

KIC 008522919

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})
008522919-01	OBS	No	1.737074	133.217335	17.8	7.678	10.0	10.3	1.64	6490	0.69	5128.27
008522919-03	OBS	No	187.200257	139.931532	216.6	17.910	8.4	7.1	1.64	6490	3.18	10.00
008522919-04	OBS	No	557.505687	154.537374	681.8	48.813	8.0	10.5	1.64	6490	5.11	2.33
008522919-05	OBS	No	317.755646	161.516850	217.4	23.447	8.3	6.4	1.64	6490	2.65	4.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008522919-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
008522919-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008522919-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008522919-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—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.

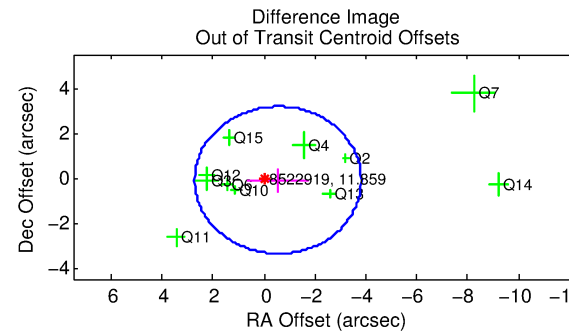
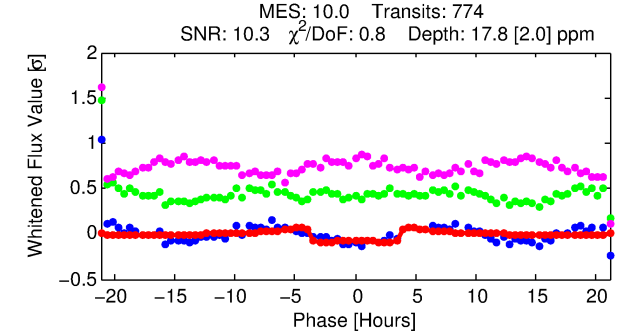
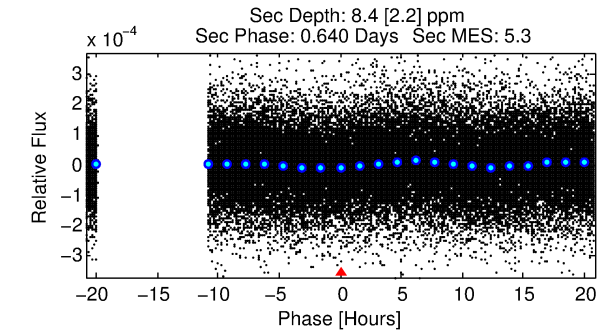
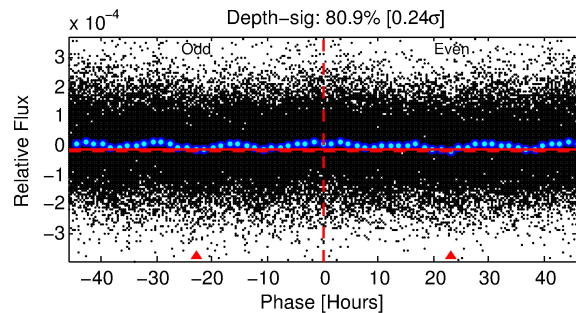
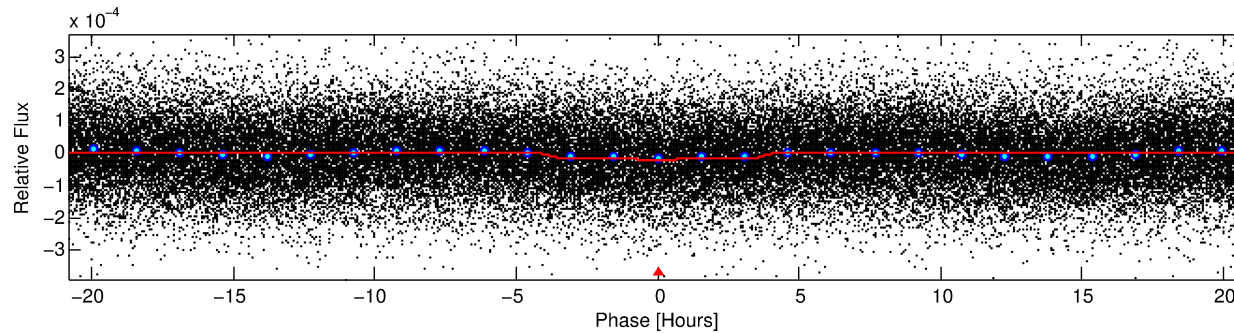
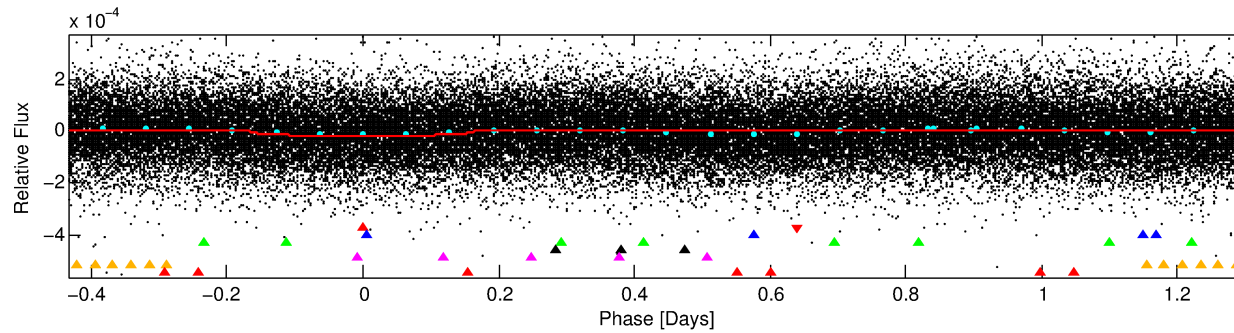
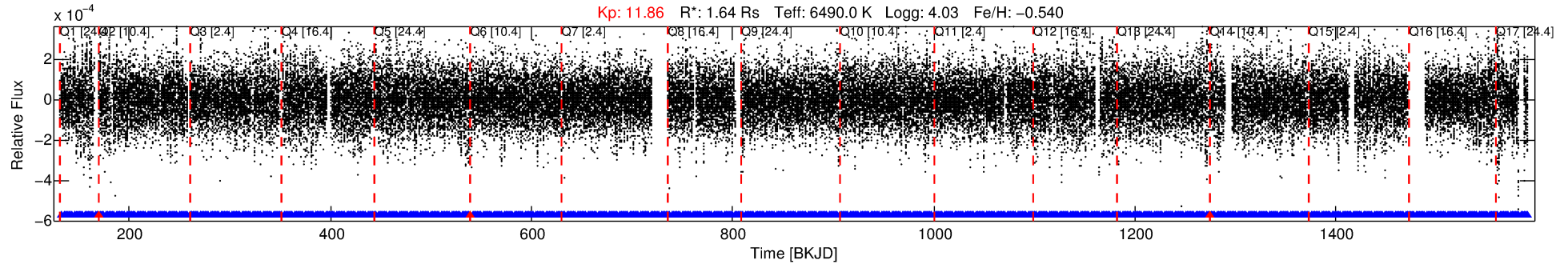
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008522919-01

No Significant Match Found

DV One-Page Summary

KIC: 8522919 Candidate: 1 of 7 Period: 1.737 d



DV Fit Results:

Period = 1.73707 [0.00001] d
Epoch = 133.2173 [0.0036] BKJD
Rp/R* = 0.0039 [0.0022]
a/R* = 1.84 [3.79]
b = 0.00 [3669.82]
Seff = 5128.27 [2389.47]
Teq = 2158 [251] K
Rp = 0.69 [0.44] Re
a = 0.0288 [0.0082] AU
Ag = 7.97 [9.76] [0.71 σ]
Teffp = 5606 [1601] K [2.13 σ]

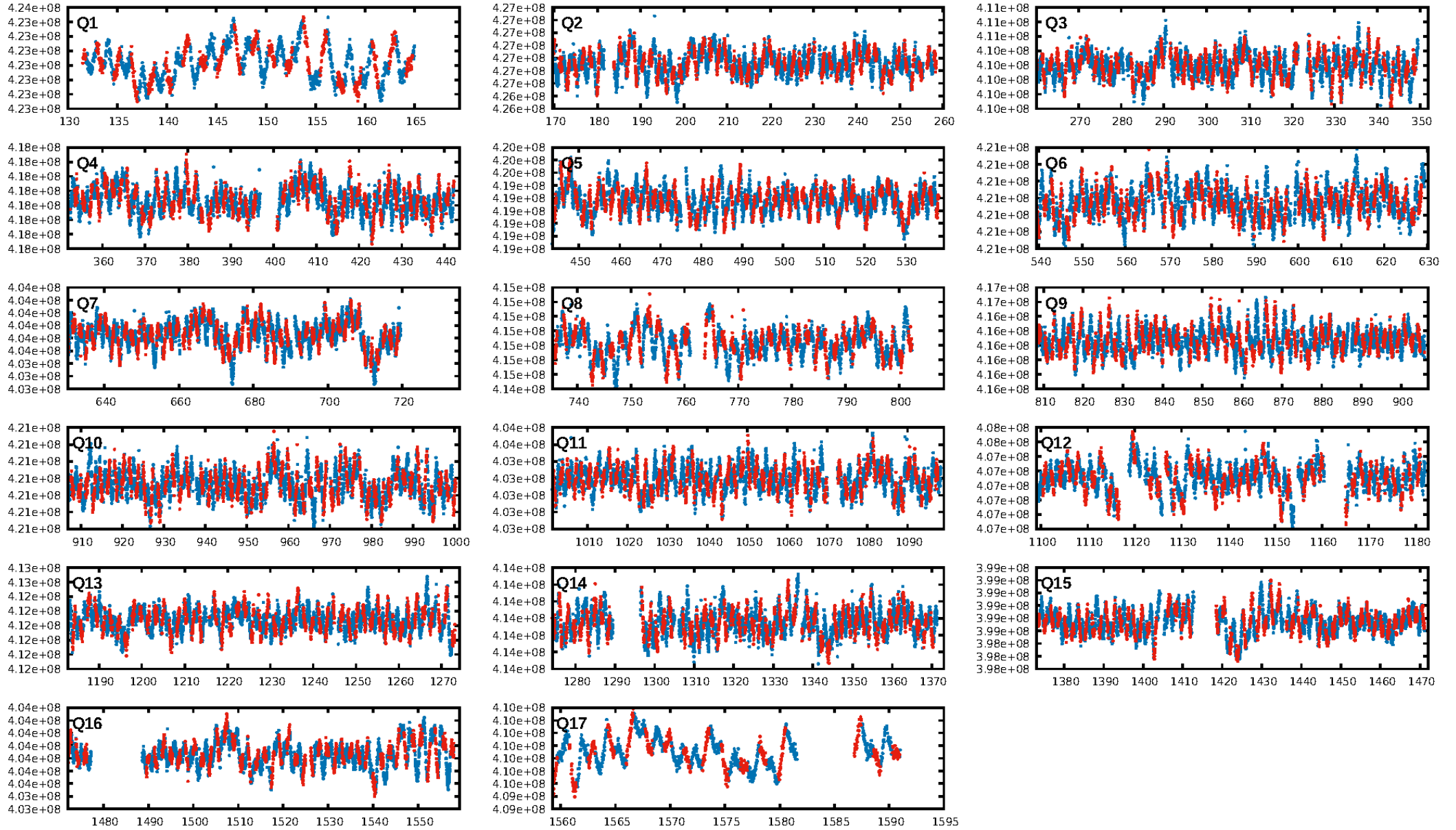
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [316.44 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.38e-16
RollingBand-fgt: 1.00 [735/738]
GhostDiagnostic-chr: 4.032
Centroid-sig: 5.4%
Centroid-so: 1.695 arcsec [1.79 σ]
OotOffset-rm: 0.561 arcsec [0.51 σ]
KicOffset-rm: 0.707 arcsec [0.55 σ]
OotOffset-st: 4/4/2/1 [11]
KicOffset-st: 4/4/2/1 [11]
DiffImageQuality-fgm: 0.64 [7/11]
DiffImageOverlap-fno: 1.00 [17/17]

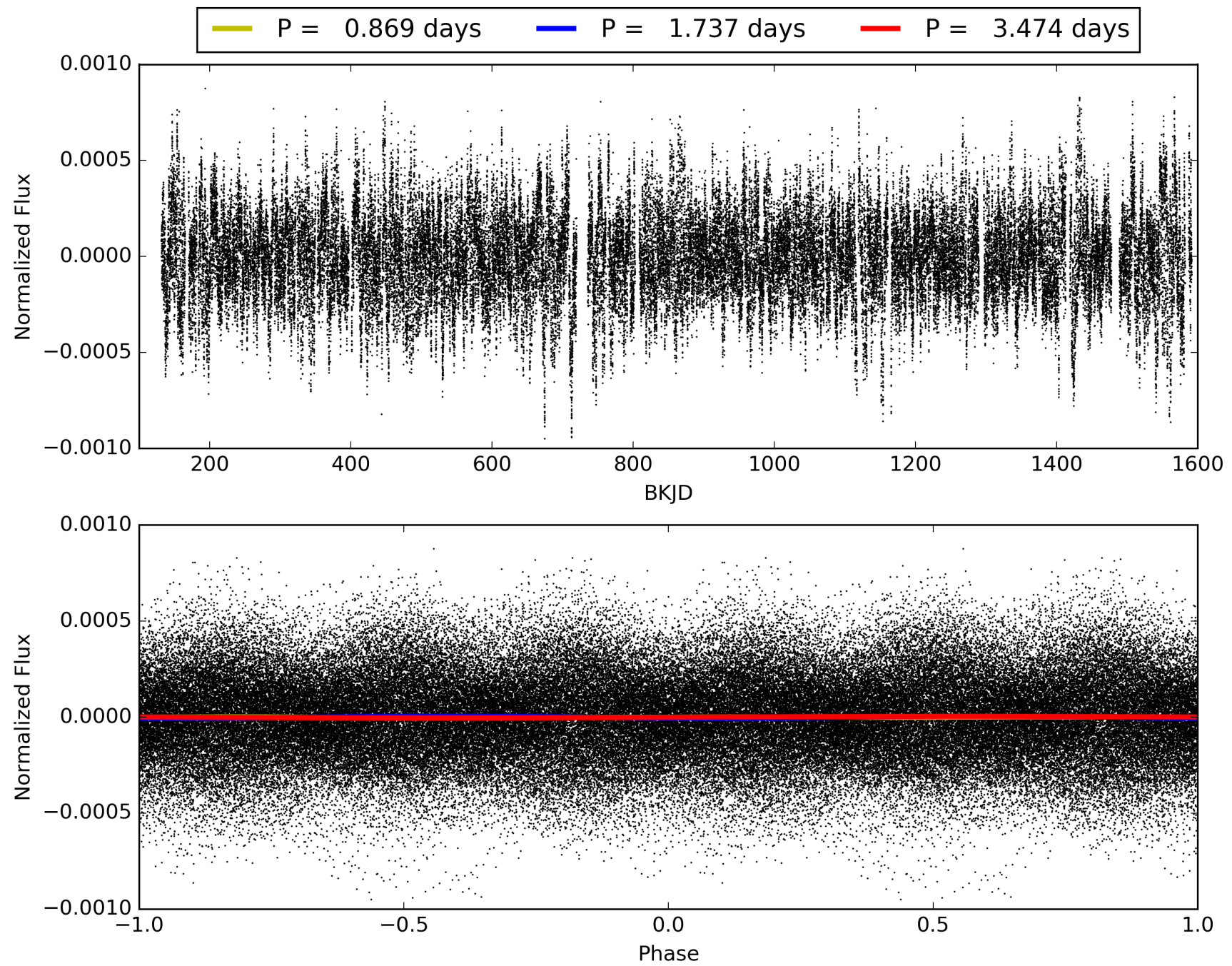
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:22:16 Z

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

TCE 008522919-01, PDC Light Curves

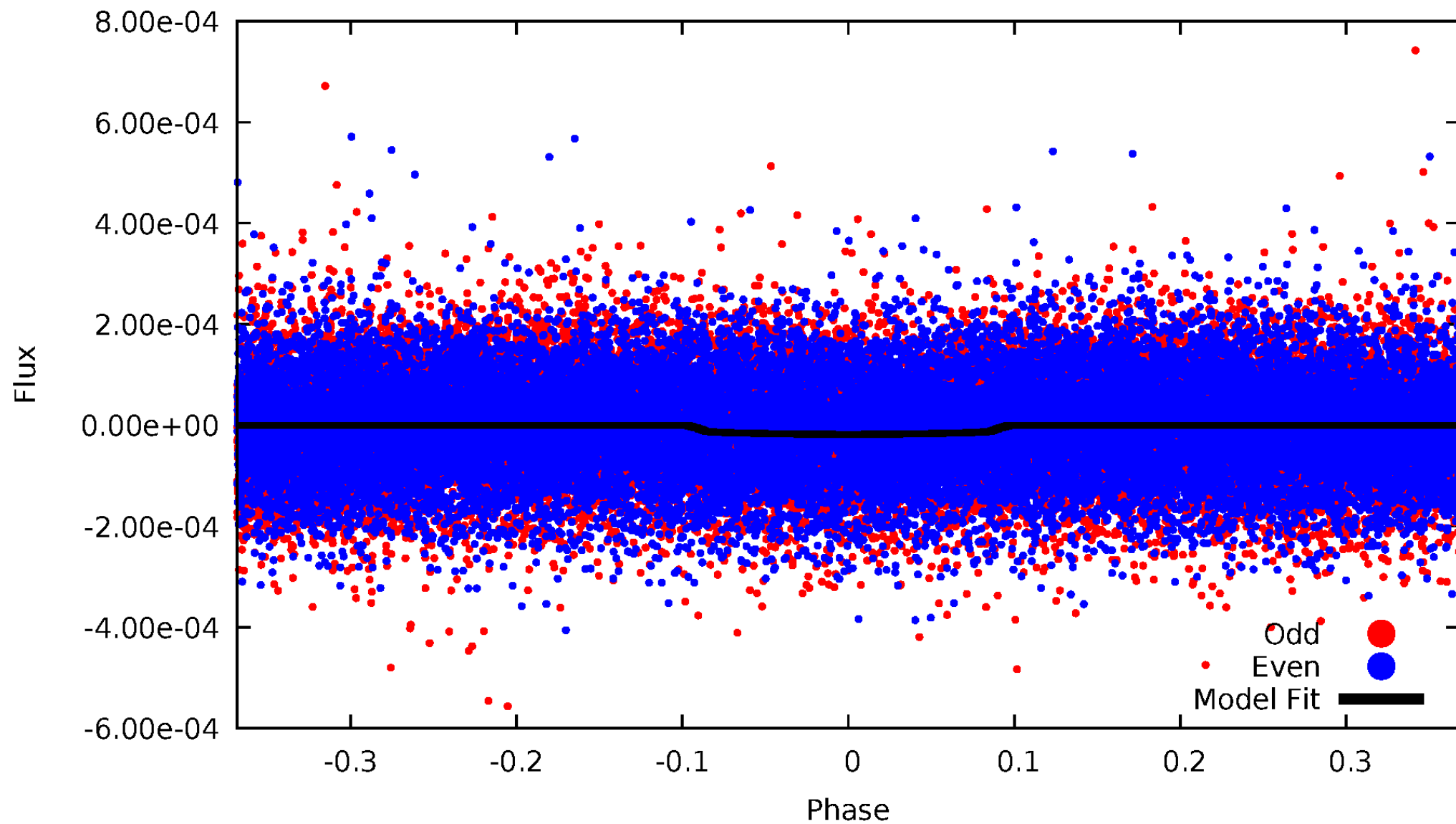


TCE 008522919-01



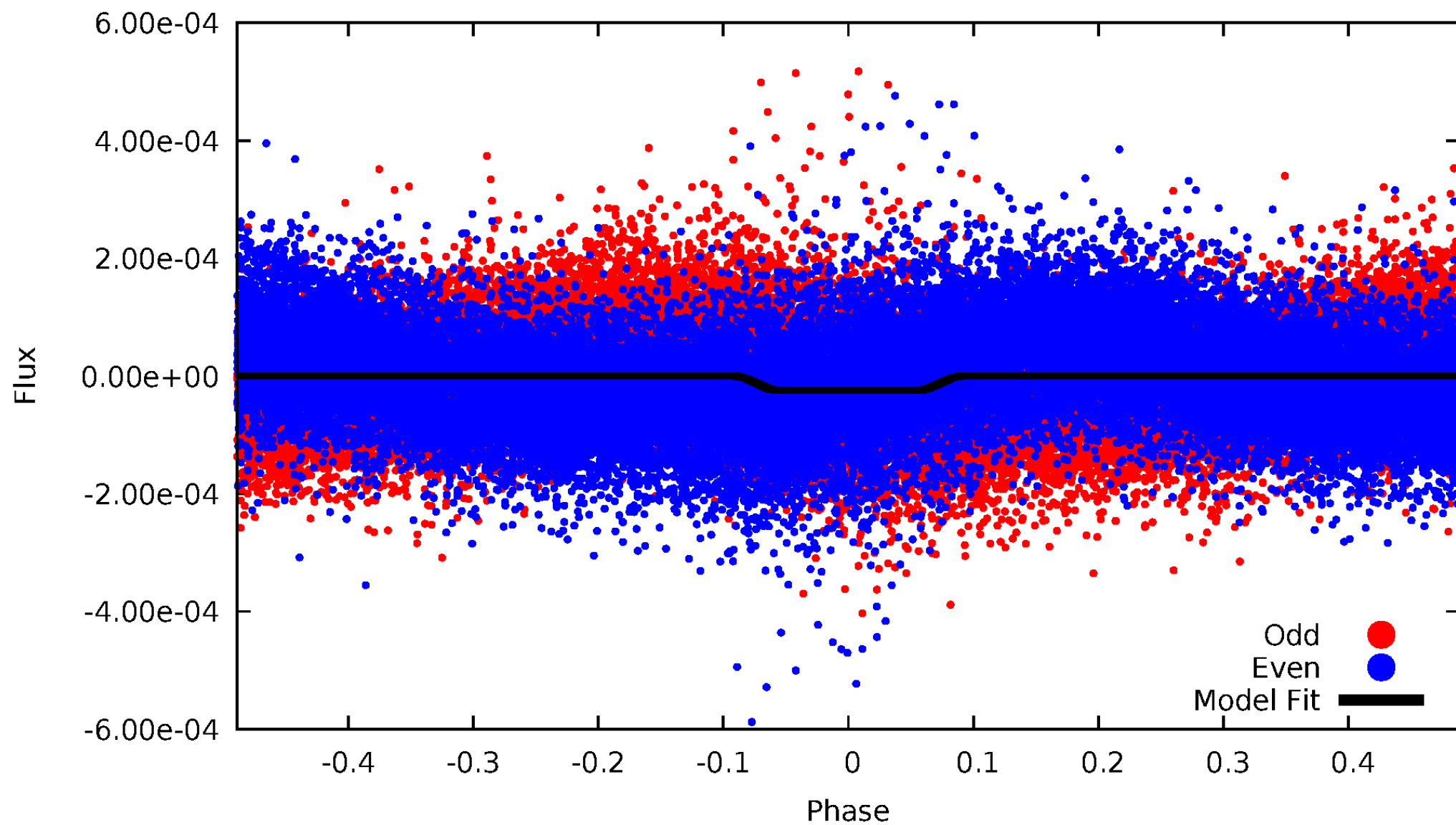
DV Odd/Even

TCE 008522919-01



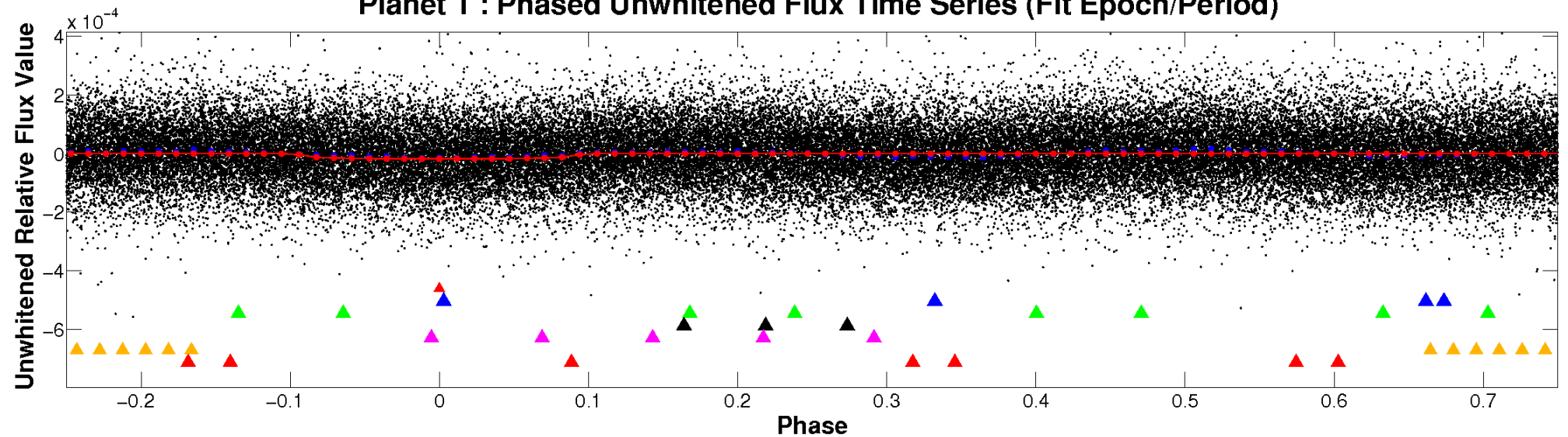
ALT Odd/Even

TCE 008522919-01

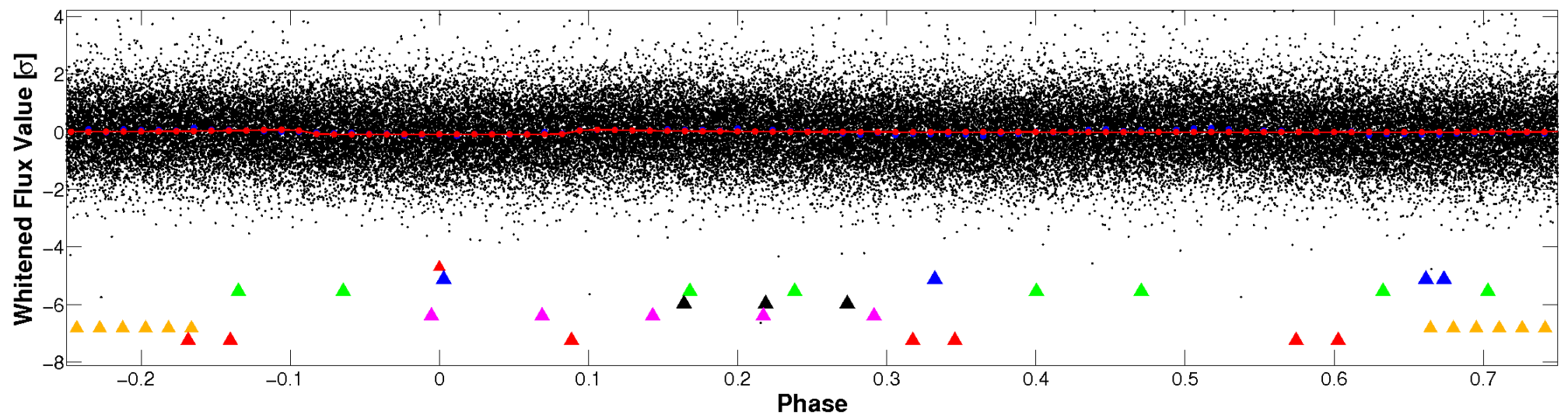


Non-Whitened Vs. Whitened Light Curve

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

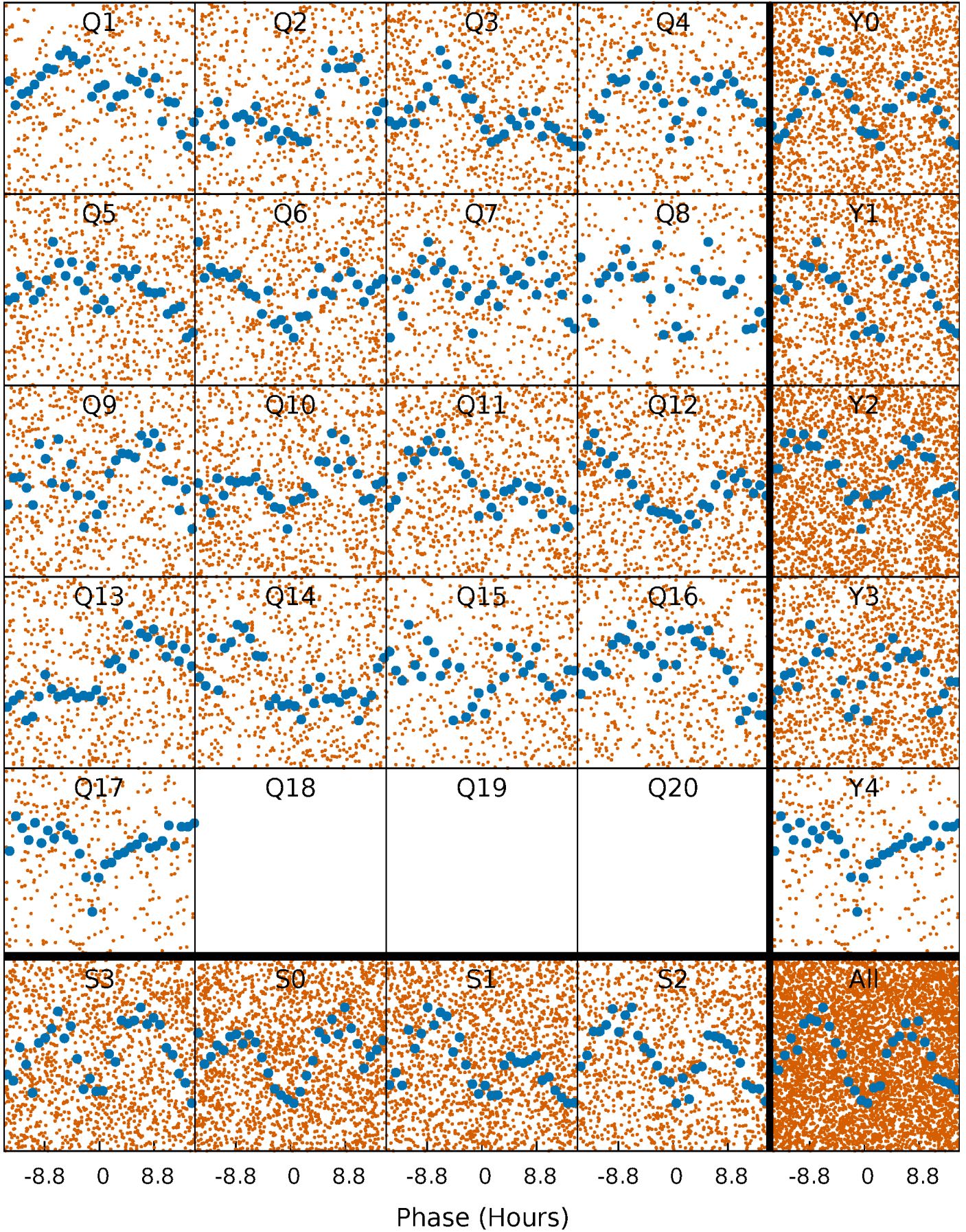


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



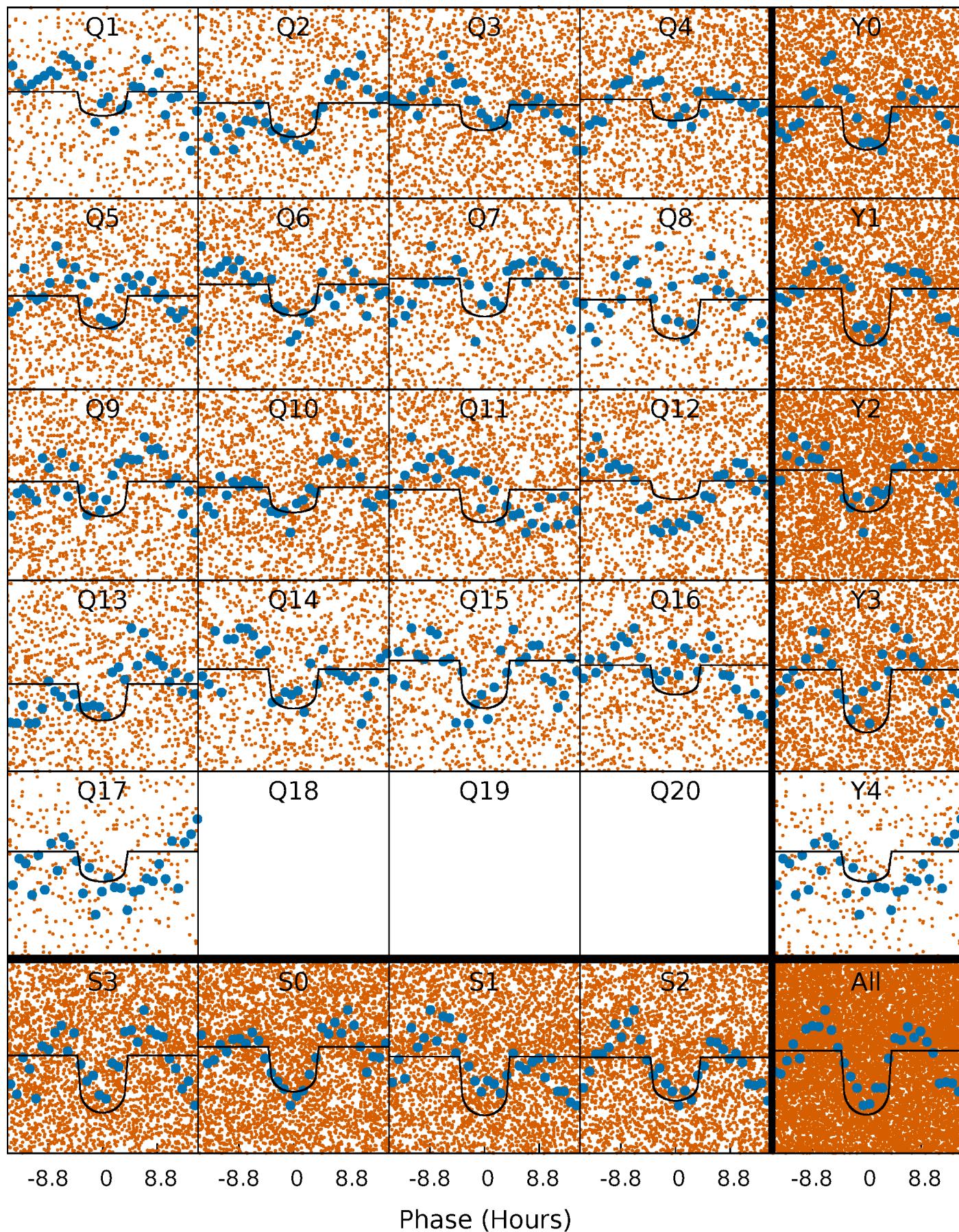
PDC Quarter-Phased Transit Curves

TCE 008522919-01 P= 1.737074 Days $T_0=133.217335$ (BKJD)



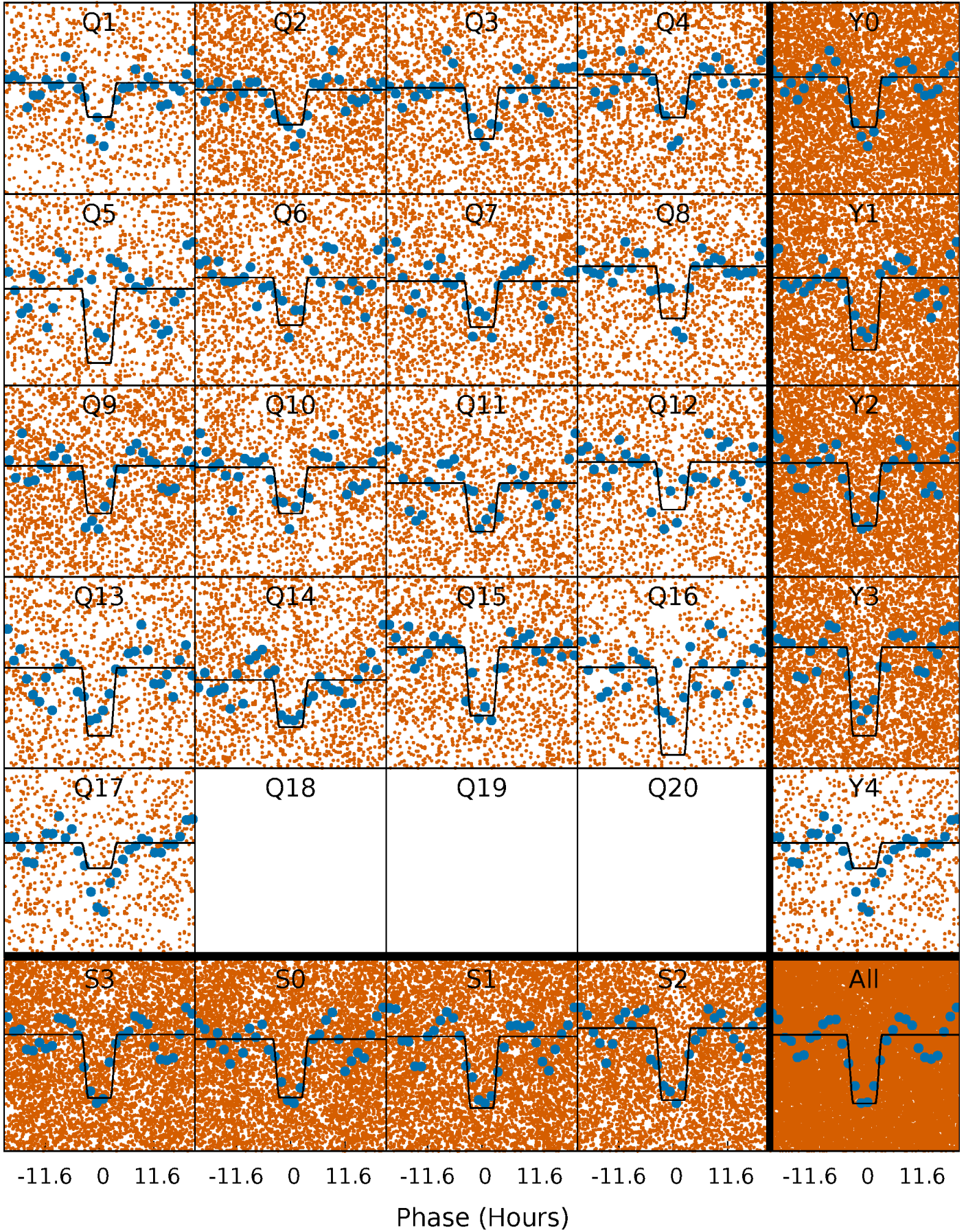
DV Quarter-Phased Transit Curves

TCE 008522919-01 P= 1.737074 Days $T_0=133.217335$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

