

KIC 010281890

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})
010281890-01	OBS	No	11.943689	137.705217	5.8	3.833	27.6	3.3	2.58	10906	0.69	4058.31
010281890-02	OBS	No	11.941574	139.714682	5.8	0.655	24.0	1.8	2.58	10906	0.71	4059.27
010281890-03	OBS	No	11.942582	138.254069	39.0	7.500	23.9	-1.0	2.58	10906	1.66	4058.81
010281890-04	OBS	No	11.942835	139.790042	7.7	8.989	24.1	3.9	2.58	10906	0.82	4058.70
010281890-05	OBS	No	11.942582	139.187201	100.8	7.500	19.7	-1.0	2.58	10906	2.67	4058.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010281890-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010281890-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010281890-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED—HALO_GHOST
010281890-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED—HALO_GHOST
010281890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

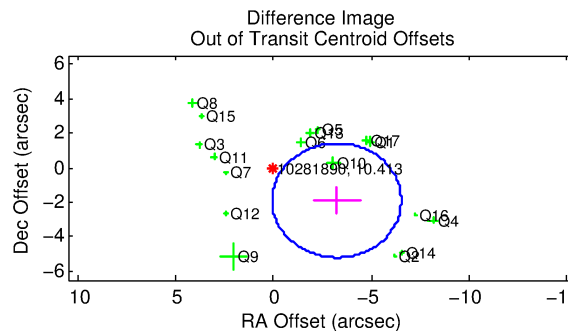
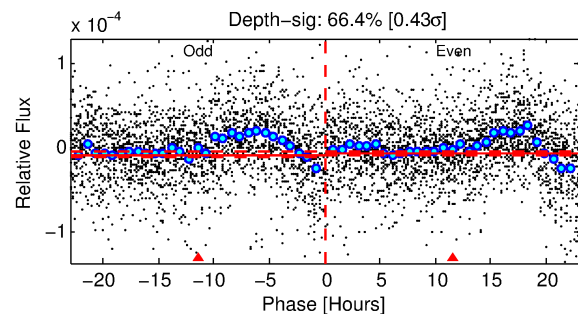
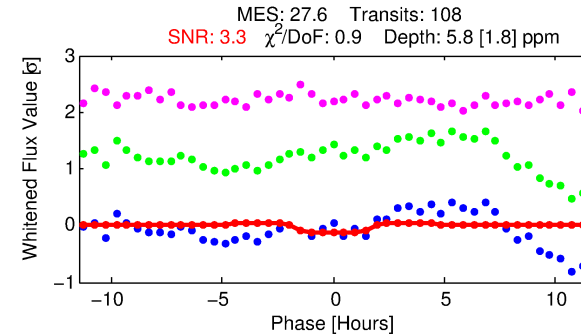
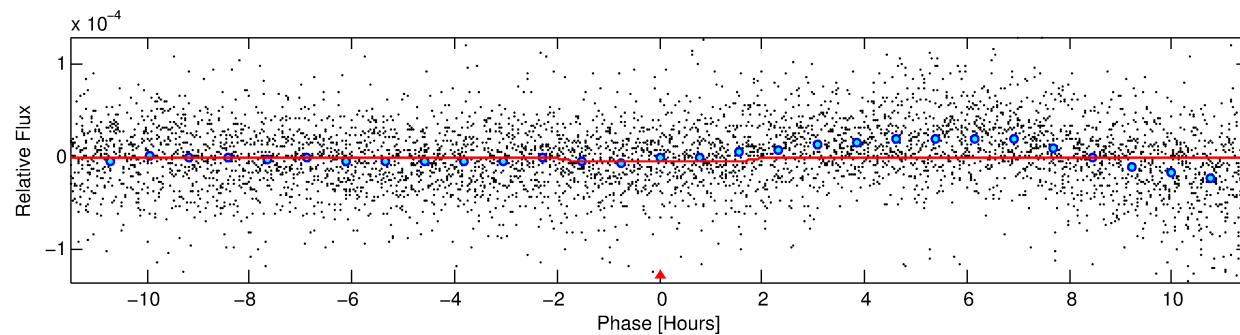
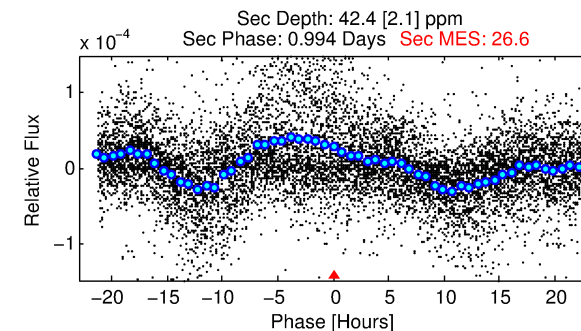
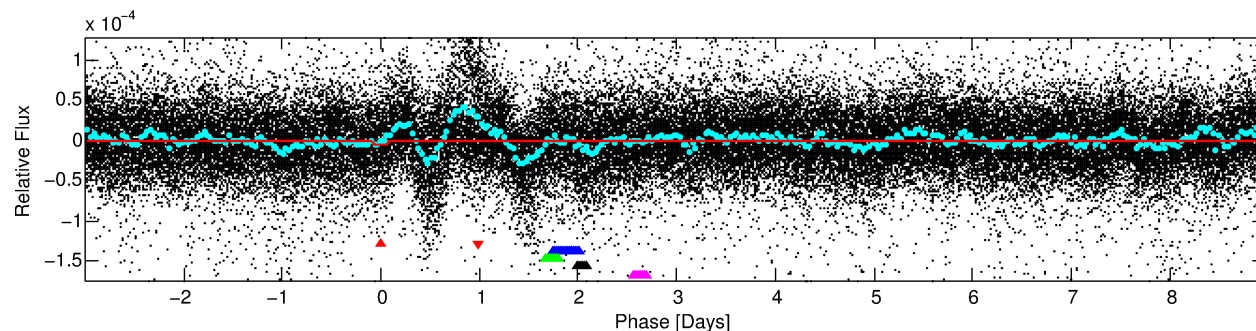
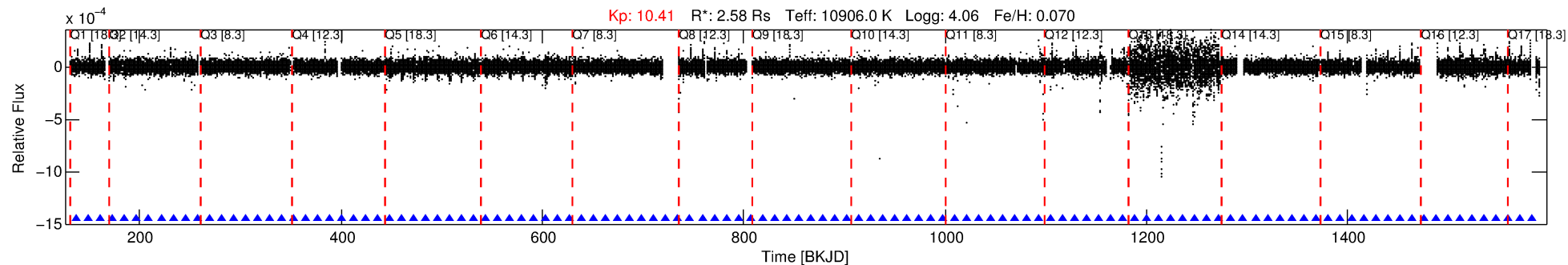
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010281890-01

No Significant Match Found

DV One-Page Summary

KIC: 10281890 Candidate: 1 of 5 Period: 11.944 d



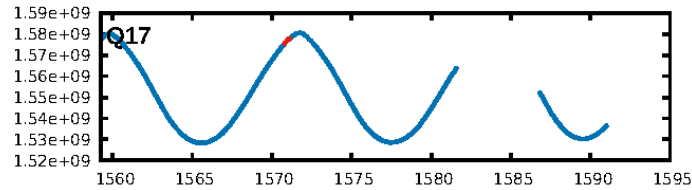
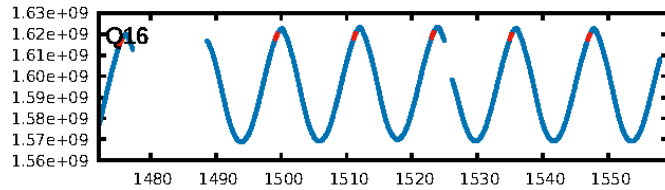
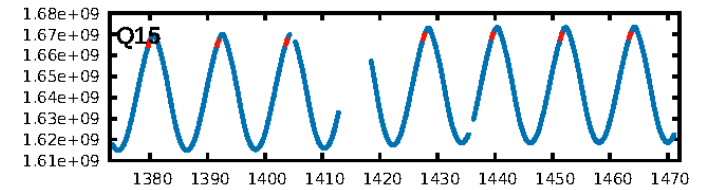
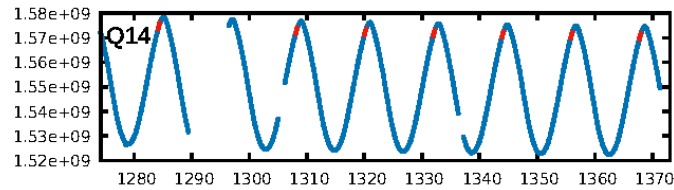
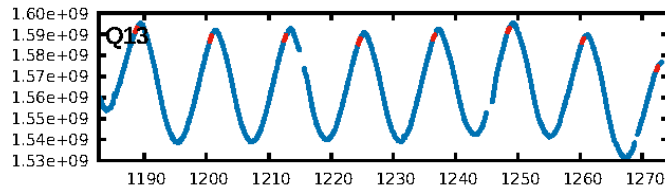
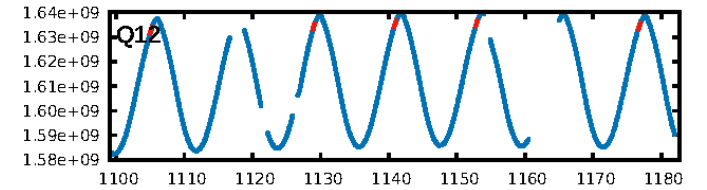
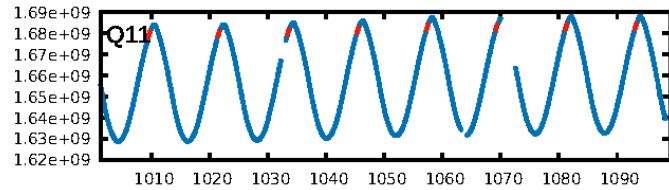
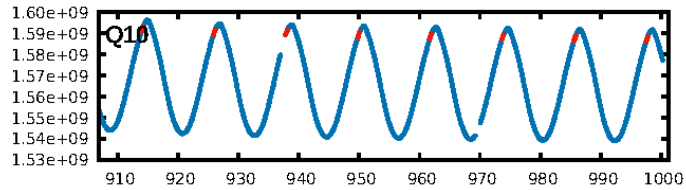
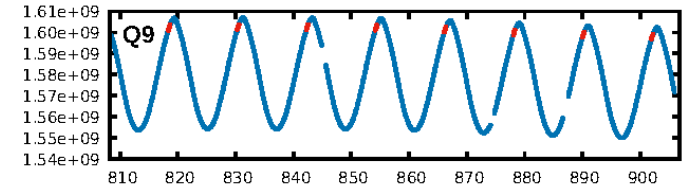
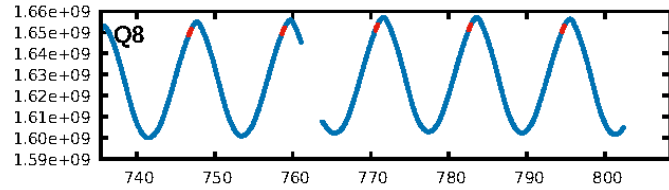
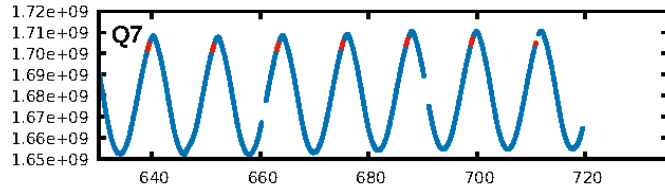
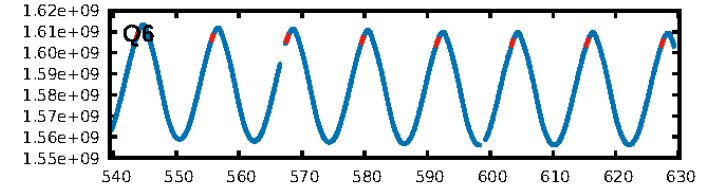
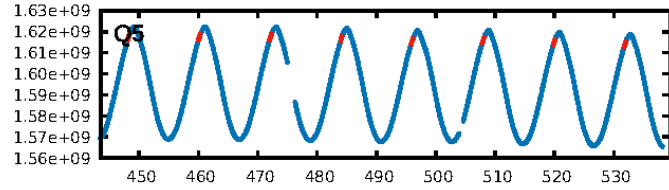
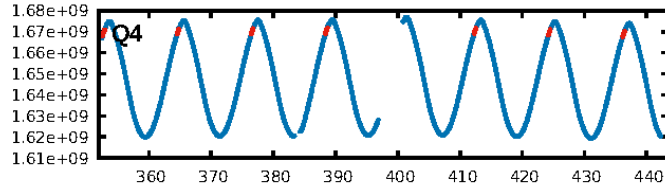
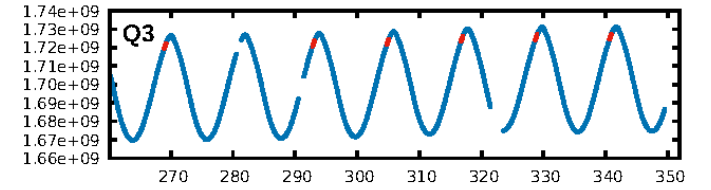
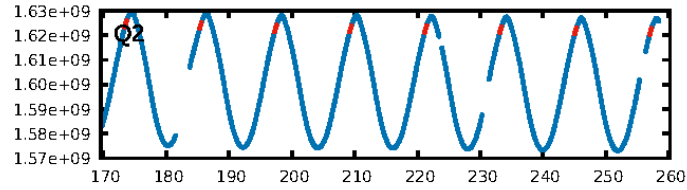
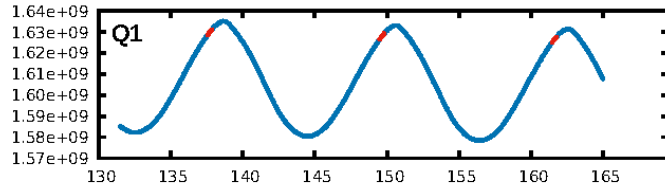
DV Fit Results:

Period = 11.94369 [0.00028] d
Epoch = 137.7052 [0.0175] BKJD
Rp/R* = 0.0025 [0.0005]
a/R* = 12.50 [12.61]
b = 0.85 [0.32]
Seff = 4058.31 [1683.47]
Teq = 2035 [211] K
Rp = 0.69 [0.25] Re
a = 0.1445 [0.0370] AU
Ag = 1010.21 [545.63] [1.85 σ]
Teffp = 17740 [1938] K [8.05 σ]

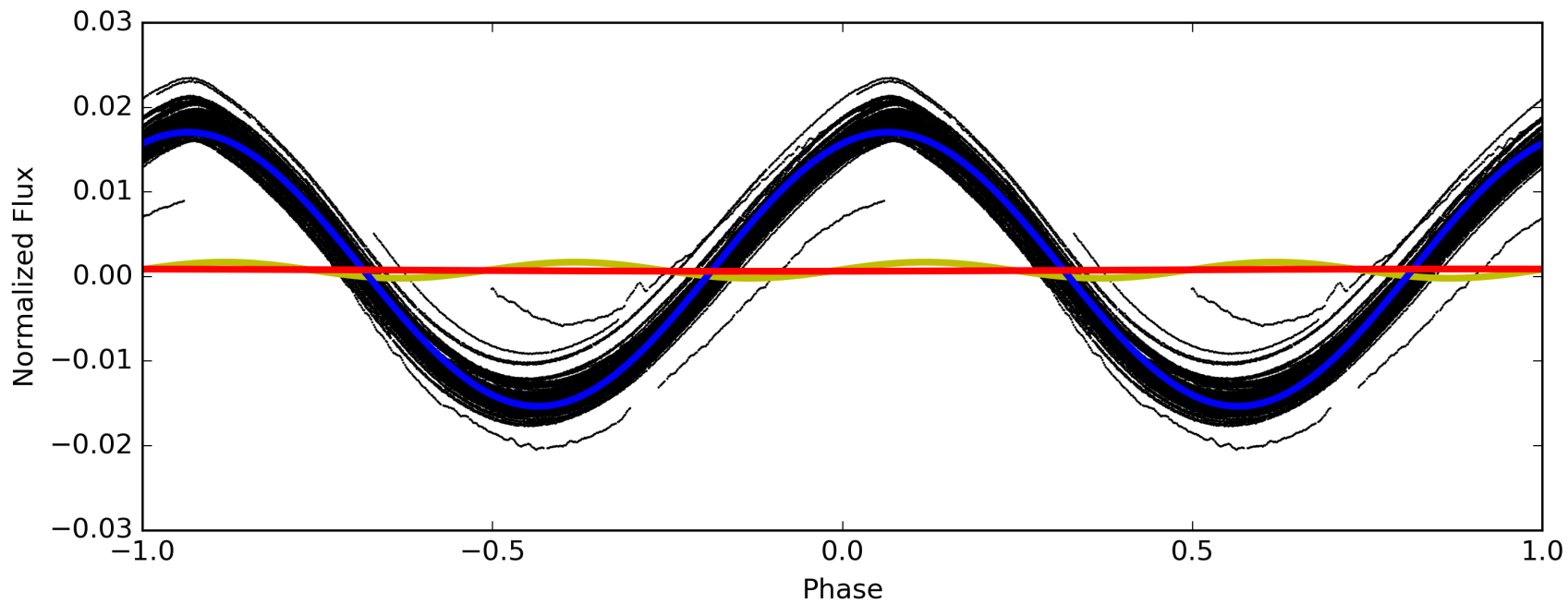
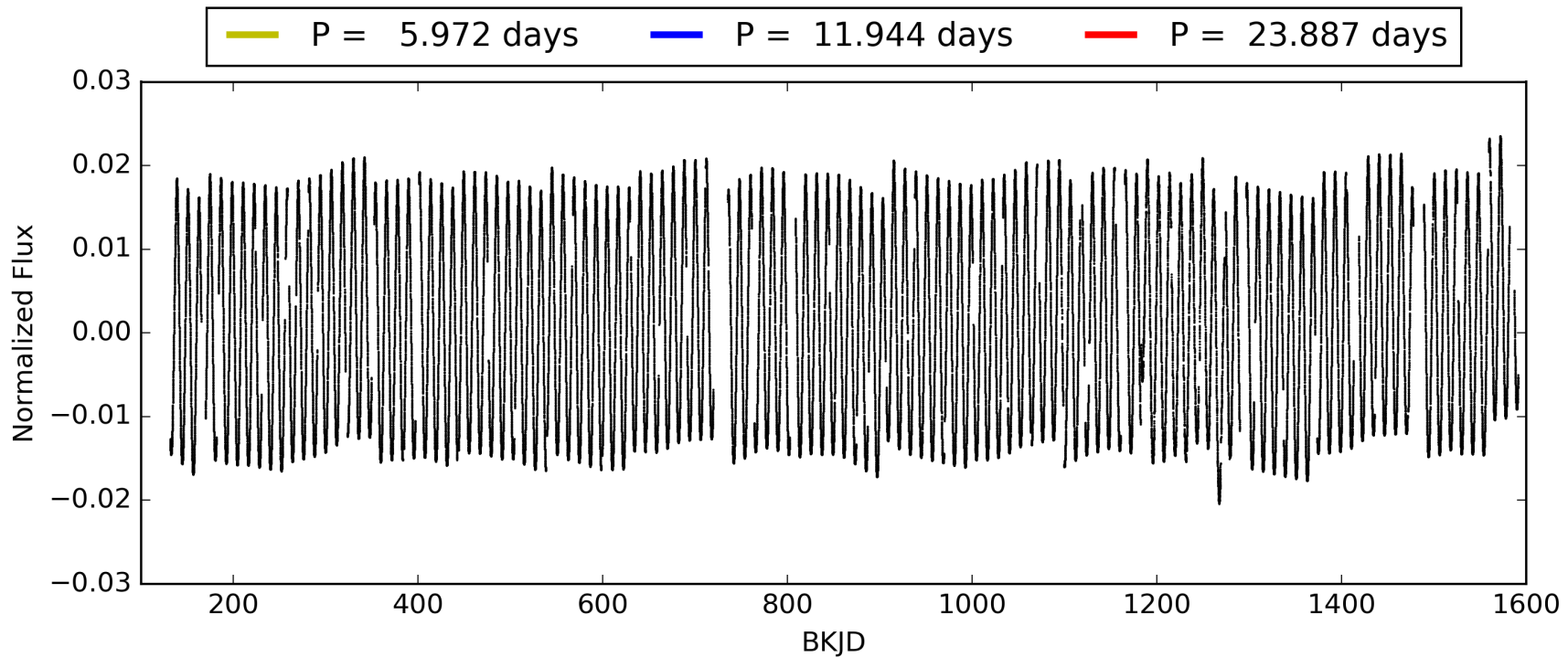
DV Diagnostic Results:

ShortPeriod-sig: 0.2% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.23e-111
RollingBand-fgt: 1.00 [104/104]
GhostDiagnostic-chr: 0.4359
Centroid-sig: 6.6%
Centroid-so: 17.399 arcsec [1.15 σ]
OotOffset-rm: 3.743 arcsec [3.40 σ]
KicOffset-rm: 3.271 arcsec [3.23 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010281890-01, PDC Light Curves

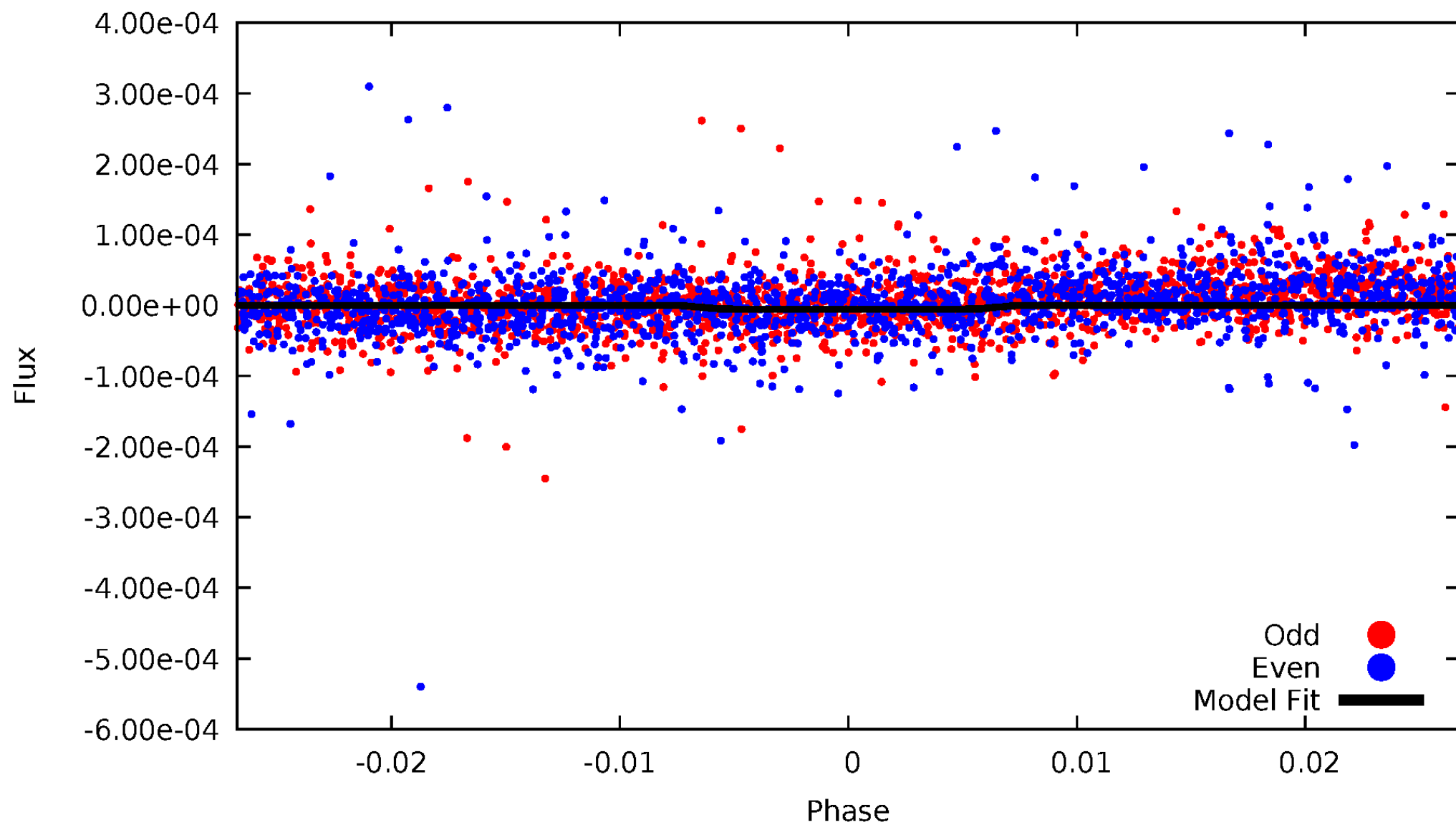


TCE 010281890-01



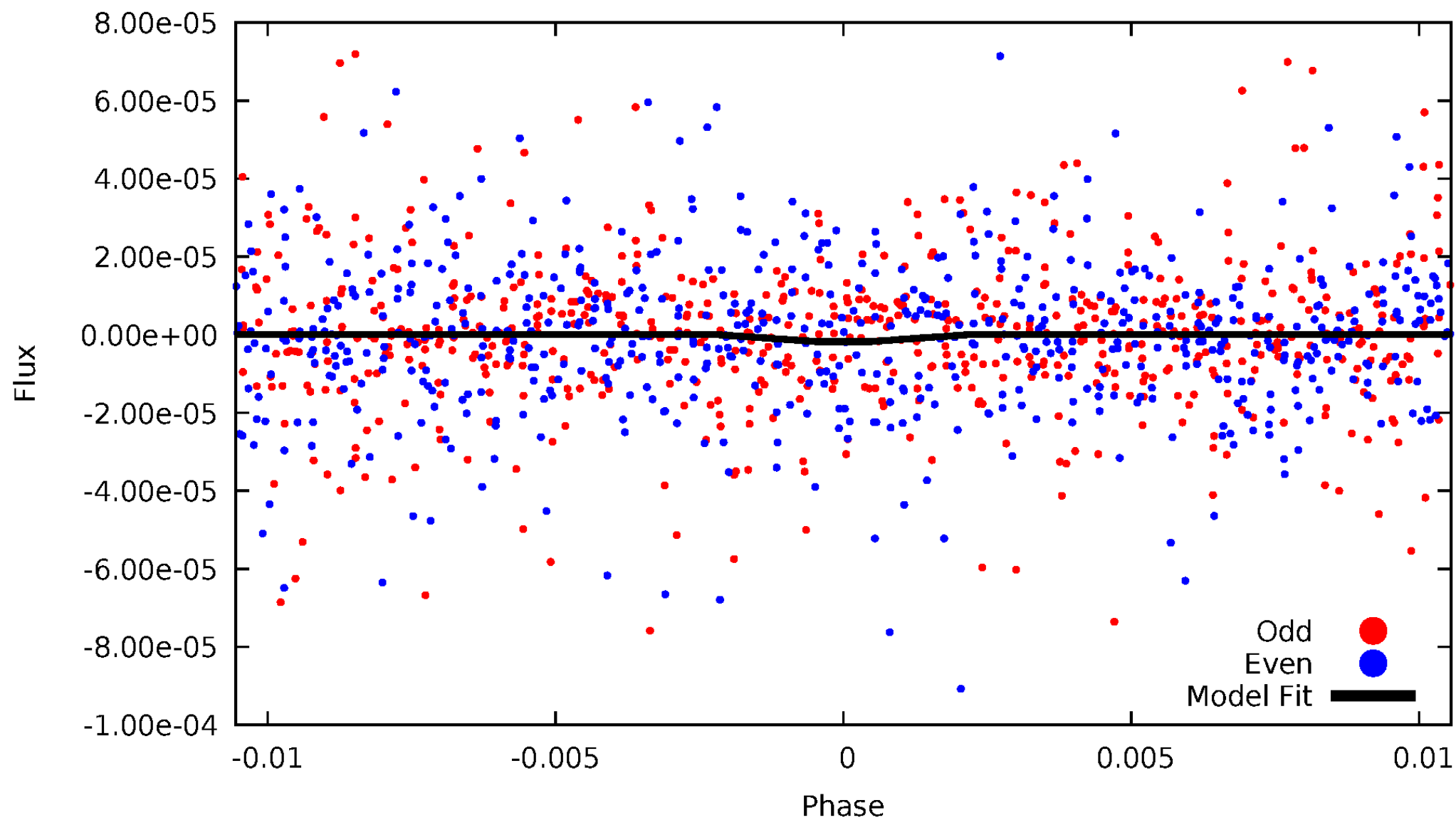
DV Odd/Even

TCE 010281890-01



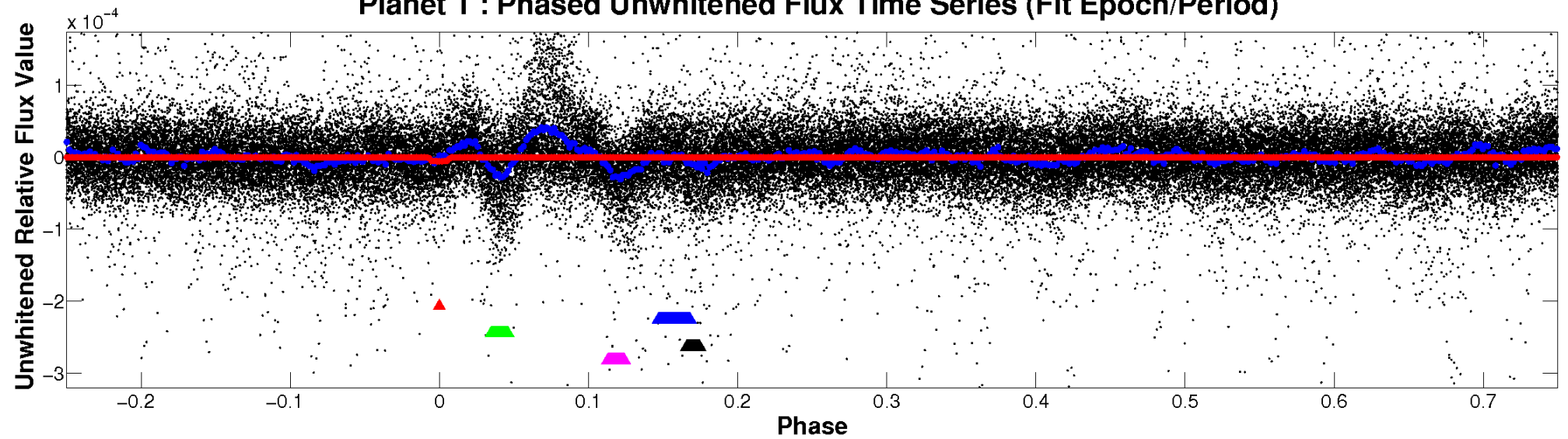
ALT Odd/Even

TCE 010281890-01

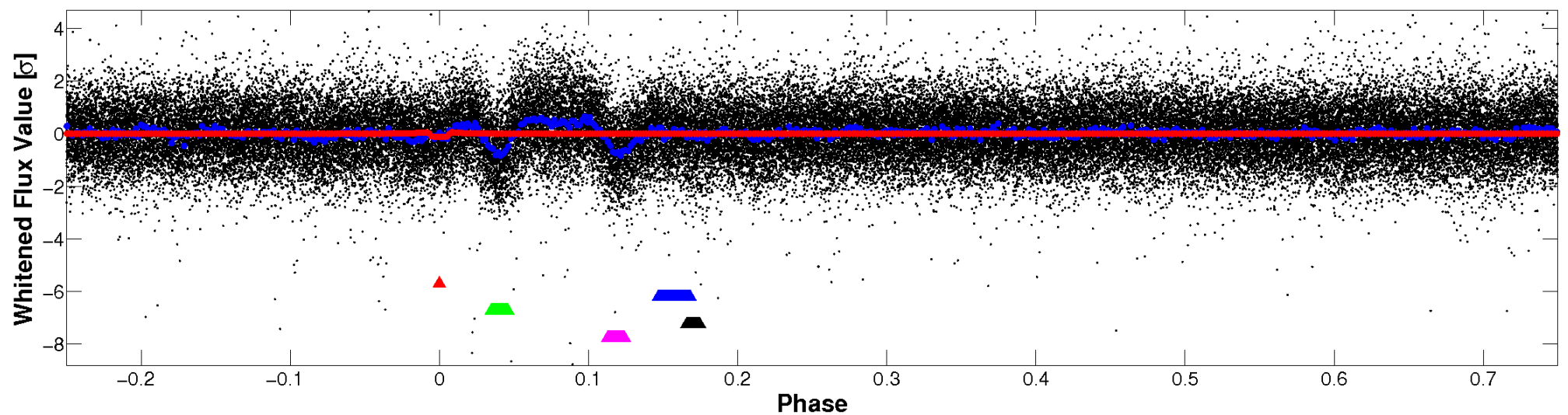


Non-Whitened Vs. Whitened Light Curve

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

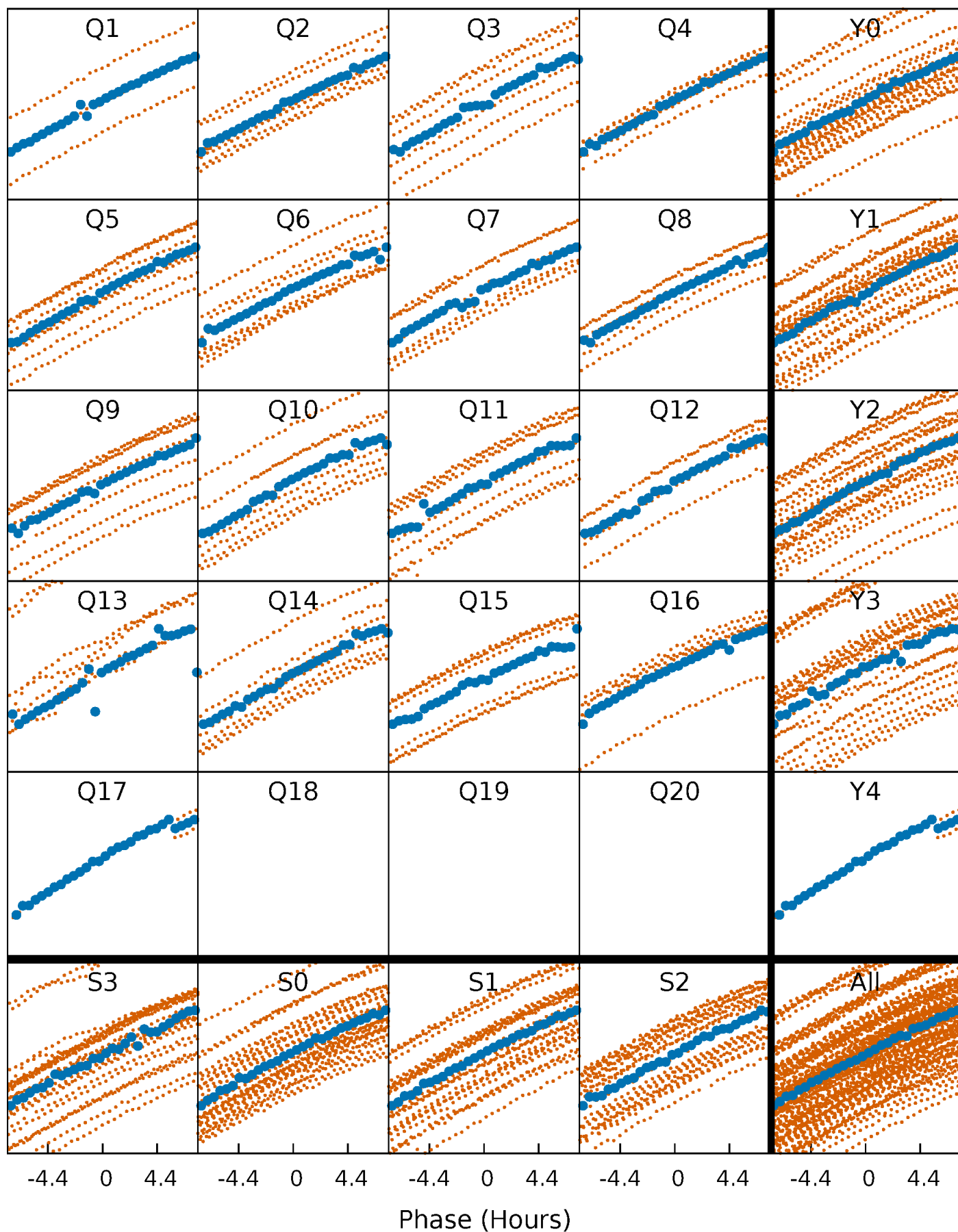


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



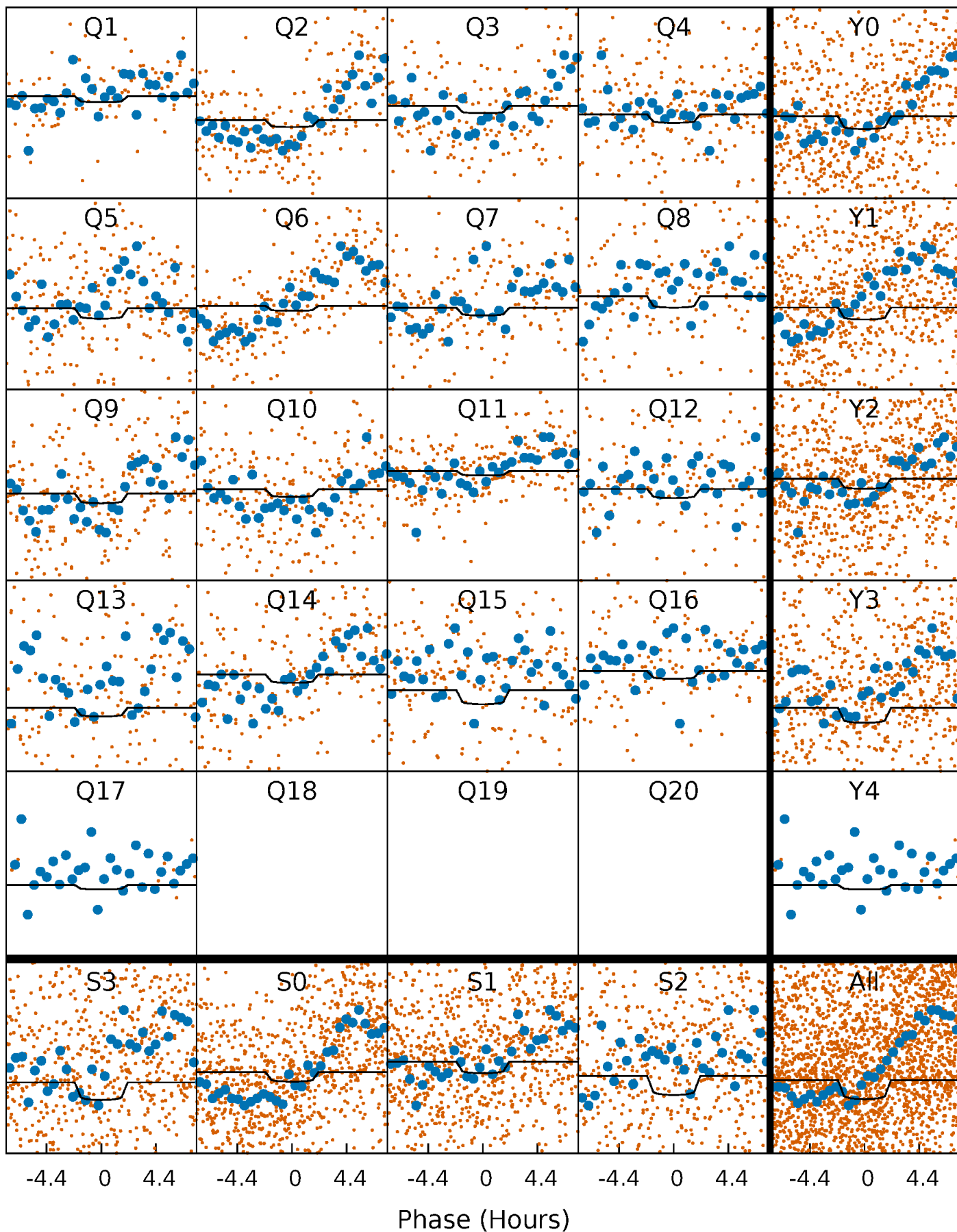
PDC Quarter-Phased Transit Curves

TCE 010281890-01 P= 11.943689 Days $T_0=137.705217$ (BKJD)



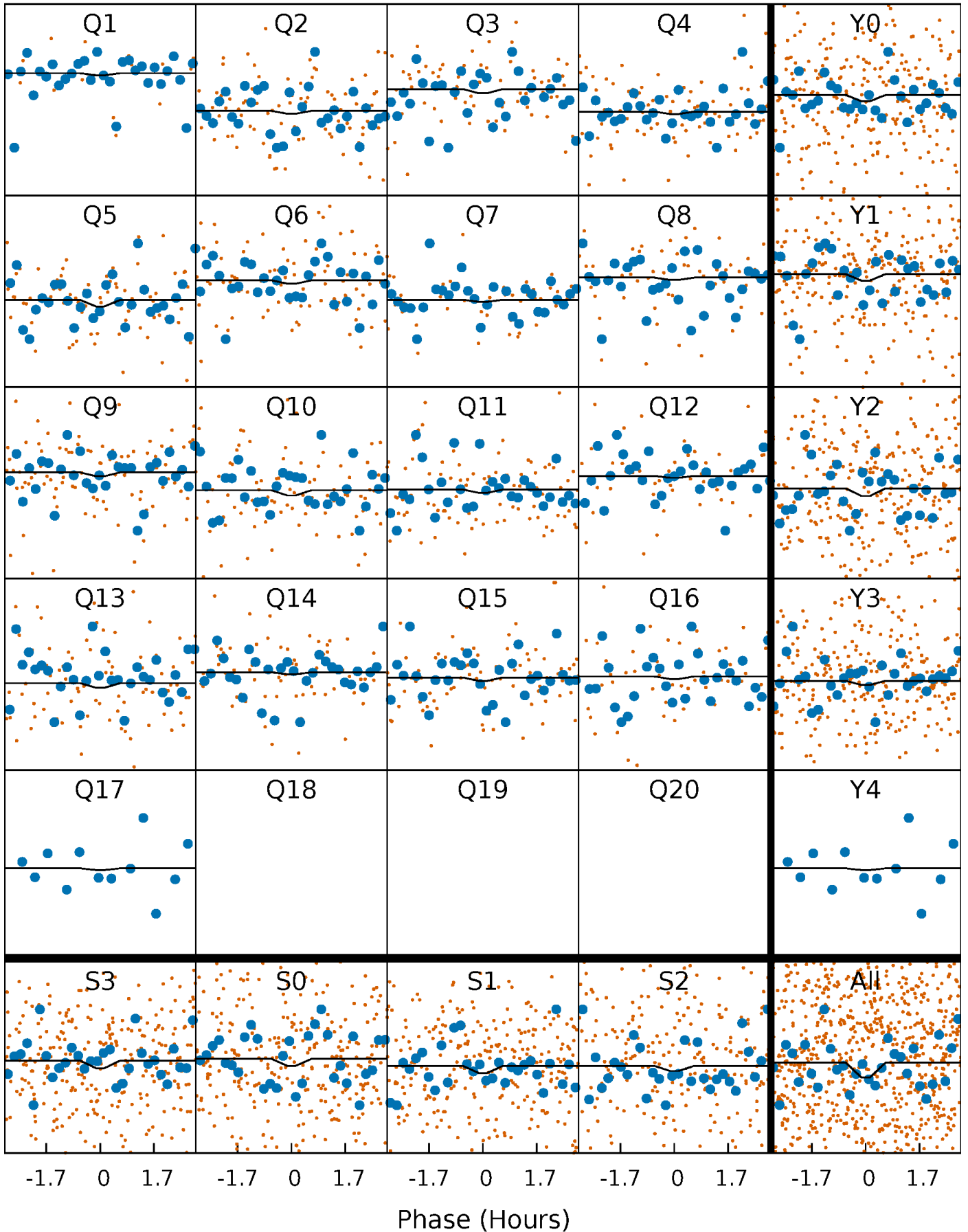
DV Quarter-Phased Transit Curves

TCE 010281890-01 P= 11.943689 Days $T_0=137.705217$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

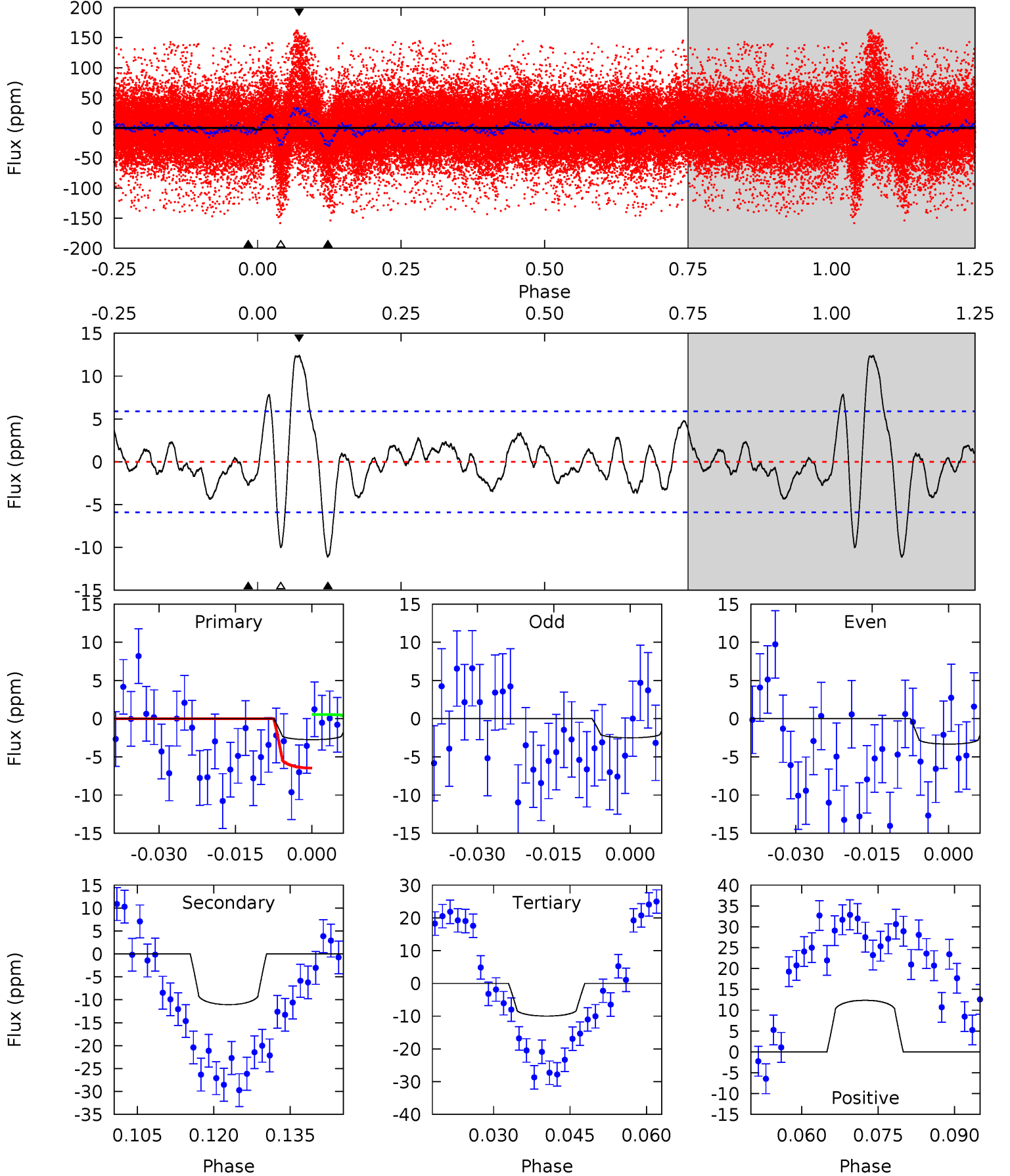
TCE 010281890-01 P= 11.942074 Days $T_0=137.808818$ (BKJD)



DV Model-Shift Uniqueness Test

010281890-01, $P = 11.943689$ Days, $E = 125.761528$ Days

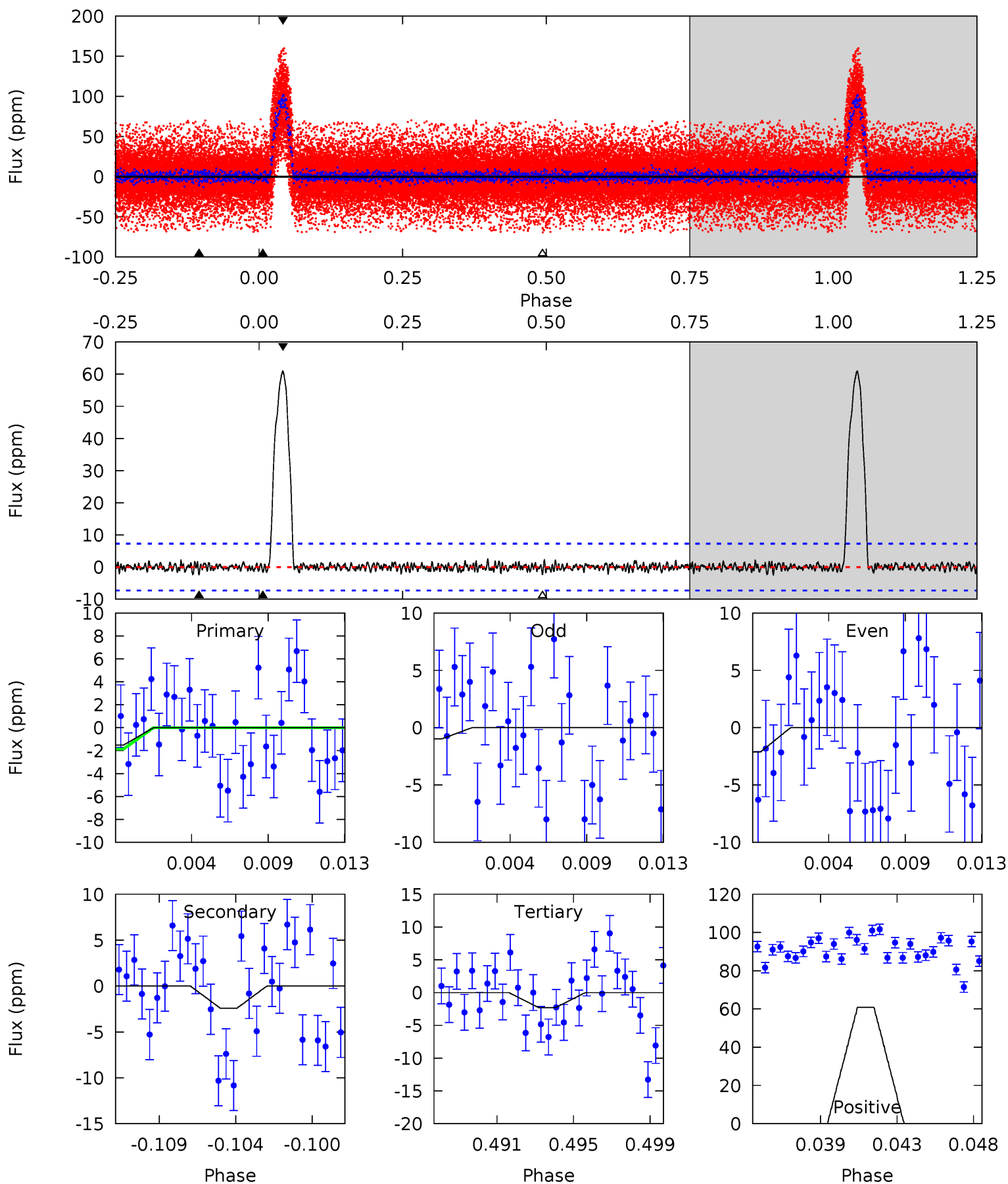
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.31	9.29	8.38	10.4	4.95	2.43	2.52	-6.07	-8.09	0.91	-1.10	0.35	-1.24	0.53	2.55



Alt Model-Shift Uniqueness Test

010281890-01, P = 11.942074 Days, E = 125.866744 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.09	1.74	1.65	43.5	5.18	2.85	5.21	-0.57	-42.4	0.08	-41.8	0.41	0.79	0.96	0.26



Stellar Parameters For KIC 010281890

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	10906^{+220}_{-515}	$4.063^{+0.200}_{-0.200}$	$0.070^{+0.150}_{-0.550}$	$2.585^{+0.796}_{-0.796}$	$2.819^{+0.310}_{-0.619}$	$0.230^{+0.317}_{-0.127}$
	+2%/-5%	+5%/-5%	+214%/-786%	+31%/-31%	+11%/-22%	+138%/-55%
Source	KIC0	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 010281890-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-11 ± 1	$0.69^{+0.20}_{-0.17}$	2833^{+243}_{-211}	13999^{+3534}_{-2256}	256^{+201}_{-97}
Alt.	-2 ± 1	$0.37^{+0.15}_{-0.13}$	2810^{+257}_{-208}	11981^{+6936}_{-3790}	181^{+334}_{-121}

