

KIC 007106648

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})
007106648-01	OBS	No	1.259306	132.195766	27.6	2.005	8.0	5.6	1.63	7268	1.03	10245.83
007106648-02	OBS	No	0.629649	131.968347	10.3	3.960	7.6	2.5	1.63	7268	0.56	25818.10
007106648-03	OBS	No	79.392983	199.507695	895.7	4.205	8.9	6.7	1.63	7268	5.53	40.83
007106648-04	OBS	No	18.012478	138.912332	1021.9	3.807	9.0	10.9	1.63	7268	9.72	295.09
007106648-05	OBS	No	23.166524	132.159124	652.9	3.063	8.3	6.0	1.63	7268	6.25	210.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007106648-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
007106648-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
007106648-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007106648-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007106648-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

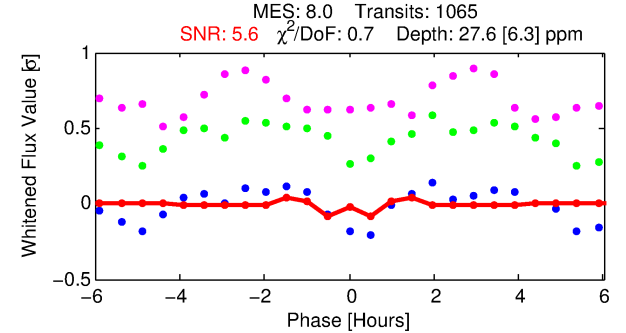
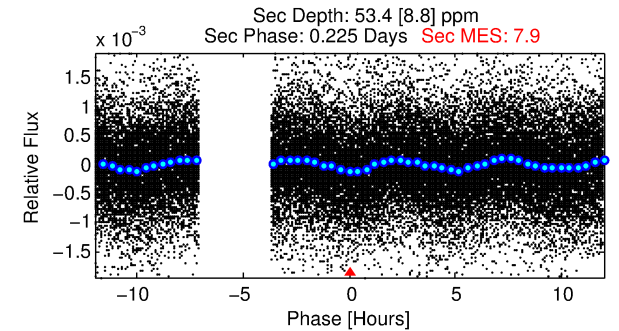
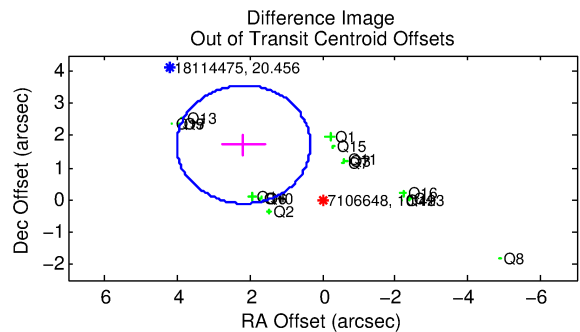
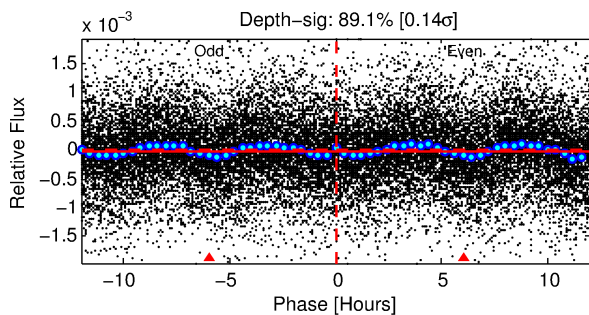
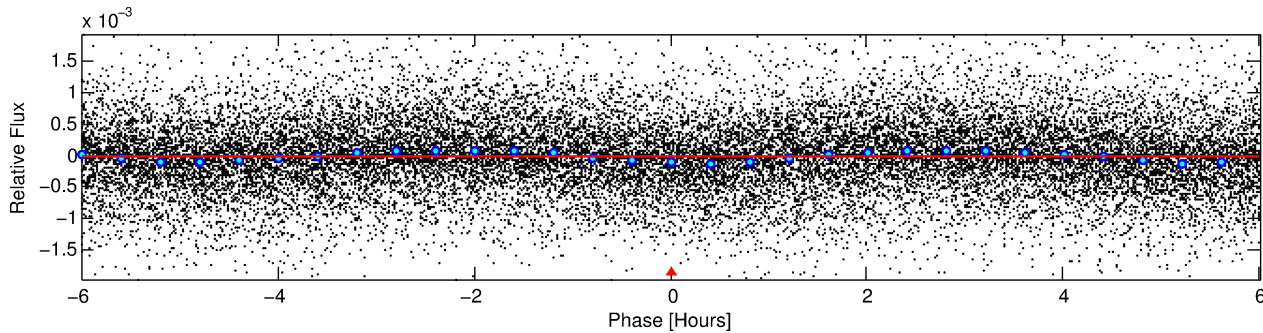
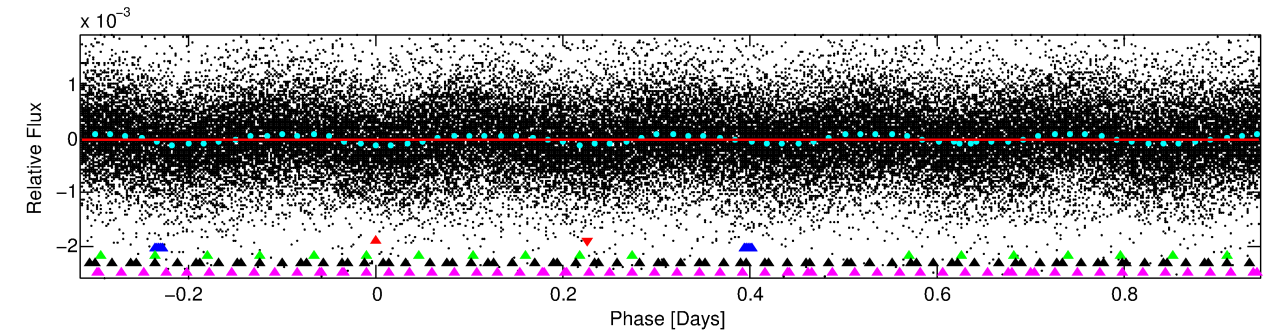
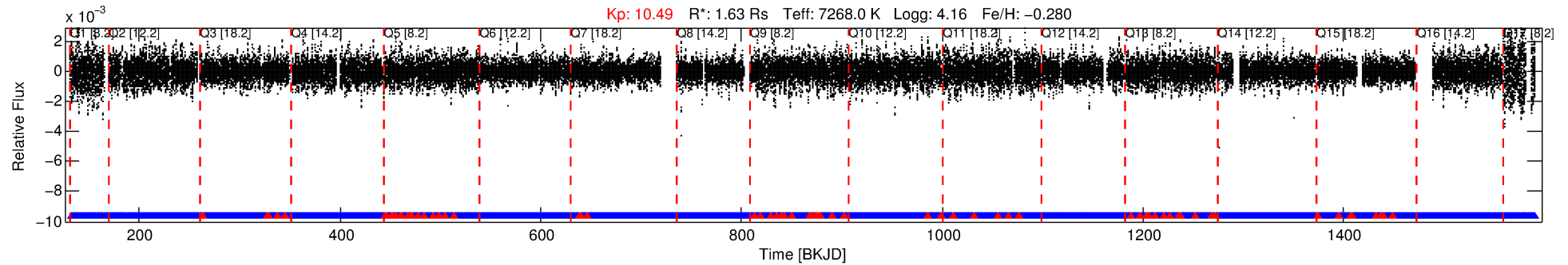
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007106648-01

No Significant Match Found

DV One-Page Summary

KIC: 7106648 Candidate: 1 of 5 Period: 1.259 d



DV Fit Results:

Period = 1.25931 [0.00002] d
Epoch = 132.1958 [0.0015] BKJD
Rp/R* = 0.0058 [0.0013]
a/R* = 1.96 [1.78]
b = 0.94 [0.15]
Seff = 10245.83 [3983.55]
Teq = 2565 [249] K
Rp = 1.03 [0.41] Re
a = 0.0255 [0.0065] AU
Ag = 17.86 [10.76] [1.57 σ]
Teffp = 8154 [1037] K [5.24 σ]

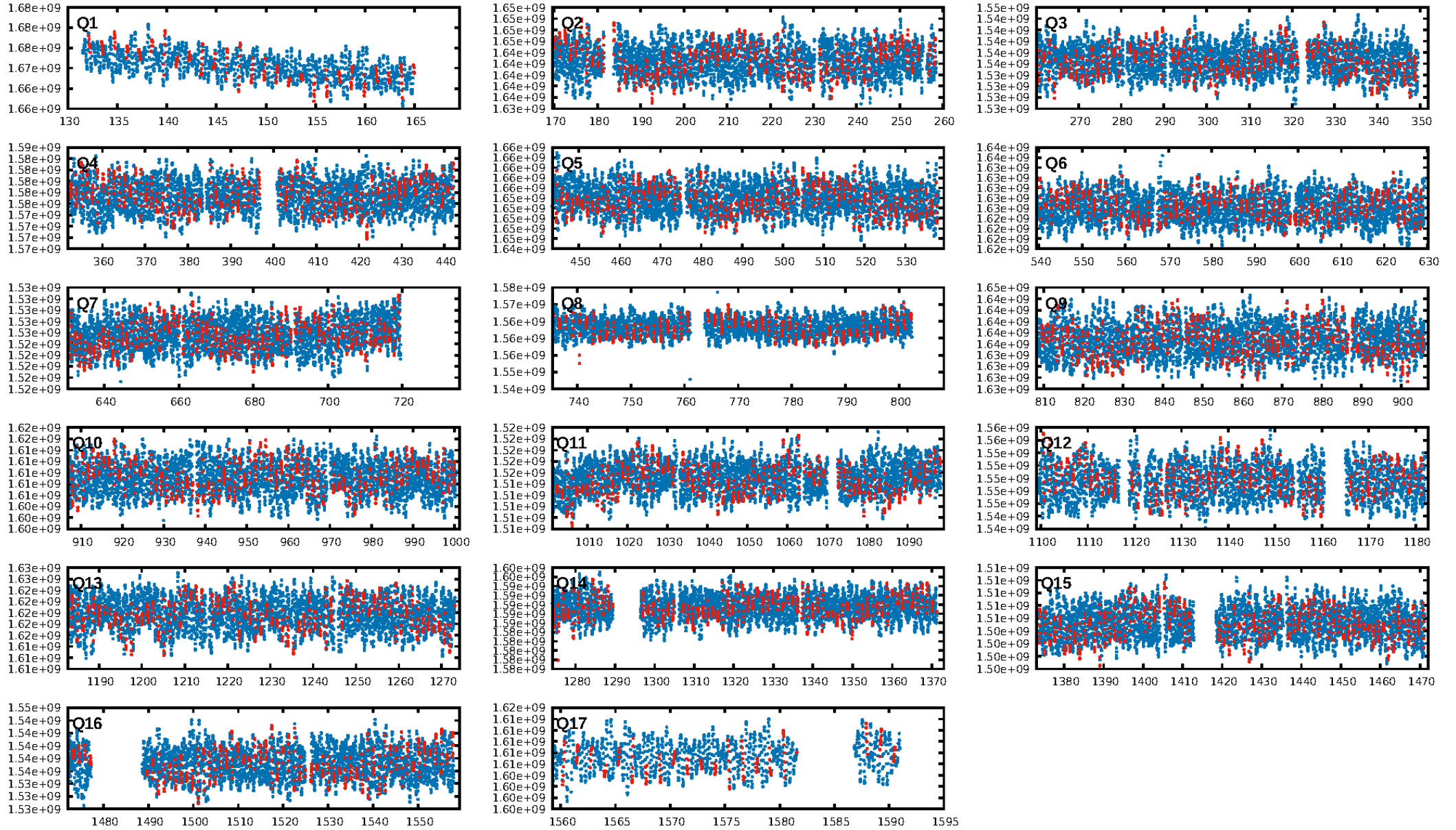
DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.41 σ]
LongPeriod-sig: 100.0% [93.46 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.99e-09
RollingBand-fgt: 0.93 [946/1018]
GhostDiagnostic-chr: 0.5514
Centroid-sig: 0.0%
Centroid-so: 2.053 arcsec [2.50 σ]
OotOffset-rm: 2.770 arcsec [4.51 σ]
KicOffset-rm: 2.880 arcsec [4.64 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.24 [4/17]
DiffImageOverlap-fno: 0.00 [0/17]

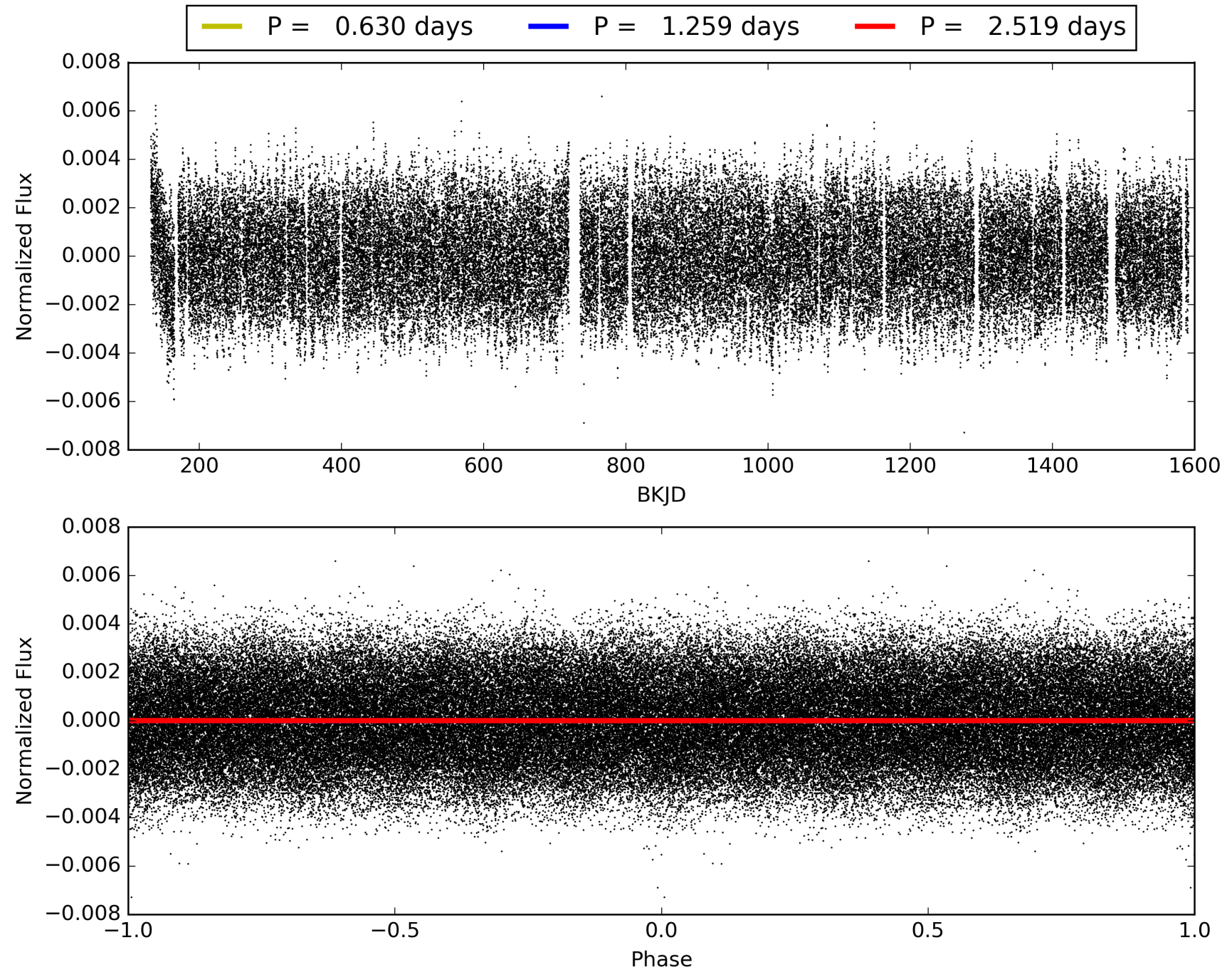
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:16:51 Z

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

TCE 007106648-01, PDC Light Curves

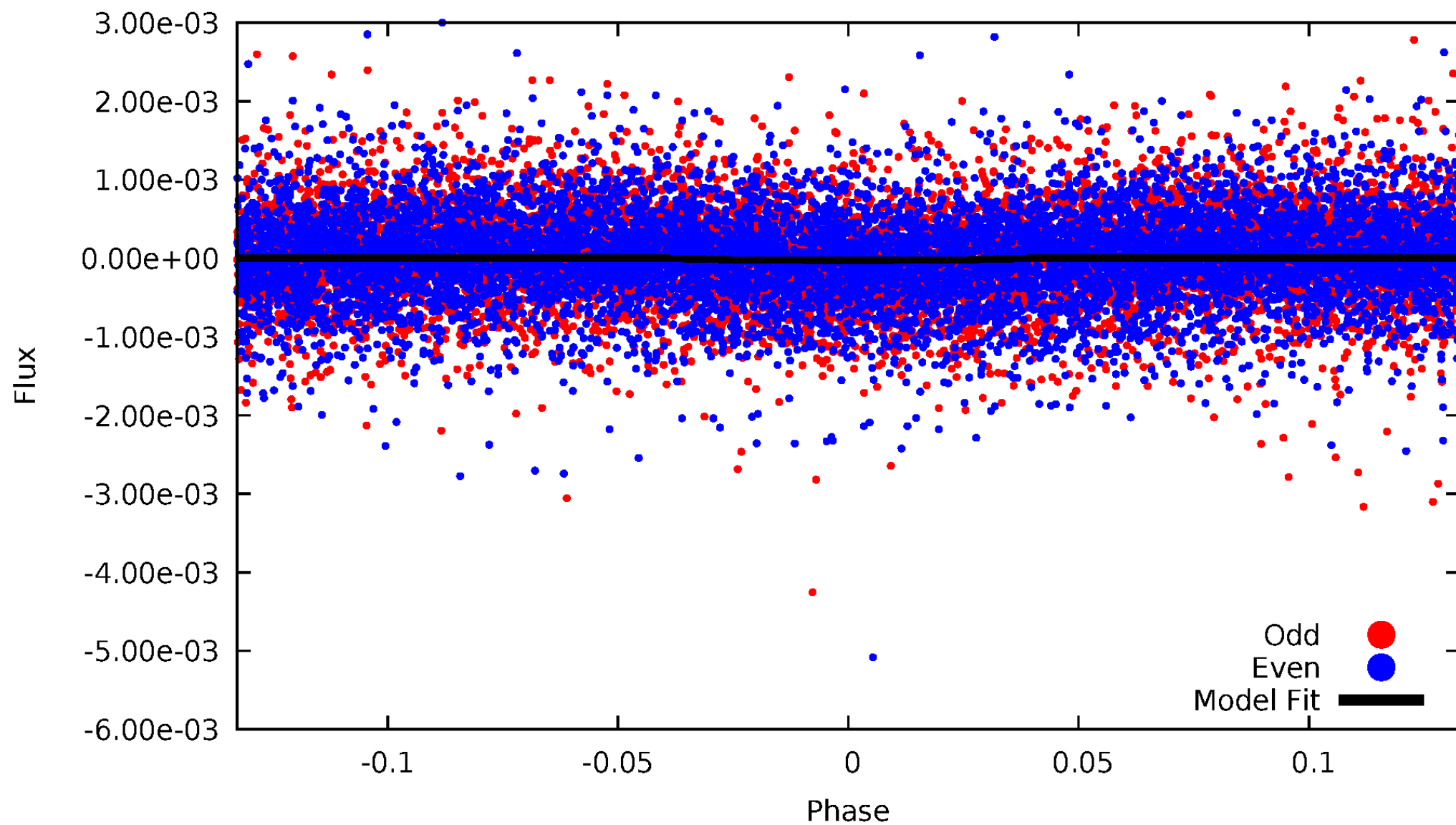


TCE 007106648-01



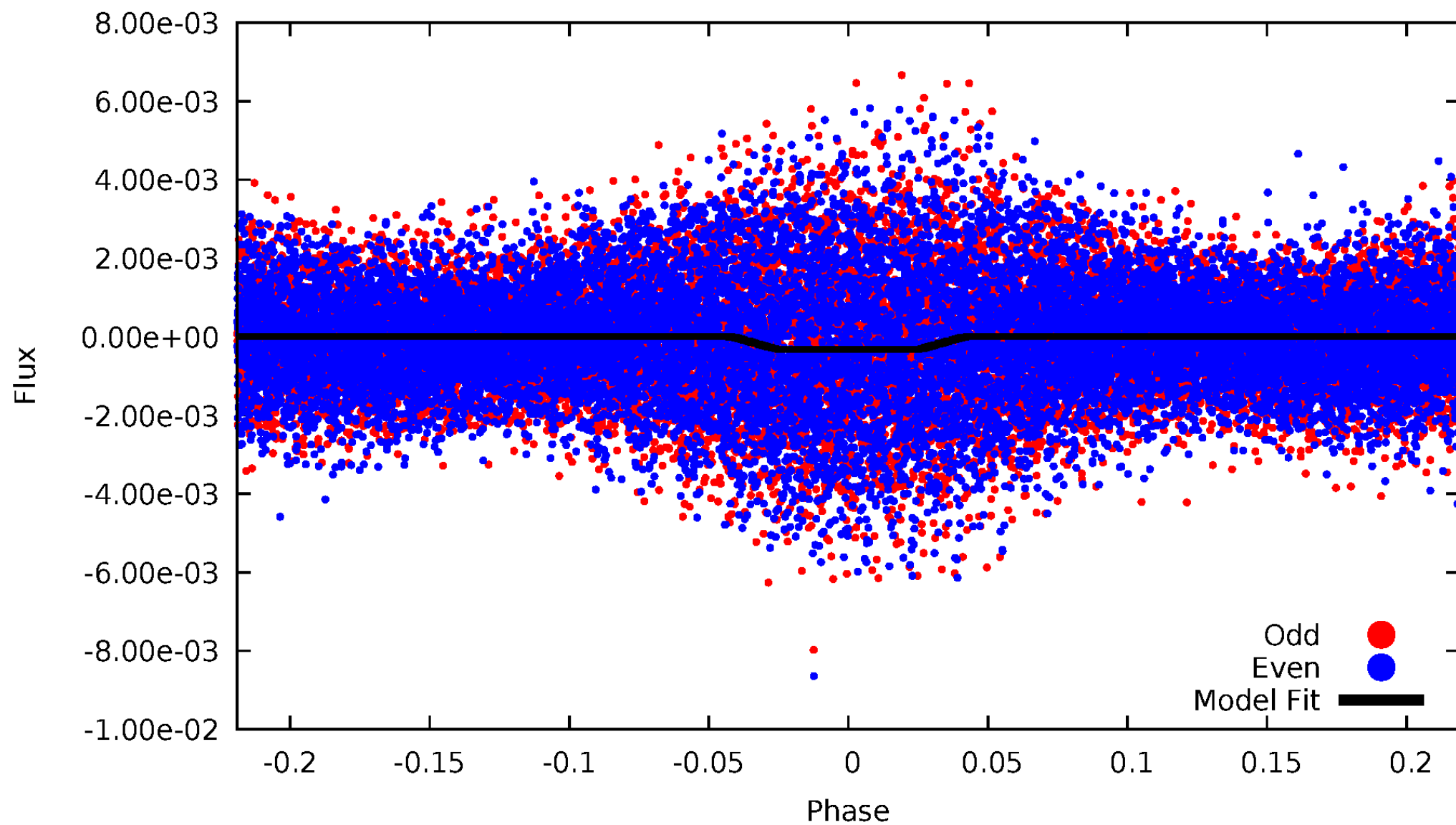
DV Odd/Even

TCE 007106648-01

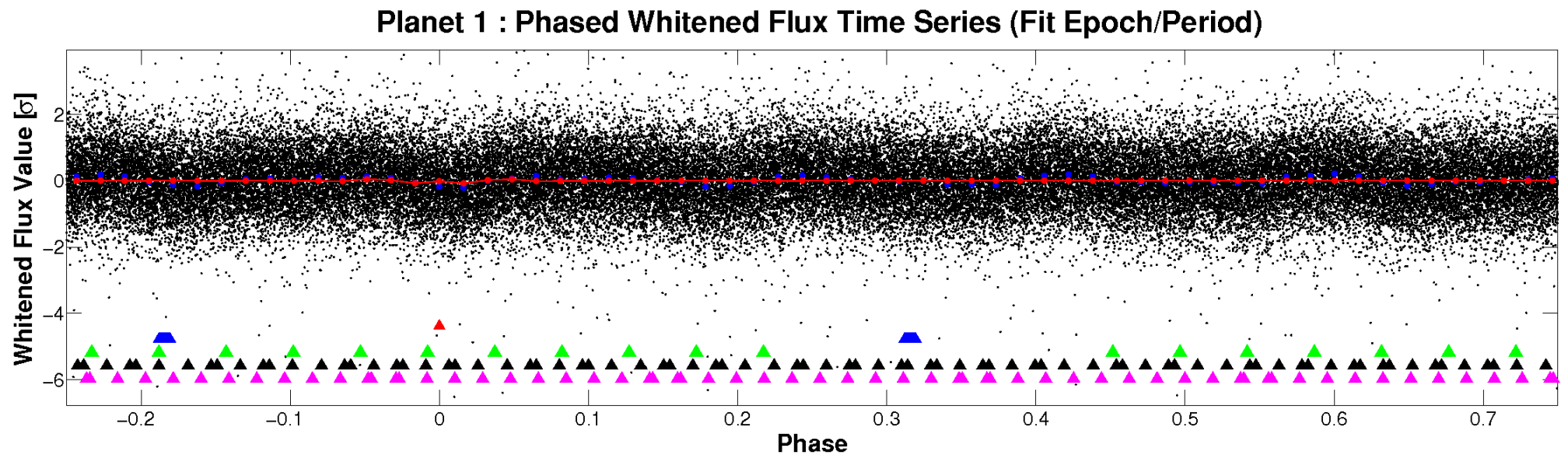
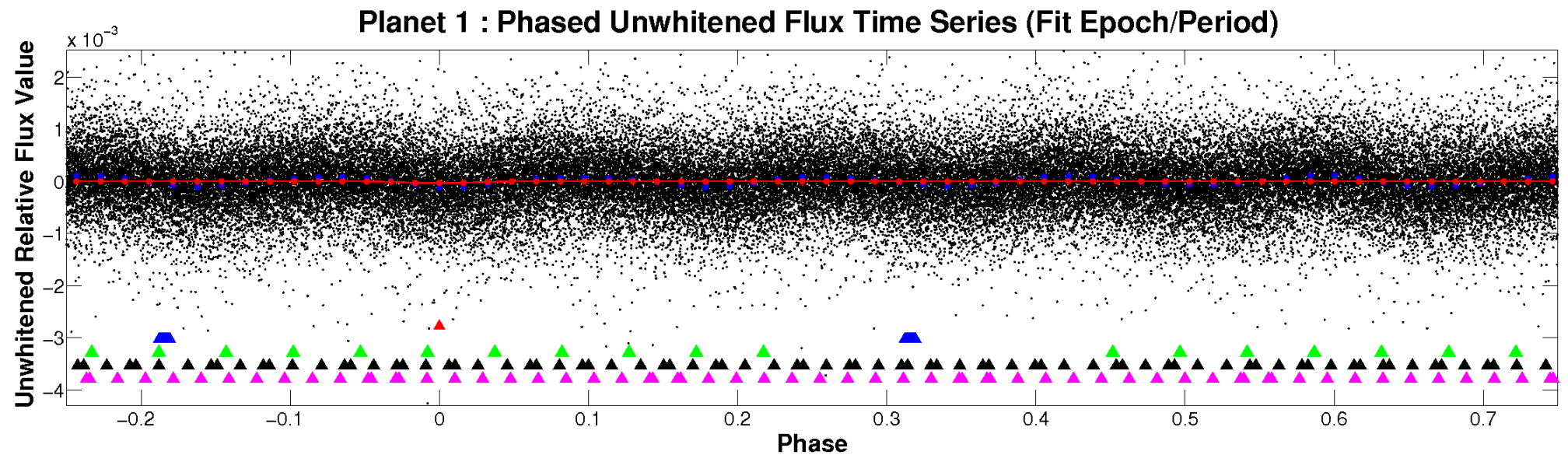


ALT Odd/Even

TCE 007106648-01

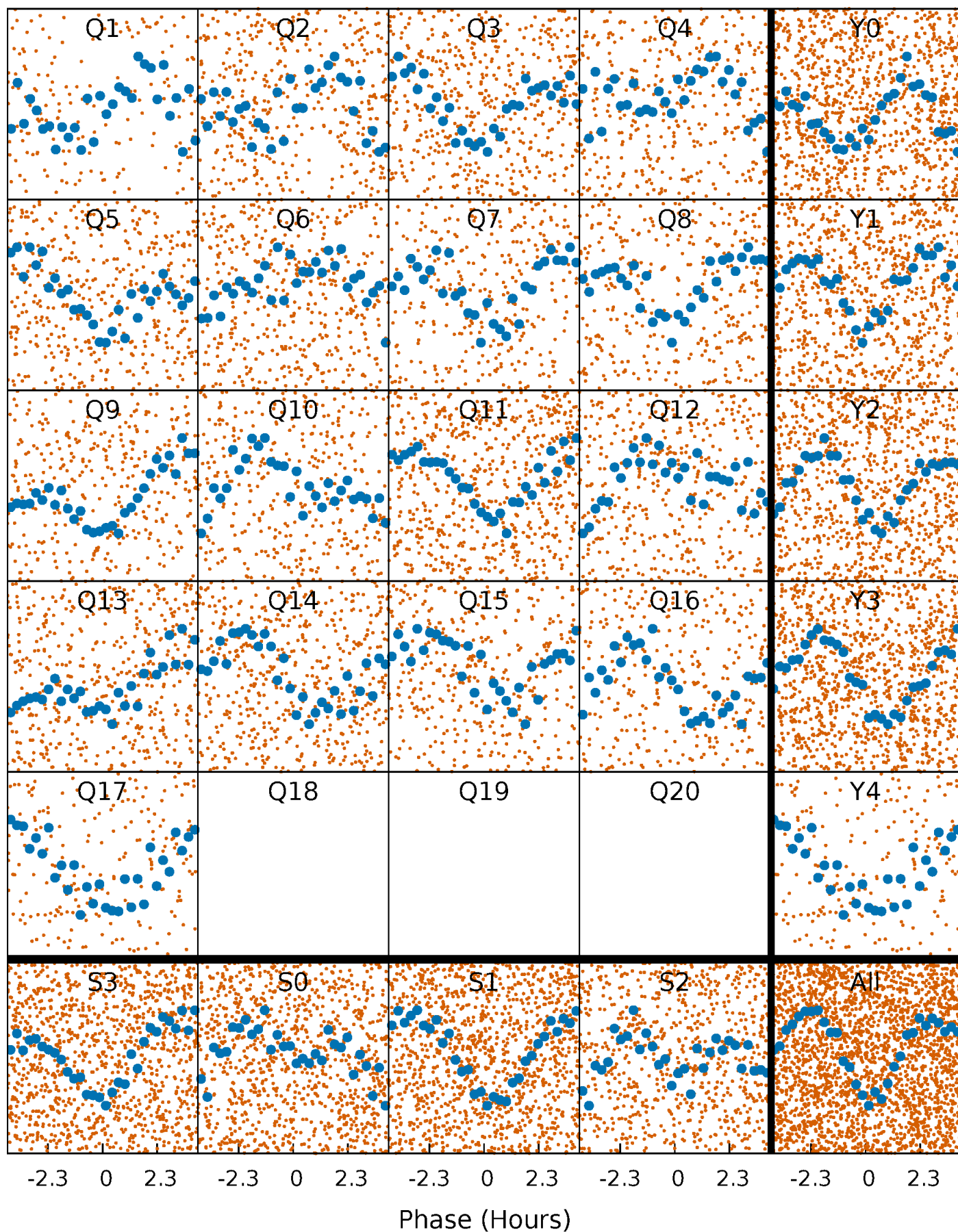


Non-Whitened Vs. Whitened Light Curve



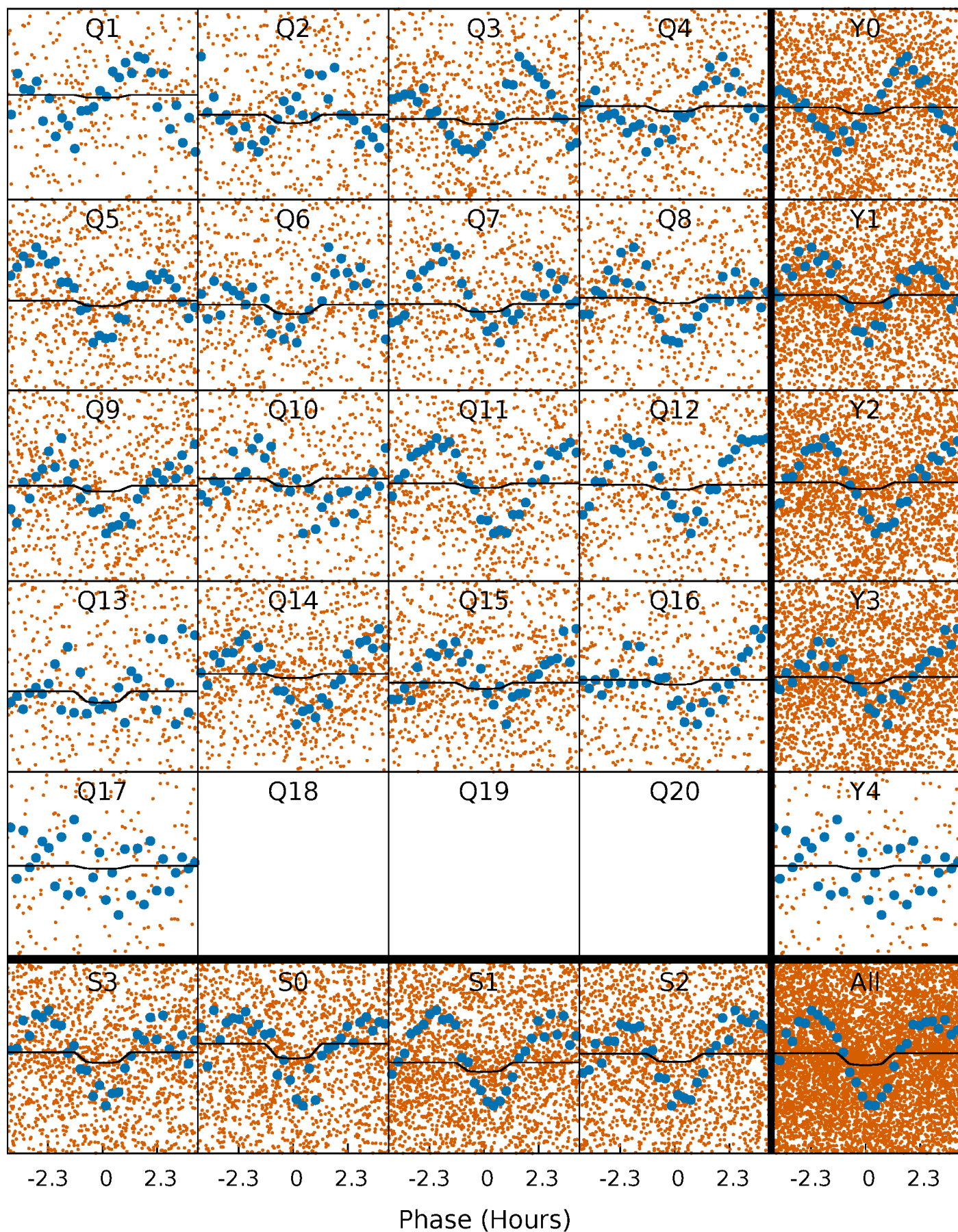
PDC Quarter-Phased Transit Curves

TCE 007106648-01 P= 1.259306 Days $T_0=132.195766$ (BKJD)



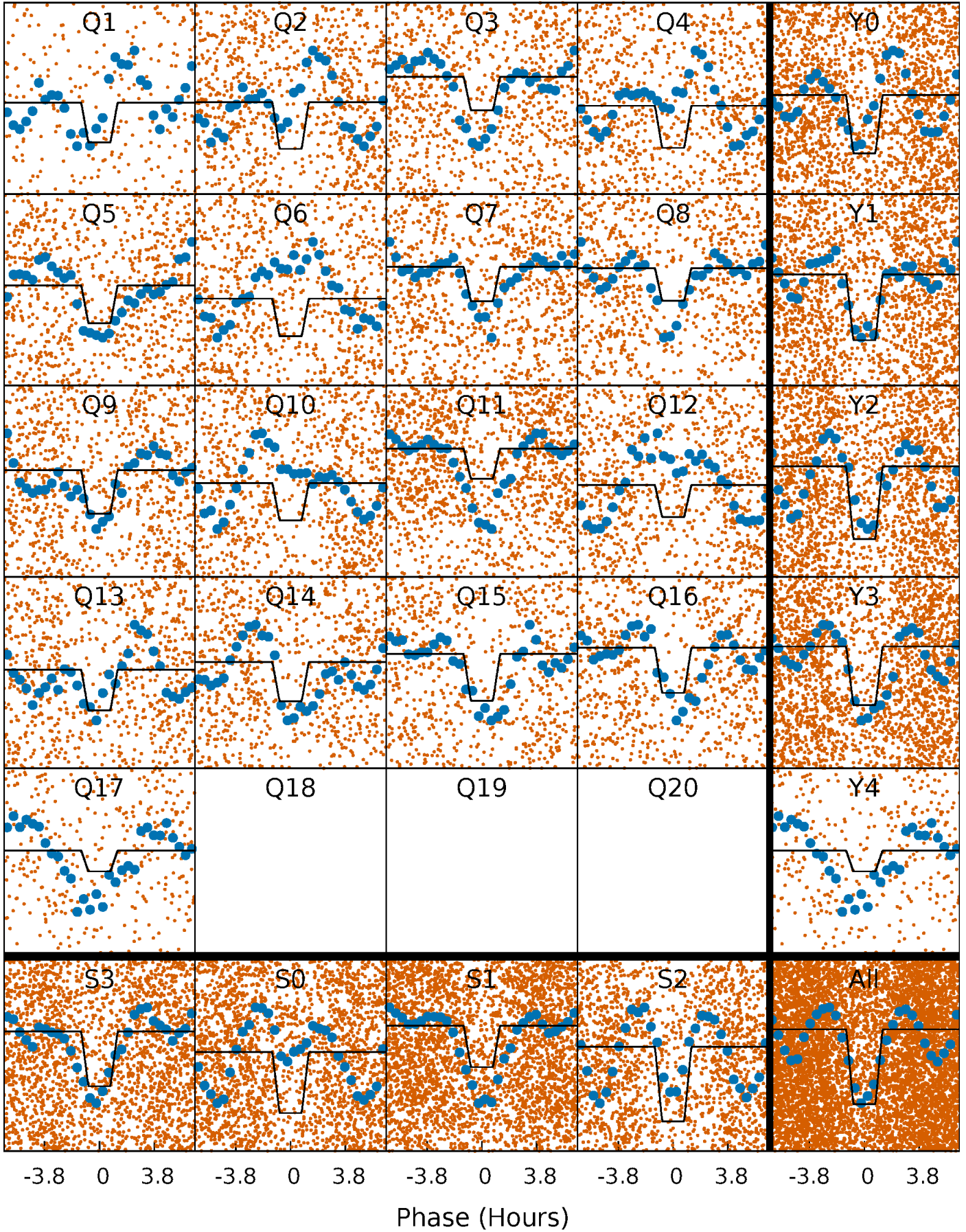
DV Quarter-Phased Transit Curves

TCE 007106648-01 P= 1.259306 Days $T_0=132.195766$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

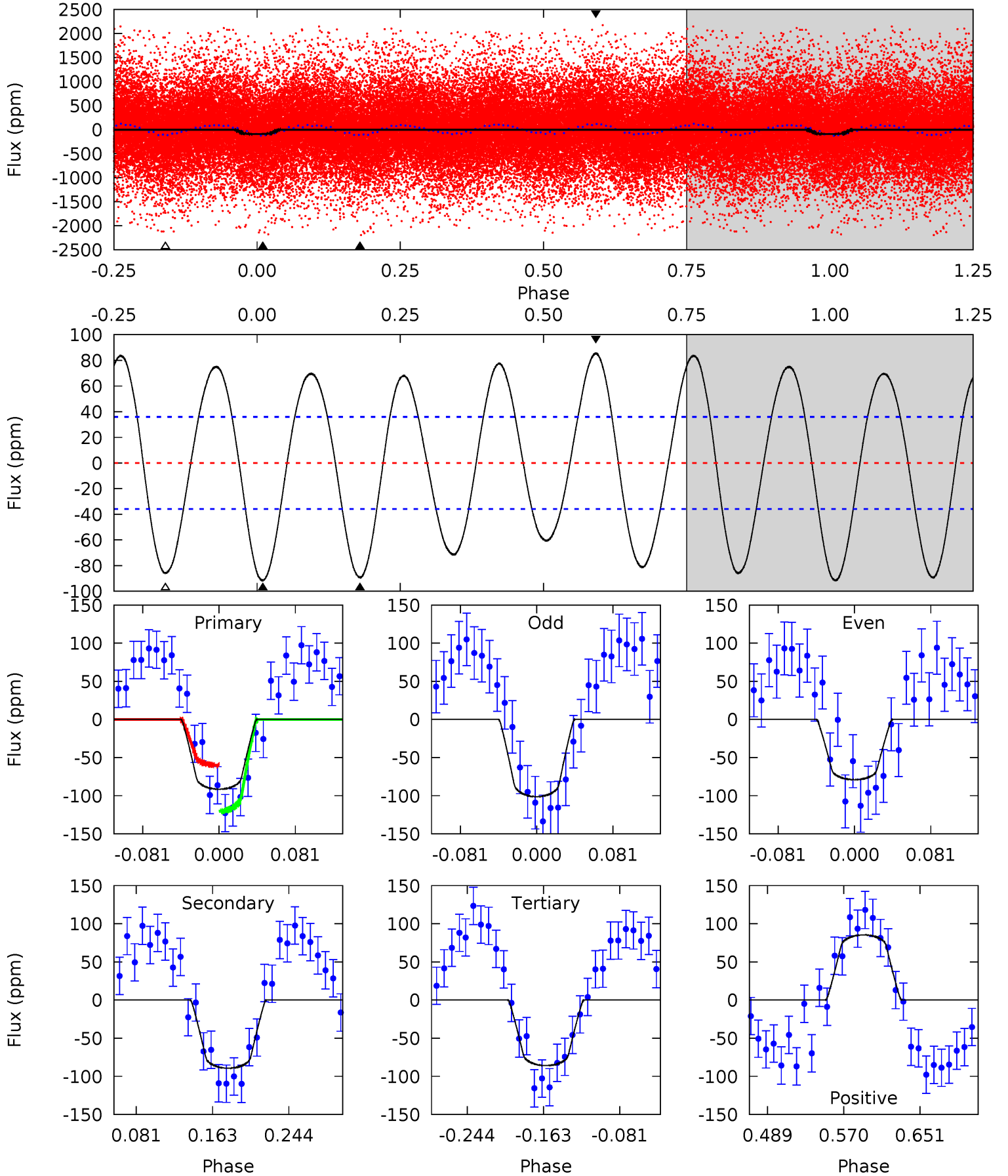
TCE 007106648-01 P= 1.259344 Days $T_0=132.182899$ (BKJD)



DV Model-Shift Uniqueness Test

007106648-01, P = 1.259306 Days, E = 130.936460 Days

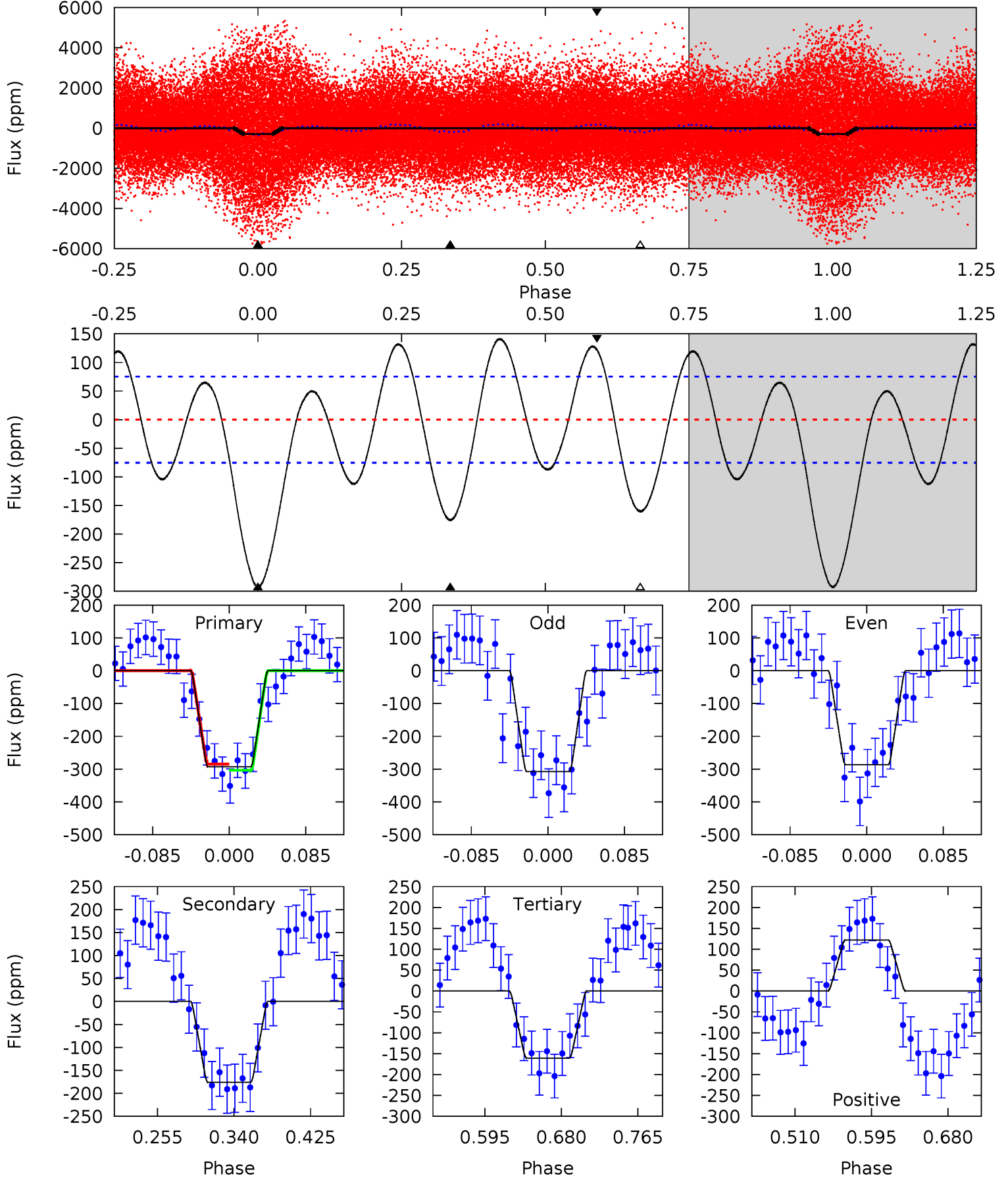
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	11.5	11.0	10.9	4.61	1.74	7.01	0.73	0.80	0.45	0.52	1.44	1.07	0.48	3.89



Alt Model-Shift Uniqueness Test

007106648-01, P = 1.259344 Days, E = 130.923555 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	10.7	9.81	7.46	4.60	1.72	5.15	8.09	10.4	0.93	3.28	0.63	0.81	0.32	0.56



Stellar Parameters For KIC 007106648

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7268^{+203}_{-279}	$4.157^{+0.153}_{-0.187}$	$-0.280^{+0.250}_{-0.350}$	$1.634^{+0.521}_{-0.347}$	$1.399^{+0.226}_{-0.226}$	$0.451^{+0.359}_{-0.232}$
	+3%/-4%	+4%/-4%	+89%/-125%	+32%/-21%	+16%/-16%	+79%/-51%
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 007106648-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-89 ± 8	$1.04^{+0.30}_{-0.25}$	3586^{+283}_{-247}	9806^{+2173}_{-1376}	30^{+21}_{-12}
Alt.	-176 ± 16	$3.23^{+0.58}_{-0.47}$	3591^{+281}_{-237}	6062^{+337}_{-303}	$5.973^{+2.181}_{-1.699}$

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 $A_{obs} \gg 1.0$

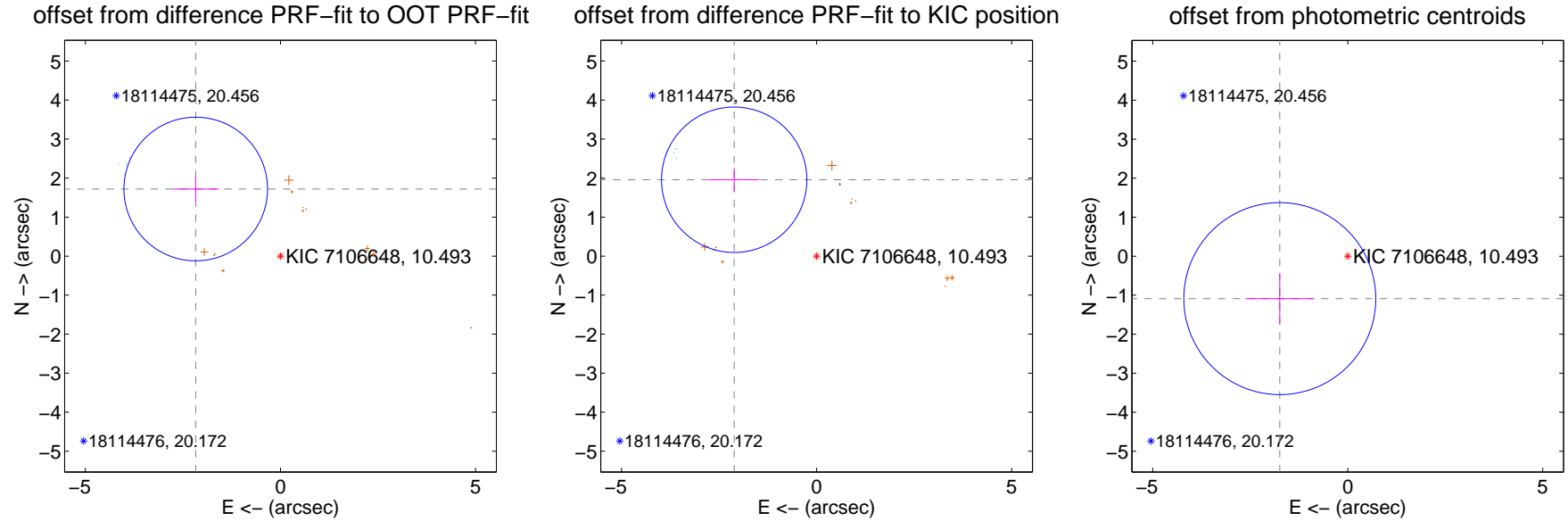
DV Centroid Data

Supplemental centroid analysis for 007106648-01. **Kepler magnitude: 10.49.** Transit SNR 5.58

