

KIC 007050989

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})
007050989-01	OBS	0312.01	11.578876	140.851834	224.8	2.995	56.5	58.7	1.30	6156	2.31	193.72
007050989-02	OBS	0312.02	16.399261	131.969025	211.5	3.647	44.8	48.8	1.30	6156	2.19	121.79
007050989-03	OBS	No	1.372016	132.303816	11.1	3.274	8.1	8.8	1.30	6156	0.51	3328.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007050989-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007050989-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007050989-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

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.

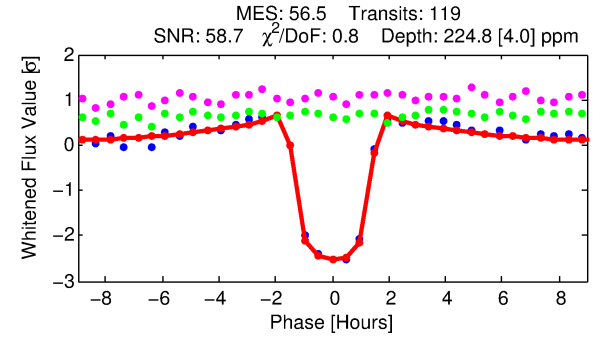
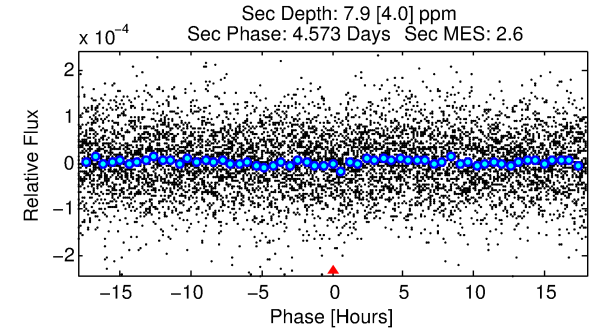
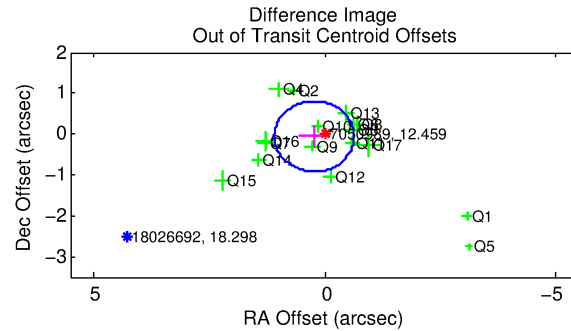
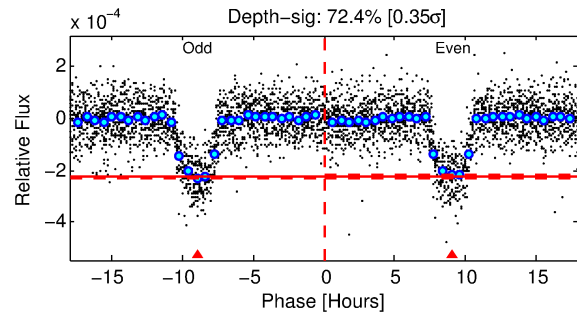
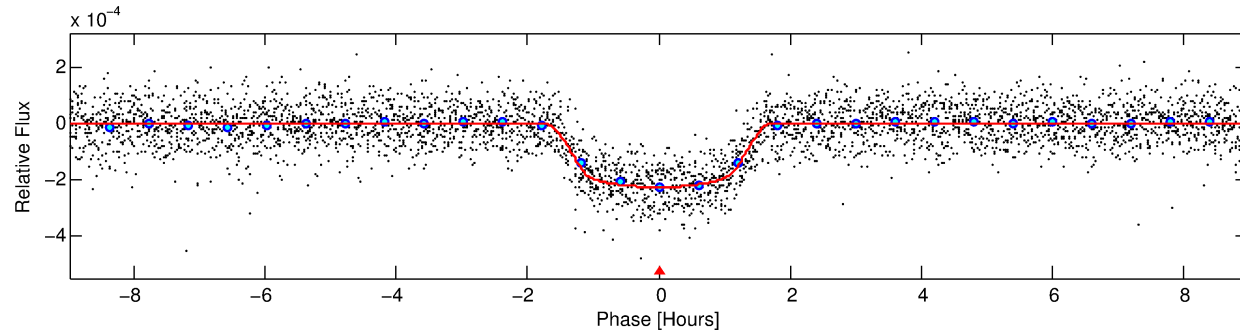
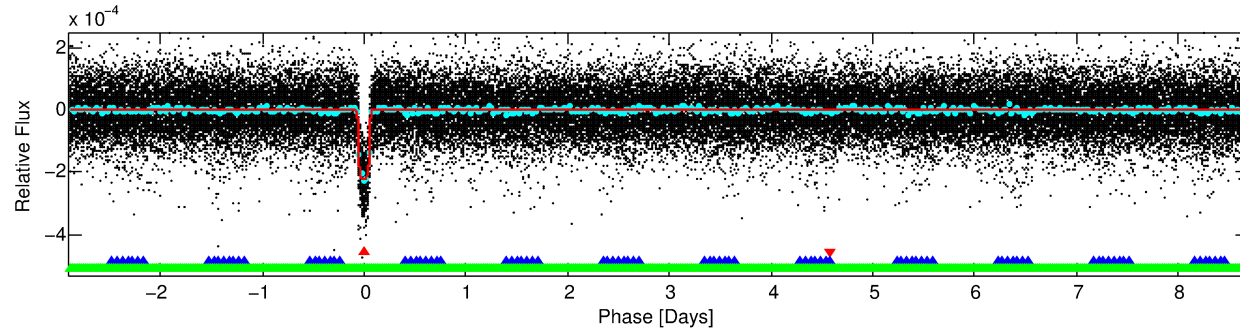
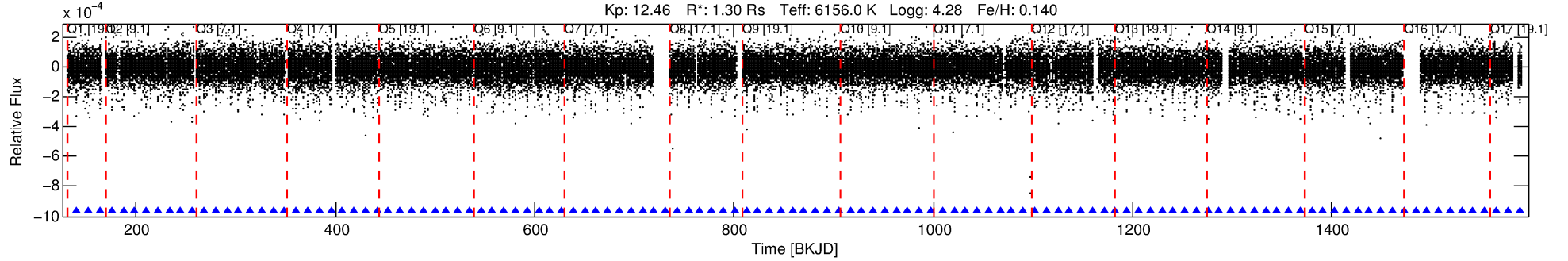
Ephemeris Match Information For 007050989-01

No Significant Match Found

DV One-Page Summary

KIC: 7050989 Candidate: 1 of 3 Period: 11.579 d
KOI: K00312.01 Name: Kepler-136b Corr: 0.962

Kp: 12.46 R*: 1.30 Rs Teff: 6156.0 K Logg: 4.28 Fe/H: 0.140



DV Fit Results:

Period = 11.57888 [0.00001] d
Epoch = 140.8518 [0.0009] BKJD
Rp/R* = 0.0162 [0.0010]
a/R* = 13.97 [4.43]
b = 0.90 [0.07]
Seff = 193.71 [45.86]
Teff = 951 [56] K
Rp = 2.30 [0.43] Re
a = 0.1062 [0.0159] AU
Ag = 9.22 [5.27] [1.56σ]
Teffp = 2563 [343] K [4.64σ]

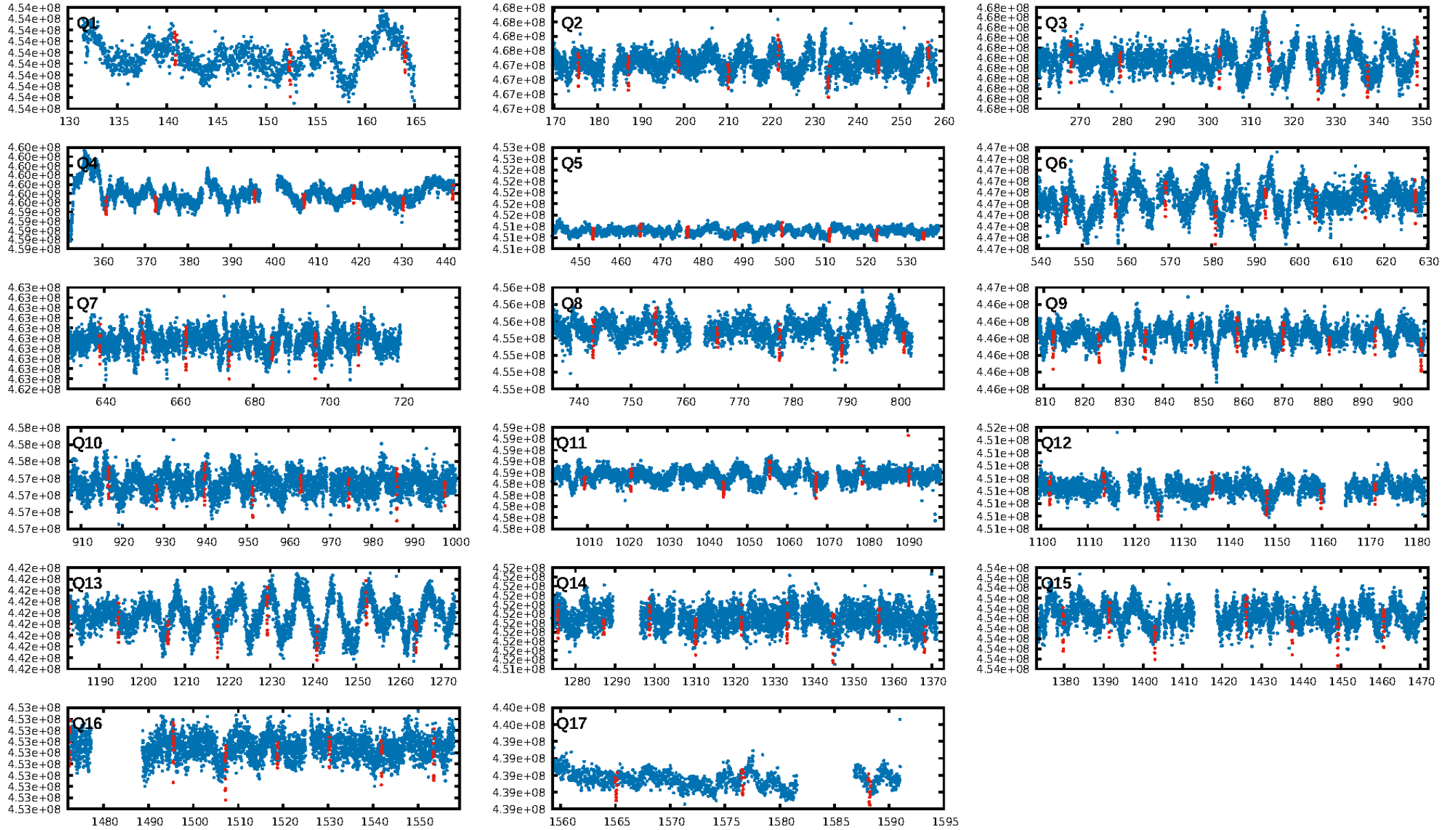
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [55.20σ]
LongPeriod-sig: 100.0% [24.52σ]
ModelChiSquare2-sig: 99.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [113/113]
GhostDiagnostic-chr: 4.658
Centroid-sig: 37.4%
Centroid-so: 0.232 arcsec [1.83σ]
OotOffset-rm: 0.238 arcsec [0.83σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.267 arcsec [0.73σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

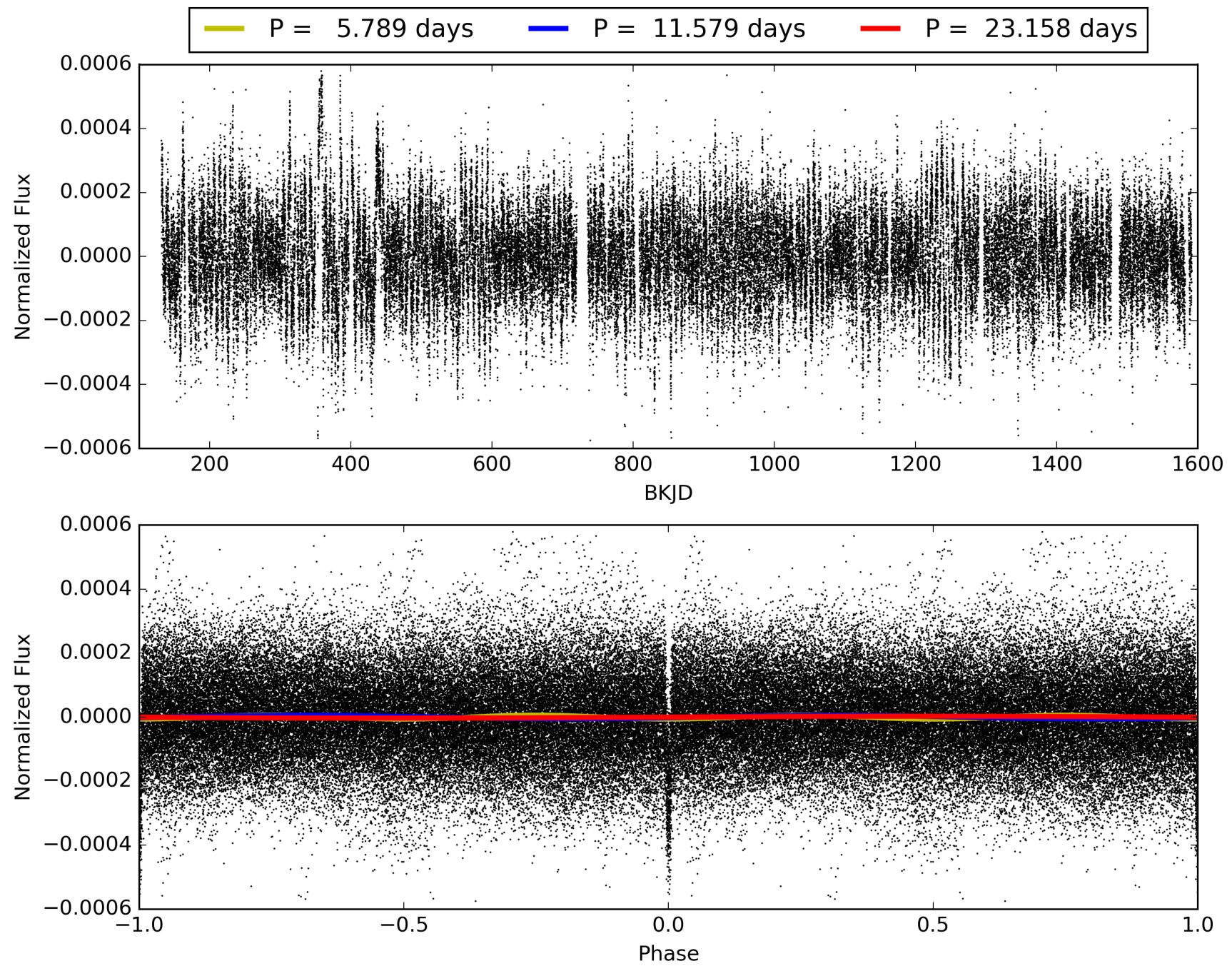
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:56:51 Z