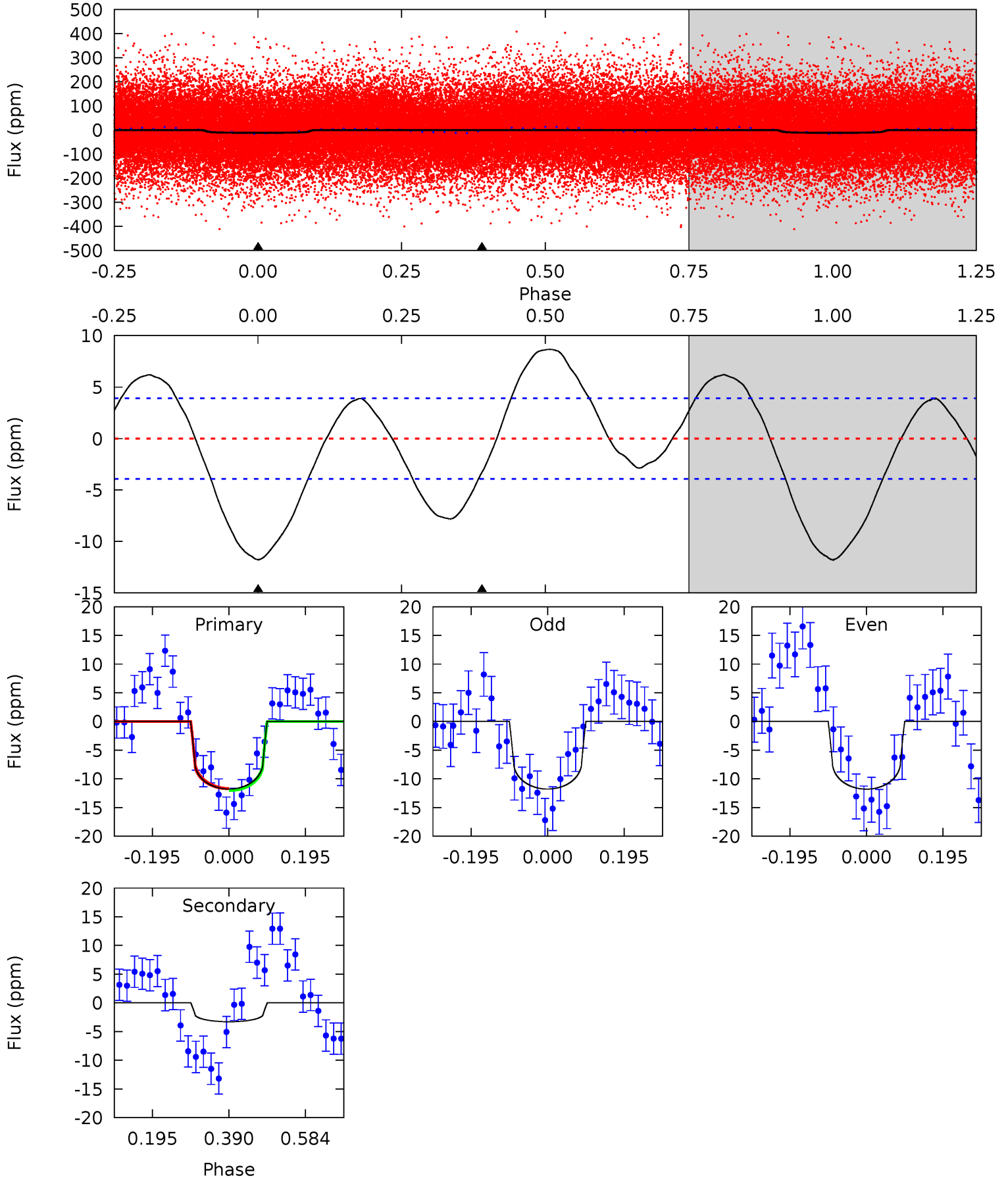
TCE 008522919-01 P= 1.736927 Days $T_0=131.533735$ (BKJD)



DV Model-Shift Uniqueness Test

008522919-01, P = 1.737074 Days, E = 131.480261 Days

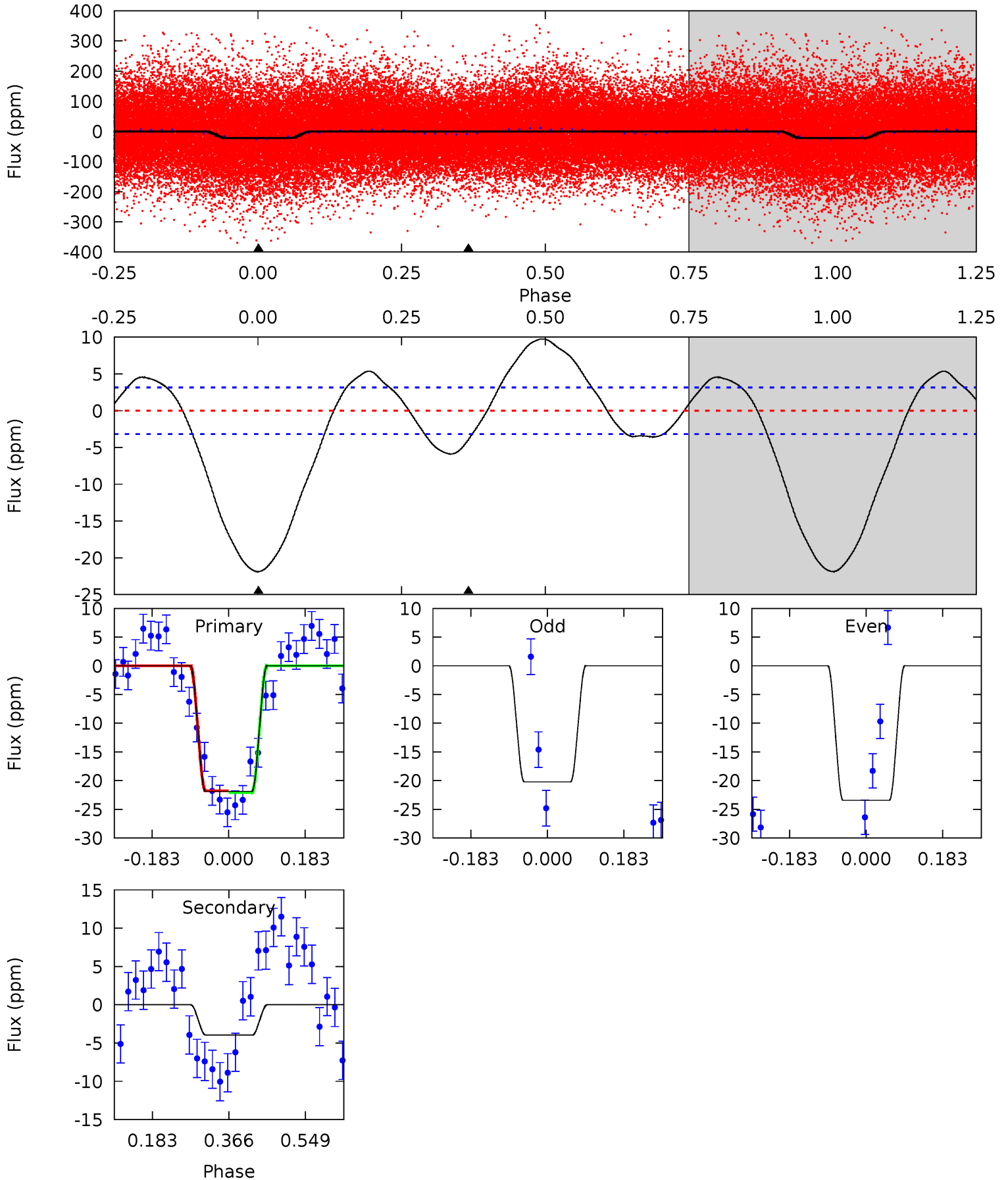
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	3.72	0	0	4.42	1.30	3.27	13.3	13.3	3.72	3.72	0.01	0.99	0.42	0.18



Alt Model-Shift Uniqueness Test

008522919-01, P = 1.736927 Days, E = 129.796808 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	5.56	0	0	4.44	1.33	4.56	30.6	30.6	5.56	5.56	2.09	0.93	0.31	0.19



Stellar Parameters For KIC 008522919

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6490^{+155}_{-175}	$4.034^{+0.266}_{-0.114}$	$-0.540^{+0.300}_{-0.300}$	$1.636^{+0.322}_{-0.483}$	$1.057^{+0.162}_{-0.133}$	$0.340^{+0.552}_{-0.114}$
	+2%/-3%	+7%/-3%	+56%/-56%	+20%/-30%	+15%/-13%	+162%/-33%
Source	PHO1	FLK73	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 008522919-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3 ± 1	$0.69^{+0.38}_{-0.34}$	2968^{+197}_{-246}	4388^{+1578}_{-763}	$3.101^{+9.230}_{-1.905}$
Alt.	-4 ± 1	$0.85^{+0.42}_{-0.38}$	2988^{+183}_{-237}	4236^{+1228}_{-655}	$2.493^{+6.239}_{-1.417}$

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 $A_{obs} \gg 1.0$

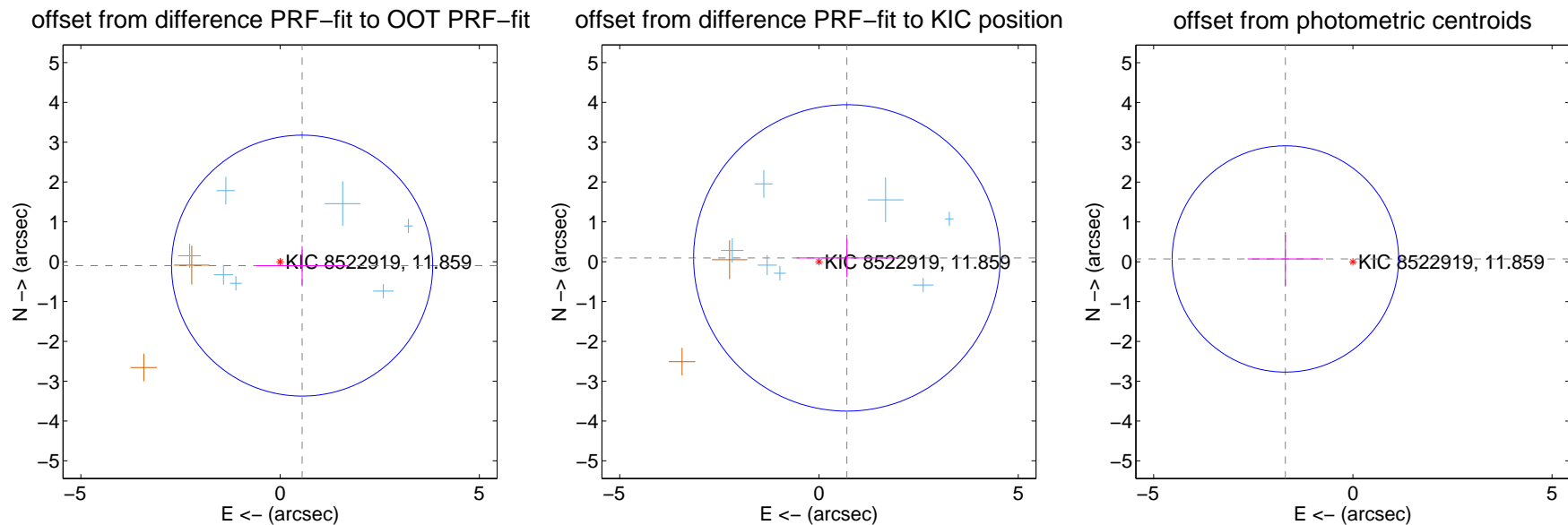
DV Centroid Data

Supplemental centroid analysis for 008522919-01. **Kepler magnitude: 11.86.** Transit SNR 10.26

There are 7 quarters with good PRF difference image offsets

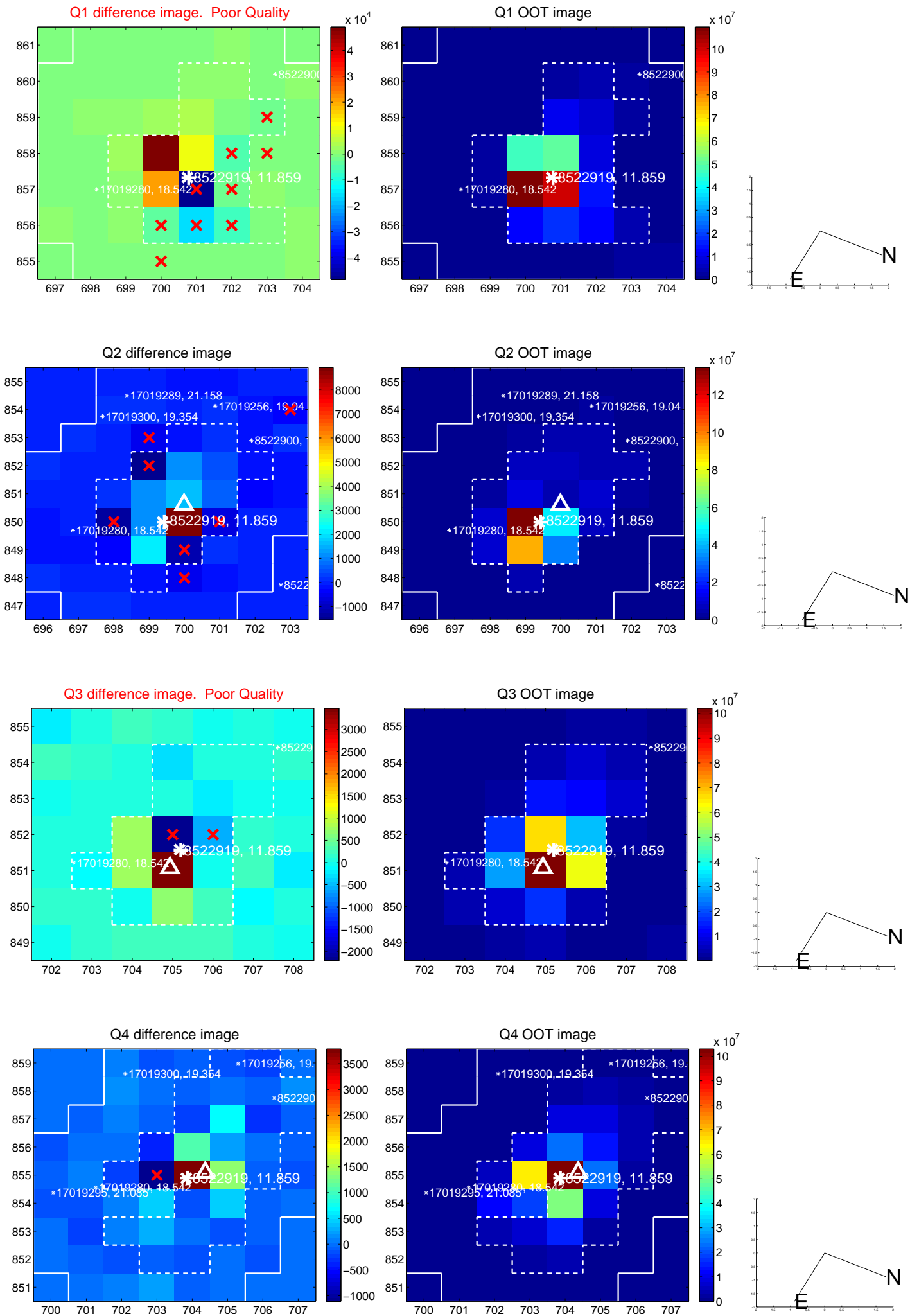
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.561 ± 1.092	0.51	-0.552 ± 1.148	-0.099 ± 0.488
PRF-fit source offset from KIC position	0.707 ± 1.282	0.55	-0.701 ± 1.257	0.095 ± 0.483
photometric centroid source offset	1.69 ± 0.95	1.79	1.69 ± 0.95	0.07 ± 0.68

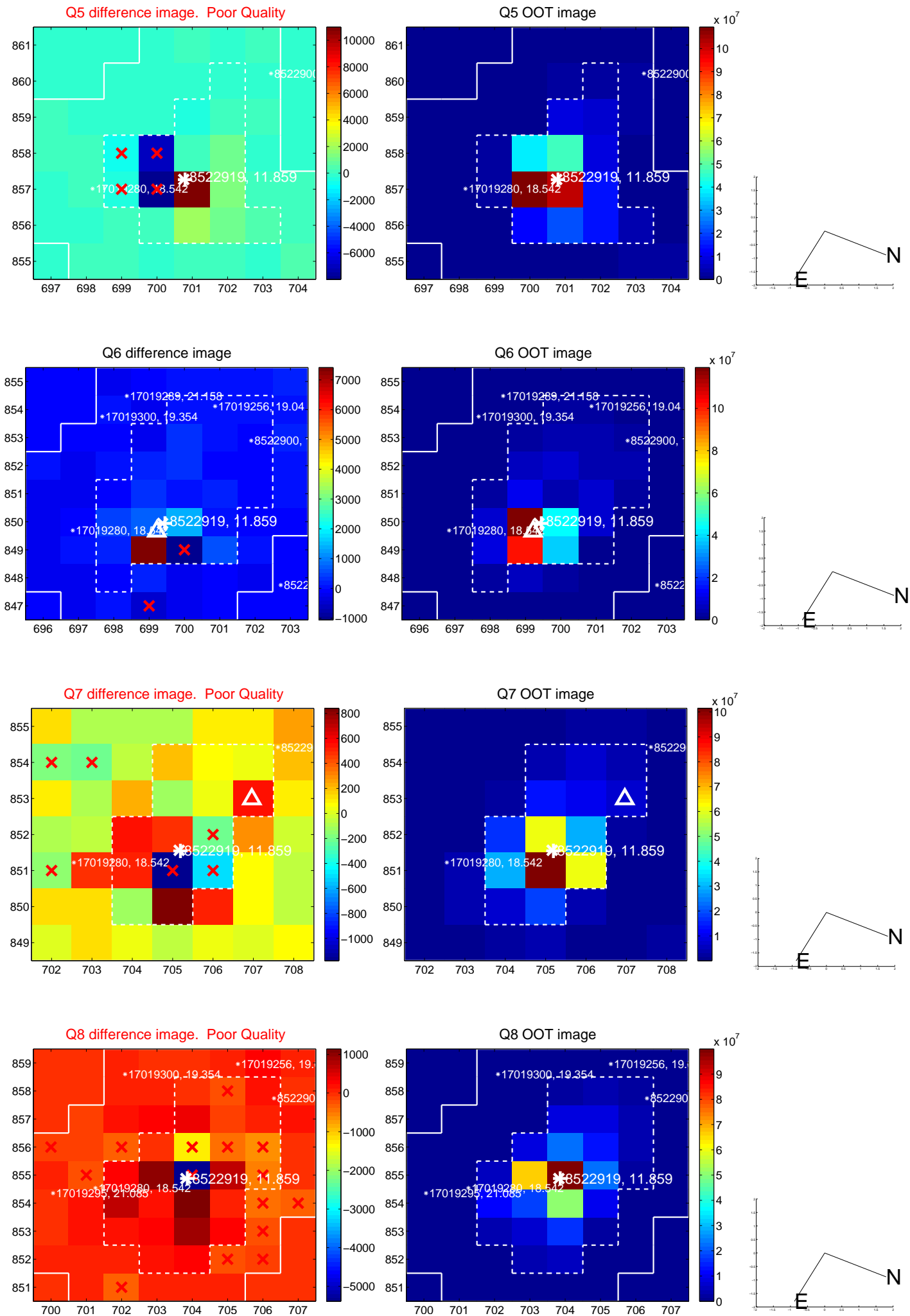


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

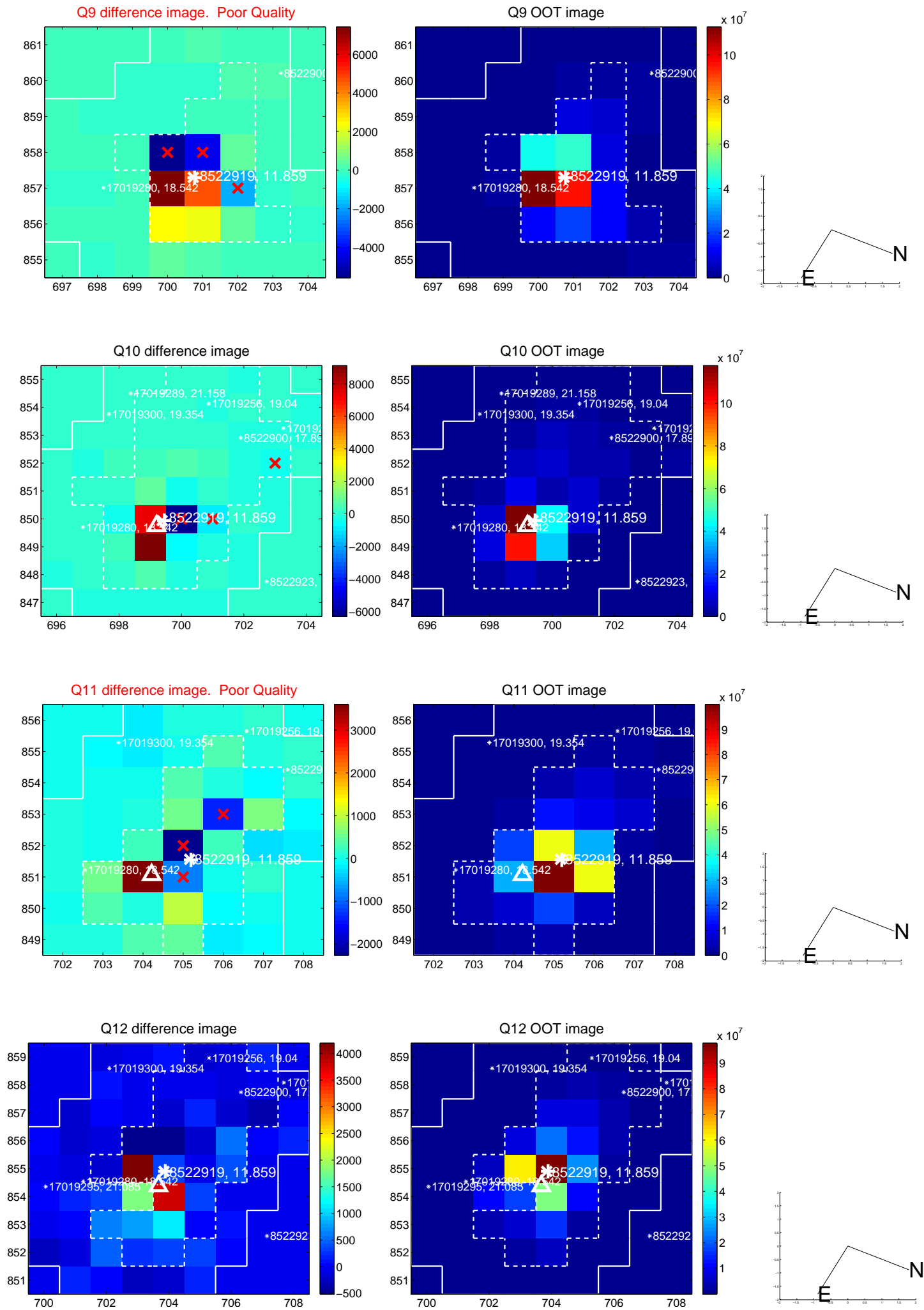
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



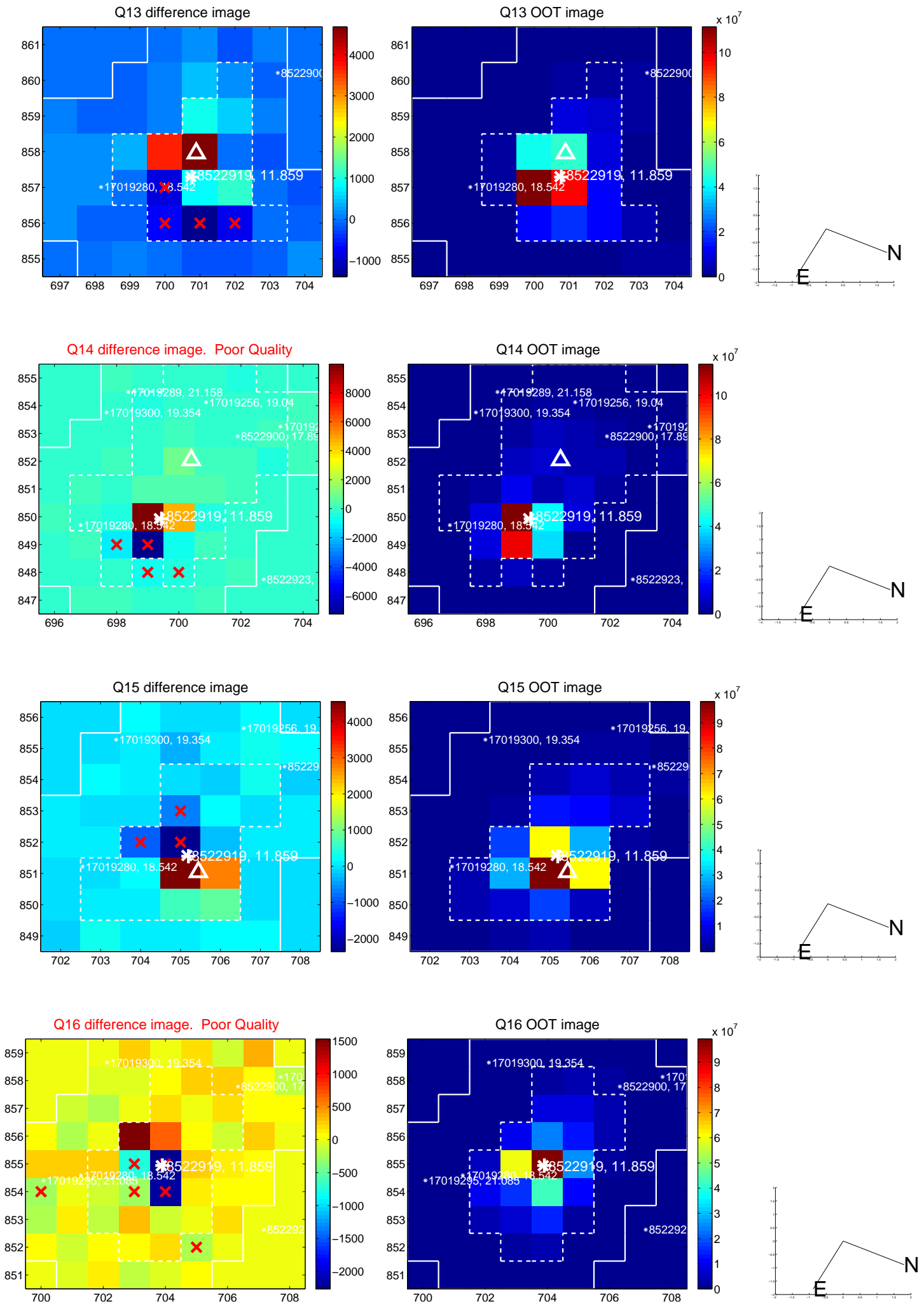
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



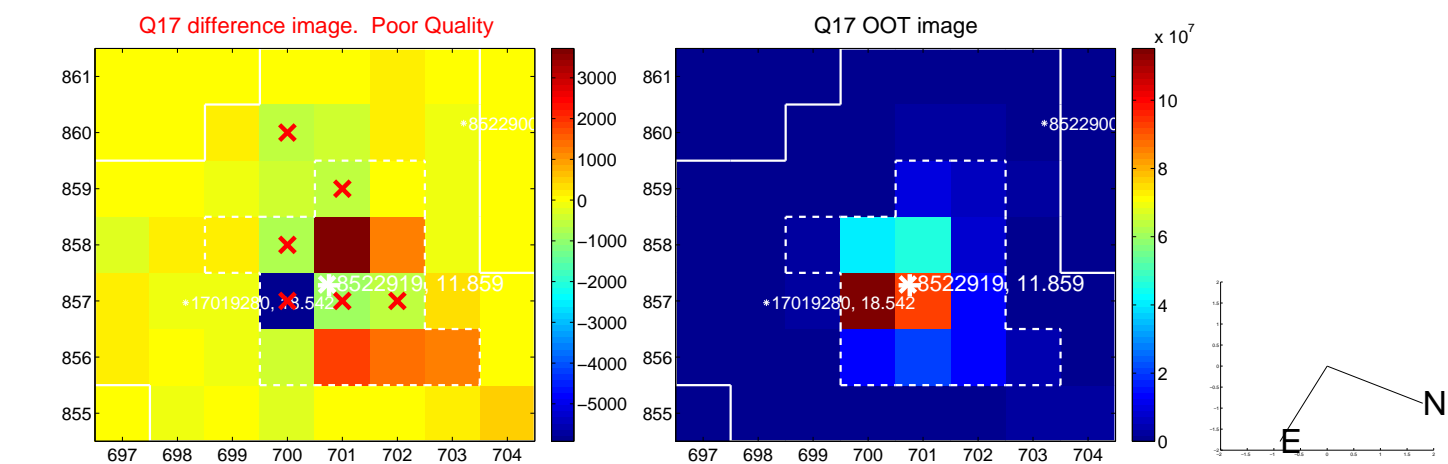
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



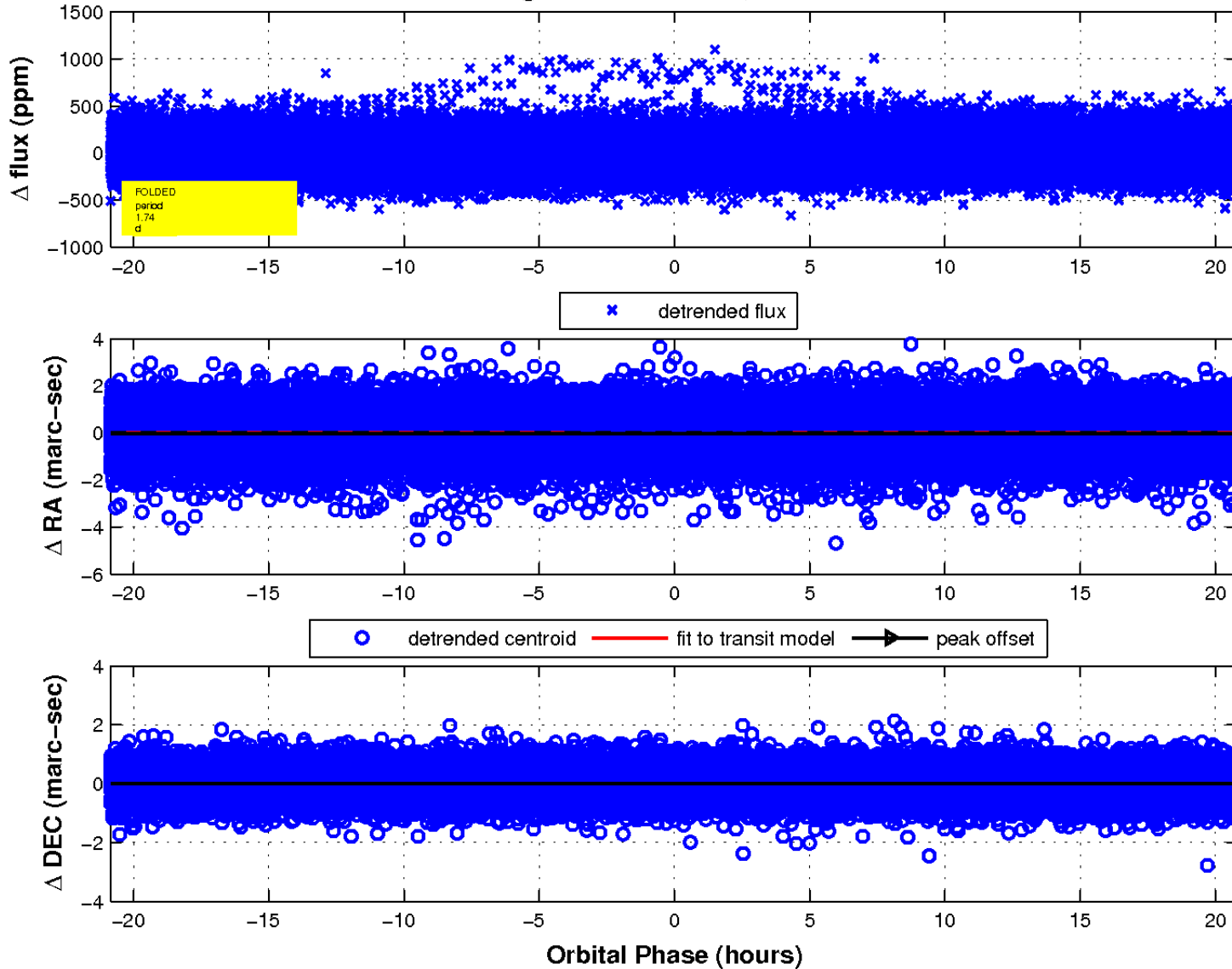
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

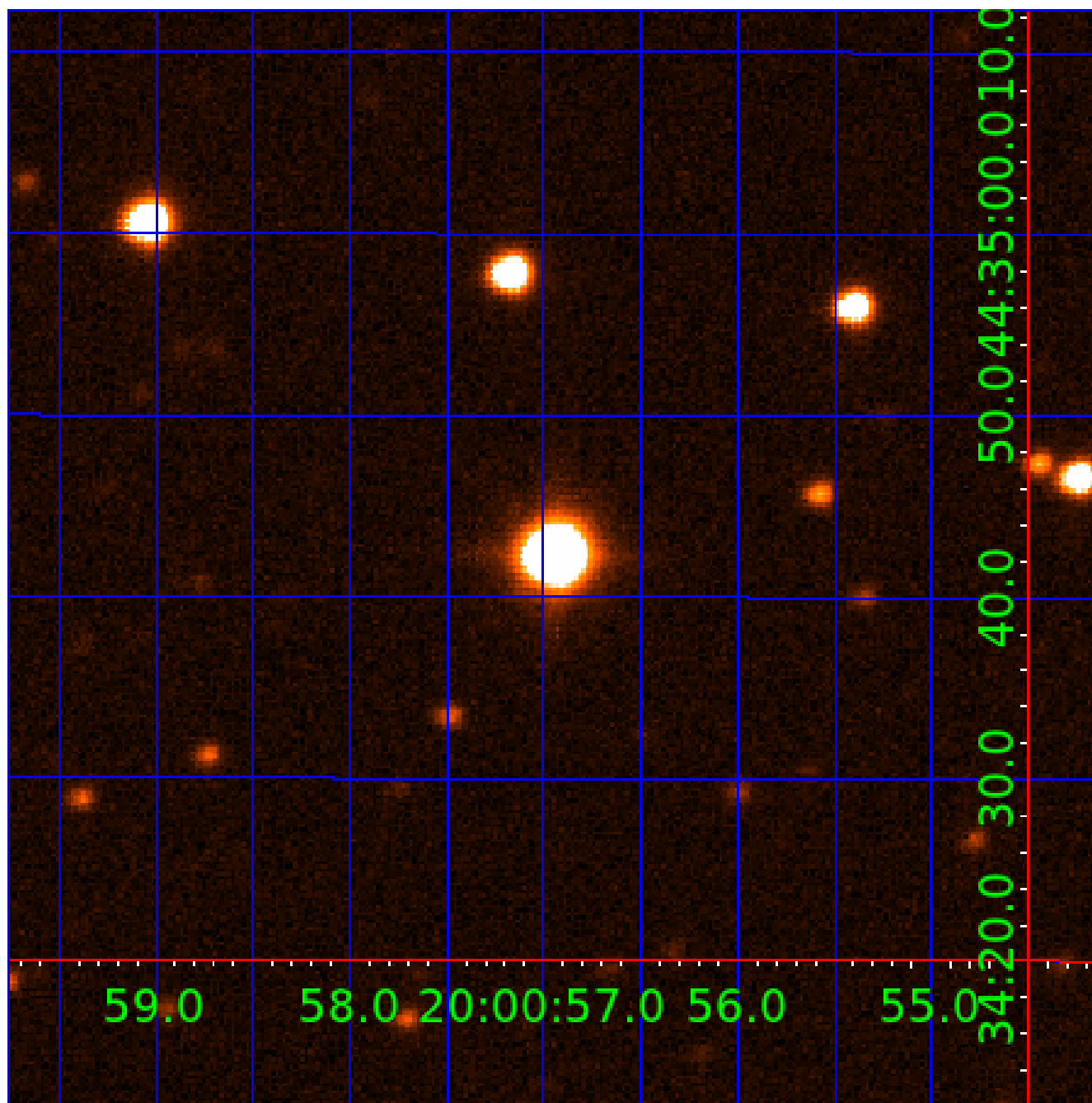


fluxWeightedCentroids, Planet 1 of 7



UKIRT Image

Declination



KIC 008522919

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})
008522919-01	OBS	No	1.737074	133.217335	17.8	7.678	10.0	10.3	1.64	6490	0.69	5128.27
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008522919-04	OBS	No	557.505687	154.537374	681.8	48.813	8.0	10.5	1.64	6490	5.11	2.33
008522919-05	OBS	No	317.755646	161.516850	217.4	23.447	8.3	6.4	1.64	6490	2.65	4.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008522919-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
008522919-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008522919-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008522919-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—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.

