

KIC 006119407

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})
006119407-01	OBS	No	1.715915	132.665341	9.0	8.883	14.6	11.8	3.06	8437	0.93	33768.83
006119407-02	OBS	No	220.098486	180.687050	80.5	12.248	10.2	7.3	3.06	8437	3.09	52.20
006119407-03	OBS	No	131.168619	173.709701	63.6	9.000	9.3	-1.0	3.06	8437	2.47	104.09
006119407-04	OBS	No	72.455056	163.076523	30.3	11.153	8.6	4.3	3.06	8437	1.88	229.66
006119407-05	OBS	No	250.966691	329.292489	31.1	4.800	7.5	2.7	3.06	8437	1.97	43.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006119407-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_SATURATED
006119407-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
006119407-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
006119407-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006119407-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

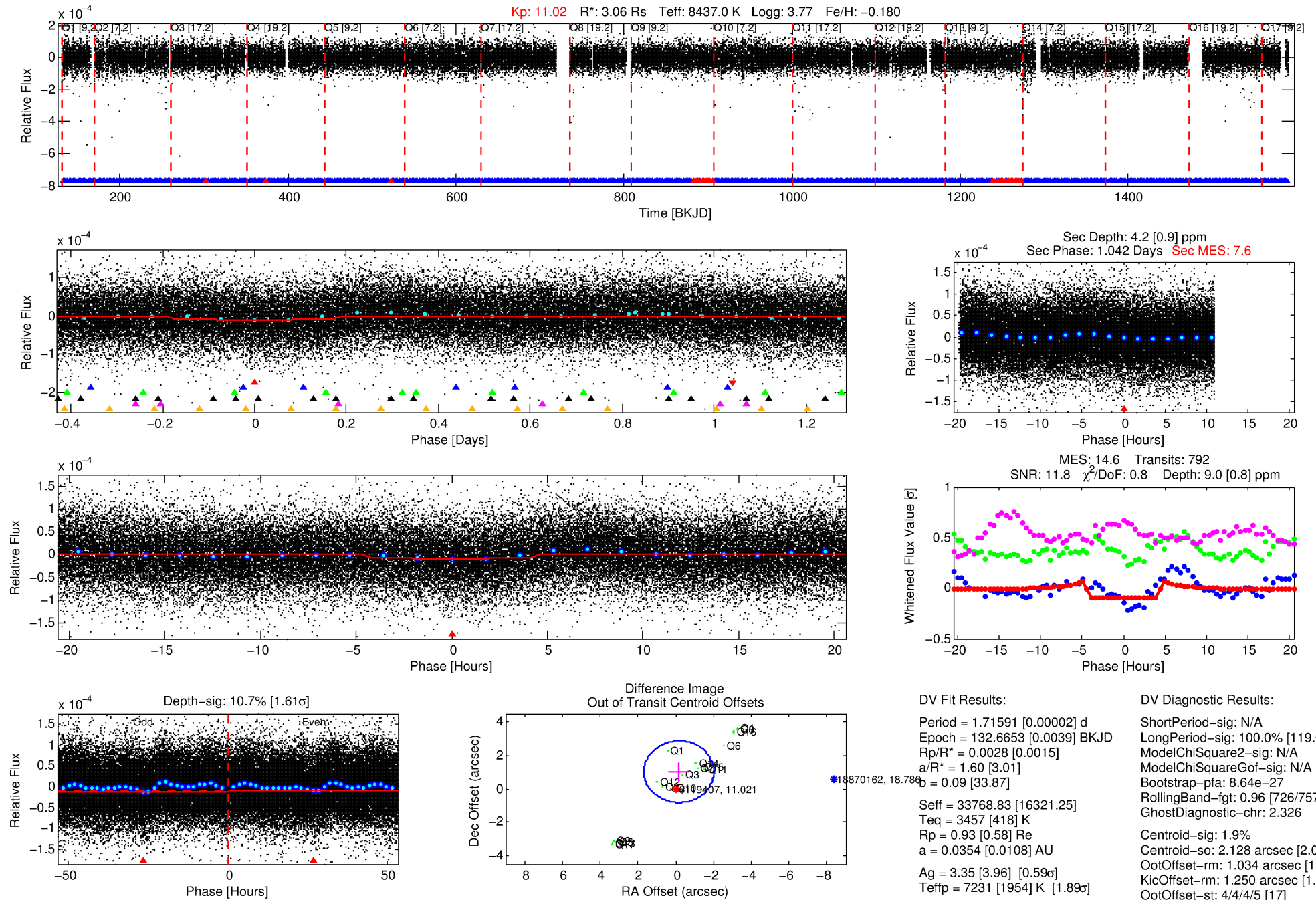
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006119407-01

No Significant Match Found

DV One-Page Summary

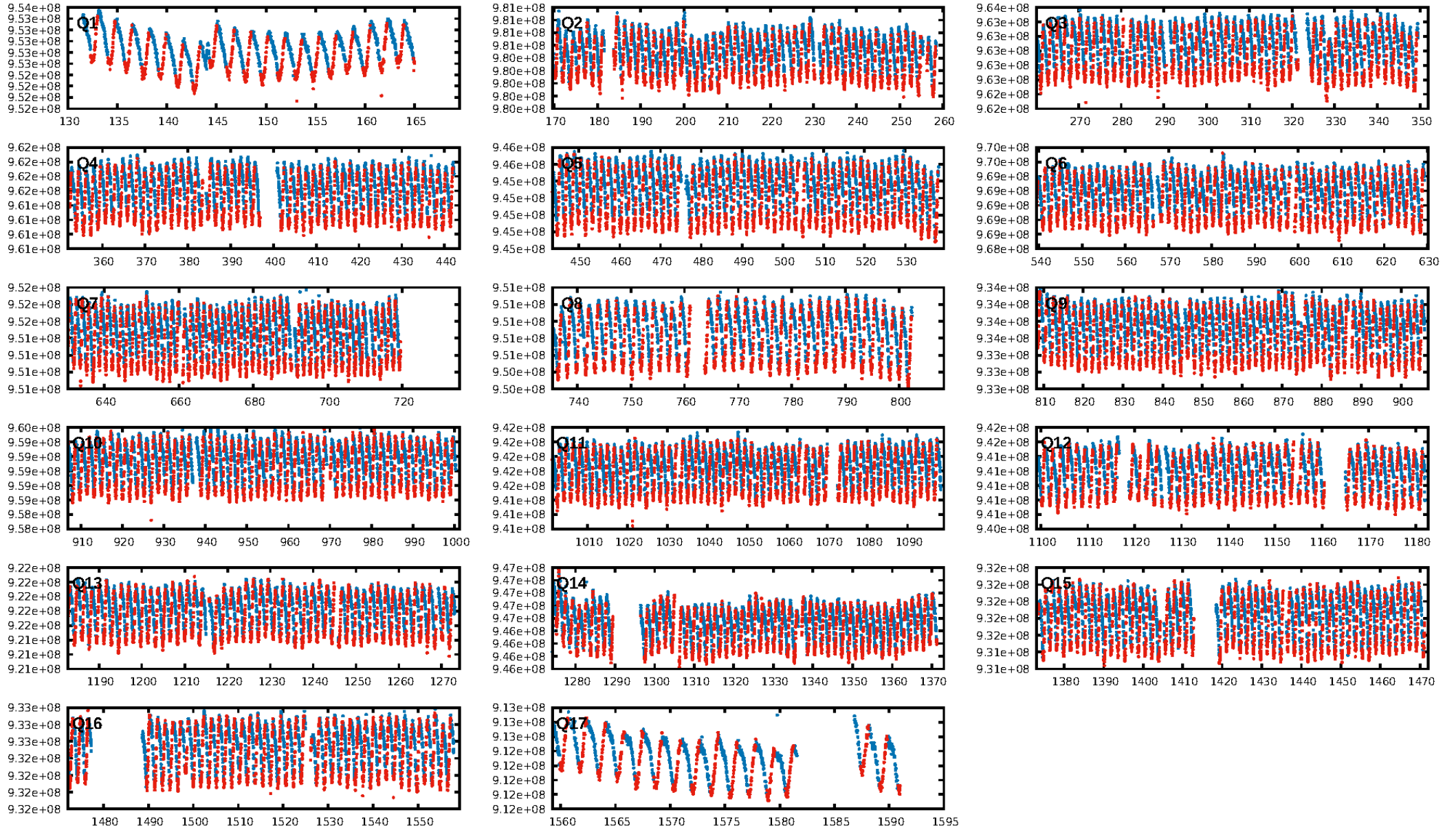
KIC: 6119407 Candidate: 1 of 6 Period: 1.716 d



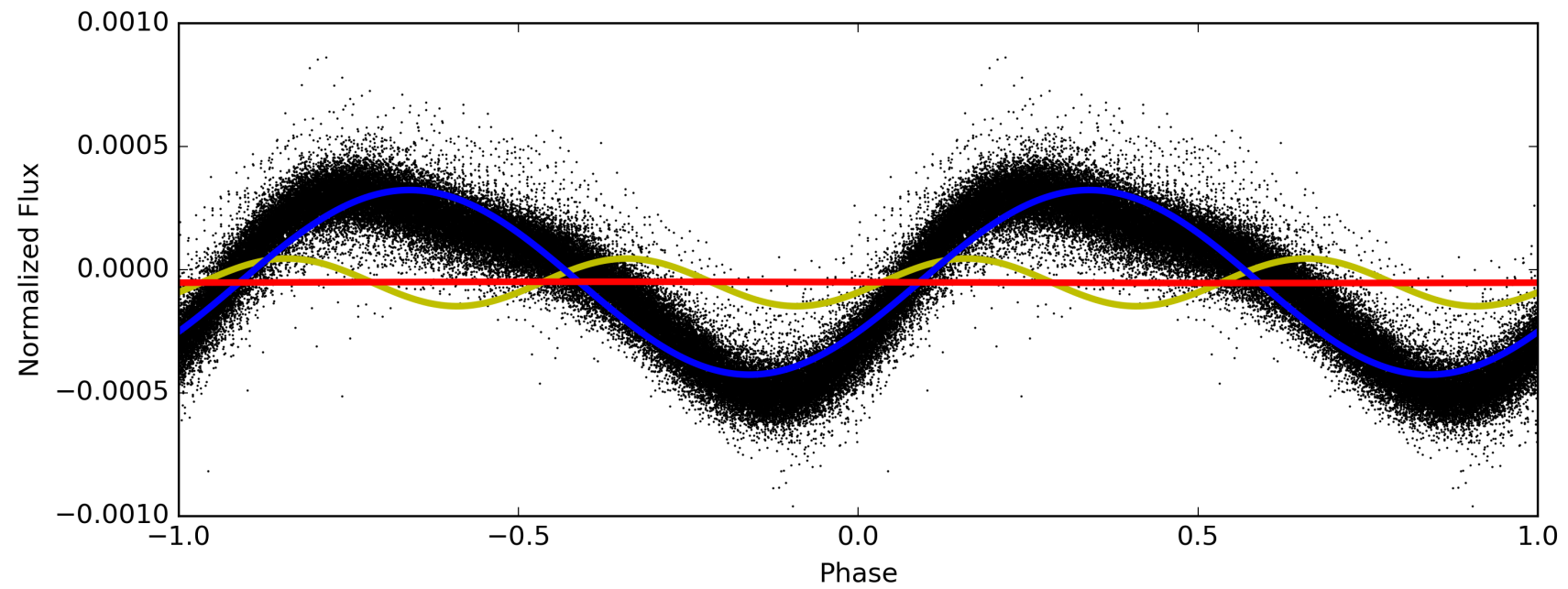
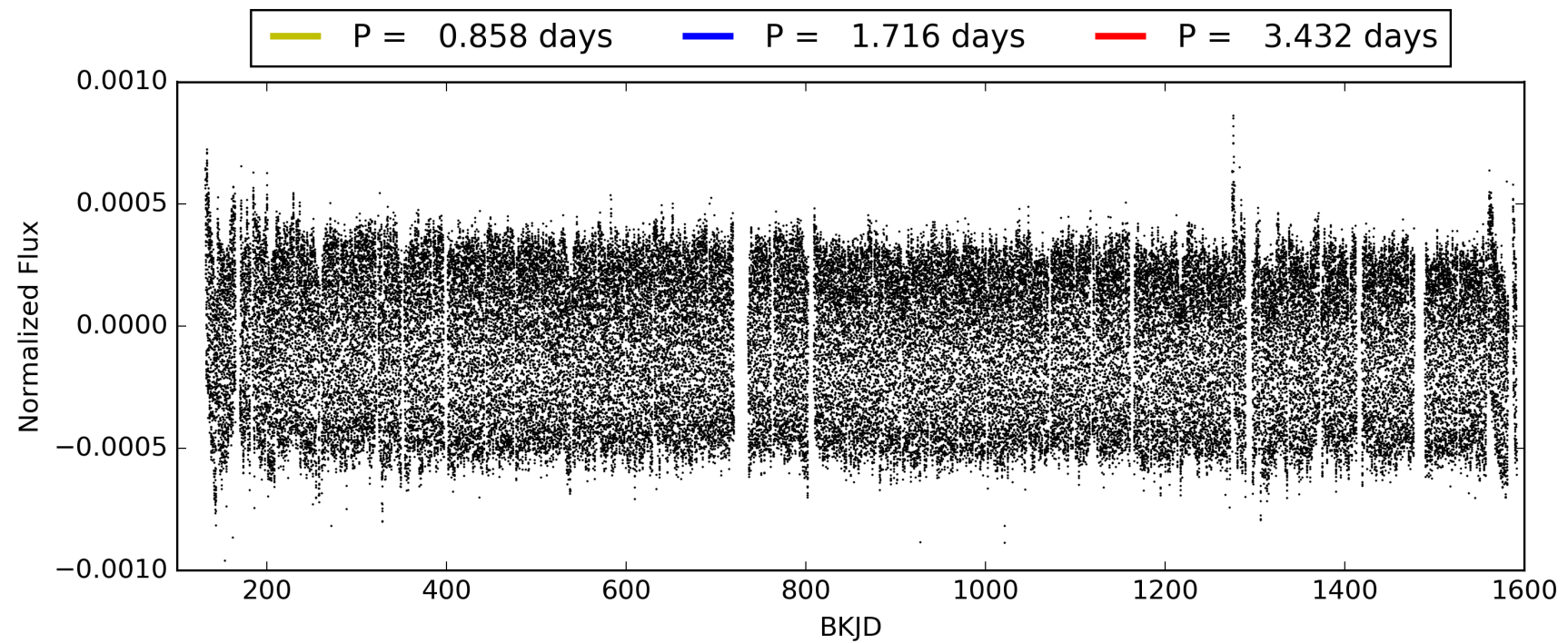
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:16:52 Z

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

TCE 006119407-01, PDC Light Curves

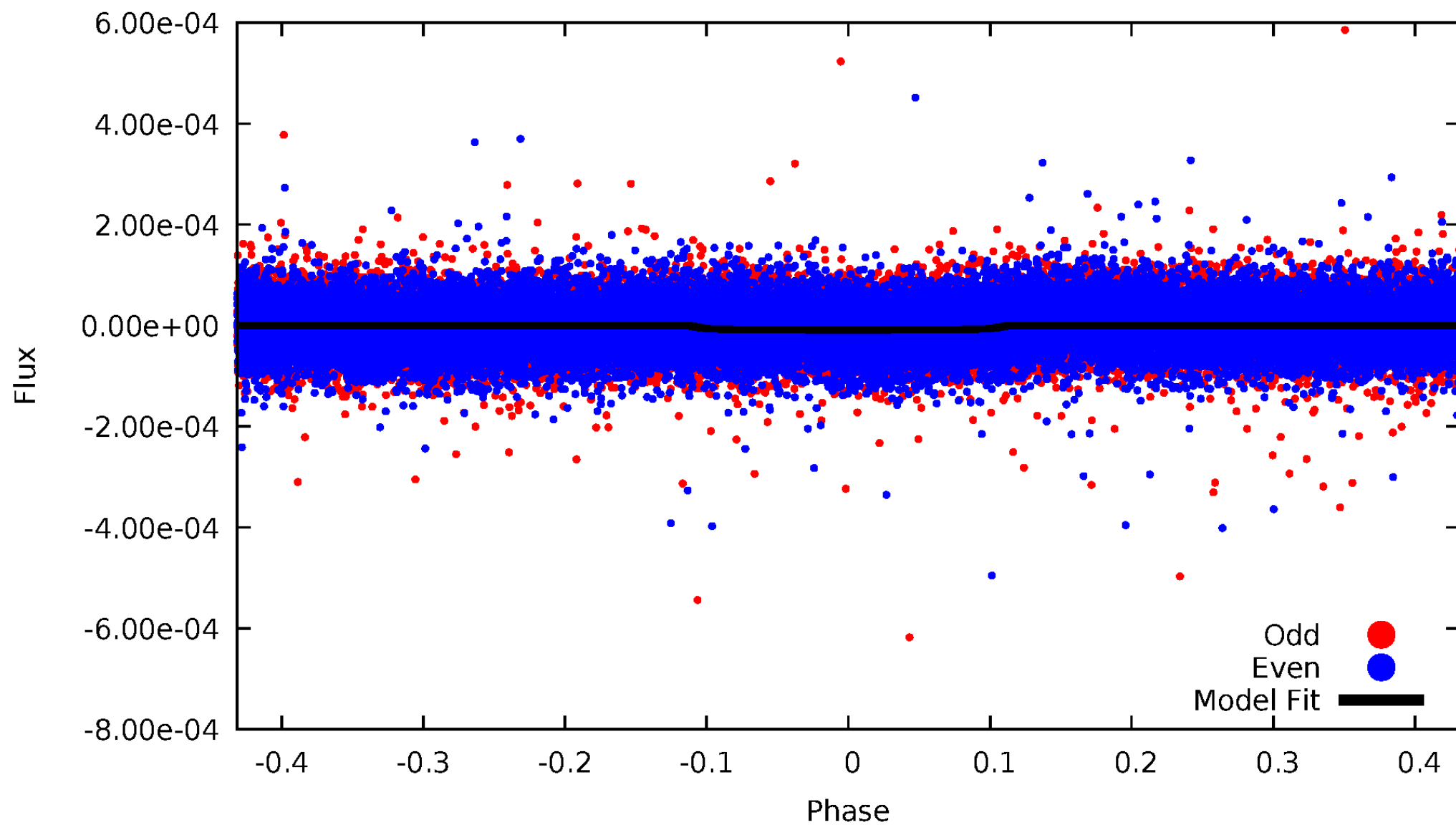


TCE 006119407-01



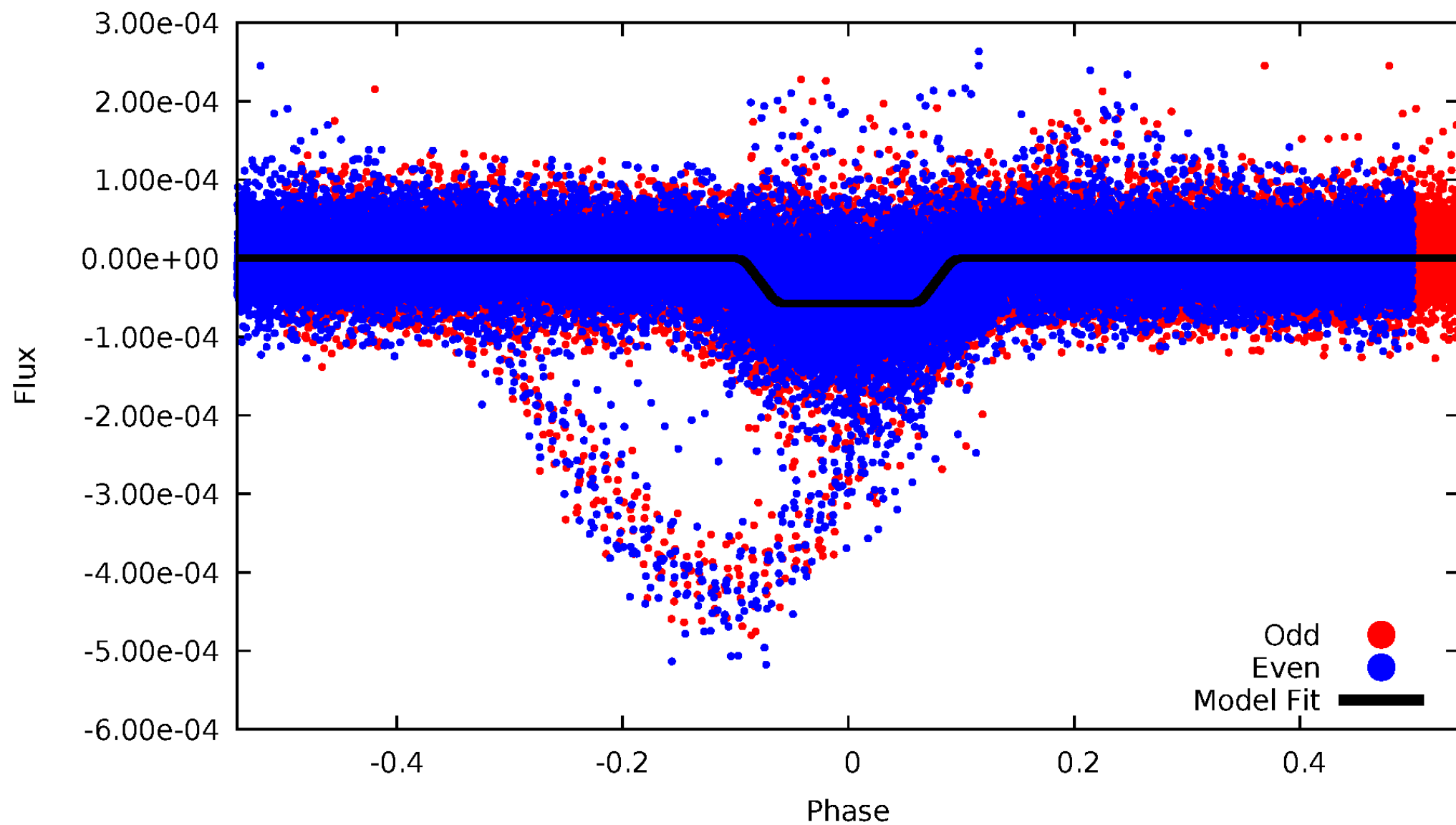
DV Odd/Even

TCE 006119407-01

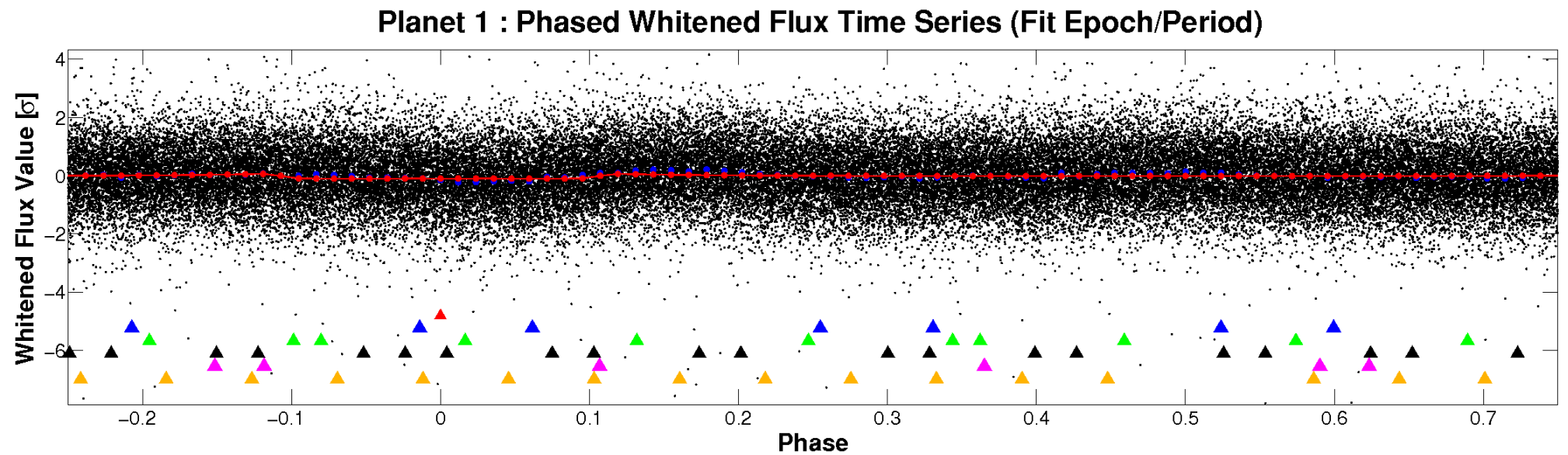
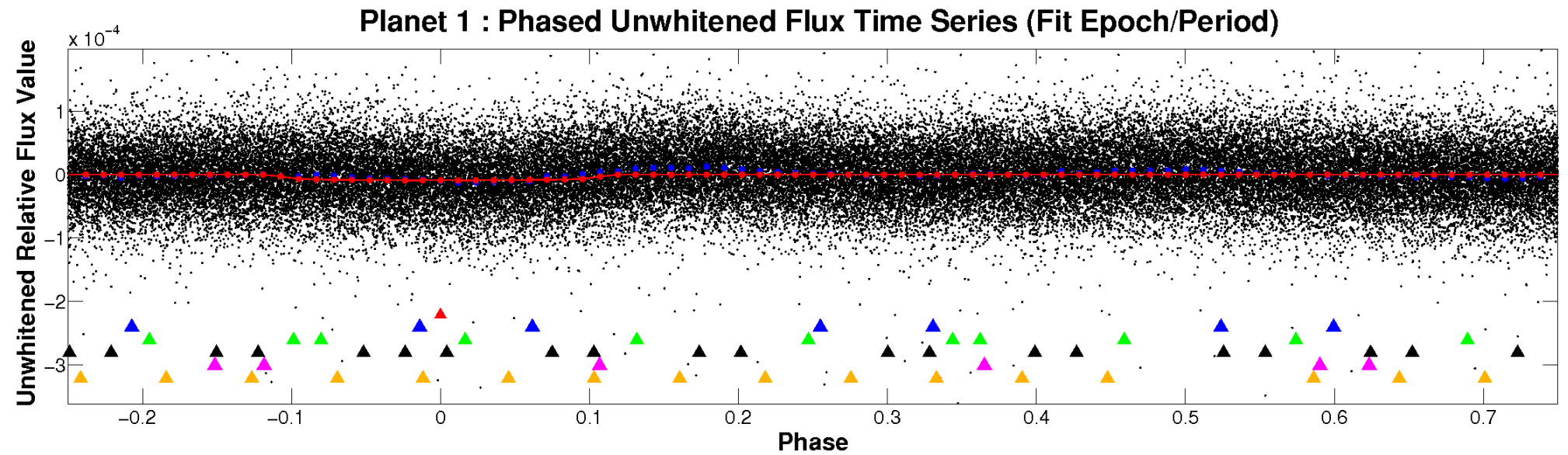


ALT Odd/Even

TCE 006119407-01

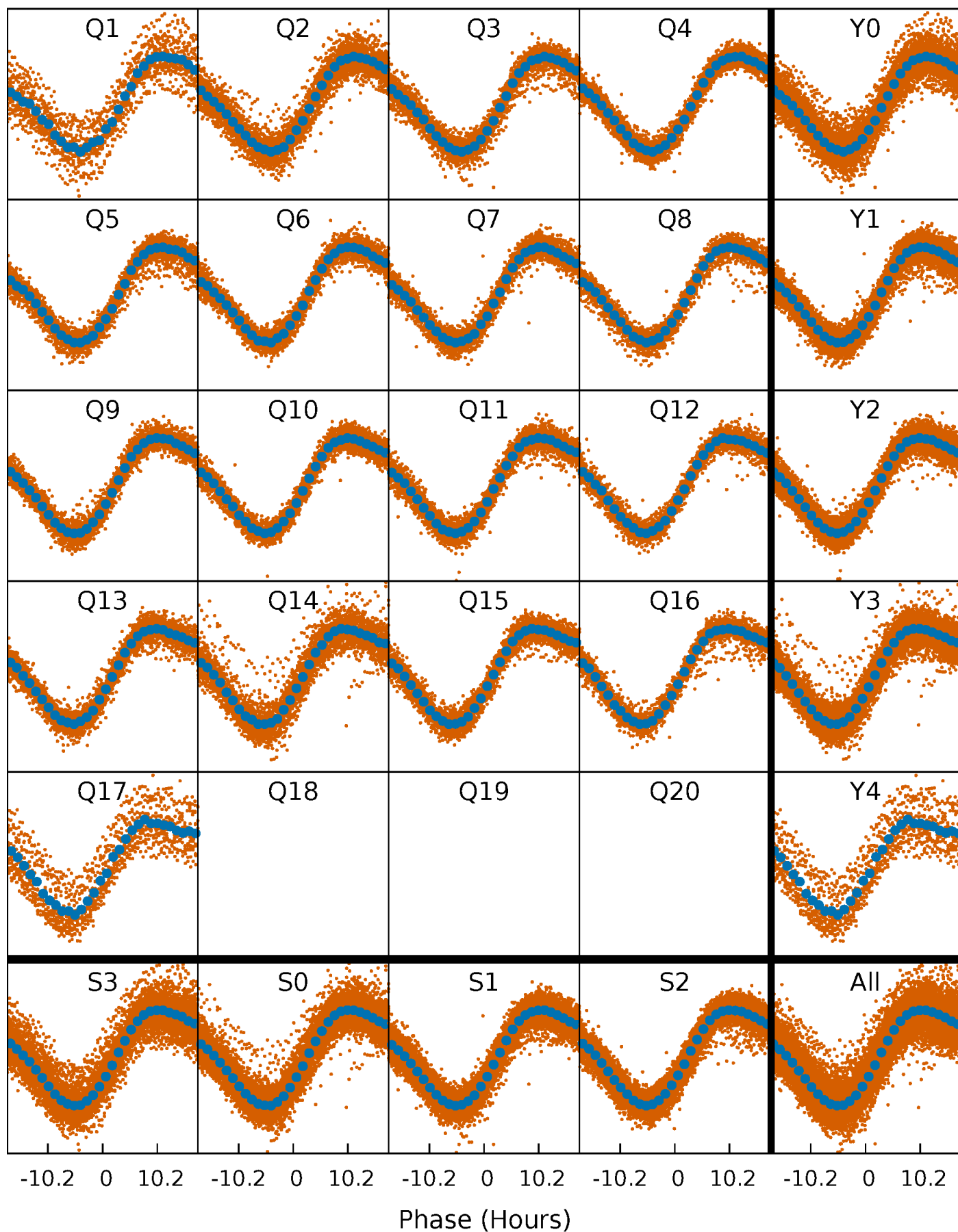


Non-Whitened Vs. Whitened Light Curve



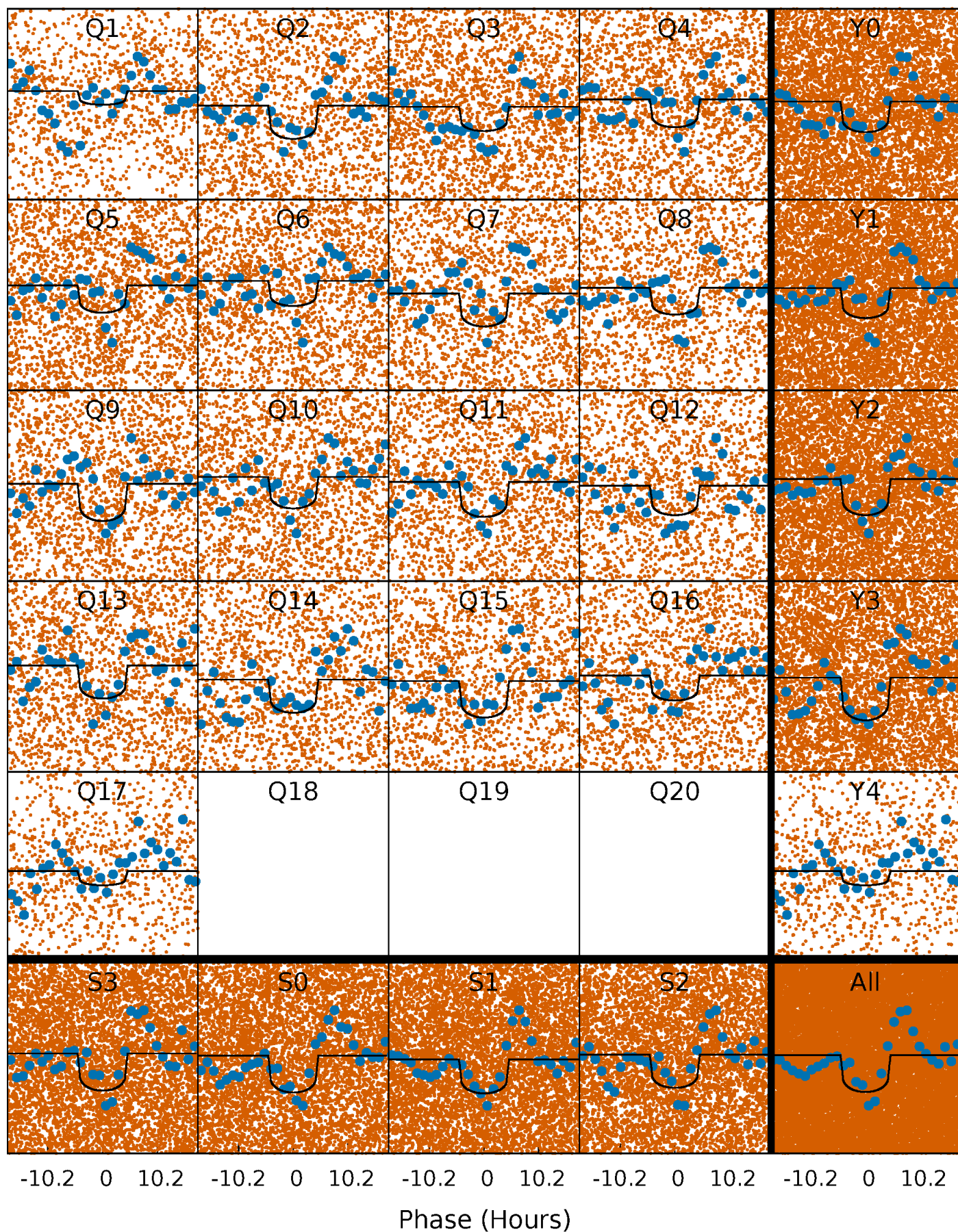
PDC Quarter-Phased Transit Curves

TCE 006119407-01 P= 1.715915 Days $T_0=132.665341$ (BKJD)



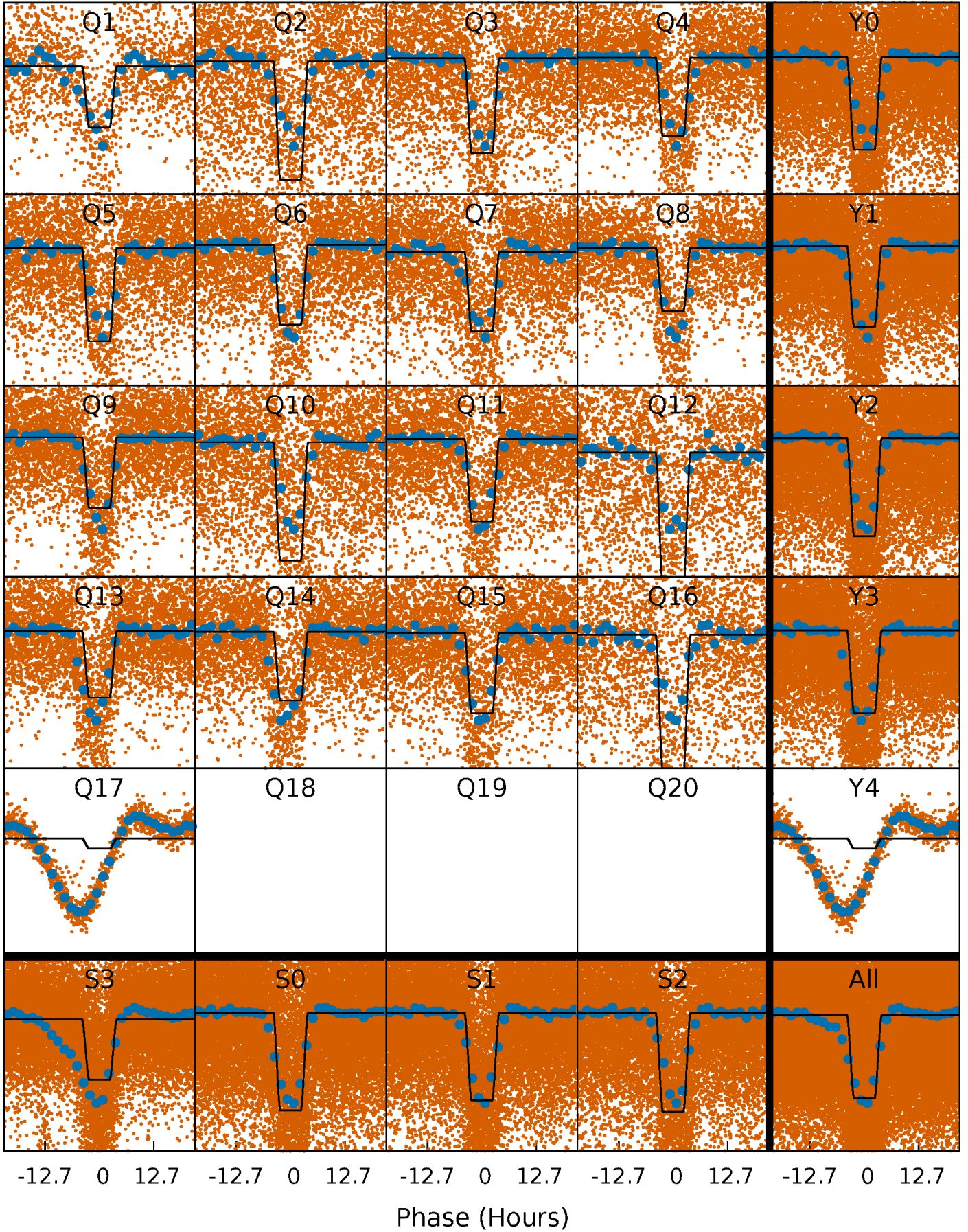
DV Quarter-Phased Transit Curves

TCE 006119407-01 P= 1.715915 Days $T_0=132.665341$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

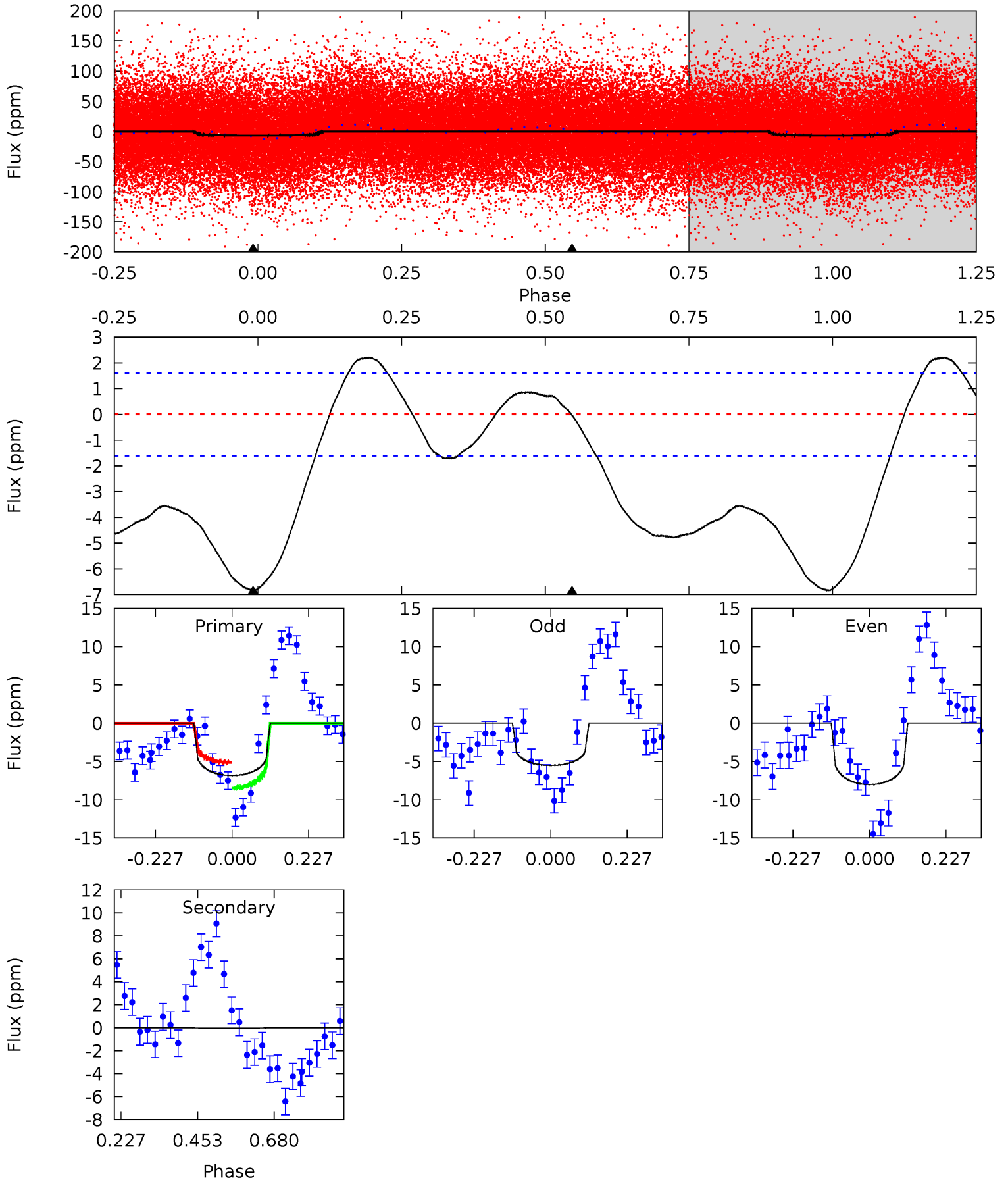
TCE 006119407-01 P= 1.715826 Days $T_0=132.705532$ (BKJD)



DV Model-Shift Uniqueness Test

006119407-01, P = 1.715915 Days, E = 130.949426 Days

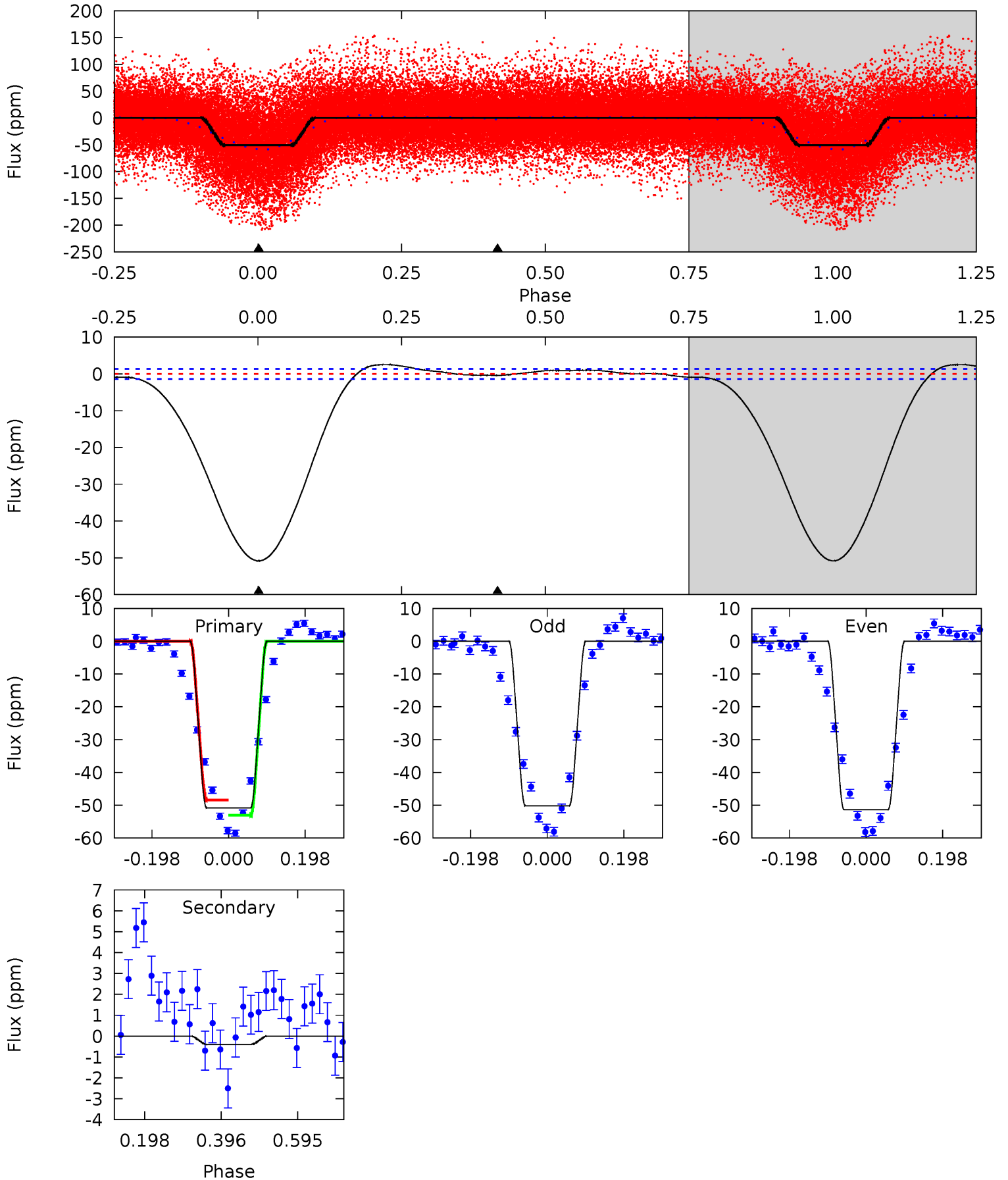
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	0.09	0	0	4.39	1.21	3.00	18.6	18.6	0.09	0.09	3.38	0.97	0.24	4.47



Alt Model-Shift Uniqueness Test

006119407-01, P = 1.715826 Days, E = 130.989706 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
164.1	1.29	0	0	4.42	1.29	3.22	164.1	164.1	1.29	1.29	1.88	1.10	0.05	7.56



Stellar Parameters For KIC 006119407

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8437^{+67}_{-84}	$3.772^{+0.280}_{-0.052}$	$-0.180^{+0.250}_{-0.200}$	$3.057^{+0.427}_{-0.997}$	$2.017^{+0.299}_{-0.245}$	$0.099^{+0.188}_{-0.023}$
	+1%/-1%	+7%/-1%	+139%/-111%	+14%/-33%	+15%/-12%	+189%/-23%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 006119407-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-0±0	$0.88^{+0.53}_{-0.47}$	4723^{+191}_{-375}	-3959^{+7893}_{-645}	$0.026^{+0.570}_{-0.359}$
Alt.	-0±0	$2.37^{+0.60}_{-0.53}$	4730^{+183}_{-366}	-3892^{+297}_{-176}	$0.050^{+0.057}_{-0.037}$

