

KIC 005551920

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})
005551920-01	OBS	No	1.225356	132.489112	17.9	5.980	8.0	8.1	4.07	6760	1.88	40178.14
005551920-02	OBS	No	108.659578	168.456126	259.7	2.522	7.1	6.9	4.07	6760	7.55	101.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005551920-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005551920-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

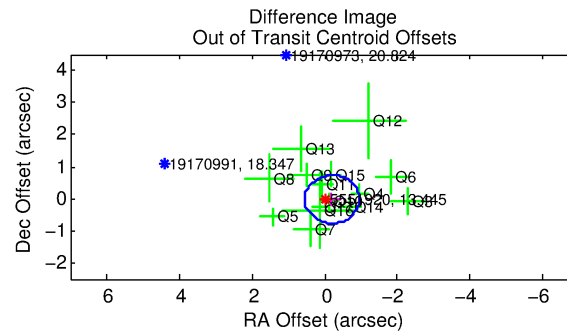
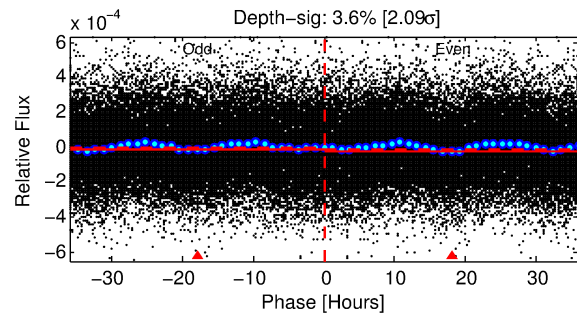
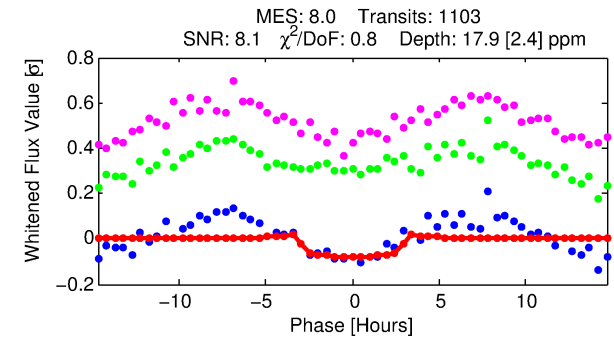
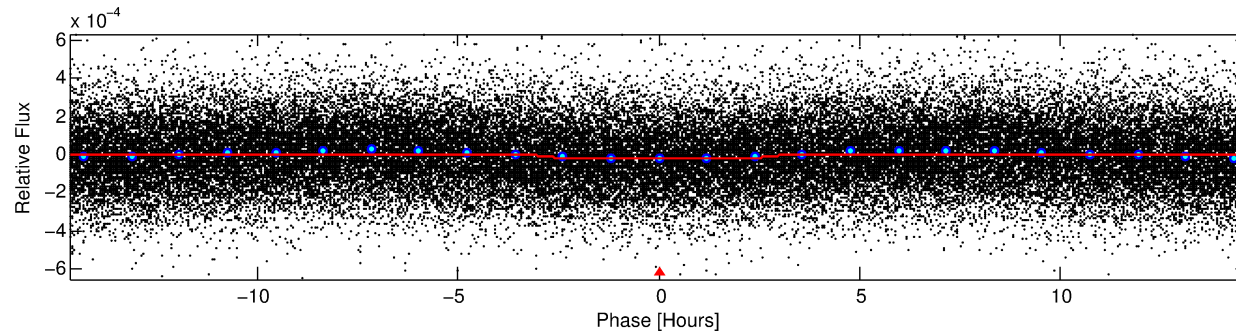
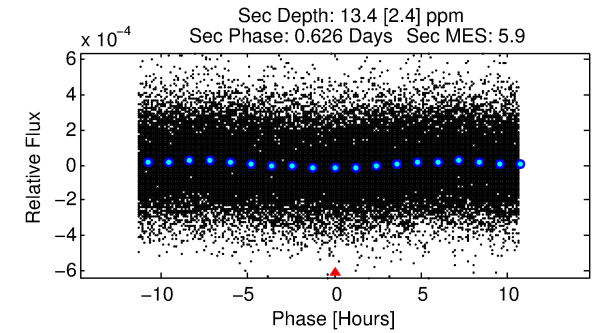
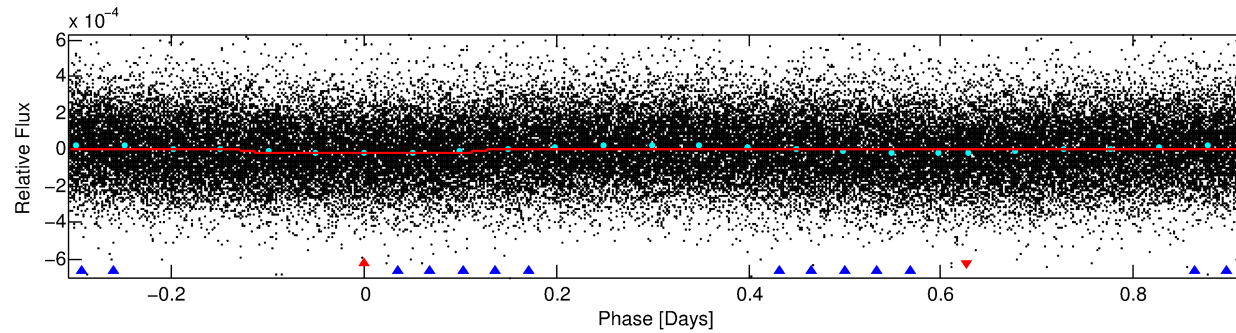
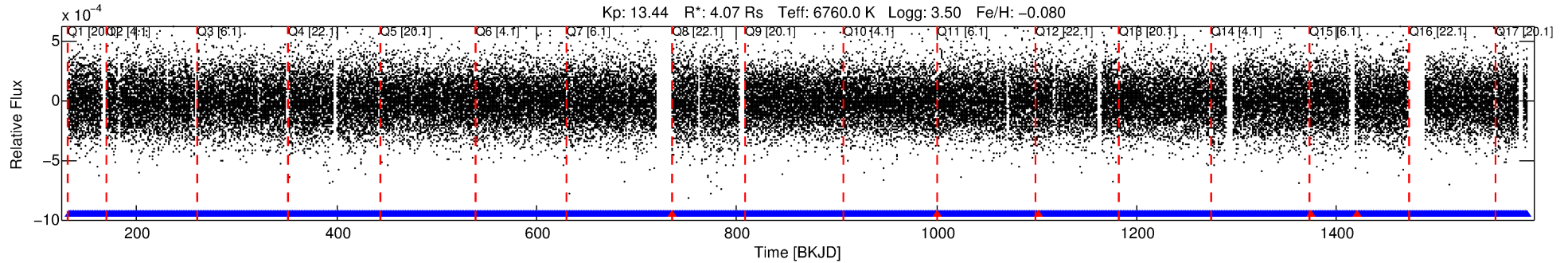
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005551920-01

No Significant Match Found

DV One-Page Summary

KIC: 5551920 Candidate: 1 of 2 Period: 1.225 d



DV Fit Results:

Period = 1.22536 [0.00002] d
Epoch = 132.4891 [0.0059] BKJD
Rp/R* = 0.0042 [0.0016]
a/R* = 1.33 [1.27]
b = 0.76 [1.19]
Seff = 40178.14 [24798.82]
Teq = 3610 [557] K
Rp = 1.88 [1.03] Re
a = 0.0278 [0.0106] AU
Ag = 1.61 [1.58] [0.39σ]
Teffp = 6287 [1234] K [1.98σ]

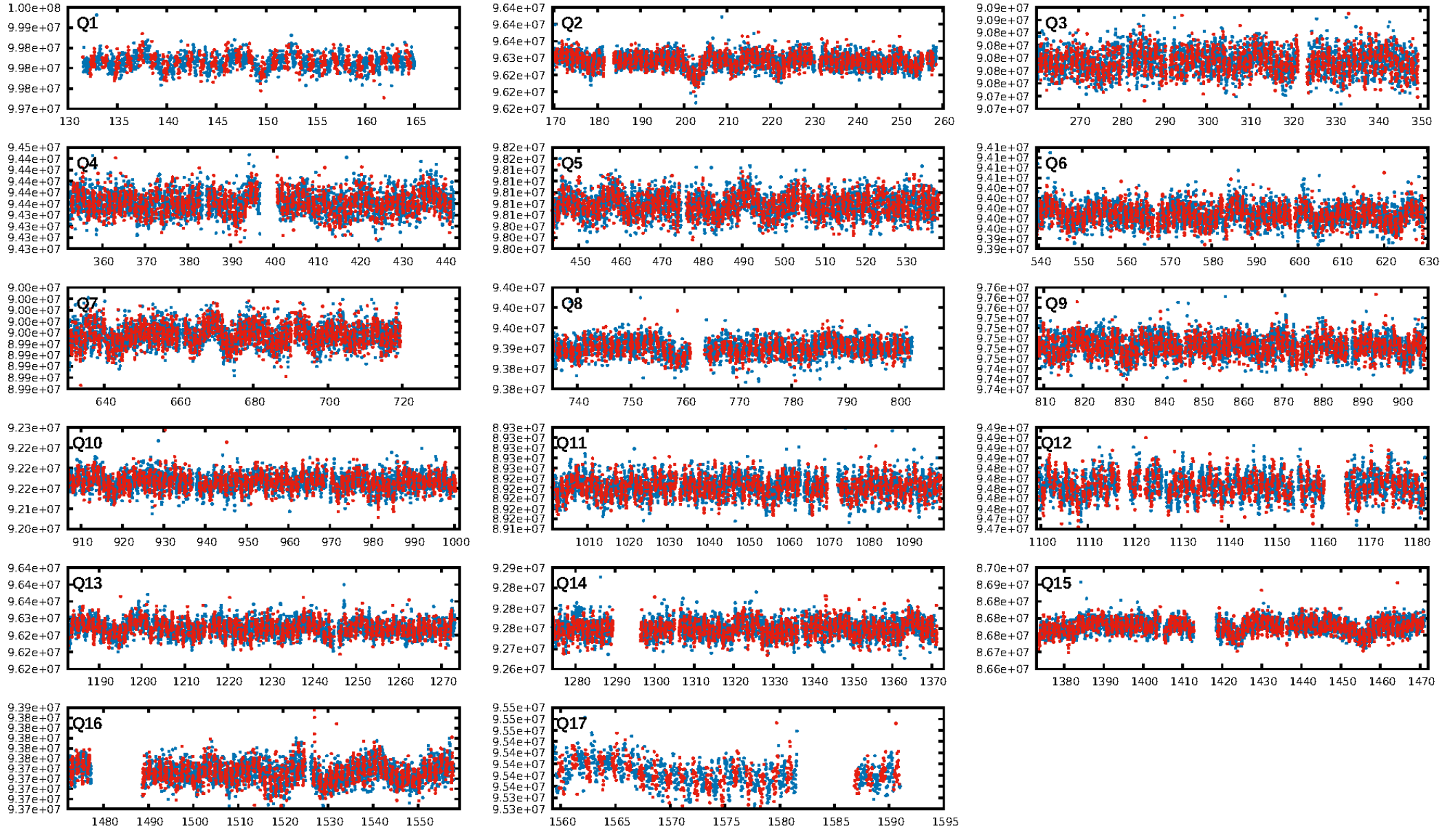
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [397.31σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.64e-10
RollingBand-fgt: 1.00 [1049/1054]
GhostDiagnostic-chr: 2.959
Centroid-sig: 82.9%
Centroid-so: 0.660 arcsec [0.57σ]
OotOffset-rm: 0.202 arcsec [0.81σ]
KicOffset-rm: 0.257 arcsec [1.00σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.93 [14/15]
DiffImageOverlap-fno: 1.00 [17/17]

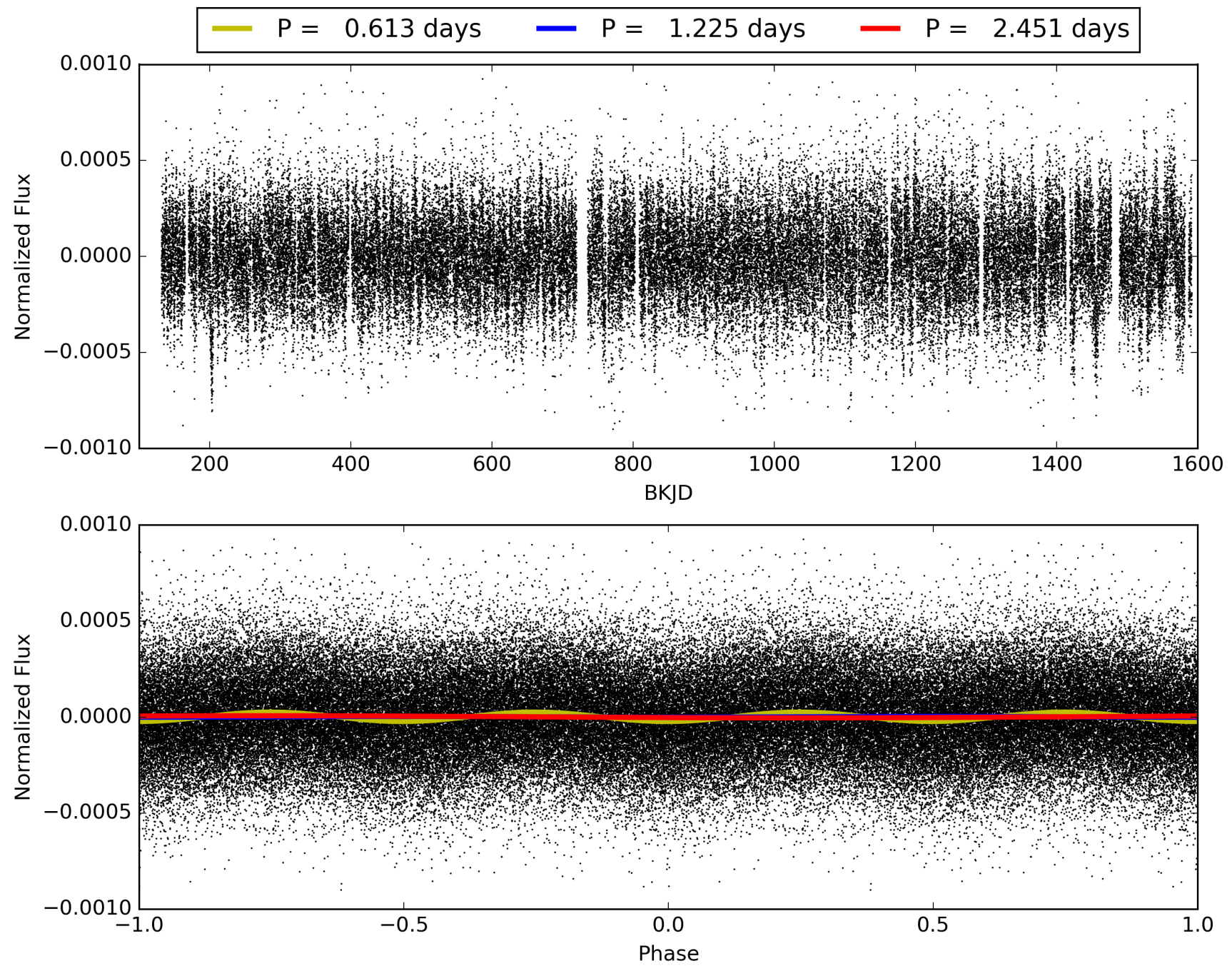
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:31:59 Z