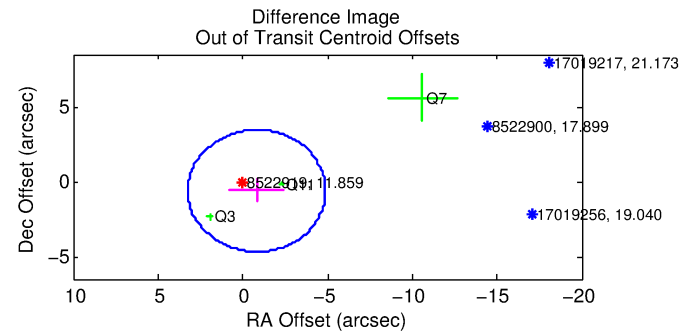
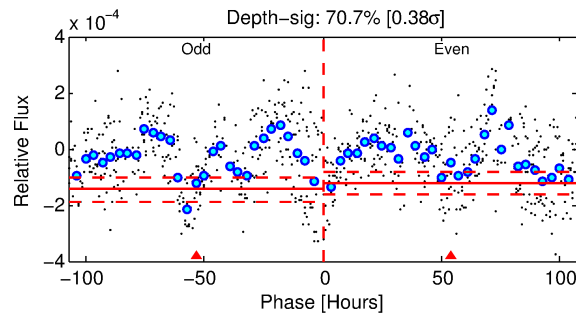
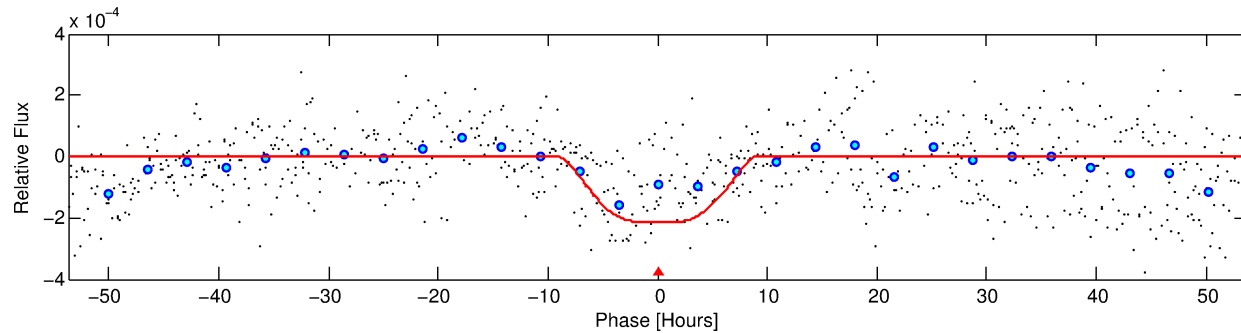
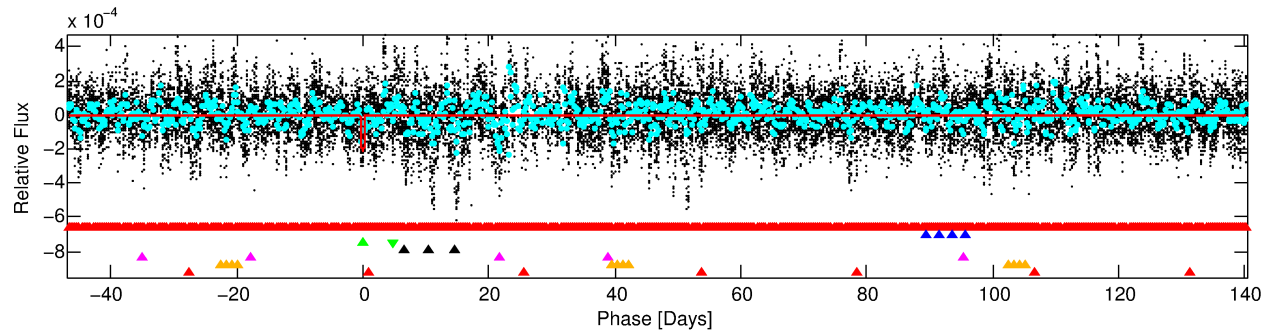
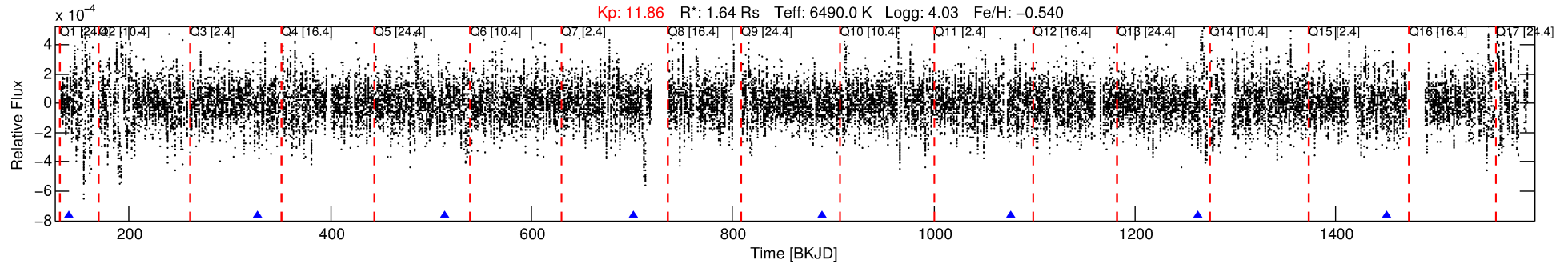
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008522919-03

No Significant Match Found

DV One-Page Summary

KIC: 8522919 Candidate: 3 of 7 Period: 187.200 d



DV Fit Results:

Period = 187.20026 [0.00866] d
Epoch = 139.9315 [0.0368] BKJD
Rp/R* = 0.0178 [0.0018]
a/R* = 22.15 [2.66]
b = 0.98 [0.01]
Seff = 10.00 [4.66]
Teq = 453 [53] K
Rp = 3.18 [0.99] Re
a = 0.6523 [0.1850] AU
Ag = 2265.14 [1340.37] [1.69 σ]
Teff = 4837 [478] K [9.11 σ]

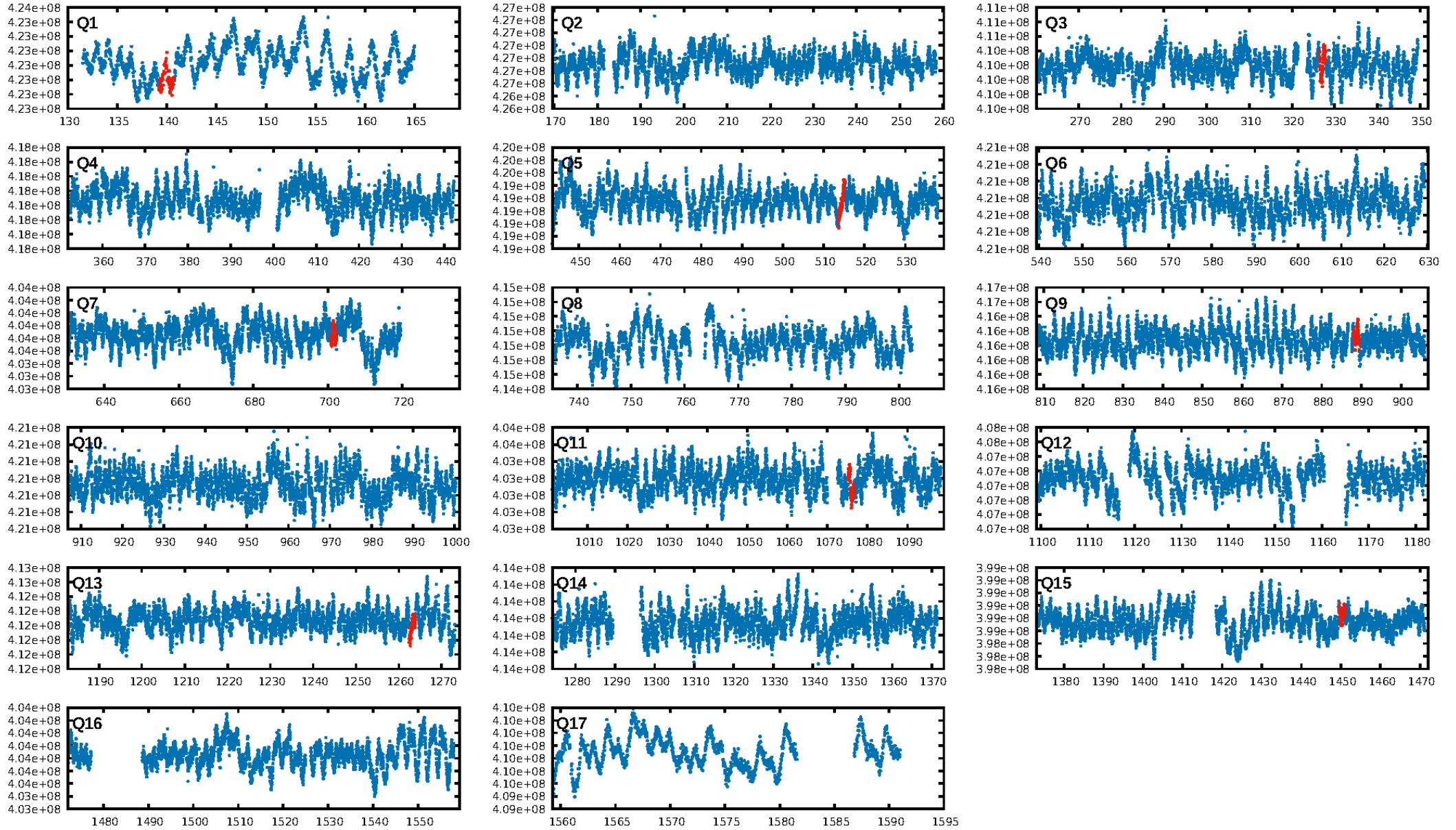
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [79.75 σ]
LongPeriod-sig: 100.0% [58.45 σ]
ModelChiSquare2-sig: 50.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.42e-11
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -1.785
Centroid-sig: 3.0%
Centroid-so: 1.136 arcsec [1.99 σ]
OotOffset-rm: 1.025 arcsec [0.76 σ]
KicOffset-rm: 0.912 arcsec [0.46 σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/6]

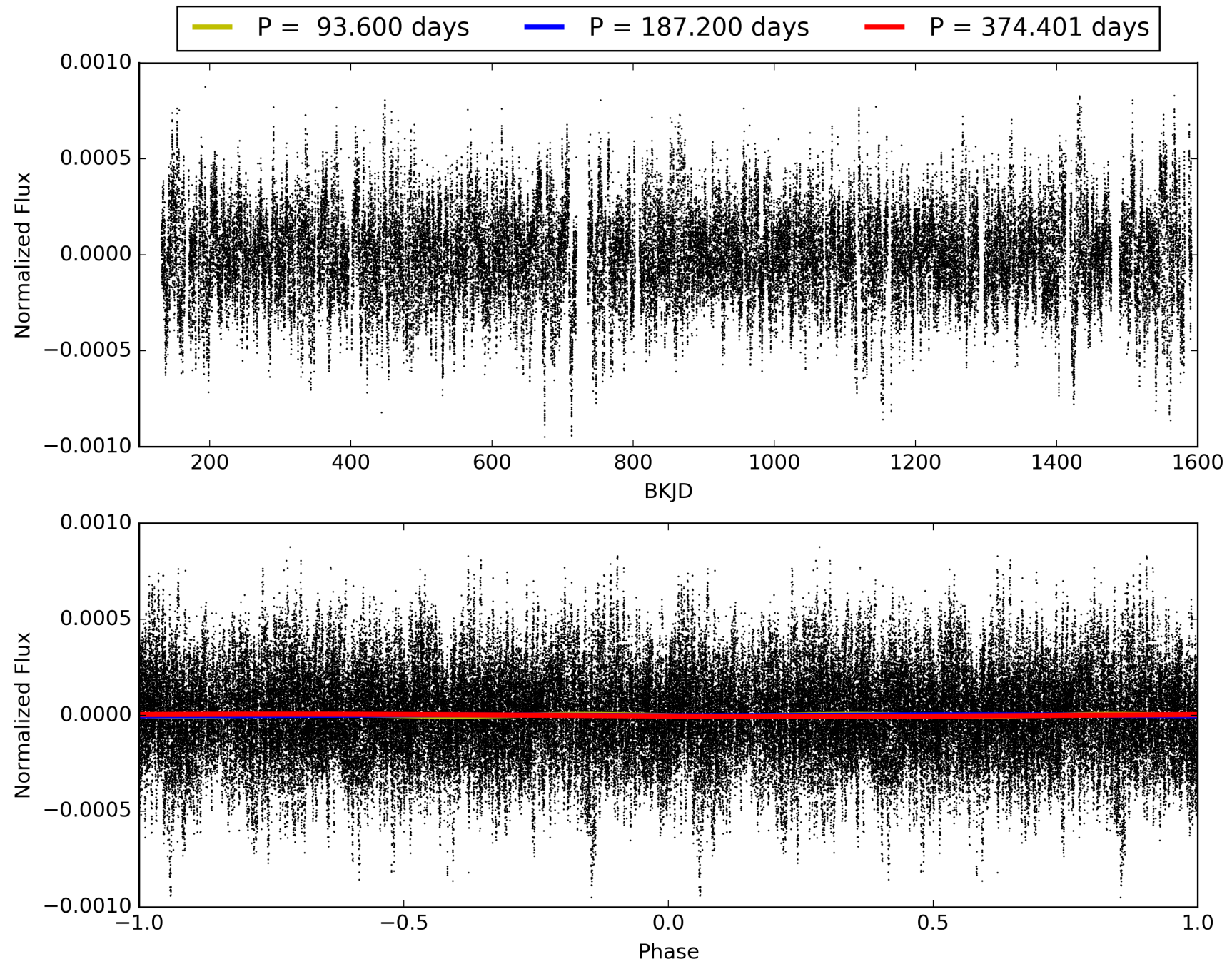
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:22:33 Z

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

TCE 008522919-03, PDC Light Curves

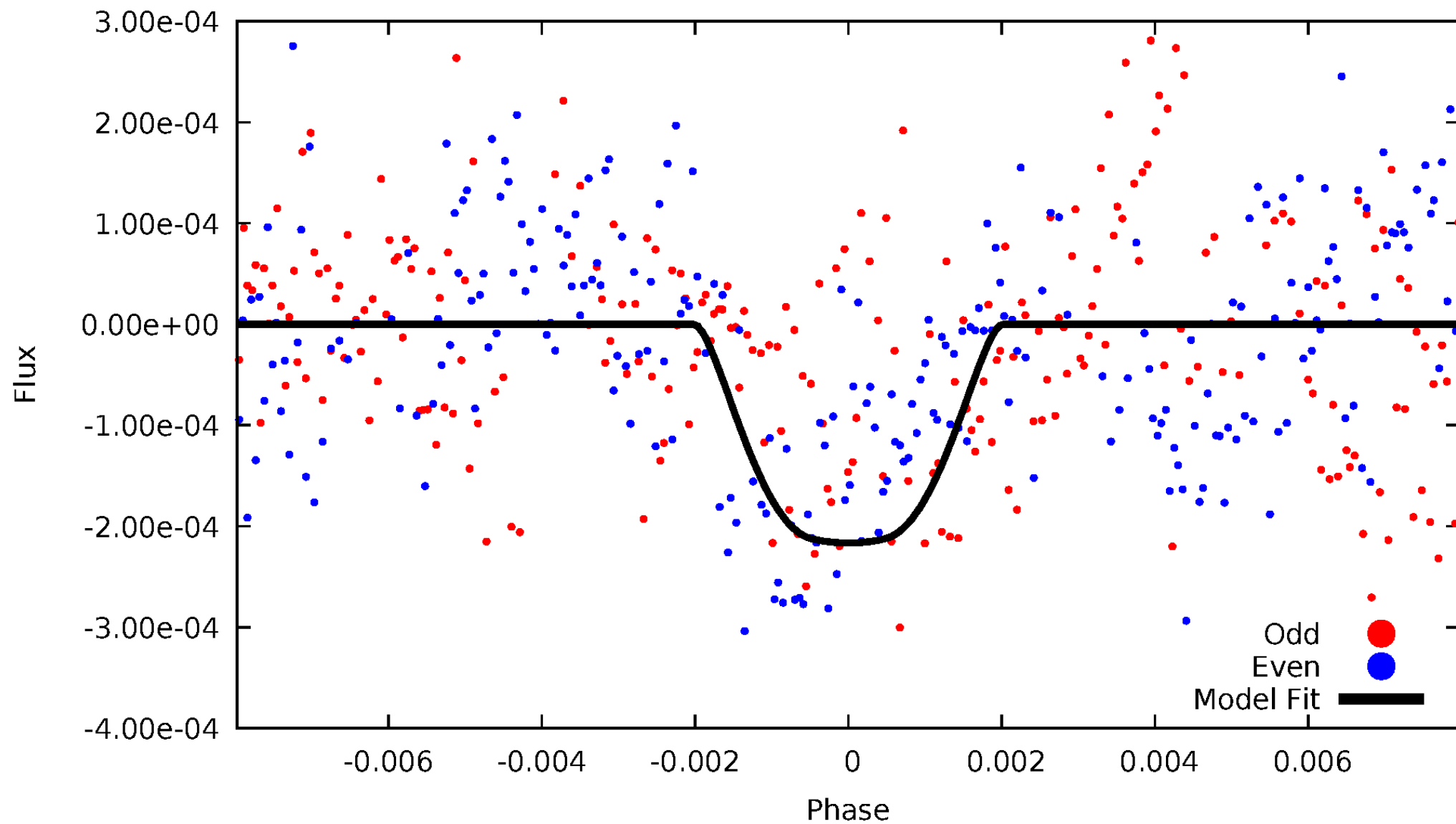


TCE 008522919-03



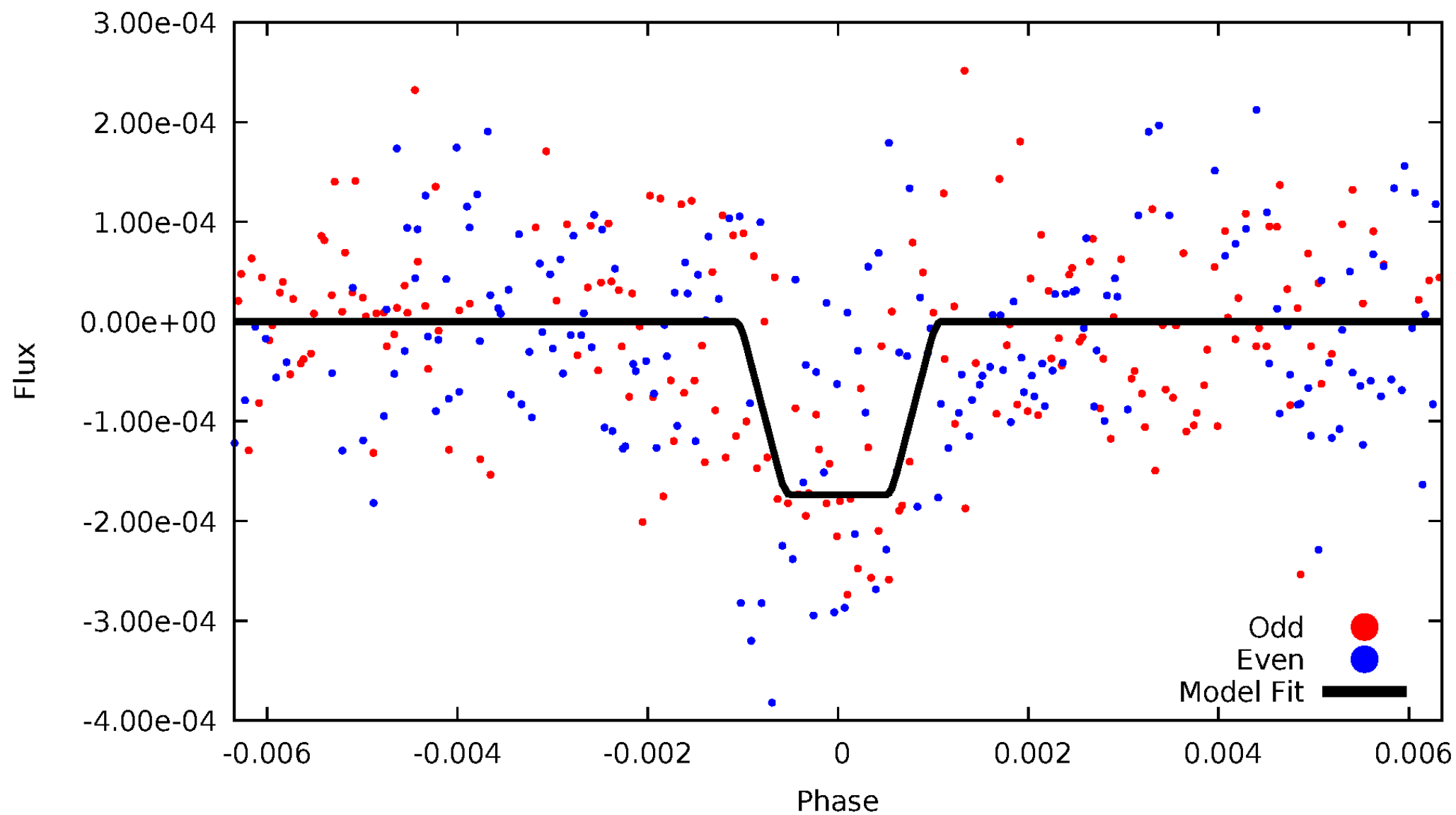
DV Odd/Even

TCE 008522919-03



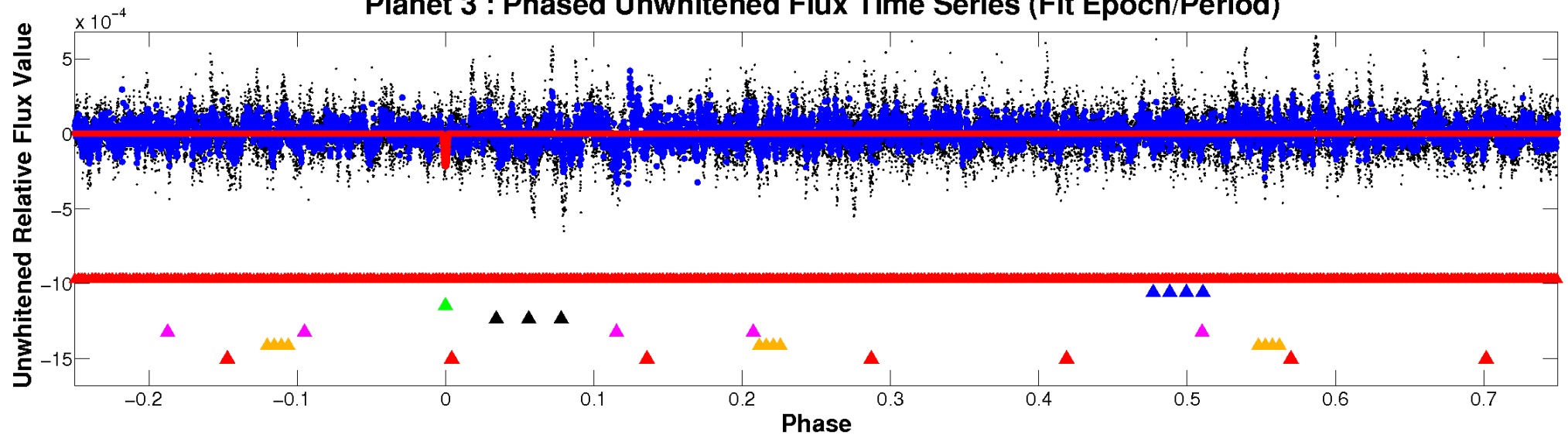
ALT Odd/Even

TCE 008522919-03

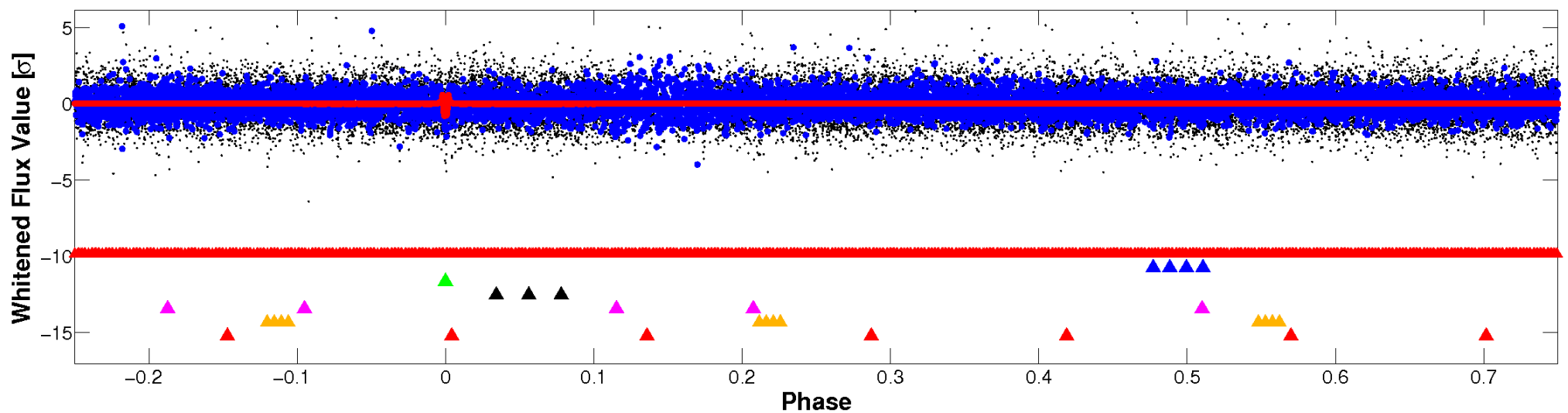


Non-Whitened Vs. Whitened Light Curve

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

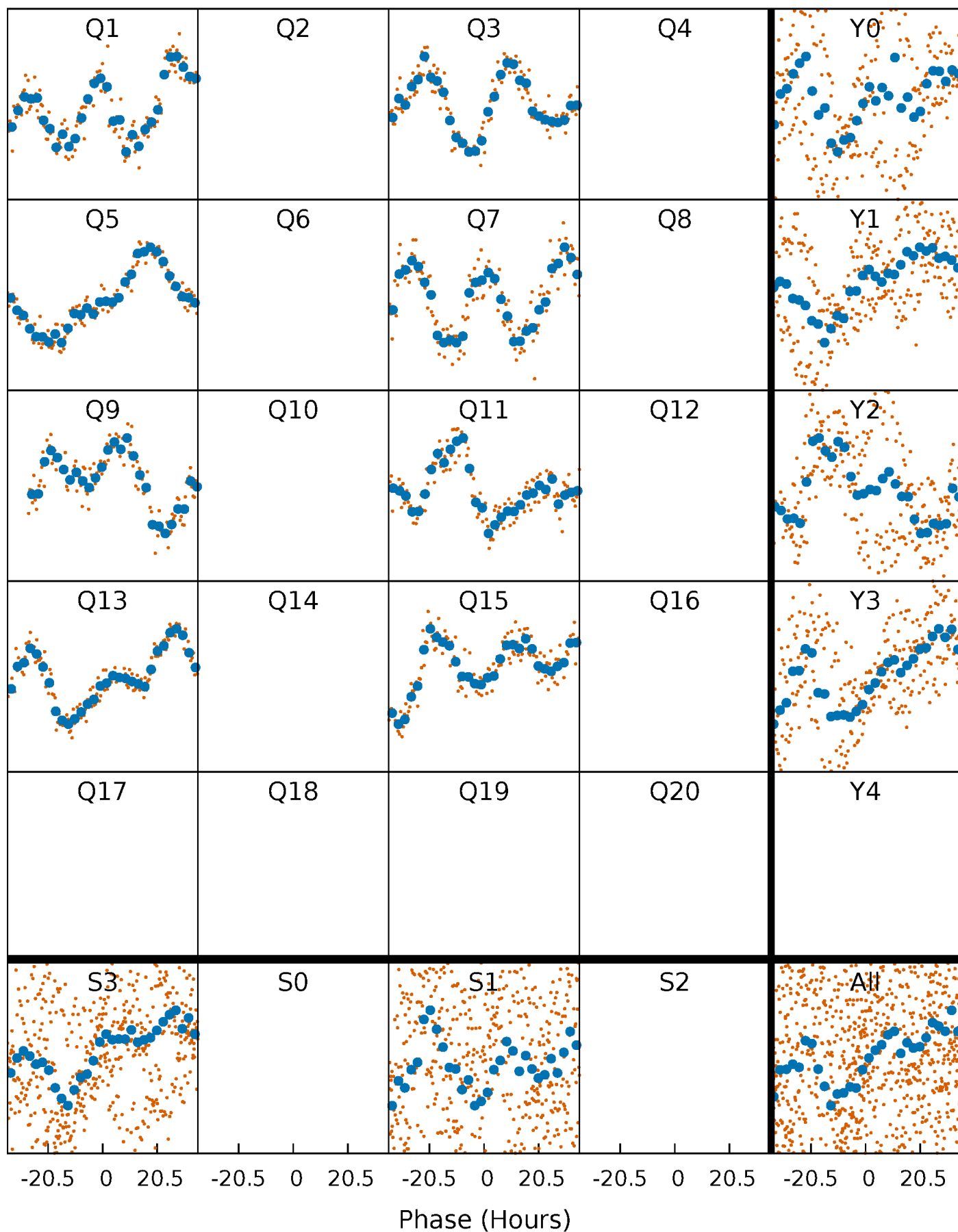


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



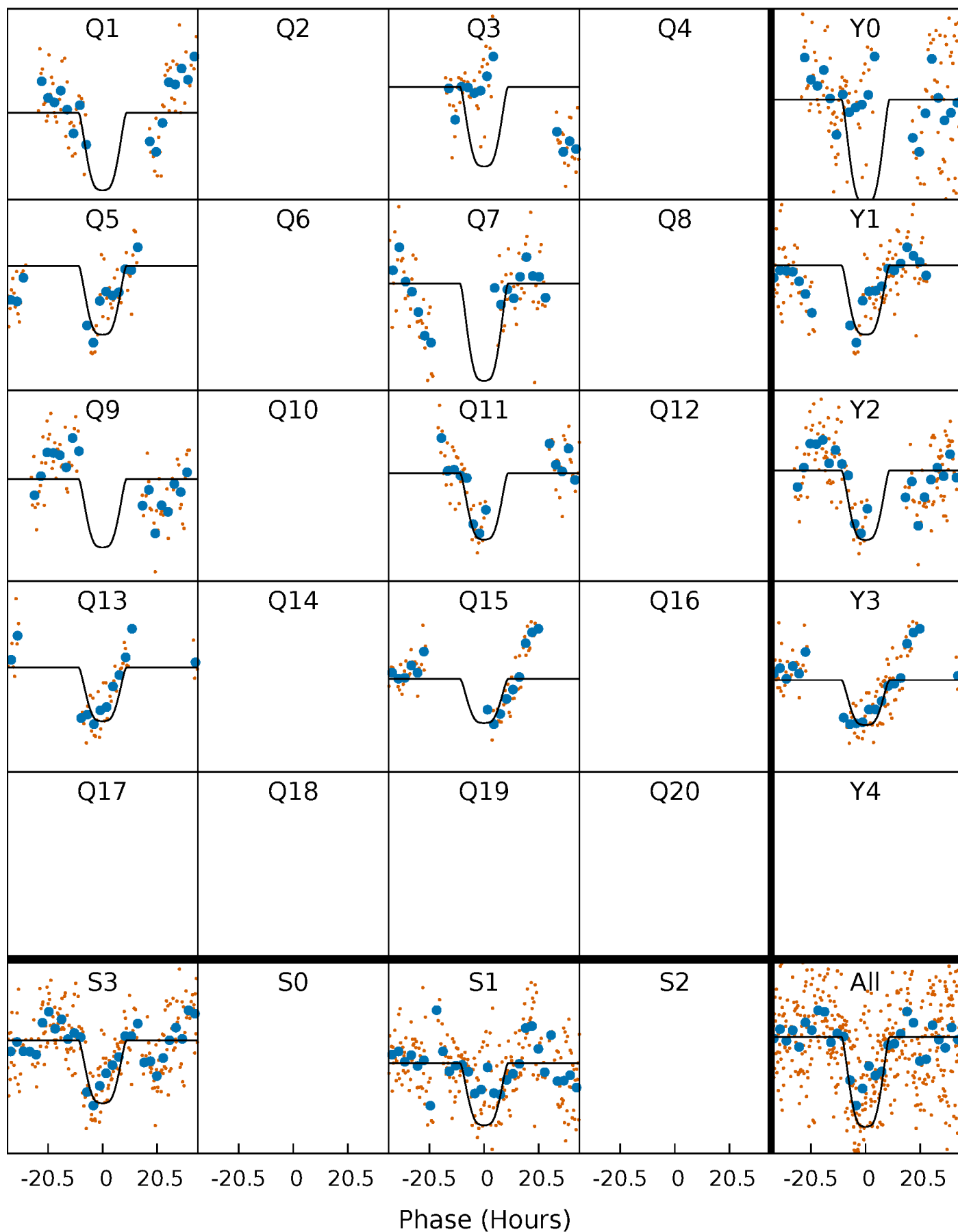
PDC Quarter-Phased Transit Curves

TCE 008522919-03 $P=187.200257$ Days $T_0=139.931532$ (BKJD)



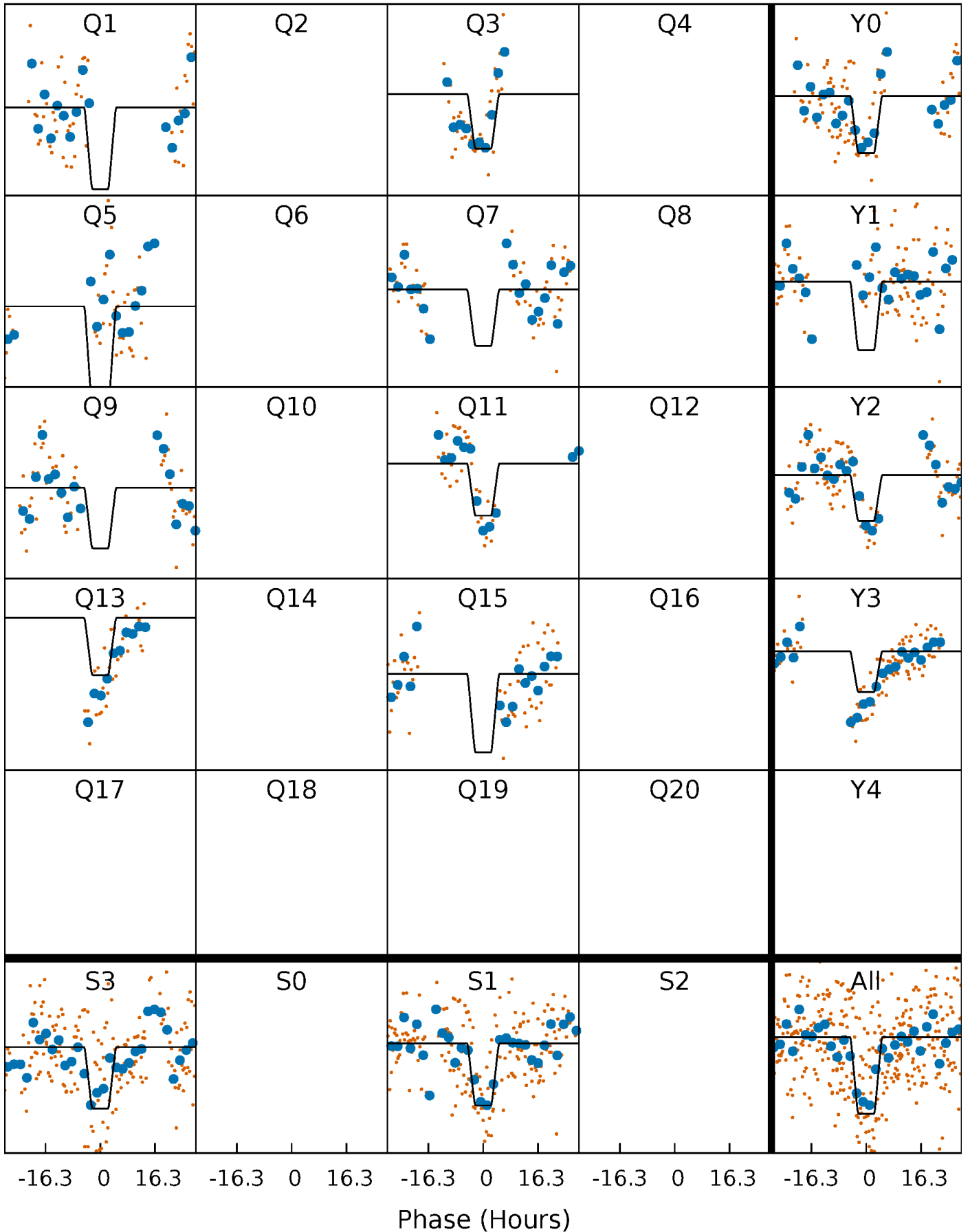
DV Quarter-Phased Transit Curves

TCE 008522919-03 $P=187.200257$ Days $T_0=139.931532$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