There are 4 quarters with good PRF difference image offsets

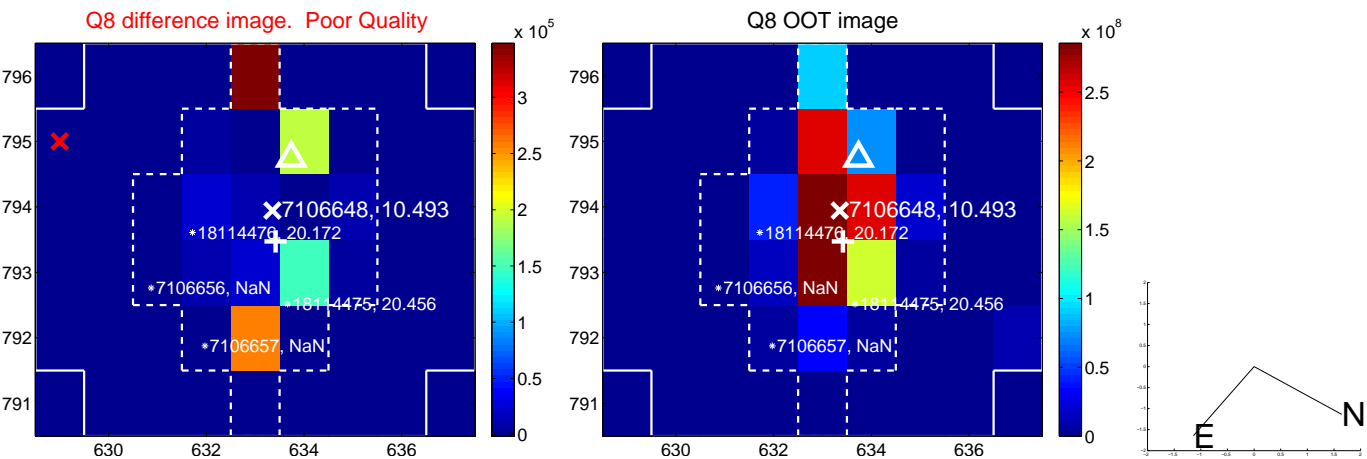
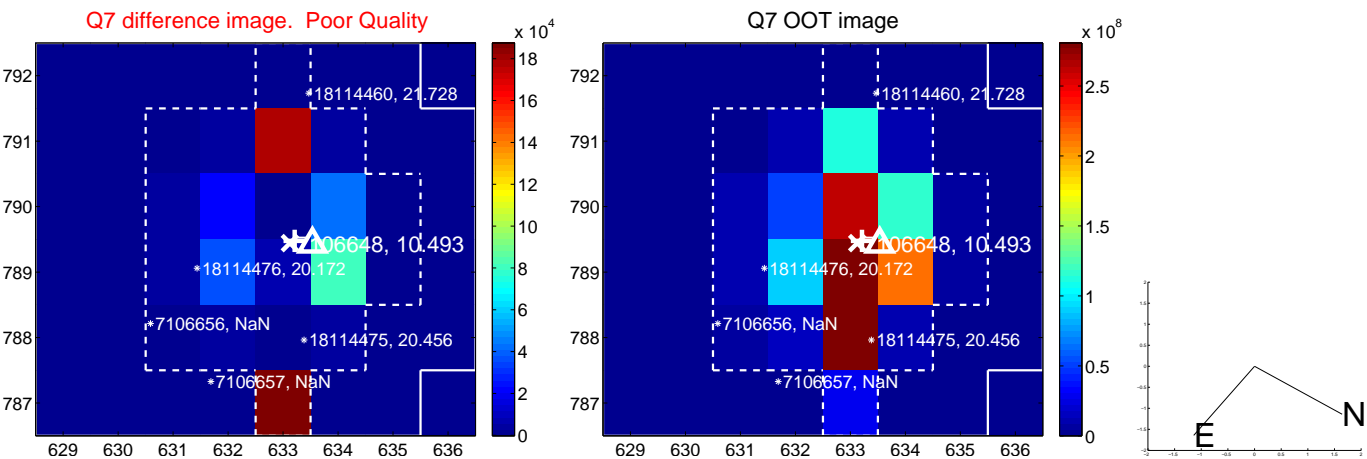
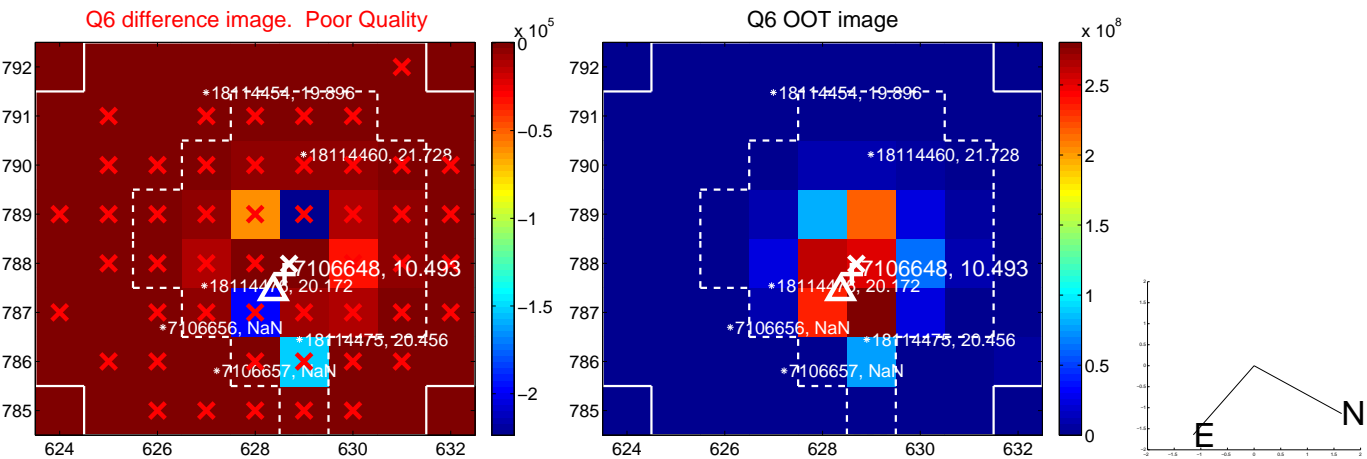
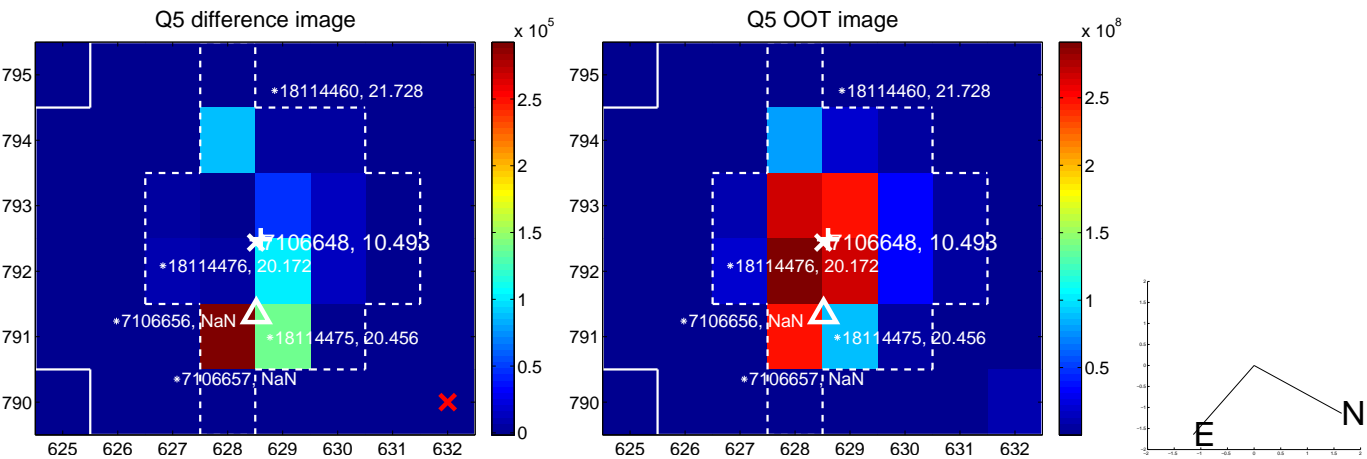
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.770 ± 0.614	4.51	2.171 ± 0.590	1.720 ± 0.317
PRF-fit source offset from KIC position	2.880 ± 0.621	4.64	2.112 ± 0.645	1.957 ± 0.309
photometric centroid source offset	2.05 ± 0.82	2.50	1.74 ± 0.88	-1.09 ± 0.65

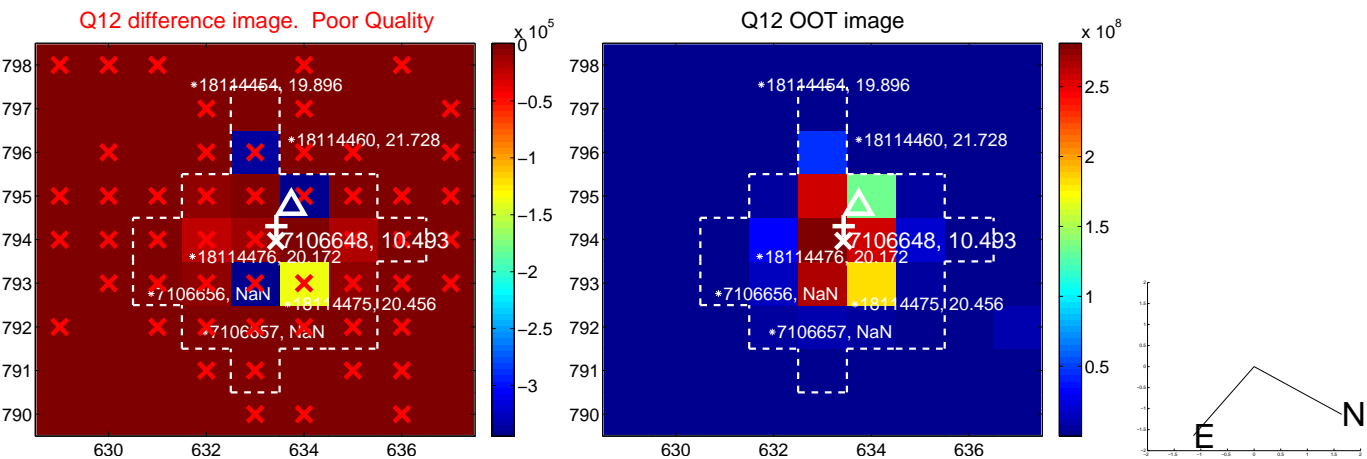
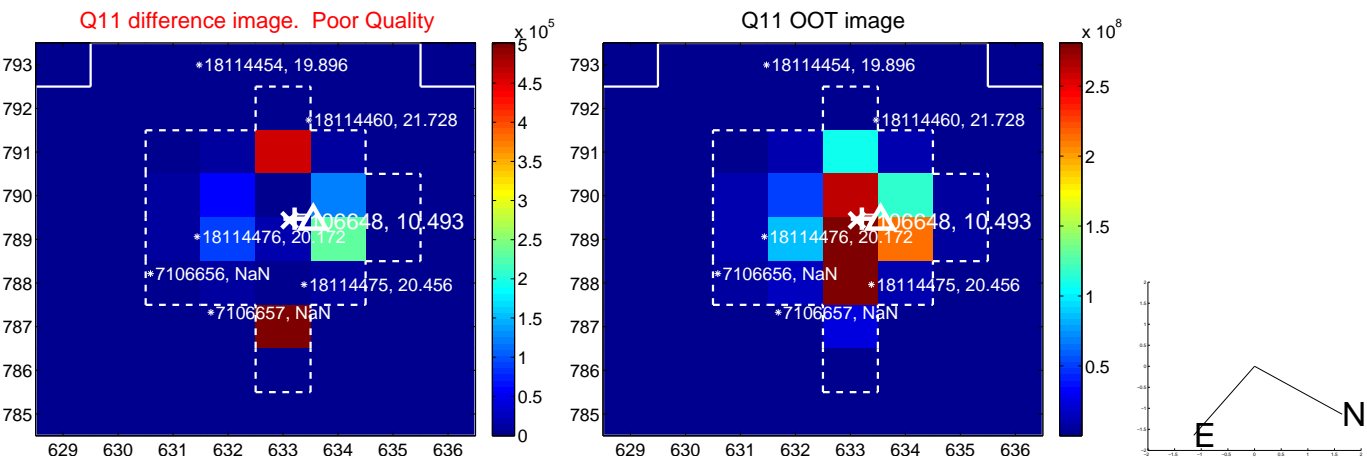
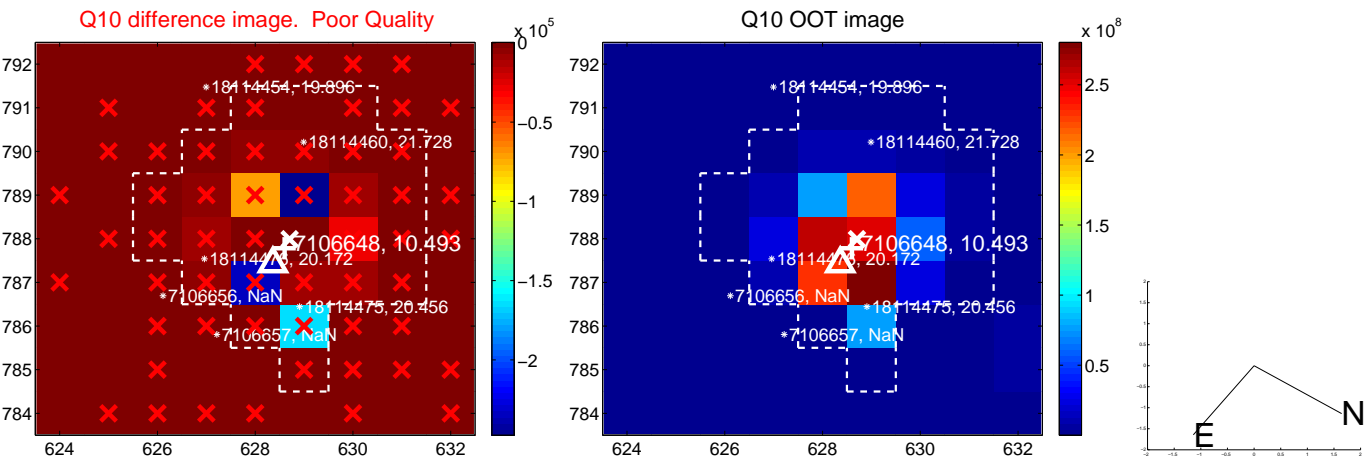
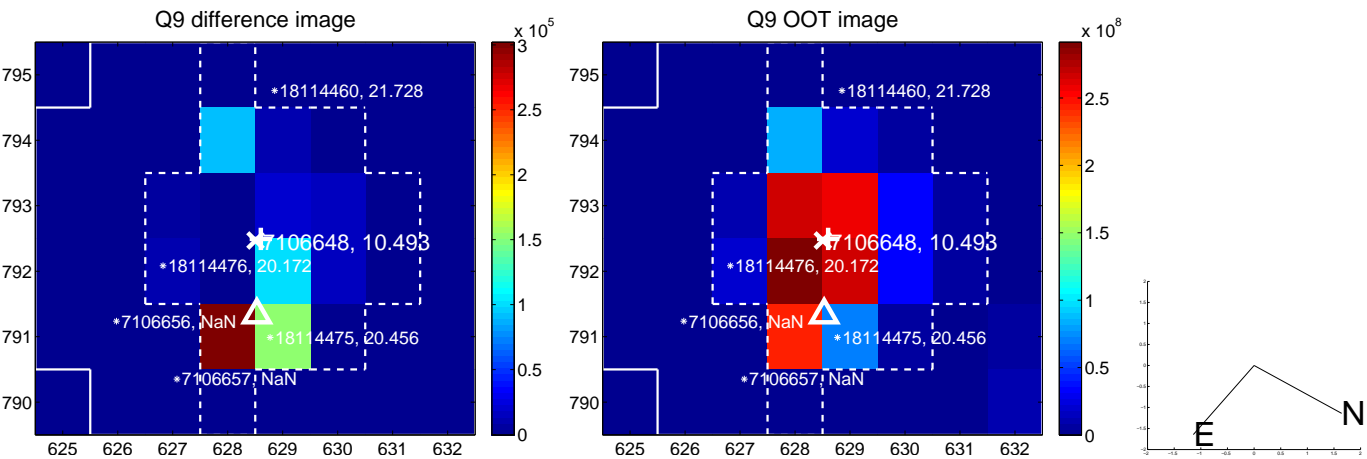


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

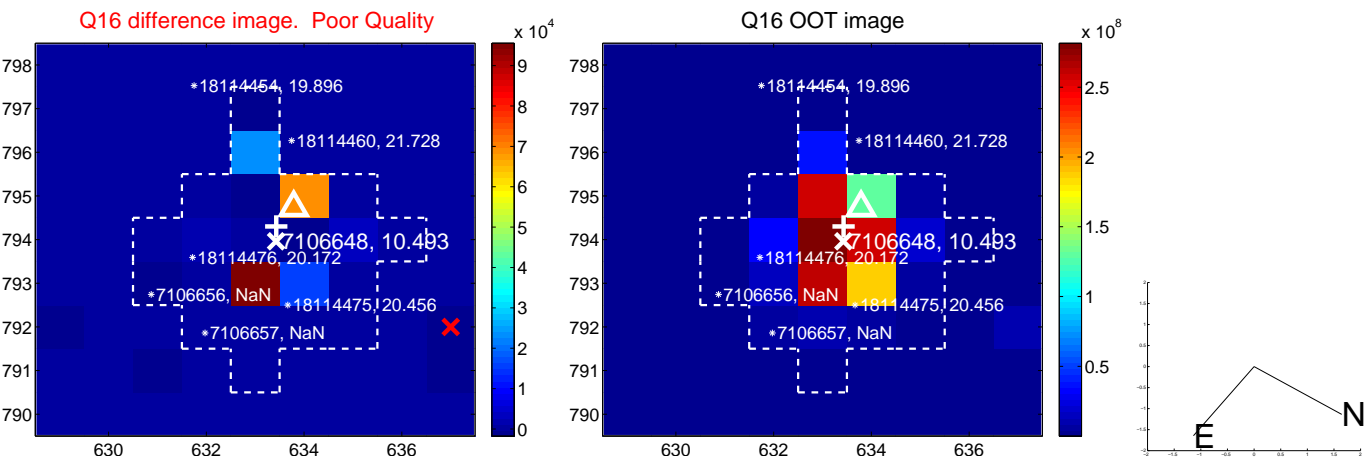
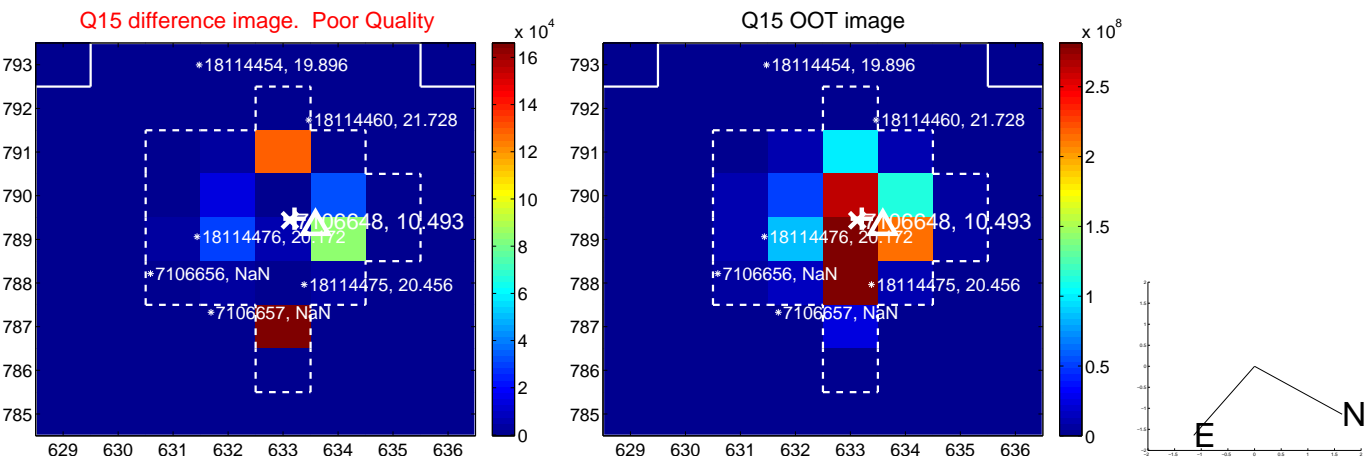
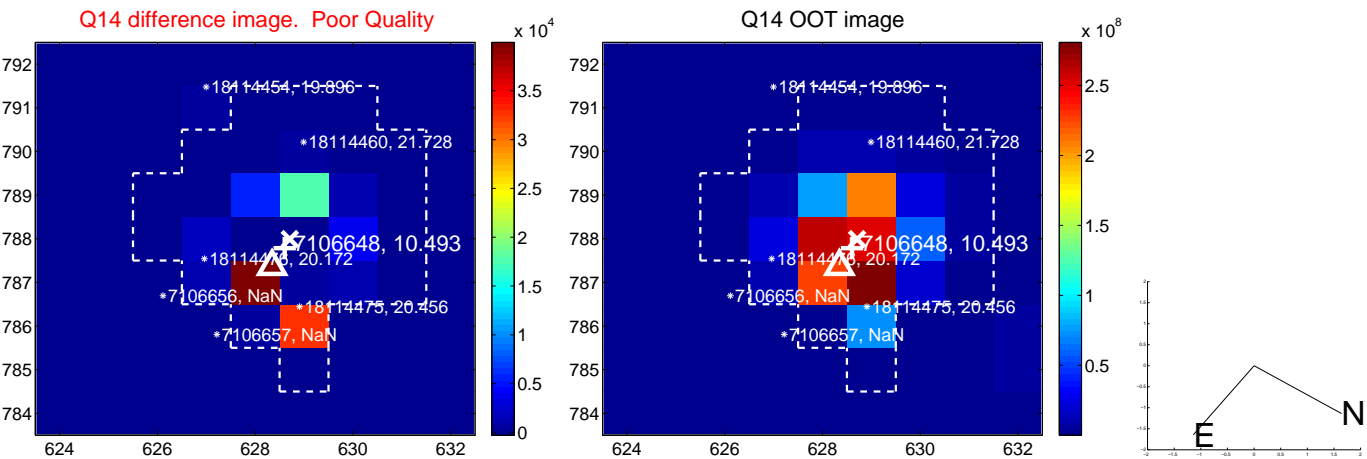
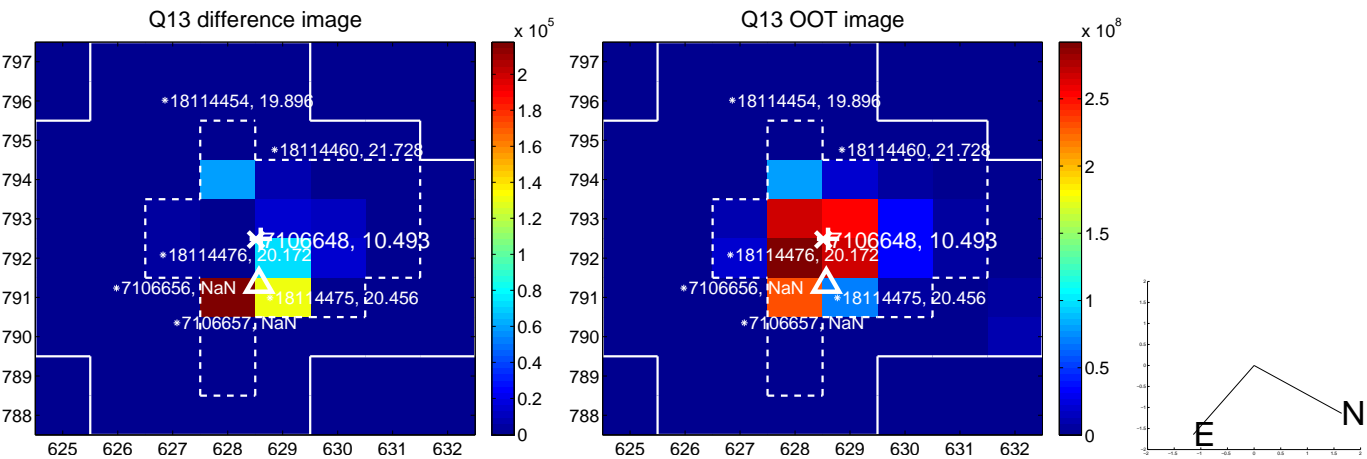
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



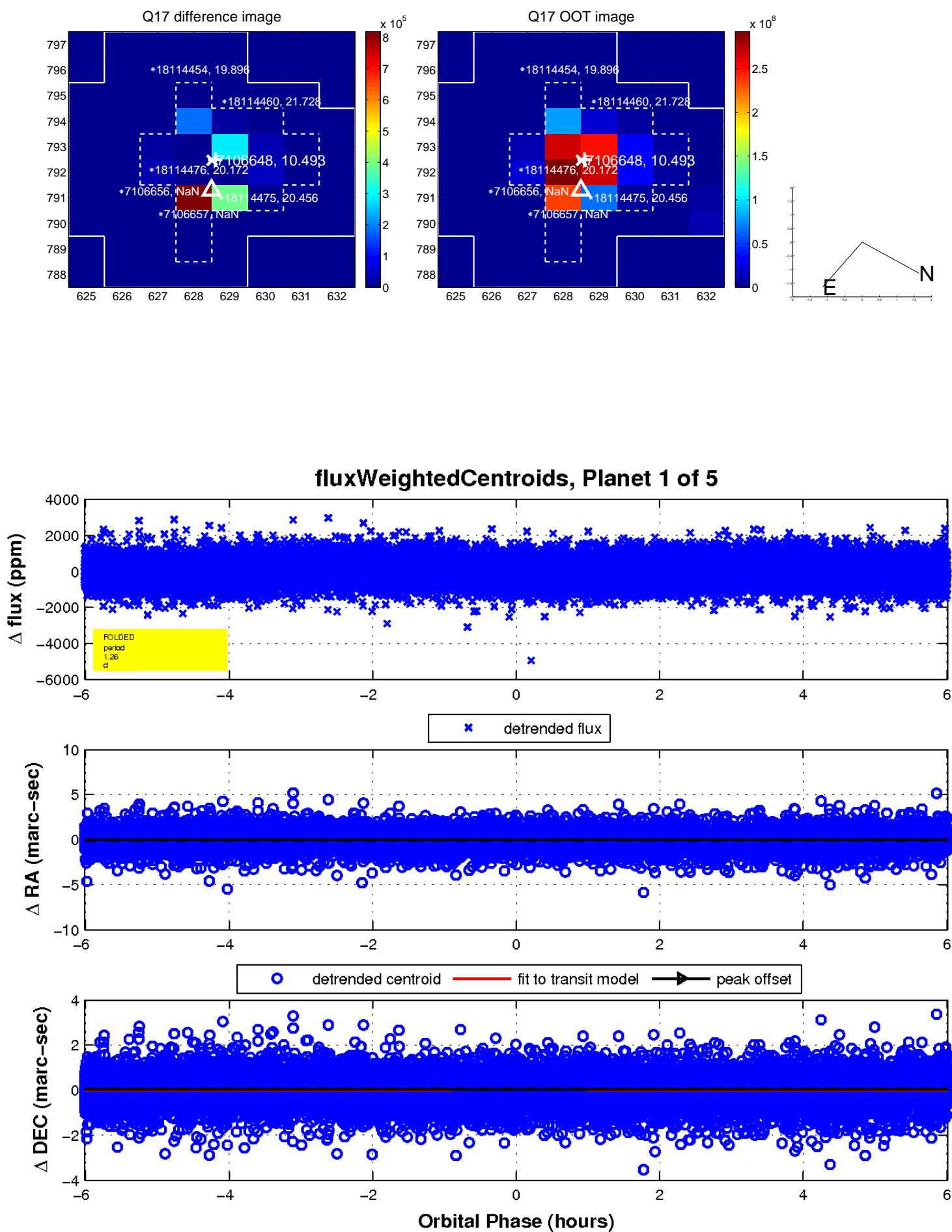
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

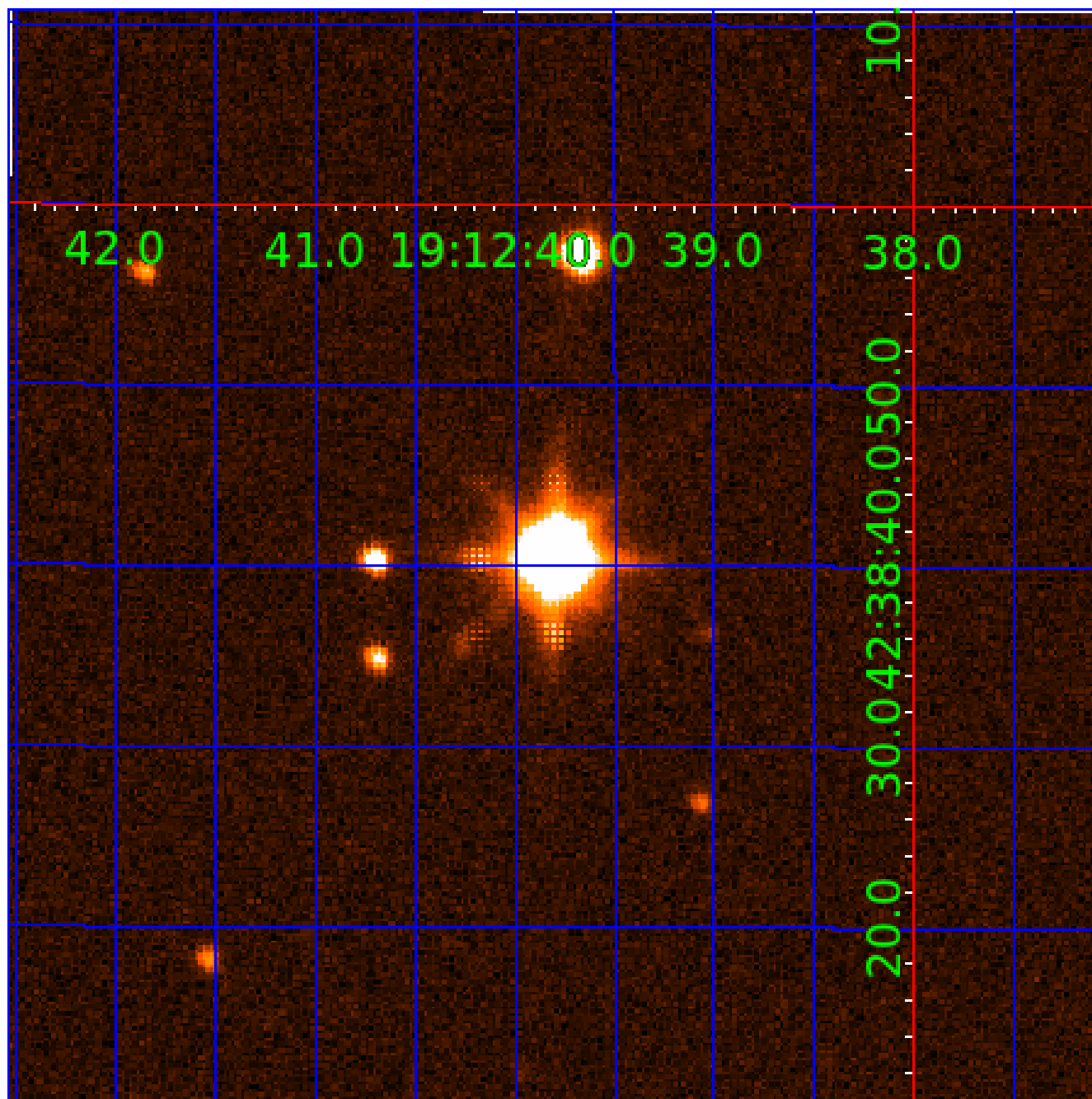


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007106648

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})
007106648-01	OBS	No	1.259306	132.195766	27.6	2.005	8.0	5.6	1.63	7268	1.03	10245.83
007106648-02	OBS	No	0.629649	131.968347	10.3	3.960	7.6	2.5	1.63	7268	0.56	25818.10
007106648-03	OBS	No	79.392983	199.507695	895.7	4.205	8.9	6.7	1.63	7268	5.53	40.83
007106648-04	OBS	No	18.012478	138.912332	1021.9	3.807	9.0	10.9	1.63	7268	9.72	295.09
007106648-05	OBS	No	23.166524	132.159124	652.9	3.063	8.3	6.0	1.63	7268	6.25	210.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007106648-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
007106648-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
007106648-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007106648-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007106648-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

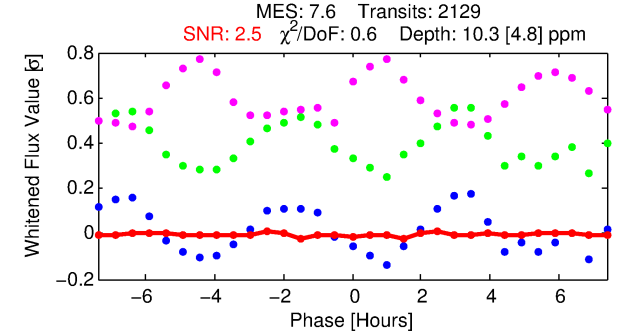
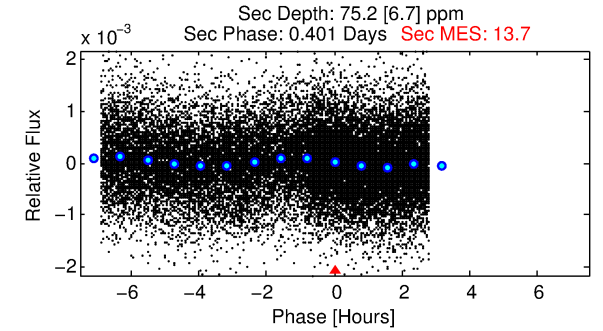
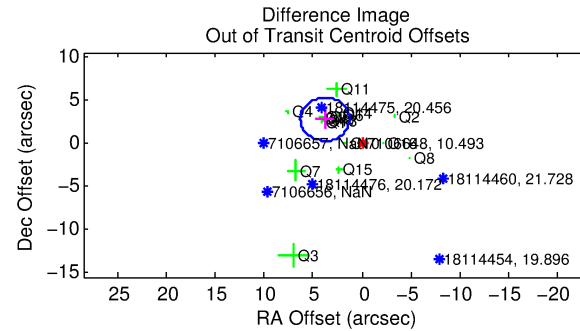
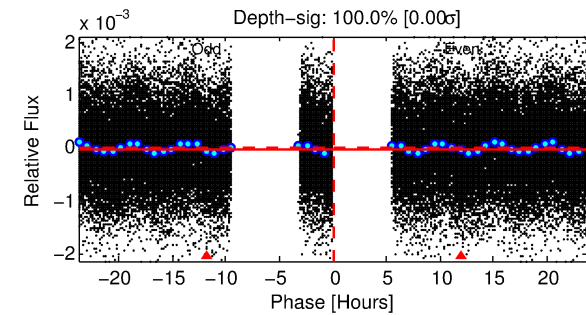
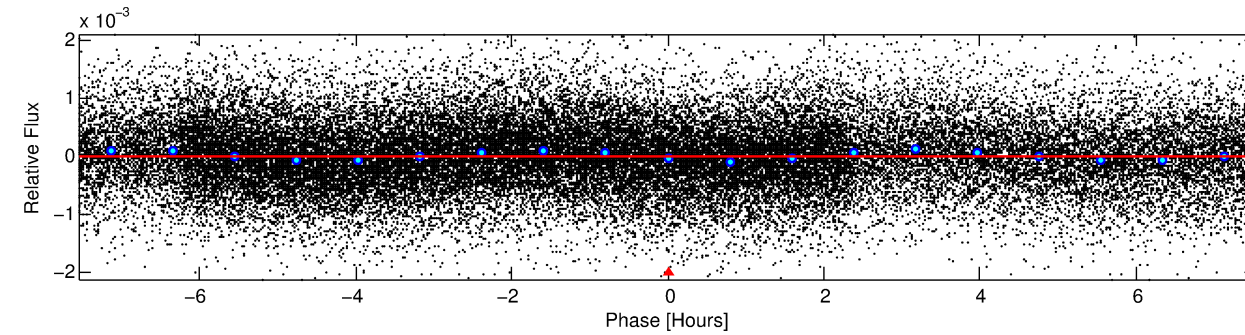
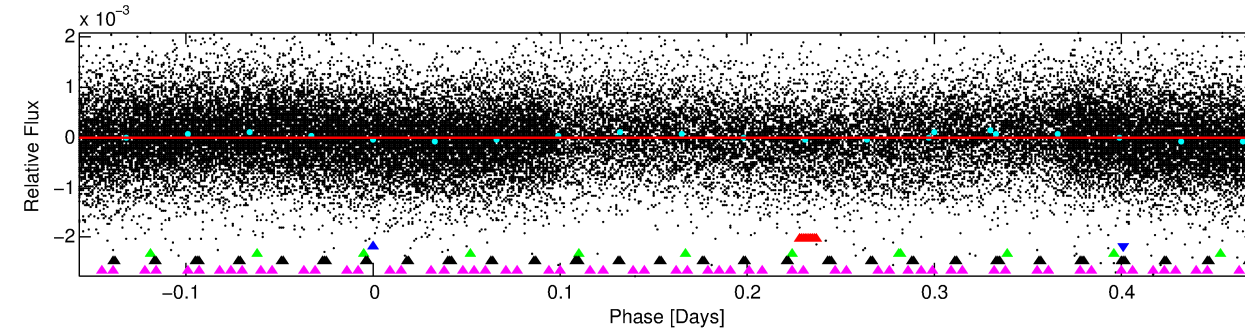
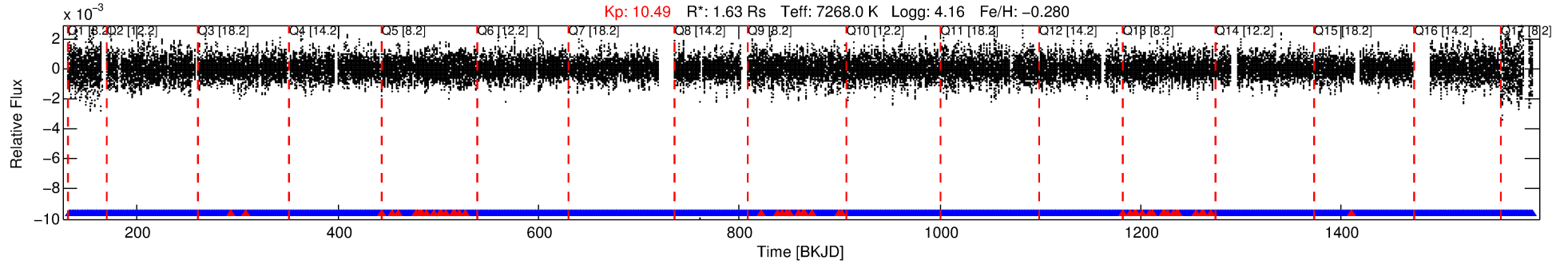
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007106648-02

No Significant Match Found

DV One-Page Summary

KIC: 7106648 Candidate: 2 of 5 Period: 0.630 d



DV Fit Results:

Period = 0.62965 [0.00004] d
Epoch = 131.9683 [0.0039] BKJD
 $R_p/R^* = 0.0032$ [0.0010]
 $a/R^* = 1.20$ [0.53]
 $b = 0.70$ [1.02]
 $\text{Seff} = 25818.10$ [10037.99]
 $T_{\text{eq}} = 3232$ [314] K
 $R_p = 0.56$ [0.25] R_e
 $a = 0.0161$ [0.0041] AU
 $A_g = 33.70$ [24.85] [1.32 σ]
 $T_{\text{eff}} = 12041$ [1996] K [4.36 σ]

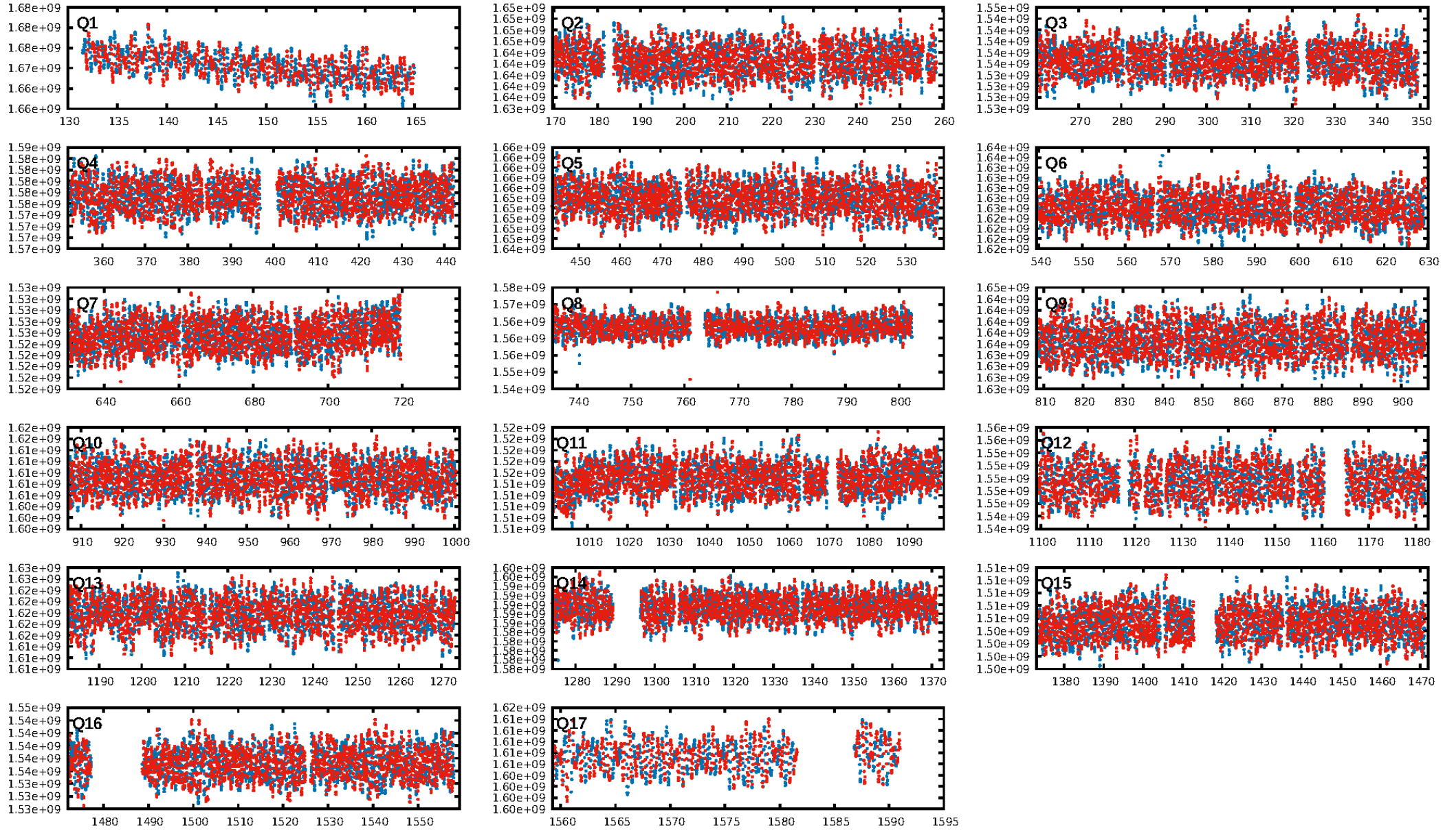
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.9% [3.41 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.27e-08
RollingBand-fgt: 0.98 [1984/2033]
GhostDiagnostic-chr: -4.611
Centroid-sig: 0.0%
Centroid-so: 2.679 arcsec [2.49 σ]
OotOffset-rm: 4.716 arcsec [5.64 σ]
KicOffset-rm: 4.626 arcsec [5.90 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.12 [2/17]
DiffImageOverlap-fno: 0.00 [0/17]

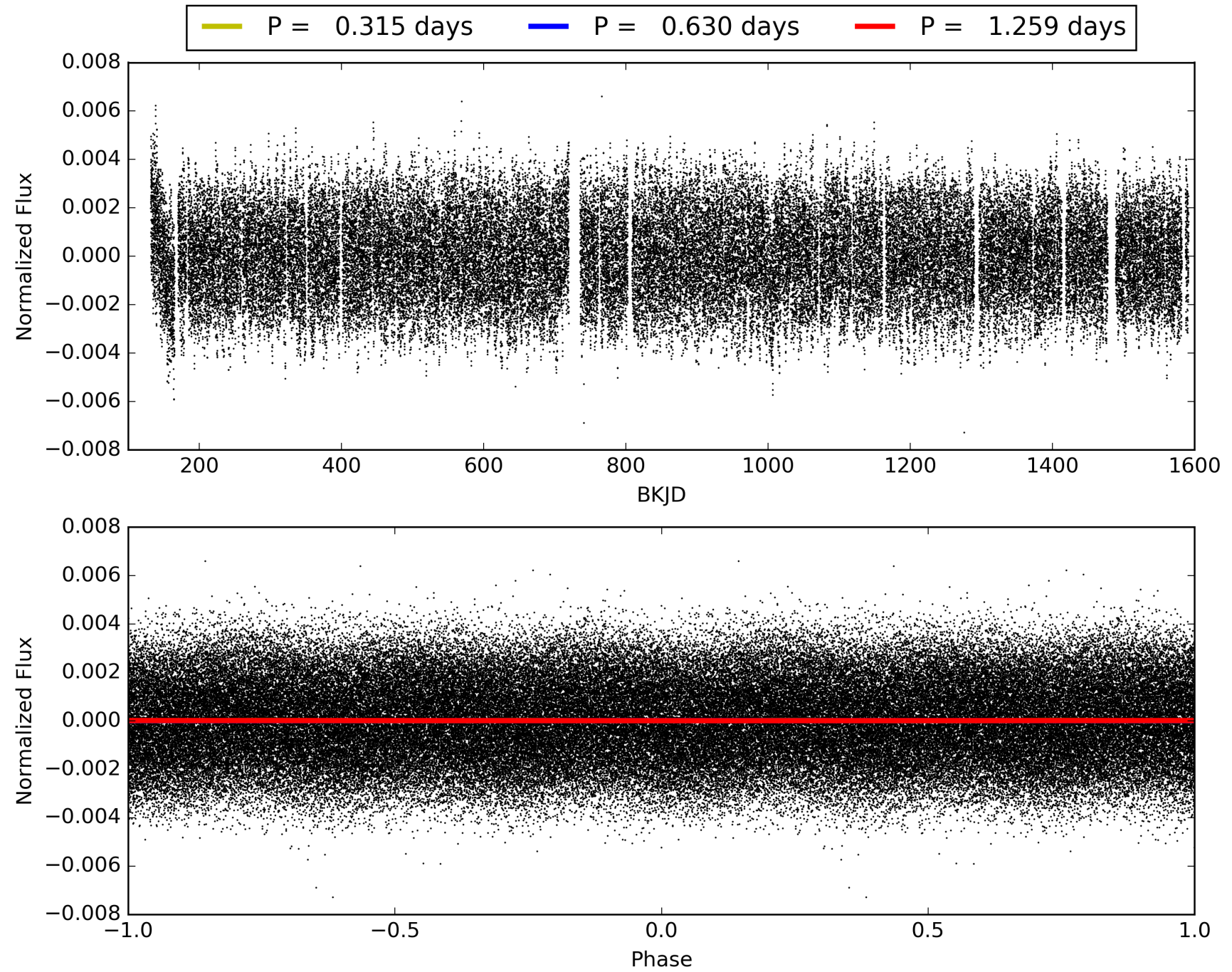
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:17:03 Z