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

TCE 005551920-01, PDC Light Curves

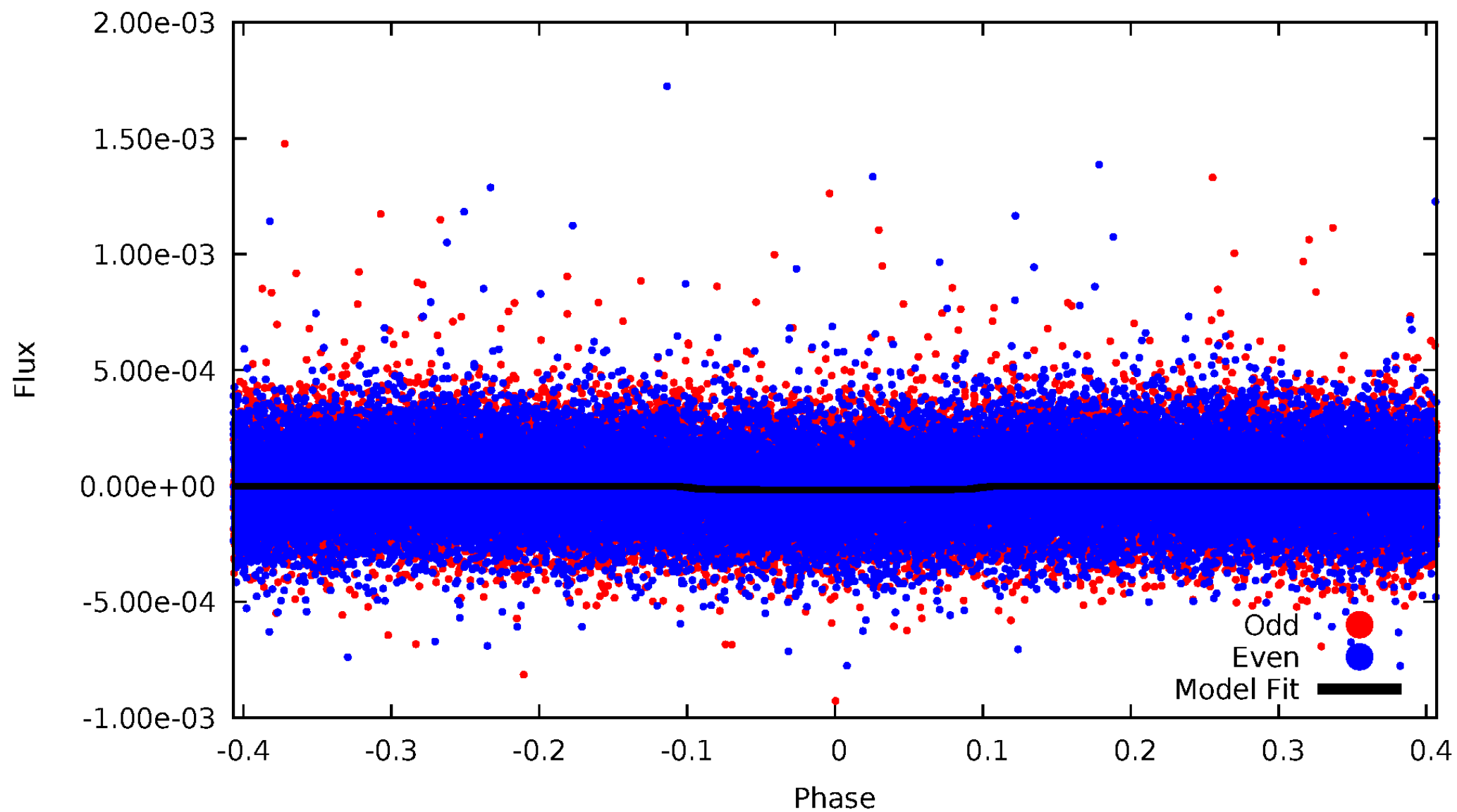


TCE 005551920-01



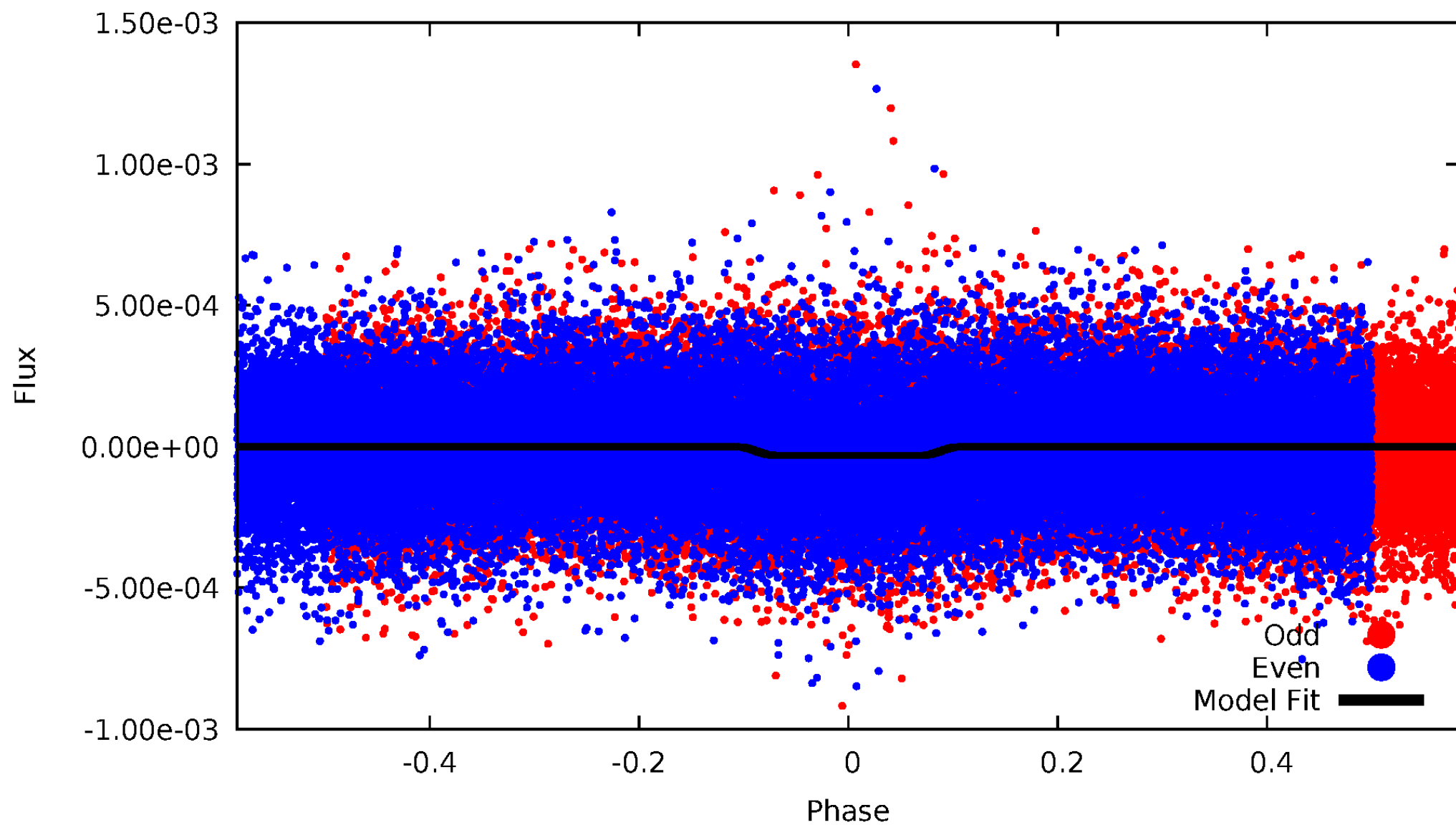
DV Odd/Even

TCE 005551920-01



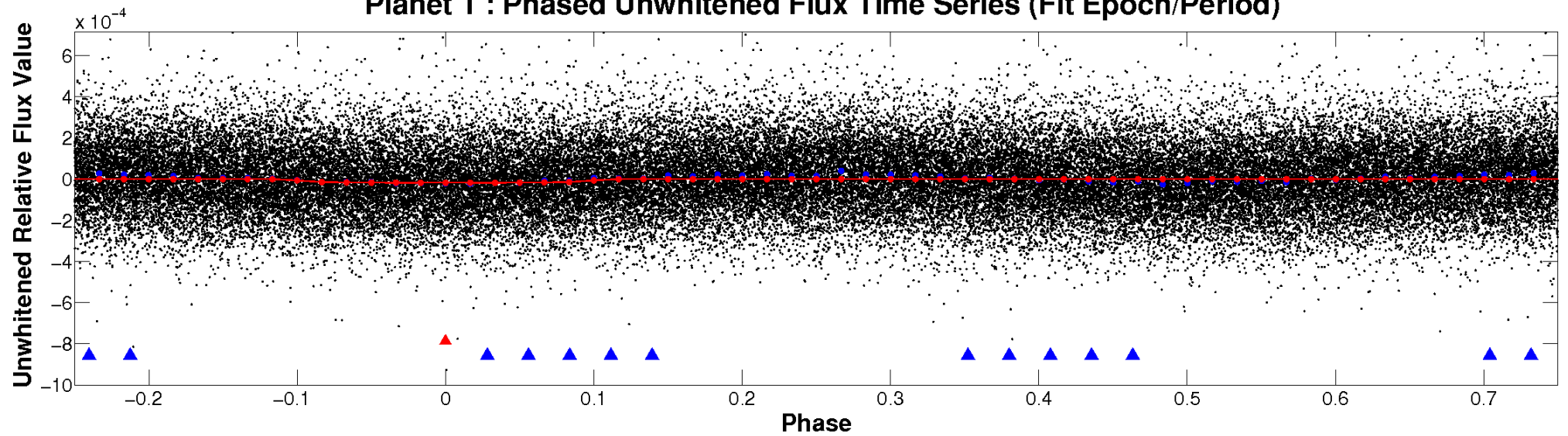
ALT Odd/Even

TCE 005551920-01

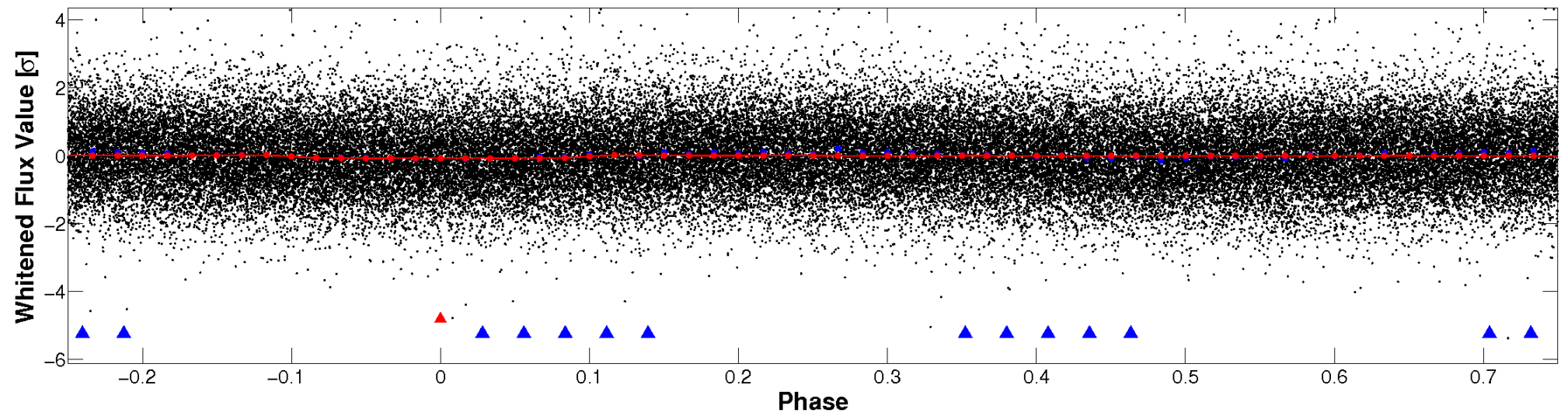


Non-Whitened Vs. Whitened Light Curve

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

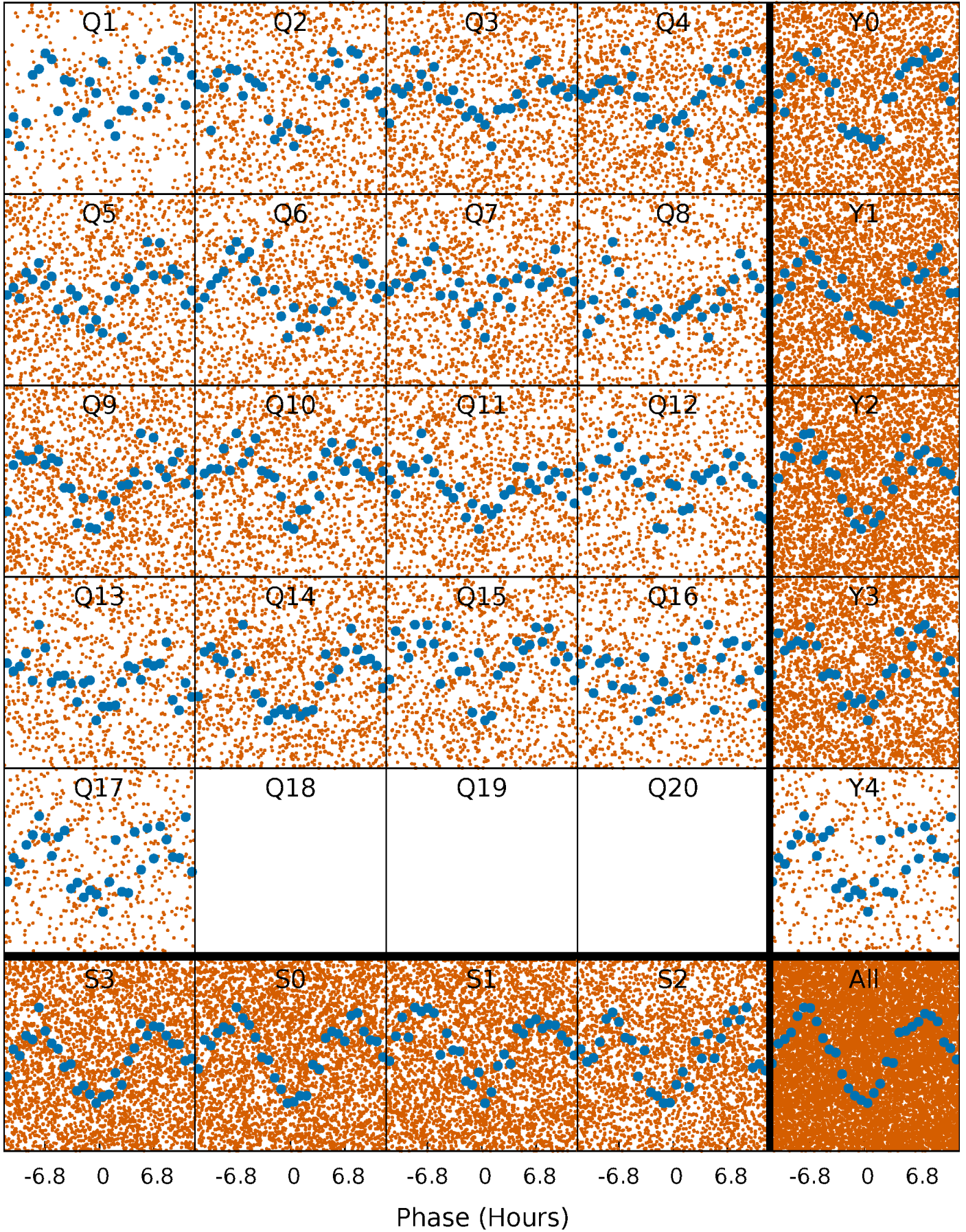


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



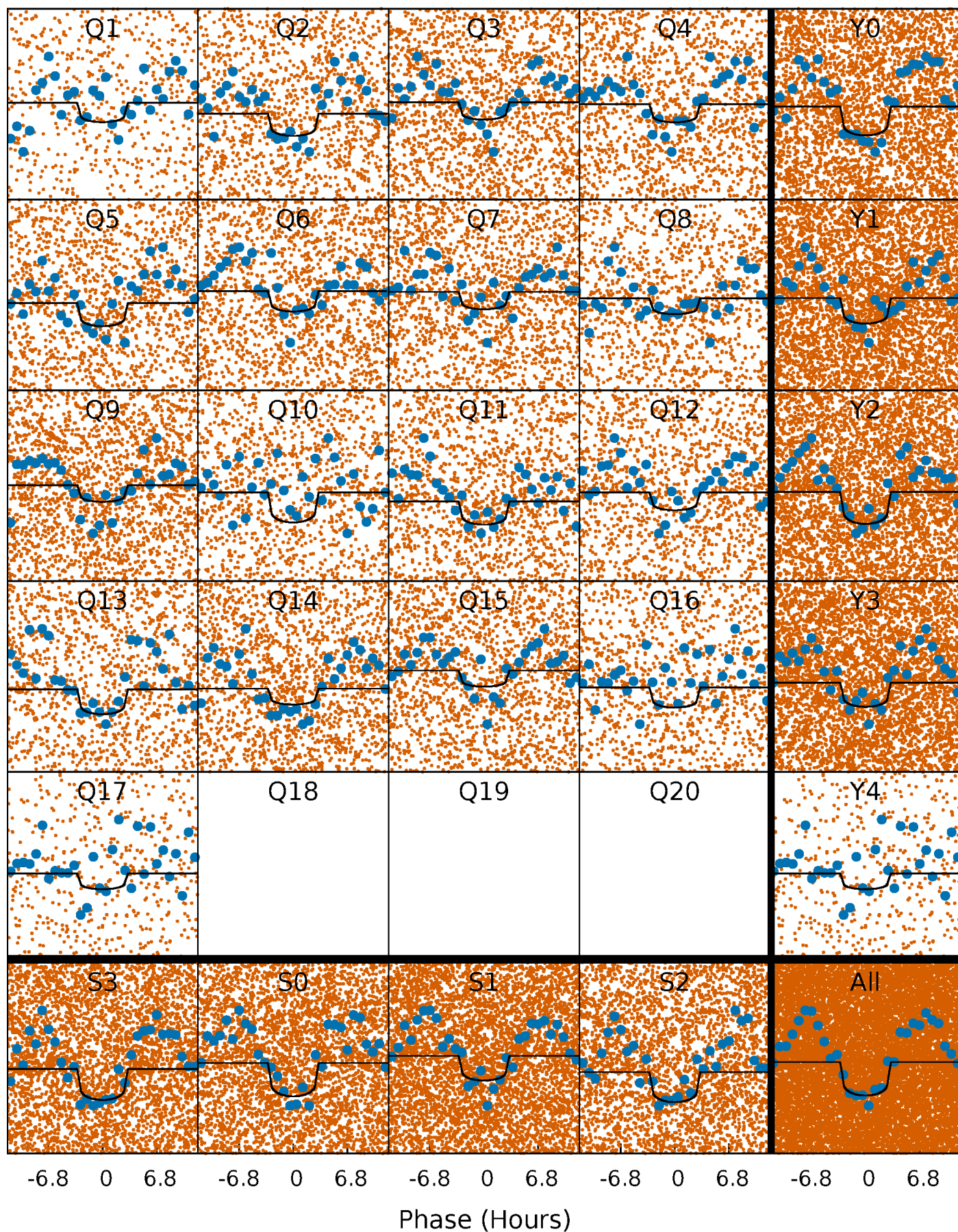
PDC Quarter-Phased Transit Curves

TCE 005551920-01 P= 1.225356 Days $T_0=132.489112$ (BKJD)



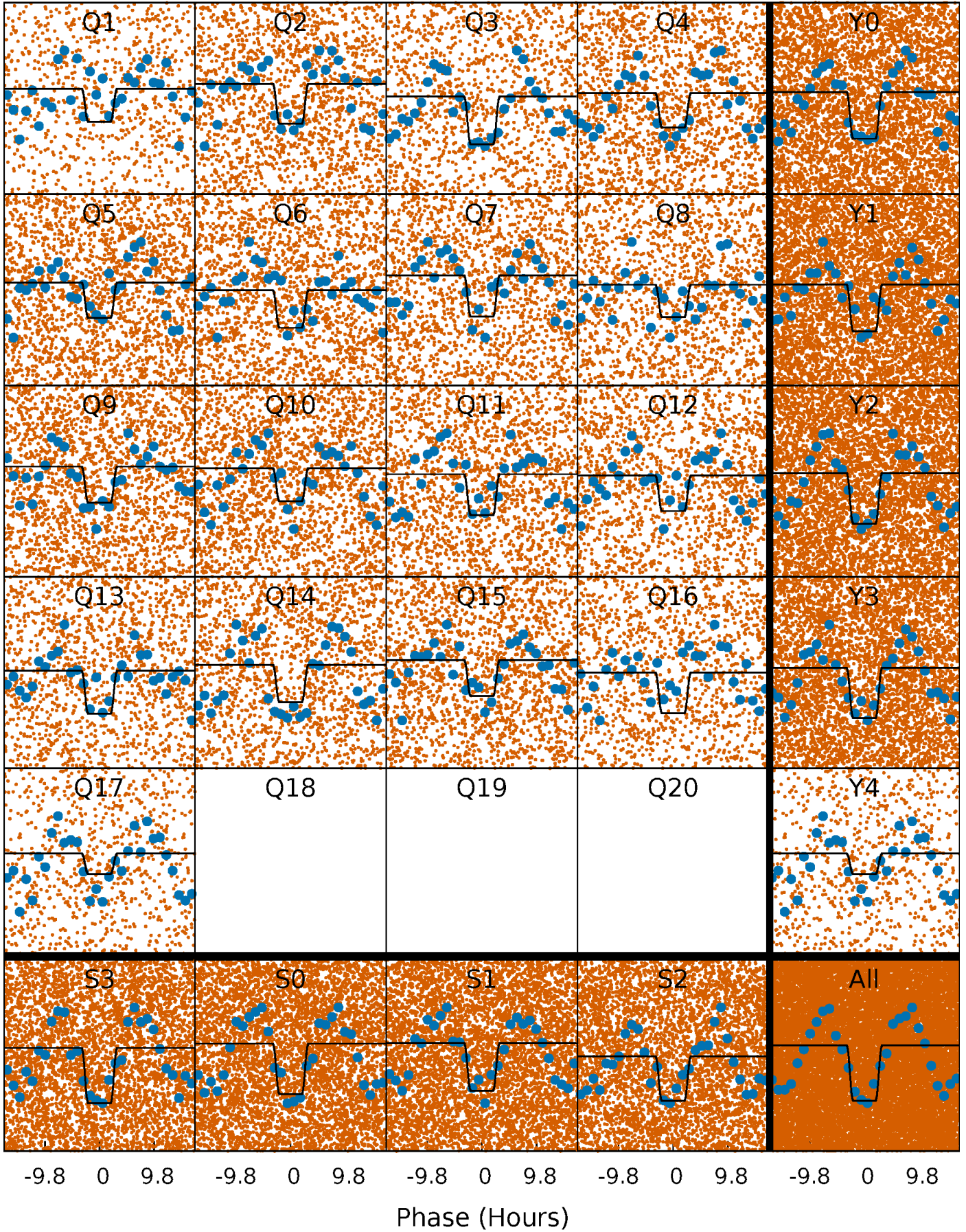
DV Quarter-Phased Transit Curves

TCE 005551920-01 P= 1.225356 Days $T_0=132.489112$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

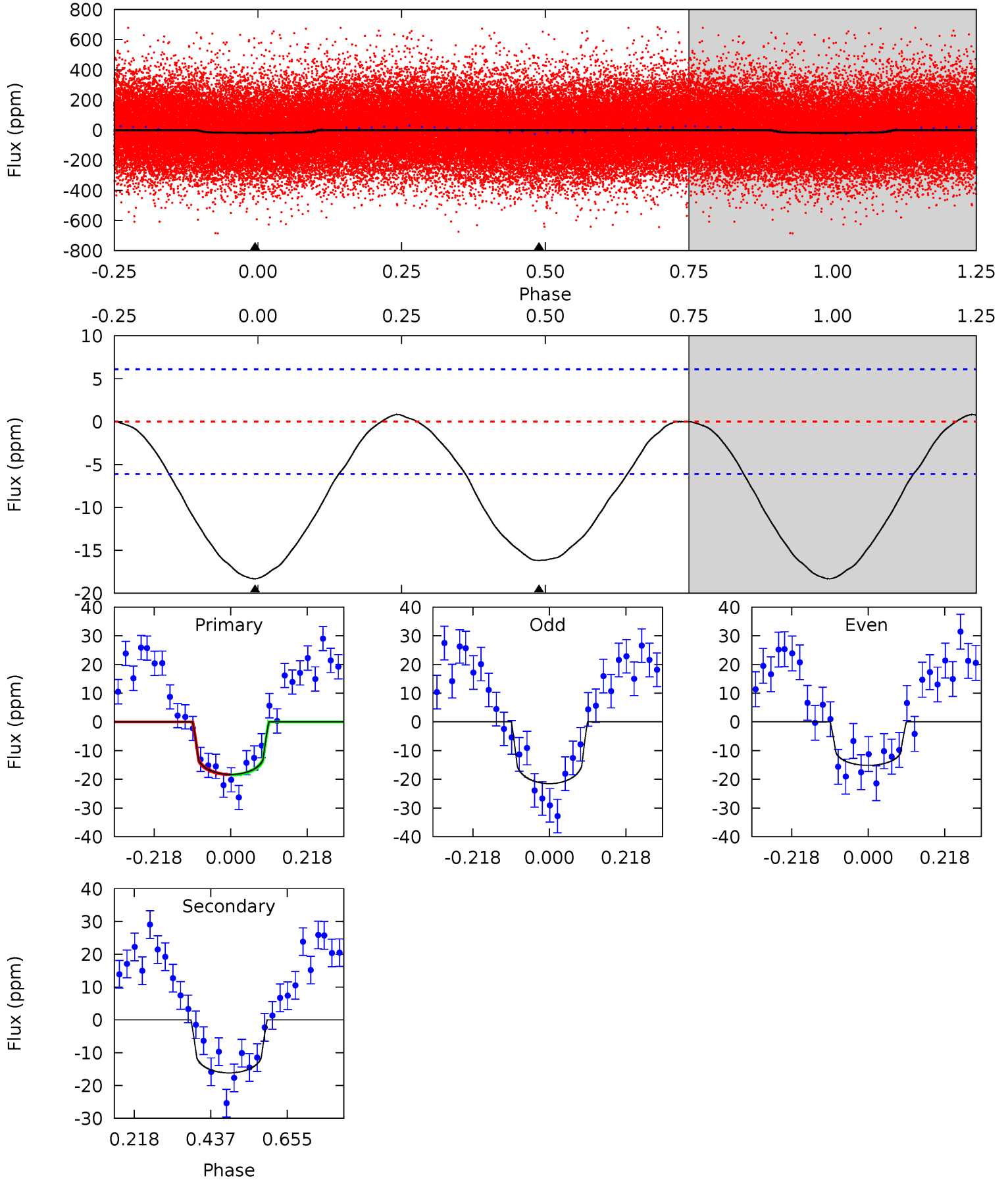
TCE 005551920-01 P= 1.225337 Days $T_0=132.497287$ (BKJD)



DV Model-Shift Uniqueness Test

005551920-01, P = 1.225356 Days, E = 131.263756 Days

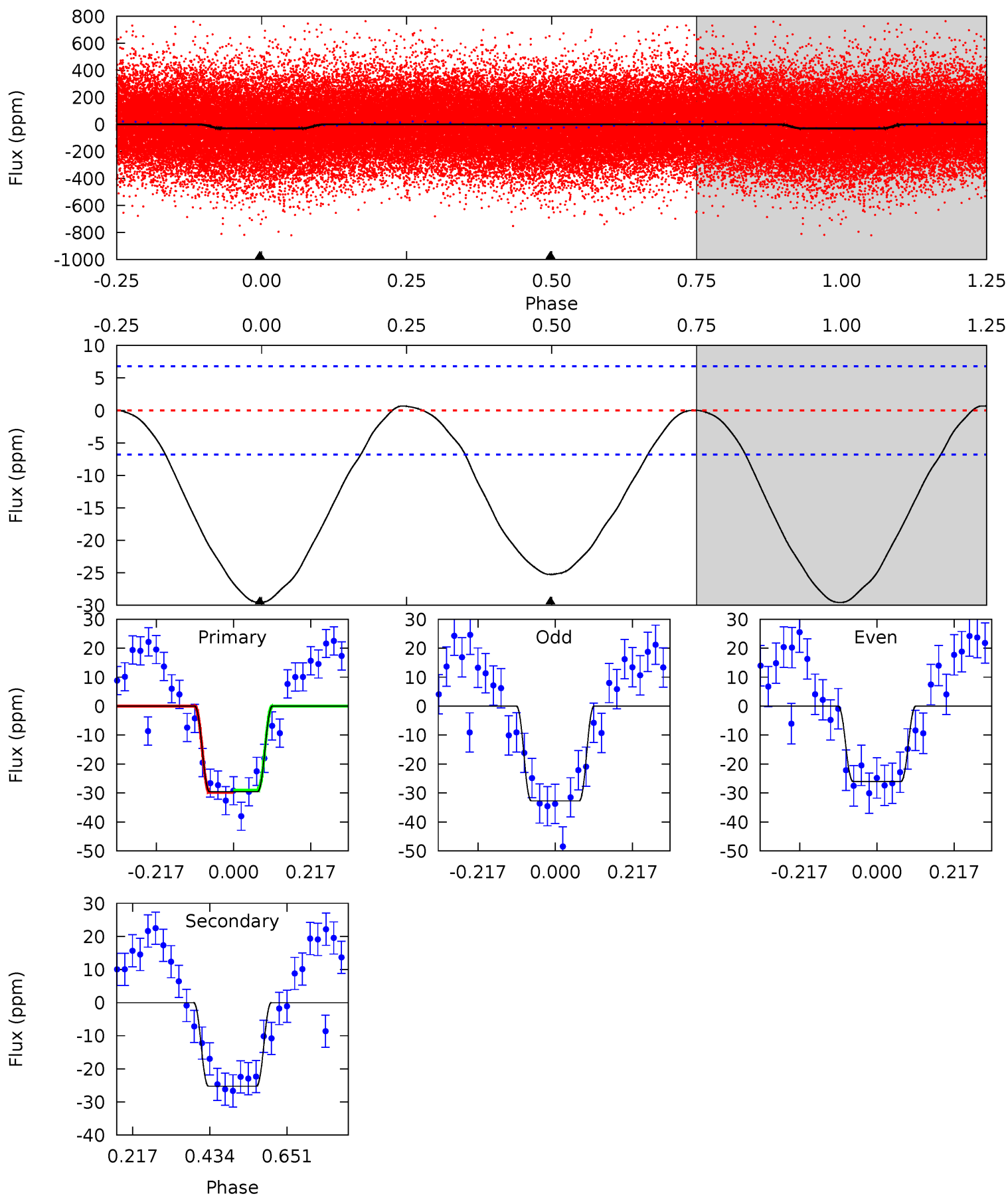
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	11.6	0	0	4.40	1.23	0.29	13.2	13.2	11.6	11.6	2.28	0.99	0.04	0.03