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

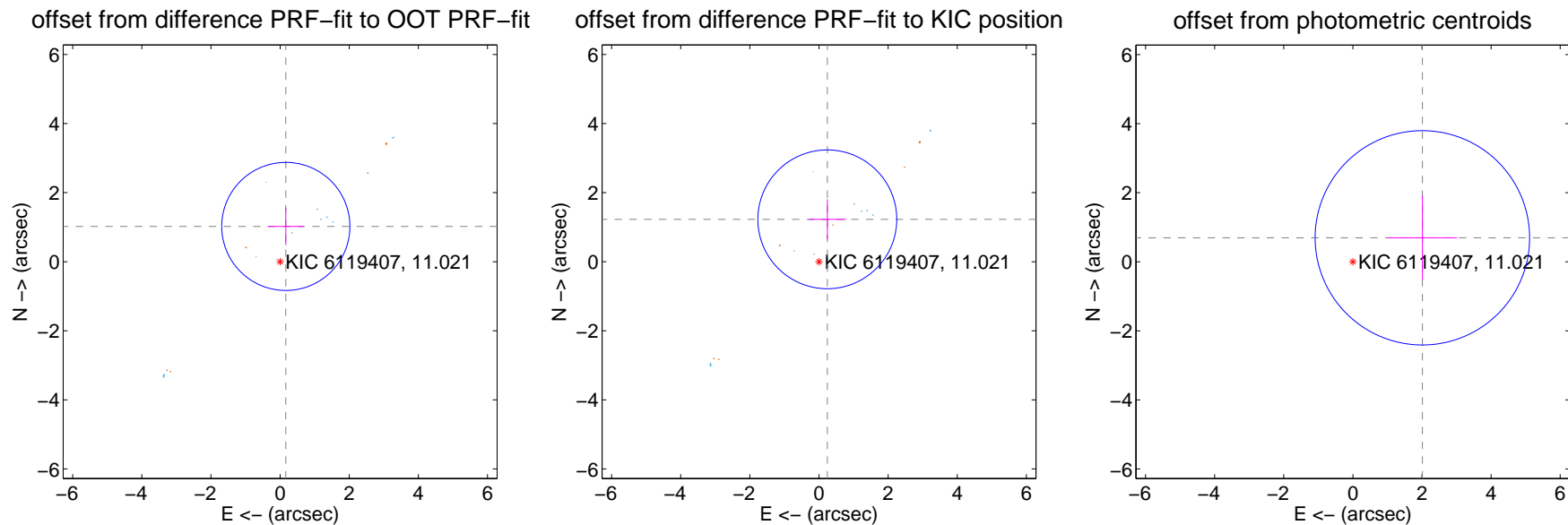
DV Centroid Data

Supplemental centroid analysis for 006119407-01. **Kepler magnitude: 11.02.** Transit SNR 11.78

There are 11 quarters with good PRF difference image offsets

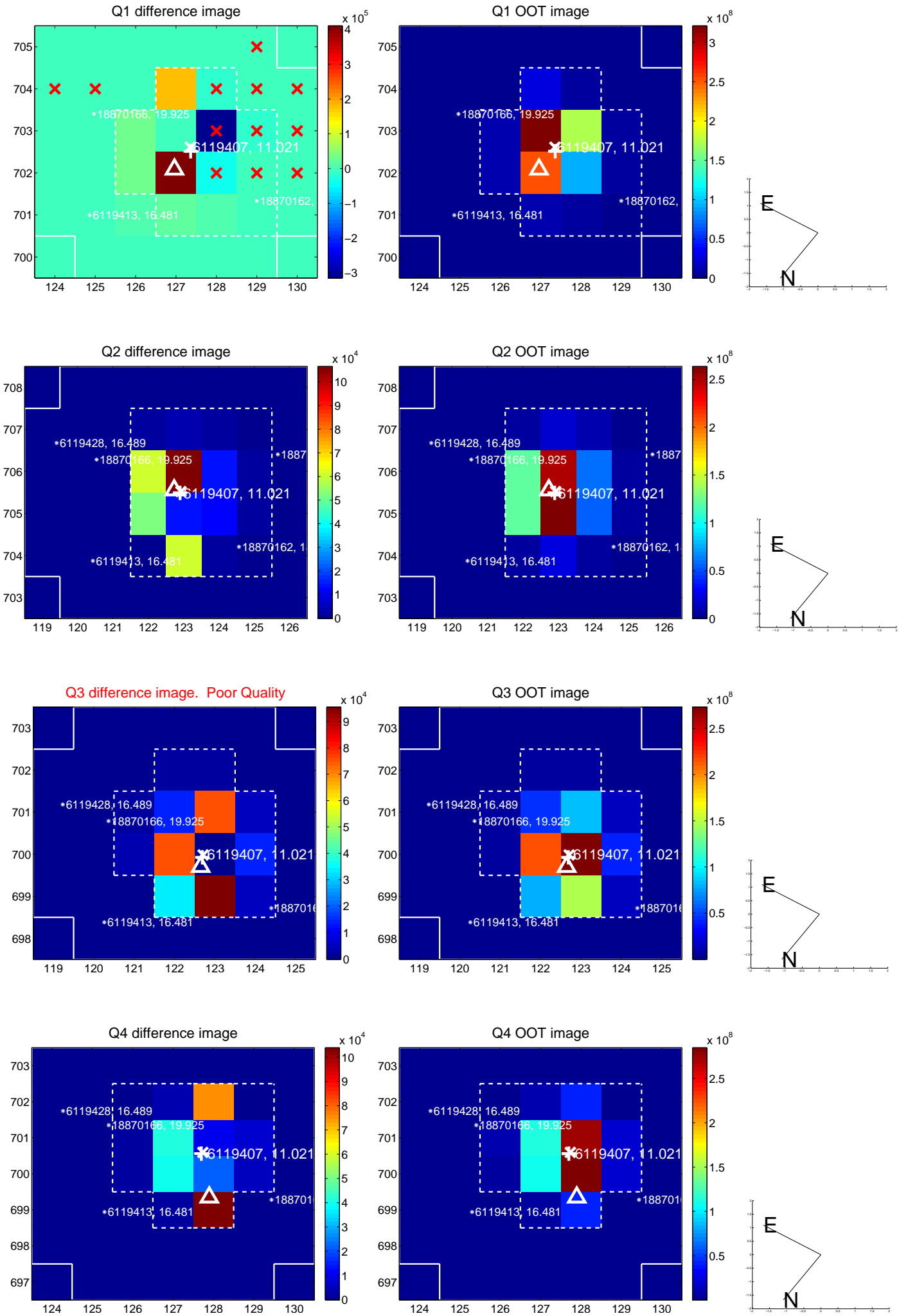
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.034 ± 0.618	1.67	-0.165 ± 0.524	1.021 ± 0.546
PRF-fit source offset from KIC position	1.250 ± 0.670	1.87	-0.241 ± 0.541	1.226 ± 0.581
photometric centroid source offset	2.13 ± 1.03	2.06	-2.01 ± 1.01	0.69 ± 1.23

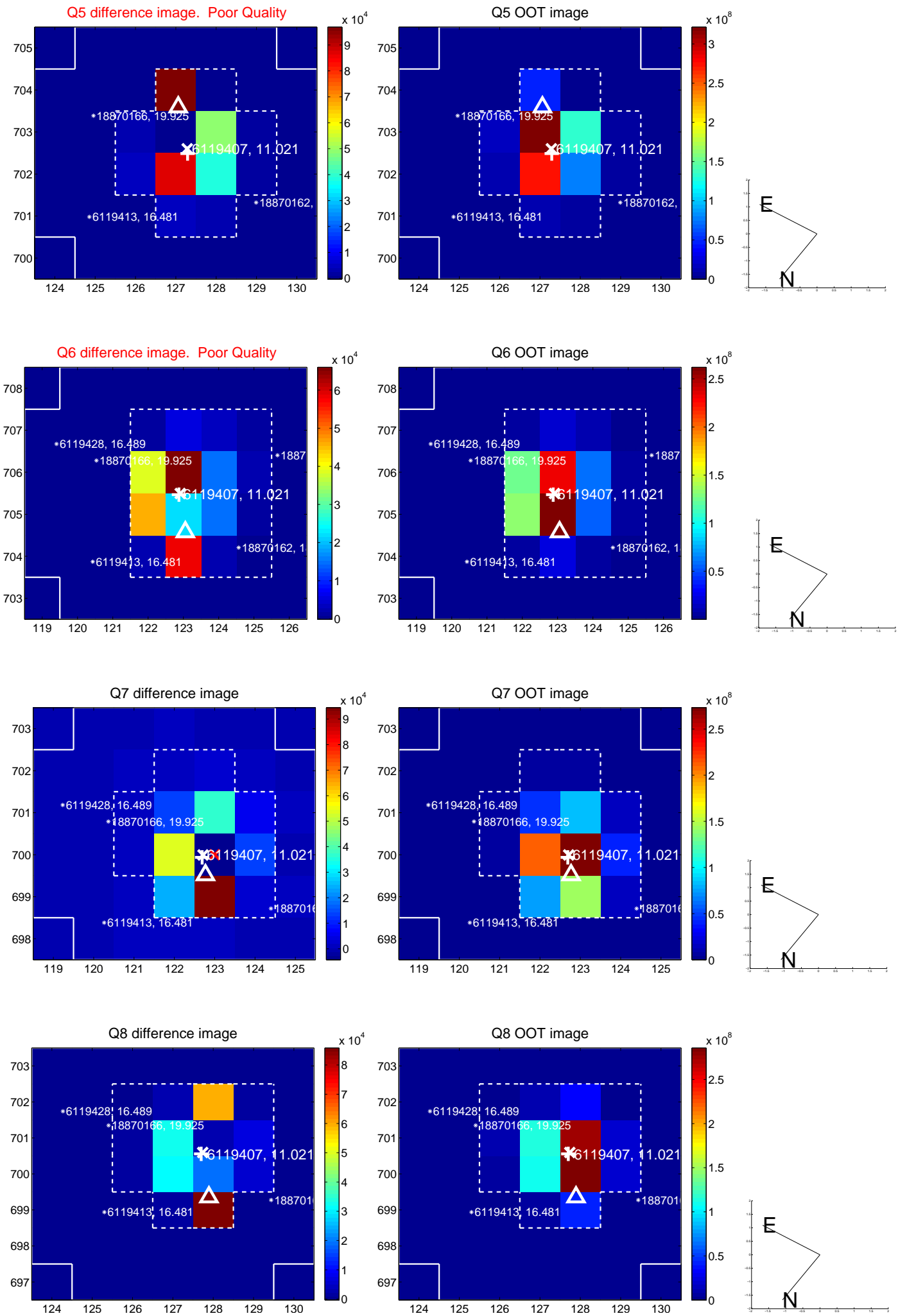


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

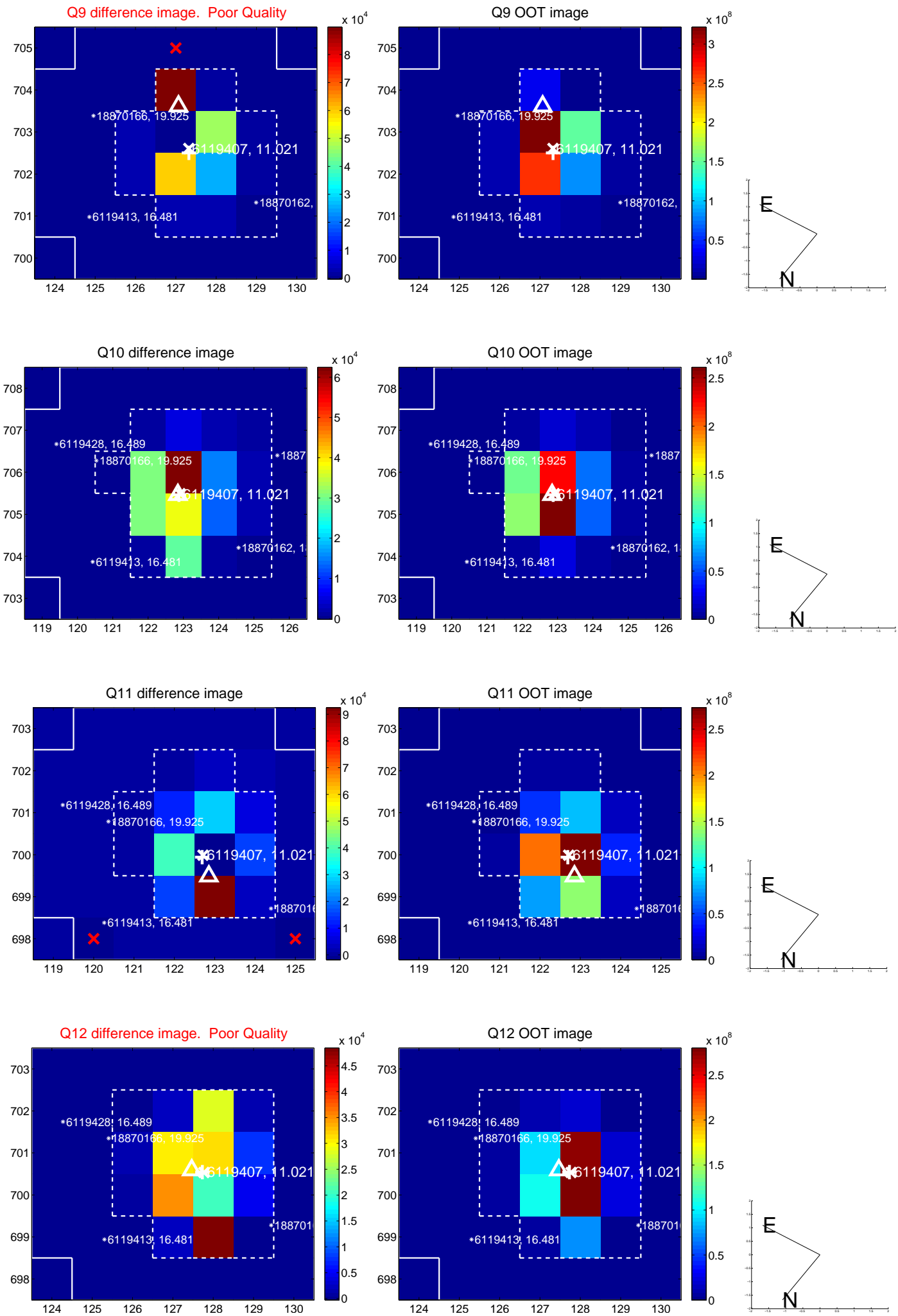
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



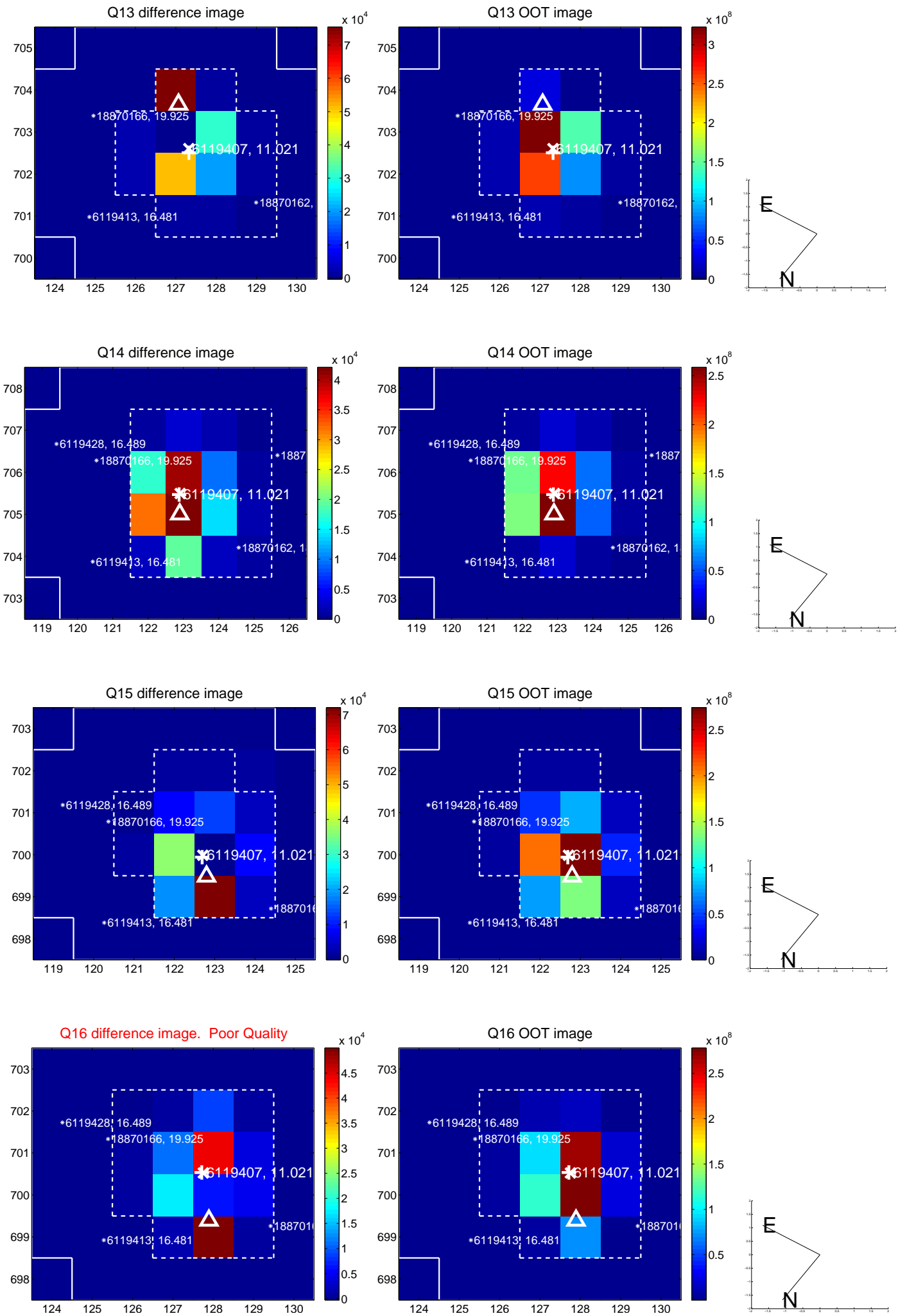
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



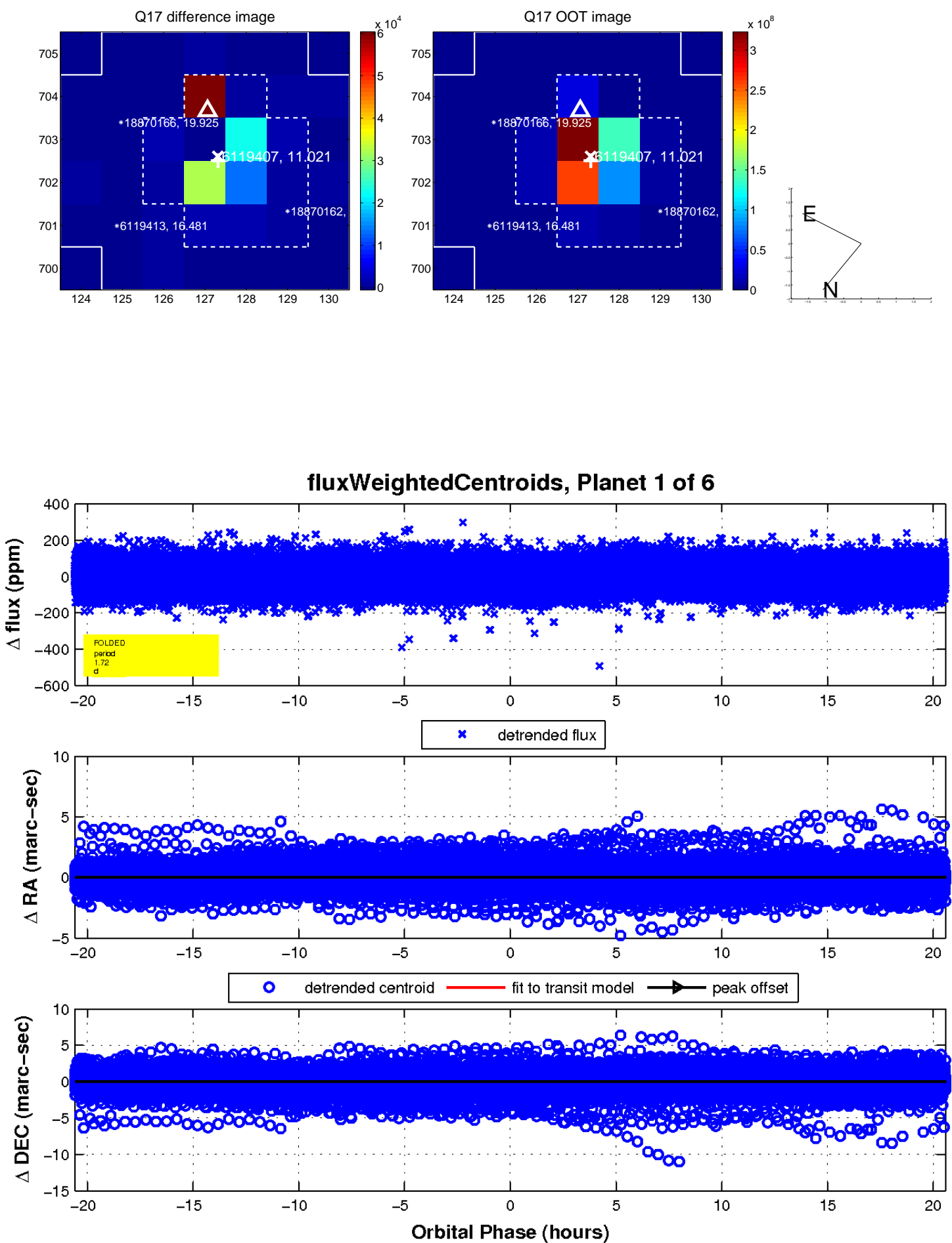
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

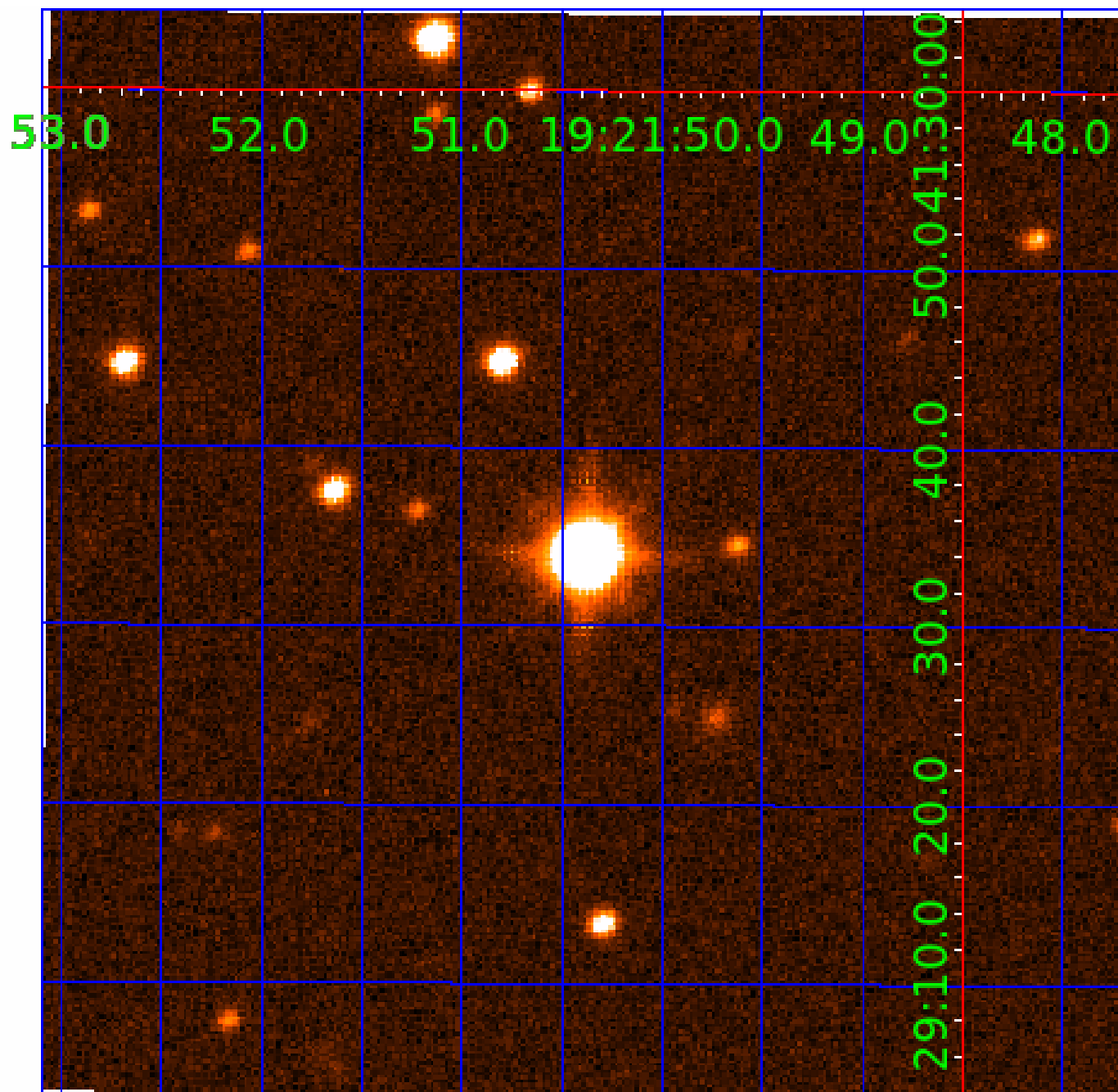


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006119407

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})
006119407-01	OBS	No	1.715915	132.665341	9.0	8.883	14.6	11.8	3.06	8437	0.93	33768.83
006119407-02	OBS	No	220.098486	180.687050	80.5	12.248	10.2	7.3	3.06	8437	3.09	52.20
006119407-03	OBS	No	131.168619	173.709701	63.6	9.000	9.3	-1.0	3.06	8437	2.47	104.09
006119407-04	OBS	No	72.455056	163.076523	30.3	11.153	8.6	4.3	3.06	8437	1.88	229.66
006119407-05	OBS	No	250.966691	329.292489	31.1	4.800	7.5	2.7	3.06	8437	1.97	43.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006119407-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_SATURATED
006119407-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
006119407-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
006119407-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006119407-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

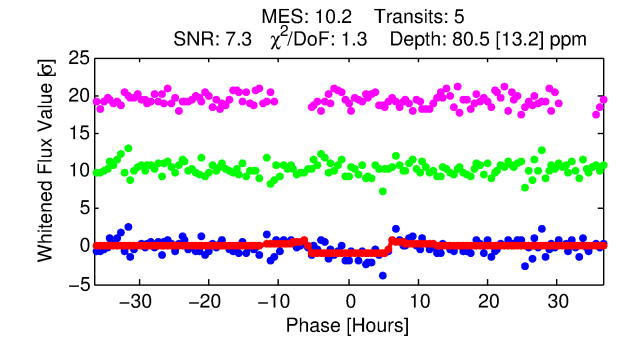
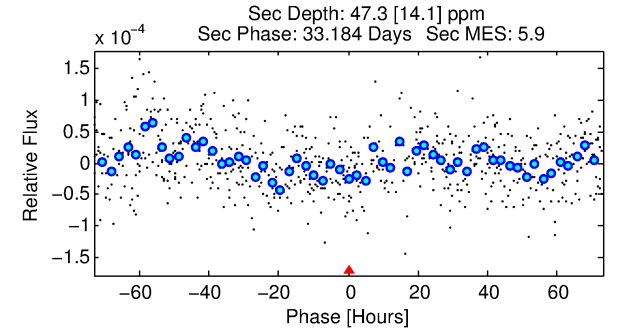
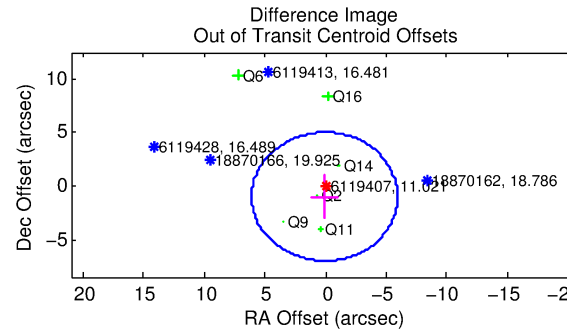
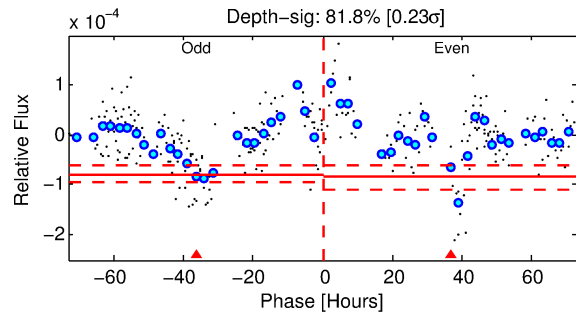
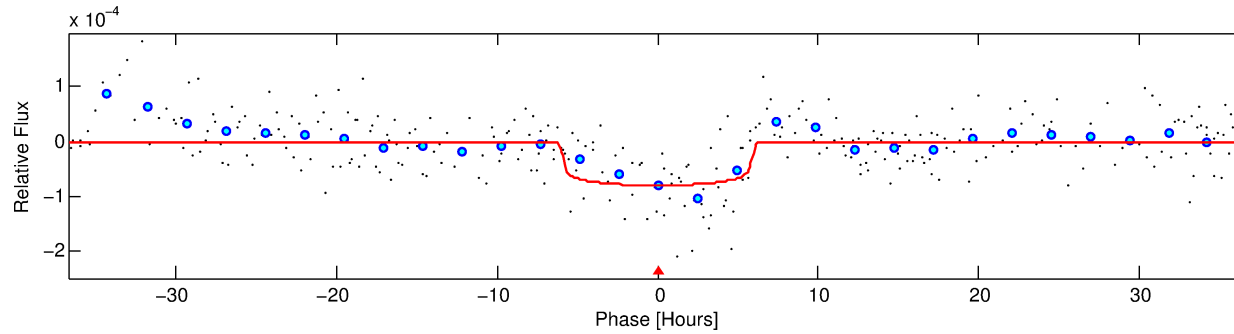
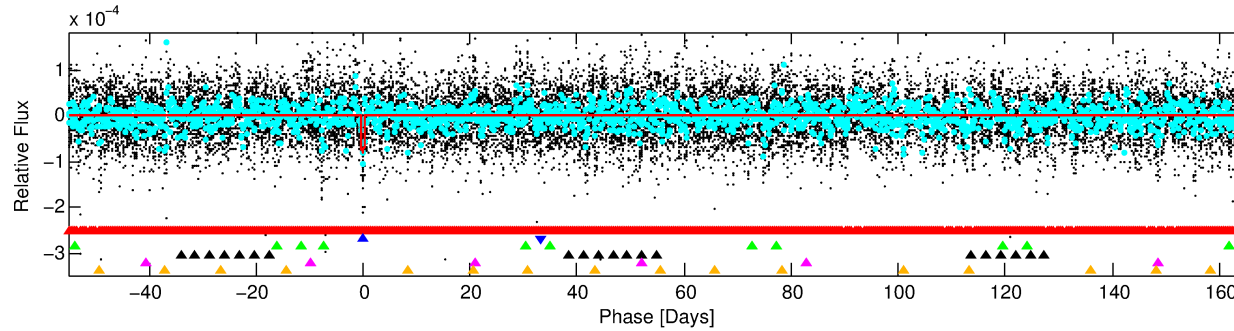
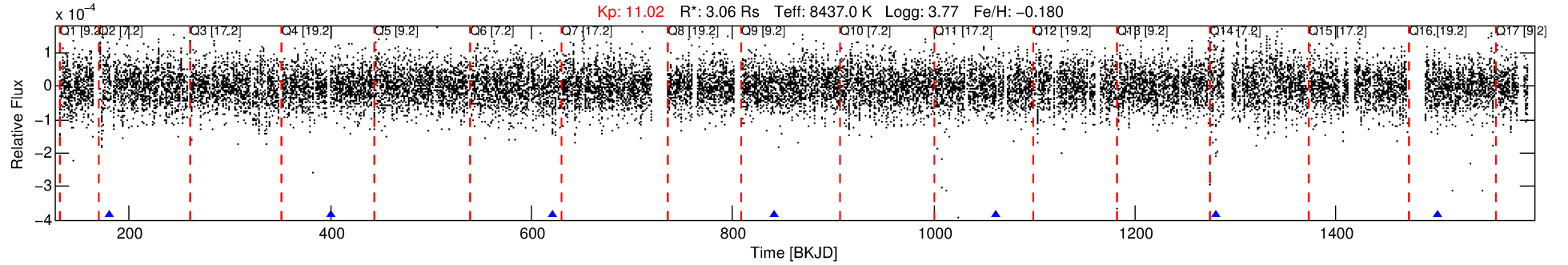
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006119407-02

No Significant Match Found

DV One-Page Summary

KIC: 6119407 Candidate: 2 of 6 Period: 220.098 d



DV Fit Results:

Period = 220.09849 [0.00442] d
Epoch = 180.6870 [0.0156] BKJD
Rp/R* = 0.0093 [0.0021]
a/R* = 74.06 [95.48]
b = 0.85 [0.41]
Seff = 52.20 [25.23]
Teq = 685 [83] K
Rp = 3.09 [1.22] Re
a = 0.9015 [0.2756] AU
Ag = 2210.47 [1598.14] [1.38 σ]
Teffp = 7266 [982] K [6.68 σ]

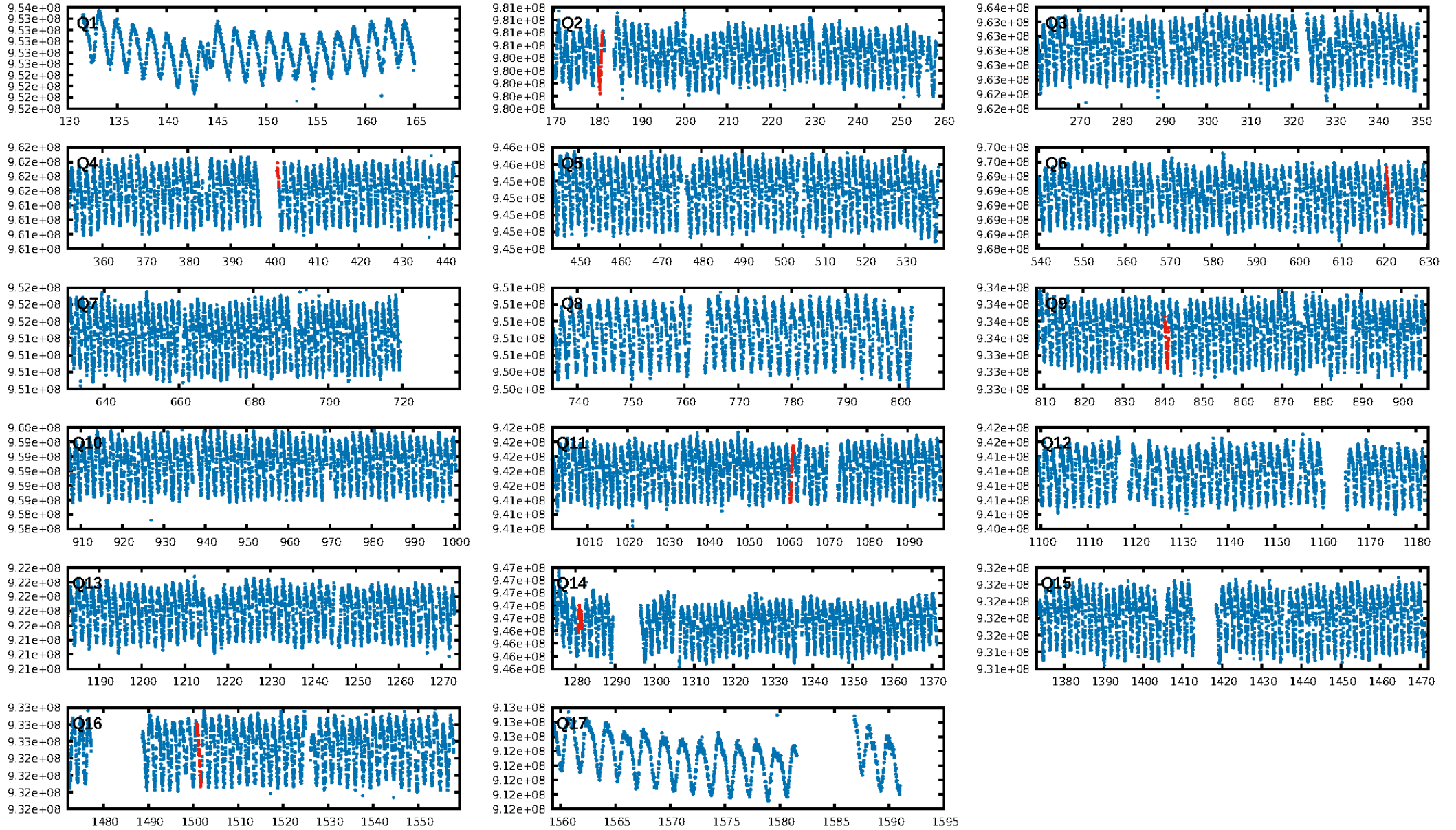
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [140.42 σ]
LongPeriod-sig: 100.0% [56.31 σ]
ModelChiSquare2-sig: 1.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.57e-12
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.1079
Centroid-sig: 0.3%
Centroid-so: 3.323 arcsec [1.96 σ]
OotOffset-rm: 0.996 arcsec [0.50 σ]
KicOffset-rm: 0.811 arcsec [0.38 σ]
OotOffset-st: 3/1/1/1 [6]
KicOffset-st: 3/1/1/1 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.00 [0/6]

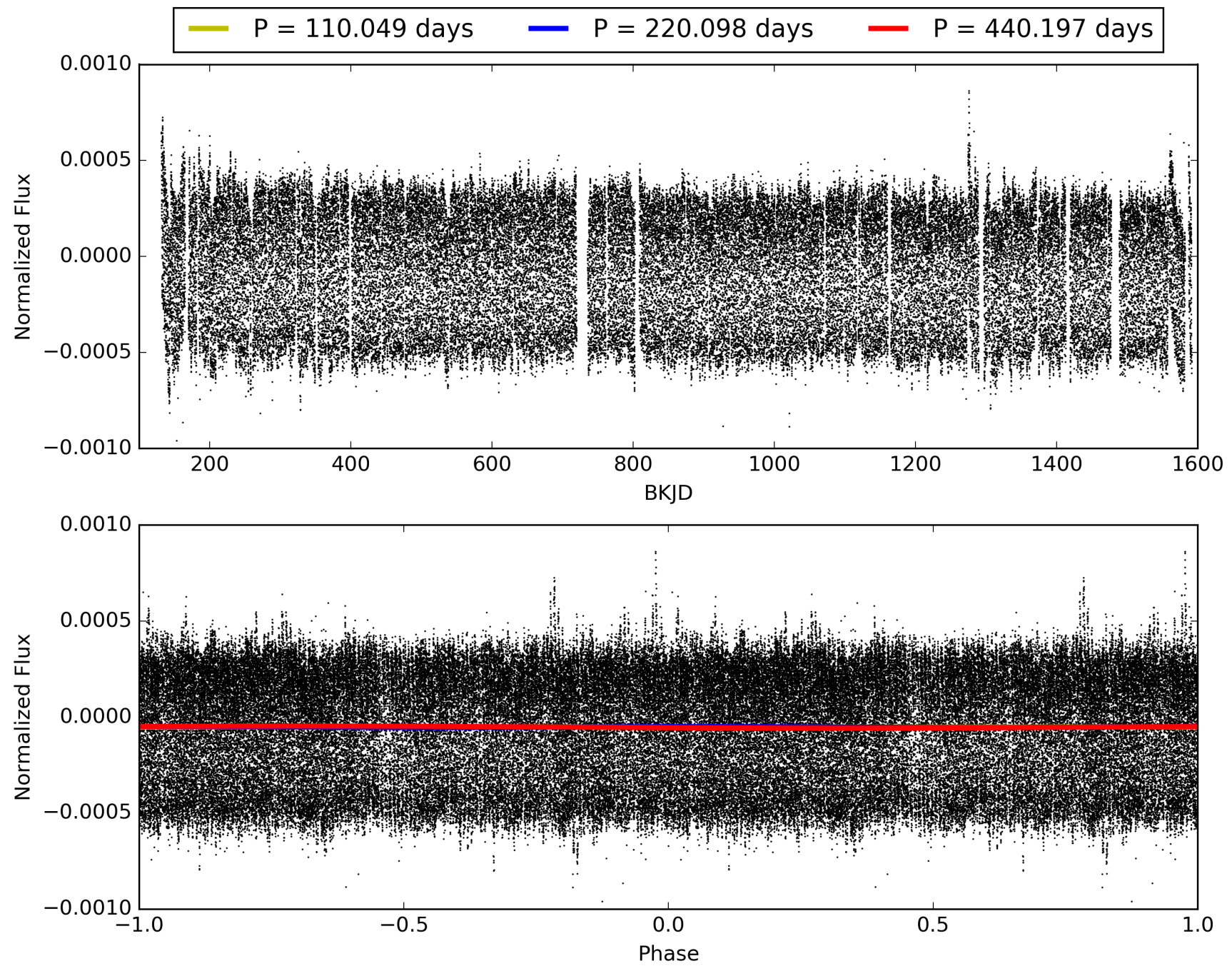
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:17:03 Z