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

TCE 007106648-02, PDC Light Curves

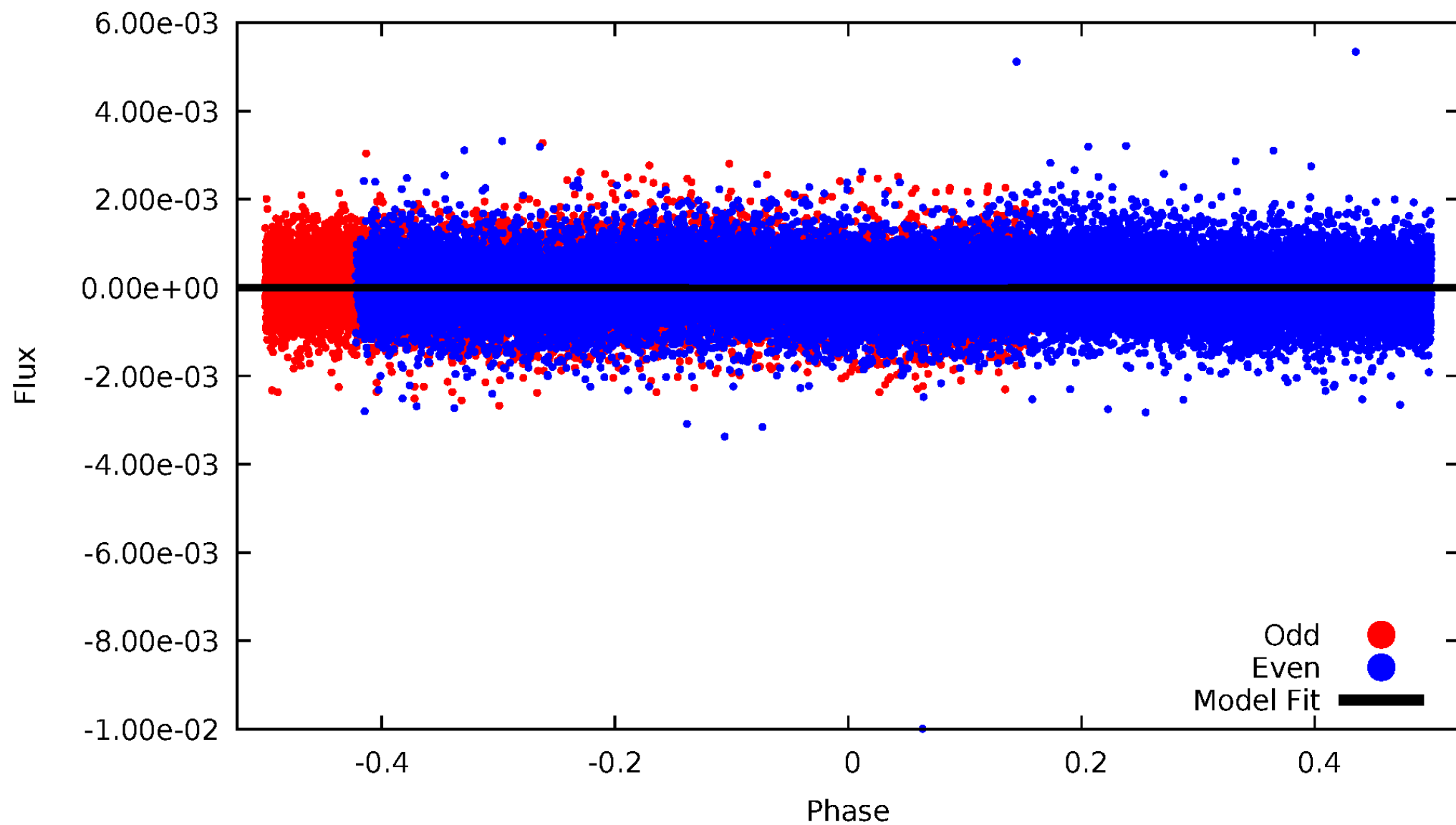


TCE 007106648-02



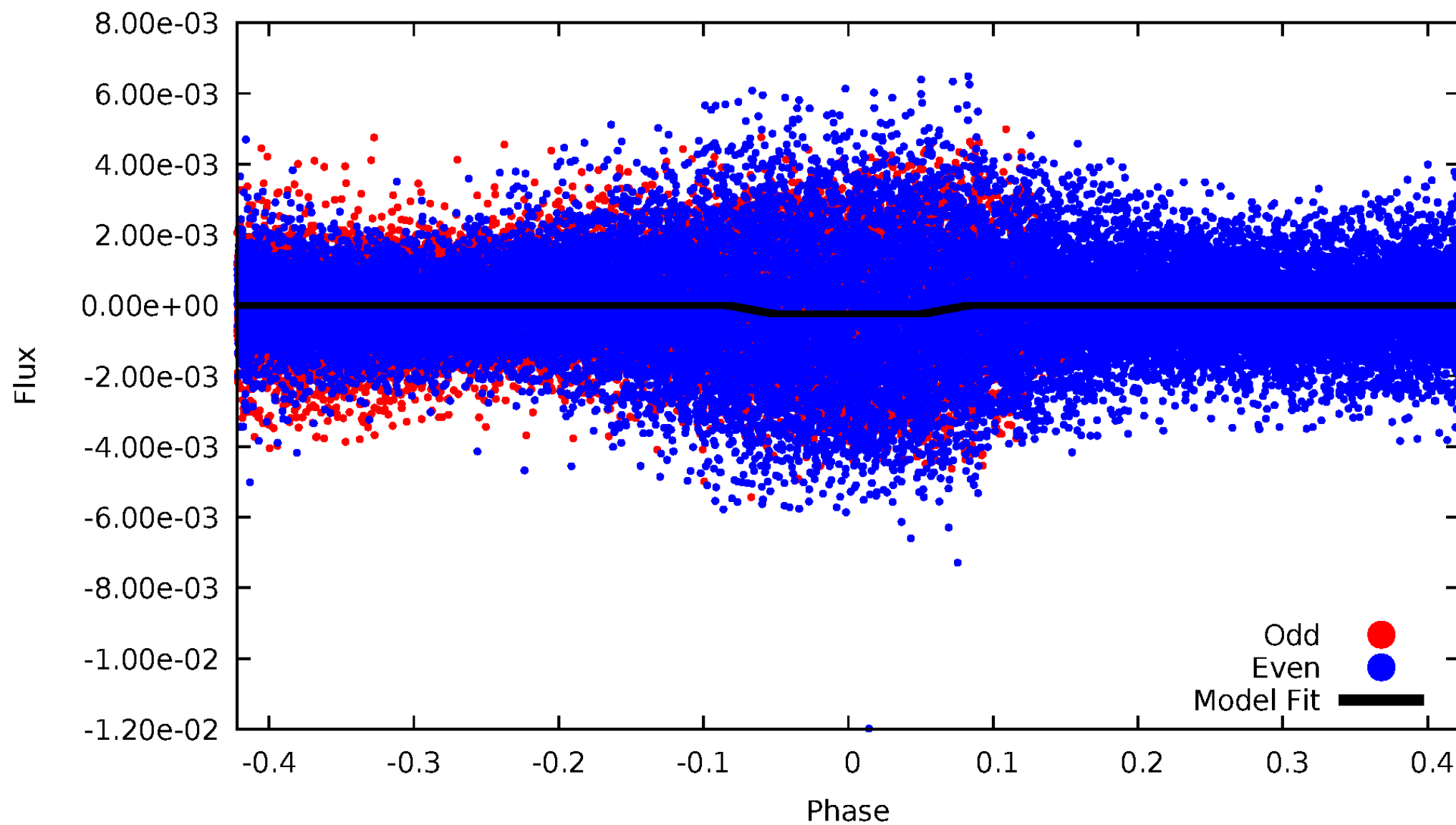
DV Odd/Even

TCE 007106648-02



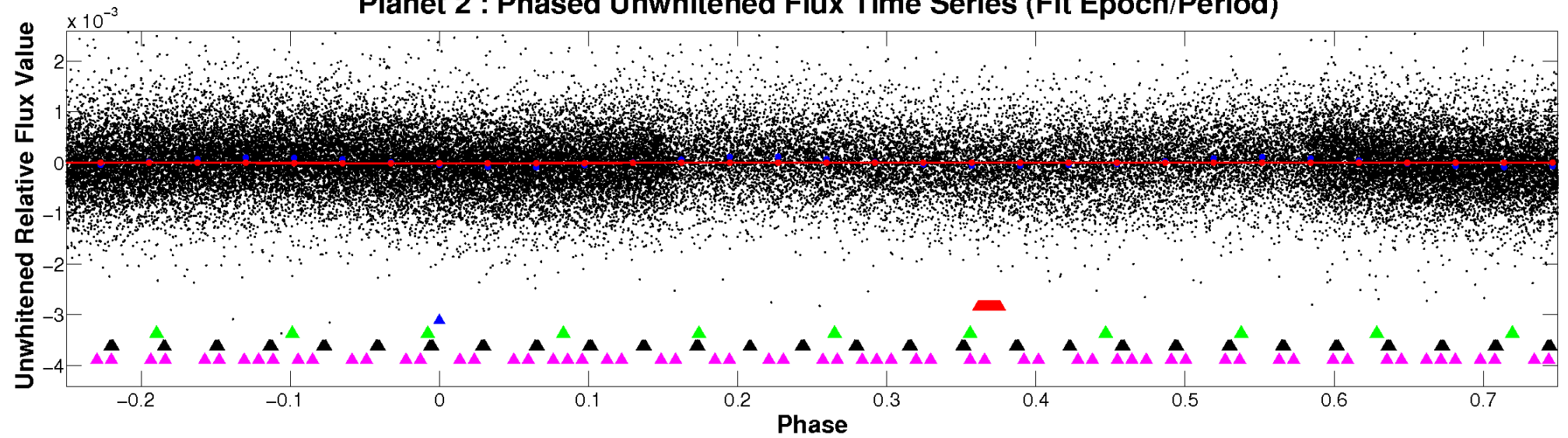
ALT Odd/Even

TCE 007106648-02

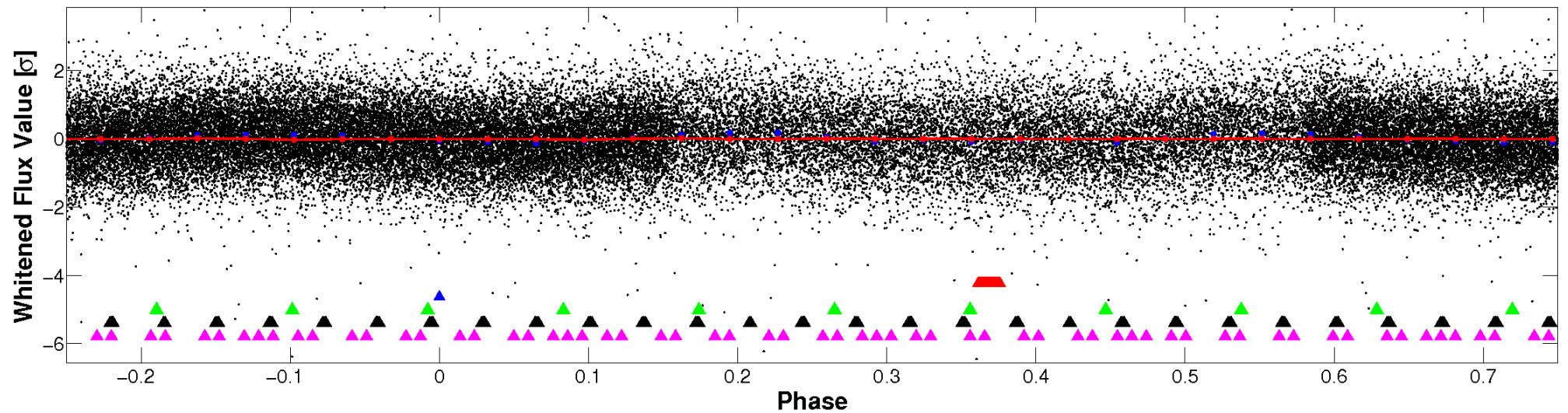


Non-Whitened Vs. Whitened Light Curve

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

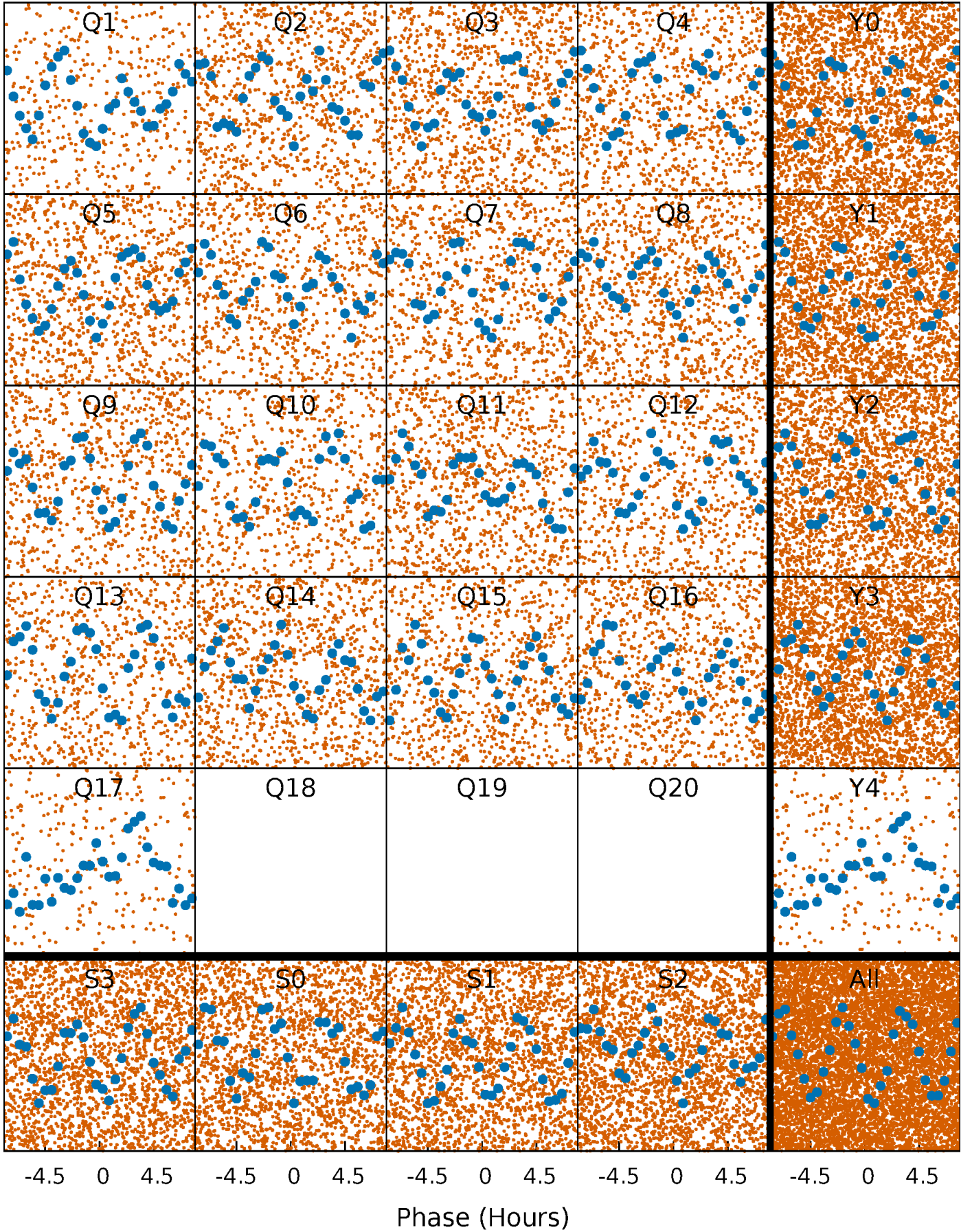


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



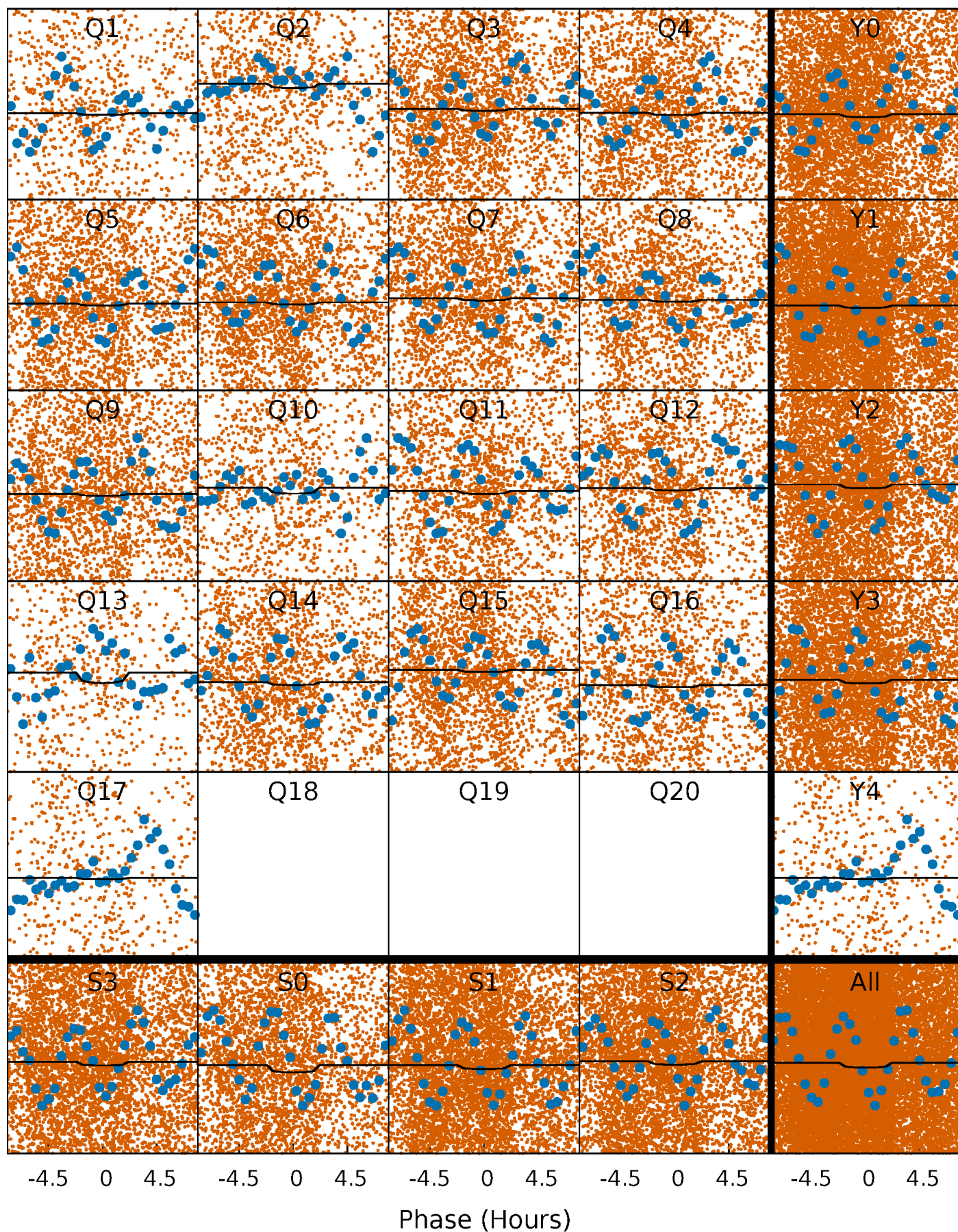
PDC Quarter-Phased Transit Curves

TCE 007106648-02 P= 0.629649 Days $T_0=131.968347$ (BKJD)



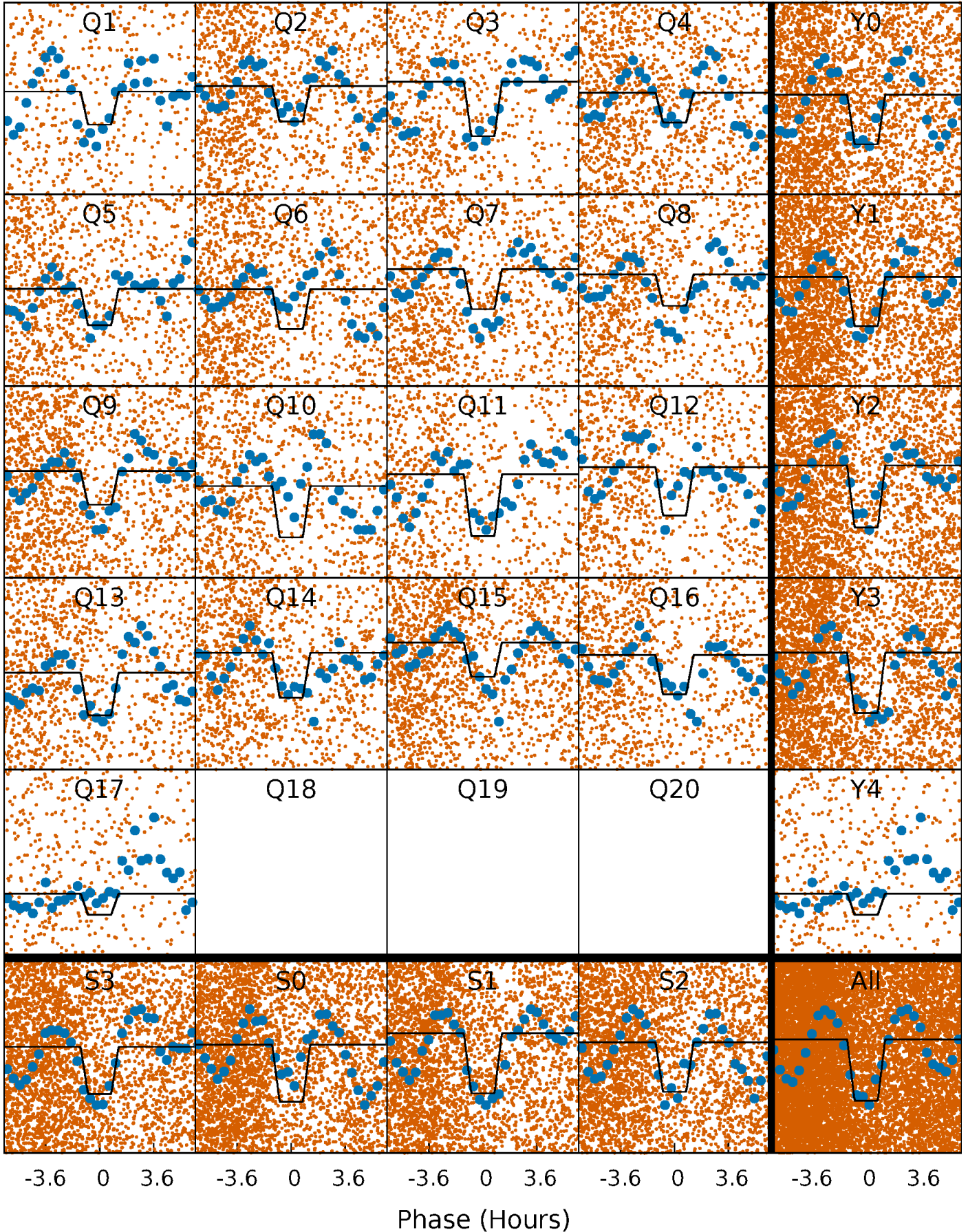
DV Quarter-Phased Transit Curves

TCE 007106648-02 P= 0.629649 Days $T_0=131.968347$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

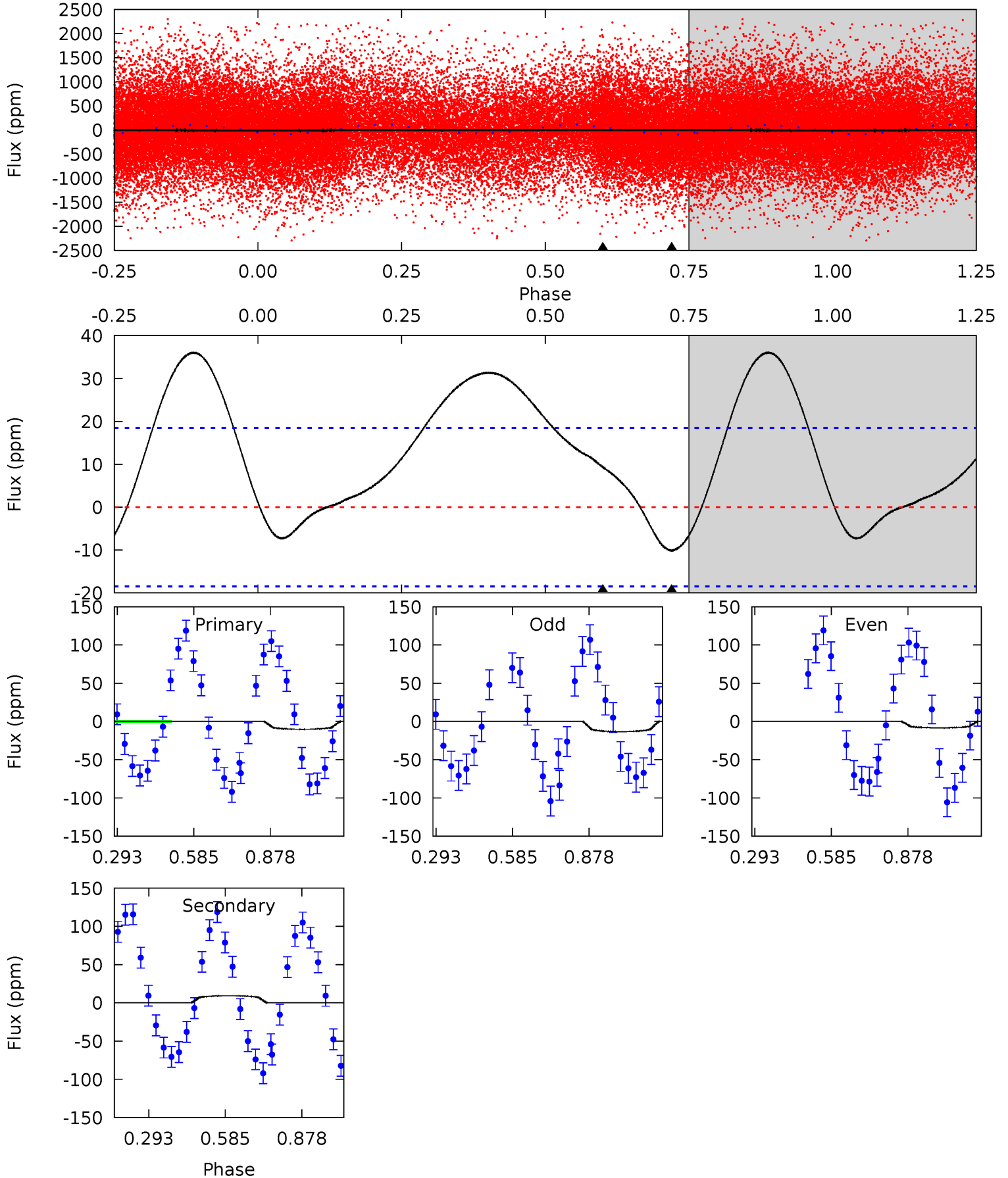
TCE 007106648-02 P= 0.629683 Days $T_0=131.965609$ (BKJD)



DV Model-Shift Uniqueness Test

007106648-02, P = 0.629649 Days, E = 131.338698 Days

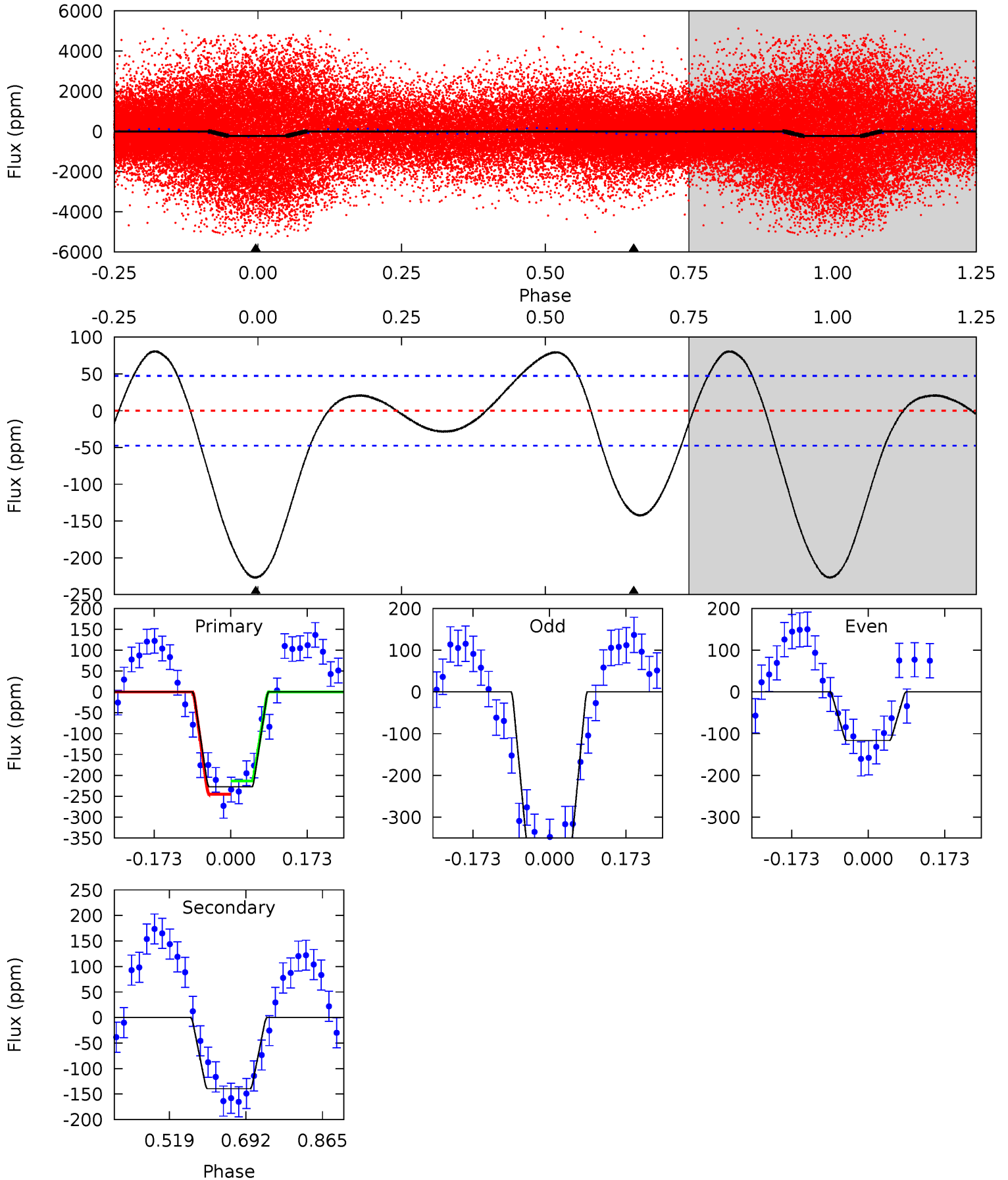
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.38	-2.19	0	0	4.33	1.05	1.74	2.38	2.38	-2.19	-2.19	0.61	-5.68	0.78	2.65



Alt Model-Shift Uniqueness Test

007106648-02, P = 0.629683 Days, E = 131.335926 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.3	13.1	0	0	4.45	1.36	2.41	21.3	21.3	13.1	13.1	9.32	1.08	0.26	1.63



Stellar Parameters For KIC 007106648

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7268^{+203}_{-279}	$4.157^{+0.153}_{-0.187}$	$-0.280^{+0.250}_{-0.350}$	$1.634^{+0.521}_{-0.347}$	$1.399^{+0.226}_{-0.226}$	$0.451^{+0.359}_{-0.232}$
	+3%/-4%	+4%/-4%	+89%/-125%	+32%/-21%	+16%/-16%	+79%/-51%
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 007106648-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	9 ± 4	$0.55^{+0.23}_{-0.18}$	4528^{+348}_{-304}	-7191^{+1355}_{-2354}	$-3.973^{+2.418}_{-6.414}$
Alt.	-140 ± 11	$2.82^{+0.51}_{-0.41}$	4530^{+359}_{-323}	6018^{+333}_{-279}	$2.500^{+0.879}_{-0.654}$

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 $A_{obs} \gg 1.0$

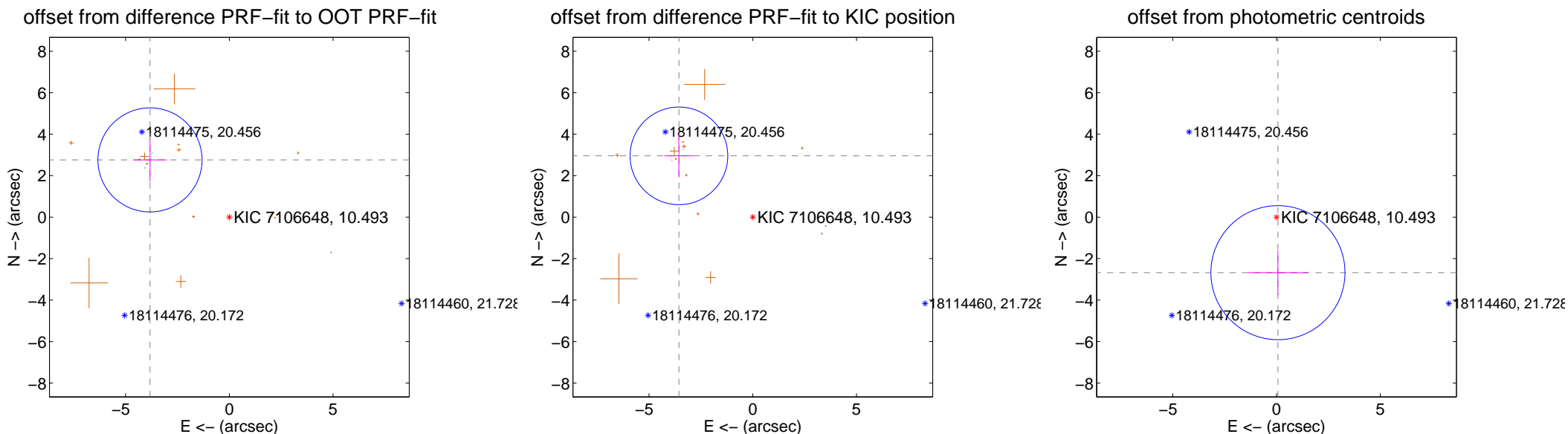
DV Centroid Data

Supplemental centroid analysis for 007106648-02. **Kepler magnitude: 10.49.** Transit SNR 2.53

There are 2 quarters with good PRF difference image offsets

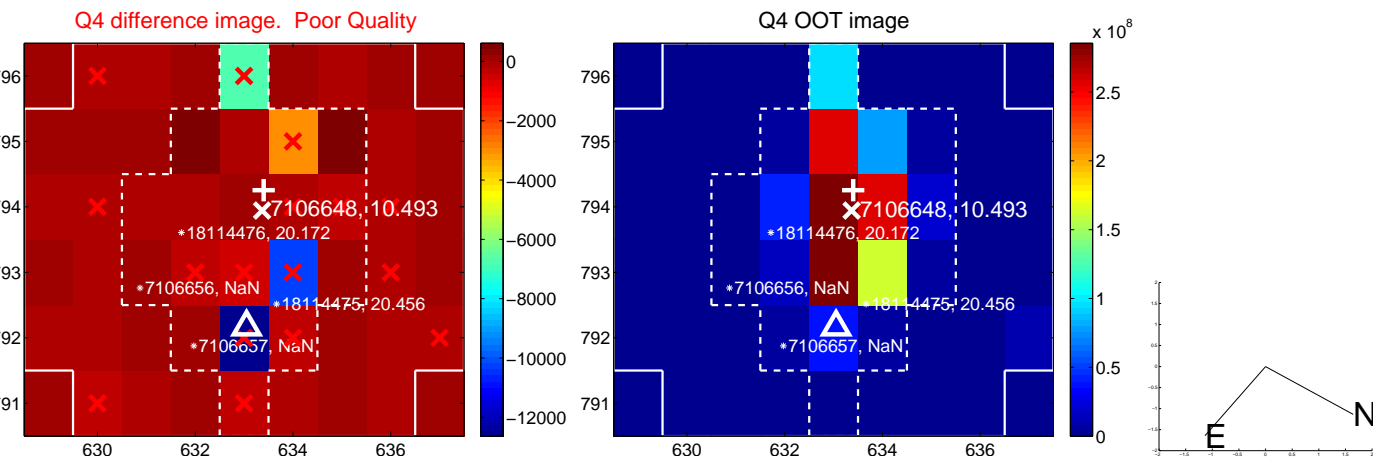
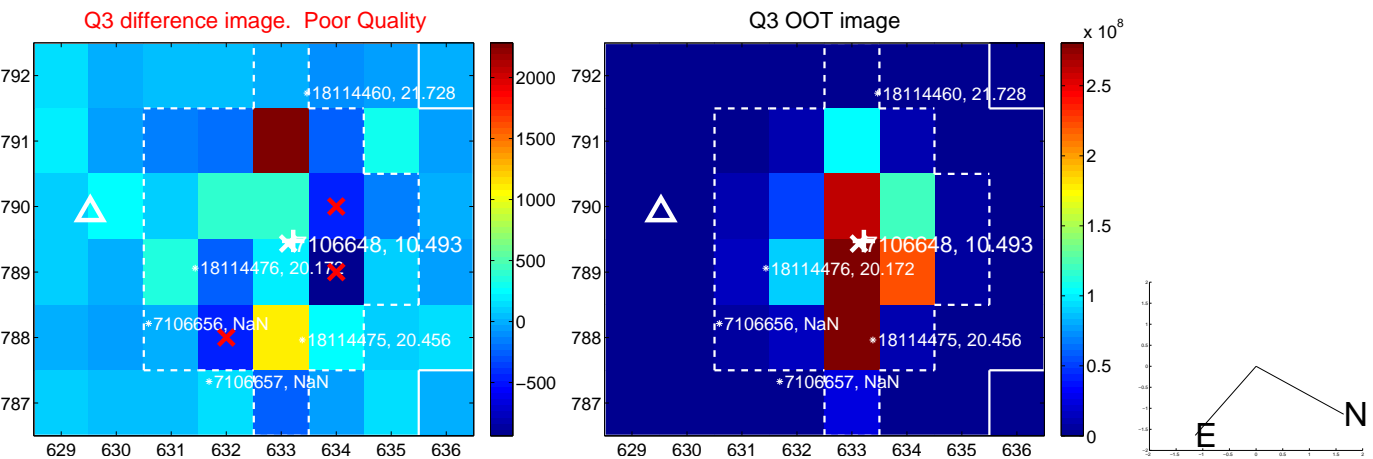
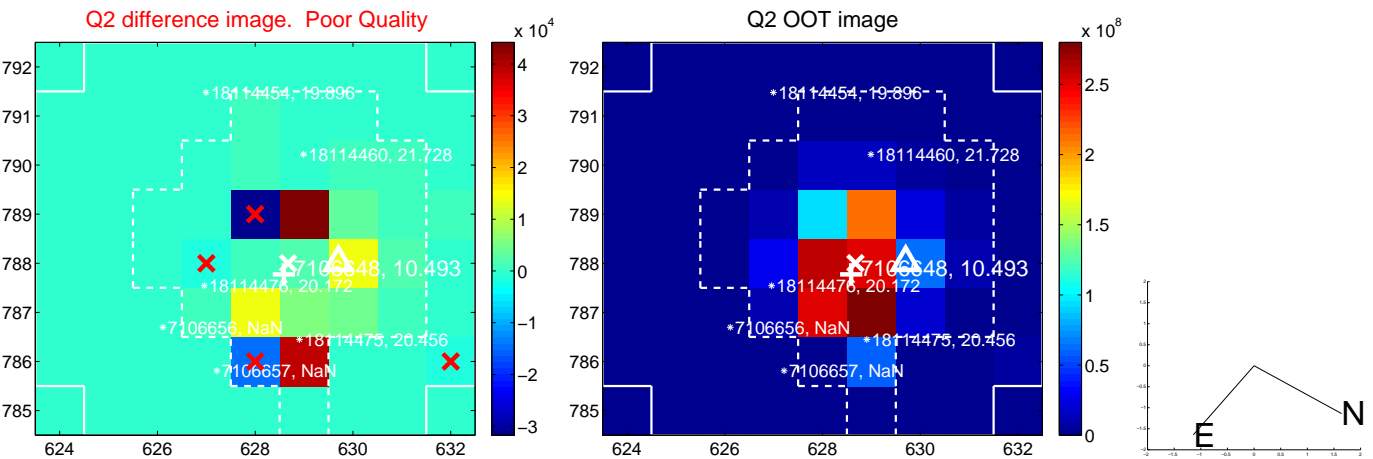
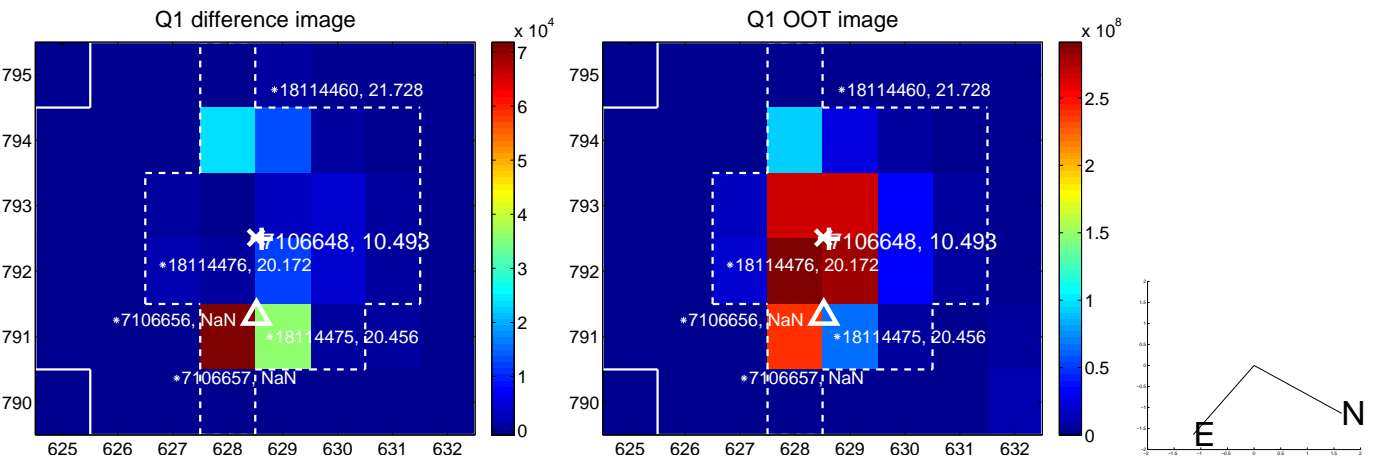
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.716 ± 0.837	5.64	3.824 ± 0.812	2.759 ± 1.039
PRF-fit source offset from KIC position	4.626 ± 0.785	5.90	3.560 ± 0.707	2.954 ± 1.034
photometric centroid source offset	2.68 ± 1.08	2.49	-0.07 ± 1.45	-2.68 ± 1.08

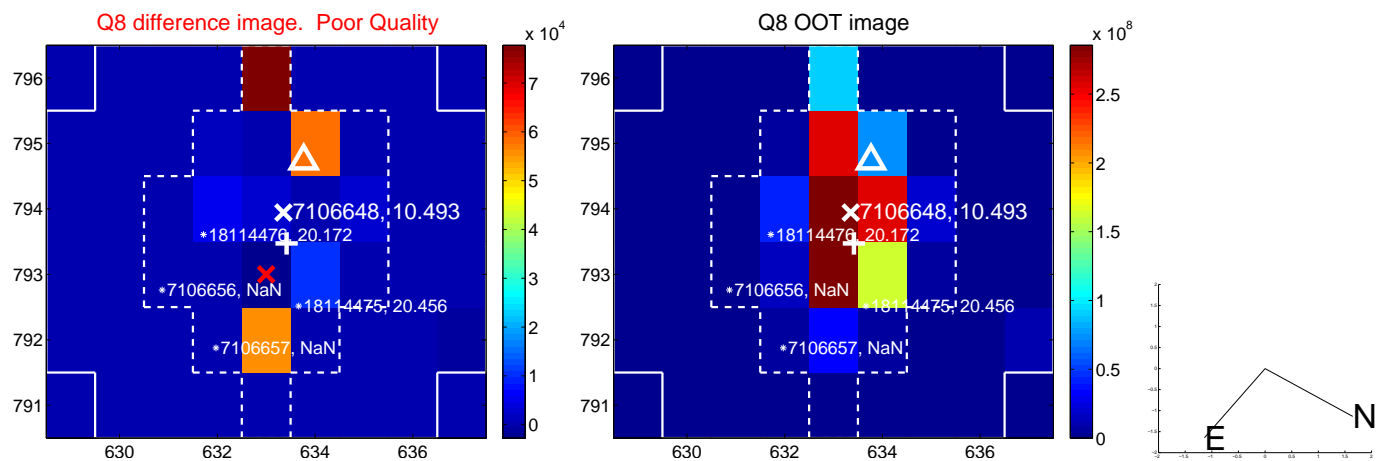
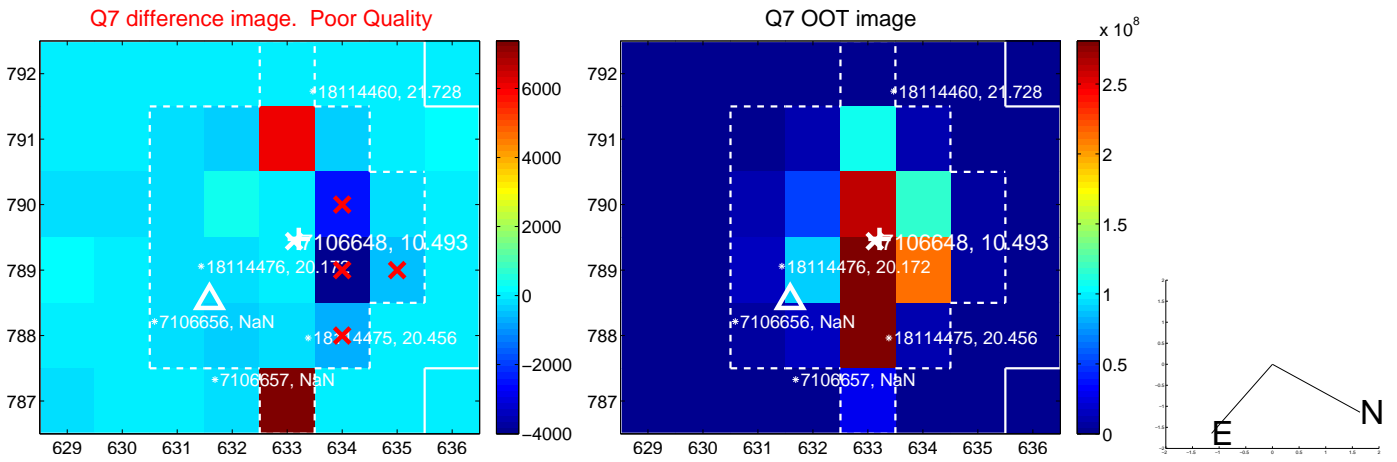
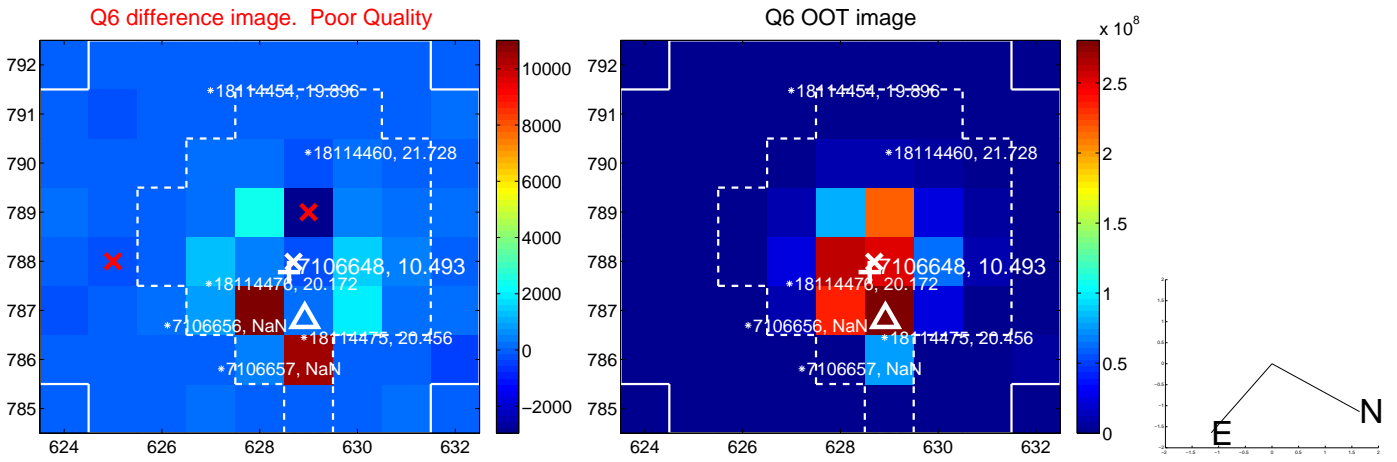
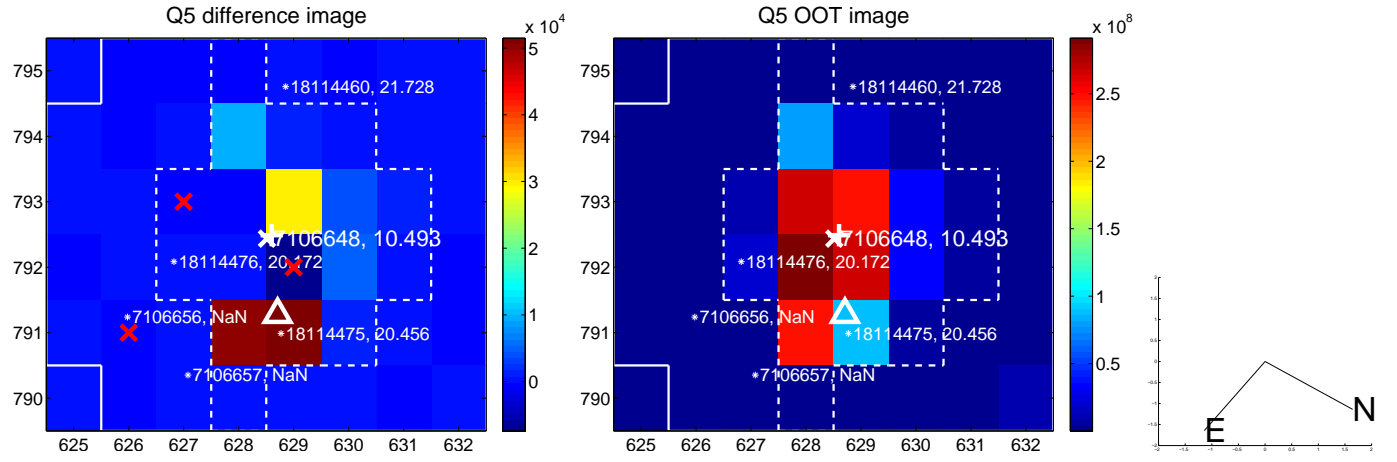


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

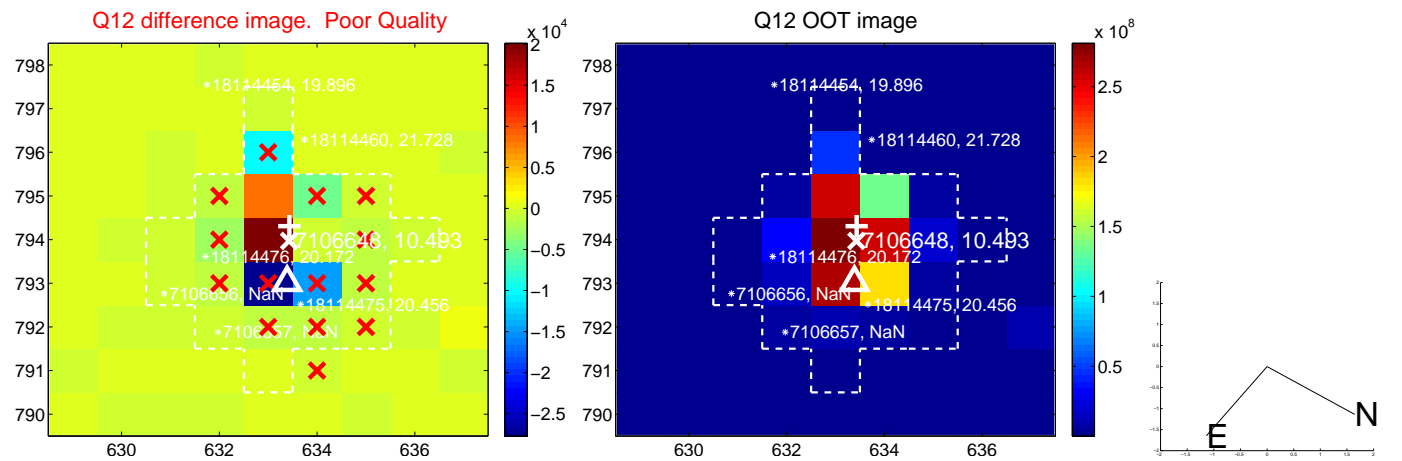
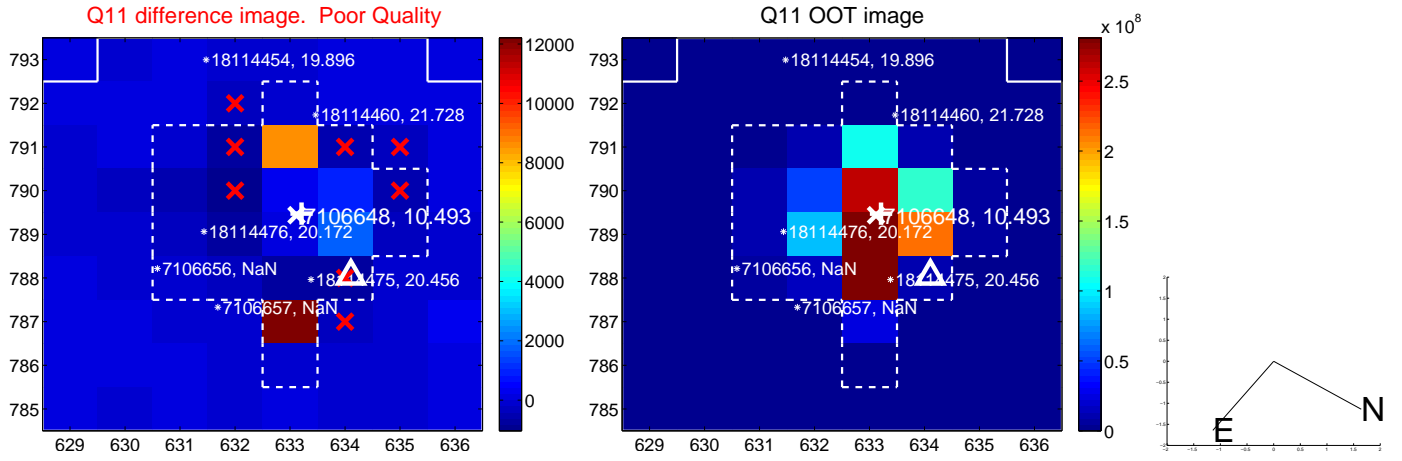
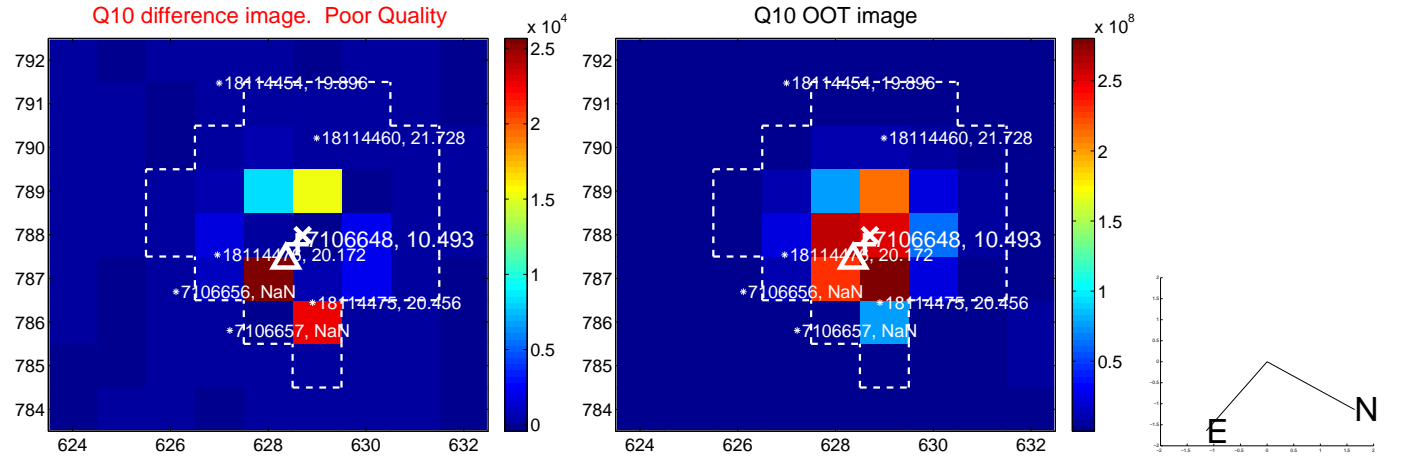
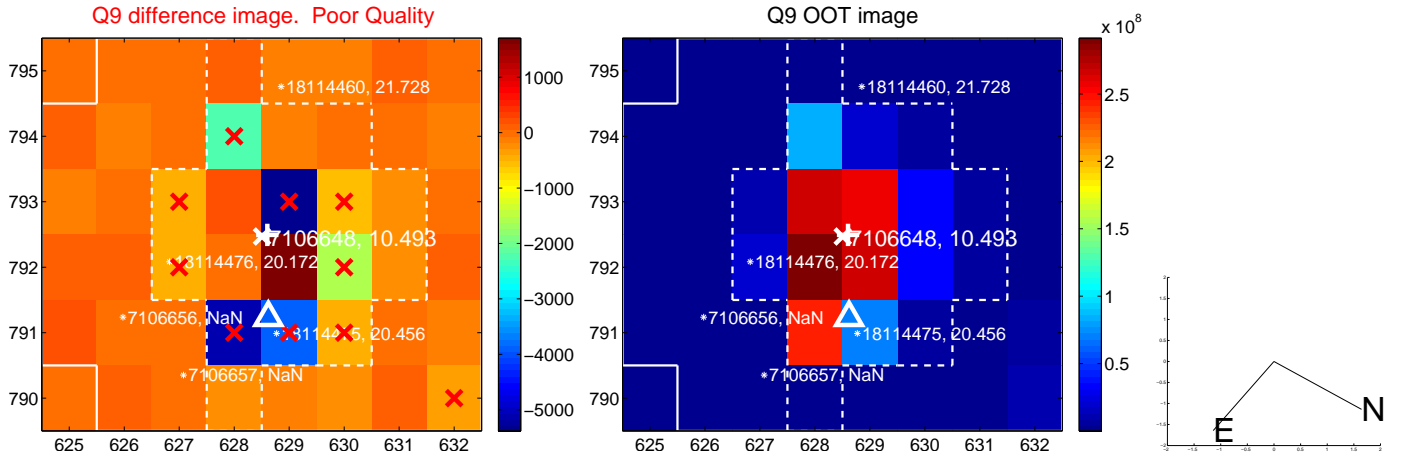
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



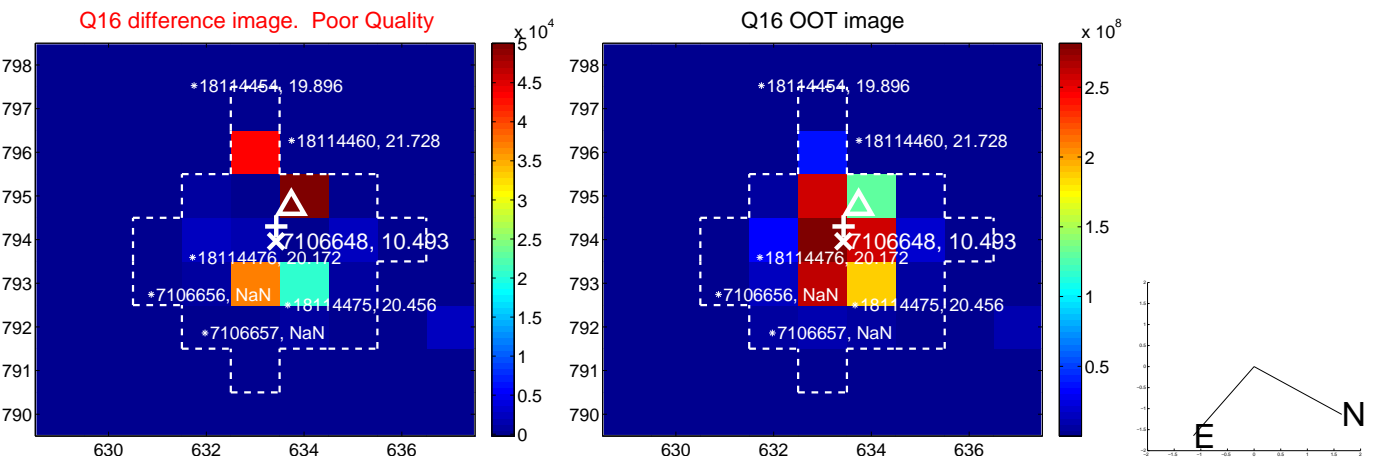
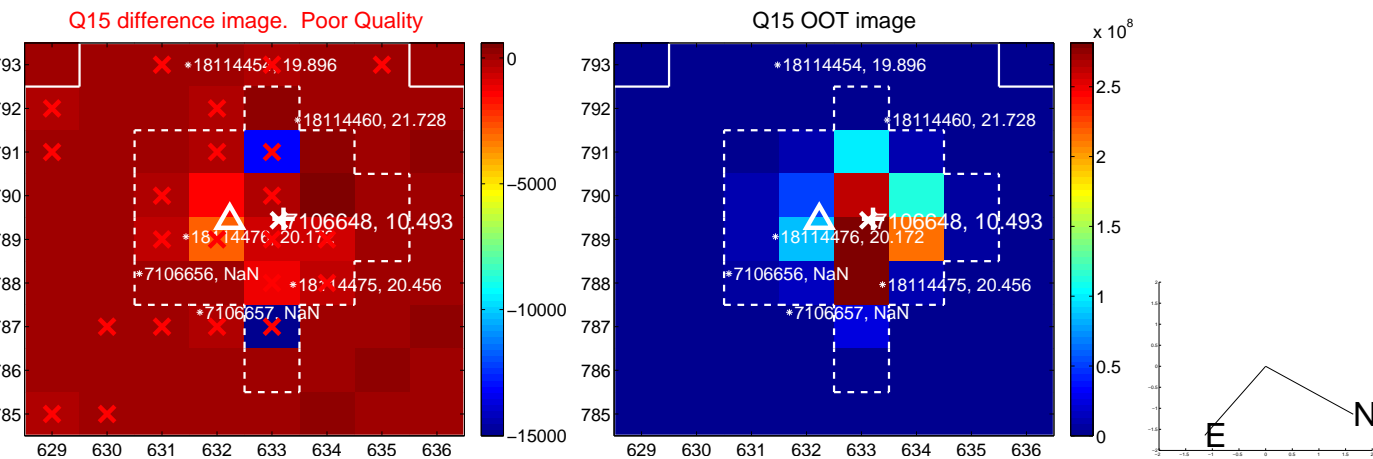
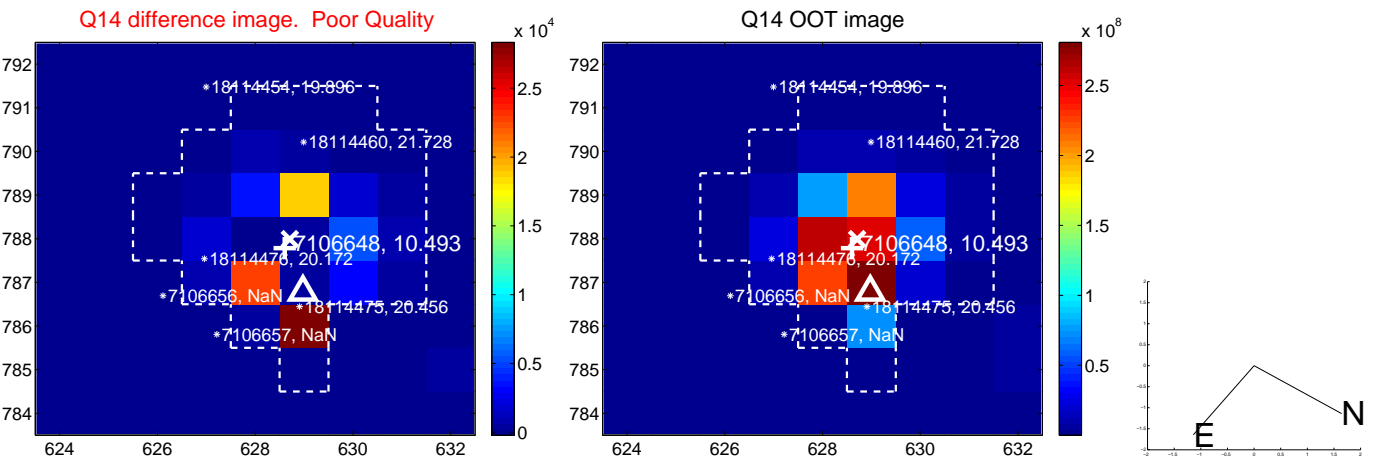
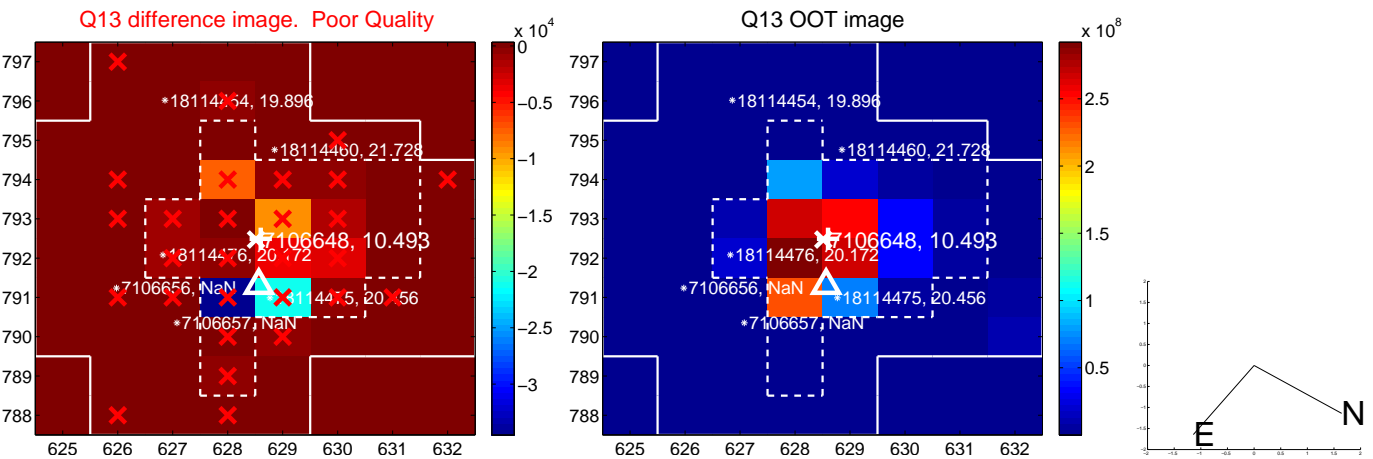
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