Alt Model-Shift Uniqueness Test

005551920-01, P = 1.225337 Days, E = 131.271950 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	16.3	0	0	4.40	1.23	0.28	19.1	19.1	16.3	16.3	2.18	0.96	0.02	0.25



Stellar Parameters For KIC 005551920

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6760^{+162}_{-223}	$3.498^{+0.352}_{-0.088}$	$-0.080^{+0.300}_{-0.250}$	$4.069^{+0.288}_{-1.633}$	$1.900^{+0.199}_{-0.369}$	$0.040^{+0.113}_{-0.011}$
	+2%/-3%	+10%/-3%	+375%/-312%	+7%/-40%	+10%/-19%	+285%/-27%
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 005551920-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-16 ± 1	$1.72^{+0.77}_{-0.63}$	4955^{+248}_{-451}	6316^{+2120}_{-1091}	$2.260^{+3.768}_{-1.149}$
Alt.	-25 ± 2	$2.36^{+0.74}_{-0.72}$	4961^{+262}_{-464}	6056^{+1250}_{-781}	$1.952^{+1.891}_{-0.822}$

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

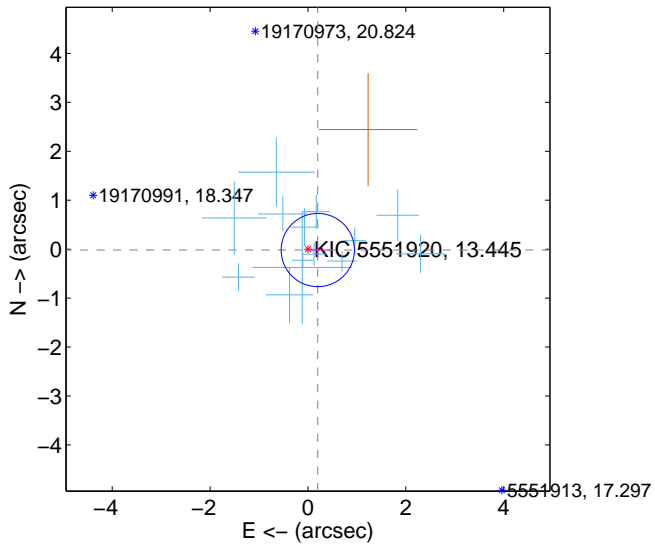
Supplemental centroid analysis for 005551920-01. Kepler magnitude: 13.45. Transit SNR 8.09

There are 14 quarters with good PRF difference image offsets

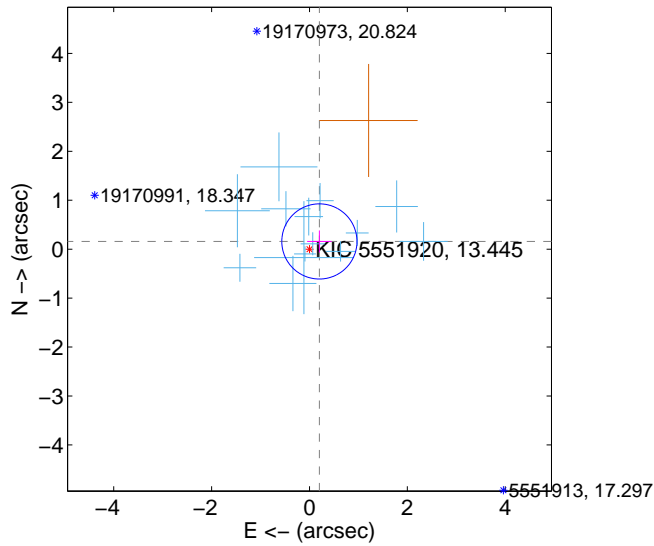
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.202 ± 0.249	0.81	-0.201 ± 0.250	-0.018 ± 0.152
PRF-fit source offset from KIC position	0.257 ± 0.256	1.00	-0.203 ± 0.250	0.158 ± 0.224
photometric centroid source offset	0.66 ± 1.15	0.57	-0.47 ± 1.17	0.47 ± 1.14

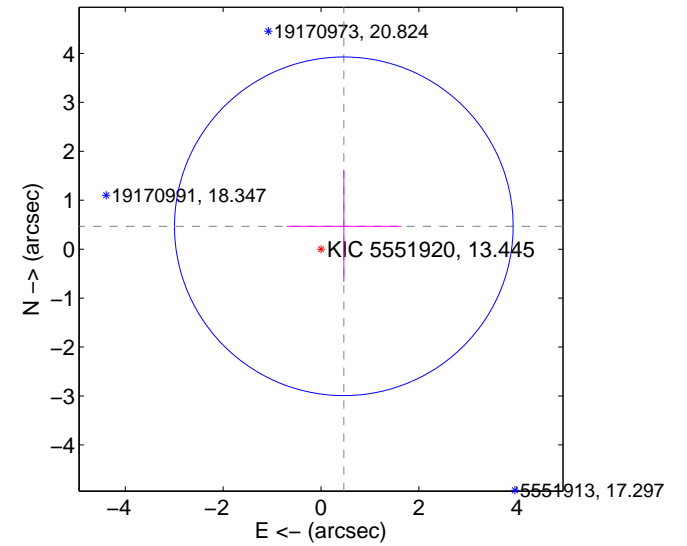
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

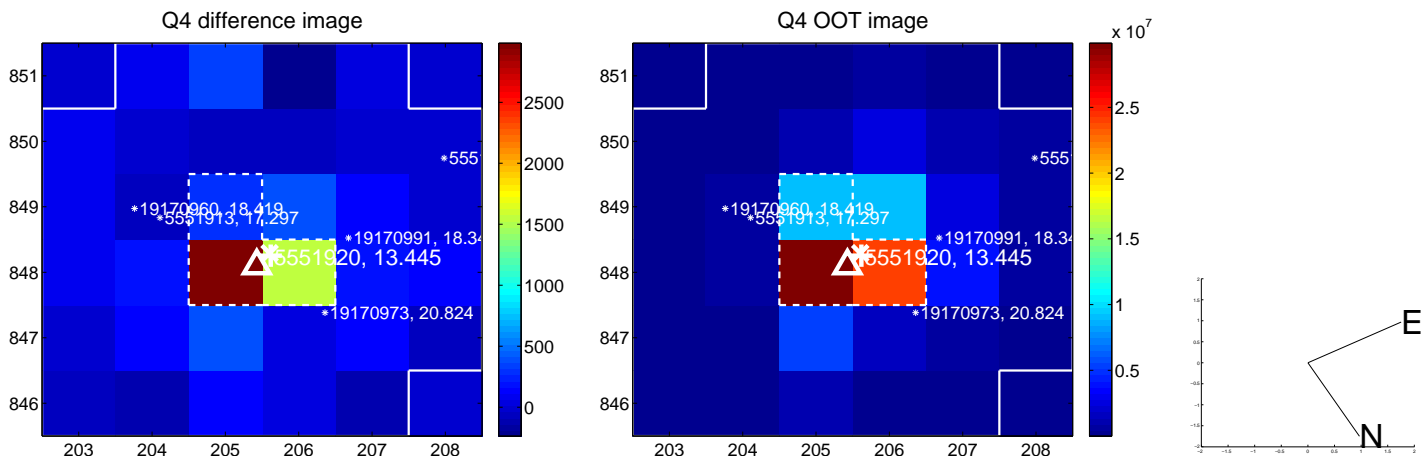
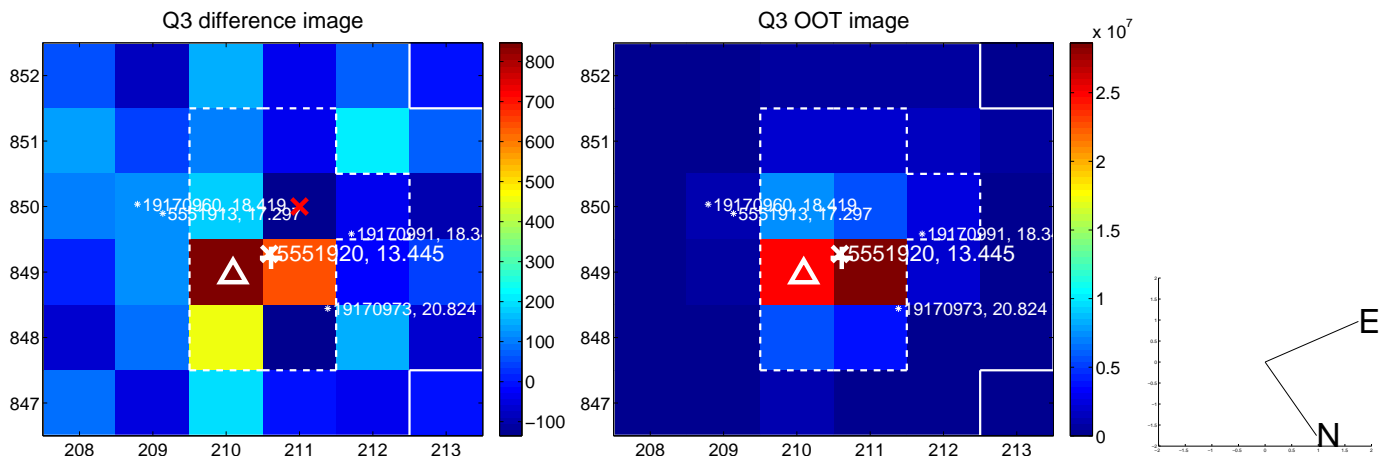
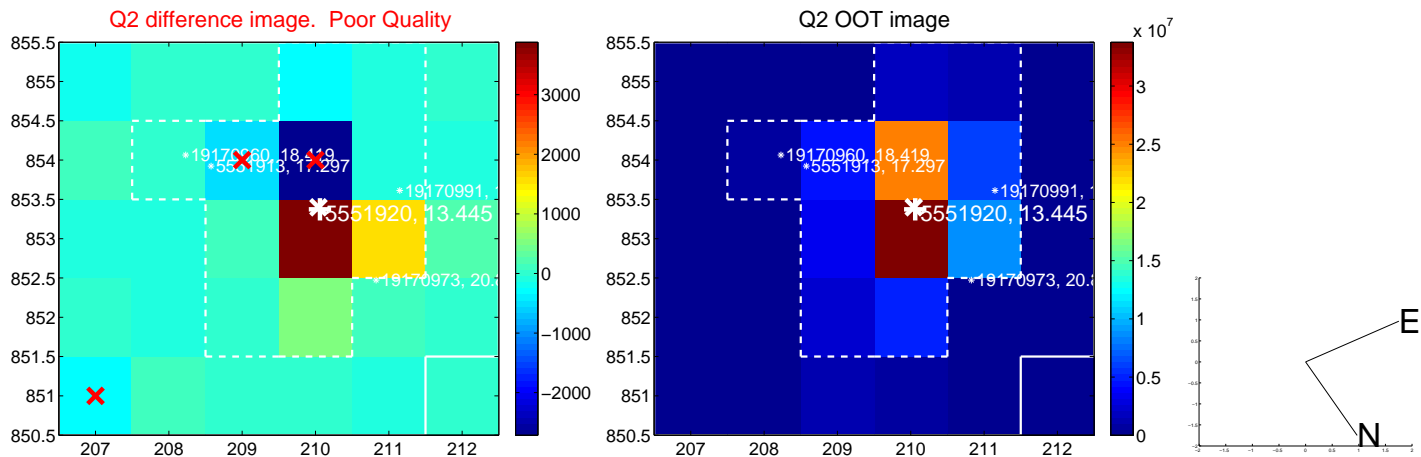
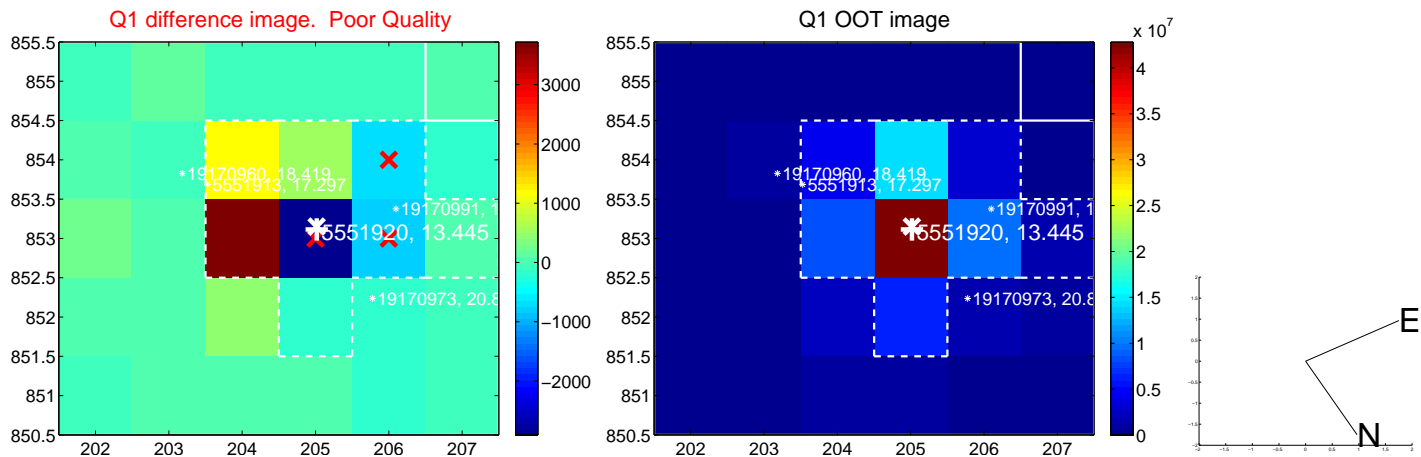


offset from photometric centroids

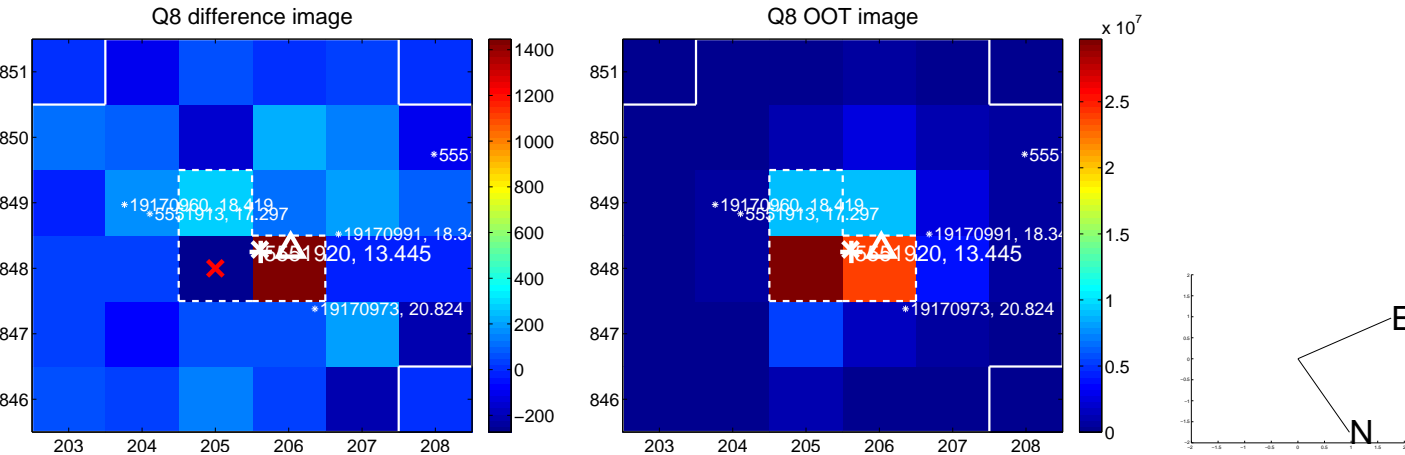
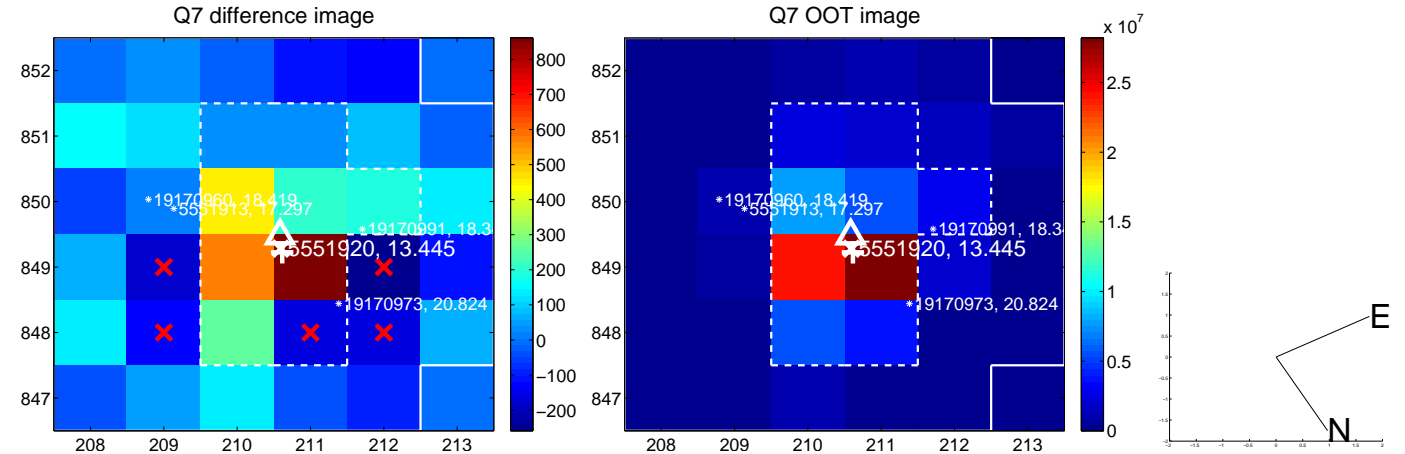
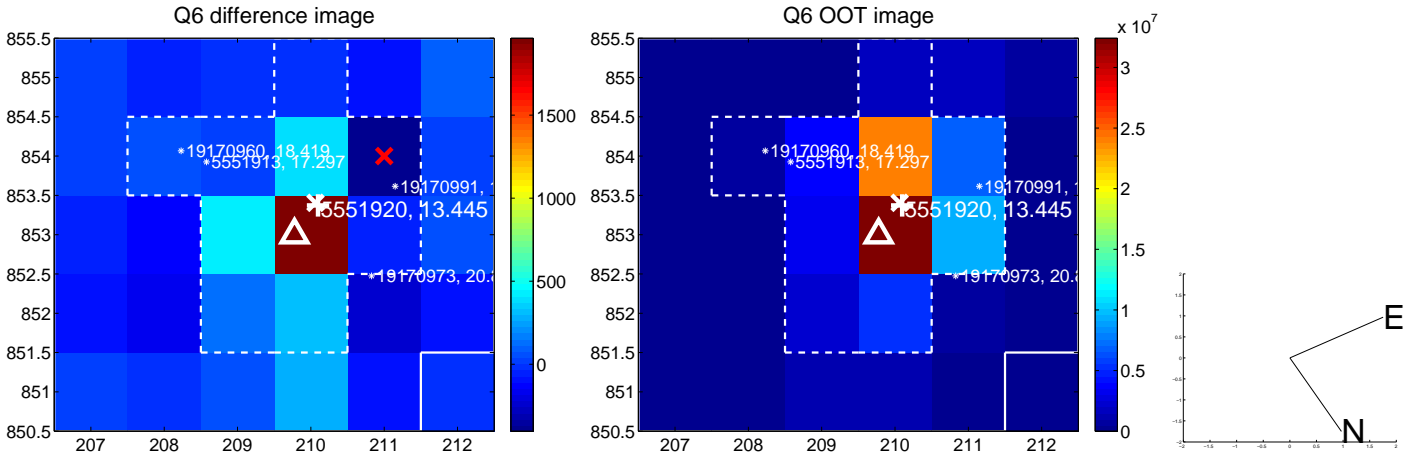
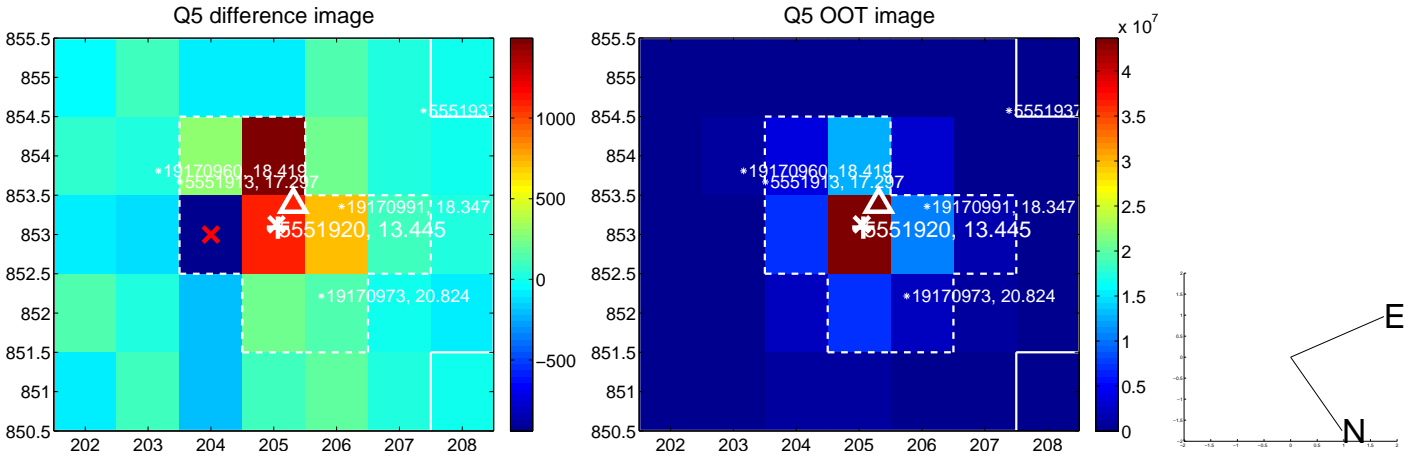


