

KIC 005391767

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})
005391767-01	OBS	No	0.834886	131.693199	11.9	5.428	7.7	3.3	0.98	6314	0.35	4432.86
005391767-02	OBS	No	56.197304	131.674337	550.5	4.783	11.3	9.7	0.98	6314	2.56	16.19
005391767-03	OBS	No	489.320936	193.773350	882.3	8.465	10.5	11.0	0.98	6314	3.25	0.90
005391767-04	OBS	No	126.854394	187.648633	732.7	4.541	9.5	9.3	0.98	6314	3.00	5.47
005391767-05	OBS	No	49.403648	174.663481	503.6	6.307	8.9	9.9	0.98	6314	2.44	19.22
005391767-06	OBS	No	31.794911	157.264839	367.6	2.107	8.6	6.1	0.98	6314	2.16	34.60
005391767-07	OBS	No	53.256593	172.075440	428.8	3.669	8.0	7.4	0.98	6314	2.21	17.39
005391767-08	OBS	No	59.737722	158.056402	440.1	5.109	8.5	8.5	0.98	6314	2.30	14.92
005391767-10	OBS	No	28.485201	145.764735	498.0	1.265	7.7	9.0	0.98	6314	2.58	40.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005391767-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005391767-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST
005391767-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

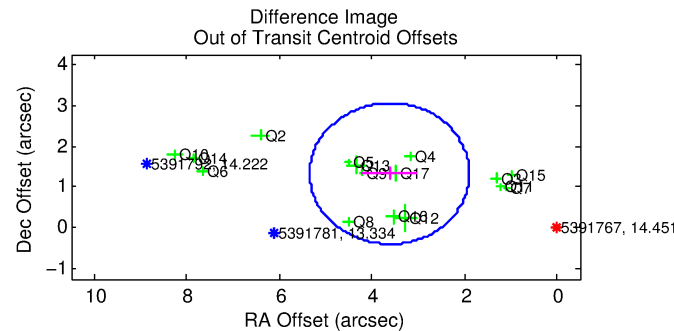
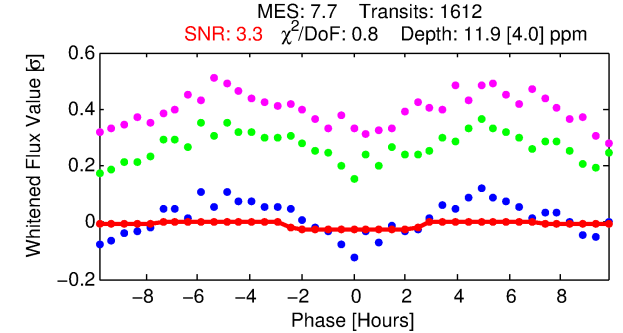
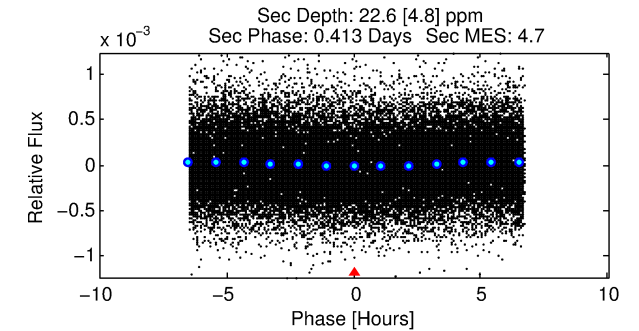
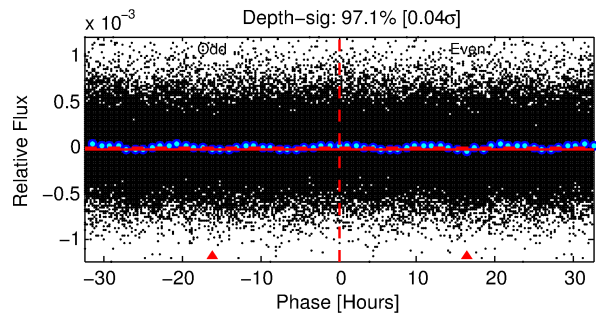
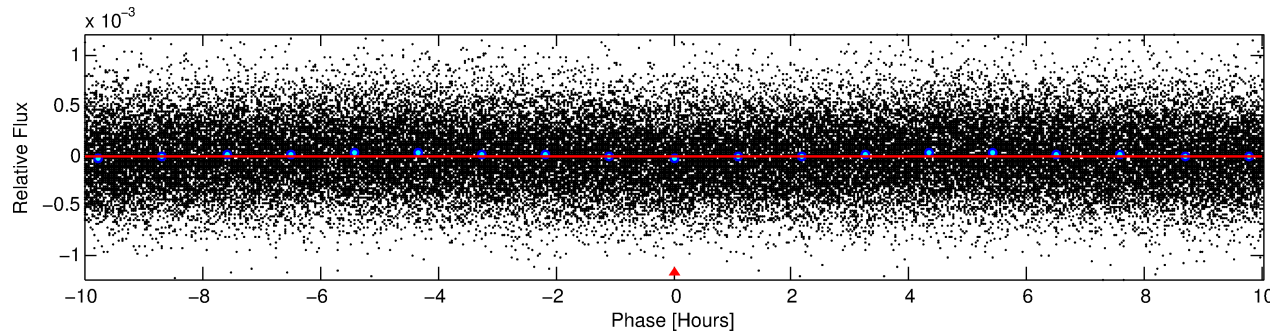
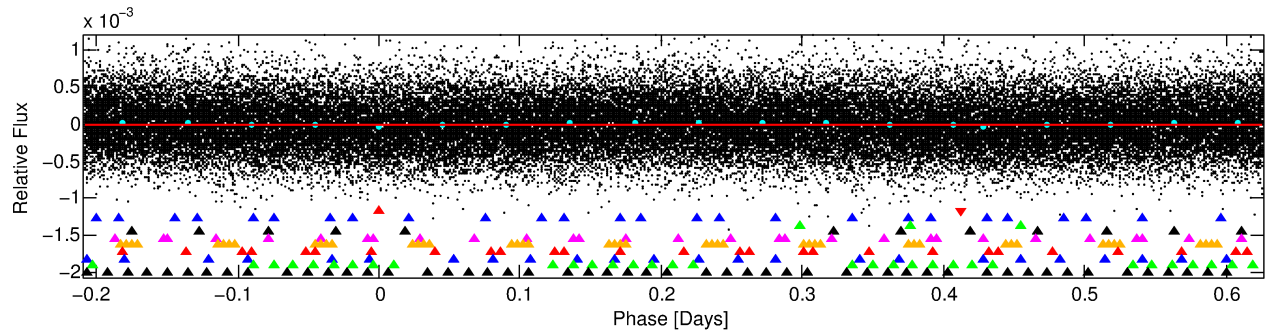
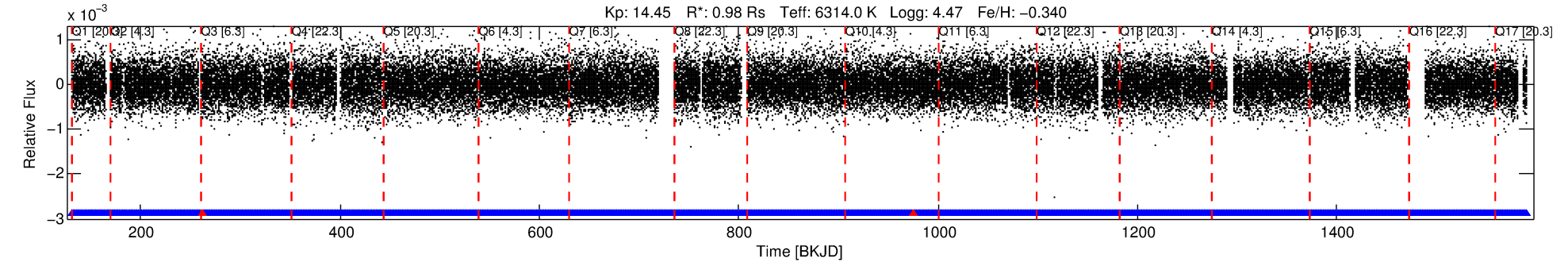
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005391767-01

No Significant Match Found

DV One-Page Summary

KIC: 5391767 Candidate: 1 of 10 Period: 0.835 d



DV Fit Results:

Period = 0.83489 [0.00004] d
Epoch = 131.6932 [0.0144] BKJD
Rp/R* = 0.0033 [0.0043]
a/R* = 1.24 [3.00]
b = 0.57 [8.44]
Seff = 4432.86 [1858.73]
Teff = 2081 [218] K
Rp = 0.35 [0.48] Re
a = 0.0176 [0.0049] AU
Ag = 31.01 [82.71] [0.36 σ]
Teffp = 7591 [5011] K [1.10 σ]

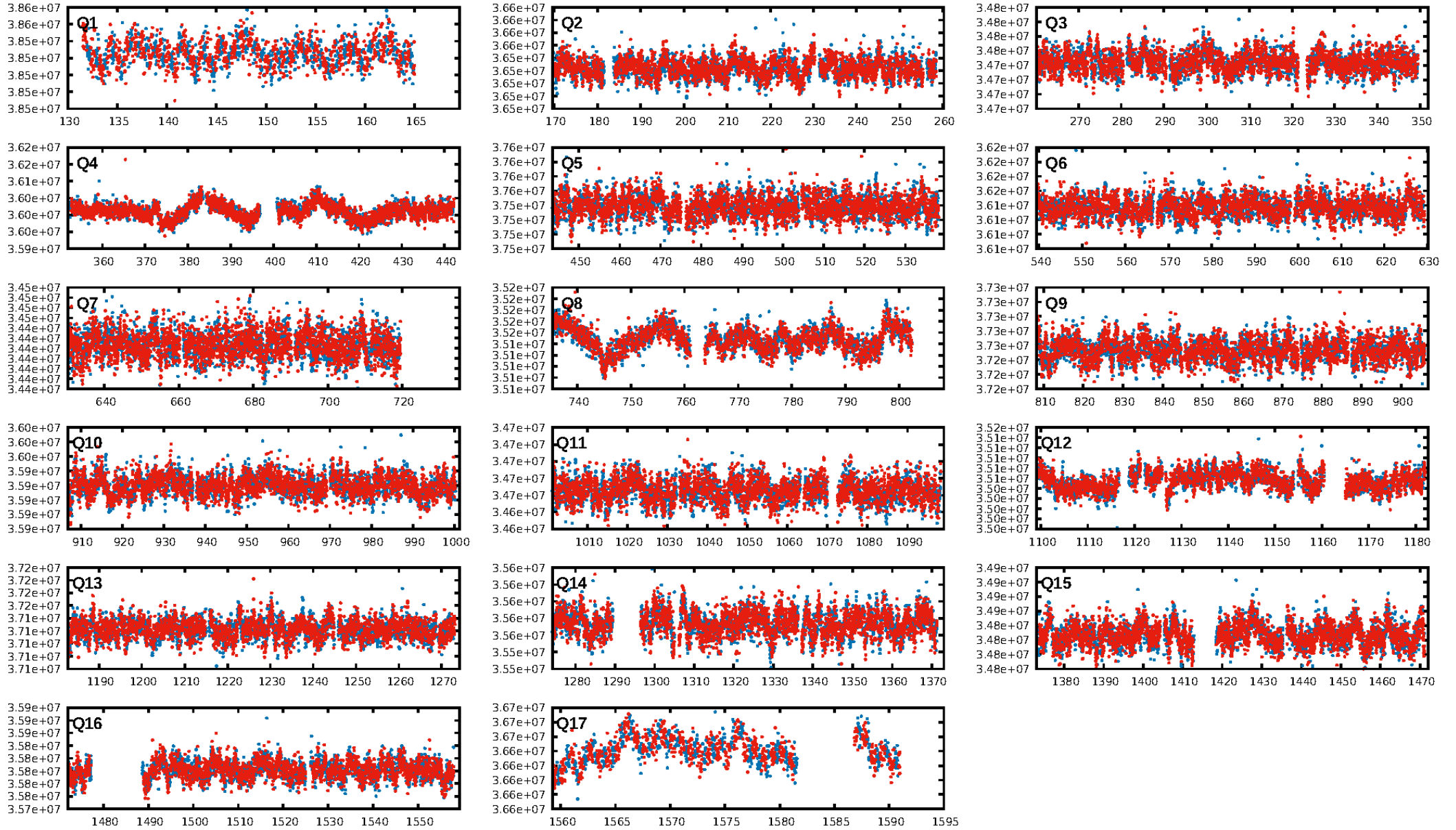
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [119.07 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.05e-11
RollingBand-fgt: 1.00 [1536/1538]
GhostDiagnostic-chr: -0.6374
Centroid-sig: 0.0%
Centroid-so: 10.133 arcsec [3.40 σ]
OotOffset-rm: 3.857 arcsec [6.70 σ]
KicOffset-rm: 8.979 arcsec [74.20 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

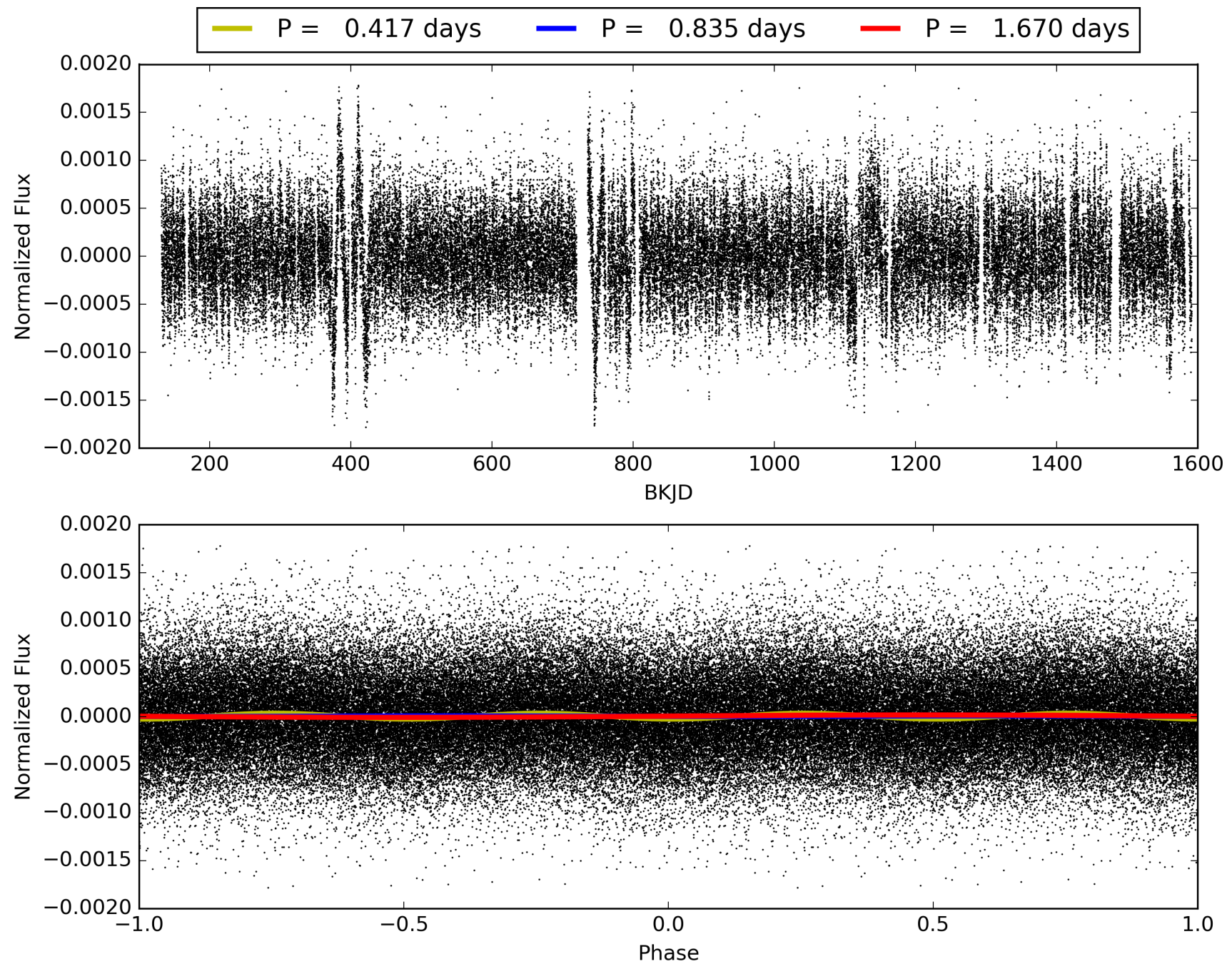
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:10:23 Z

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

TCE 005391767-01, PDC Light Curves

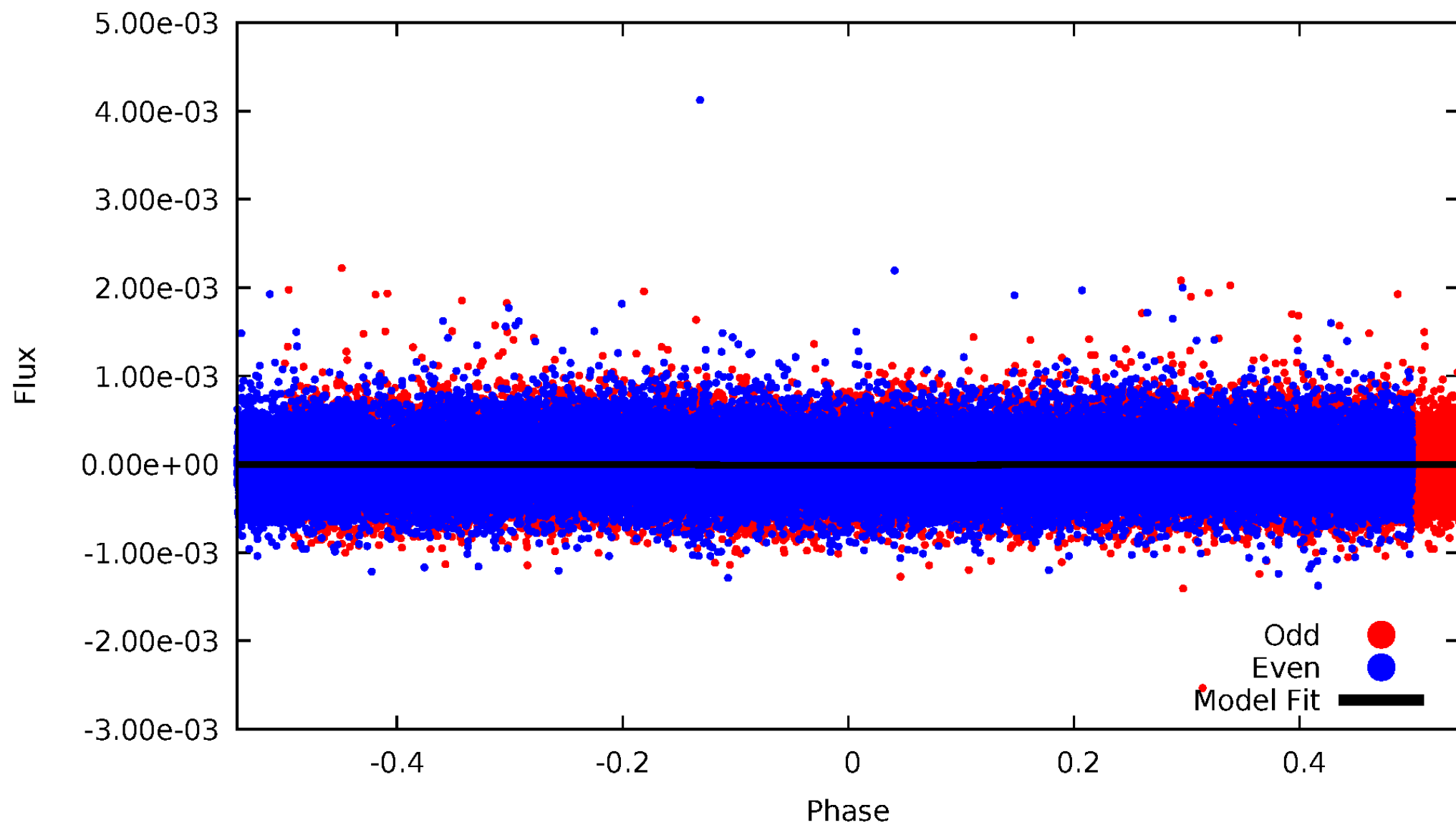


TCE 005391767-01



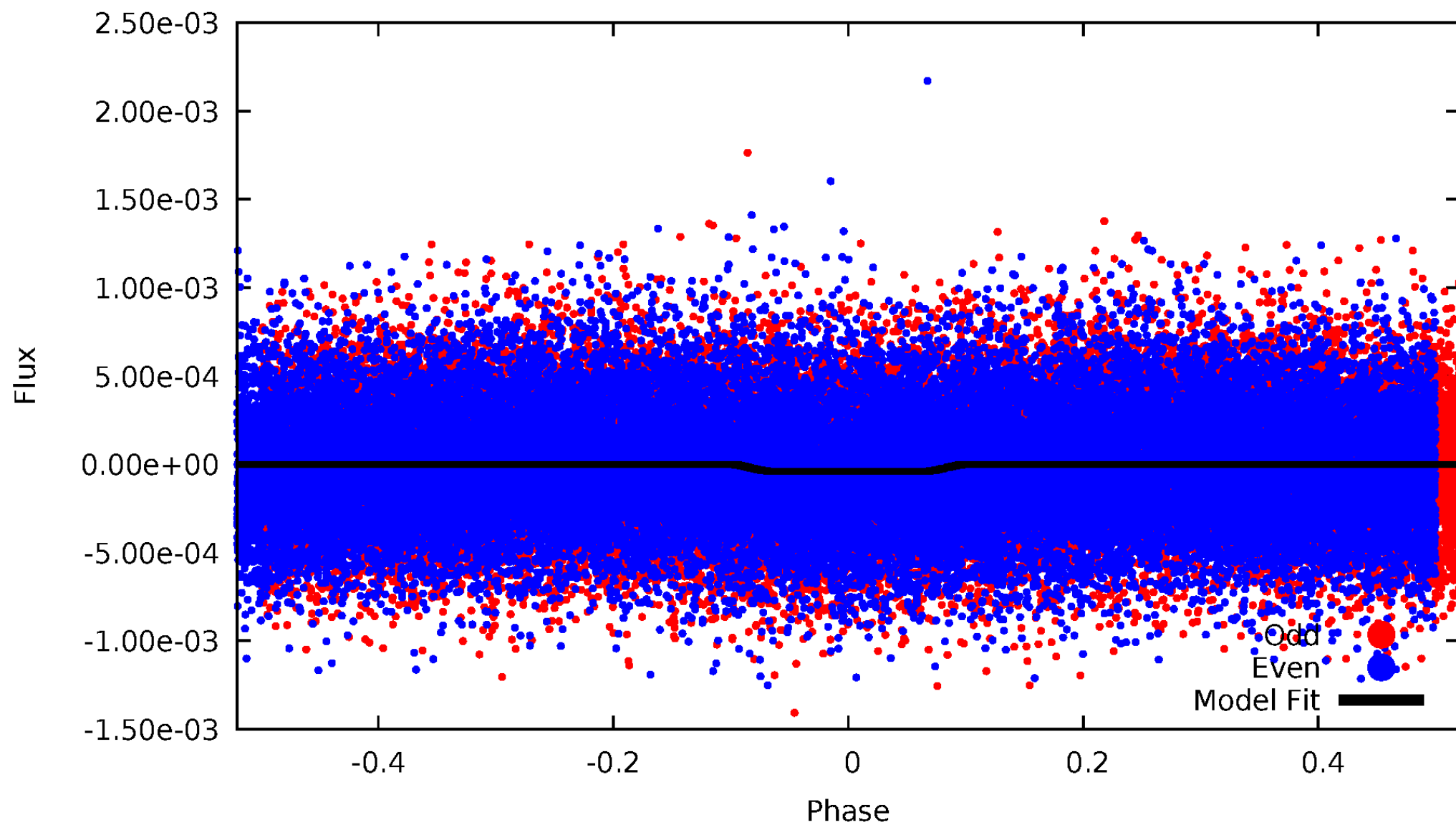
DV Odd/Even

TCE 005391767-01



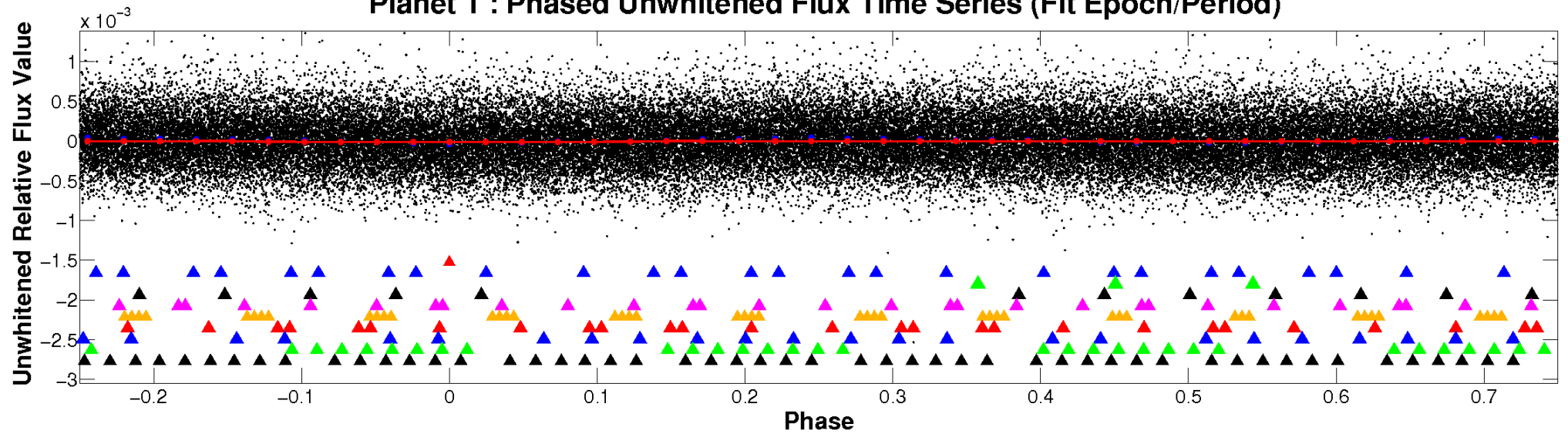
ALT Odd/Even

TCE 005391767-01

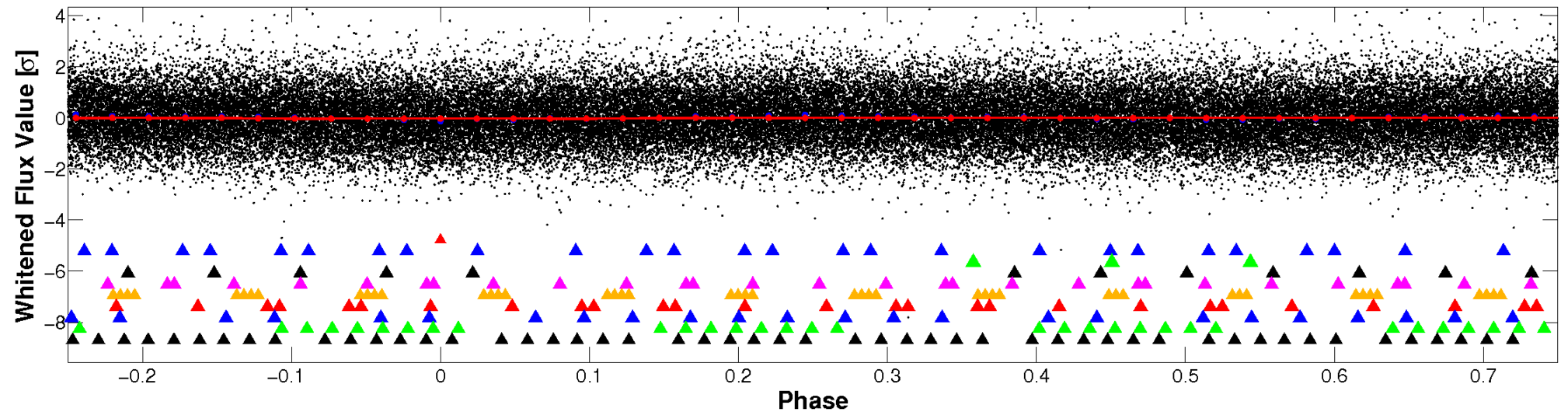


Non-Whitened Vs. Whitened Light Curve

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

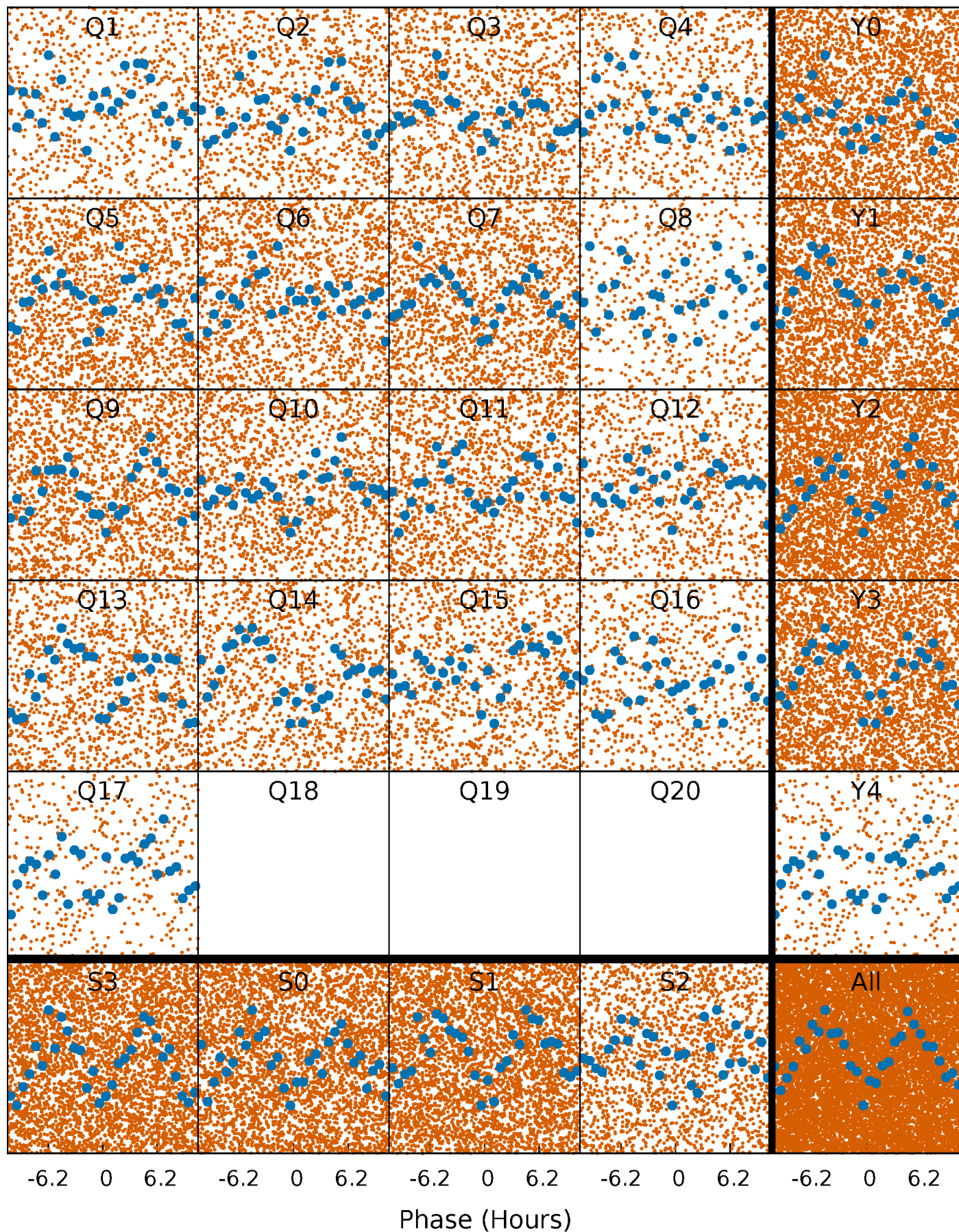


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



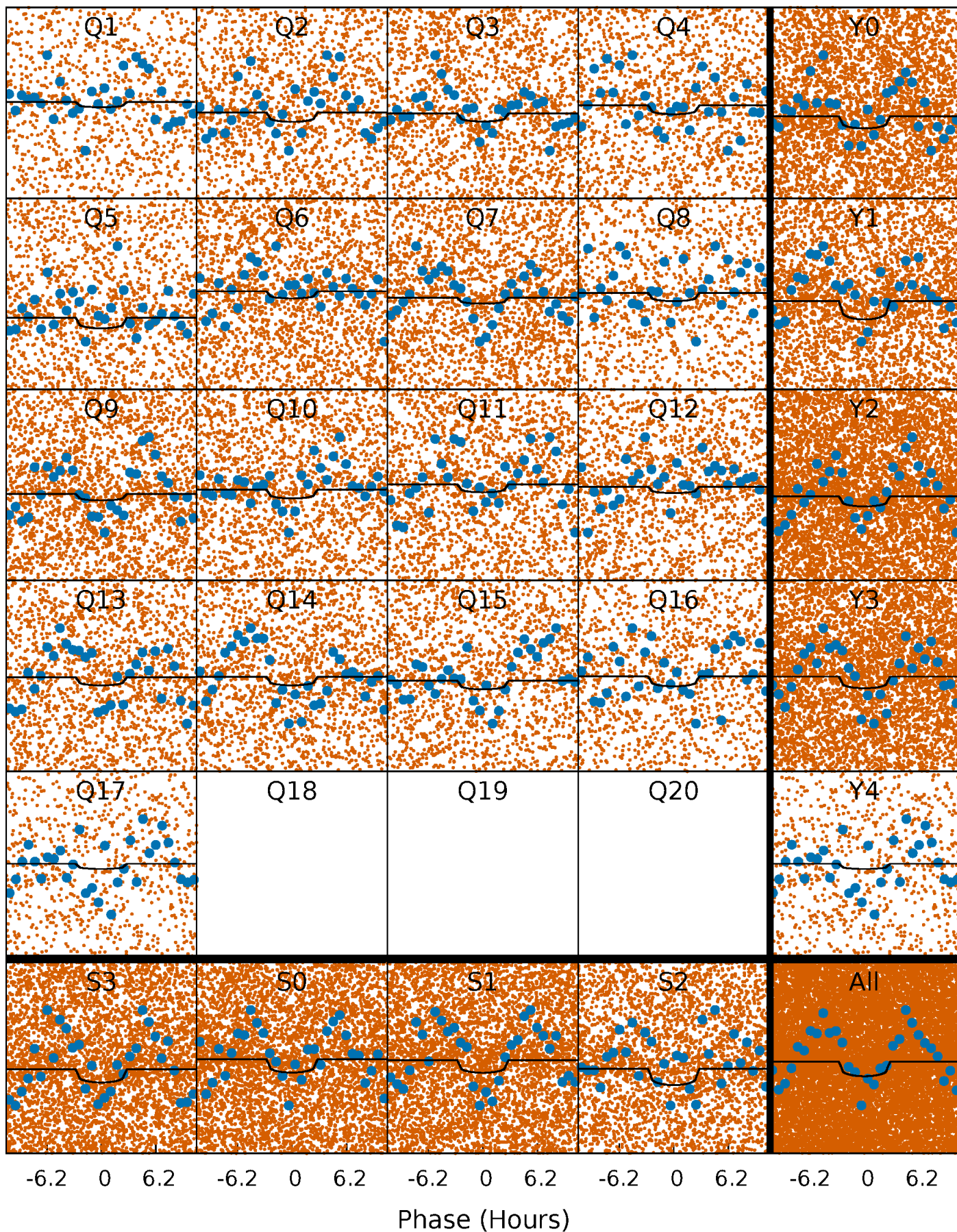
PDC Quarter-Phased Transit Curves

TCE 005391767-01 P= 0.834886 Days $T_0=131.693199$ (BKJD)



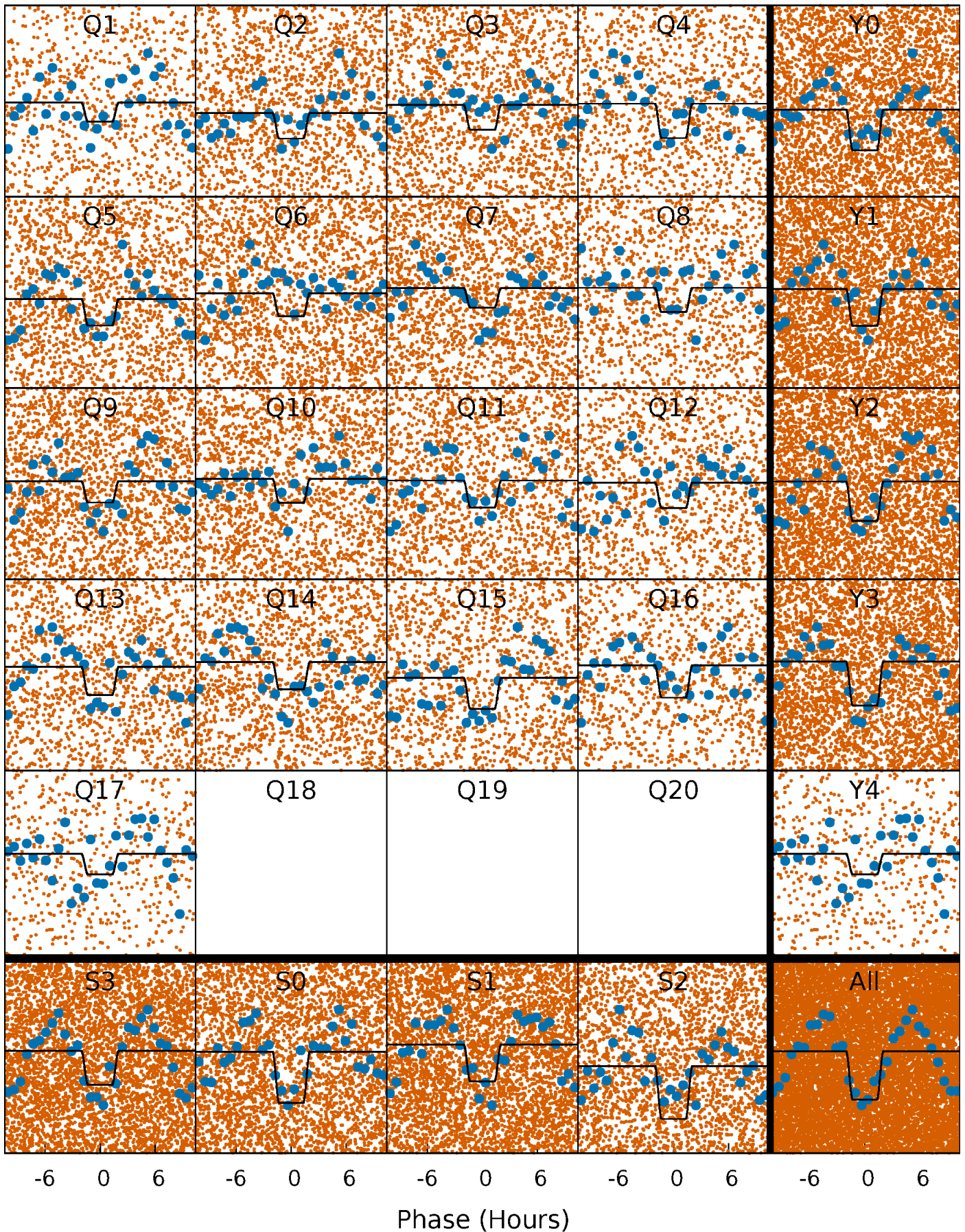
DV Quarter-Phased Transit Curves

TCE 005391767-01 P= 0.834886 Days $T_0=131.693199$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

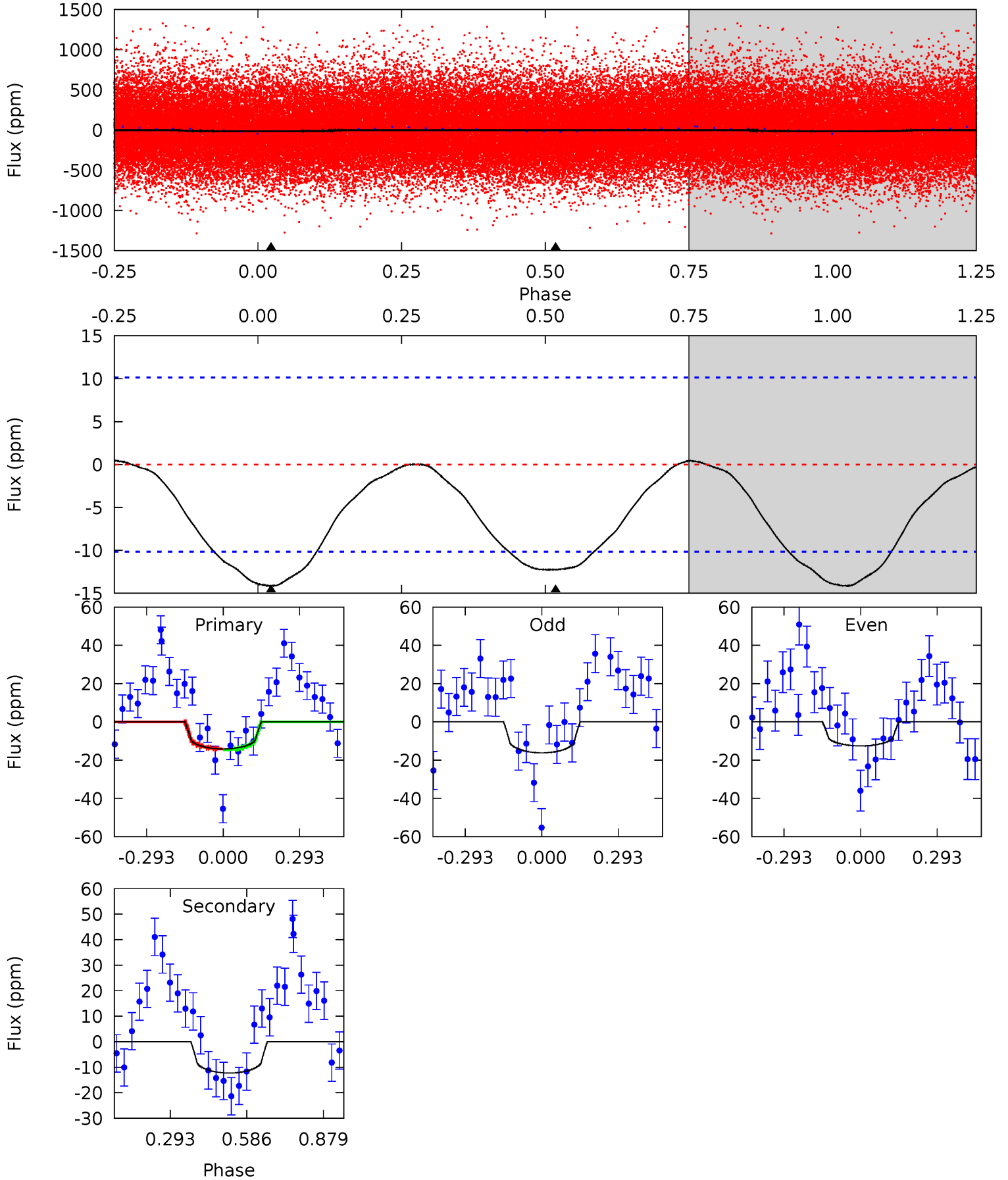
TCE 005391767-01 P= 0.834950 Days $T_0=131.643081$ (BKJD)



DV Model-Shift Uniqueness Test

005391767-01, $P = 0.834886$ Days, $E = 130.858313$ Days

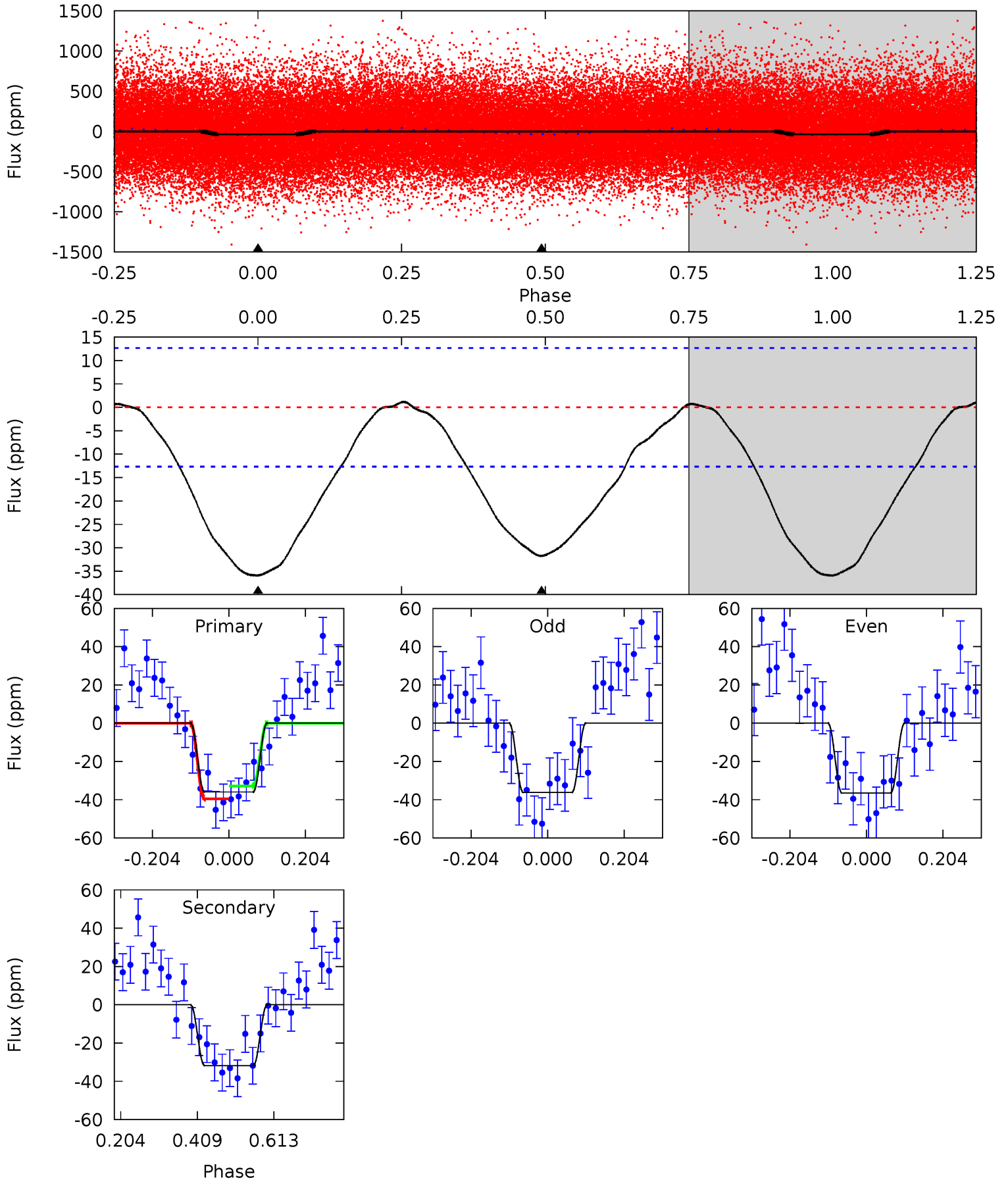
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.04	5.24	0	0	4.33	1.05	0.10	6.04	6.04	5.24	5.24	0.78	0.77	0.03	0.10



Alt Model-Shift Uniqueness Test

005391767-01, P = 0.834950 Days, E = 130.808131 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	11.1	0	0	4.41	1.27	0.46	12.5	12.5	11.1	11.1	0.05	0.99	0.03	1.15



Stellar Parameters For KIC 005391767

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6314^{+169}_{-207}	$4.472^{+0.054}_{-0.216}$	$-0.340^{+0.300}_{-0.300}$	$0.982^{+0.325}_{-0.102}$	$1.043^{+0.146}_{-0.133}$	$1.551^{+0.348}_{-0.869}$
	+3%/-3%	+1%/-5%	+88%/-88%	+33%/-10%	+14%/-13%	+22%/-56%
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 005391767-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-12 ± 2	$0.49^{+0.44}_{-0.33}$	2972^{+218}_{-154}	5658^{+5478}_{-1404}	$8.640^{+70.129}_{-6.277}$
Alt.	-32 ± 3	$0.74^{+0.50}_{-0.45}$	2971^{+213}_{-148}	5851^{+4469}_{-1282}	$9.816^{+53.936}_{-6.387}$

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

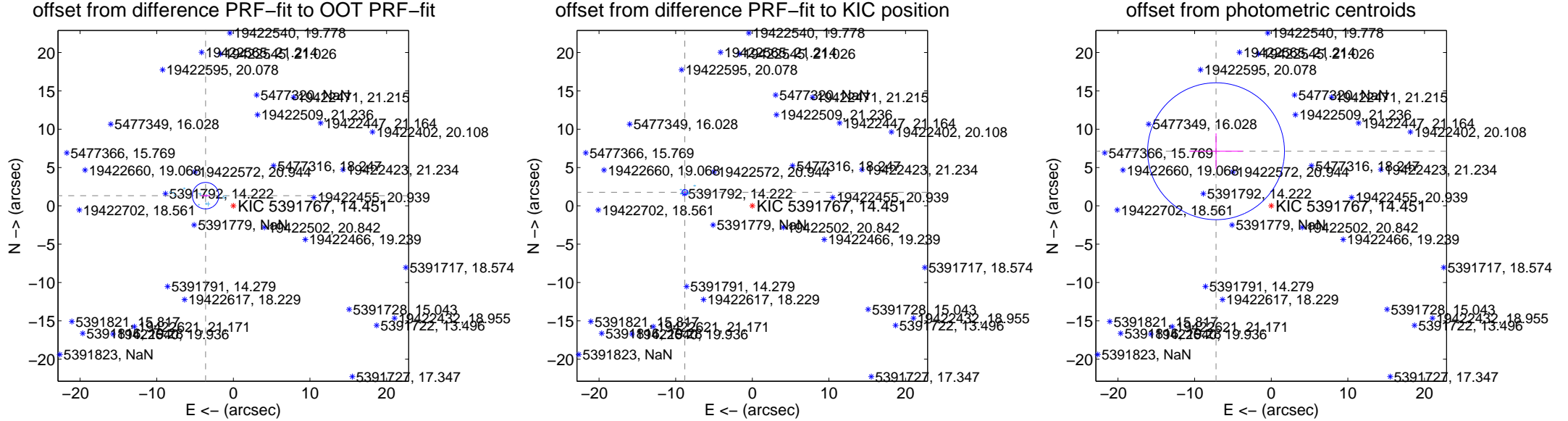
DV Centroid Data

Supplemental centroid analysis for 005391767-01. Kepler magnitude: 14.45. Transit SNR 3.33

There are 16 quarters with good PRF difference image offsets

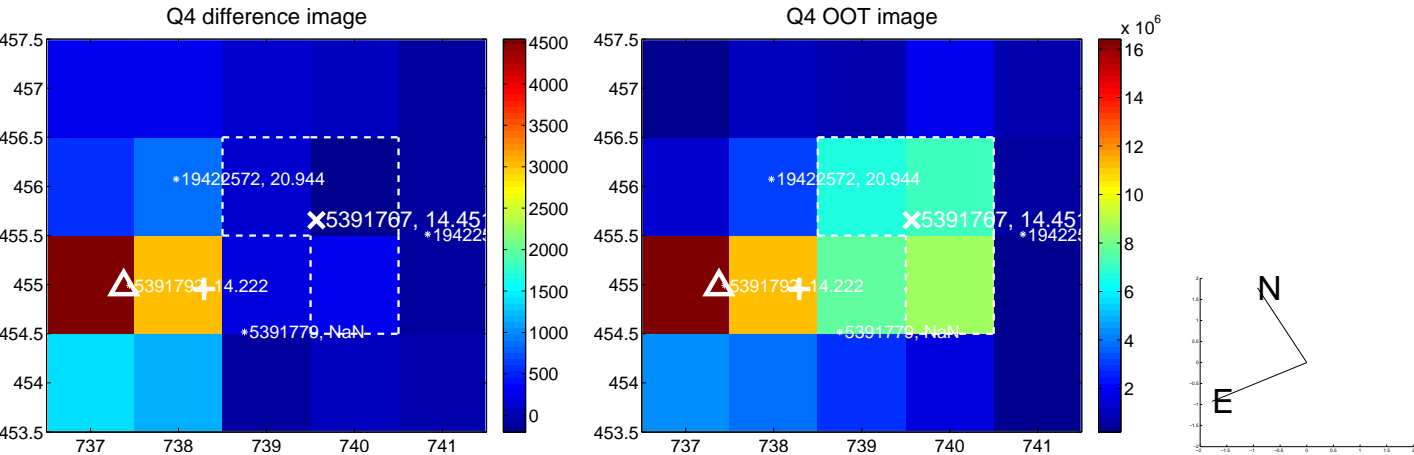
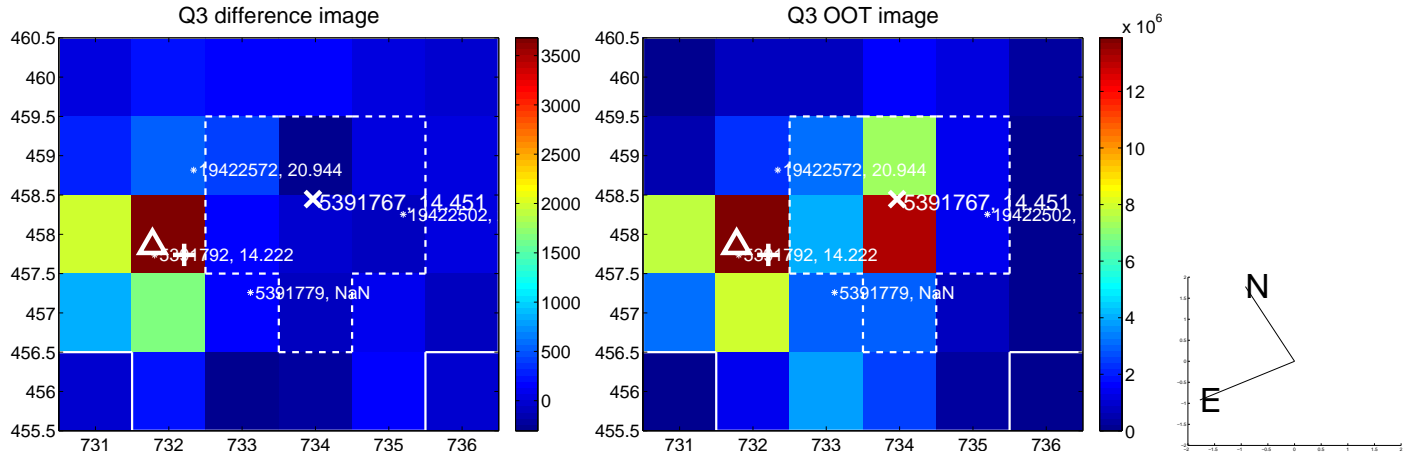
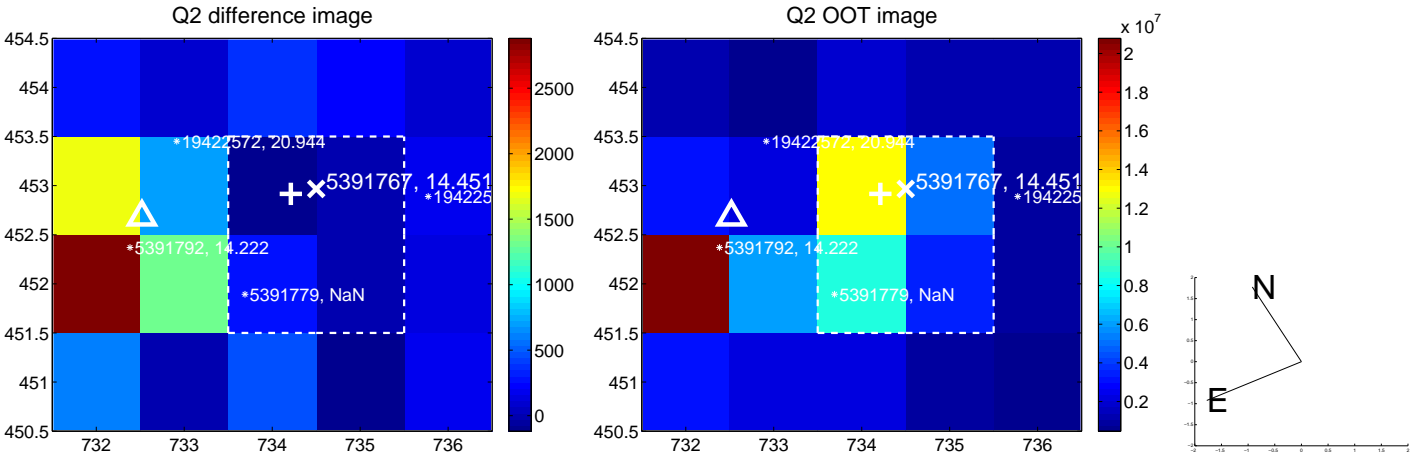
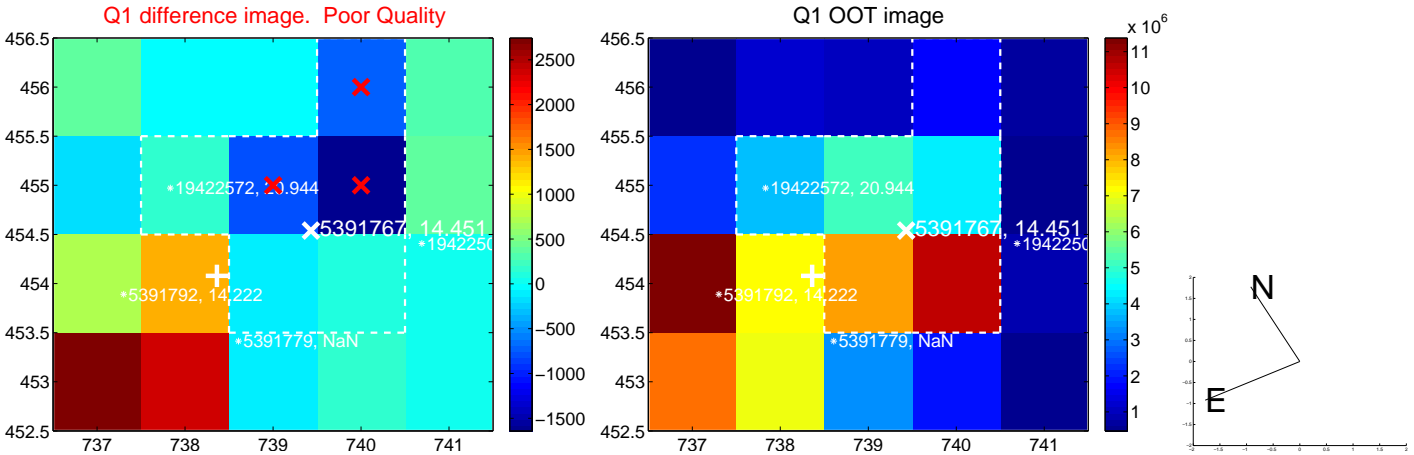
The OOT PRF centroid is offset from the target star catalog position by about 4.82 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.857 ± 0.575	6.70	3.620 ± 0.593	1.330 ± 0.151
PRF-fit source offset from KIC position	8.979 ± 0.121	74.20	8.803 ± 0.128	1.772 ± 0.093
photometric centroid source offset	10.13 ± 2.98	3.40	7.20 ± 3.49	7.13 ± 2.34

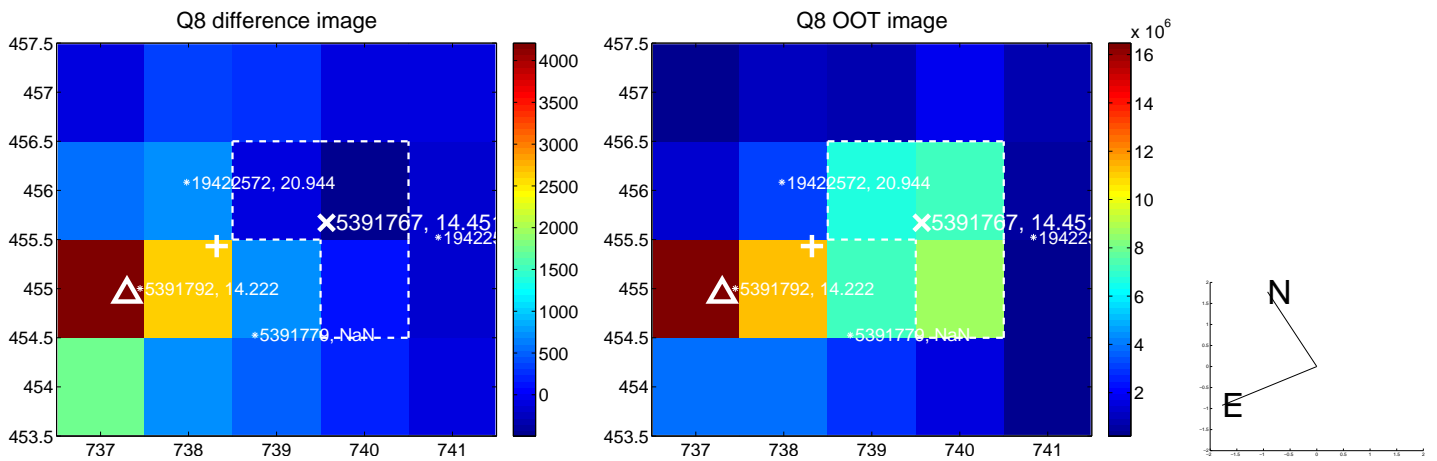
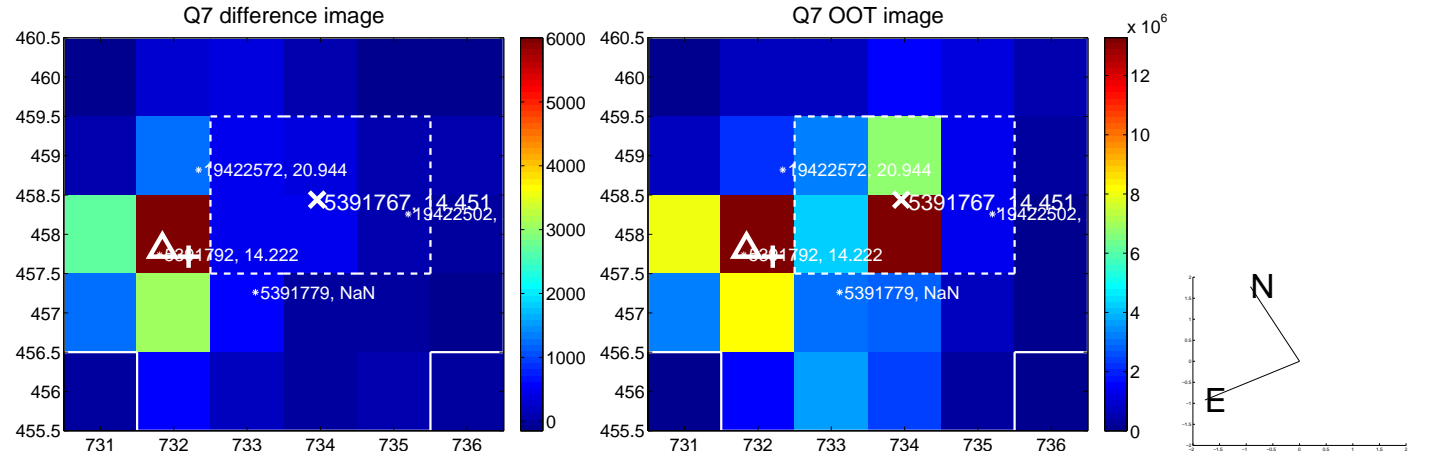
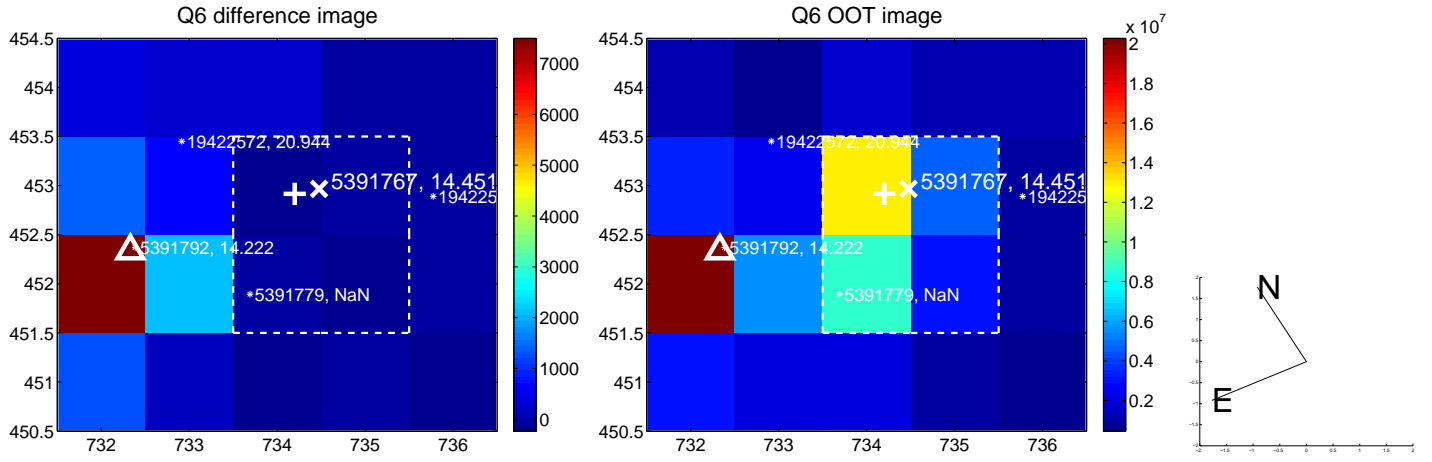
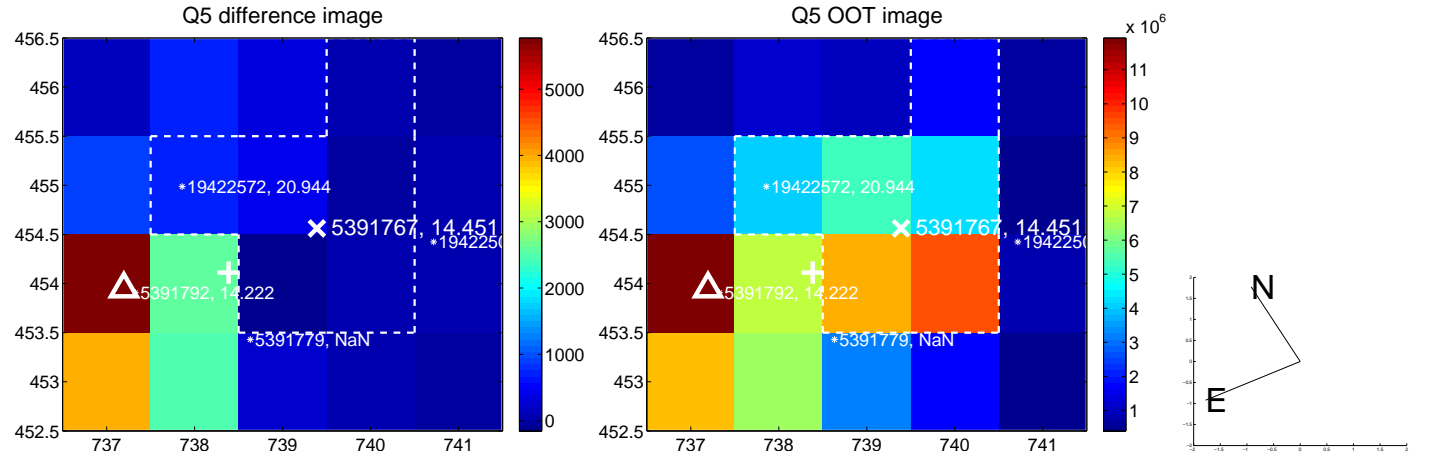


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

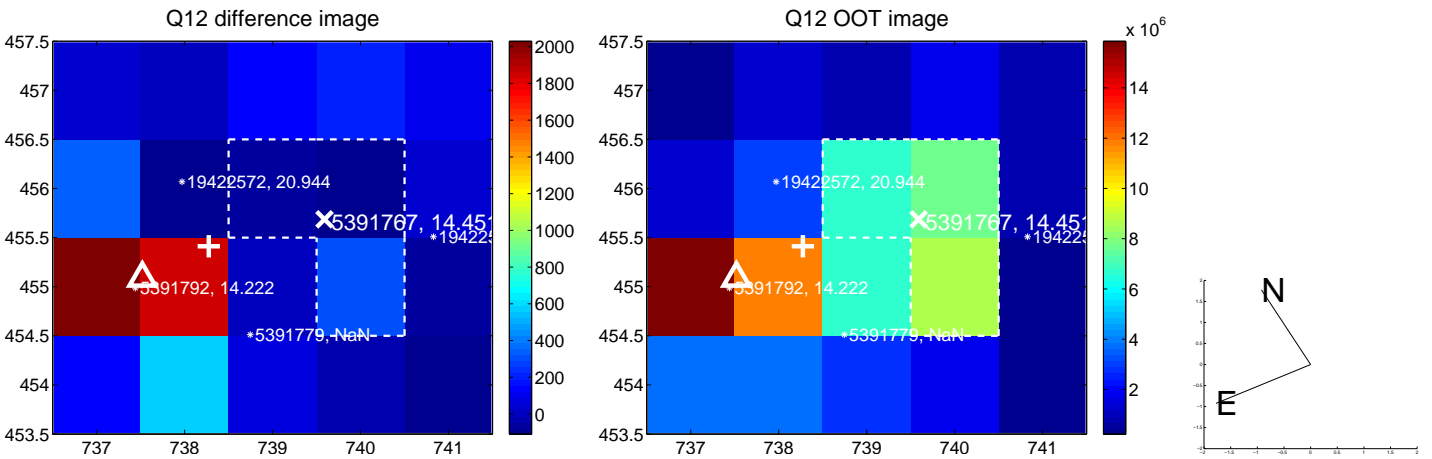
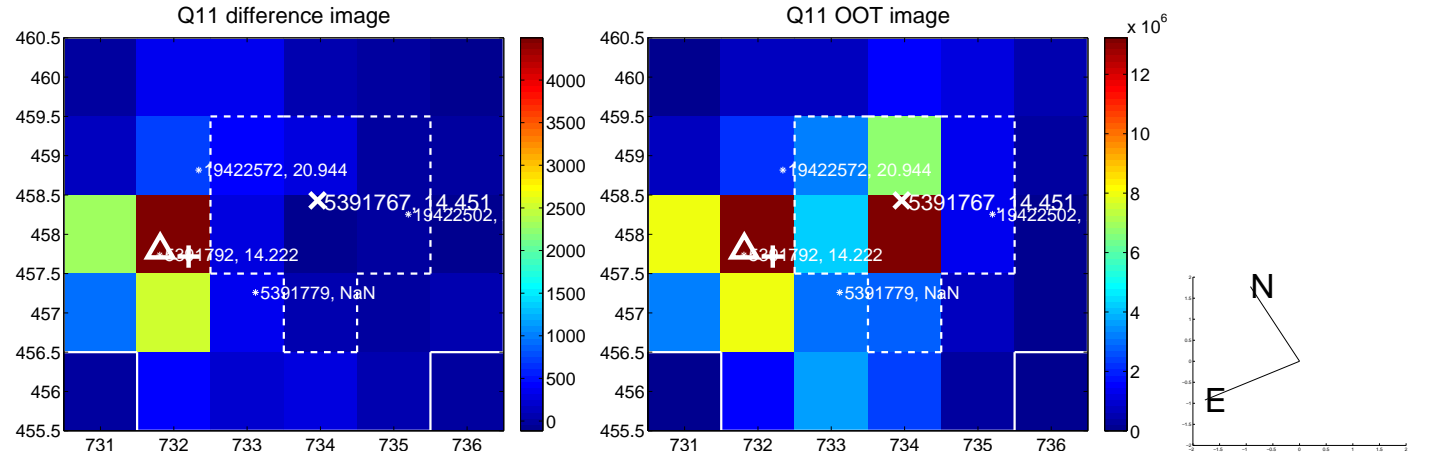
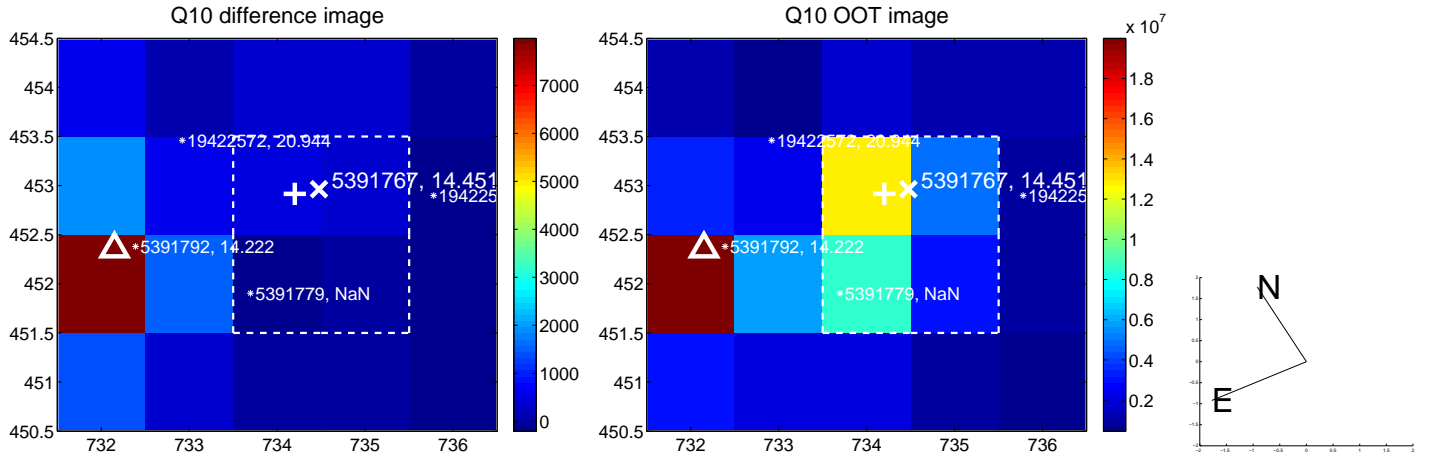
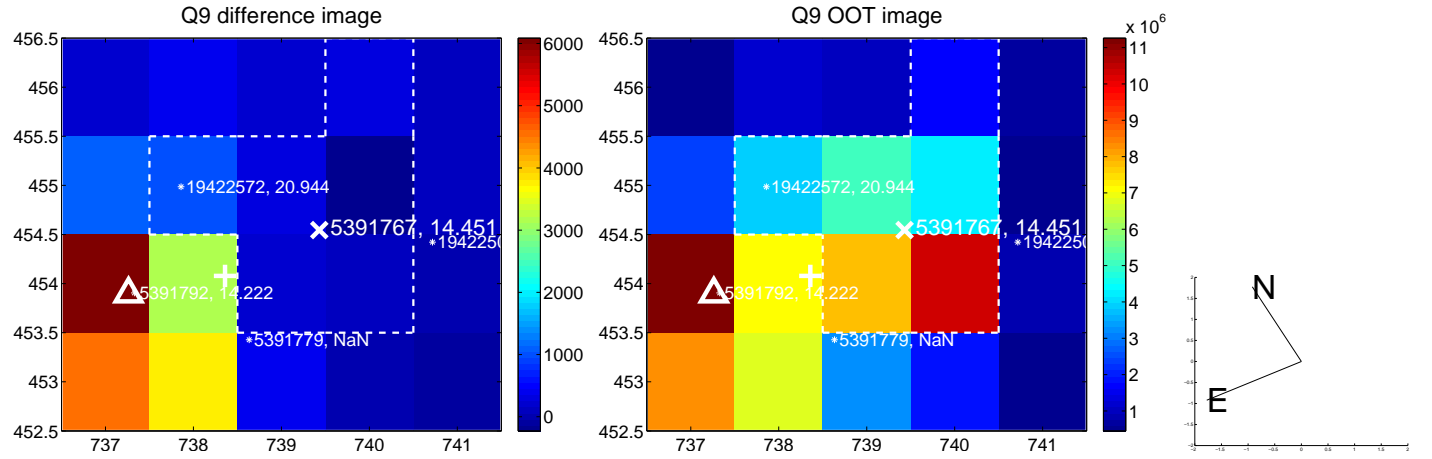
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



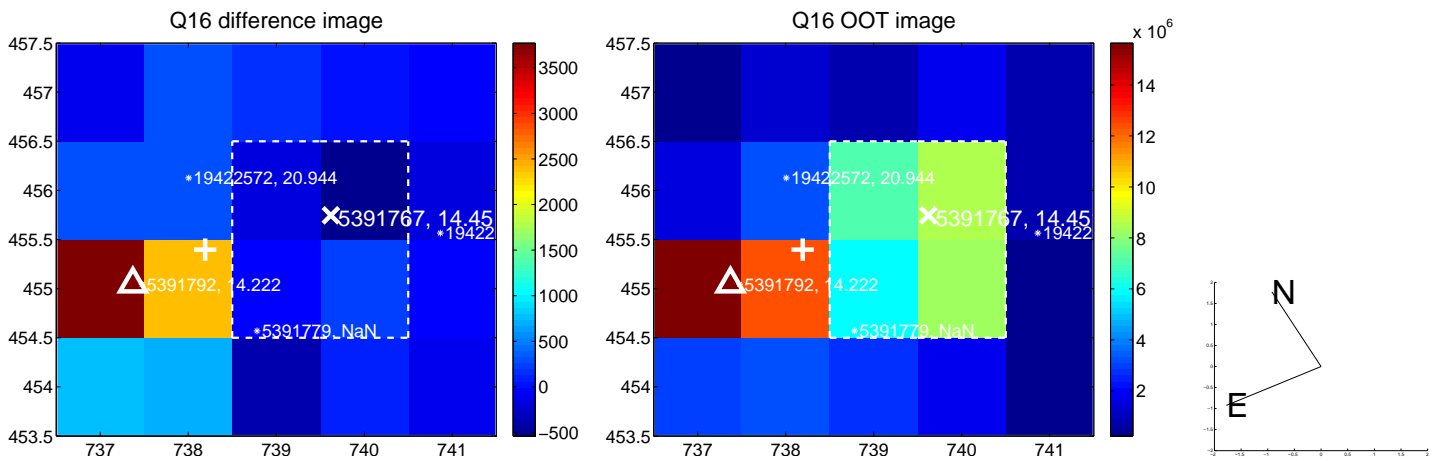
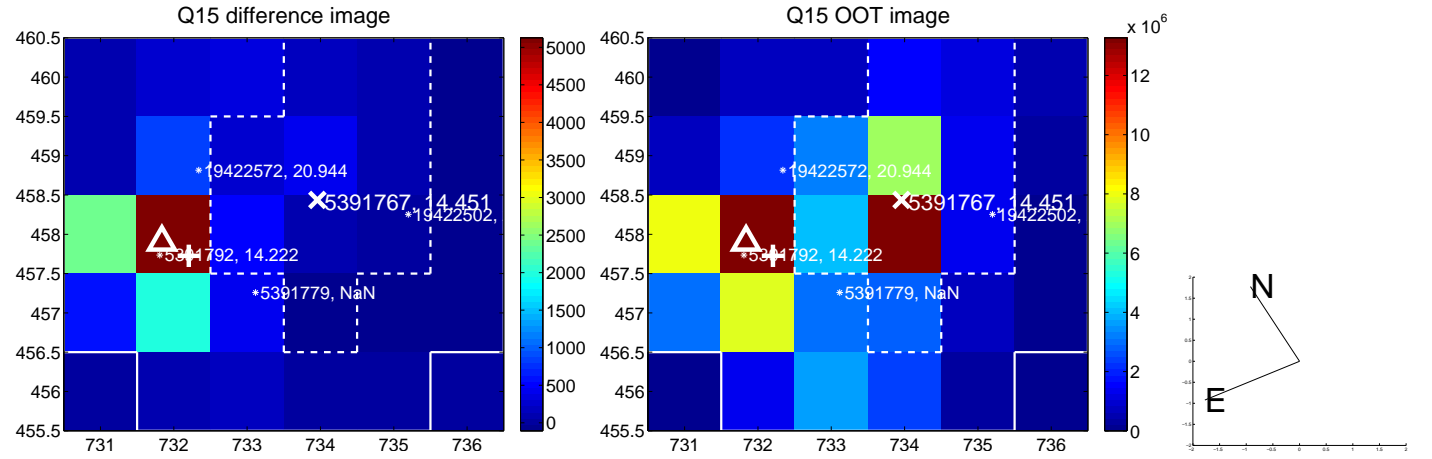
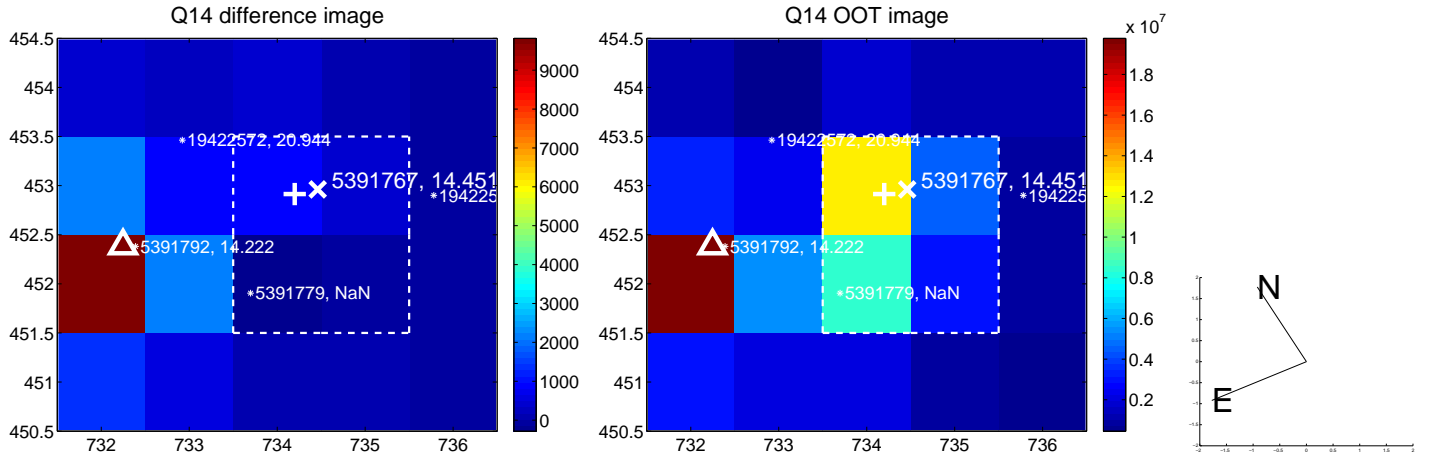
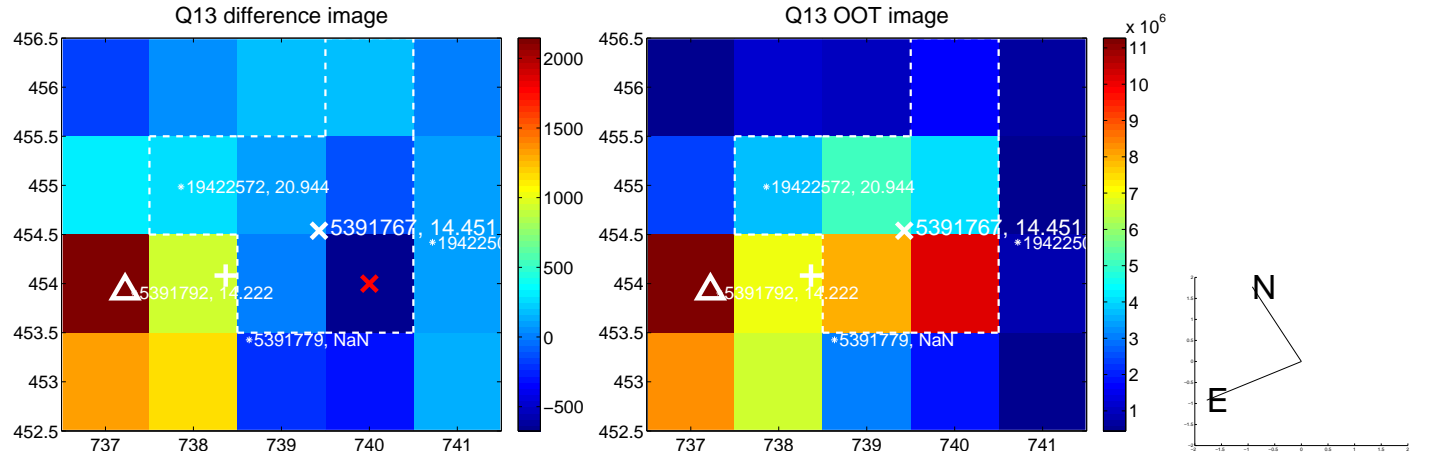
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



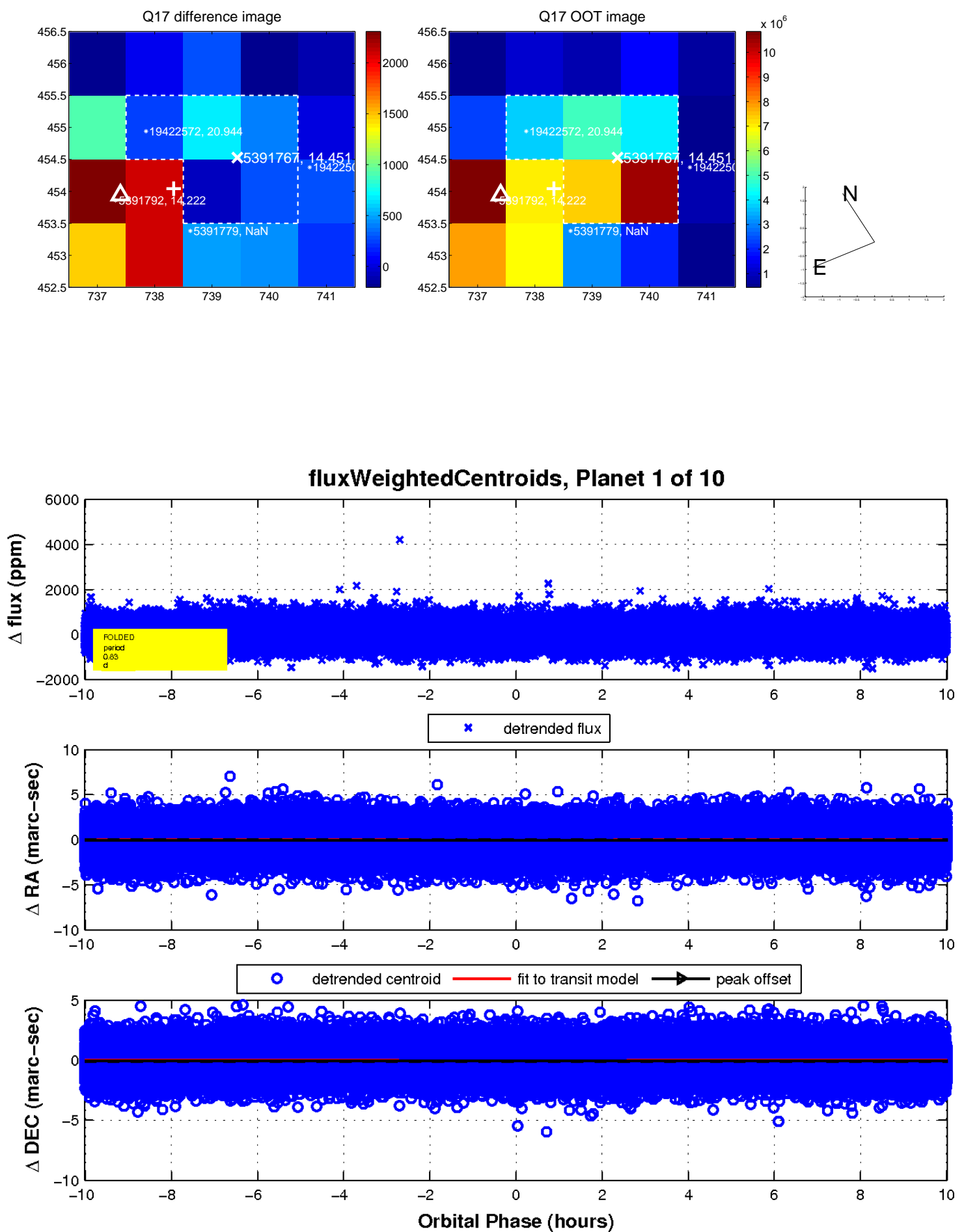
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

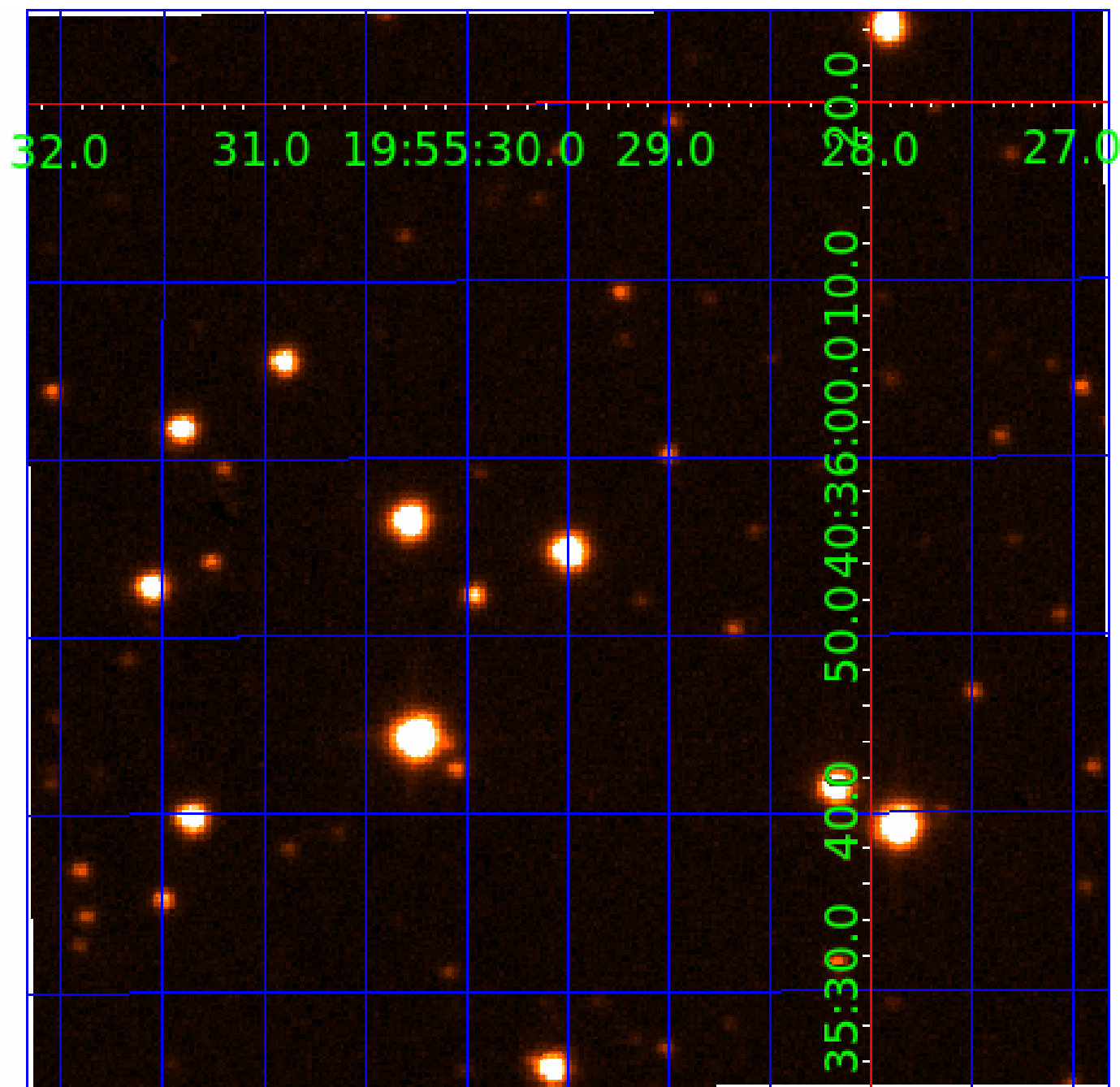


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005391767

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})
005391767-01	OBS	No	0.834886	131.693199	11.9	5.428	7.7	3.3	0.98	6314	0.35	4432.86
005391767-02	OBS	No	56.197304	131.674337	550.5	4.783	11.3	9.7	0.98	6314	2.56	16.19
005391767-03	OBS	No	489.320936	193.773350	882.3	8.465	10.5	11.0	0.98	6314	3.25	0.90
005391767-04	OBS	No	126.854394	187.648633	732.7	4.541	9.5	9.3	0.98	6314	3.00	5.47
005391767-05	OBS	No	49.403648	174.663481	503.6	6.307	8.9	9.9	0.98	6314	2.44	19.22
005391767-06	OBS	No	31.794911	157.264839	367.6	2.107	8.6	6.1	0.98	6314	2.16	34.60
005391767-07	OBS	No	53.256593	172.075440	428.8	3.669	8.0	7.4	0.98	6314	2.21	17.39
005391767-08	OBS	No	59.737722	158.056402	440.1	5.109	8.5	8.5	0.98	6314	2.30	14.92
005391767-10	OBS	No	28.485201	145.764735	498.0	1.265	7.7	9.0	0.98	6314	2.58	40.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005391767-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005391767-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST
005391767-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

