

KIC 005900574

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})
005900574-01	OBS	No	1.585084	132.925152	17.4	6.741	9.9	10.0	11.59	6926	5.16	0.00
005900574-02	OBS	No	228.054043	147.390324	37.9	4.971	9.8	1.3	11.59	6926	8.80	225.69
005900574-03	OBS	No	128.113809	246.751033	161.7	3.816	8.9	5.7	11.59	6926	14.87	486.90
005900574-04	OBS	No	0.533177	131.953594	11.2	4.220	8.4	6.3	11.59	6926	4.19	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005900574-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005900574-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005900574-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005900574-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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

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

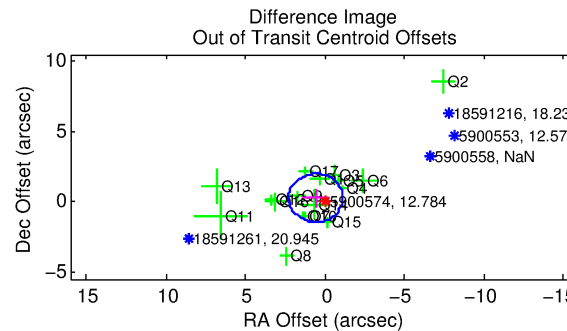
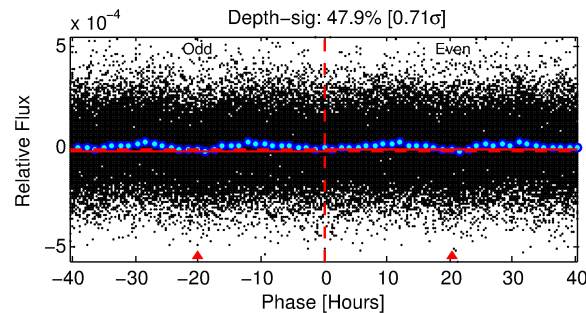
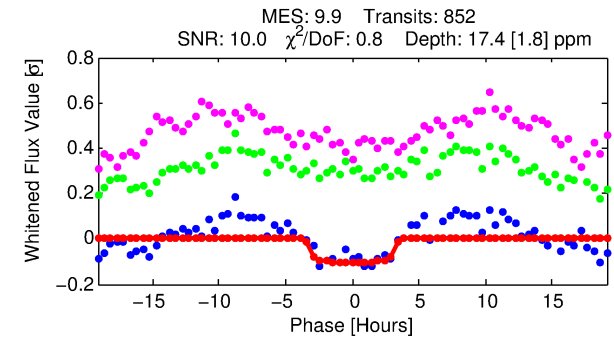
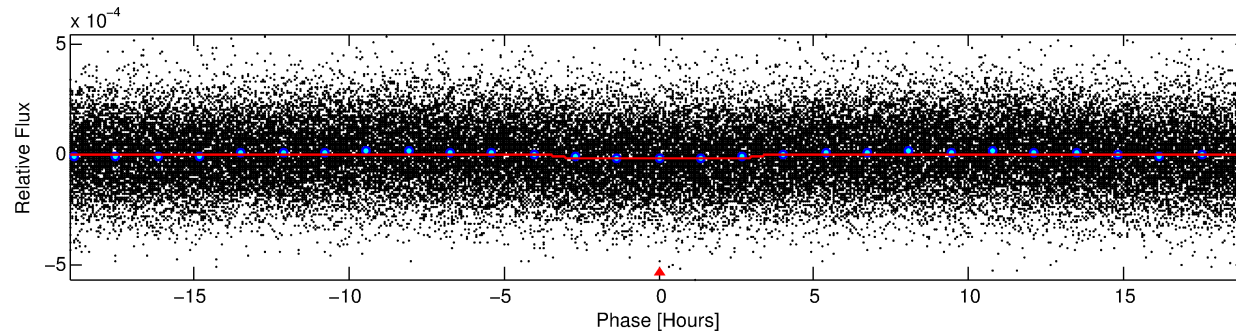
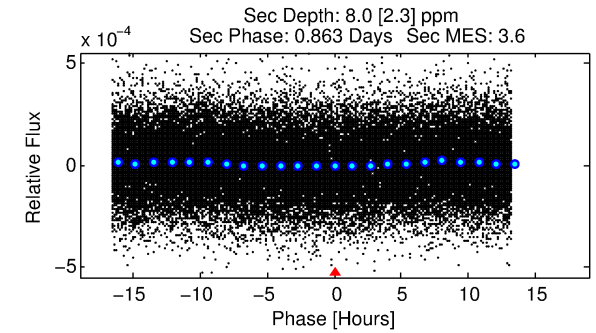
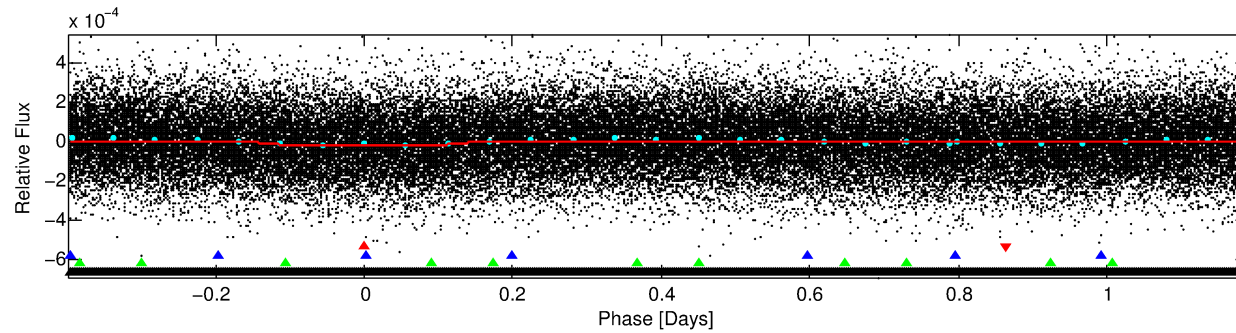
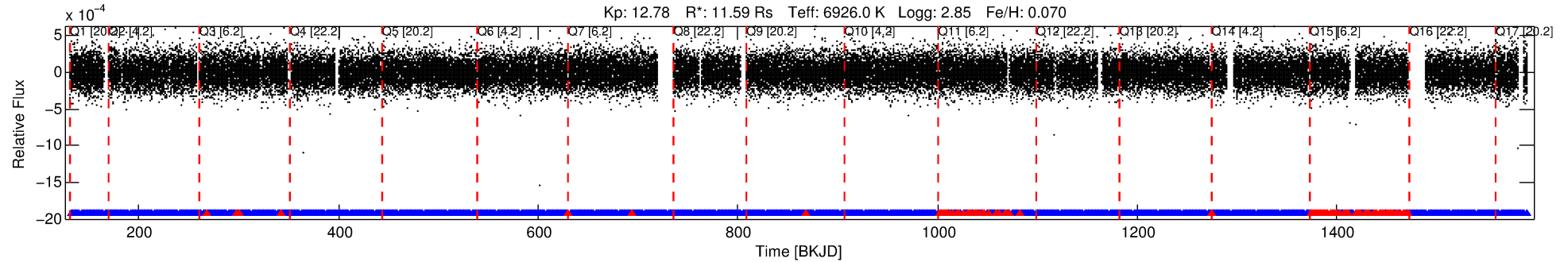
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005900574-01

No Significant Match Found

DV One-Page Summary

KIC: 5900574 Candidate: 1 of 4 Period: 1.585 d



DV Fit Results:

Period = 1.58508 [0.00002] d
Epoch = 132.9252 [0.0065] BKJD
Rp/R* = 0.0041 [0.0015]
a/R* = 1.55 [1.80]
b = 0.68 [1.56]
Seff = N/A
Teq = N/A
Rp = 5.16 [2.93] Re
a = N/A
Ag = N/A
Teffp = N/A

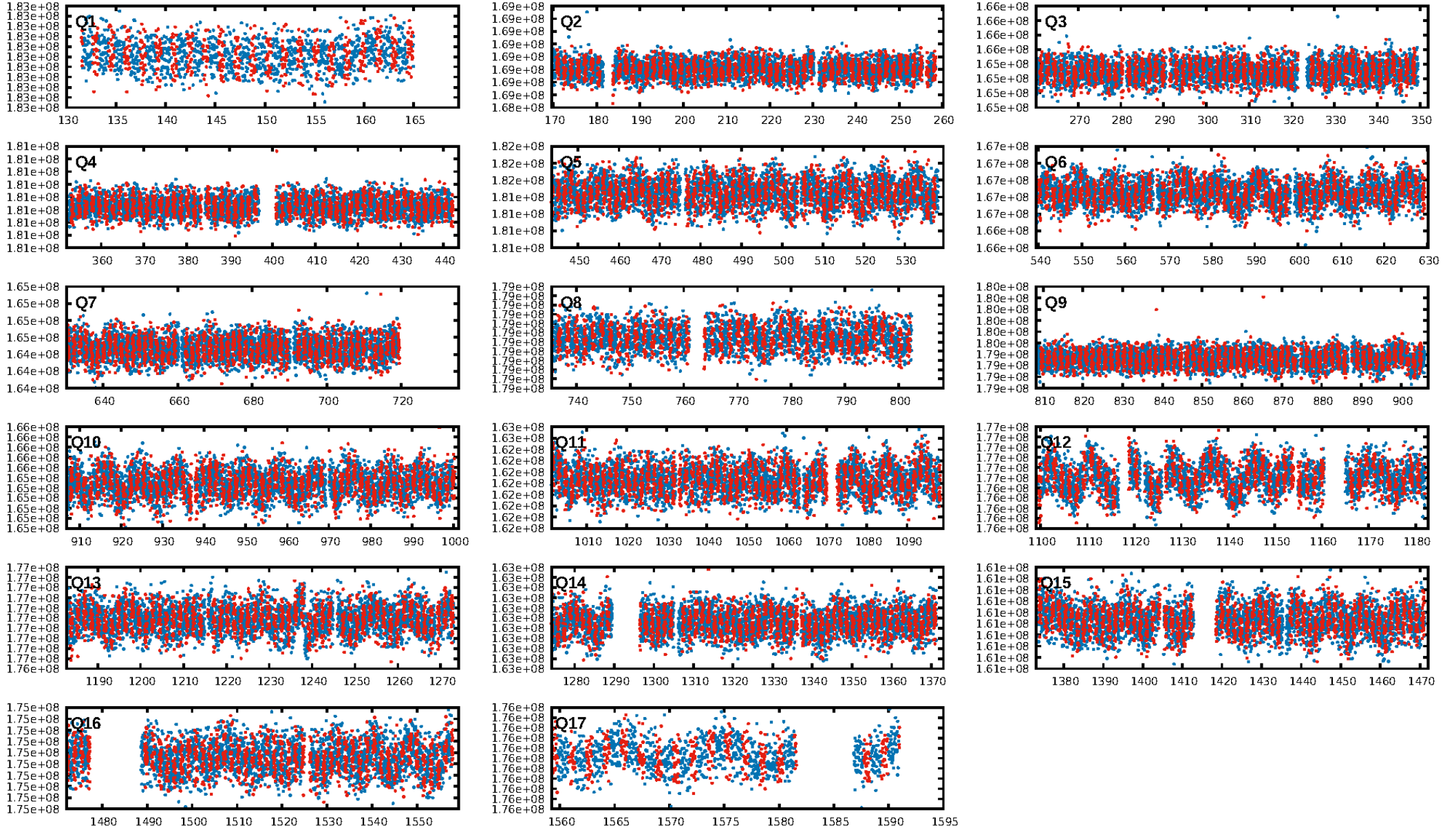
DV Diagnostic Results:

ShortPeriod-sig: 99.8% [3.17σ]
LongPeriod-sig: 100.0% [392.02σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.90 [731/814]
GhostDiagnostic-chr: 3.275
Centroid-sig: 28.3%
Centroid-so: 1.489 arcsec [1.21σ]
OotOffset-rm: 0.629 arcsec [1.10σ]
KicOffset-rm: 0.609 arcsec [1.20σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.65 [11/17]
DiffImageOverlap-fno: 0.00 [0/17]

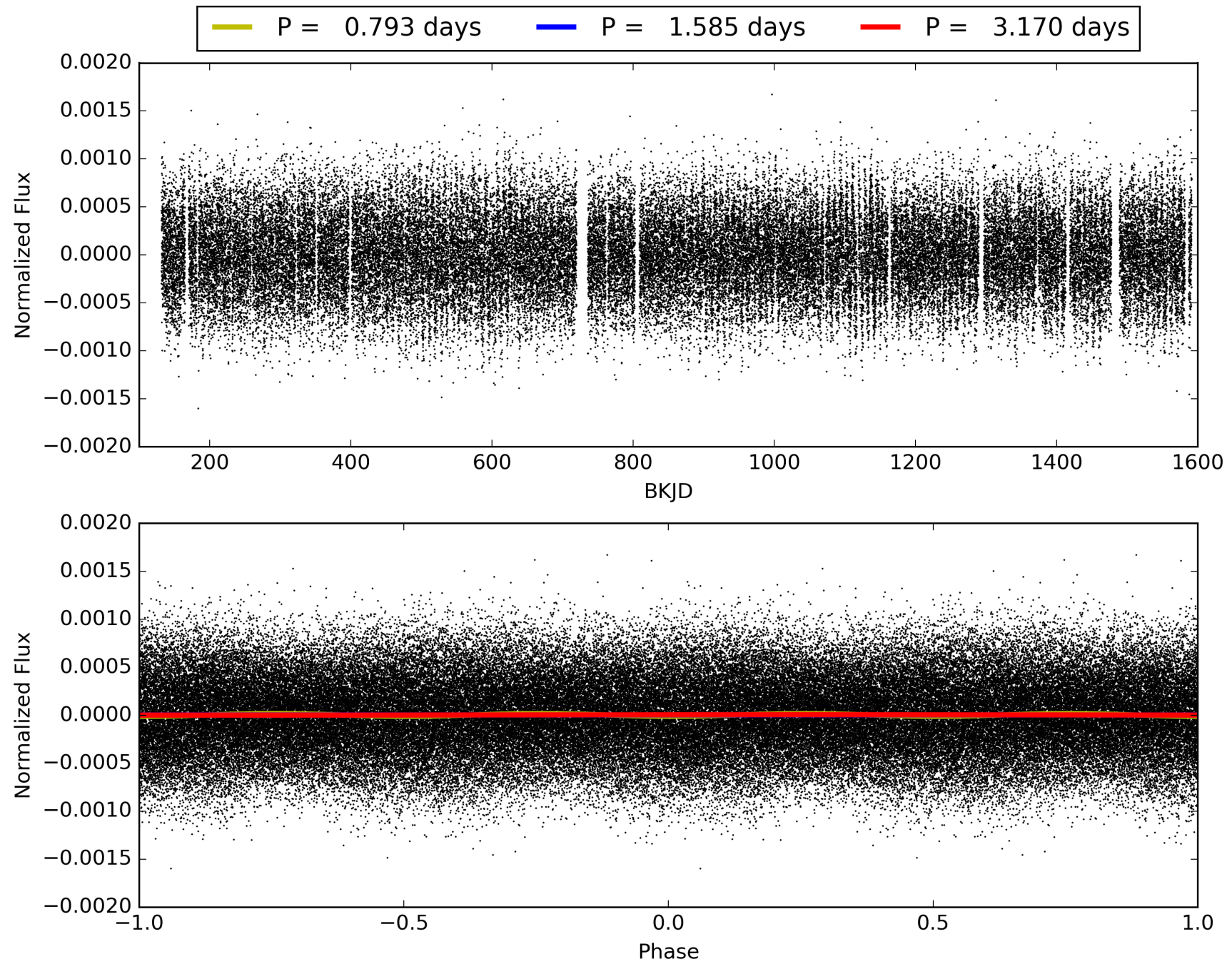
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:27:21 Z