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

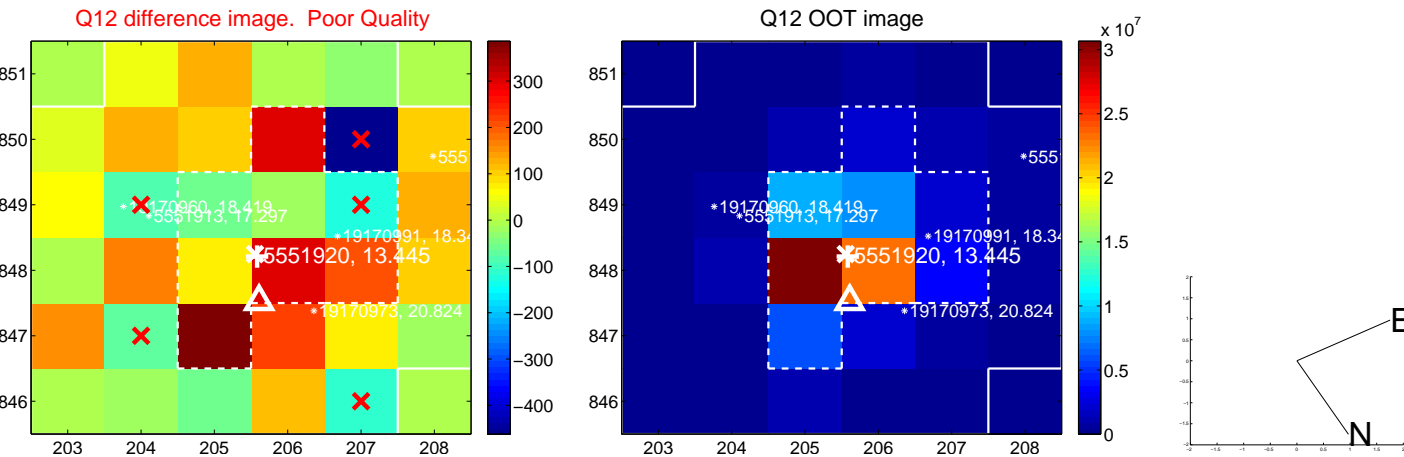
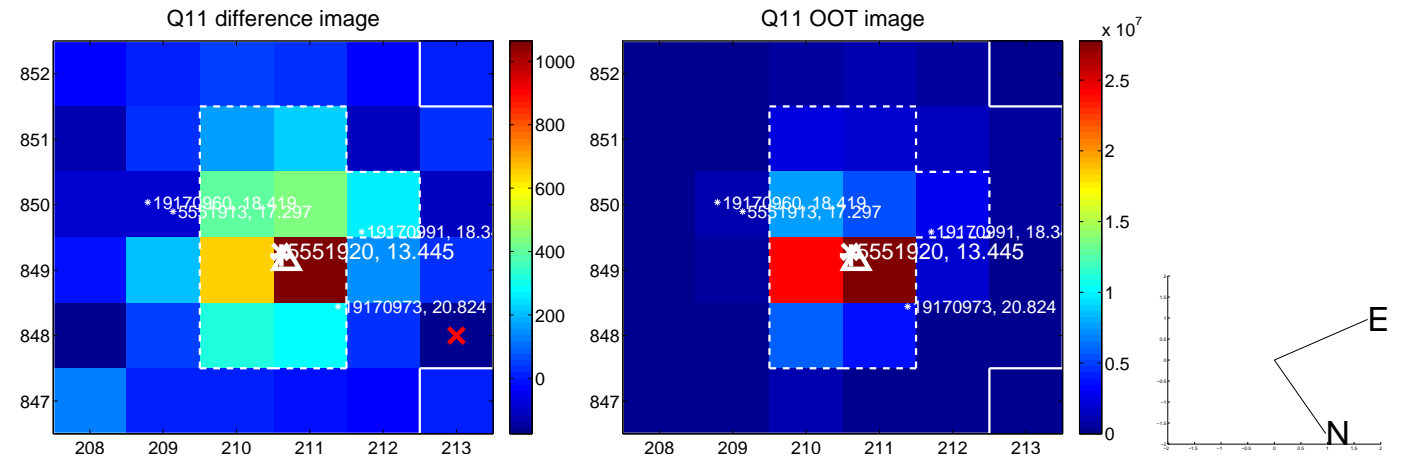
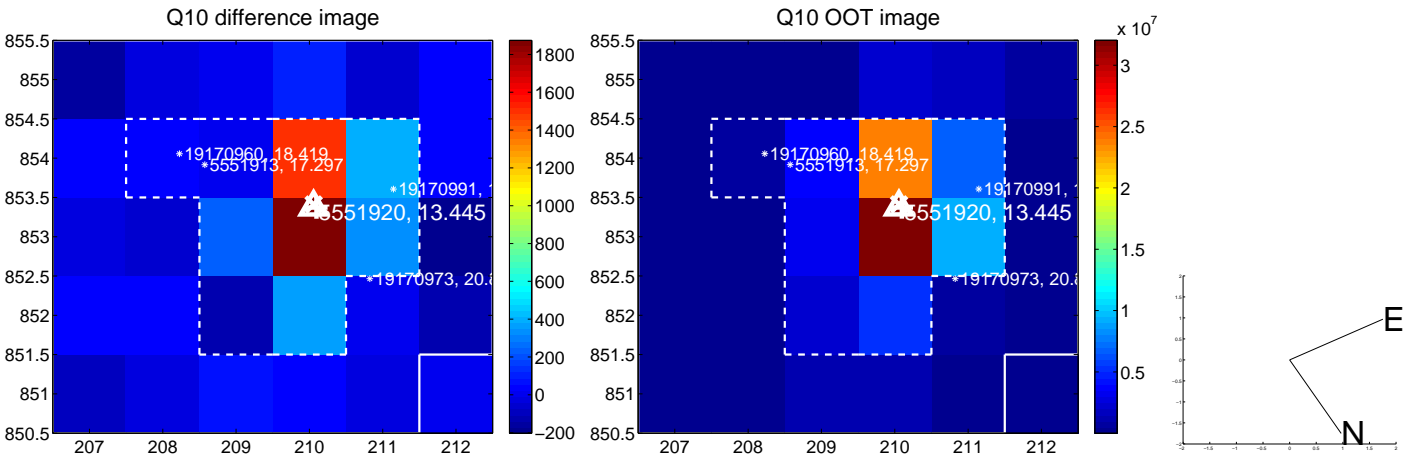
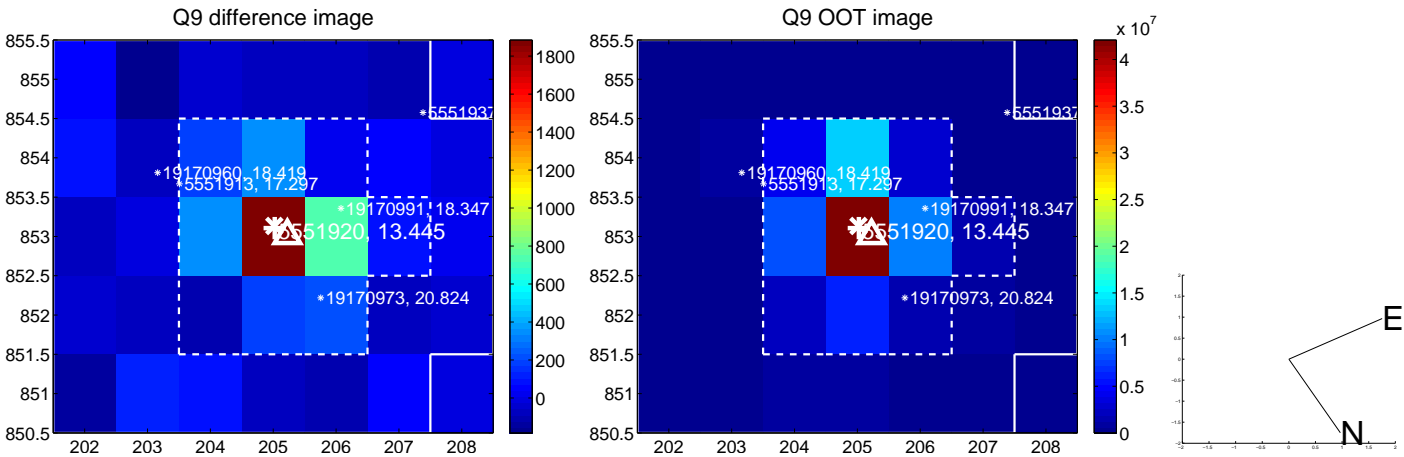
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



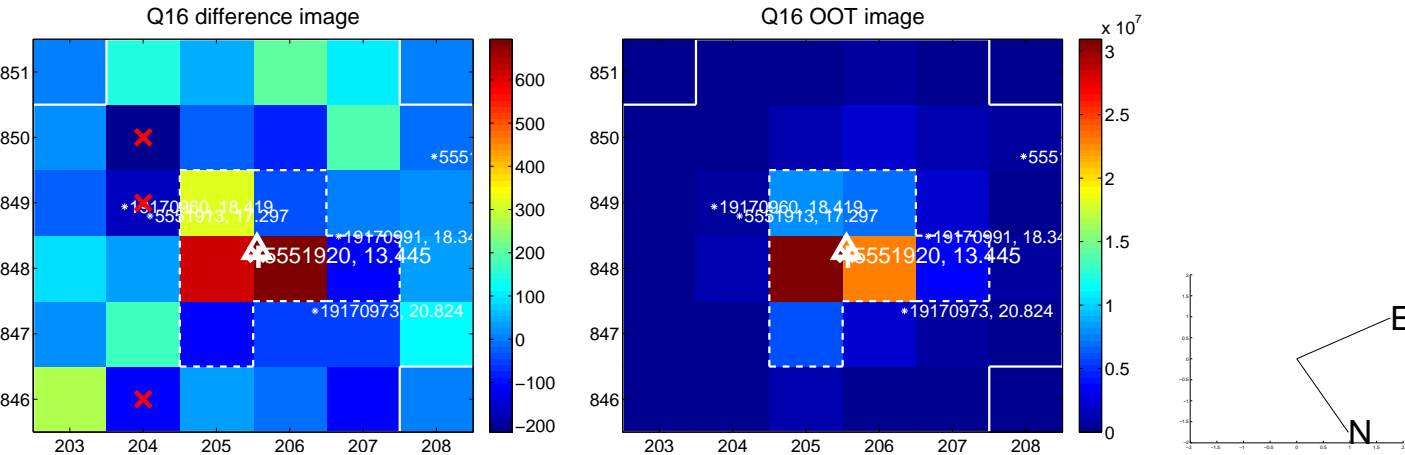
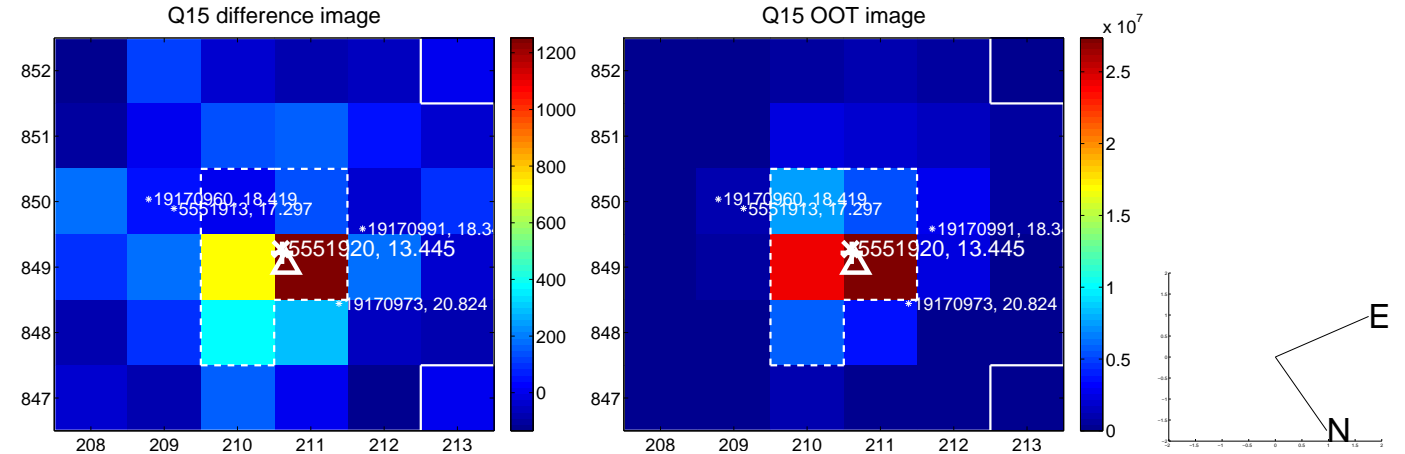
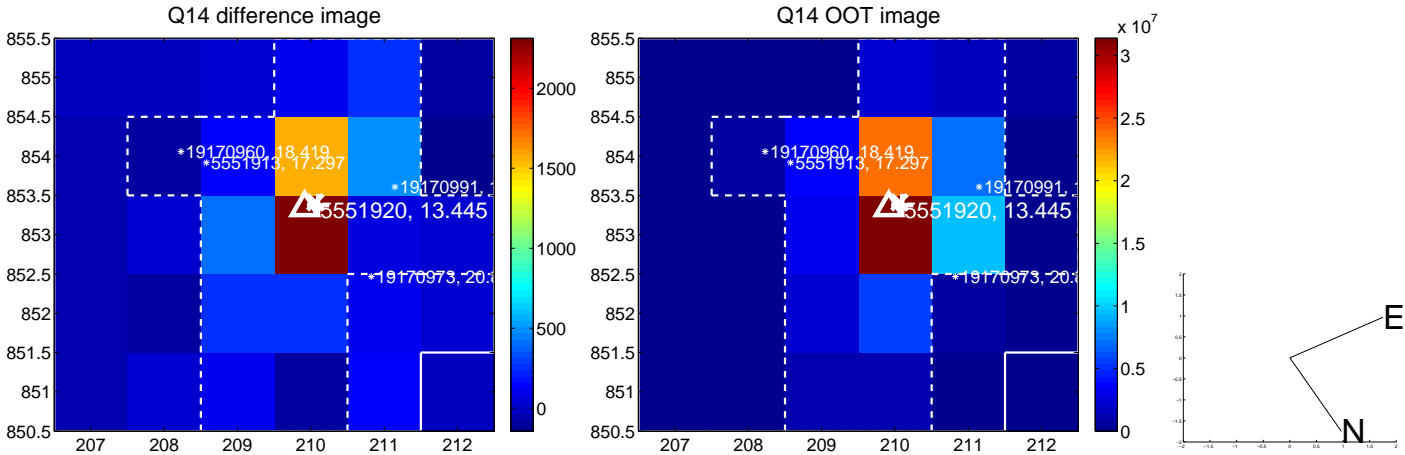
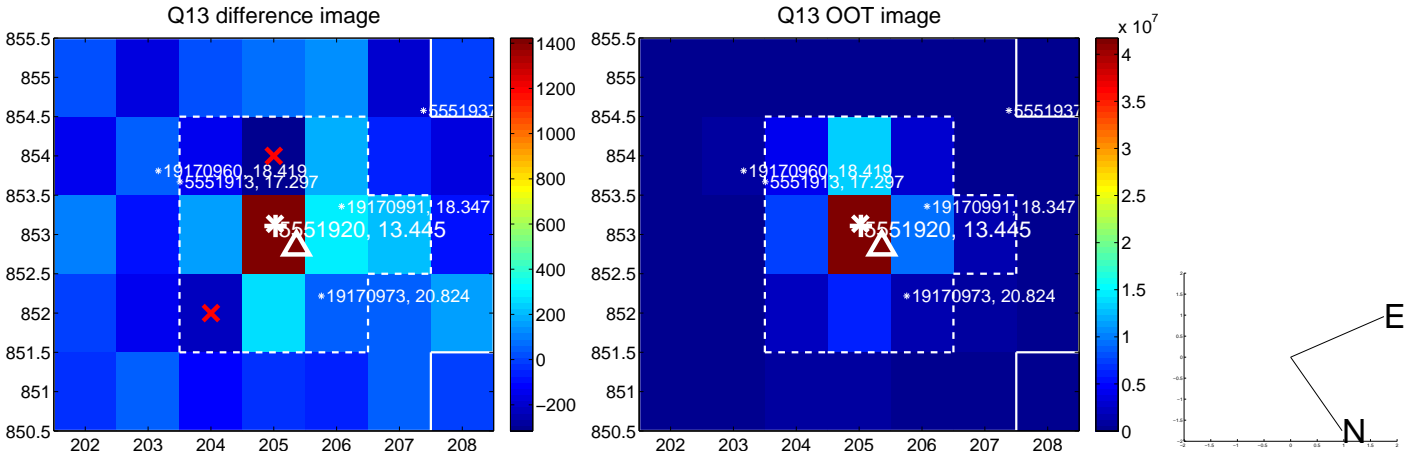
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



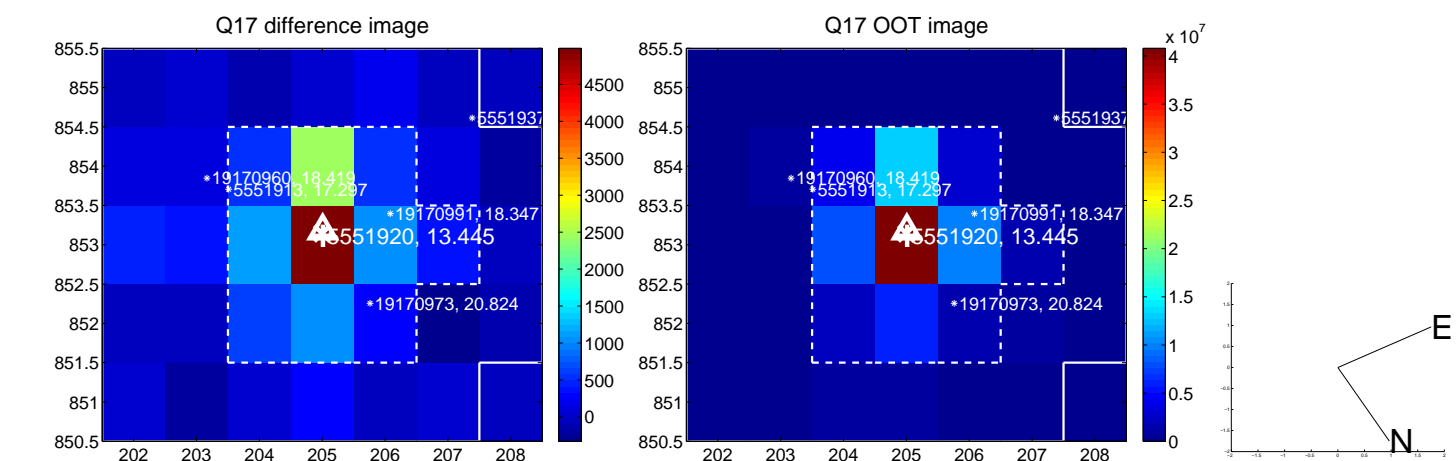
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



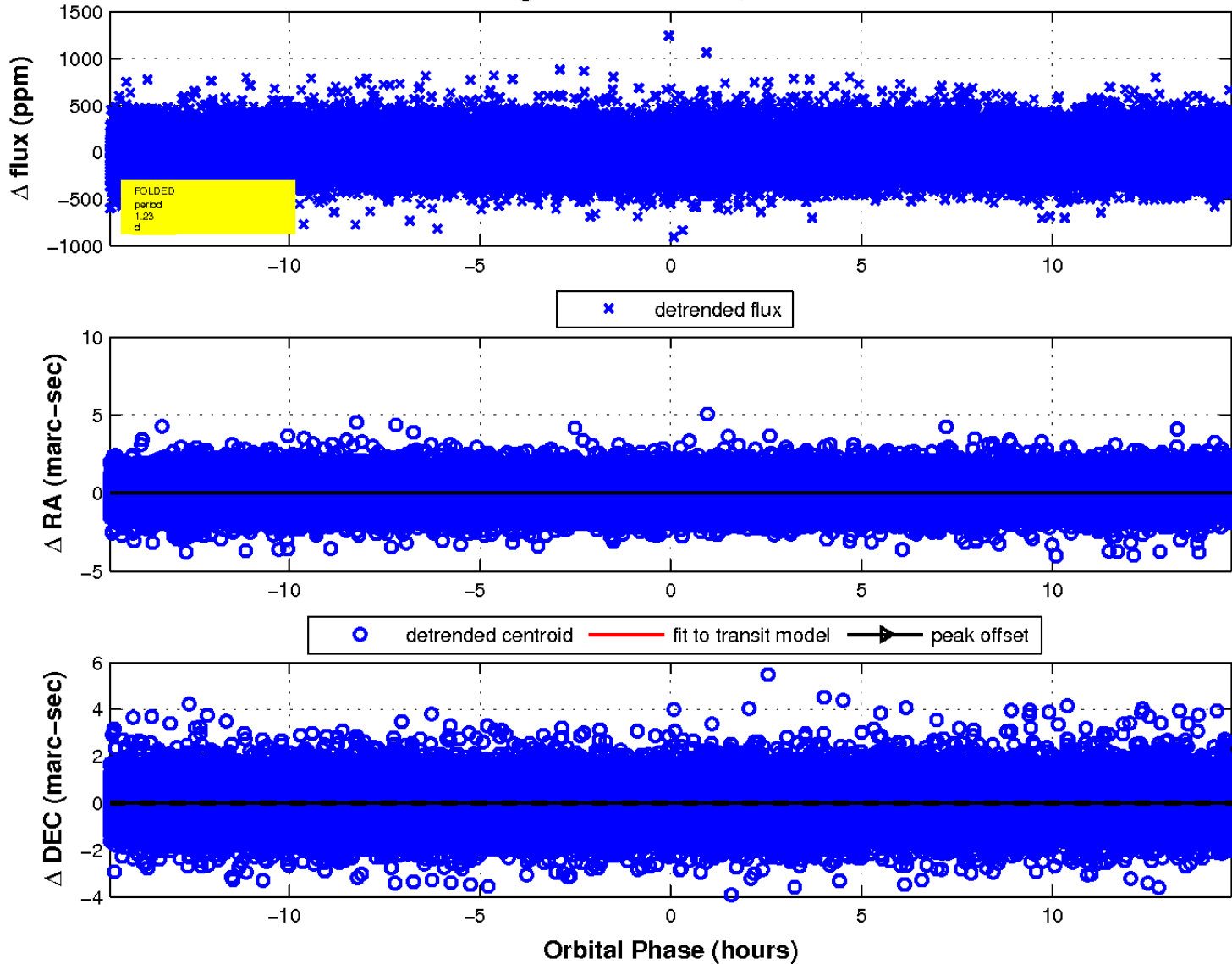
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

