

KIC 002714887

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})
002714887-01	OBS	No	2.904694	134.361877	55.2	12.196	8.8	9.1	0.85	5691	0.64	483.17
002714887-02	OBS	No	304.547959	310.515256	1986.7	39.750	35.1	13.7	0.85	5691	7.16	0.98
002714887-03	OBS	No	220.728128	147.294817	452.2	27.928	39.0	7.1	0.85	5691	3.59	1.50
002714887-04	OBS	No	110.681787	199.381081	284.0	8.932	8.9	5.2	0.85	5691	1.51	3.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002714887-01	OBS	FP	0.00	1	0	0	1	LPP_DV—EPHEM_MATCH
002714887-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002714887-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002714887-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

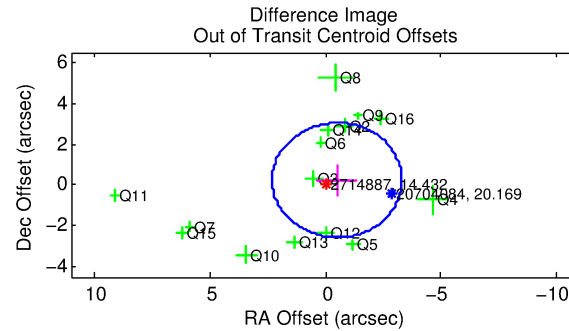
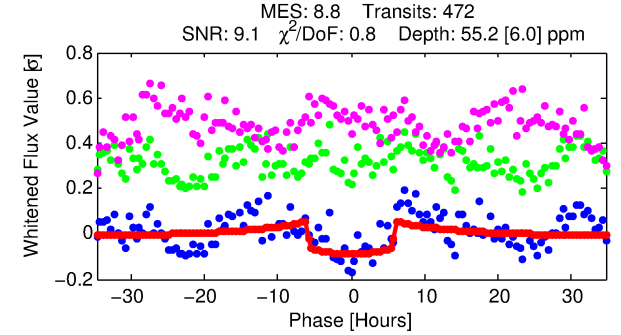
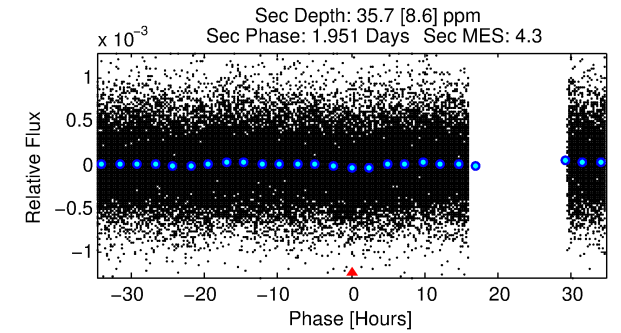
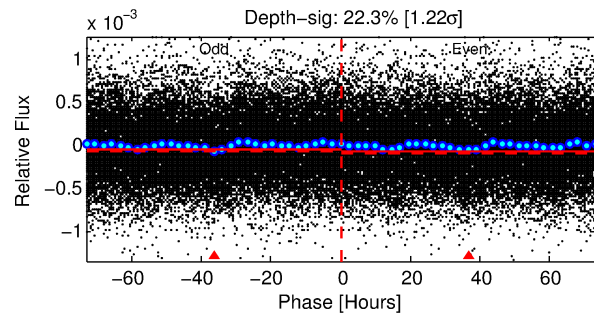
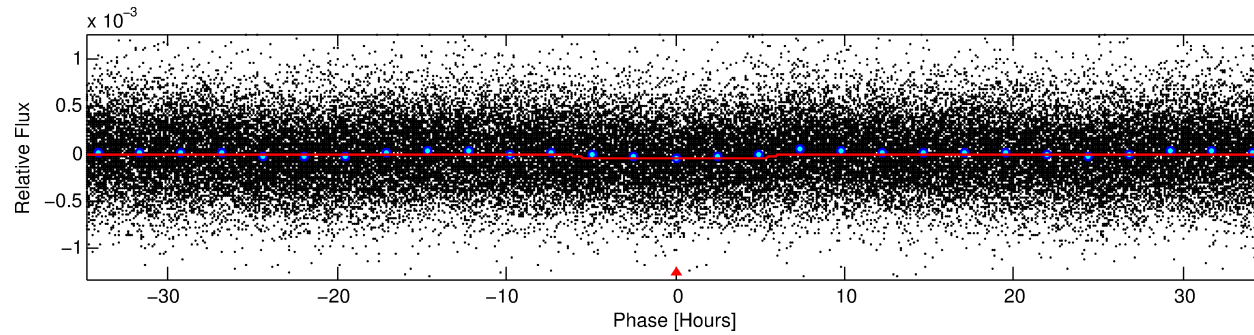
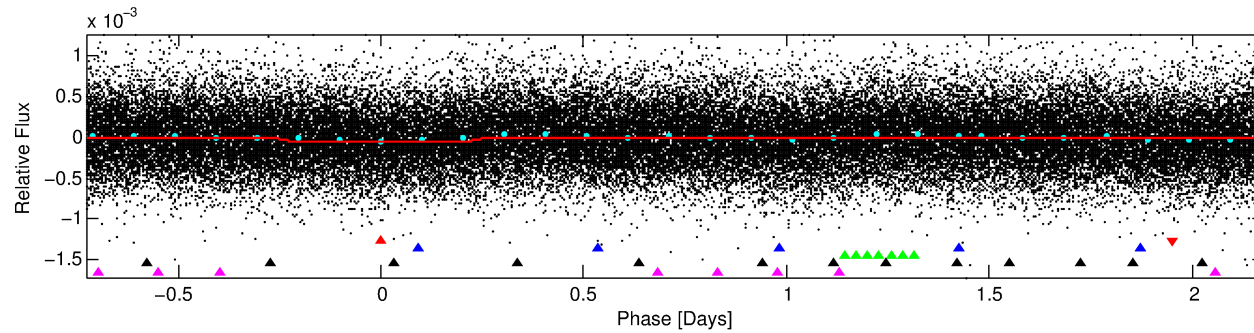
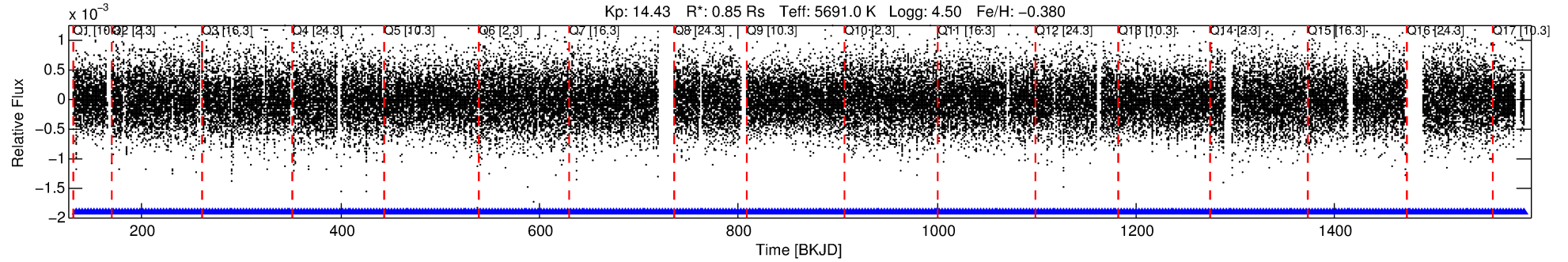
Ephemeris Match Information For 002714887-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
002714887-01	2714887	002714954-01	2714954	3:1	54.5	12	5	14.54	14.43	0.53	Direct-PRF	1	2.90	0.52

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 2714887 Candidate: 1 of 5 Period: 2.905 d



DV Fit Results:

Period = 2.90469 [0.00004] d
Epoch = 134.3619 [0.0082] BKJD
Rp/R* = 0.0069 [0.0047]
a/R* = 1.77 [3.73]
b = 0.46 [5.28]
Seff = 483.17 [148.21]
Teff = 1196 [92] K
Rp = 0.64 [0.46] Re
a = 0.0374 [0.0074] AU
Ag = 66.64 [93.41] [0.70 σ]
Teffp = 5281 [1817] K [2.25 σ]

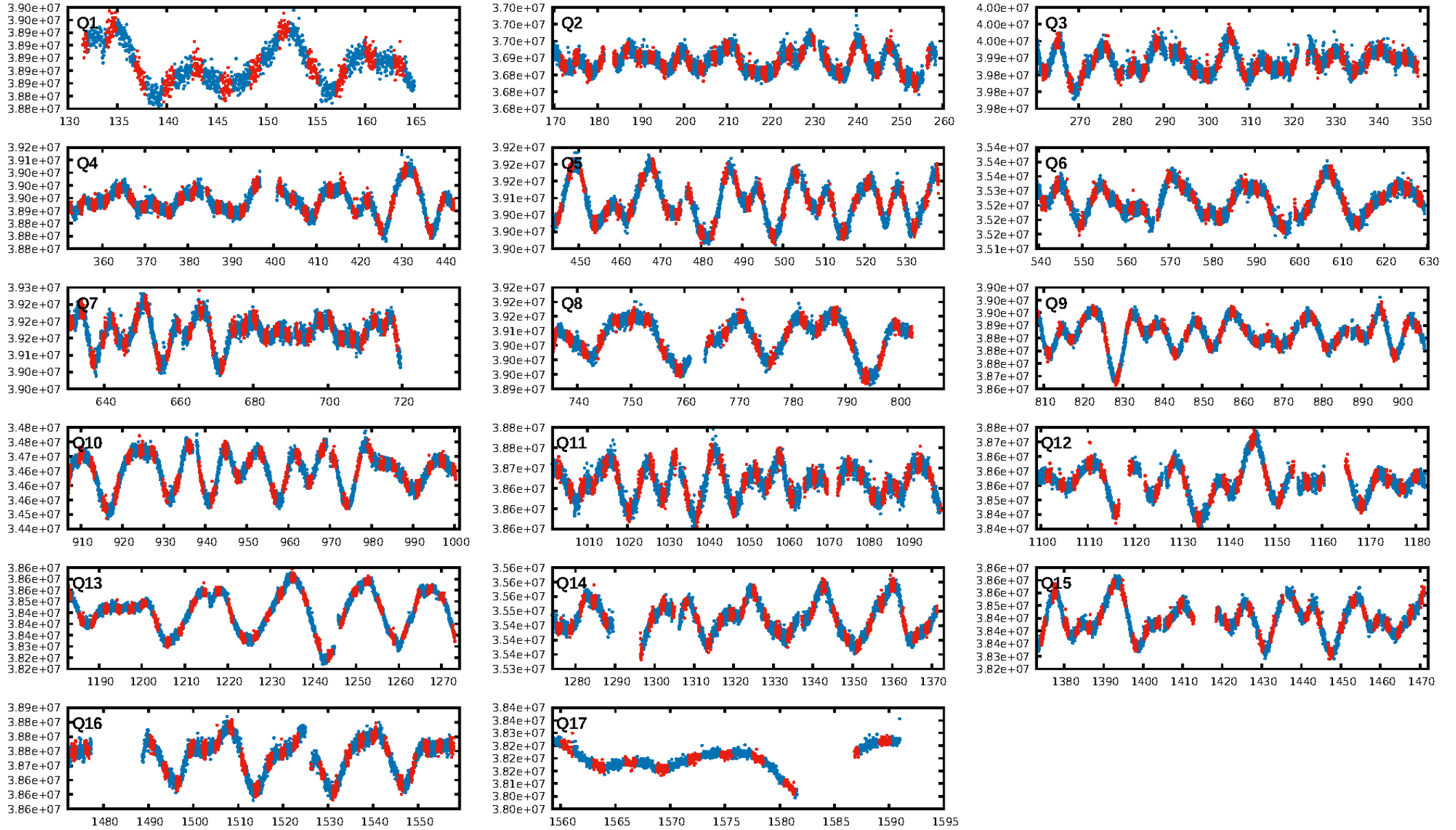
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [171.10 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.90e-13
RollingBand-fgt: 1.00 [450/450]
GhostDiagnostic-chr: 0.3399
Centroid-sig: 34.1%
Centroid-so: 0.332 arcsec [0.41 σ]
OotOffset-rm: 0.553 arcsec [0.59 σ]
KicOffset-rm: 0.657 arcsec [0.66 σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.20 [3/15]
DiffImageOverlap-fno: 1.00 [17/17]

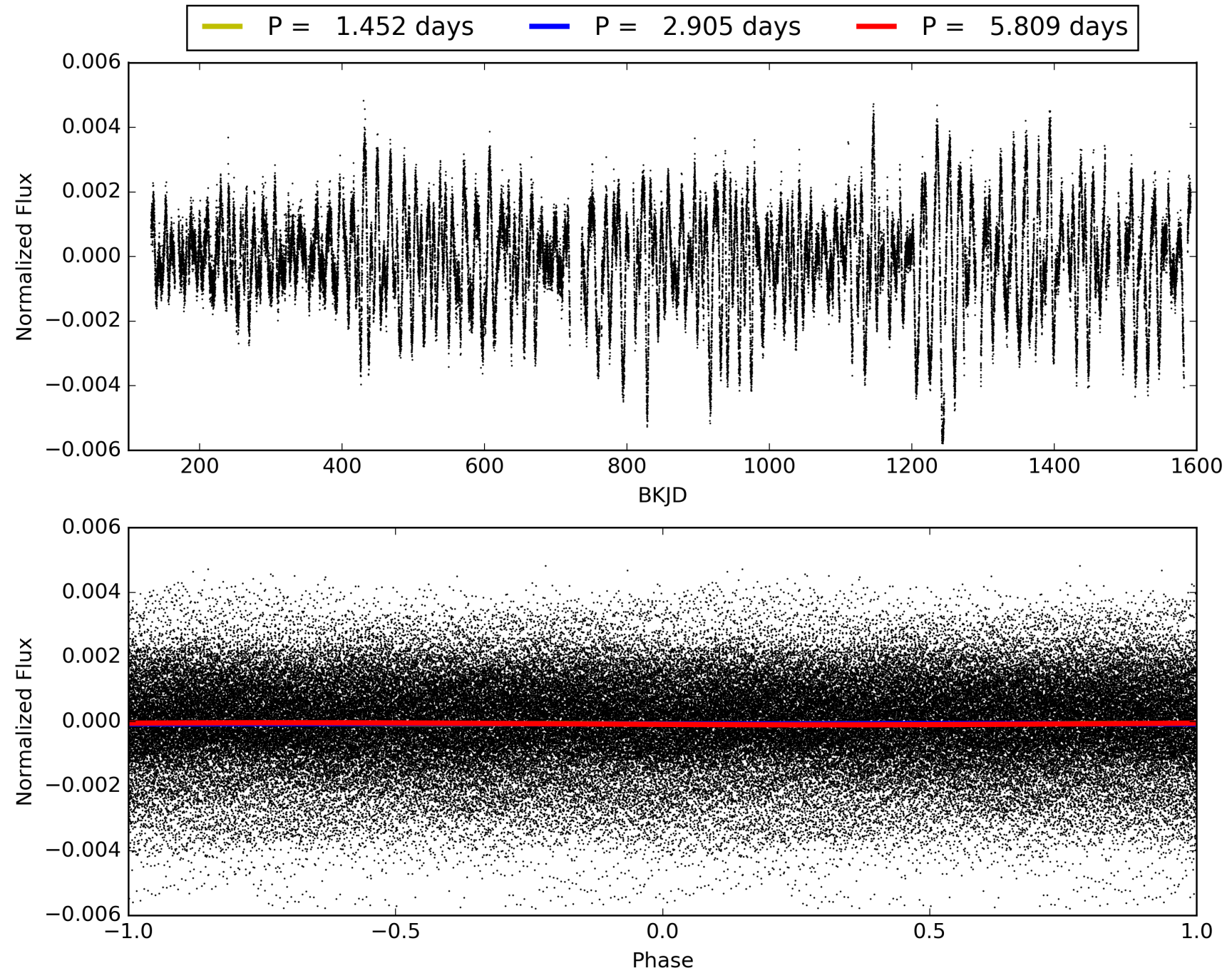
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:51:33 Z

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

TCE 002714887-01, PDC Light Curves

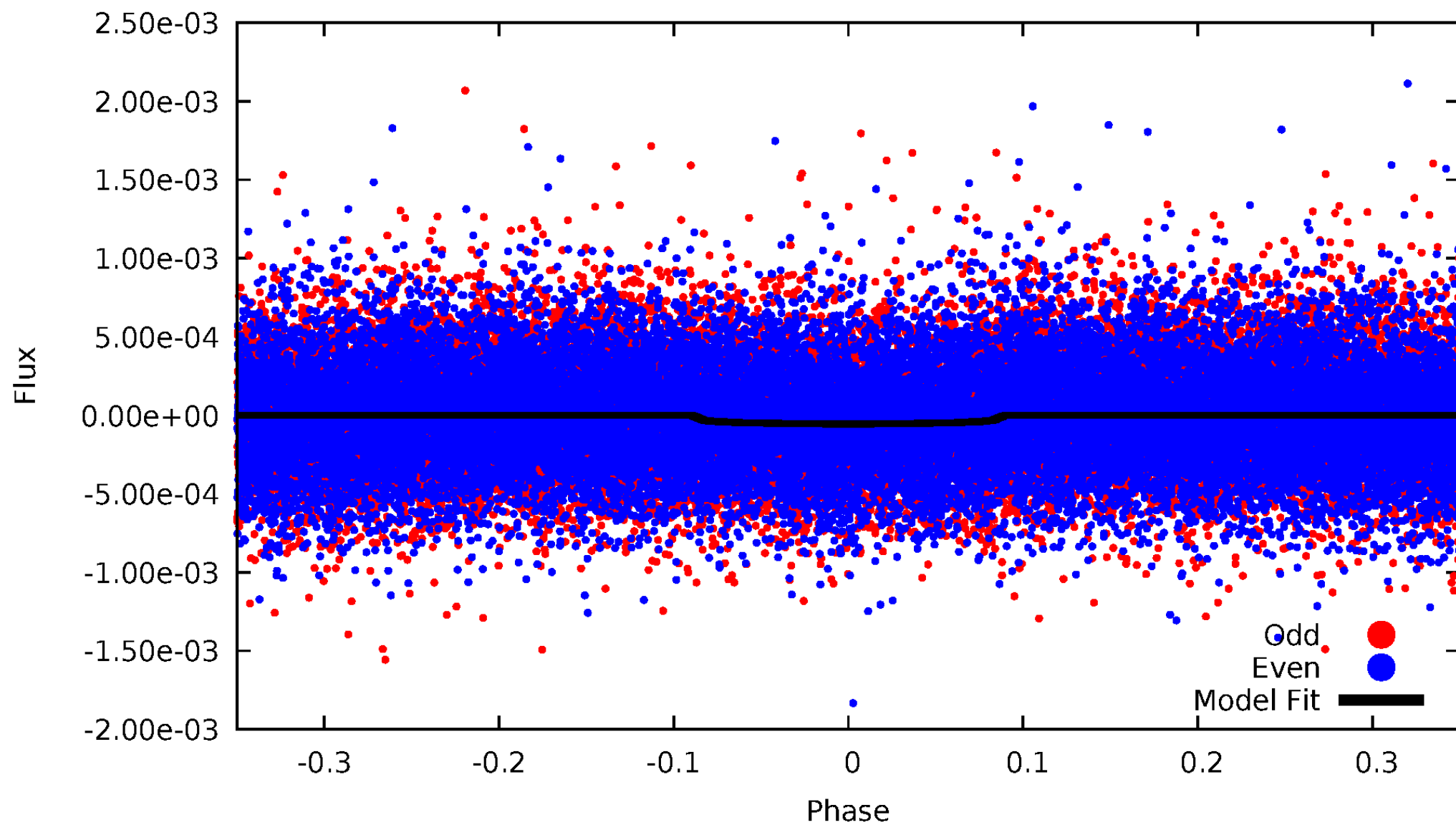


TCE 002714887-01



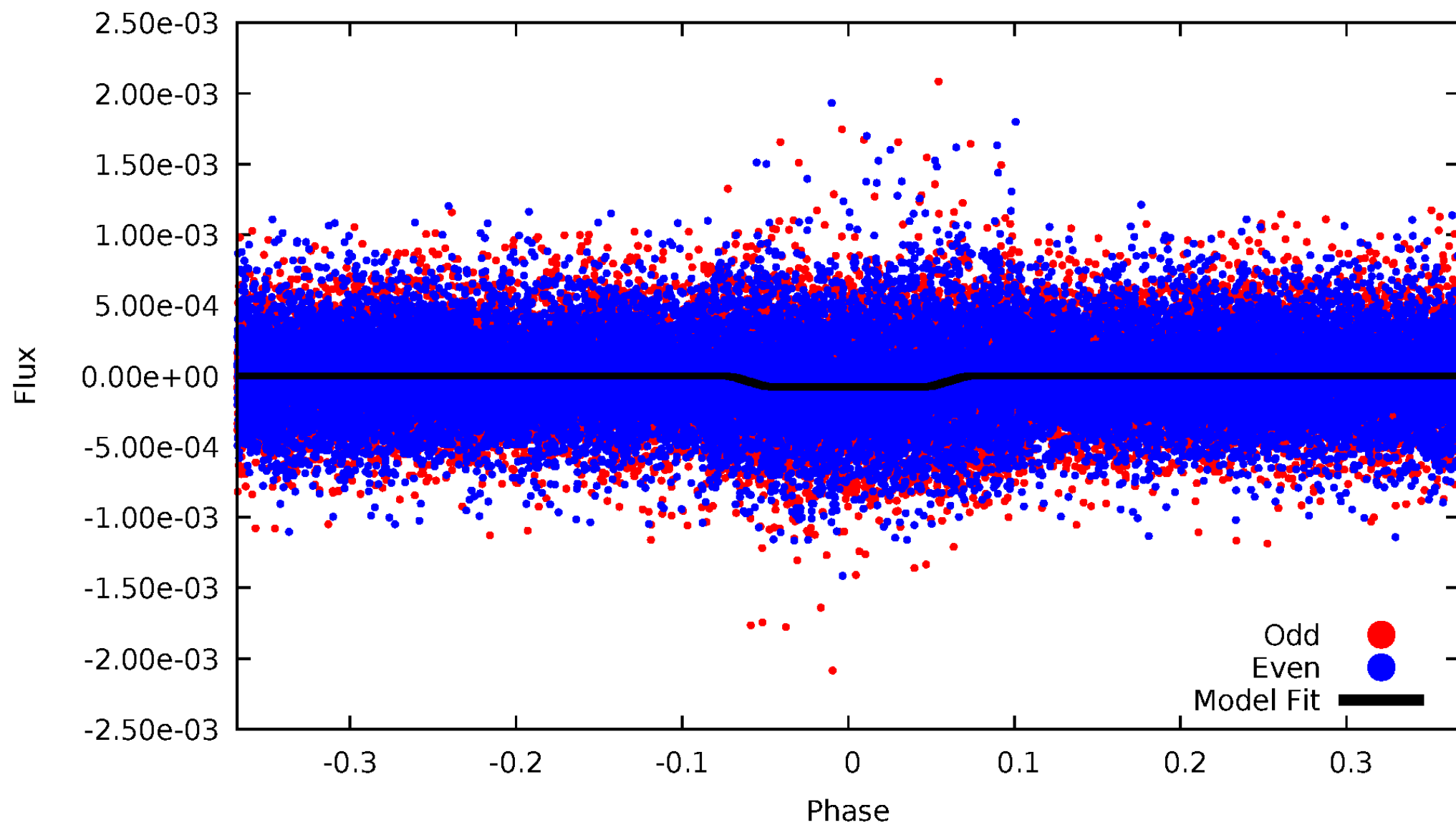
DV Odd/Even

TCE 002714887-01

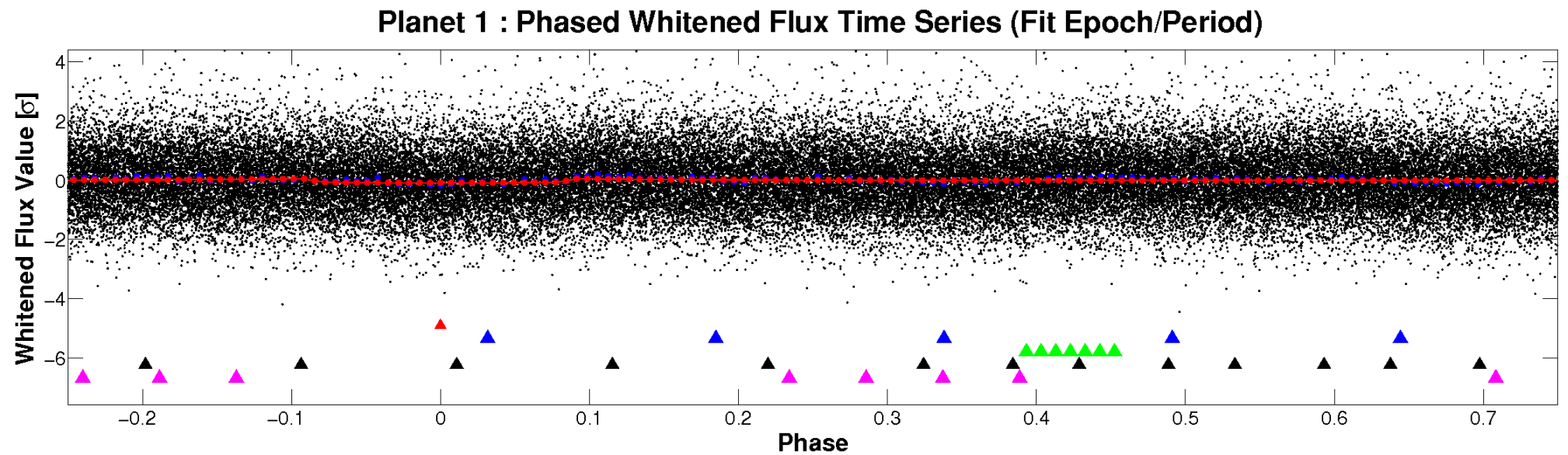
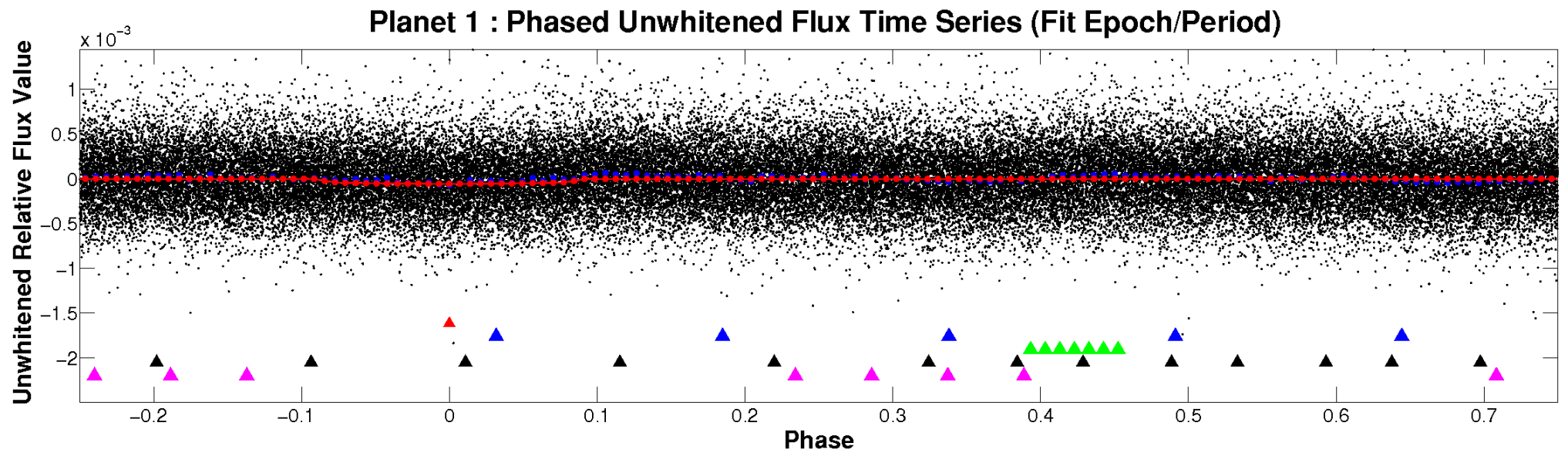


ALT Odd/Even

TCE 002714887-01

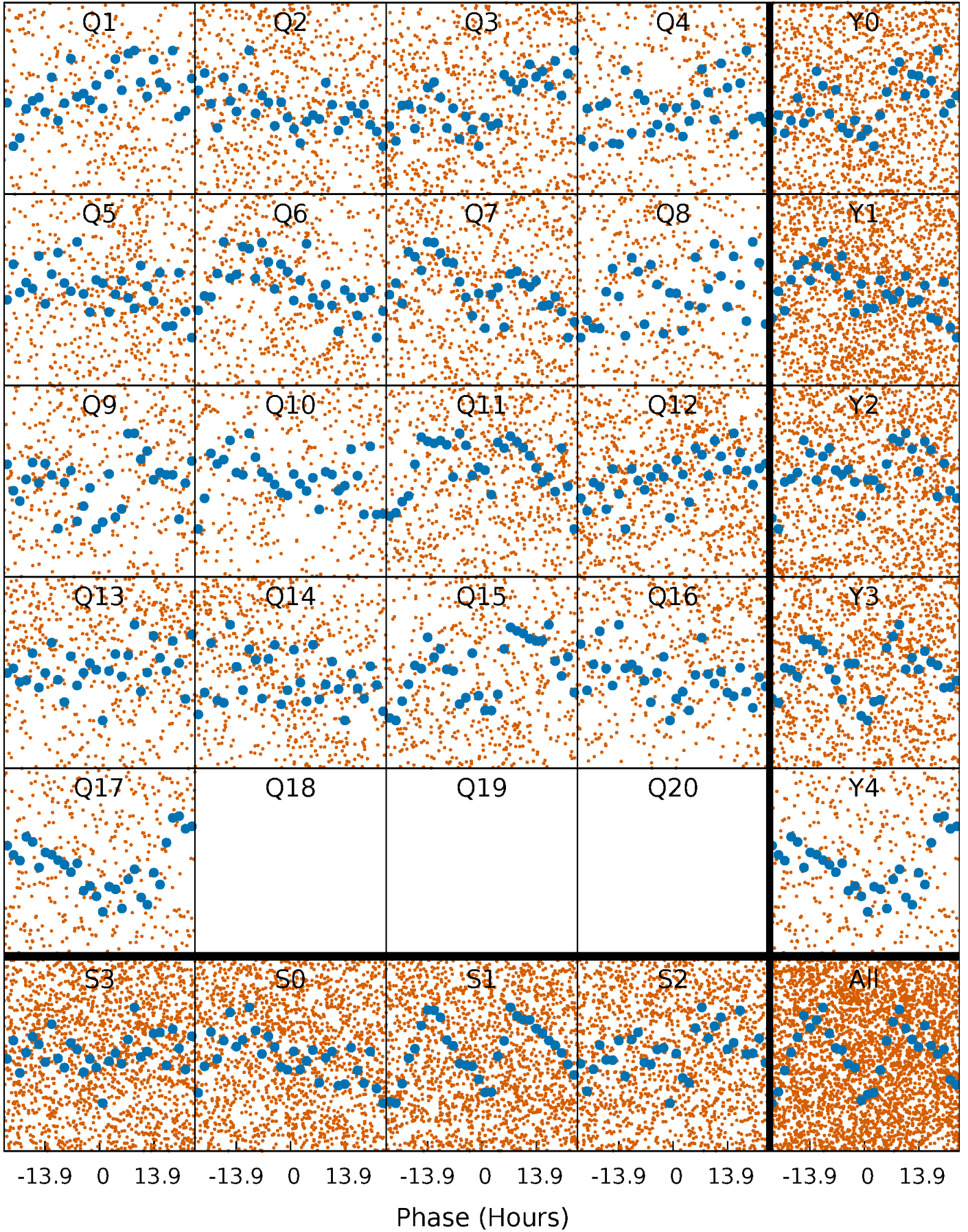


Non-Whitened Vs. Whitened Light Curve



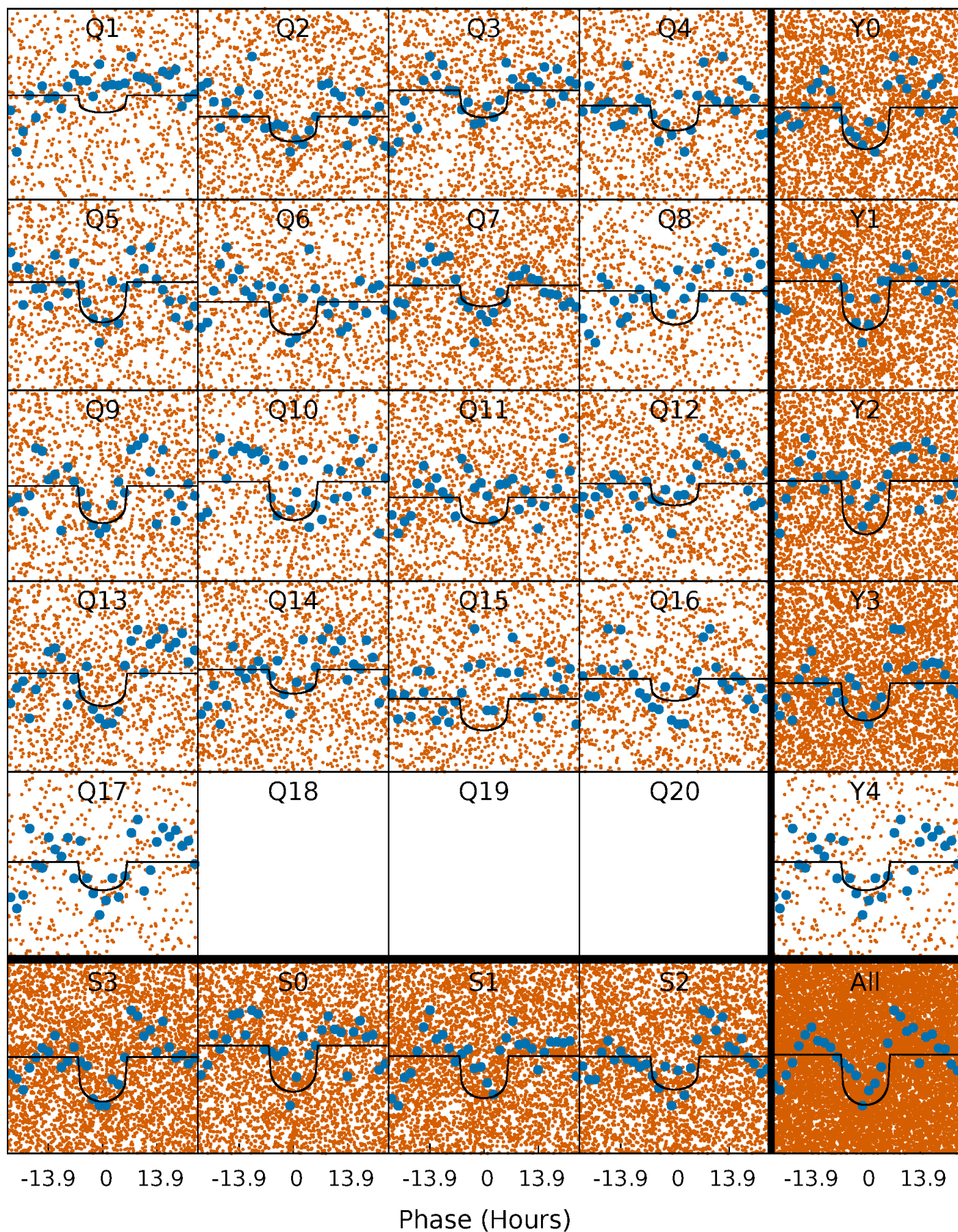
PDC Quarter-Phased Transit Curves

TCE 002714887-01 P= 2.904694 Days $T_0=134.361877$ (BKJD)



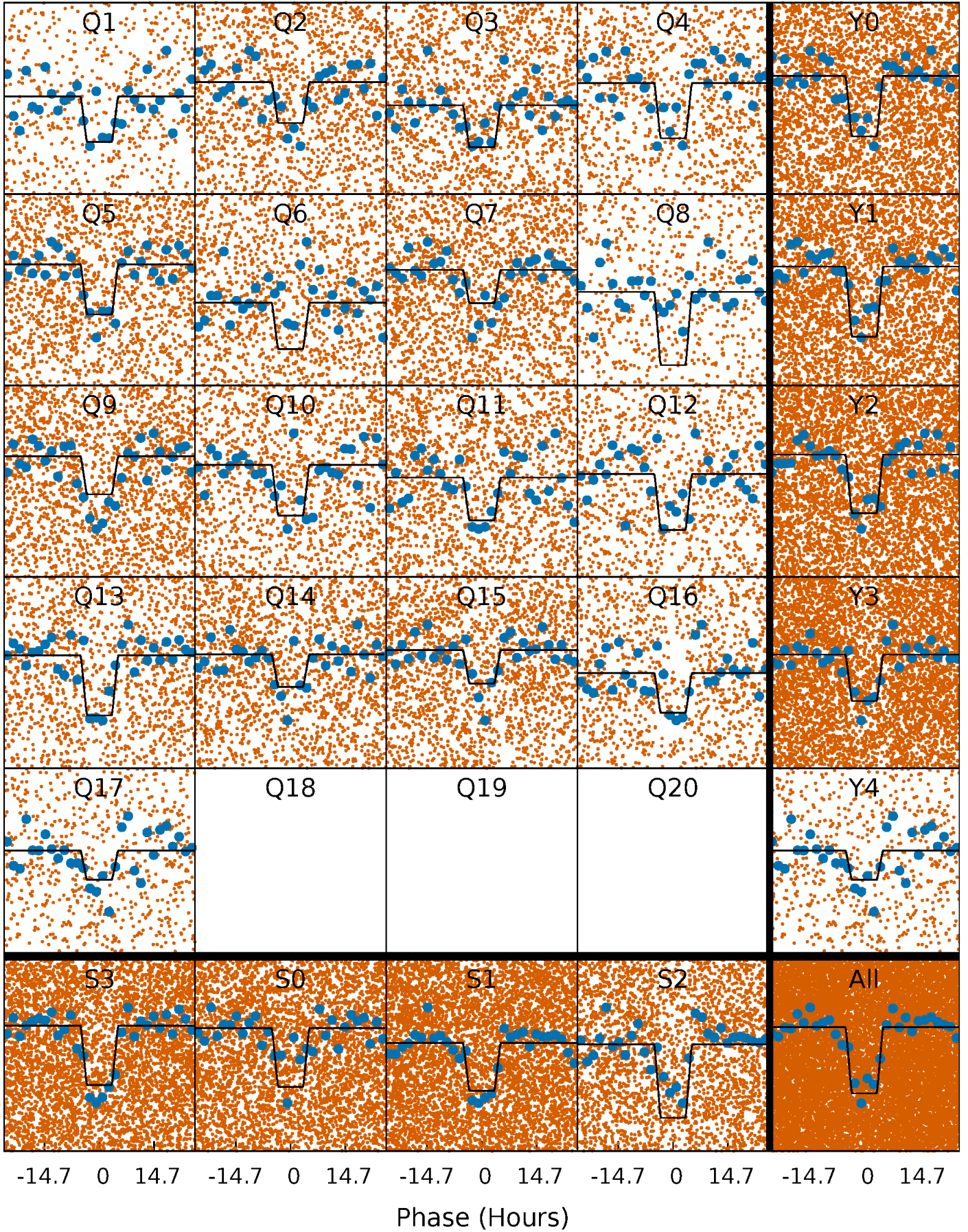
DV Quarter-Phased Transit Curves

TCE 002714887-01 P= 2.904694 Days $T_0=134.361877$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

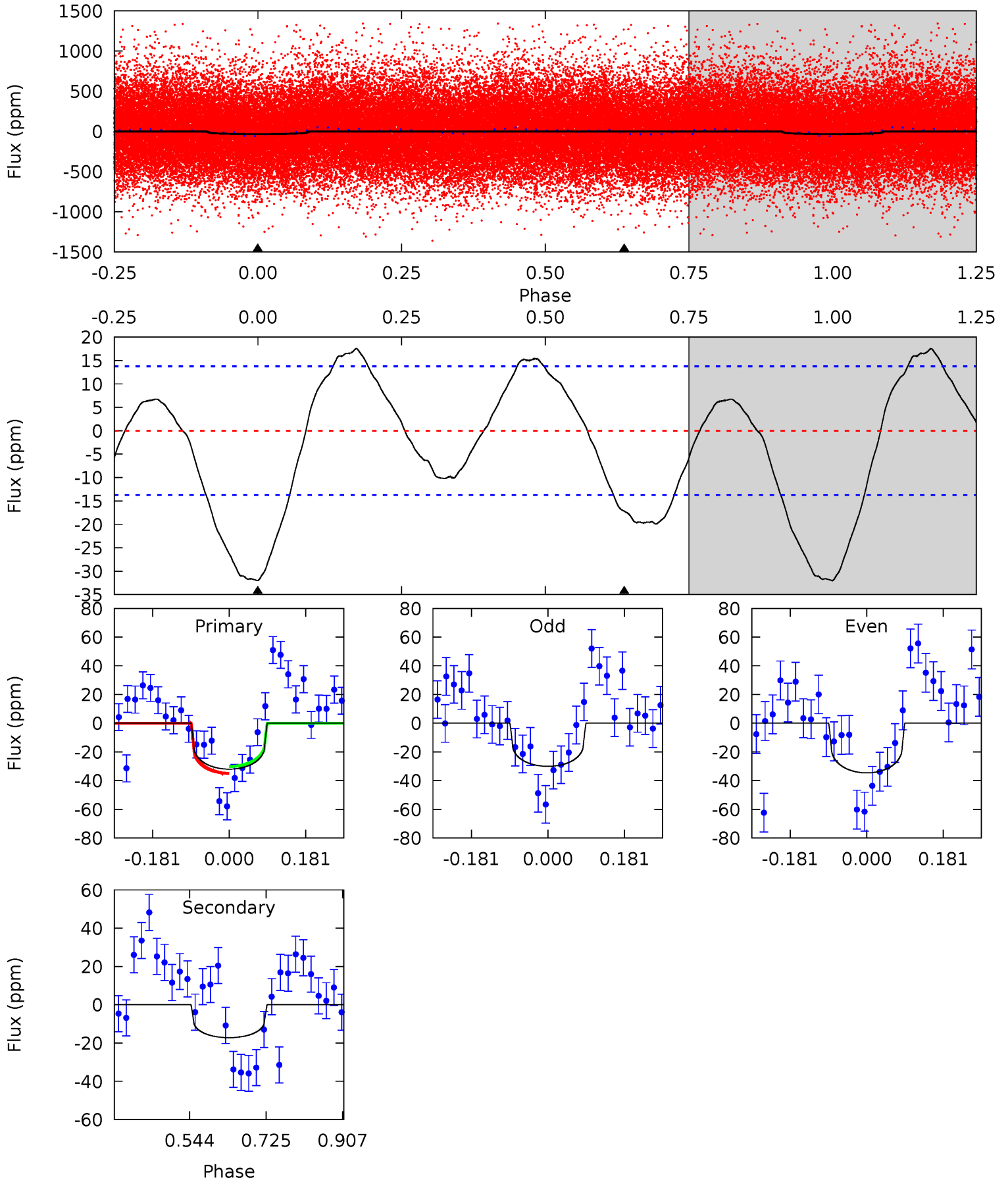
TCE 002714887-01 P= 2.904766 Days $T_0=134.369638$ (BKJD)