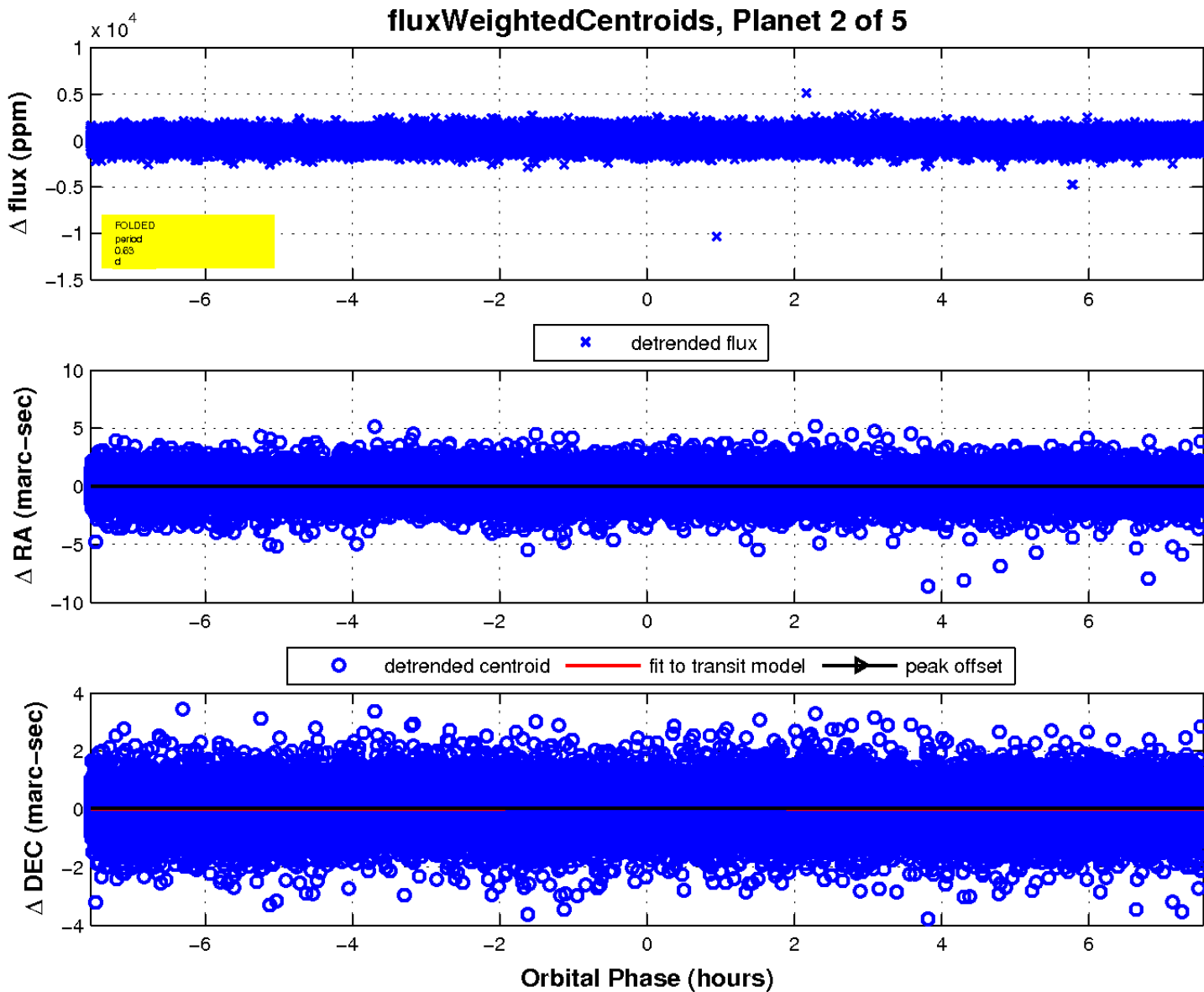
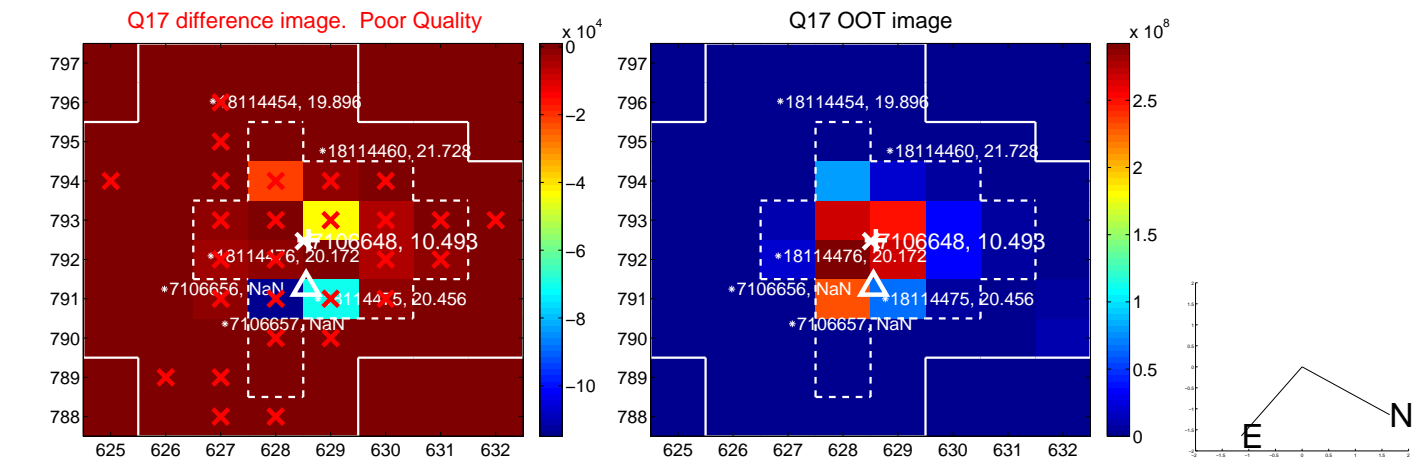
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

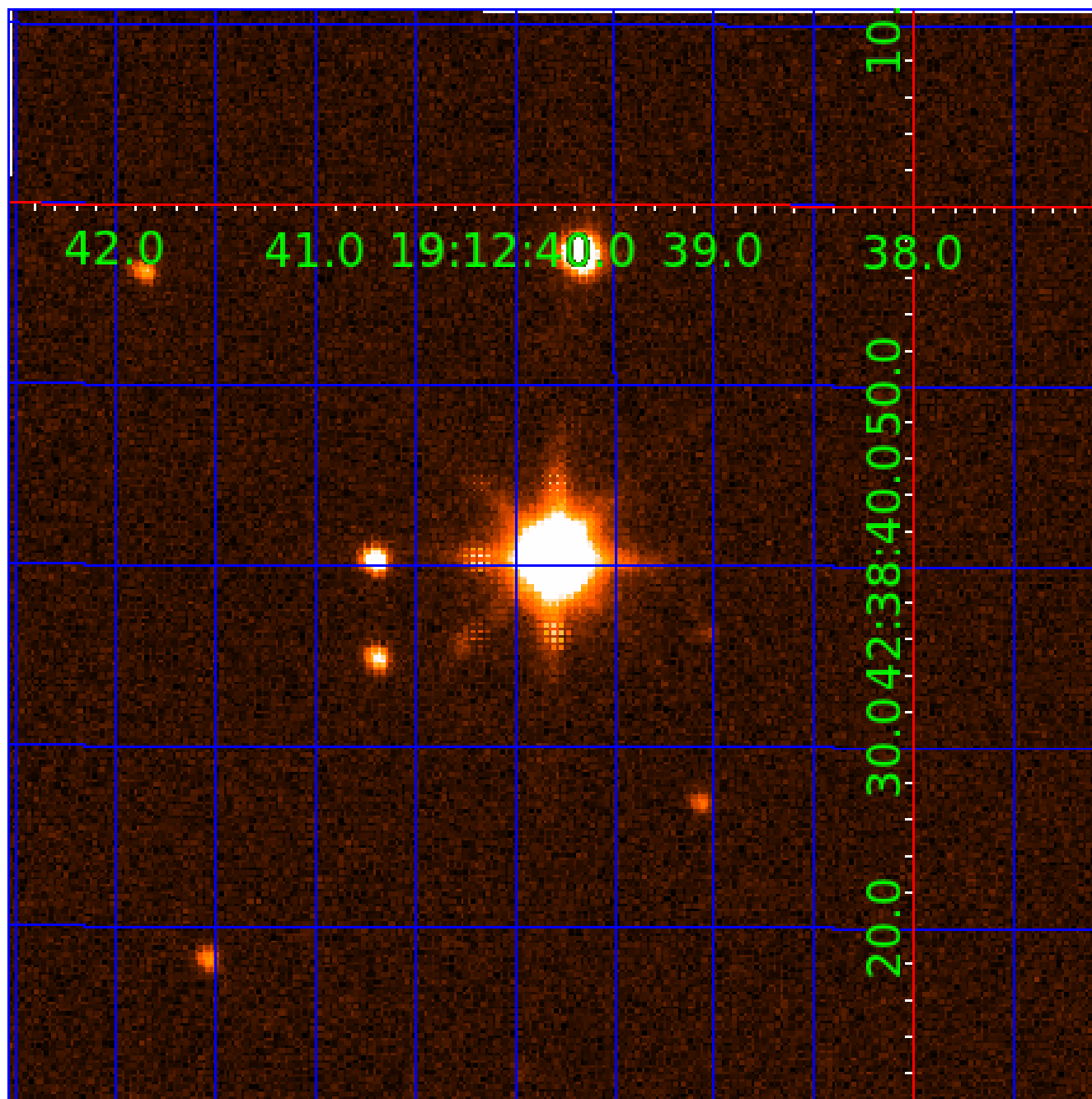


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007106648

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})
007106648-01	OBS	No	1.259306	132.195766	27.6	2.005	8.0	5.6	1.63	7268	1.03	10245.83
007106648-02	OBS	No	0.629649	131.968347	10.3	3.960	7.6	2.5	1.63	7268	0.56	25818.10
007106648-03	OBS	No	79.392983	199.507695	895.7	4.205	8.9	6.7	1.63	7268	5.53	40.83
007106648-04	OBS	No	18.012478	138.912332	1021.9	3.807	9.0	10.9	1.63	7268	9.72	295.09
007106648-05	OBS	No	23.166524	132.159124	652.9	3.063	8.3	6.0	1.63	7268	6.25	210.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007106648-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
007106648-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
007106648-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007106648-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007106648-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

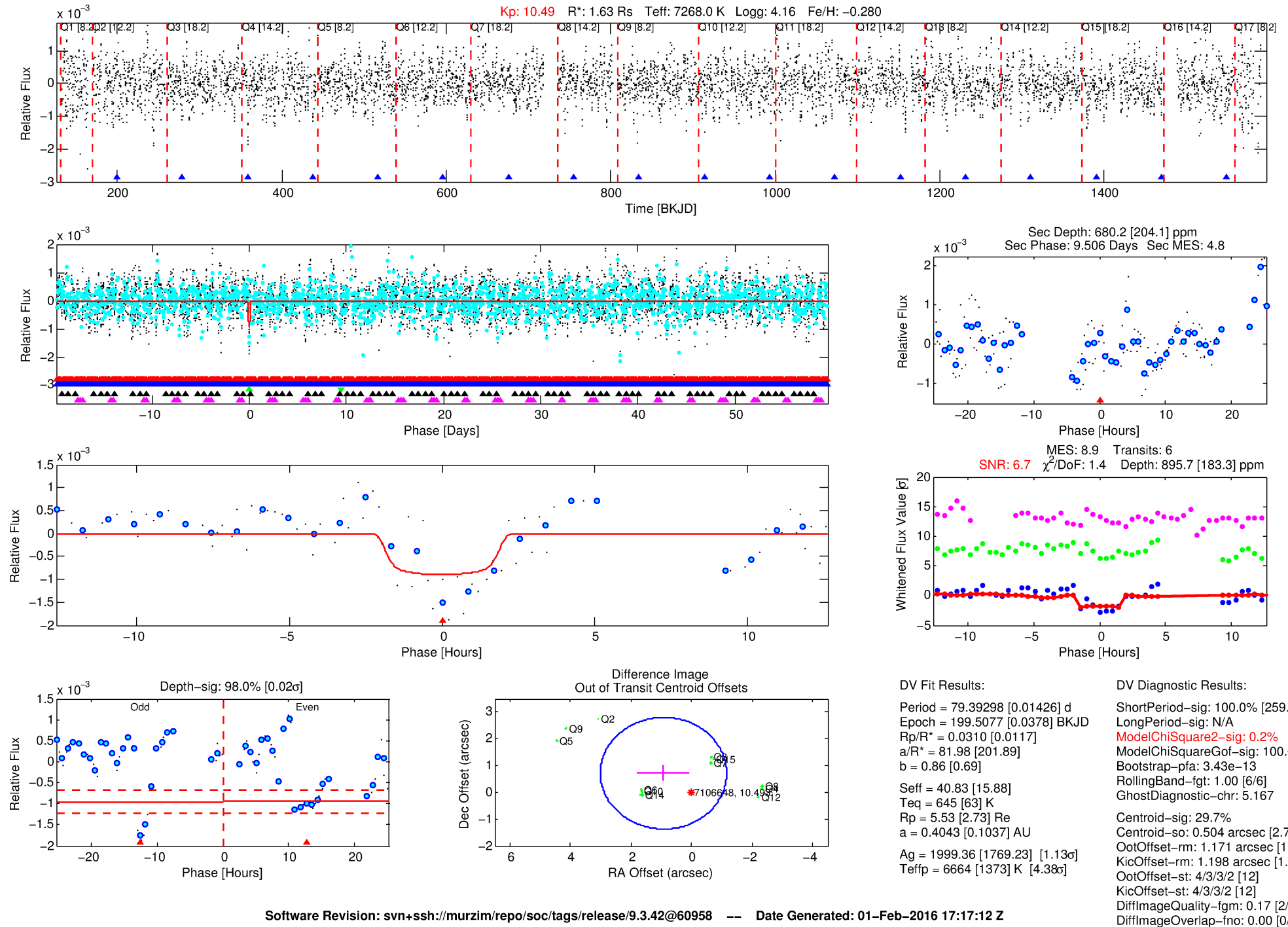
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007106648-03

No Significant Match Found

DV One-Page Summary

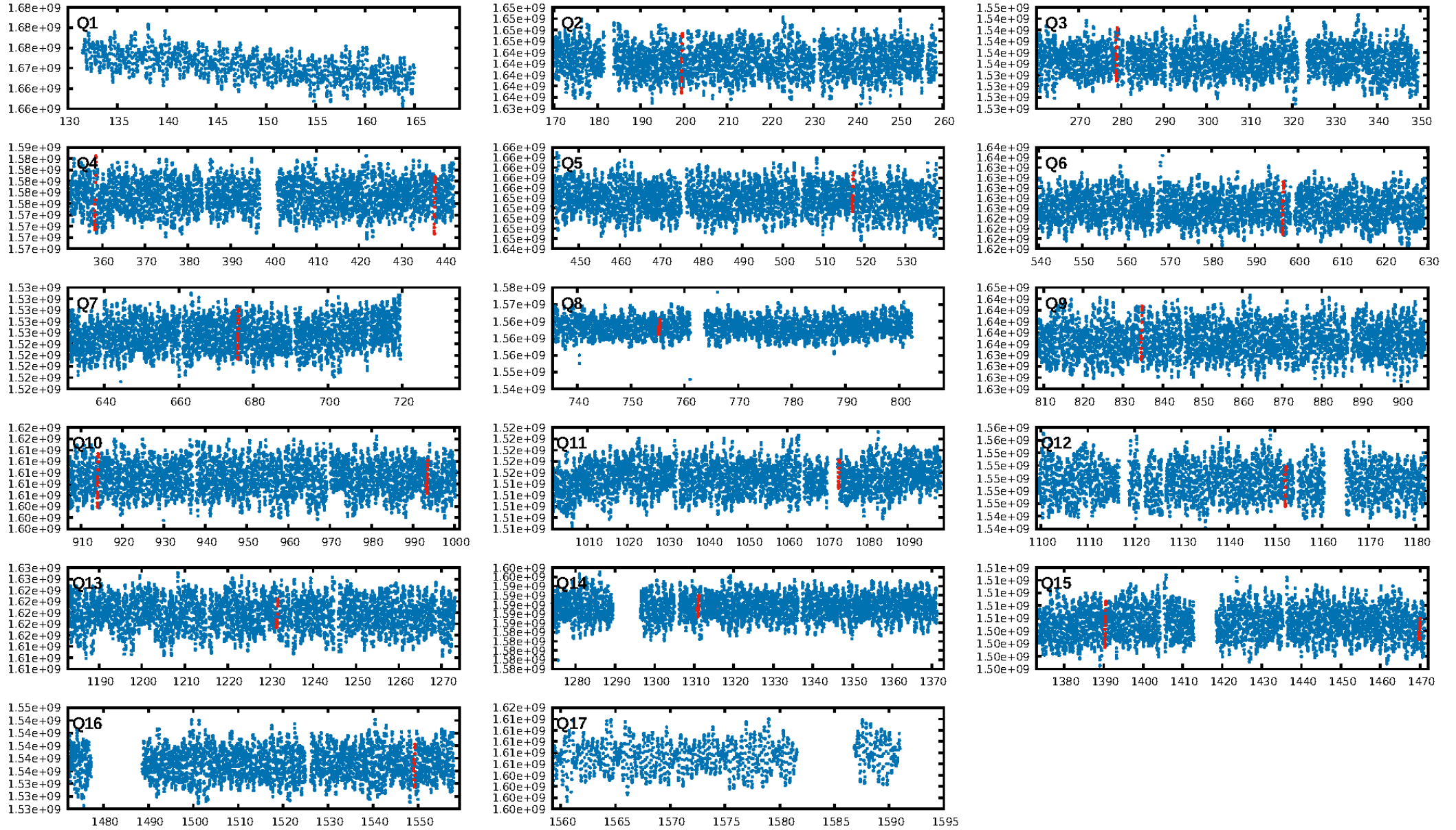
KIC: 7106648 Candidate: 3 of 5 Period: 79.393 d



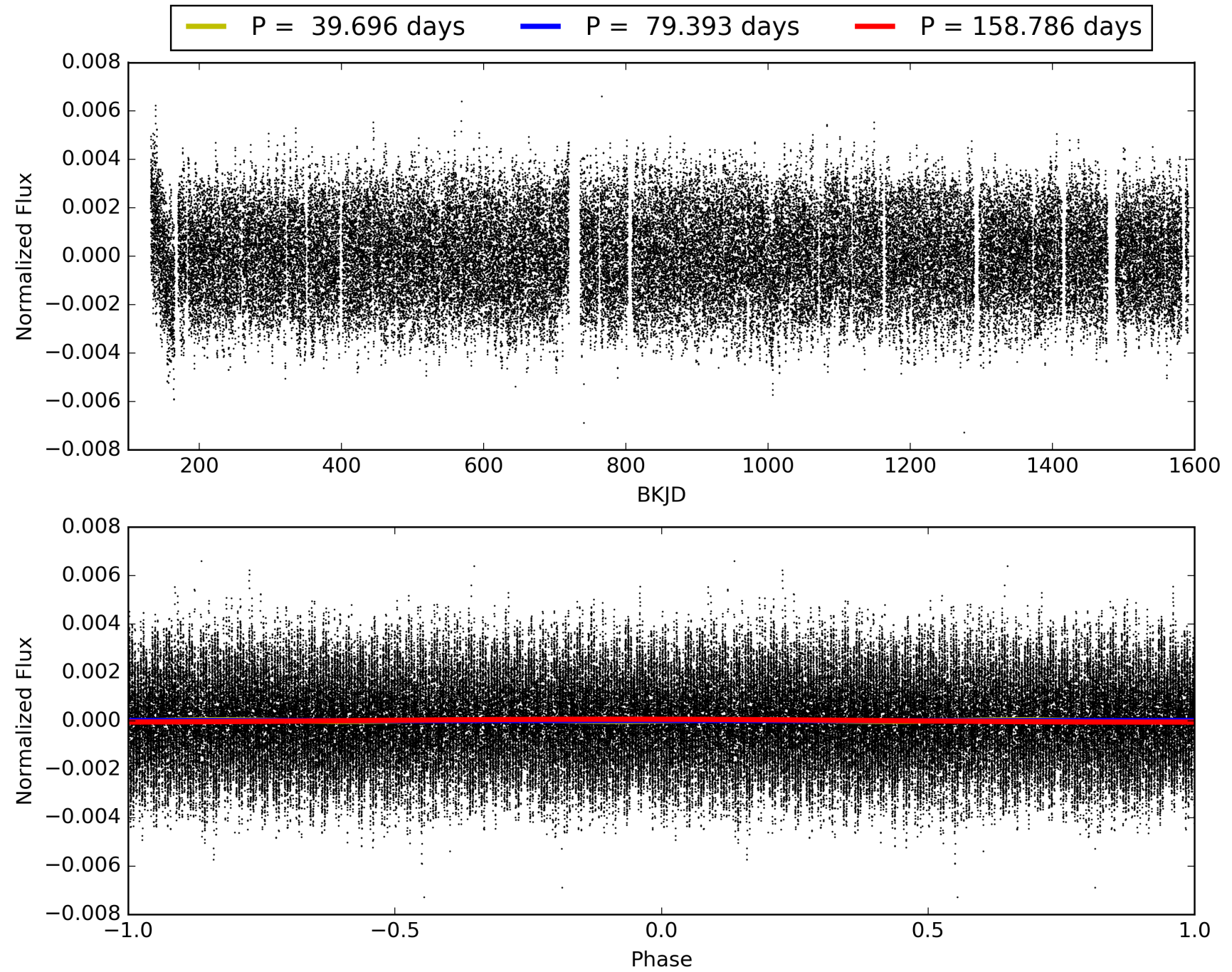
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:17:12 Z

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

TCE 007106648-03, PDC Light Curves

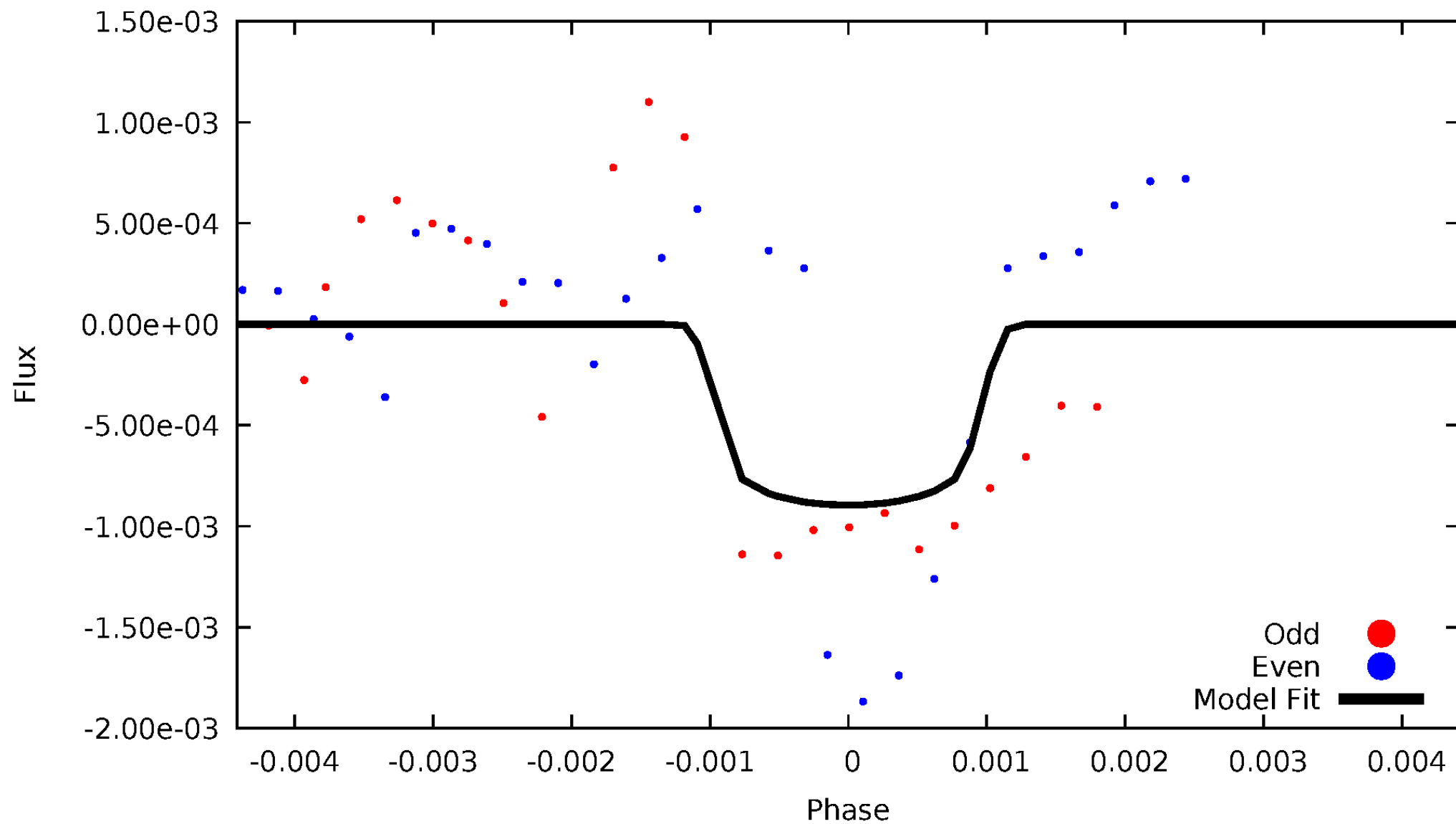


TCE 007106648-03



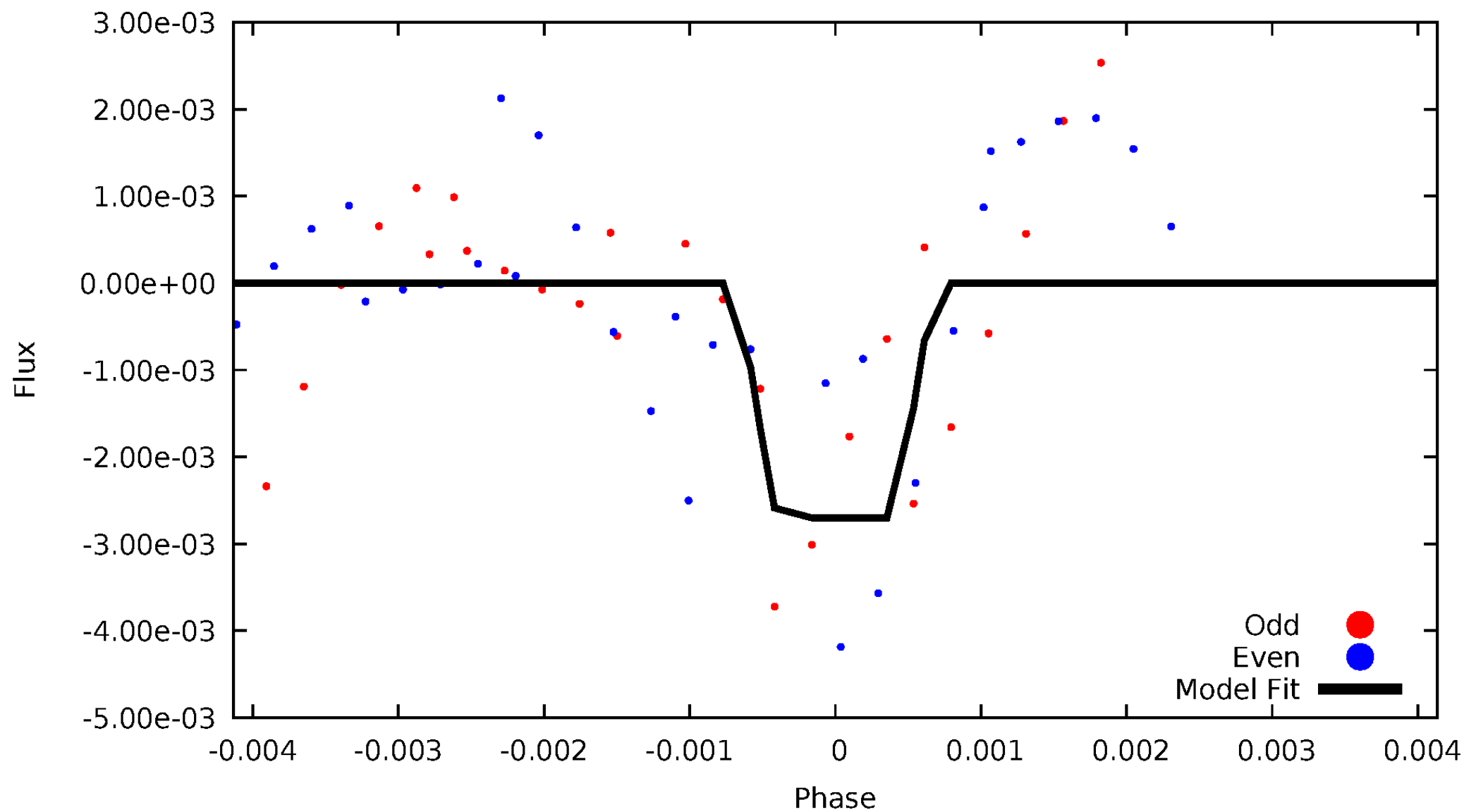
DV Odd/Even

TCE 007106648-03



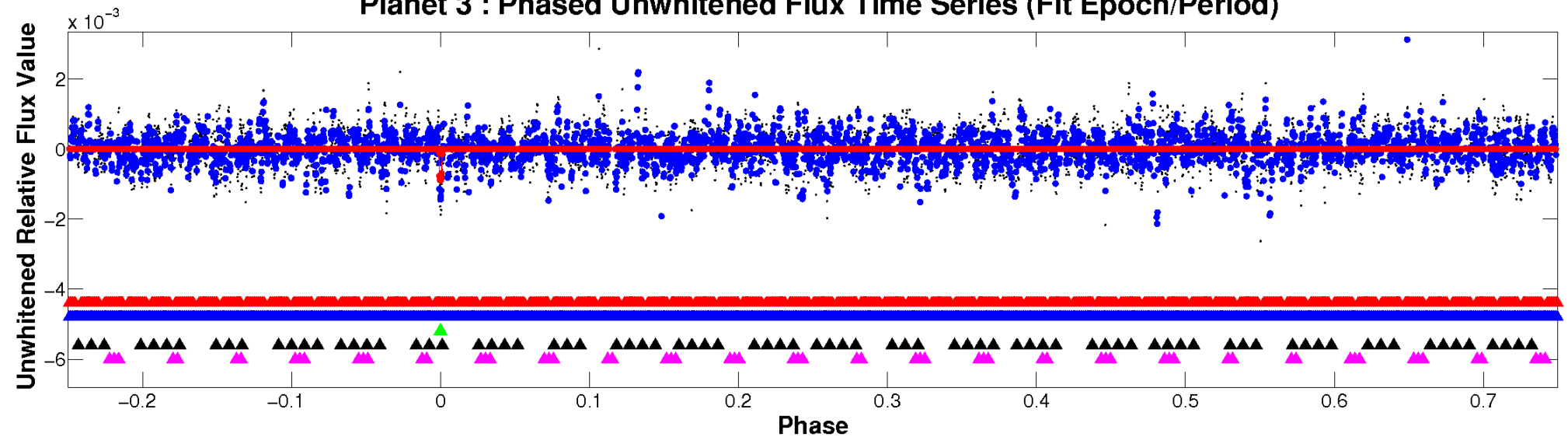
ALT Odd/Even

TCE 007106648-03

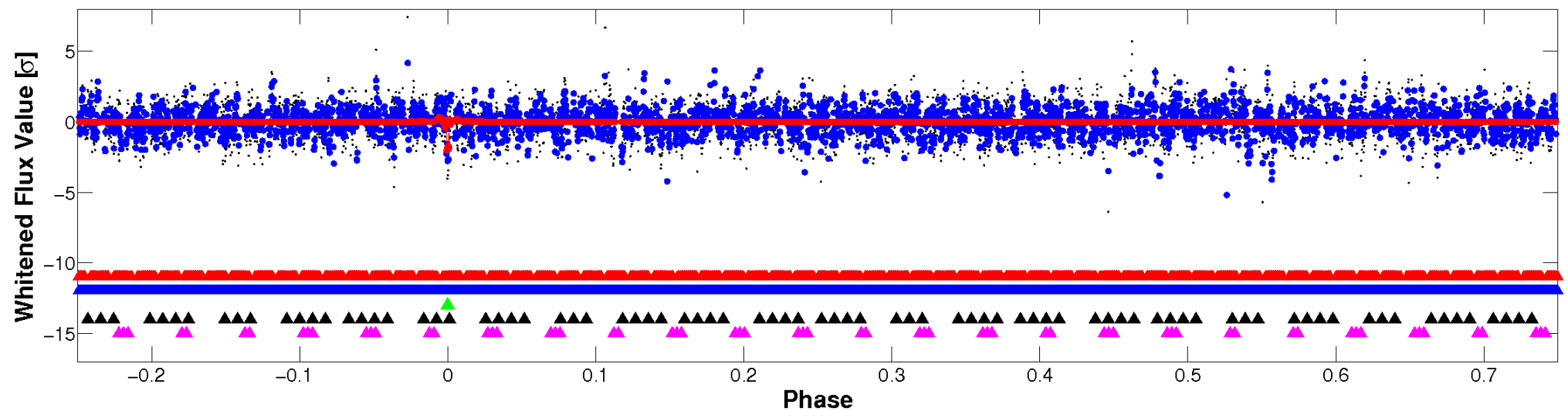


Non-Whitened Vs. Whitened Light Curve

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

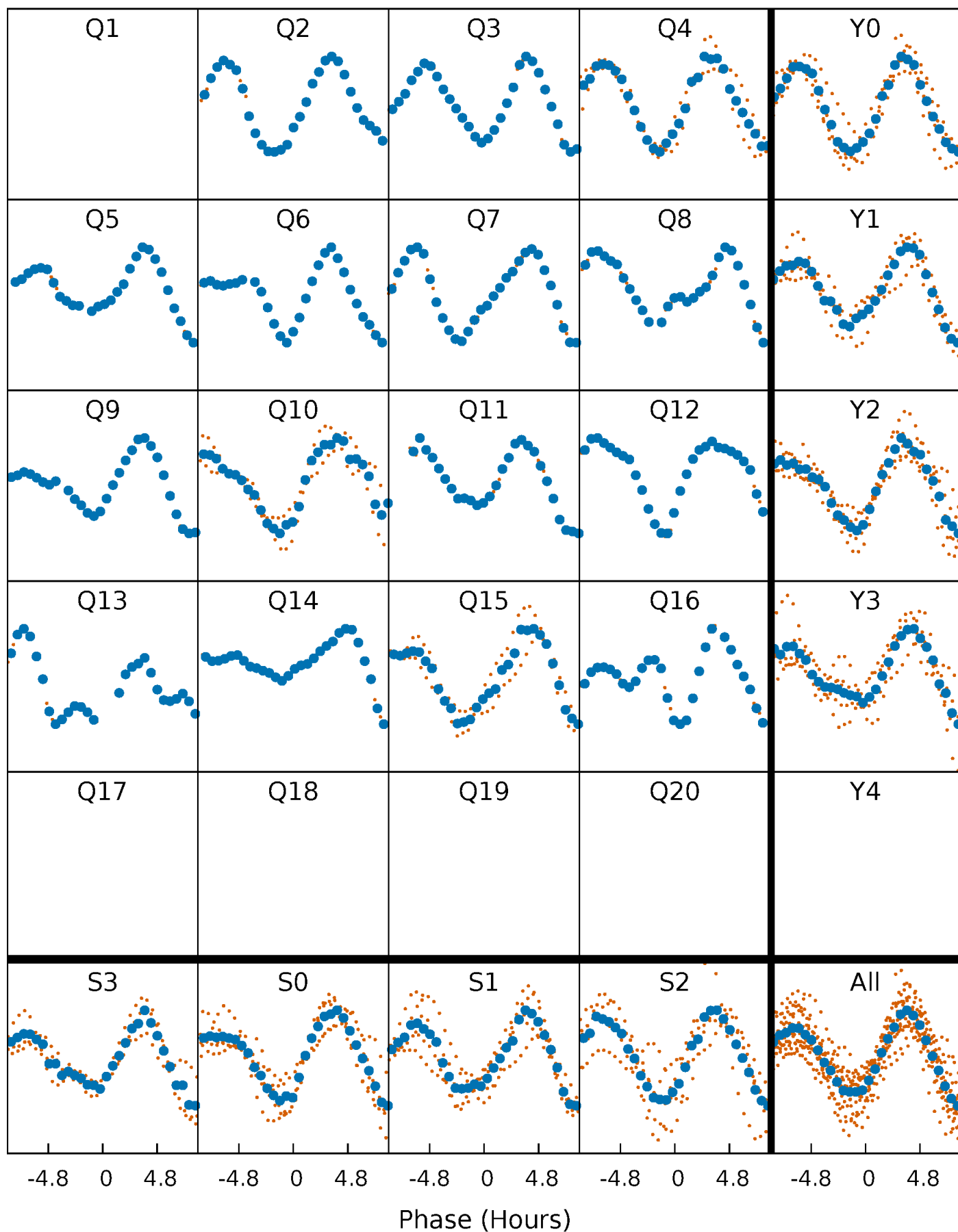


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



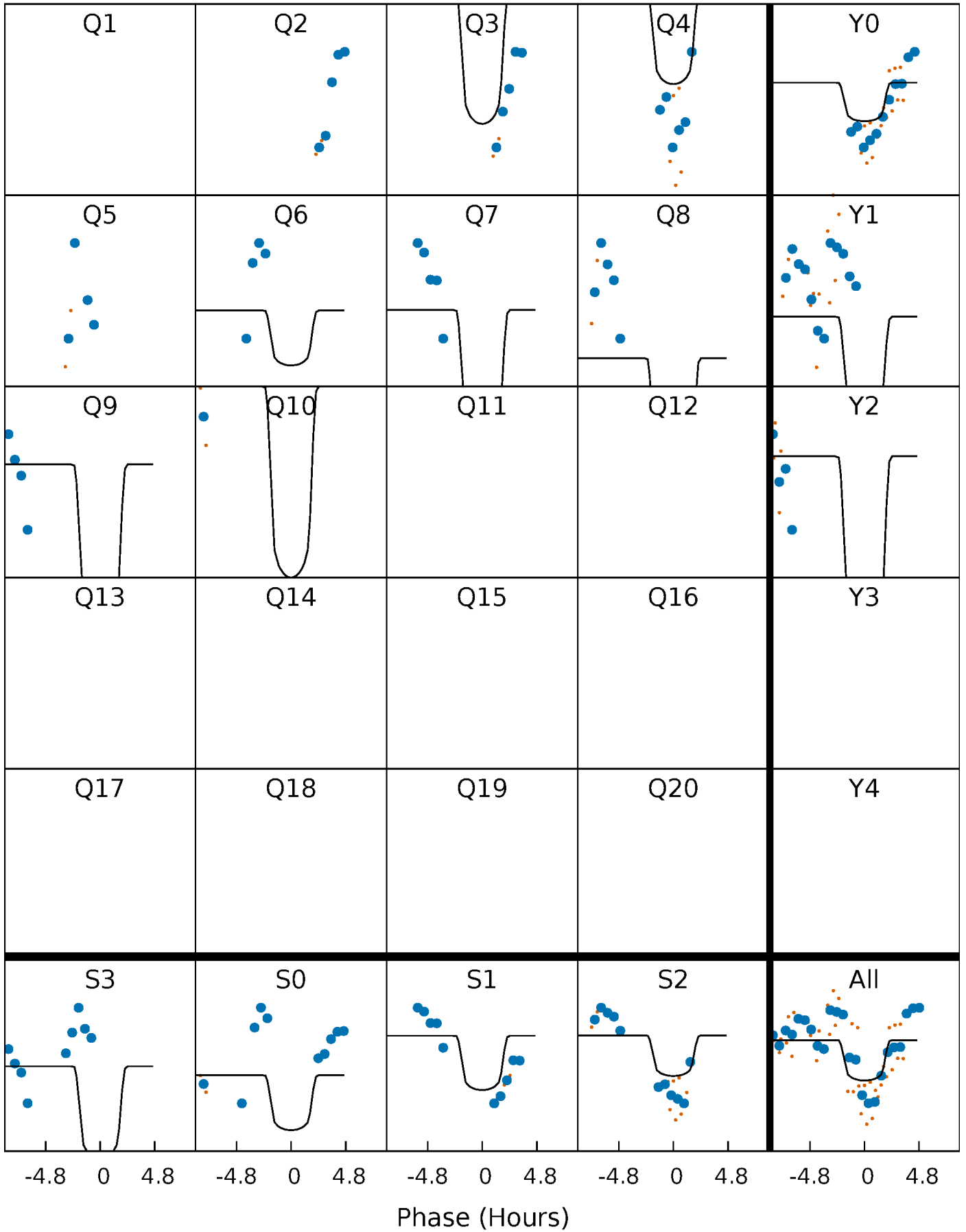
PDC Quarter-Phased Transit Curves

TCE 007106648-03 P= 79.392983 Days $T_0=199.507695$ (BKJD)



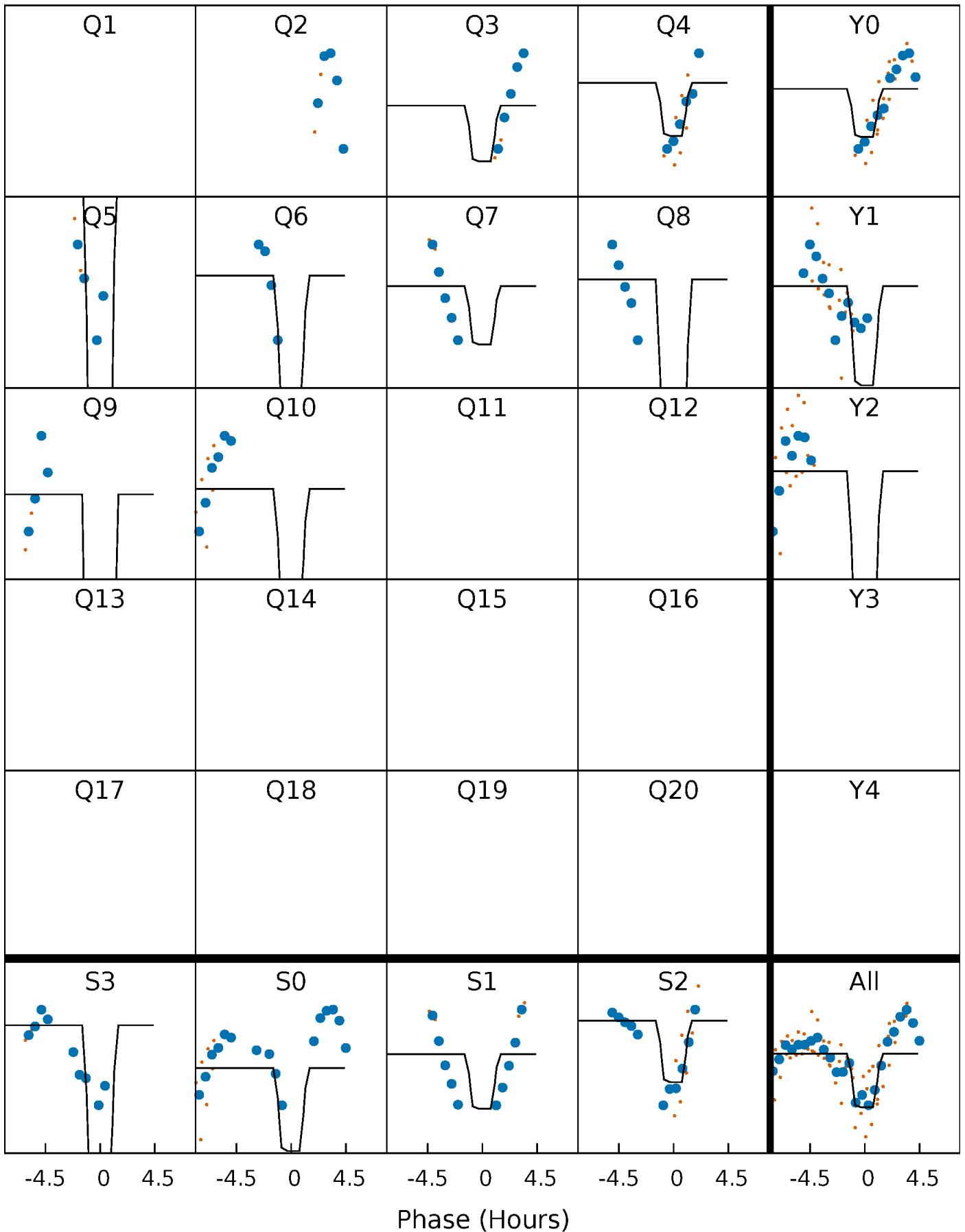
DV Quarter-Phased Transit Curves

TCE 007106648-03 P= 79.392983 Days $T_0=199.507695$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

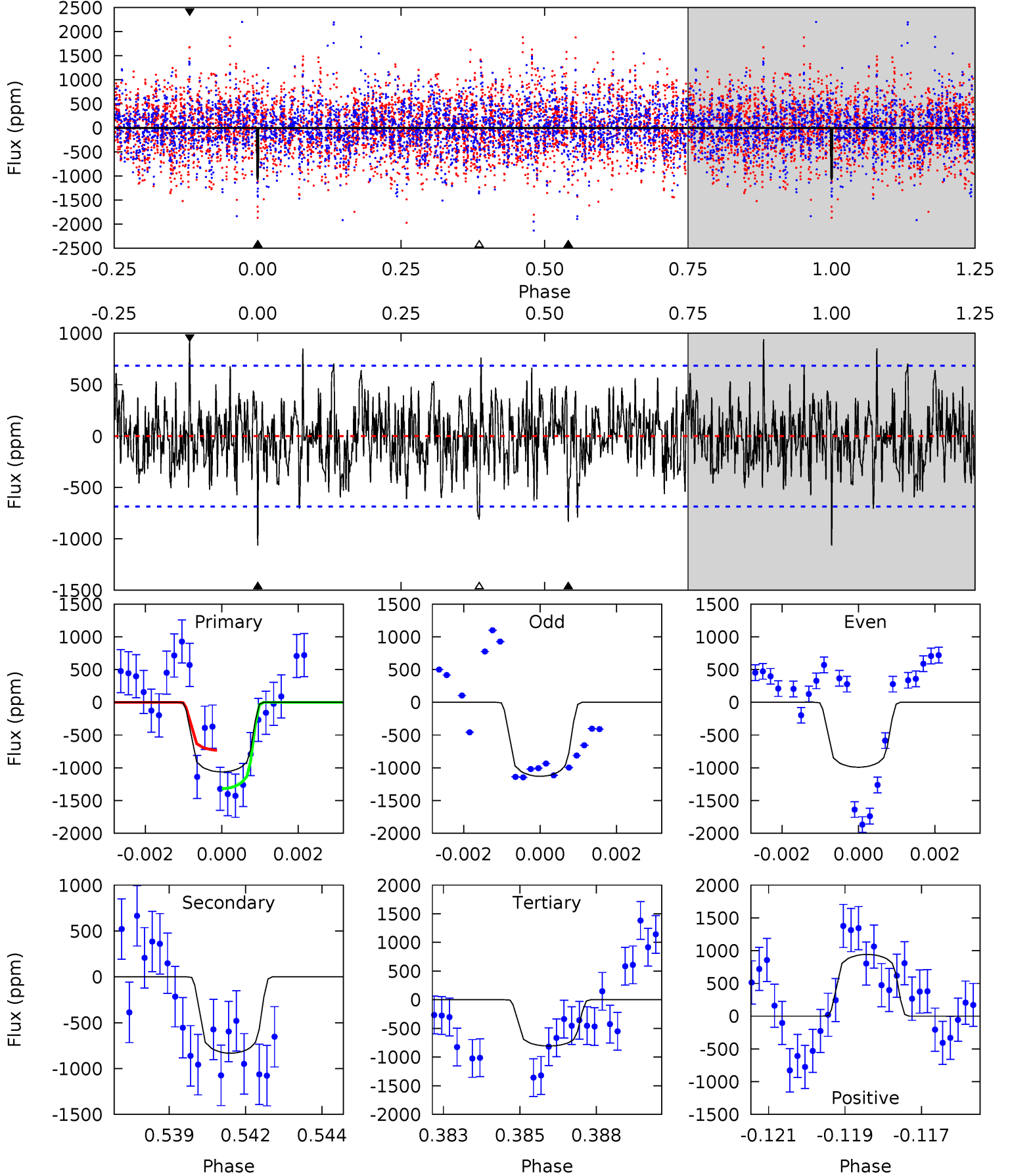
TCE 007106648-03 P= 79.380234 Days $T_0=199.518266$ (BKJD)



DV Model-Shift Uniqueness Test

007106648-03, $P = 79.392983$ Days, $E = 120.114712$ Days

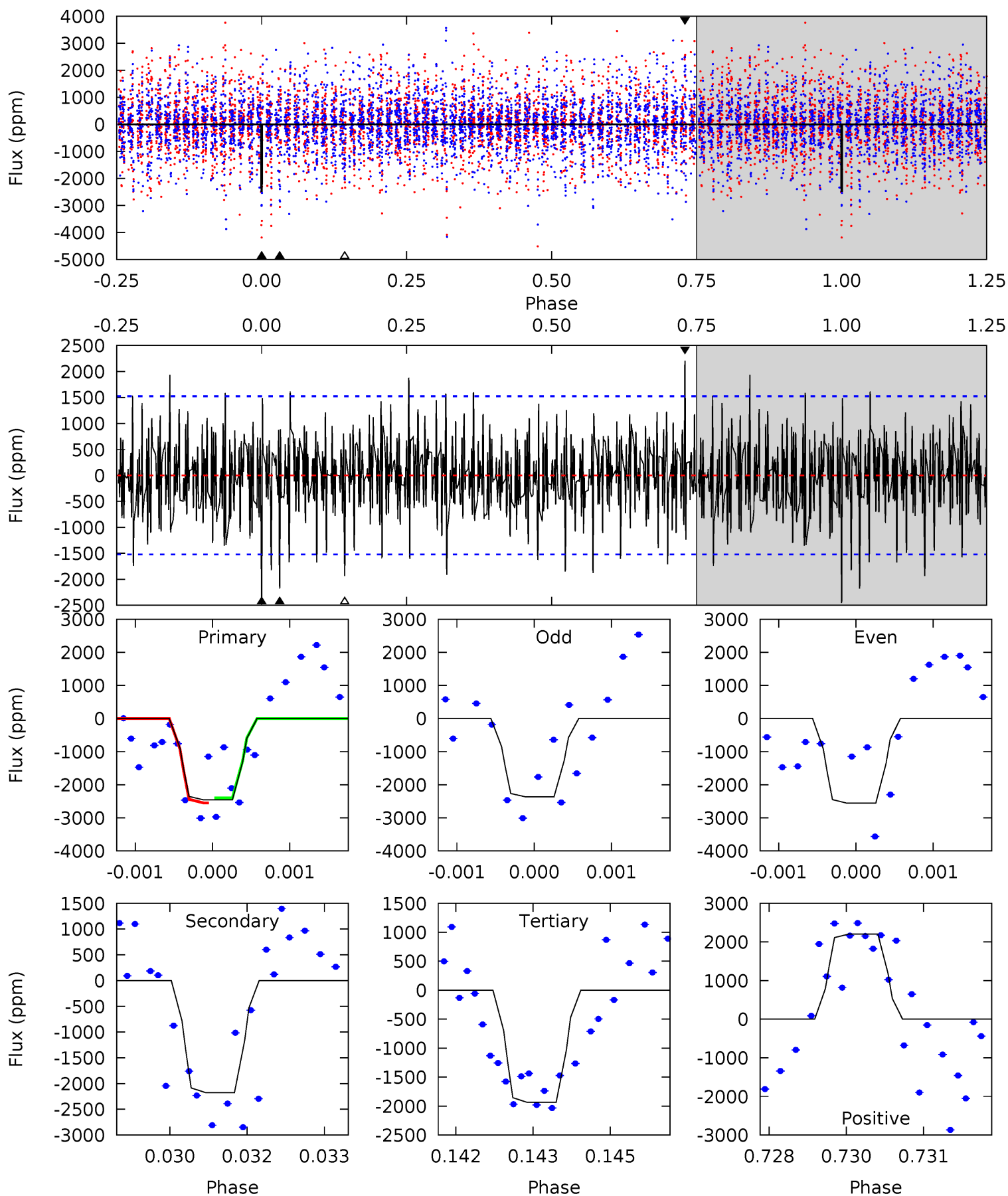
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.22	6.44	6.24	7.29	5.30	3.04	1.86	1.98	0.93	0.20	-0.84	0.55	0.76	0.47	2.25