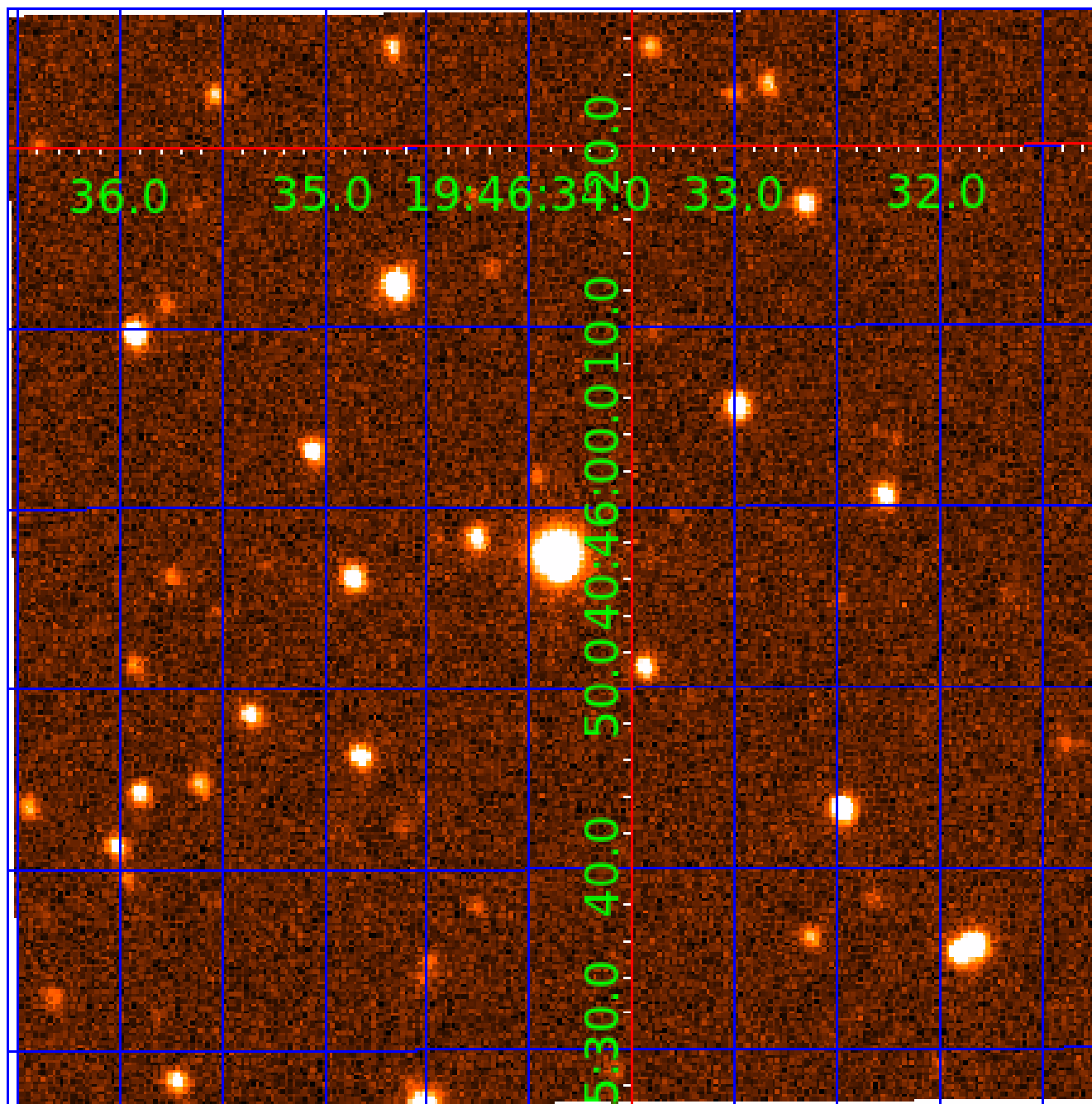


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005551920

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})
005551920-01	OBS	No	1.225356	132.489112	17.9	5.980	8.0	8.1	4.07	6760	1.88	40178.14
005551920-02	OBS	No	108.659578	168.456126	259.7	2.522	7.1	6.9	4.07	6760	7.55	101.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005551920-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005551920-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

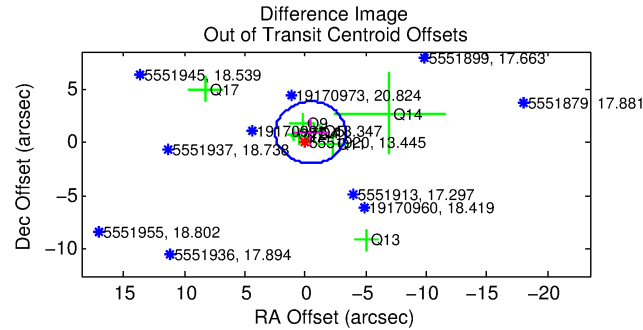
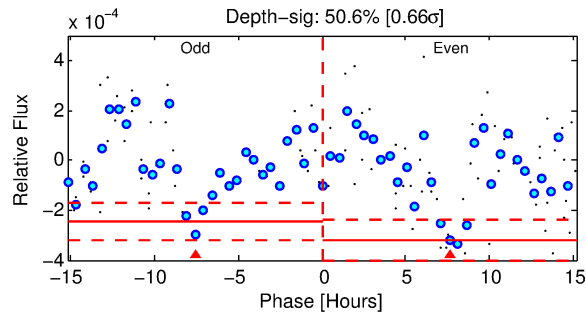
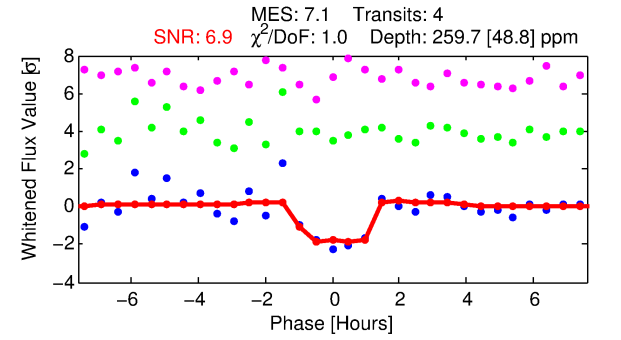
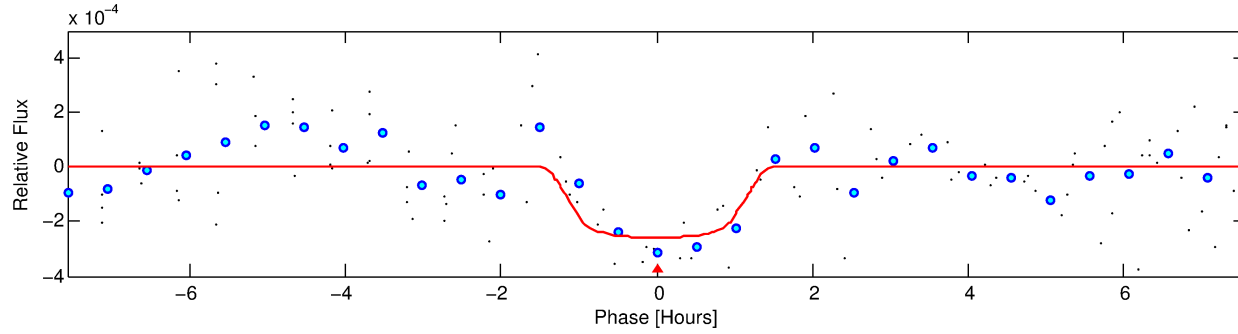
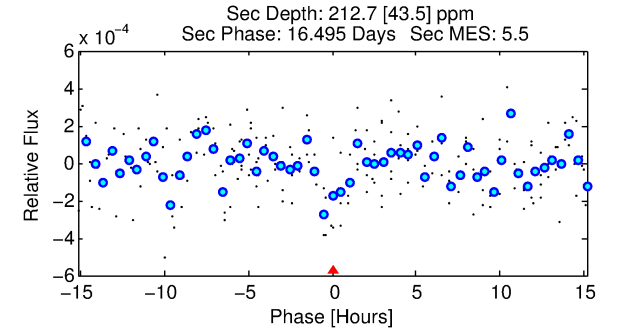
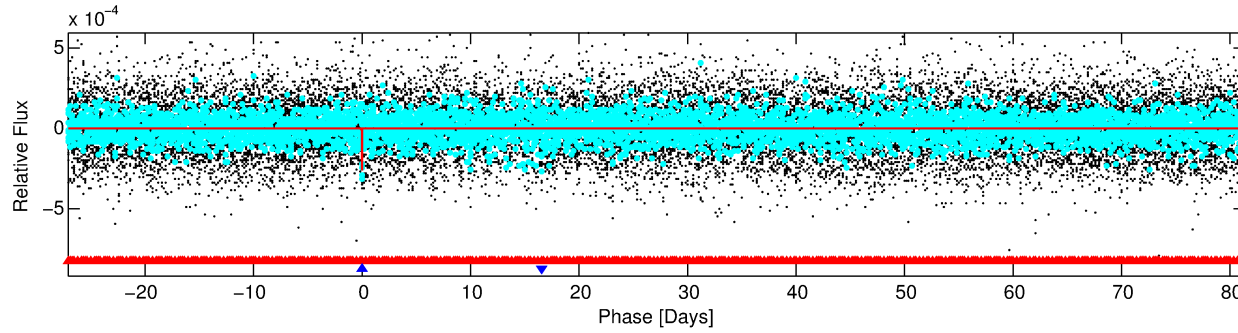
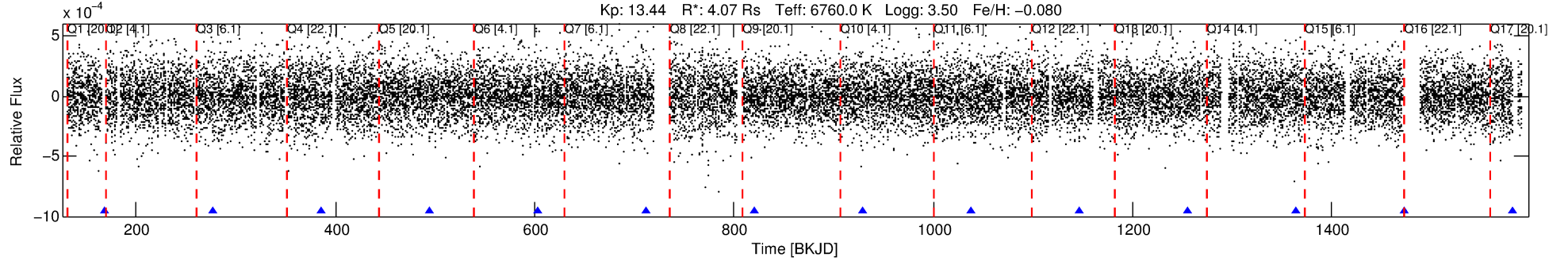
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005551920-02

No Significant Match Found

DV One-Page Summary

KIC: 5551920 Candidate: 2 of 2 Period: 108.660 d



DV Fit Results:

Period = 108.65958 [0.00216] d
Epoch = 168.4561 [0.0135] BKJD
Rp/R* = 0.0170 [0.0196]
a/R* = 166.00 [1123.54]
b = 0.88 [1.72]
Seff = 101.61 [62.71]
Teq = 810 [125] K
Rp = 7.55 [9.23] Re
a = 0.5522 [0.2099] AU
Ag = 626.06 [1500.66] [0.42σ]
Teffp = 6261 [3637] K [1.50σ]

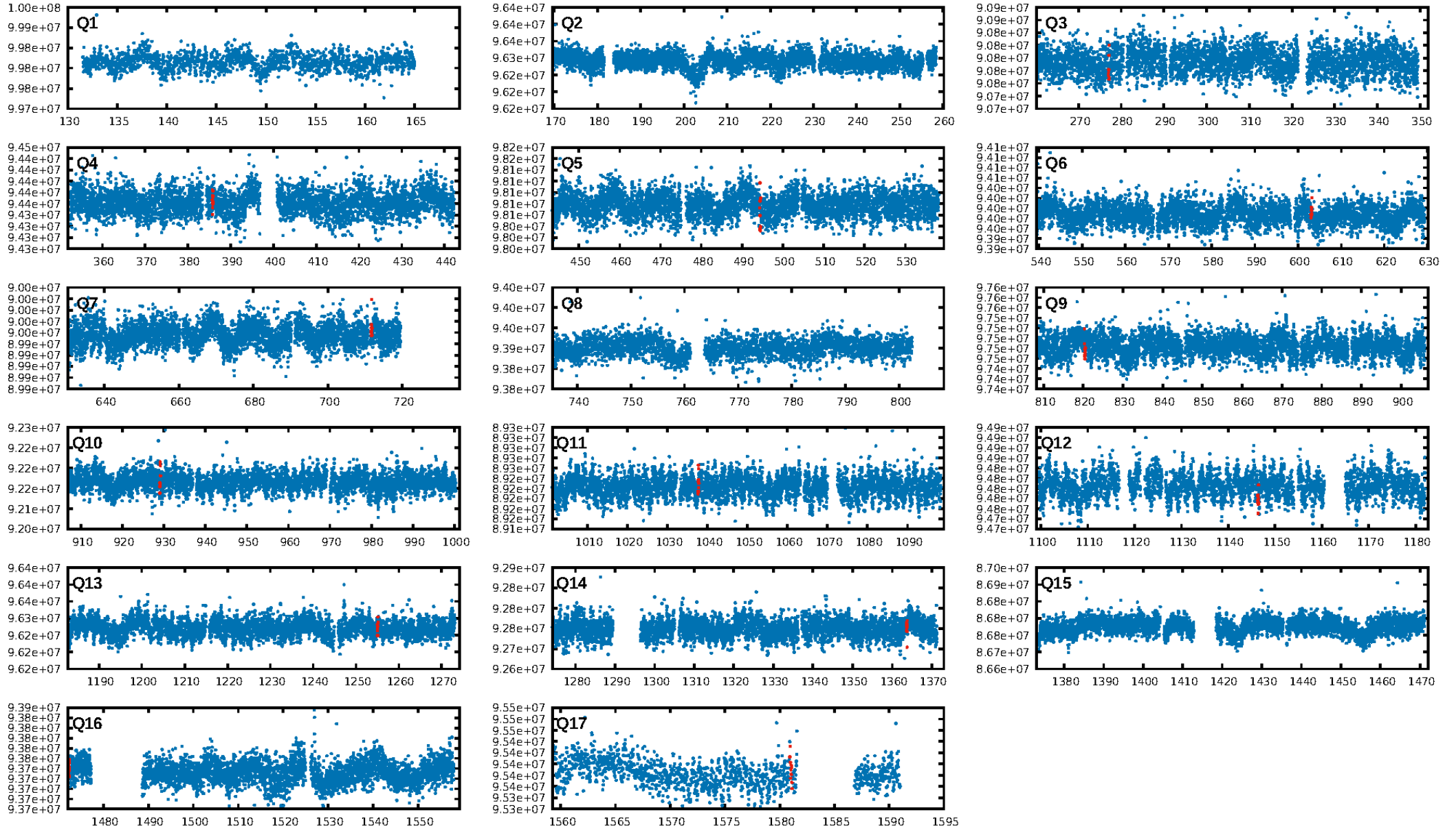
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [397.31σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 50.6%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.15e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 63.24
Centroid-sig: 51.8%
Centroid-so: 0.539 arcsec [0.43σ]
OotOffset-rm: 0.995 arcsec [1.03σ]
KicOffset-rm: 1.157 arcsec [1.12σ]
OotOffset-st: 1/2/2/4 [9]
KicOffset-st: 1/2/2/4 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 0.25 [3/12]

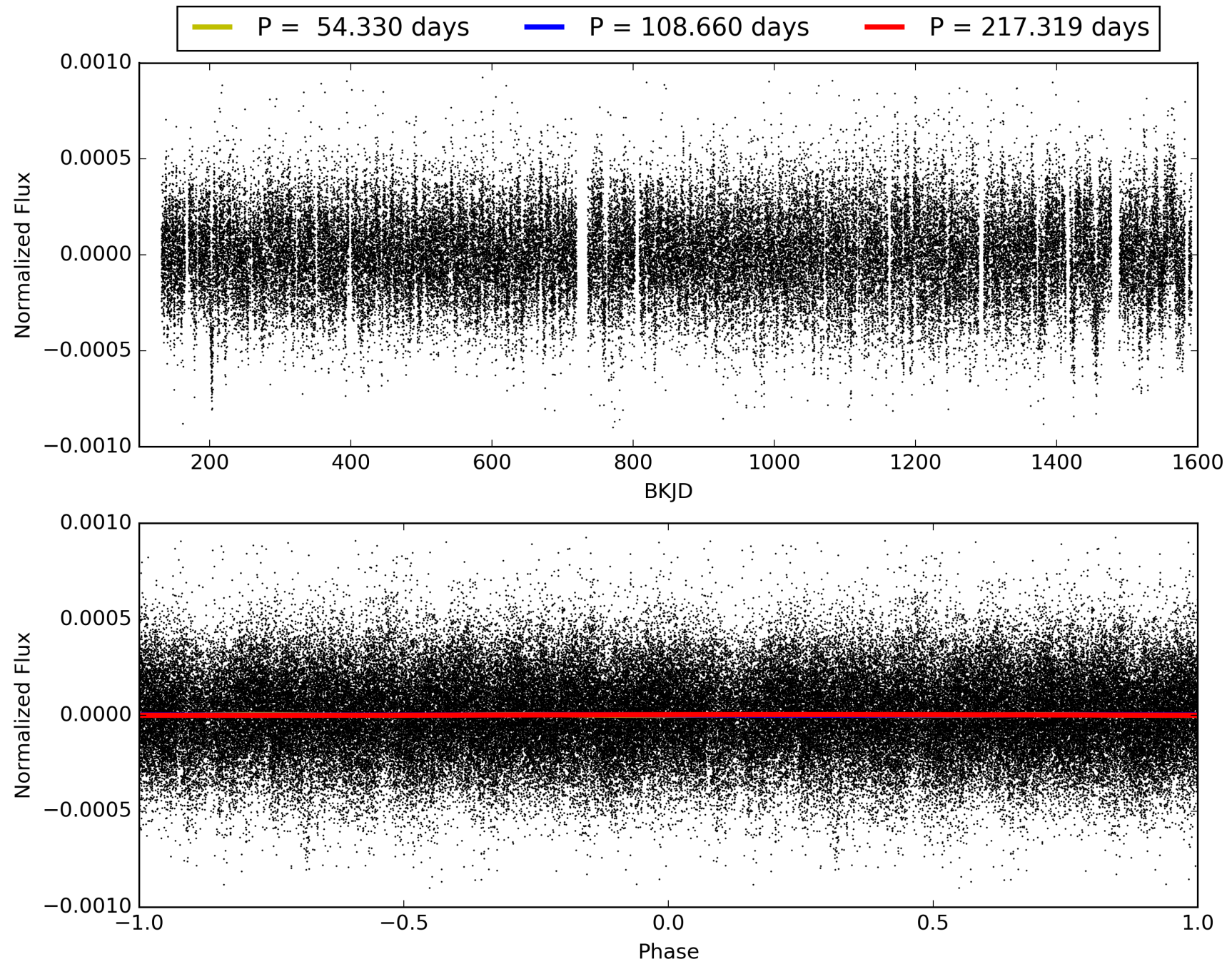
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:32:11 Z