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

TCE 007050989-01, PDC Light Curves

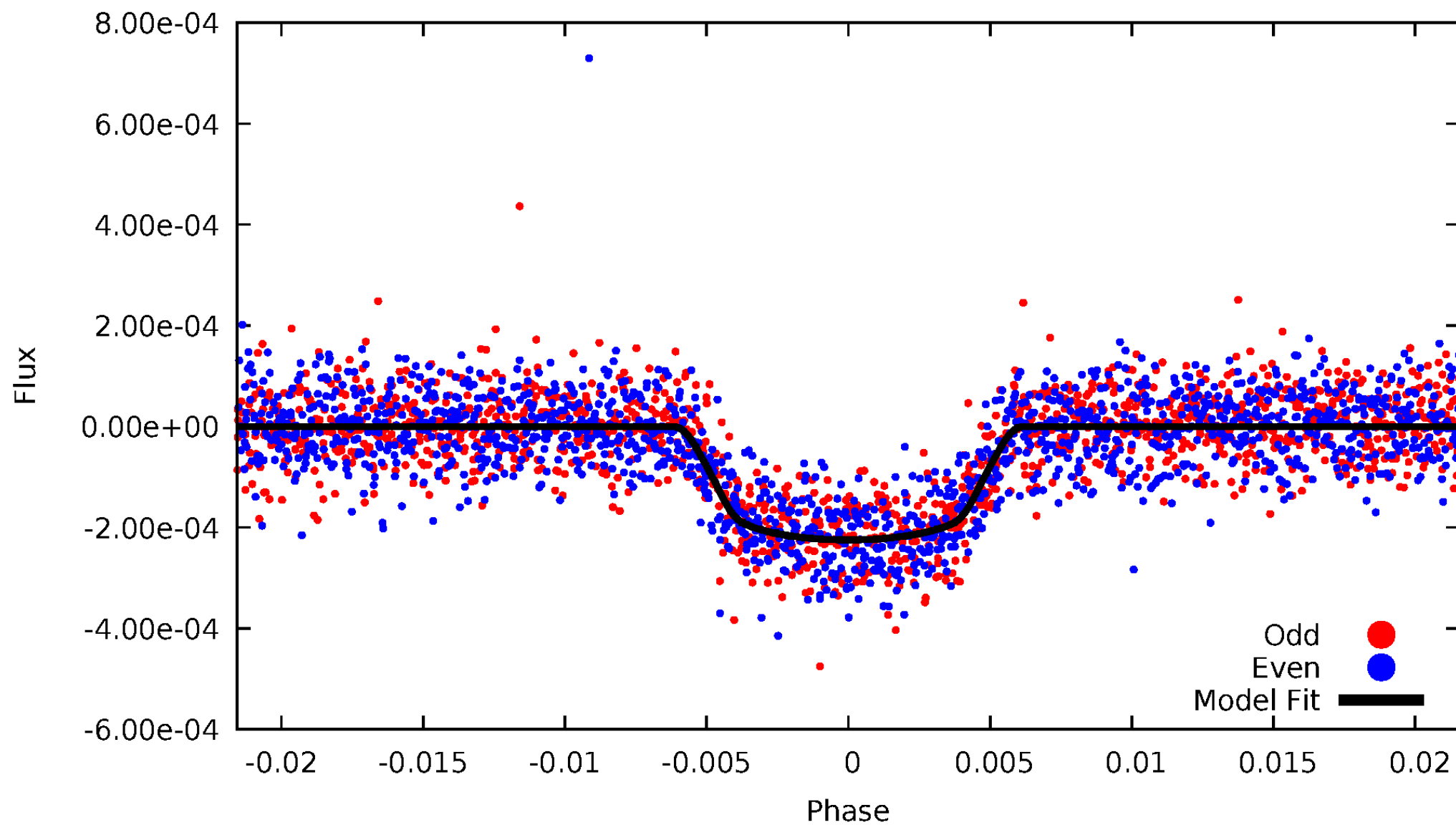


TCE 007050989-01



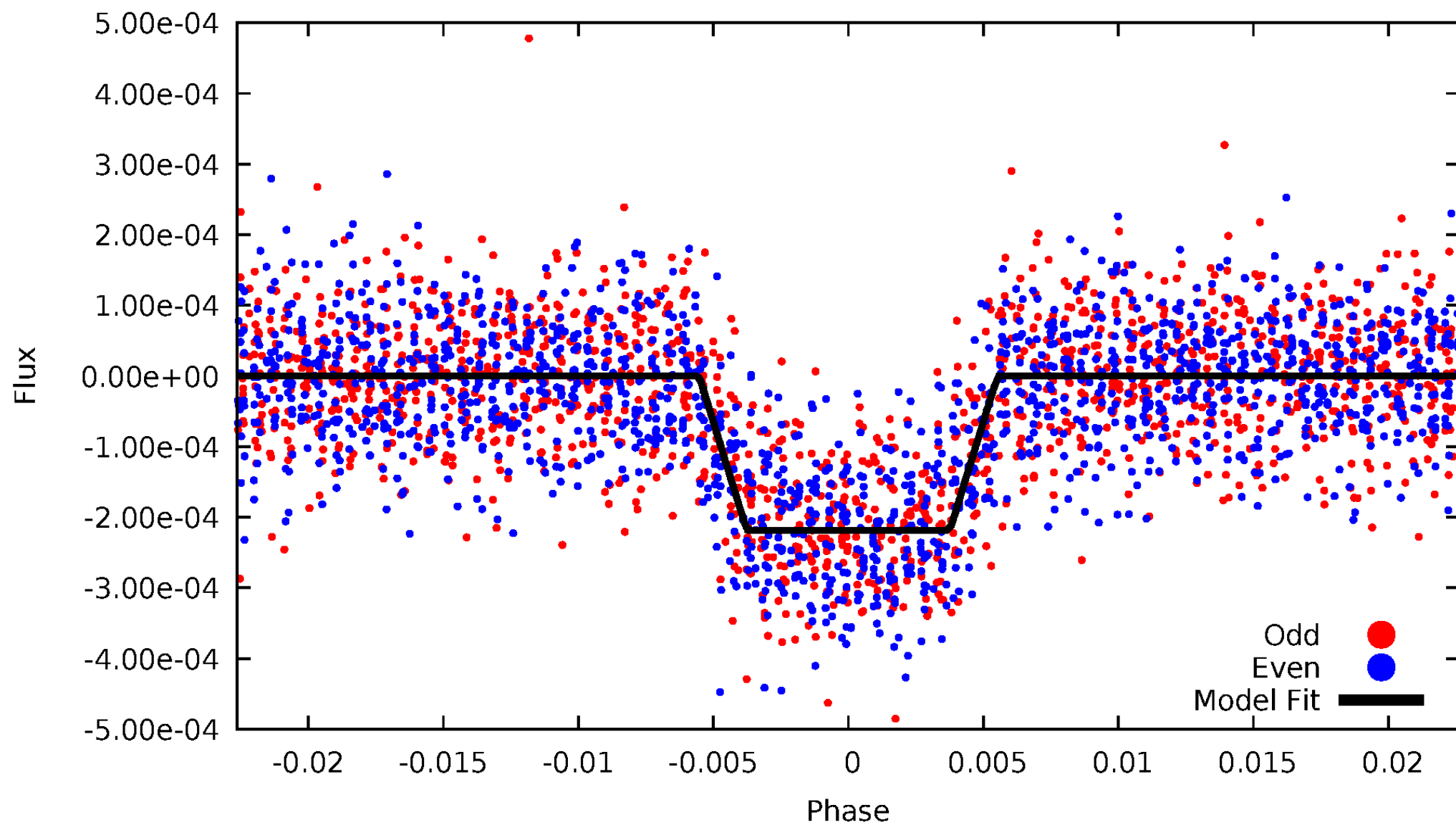
DV Odd/Even

TCE 007050989-01



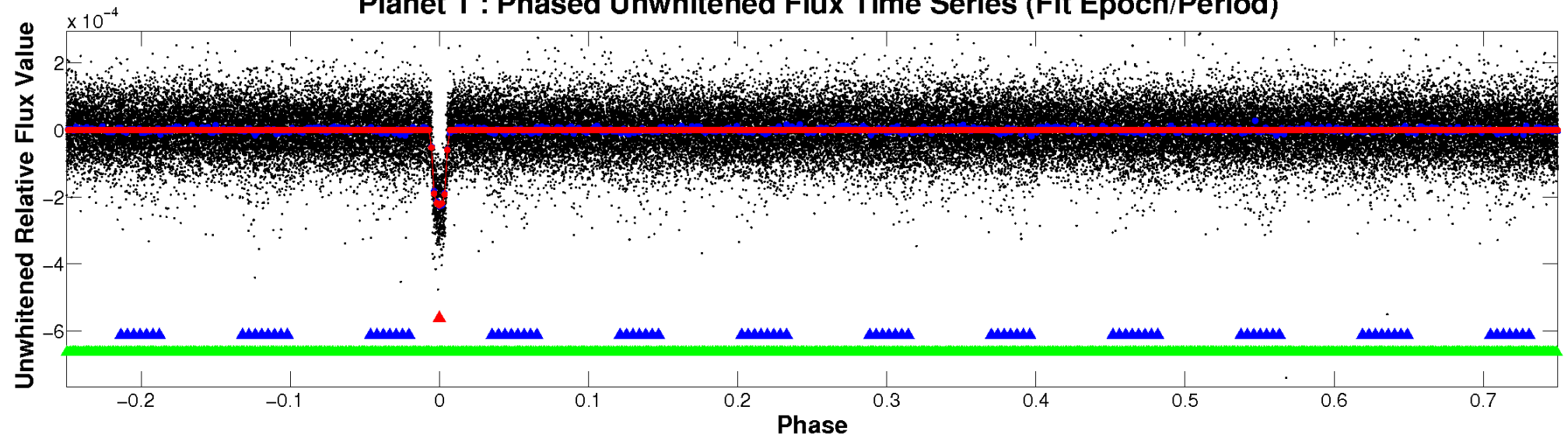
ALT Odd/Even

TCE 007050989-01

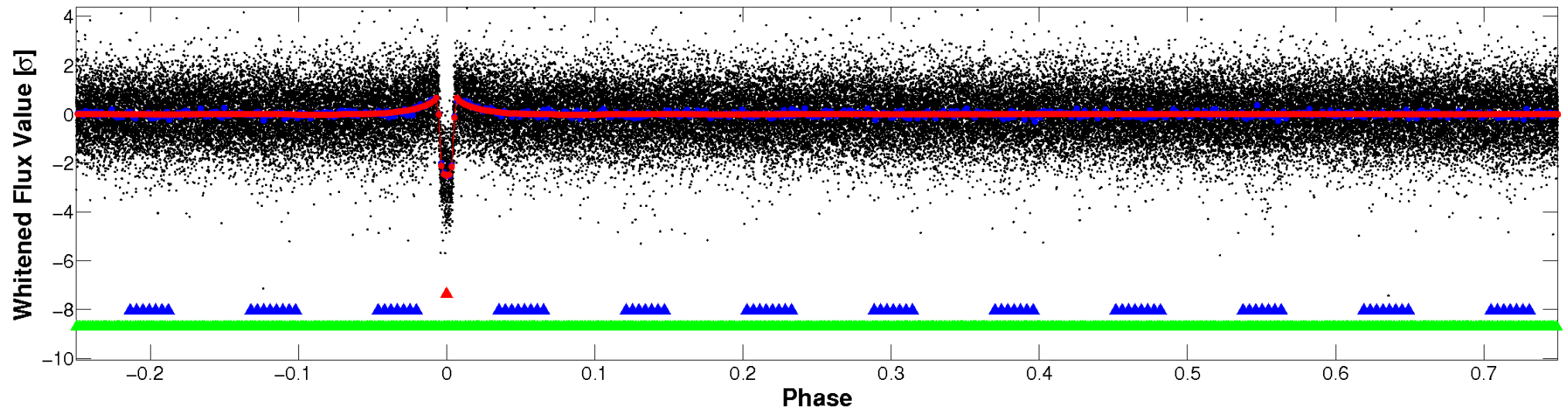


Non-Whitened Vs. Whitened Light Curve

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

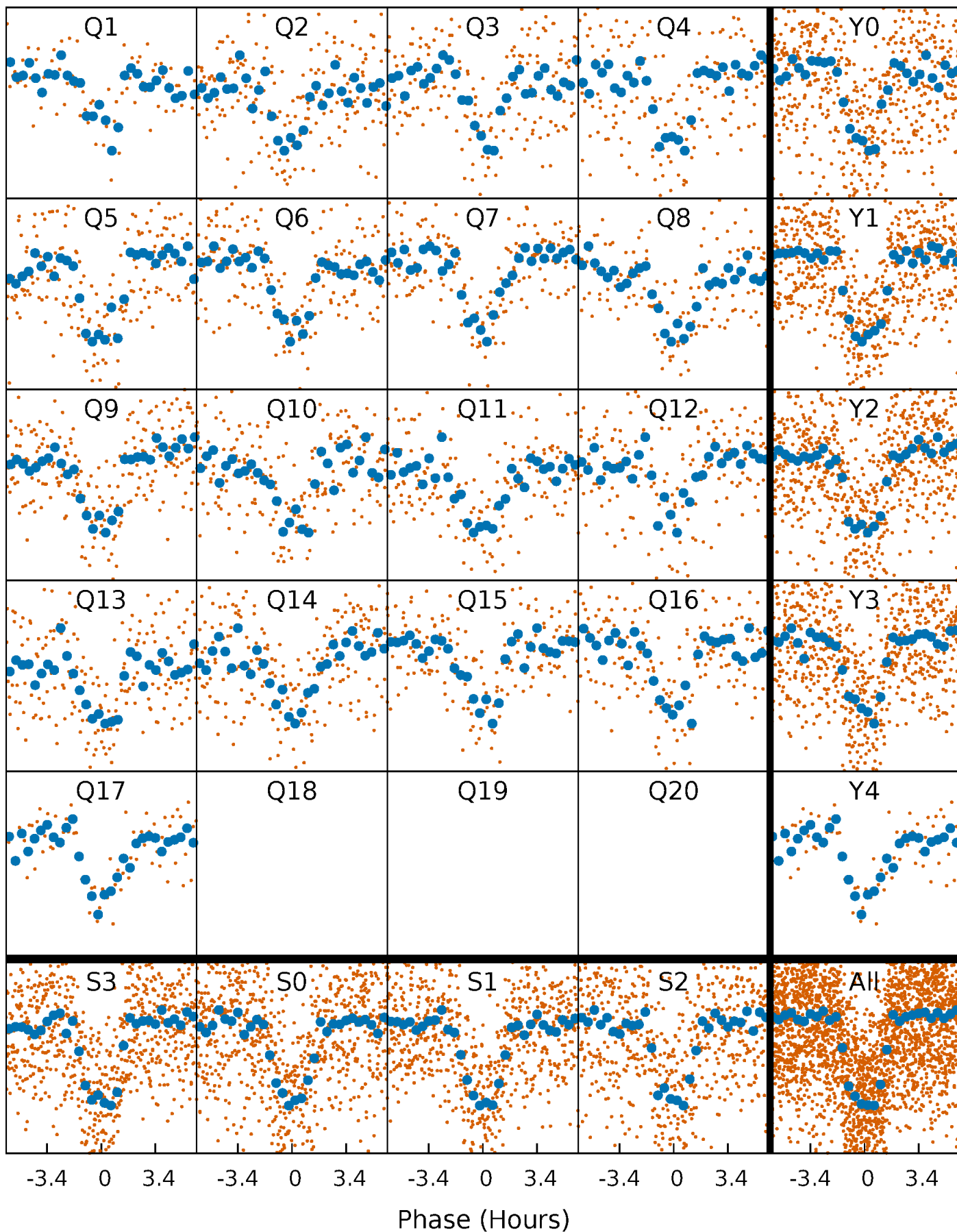


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



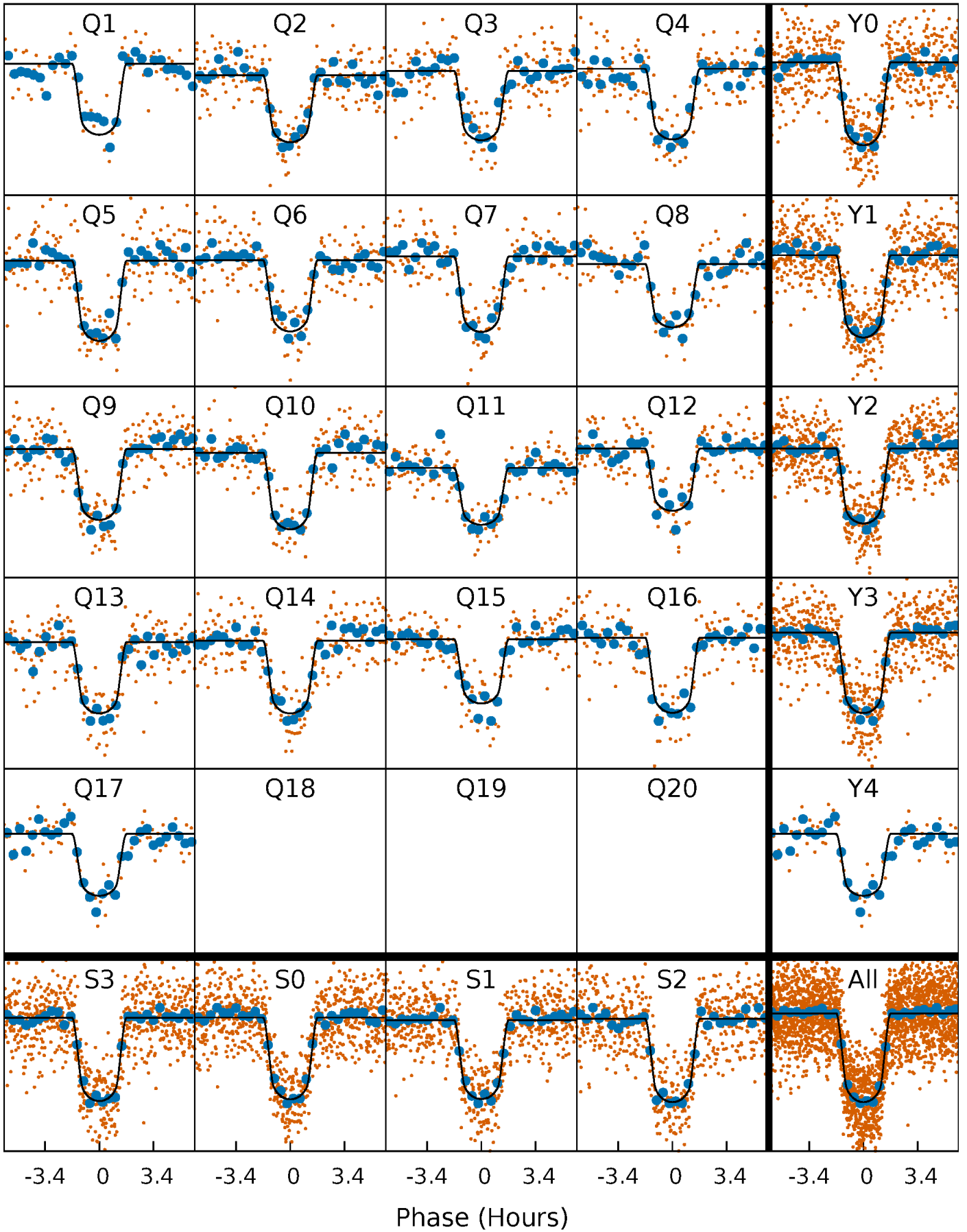
PDC Quarter-Phased Transit Curves

TCE 007050989-01 P= 11.578876 Days $T_0=140.851834$ (BKJD)



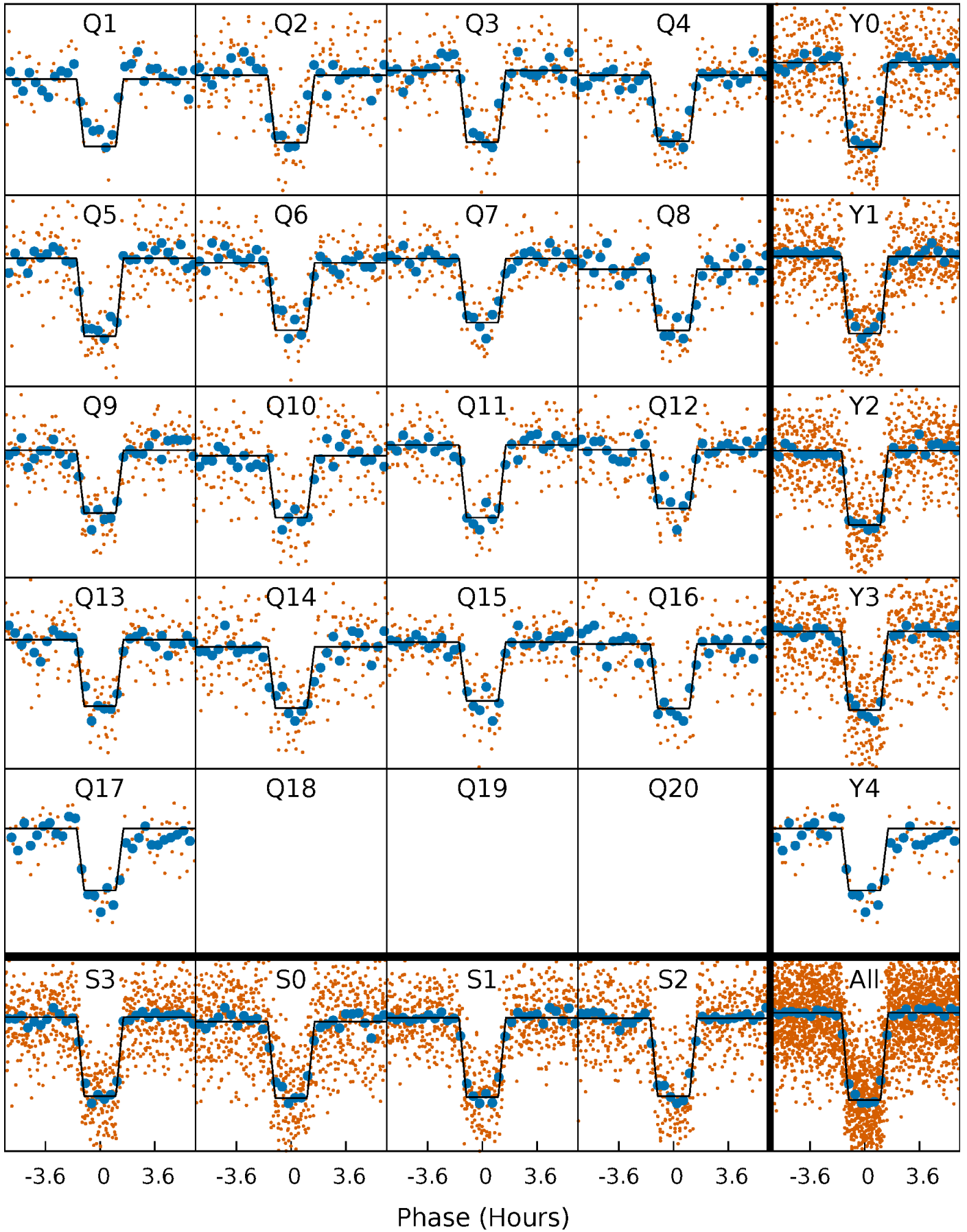
DV Quarter-Phased Transit Curves

TCE 007050989-01 P= 11.578876 Days $T_0=140.851834$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

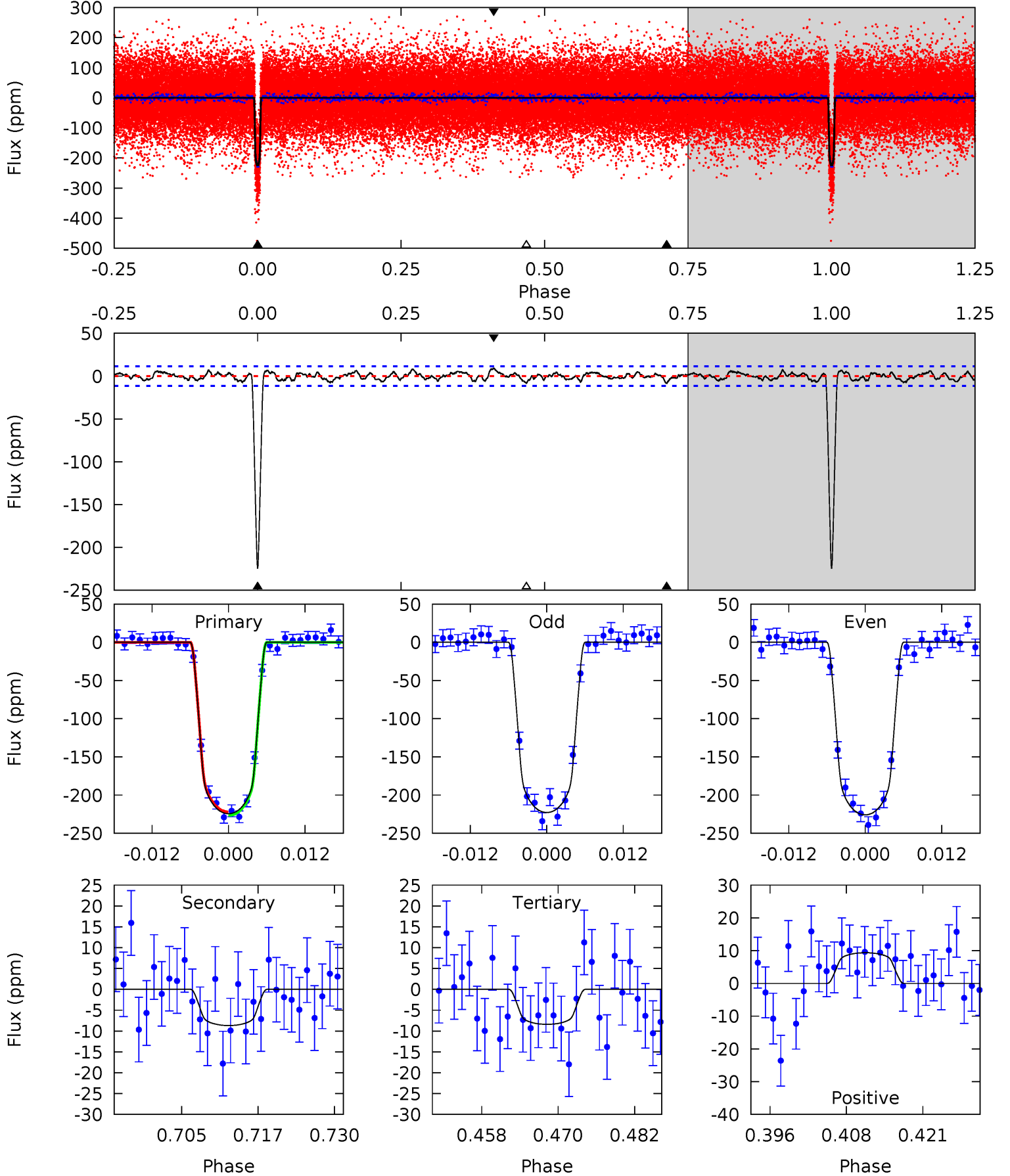
TCE 007050989-01 P= 11.578823 Days $T_0=140.854946$ (BKJD)



DV Model-Shift Uniqueness Test

007050989-01, $P = 11.578876$ Days, $E = 129.272958$ Days

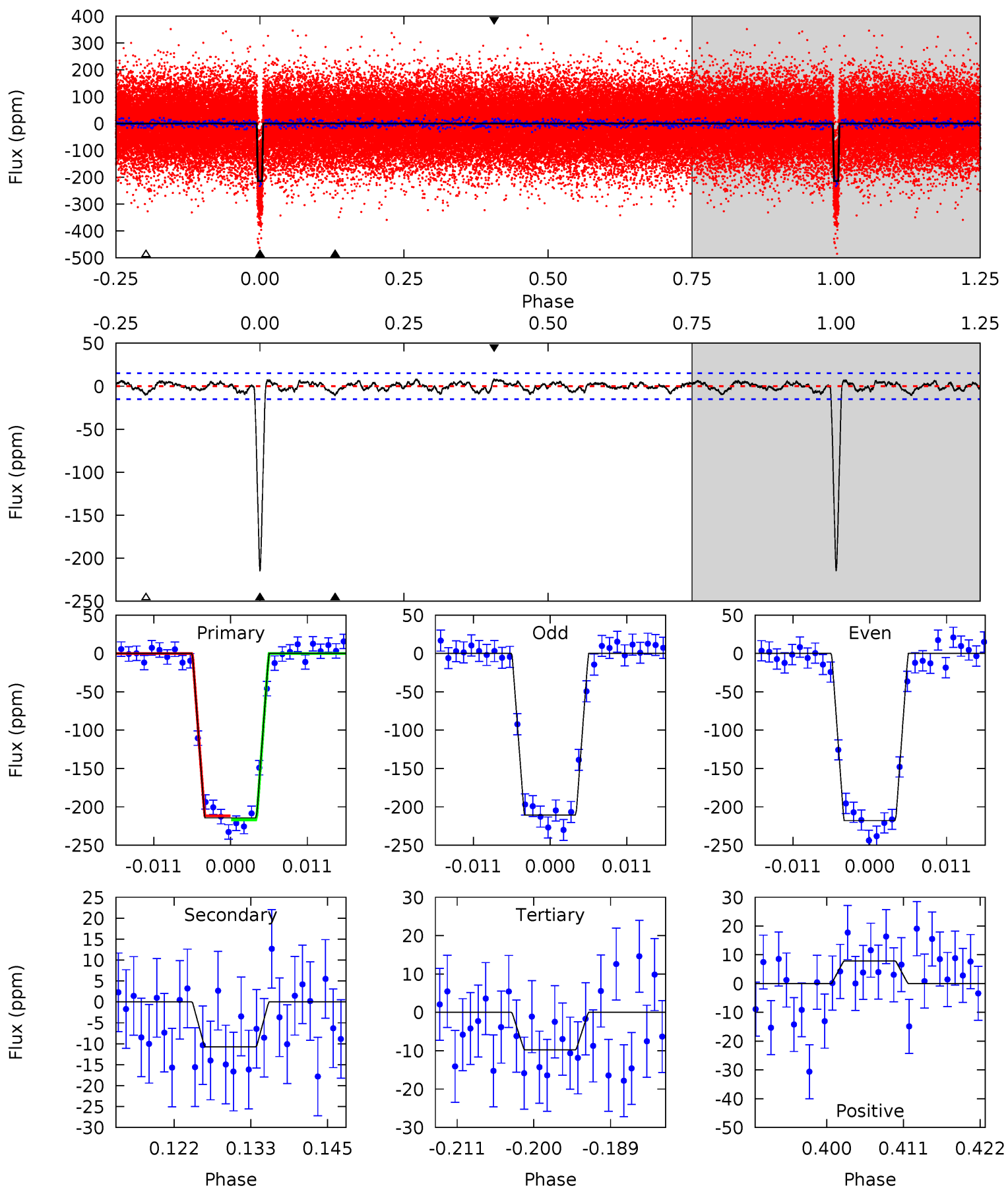
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
97.6	3.78	3.65	4.07	4.99	2.50	1.43	93.9	93.5	0.12	-0.29	0.67	1.01	0.04	0.96



Alt Model-Shift Uniqueness Test

007050989-01, P = 11.578823 Days, E = 129.276123 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
71.0	3.56	3.24	2.61	5.01	2.54	1.23	67.7	68.4	0.32	0.95	1.20	1.01	0.04	0.86



Stellar Parameters For KIC 007050989

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6156^{+111}_{-136}	$4.284^{+0.099}_{-0.121}$	$0.140^{+0.150}_{-0.150}$	$1.303^{+0.229}_{-0.171}$	$1.193^{+0.086}_{-0.097}$	$0.760^{+0.334}_{-0.274}$
	+2%/-2%	+2%/-3%	+107%/-107%	+18%/-13%	+7%/-8%	+44%/-36%
Source	SPE59	SPE59	SPE59	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007050989-01 / KOI 0312.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-9 ± 2	$2.33^{+0.23}_{-0.24}$	1330^{+67}_{-55}	3200^{+130}_{-159}	$9.868^{+3.703}_{-2.992}$
Alt.	-11 ± 3	$2.12^{+0.25}_{-0.23}$	1331^{+64}_{-58}	3392^{+164}_{-207}	15^{+5}_{-5}

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

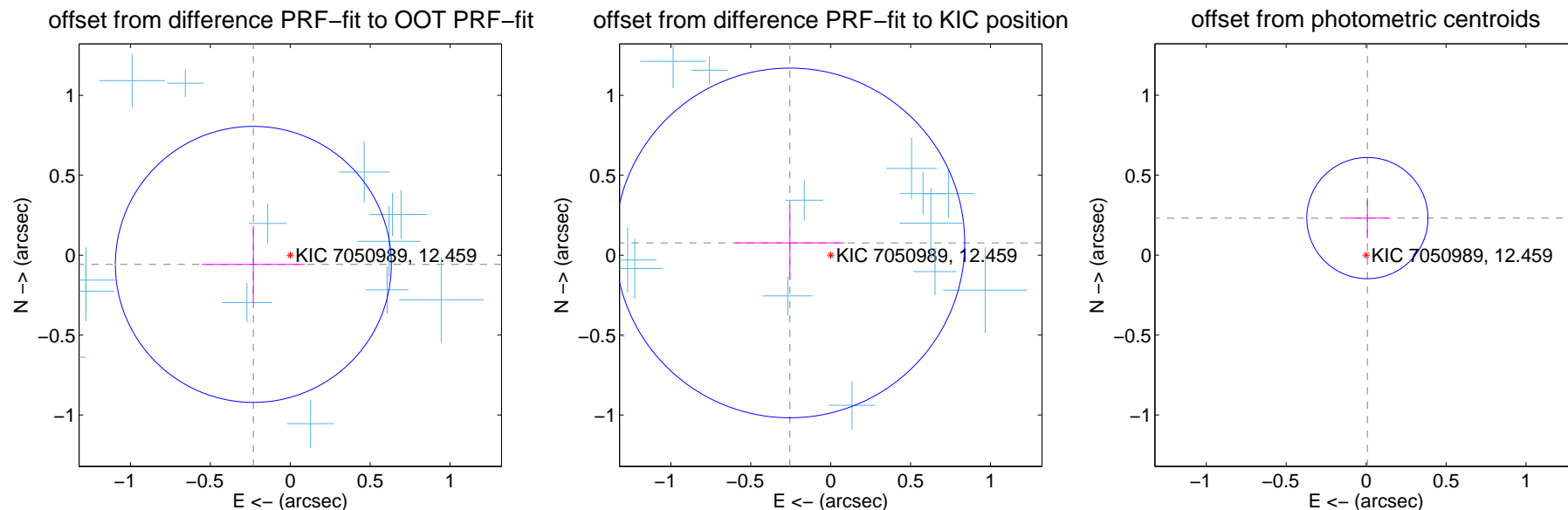
DV Centroid Data

Supplemental centroid analysis for 007050989-01. Kepler magnitude: 12.46. Transit SNR 58.75

There are 16 quarters with good PRF difference image offsets

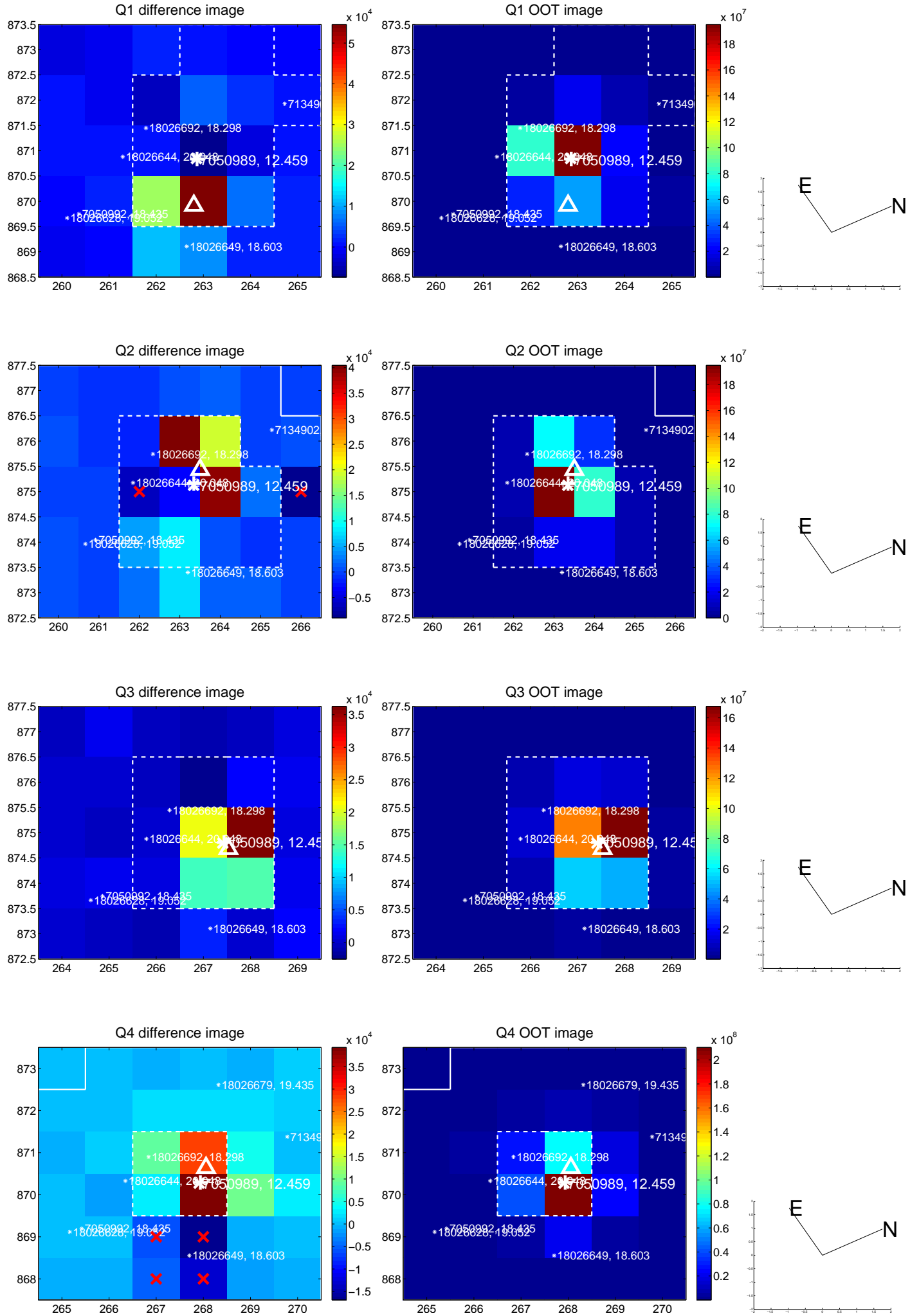
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.238 ± 0.288	0.83	0.231 ± 0.322	-0.058 ± 0.241
PRF-fit source offset from KIC position	0.267 ± 0.365	0.73	0.255 ± 0.341	0.076 ± 0.233
photometric centroid source offset	0.23 ± 0.13	1.83	-0.01 ± 0.13	0.23 ± 0.13

