

KIC 008689373

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})
008689373-01	OBS	0921.02	18.119911	146.376192	1499.3	4.423	49.6	52.7	0.78	5196	3.27	23.82
008689373-02	OBS	0921.01	10.281957	134.211048	1123.5	3.855	46.3	51.4	0.78	5196	3.13	50.70
008689373-03	OBS	0921.03	3.784020	133.282871	448.0	2.082	23.4	26.6	0.78	5196	2.02	192.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008689373-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008689373-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008689373-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

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

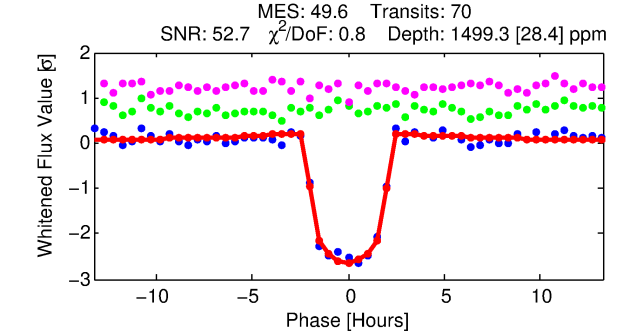
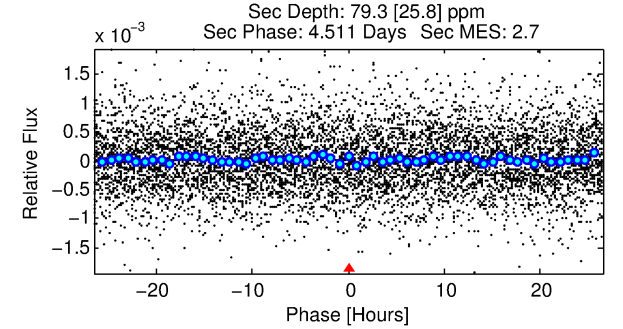
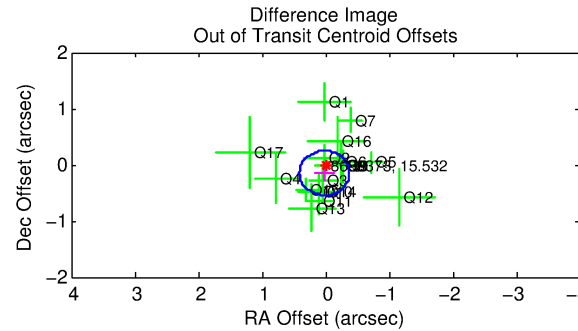
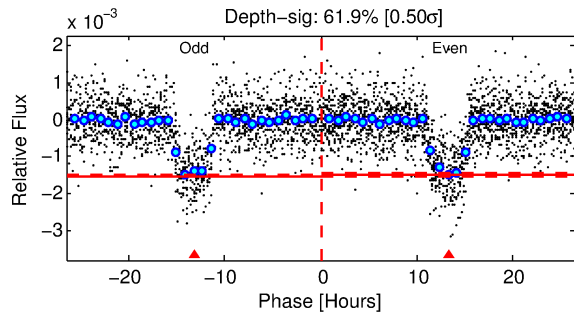
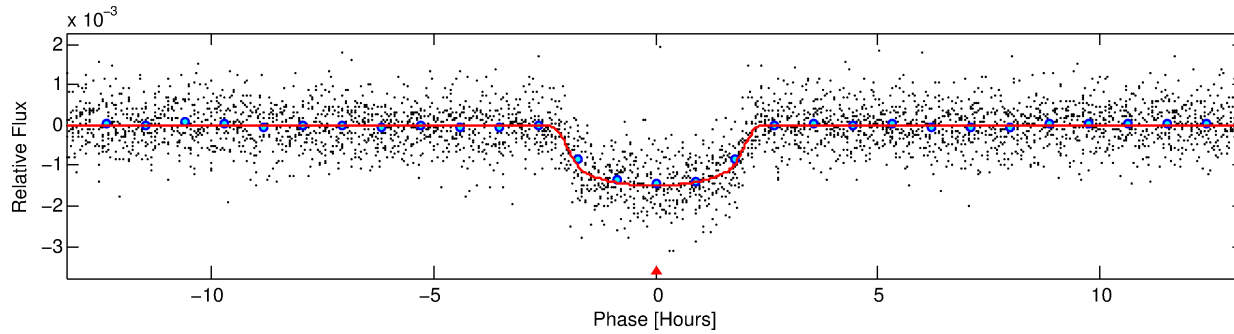
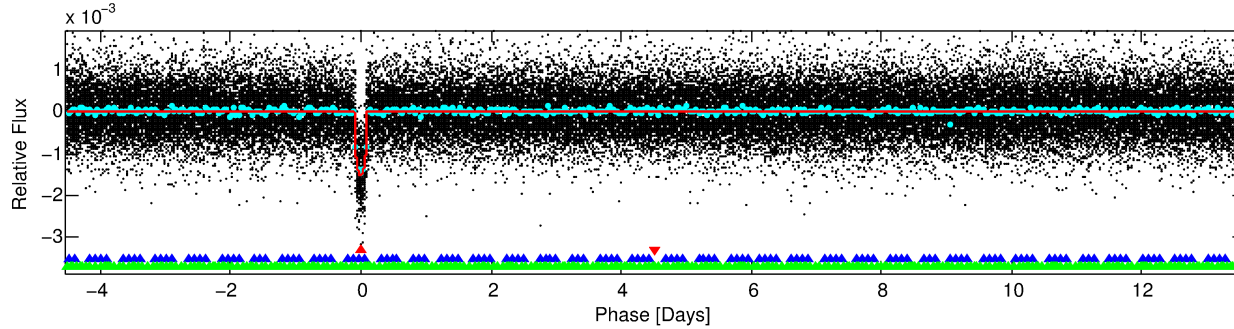
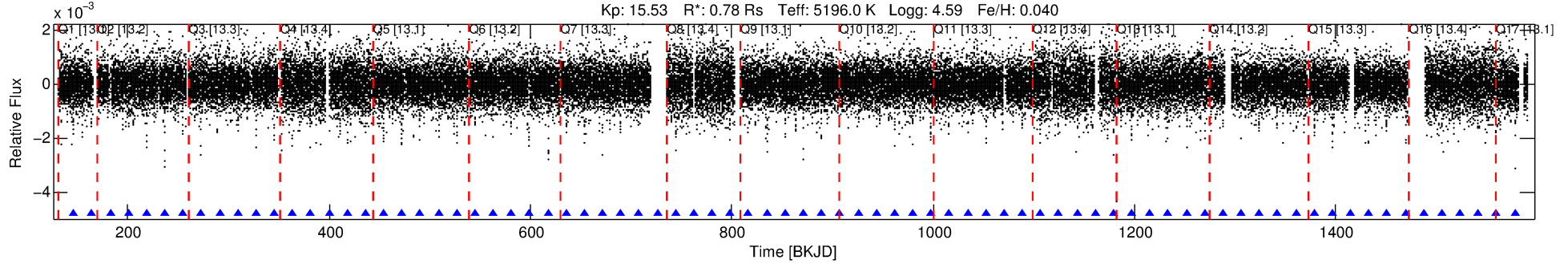
Ephemeris Match Information For 008689373-01

No Significant Match Found

DV One-Page Summary

KIC: 8689373 Candidate: 1 of 3 Period: 18.120 d
KOI: K00921.02 Name: Kepler-253d Corr: 0.983

Kp: 15.53 R*: 0.78 Rs Teff: 5196.0 K Logg: 4.59 Fe/H: 0.040



DV Fit Results:

Period = 18.11991 [0.00004] d
Epoch = 146.3762 [0.0017] BKJD
Rp/R* = 0.0387 [0.0041]
a/R* = 22.47 [8.68]
b = 0.75 [0.23]
Seff = 23.82 [5.08]
Teq = 563 [30] K
Rp = 3.27 [0.58] Re
a = 0.1283 [0.0155] AU
Ag = 67.20 [28.68] [2.31σ]
Teffp = 2494 [253] K [7.57σ]

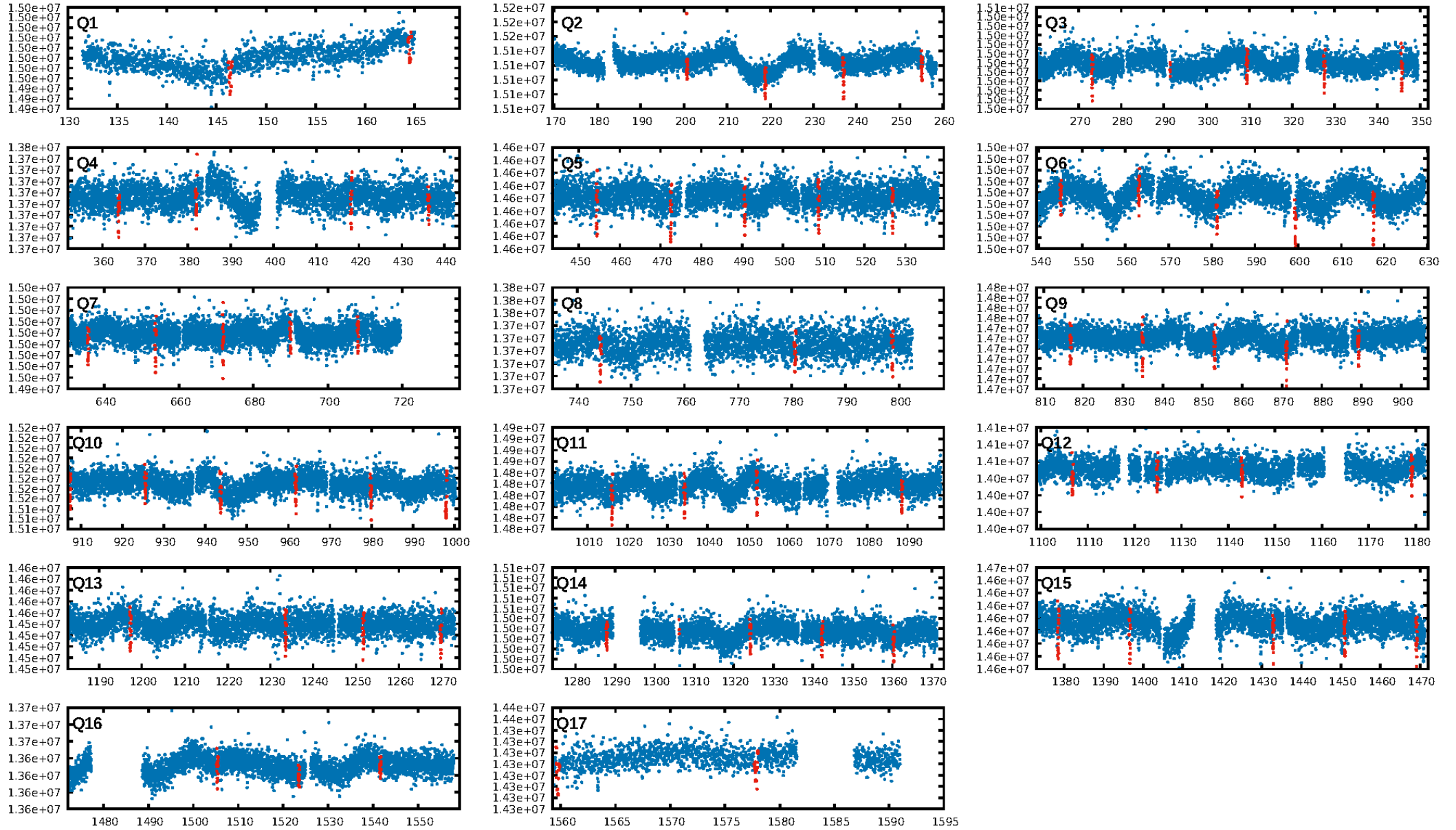
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.06σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 40.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [66/66]
GhostDiagnostic-chr: 10.49
Centroid-sig: 0.0%
Centroid-so: 0.160 arcsec [0.67σ]
OotOffset-rm: 0.151 arcsec [1.14σ]
KicOffset-rm: 0.159 arcsec [1.19σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

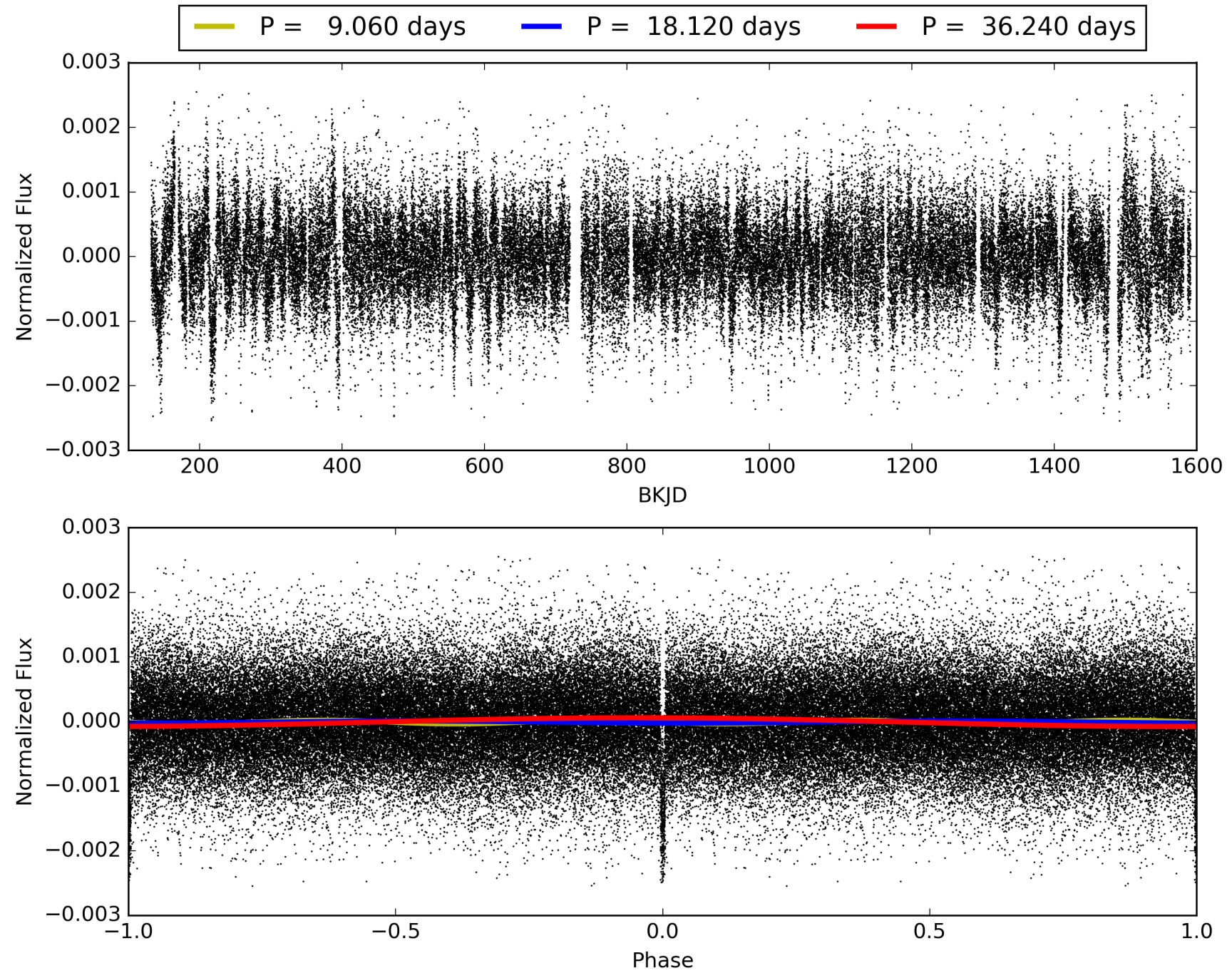
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:02:43 Z

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

TCE 008689373-01, PDC Light Curves

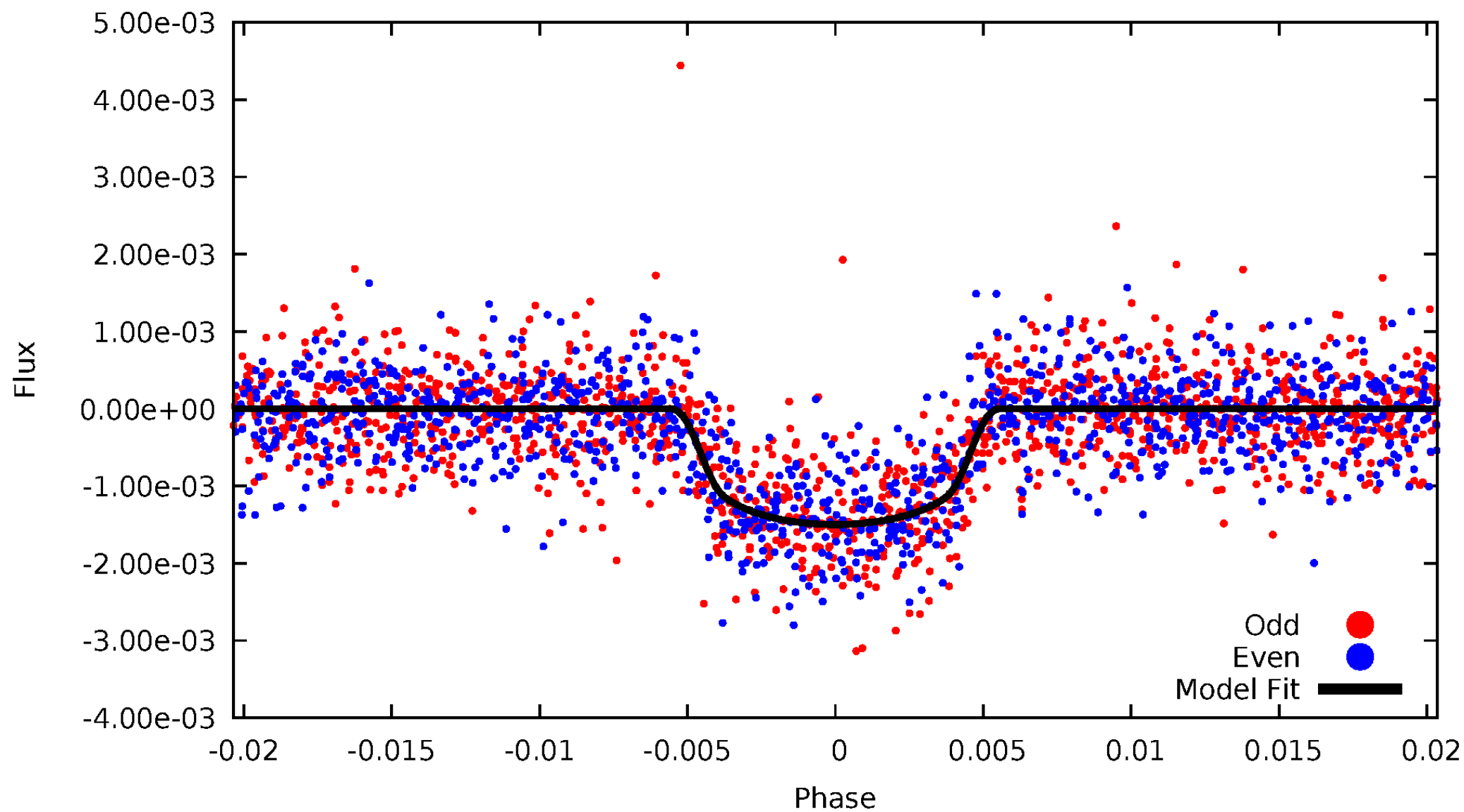


TCE 008689373-01



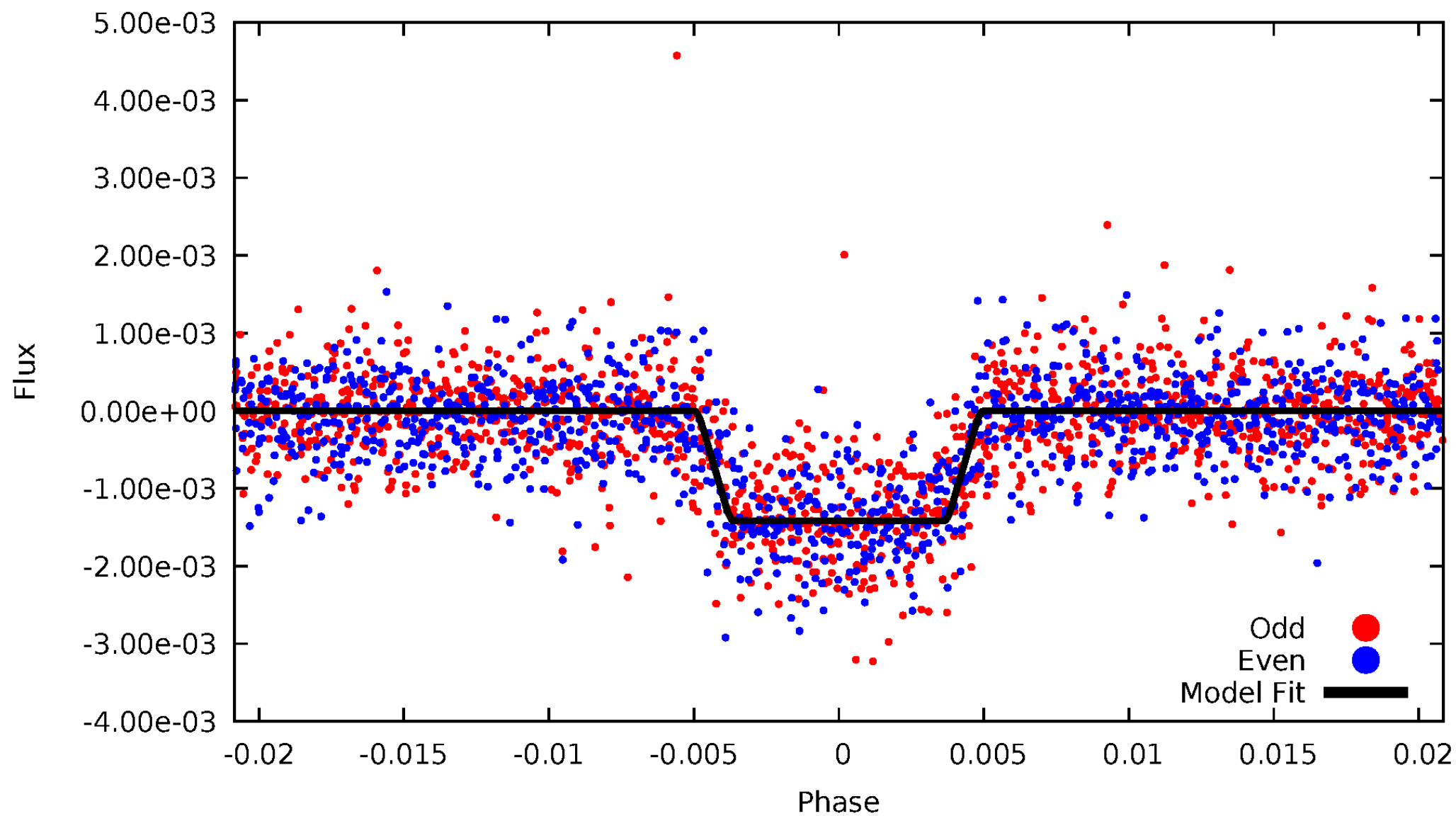
DV Odd/Even

TCE 008689373-01



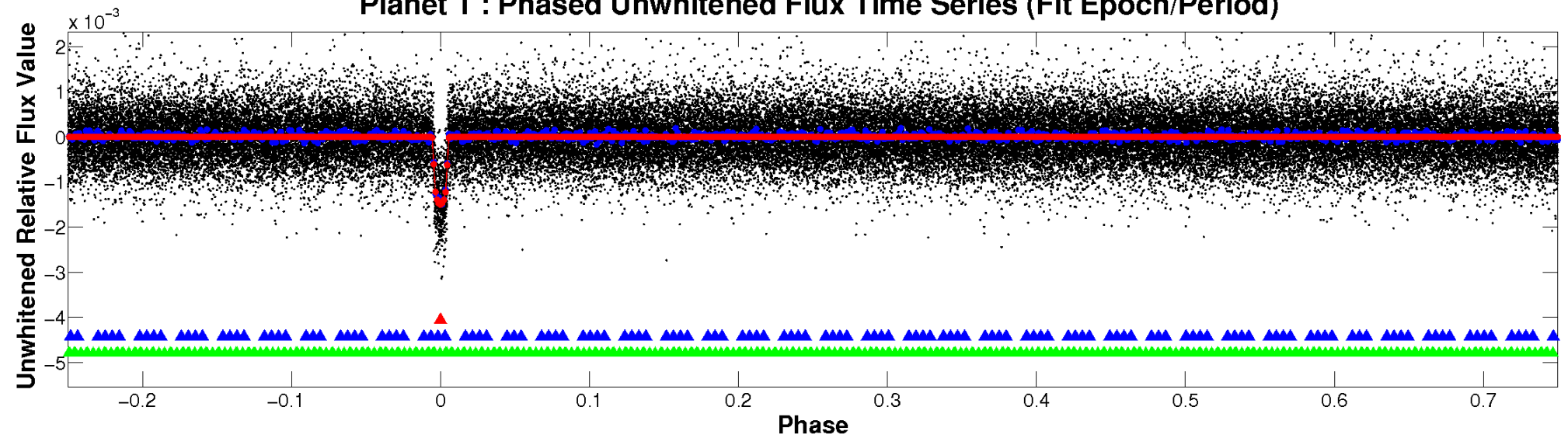
ALT Odd/Even

TCE 008689373-01

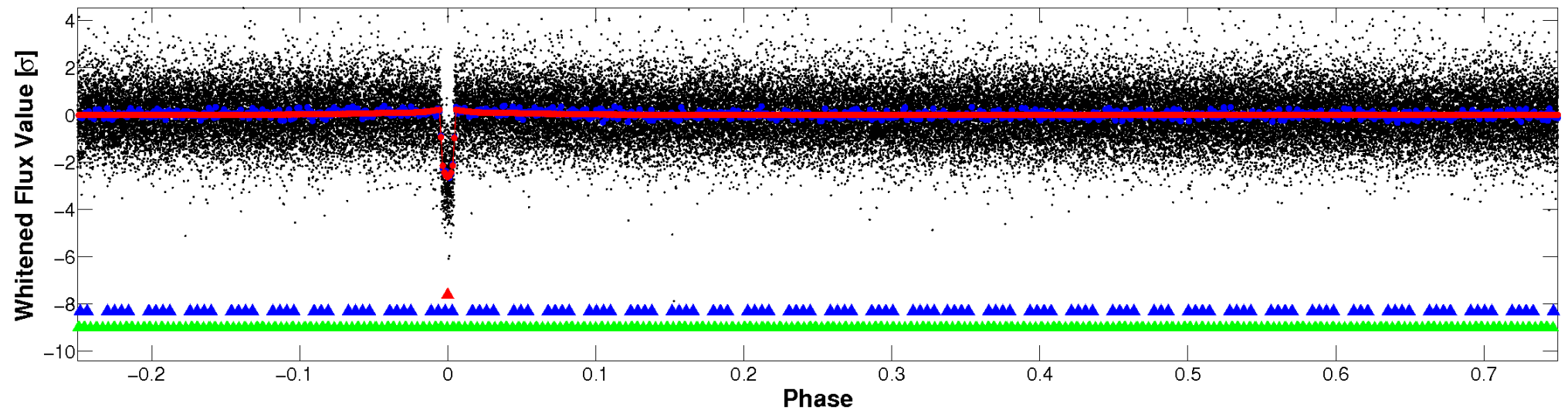


Non-Whitened Vs. Whitened Light Curve

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

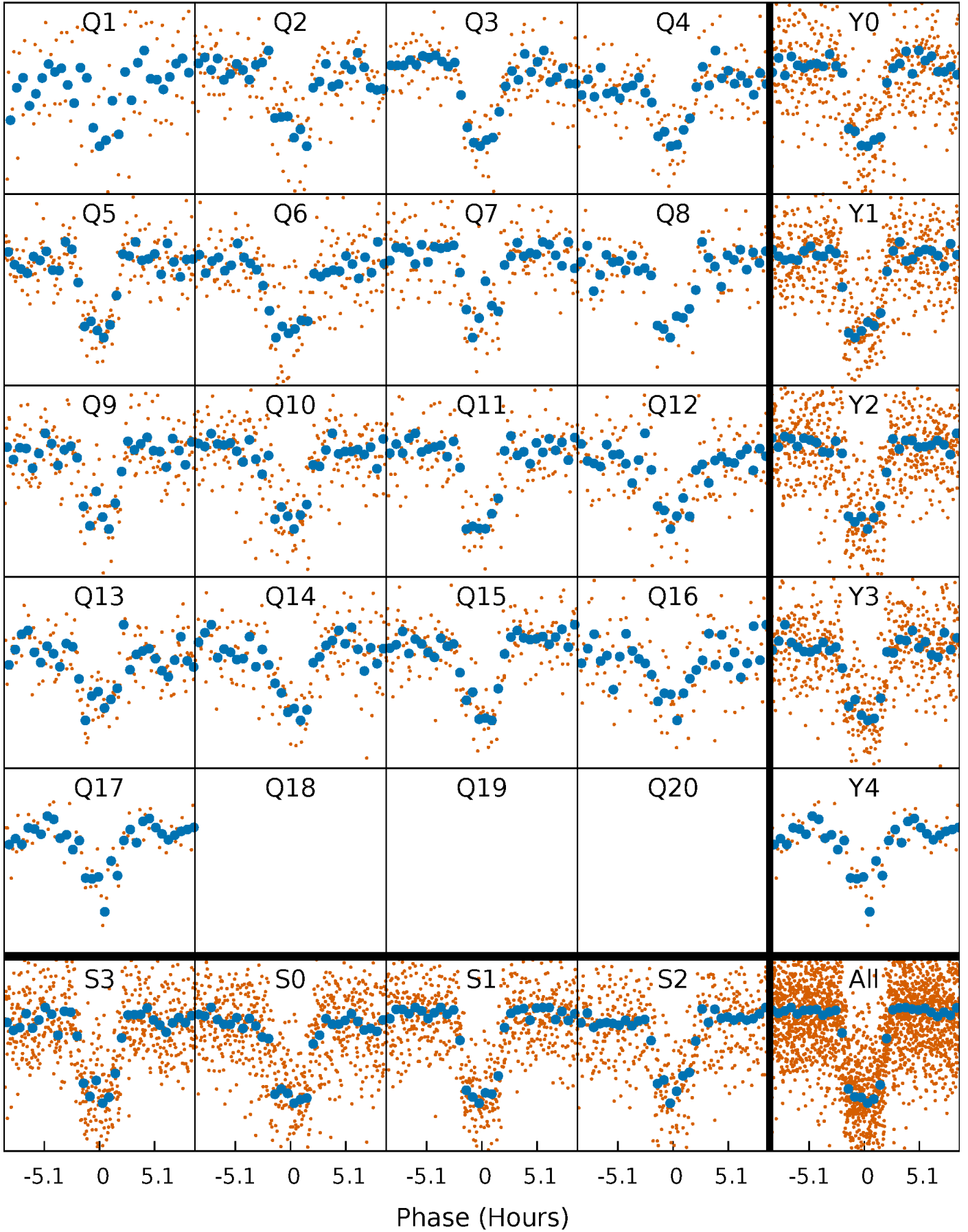


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



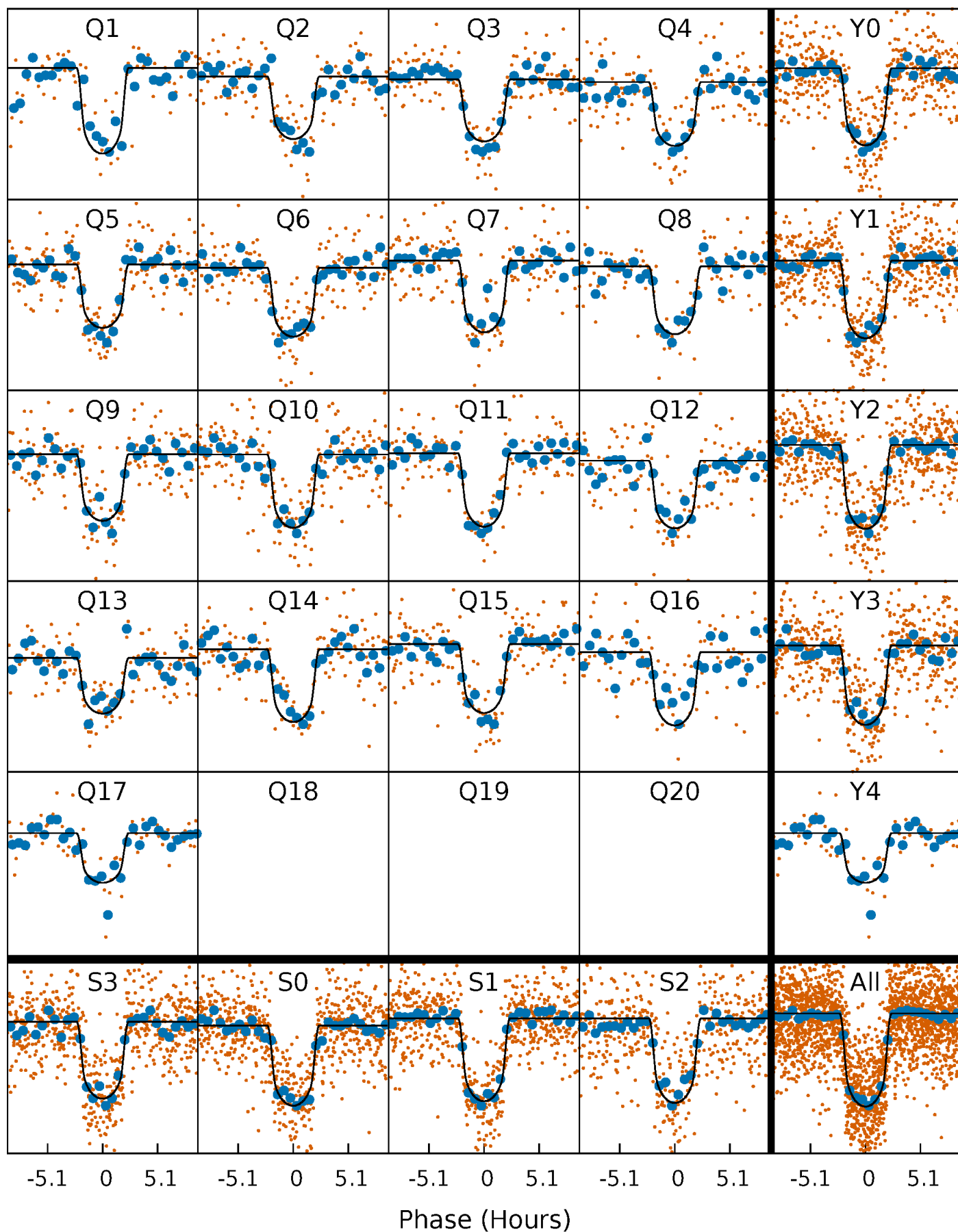
PDC Quarter-Phased Transit Curves

TCE 008689373-01 P= 18.119911 Days $T_0=146.376192$ (BKJD)