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

TCE 005551920-02, PDC Light Curves

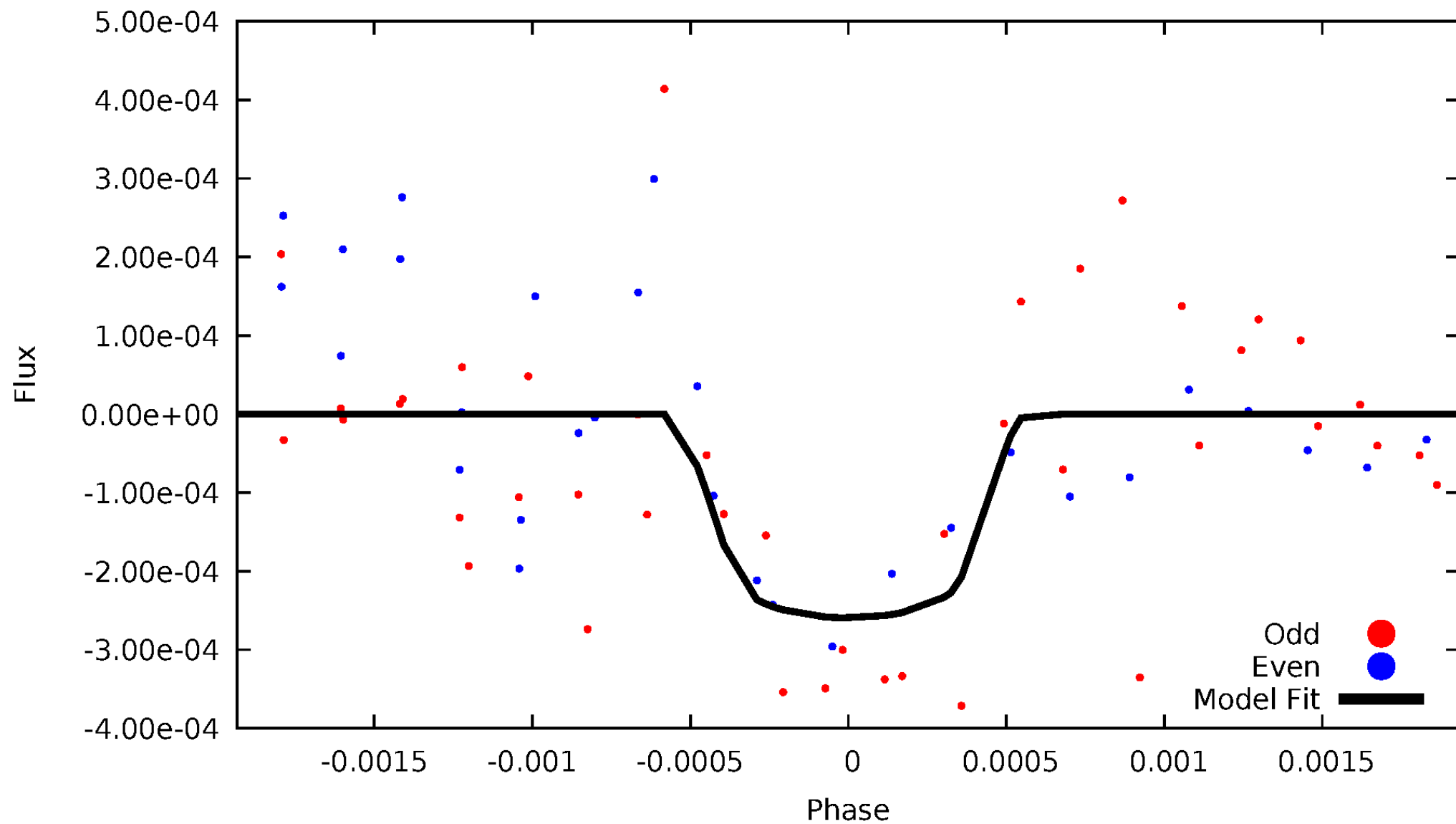


TCE 005551920-02



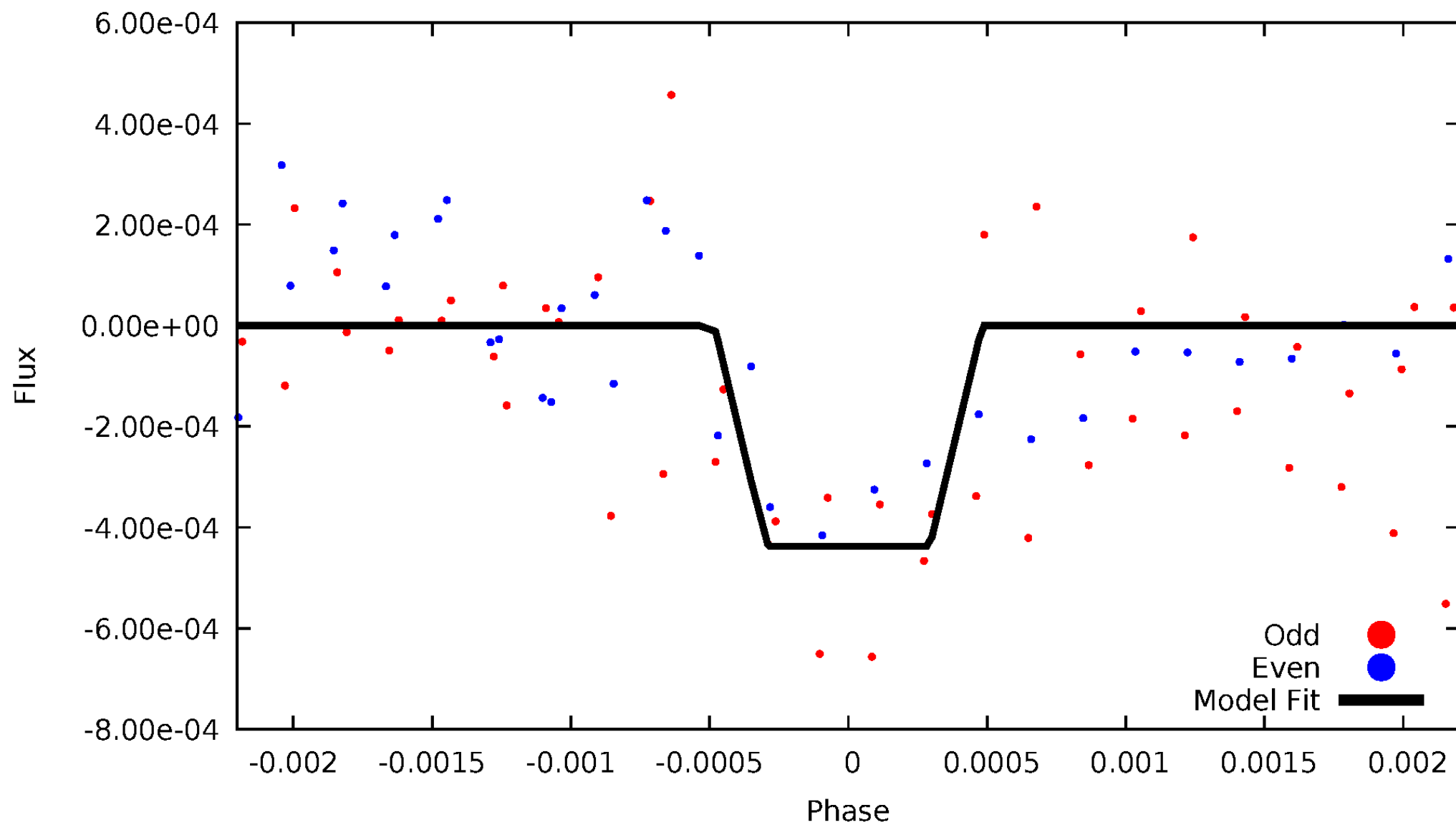
DV Odd/Even

TCE 005551920-02



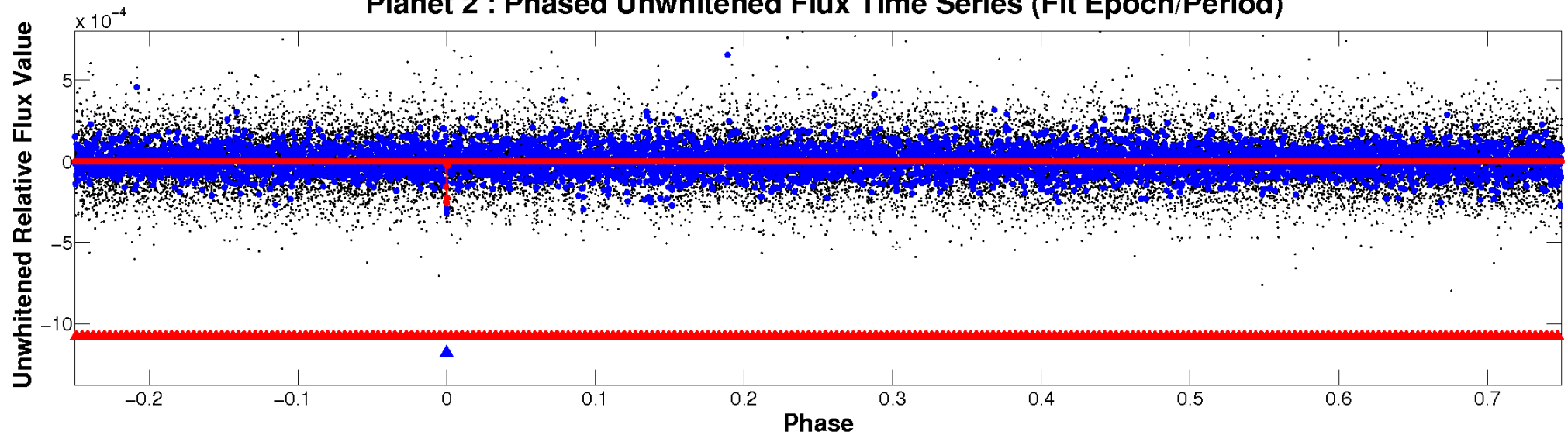
ALT Odd/Even

TCE 005551920-02

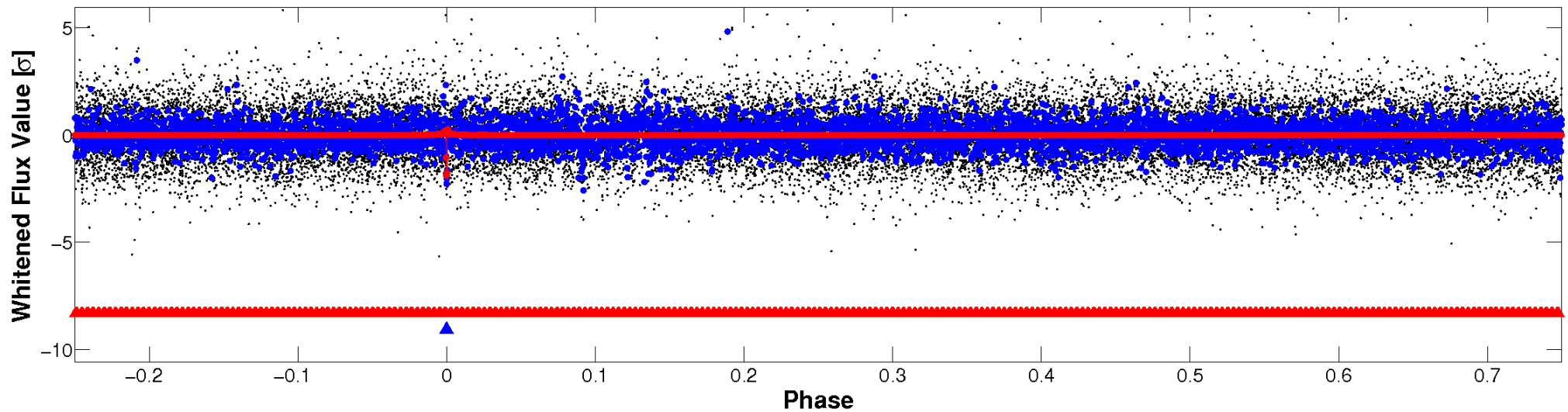


Non-Whitened Vs. Whitened Light Curve

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

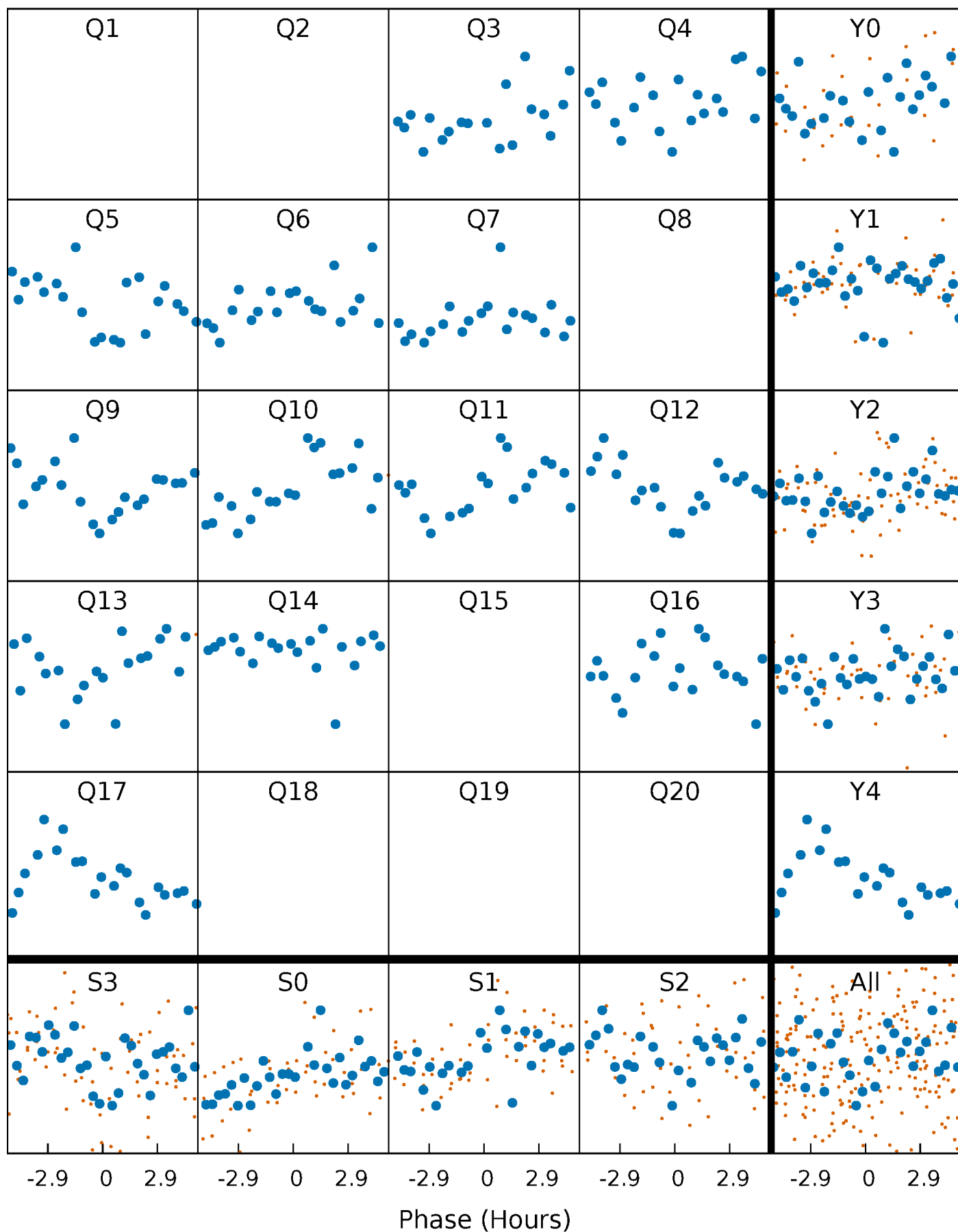


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



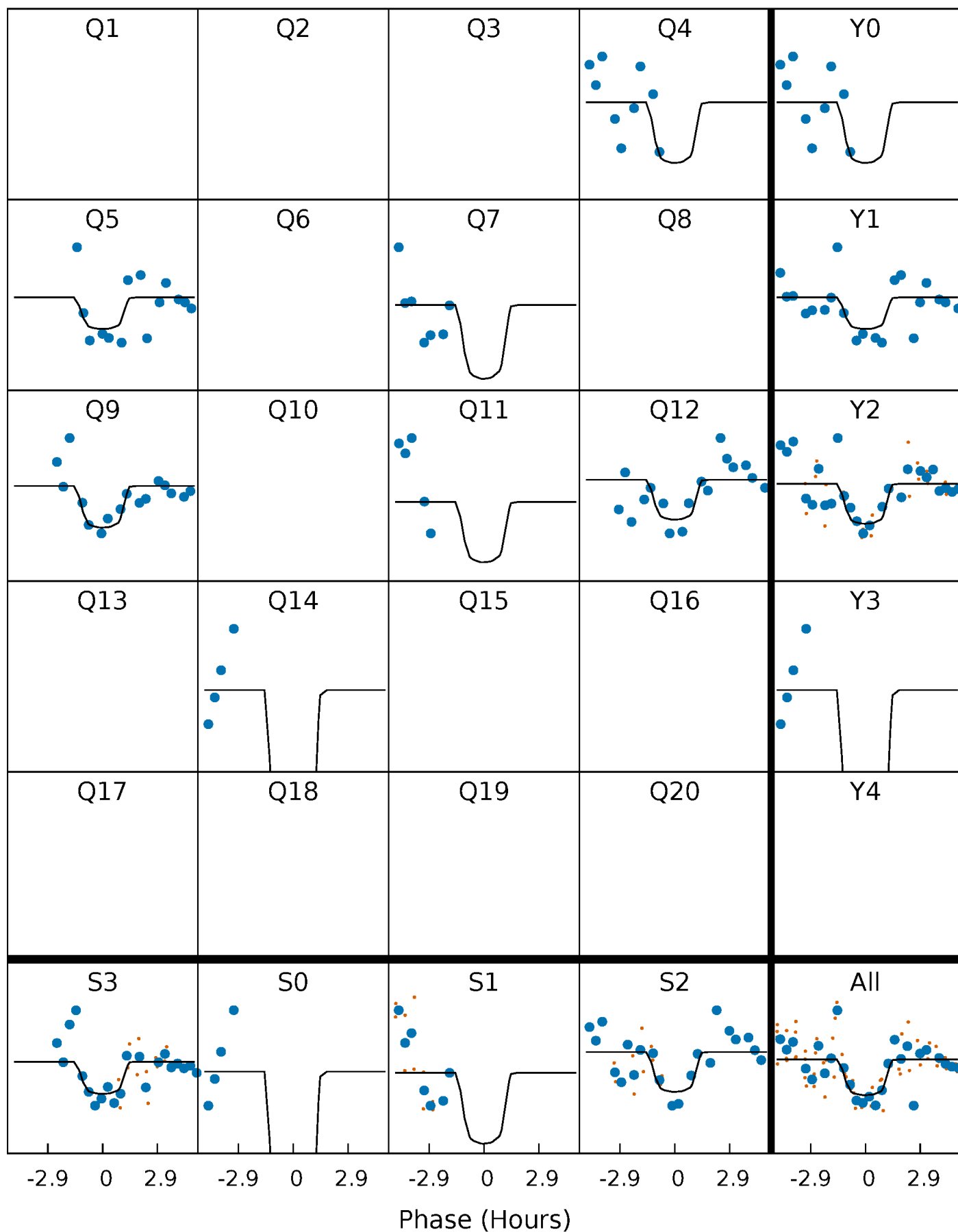
PDC Quarter-Phased Transit Curves

TCE 005551920-02 P=108.659577 Days $T_0=168.456126$ (BKJD)



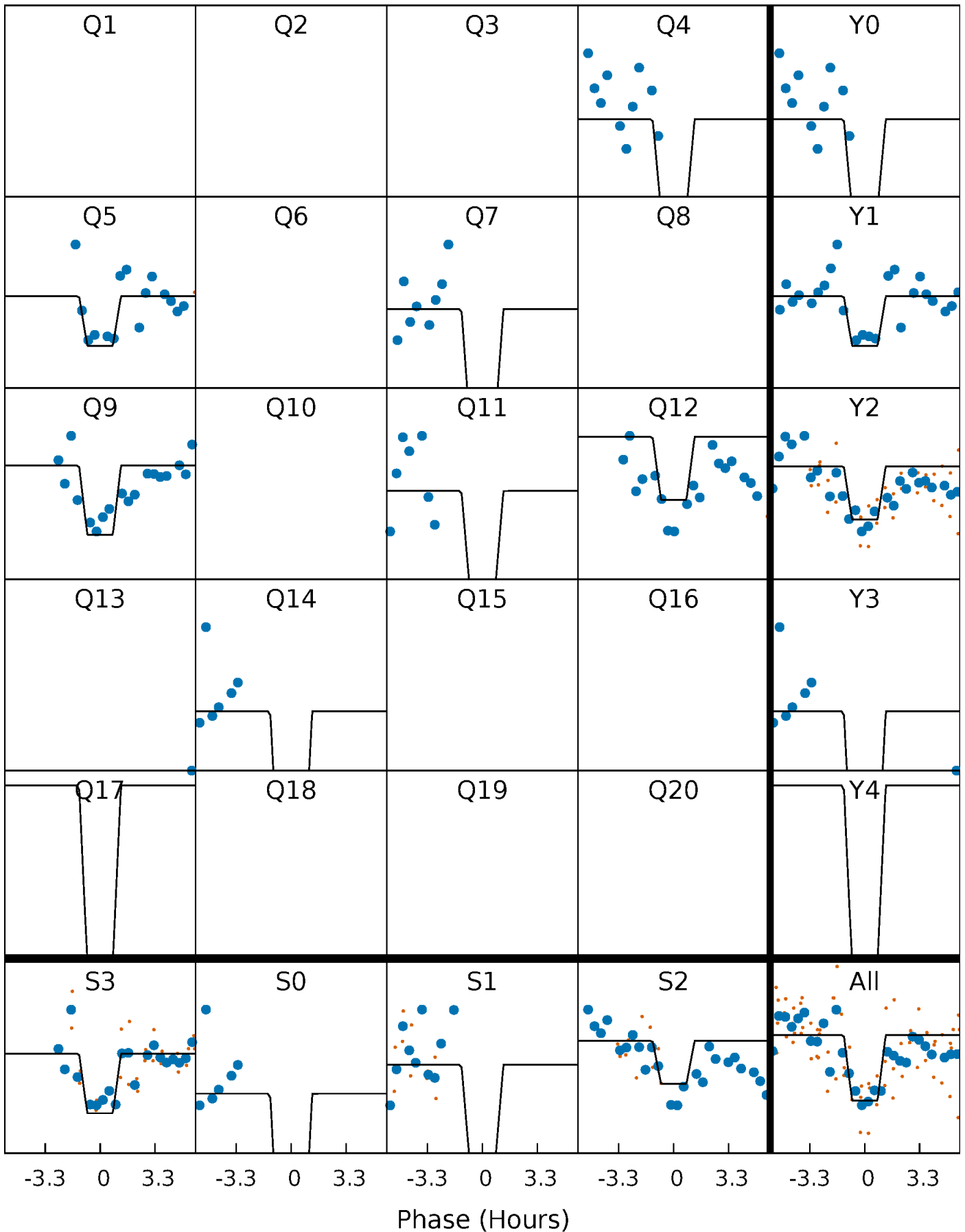
DV Quarter-Phased Transit Curves

TCE 005551920-02 P=108.659577 Days $T_0=168.456126$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

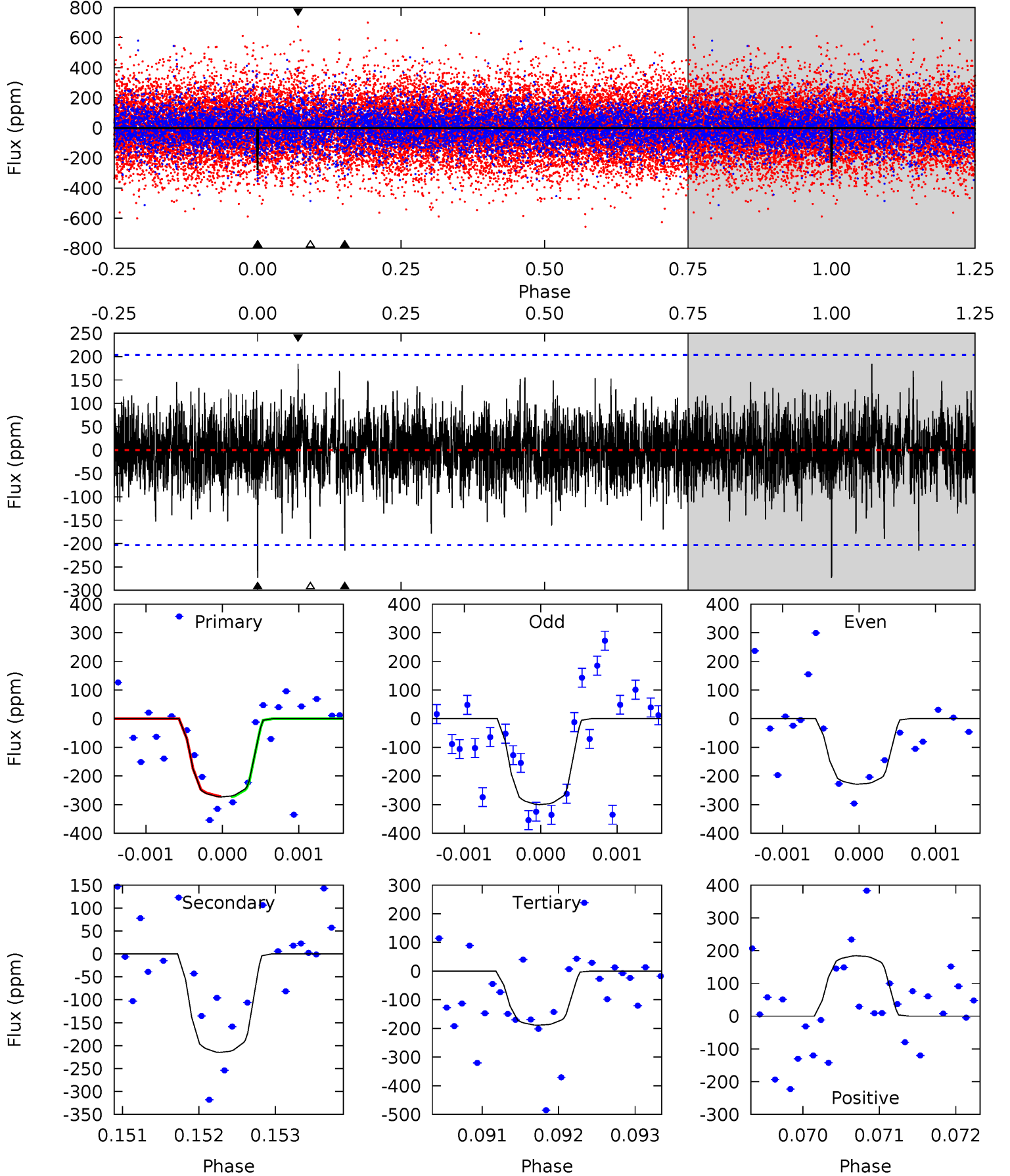
TCE 005551920-02 P=108.659110 Days $T_0=168.463643$ (BKJD)