Alt Model-Shift Uniqueness Test

007106648-03, P = 79.380234 Days, E = 120.138032 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.71	7.71	6.86	7.81	5.39	3.20	2.03	1.85	0.90	0.85	-0.10	0.34	1.09	0.47	0.25



Stellar Parameters For KIC 007106648

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7268^{+203}_{-279}	$4.157^{+0.153}_{-0.187}$	$-0.280^{+0.250}_{-0.350}$	$1.634^{+0.521}_{-0.347}$	$1.399^{+0.226}_{-0.226}$	$0.451^{+0.359}_{-0.232}$
	+3%/-4%	+4%/-4%	+89%/-125%	+32%/-21%	+16%/-16%	+79%/-51%
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 007106648-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-833±129	$5.54^{+2.43}_{-2.16}$	899^{+70}_{-64}	6919^{+2318}_{-1082}	2383^{+4268}_{-1209}
Alt.	-2176±282	$9.30^{+2.55}_{-2.26}$	898^{+71}_{-57}	6786^{+1103}_{-693}	2256^{+1708}_{-901}

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 $A_{obs} \gg 1.0$

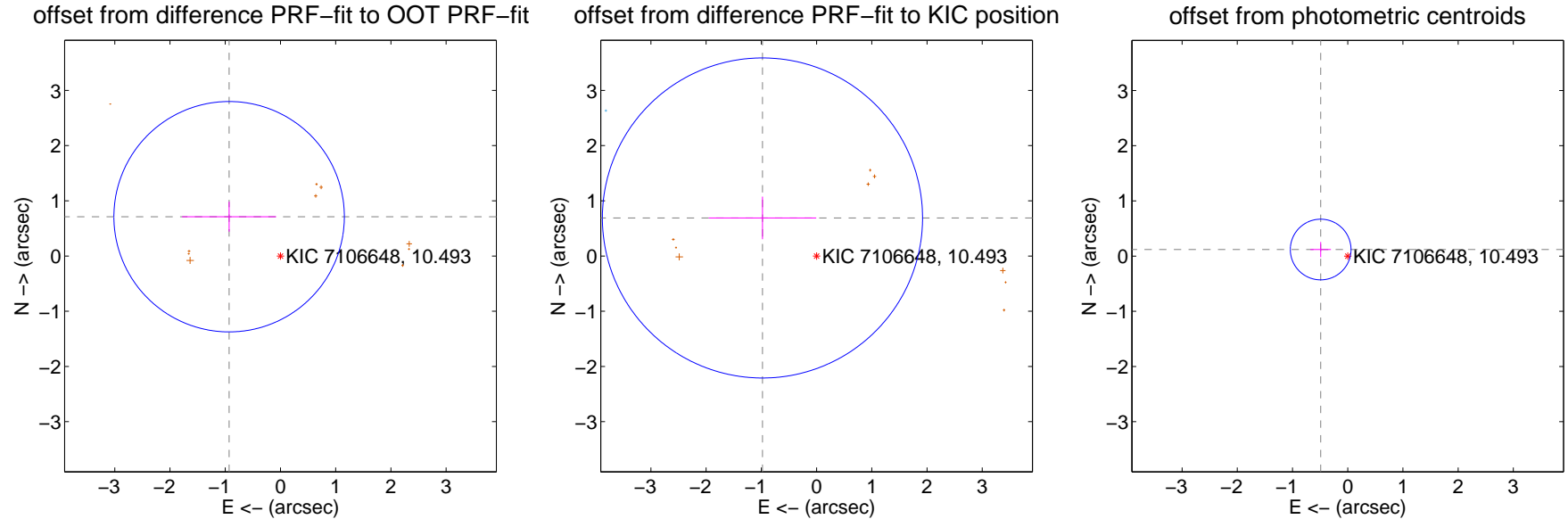
DV Centroid Data

Supplemental centroid analysis for 007106648-03. **Kepler magnitude: 10.49.** Transit SNR 6.67

There are 2 quarters with good PRF difference image offsets

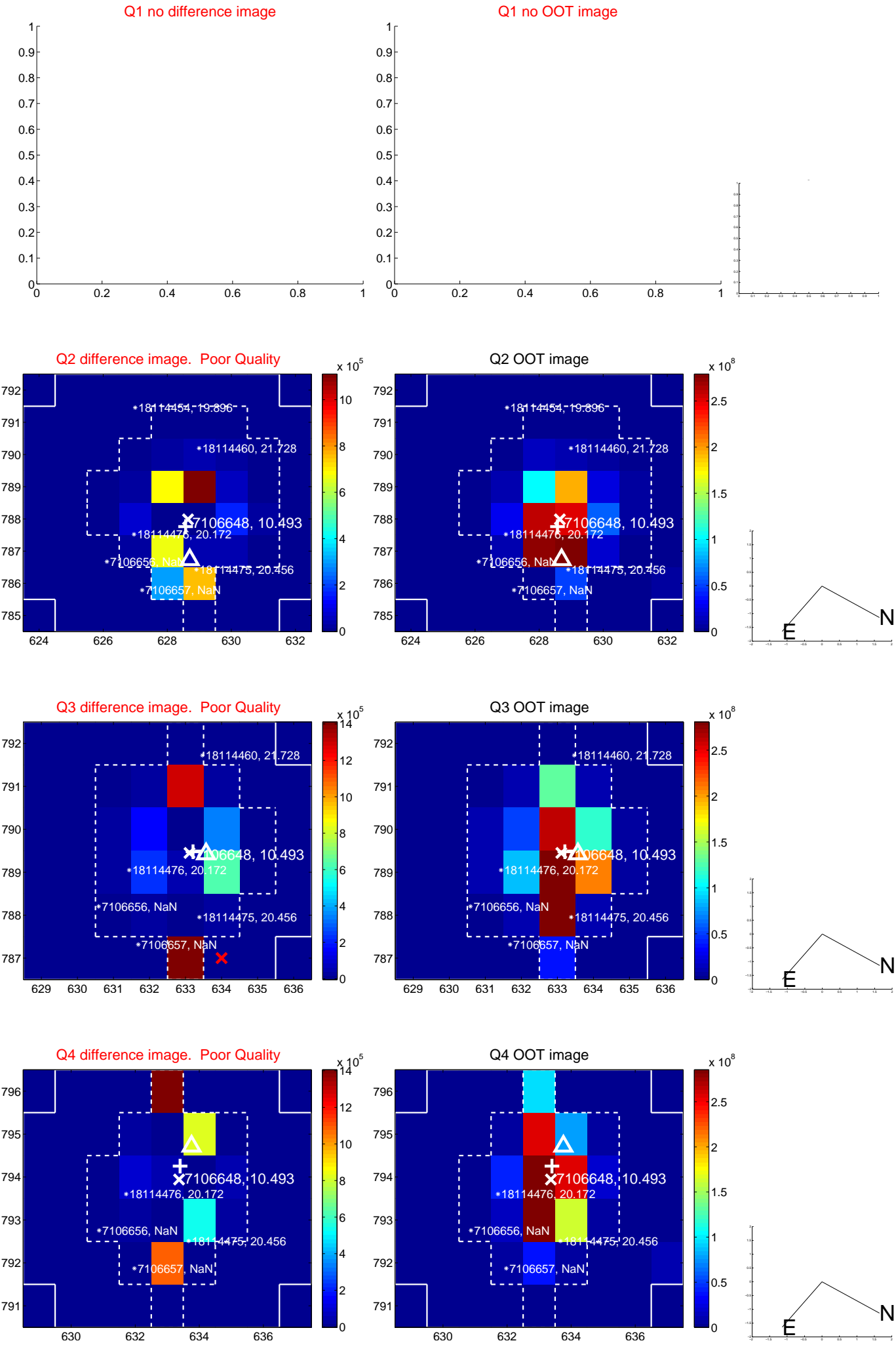
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.171 ± 0.696	1.68	0.930 ± 0.851	0.712 ± 0.271
PRF-fit source offset from KIC position	1.198 ± 0.966	1.24	0.980 ± 0.973	0.689 ± 0.386
photometric centroid source offset	0.50 ± 0.18	2.75	0.49 ± 0.19	0.12 ± 0.14

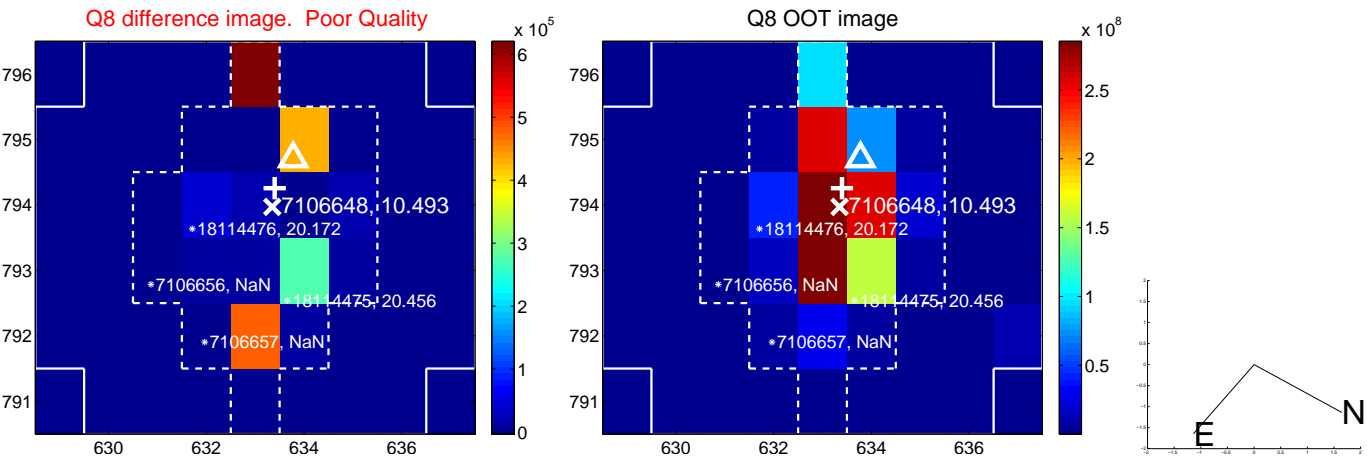
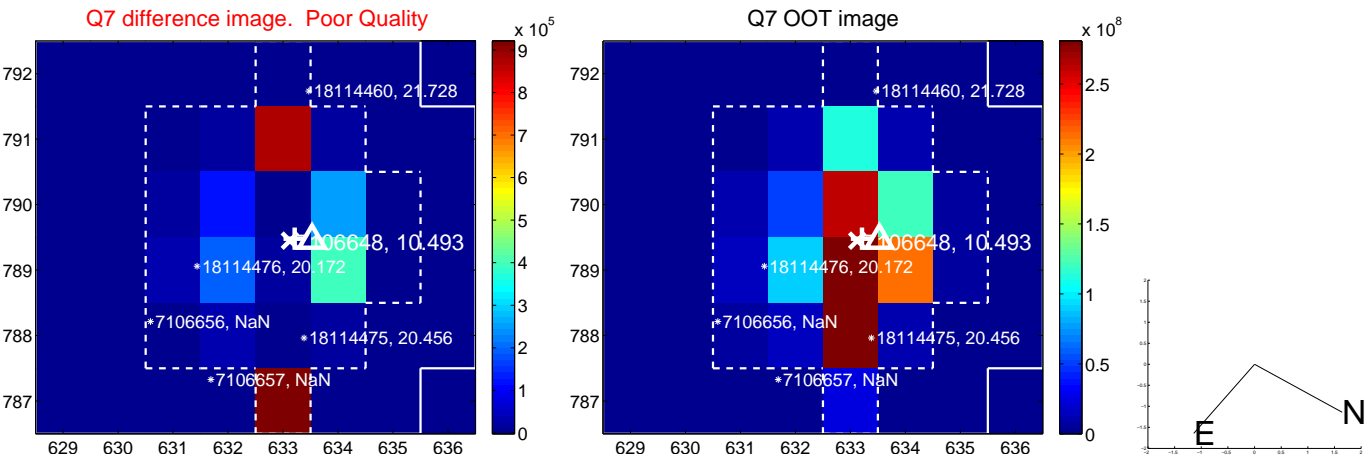
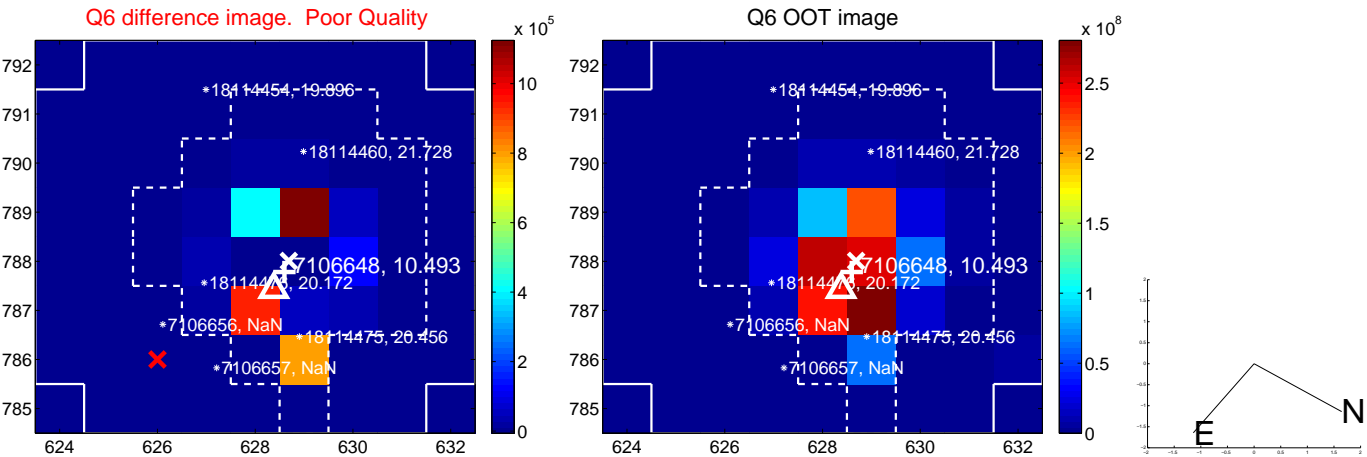
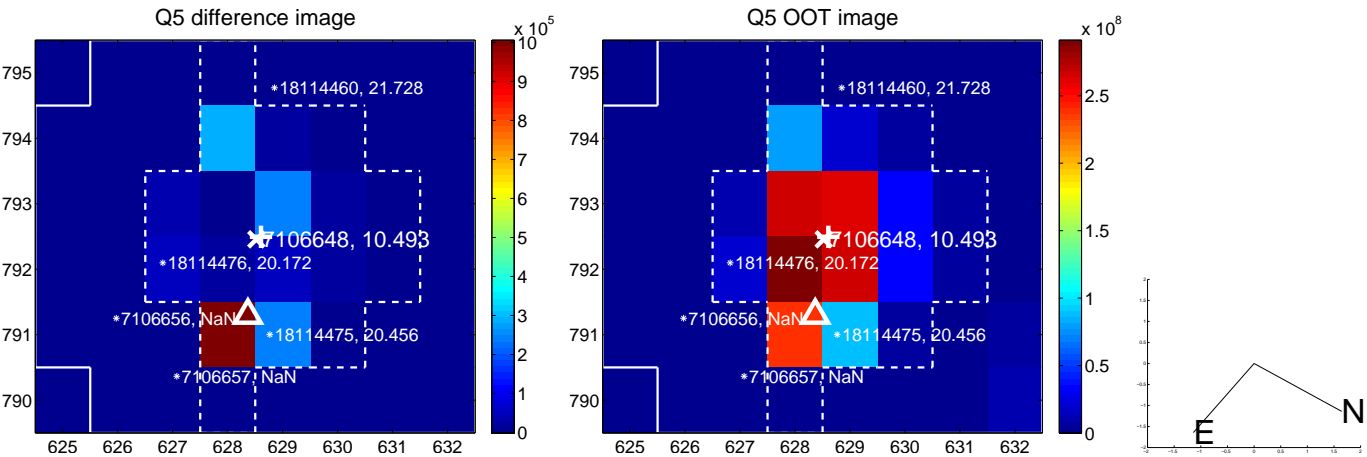


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

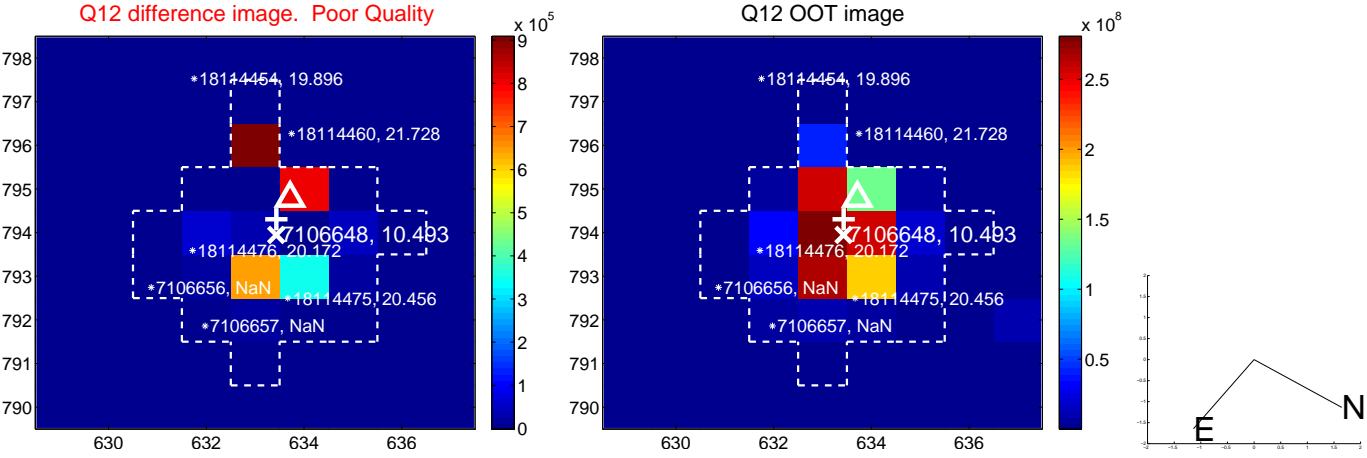
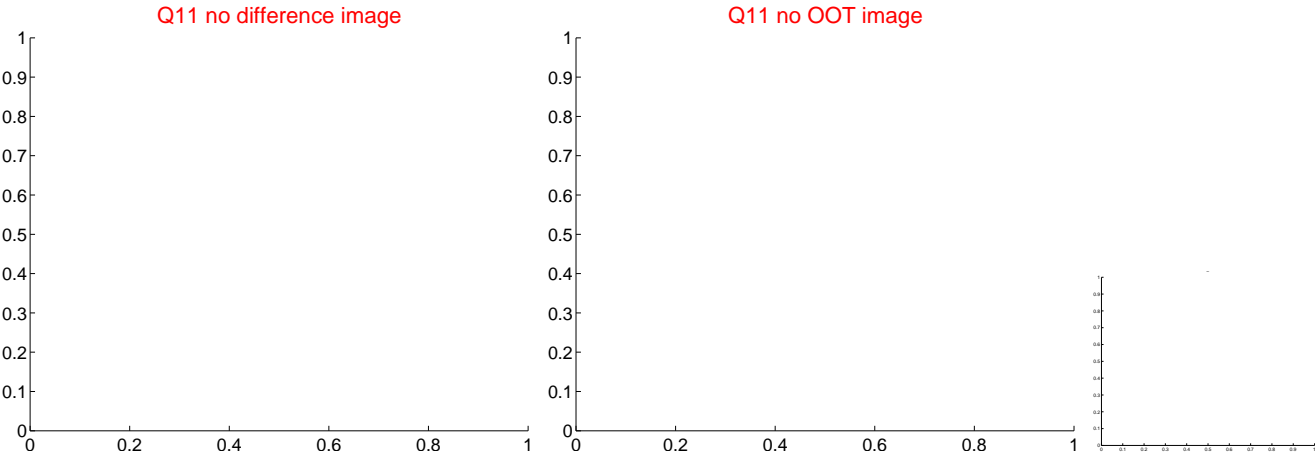
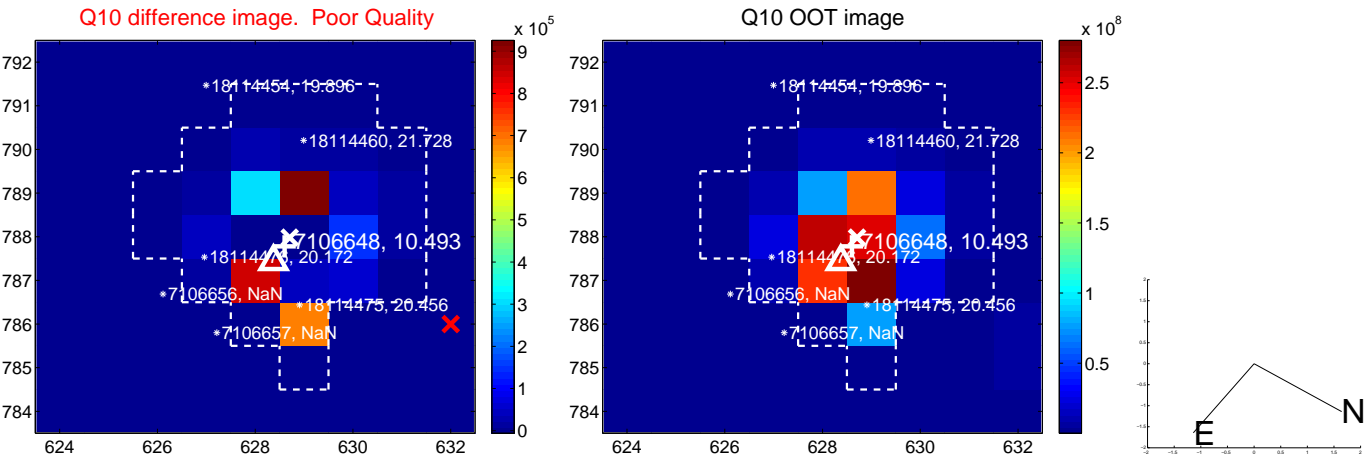
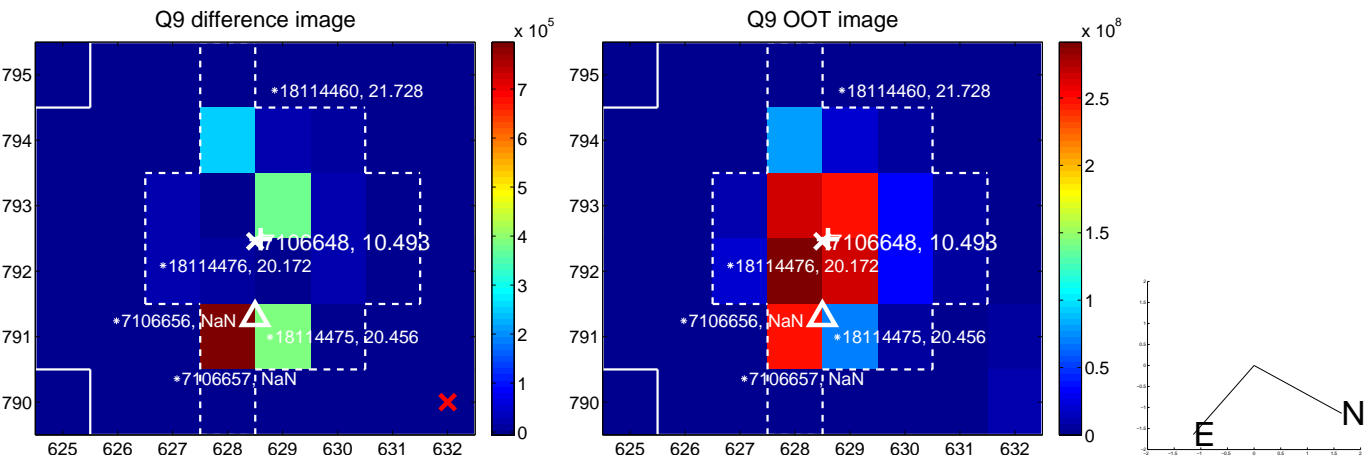
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

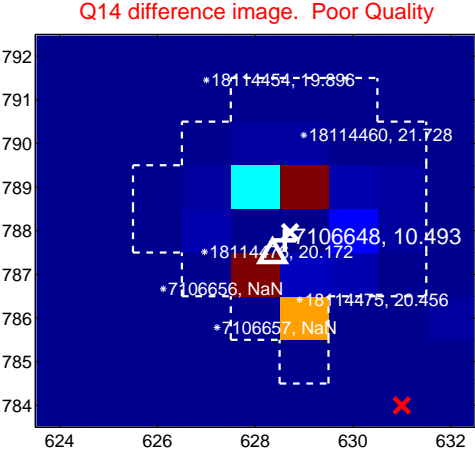
Q13 no difference image



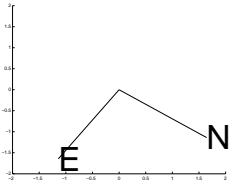
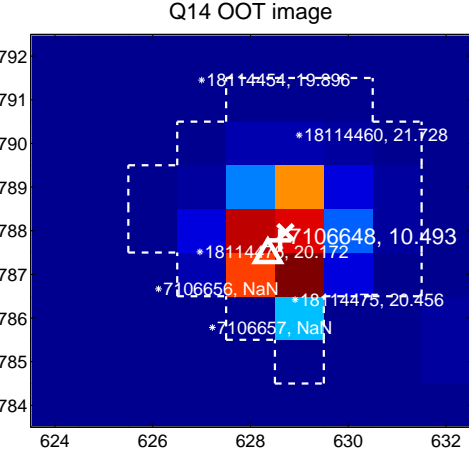
Q13 no OOT image



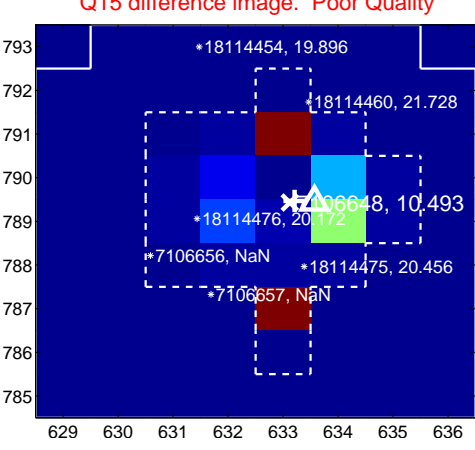
Q14 difference image. Poor Quality



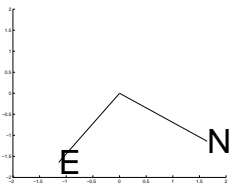
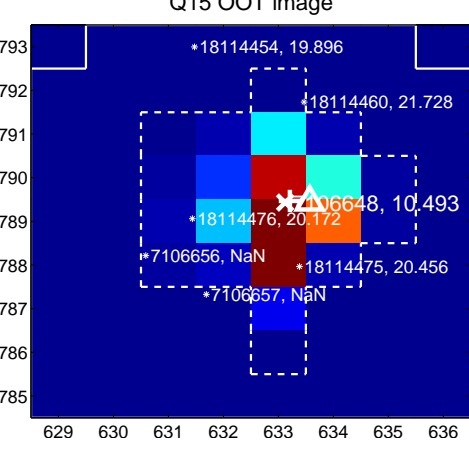
Q14 OOT image



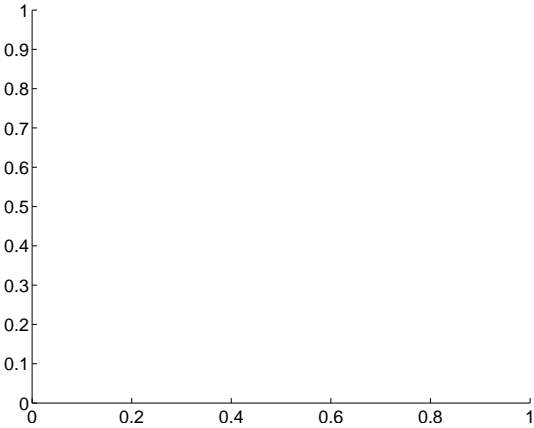
Q15 difference image. Poor Quality



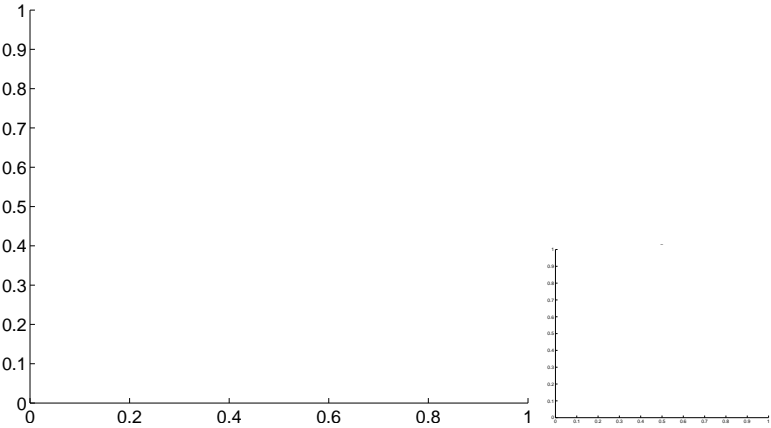
Q15 OOT image



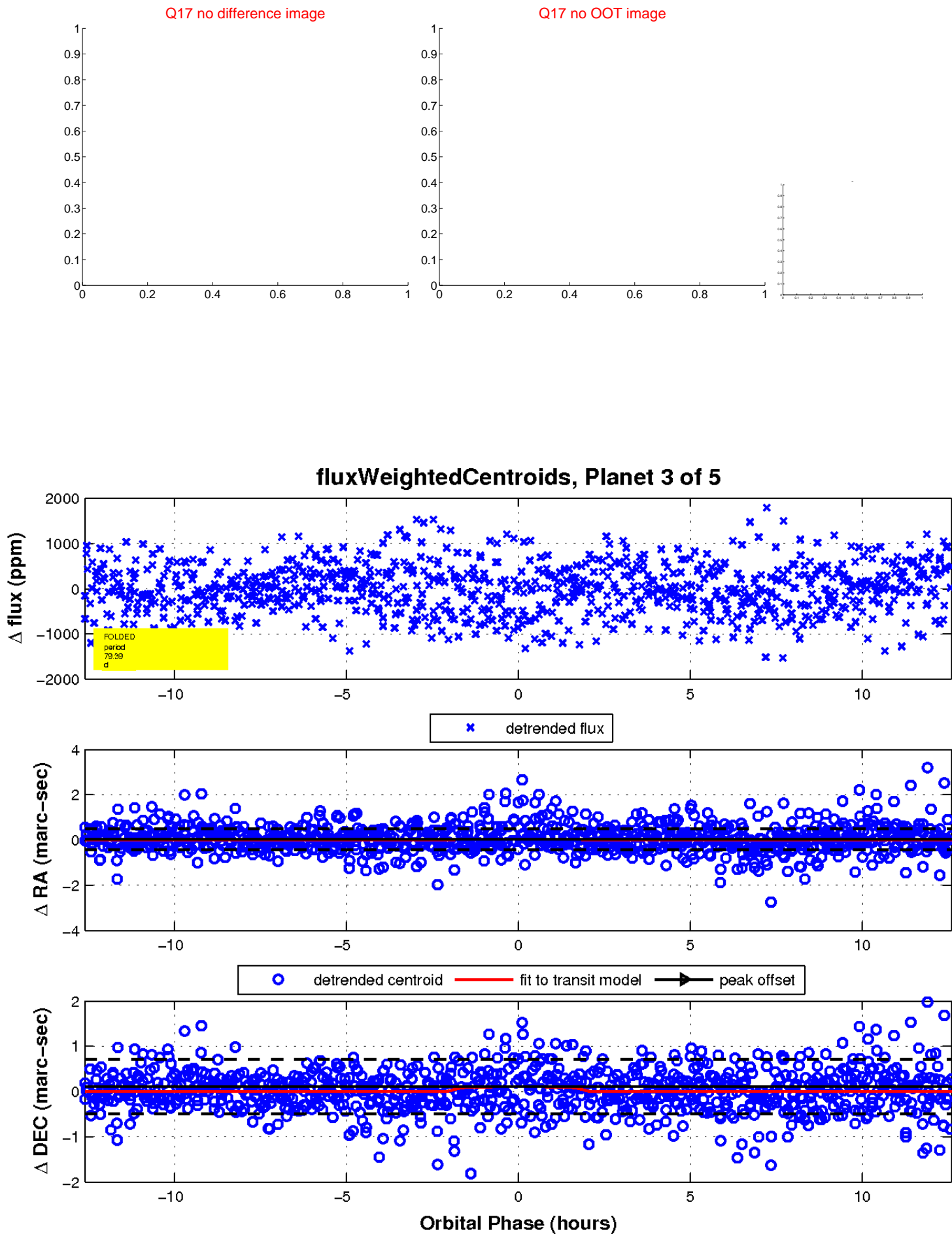
Q16 no difference image



Q16 no OOT image

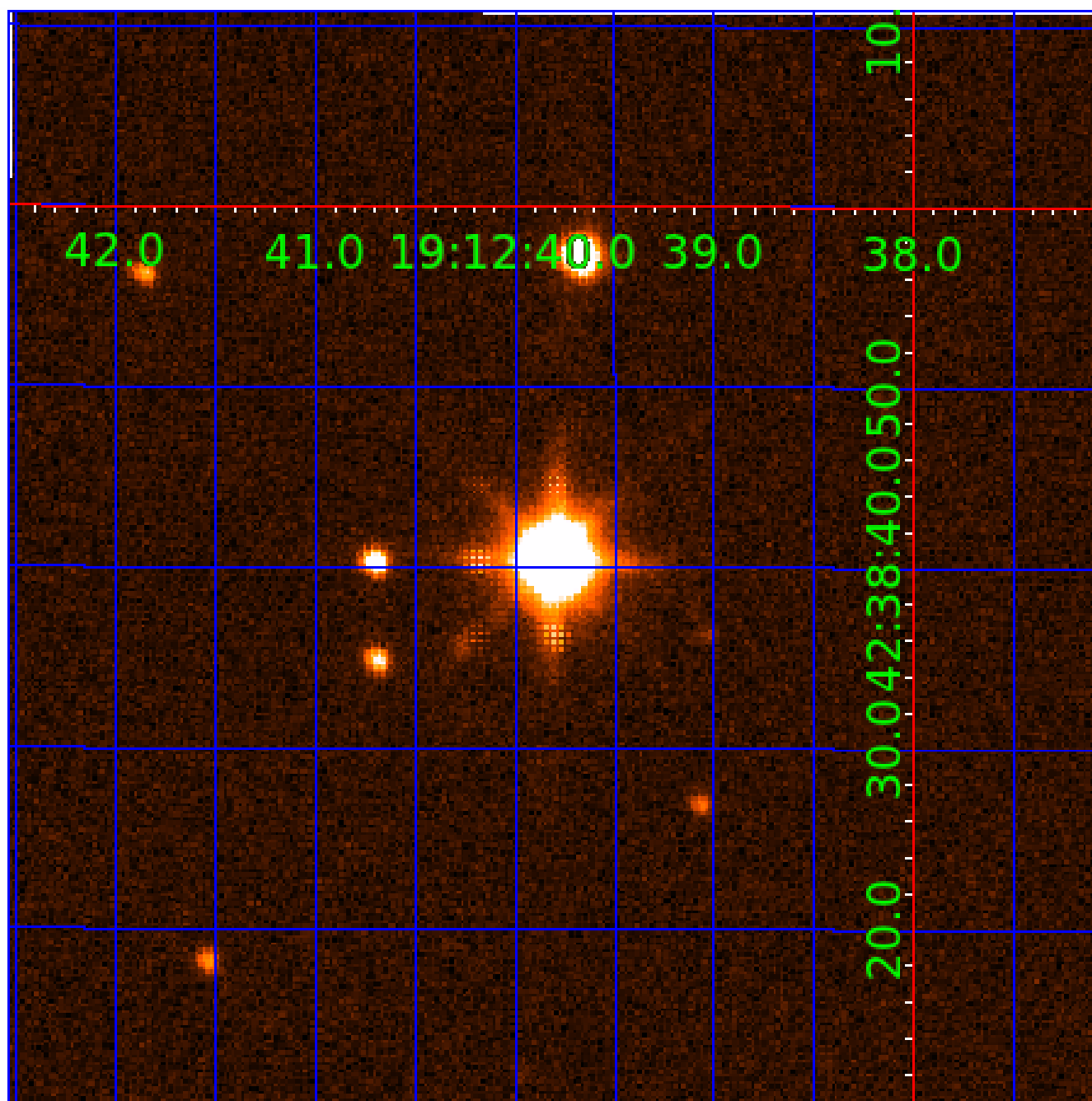


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007106648

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})
007106648-01	OBS	No	1.259306	132.195766	27.6	2.005	8.0	5.6	1.63	7268	1.03	10245.83
007106648-02	OBS	No	0.629649	131.968347	10.3	3.960	7.6	2.5	1.63	7268	0.56	25818.10
007106648-03	OBS	No	79.392983	199.507695	895.7	4.205	8.9	6.7	1.63	7268	5.53	40.83
007106648-04	OBS	No	18.012478	138.912332	1021.9	3.807	9.0	10.9	1.63	7268	9.72	295.09
007106648-05	OBS	No	23.166524	132.159124	652.9	3.063	8.3	6.0	1.63	7268	6.25	210.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007106648-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
007106648-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
007106648-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007106648-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007106648-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

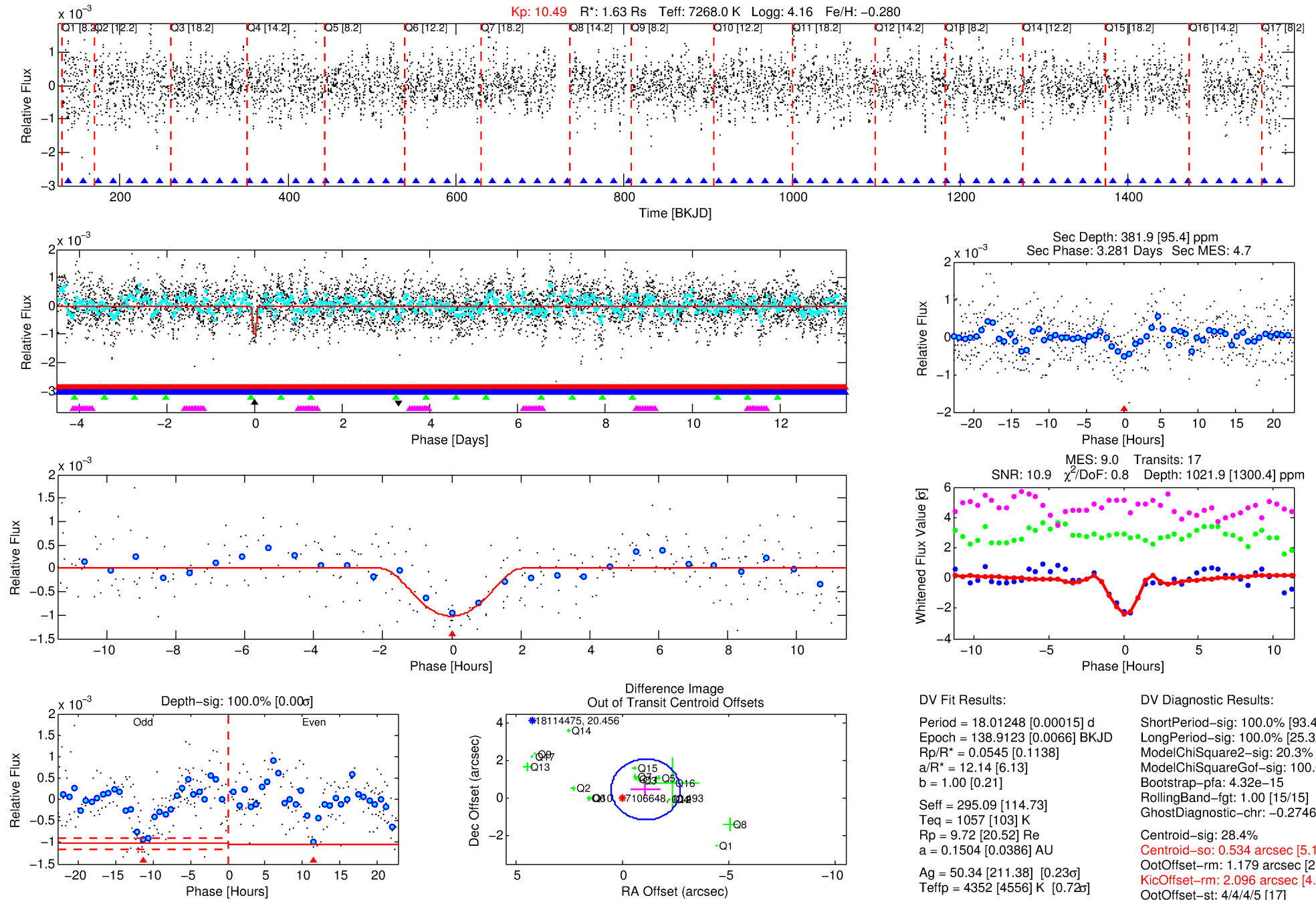
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007106648-04

No Significant Match Found

DV One-Page Summary

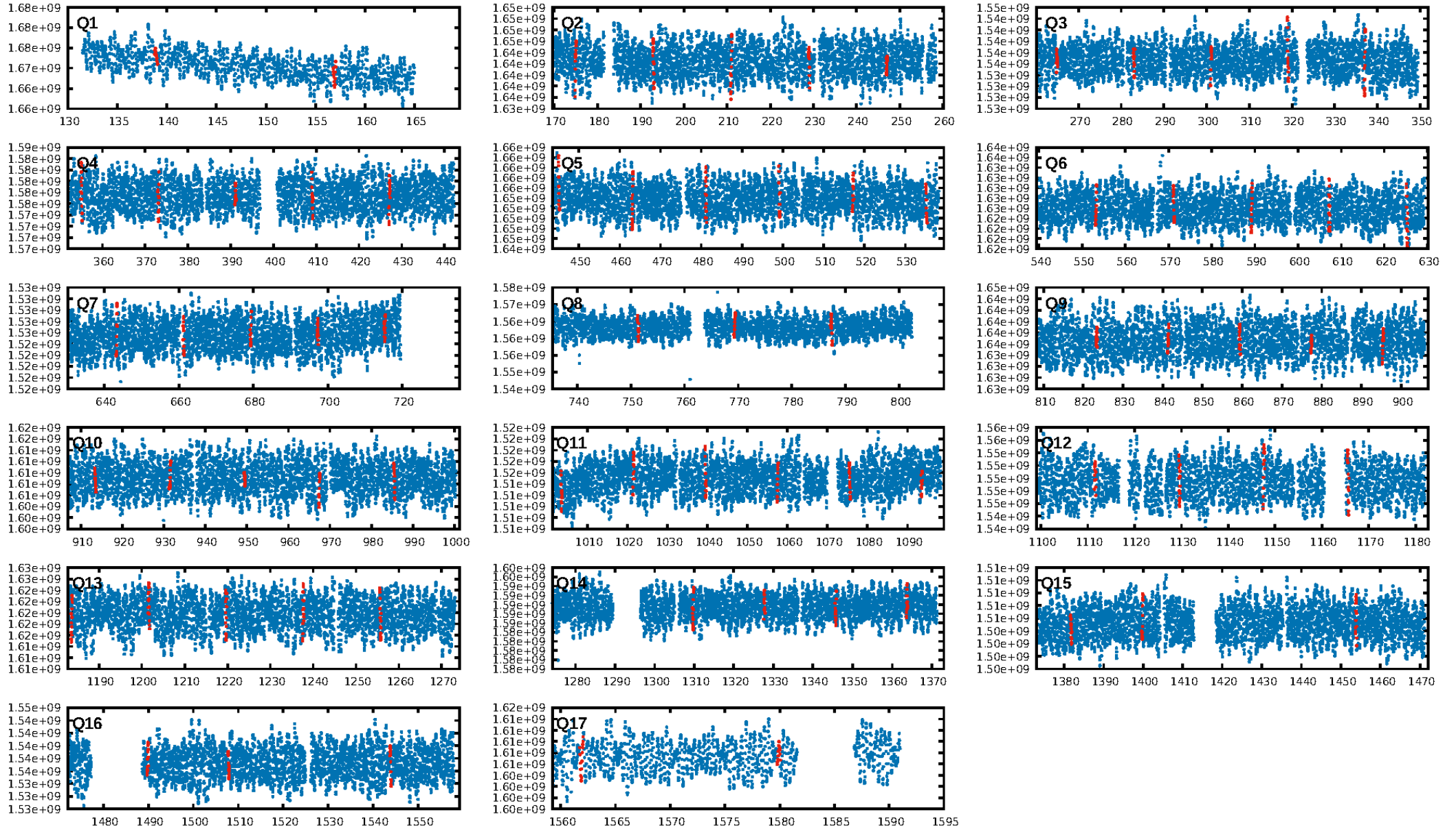
KIC: 7106648 Candidate: 4 of 5 Period: 18.012 d



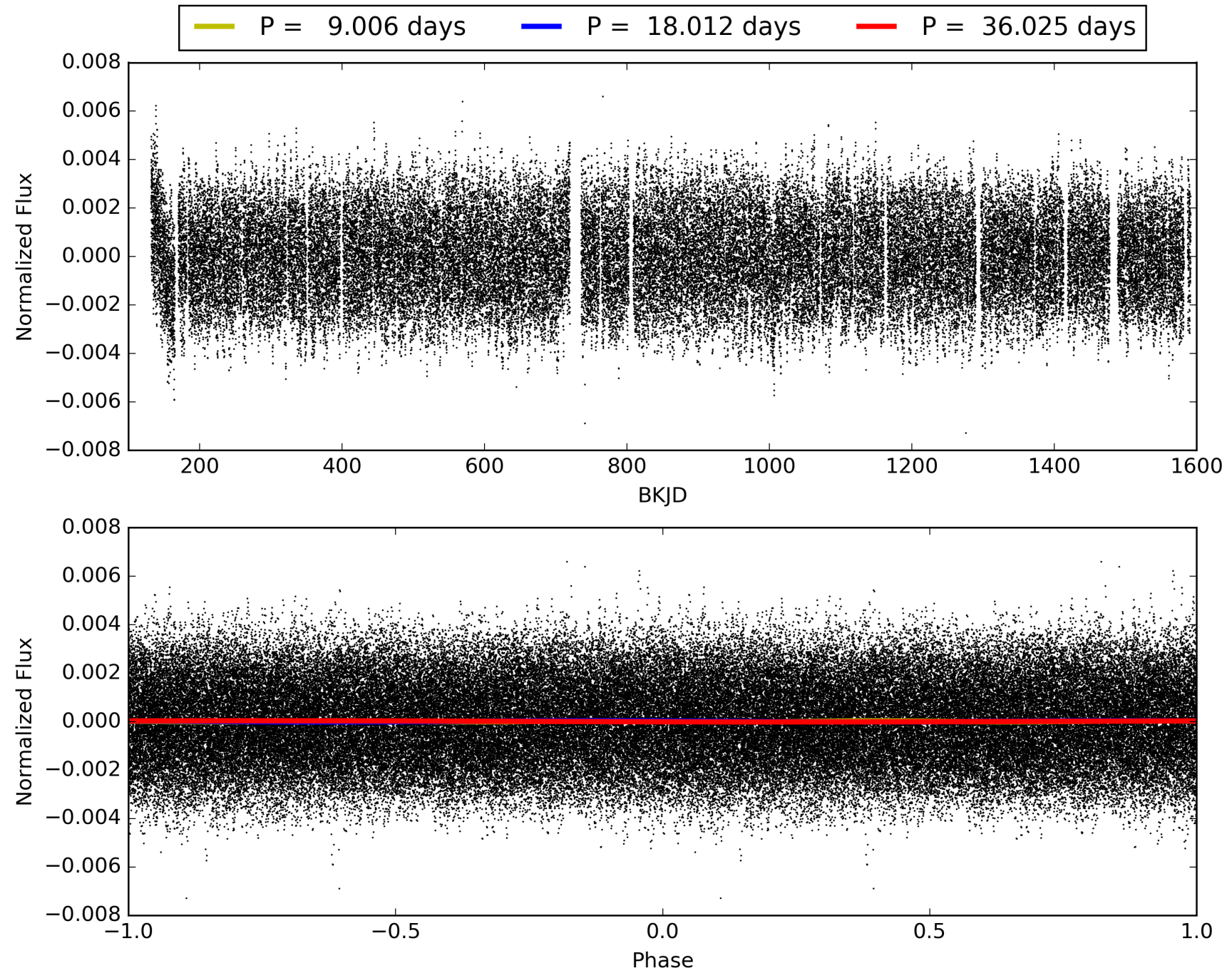
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:17:15 Z