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 $A_{obs} \gg 1.0$

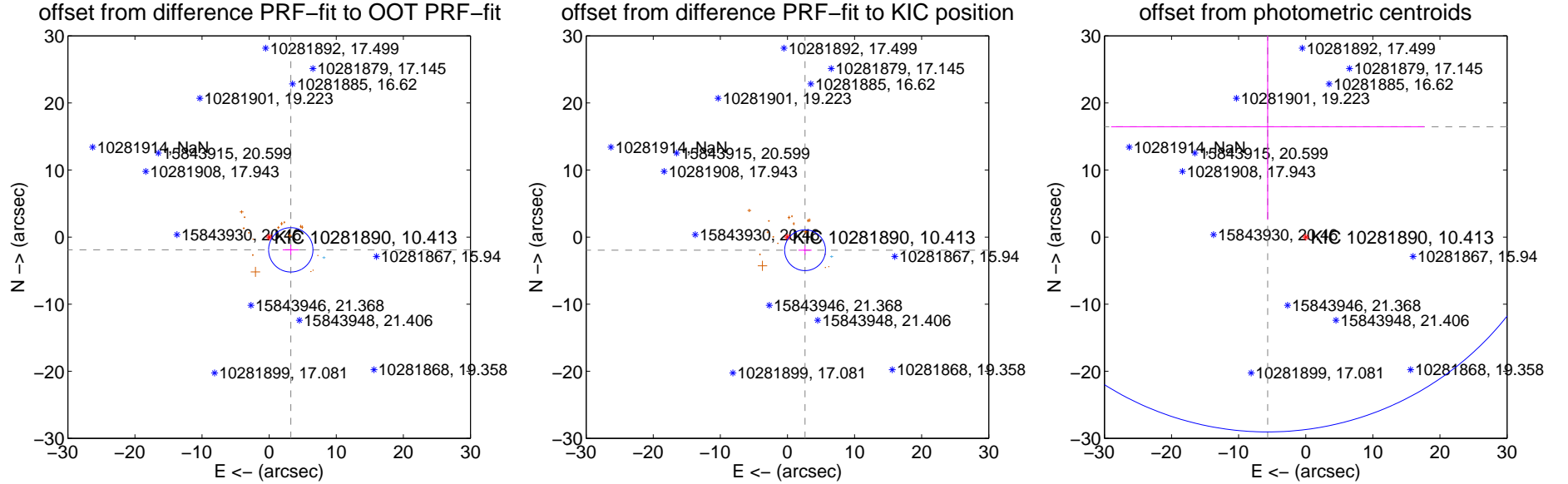
DV Centroid Data

Supplemental centroid analysis for 010281890-01. **Kepler magnitude: 10.41.** Transit SNR 3.34

There are 1 quarters with good PRF difference image offsets

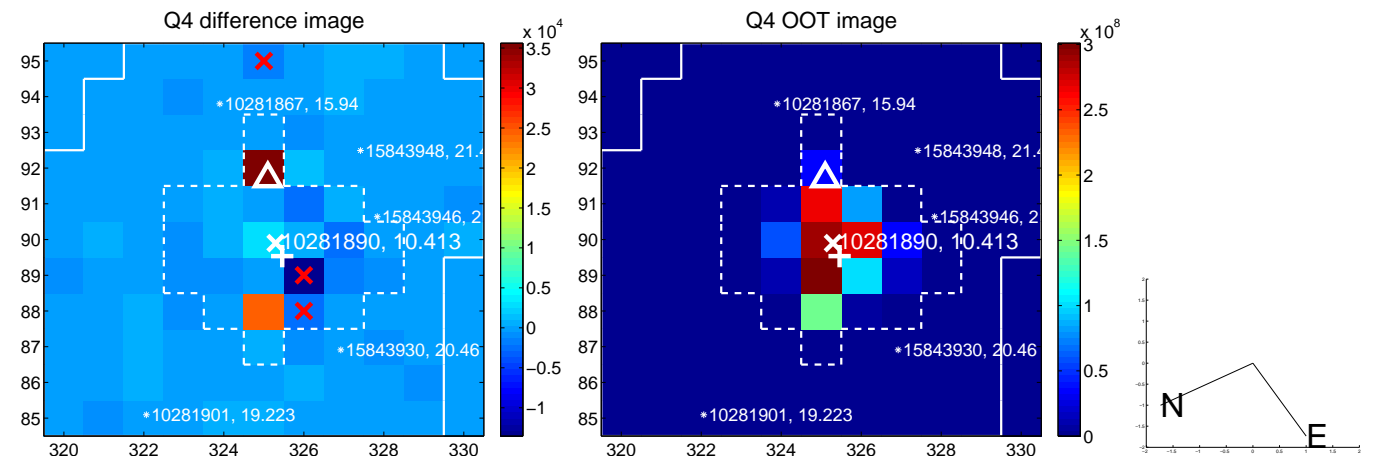
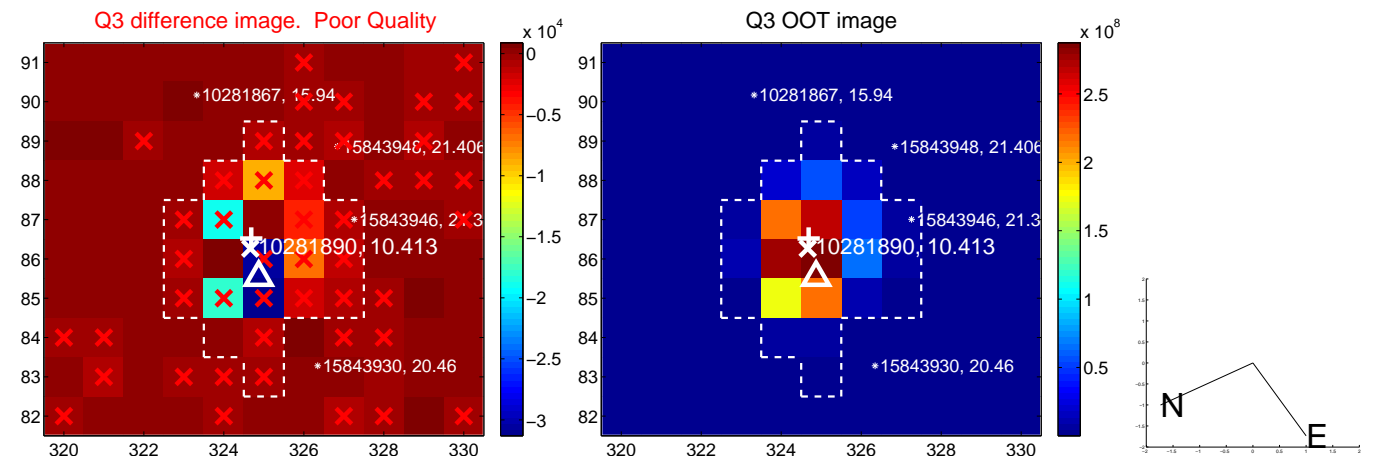
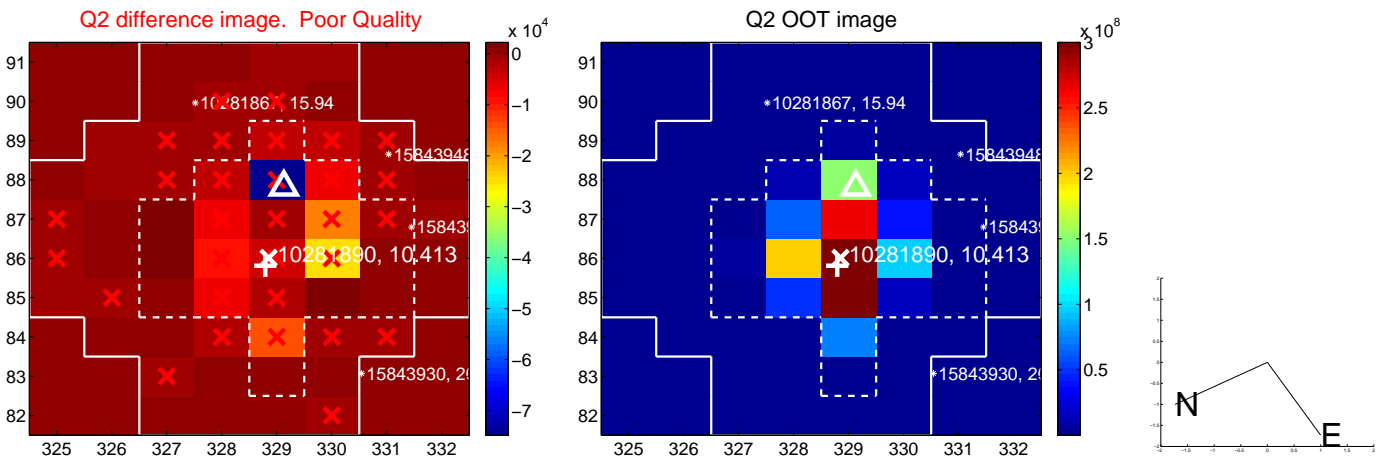
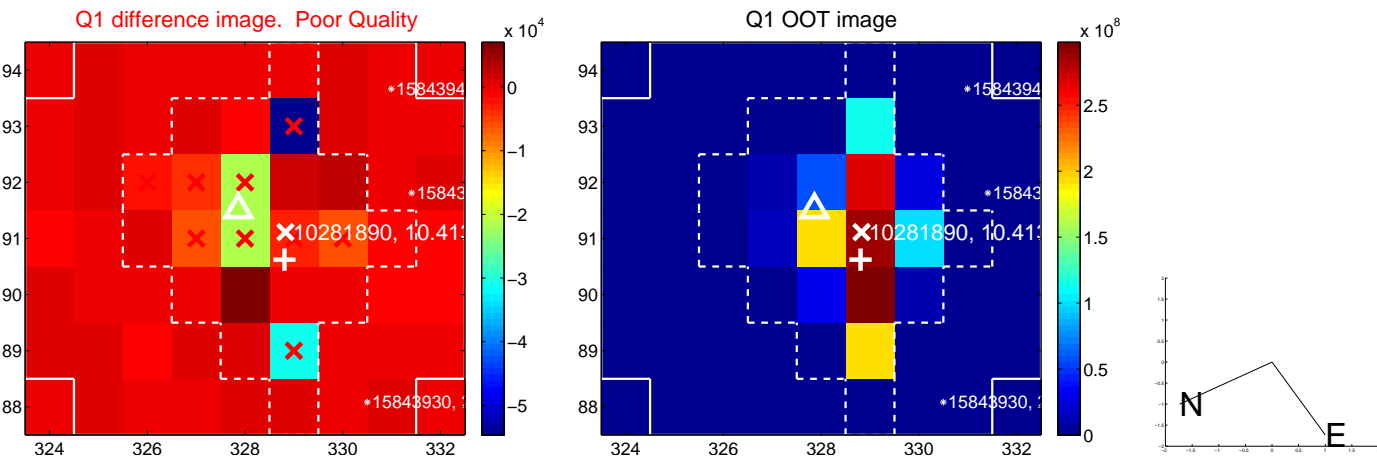
The direct PRF centroid is offset from the target star catalog position by about 1.86 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.743 ± 1.102	3.40	-3.225 ± 1.202	-1.900 ± 0.742
PRF-fit source offset from KIC position	3.271 ± 1.014	3.23	-2.624 ± 0.980	-1.953 ± 0.668
photometric centroid source offset	17.40 ± 15.16	1.15	5.67 ± 23.33	16.45 ± 13.88

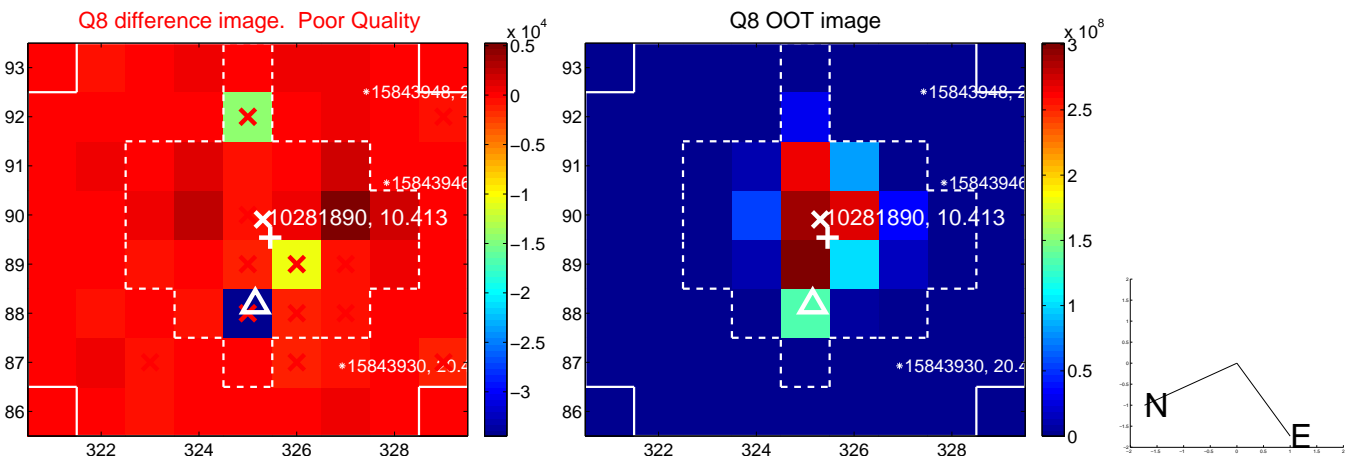
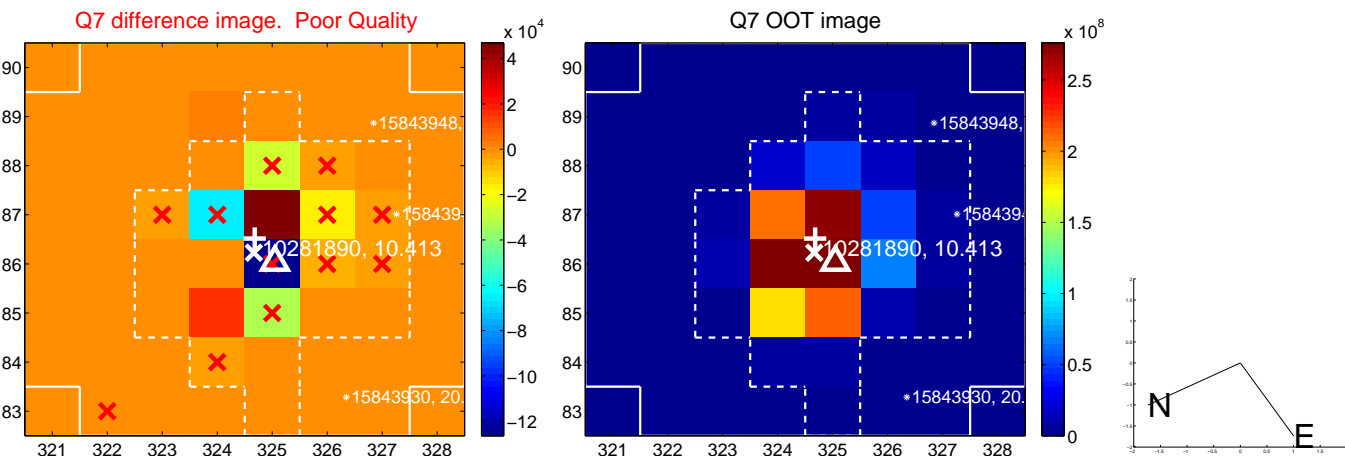
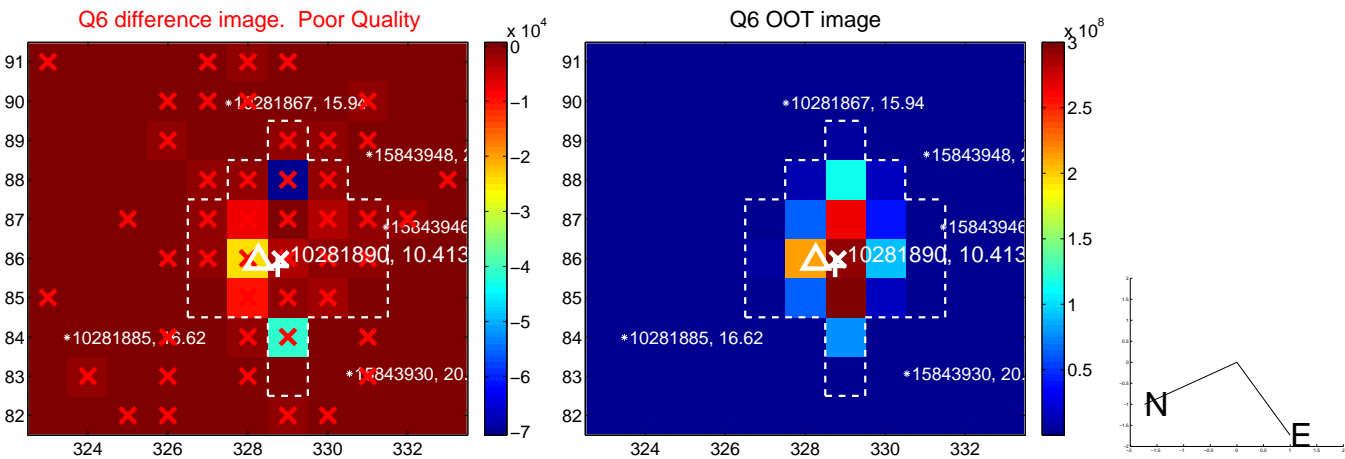
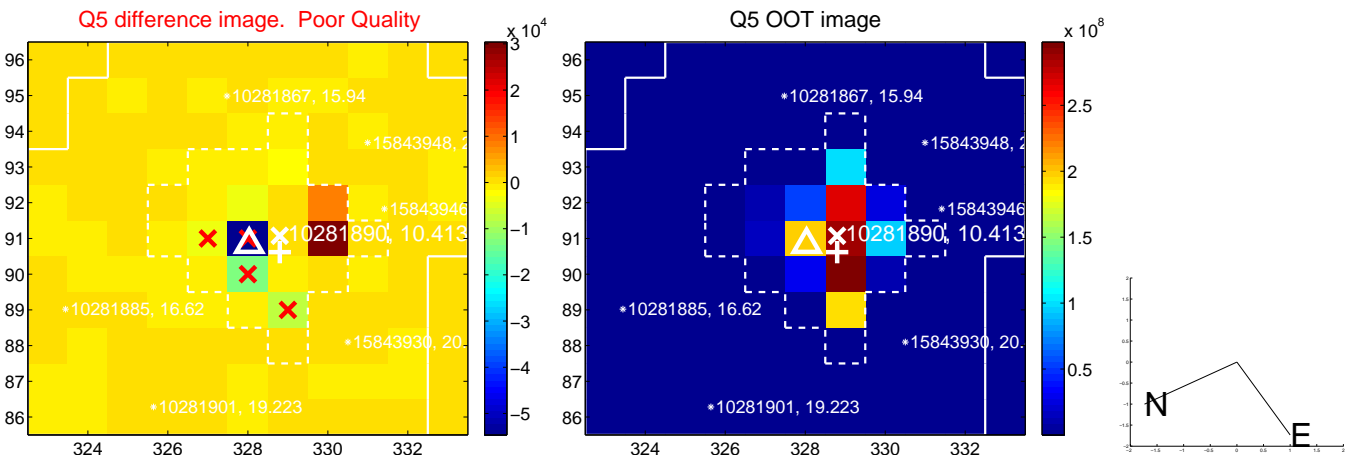


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

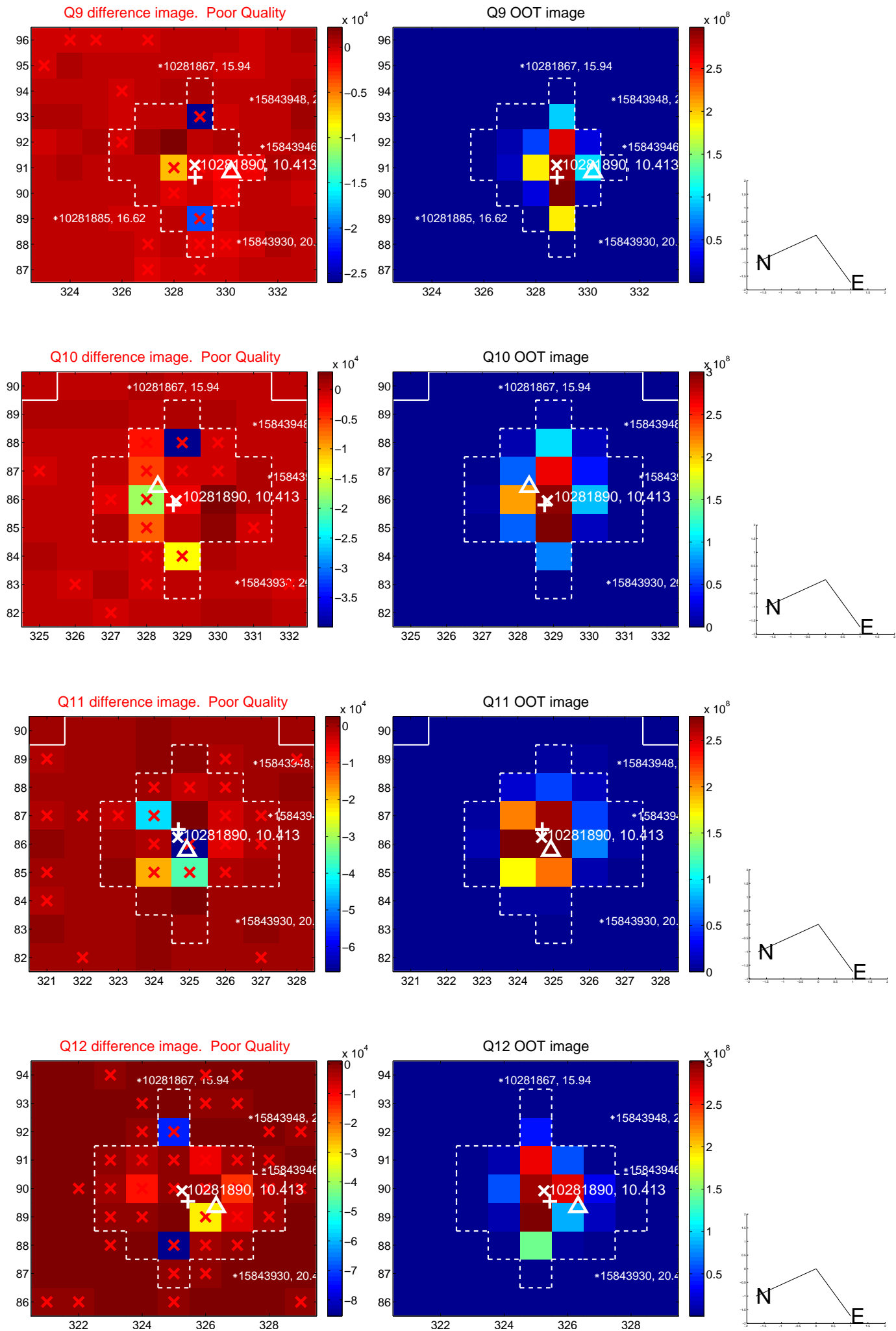
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



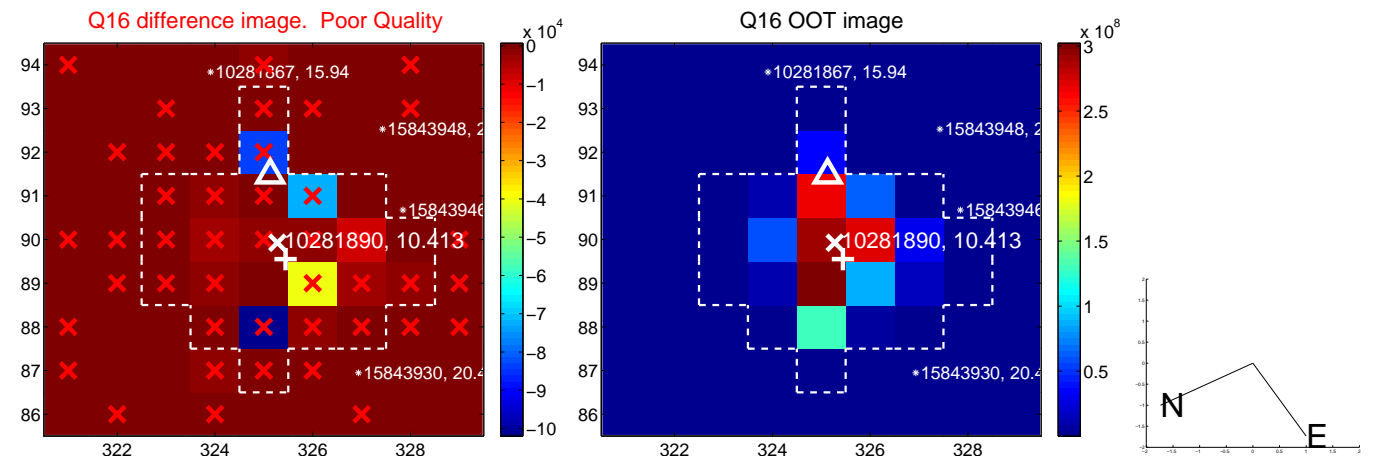
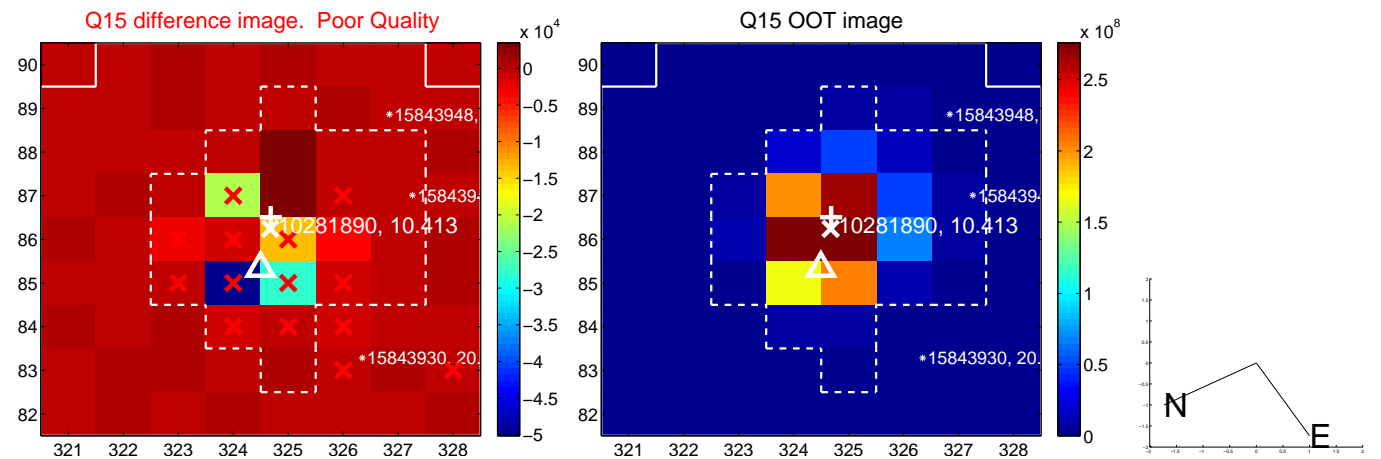
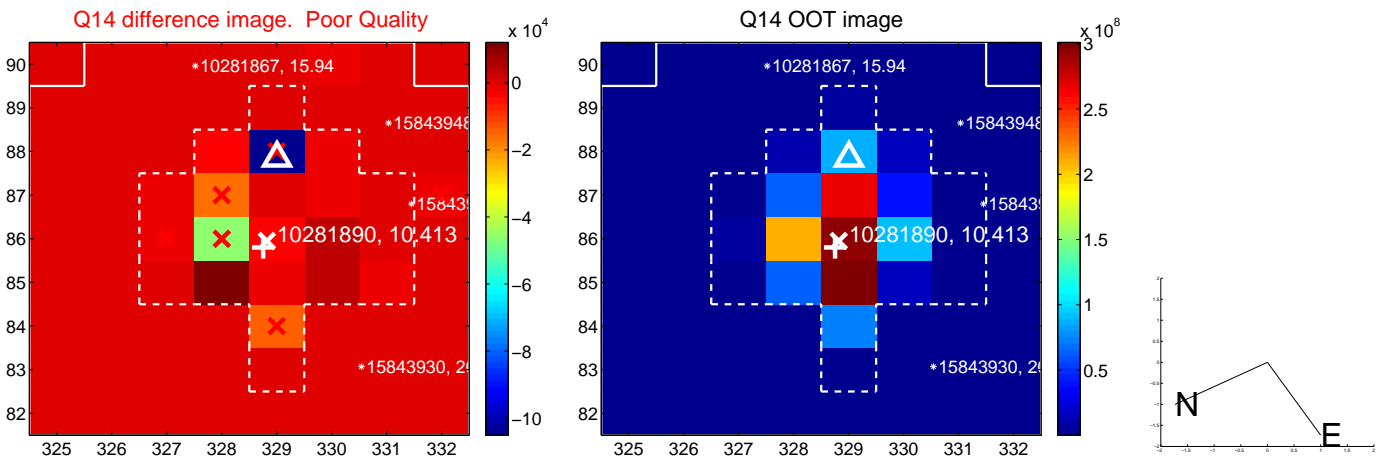
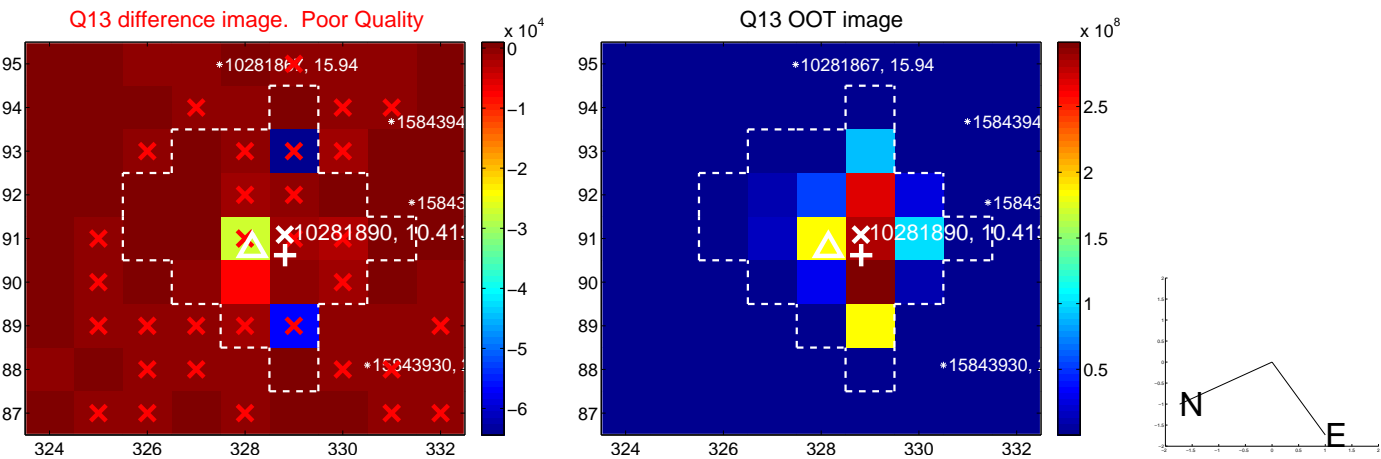
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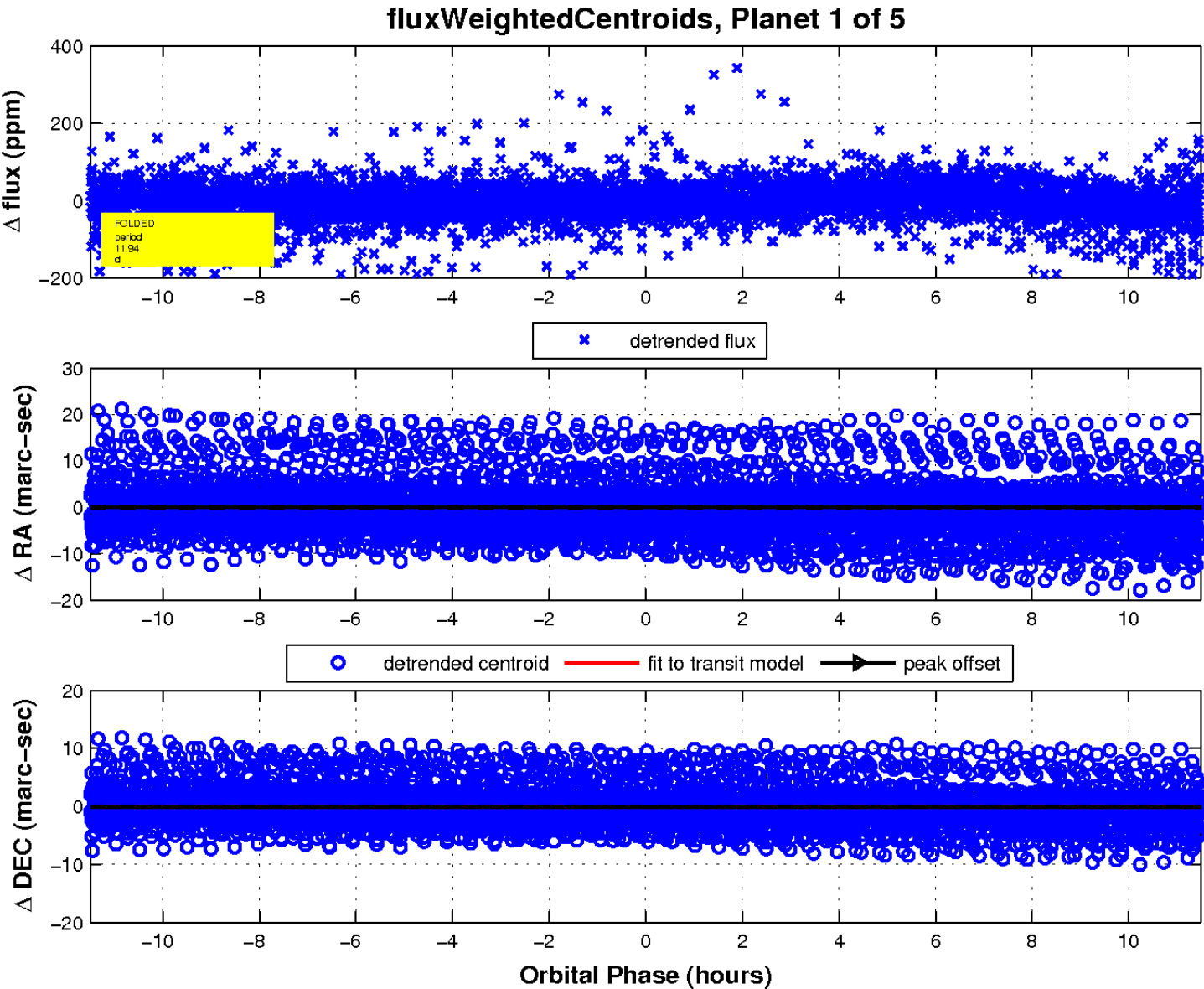
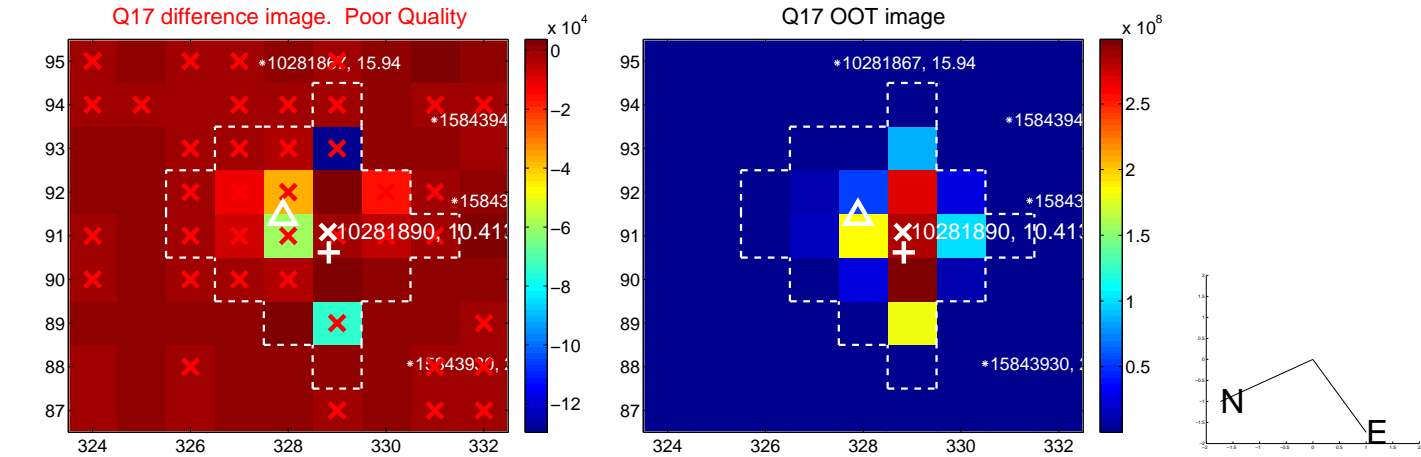
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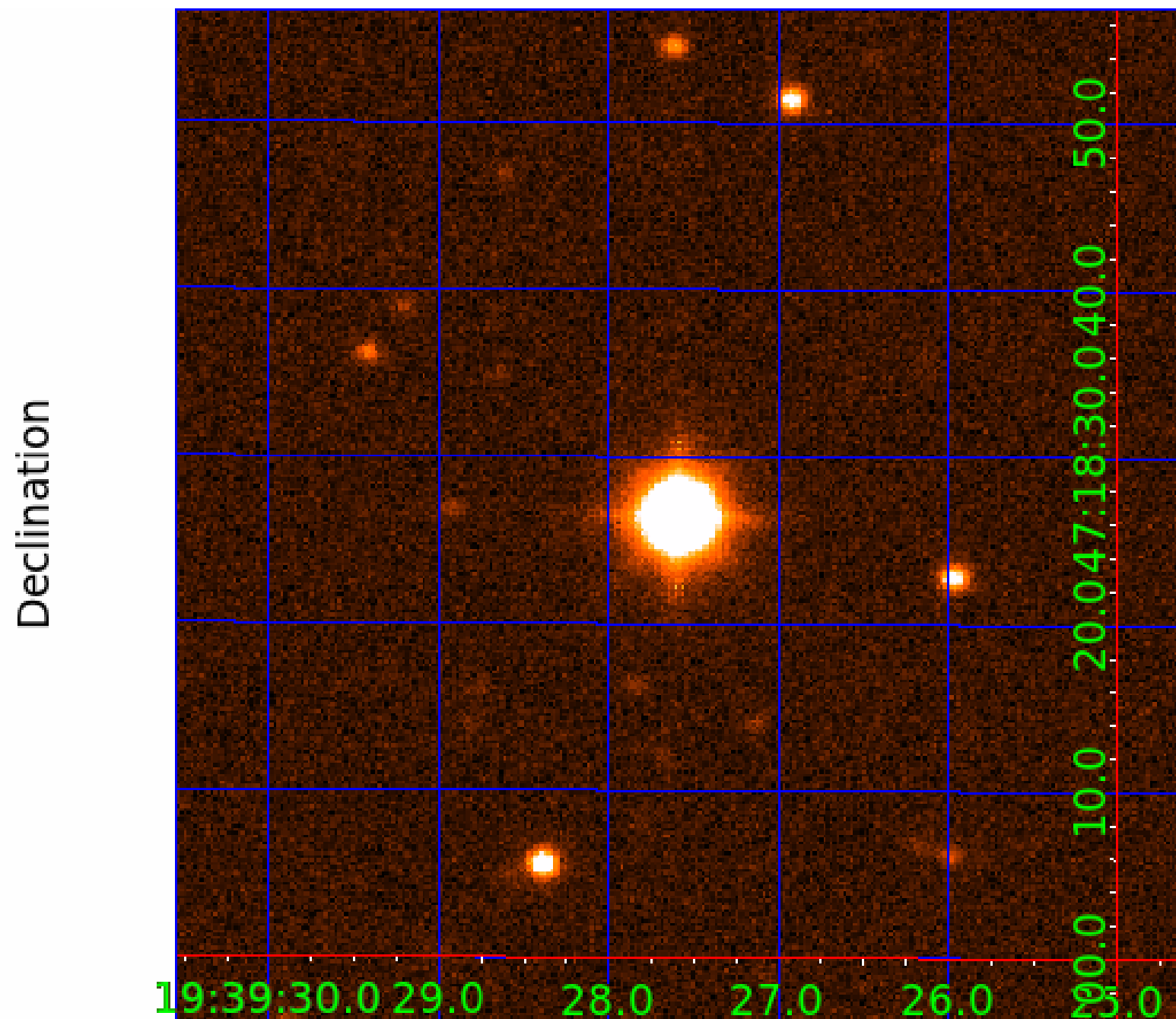
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UKIRT Image



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

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

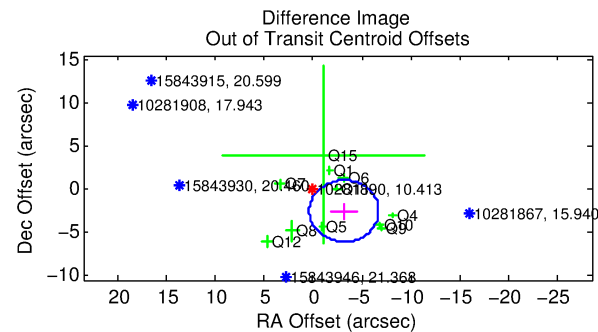
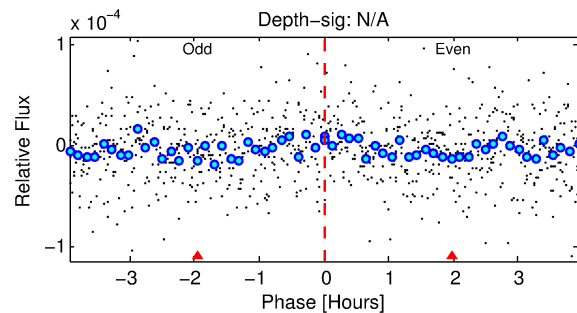
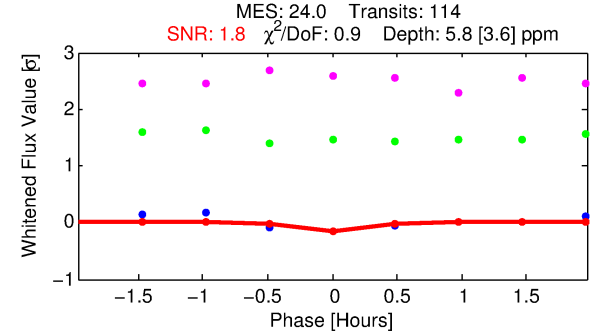
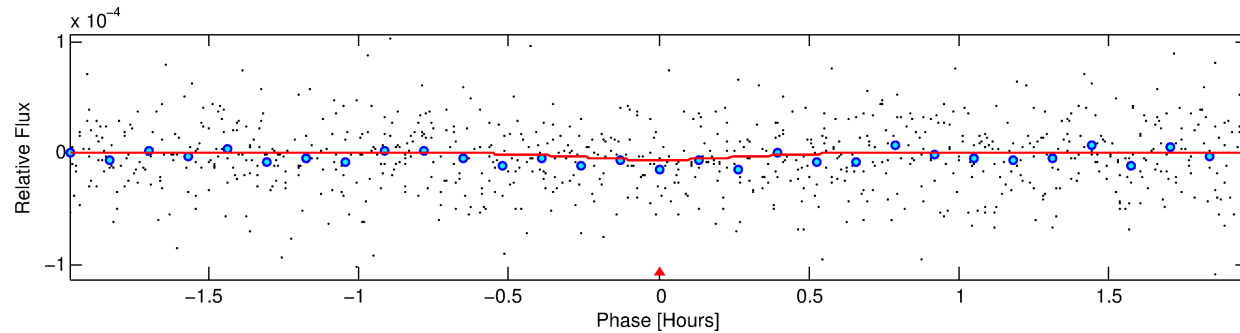
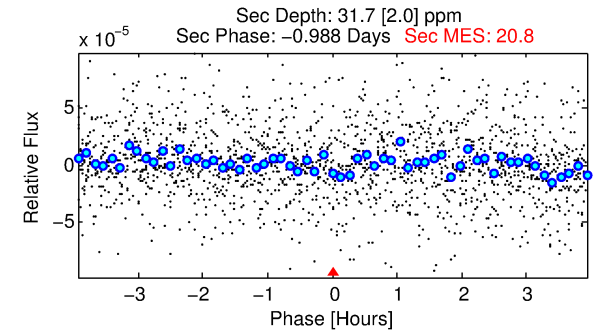
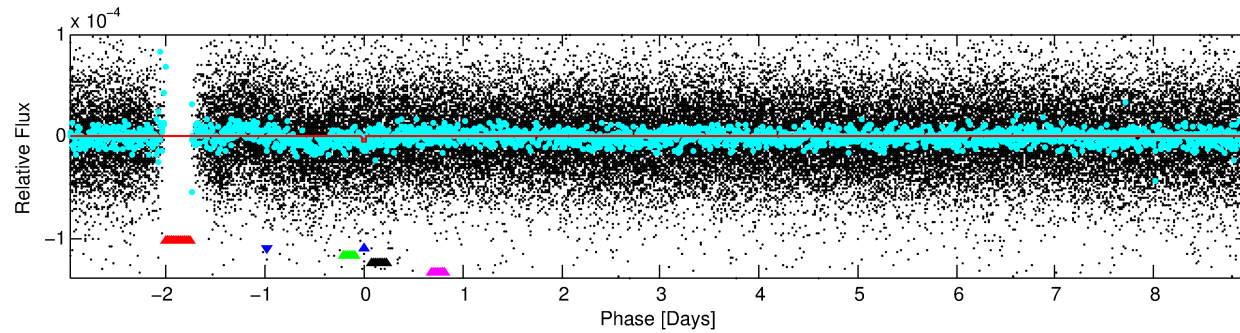
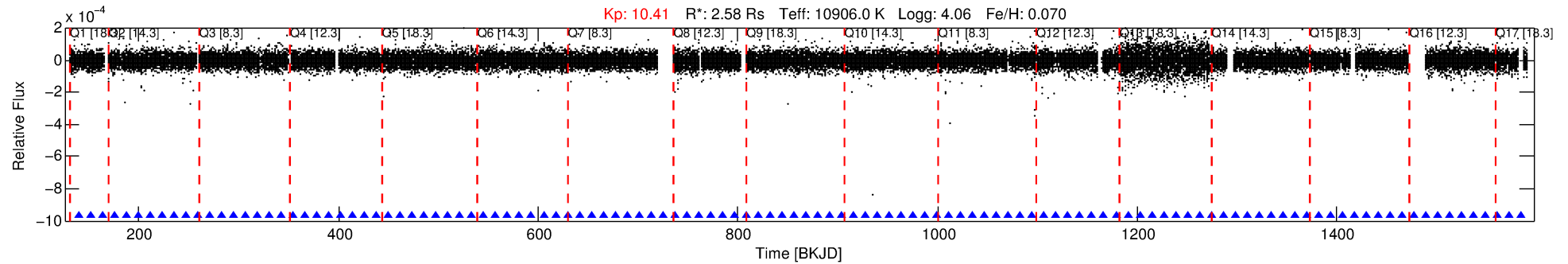
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010281890-02

No Significant Match Found

DV One-Page Summary

KIC: 10281890 Candidate: 2 of 5 Period: 11.942 d



DV Fit Results:

Period = 11.94157 [0.00022] d
Epoch = 139.7147 [0.0136] BKJD
Rp/R* = 0.0025 [0.0010]
a/R* = 65.28 [148.04]
b = 0.89 [0.55]
Seff = 4059.27 [1683.87]
Teq = 2035 [211] K
Rp = 0.71 [0.37] Re
a = 0.1444 [0.0370] AU
Ag = 715.96 [650.94] [1.10σ]
Teffp = 16278 [3467] K [4.10σ]

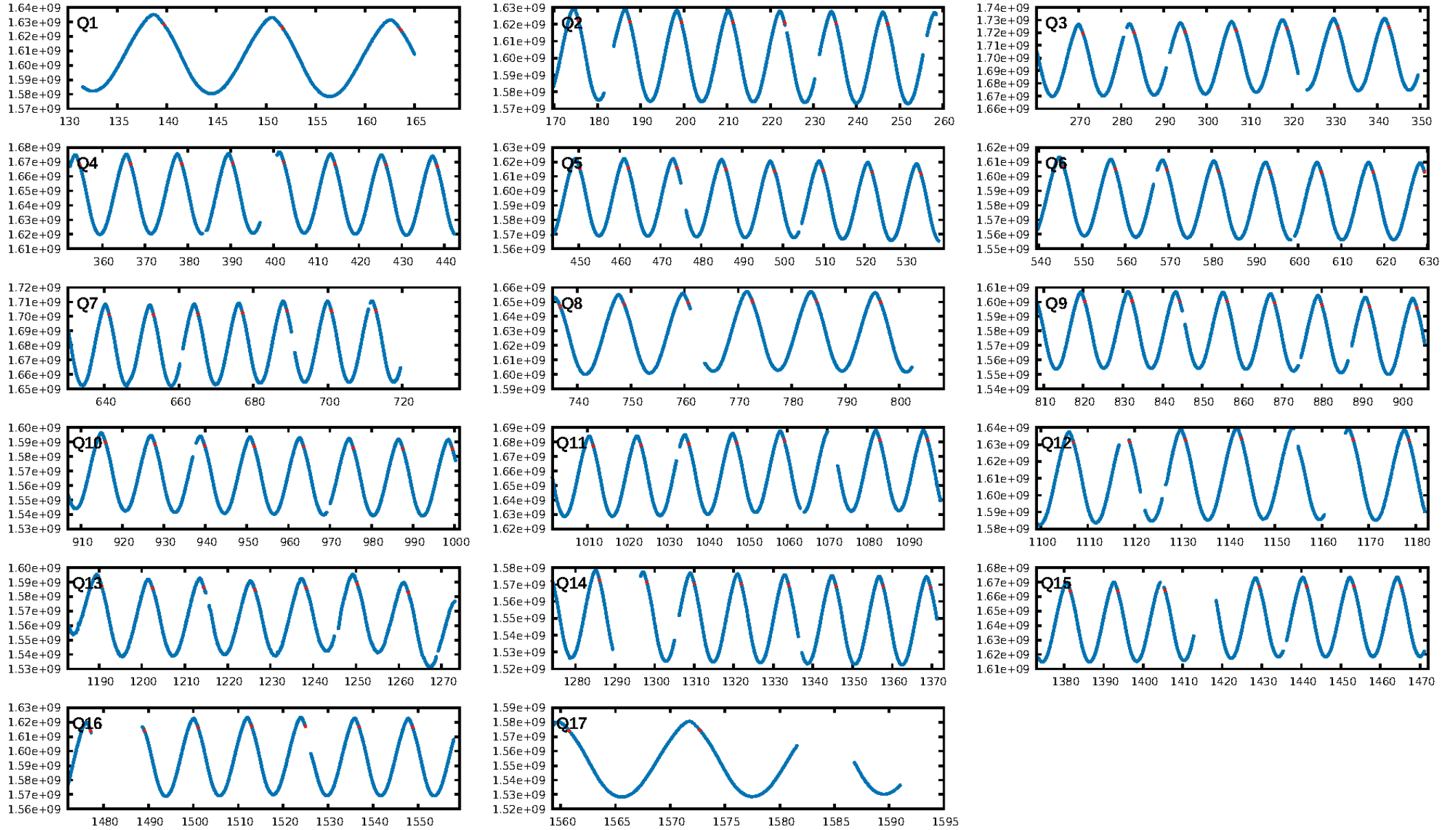
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.3% [0.00σ]
ModelChiSquare2-sig: 93.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.44e-85
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: -2.433
Centroid-sig: 11.9%
Centroid-so: 47.110 arcsec [1.61σ]
OotOffset-rm: 4.026 arcsec [3.40σ]
KicOffset-rm: 3.084 arcsec [2.94σ]
OotOffset-st: 2/3/3/3 [11]
KicOffset-st: 2/3/3/3 [11]
DiffImageQuality-fgm: 0.00 [0/11]
DiffImageOverlap-fno: 0.00 [0/16]

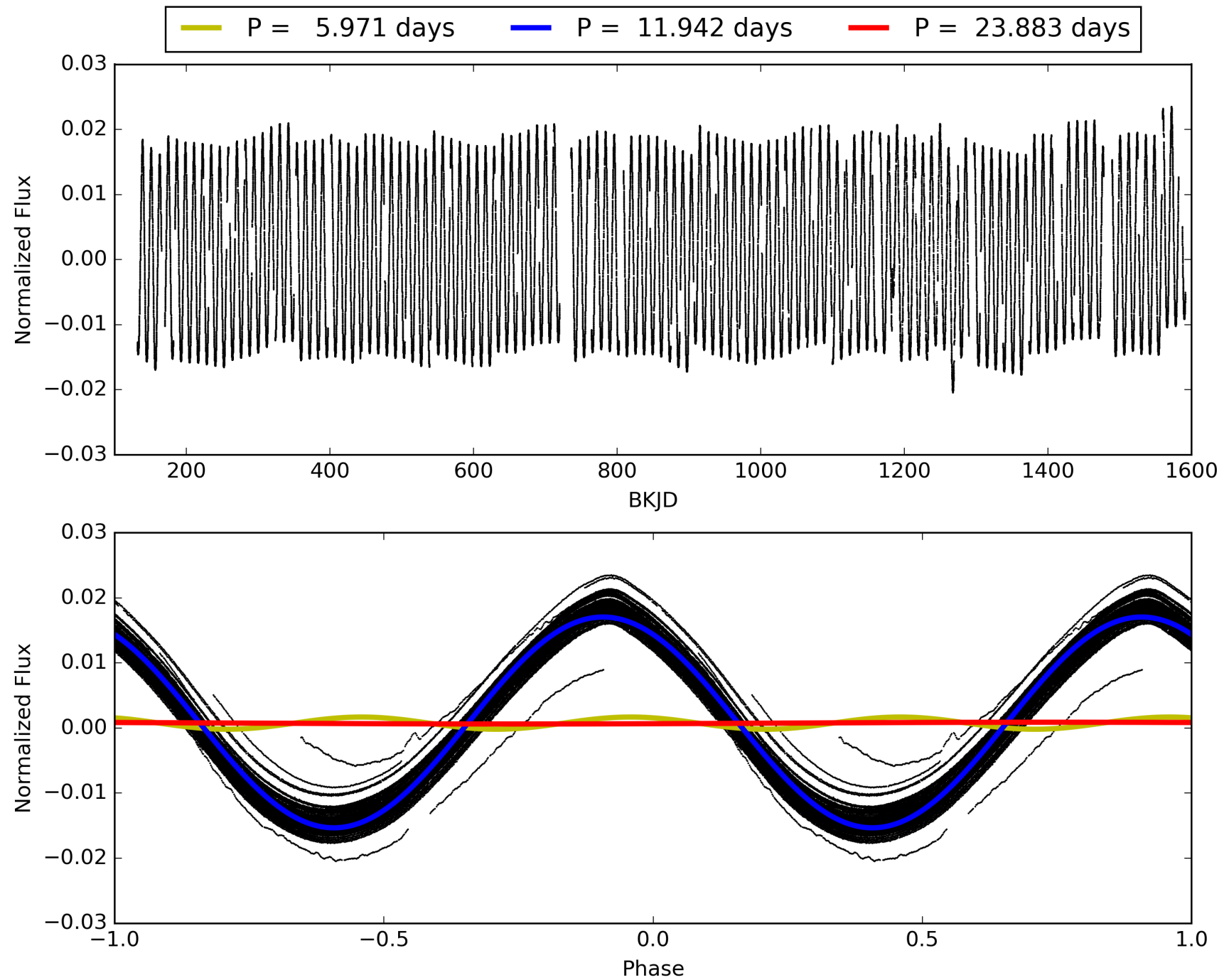
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:13:43 Z