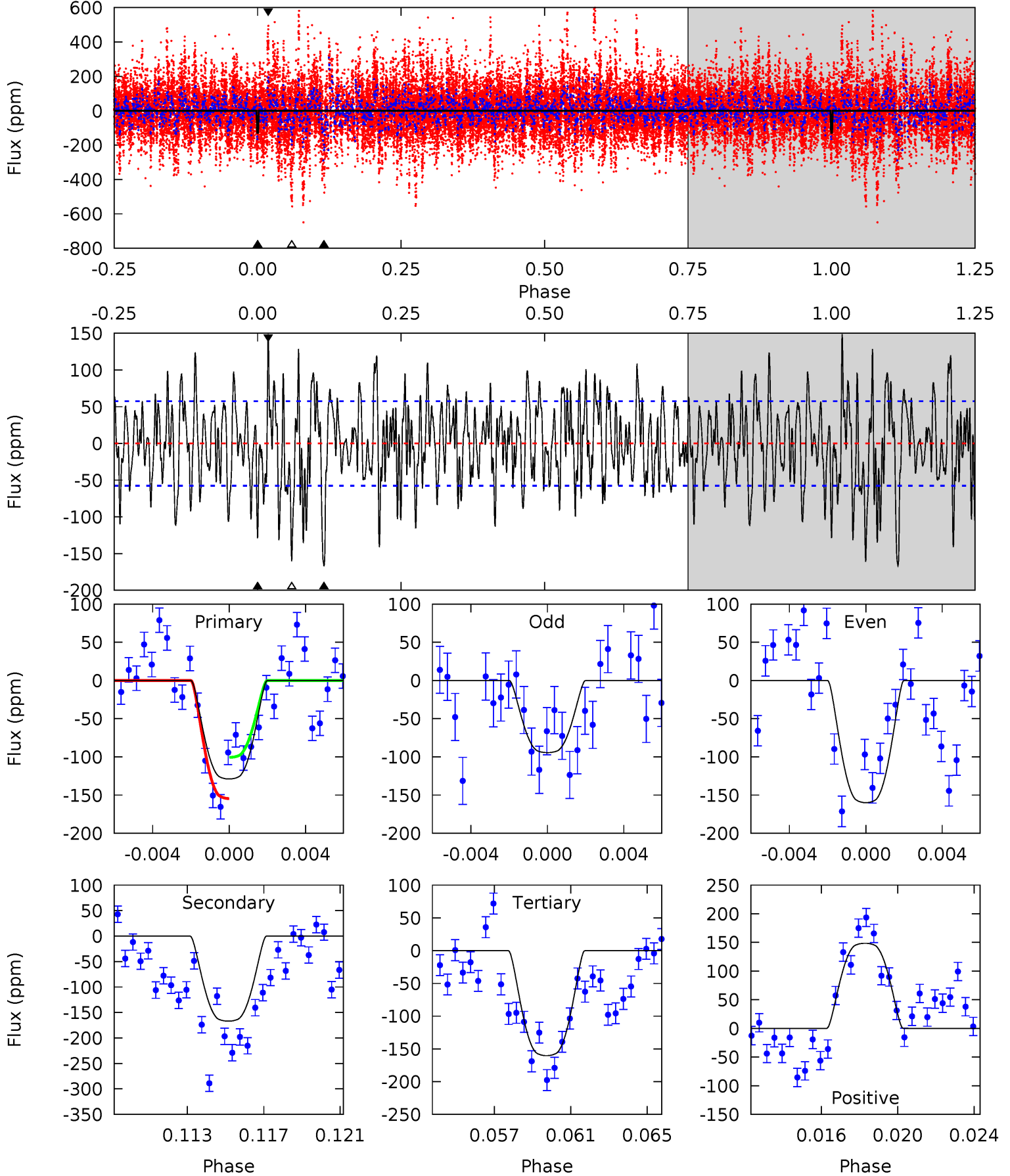
TCE 008522919-03 P=187.198654 Days $T_0=139.817801$ (BKJD)



DV Model-Shift Uniqueness Test

008522919-03, P = 187.200257 Days, E = 139.931532 Days

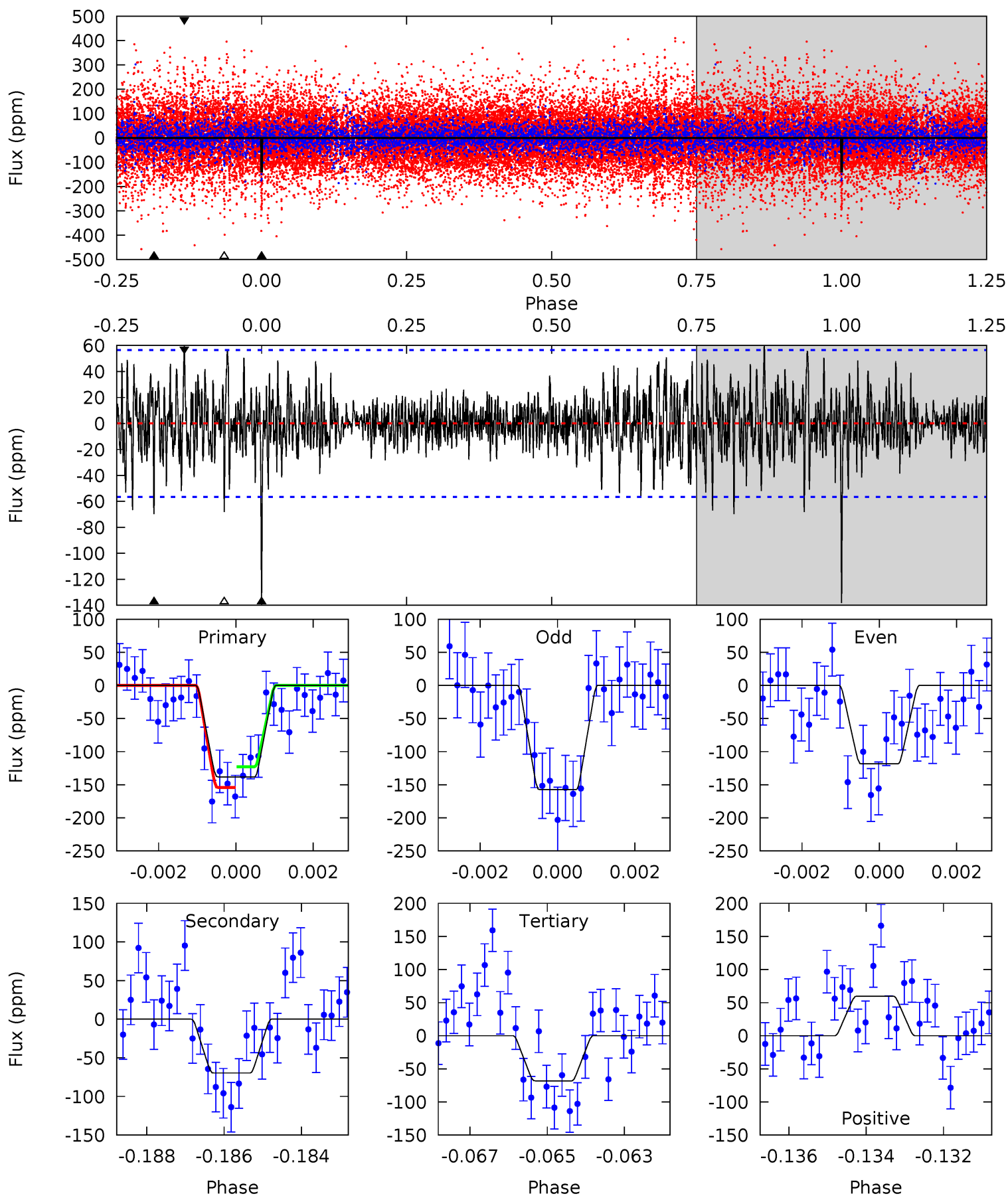
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	15.1	14.5	13.4	5.20	2.87	4.42	-2.84	-1.77	0.60	1.67	2.97	0.93	0.47	2.44



Alt Model-Shift Uniqueness Test

008522919-03, P = 187.198654 Days, E = 139.817801 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	6.56	6.41	5.61	5.32	3.08	1.59	6.59	7.38	0.15	0.94	1.81	0.58	0.30	1.47



Stellar Parameters For KIC 008522919

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6490^{+155}_{-175}	$4.034^{+0.266}_{-0.114}$	$-0.540^{+0.300}_{-0.300}$	$1.636^{+0.322}_{-0.483}$	$1.057^{+0.162}_{-0.133}$	$0.340^{+0.552}_{-0.114}$
	+2%/-3%	+7%/-3%	+56%/-56%	+20%/-30%	+15%/-13%	+162%/-33%
Source	PHO1	FLK73	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 008522919-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-167 ± 11	$3.10^{+0.57}_{-0.51}$	625^{+41}_{-52}	5537^{+304}_{-271}	4120^{+1762}_{-1093}
Alt.	-70 ± 11	$2.26^{+0.44}_{-0.42}$	622^{+40}_{-46}	5239^{+371}_{-353}	3240^{+1743}_{-1067}

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 $A_{obs} \gg 1.0$

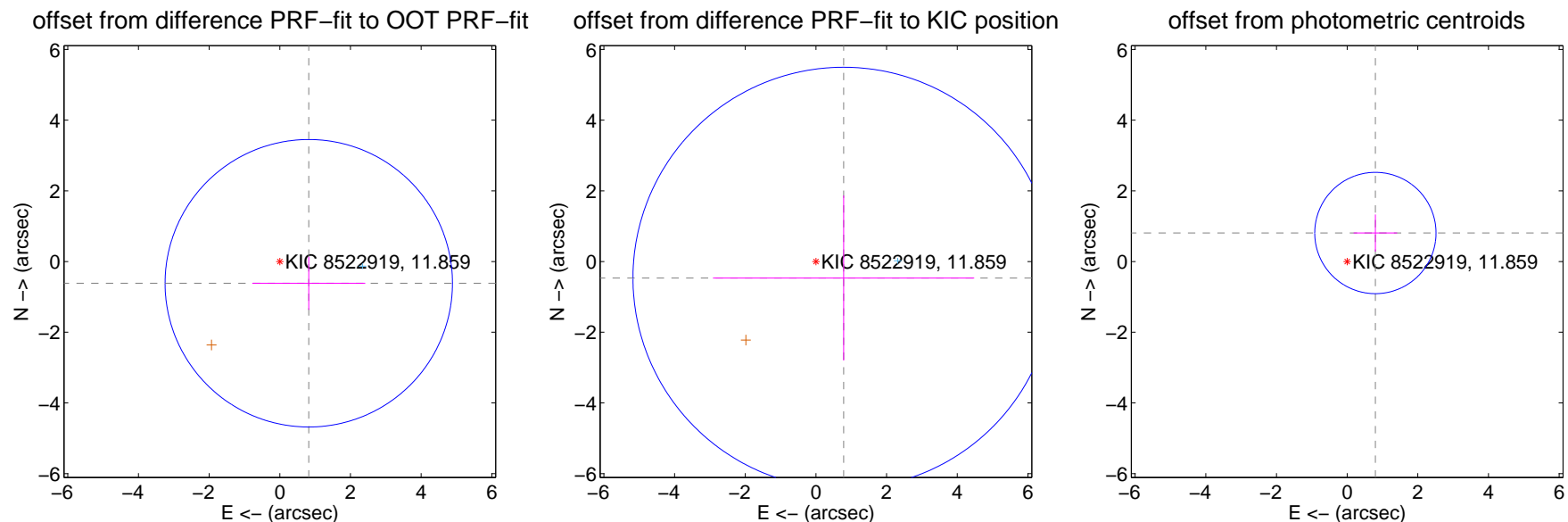
DV Centroid Data

Supplemental centroid analysis for 008522919-03. **Kepler magnitude: 11.86.** Transit SNR 7.12

There are 1 quarters with good PRF difference image offsets

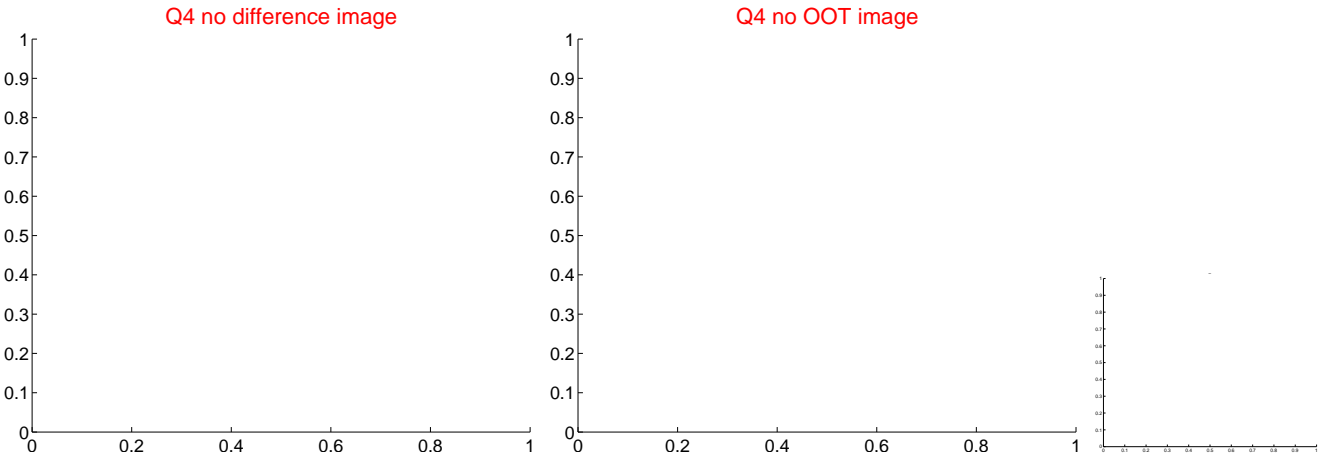
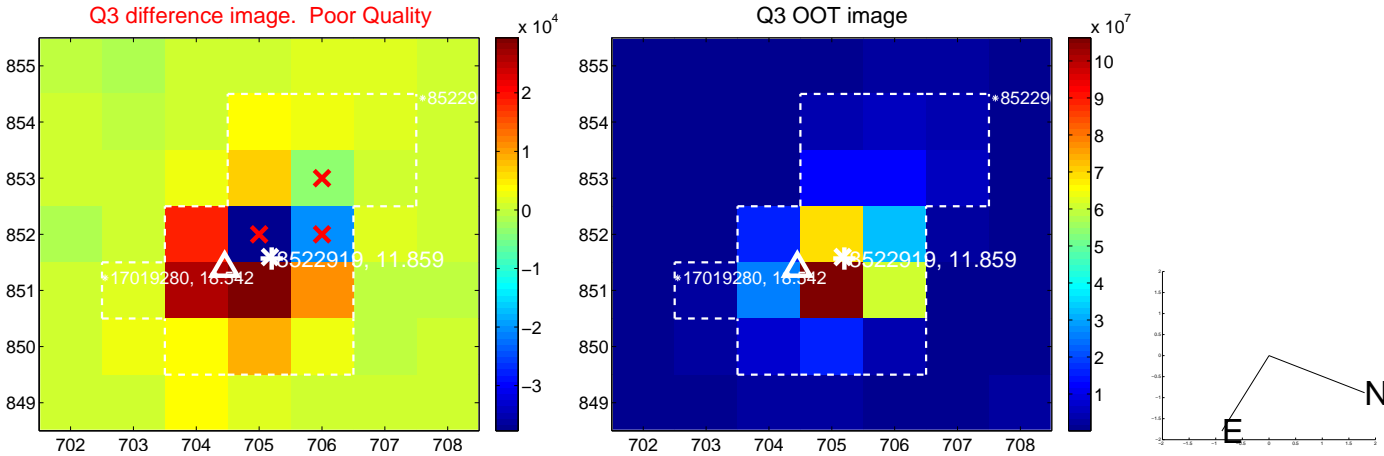
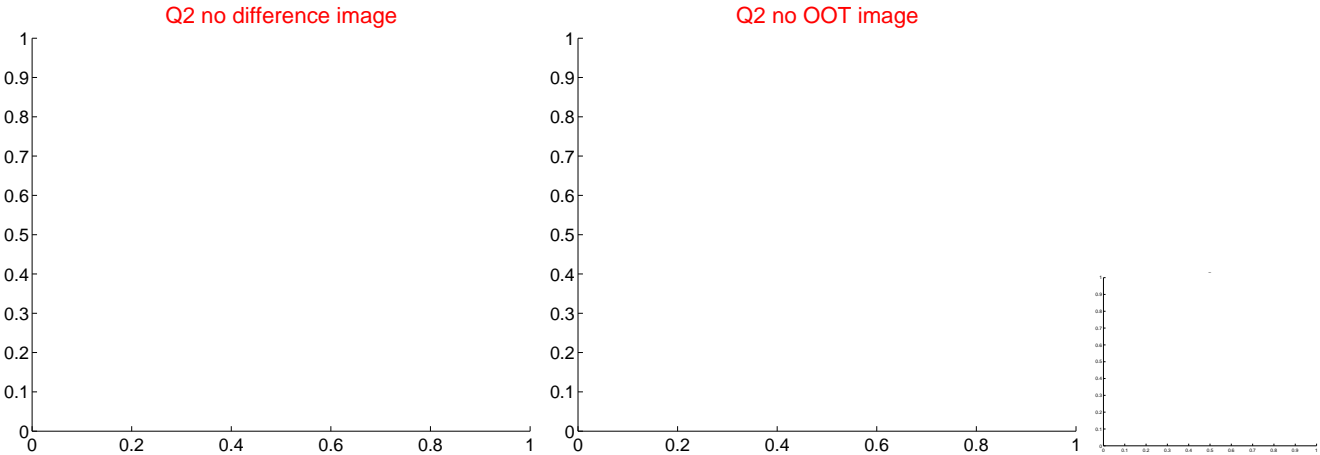
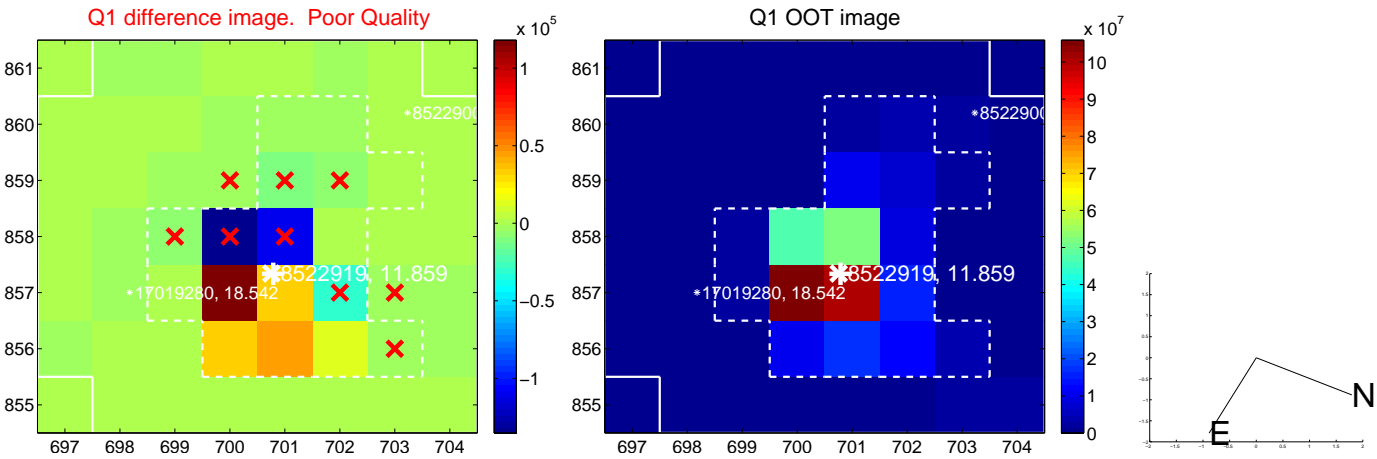
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.025 ± 1.356	0.76	-0.820 ± 1.598	-0.615 ± 0.752
PRF-fit source offset from KIC position	0.912 ± 1.988	0.46	-0.784 ± 3.696	-0.466 ± 2.335
photometric centroid source offset	1.14 ± 0.57	1.99	-0.80 ± 0.62	0.81 ± 0.53

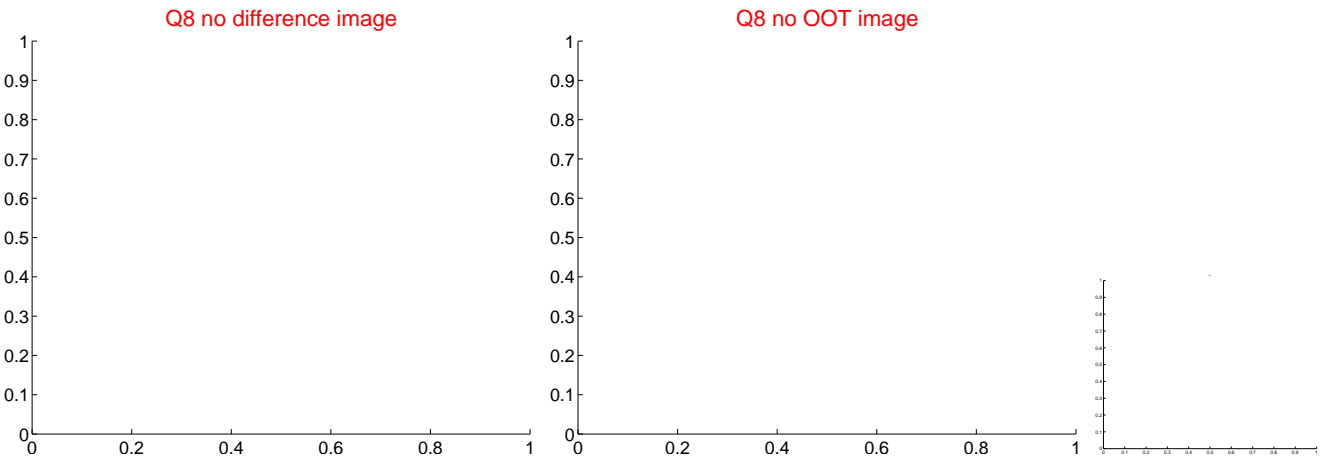
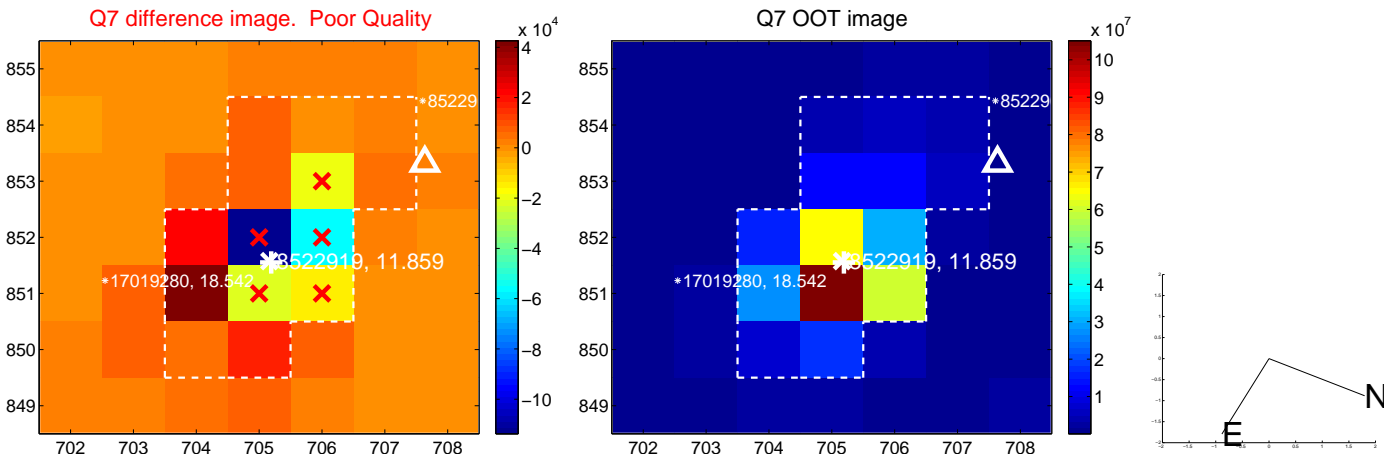
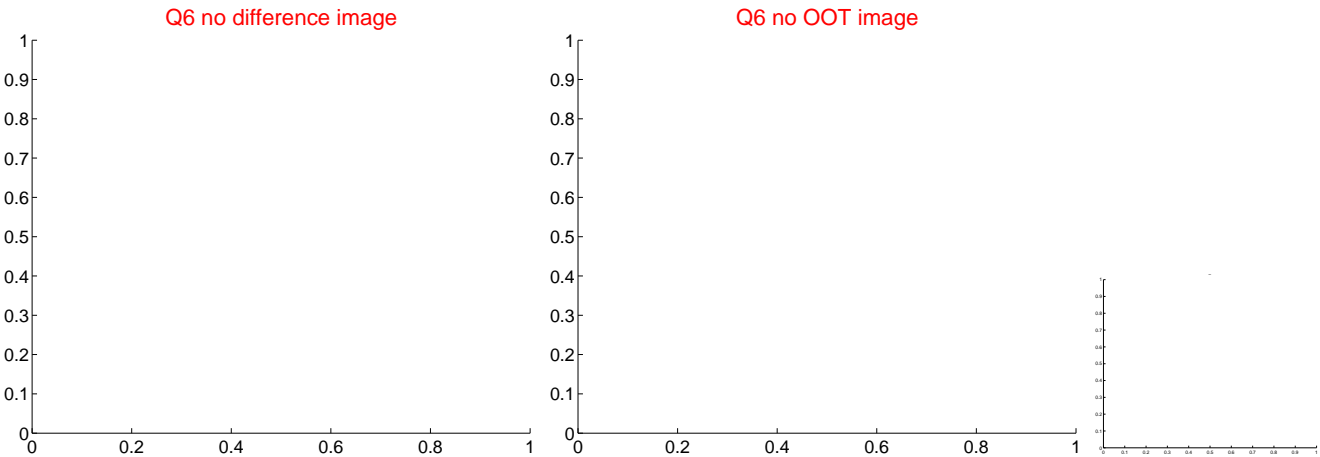
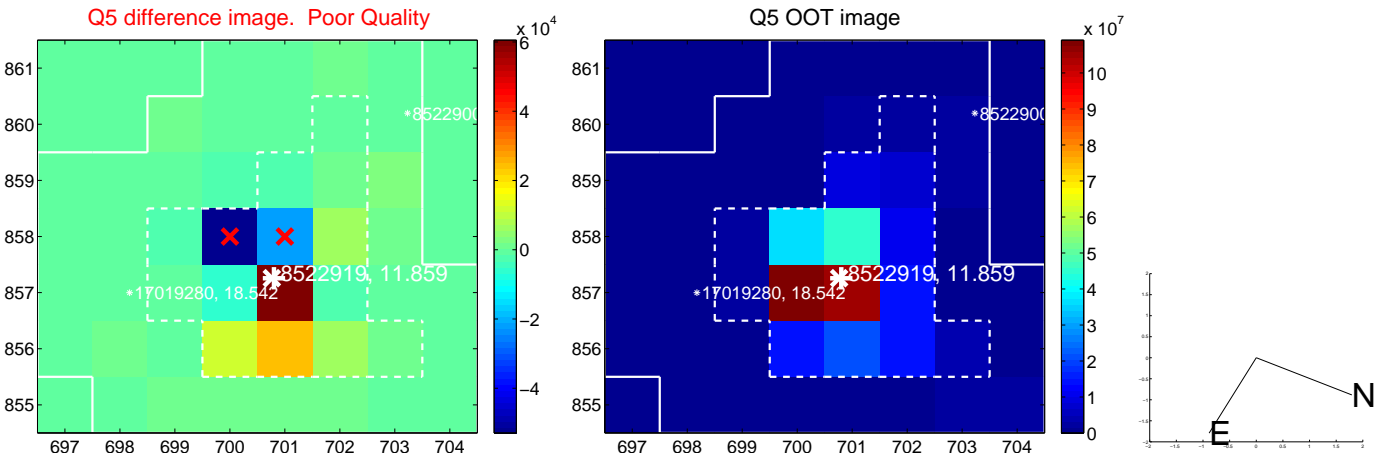


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

Q9 no difference image



Q9 no OOT image



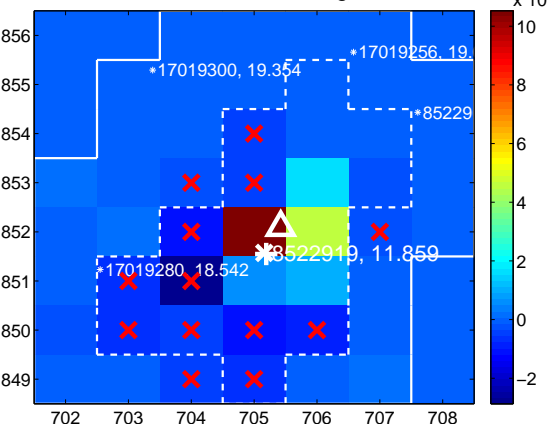
Q10 no difference image



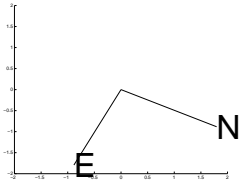
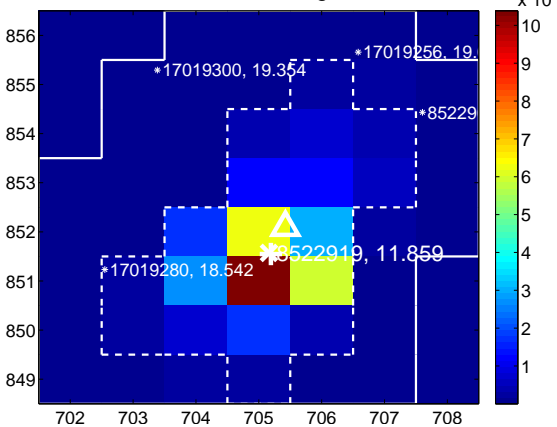
Q10 no OOT image



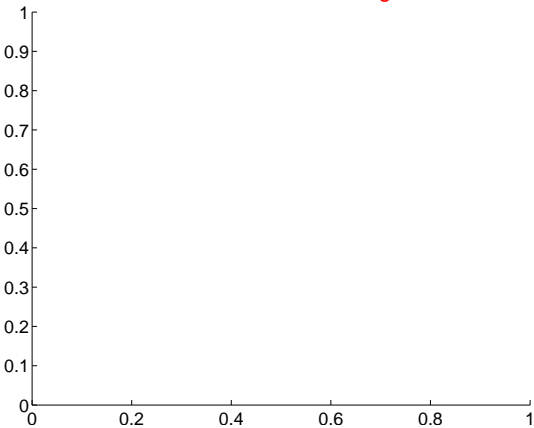
Q11 difference image



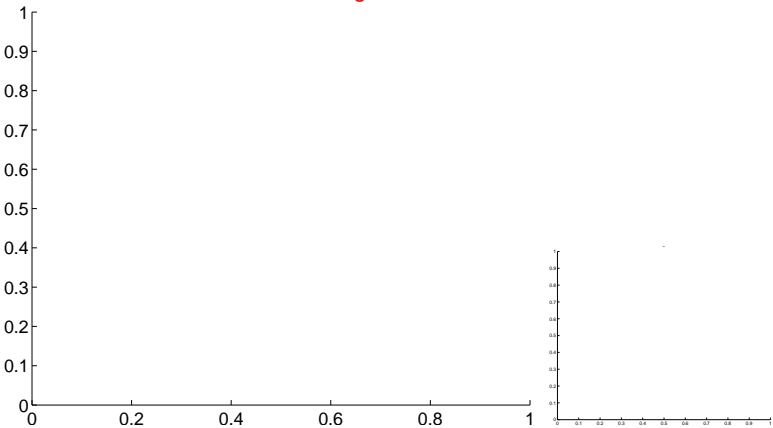
Q11 OOT image



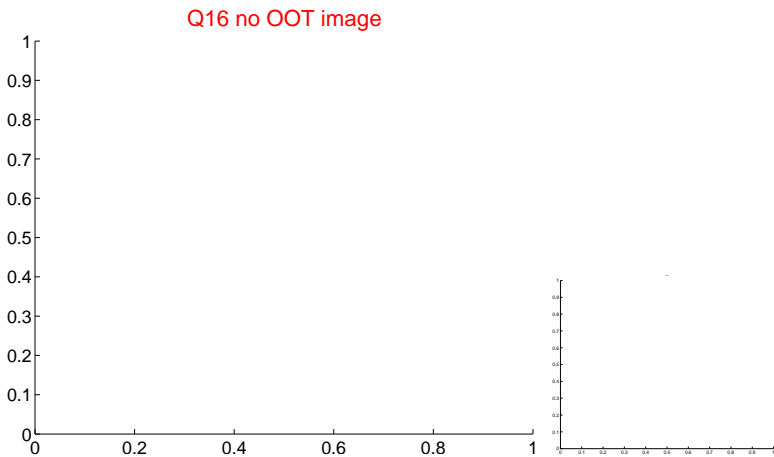
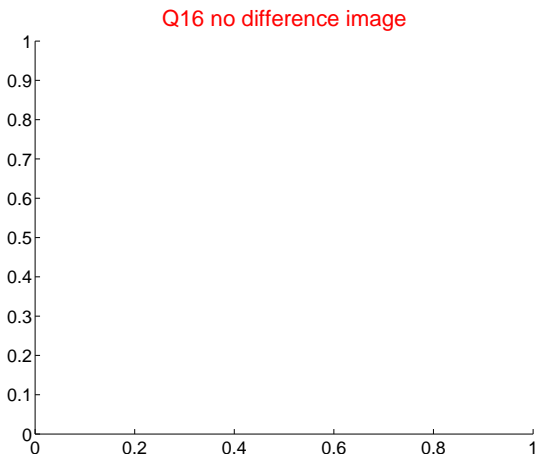
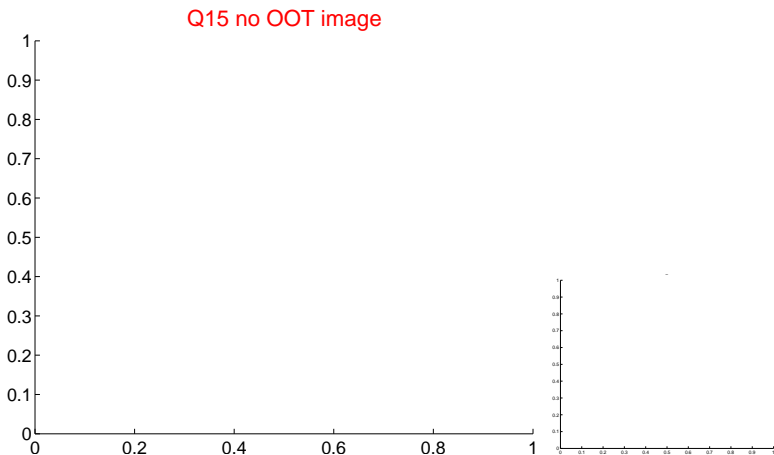
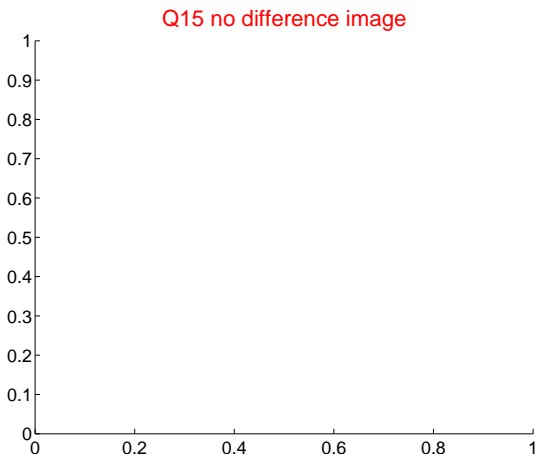
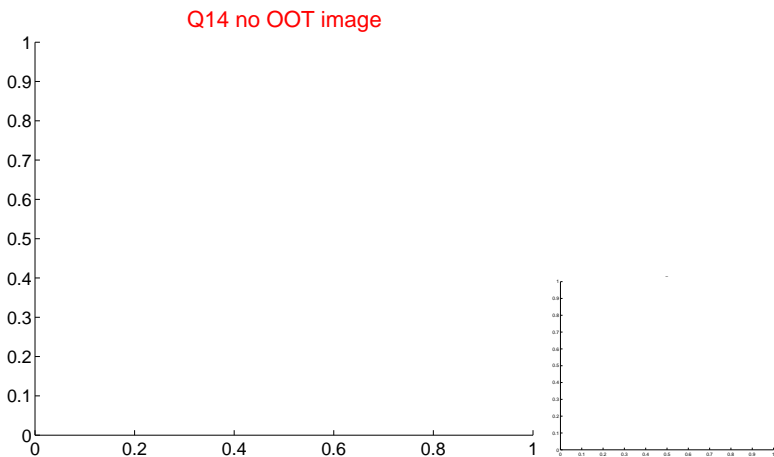
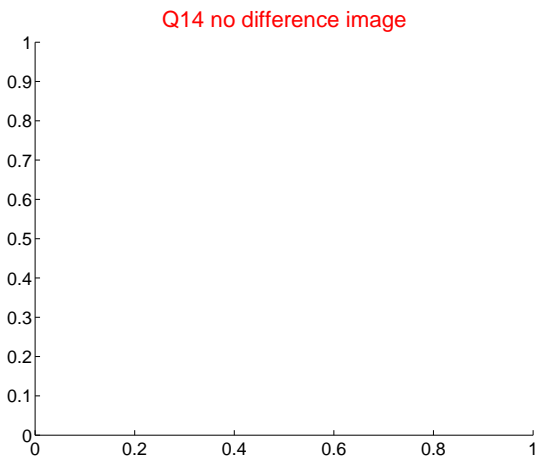
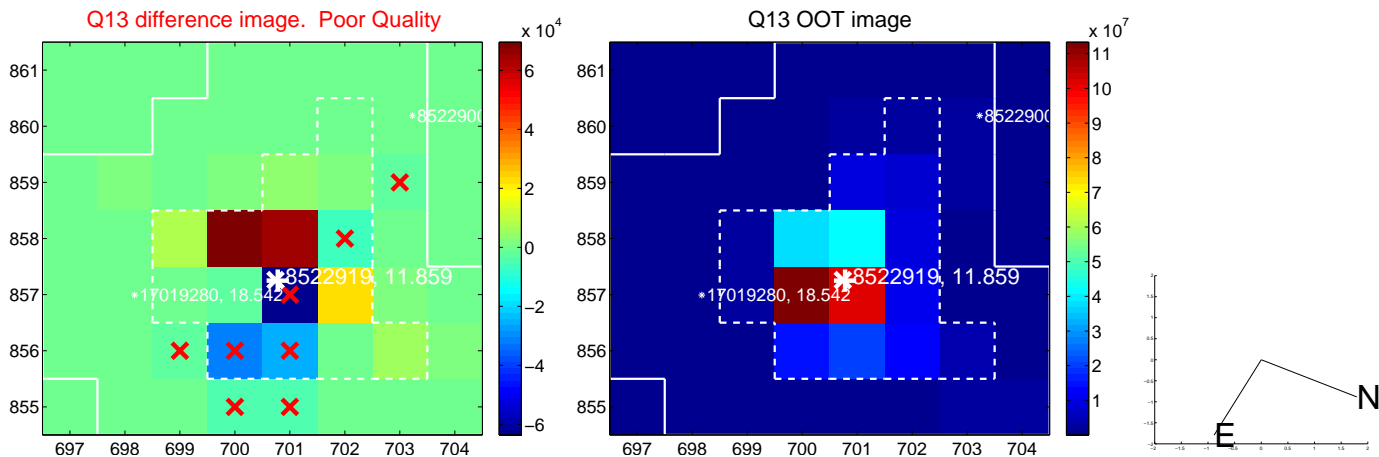
Q12 no difference image