DV Model-Shift Uniqueness Test

002714887-01, P = 2.904694 Days, E = 131.457183 Days

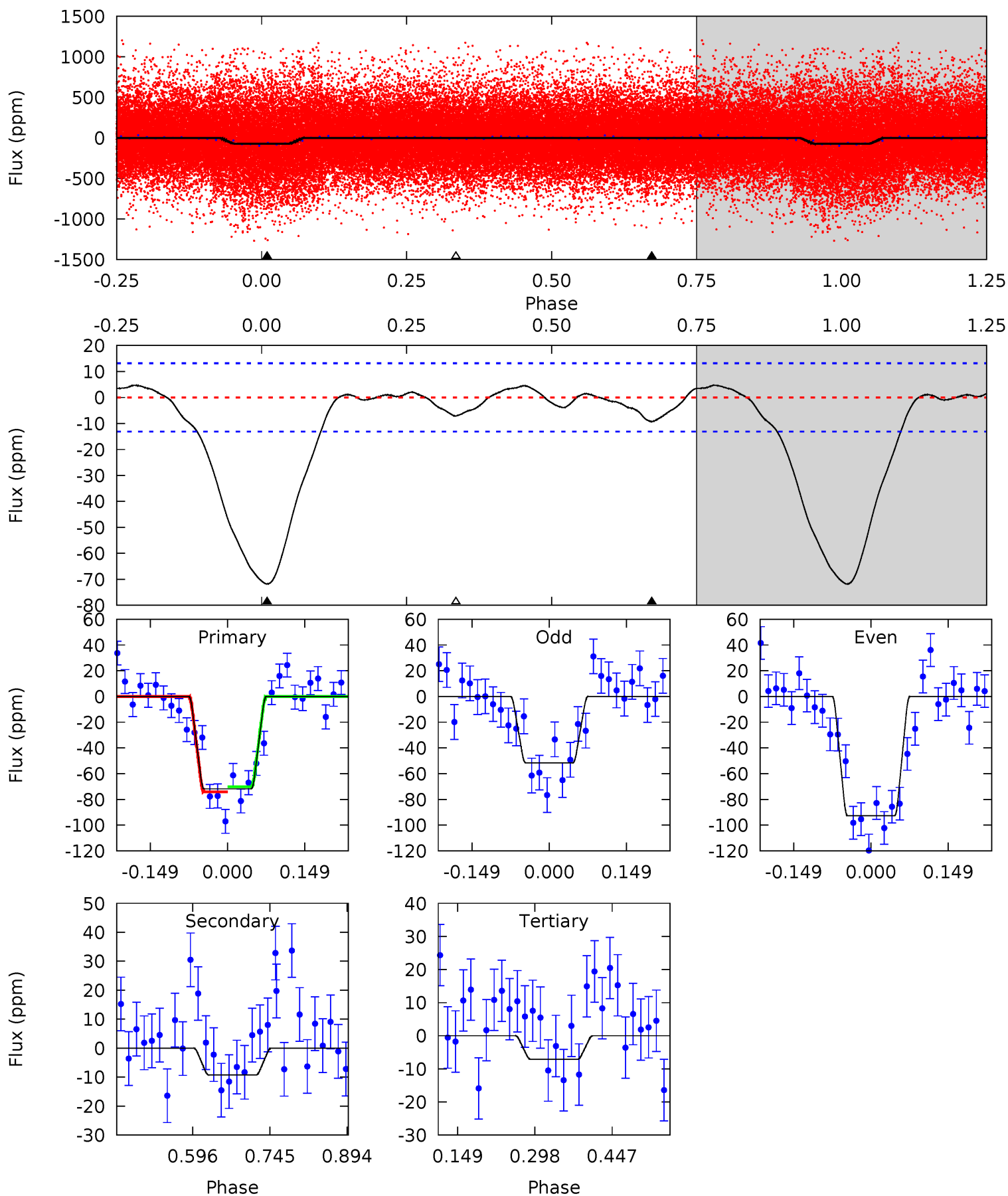
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	5.55	0	0	4.44	1.34	2.59	10.3	10.3	5.55	5.55	0.73	0.90	0.35	0.79



Alt Model-Shift Uniqueness Test

002714887-01, P = 2.904766 Days, E = 131.464872 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.5	3.16	2.42	0	4.48	1.44	1.03	22.1	24.5	0.73	3.16	7.01	0.99	0.06	0.67



Stellar Parameters For KIC 002714887

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5691^{+154}_{-154}	$4.498^{+0.084}_{-0.156}$	$-0.380^{+0.300}_{-0.300}$	$0.847^{+0.201}_{-0.108}$	$0.824^{+0.107}_{-0.071}$	$1.909^{+0.682}_{-0.826}$
	+3%/-3%	+2%/-3%	+79%/-79%	+24%/-13%	+13%/-9%	+36%/-43%
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 002714887-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-17 ± 3	$0.68^{+0.45}_{-0.38}$	1682^{+97}_{-76}	4465^{+1914}_{-727}	29^{+112}_{-19}
Alt.	-9 ± 3	$0.85^{+0.49}_{-0.42}$	1684^{+94}_{-80}	3675^{+1131}_{-542}	$9.438^{+29.301}_{-5.768}$

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

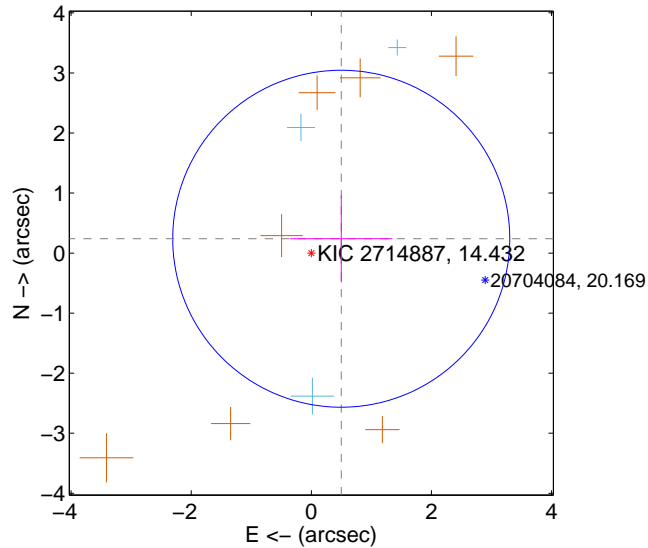
Supplemental centroid analysis for 002714887-01. Kepler magnitude: 14.43. Transit SNR 9.07

There are 3 quarters with good PRF difference image offsets

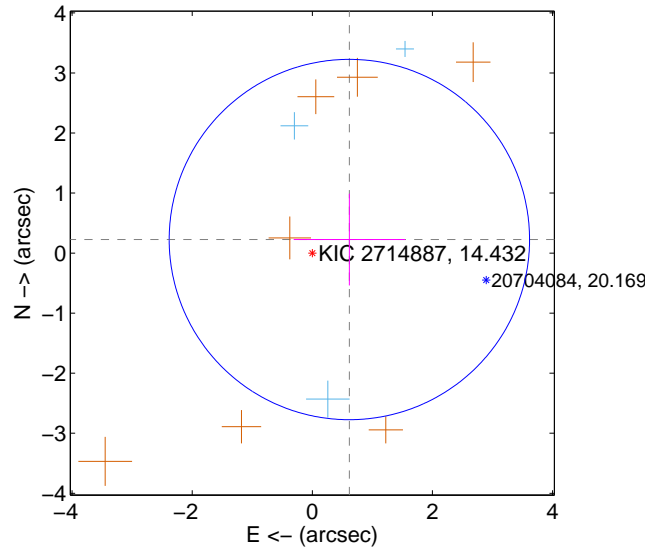
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.553 ± 0.935	0.59	-0.498 ± 0.851	0.239 ± 0.728
PRF-fit source offset from KIC position	0.657 ± 1.000	0.66	-0.617 ± 0.927	0.226 ± 0.764
photometric centroid source offset	0.33 ± 0.81	0.41	-0.33 ± 0.81	0.05 ± 0.85

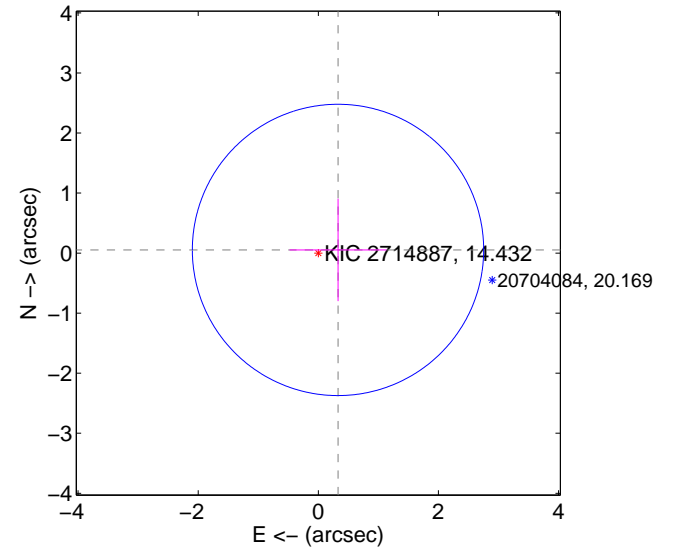
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

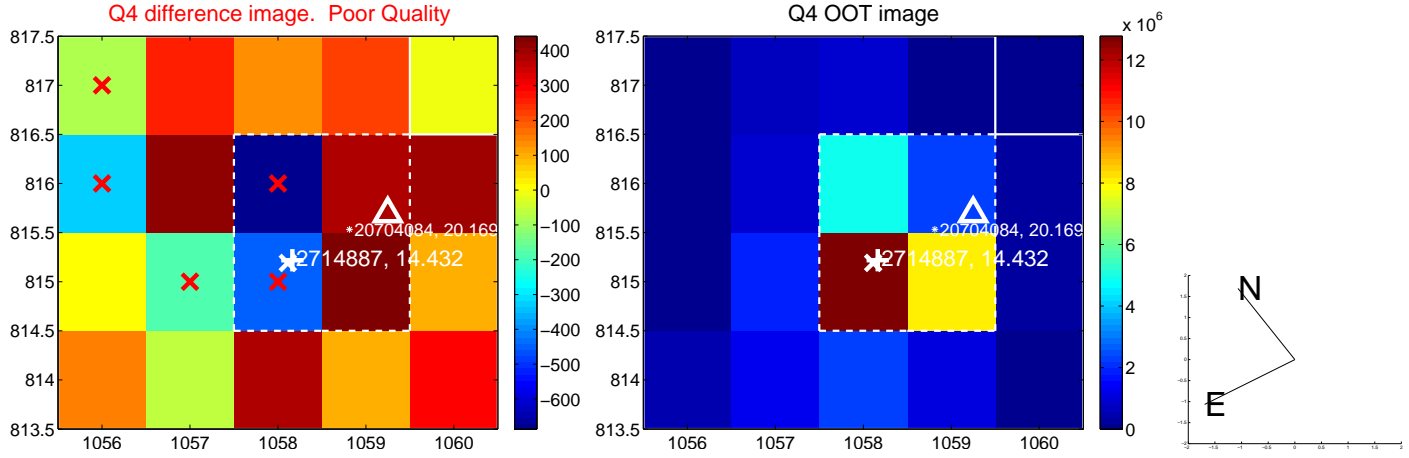
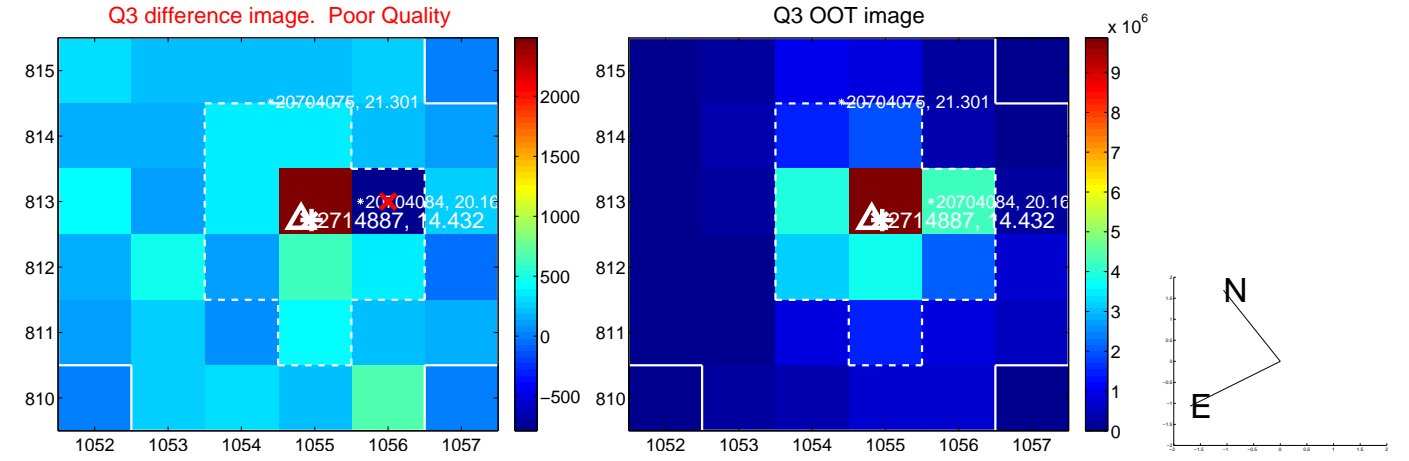
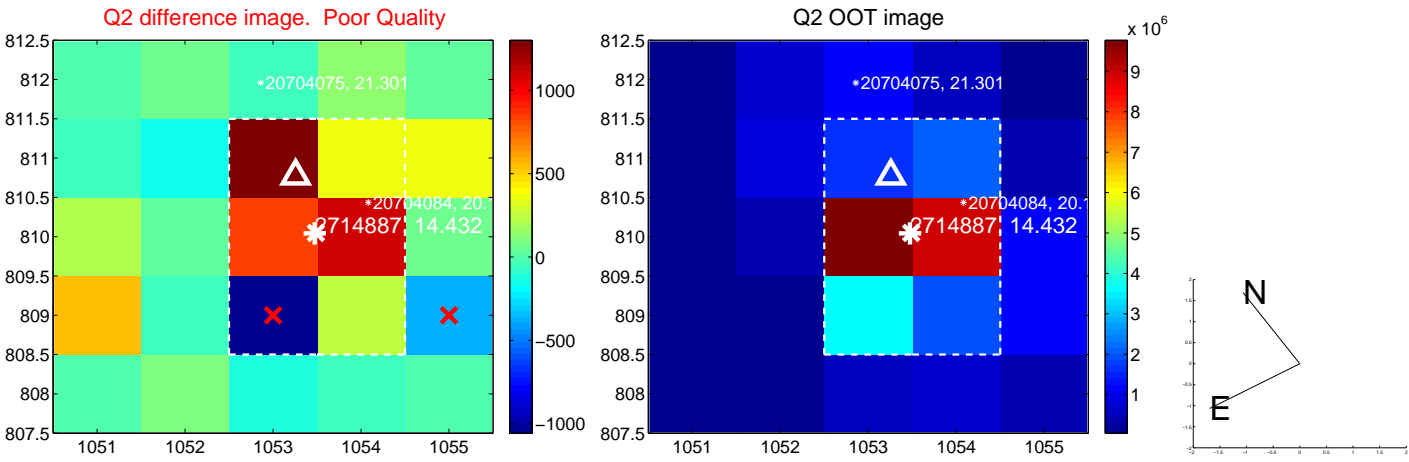
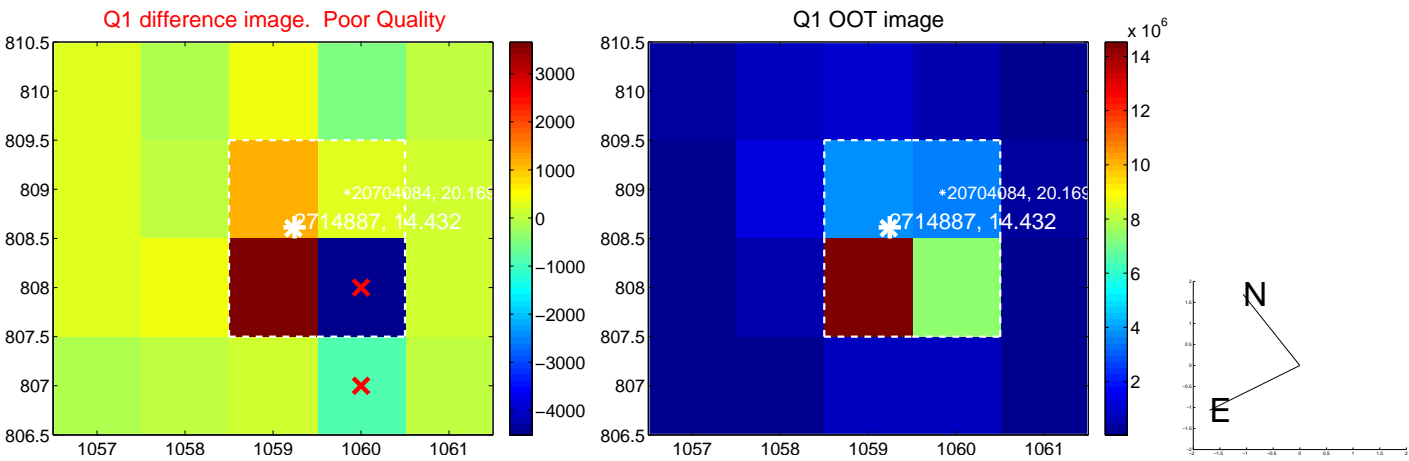


offset from photometric centroids

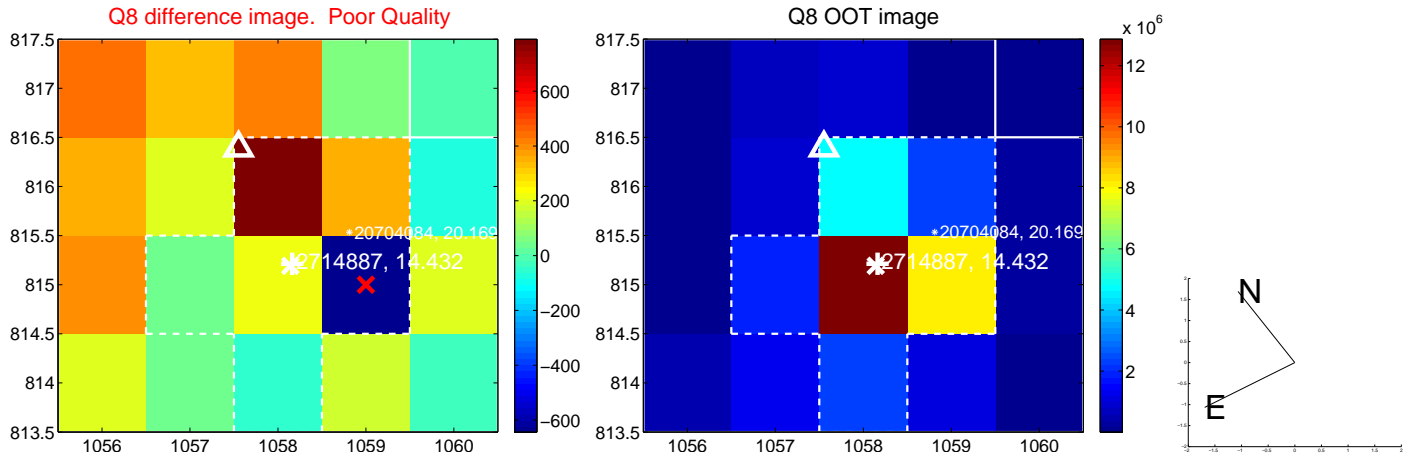
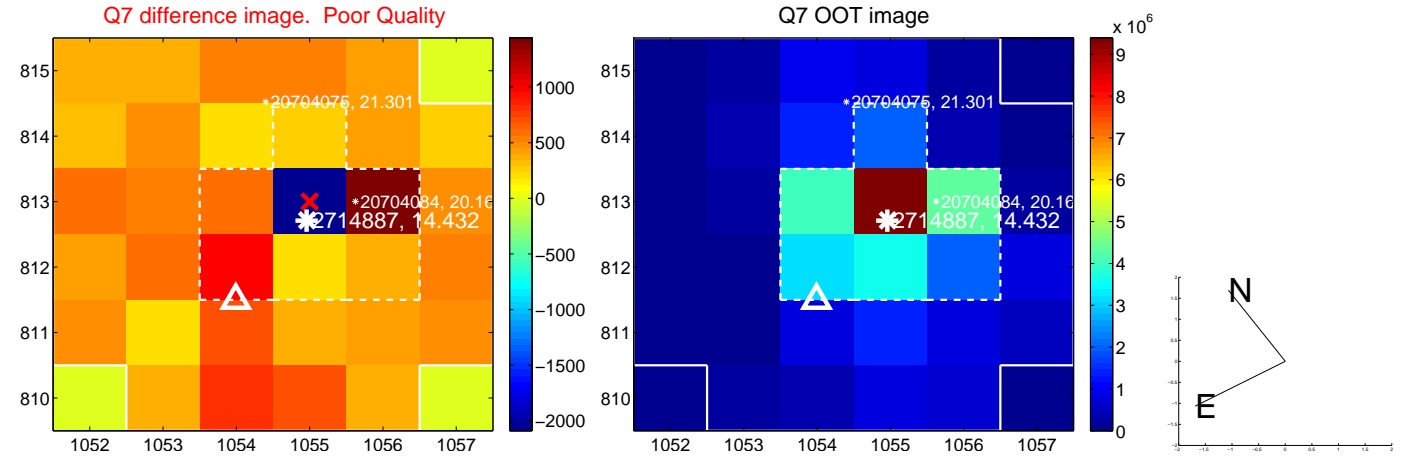
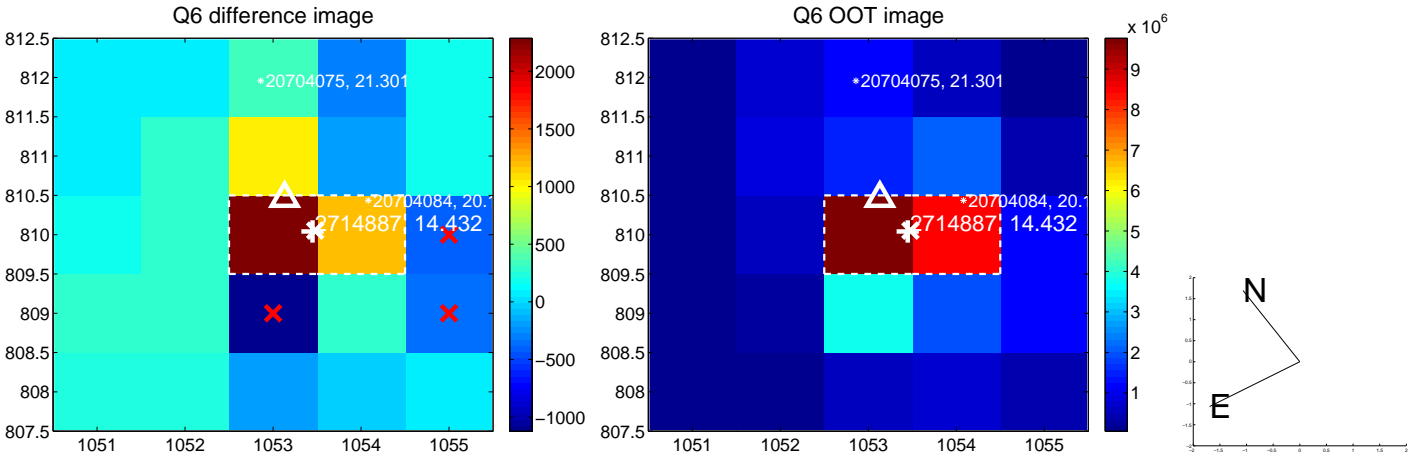
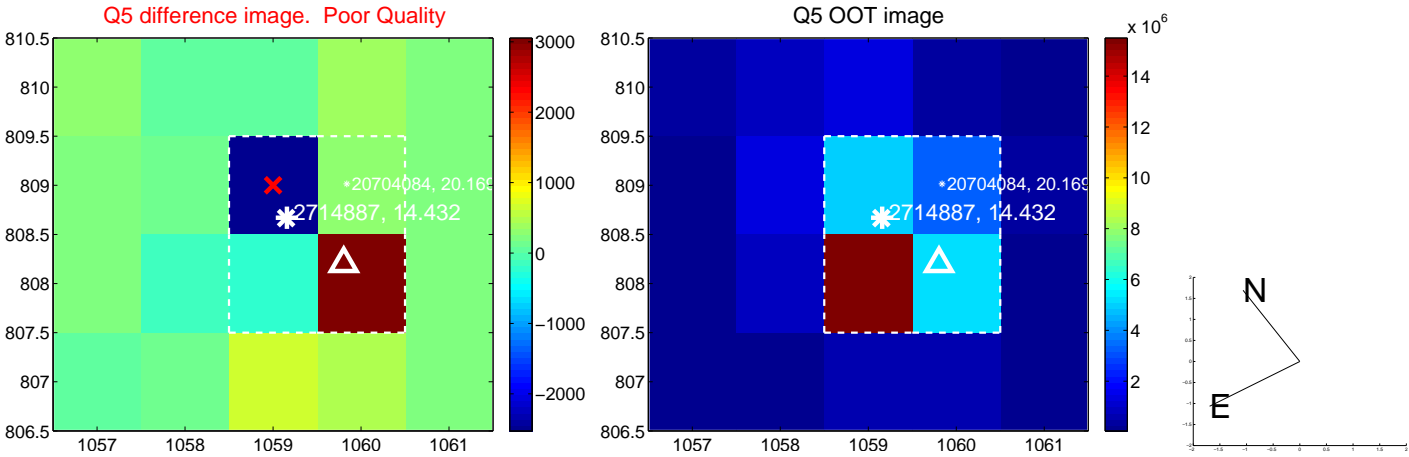


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

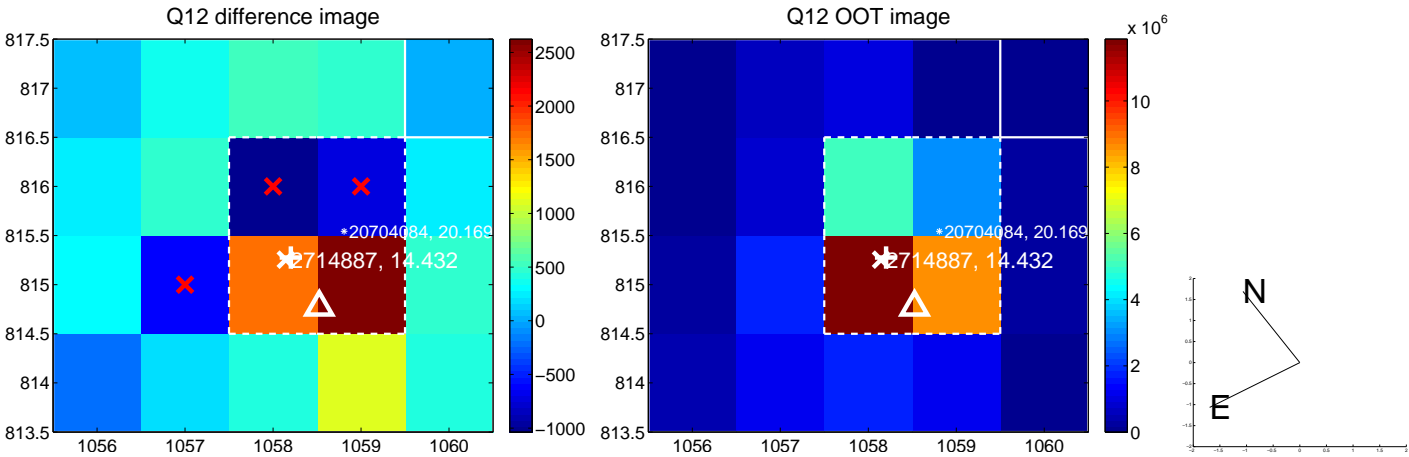
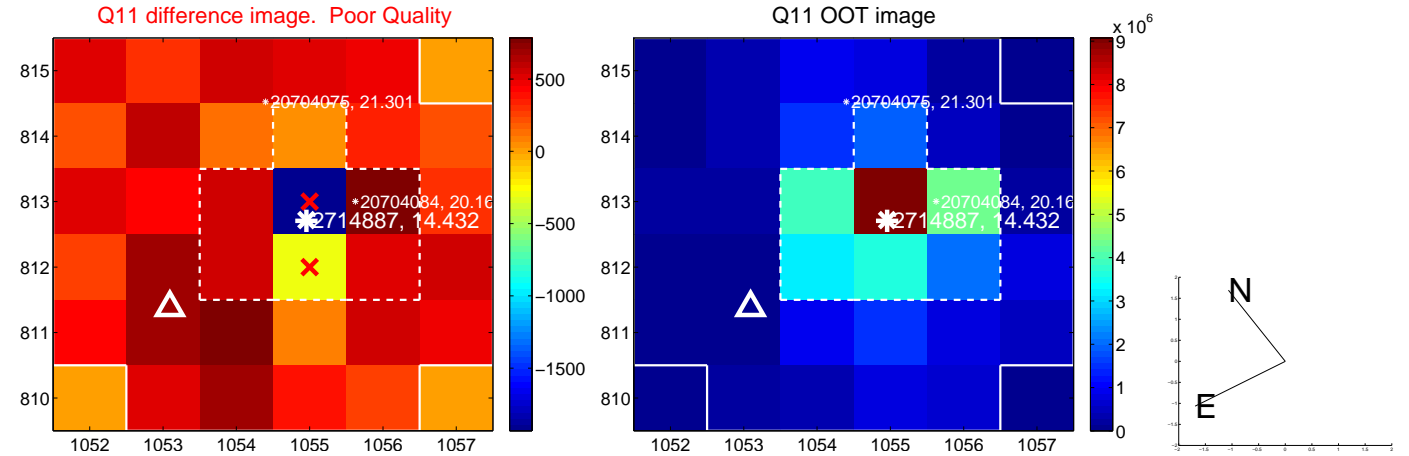
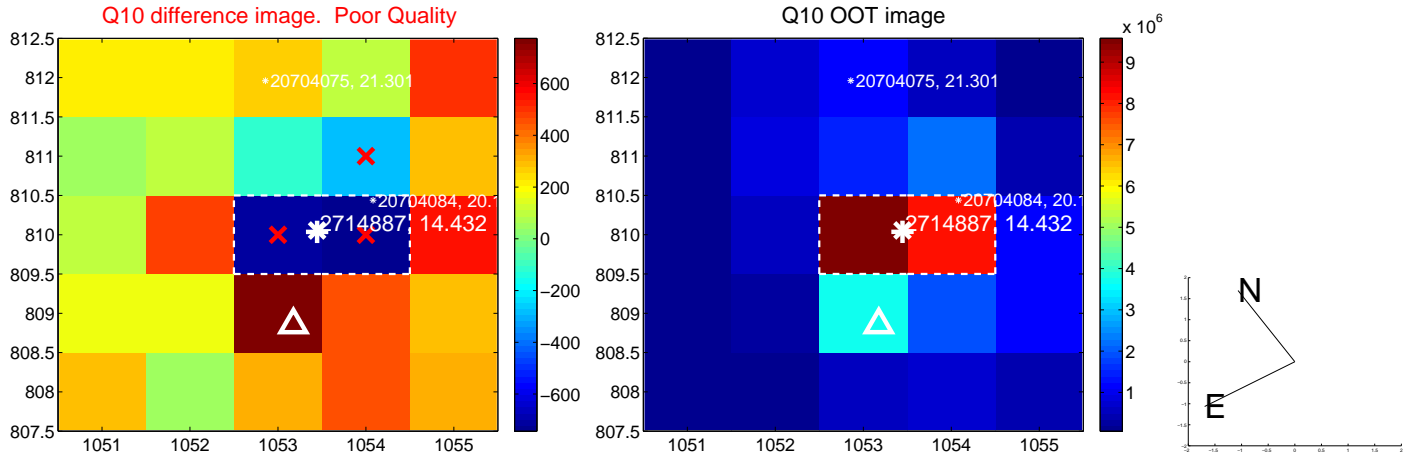
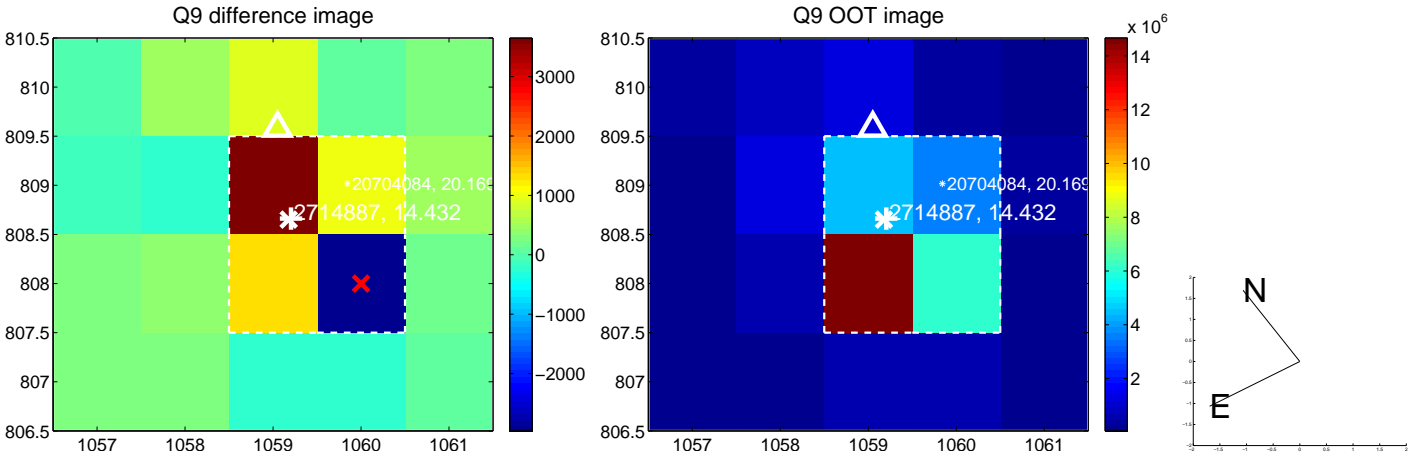
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