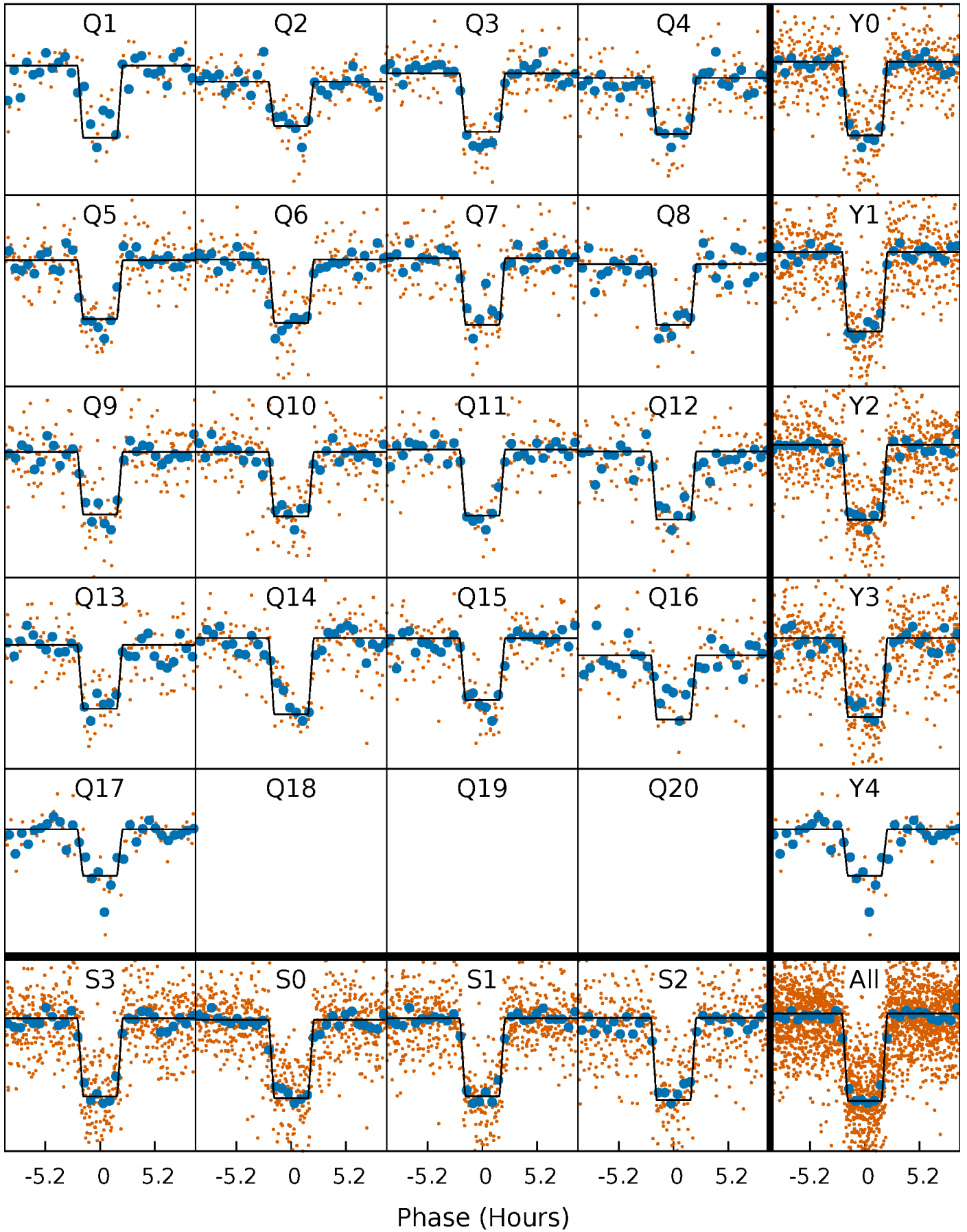
DV Quarter-Phased Transit Curves

TCE 008689373-01 P= 18.119911 Days $T_0=146.376192$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

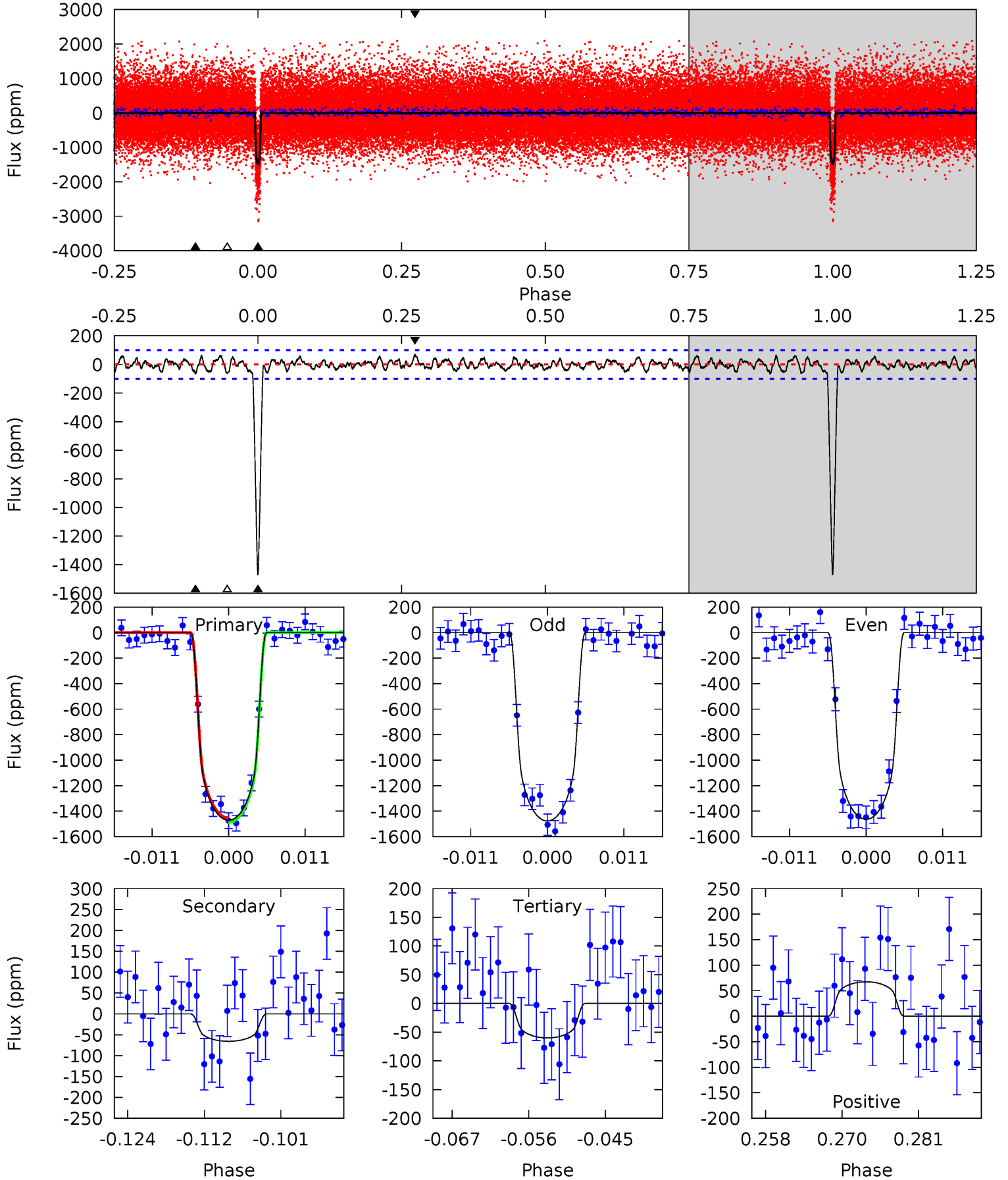
TCE 008689373-01 P= 18.119716 Days $T_0=146.383070$ (BKJD)



DV Model-Shift Uniqueness Test

008689373-01, $P = 18.119911$ Days, $E = 128.256281$ Days

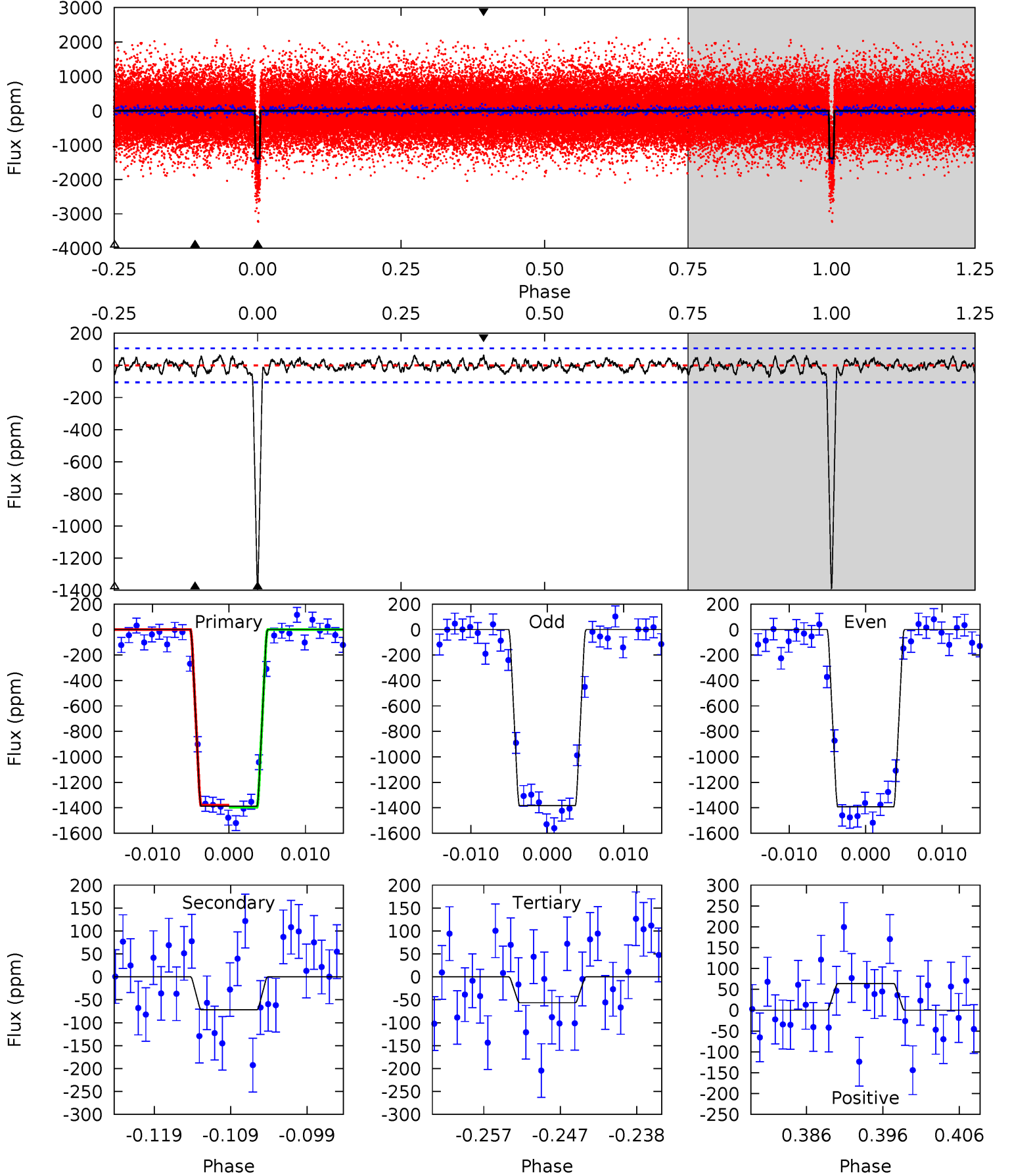
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.6	3.28	3.00	3.38	5.00	2.54	1.25	70.6	70.3	0.28	-0.09	0.33	1.00	0.04	0.85



Alt Model-Shift Uniqueness Test

008689373-01, $P = 18.119716$ Days, $E = 128.263354$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.0	3.41	2.69	3.04	5.03	2.58	1.14	63.3	62.9	0.73	0.37	0.21	1.00	0.04	0.36



Stellar Parameters For KIC 008689373

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5196^{+155}_{-155}	$4.593^{+0.026}_{-0.097}$	$0.040^{+0.250}_{-0.300}$	$0.775^{+0.111}_{-0.056}$	$0.869^{+0.064}_{-0.092}$	$2.630^{+0.353}_{-0.780}$
	+3%/-3%	+1%/-2%	+625%/-750%	+14%/-7%	+7%/-11%	+13%/-30%
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 008689373-01 / KOI 0921.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-66 ± 20	$3.35^{+0.42}_{-0.40}$	799^{+30}_{-26}	3011^{+169}_{-187}	52^{+23}_{-19}
Alt.	-72 ± 21	$3.25^{+0.40}_{-0.37}$	799^{+31}_{-30}	3071^{+170}_{-185}	59^{+25}_{-21}

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

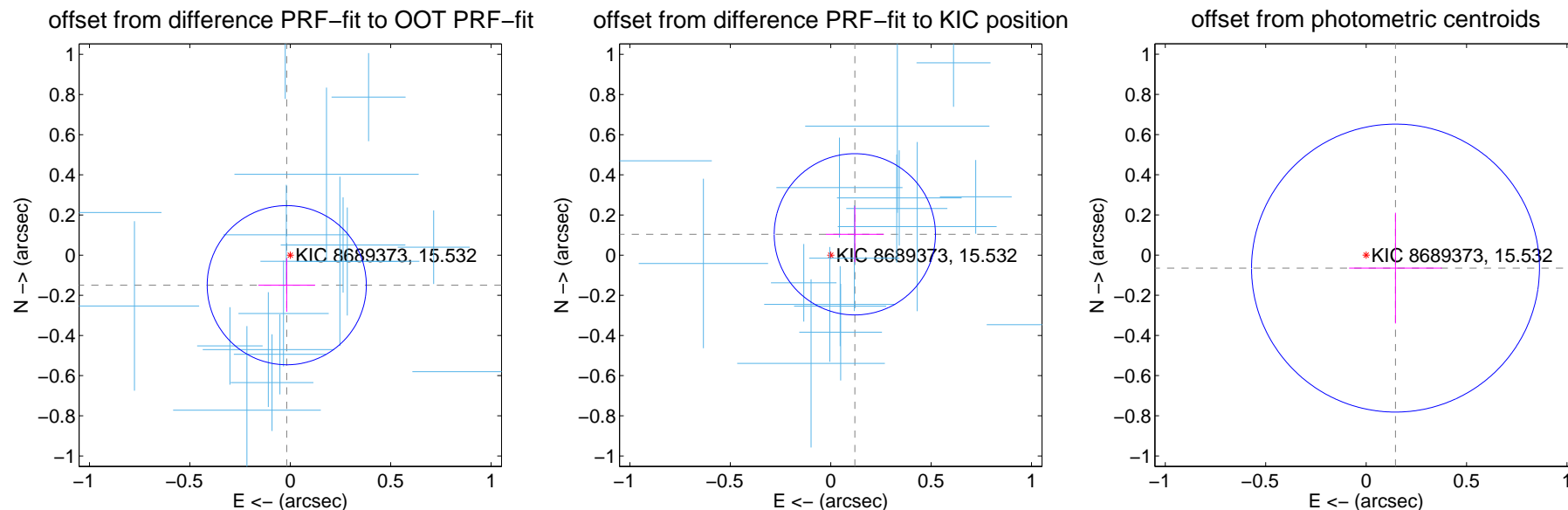
DV Centroid Data

Supplemental centroid analysis for 008689373-01. Kepler magnitude: 15.53. Transit SNR 52.75

There are 17 quarters with good PRF difference image offsets

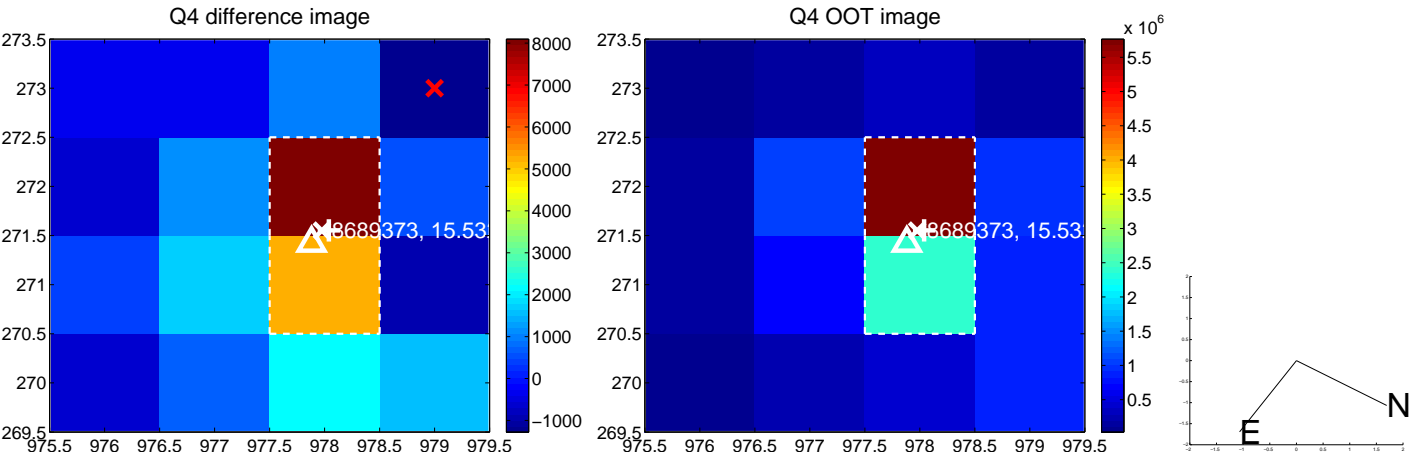
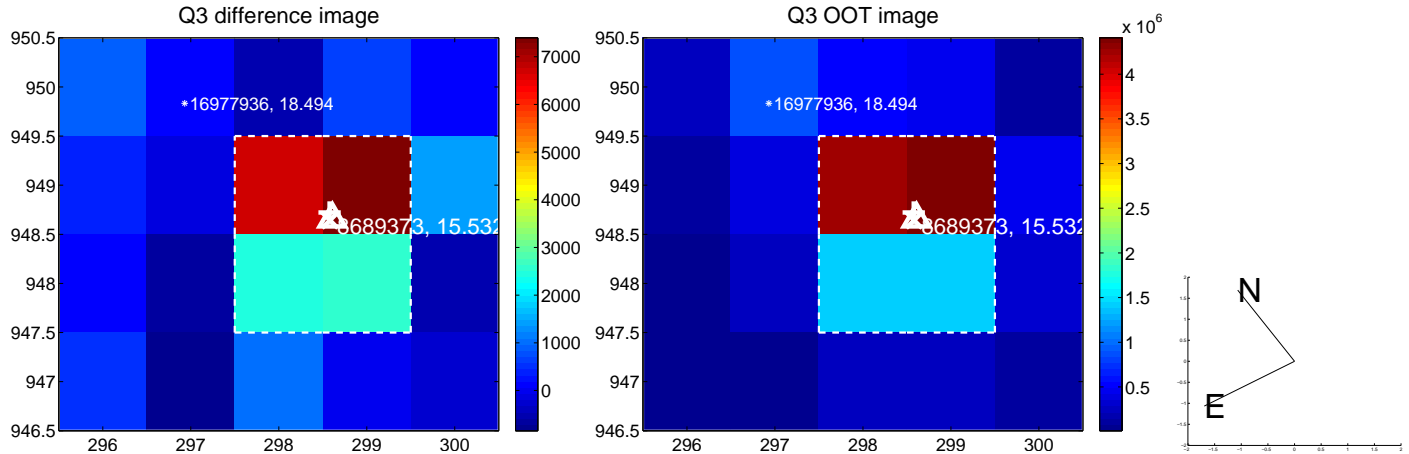
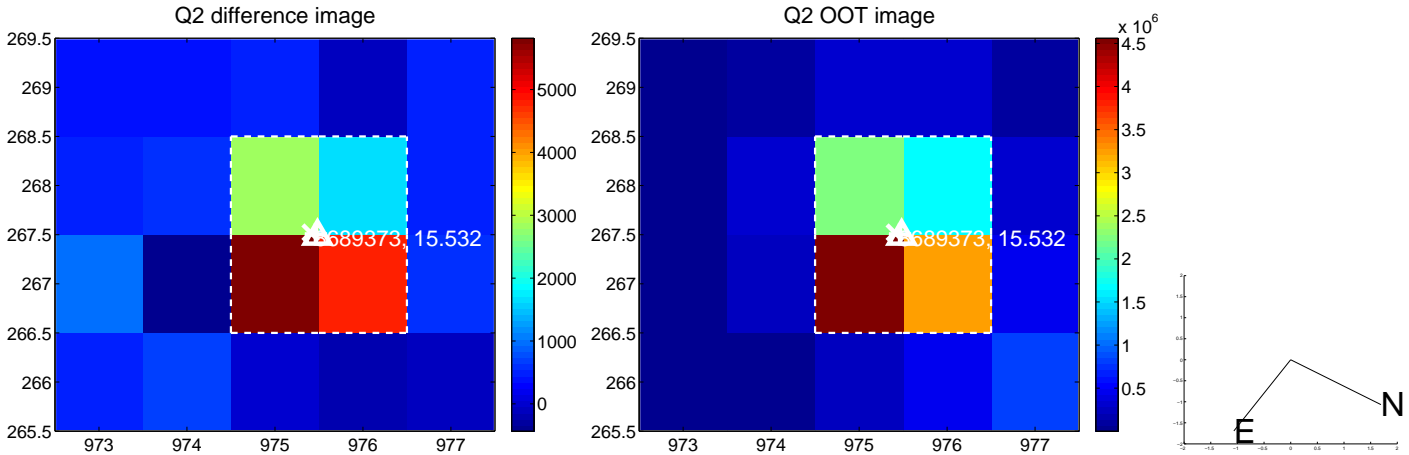
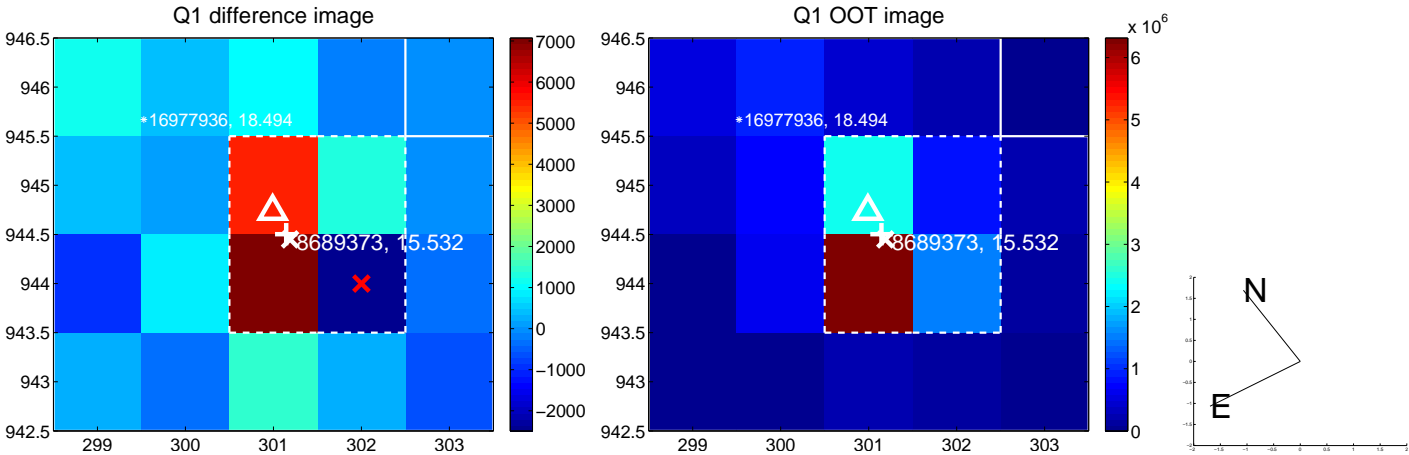
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.151 ± 0.132	1.14	0.017 ± 0.142	-0.150 ± 0.132
PRF-fit source offset from KIC position	0.159 ± 0.134	1.19	-0.120 ± 0.144	0.104 ± 0.139
photometric centroid source offset	0.16 ± 0.24	0.67	-0.15 ± 0.23	-0.06 ± 0.28

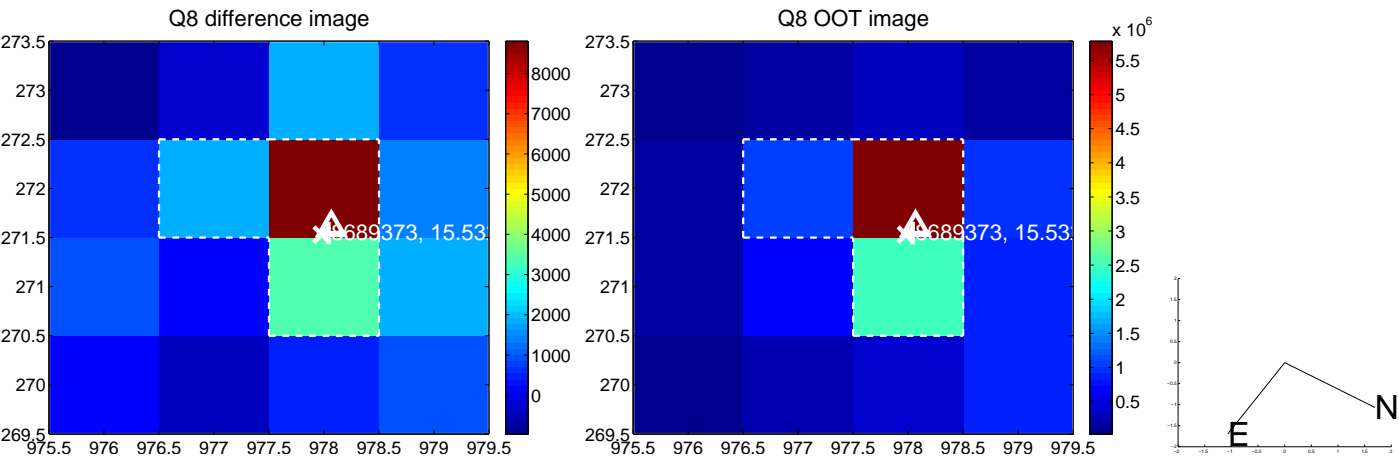
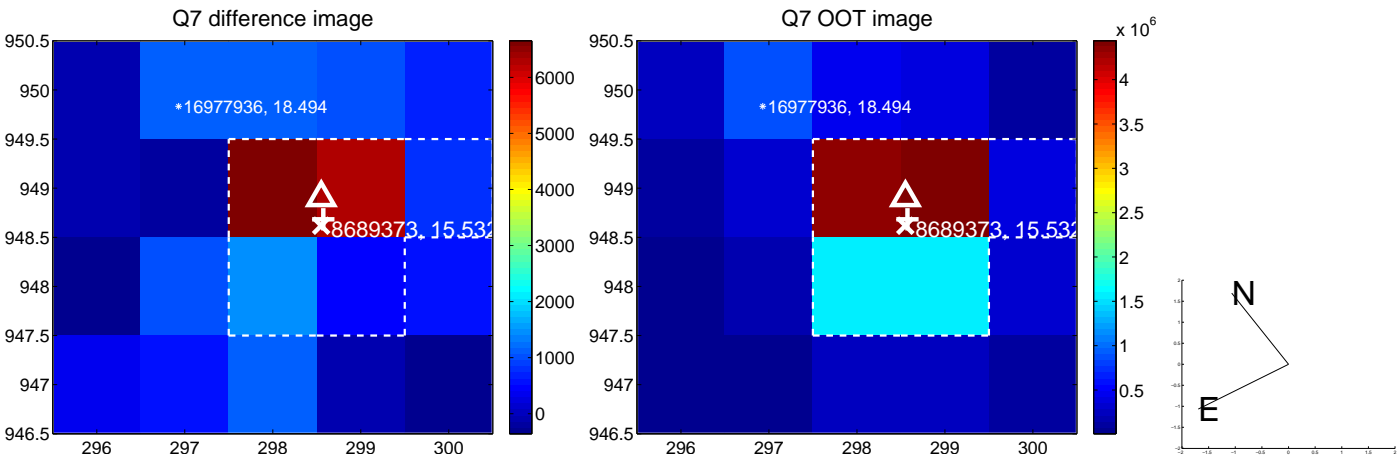
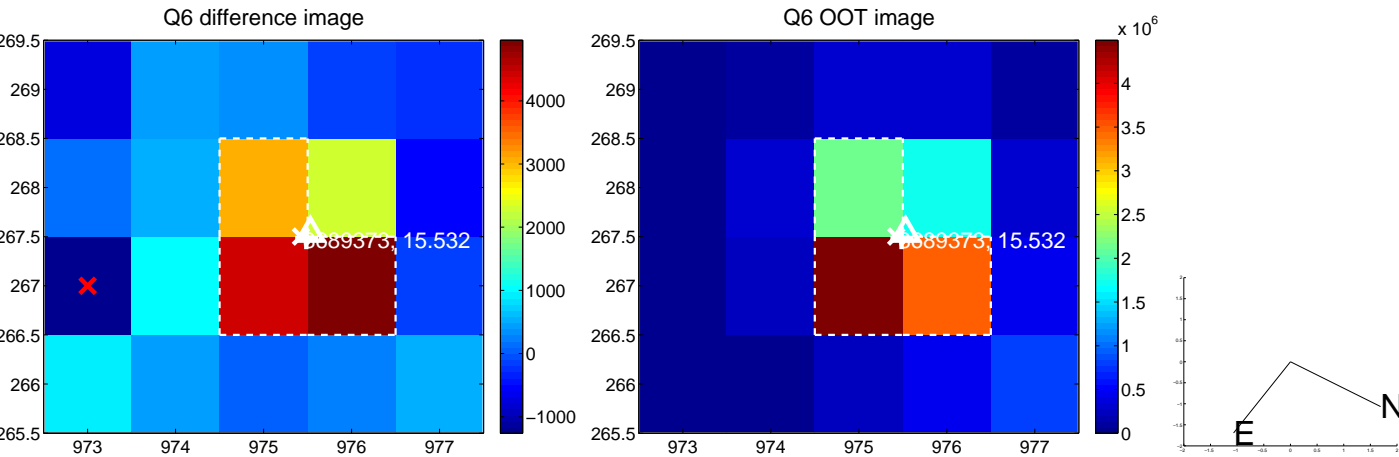
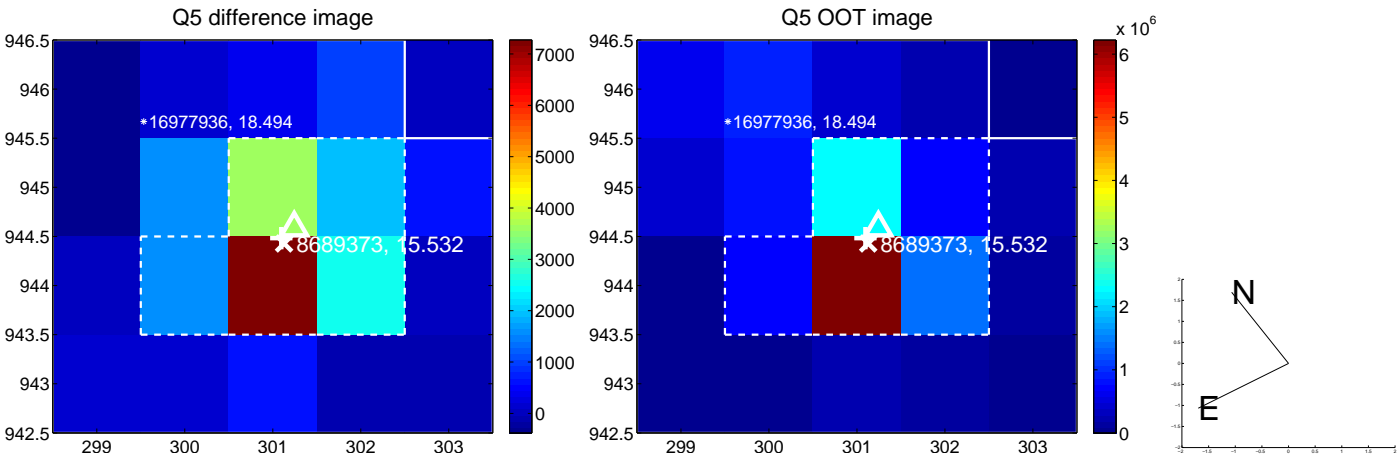