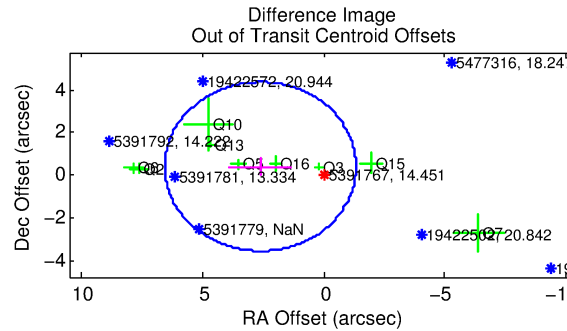
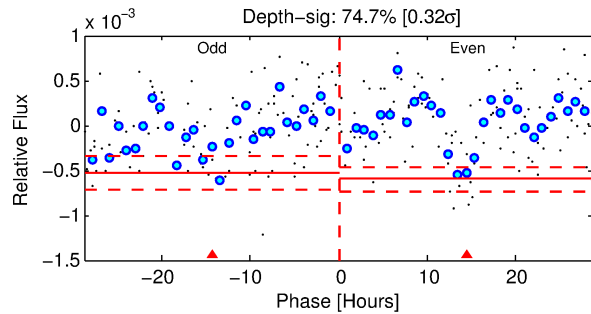
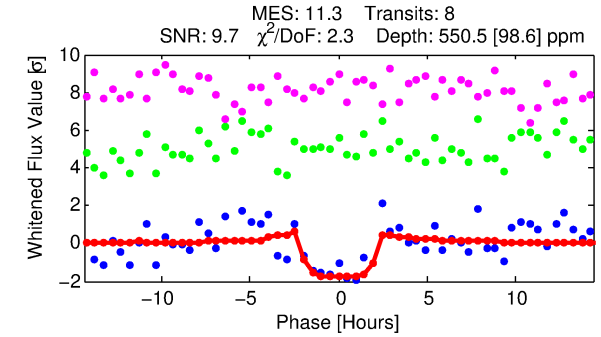
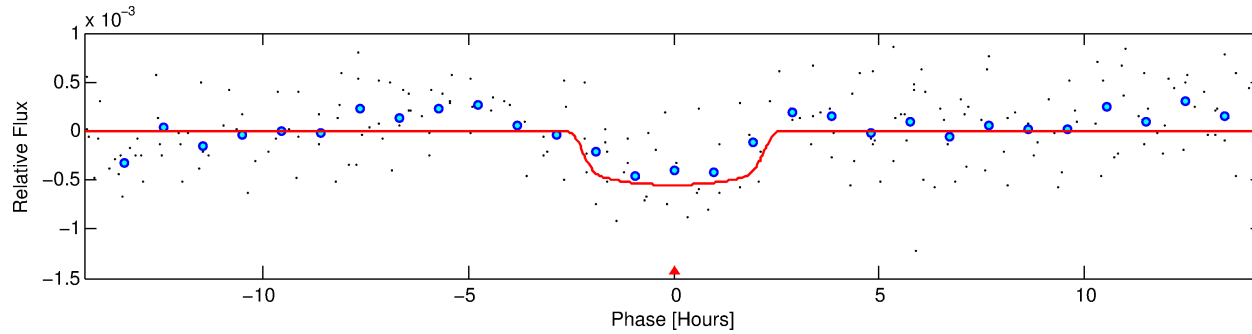
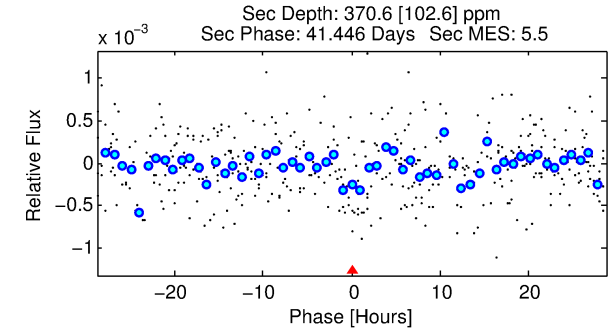
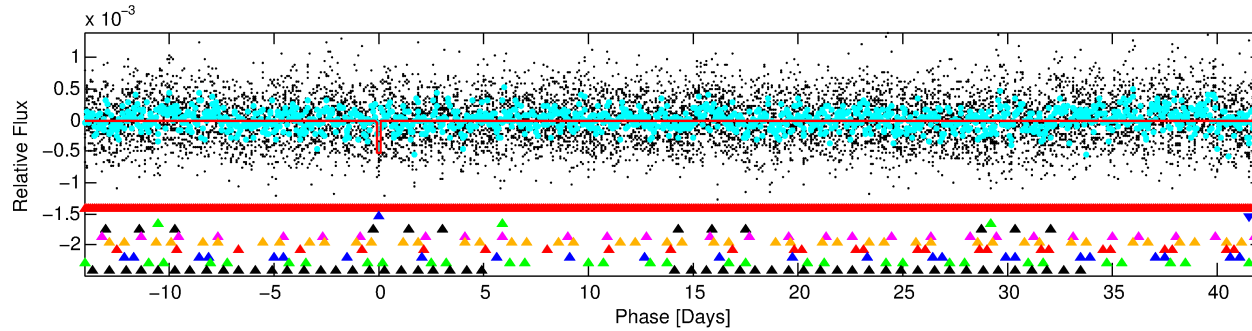
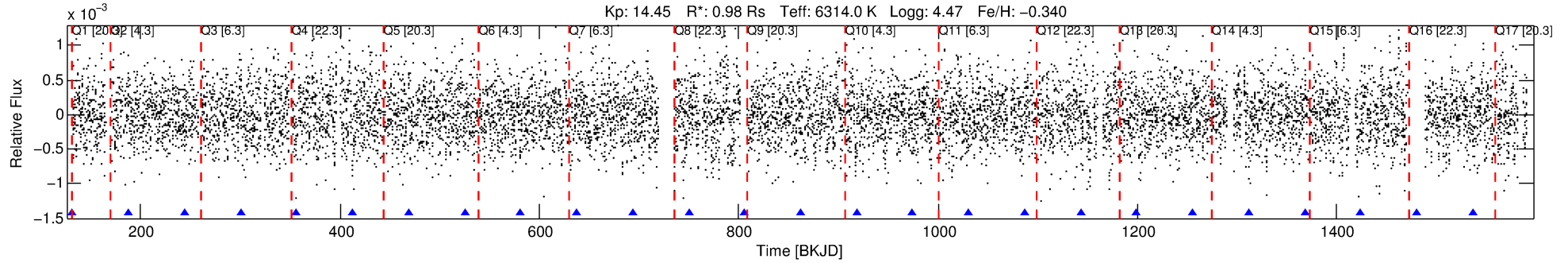
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005391767-02

No Significant Match Found

DV One-Page Summary

KIC: 5391767 Candidate: 2 of 10 Period: 56.197 d



DV Fit Results:

Period = 56.19730 [0.00114] d
Epoch = 131.6743 [0.0140] BKJD
Rp/R* = 0.0239 [0.0258]
a/R* = 55.53 [322.94]
B = 0.82 [2.40]
Seff = 16.19 [6.79]
Teq = 511 [54] K
Rp = 2.56 [2.90] Re
a = 0.2912 [0.0804] AU
Ag = 2631.64 [5826.00] [0.45σ]
Teffp = 5664 [3089] K [1.67σ]

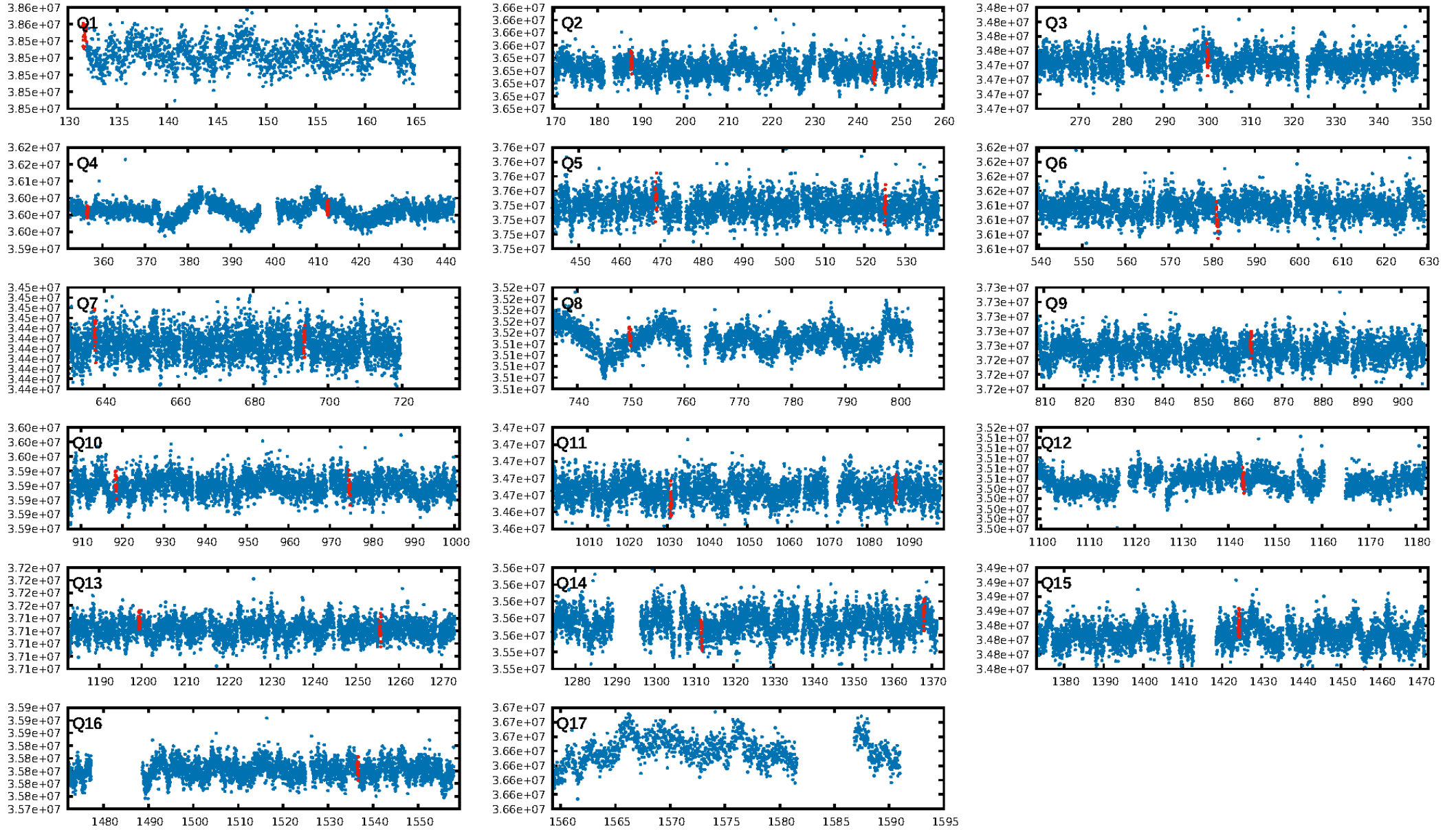
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.71σ]
LongPeriod-sig: 100.0% [12.14σ]
ModelChiSquare2-sig: 7.9%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.45e-13
RollingBand-ftg: 1.00 [8/8]
GhostDiagnostic-chr: 0.5669
Centroid-sig: 49.0%
Centroid-so: 2.728 arcsec [3.72σ]
OotOffset-rm: 2.643 arcsec [2.01σ]
KicOffset-rm: 8.830 arcsec [11.93σ]
OotOffset-st: 3/3/1/2 [9]
KicOffset-st: 3/3/1/2 [9]
DiffImageQuality-fgm: 0.33 [3/9]
DiffImageOverlap-fno: 0.00 [0/15]

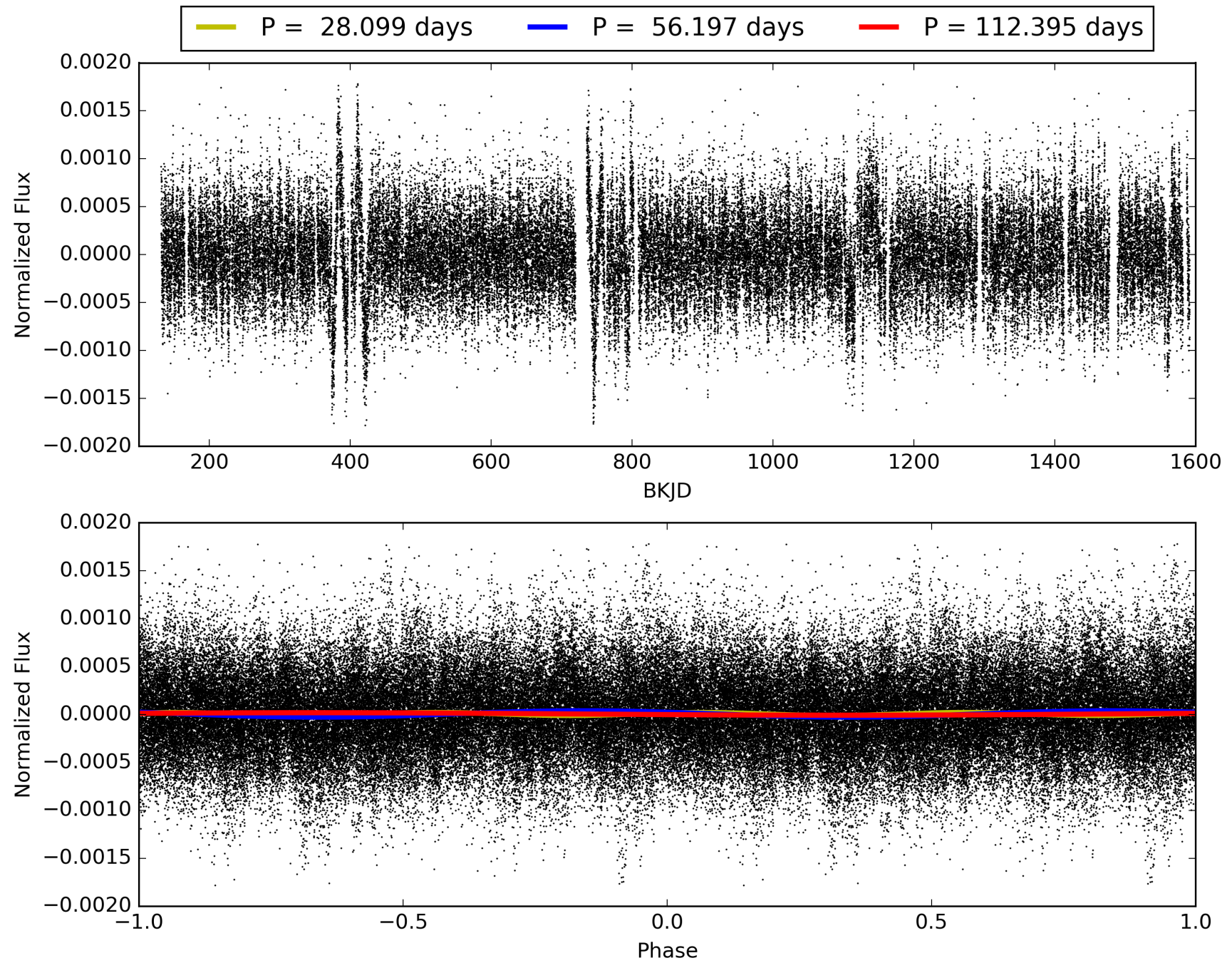
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:10:34 Z

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

TCE 005391767-02, PDC Light Curves

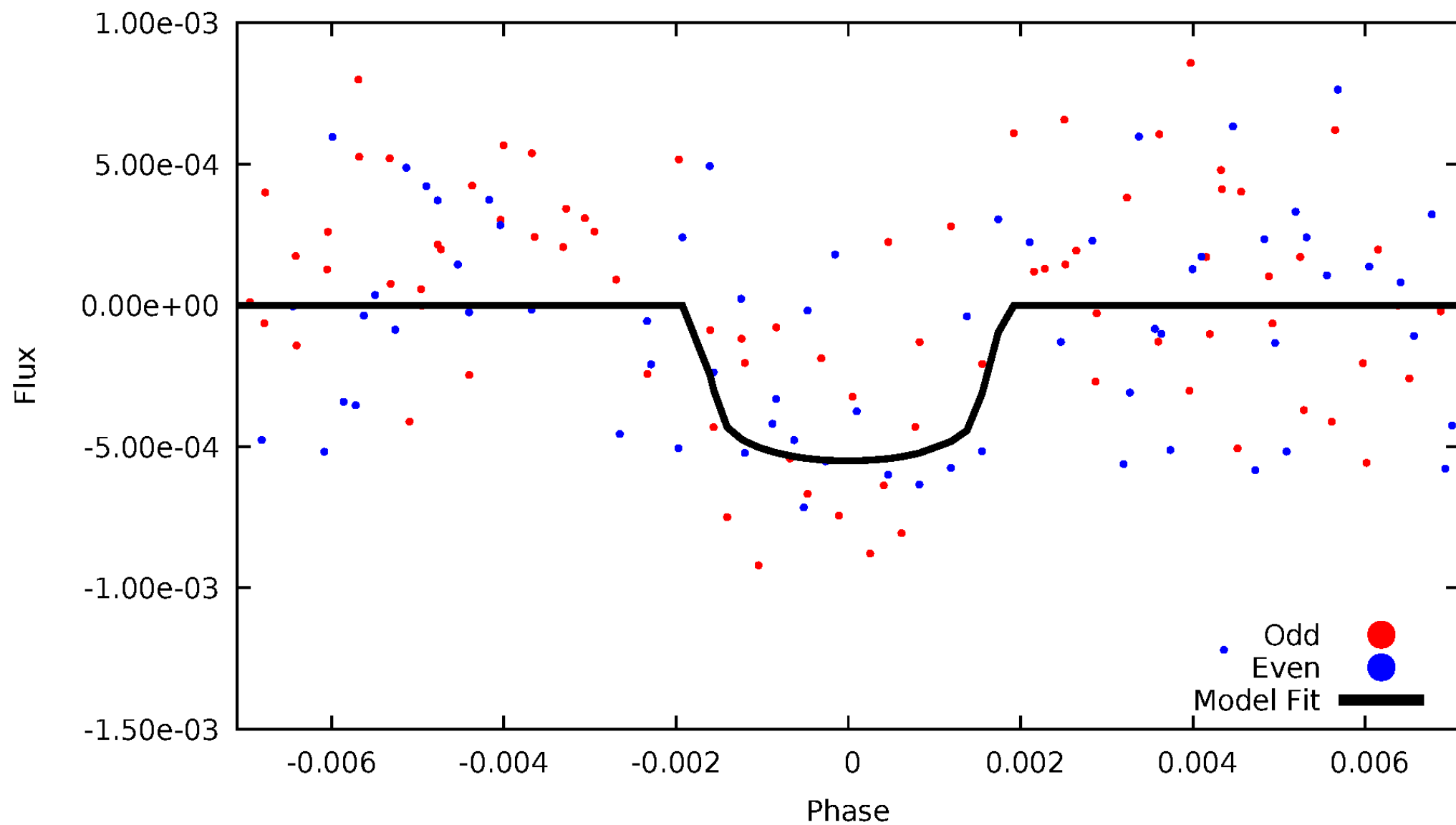


TCE 005391767-02



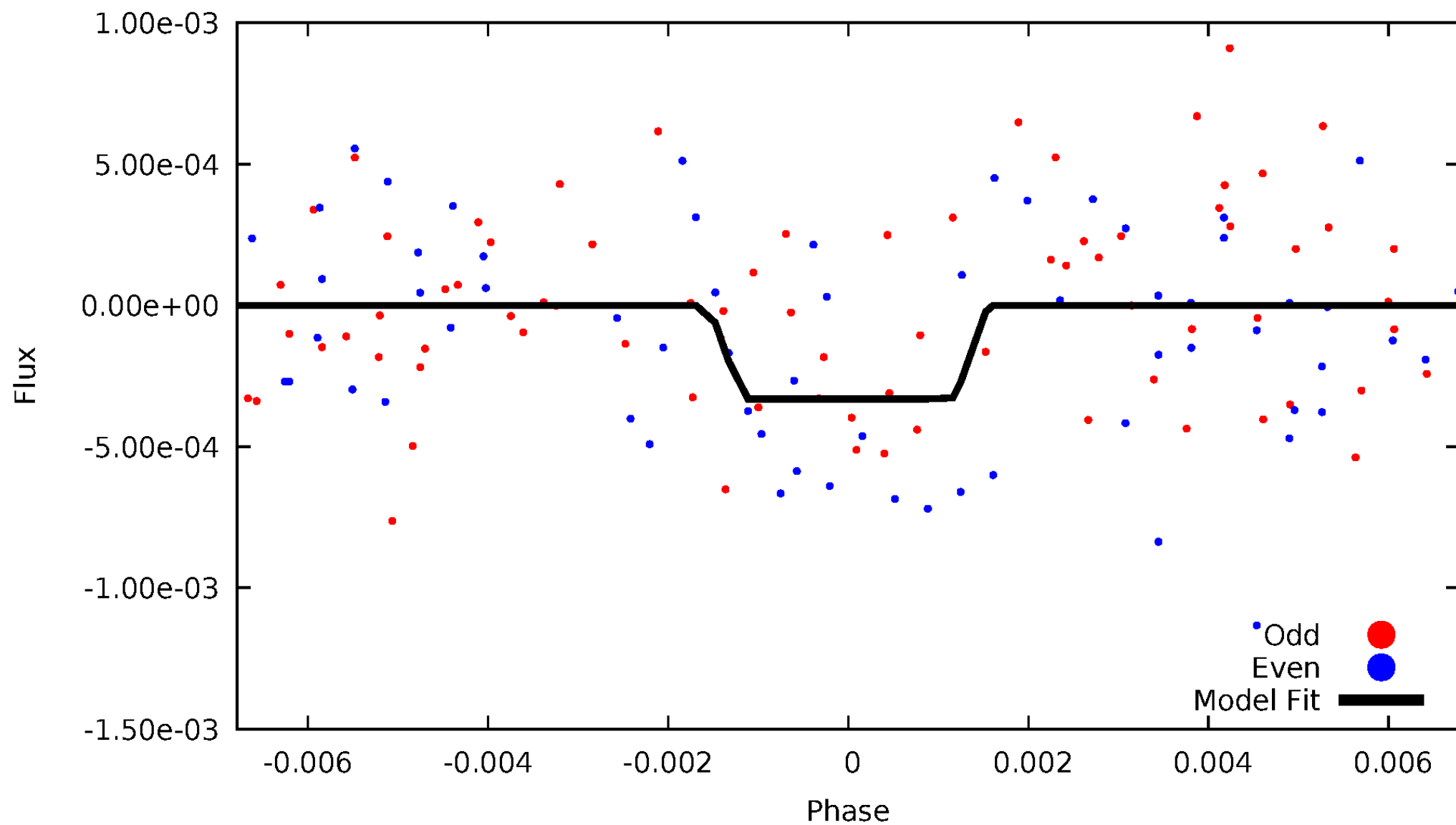
DV Odd/Even

TCE 005391767-02



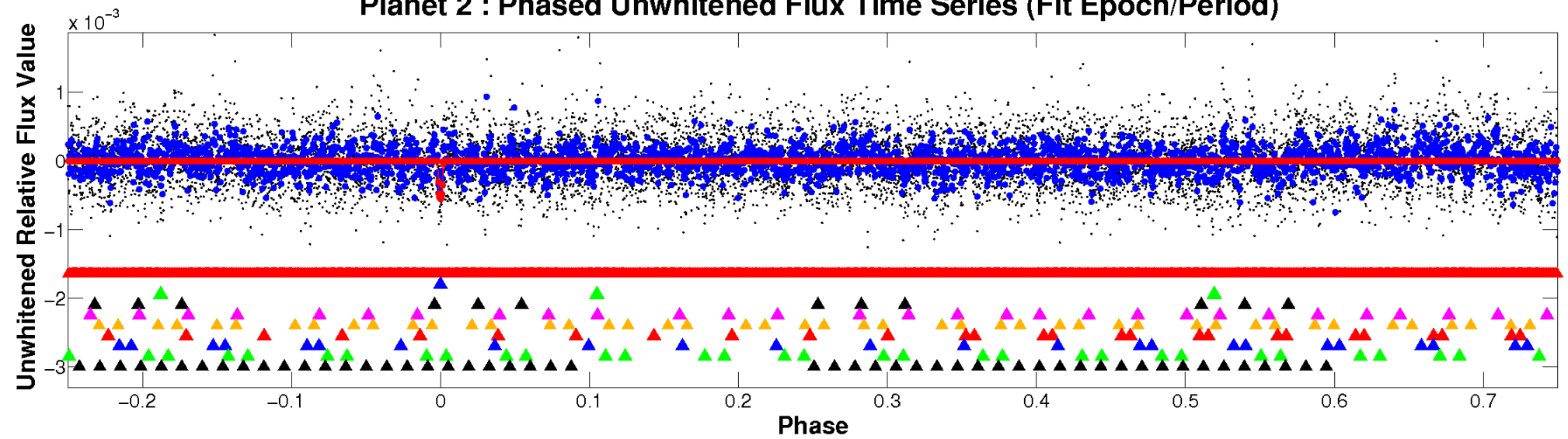
ALT Odd/Even

TCE 005391767-02

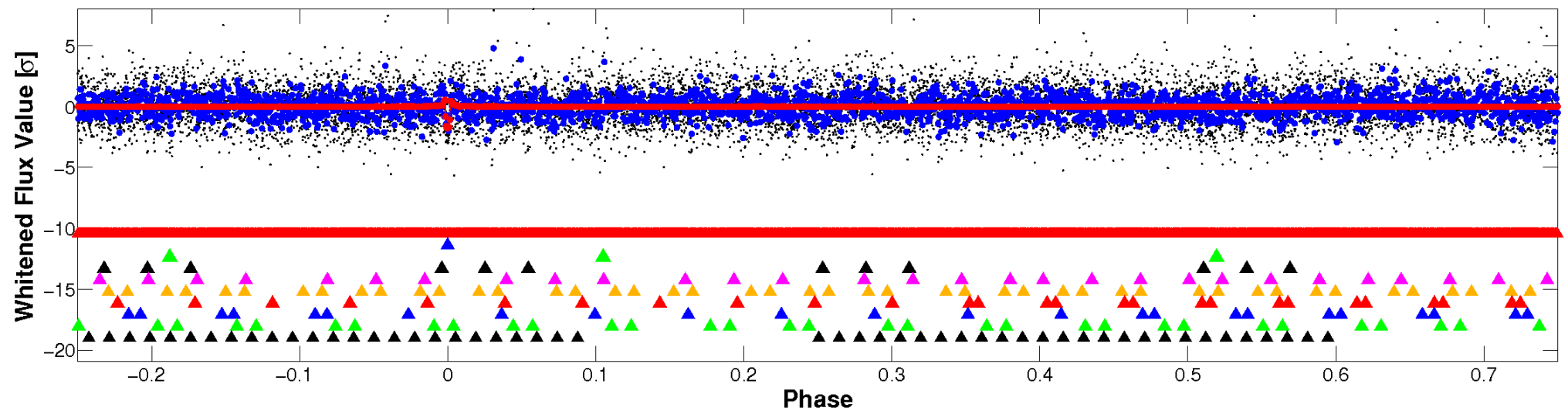


Non-Whitened Vs. Whitened Light Curve

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

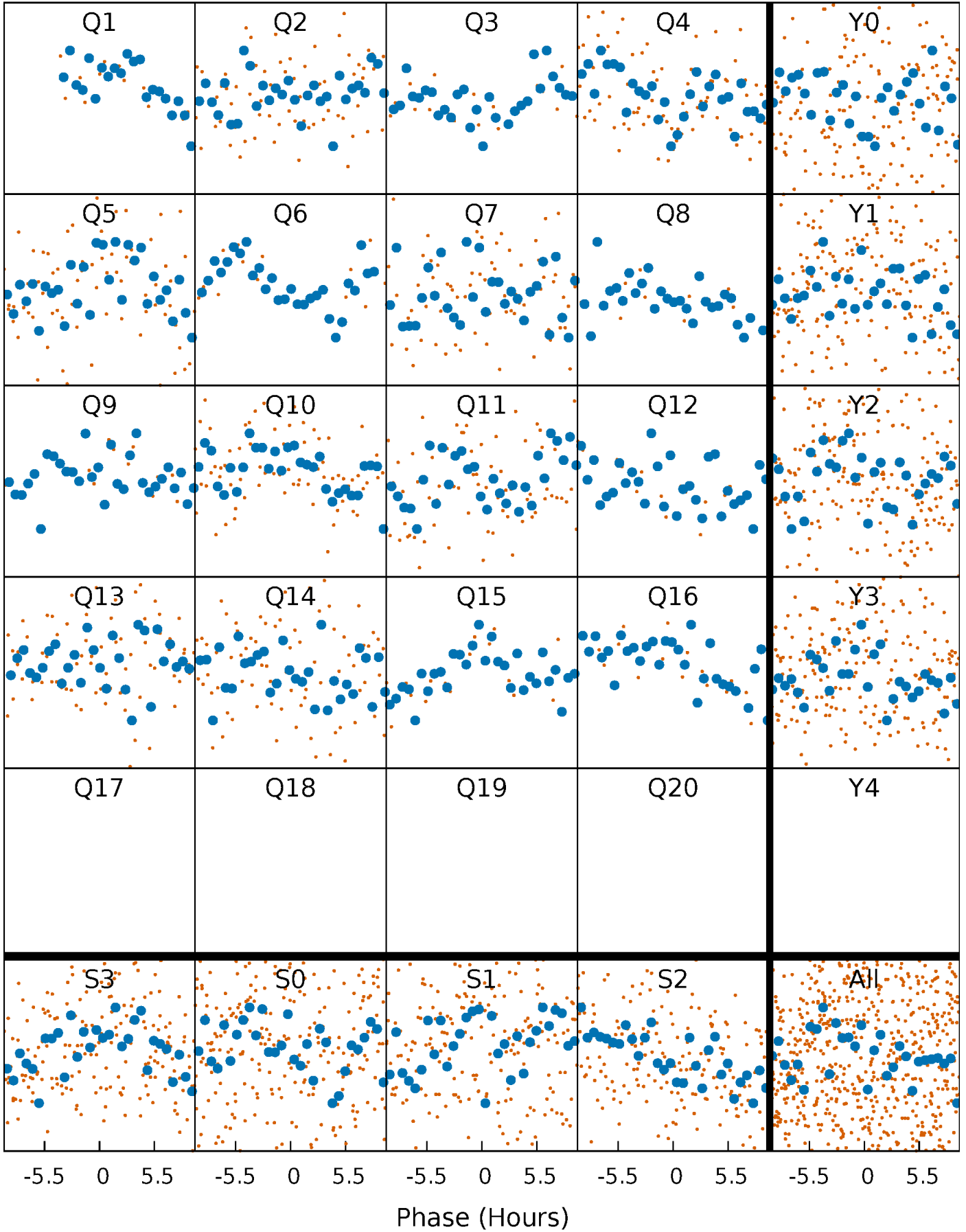


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



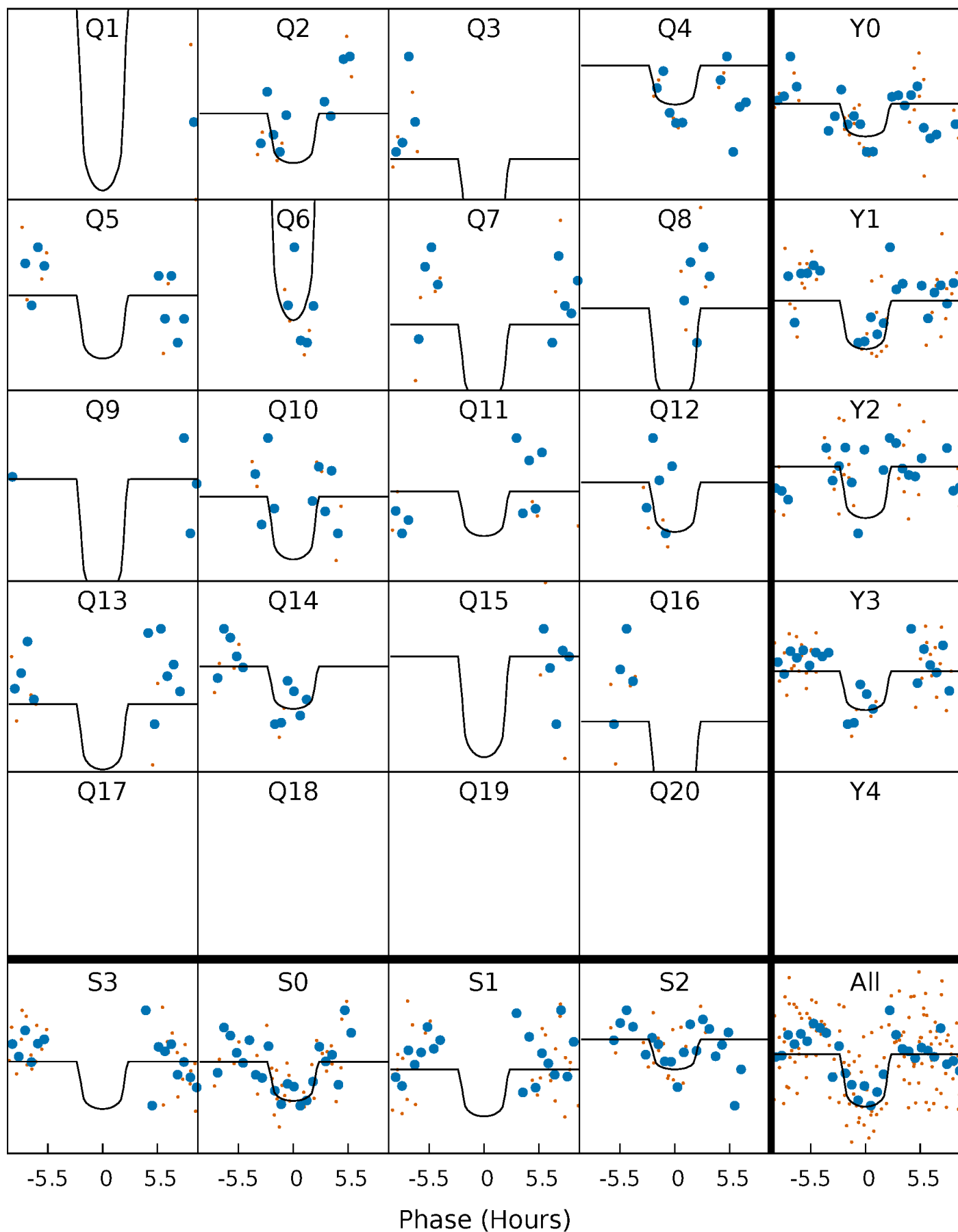
PDC Quarter-Phased Transit Curves

TCE 005391767-02 P= 56.197304 Days $T_0=131.674337$ (BKJD)



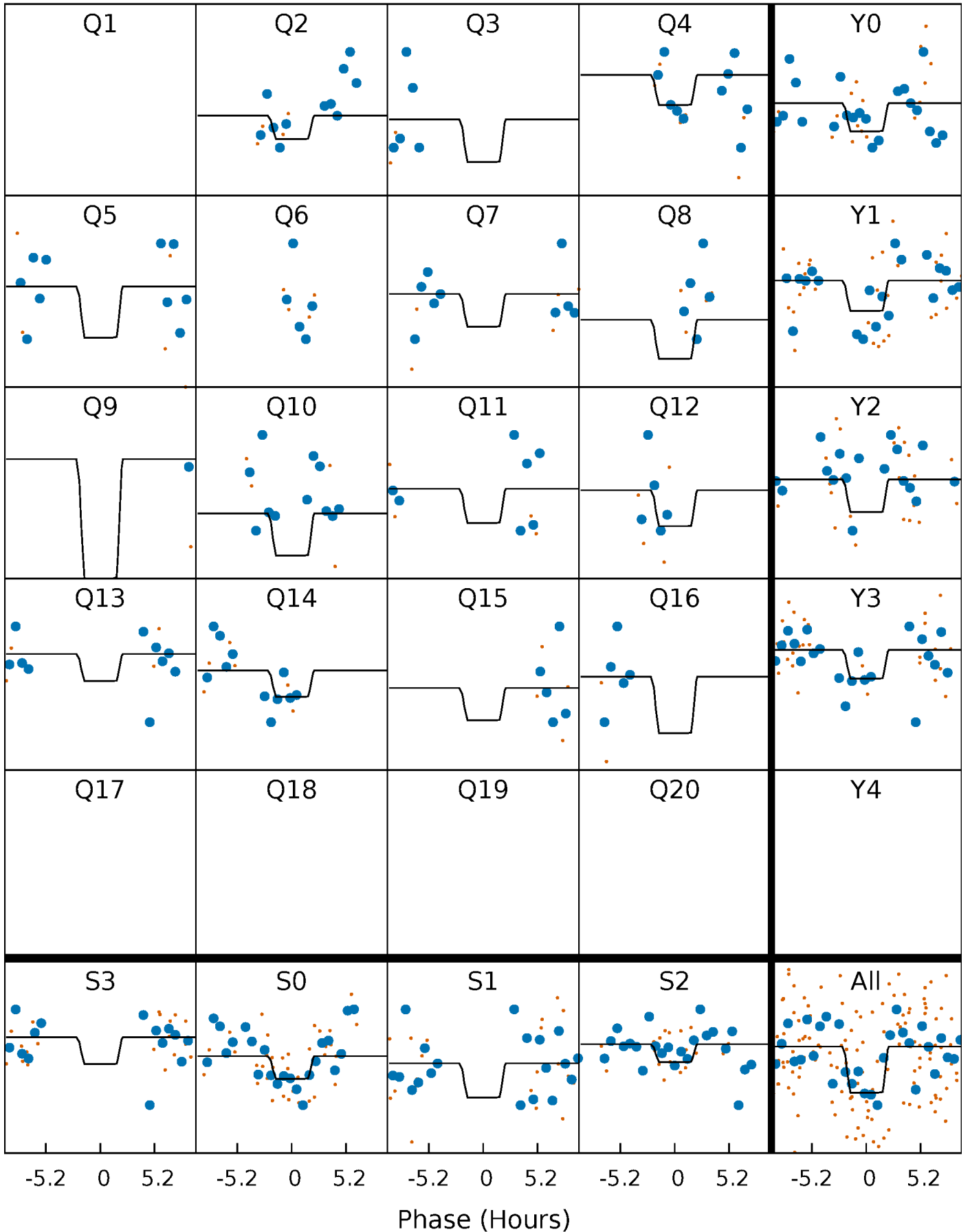
DV Quarter-Phased Transit Curves

TCE 005391767-02 P= 56.197304 Days $T_0=131.674337$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

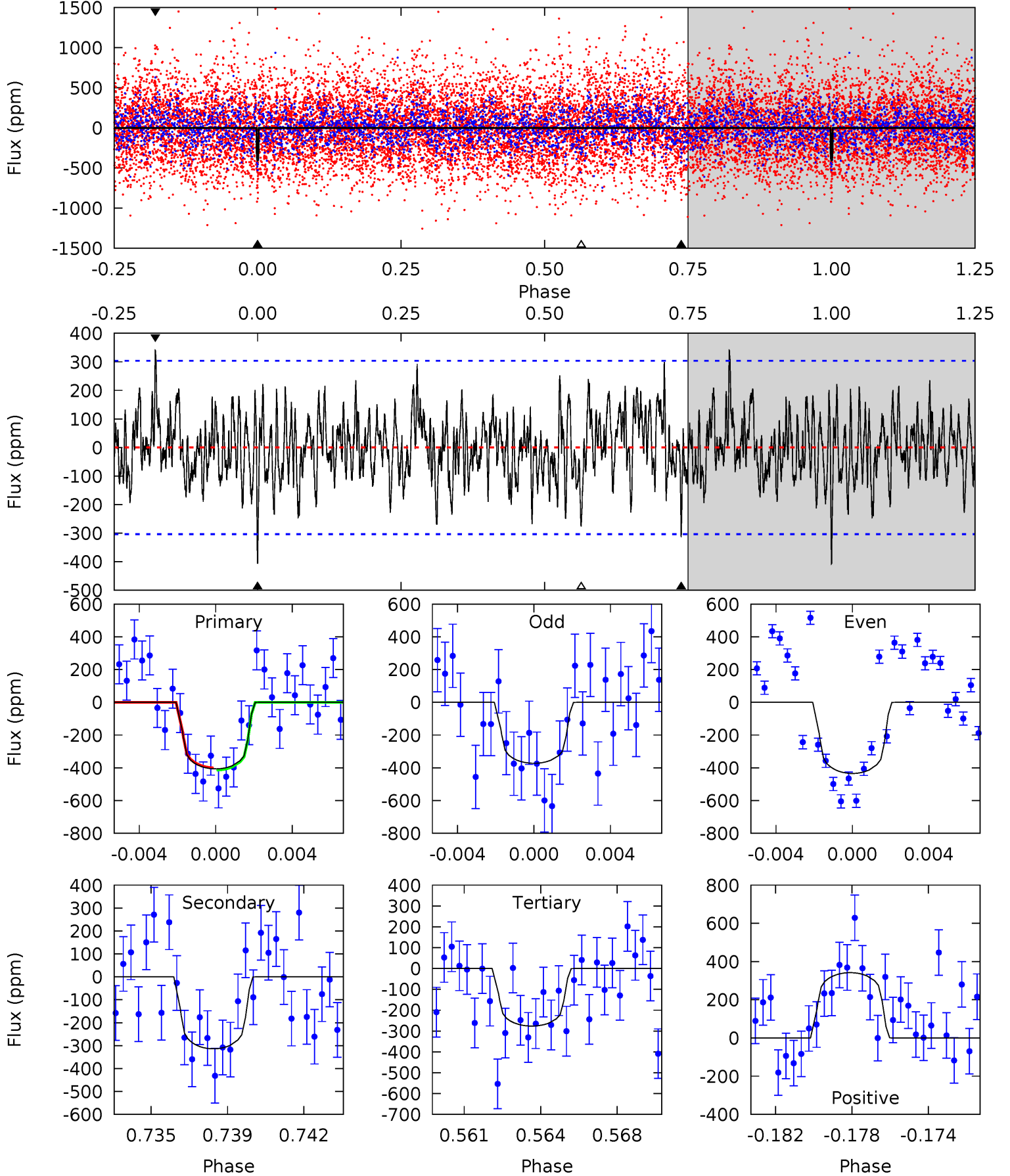
TCE 005391767-02 P= 56.198947 Days $T_0=131.657887$ (BKJD)



DV Model-Shift Uniqueness Test

005391767-02, P = 56.197304 Days, E = 131.674337 Days

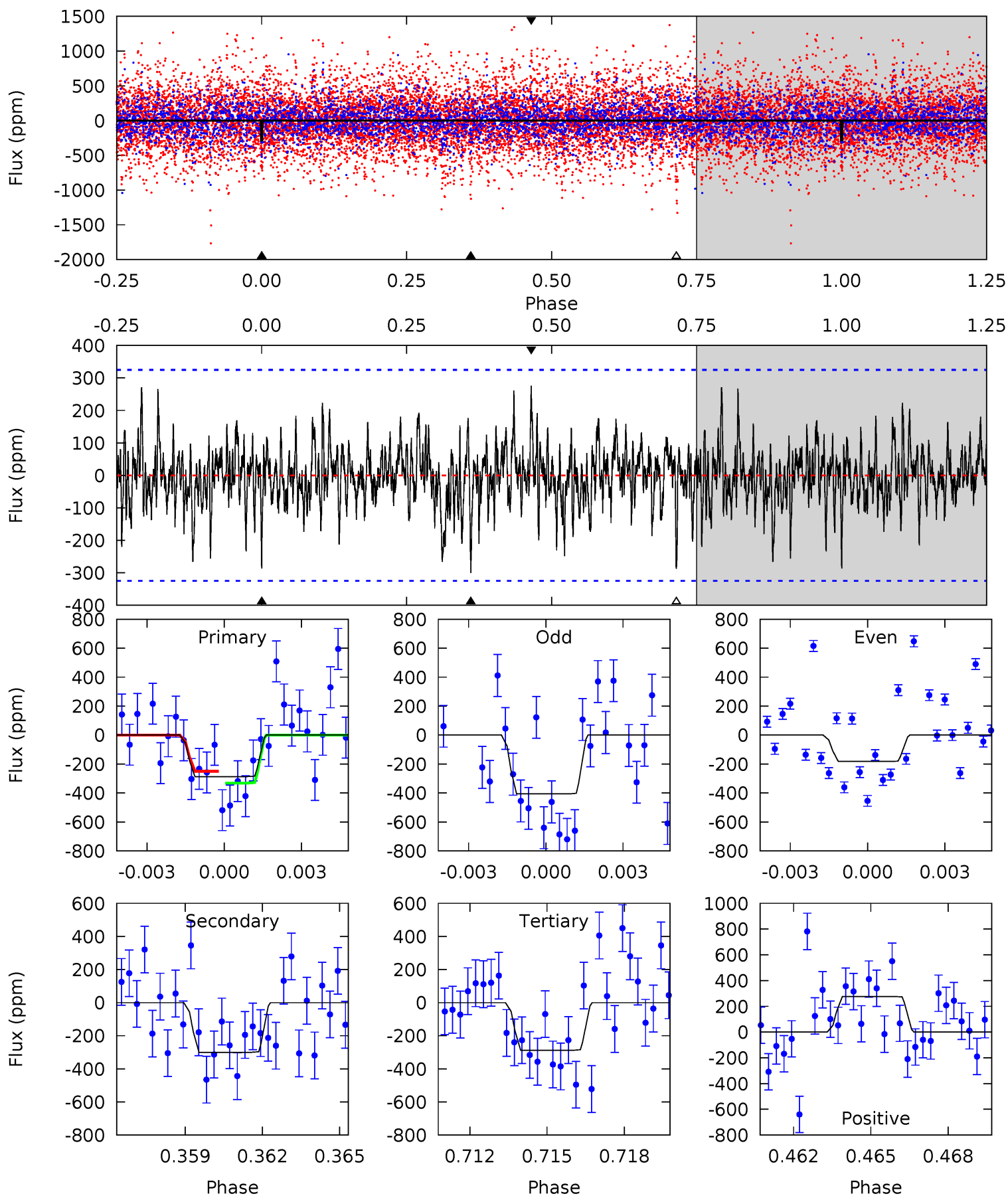
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.98	5.39	4.74	5.87	5.21	2.90	1.70	2.24	1.11	0.65	-0.48	0.53	1.15	0.46	0.11



Alt Model-Shift Uniqueness Test

005391767-02, P = 56.198947 Days, E = 131.657887 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.64	4.86	4.66	4.47	5.26	2.97	1.27	-0.02	0.17	0.20	0.39	1.84	1.02	0.48	0.66



Stellar Parameters For KIC 005391767

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6314^{+169}_{-207}	$4.472^{+0.054}_{-0.216}$	$-0.340^{+0.300}_{-0.300}$	$0.982^{+0.325}_{-0.102}$	$1.043^{+0.146}_{-0.133}$	$1.551^{+0.348}_{-0.869}$
	+3%/-3%	+1%/-5%	+88%/-88%	+33%/-10%	+14%/-13%	+22%/-56%
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 005391767-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-314 ± 58	$3.41^{+2.77}_{-2.10}$	731^{+51}_{-36}	4861^{+2940}_{-960}	1184^{+7044}_{-824}
Alt.	-300 ± 62	$3.02^{+2.52}_{-1.90}$	728^{+54}_{-33}	5156^{+3617}_{-1159}	1511^{+10188}_{-1078}

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

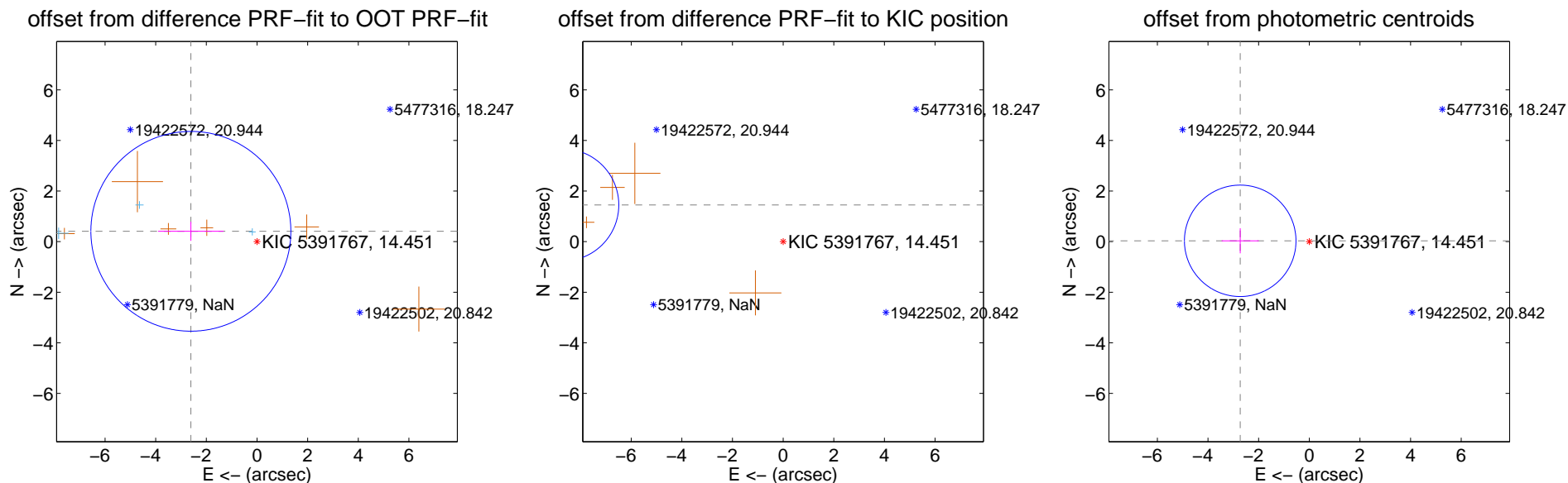
DV Centroid Data

Supplemental centroid analysis for 005391767-02. Kepler magnitude: 14.45. Transit SNR 9.73

There are 3 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 6.73 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.643 ± 1.316	2.01	2.611 ± 1.294	0.409 ± 0.376
PRF-fit source offset from KIC position	8.830 ± 0.740	11.93	8.710 ± 0.703	1.451 ± 0.428
photometric centroid source offset	2.73 ± 0.73	3.72	2.73 ± 0.73	0.03 ± 0.50



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.

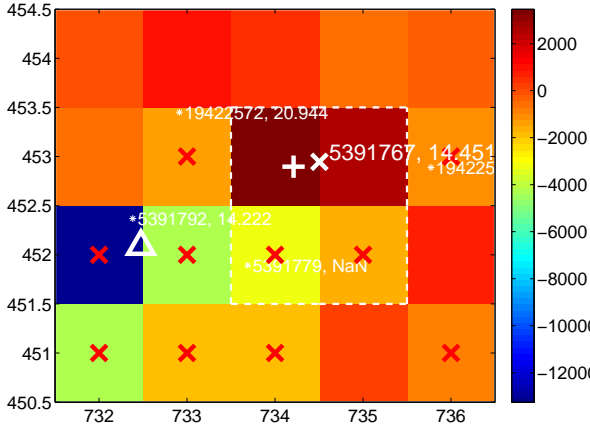
Q1 no difference image



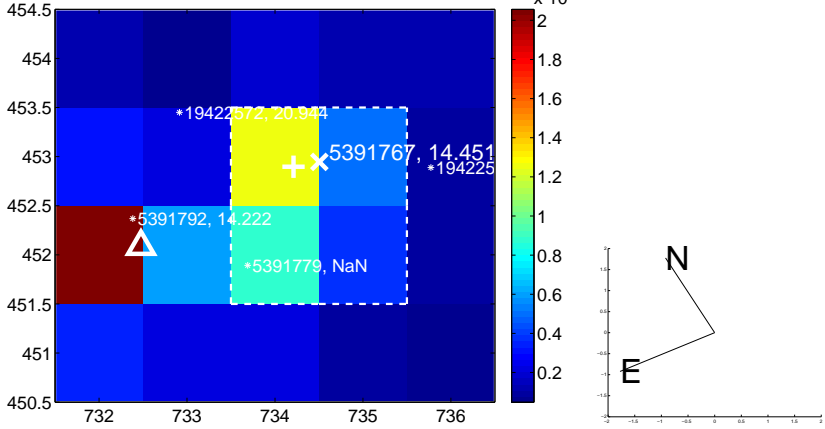
Q1 no OOT image



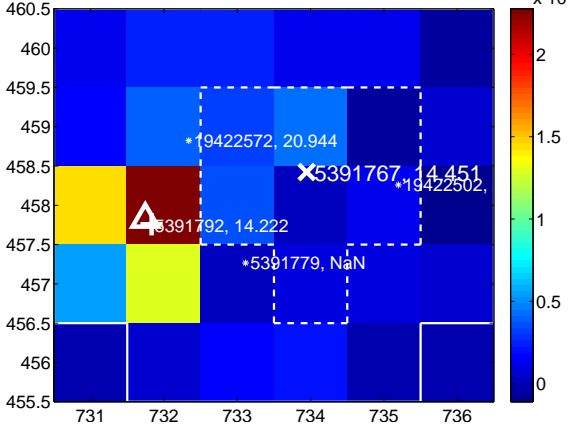
Q2 difference image. Poor Quality



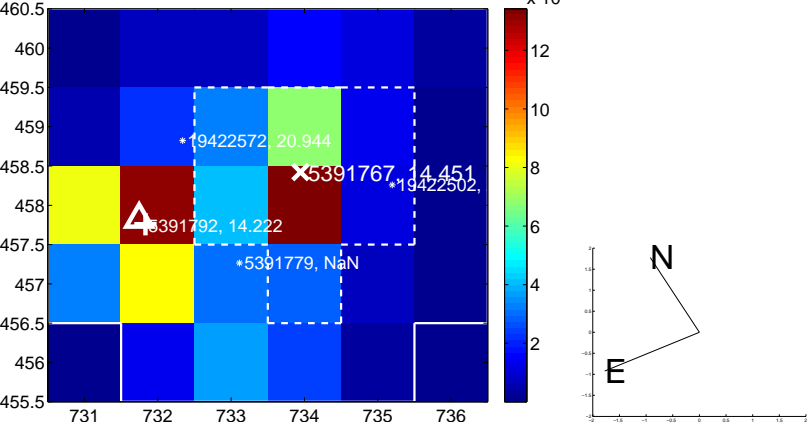
Q2 OOT image



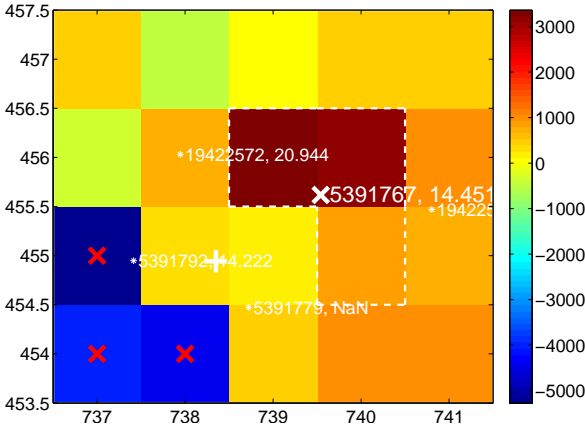
Q3 difference image



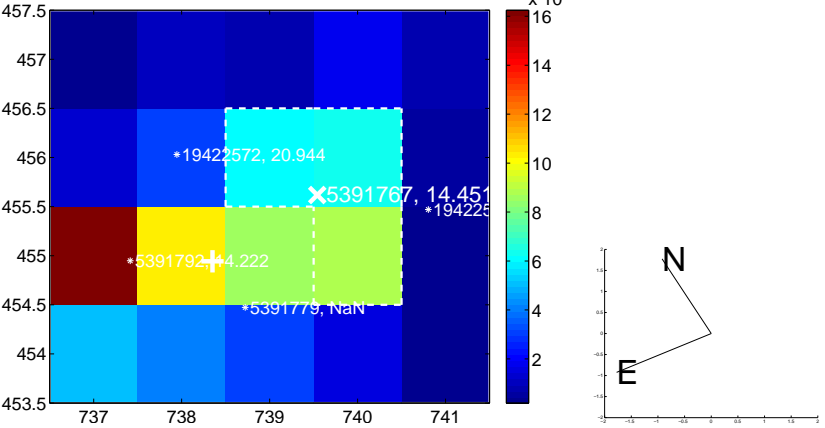
Q3 OOT image



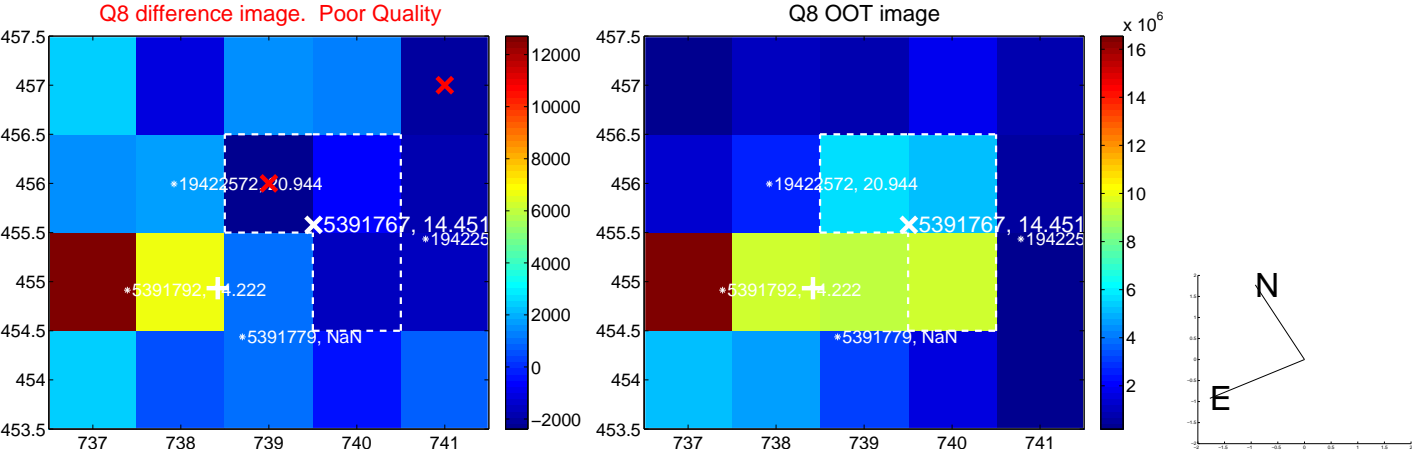
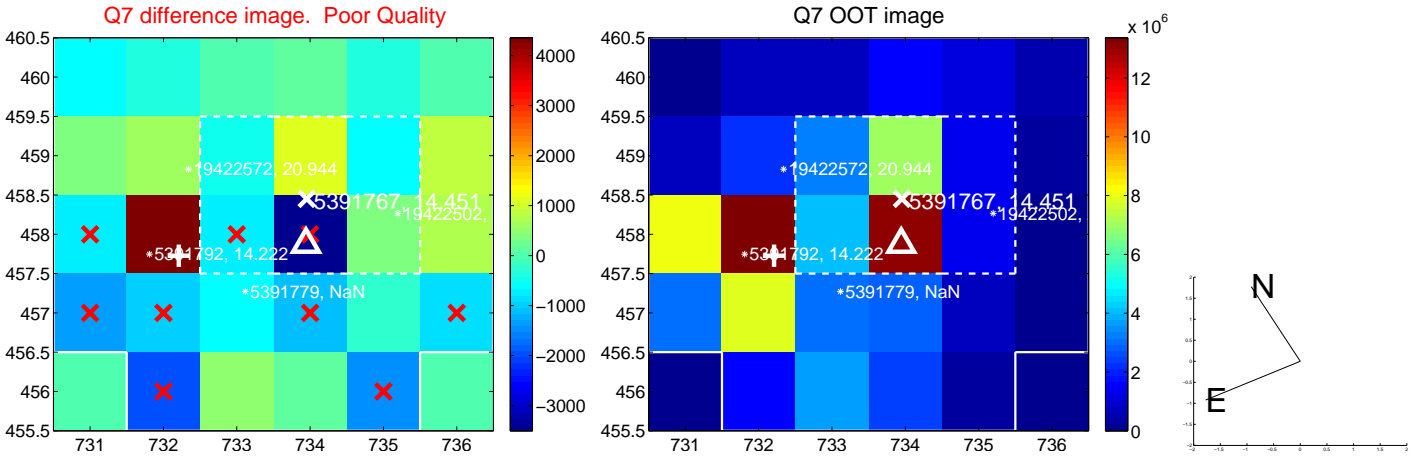
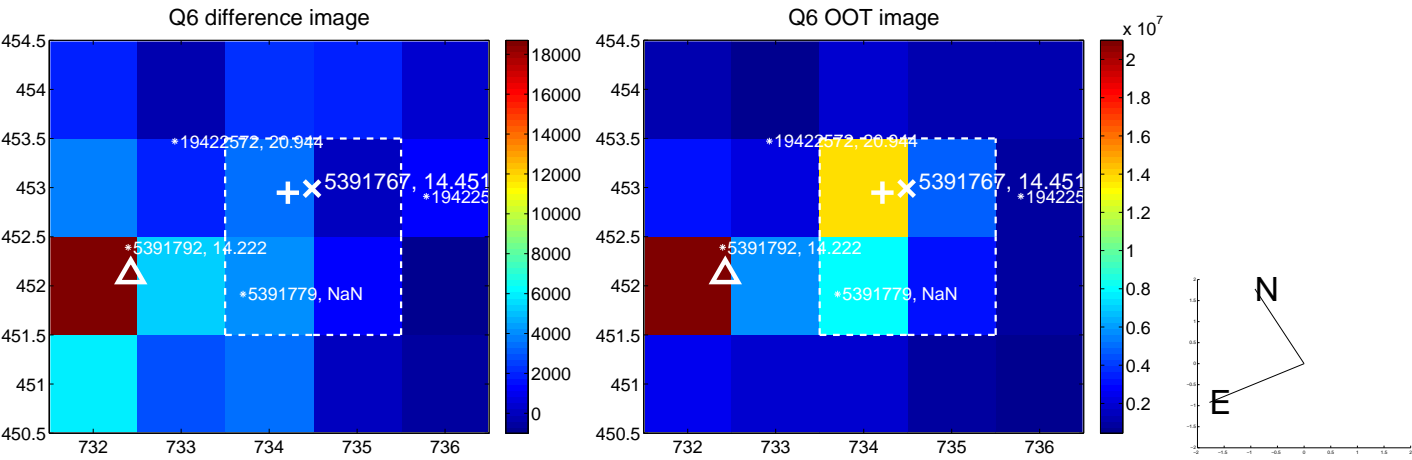
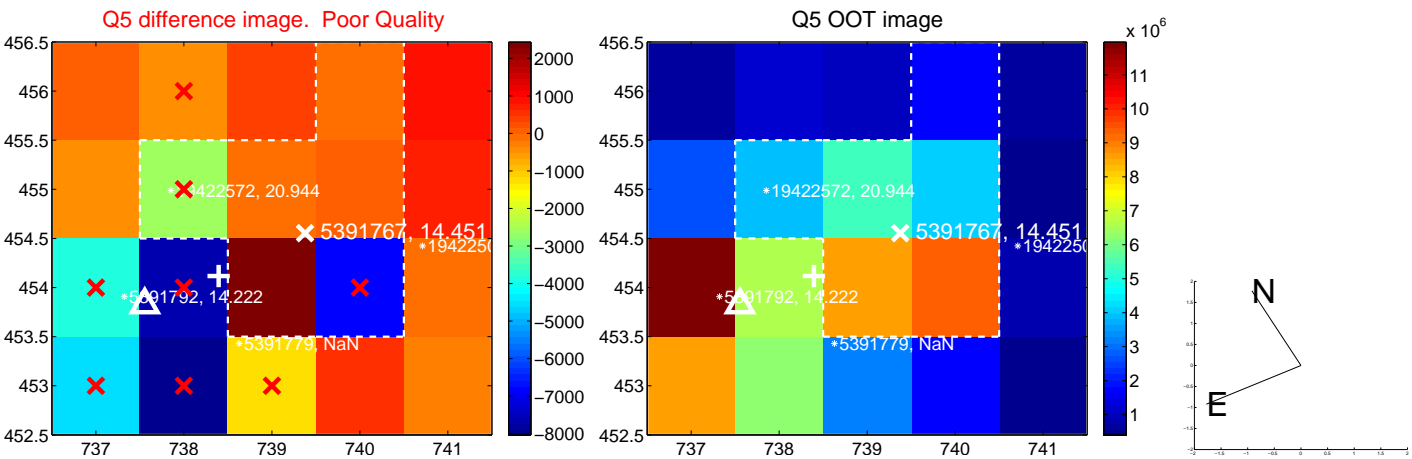
Q4 difference image. Poor Quality



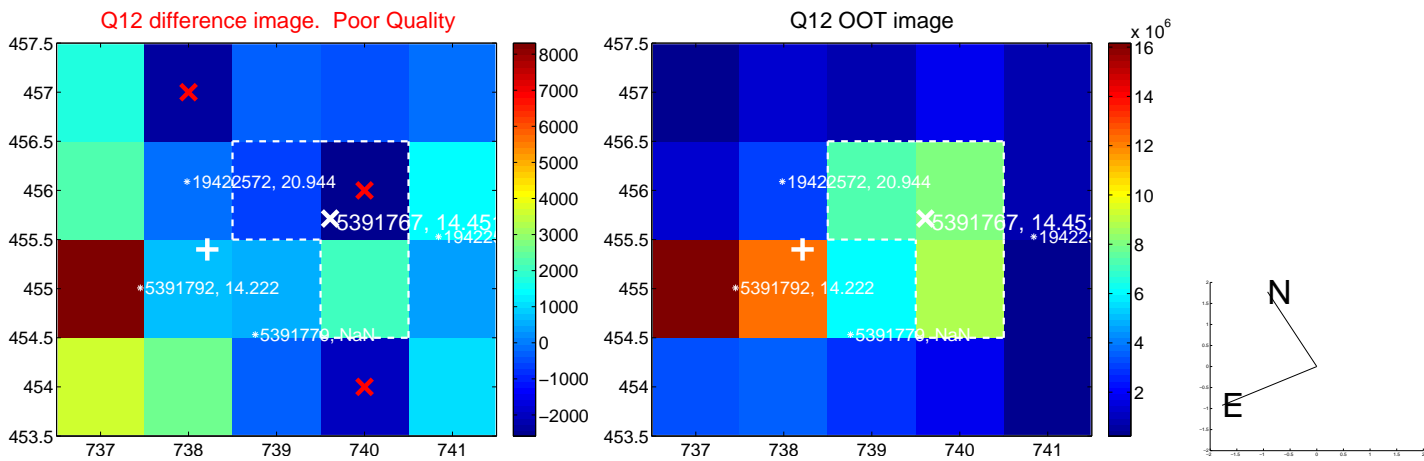
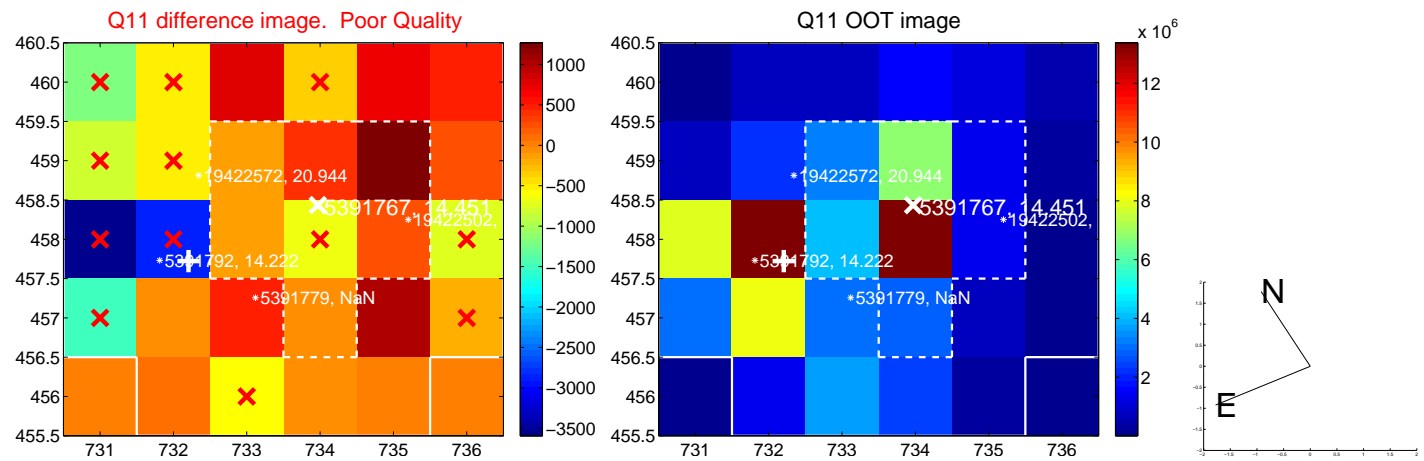
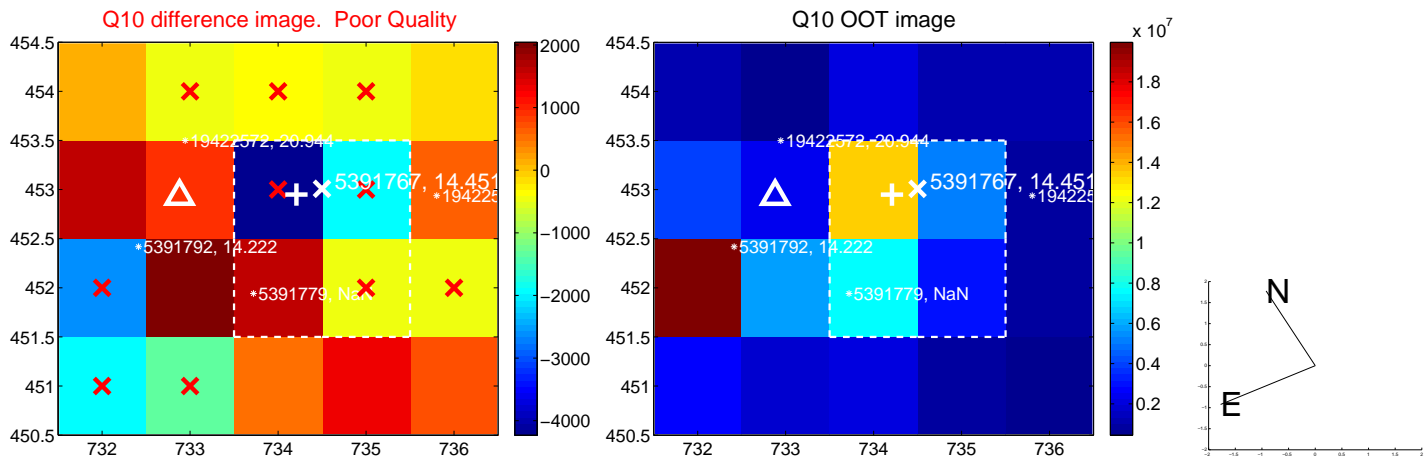
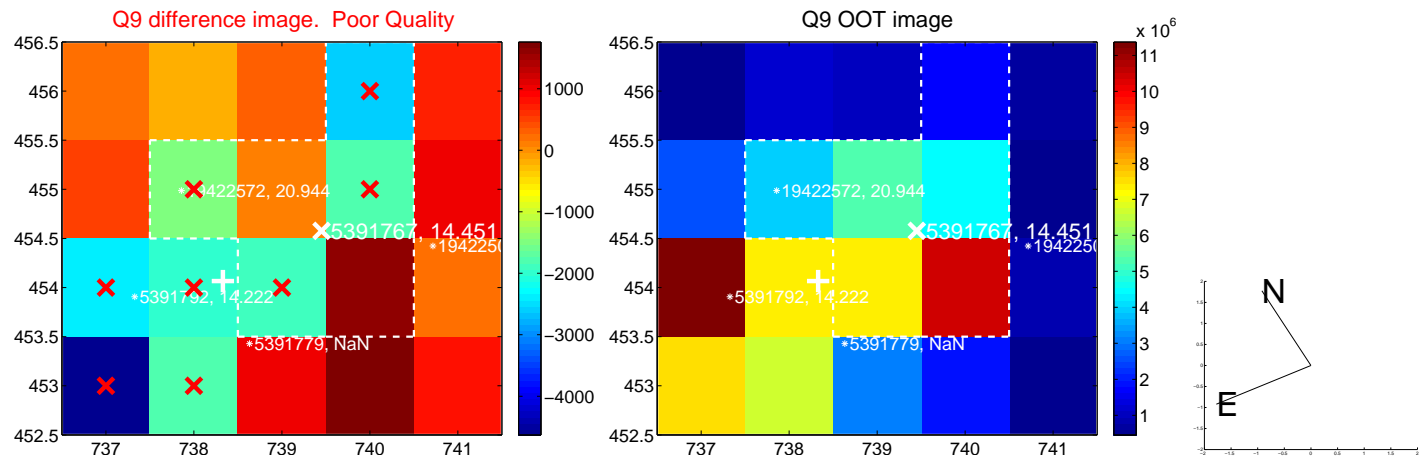
Q4 OOT image



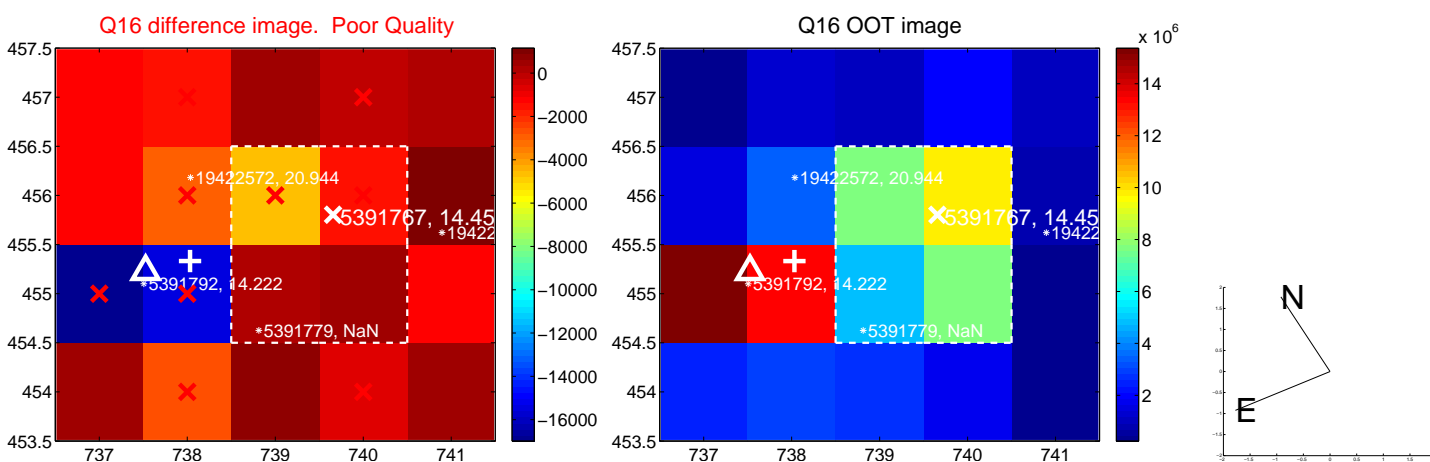
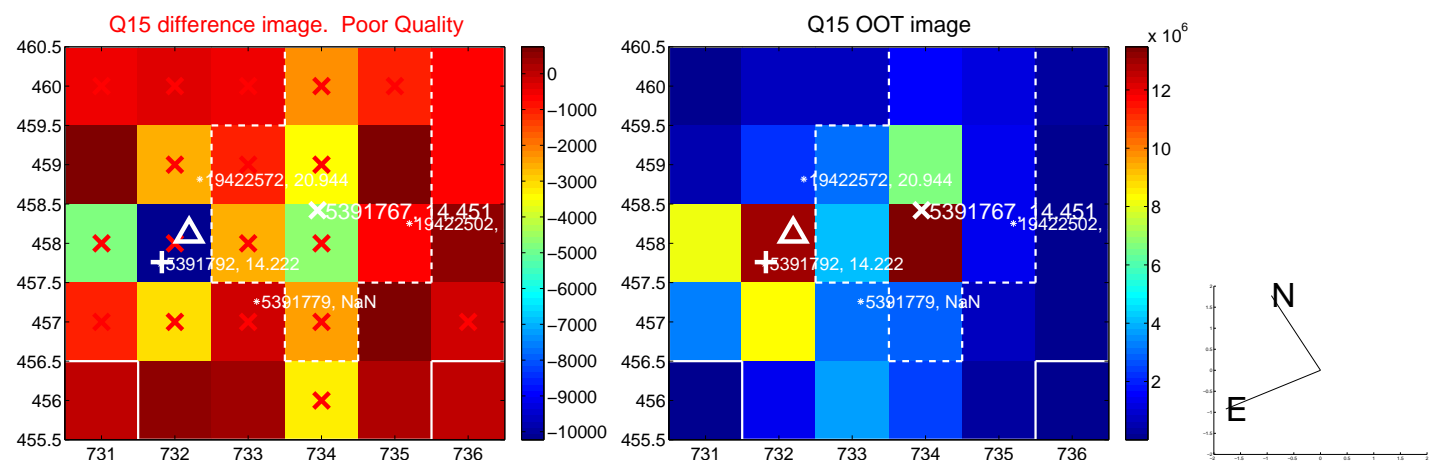
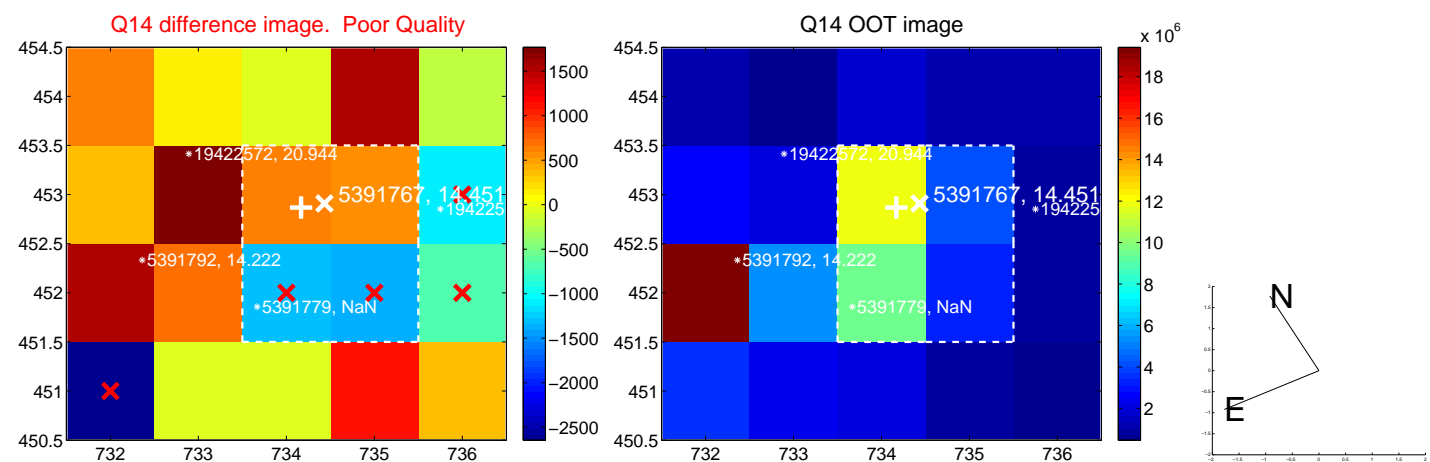
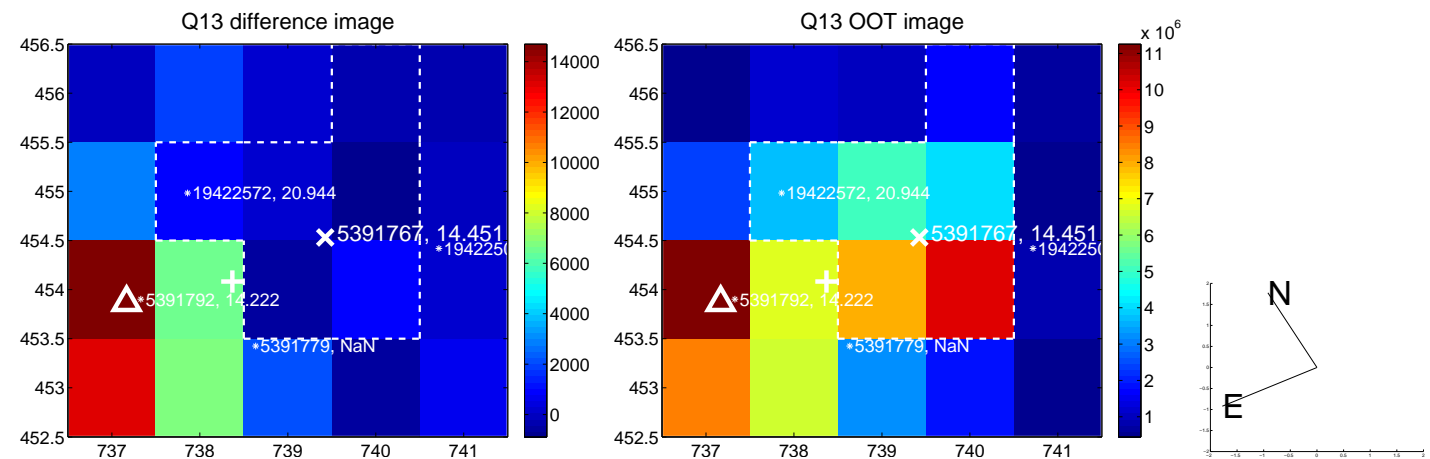
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



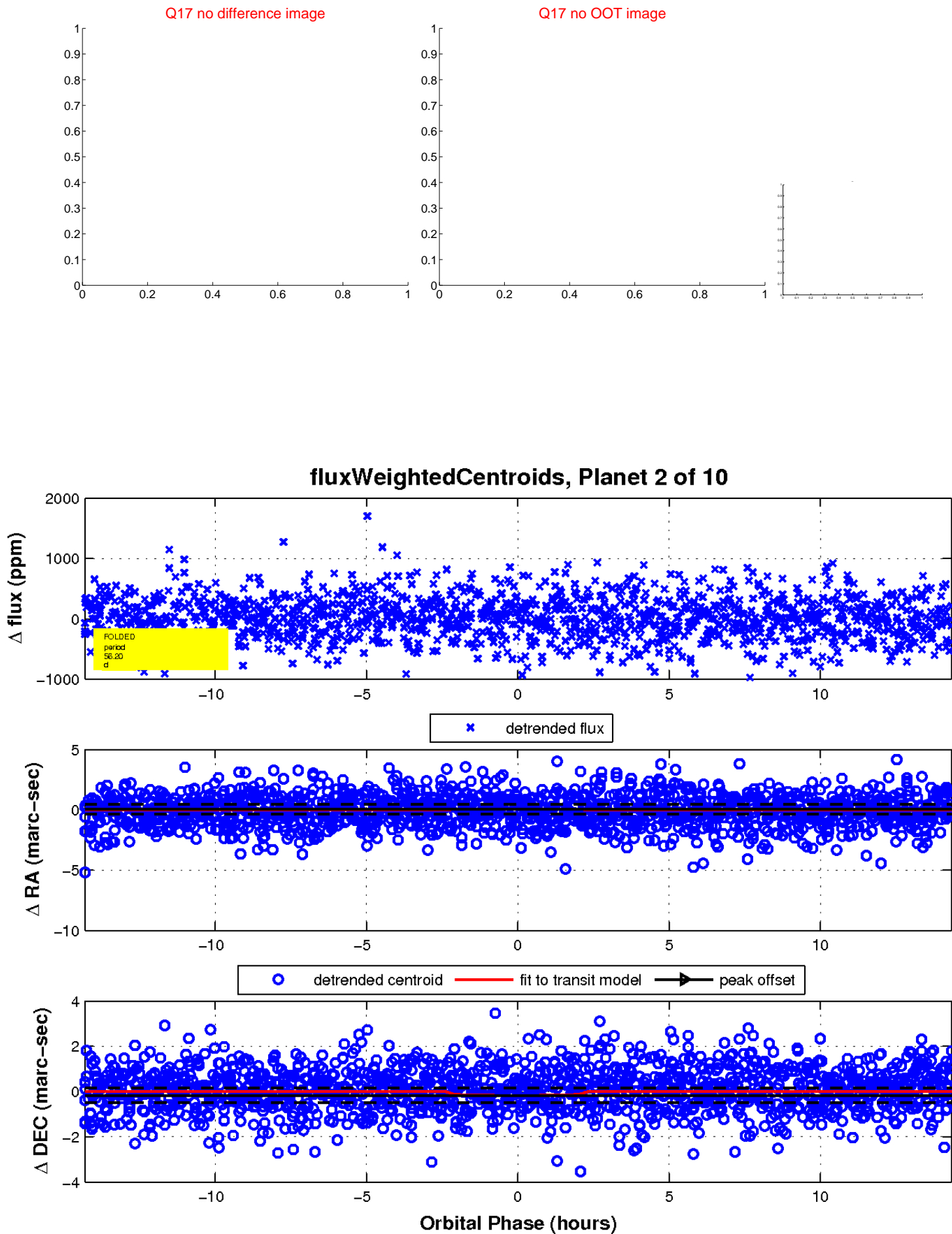
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

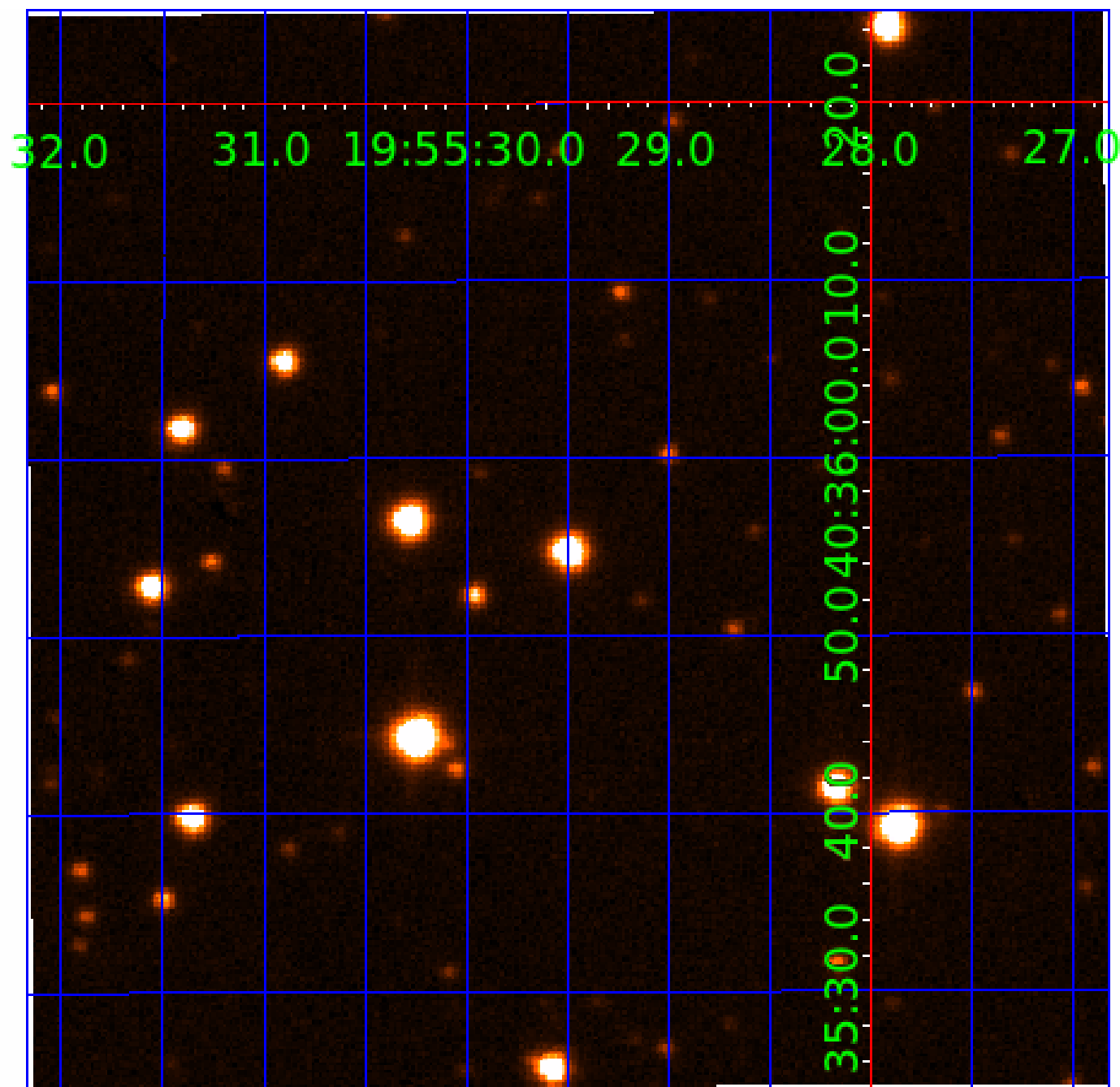


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005391767

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})
005391767-01	OBS	No	0.834886	131.693199	11.9	5.428	7.7	3.3	0.98	6314	0.35	4432.86
005391767-02	OBS	No	56.197304	131.674337	550.5	4.783	11.3	9.7	0.98	6314	2.56	16.19
005391767-03	OBS	No	489.320936	193.773350	882.3	8.465	10.5	11.0	0.98	6314	3.25	0.90
005391767-04	OBS	No	126.854394	187.648633	732.7	4.541	9.5	9.3	0.98	6314	3.00	5.47
005391767-05	OBS	No	49.403648	174.663481	503.6	6.307	8.9	9.9	0.98	6314	2.44	19.22
005391767-06	OBS	No	31.794911	157.264839	367.6	2.107	8.6	6.1	0.98	6314	2.16	34.60
005391767-07	OBS	No	53.256593	172.075440	428.8	3.669	8.0	7.4	0.98	6314	2.21	17.39
005391767-08	OBS	No	59.737722	158.056402	440.1	5.109	8.5	8.5	0.98	6314	2.30	14.92
005391767-10	OBS	No	28.485201	145.764735	498.0	1.265	7.7	9.0	0.98	6314	2.58	40.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005391767-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005391767-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST
005391767-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

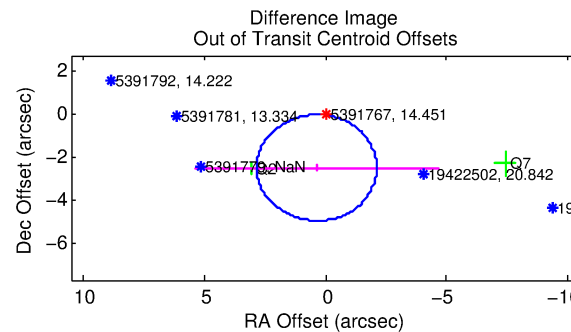
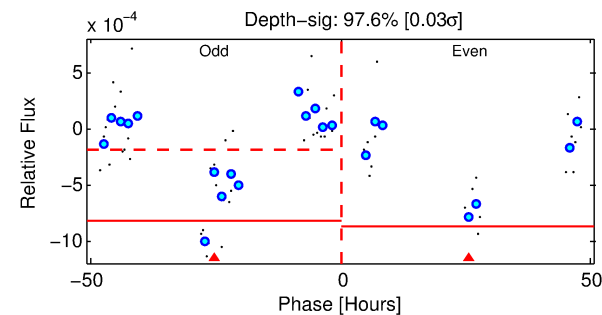
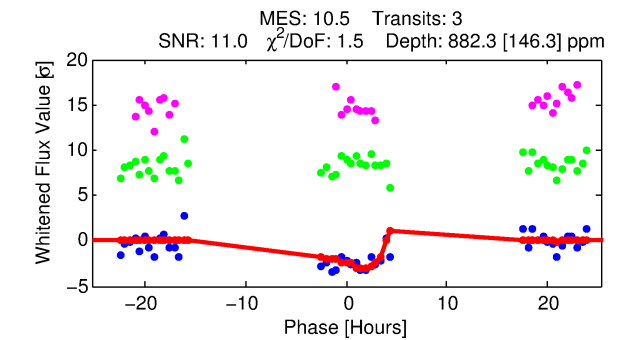
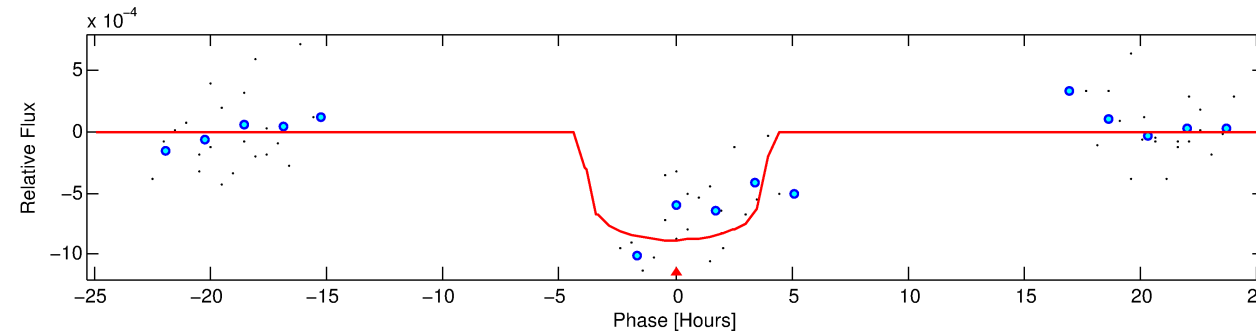
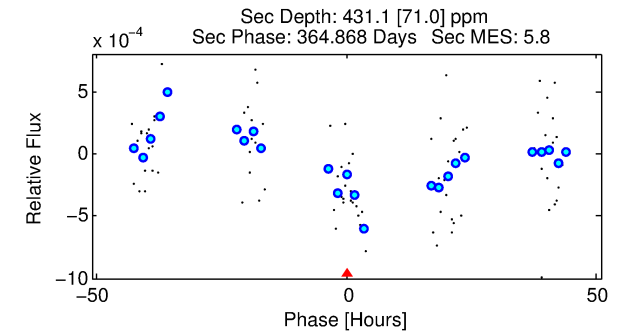
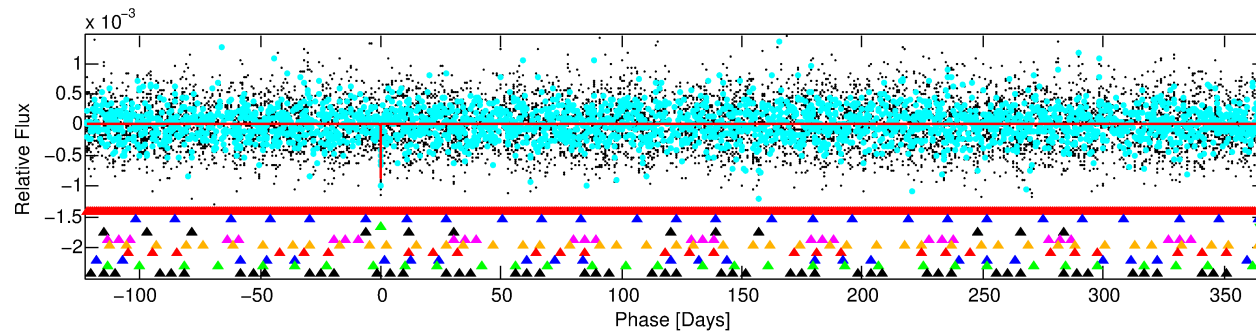
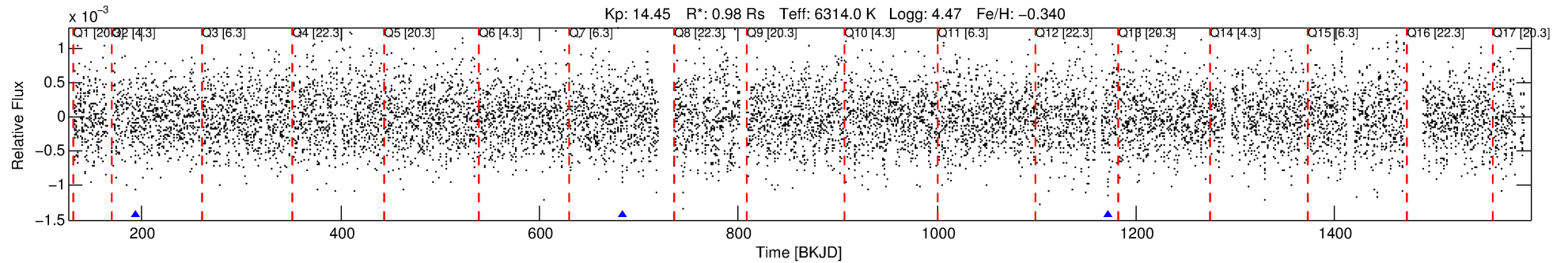
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005391767-03