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

TCE 010281890-02, PDC Light Curves

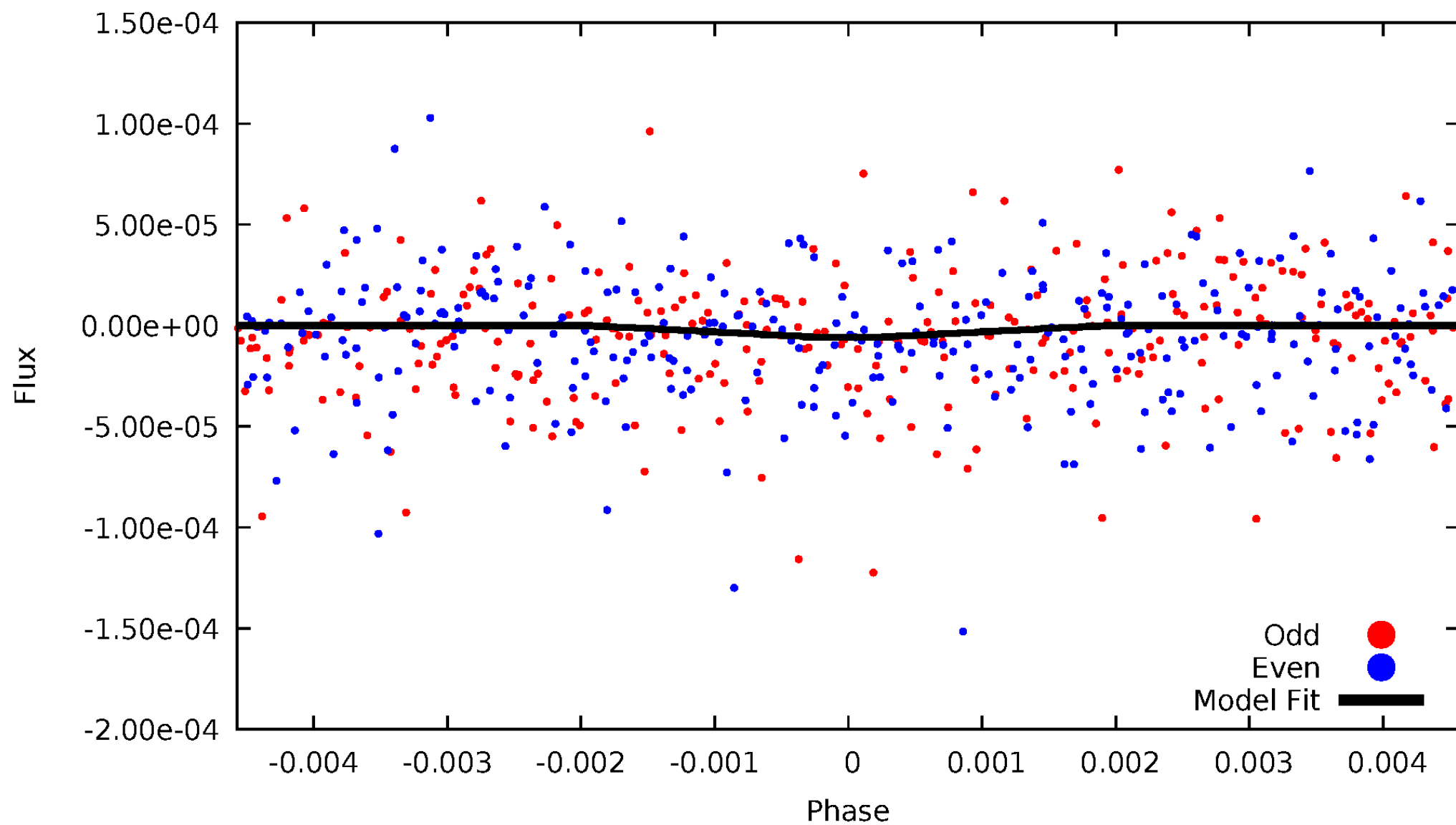


TCE 010281890-02



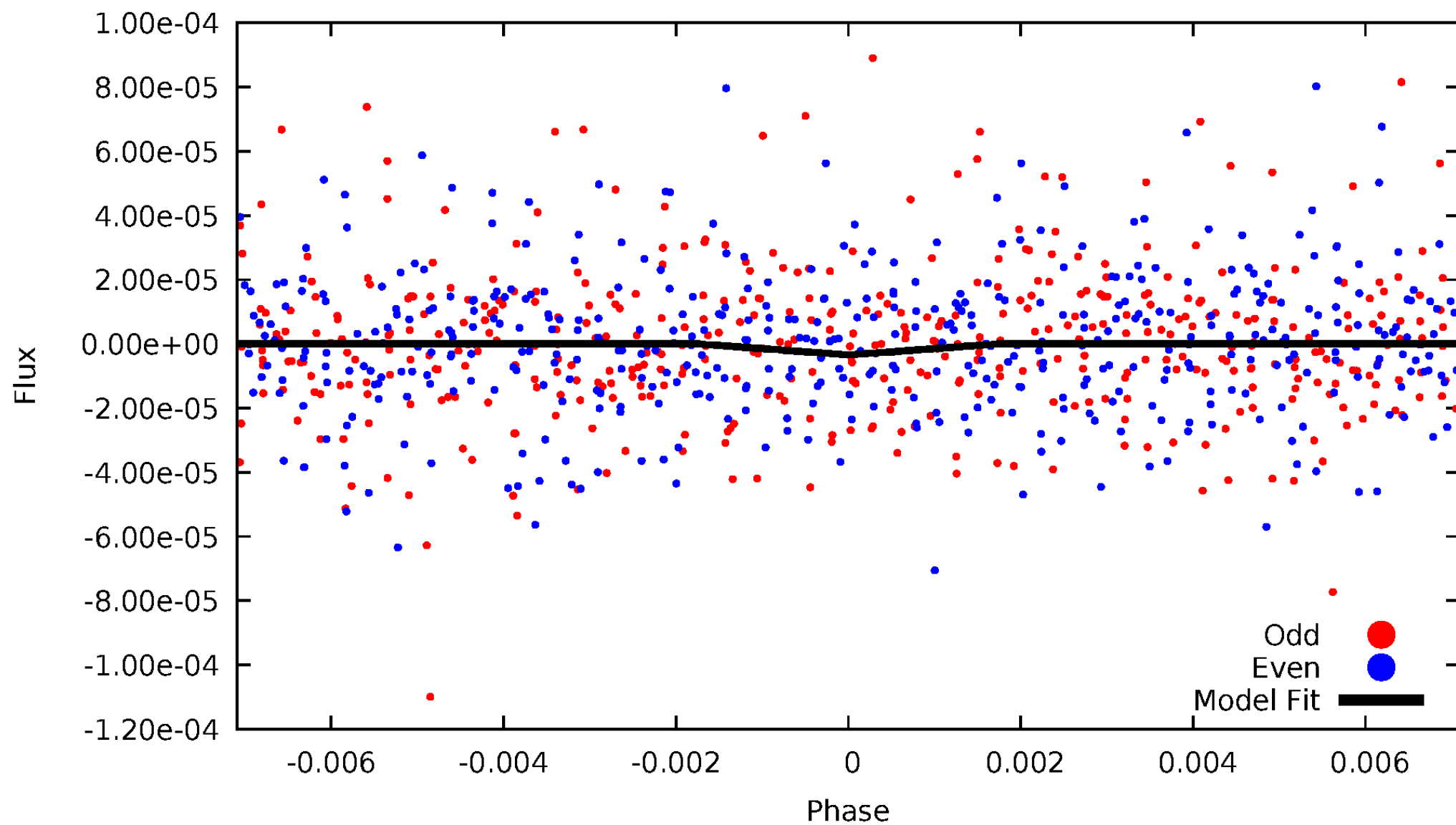
DV Odd/Even

TCE 010281890-02



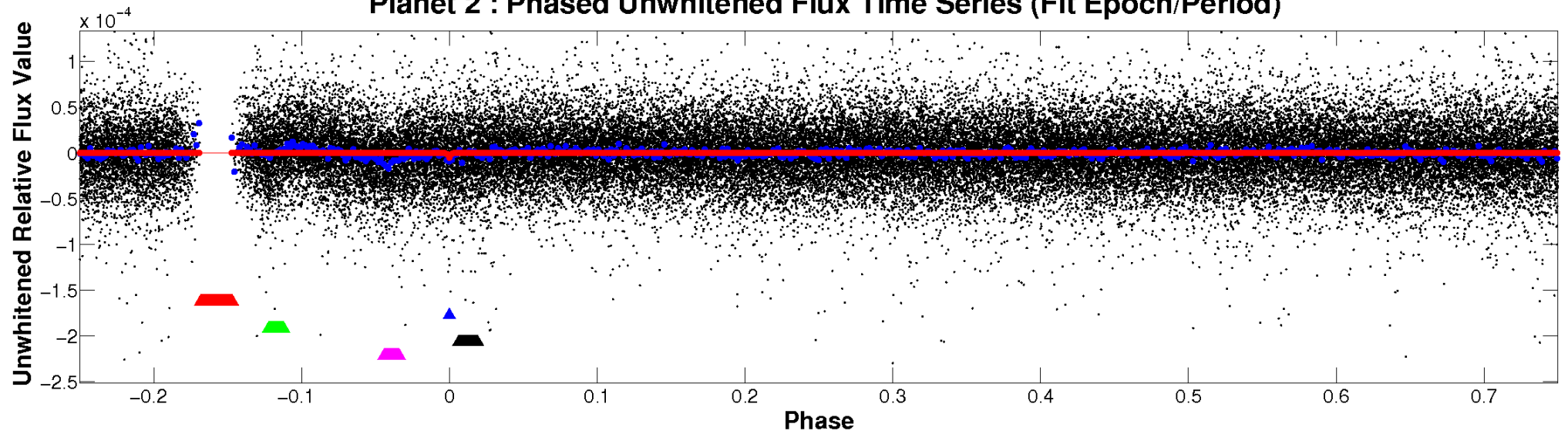
ALT Odd/Even

TCE 010281890-02

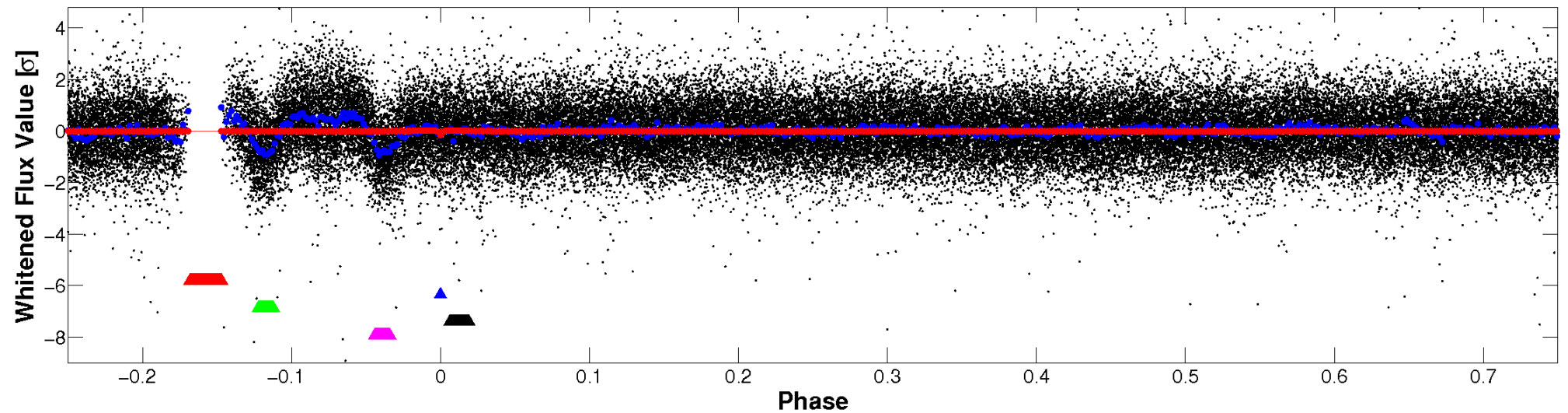


Non-Whitened Vs. Whitened Light Curve

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

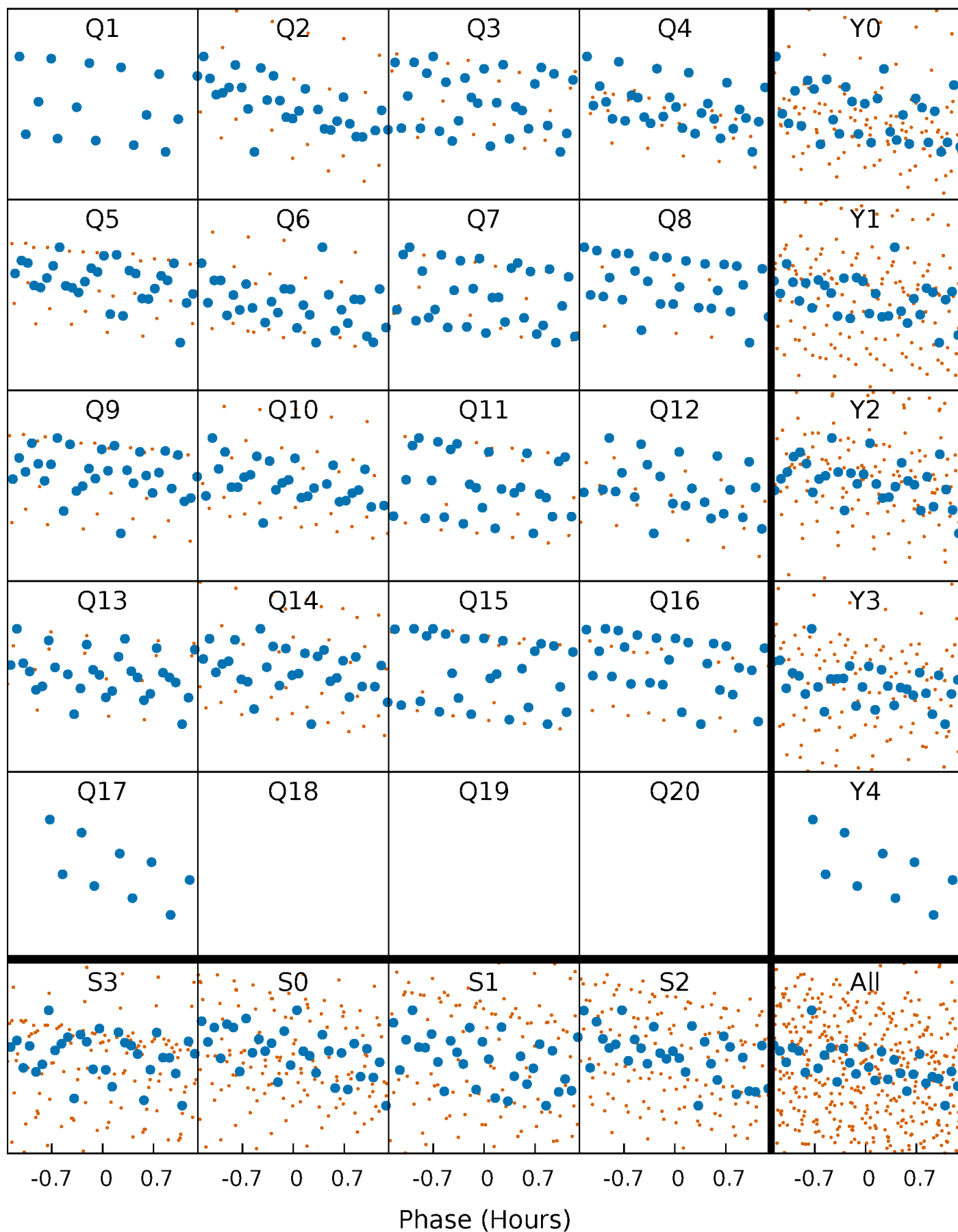


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



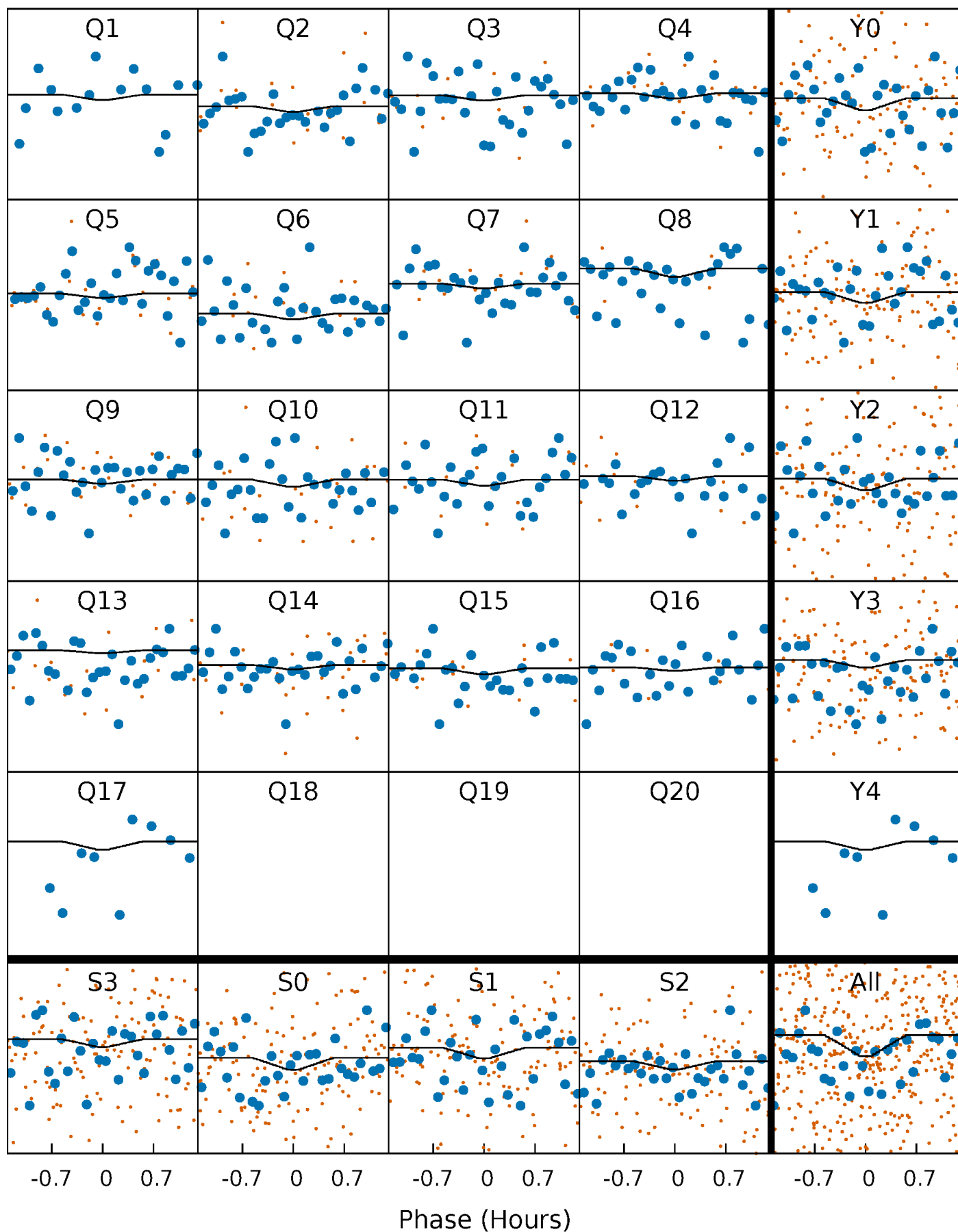
PDC Quarter-Phased Transit Curves

TCE 010281890-02 P= 11.941574 Days $T_0=139.714682$ (BKJD)



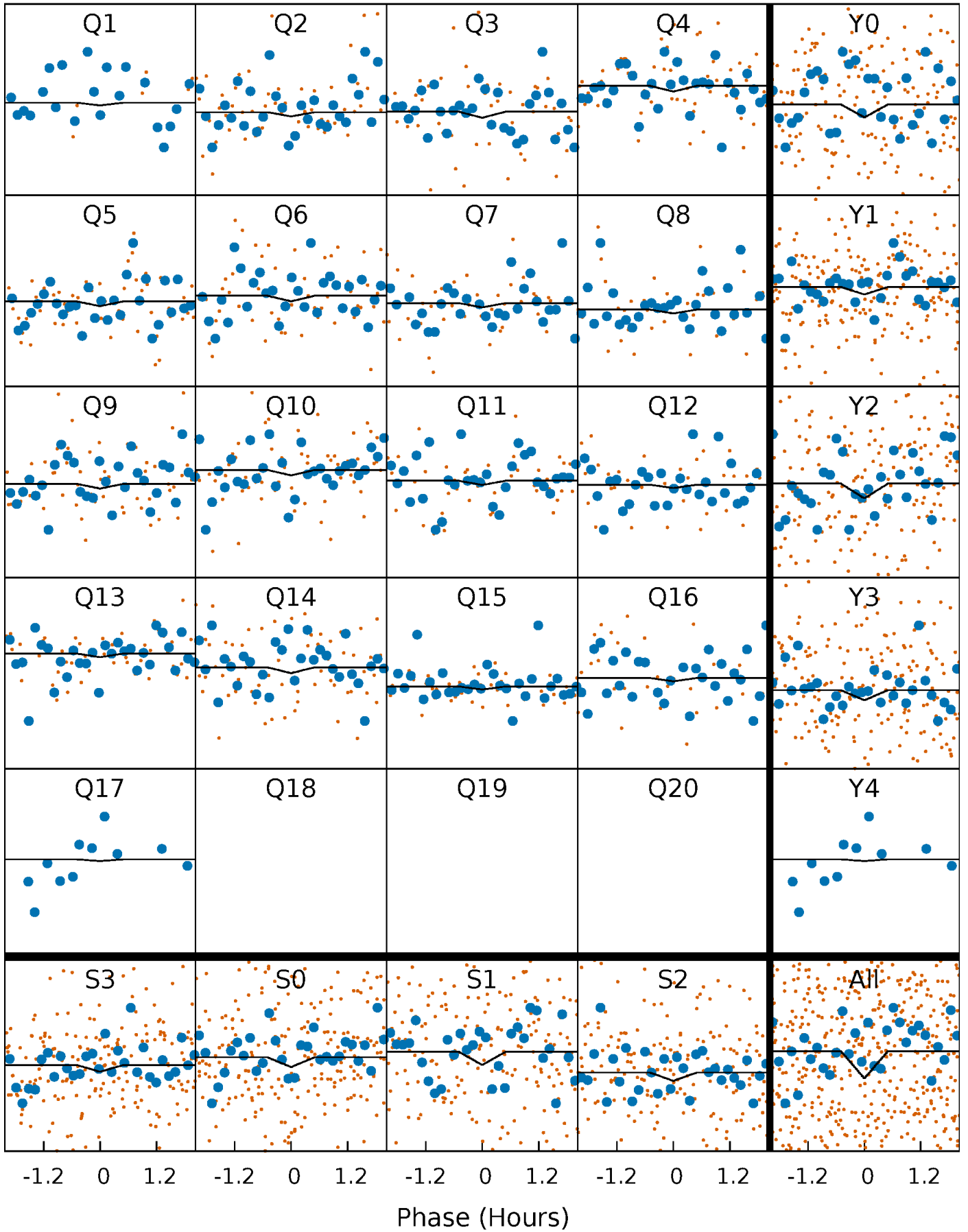
DV Quarter-Phased Transit Curves

TCE 010281890-02 P= 11.941574 Days $T_0=139.714682$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

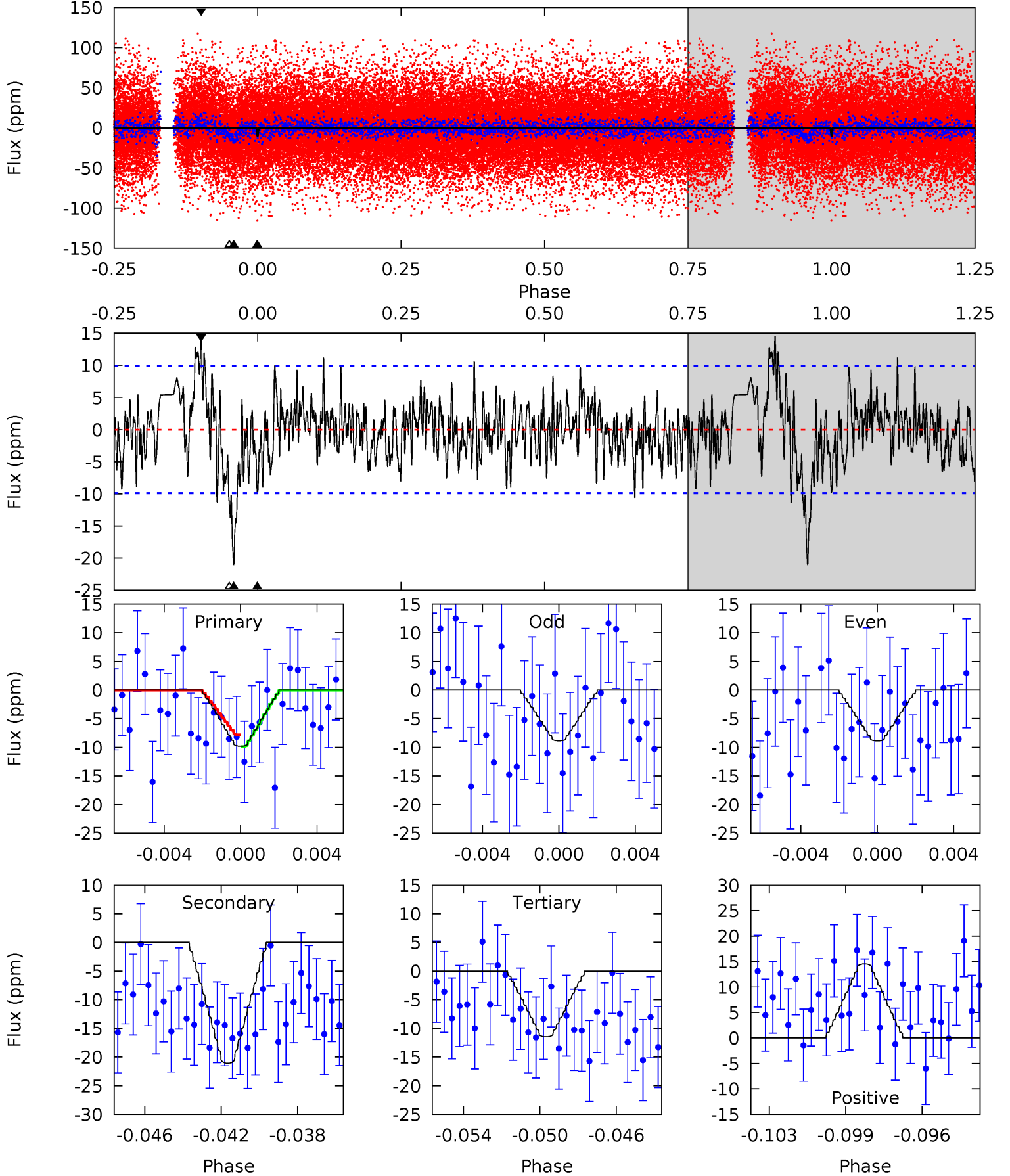
TCE 010281890-02 P= 11.942074 Days $T_0=139.689085$ (BKJD)



DV Model-Shift Uniqueness Test

010281890-02, P = 11.941574 Days, E = 127.773108 Days

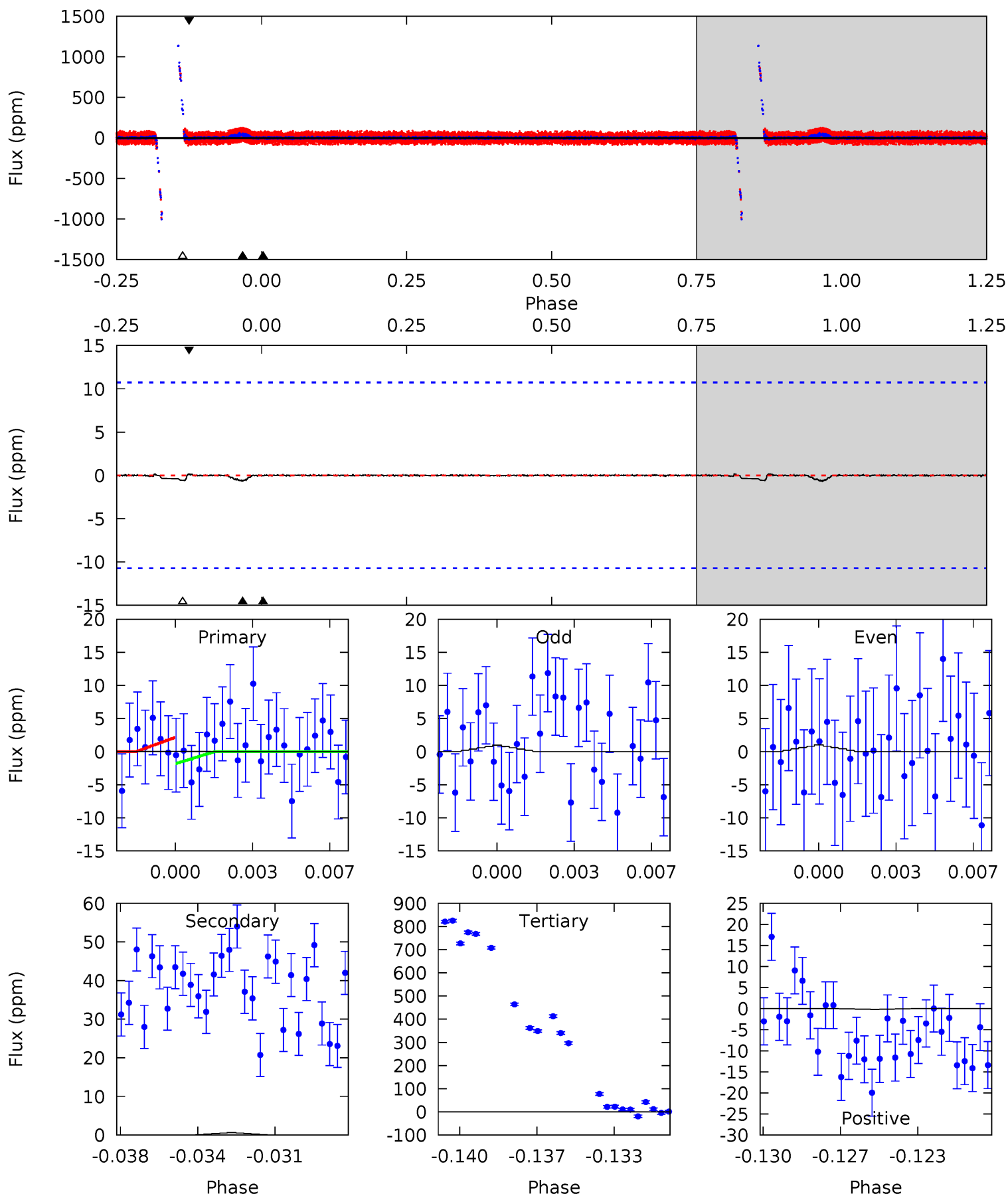
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.17	11.1	6.04	7.65	5.21	2.89	2.13	-0.87	-2.48	5.07	3.46	0.00	1.24	0.41	0.55



Alt Model-Shift Uniqueness Test

010281890-02, P = 11.942074 Days, E = 127.747011 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.02	0.32	0.28	0.08	5.23	2.93	0.04	-0.26	-0.06	0.04	0.24	0.01	-7.82	0.20	0.08



Stellar Parameters For KIC 010281890

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	10906^{+220}_{-515}	$4.063^{+0.200}_{-0.200}$	$0.070^{+0.150}_{-0.550}$	$2.585^{+0.796}_{-0.796}$	$2.819^{+0.310}_{-0.619}$	$0.230^{+0.317}_{-0.127}$
	+2%/-5%	+5%/-5%	+214%/-786%	+31%/-31%	+11%/-22%	+138%/-55%
Source	KIC0	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 010281890-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-21 ± 2	$0.70^{+0.34}_{-0.30}$	2831^{+237}_{-247}	18851^{+17021}_{-5611}	475^{+981}_{-255}
Alt.	-1 ± 2	$0.53^{+0.30}_{-0.27}$	2836^{+246}_{-235}	5935^{+5108}_{-14206}	18^{+146}_{-83}

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

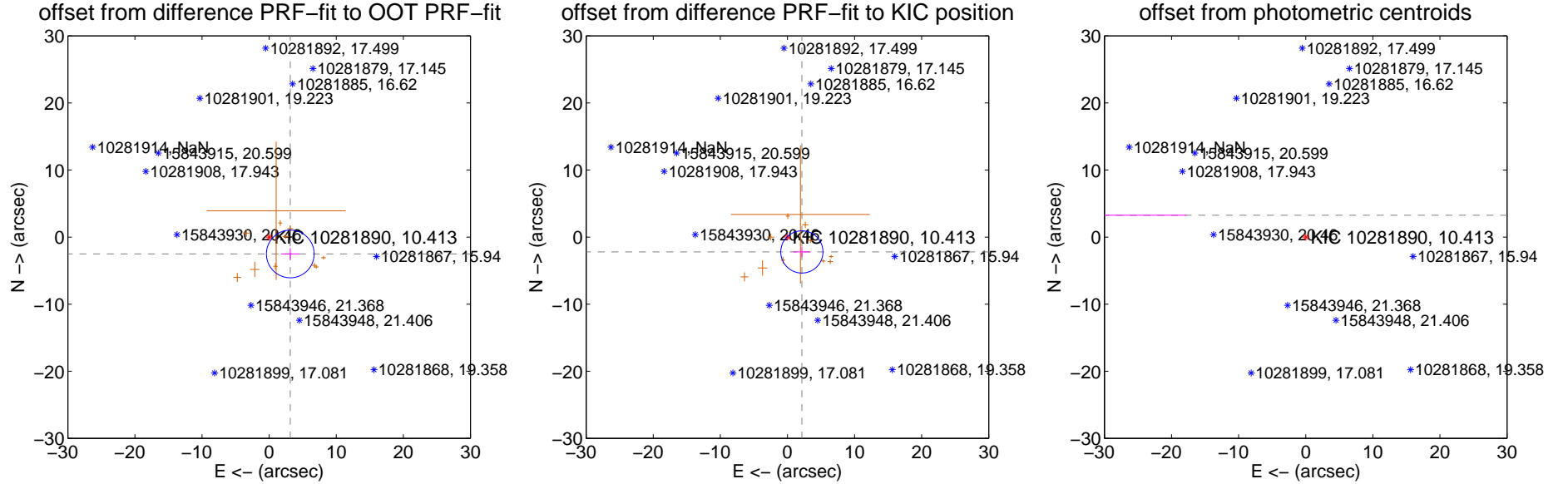
DV Centroid Data

Supplemental centroid analysis for 010281890-02. **Kepler magnitude: 10.41.** Transit SNR 1.77

There are 0 quarters with good PRF difference image offsets

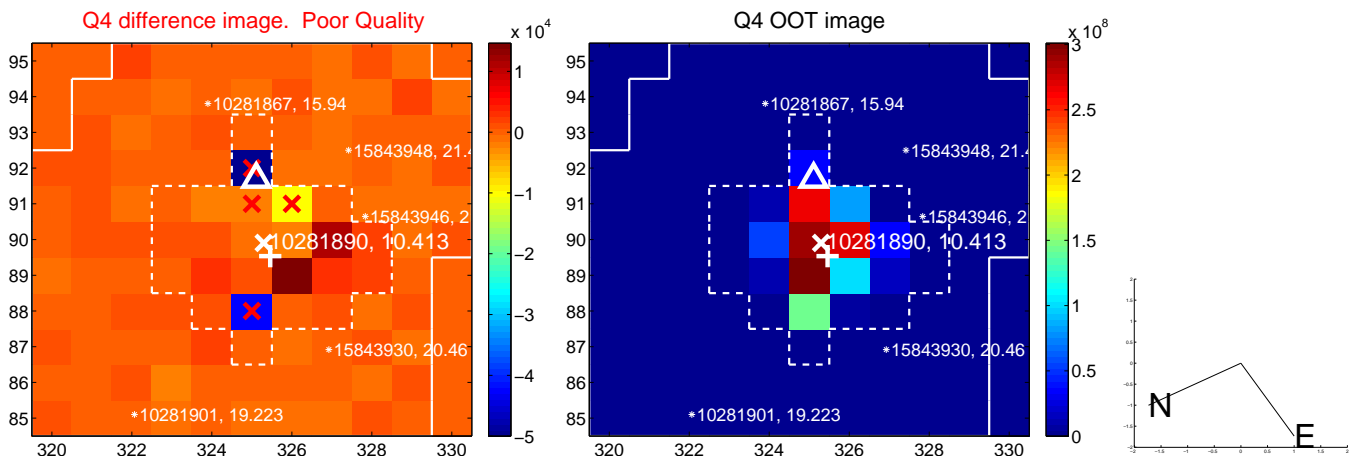
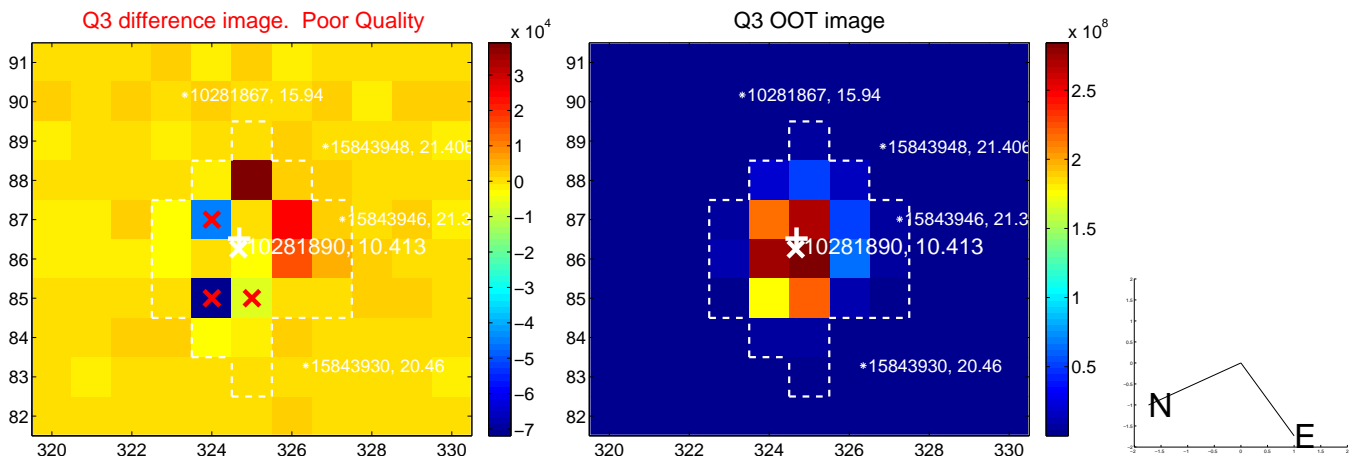
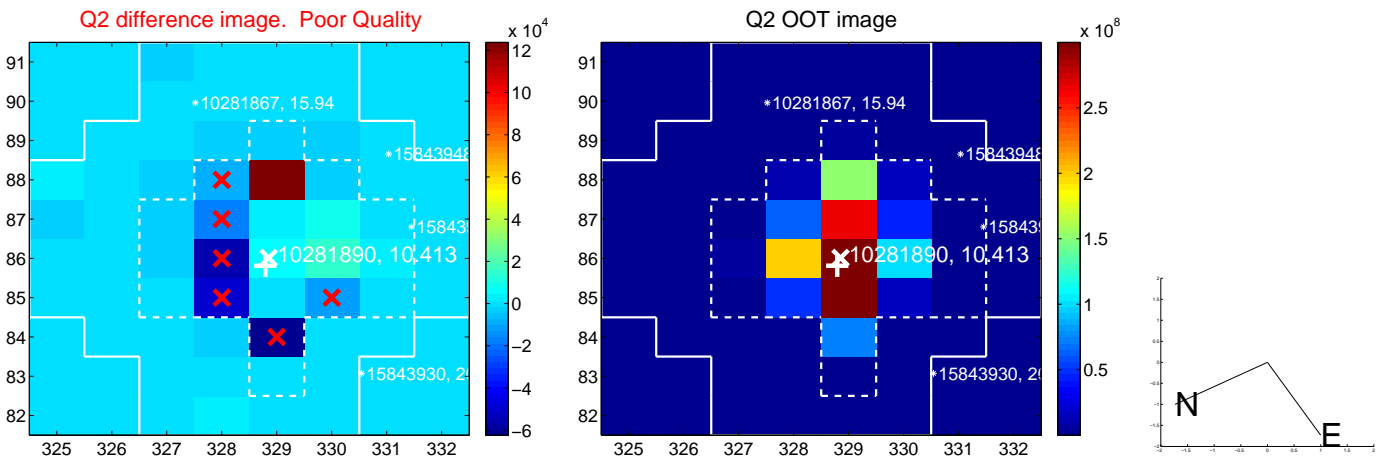
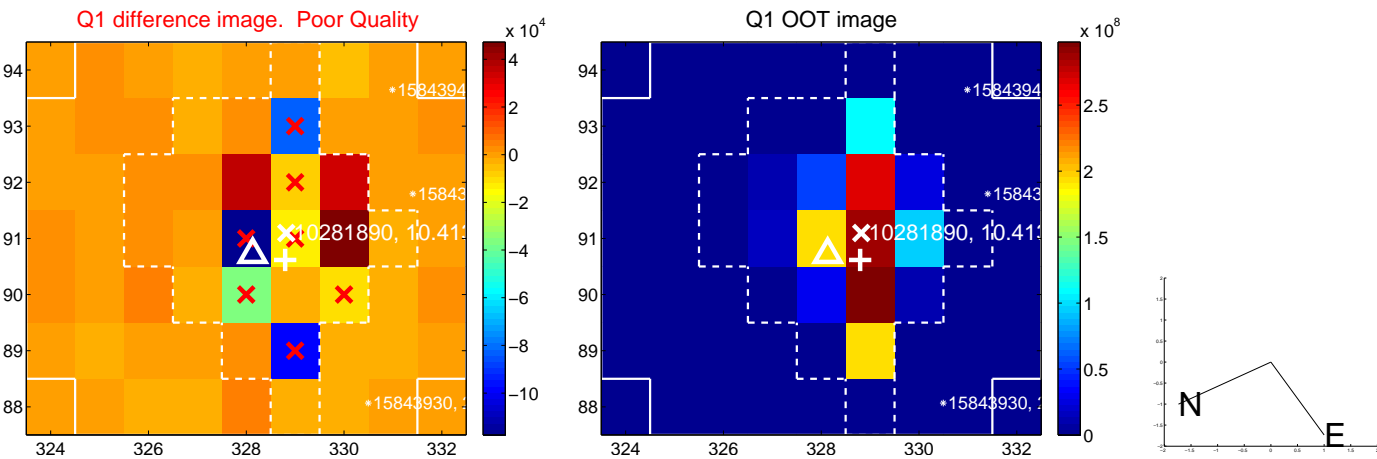
The direct PRF centroid is offset from the target star catalog position by about 1.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.026 \pm 1.186	3.40	-3.147 \pm 1.355	-2.511 \pm 0.854
PRF-fit source offset from KIC position	3.084 \pm 1.048	2.94	-2.148 \pm 1.272	-2.213 \pm 0.781
photometric centroid source offset	47.11 \pm 29.20	1.61	47.00 \pm 29.25	3.26 \pm 18.19

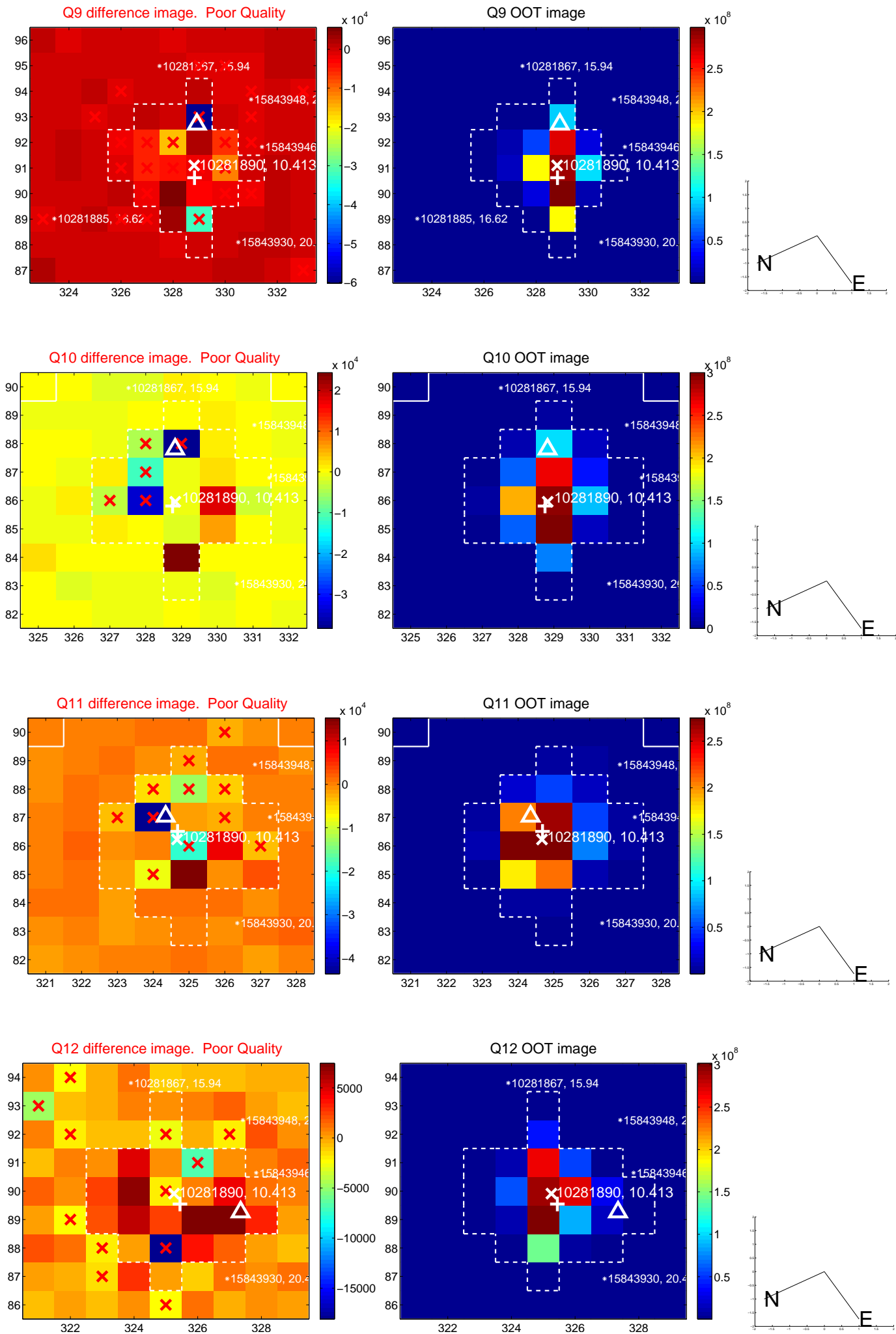


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

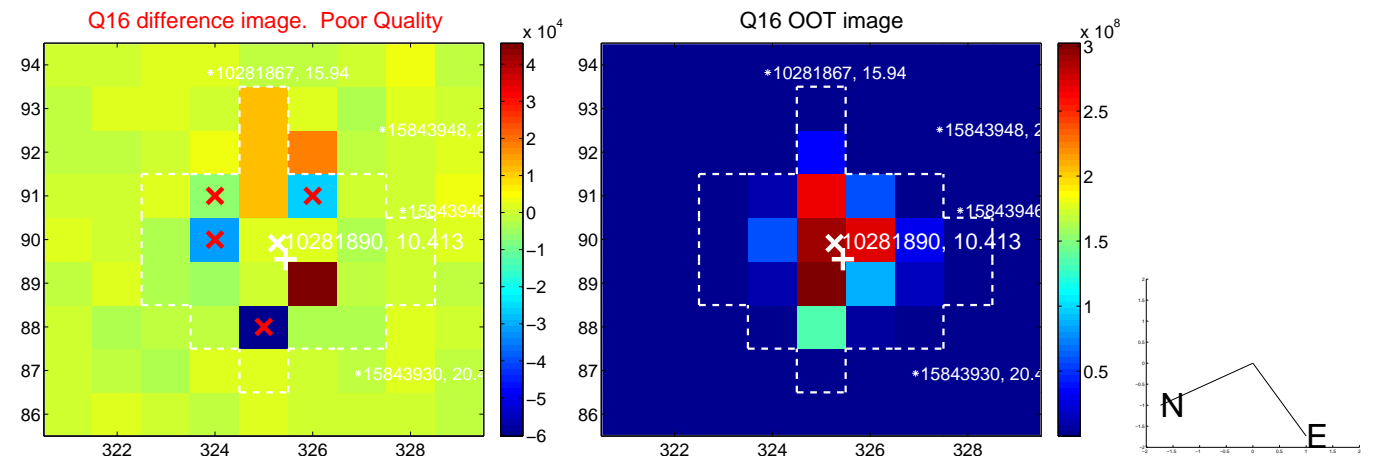
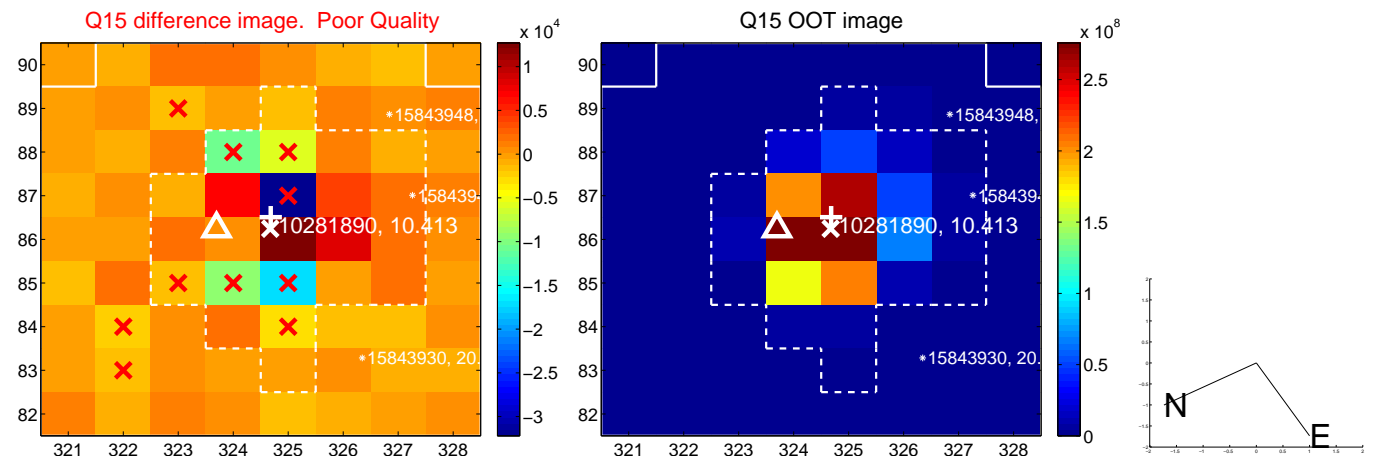
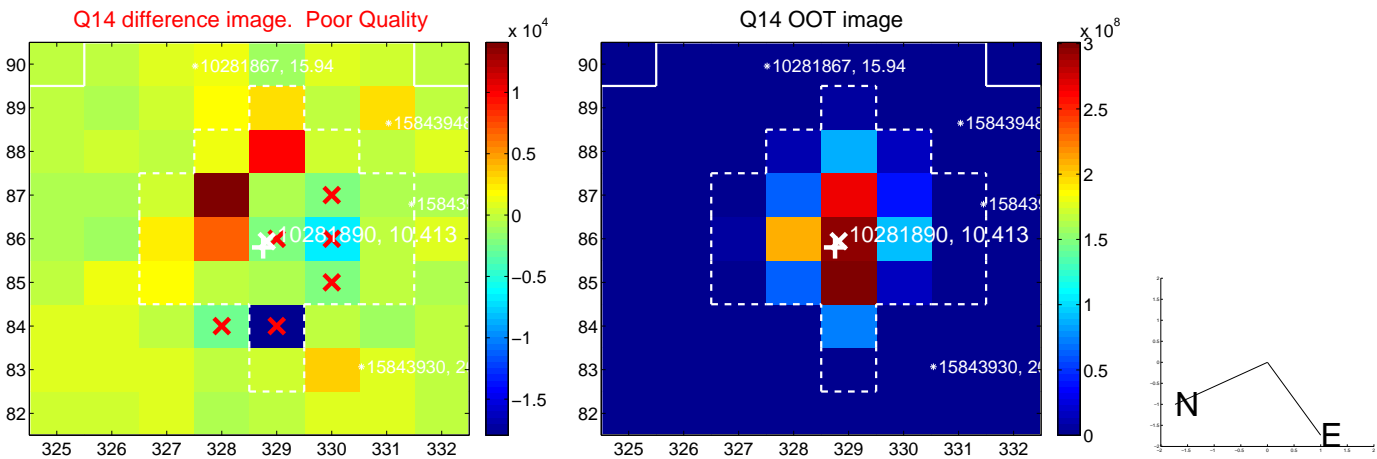
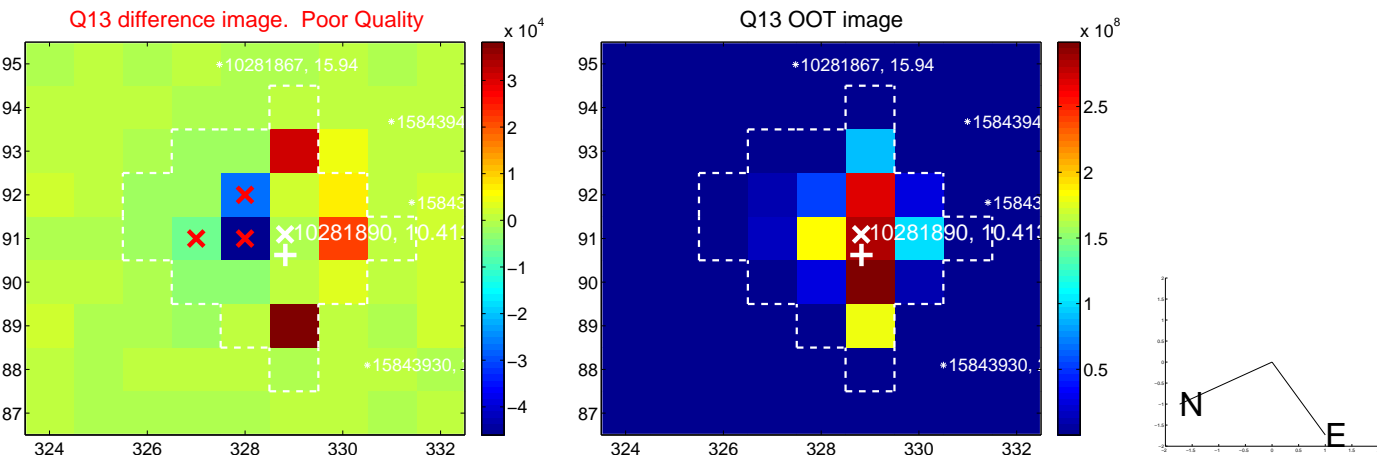
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