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

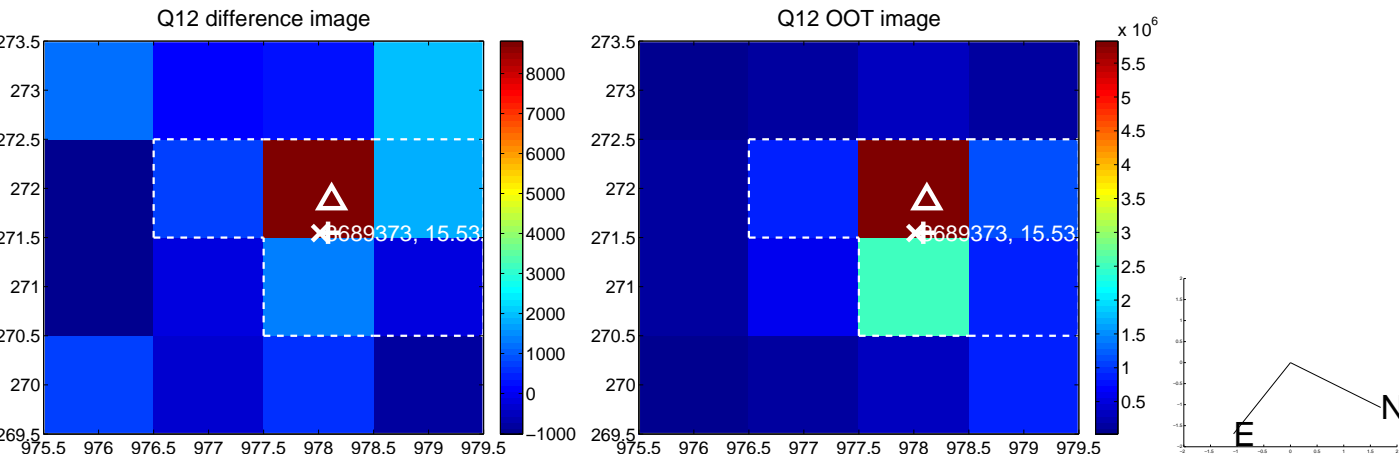
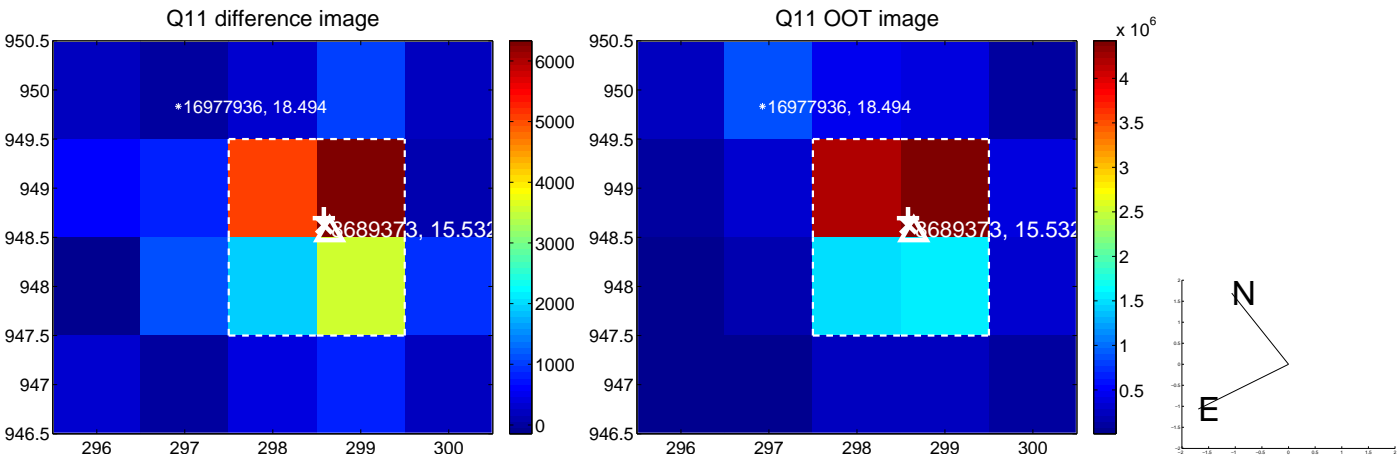
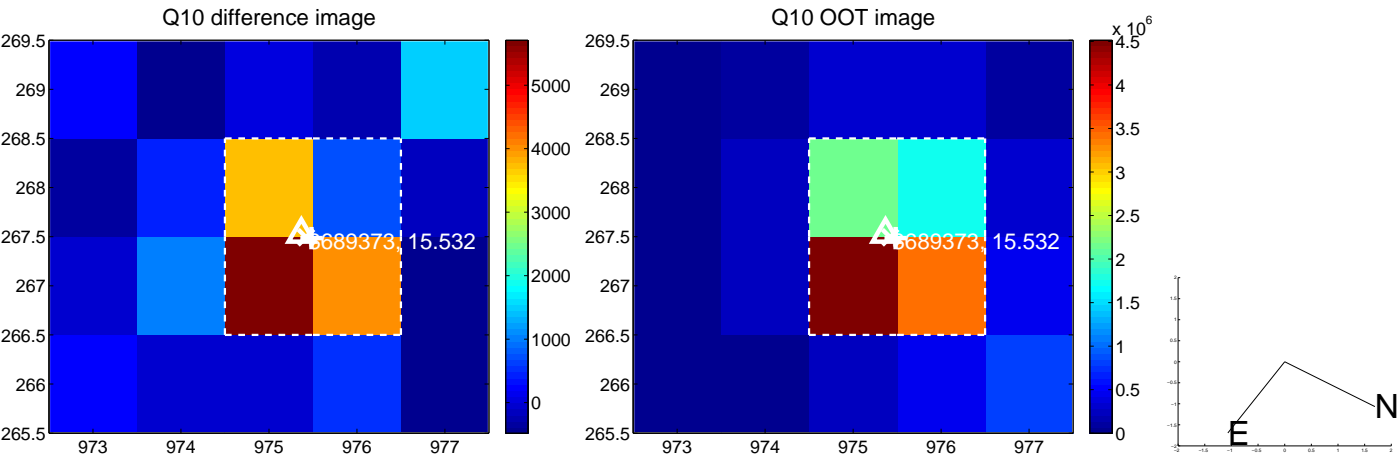
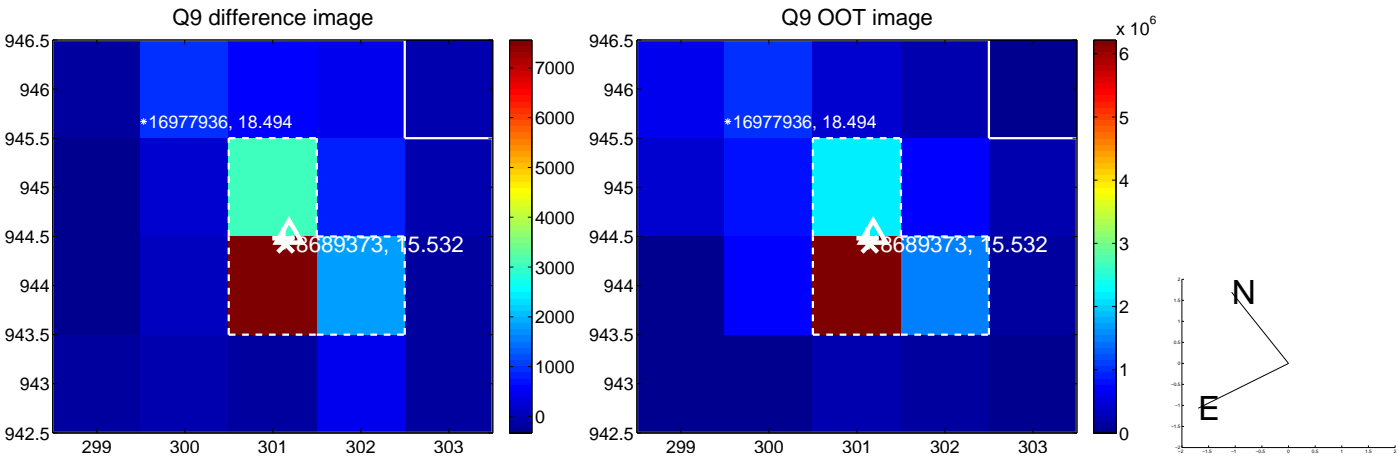
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



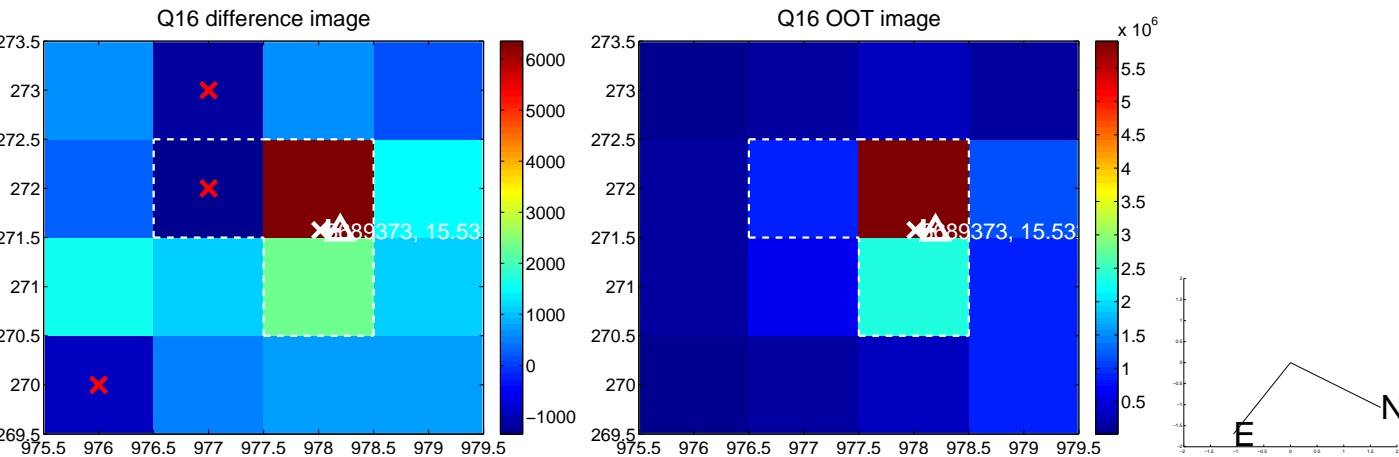
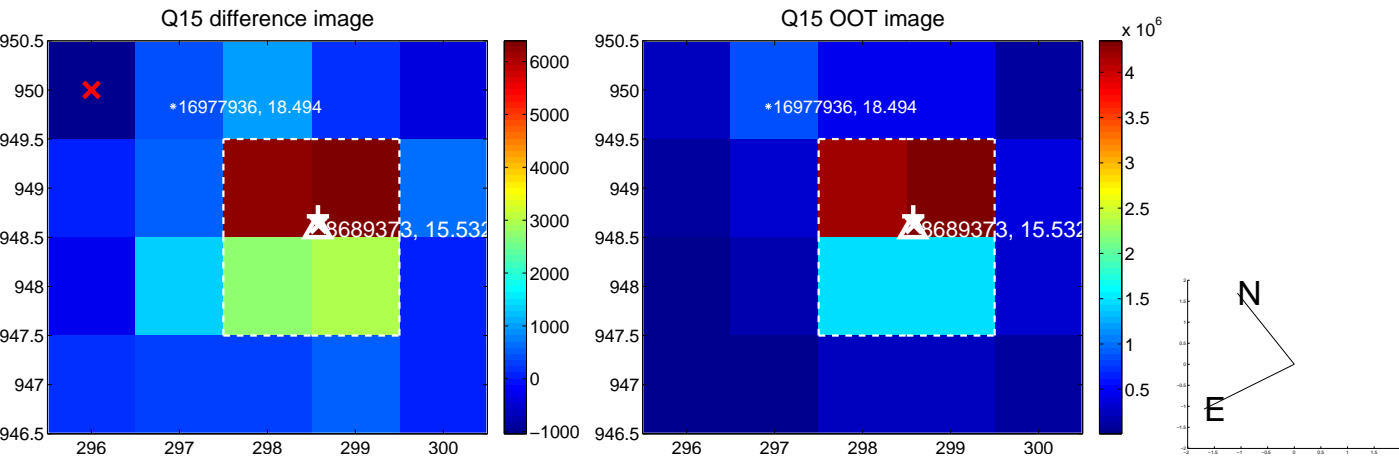
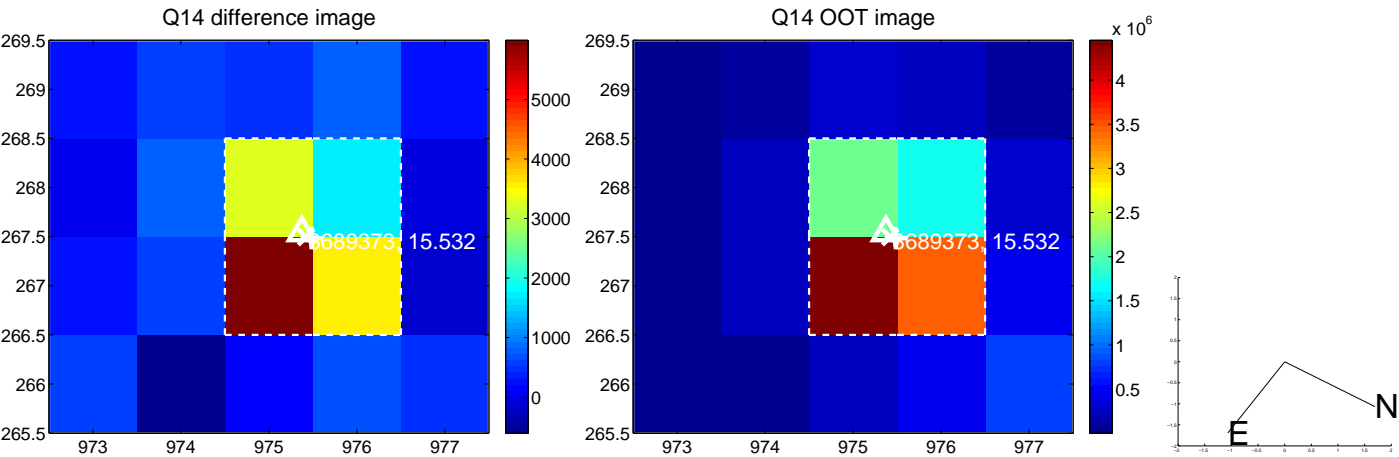
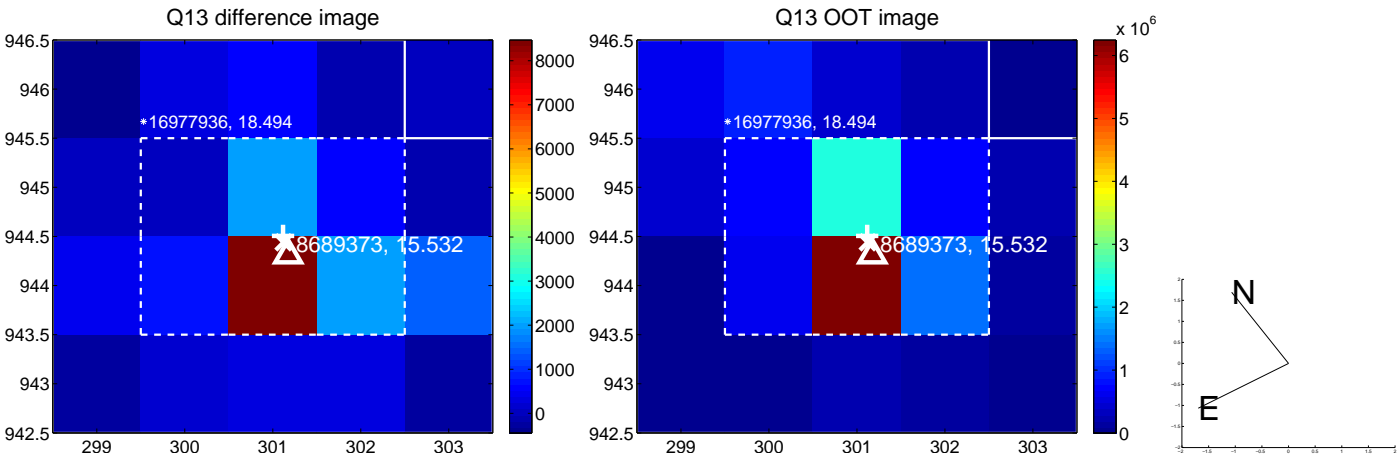
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



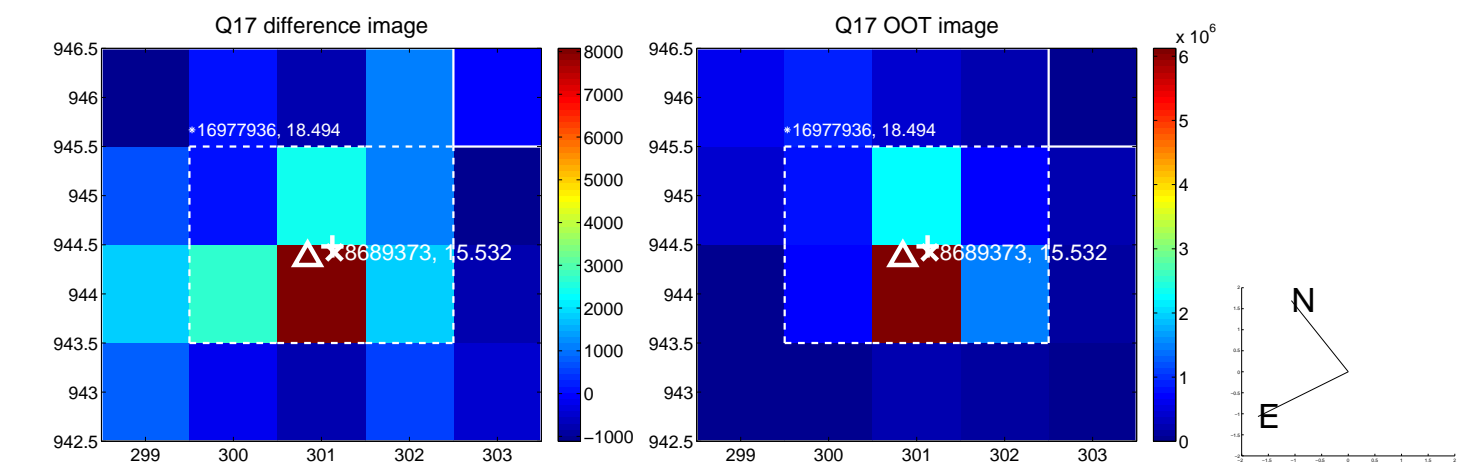
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



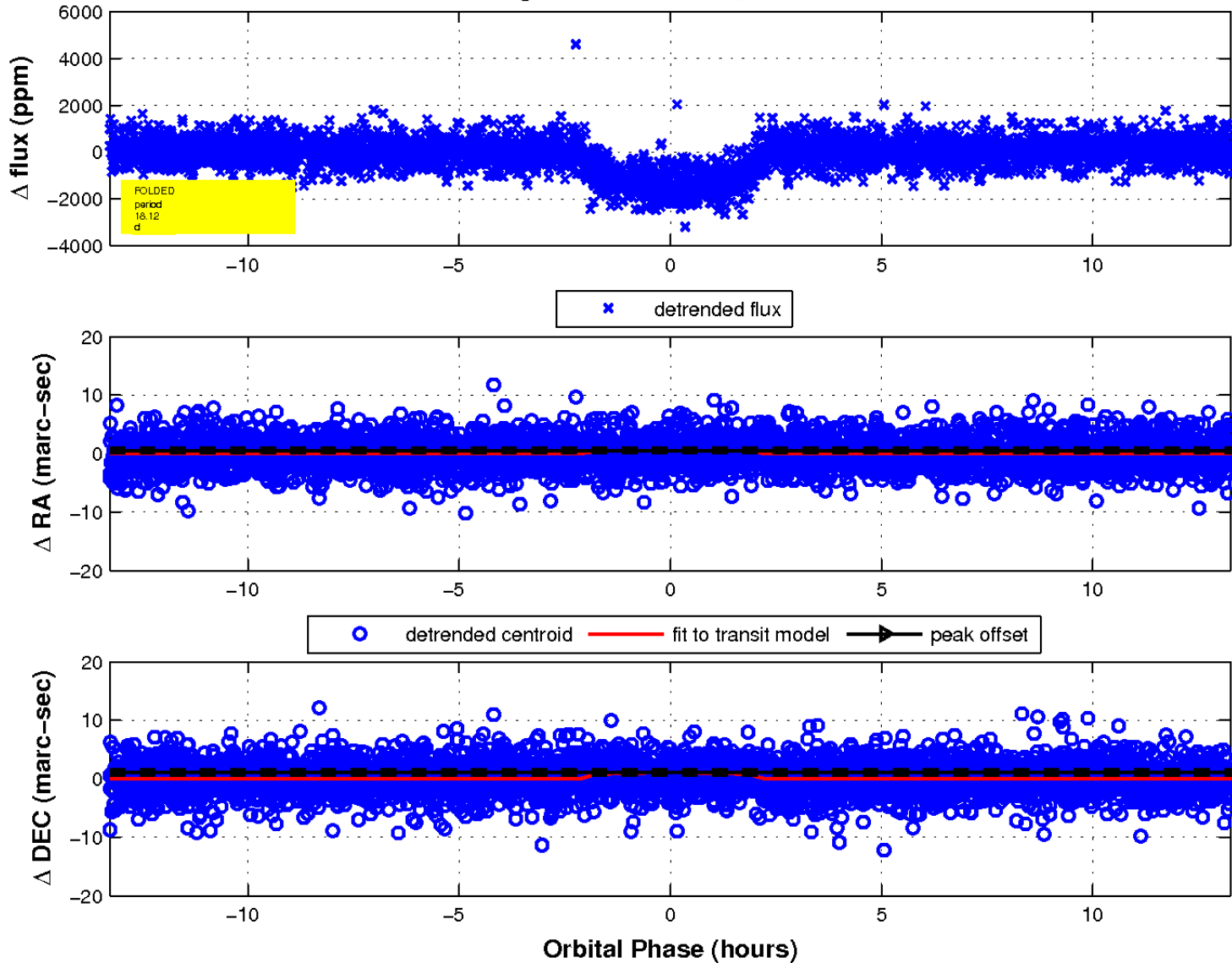
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

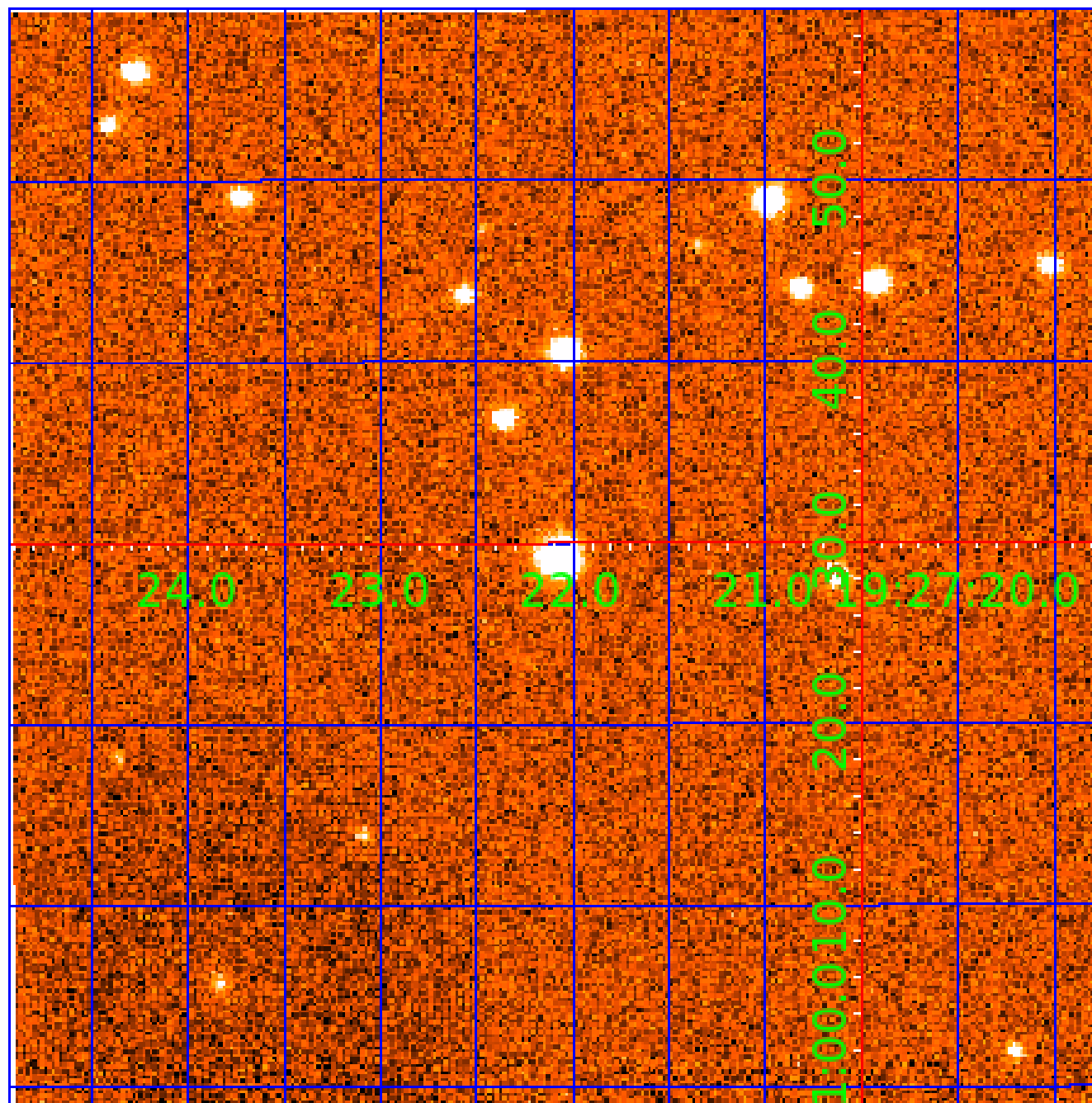


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 008689373

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})
008689373-01	OBS	0921.02	18.119911	146.376192	1499.3	4.423	49.6	52.7	0.78	5196	3.27	23.82
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008689373-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008689373-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008689373-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

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

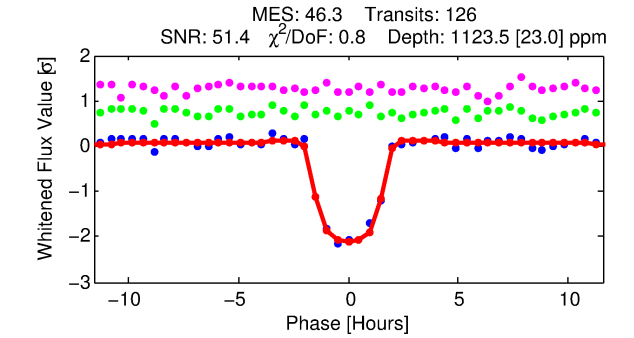
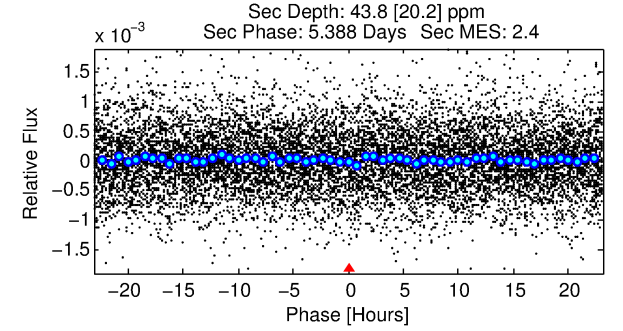
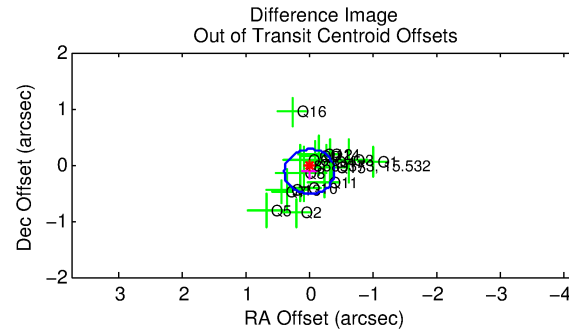
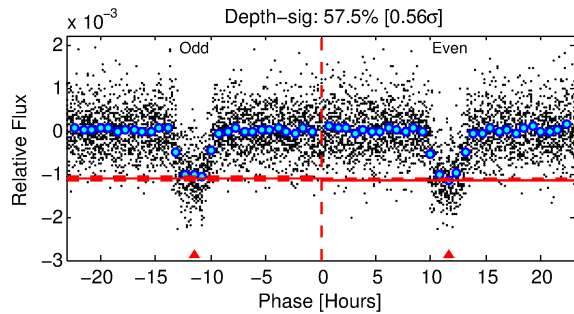
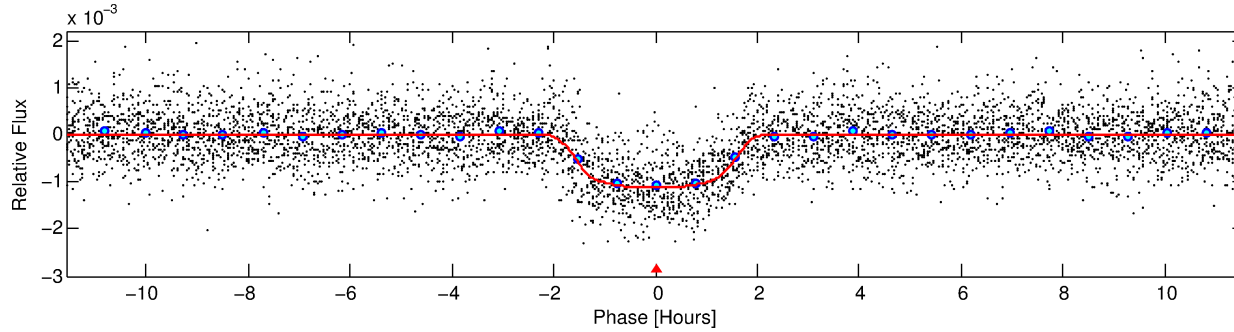
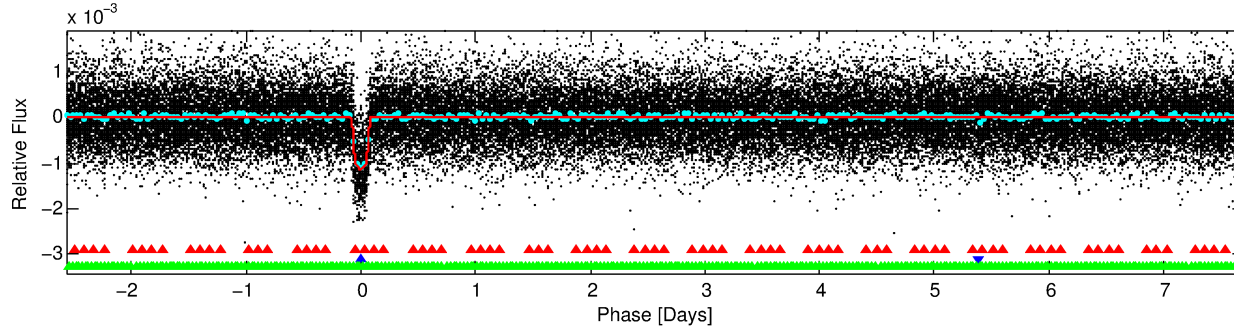
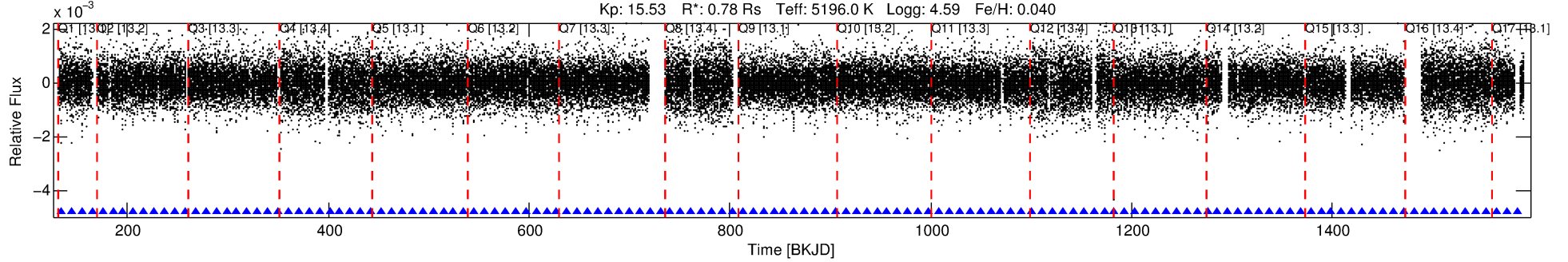
Ephemeris Match Information For 008689373-02

No Significant Match Found

DV One-Page Summary

KIC: 8689373 Candidate: 2 of 3 Period: 10.282 d
KOI: K00921.01 Name: Kepler-253c Corr: 0.949

Kp: 15.53 R*: 0.78 Rs Teff: 5196.0 K Logg: 4.59 Fe/H: 0.040



DV Fit Results:

Period = 10.28196 [0.00002] d
Epoch = 134.2110 [0.0016] BKJD
Rp/R* = 0.0370 [0.0014]
a/R* = 10.75 [1.50]
b = 0.89 [0.03]
Seff = 50.70 [10.82]
Teff = 680 [36] K
Rp = 3.13 [0.46] Re
a = 0.0880 [0.0106] AU
Ag = 19.05 [9.52] [1.90σ]
Teffp = 2198 [265] K [5.67σ]

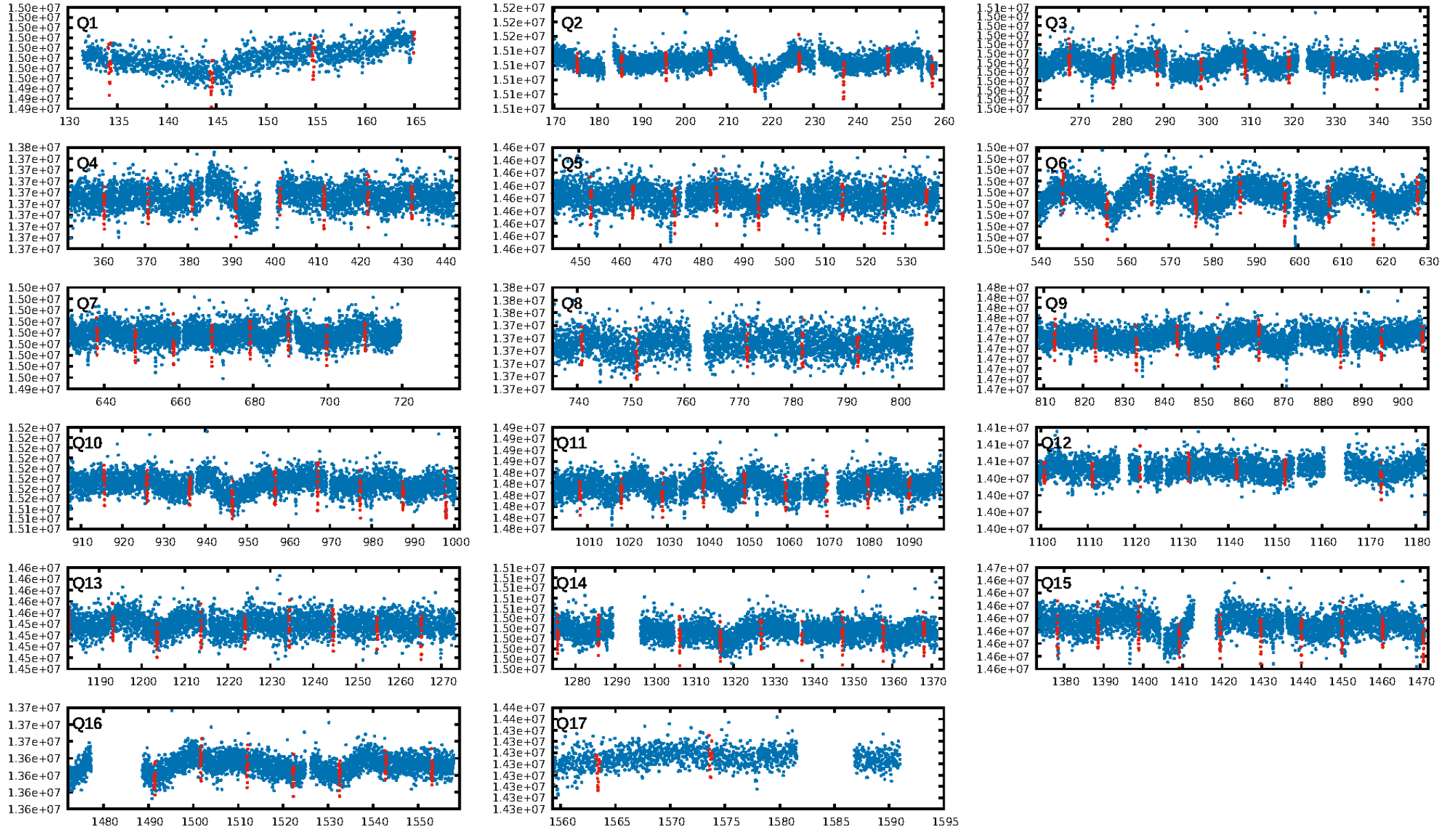
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [35.60σ]
LongPeriod-sig: 100.0% [32.06σ]
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [120/120]
GhostDiagnostic-chr: 3.36
Centroid-sig: 0.8%
Centroid-so: 0.262 arcsec [0.91σ]
OotOffset-rm: 0.125 arcsec [0.95σ]
KicOffset-rm: 0.178 arcsec [1.23σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