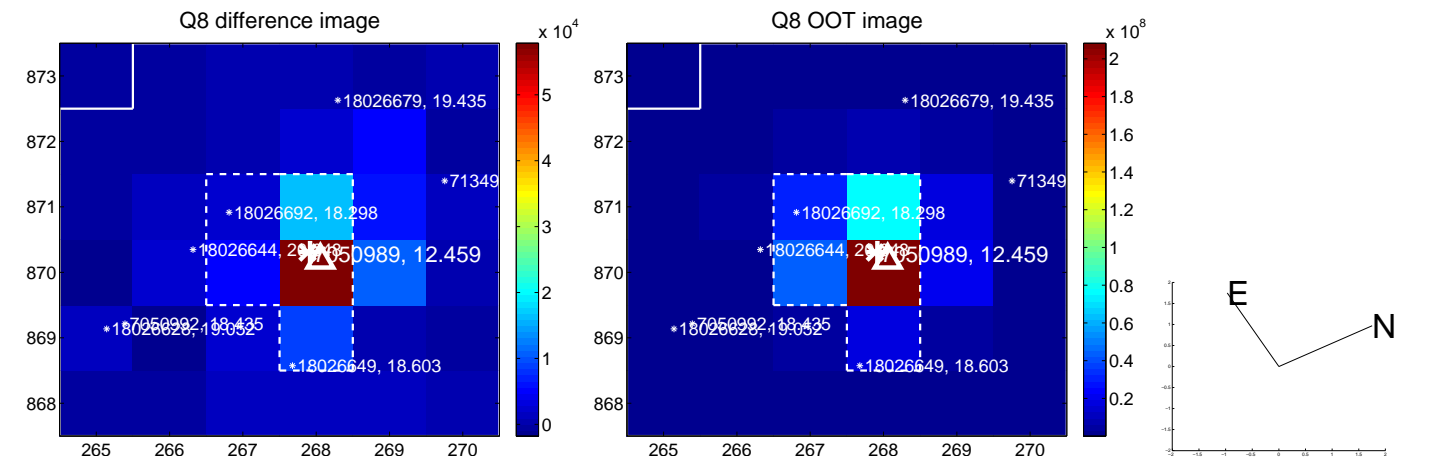
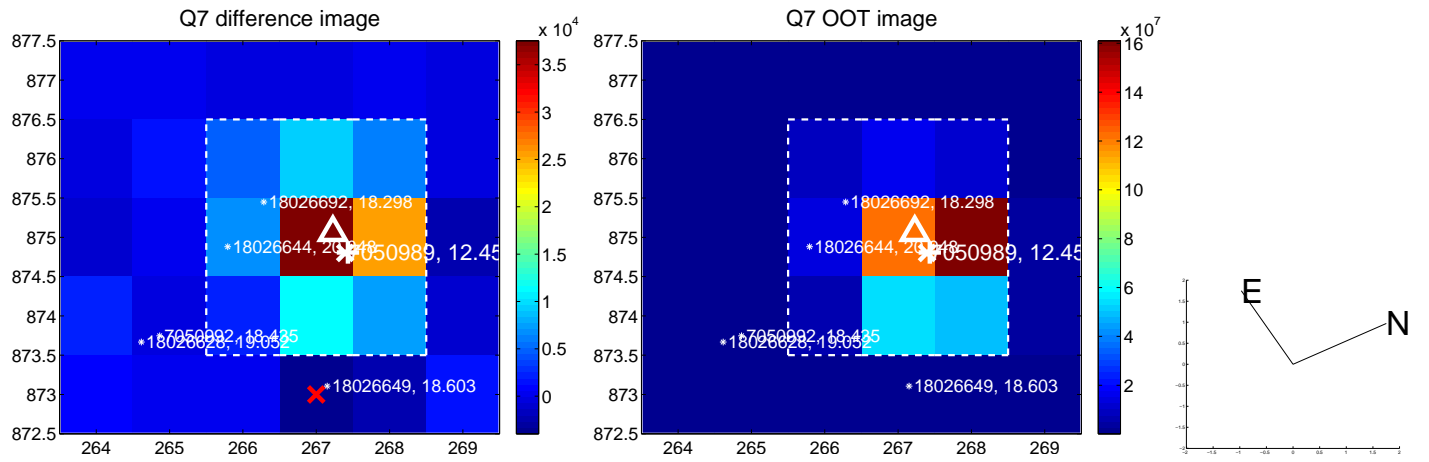
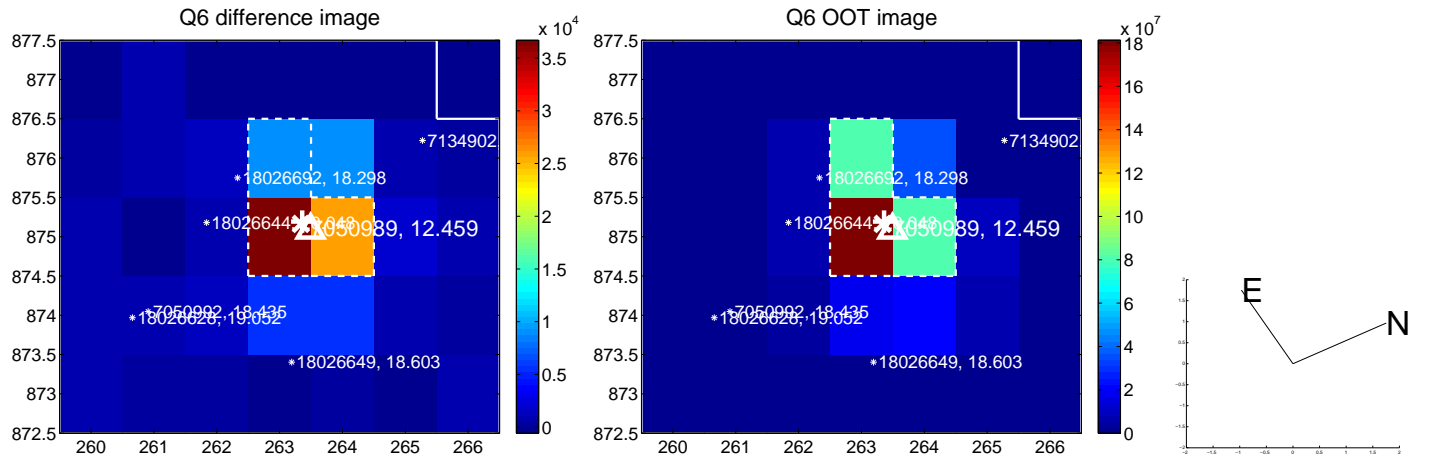
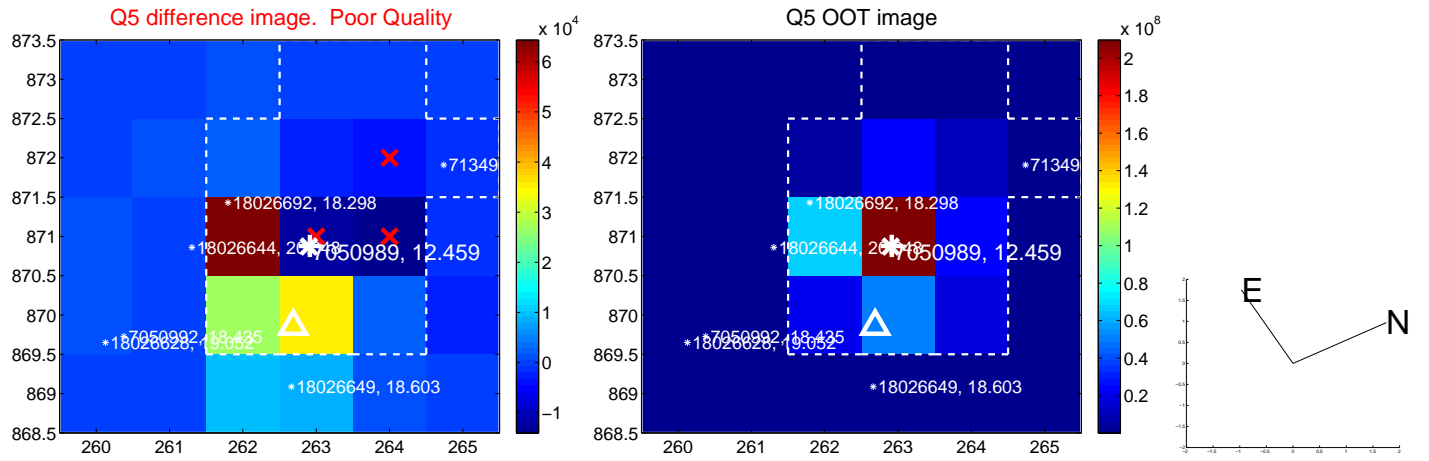


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

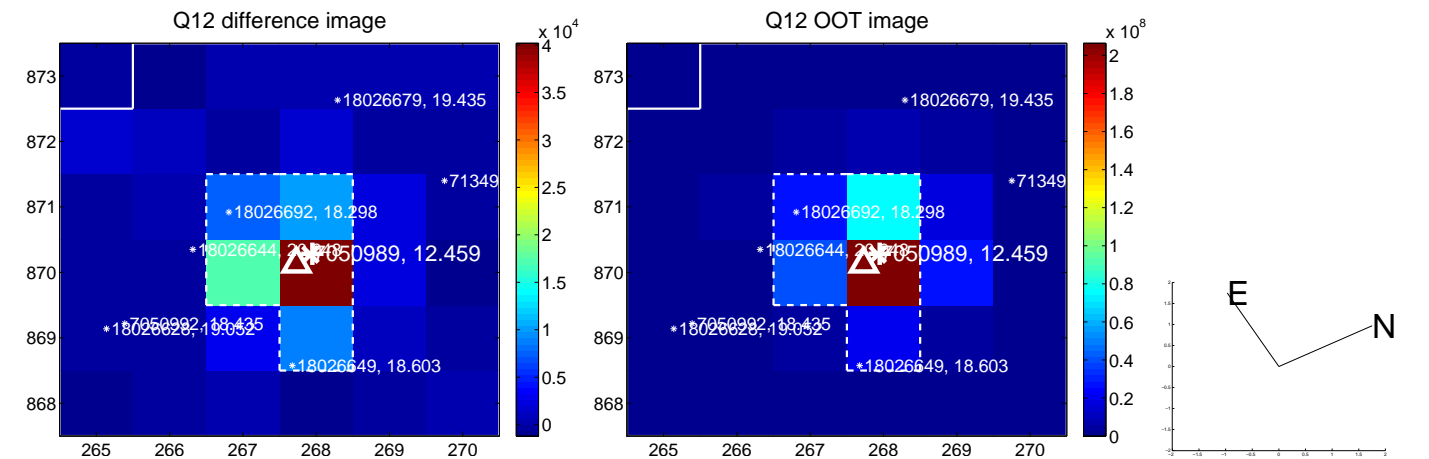
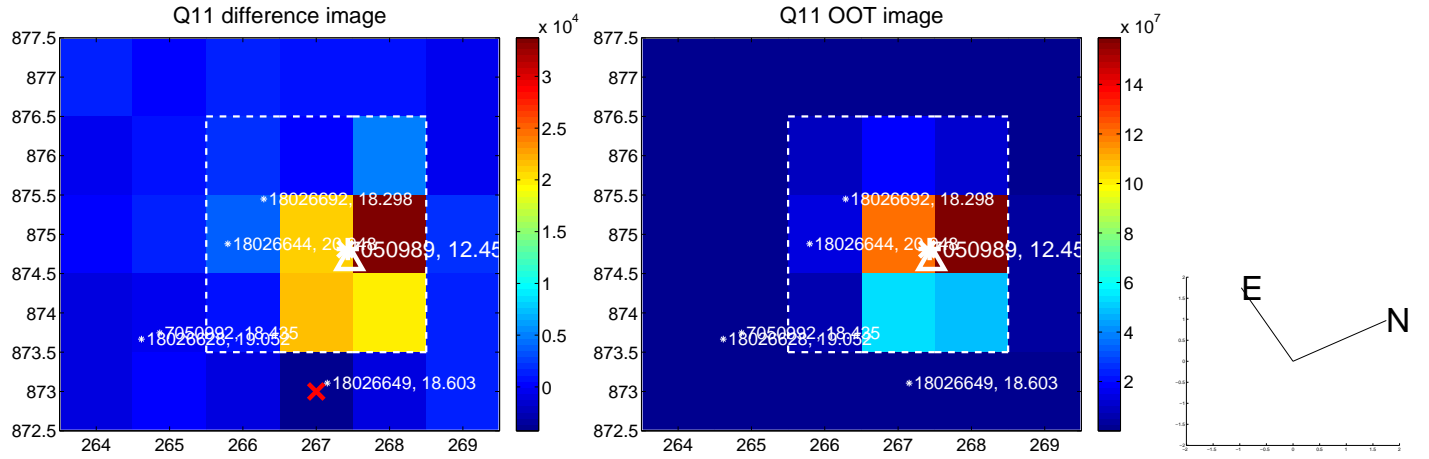
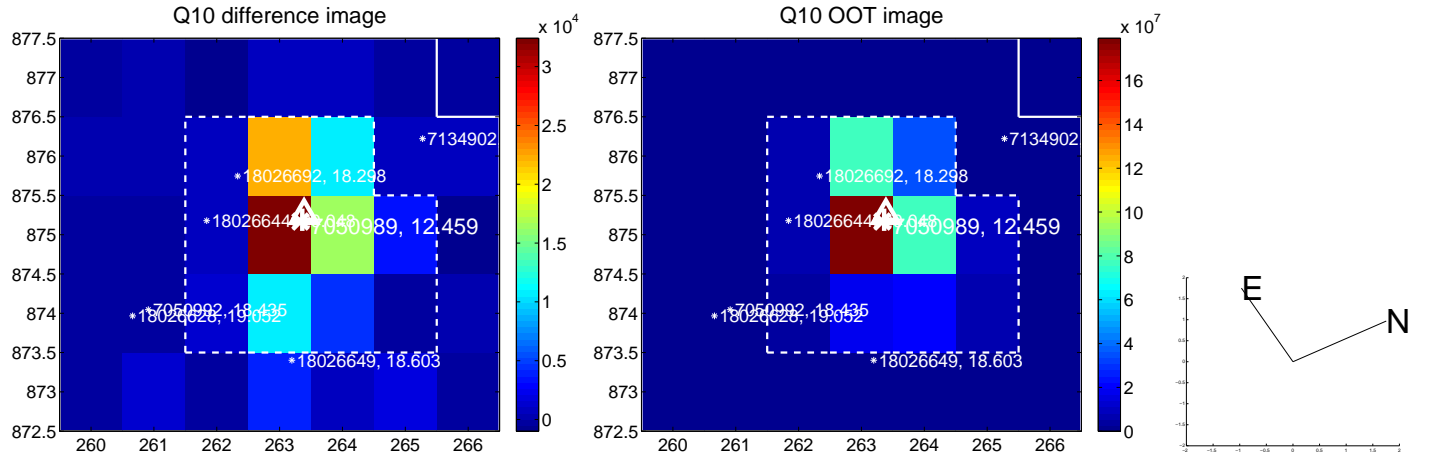
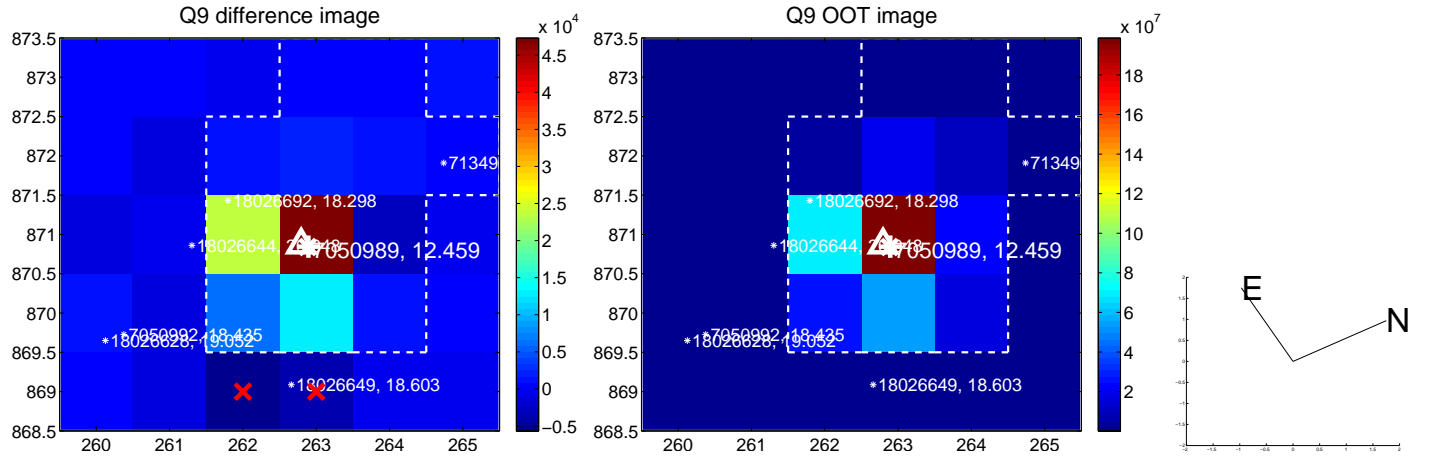
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



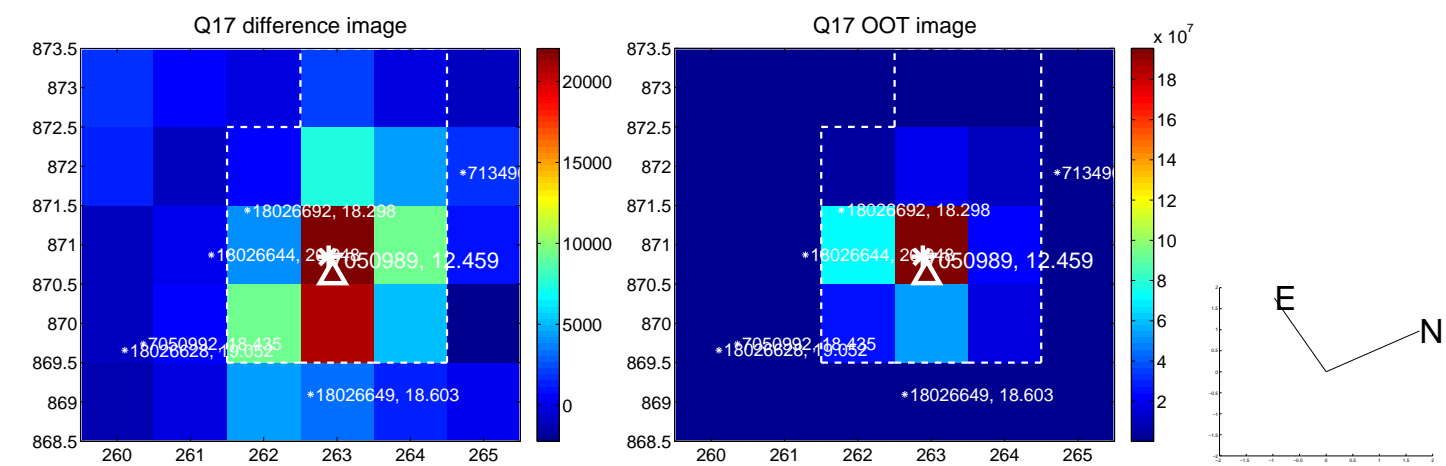
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



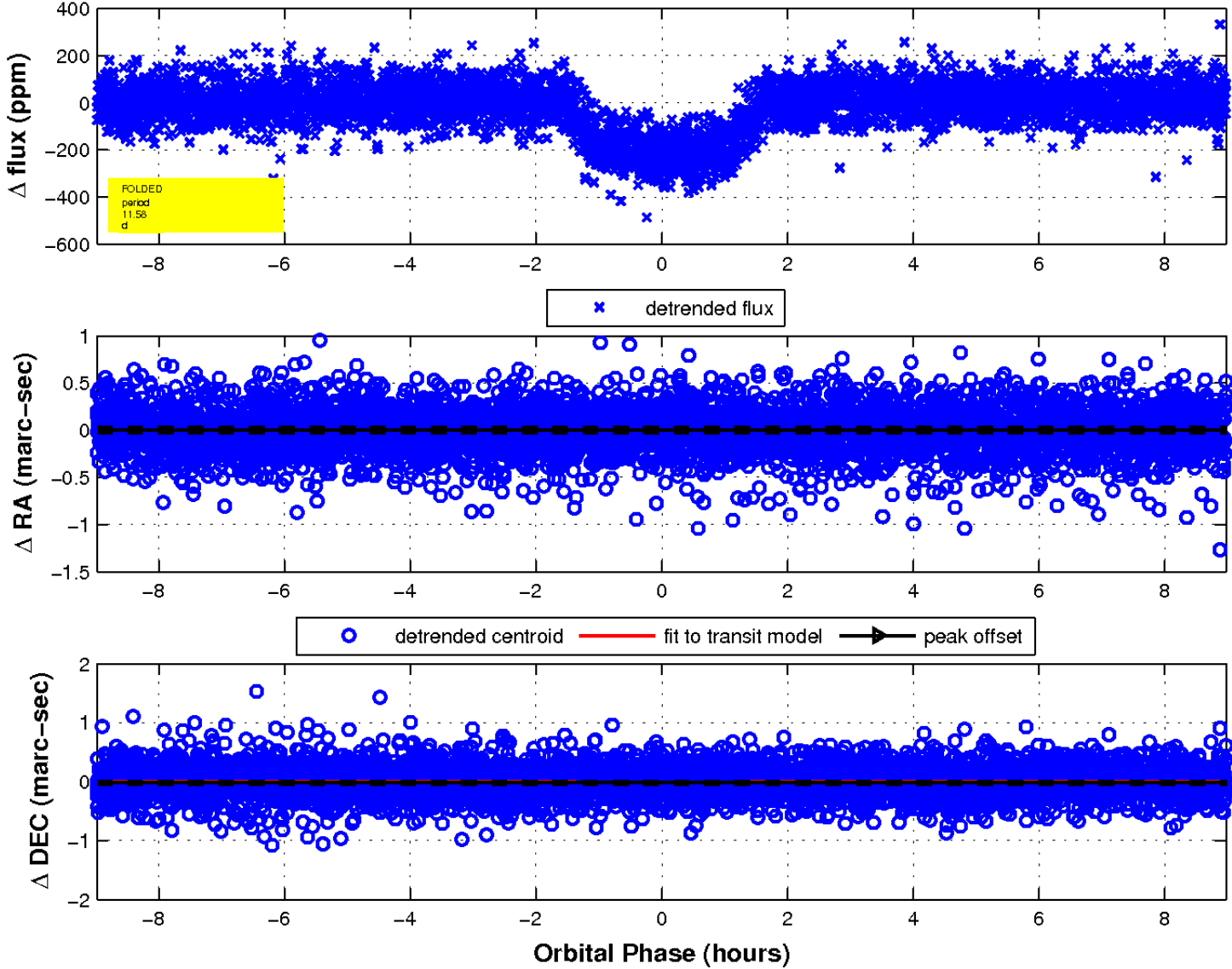
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

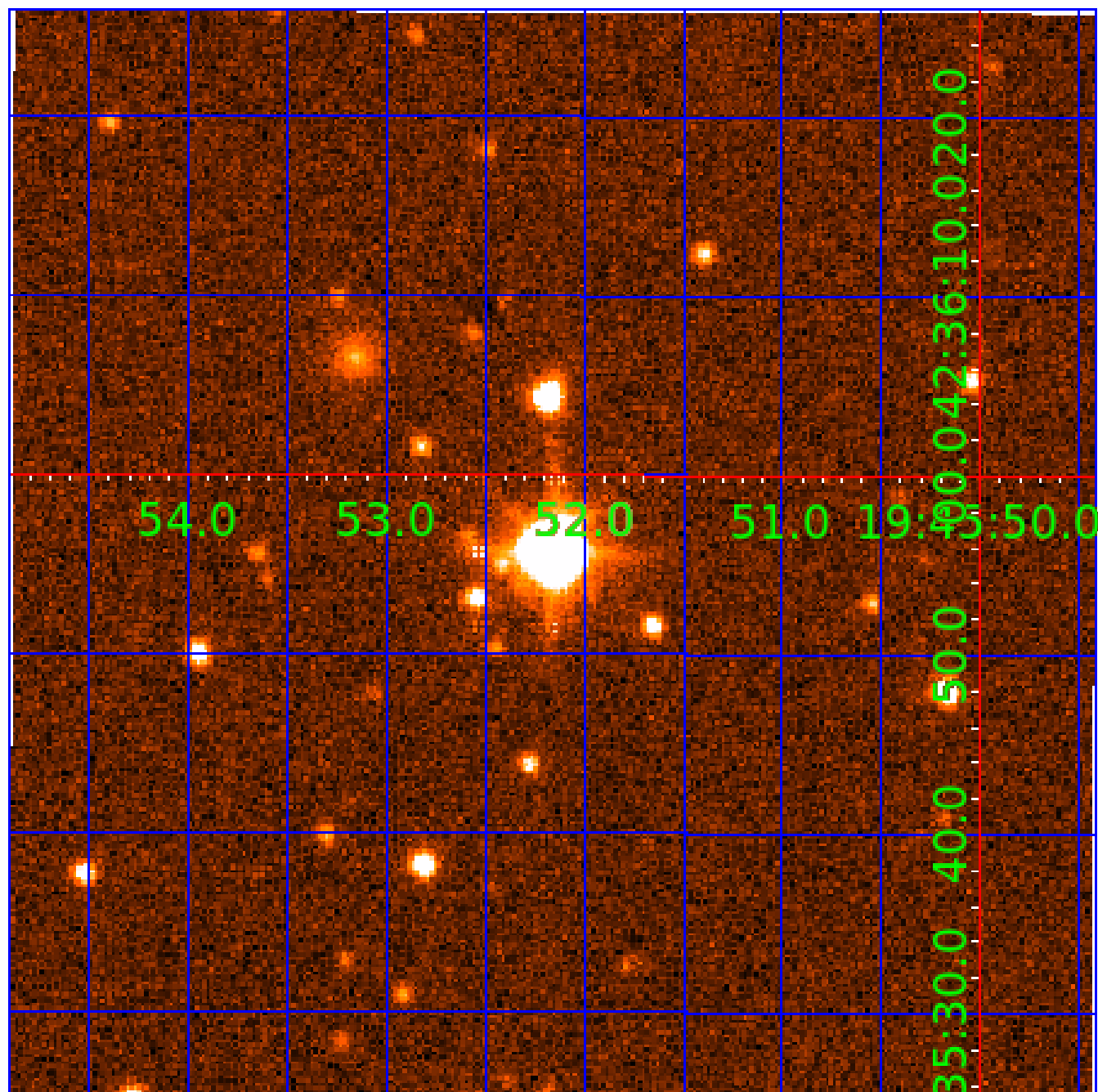


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 007050989

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})
007050989-01	OBS	0312.01	11.578876	140.851834	224.8	2.995	56.5	58.7	1.30	6156	2.31	193.72
007050989-02	OBS	0312.02	16.399261	131.969025	211.5	3.647	44.8	48.8	1.30	6156	2.19	121.79
007050989-03	OBS	No	1.372016	132.303816	11.1	3.274	8.1	8.8	1.30	6156	0.51	3328.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007050989-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007050989-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007050989-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

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

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

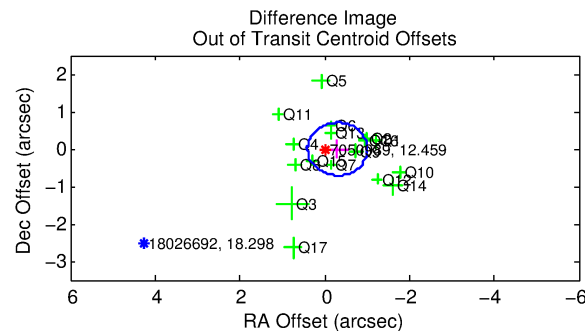
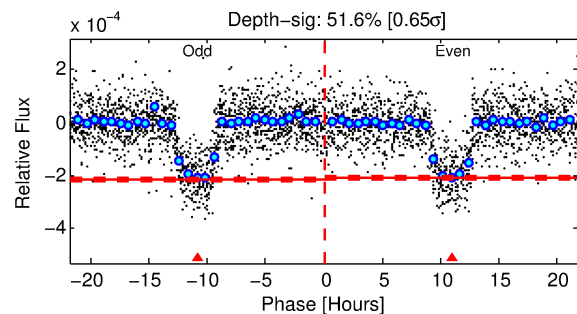
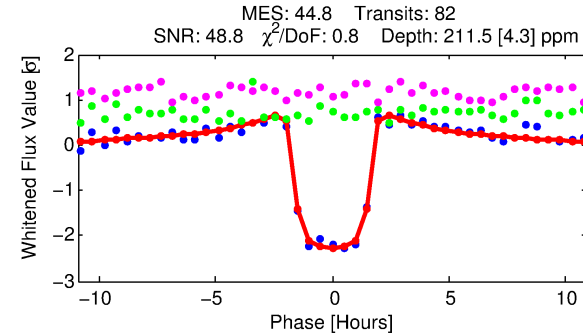
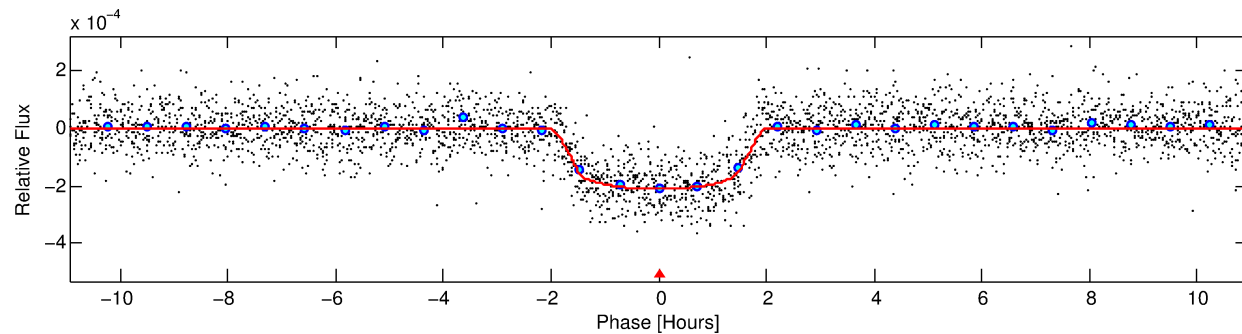
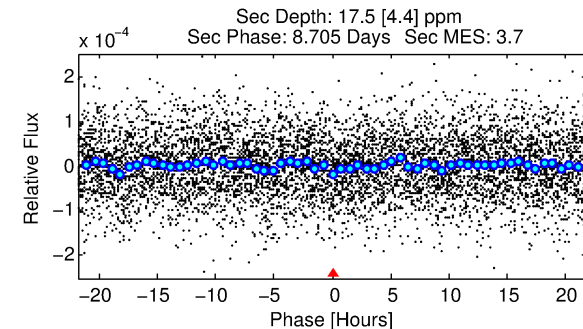
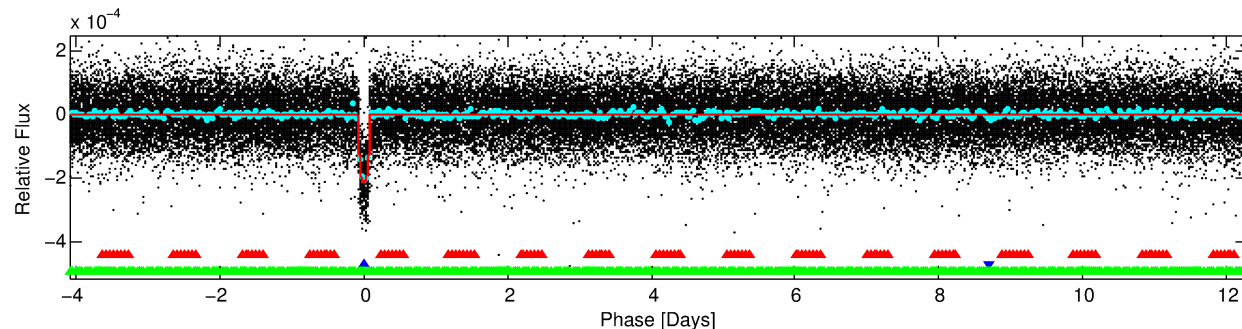
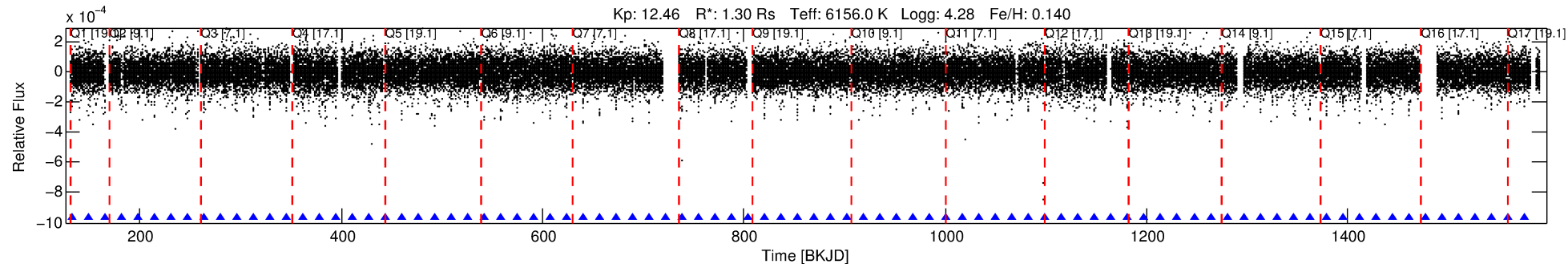
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007050989-02