DV Model-Shift Uniqueness Test

005551920-02, P = 108.659577 Days, E = 59.796549 Days

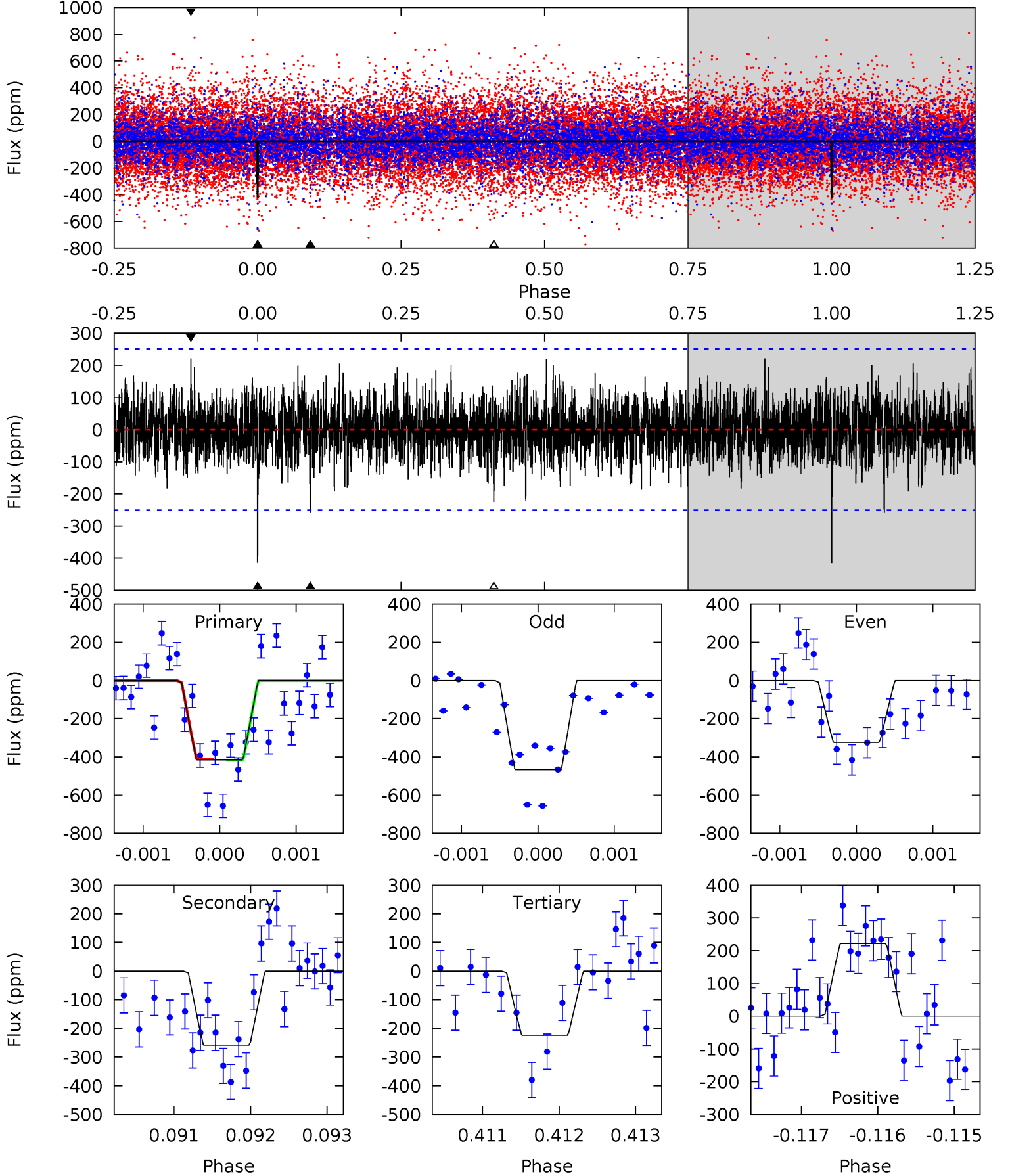
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.32	5.76	5.06	4.94	5.45	3.28	1.26	2.26	2.38	0.70	0.82	0.93	1.06	0.40	0.03



Alt Model-Shift Uniqueness Test

005551920-02, $P = 108.659110$ Days, $E = 59.804533$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.03	5.62	4.88	4.81	5.46	3.30	1.29	4.15	4.22	0.74	0.81	1.52	1.15	0.35	0.07



Stellar Parameters For KIC 005551920

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6760^{+162}_{-223}	$3.498^{+0.352}_{-0.088}$	$-0.080^{+0.300}_{-0.250}$	$4.069^{+0.288}_{-1.633}$	$1.900^{+0.199}_{-0.369}$	$0.040^{+0.113}_{-0.011}$
	+2%/-3%	+10%/-3%	+375%/-312%	+7%/-40%	+10%/-19%	+285%/-27%
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 005551920-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-215 ± 37	$9.01^{+7.98}_{-6.26}$	1110^{+59}_{-98}	5487^{+5302}_{-1206}	437^{+3912}_{-314}
Alt.	-259 ± 46	$9.99^{+7.98}_{-6.35}$	1117^{+57}_{-101}	5432^{+4269}_{-1085}	426^{+2635}_{-296}

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

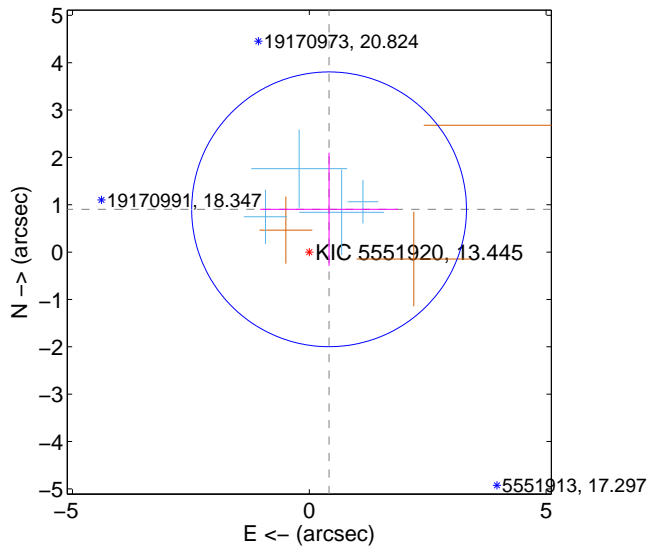
Supplemental centroid analysis for 005551920-02. Kepler magnitude: 13.45. Transit SNR 6.86

There are 4 quarters with good PRF difference image offsets

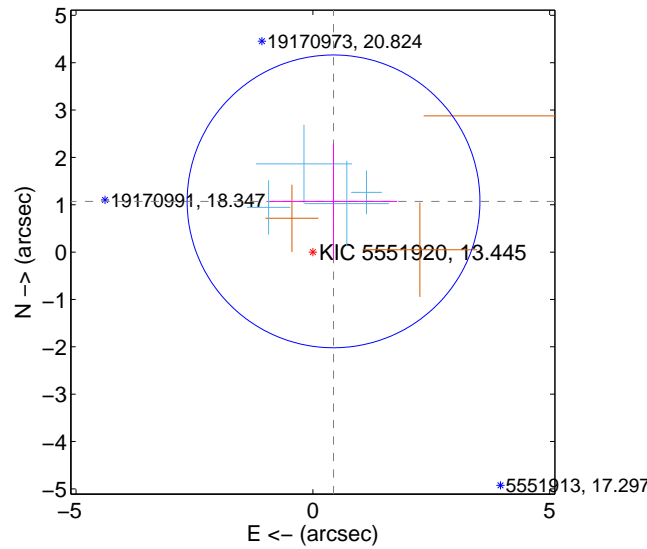
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.995 ± 0.967	1.03	-0.418 ± 1.454	0.904 ± 1.194
PRF-fit source offset from KIC position	1.157 ± 1.030	1.12	-0.437 ± 1.343	1.071 ± 1.224
photometric centroid source offset	0.54 ± 1.24	0.43	0.36 ± 1.31	-0.40 ± 1.18

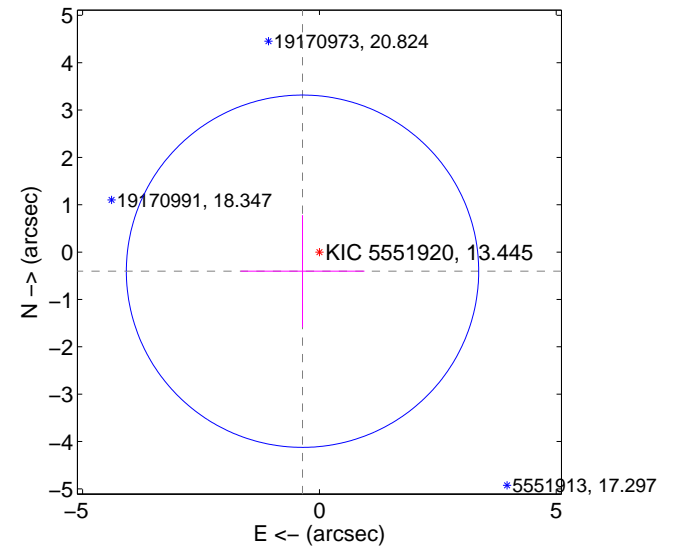
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



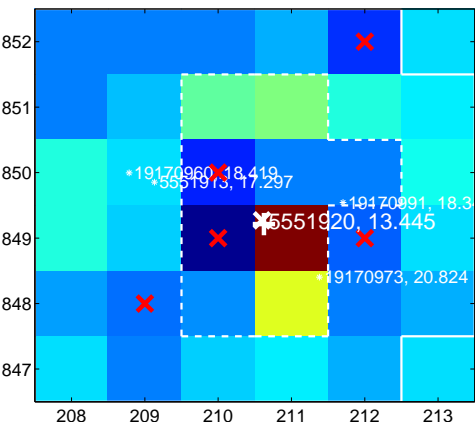
Q2 no difference image



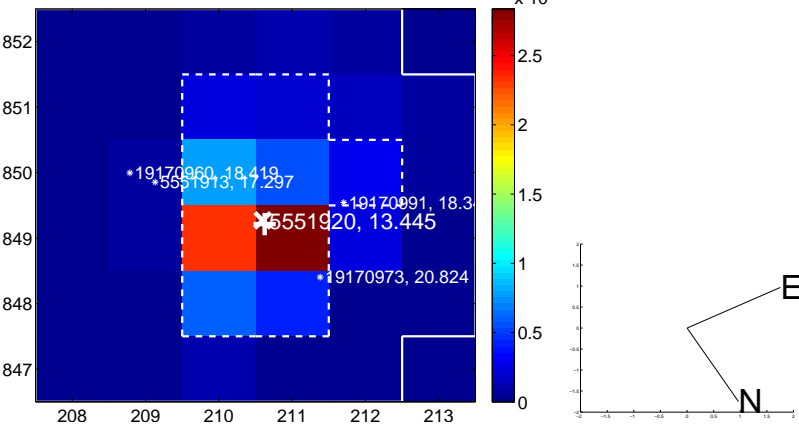
Q2 no OOT image



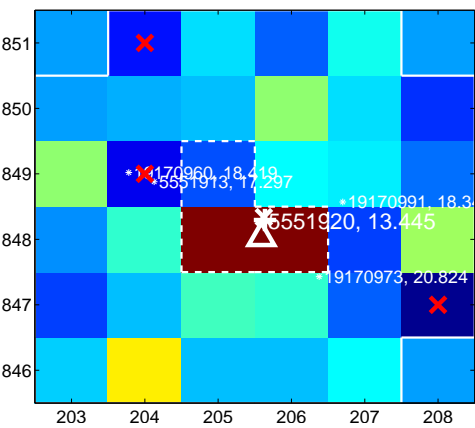
Q3 difference image. Poor Quality



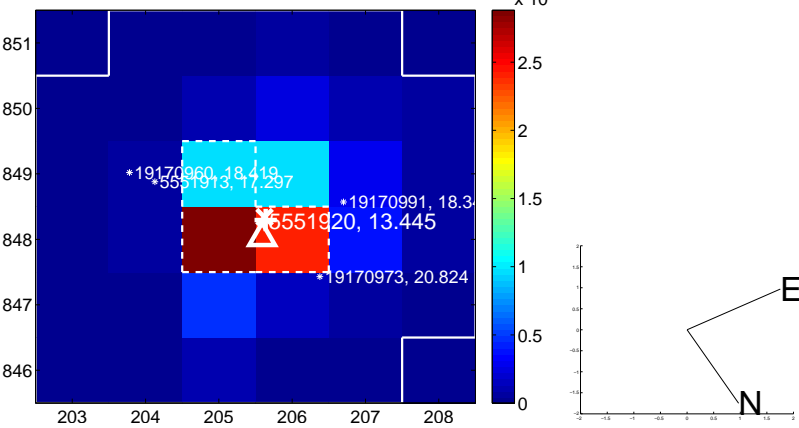
Q3 OOT image



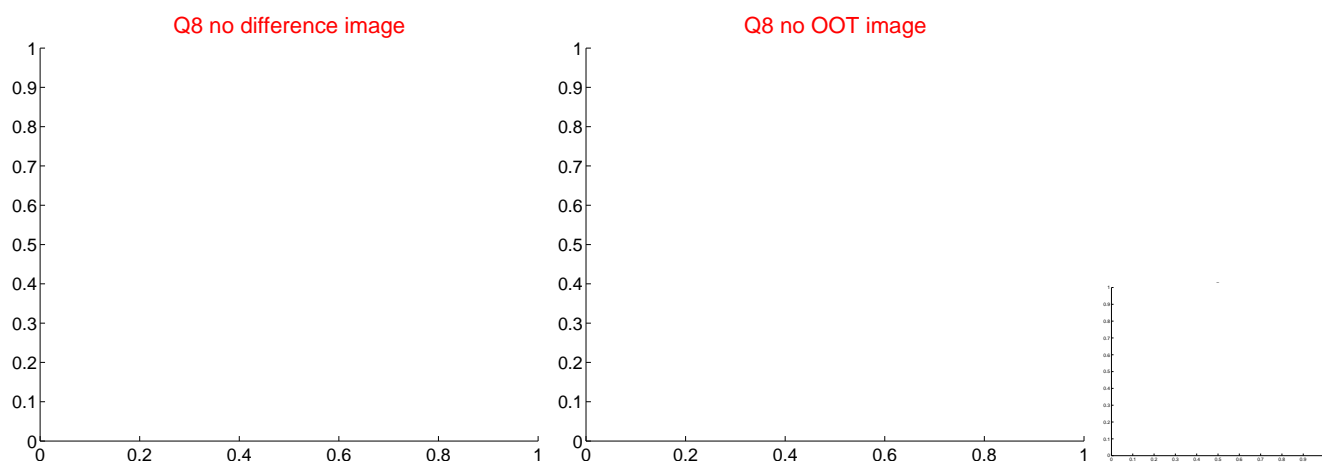
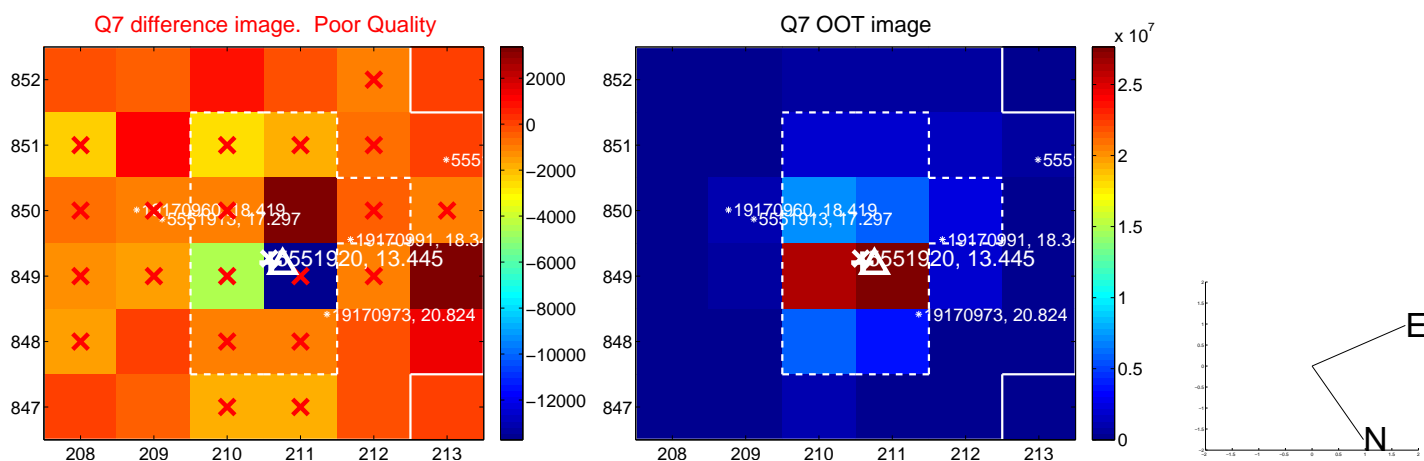
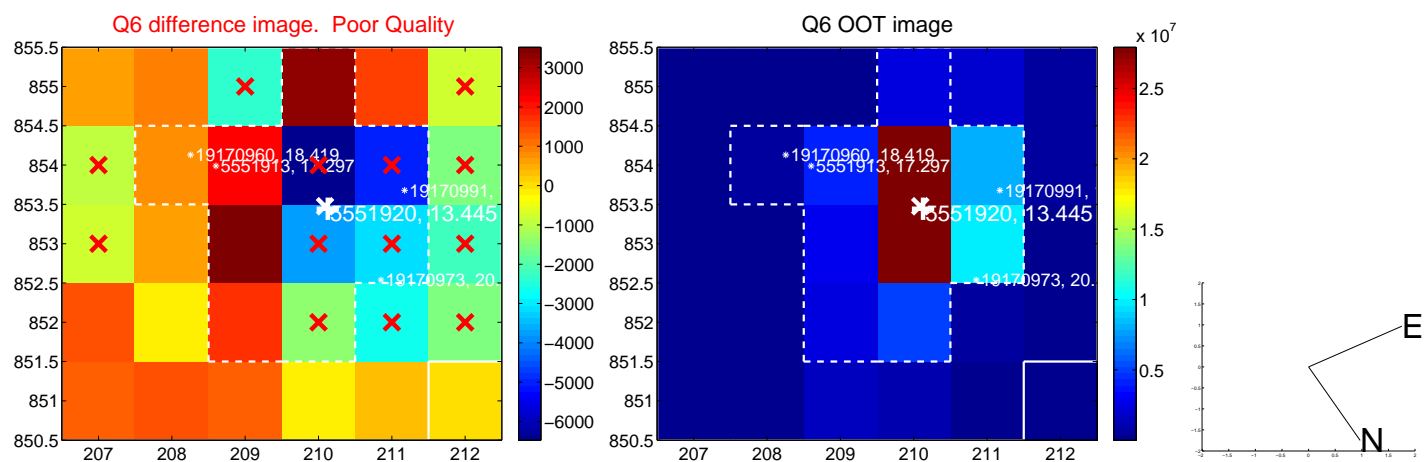
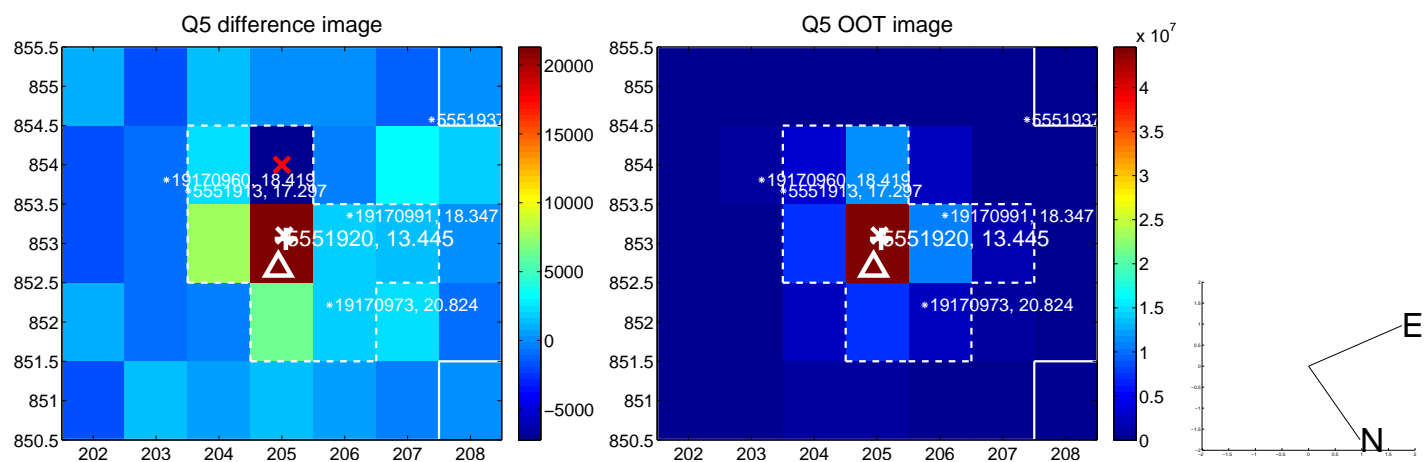
Q4 difference image