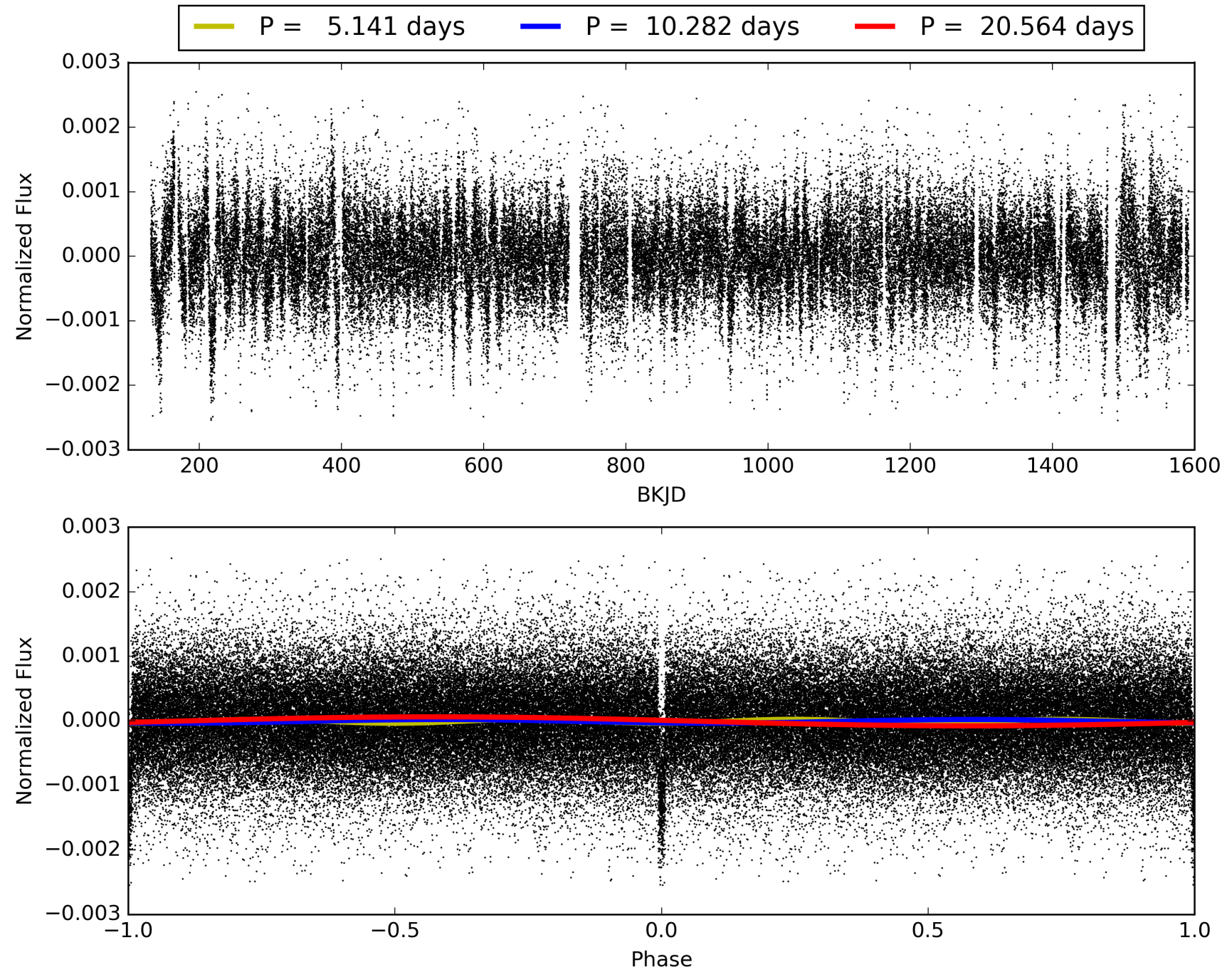
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:02:49 Z

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

TCE 008689373-02, PDC Light Curves

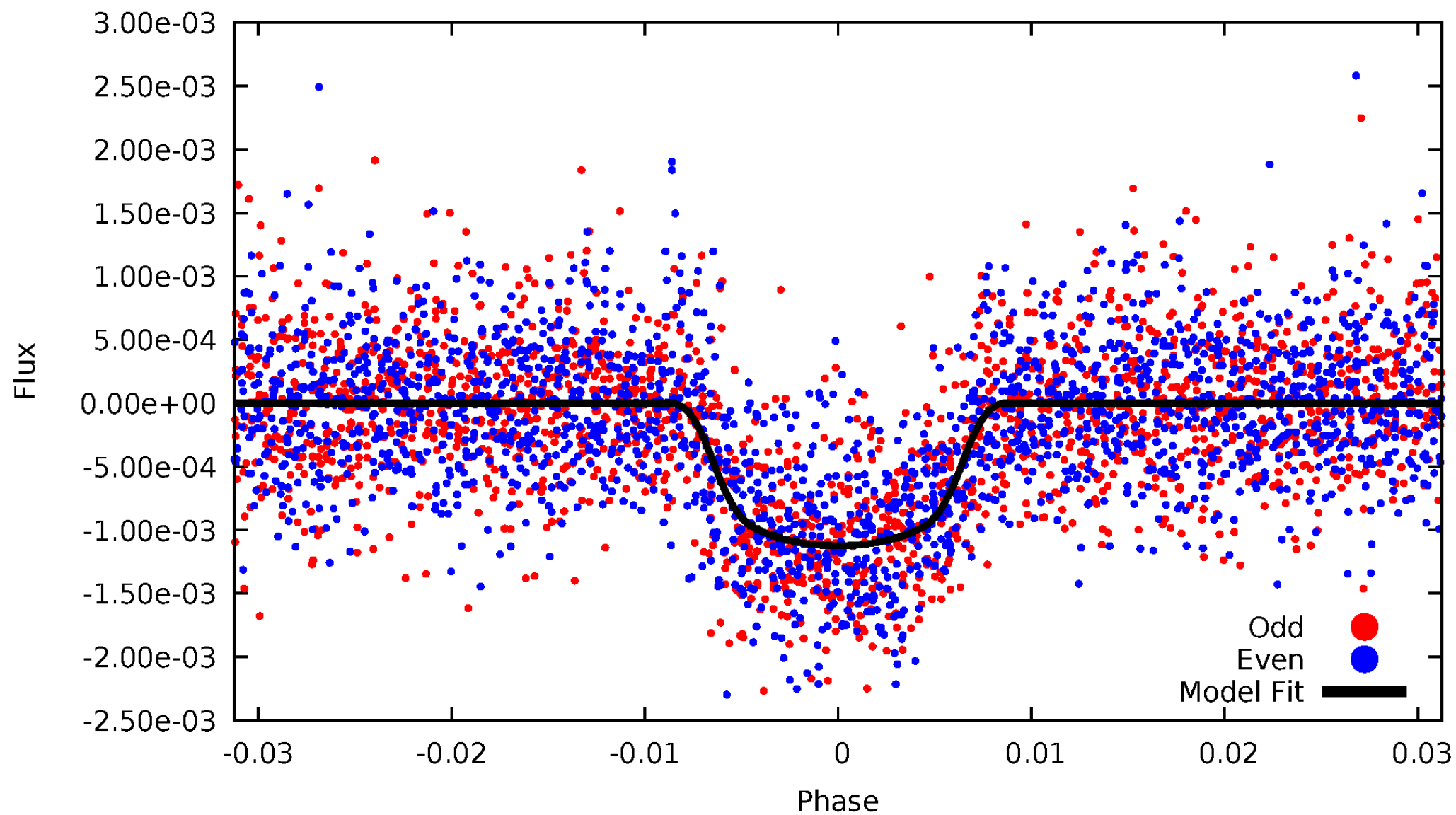


TCE 008689373-02



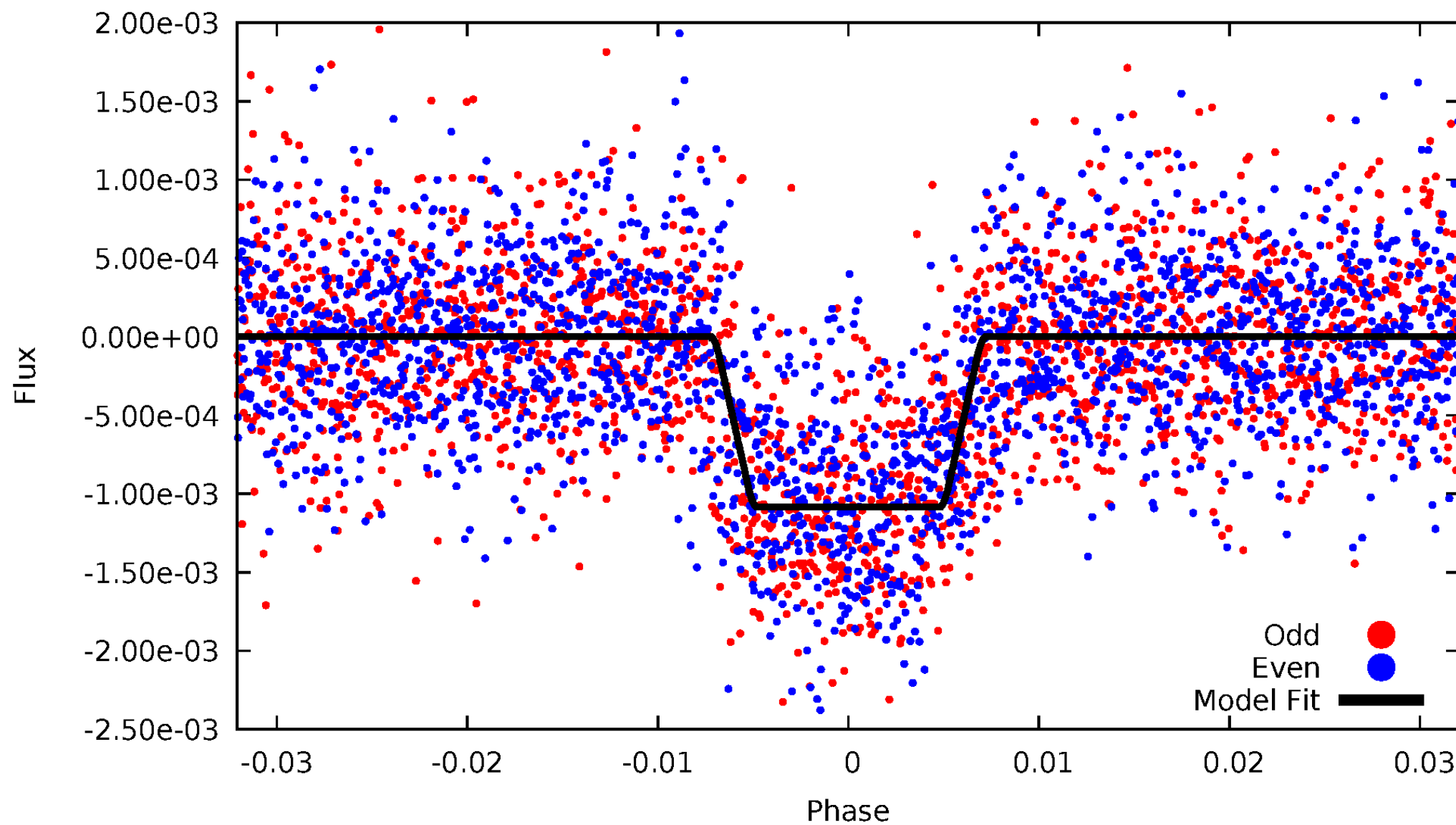
DV Odd/Even

TCE 008689373-02



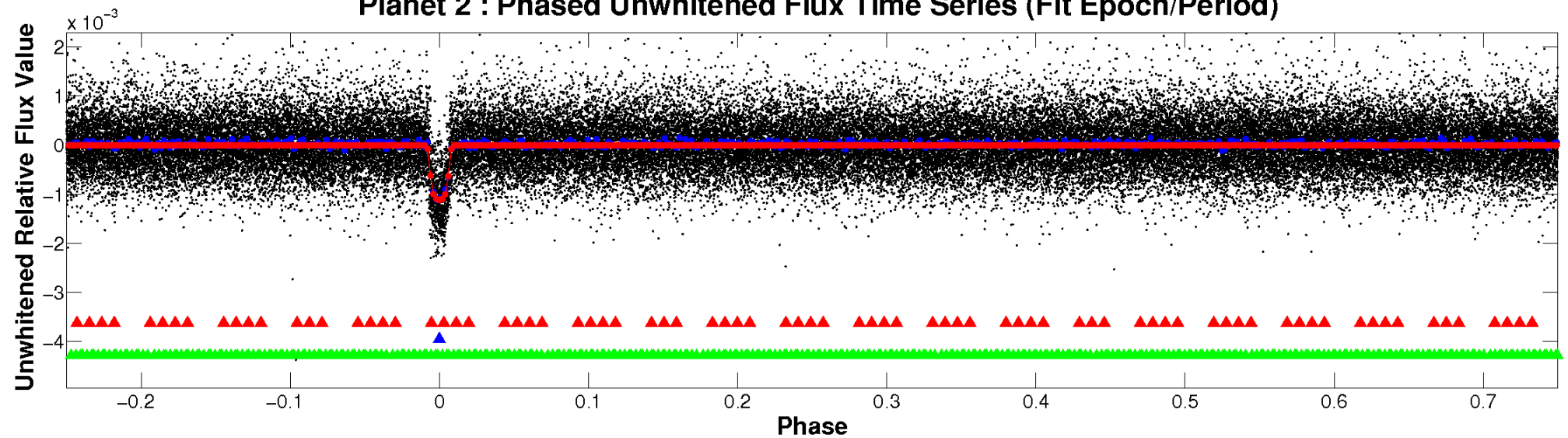
ALT Odd/Even

TCE 008689373-02

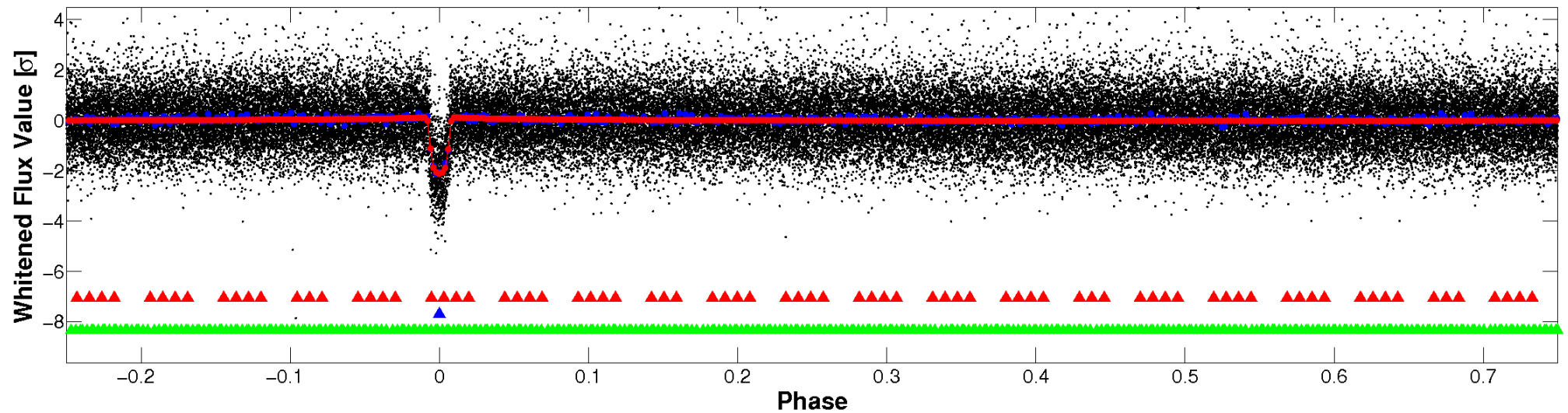


Non-Whitened Vs. Whitened Light Curve

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

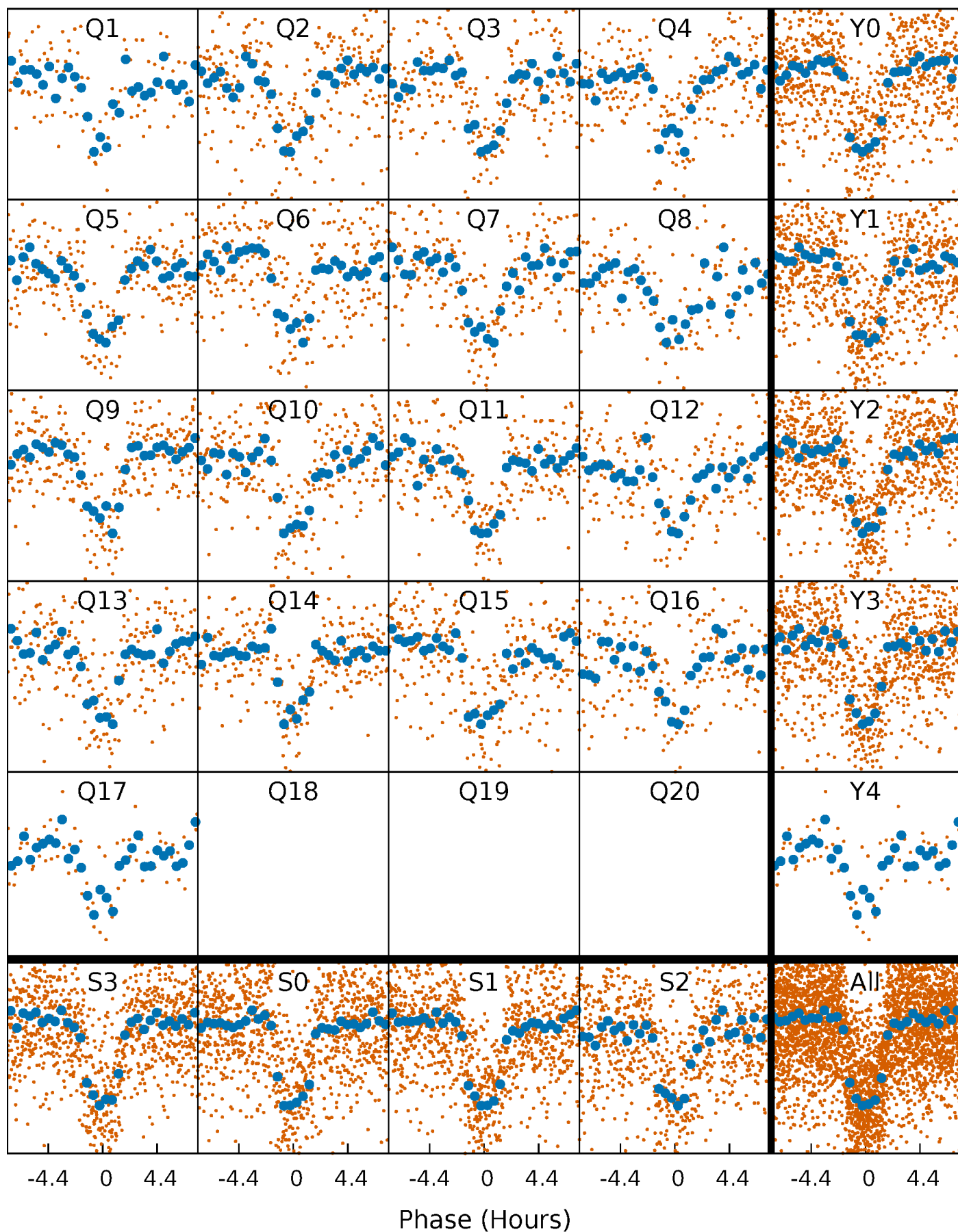


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



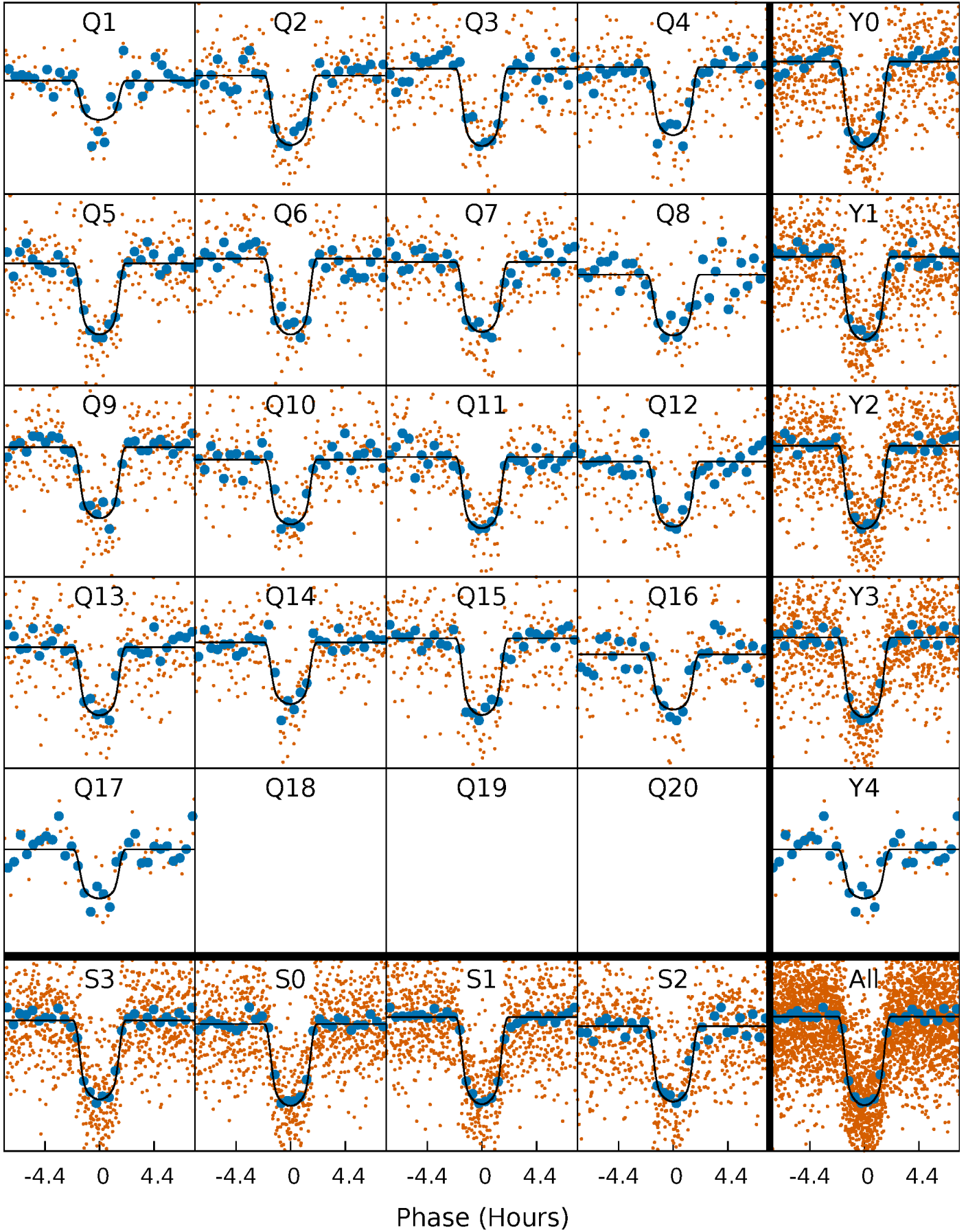
PDC Quarter-Phased Transit Curves

TCE 008689373-02 P= 10.281957 Days $T_0=134.211048$ (BKJD)



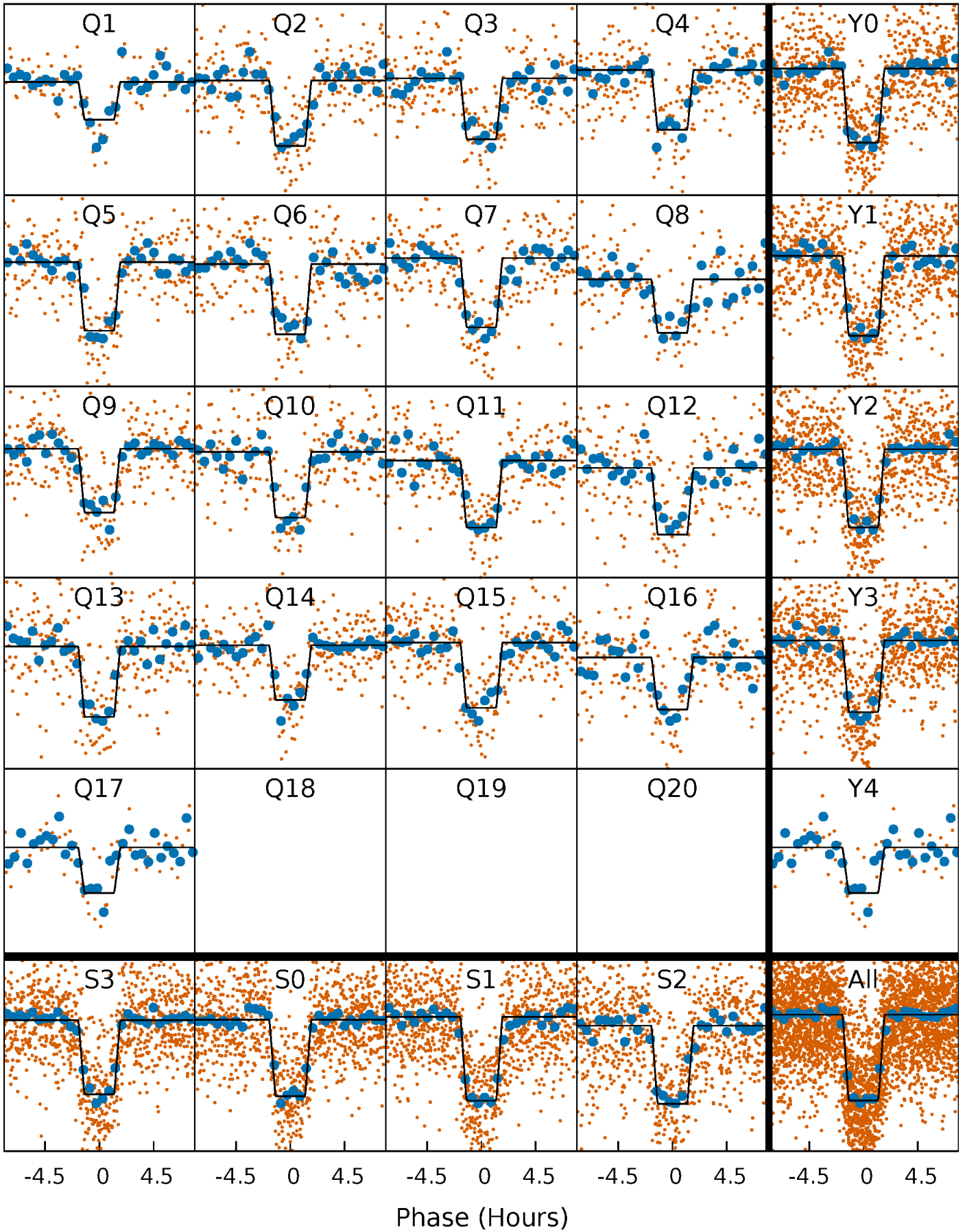
DV Quarter-Phased Transit Curves

TCE 008689373-02 P= 10.281957 Days $T_0=134.211048$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

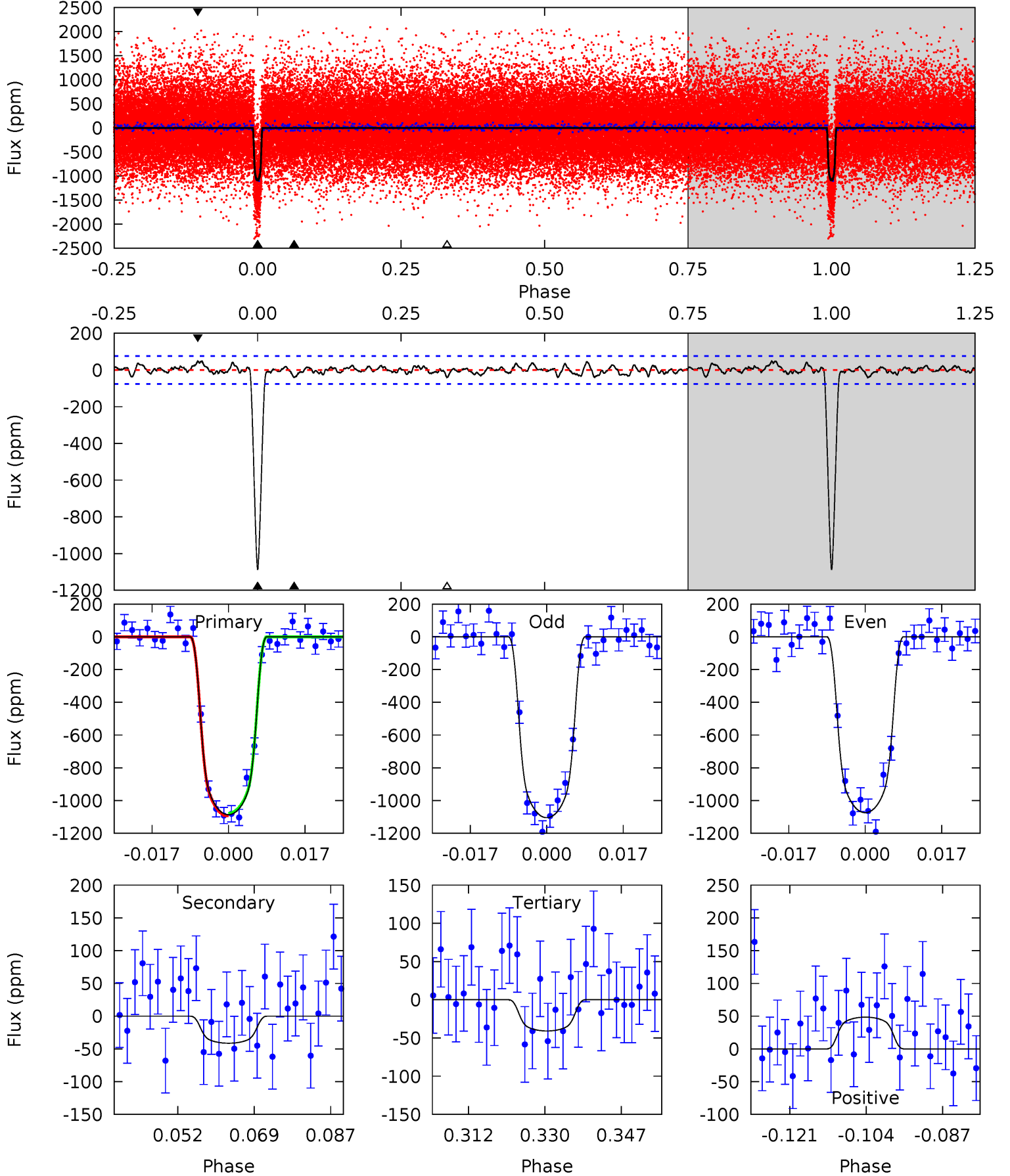
TCE 008689373-02 P= 10.282055 Days $T_0=134.204298$ (BKJD)



DV Model-Shift Uniqueness Test

008689373-02, P = 10.281957 Days, E = 123.929091 Days

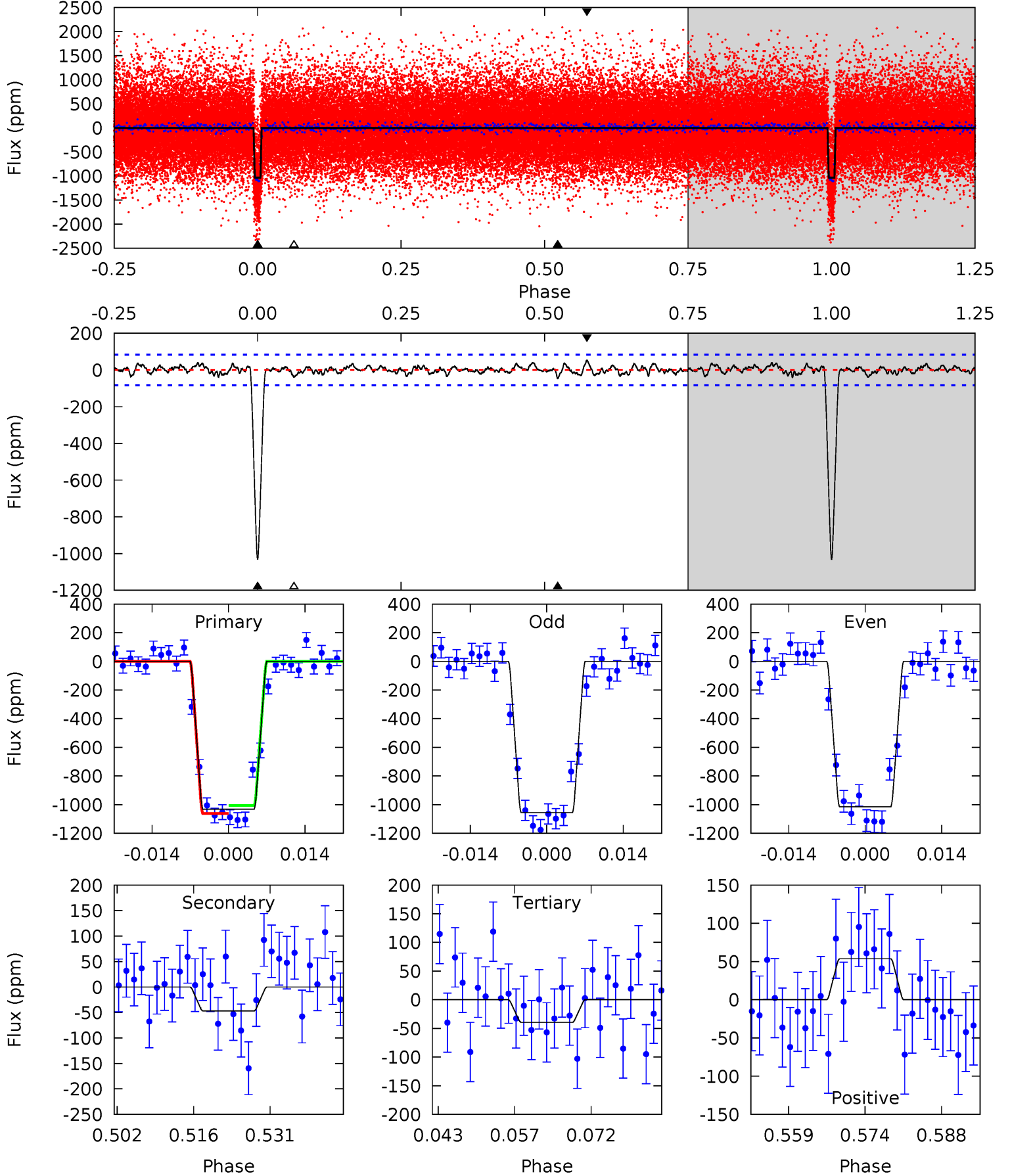
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
70.3	2.67	2.64	3.14	4.92	2.38	1.06	67.6	67.1	0.03	-0.46	1.00	0.99	0.04	0.51