No Significant Match Found

DV One-Page Summary

KIC: 5391767 Candidate: 3 of 10 Period: 489.321 d



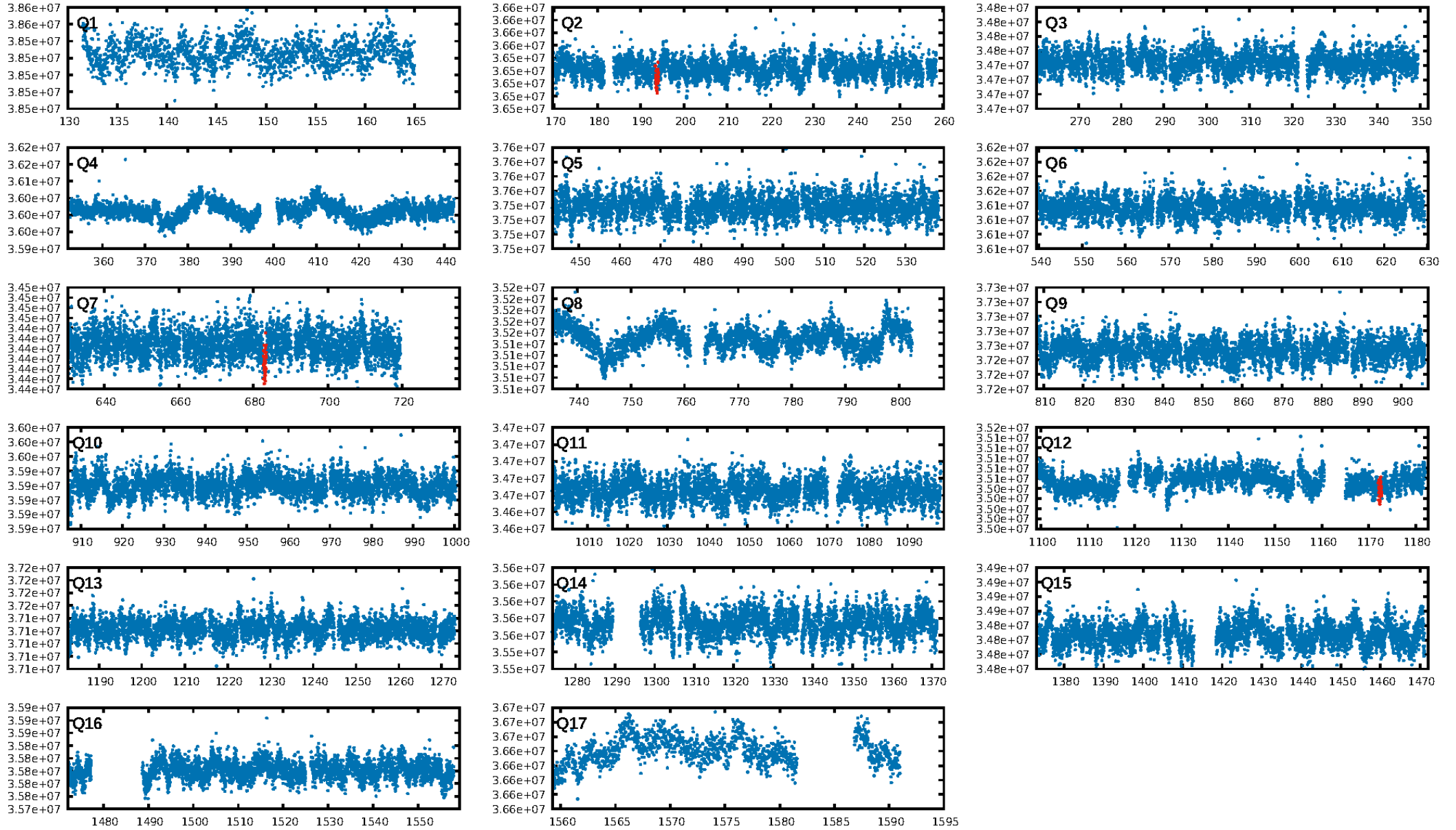
DV Fit Results:

Period = 489.32094 [0.09051] d
Epoch = 193.7734 [0.0758] BKJD
Rp/R* = 0.0304 [0.0095]
a/R* = 274.41 [472.18]
b = 0.82 [0.60]
Seff = 0.90 [0.38]
T_{eq} = 249 [26] K
Rp = 3.25 [1.48] R_e
a = 1.2326 [0.3402] AU
Ag = 34030.81 [25853.79] [1.32σ]
T_{eff} = 5221 [862] K [5.77σ]

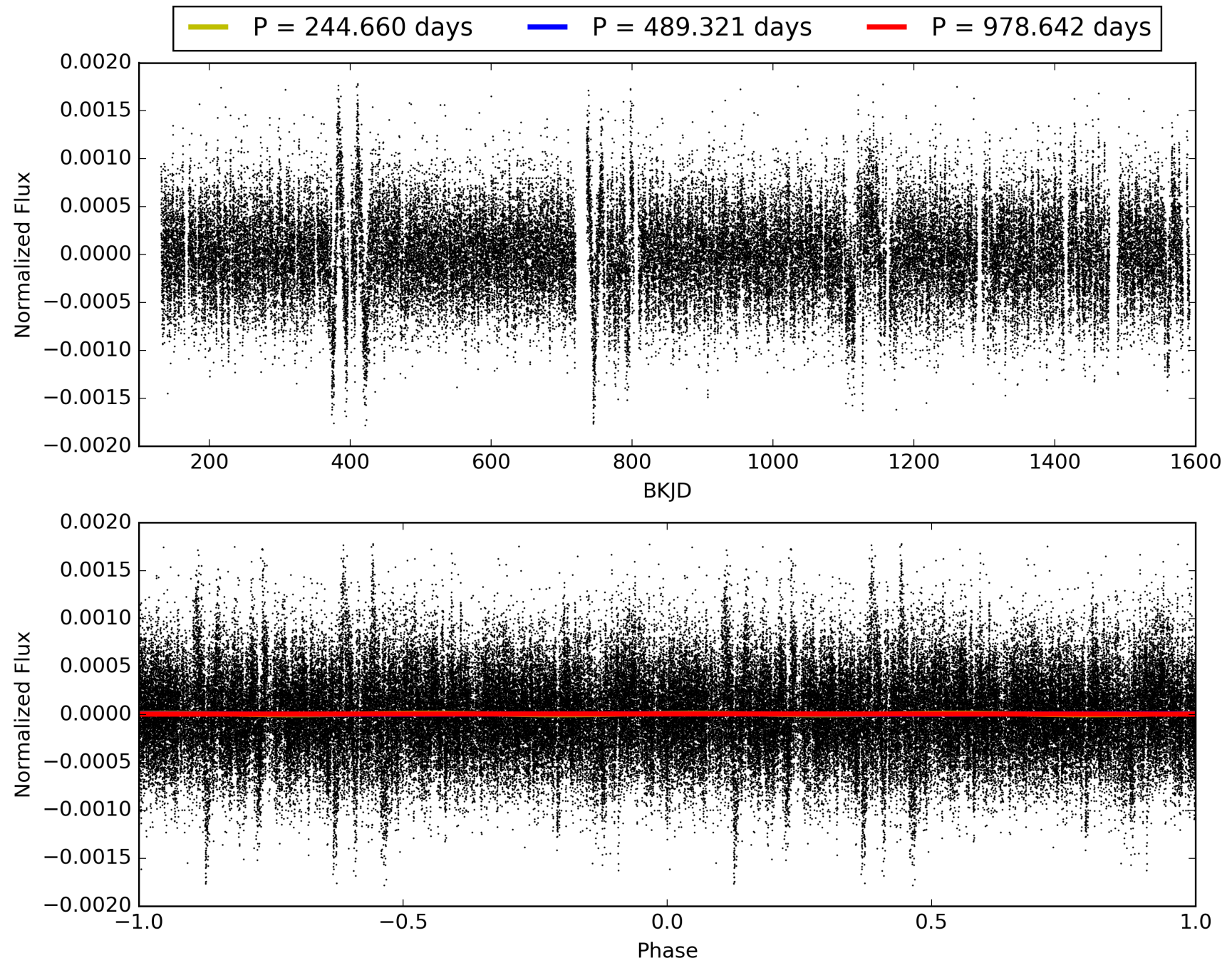
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [905.55σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 93.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.52e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.1827
Centroid-sig: 40.2%
Centroid-so: 3.437 arcsec [3.41σ]
OotOffset-rm: 2.527 arcsec [3.06σ]
KicOffset-rm: 3.950 arcsec [2.98σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/2]

TCE 005391767-03, PDC Light Curves

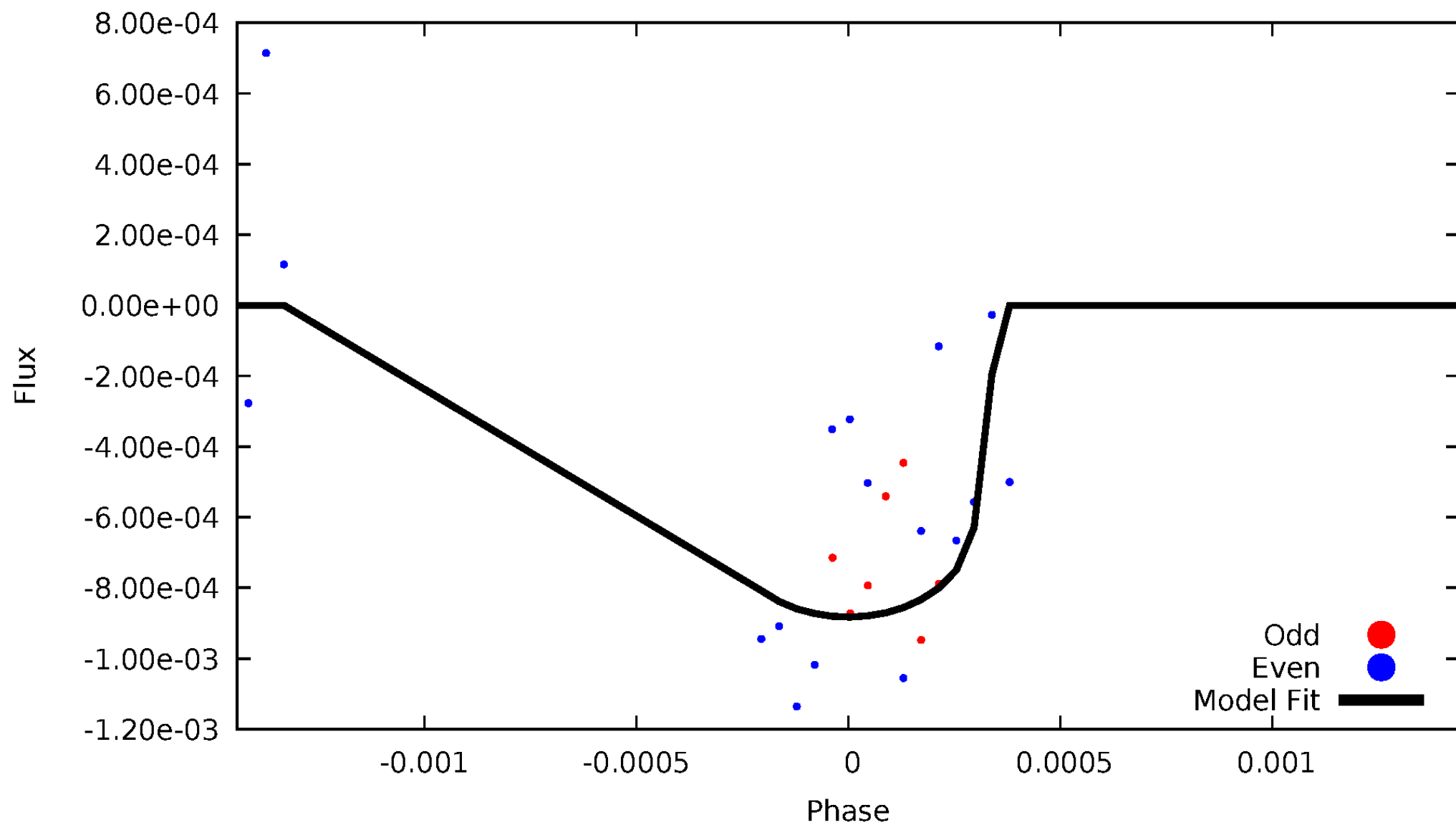


TCE 005391767-03



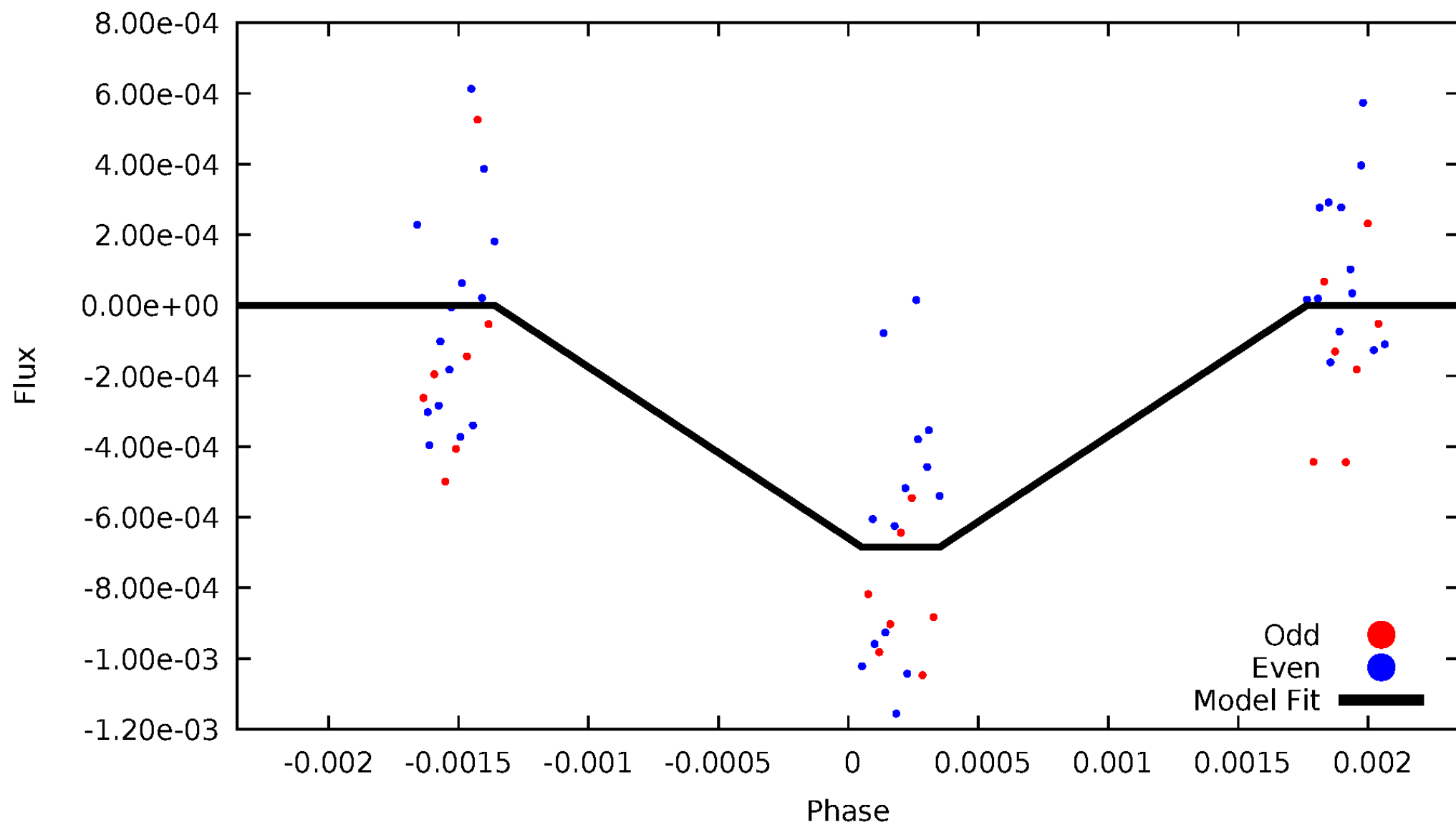
DV Odd/Even

TCE 005391767-03



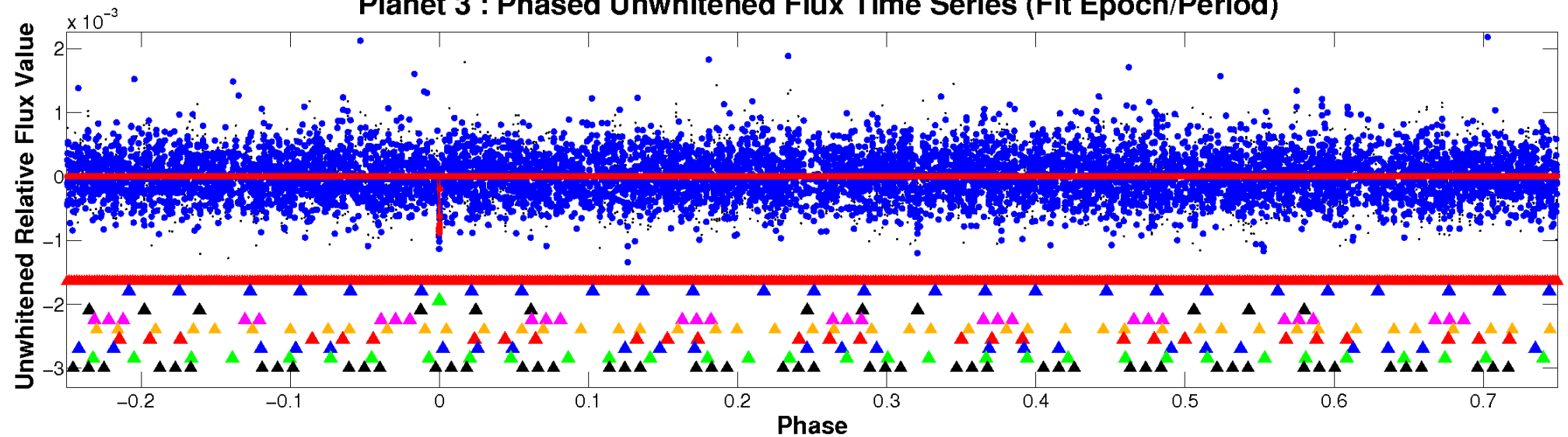
ALT Odd/Even

TCE 005391767-03

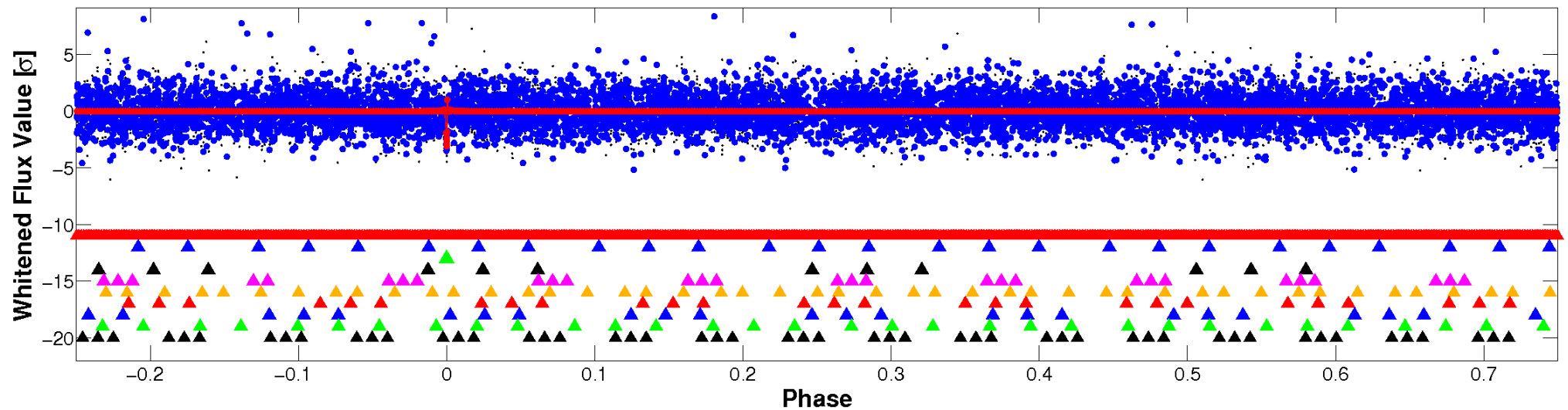


Non-Whitened Vs. Whitened Light Curve

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



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



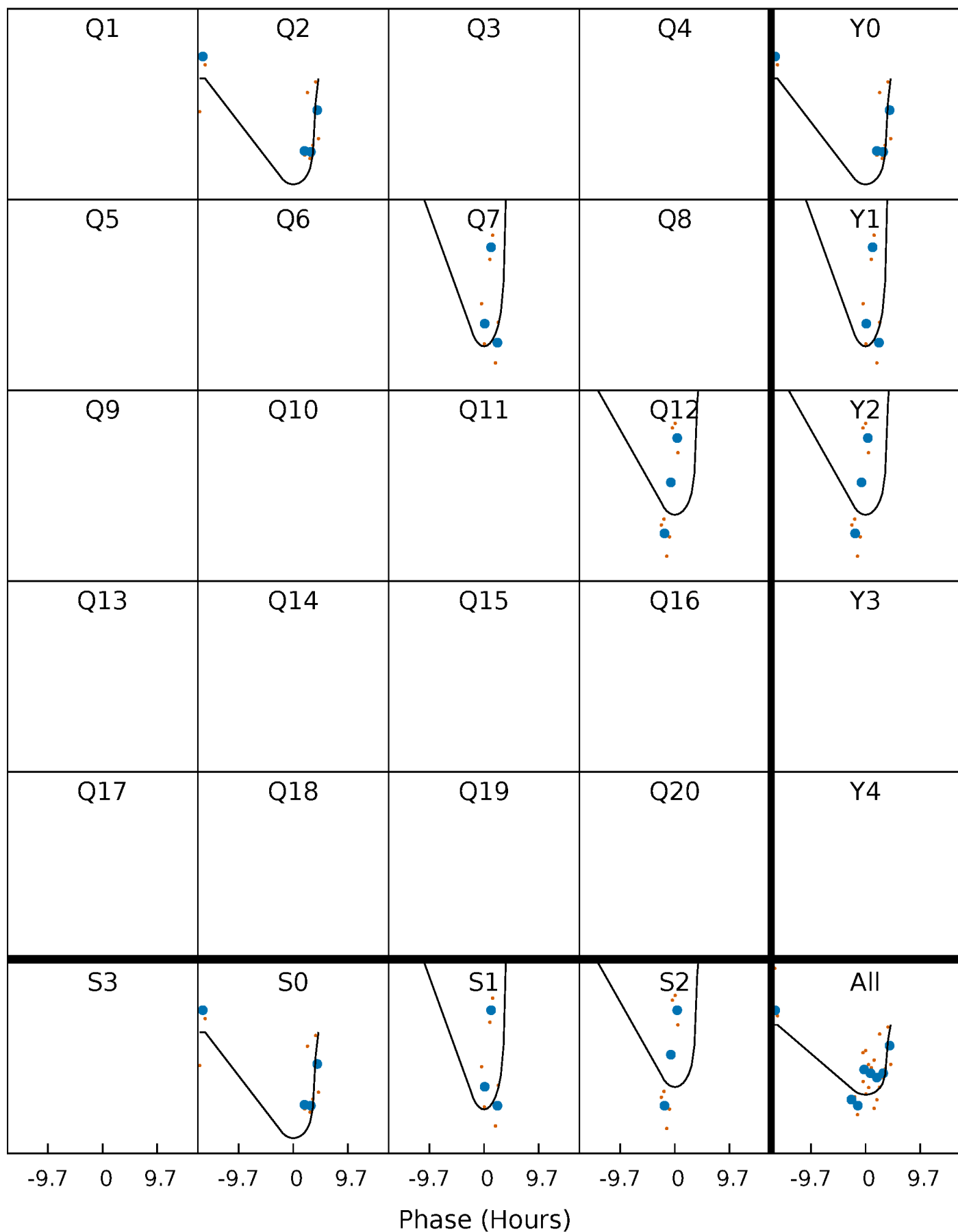
PDC Quarter-Phased Transit Curves

TCE 005391767-03 P=489.320937 Days $T_0=193.773350$ (BKJD)



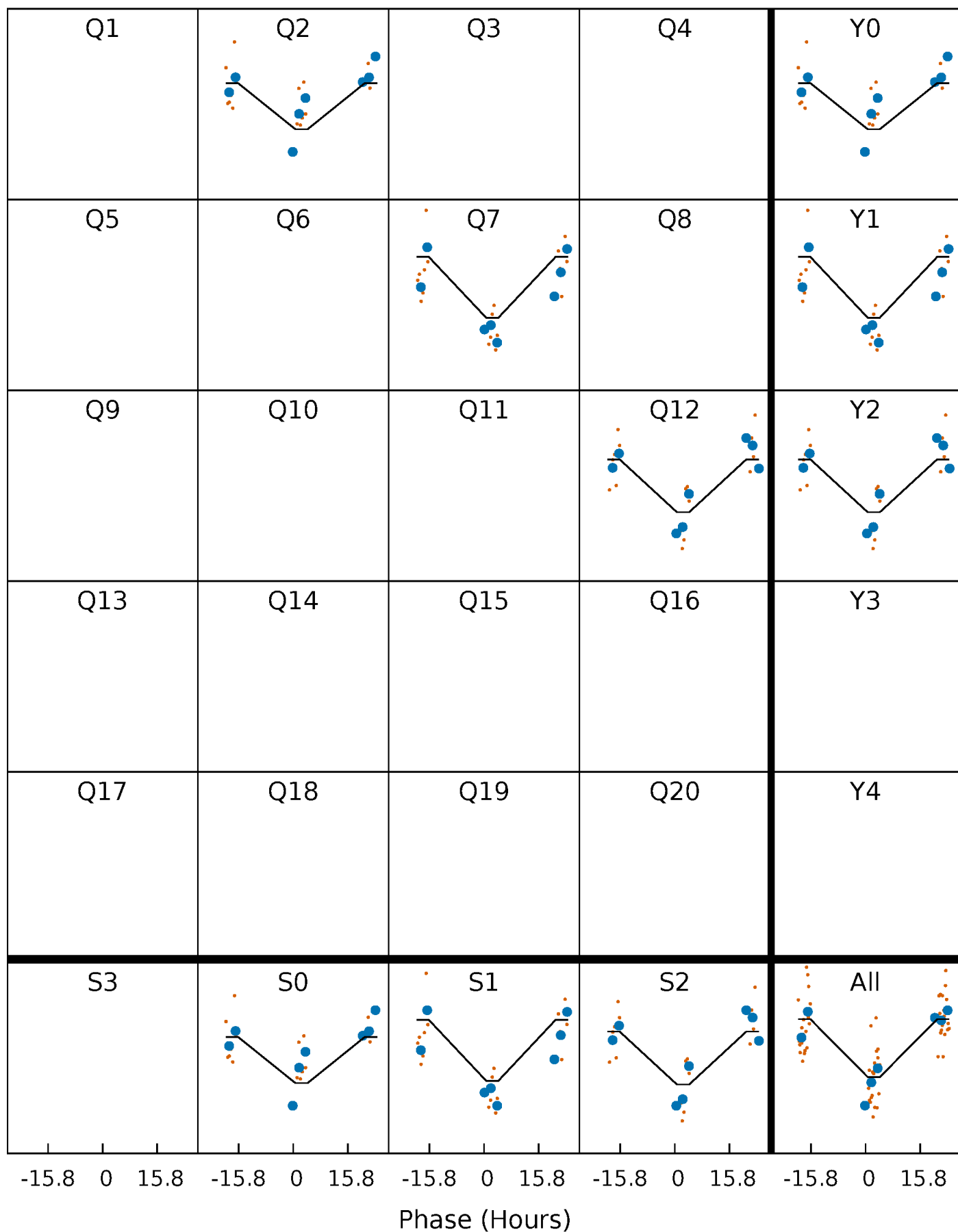
DV Quarter-Phased Transit Curves

TCE 005391767-03 $P=489.320937$ Days $T_0=193.773350$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

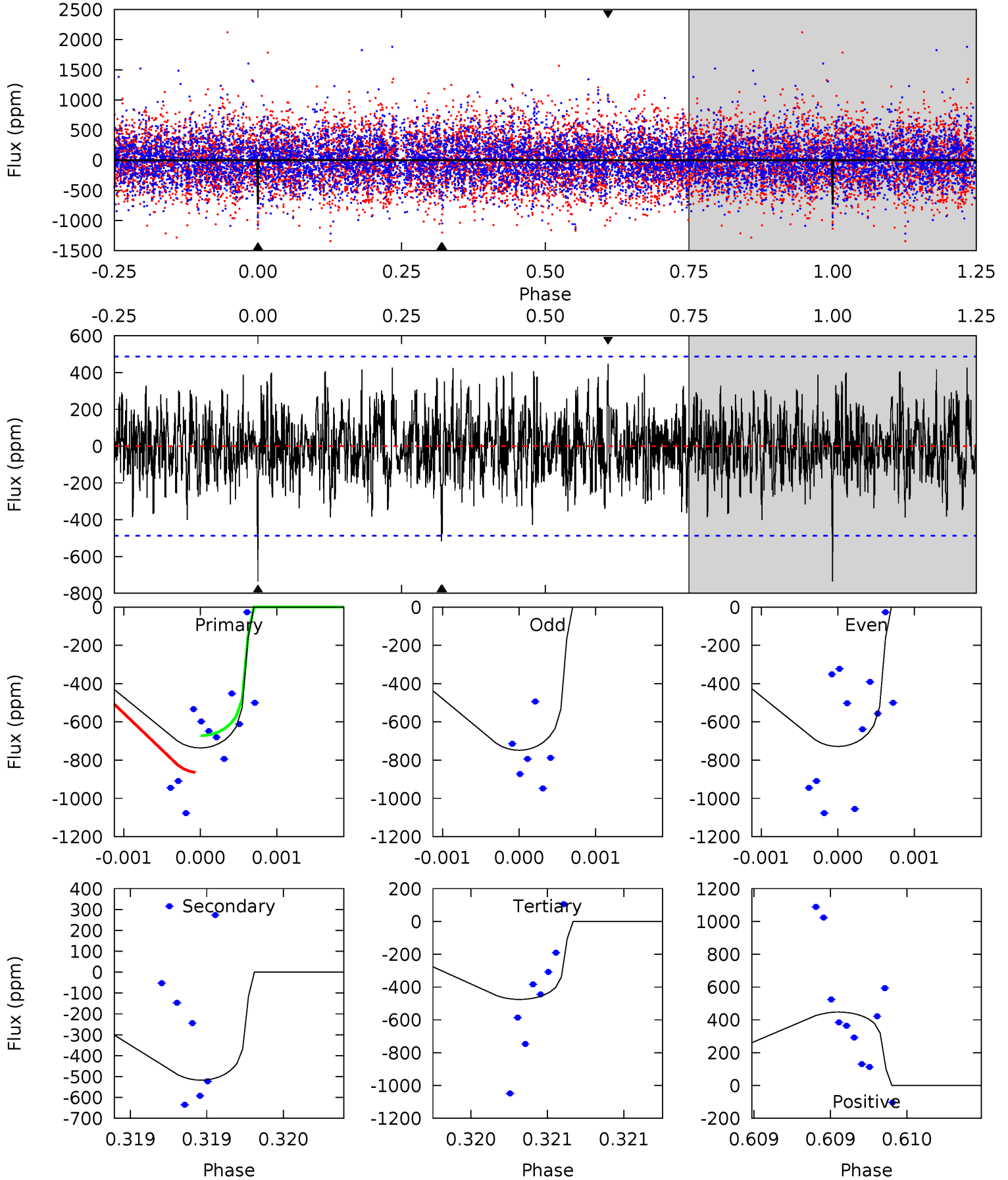
TCE 005391767-03 P=489.227105 Days $T_0=193.811232$ (BKJD)



DV Model-Shift Uniqueness Test

005391767-03, P = 489.320937 Days, E = 193.773350 Days

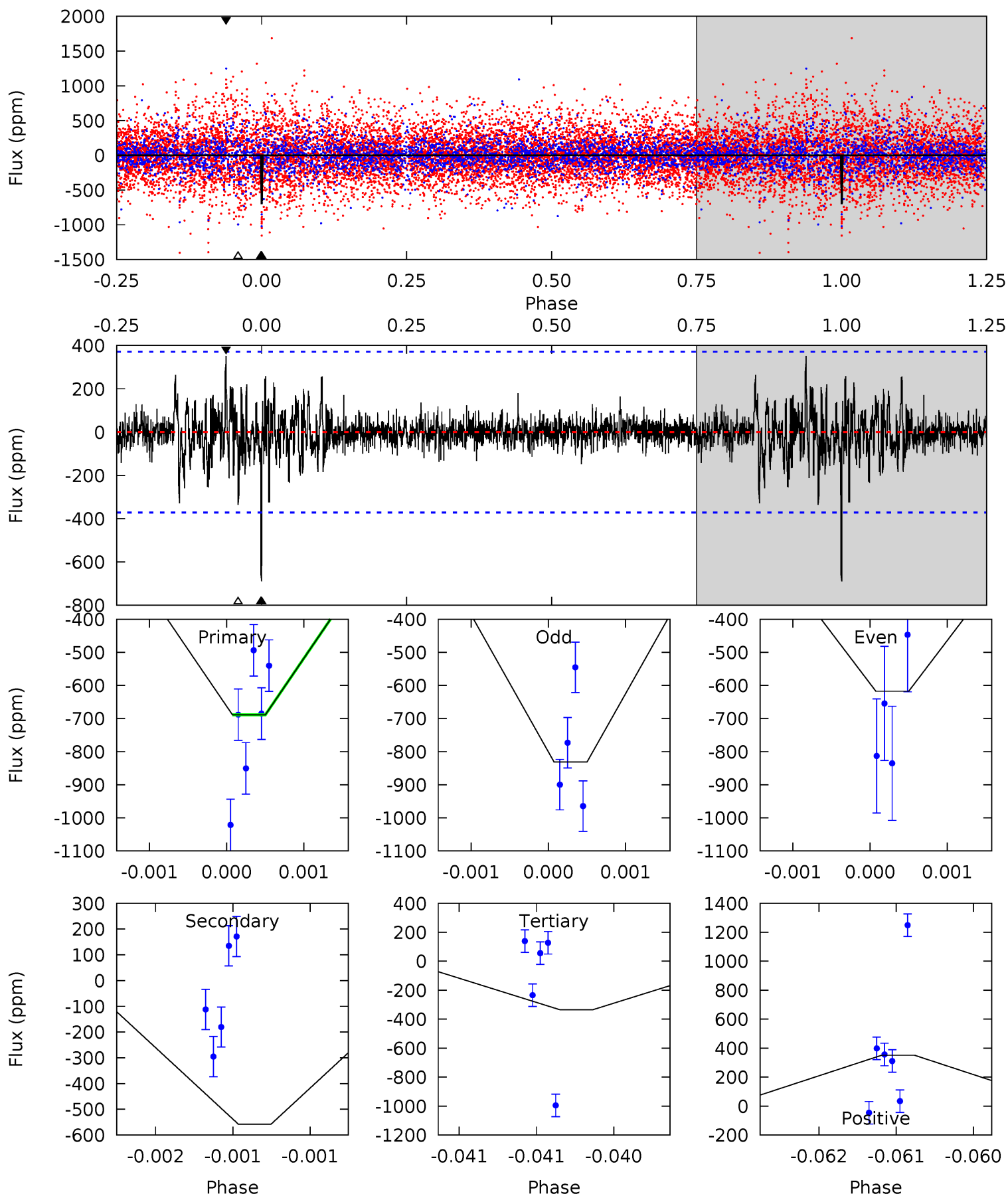
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.40	5.90	5.43	5.11	5.56	3.46	1.61	2.97	3.30	0.48	0.80	0.11	0.97	0.38	0.99



Alt Model-Shift Uniqueness Test

005391767-03, P = 489.227105 Days, E = 193.811232 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	8.28	4.97	5.21	5.51	3.39	0.94	5.25	5.02	3.31	3.07	1.56	0.90	0.34	0



Stellar Parameters For KIC 005391767

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6314^{+169}_{-207}	$4.472^{+0.054}_{-0.216}$	$-0.340^{+0.300}_{-0.300}$	$0.982^{+0.325}_{-0.102}$	$1.043^{+0.146}_{-0.133}$	$1.551^{+0.348}_{-0.869}$
	+3%/-3%	+1%/-5%	+88%/-88%	+33%/-10%	+14%/-13%	+22%/-56%
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 005391767-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-517 ± 88	$3.45^{+1.19}_{-1.07}$	356^{+25}_{-19}	5433^{+1163}_{-620}	35410^{+40513}_{-16410}
Alt.	-558 ± 67	$2.99^{+1.27}_{-1.10}$	356^{+28}_{-18}	5957^{+1585}_{-829}	50140^{+71247}_{-24762}

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

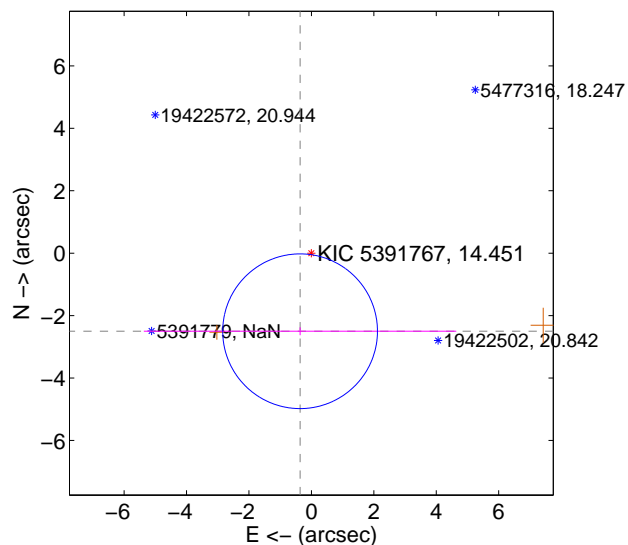
Supplemental centroid analysis for 005391767-03. Kepler magnitude: 14.45. Transit SNR 10.95

There are 0 quarters with good PRF difference image offsets

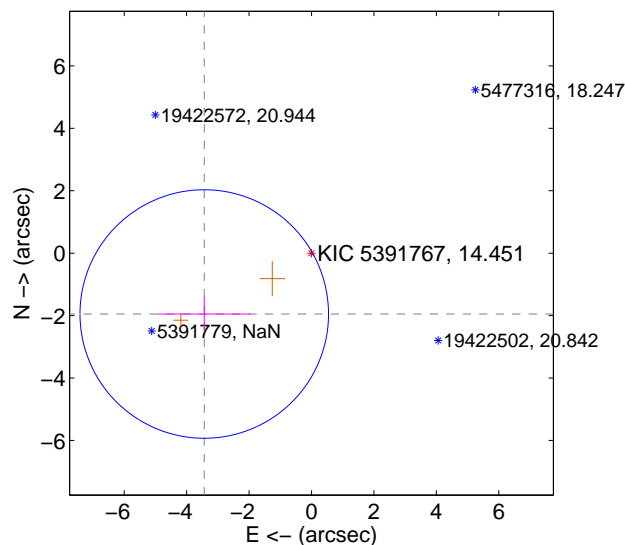
The OOT PRF centroid is offset from the target star catalog position by about 8.81 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.527 ± 0.826	3.06	0.362 ± 5.006	-2.501 ± 0.126
PRF-fit source offset from KIC position	3.950 ± 1.327	2.98	3.435 ± 1.492	-1.949 ± 0.557
photometric centroid source offset	3.44 ± 1.01	3.41	3.35 ± 1.02	-0.75 ± 0.75

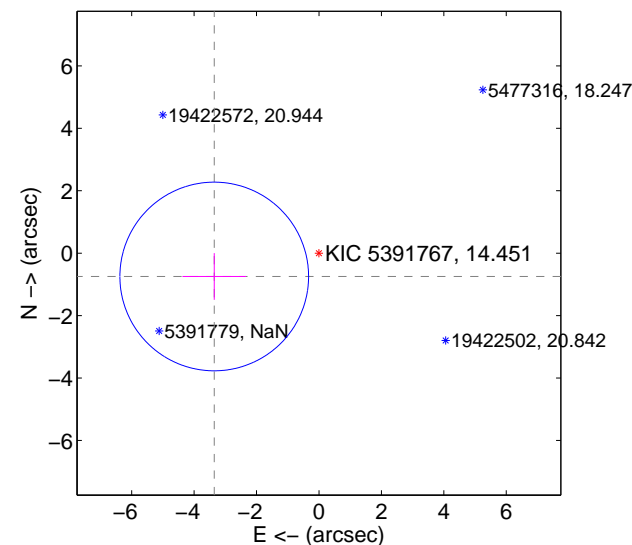
offset from difference PRF-fit to OOT PRF-fit



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

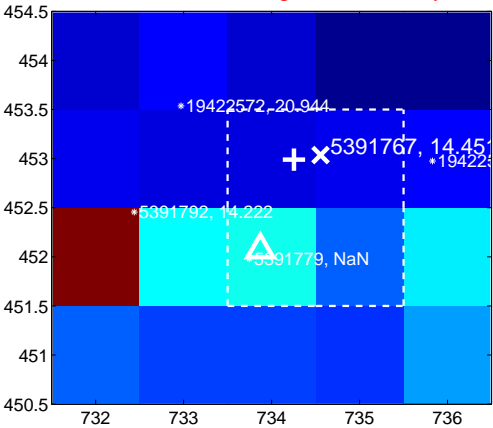
Q1 no difference image



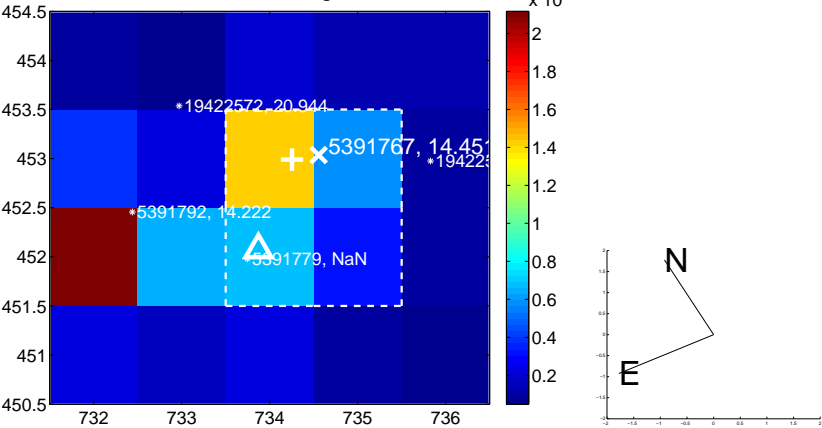
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



Q3 no difference image



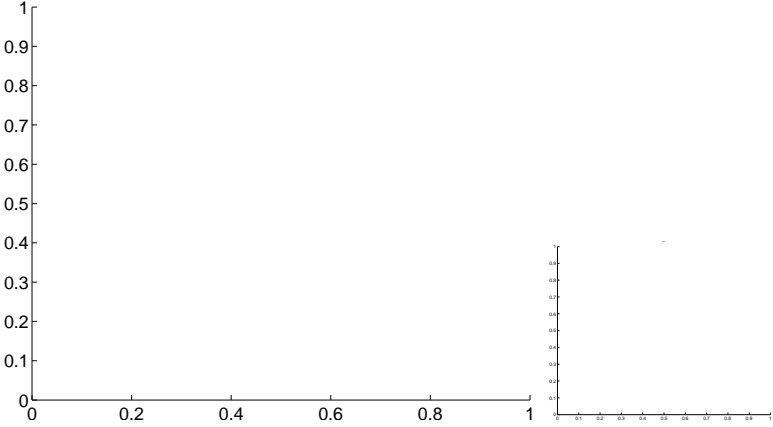
Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

Q5 no difference image



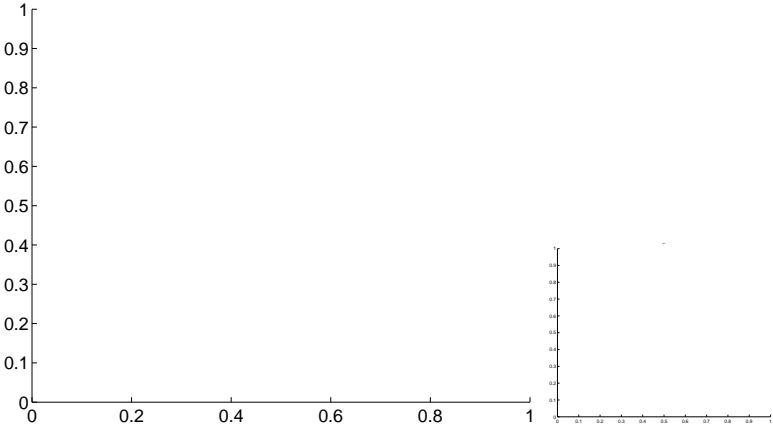
Q5 no OOT image



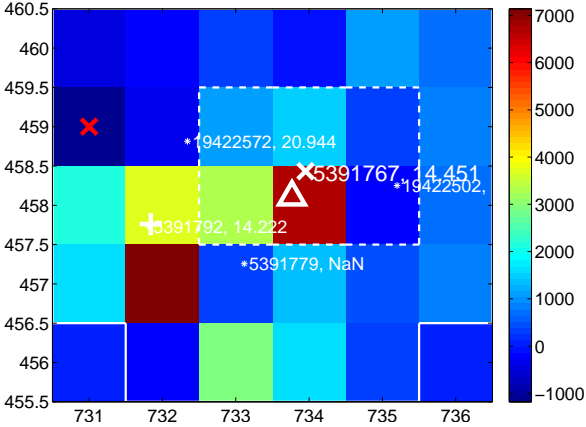
Q6 no difference image



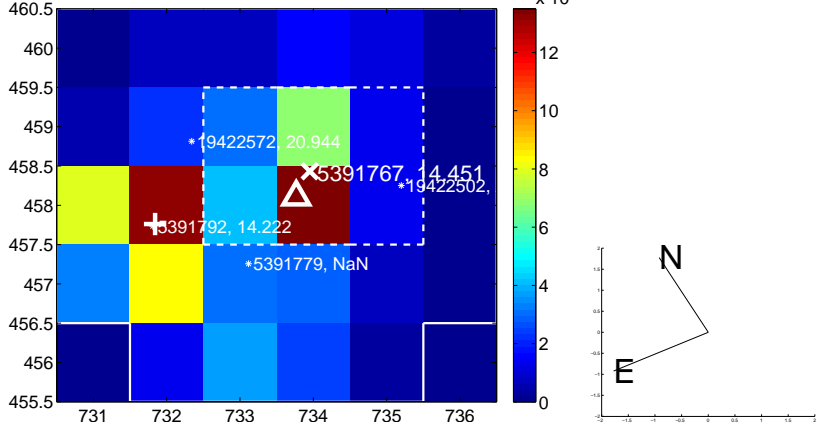
Q6 no OOT image



Q7 difference image. Poor Quality



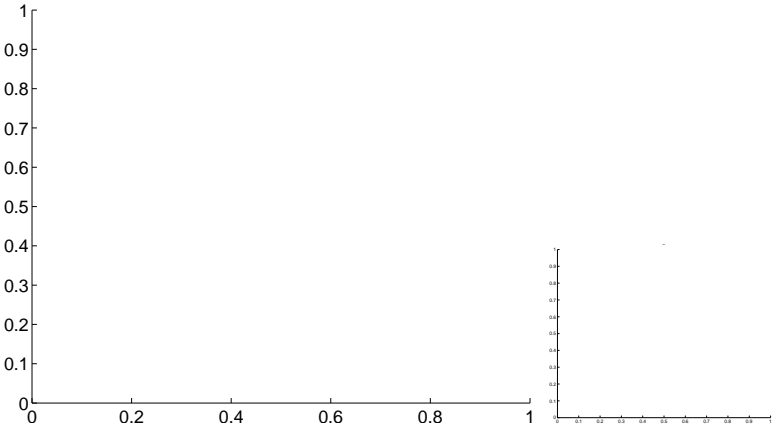
Q7 OOT image



Q8 no difference image



Q8 no OOT image



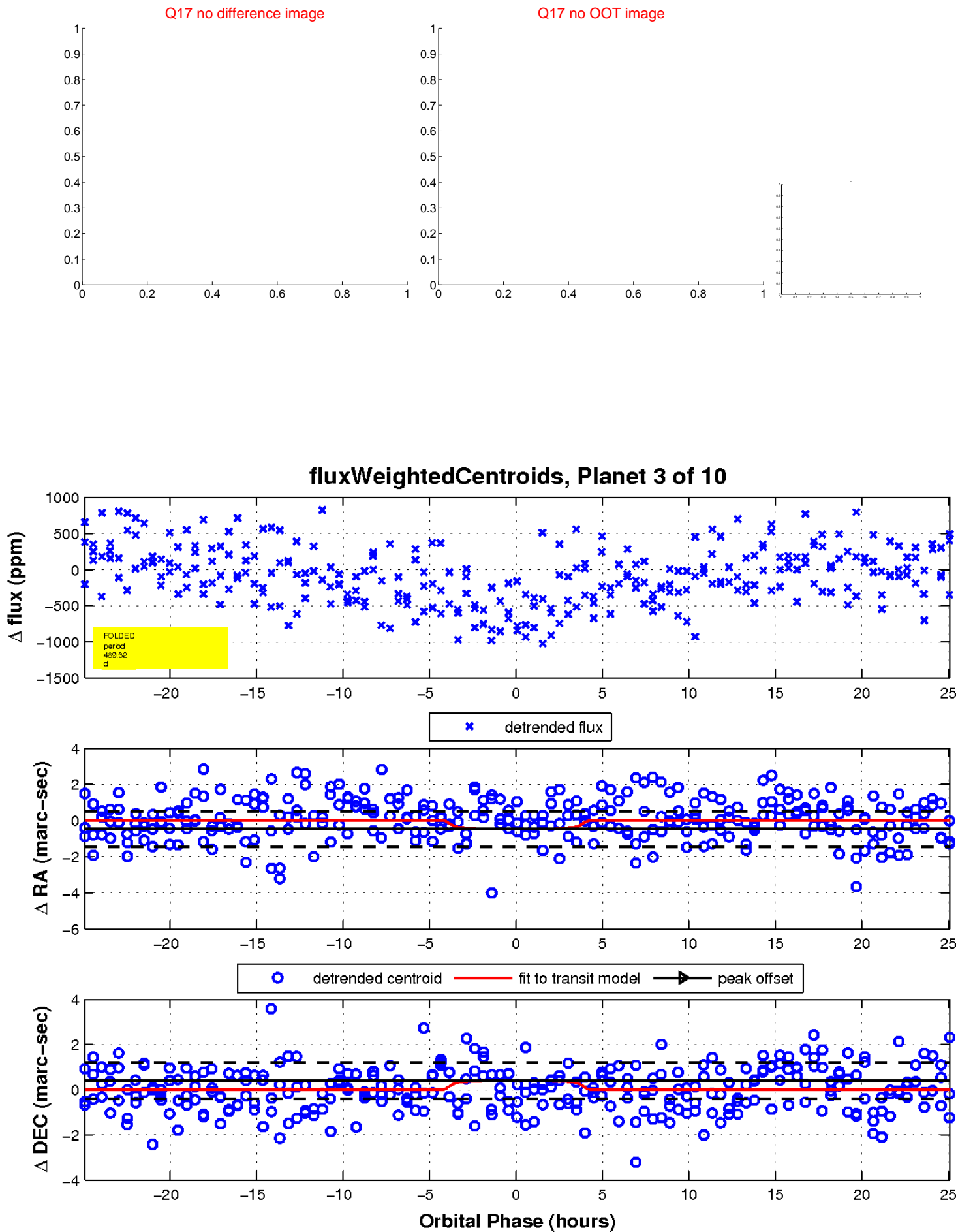
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

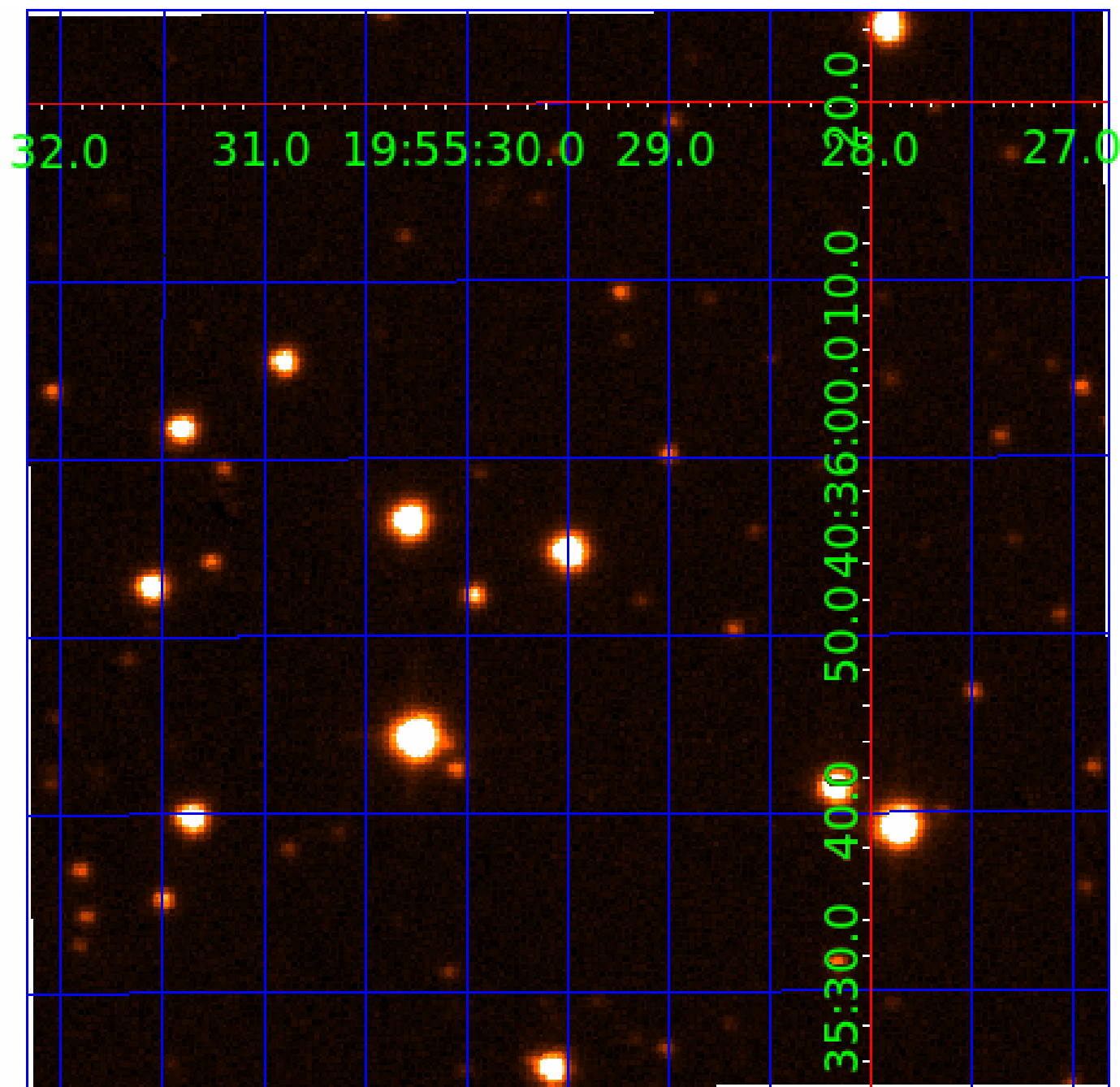


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005391767

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})
005391767-01	OBS	No	0.834886	131.693199	11.9	5.428	7.7	3.3	0.98	6314	0.35	4432.86
005391767-02	OBS	No	56.197304	131.674337	550.5	4.783	11.3	9.7	0.98	6314	2.56	16.19
005391767-03	OBS	No	489.320936	193.773350	882.3	8.465	10.5	11.0	0.98	6314	3.25	0.90
005391767-04	OBS	No	126.854394	187.648633	732.7	4.541	9.5	9.3	0.98	6314	3.00	5.47
005391767-05	OBS	No	49.403648	174.663481	503.6	6.307	8.9	9.9	0.98	6314	2.44	19.22
005391767-06	OBS	No	31.794911	157.264839	367.6	2.107	8.6	6.1	0.98	6314	2.16	34.60
005391767-07	OBS	No	53.256593	172.075440	428.8	3.669	8.0	7.4	0.98	6314	2.21	17.39
005391767-08	OBS	No	59.737722	158.056402	440.1	5.109	8.5	8.5	0.98	6314	2.30	14.92
005391767-10	OBS	No	28.485201	145.764735	498.0	1.265	7.7	9.0	0.98	6314	2.58	40.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005391767-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005391767-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST
005391767-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

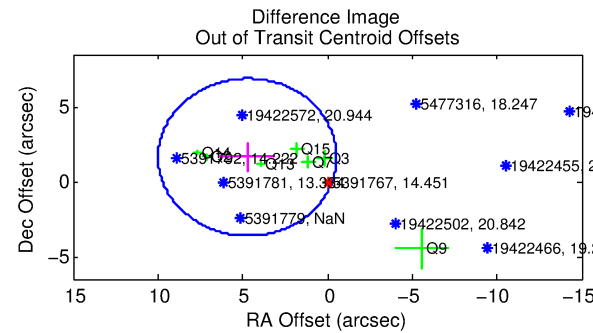
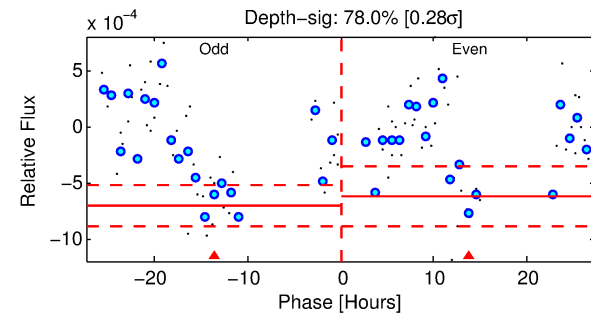
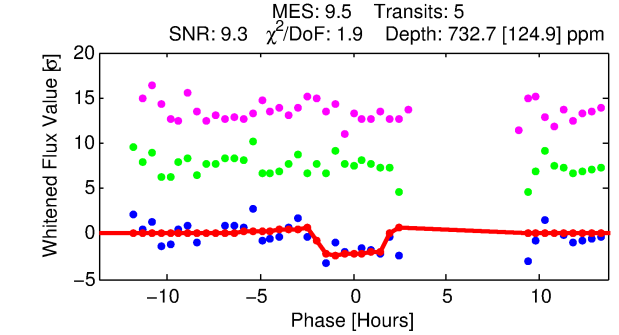
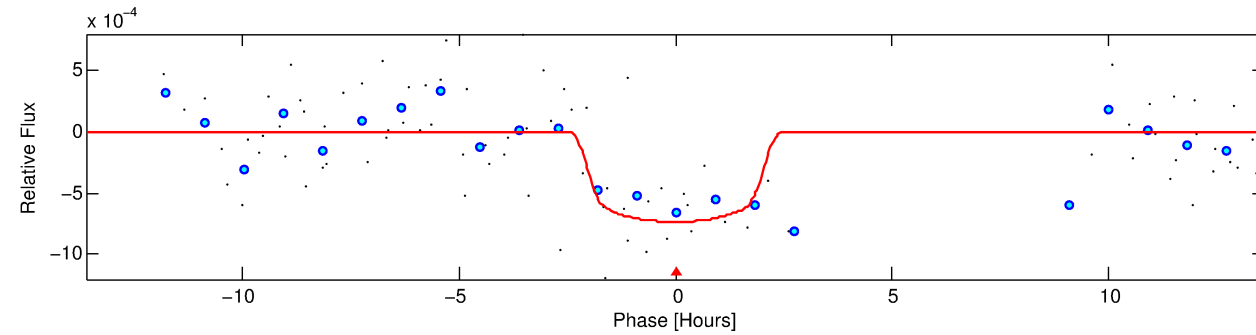
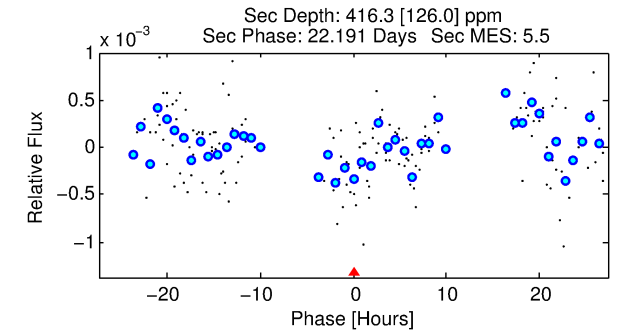
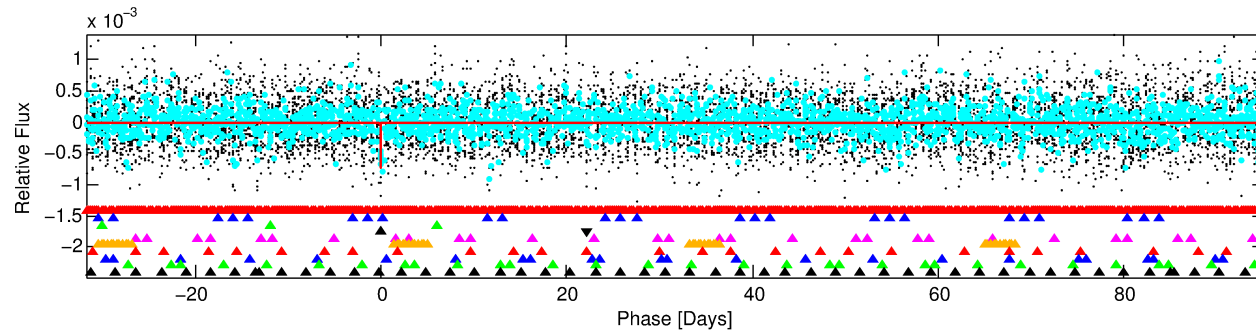
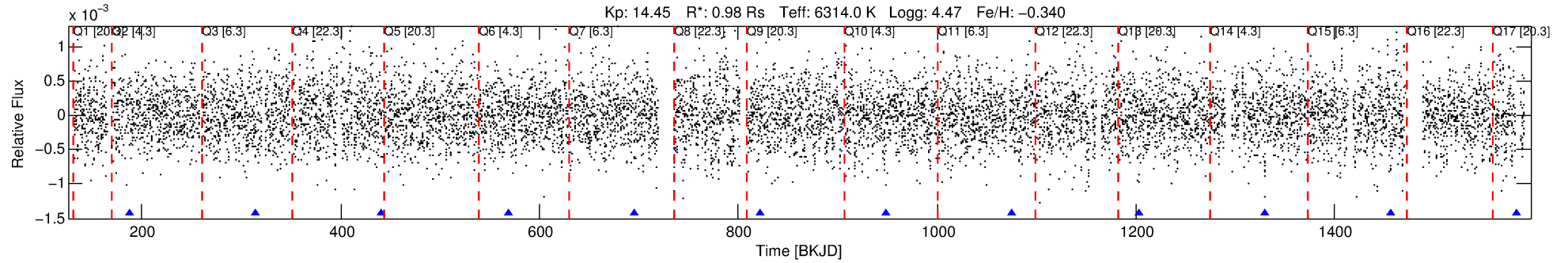
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005391767-04

No Significant Match Found

DV One-Page Summary

KIC: 5391767 Candidate: 4 of 10 Period: 126.854 d



DV Fit Results:

Period = 126.85439 [0.00954] d
Epoch = 187.6486 [0.0835] BKJD
Rp/R* = 0.0280 [0.0307]
a/R* = 125.10 [746.47]
b = 0.84 [2.10]
Seff = 5.47 [2.29]
Teff = 390 [41] K
Rp = 3.00 [3.44] Re
a = 0.5012 [0.1383] AU
Ag = 6394.64 [14404.80] [0.44 σ]
Teffp = 5391 [2993] K [1.67 σ]

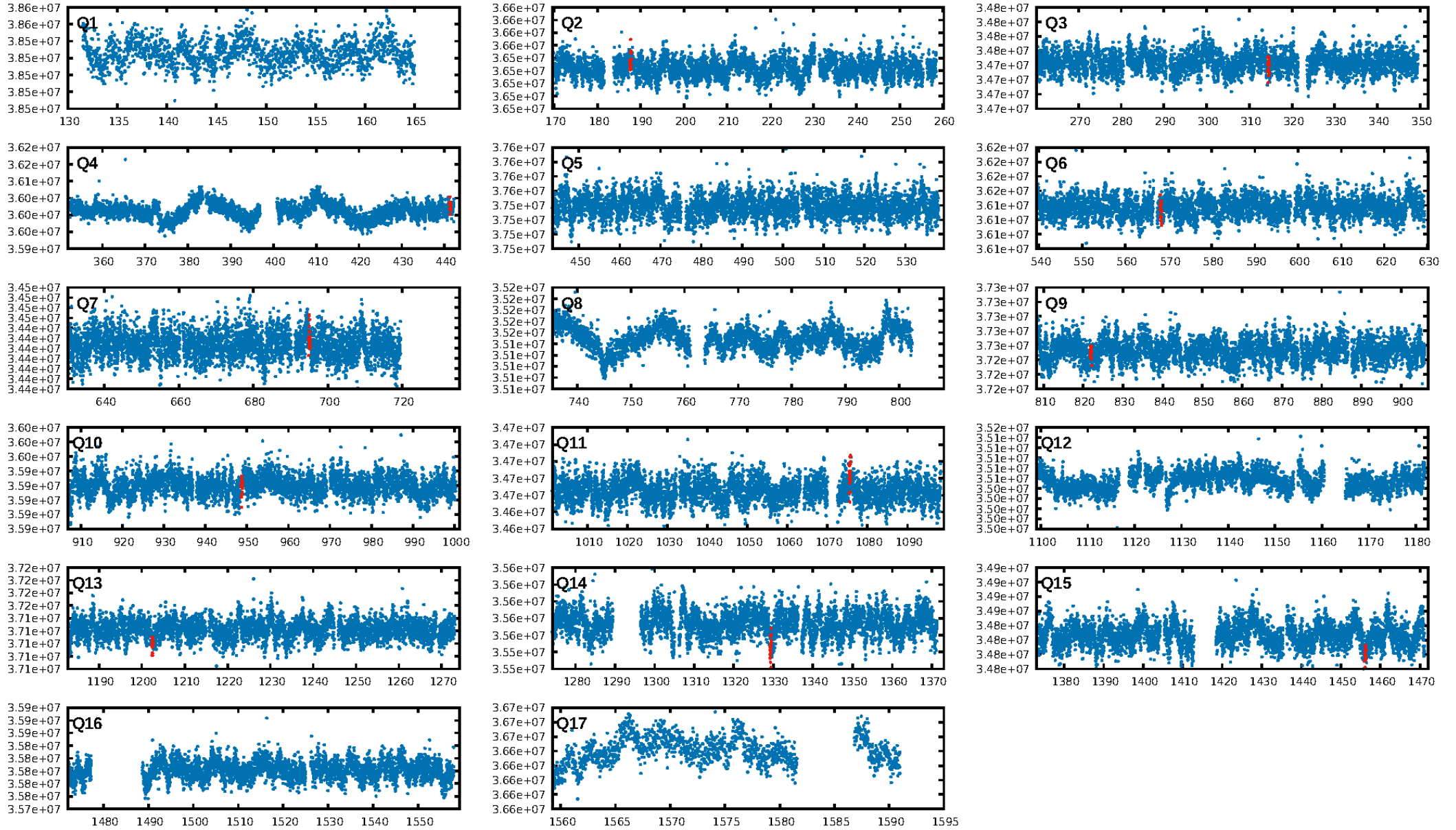
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [235.64 σ]
LongPeriod-sig: 100.0% [905.55 σ]
ModelChiSquare2-sig: 43.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.98e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.0223
Centroid-sig: 18.3%
Centroid-so: 3.277 arcsec [3.82 σ]
OotOffset-rm: 4.991 arcsec [2.85 σ]
KicOffset-rm: 8.880 arcsec [6.87 σ]
OotOffset-st: 2/3/0/2 [7]
KicOffset-st: 2/3/0/2 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.00 [0/10]

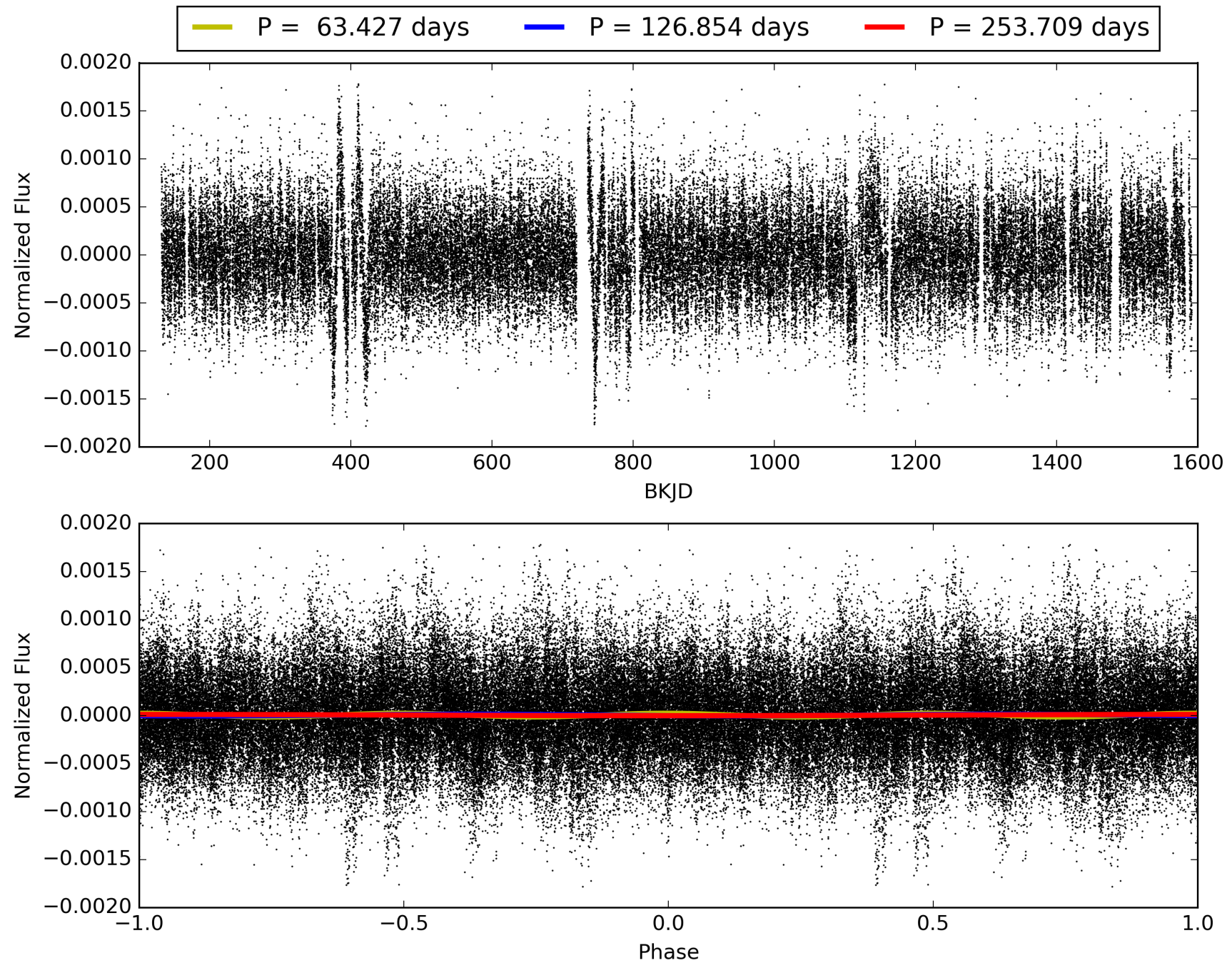
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:10:42 Z

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

TCE 005391767-04, PDC Light Curves

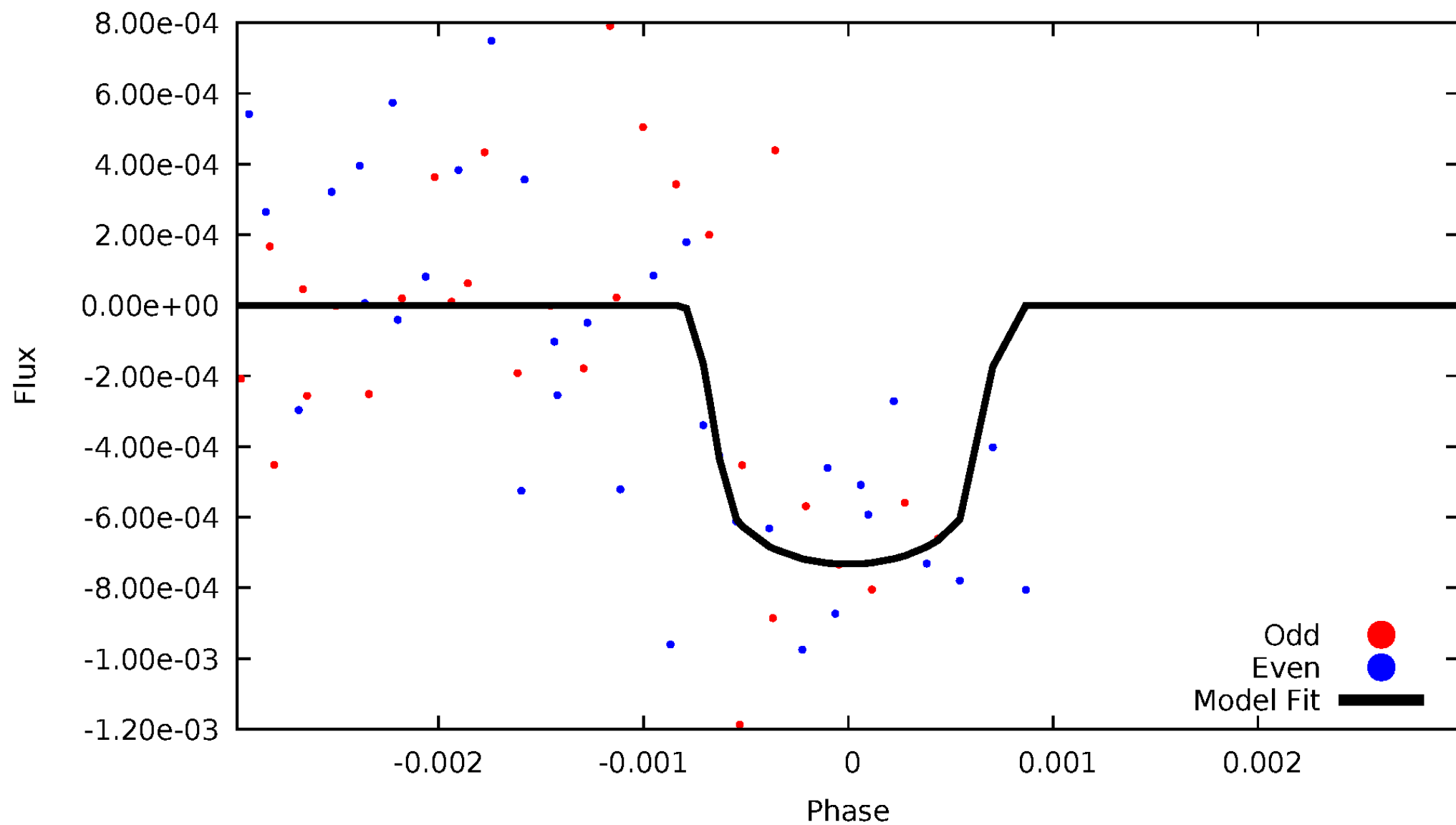


TCE 005391767-04



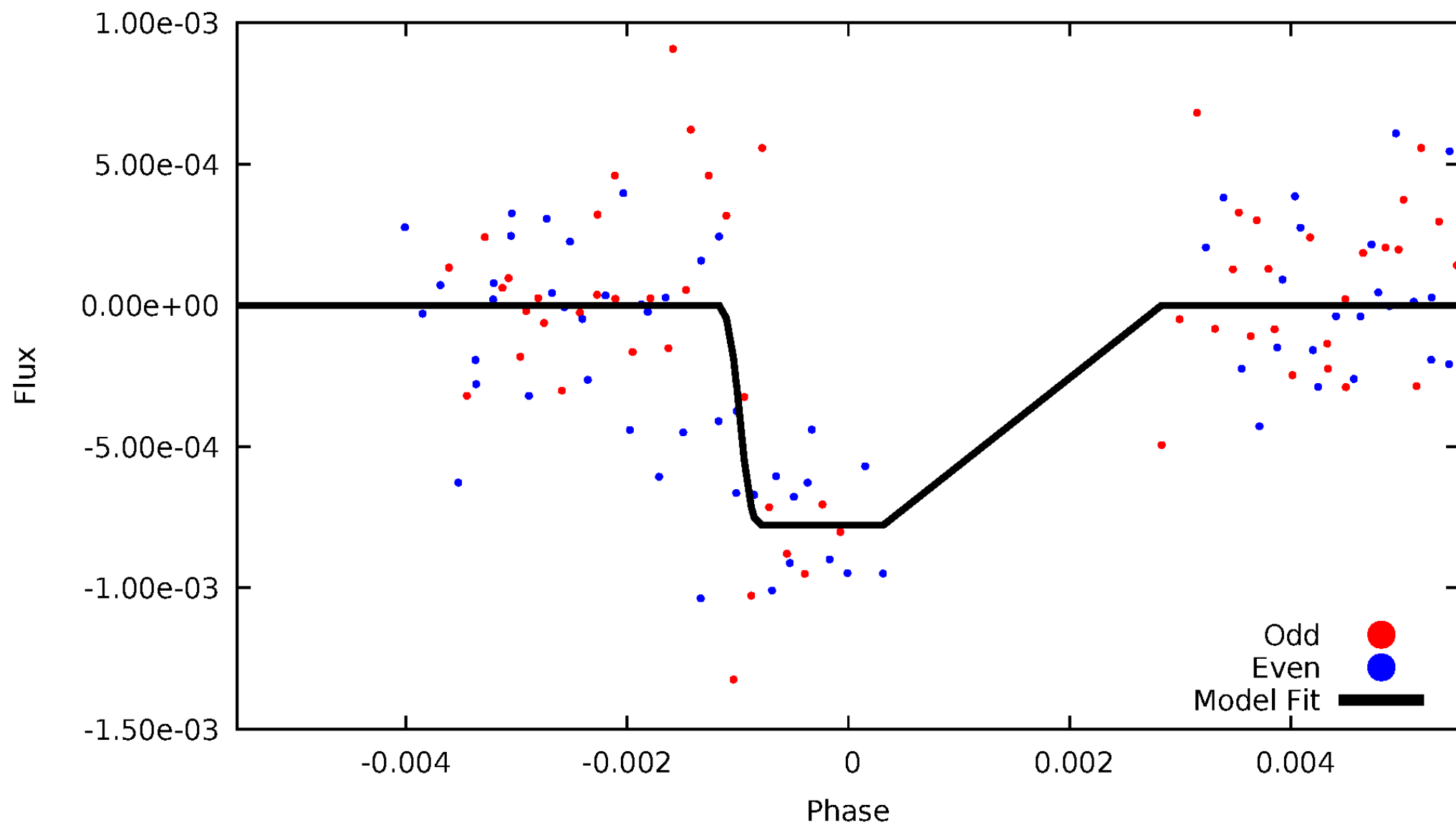
DV Odd/Even

TCE 005391767-04



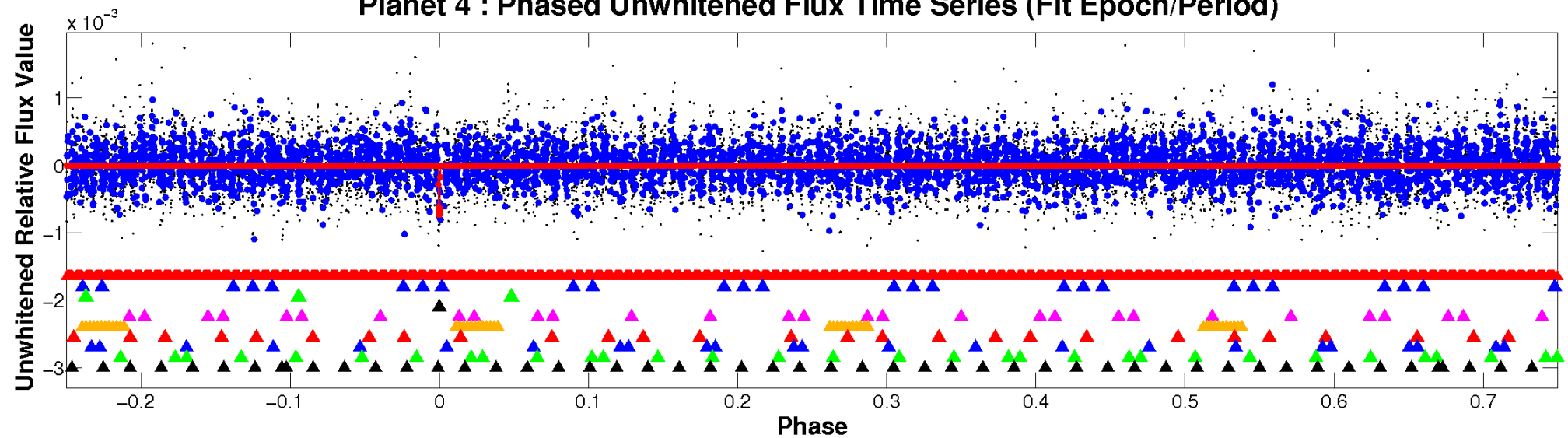
ALT Odd/Even

TCE 005391767-04

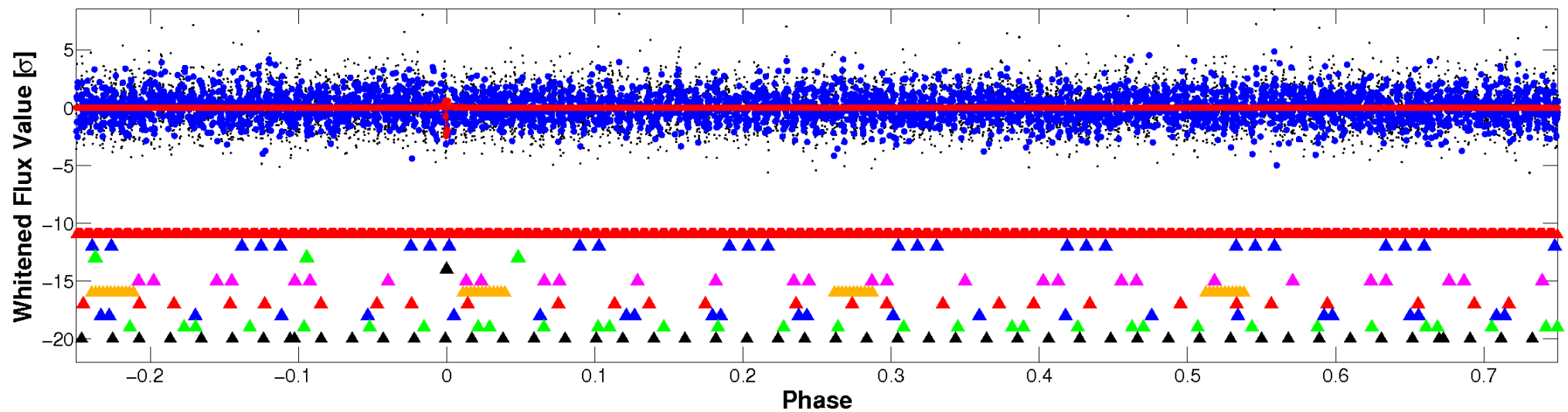


Non-Whitened Vs. Whitened Light Curve

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

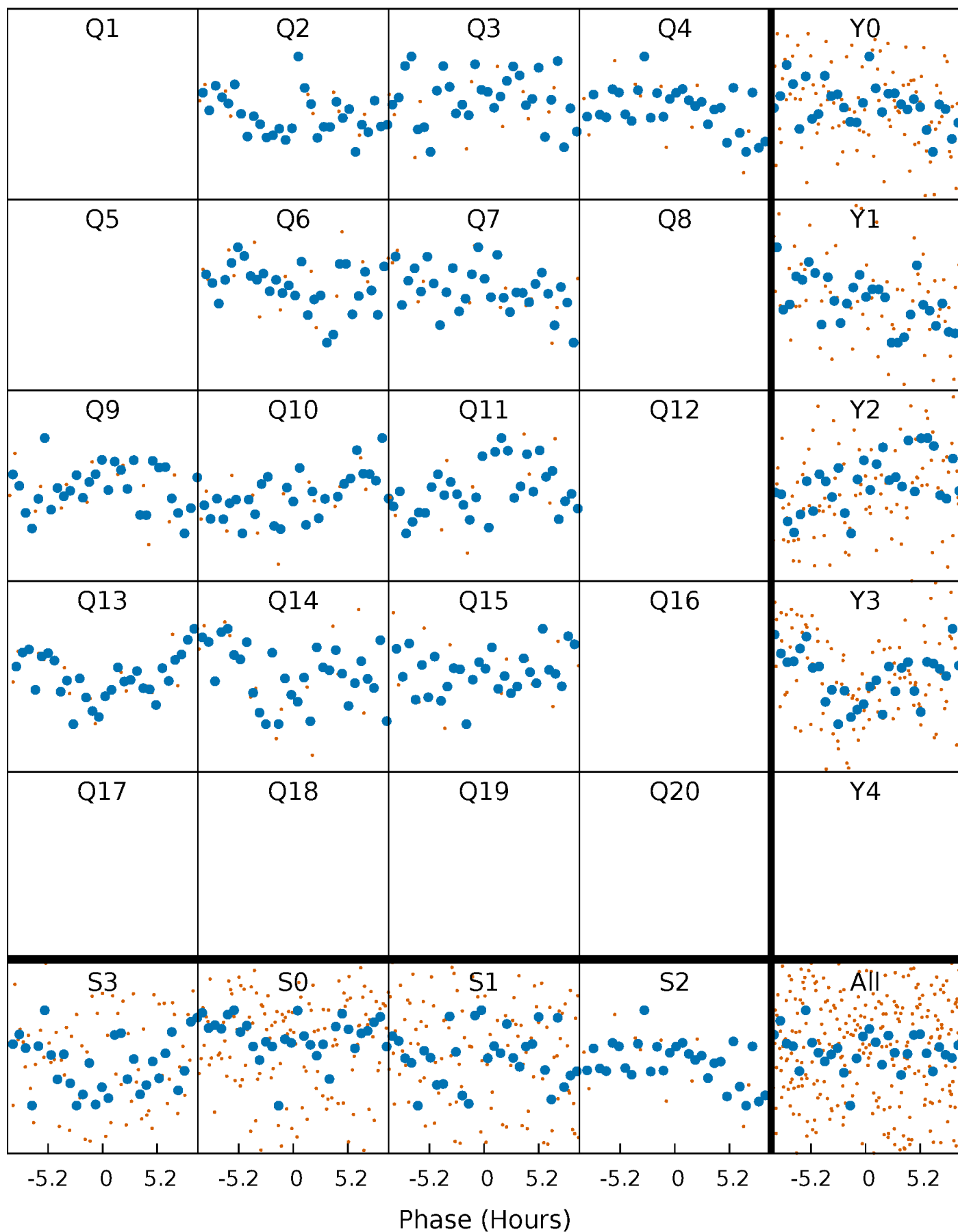


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



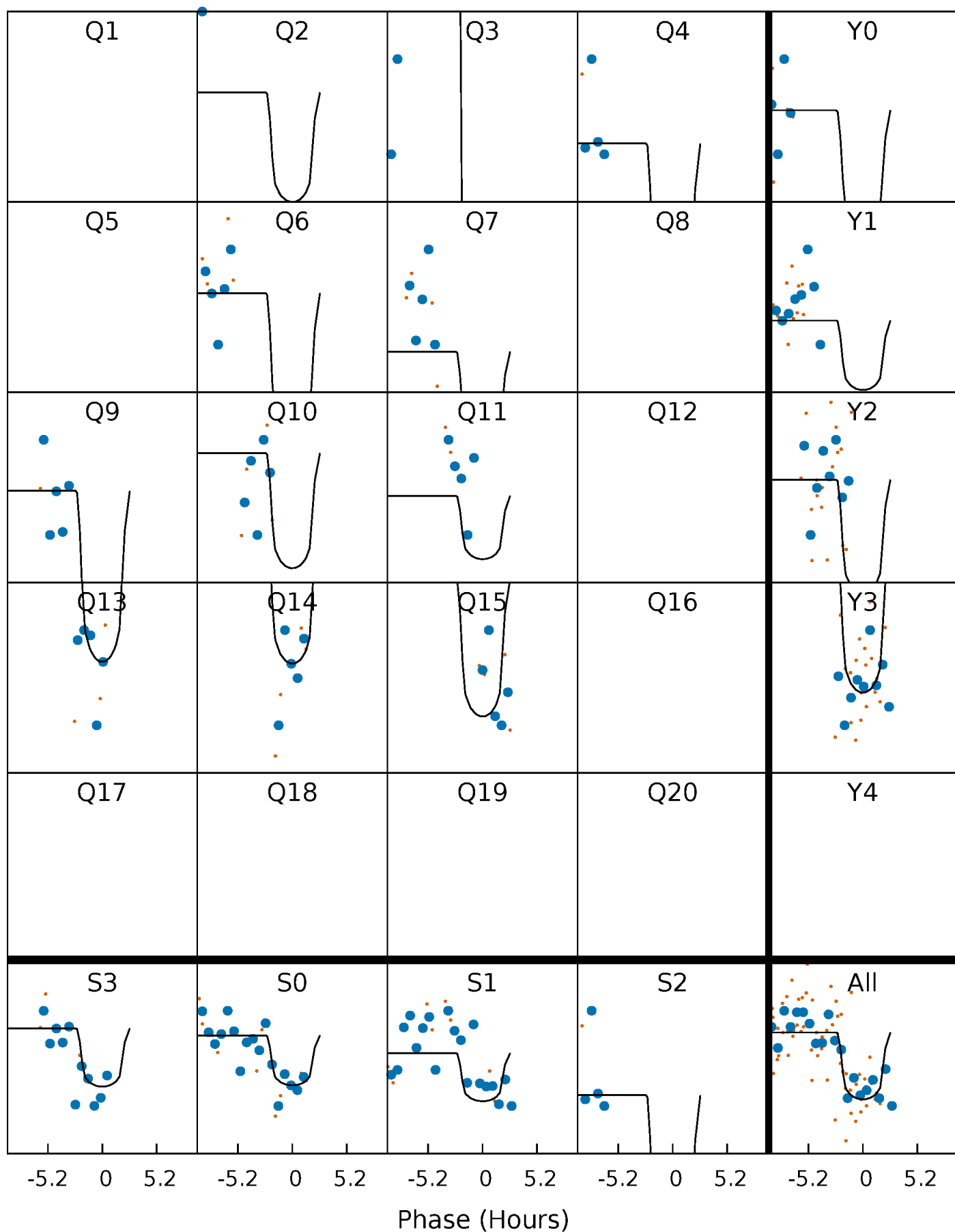
PDC Quarter-Phased Transit Curves

TCE 005391767-04 P=126.854394 Days $T_0=187.648633$ (BKJD)



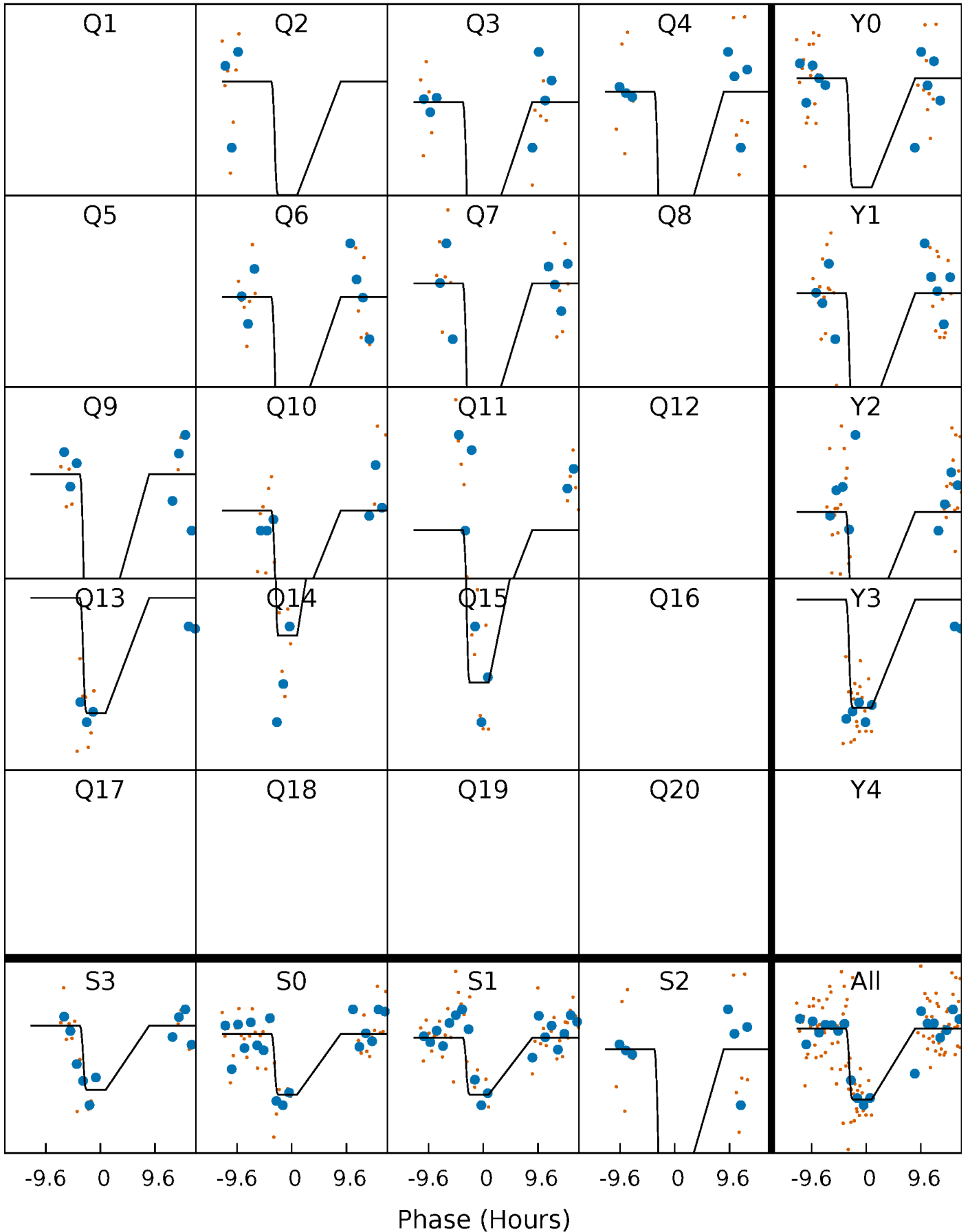
DV Quarter-Phased Transit Curves

TCE 005391767-04 P=126.854394 Days $T_0=187.648633$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

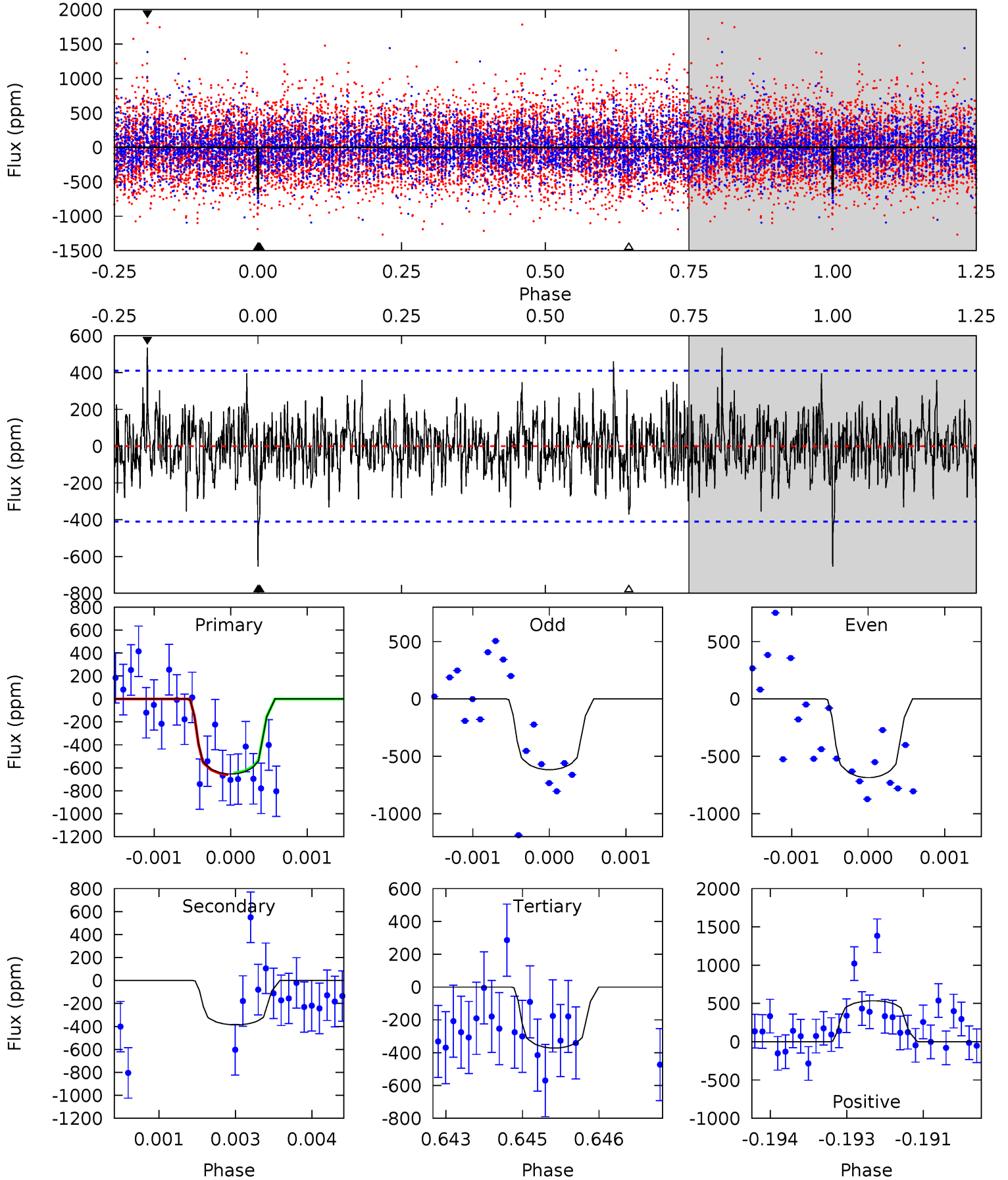
TCE 005391767-04 P=126.859900 Days $T_0=187.663671$ (BKJD)



DV Model-Shift Uniqueness Test

005391767-04, P = 126.854394 Days, E = 60.794239 Days

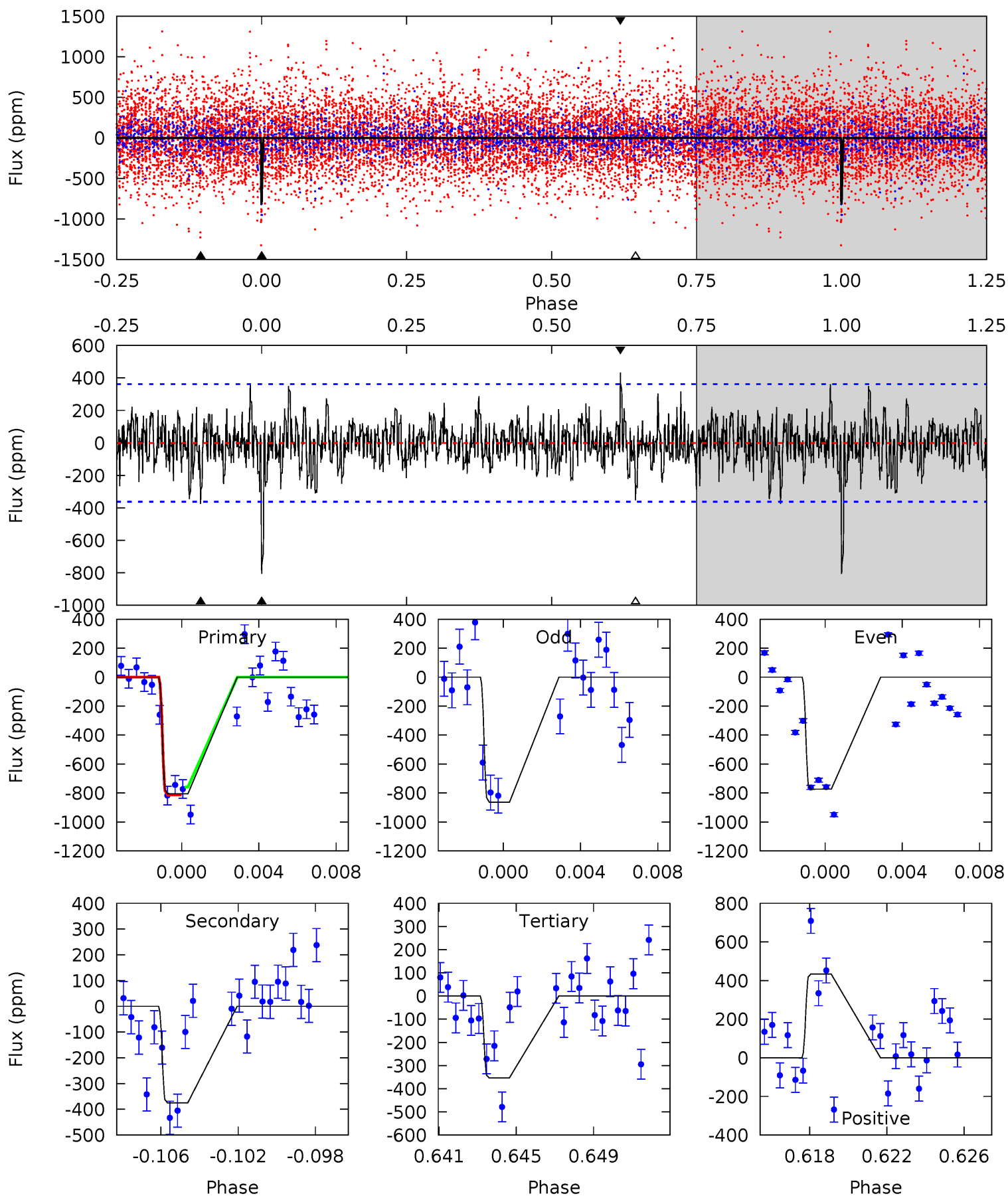
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.57	5.06	4.87	7.01	5.38	3.18	1.55	3.70	1.56	0.19	-1.95	0.45	0.79	0.45	0.09



Alt Model-Shift Uniqueness Test

005391767-04, P = 126.859900 Days, E = 60.803771 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	5.39	5.08	6.24	5.20	2.88	1.29	6.51	5.35	0.31	-0.85	0.63	0.71	0.35	0.23



Stellar Parameters For KIC 005391767

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6314^{+169}_{-207}	$4.472^{+0.054}_{-0.216}$	$-0.340^{+0.300}_{-0.300}$	$0.982^{+0.325}_{-0.102}$	$1.043^{+0.146}_{-0.133}$	$1.551^{+0.348}_{-0.869}$
	+3%/-3%	+1%/-5%	+88%/-88%	+33%/-10%	+14%/-13%	+22%/-56%
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 005391767-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-386 ± 76	$3.98^{+3.42}_{-2.45}$	557^{+44}_{-29}	4787^{+3025}_{-980}	3236^{+19505}_{-2337}
Alt.	-375 ± 70	$3.94^{+3.07}_{-2.56}$	556^{+42}_{-26}	4816^{+3395}_{-945}	3217^{+25141}_{-2216}

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 $A_{obs} \gg 1.0$

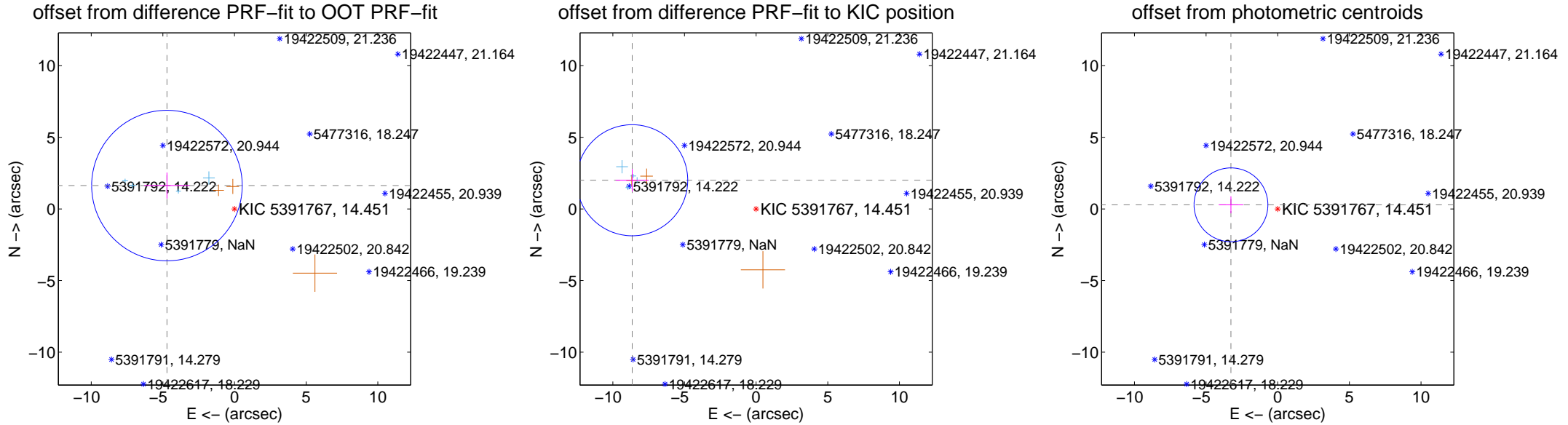
DV Centroid Data

Supplemental centroid analysis for 005391767-04. Kepler magnitude: 14.45. Transit SNR 9.34

There are 4 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 7.61 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.991 ± 1.751	2.85	4.717 ± 1.585	1.631 ± 0.911
PRF-fit source offset from KIC position	8.880 ± 1.292	6.87	8.651 ± 1.149	2.002 ± 0.790
photometric centroid source offset	3.28 ± 0.86	3.82	3.26 ± 0.86	0.29 ± 0.59



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.