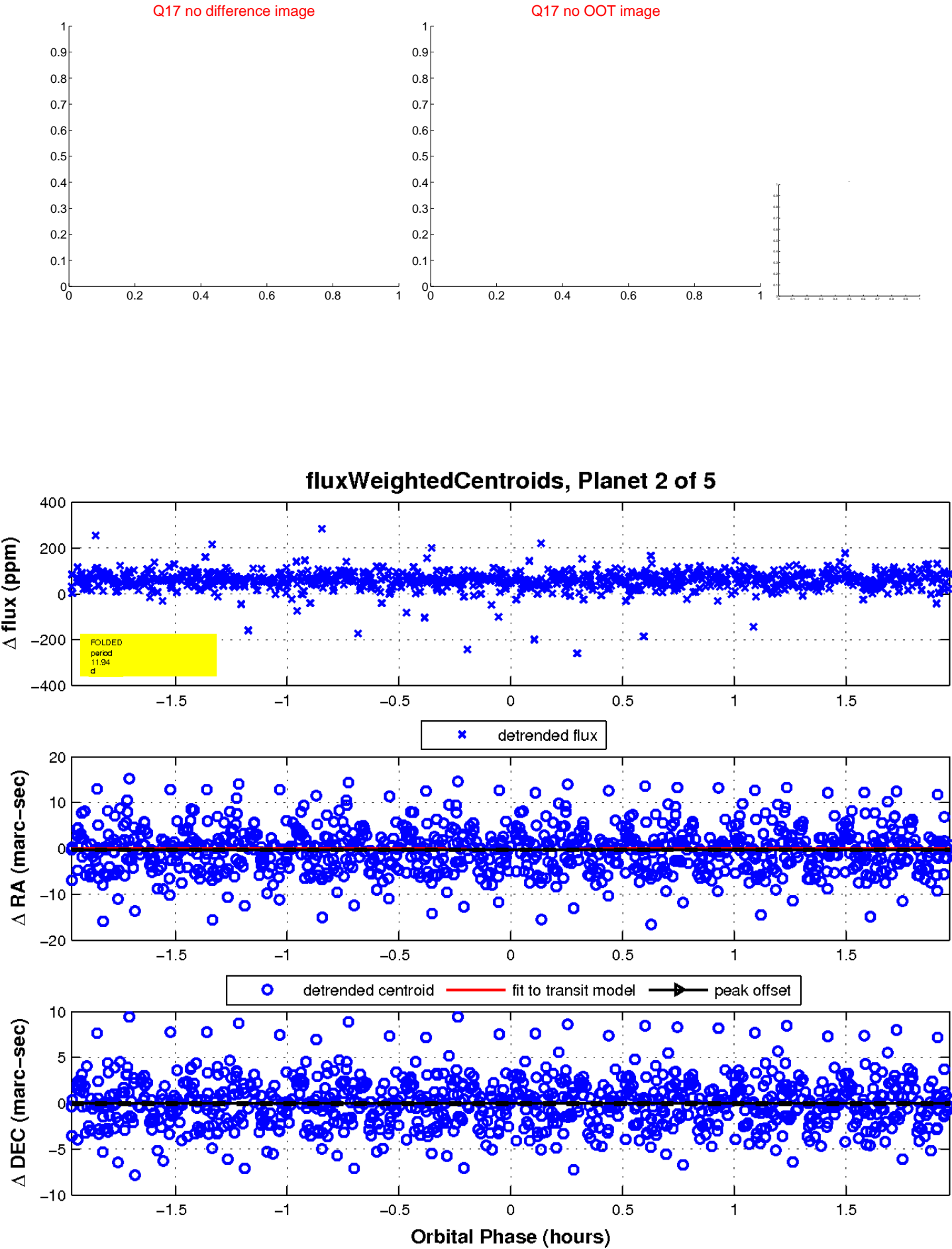
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



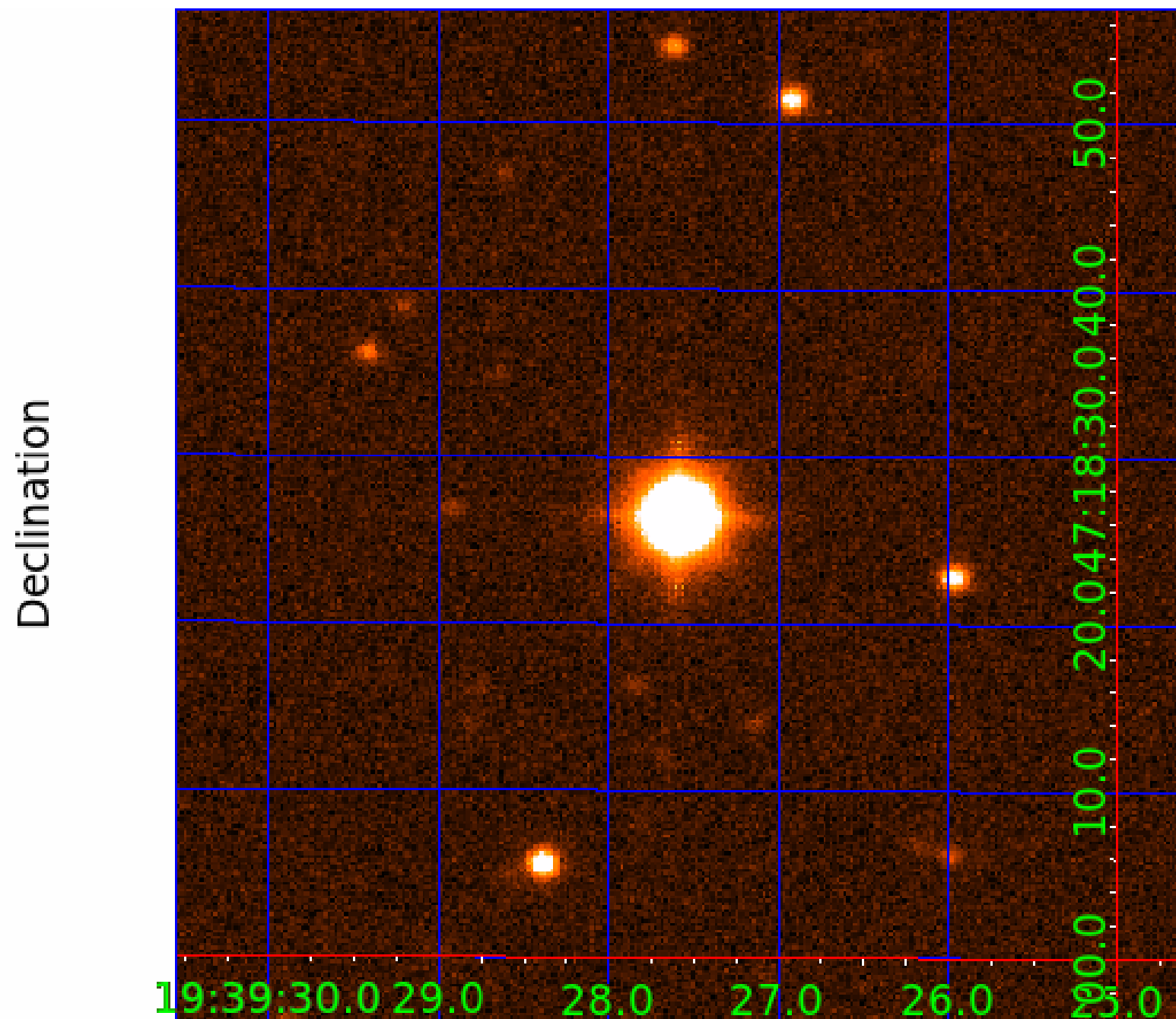
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010281890

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})
010281890-01	OBS	No	11.943689	137.705217	5.8	3.833	27.6	3.3	2.58	10906	0.69	4058.31
010281890-02	OBS	No	11.941574	139.714682	5.8	0.655	24.0	1.8	2.58	10906	0.71	4059.27
010281890-03	OBS	No	11.942582	138.254069	39.0	7.500	23.9	-1.0	2.58	10906	1.66	4058.81
010281890-04	OBS	No	11.942835	139.790042	7.7	8.989	24.1	3.9	2.58	10906	0.82	4058.70
010281890-05	OBS	No	11.942582	139.187201	100.8	7.500	19.7	-1.0	2.58	10906	2.67	4058.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010281890-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010281890-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010281890-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED—HALO_GHOST
010281890-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED—HALO_GHOST
010281890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

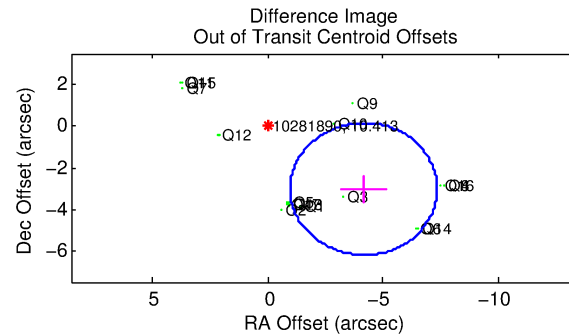
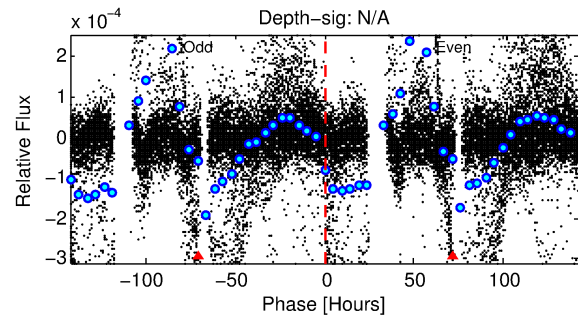
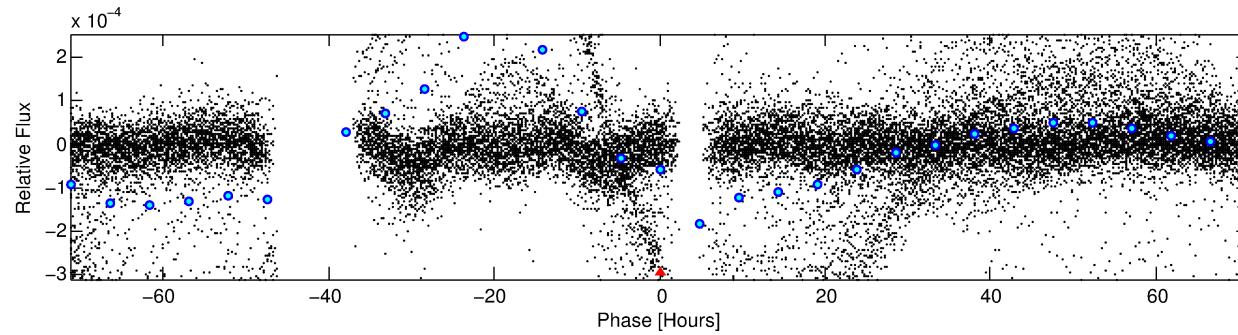
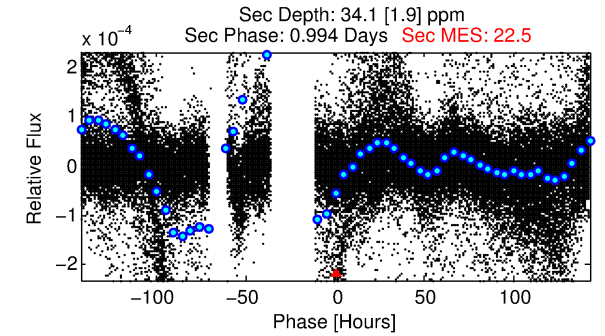
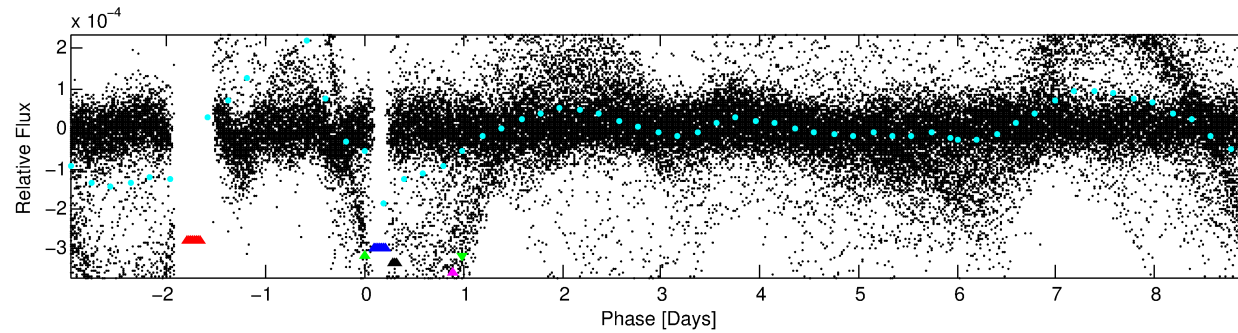
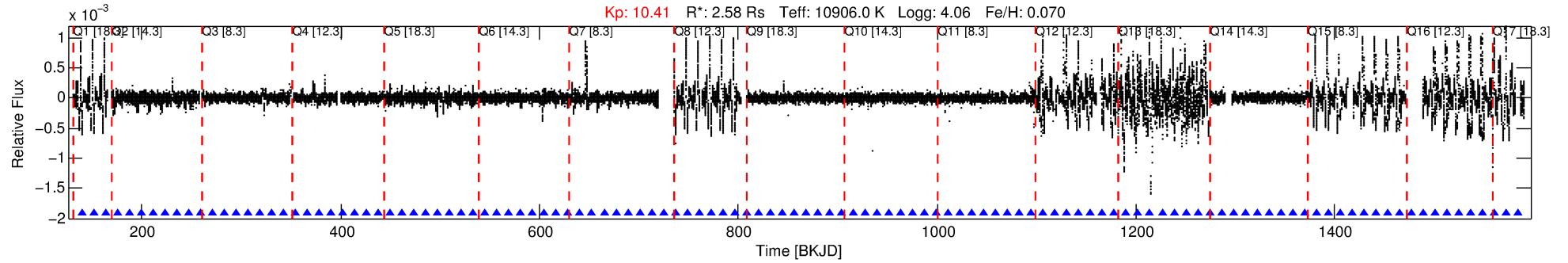
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010281890-03

No Significant Match Found

DV One-Page Summary

KIC: 10281890 Candidate: 3 of 5 Period: 11.943 d



TPS TCE Results:

Period = 11.94258 d
Epoch = 138.2541 BKJD

DV fit results are unavailable

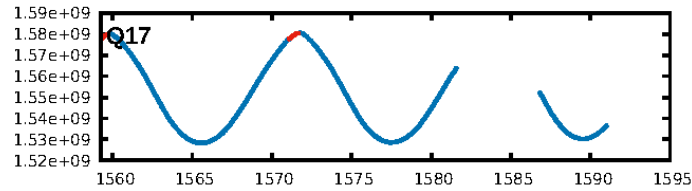
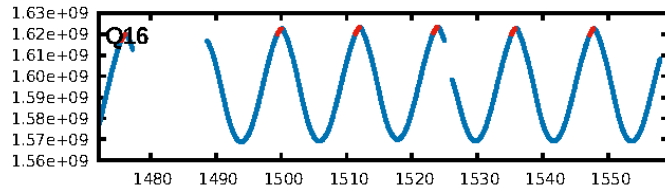
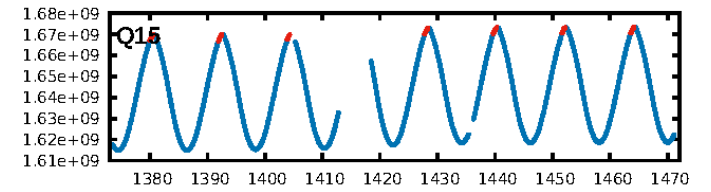
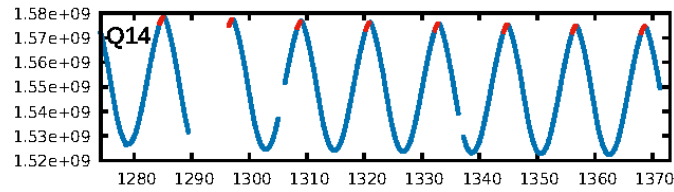
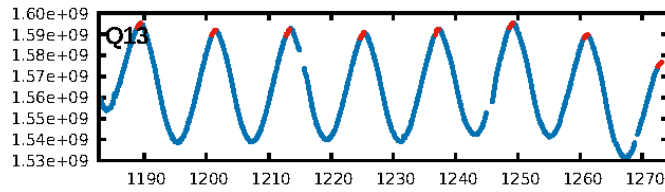
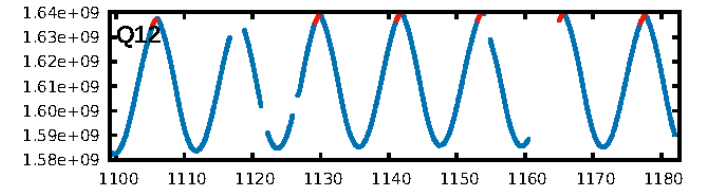
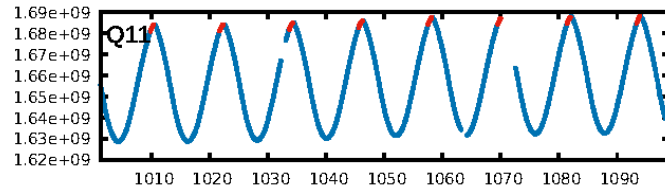
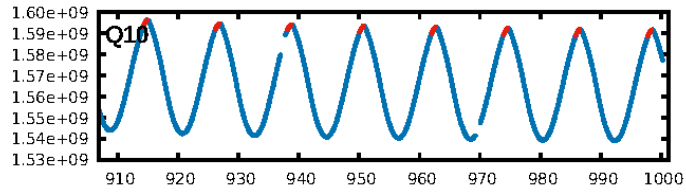
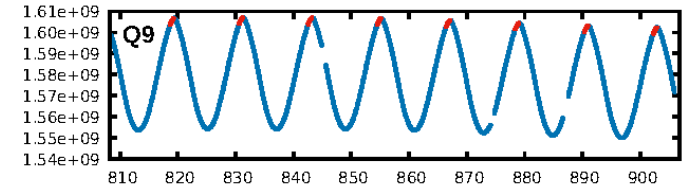
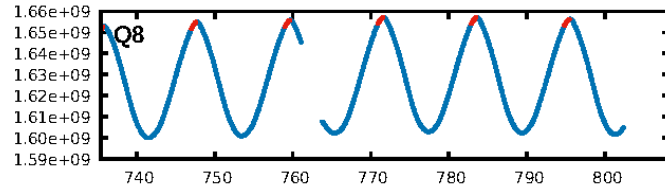
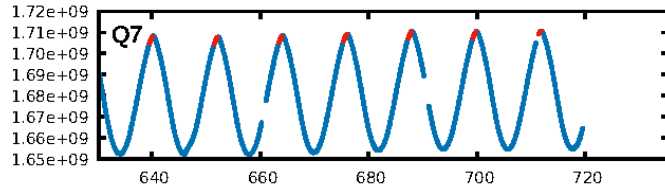
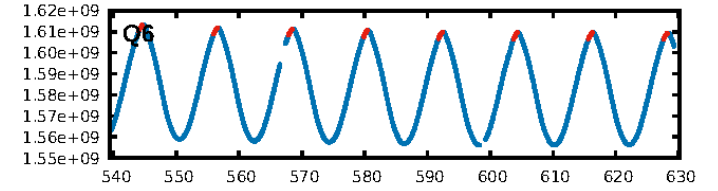
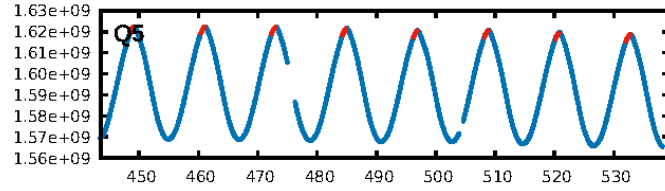
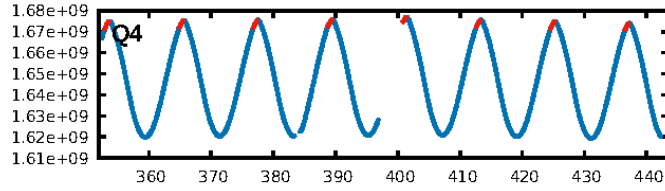
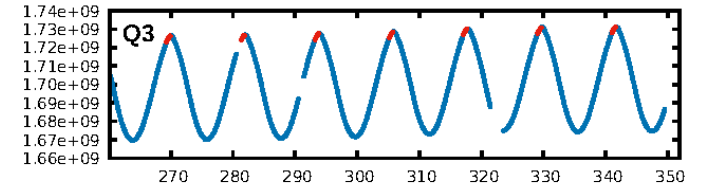
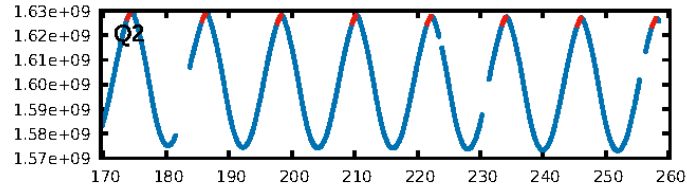
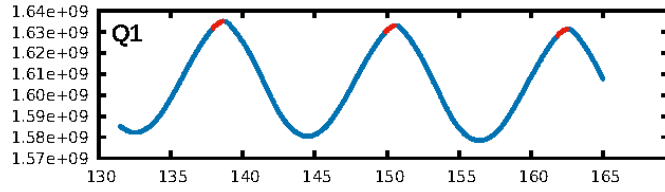
DV Diagnostic Results:

ShortPeriod-sig: 0.3% [0.00 σ]
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.50e-84
RollingBand-fgt: 1.00 [112/112]
GhostDiagnostic-chr: 0.2199
Centroid-sig: 24.3%
Centroid-so: 1.716 arcsec [0.72 σ]
OotOffset-rm: 5.133 arcsec [4.84 σ]
KicOffset-rm: 4.240 arcsec [4.66 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

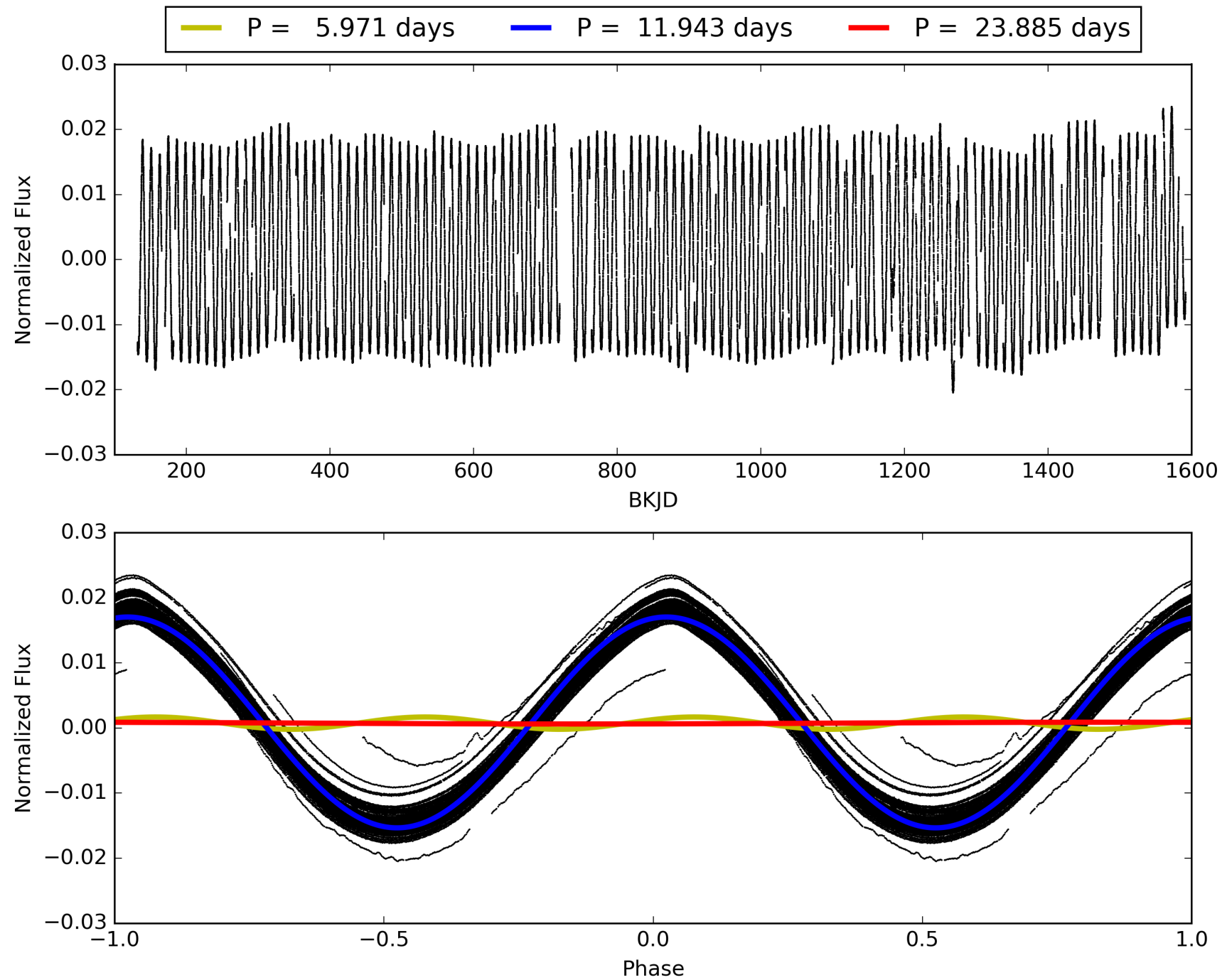
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:13:50 Z

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

TCE 010281890-03, PDC Light Curves

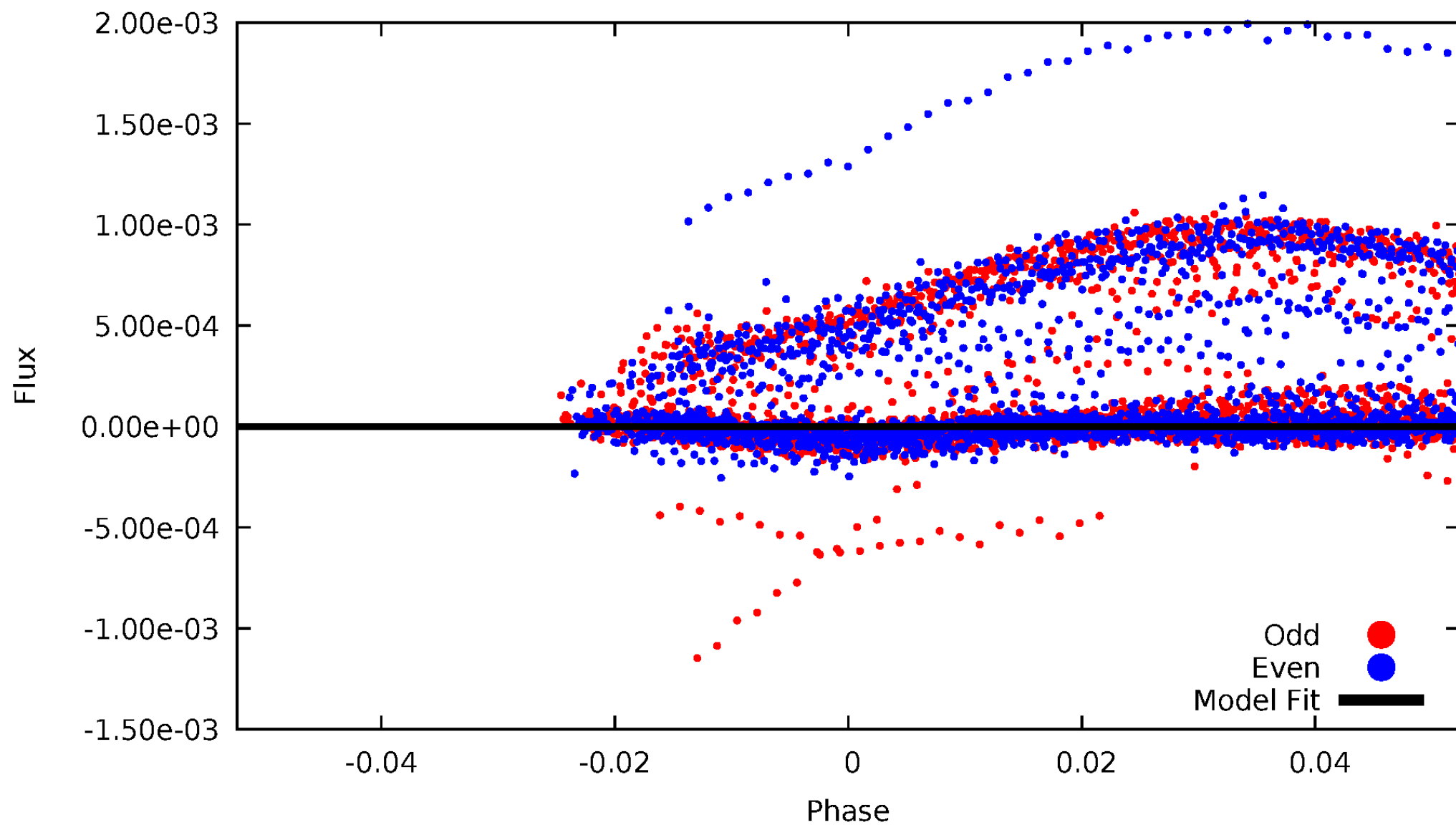


TCE 010281890-03



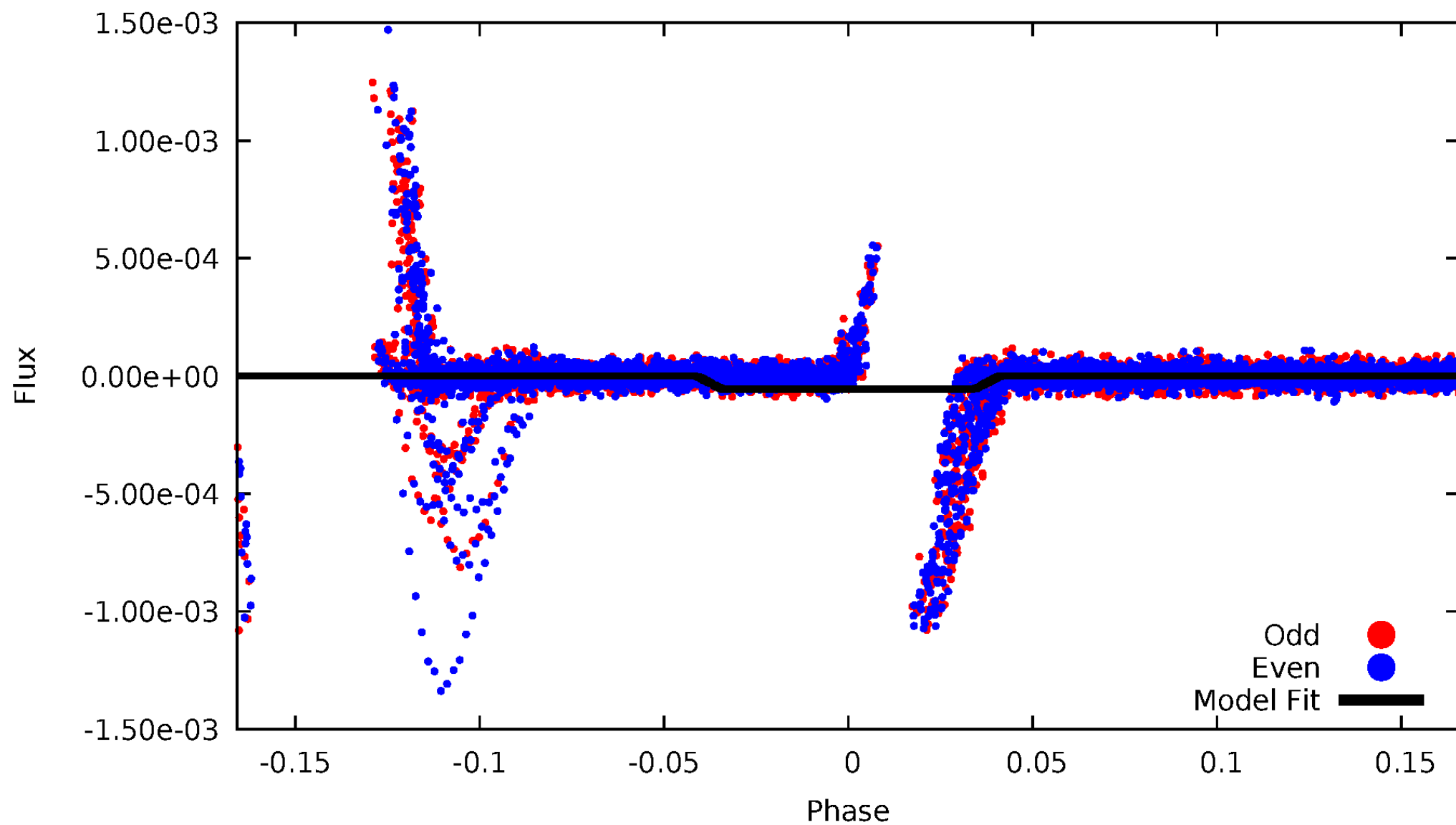
DV Odd/Even

TCE 010281890-03



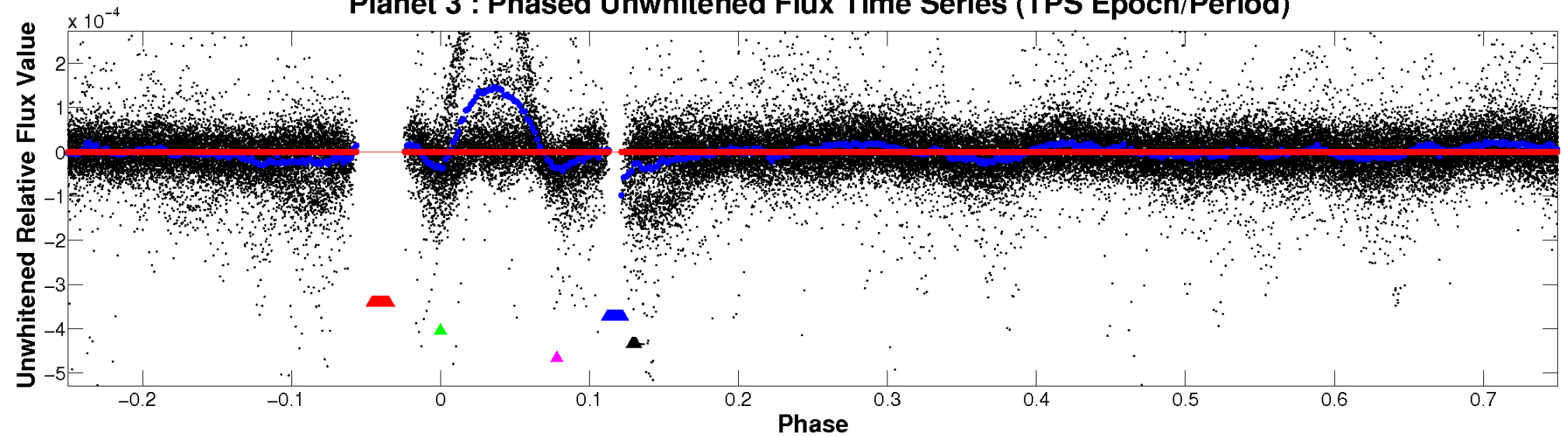
ALT Odd/Even

TCE 010281890-03

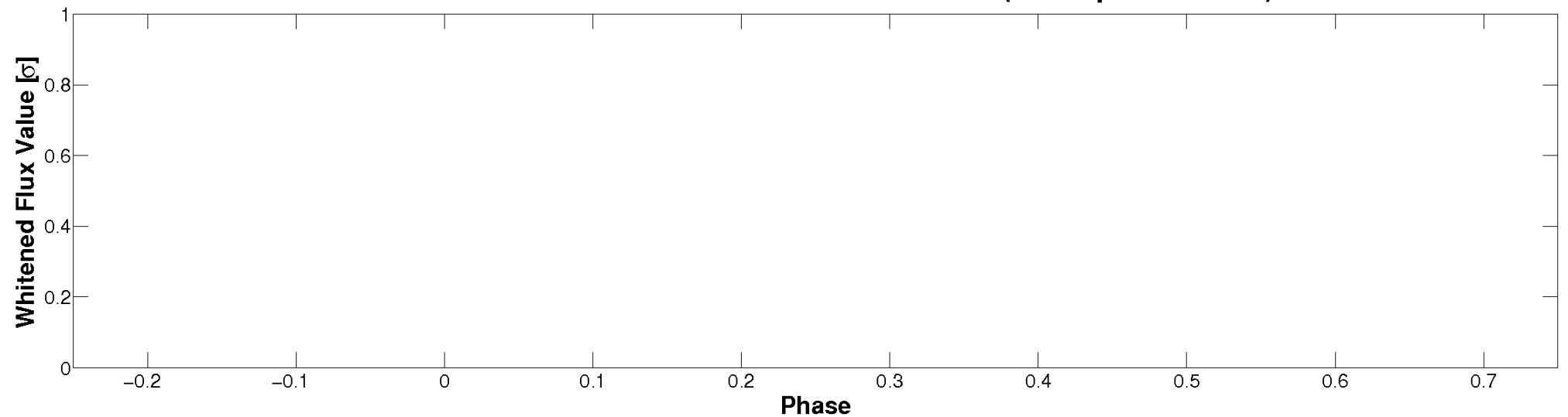


Non-Whitened Vs. Whitened Light Curve

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

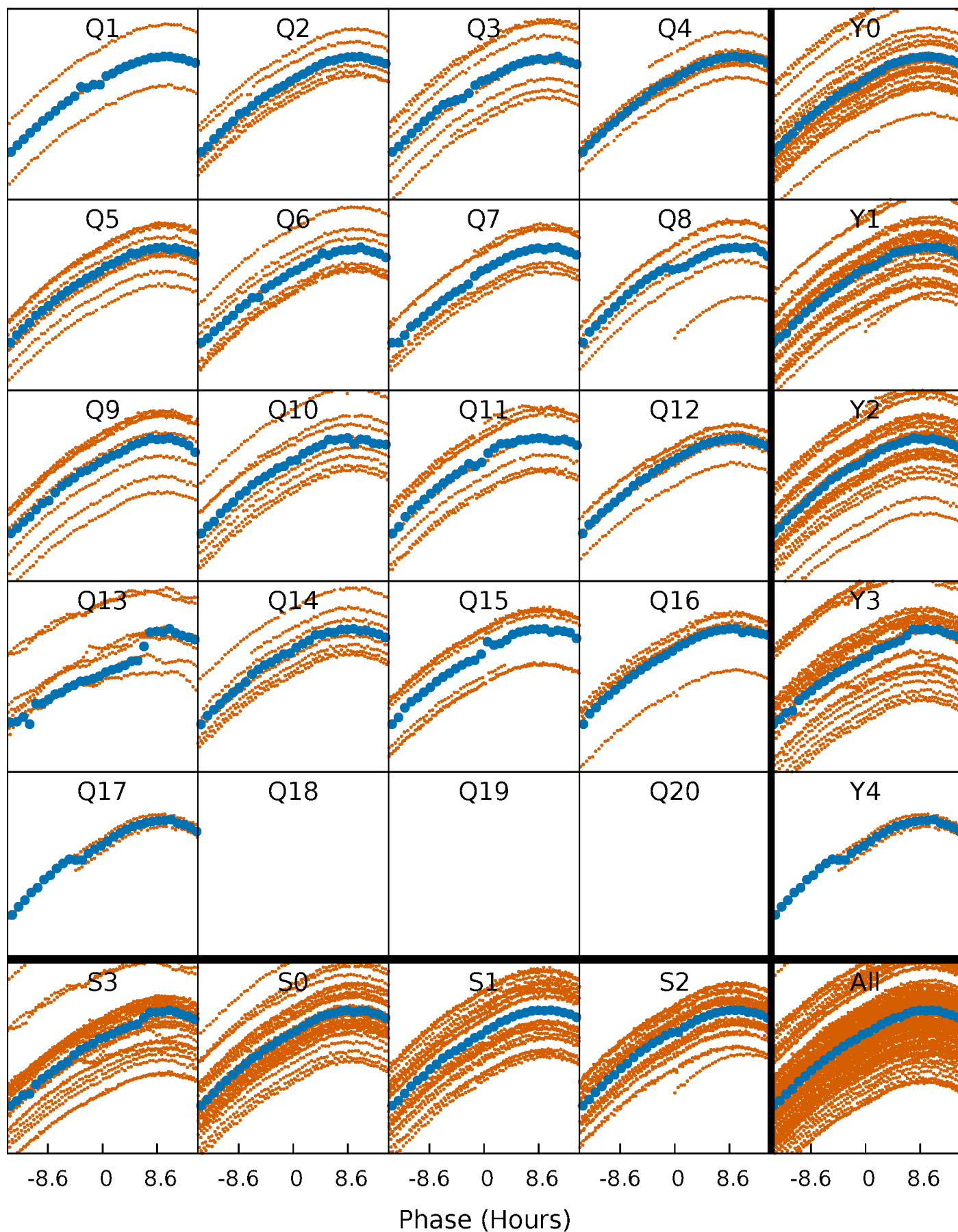


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



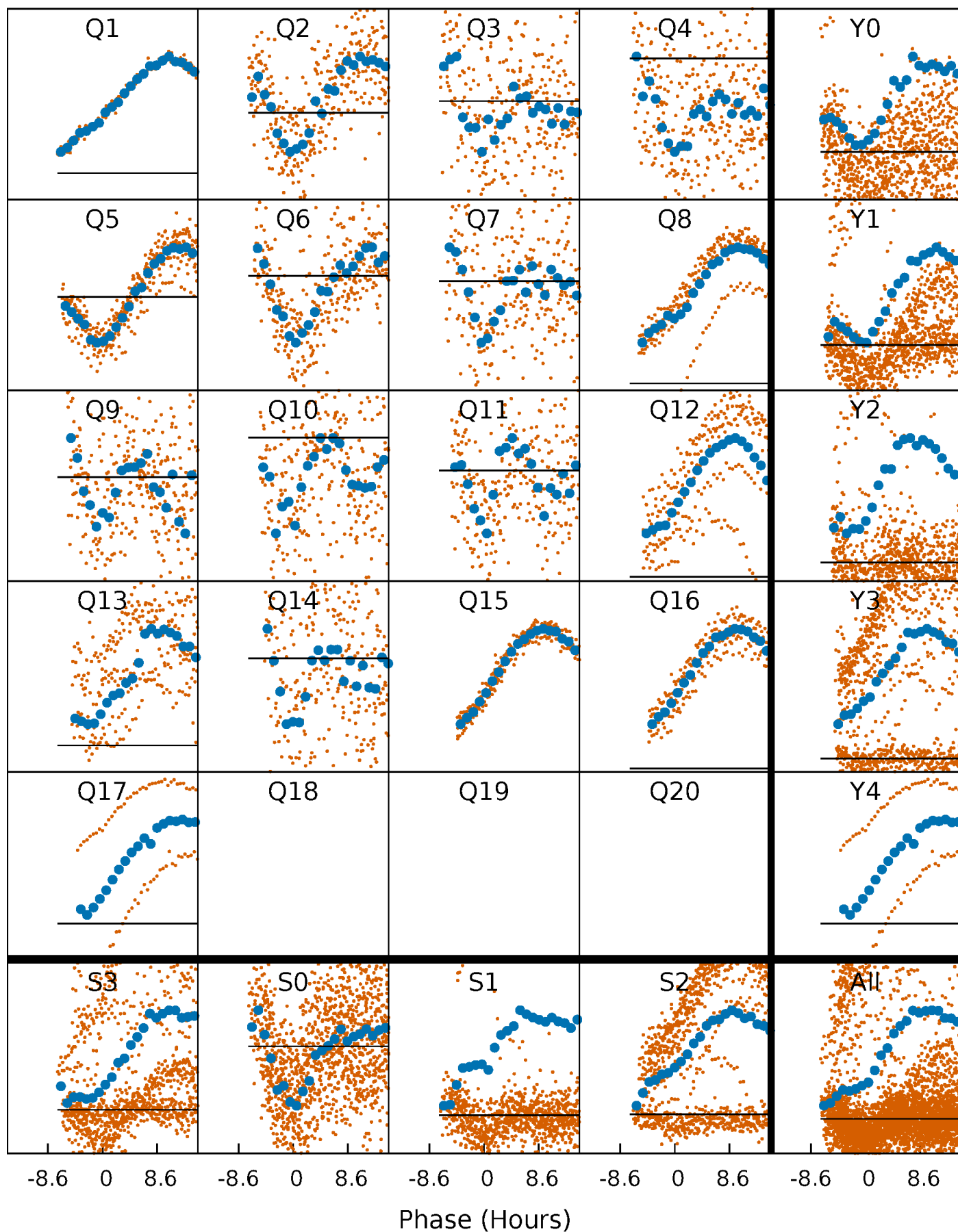
PDC Quarter-Phased Transit Curves

TCE 010281890-03 P= 11.942582 Days $T_0=138.254069$ (BKJD)



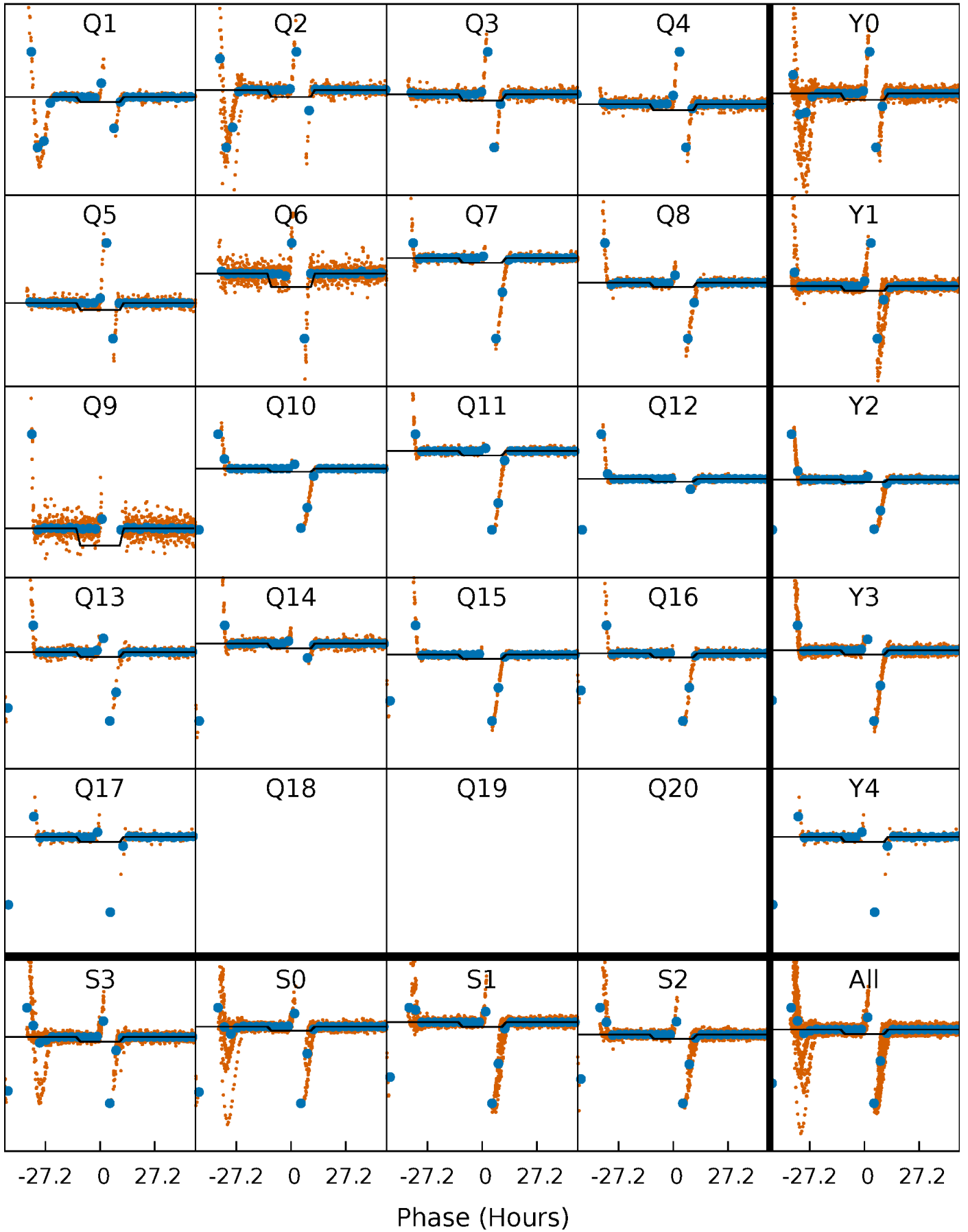
DV Quarter-Phased Transit Curves

TCE 010281890-03 P= 11.942582 Days $T_0=138.254069$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

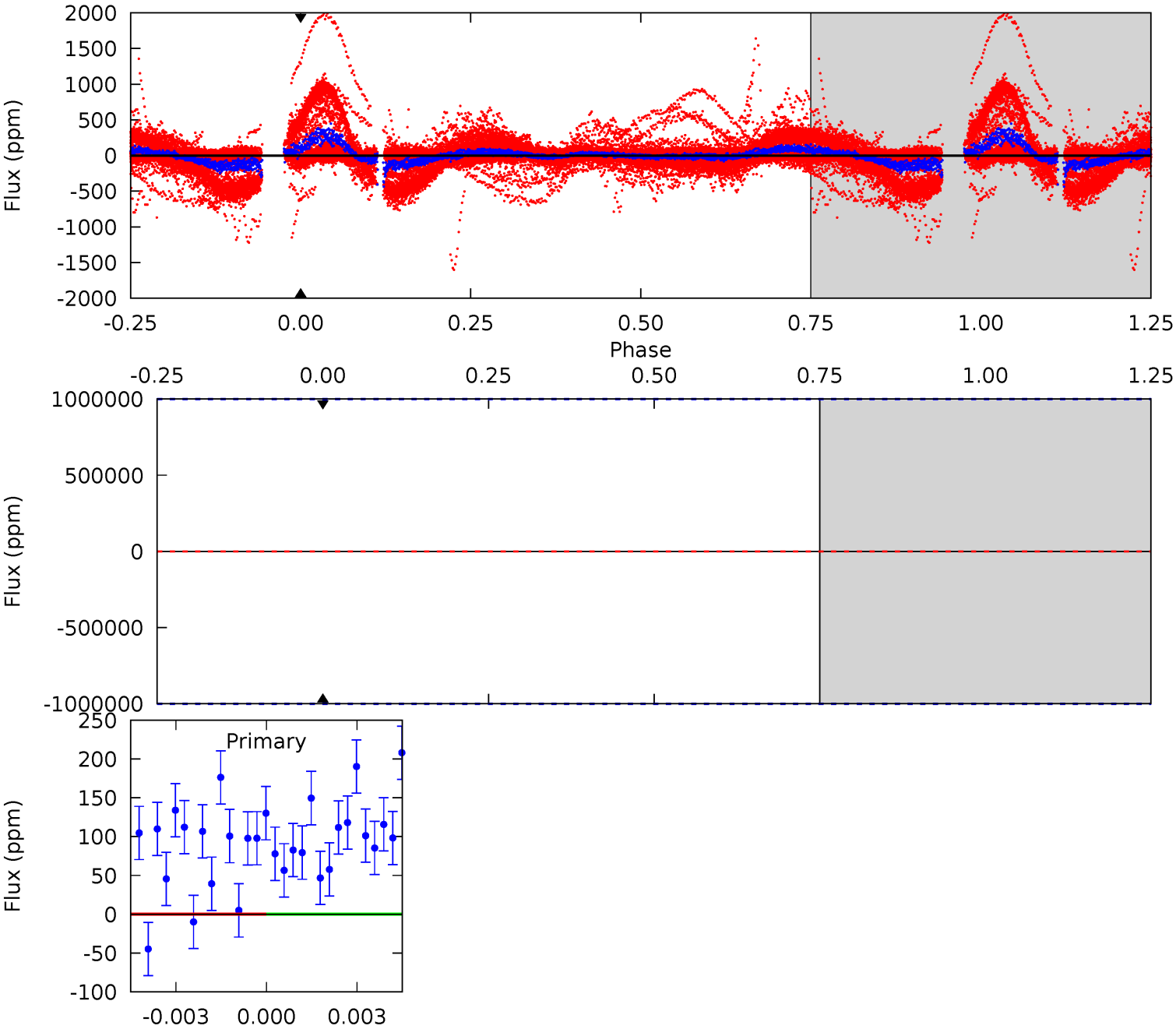
TCE 010281890-03 P= 11.942582 Days $T_0=139.504119$ (BKJD)



DV Model-Shift Uniqueness Test

010281890-03, P = 11.942582 Days, E = 126.311487 Days

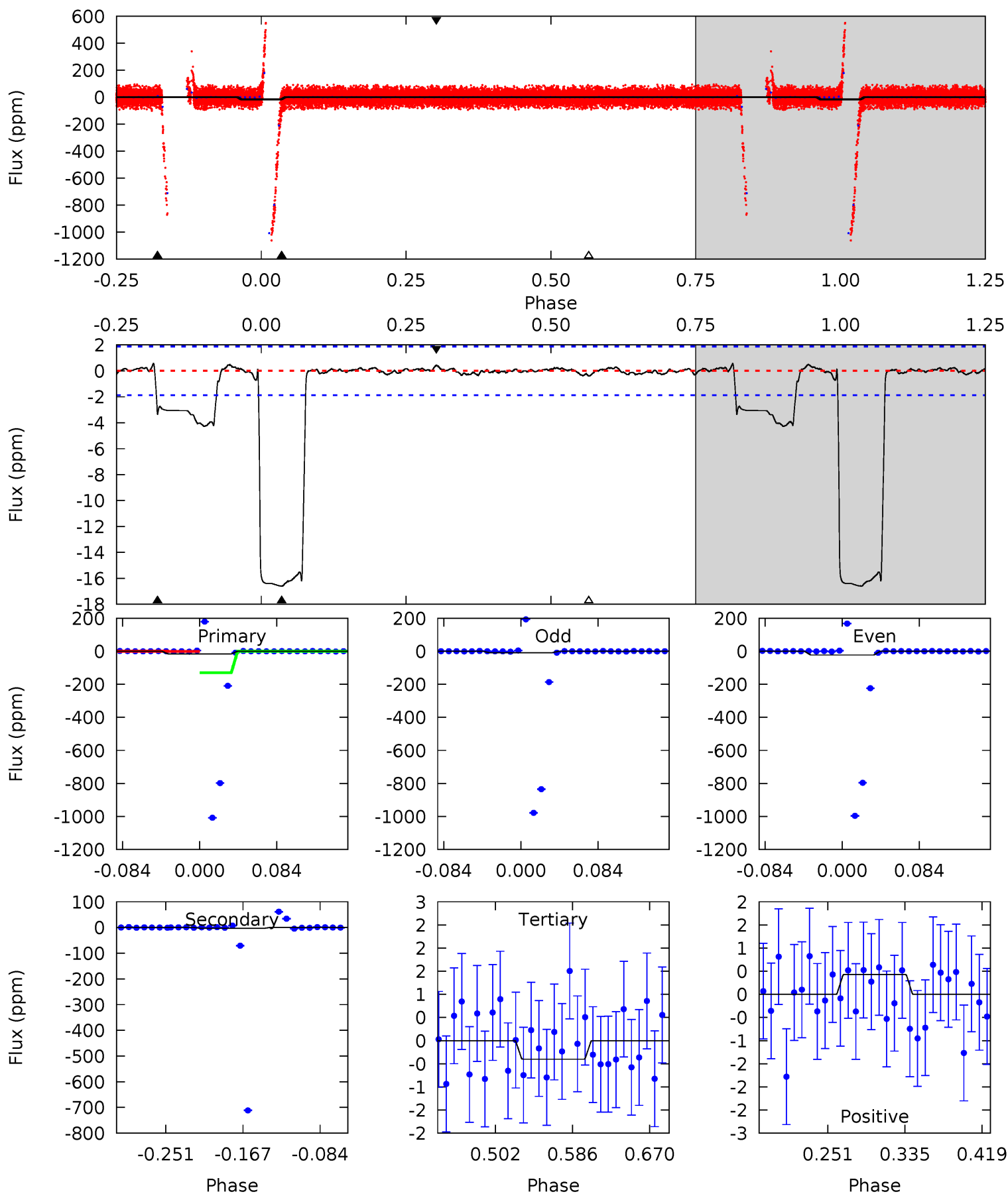
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010281890-03, P = 11.942582 Days, E = 127.561537 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.7	8.24	0.98	1.05	4.60	1.73	1.57	39.7	39.7	7.26	7.20	17.8	5.30	0.03	120.6