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

TCE 006119407-02, PDC Light Curves

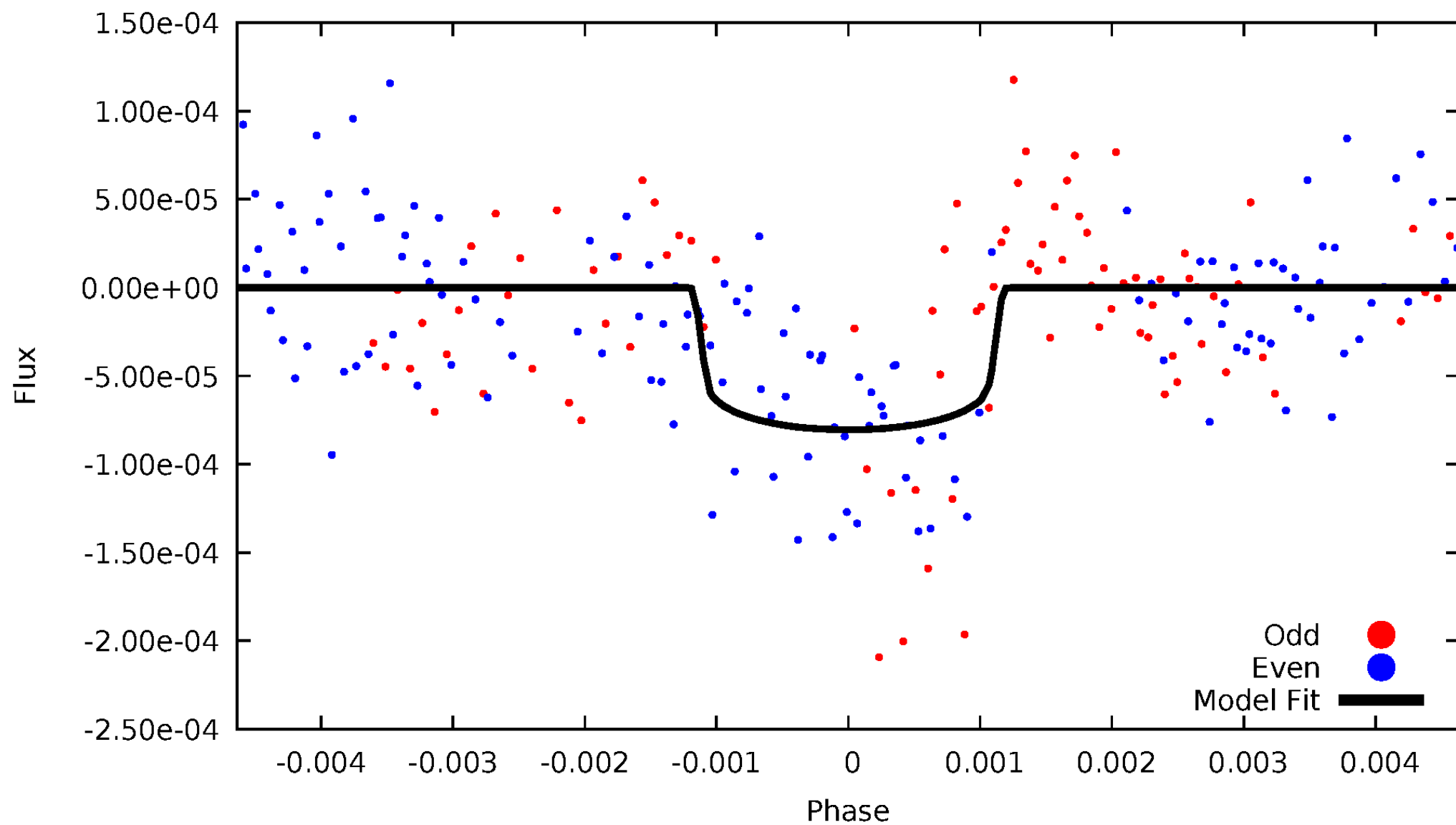


TCE 006119407-02



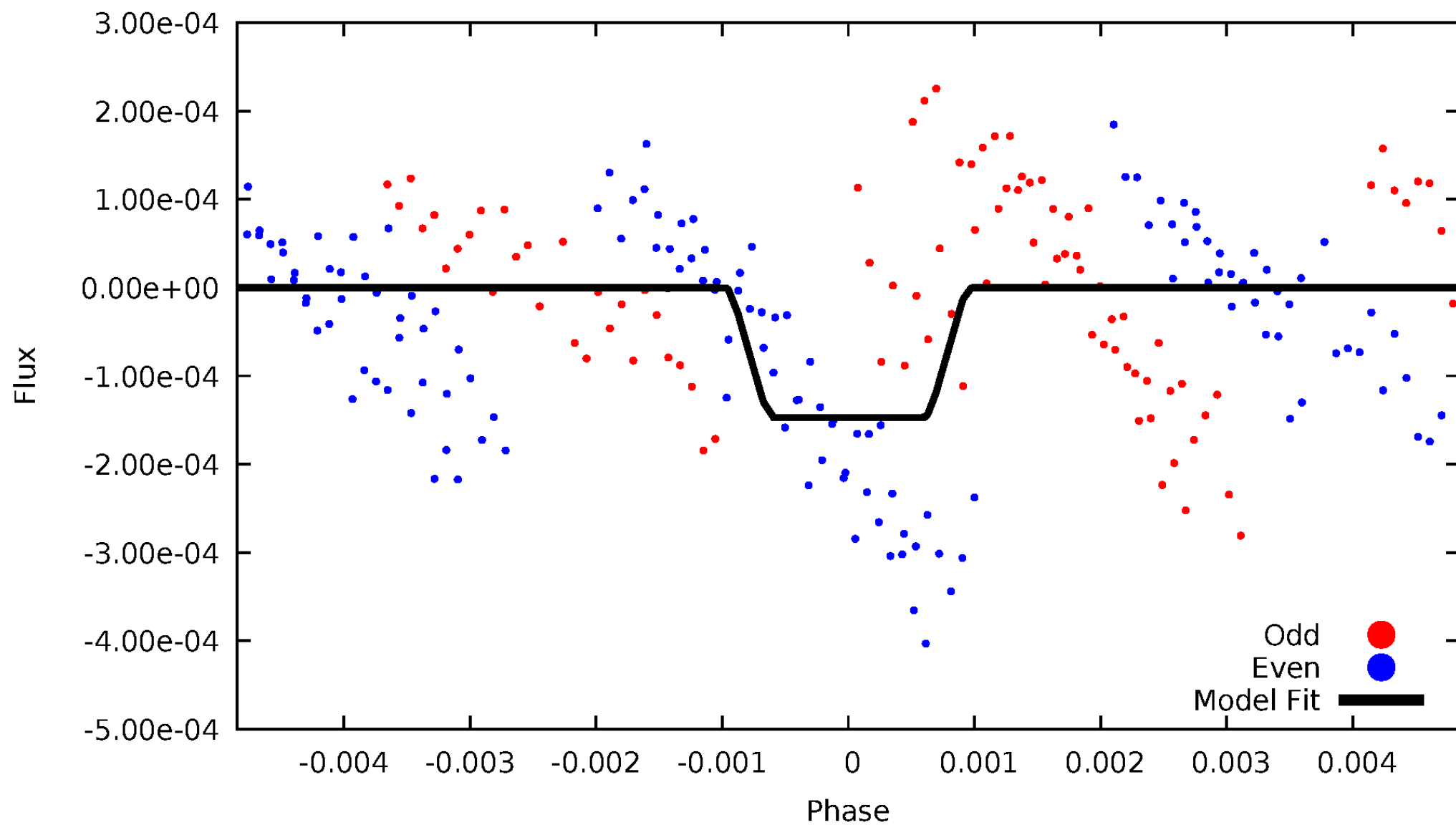
DV Odd/Even

TCE 006119407-02



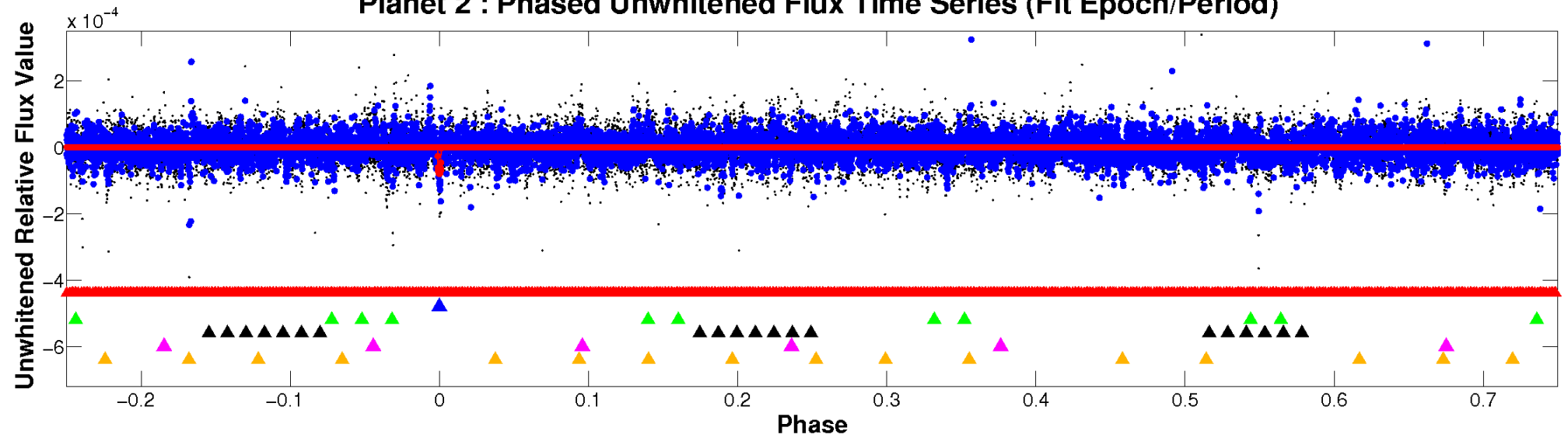
ALT Odd/Even

TCE 006119407-02

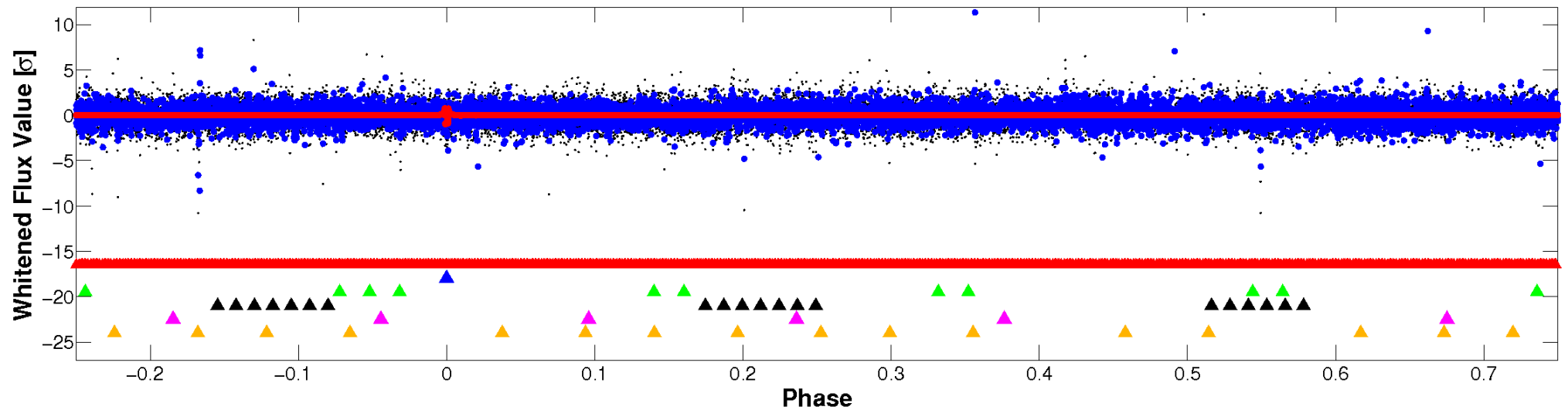


Non-Whitened Vs. Whitened Light Curve

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

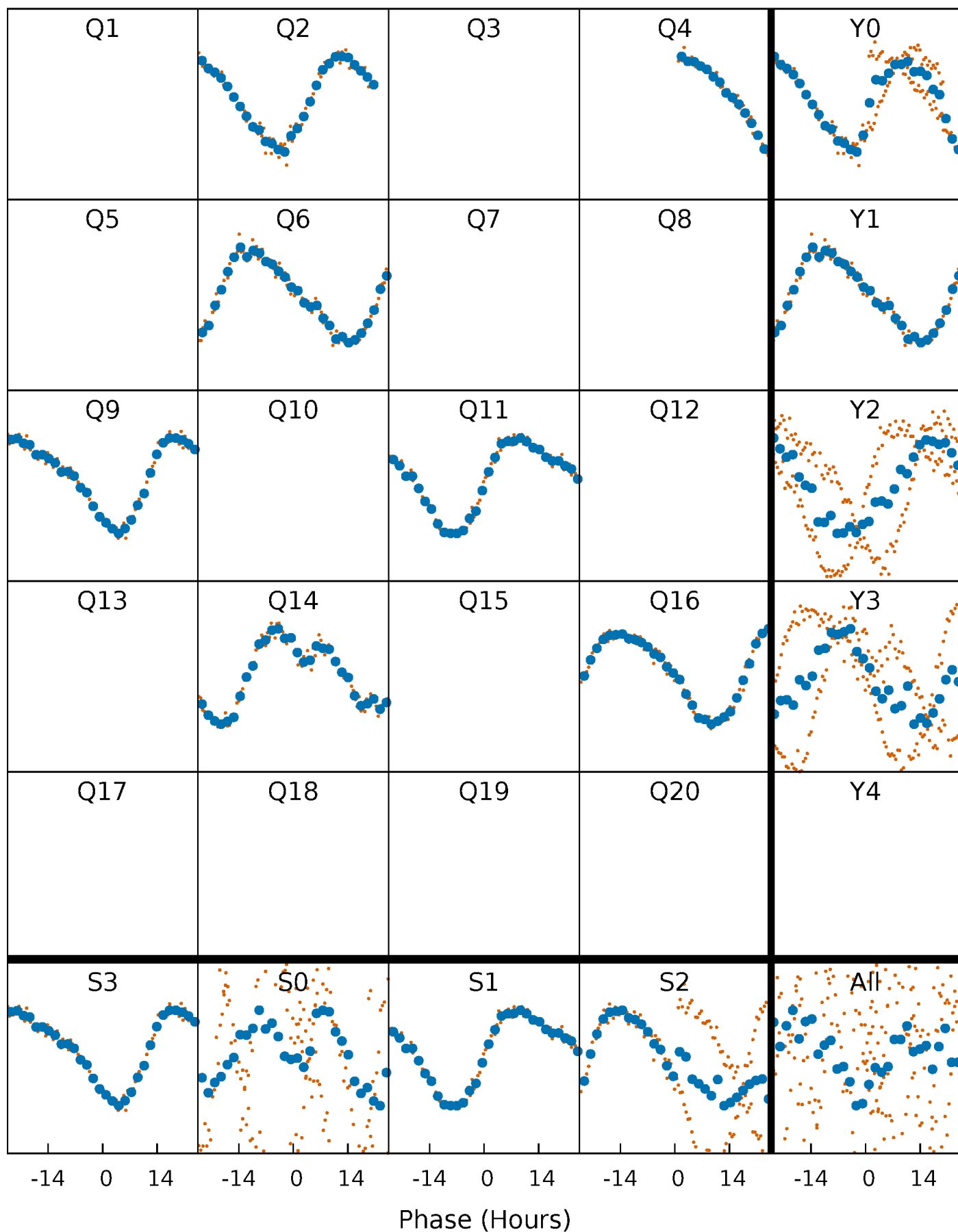


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



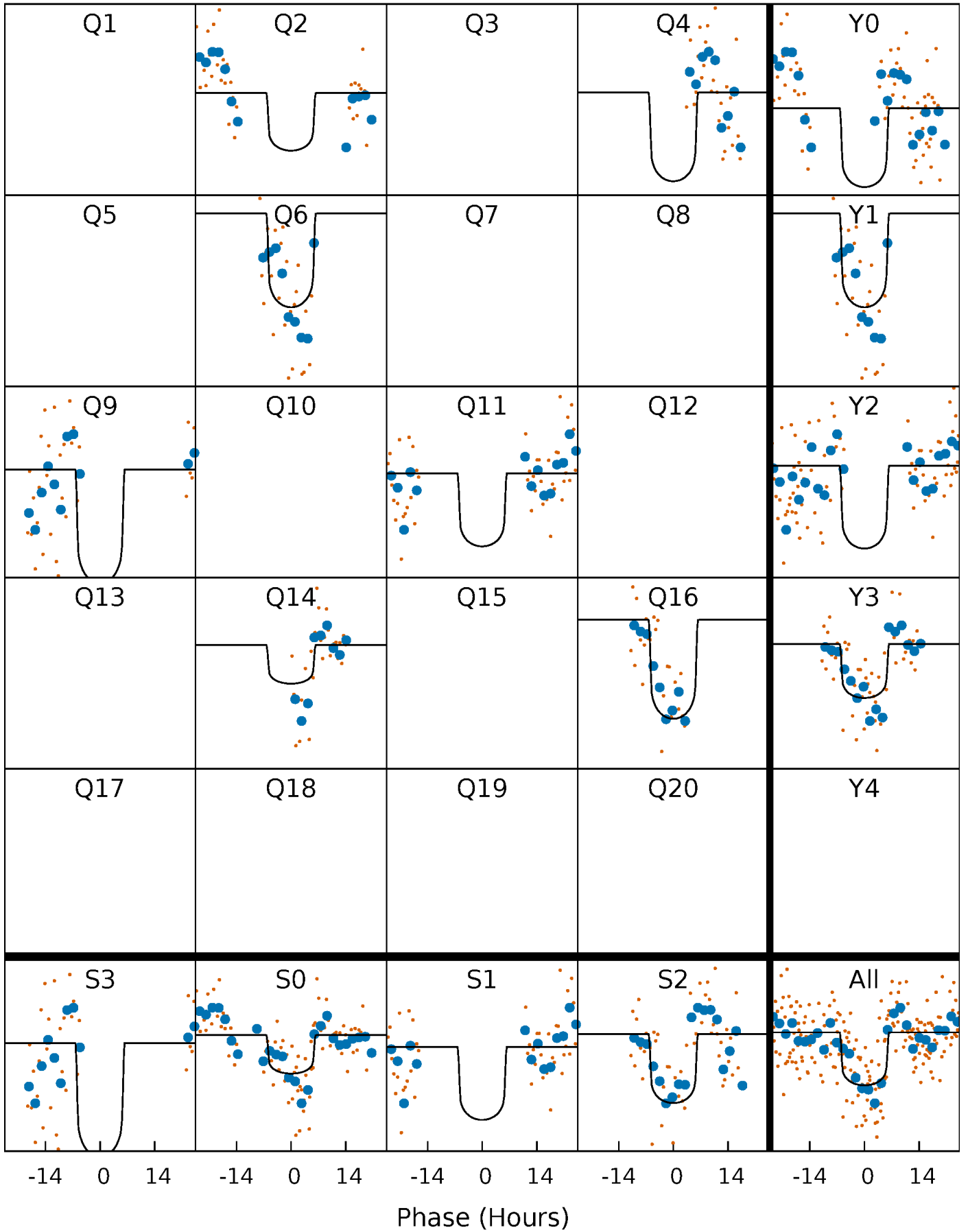
PDC Quarter-Phased Transit Curves

TCE 006119407-02 P=220.098486 Days $T_0=180.687050$ (BKJD)



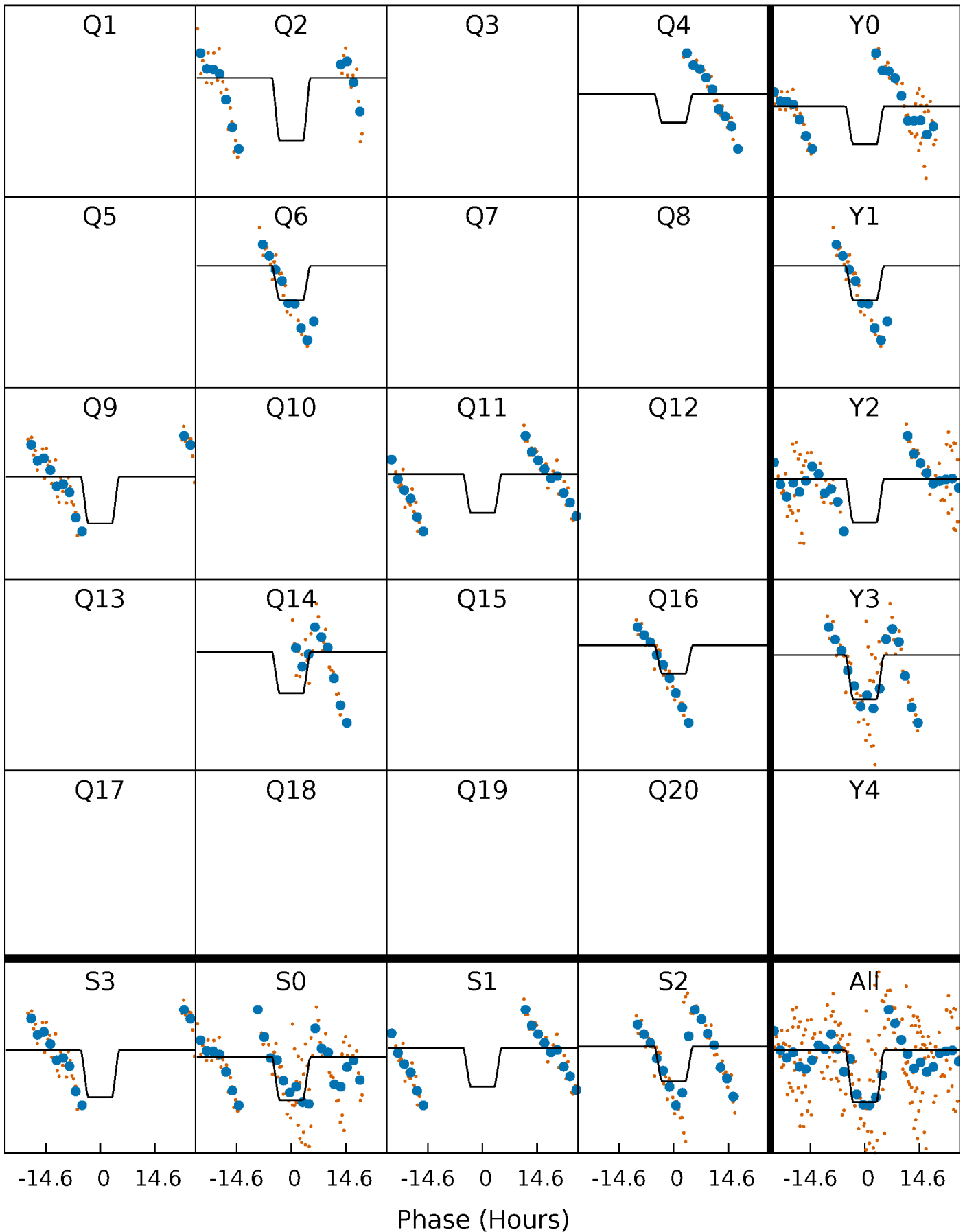
DV Quarter-Phased Transit Curves

TCE 006119407-02 P=220.098486 Days $T_0=180.687050$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

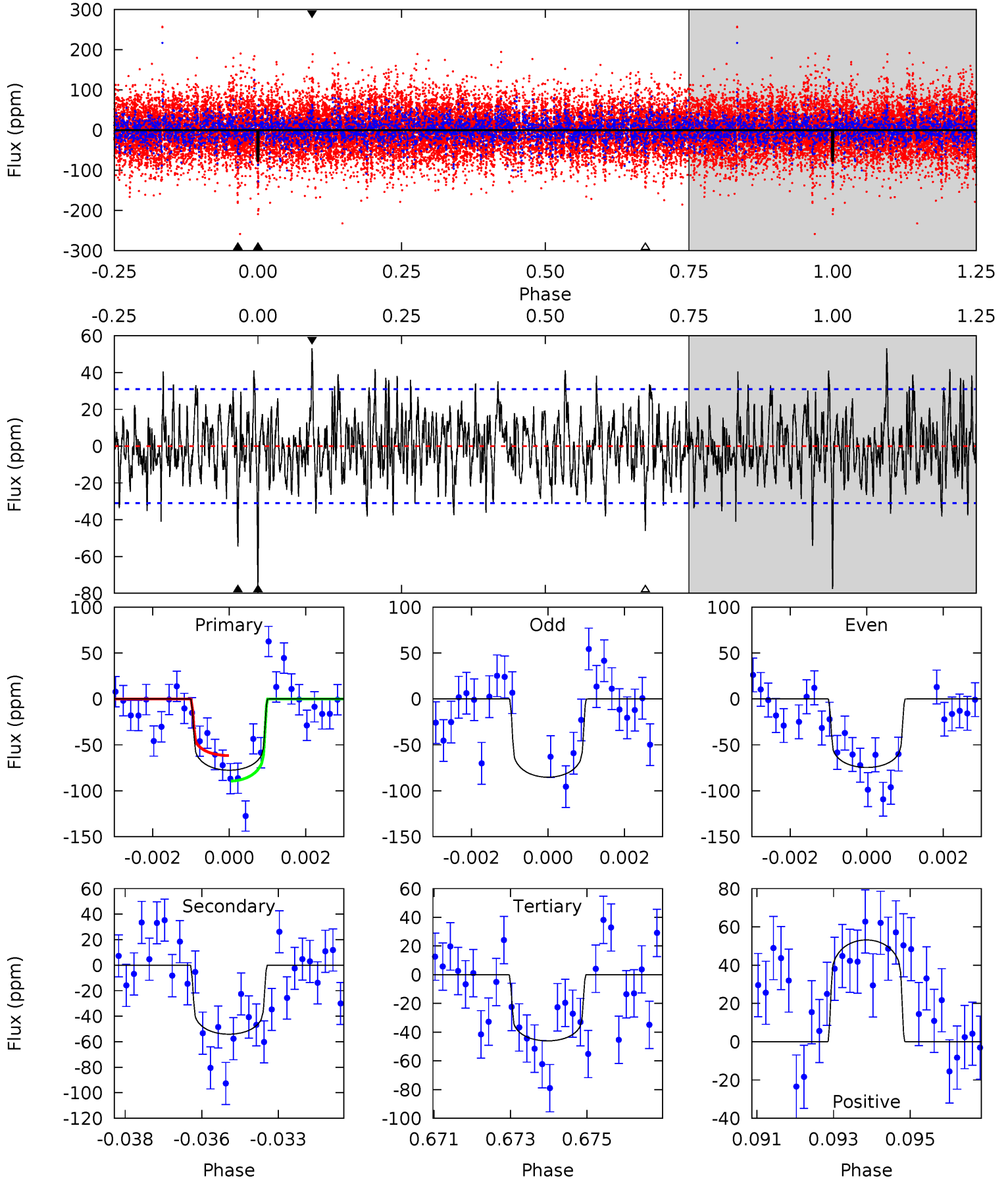
TCE 006119407-02 P=220.089875 Days $T_0=180.723853$ (BKJD)



DV Model-Shift Uniqueness Test

006119407-02, $P = 220.098486$ Days, $E = 180.687050$ Days

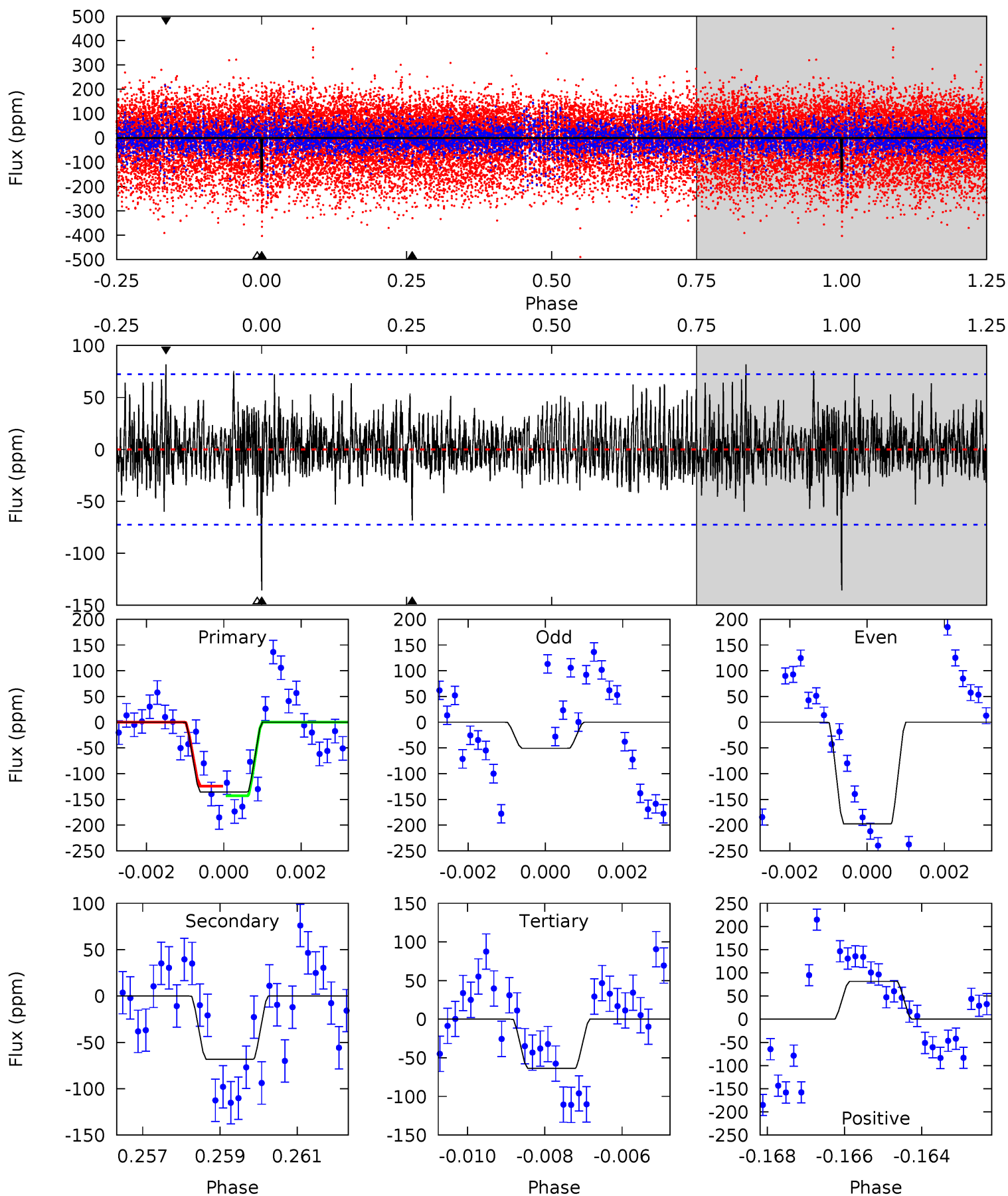
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	9.24	7.87	9.08	5.29	3.04	2.42	5.38	4.17	1.37	0.16	0.84	0.75	0.41	2.35



Alt Model-Shift Uniqueness Test

006119407-02, P = 220.089875 Days, E = 180.723853 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.98	5.03	4.69	6.01	5.33	3.10	1.42	5.29	3.97	0.33	-0.98	5.00	0.48	0.38	0.69



Stellar Parameters For KIC 006119407

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8437^{+67}_{-84}	$3.772^{+0.280}_{-0.052}$	$-0.180^{+0.250}_{-0.200}$	$3.057^{+0.427}_{-0.997}$	$2.017^{+0.299}_{-0.245}$	$0.099^{+0.188}_{-0.023}$
	+1%/-1%	+7%/-1%	+139%/-111%	+14%/-33%	+15%/-12%	+189%/-23%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 006119407-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-54 ± 6	$2.88^{+0.80}_{-0.76}$	937^{+35}_{-85}	7298^{+1222}_{-853}	2959^{+2593}_{-1133}
Alt.	-68 ± 14	$3.77^{+0.87}_{-0.83}$	930^{+41}_{-78}	6723^{+812}_{-626}	2179^{+1394}_{-771}

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

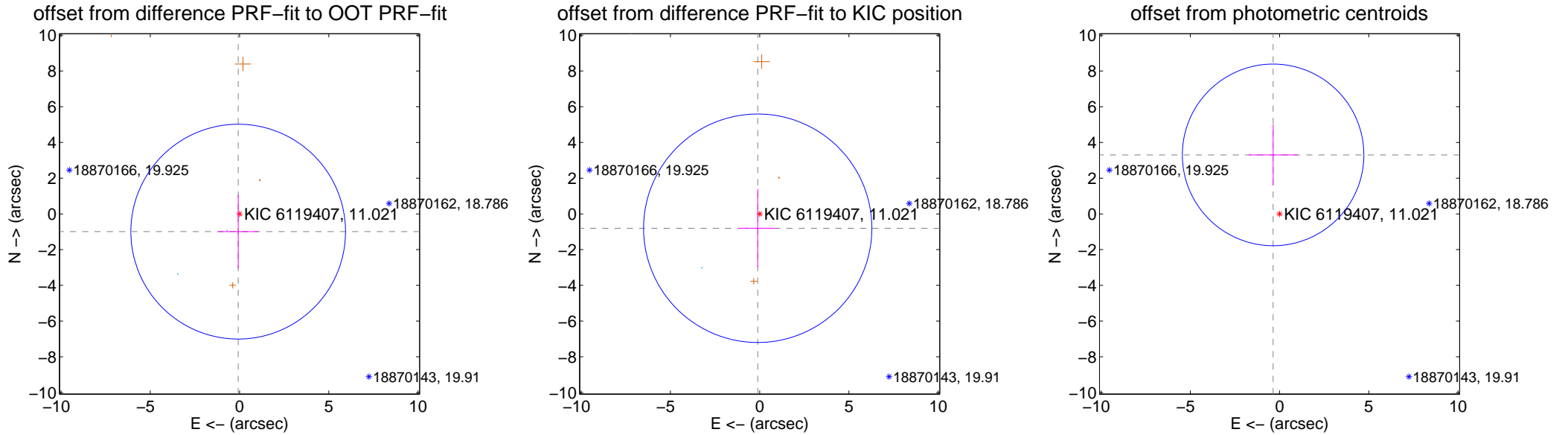
DV Centroid Data

Supplemental centroid analysis for 006119407-02. **Kepler magnitude: 11.02.** Transit SNR 7.27

There are 2 quarters with good PRF difference image offsets

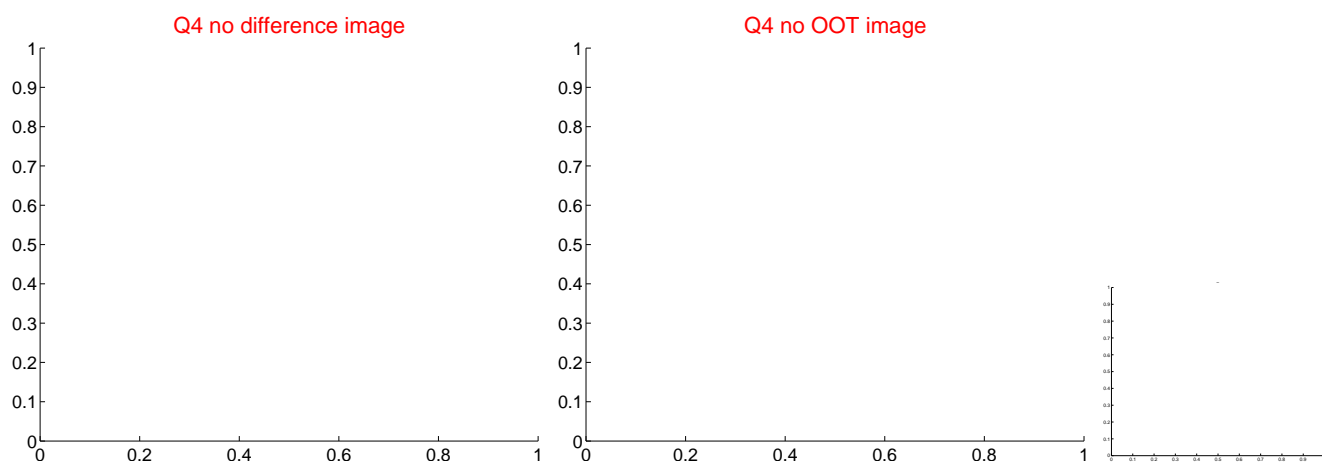
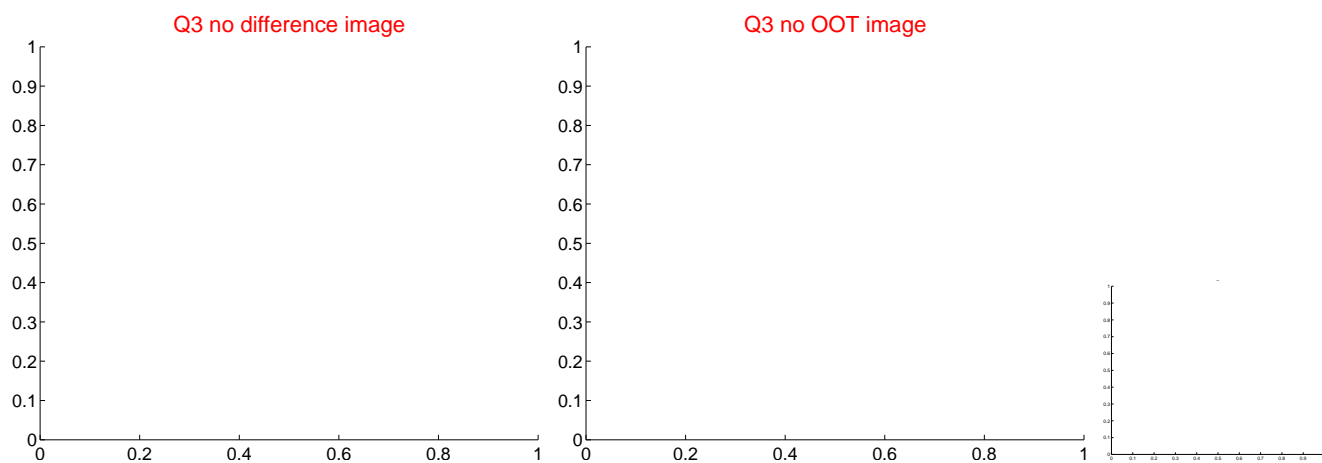
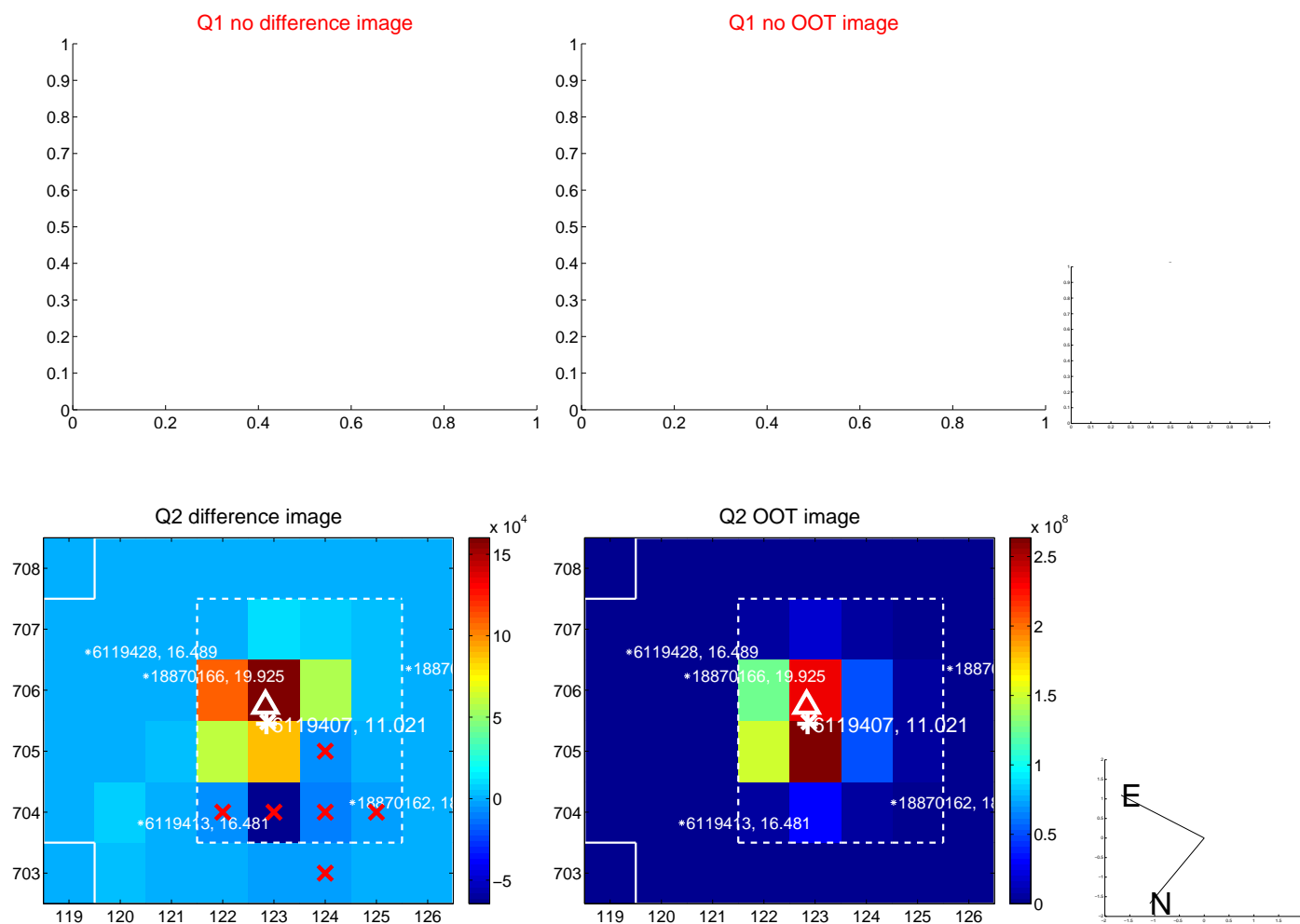
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.996 ± 2.004	0.50	0.076 ± 1.121	-0.993 ± 2.055
PRF-fit source offset from KIC position	0.811 ± 2.132	0.38	0.110 ± 1.074	-0.804 ± 2.198
photometric centroid source offset	3.32 ± 1.69	1.96	0.36 ± 1.37	3.30 ± 1.70

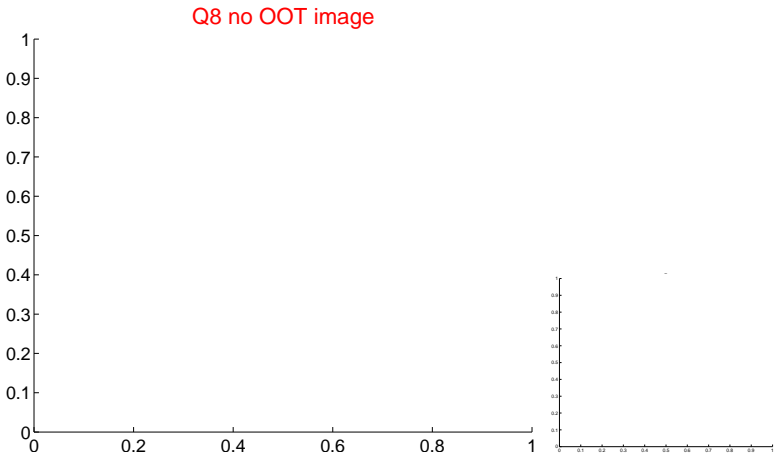
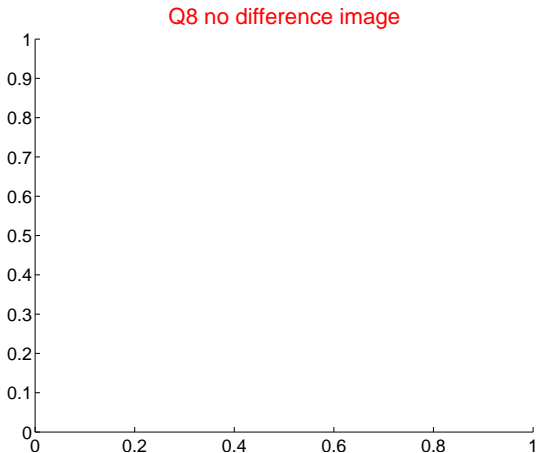
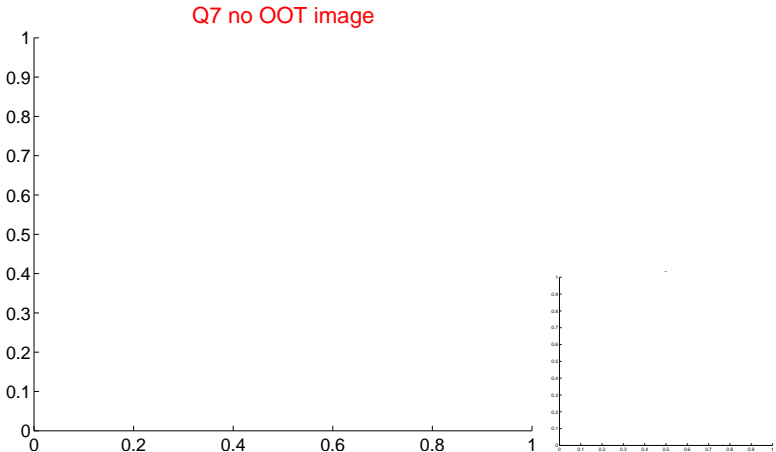
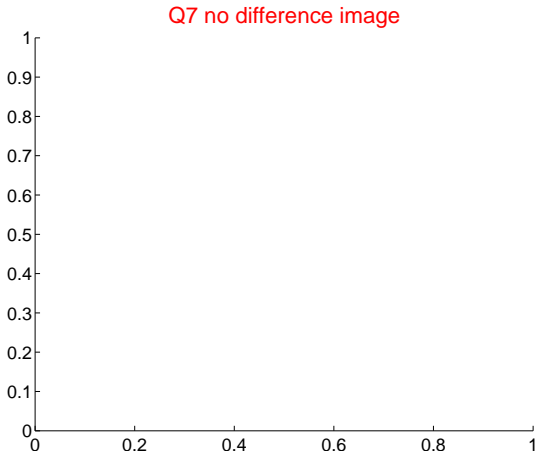
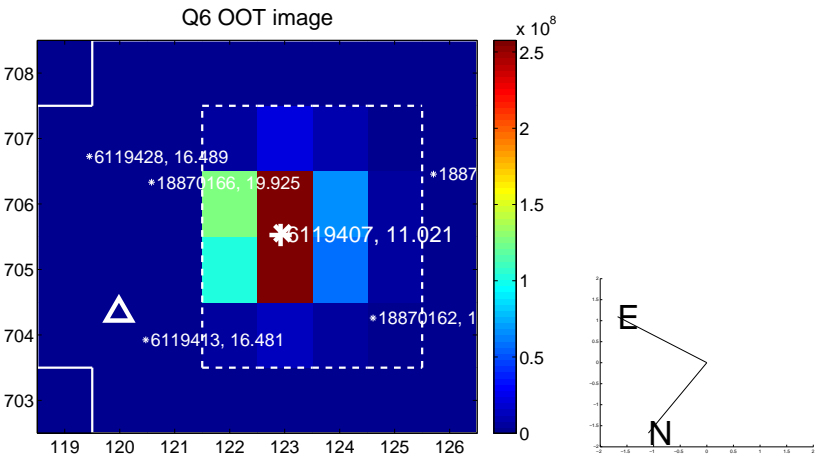
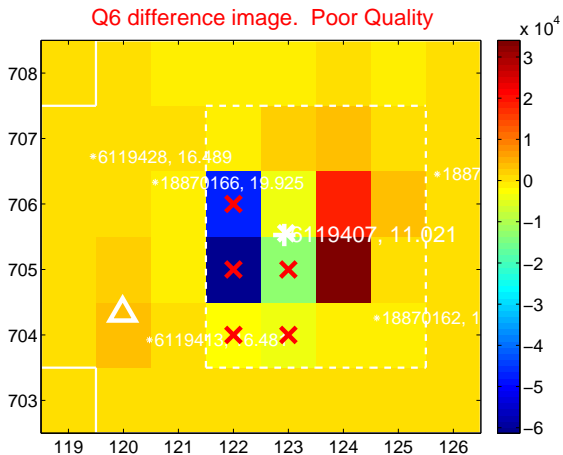
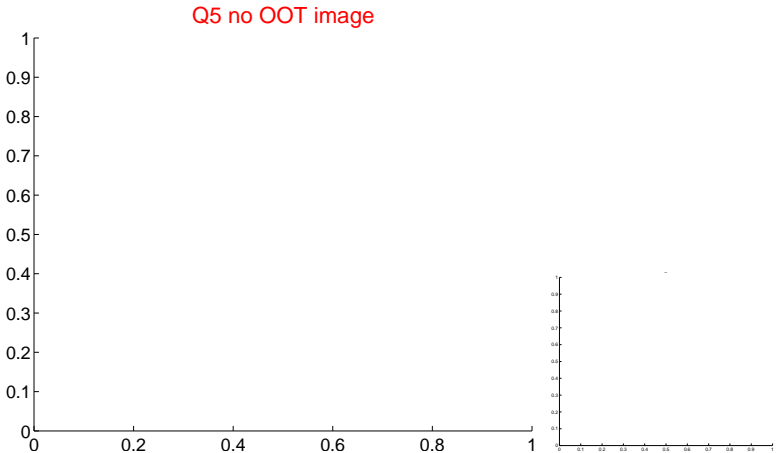
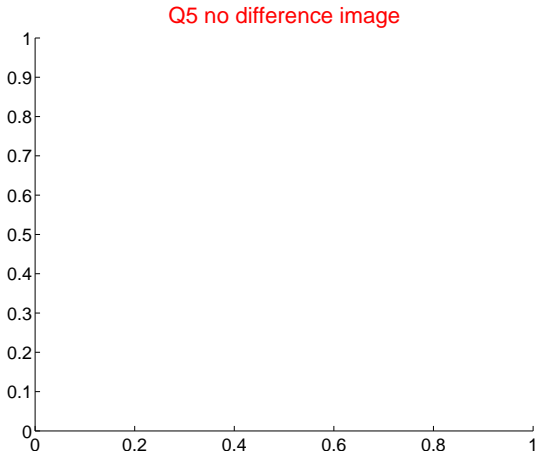


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

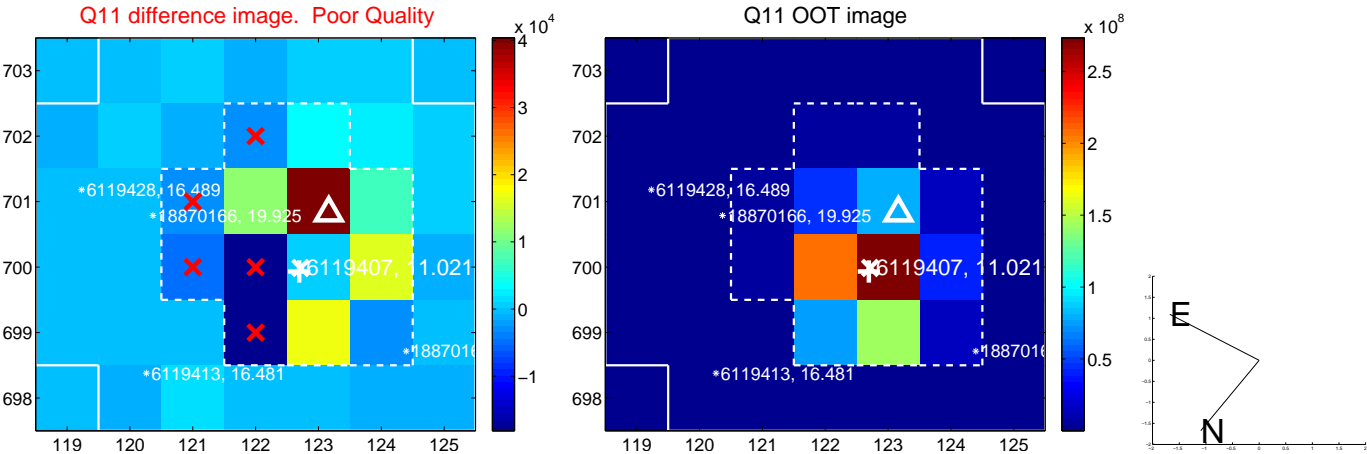
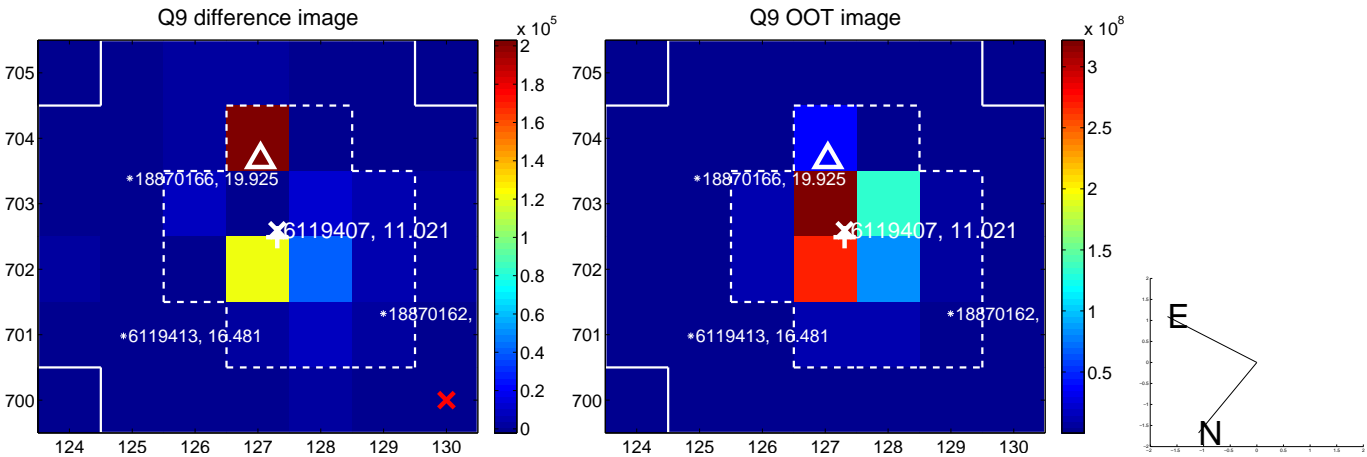
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