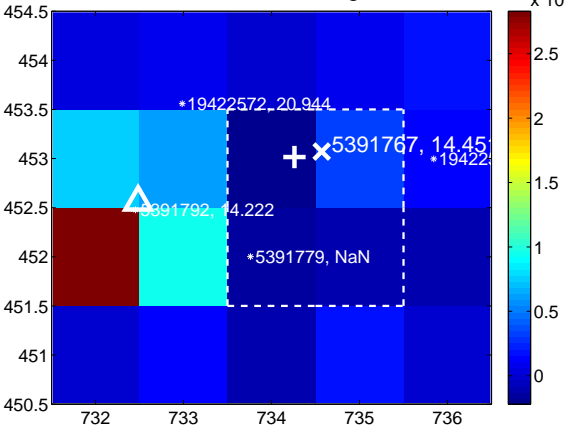
Q1 no difference image



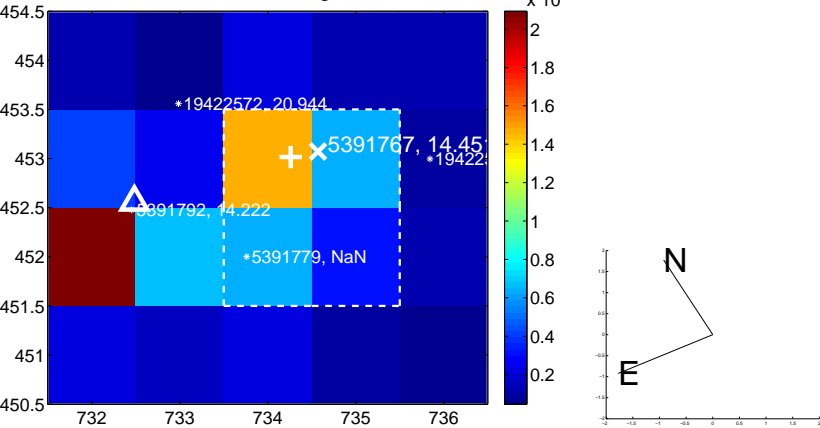
Q1 no OOT image



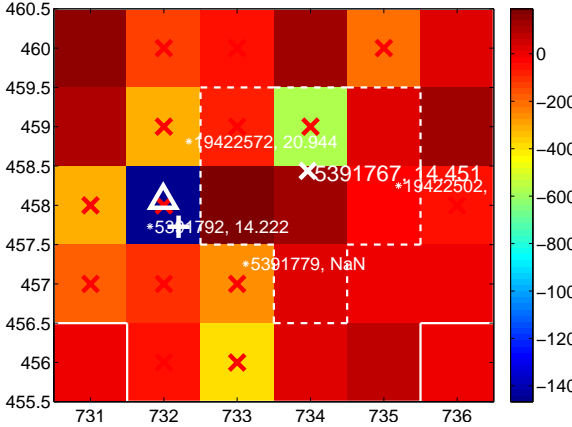
Q2 difference image



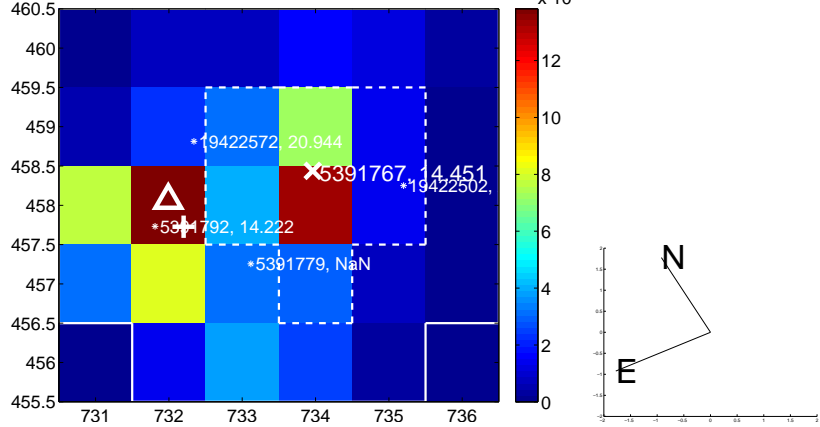
Q2 OOT image



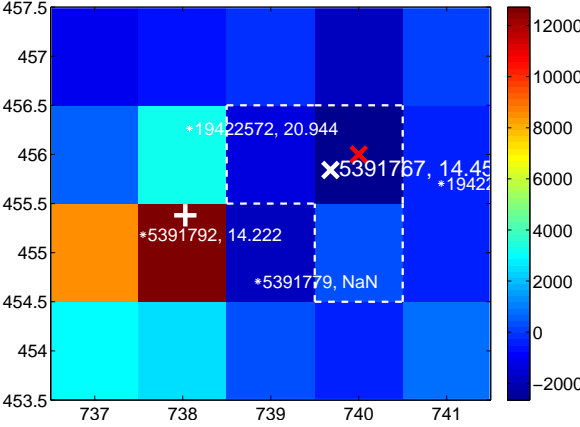
Q3 difference image. Poor Quality



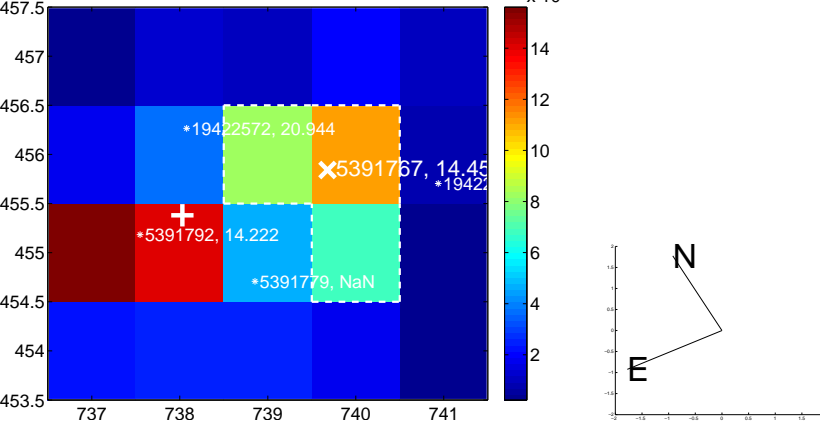
Q3 OOT image



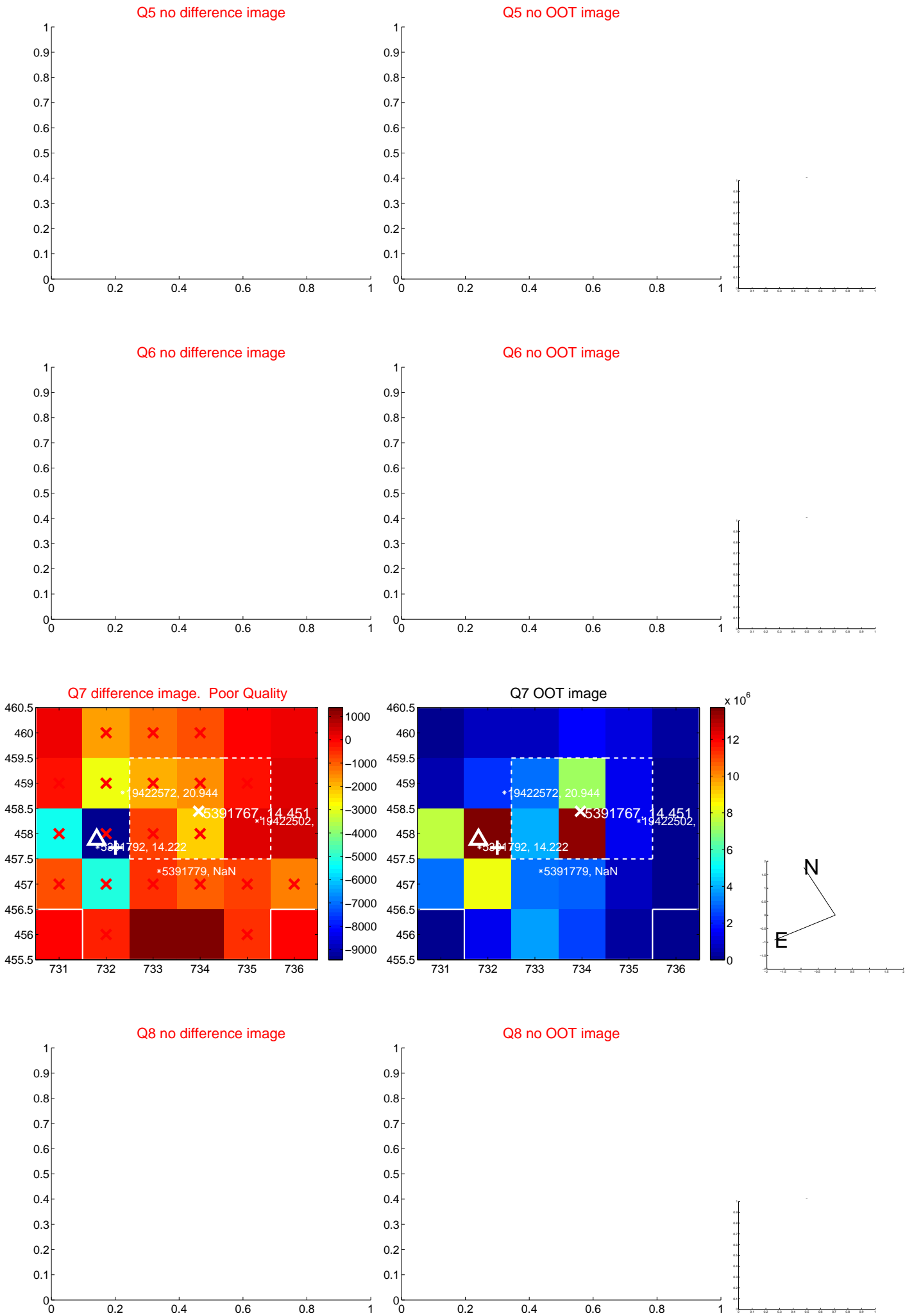
Q4 difference image. Poor Quality



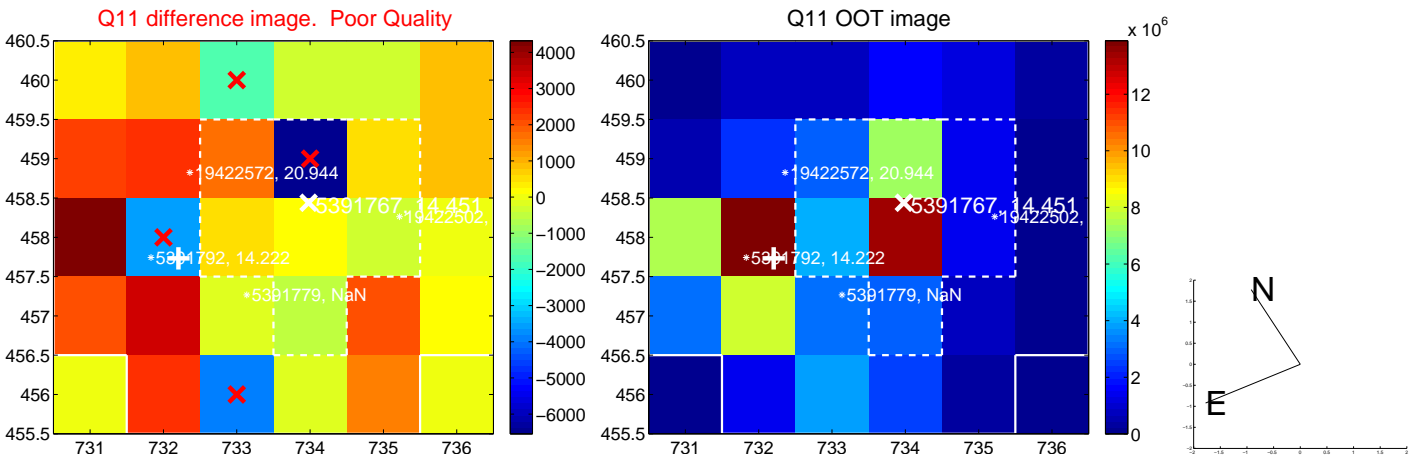
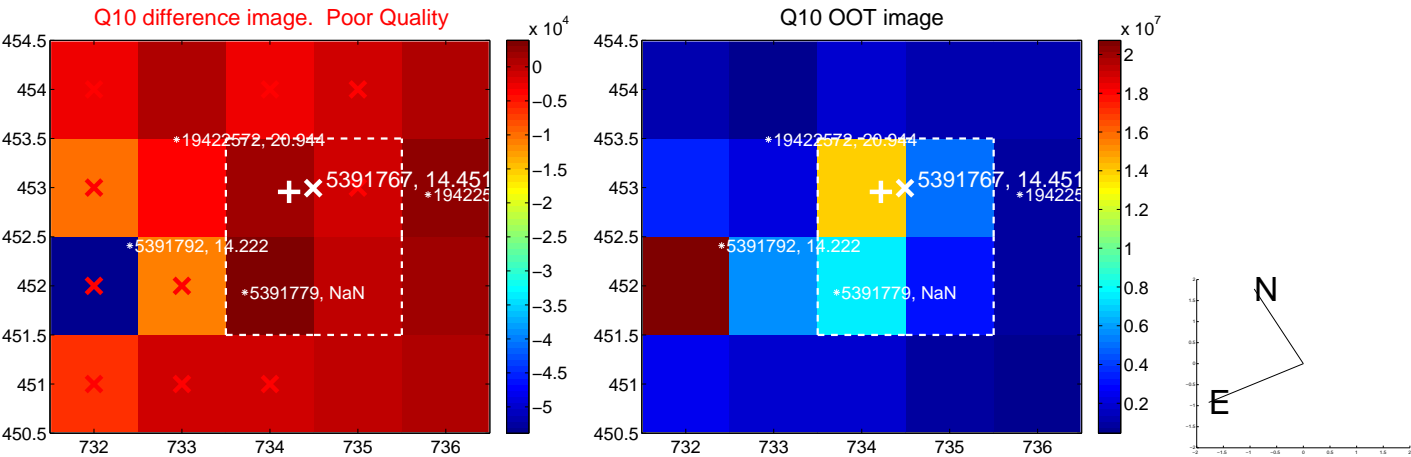
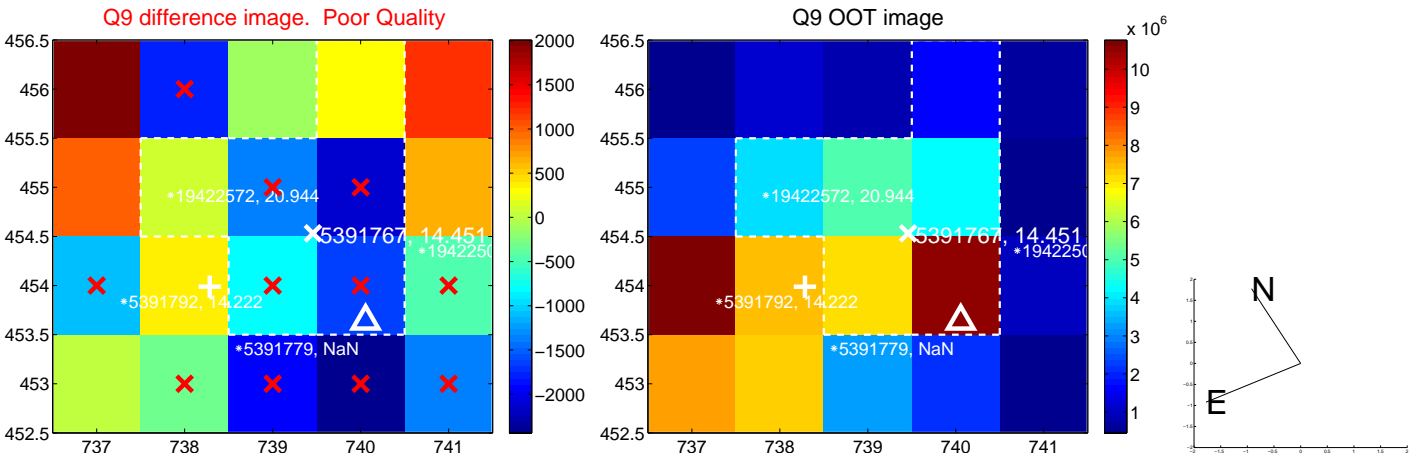
Q4 OOT image



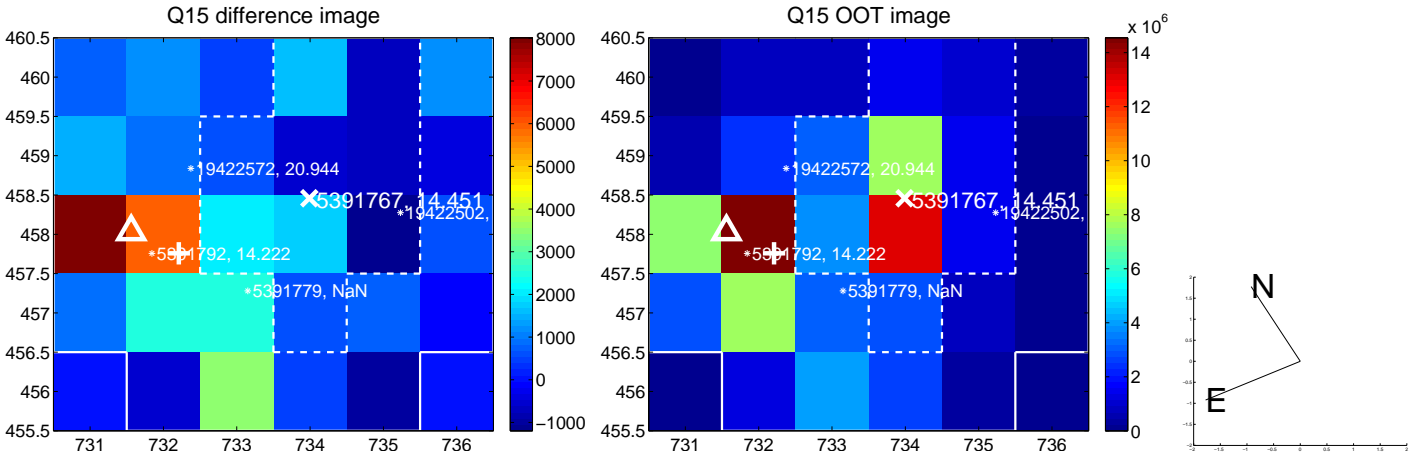
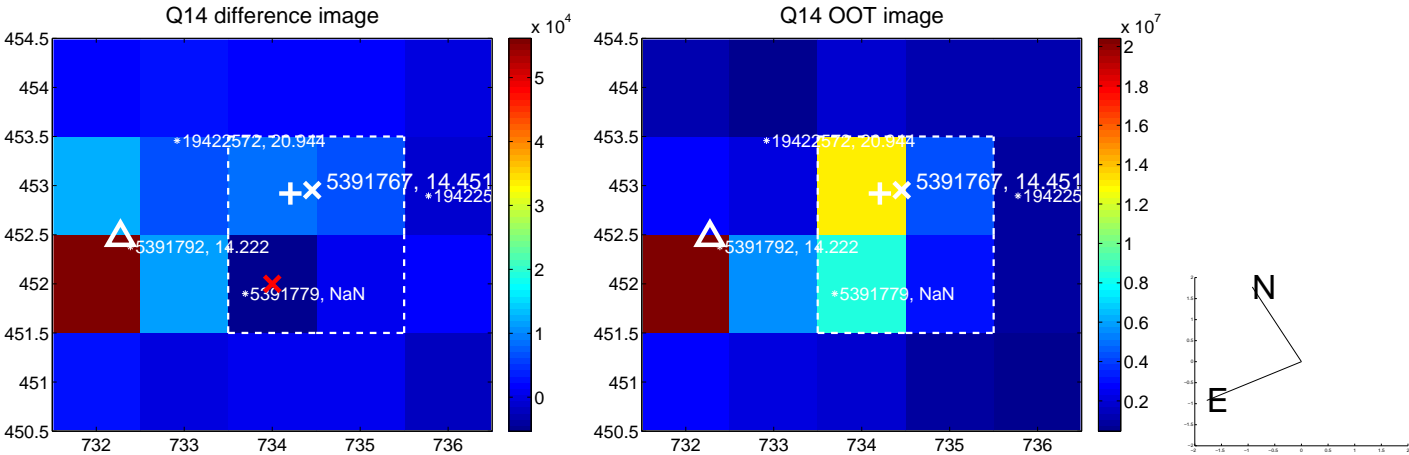
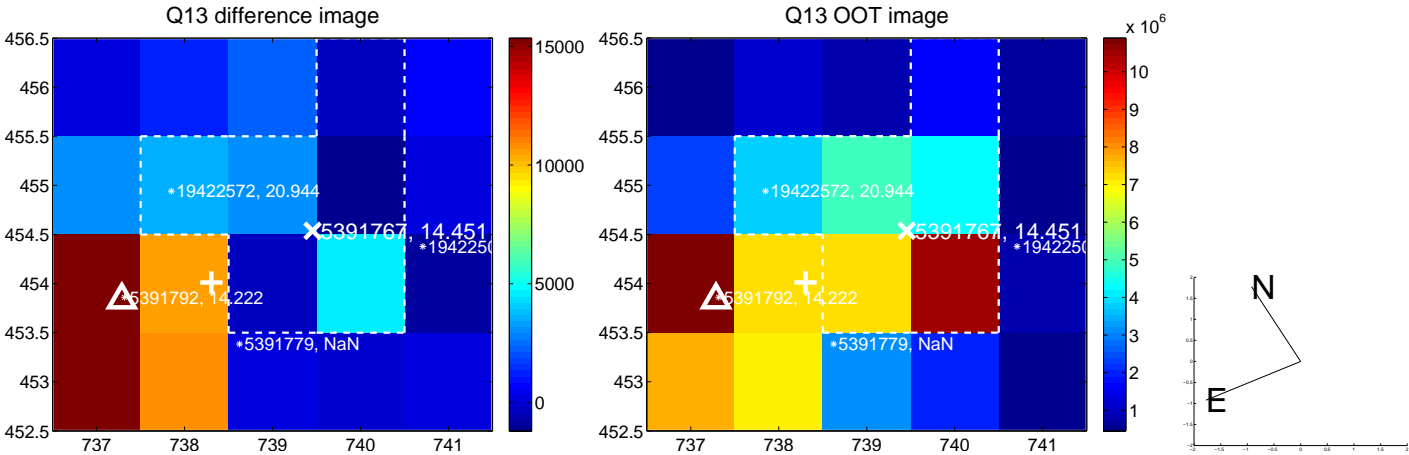
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



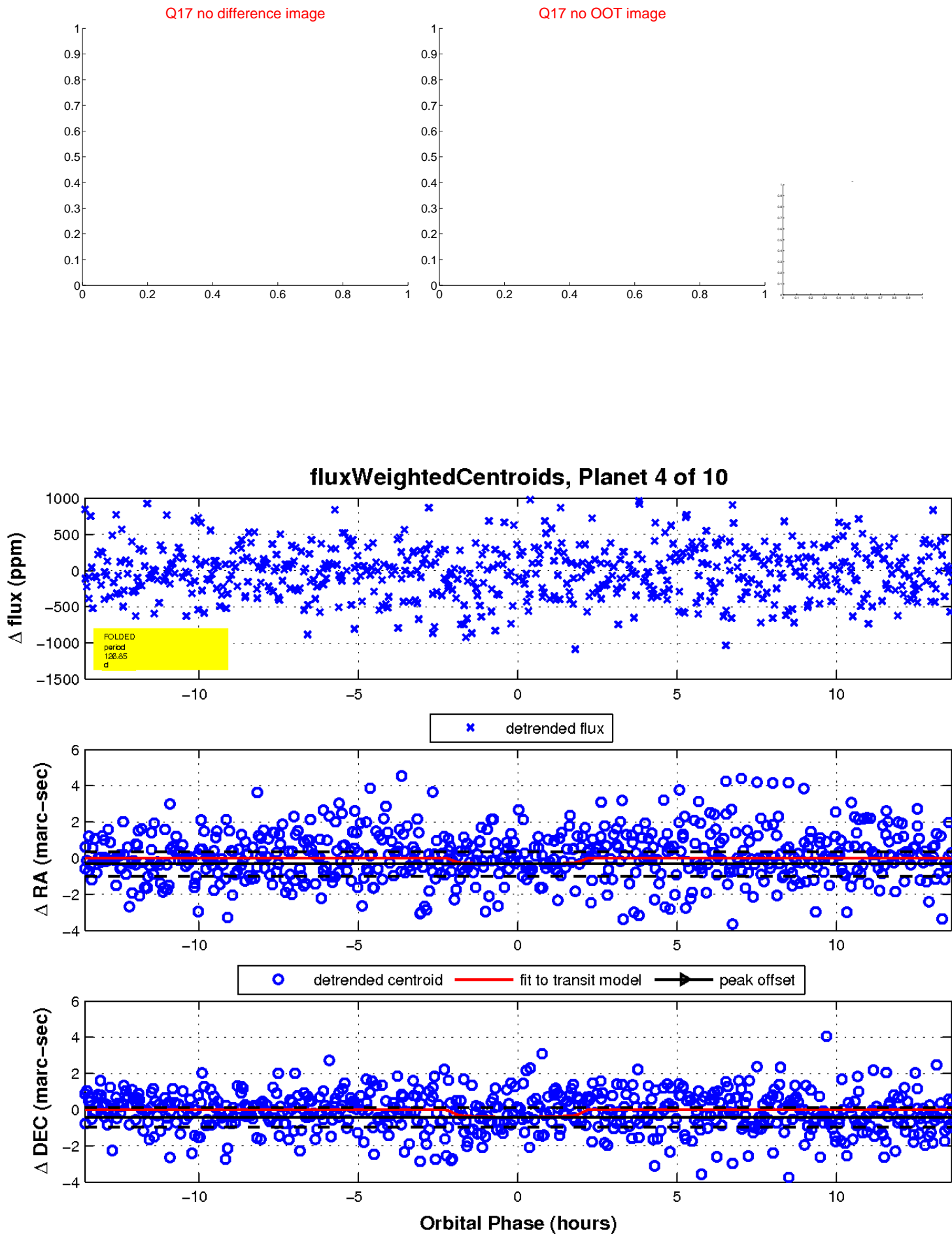
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

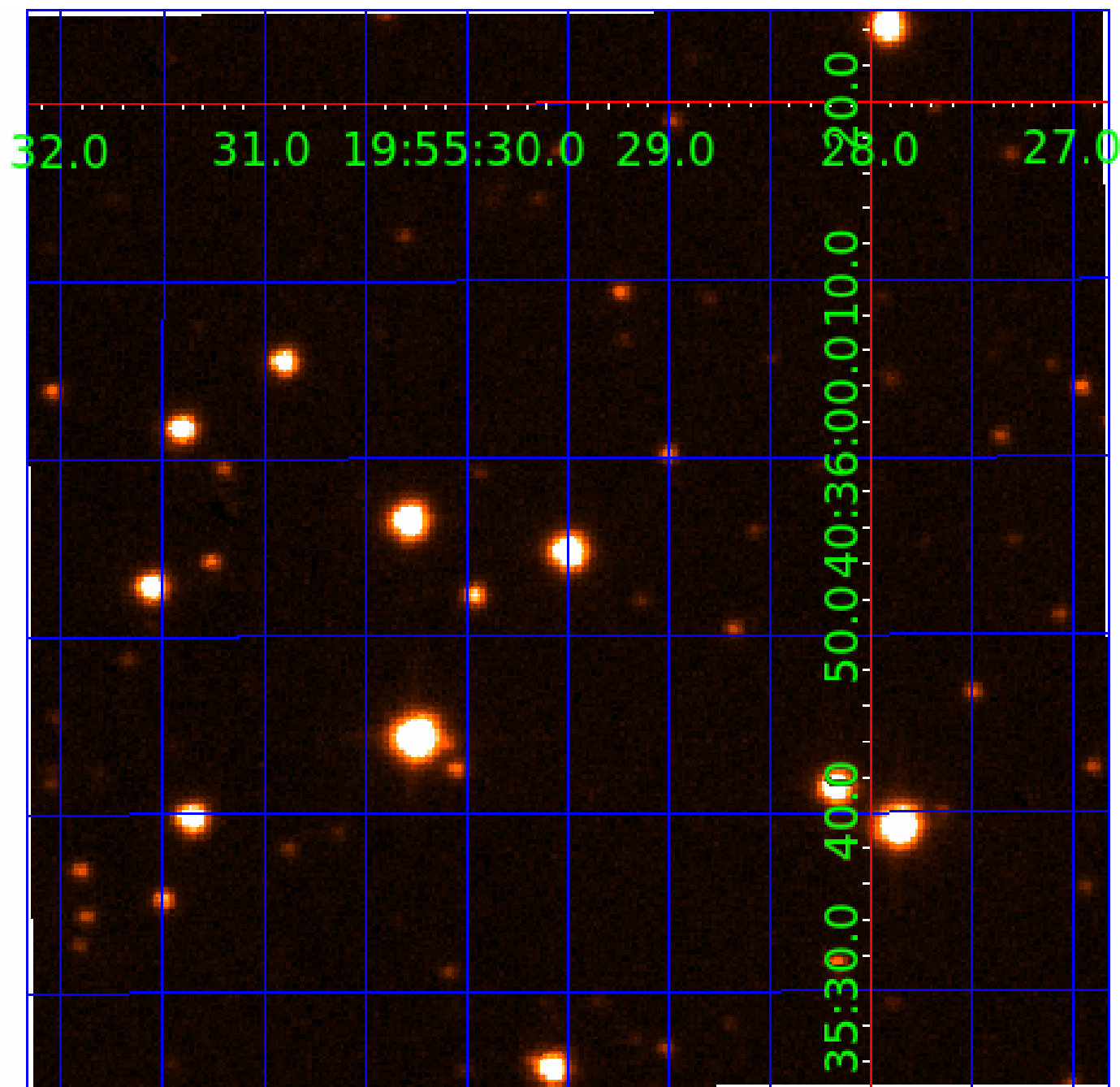


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005391767

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})
005391767-01	OBS	No	0.834886	131.693199	11.9	5.428	7.7	3.3	0.98	6314	0.35	4432.86
005391767-02	OBS	No	56.197304	131.674337	550.5	4.783	11.3	9.7	0.98	6314	2.56	16.19
005391767-03	OBS	No	489.320936	193.773350	882.3	8.465	10.5	11.0	0.98	6314	3.25	0.90
005391767-04	OBS	No	126.854394	187.648633	732.7	4.541	9.5	9.3	0.98	6314	3.00	5.47
005391767-05	OBS	No	49.403648	174.663481	503.6	6.307	8.9	9.9	0.98	6314	2.44	19.22
005391767-06	OBS	No	31.794911	157.264839	367.6	2.107	8.6	6.1	0.98	6314	2.16	34.60
005391767-07	OBS	No	53.256593	172.075440	428.8	3.669	8.0	7.4	0.98	6314	2.21	17.39
005391767-08	OBS	No	59.737722	158.056402	440.1	5.109	8.5	8.5	0.98	6314	2.30	14.92
005391767-10	OBS	No	28.485201	145.764735	498.0	1.265	7.7	9.0	0.98	6314	2.58	40.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005391767-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005391767-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST
005391767-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

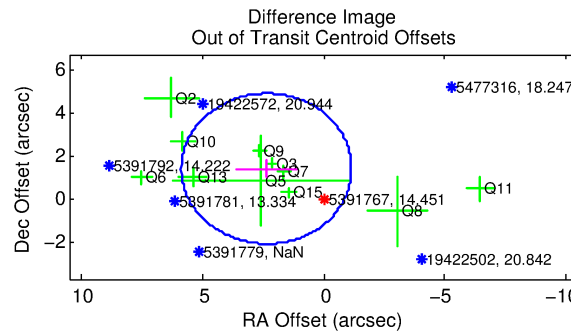
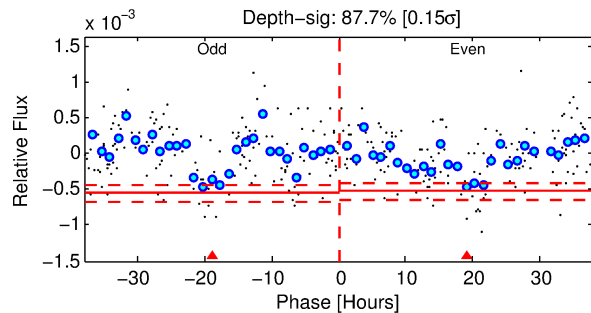
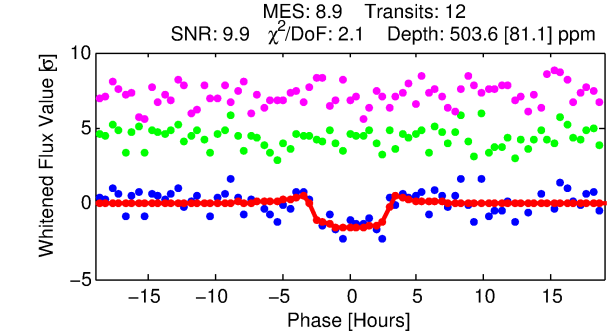
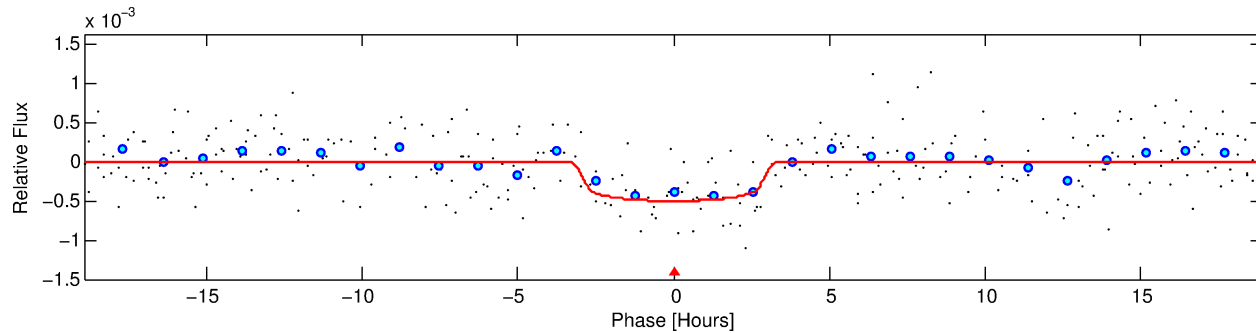
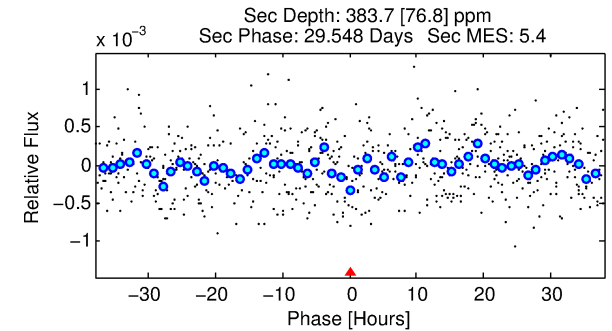
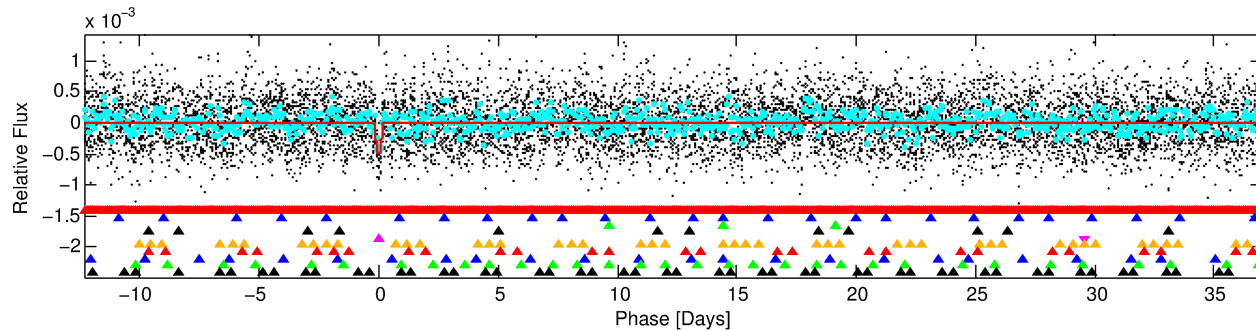
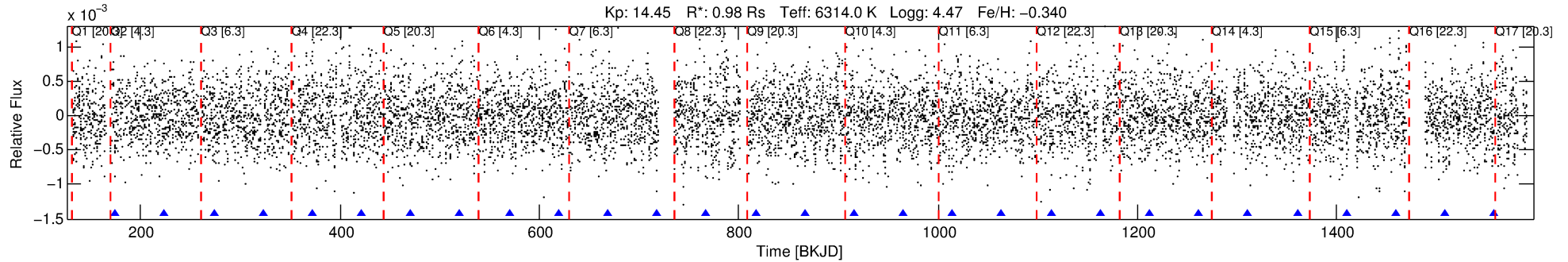
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005391767-05

No Significant Match Found

DV One-Page Summary

KIC: 5391767 Candidate: 5 of 10 Period: 49.404 d



DV Fit Results:

Period = 49.40365 [0.00104] d
Epoch = 174.6635 [0.0159] BKJD
Rp/R* = 0.0227 [0.0113]
a/R* = 37.92 [98.82]
b = 0.80 [1.16]
Seff = 19.22 [8.06]
Teq = 534 [56] K
Rp = 2.44 [1.46] Re
a = 0.2673 [0.0738] AU
Ag = 2537.19 [2771.35] [0.92σ]
Teffp = 5859 [1502] K [3.54σ]

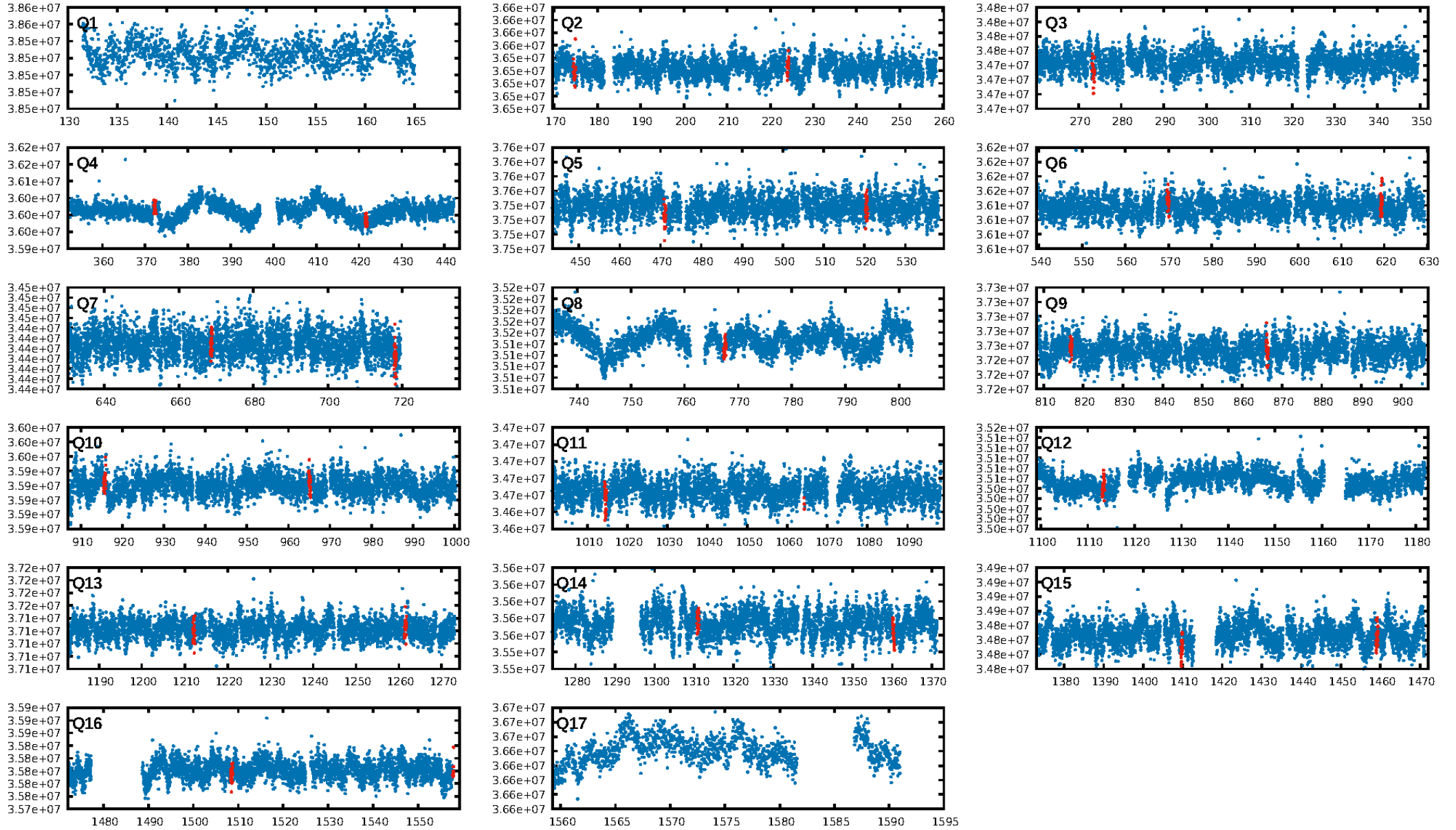
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.63σ]
LongPeriod-sig: 100.0% [12.67σ]
ModelChiSquare2-sig: 45.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.56e-09
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: -0.009658
Centroid-sig: 0.1%
Centroid-so: 1.748 arcsec [2.48σ]
OotOffset-rm: 2.745 arcsec [2.34σ]
KicOffset-rm: 9.113 arcsec [10.34σ]
OotOffset-st: 3/4/1/3 [11]
KicOffset-st: 3/4/1/3 [11]
DiffImageQuality-fgm: 0.36 [4/11]
DiffImageOverlap-fno: 0.00 [0/14]

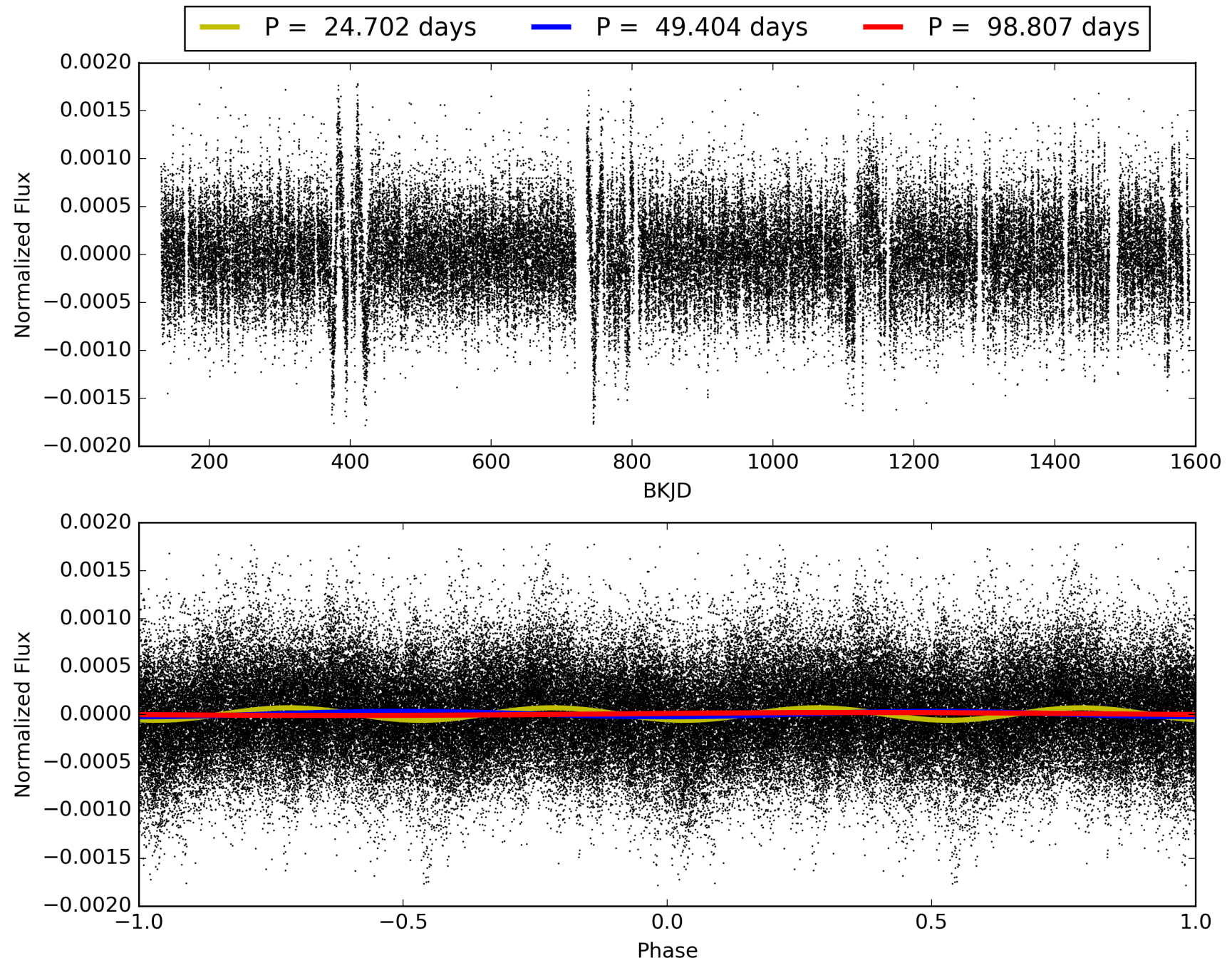
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:10:46 Z

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

TCE 005391767-05, PDC Light Curves

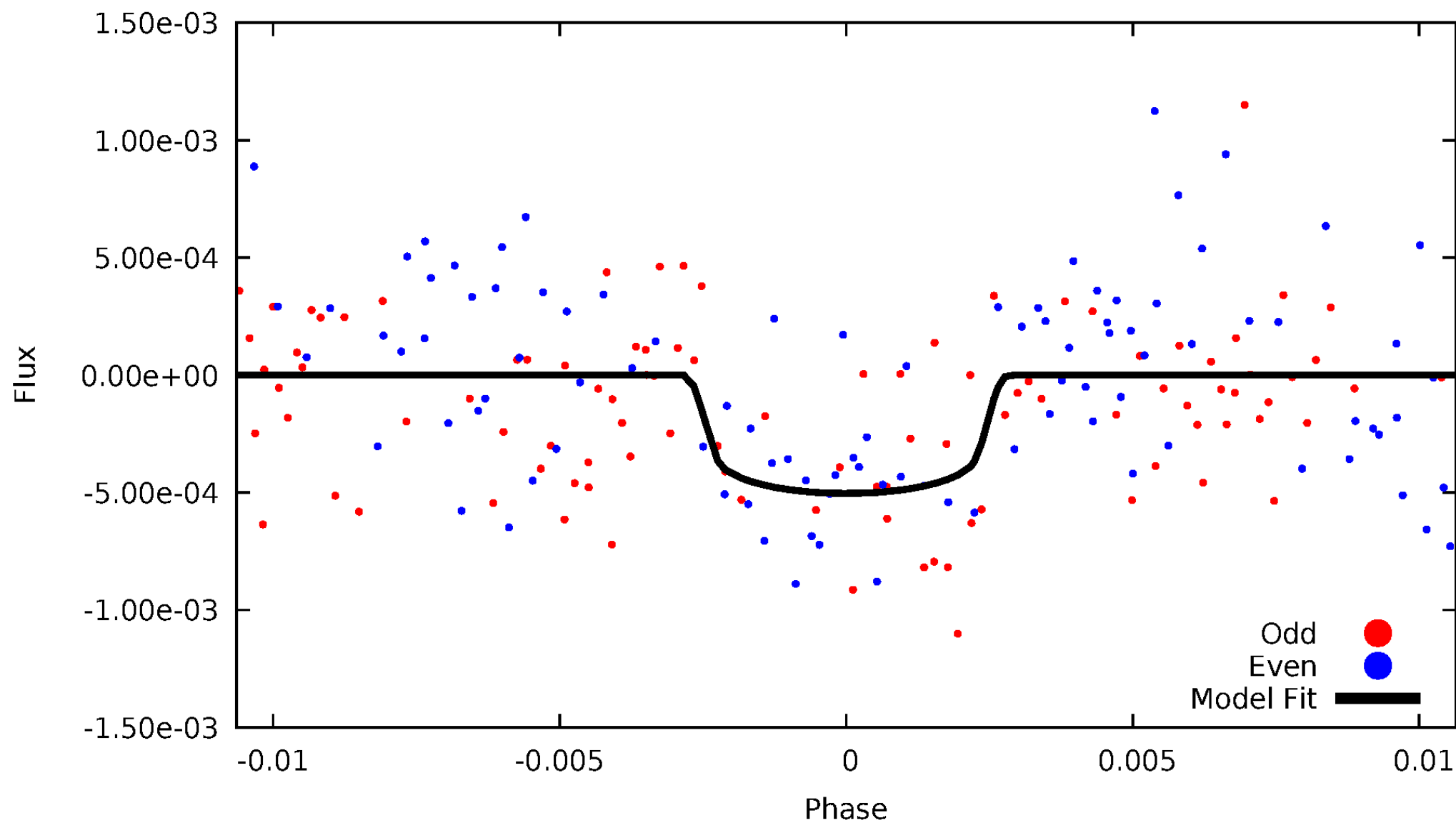


TCE 005391767-05



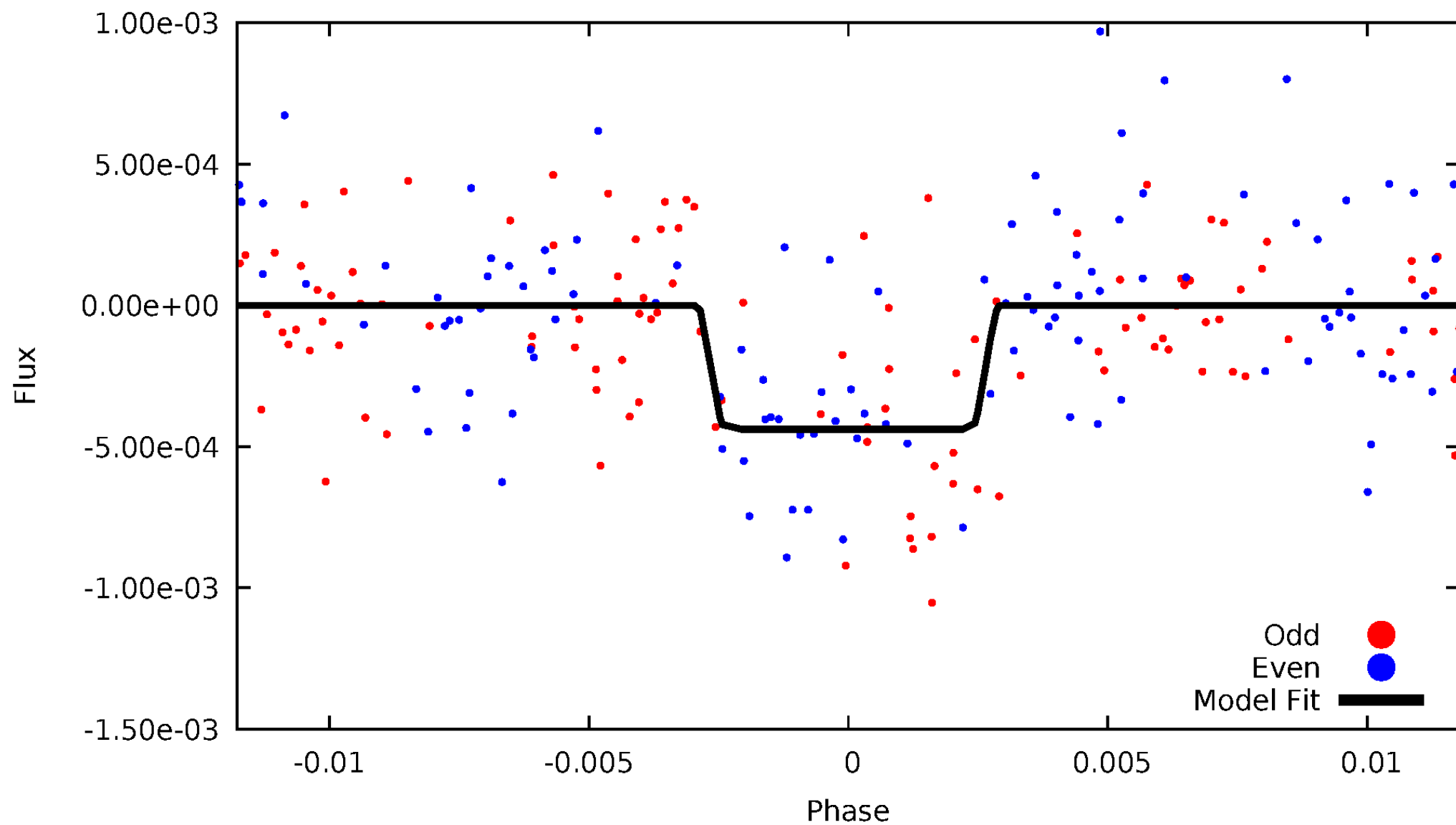
DV Odd/Even

TCE 005391767-05



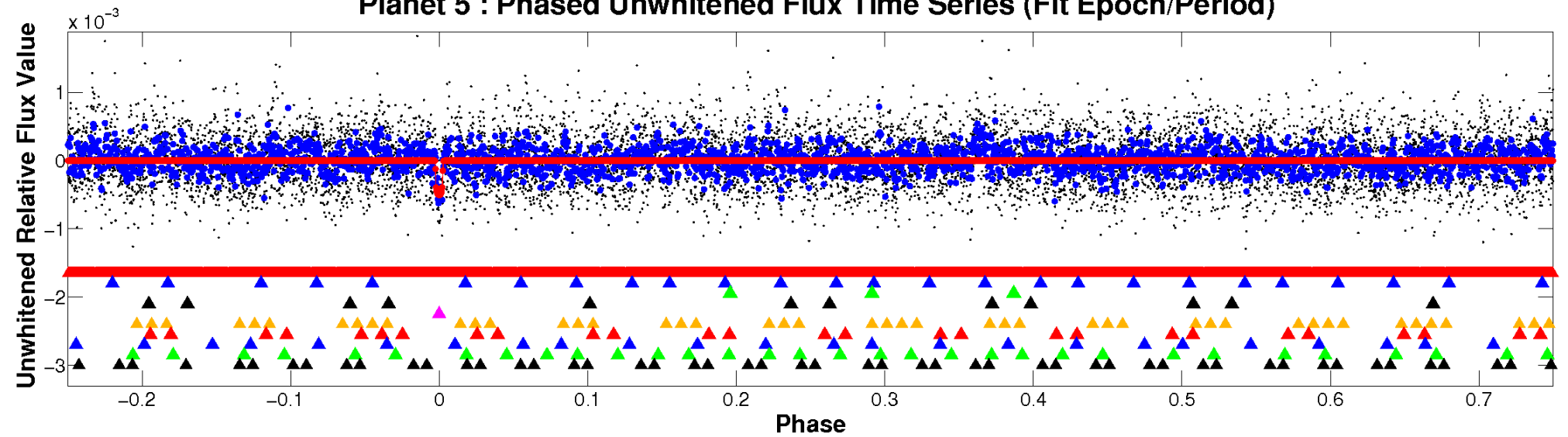
ALT Odd/Even

TCE 005391767-05

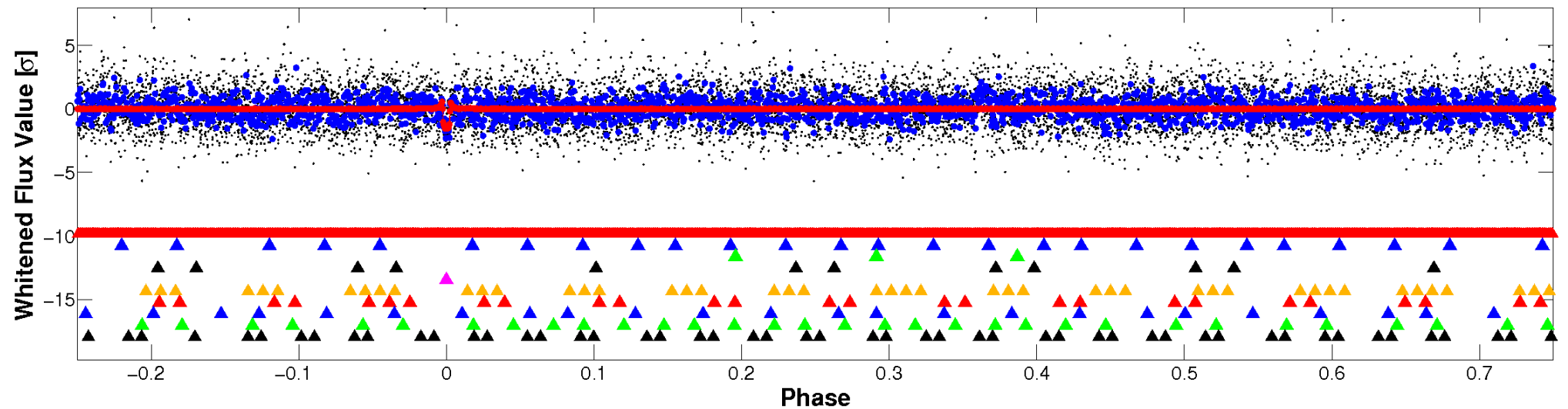


Non-Whitened Vs. Whitened Light Curve

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

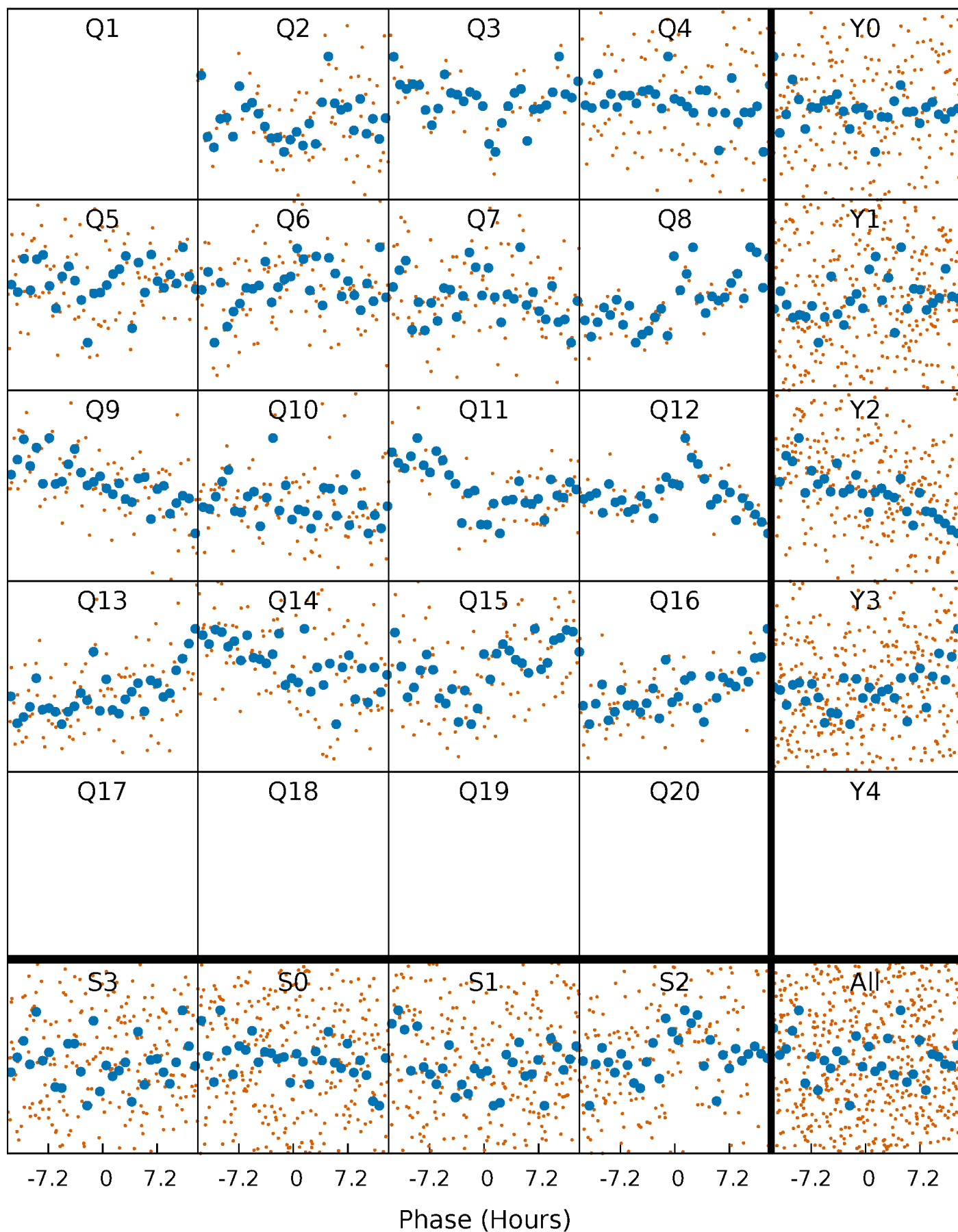


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



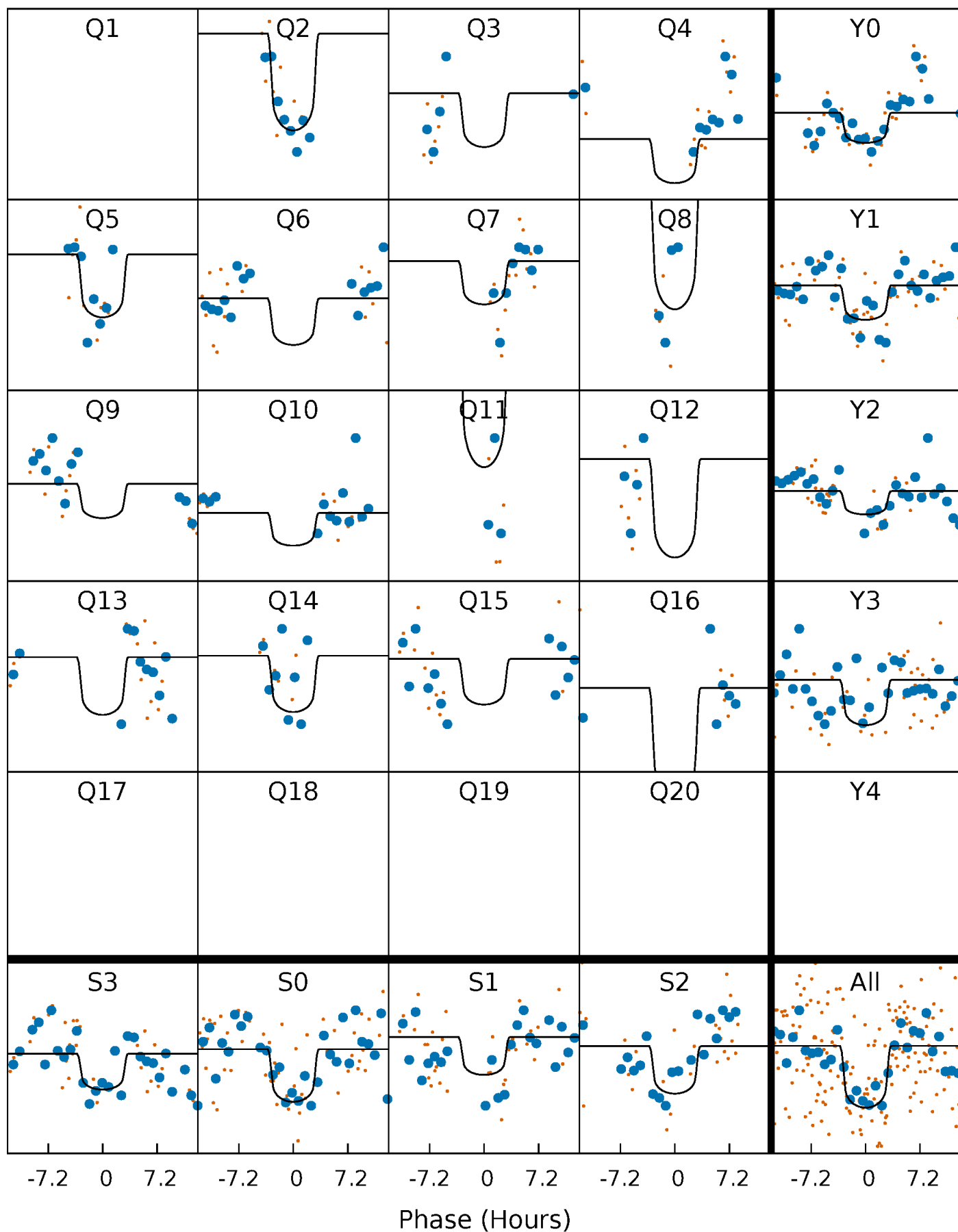
PDC Quarter-Phased Transit Curves

TCE 005391767-05 $P = 49.403648$ Days $T_0 = 174.663481$ (BKJD)



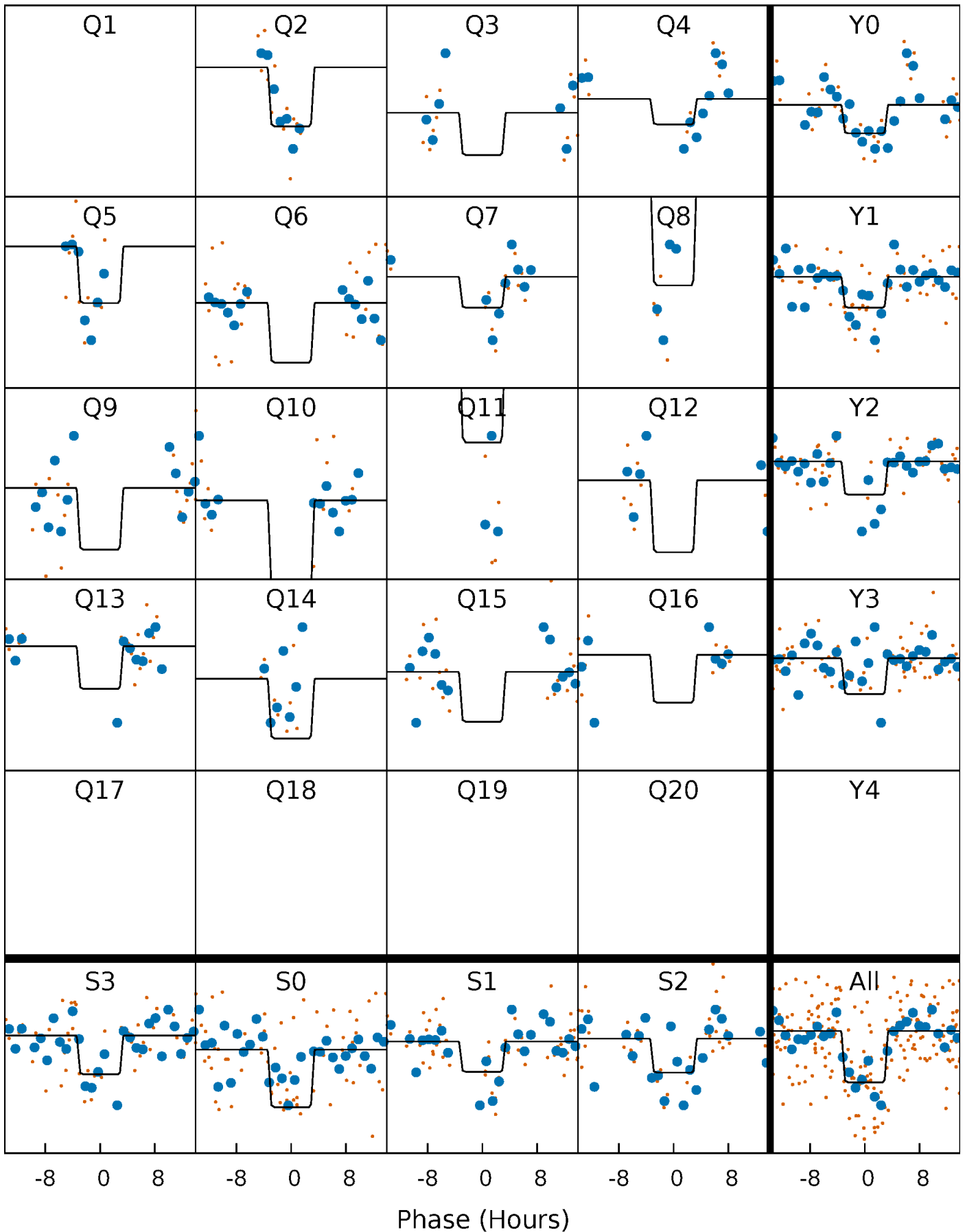
DV Quarter-Phased Transit Curves

TCE 005391767-05 P= 49.403648 Days $T_0=174.663481$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

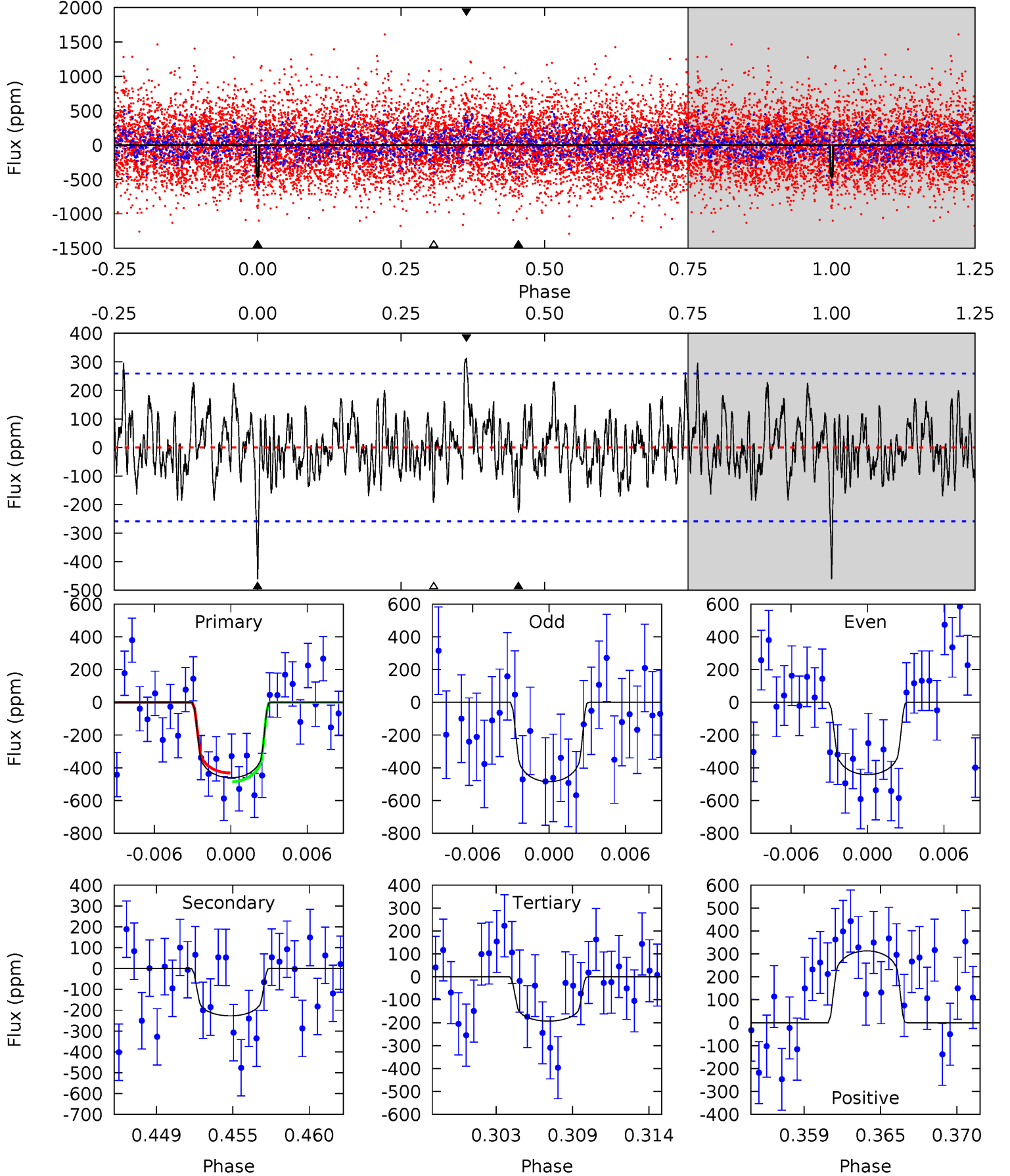
TCE 005391767-05 $P = 49.402279$ Days $T_0 = 174.695069$ (BKJD)



DV Model-Shift Uniqueness Test

005391767-05, $P = 49.403648$ Days, $E = 125.259833$ Days

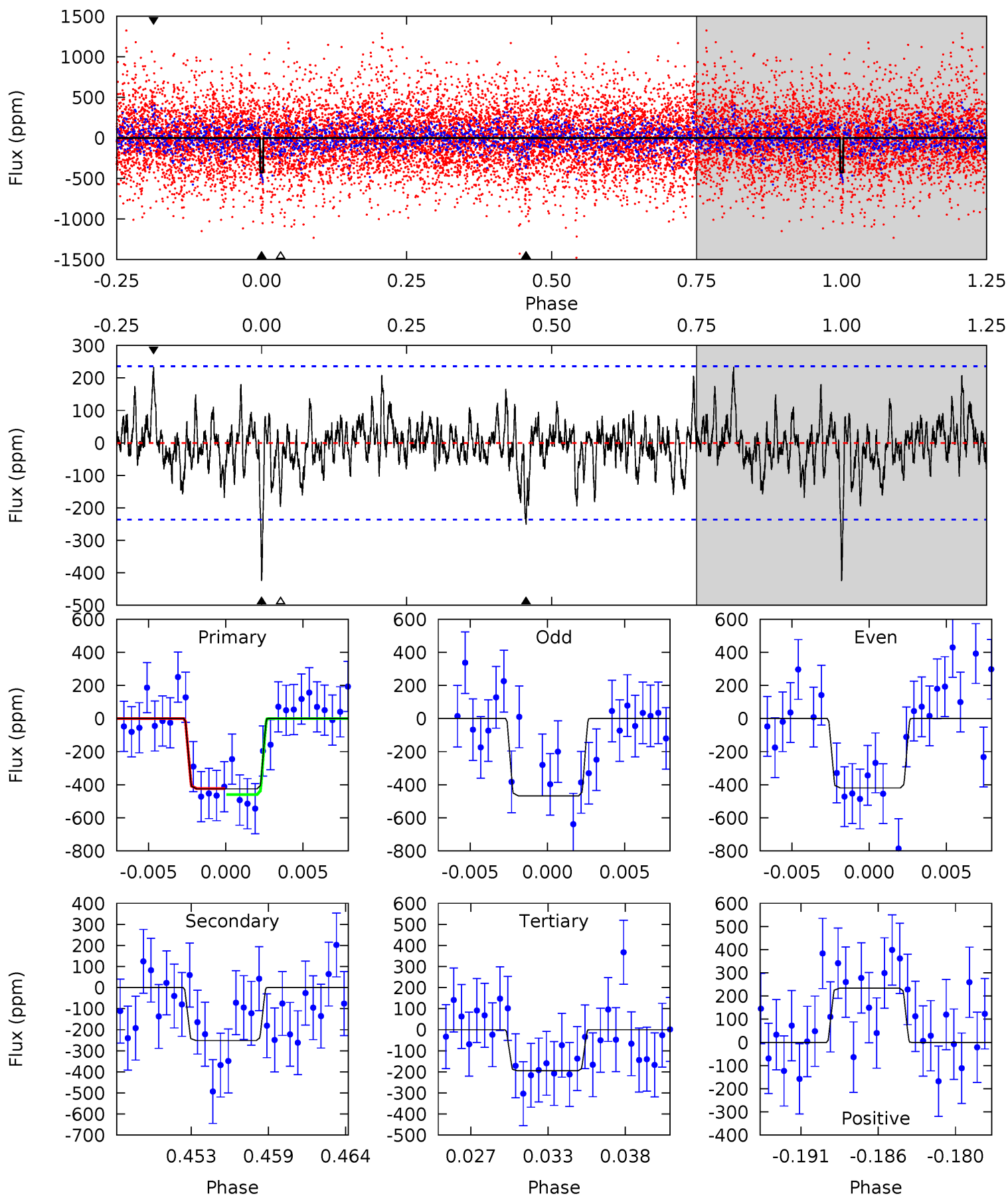
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.15	4.51	3.83	6.21	5.14	2.77	1.68	5.32	2.94	0.68	-1.70	0.43	0.99	0.40	0.53



Alt Model-Shift Uniqueness Test

005391767-05, P = 49.402279 Days, E = 125.292790 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.25	5.47	4.25	5.09	5.14	2.78	1.32	5.00	4.16	1.23	0.39	0.51	0.87	0.35	0.39



Stellar Parameters For KIC 005391767

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6314^{+169}_{-207}	$4.472^{+0.054}_{-0.216}$	$-0.340^{+0.300}_{-0.300}$	$0.982^{+0.325}_{-0.102}$	$1.043^{+0.146}_{-0.133}$	$1.551^{+0.348}_{-0.869}$
	+3%/-3%	+1%/-5%	+88%/-88%	+33%/-10%	+14%/-13%	+22%/-56%
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 005391767-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-227 ± 50	$2.61^{+1.27}_{-1.19}$	760^{+60}_{-35}	5144^{+1825}_{-783}	1263^{+3077}_{-701}
Alt.	-252 ± 46	$2.41^{+1.36}_{-1.24}$	764^{+59}_{-40}	5449^{+2561}_{-906}	1655^{+5625}_{-1007}

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

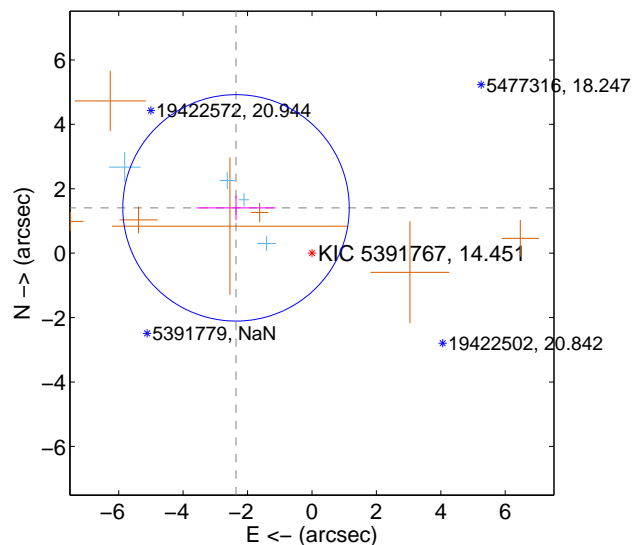
Supplemental centroid analysis for 005391767-05. Kepler magnitude: 14.45. Transit SNR 9.87

There are 4 quarters with good PRF difference image offsets

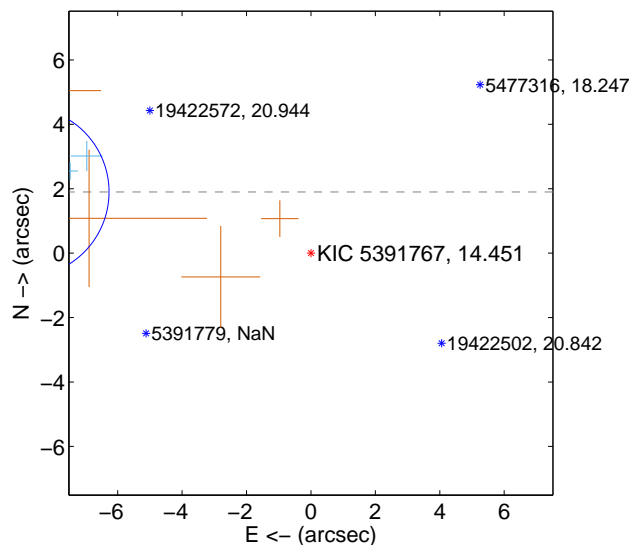
The OOT PRF centroid is offset from the target star catalog position by about 7.63 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.745 ± 1.172	2.34	2.358 ± 1.230	1.406 ± 0.382
PRF-fit source offset from KIC position	9.113 ± 0.881	10.34	8.913 ± 0.857	1.900 ± 0.428
photometric centroid source offset	1.75 ± 0.71	2.48	1.67 ± 0.72	0.51 ± 0.49

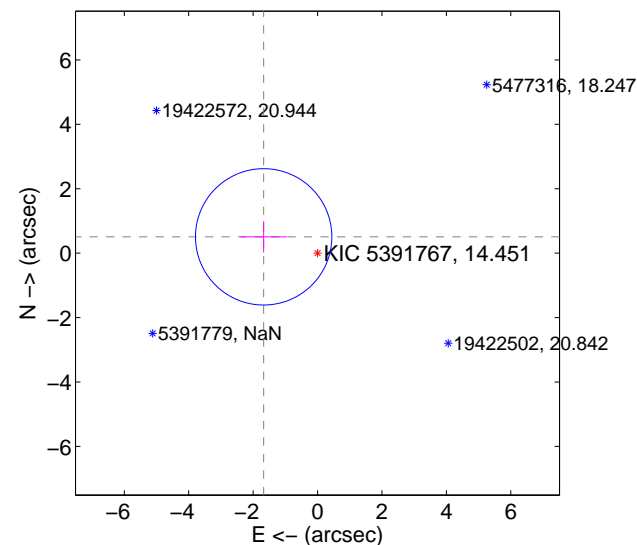
offset from difference PRF-fit to OOT PRF-fit



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.