No Significant Match Found

DV One-Page Summary

KIC: 7050989 Candidate: 2 of 3 Period: 16.399 d
KOI: K00312.02 Name: Kepler-136c Corr: 0.968



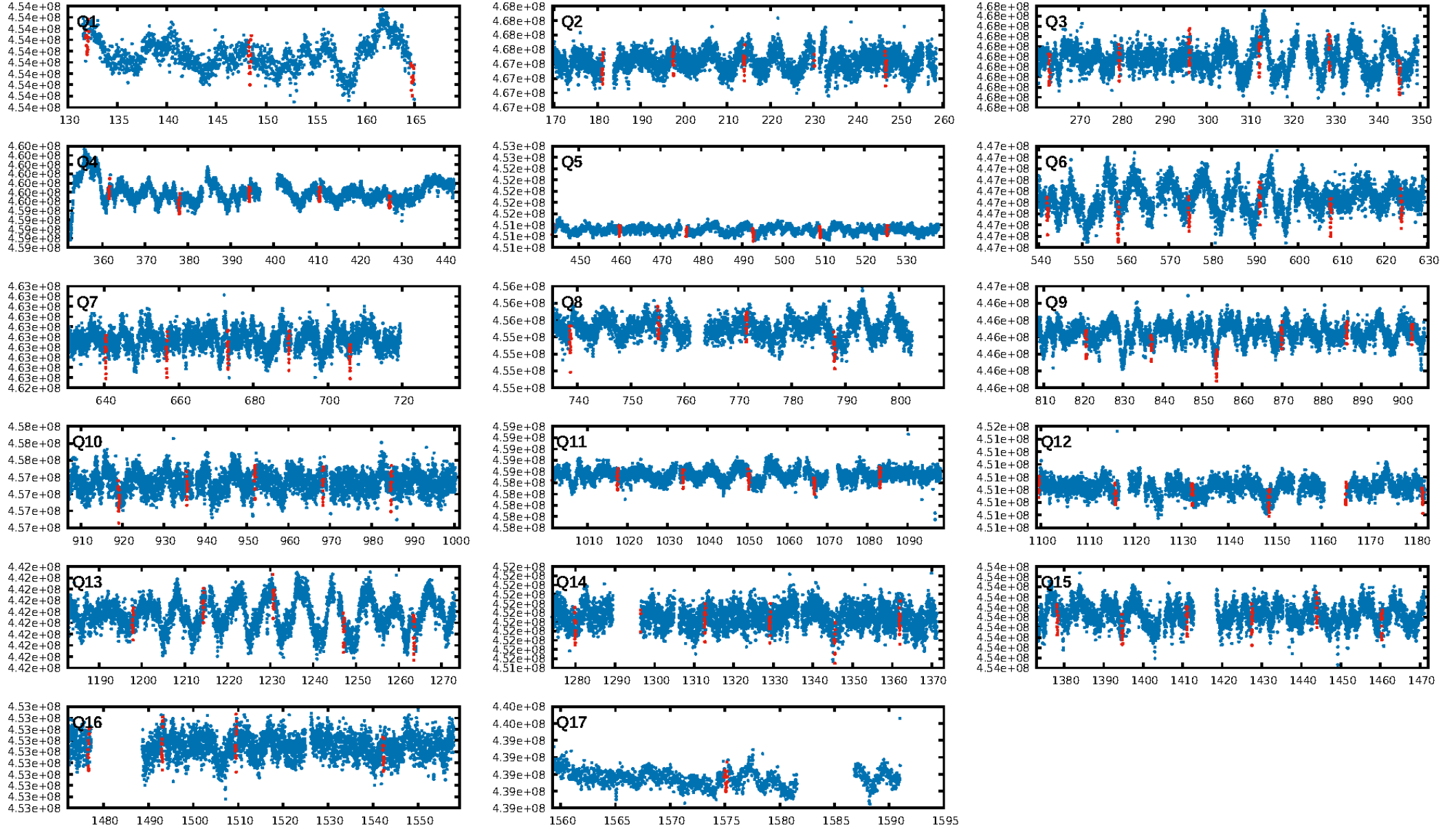
DV Fit Results:

Period = 16.39926 [0.00003] d
Epoch = 131.9690 [0.0013] BKJD
Rp/R* = 0.0154 [0.0013]
a/R* = 17.64 [7.46]
b = 0.88 [0.11]
Seff = 121.79 [28.83]
Teff = 847 [50] K
Rp = 2.19 [0.43] Re
a = 0.1339 [0.0200] AU
Ag = 36.01 [13.47] [2.60σ]
Teffp = 3208 [253] K [9.16σ]

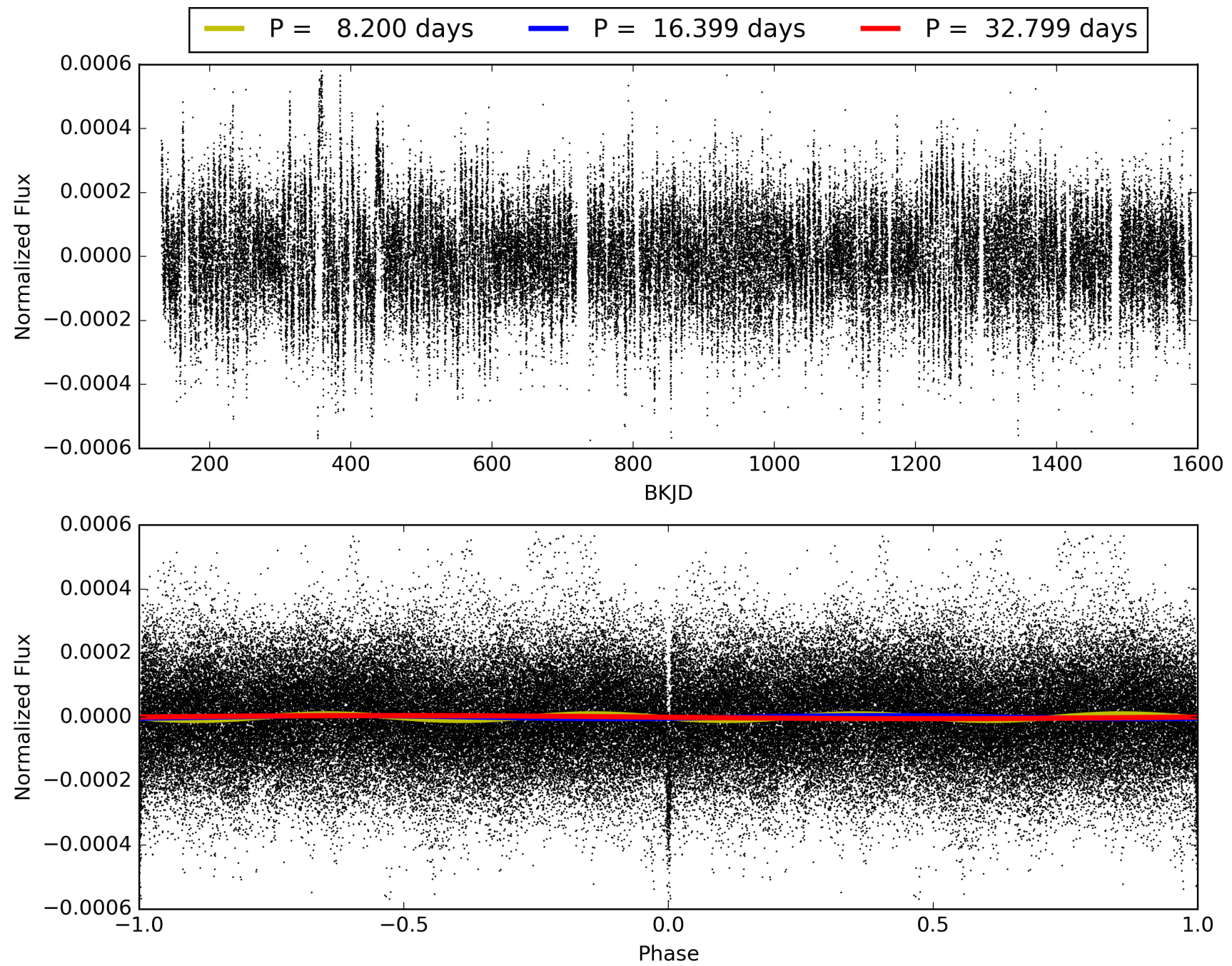
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [24.52σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [78/78]
GhostDiagnostic-chr: 2.97
Centroid-sig: 0.0%
Centroid-so: 0.485 arcsec [3.19σ]
OotOffset-rm: 0.304 arcsec [1.29σ]
KicOffset-rm: 0.333 arcsec [1.45σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.53 [9/17]

TCE 007050989-02, PDC Light Curves

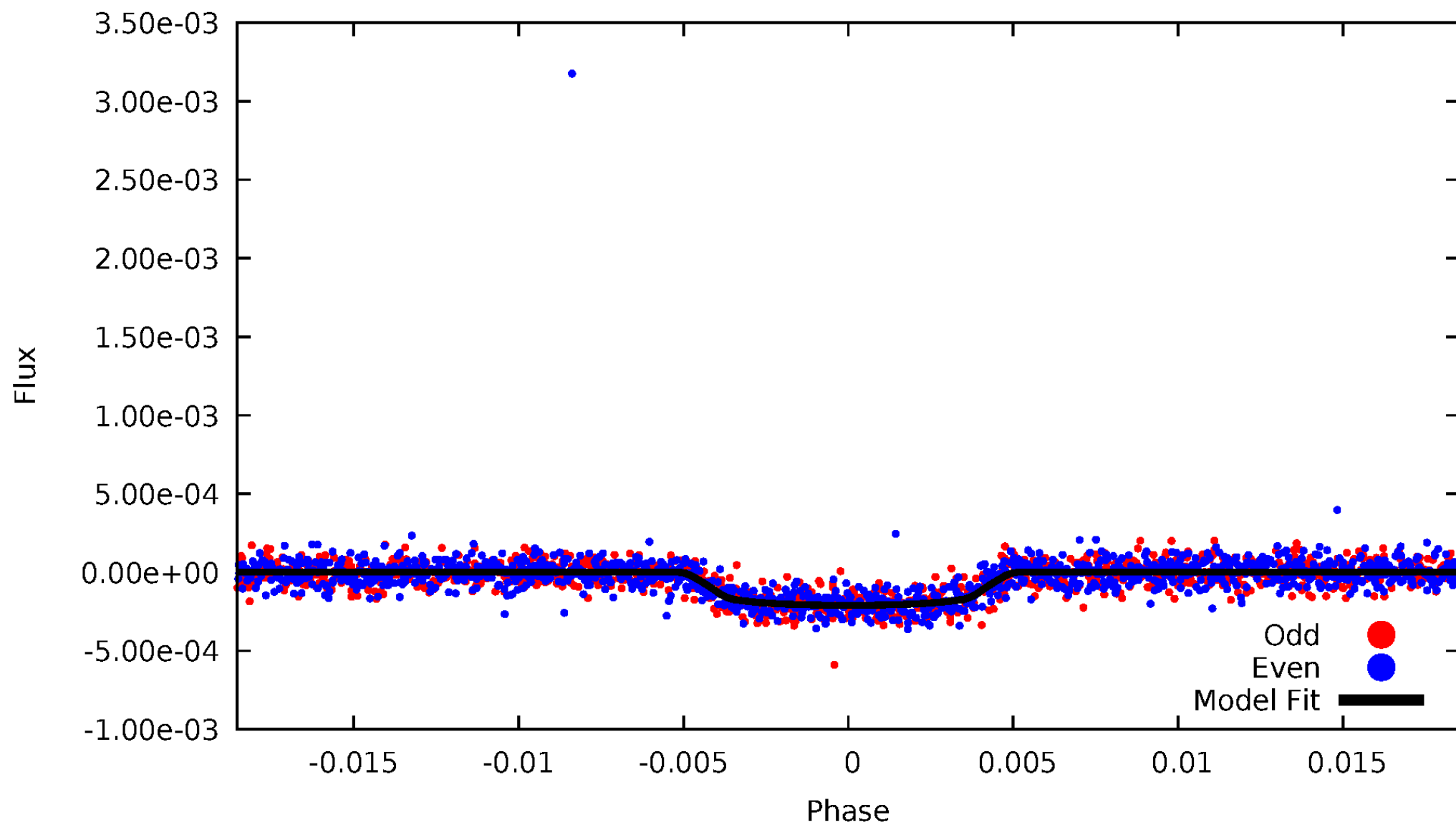


TCE 007050989-02



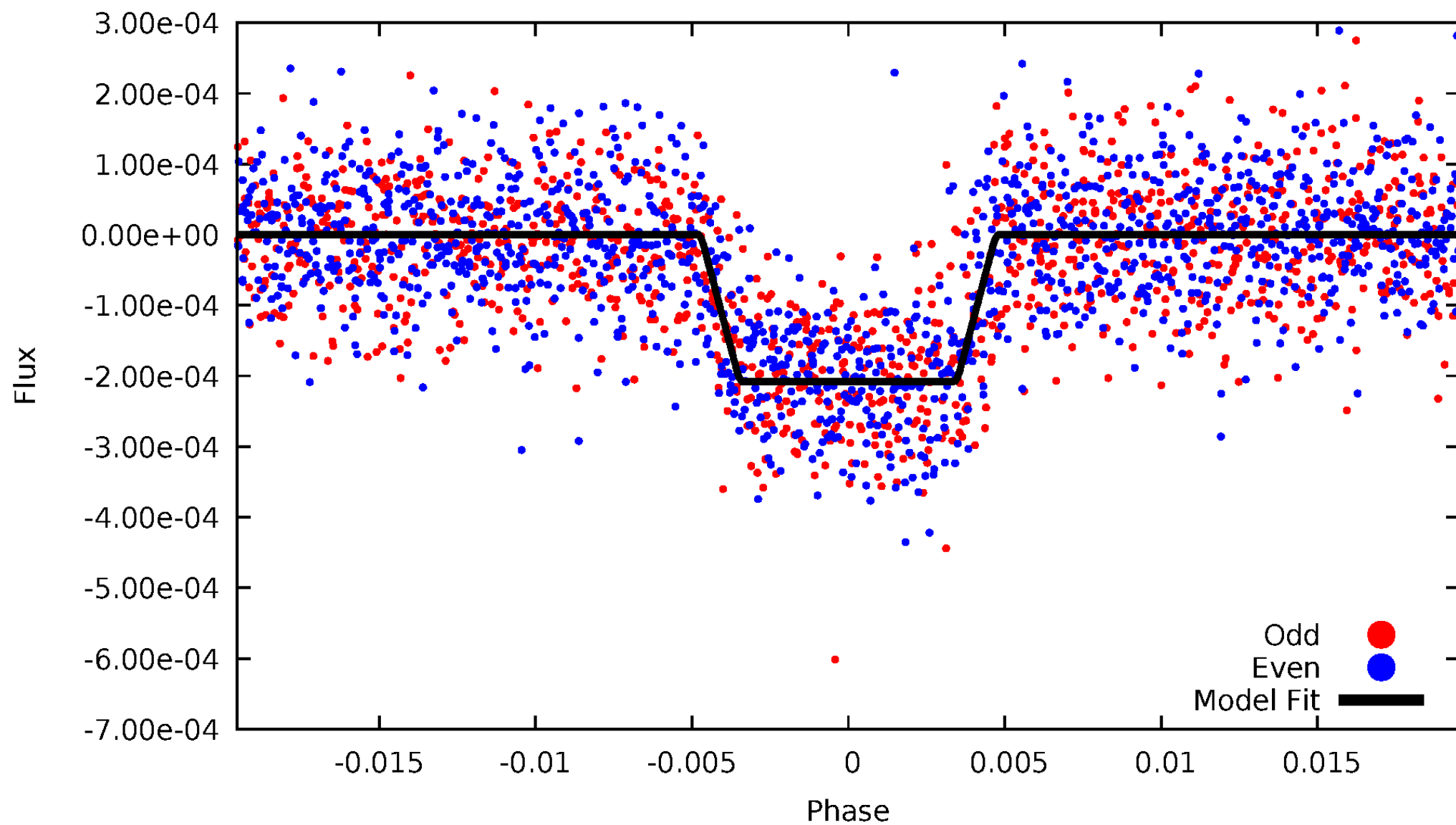
DV Odd/Even

TCE 007050989-02



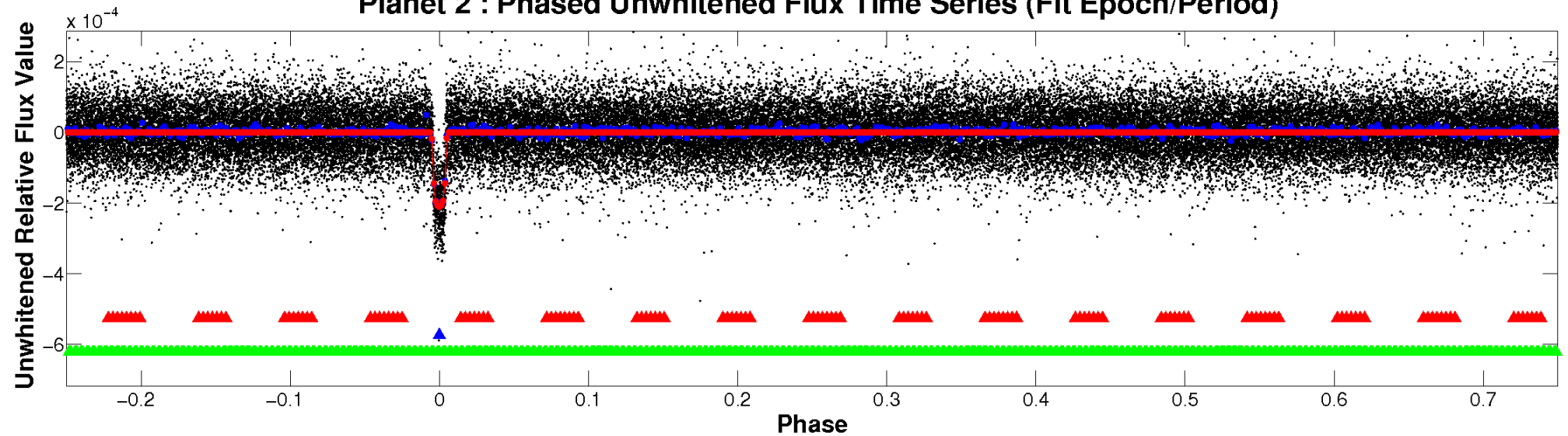
ALT Odd/Even

TCE 007050989-02

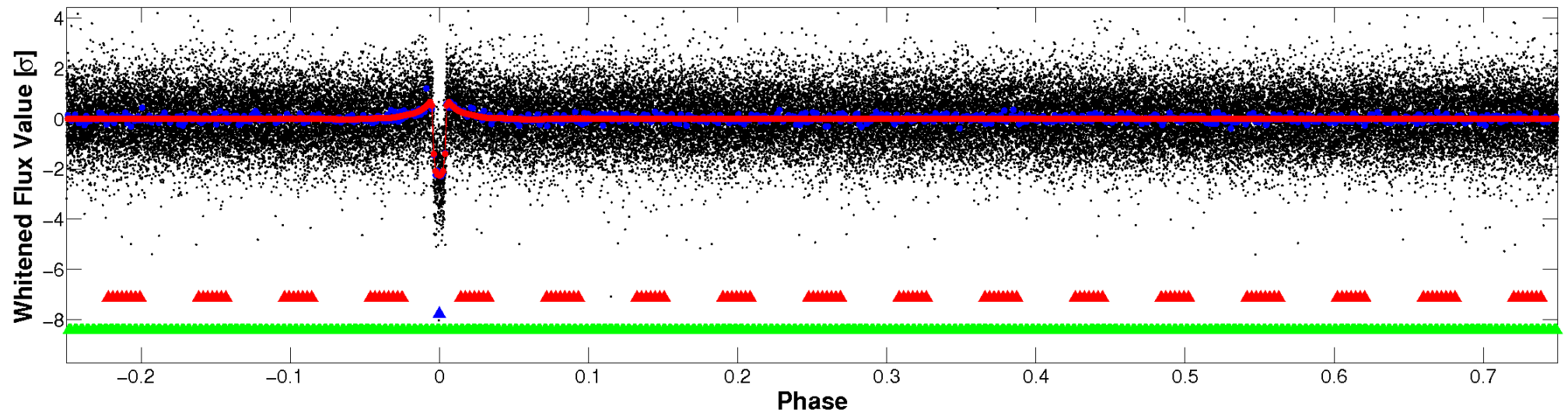


Non-Whitened Vs. Whitened Light Curve

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

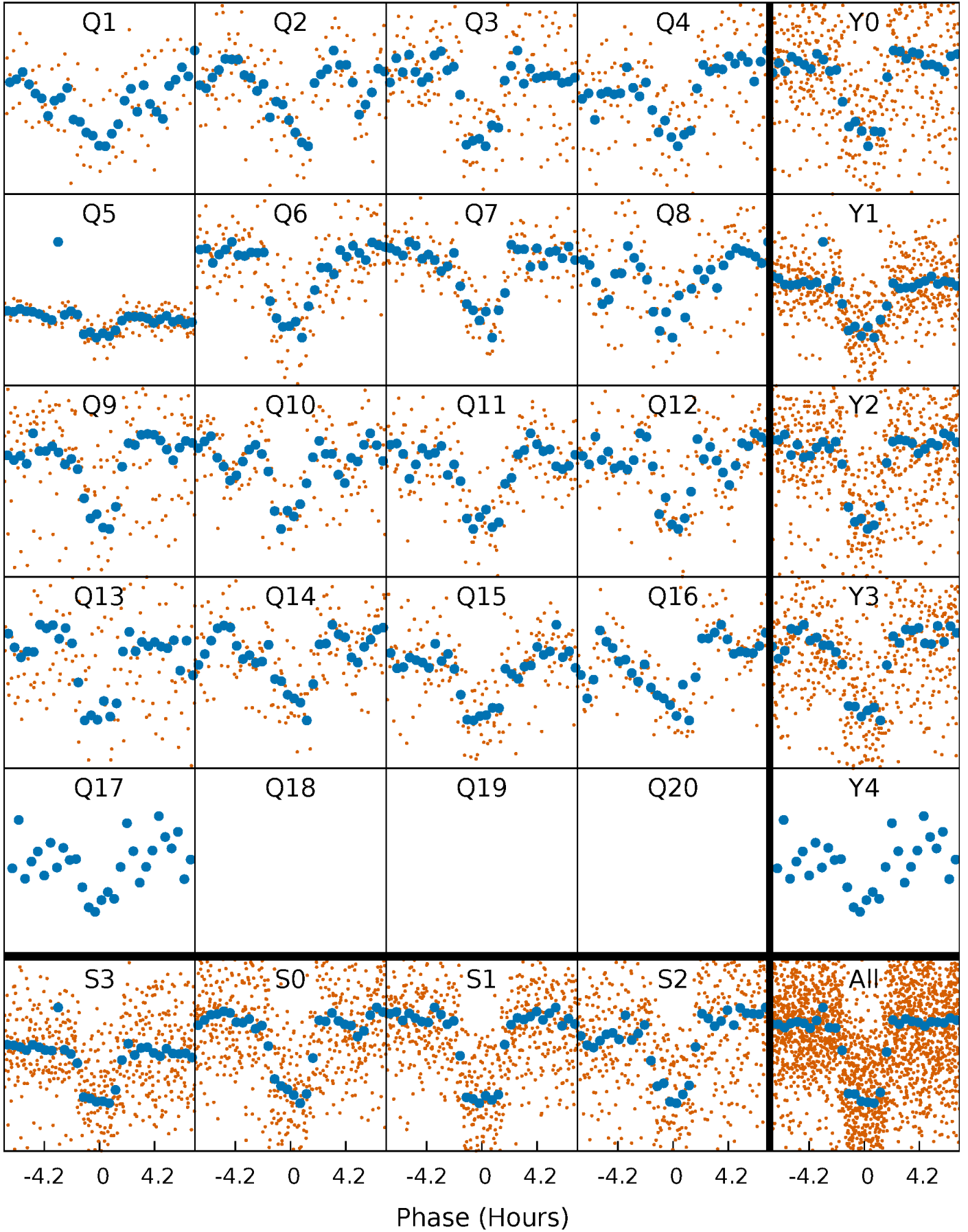


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



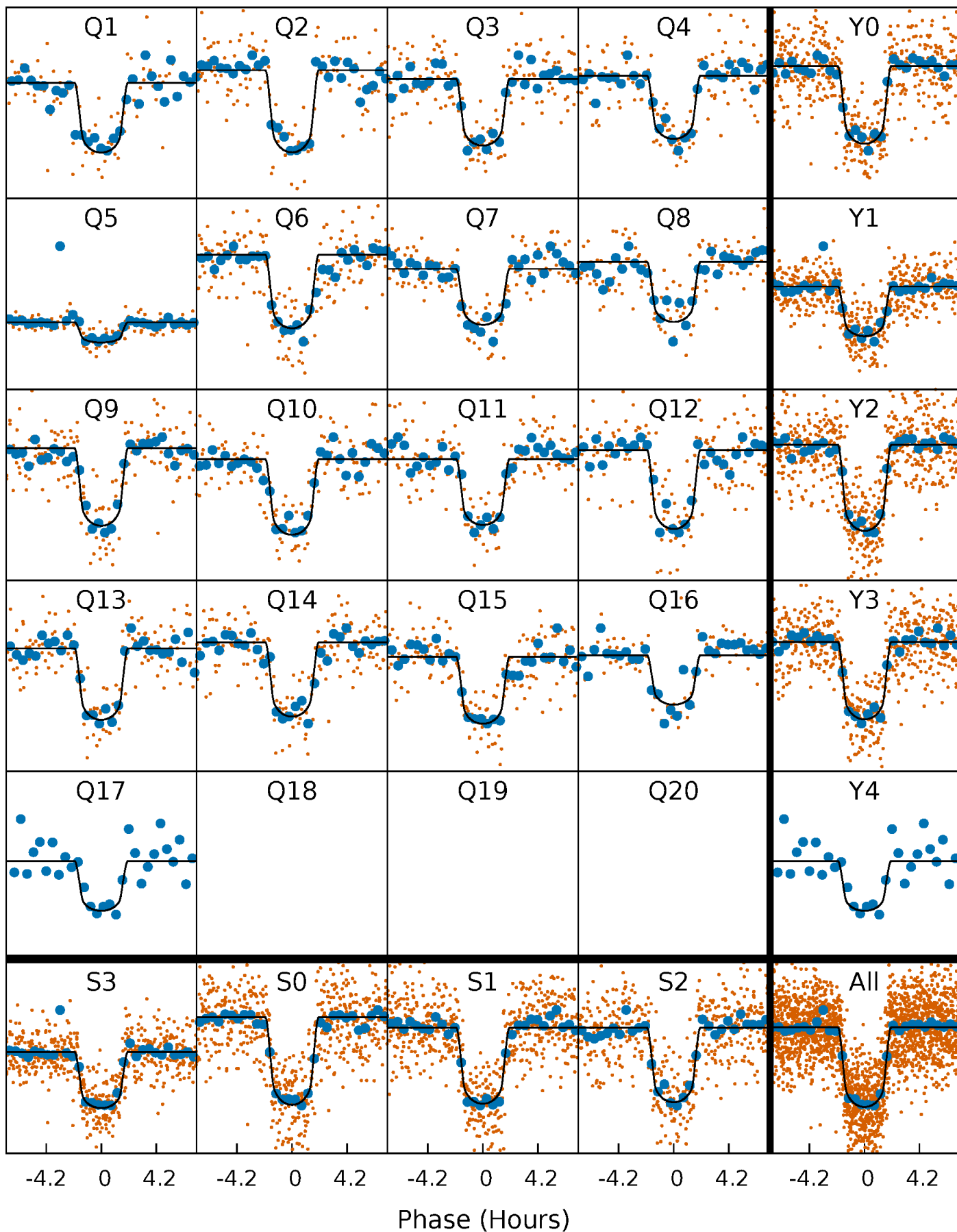
PDC Quarter-Phased Transit Curves

TCE 007050989-02 P= 16.399261 Days $T_0=131.969024$ (BKJD)