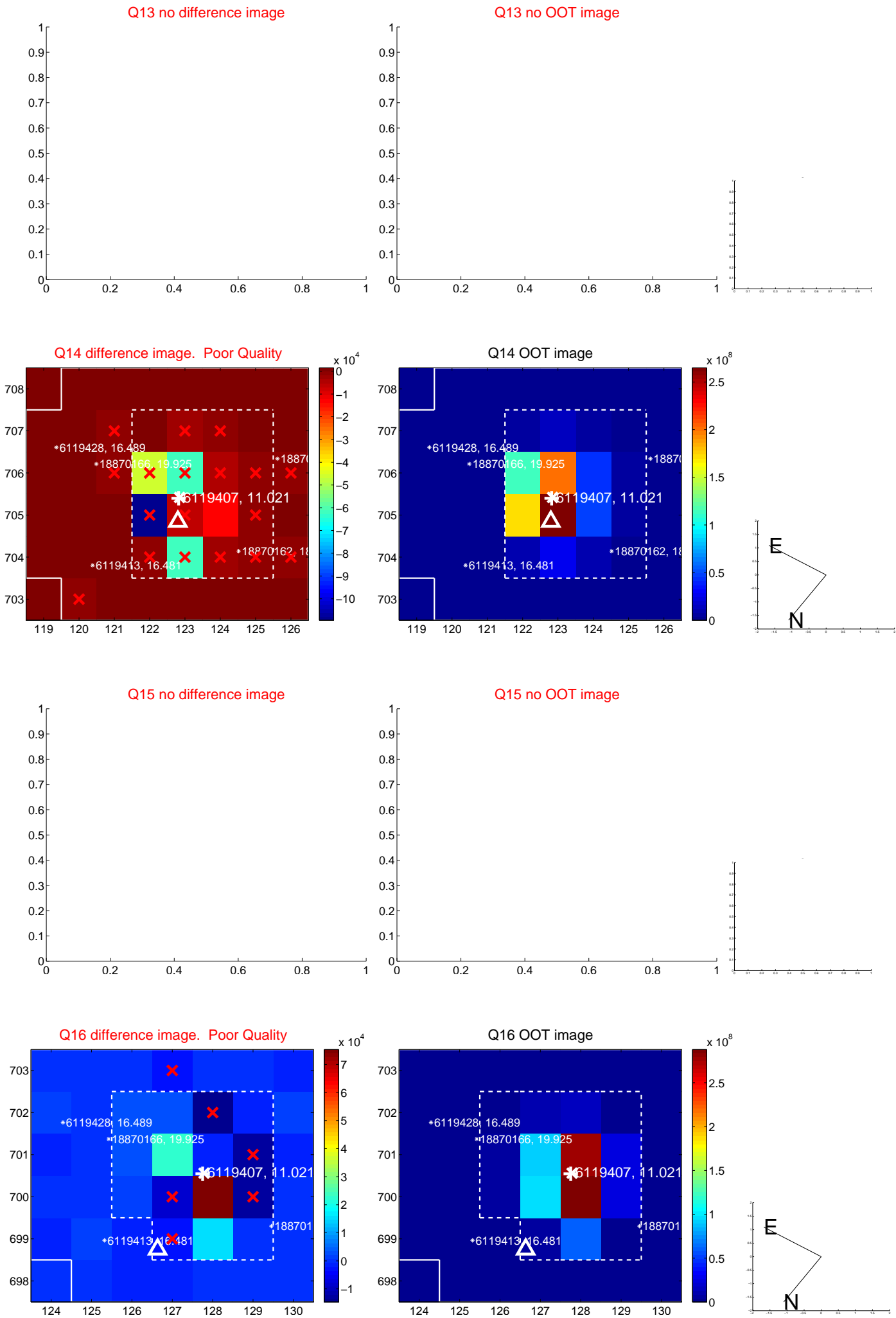
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



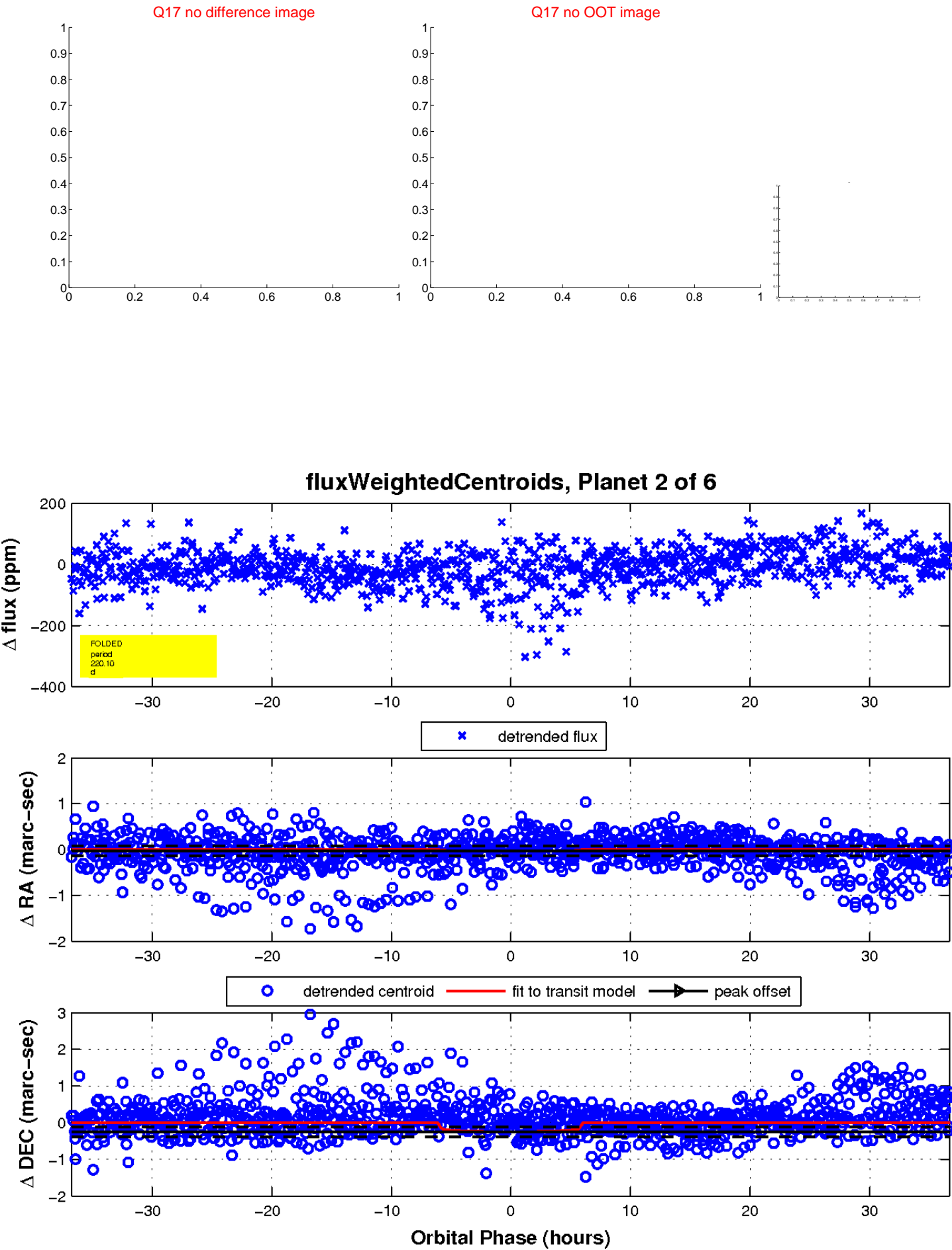
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

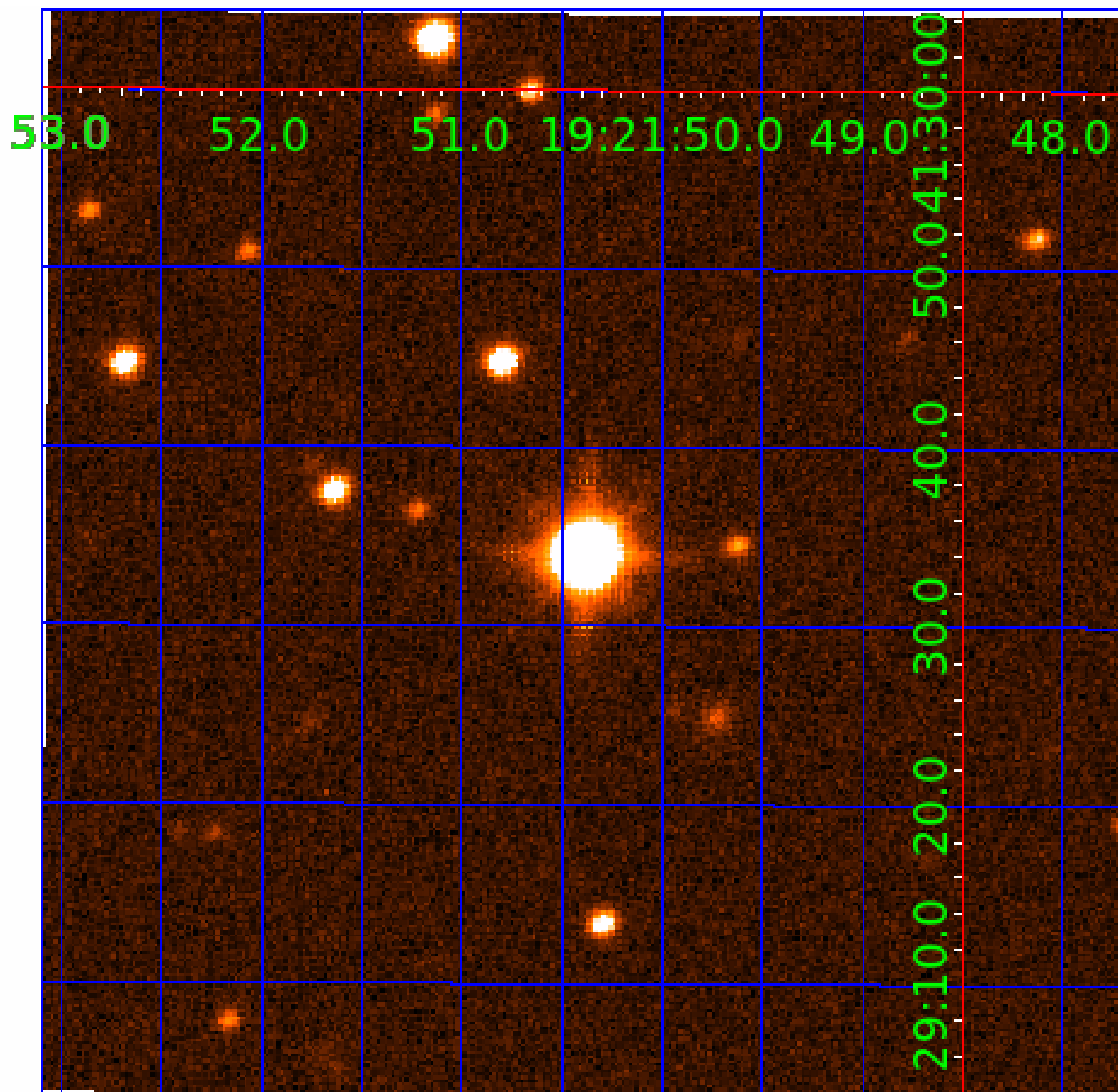


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006119407

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})
006119407-01	OBS	No	1.715915	132.665341	9.0	8.883	14.6	11.8	3.06	8437	0.93	33768.83
006119407-02	OBS	No	220.098486	180.687050	80.5	12.248	10.2	7.3	3.06	8437	3.09	52.20
006119407-03	OBS	No	131.168619	173.709701	63.6	9.000	9.3	-1.0	3.06	8437	2.47	104.09
006119407-04	OBS	No	72.455056	163.076523	30.3	11.153	8.6	4.3	3.06	8437	1.88	229.66
006119407-05	OBS	No	250.966691	329.292489	31.1	4.800	7.5	2.7	3.06	8437	1.97	43.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006119407-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_SATURATED
006119407-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
006119407-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
006119407-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006119407-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

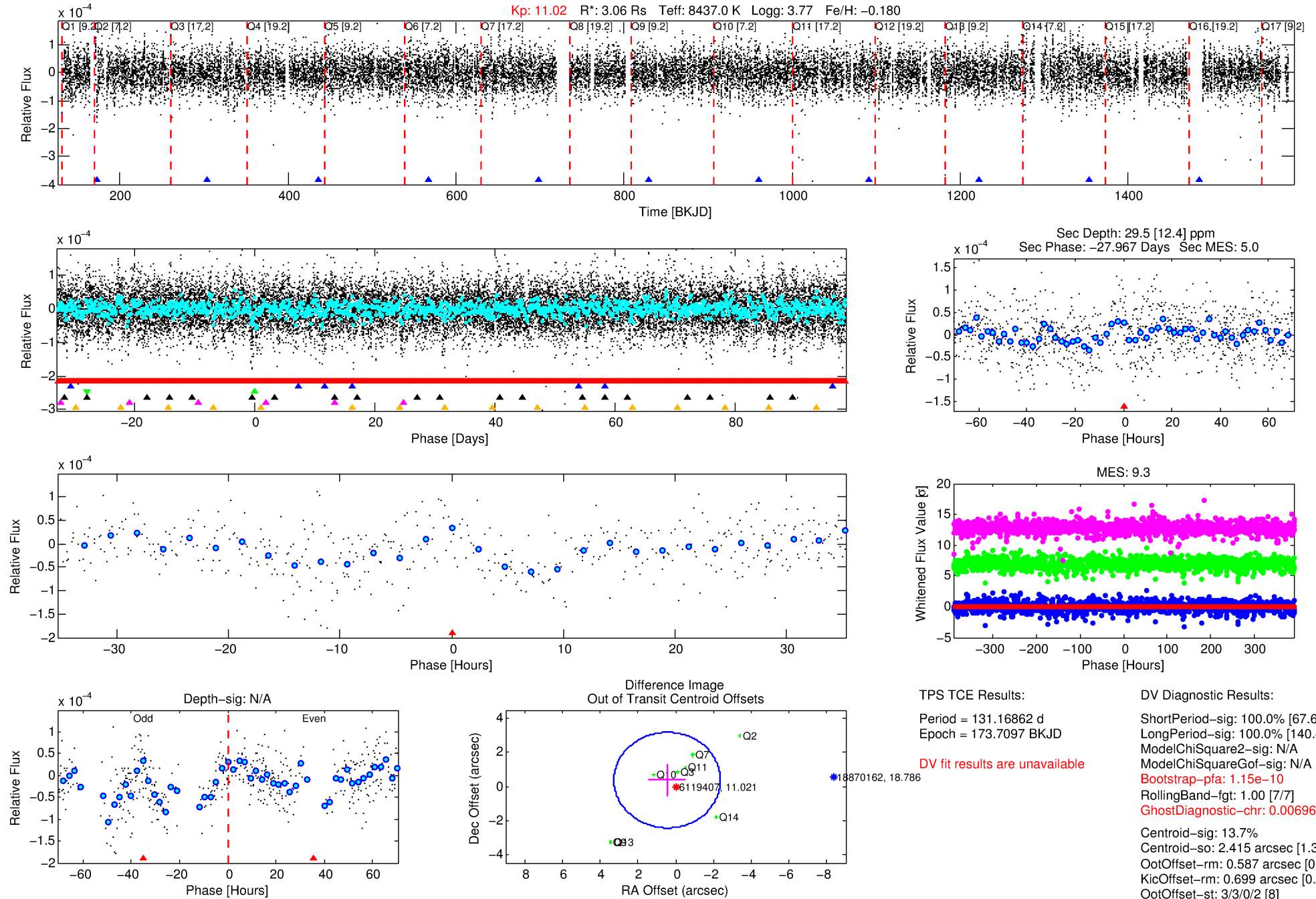
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006119407-03

No Significant Match Found

DV One-Page Summary

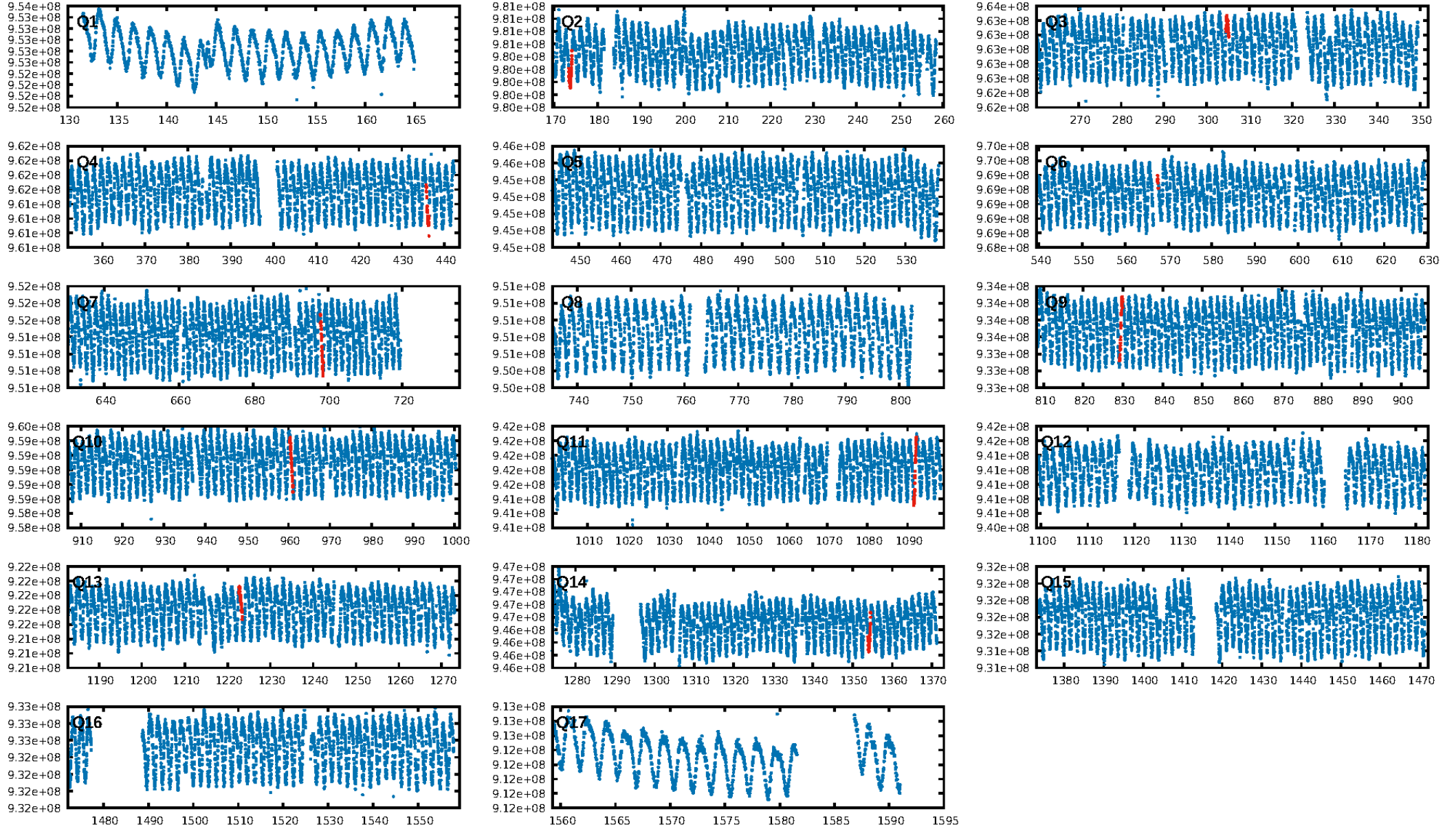
KIC: 6119407 Candidate: 3 of 6 Period: 131.169 d



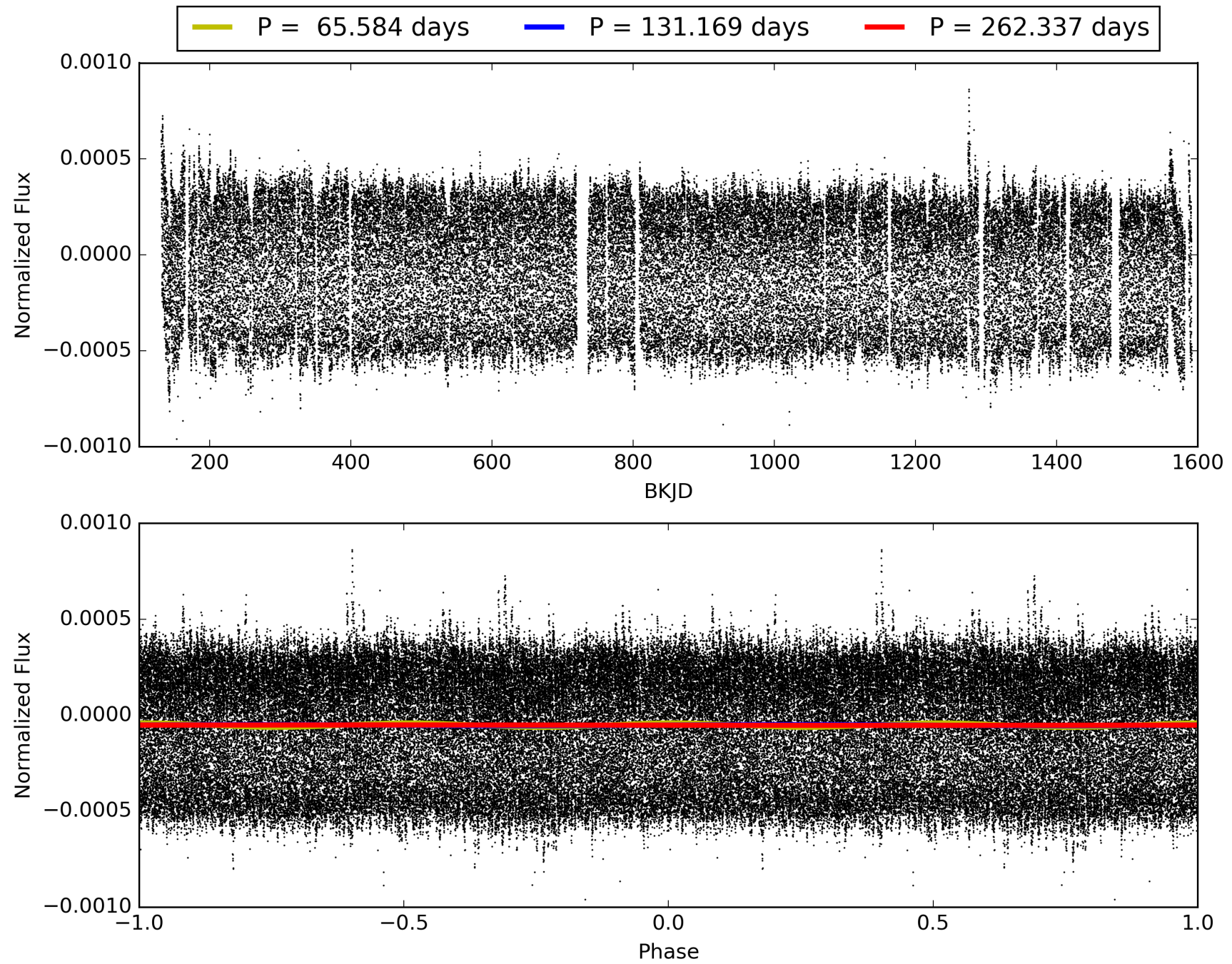
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:17:07 Z

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

TCE 006119407-03, PDC Light Curves

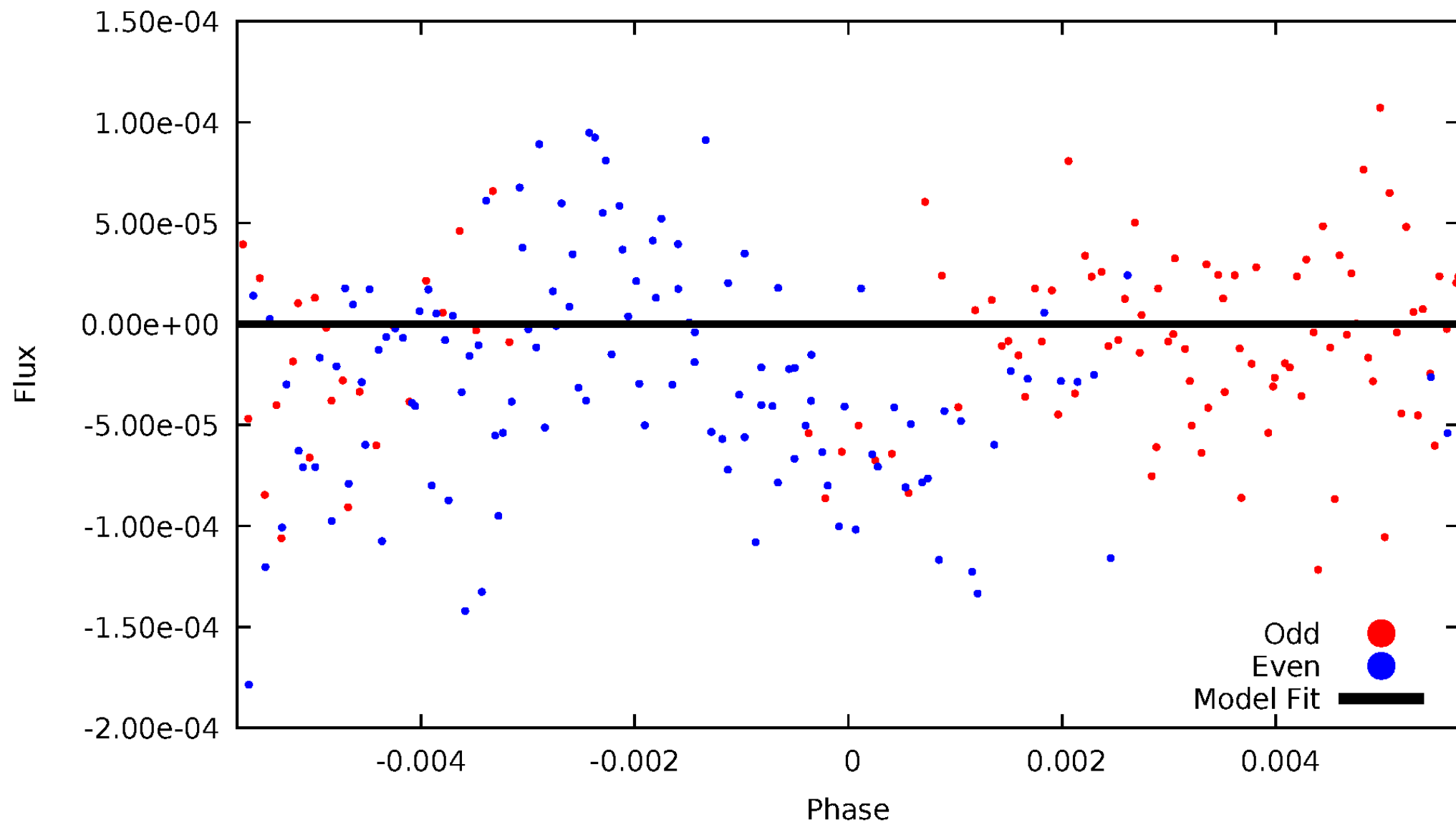


TCE 006119407-03



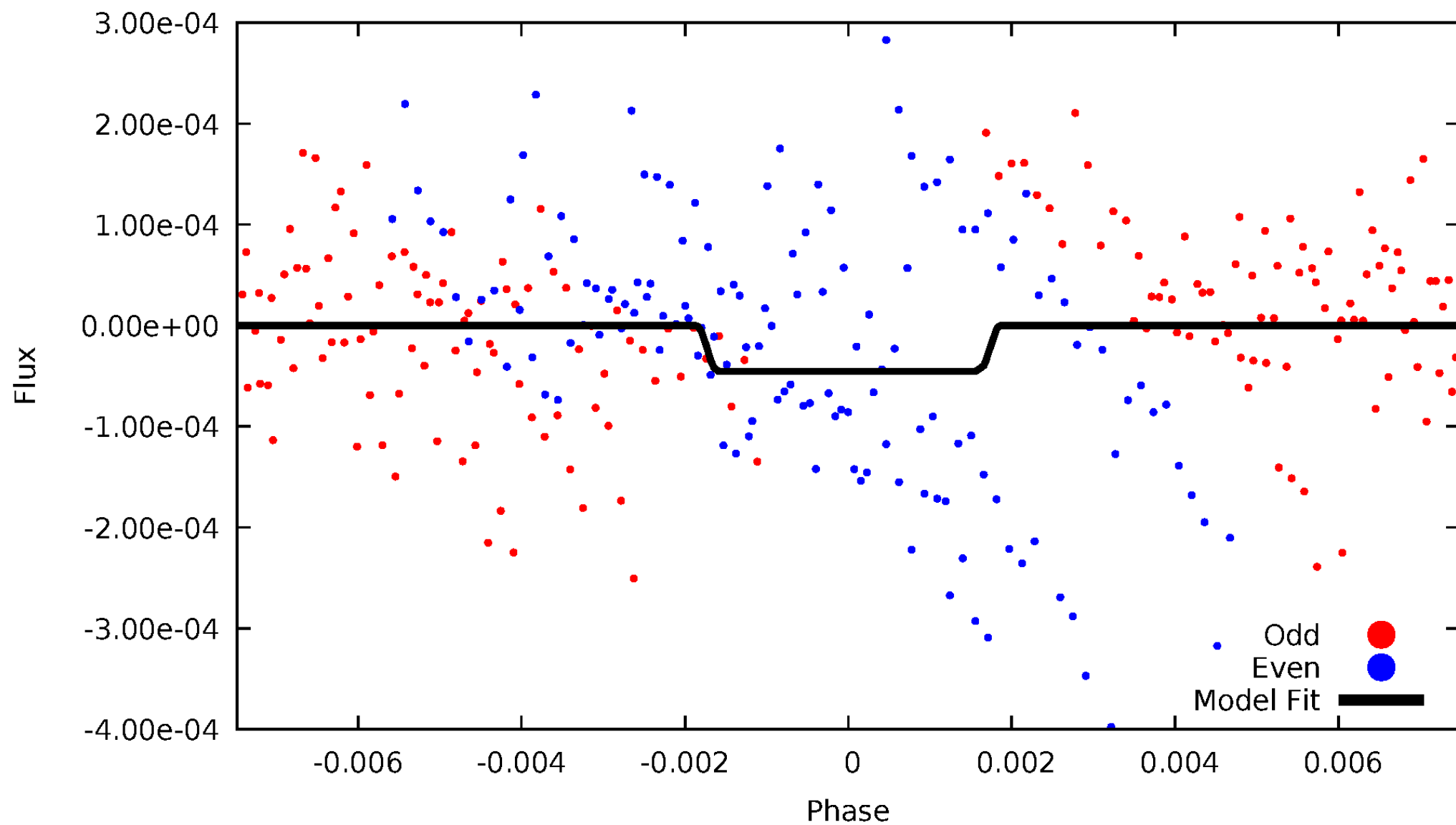
DV Odd/Even

TCE 006119407-03



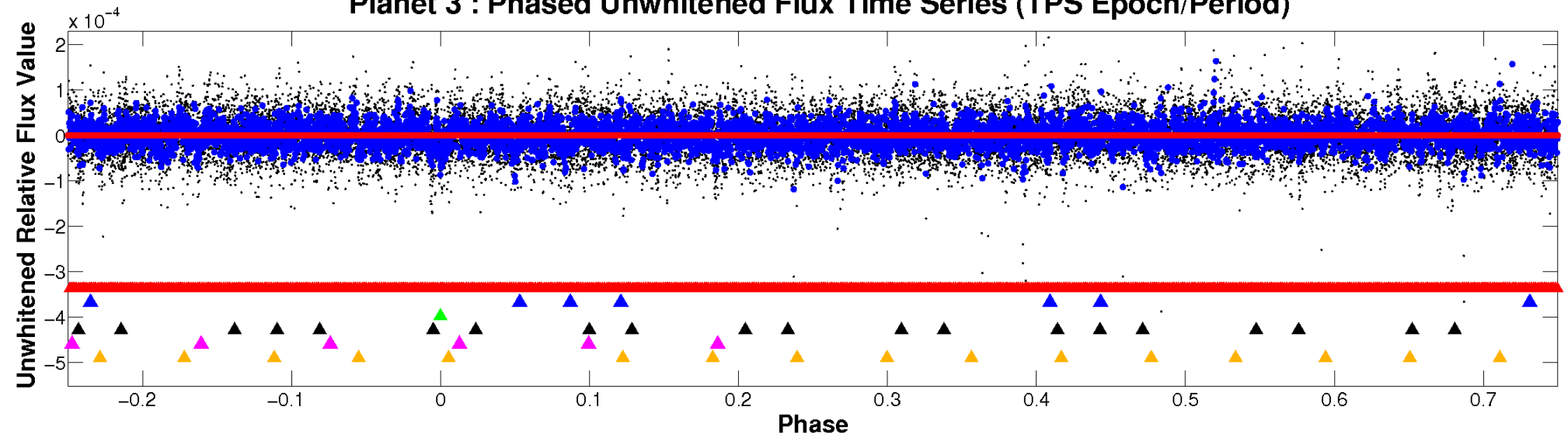
ALT Odd/Even

TCE 006119407-03

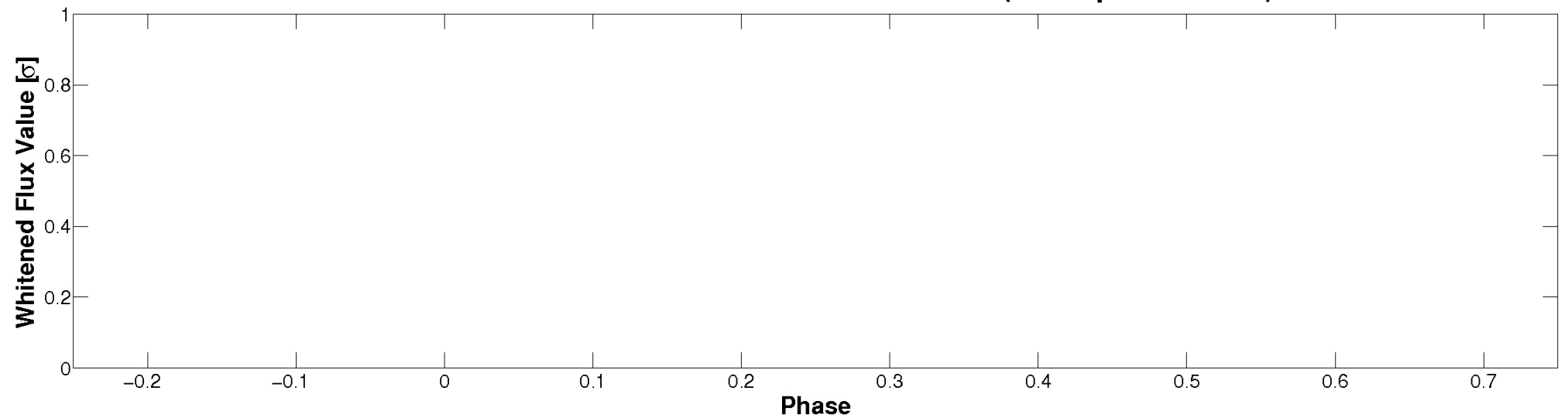


Non-Whitened Vs. Whitened Light Curve

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

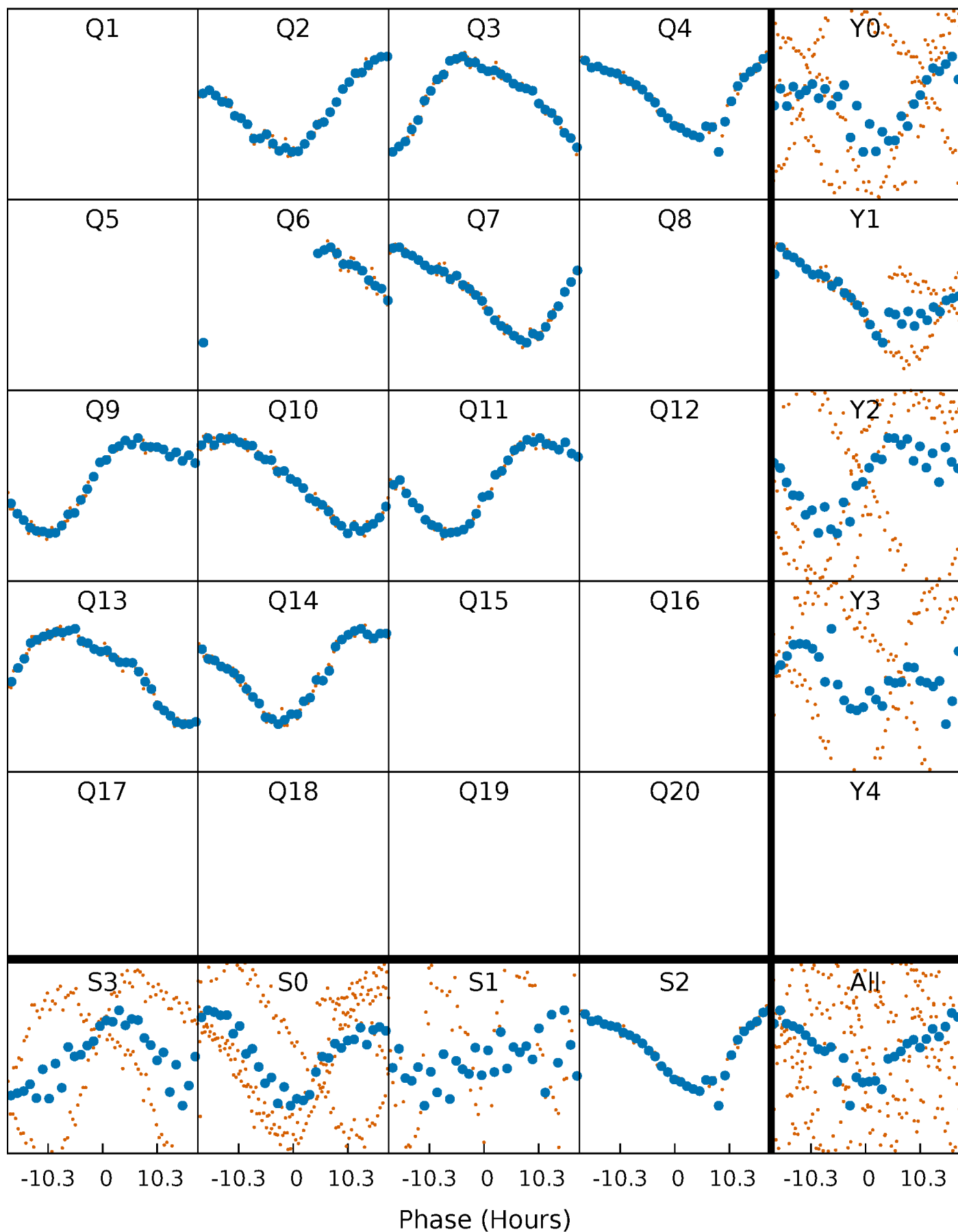


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



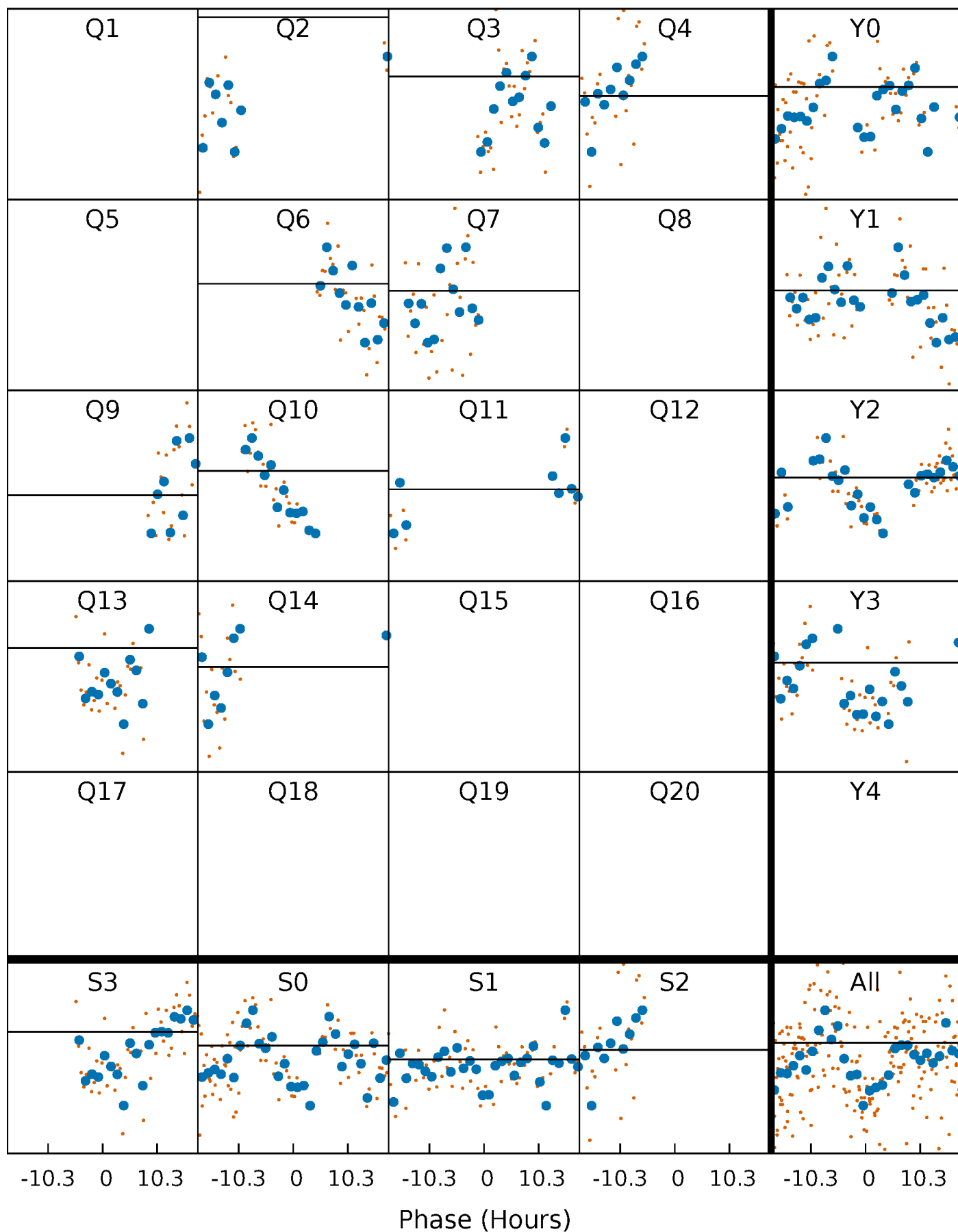
PDC Quarter-Phased Transit Curves

TCE 006119407-03 P=131.168619 Days $T_0=173.709701$ (BKJD)



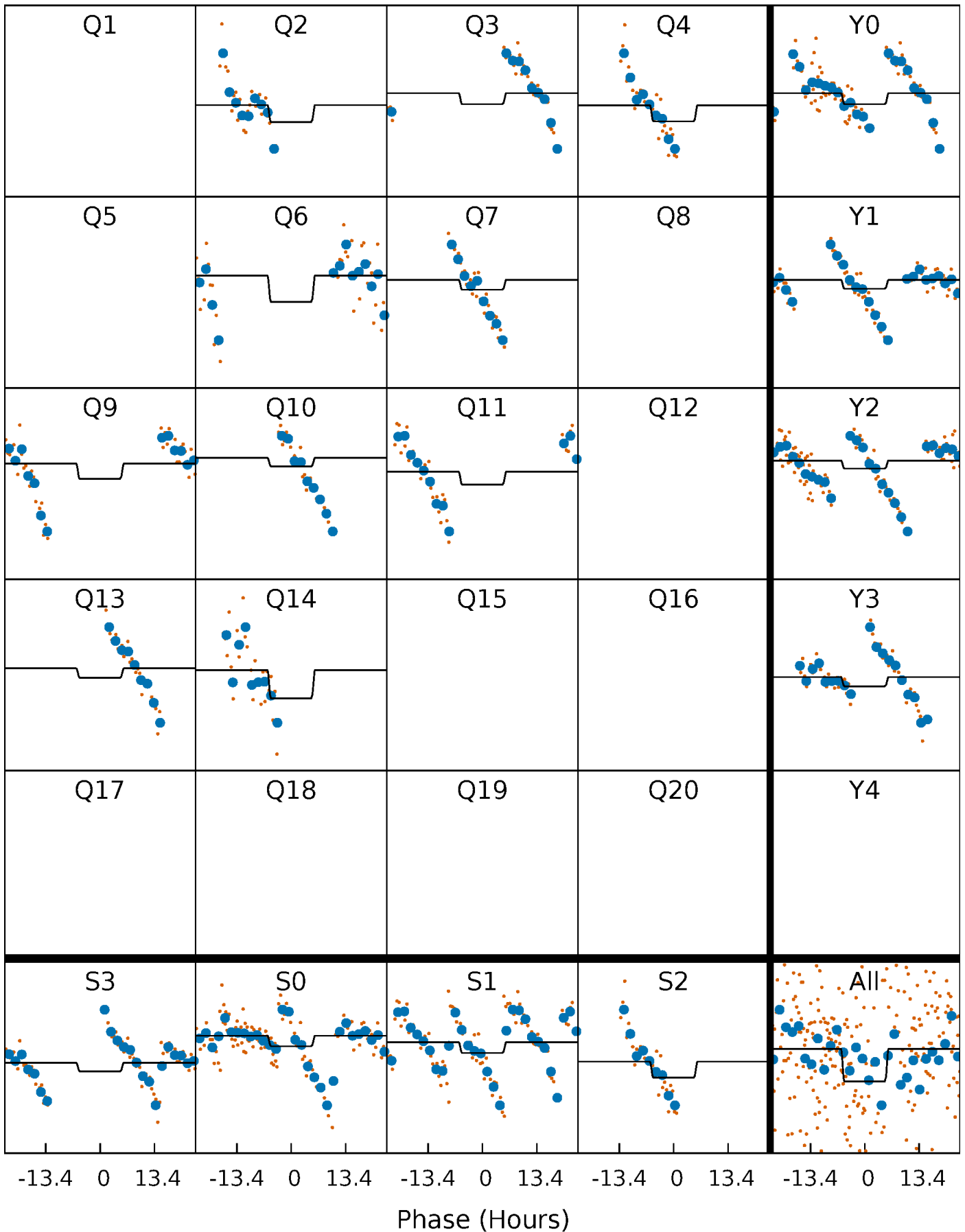
DV Quarter-Phased Transit Curves

TCE 006119407-03 P=131.168619 Days $T_0=173.709701$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

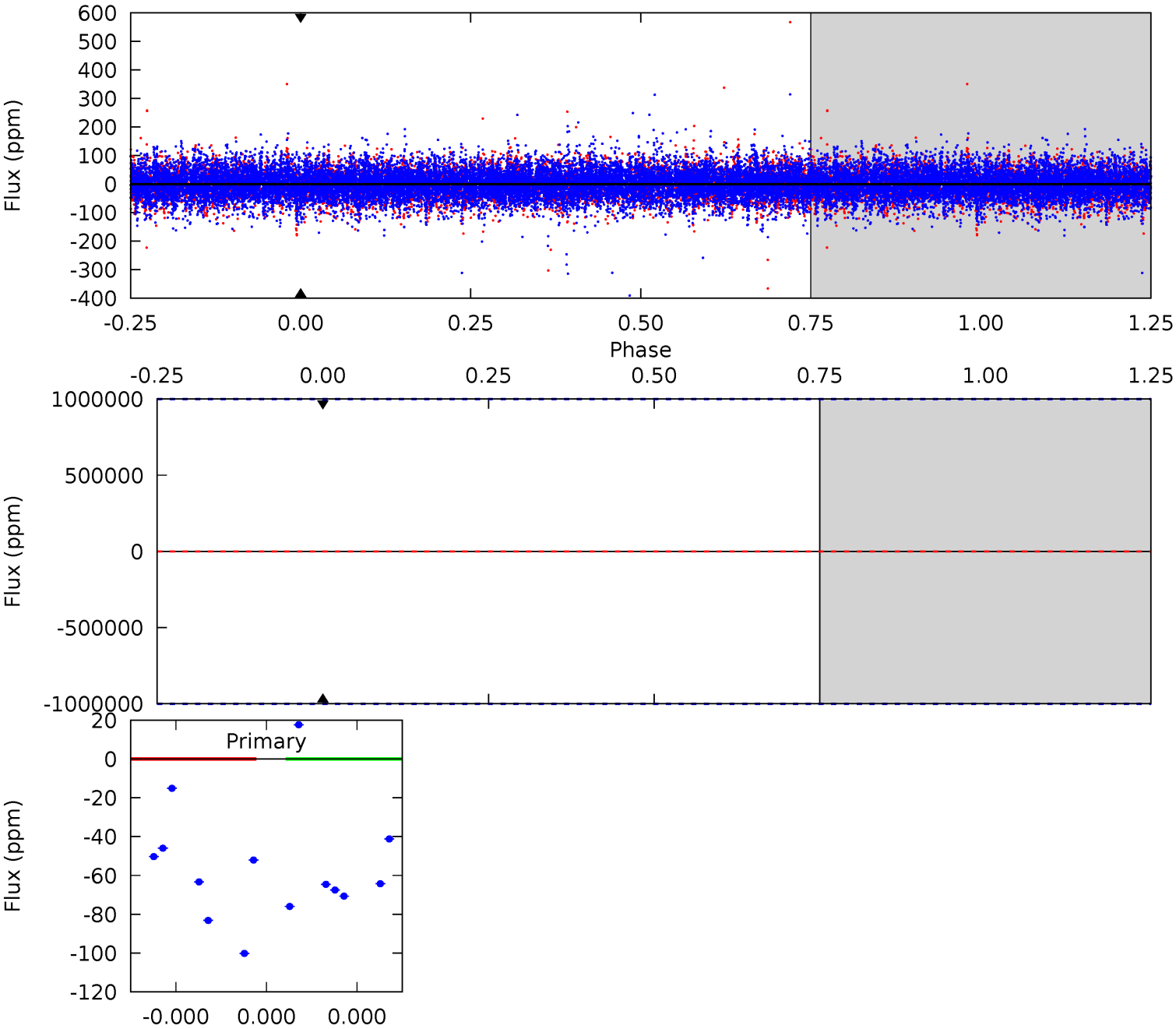
TCE 006119407-03 P=131.168619 Days $T_0=173.439952$ (BKJD)