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

TCE 005900574-01, PDC Light Curves

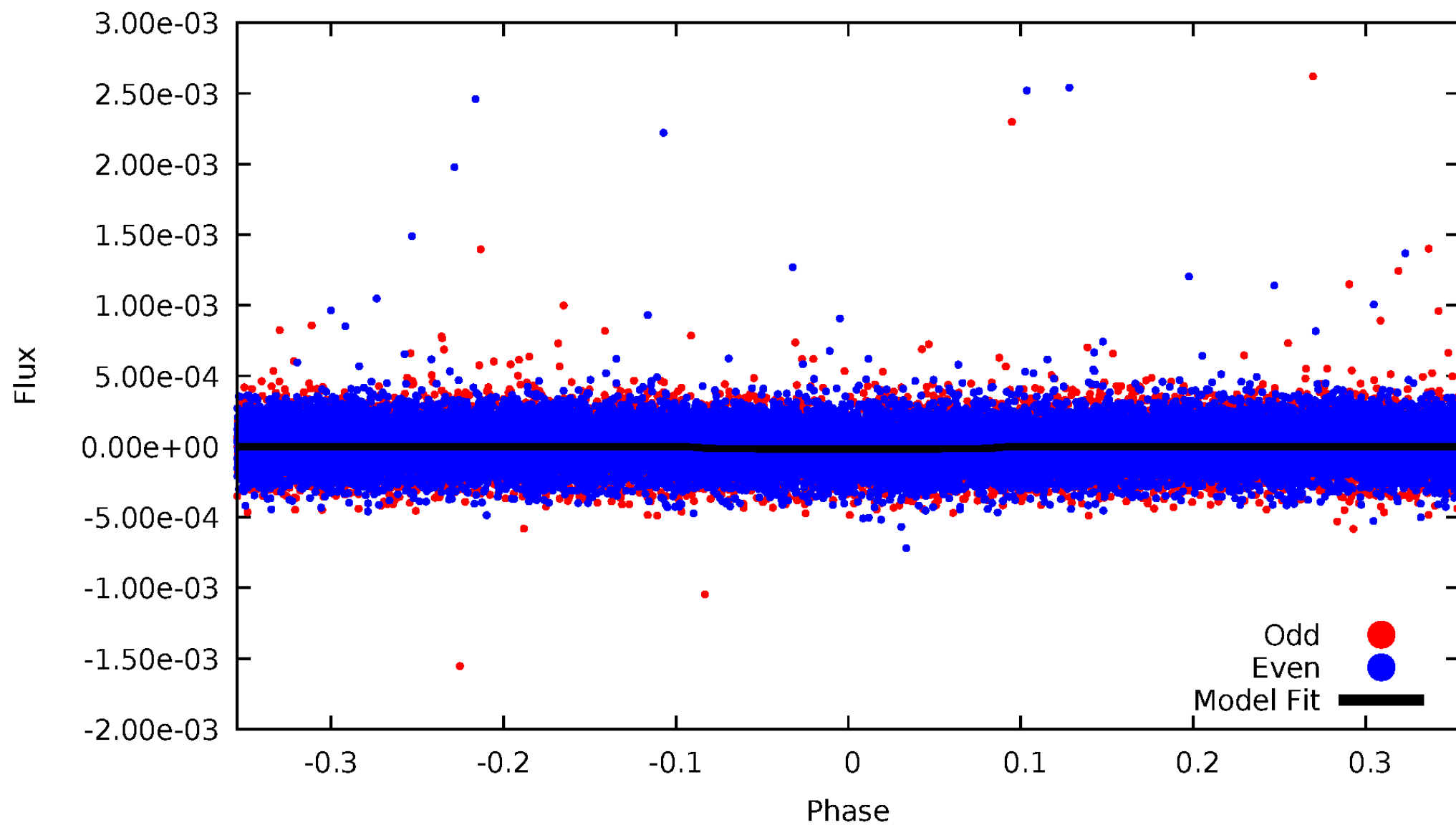


TCE 005900574-01



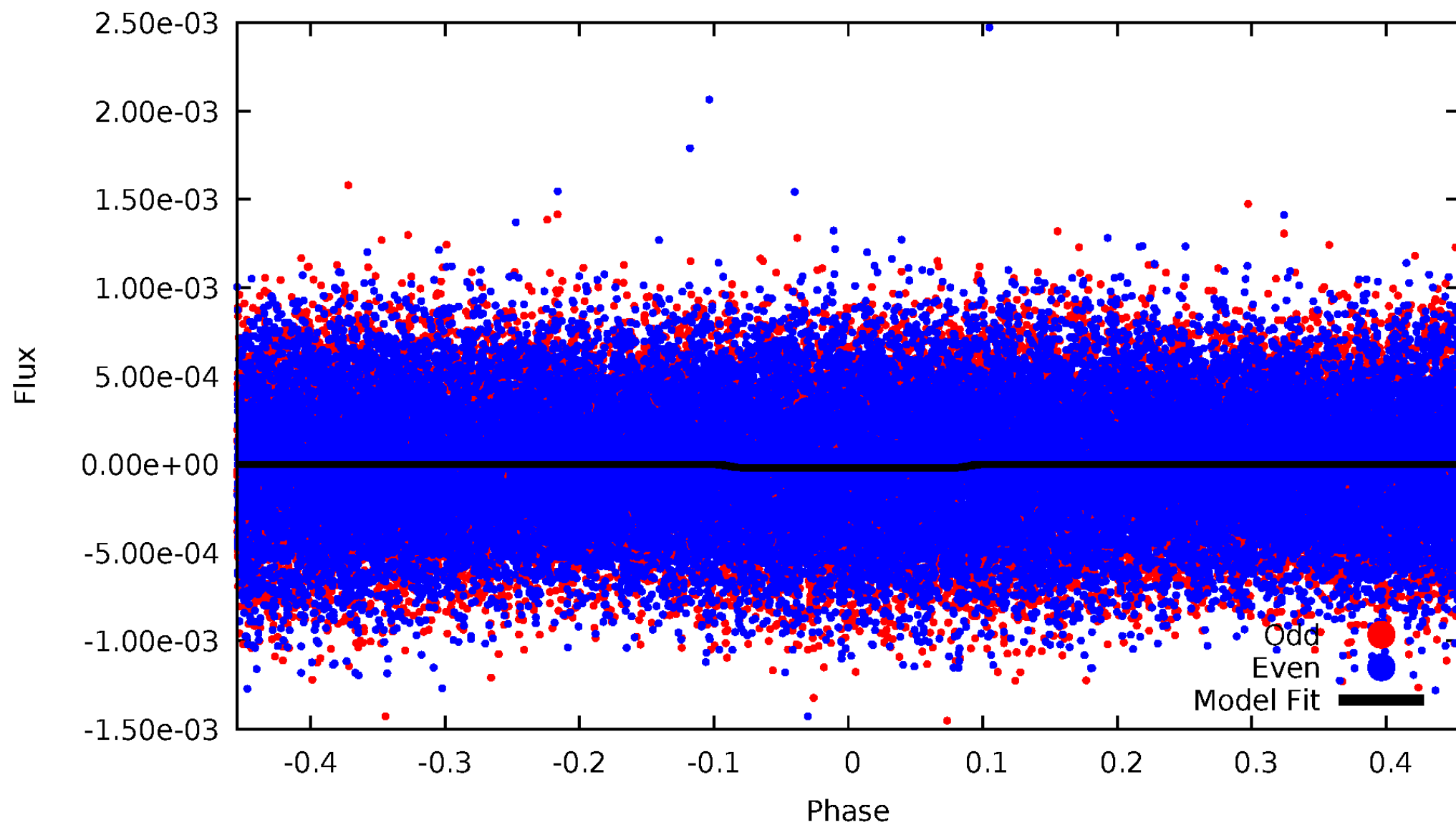
DV Odd/Even

TCE 005900574-01