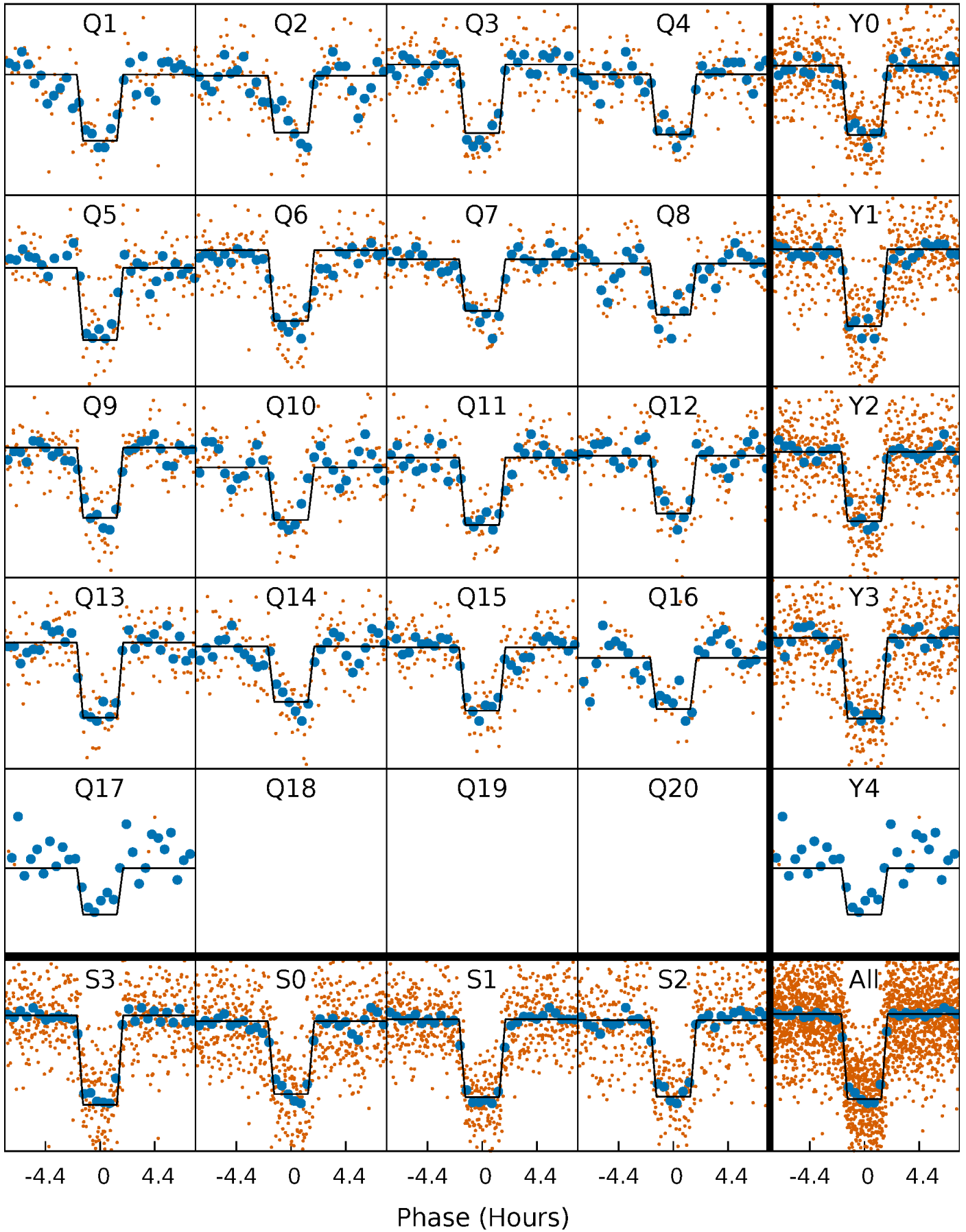
DV Quarter-Phased Transit Curves

TCE 007050989-02 P= 16.399261 Days $T_0=131.969024$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

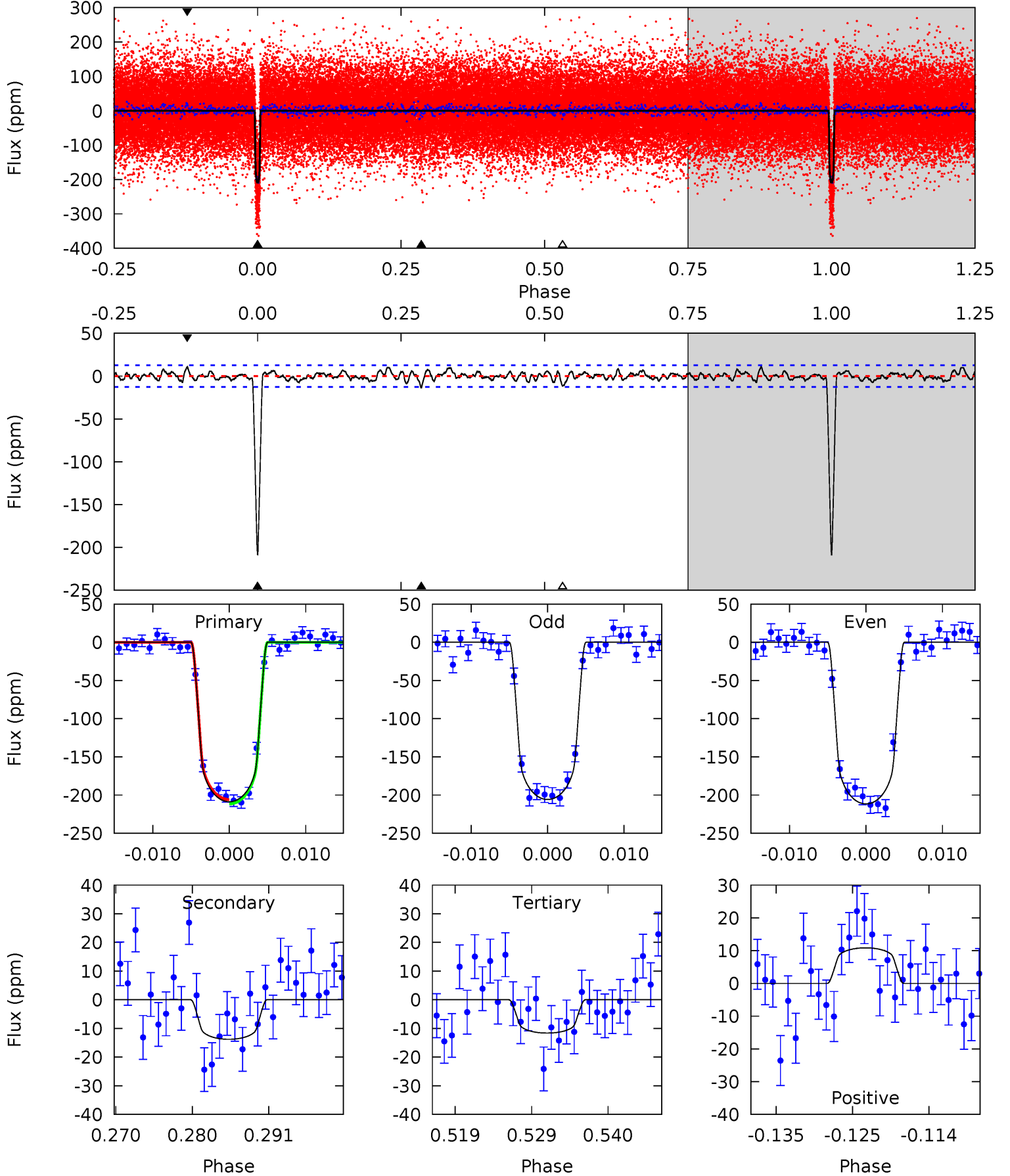
TCE 007050989-02 P= 16.399249 Days $T_0=131.969420$ (BKJD)



DV Model-Shift Uniqueness Test

007050989-02, $P = 16.399261$ Days, $E = 115.569763$ Days

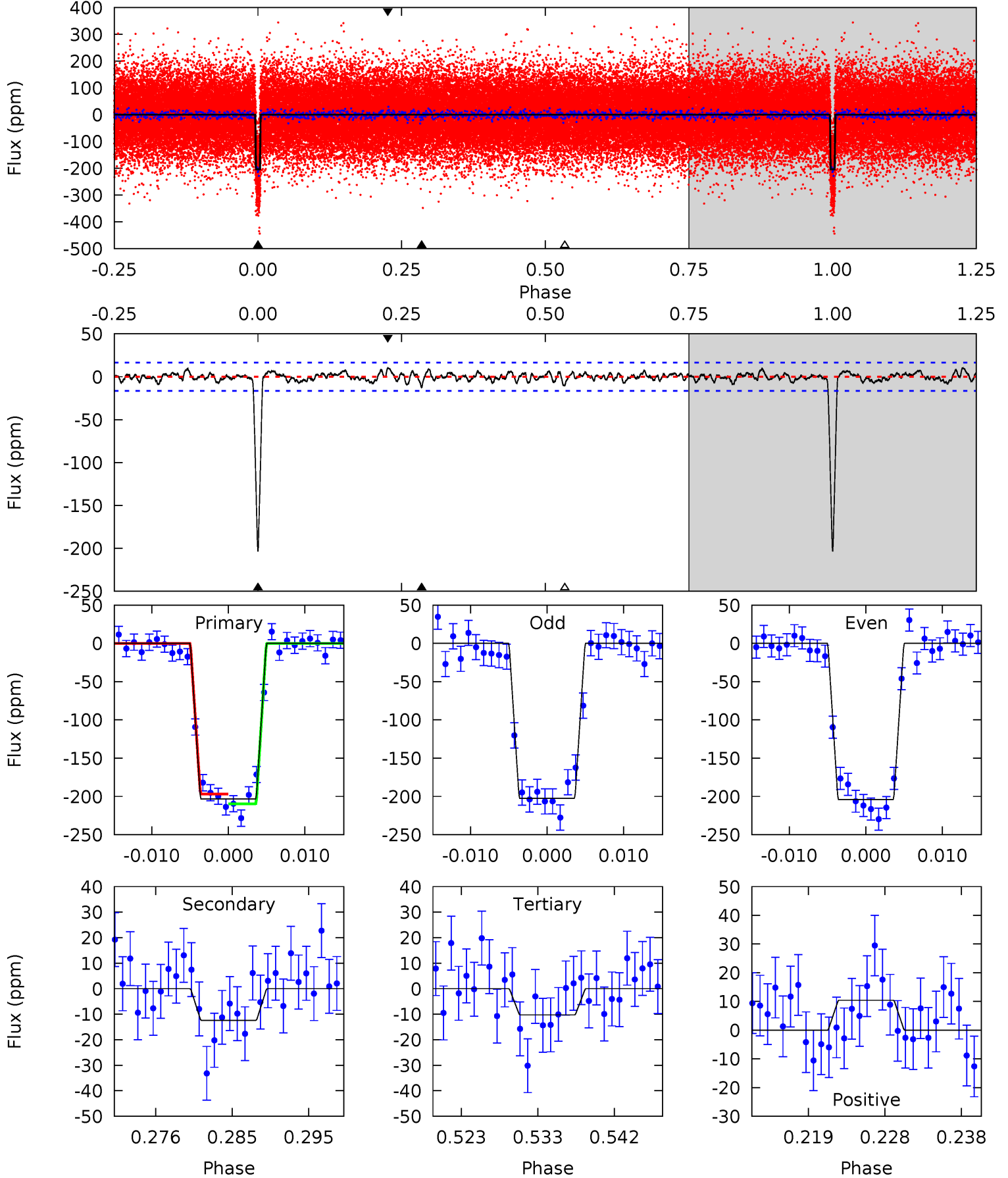
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
82.9	5.48	4.62	4.31	5.02	2.56	1.44	78.3	78.6	0.86	1.17	1.15	0.99	0.05	1.12



Alt Model-Shift Uniqueness Test

007050989-02, $P = 16.399249$ Days, $E = 115.570171$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.1	3.78	3.13	3.18	5.04	2.59	1.10	59.0	58.9	0.65	0.61	0.28	0.98	0.05	1.93



Stellar Parameters For KIC 007050989

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6156^{+111}_{-136}	$4.284^{+0.099}_{-0.121}$	$0.140^{+0.150}_{-0.150}$	$1.303^{+0.229}_{-0.171}$	$1.193^{+0.086}_{-0.097}$	$0.760^{+0.334}_{-0.274}$
	+2%/-2%	+2%/-3%	+107%/-107%	+18%/-13%	+7%/-8%	+44%/-36%
Source	SPE59	SPE59	SPE59	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007050989-02 / KOI 0312.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-14 ± 3	$2.20^{+0.29}_{-0.26}$	1187^{+52}_{-53}	3496^{+146}_{-137}	28^{+10}_{-7}
Alt.	-12 ± 3	$2.08^{+0.25}_{-0.25}$	1186^{+55}_{-50}	3487^{+194}_{-177}	28^{+11}_{-8}

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

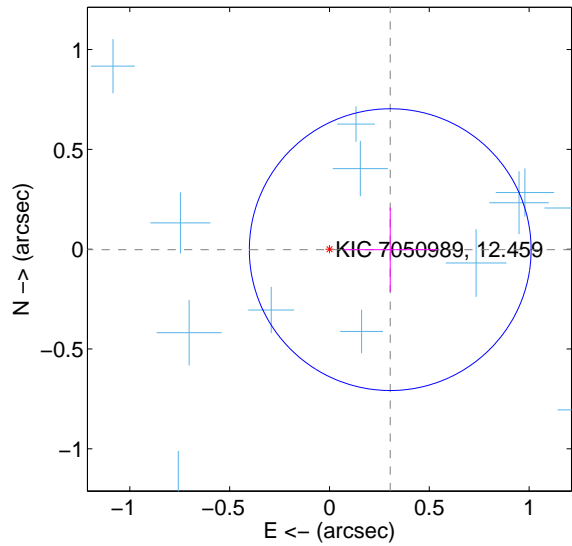
Supplemental centroid analysis for 007050989-02. Kepler magnitude: 12.46. Transit SNR 48.80

There are 17 quarters with good PRF difference image offsets

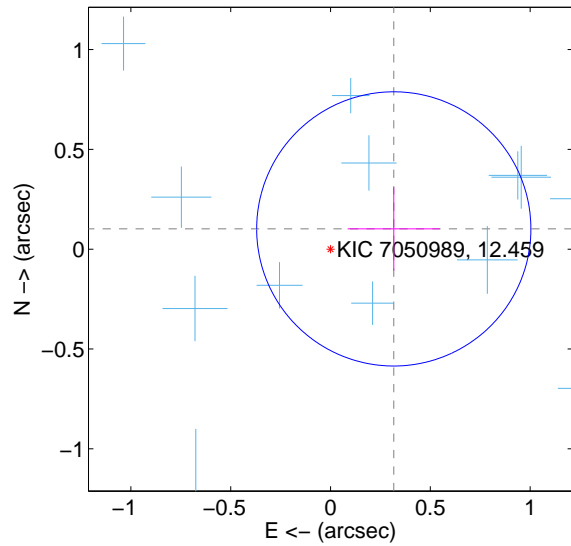
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.304 ± 0.235	1.29	-0.304 ± 0.235	-0.002 ± 0.211
PRF-fit source offset from KIC position	0.333 ± 0.229	1.45	-0.317 ± 0.231	0.102 ± 0.209
photometric centroid source offset	0.49 ± 0.15	3.19	0.35 ± 0.16	0.33 ± 0.15

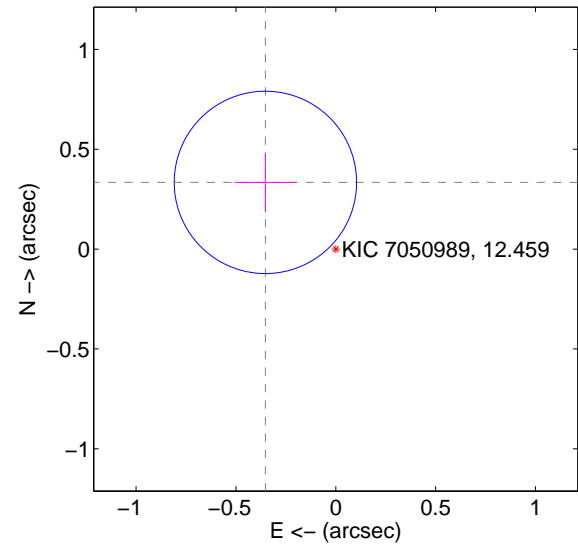
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

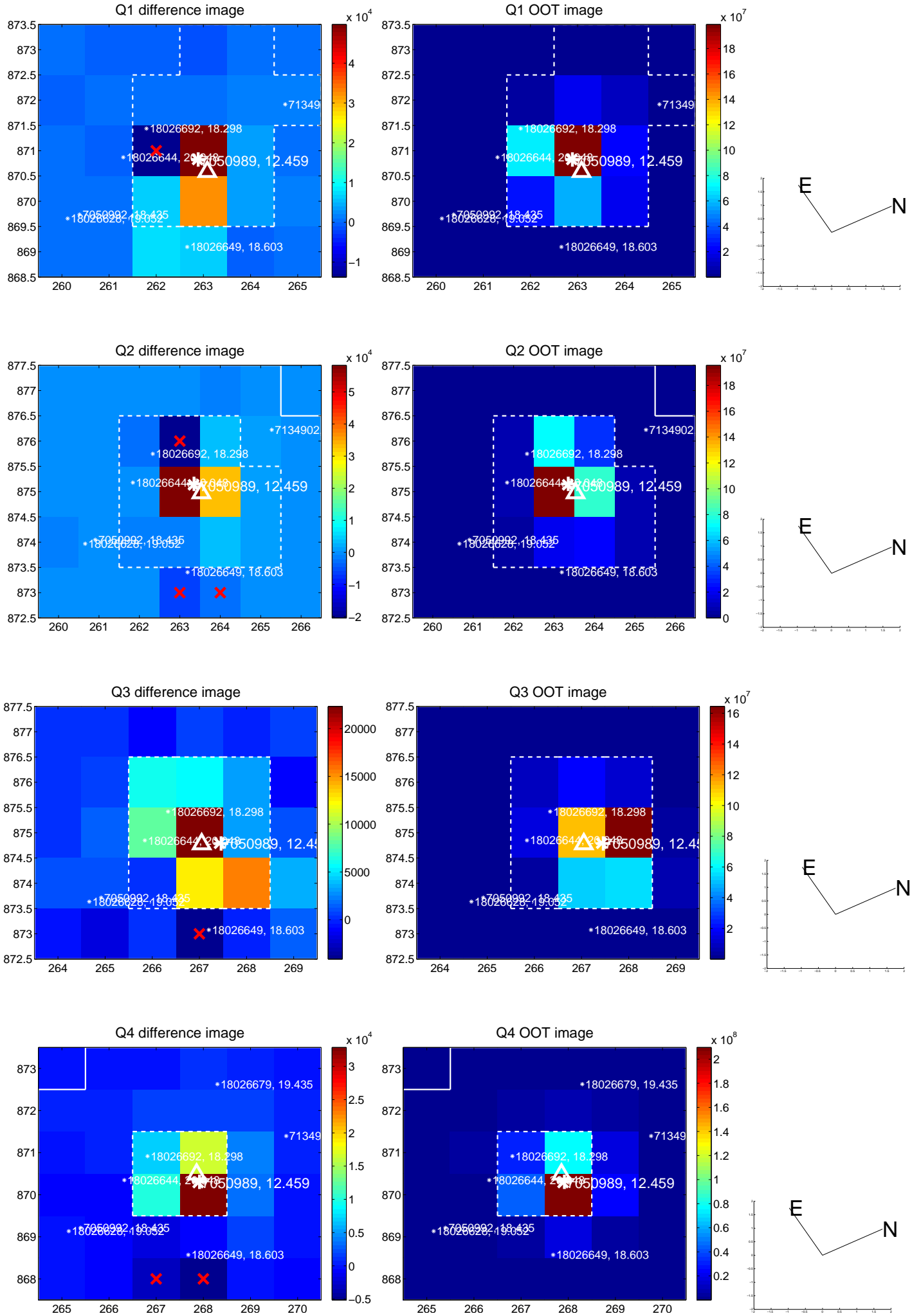


offset from photometric centroids

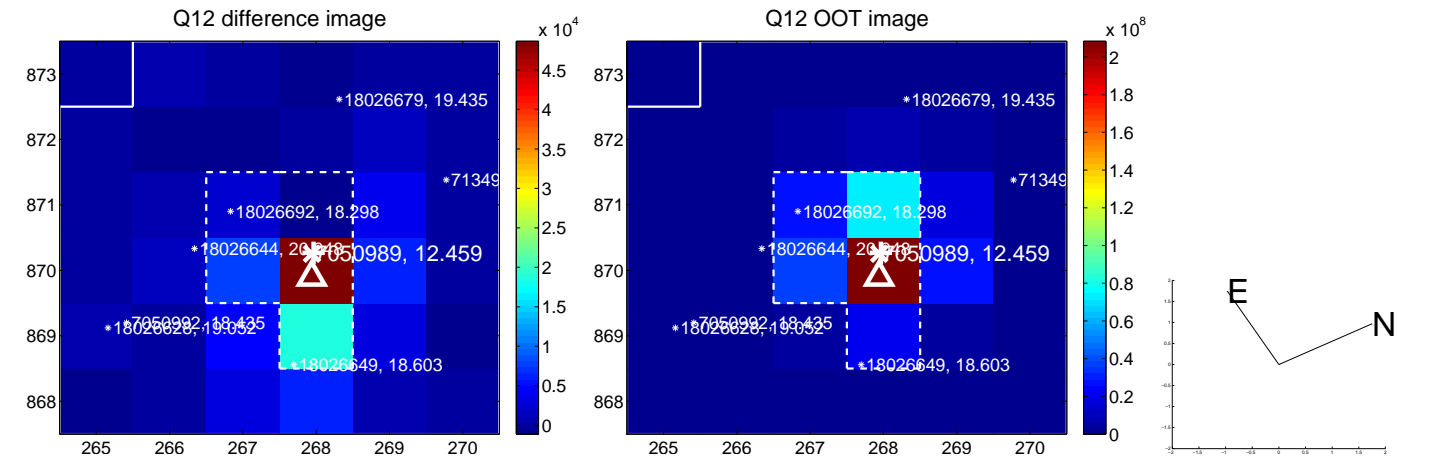
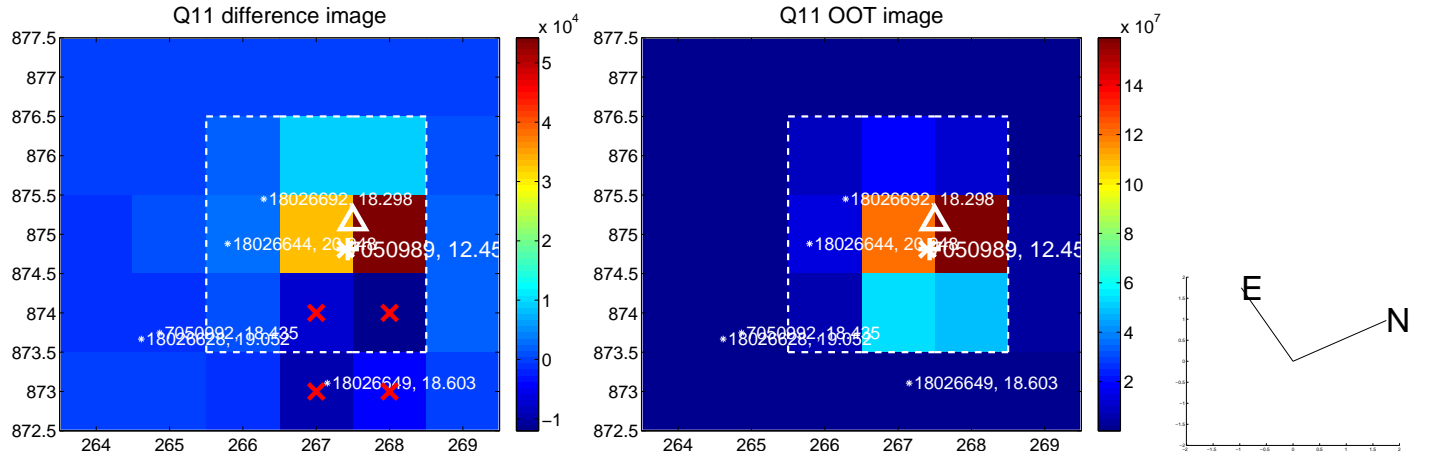
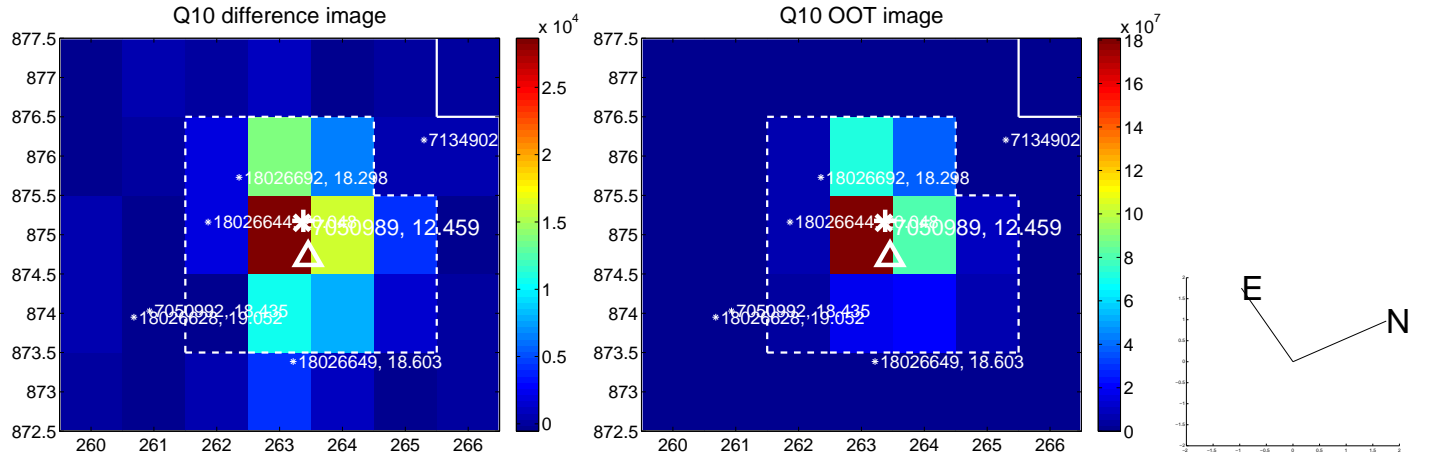
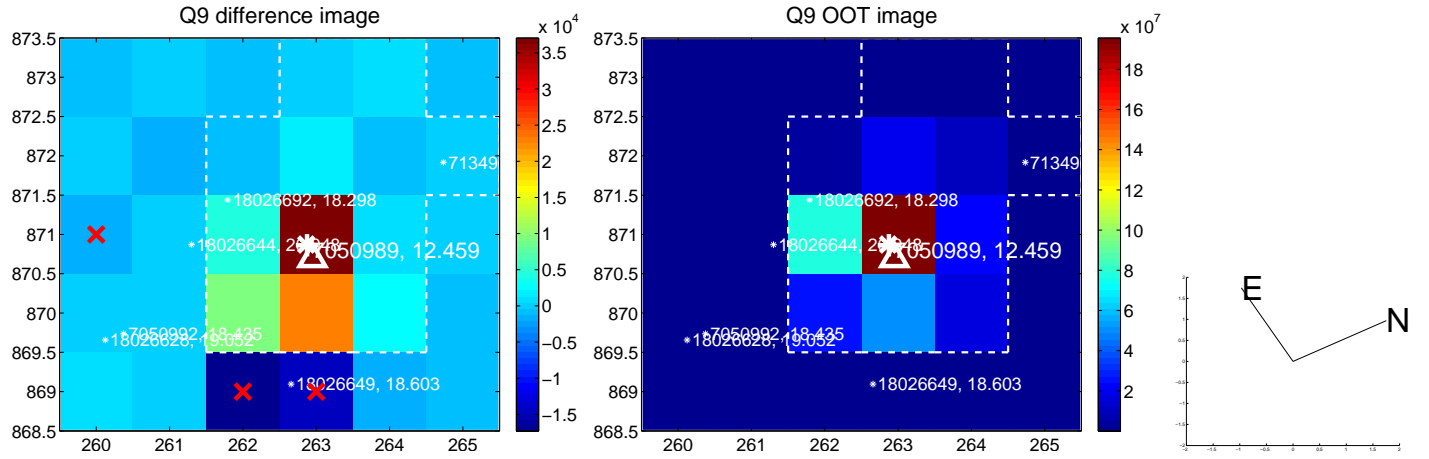