DV Model-Shift Uniqueness Test

006119407-03, P = 131.168619 Days, E = 42.541082 Days

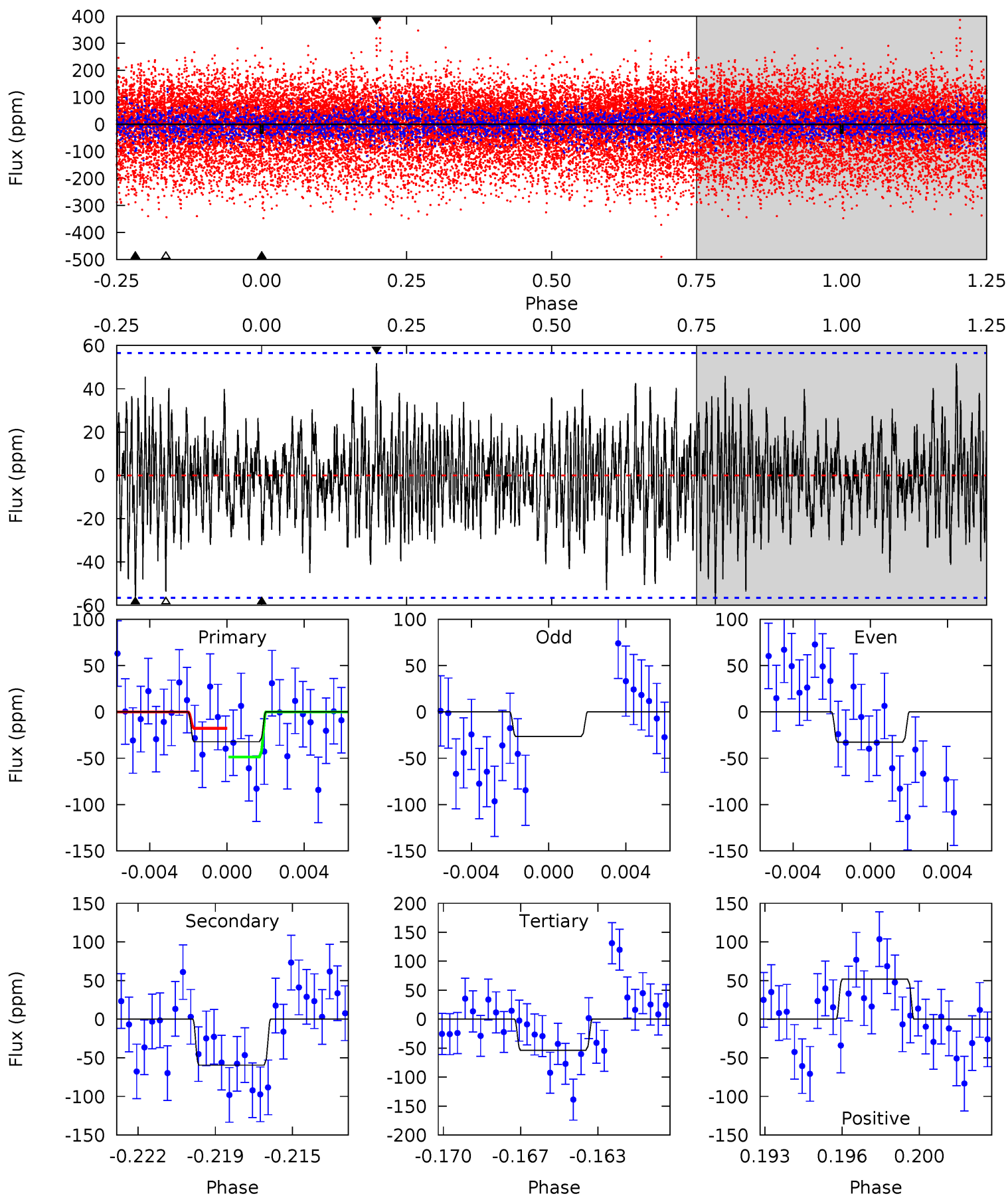
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006119407-03, P = 131.168619 Days, E = 42.271333 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.96	5.48	4.95	4.78	5.21	2.90	1.49	-1.99	-1.81	0.53	0.71	0.16	-0.17	0.47	1.42



Stellar Parameters For KIC 006119407

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8437^{+67}_{-84}	$3.772^{+0.280}_{-0.052}$	$-0.180^{+0.250}_{-0.200}$	$3.057^{+0.427}_{-0.997}$	$2.017^{+0.299}_{-0.245}$	$0.099^{+0.188}_{-0.023}$
	+1%/-1%	+7%/-1%	+139%/-111%	+14%/-33%	+15%/-12%	+189%/-23%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 006119407-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$21.64^{+23.83}_{-15.11}$	1110^{+48}_{-89}	-5465^{+76562}_{-54771}	$-492.552^{+97792.729}_{-88450.599}$
Alt.	-59 ± 11	$21.82^{+23.12}_{-15.81}$	1118^{+39}_{-91}	3262^{+1864}_{-588}	28^{+338}_{-22}

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

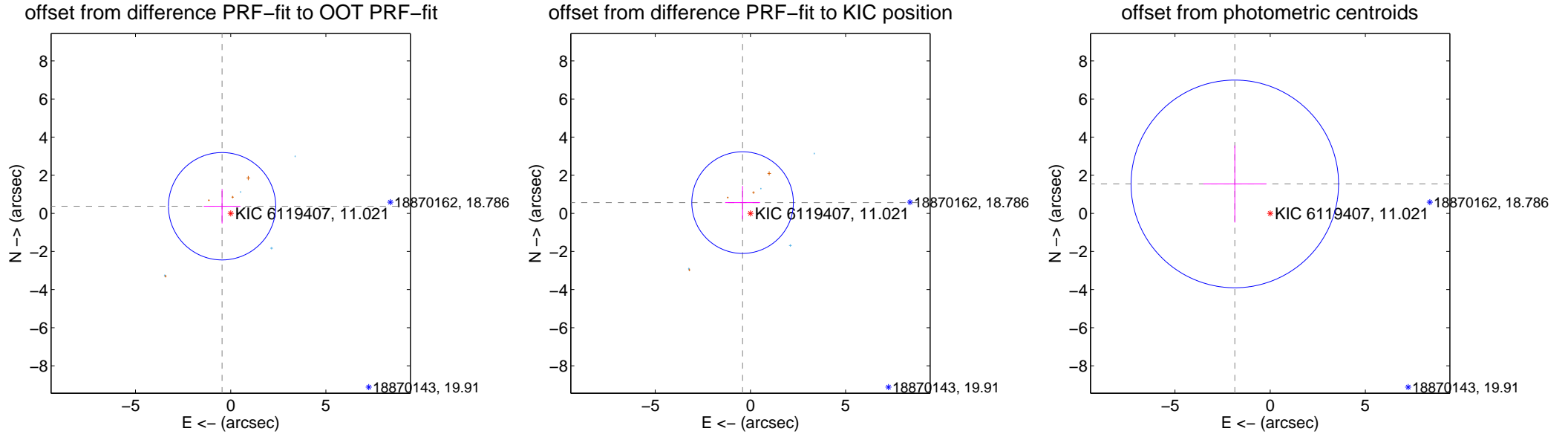
DV Centroid Data

Supplemental centroid analysis for 006119407-03. **Kepler magnitude: 11.02.** Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.587 ± 0.939	0.62	0.453 ± 0.964	0.373 ± 0.902
PRF-fit source offset from KIC position	0.699 ± 0.889	0.79	0.412 ± 0.919	0.565 ± 0.873
photometric centroid source offset	2.42 ± 1.82	1.33	1.86 ± 1.66	1.54 ± 2.02



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.

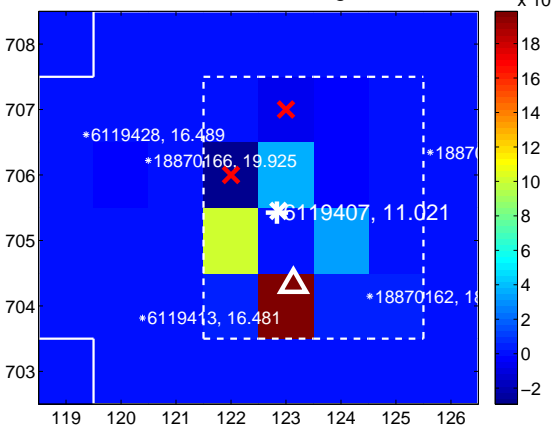
Q1 no difference image



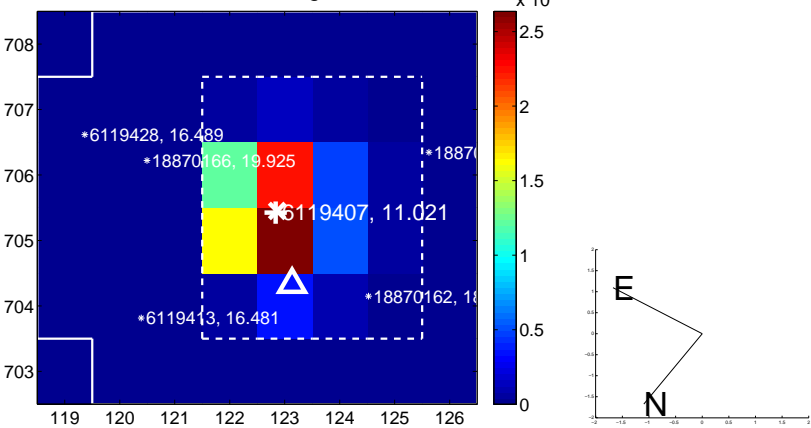
Q1 no OOT image



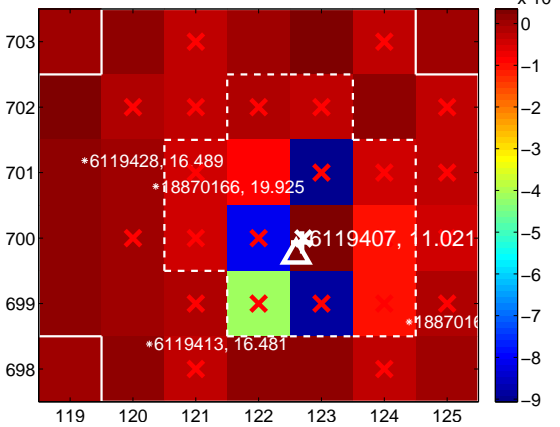
Q2 difference image



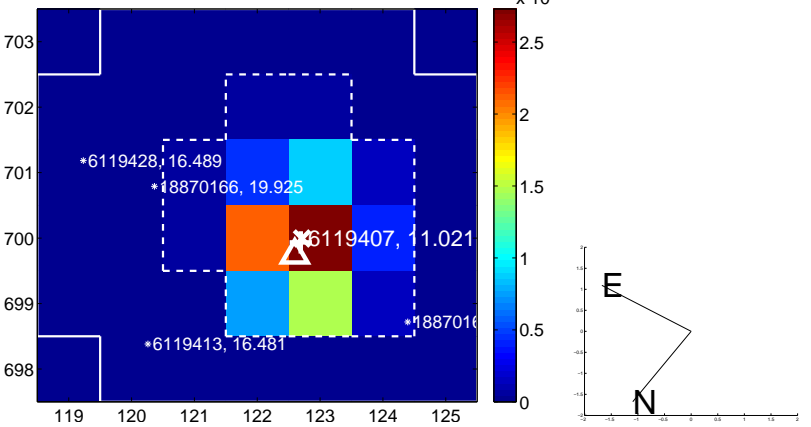
Q2 OOT image



Q3 difference image. Poor Quality



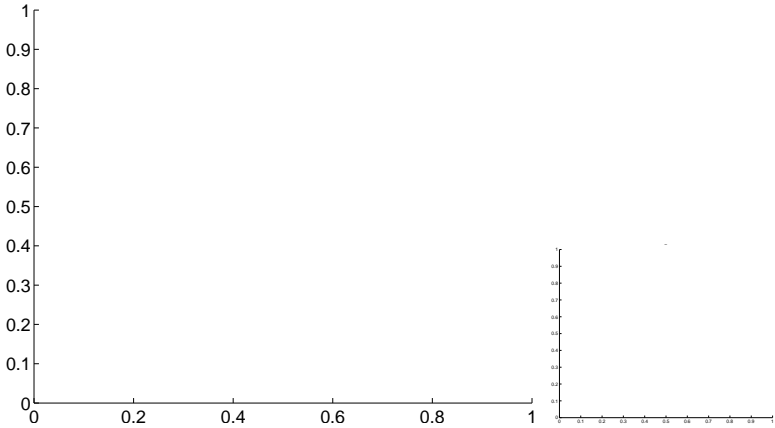
Q3 OOT image



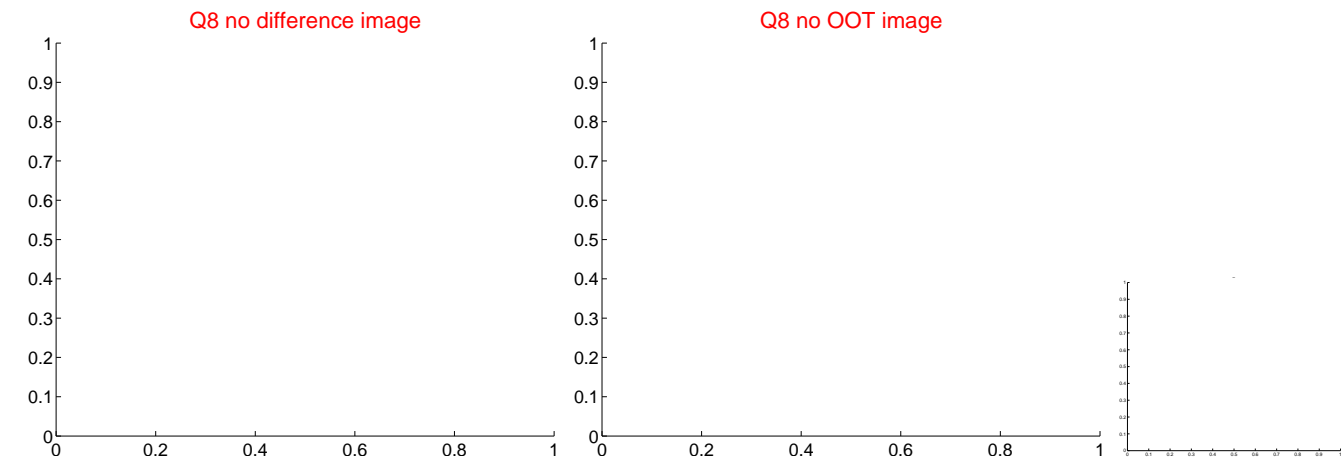
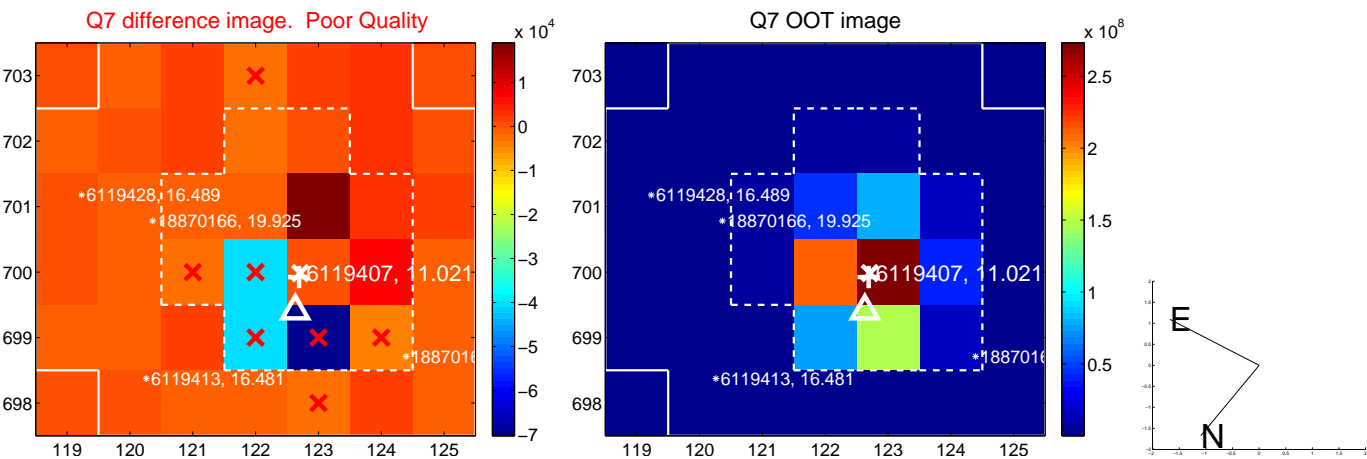
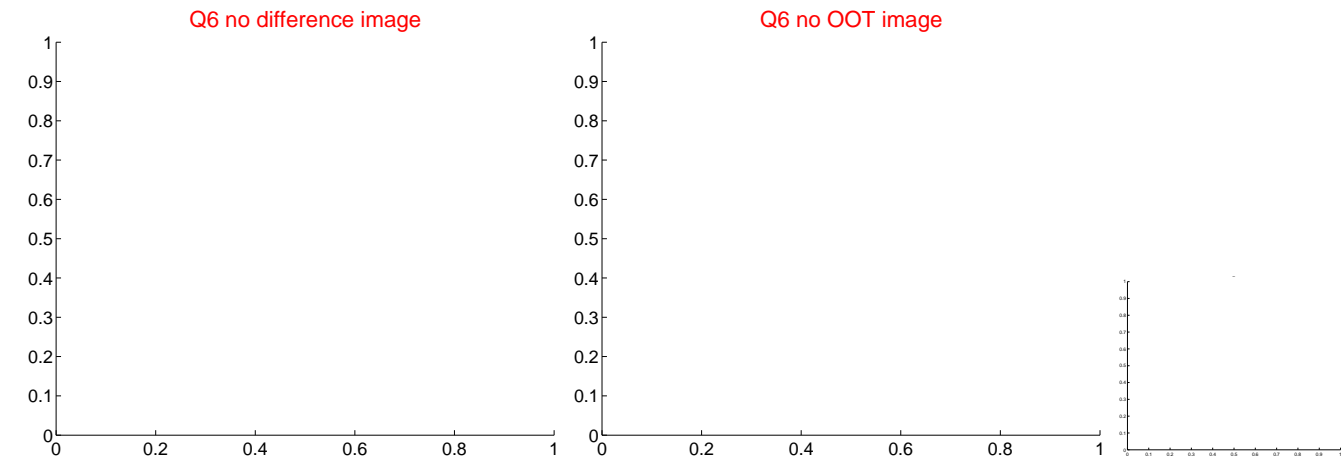
Q4 no difference image



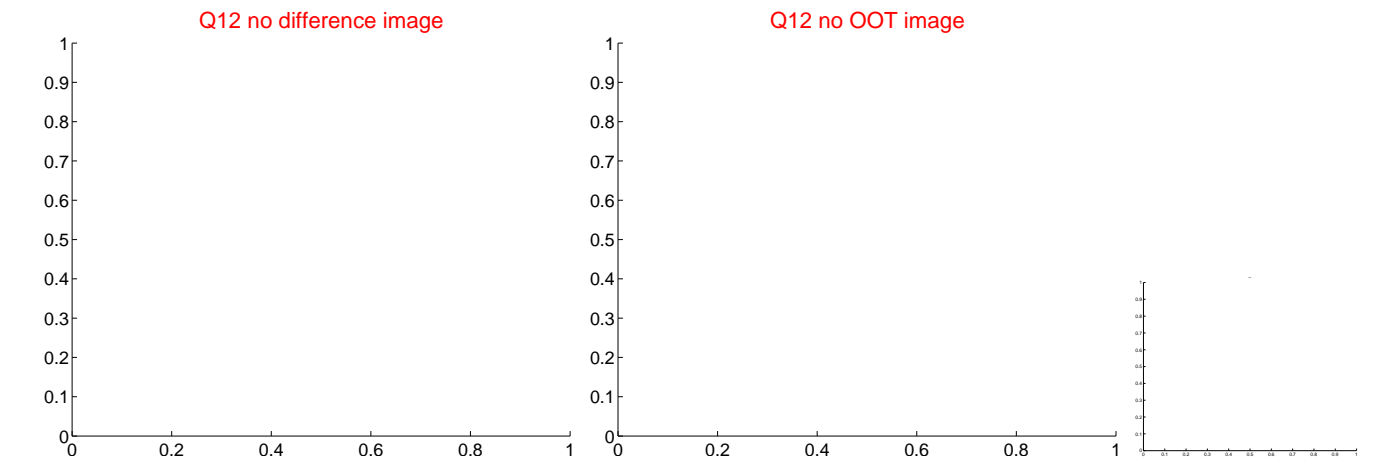
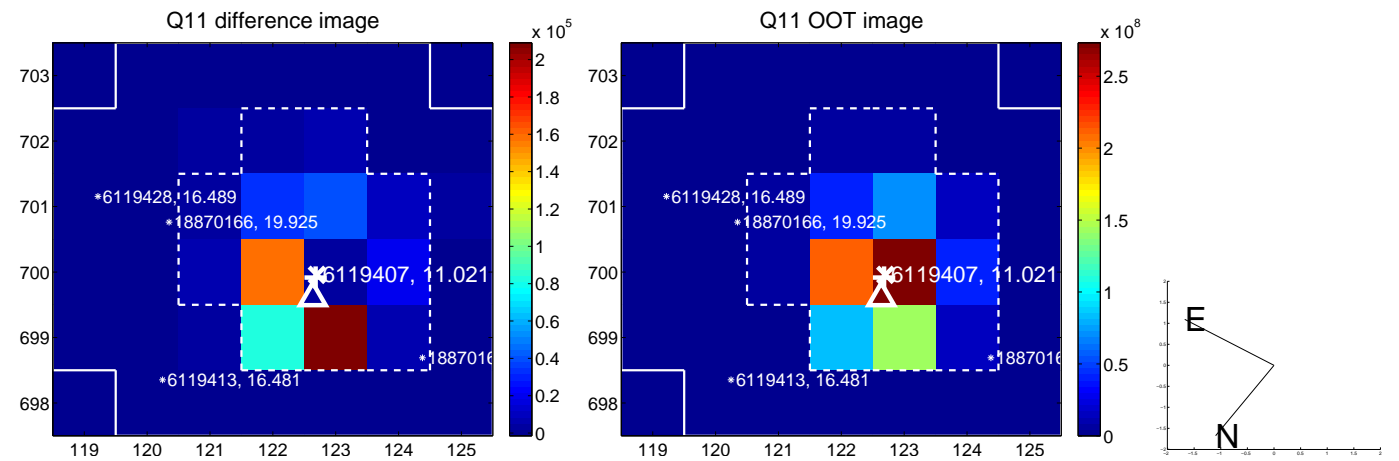
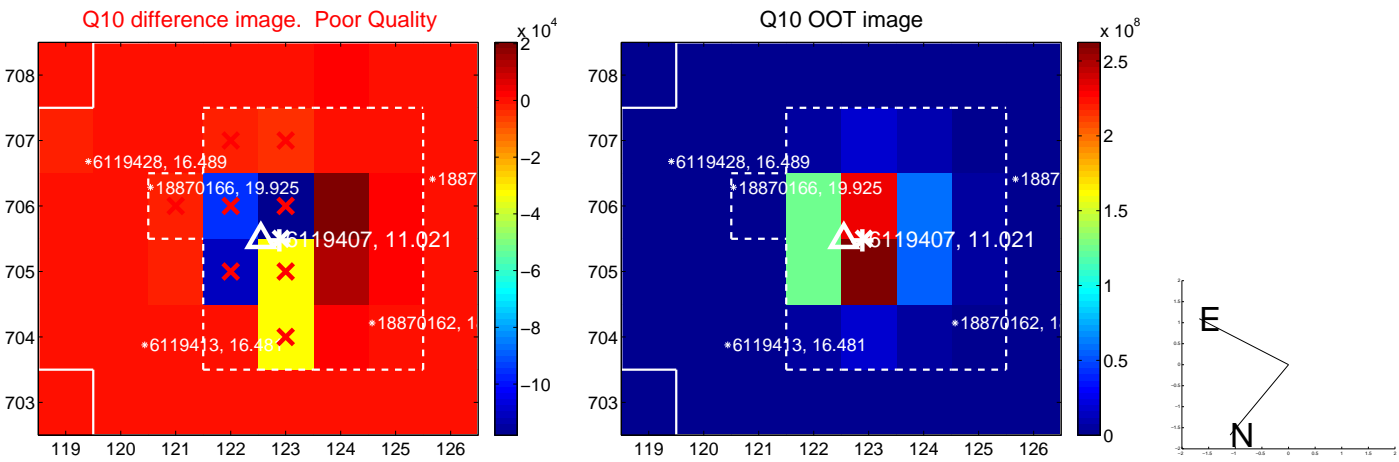
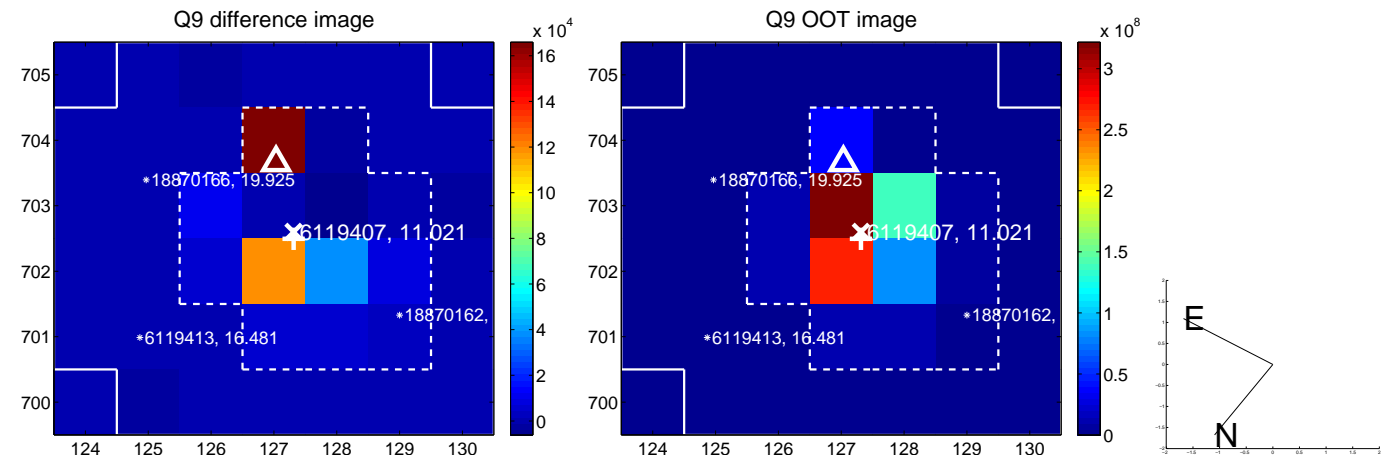
Q4 no OOT image



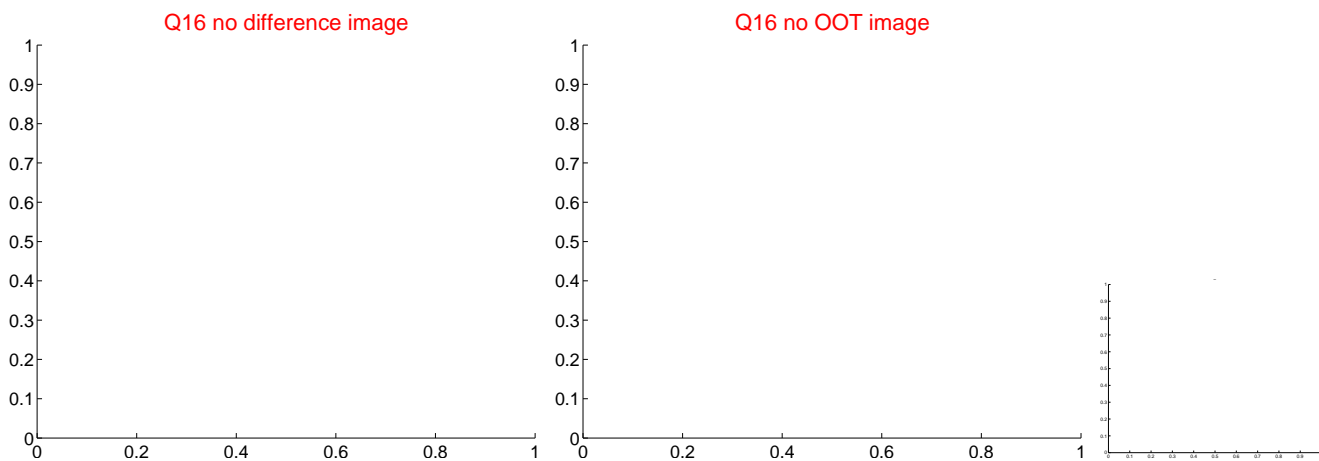
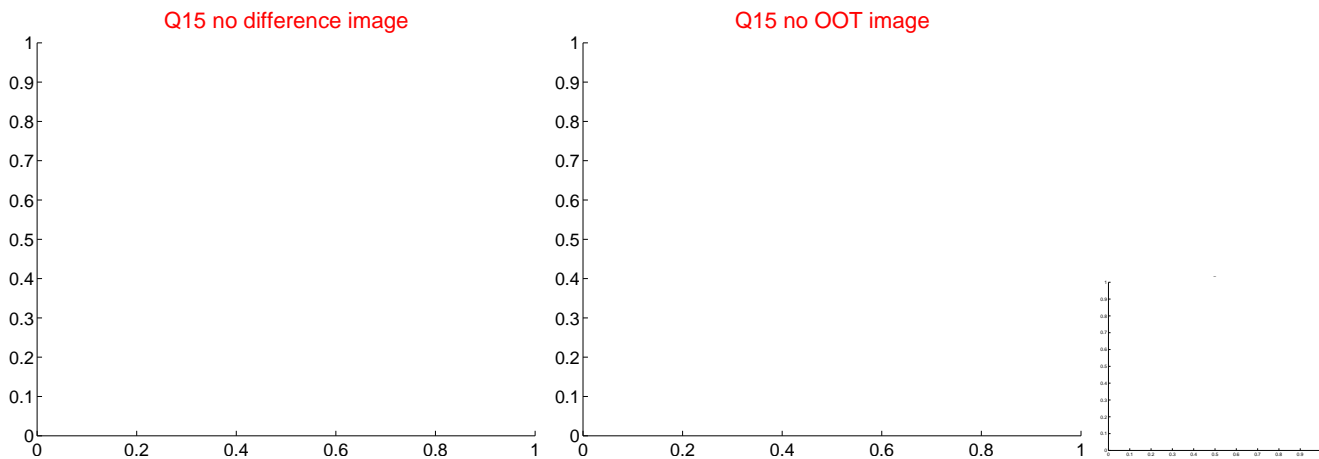
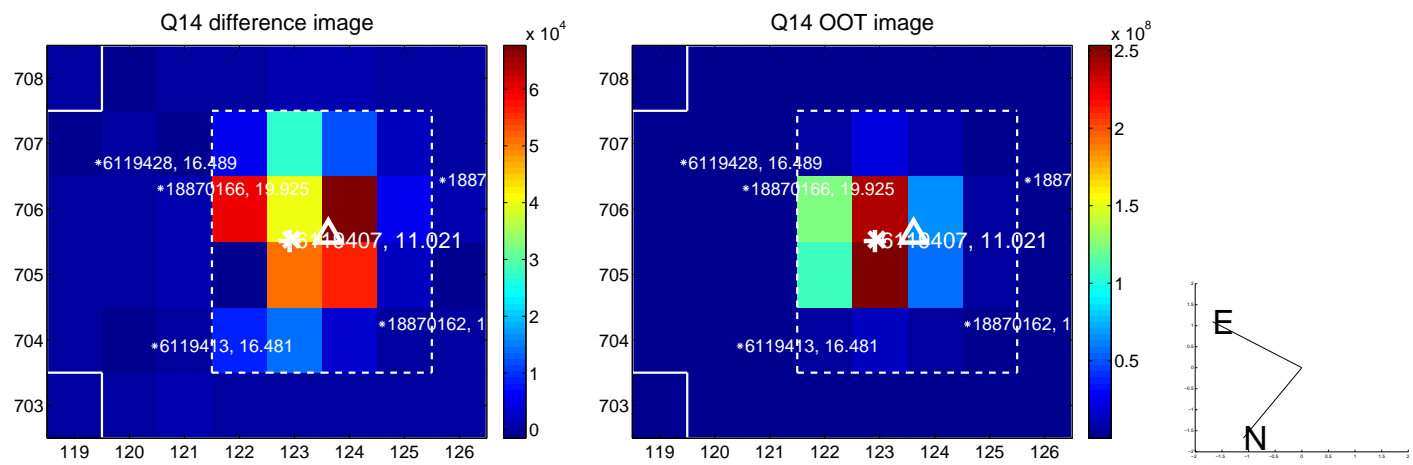
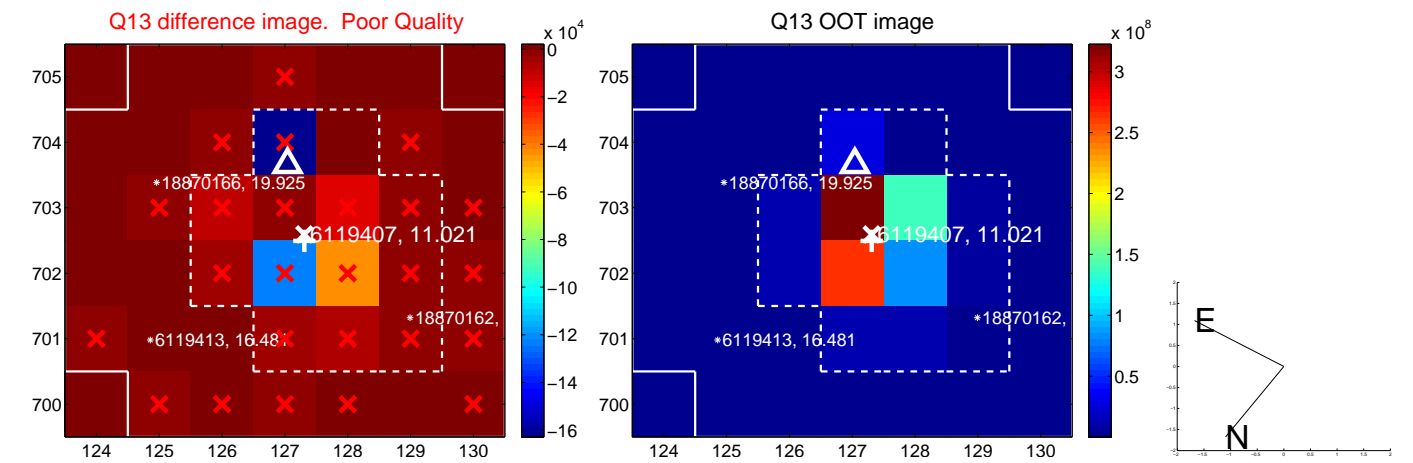
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



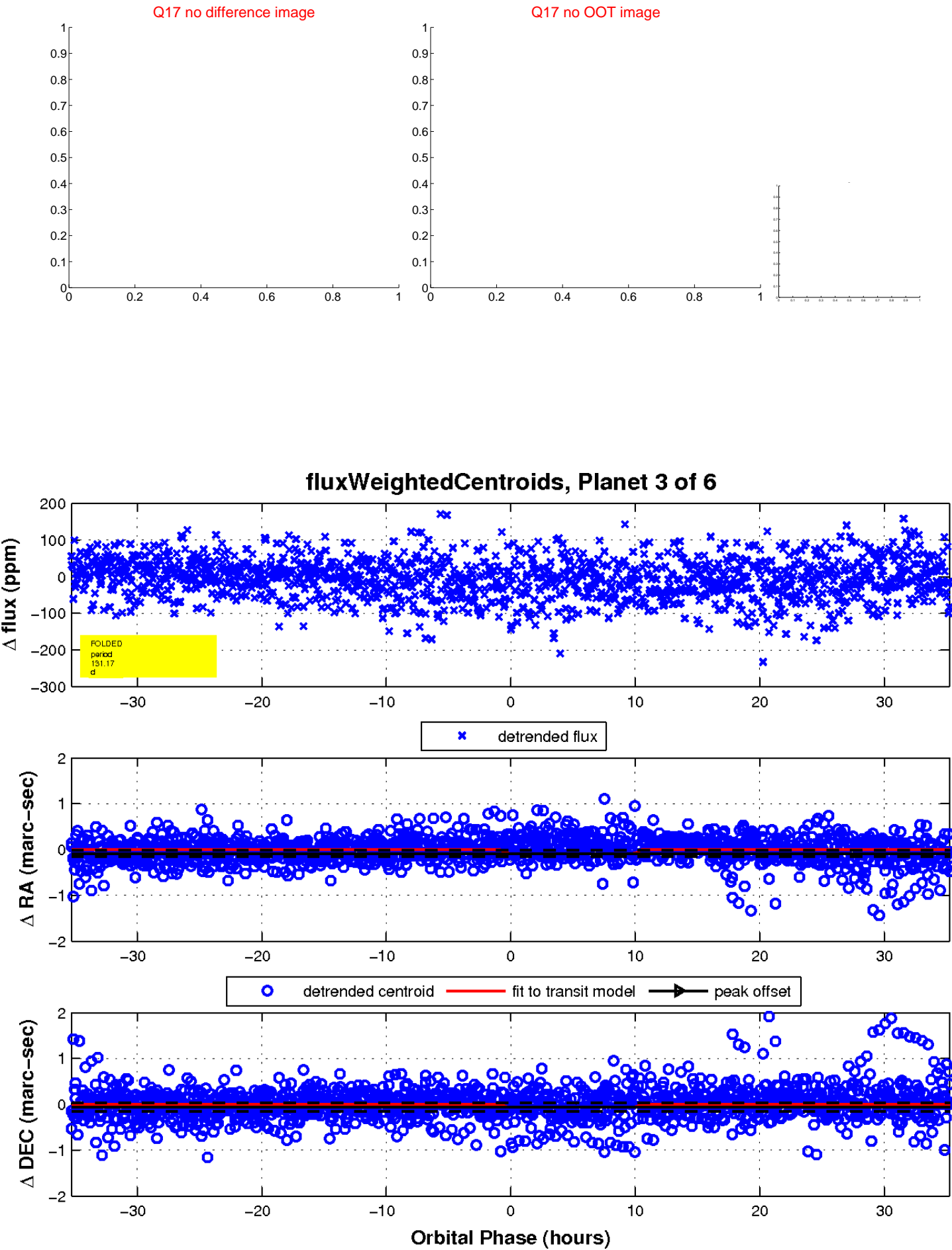
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

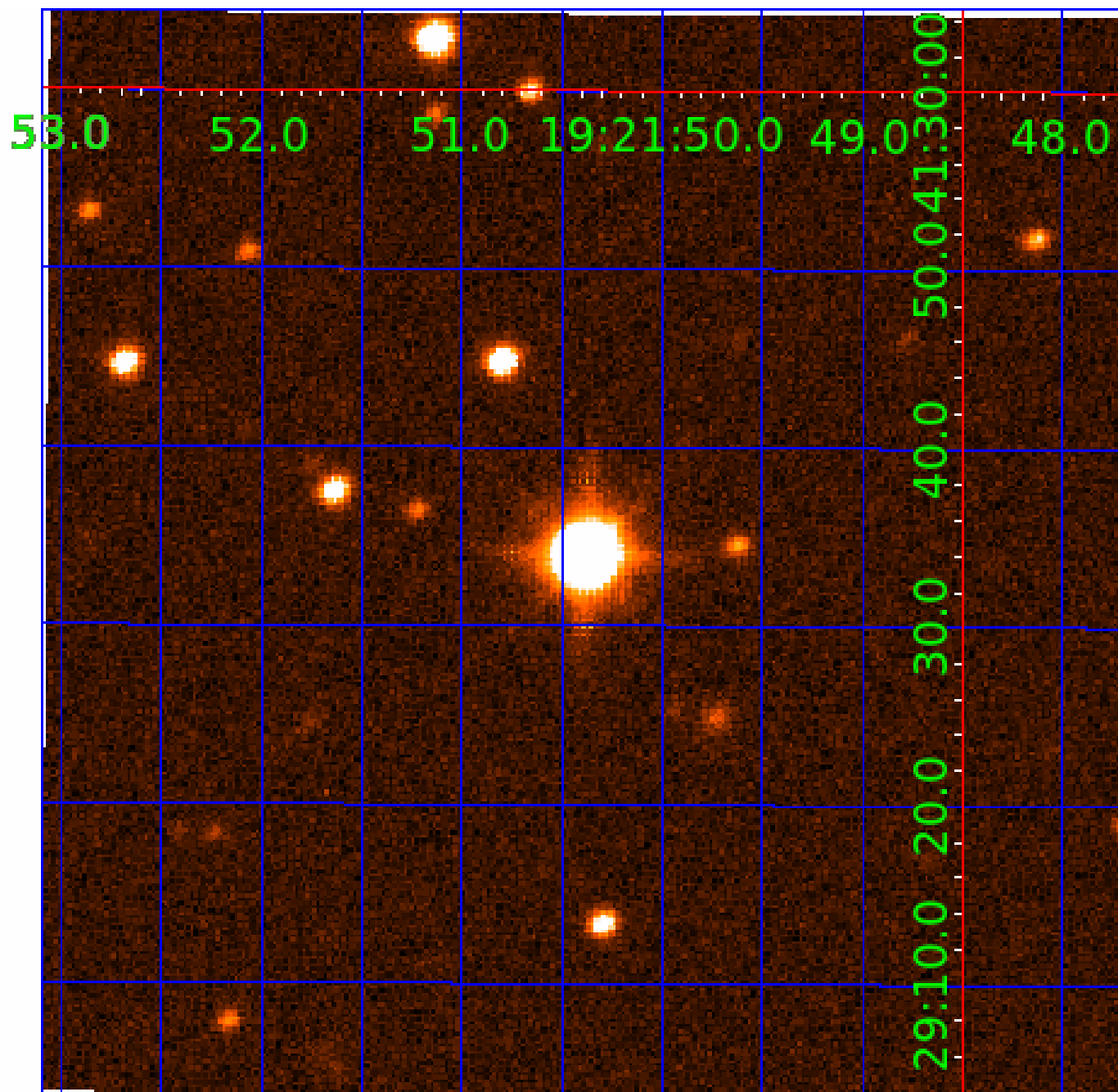


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006119407

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})
006119407-01	OBS	No	1.715915	132.665341	9.0	8.883	14.6	11.8	3.06	8437	0.93	33768.83
006119407-02	OBS	No	220.098486	180.687050	80.5	12.248	10.2	7.3	3.06	8437	3.09	52.20
006119407-03	OBS	No	131.168619	173.709701	63.6	9.000	9.3	-1.0	3.06	8437	2.47	104.09
006119407-04	OBS	No	72.455056	163.076523	30.3	11.153	8.6	4.3	3.06	8437	1.88	229.66
006119407-05	OBS	No	250.966691	329.292489	31.1	4.800	7.5	2.7	3.06	8437	1.97	43.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006119407-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_SATURATED
006119407-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
006119407-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
006119407-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006119407-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