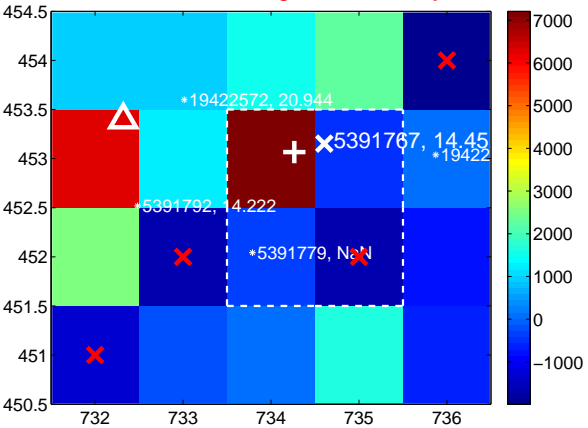
Q1 no difference image



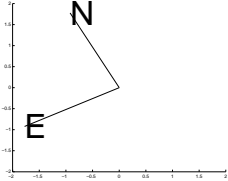
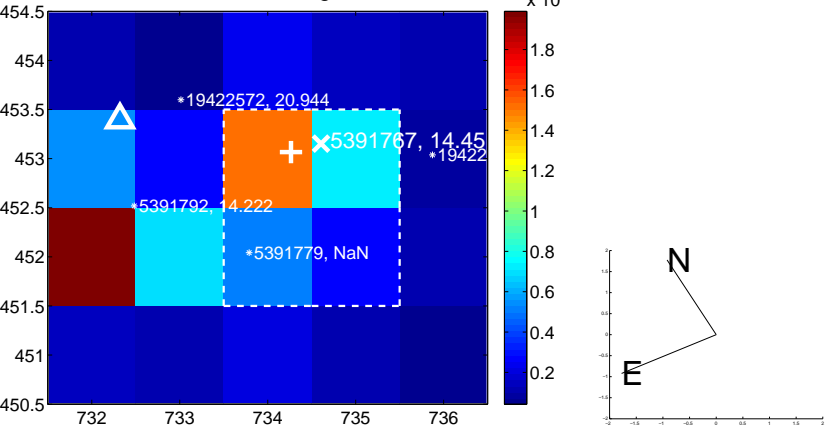
Q1 no OOT image



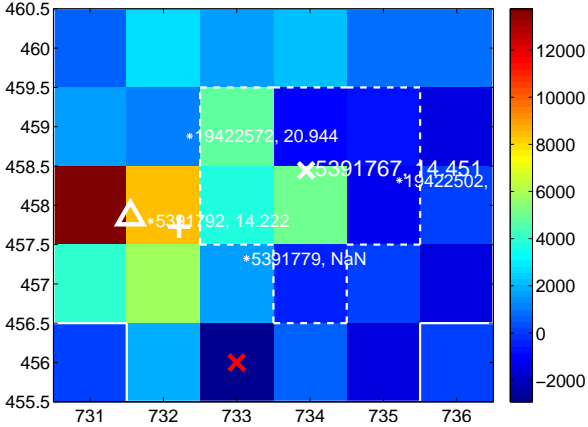
Q2 difference image. Poor Quality



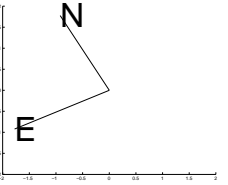
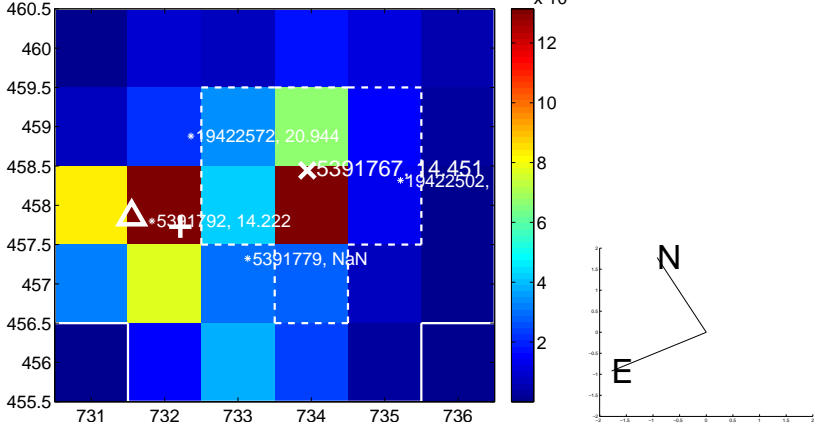
Q2 OOT image



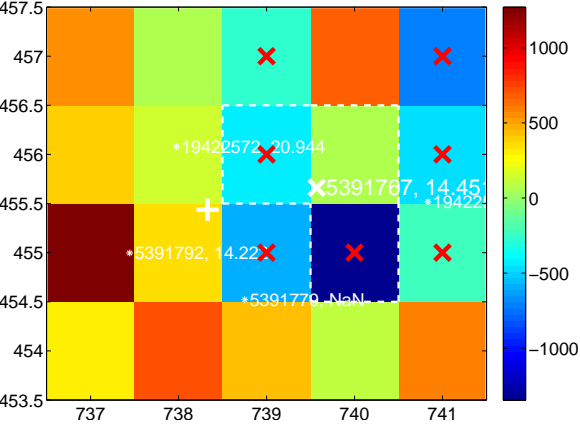
Q3 difference image



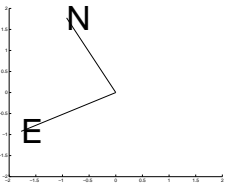
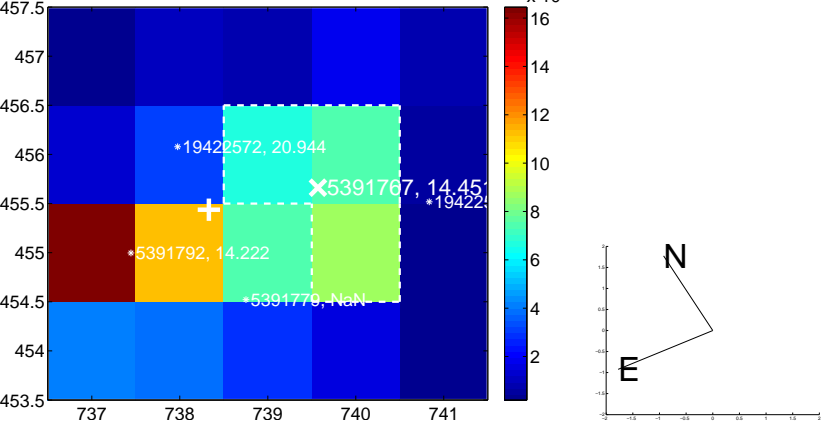
Q3 OOT image



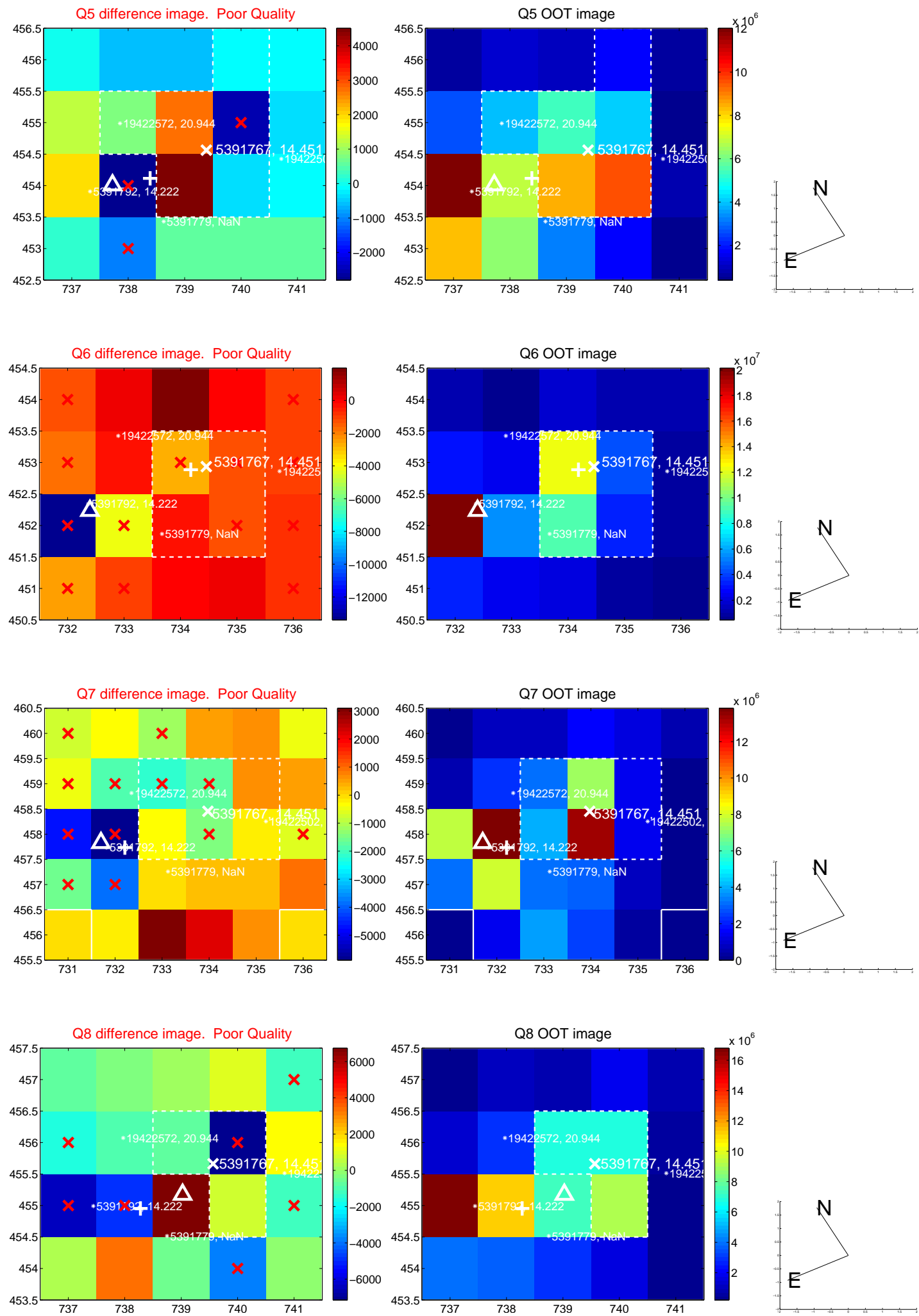
Q4 difference image. Poor Quality



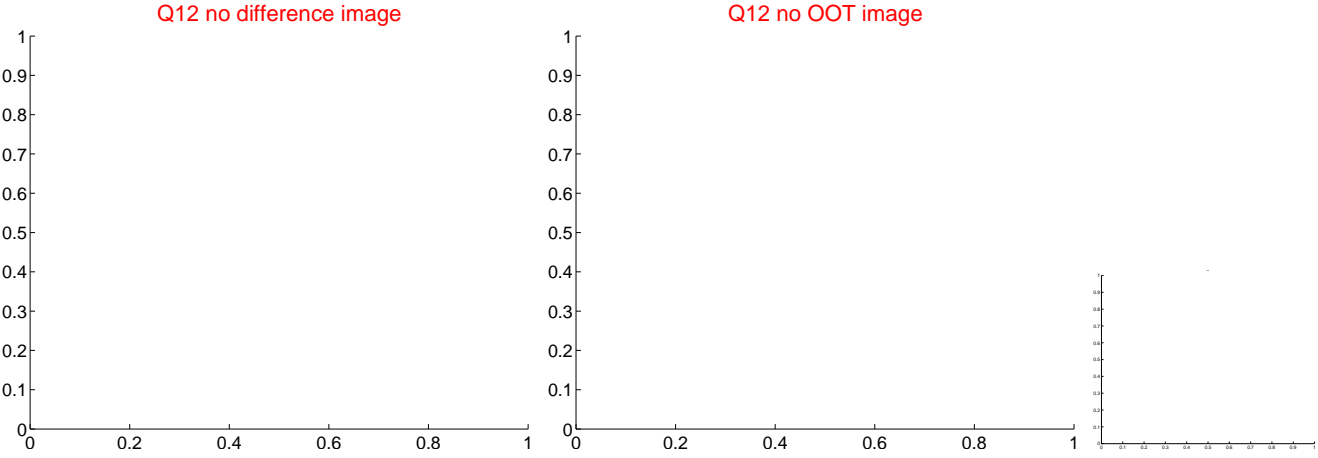
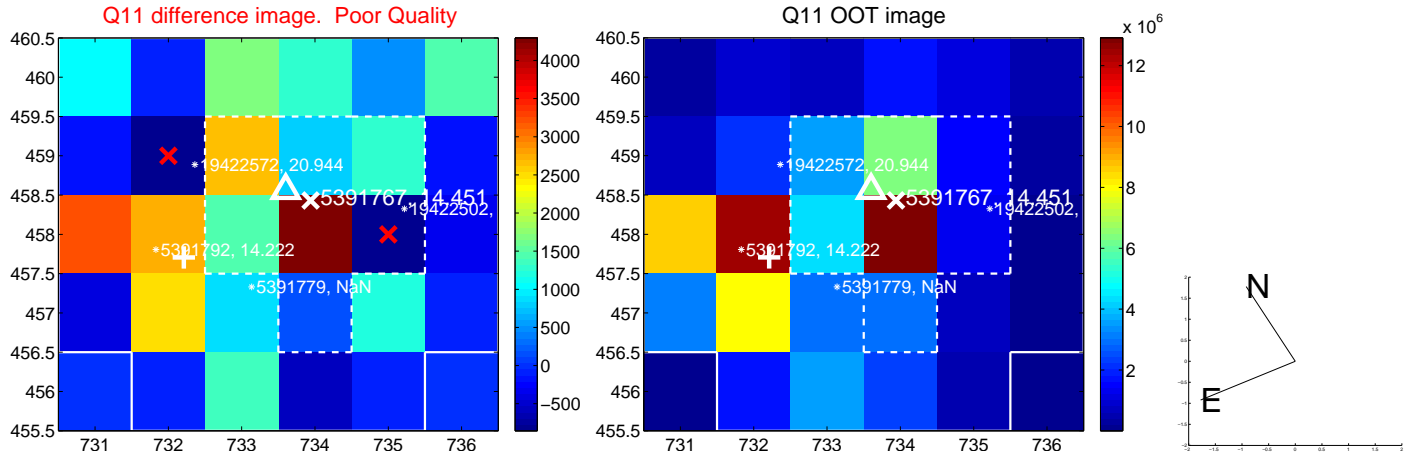
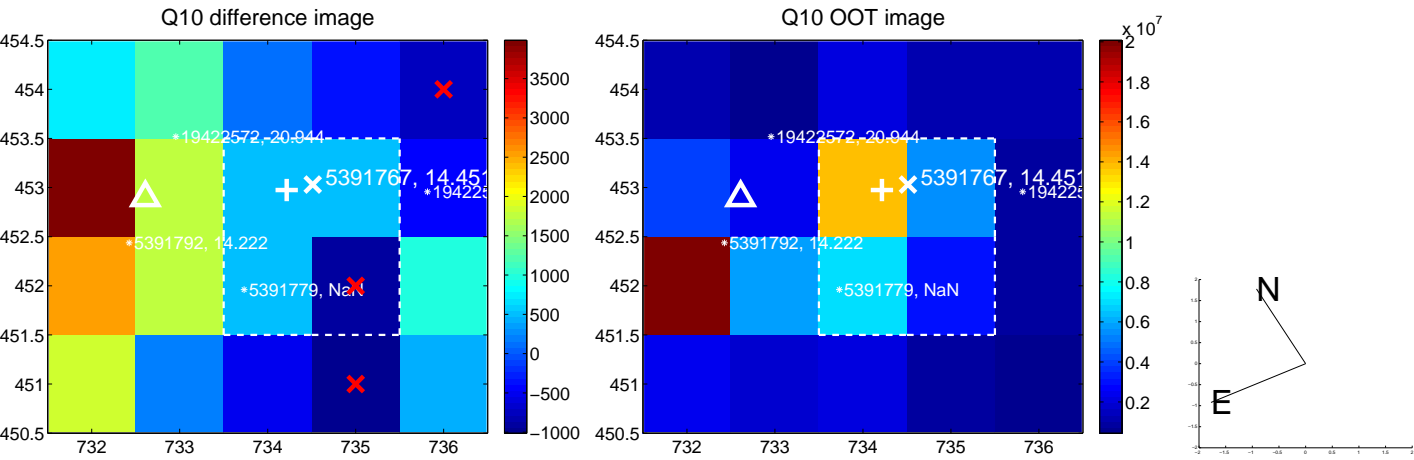
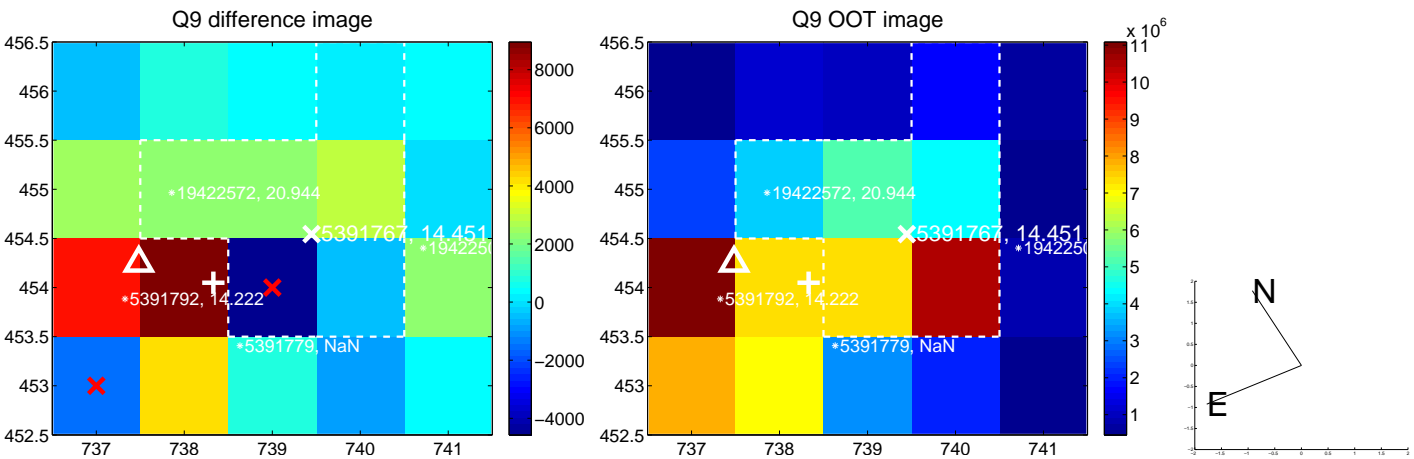
Q4 OOT image



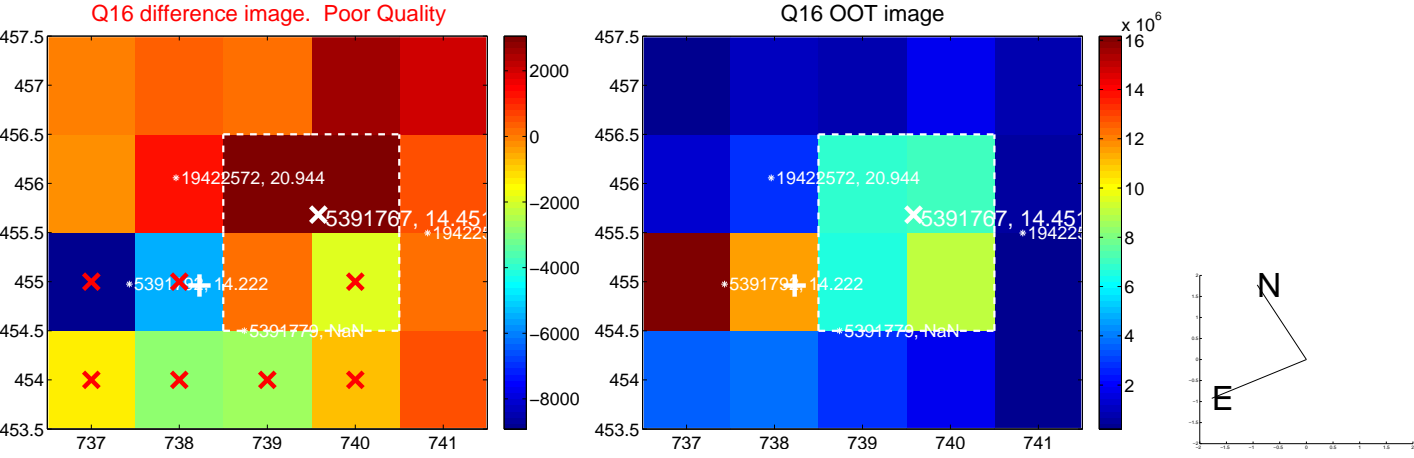
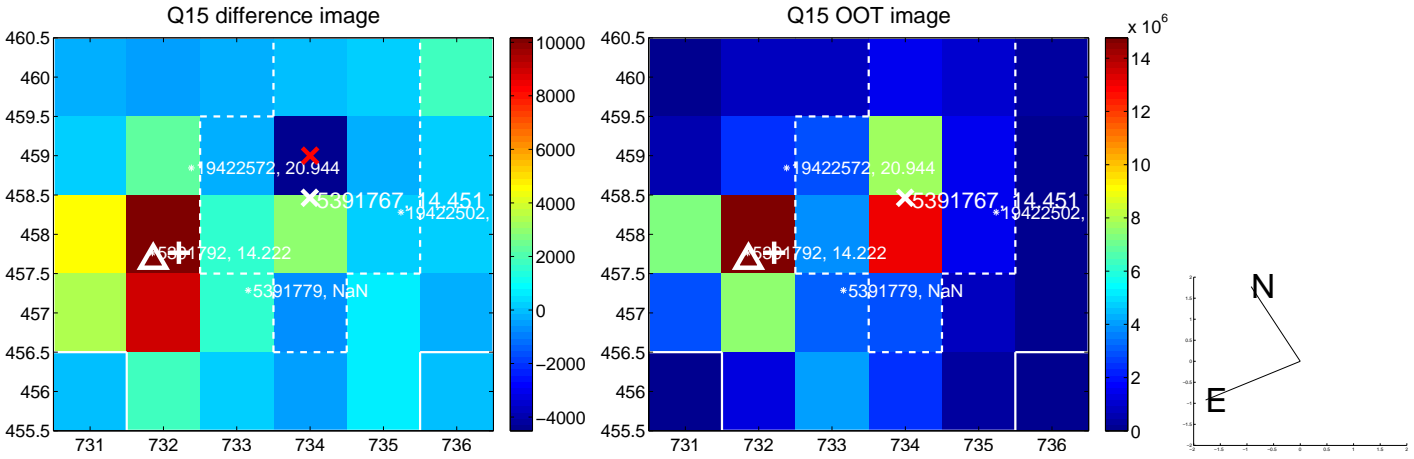
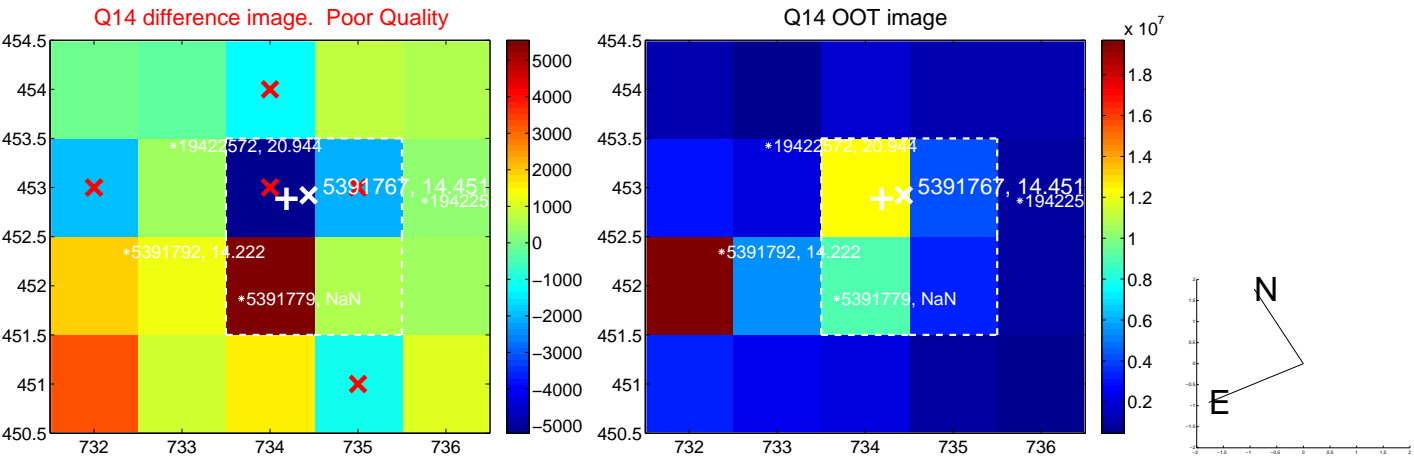
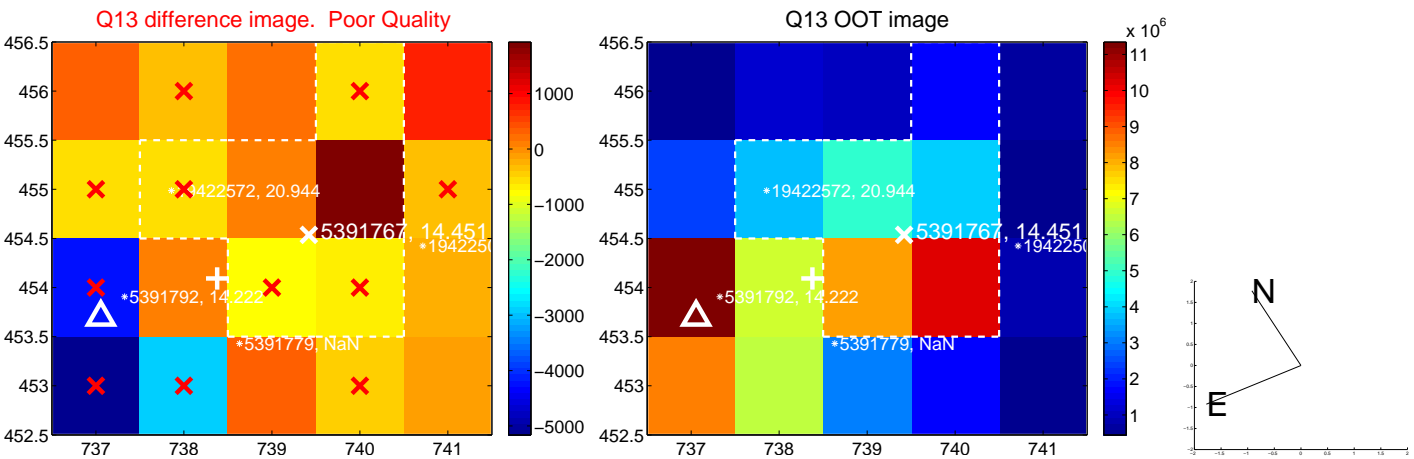
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



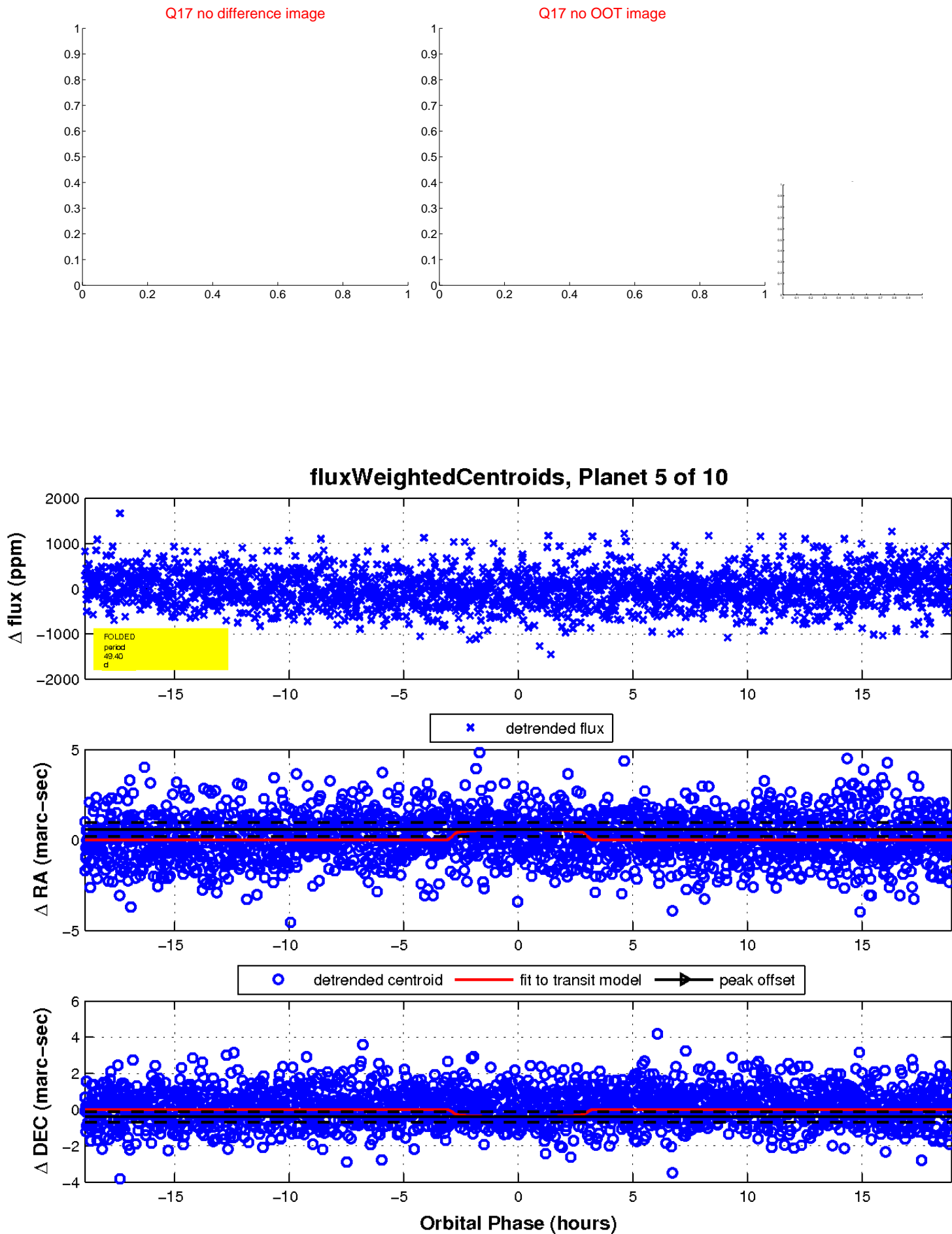
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

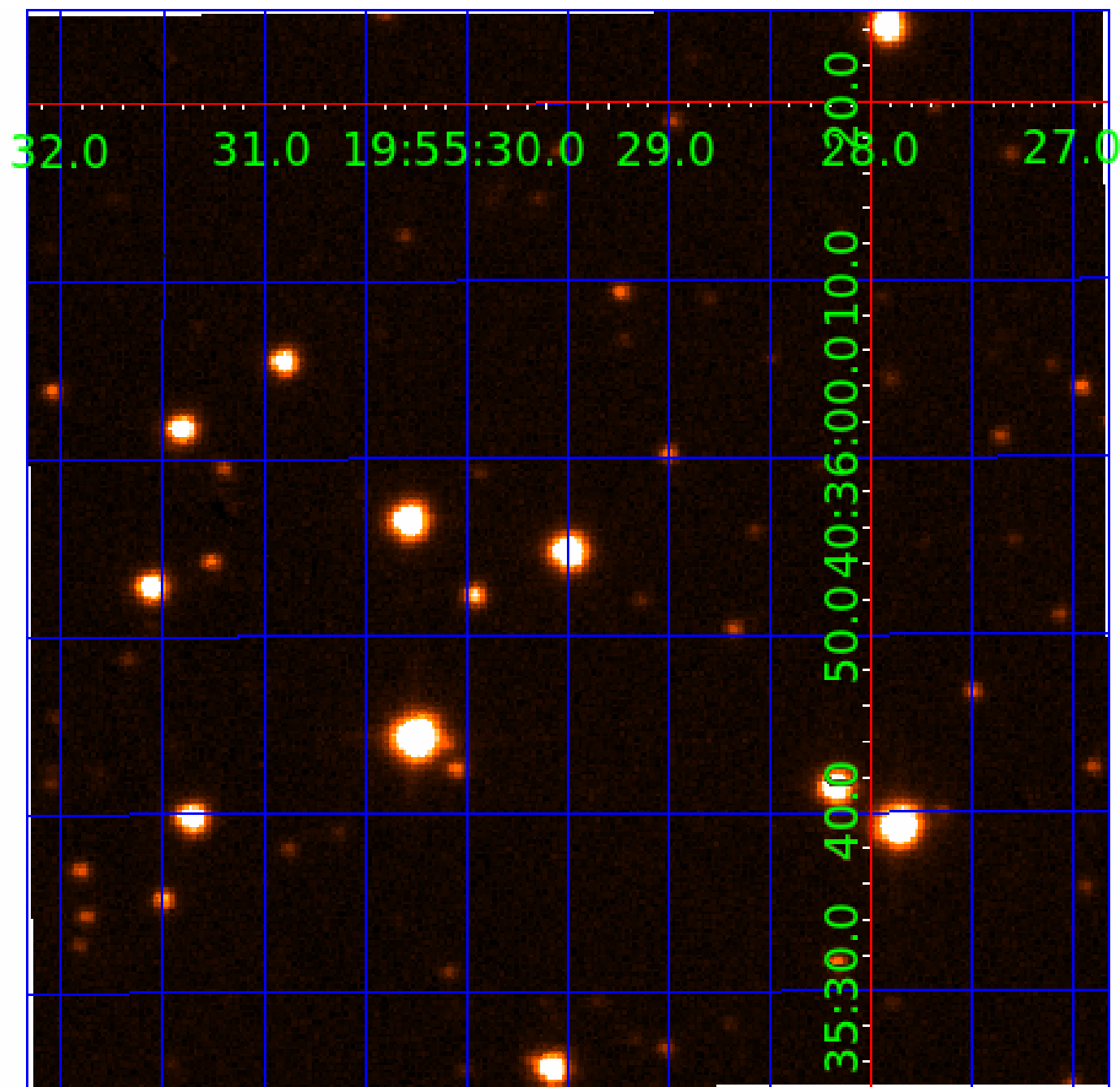


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005391767

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})
005391767-01	OBS	No	0.834886	131.693199	11.9	5.428	7.7	3.3	0.98	6314	0.35	4432.86
005391767-02	OBS	No	56.197304	131.674337	550.5	4.783	11.3	9.7	0.98	6314	2.56	16.19
005391767-03	OBS	No	489.320936	193.773350	882.3	8.465	10.5	11.0	0.98	6314	3.25	0.90
005391767-04	OBS	No	126.854394	187.648633	732.7	4.541	9.5	9.3	0.98	6314	3.00	5.47
005391767-05	OBS	No	49.403648	174.663481	503.6	6.307	8.9	9.9	0.98	6314	2.44	19.22
005391767-06	OBS	No	31.794911	157.264839	367.6	2.107	8.6	6.1	0.98	6314	2.16	34.60
005391767-07	OBS	No	53.256593	172.075440	428.8	3.669	8.0	7.4	0.98	6314	2.21	17.39
005391767-08	OBS	No	59.737722	158.056402	440.1	5.109	8.5	8.5	0.98	6314	2.30	14.92
005391767-10	OBS	No	28.485201	145.764735	498.0	1.265	7.7	9.0	0.98	6314	2.58	40.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005391767-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005391767-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST
005391767-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

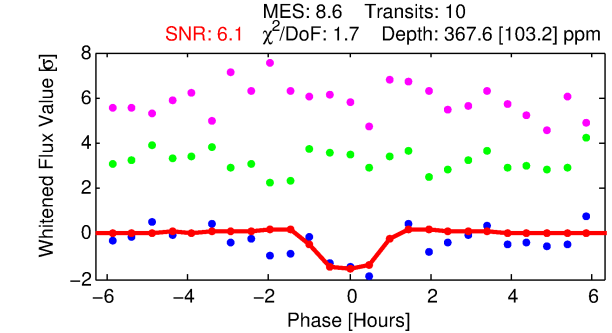
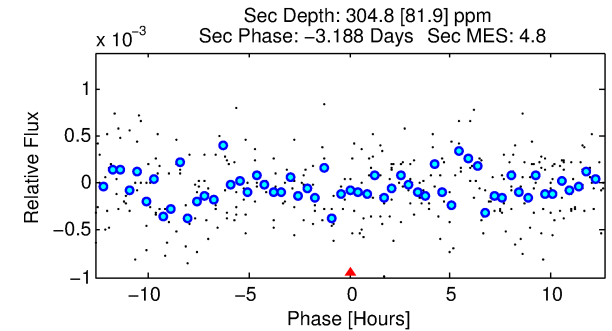
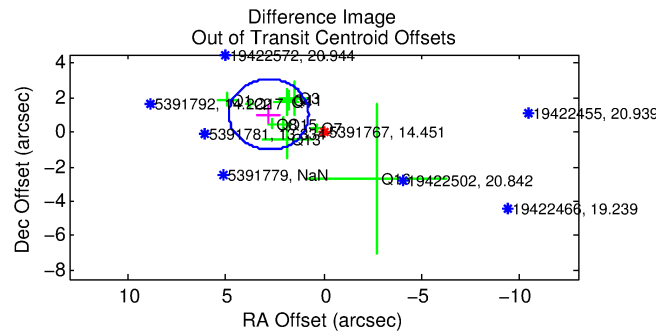
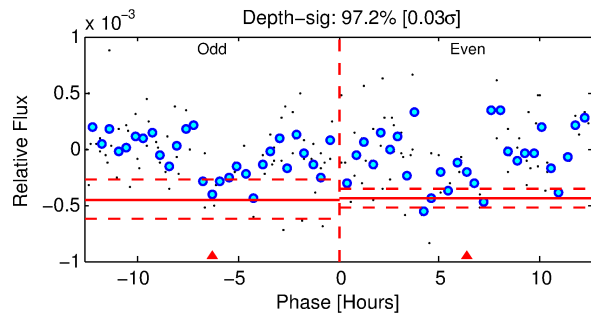
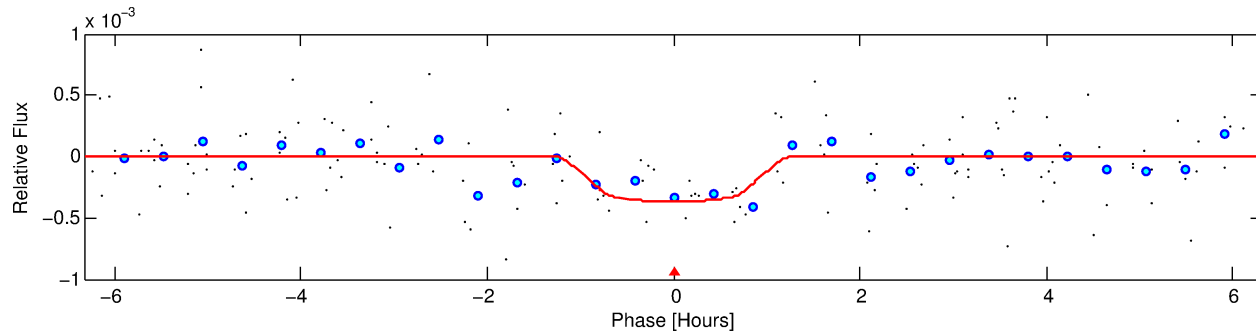
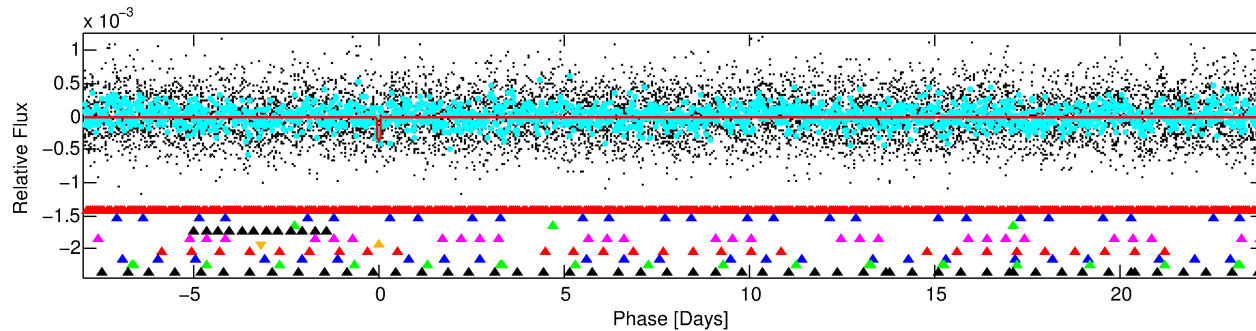
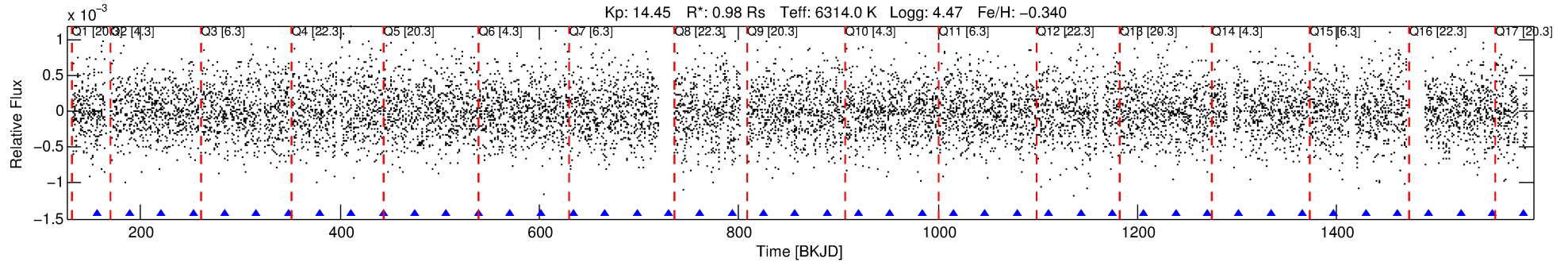
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005391767-06

No Significant Match Found

DV One-Page Summary

KIC: 5391767 Candidate: 6 of 10 Period: 31.795 d



DV Fit Results:

Period = 31.79491 [0.00062] d
Epoch = 157.2648 [0.0170] BKJD
Rp/R* = 0.0202 [0.0216]
a/R* = 60.88 [346.82]
b = 0.87 [1.57]
Seff = 34.60 [14.51]
Teq = 618 [65] K
Rp = 2.16 [2.43] Re
a = 0.1992 [0.0550] AU
Ag = 1422.09 [3125.58] [0.45σ]
Teffp = 5872 [3179] K [1.65σ]

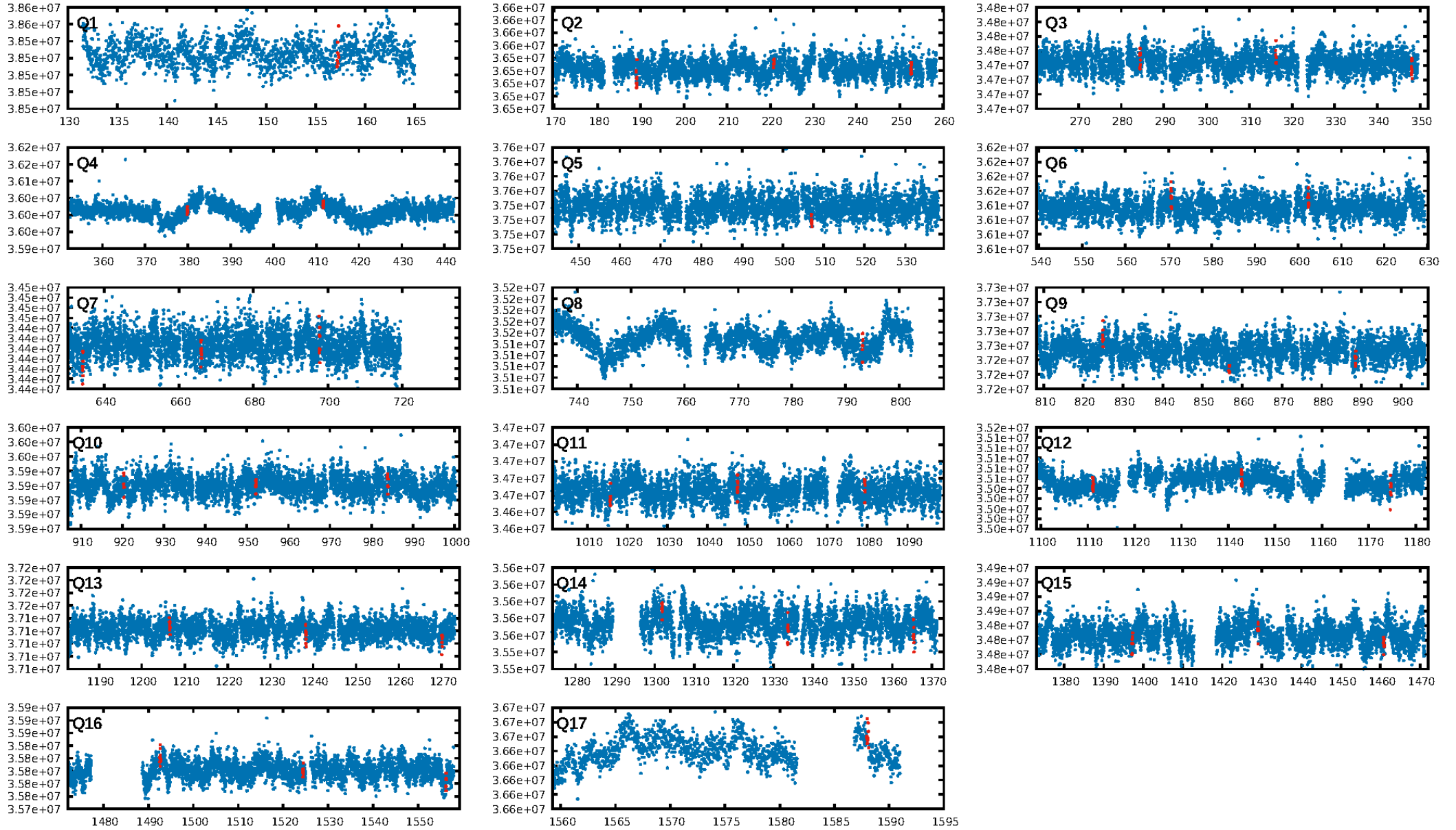
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.32σ]
LongPeriod-sig: 100.0% [47.39σ]
ModelChiSquare2-sig: 27.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.27e-09
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.2029
Centroid-sig: 6.5%
Centroid-so: 2.296 arcsec [2.31σ]
OotOffset-rm: 2.981 arcsec [4.38σ]
KicOffset-rm: 9.059 arcsec [12.47σ]
OotOffset-st: 0/4/3/3 [10]
KicOffset-st: 0/4/3/3 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 0.18 [3/17]

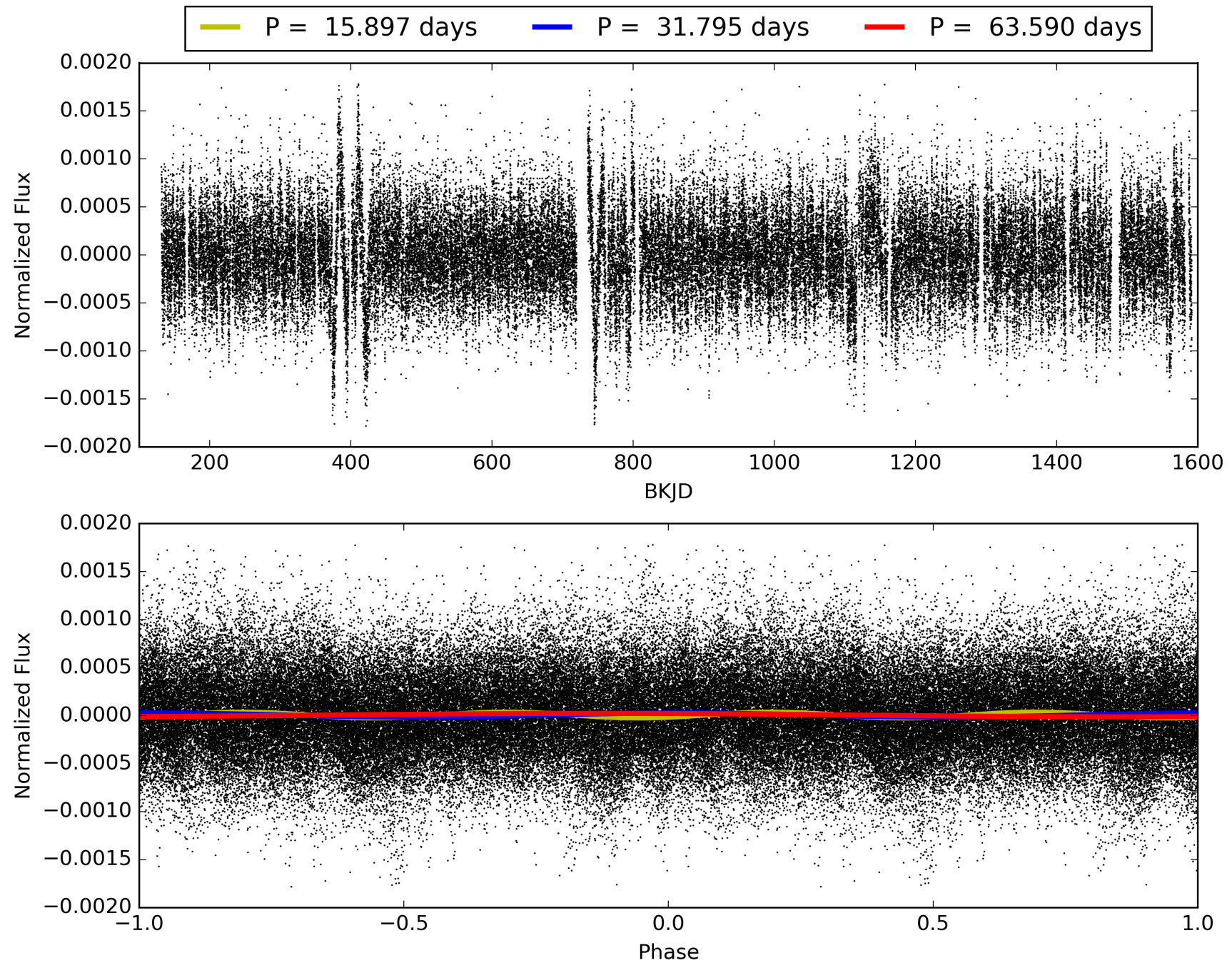
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:10:50 Z

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

TCE 005391767-06, PDC Light Curves

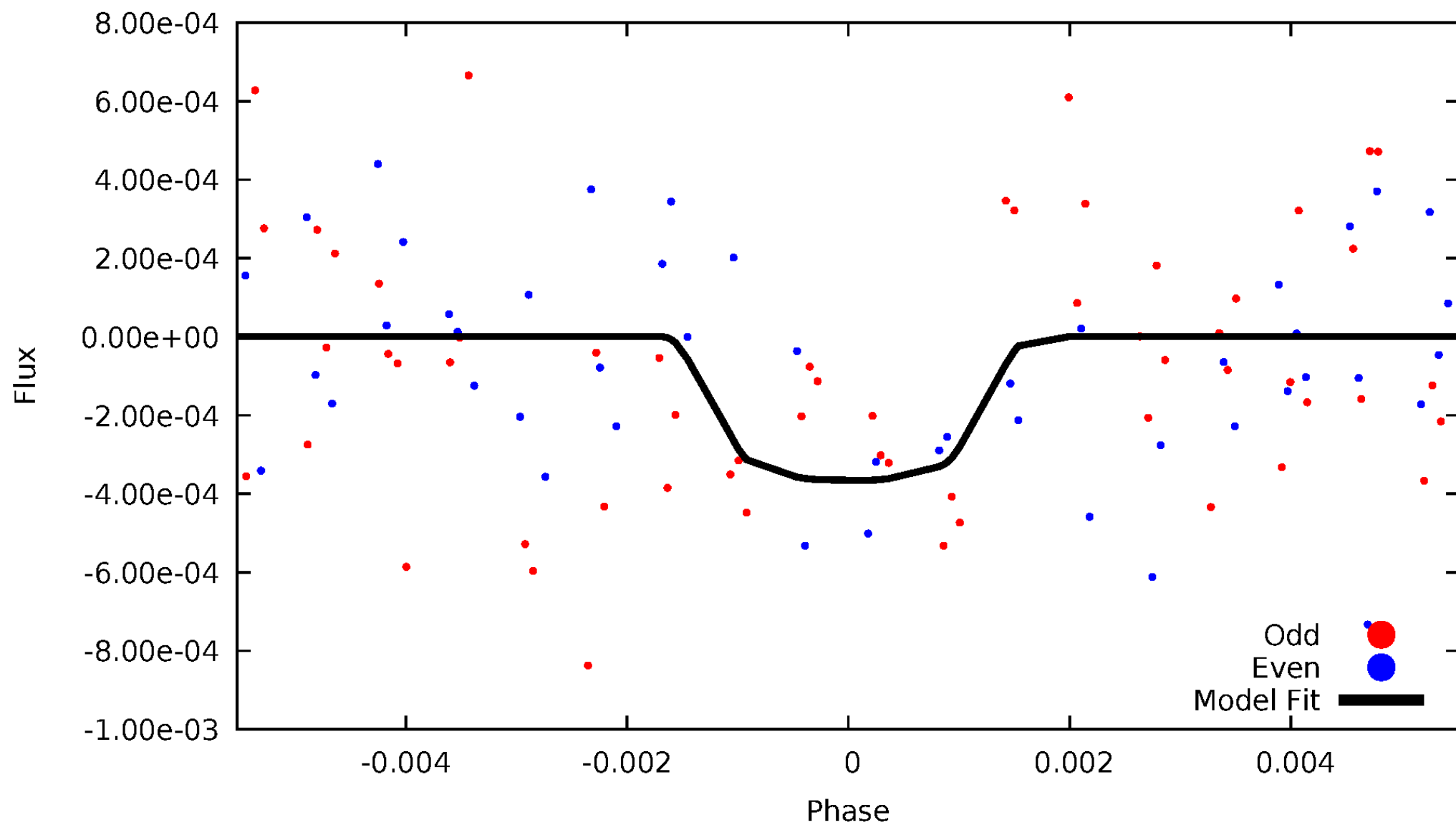


TCE 005391767-06



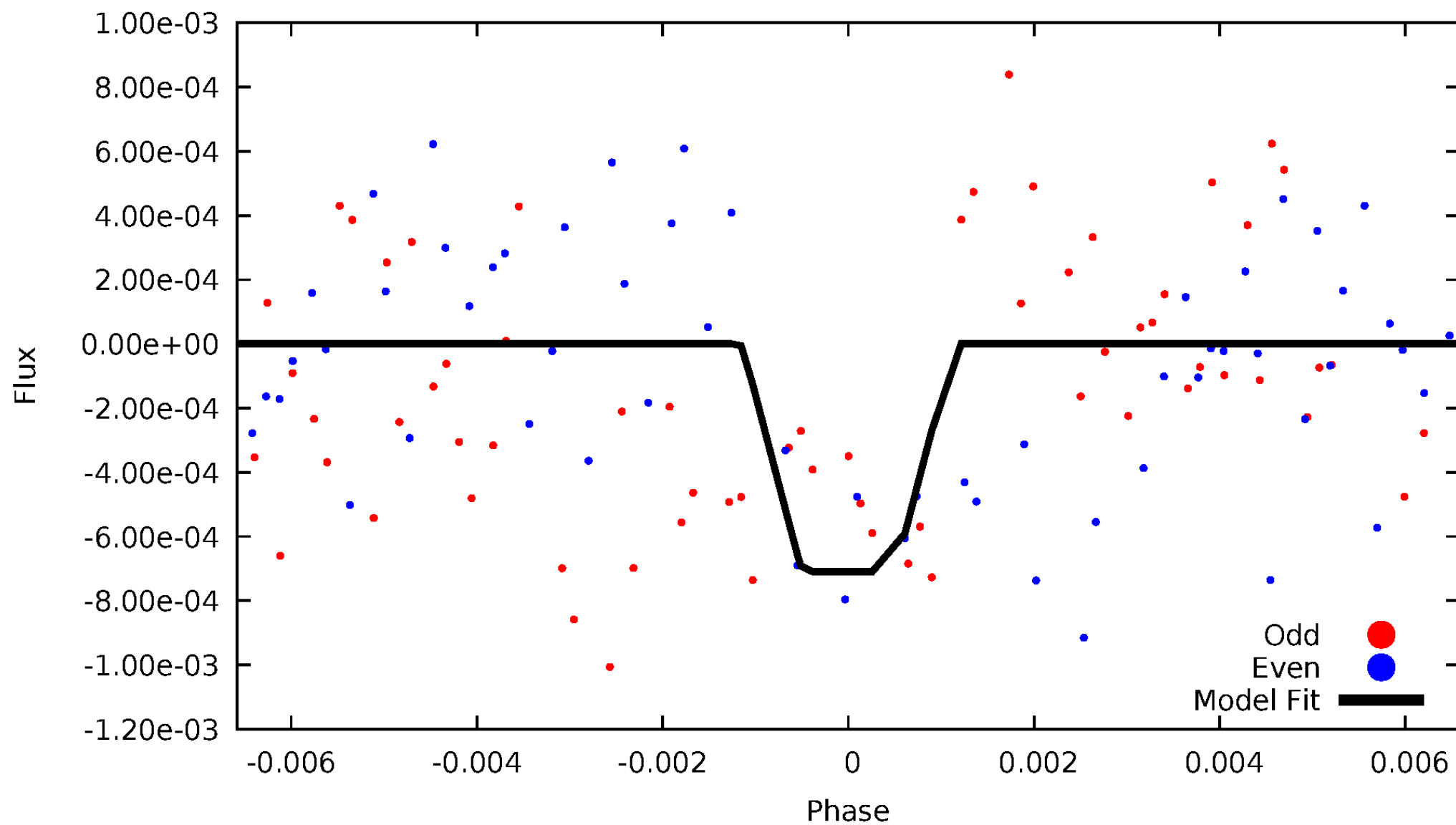
DV Odd/Even

TCE 005391767-06



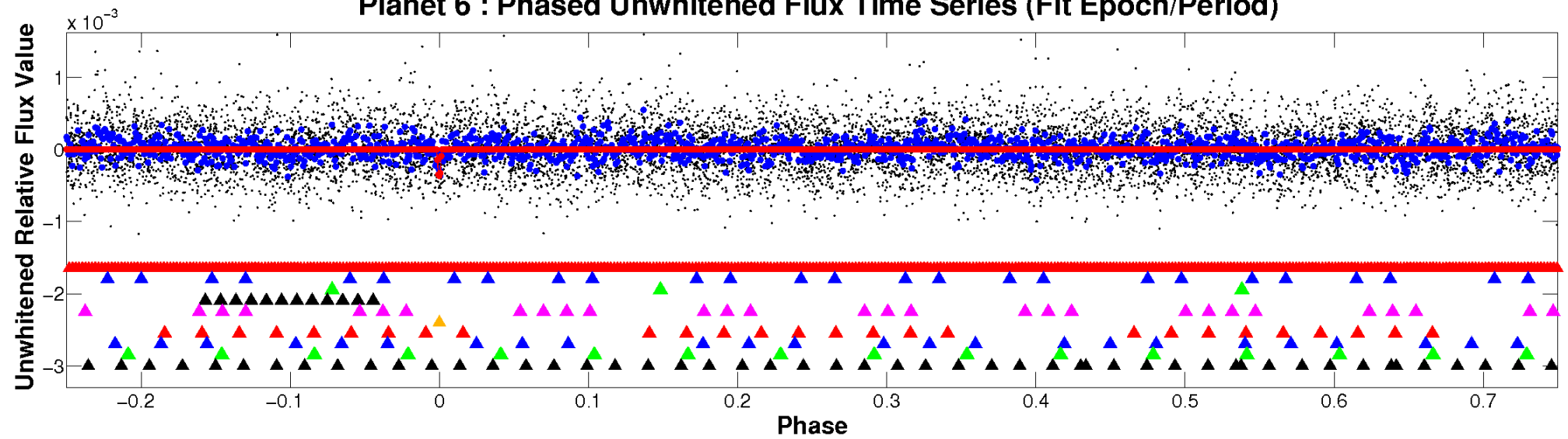
ALT Odd/Even

TCE 005391767-06

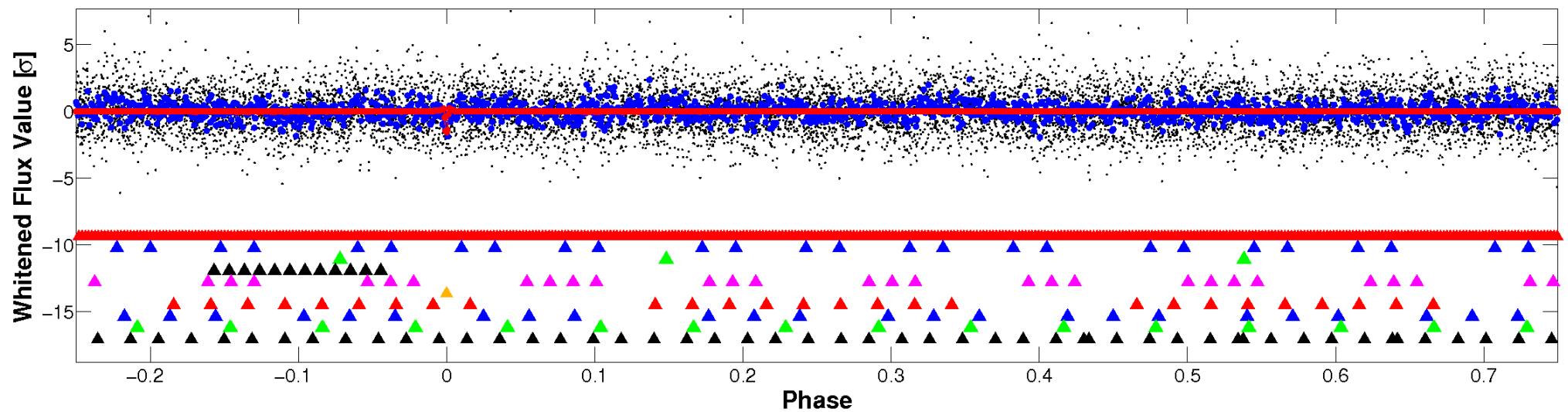


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

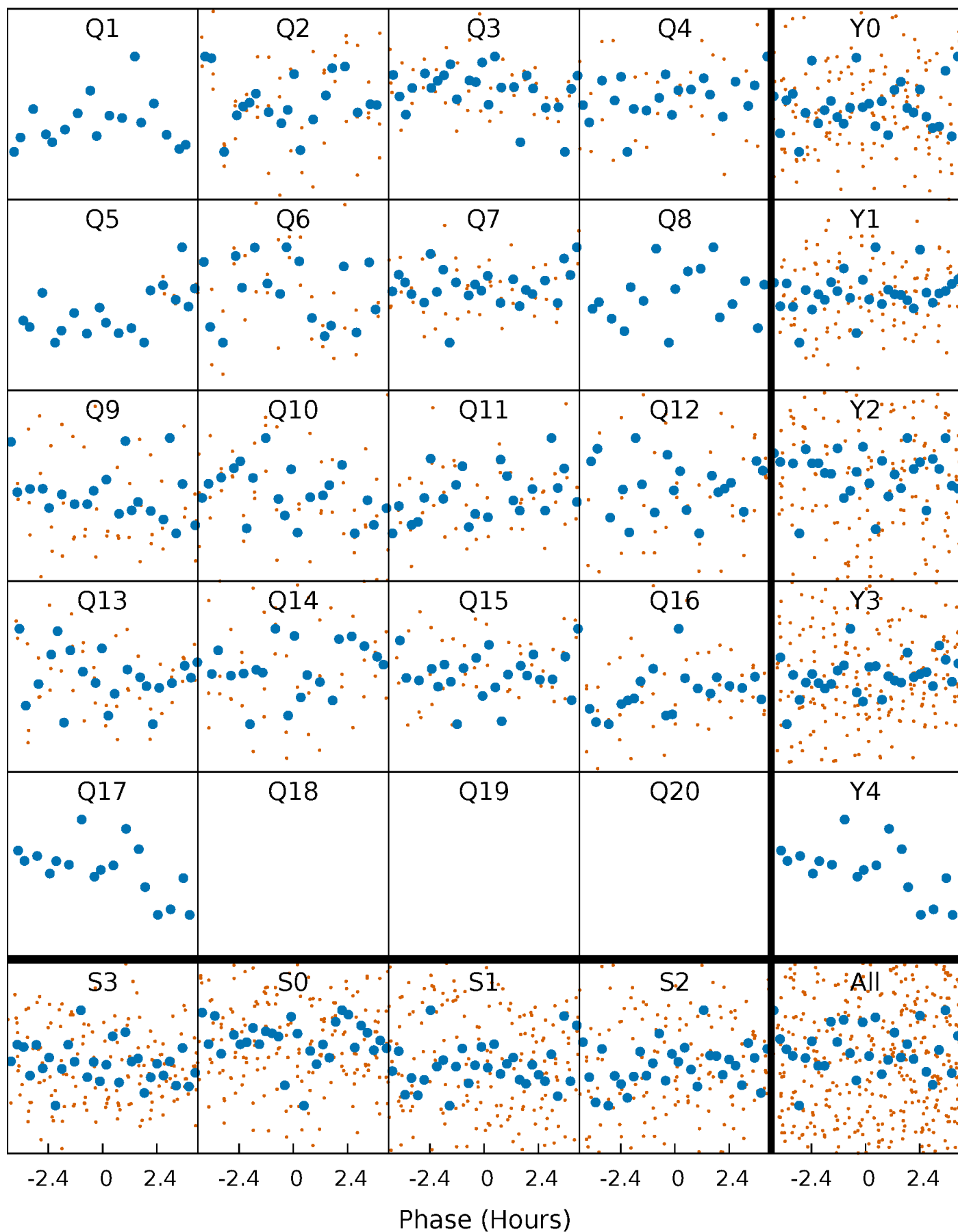


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



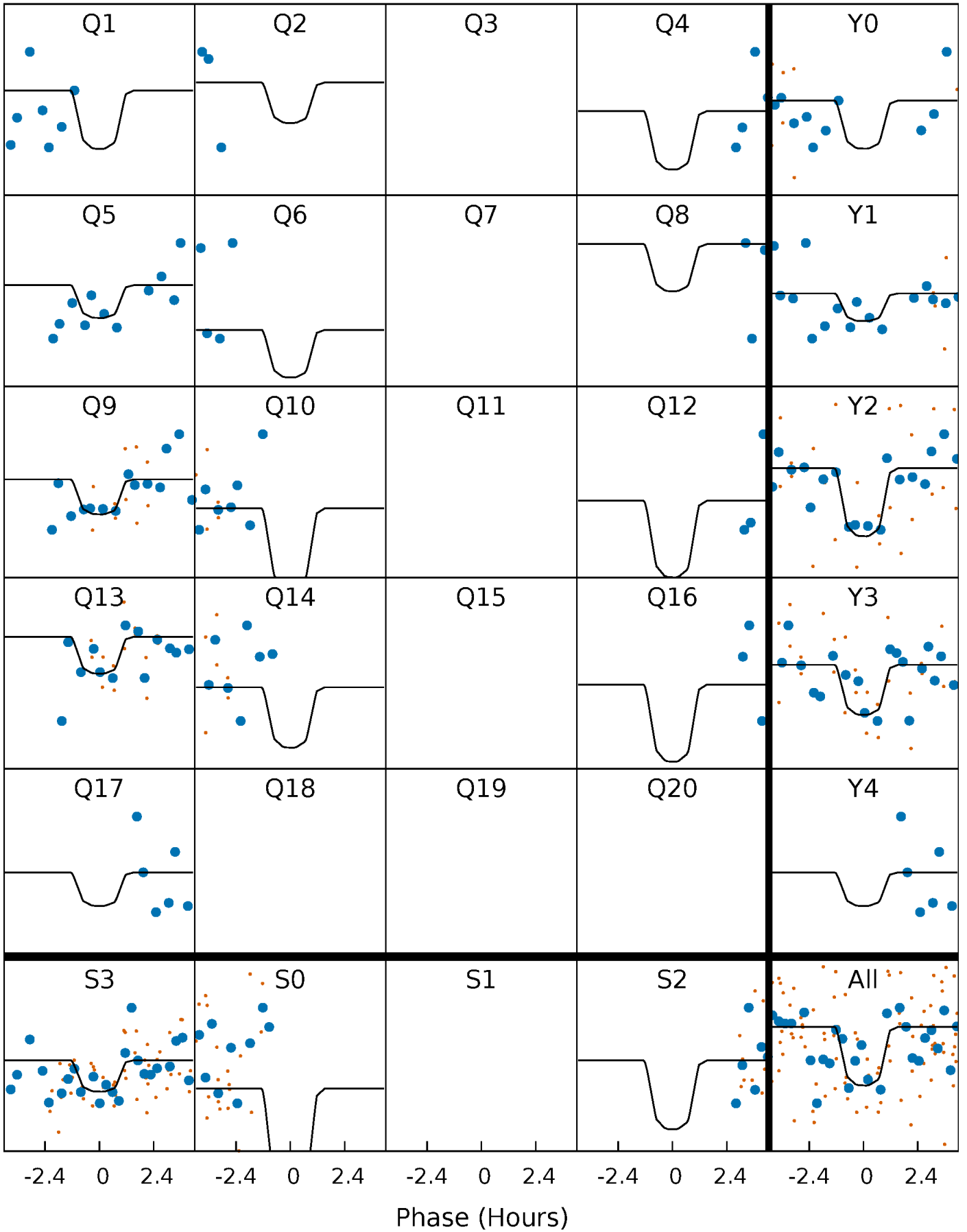
PDC Quarter-Phased Transit Curves

TCE 005391767-06 P= 31.794911 Days $T_0=157.264838$ (BKJD)



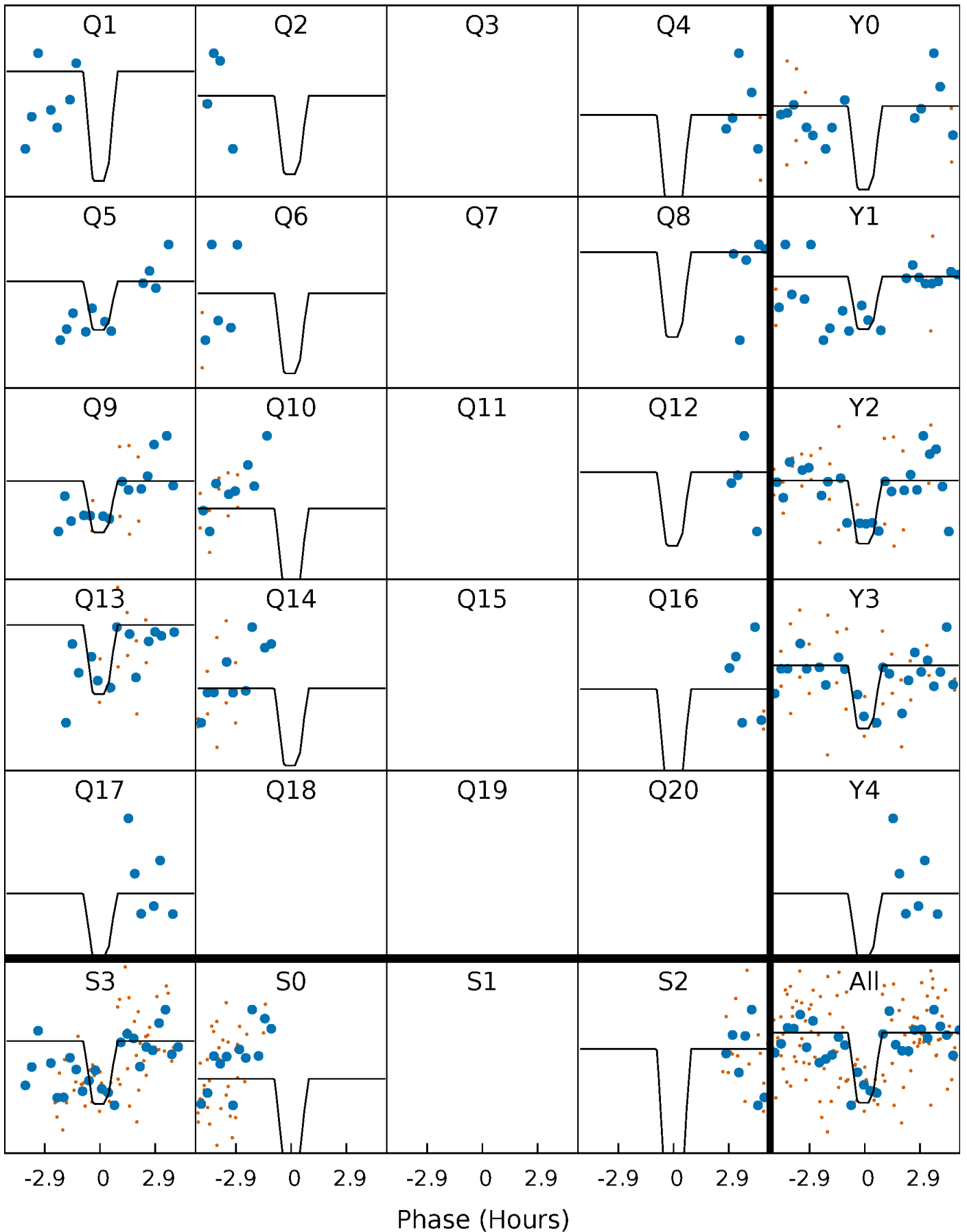
DV Quarter-Phased Transit Curves

TCE 005391767-06 $P = 31.794911$ Days $T_0 = 157.264838$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

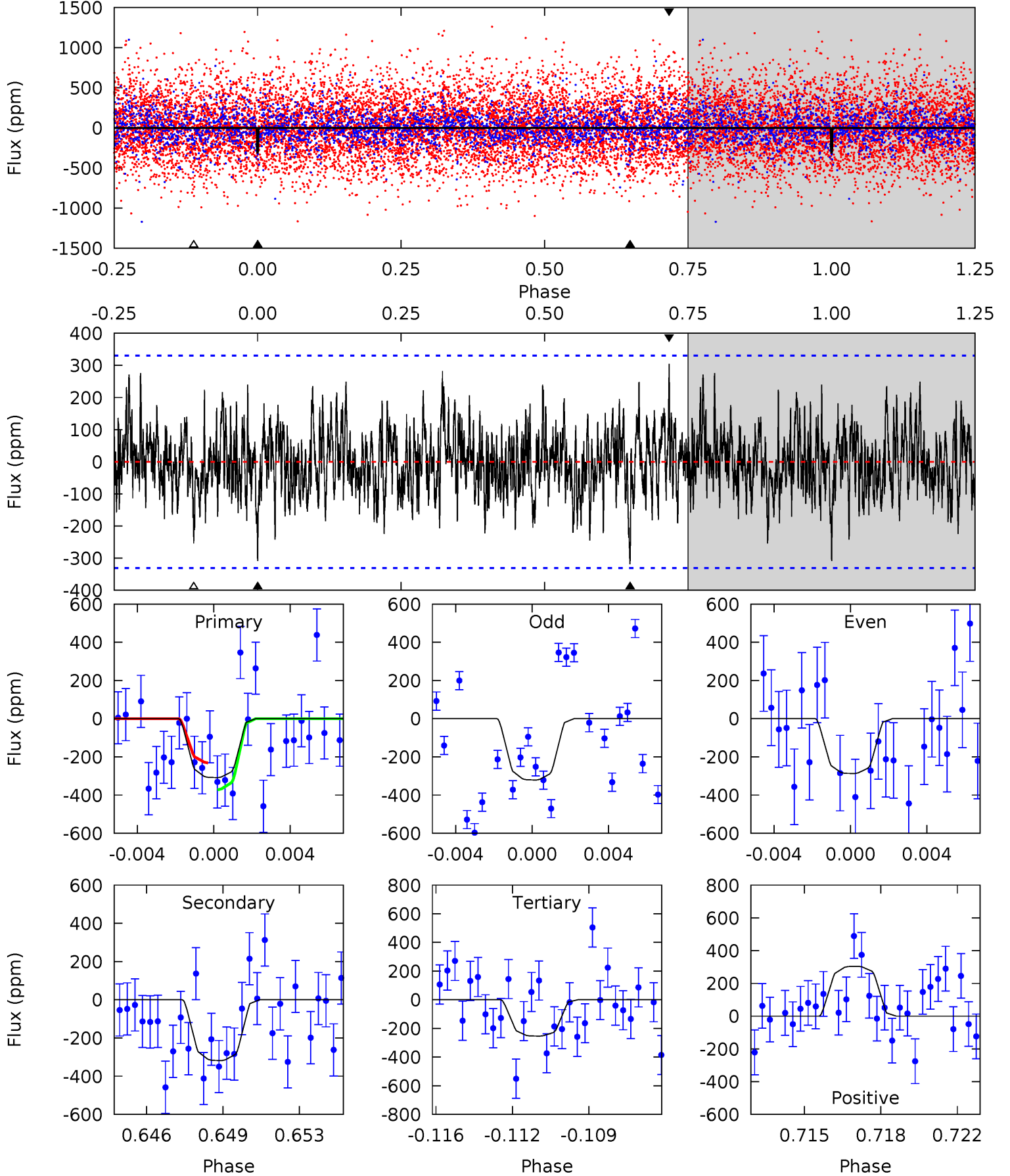
TCE 005391767-06 P= 31.795055 Days $T_0=157.266678$ (BKJD)



DV Model-Shift Uniqueness Test

005391767-06, P = 31.794911 Days, E = 125.469927 Days

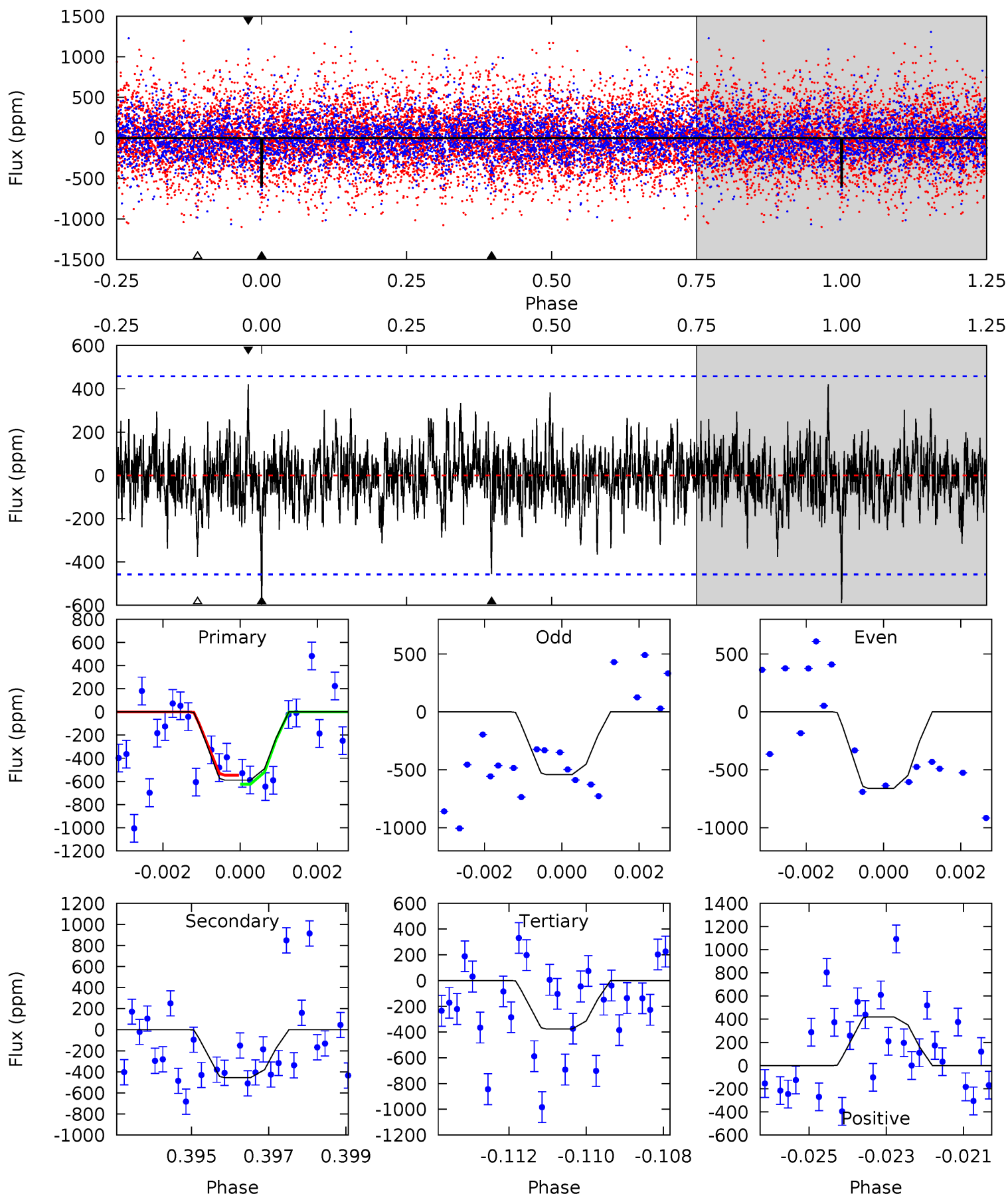
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.87	5.02	4.00	4.81	5.22	2.91	1.37	0.87	0.07	1.02	0.22	0.27	0.98	0.49	1.11



Alt Model-Shift Uniqueness Test

005391767-06, $P = 31.795055$ Days, $E = 125.471623$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.87	5.31	4.39	4.90	5.33	3.10	1.22	2.48	1.97	0.92	0.41	0.68	0.94	0.42	0.45



Stellar Parameters For KIC 005391767

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6314^{+169}_{-207}	$4.472^{+0.054}_{-0.216}$	$-0.340^{+0.300}_{-0.300}$	$0.982^{+0.325}_{-0.102}$	$1.043^{+0.146}_{-0.133}$	$1.551^{+0.348}_{-0.869}$
	+3%/-3%	+1%/-5%	+88%/-88%	+33%/-10%	+14%/-13%	+22%/-56%
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 005391767-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-318 ± 63	$2.79^{+2.10}_{-1.75}$	883^{+65}_{-42}	5355^{+3824}_{-1088}	877^{+5306}_{-614}
Alt.	-455 ± 86	$3.47^{+2.40}_{-2.09}$	883^{+64}_{-44}	5292^{+3303}_{-1041}	791^{+3947}_{-525}

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

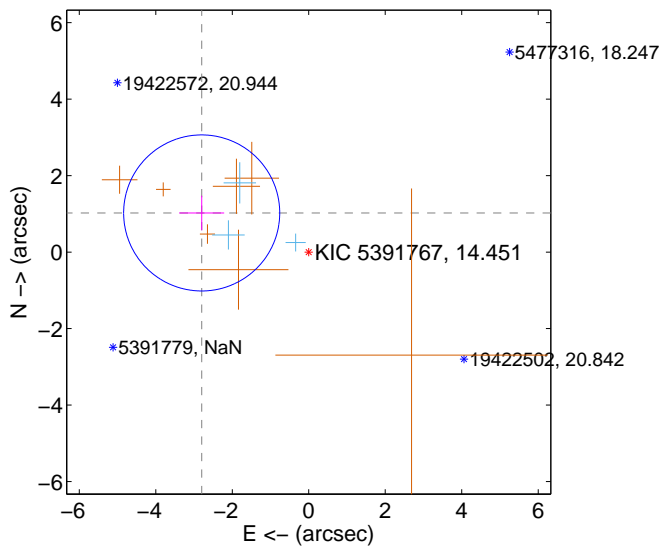
Supplemental centroid analysis for 005391767-06. Kepler magnitude: 14.45. Transit SNR 6.13

There are 3 quarters with good PRF difference image offsets

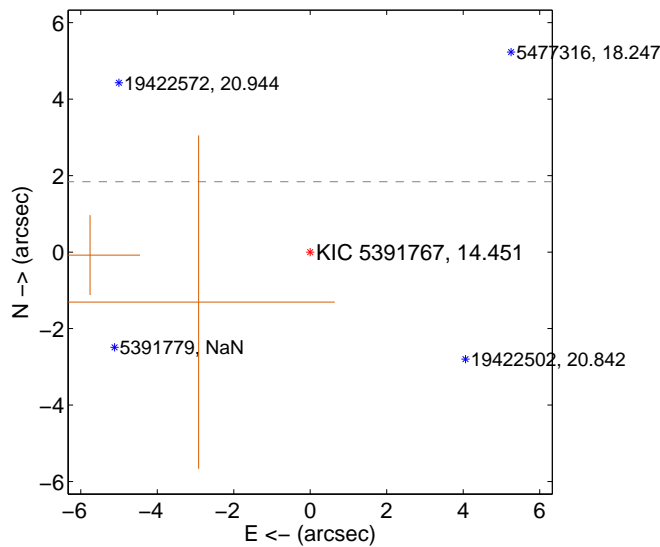
The OOT PRF centroid is offset from the target star catalog position by about 5.11 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.981 ± 0.680	4.38	2.800 ± 0.589	1.024 ± 0.452
PRF-fit source offset from KIC position	9.059 ± 0.727	12.47	8.870 ± 0.665	1.840 ± 0.405
photometric centroid source offset	2.30 ± 0.99	2.31	2.00 ± 1.06	-1.13 ± 0.72

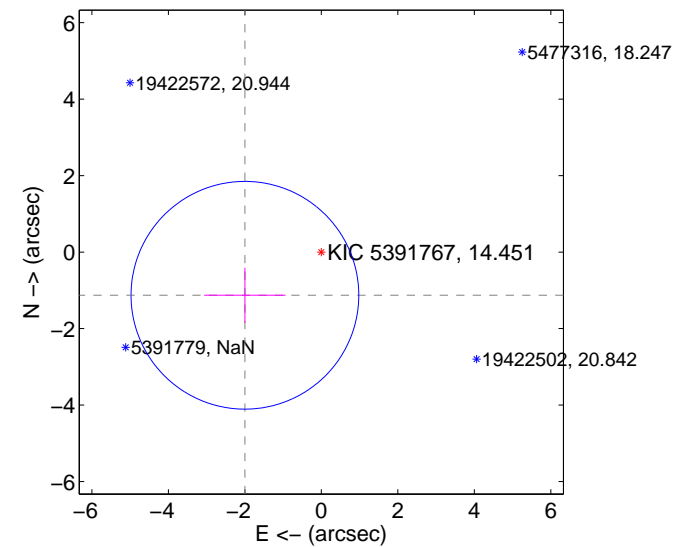
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

