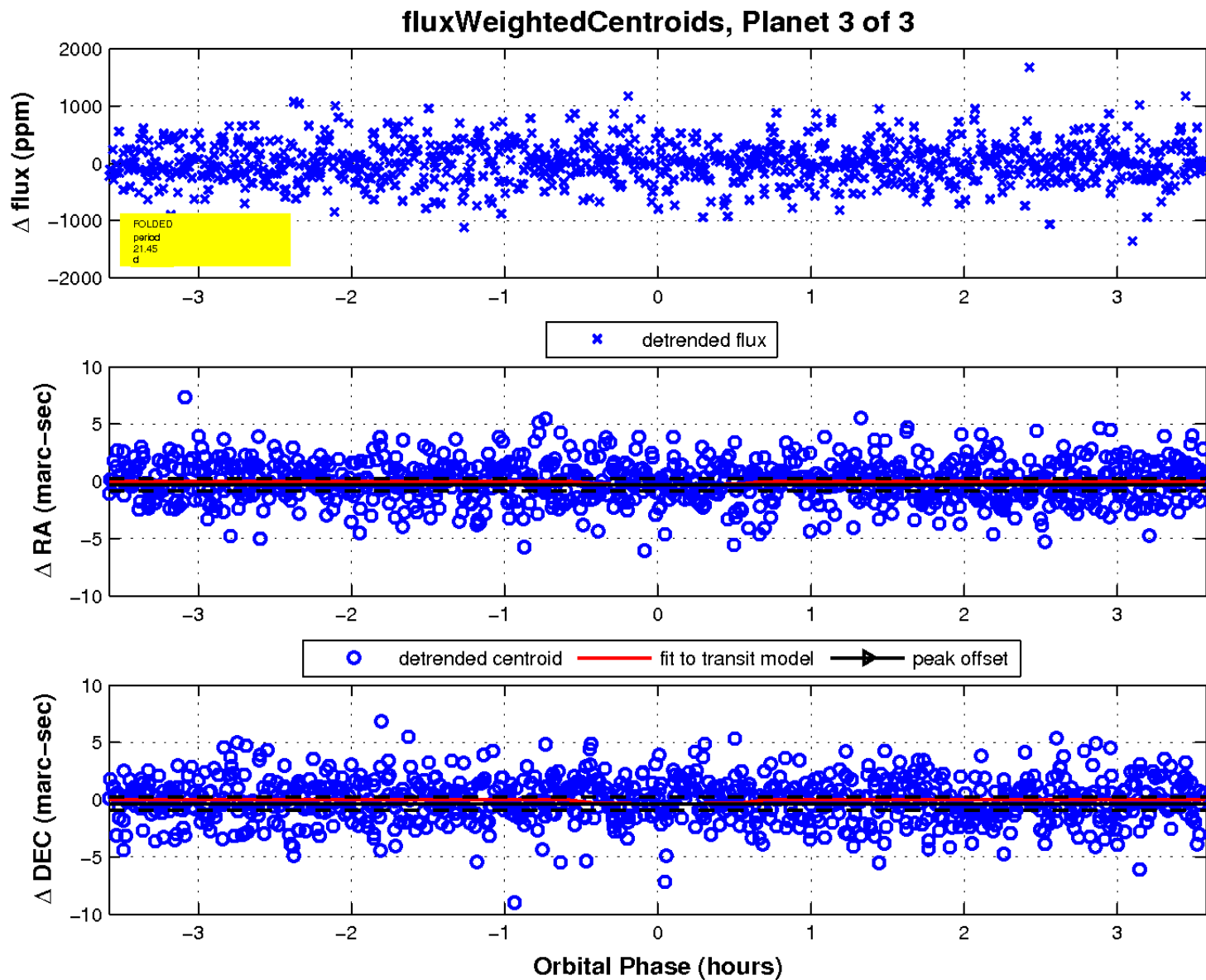
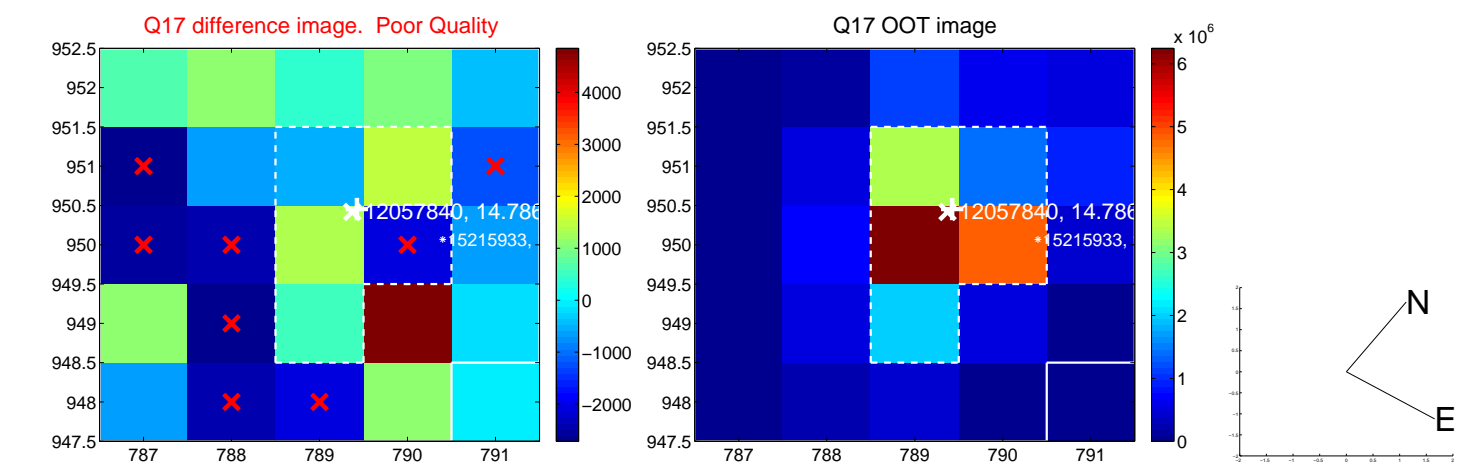
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