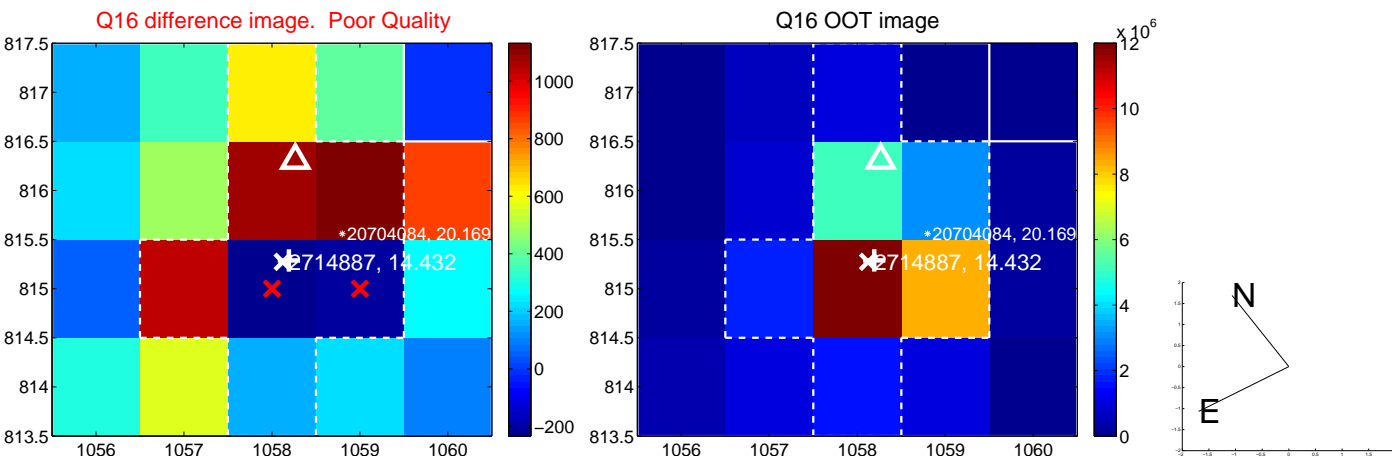
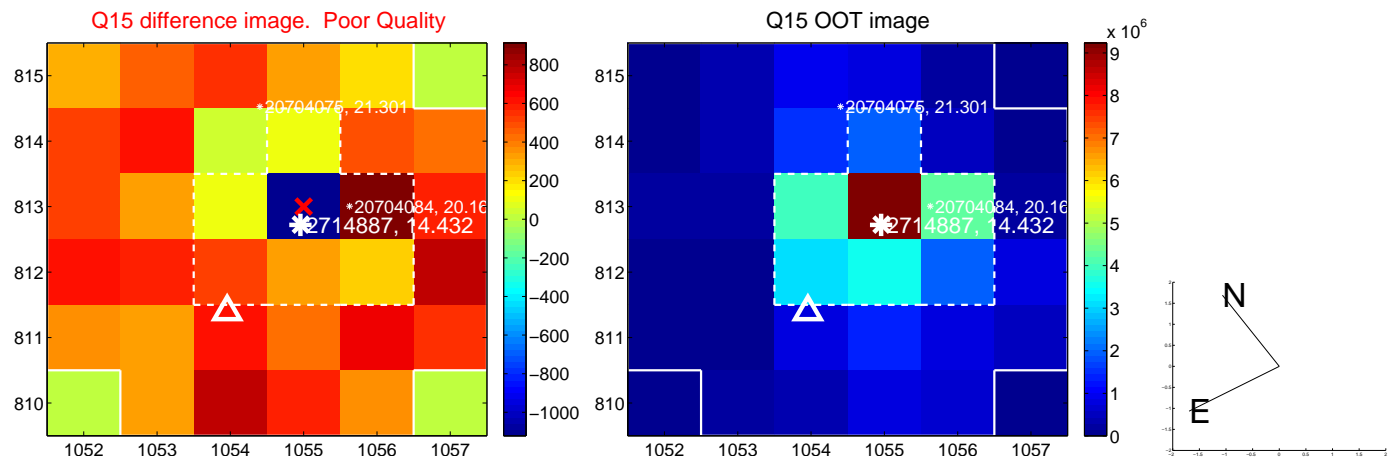
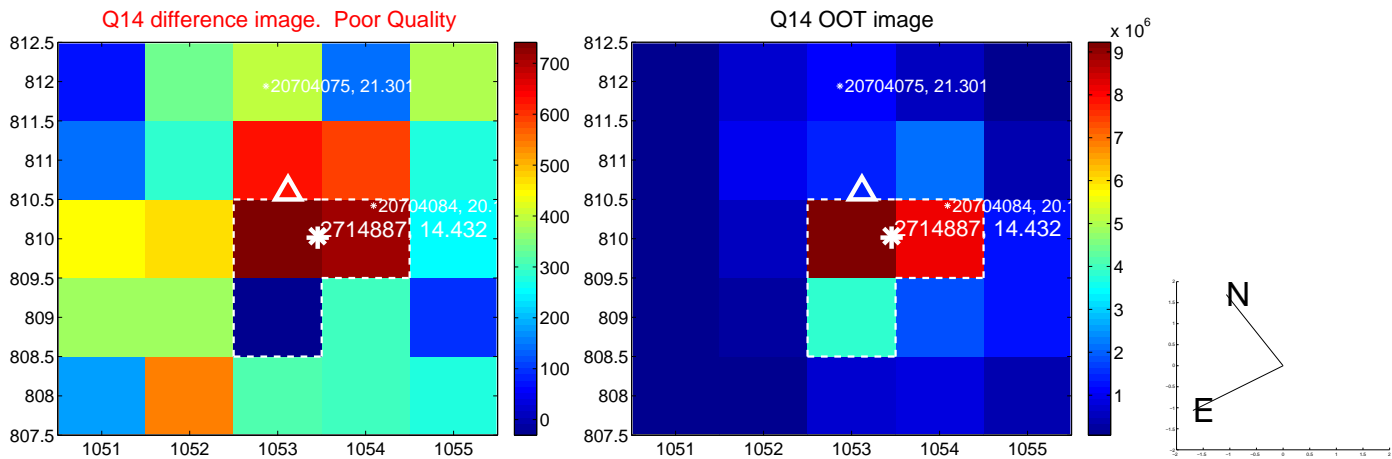
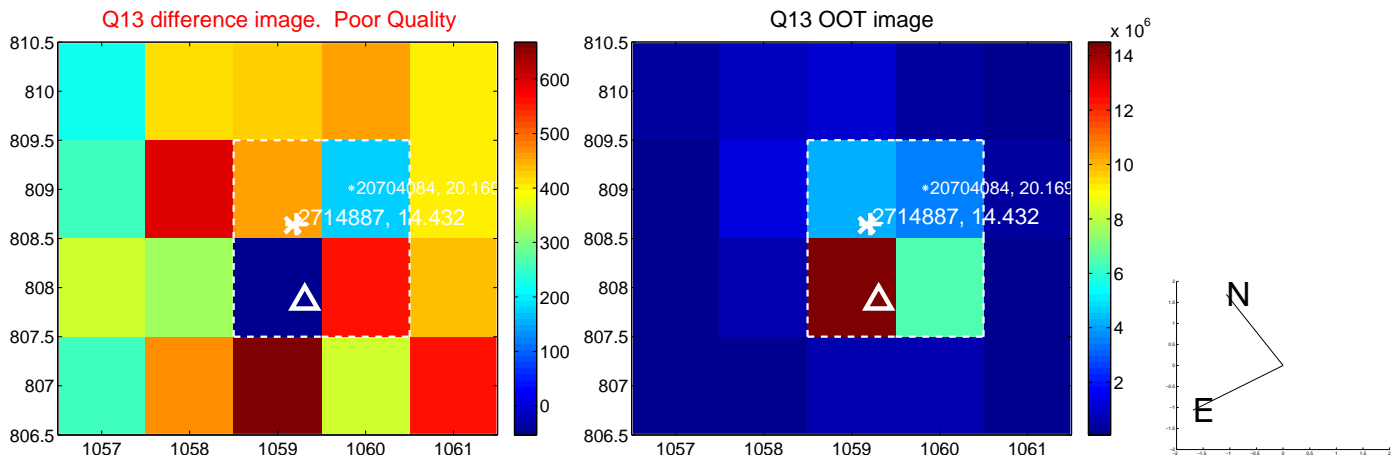
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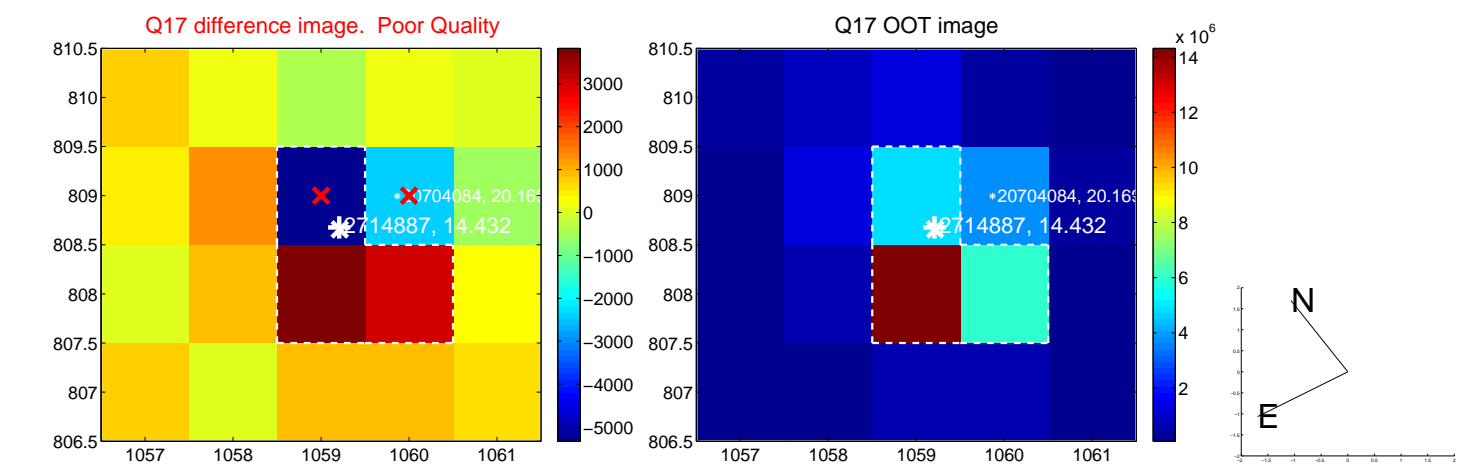
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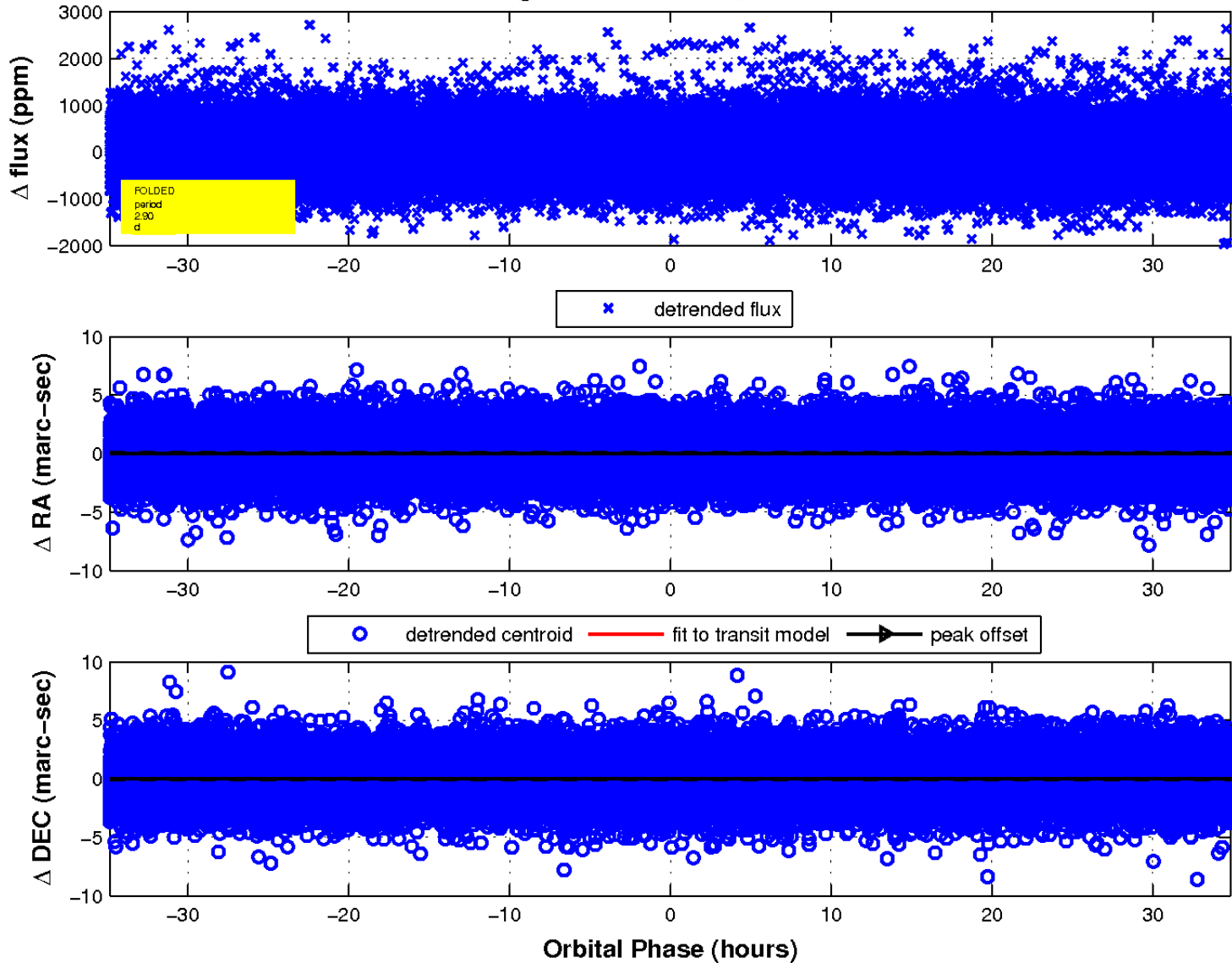
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

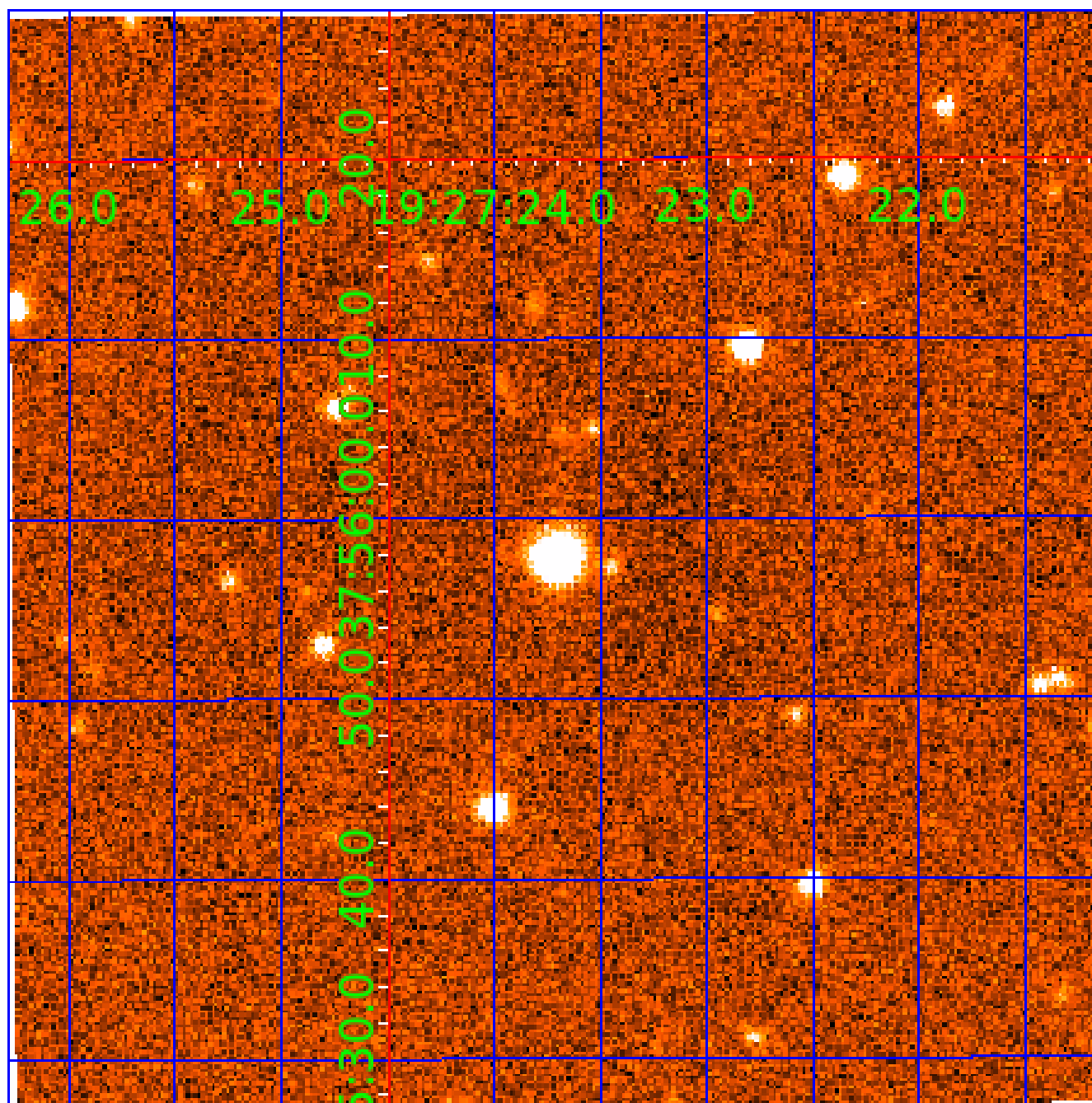


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



KIC 002714887

Q1-17 DR25 TCE Parameters

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002714887-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

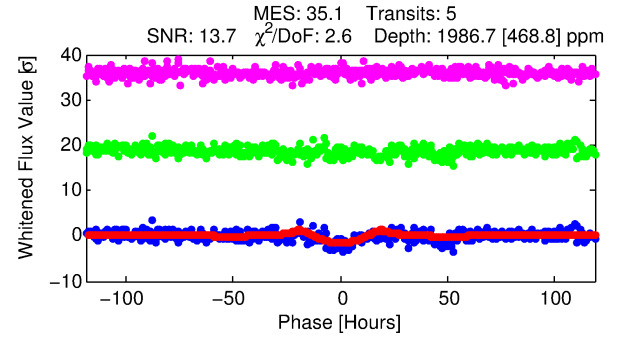
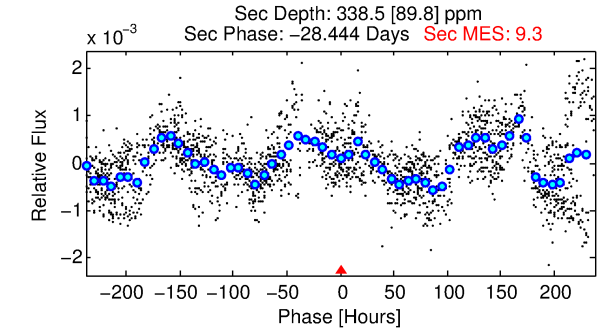
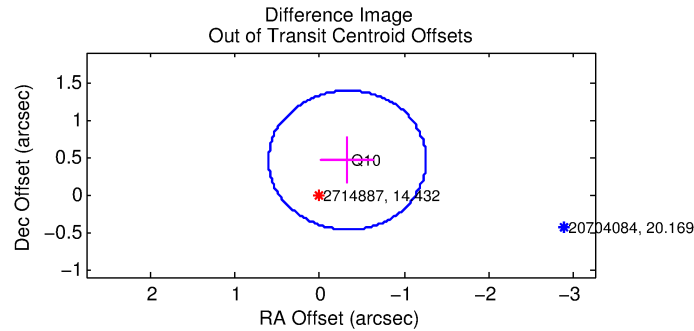
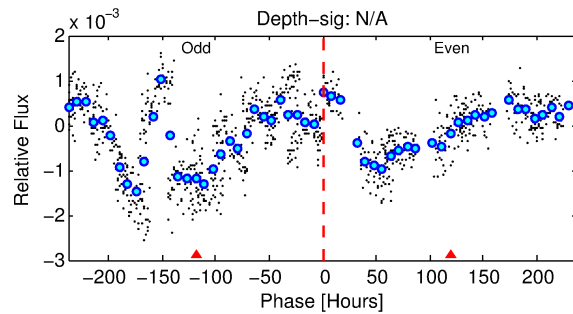
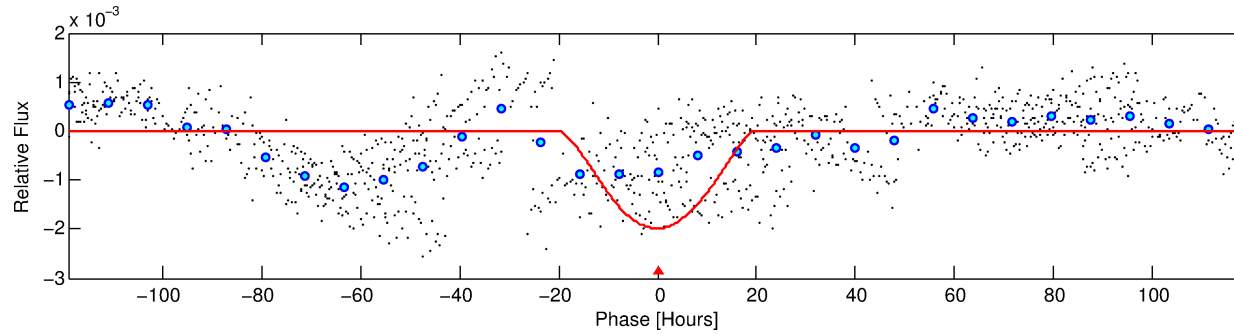
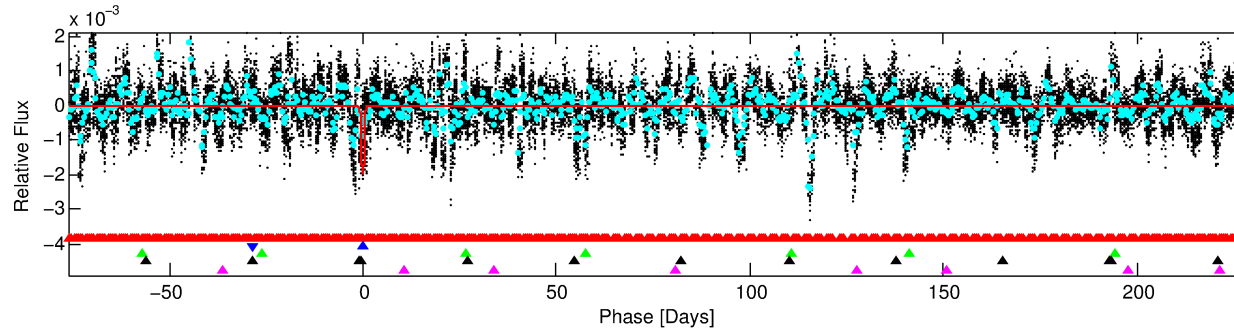
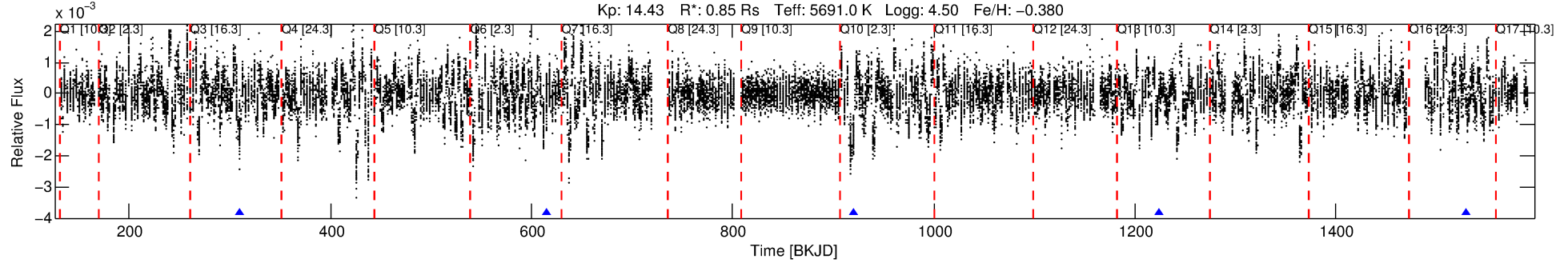
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002714887-02

No Significant Match Found

DV One-Page Summary

KIC: 2714887 Candidate: 2 of 5 Period: 304.548 d



DV Fit Results:

Period = 304.54796 [0.03943] d
Epoch = 310.5153 [0.0593] BKJD
Rp/R* = 0.0774 [0.1634]
a/R* = 23.51 [11.39]
b = 1.00 [0.22]
Seff = 0.98 [0.30]
Teq = 254 [19] K
Rp = 7.16 [15.20] Re
a = 0.8306 [0.1648] AU
Ag = 2509.66 [10640.86] [0.24σ]
Teffp = 2774 [2935] K [0.86σ]

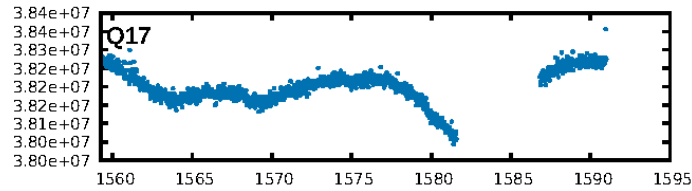
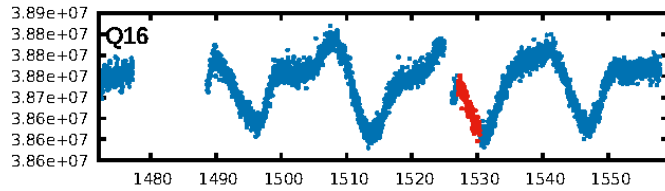
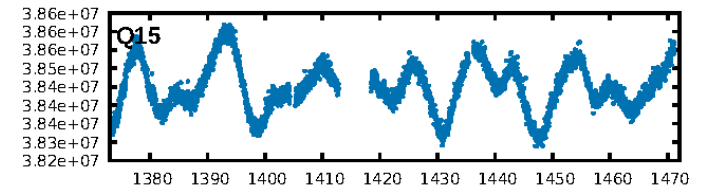
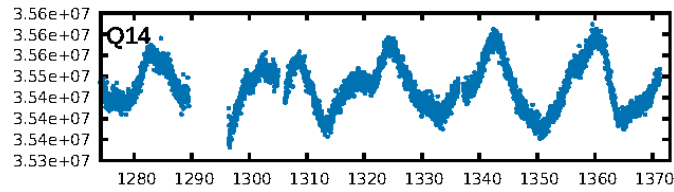
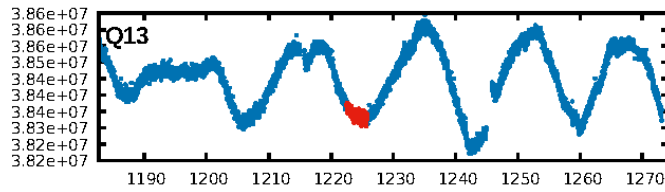
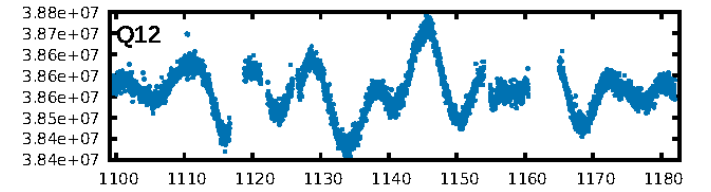
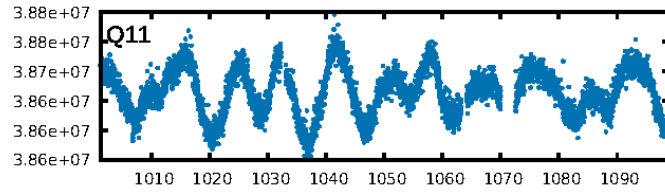
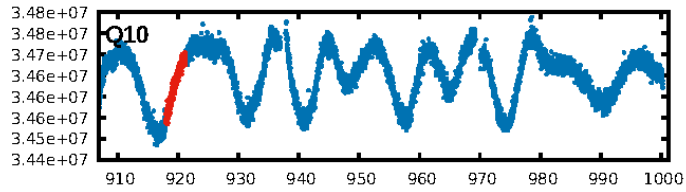
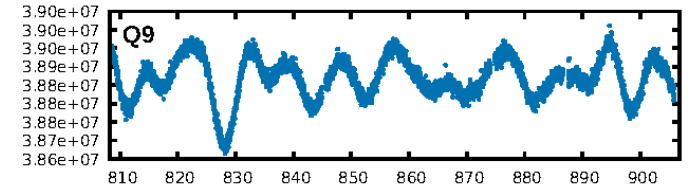
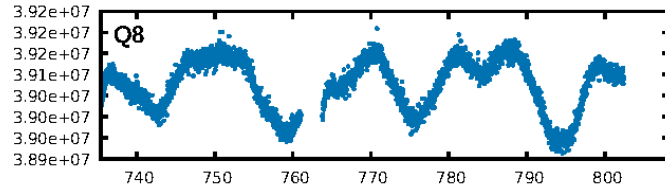
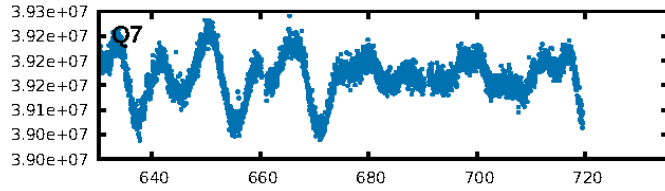
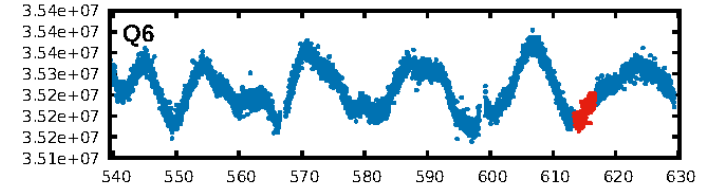
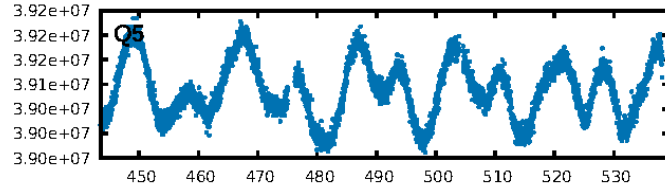
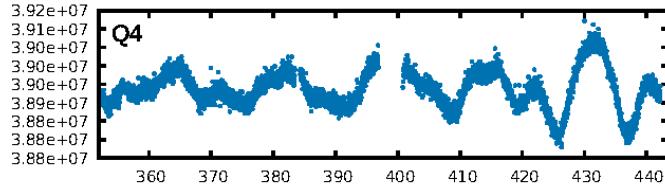
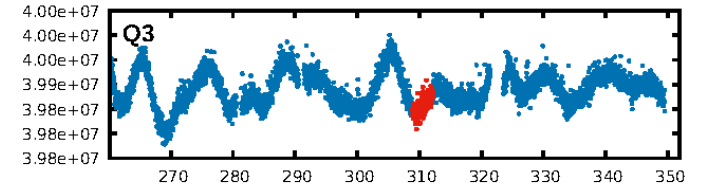
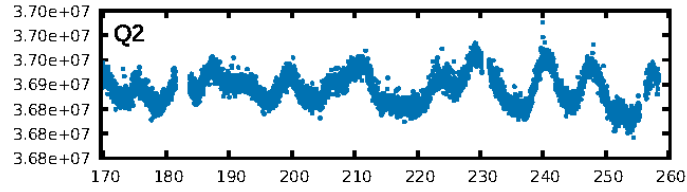
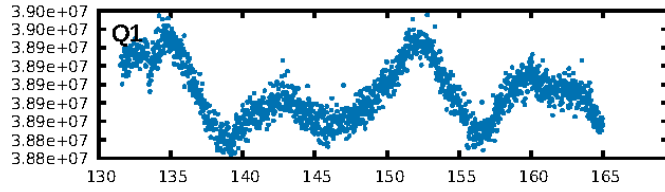
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [41.41σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 92.6%
Bootstrap-pfa: 8.87e-151
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.6427
Centroid-sig: 0.0%
Centroid-so: 0.087 arcsec [0.54σ]
OotOffset-rm: 0.567 arcsec [1.83σ]
KicOffset-rm: 0.503 arcsec [1.62σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/3]

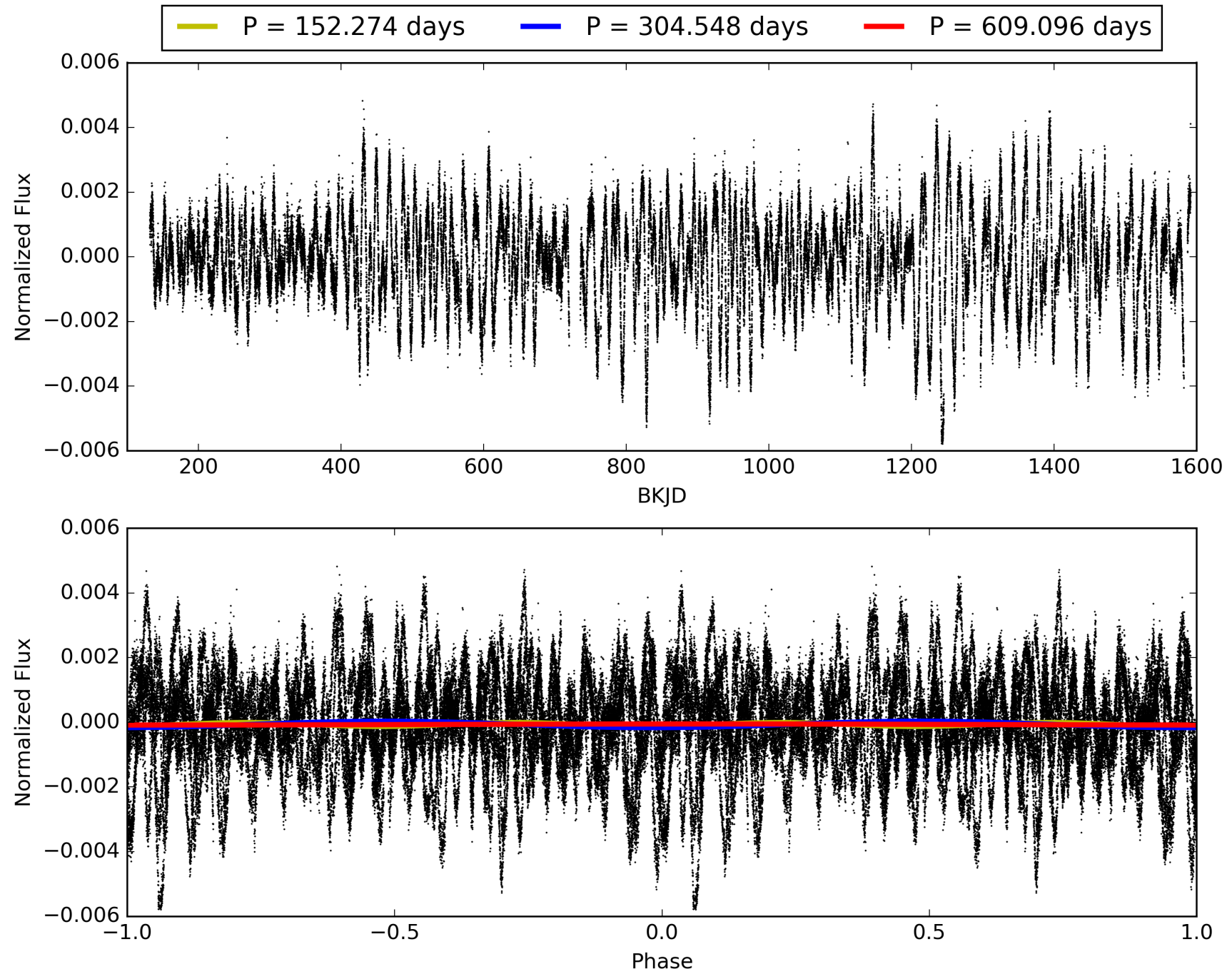
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:51:45 Z