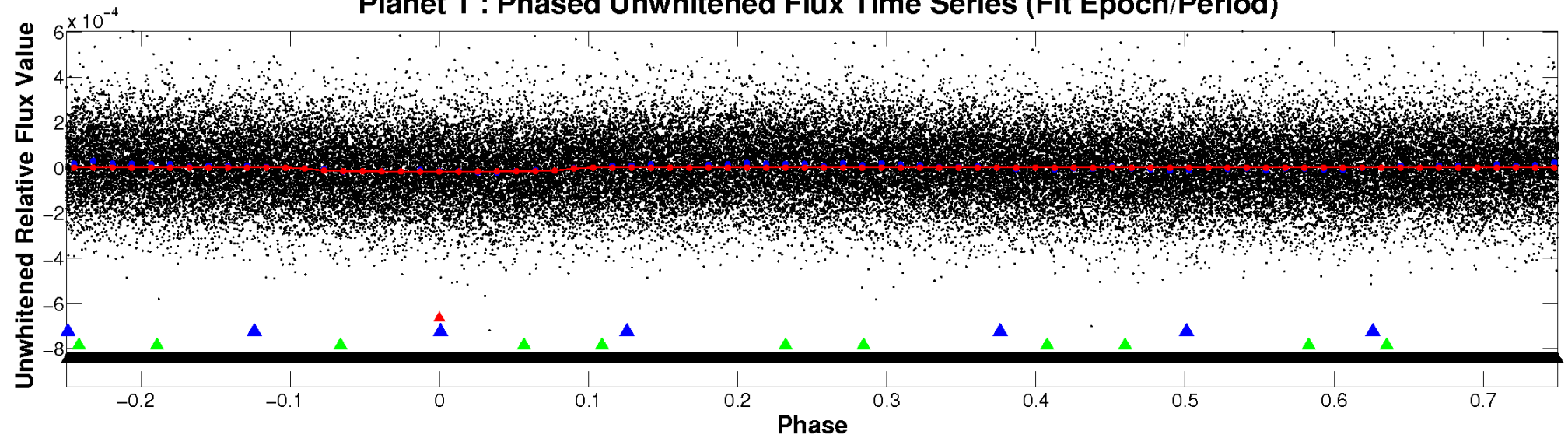
ALT Odd/Even

TCE 005900574-01

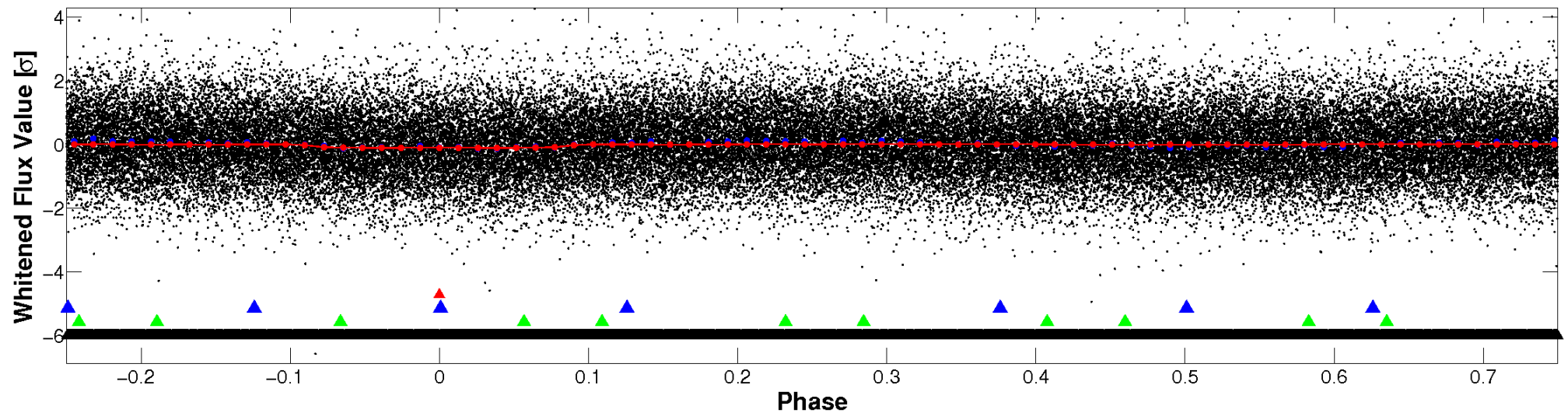


Non-Whitened Vs. Whitened Light Curve

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