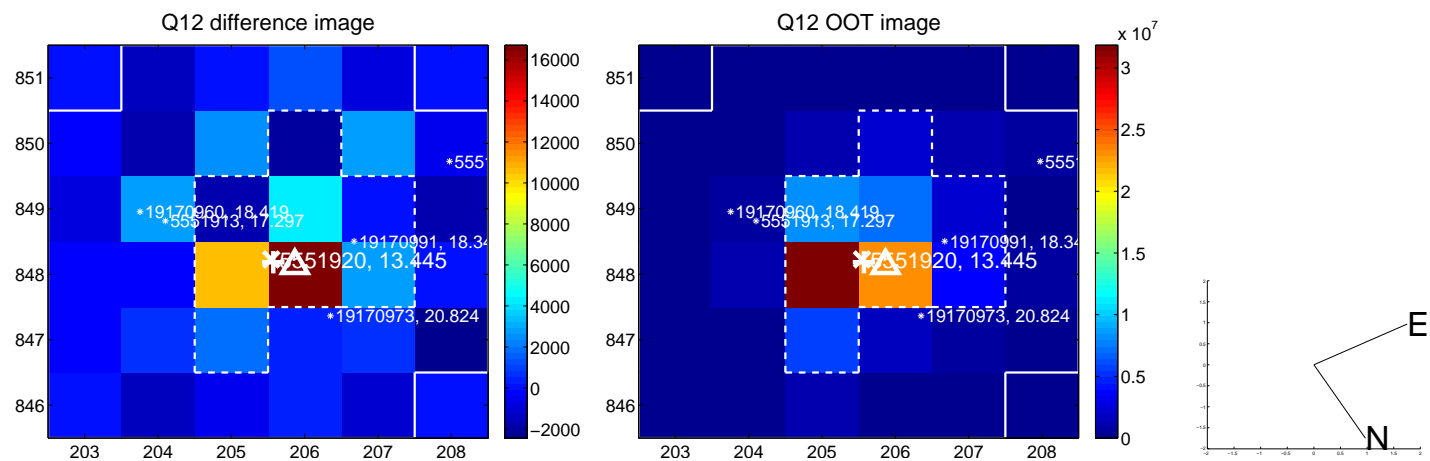
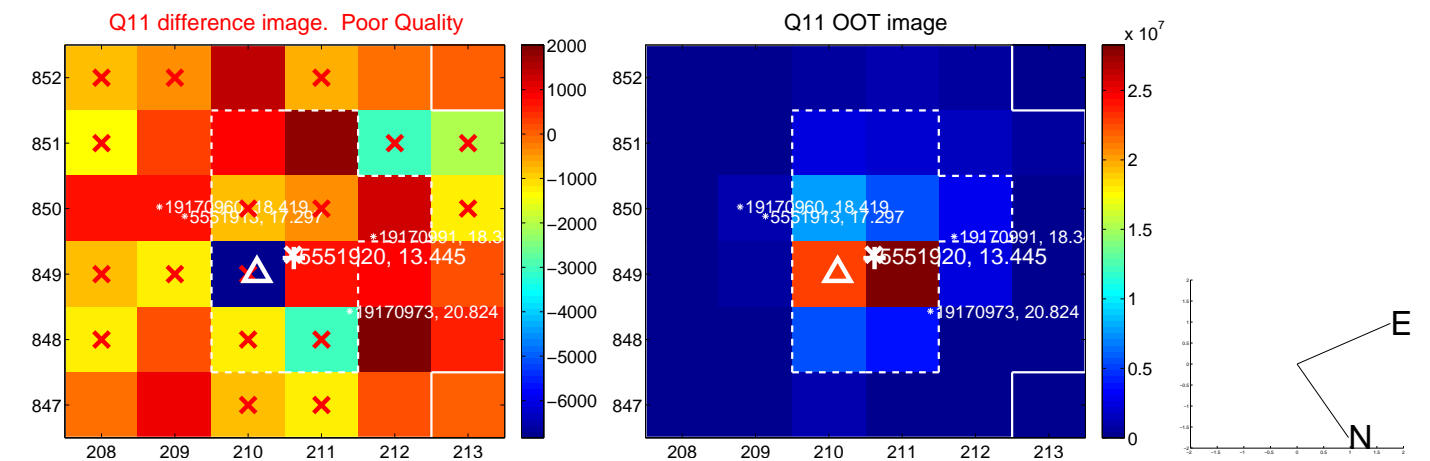
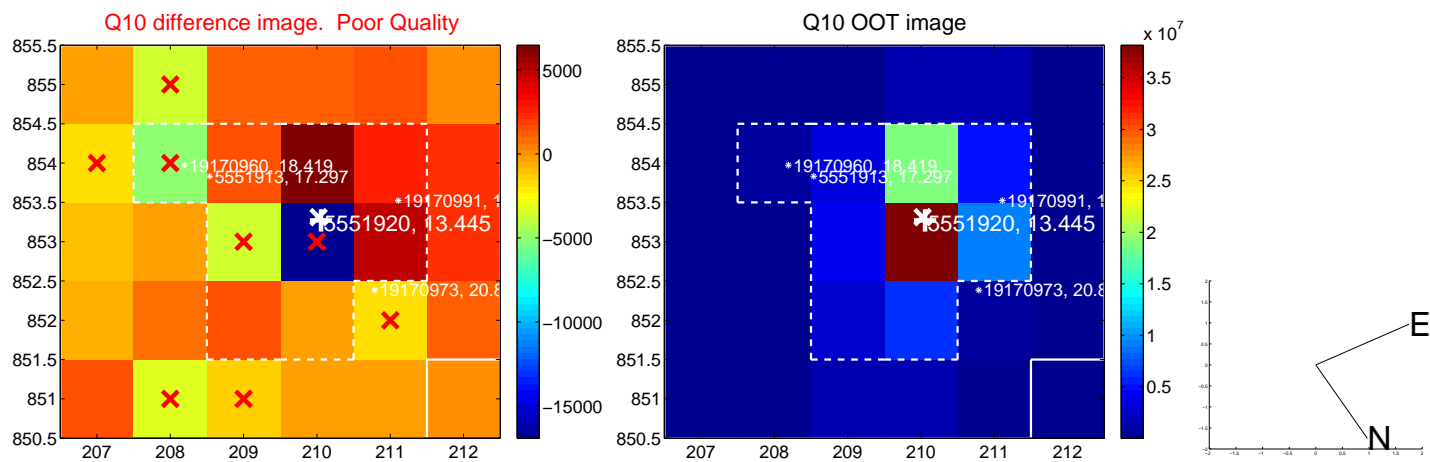
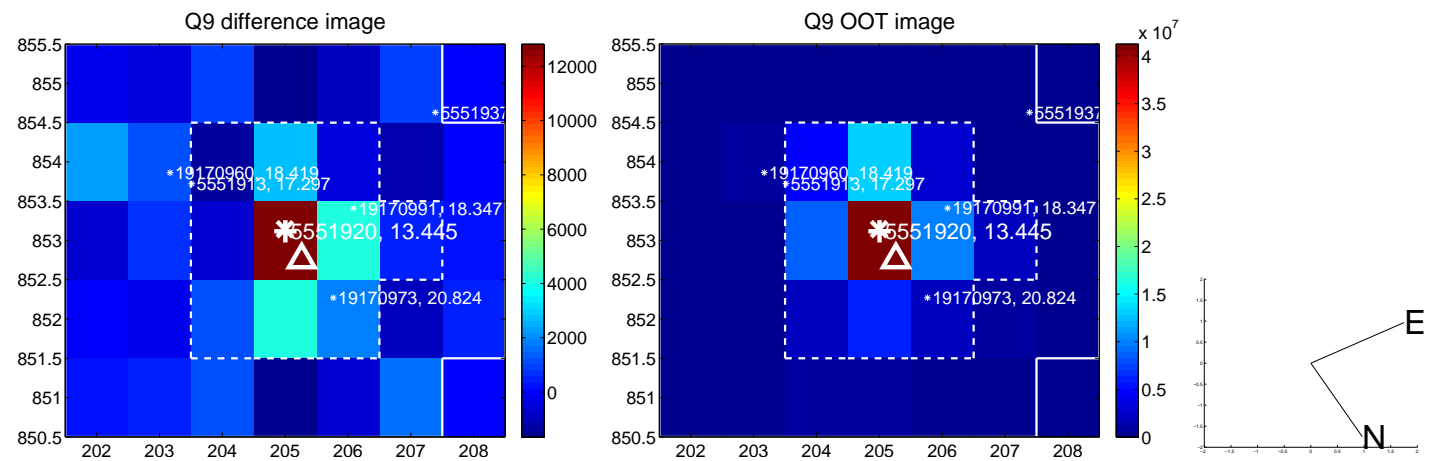
Q4 OOT image



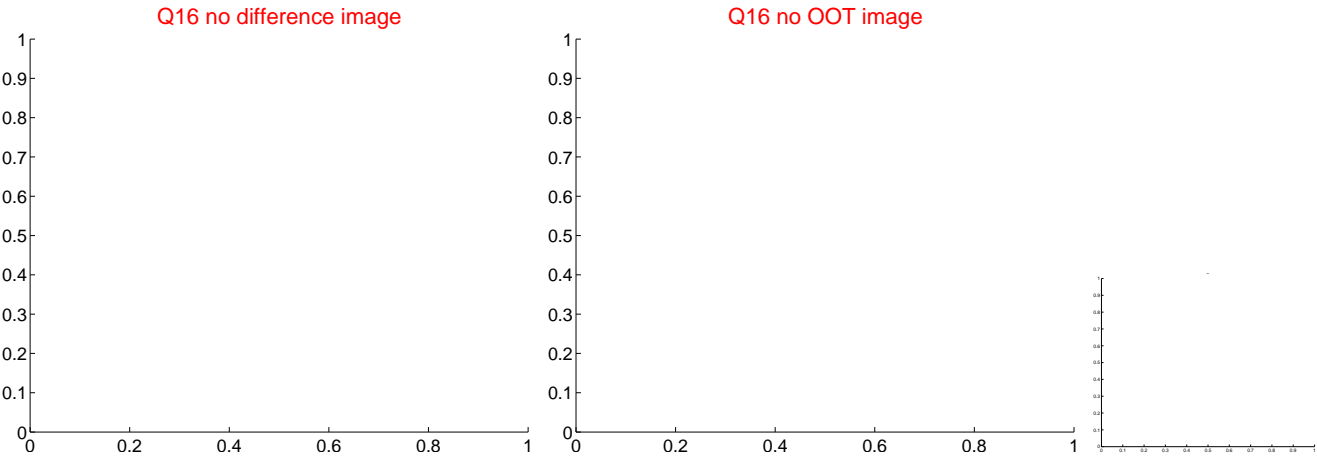
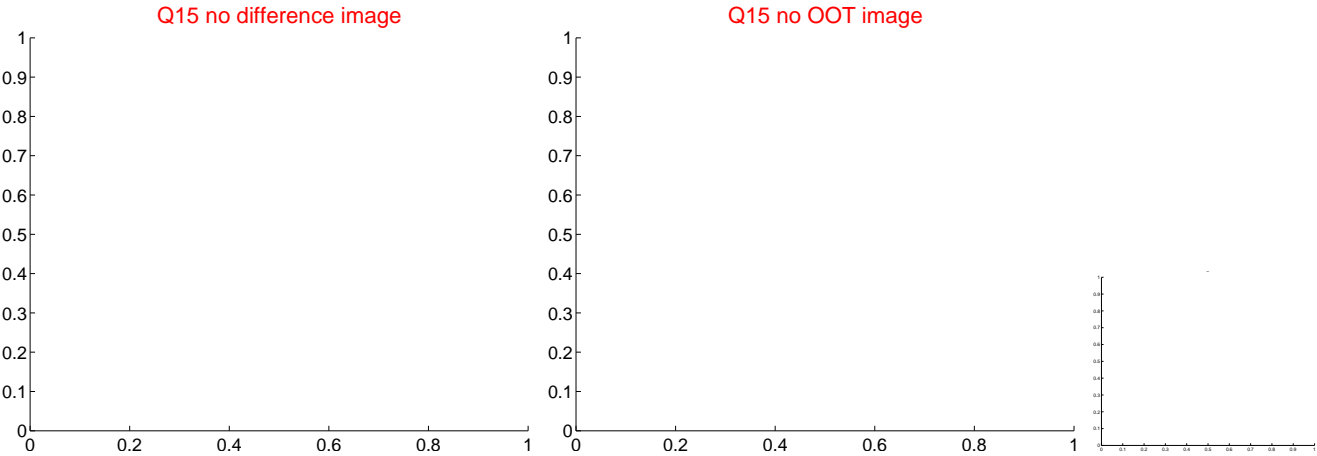
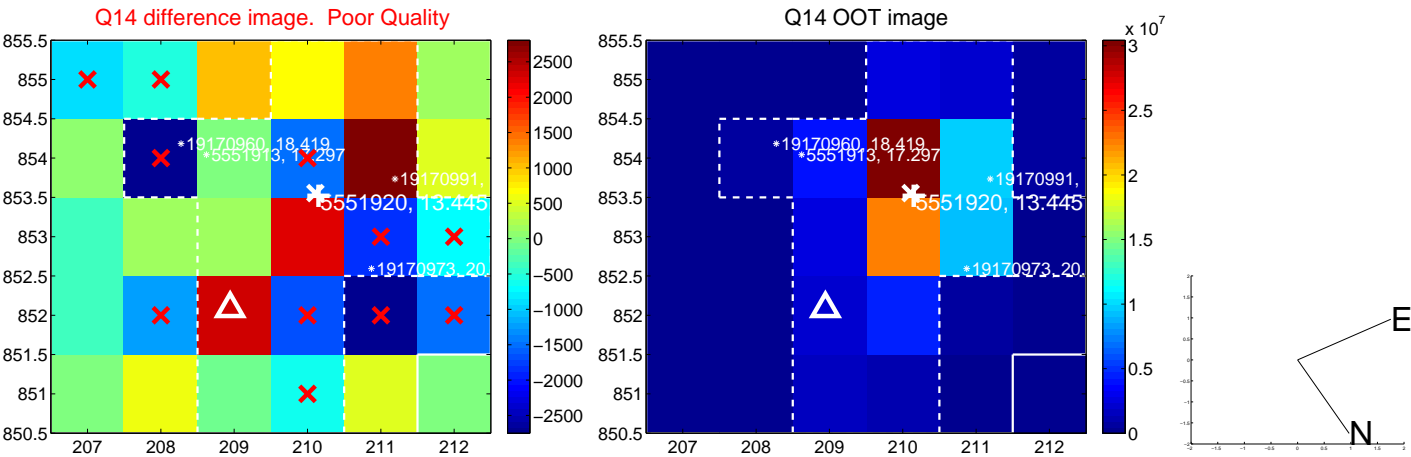
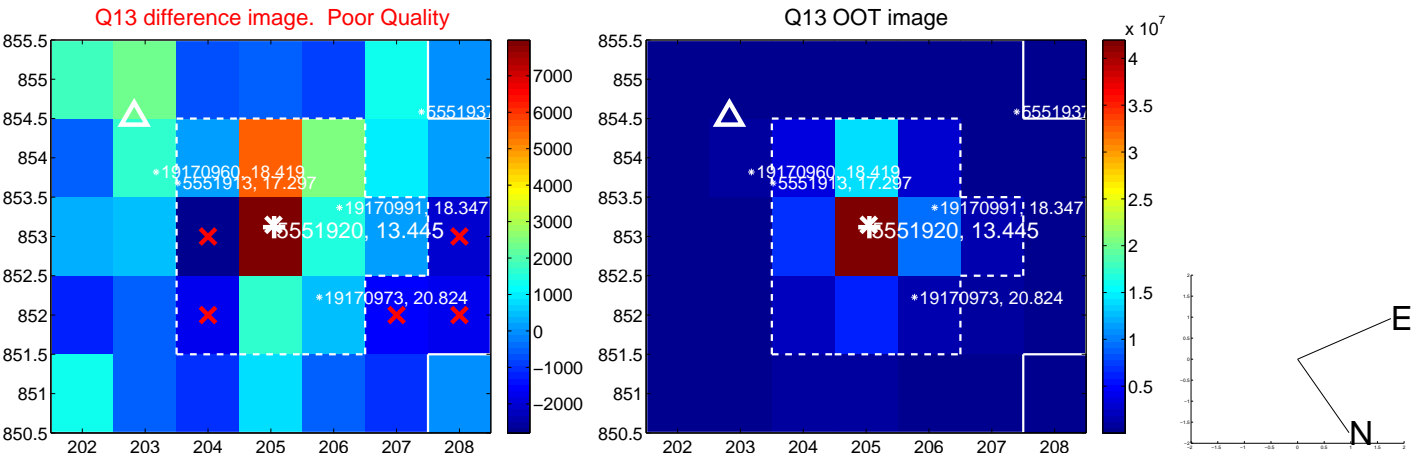
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



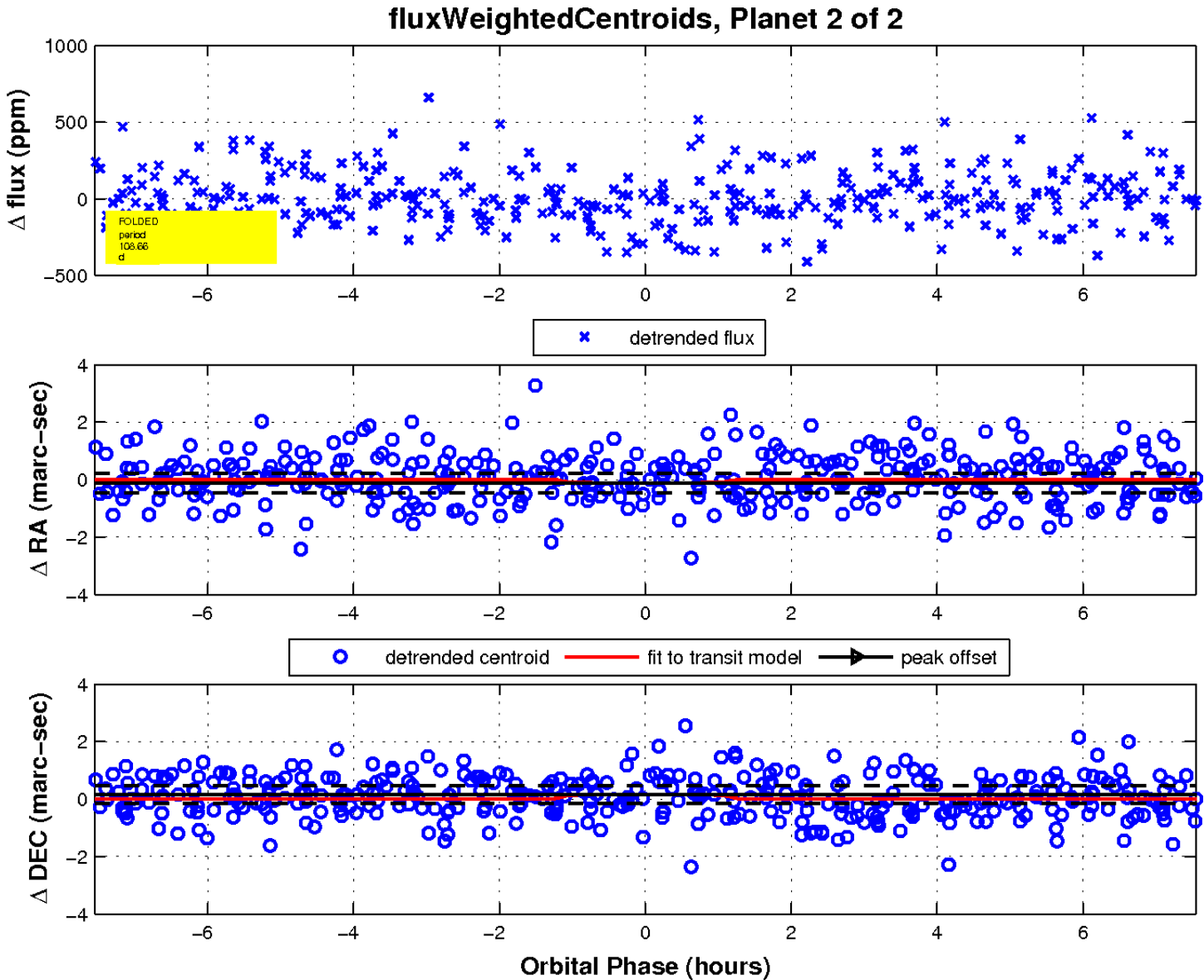
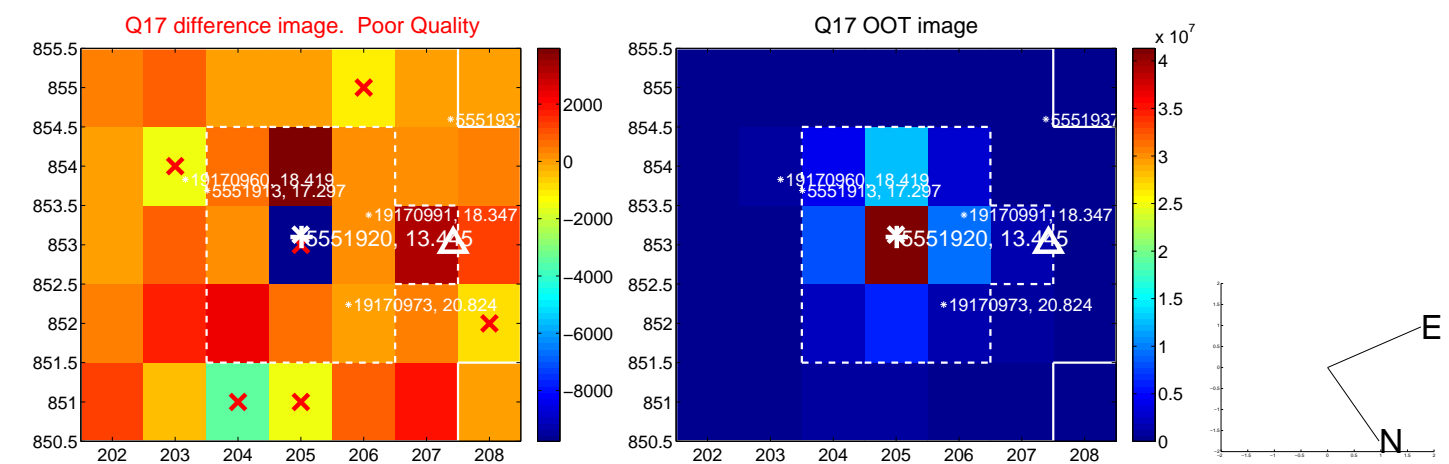
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