Alt Model-Shift Uniqueness Test

008689373-02, P = 10.282055 Days, E = 123.922243 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.1	2.77	2.33	3.17	4.96	2.45	0.94	58.7	57.9	0.44	-0.40	1.21	0.99	0.05	1.64



Stellar Parameters For KIC 008689373

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5196^{+155}_{-155}	$4.593^{+0.026}_{-0.097}$	$0.040^{+0.250}_{-0.300}$	$0.775^{+0.111}_{-0.056}$	$0.869^{+0.064}_{-0.092}$	$2.630^{+0.353}_{-0.780}$
	+3%/-3%	+1%/-2%	+625%/-750%	+14%/-7%	+7%/-11%	+13%/-30%
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 008689373-02 / KOI 0921.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-41 ± 15	$3.20^{+0.23}_{-0.23}$	965^{+39}_{-39}	2838^{+153}_{-190}	17^{+6}_{-7}
Alt.	-47 ± 17	$2.85^{+0.24}_{-0.18}$	964^{+43}_{-35}	2991^{+157}_{-187}	24^{+10}_{-9}

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 $A_{obs} \gg 1.0$

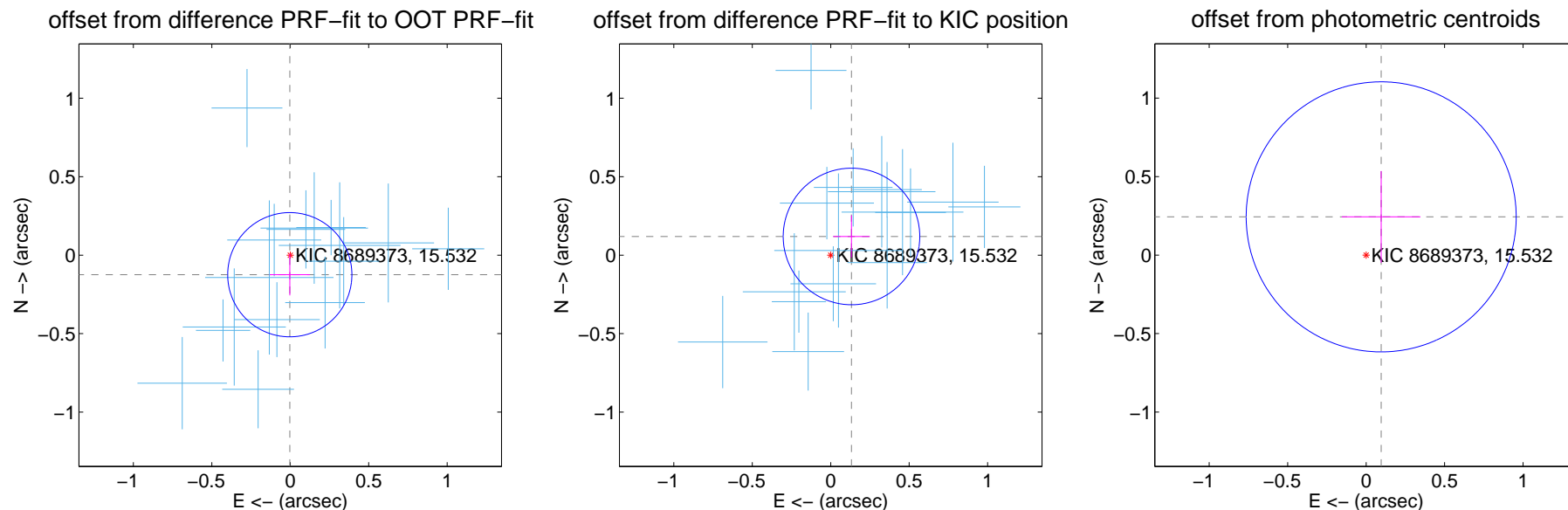
DV Centroid Data

Supplemental centroid analysis for 008689373-02. Kepler magnitude: 15.53. Transit SNR 51.41

There are 16 quarters with good PRF difference image offsets

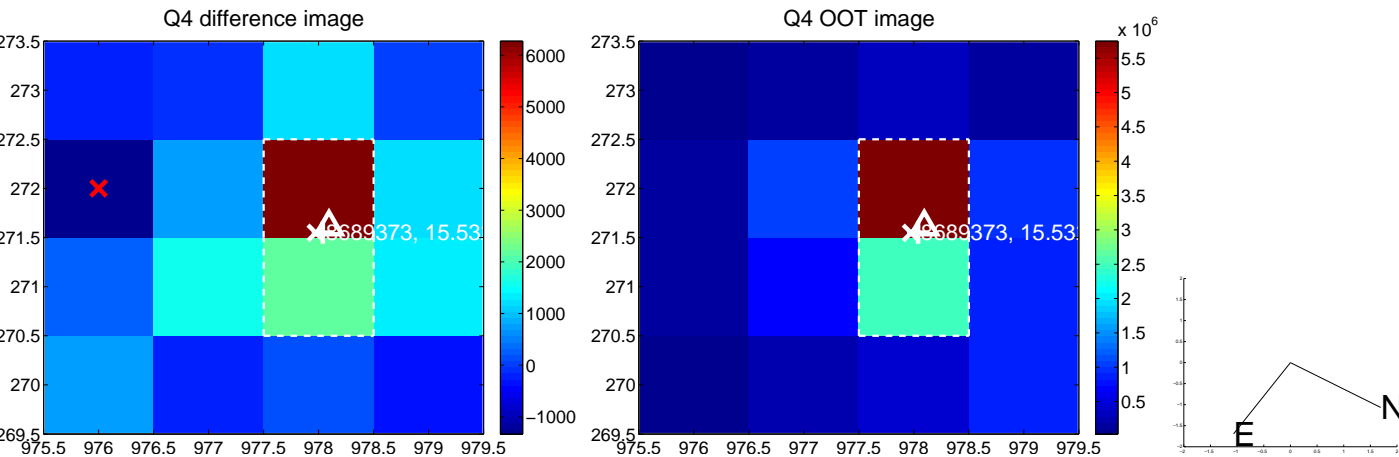
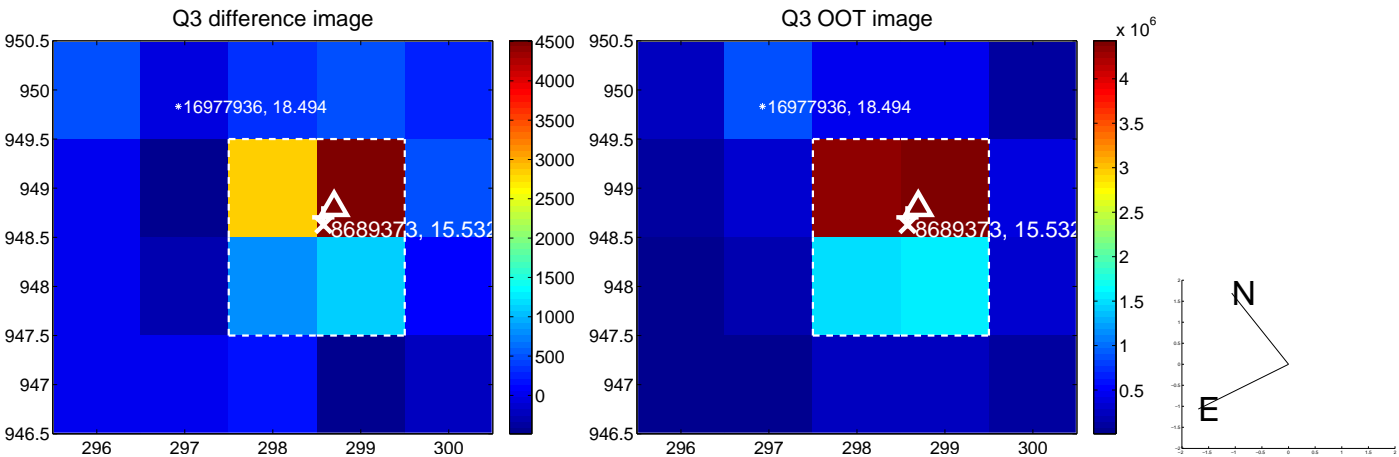
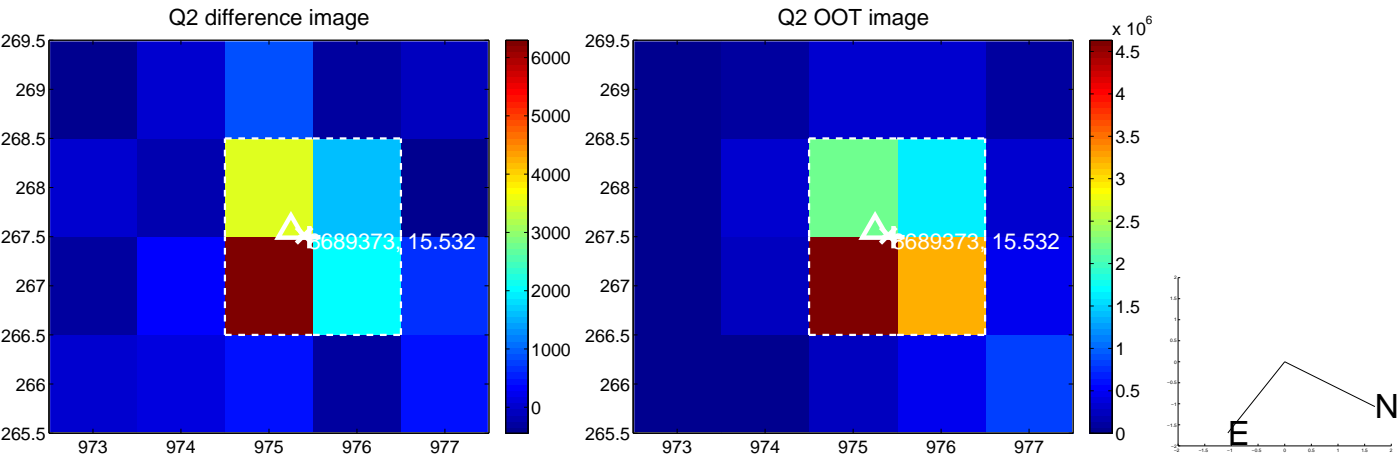
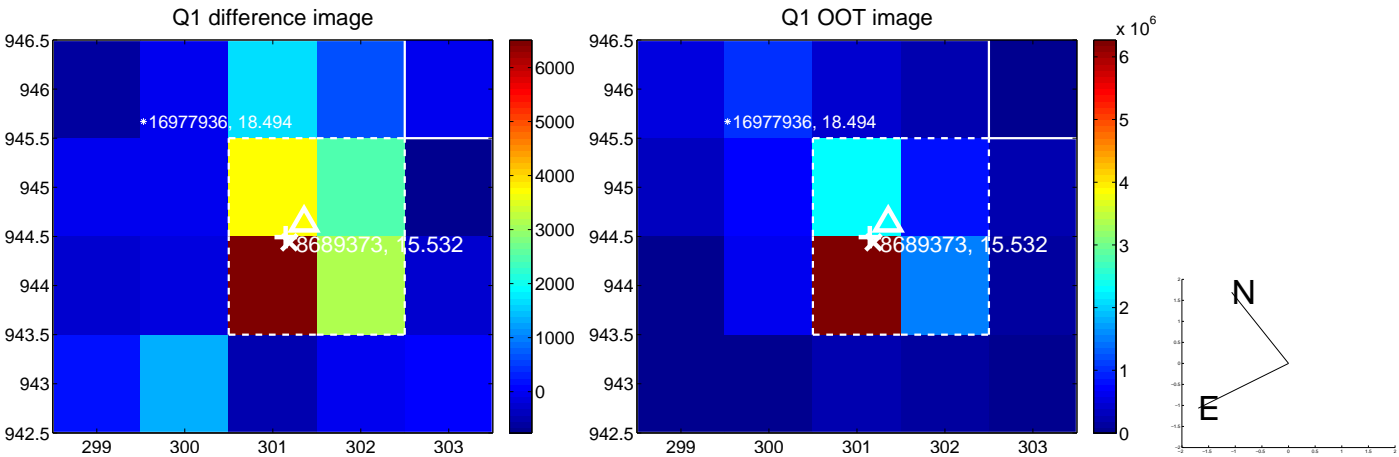
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.125 ± 0.132	0.95	0.003 ± 0.128	-0.125 ± 0.132
PRF-fit source offset from KIC position	0.178 ± 0.145	1.23	-0.132 ± 0.117	0.119 ± 0.134
photometric centroid source offset	0.26 ± 0.29	0.91	-0.10 ± 0.25	0.24 ± 0.29

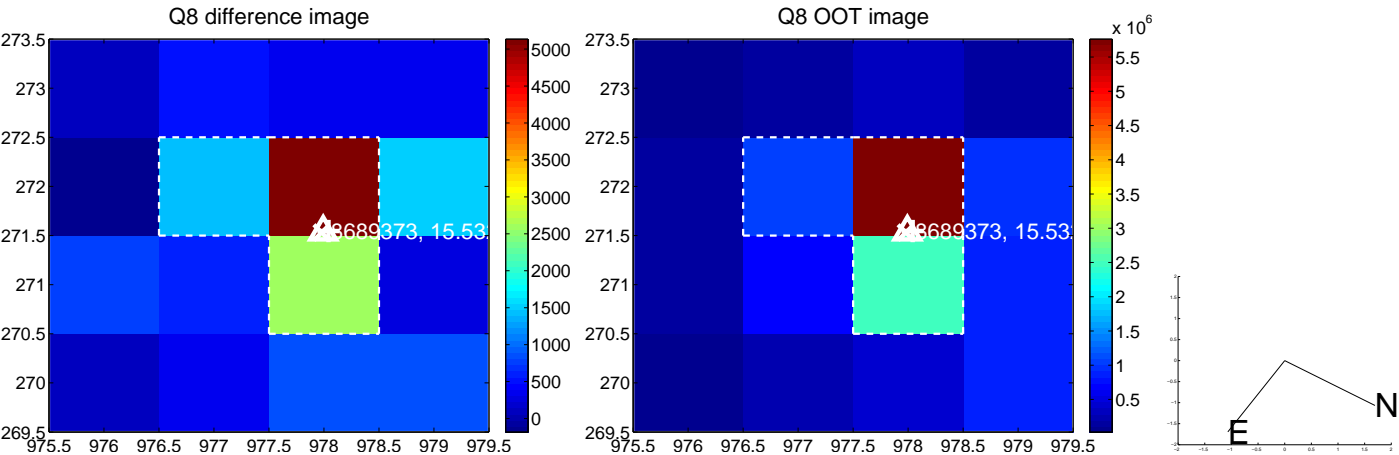
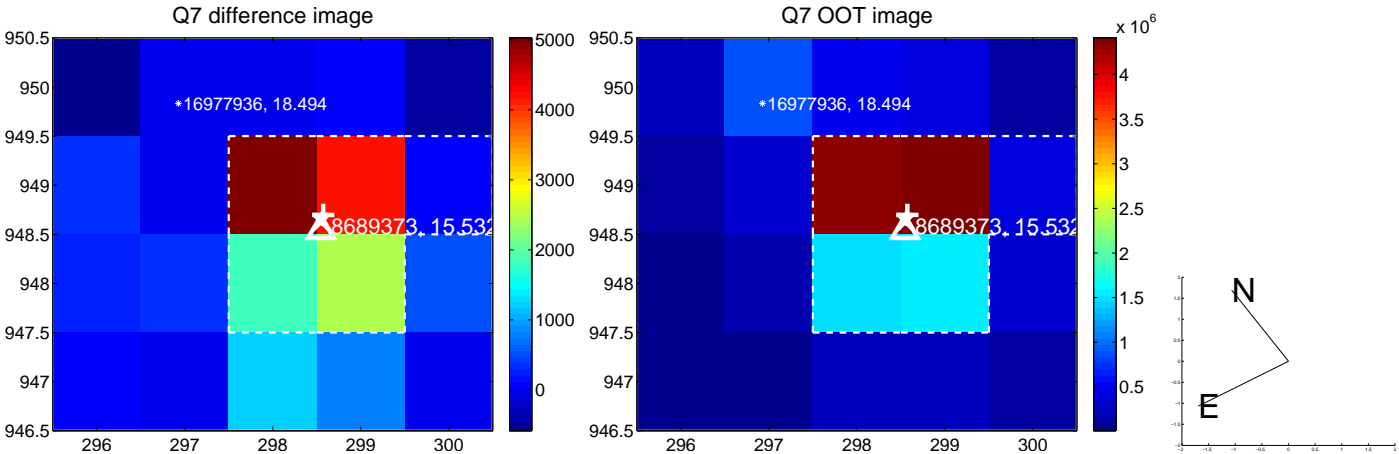
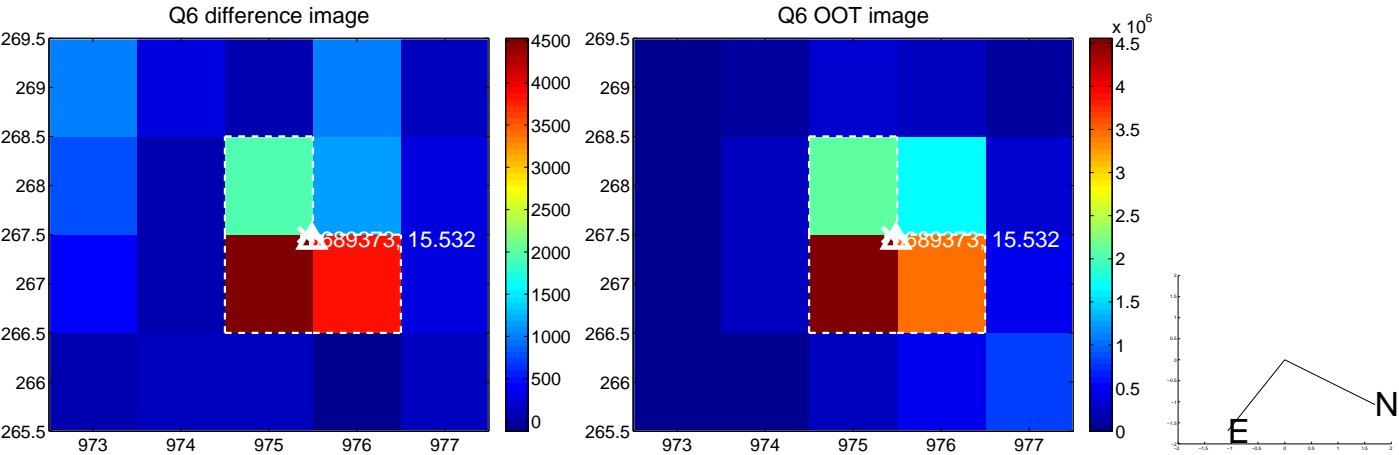
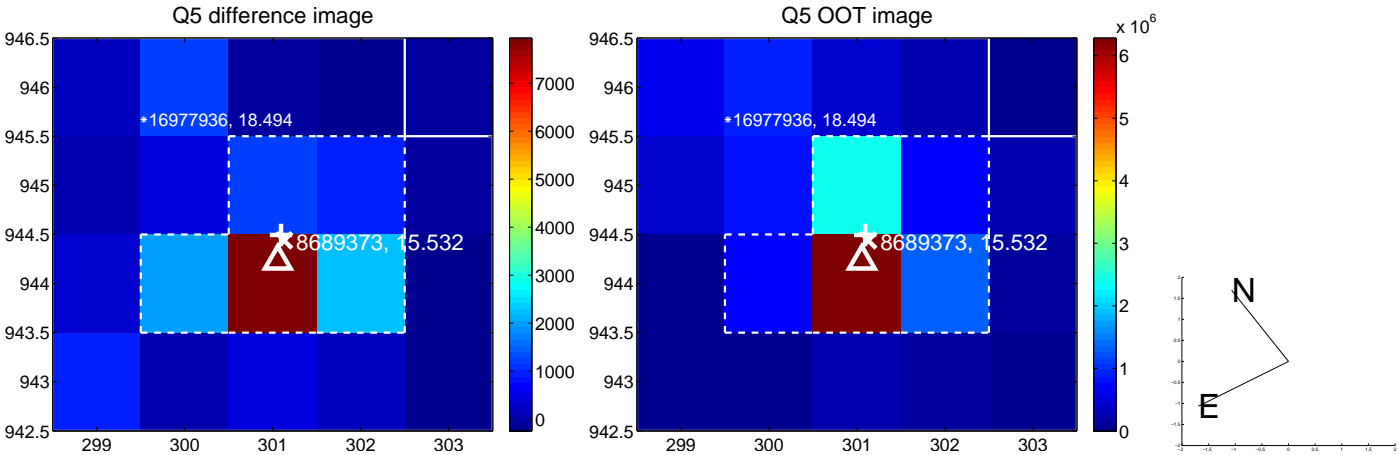


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

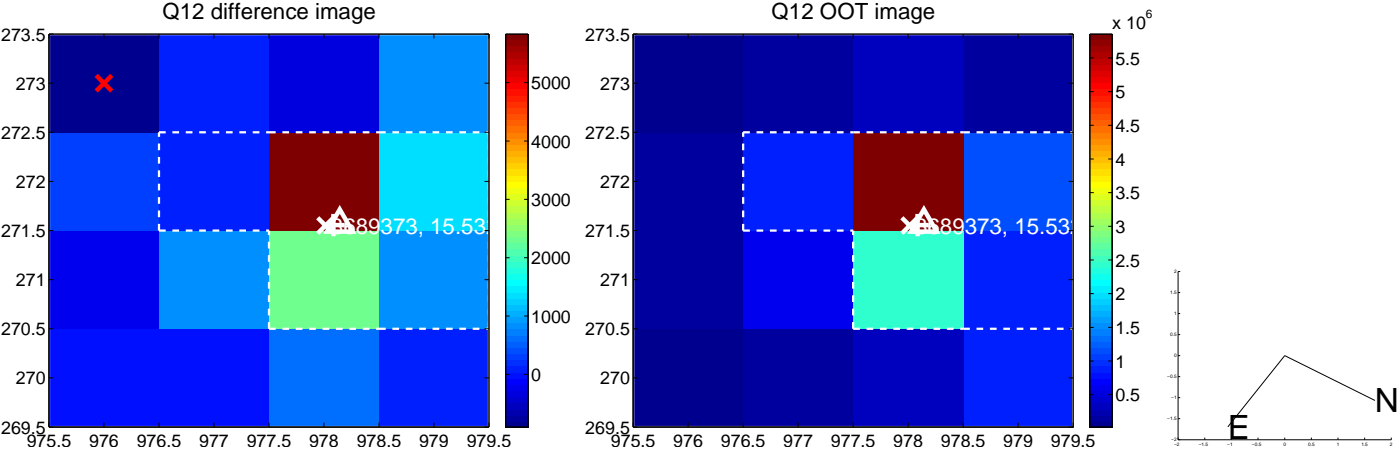
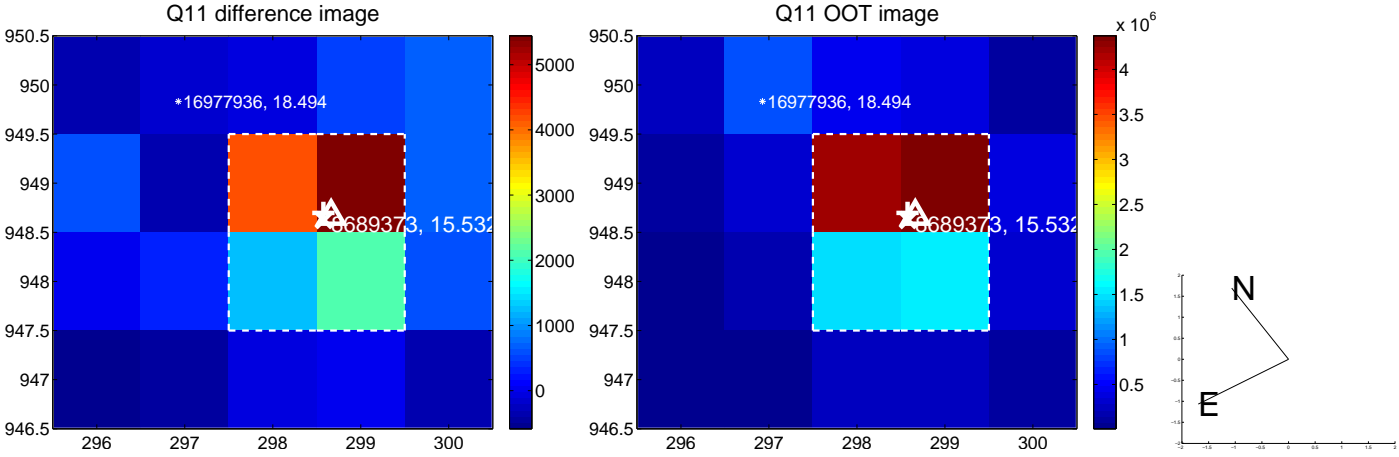
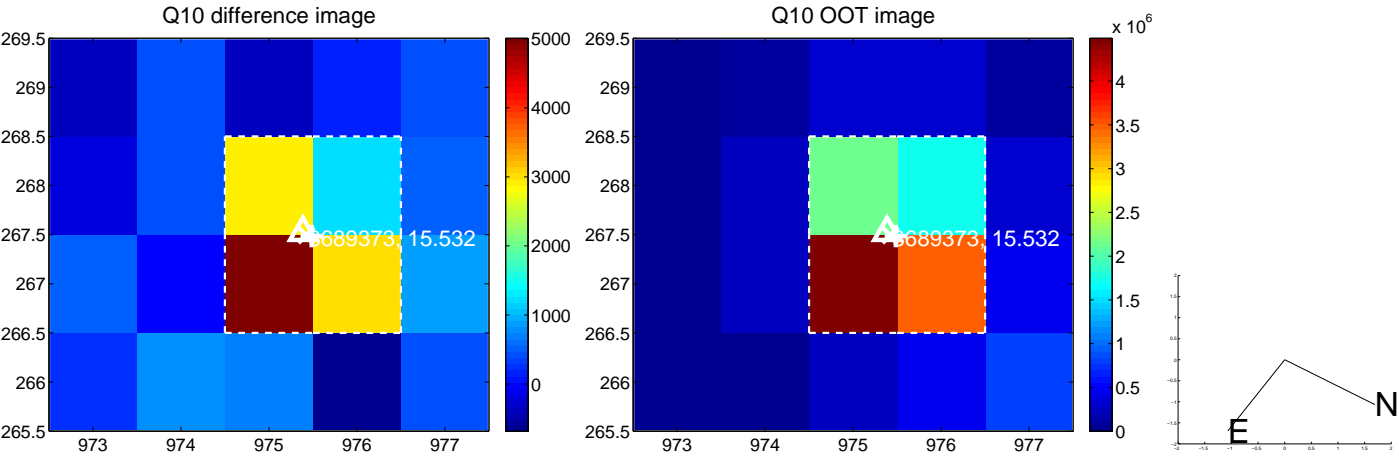
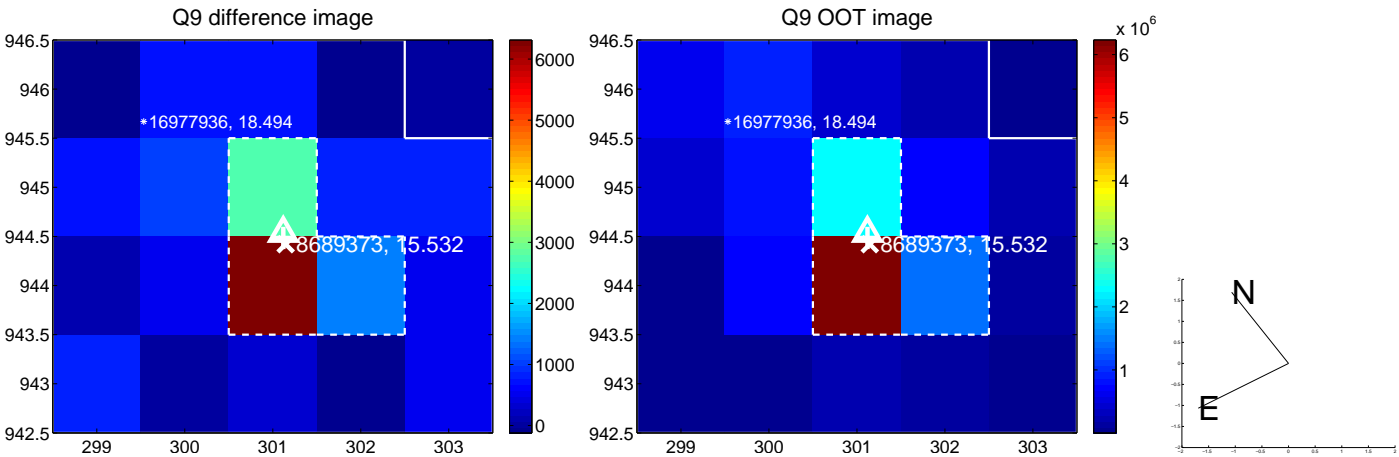
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