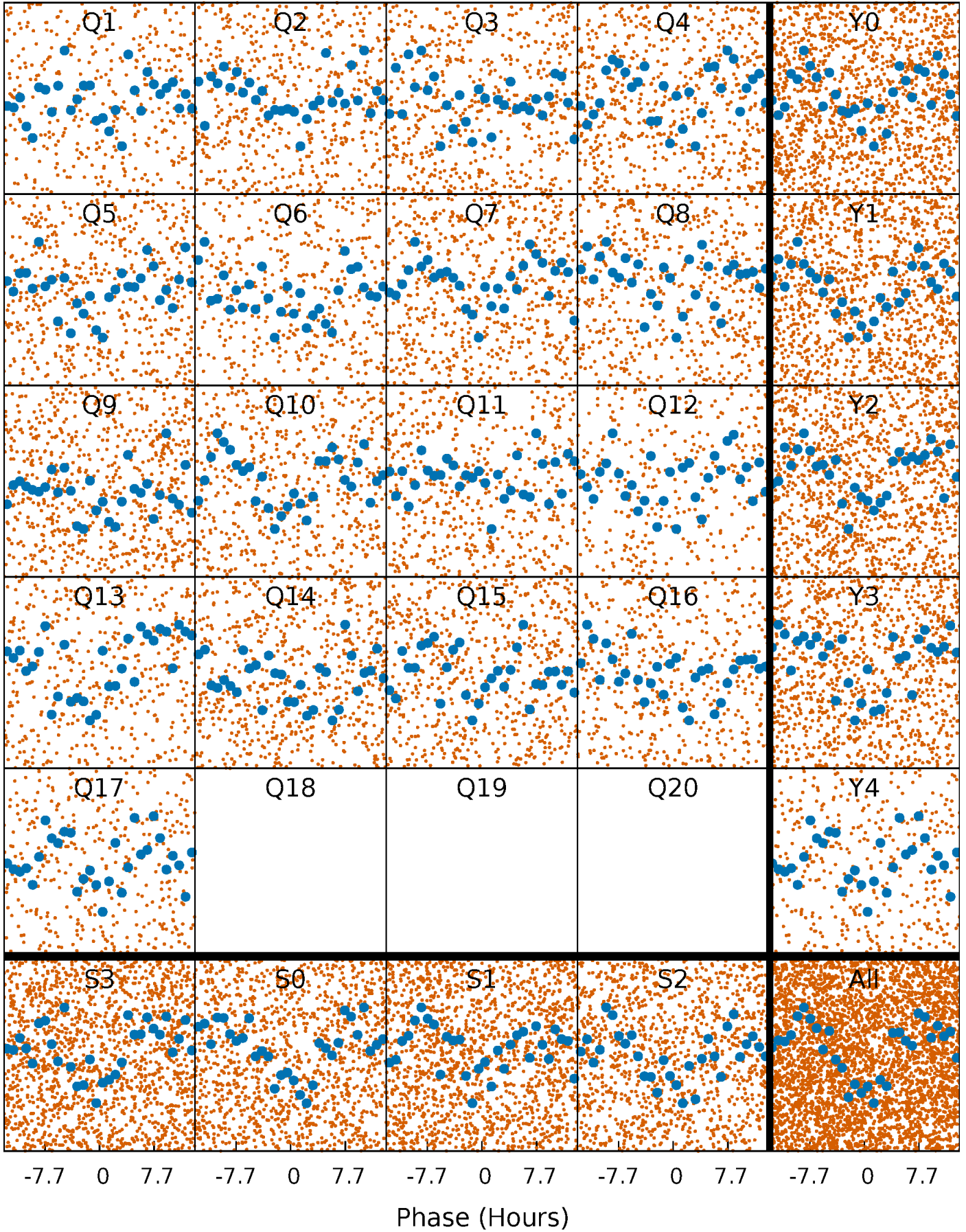


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



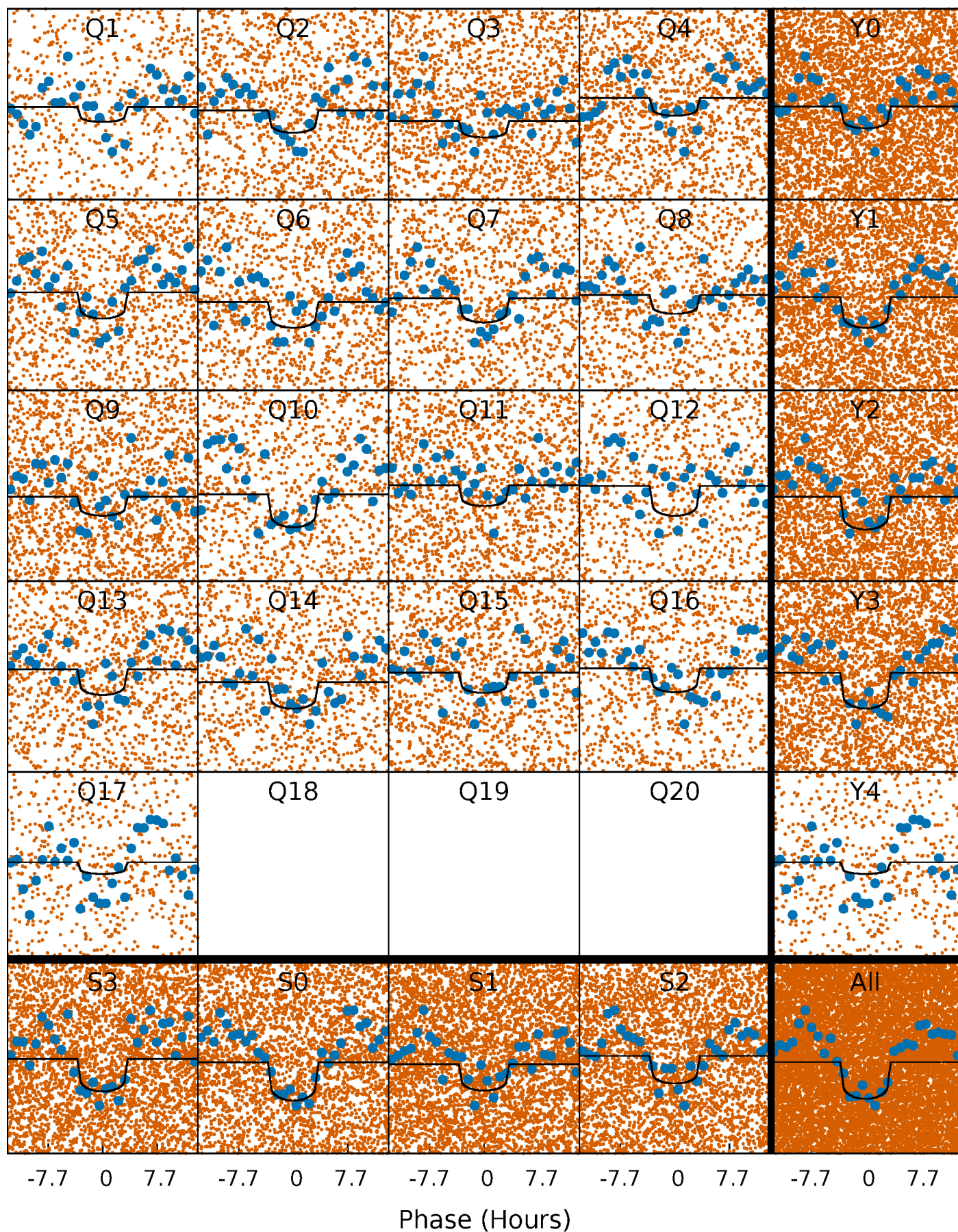
PDC Quarter-Phased Transit Curves

TCE 005900574-01 P= 1.585084 Days $T_0=132.925152$ (BKJD)