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

TCE 002714887-02, PDC Light Curves

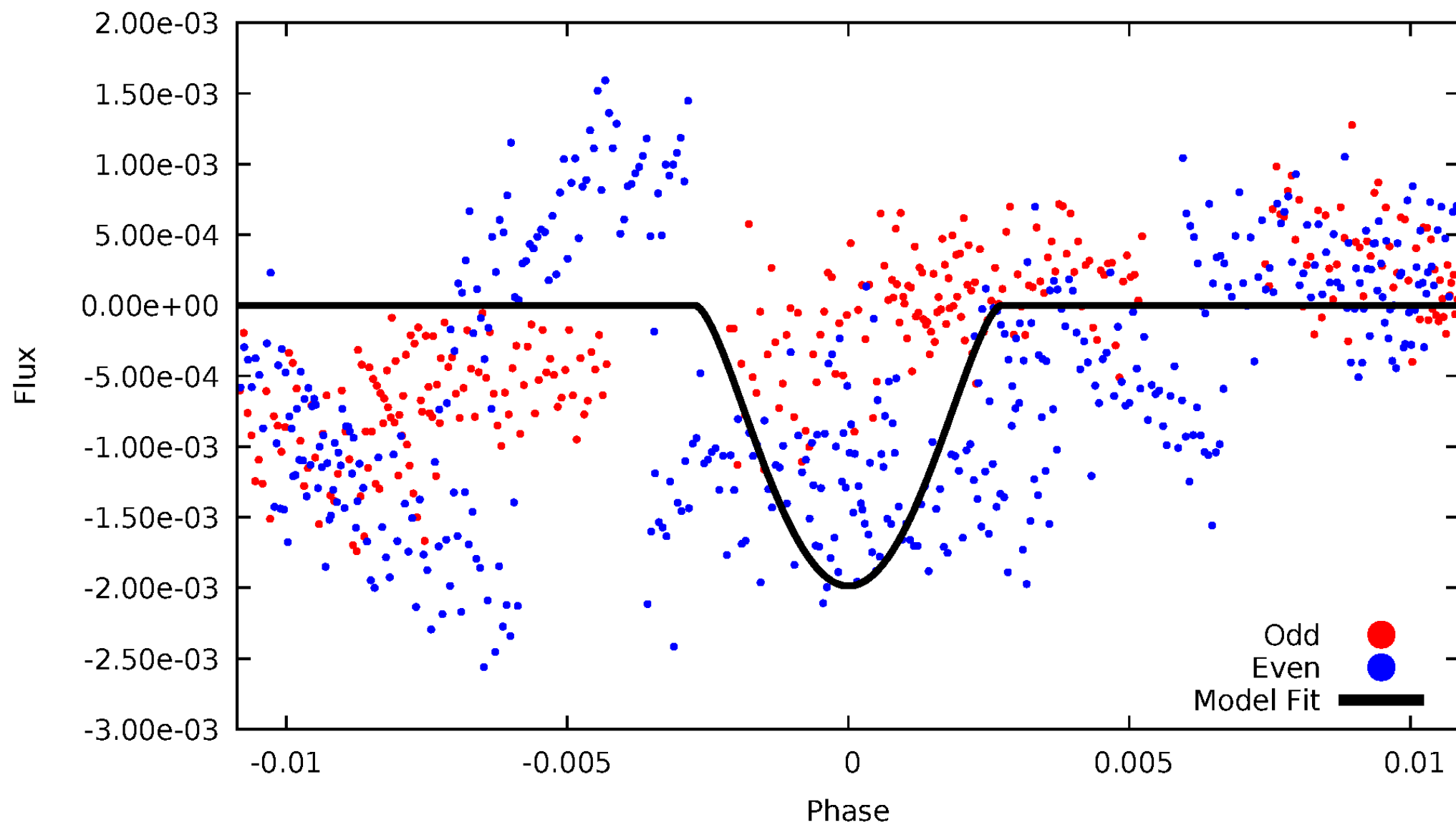


TCE 002714887-02



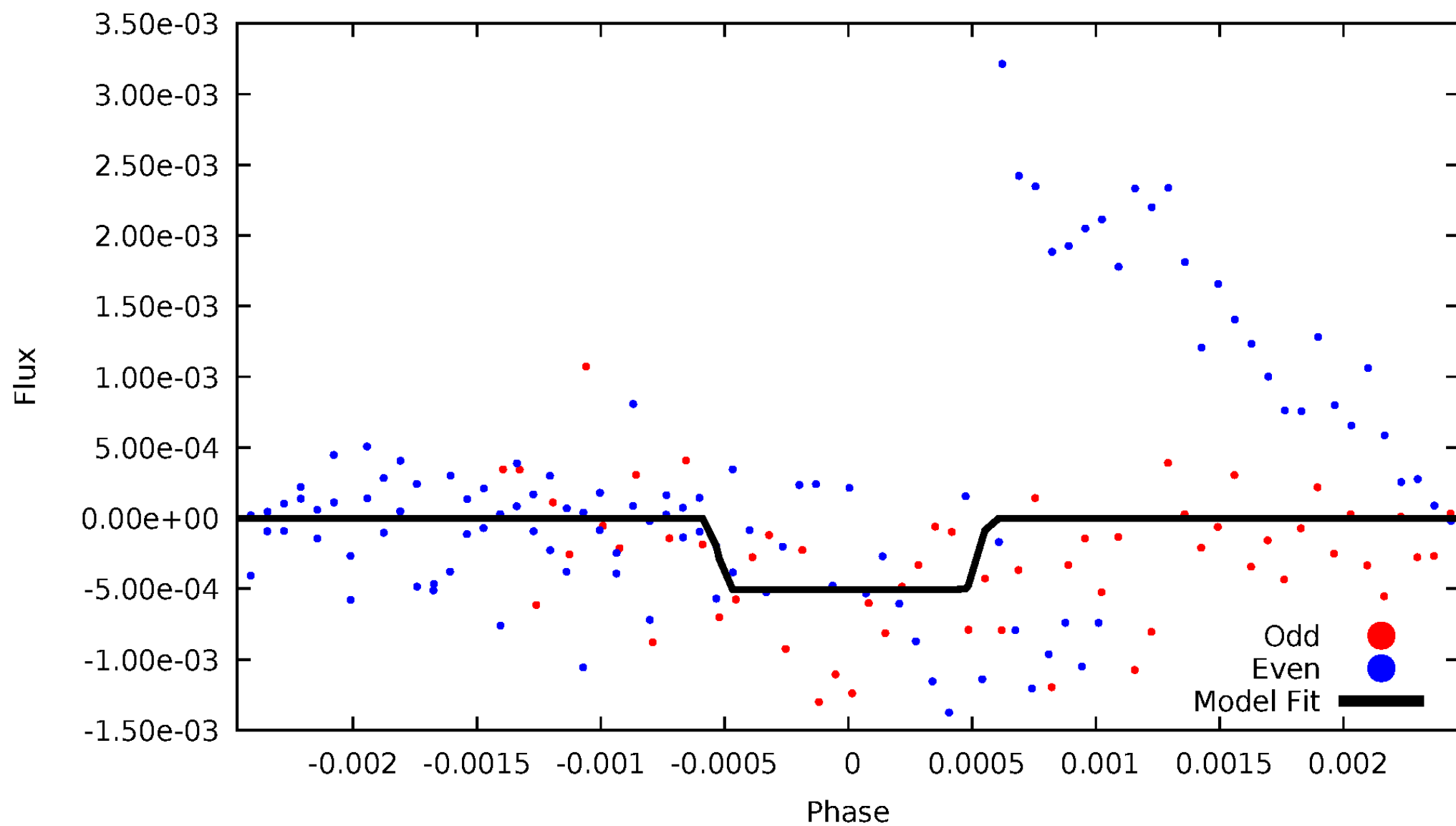
DV Odd/Even

TCE 002714887-02



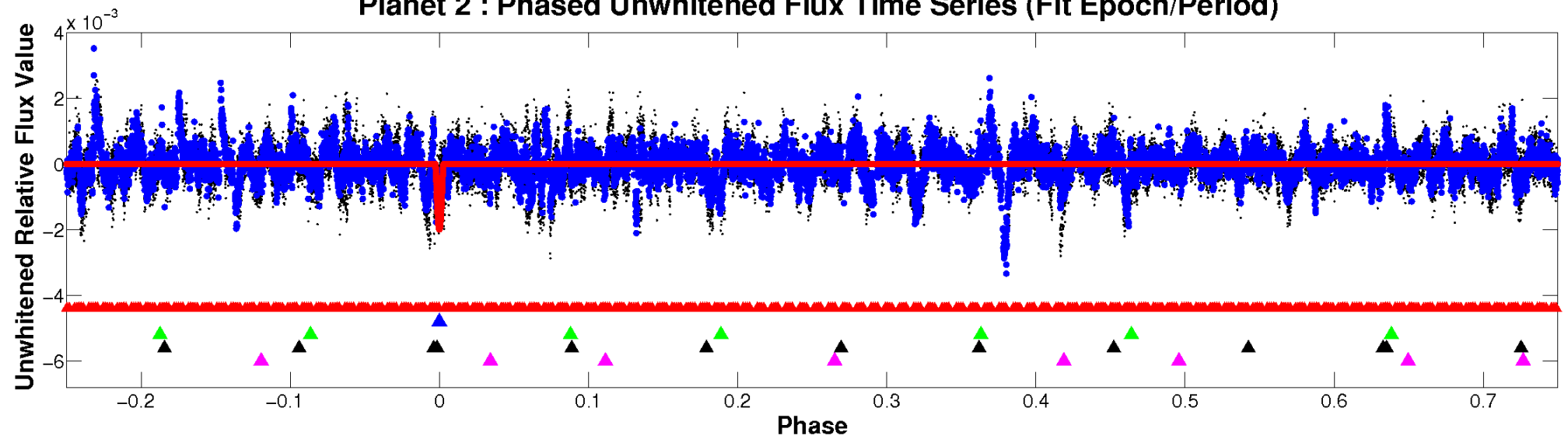
ALT Odd/Even

TCE 002714887-02

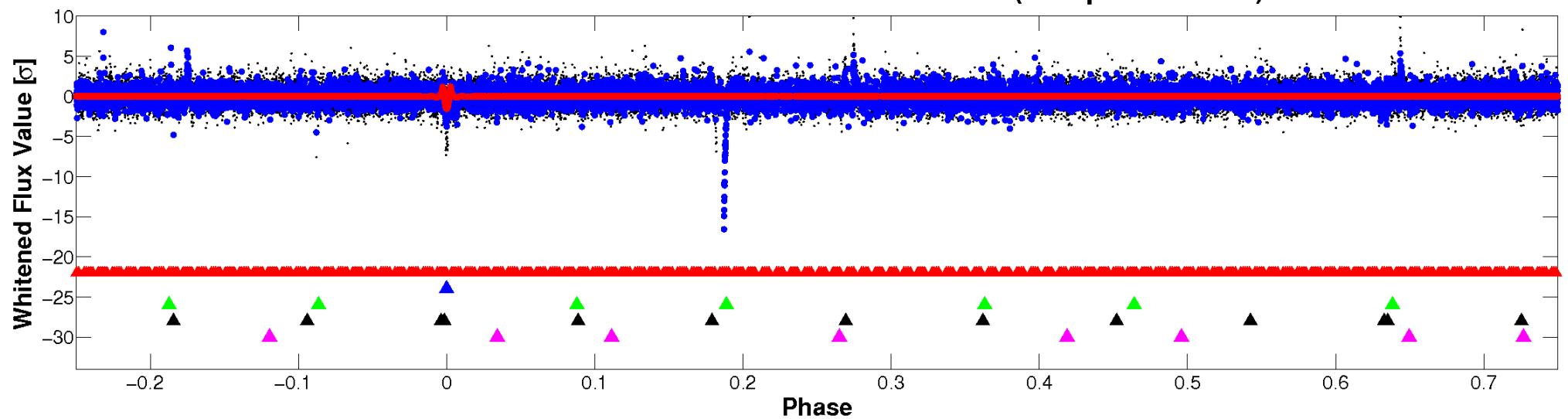


Non-Whitened Vs. Whitened Light Curve

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

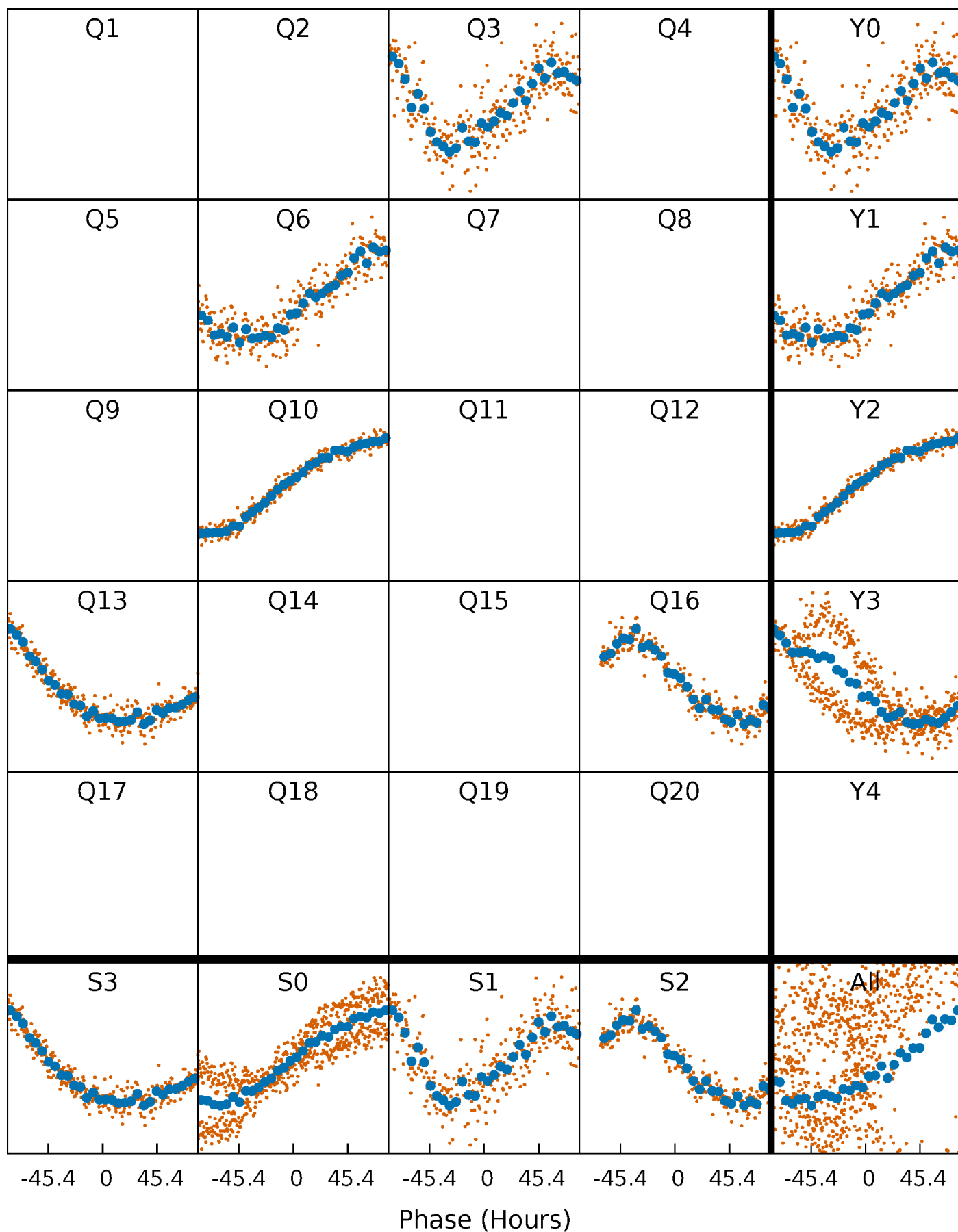


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



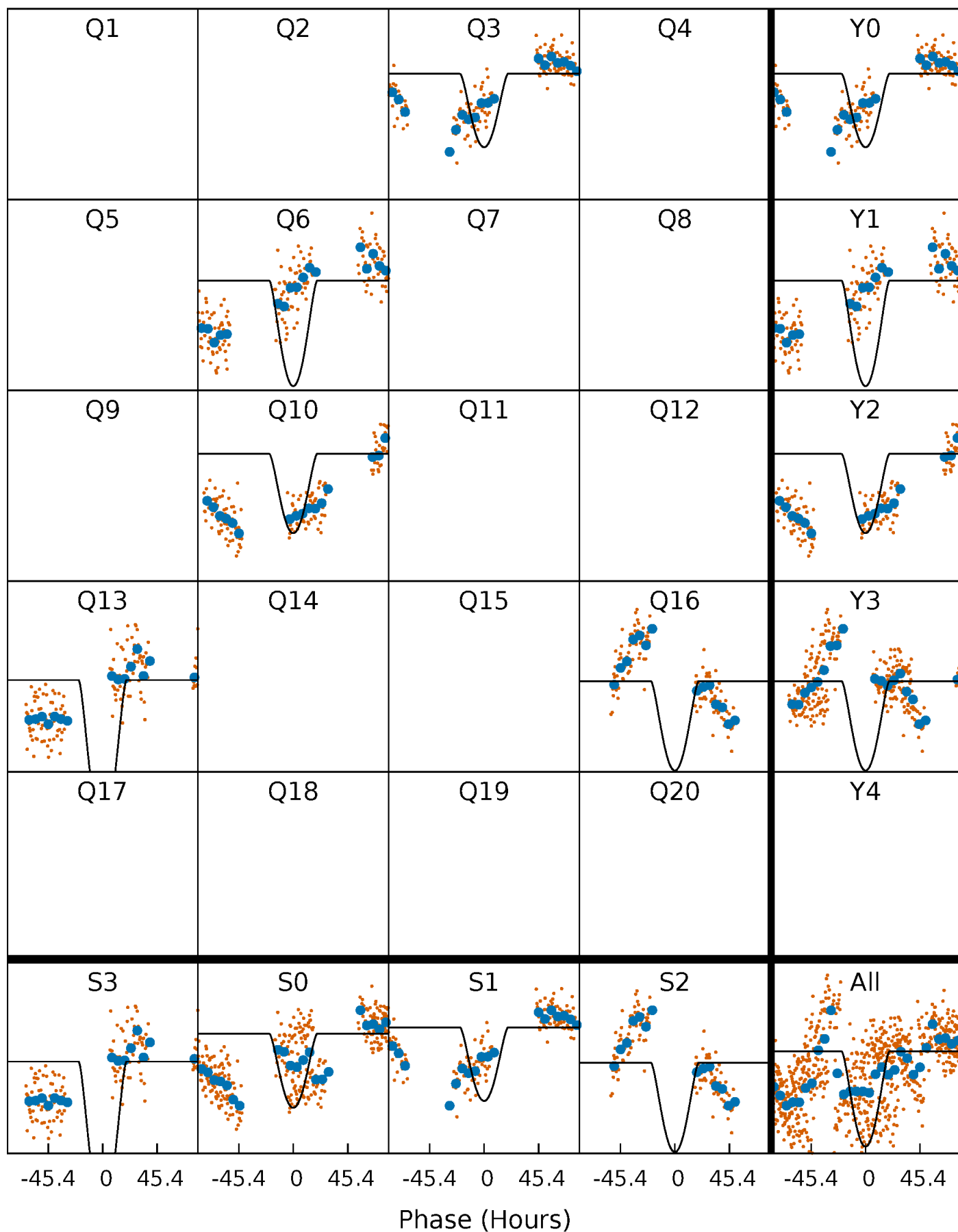
PDC Quarter-Phased Transit Curves

TCE 002714887-02 $P=304.547959$ Days $T_0=310.515256$ (BKJD)



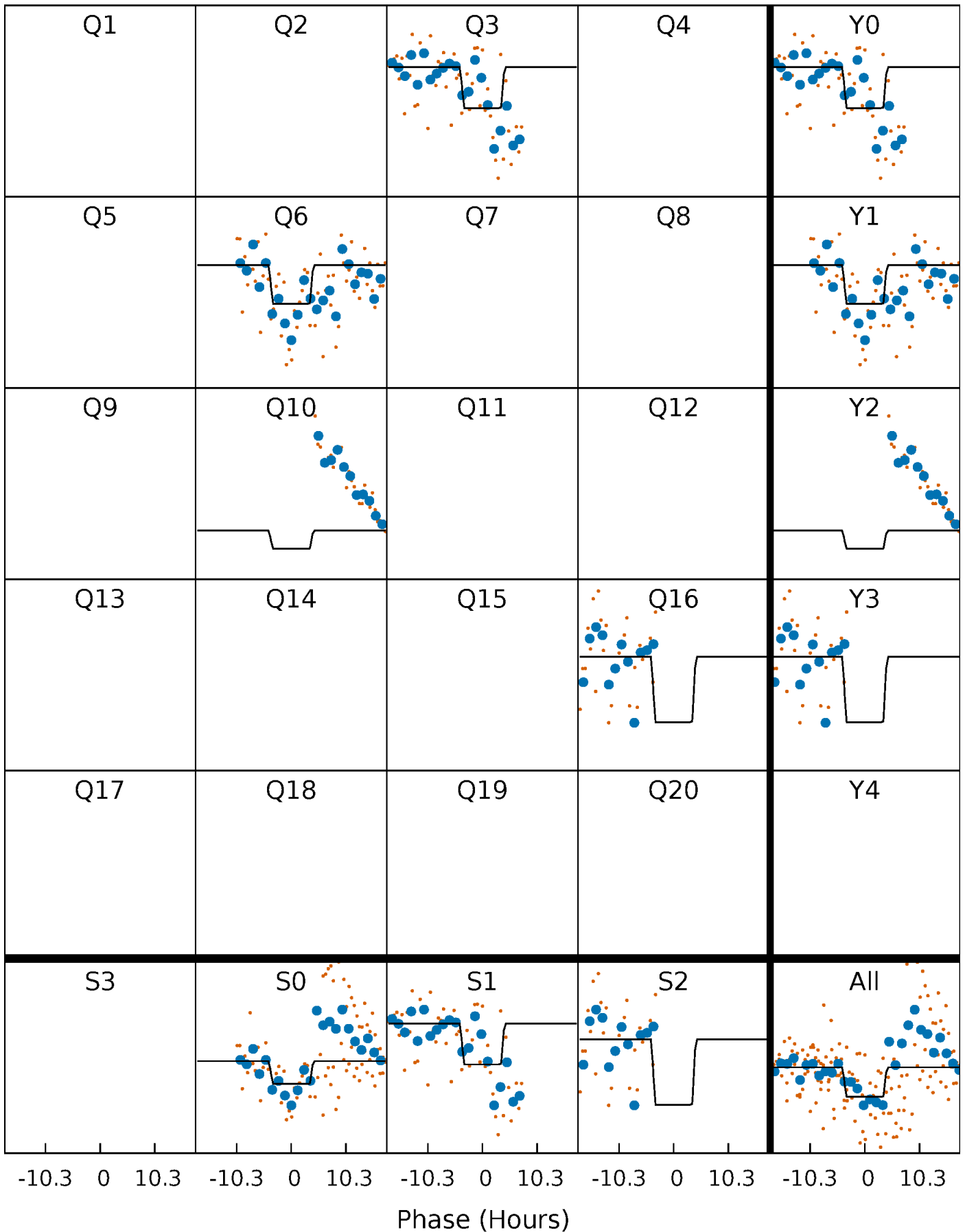
DV Quarter-Phased Transit Curves

TCE 002714887-02 $P=304.547959$ Days $T_0=310.515256$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

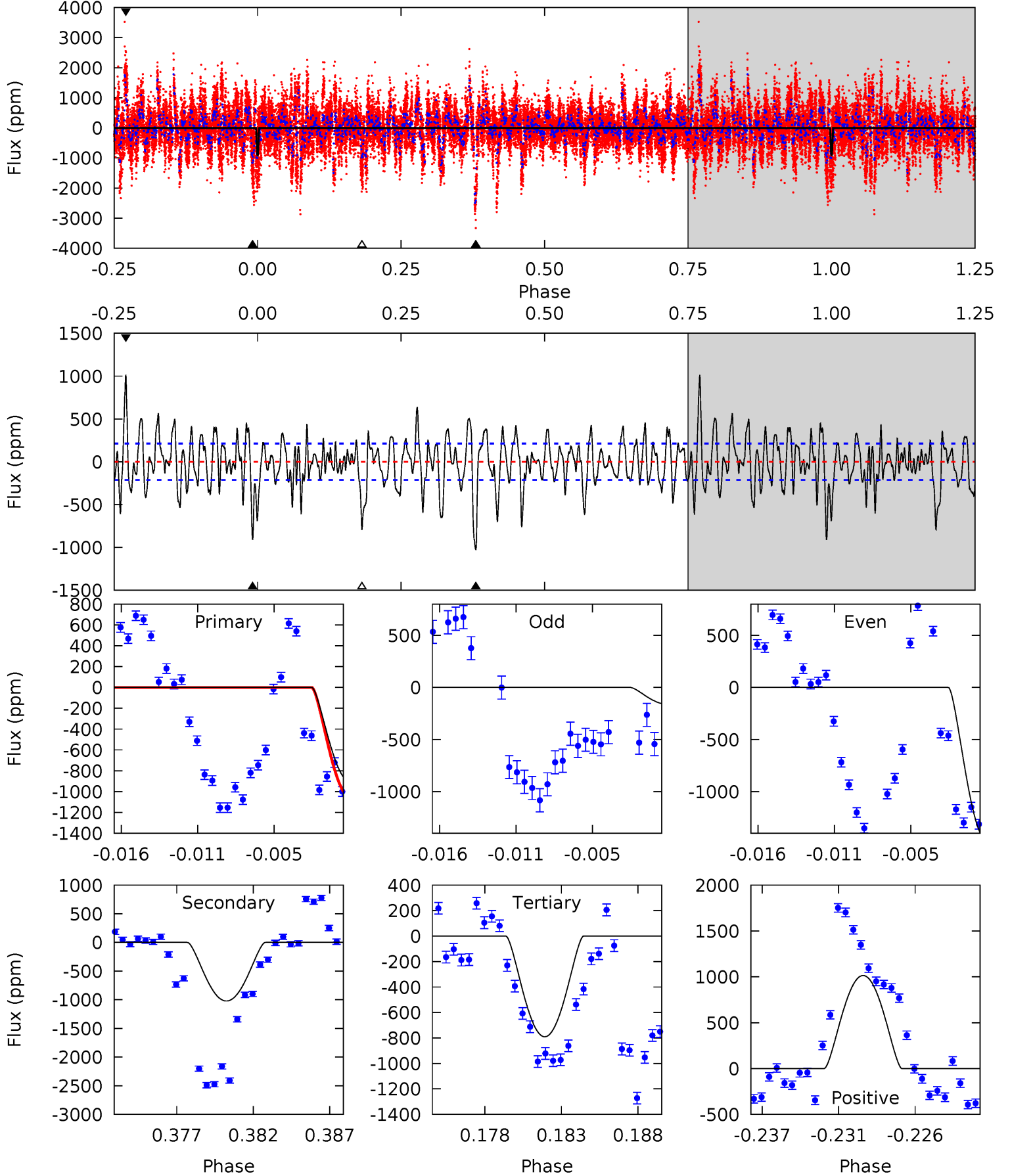
TCE 002714887-02 $P=304.378310$ Days $T_0=310.467738$ (BKJD)



DV Model-Shift Uniqueness Test

002714887-02, P = 304.547959 Days, E = 5.967297 Days

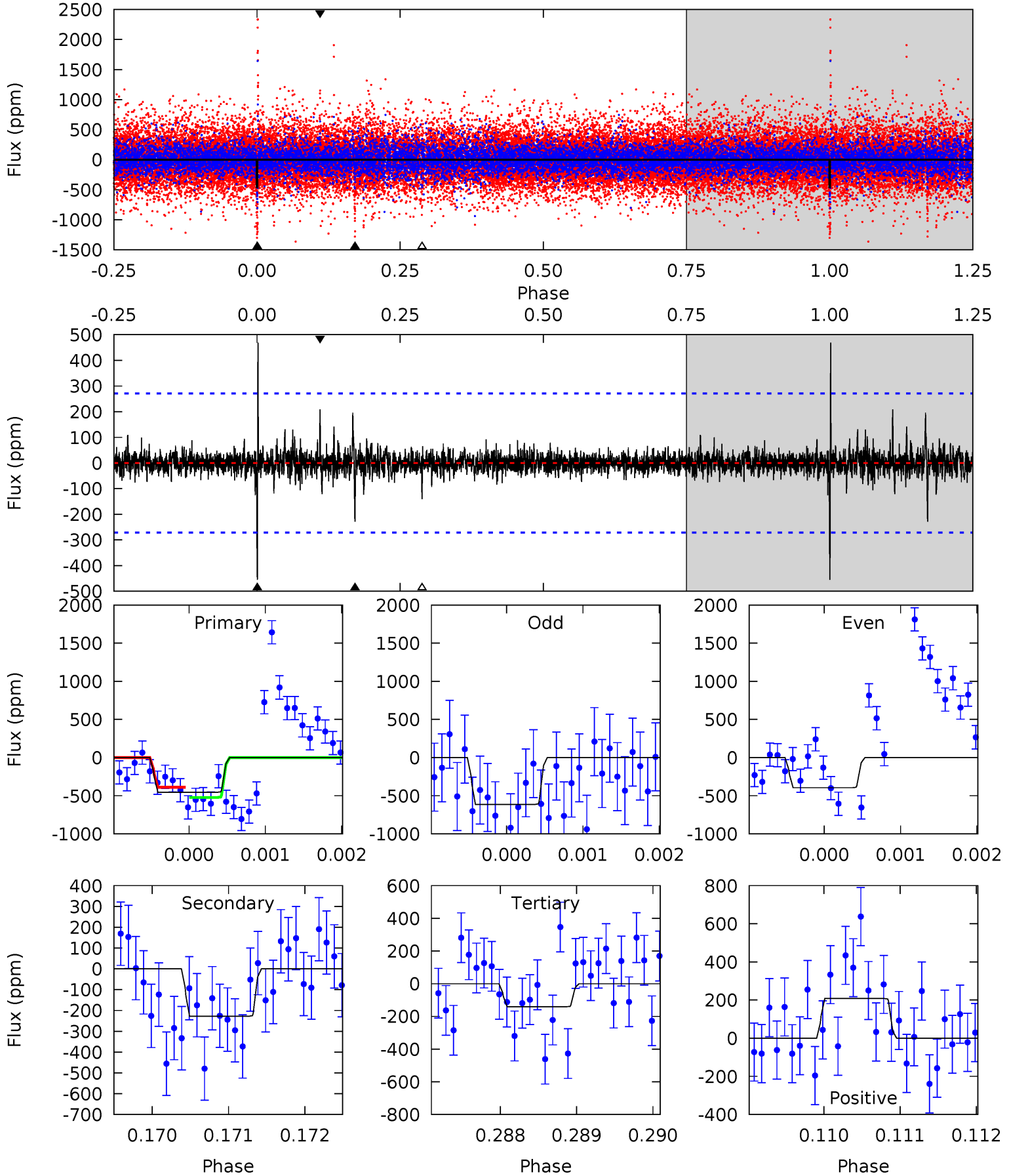
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	24.8	19.2	24.6	5.14	2.78	6.00	2.85	-2.58	5.61	0.18	15.9	0.94	0.50	3.21



Alt Model-Shift Uniqueness Test

002714887-02, P = 304.378310 Days, E = 6.089428 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.11	4.57	2.82	4.17	5.43	3.25	0.58	6.29	4.94	1.74	0.39	2.19	0.64	0.51	1.35



Stellar Parameters For KIC 002714887

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5691^{+154}_{-154}	$4.498^{+0.084}_{-0.156}$	$-0.380^{+0.300}_{-0.300}$	$0.847^{+0.201}_{-0.108}$	$0.824^{+0.107}_{-0.071}$	$1.909^{+0.682}_{-0.826}$
	+3%/-3%	+2%/-3%	+79%/-79%	+24%/-13%	+13%/-9%	+36%/-43%
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 002714887-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1022 ± 41	$12.91^{+13.85}_{-8.52}$	357^{+22}_{-16}	3296^{+1515}_{-602}	2274^{+17885}_{-1712}
Alt.	-228 ± 50	$10.99^{+11.27}_{-7.30}$	358^{+20}_{-16}	2799^{+1107}_{-456}	733^{+5975}_{-567}

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 $A_{obs} \gg 1.0$

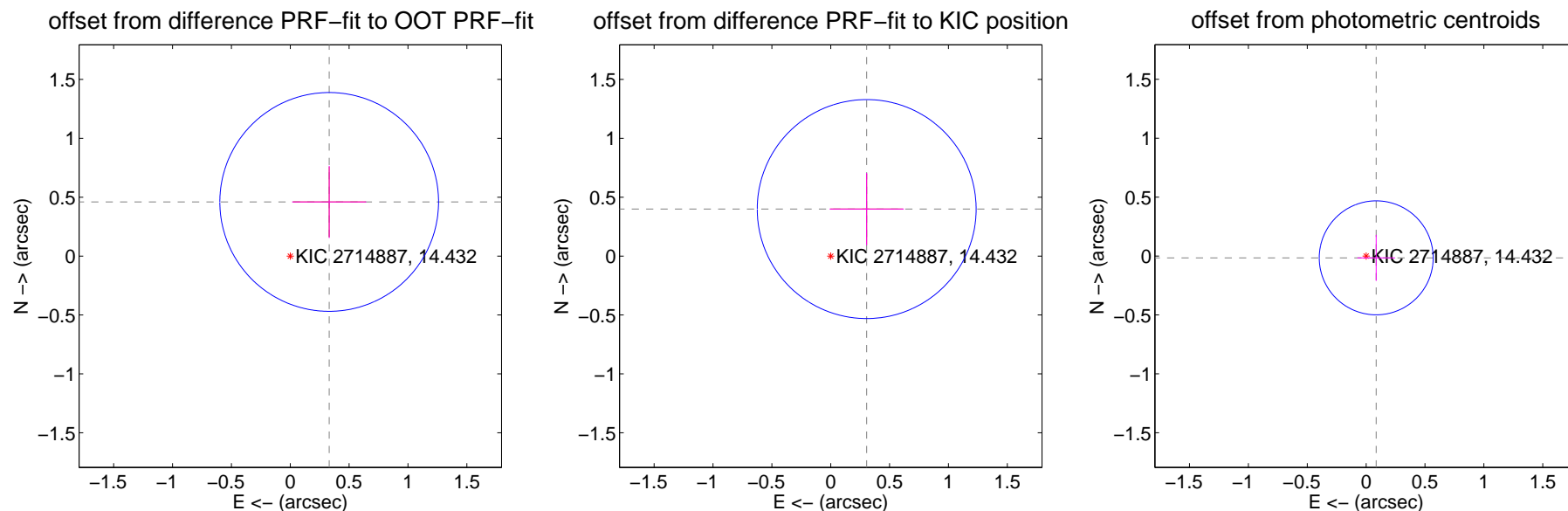
DV Centroid Data

Supplemental centroid analysis for 002714887-02. Kepler magnitude: 14.43. Transit SNR 13.71

There are 0 quarters with good PRF difference image offsets

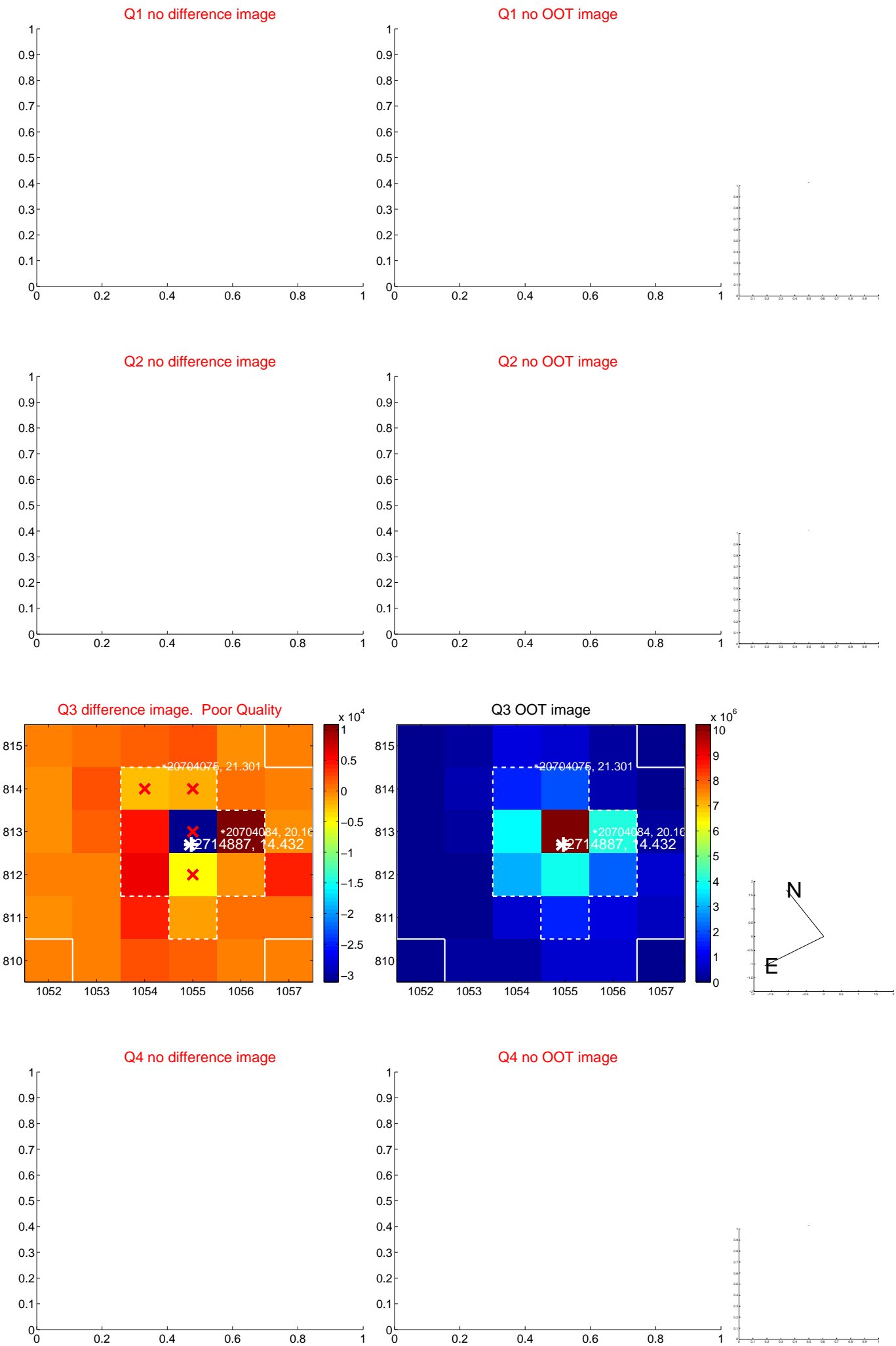
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.567 ± 0.310	1.83	-0.331 ± 0.315	0.460 ± 0.307
PRF-fit source offset from KIC position	0.503 ± 0.310	1.62	-0.306 ± 0.315	0.399 ± 0.307
photometric centroid source offset	0.09 ± 0.16	0.54	-0.09 ± 0.16	-0.02 ± 0.20

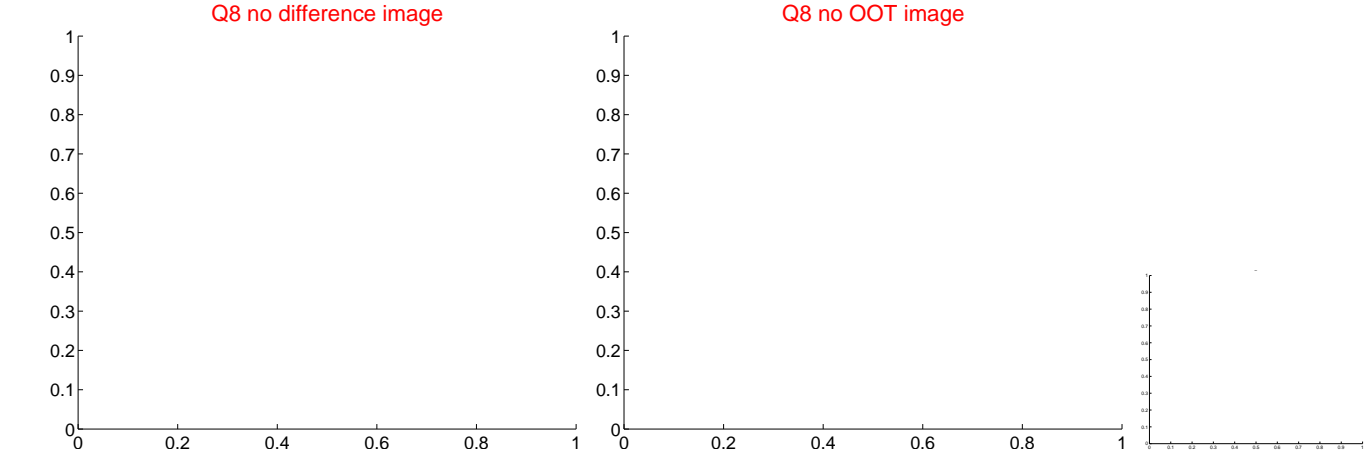
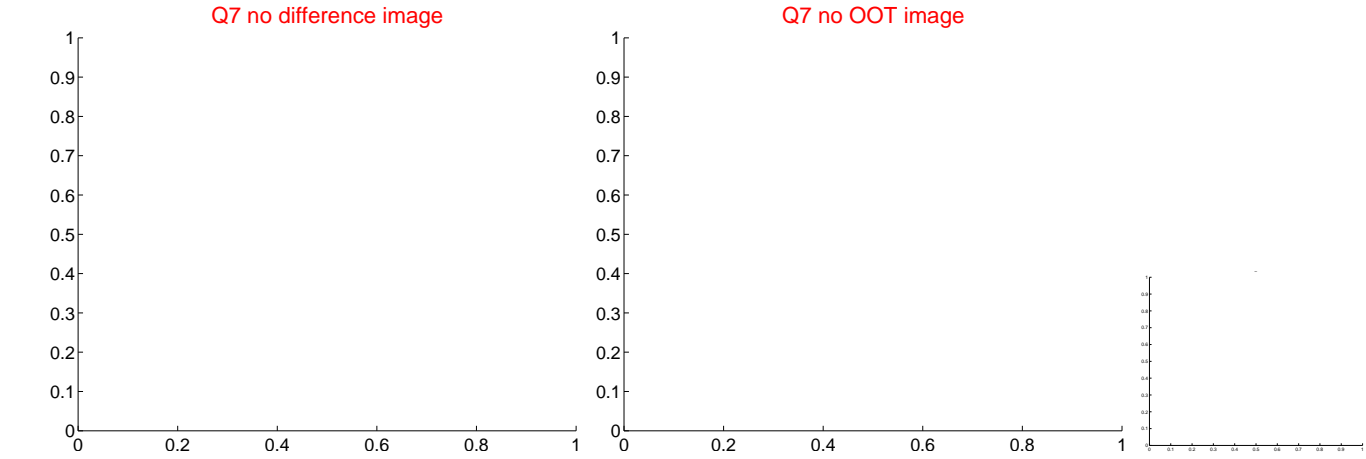
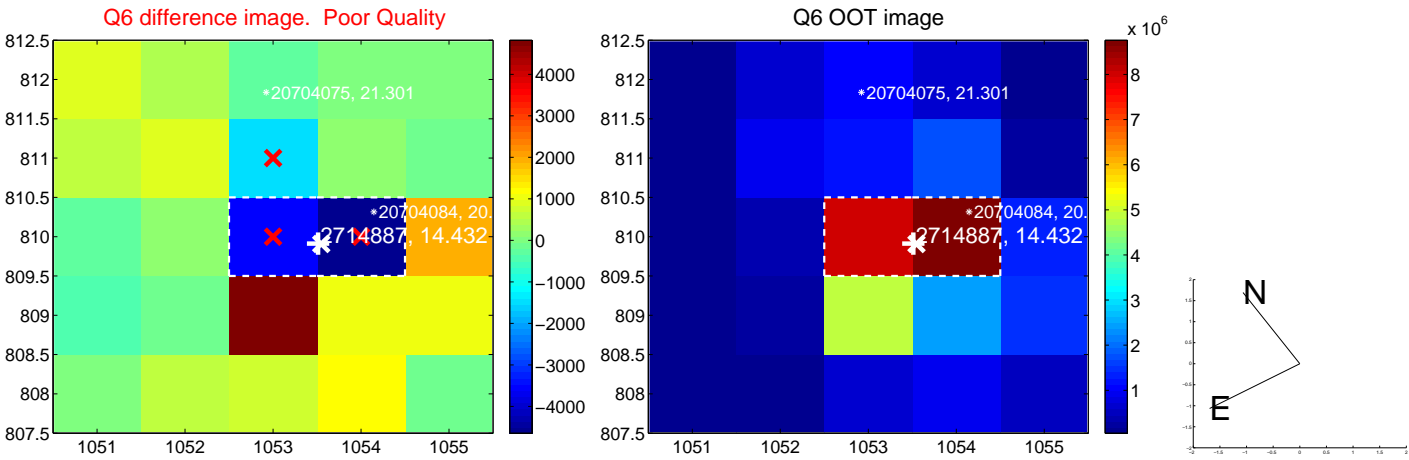
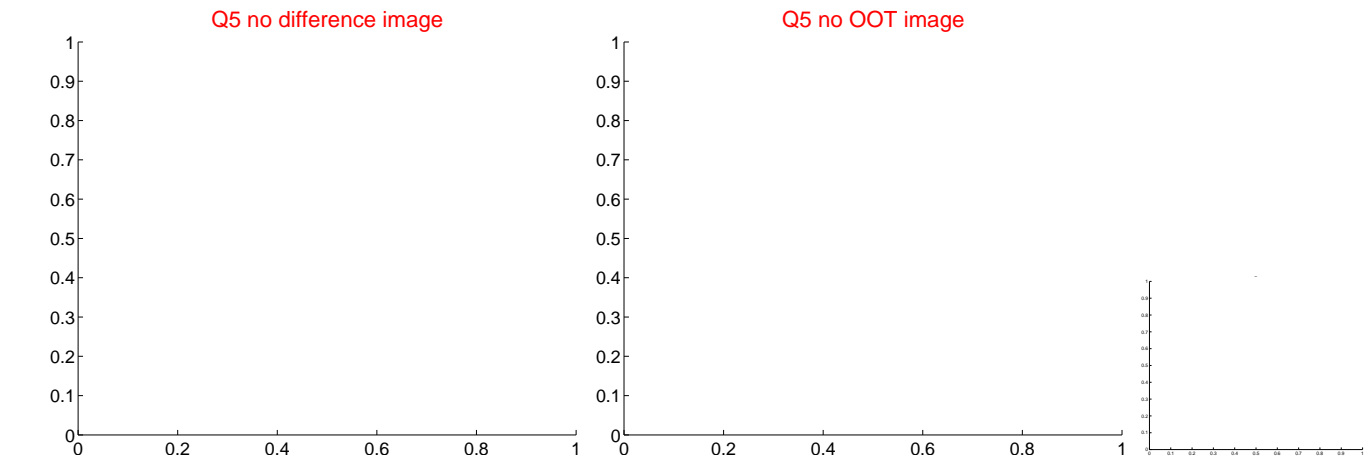


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

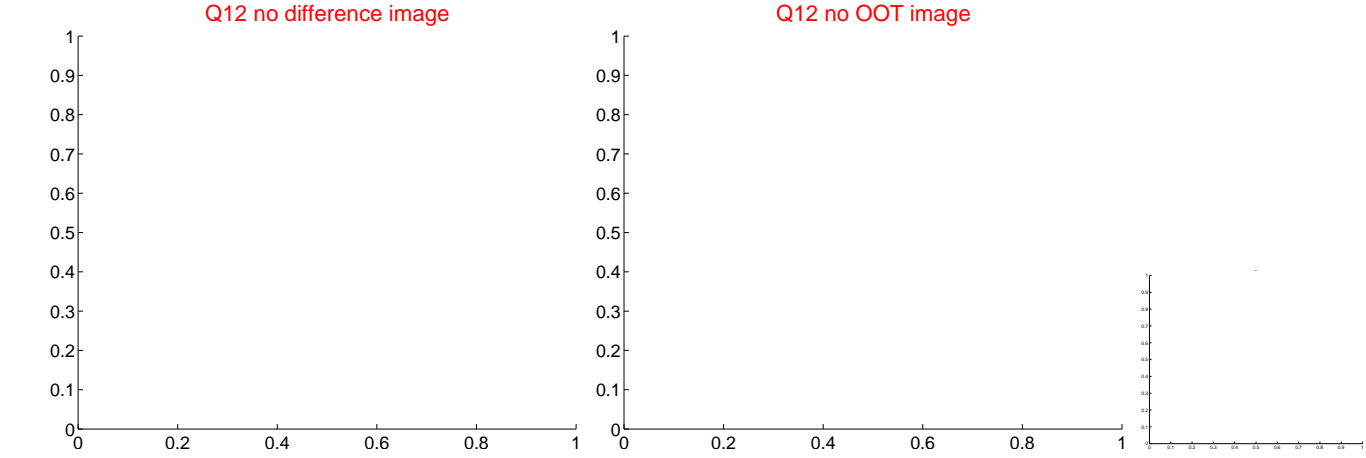
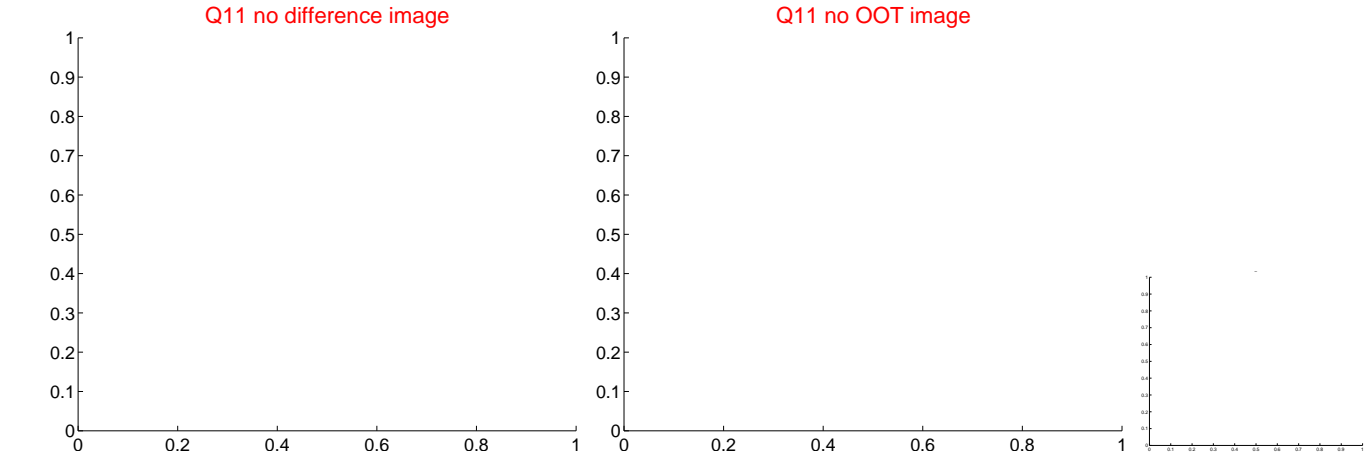
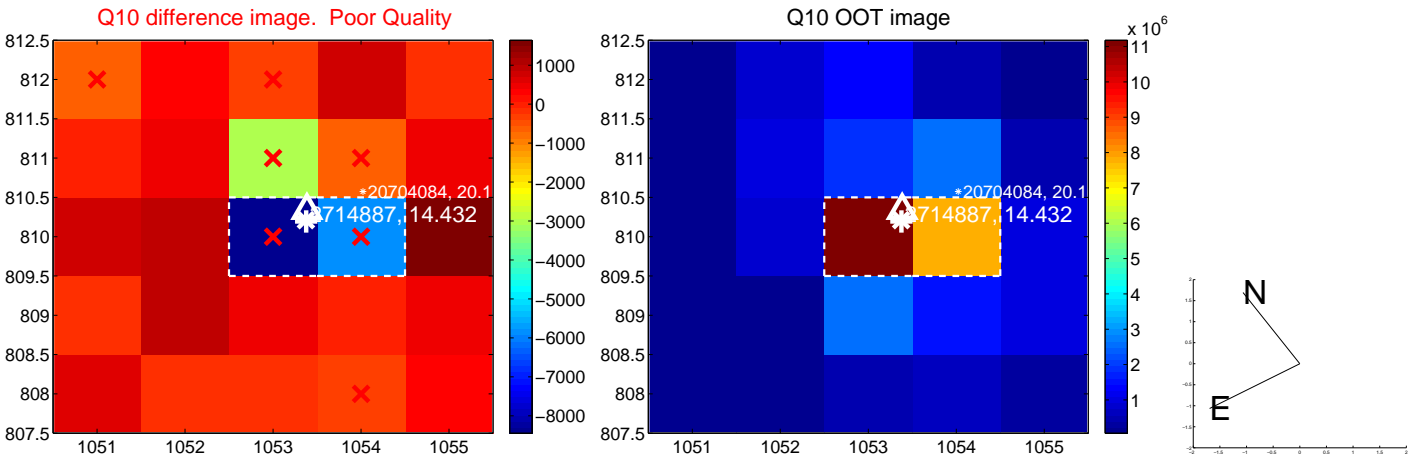
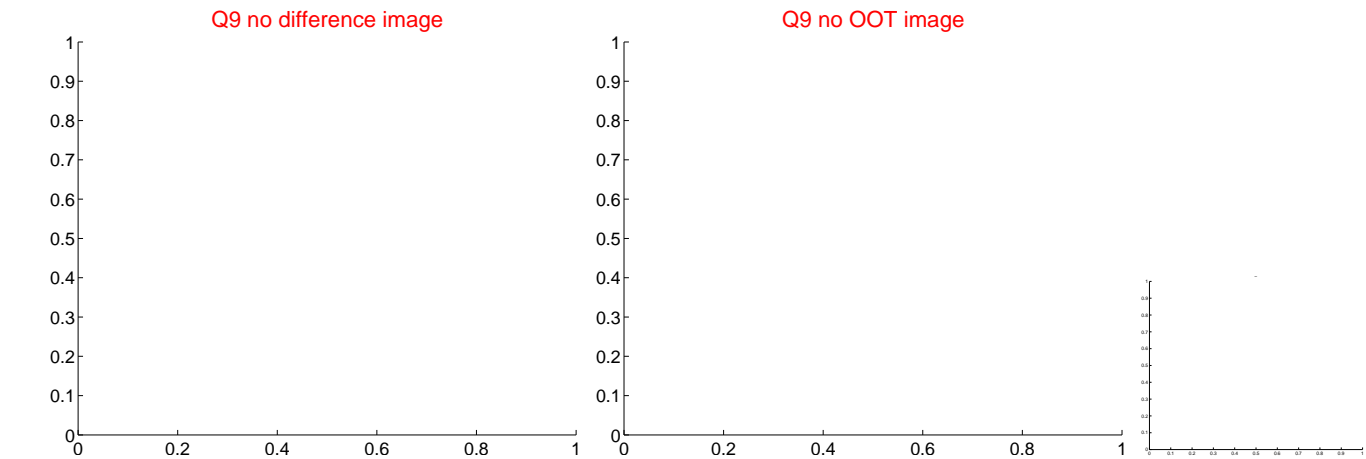
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