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

TCE 007106648-04, PDC Light Curves

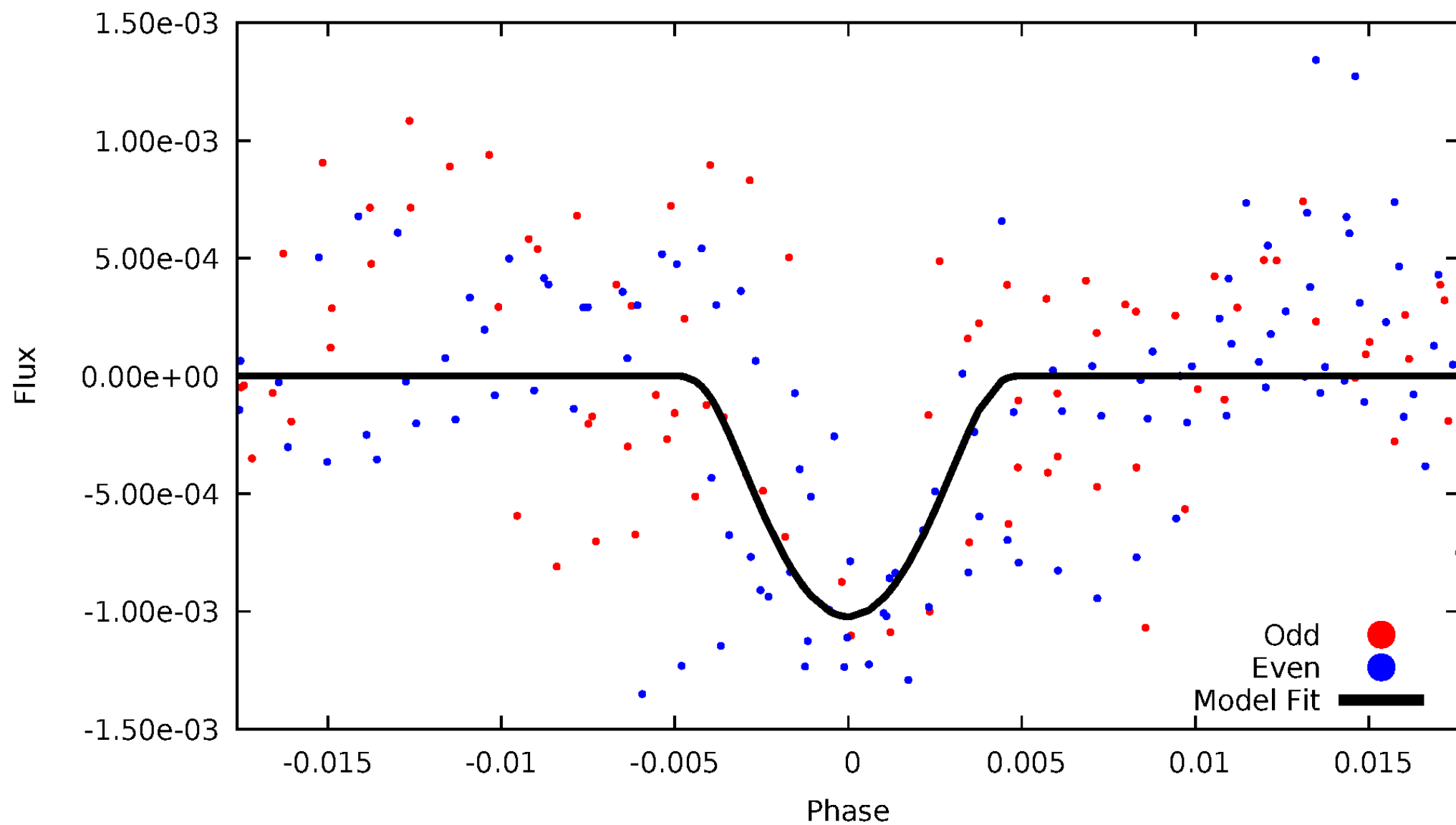


TCE 007106648-04



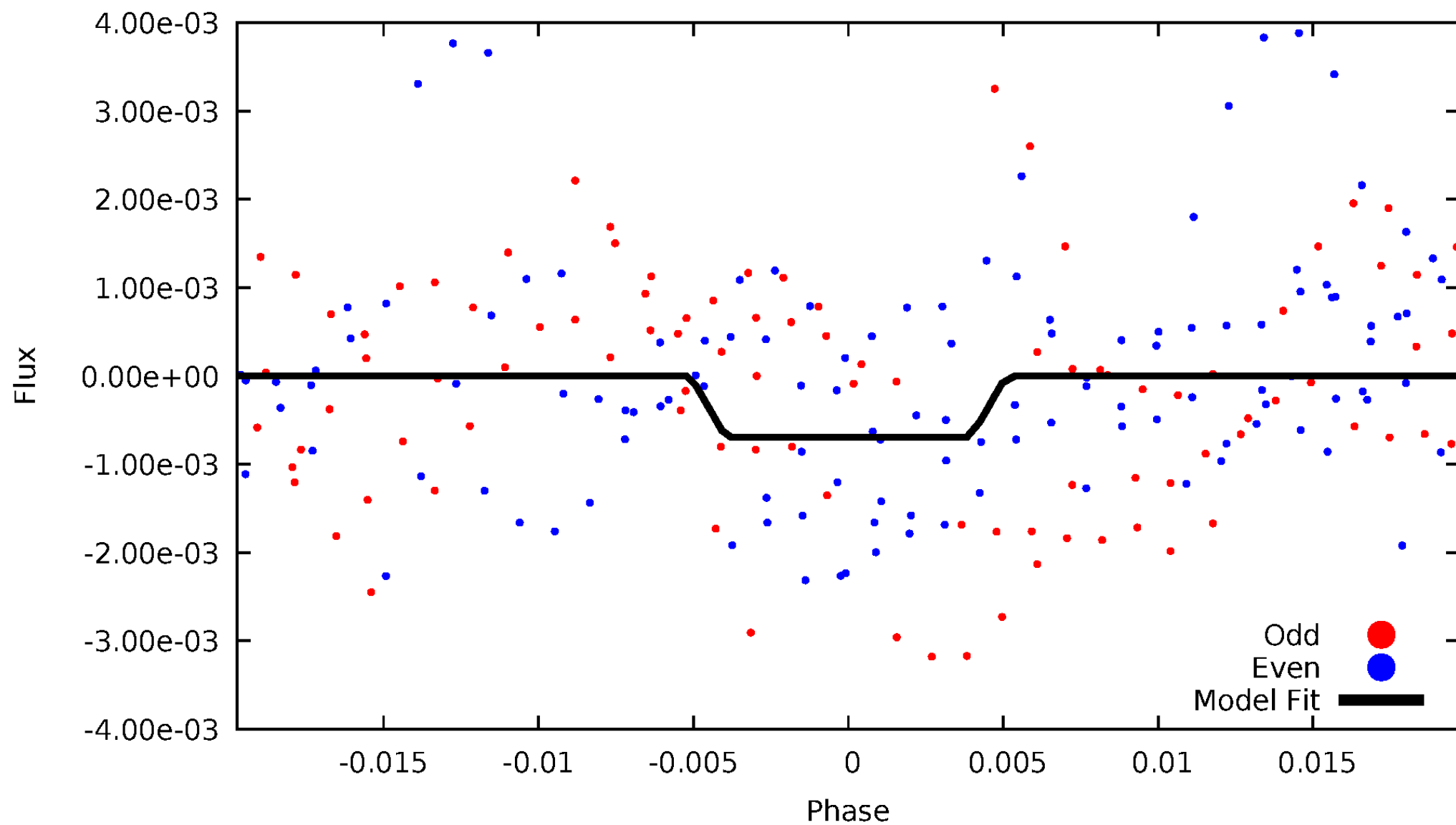
DV Odd/Even

TCE 007106648-04



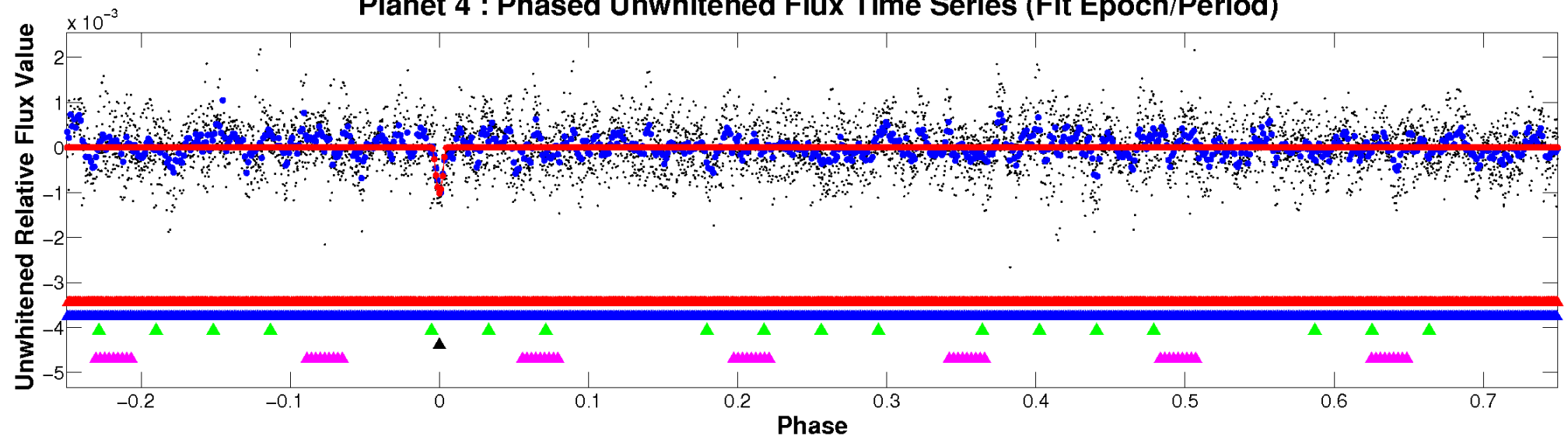
ALT Odd/Even

TCE 007106648-04

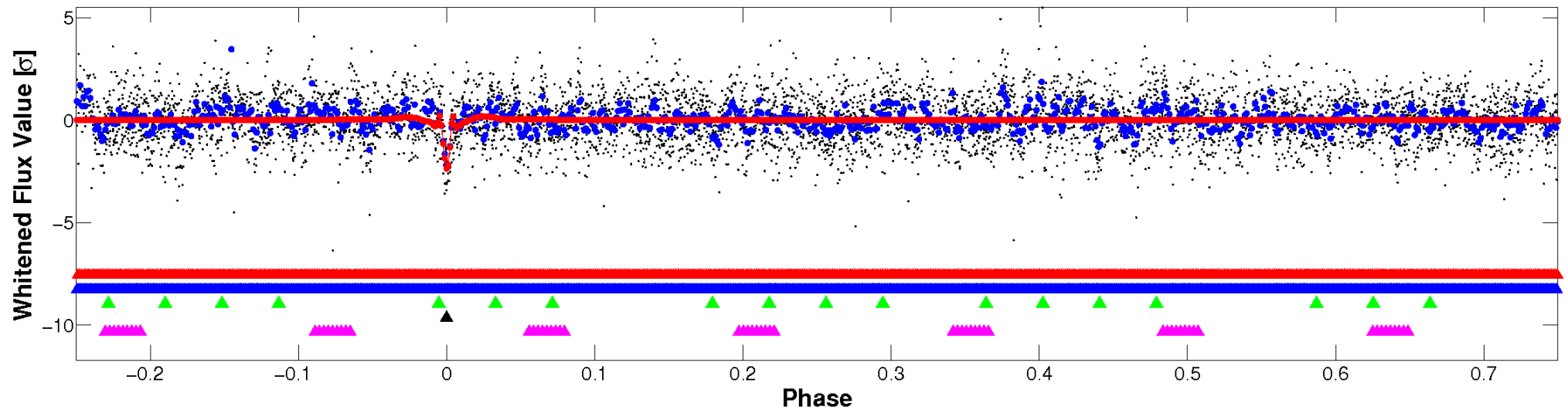


Non-Whitened Vs. Whitened Light Curve

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

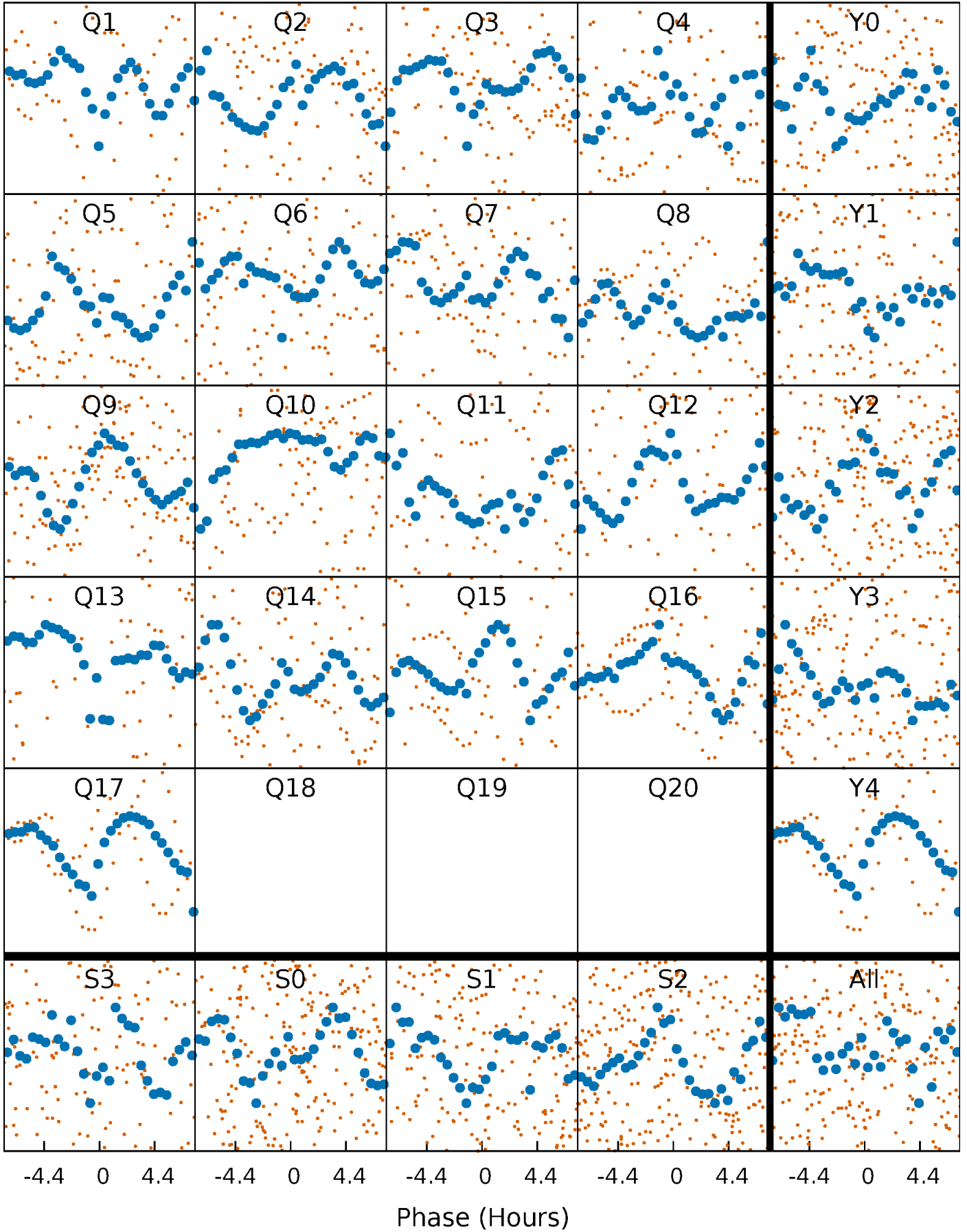


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



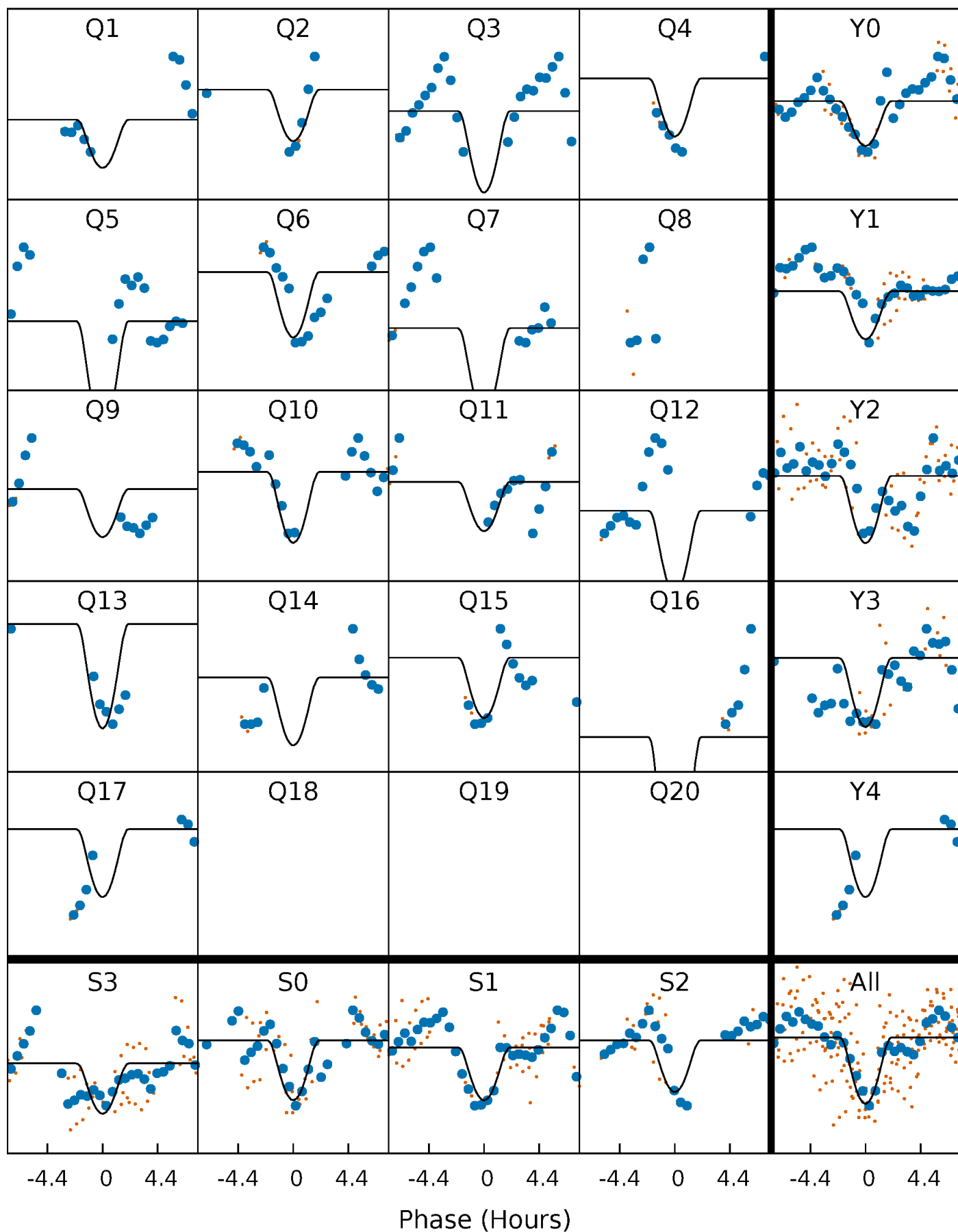
PDC Quarter-Phased Transit Curves

TCE 007106648-04 P= 18.012478 Days $T_0=138.912332$ (BKJD)



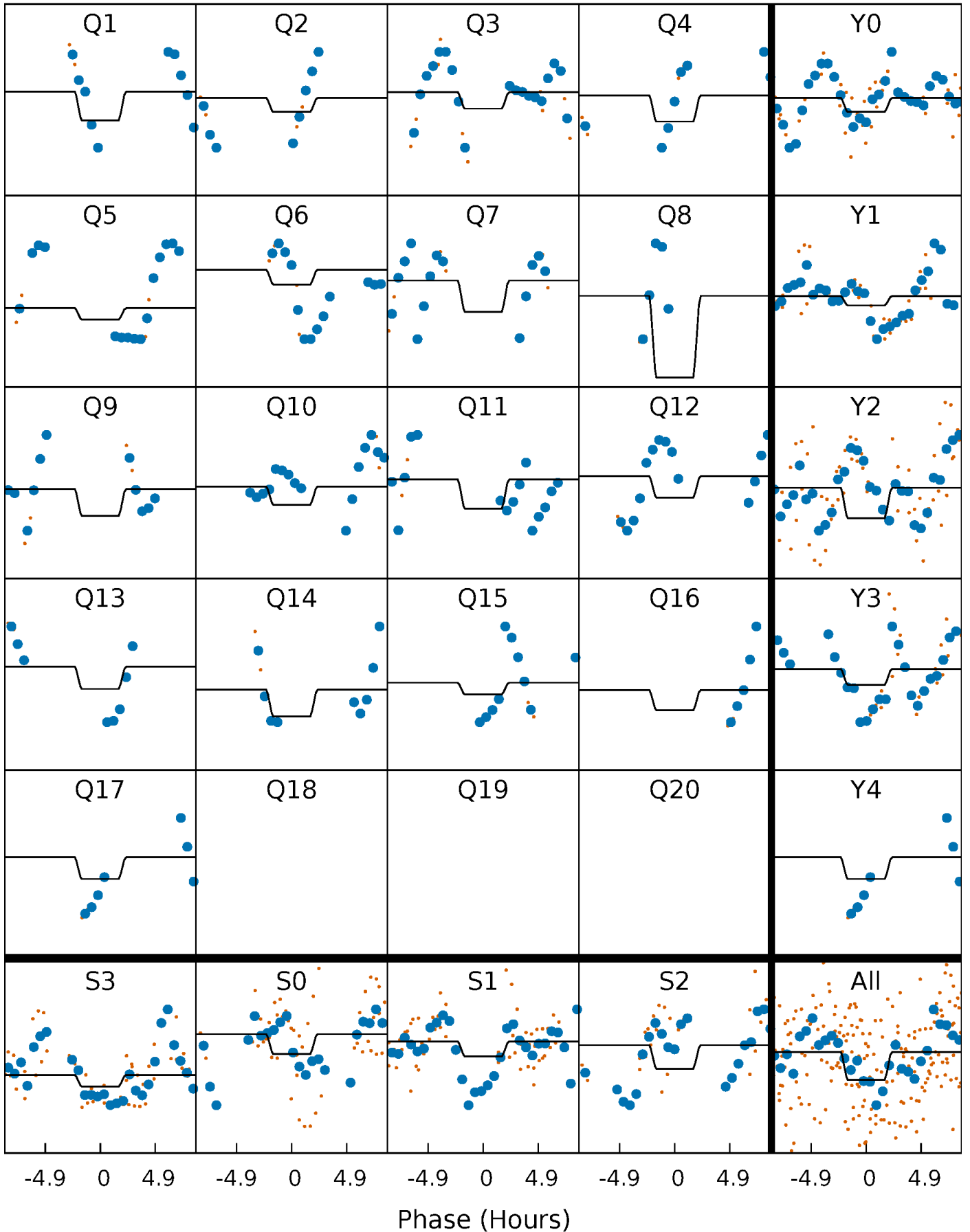
DV Quarter-Phased Transit Curves

TCE 007106648-04 P= 18.012478 Days $T_0=138.912332$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

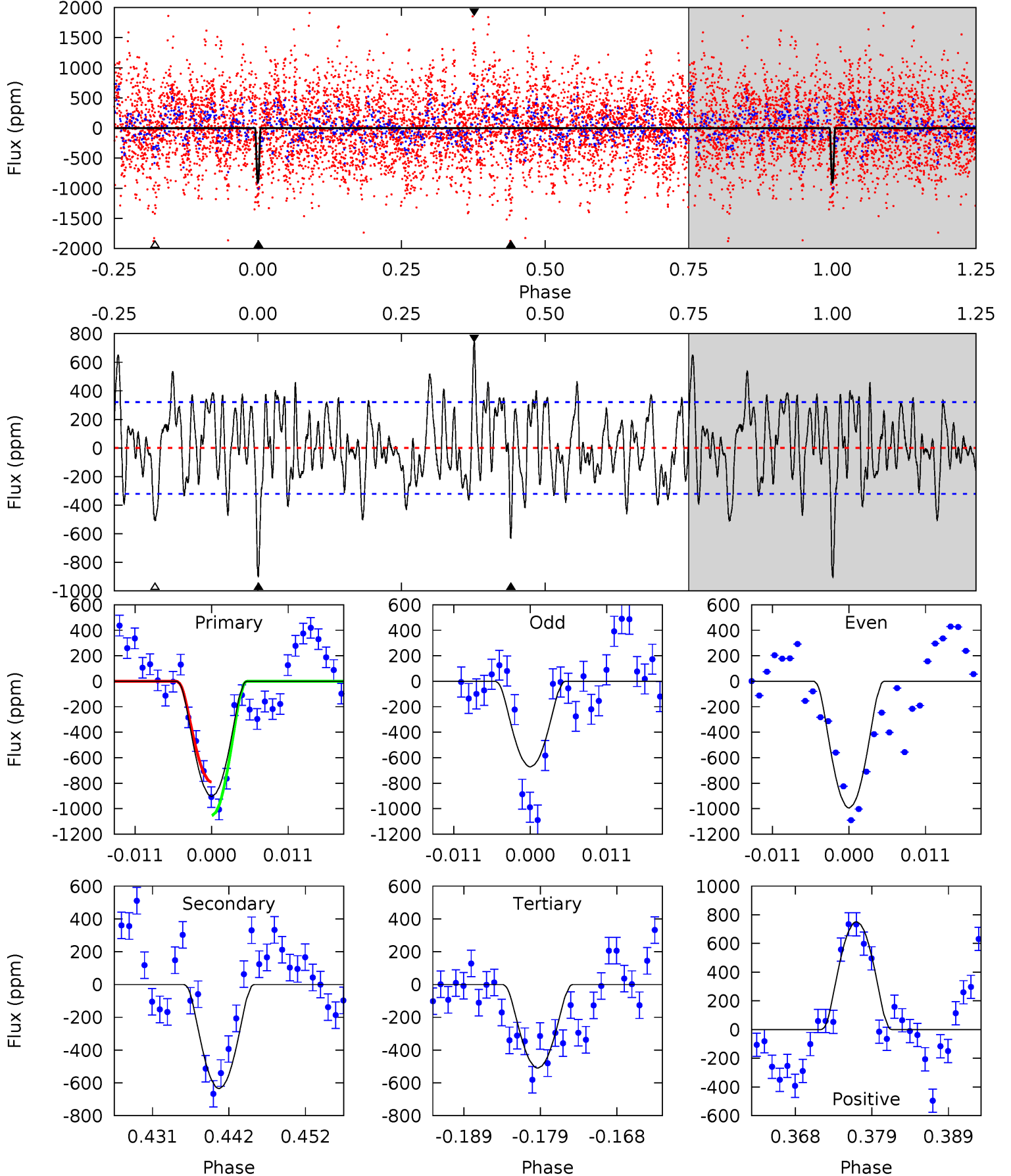
TCE 007106648-04 P= 18.012236 Days $T_0=138.892200$ (BKJD)



DV Model-Shift Uniqueness Test

007106648-04, P = 18.012478 Days, E = 120.899854 Days

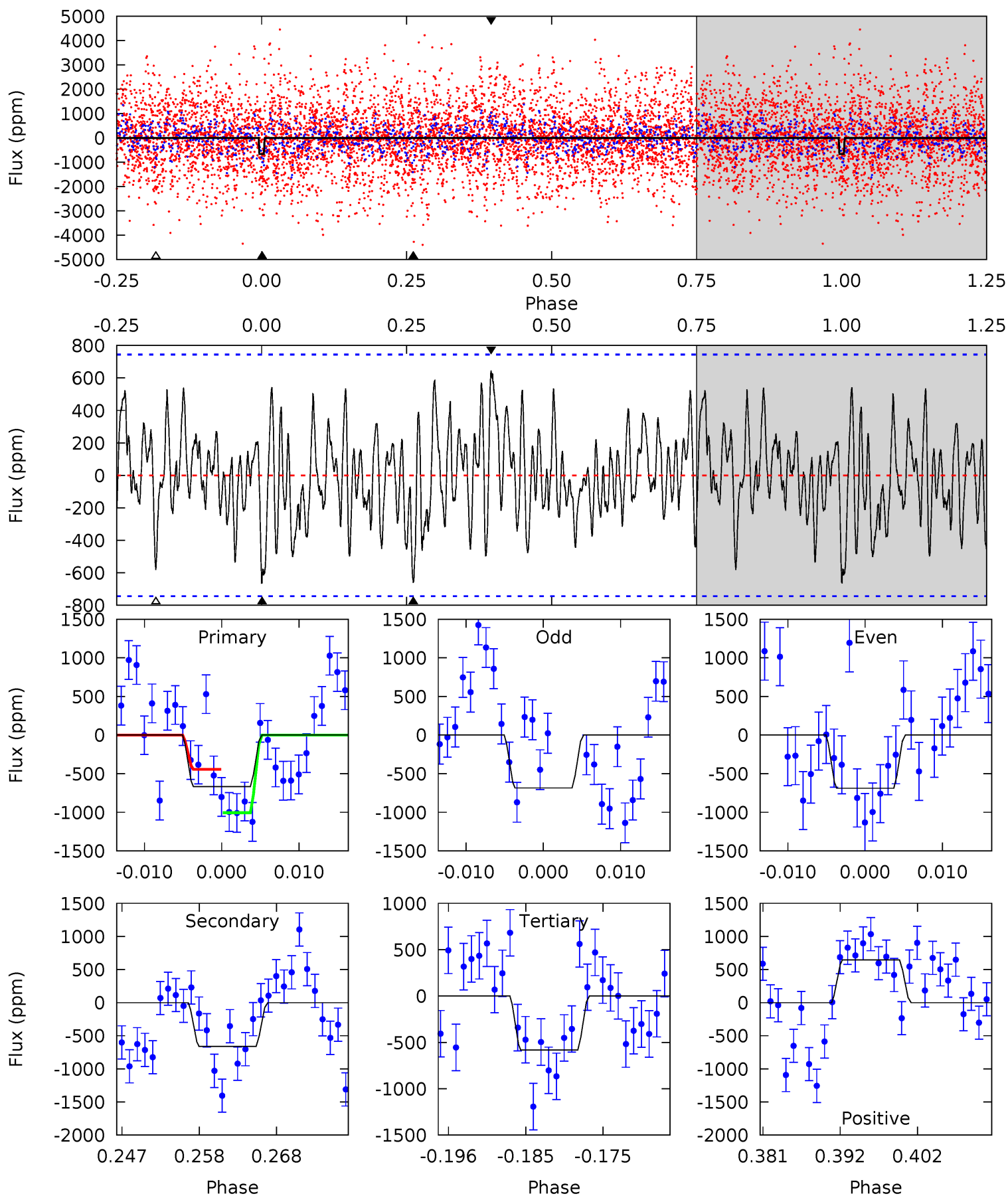
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	9.91	7.96	11.7	5.02	2.56	3.45	6.15	2.37	1.95	-1.83	2.48	0.78	0.45	2.05



Alt Model-Shift Uniqueness Test

007106648-04, P = 18.012236 Days, E = 120.879964 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.50	4.46	3.93	4.35	5.02	2.57	1.59	0.57	0.14	0.54	0.11	0.01	1.32	0.49	1.88



Stellar Parameters For KIC 007106648

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7268^{+203}_{-279}	$4.157^{+0.153}_{-0.187}$	$-0.280^{+0.250}_{-0.350}$	$1.634^{+0.521}_{-0.347}$	$1.399^{+0.226}_{-0.226}$	$0.451^{+0.359}_{-0.232}$
	+3%/-4%	+4%/-4%	+89%/-125%	+32%/-21%	+16%/-16%	+79%/-51%
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 007106648-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-634±64	$17.59^{+16.73}_{-12.03}$	1479^{+123}_{-105}	3962^{+2362}_{-772}	25^{+212}_{-18}
Alt.	-661±148	$16.13^{+15.51}_{-11.08}$	1475^{+114}_{-91}	4114^{+2710}_{-829}	31^{+265}_{-23}

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 $A_{obs} \gg 1.0$

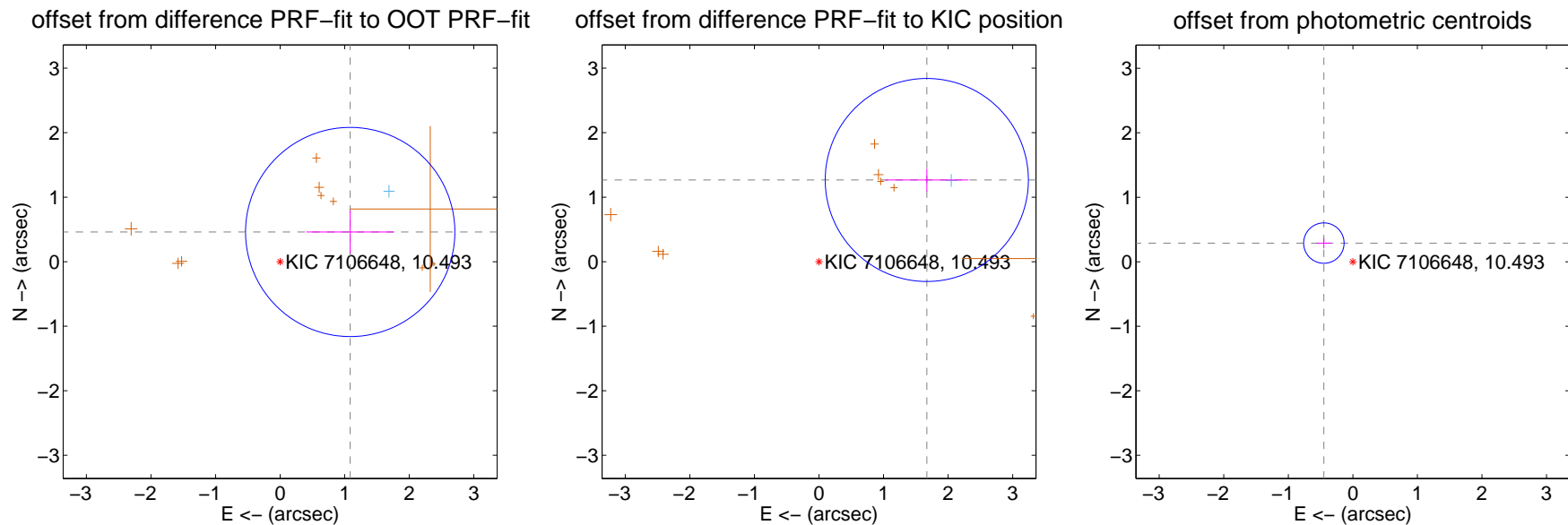
DV Centroid Data

Supplemental centroid analysis for 007106648-04. **Kepler magnitude: 10.49.** Transit SNR 10.93

There are 3 quarters with good PRF difference image offsets

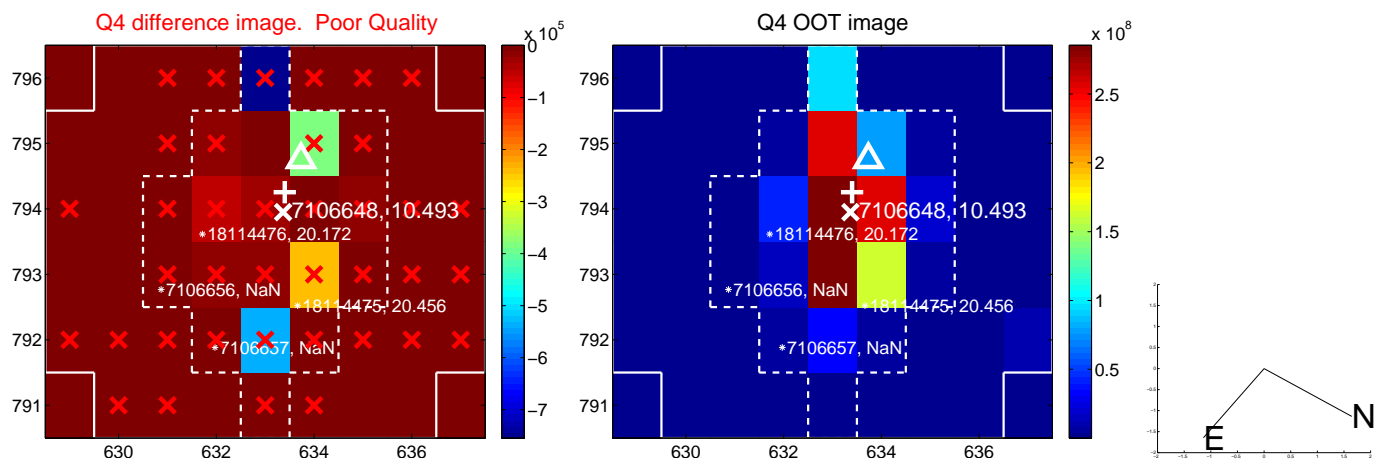
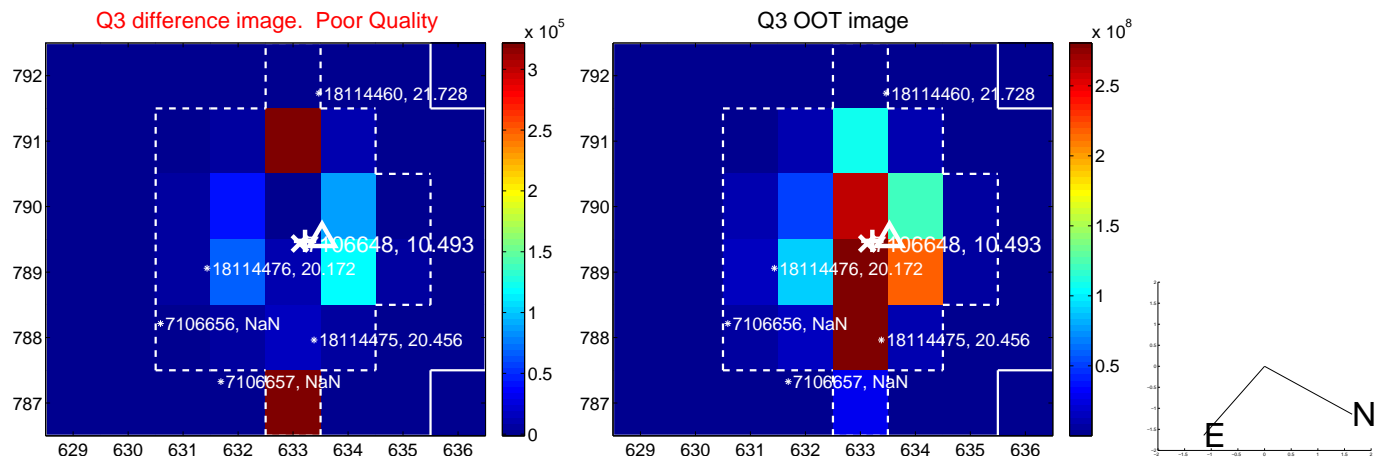
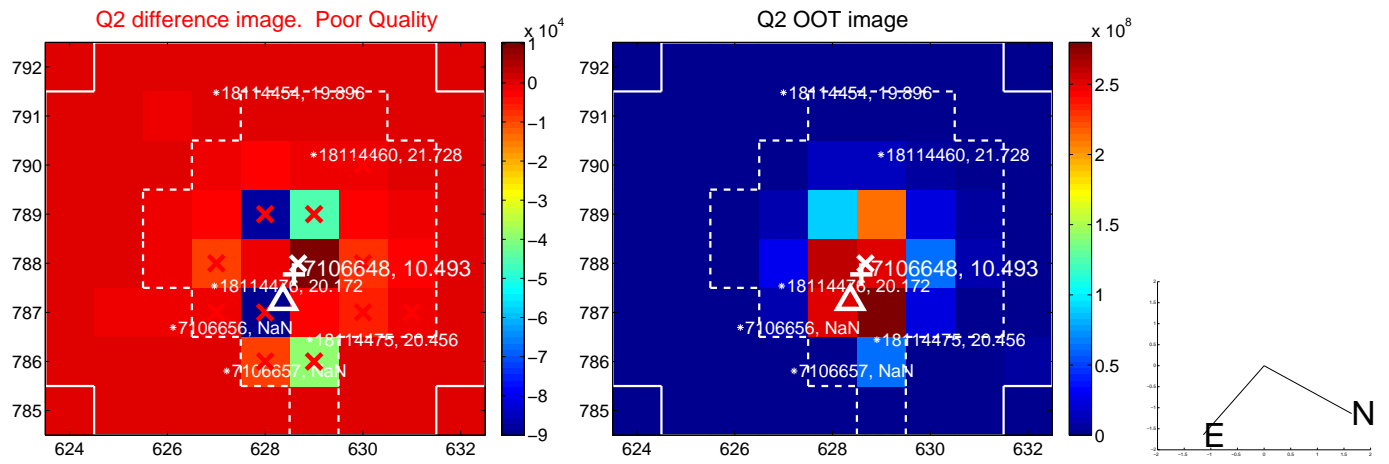
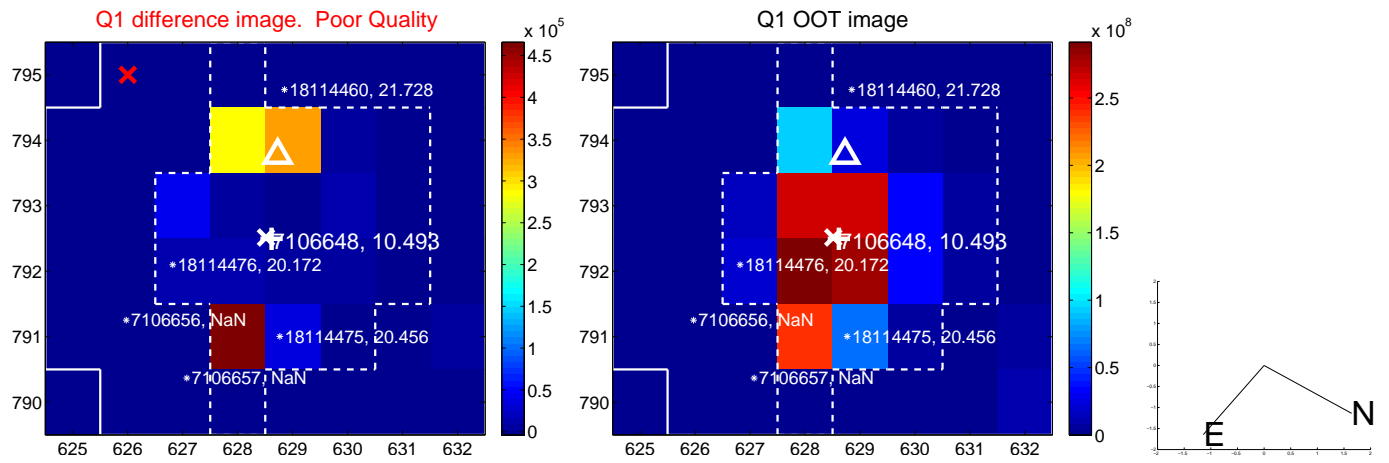
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.179 ± 0.540	2.18	-1.086 ± 0.680	0.461 ± 0.335
PRF-fit source offset from KIC position	2.096 ± 0.524	4.00	-1.670 ± 0.645	1.267 ± 0.176
photometric centroid source offset	0.53 ± 0.10	5.12	0.45 ± 0.11	0.29 ± 0.08

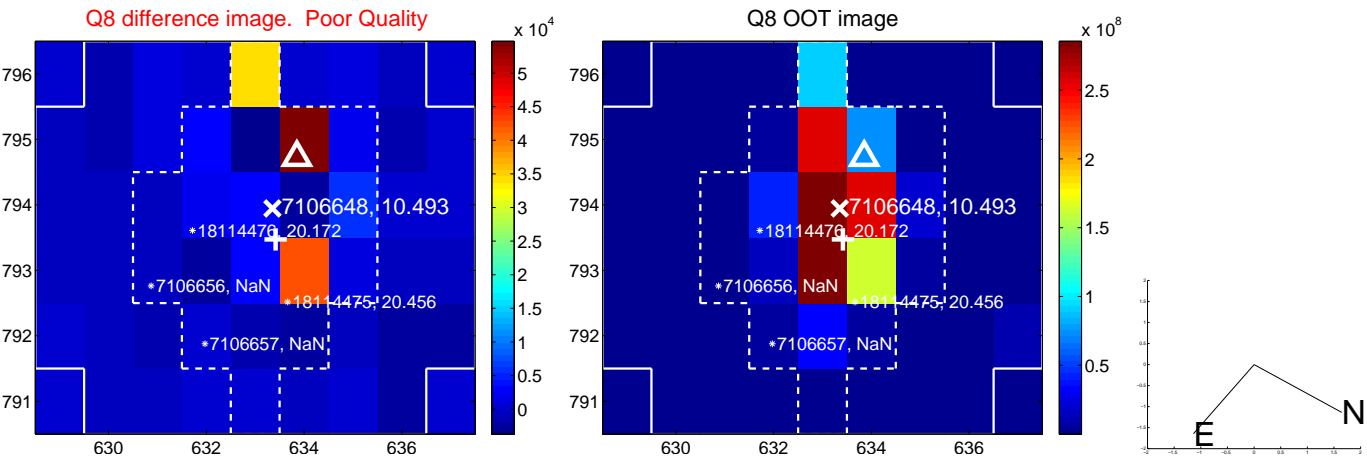
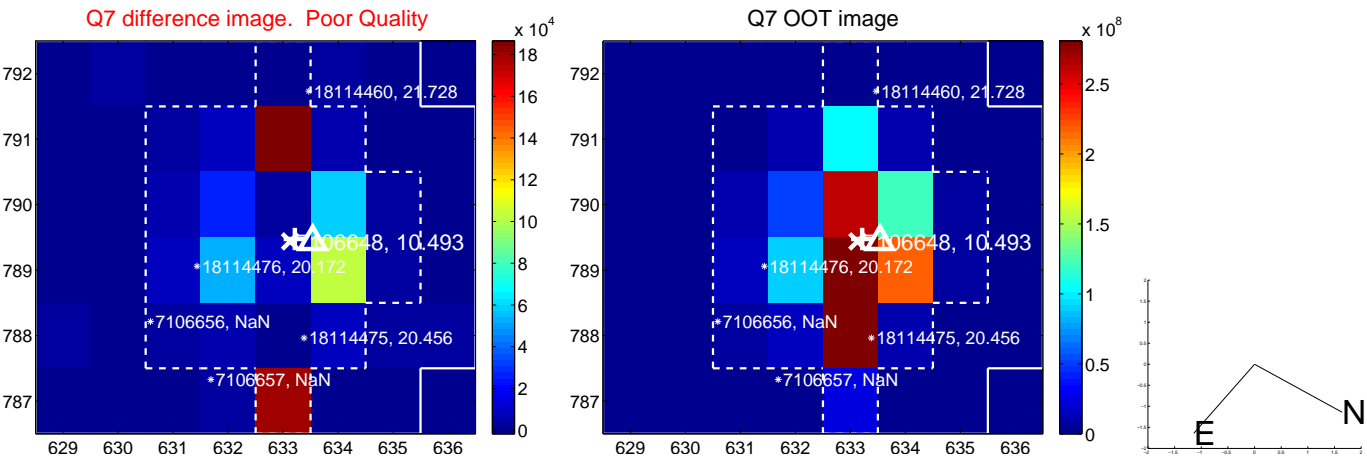
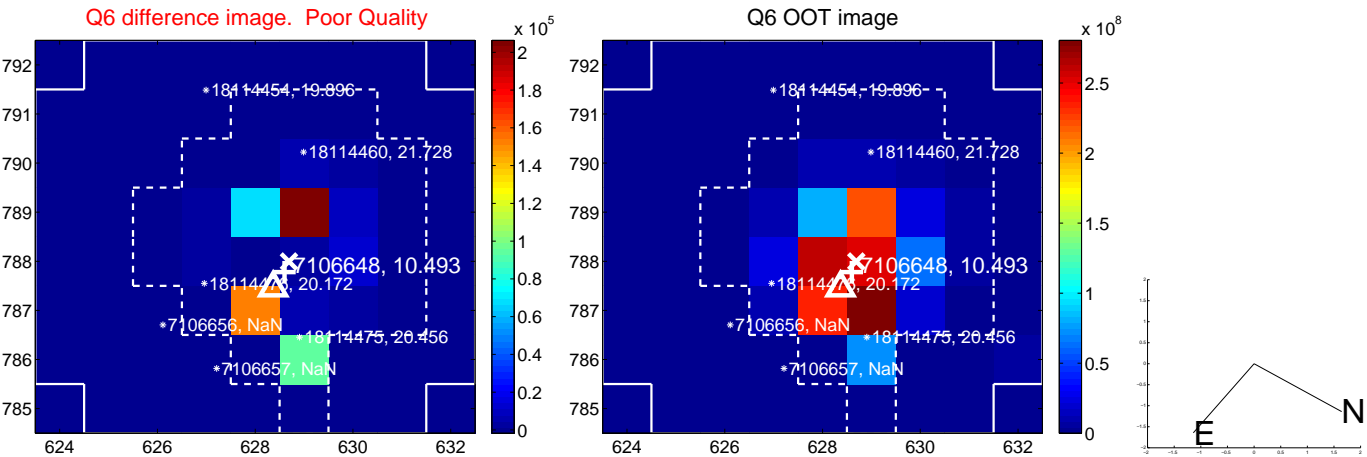
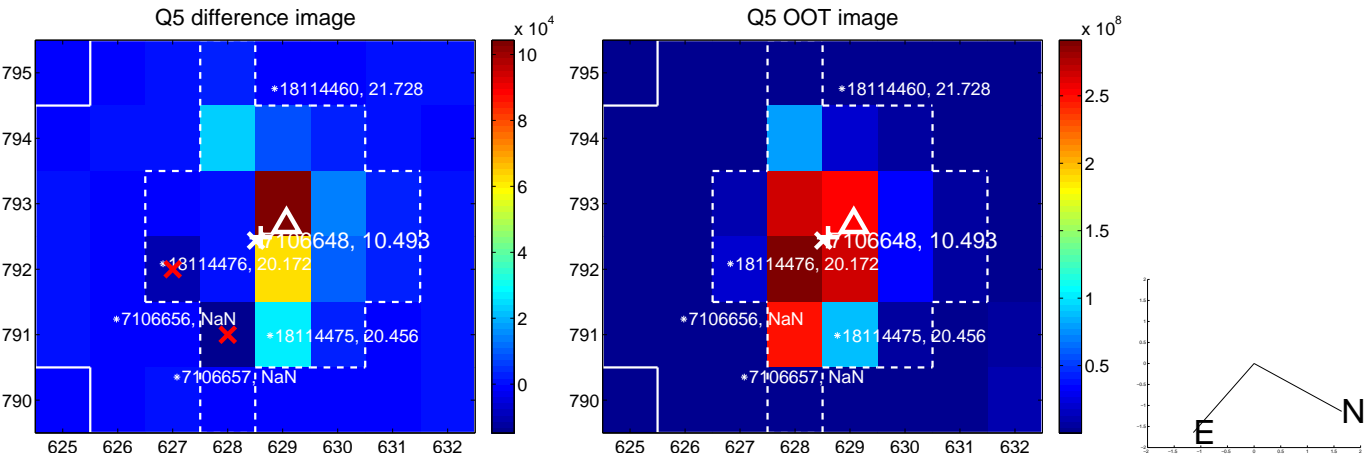


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

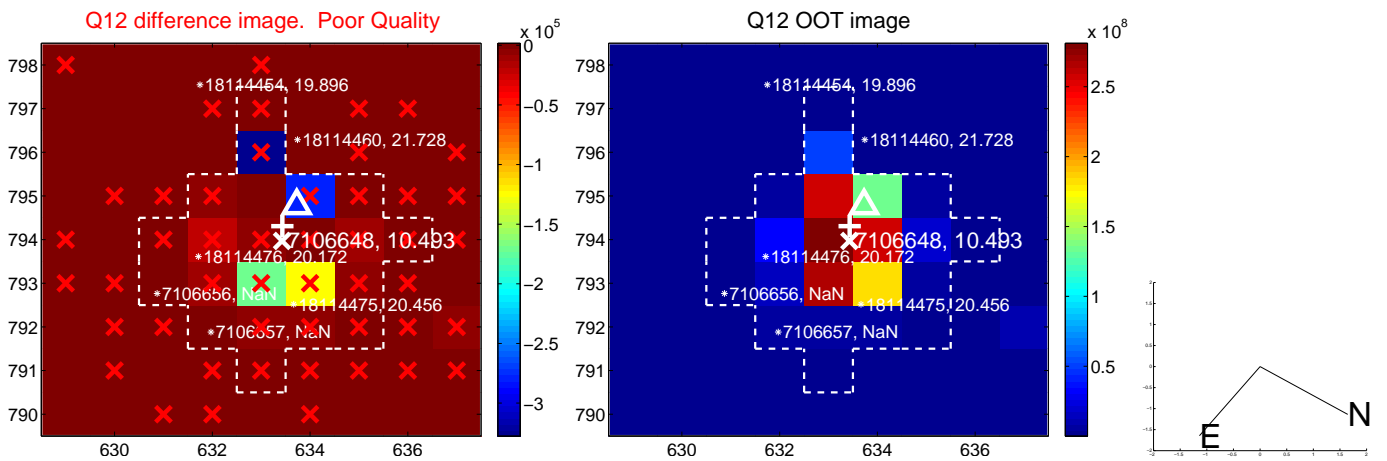
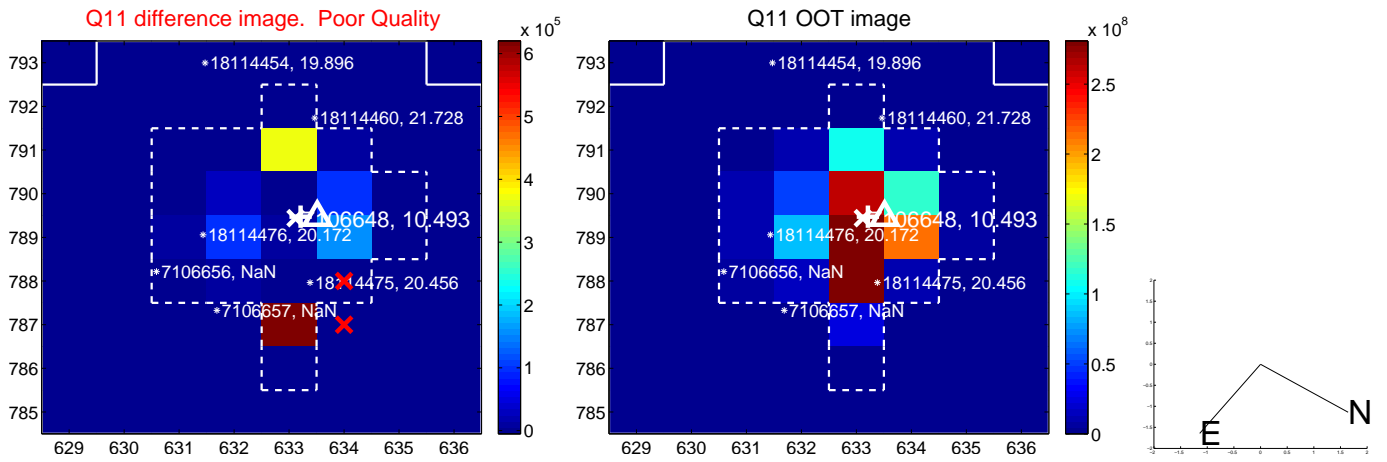
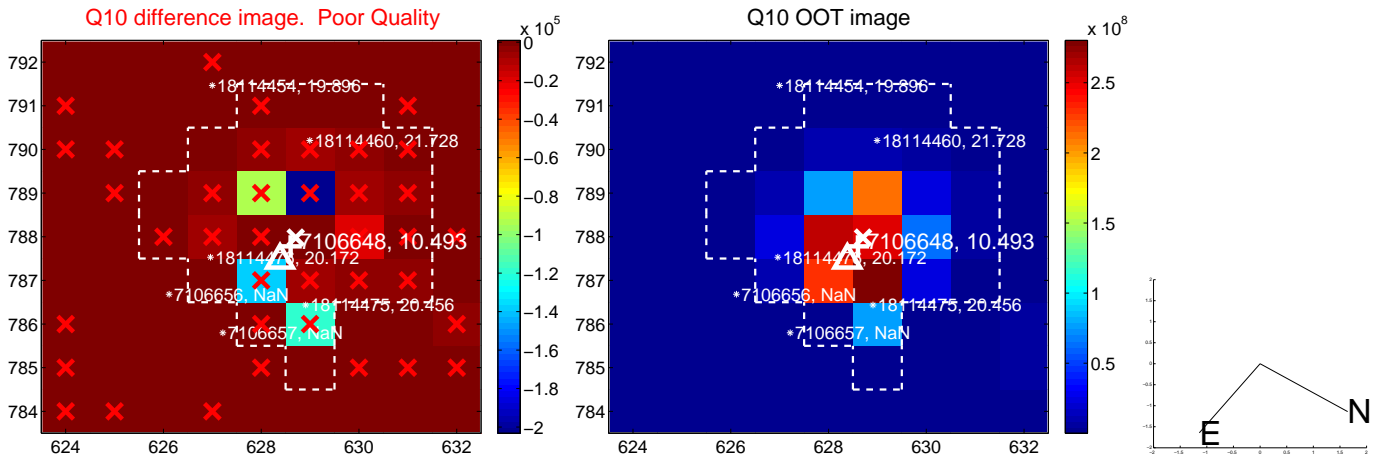
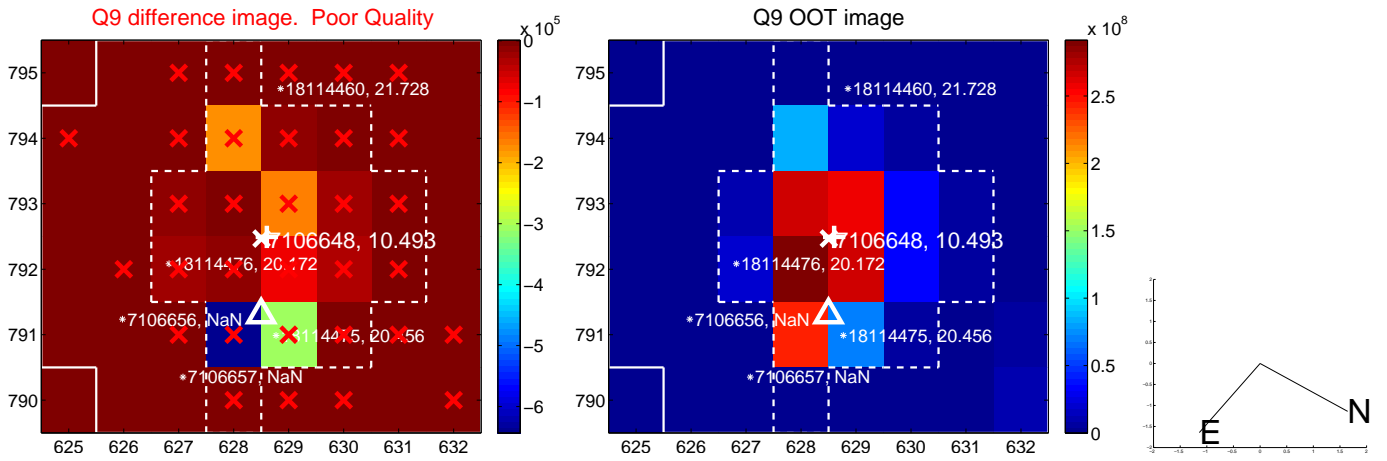
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