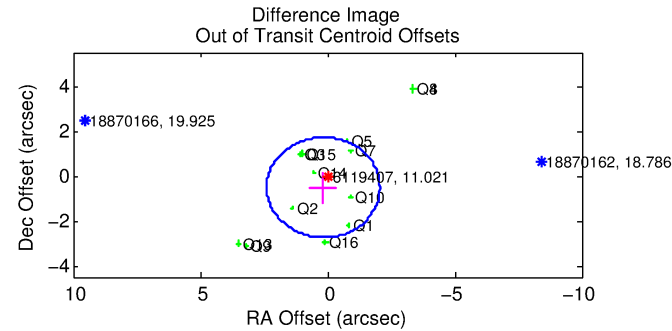
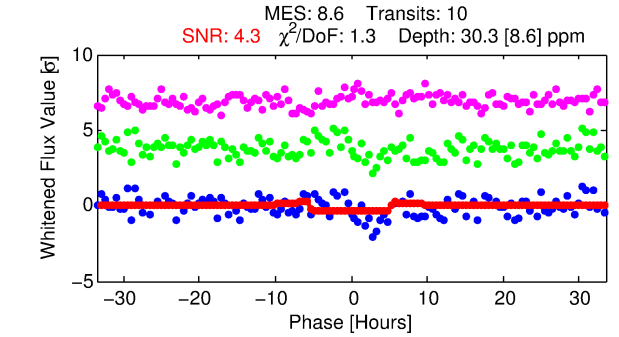
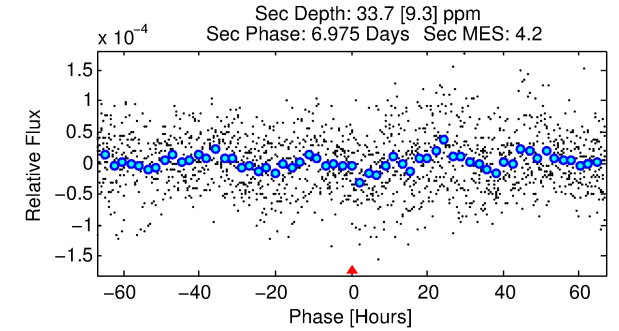
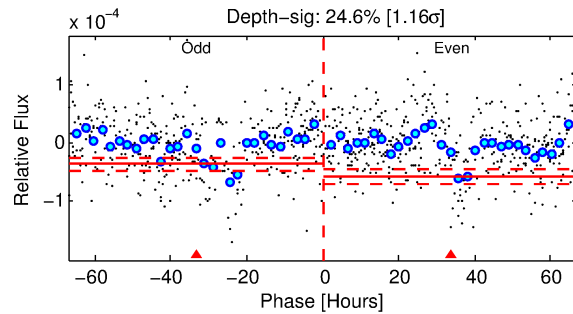
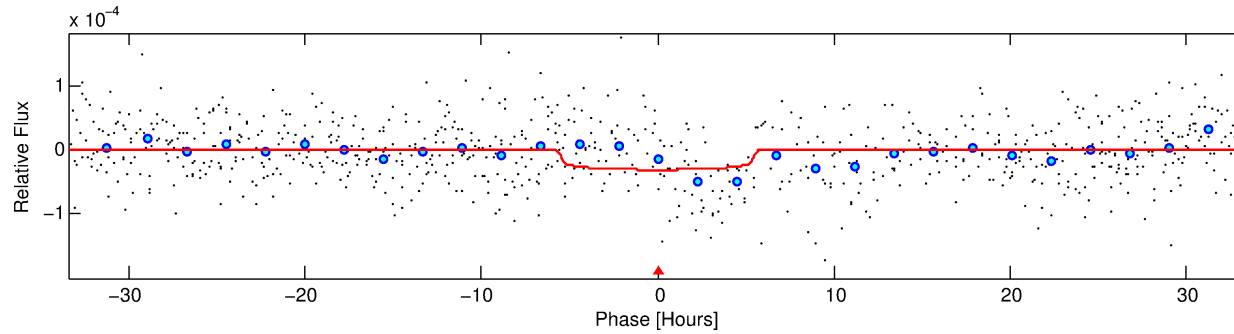
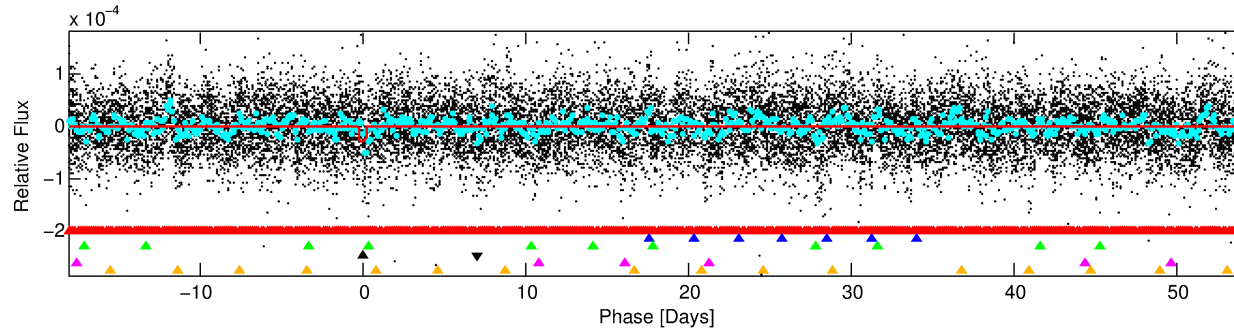
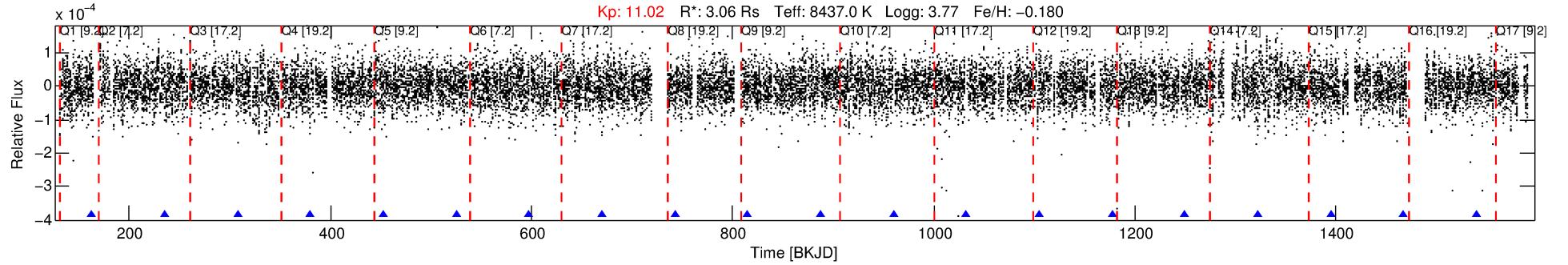
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006119407-04

No Significant Match Found

DV One-Page Summary

KIC: 6119407 Candidate: 4 of 6 Period: 72.455 d



DV Fit Results:

Period = 72.45506 [0.00286] d
Epoch = 163.0765 [0.0277] BKJD
Rp/R* = 0.0056 [0.0023]
a/R* = 28.39 [68.65]
b = 0.83 [0.93]
Seff = 229.66 [111.00]
Teq = 993 [120] K
Rp = 1.88 [0.99] Re
a = 0.4298 [0.1314] AU
Ag = 973.40 [972.37] [1.00 σ]
Teffp = 8573 [1878] K [4.03 σ]

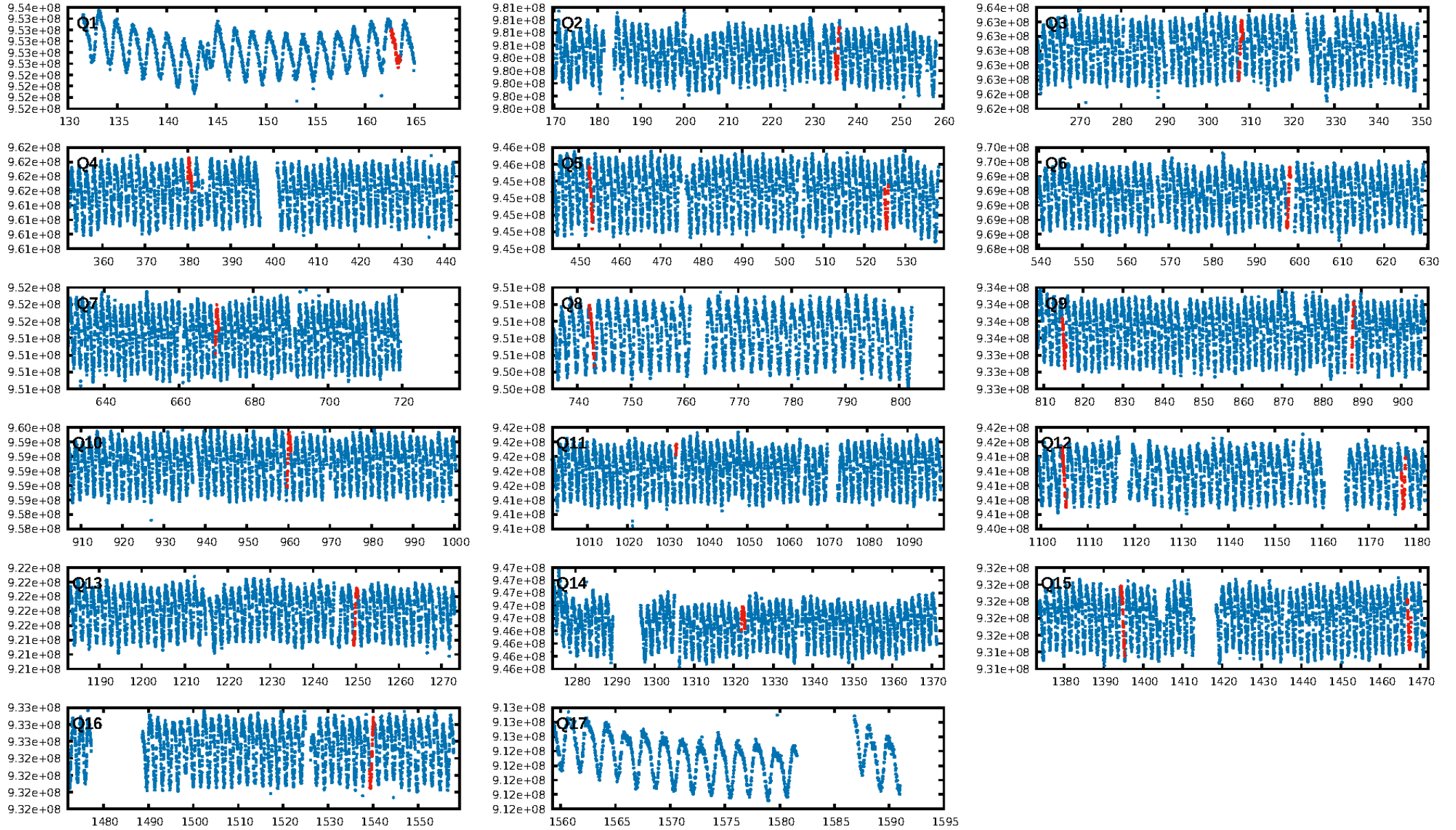
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [119.07 σ]
LongPeriod-sig: 100.0% [31.76 σ]
ModelChiSquare2-sig: 4.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.69e-10
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -5.063
Centroid-sig: 0.0%
Centroid-so: 6.976 arcsec [3.04 σ]
OotOffset-rm: 0.545 arcsec [0.73 σ]
KicOffset-rm: 0.320 arcsec [0.43 σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 0.38 [5/13]
DiffImageOverlap-fno: 0.00 [0/13]

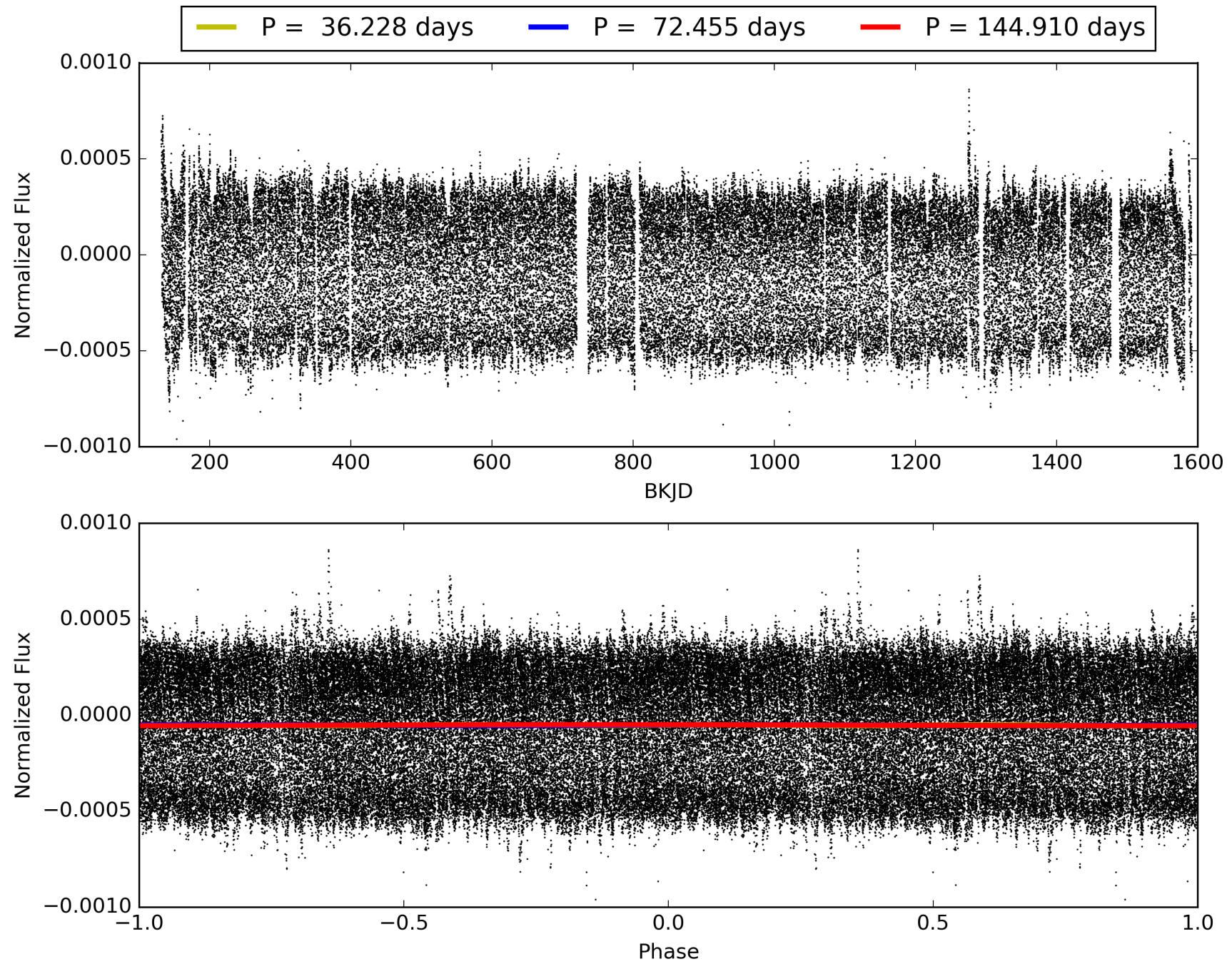
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:17:12 Z

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

TCE 006119407-04, PDC Light Curves

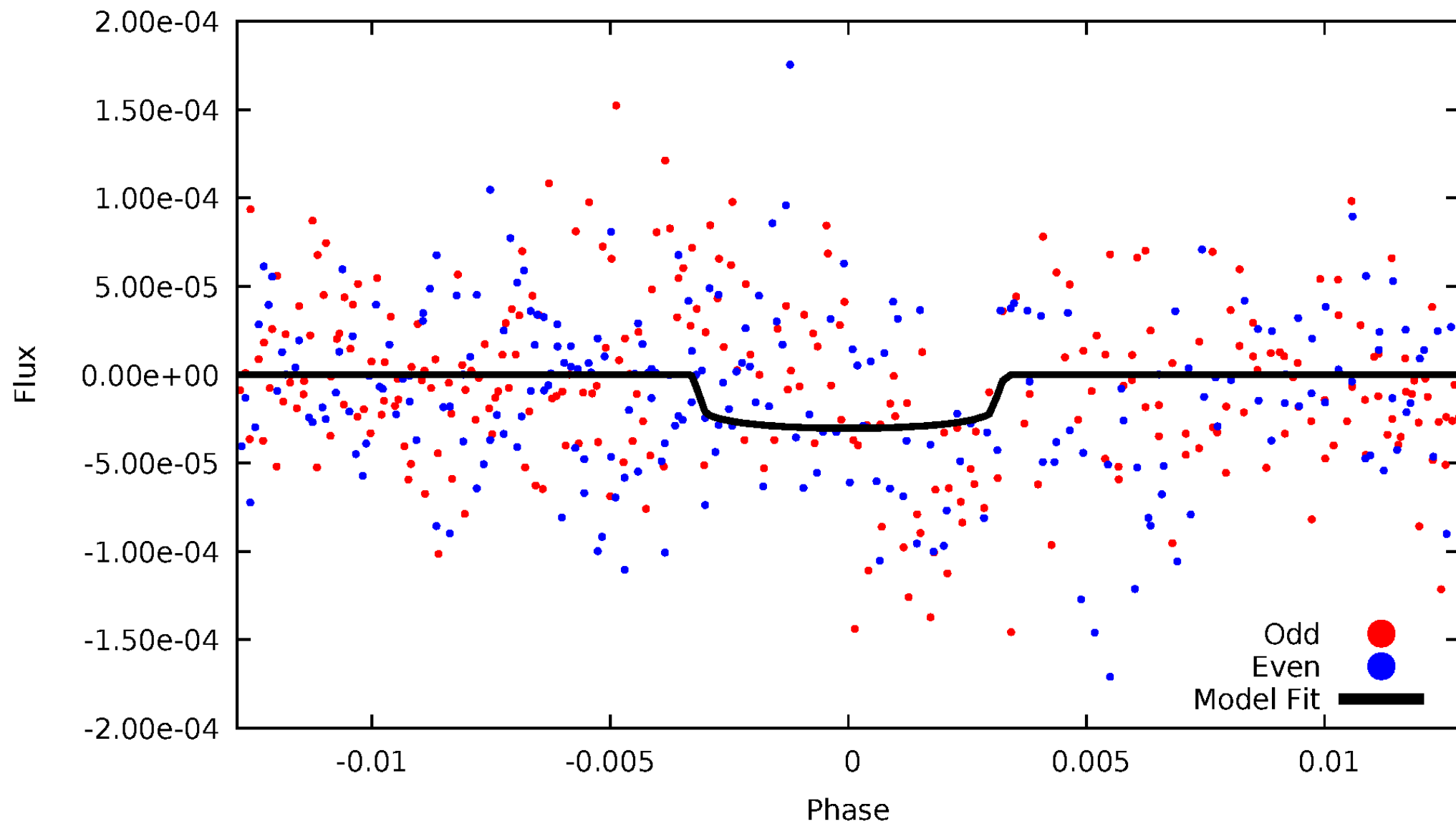


TCE 006119407-04



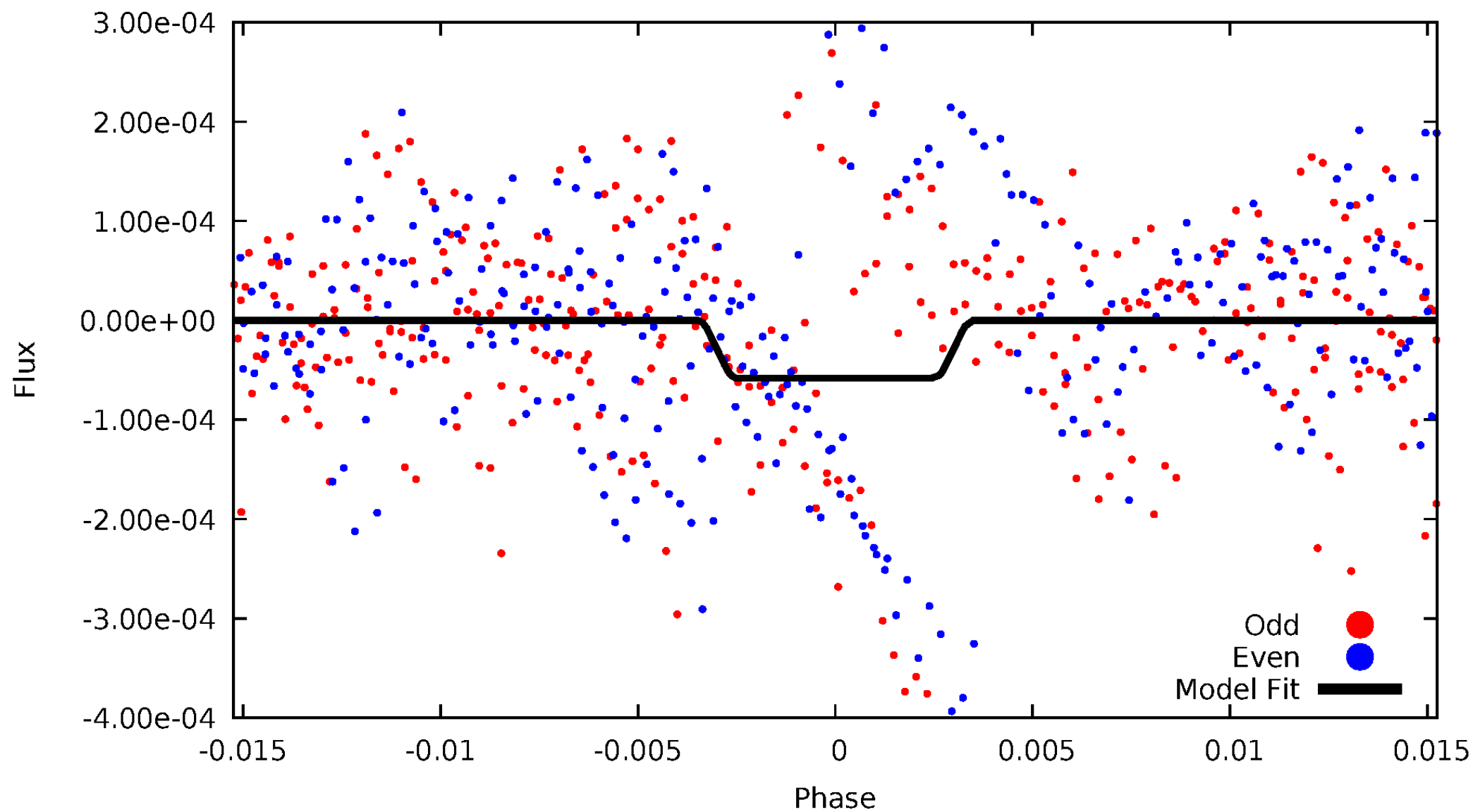
DV Odd/Even

TCE 006119407-04



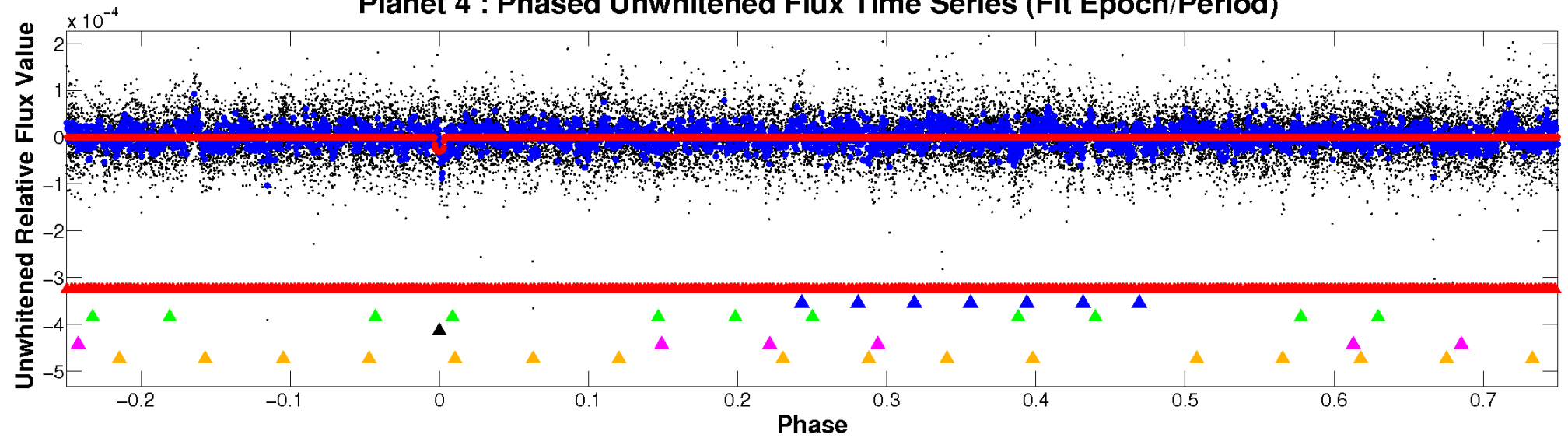
ALT Odd/Even

TCE 006119407-04

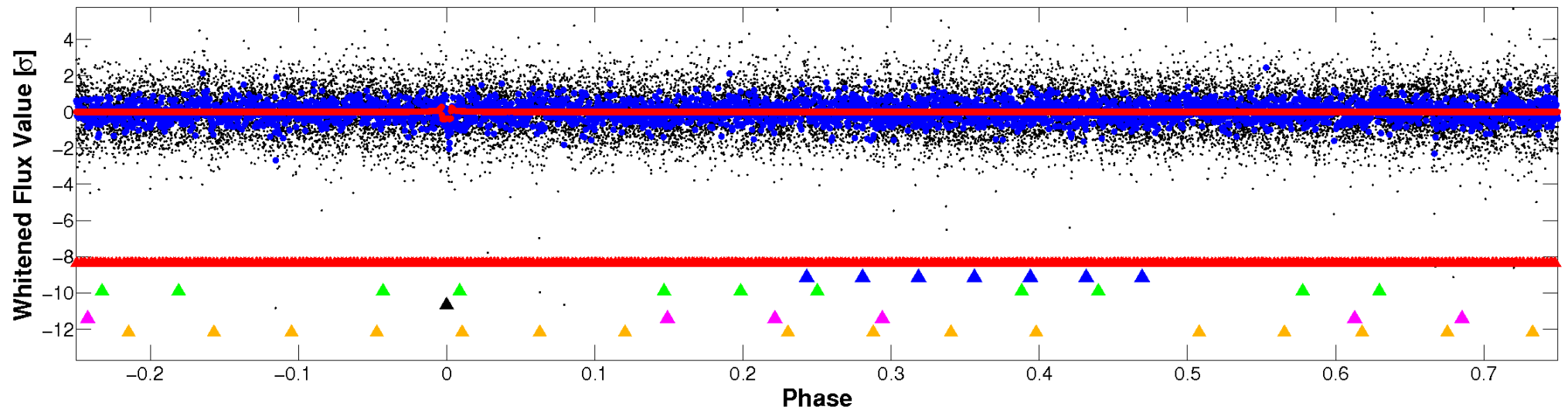


Non-Whitened Vs. Whitened Light Curve

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

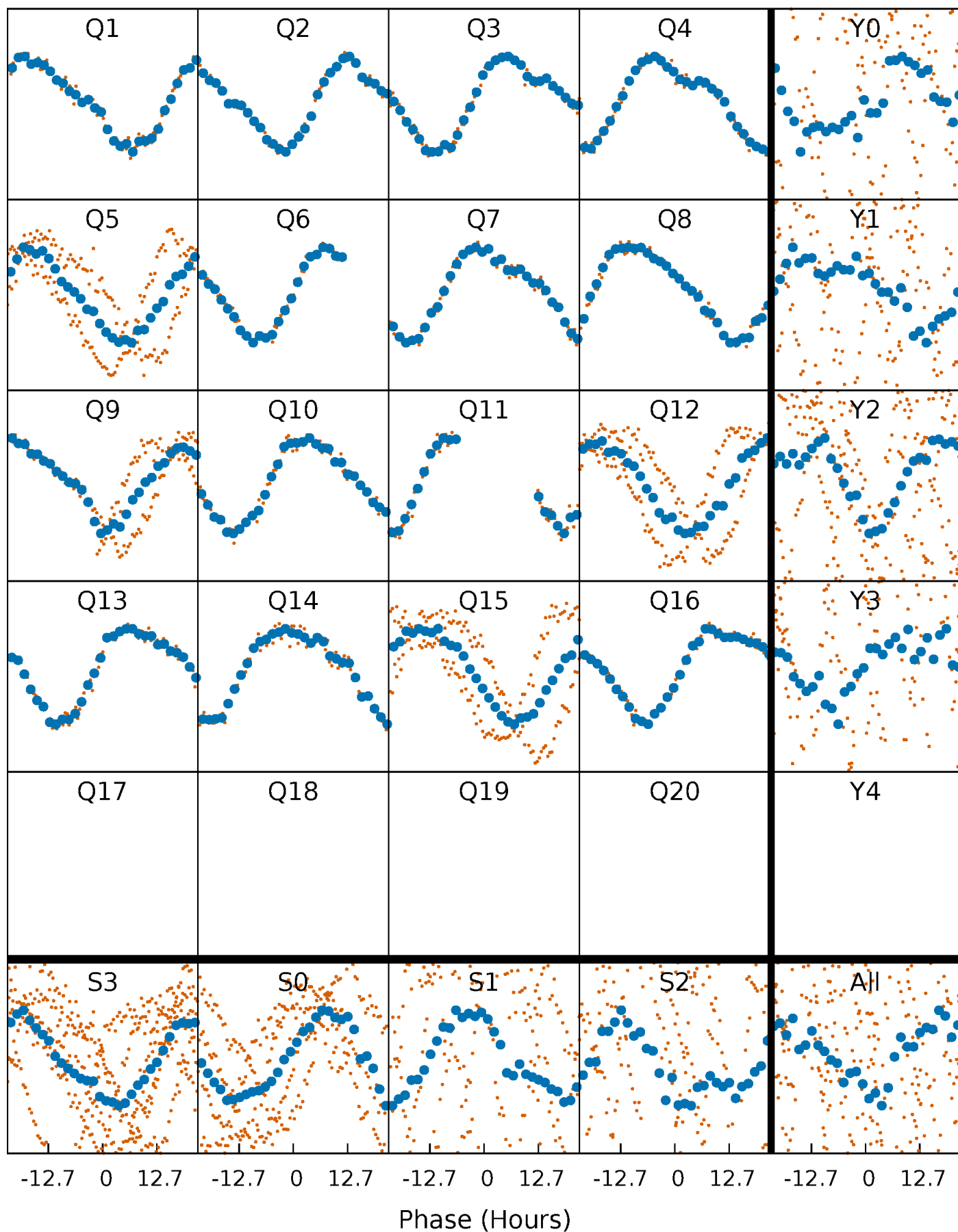


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



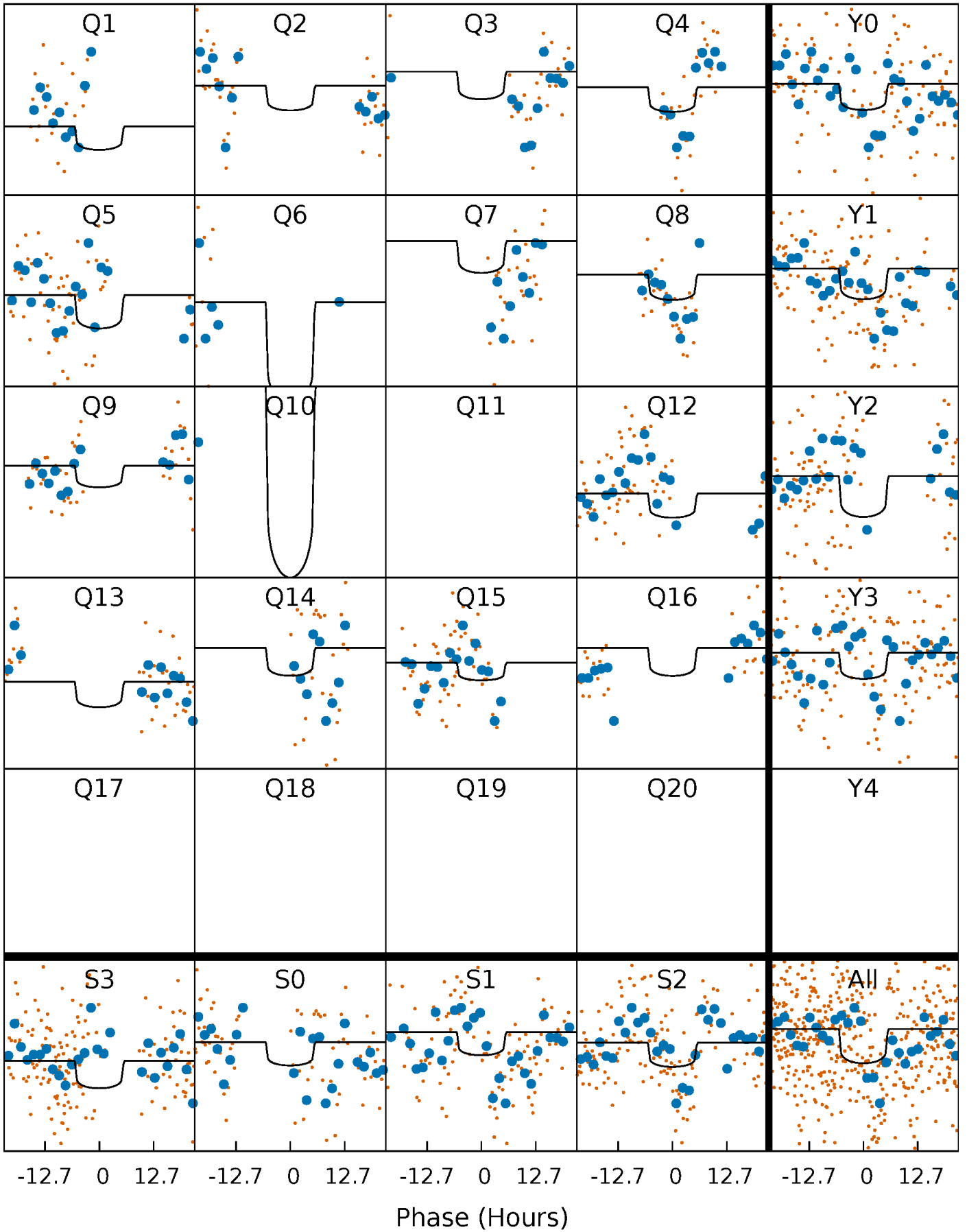
PDC Quarter-Phased Transit Curves

TCE 006119407-04 P= 72.455056 Days $T_0=163.076523$ (BKJD)



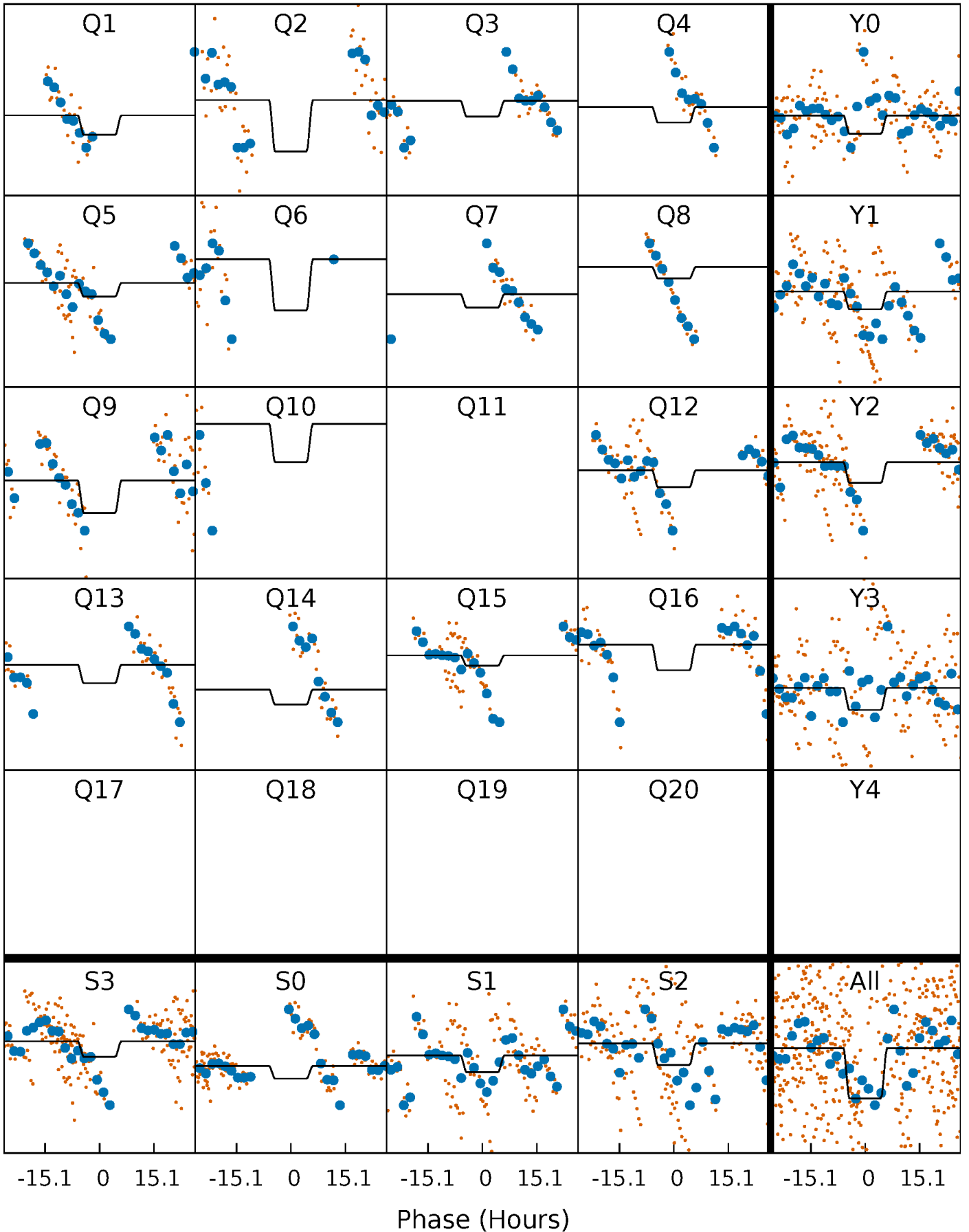
DV Quarter-Phased Transit Curves

TCE 006119407-04 P= 72.455056 Days $T_0=163.076523$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

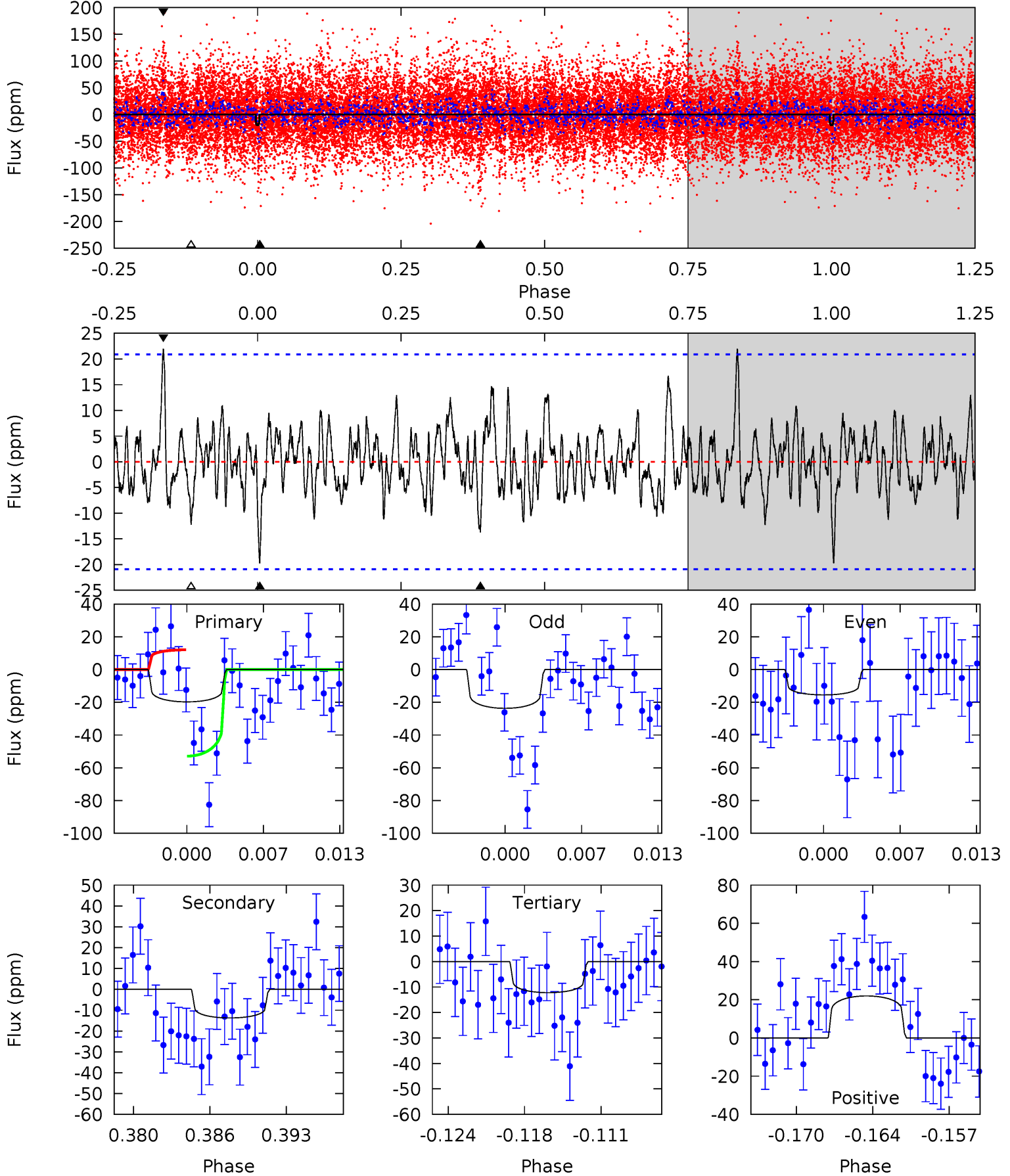
TCE 006119407-04 $P = 72.458410$ Days $T_0 = 163.042200$ (BKJD)



DV Model-Shift Uniqueness Test

006119407-04, P = 72.455056 Days, E = 90.621467 Days

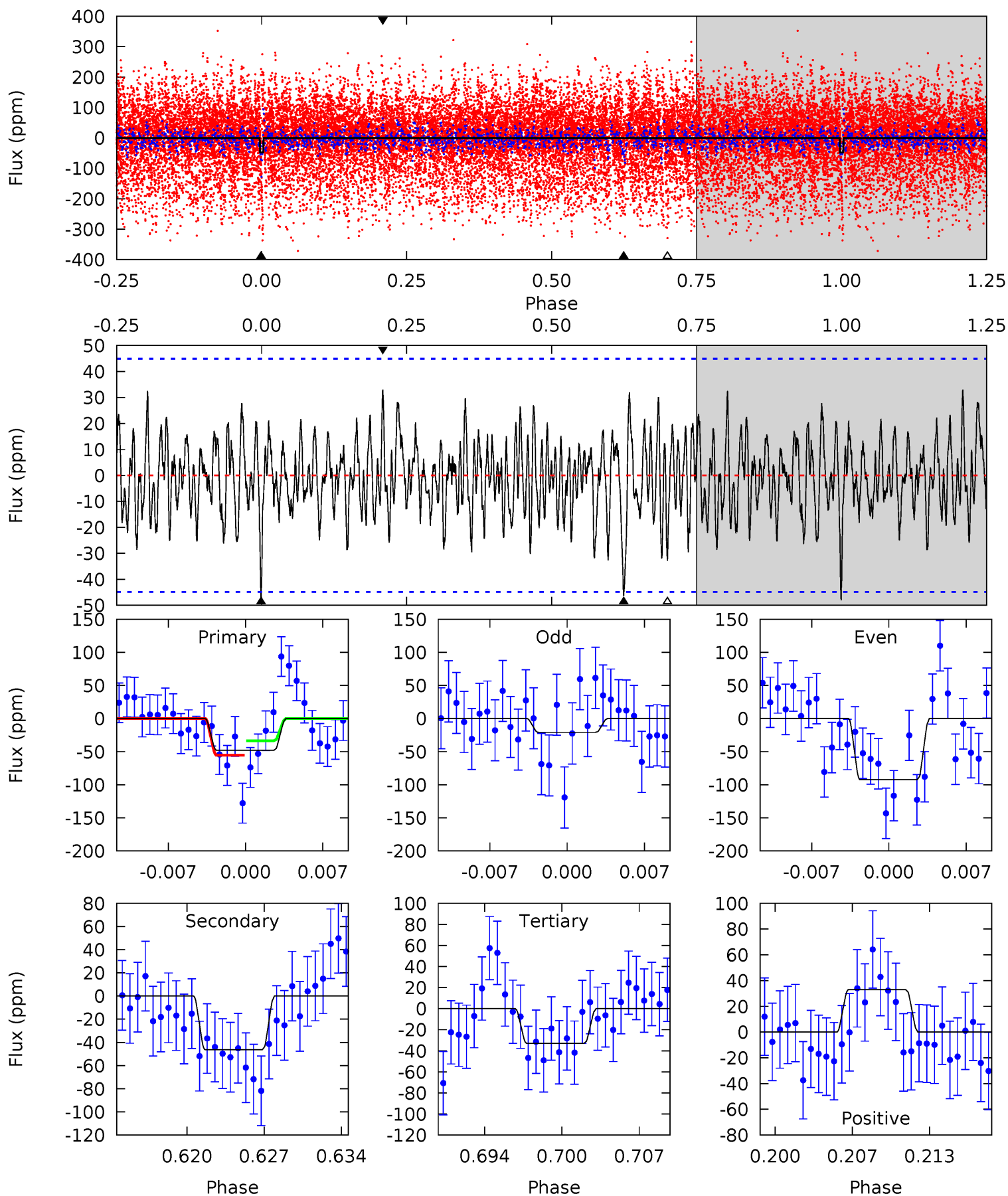
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.83	3.36	2.99	5.38	5.11	2.72	1.29	1.84	-0.55	0.37	-2.02	1.00	1.44	0.53	4.97



Alt Model-Shift Uniqueness Test

006119407-04, P = 72.458410 Days, E = 90.583790 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.45	5.26	3.75	3.75	5.10	2.71	1.40	1.71	1.71	1.52	1.52	4.07	0.80	0.41	1.23



Stellar Parameters For KIC 006119407

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8437^{+67}_{-84}	$3.772^{+0.280}_{-0.052}$	$-0.180^{+0.250}_{-0.200}$	$3.057^{+0.427}_{-0.997}$	$2.017^{+0.299}_{-0.245}$	$0.099^{+0.188}_{-0.023}$
	+1%/-1%	+7%/-1%	+139%/-111%	+14%/-33%	+15%/-12%	+189%/-23%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 006119407-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-14 ± 4	$1.76^{+0.77}_{-0.77}$	1355^{+55}_{-99}	6582^{+2595}_{-1120}	463^{+983}_{-259}
Alt.	-46 ± 9	$2.33^{+0.88}_{-0.75}$	1353^{+55}_{-106}	7891^{+2144}_{-1184}	872^{+995}_{-421}

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 $A_{obs} \gg 1.0$

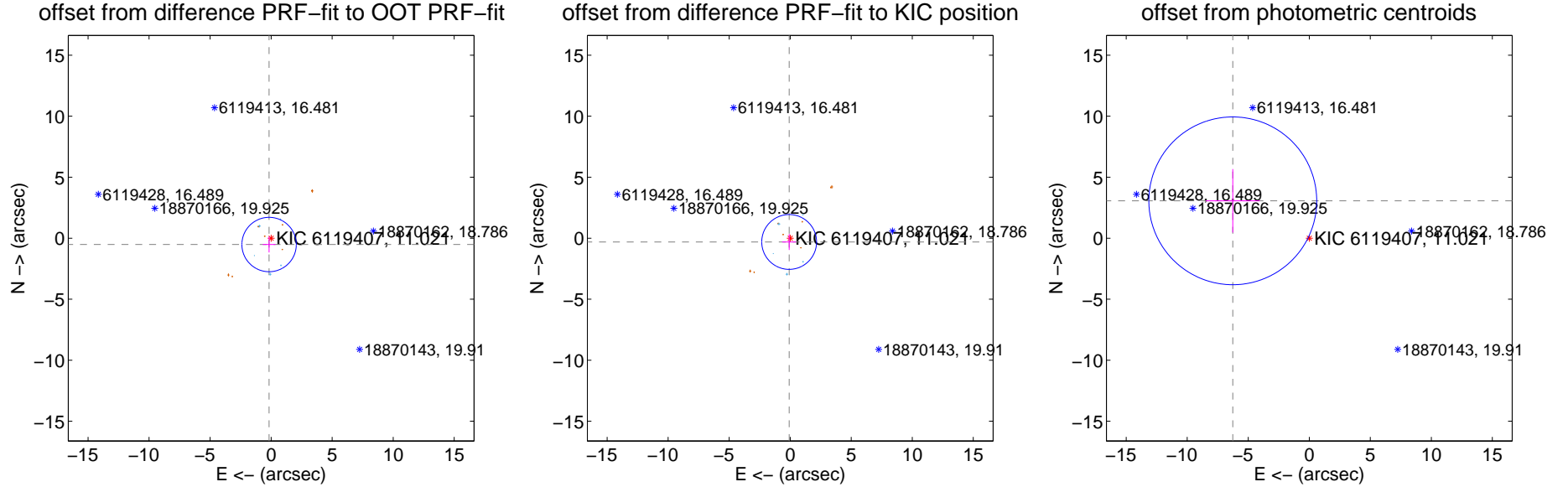
DV Centroid Data

Supplemental centroid analysis for 006119407-04. **Kepler magnitude: 11.02**. Transit SNR 4.33