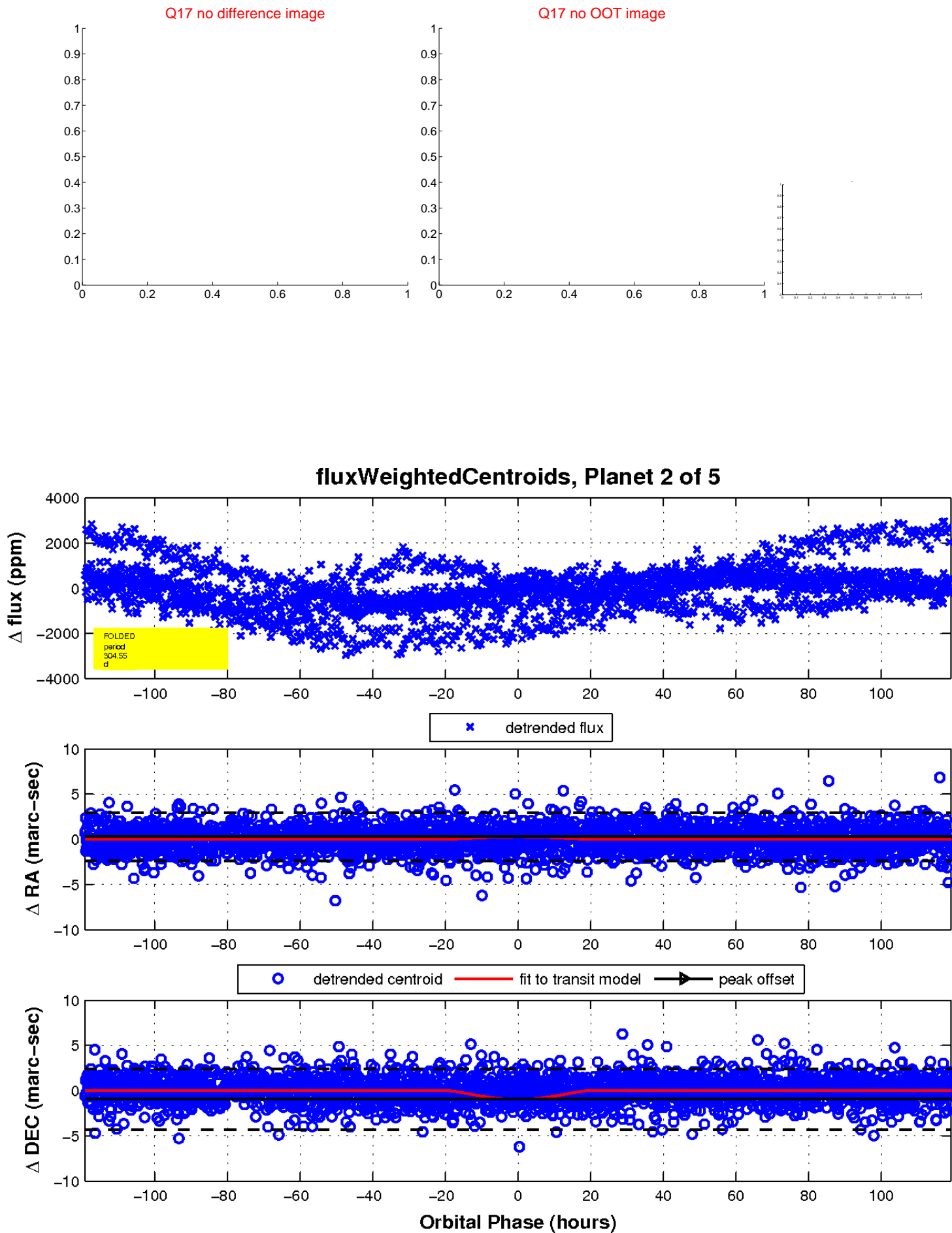
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

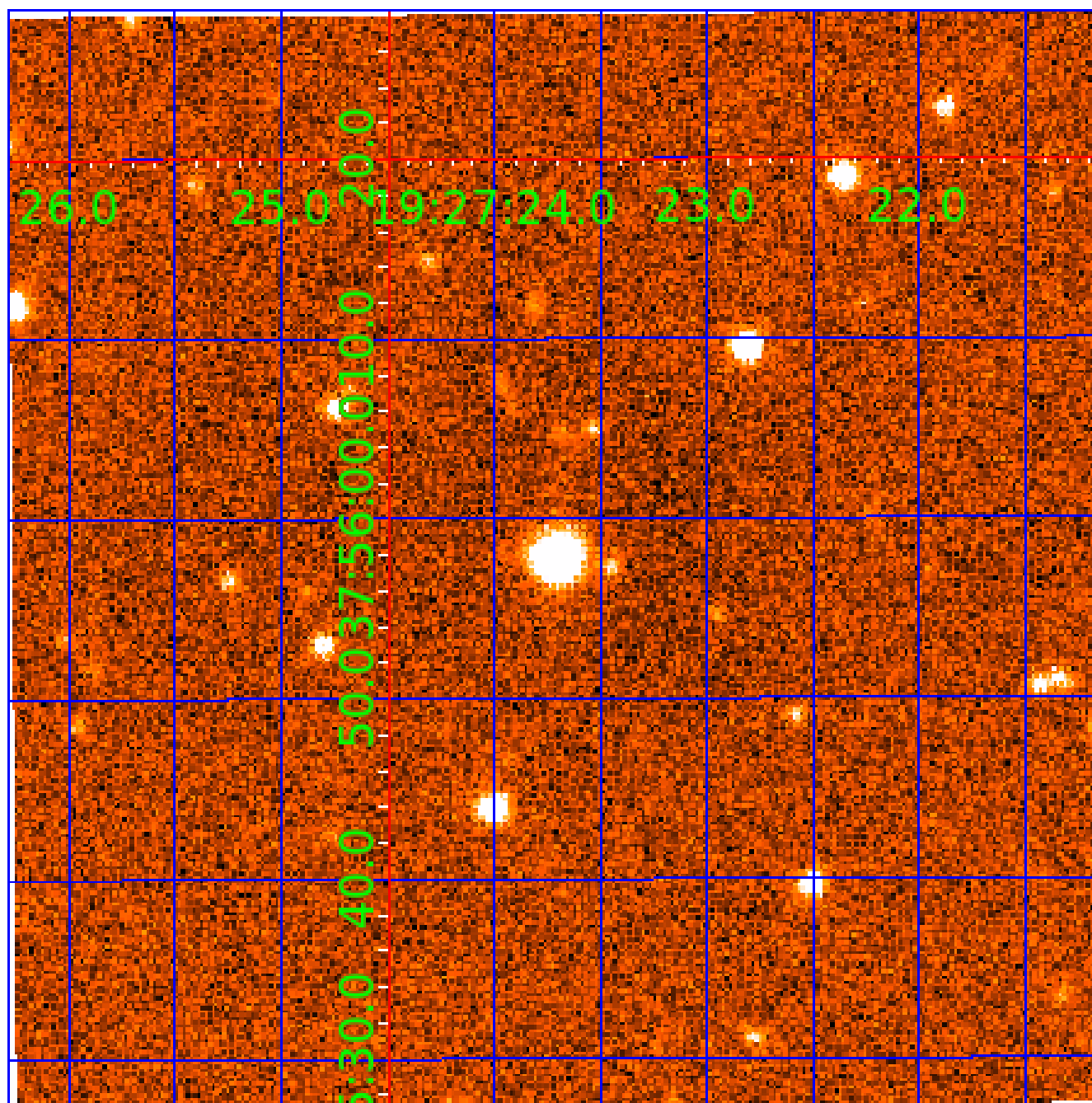


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002714887

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})
002714887-01	OBS	No	2.904694	134.361877	55.2	12.196	8.8	9.1	0.85	5691	0.64	483.17
002714887-02	OBS	No	304.547959	310.515256	1986.7	39.750	35.1	13.7	0.85	5691	7.16	0.98
002714887-03	OBS	No	220.728128	147.294817	452.2	27.928	39.0	7.1	0.85	5691	3.59	1.50
002714887-04	OBS	No	110.681787	199.381081	284.0	8.932	8.9	5.2	0.85	5691	1.51	3.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002714887-01	OBS	FP	0.00	1	0	0	1	LPP_DV—EPHEM_MATCH
002714887-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002714887-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002714887-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

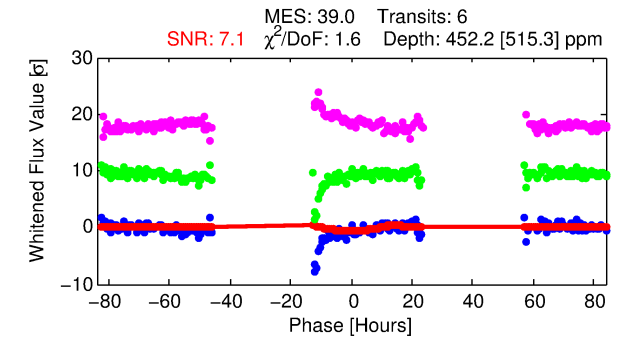
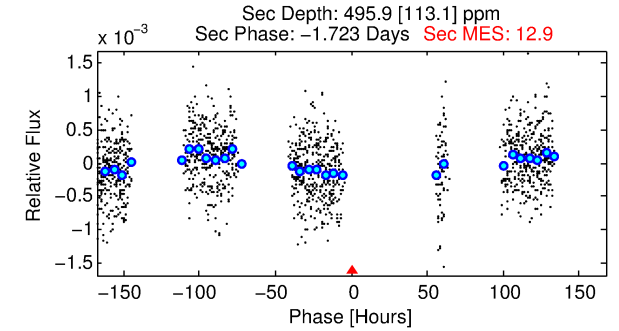
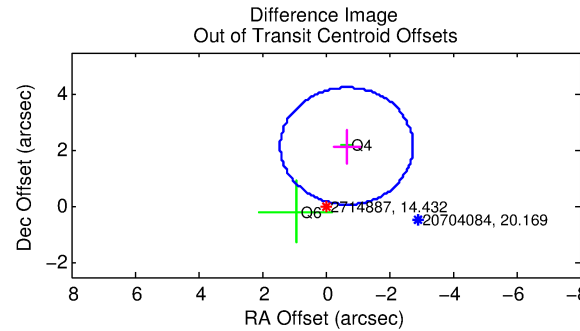
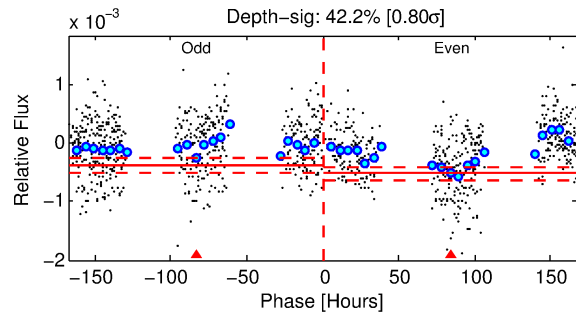
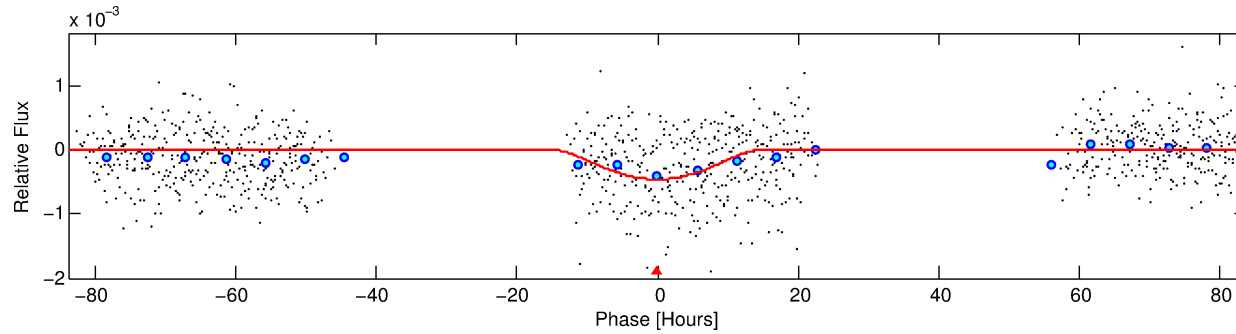
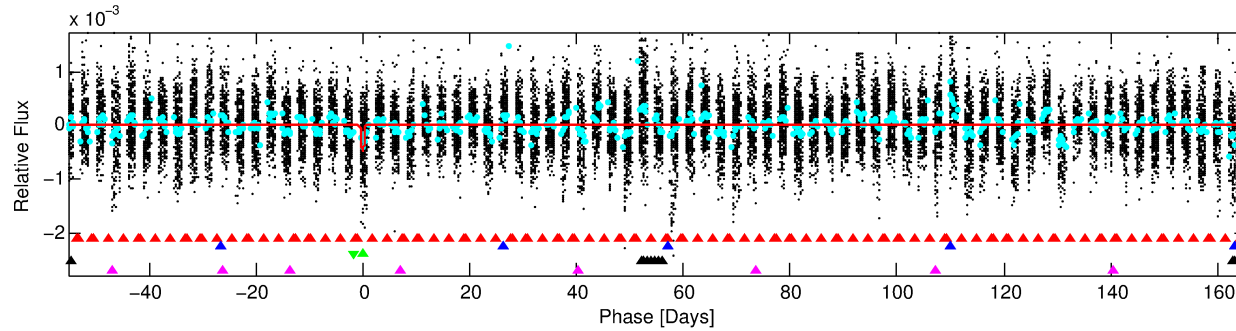
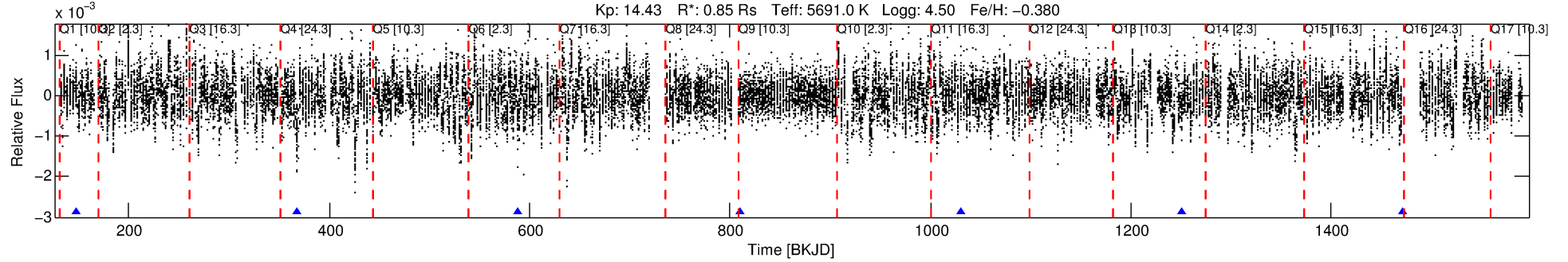
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002714887-03

No Significant Match Found

DV One-Page Summary

KIC: 2714887 Candidate: 3 of 5 Period: 220.728 d



DV Fit Results:

Period = 220.72813 [0.02743] d
Epoch = 147.2948 [0.0787] BKJD
Rp/R* = 0.0388 [0.1411]
a/R* = 17.01 [15.90]
b = 1.00 [0.17]
Seff = 1.50 [0.46]
Teq = 282 [22] K
Rp = 3.59 [13.07] Re
a = 0.6702 [0.1330] AU
Ag = 9530.95 [69399.54] [0.14 σ]
Teffp = 4312 [7844] K [0.51 σ]

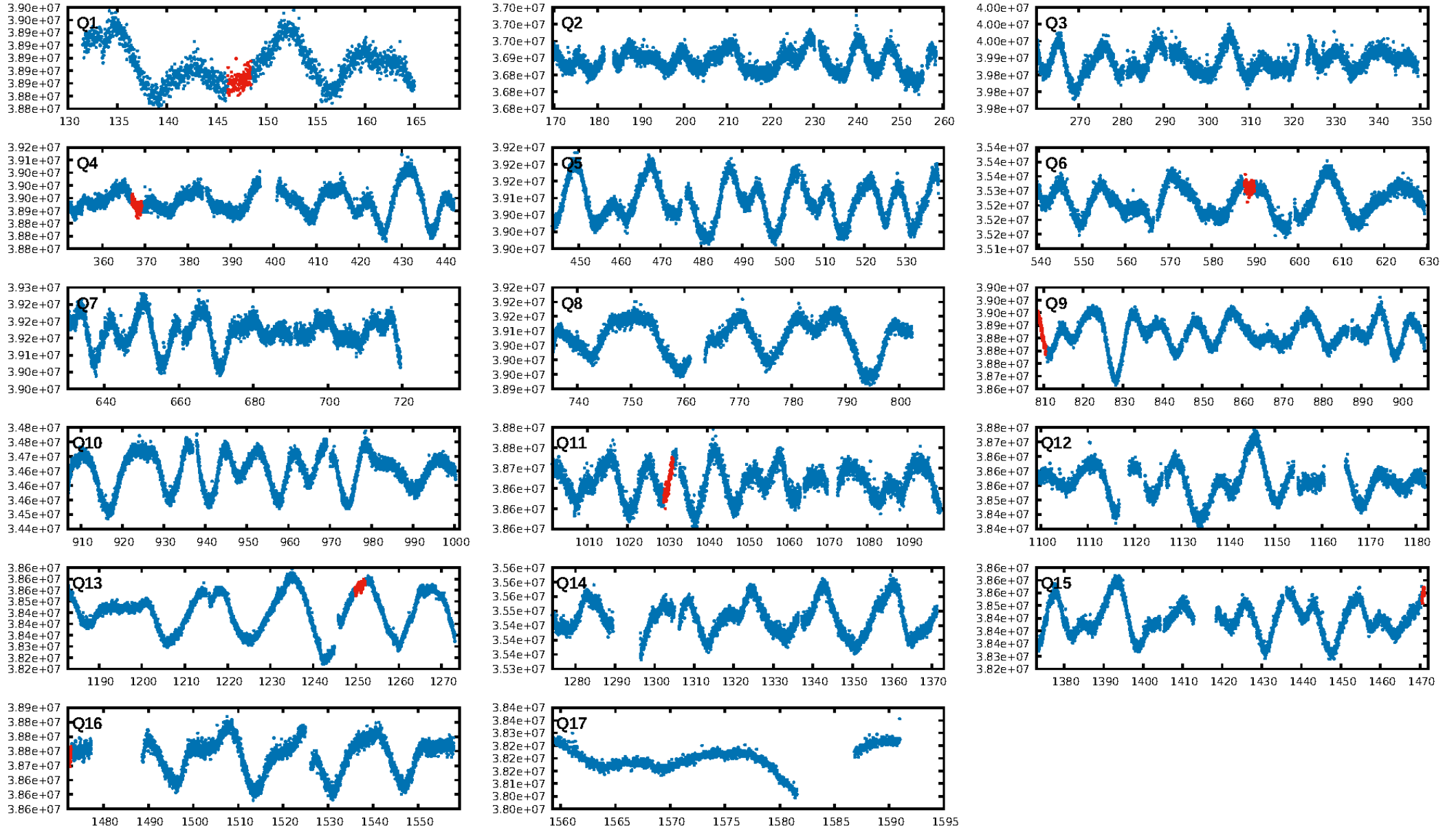
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [28.21 σ]
LongPeriod-sig: 100.0% [41.41 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 83.3%
Bootstrap-pfa: 9.16e-188
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -1.606
Centroid-sig: 0.1%
Centroid-so: 1.979 arcsec [2.71 σ]
OotOffset-rm: 2.261 arcsec [3.26 σ]
KicOffset-rm: 2.235 arcsec [1.97 σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/4]

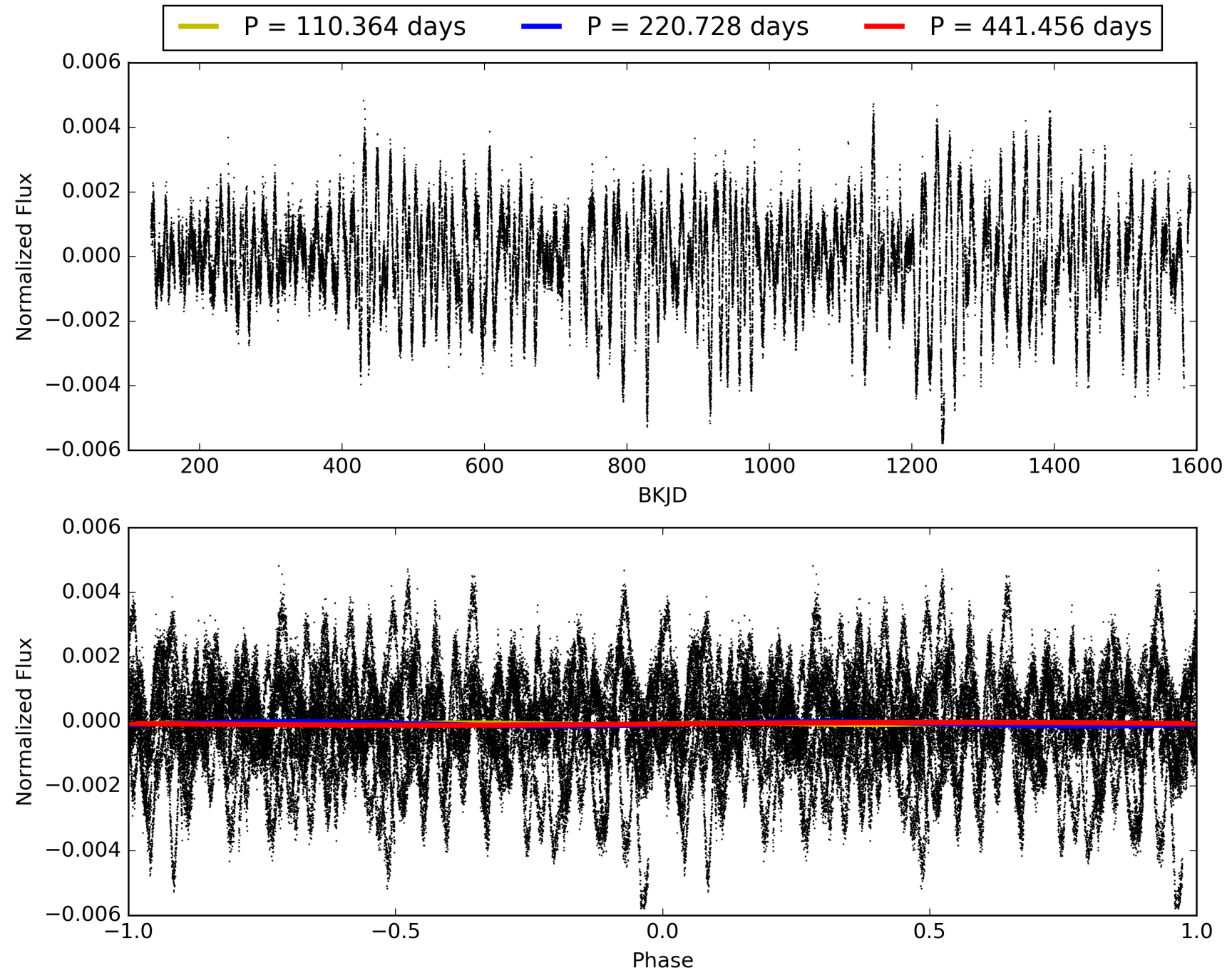
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:51:50 Z

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

TCE 002714887-03, PDC Light Curves

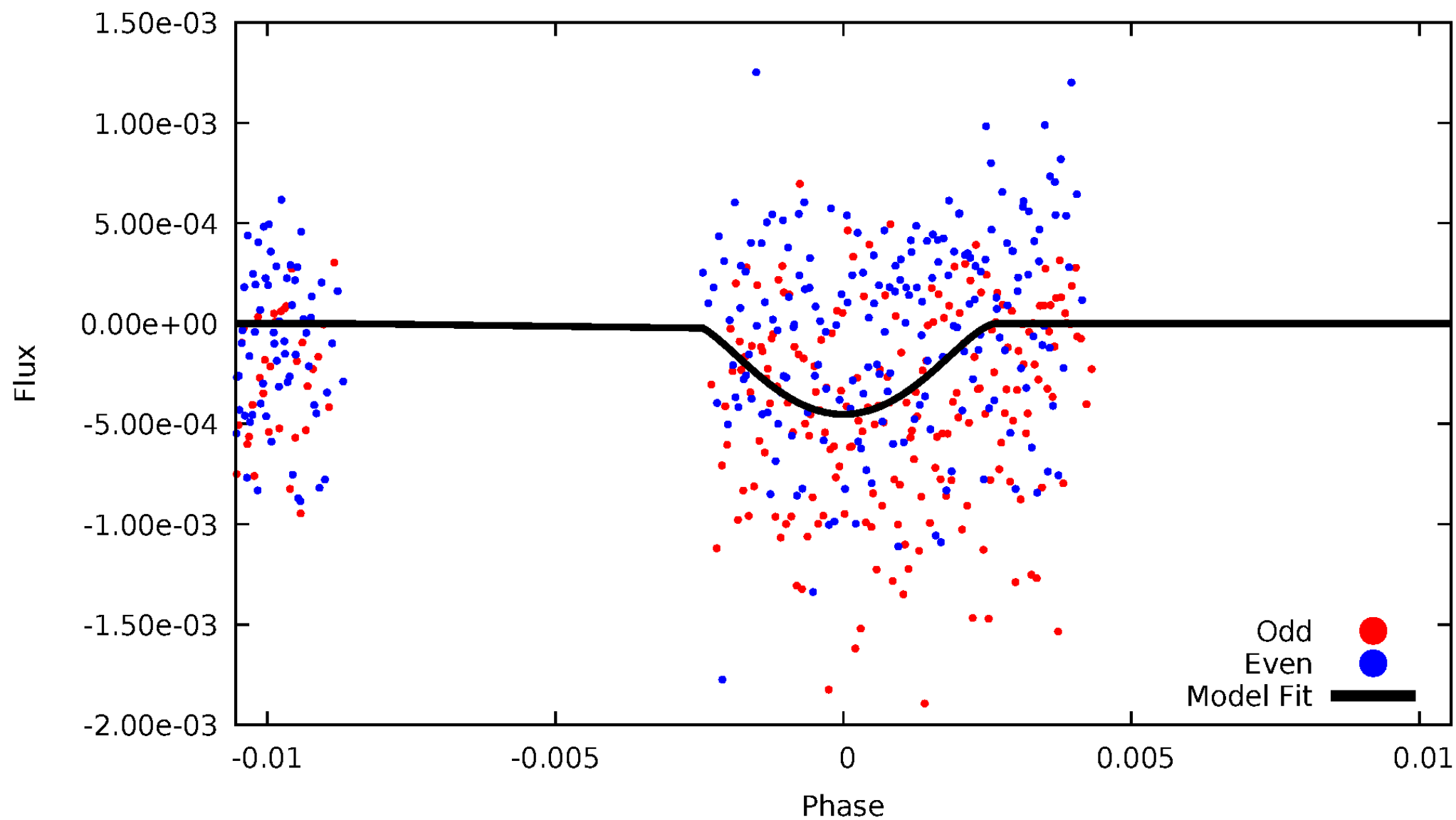


TCE 002714887-03



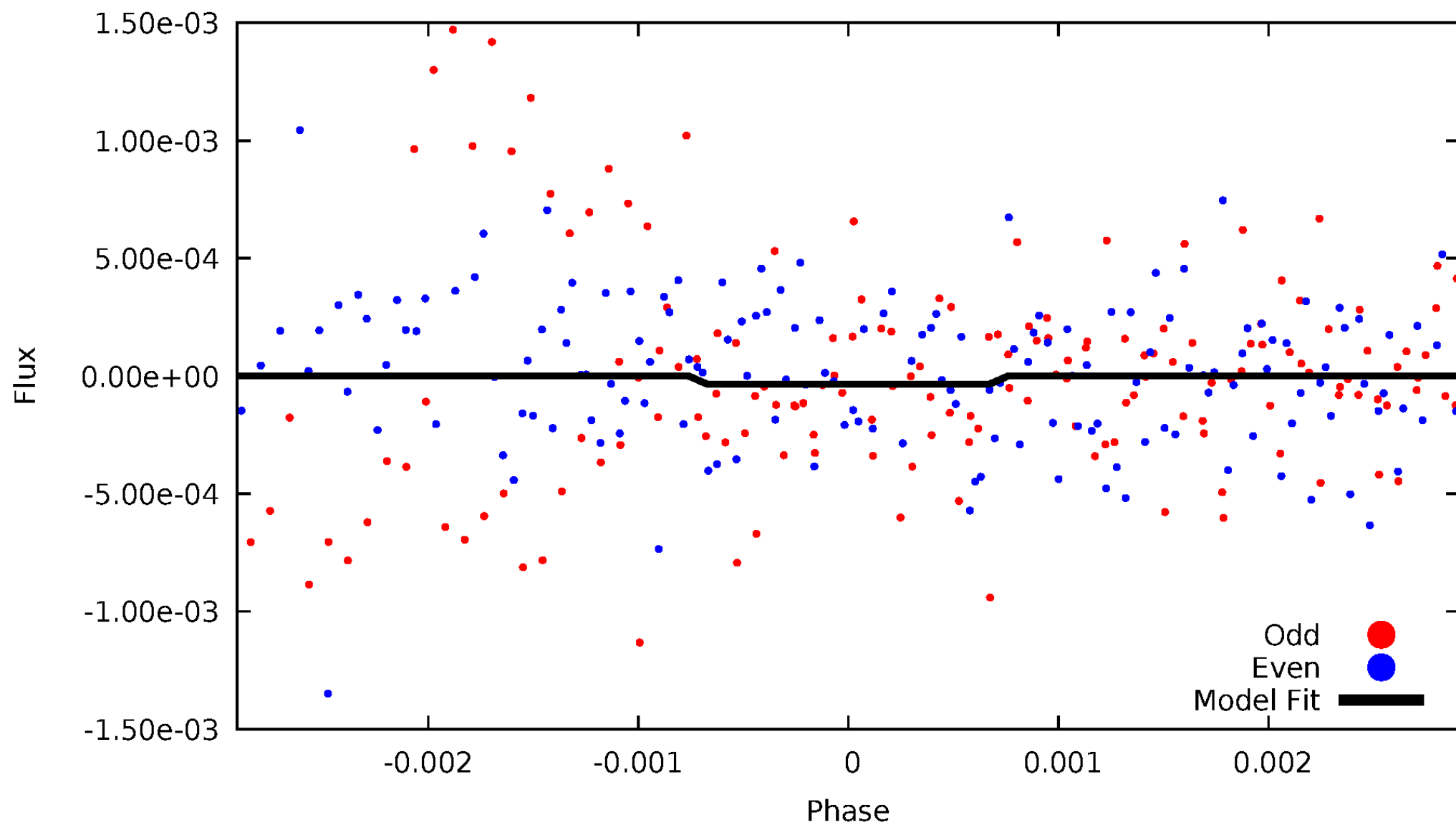
DV Odd/Even

TCE 002714887-03



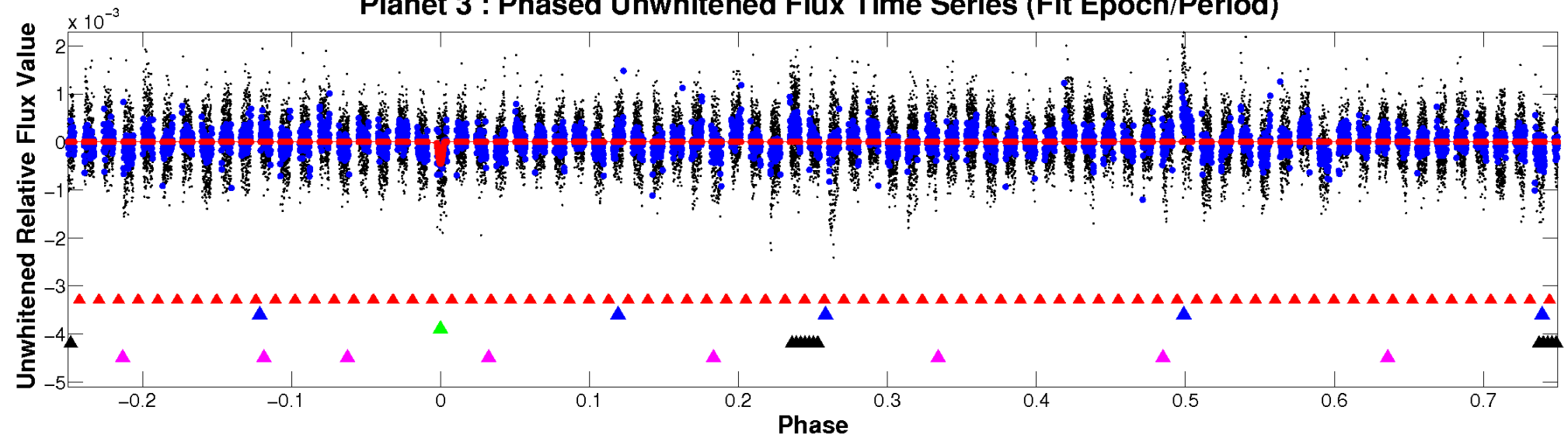
ALT Odd/Even

TCE 002714887-03

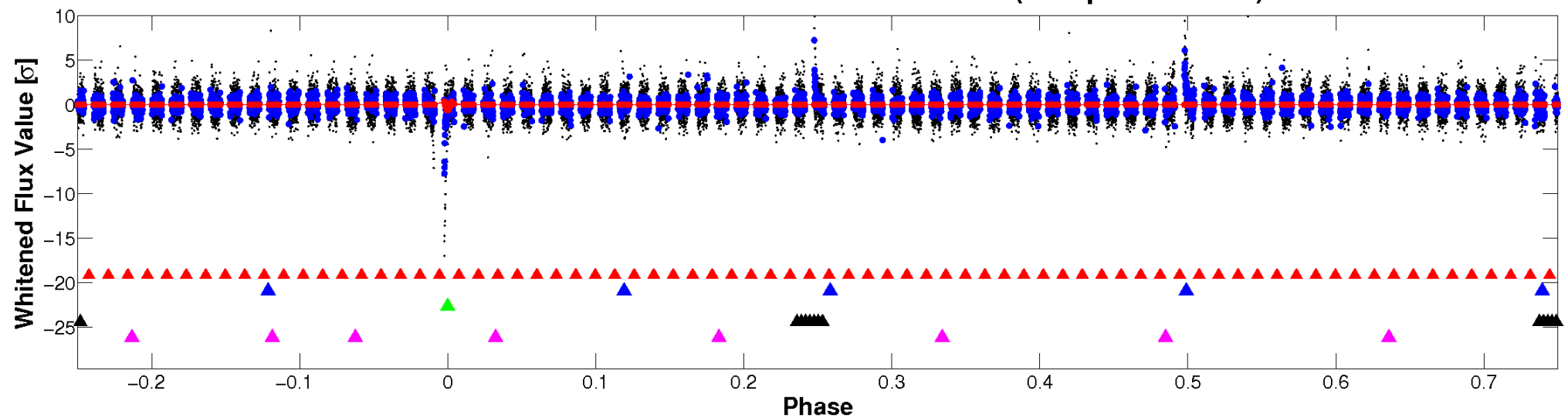


Non-Whitened Vs. Whitened Light Curve

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

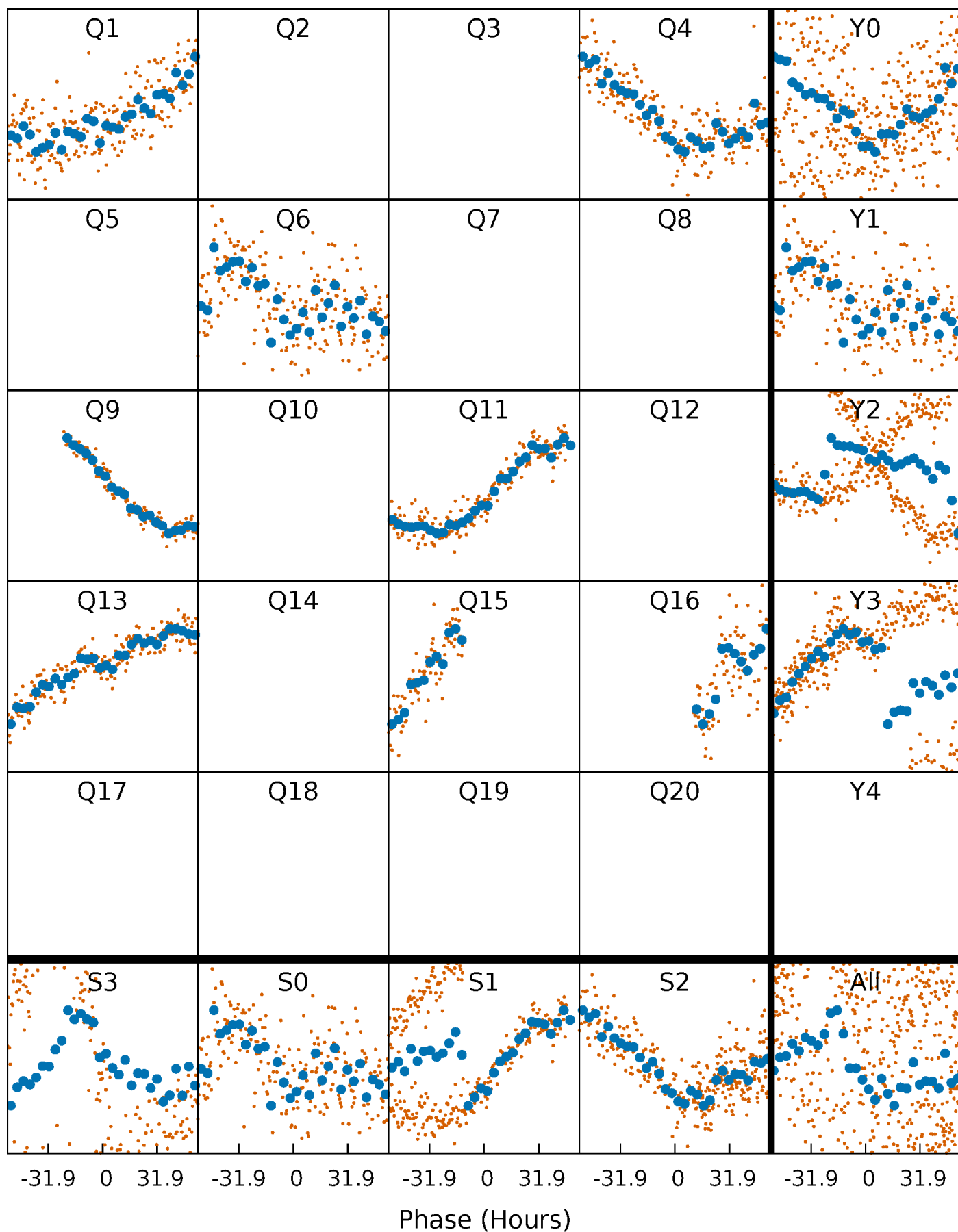


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



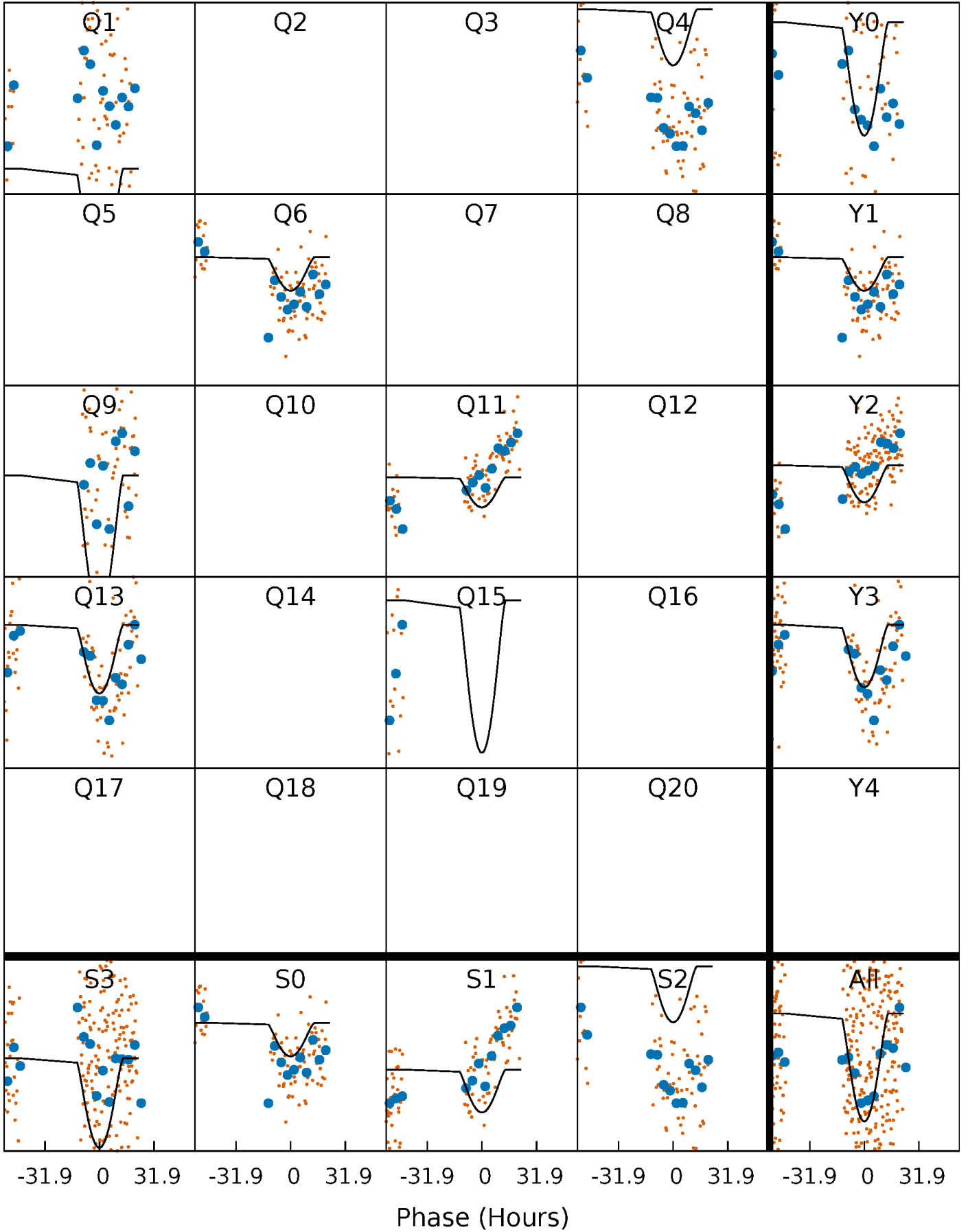
PDC Quarter-Phased Transit Curves

TCE 002714887-03 $P=220.728128$ Days $T_0=147.294816$ (BKJD)