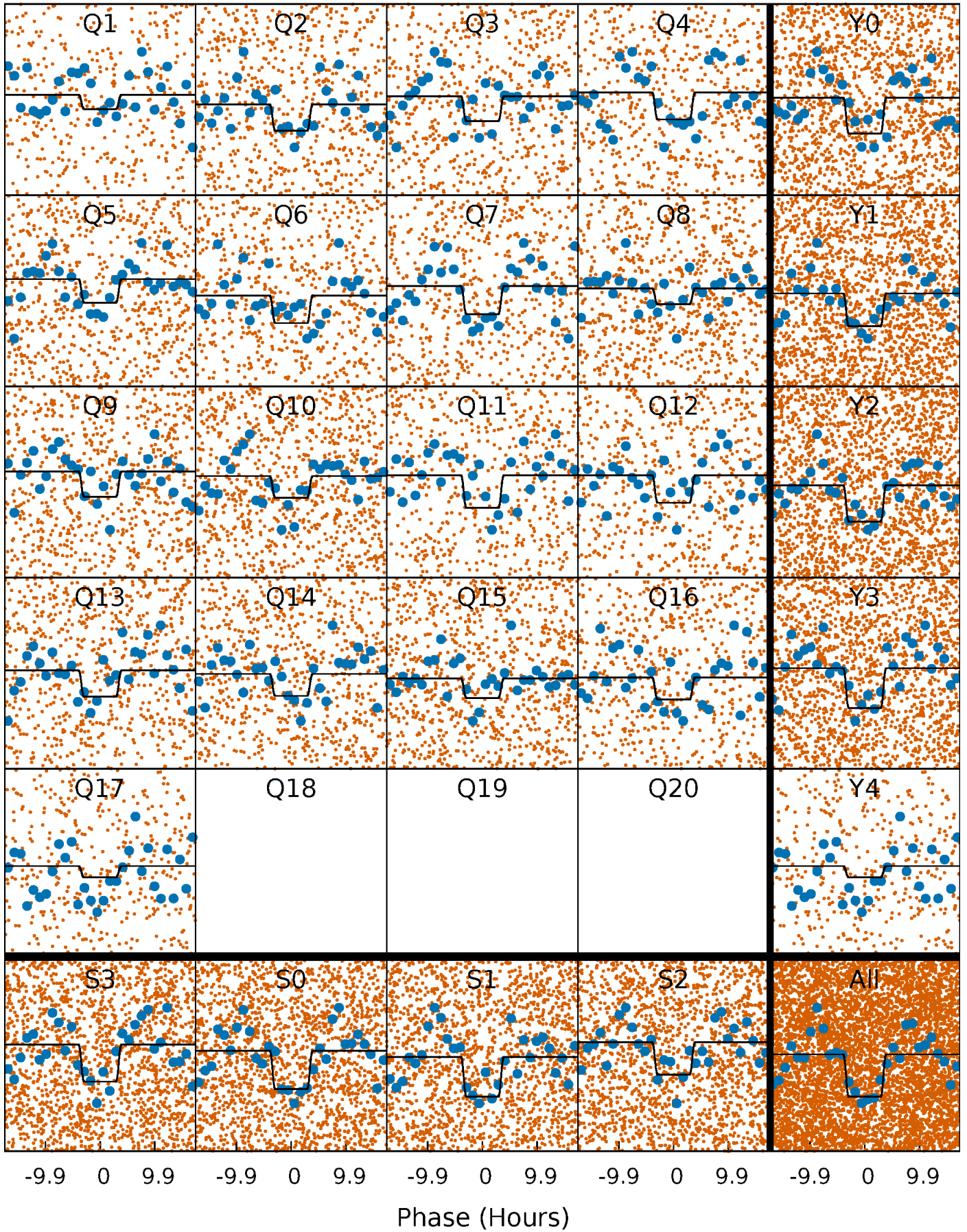
DV Quarter-Phased Transit Curves

TCE 005900574-01 P= 1.585084 Days $T_0=132.925152$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

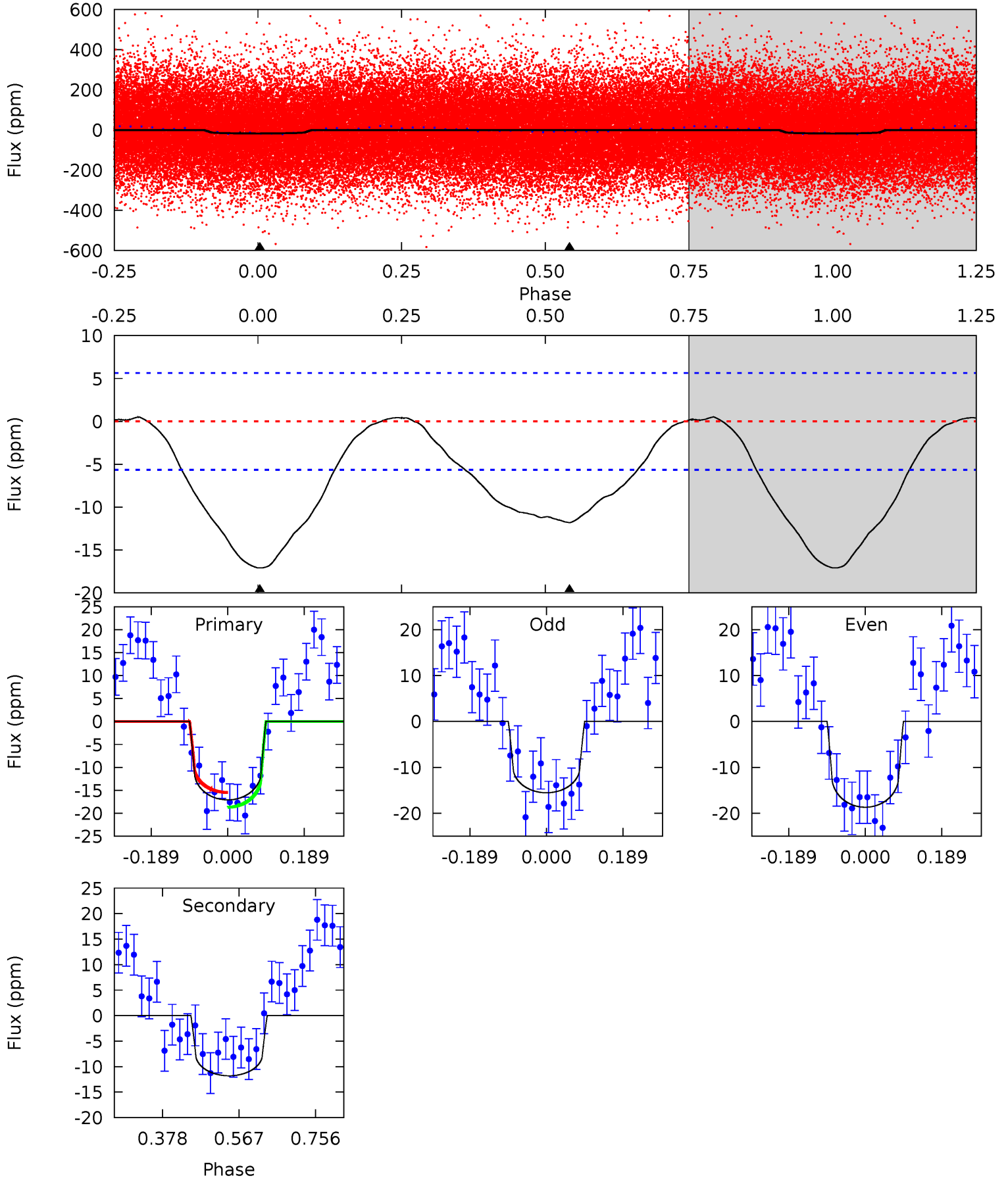
TCE 005900574-01 P= 1.585132 Days $T_0=132.901542$ (BKJD)