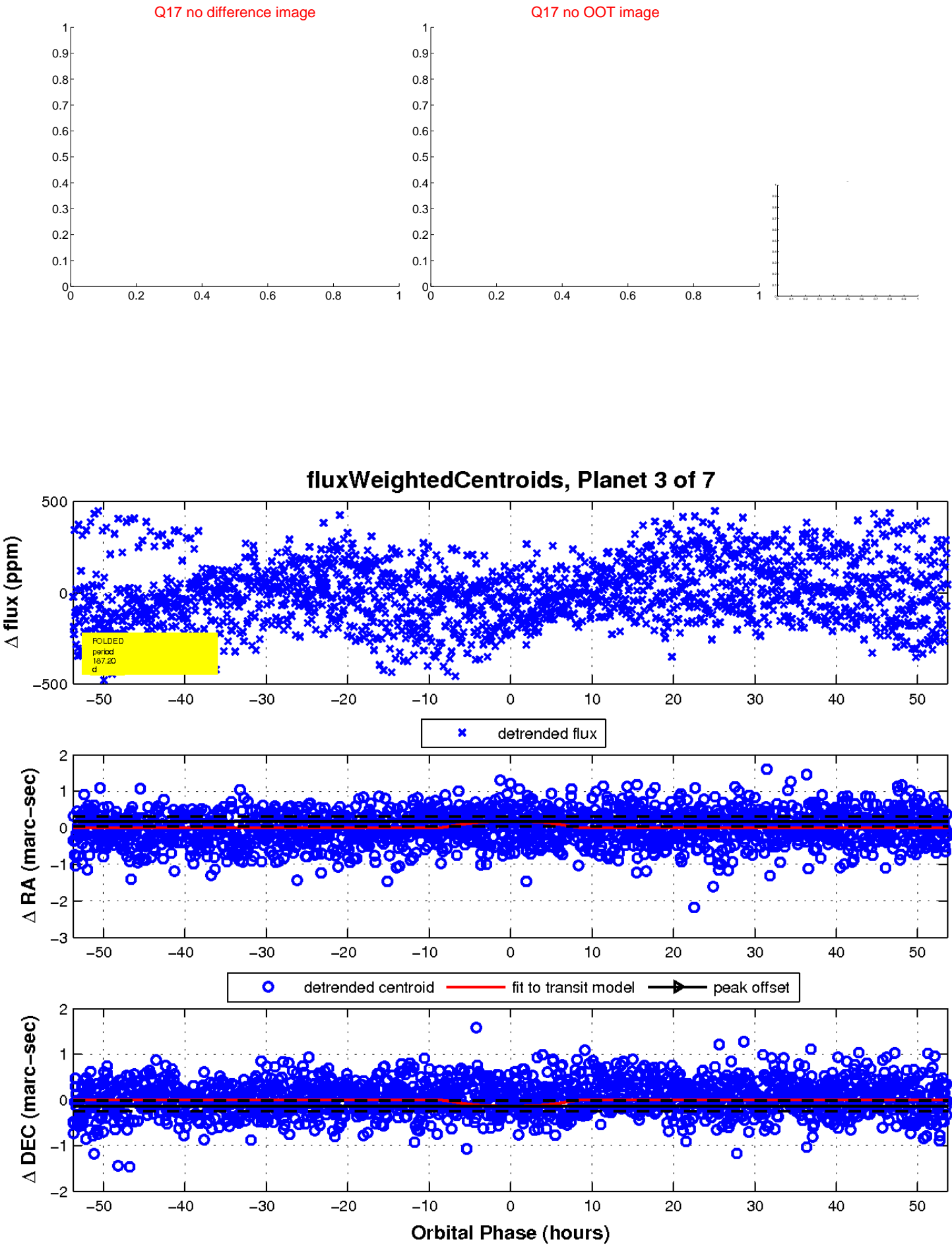
Q12 no OOT image



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

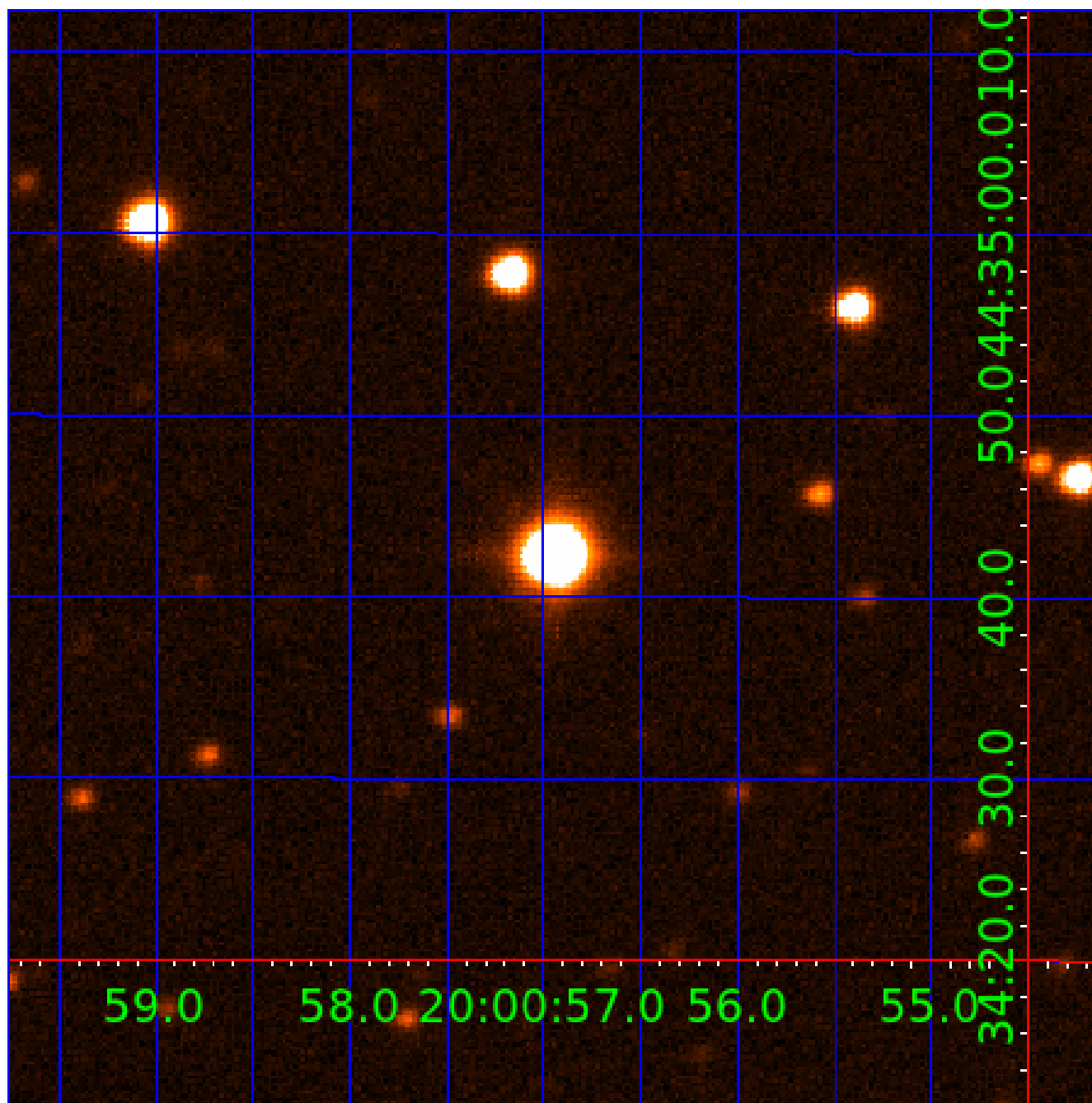


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008522919

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})
008522919-01	OBS	No	1.737074	133.217335	17.8	7.678	10.0	10.3	1.64	6490	0.69	5128.27
008522919-03	OBS	No	187.200257	139.931532	216.6	17.910	8.4	7.1	1.64	6490	3.18	10.00
008522919-04	OBS	No	557.505687	154.537374	681.8	48.813	8.0	10.5	1.64	6490	5.11	2.33
008522919-05	OBS	No	317.755646	161.516850	217.4	23.447	8.3	6.4	1.64	6490	2.65	4.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008522919-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
008522919-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008522919-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008522919-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—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.

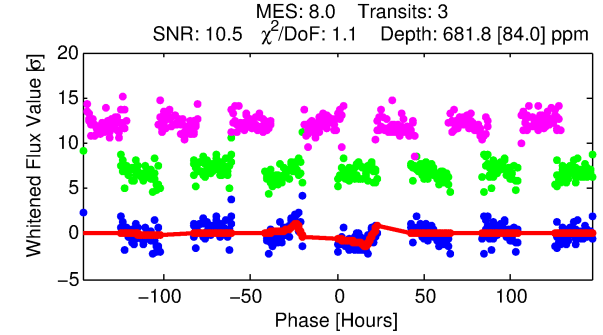
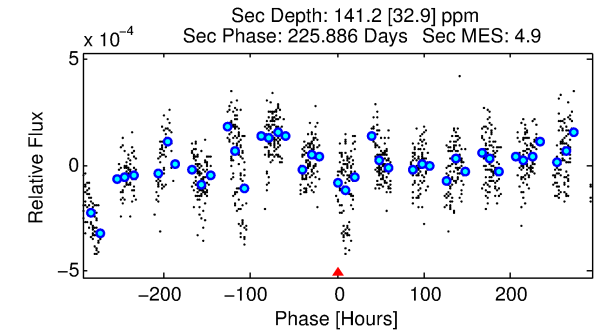
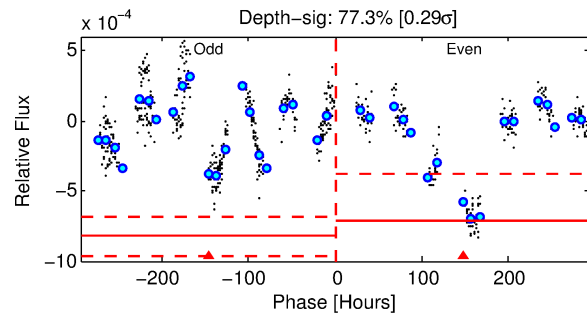
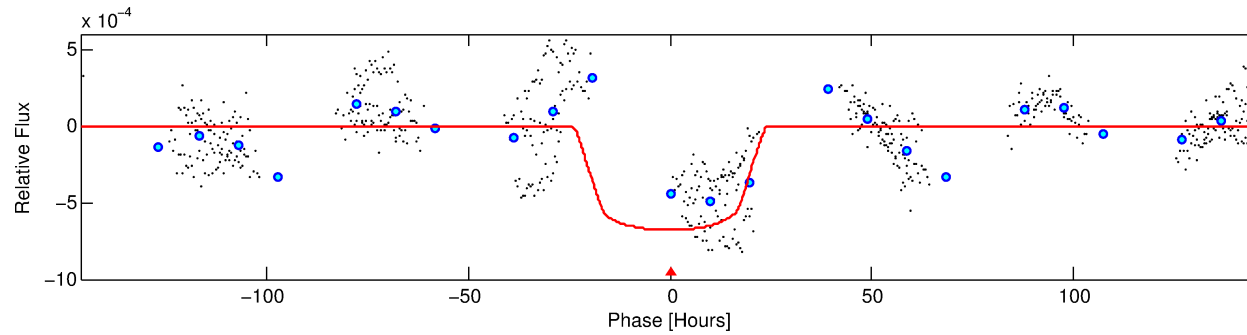
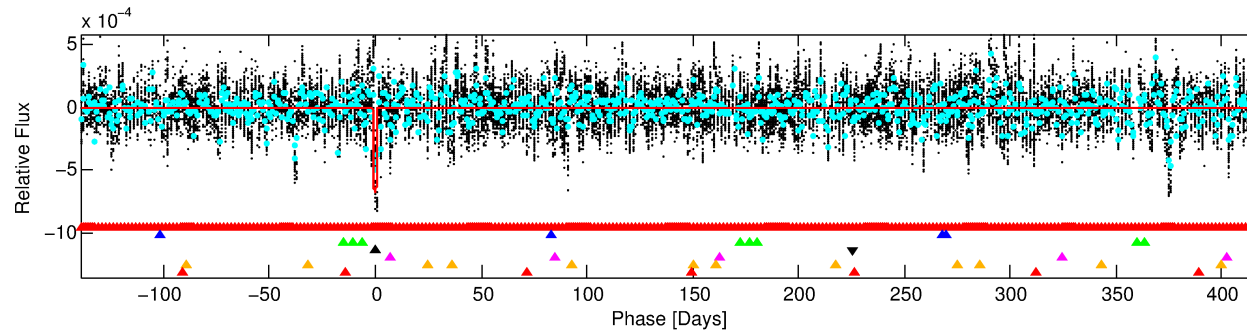
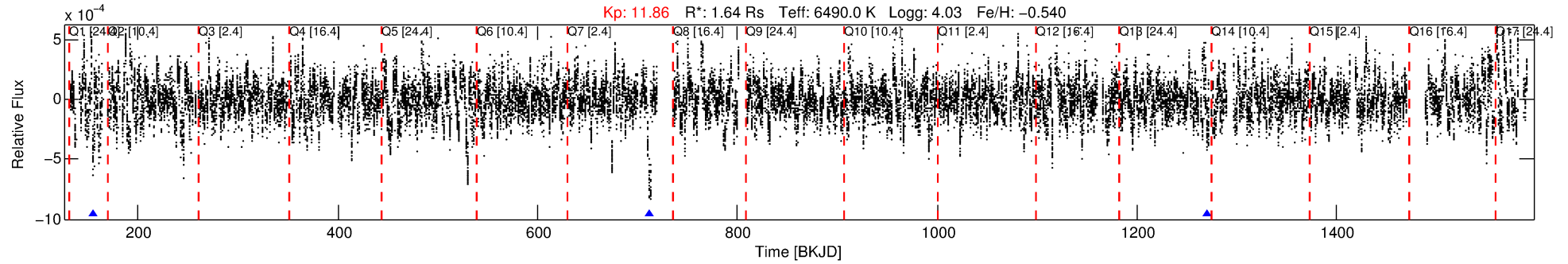
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008522919-04

No Significant Match Found

DV One-Page Summary

KIC: 8522919 Candidate: 4 of 7 Period: 557.506 d



DV Fit Results:

Period = 557.50569 [0.03038] d
Epoch = 154.5374 [0.0548] BKJD
 $R_p/R^* = 0.0286$ [0.0019]
 $a/R^* = 38.93$ [3.62]
 $b = 0.93$ [0.02]
 $\text{Seff} = 2.33$ [1.09]
 $\text{Teq} = 315$ [37] K
 $R_p = 5.11$ [1.55] R_e
 $a = 1.3502$ [0.3829] AU
 $\text{Ag} = 5415.28$ [2855.16] [1.90 σ]
 $\text{Teffp} = 4180$ [303] K [12.66 σ]

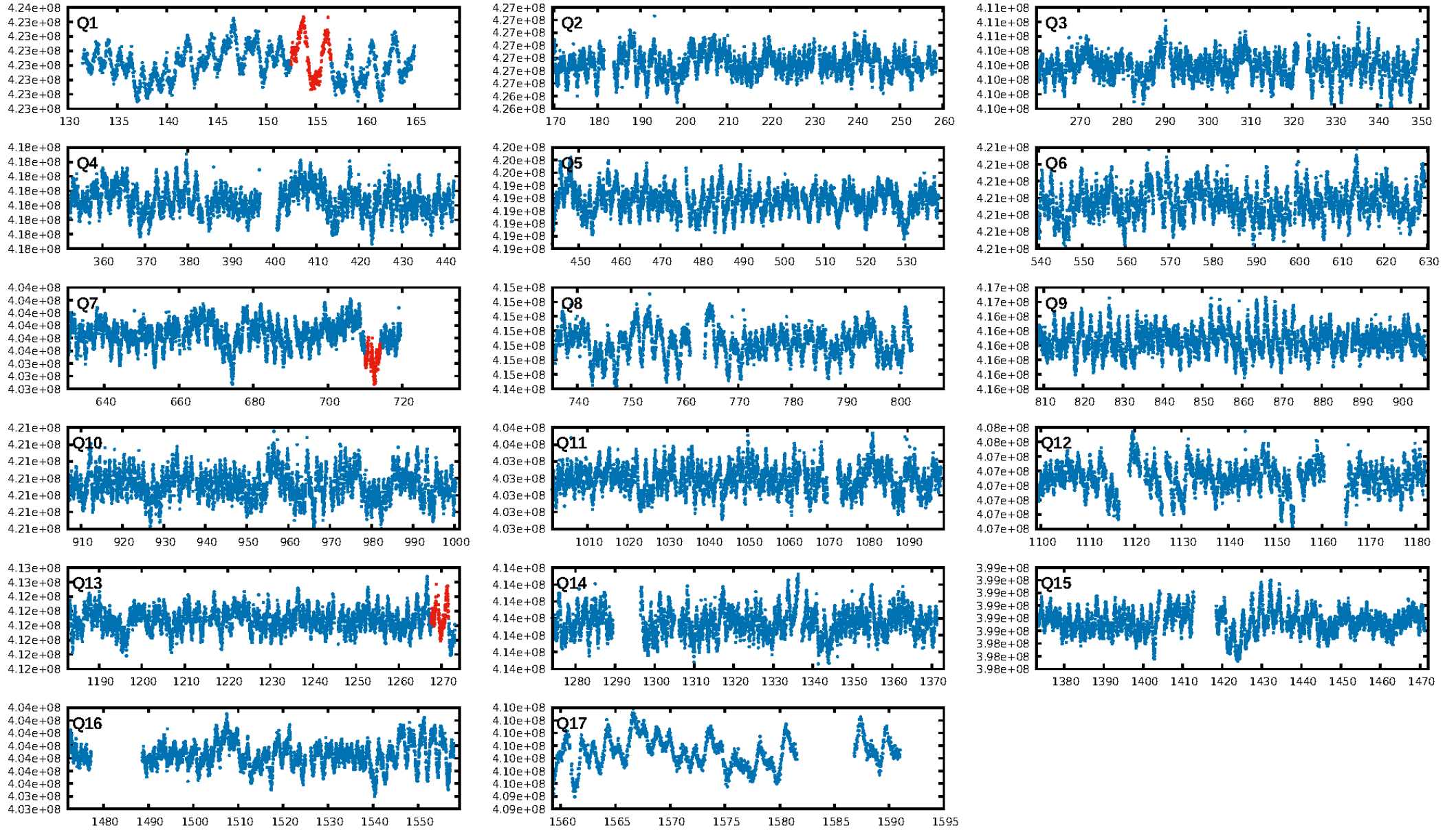
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [88.24 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 24.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.34e-10
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 8.893
Centroid-sig: 83.5%
Centroid-so: 0.245 arcsec [1.42 σ]
OotOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-rm: N/A
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.00 [0/1]

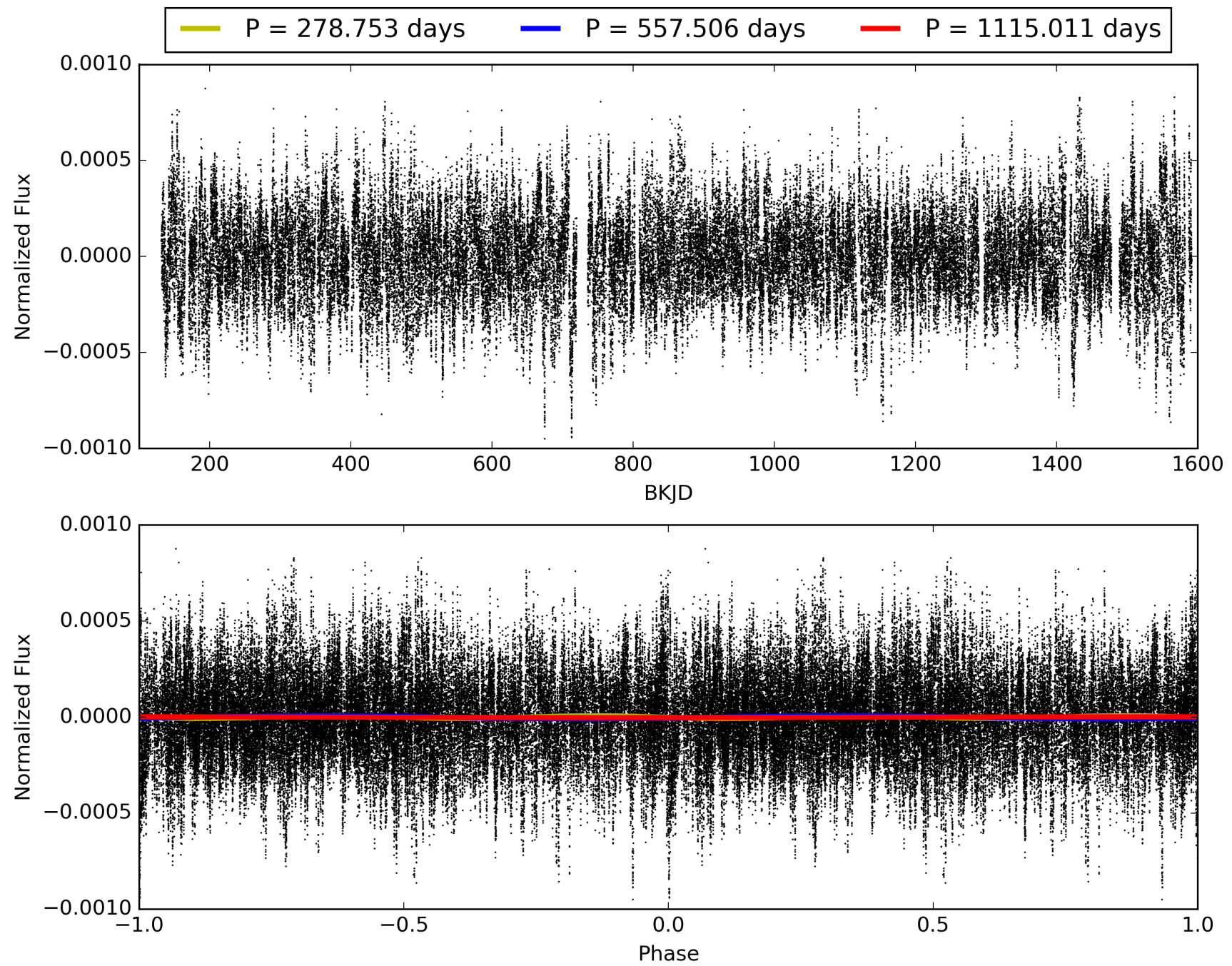
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:22:39 Z