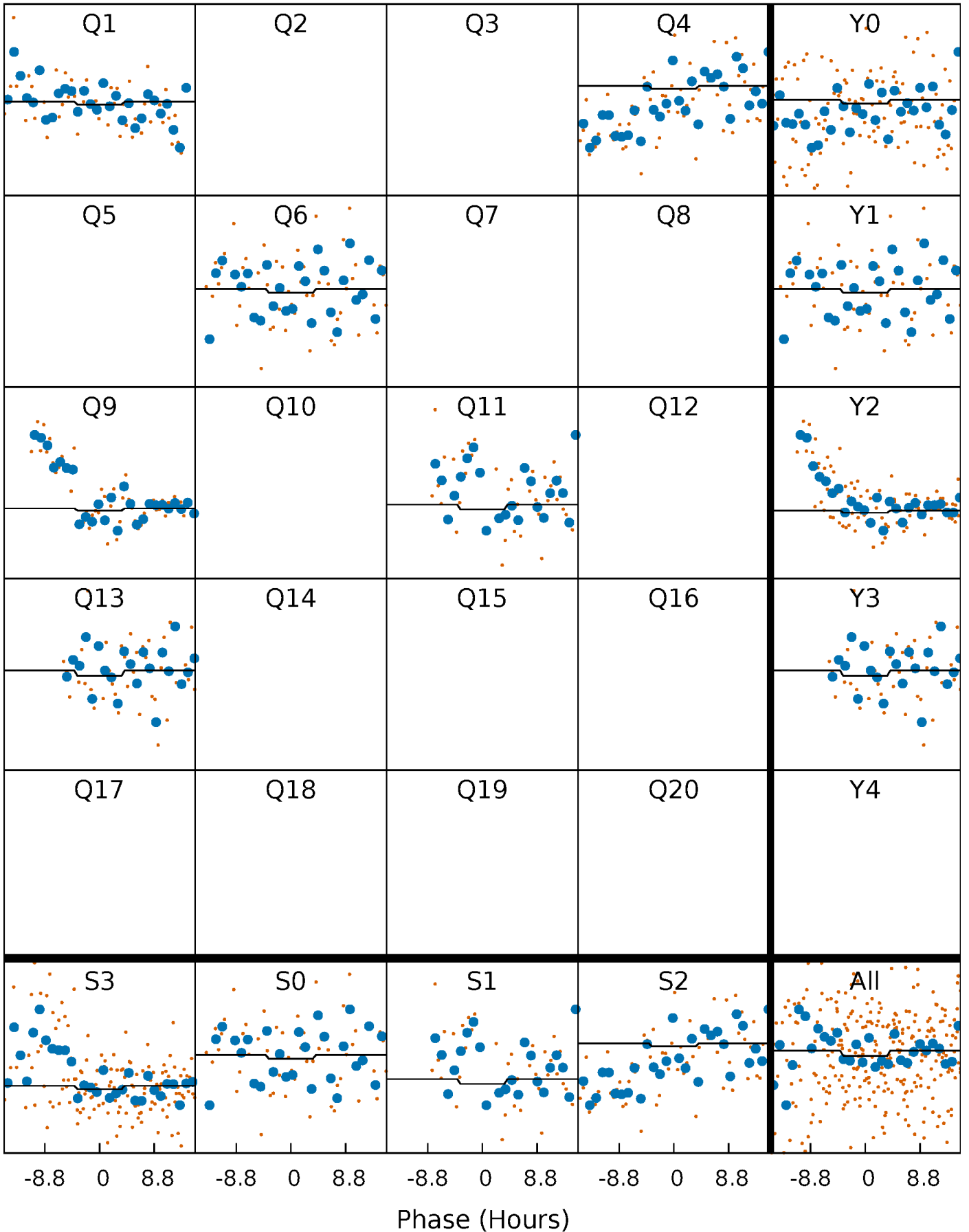
DV Quarter-Phased Transit Curves

TCE 002714887-03 P=220.728128 Days $T_0=147.294816$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

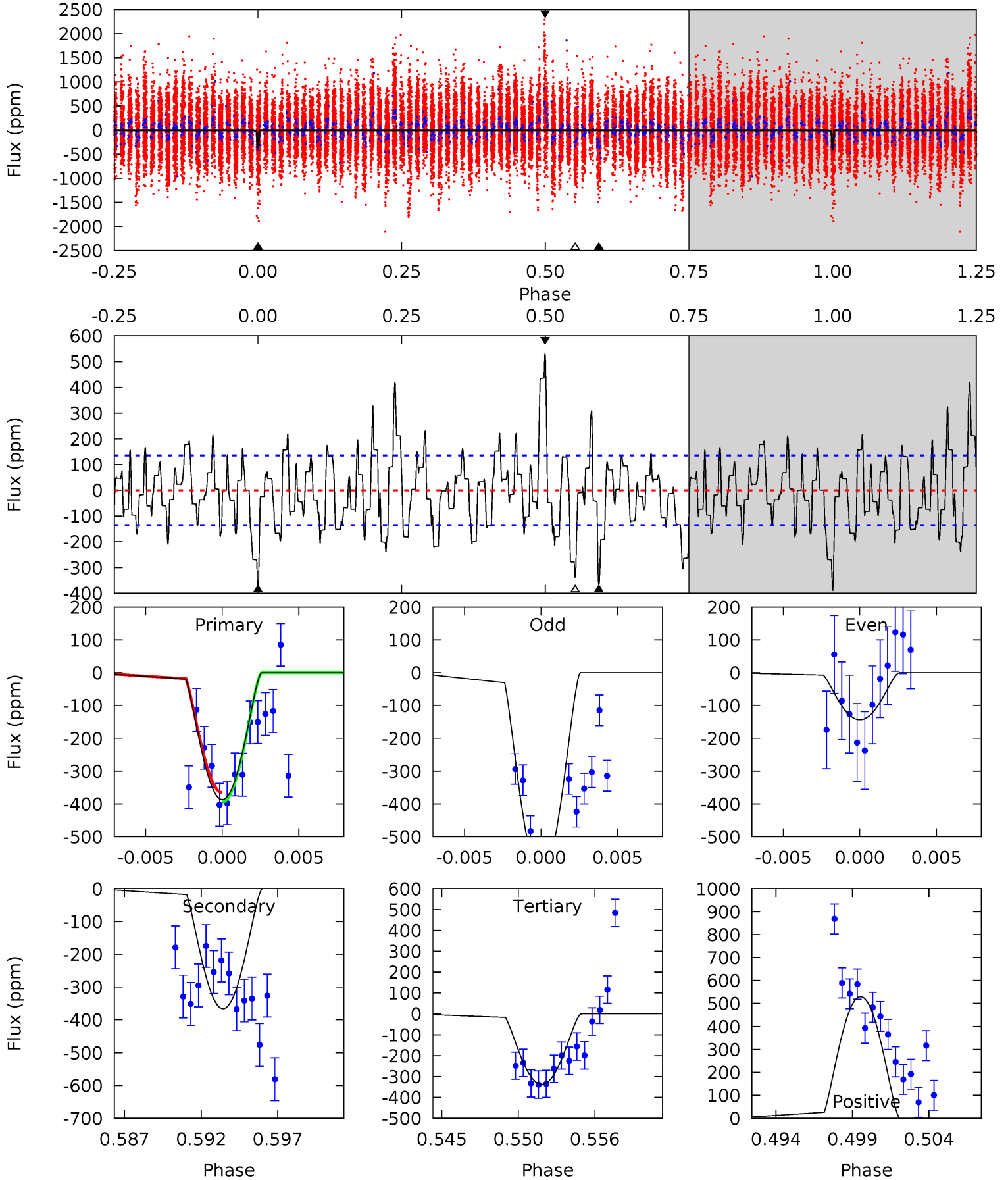
TCE 002714887-03 P=220.648392 Days $T_0=147.537281$ (BKJD)



DV Model-Shift Uniqueness Test

002714887-03, P = 220.728128 Days, E = 147.294816 Days

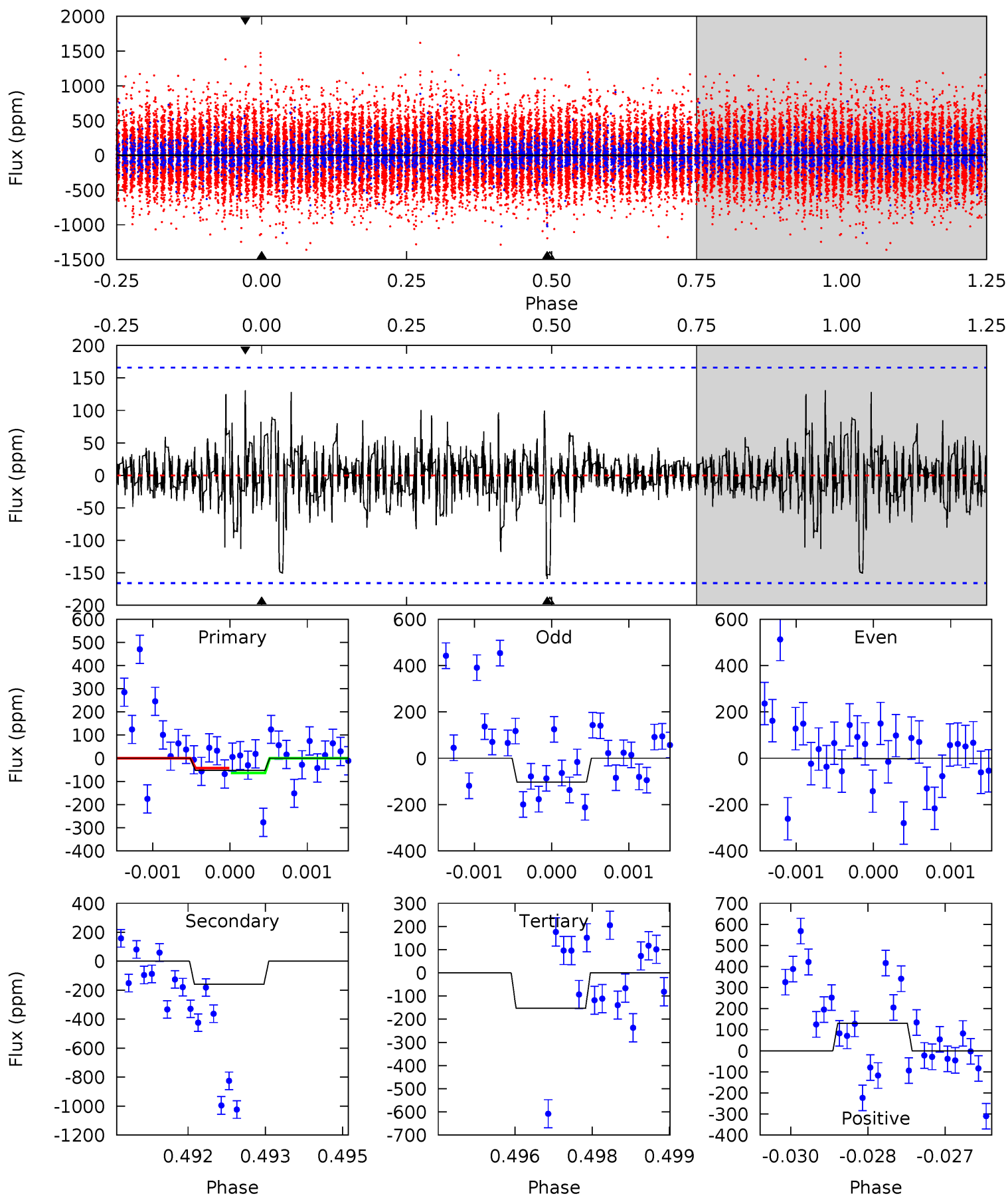
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	13.9	12.9	20.2	5.15	2.80	4.97	1.87	-5.44	1.08	-6.22	9.09	1.31	0.58	0.54



Alt Model-Shift Uniqueness Test

002714887-03, P = 220.648392 Days, E = 147.537281 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.71	5.16	4.96	4.24	5.38	3.18	0.91	-3.24	-2.53	0.20	0.92	1.64	0.94	0.45	0.35



Stellar Parameters For KIC 002714887

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5691^{+154}_{-154}	$4.498^{+0.084}_{-0.156}$	$-0.380^{+0.300}_{-0.300}$	$0.847^{+0.201}_{-0.108}$	$0.824^{+0.107}_{-0.071}$	$1.909^{+0.682}_{-0.826}$
	+3%/-3%	+2%/-3%	+79%/-79%	+24%/-13%	+13%/-9%	+36%/-43%
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 002714887-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-366 ± 26	$11.09^{+10.19}_{-7.68}$	400^{+21}_{-19}	3011^{+1370}_{-498}	749^{+7148}_{-551}
Alt.	-159 ± 31	$9.36^{+9.96}_{-6.78}$	399^{+24}_{-19}	2796^{+1398}_{-470}	445^{+5372}_{-341}

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 $A_{obs} \gg 1.0$

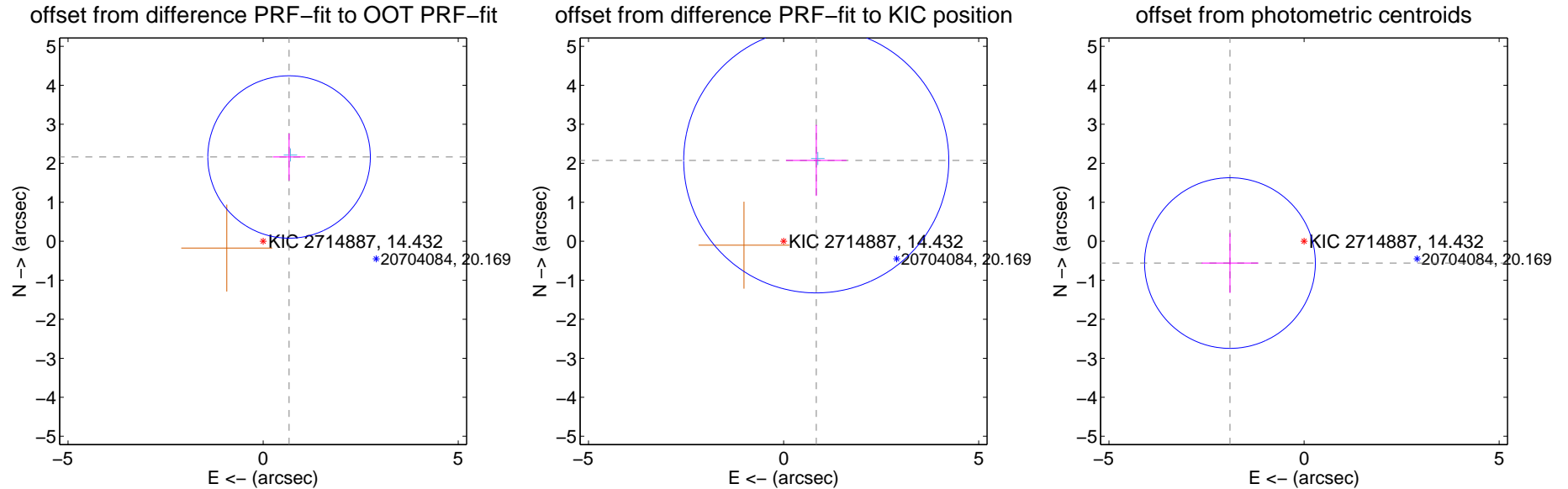
DV Centroid Data

Supplemental centroid analysis for 002714887-03. Kepler magnitude: 14.43. Transit SNR 7.06

There are 1 quarters with good PRF difference image offsets

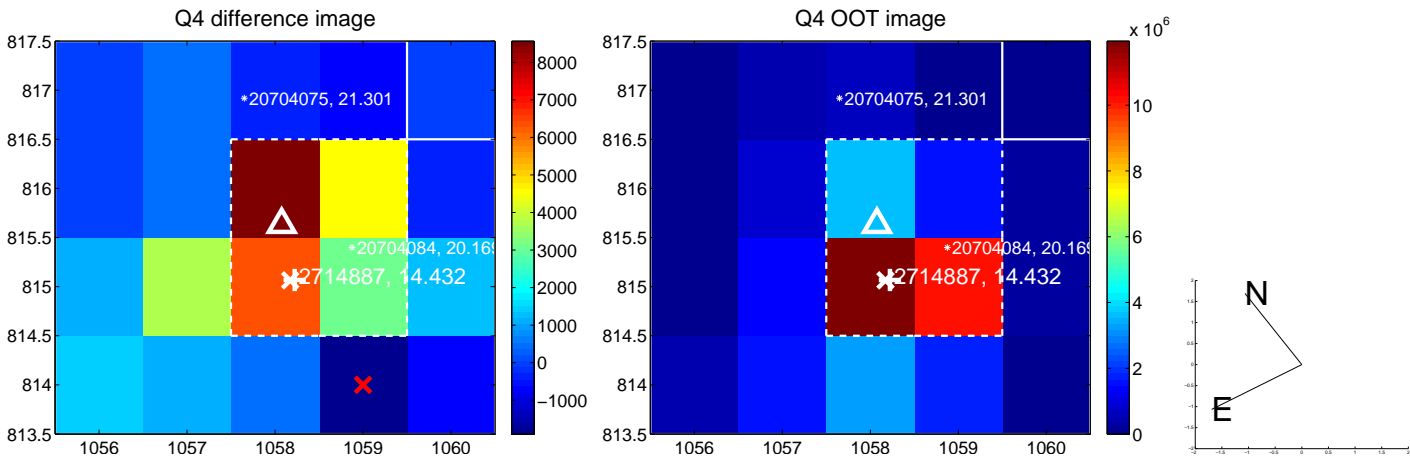
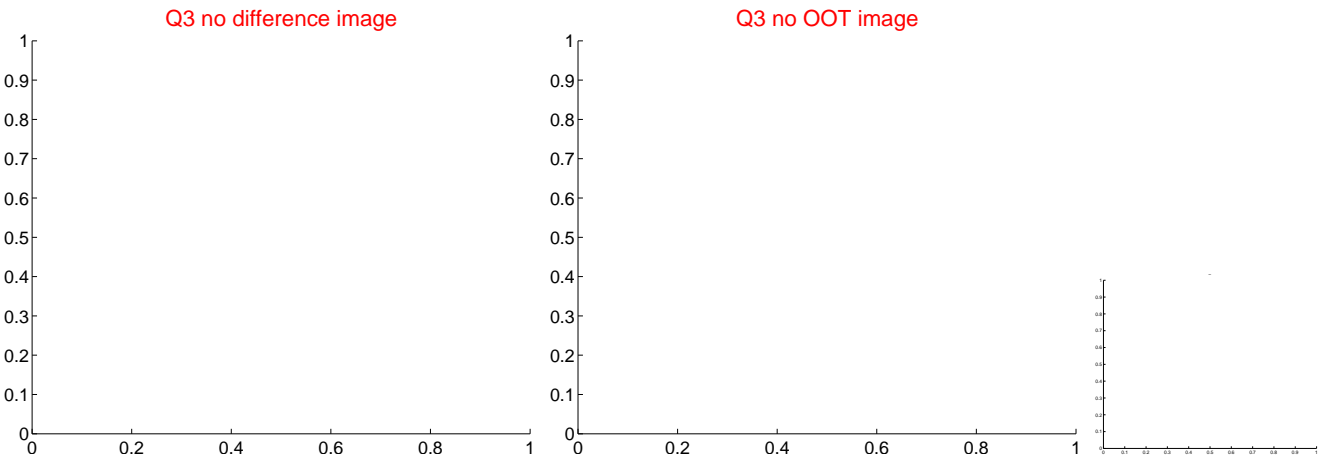
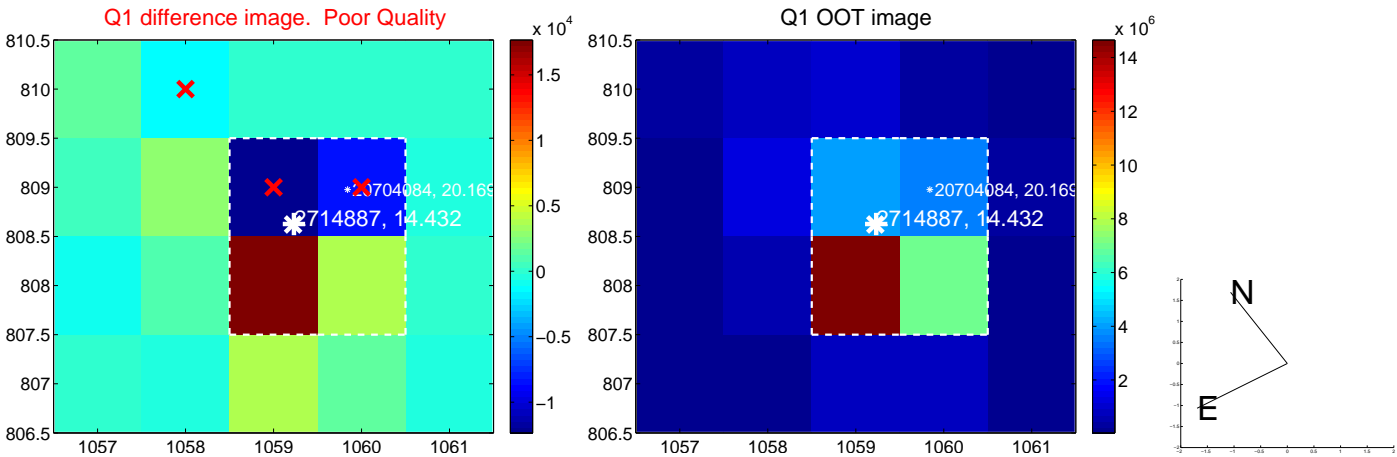
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.261 \pm 0.694	3.26	-0.665 \pm 0.413	2.162 \pm 0.601
PRF-fit source offset from KIC position	2.235 \pm 1.132	1.97	-0.836 \pm 0.775	2.073 \pm 0.909
photometric centroid source offset	1.98 \pm 0.73	2.71	1.90 \pm 0.73	-0.56 \pm 0.77

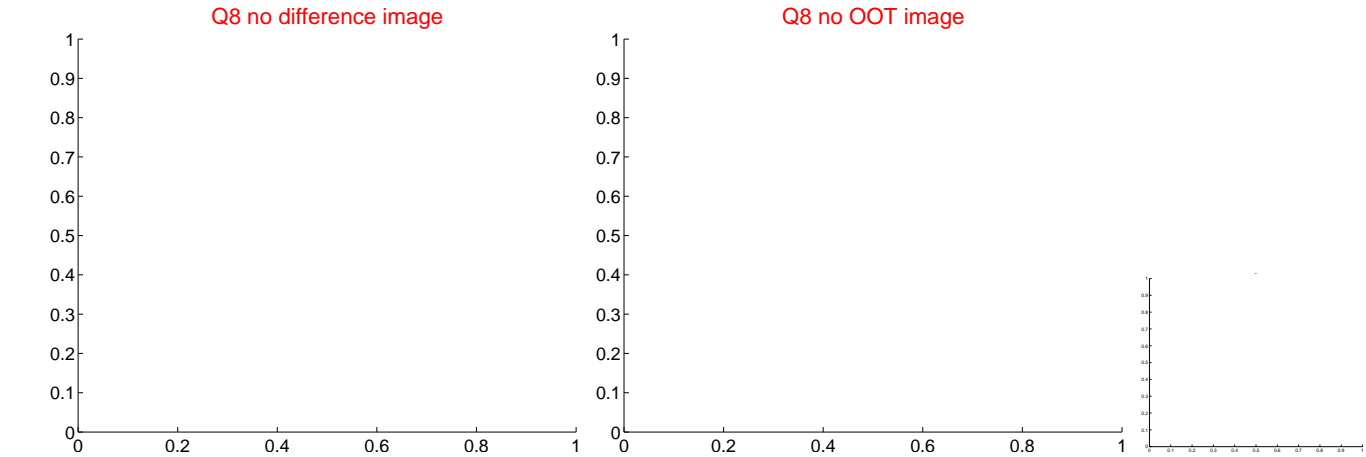
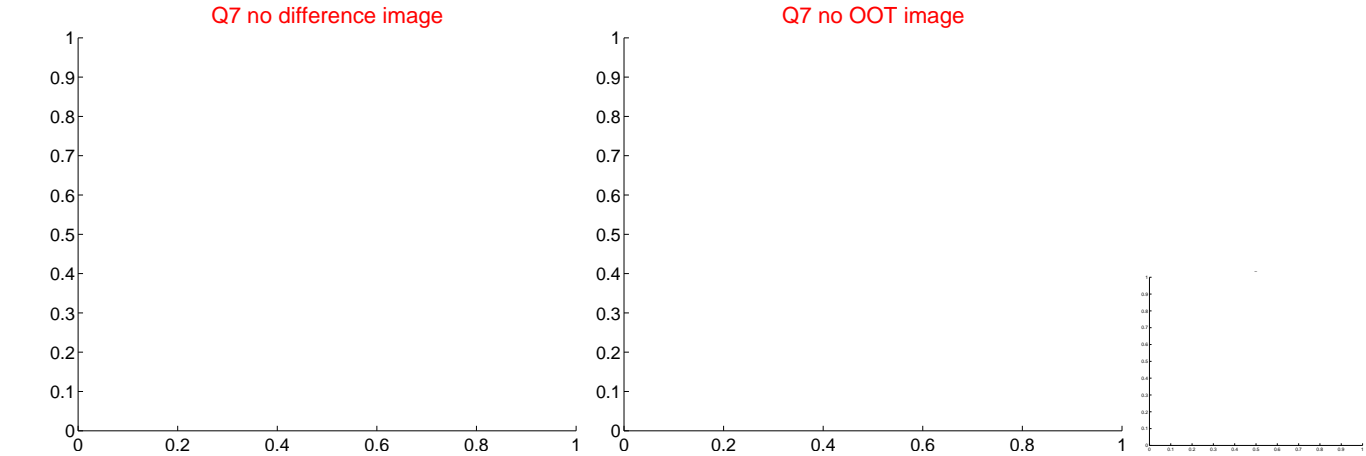
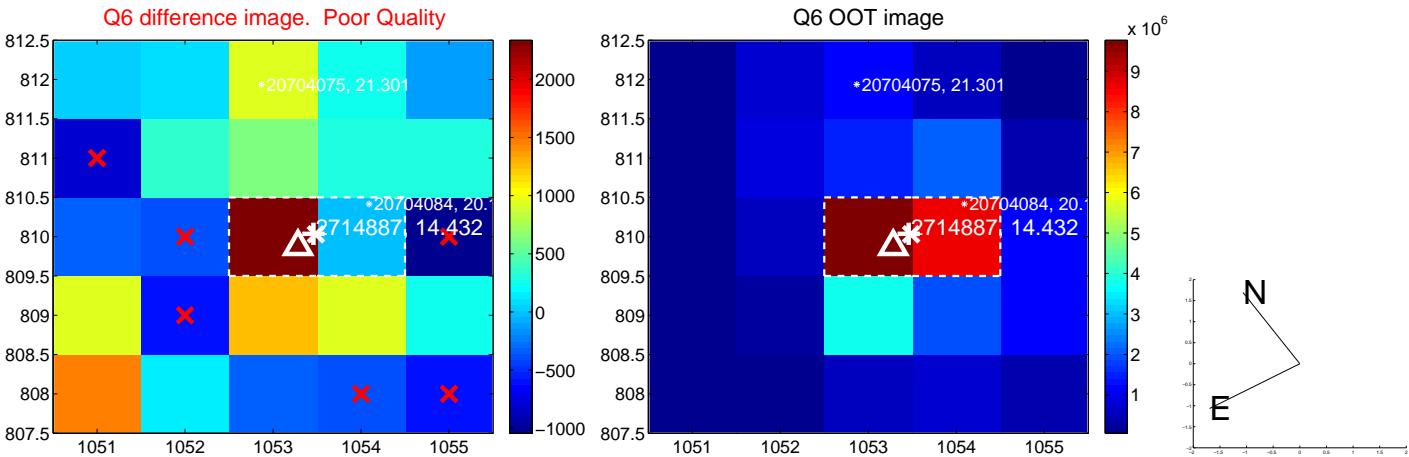
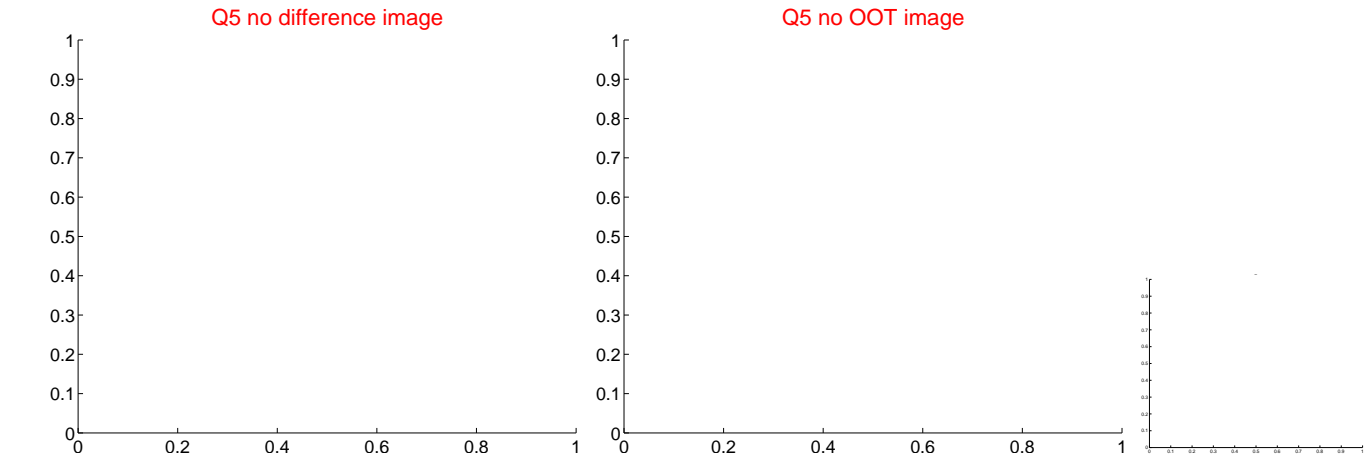


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



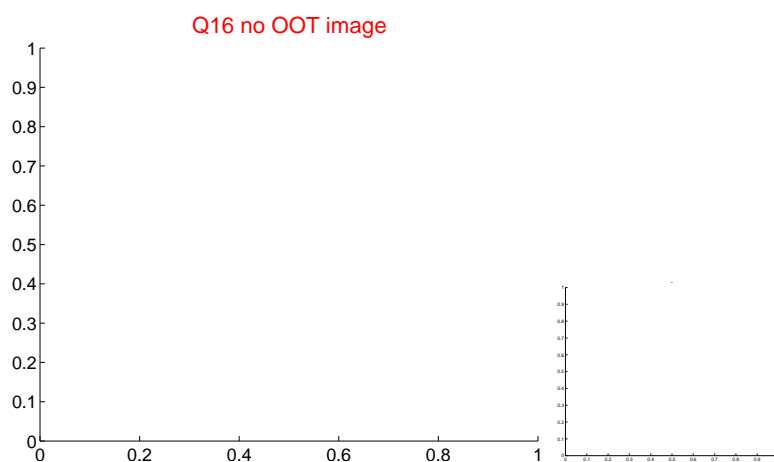
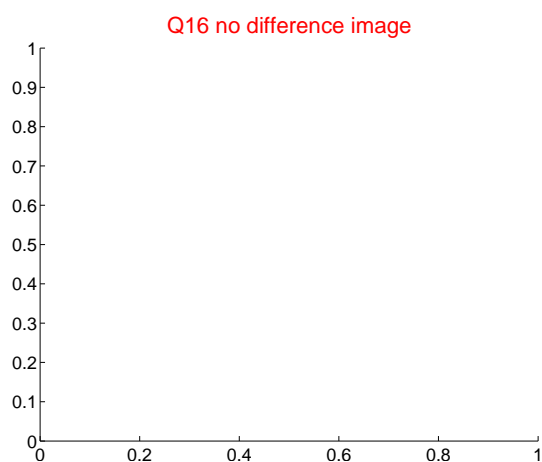
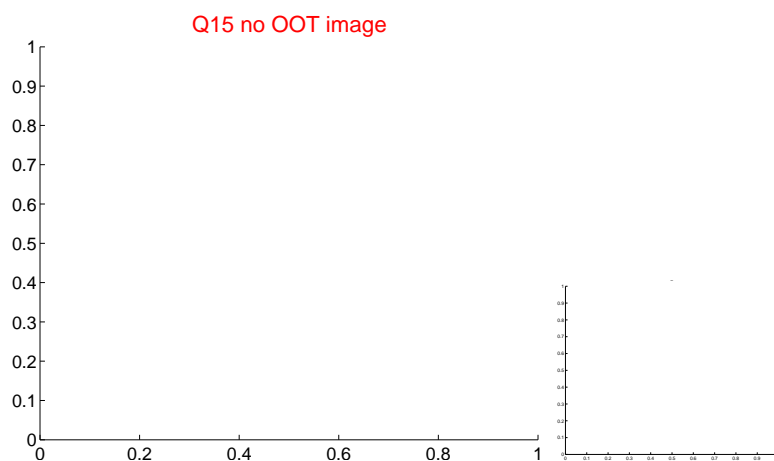
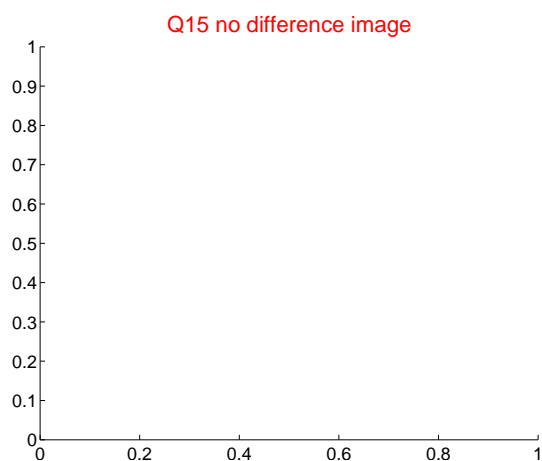
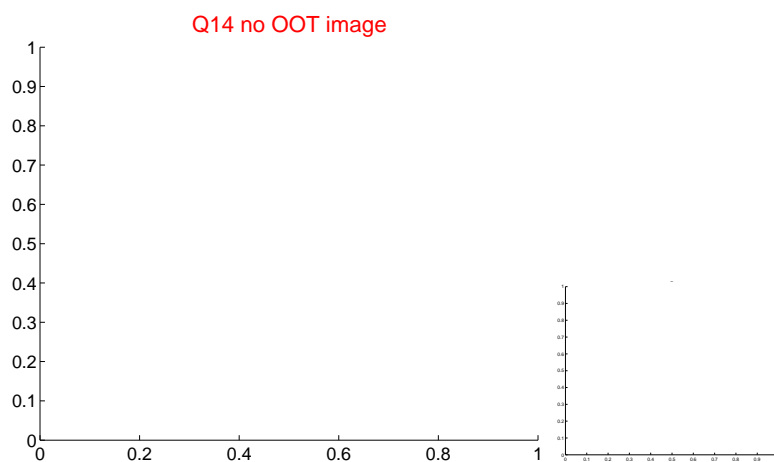
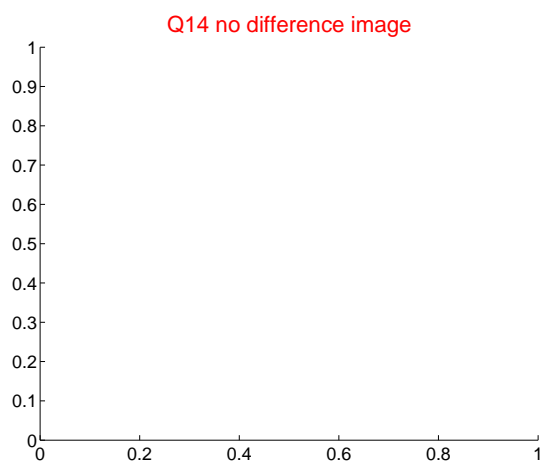
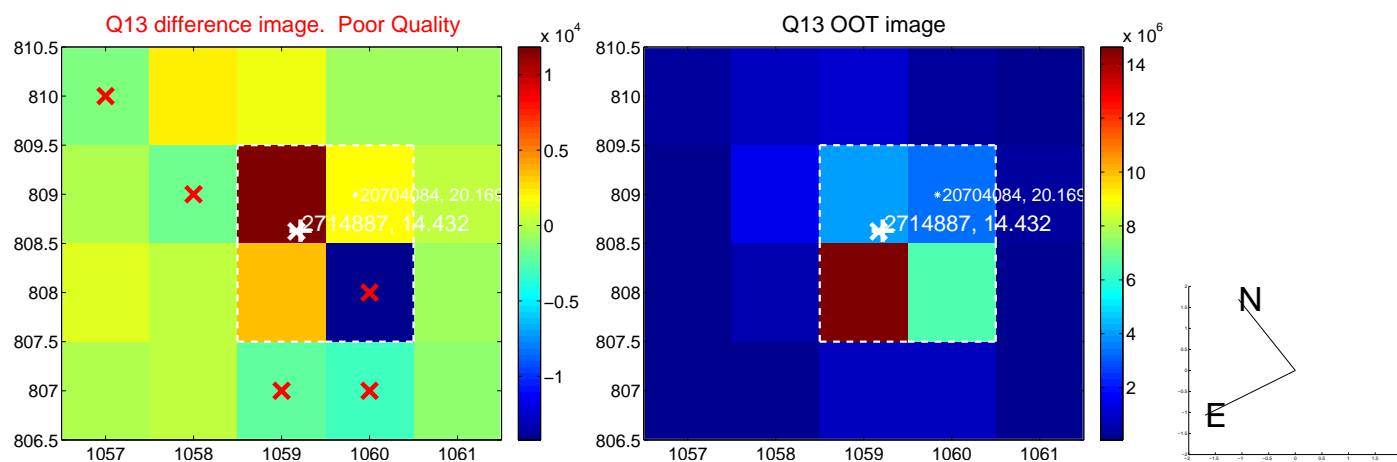
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



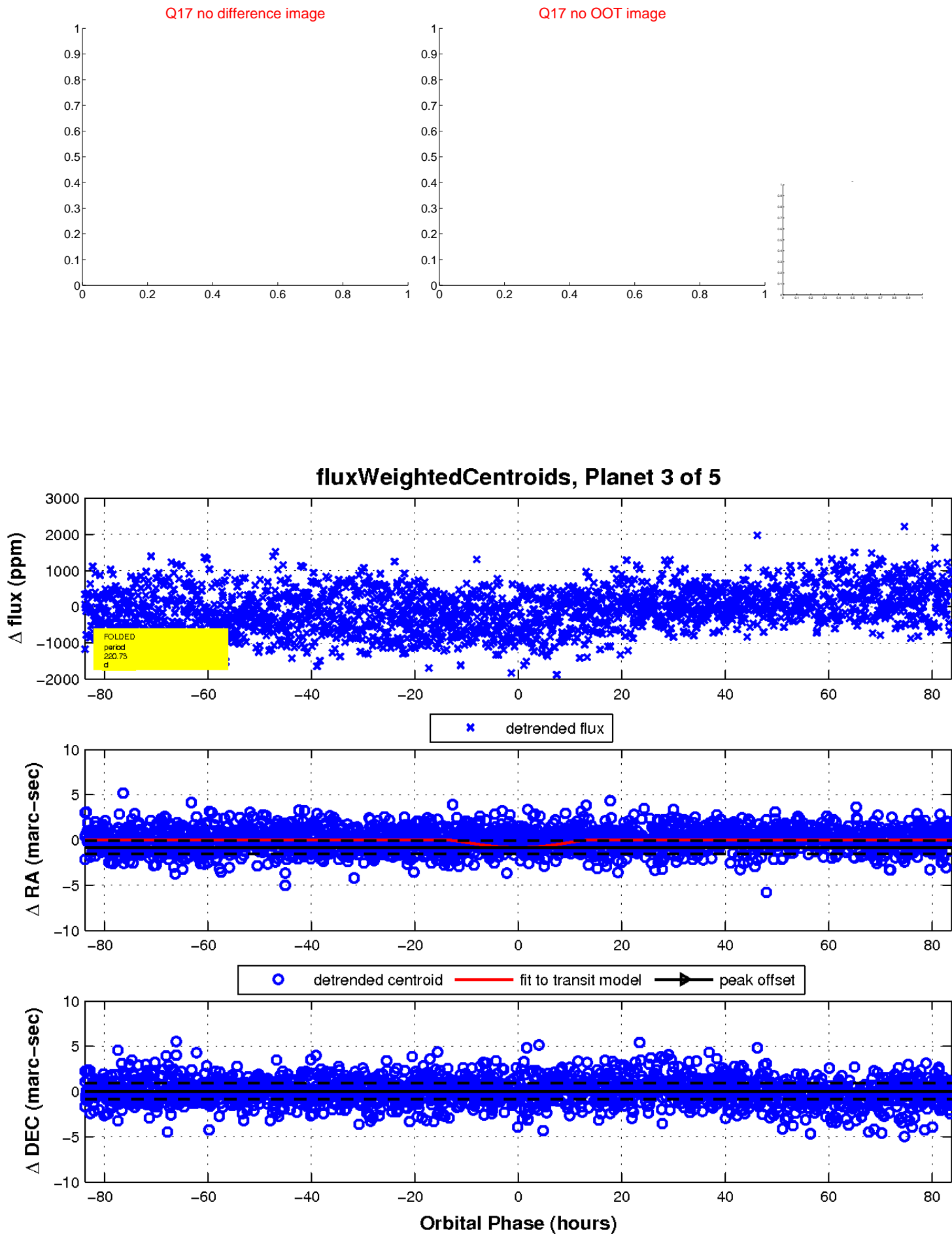
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