DV Model-Shift Uniqueness Test

005900574-01, P = 1.585084 Days, E = 131.340068 Days

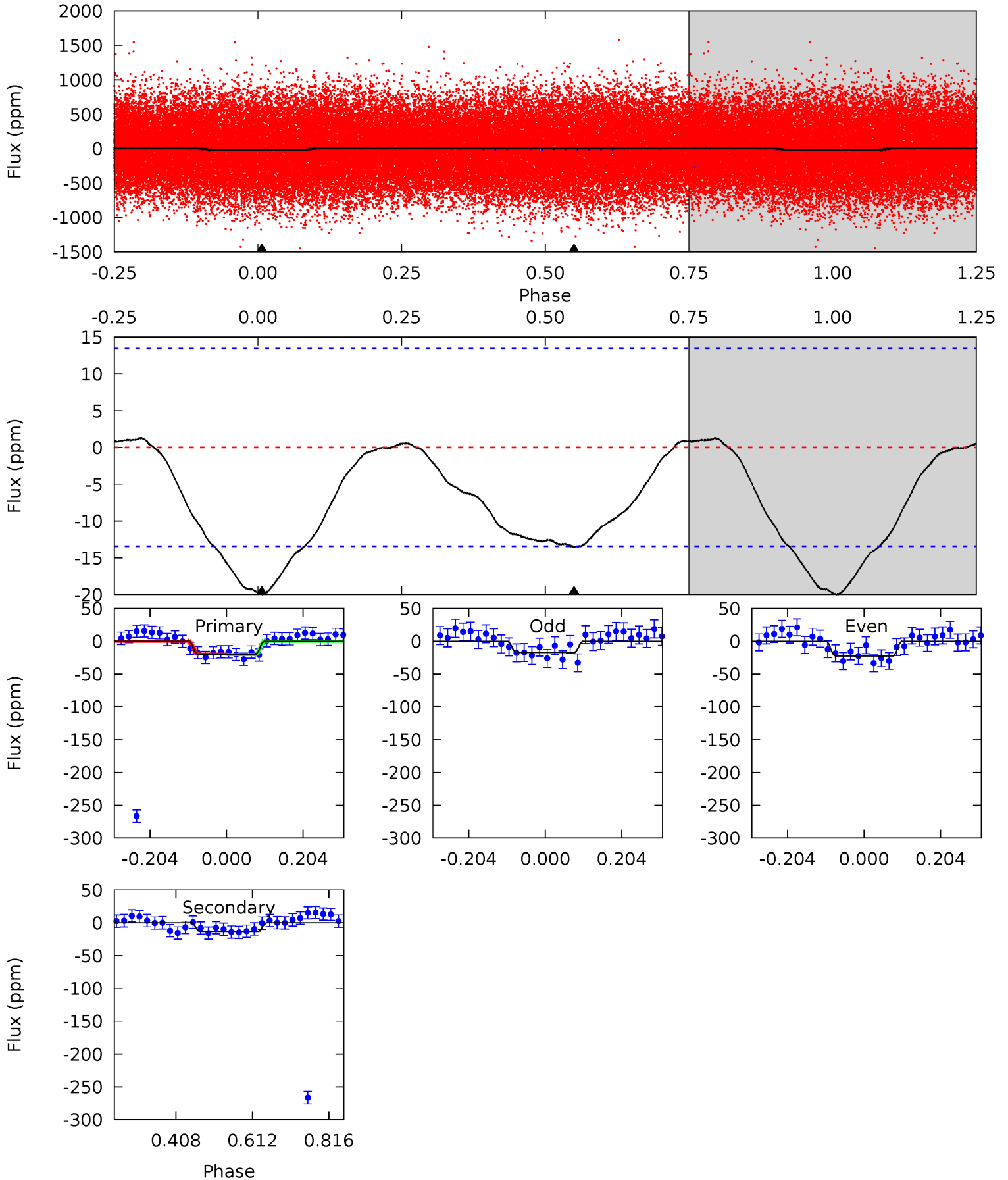
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	9.26	0	0	4.43	1.31	1.27	13.4	13.4	9.26	9.26	1.24	1.03	0.03	1.26



Alt Model-Shift Uniqueness Test

005900574-01, P = 1.585132 Days, E = 131.316410 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.57	4.44	0	0	4.41	1.27	0.66	6.57	6.57	4.44	4.44	0.84	1.02	0.06	0.15



Stellar Parameters For KIC 005900574

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+484}_{-1939}	$2.852^{+0.236}_{-0.193}$	$0.070^{+0.250}_{-0.500}$	$11.591^{+2.203}_{-5.141}$	$3.479^{+0.106}_{-2.012}$	$0.003^{+0.006}_{-0.001}$
	+7%/-28%	+8%/-7%	+357%/-714%	+19%/-44%	+3%/-58%	+187%/-43%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005900574-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-12 ± 1	$5.05^{+2.11}_{-2.08}$	7024^{+1024}_{-1791}	3978^{+3012}_{-8514}	$0.384^{+0.676}_{-0.187}$
Alt.	-14 ± 3	$5.66^{+2.18}_{-2.12}$	6939^{+1016}_{-1592}	3356^{+2932}_{-8104}	$0.339^{+0.526}_{-0.162}$

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 $A_{obs} \gg 1.0$

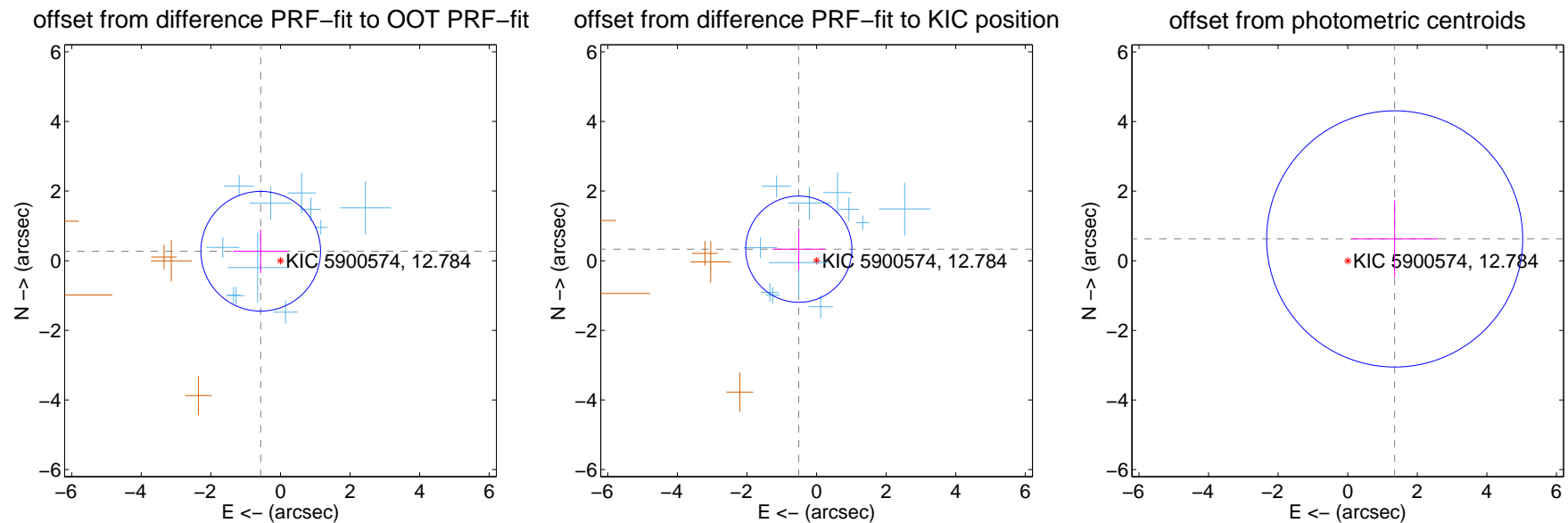
DV Centroid Data

Supplemental centroid analysis for 005900574-01. Kepler magnitude: 12.78. Transit SNR 10.01