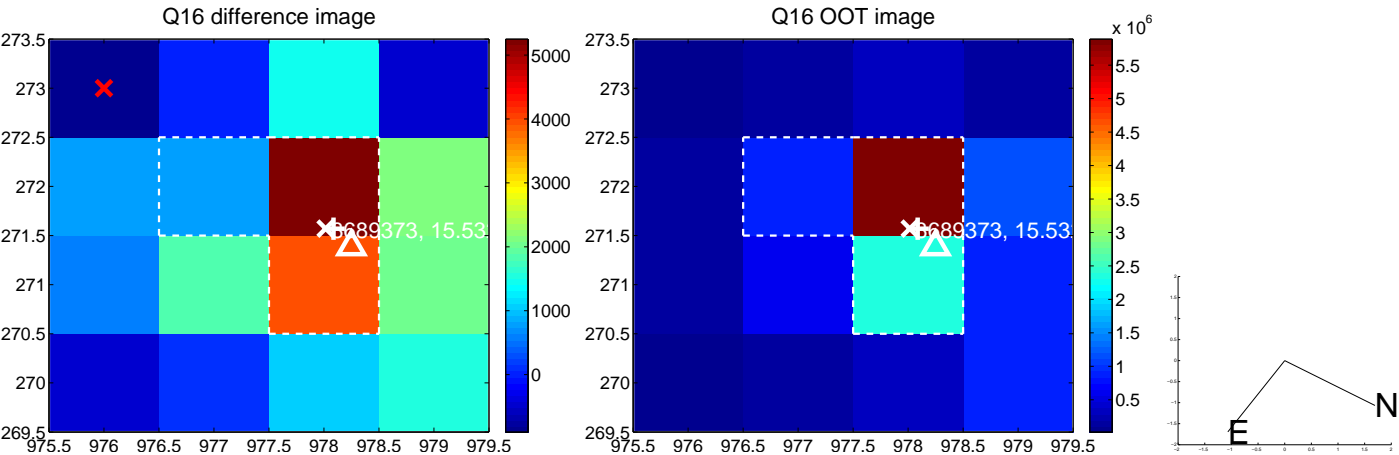
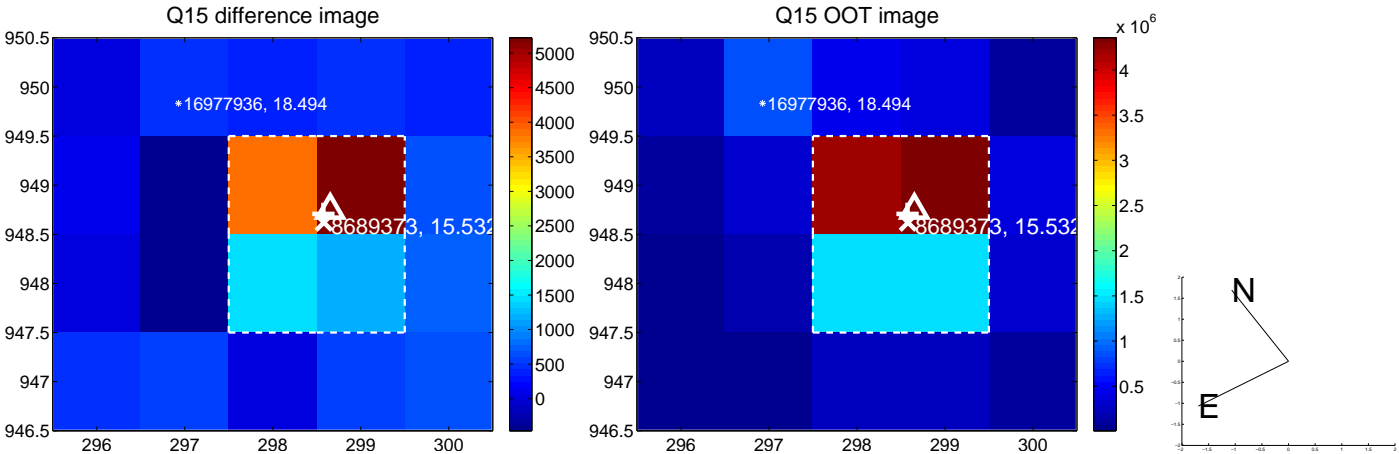
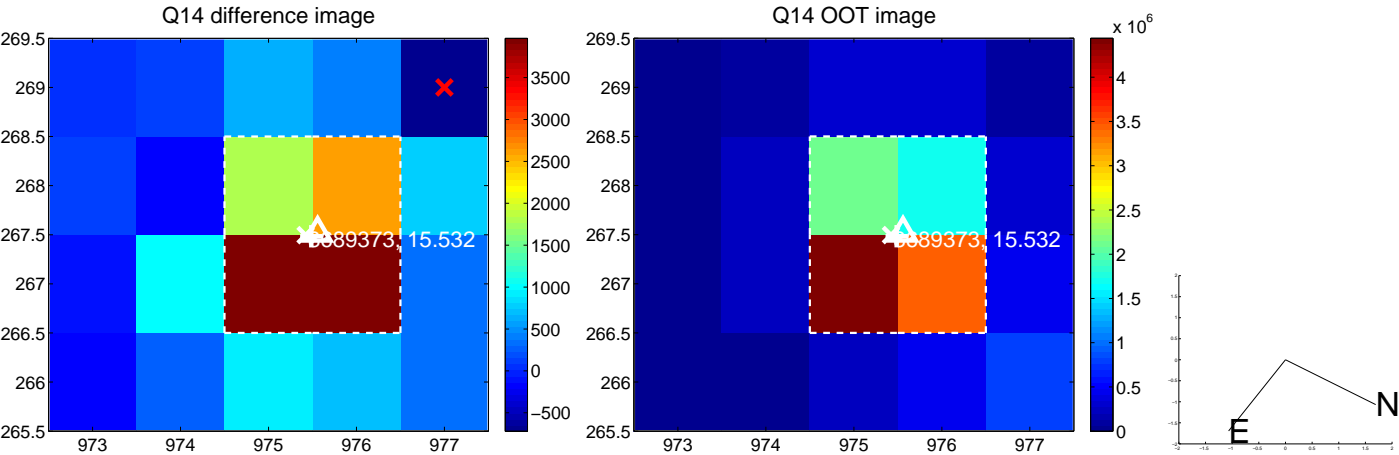
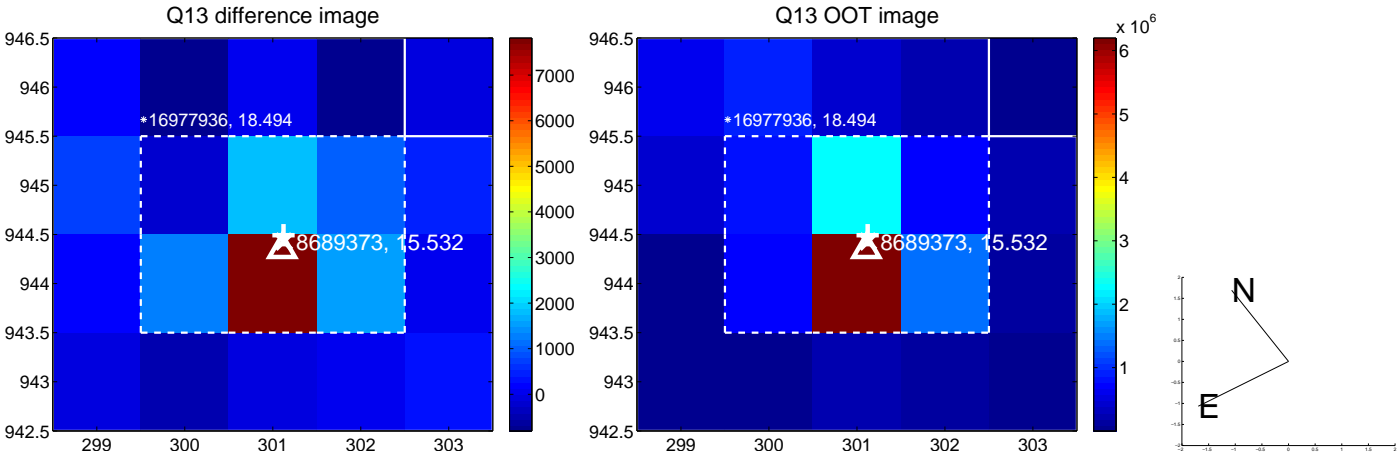
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



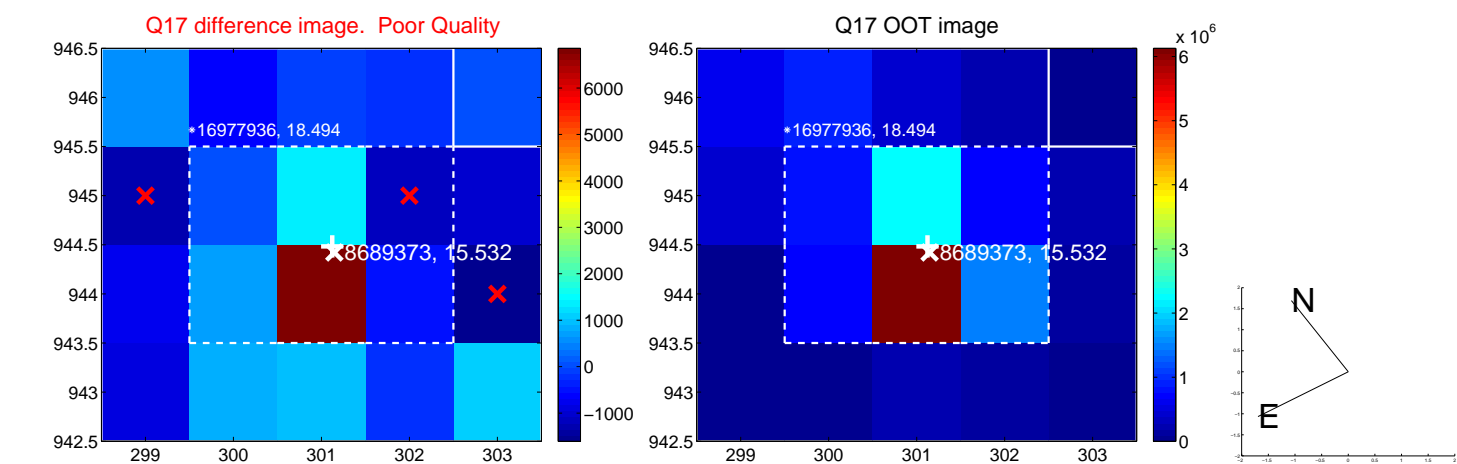
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



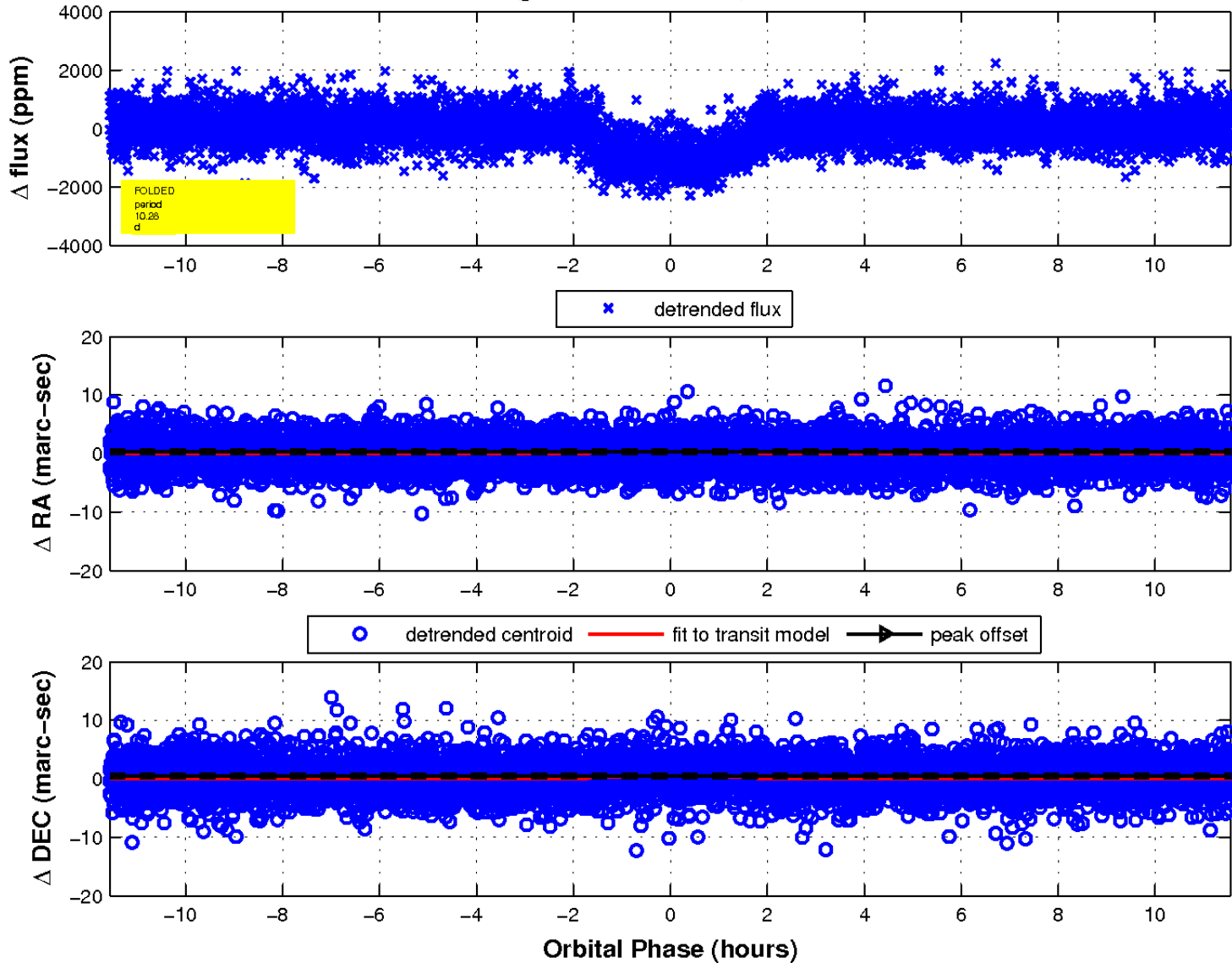
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

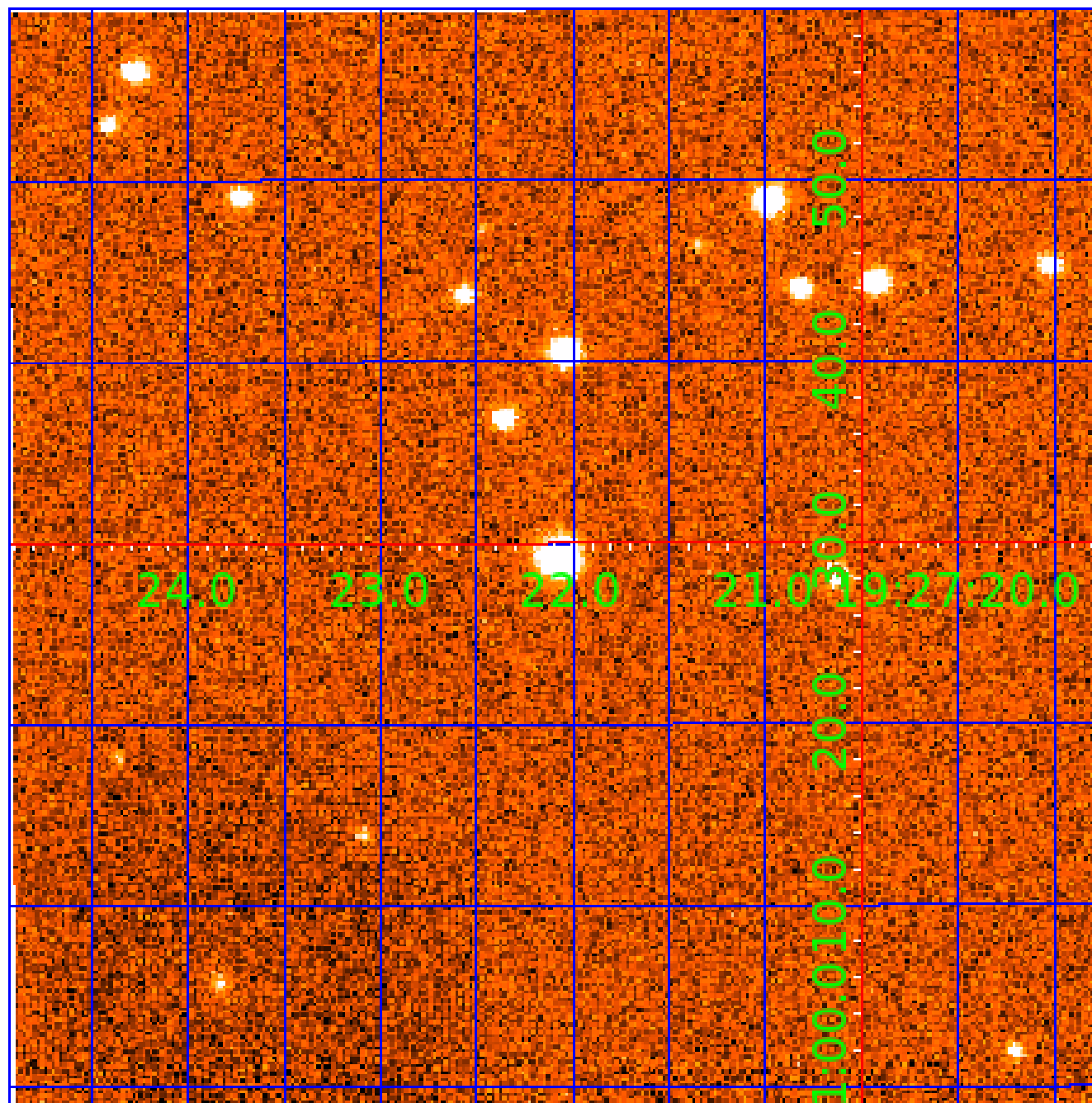


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 008689373

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})
008689373-01	OBS	0921.02	18.119911	146.376192	1499.3	4.423	49.6	52.7	0.78	5196	3.27	23.82
008689373-02	OBS	0921.01	10.281957	134.211048	1123.5	3.855	46.3	51.4	0.78	5196	3.13	50.70
008689373-03	OBS	0921.03	3.784020	133.282871	448.0	2.082	23.4	26.6	0.78	5196	2.02	192.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008689373-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008689373-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008689373-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

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

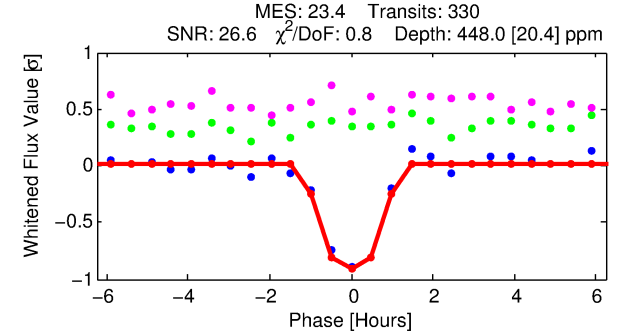
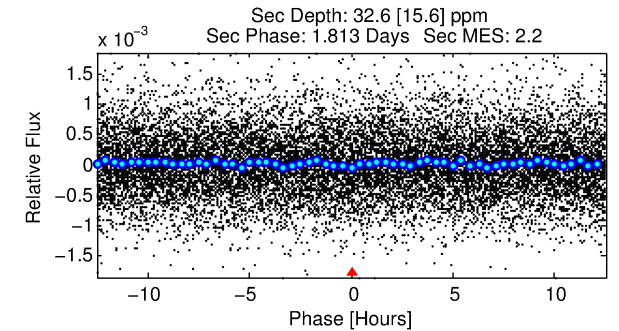
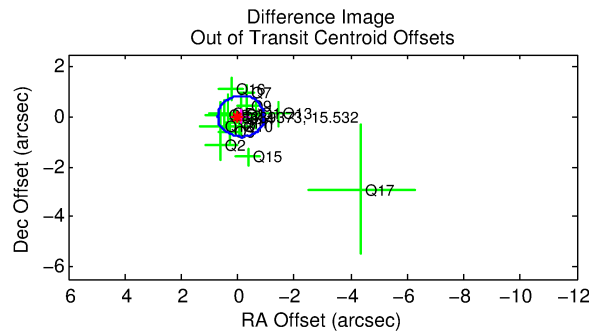
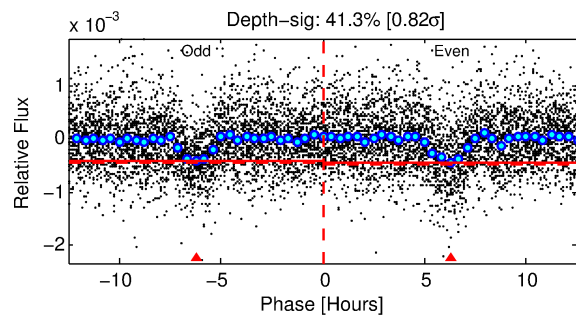
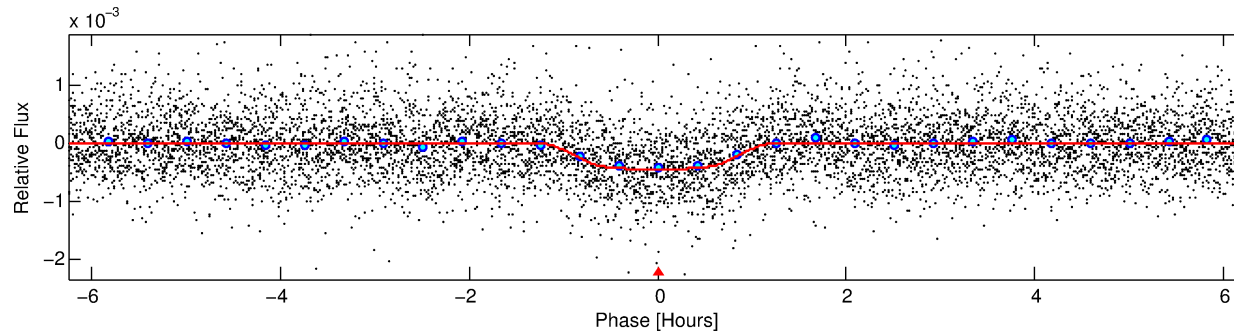
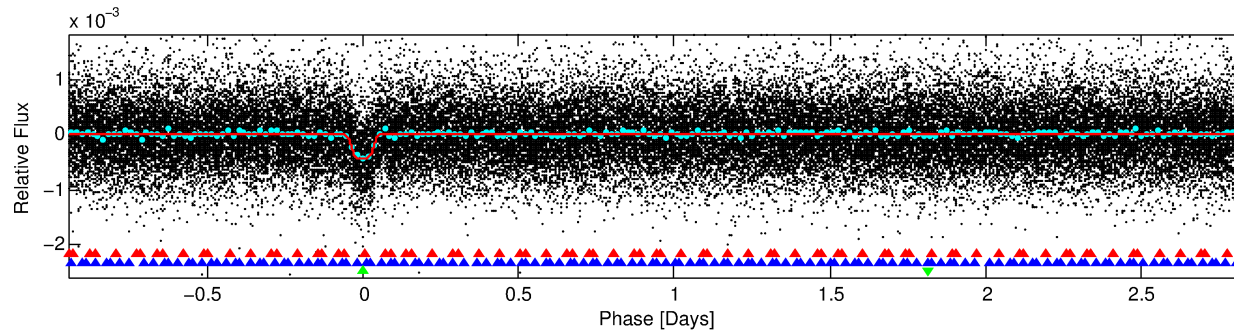
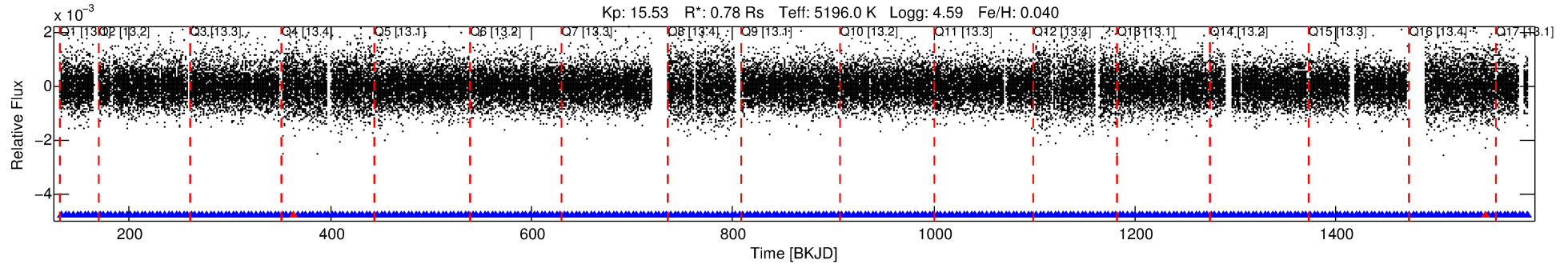
Ephemeris Match Information For 008689373-03

No Significant Match Found

DV One-Page Summary

KIC: 8689373 Candidate: 3 of 3 Period: 3.784 d
KOI: K00921.03 Name: Kepler-253b Corr: 0.969

Kp: 15.53 R*: 0.78 Rs Teff: 5196.0 K Logg: 4.59 Fe/H: 0.040



DV Fit Results:

Period = 3.78402 [0.00001] d
Epoch = 133.2829 [0.0014] BKJD
Rp/R* = 0.0239 [0.0044]
a/R* = 6.50 [4.74]
b = 0.91 [0.14]
Seff = 192.24 [41.02]
Teq = 949 [51] K
Rp = 2.02 [0.47] Re
a = 0.0452 [0.0055] AU
Ag = 8.93 [5.61] [1.41σ]
Teffp = 2537 [390] K [4.03σ]

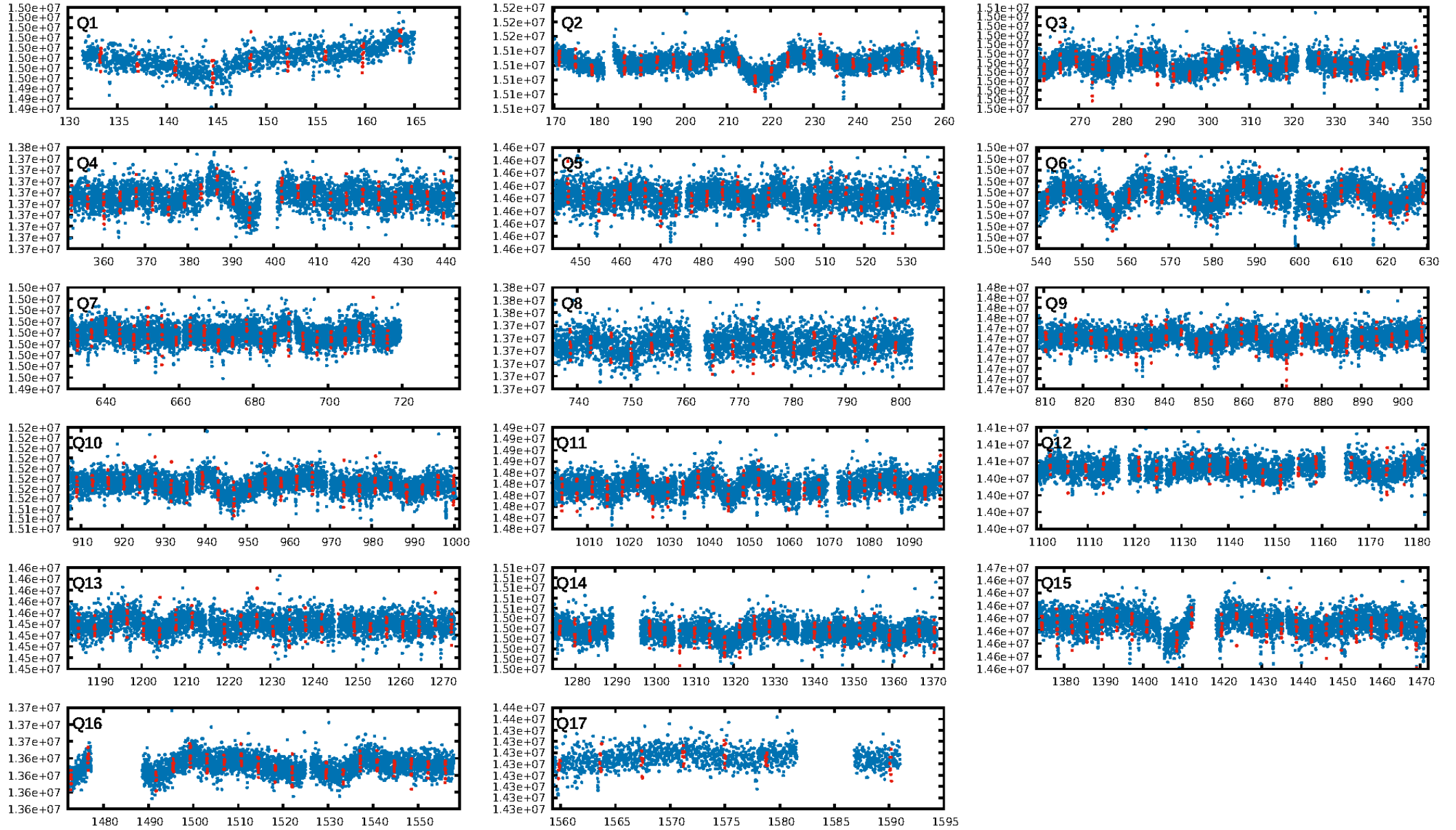
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [35.60σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.74e-119
RollingBand-fgt: 0.99 [314/316]
GhostDiagnostic-chr: 3.179
Centroid-sig: 17.0%
Centroid-so: 0.408 arcsec [0.79σ]
OotOffset-rm: 0.118 arcsec [0.43σ]
KicOffset-rm: 0.354 arcsec [1.73σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 1.00 [17/17]

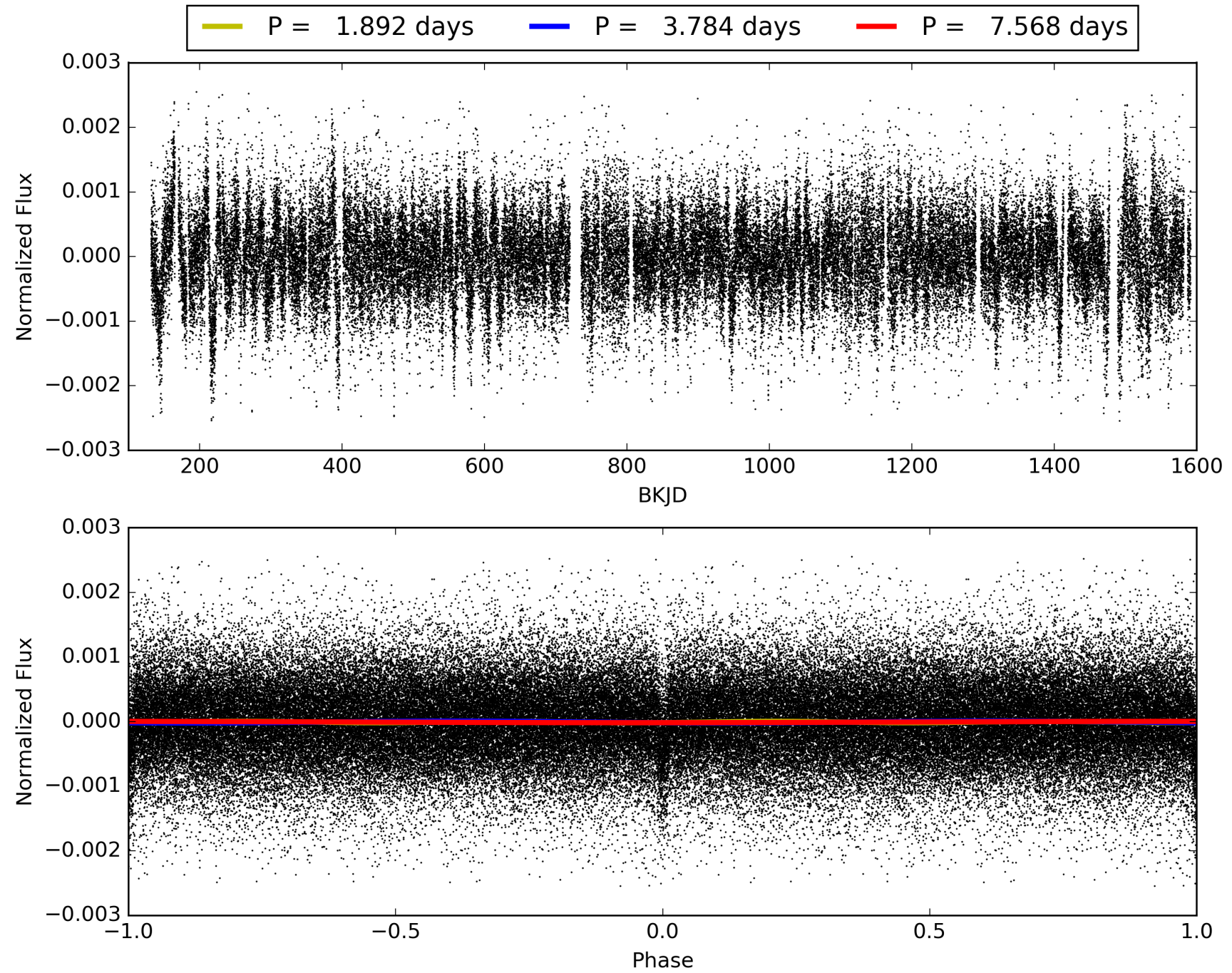
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:02:56 Z