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

TCE 008522919-04, PDC Light Curves

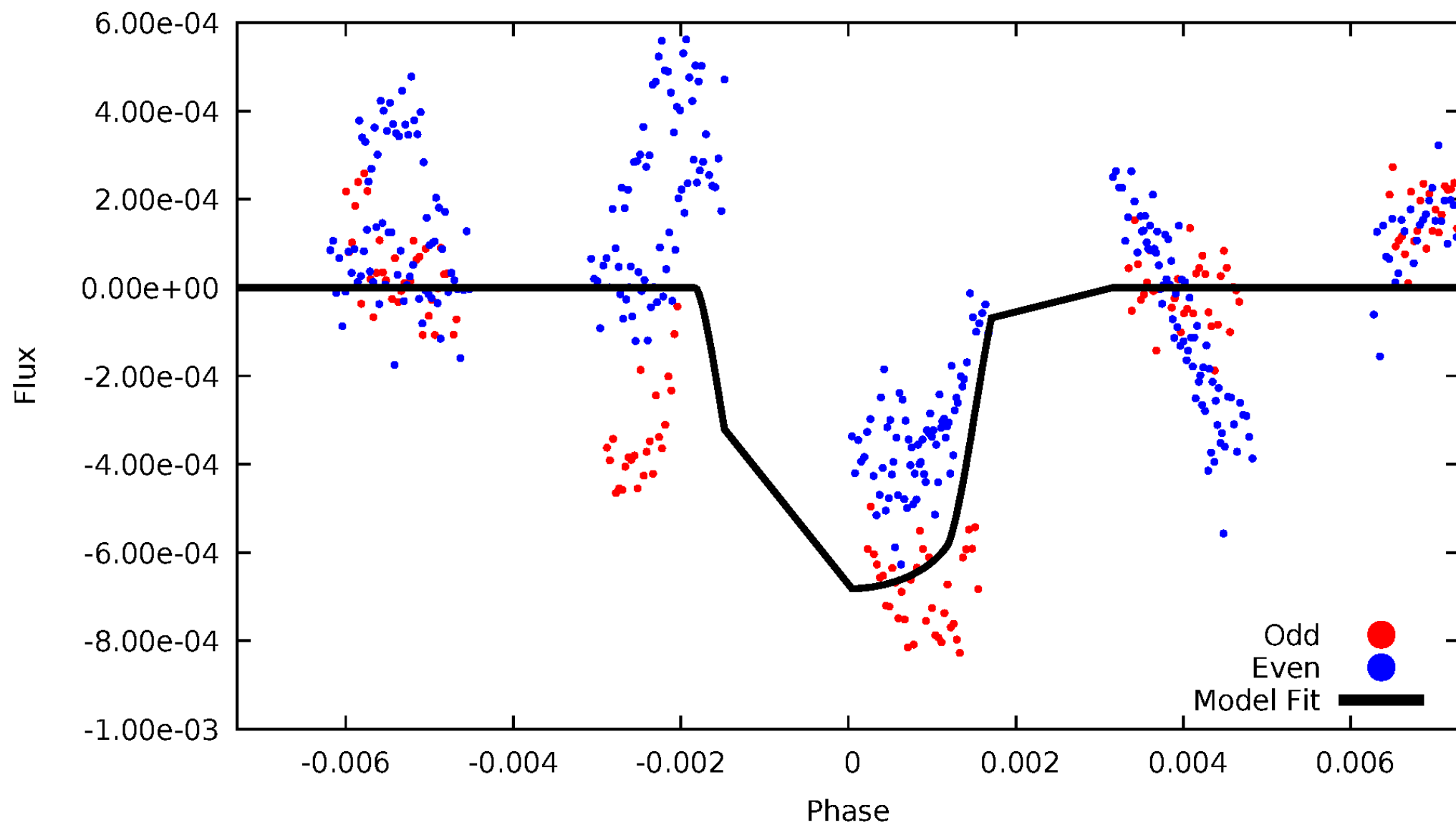


TCE 008522919-04



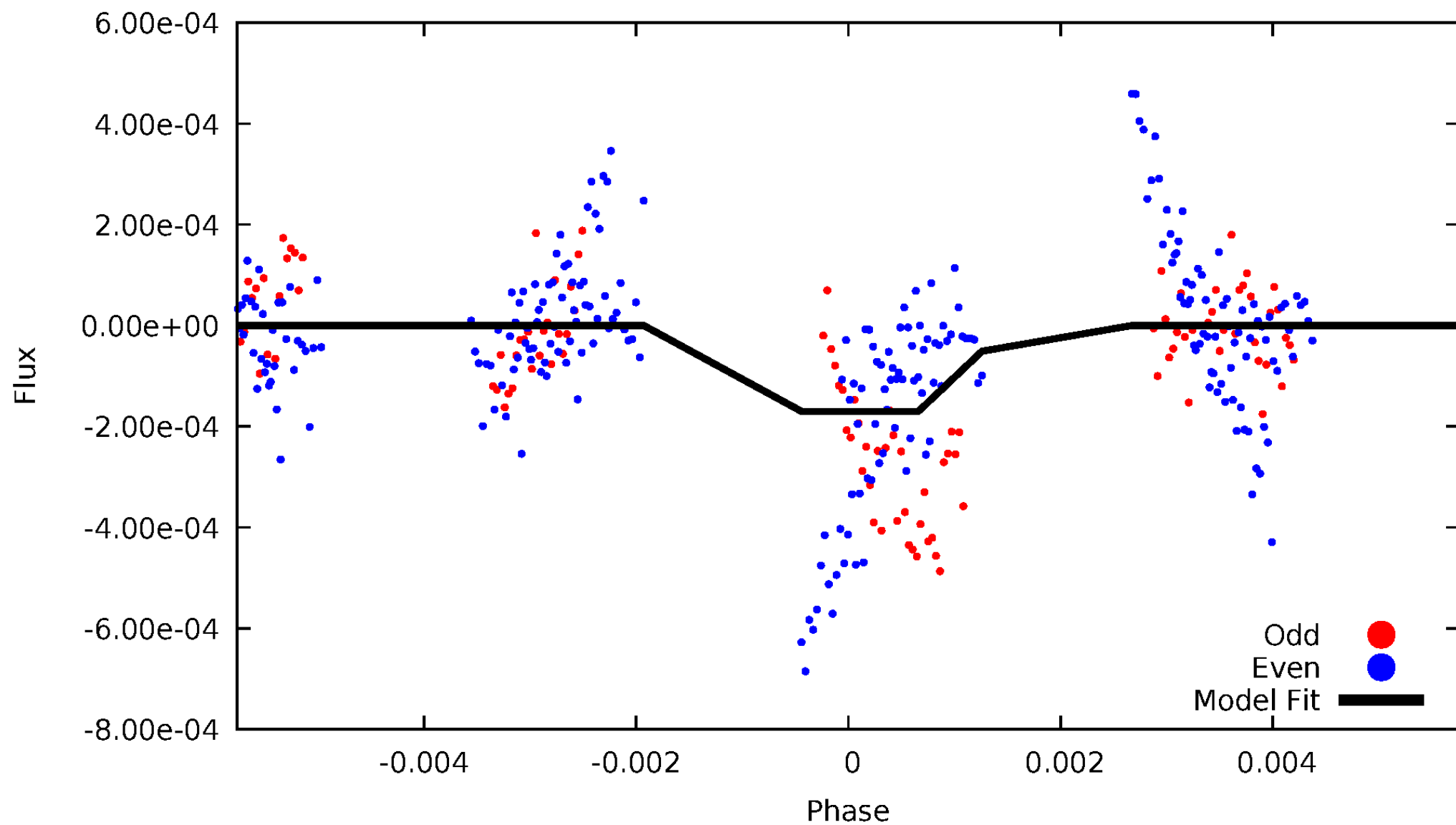
DV Odd/Even

TCE 008522919-04



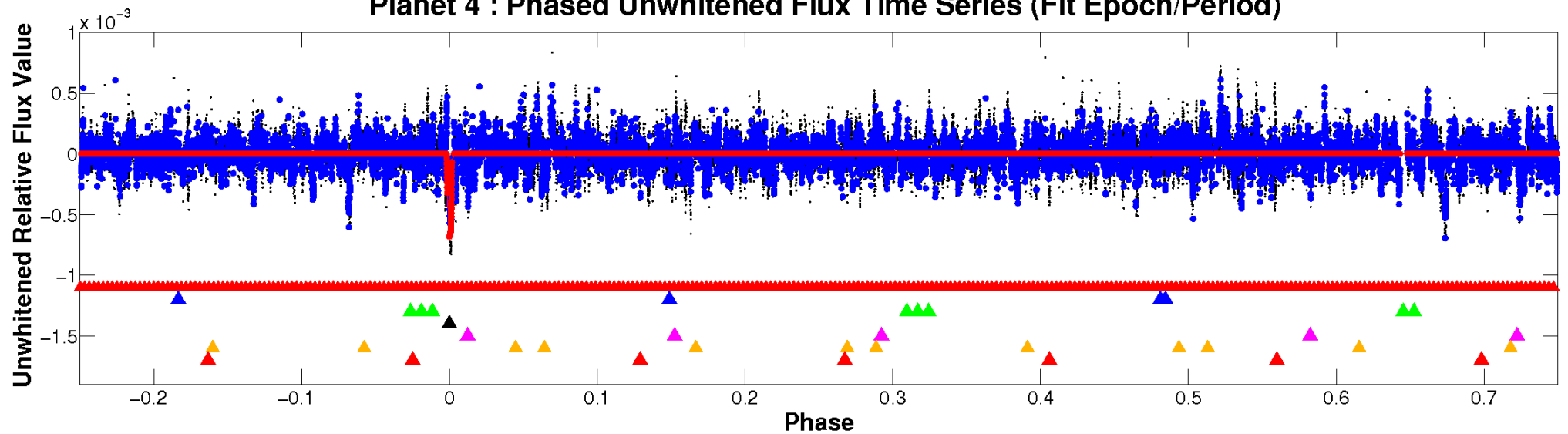
ALT Odd/Even

TCE 008522919-04

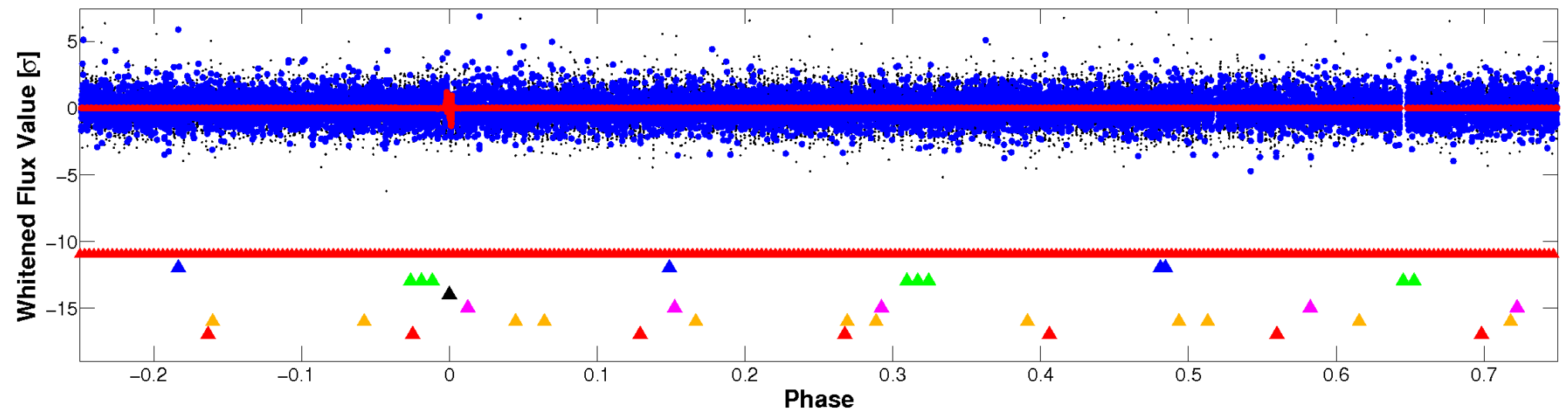


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

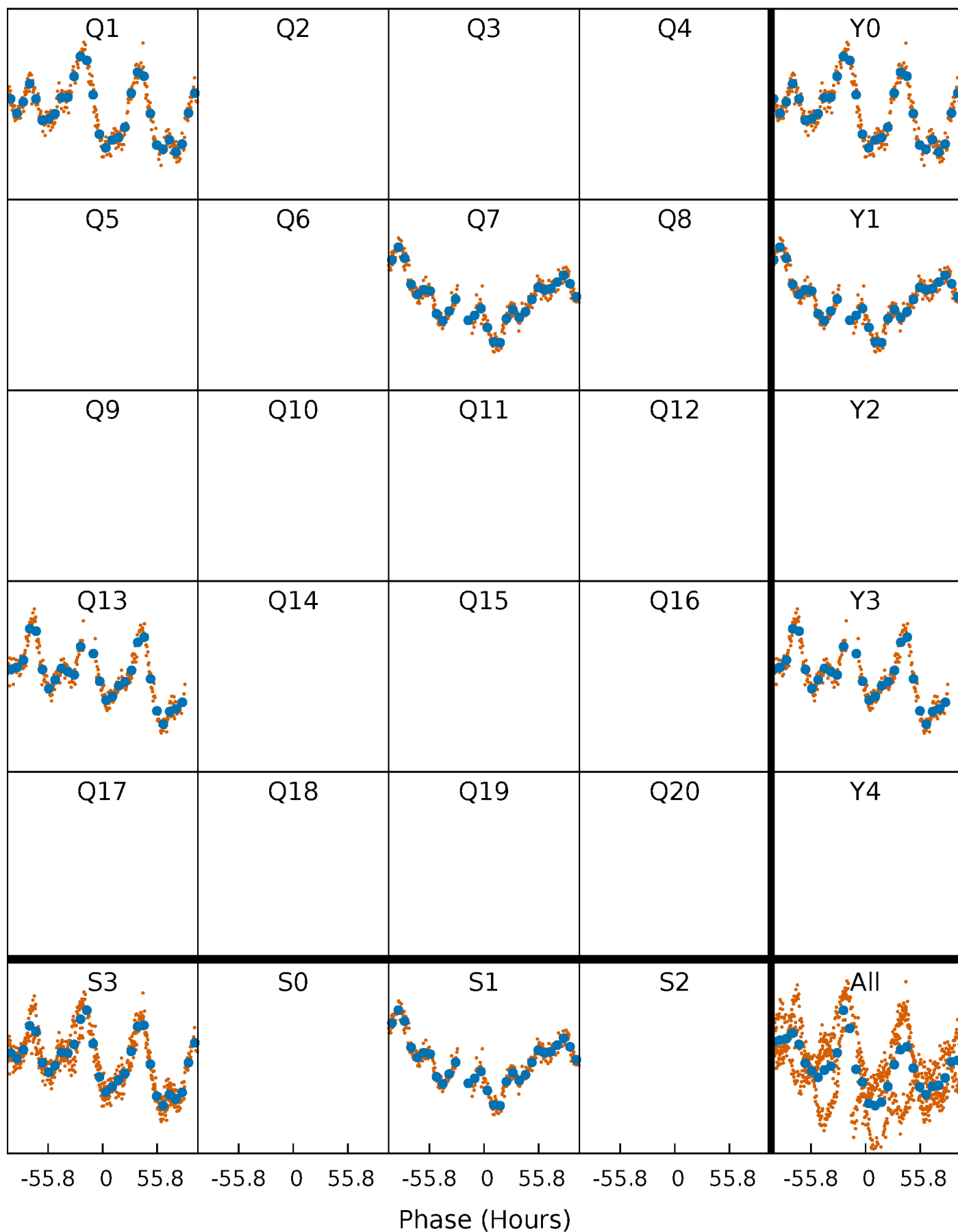


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



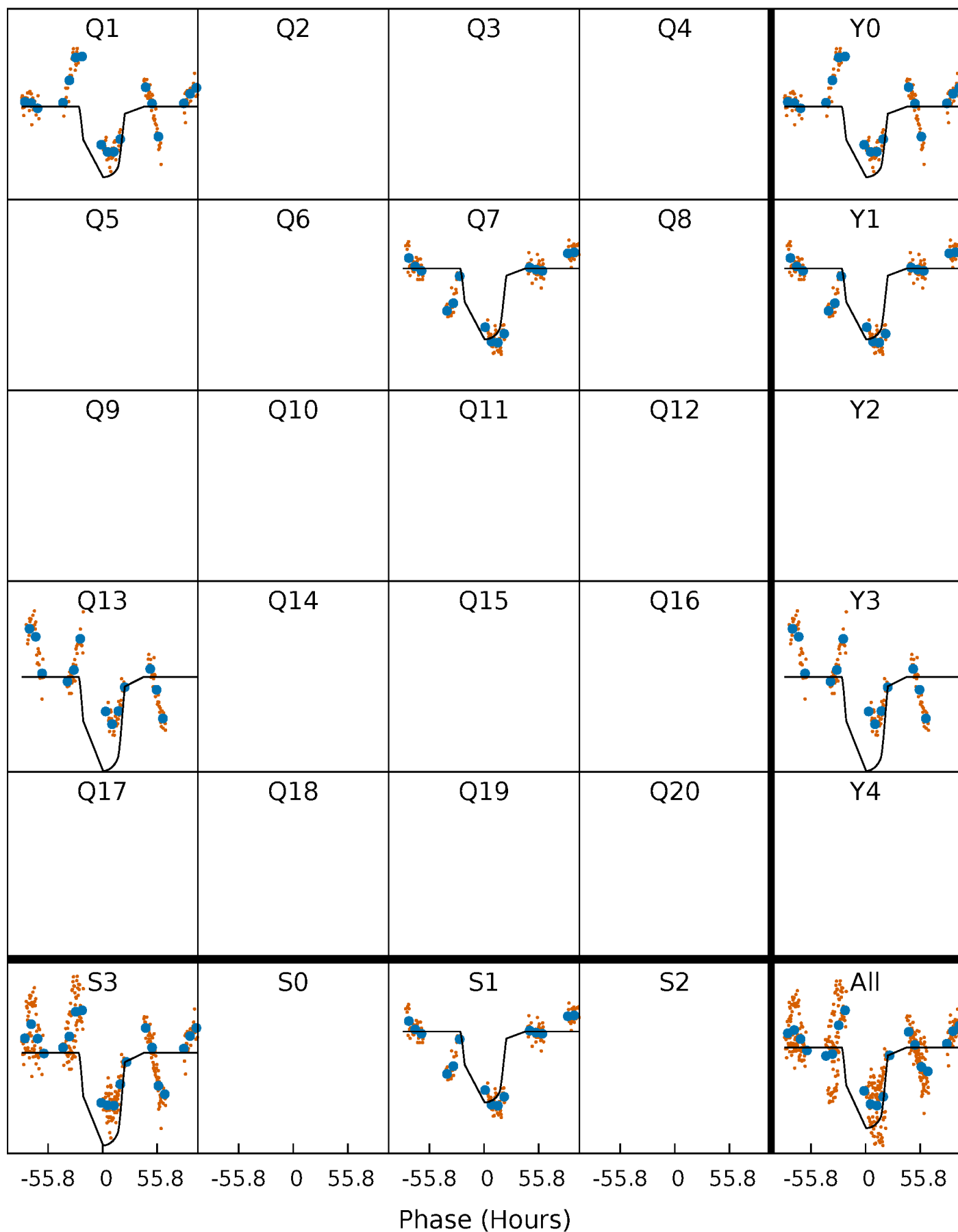
PDC Quarter-Phased Transit Curves

TCE 008522919-04 $P=557.505687$ Days $T_0=154.537374$ (BKJD)



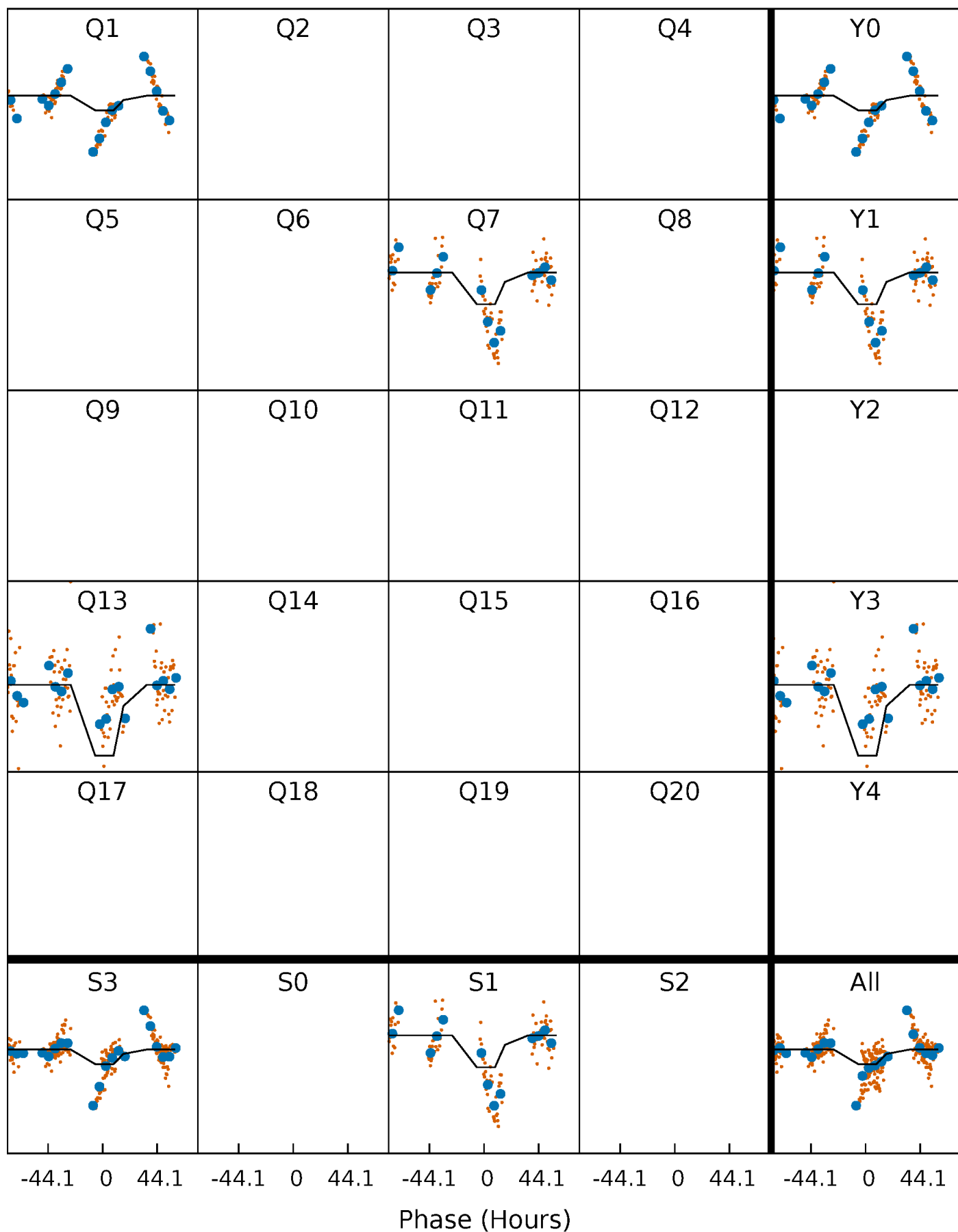
DV Quarter-Phased Transit Curves

TCE 008522919-04 P=557.505687 Days $T_0=154.537374$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

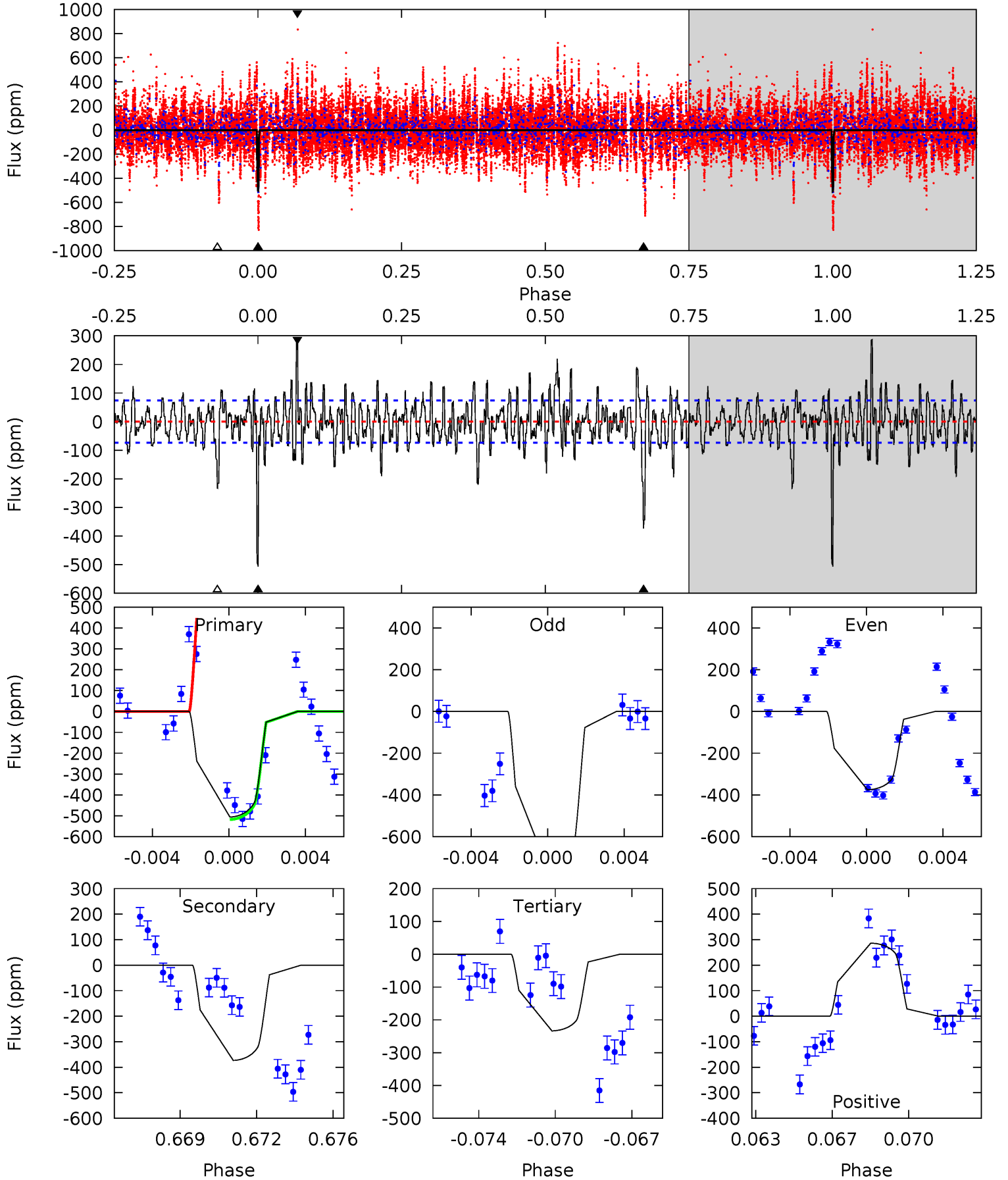
TCE 008522919-04 $P=557.495629$ Days $T_0=154.808118$ (BKJD)



DV Model-Shift Uniqueness Test

008522919-04, P = 557.505687 Days, E = 154.537374 Days

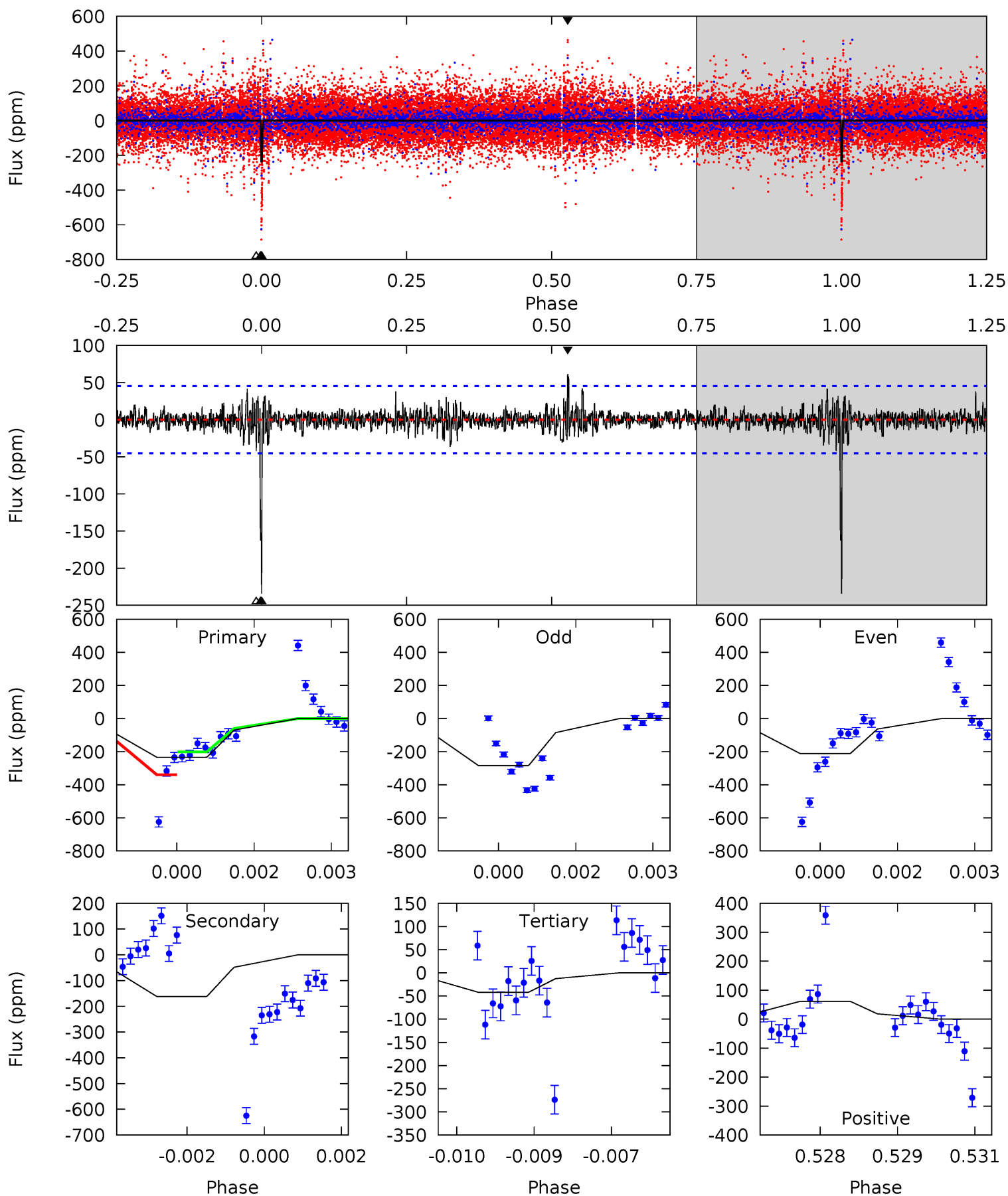
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.7	26.4	16.5	20.2	5.22	2.92	4.39	19.2	15.5	9.86	6.14	12.6	1.14	0.36	1.40



Alt Model-Shift Uniqueness Test

008522919-04, P = 557.495629 Days, E = 154.808118 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	19.2	4.97	7.30	5.36	3.14	1.07	22.7	20.4	14.2	11.9	4.13	0.79	0.21	6.39



Stellar Parameters For KIC 008522919

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6490^{+155}_{-175}	$4.034^{+0.266}_{-0.114}$	$-0.540^{+0.300}_{-0.300}$	$1.636^{+0.322}_{-0.483}$	$1.057^{+0.162}_{-0.133}$	$0.340^{+0.552}_{-0.114}$
	+2%/-3%	+7%/-3%	+56%/-56%	+20%/-30%	+15%/-13%	+162%/-33%
Source	PHO1	FLK73	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 008522919-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-373 ± 14	$5.04^{+0.71}_{-0.83}$	437^{+24}_{-33}	5366^{+212}_{-209}	15025^{+6047}_{-3481}
Alt.	-162 ± 8	$2.25^{+0.48}_{-0.45}$	435^{+28}_{-33}	6446^{+629}_{-506}	32956^{+18070}_{-10912}

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

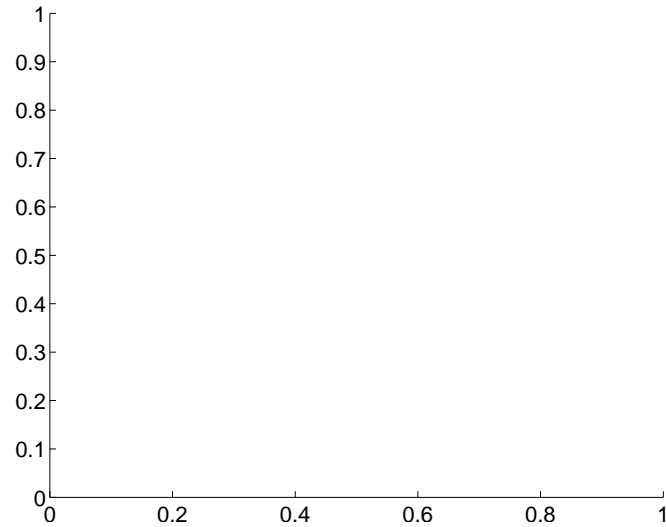
Supplemental centroid analysis for 008522919-04. **Kepler magnitude: 11.86.** Transit SNR 10.50

There are 0 quarters with good PRF difference image offsets

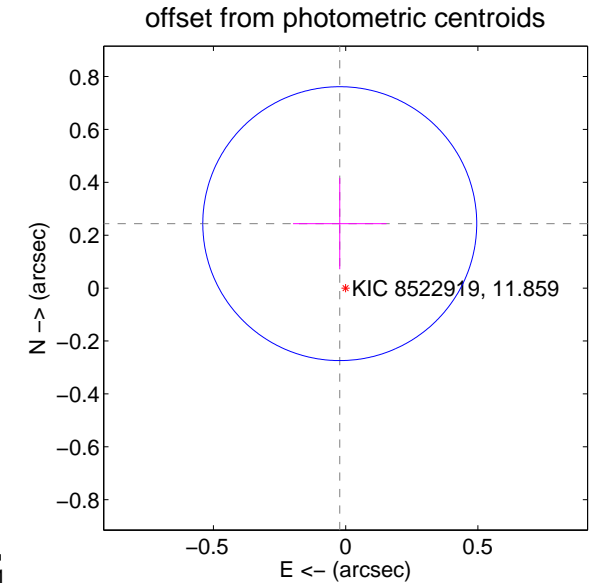
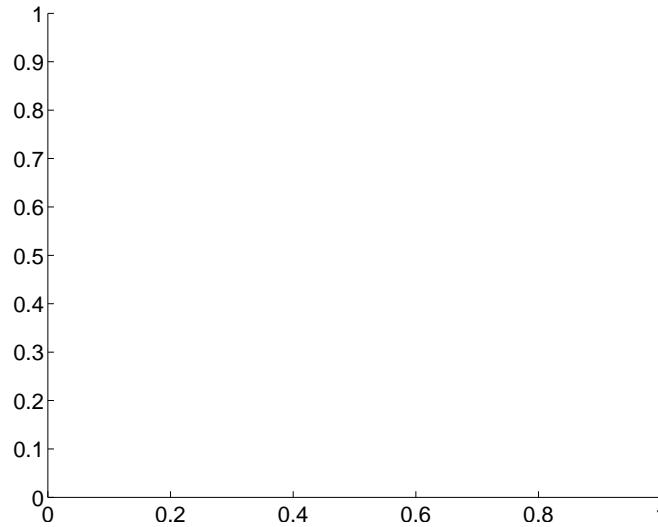
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	0.24 ± 0.17	1.42	0.02 ± 0.18	0.24 ± 0.17

There is no PRF-fit offset from OOT-fit

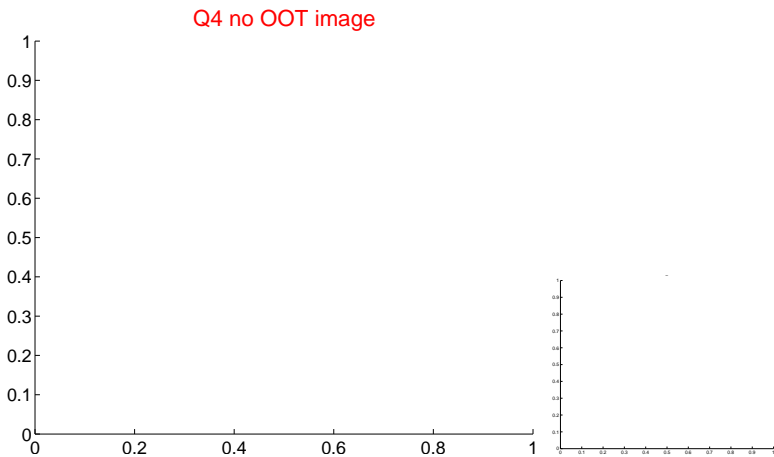
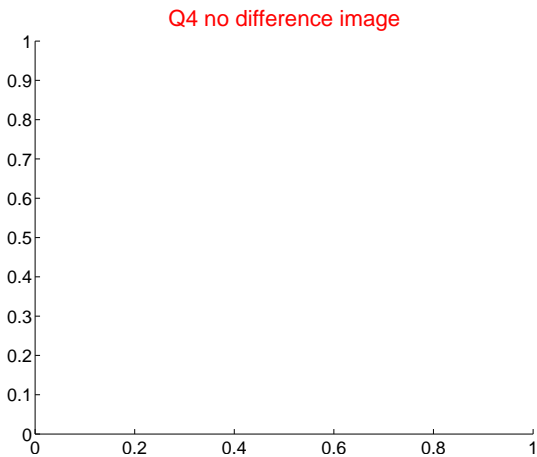
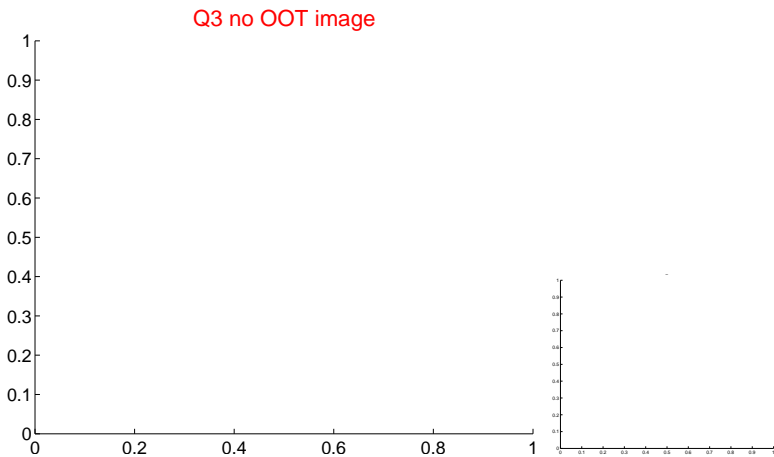
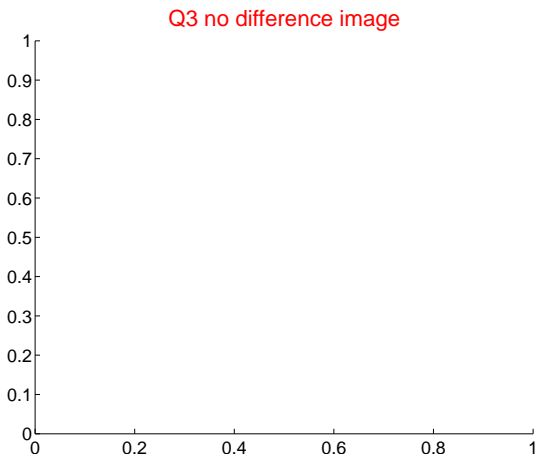
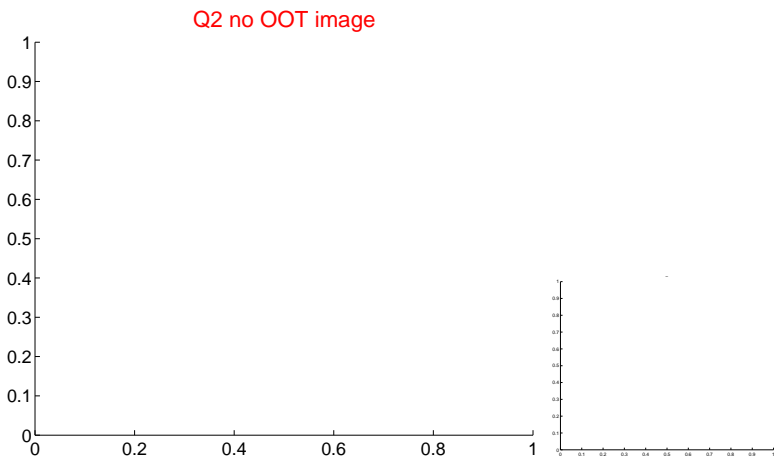
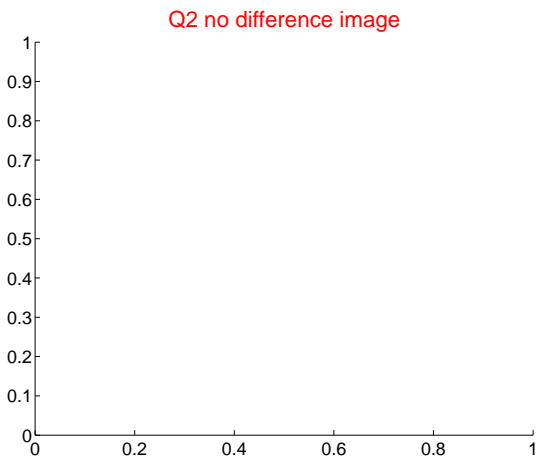
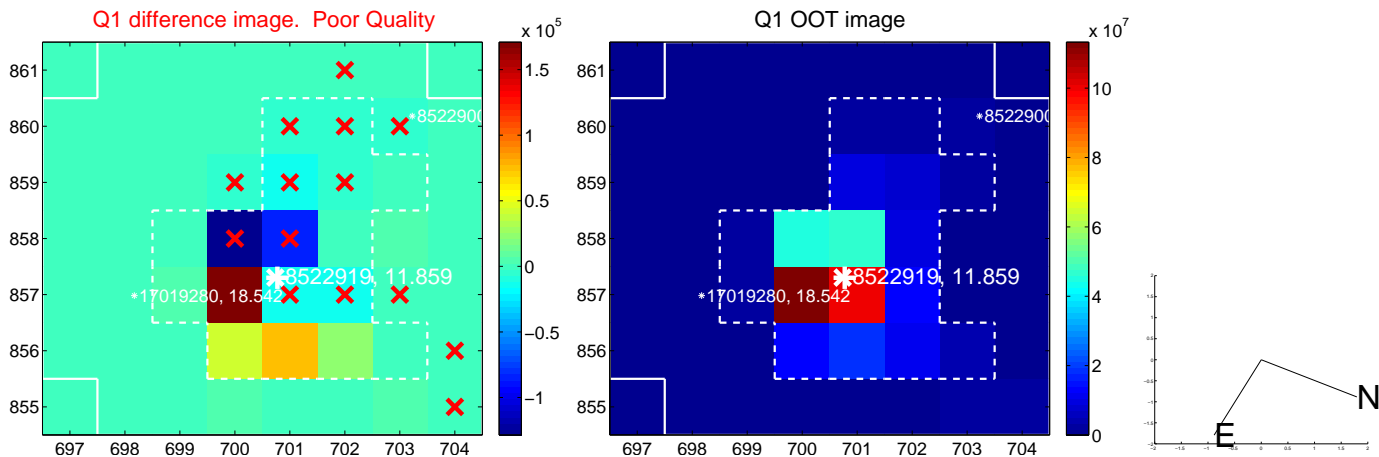


There is no PRF-fit offset from KIC



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

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



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



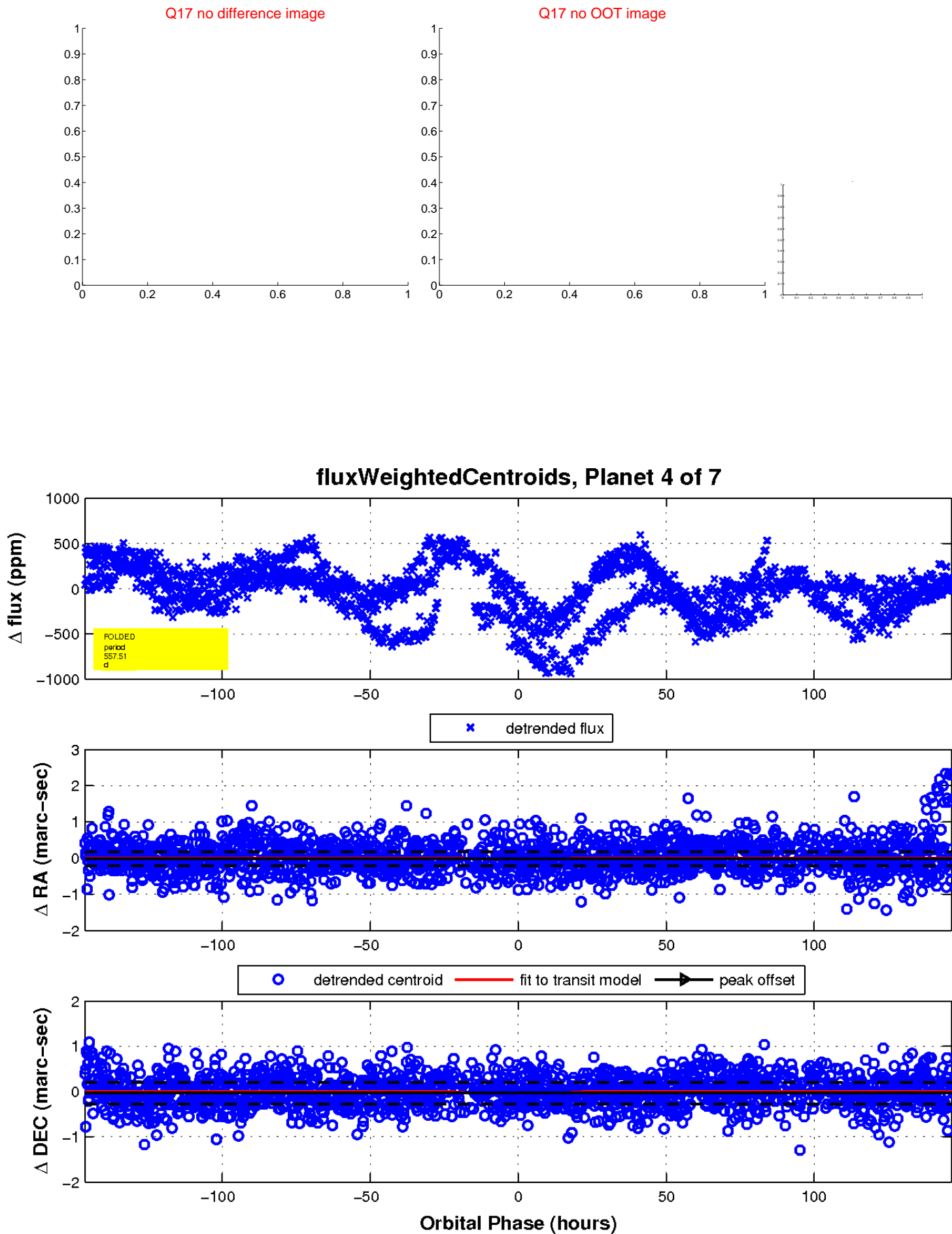
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

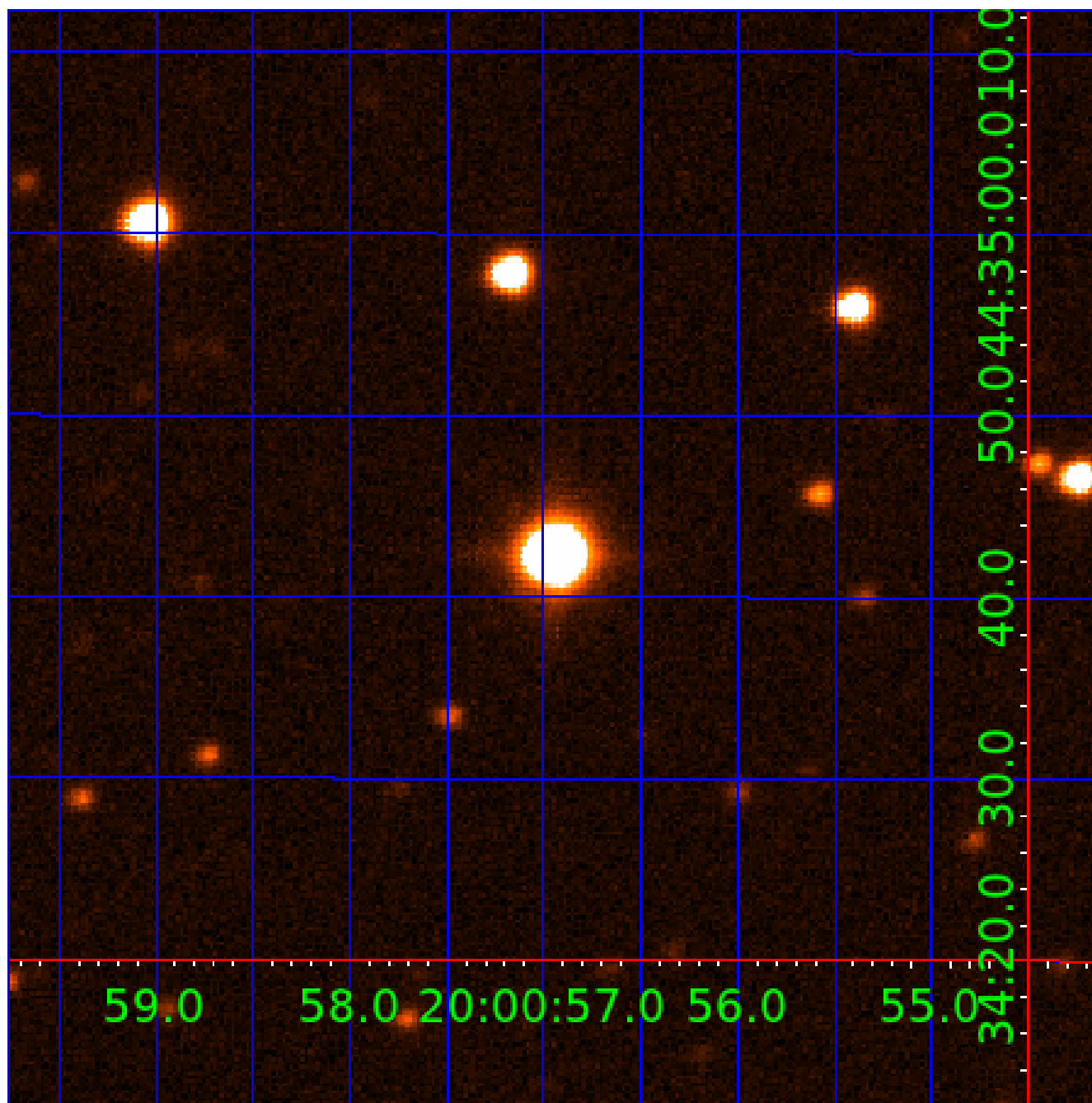


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008522919

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})
008522919-01	OBS	No	1.737074	133.217335	17.8	7.678	10.0	10.3	1.64	6490	0.69	5128.27
008522919-03	OBS	No	187.200257	139.931532	216.6	17.910	8.4	7.1	1.64	6490	3.18	10.00
008522919-04	OBS	No	557.505687	154.537374	681.8	48.813	8.0	10.5	1.64	6490	5.11	2.33
008522919-05	OBS	No	317.755646	161.516850	217.4	23.447	8.3	6.4	1.64	6490	2.65	4.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008522919-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
008522919-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008522919-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008522919-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—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.