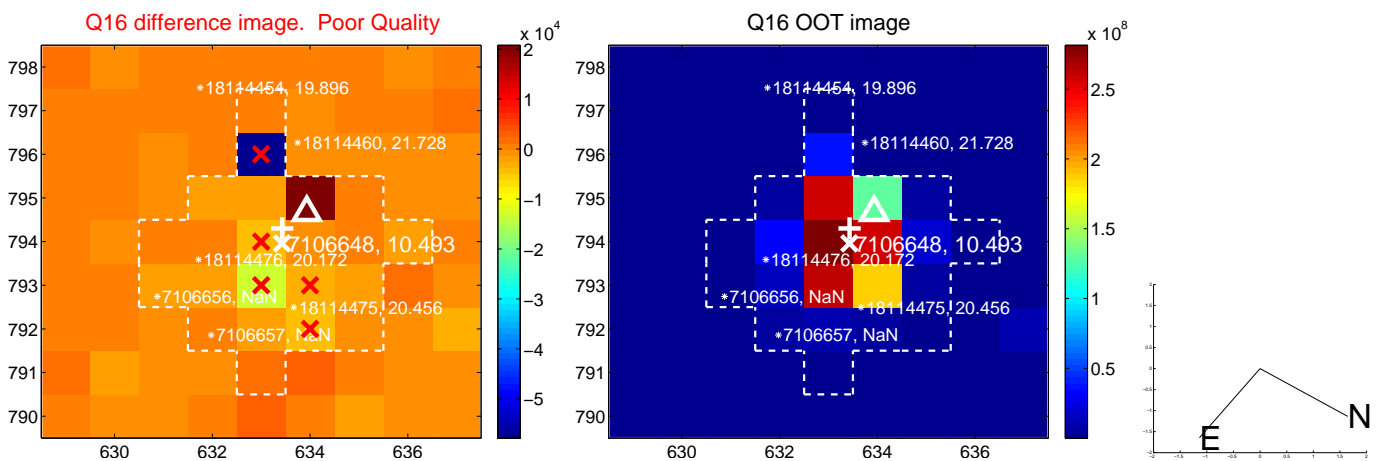
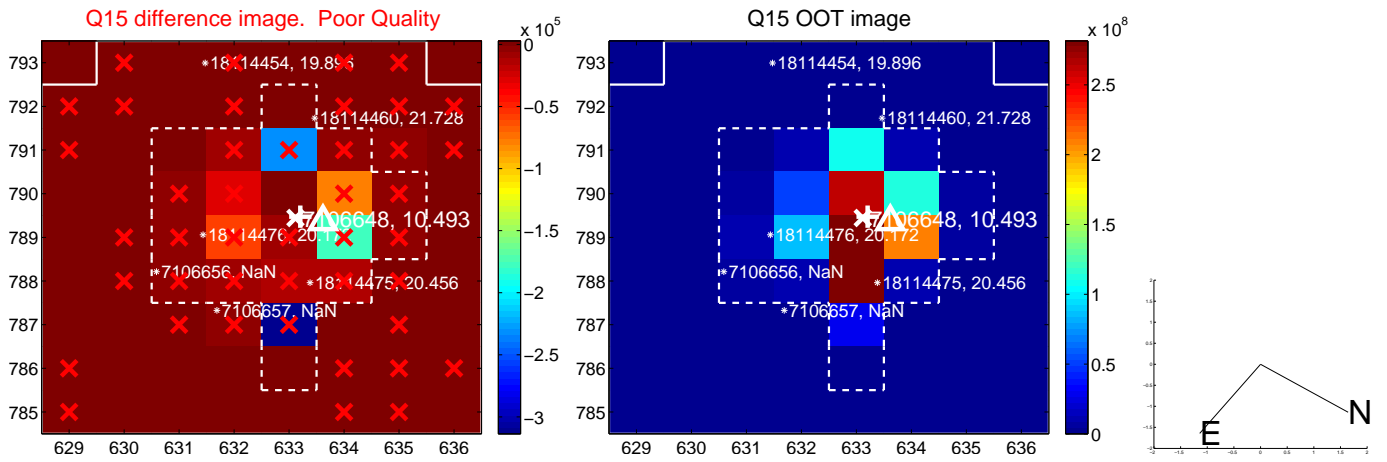
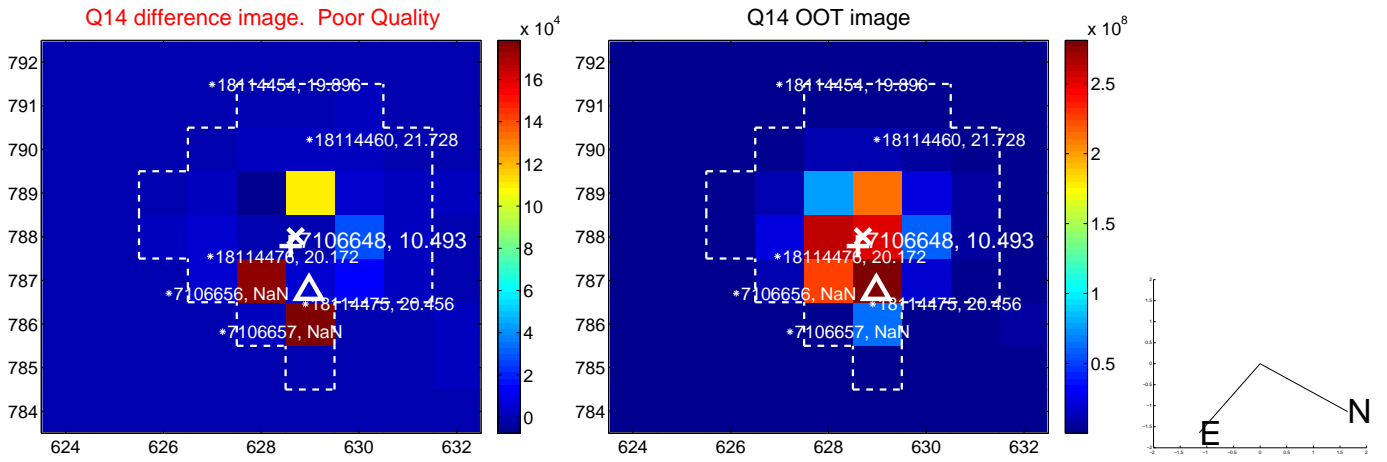
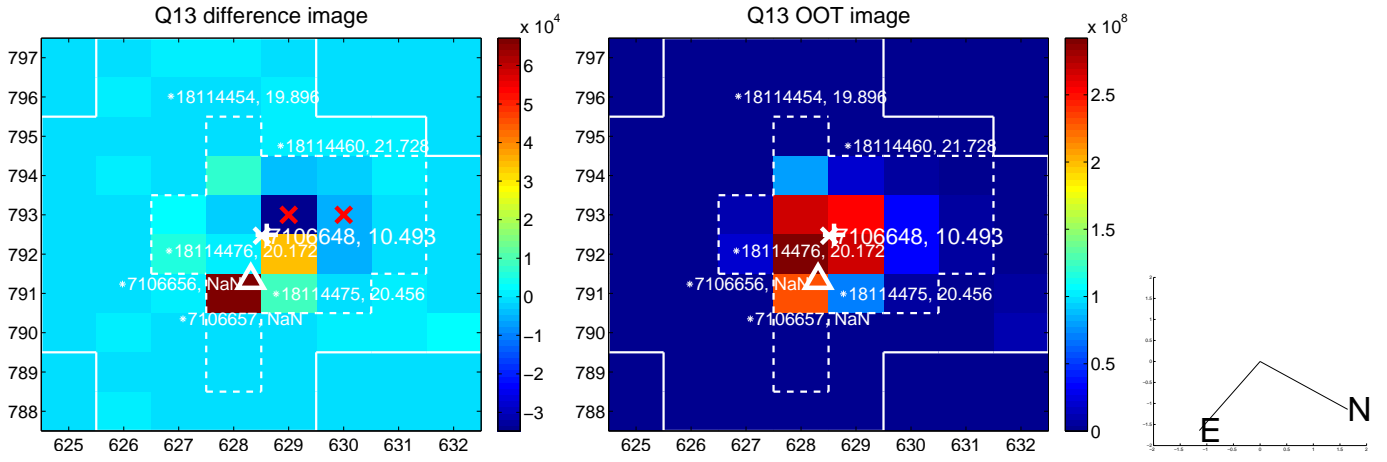
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



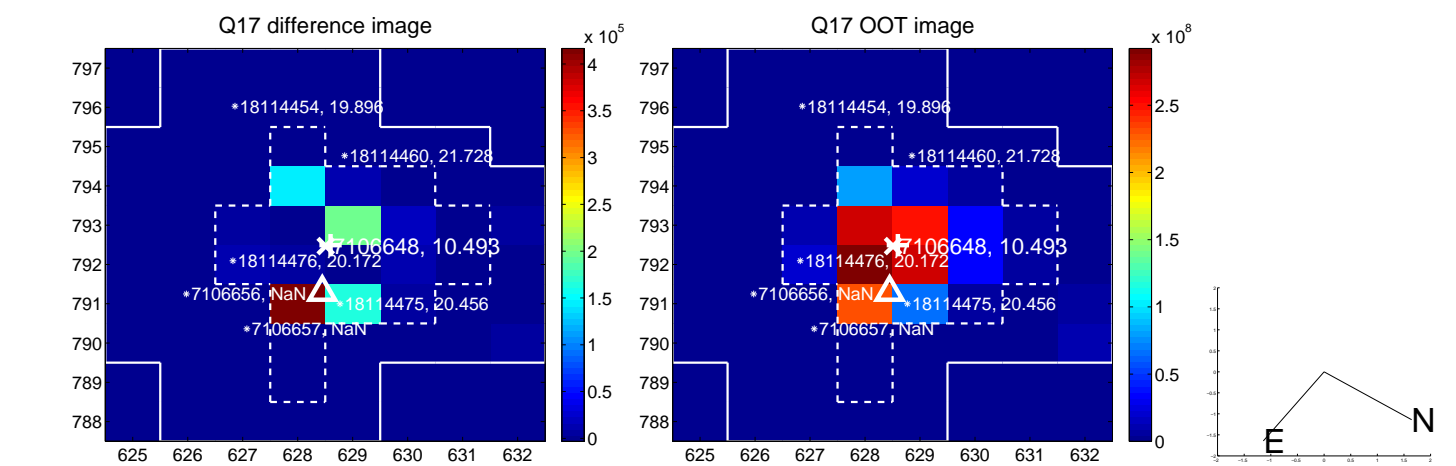
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



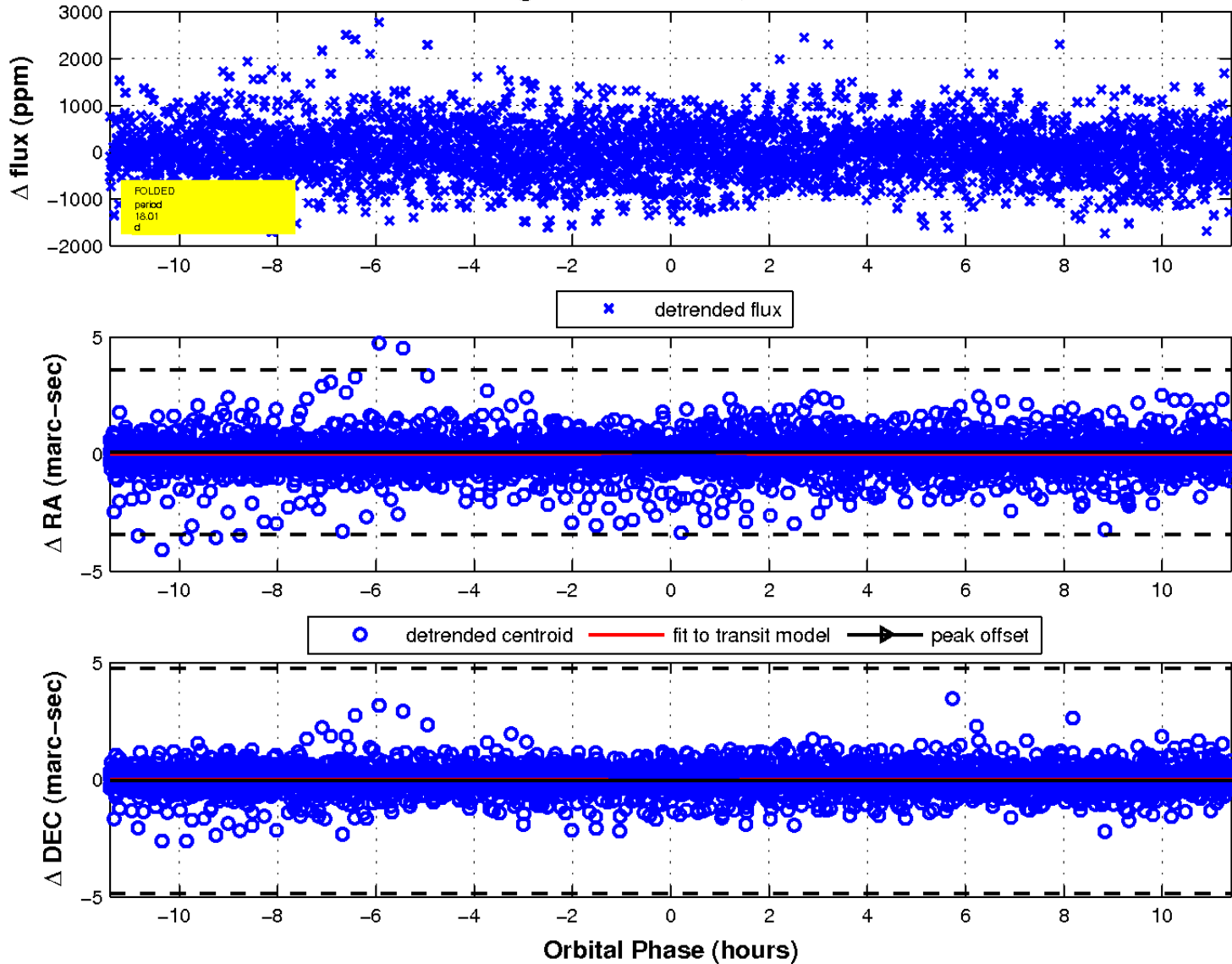
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

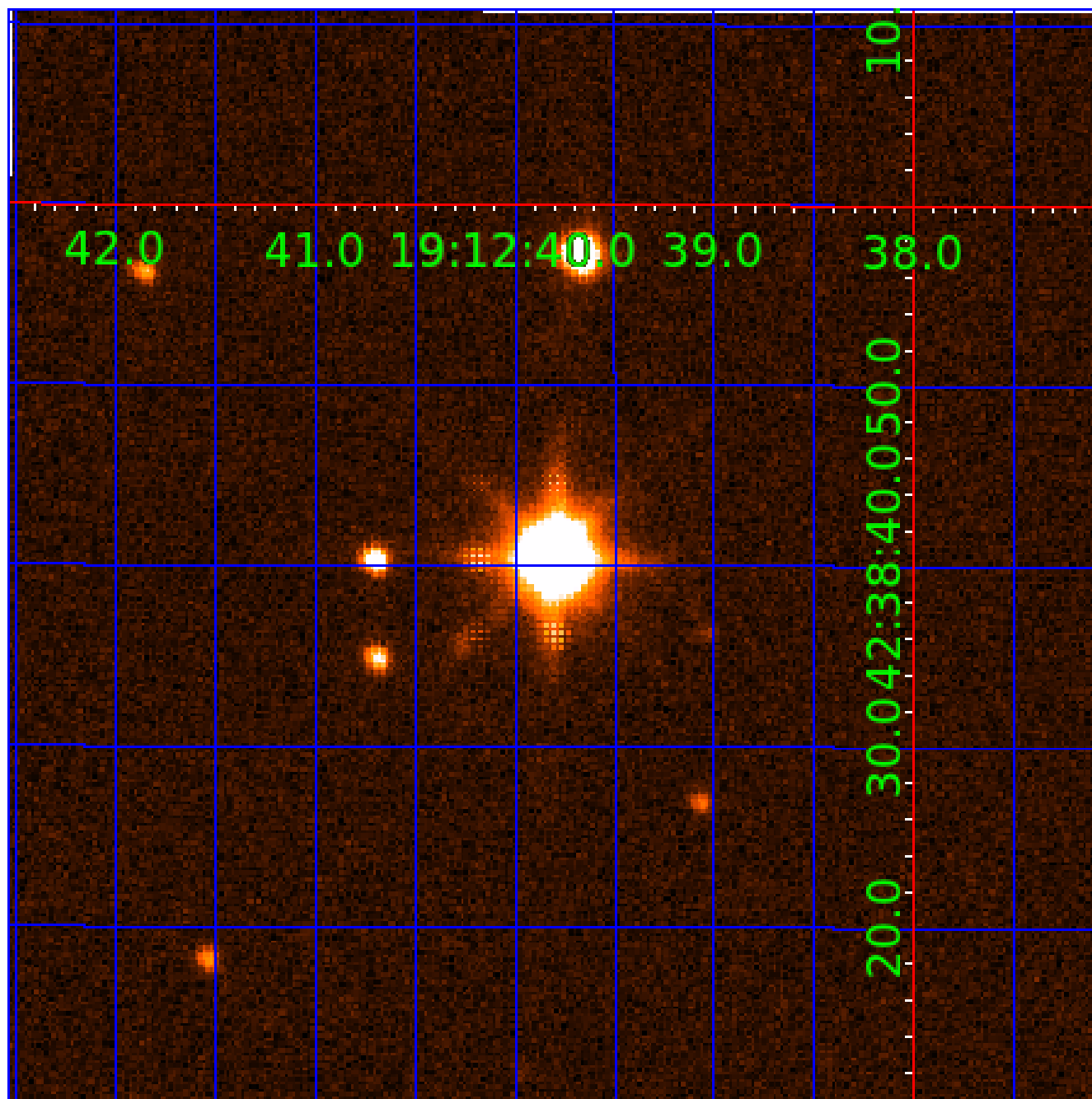


fluxWeightedCentroids, Planet 4 of 5



UKIRT Image

Declination



KIC 007106648

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})
007106648-01	OBS	No	1.259306	132.195766	27.6	2.005	8.0	5.6	1.63	7268	1.03	10245.83
007106648-02	OBS	No	0.629649	131.968347	10.3	3.960	7.6	2.5	1.63	7268	0.56	25818.10
007106648-03	OBS	No	79.392983	199.507695	895.7	4.205	8.9	6.7	1.63	7268	5.53	40.83
007106648-04	OBS	No	18.012478	138.912332	1021.9	3.807	9.0	10.9	1.63	7268	9.72	295.09
007106648-05	OBS	No	23.166524	132.159124	652.9	3.063	8.3	6.0	1.63	7268	6.25	210.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007106648-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
007106648-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
007106648-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007106648-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007106648-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

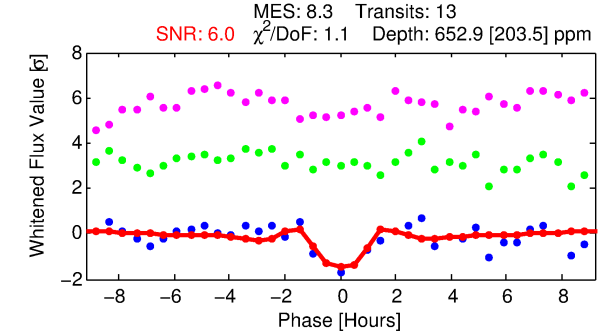
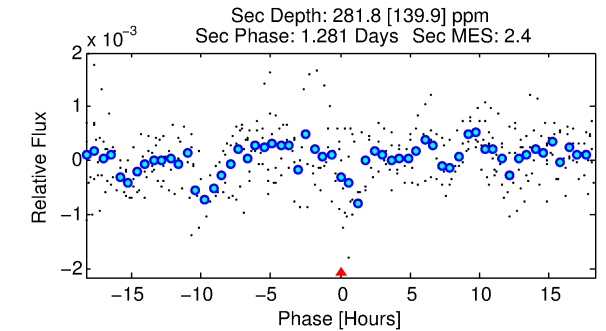
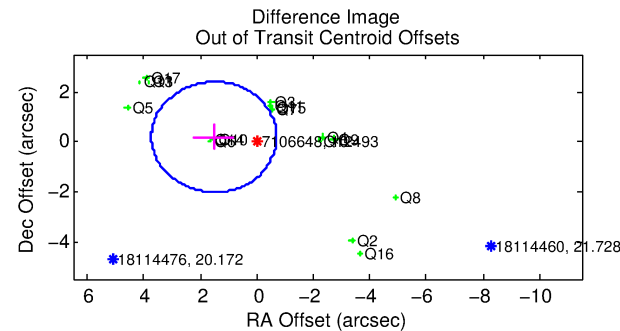
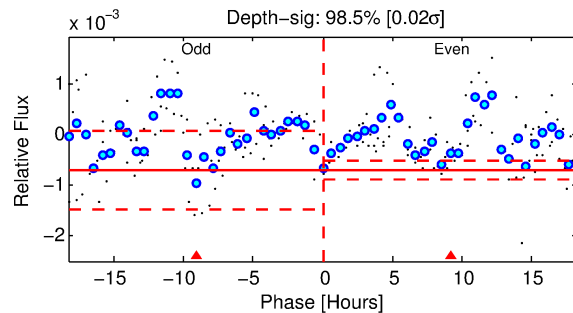
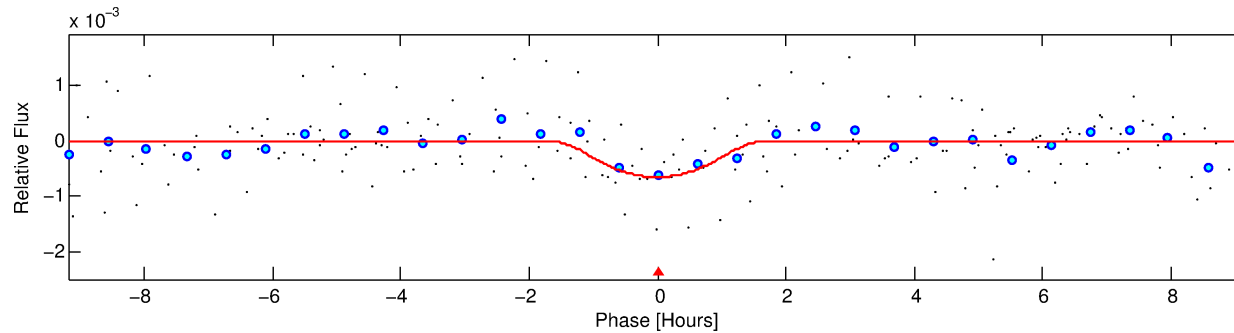
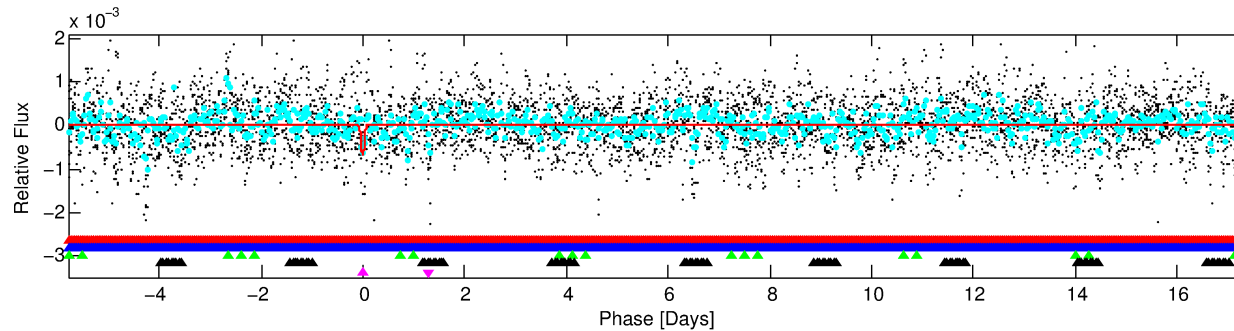
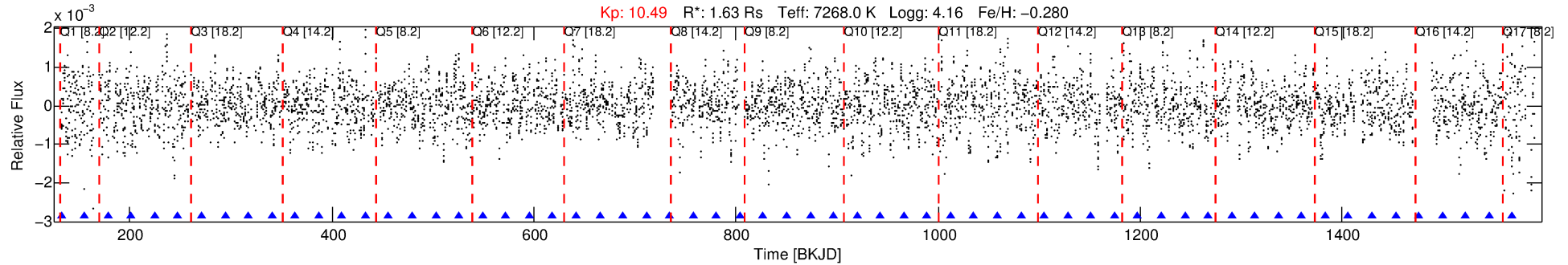
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007106648-05

No Significant Match Found

DV One-Page Summary

KIC: 7106648 Candidate: 5 of 5 Period: 23.167 d



DV Fit Results:

Period = 23.16652 [0.00028] d
Epoch = 132.1591 [0.0101] BKJD
 R_p/R^* = 0.0351 [0.0579]
 a/R^* = 18.46 [12.37]
 b = 0.98 [0.11]
 S_{eff} = 210.98 [82.03]
 T_{eq} = 972 [94] K
 R_p = 6.25 [10.52] R_e
 a = 0.1779 [0.0456] AU
 A_g = 125.45 [421.39] [0.30 σ]
 T_{eff} = 5029 [4203] K [0.96 σ]

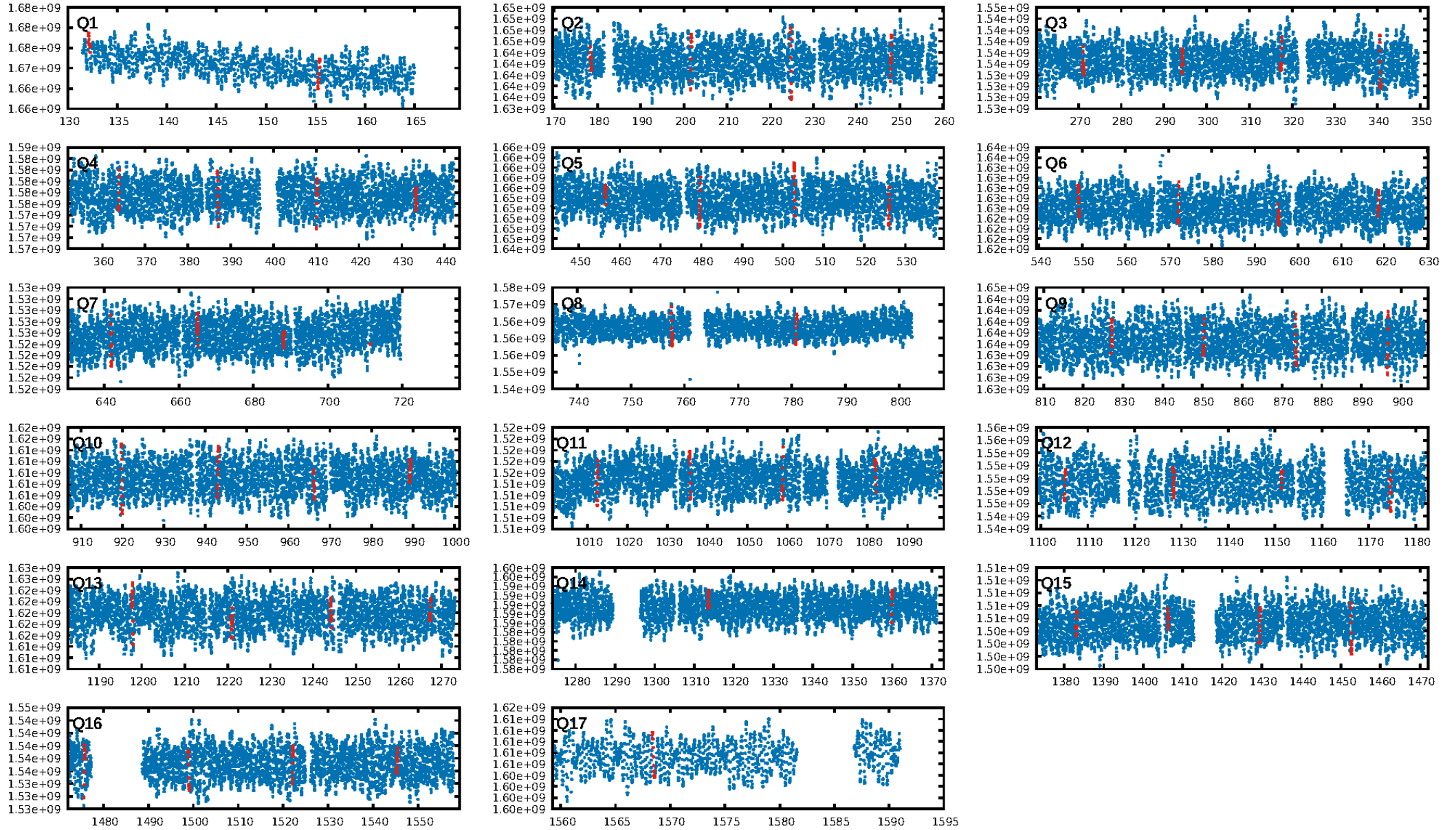
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.32 σ]
LongPeriod-sig: 100.0% [259.39 σ]
ModelChiSquare2-sig: 15.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.90e-38
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: 0.1557
Centroid-sig: 2.8%
Centroid-so: 0.923 arcsec [4.84 σ]
OotOffset-rm: 1.526 arcsec [2.07 σ]
KicOffset-rm: 2.375 arcsec [2.85 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 0.00 [0/17]

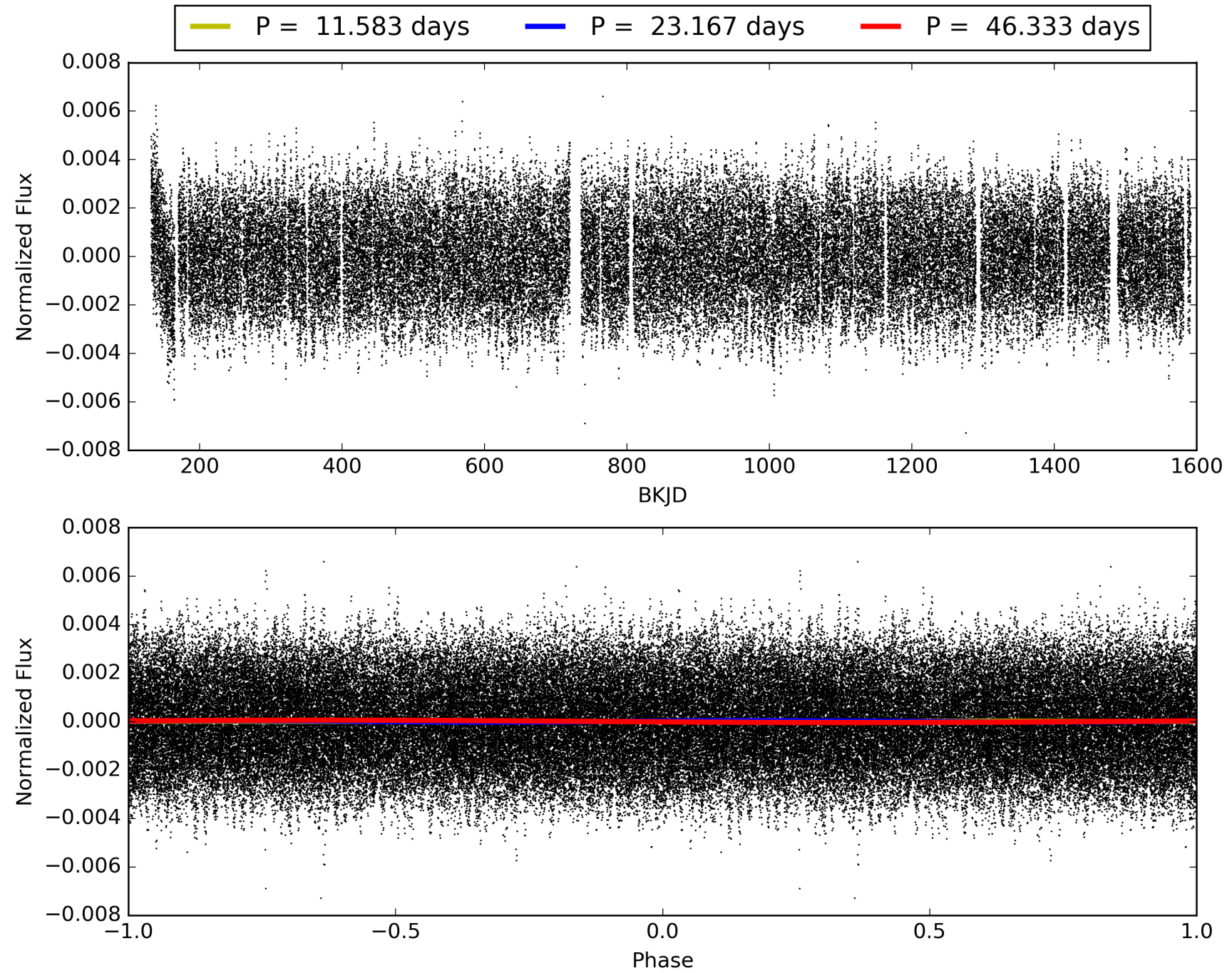
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:17:18 Z

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

TCE 007106648-05, PDC Light Curves

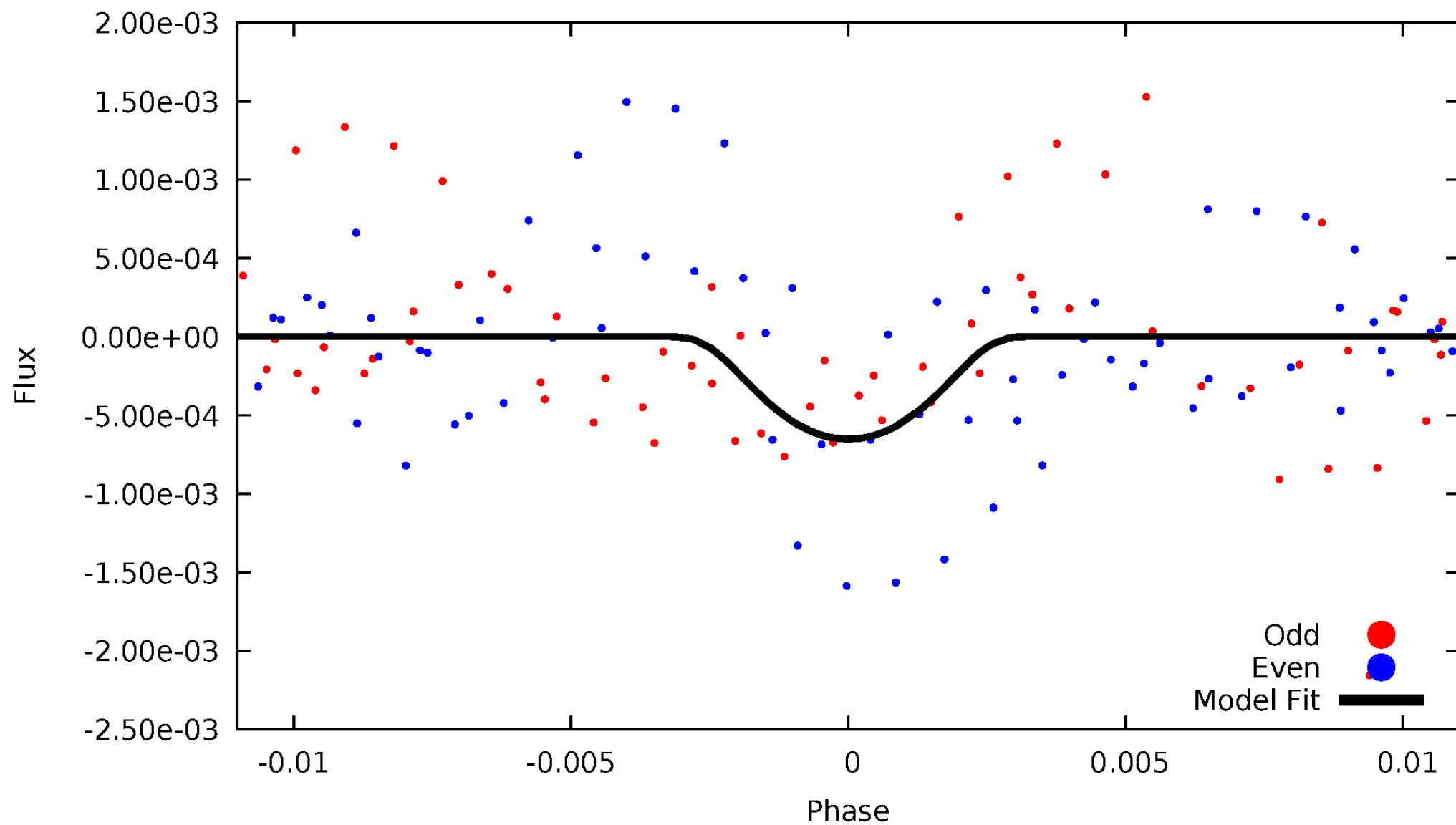


TCE 007106648-05



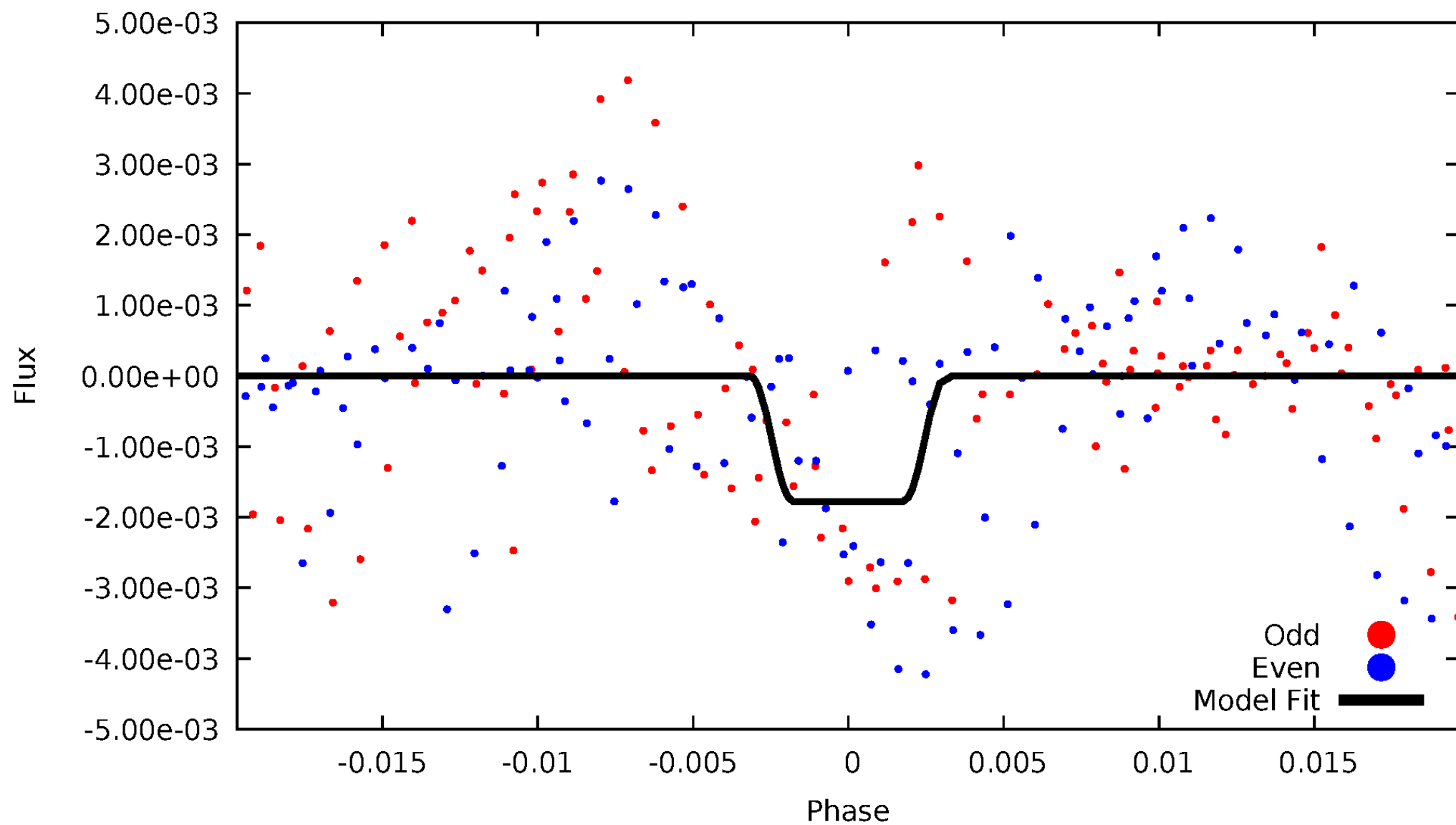
DV Odd/Even

TCE 007106648-05



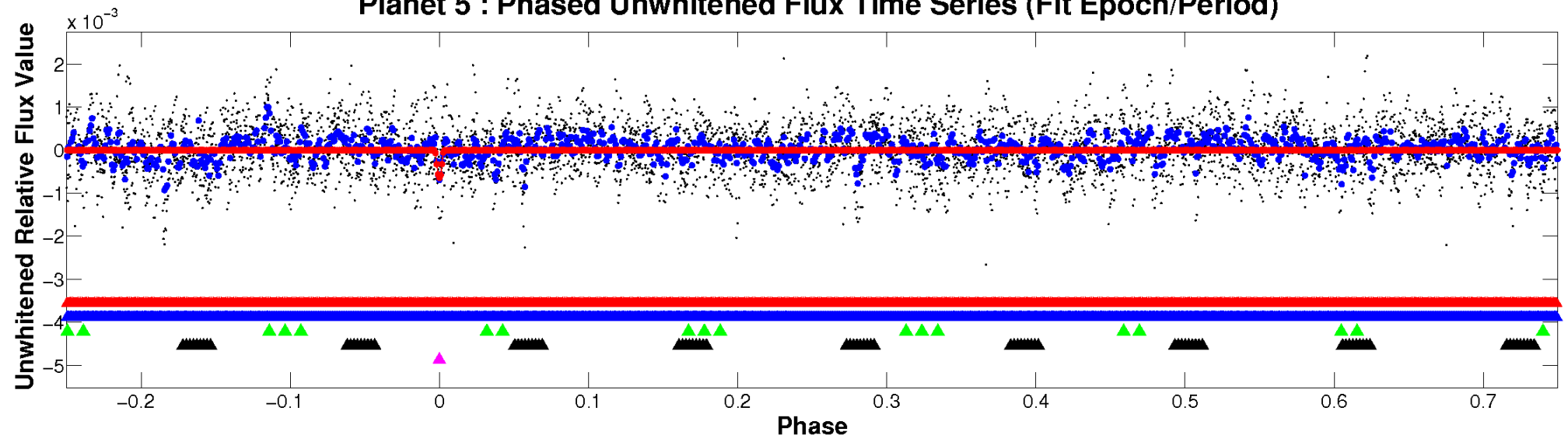
ALT Odd/Even

TCE 007106648-05

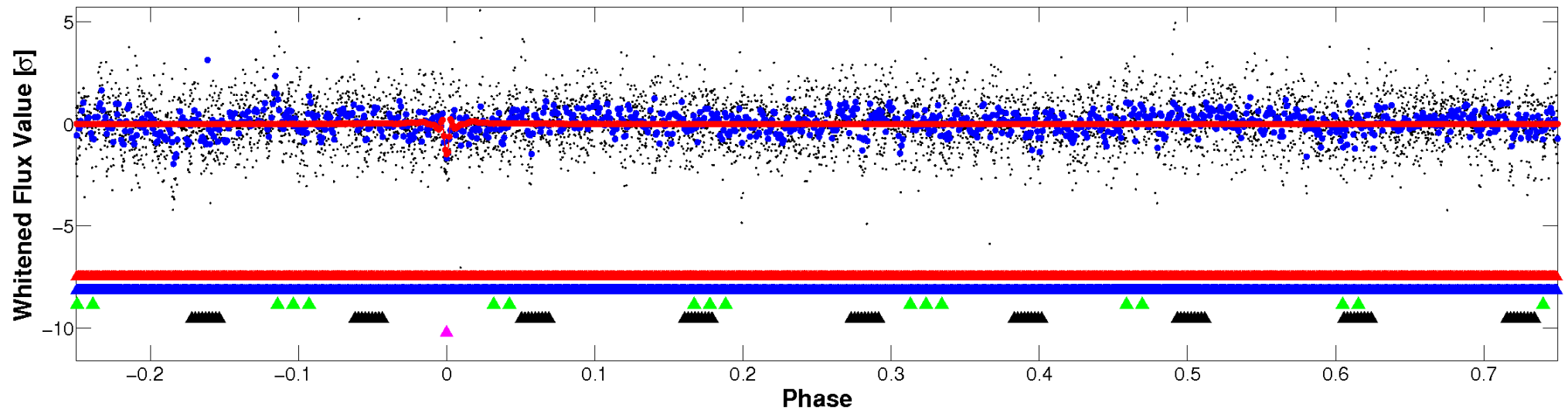


Non-Whitened Vs. Whitened Light Curve

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

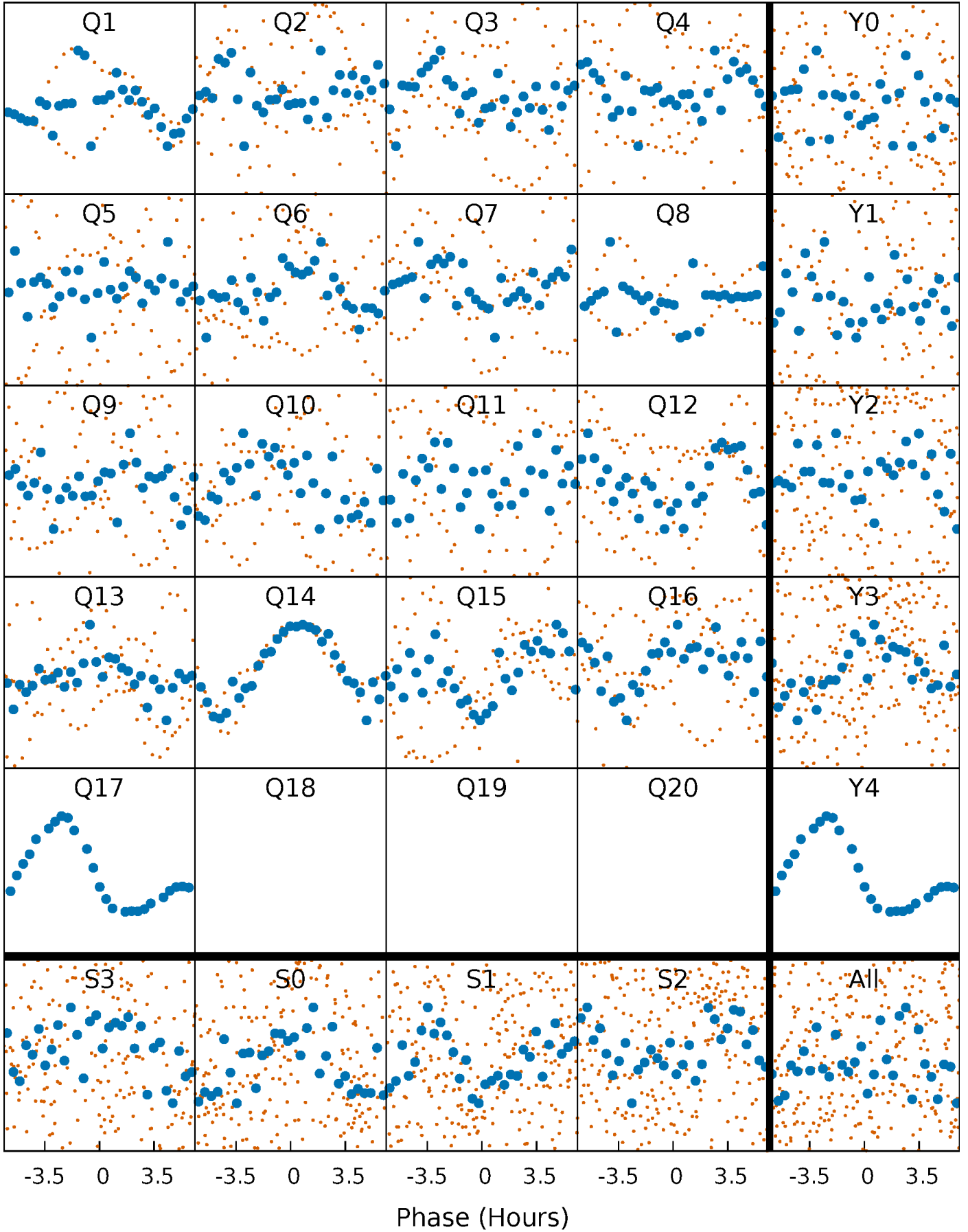


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



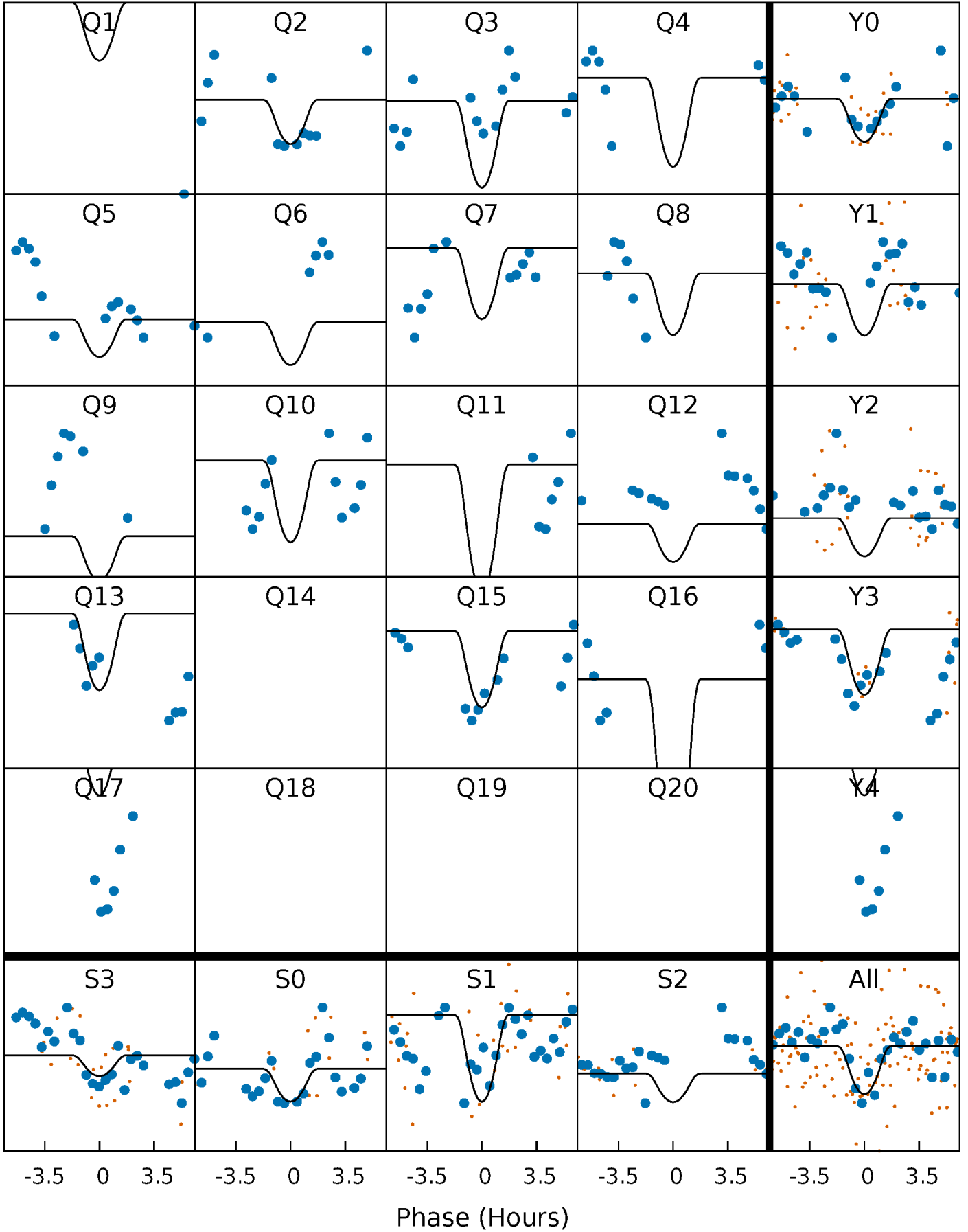
PDC Quarter-Phased Transit Curves

TCE 007106648-05 P= 23.166524 Days $T_0=132.159124$ (BKJD)