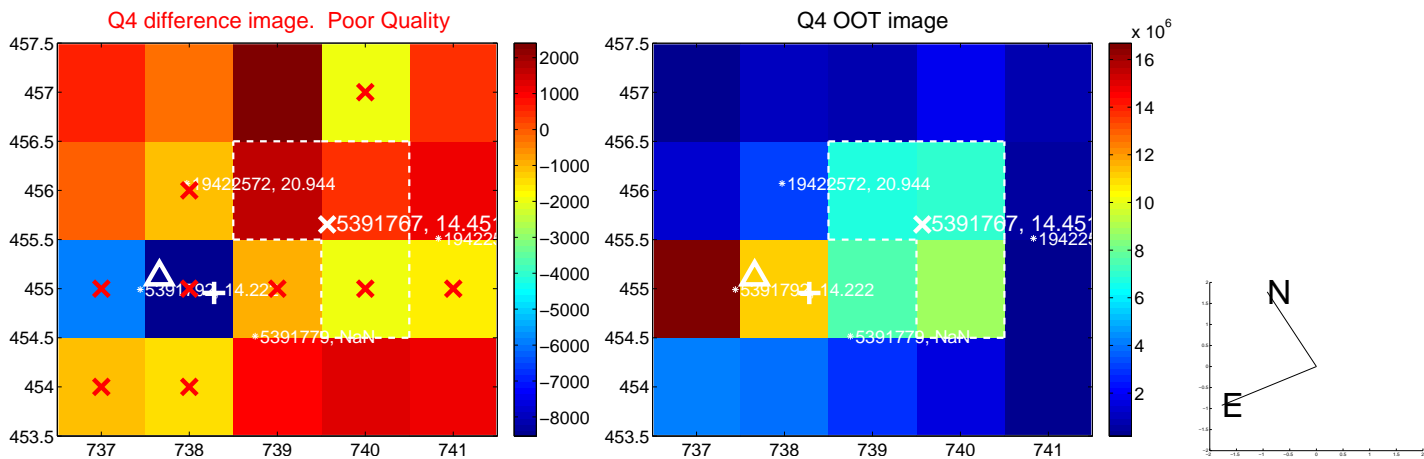
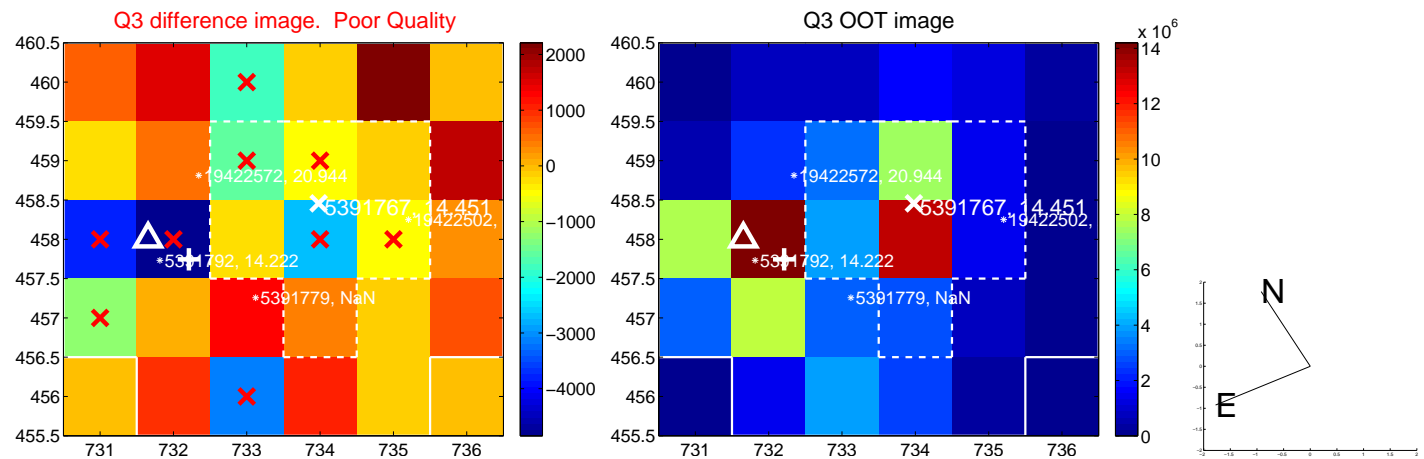
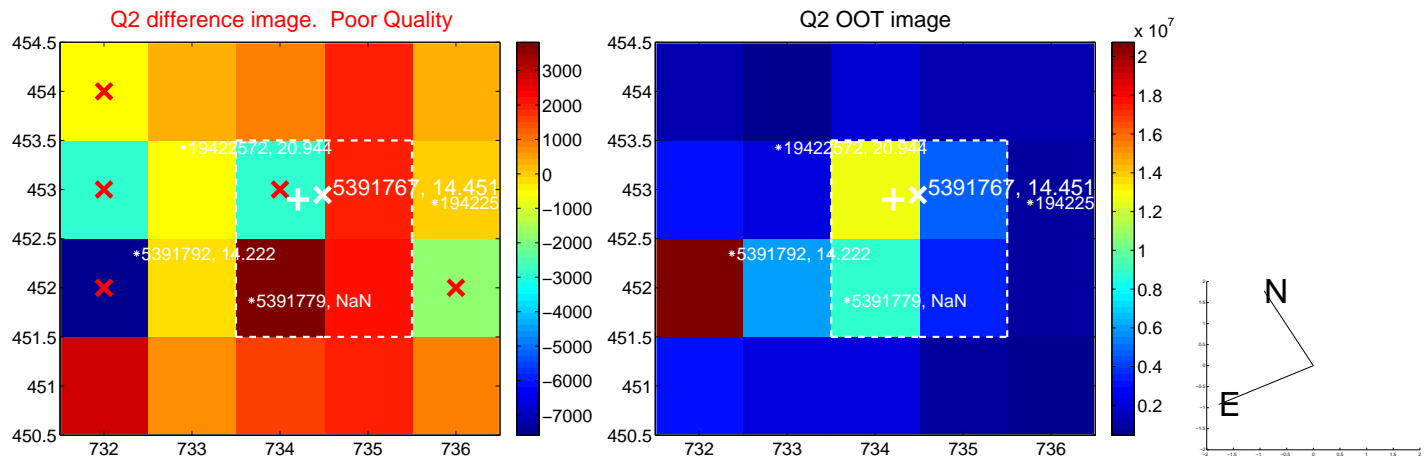
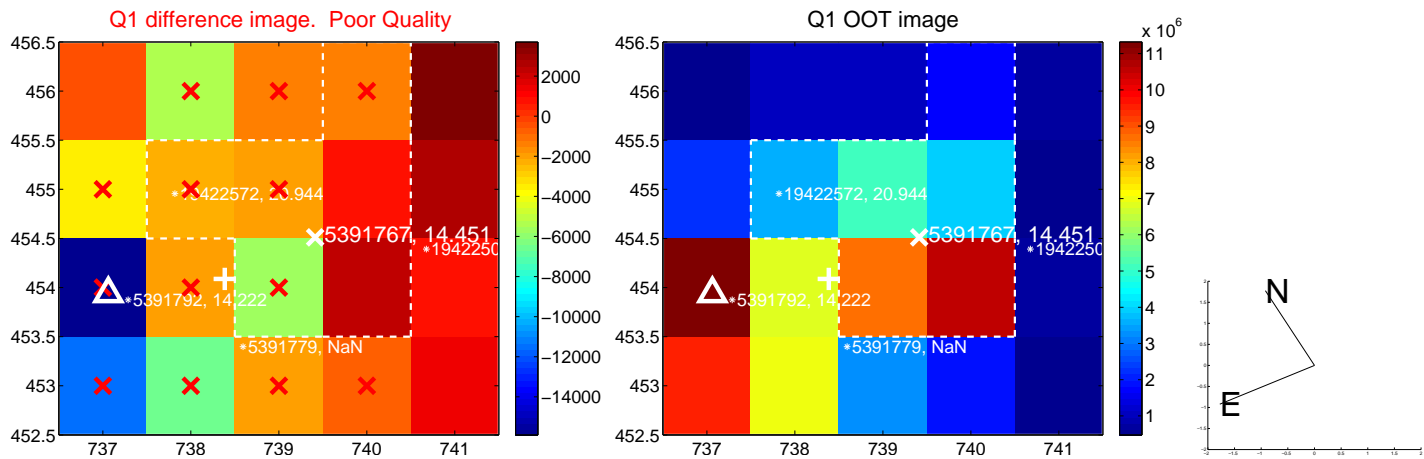


offset from photometric centroids

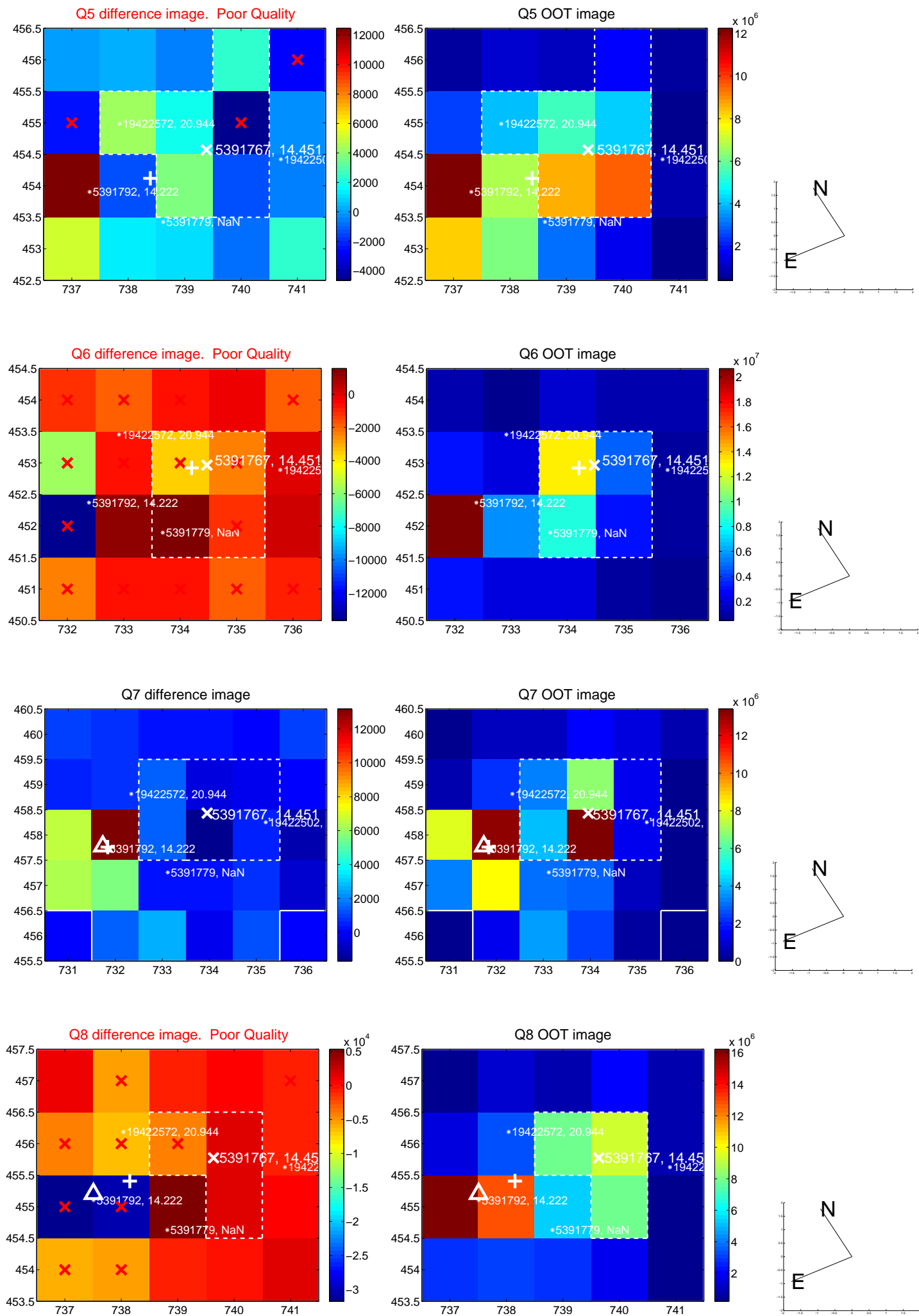


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

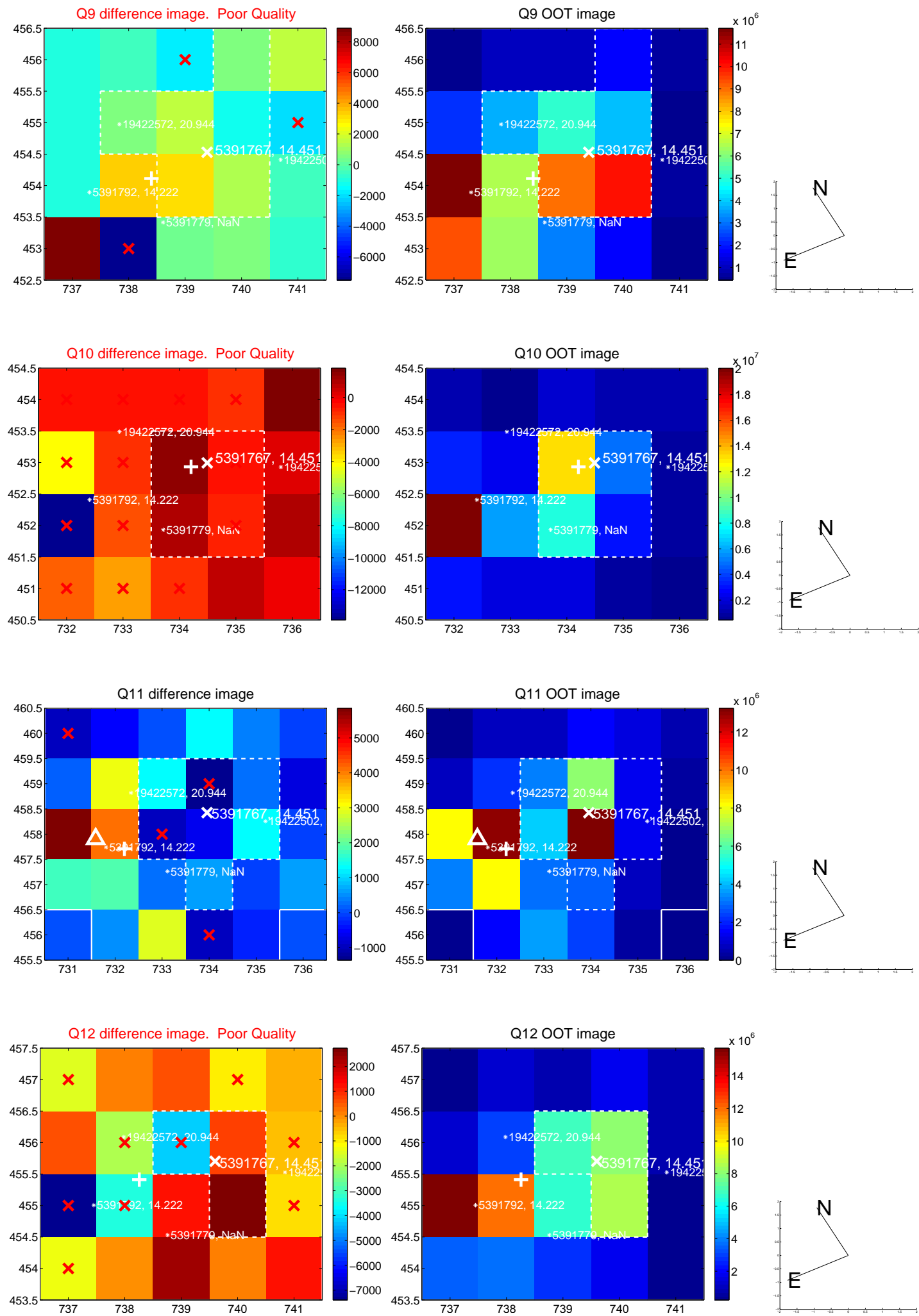
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



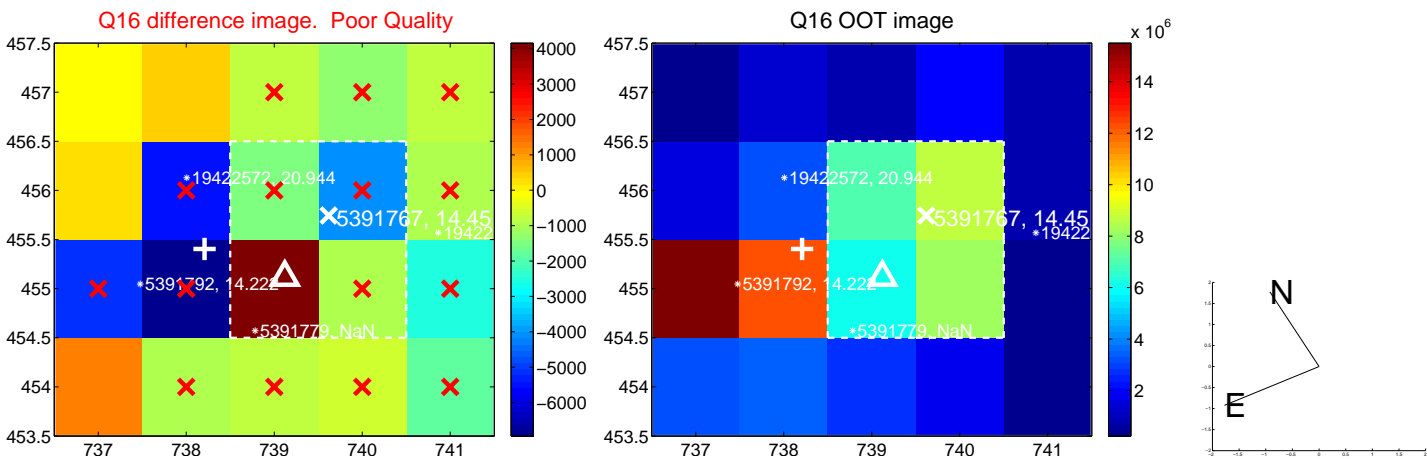
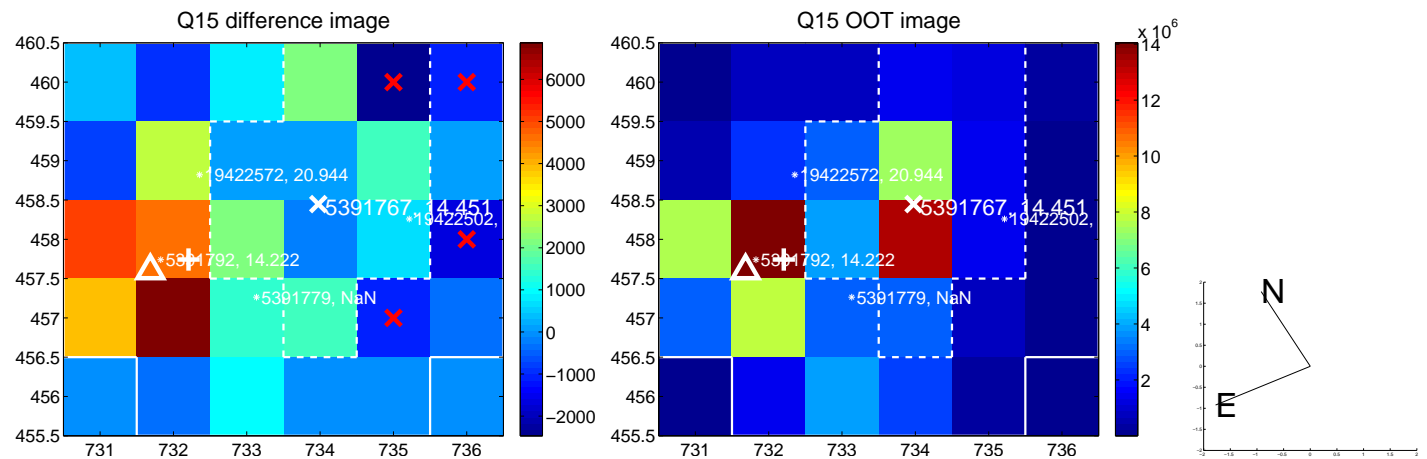
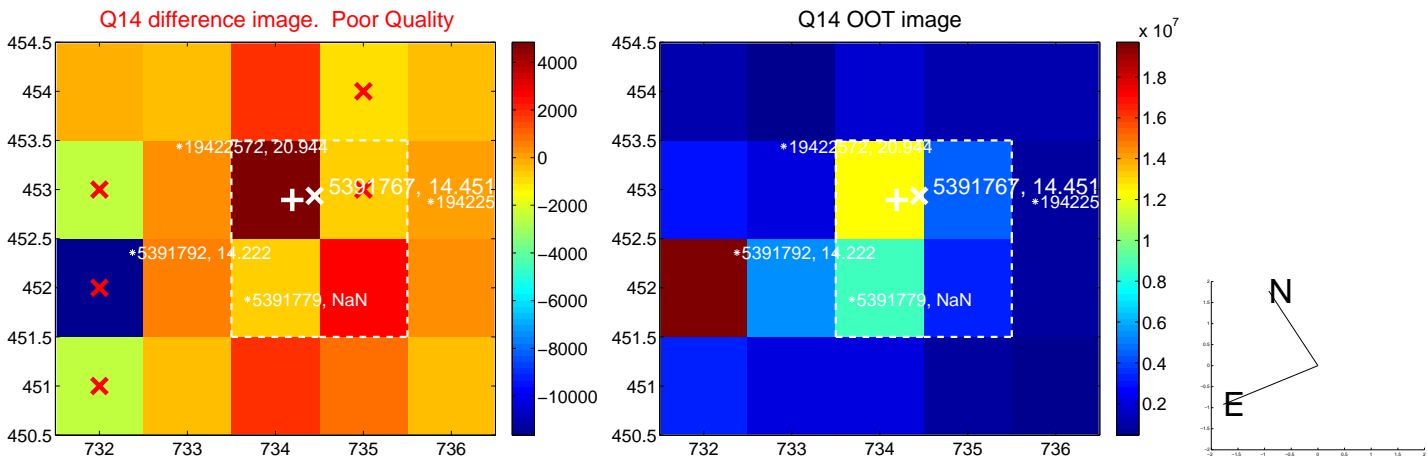
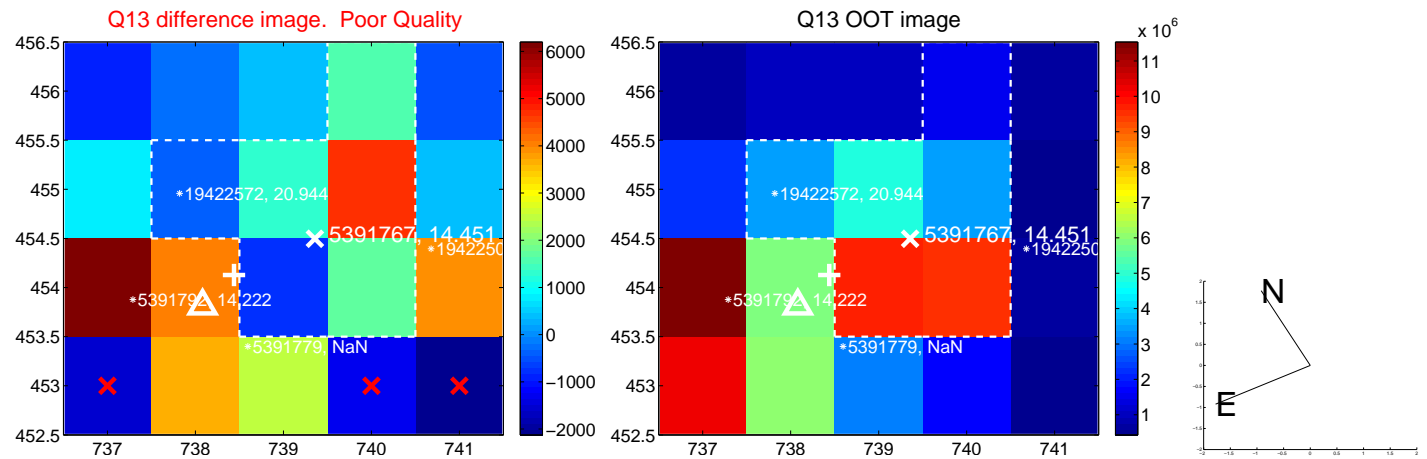
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



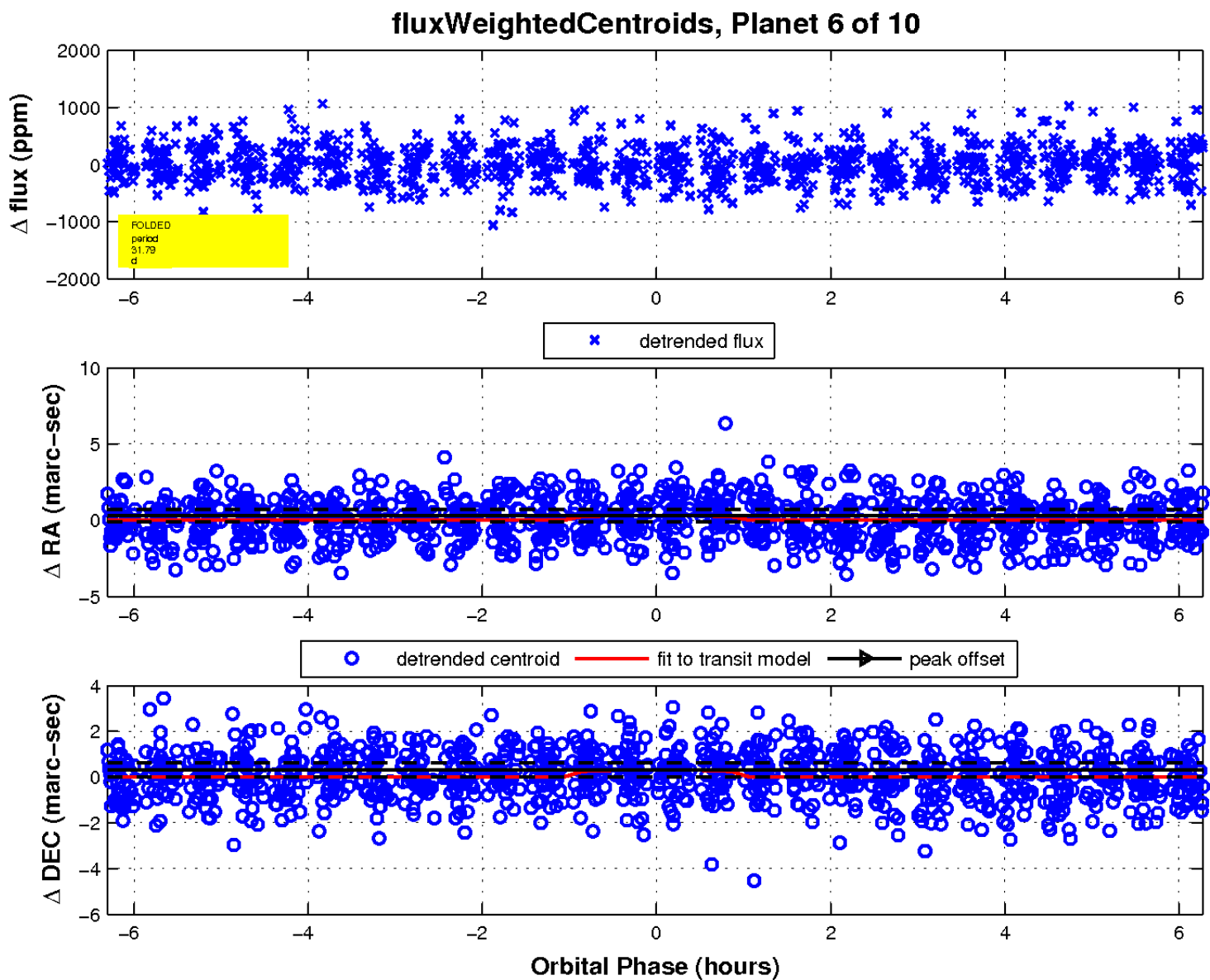
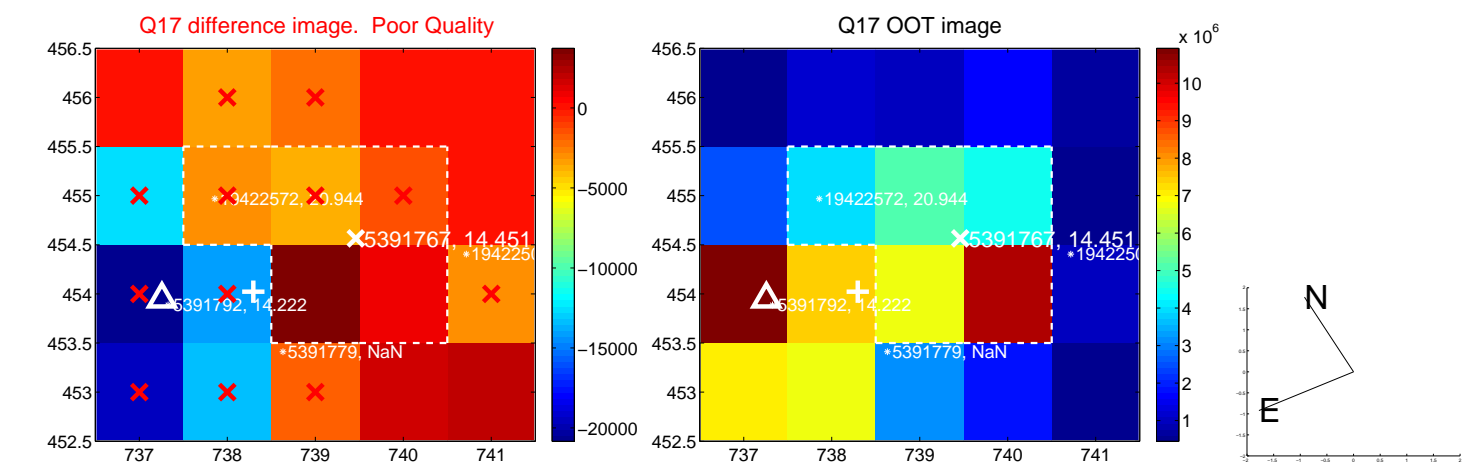
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

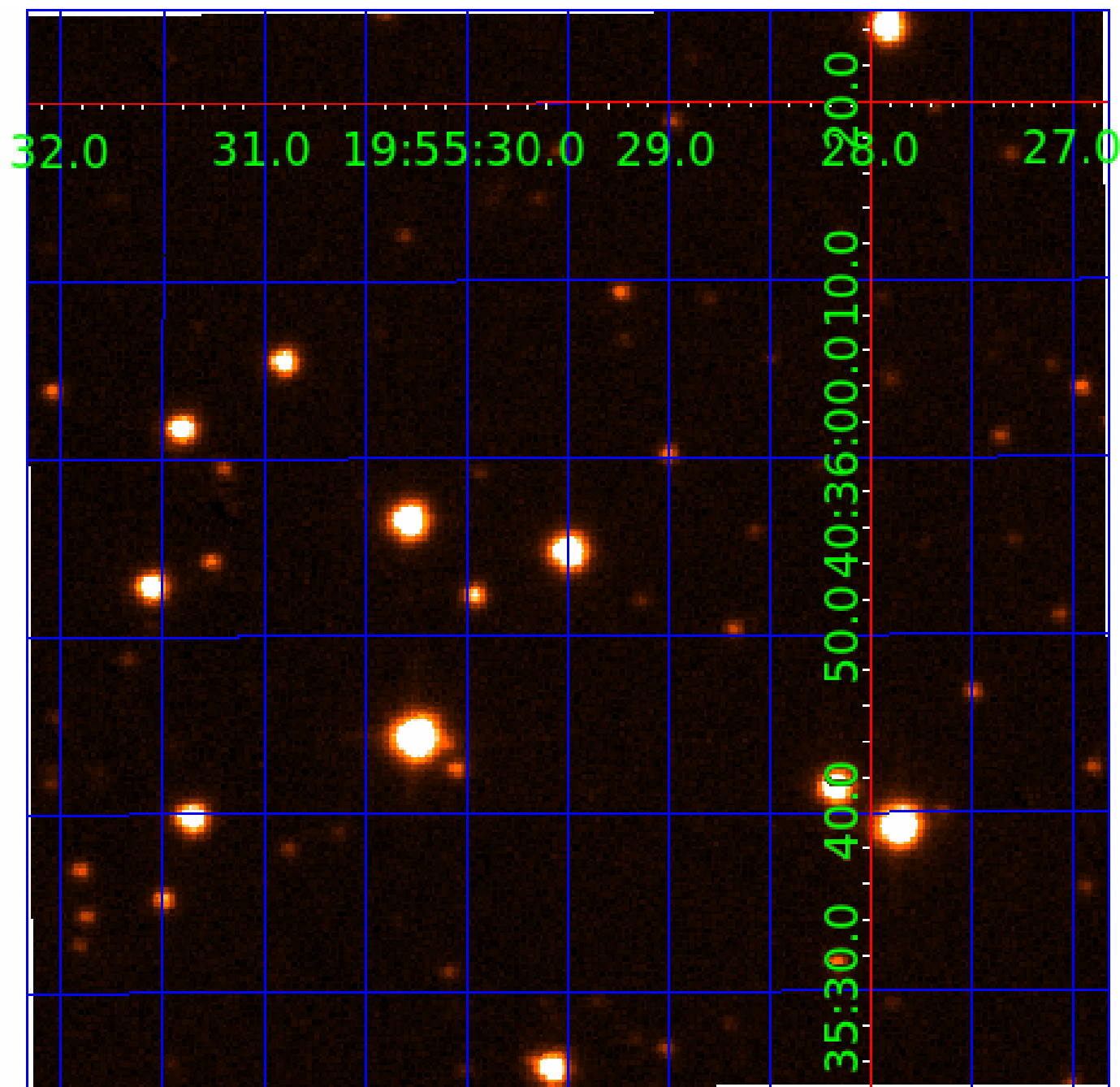


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005391767

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})
005391767-01	OBS	No	0.834886	131.693199	11.9	5.428	7.7	3.3	0.98	6314	0.35	4432.86
005391767-02	OBS	No	56.197304	131.674337	550.5	4.783	11.3	9.7	0.98	6314	2.56	16.19
005391767-03	OBS	No	489.320936	193.773350	882.3	8.465	10.5	11.0	0.98	6314	3.25	0.90
005391767-04	OBS	No	126.854394	187.648633	732.7	4.541	9.5	9.3	0.98	6314	3.00	5.47
005391767-05	OBS	No	49.403648	174.663481	503.6	6.307	8.9	9.9	0.98	6314	2.44	19.22
005391767-06	OBS	No	31.794911	157.264839	367.6	2.107	8.6	6.1	0.98	6314	2.16	34.60
005391767-07	OBS	No	53.256593	172.075440	428.8	3.669	8.0	7.4	0.98	6314	2.21	17.39
005391767-08	OBS	No	59.737722	158.056402	440.1	5.109	8.5	8.5	0.98	6314	2.30	14.92
005391767-10	OBS	No	28.485201	145.764735	498.0	1.265	7.7	9.0	0.98	6314	2.58	40.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005391767-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005391767-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST
005391767-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

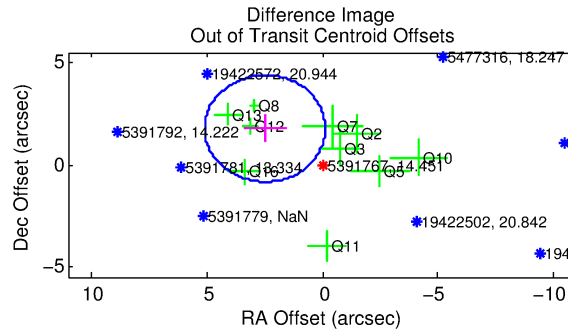
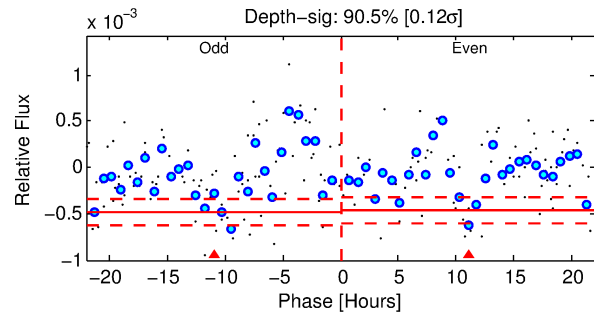
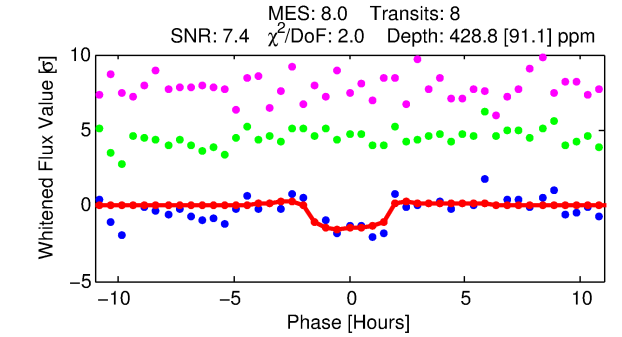
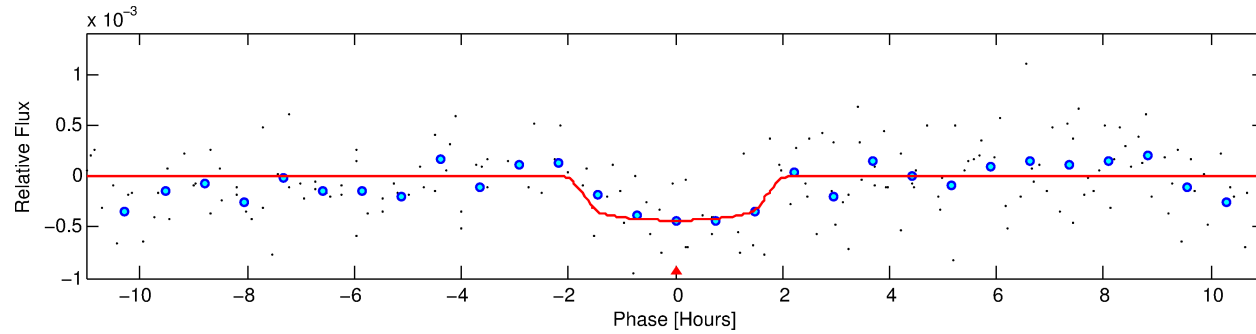
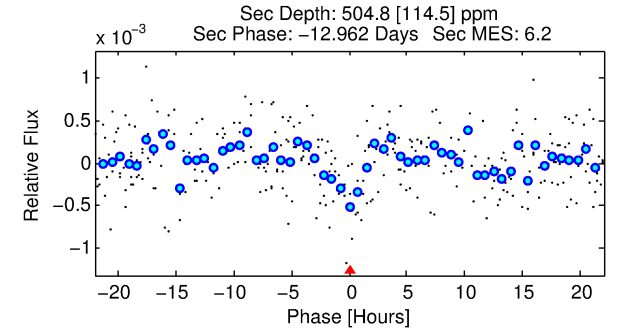
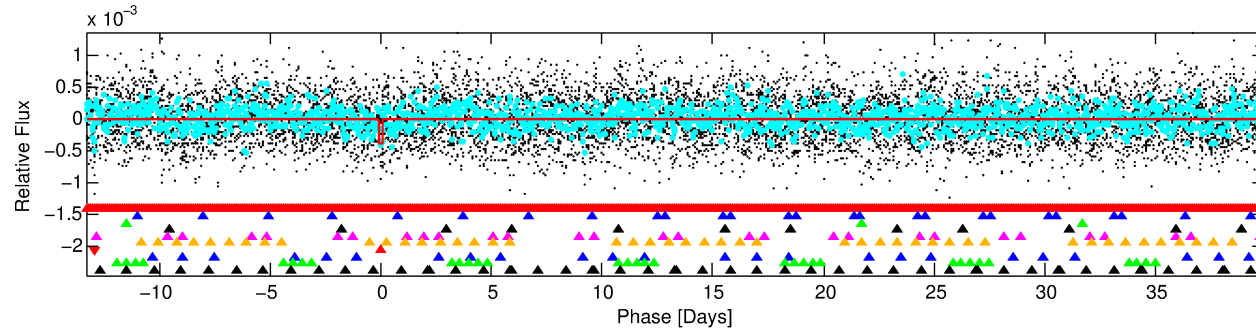
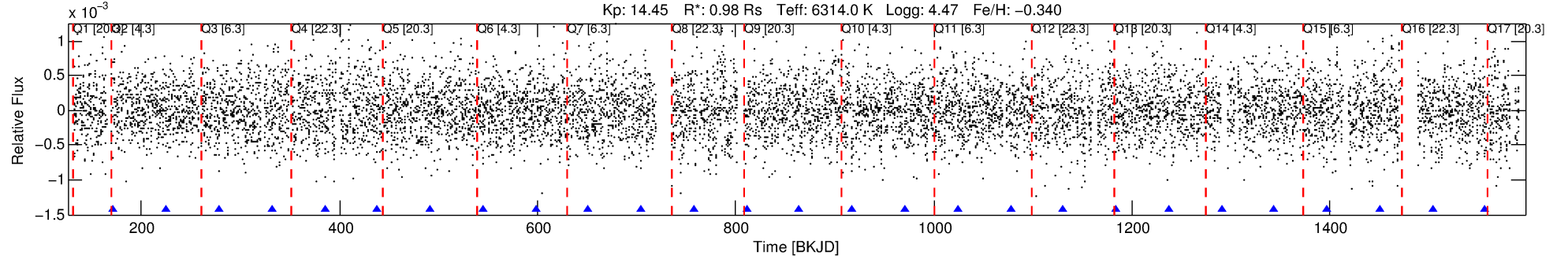
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005391767-07

No Significant Match Found

DV One-Page Summary

KIC: 5391767 Candidate: 7 of 10 Period: 53.257 d



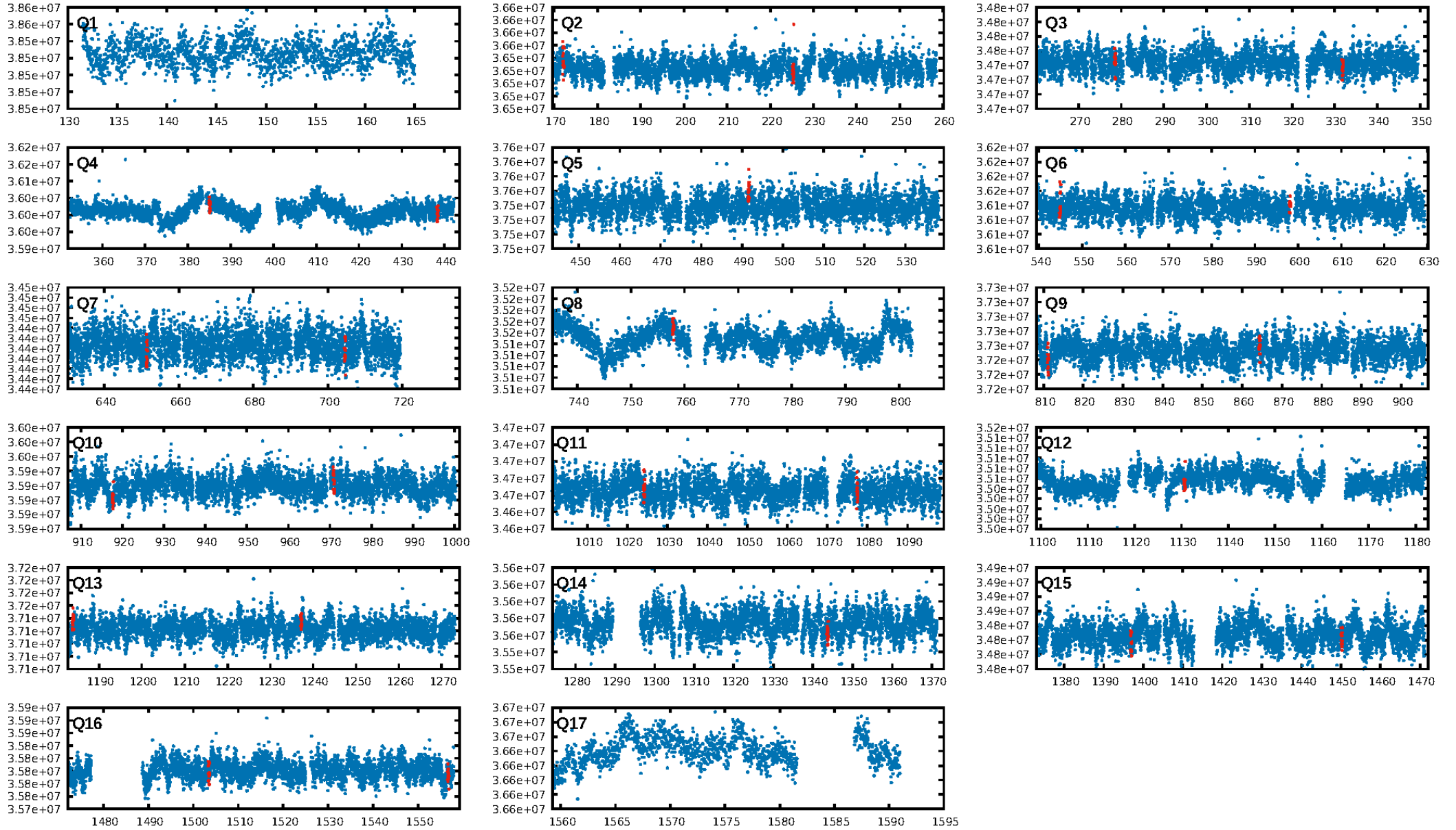
DV Fit Results:

Period = 53.25659 [0.00107] d
Epoch = 172.0754 [0.0160] BKJD
Rp/R* = 0.0206 [0.0344]
a/R* = 76.77 [683.18]
b = 0.75 [5.23]
Seff = 17.39 [7.29]
Teff = 521 [55] K
Rp = 2.21 [3.76] Re
a = 0.2810 [0.0775] AU
Ag = 4499.71 [15187.95] [0.30 σ]
Teffp = 6594 [5530] K [1.10 σ]

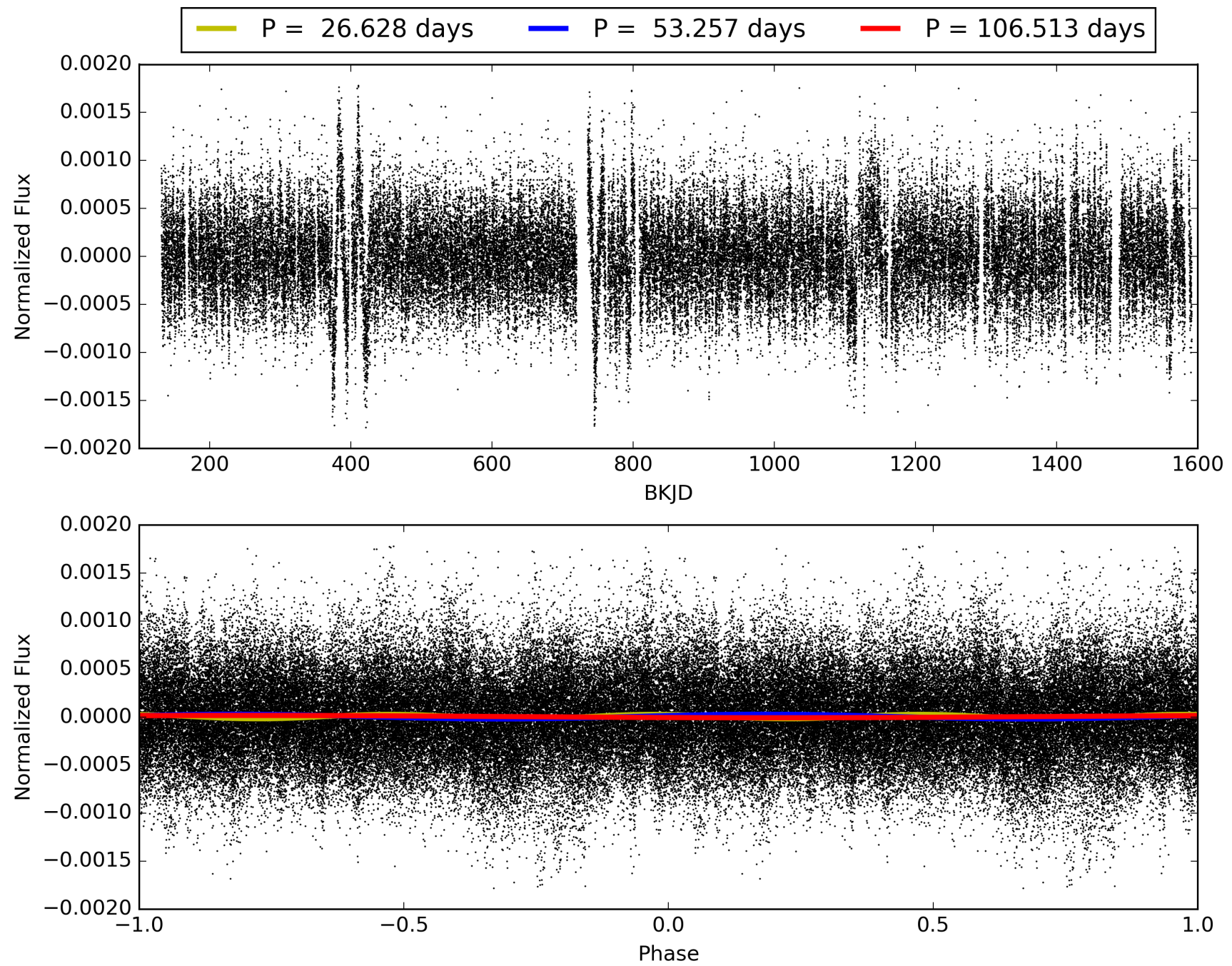
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.67 σ]
LongPeriod-sig: 100.0% [11.71 σ]
ModelChiSquare2-sig: 1.5%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.63e-08
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 1.005
Centroid-sig: 73.0%
Centroid-so: 2.342 arcsec [2.36 σ]
OotOffset-rm: 3.051 arcsec [3.51 σ]
KicOffset-rm: 8.558 arcsec [6.57 σ]
OotOffset-st: 2/3/3/2 [10]
KicOffset-st: 2/3/3/2 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 005391767-07, PDC Light Curves

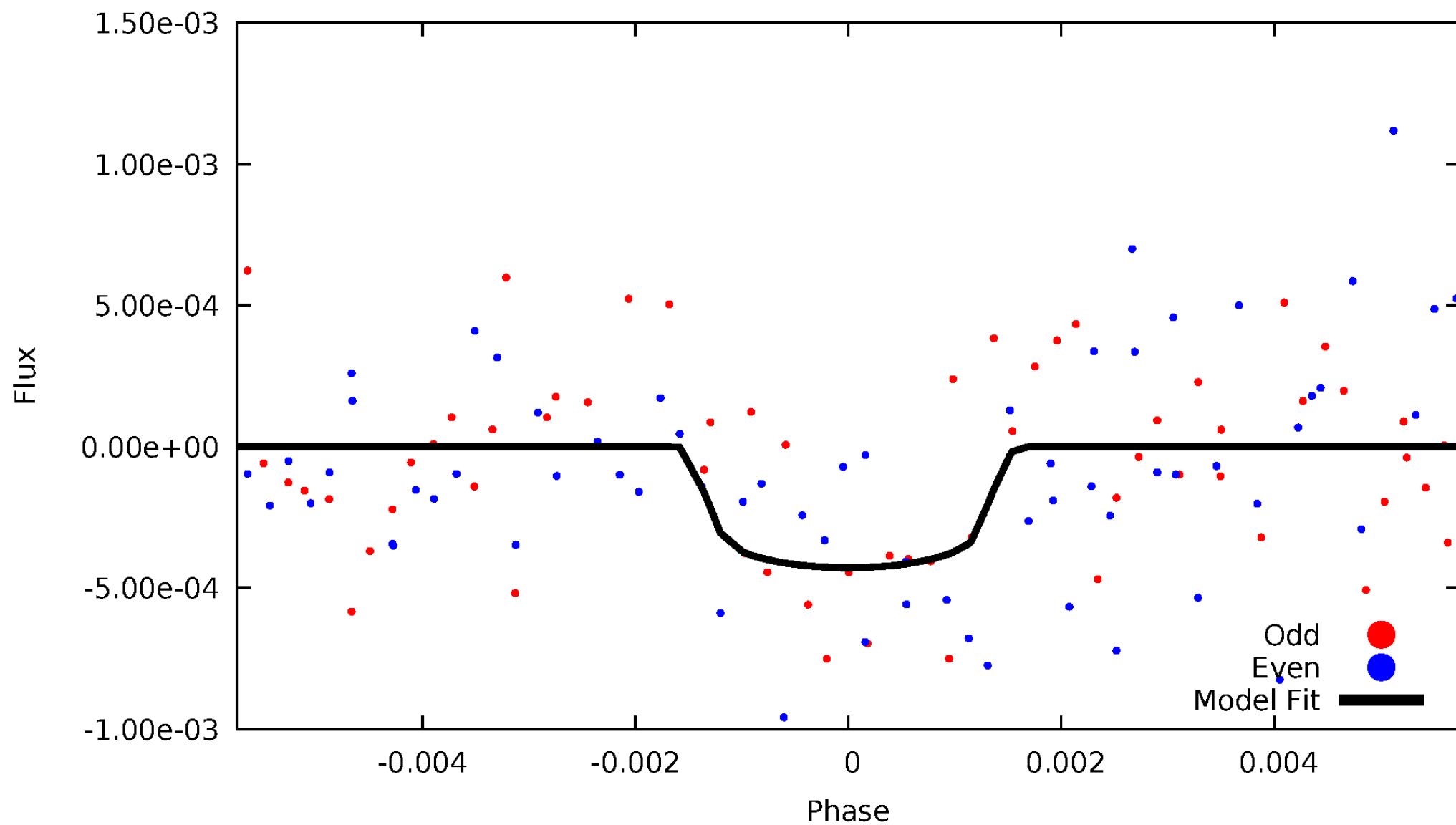


TCE 005391767-07



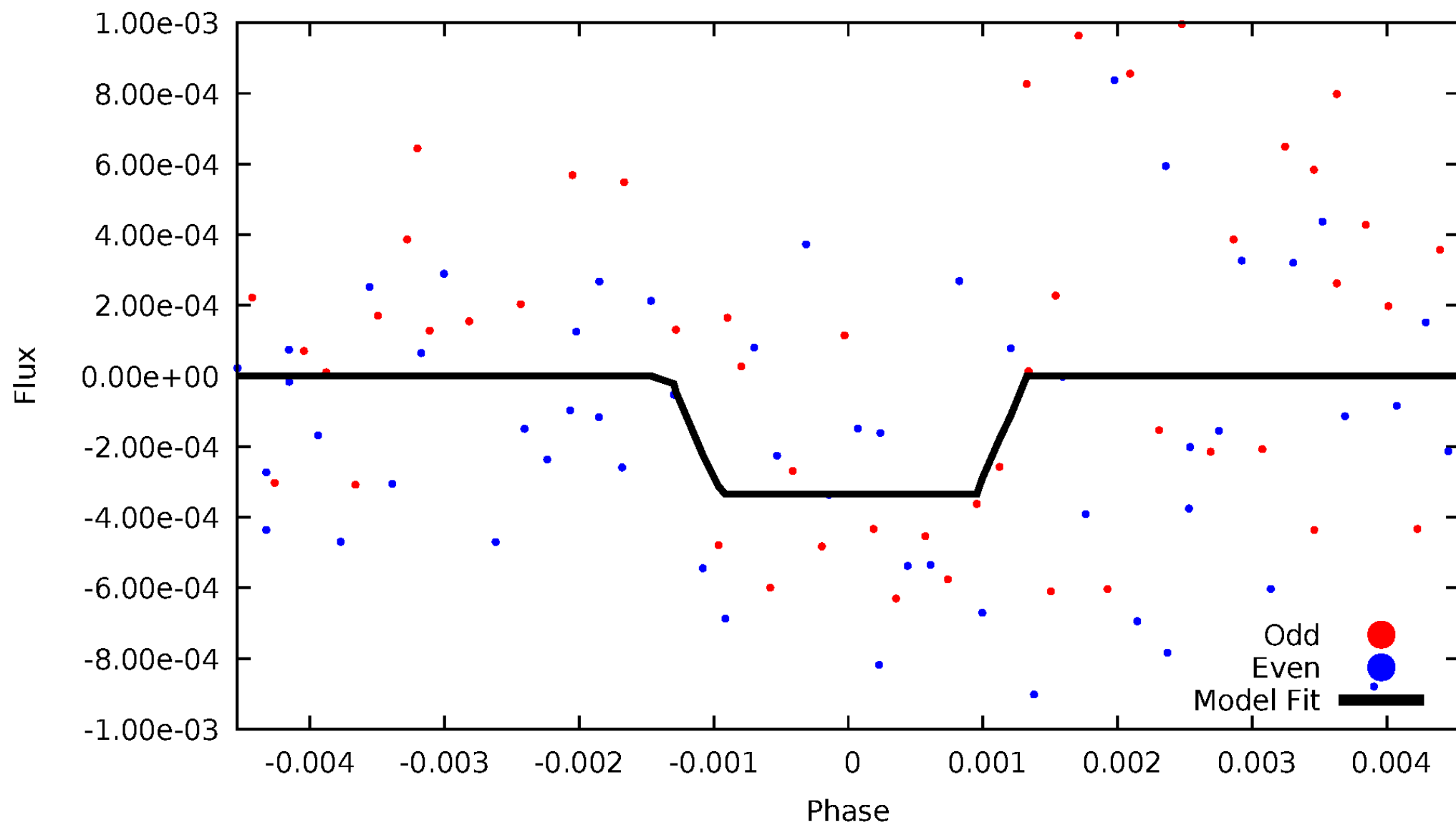
DV Odd/Even

TCE 005391767-07



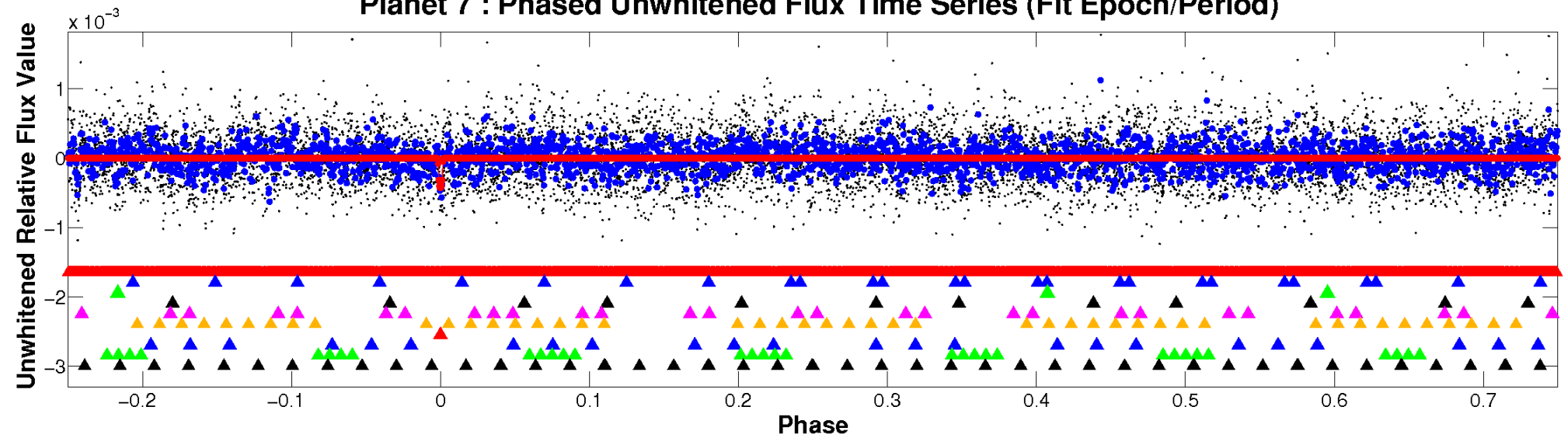
ALT Odd/Even

TCE 005391767-07

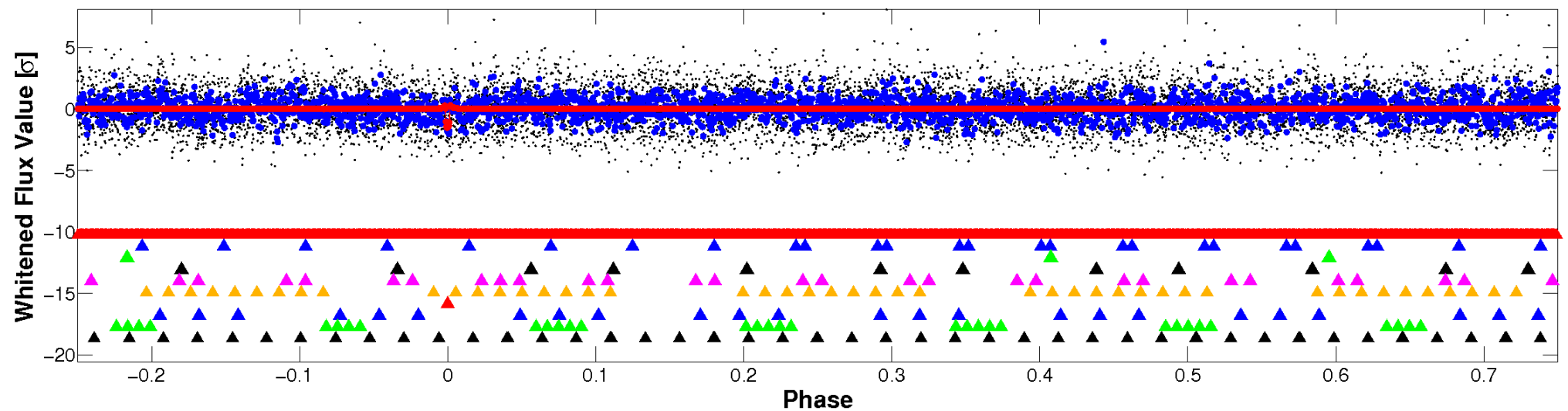


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

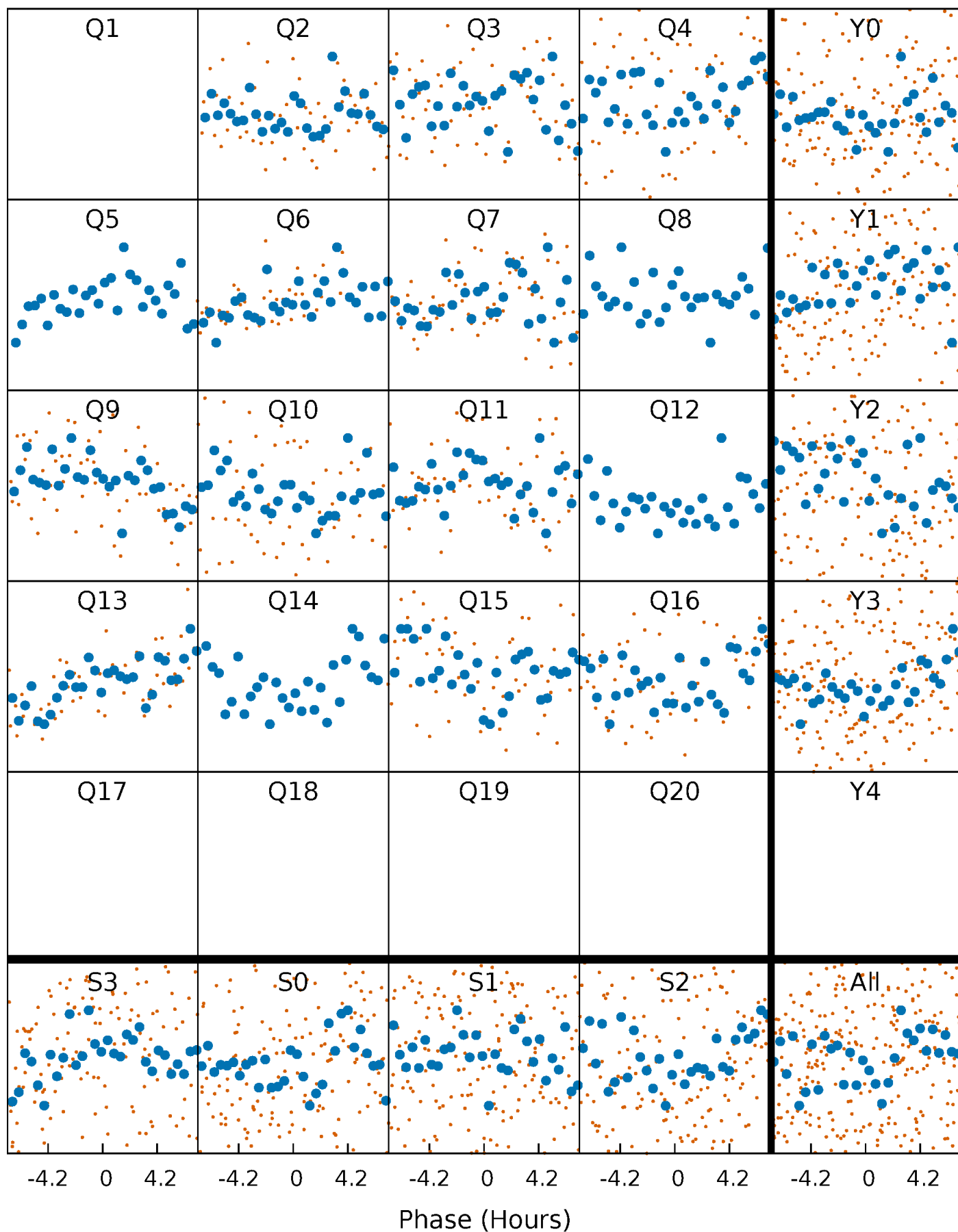


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



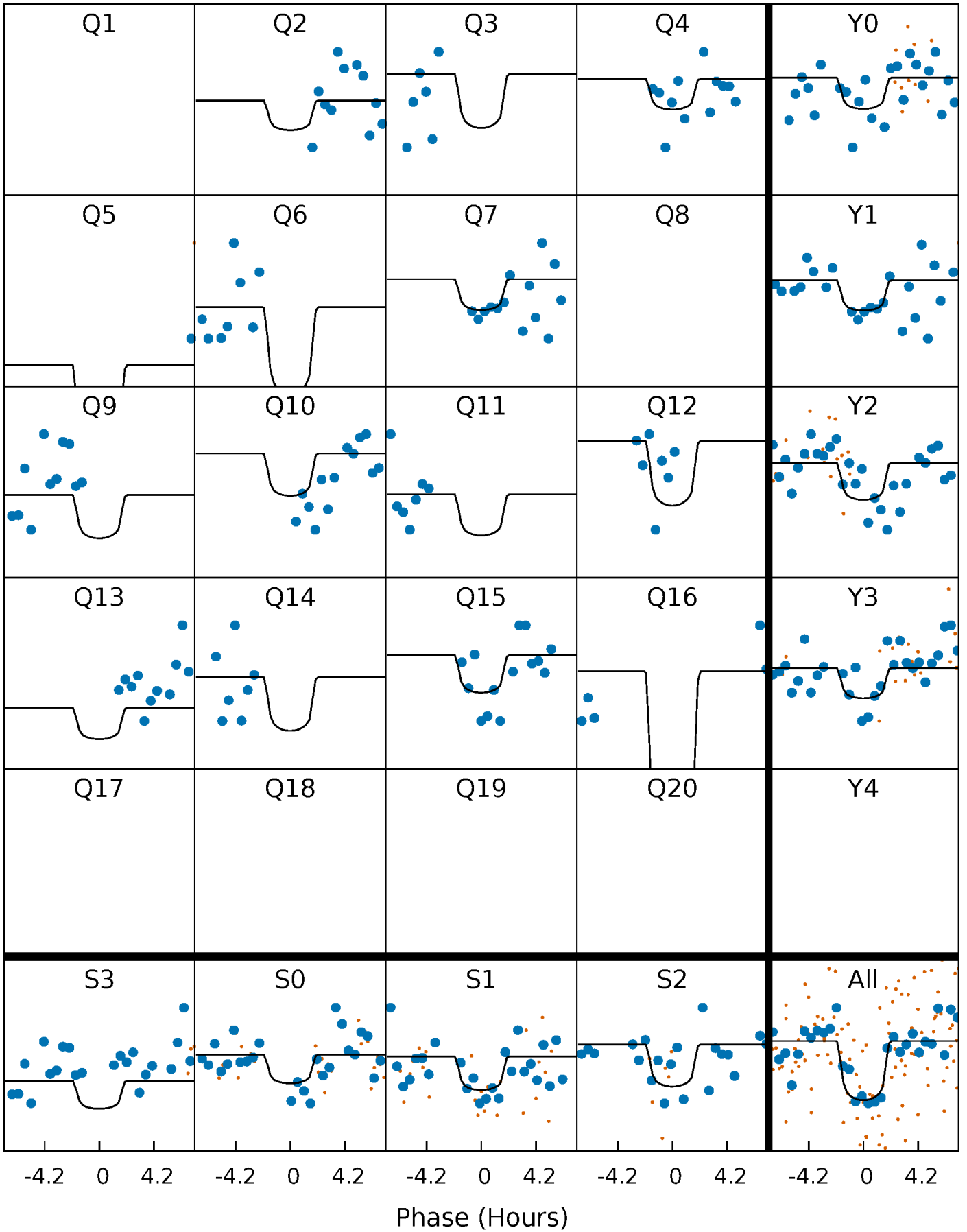
PDC Quarter-Phased Transit Curves

TCE 005391767-07 P= 53.256593 Days $T_0=172.075440$ (BKJD)



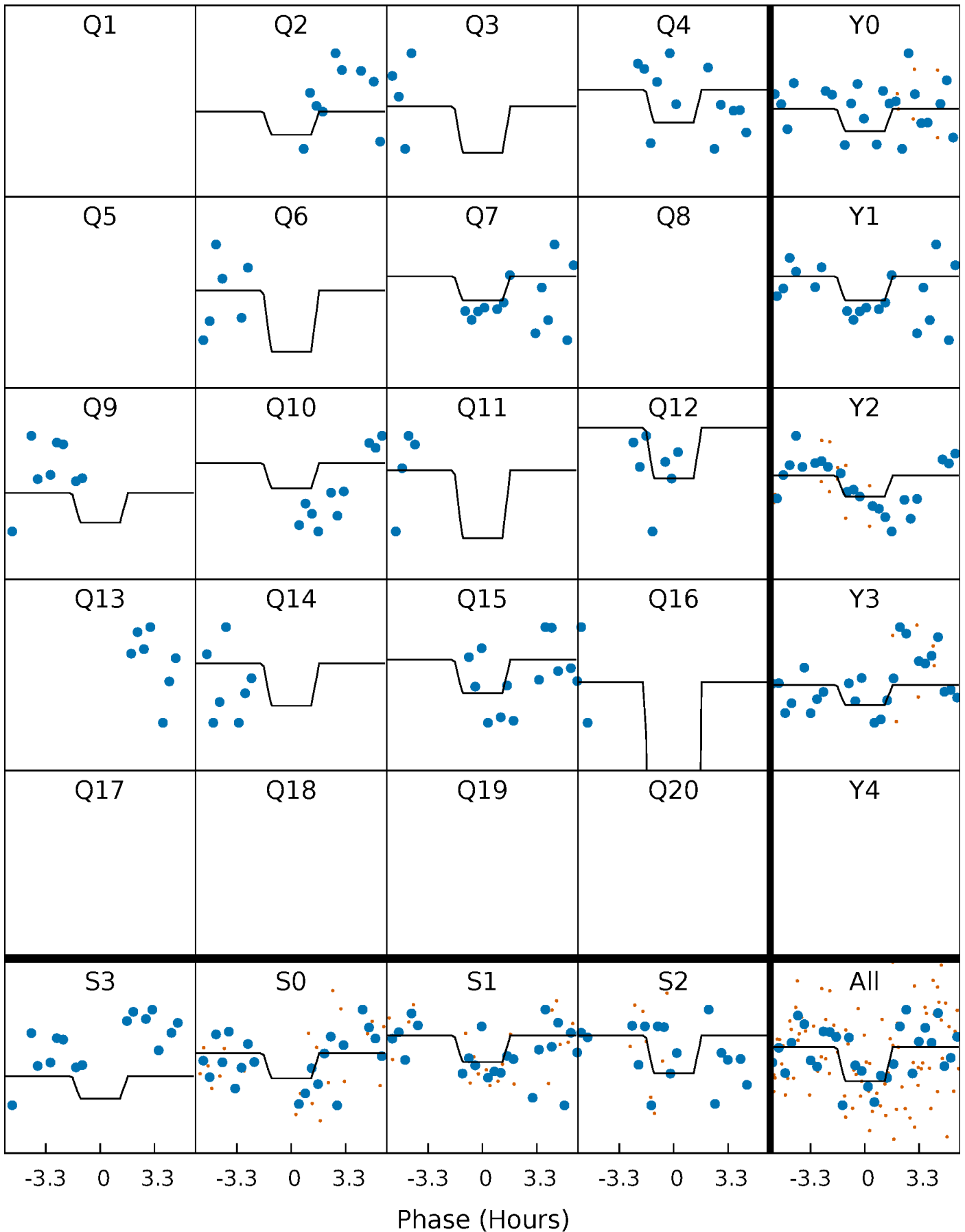
DV Quarter-Phased Transit Curves

TCE 005391767-07 P= 53.256593 Days $T_0=172.075440$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

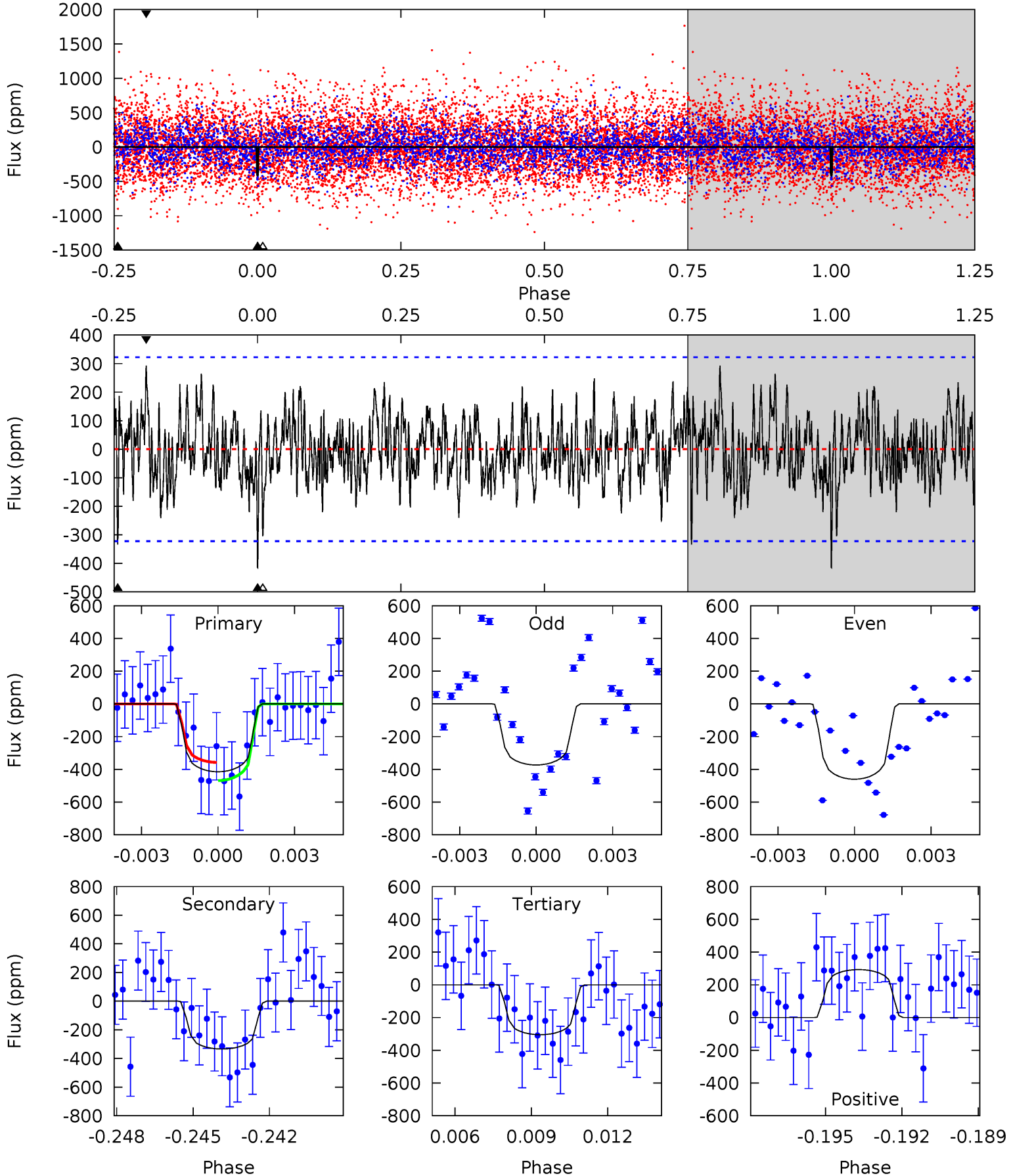
TCE 005391767-07 $P = 53.253695$ Days $T_0 = 172.112308$ (BKJD)



DV Model-Shift Uniqueness Test

005391767-07, P = 53.256593 Days, E = 118.818847 Days

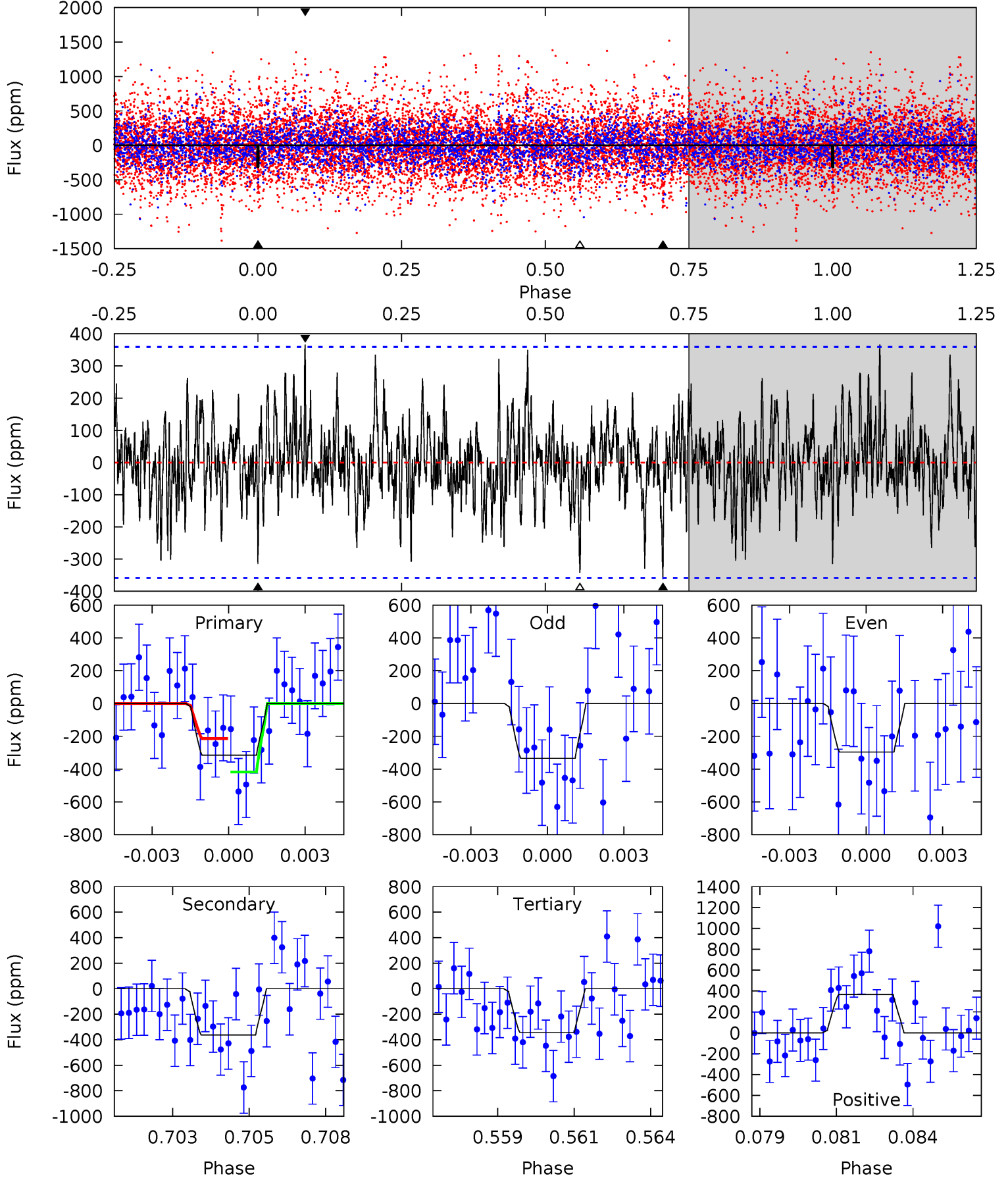
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.76	5.45	4.97	4.78	5.26	2.98	1.55	1.79	1.99	0.48	0.67	0.72	0.73	0.41	0.91



Alt Model-Shift Uniqueness Test

005391767-07, P = 53.253695 Days, E = 118.858613 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.63	5.32	5.04	5.38	5.28	3.01	1.48	-0.41	-0.75	0.29	-0.06	0.28	0.90	0.50	1.51



Stellar Parameters For KIC 005391767

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6314^{+169}_{-207}	$4.472^{+0.054}_{-0.216}$	$-0.340^{+0.300}_{-0.300}$	$0.982^{+0.325}_{-0.102}$	$1.043^{+0.146}_{-0.133}$	$1.551^{+0.348}_{-0.869}$
	+3%/-3%	+1%/-5%	+88%/-88%	+33%/-10%	+14%/-13%	+22%/-56%
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 005391767-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-334 ± 61	$3.70^{+3.35}_{-2.48}$	741^{+57}_{-33}	4792^{+3649}_{-971}	1005^{+8369}_{-725}
Alt.	-362 ± 68	$3.48^{+3.25}_{-2.19}$	741^{+54}_{-36}	5006^{+3641}_{-1110}	1249^{+8186}_{-916}

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

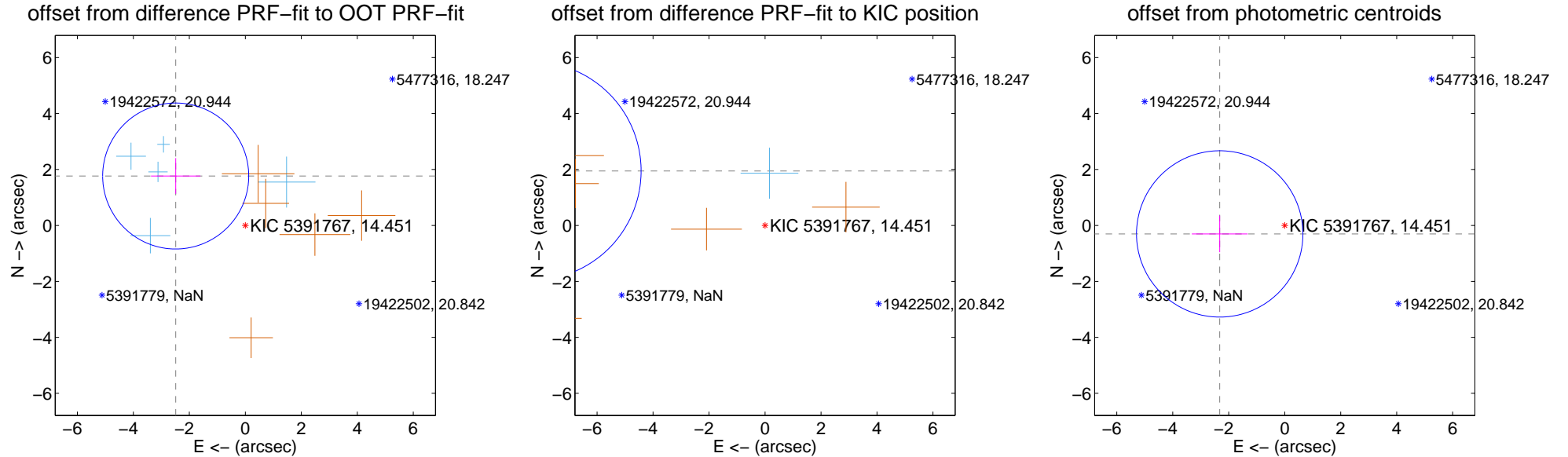
DV Centroid Data

Supplemental centroid analysis for 005391767-07. Kepler magnitude: 14.45. Transit SNR 7.44

There are 5 quarters with good PRF difference image offsets

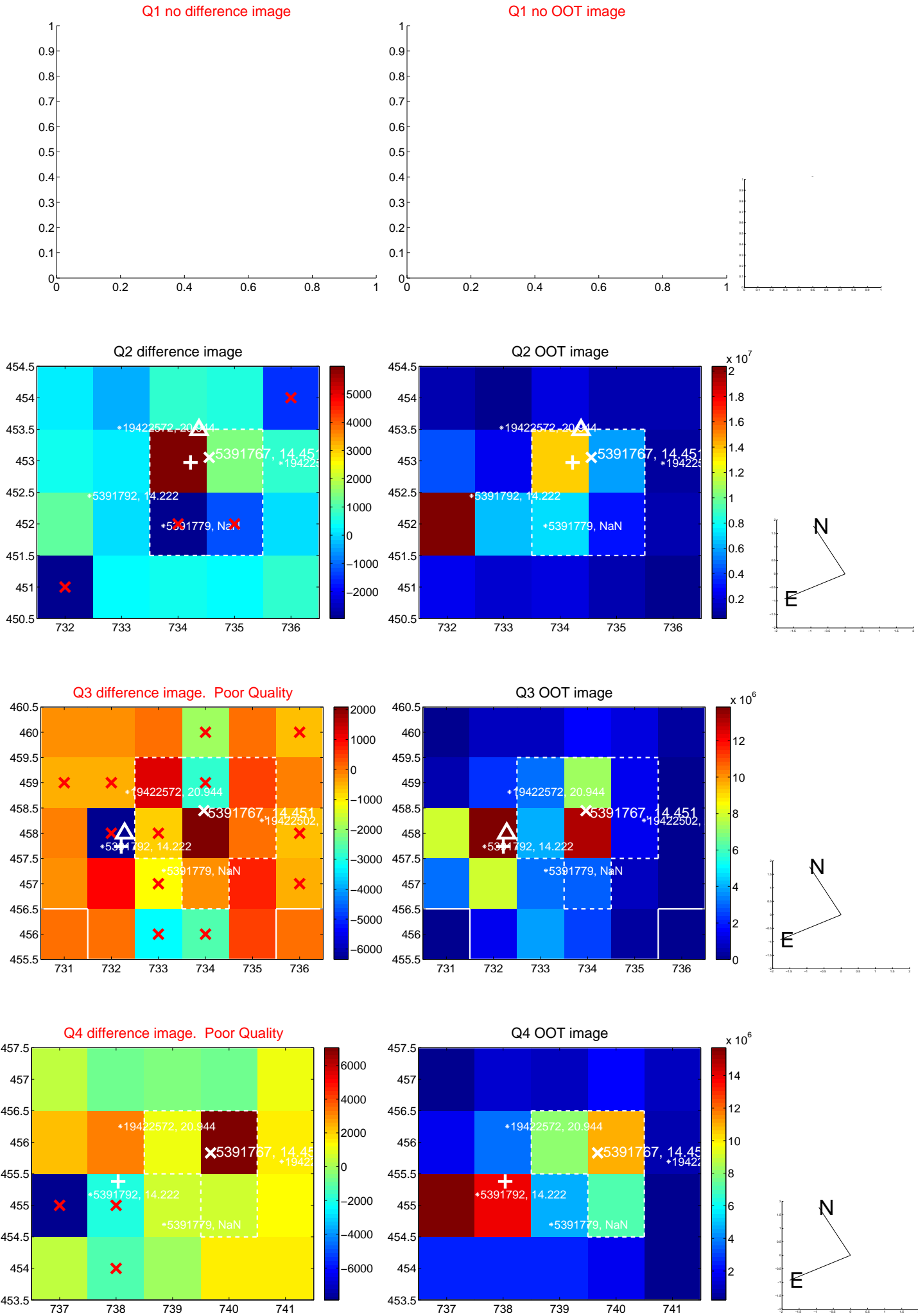
The OOT PRF centroid is offset from the target star catalog position by about 5.94 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.051 ± 0.869	3.51	2.487 ± 0.881	1.766 ± 0.637
PRF-fit source offset from KIC position	8.558 ± 1.302	6.57	8.333 ± 1.311	1.947 ± 0.513
photometric centroid source offset	2.34 ± 0.99	2.36	2.32 ± 1.00	-0.30 ± 0.65

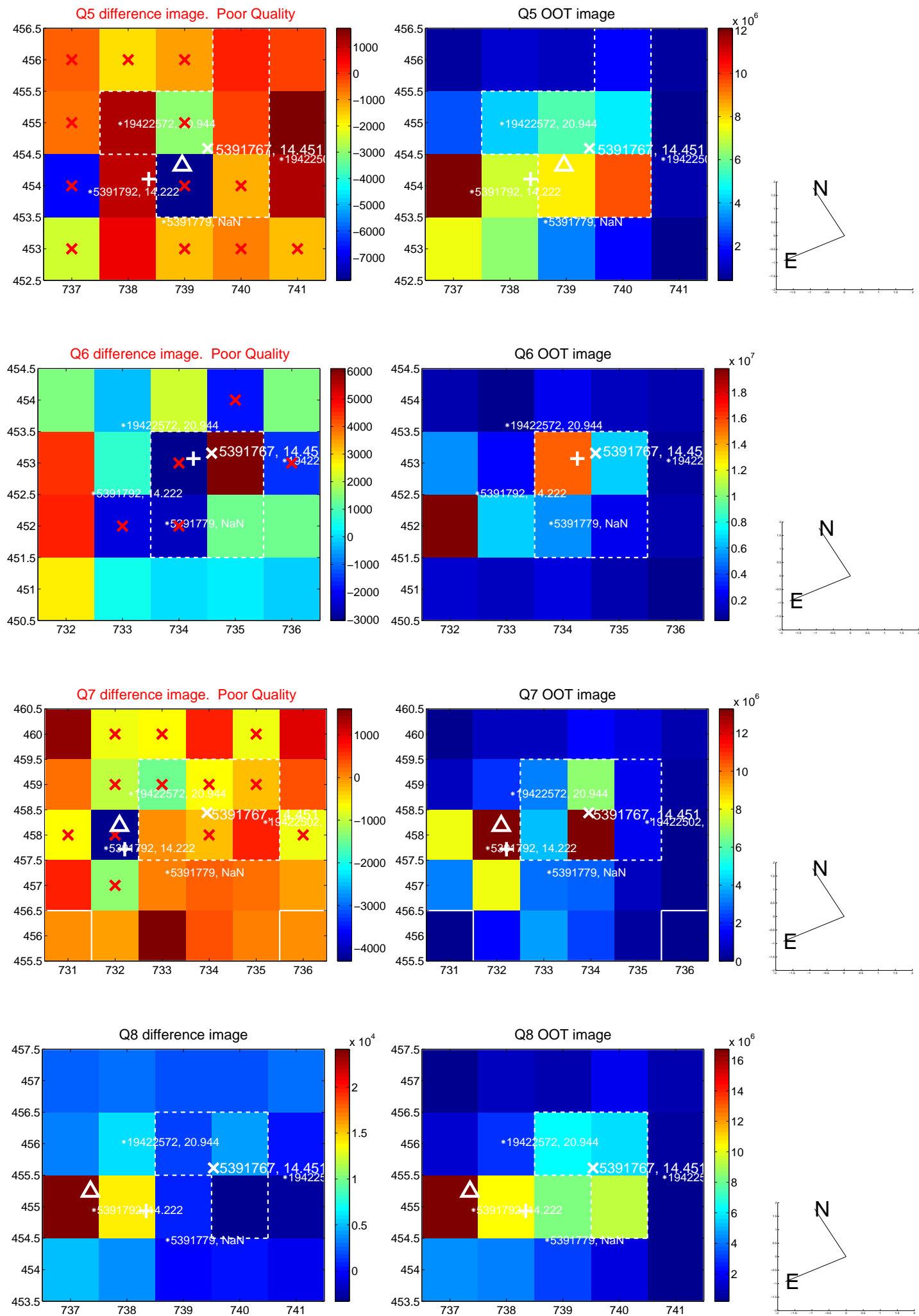


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

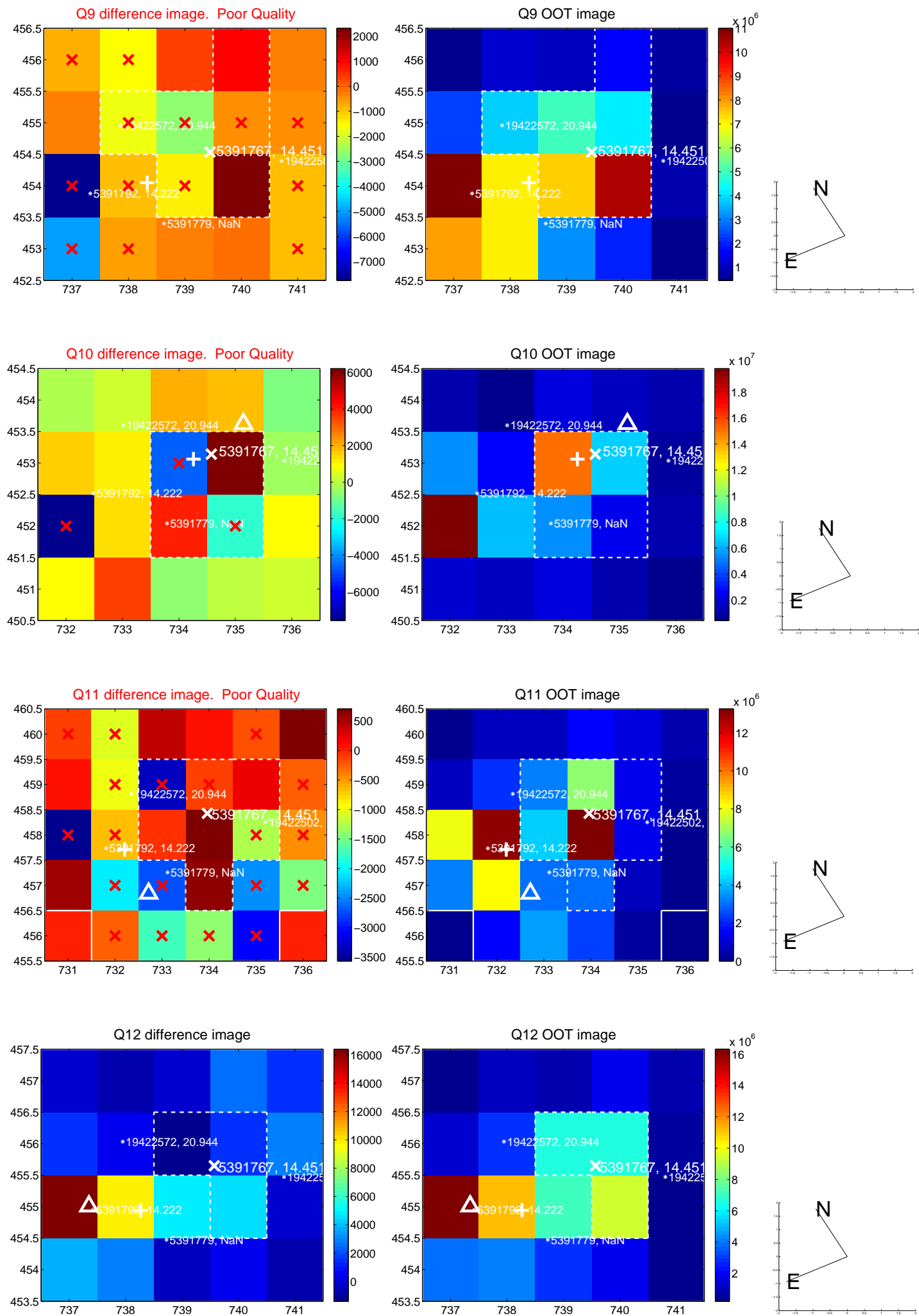
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



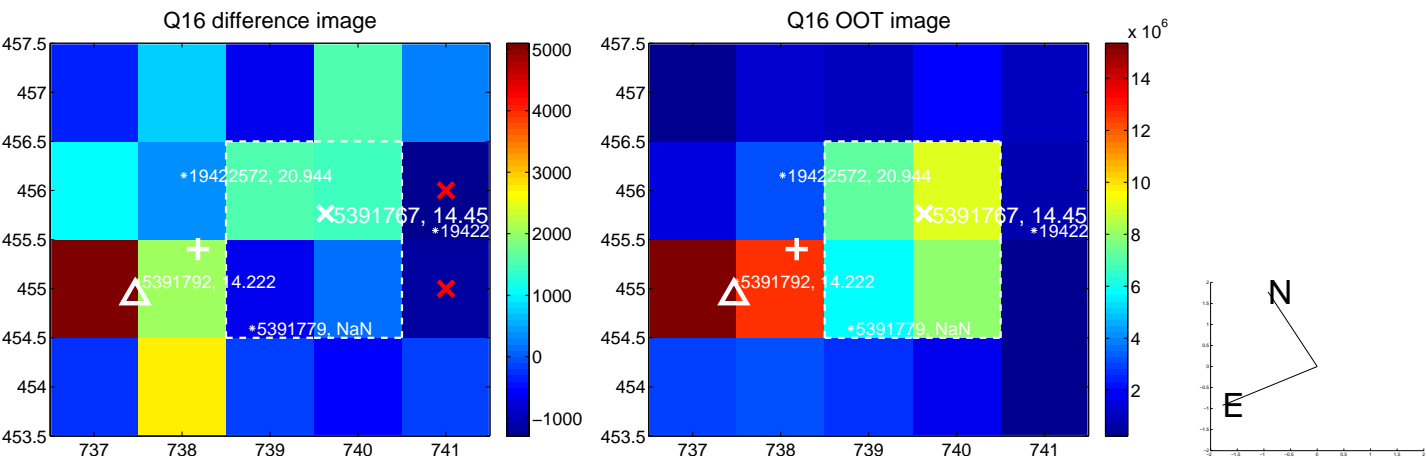
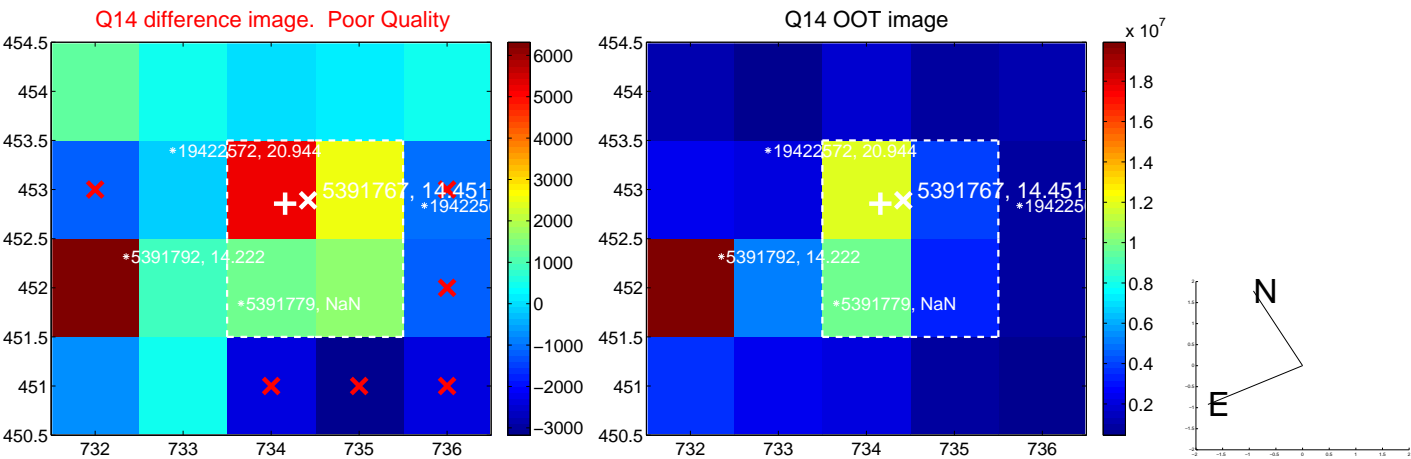
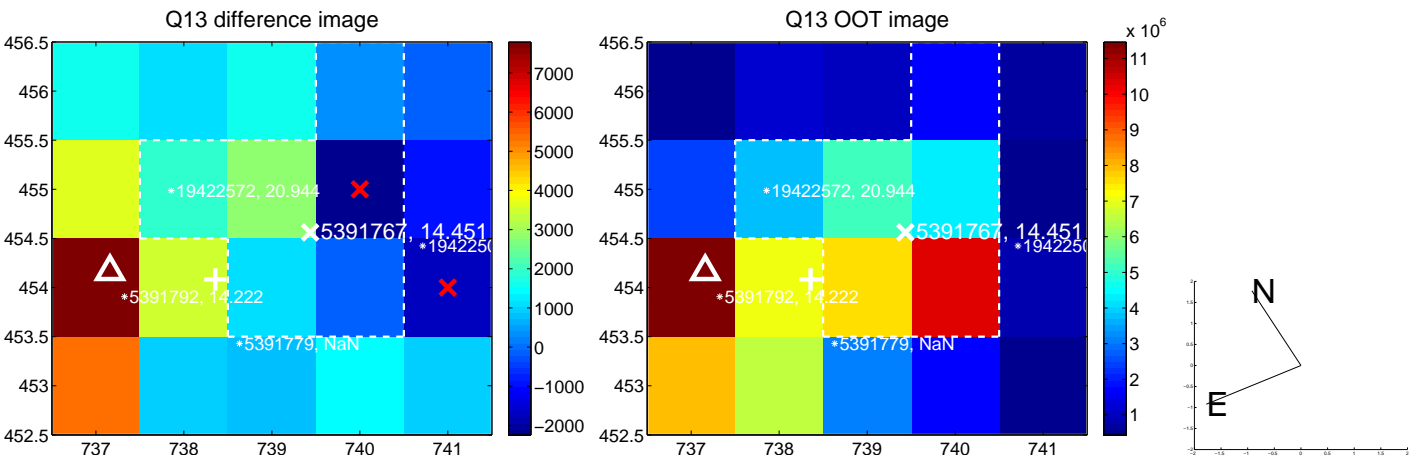
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