There are 5 quarters with good PRF difference image offsets

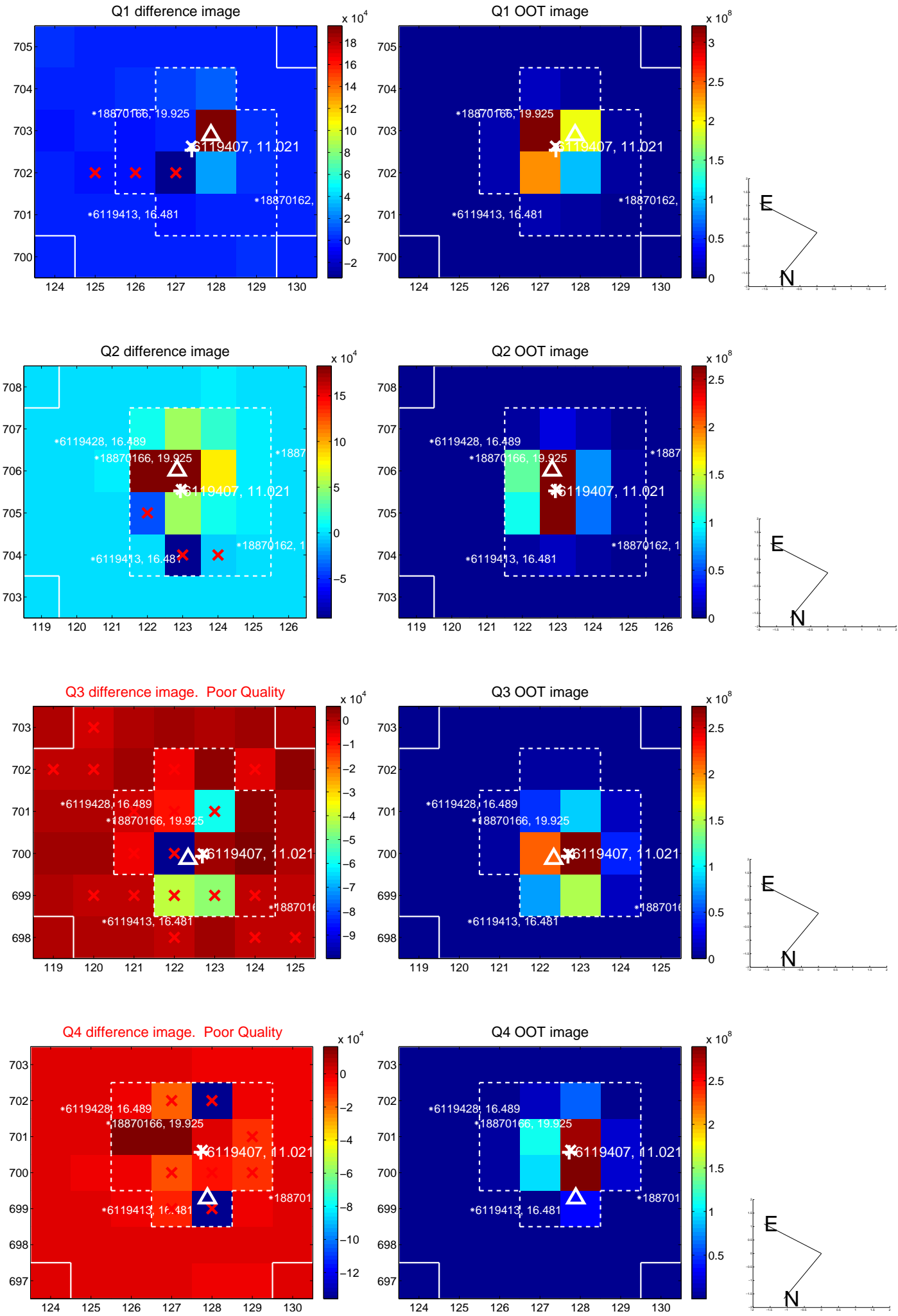
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.545 ± 0.743	0.73	0.167 ± 0.525	-0.519 ± 0.648
PRF-fit source offset from KIC position	0.320 ± 0.749	0.43	0.086 ± 0.569	-0.308 ± 0.653
photometric centroid source offset	6.98 ± 2.29	3.04	6.27 ± 2.21	3.06 ± 2.60

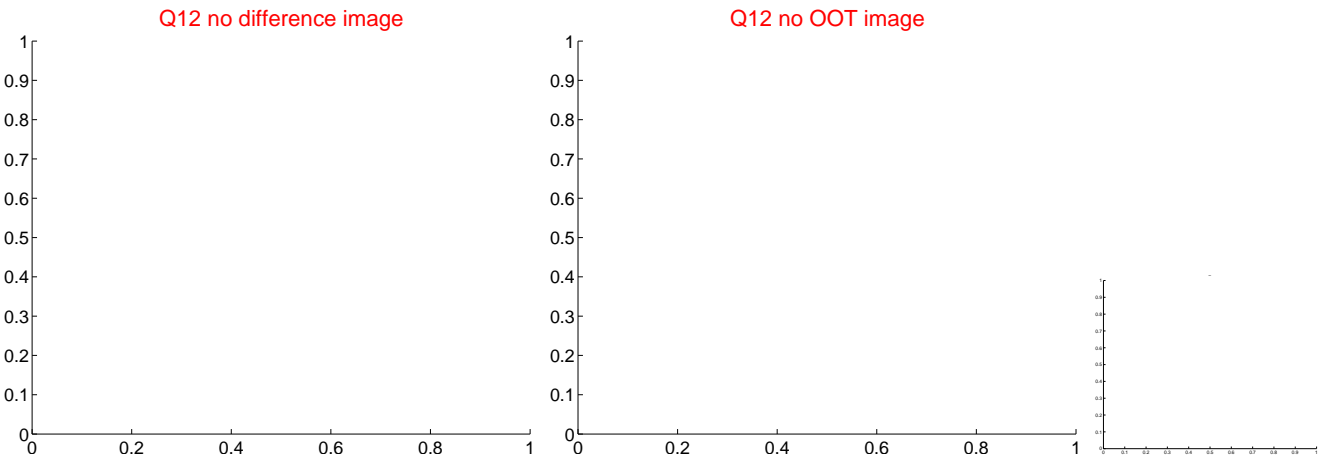
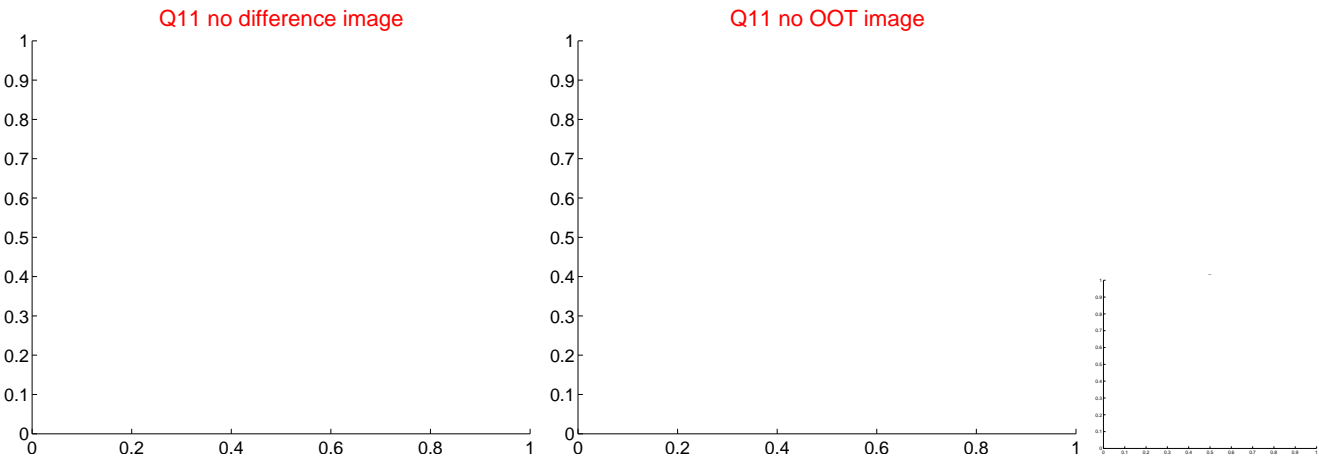
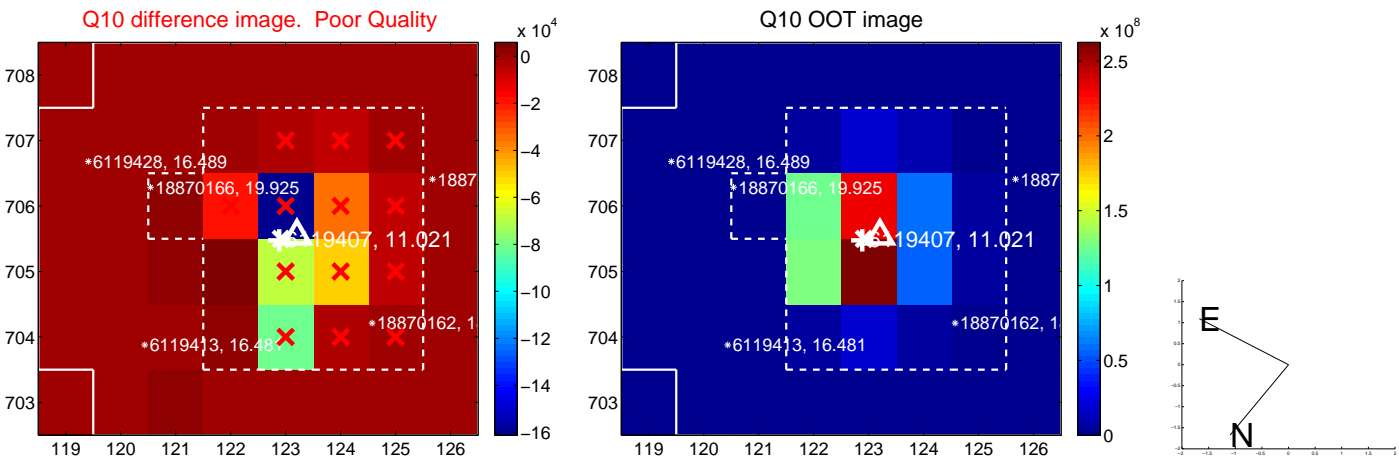
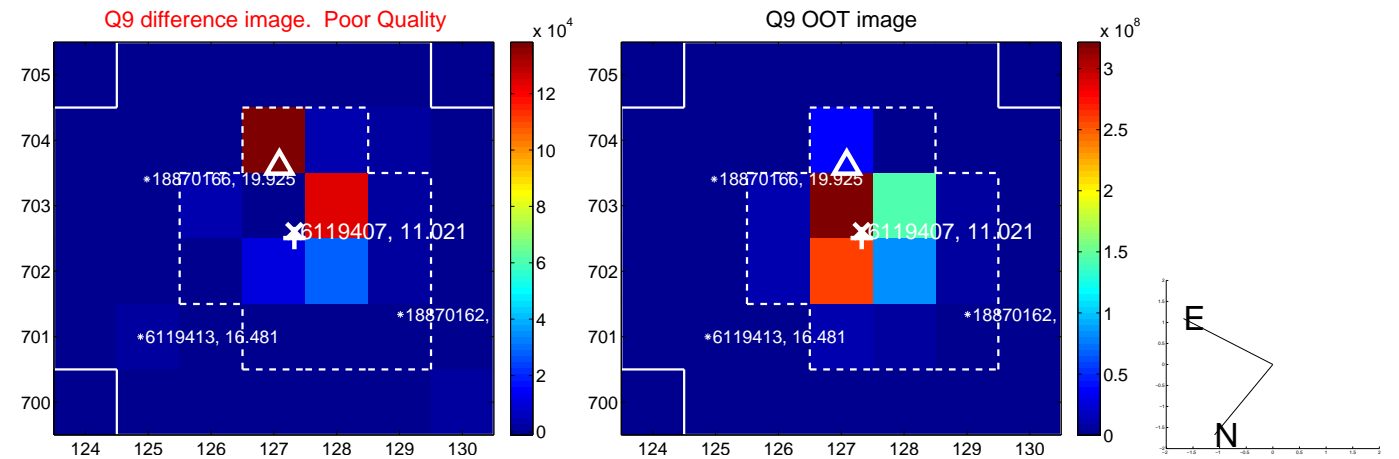


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

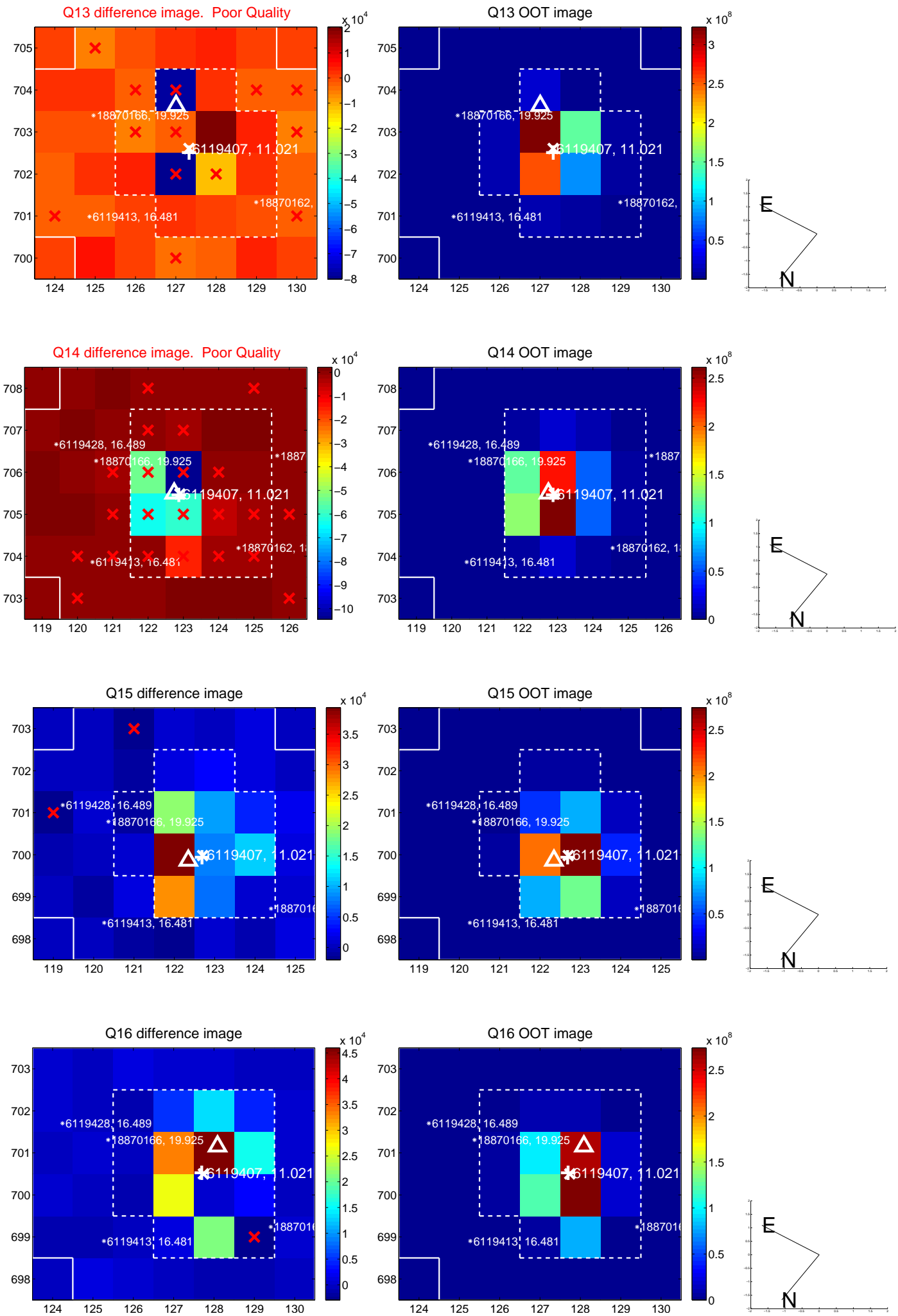
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



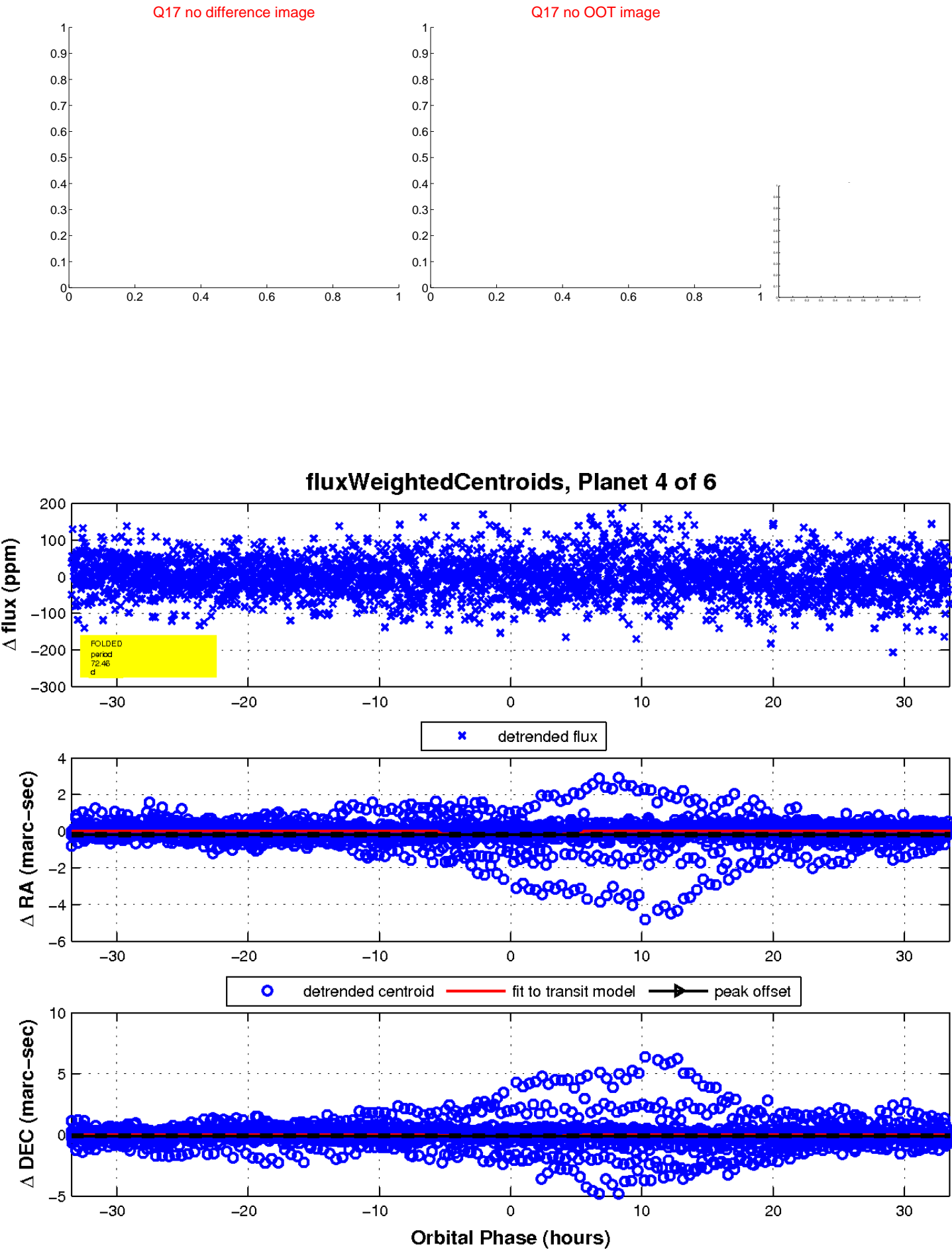
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

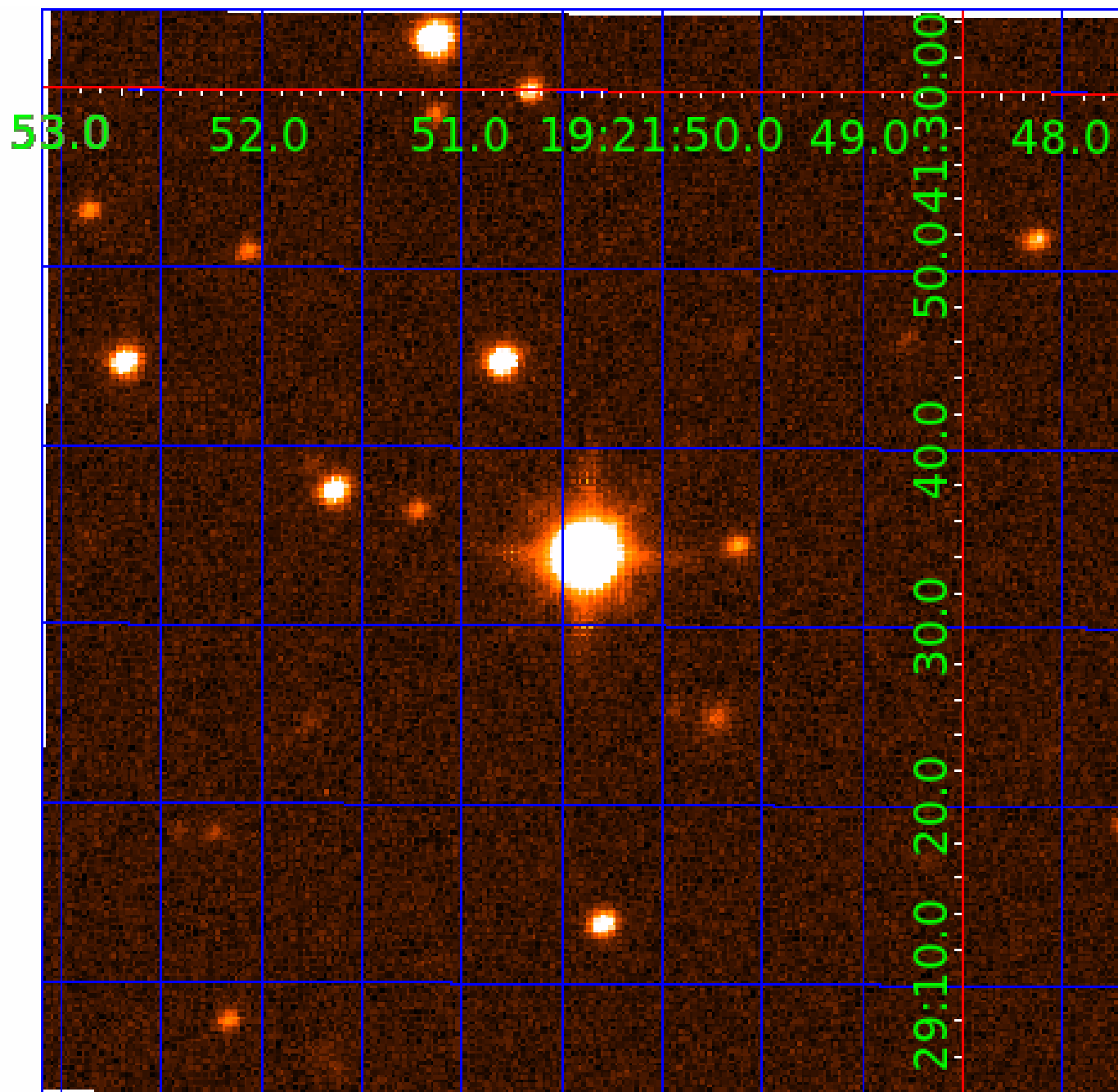


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006119407

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})
006119407-01	OBS	No	1.715915	132.665341	9.0	8.883	14.6	11.8	3.06	8437	0.93	33768.83
006119407-02	OBS	No	220.098486	180.687050	80.5	12.248	10.2	7.3	3.06	8437	3.09	52.20
006119407-03	OBS	No	131.168619	173.709701	63.6	9.000	9.3	-1.0	3.06	8437	2.47	104.09
006119407-04	OBS	No	72.455056	163.076523	30.3	11.153	8.6	4.3	3.06	8437	1.88	229.66
006119407-05	OBS	No	250.966691	329.292489	31.1	4.800	7.5	2.7	3.06	8437	1.97	43.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006119407-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_SATURATED
006119407-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
006119407-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
006119407-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006119407-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

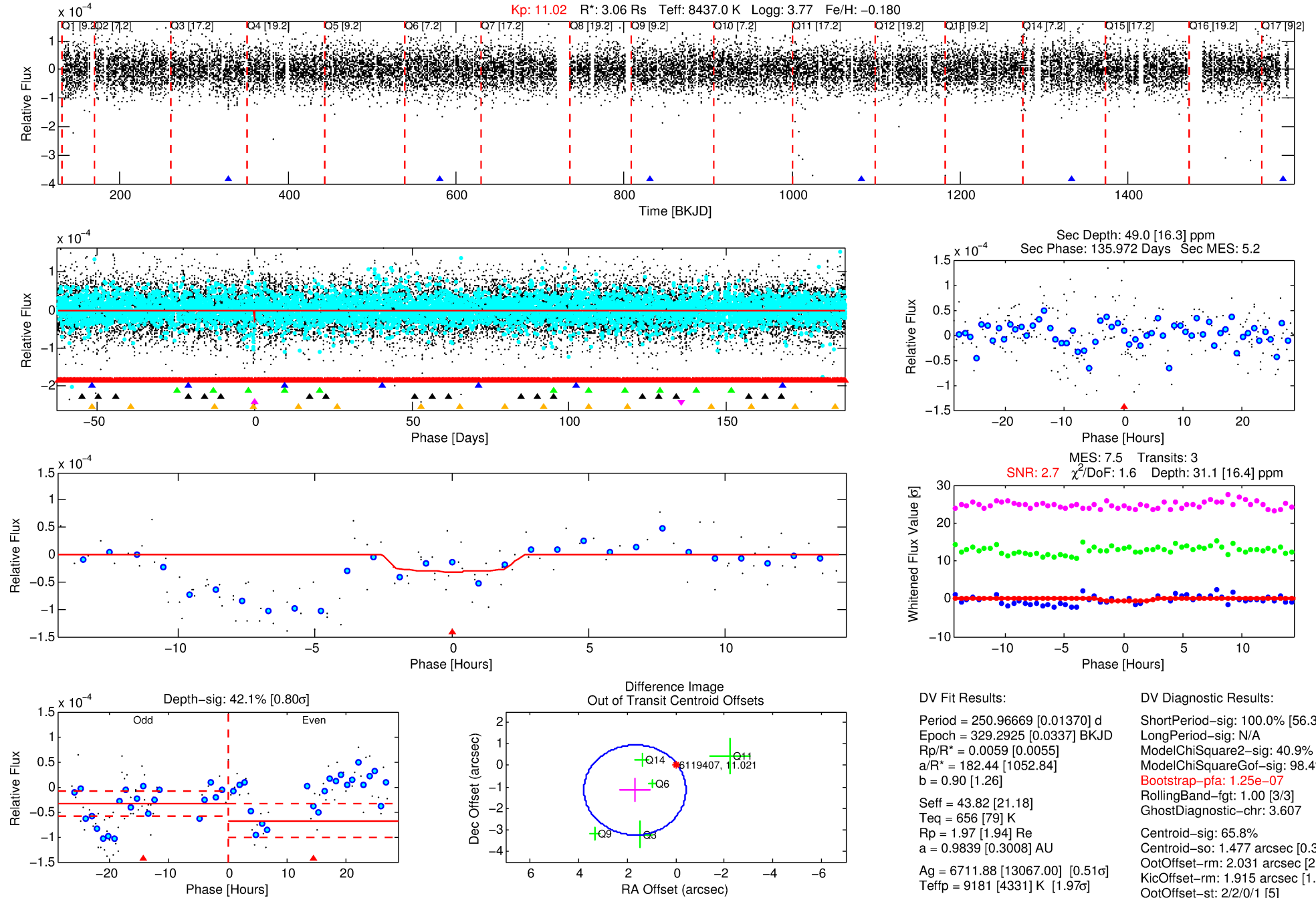
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006119407-05

No Significant Match Found

DV One-Page Summary

KIC: 6119407 Candidate: 5 of 6 Period: 250.967 d



DV Fit Results:

Period = 250.96669 [0.01370] d
Epoch = 329.2925 [0.0337] BKJD
Rp/R* = 0.0059 [0.0055]
a/R* = 182.44 [1052.84]
b = 0.90 [1.26]
Seff = 43.82 [21.18]
Teff = 656 [79] K
Rp = 1.97 [1.94] Re
a = 0.9839 [0.3008] AU
Ag = 6711.88 [13067.00] [0.51 σ]
Teffp = 9181 [4331] K [1.97 σ]

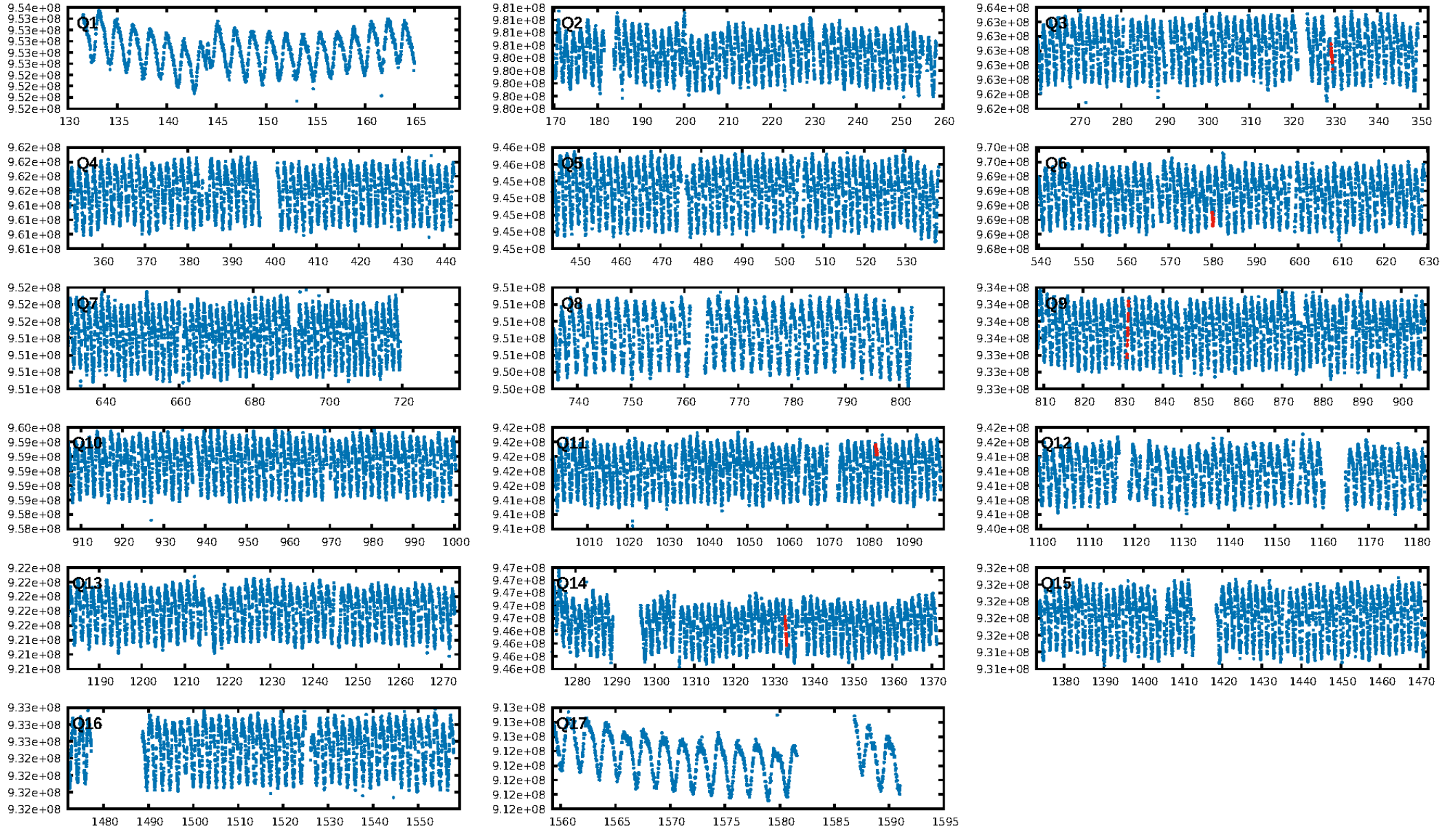
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [56.31 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 40.9%
ModelChiSquareGof-sig: 98.4%
Bootstrap-pfa: 1.25e-07
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 3.607
Centroid-sig: 65.8%
Centroid-so: 1.477 arcsec [0.36 σ]
OotOffset-rm: 2.031 arcsec [2.91 σ]
KicOffset-rm: 1.915 arcsec [1.80 σ]
OotOffset-st: 2/2/0/1 [5]
KicOffset-st: 2/2/0/1 [5]
DiffImageQuality-fgm: 0.20 [1/5]
DiffImageOverlap-fno: 0.40 [2/5]

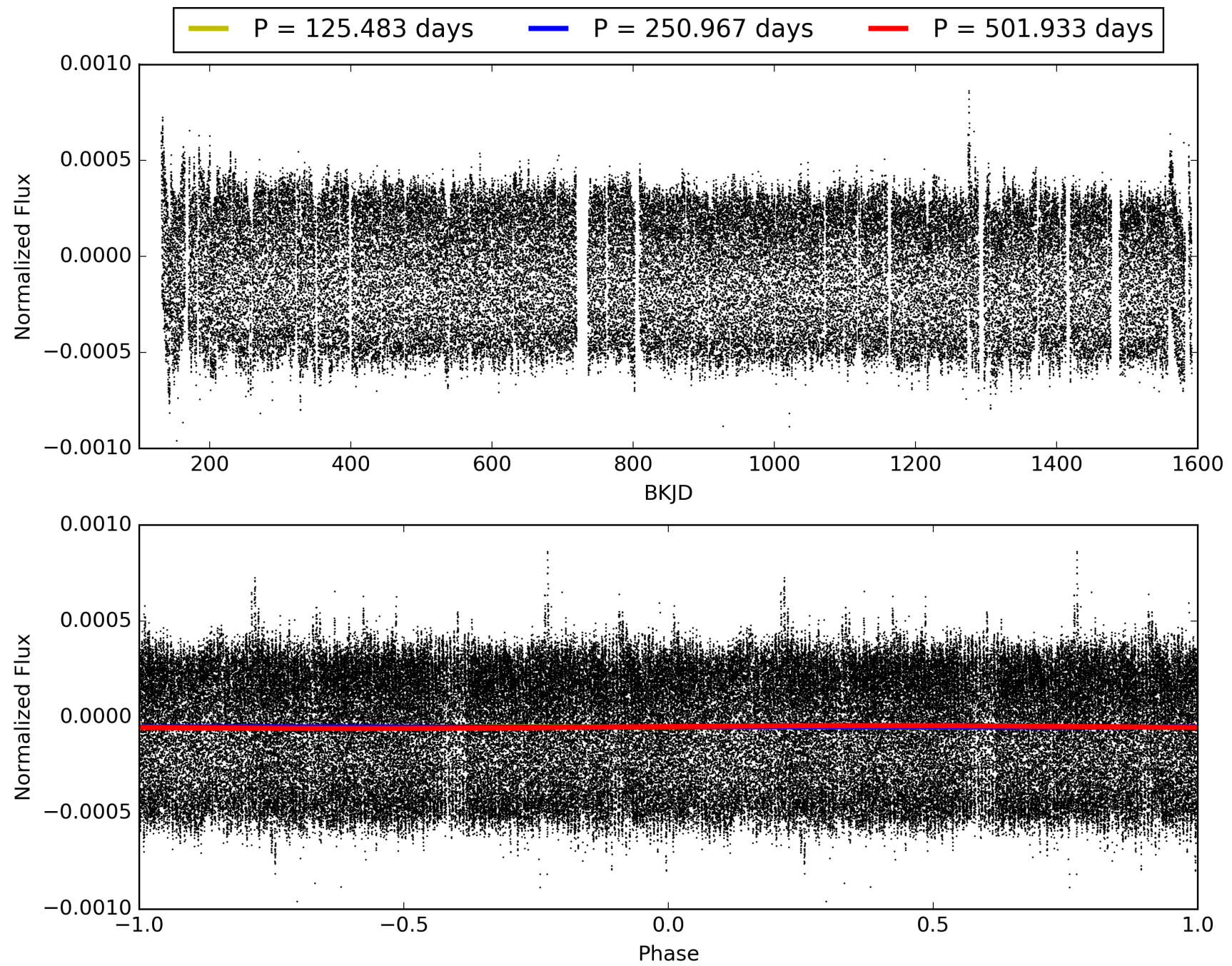
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:17:18 Z

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

TCE 006119407-05, PDC Light Curves

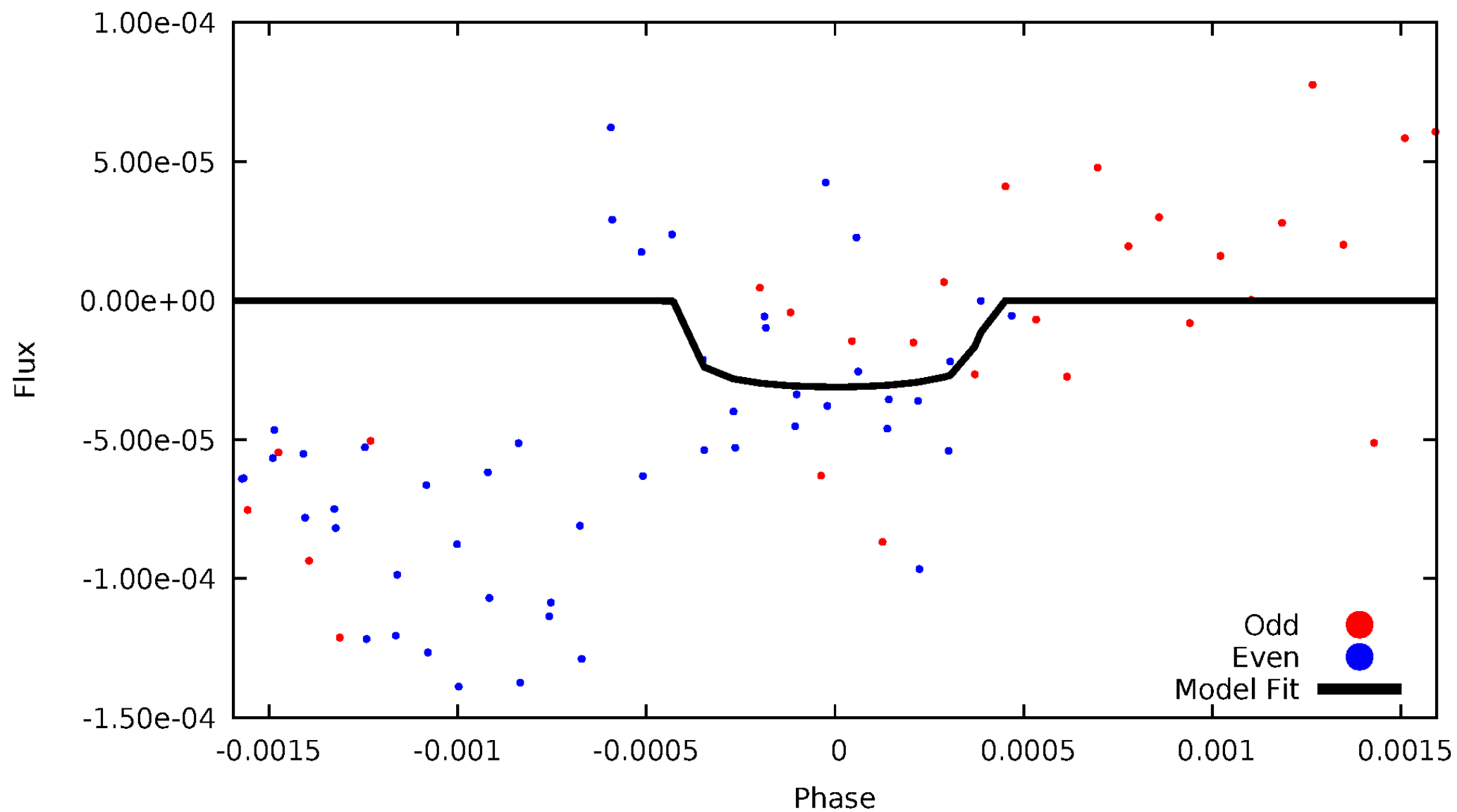


TCE 006119407-05



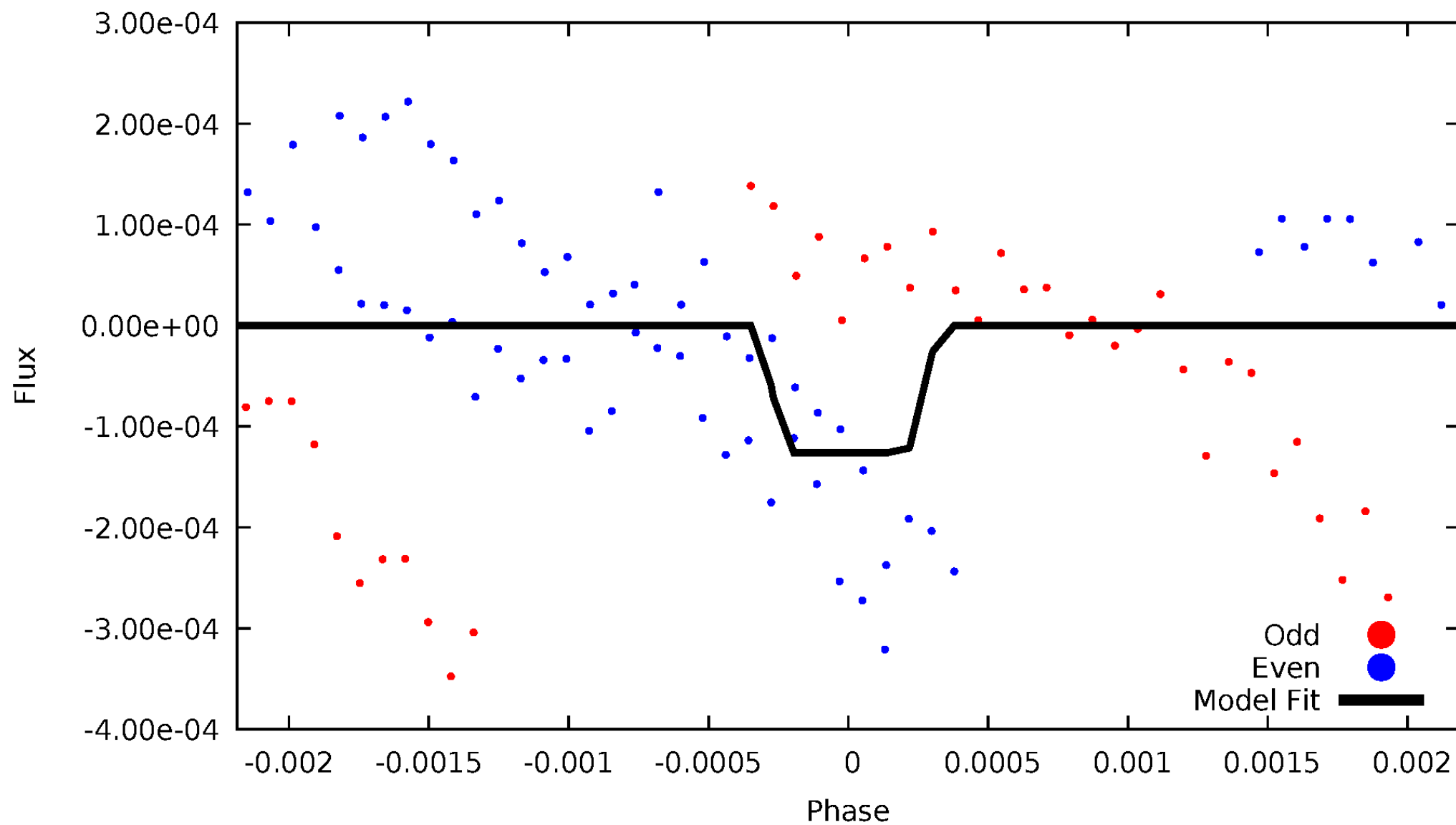
DV Odd/Even

TCE 006119407-05



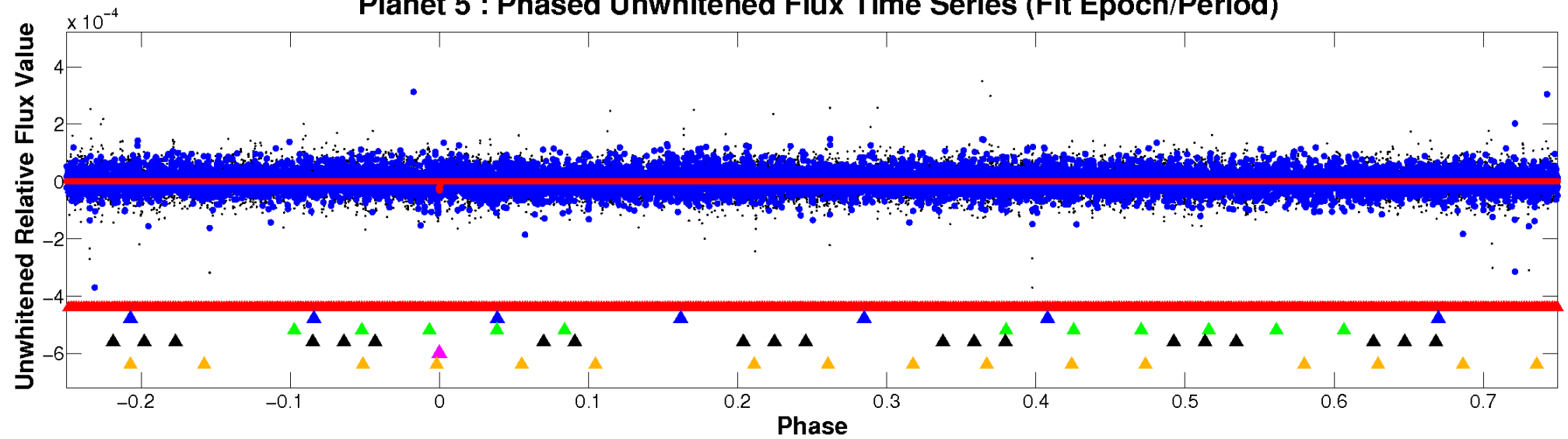
ALT Odd/Even

TCE 006119407-05

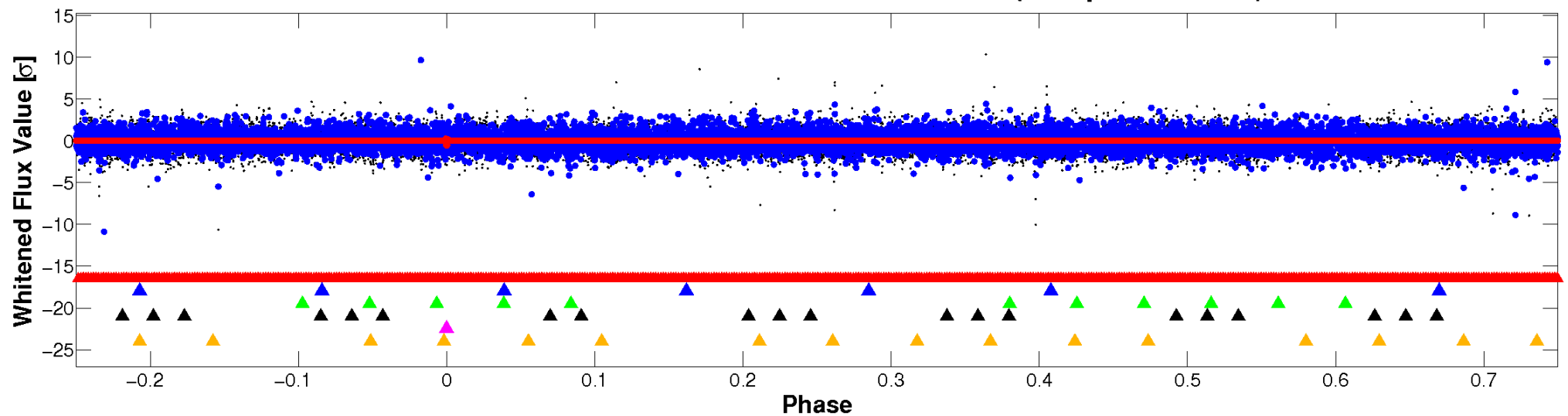


Non-Whitened Vs. Whitened Light Curve

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

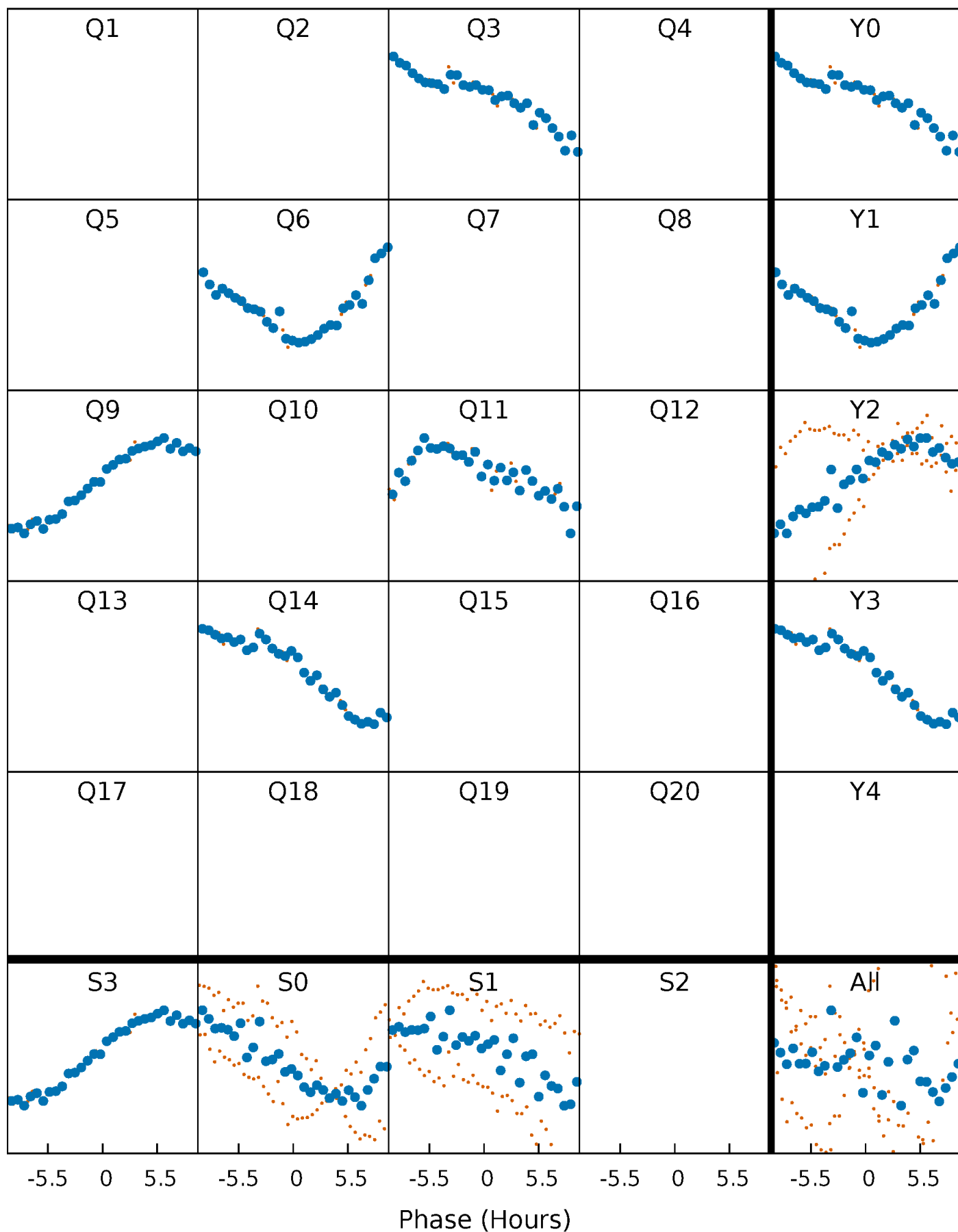


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



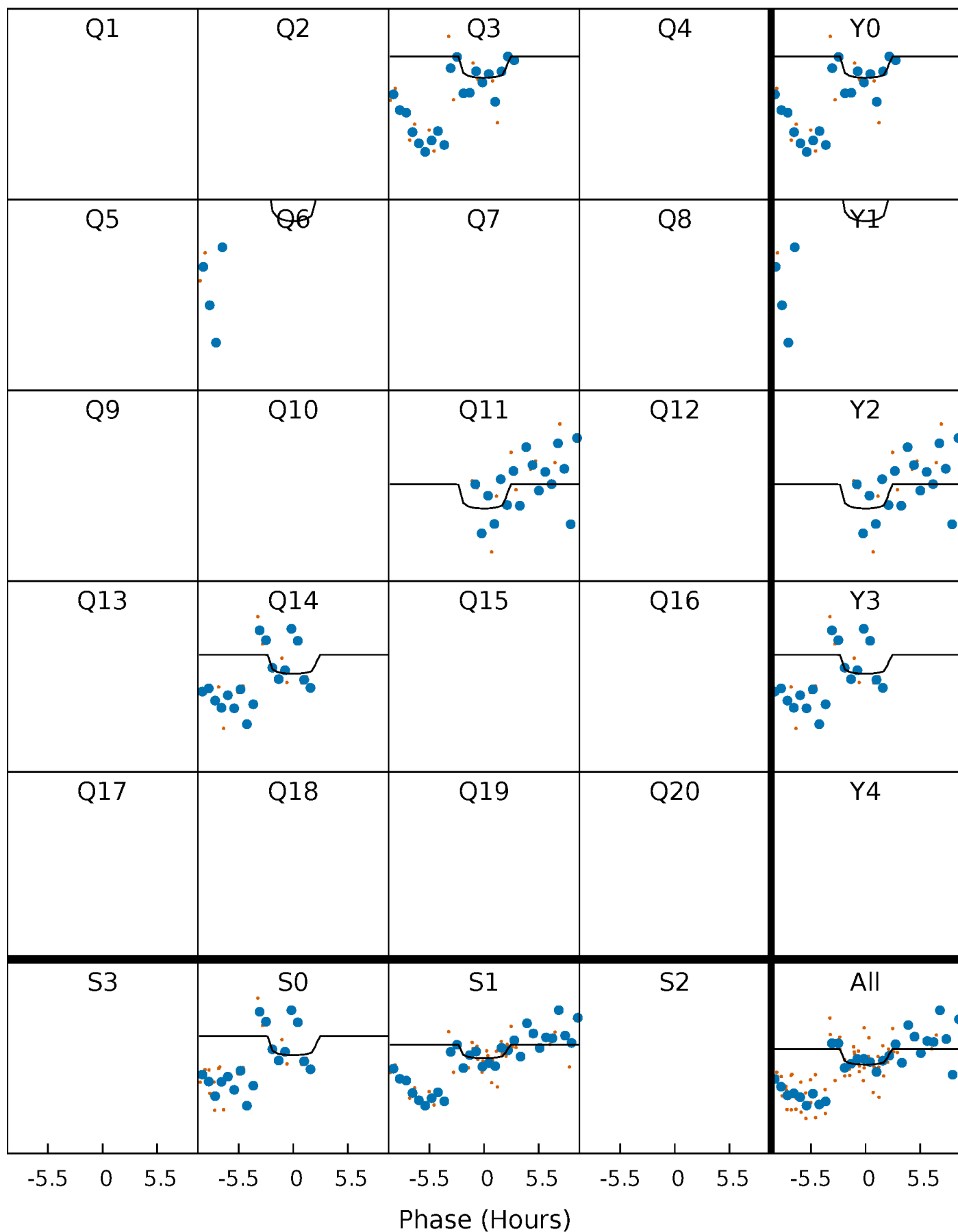
PDC Quarter-Phased Transit Curves

TCE 006119407-05 $P=250.966691$ Days $T_0=329.292489$ (BKJD)