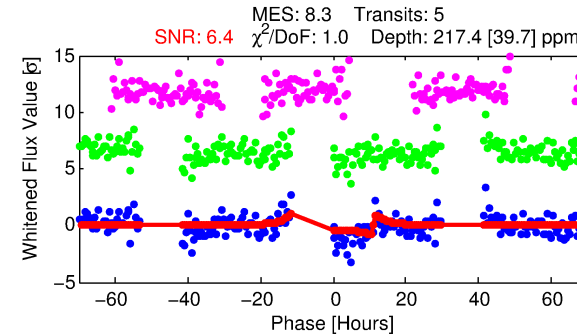
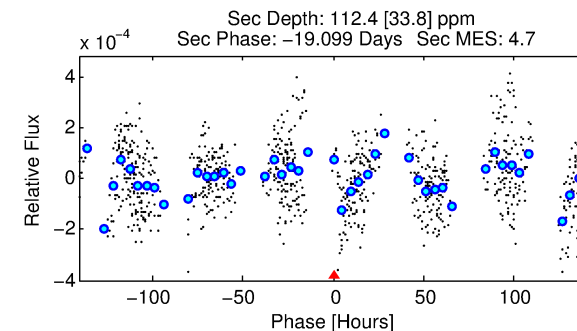
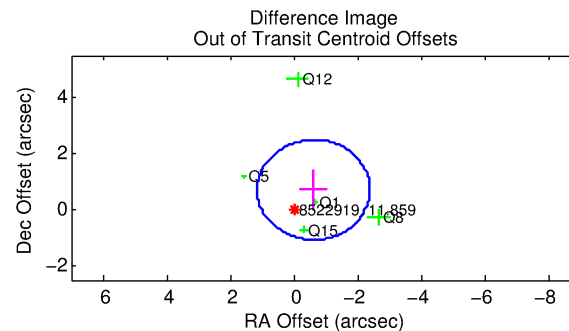
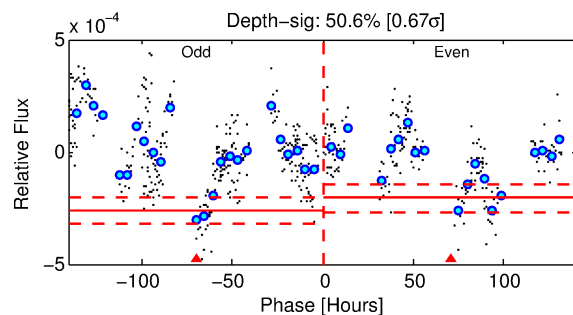
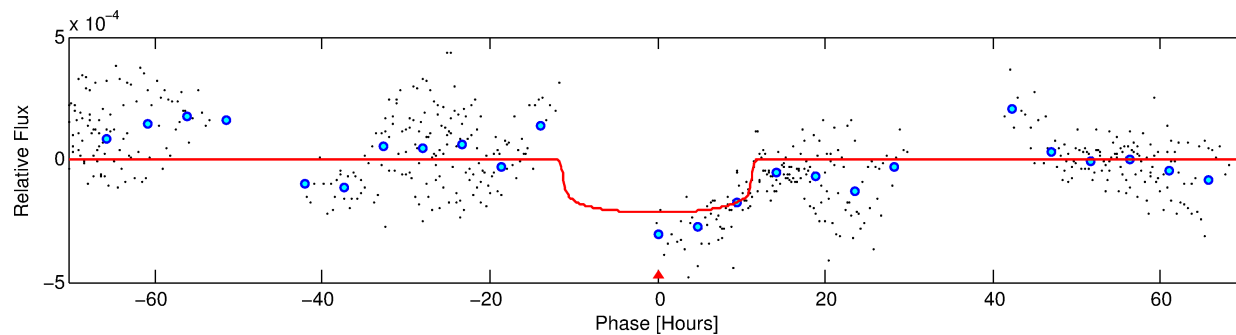
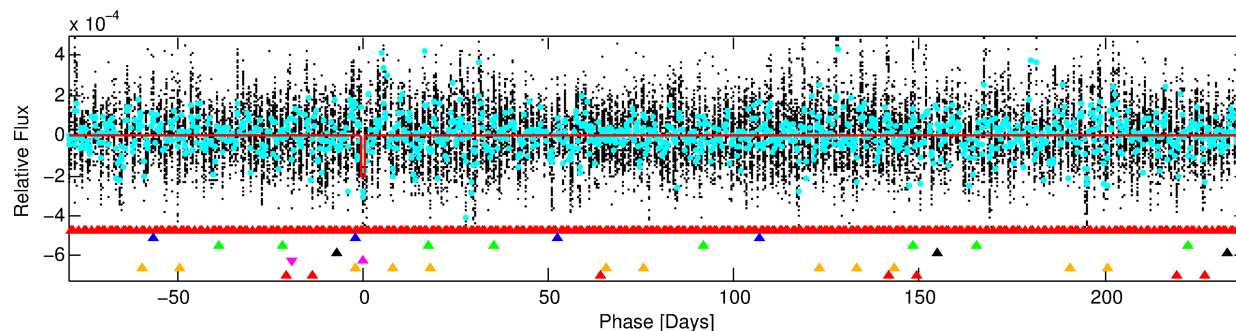
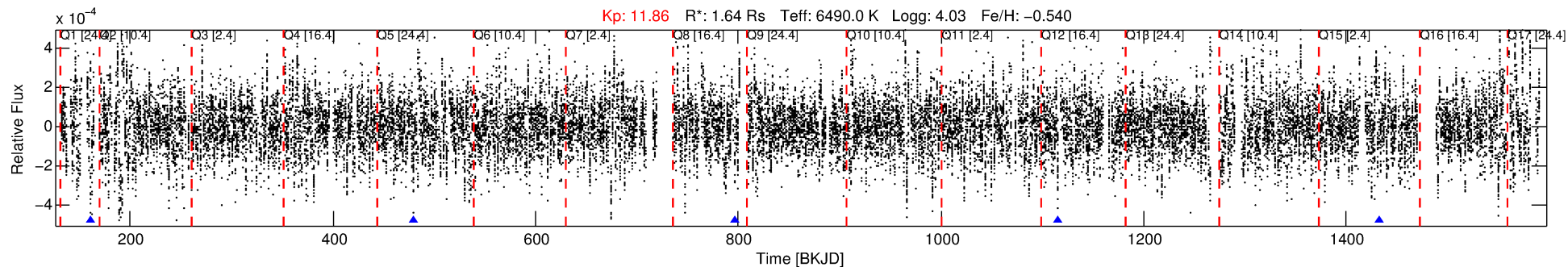
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008522919-05

No Significant Match Found

DV One-Page Summary

KIC: 8522919 Candidate: 5 of 7 Period: 317.756 d



DV Fit Results:

Period = 317.75565 [0.00785] d
Epoch = 161.5168 [0.0399] BKJD
Rp/R* = 0.0148 [0.0019]
a/R* = 67.07 [31.37]
b = 0.78 [0.22]
Seff = 4.94 [2.30]
Teq = 380 [44] K
Rp = 2.64 [0.85] Re
a = 0.9281 [0.2632] AU
Ag = 7613.56 [4571.67] [1.67 σ]
Teffp = 5490 [560] K [9.09 σ]

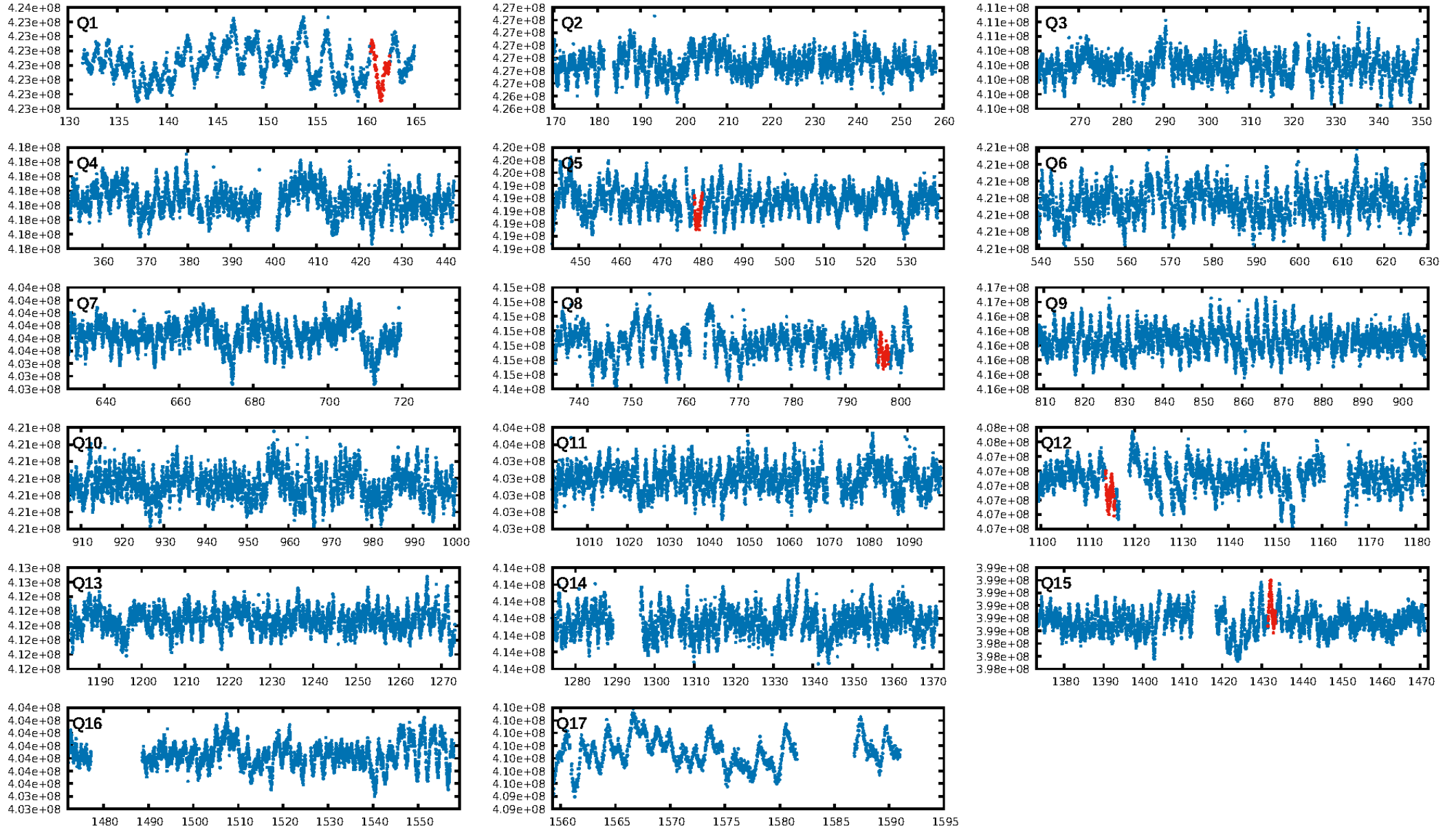
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [70.29 σ]
LongPeriod-sig: 100.0% [49.33 σ]
ModelChiSquare2-sig: 66.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.37e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 12
Centroid-sig: 0.2%
Centroid-so: 0.894 arcsec [1.59 σ]
OotOffset-rm: 0.945 arcsec [1.60 σ]
OotOffset-st: 0/1/2/2 [5]
KicOffset-rm: 1.078 arcsec [1.64 σ]
KicOffset-st: 0/1/2/2 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.00 [0/5]

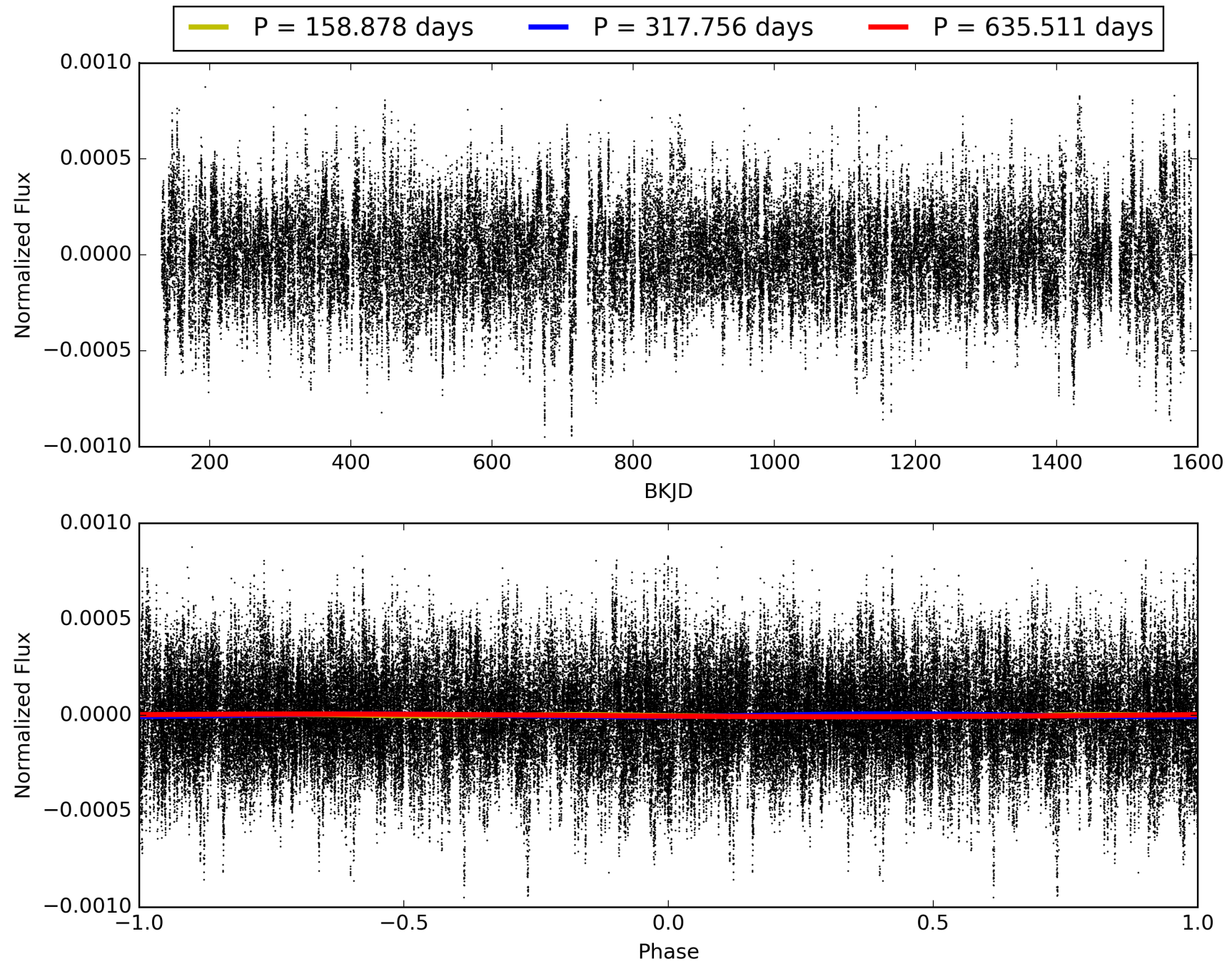
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:22:44 Z

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

TCE 008522919-05, PDC Light Curves

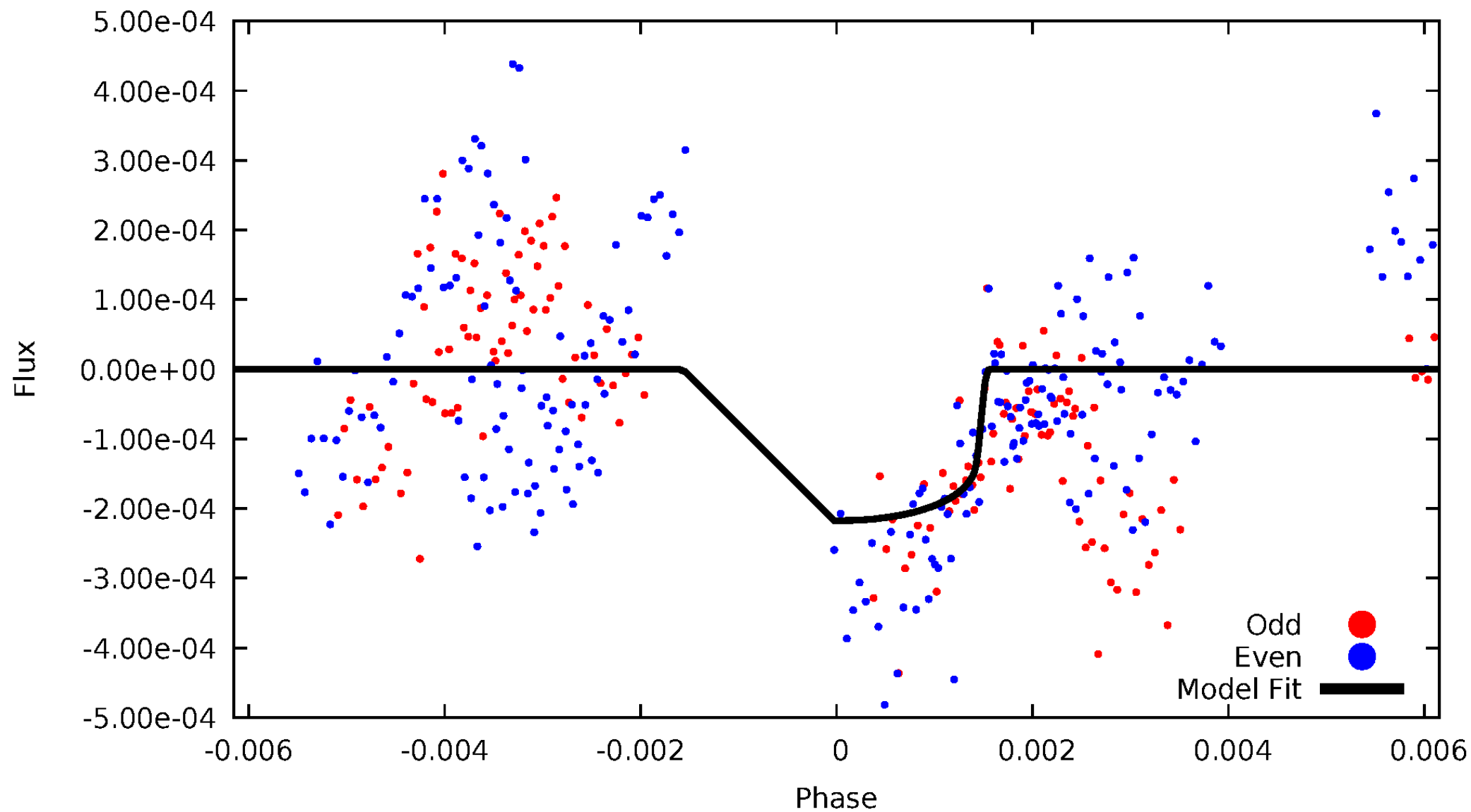


TCE 008522919-05



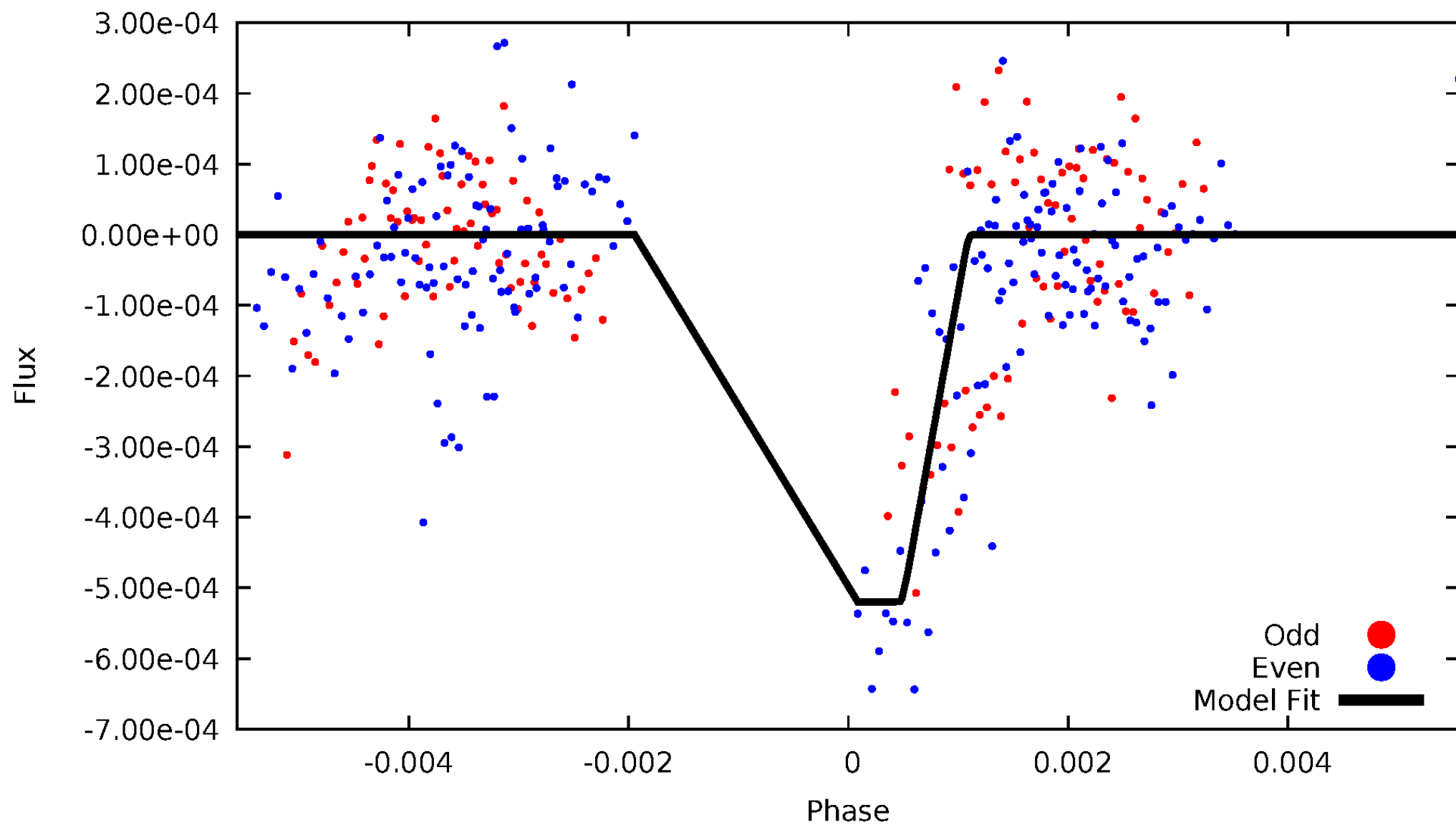
DV Odd/Even

TCE 008522919-05



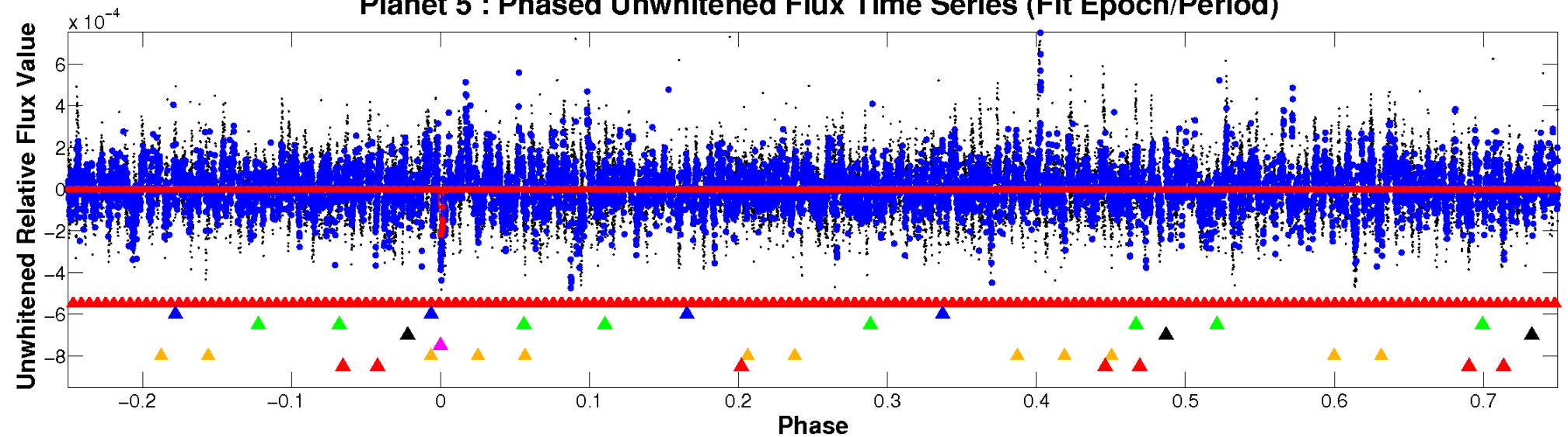
ALT Odd/Even

TCE 008522919-05

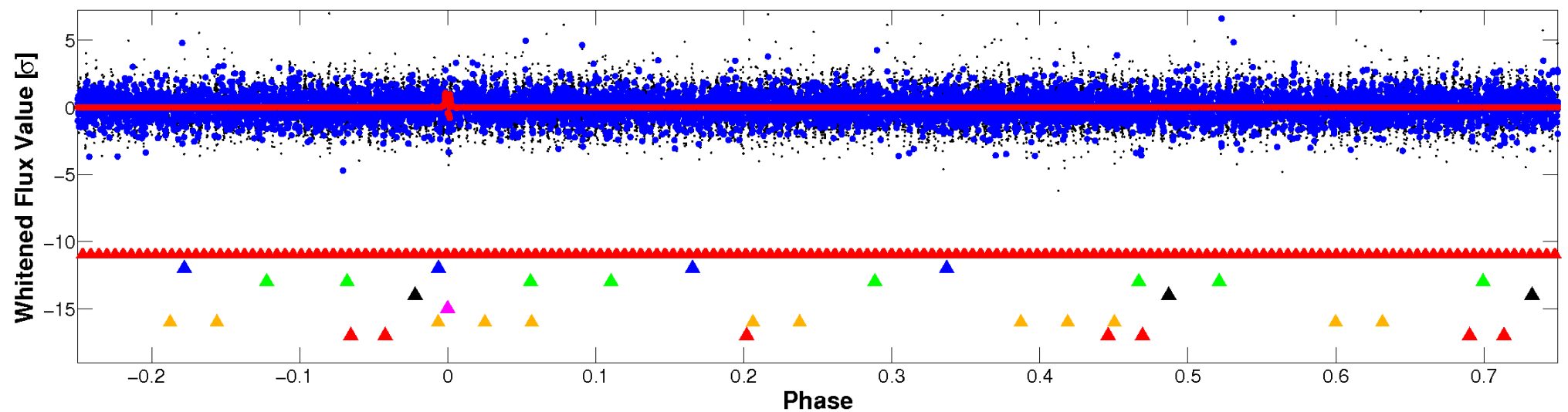


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

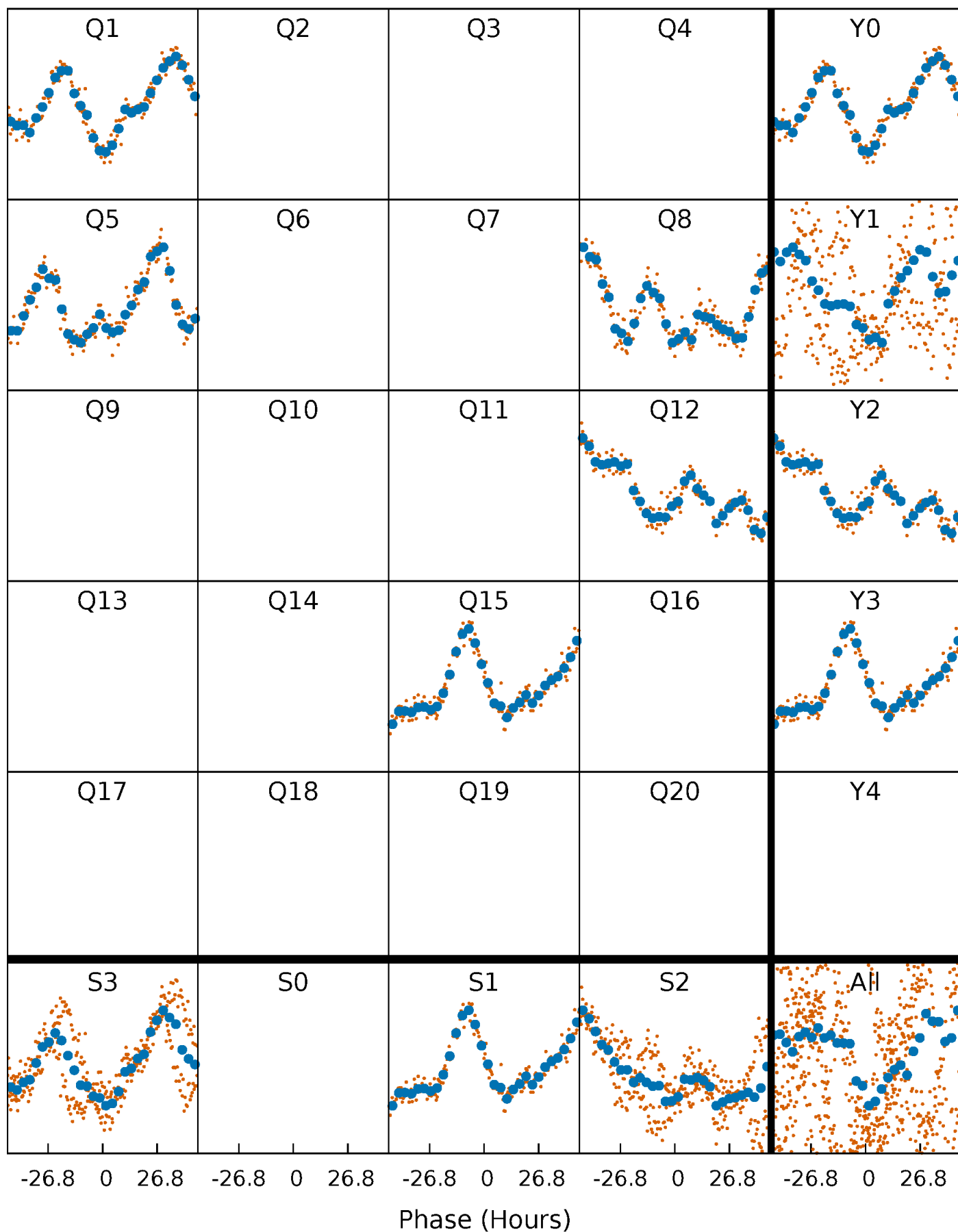


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



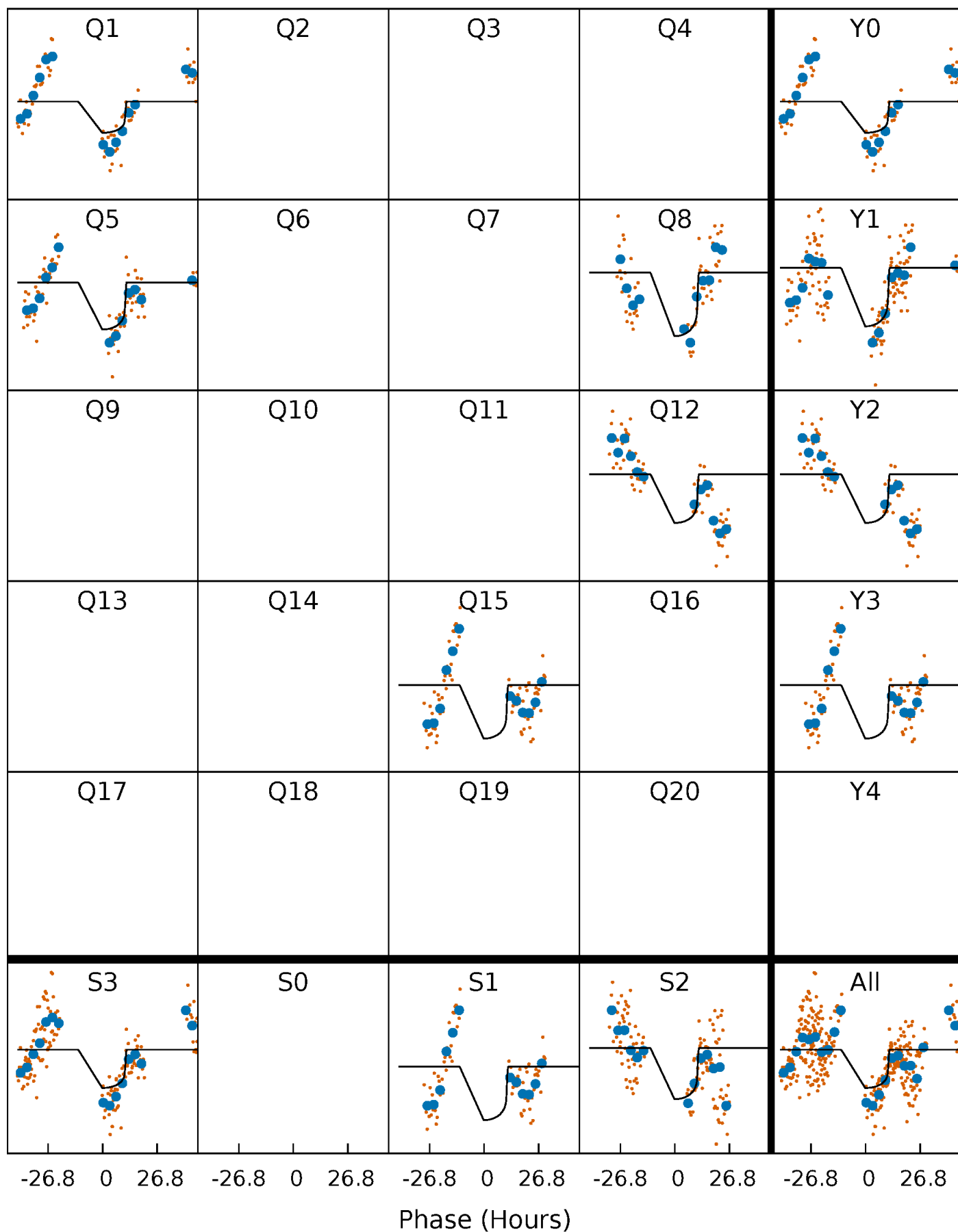
PDC Quarter-Phased Transit Curves

TCE 008522919-05 $P=317.755646$ Days $T_0=161.516850$ (BKJD)



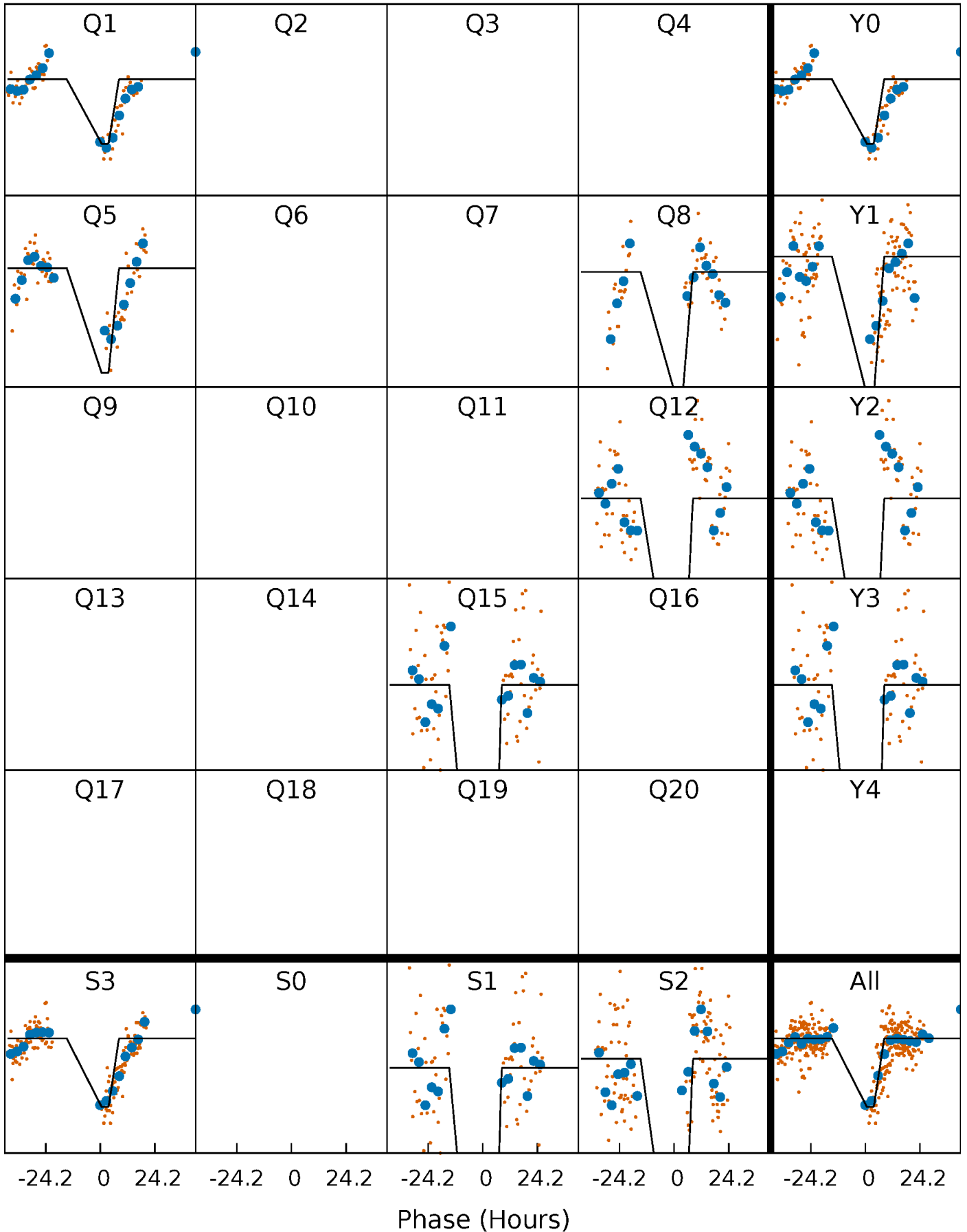
DV Quarter-Phased Transit Curves

TCE 008522919-05 $P=317.755646$ Days $T_0=161.516850$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