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

TCE 008689373-03, PDC Light Curves

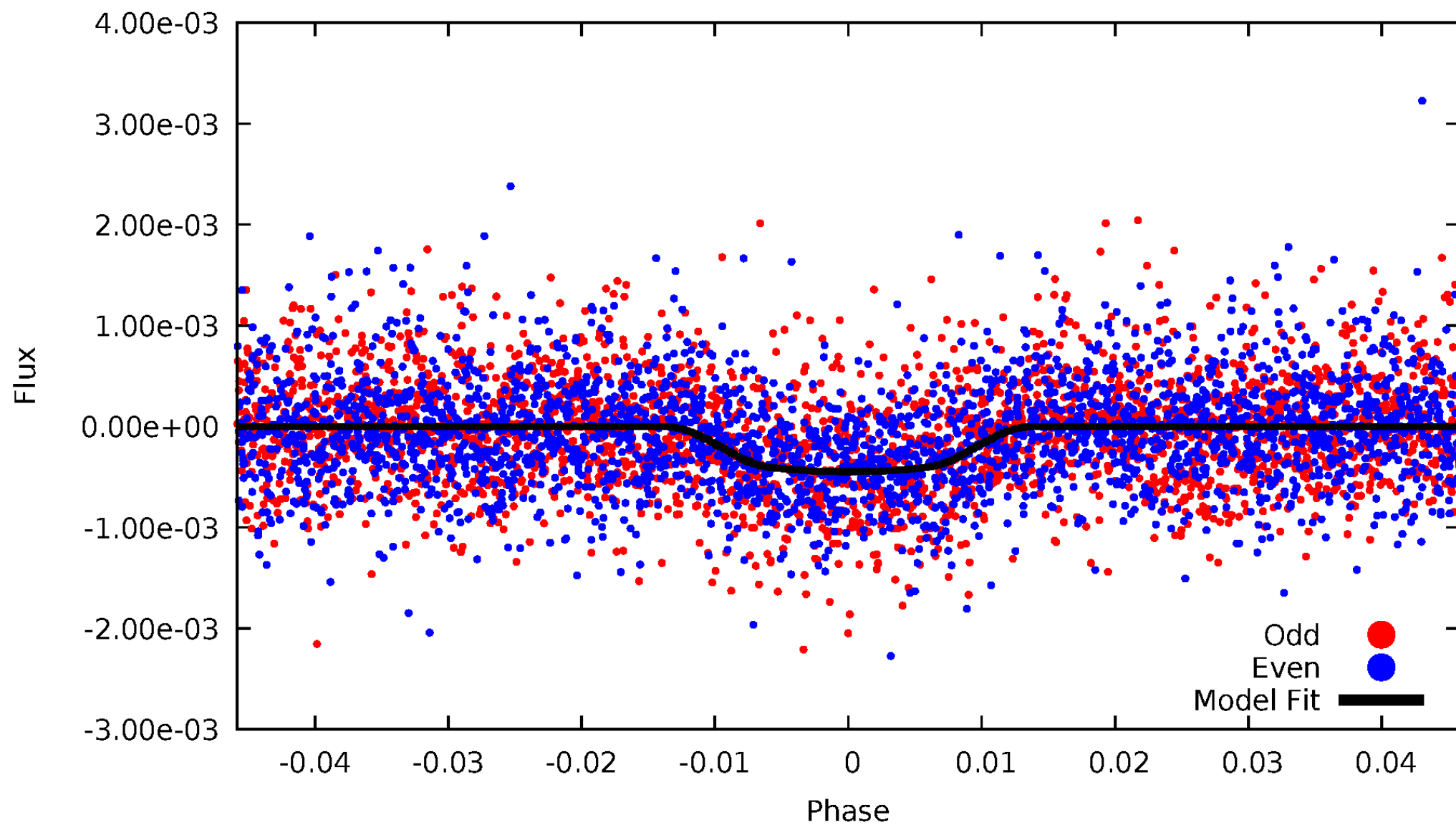


TCE 008689373-03



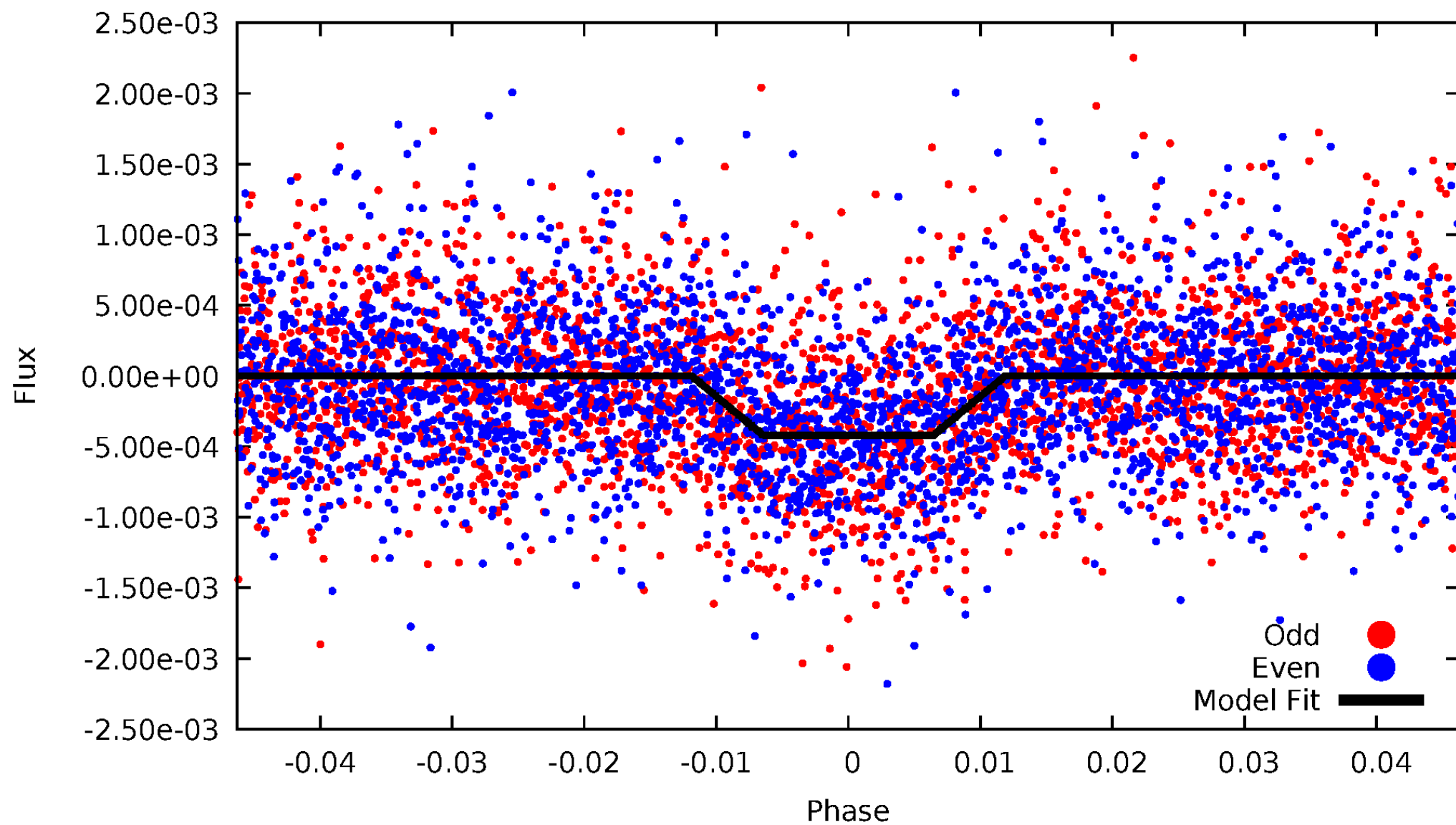
DV Odd/Even

TCE 008689373-03



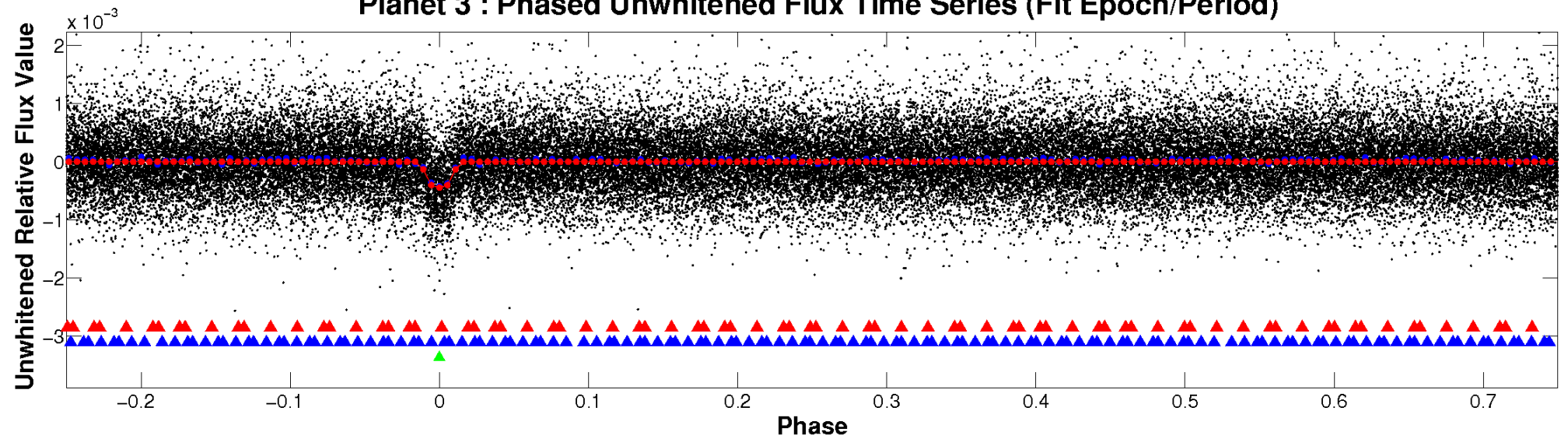
ALT Odd/Even

TCE 008689373-03

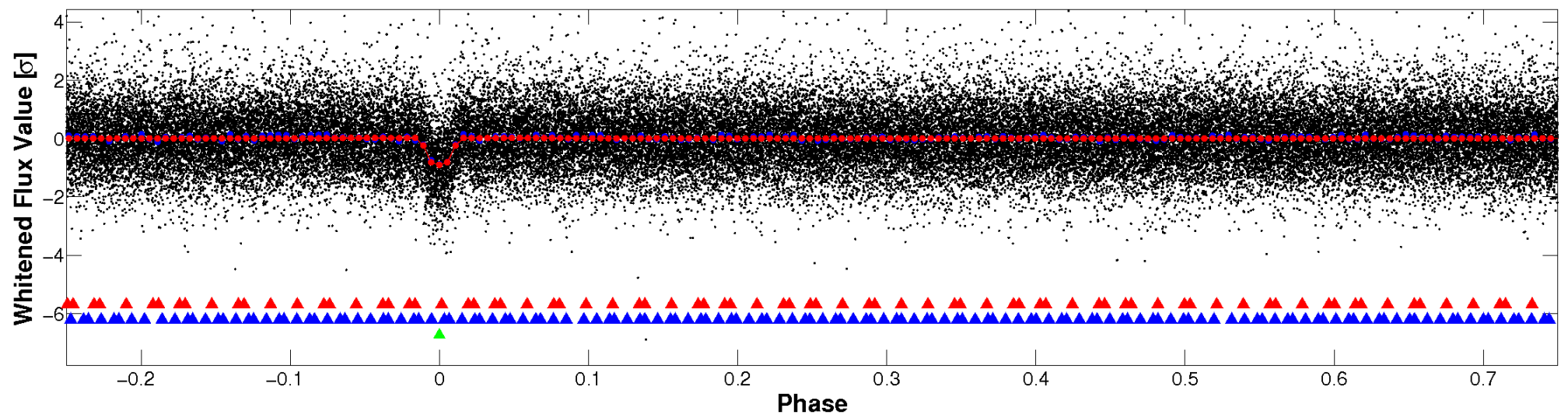


Non-Whitened Vs. Whitened Light Curve

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

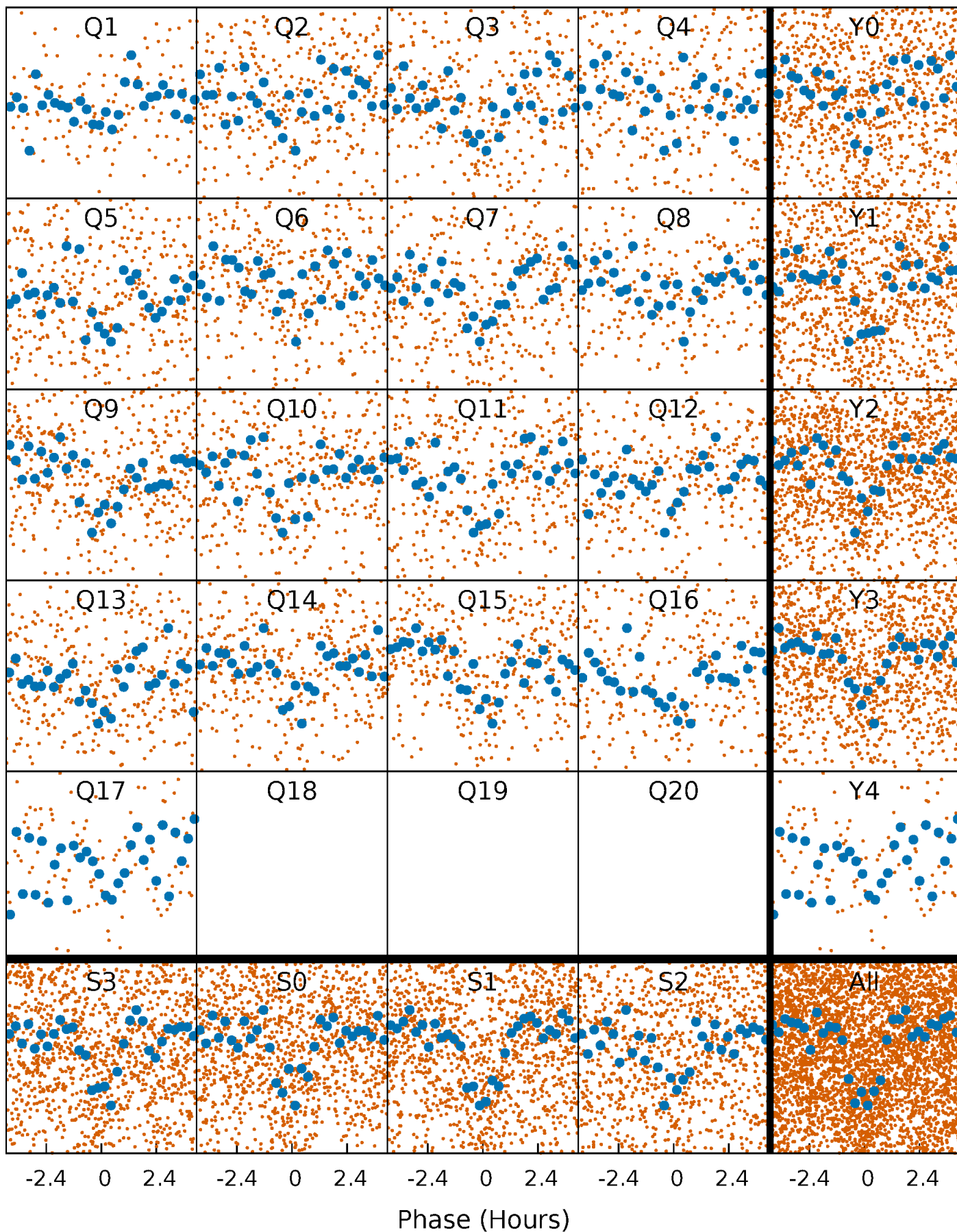


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



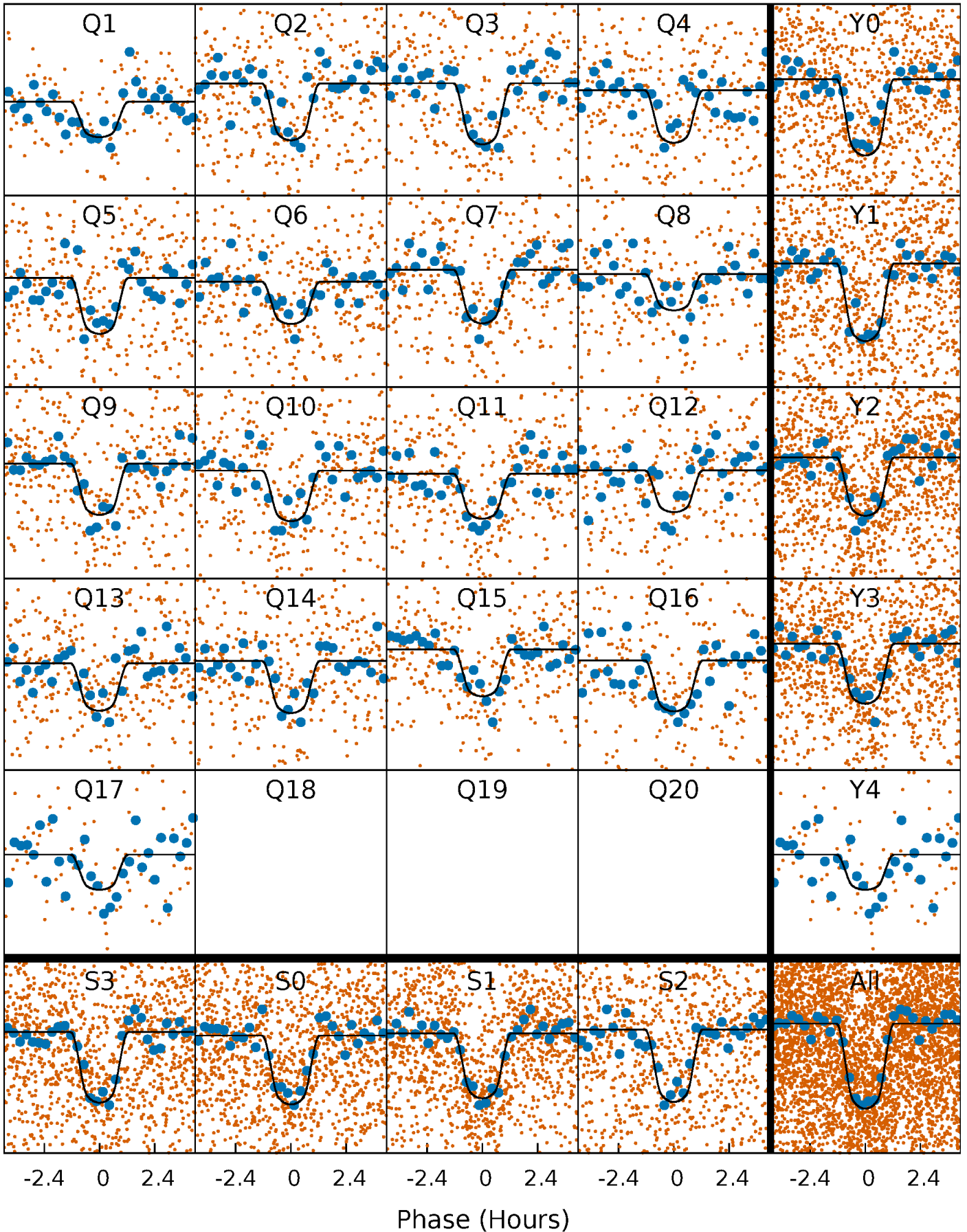
PDC Quarter-Phased Transit Curves

TCE 008689373-03 P= 3.784020 Days $T_0=133.282871$ (BKJD)



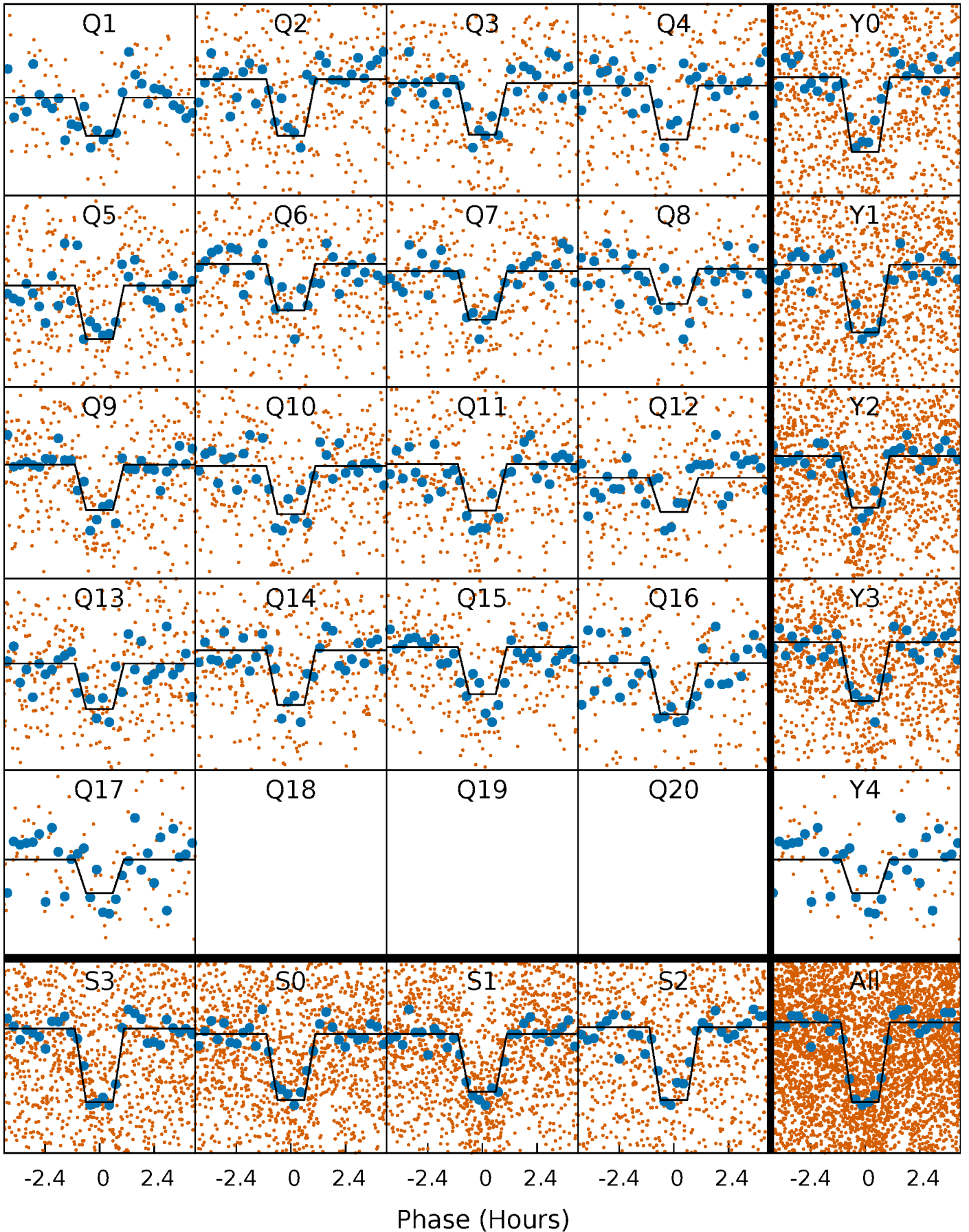
DV Quarter-Phased Transit Curves

TCE 008689373-03 $P = 3.784020$ Days $T_0 = 133.282871$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

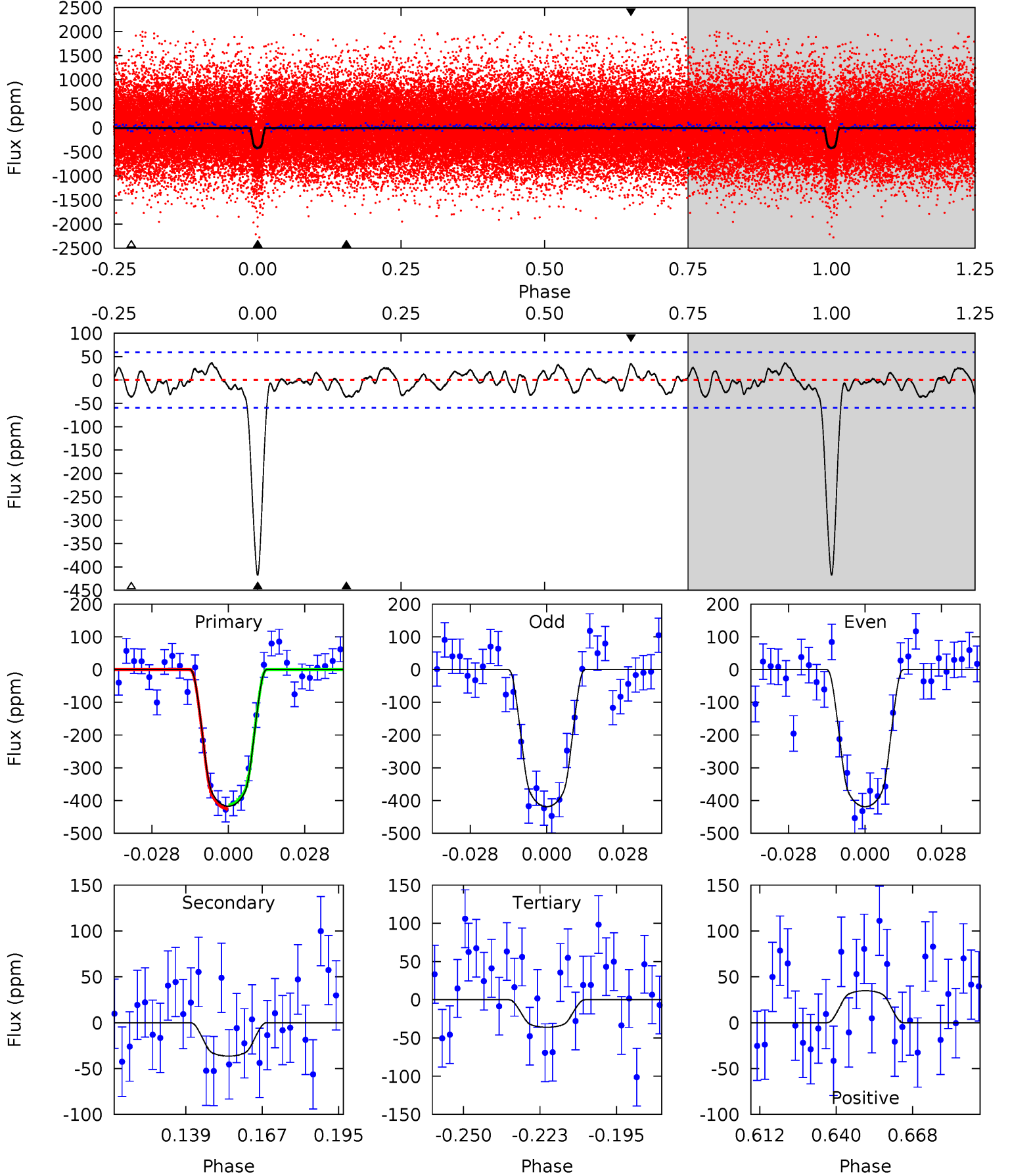
TCE 008689373-03 P= 3.784025 Days $T_0=133.282054$ (BKJD)



DV Model-Shift Uniqueness Test

008689373-03, P = 3.784020 Days, E = 129.498851 Days

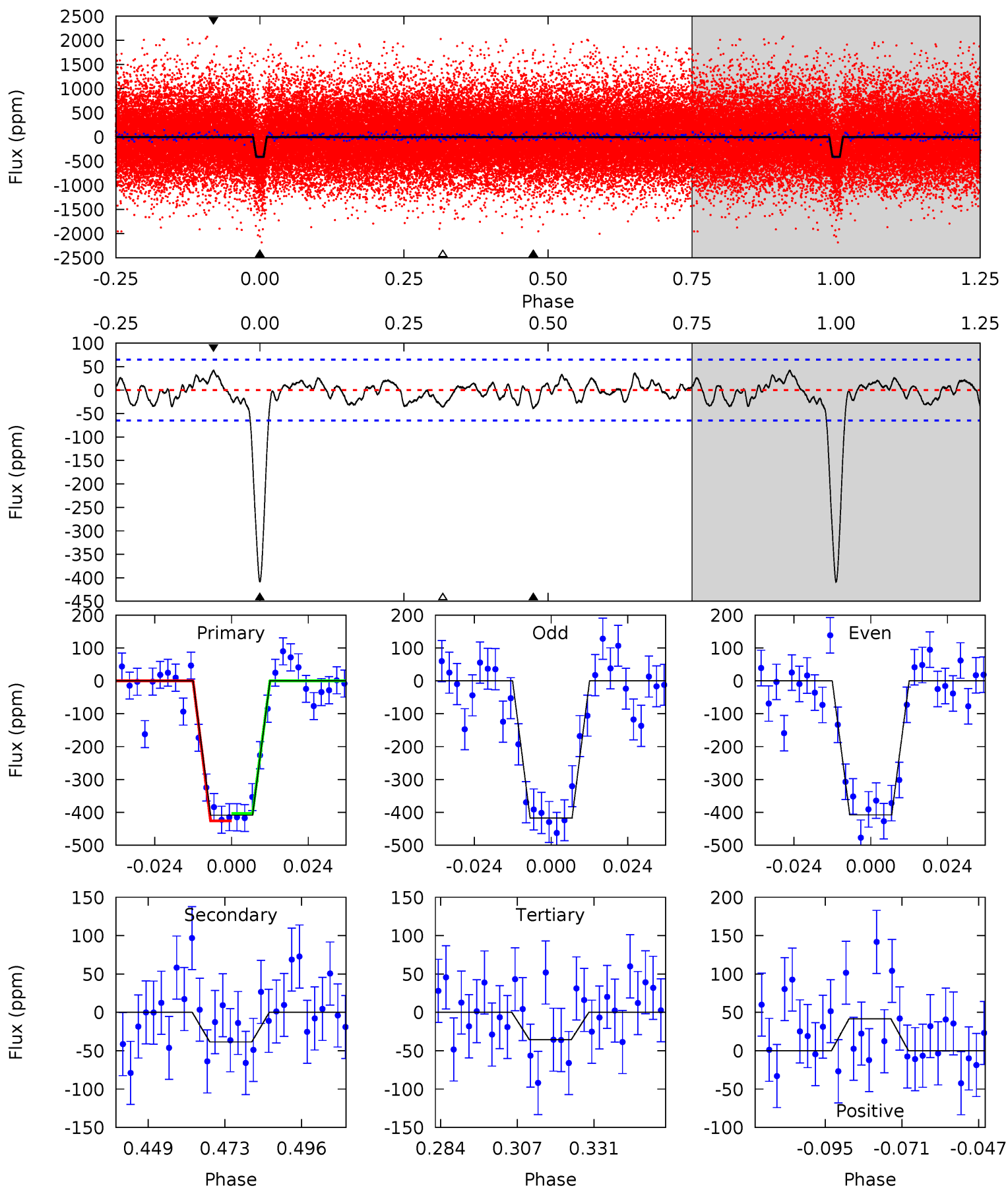
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.9	2.96	2.92	2.83	4.83	2.20	1.27	30.9	31.0	0.04	0.13	0.00	0.98	0.08	0.48



Alt Model-Shift Uniqueness Test

008689373-03, P = 3.784025 Days, E = 129.498029 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.6	2.89	2.66	3.12	4.86	2.26	1.25	28.0	27.5	0.23	-0.23	0.36	0.99	0.09	0.84



Stellar Parameters For KIC 008689373

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5196^{+155}_{-155}	$4.593^{+0.026}_{-0.097}$	$0.040^{+0.250}_{-0.300}$	$0.775^{+0.111}_{-0.056}$	$0.869^{+0.064}_{-0.092}$	$2.630^{+0.353}_{-0.780}$
	+3%/-3%	+1%/-2%	+625%/-750%	+14%/-7%	+7%/-11%	+13%/-30%
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 008689373-03 / KOI 0921.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-36 ± 12	$2.07^{+0.42}_{-0.39}$	1347^{+57}_{-53}	3152^{+267}_{-250}	$9.092^{+6.556}_{-3.852}$
Alt.	-39 ± 13	$1.78^{+0.41}_{-0.35}$	1344^{+55}_{-51}	3333^{+333}_{-299}	13^{+10}_{-6}

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

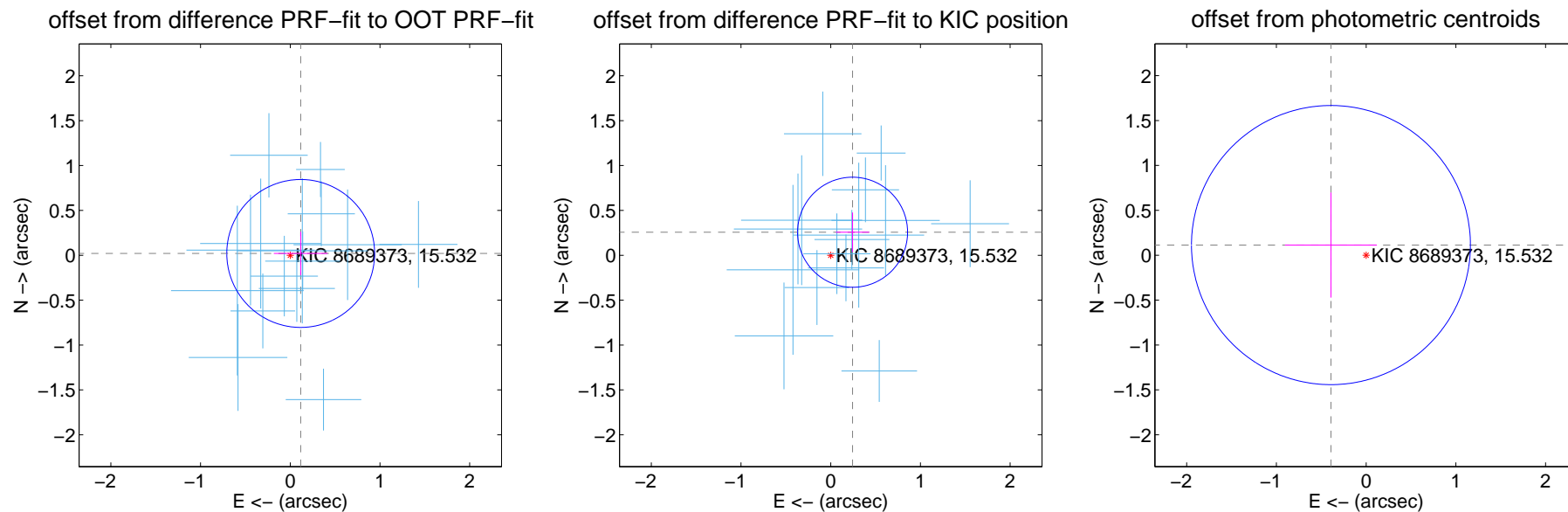
DV Centroid Data

Supplemental centroid analysis for 008689373-03. Kepler magnitude: 15.53. Transit SNR 26.63

There are 15 quarters with good PRF difference image offsets

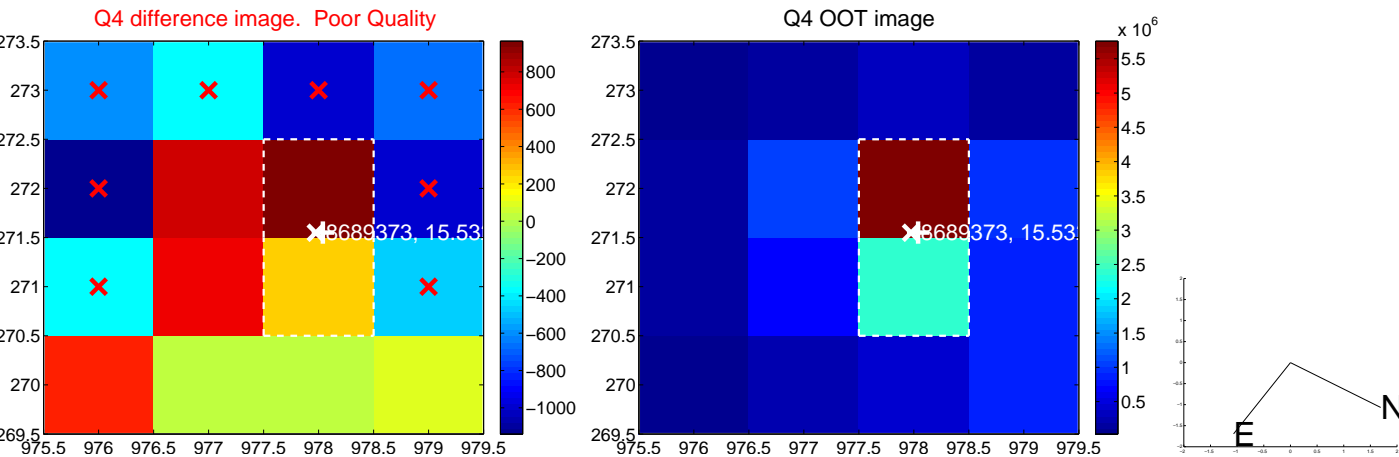
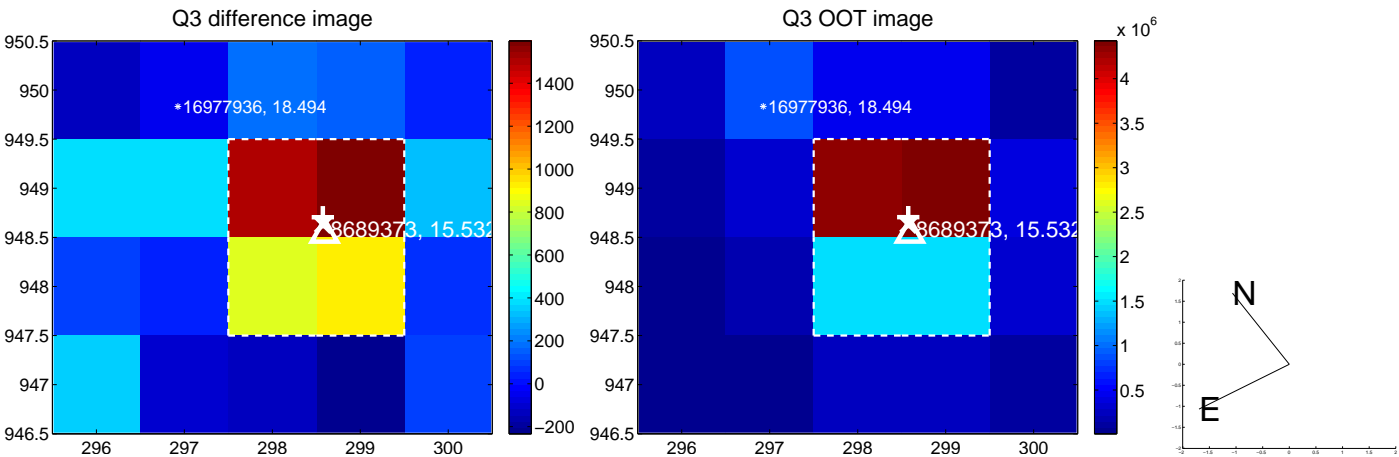
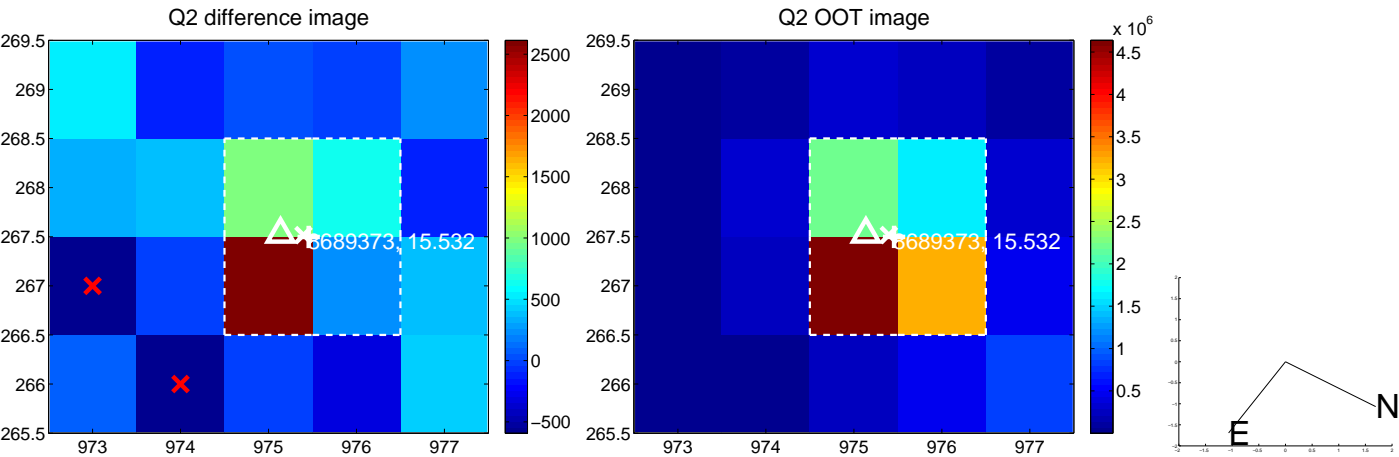
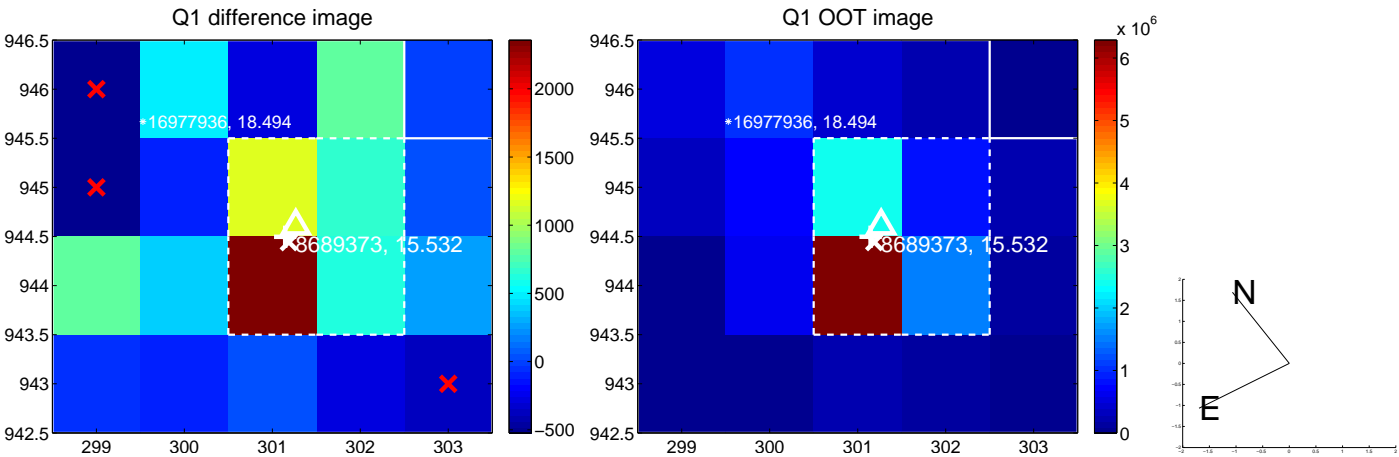
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.118 ± 0.275	0.43	-0.116 ± 0.300	0.020 ± 0.241
PRF-fit source offset from KIC position	0.354 ± 0.204	1.73	-0.244 ± 0.186	0.257 ± 0.220
photometric centroid source offset	0.41 ± 0.52	0.79	0.39 ± 0.51	0.11 ± 0.59