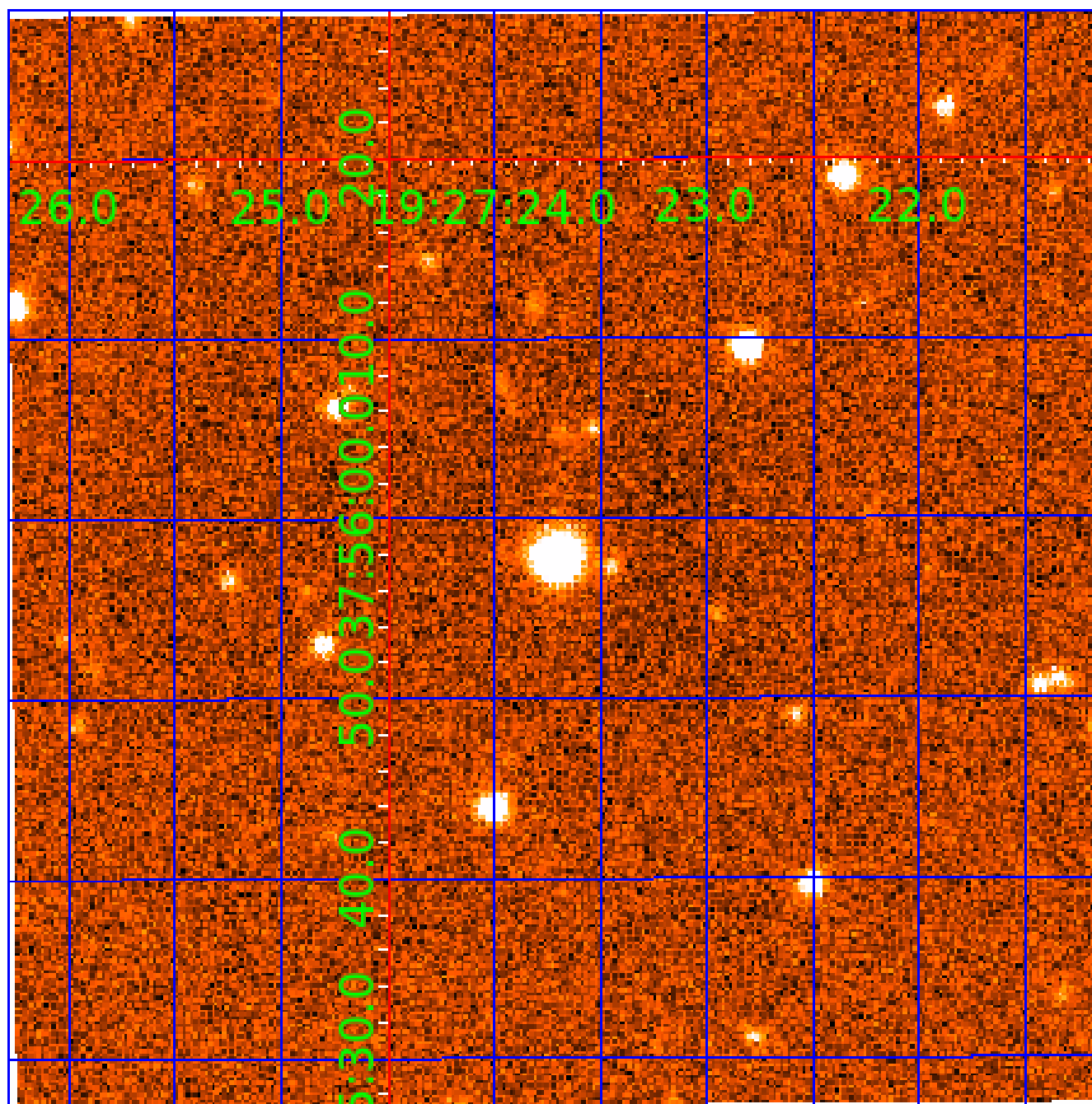


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002714887

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})
002714887-01	OBS	No	2.904694	134.361877	55.2	12.196	8.8	9.1	0.85	5691	0.64	483.17
002714887-02	OBS	No	304.547959	310.515256	1986.7	39.750	35.1	13.7	0.85	5691	7.16	0.98
002714887-03	OBS	No	220.728128	147.294817	452.2	27.928	39.0	7.1	0.85	5691	3.59	1.50
002714887-04	OBS	No	110.681787	199.381081	284.0	8.932	8.9	5.2	0.85	5691	1.51	3.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002714887-01	OBS	FP	0.00	1	0	0	1	LPP_DV—EPHEM_MATCH
002714887-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002714887-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002714887-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

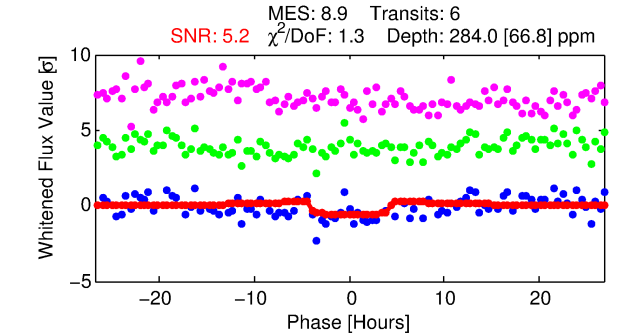
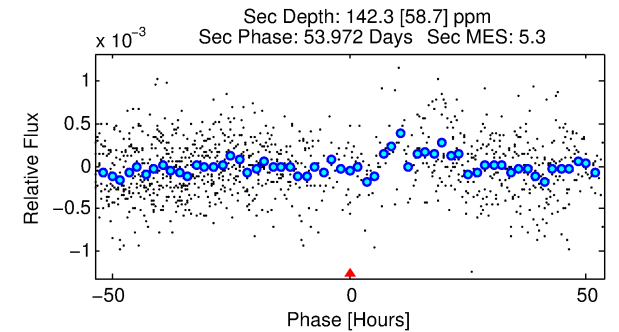
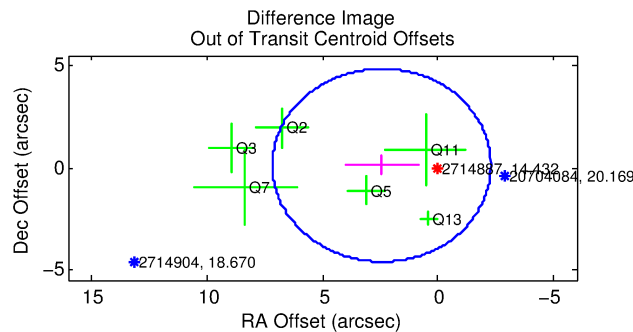
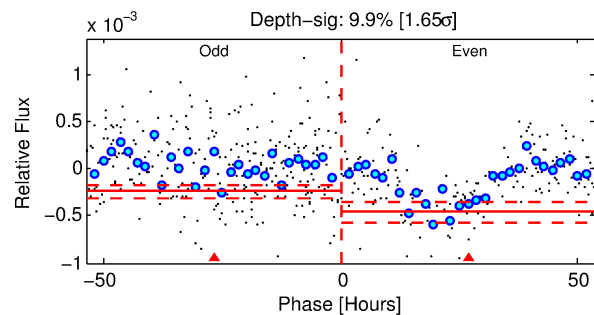
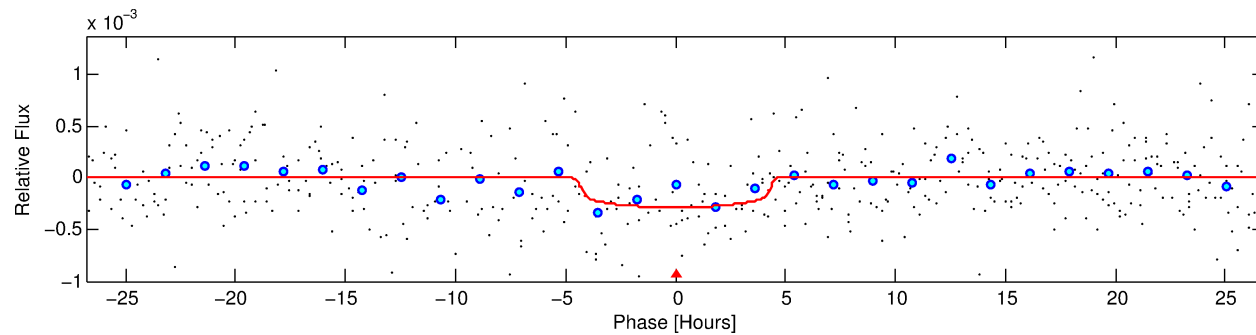
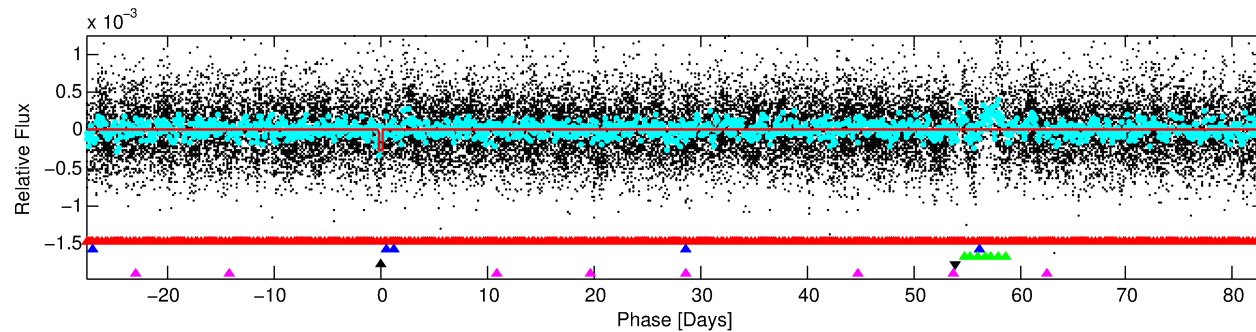
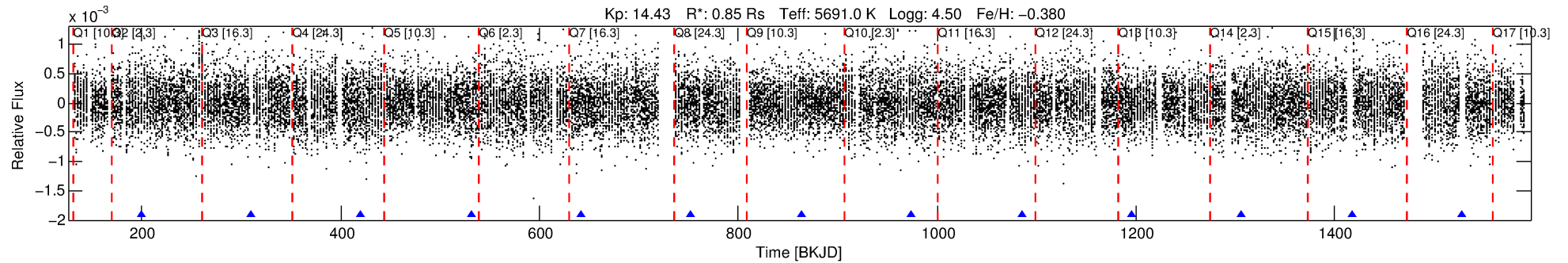
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002714887-04

No Significant Match Found

DV One-Page Summary

KIC: 2714887 Candidate: 4 of 5 Period: 110.682 d



DV Fit Results:

Period = 110.68179 [0.00392] d
Epoch = 199.3811 [0.0215] BKJD
Rp/R* = 0.0163 [0.0213]
a/R* = 73.48 [437.49]
b = 0.66 [5.20]
Seff = 3.77 [1.16]
Teff = 355 [27] K
Rp = 1.51 [2.00] Re
a = 0.4230 [0.0839] AU
Ag = 6178.31 [16464.75] [0.38σ]
Teffp = 4870 [3228] K [1.40σ]

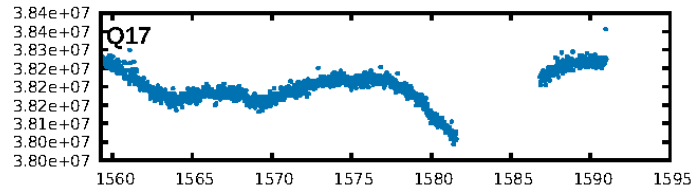
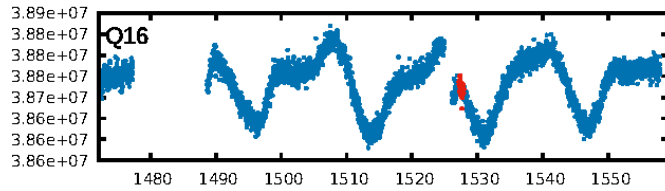
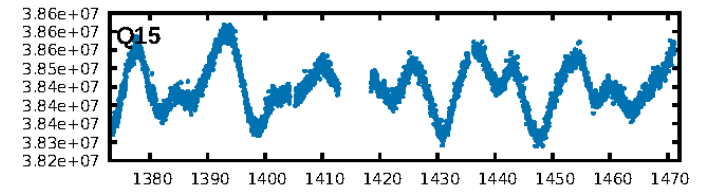
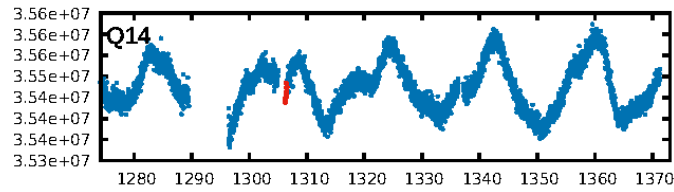
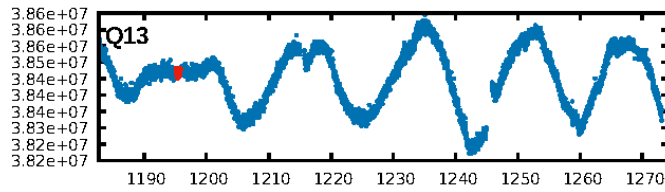
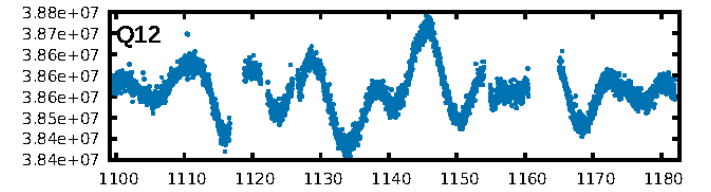
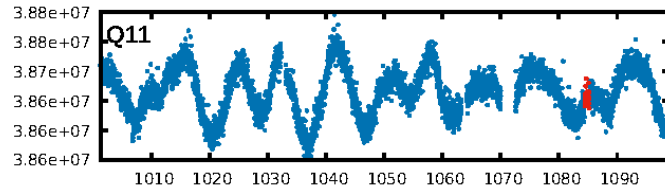
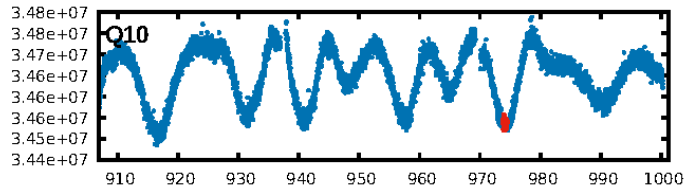
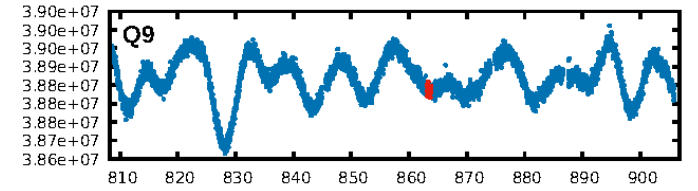
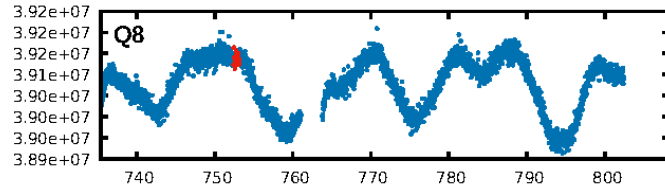
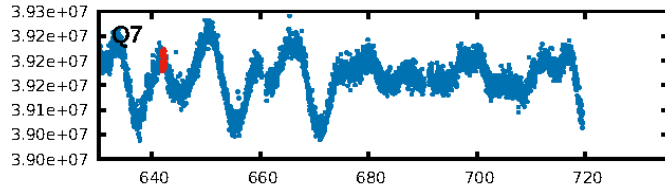
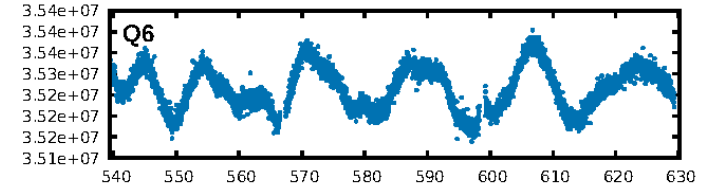
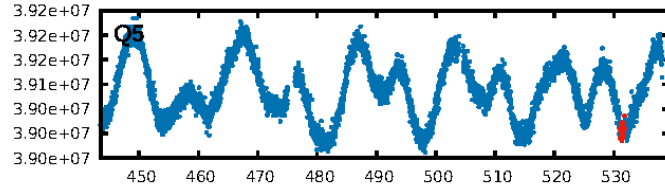
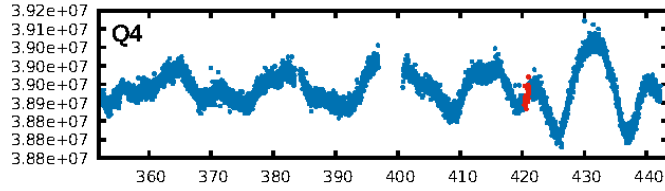
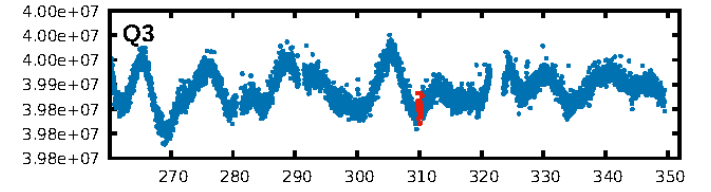
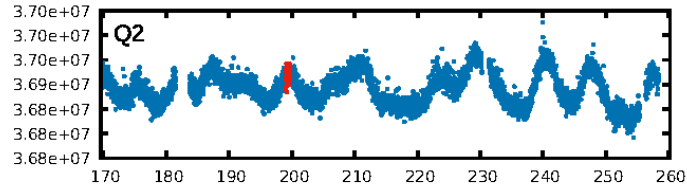
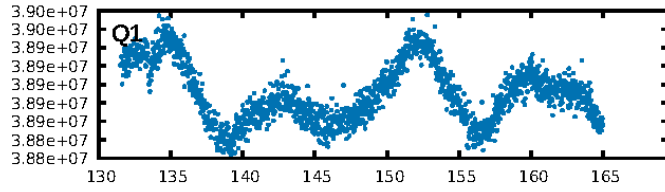
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [171.10σ]
LongPeriod-sig: 100.0% [181.84σ]
ModelChiSquare2-sig: 2.1%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 2.31e-12
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.3358
Centroid-sig: 12.6%
Centroid-so: 1.713 arcsec [1.37σ]
OotOffset-rm: 2.445 arcsec [1.55σ]
KicOffset-rm: 2.325 arcsec [1.47σ]
OotOffset-st: 1/3/0/2 [6]
KicOffset-st: 1/3/0/2 [6]
DiffImageQuality-fgm: 0.17 [1/6]
DiffImageOverlap-fno: 0.20 [2/10]

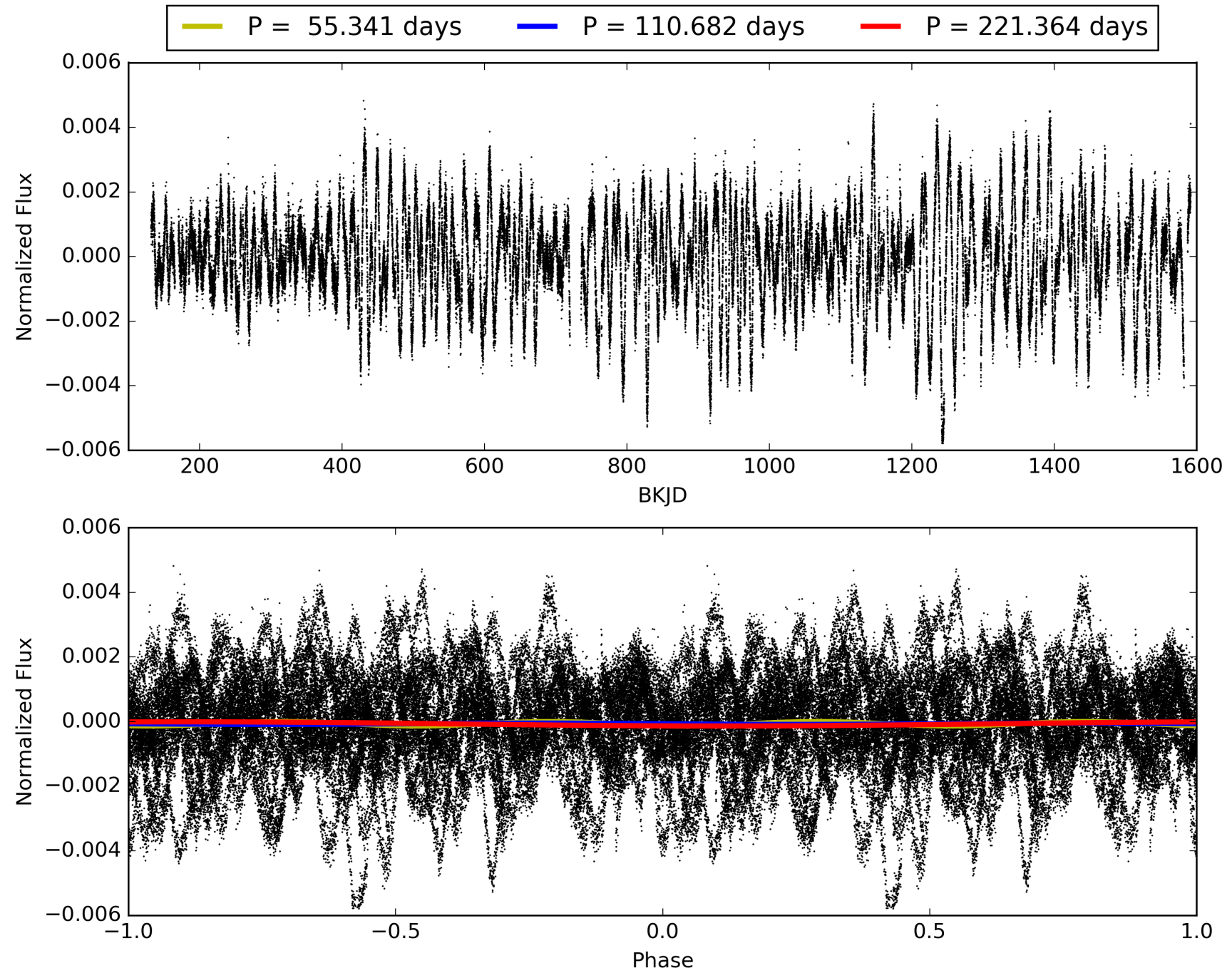
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:51:55 Z

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

TCE 002714887-04, PDC Light Curves

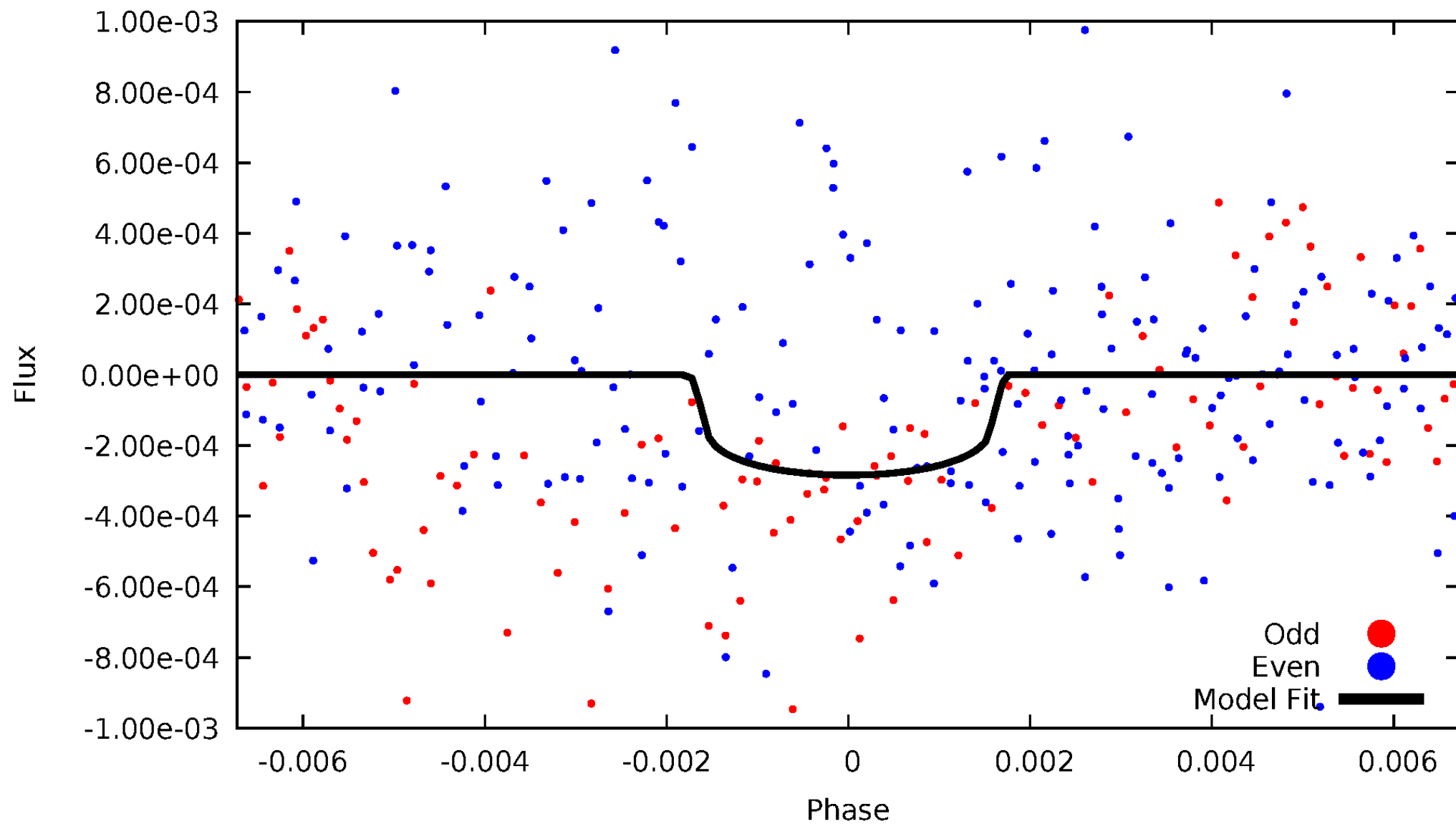


TCE 002714887-04



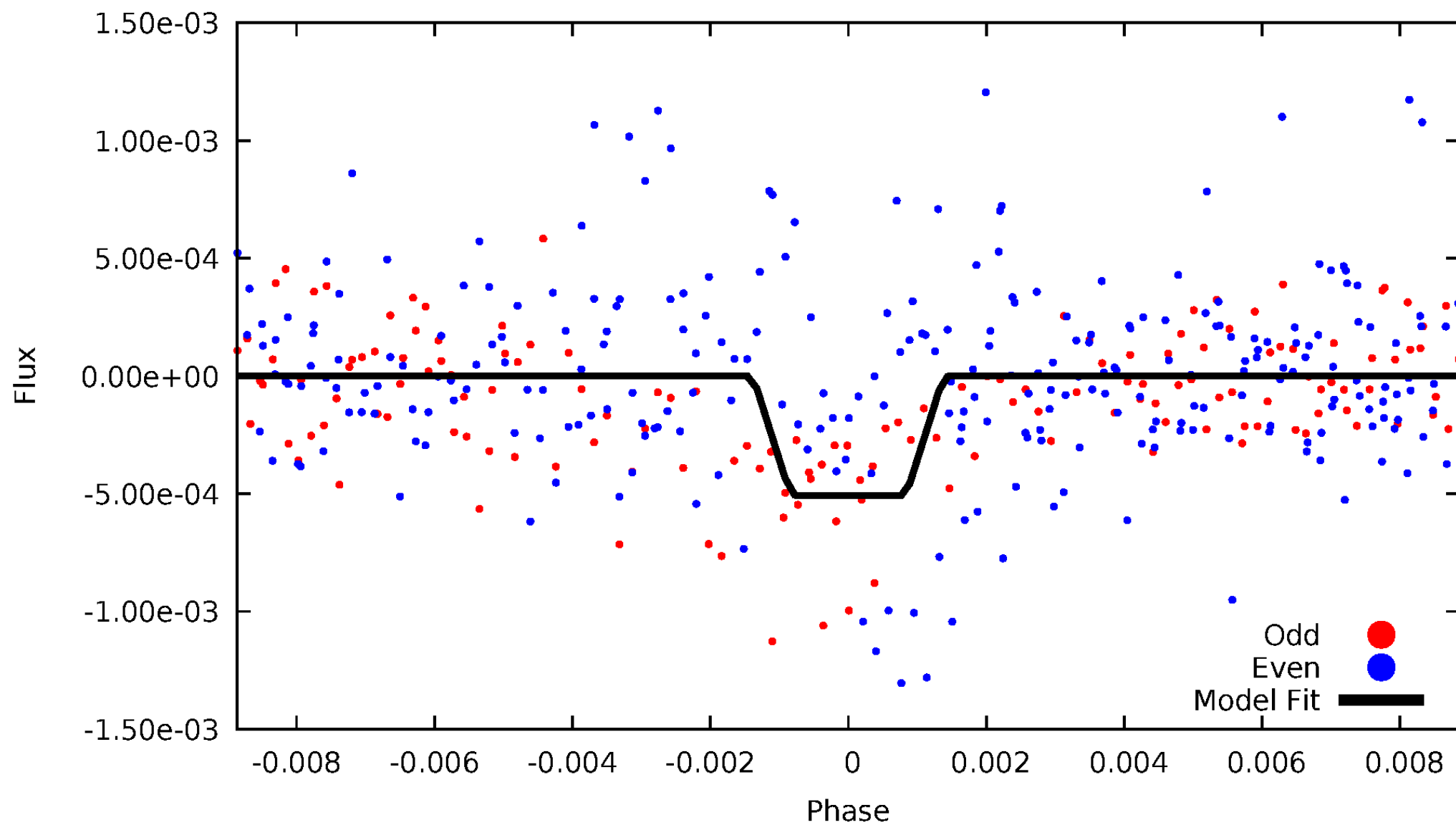
DV Odd/Even

TCE 002714887-04



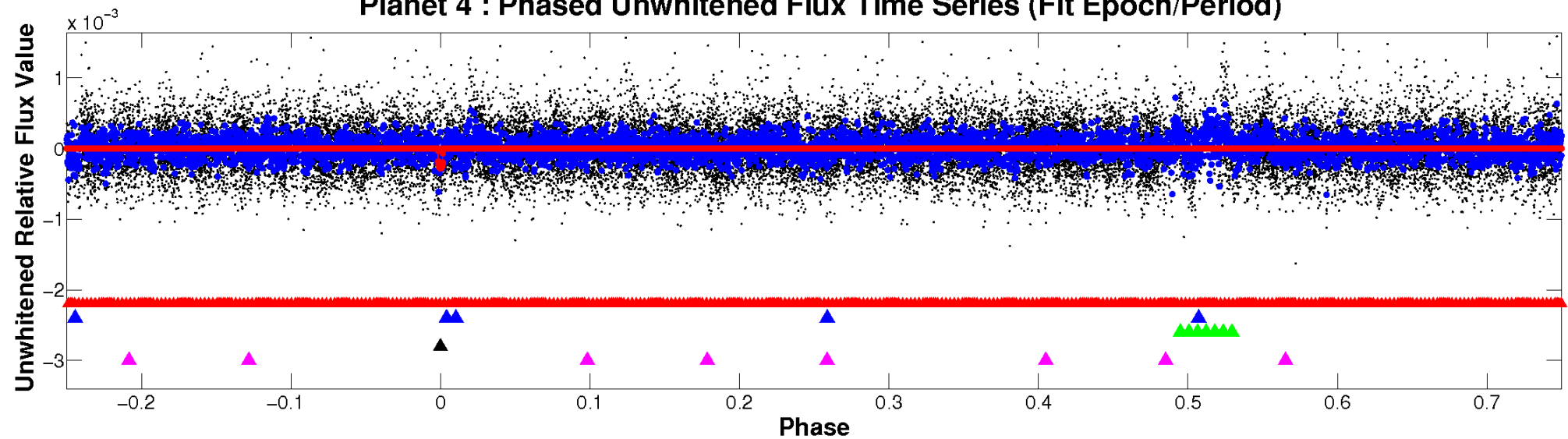
ALT Odd/Even

TCE 002714887-04

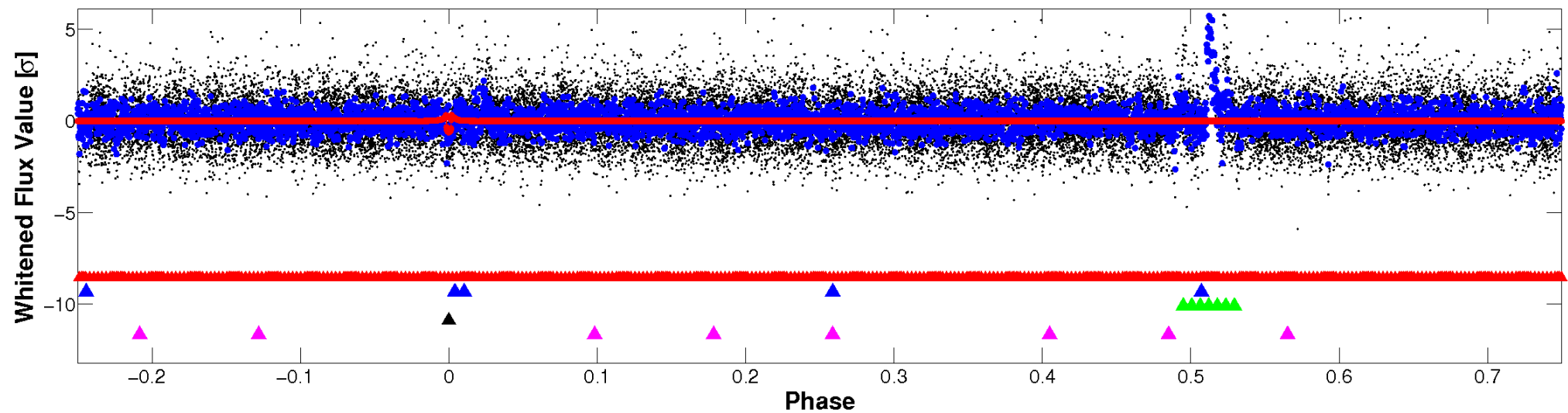


Non-Whitened Vs. Whitened Light Curve

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

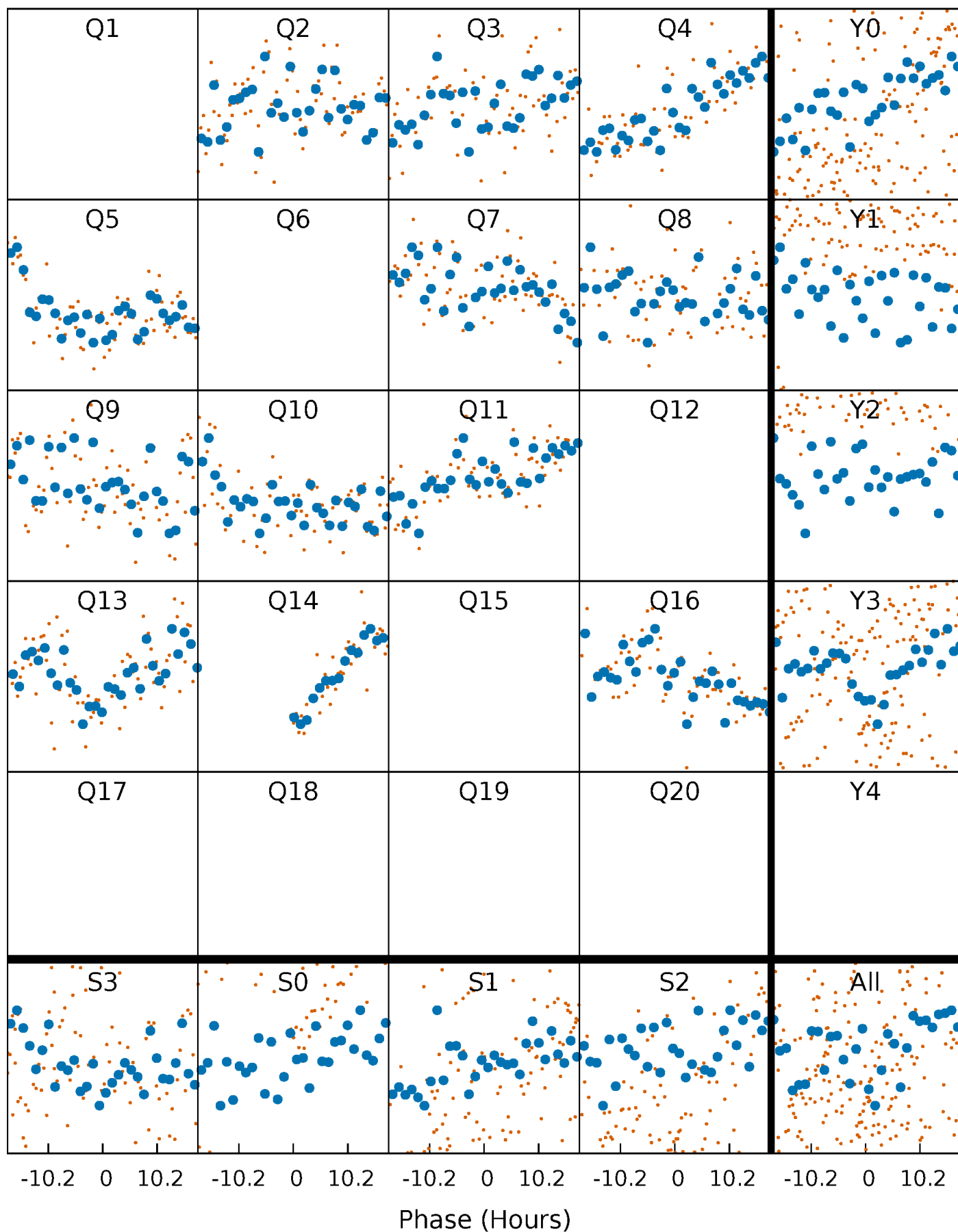


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



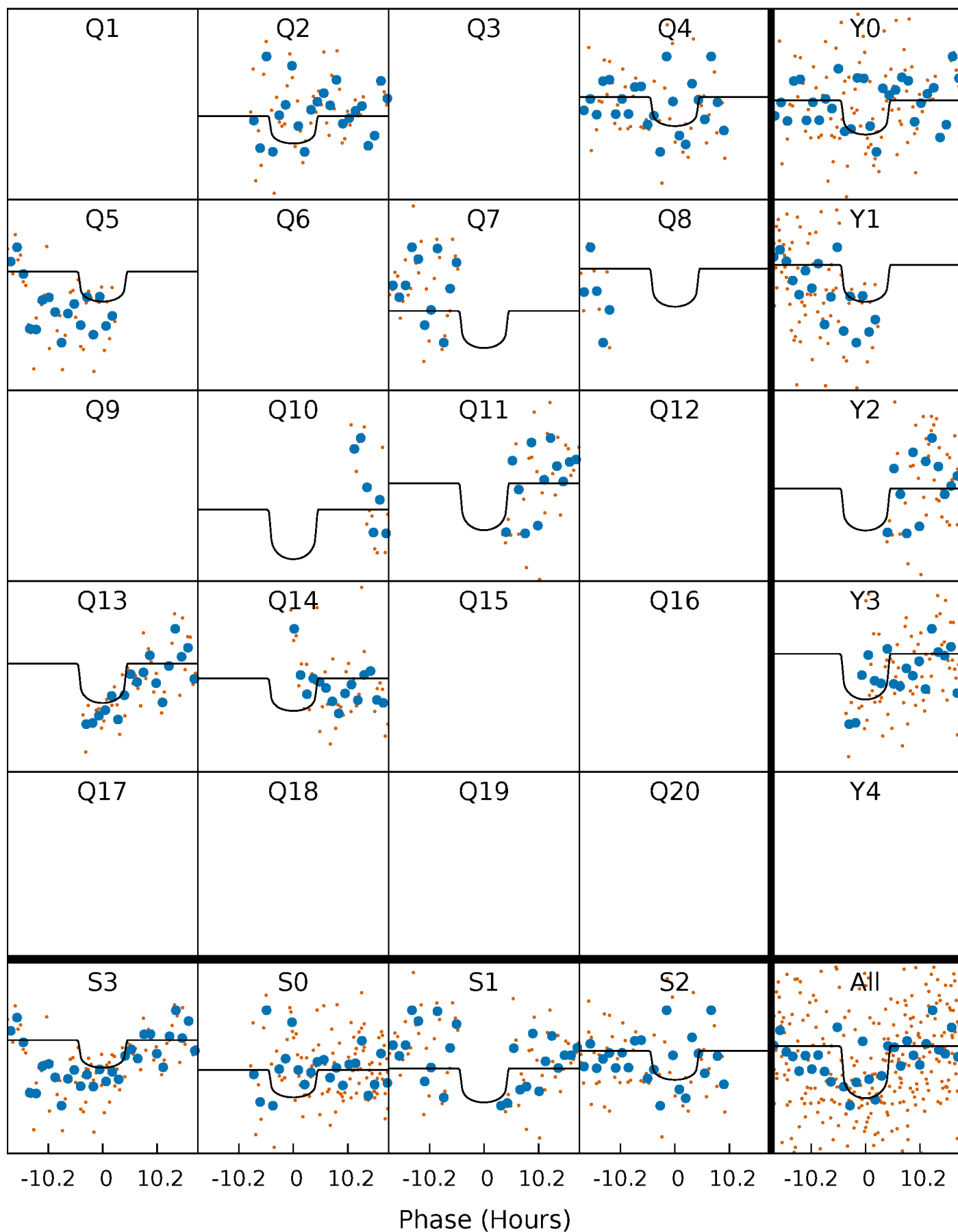
PDC Quarter-Phased Transit Curves

TCE 002714887-04 P=110.681787 Days $T_0=199.381081$ (BKJD)