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

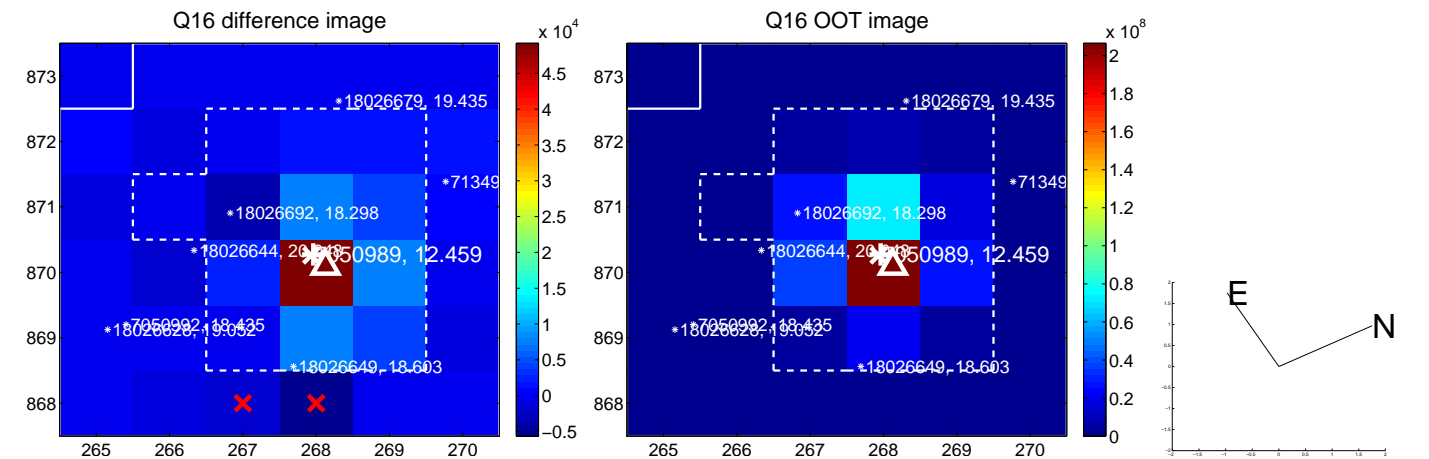
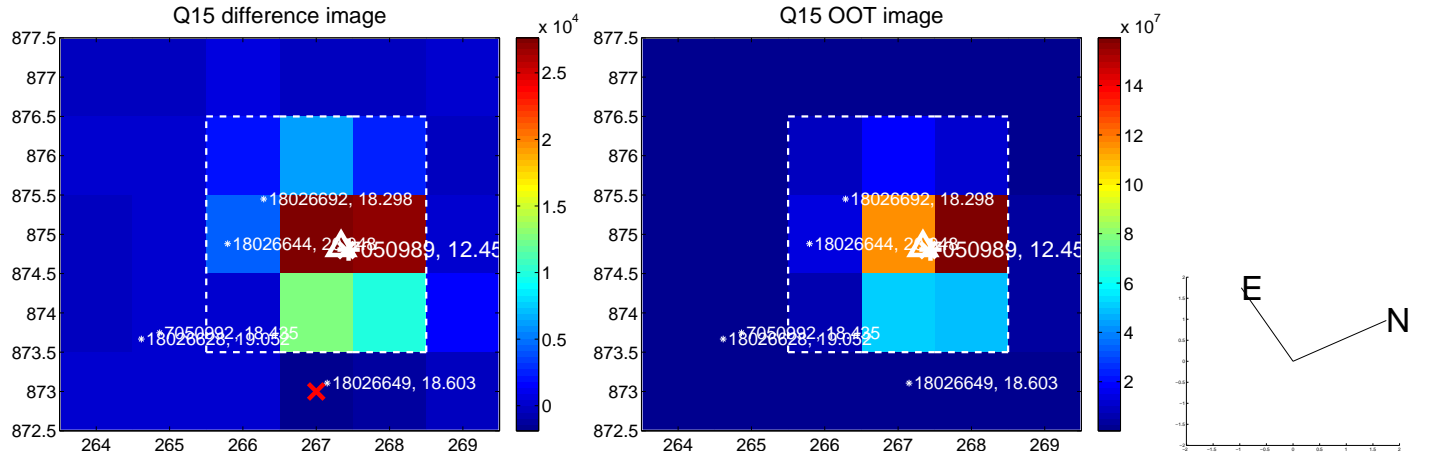
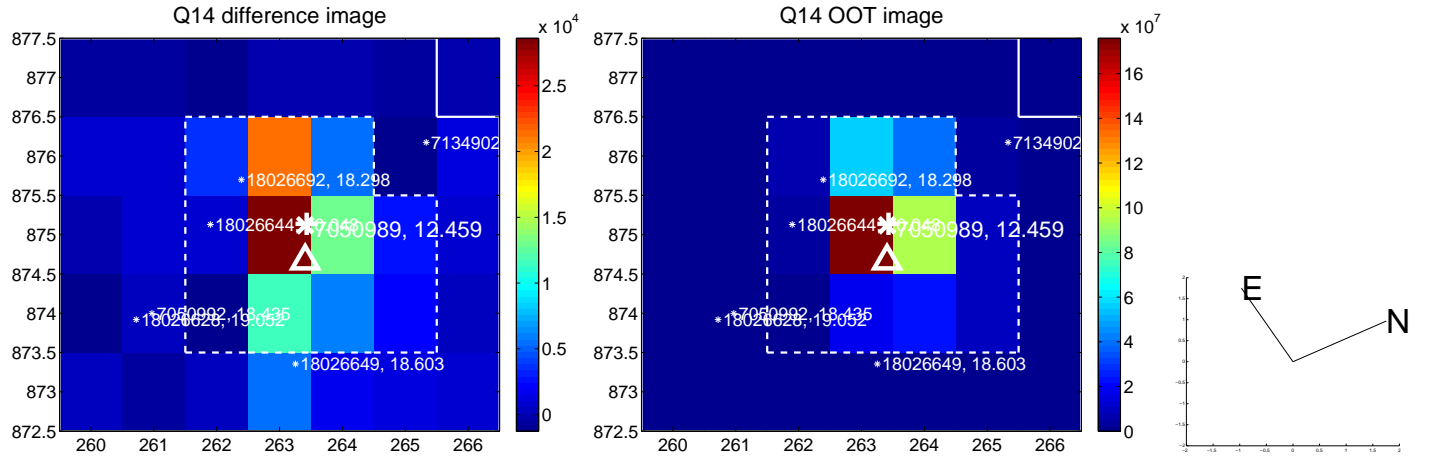
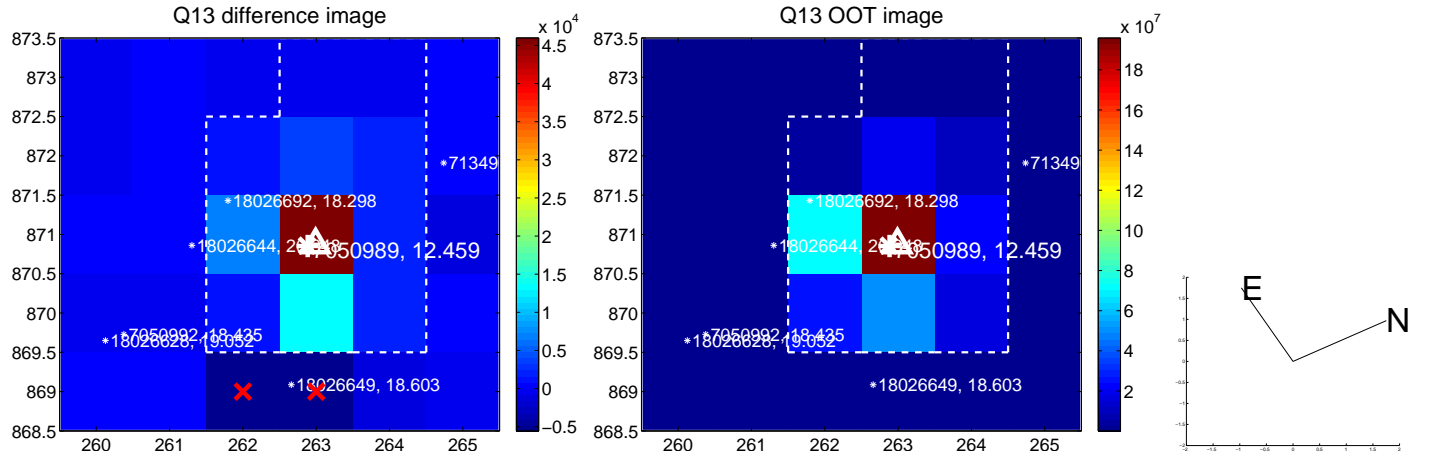
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



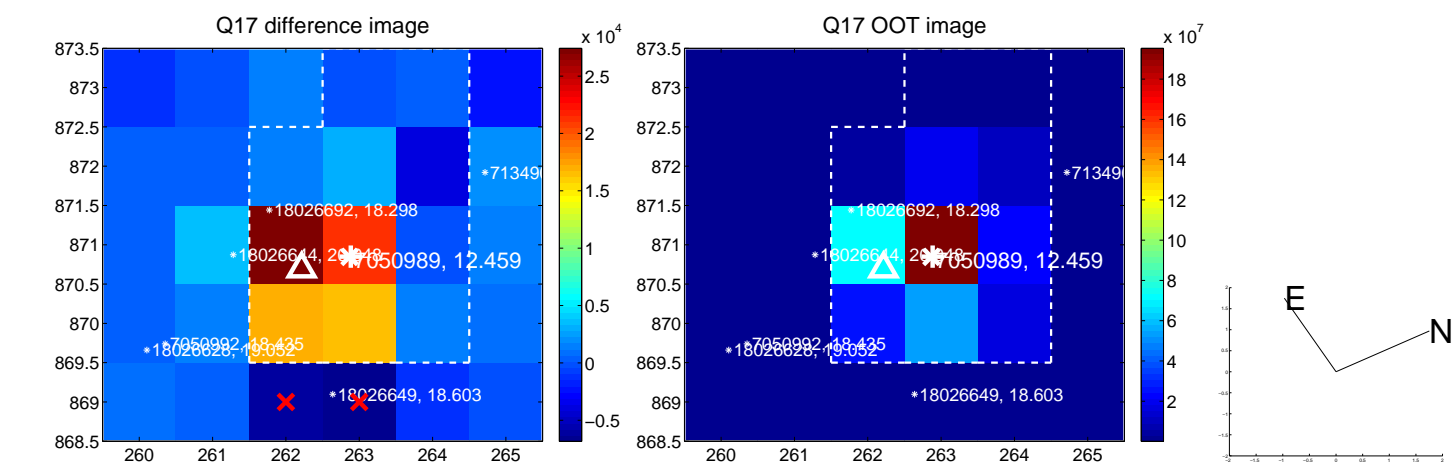
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



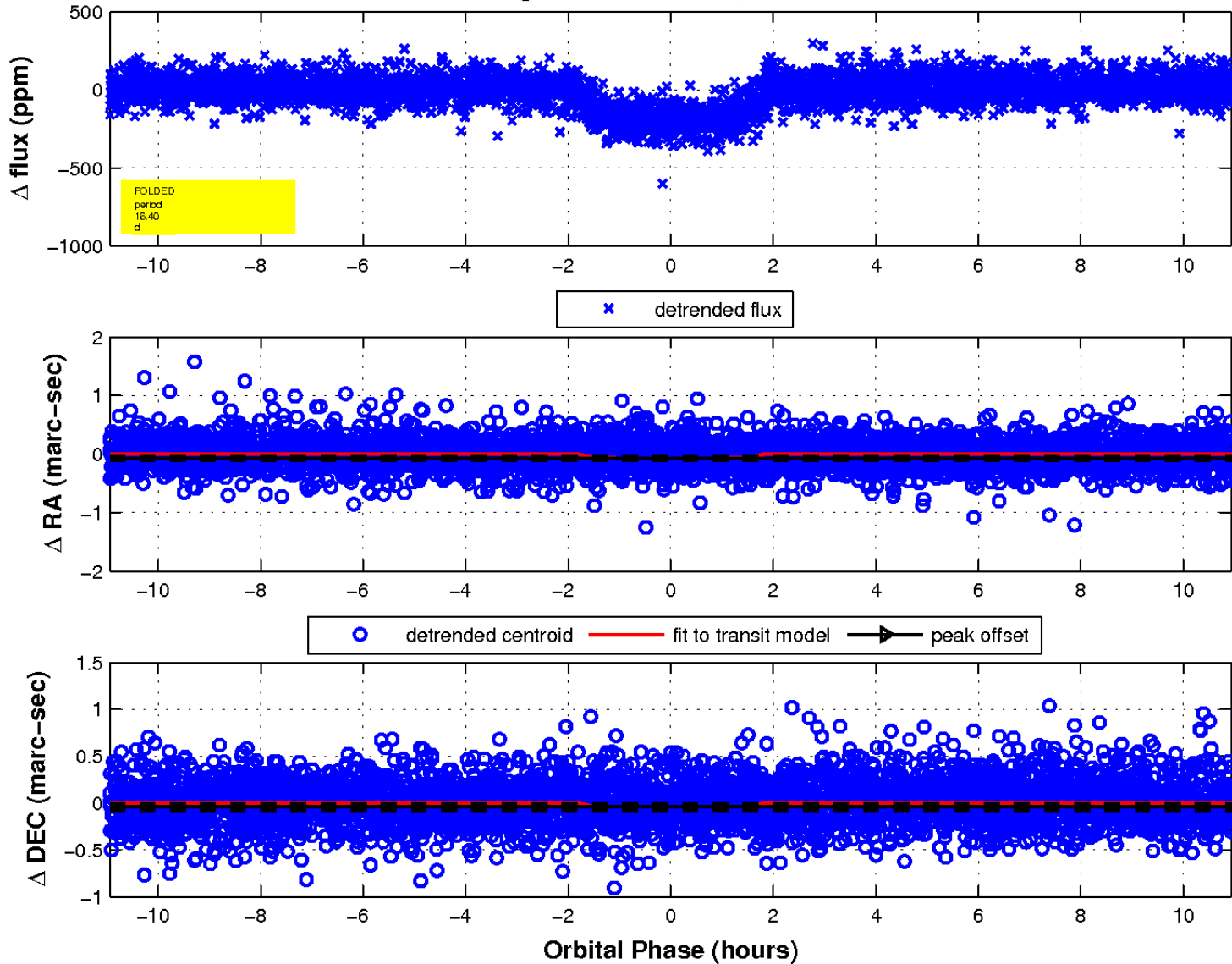
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

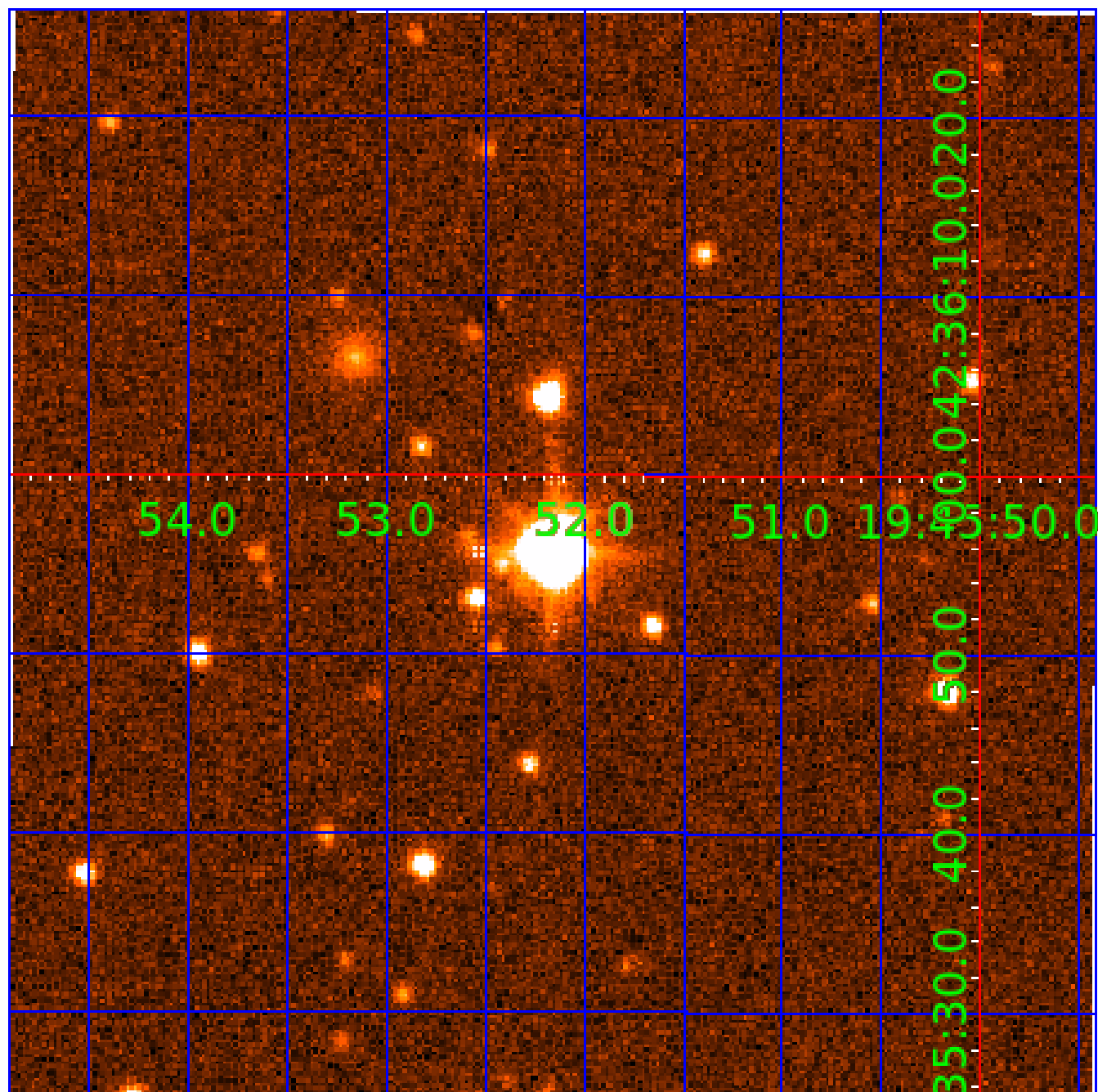


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 007050989

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})
007050989-01	OBS	0312.01	11.578876	140.851834	224.8	2.995	56.5	58.7	1.30	6156	2.31	193.72
007050989-02	OBS	0312.02	16.399261	131.969025	211.5	3.647	44.8	48.8	1.30	6156	2.19	121.79
007050989-03	OBS	No	1.372016	132.303816	11.1	3.274	8.1	8.8	1.30	6156	0.51	3328.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007050989-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007050989-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007050989-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

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

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

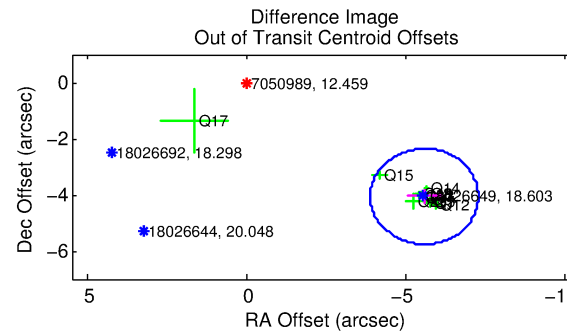
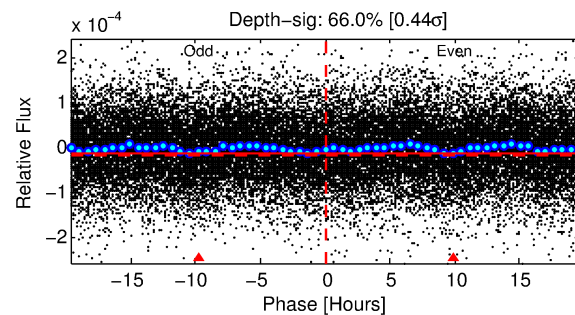
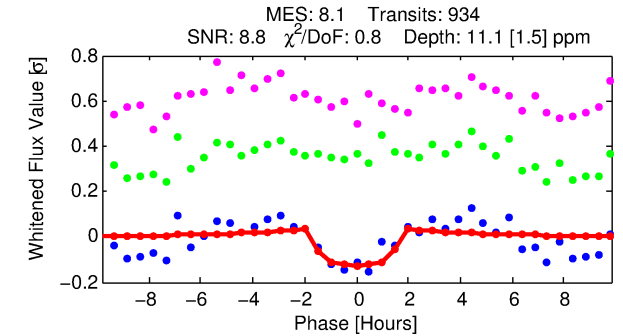
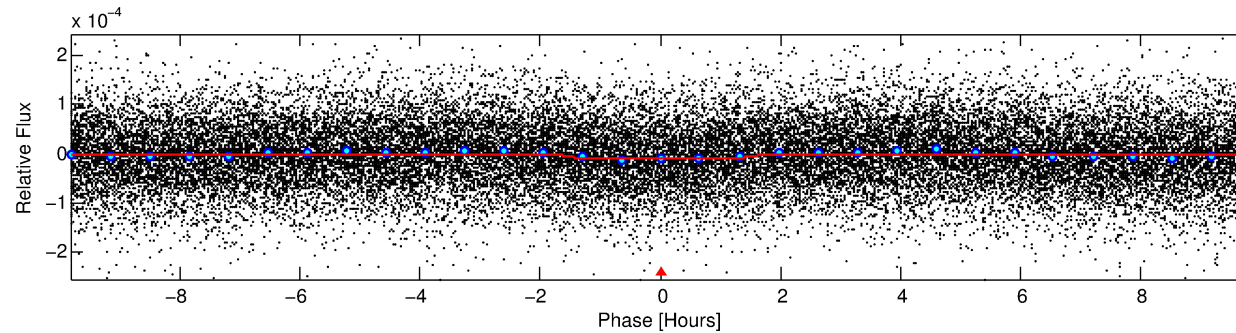
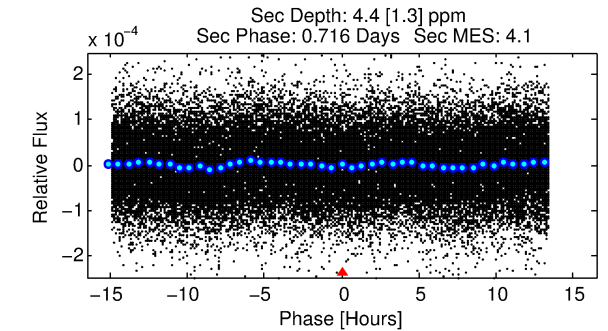
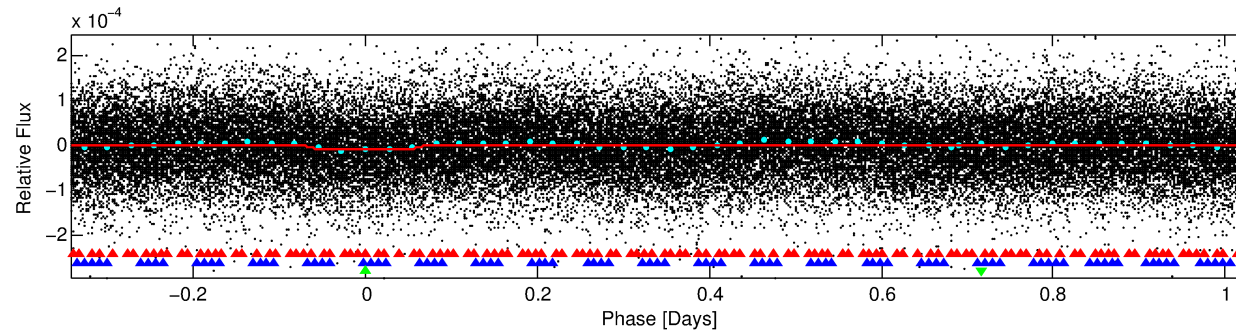
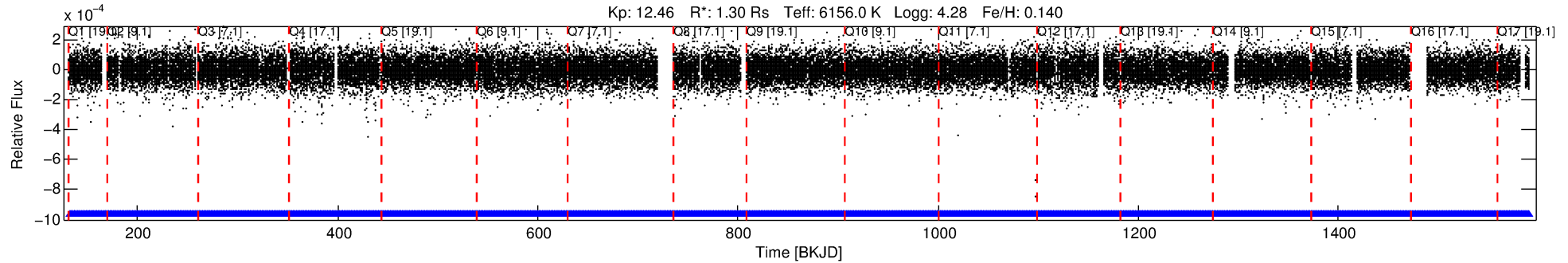
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007050989-03

No Significant Match Found

DV One-Page Summary

KIC: 7050989 Candidate: 3 of 3 Period: 1.372 d
 KOI: K00312 Name: Kepler-136 Corr: No Ephemeris Match



DV Fit Results:

Period = 1.37202 [0.00001] d
 Epoch = 132.3038 [0.0038] BKJD
 Rp/R* = 0.0036 [0.0010]
 a/R* = 1.68 [1.54]
 b = 0.90 [0.29]
 Seff = 3328.43 [787.91]
 Teq = 1937 [115] K
 Rp = 0.51 [0.17] Re
 a = 0.0256 [0.0038] AU
 Ag = 5.96 [3.94] [1.26σ]
 Teffp = 4680 [735] K [3.69σ]

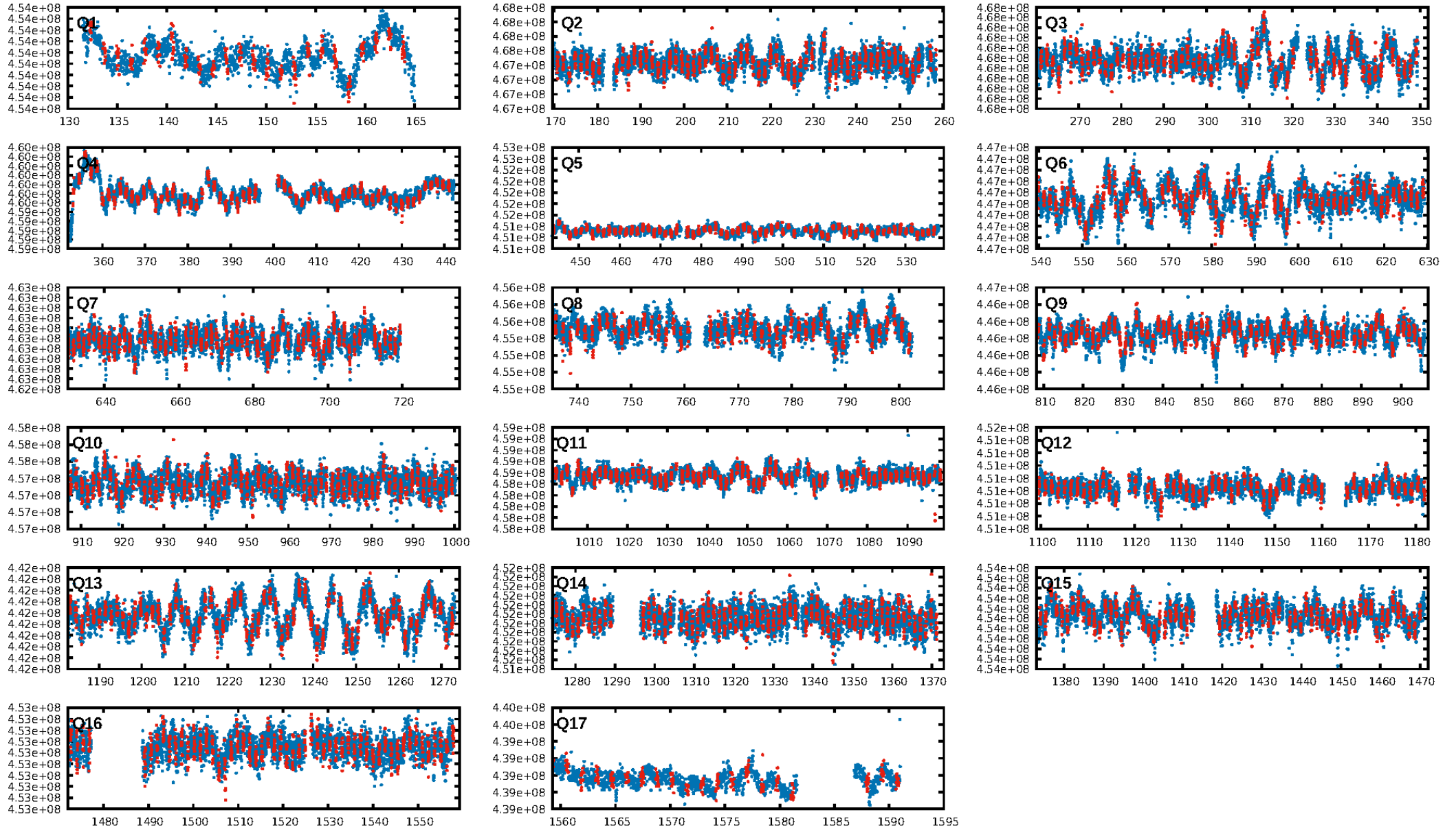
DV Diagnostic Results:

ShortPeriod-sig: N/A
 LongPeriod-sig: 100.0% [55.20σ]
 ModelChiSquare2-sig: N/A
 ModelChiSquareGof-sig: N/A
 Bootstrap-pfa: 2.18e-14
 RollingBand-fgt: 1.00 [890/890]
 GhostDiagnostic-chr: -3.951
 Centroid-sig: 23.4%
 Centroid-so: 1.049 arcsec [1.22σ]
 OotOffset-rm: 6.899 arcsec [12.17σ]
 KicOffset-rm: 6.822 arcsec [10.92σ]
 OotOffset-st: 3/2/4/3 [12]
 KicOffset-st: 3/2/4/3 [12]
 DiffImageQuality-fgm: 0.67 [8/12]
 DiffImageOverlap-fno: 1.00 [17/17]

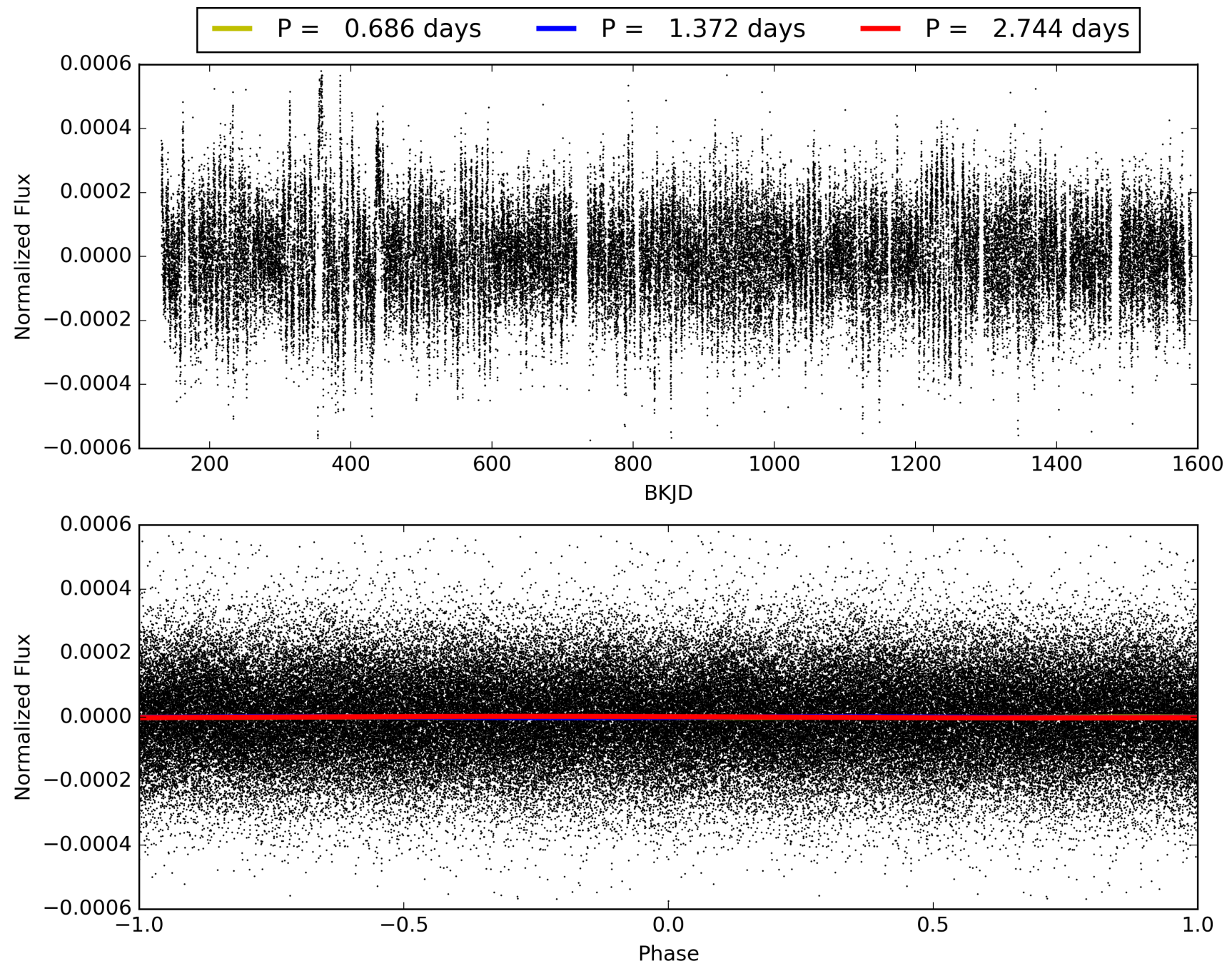
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:57:05 Z

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

TCE 007050989-03, PDC Light Curves

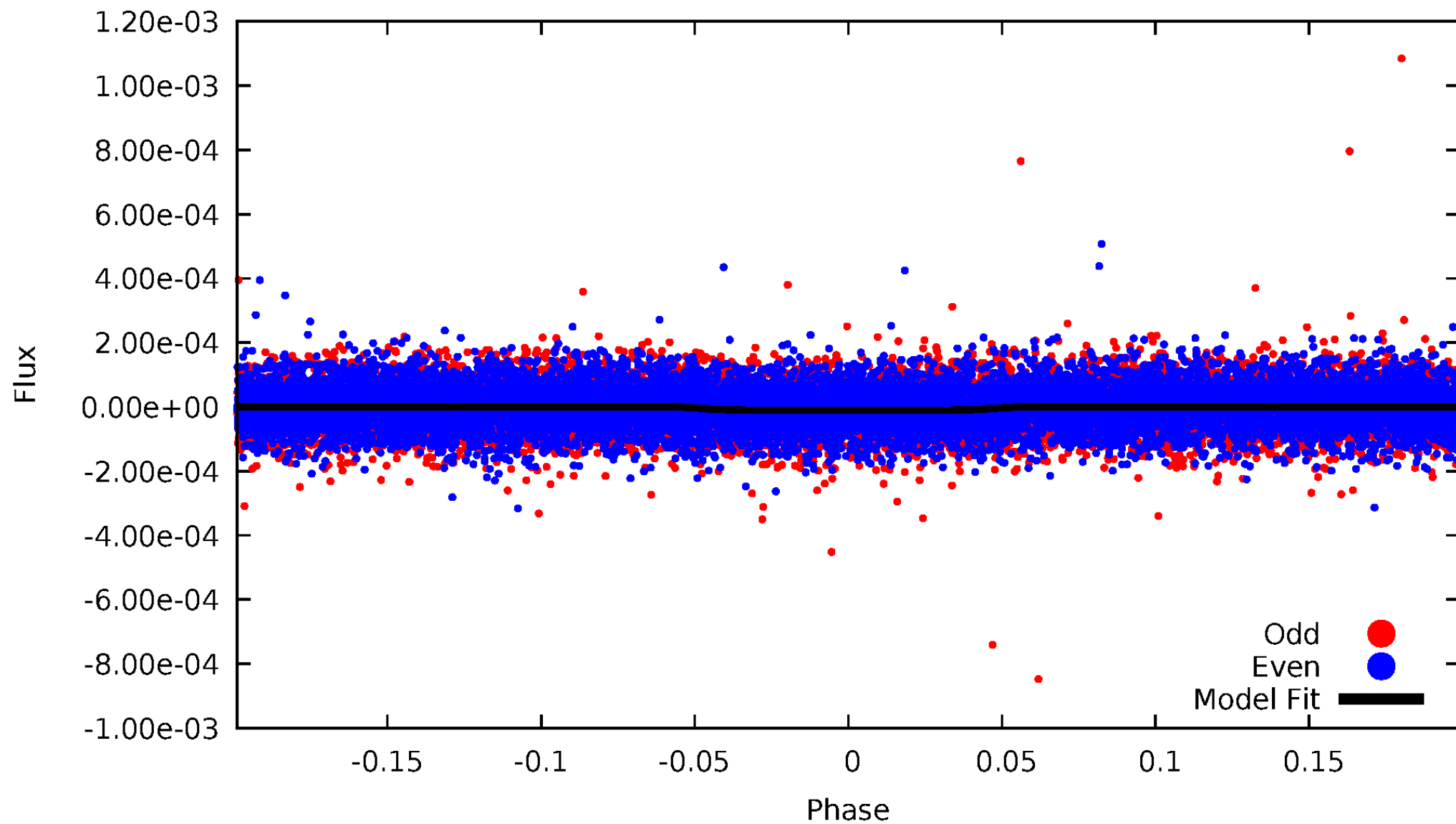


TCE 007050989-03



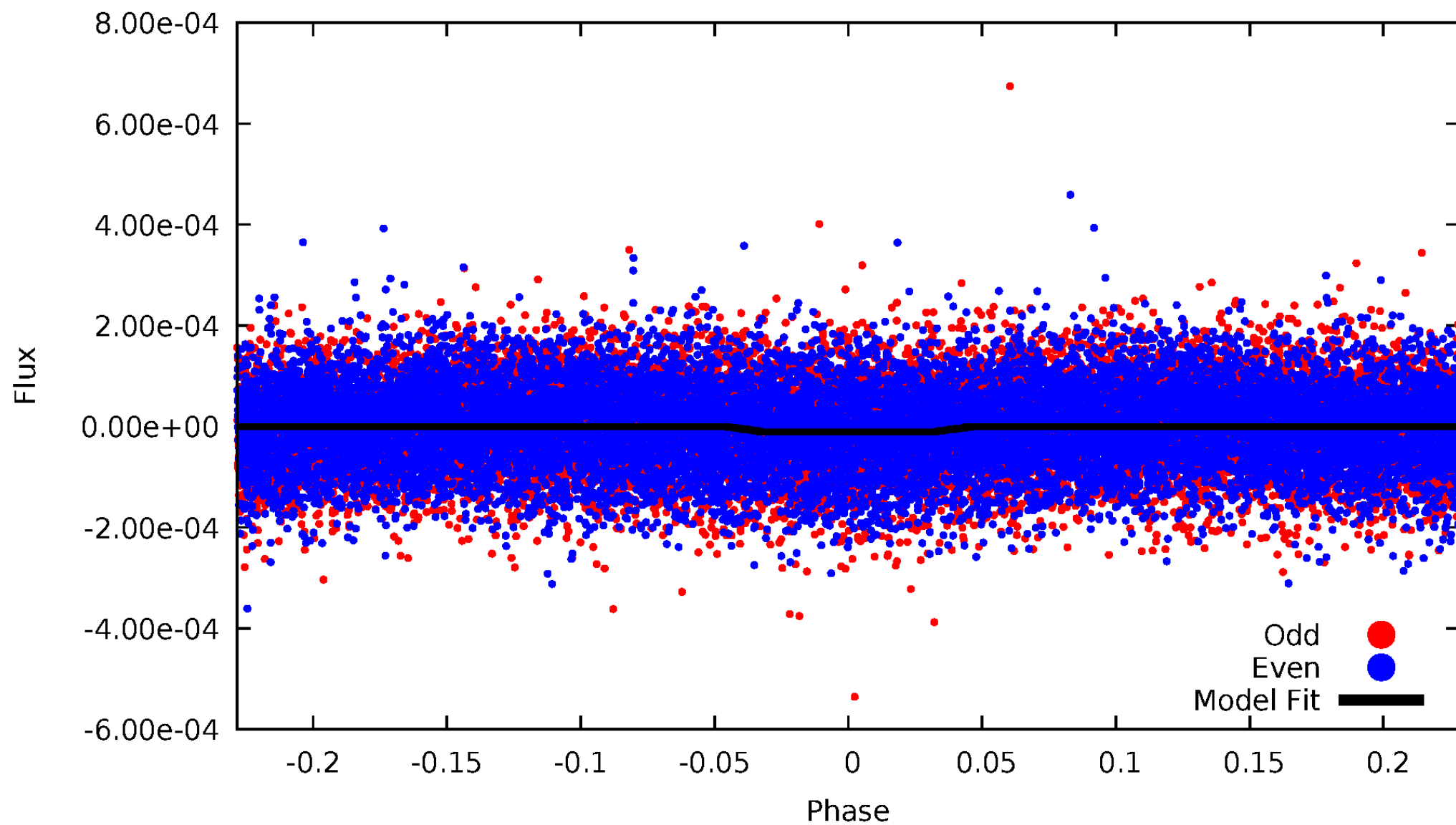
DV Odd/Even

TCE 007050989-03

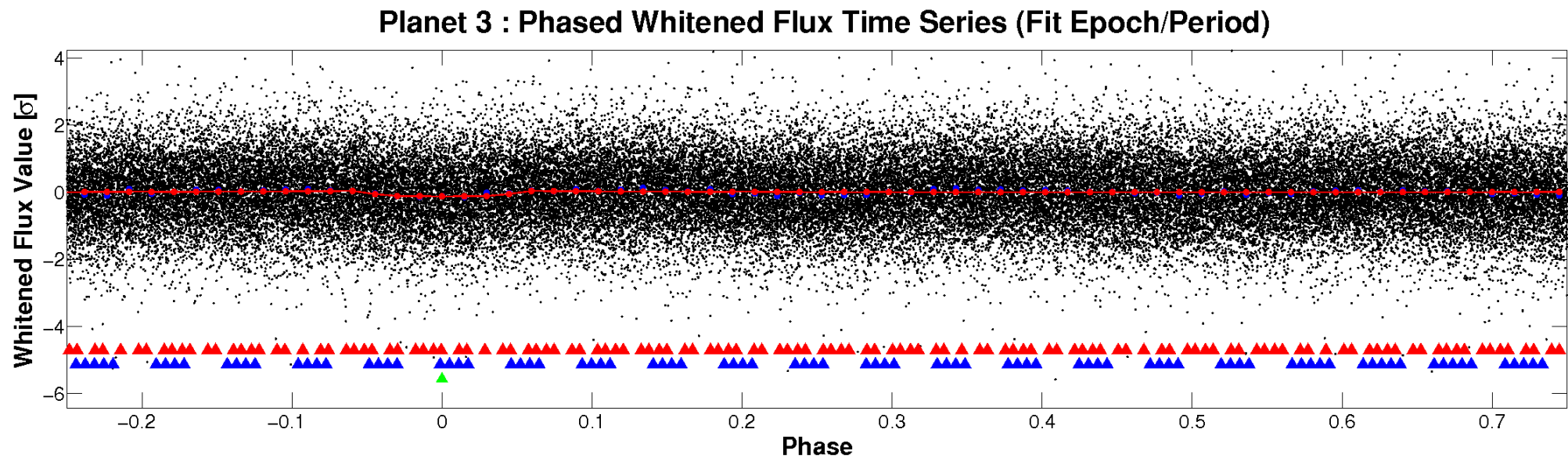
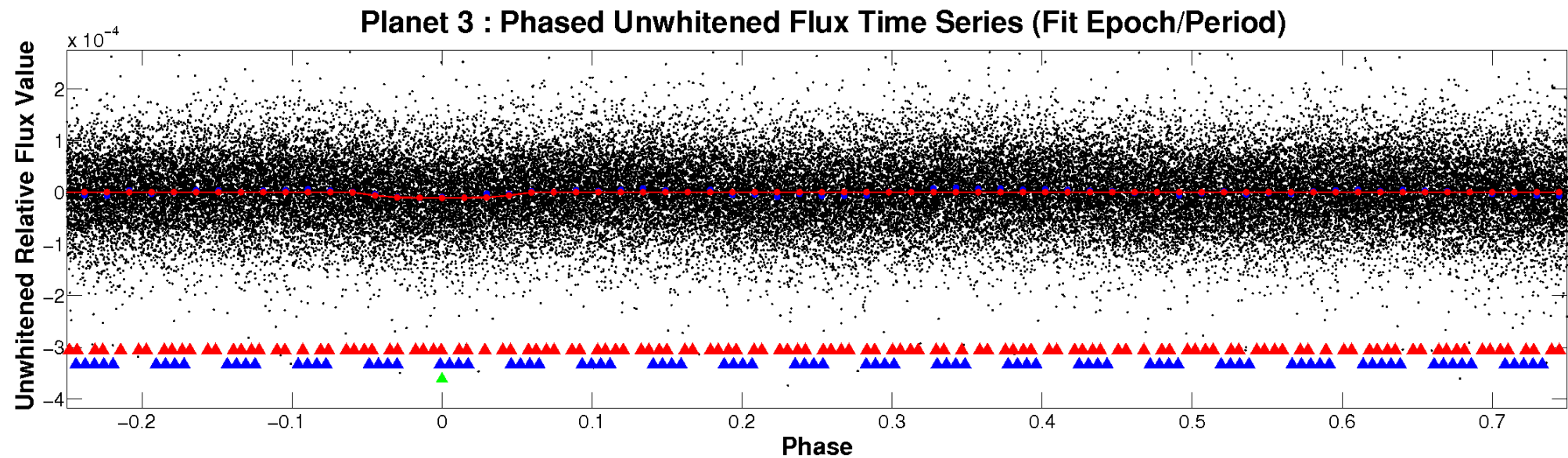


ALT Odd/Even

TCE 007050989-03

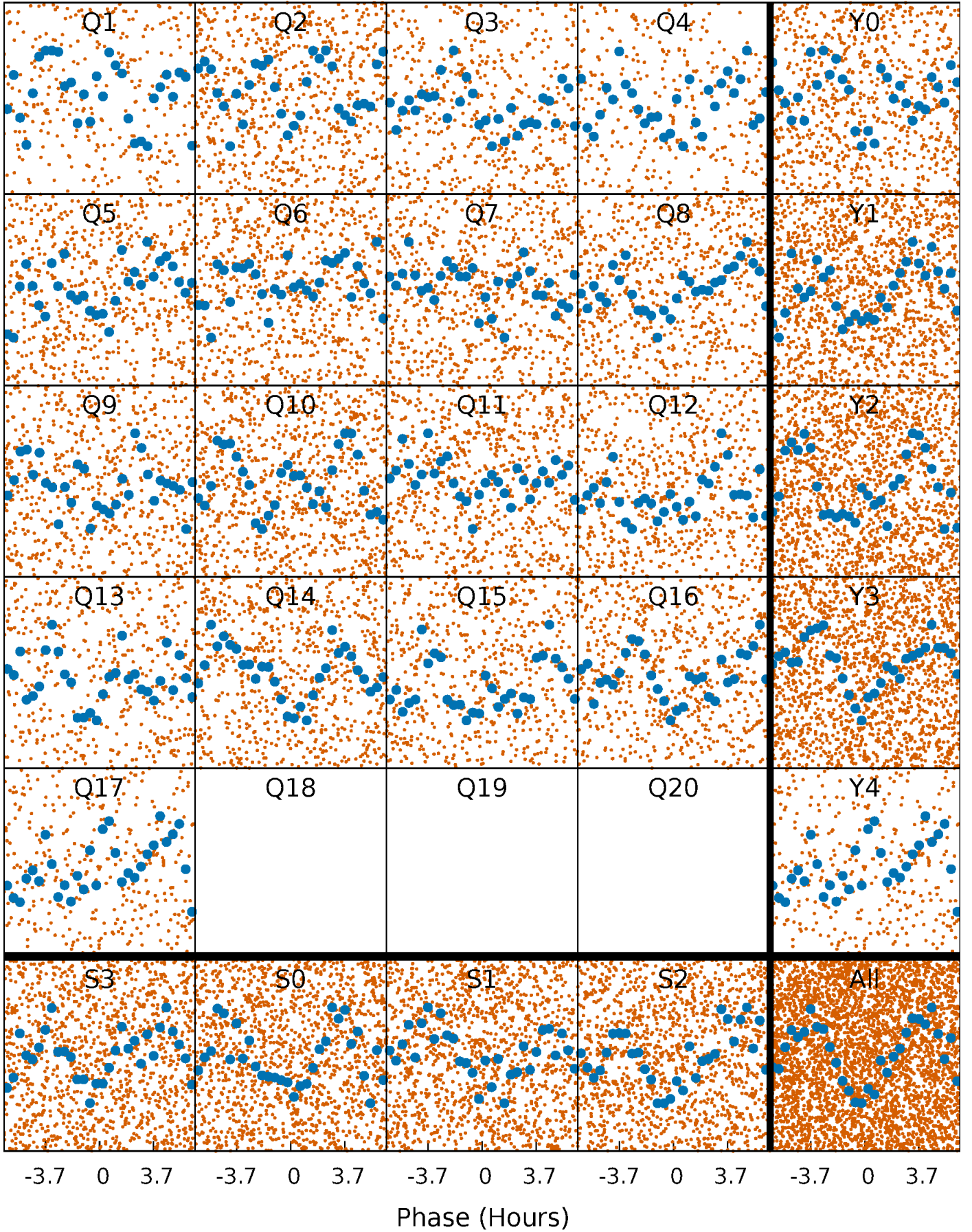


Non-Whitened Vs. Whitened Light Curve



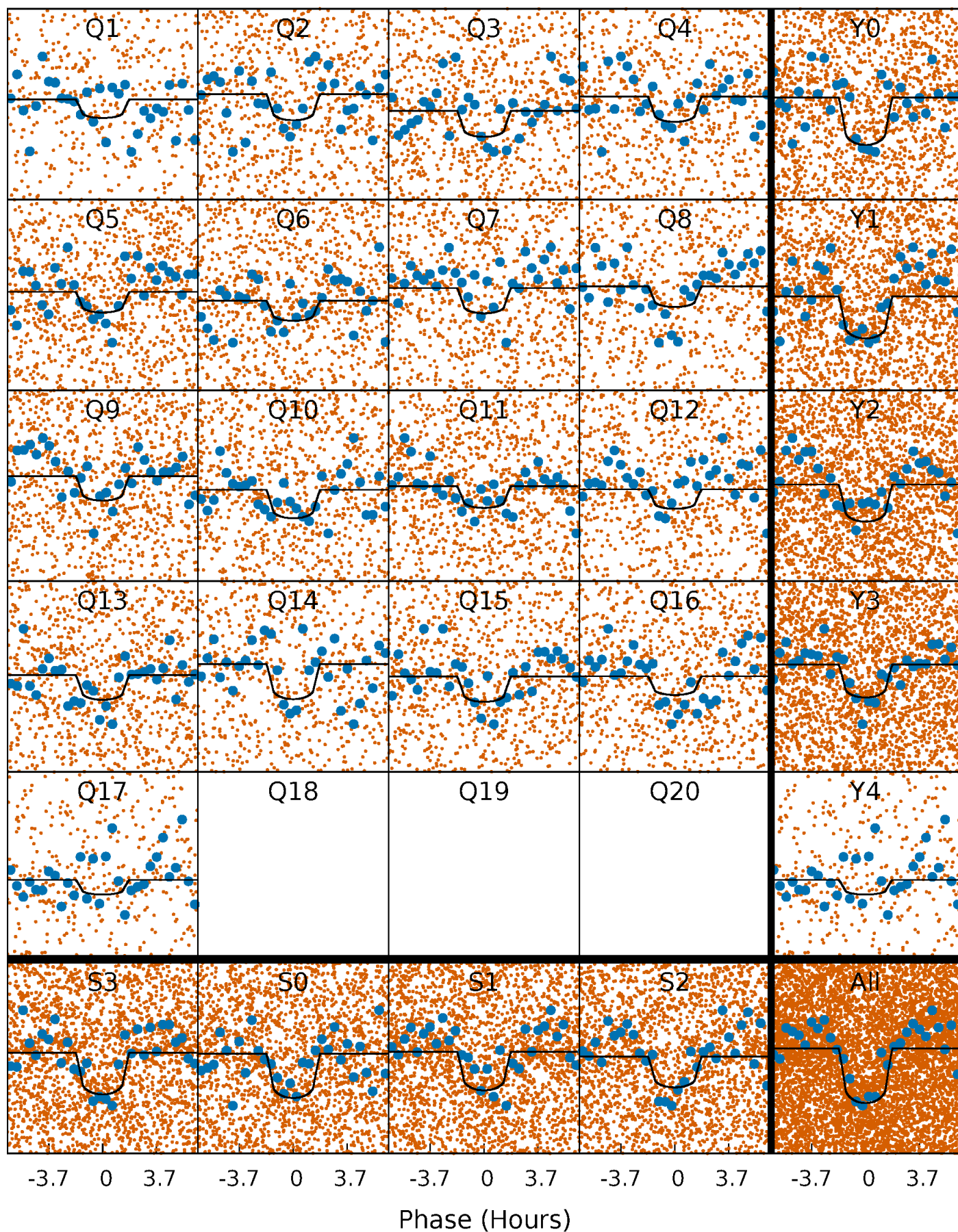
PDC Quarter-Phased Transit Curves

TCE 007050989-03 P= 1.372016 Days $T_0=132.303816$ (BKJD)