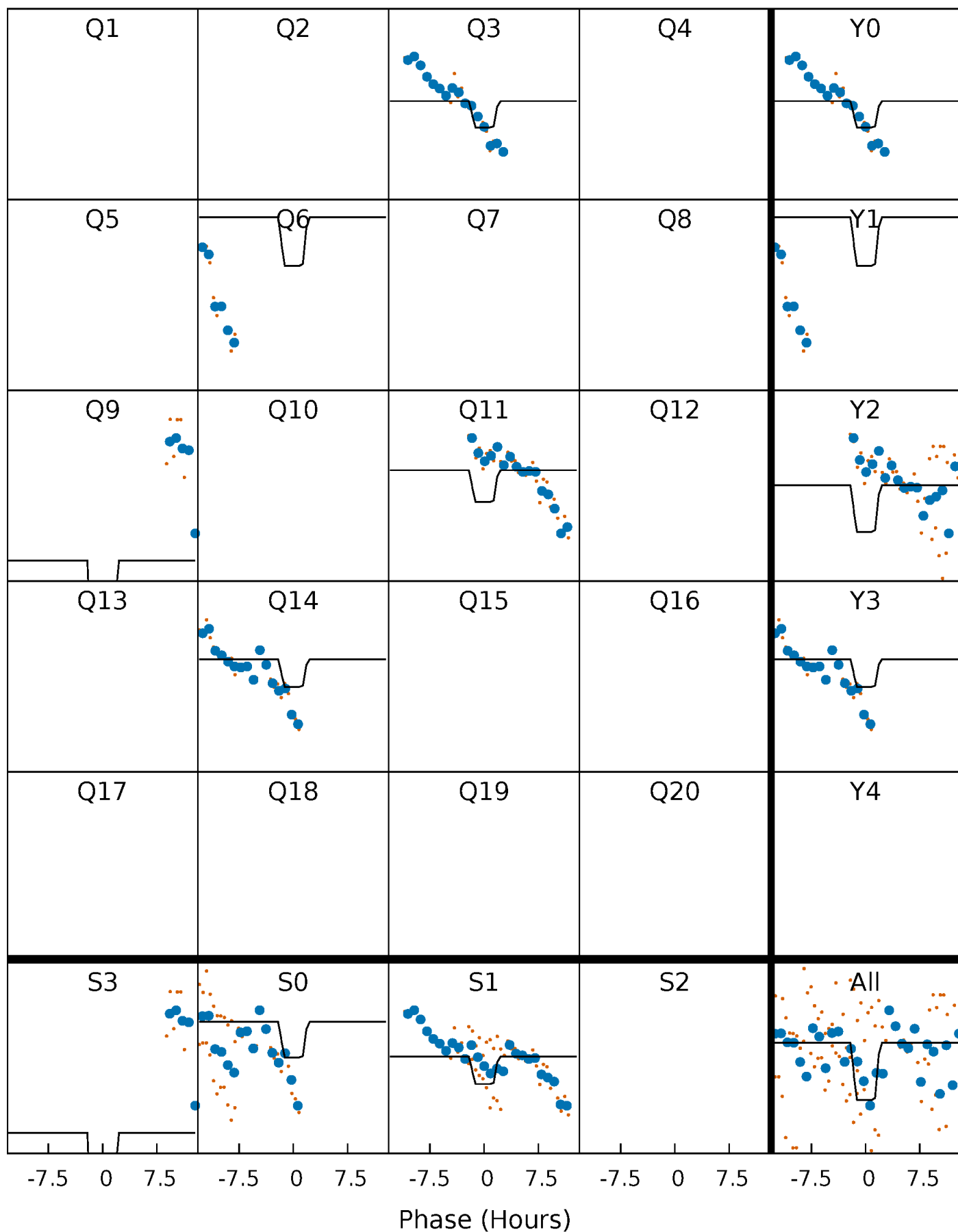
DV Quarter-Phased Transit Curves

TCE 006119407-05 $P=250.966691$ Days $T_0=329.292489$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

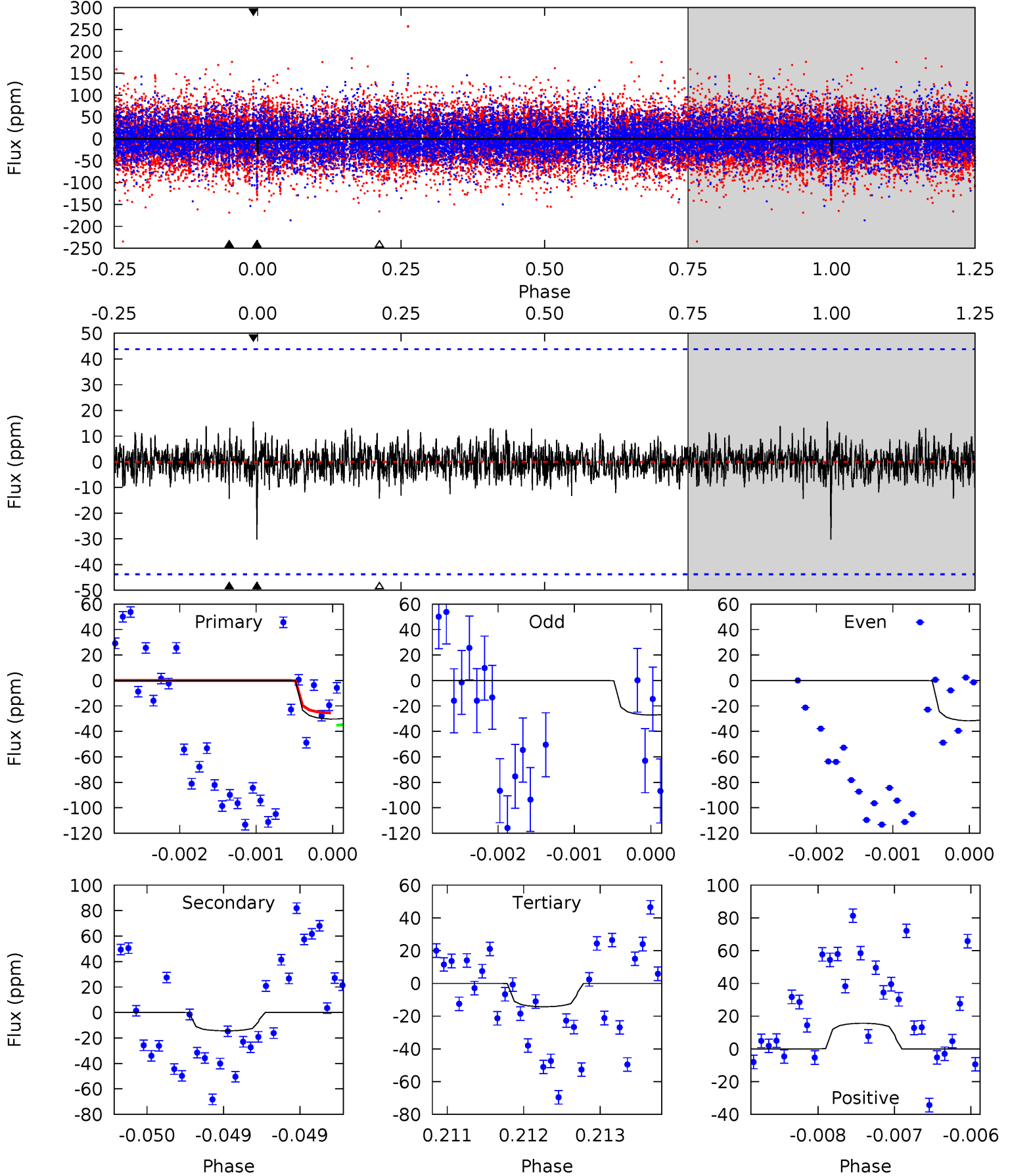
TCE 006119407-05 $P=250.971795$ Days $T_0=329.314794$ (BKJD)



DV Model-Shift Uniqueness Test

006119407-05, $P = 250.966691$ Days, $E = 78.325798$ Days

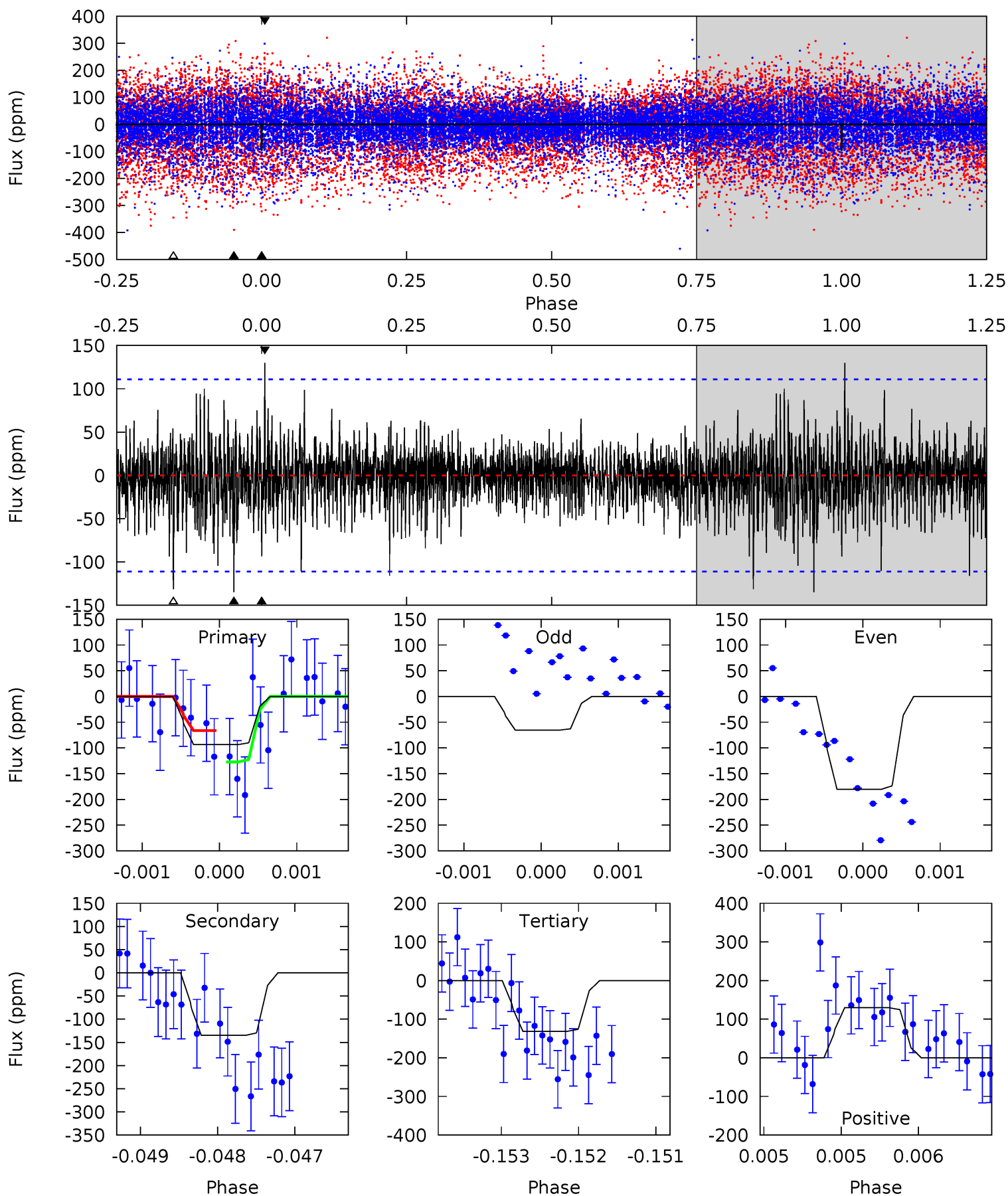
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.79	1.80	1.78	1.96	5.47	3.33	0.51	2.01	1.83	0.02	-0.16	0.25	1.11	0.34	0.60



Alt Model-Shift Uniqueness Test

006119407-05, $P = 250.971795$ Days, $E = 78.342999$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.68	6.74	6.56	6.48	5.55	3.44	1.22	-1.88	-1.80	0.18	0.26	2.69	0.73	0.49	1.52



Stellar Parameters For KIC 006119407

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8437^{+67}_{-84}	$3.772^{+0.280}_{-0.052}$	$-0.180^{+0.250}_{-0.200}$	$3.057^{+0.427}_{-0.997}$	$2.017^{+0.299}_{-0.245}$	$0.099^{+0.188}_{-0.023}$
	+1%/-1%	+7%/-1%	+139%/-111%	+14%/-33%	+15%/-12%	+189%/-23%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 006119407-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-14 ± 8	$2.10^{+1.68}_{-1.28}$	899^{+34}_{-69}	5893^{+4857}_{-1431}	1569^{+8991}_{-1168}
Alt.	-135 ± 20	$3.40^{+1.96}_{-1.63}$	896^{+36}_{-77}	8661^{+5583}_{-1818}	6346^{+16255}_{-3704}

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 $A_{obs} \gg 1.0$

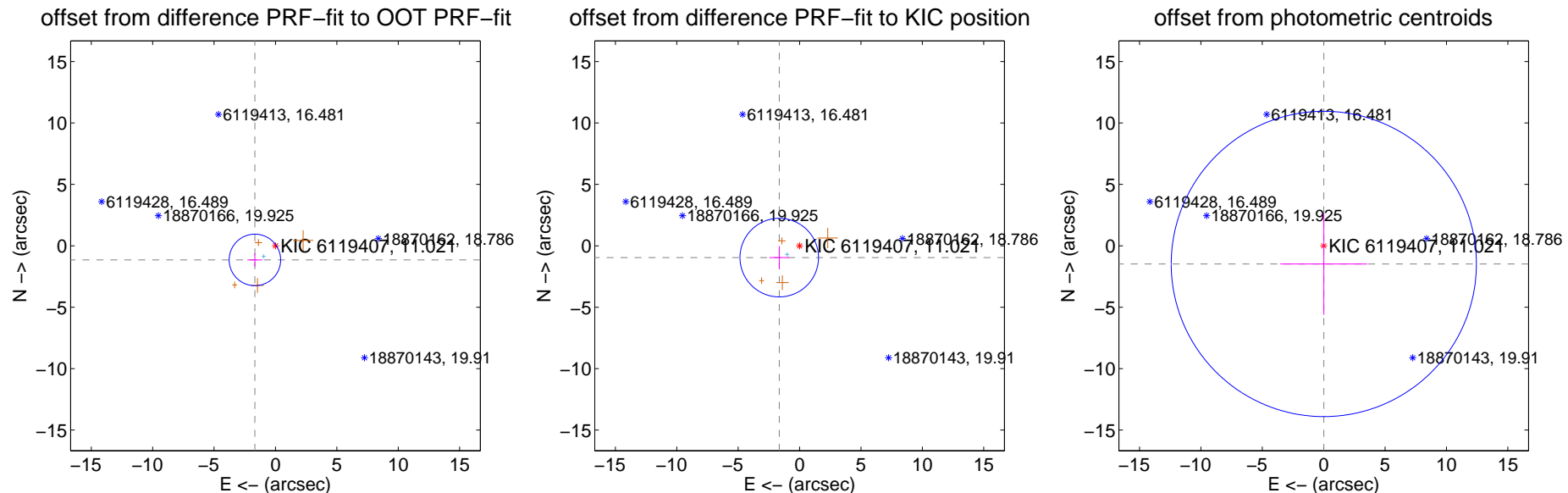
DV Centroid Data

Supplemental centroid analysis for 006119407-05. **Kepler magnitude: 11.02.** Transit SNR 2.68

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	2.031 ± 0.699	2.91	1.674 ± 0.612	-1.149 ± 0.539
PRF-fit source offset from KIC position	1.915 ± 1.066	1.80	1.656 ± 0.806	-0.961 ± 0.930
photometric centroid source offset	1.48 ± 4.14	0.36	-0.01 ± 3.54	-1.48 ± 4.14



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.

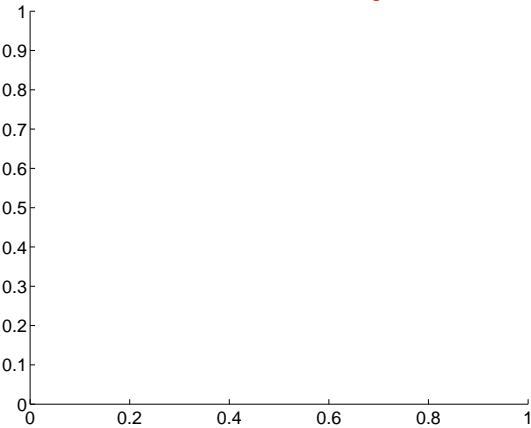
Q1 no difference image



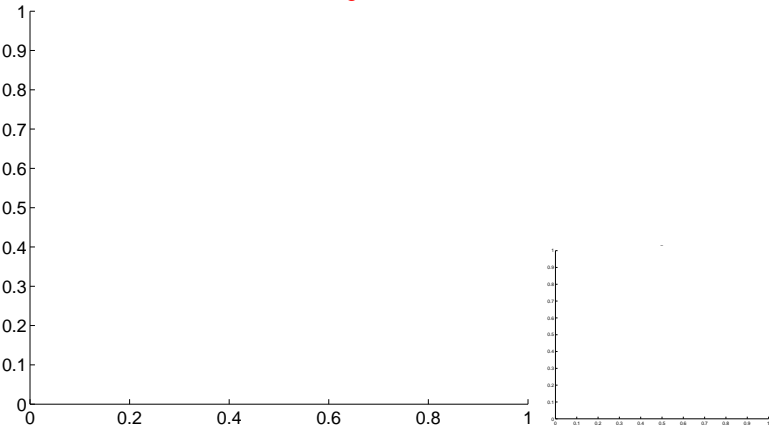
Q1 no OOT image



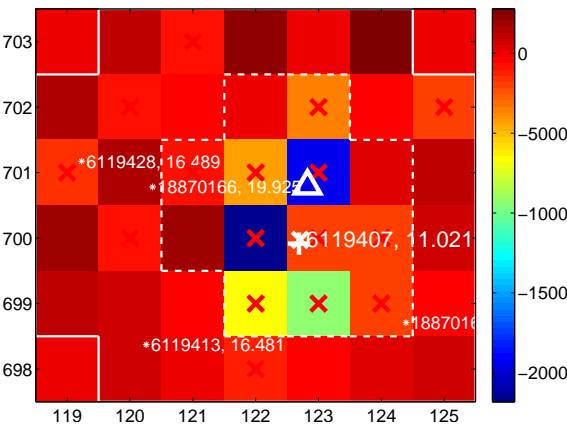
Q2 no difference image



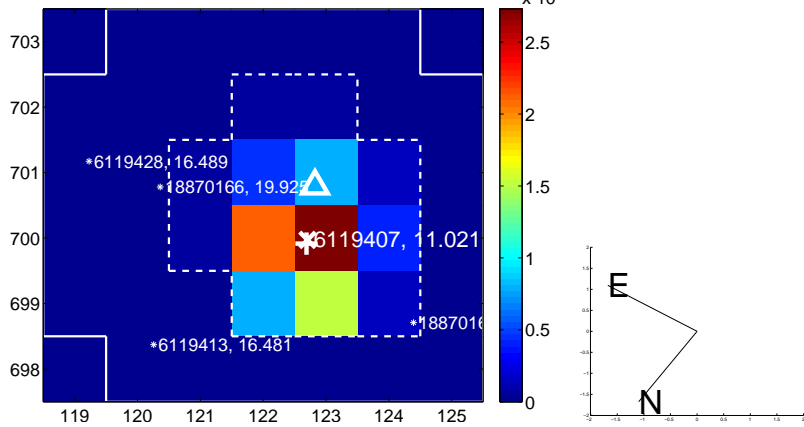
Q2 no OOT image



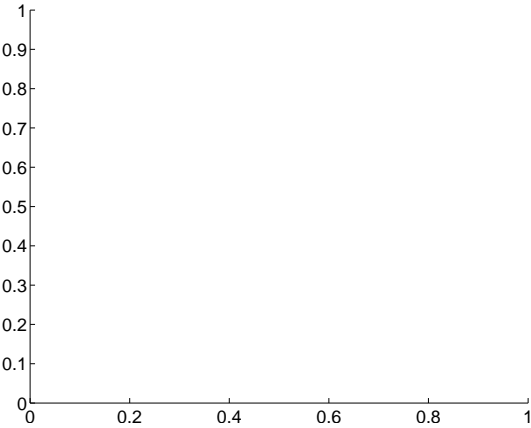
Q3 difference image. Poor Quality



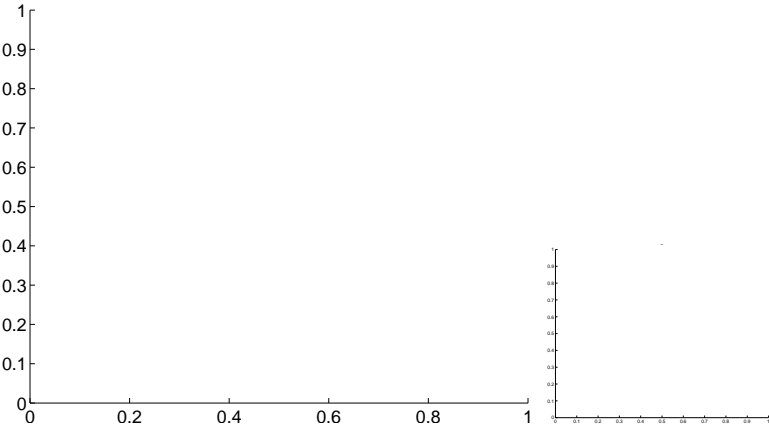
Q3 OOT image



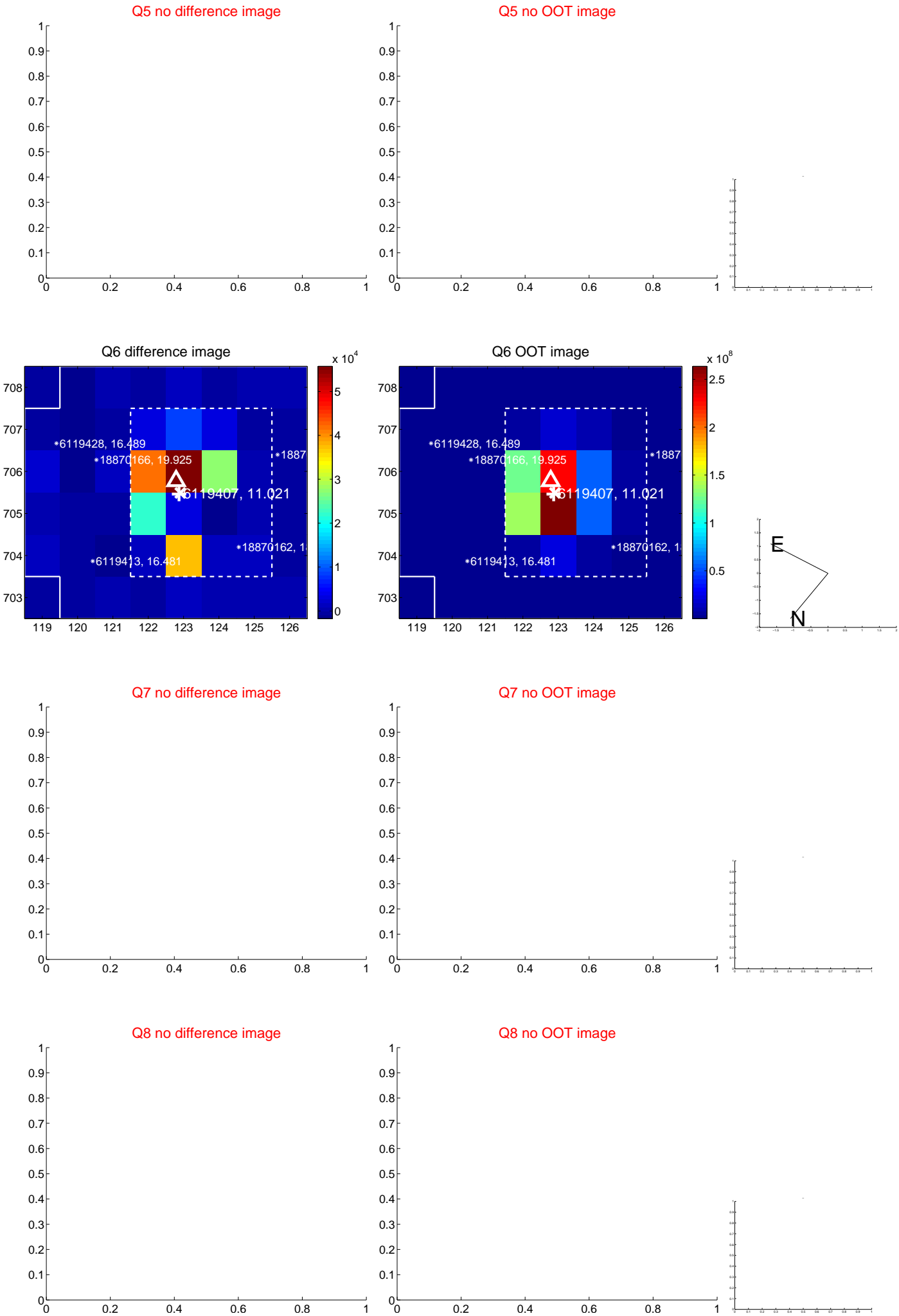
Q4 no difference image



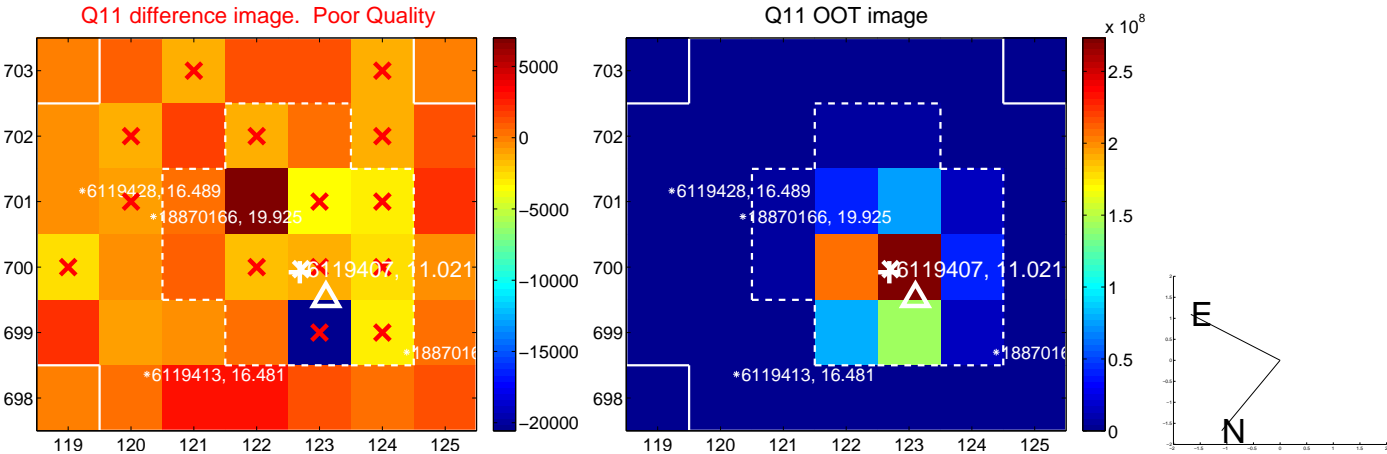
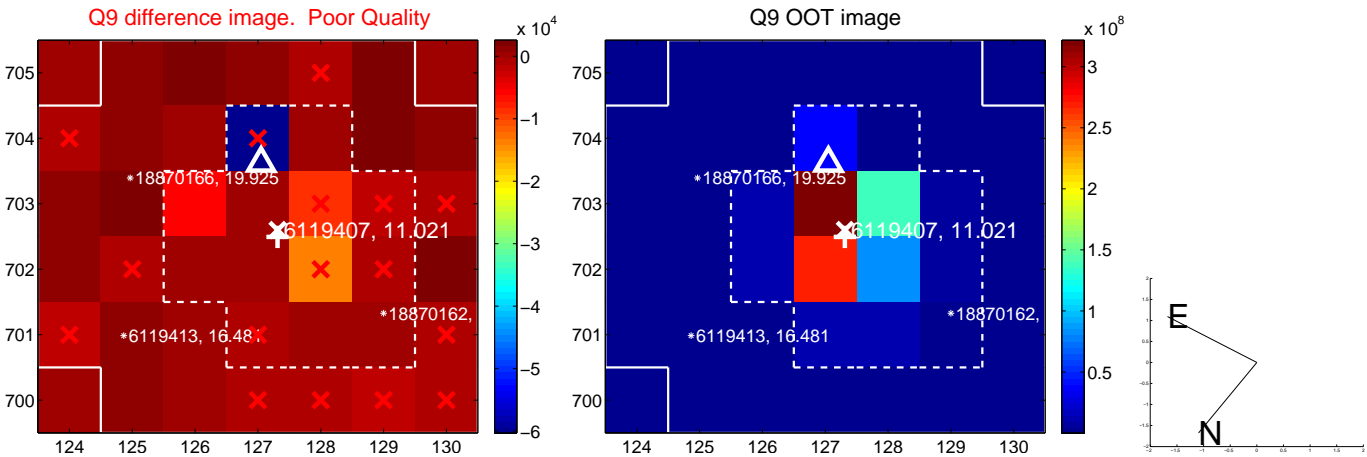
Q4 no OOT image



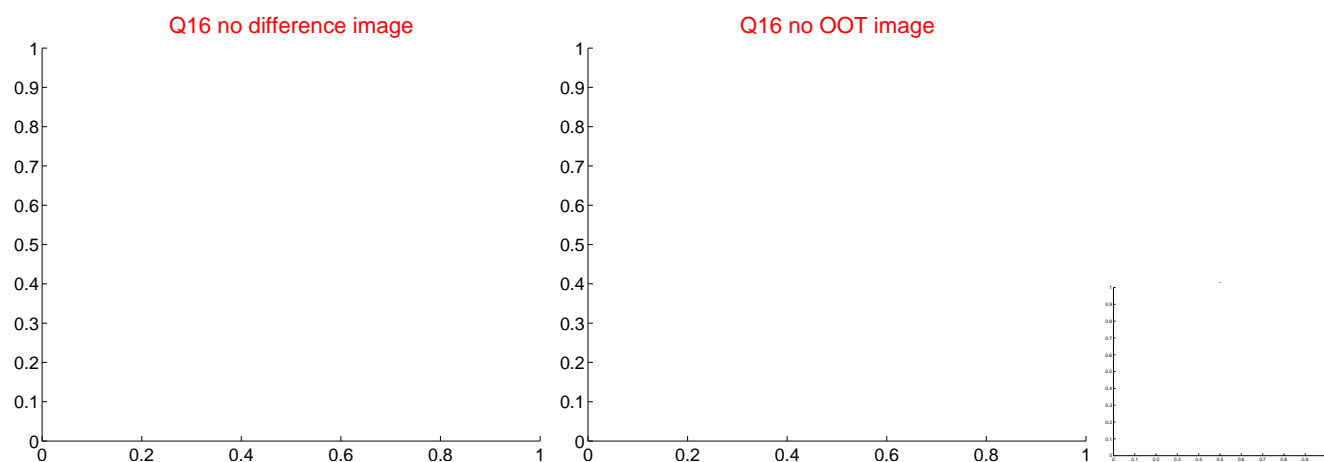
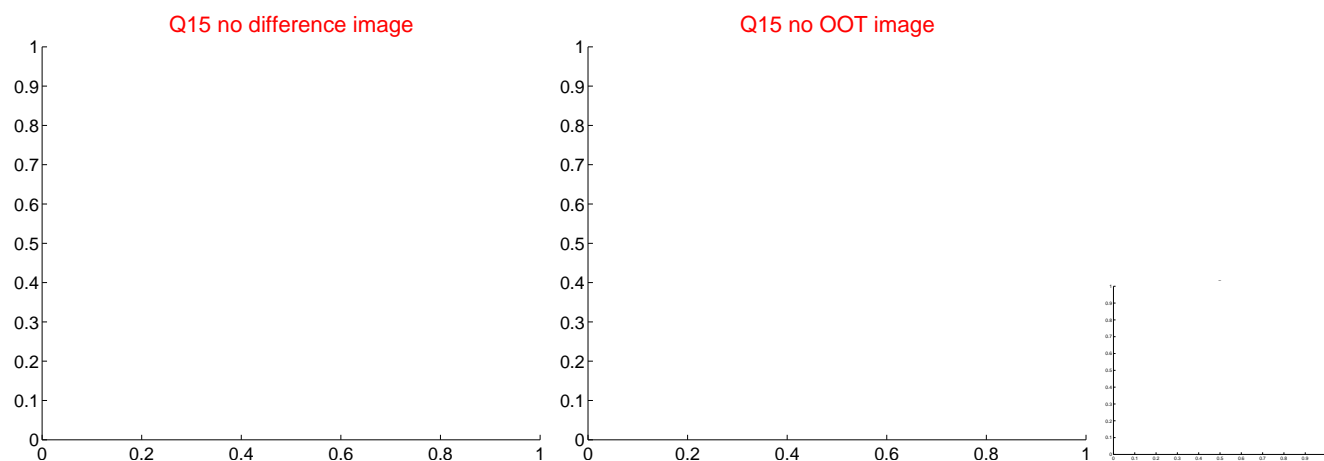
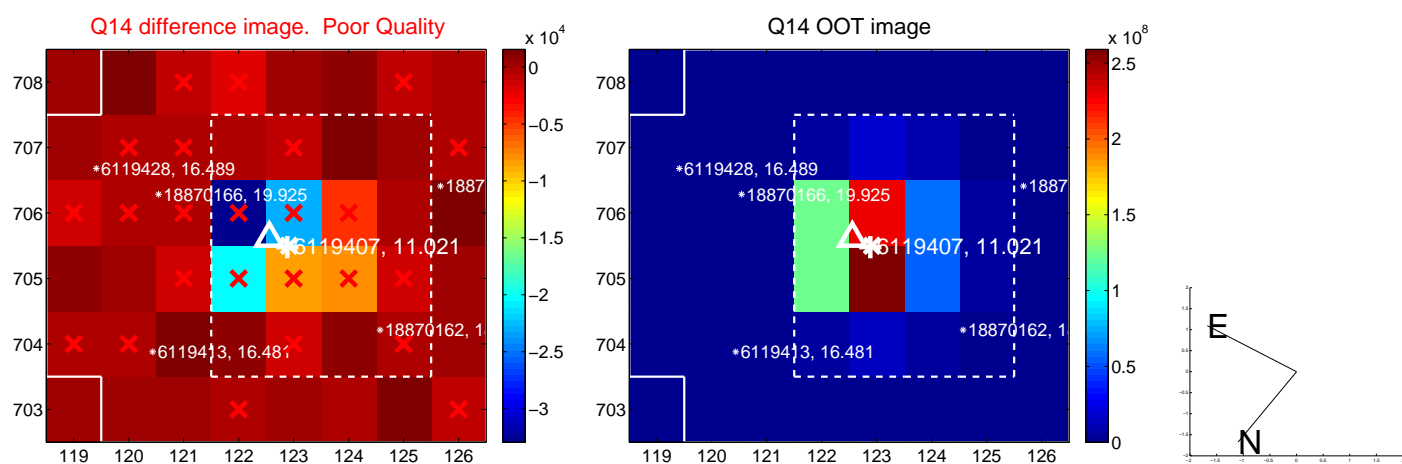
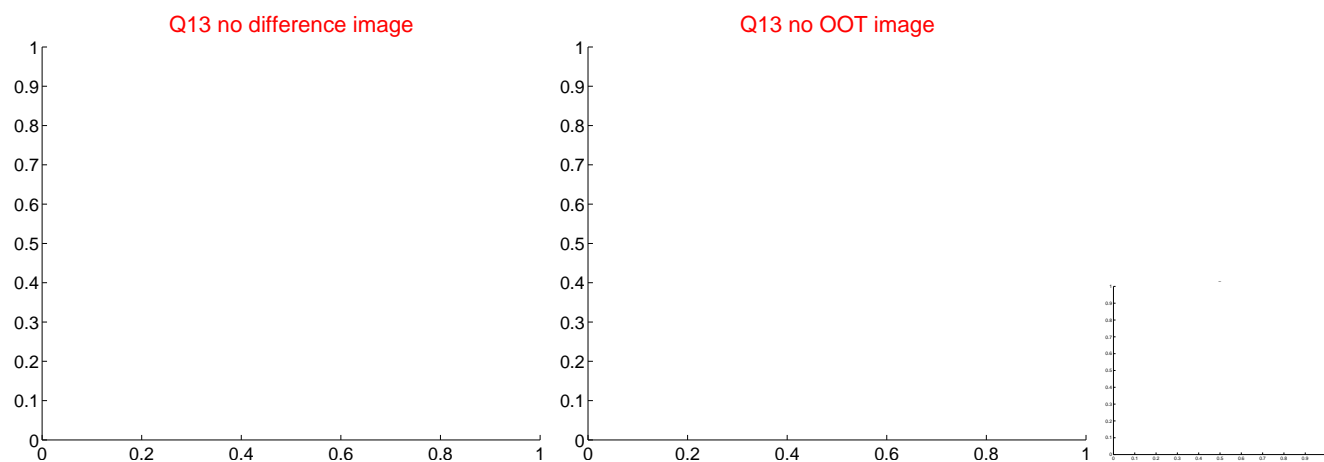
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



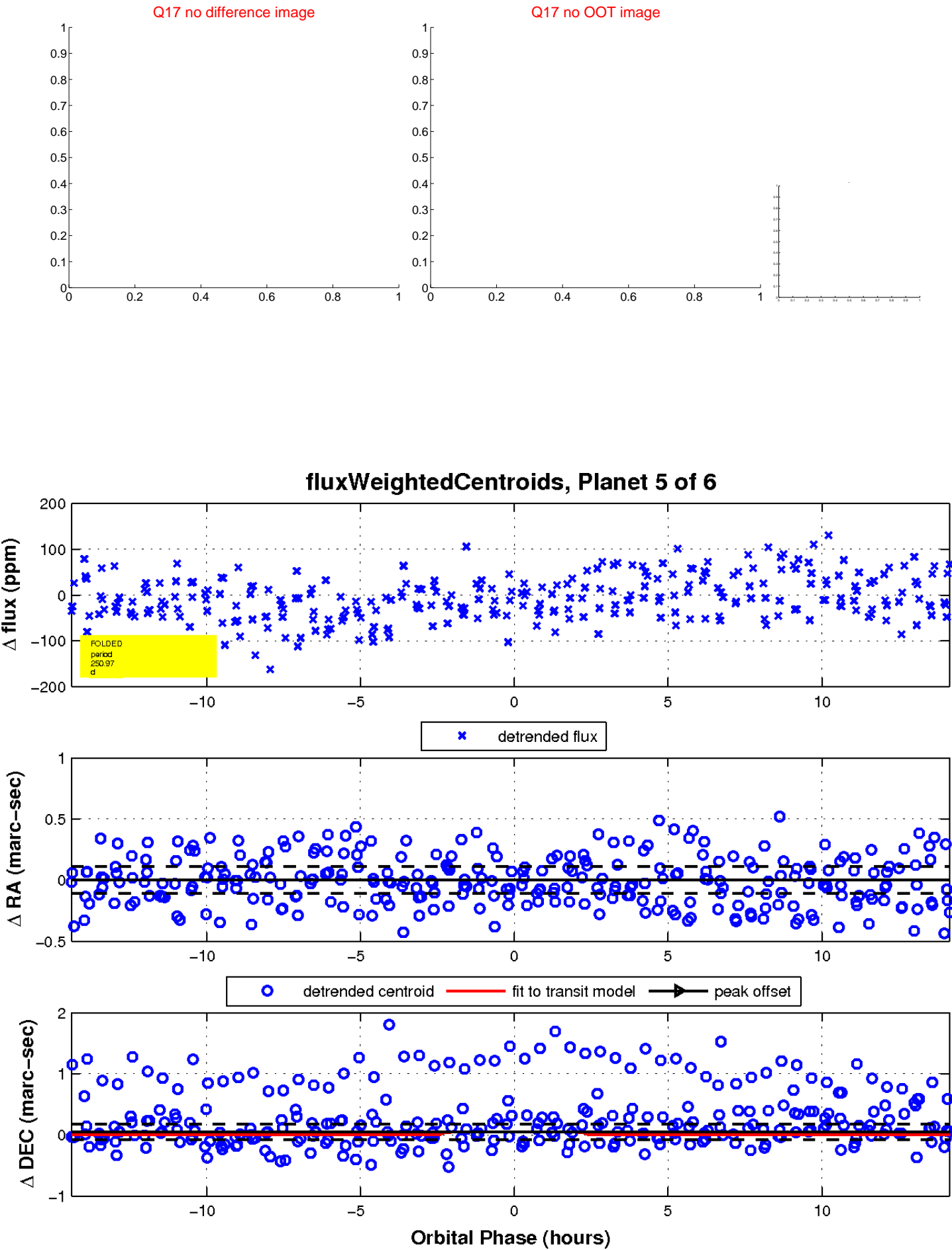
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