Stellar Parameters For KIC 010281890

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	10906^{+220}_{-515}	$4.063^{+0.200}_{-0.200}$	$0.070^{+0.150}_{-0.550}$	$2.585^{+0.796}_{-0.796}$	$2.819^{+0.310}_{-0.619}$	$0.230^{+0.317}_{-0.127}$
	+2%/-5%	+5%/-5%	+214%/-786%	+31%/-31%	+11%/-22%	+138%/-55%
Source	KIC0	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 010281890-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$19.44^{+23.00}_{-14.27}$	2825^{+228}_{-242}	$6380^{+107672}_{-120695}$	30^{+5358}_{-5459}
Alt.	-3 ± 0	$20.15^{+23.42}_{-14.55}$	2846^{+227}_{-228}	-2635^{+5953}_{-224}	$0.088^{+1.127}_{-0.067}$

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

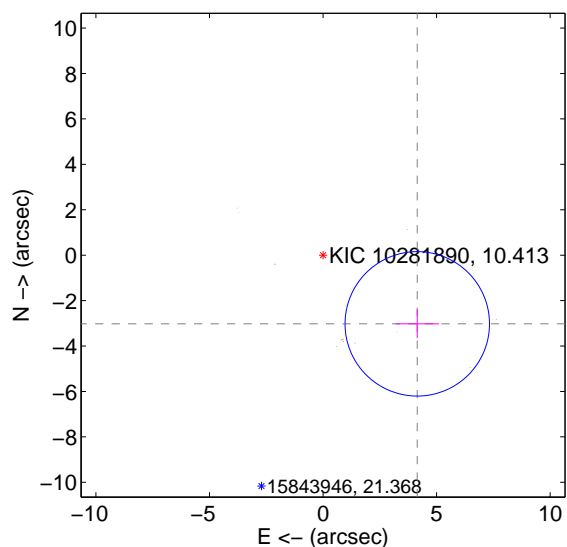
Supplemental centroid analysis for 010281890-03. **Kepler magnitude: 10.41.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

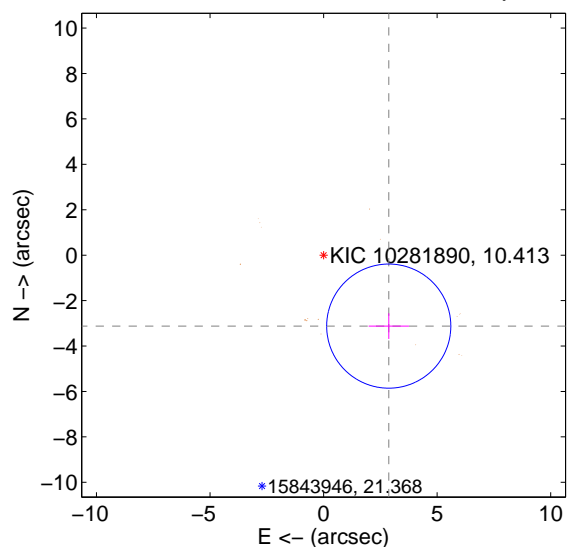
The direct PRF centroid is offset from the target star catalog position by about 1.86 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.133 ± 1.060	4.84	-4.149 ± 0.955	-3.024 ± 0.630
PRF-fit source offset from KIC position	4.240 ± 0.911	4.66	-2.868 ± 0.887	-3.123 ± 0.563
photometric centroid source offset	1.72 ± 2.39	0.72	-0.94 ± 3.27	1.44 ± 1.88

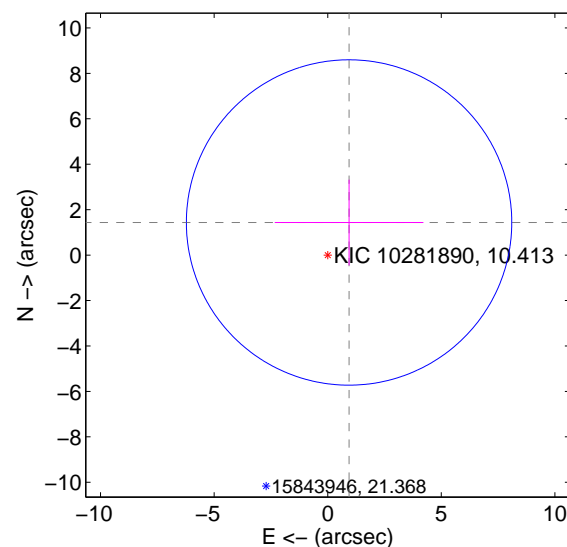
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

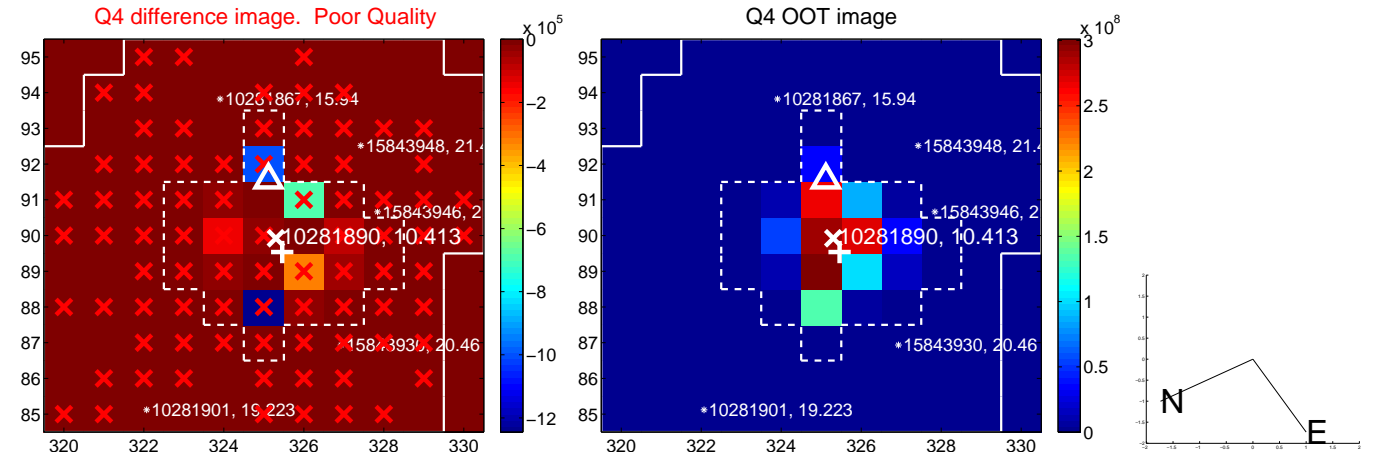
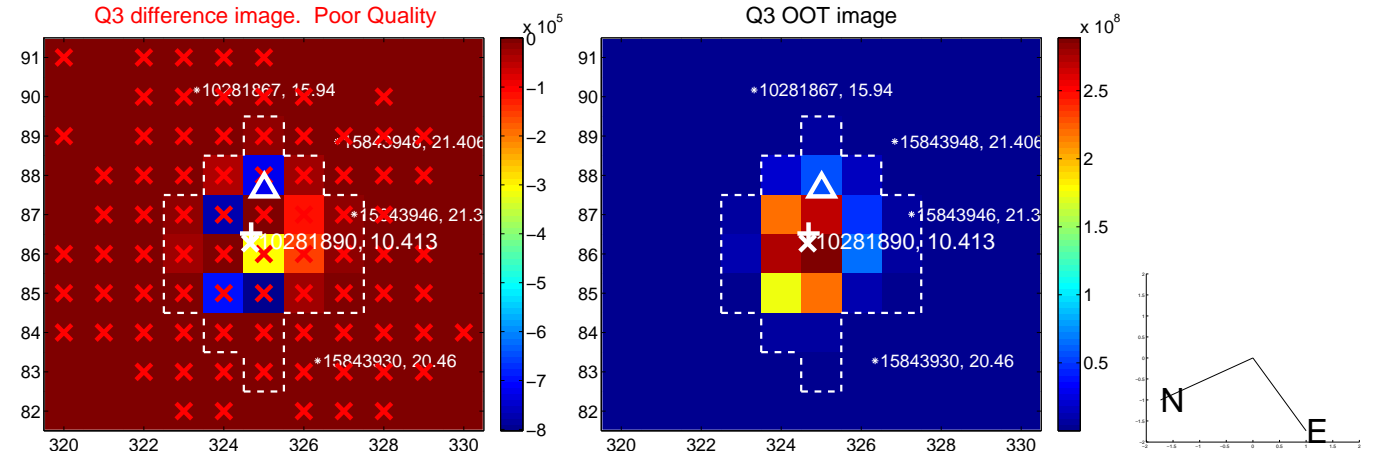
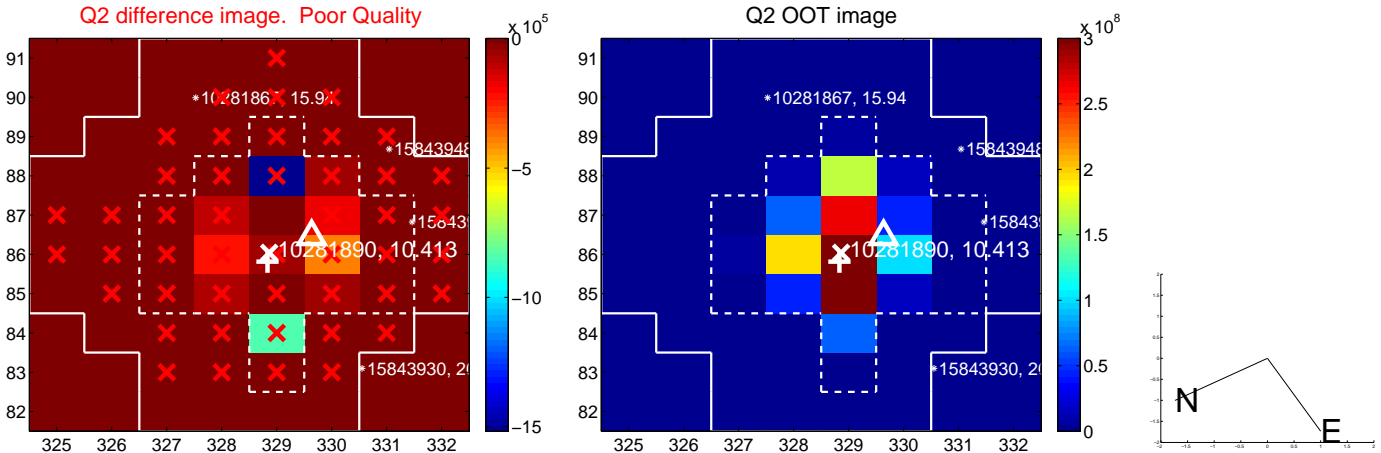
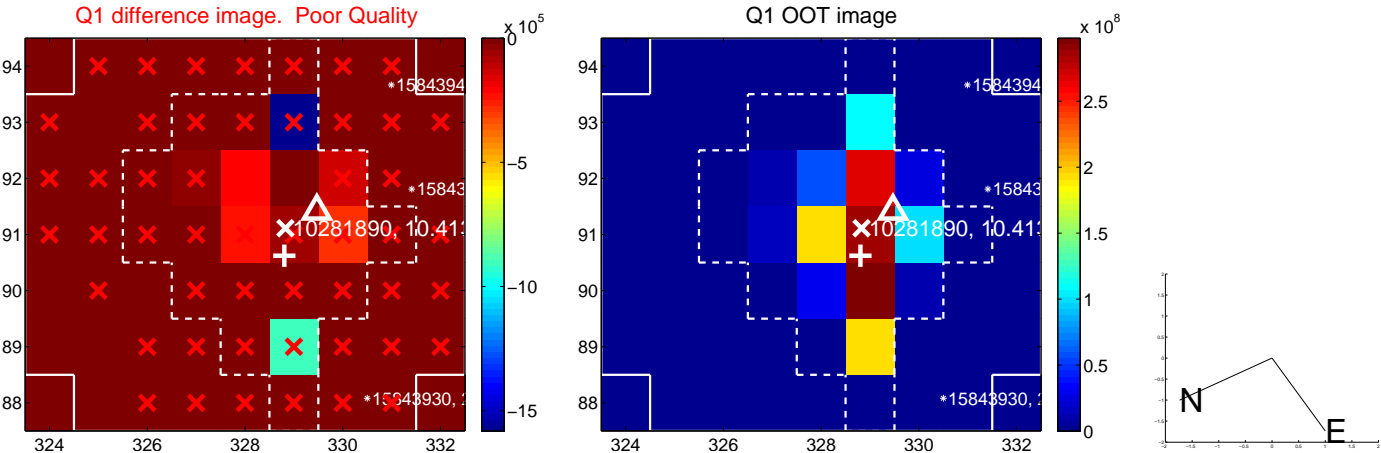


offset from photometric centroids

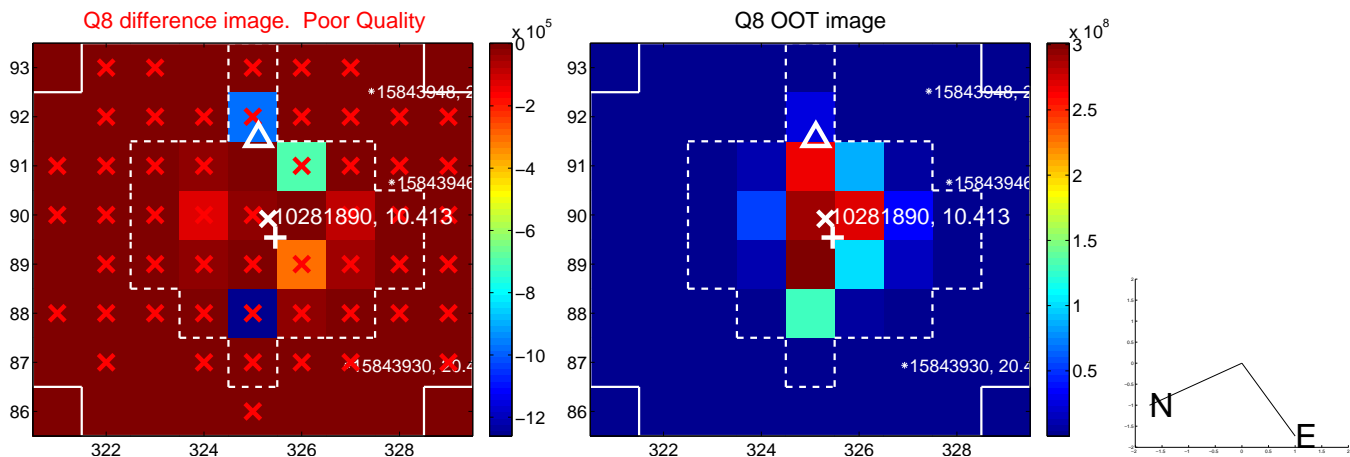
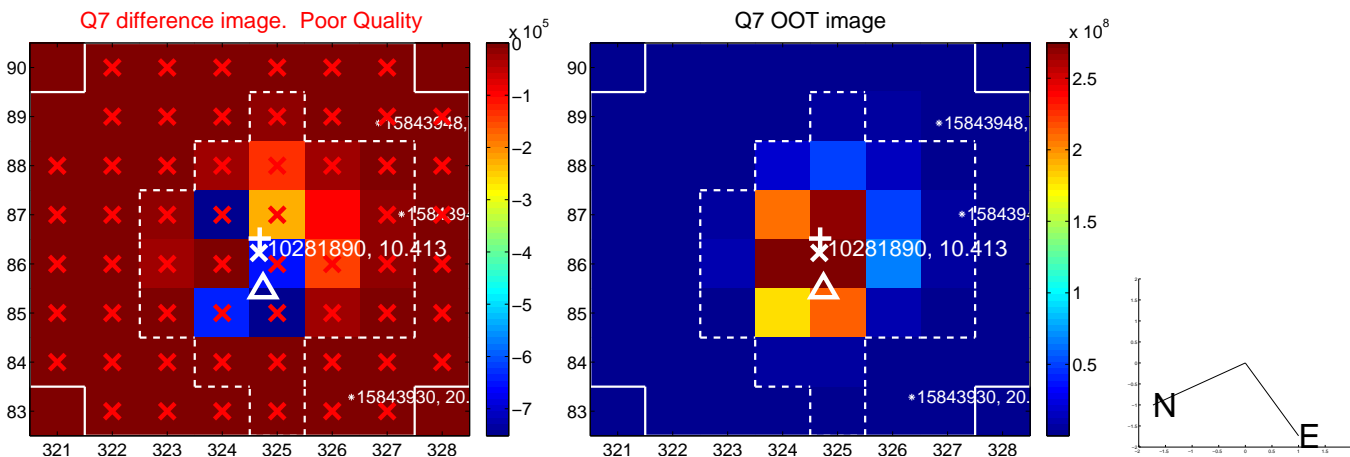
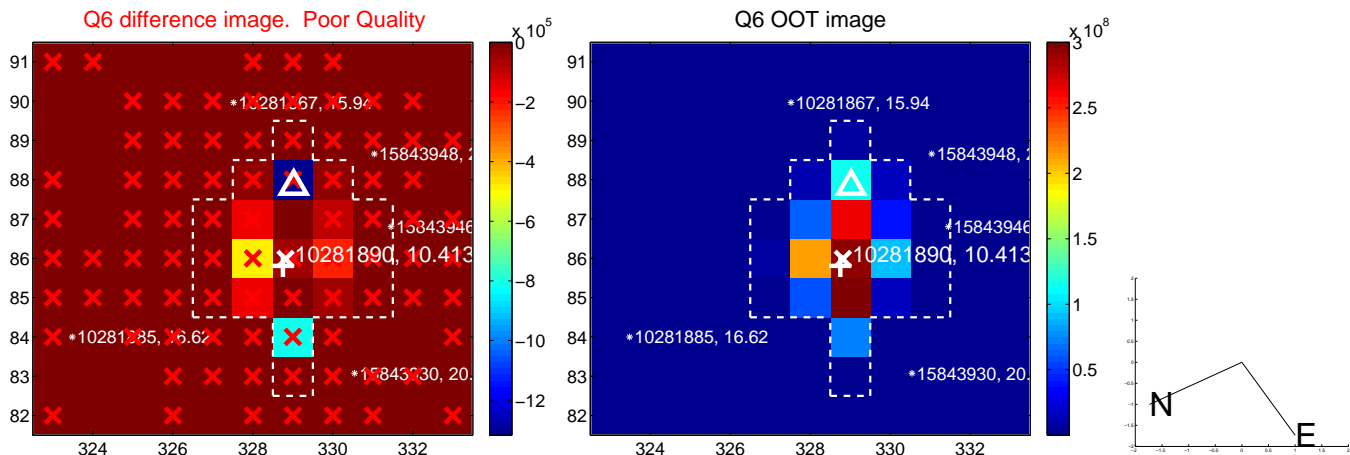
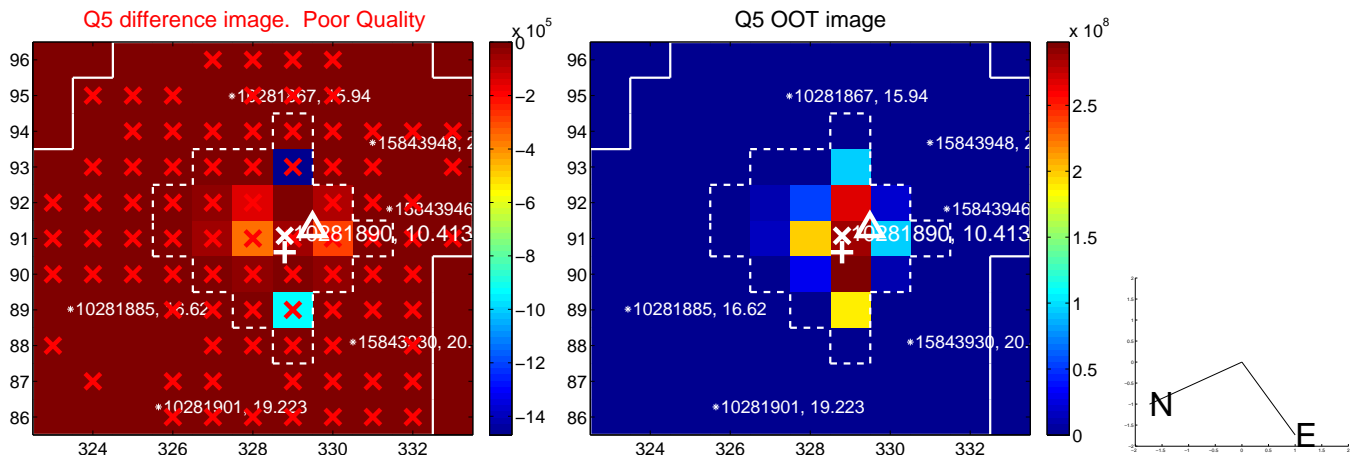


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

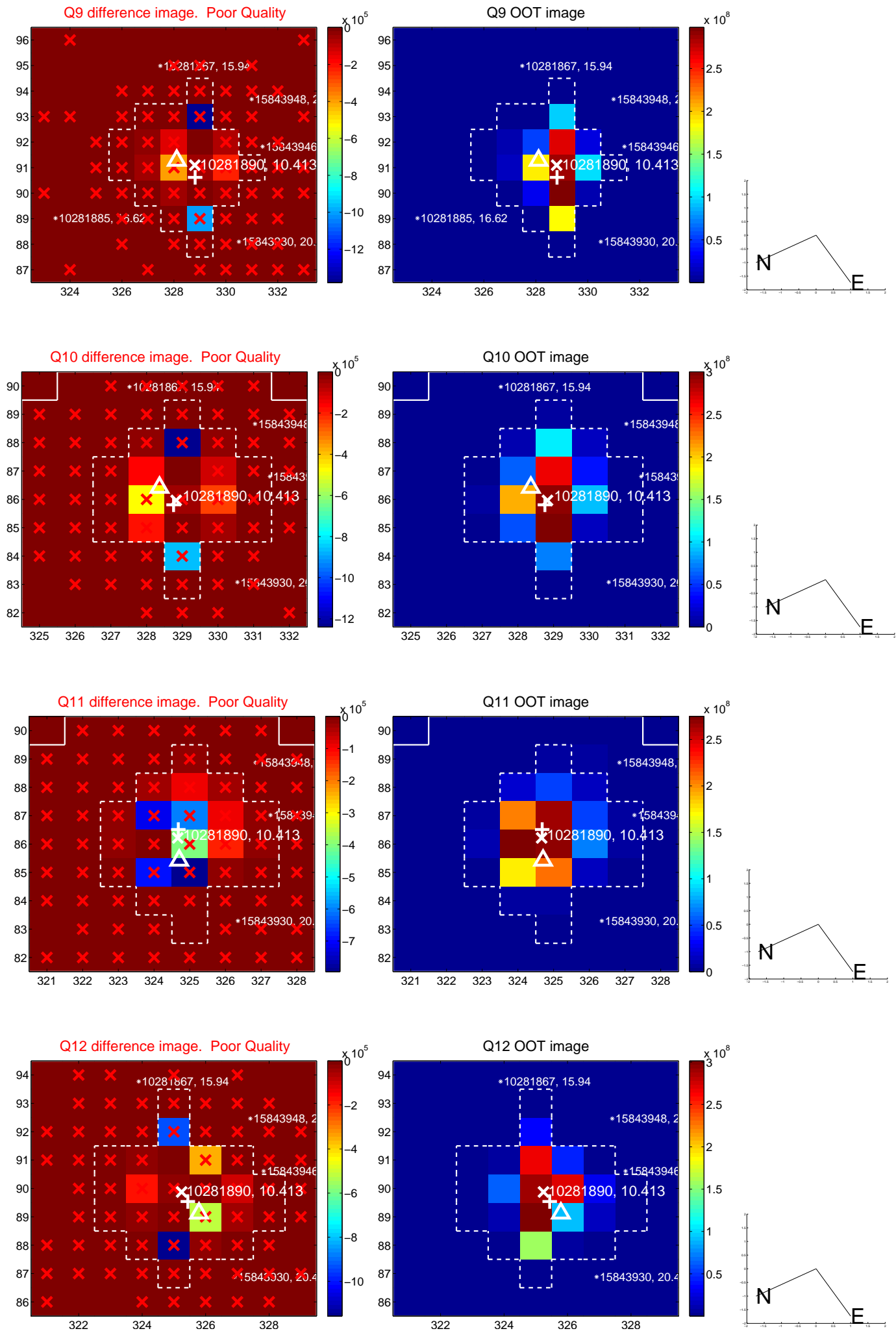
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



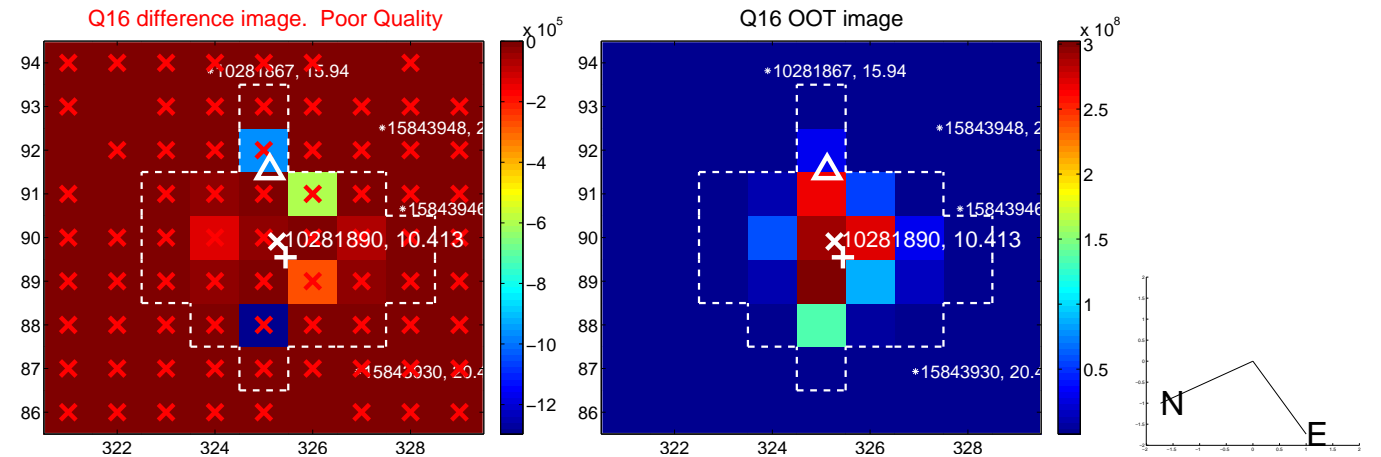
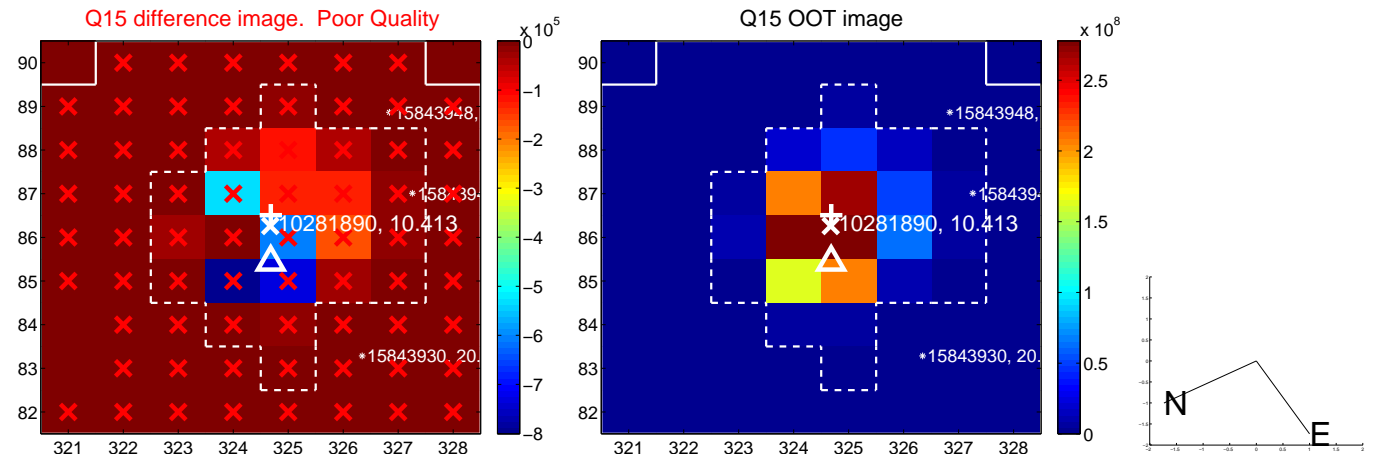
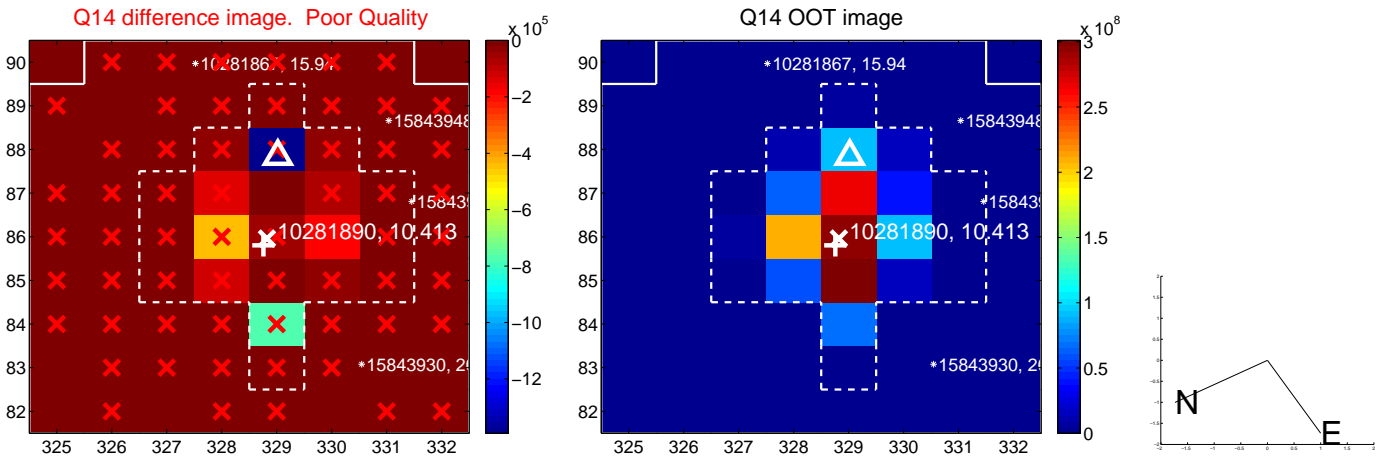
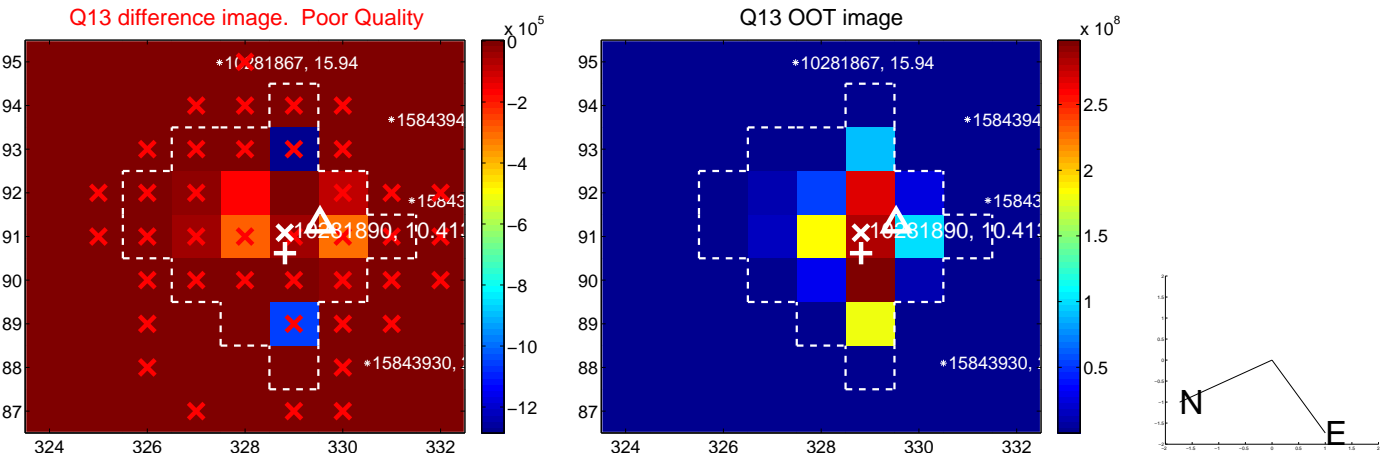
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



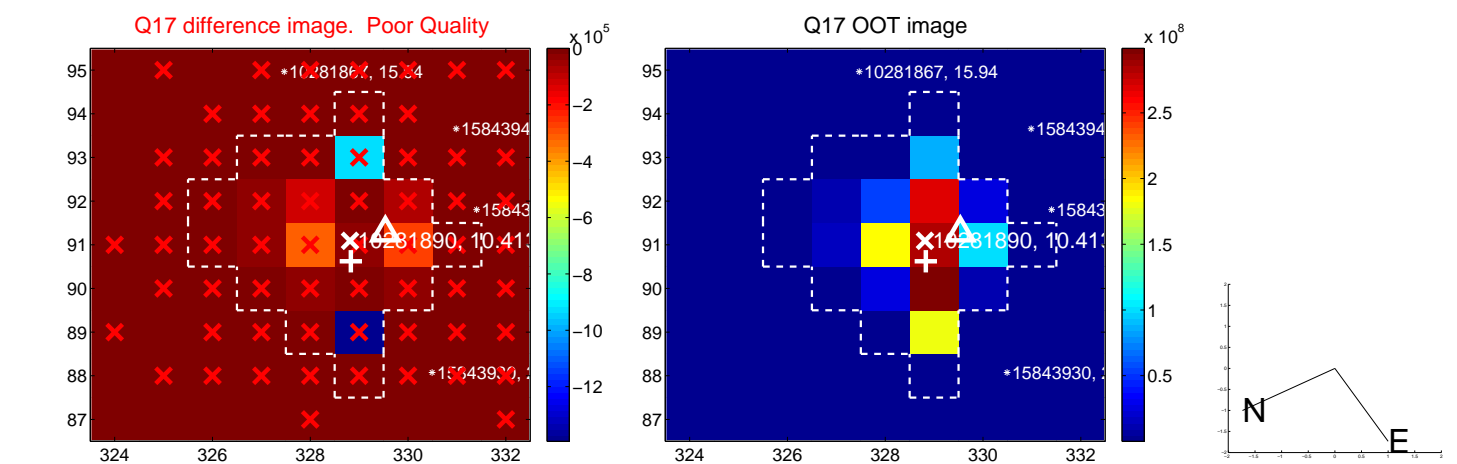
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



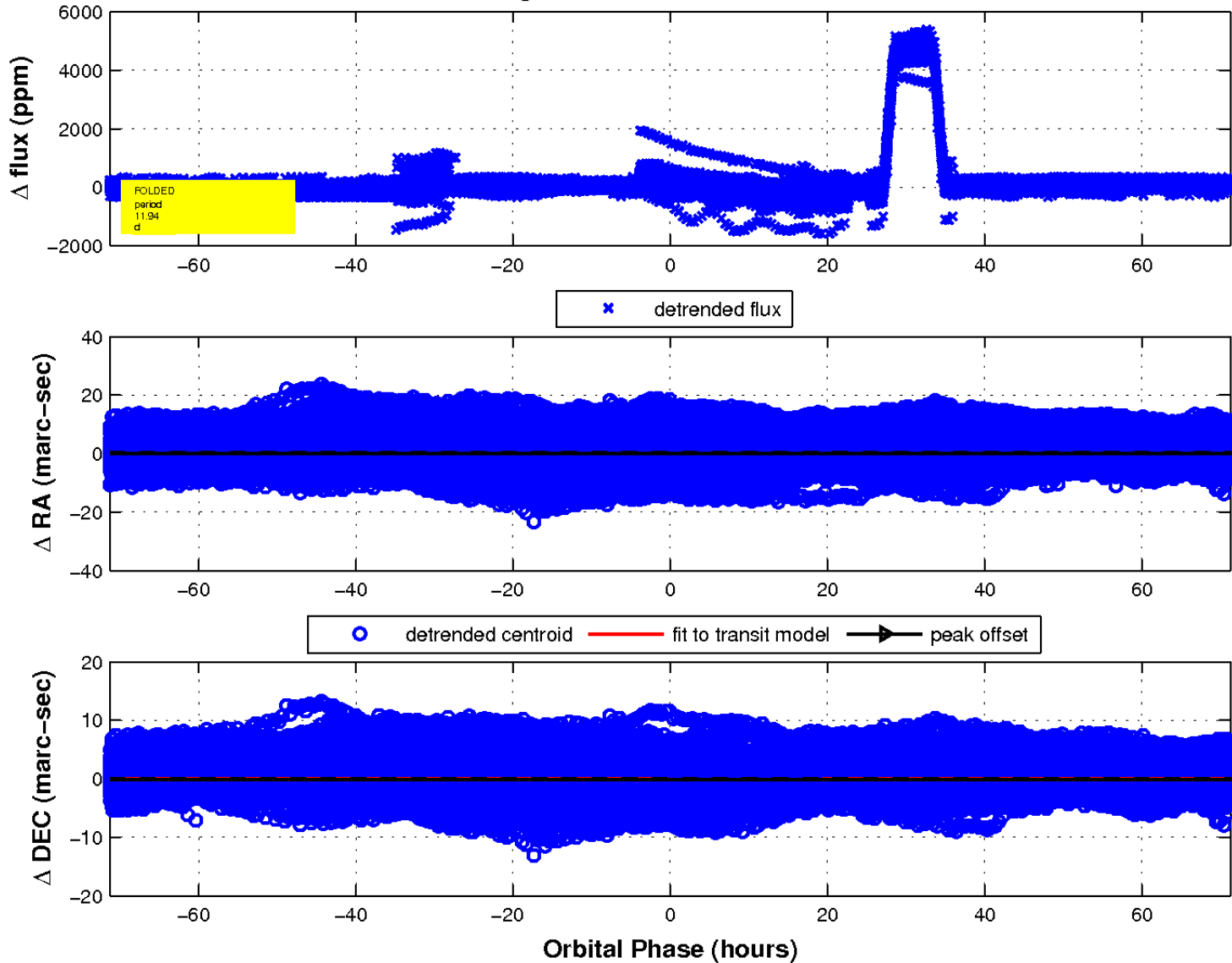
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



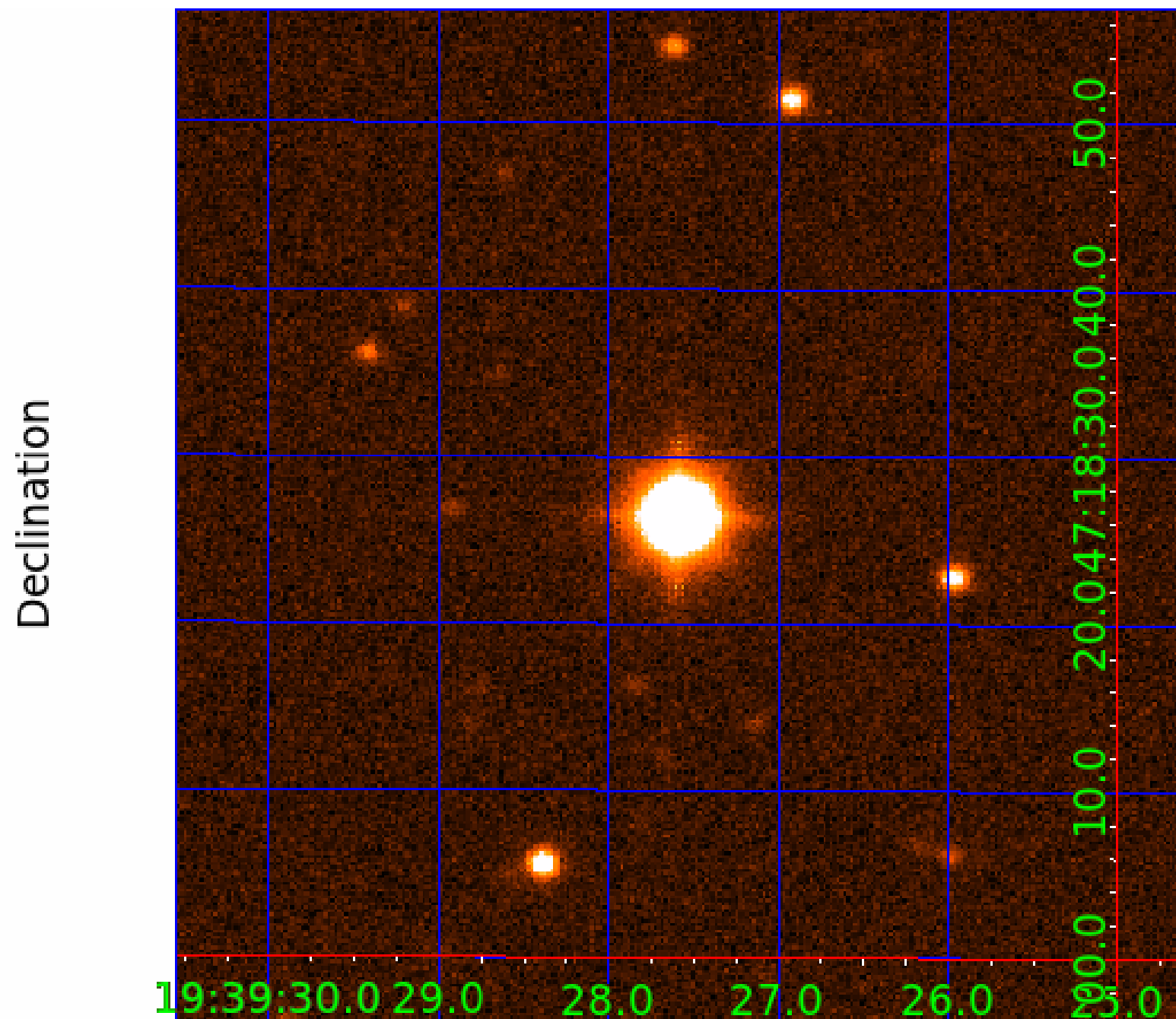
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 5



UKIRT Image



KIC 010281890

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})
010281890-01	OBS	No	11.943689	137.705217	5.8	3.833	27.6	3.3	2.58	10906	0.69	4058.31
010281890-02	OBS	No	11.941574	139.714682	5.8	0.655	24.0	1.8	2.58	10906	0.71	4059.27
010281890-03	OBS	No	11.942582	138.254069	39.0	7.500	23.9	-1.0	2.58	10906	1.66	4058.81
010281890-04	OBS	No	11.942835	139.790042	7.7	8.989	24.1	3.9	2.58	10906	0.82	4058.70
010281890-05	OBS	No	11.942582	139.187201	100.8	7.500	19.7	-1.0	2.58	10906	2.67	4058.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010281890-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010281890-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010281890-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED—HALO_GHOST
010281890-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED—HALO_GHOST
010281890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

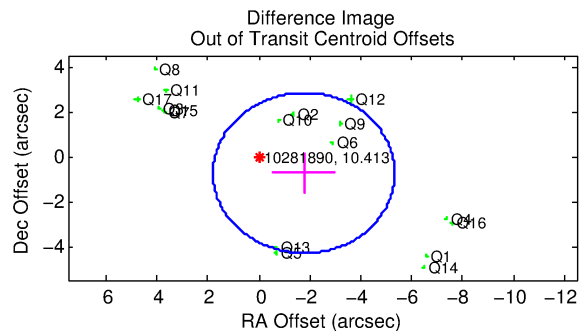
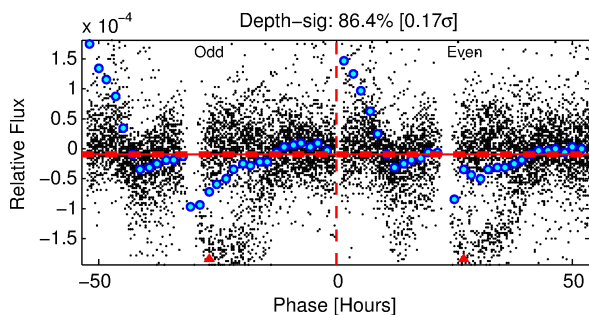
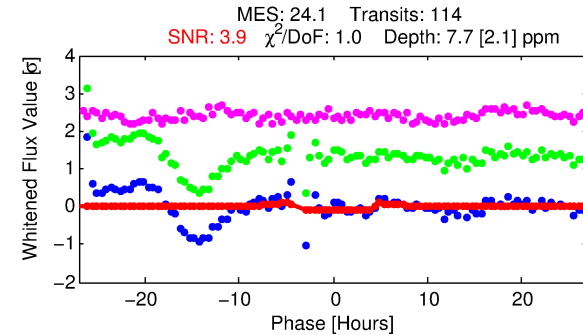
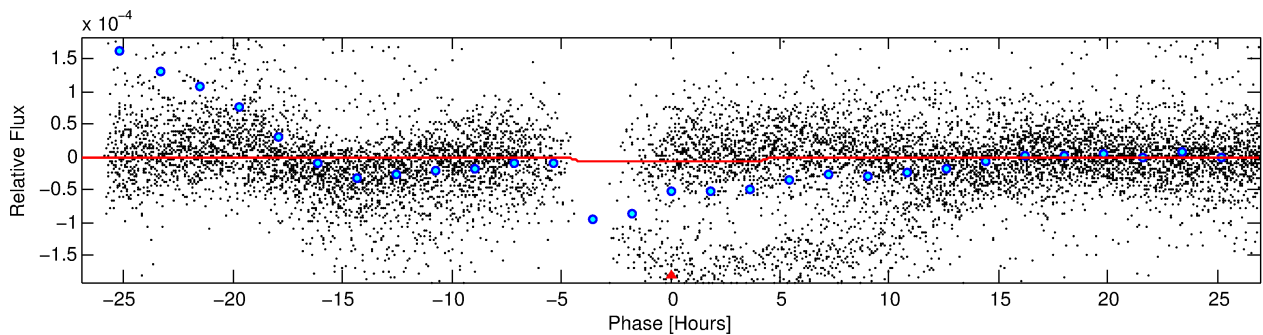
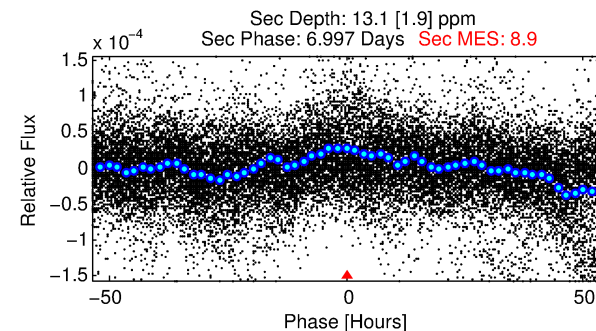
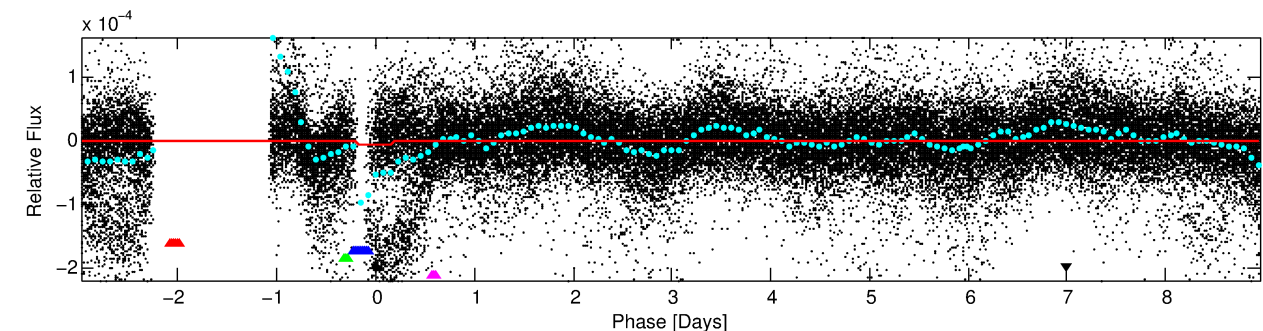
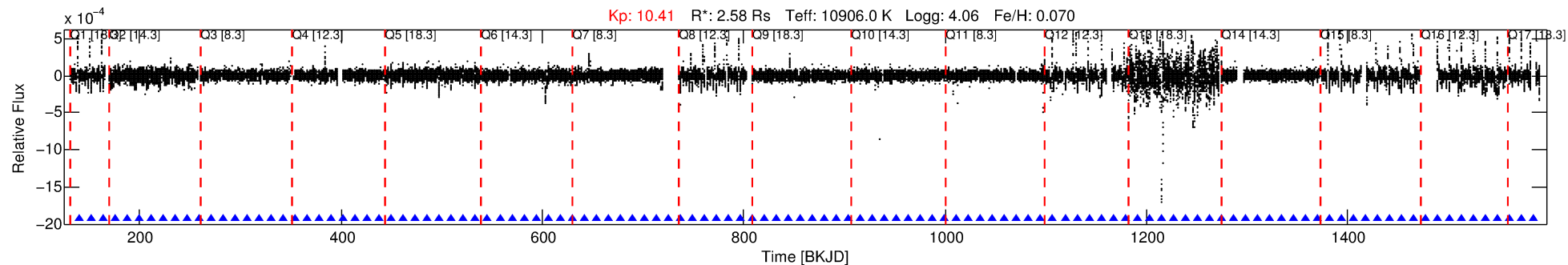
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010281890-04

No Significant Match Found

DV One-Page Summary

KIC: 10281890 Candidate: 4 of 5 Period: 11.943 d



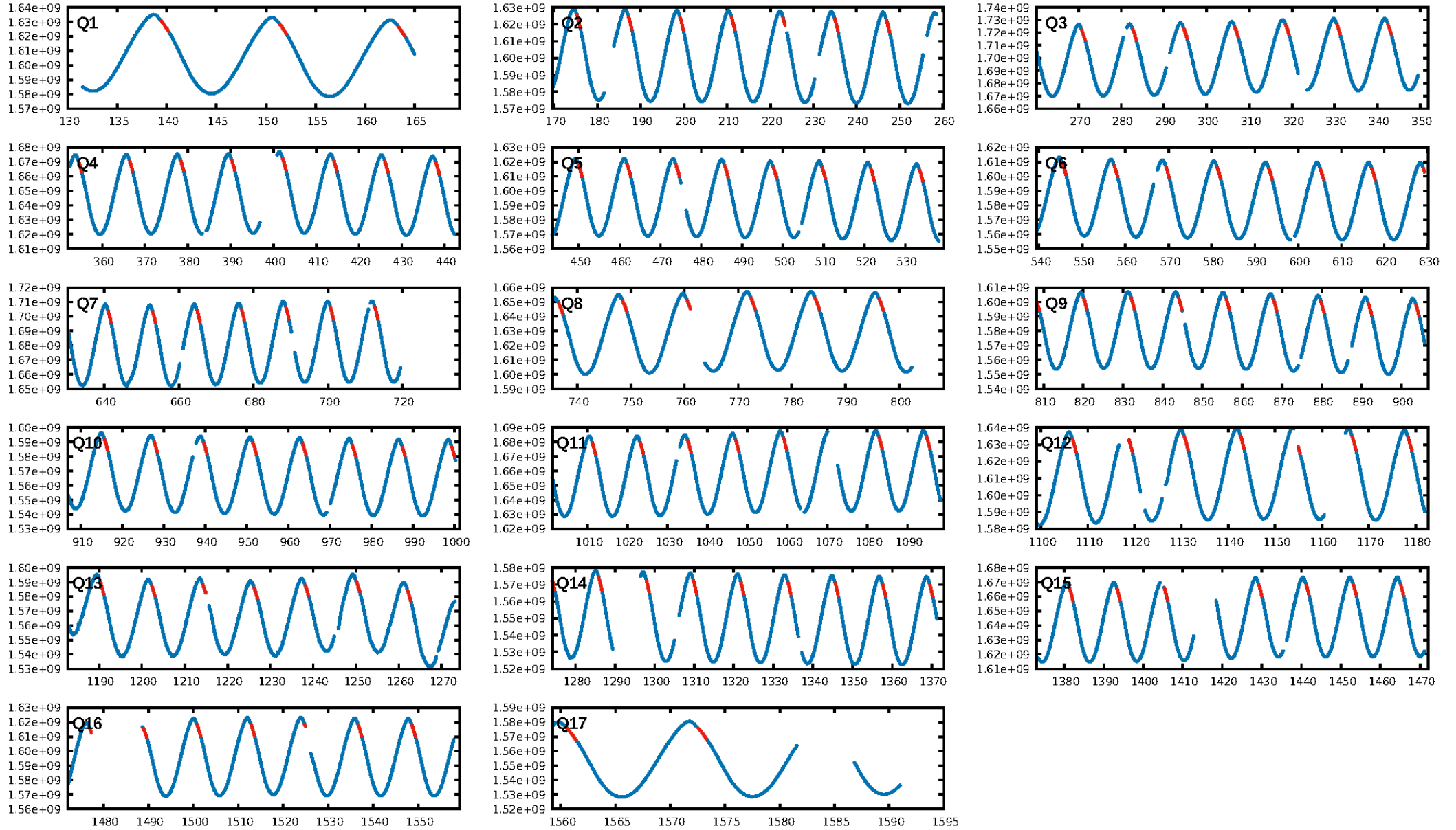
DV Fit Results:

Period = 11.94284 [0.00032] d
Epoch = 139.7900 [0.0268] BKJD
Rp/R* = 0.0029 [0.0006]
a/R* = 4.62 [5.79]
b = 0.90 [0.28]
Seff = 4058.70 [1683.64]
Teff = 2035 [211] K
Rp = 0.82 [0.30] Re
a = 0.1445 [0.0370] AU
Ag = 225.92 [129.87] [1.73σ]
Teffp = 12200 [1462] K [6.88σ]

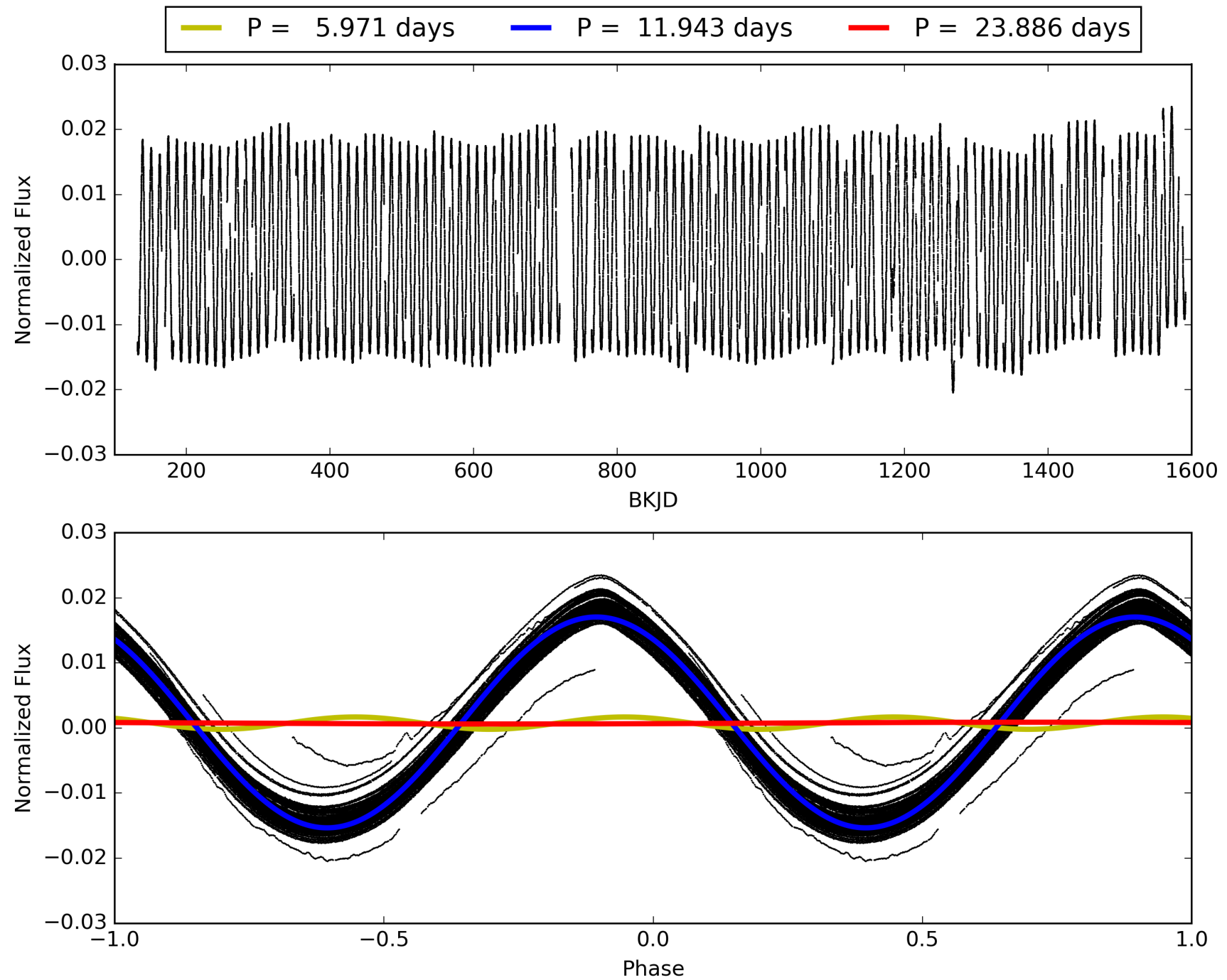
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.2% [0.00σ]
ModelChiSquare2-sig: 40.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.12e-86
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: -0.1106
Centroid-sig: 18.9%
Centroid-so: 10.723 arcsec [0.86σ]
OotOffset-rm: 1.918 arcsec [1.61σ]
KicOffset-rm: 1.192 arcsec [1.14σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 010281890-04, PDC Light Curves

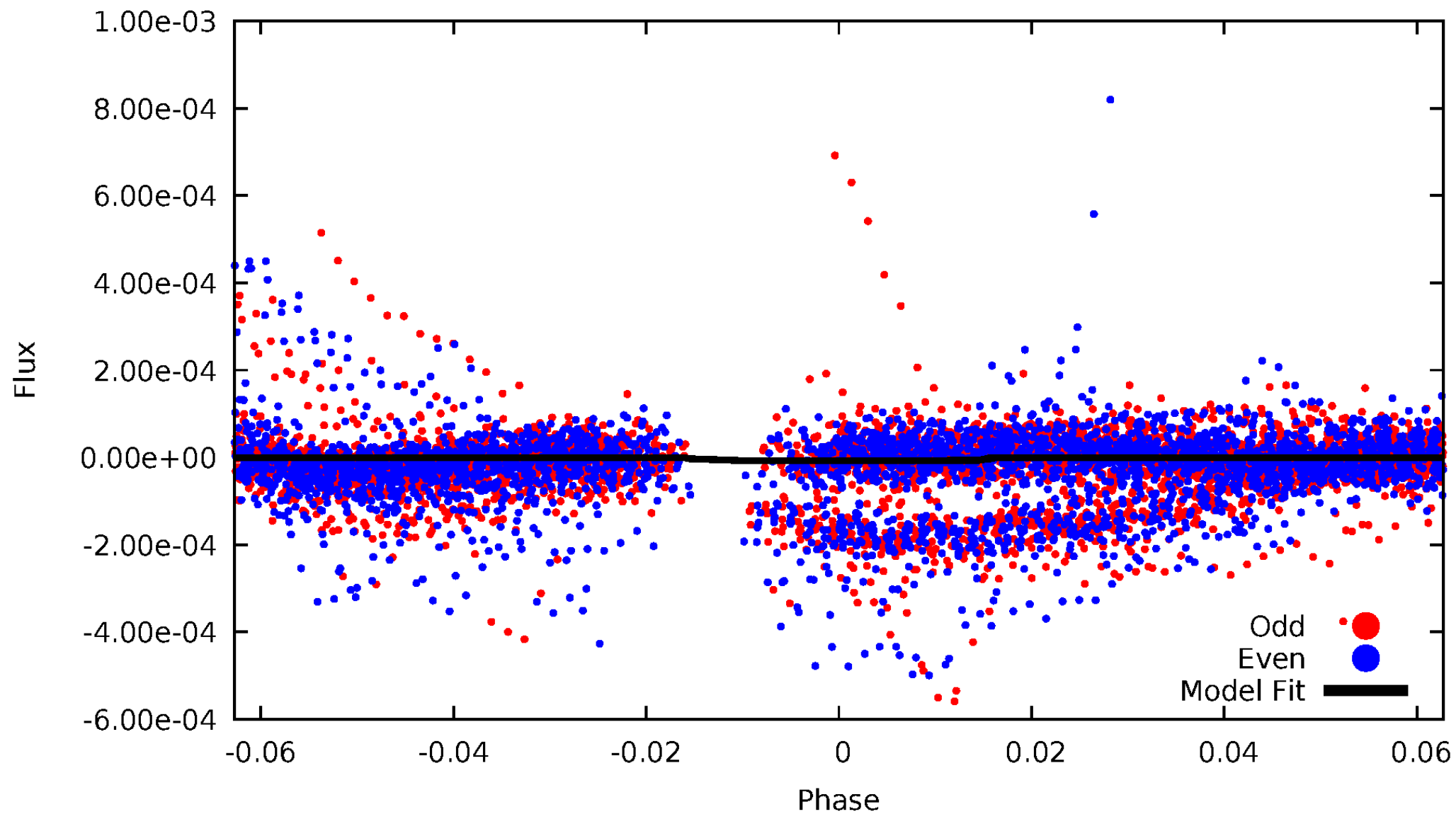


TCE 010281890-04



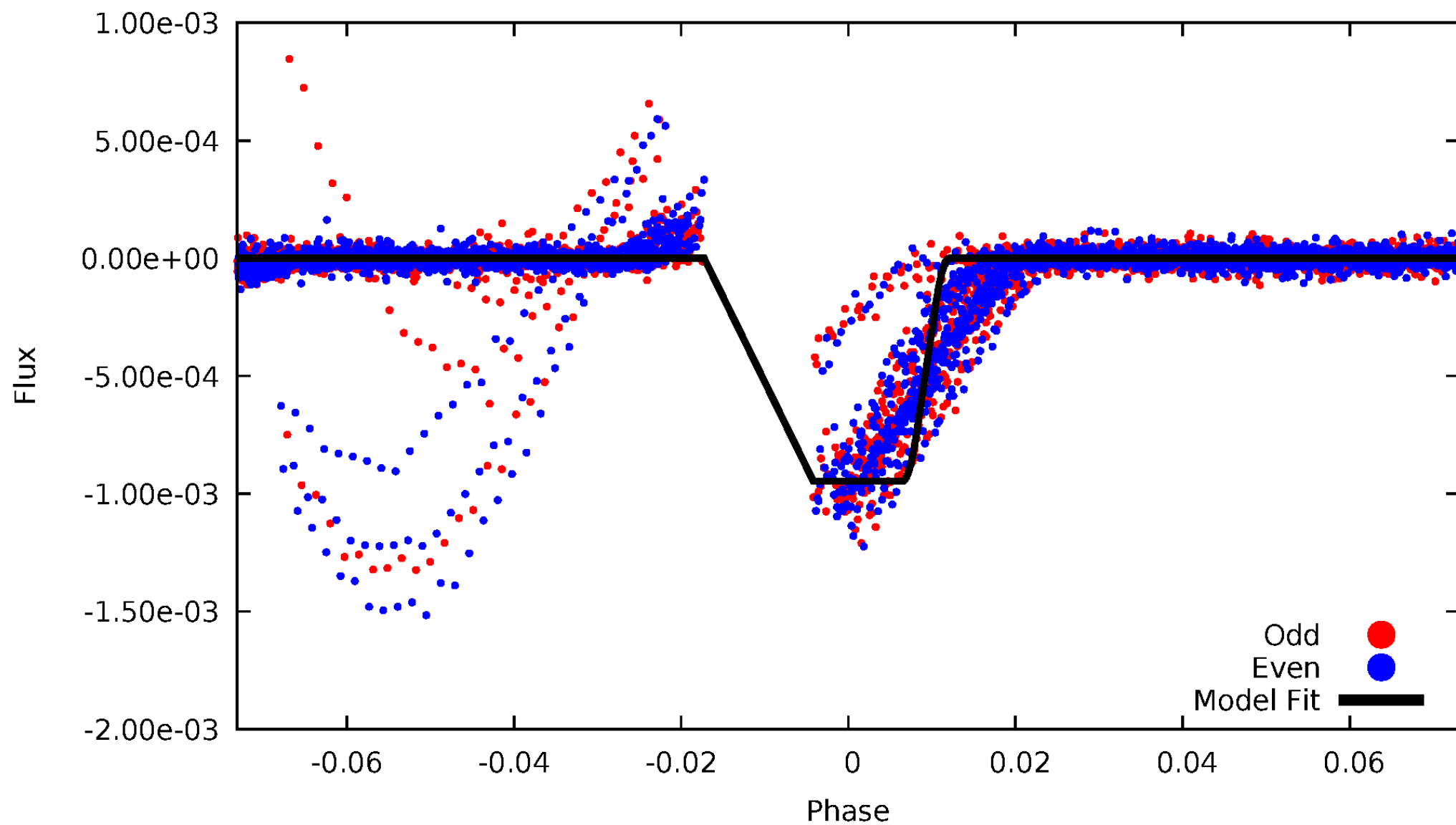
DV Odd/Even

TCE 010281890-04



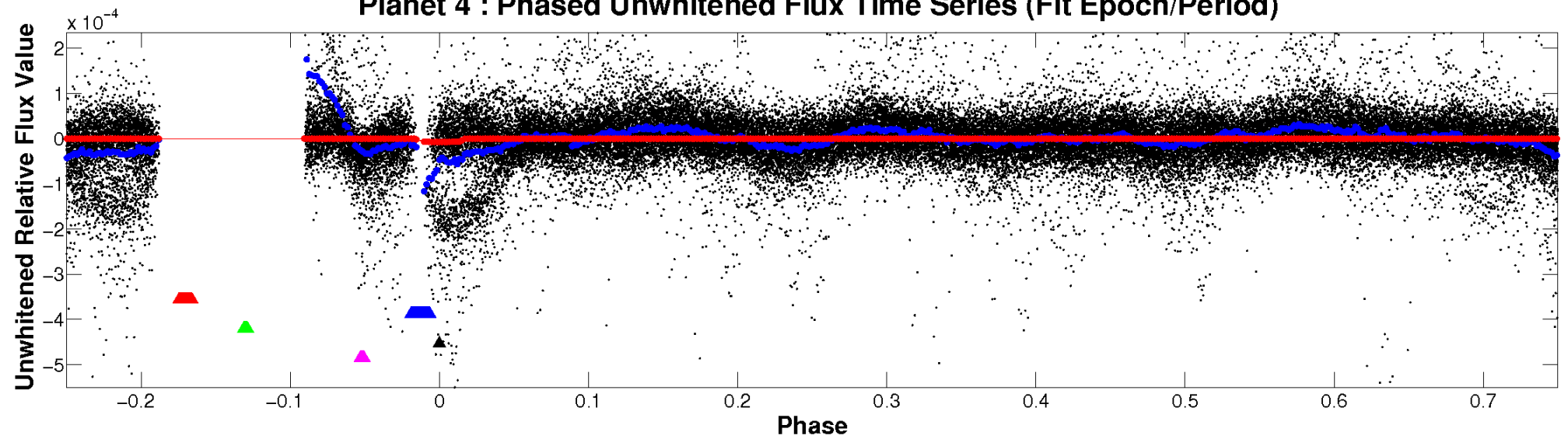
ALT Odd/Even

TCE 010281890-04

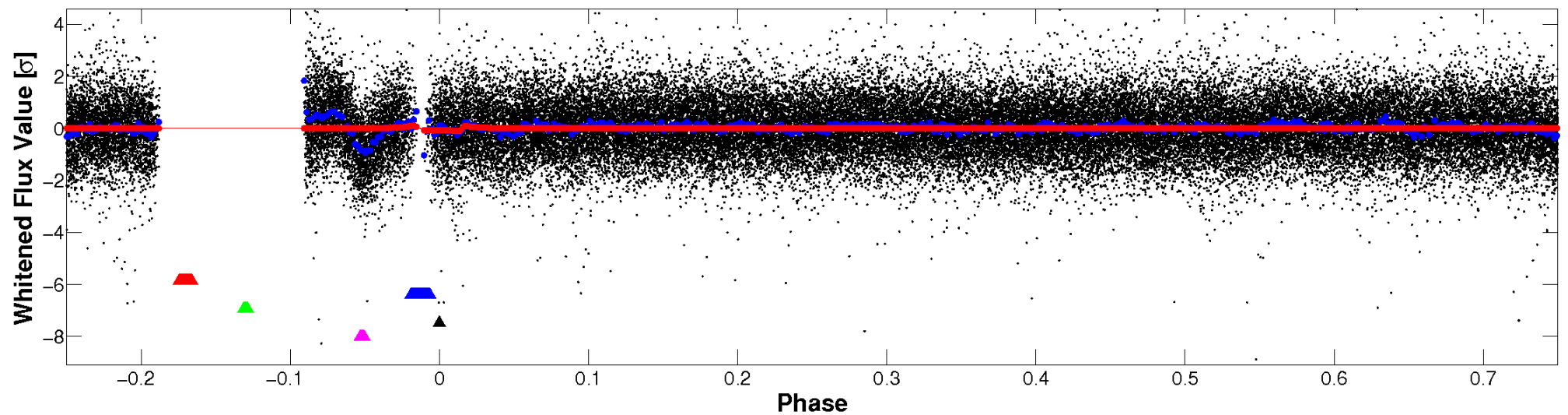


Non-Whitened Vs. Whitened Light Curve

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

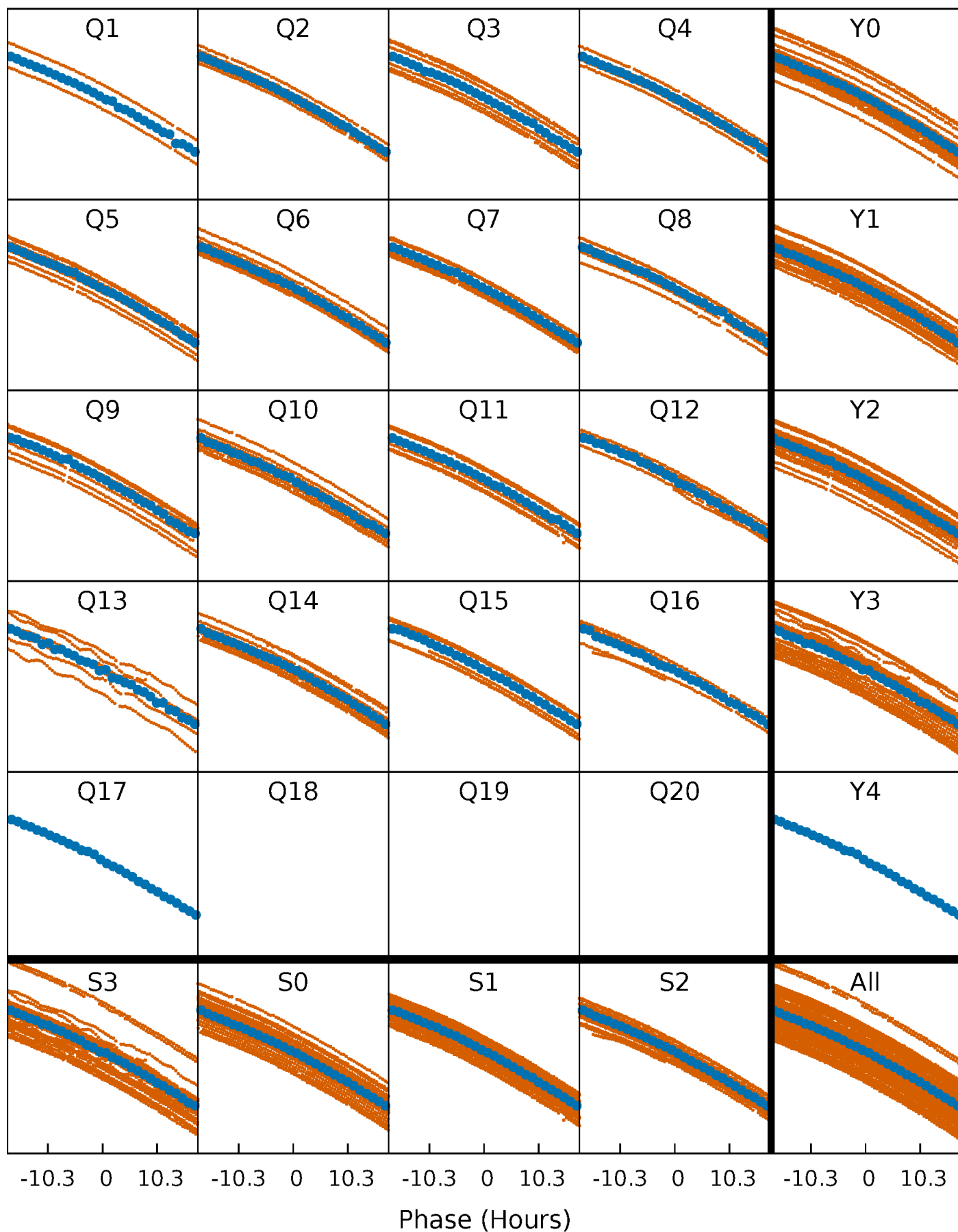


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



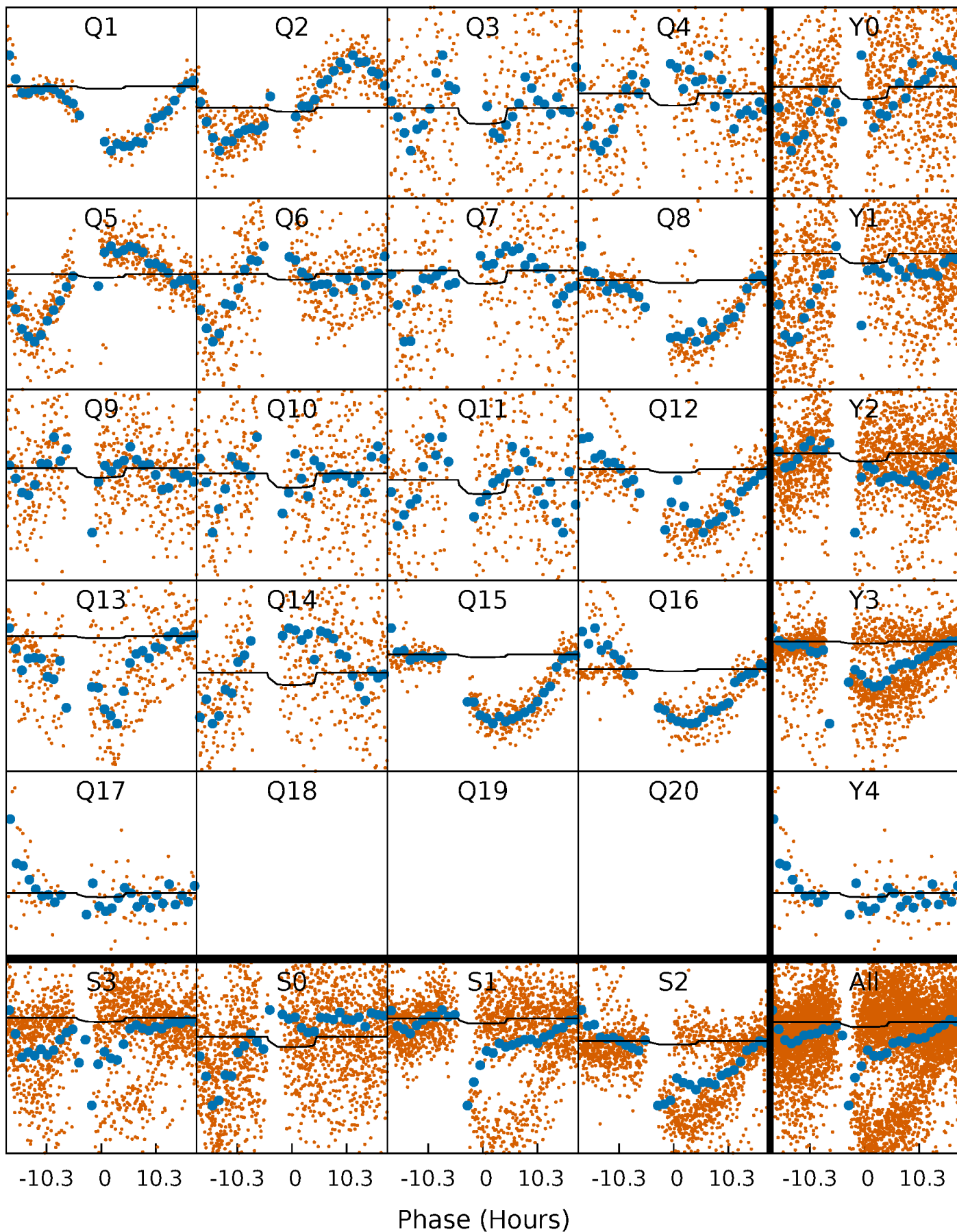
PDC Quarter-Phased Transit Curves

TCE 010281890-04 P= 11.942835 Days $T_0=139.790042$ (BKJD)



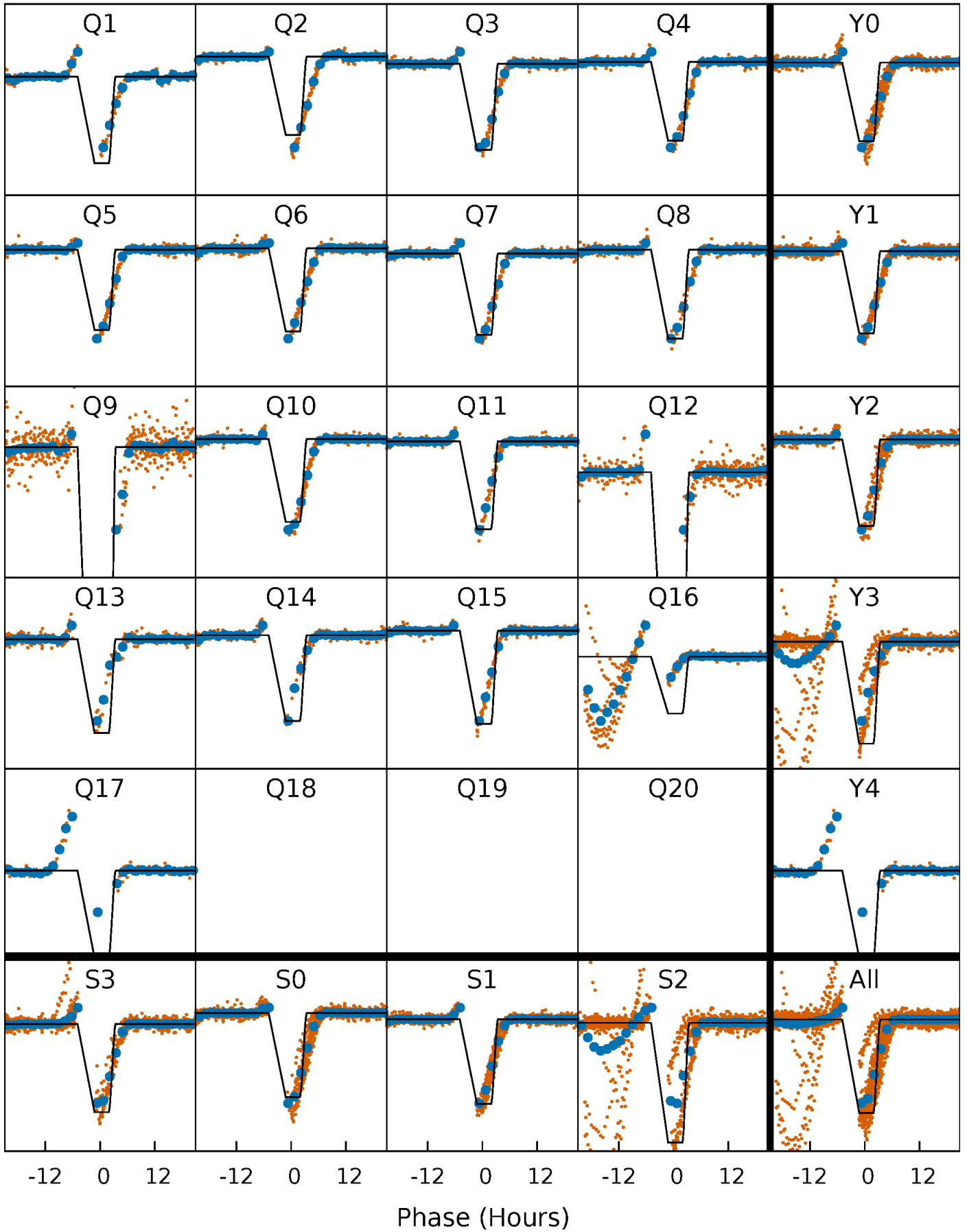
DV Quarter-Phased Transit Curves

TCE 010281890-04 P= 11.942835 Days $T_0=139.790042$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

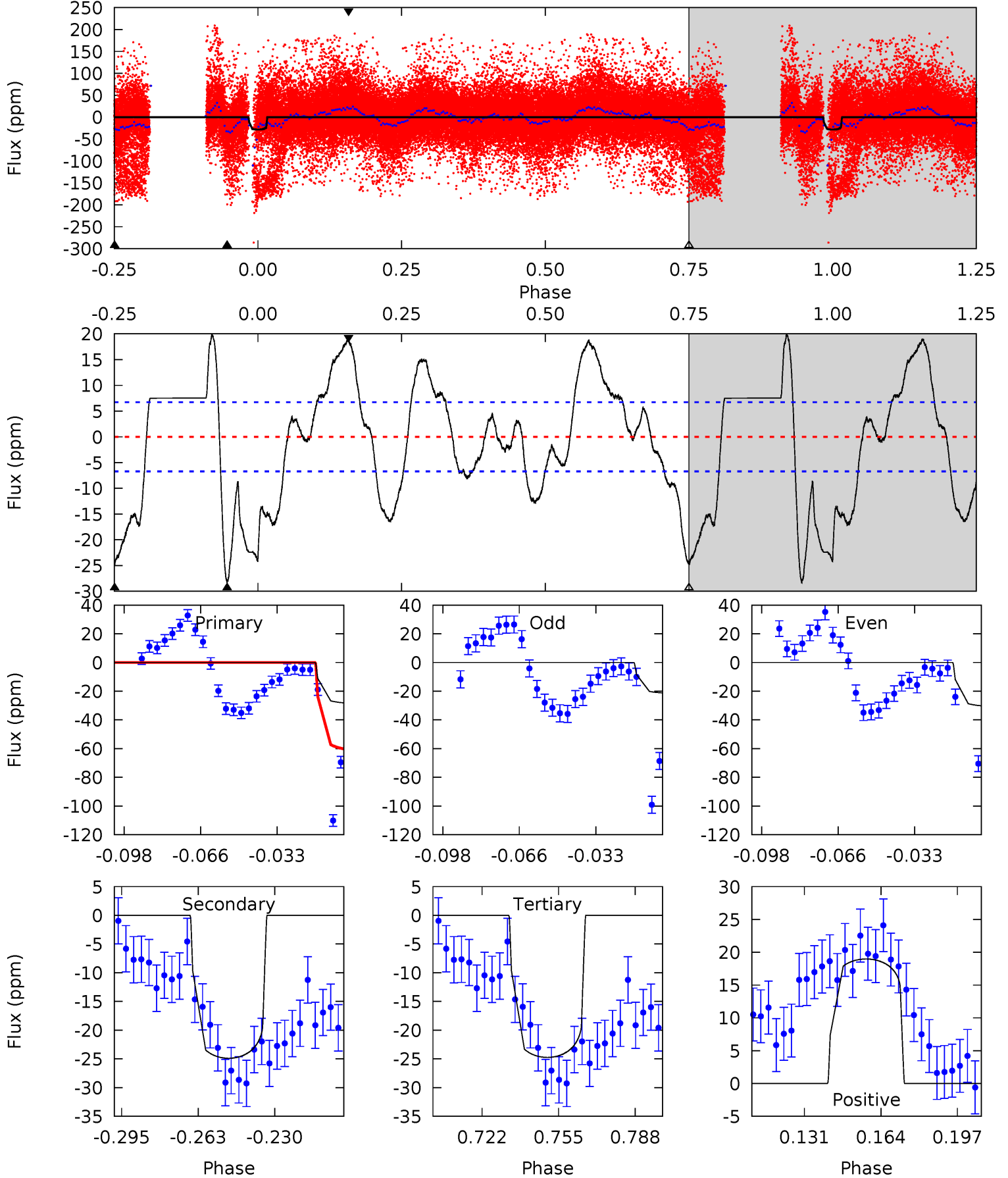
TCE 010281890-04 P= 11.942074 Days $T_0=139.813752$ (BKJD)



DV Model-Shift Uniqueness Test

010281890-04, P = 11.942835 Days, E = 127.847207 Days

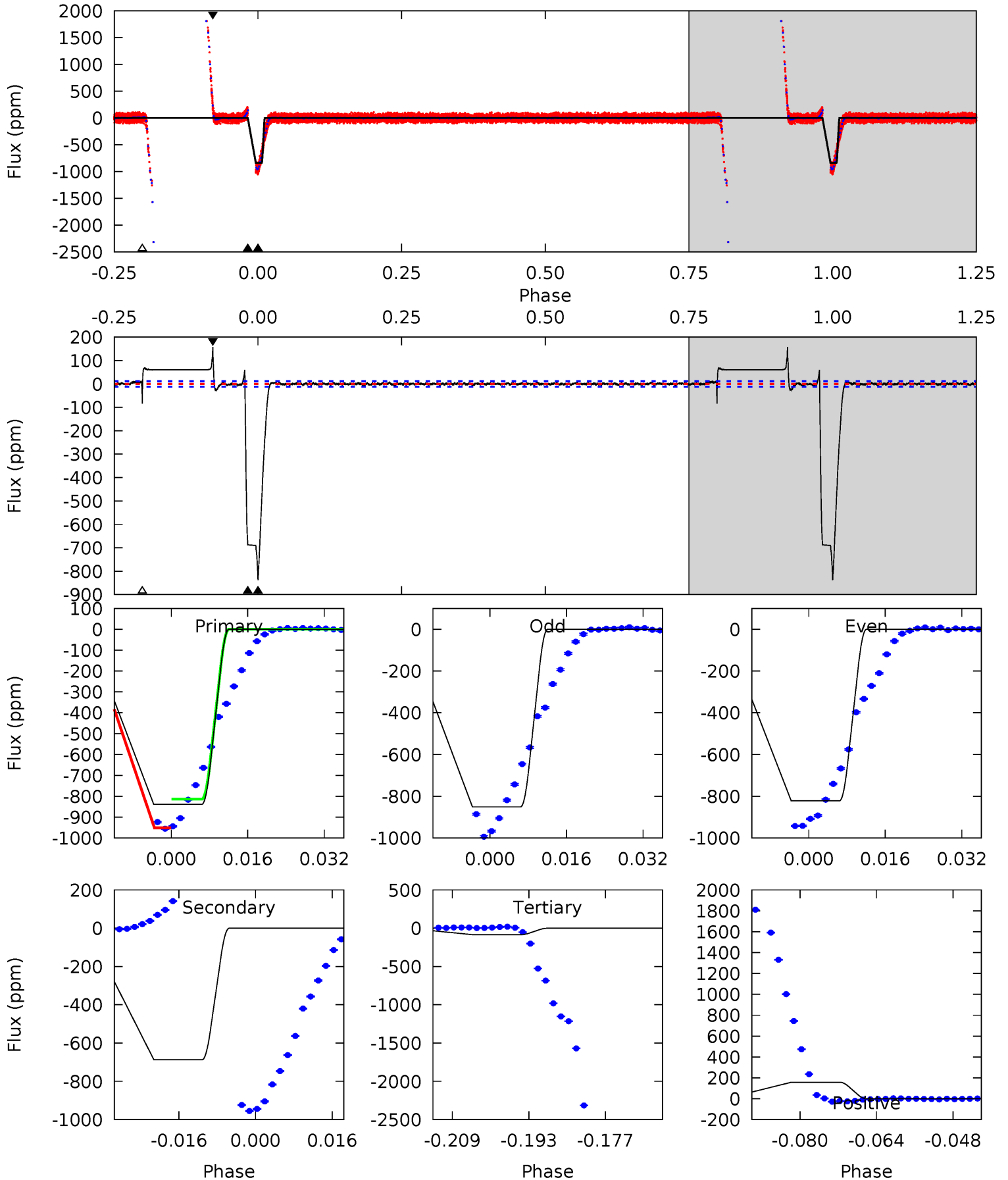
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	17.8	17.7	13.5	4.79	2.13	7.20	2.58	6.70	0.11	4.23	3.24	7.80	0.41	12.8



Alt Model-Shift Uniqueness Test

010281890-04, P = 11.942074 Days, E = 127.871678 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
351.3	288.1	35.1	66.0	4.93	2.41	2.33	316.2	285.3	252.9	222.0	5.65	0.95	0.16	0



Stellar Parameters For KIC 010281890

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	10906^{+220}_{-515}	$4.063^{+0.200}_{-0.200}$	$0.070^{+0.150}_{-0.550}$	$2.585^{+0.796}_{-0.796}$	$2.819^{+0.310}_{-0.619}$	$0.230^{+0.317}_{-0.127}$
	+2%/-5%	+5%/-5%	+214%/-786%	+31%/-31%	+11%/-22%	+138%/-55%
Source	KIC0	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 010281890-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-25 ± 1	$0.80^{+0.22}_{-0.20}$	2829^{+221}_{-234}	17927^{+5412}_{-3506}	434^{+322}_{-164}
Alt.	-687 ± 2	$8.70^{+1.51}_{-1.41}$	2822^{+239}_{-226}	9632^{+277}_{-414}	102^{+34}_{-26}

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

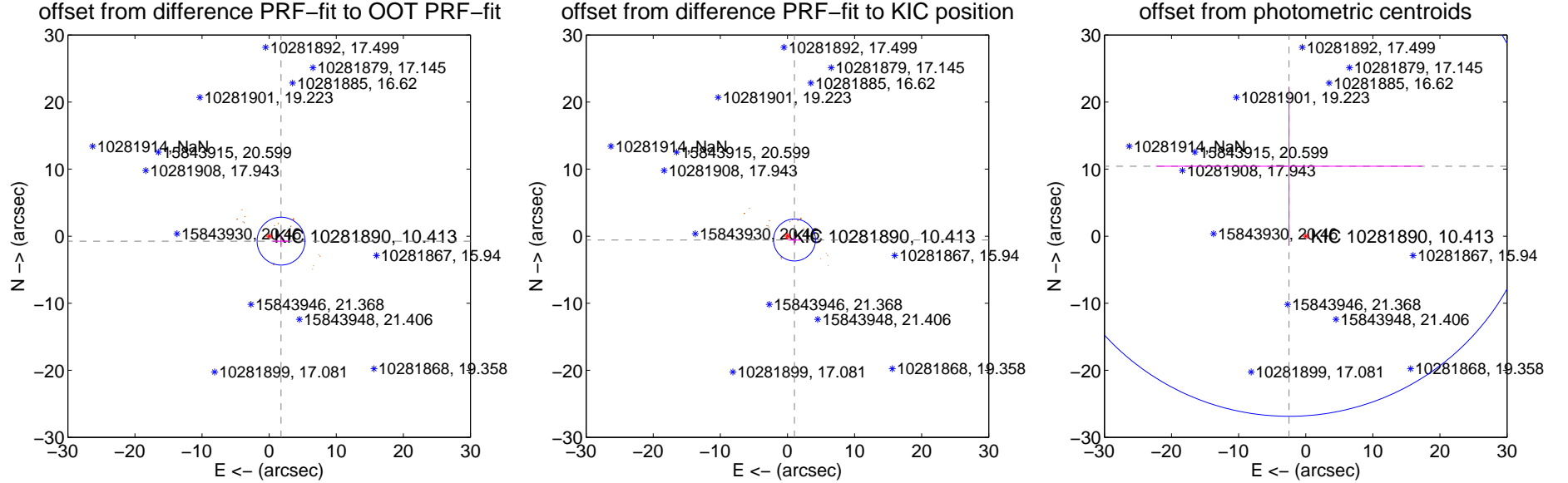
DV Centroid Data

Supplemental centroid analysis for 010281890-04. **Kepler magnitude: 10.41.** Transit SNR 3.87

There are 0 quarters with good PRF difference image offsets

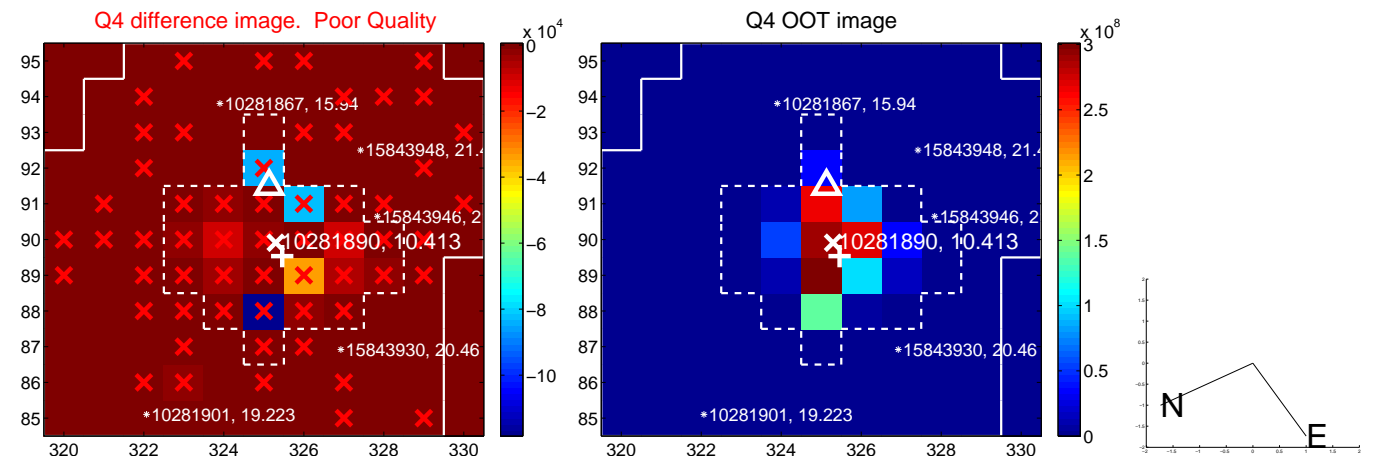
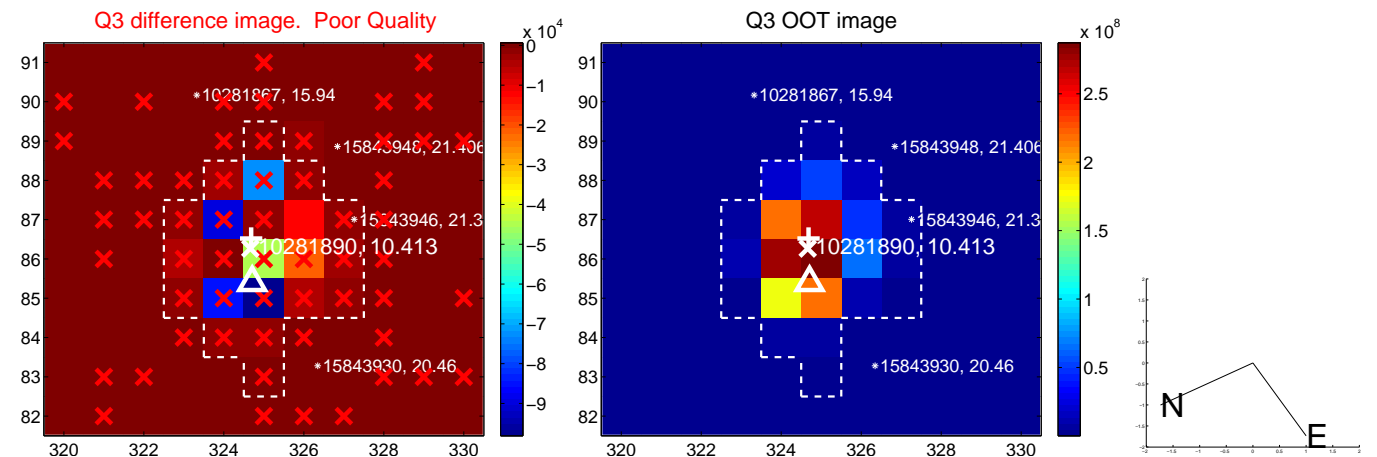
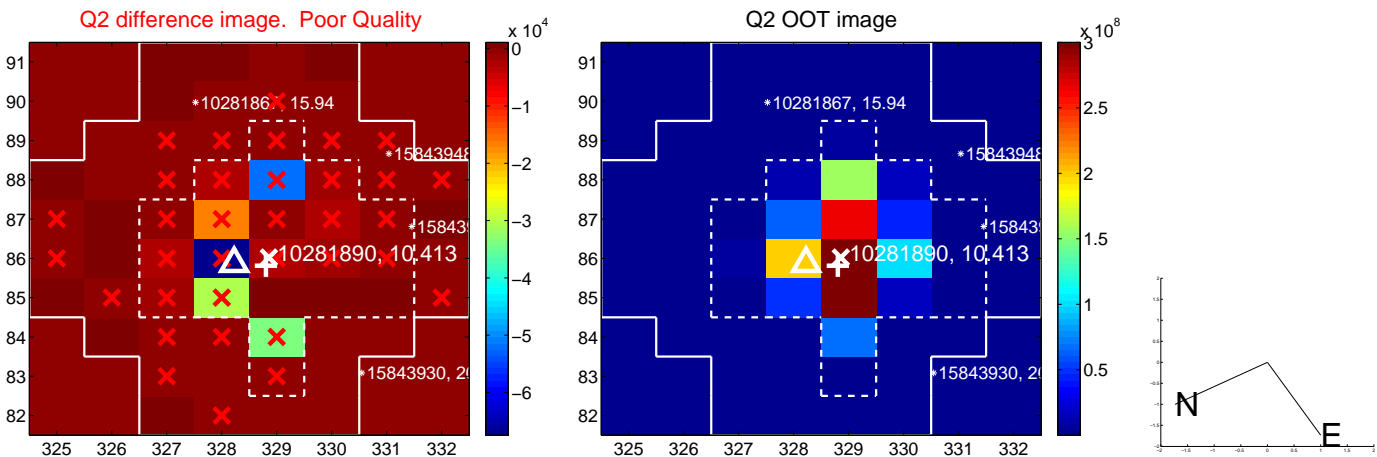
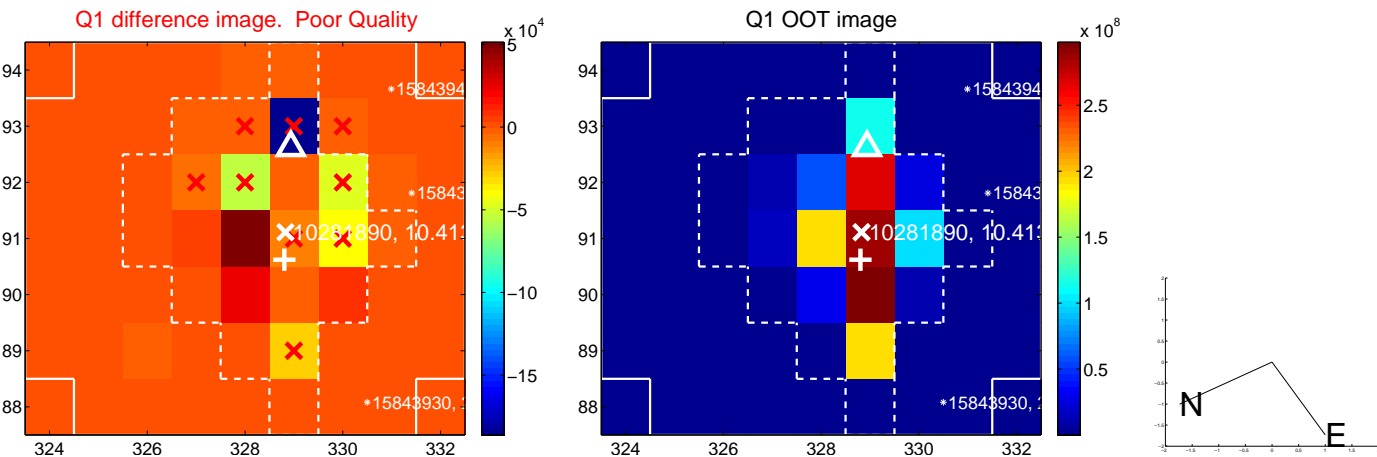
The direct PRF centroid is offset from the target star catalog position by about 1.86 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.918 ± 1.189	1.61	-1.770 ± 1.235	-0.739 ± 0.885
PRF-fit source offset from KIC position	1.192 ± 1.041	1.14	-1.047 ± 0.916	-0.569 ± 0.636
photometric centroid source offset	10.72 ± 12.43	0.86	2.49 ± 19.85	10.43 ± 11.87

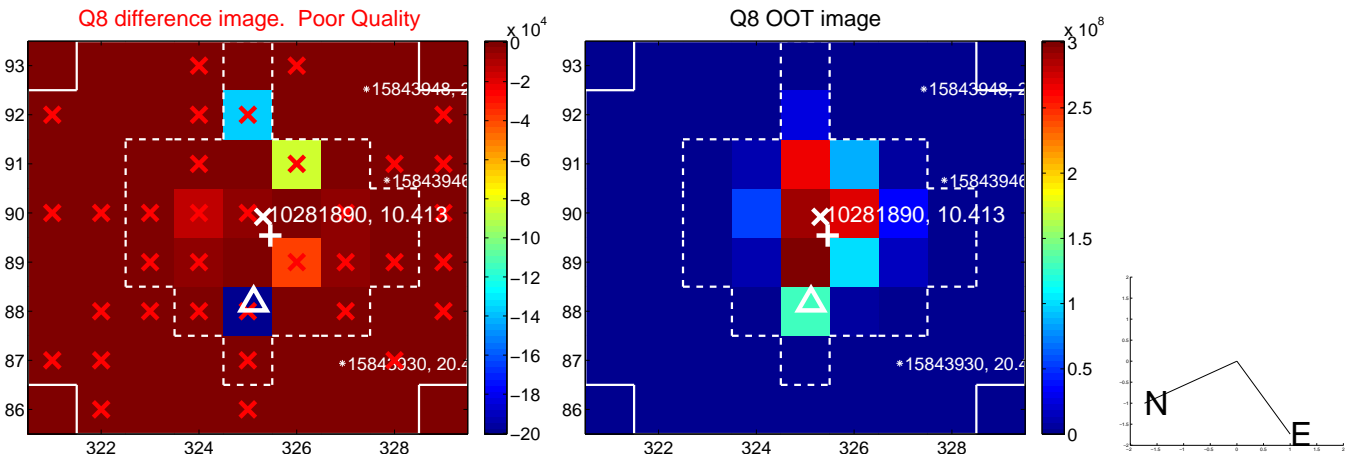
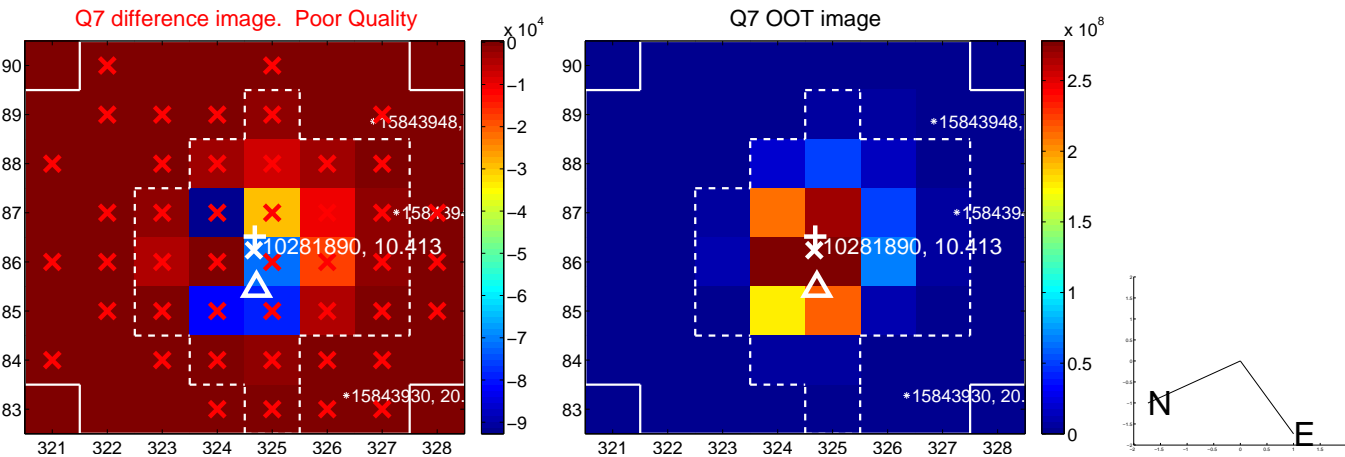
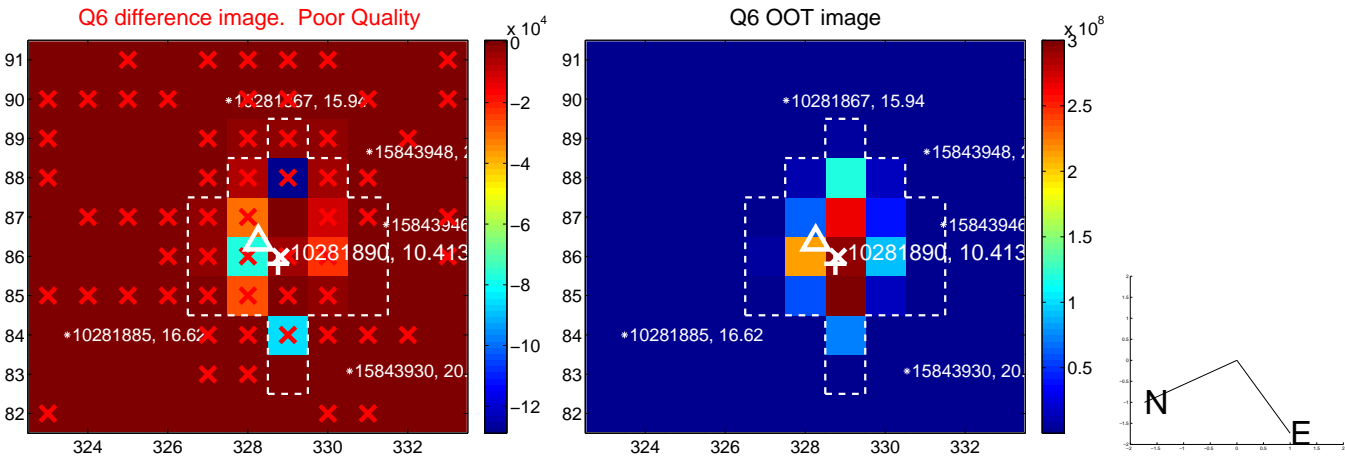
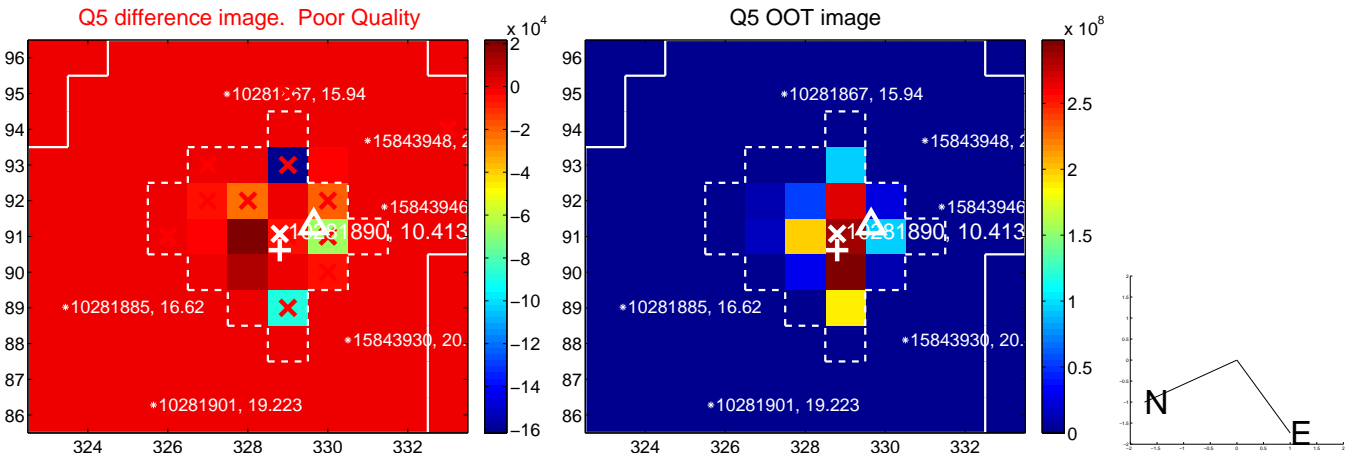