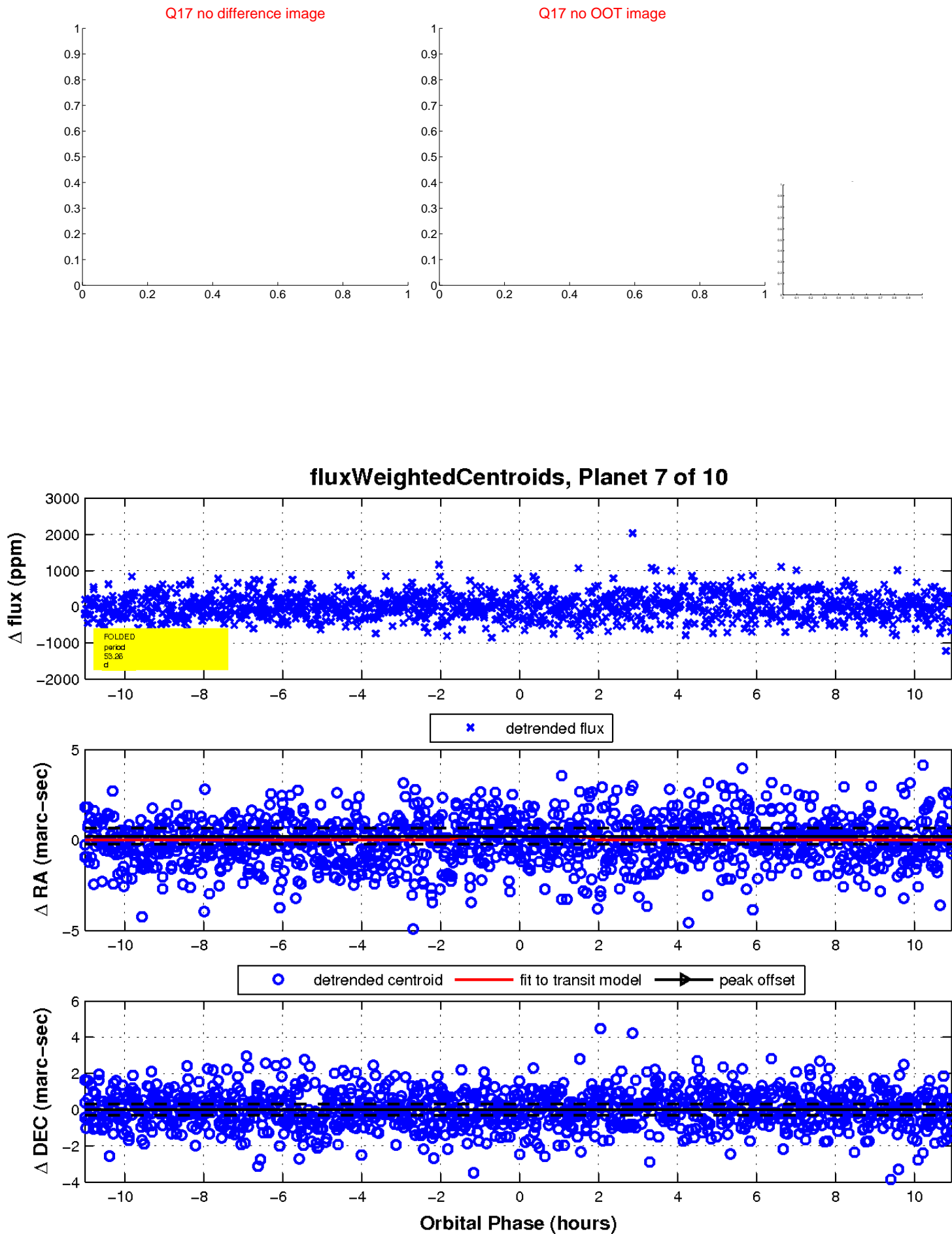
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

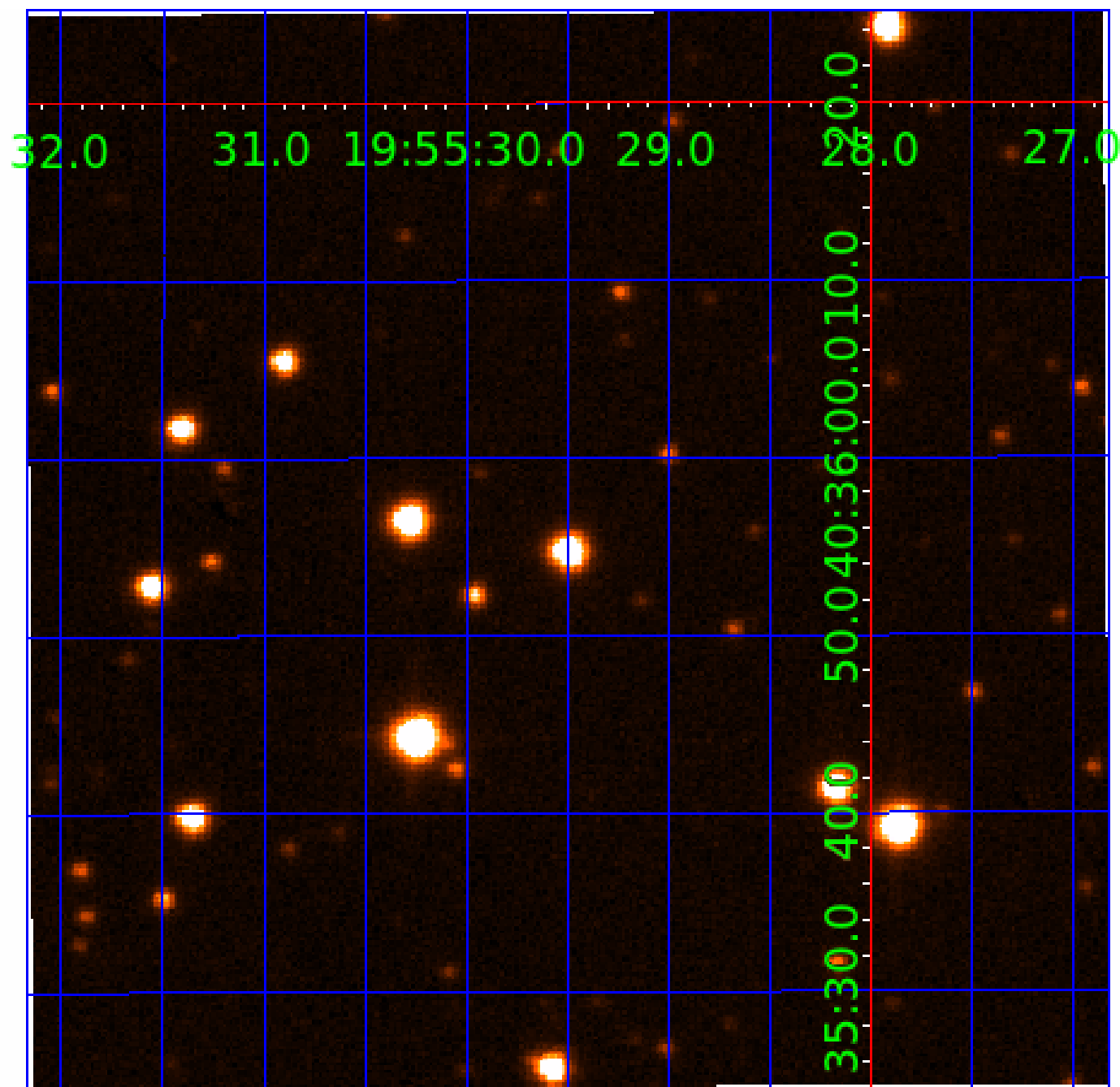


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005391767

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})
005391767-01	OBS	No	0.834886	131.693199	11.9	5.428	7.7	3.3	0.98	6314	0.35	4432.86
005391767-02	OBS	No	56.197304	131.674337	550.5	4.783	11.3	9.7	0.98	6314	2.56	16.19
005391767-03	OBS	No	489.320936	193.773350	882.3	8.465	10.5	11.0	0.98	6314	3.25	0.90
005391767-04	OBS	No	126.854394	187.648633	732.7	4.541	9.5	9.3	0.98	6314	3.00	5.47
005391767-05	OBS	No	49.403648	174.663481	503.6	6.307	8.9	9.9	0.98	6314	2.44	19.22
005391767-06	OBS	No	31.794911	157.264839	367.6	2.107	8.6	6.1	0.98	6314	2.16	34.60
005391767-07	OBS	No	53.256593	172.075440	428.8	3.669	8.0	7.4	0.98	6314	2.21	17.39
005391767-08	OBS	No	59.737722	158.056402	440.1	5.109	8.5	8.5	0.98	6314	2.30	14.92
005391767-10	OBS	No	28.485201	145.764735	498.0	1.265	7.7	9.0	0.98	6314	2.58	40.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005391767-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005391767-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST
005391767-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

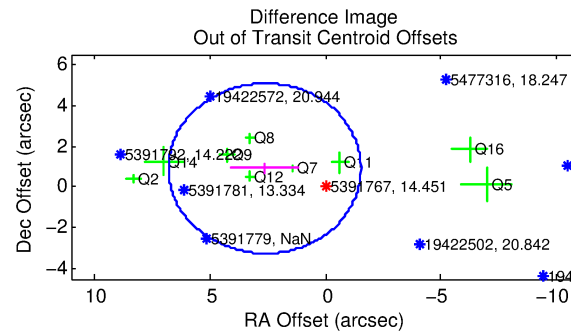
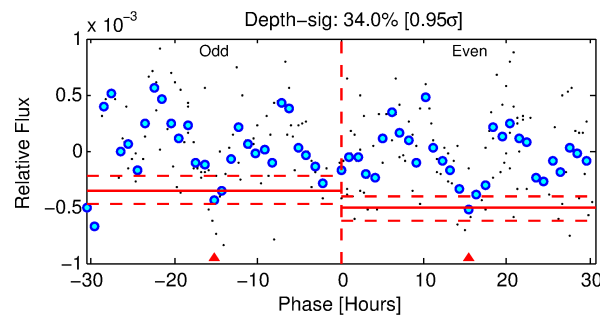
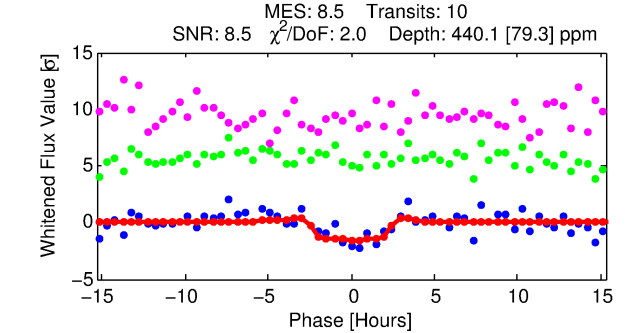
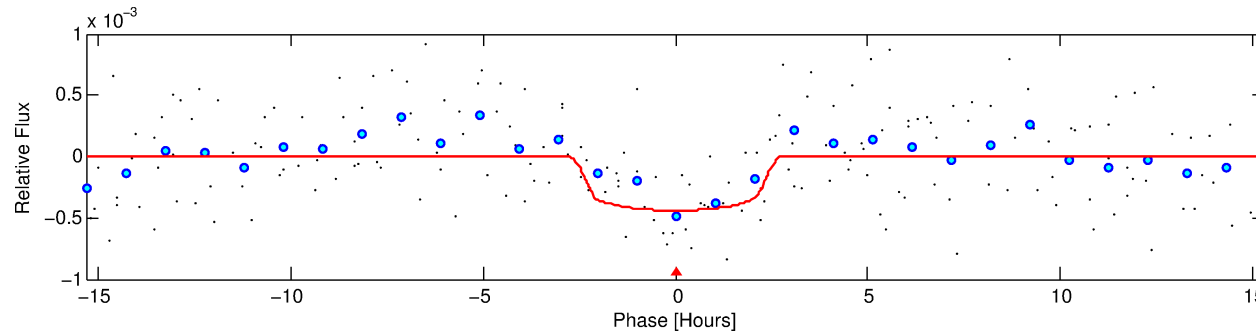
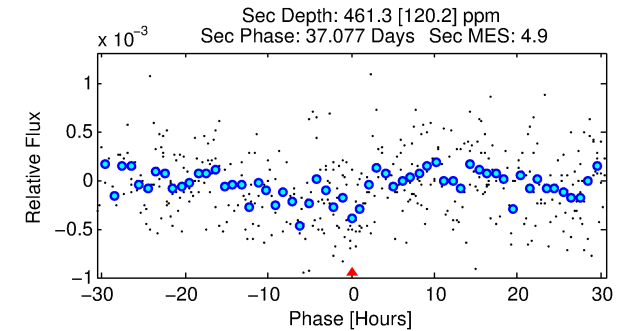
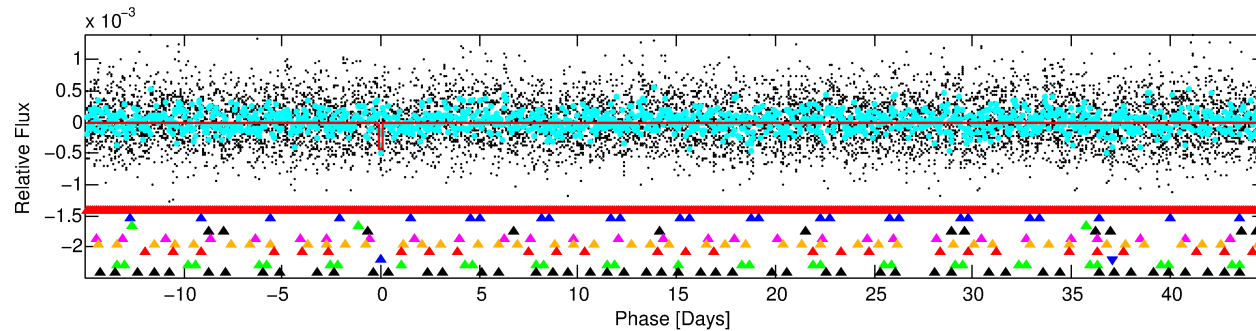
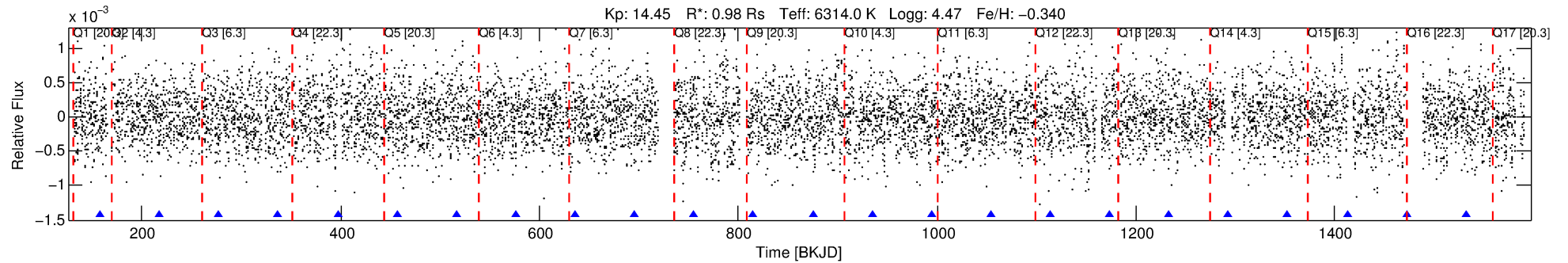
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005391767-08

No Significant Match Found

DV One-Page Summary

KIC: 5391767 Candidate: 8 of 10 Period: 59.738 d



DV Fit Results:

Period = 59.73772 [0.00128] d
Epoch = 158.0564 [0.0149] BKJD
Rp/R* = 0.0215 [0.0173]
a/R* = 53.71 [232.74]
b = 0.83 [1.69]
Seff = 14.92 [6.26]
Teq = 501 [53] K
Rp = 2.30 [2.00] Re
a = 0.3033 [0.0837] AU
Ag = 4405.30 [7399.73] [0.60 σ]
Teff = 6313 [2584] K [2.25 σ]

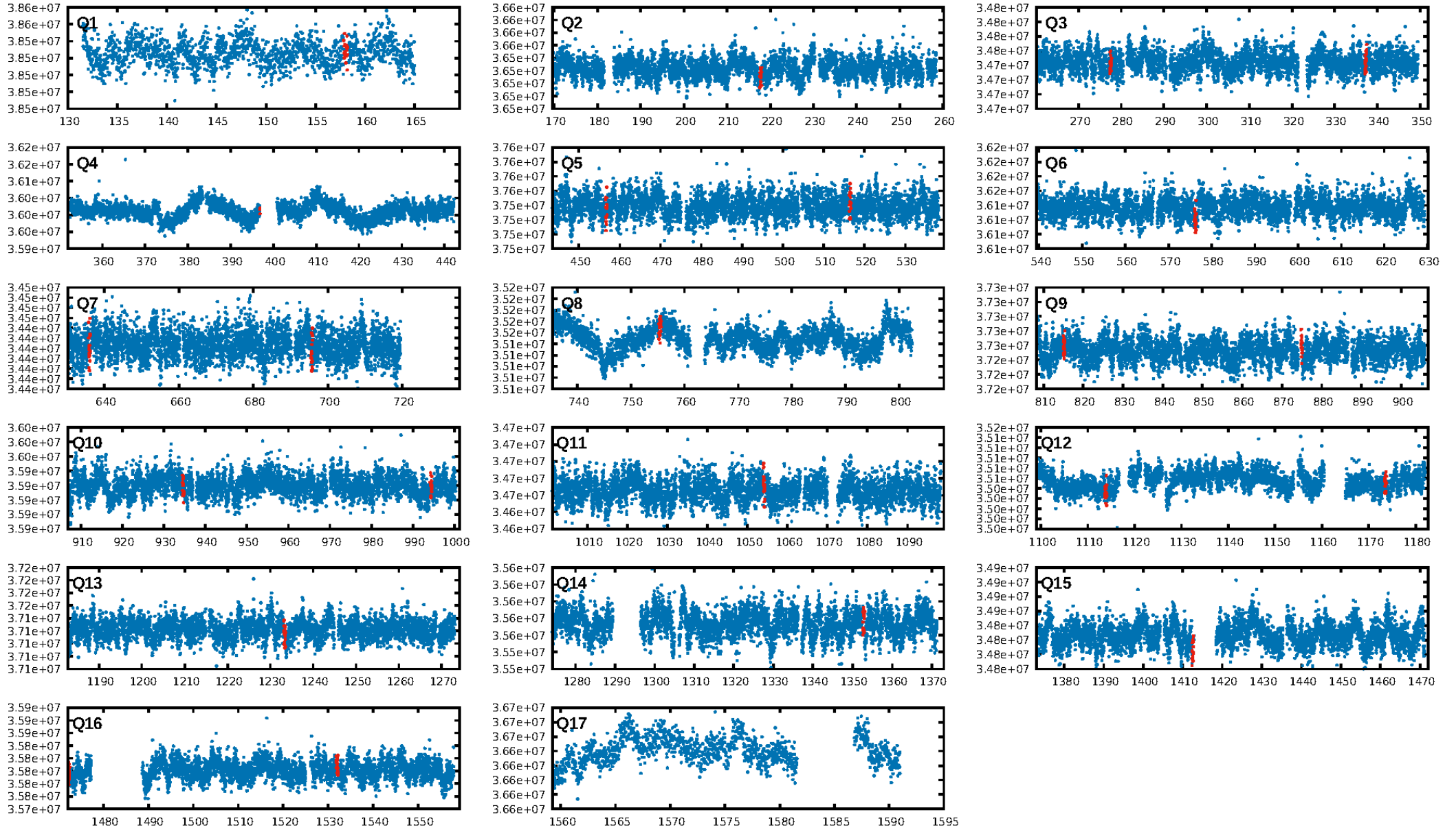
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.14 σ]
LongPeriod-sig: 100.0% [235.64 σ]
ModelChiSquare2-sig: 8.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.45e-08
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 2.781
Centroid-sig: 7.7%
Centroid-so: 2.918 arcsec [3.02 σ]
OotOffset-rm: 2.775 arcsec [2.00 σ]
KicOffset-rm: 8.894 arcsec [7.03 σ]
OotOffset-st: 2/2/3/2 [9]
KicOffset-st: 2/2/3/2 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 0.00 [0/14]

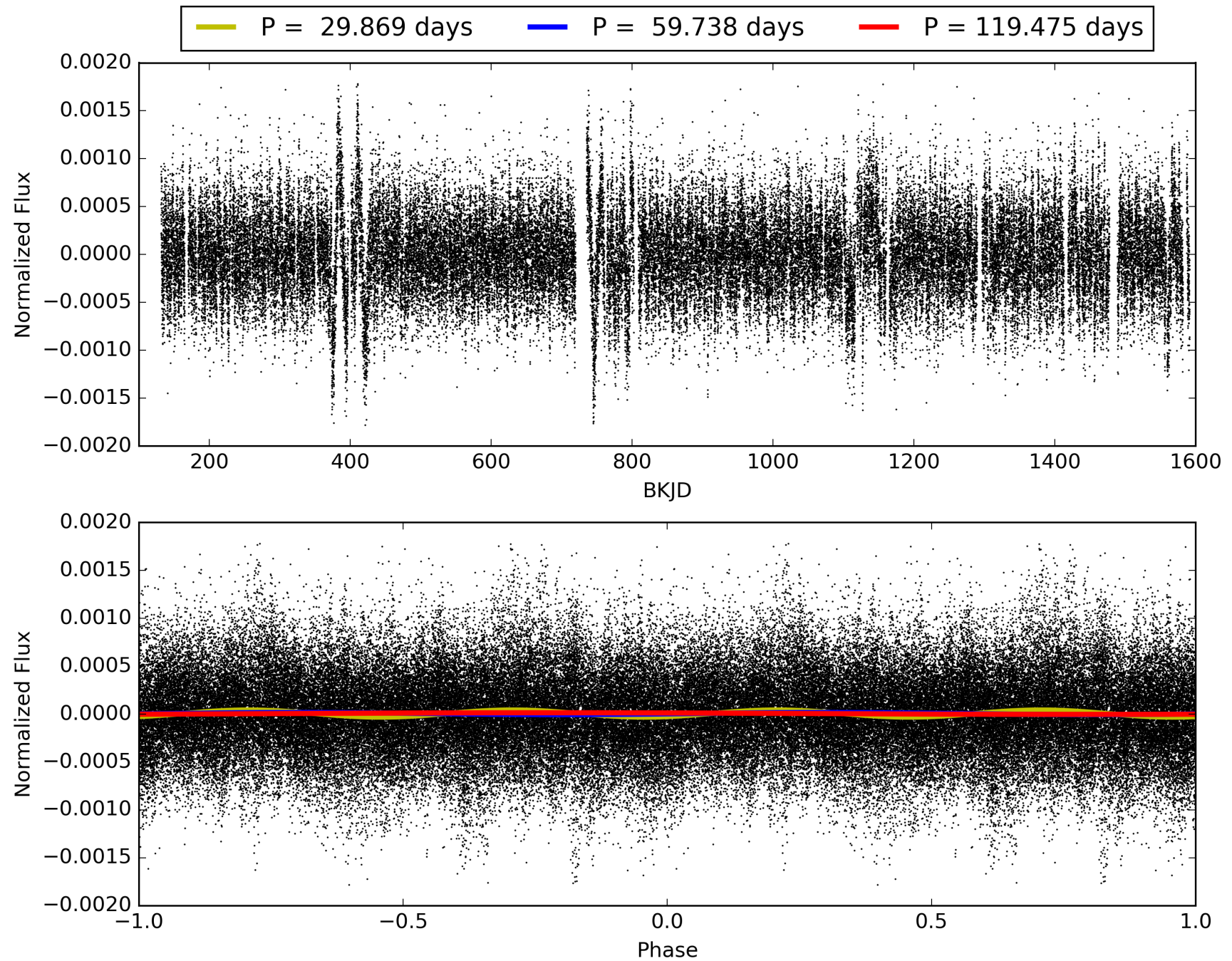
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:10:58 Z

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

TCE 005391767-08, PDC Light Curves

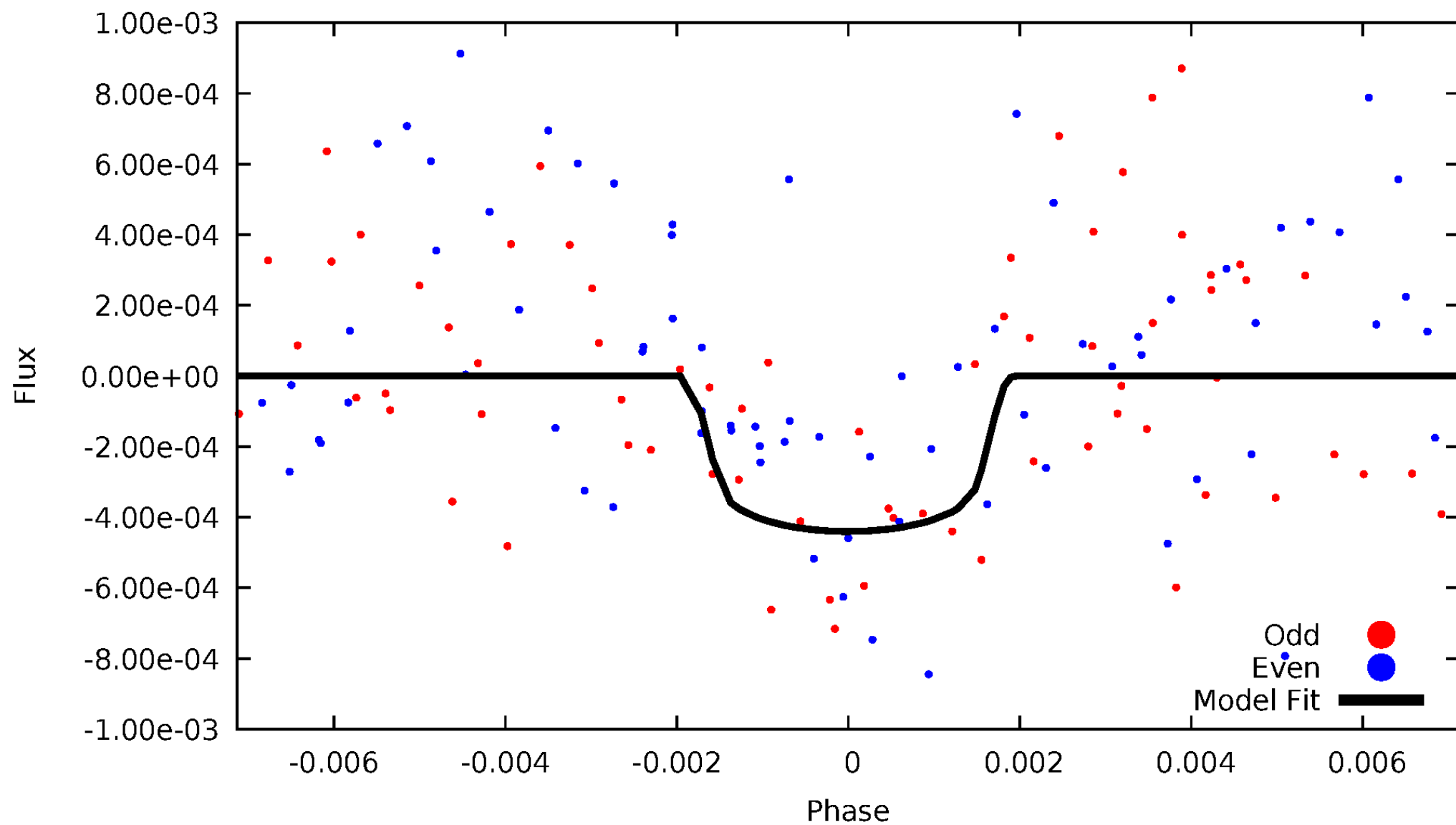


TCE 005391767-08



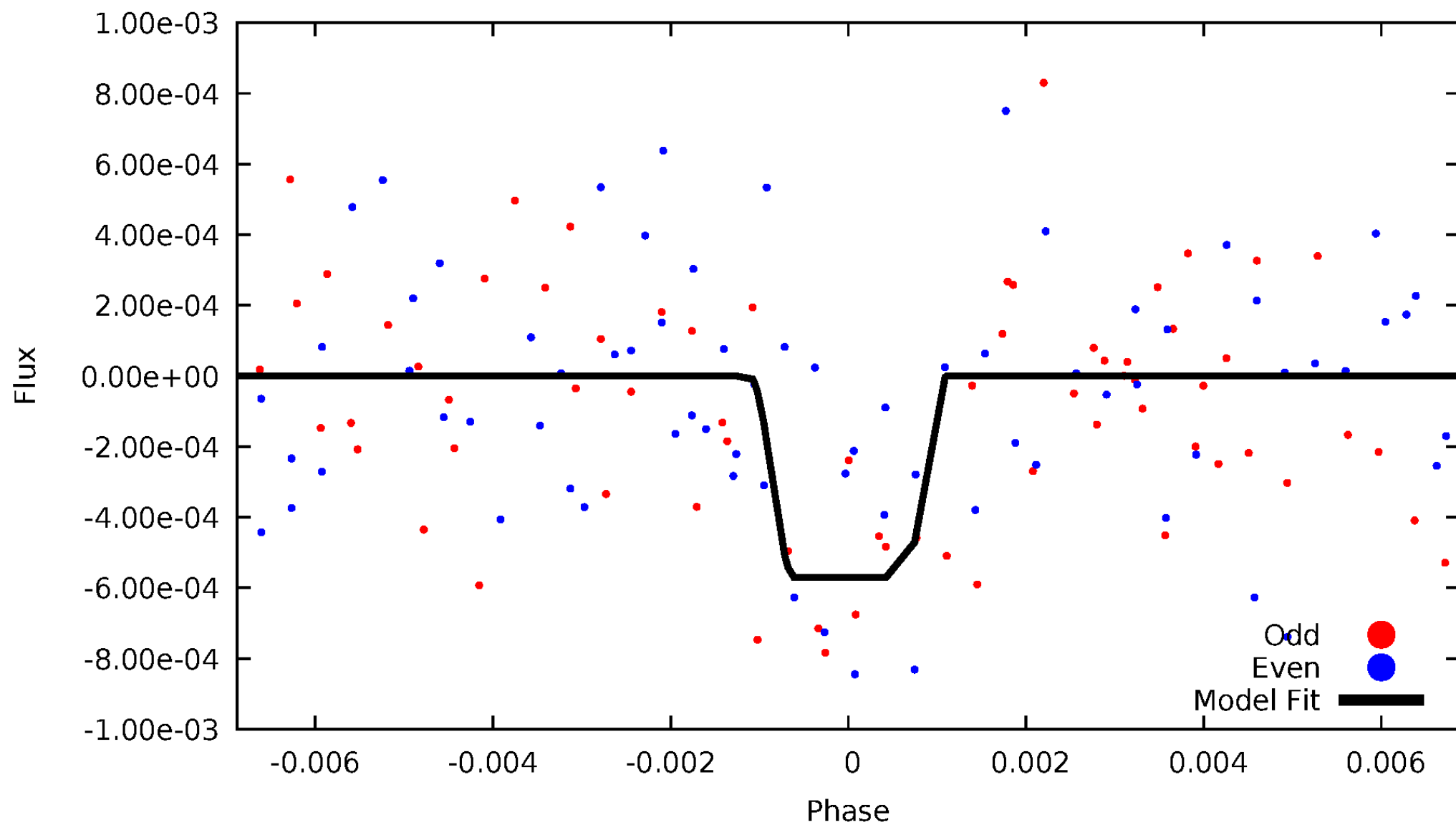
DV Odd/Even

TCE 005391767-08



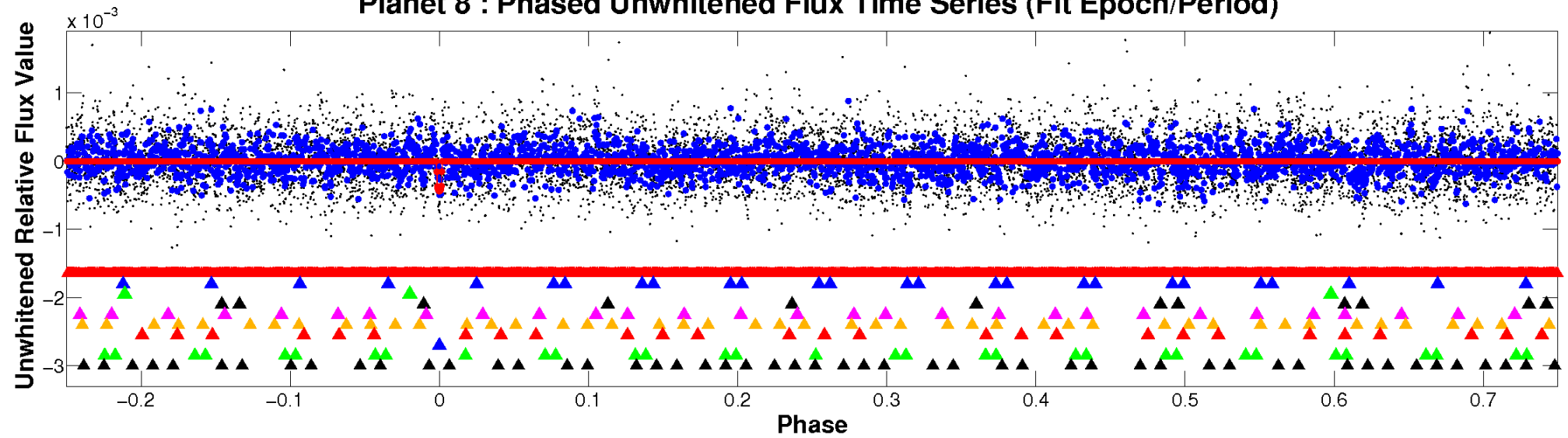
ALT Odd/Even

TCE 005391767-08

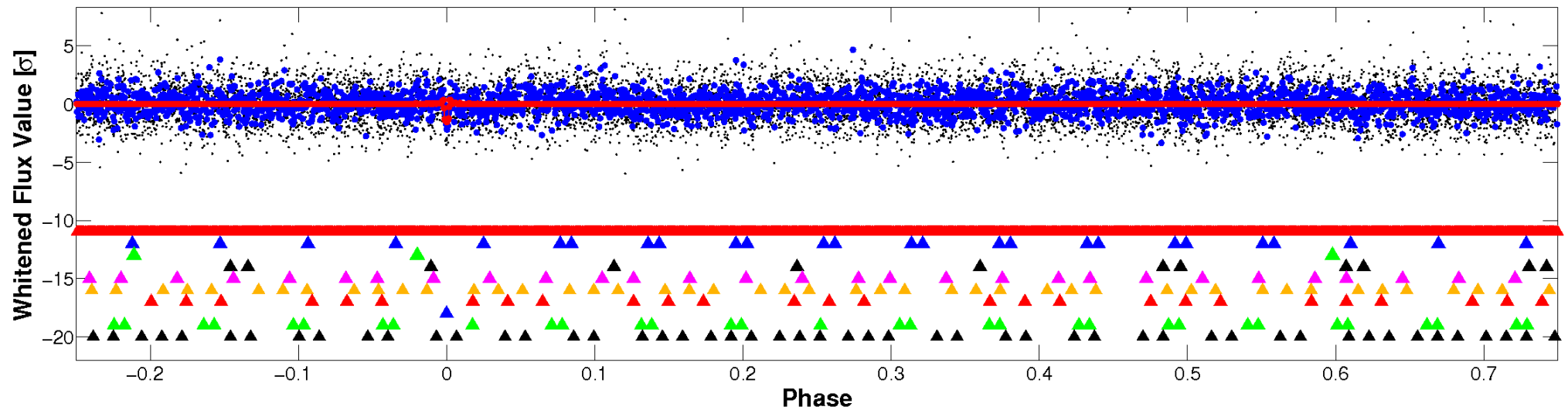


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

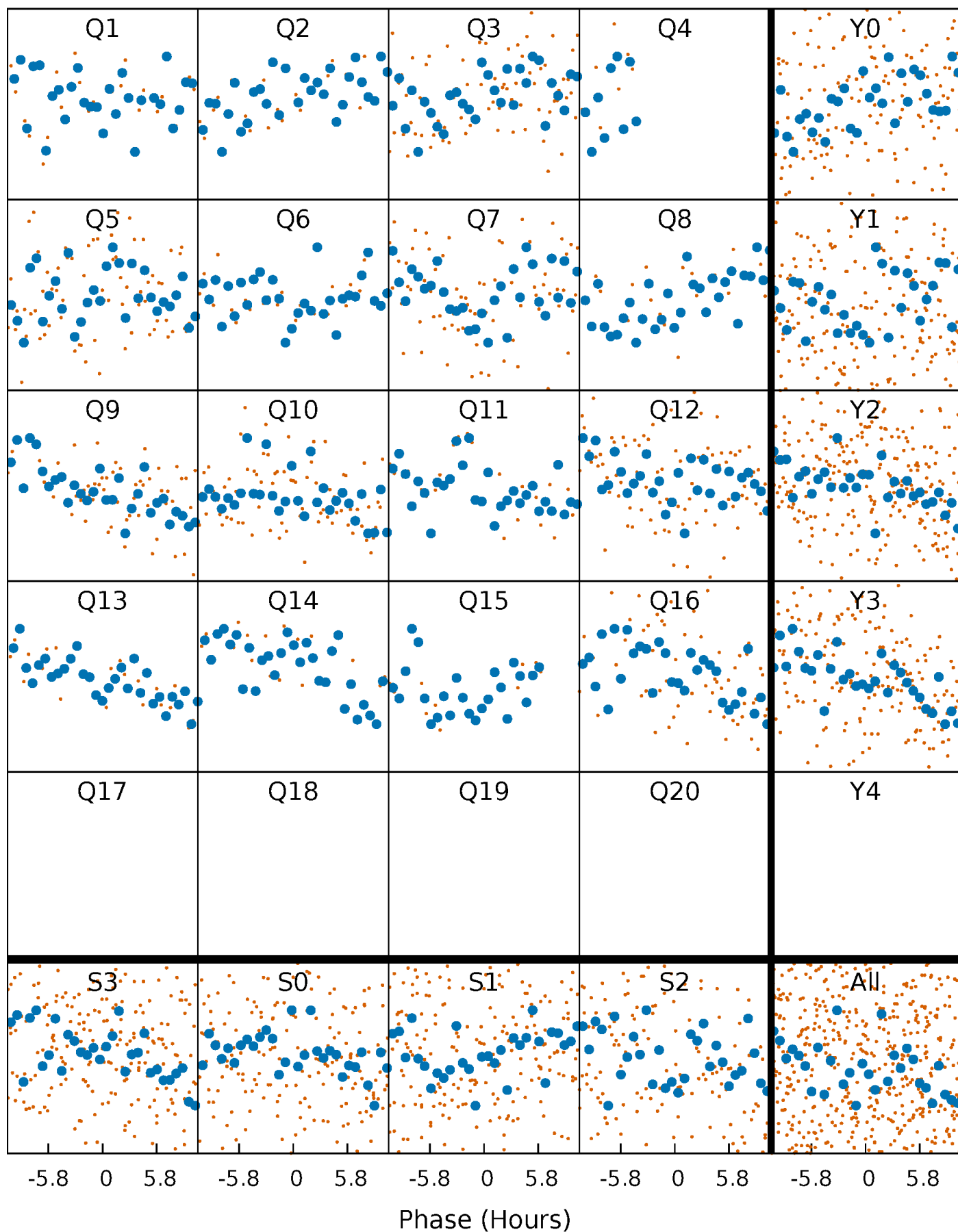


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



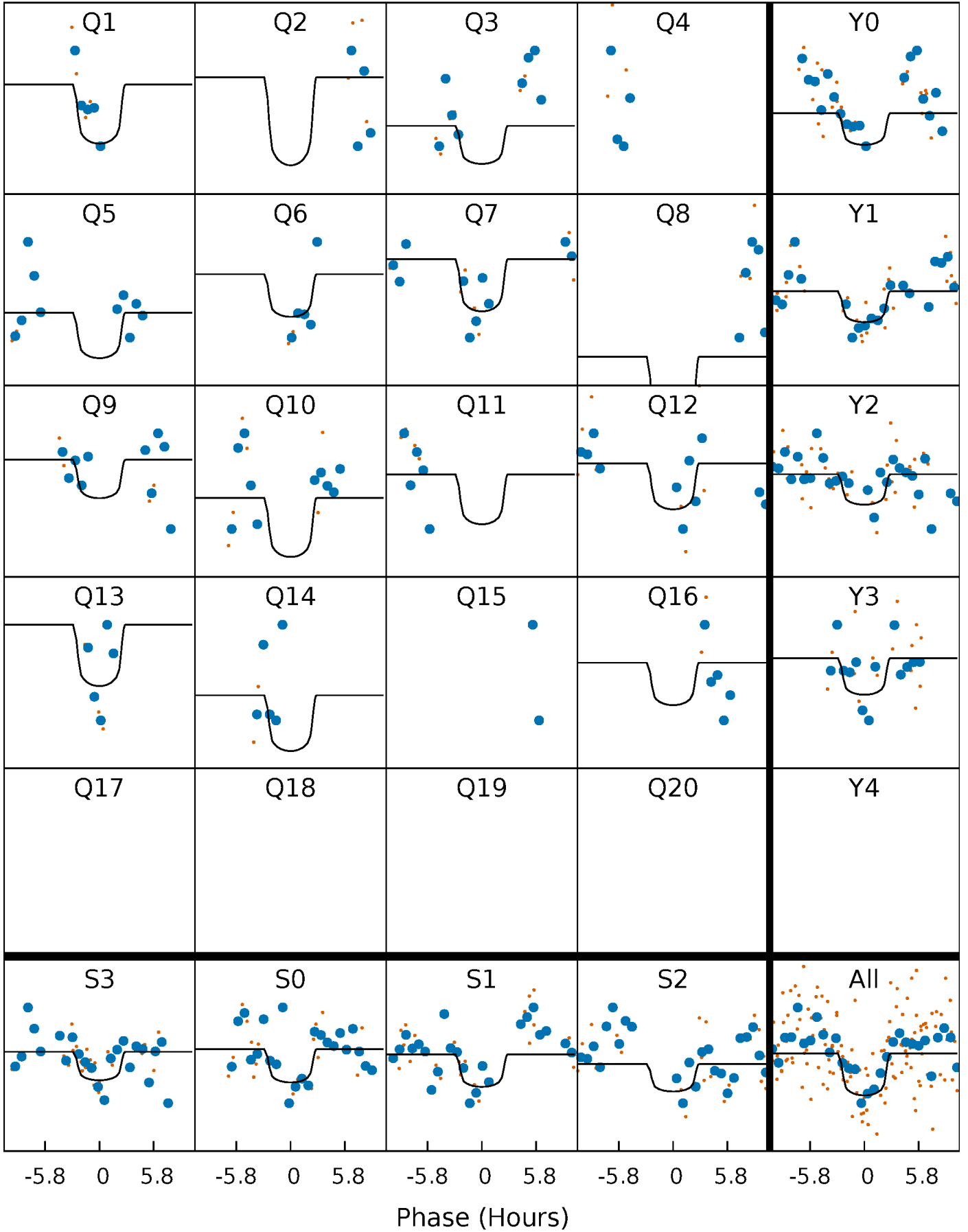
PDC Quarter-Phased Transit Curves

TCE 005391767-08 P= 59.737722 Days $T_0=158.056402$ (BKJD)



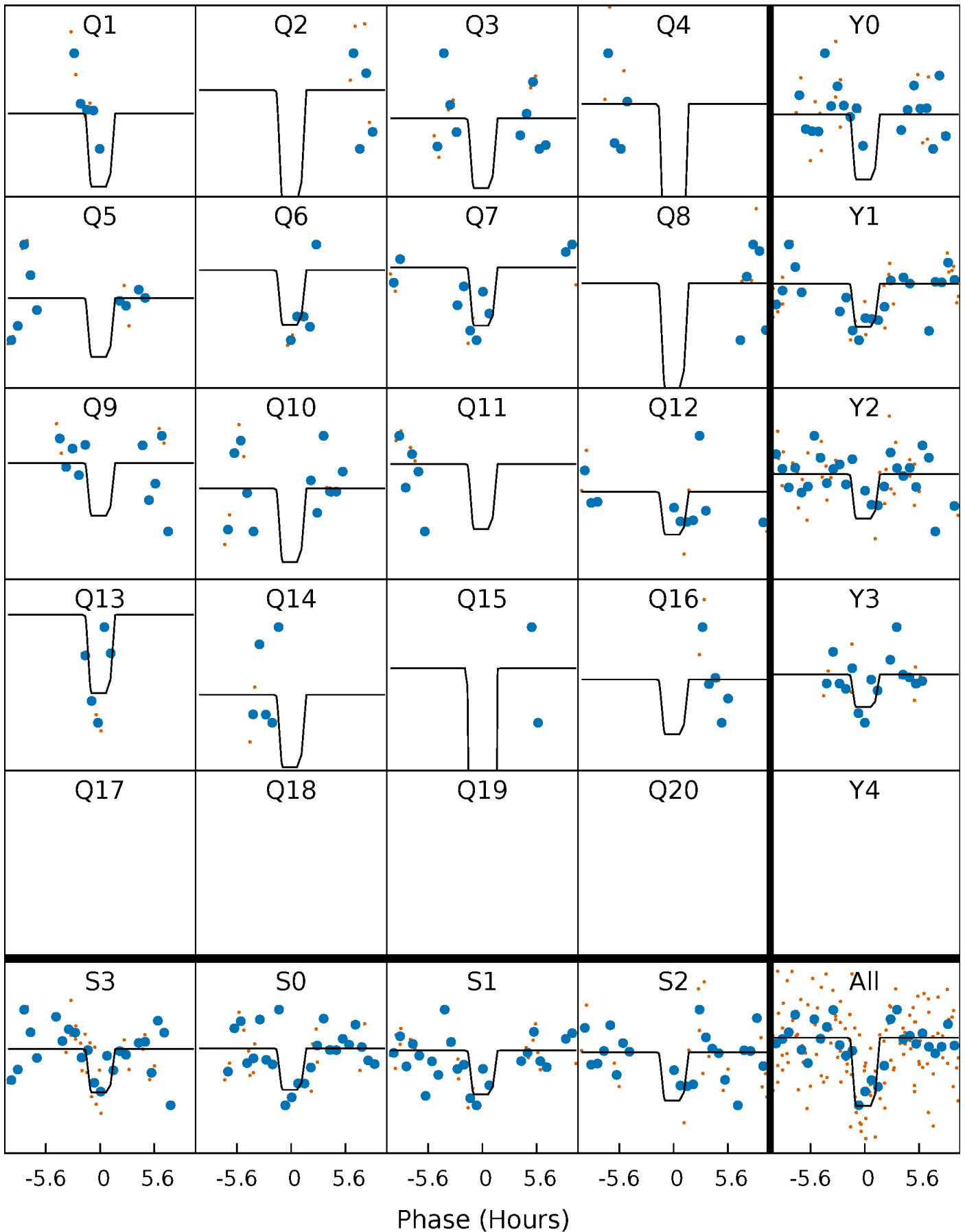
DV Quarter-Phased Transit Curves

TCE 005391767-08 P= 59.737722 Days $T_0=158.056402$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

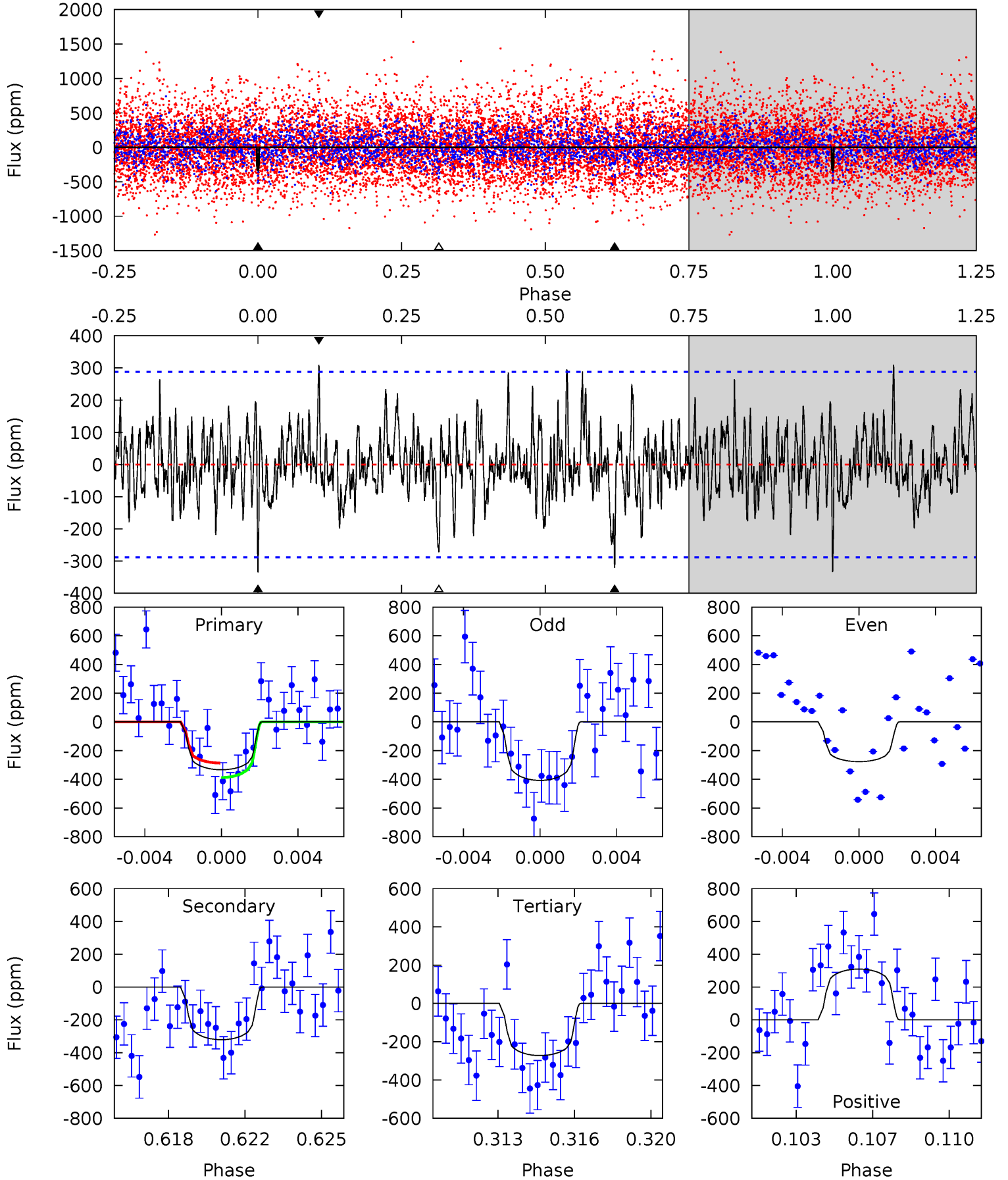
TCE 005391767-08 P= 59.738301 Days $T_0=158.058474$ (BKJD)



DV Model-Shift Uniqueness Test

005391767-08, P = 59.737722 Days, E = 98.318680 Days

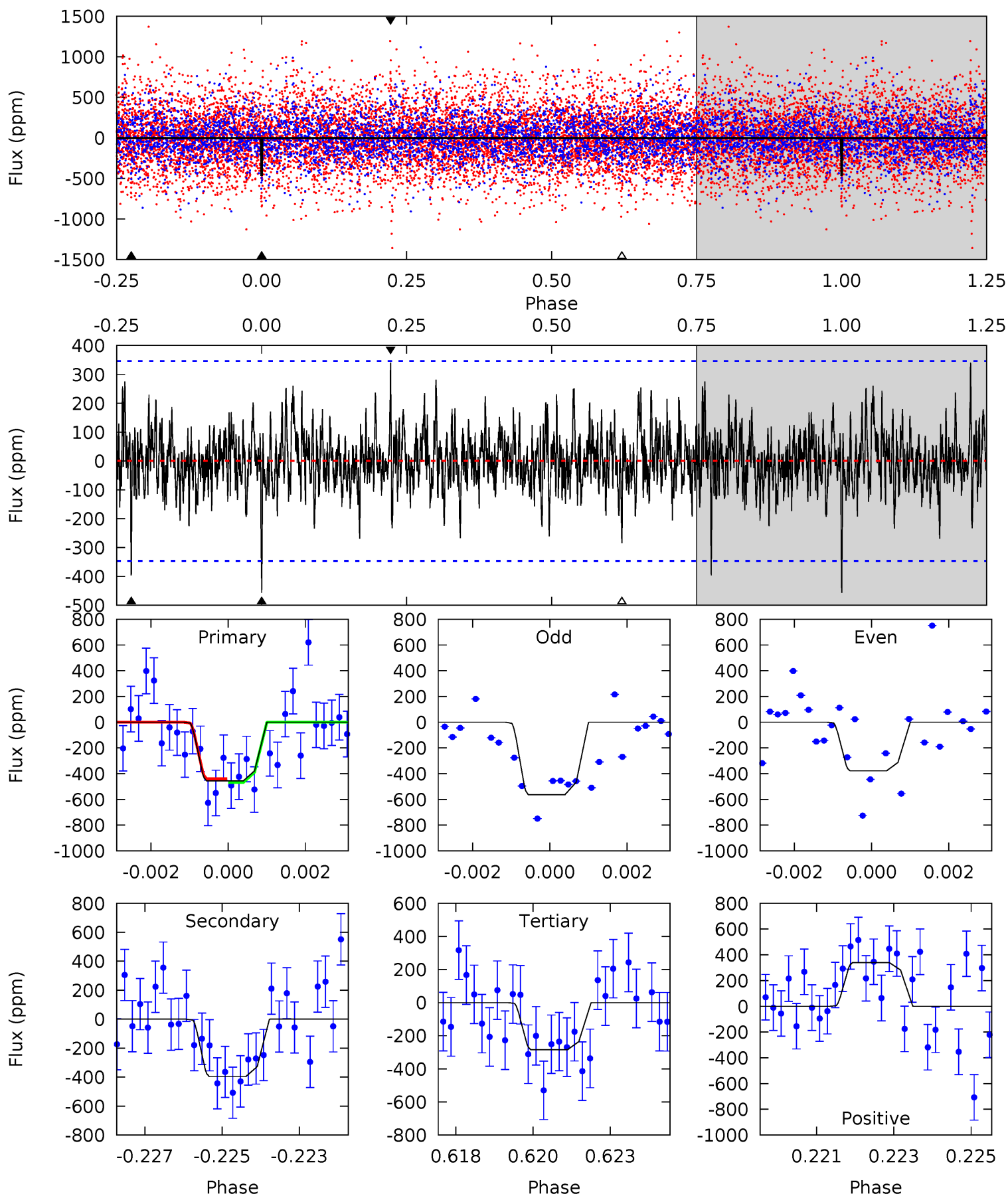
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.04	5.81	4.93	5.61	5.21	2.90	1.59	1.11	0.43	0.88	0.20	1.19	0.81	0.48	0.91



Alt Model-Shift Uniqueness Test

005391767-08, P = 59.738301 Days, E = 98.320173 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.00	6.08	4.36	5.22	5.31	3.06	1.27	2.63	1.78	1.72	0.86	1.39	0.90	0.43	0.23



Stellar Parameters For KIC 005391767

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6314^{+169}_{-207}	$4.472^{+0.054}_{-0.216}$	$-0.340^{+0.300}_{-0.300}$	$0.982^{+0.325}_{-0.102}$	$1.043^{+0.146}_{-0.133}$	$1.551^{+0.348}_{-0.869}$
	+3%/-3%	+1%/-5%	+88%/-88%	+33%/-10%	+14%/-13%	+22%/-56%
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 005391767-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-321 ± 55	$2.60^{+1.83}_{-1.47}$	713^{+53}_{-35}	5562^{+3371}_{-1158}	2409^{+10365}_{-1643}
Alt.	-396 ± 65	$2.70^{+1.89}_{-1.56}$	717^{+48}_{-37}	5730^{+3950}_{-1136}	2694^{+13419}_{-1778}

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

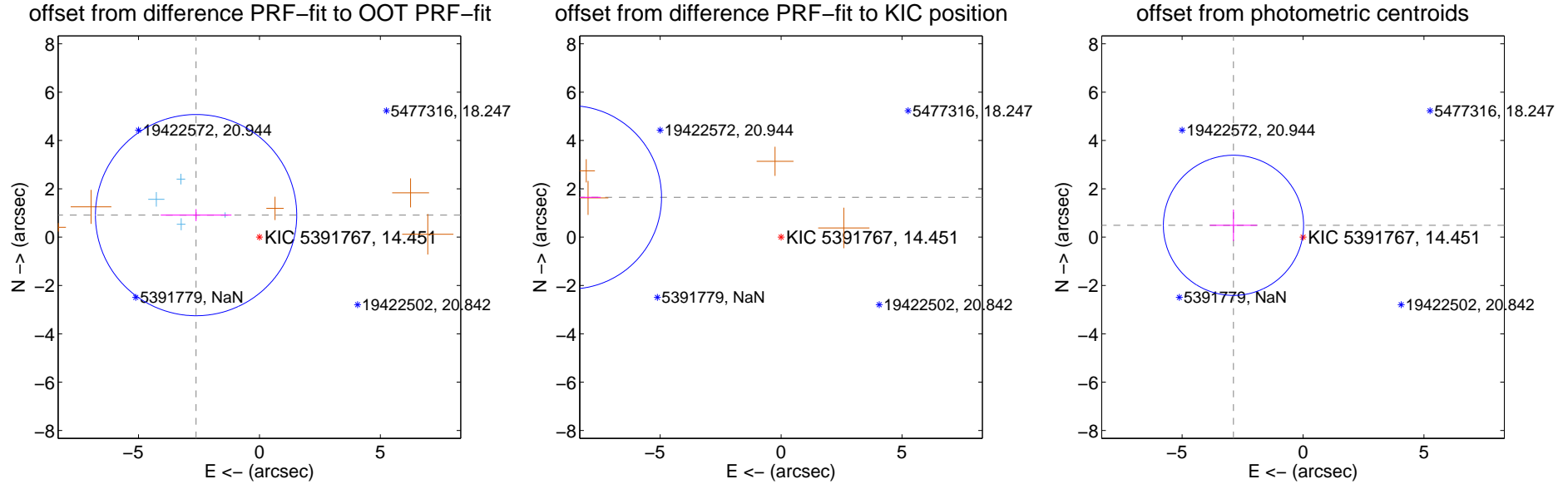
DV Centroid Data

Supplemental centroid analysis for 005391767-08. Kepler magnitude: 14.45. Transit SNR 8.53

There are 4 quarters with good PRF difference image offsets

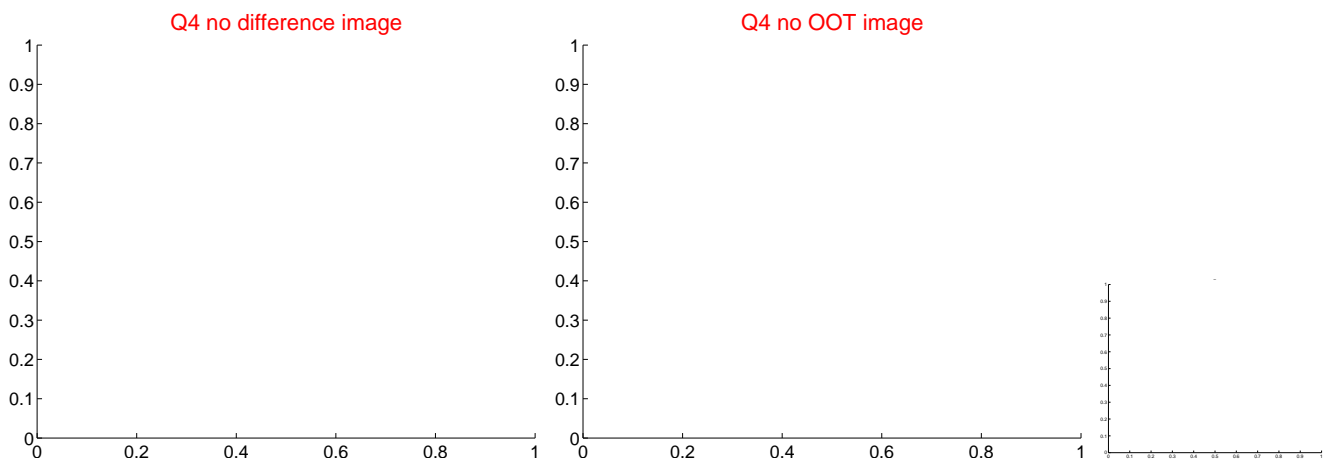
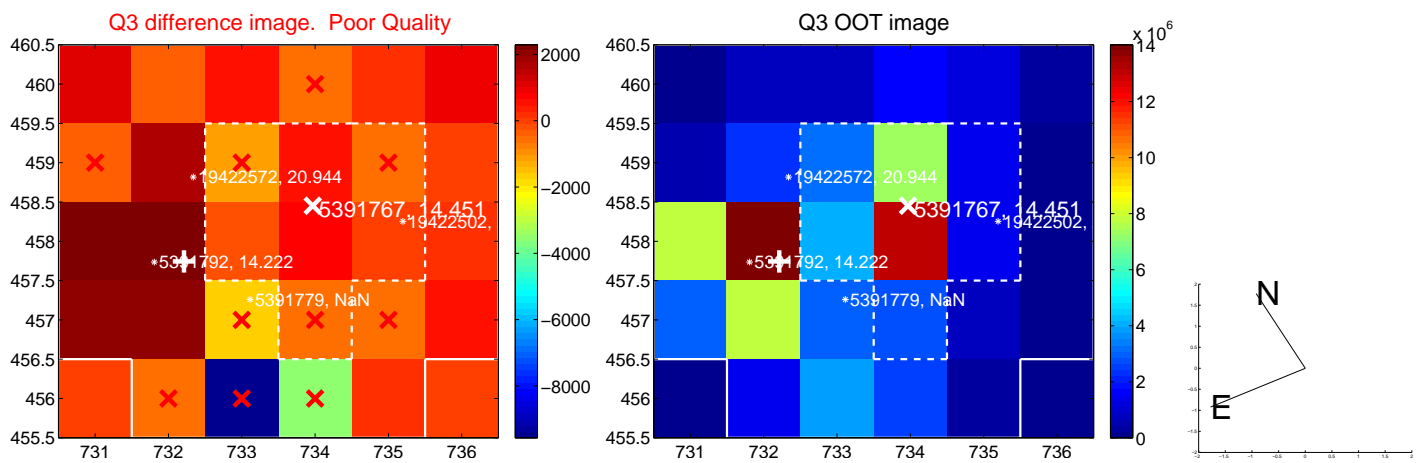
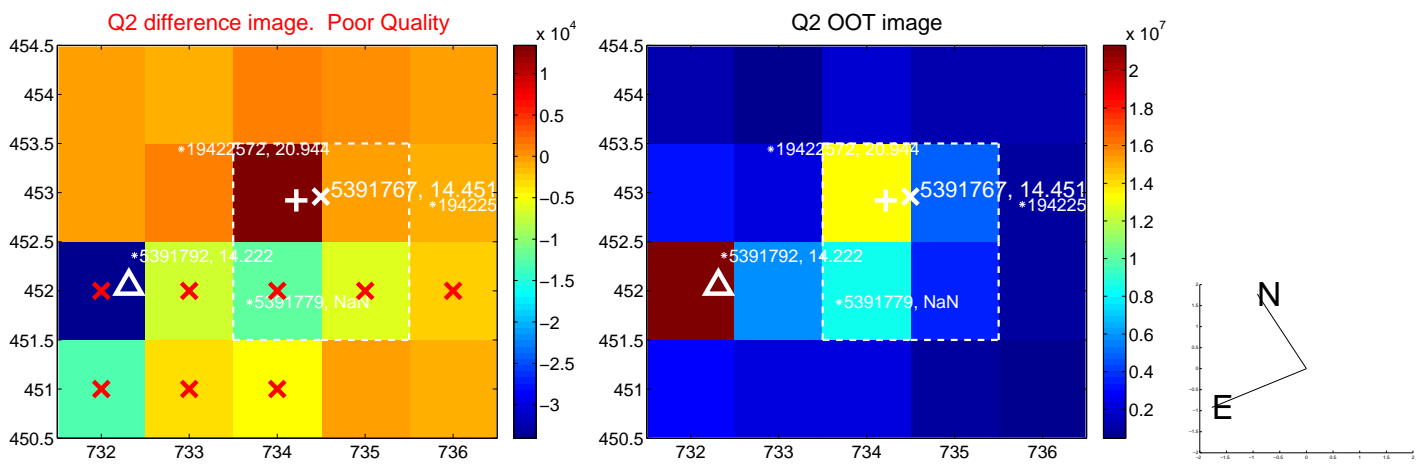
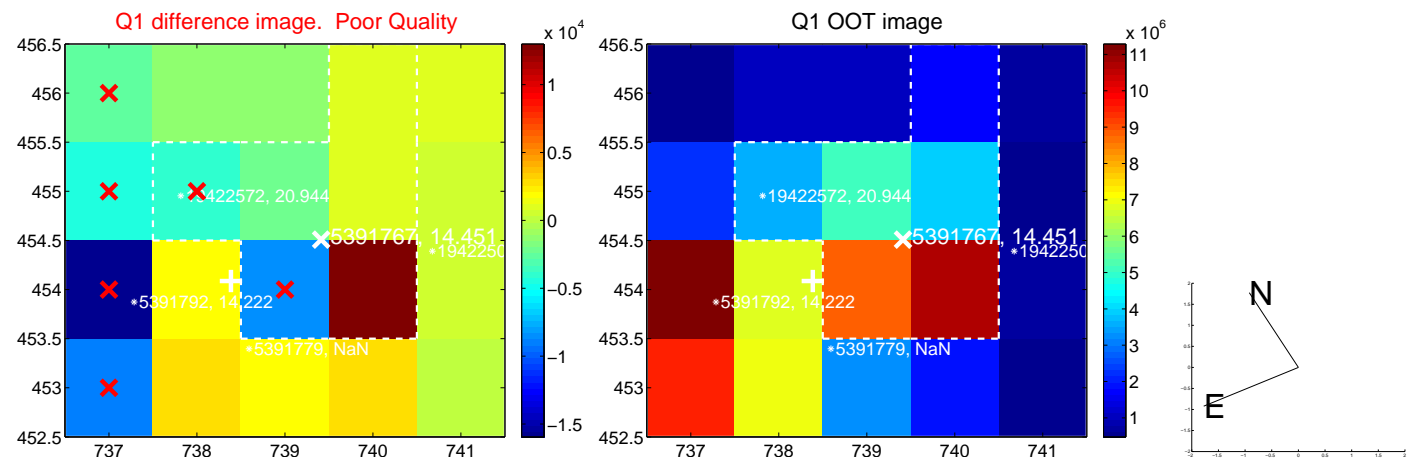
The OOT PRF centroid is offset from the target star catalog position by about 6.63 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.775 ± 1.388	2.00	2.621 ± 1.464	0.912 ± 0.249
PRF-fit source offset from KIC position	8.894 ± 1.265	7.03	8.740 ± 1.280	1.648 ± 0.308
photometric centroid source offset	2.92 ± 0.97	3.02	2.88 ± 0.97	0.49 ± 0.65

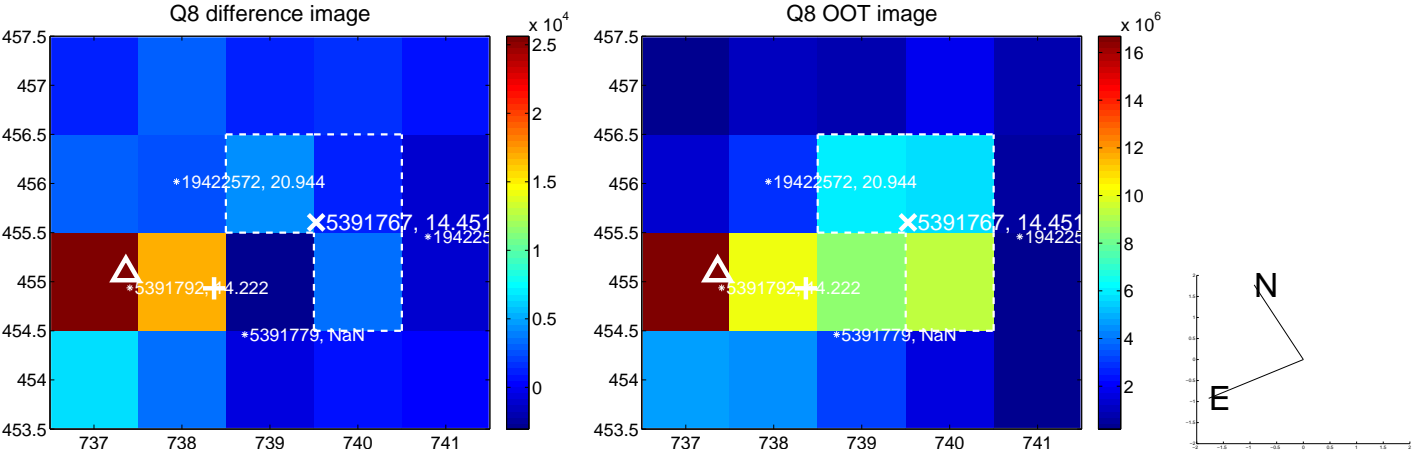
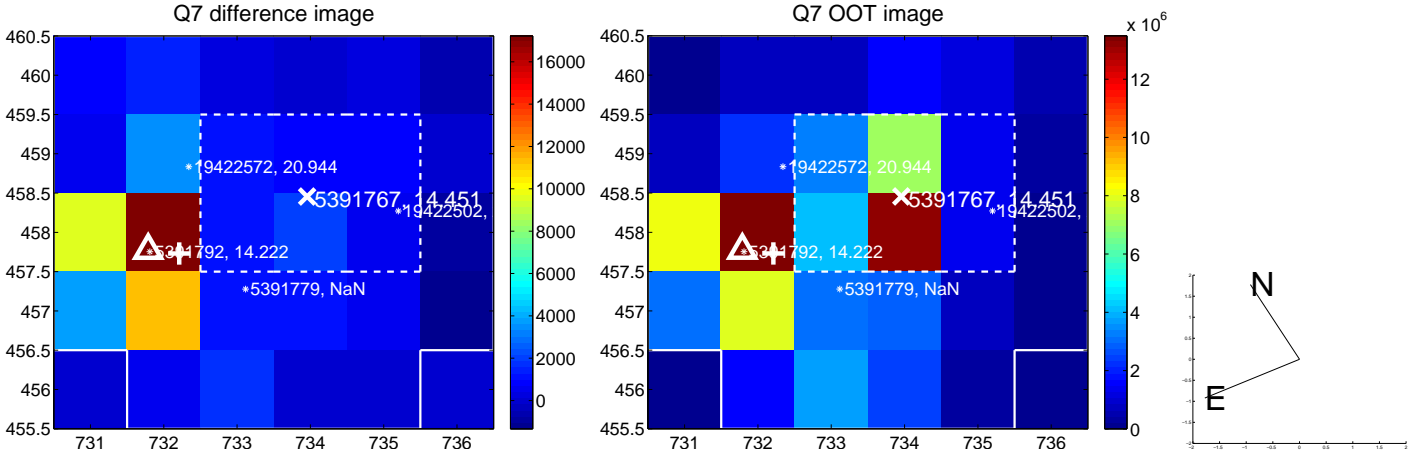
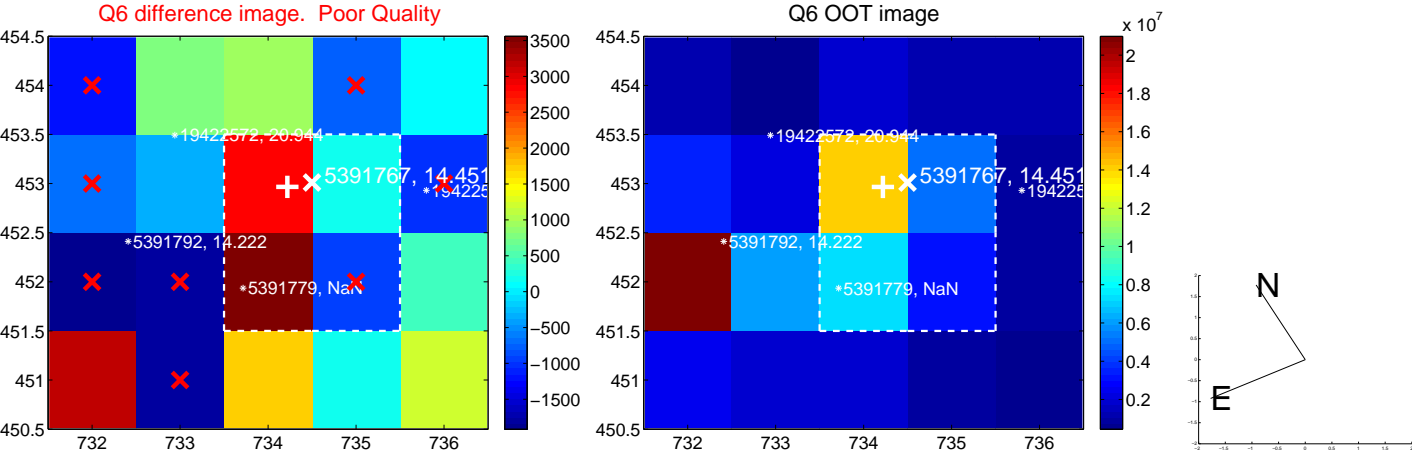
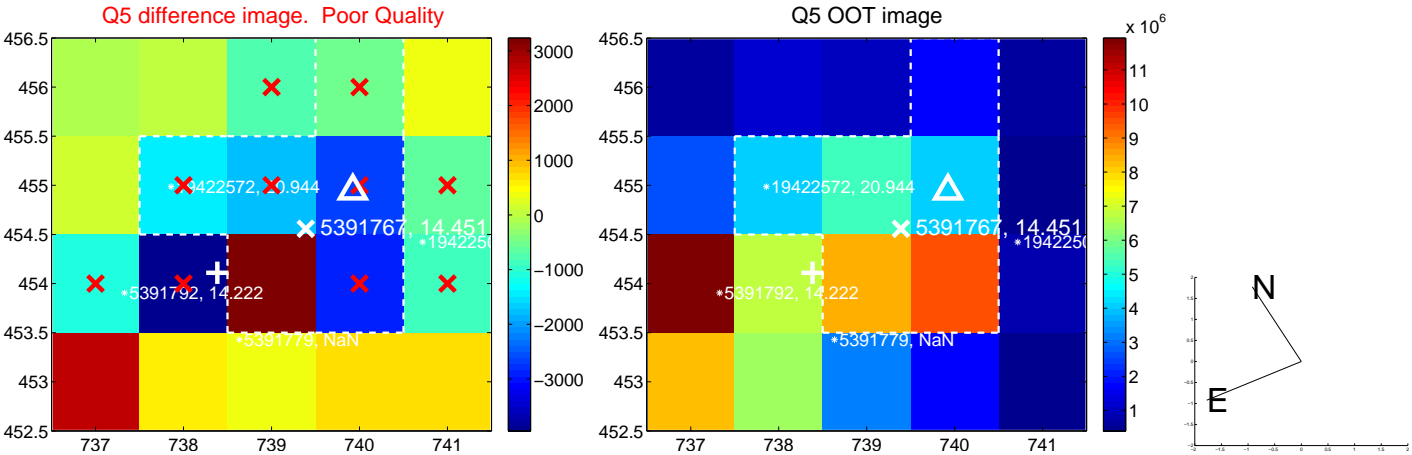


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

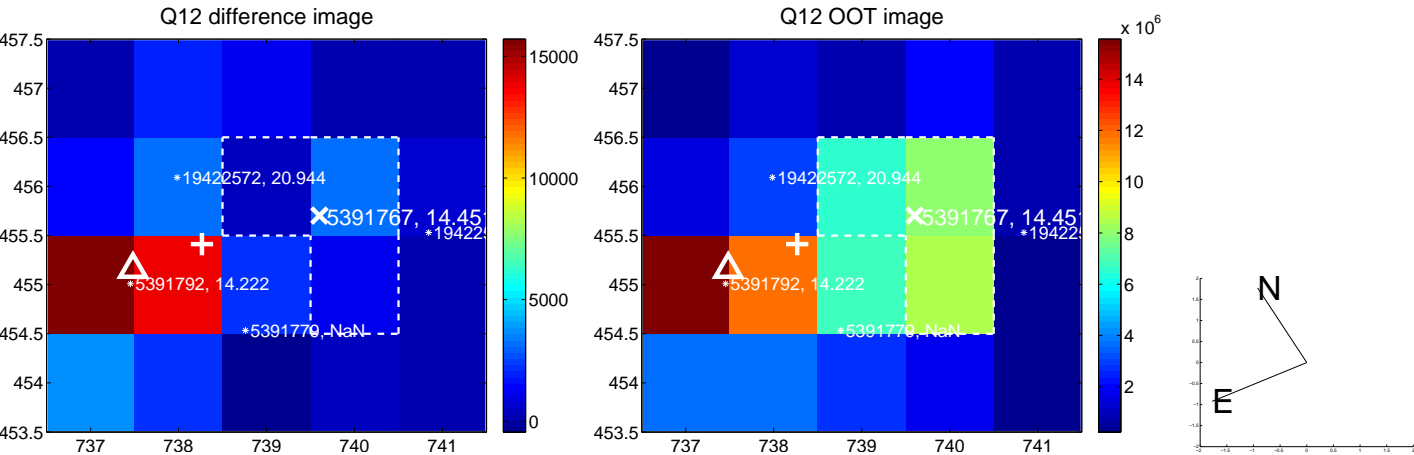
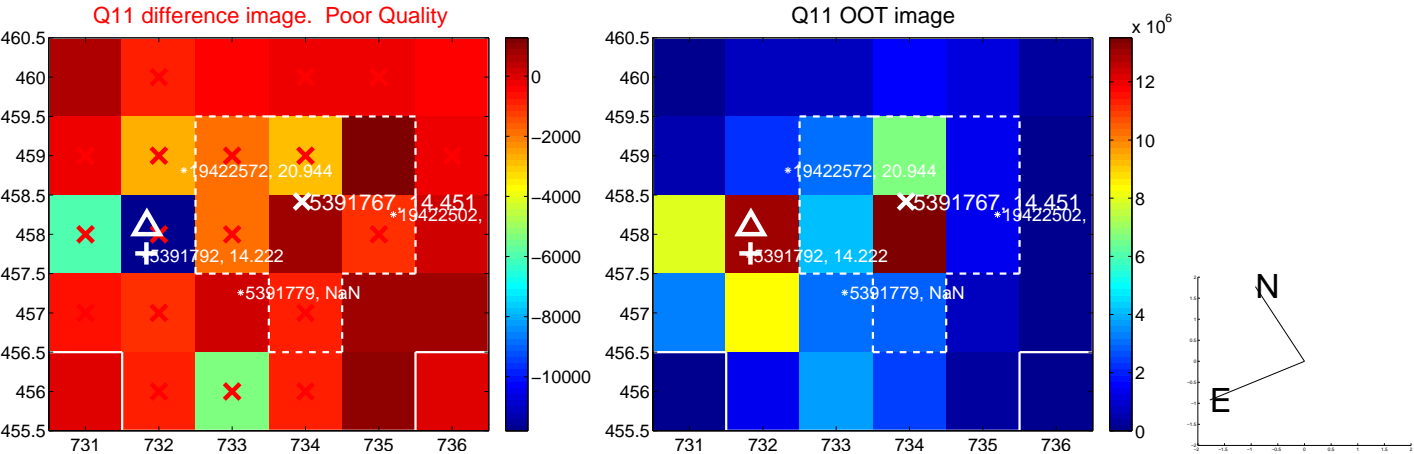
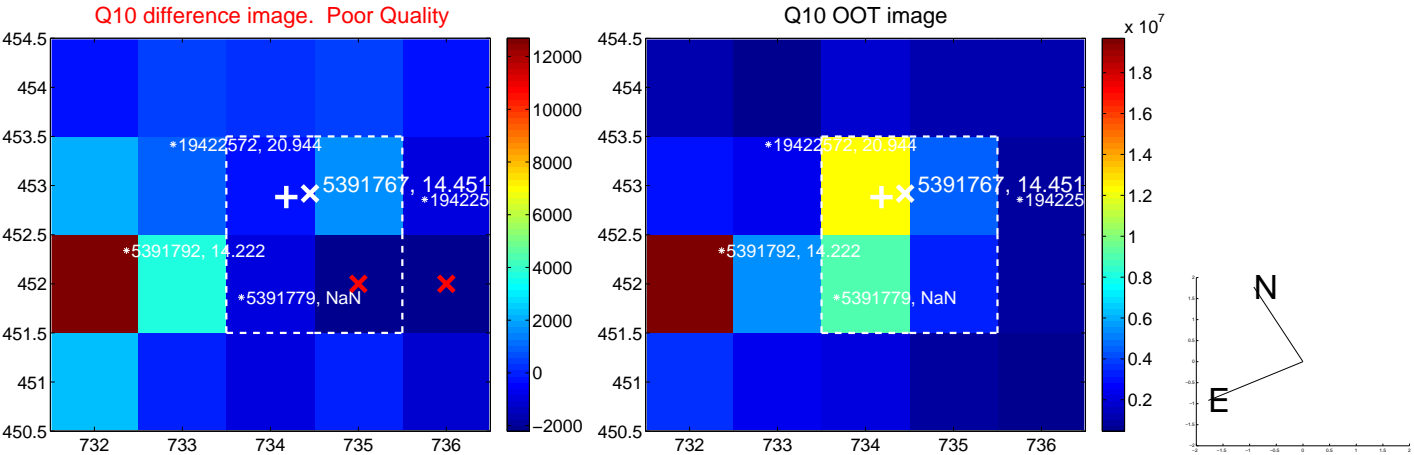
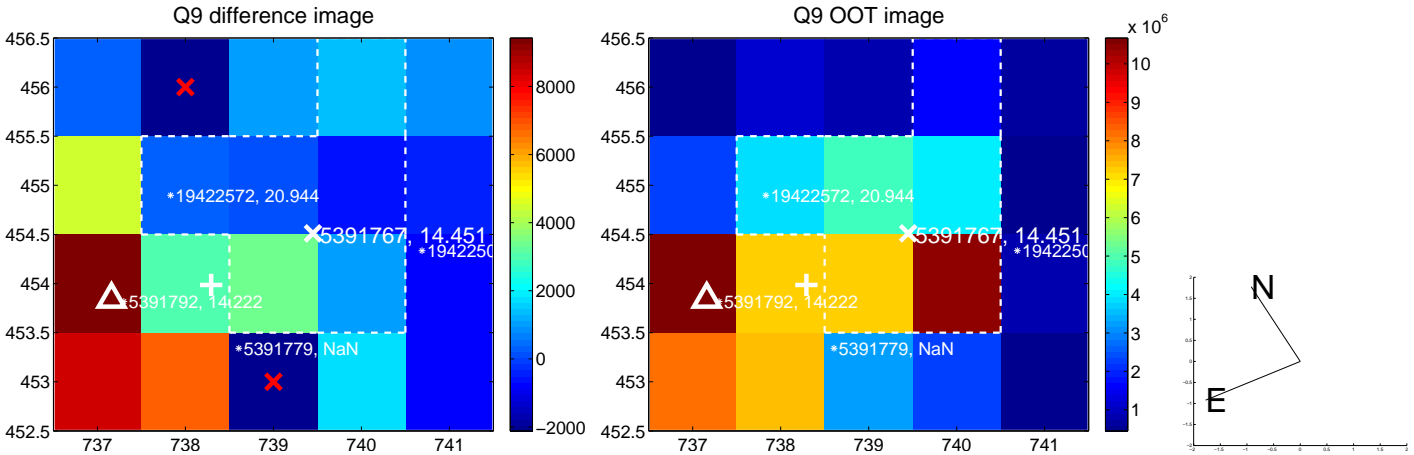
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



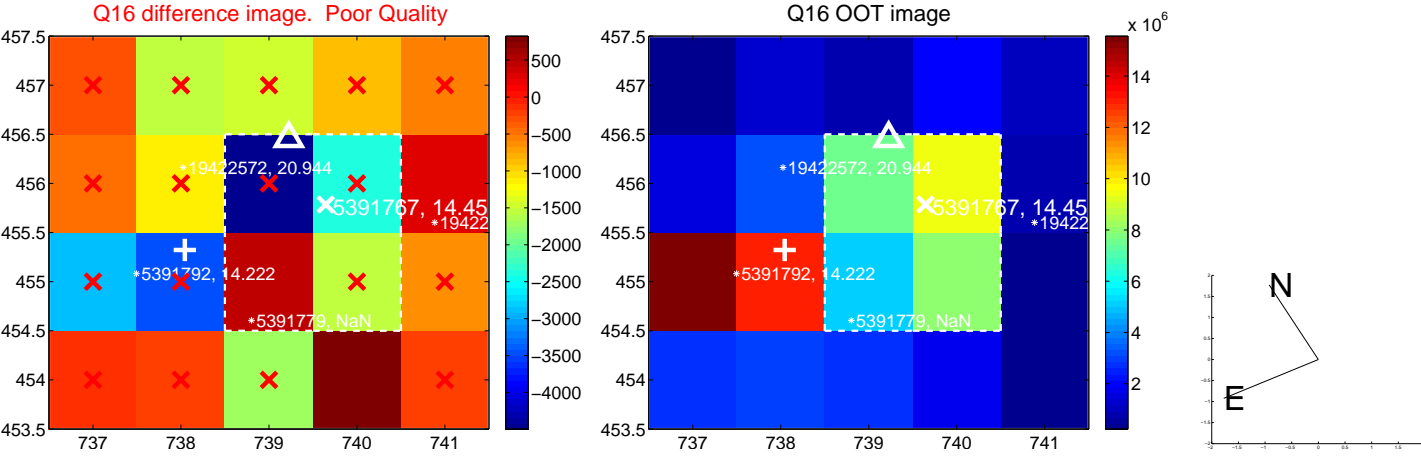
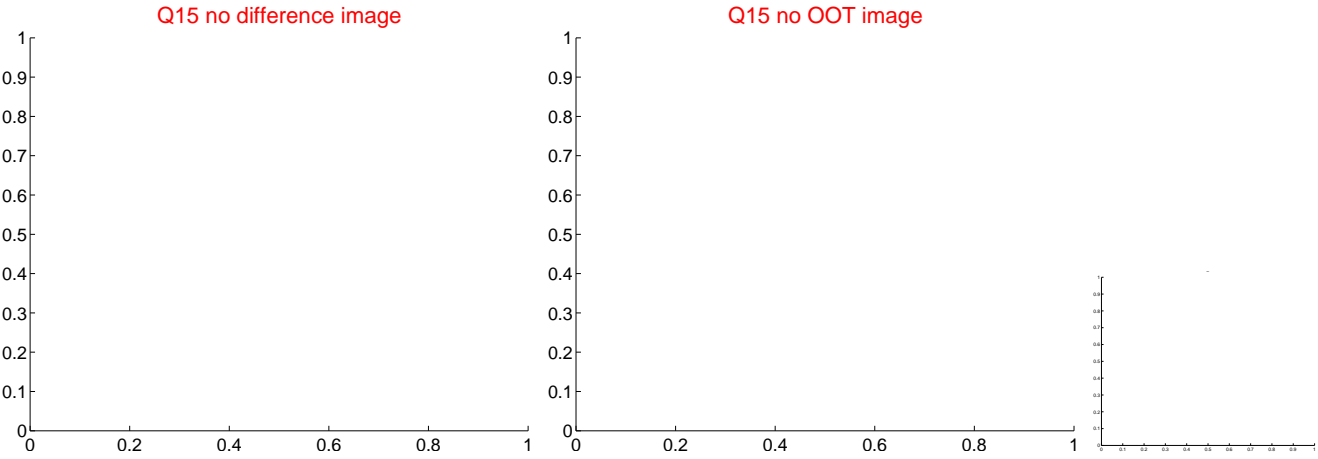
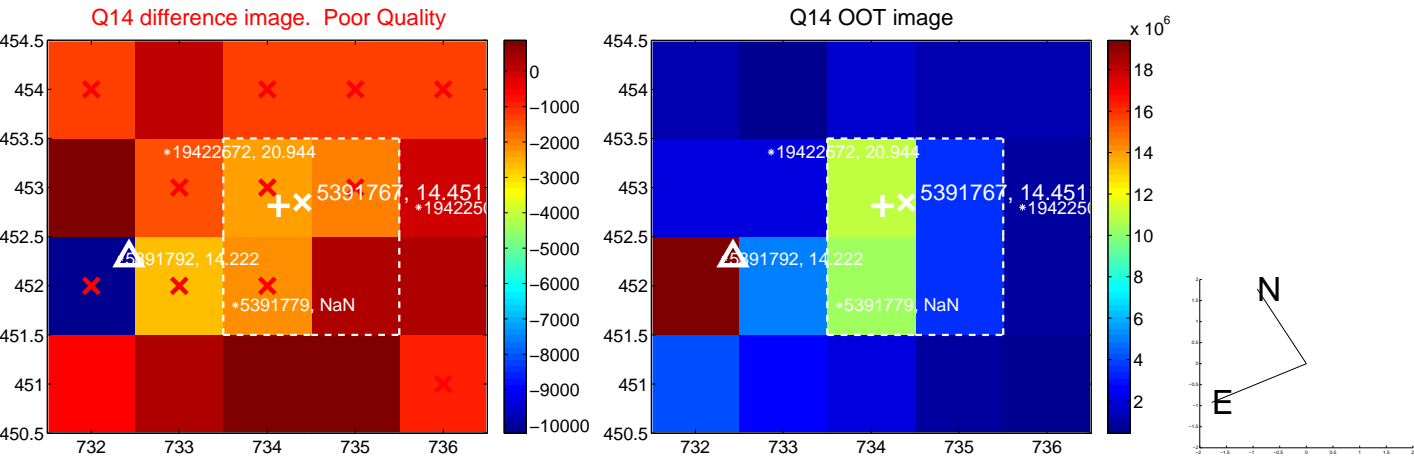
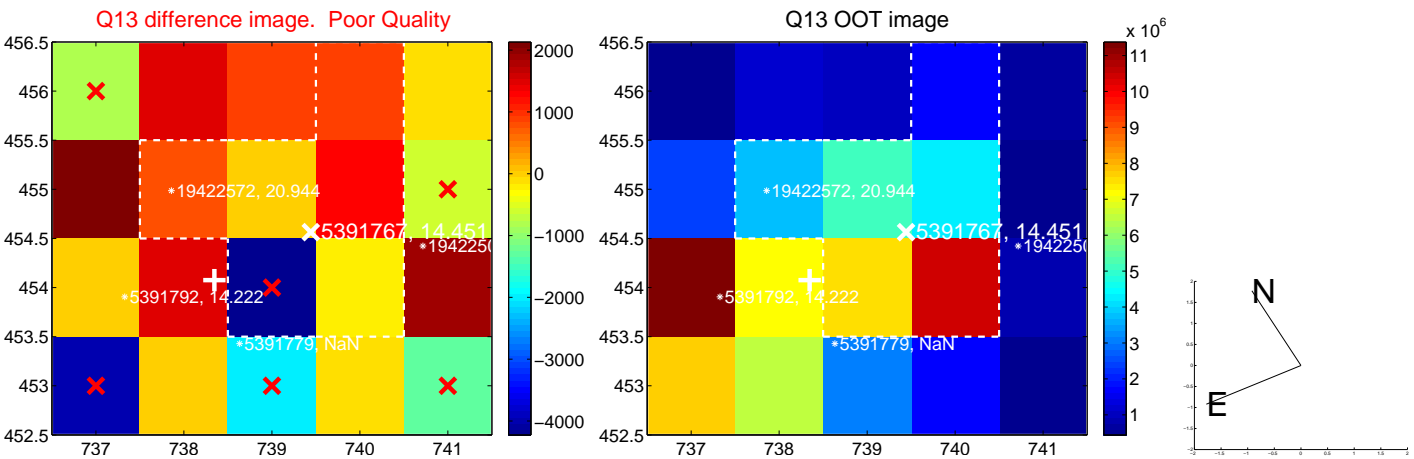
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