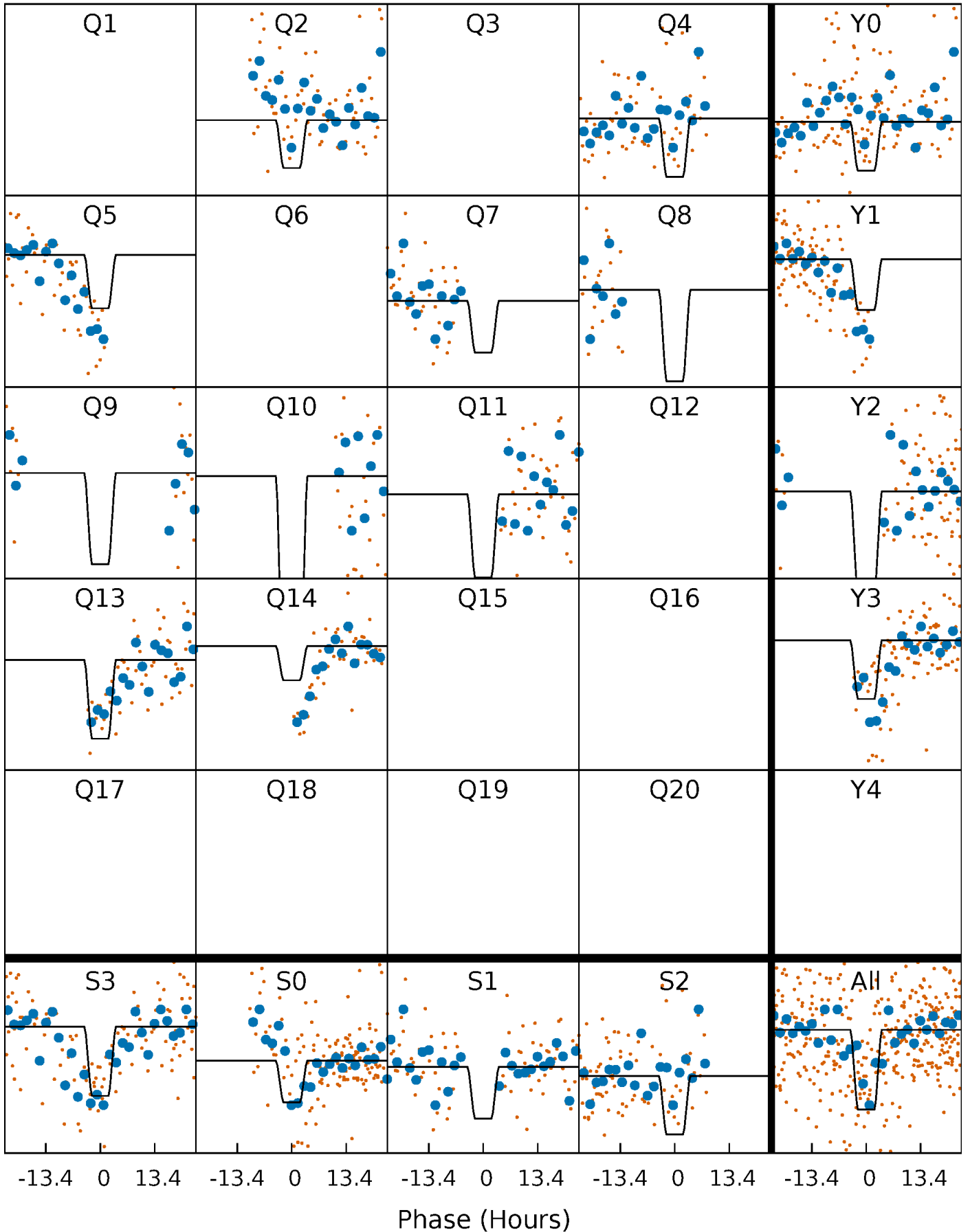
DV Quarter-Phased Transit Curves

TCE 002714887-04 P=110.681787 Days $T_0=199.381081$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

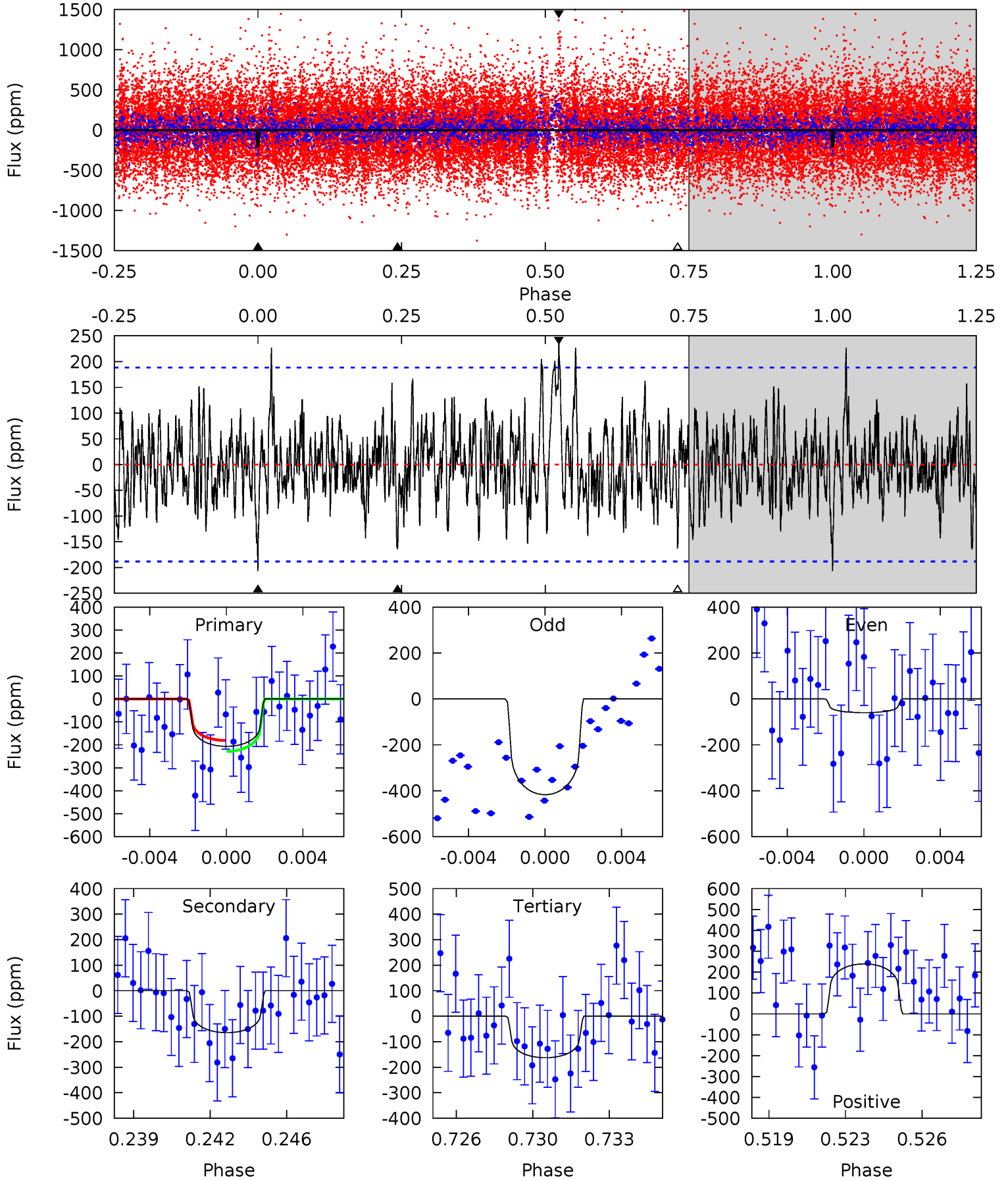
TCE 002714887-04 P=110.668161 Days $T_0=199.475780$ (BKJD)



DV Model-Shift Uniqueness Test

002714887-04, $P = 110.681787$ Days, $E = 88.699294$ Days

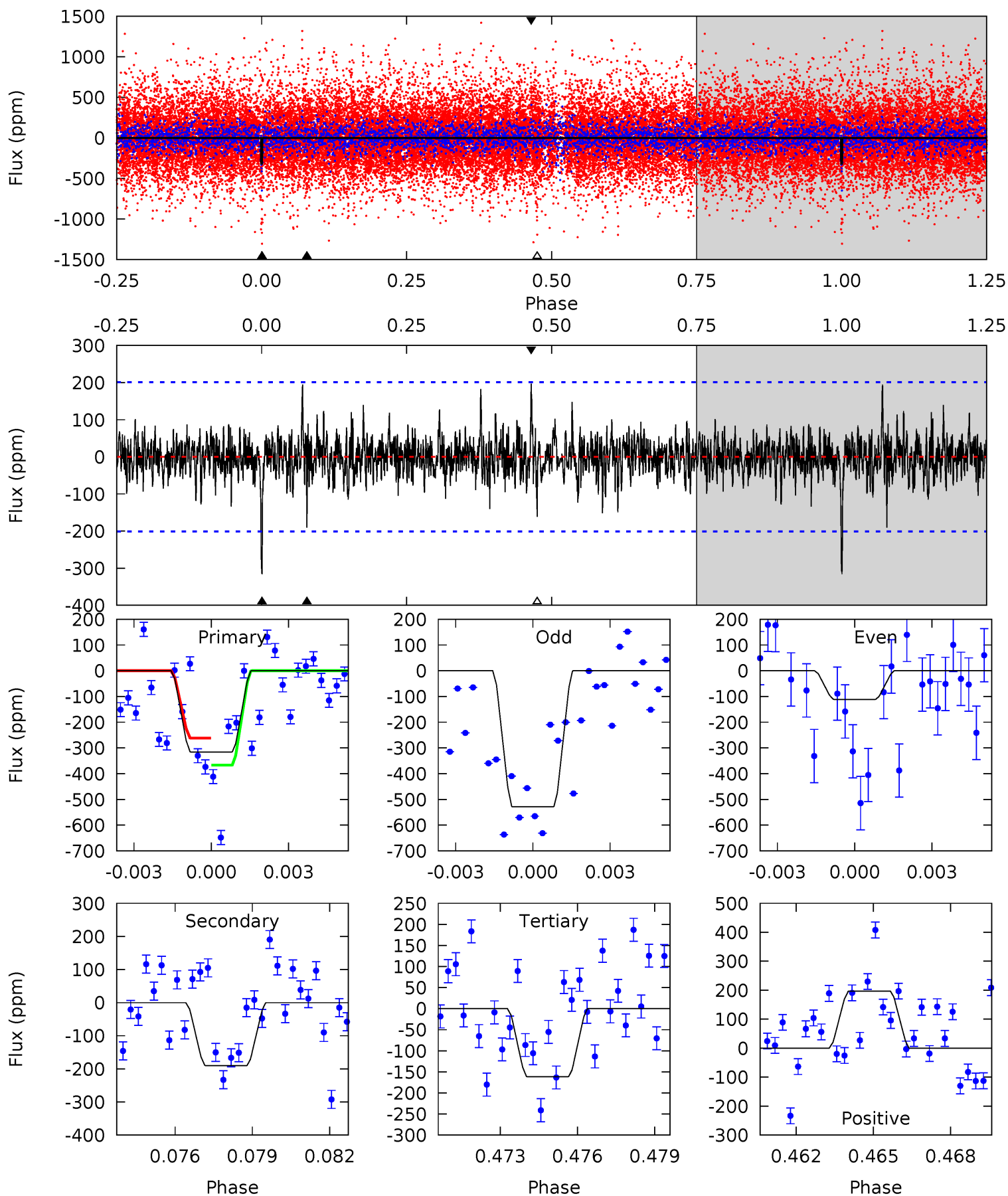
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.73	4.56	4.51	6.64	5.22	2.92	1.66	1.22	-0.91	0.05	-2.08	4.84	0.82	0.54	0.66



Alt Model-Shift Uniqueness Test

002714887-04, P = 110.668161 Days, E = 88.807619 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.26	4.97	4.22	5.15	5.26	2.99	1.10	4.03	3.11	0.75	-0.17	5.37	1.25	0.38	1.37



Stellar Parameters For KIC 002714887

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5691^{+154}_{-154}	$4.498^{+0.084}_{-0.156}$	$-0.380^{+0.300}_{-0.300}$	$0.847^{+0.201}_{-0.108}$	$0.824^{+0.107}_{-0.071}$	$1.909^{+0.682}_{-0.826}$
	+3%/-3%	+2%/-3%	+79%/-79%	+24%/-13%	+13%/-9%	+36%/-43%
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 002714887-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-164 ± 36	$2.19^{+1.72}_{-1.39}$	503^{+28}_{-26}	4464^{+2634}_{-875}	3474^{+19158}_{-2481}
Alt.	-190 ± 38	$2.59^{+1.84}_{-1.58}$	500^{+30}_{-23}	4291^{+2217}_{-735}	2861^{+16329}_{-1935}

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

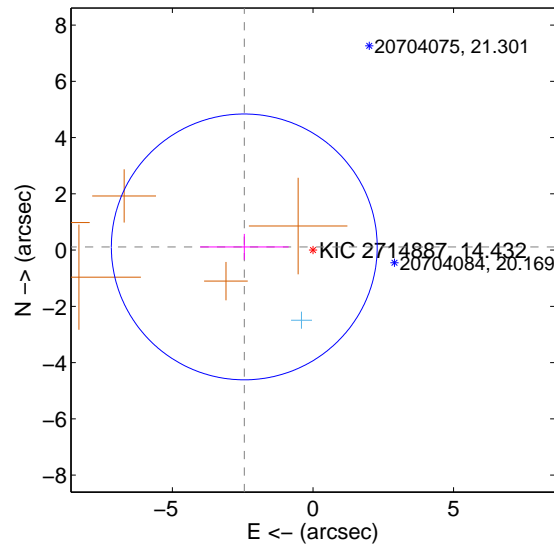
Supplemental centroid analysis for 002714887-04. Kepler magnitude: 14.43. Transit SNR 5.17

There are 1 quarters with good PRF difference image offsets

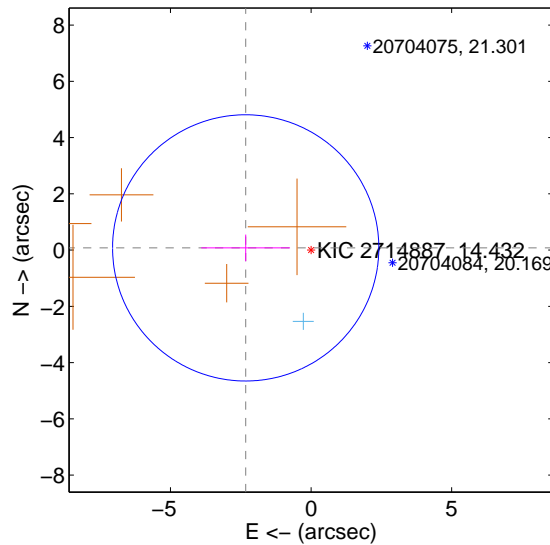
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.445 ± 1.575	1.55	2.442 ± 1.577	0.113 ± 0.463
PRF-fit source offset from KIC position	2.325 ± 1.578	1.47	2.324 ± 1.579	0.078 ± 0.474
photometric centroid source offset	1.71 ± 1.25	1.37	0.06 ± 1.21	-1.71 ± 1.25

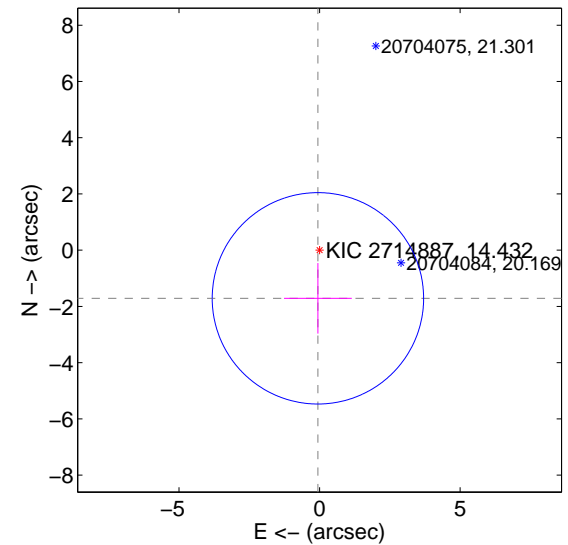
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

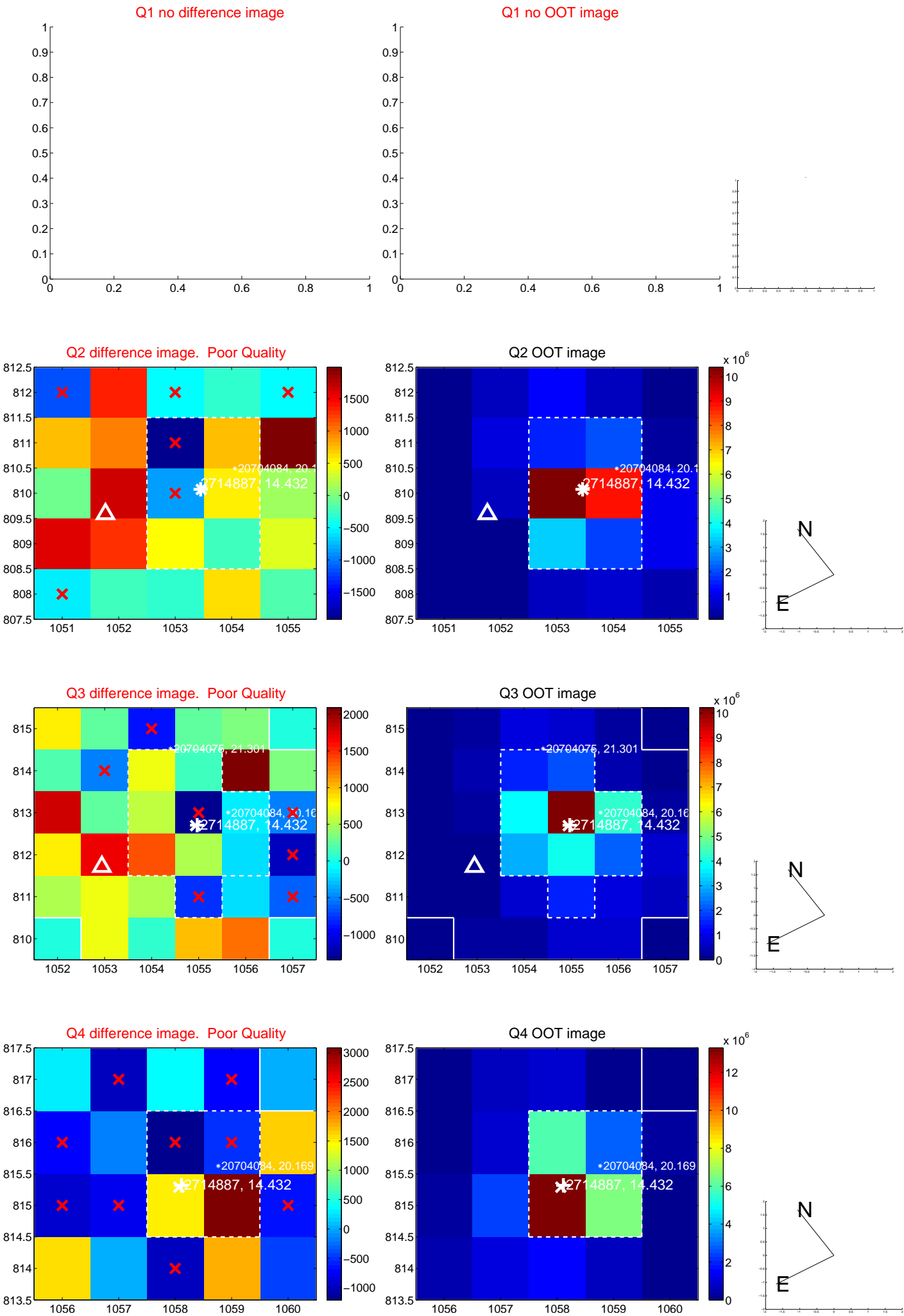


offset from photometric centroids

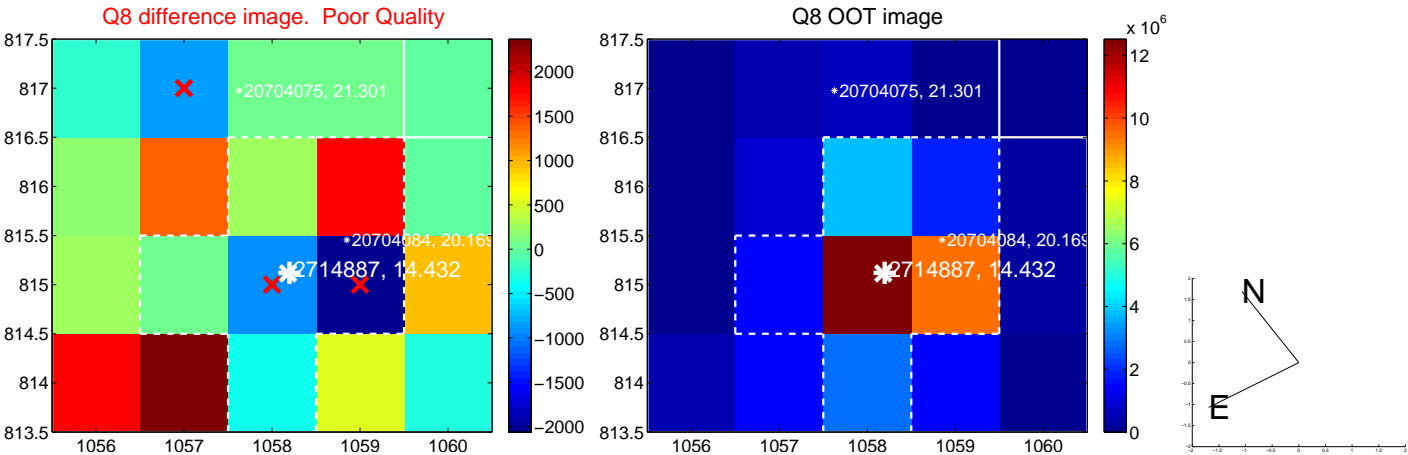
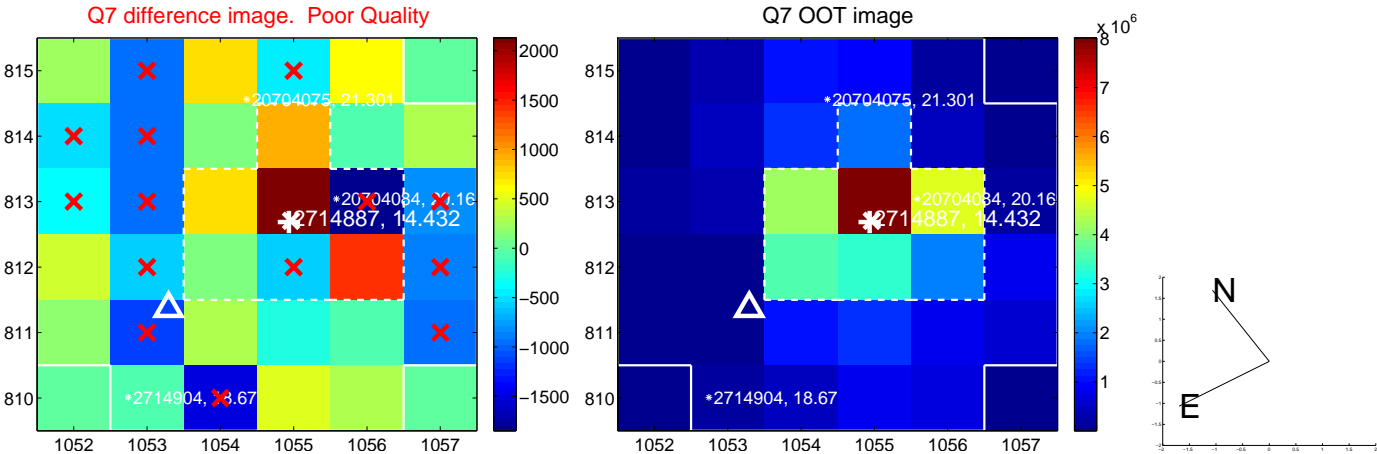
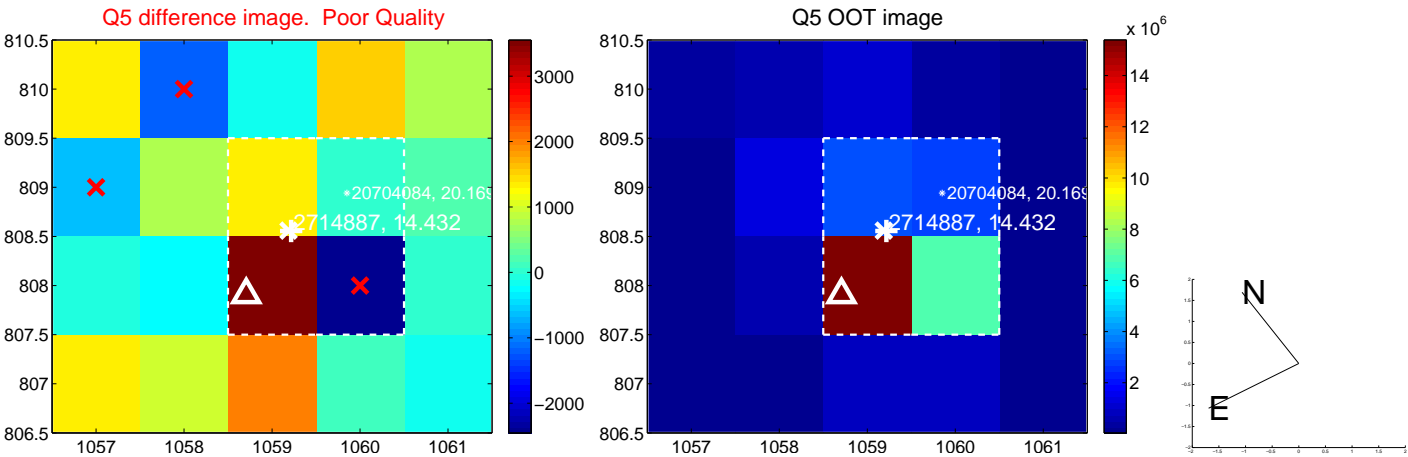


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

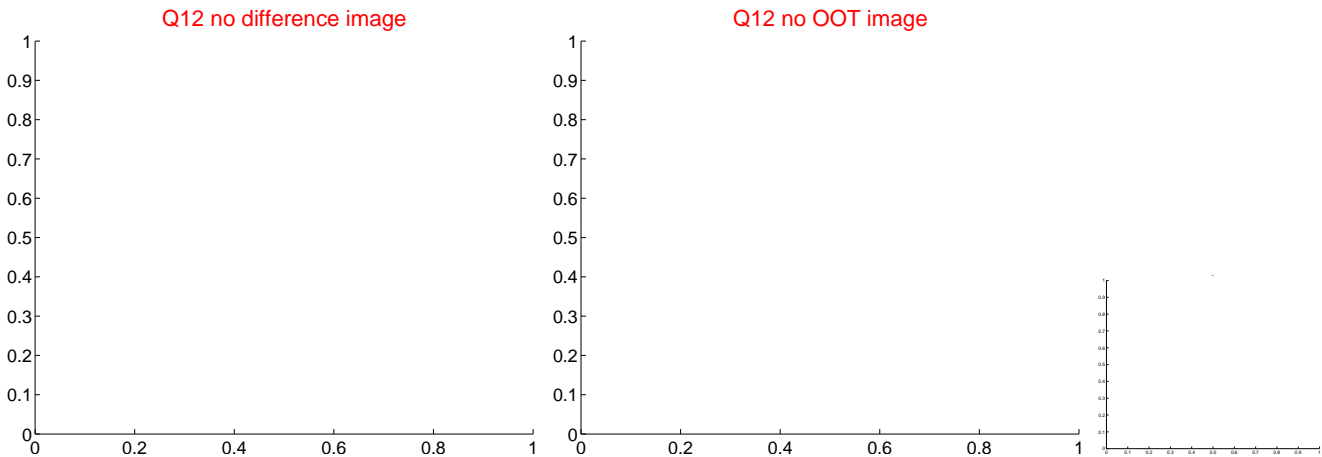
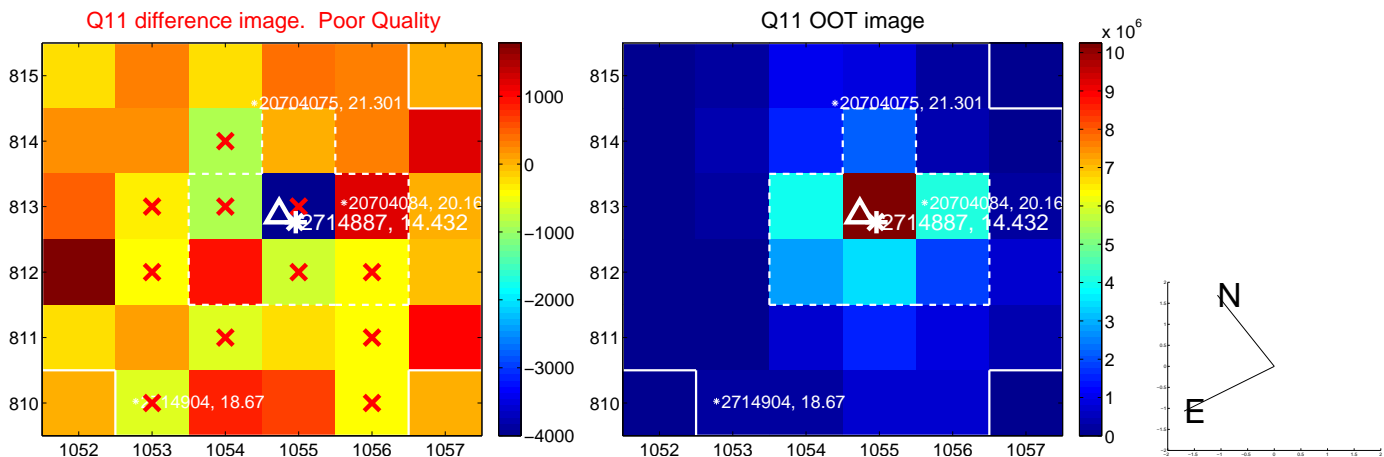
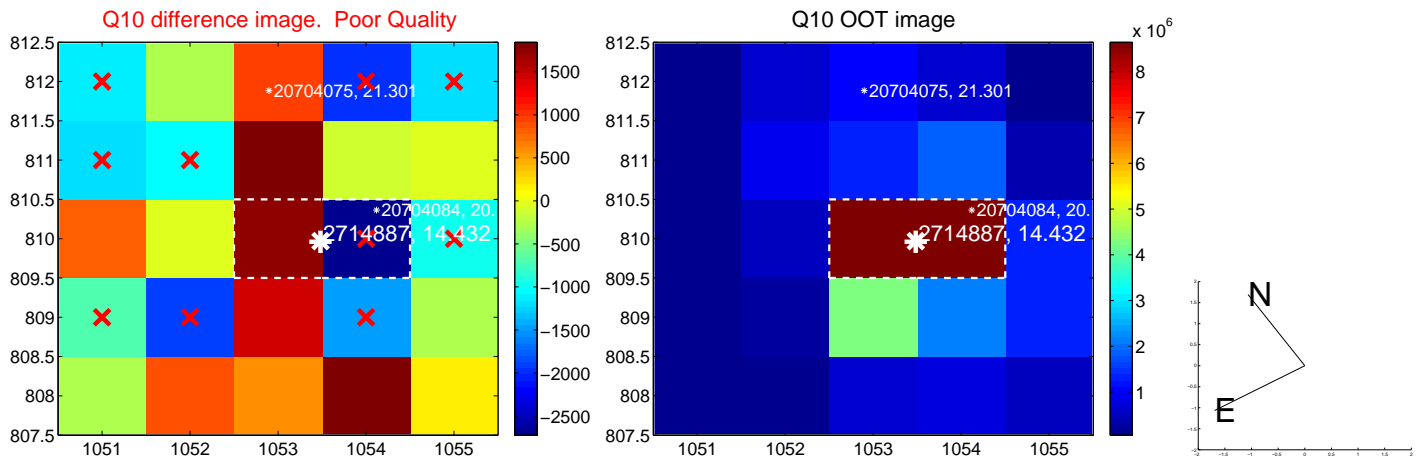
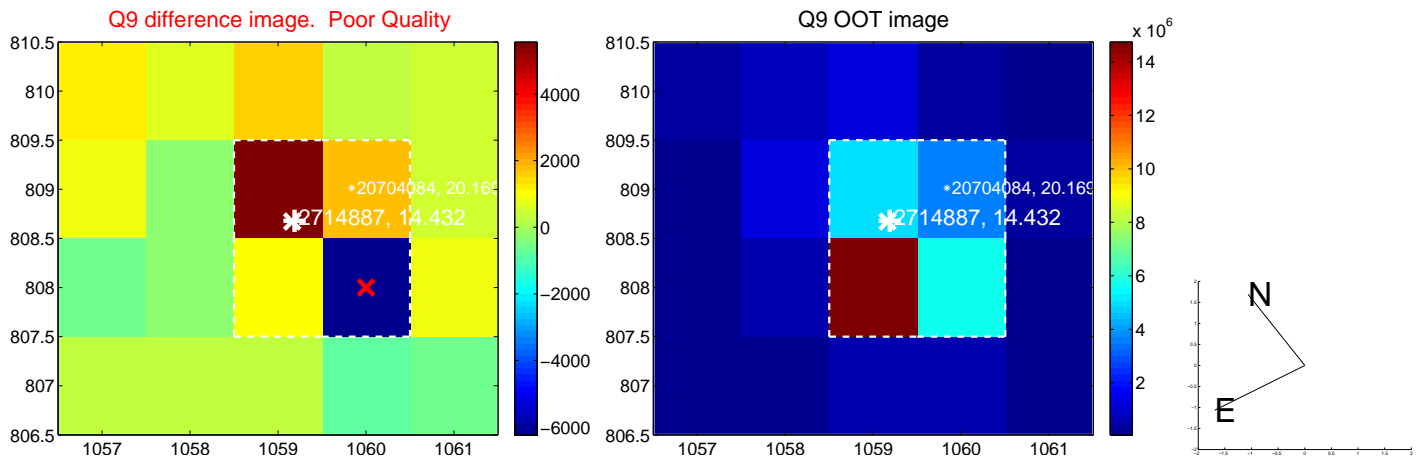
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



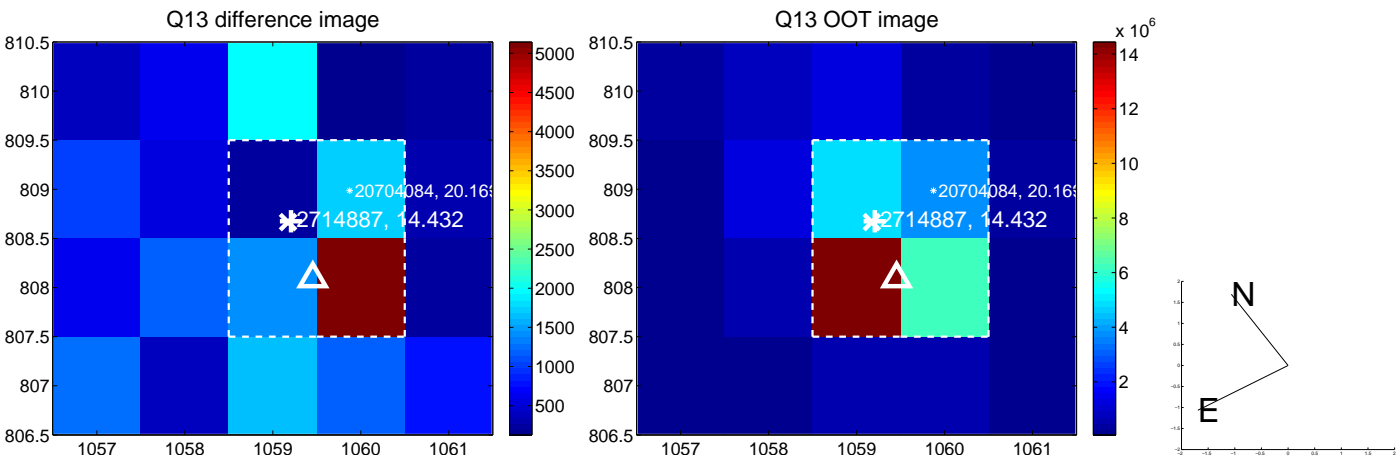
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



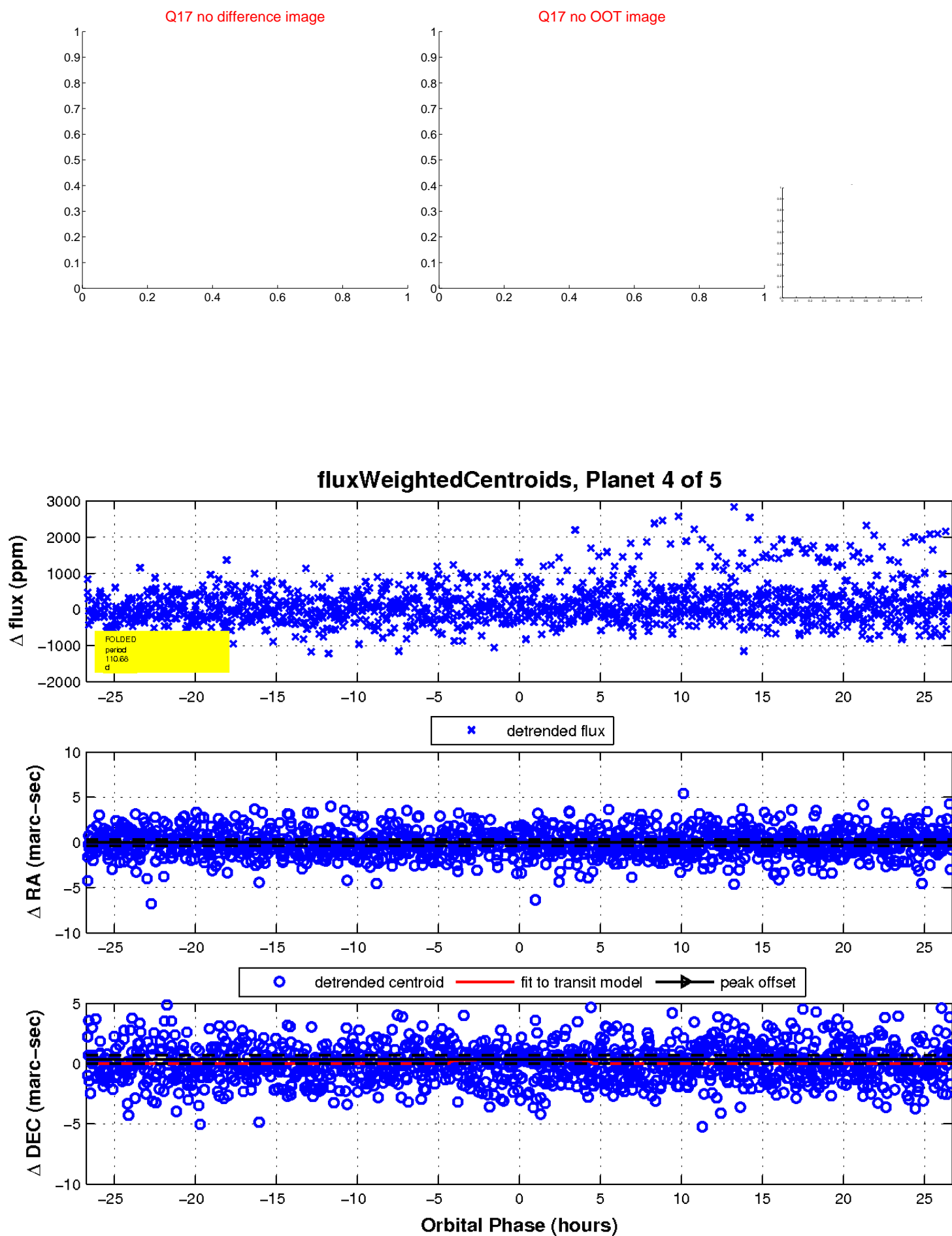
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