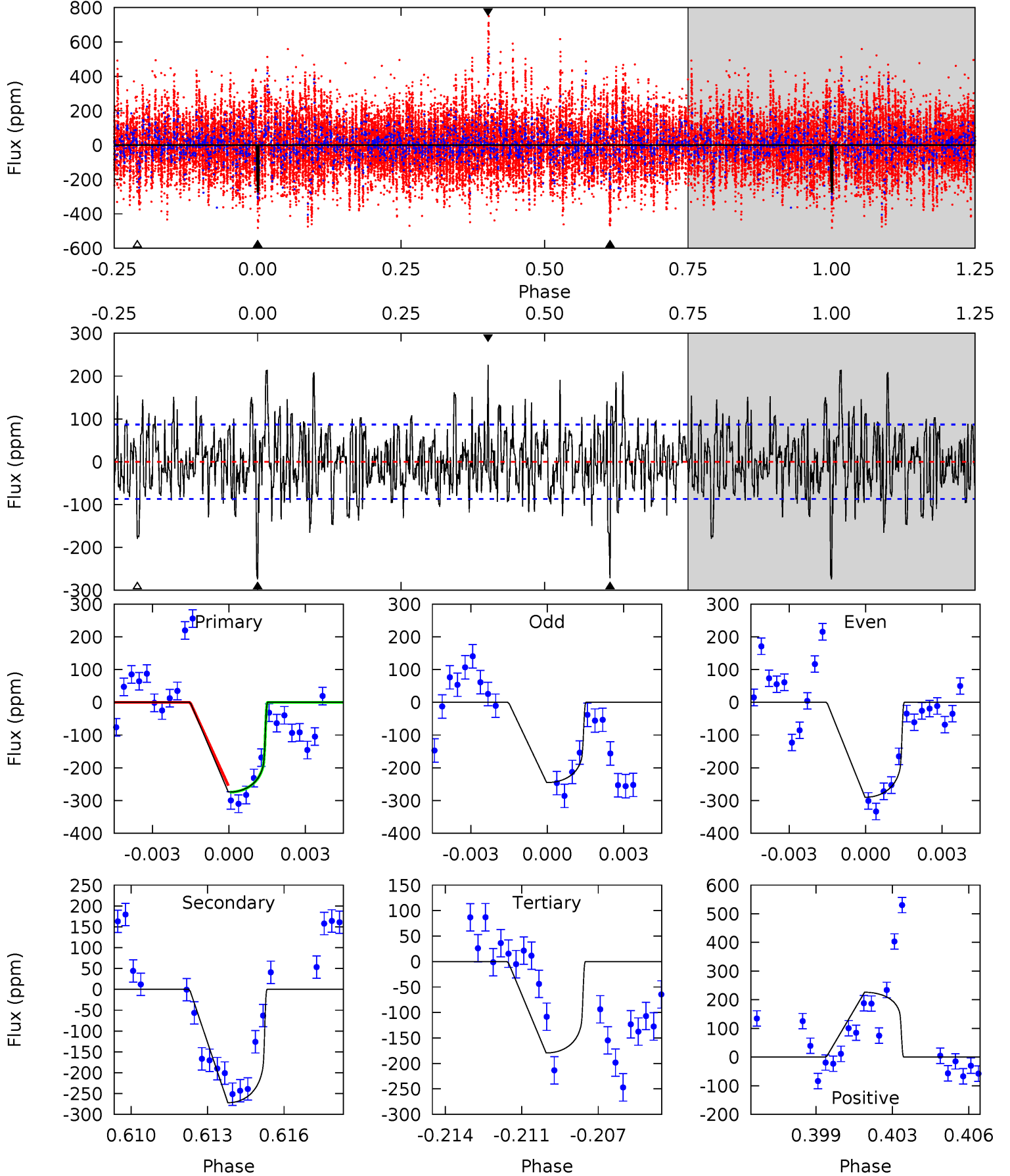
TCE 008522919-05 $P=317.796348$ Days $T_0=161.482186$ (BKJD)



DV Model-Shift Uniqueness Test

008522919-05, P = 317.755646 Days, E = 161.516850 Days

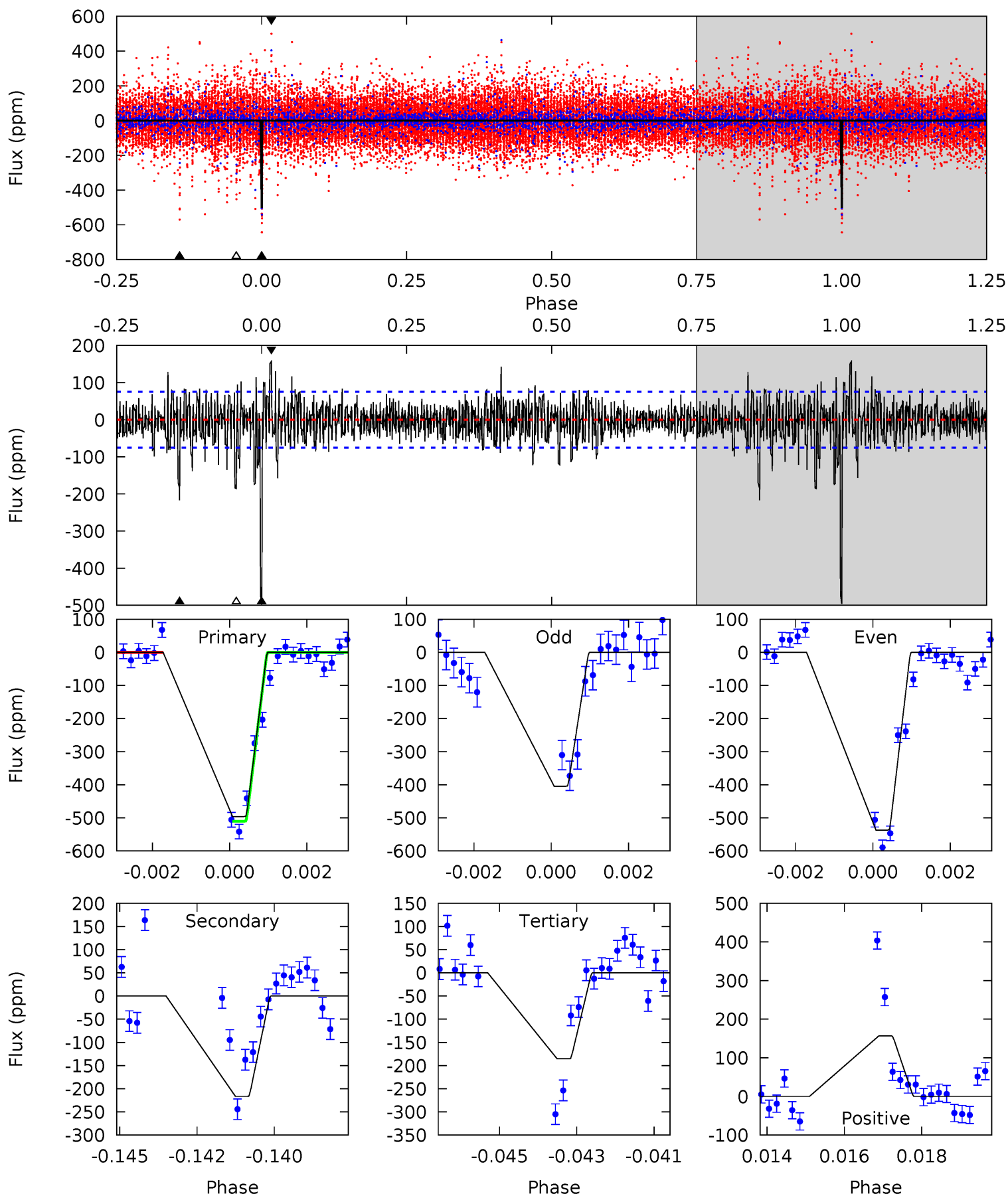
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	16.4	10.8	13.6	5.25	2.96	3.54	5.73	2.91	5.58	2.77	1.33	1.00	0.45	0.16



Alt Model-Shift Uniqueness Test

008522919-05, P = 317.796348 Days, E = 161.482186 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.0	15.3	13.1	11.1	5.30	3.05	2.21	21.9	23.9	2.20	4.23	4.59	0.52	0.24	0



Stellar Parameters For KIC 008522919

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6490^{+155}_{-175}	$4.034^{+0.266}_{-0.114}$	$-0.540^{+0.300}_{-0.300}$	$1.636^{+0.322}_{-0.483}$	$1.057^{+0.162}_{-0.133}$	$0.340^{+0.552}_{-0.114}$
	+2%/-3%	+7%/-3%	+56%/-56%	+20%/-30%	+15%/-13%	+162%/-33%
Source	PHO1	FLK73	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 008522919-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-272 ± 17	$2.57^{+0.52}_{-0.51}$	522^{+34}_{-40}	6855^{+602}_{-492}	20150^{+10192}_{-6226}
Alt.	-217 ± 14	$4.00^{+0.60}_{-0.65}$	523^{+31}_{-38}	5252^{+253}_{-242}	6550^{+2629}_{-1598}

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

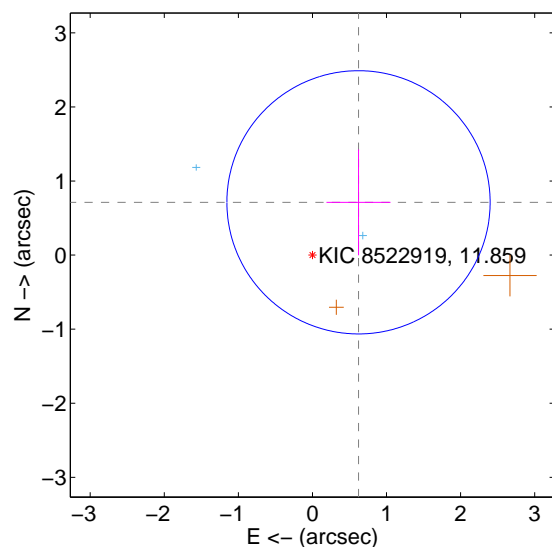
Supplemental centroid analysis for 008522919-05. **Kepler magnitude: 11.86.** Transit SNR 6.42

There are 2 quarters with good PRF difference image offsets

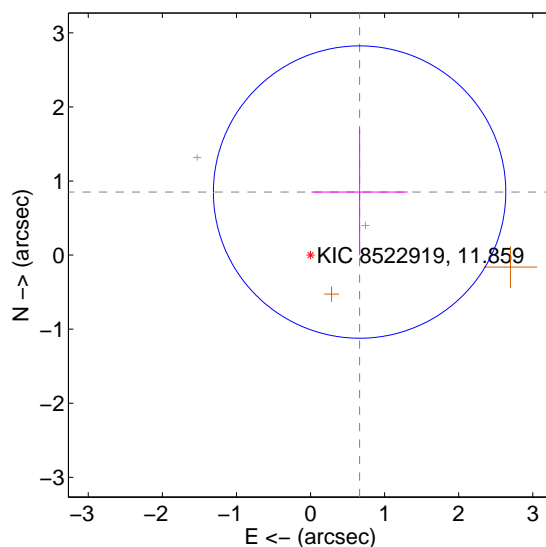
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.945 ± 0.592	1.60	-0.622 ± 0.432	0.712 ± 0.714
PRF-fit source offset from KIC position	1.078 ± 0.658	1.64	-0.662 ± 0.649	0.851 ± 0.851
photometric centroid source offset	0.89 ± 0.56	1.59	-0.23 ± 0.66	-0.86 ± 0.55

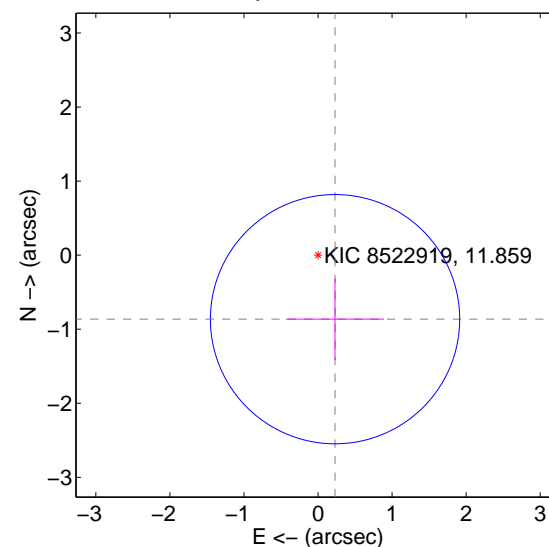
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

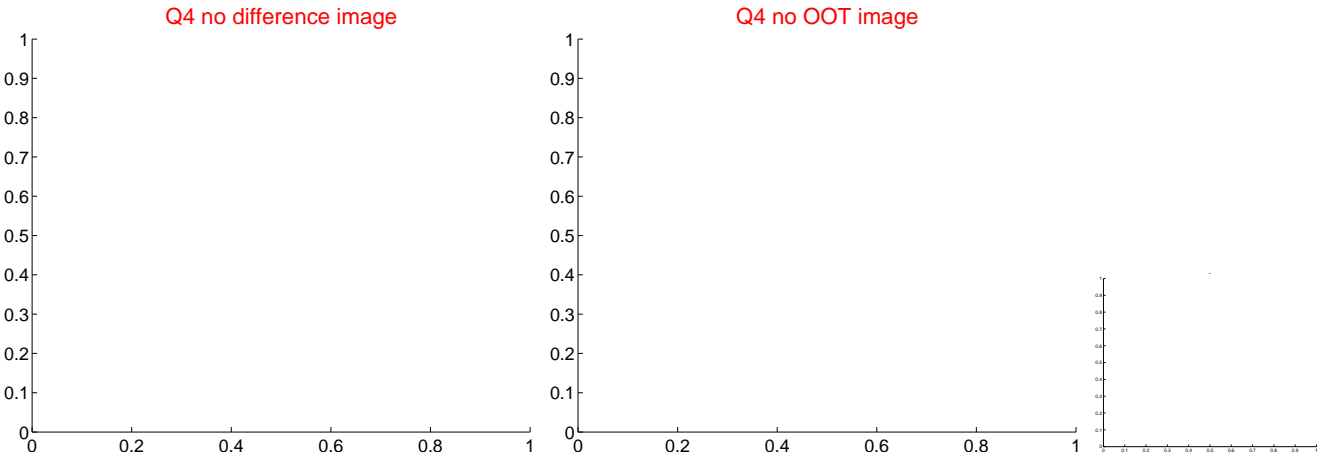
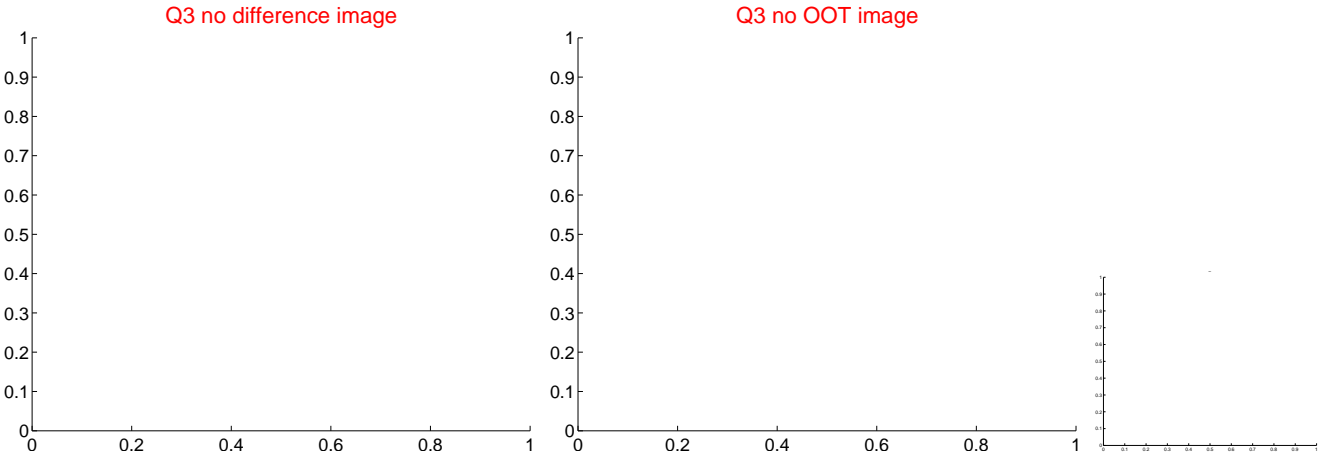
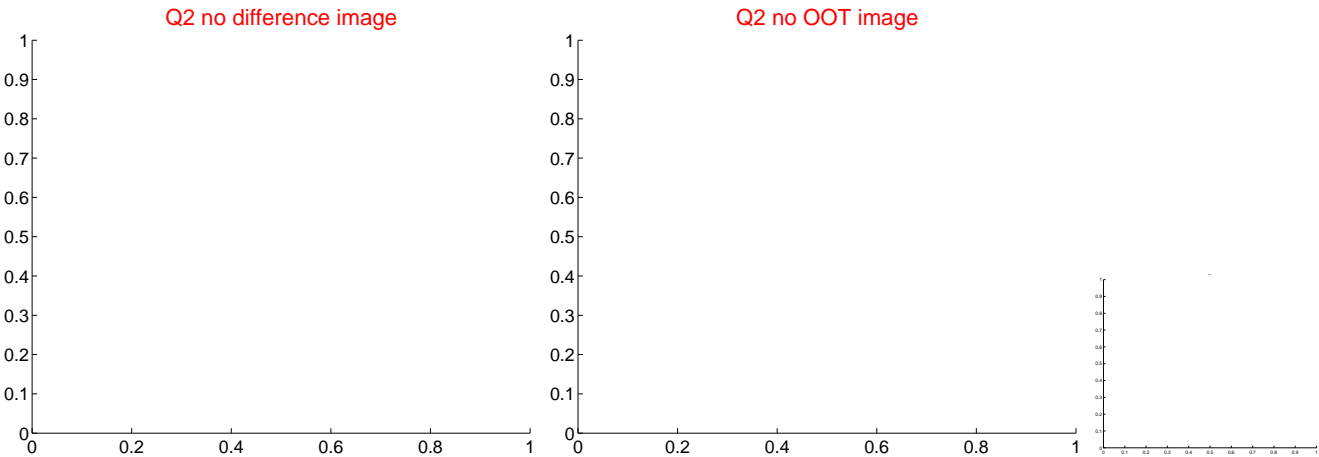
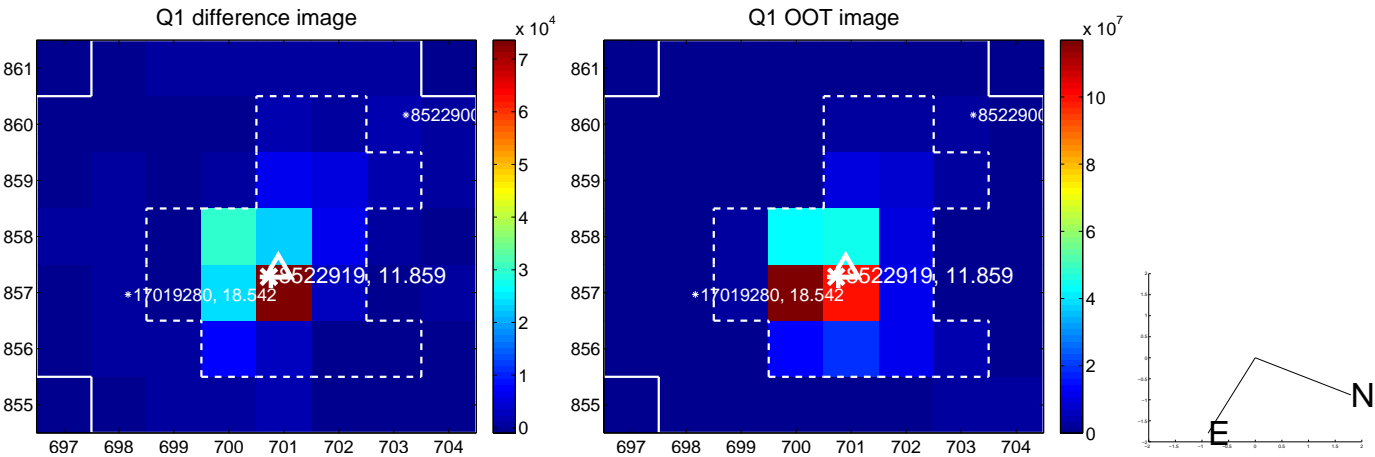


offset from photometric centroids

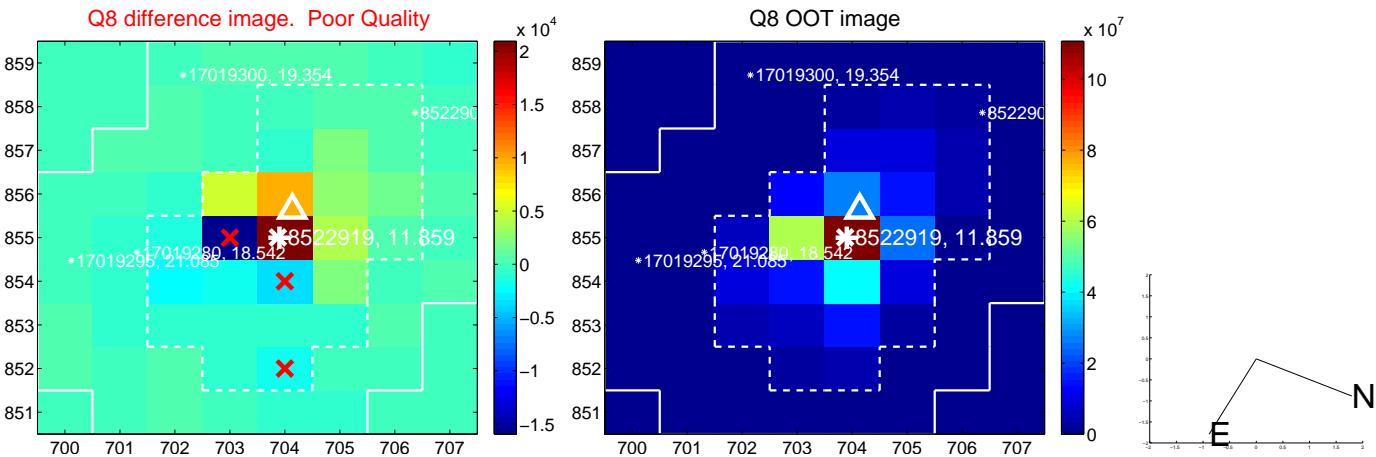
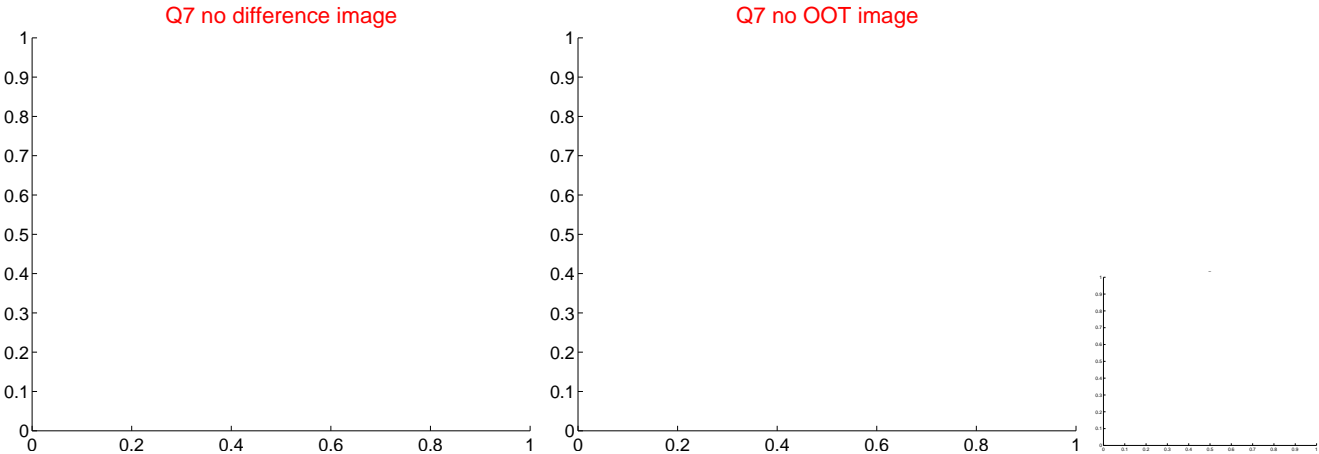
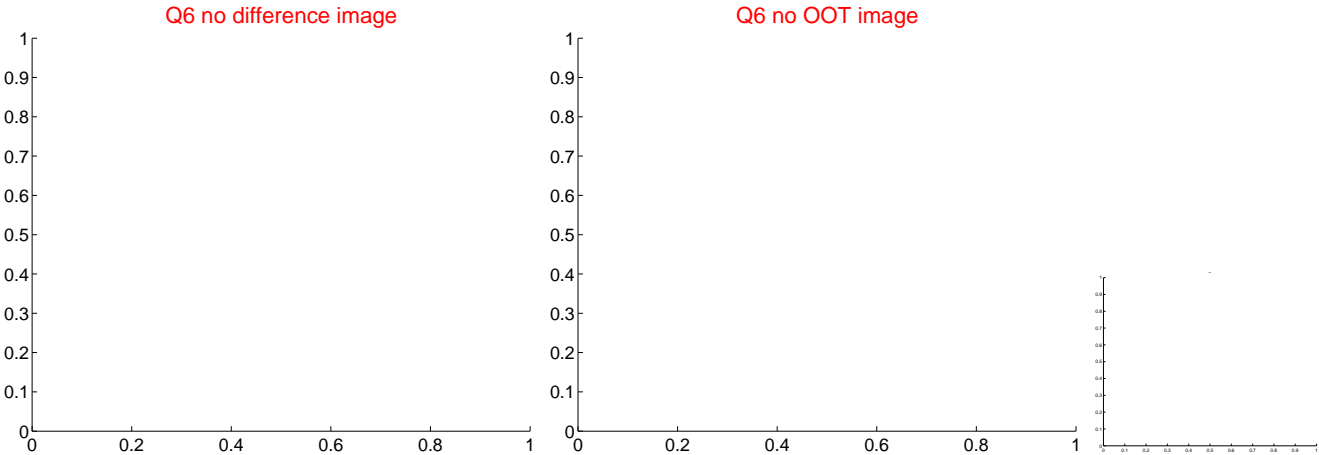
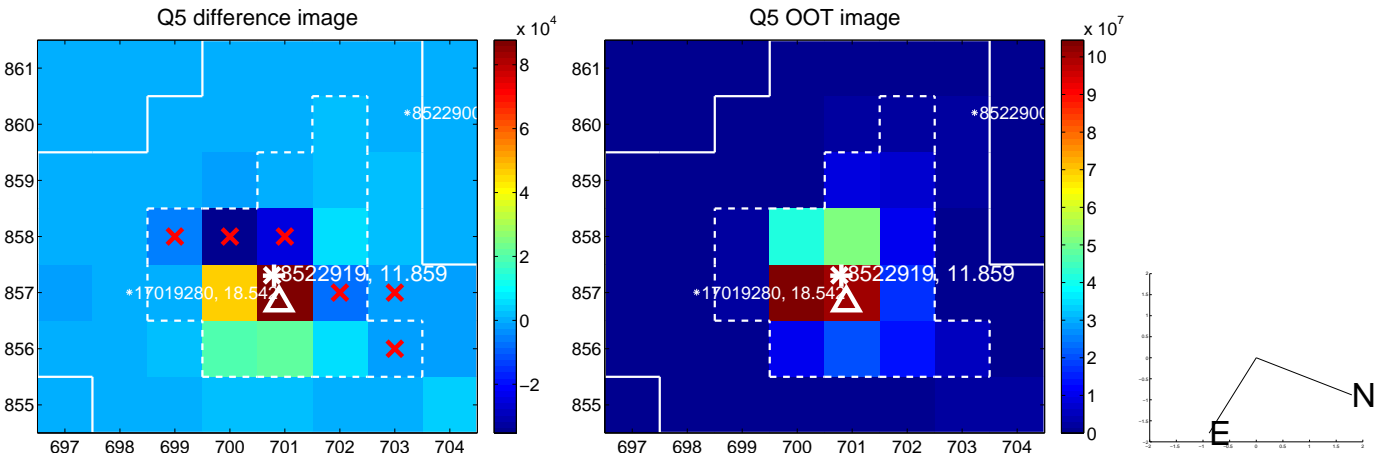


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

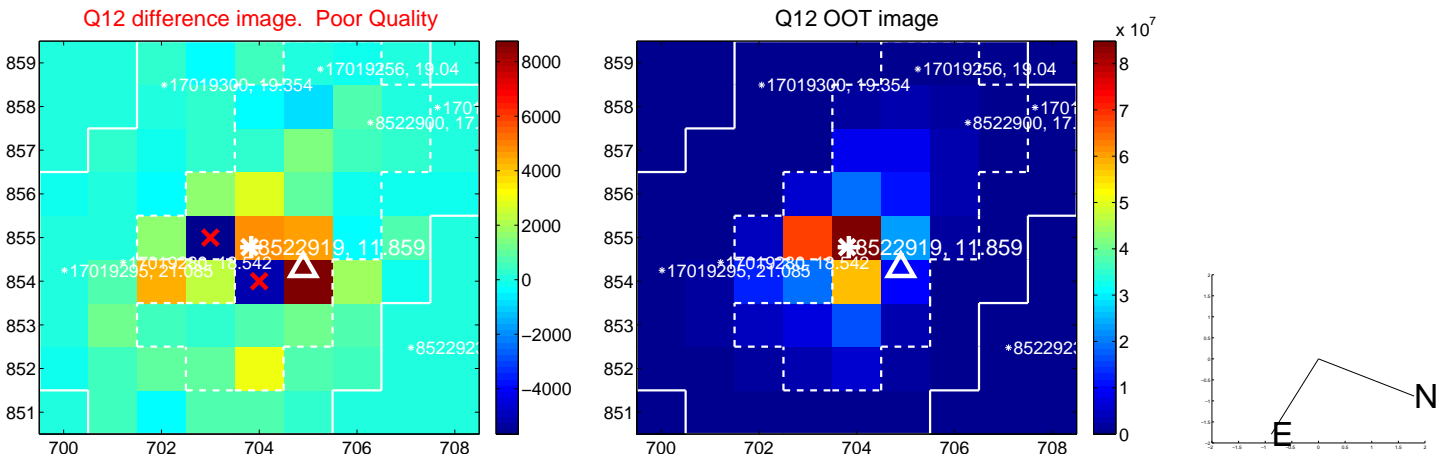
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



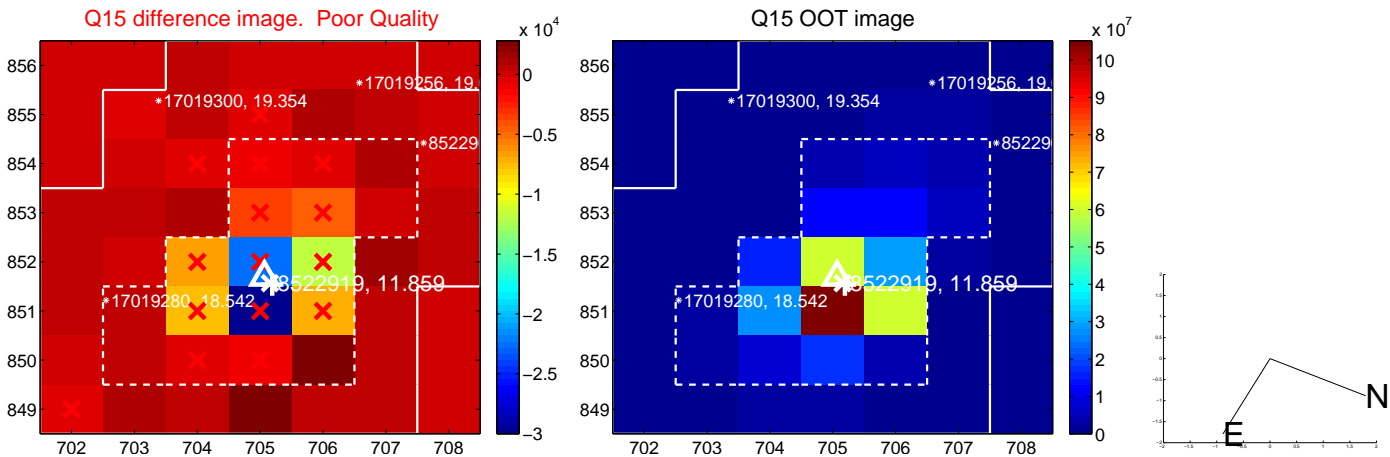
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



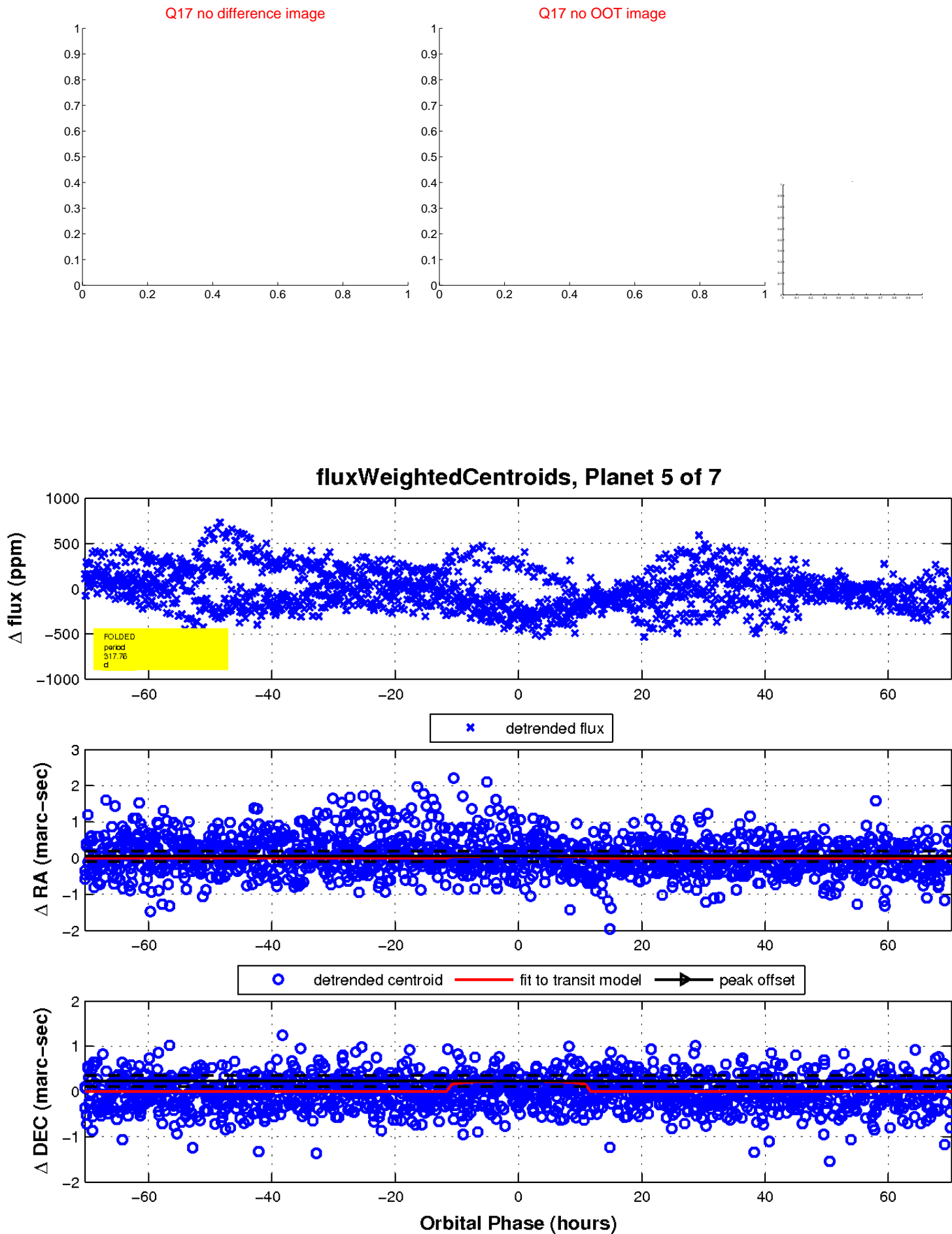
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