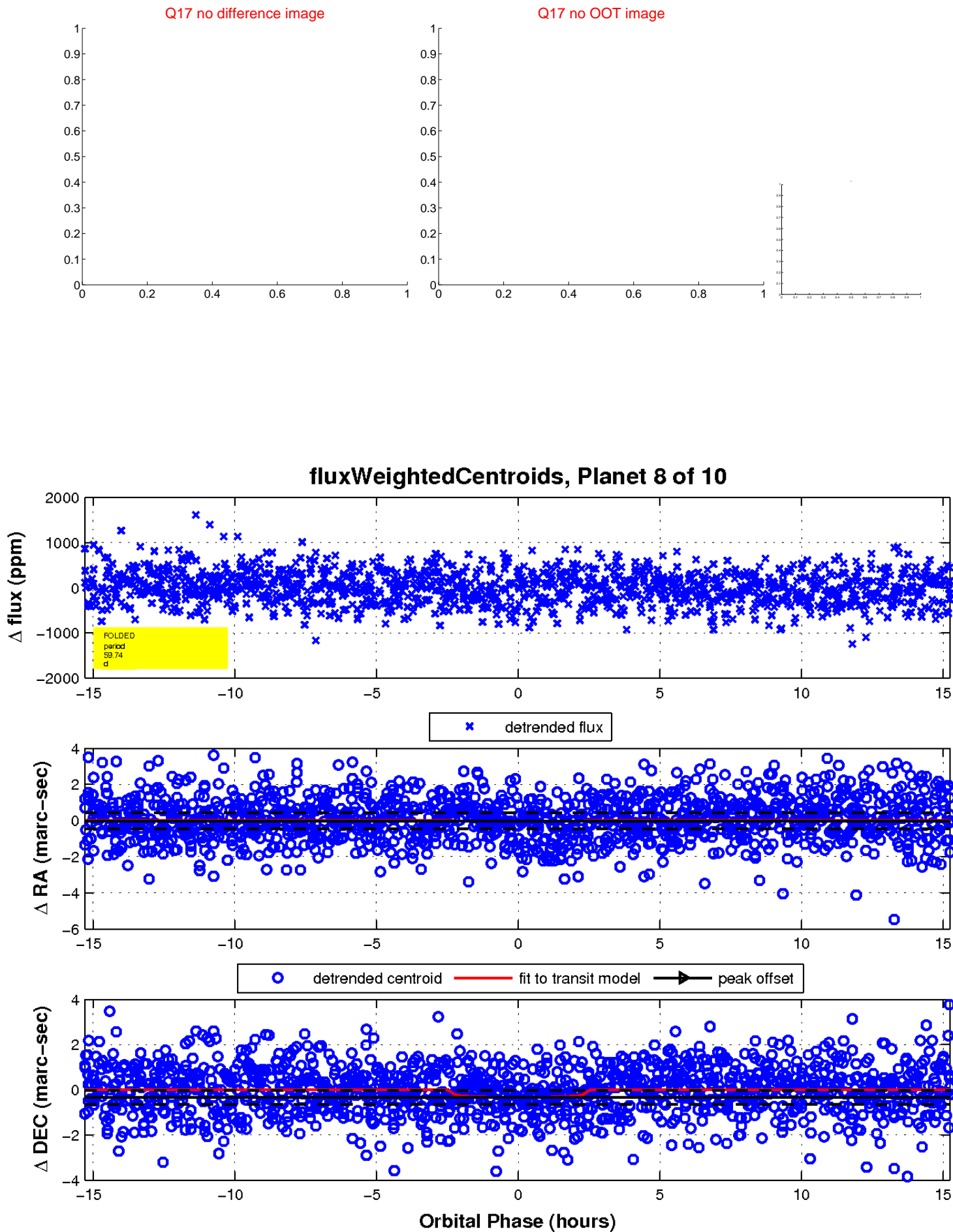
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

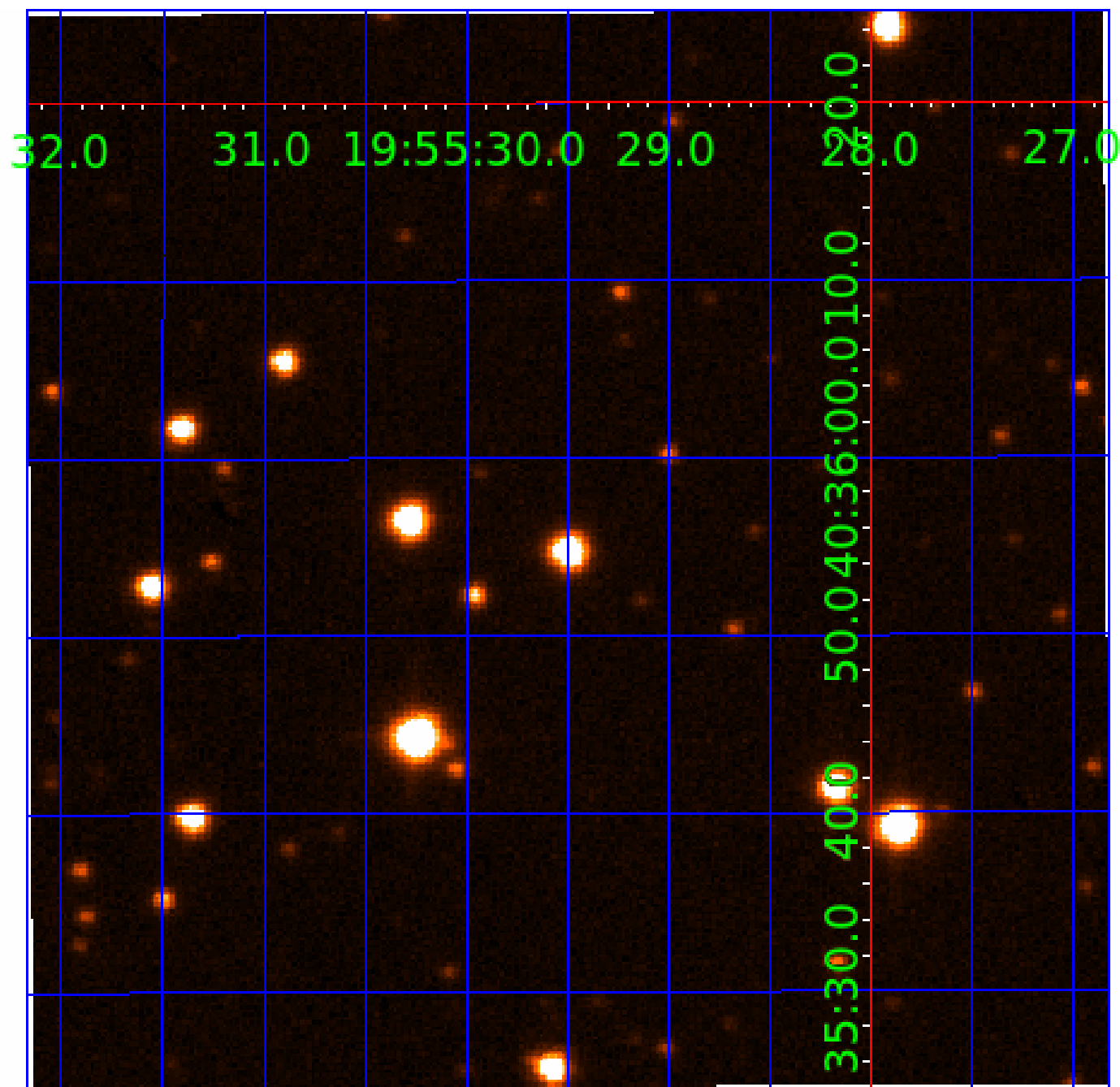


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005391767

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})
005391767-01	OBS	No	0.834886	131.693199	11.9	5.428	7.7	3.3	0.98	6314	0.35	4432.86
005391767-02	OBS	No	56.197304	131.674337	550.5	4.783	11.3	9.7	0.98	6314	2.56	16.19
005391767-03	OBS	No	489.320936	193.773350	882.3	8.465	10.5	11.0	0.98	6314	3.25	0.90
005391767-04	OBS	No	126.854394	187.648633	732.7	4.541	9.5	9.3	0.98	6314	3.00	5.47
005391767-05	OBS	No	49.403648	174.663481	503.6	6.307	8.9	9.9	0.98	6314	2.44	19.22
005391767-06	OBS	No	31.794911	157.264839	367.6	2.107	8.6	6.1	0.98	6314	2.16	34.60
005391767-07	OBS	No	53.256593	172.075440	428.8	3.669	8.0	7.4	0.98	6314	2.21	17.39
005391767-08	OBS	No	59.737722	158.056402	440.1	5.109	8.5	8.5	0.98	6314	2.30	14.92
005391767-10	OBS	No	28.485201	145.764735	498.0	1.265	7.7	9.0	0.98	6314	2.58	40.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005391767-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005391767-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST
005391767-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
005391767-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
005391767-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

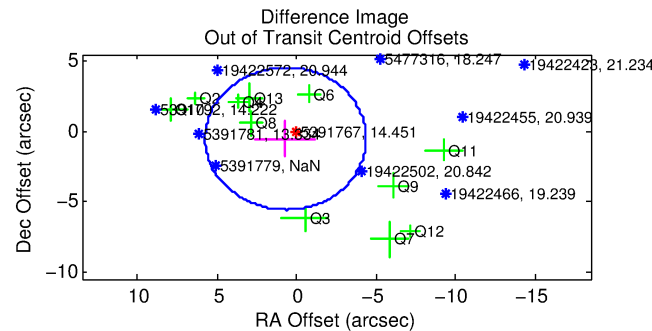
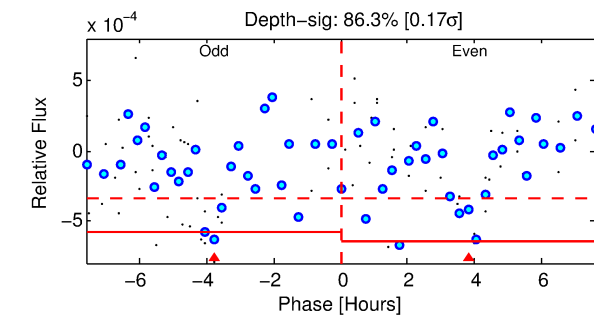
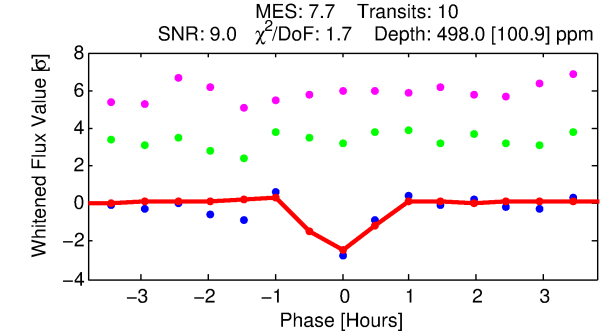
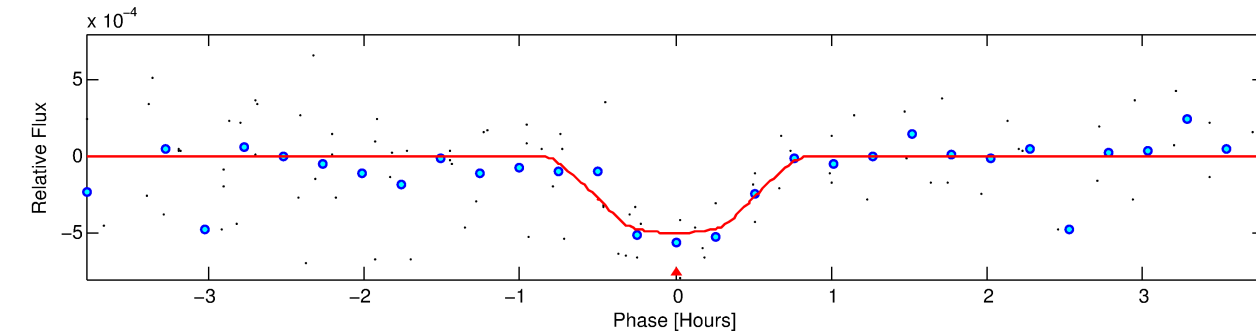
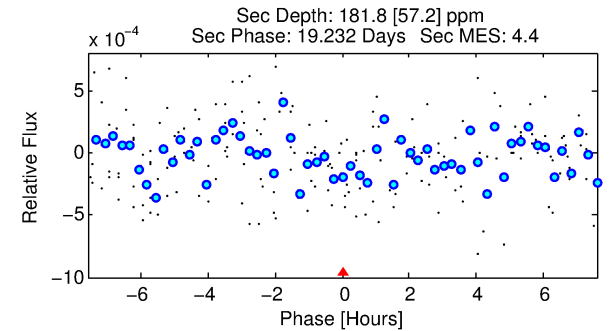
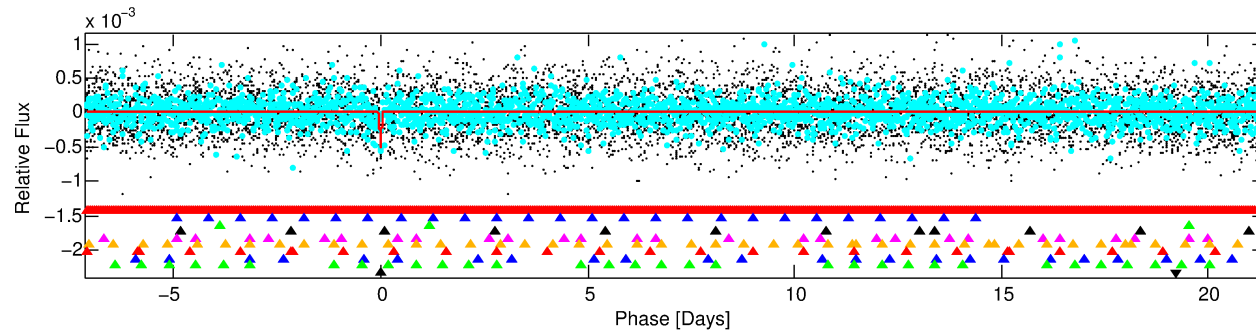
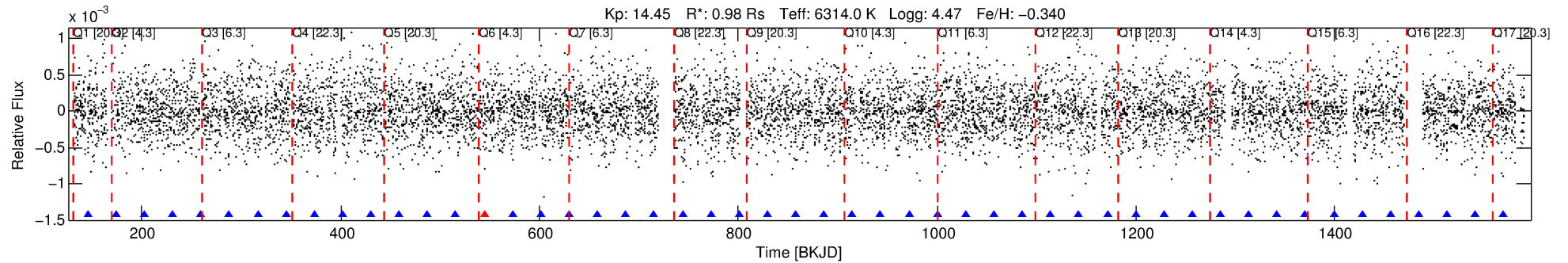
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005391767-10

No Significant Match Found

DV One-Page Summary

KIC: 5391767 Candidate: 10 of 10 Period: 28.485 d



DV Fit Results:

Period = 28.48520 [0.00023] d
Epoch = 145.7647 [0.0070] BKJD
Rp/R* = 0.0241 [0.0213]
a/R* = 84.22 [407.78]
b = 0.90 [1.04]
Seff = 40.06 [16.80]
Teff = 642 [67] K
Rp = 2.58 [2.44] Re
a = 0.1851 [0.0511] AU
Ag = 515.99 [949.90] [0.54σ]
Teffp = 4727 [2130] K [1.92σ]

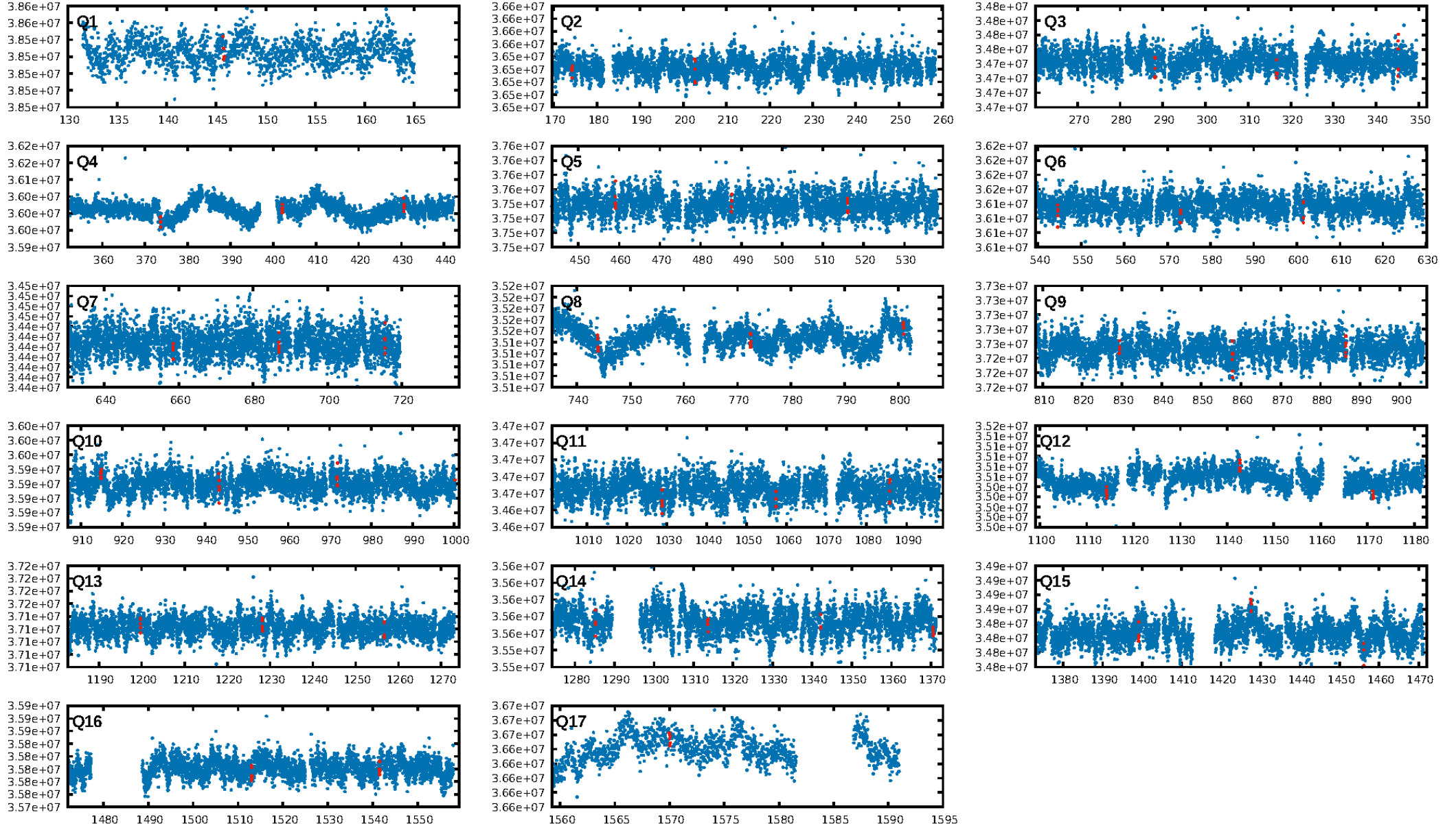
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [119.07σ]
LongPeriod-sig: 100.0% [32.32σ]
ModelChiSquare2-sig: 39.3%
ModelChiSquareGof-sig: 98.1%
Bootstrap-pfa: 4.18e-08
RollingBand-fgt: 0.90 [9/10]
GhostDiagnostic-chr: -9.283
Centroid-sig: 1.0%
Centroid-so: 1.059 arcsec [1.23σ]
OotOffset-rm: 0.851 arcsec [0.50σ]
KicOffset-rm: 4.767 arcsec [3.25σ]
OotOffset-st: 3/3/3/2 [11]
KicOffset-st: 3/3/3/2 [11]
DiffImageQuality-fgm: 0.27 [3/11]
DiffImageOverlap-fno: 0.35 [6/17]

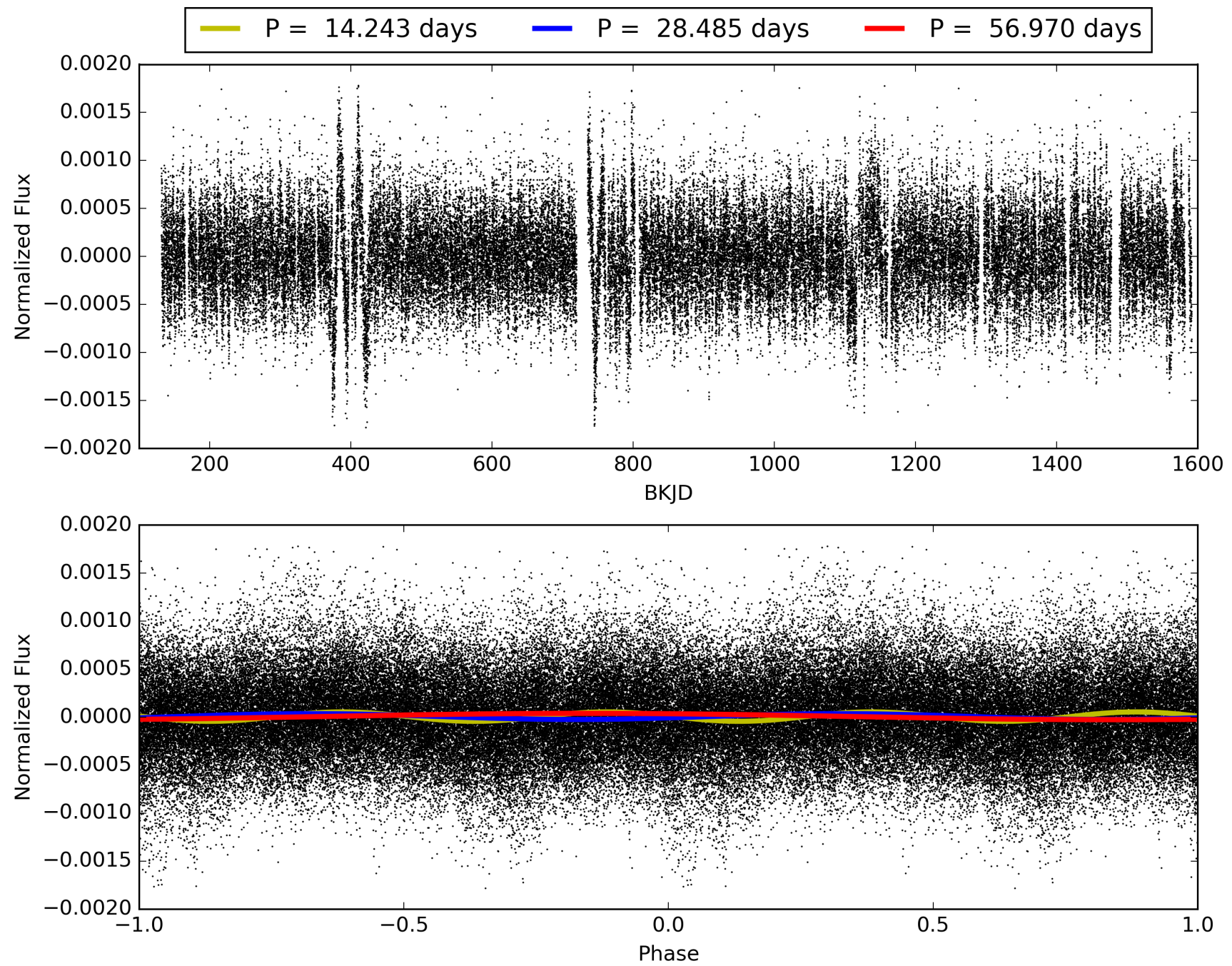
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:11:05 Z

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

TCE 005391767-10, PDC Light Curves

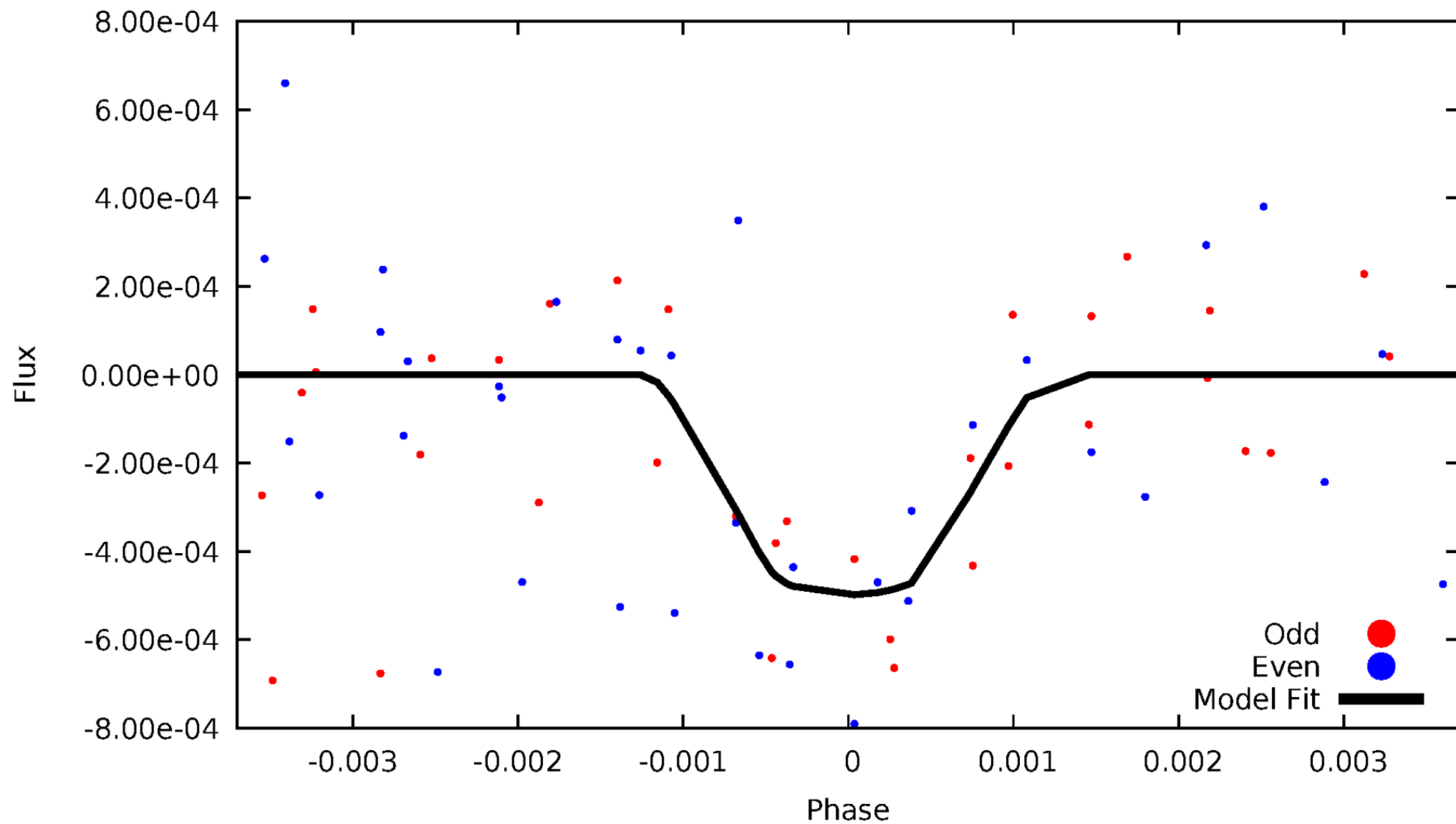


TCE 005391767-10



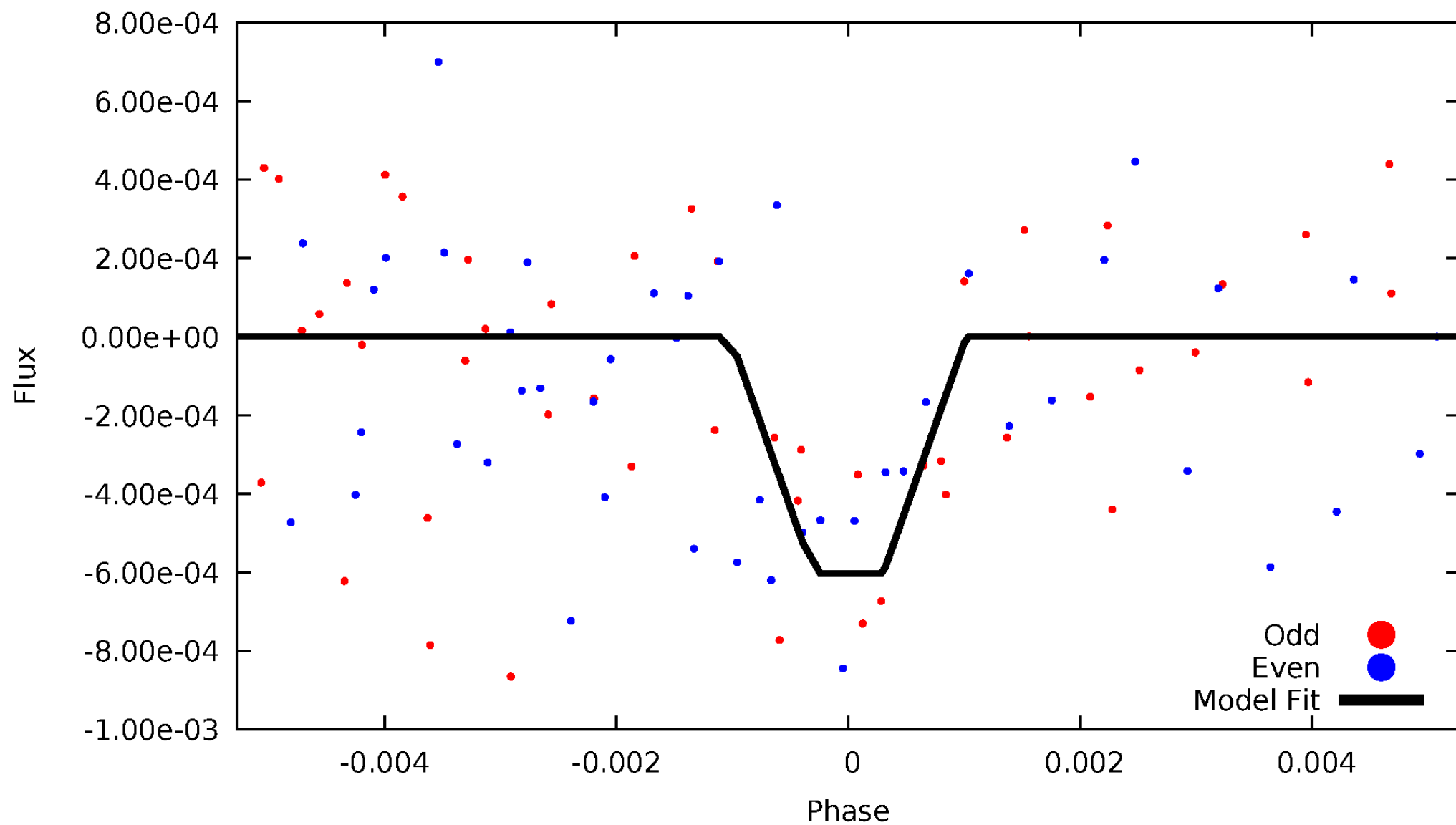
DV Odd/Even

TCE 005391767-10



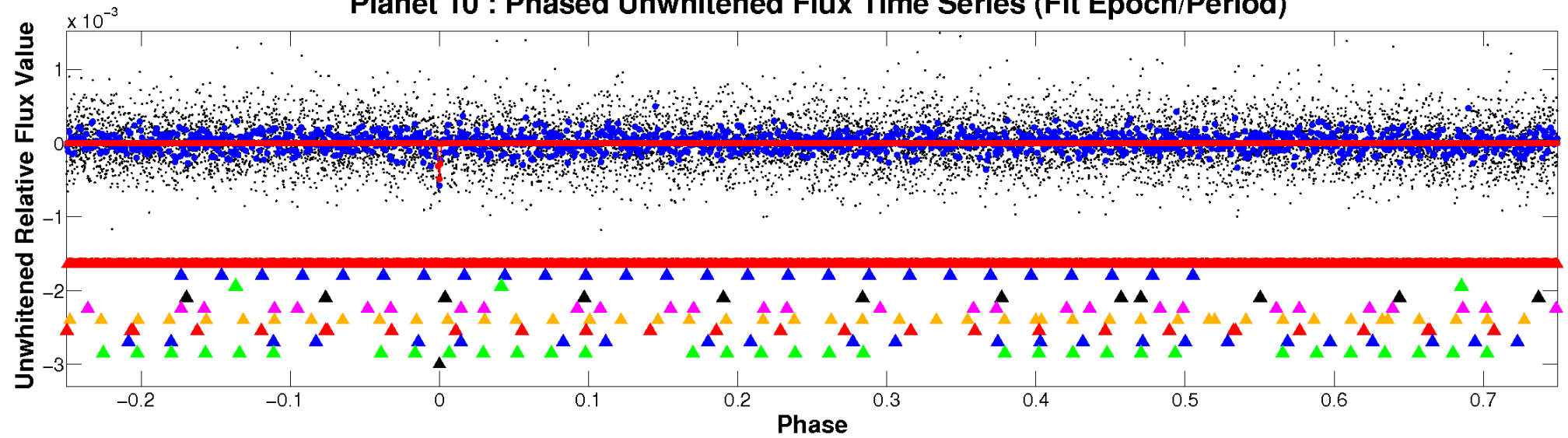
ALT Odd/Even

TCE 005391767-10

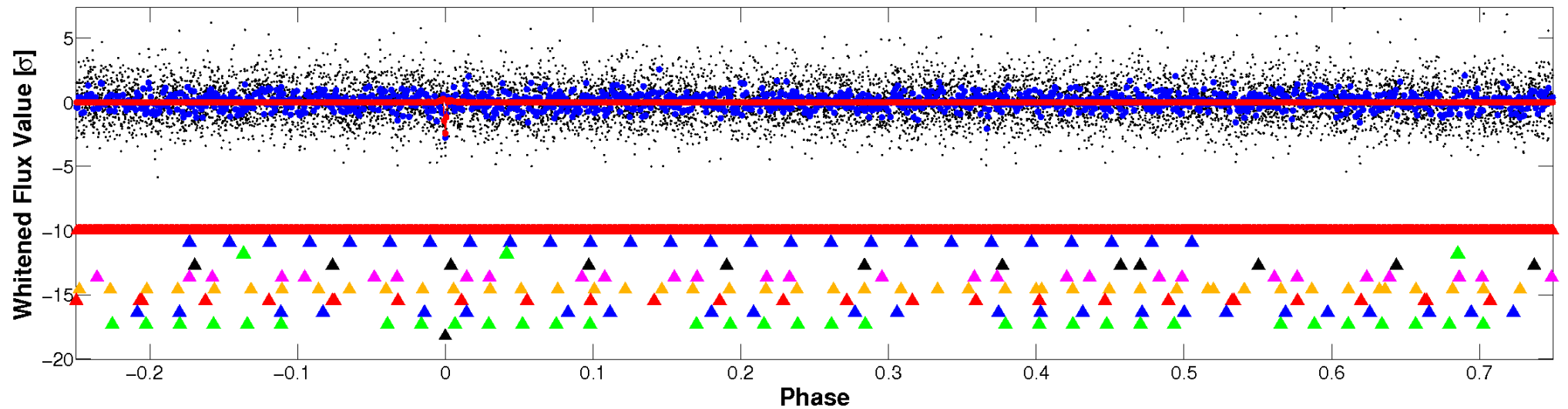


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

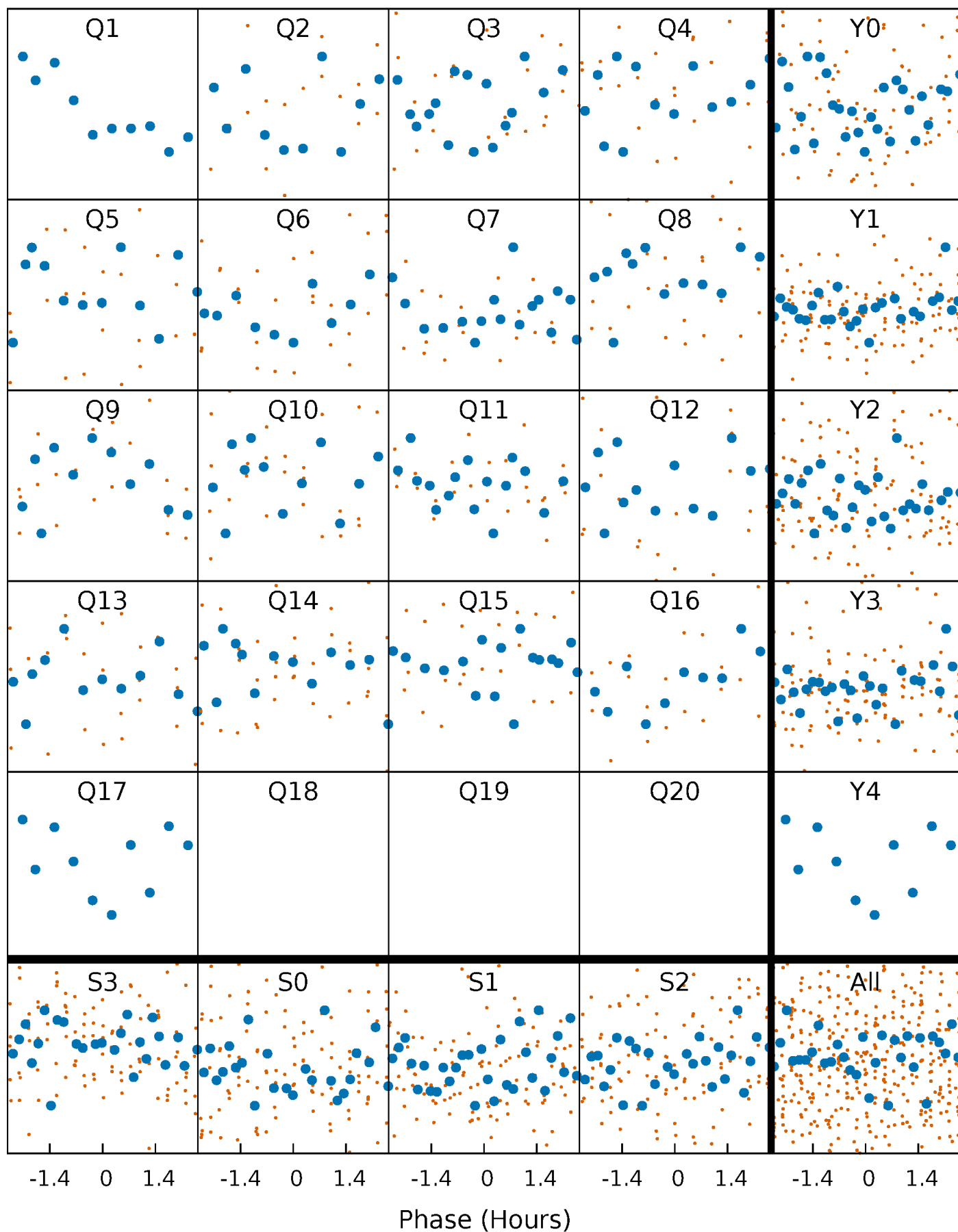


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



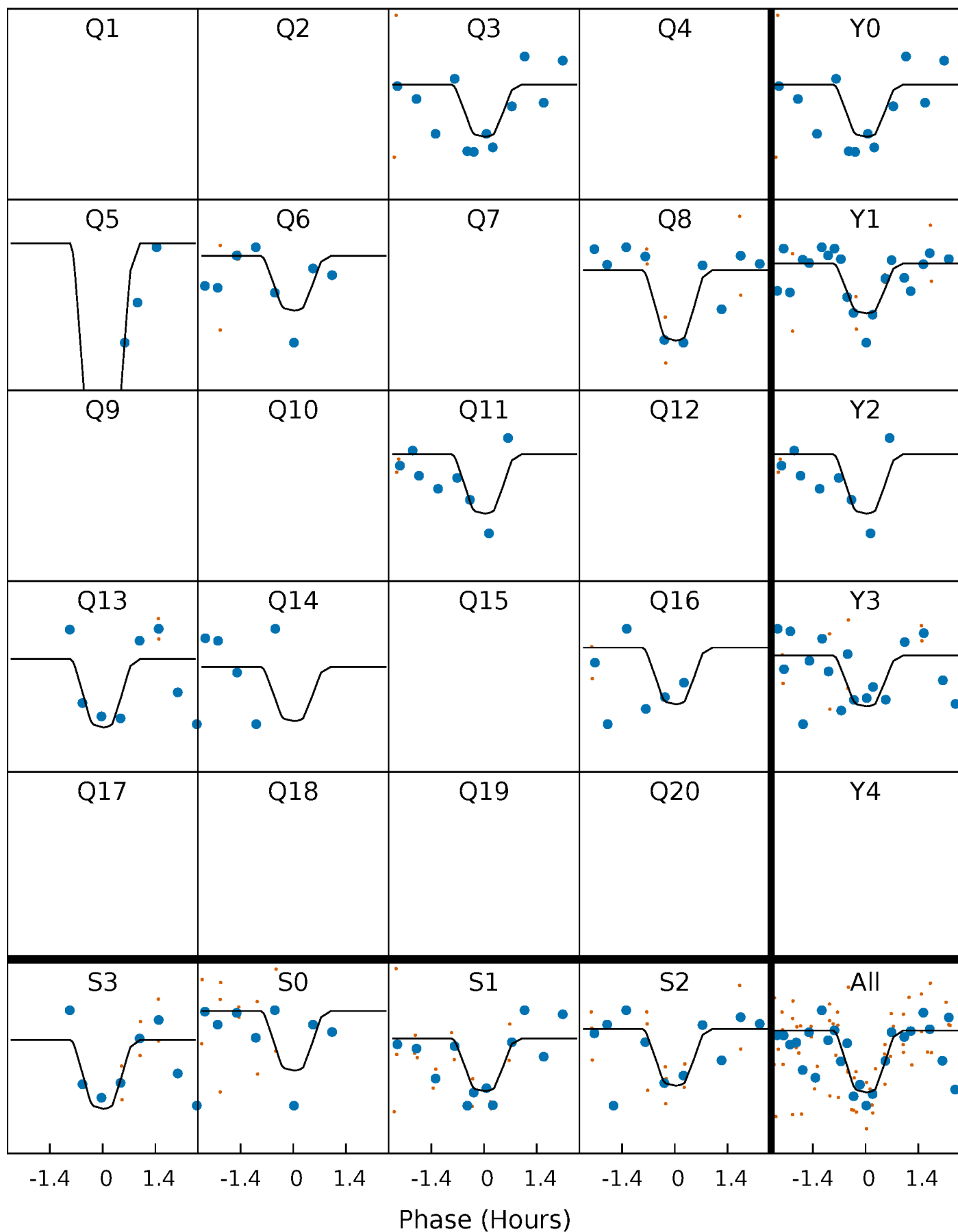
PDC Quarter-Phased Transit Curves

TCE 005391767-10 P= 28.485201 Days $T_0=145.764735$ (BKJD)



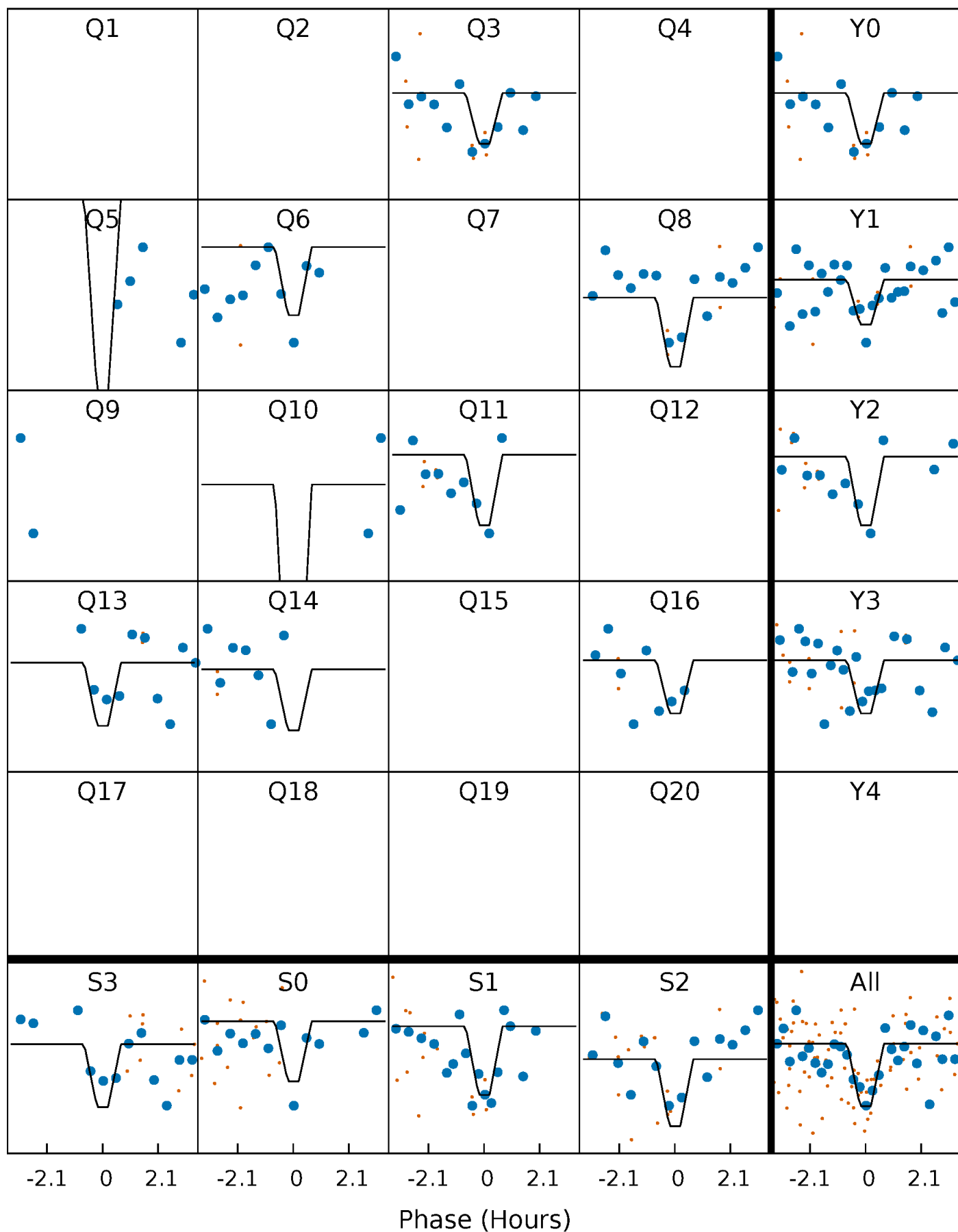
DV Quarter-Phased Transit Curves

TCE 005391767-10 P= 28.485201 Days $T_0=145.764735$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

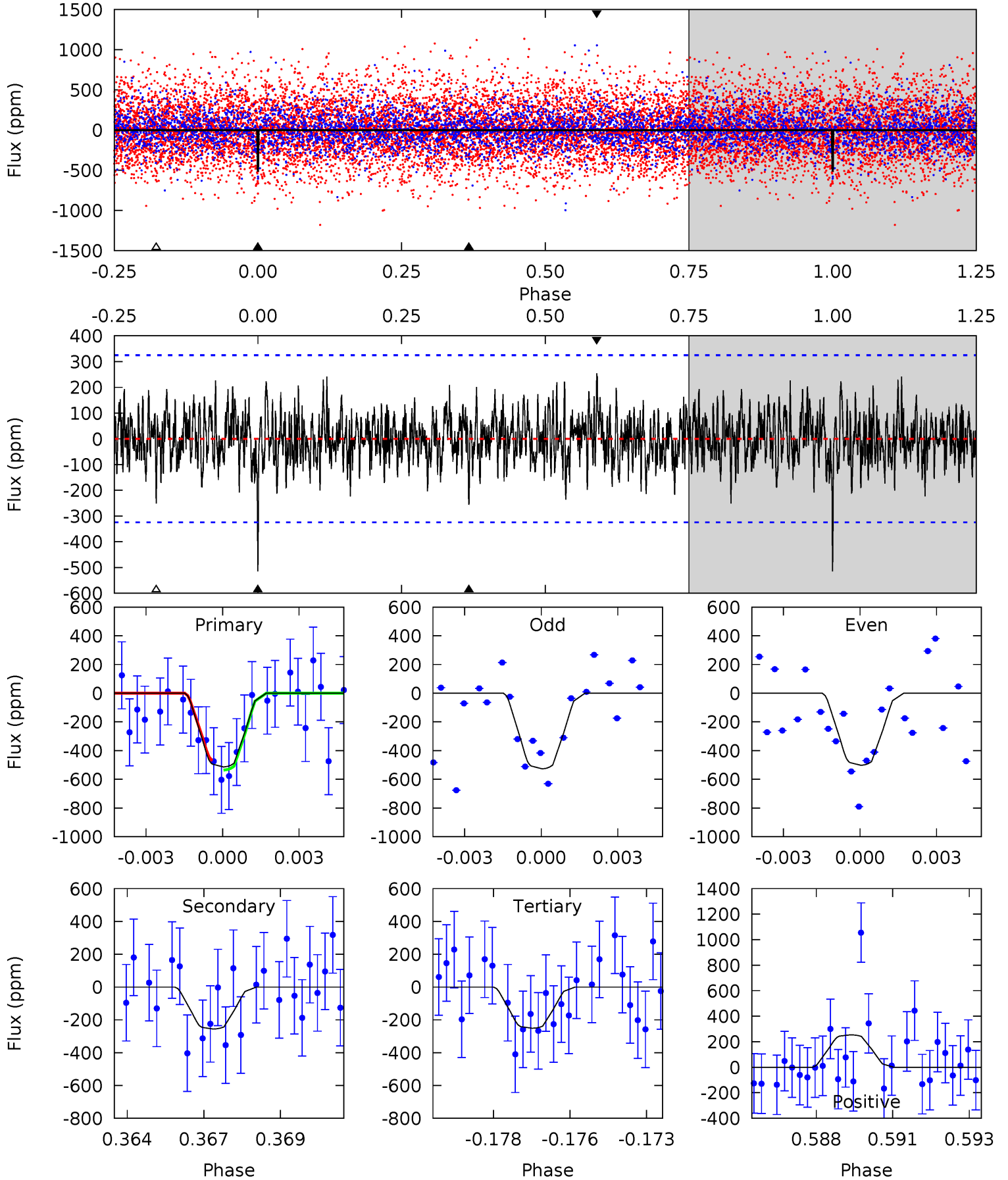
TCE 005391767-10 P= 28.485054 Days $T_0=145.769160$ (BKJD)



DV Model-Shift Uniqueness Test

005391767-10, P = 28.485201 Days, E = 117.279534 Days

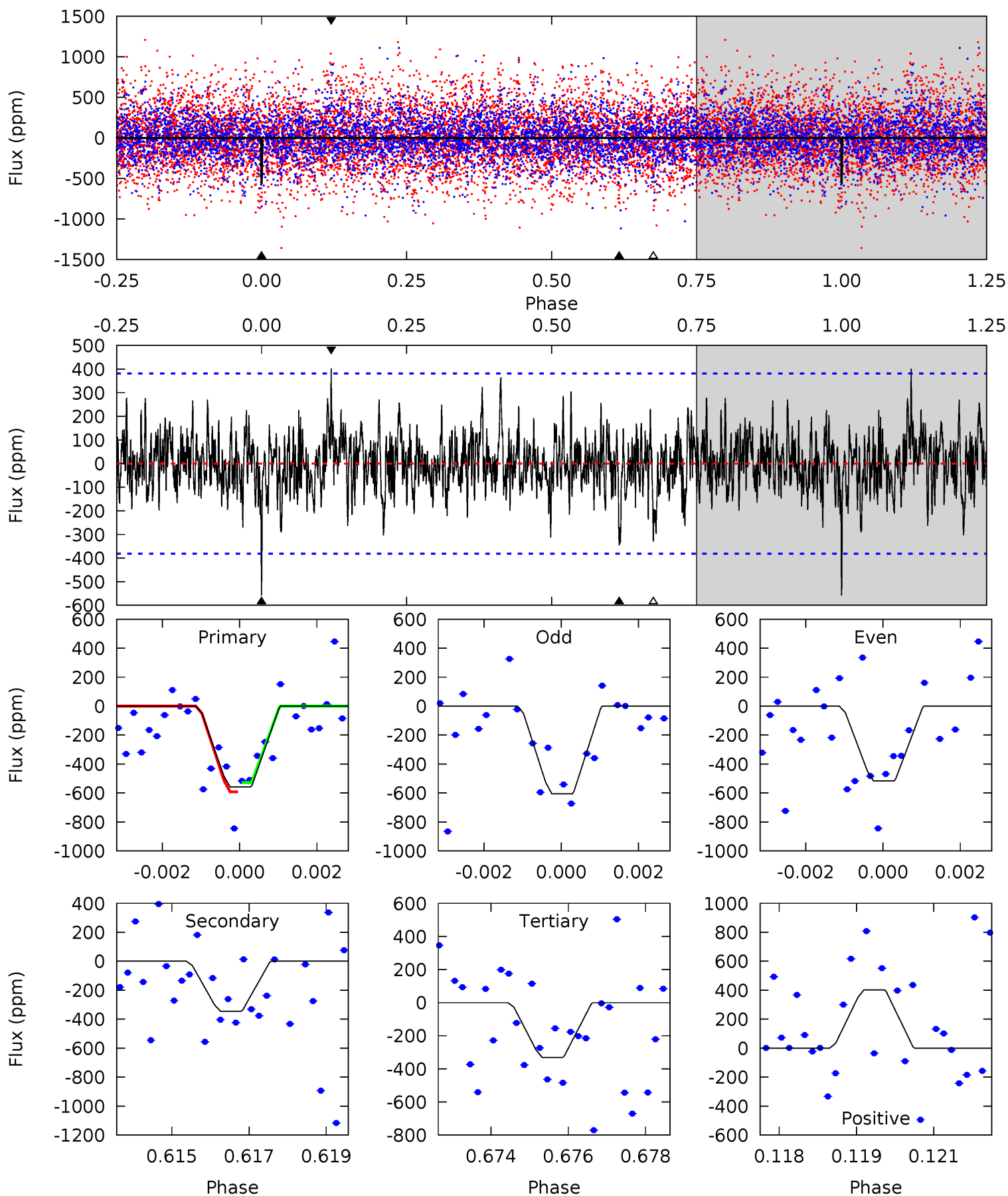
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.37	4.17	4.09	4.14	5.28	3.02	1.28	4.28	4.23	0.08	0.03	0.20	0.95	0.33	0.55



Alt Model-Shift Uniqueness Test

005391767-10, P = 28.485054 Days, E = 117.284106 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.79	4.83	4.62	5.62	5.33	3.10	1.39	3.18	2.17	0.21	-0.79	0.62	1.01	0.42	0.44



Stellar Parameters For KIC 005391767

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6314^{+169}_{-207}	$4.472^{+0.054}_{-0.216}$	$-0.340^{+0.300}_{-0.300}$	$0.982^{+0.325}_{-0.102}$	$1.043^{+0.146}_{-0.133}$	$1.551^{+0.348}_{-0.869}$
	+3%/-3%	+1%/-5%	+88%/-88%	+33%/-10%	+14%/-13%	+22%/-56%
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 005391767-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-256 ± 61	$3.18^{+2.28}_{-1.97}$	918^{+71}_{-49}	4808^{+3118}_{-865}	451^{+2728}_{-301}
Alt.	-346 ± 72	$3.12^{+2.34}_{-1.85}$	916^{+67}_{-48}	5204^{+3243}_{-1005}	644^{+3264}_{-431}

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

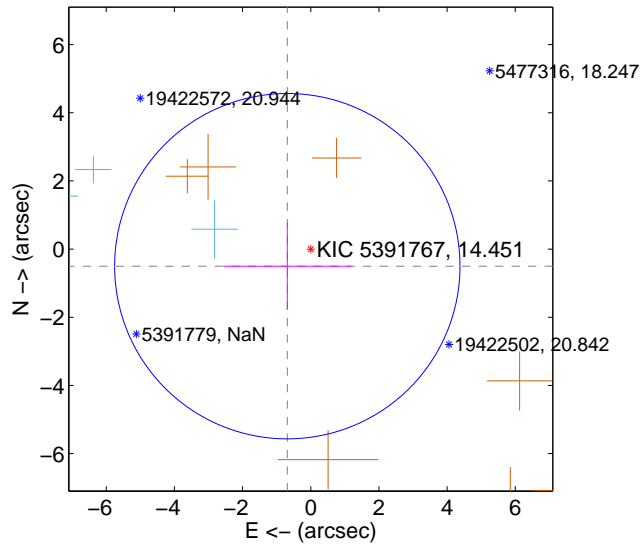
Supplemental centroid analysis for 005391767-10. Kepler magnitude: 14.45. Transit SNR 9.02

There are 3 quarters with good PRF difference image offsets

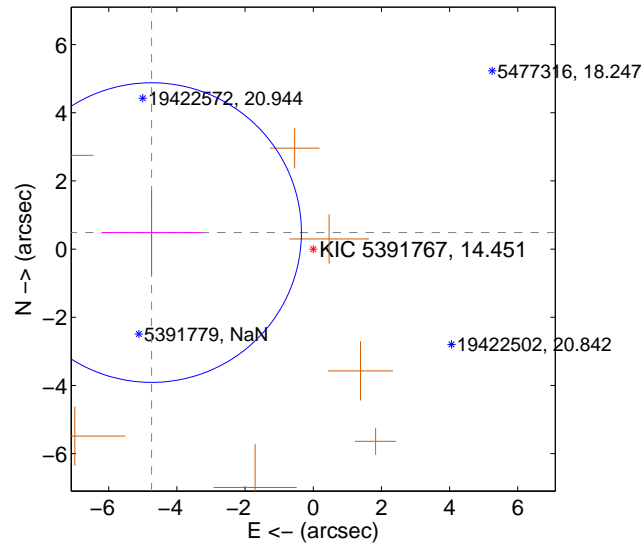
The OOT PRF centroid is offset from the target star catalog position by about 4.27 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.851 ± 1.689	0.50	0.688 ± 1.874	-0.501 ± 1.269
PRF-fit source offset from KIC position	4.767 ± 1.465	3.25	4.743 ± 1.467	0.485 ± 1.221
photometric centroid source offset	1.06 ± 0.86	1.23	1.02 ± 0.88	-0.29 ± 0.62

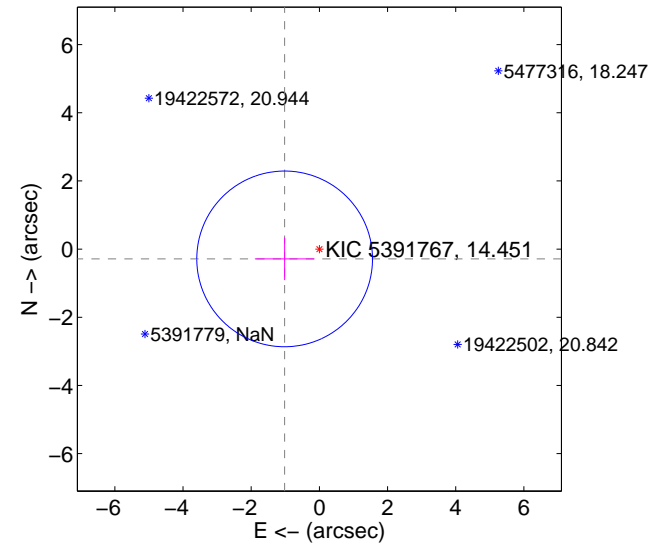
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

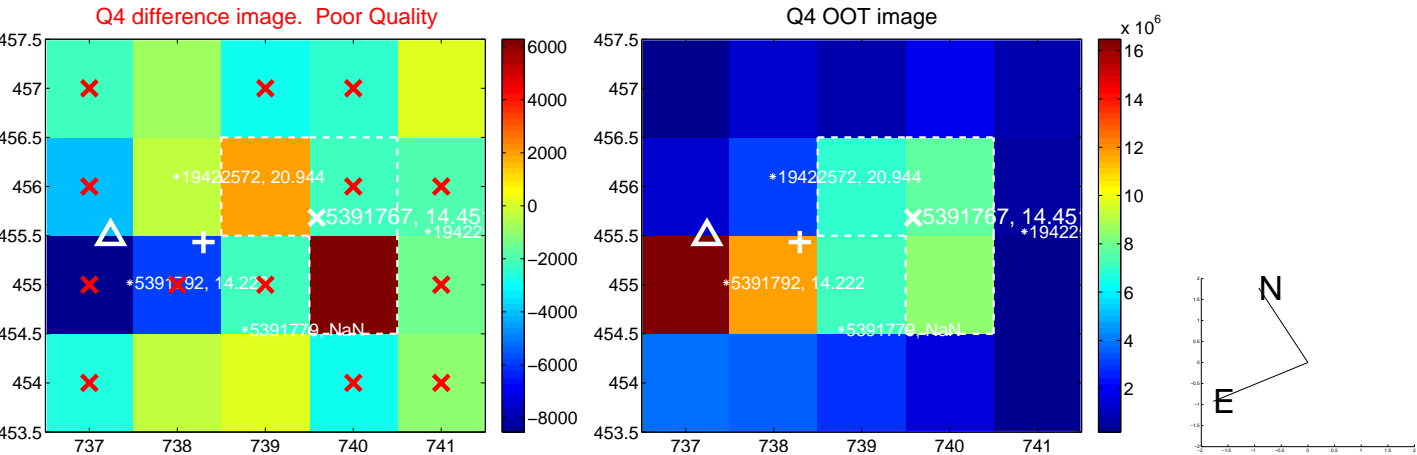
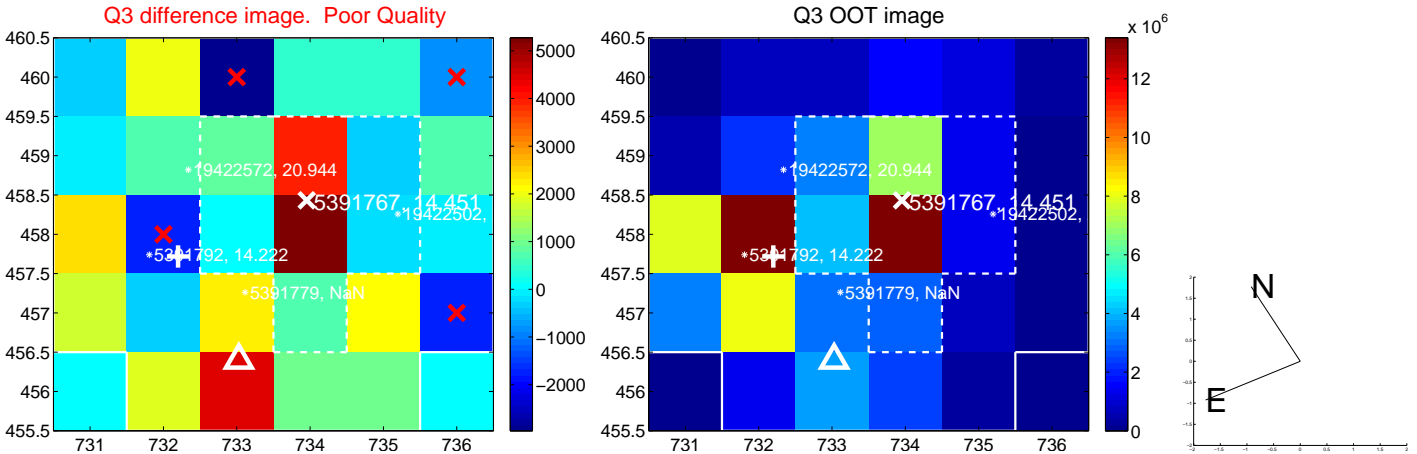
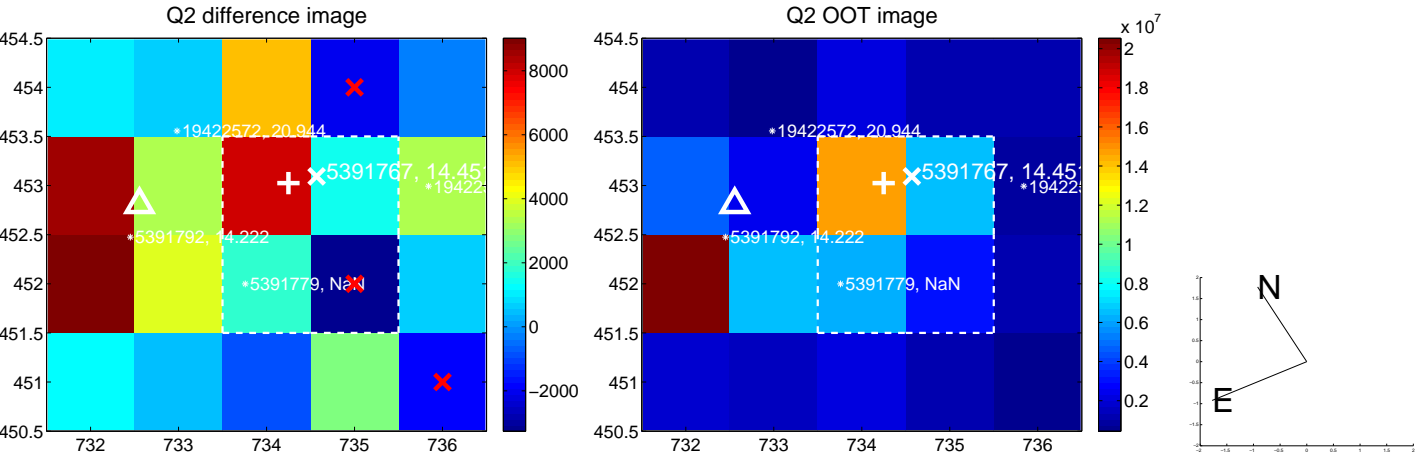
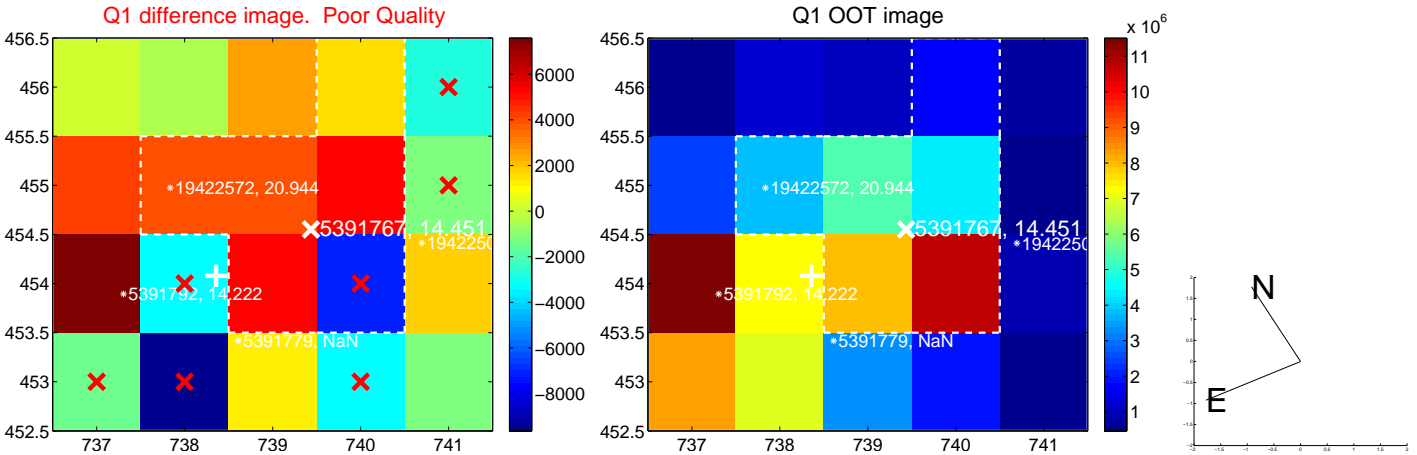


offset from photometric centroids

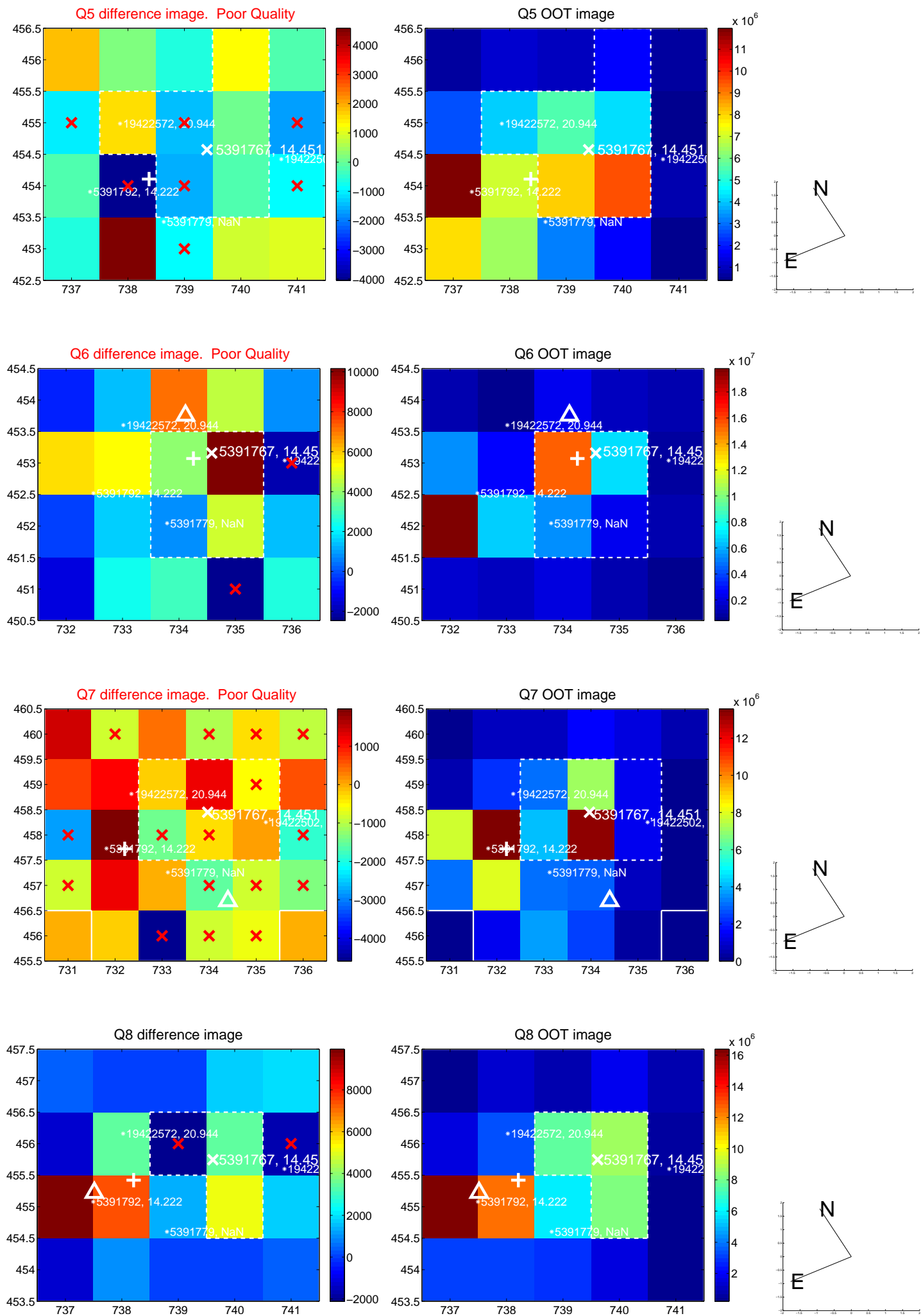


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

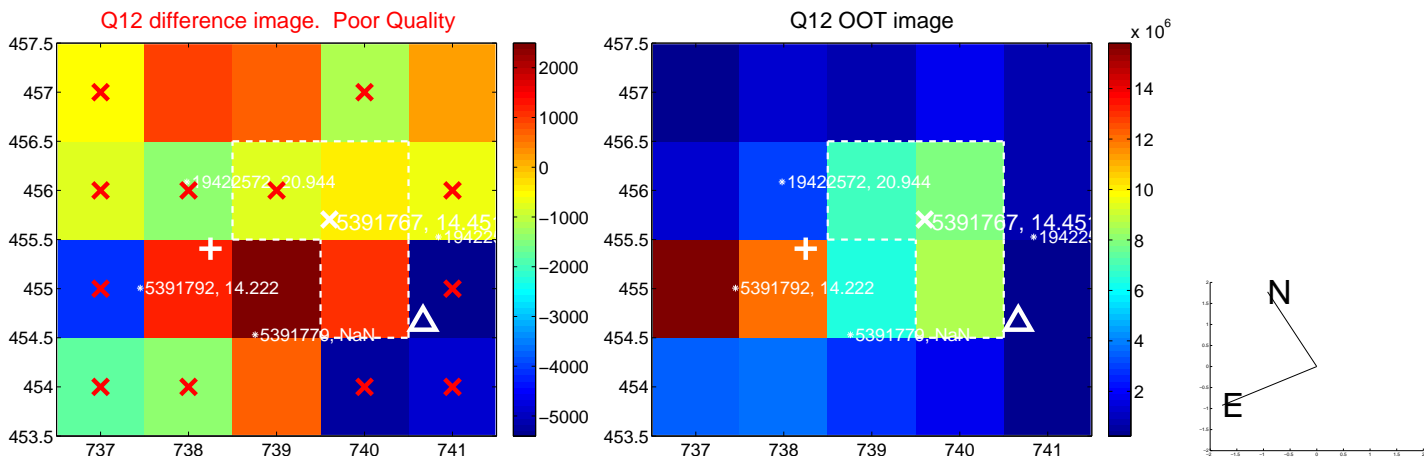
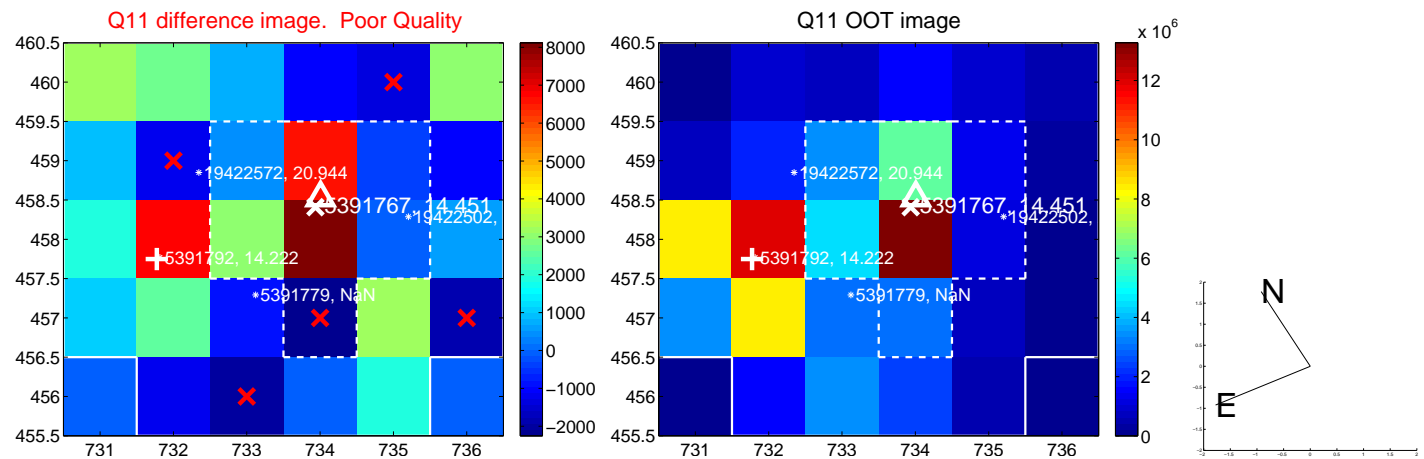
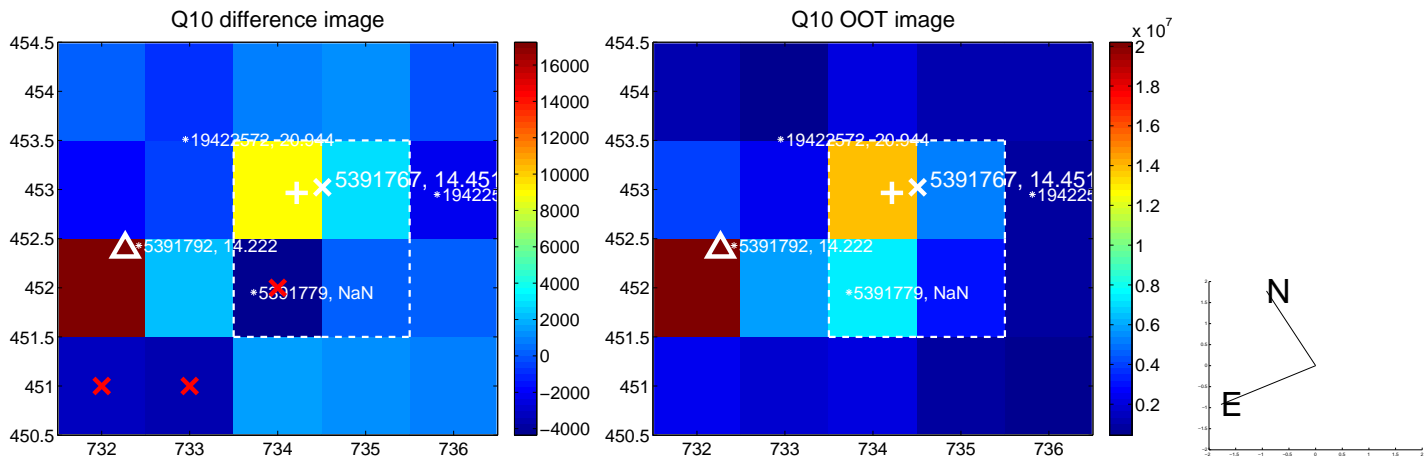
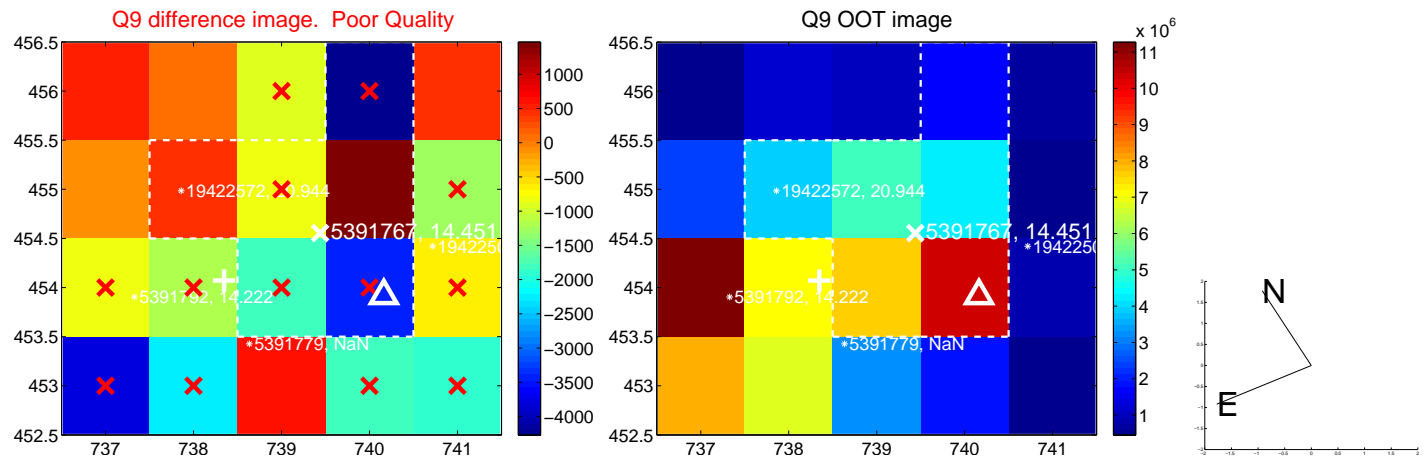
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



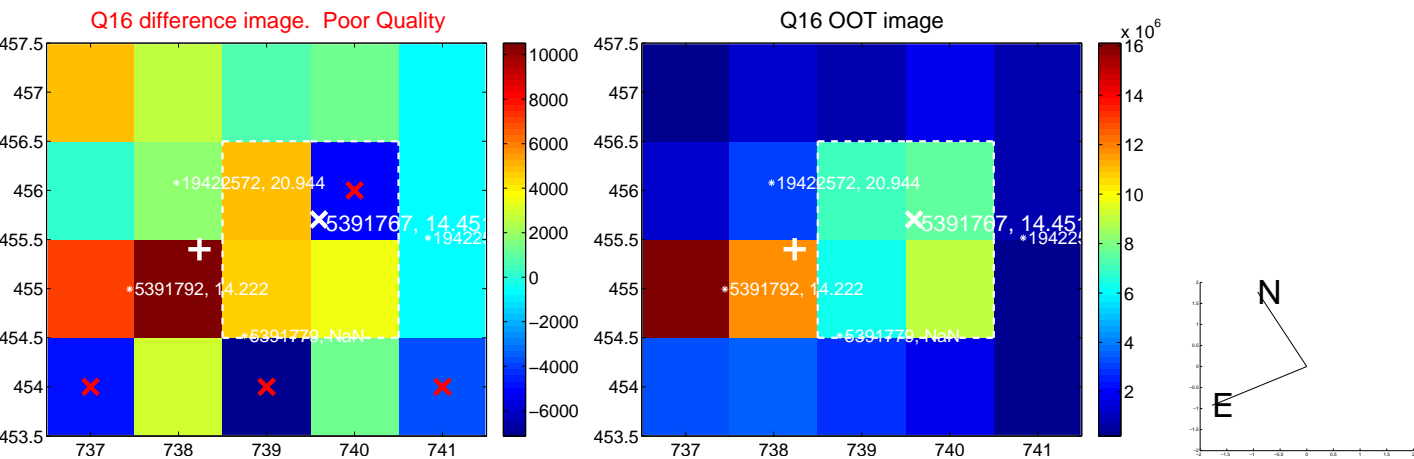
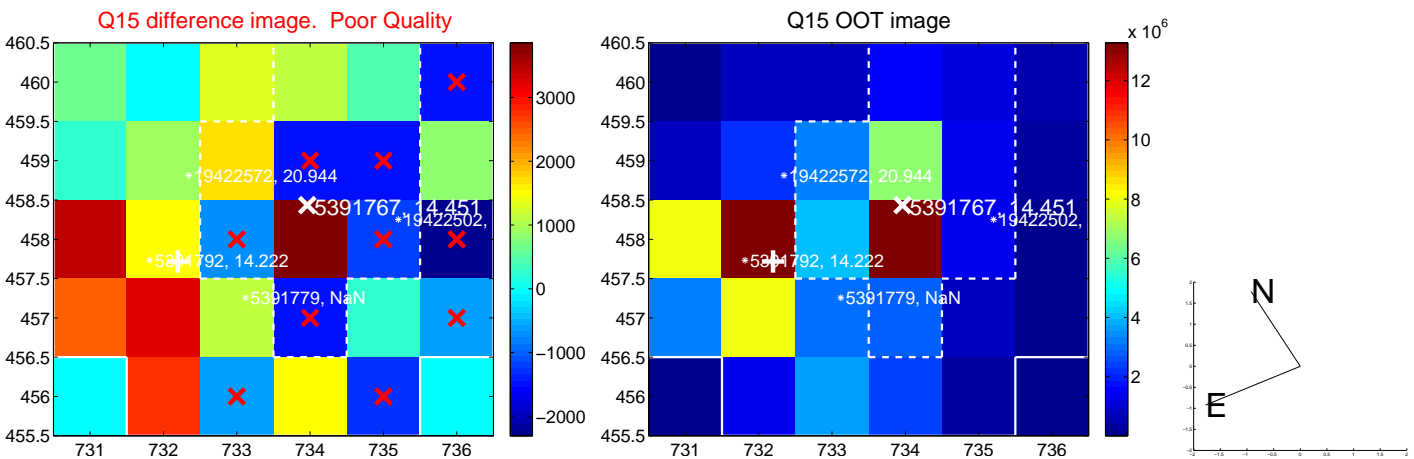
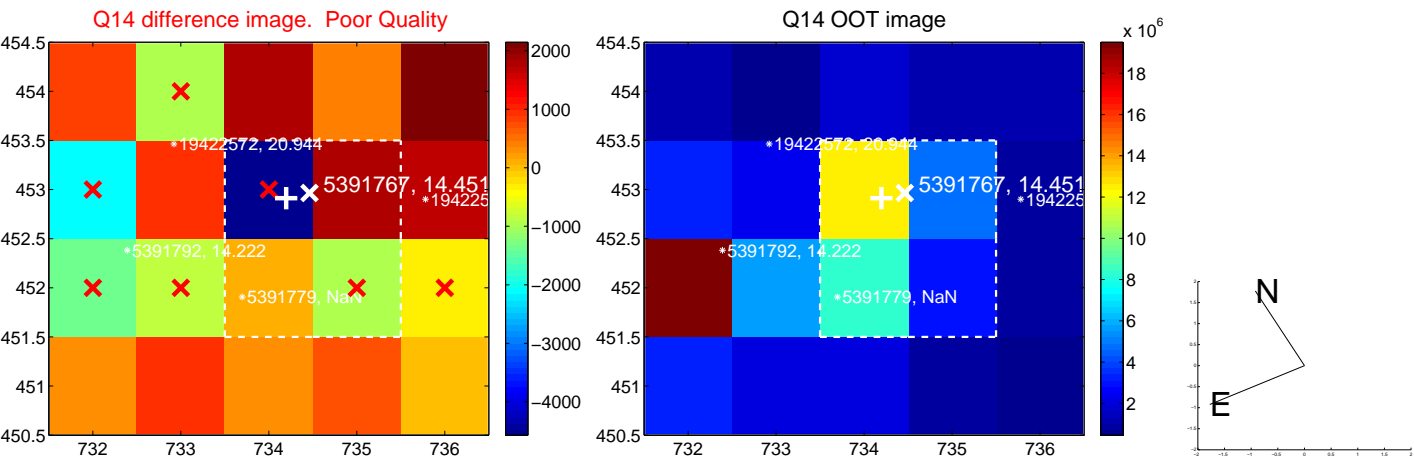
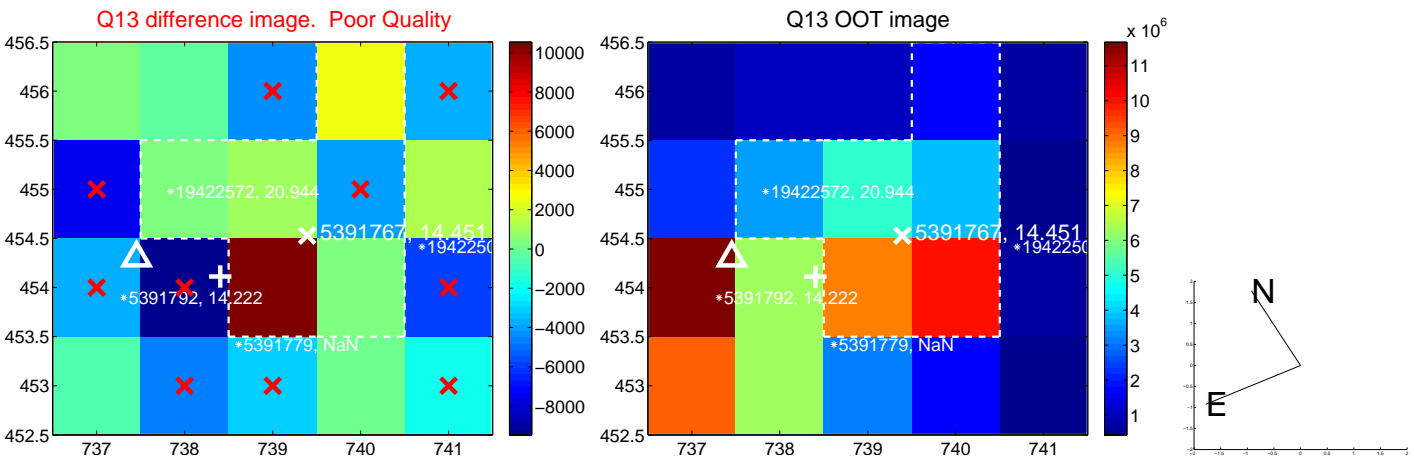
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



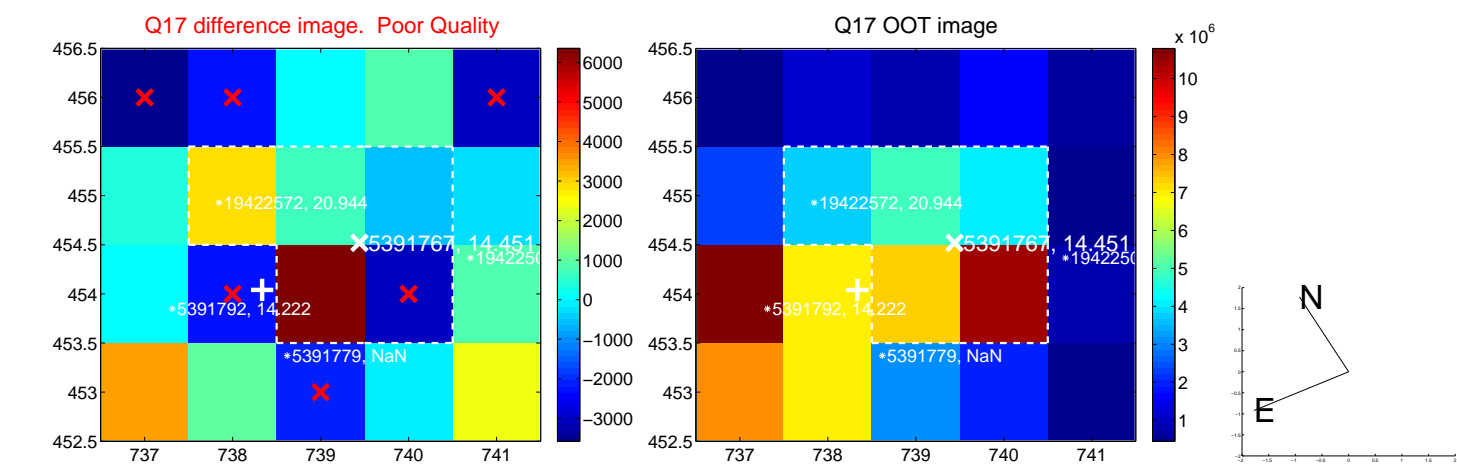
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



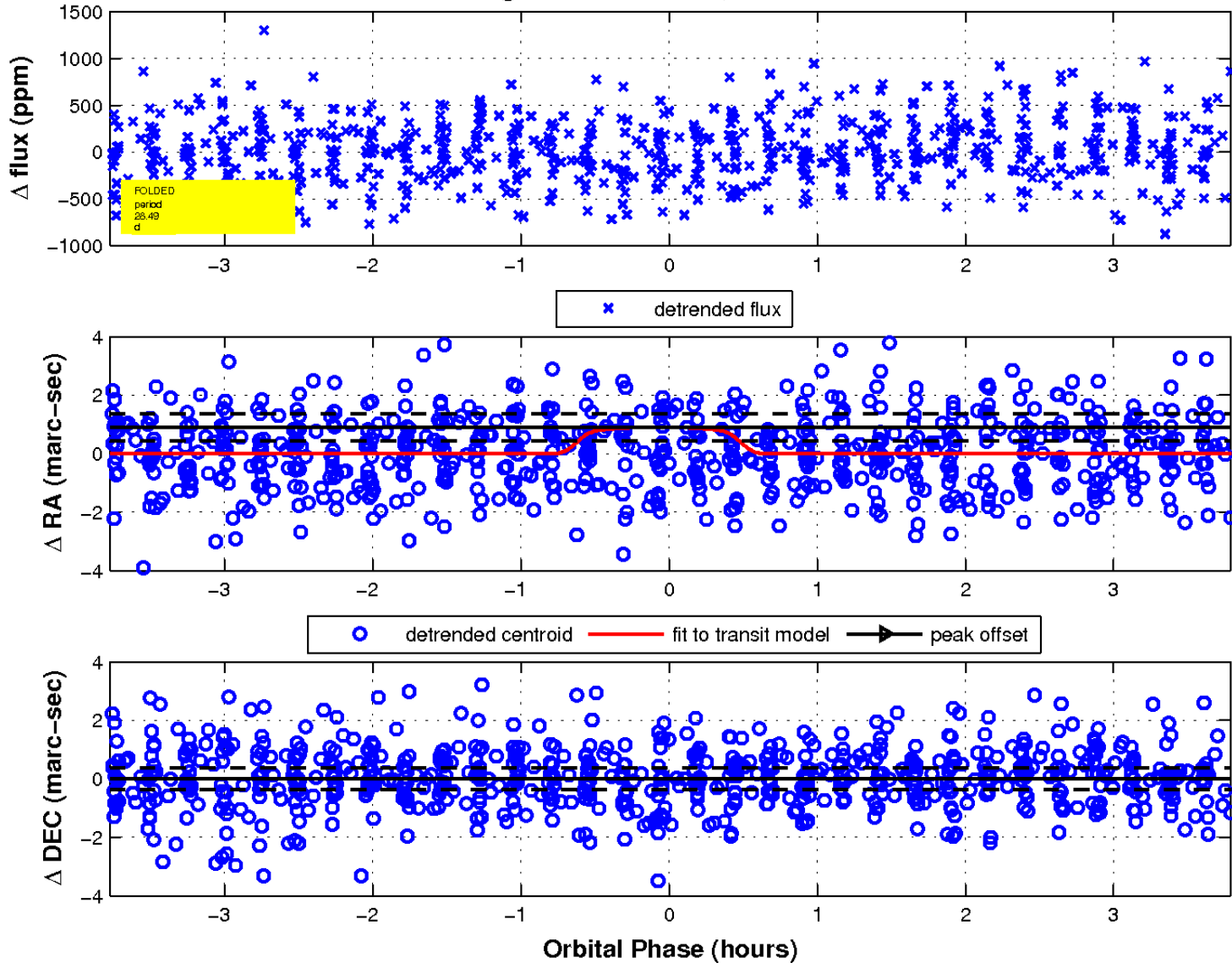
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 10 of 10



UKIRT Image

Declination