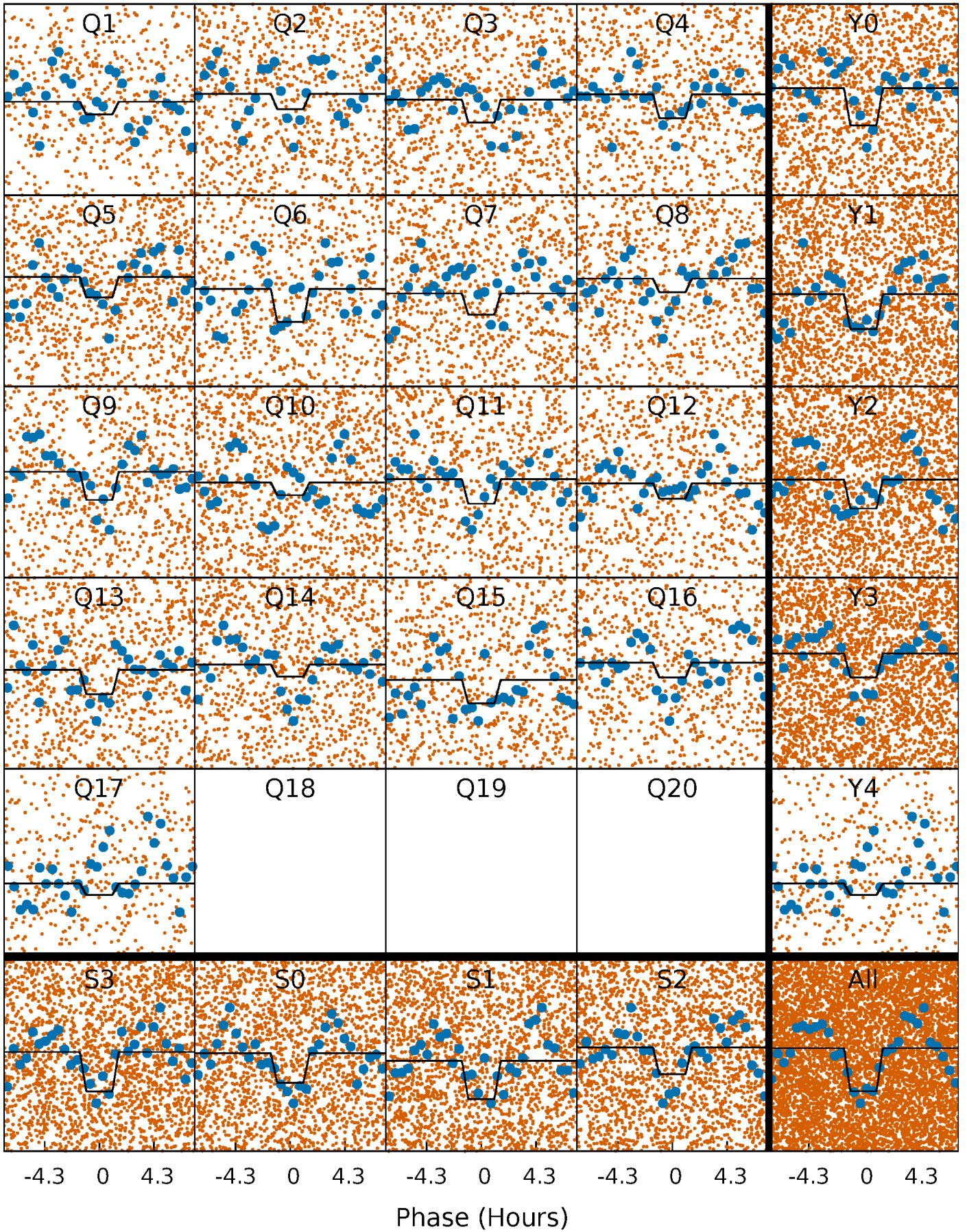
DV Quarter-Phased Transit Curves

TCE 007050989-03 P= 1.372016 Days $T_0=132.303816$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

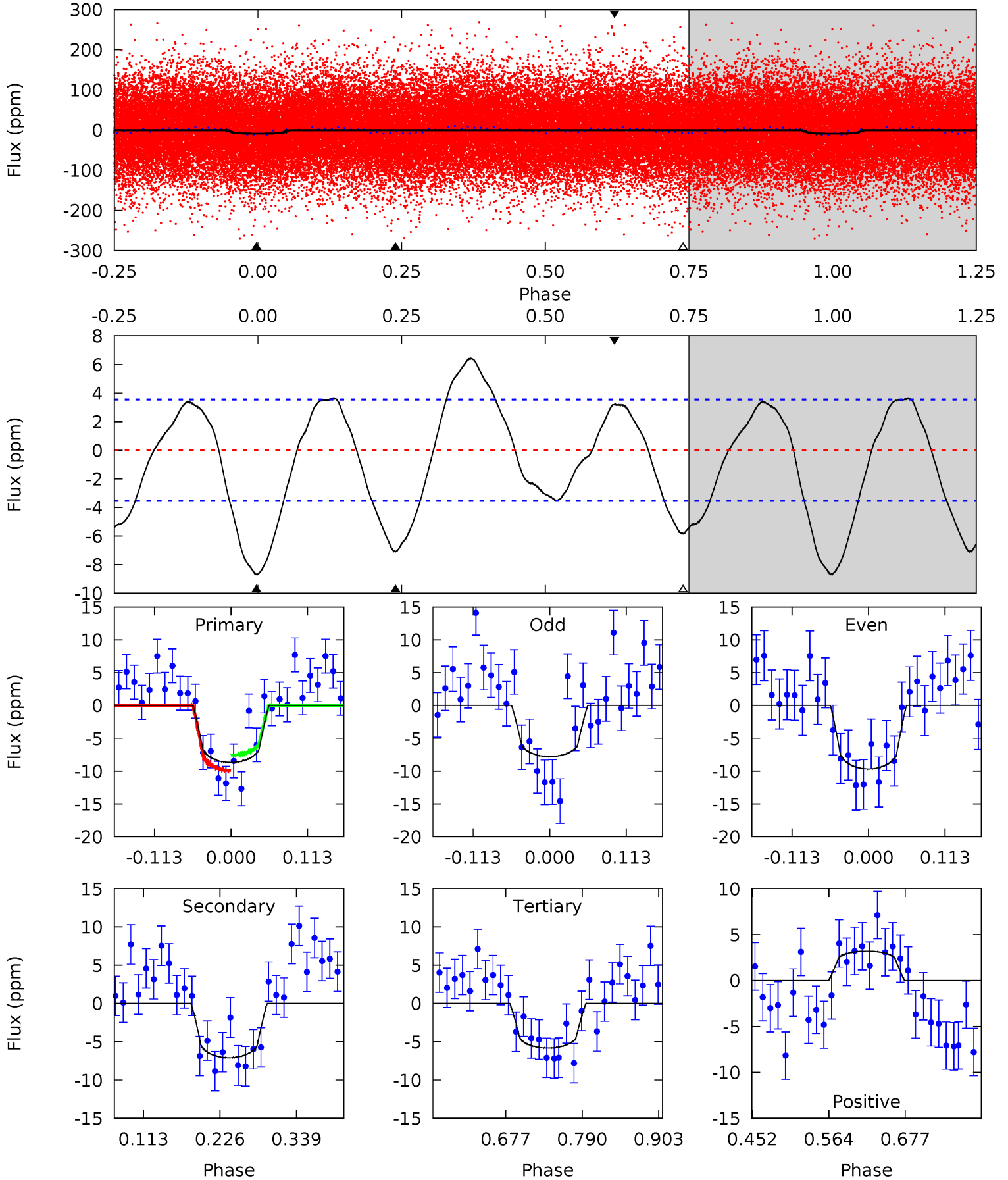
TCE 007050989-03 P= 1.372029 Days $T_0=132.290305$ (BKJD)



DV Model-Shift Uniqueness Test

007050989-03, P = 1.372016 Days, E = 130.931800 Days

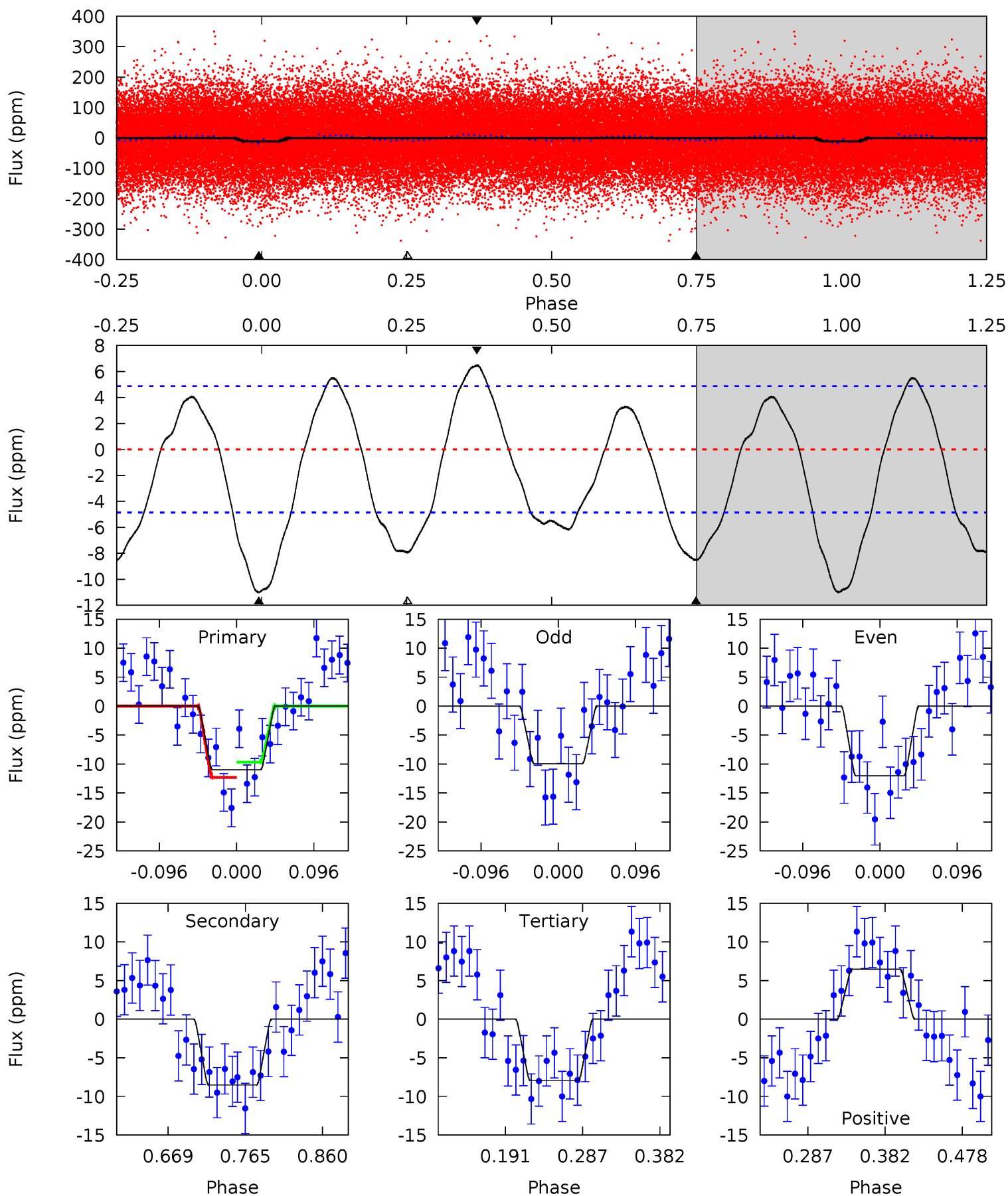
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	9.08	7.47	4.09	4.54	1.59	4.23	3.65	7.02	1.61	4.99	1.21	0.91	0.42	1.51



Alt Model-Shift Uniqueness Test

007050989-03, P = 1.372029 Days, E = 130.918276 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	8.01	7.47	6.08	4.57	1.67	4.21	2.88	4.27	0.55	1.94	0.98	0.89	0.37	1.26



Stellar Parameters For KIC 007050989

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6156^{+111}_{-136}	$4.284^{+0.099}_{-0.121}$	$0.140^{+0.150}_{-0.150}$	$1.303^{+0.229}_{-0.171}$	$1.193^{+0.086}_{-0.097}$	$0.760^{+0.334}_{-0.274}$
	+2%/-2%	+2%/-3%	+107%/-107%	+18%/-13%	+7%/-8%	+44%/-36%
Source	SPE59	SPE59	SPE59	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007050989-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 1	$0.51^{+0.16}_{-0.14}$	2707^{+137}_{-107}	5297^{+895}_{-542}	$9.788^{+8.729}_{-4.044}$
Alt.	-9 ± 1	$0.47^{+0.14}_{-0.14}$	2698^{+127}_{-109}	5749^{+1076}_{-694}	14^{+14}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

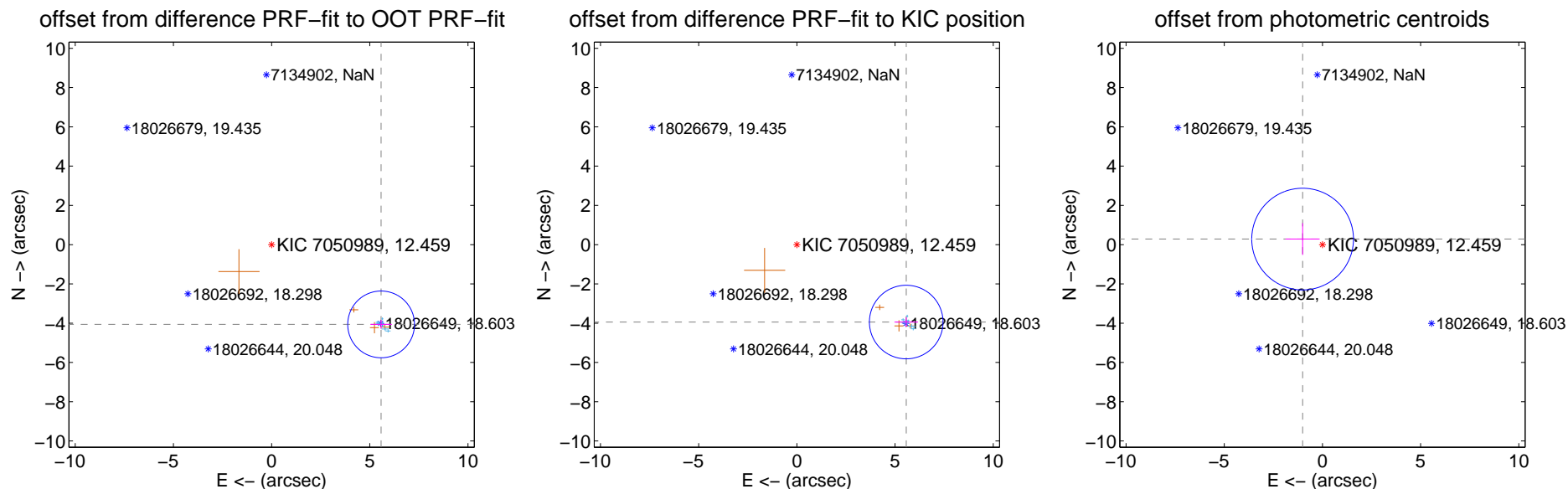
DV Centroid Data

Supplemental centroid analysis for 007050989-03. Kepler magnitude: 12.46. Transit SNR 8.79

There are 8 quarters with good PRF difference image offsets

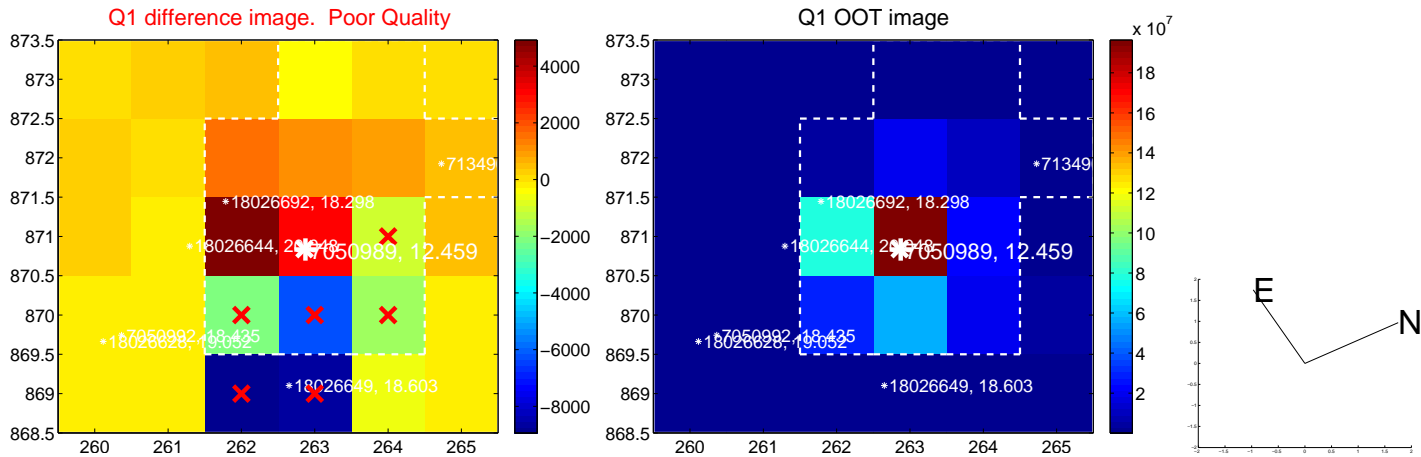
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.899 ± 0.567	12.17	-5.576 ± 0.545	-4.062 ± 0.227
PRF-fit source offset from KIC position	6.822 ± 0.625	10.92	-5.568 ± 0.601	-3.942 ± 0.246
photometric centroid source offset	1.05 ± 0.86	1.22	1.01 ± 0.87	0.28 ± 0.81

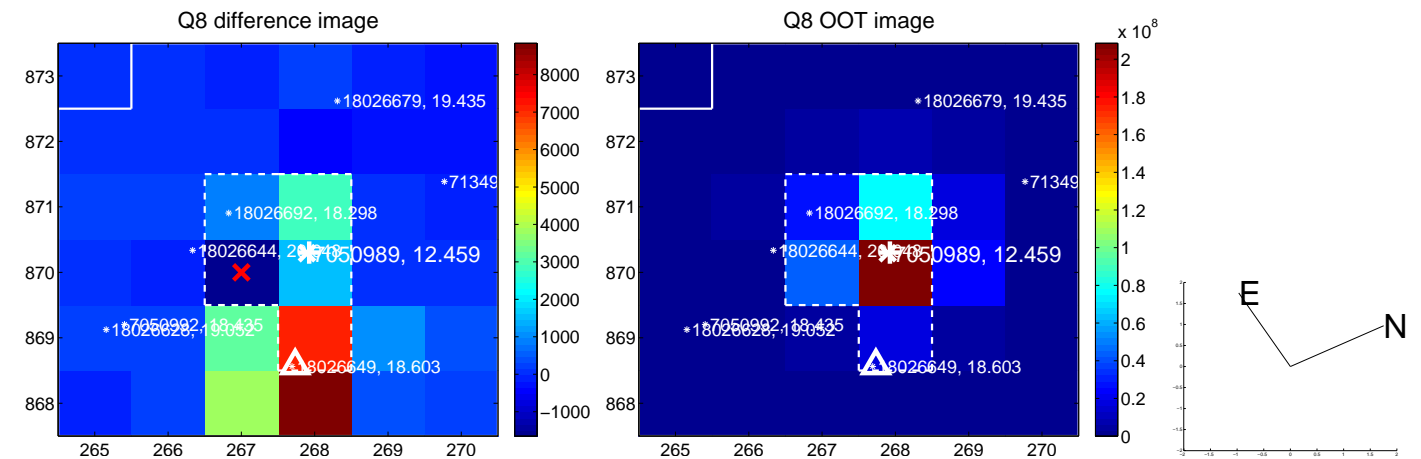
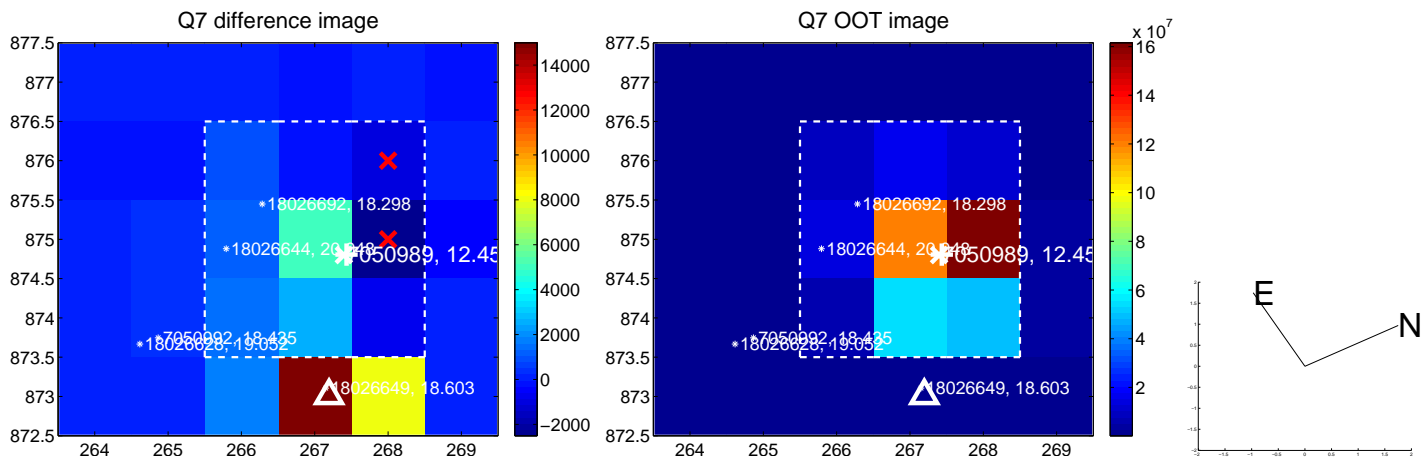
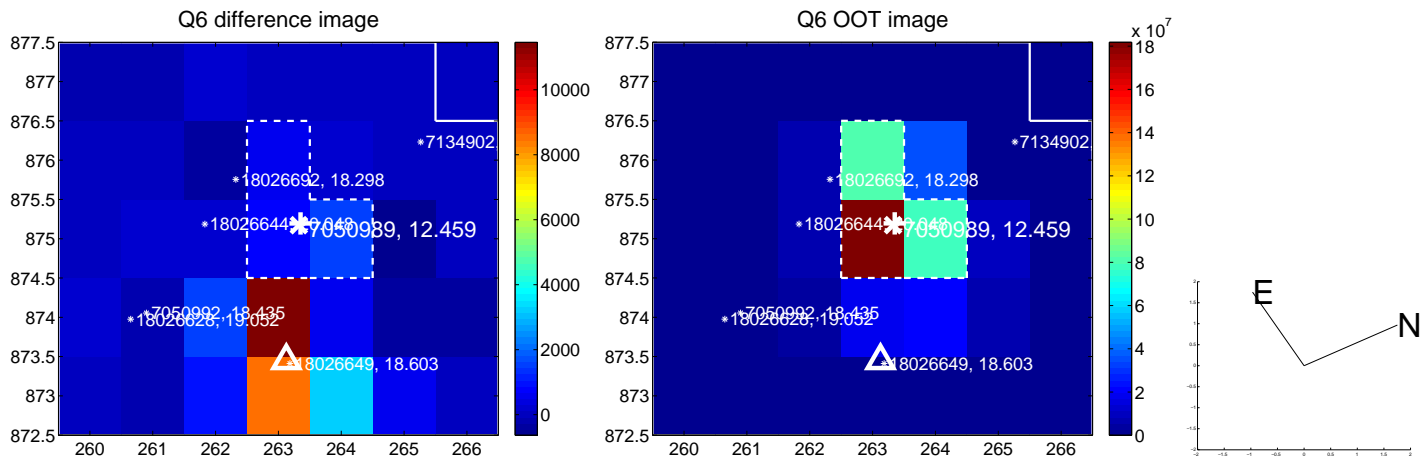
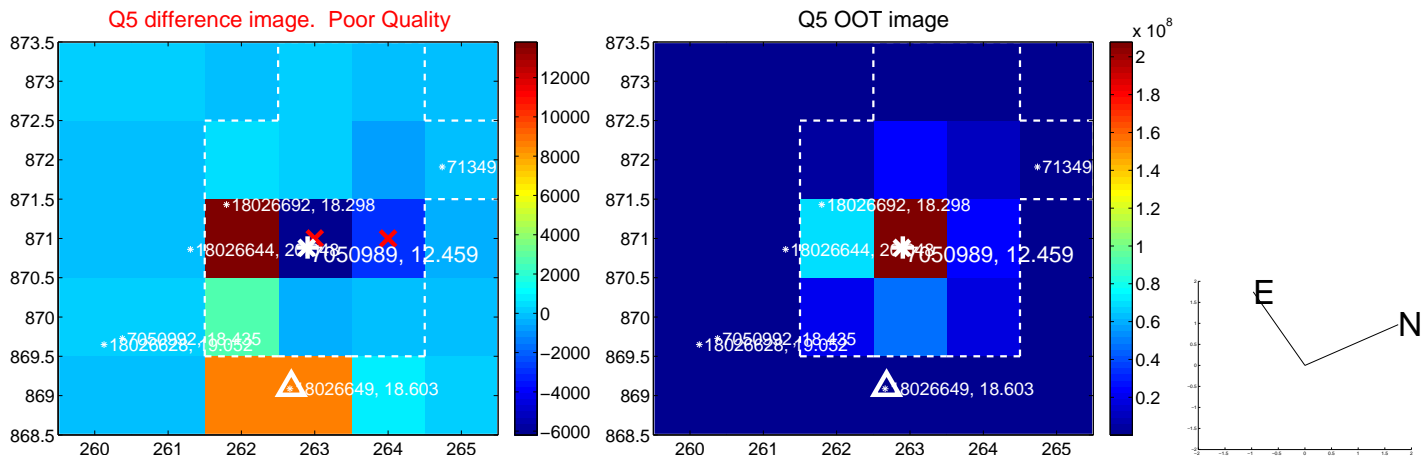


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

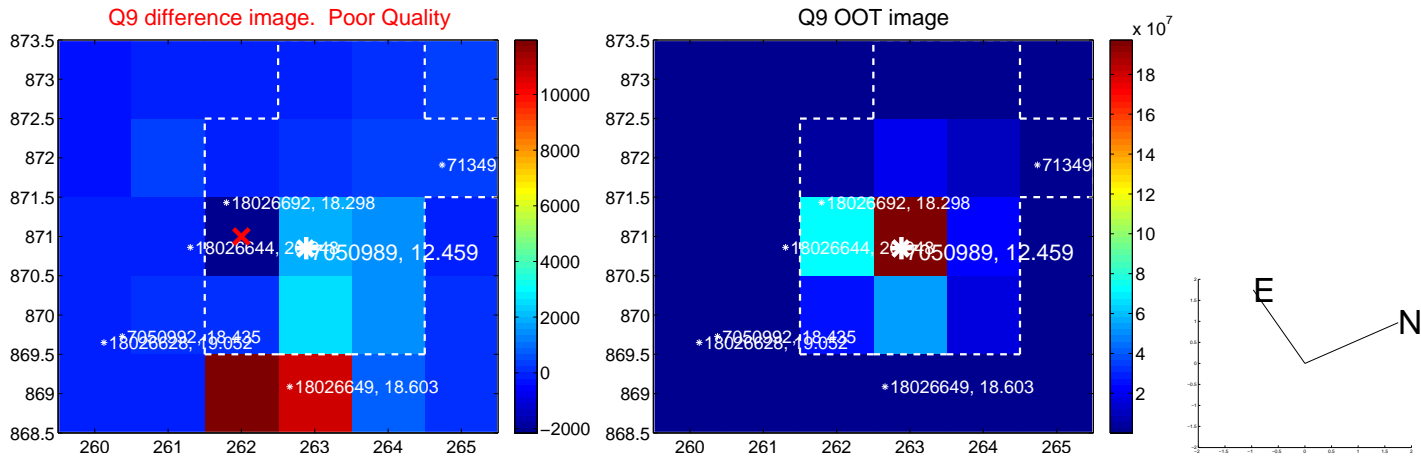
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