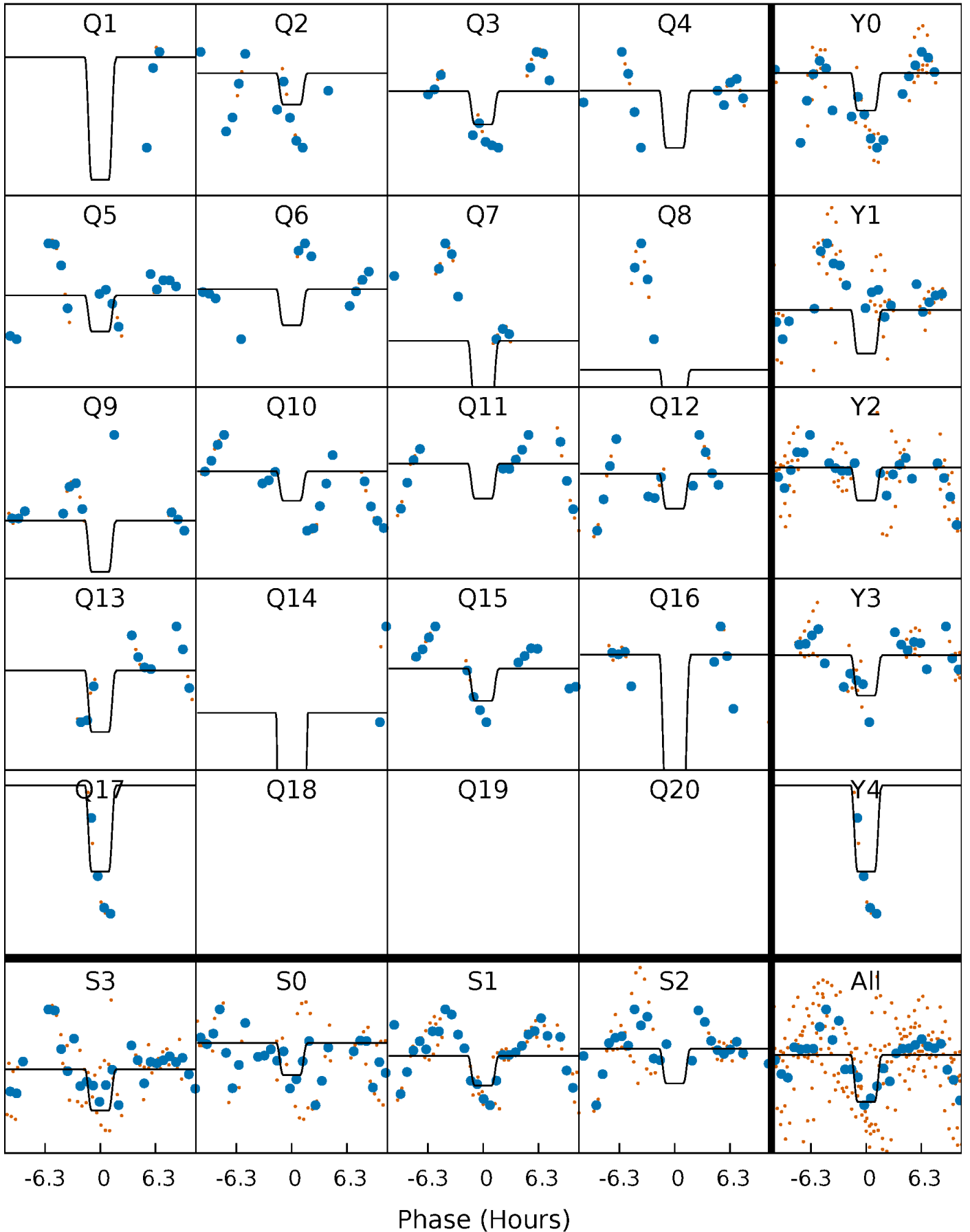
DV Quarter-Phased Transit Curves

TCE 007106648-05 P= 23.166524 Days $T_0=132.159124$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

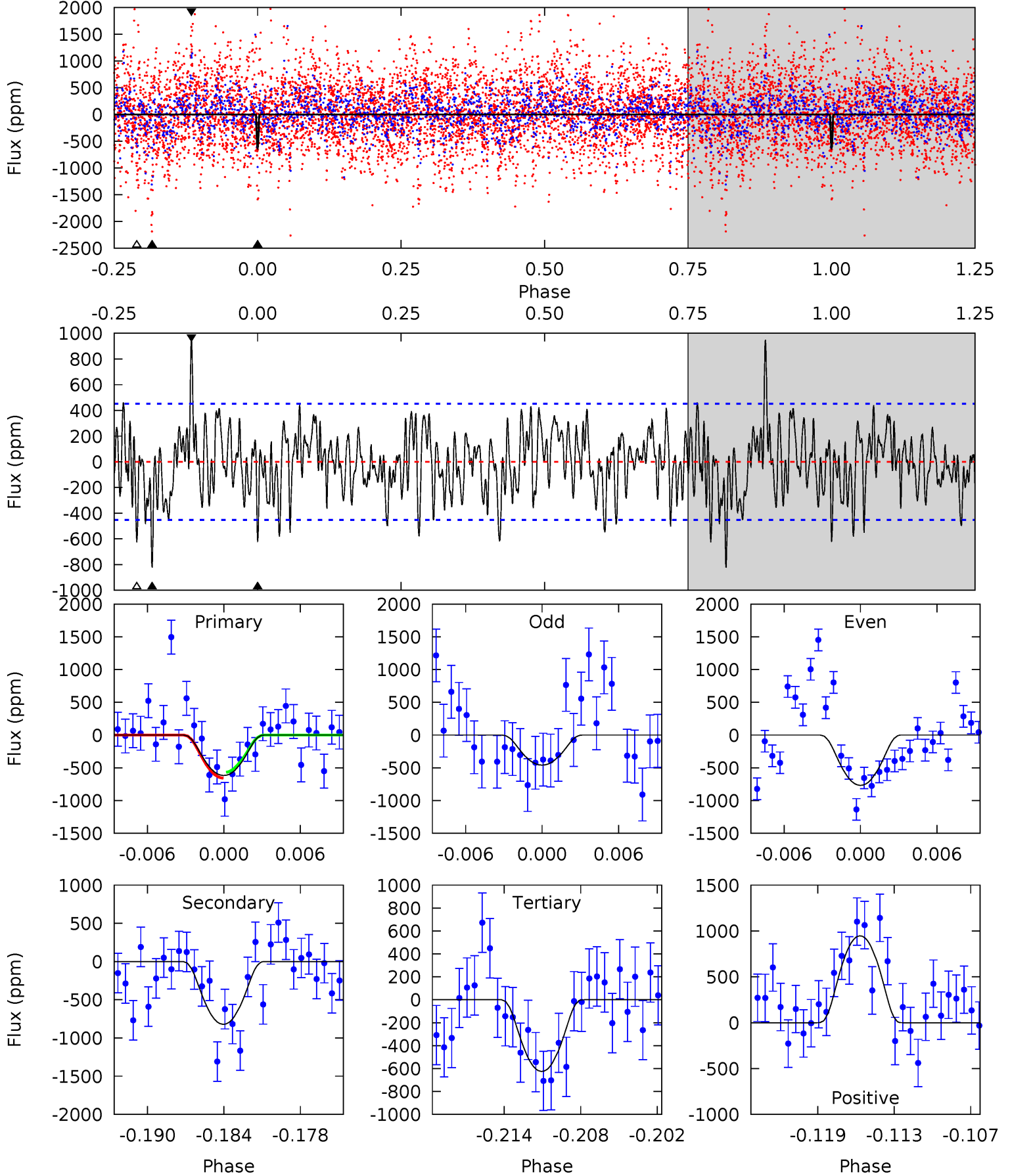
TCE 007106648-05 P= 23.166932 Days $T_0=132.170272$ (BKJD)



DV Model-Shift Uniqueness Test

007106648-05, P = 23.166524 Days, E = 108.992600 Days

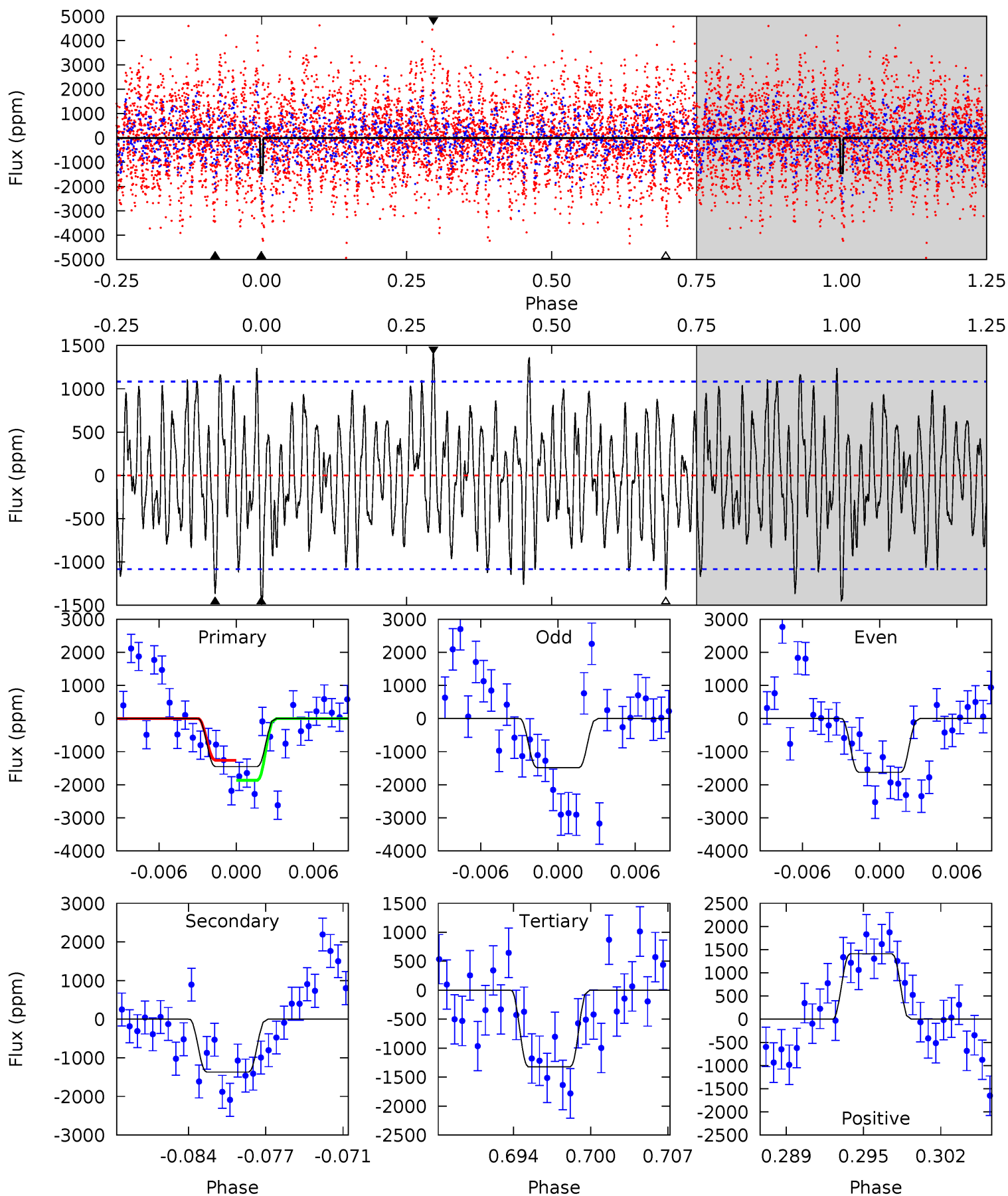
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.01	9.32	7.09	10.7	5.13	2.75	2.46	-0.08	-3.74	2.23	-1.43	1.76	-4.09	0.54	0.50



Alt Model-Shift Uniqueness Test

007106648-05, $P = 23.166932$ Days, $E = 109.003340$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.86	6.46	6.24	6.66	5.11	2.73	2.49	0.62	0.20	0.22	-0.19	0.32	1.58	0.49	1.42



Stellar Parameters For KIC 007106648

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7268^{+203}_{-279}	$4.157^{+0.153}_{-0.187}$	$-0.280^{+0.250}_{-0.350}$	$1.634^{+0.521}_{-0.347}$	$1.399^{+0.226}_{-0.226}$	$0.451^{+0.359}_{-0.232}$
	+3%/-4%	+4%/-4%	+89%/-125%	+32%/-21%	+16%/-16%	+79%/-51%
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 007106648-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-822 ± 88	$9.63^{+9.63}_{-6.16}$	1363^{+109}_{-98}	5280^{+4282}_{-1235}	154^{+1096}_{-114}
Alt.	-1369 ± 212	$10.84^{+9.47}_{-6.90}$	1354^{+105}_{-85}	5586^{+4492}_{-1266}	202^{+1350}_{-145}

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 $A_{obs} \gg 1.0$

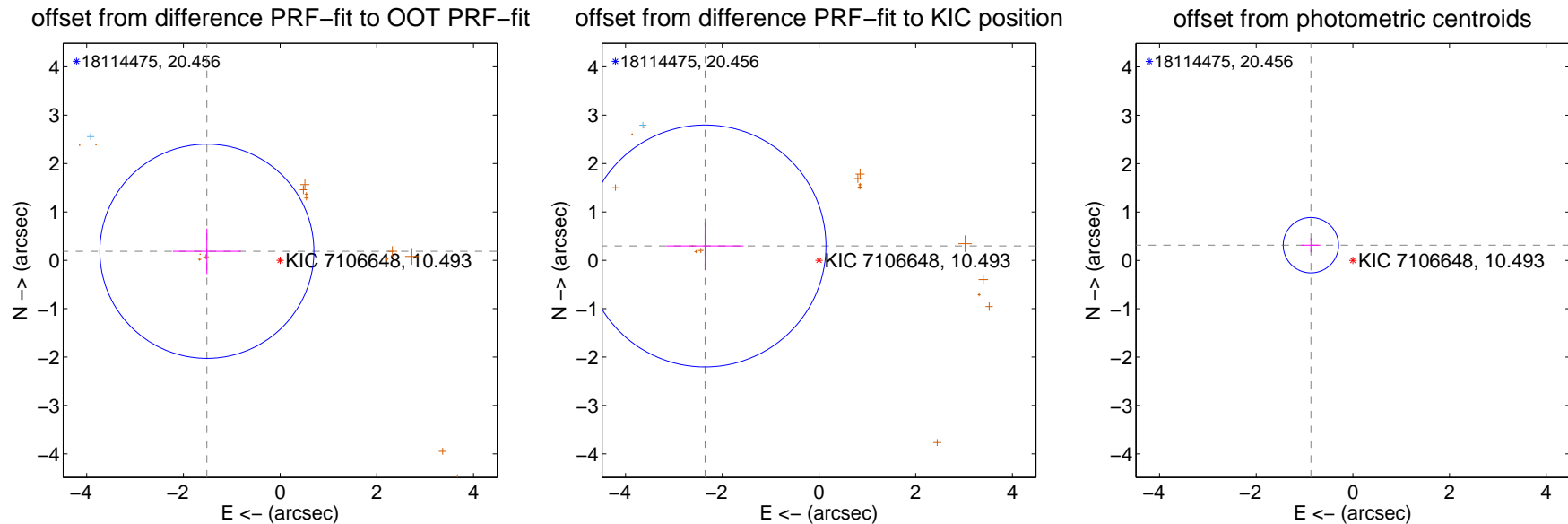
DV Centroid Data

Supplemental centroid analysis for 007106648-05. **Kepler magnitude: 10.49.** Transit SNR 5.96

There are 1 quarters with good PRF difference image offsets

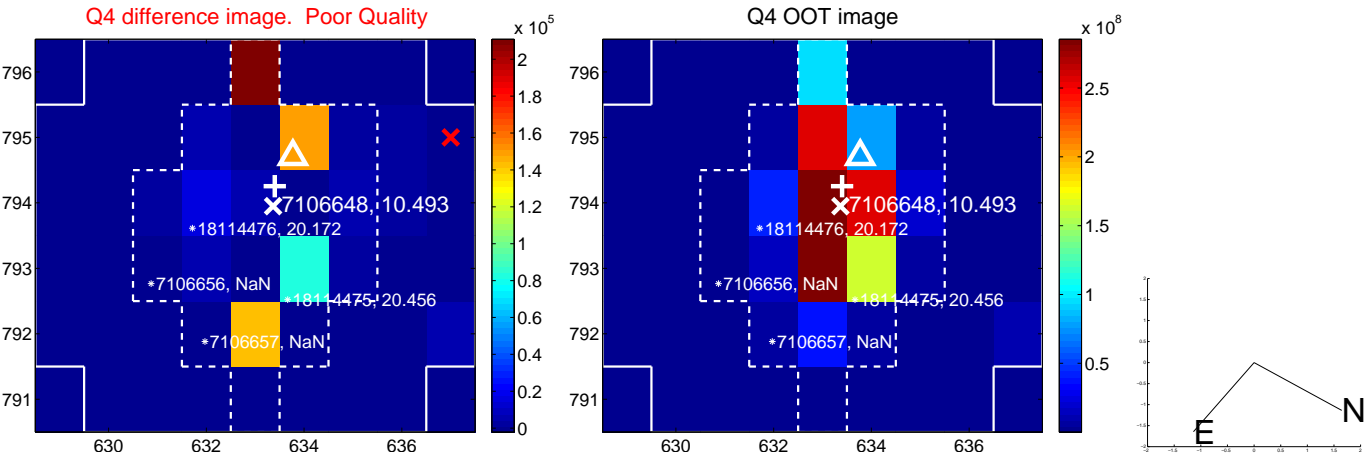
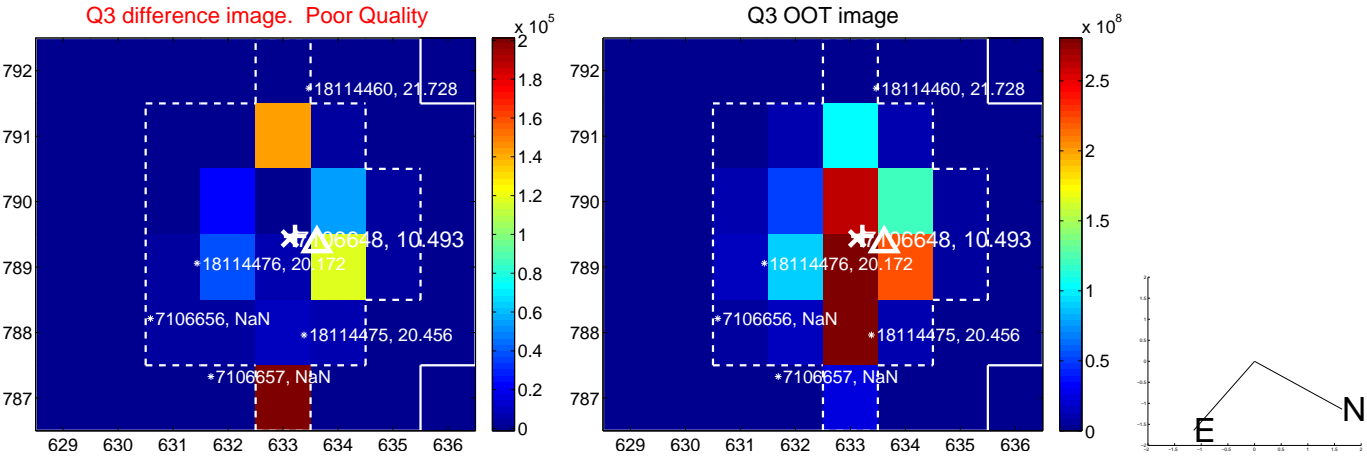
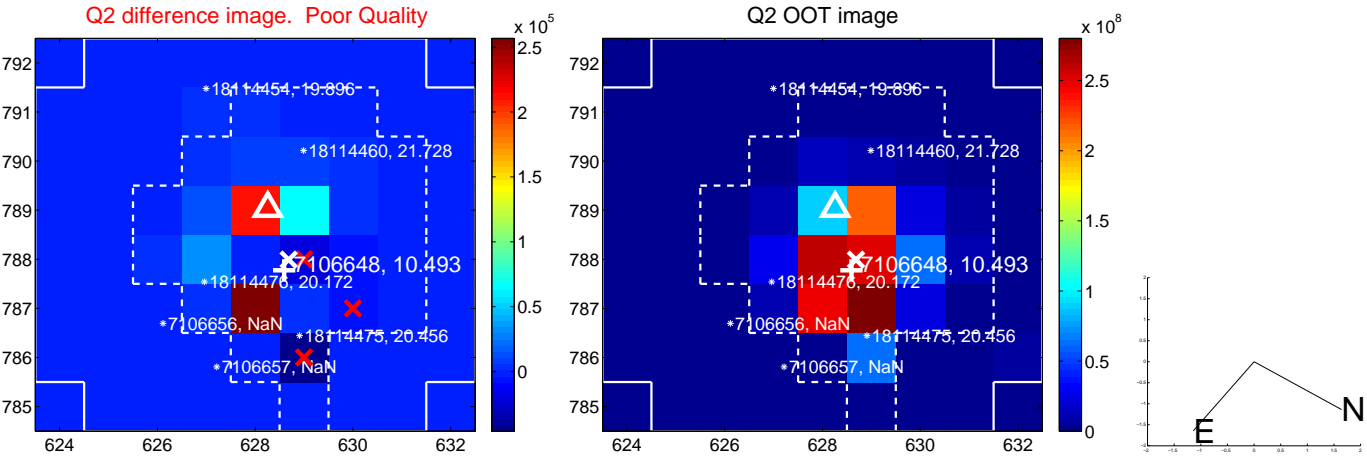
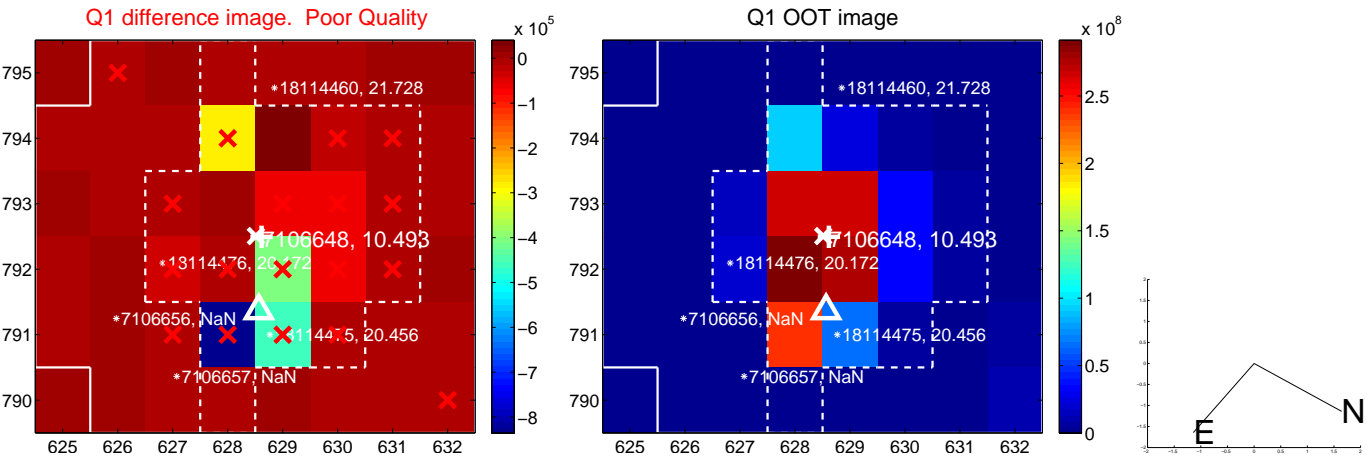
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.526 ± 0.738	2.07	1.515 ± 0.702	0.186 ± 0.470
PRF-fit source offset from KIC position	2.375 ± 0.833	2.85	2.356 ± 0.796	0.296 ± 0.494
photometric centroid source offset	0.92 ± 0.19	4.84	0.87 ± 0.20	0.31 ± 0.15

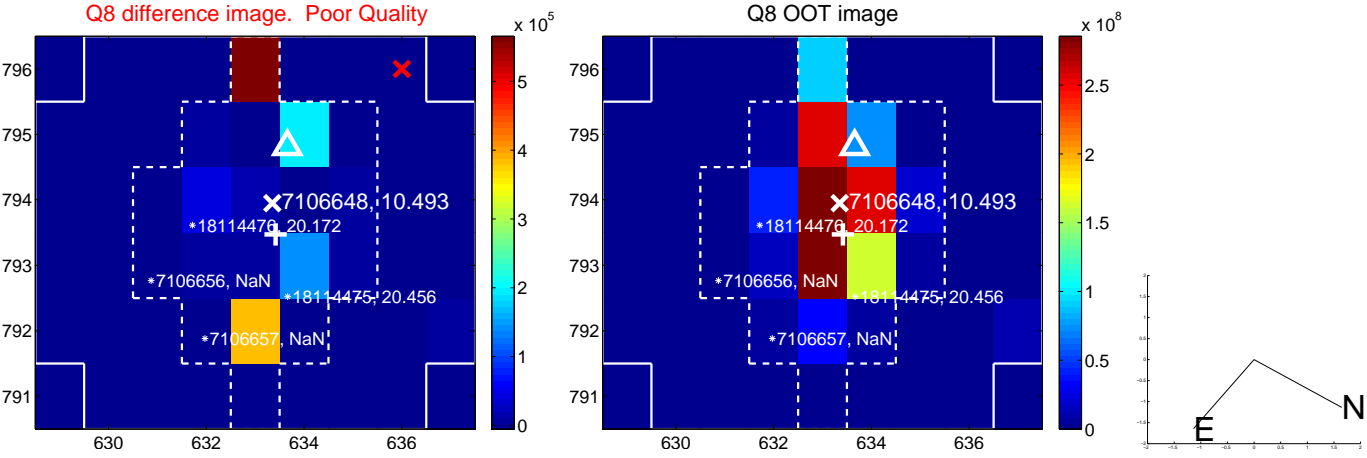
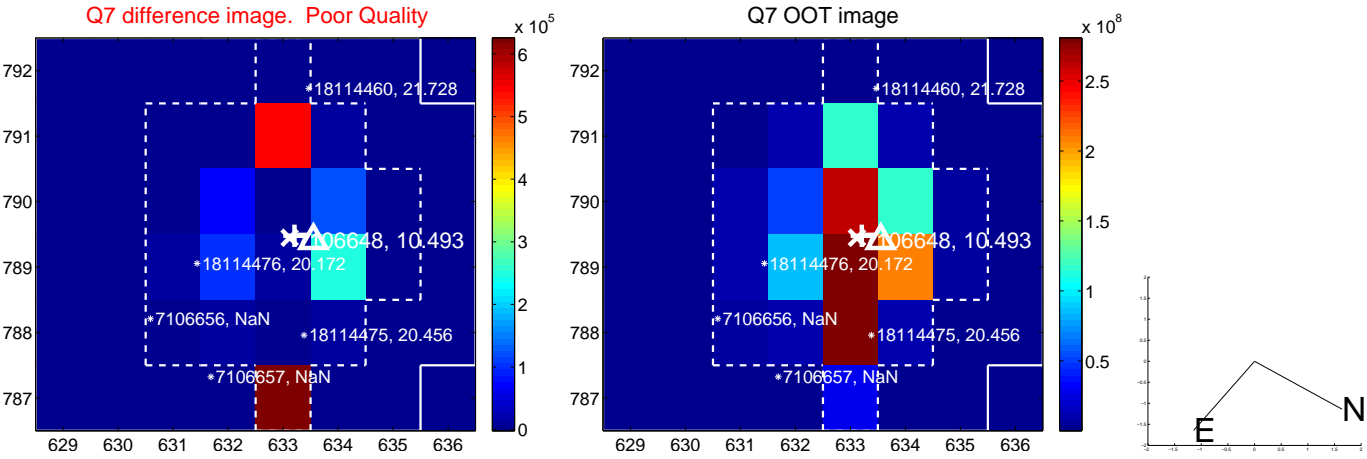
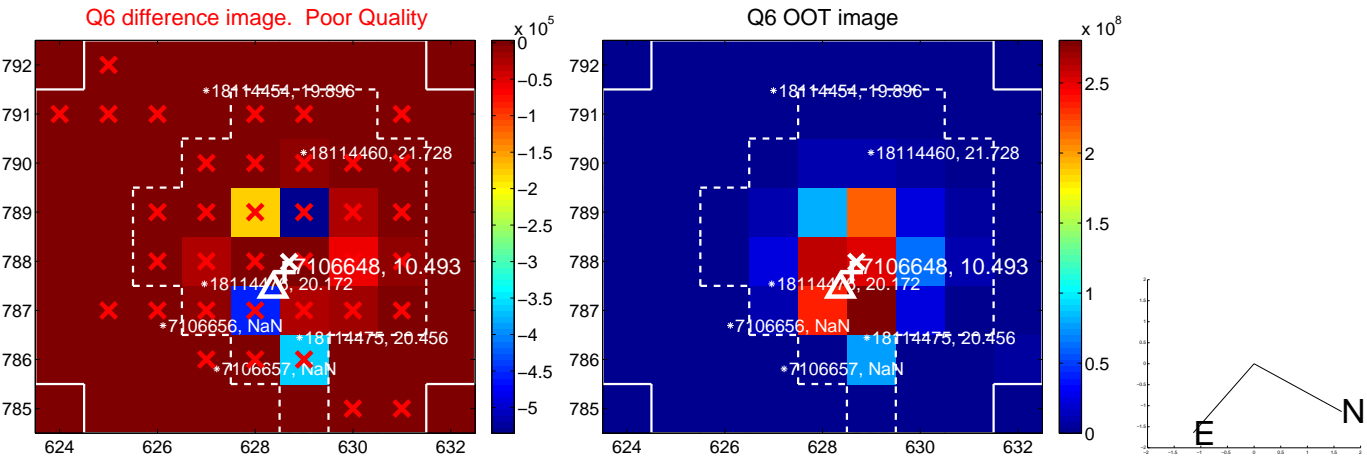
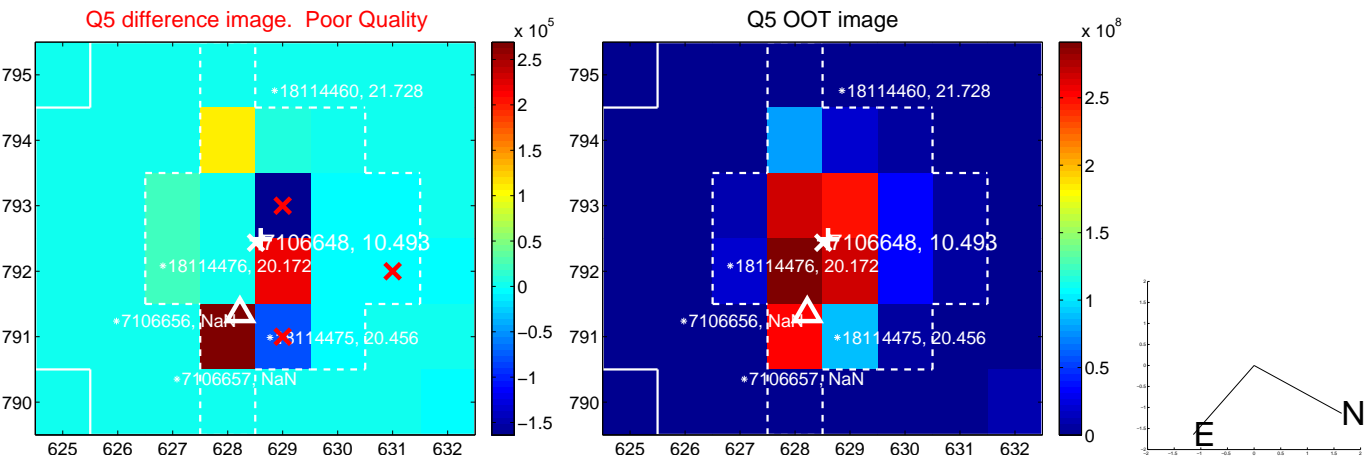


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

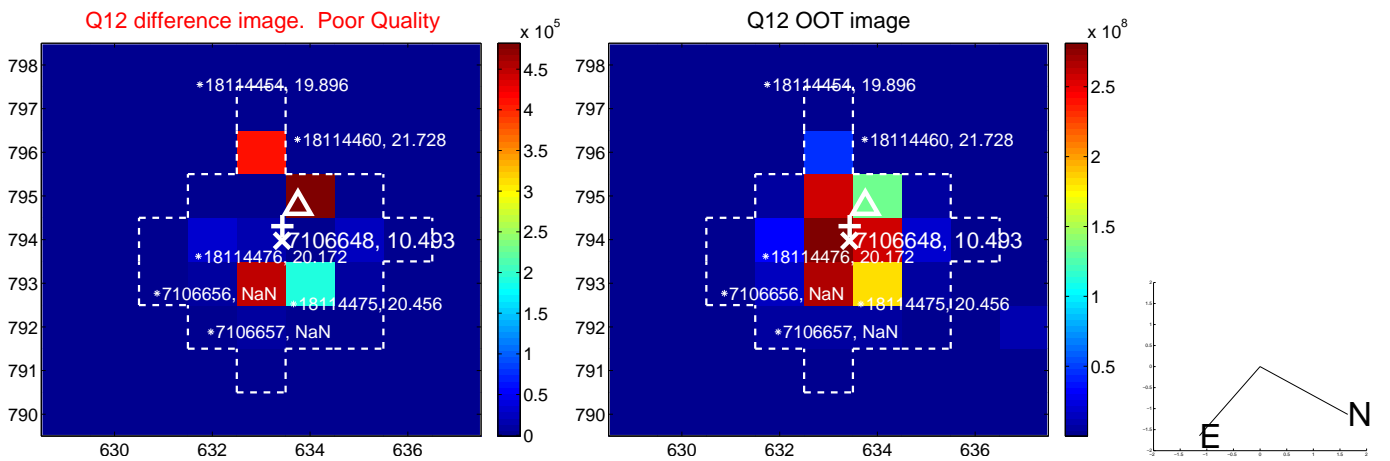
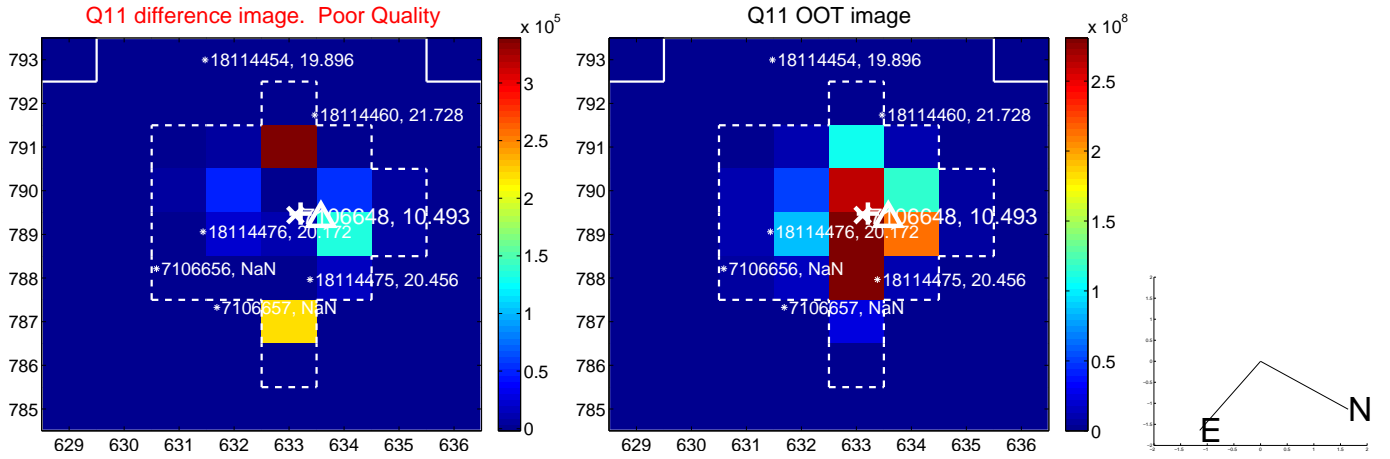
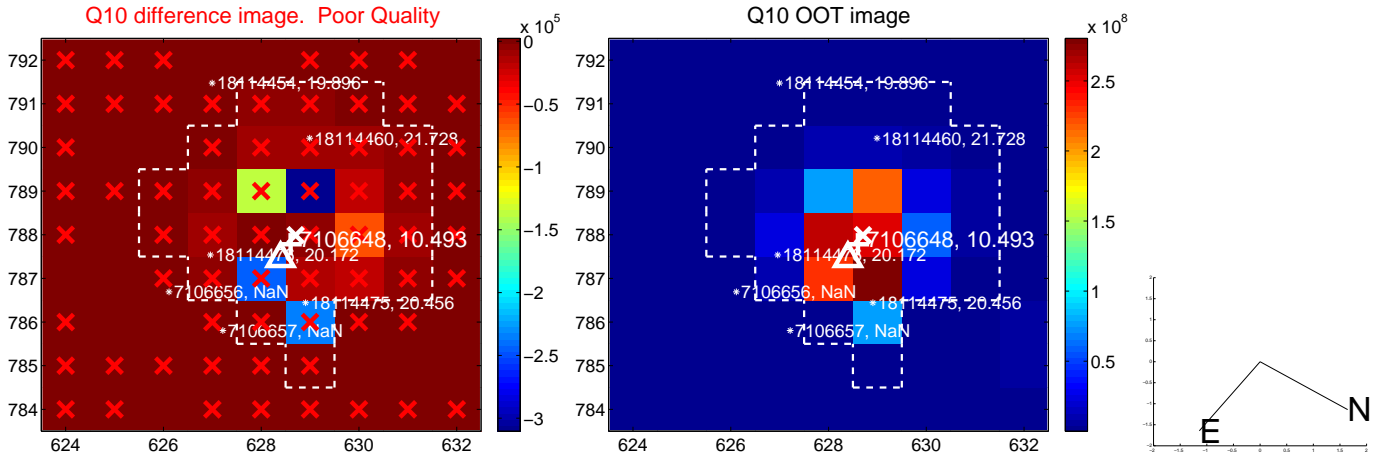
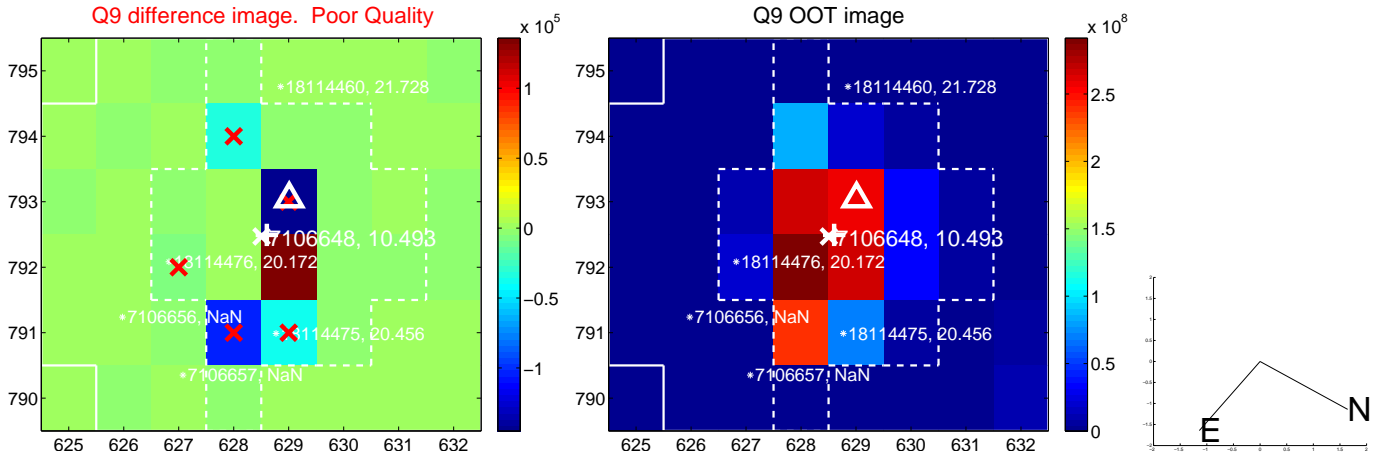
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



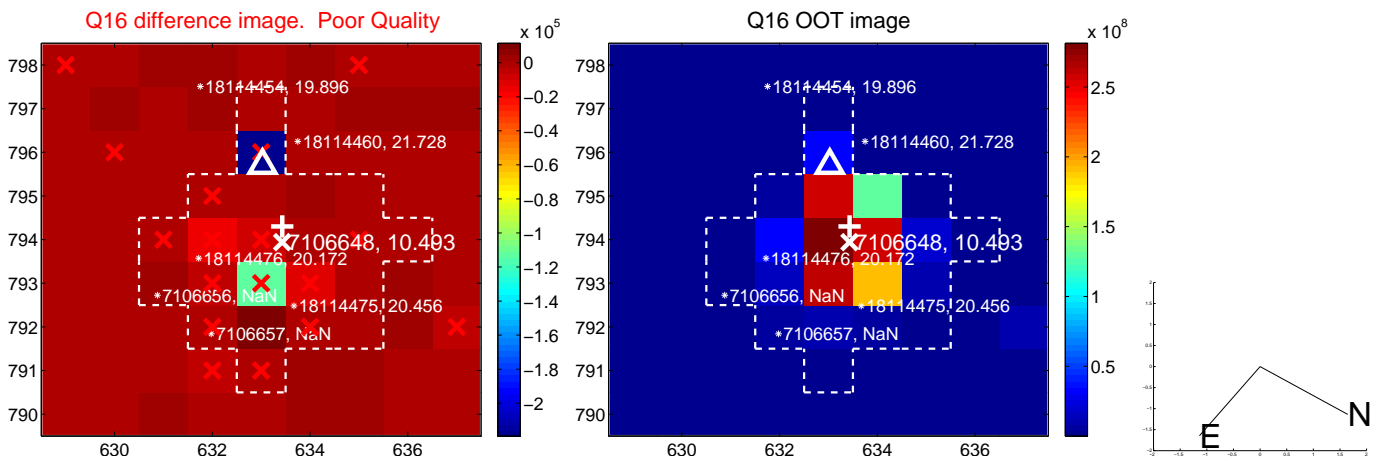
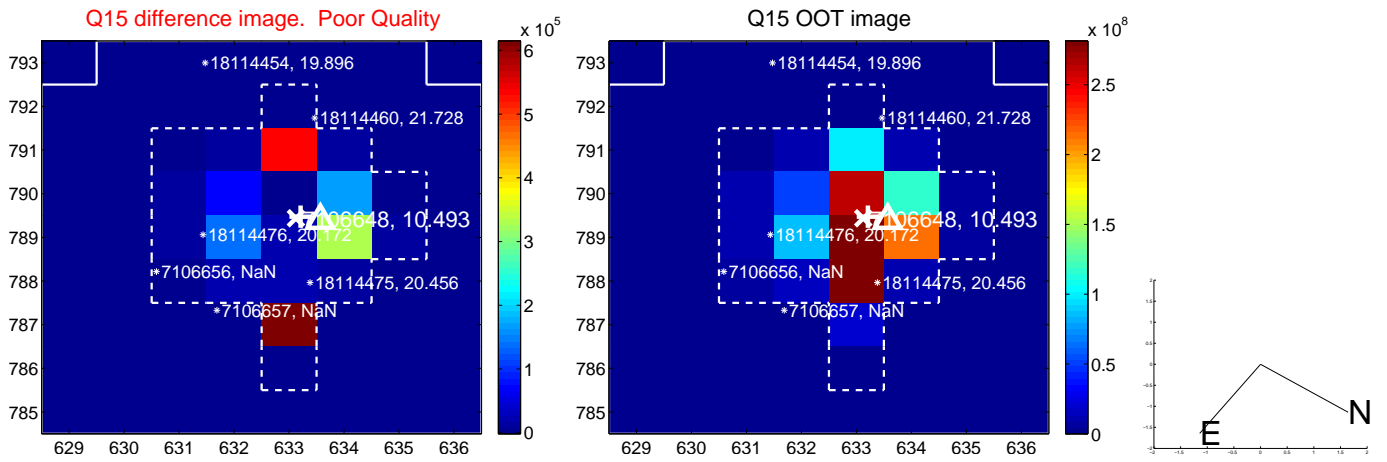
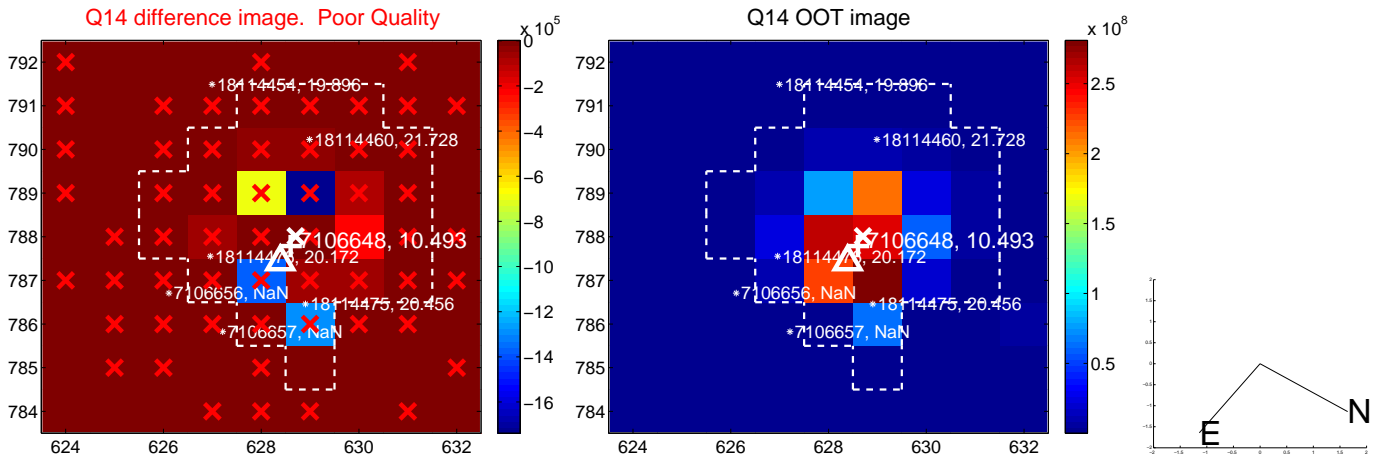
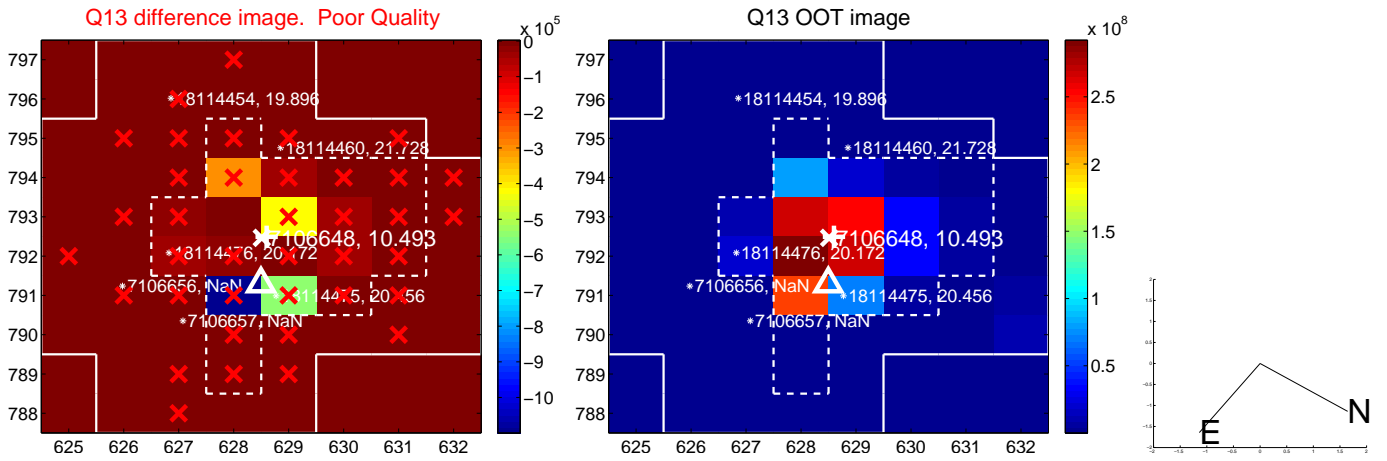
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



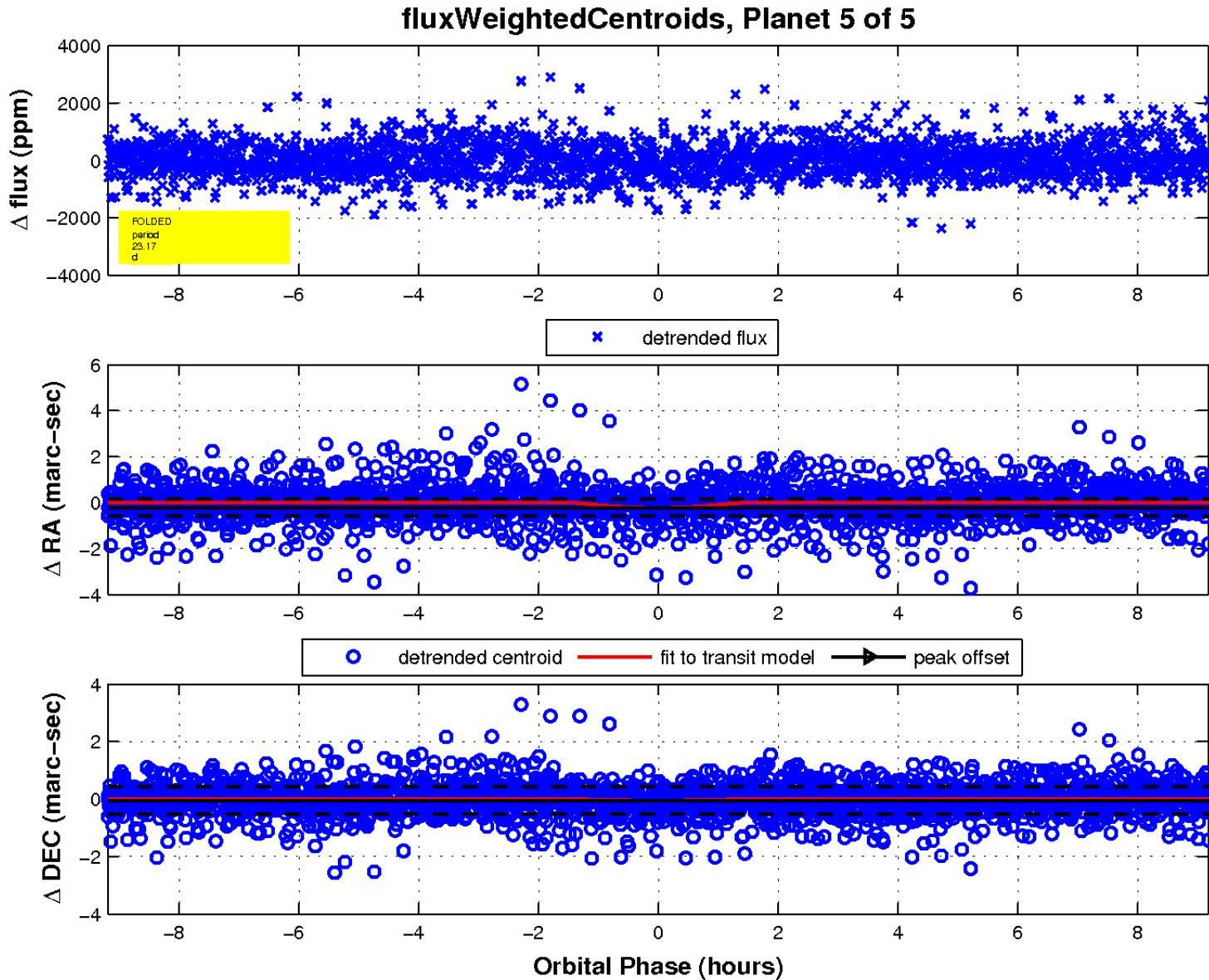
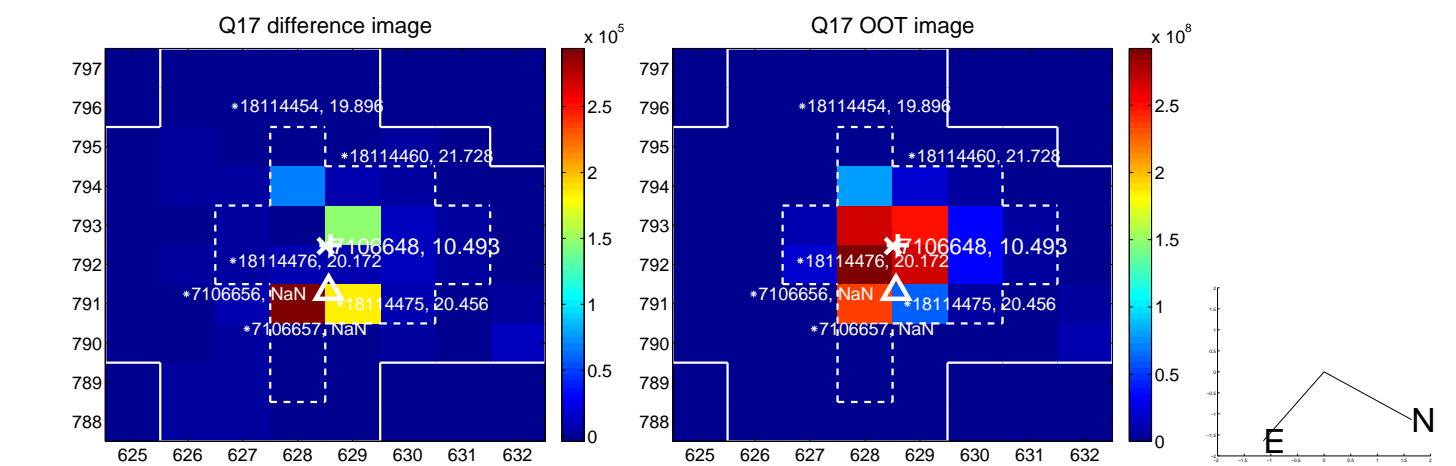
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