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

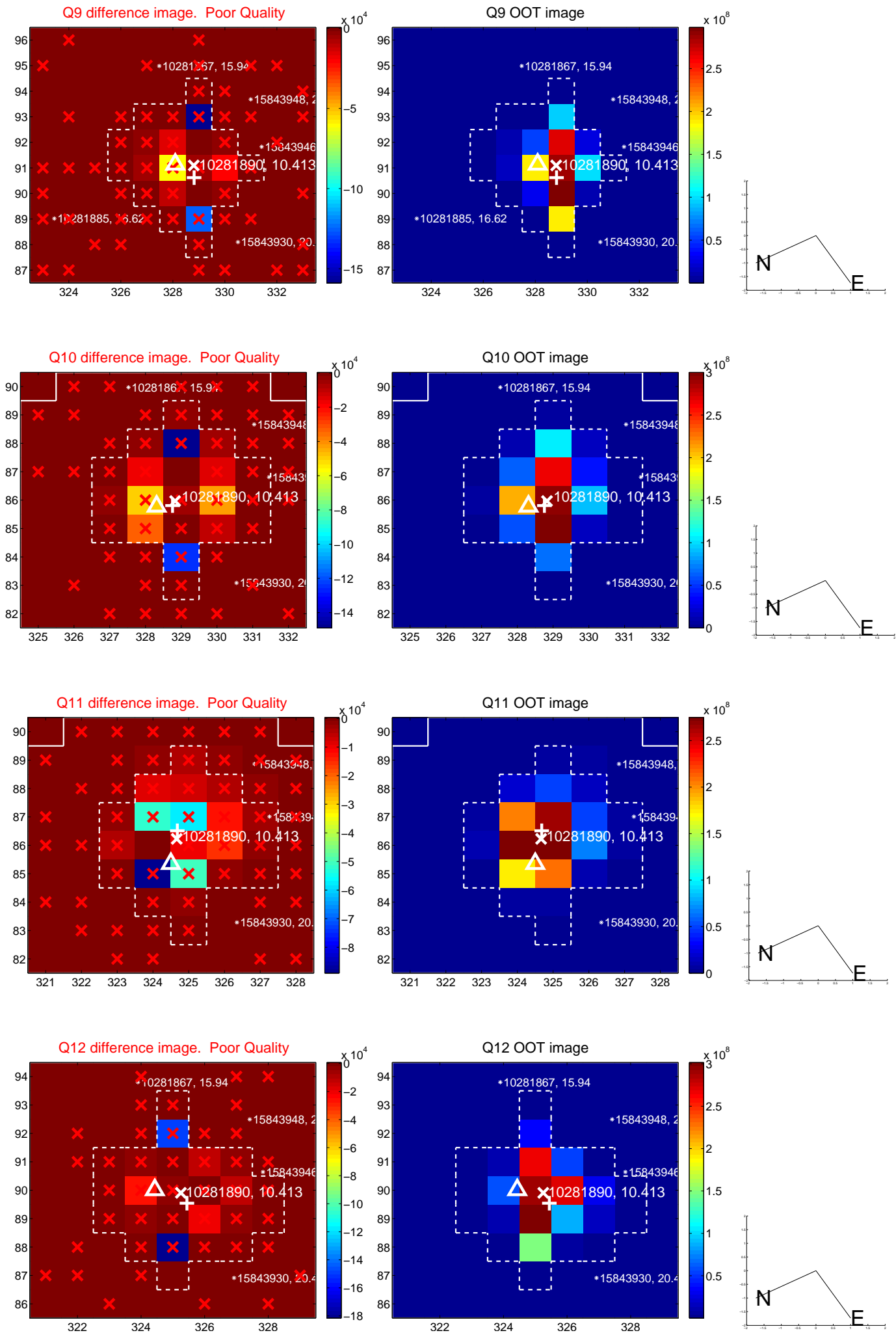
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



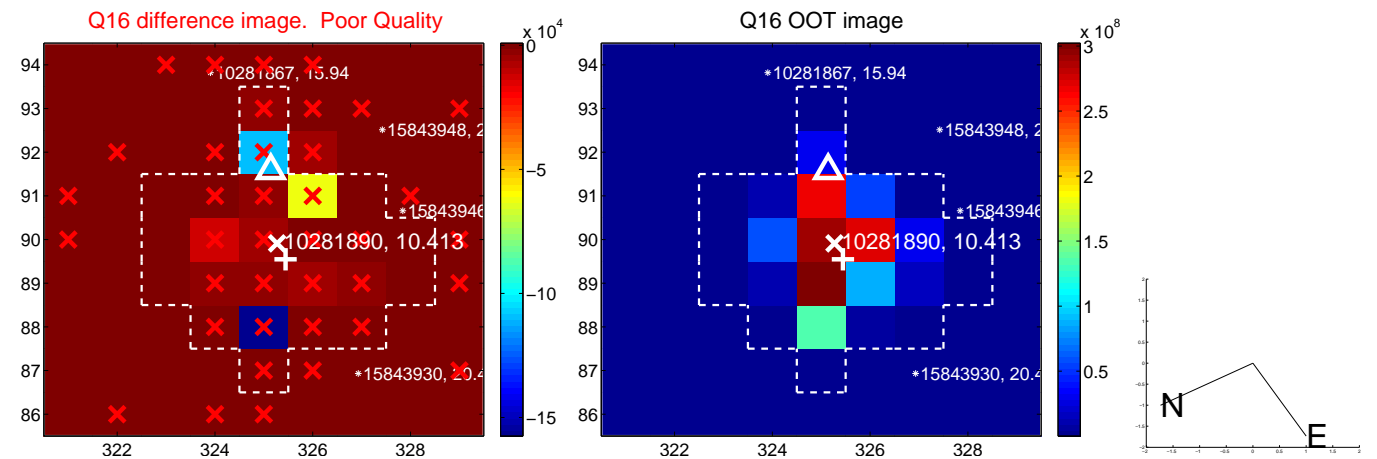
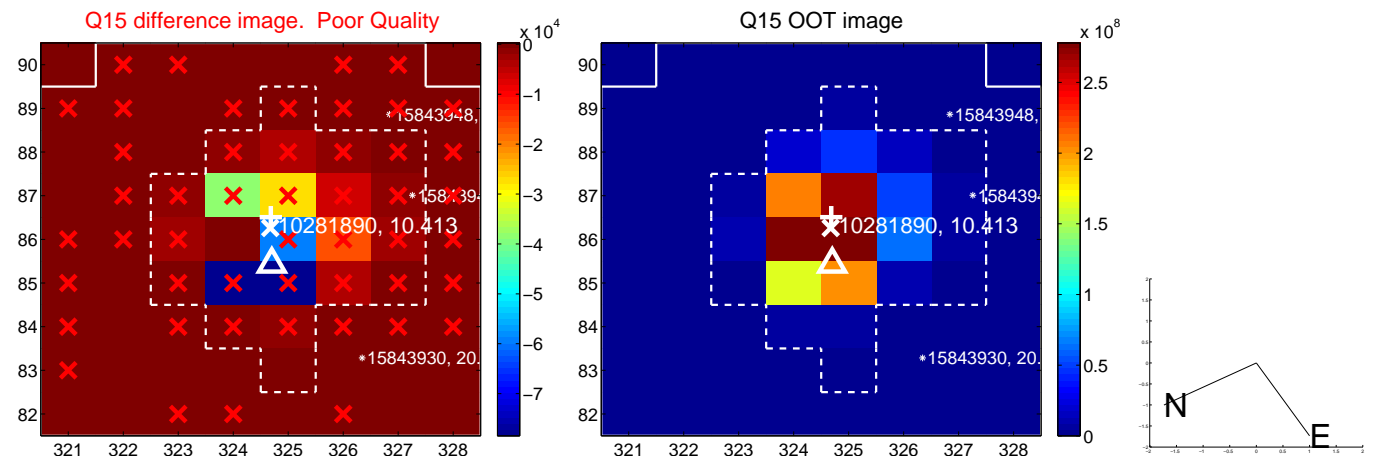
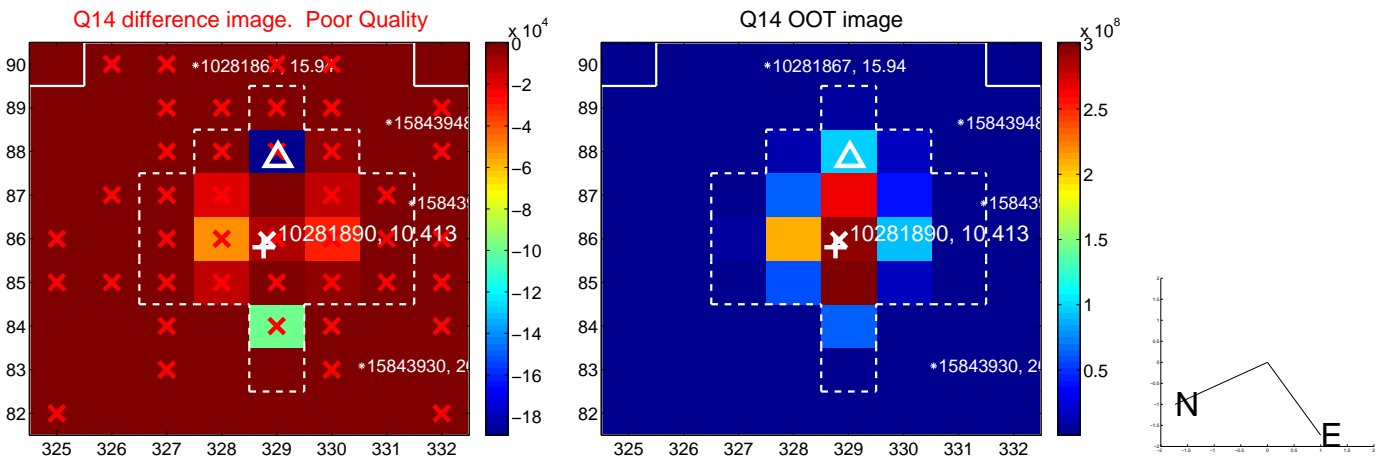
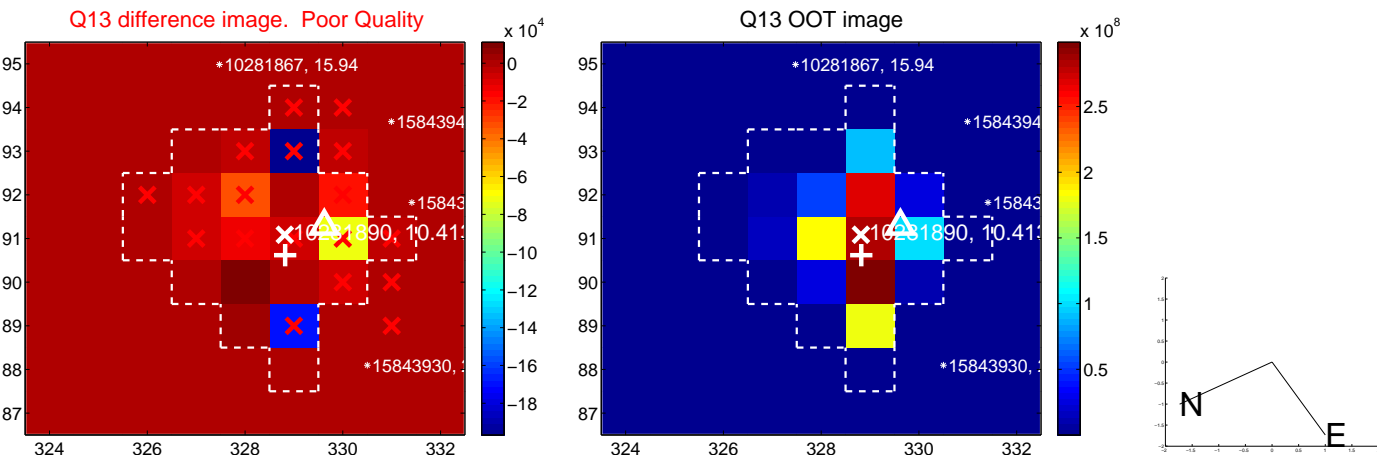
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



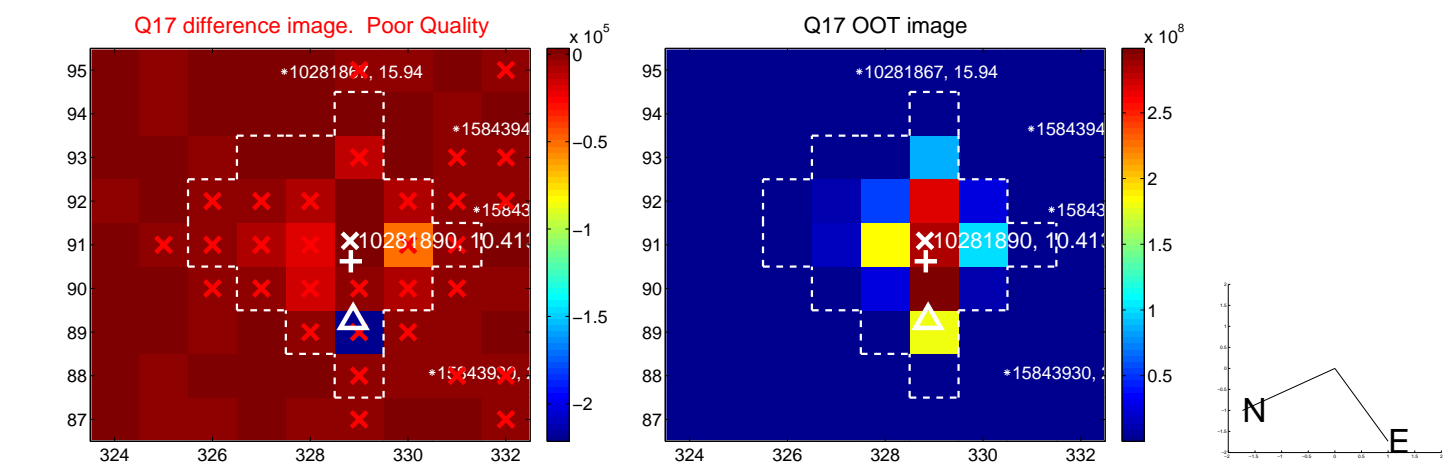
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



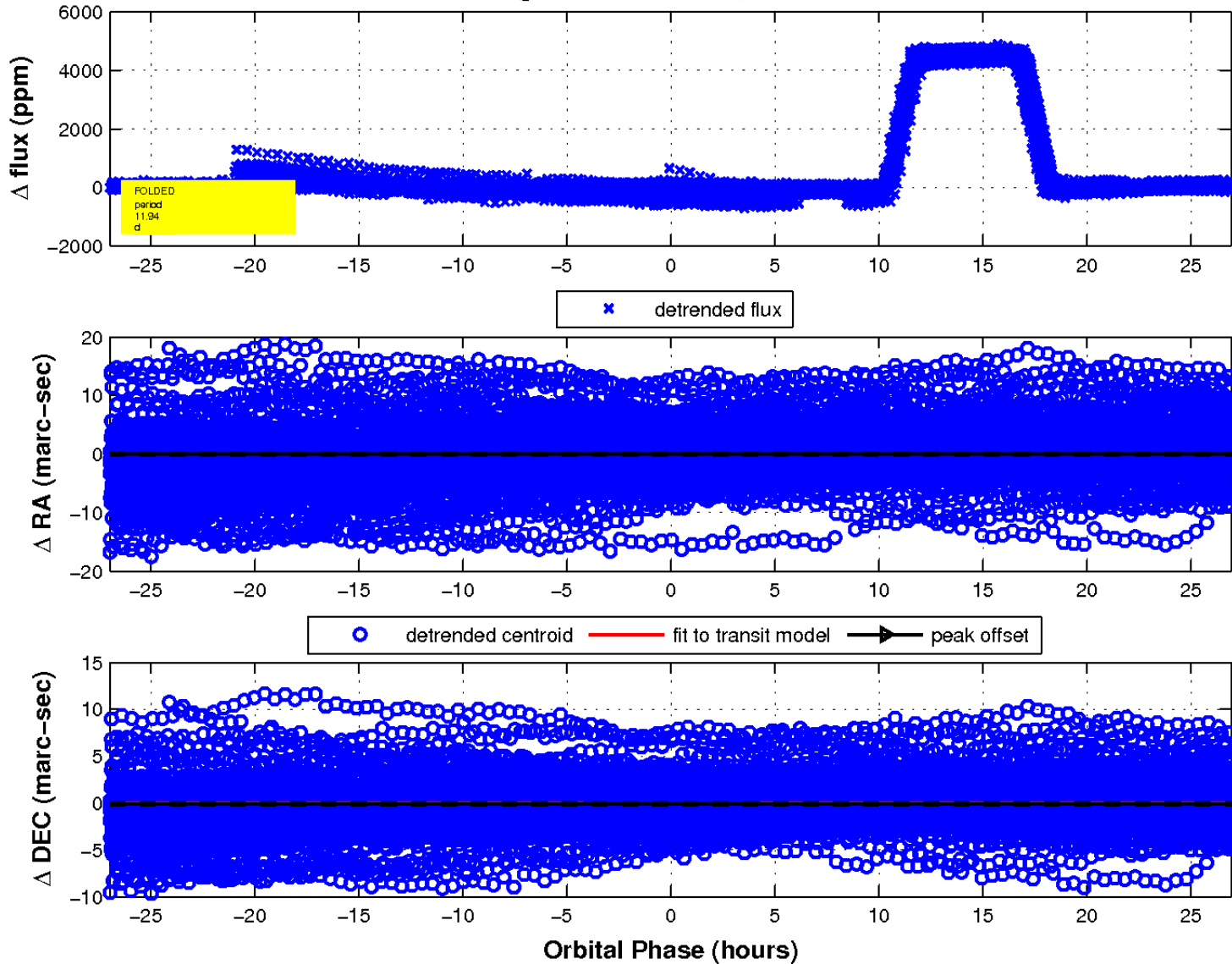
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



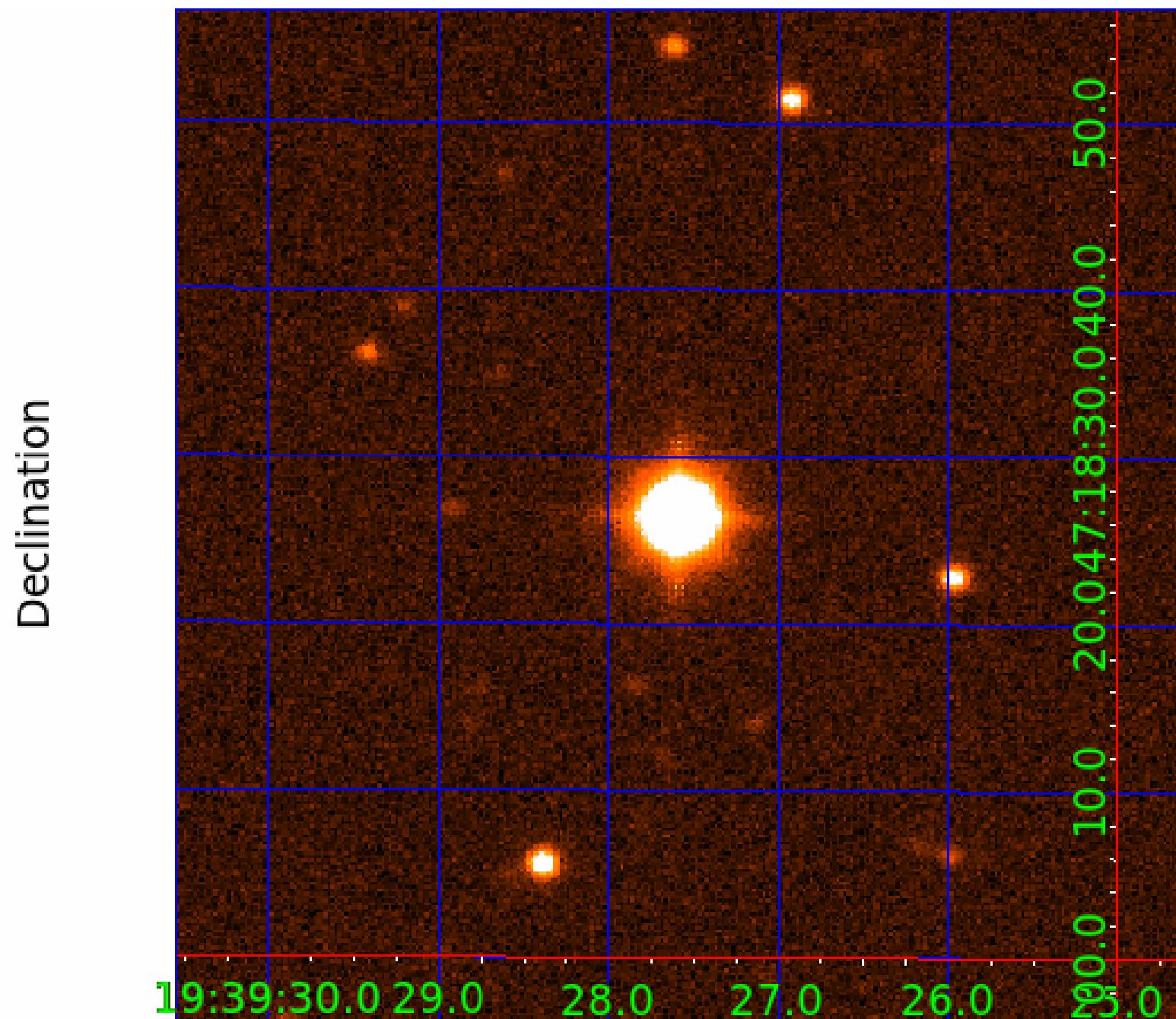
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 4 of 5



UKIRT Image



KIC 010281890

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})
010281890-01	OBS	No	11.943689	137.705217	5.8	3.833	27.6	3.3	2.58	10906	0.69	4058.31
010281890-02	OBS	No	11.941574	139.714682	5.8	0.655	24.0	1.8	2.58	10906	0.71	4059.27
010281890-03	OBS	No	11.942582	138.254069	39.0	7.500	23.9	-1.0	2.58	10906	1.66	4058.81
010281890-04	OBS	No	11.942835	139.790042	7.7	8.989	24.1	3.9	2.58	10906	0.82	4058.70
010281890-05	OBS	No	11.942582	139.187201	100.8	7.500	19.7	-1.0	2.58	10906	2.67	4058.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010281890-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010281890-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010281890-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED—HALO_GHOST
010281890-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED—HALO_GHOST
010281890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

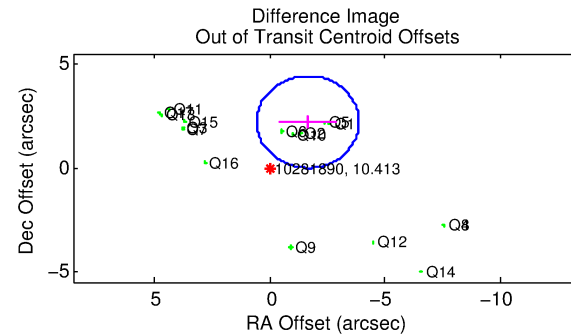
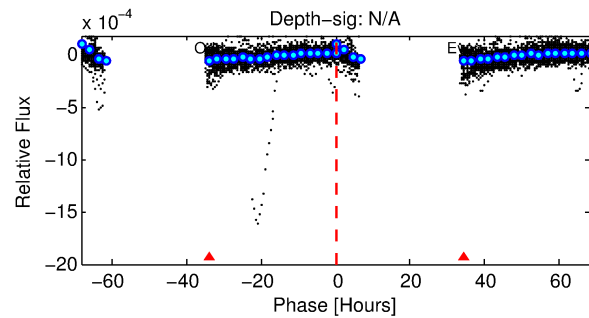
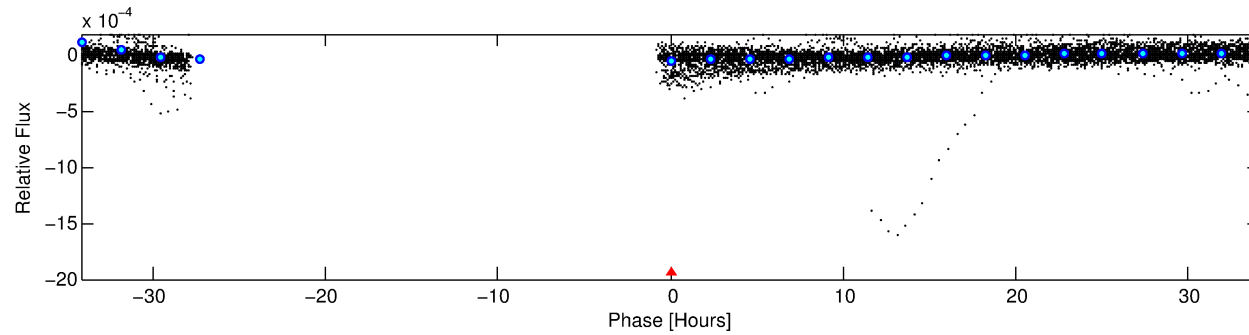
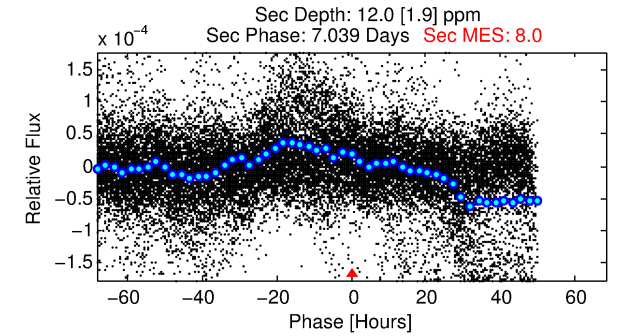
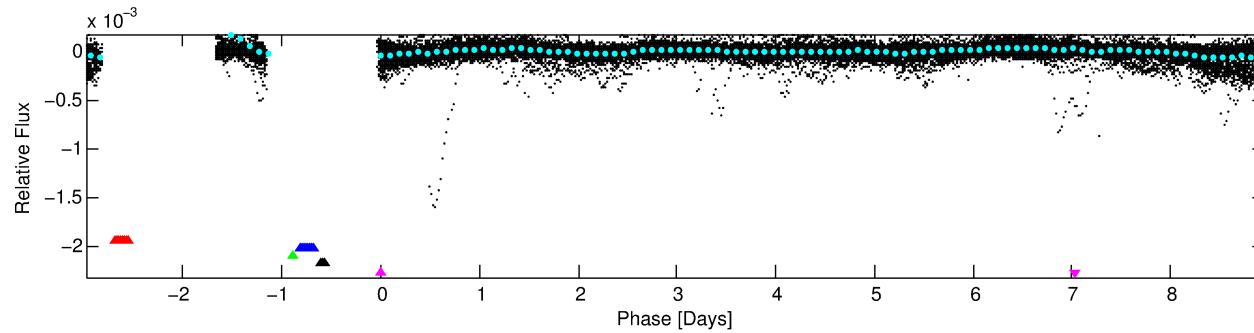
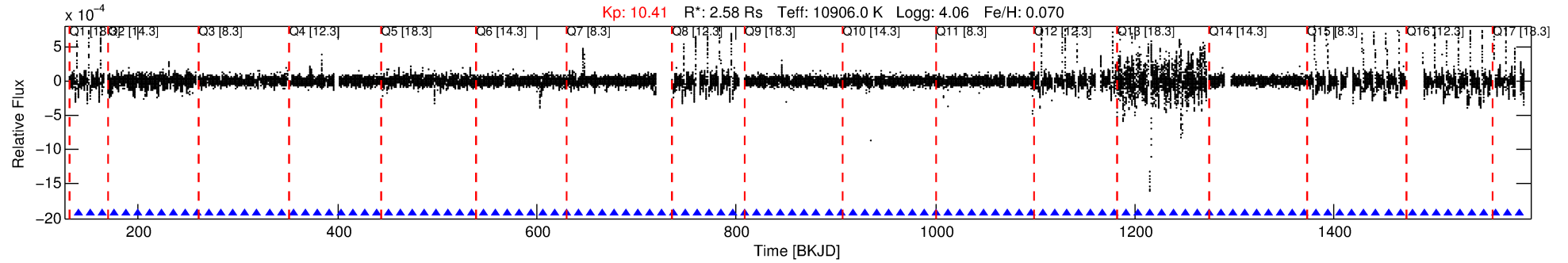
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010281890-05

No Significant Match Found

DV One-Page Summary

KIC: 10281890 Candidate: 5 of 5 Period: 11.943 d



TPS TCE Results:

Period = 11.94258 d
Epoch = 139.1872 BKJD

DV fit results are unavailable

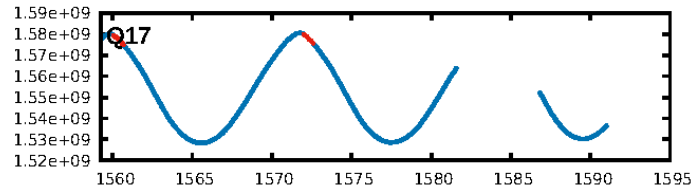
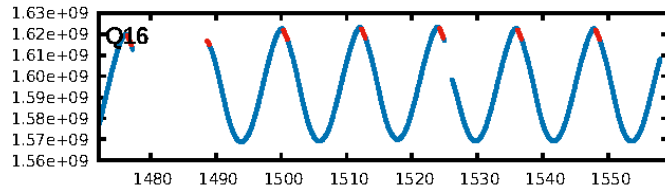
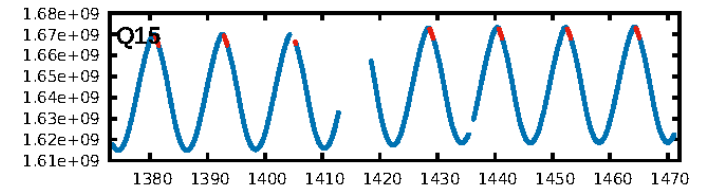
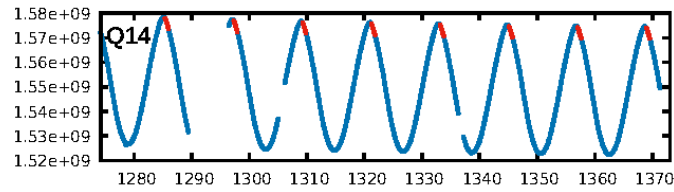
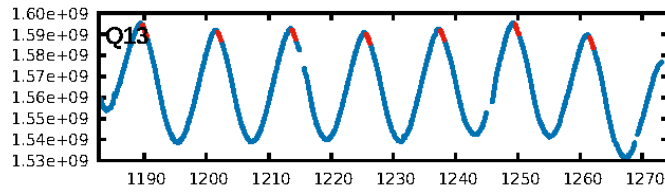
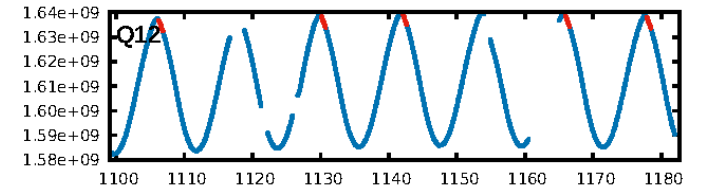
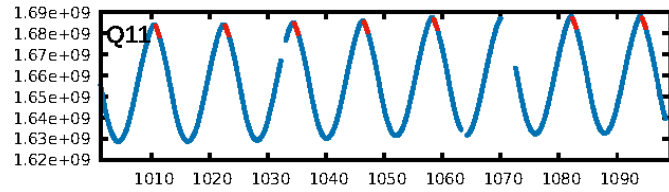
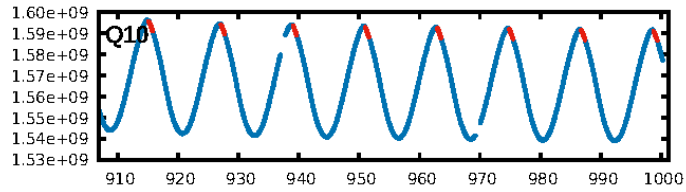
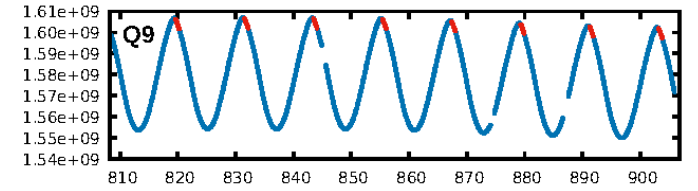
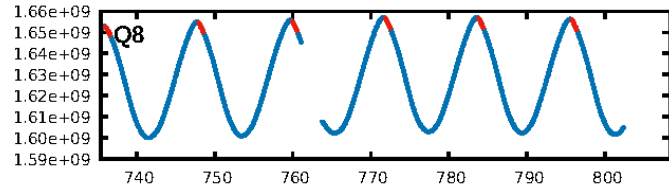
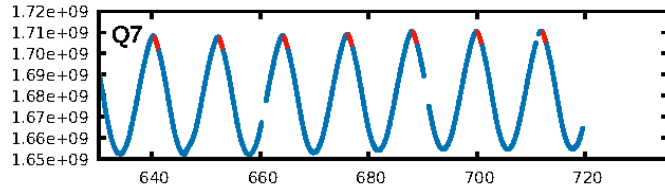
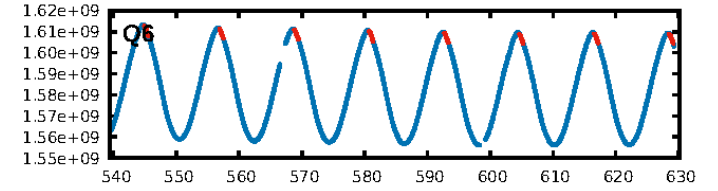
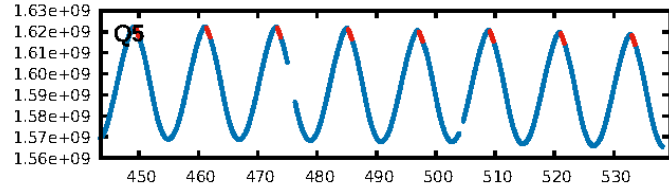
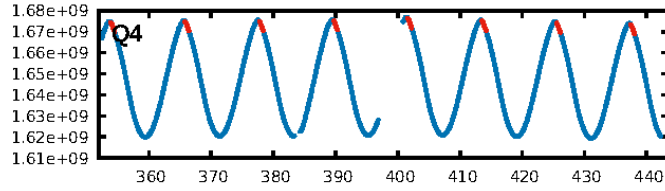
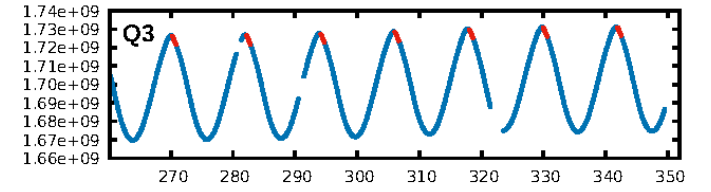
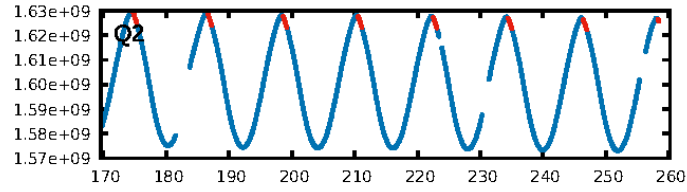
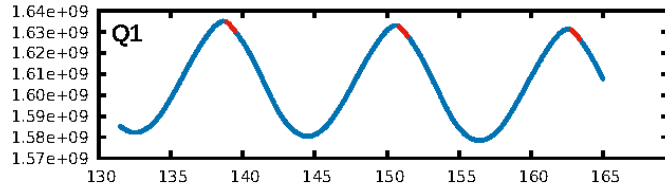
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.91e-59
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: -0.7679
Centroid-sig: 1.1%
Centroid-so: 0.279 arcsec [8.70 σ]
OotOffset-rm: 2.752 arcsec [3.74 σ]
KicOffset-rm: 2.482 arcsec [5.17 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

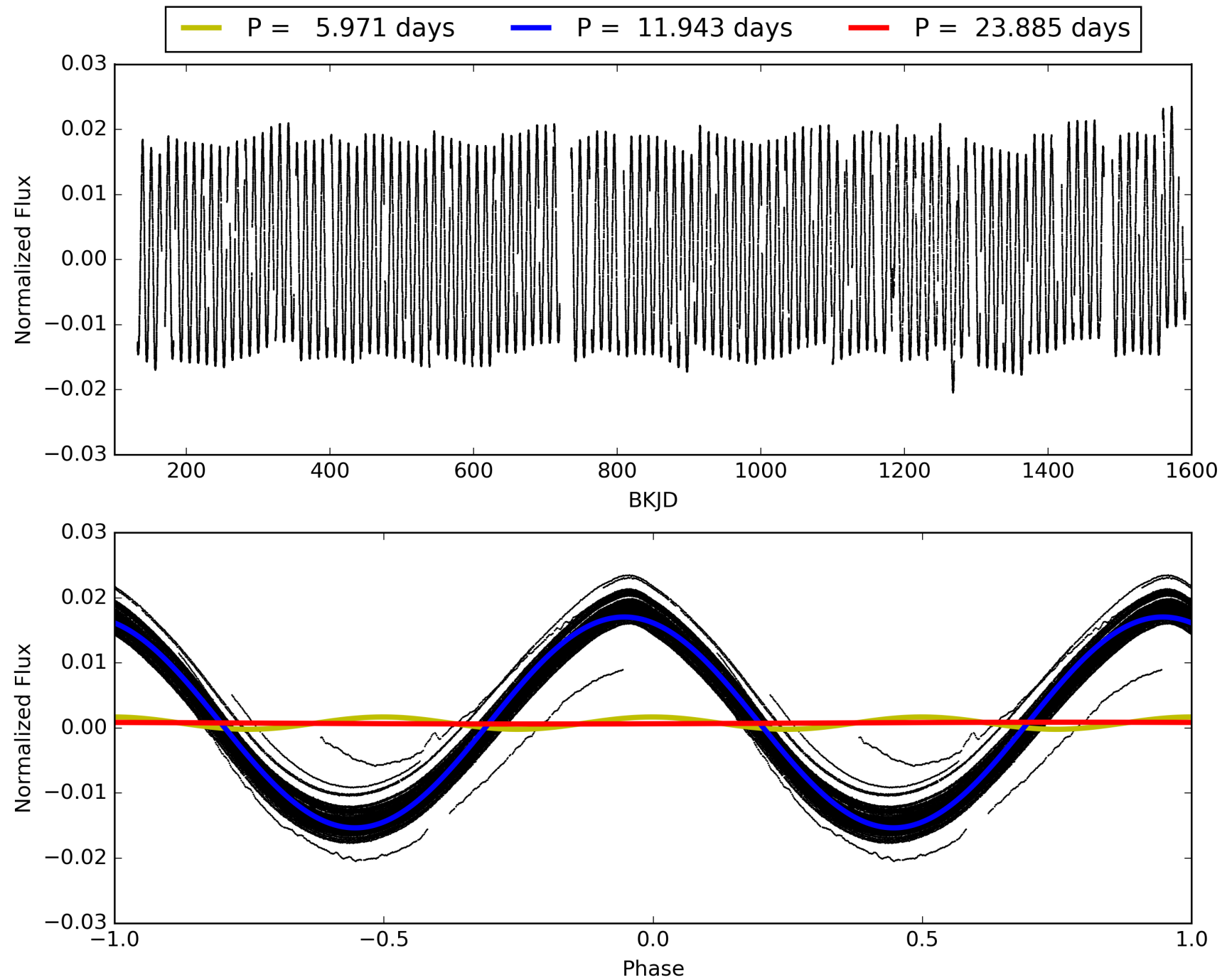
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:14:13 Z

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

TCE 010281890-05, PDC Light Curves

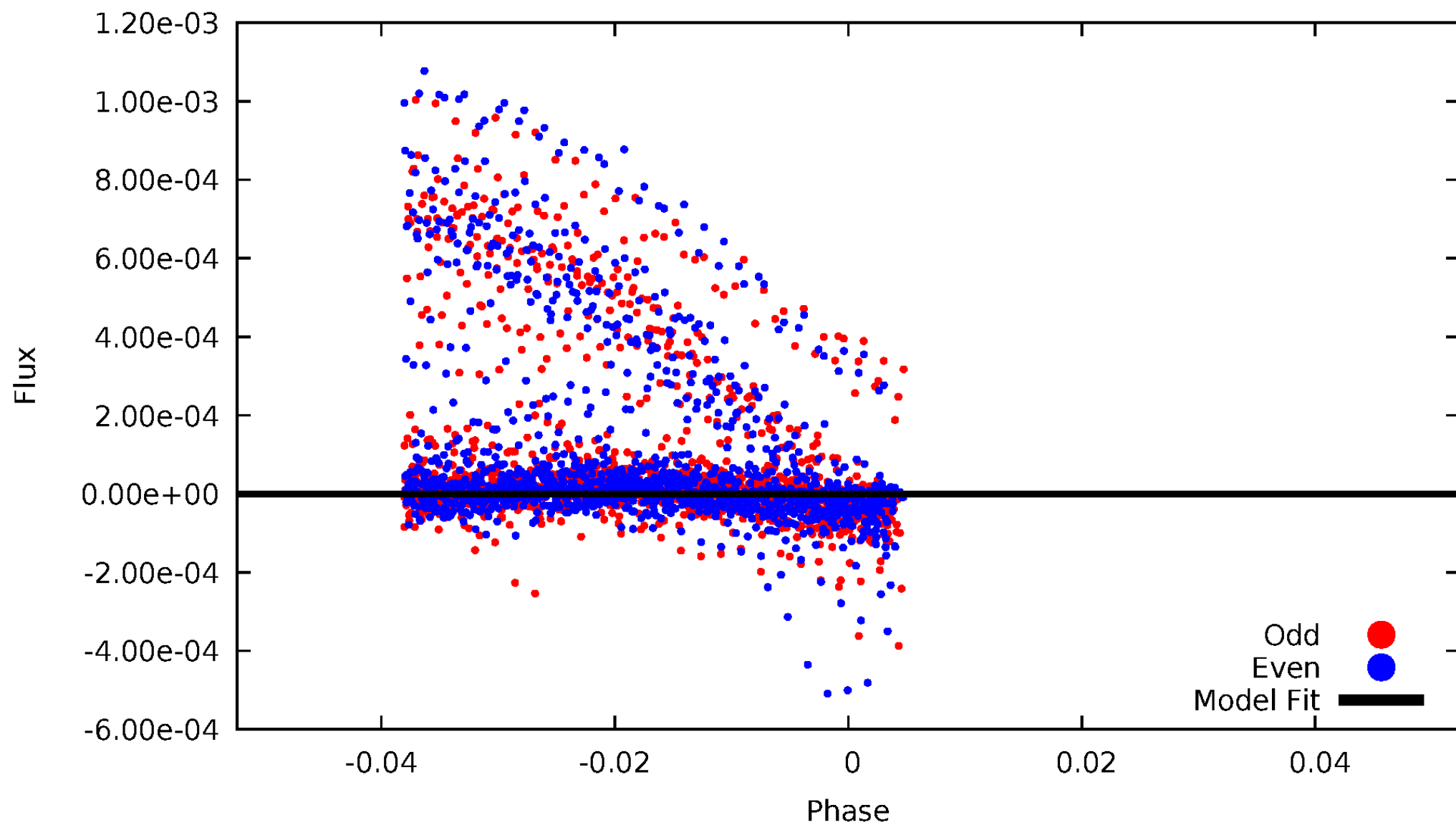


TCE 010281890-05



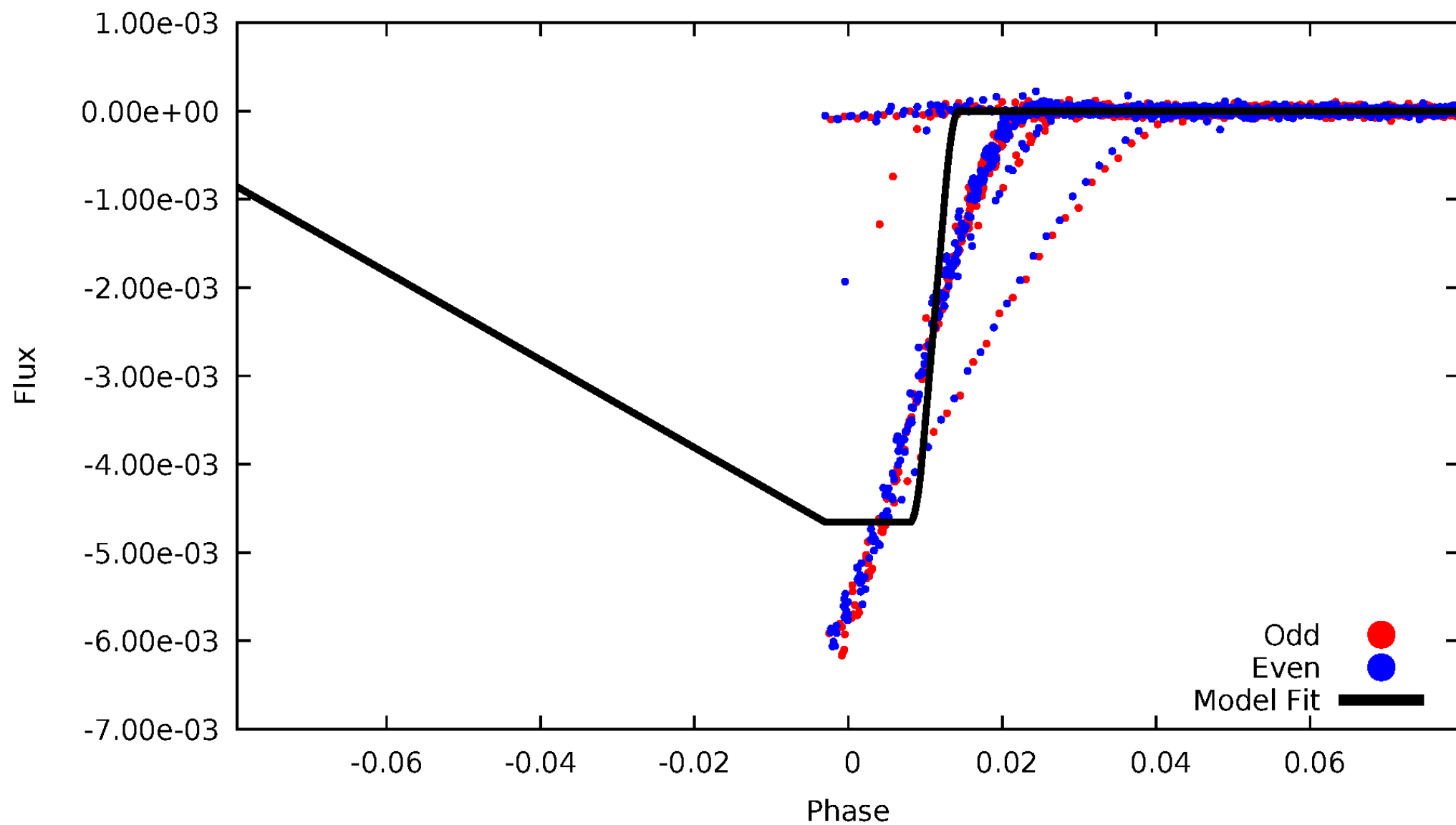
DV Odd/Even

TCE 010281890-05



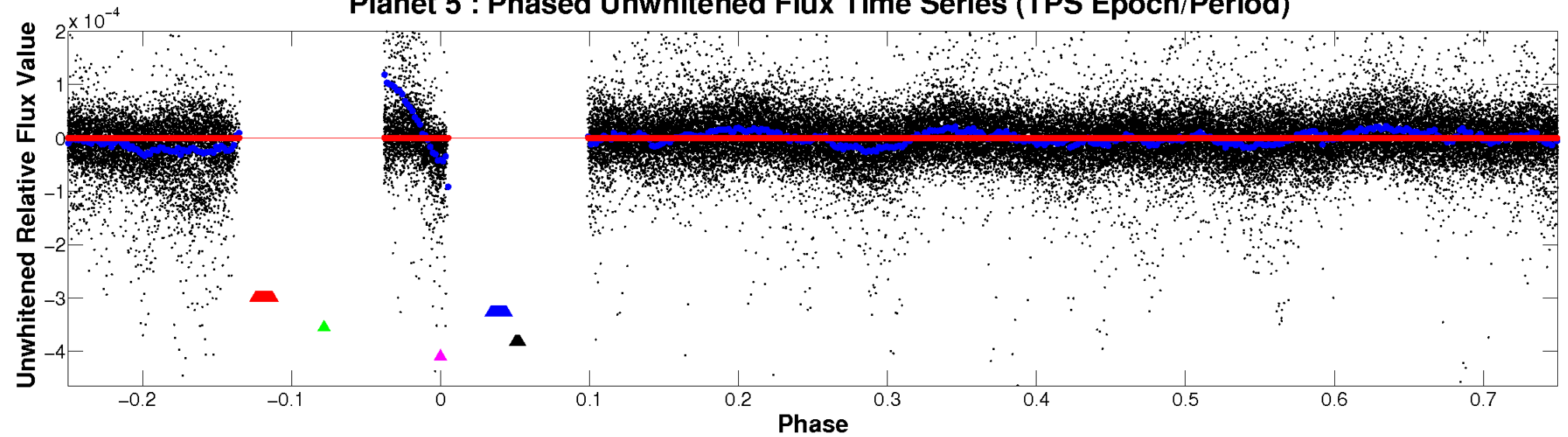
ALT Odd/Even

TCE 010281890-05

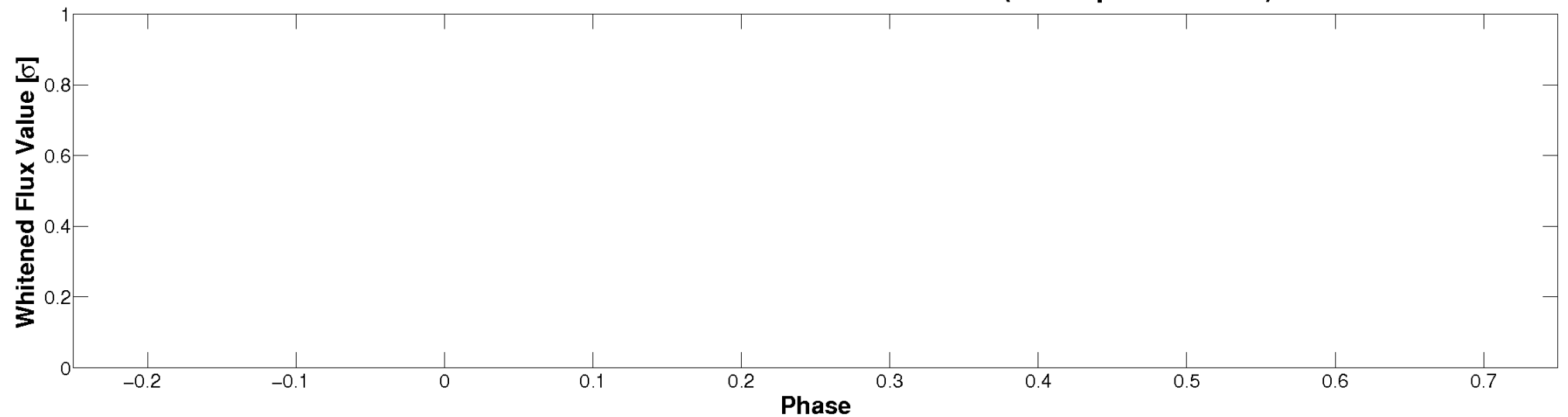


Non-Whitened Vs. Whitened Light Curve

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

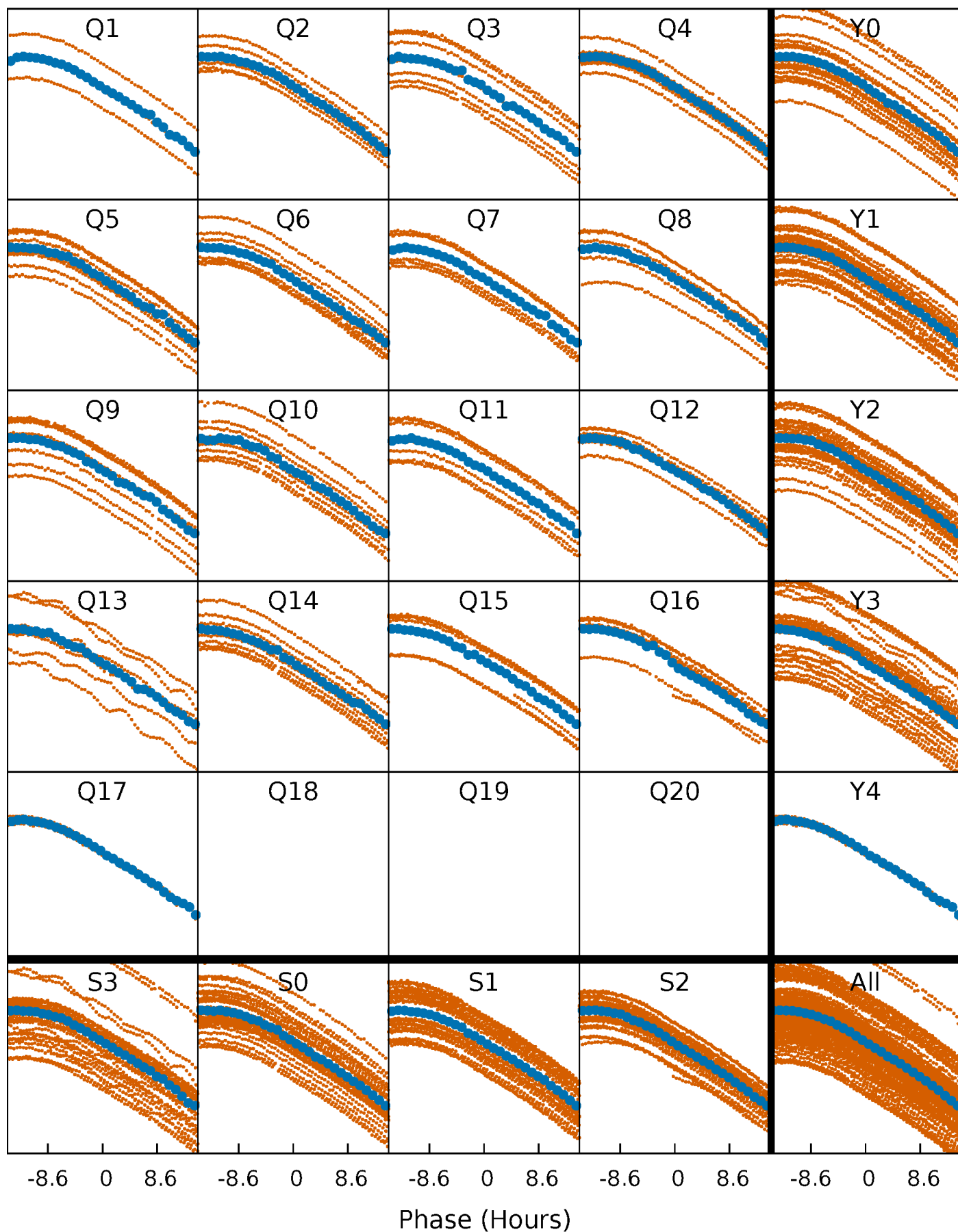


Planet 5 : Phased Whitened Flux Time Series (TPS Epoch/Period)