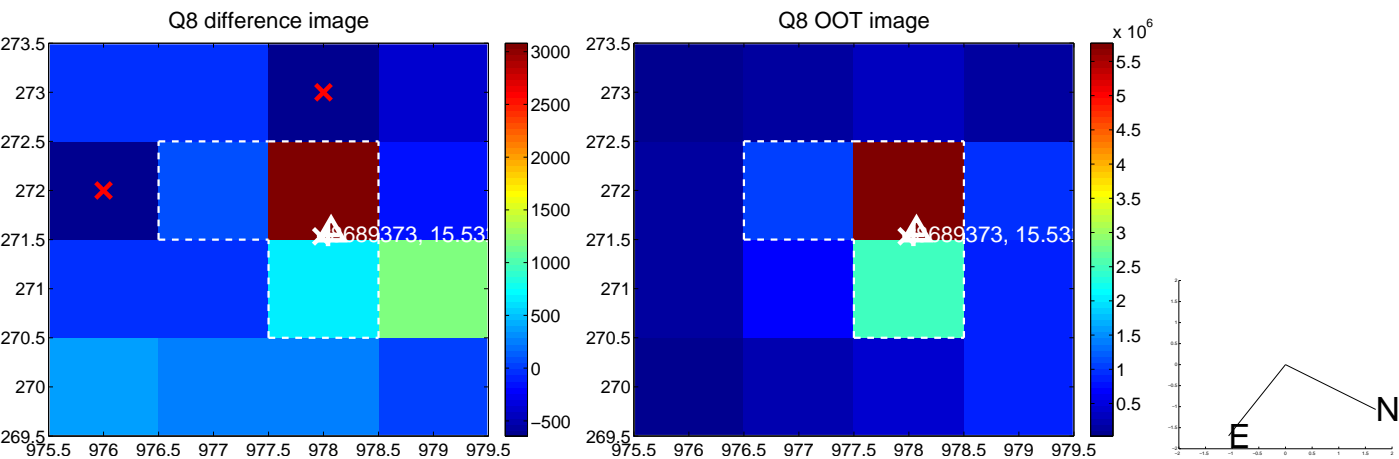
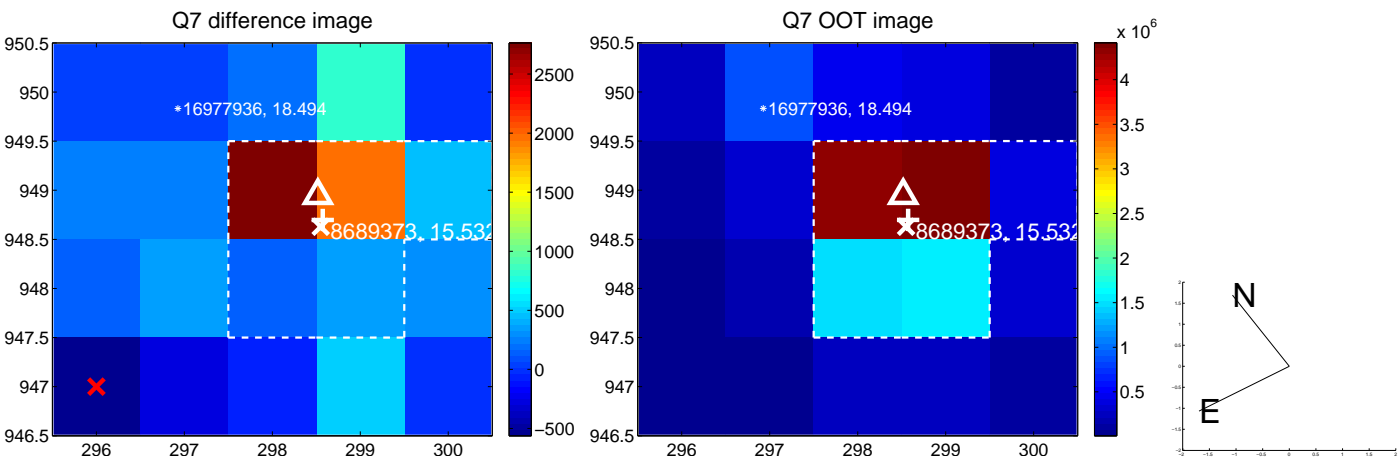
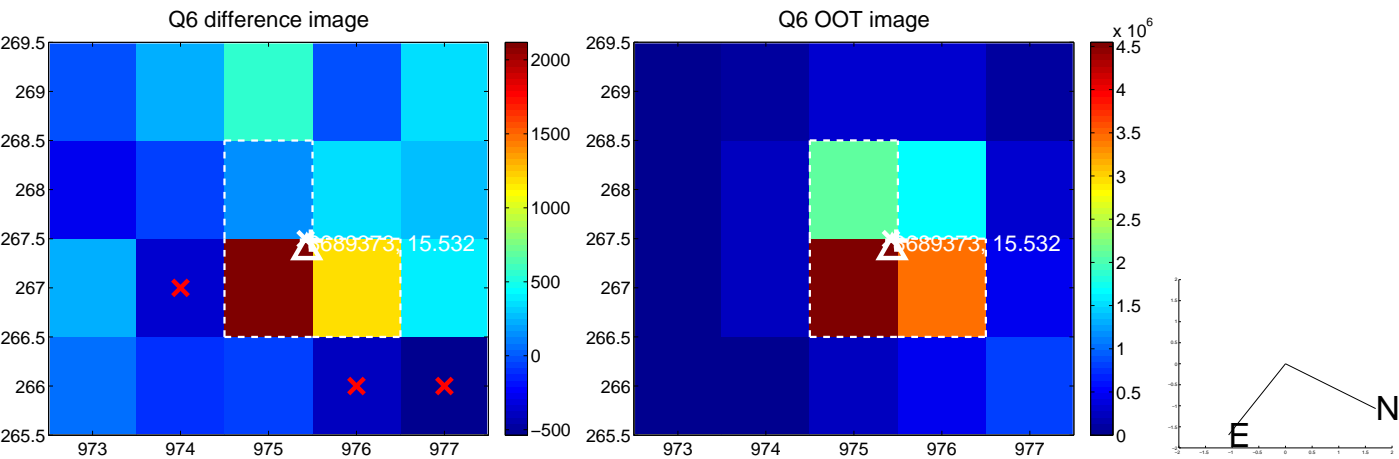
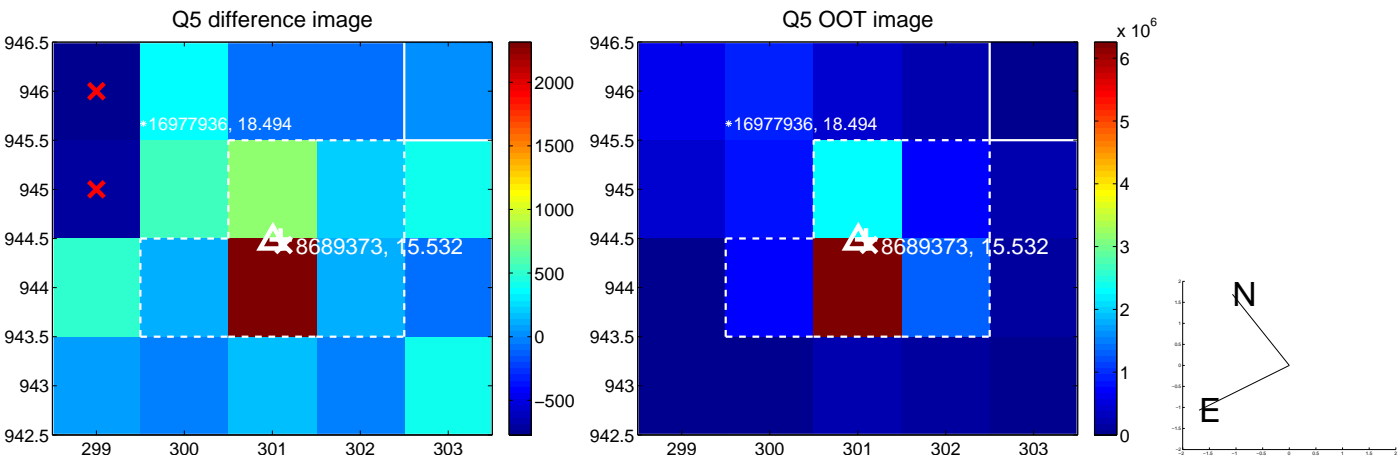


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

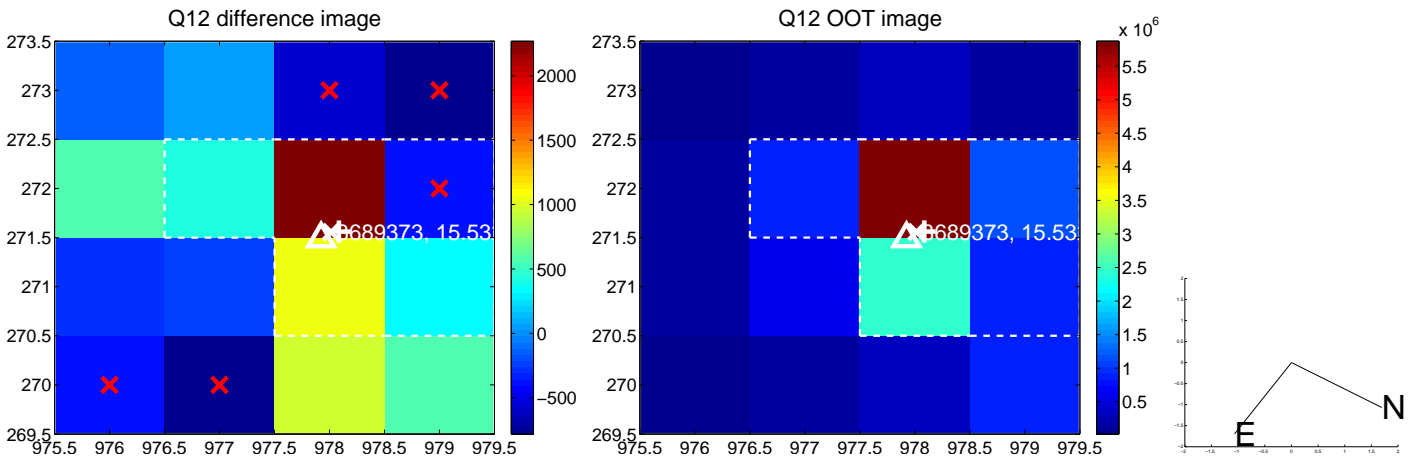
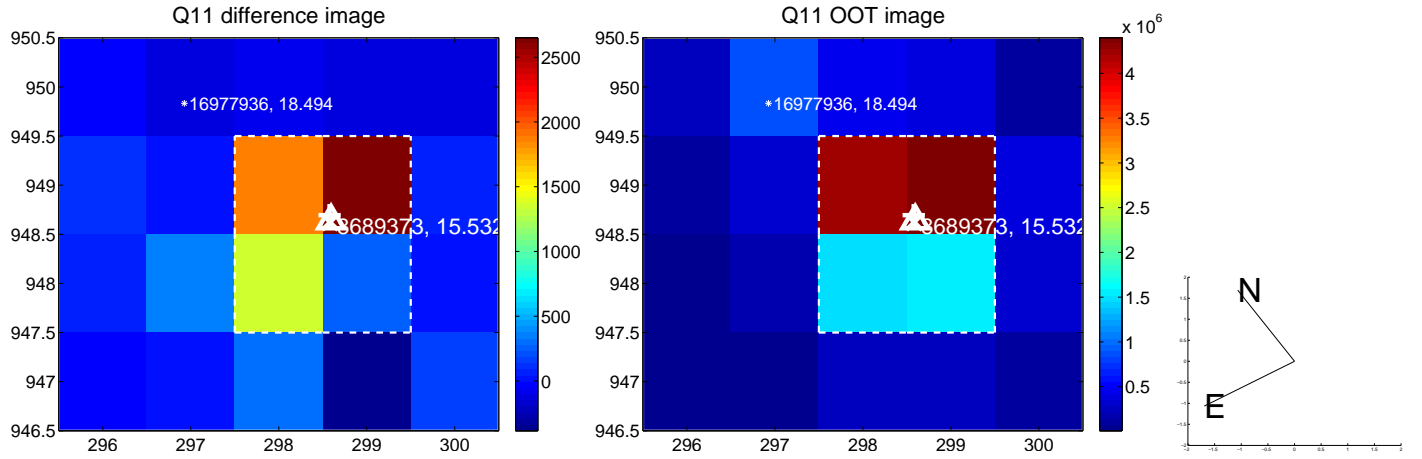
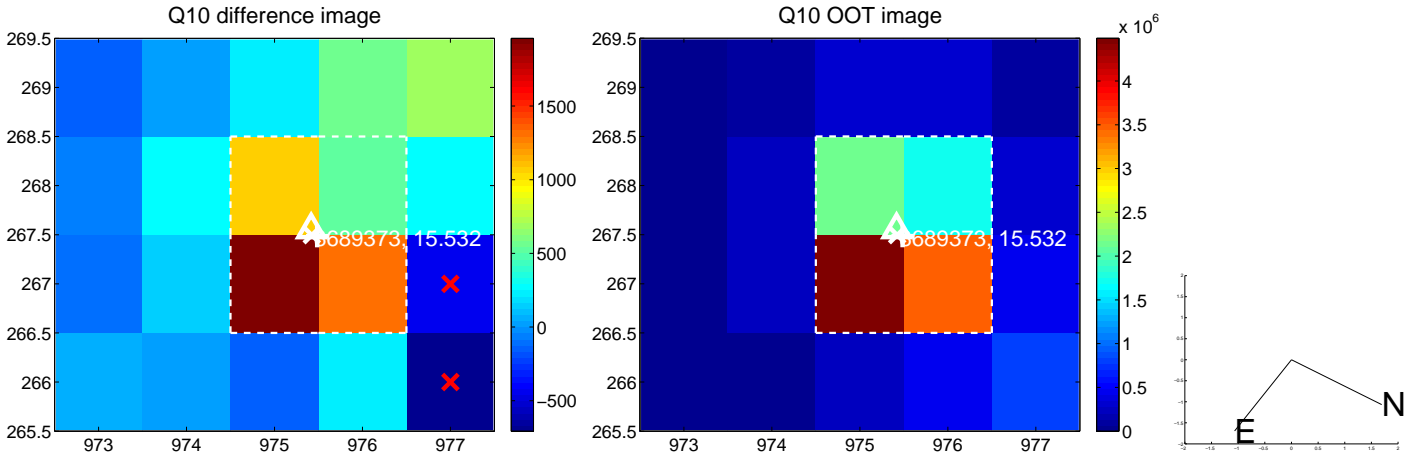
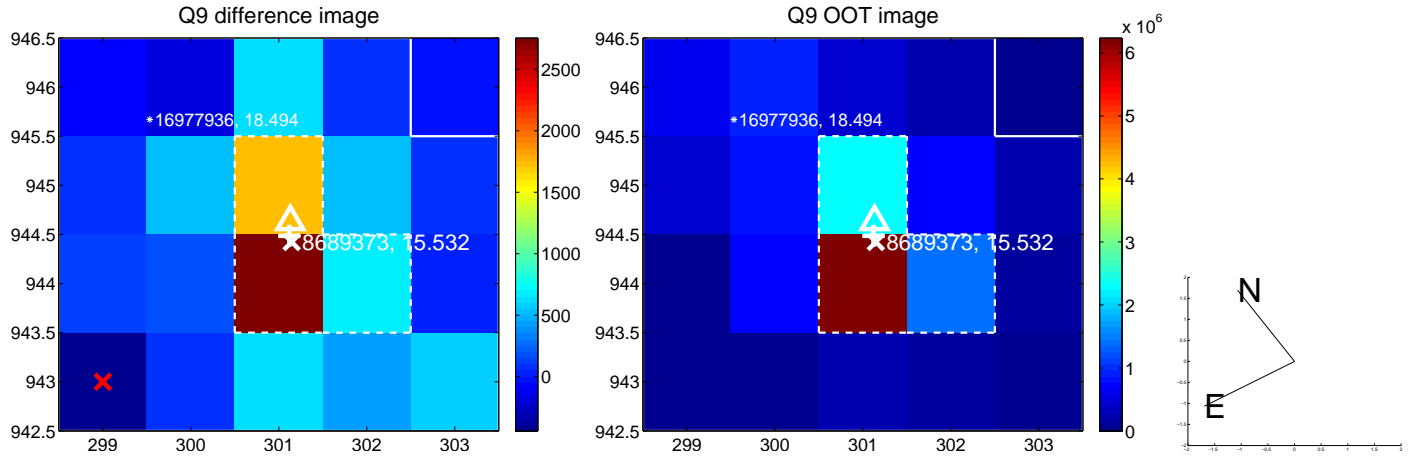
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



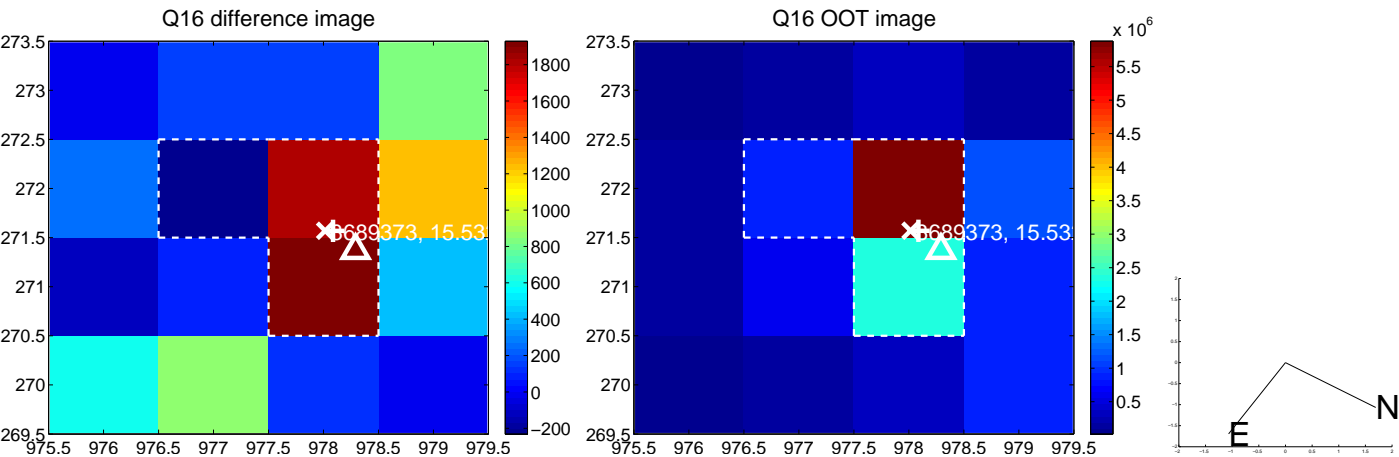
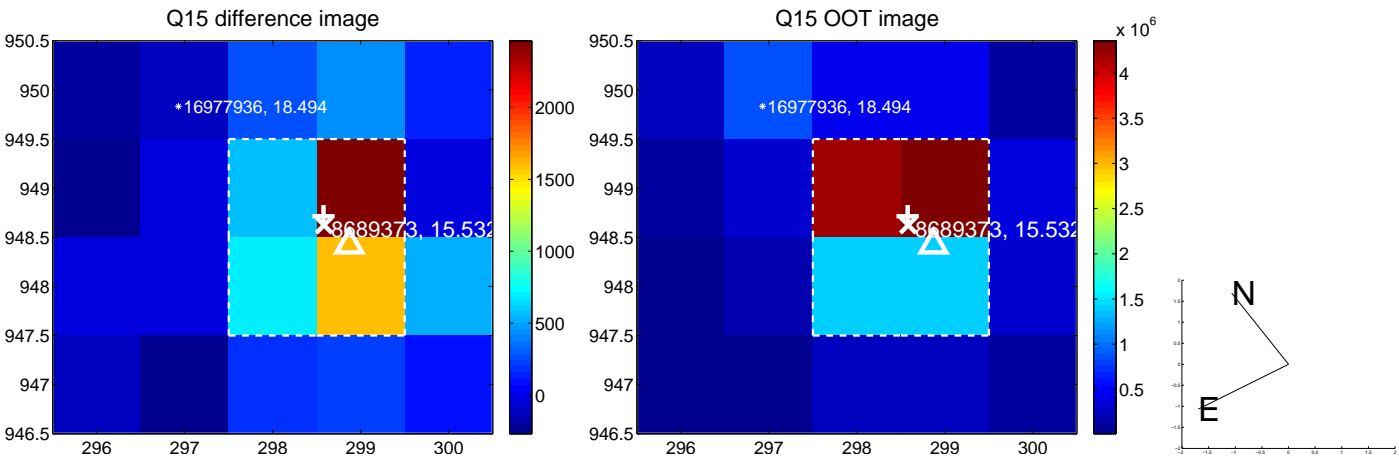
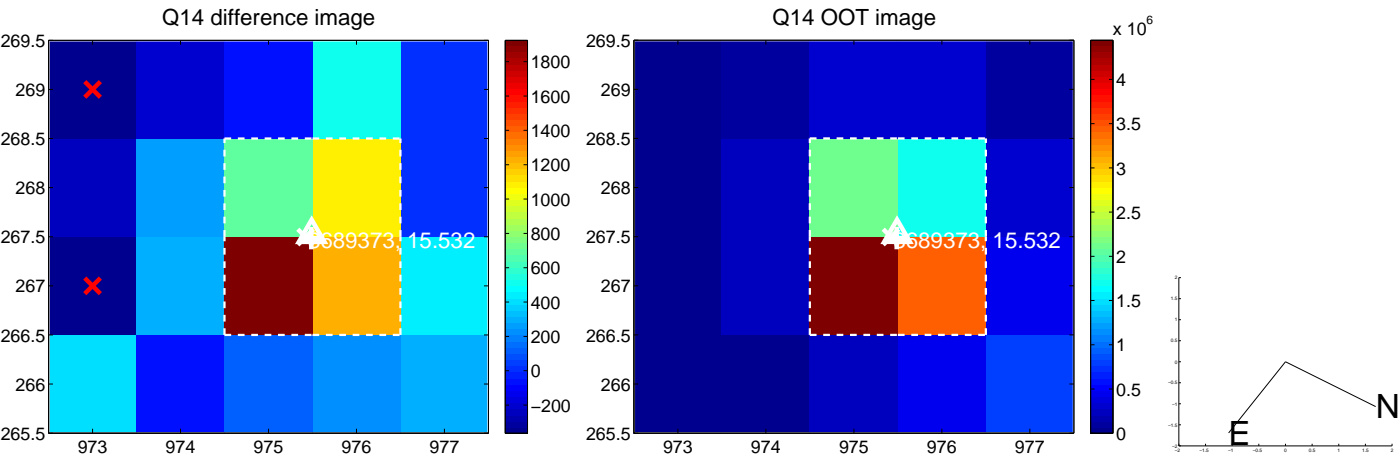
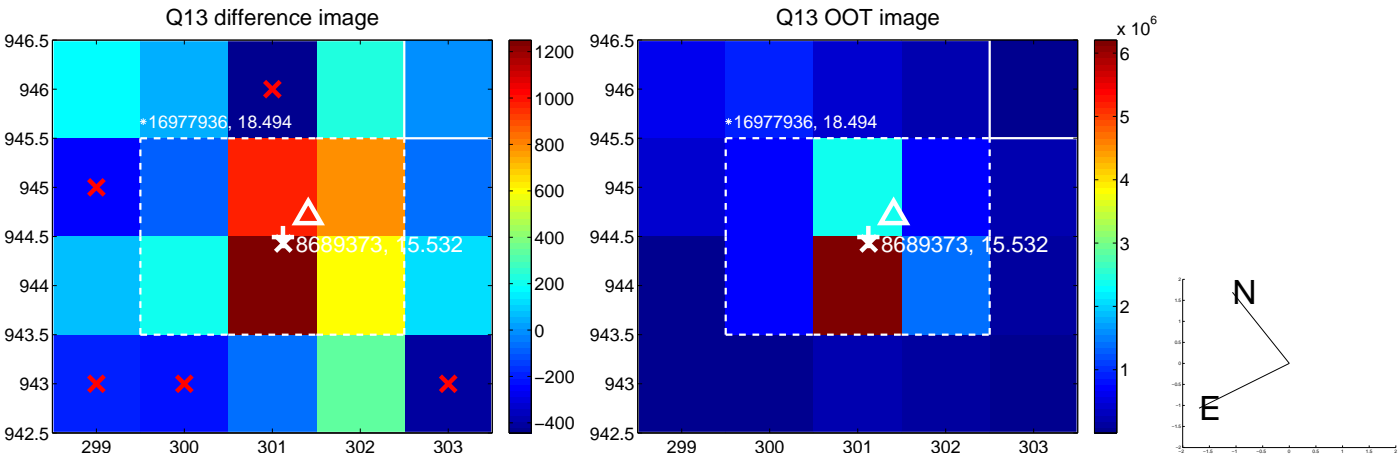
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



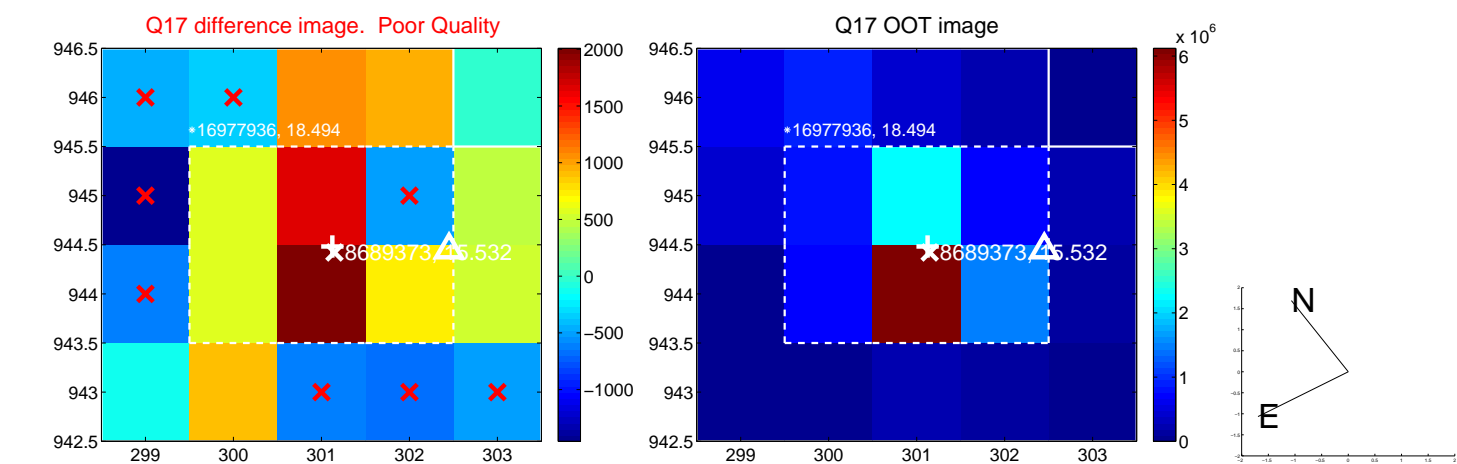
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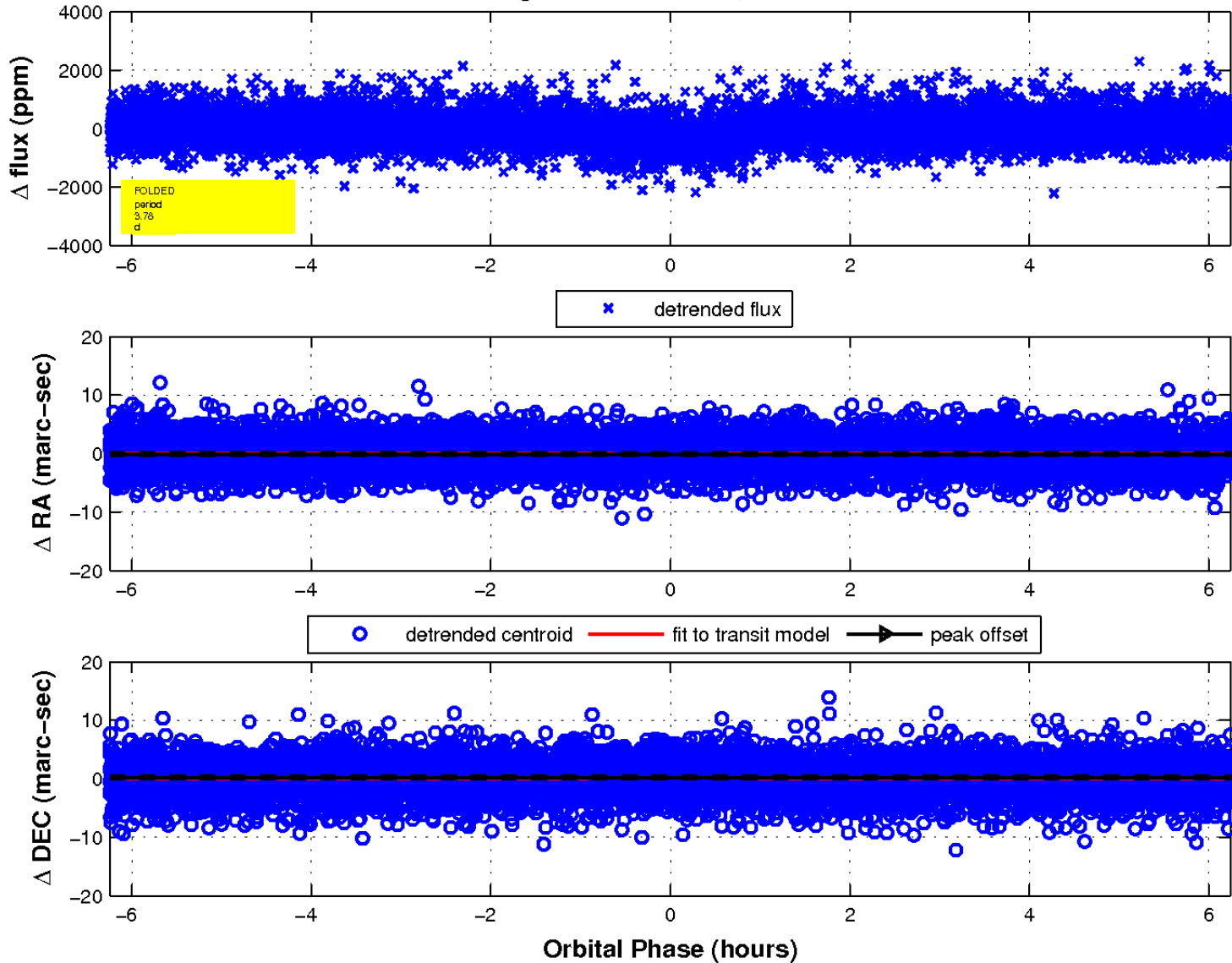
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