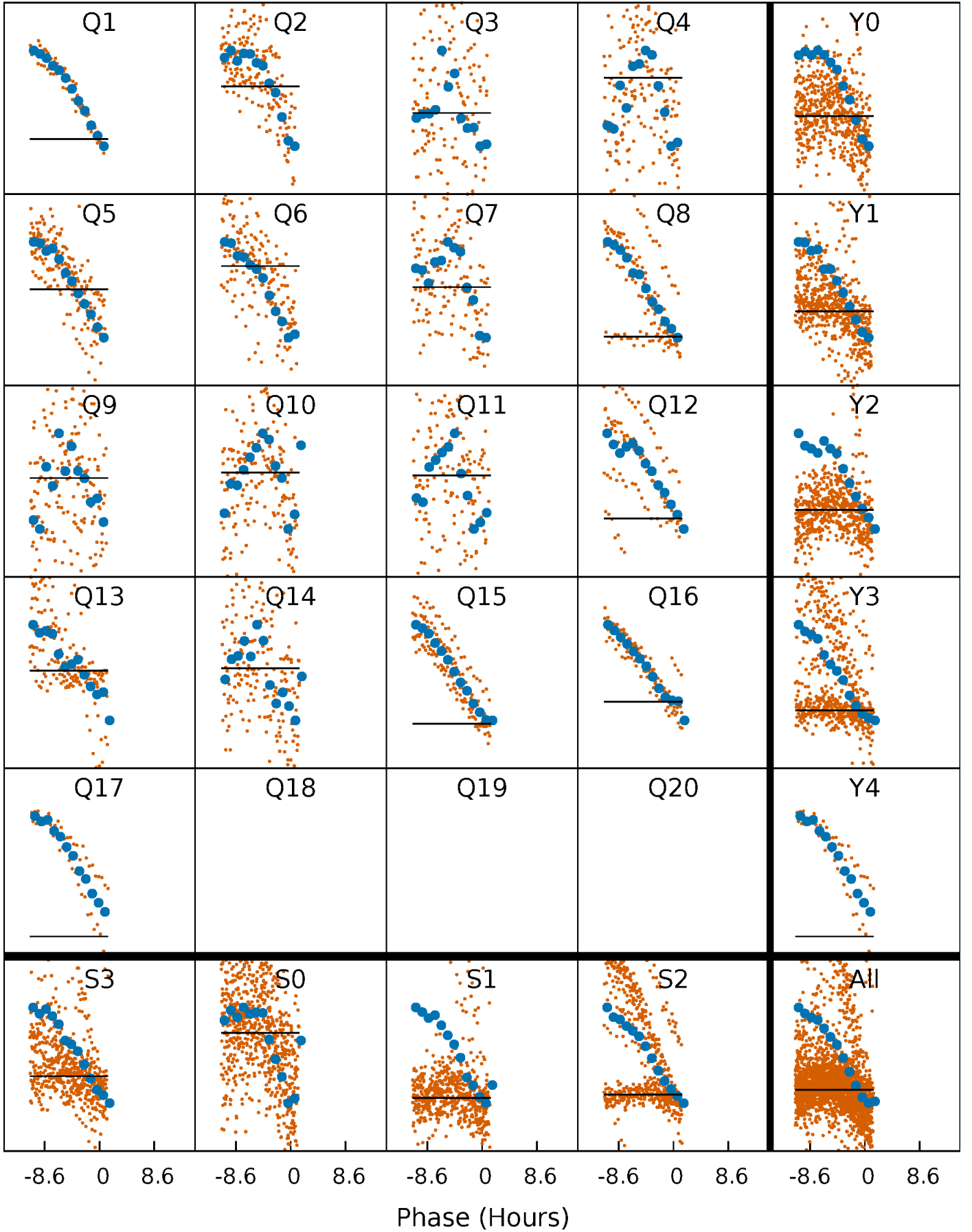
PDC Quarter-Phased Transit Curves

TCE 010281890-05 P= 11.942582 Days $T_0=139.187201$ (BKJD)



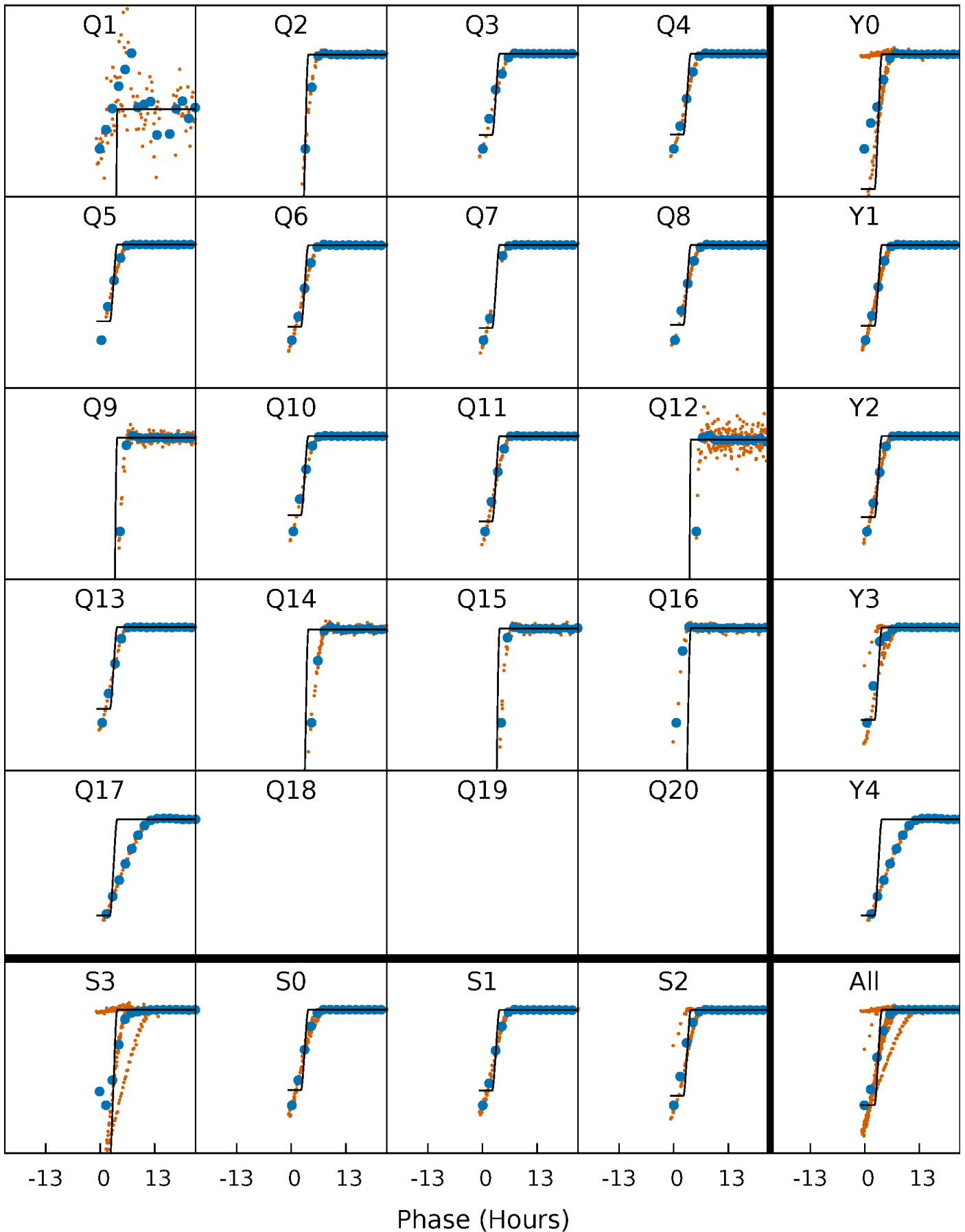
DV Quarter-Phased Transit Curves

TCE 010281890-05 $P = 11.942582$ Days $T_0 = 139.187201$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

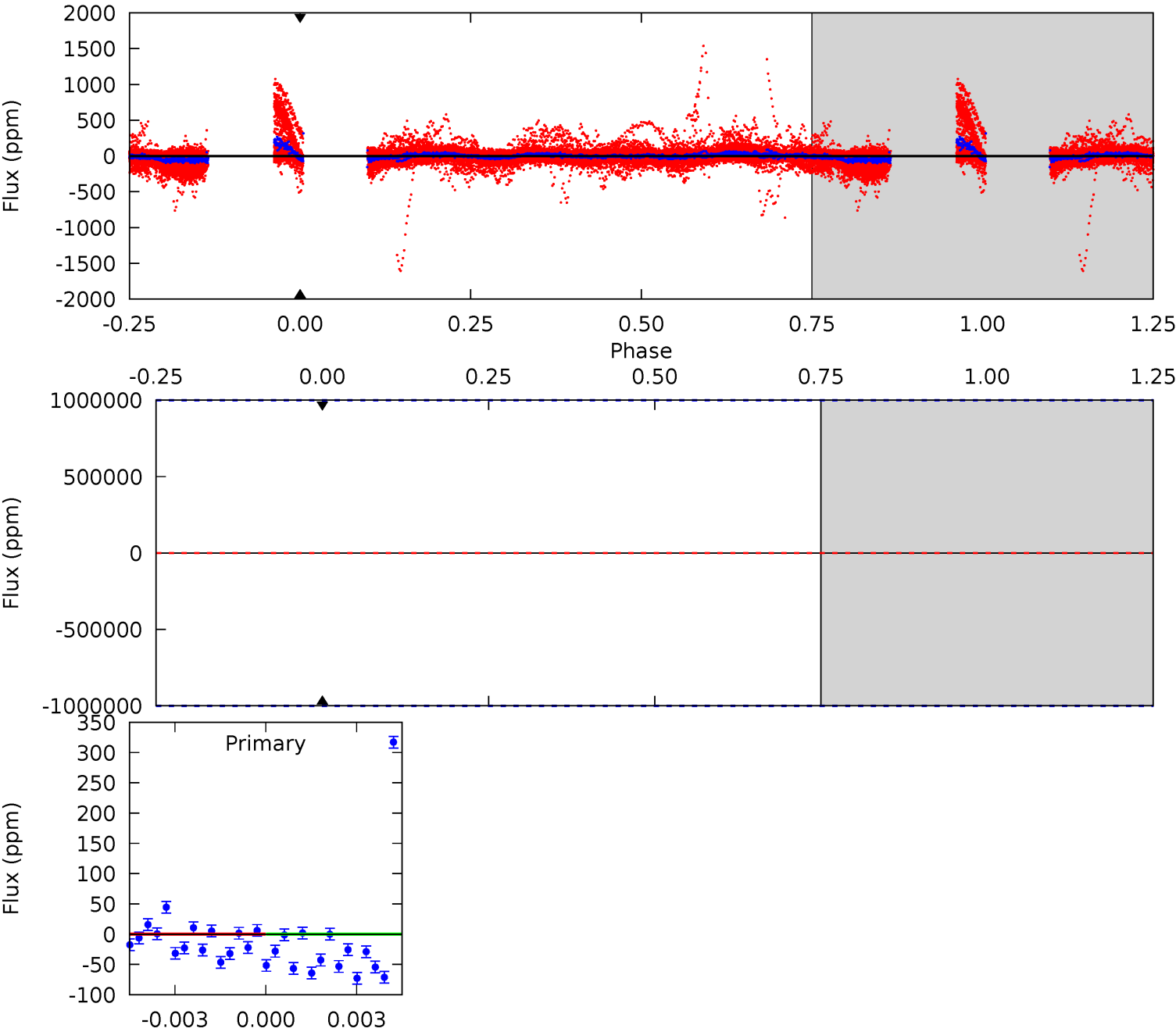
TCE 010281890-05 $P = 11.942582$ Days $T_0 = 140.398497$ (BKJD)



DV Model-Shift Uniqueness Test

010281890-05, P = 11.942582 Days, E = 127.244619 Days

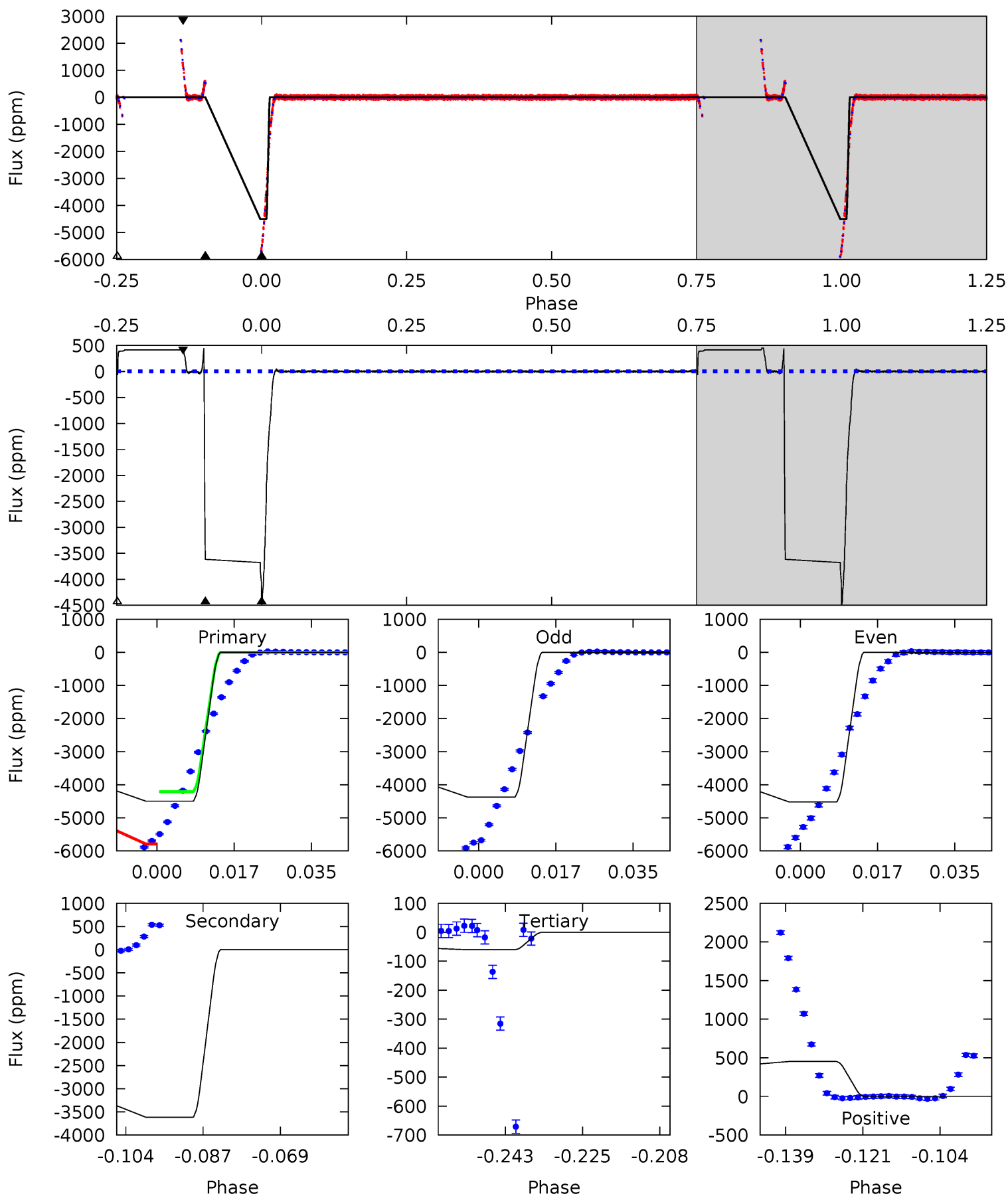
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010281890-05, P = 11.942582 Days, E = 128.455915 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1141	917.0	15.3	114.6	4.92	2.38	3.80	1126	1026	901.7	802.4	18.9	0.89	0.09	0



Stellar Parameters For KIC 010281890

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	10906^{+220}_{-515}	$4.063^{+0.200}_{-0.200}$	$0.070^{+0.150}_{-0.550}$	$2.585^{+0.796}_{-0.796}$	$2.819^{+0.310}_{-0.619}$	$0.230^{+0.317}_{-0.127}$
	+2%/-5%	+5%/-5%	+214%/-786%	+31%/-31%	+11%/-22%	+138%/-55%
Source	KIC0	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 010281890-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$20.49^{+21.67}_{-14.56}$	2835^{+229}_{-222}	$-8282^{+102629}_{-87006}$	$-68.292^{+4935.049}_{-4411.011}$
Alt.	-3616 ± 4	$27.48^{+26.78}_{-18.56}$	2836^{+234}_{-227}	7627^{+12253}_{-2195}	54^{+443}_{-40}

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

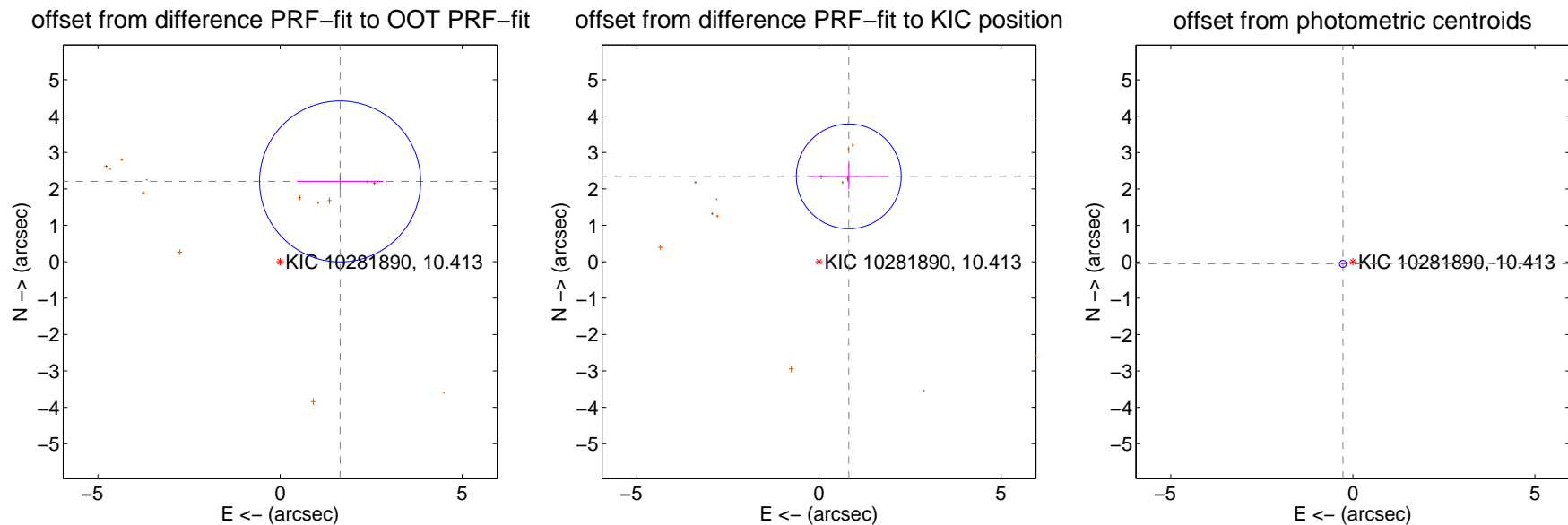
DV Centroid Data

Supplemental centroid analysis for 010281890-05. **Kepler magnitude: 10.41.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

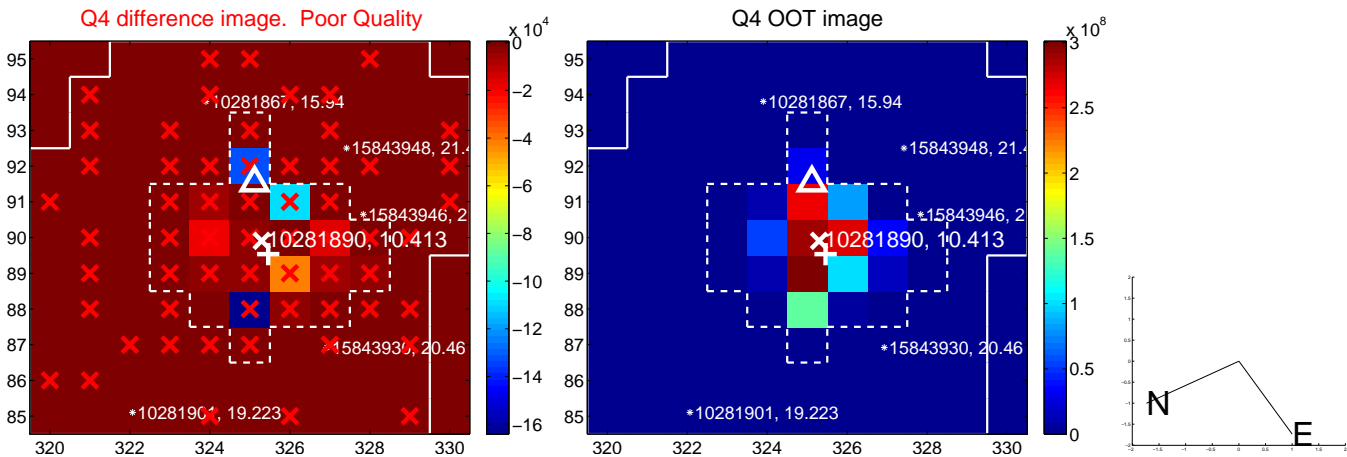
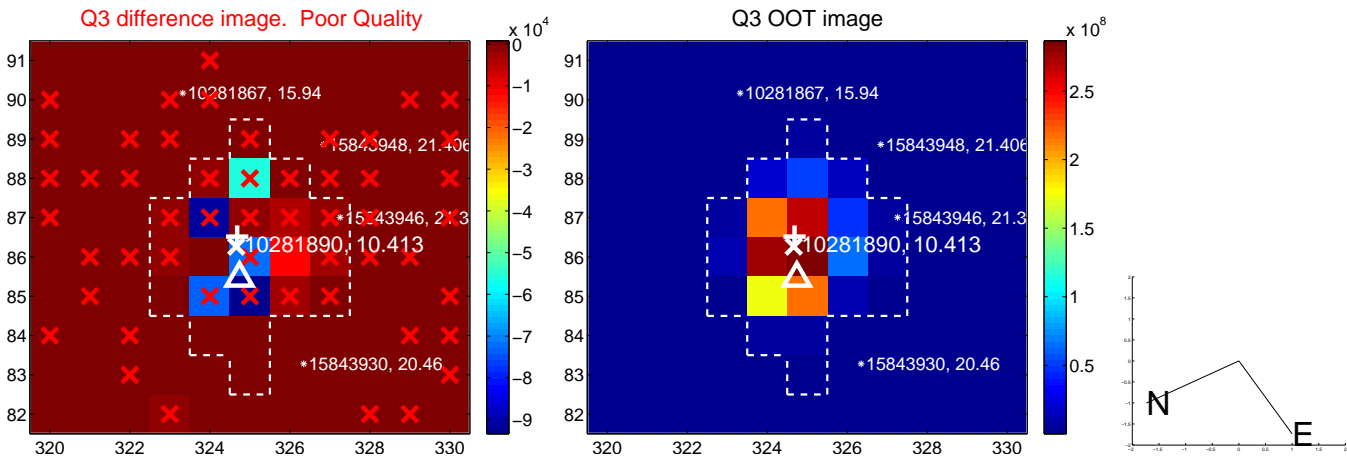
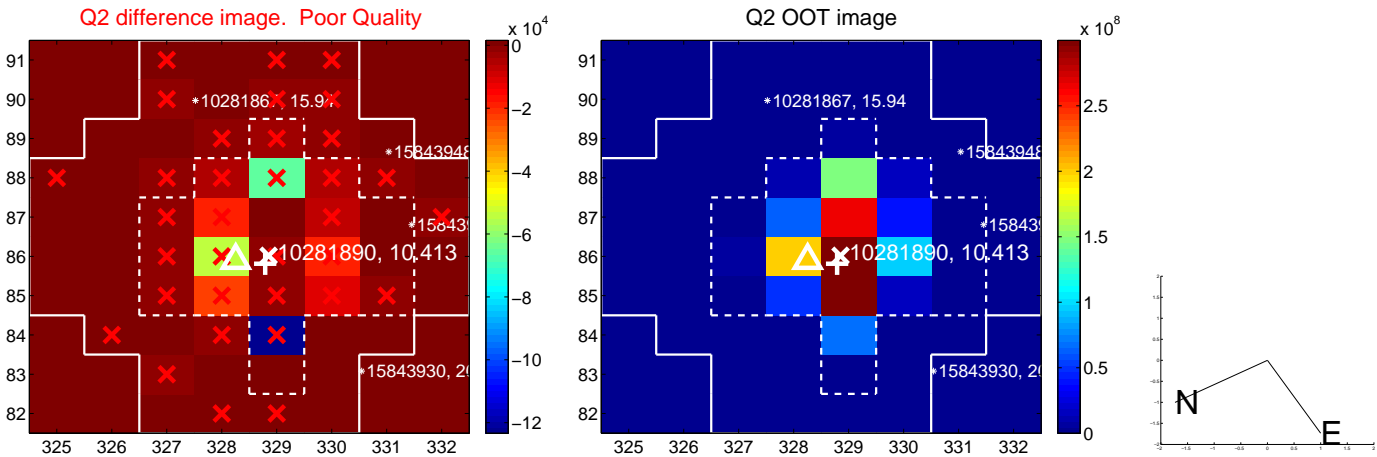
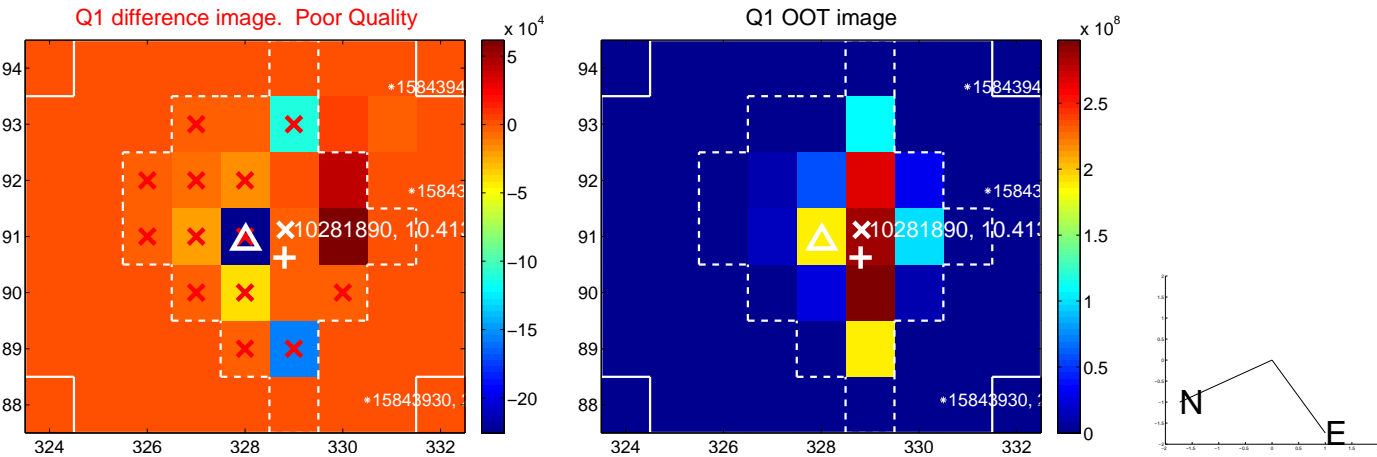
The direct PRF centroid is offset from the target star catalog position by about 1.86 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.752 ± 0.737	3.74	-1.647 ± 1.188	2.205 ± 0.241
PRF-fit source offset from KIC position	2.482 ± 0.480	5.17	-0.817 ± 1.065	2.344 ± 0.346
photometric centroid source offset	0.28 ± 0.03	8.70	0.27 ± 0.03	-0.06 ± 0.02

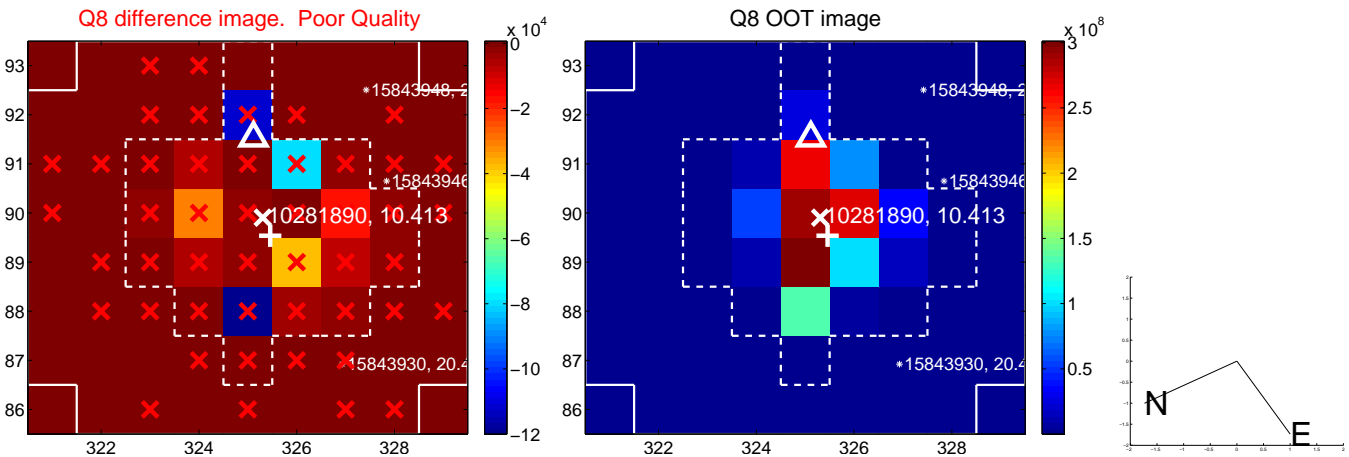
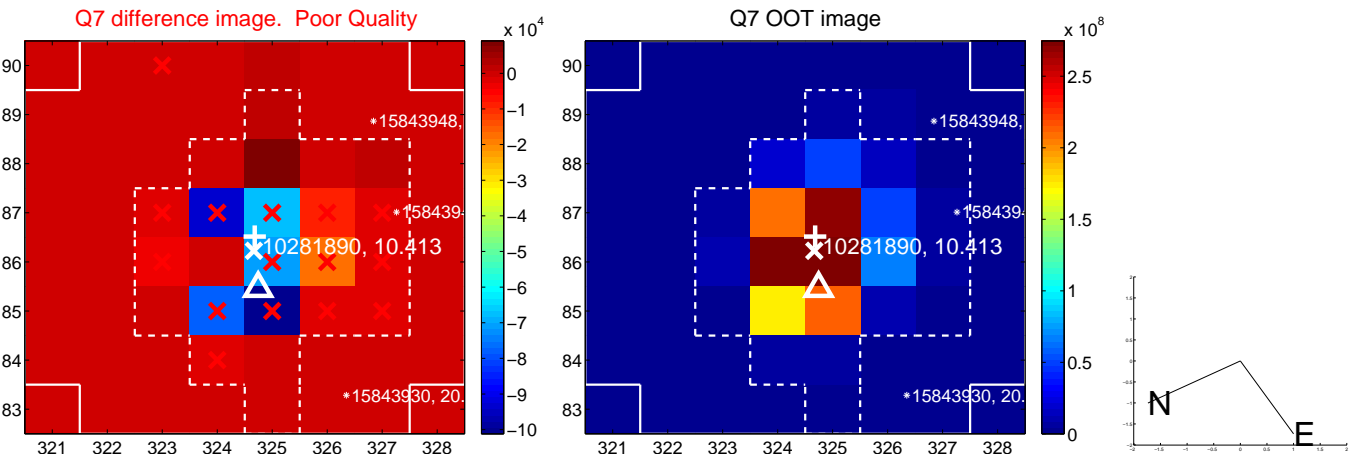
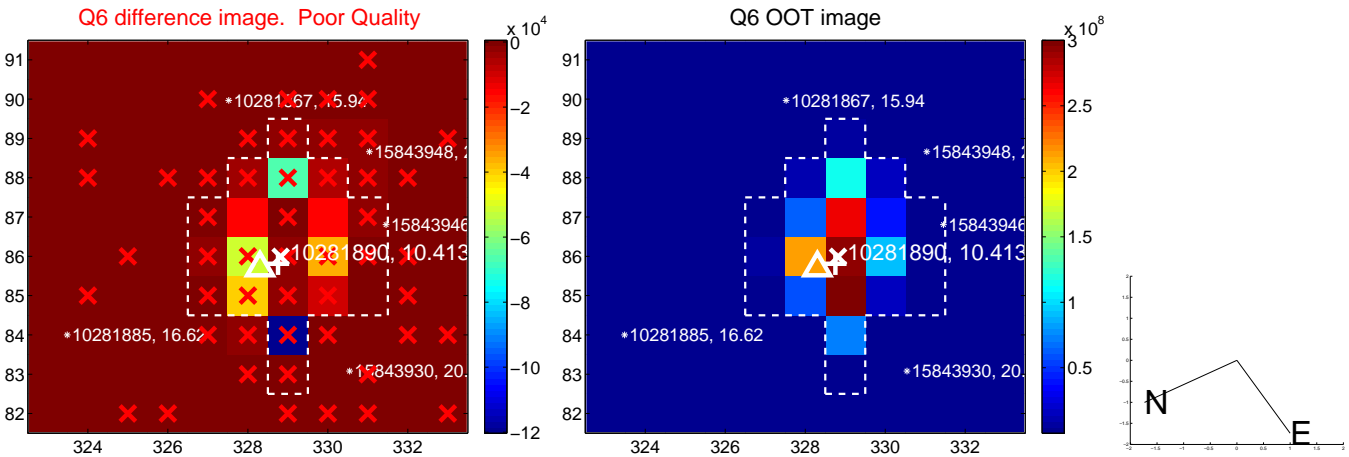
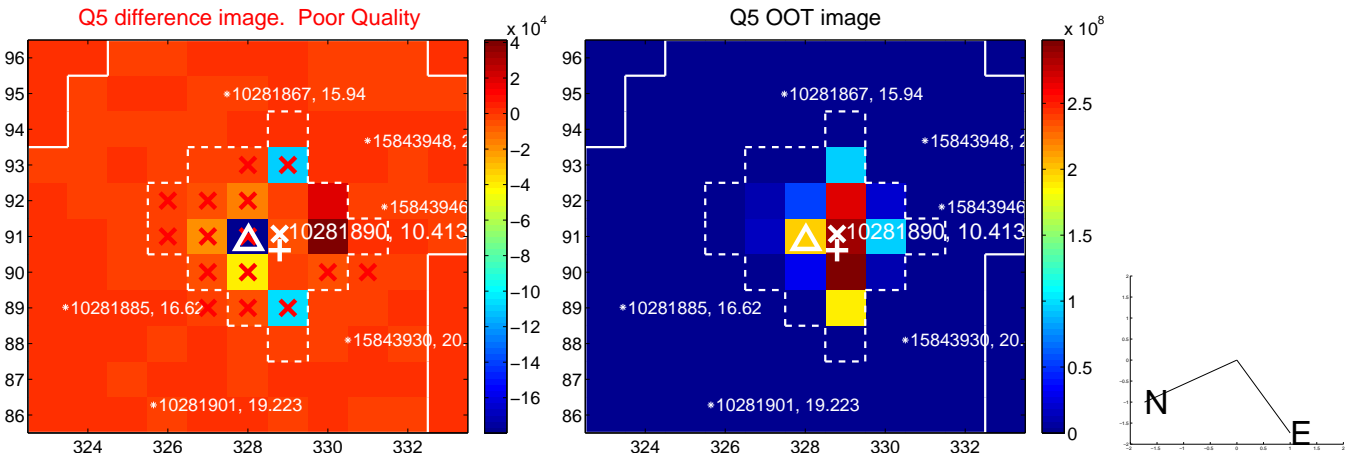


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

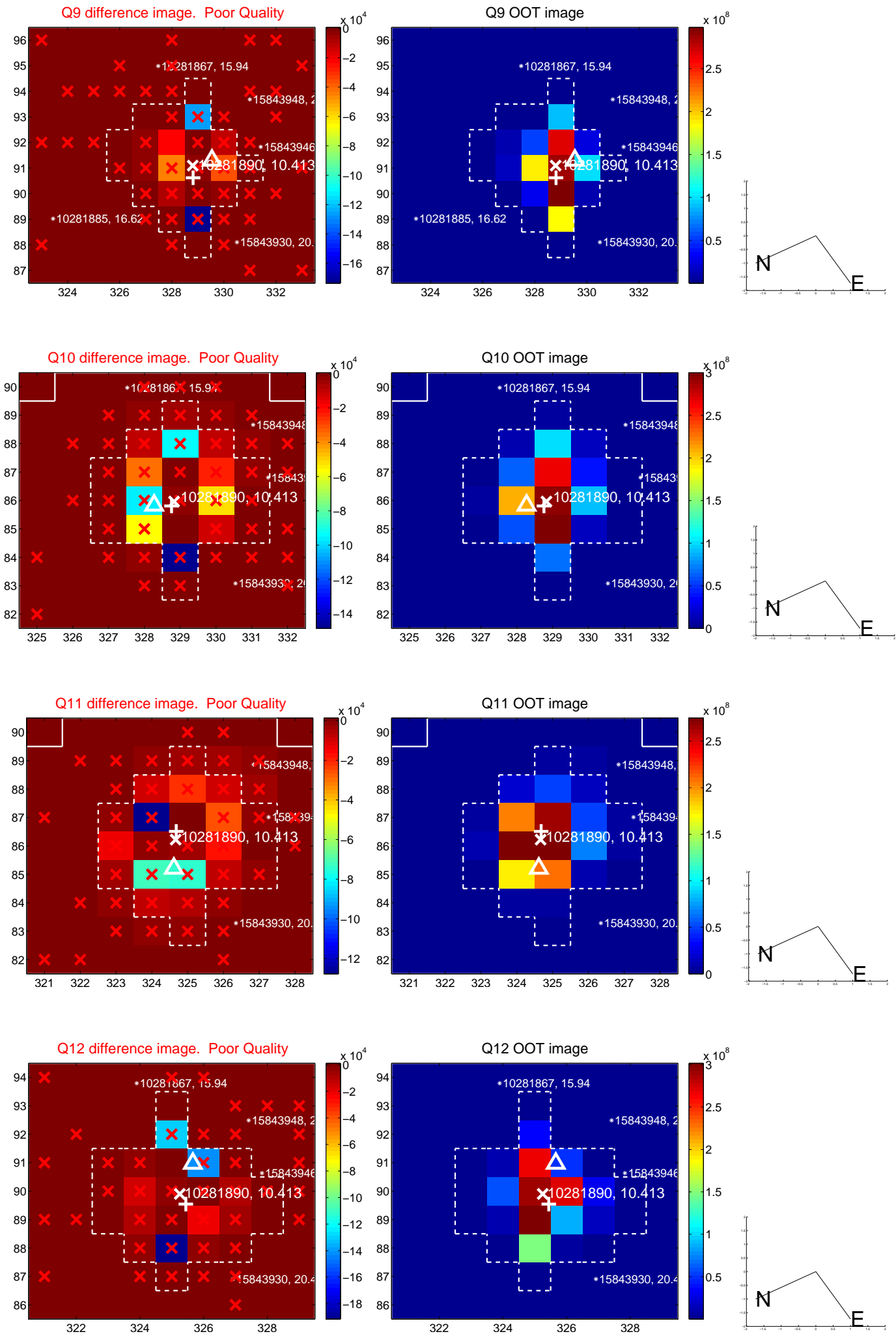
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



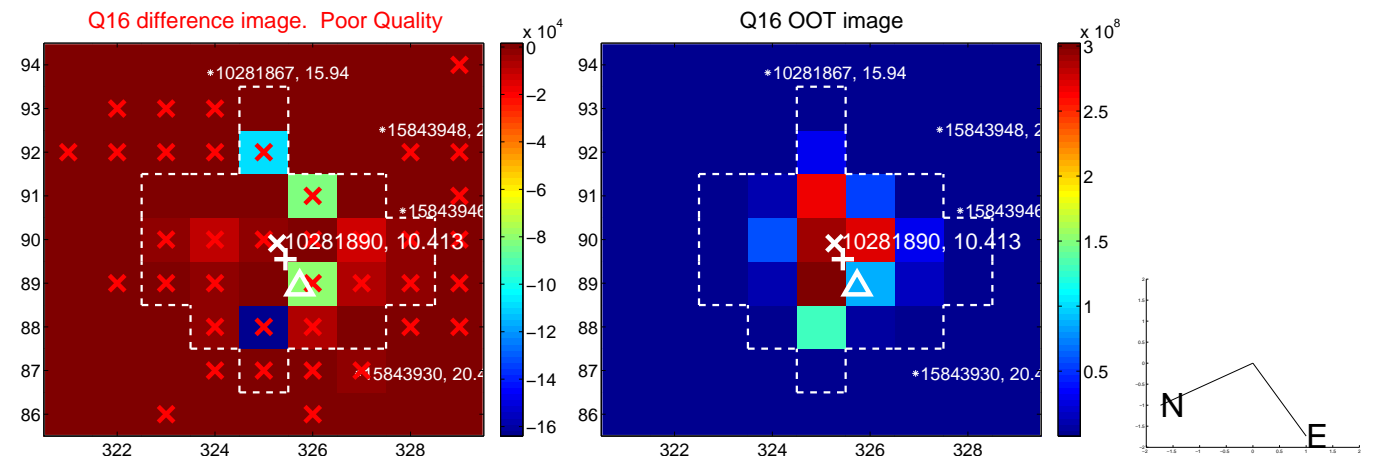
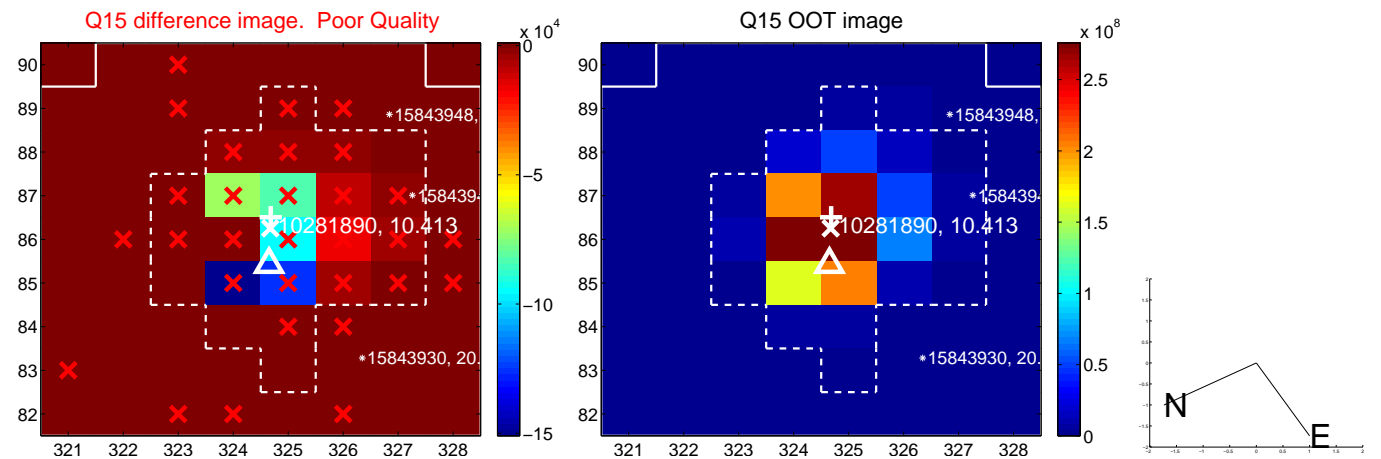
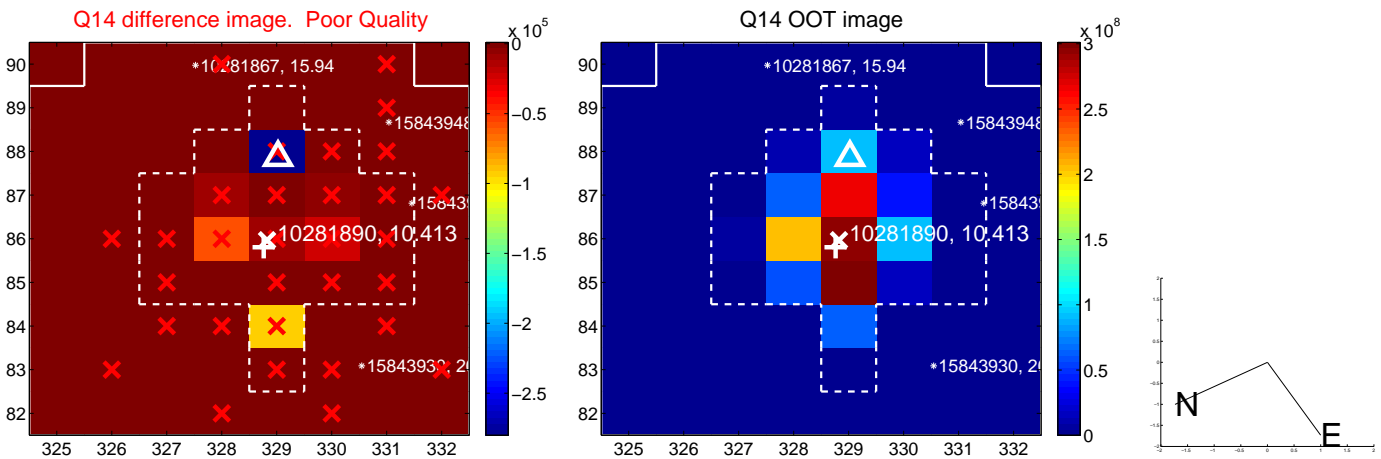
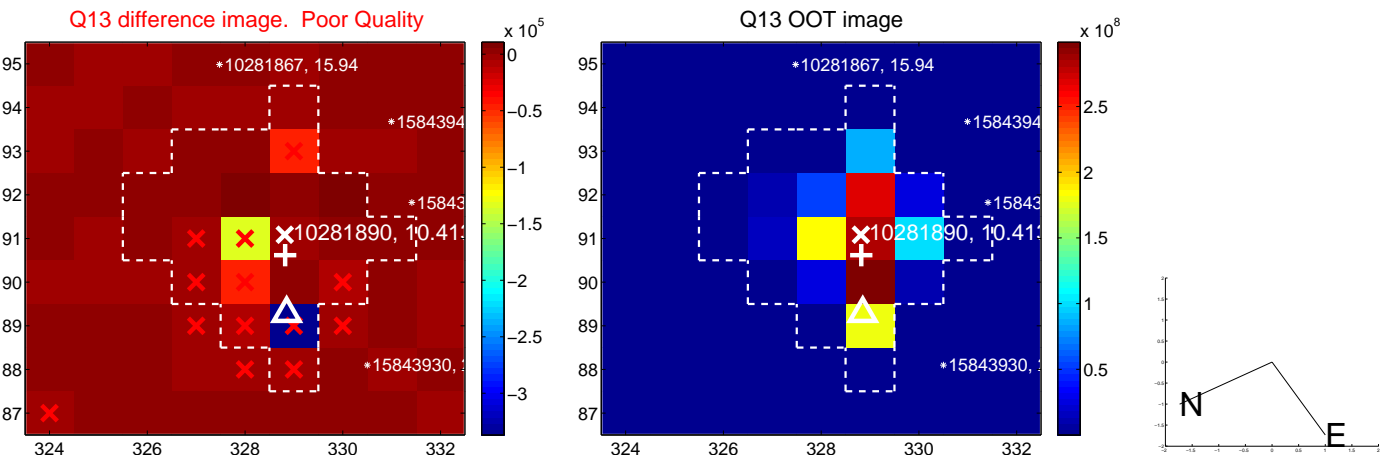
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



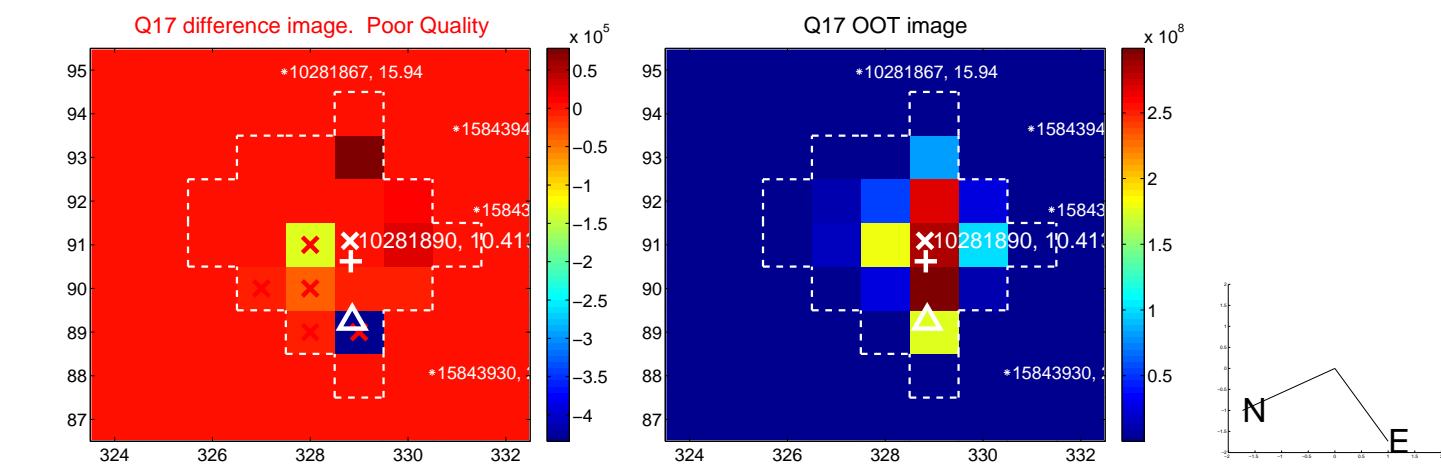
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



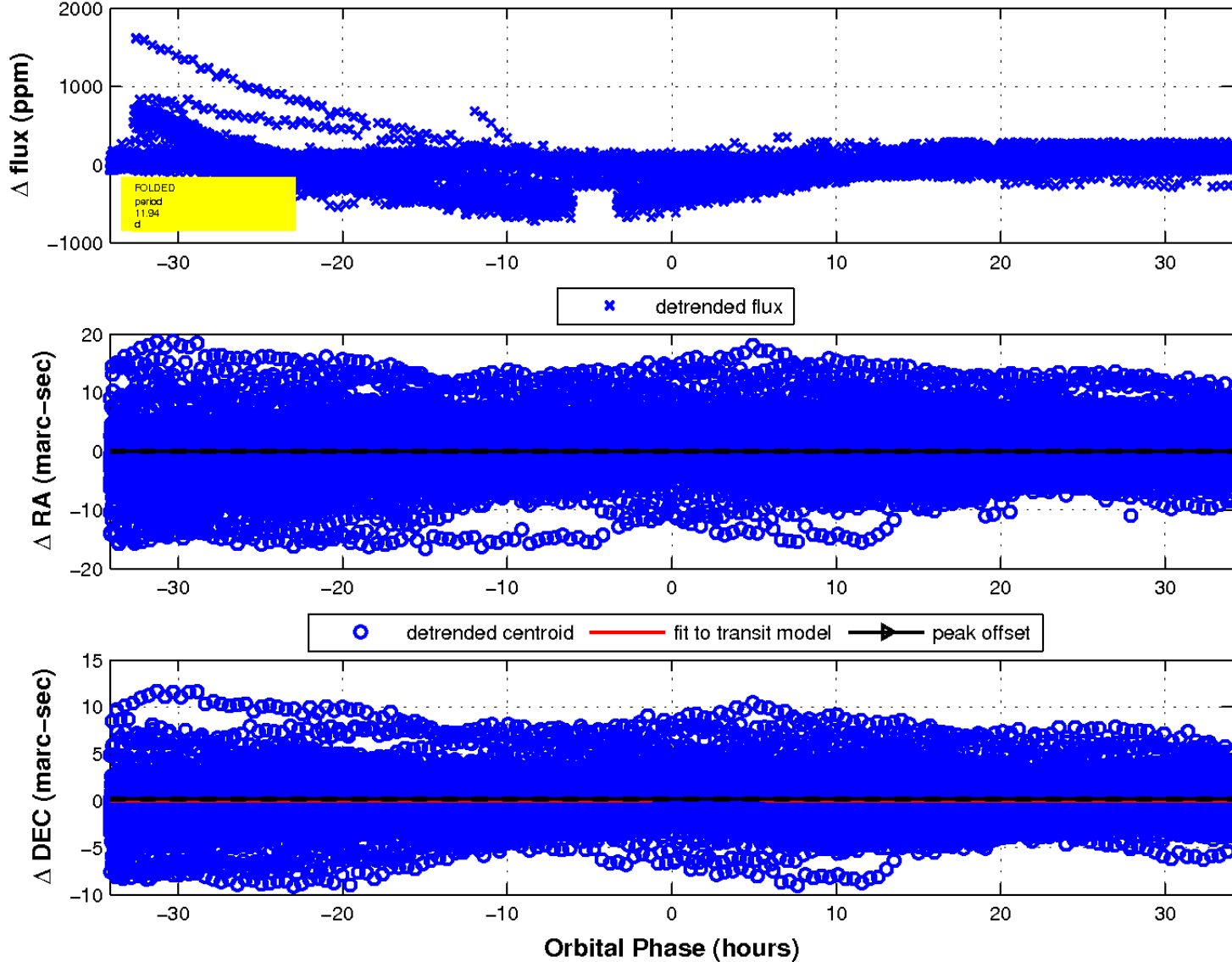
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