There are 11 quarters with good PRF difference image offsets

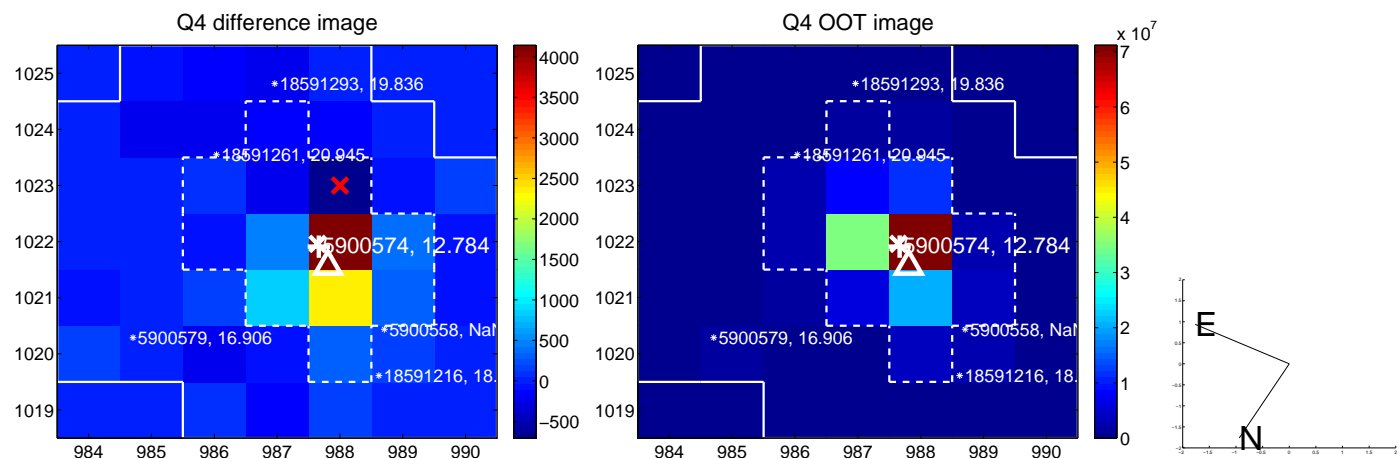
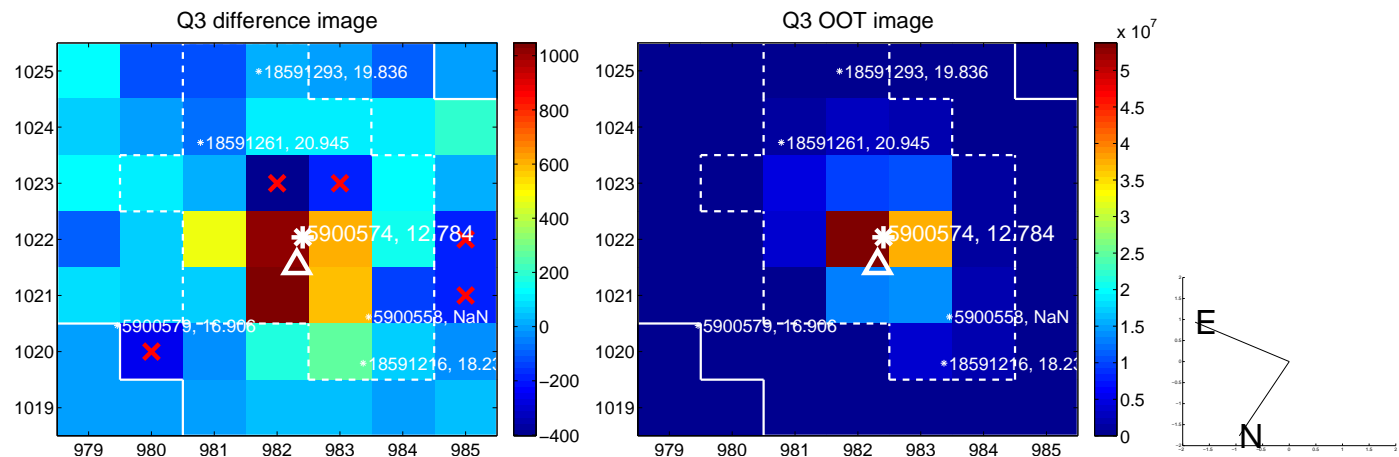
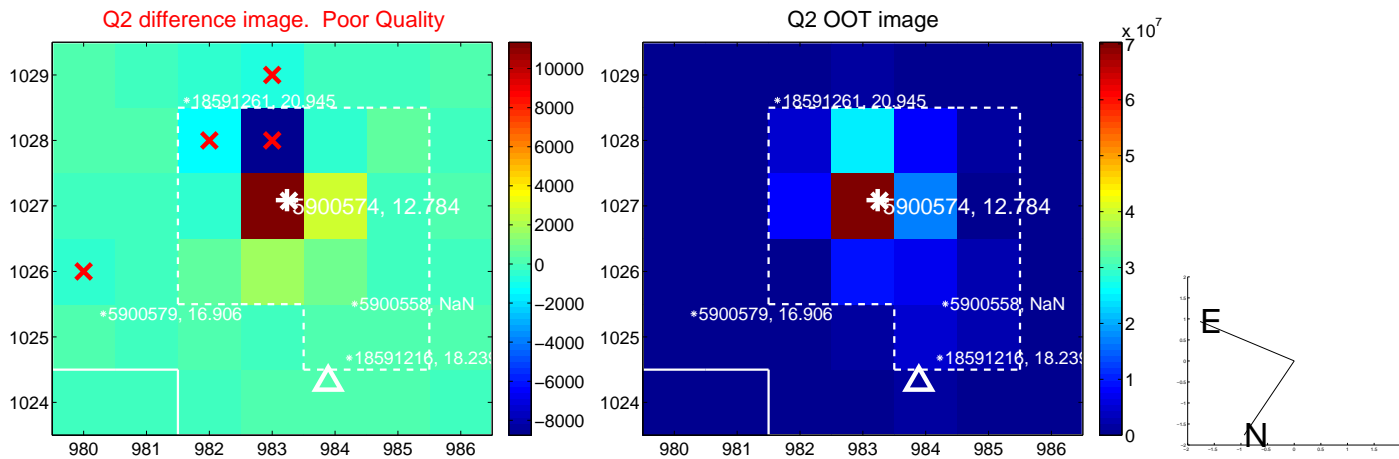
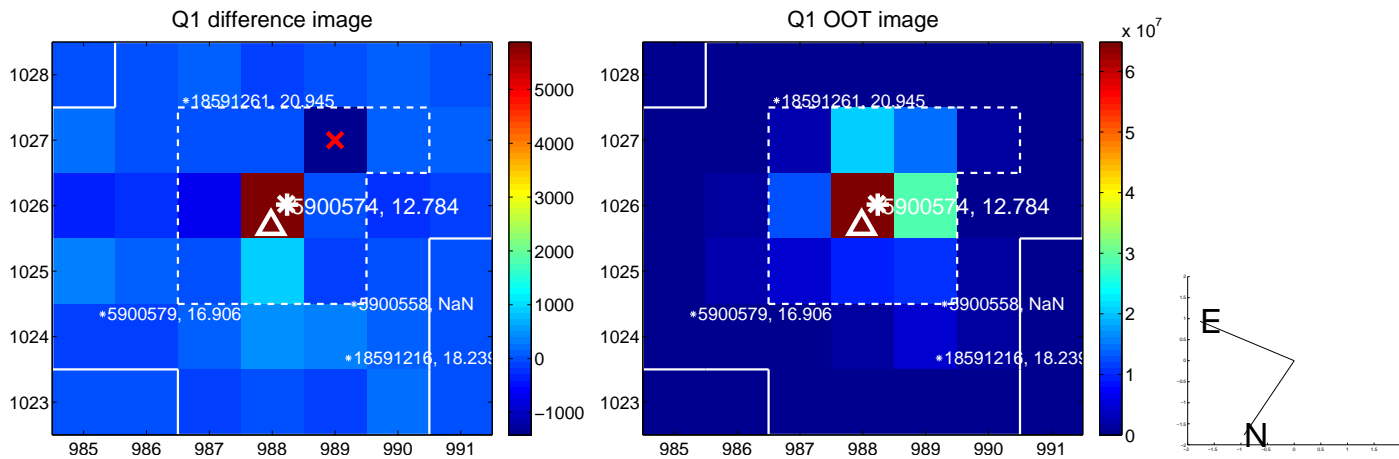
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.629 ± 0.573	1.10	0.567 ± 0.795	0.271 ± 0.628
PRF-fit source offset from KIC position	0.609 ± 0.509	1.20	0.511 ± 0.752	0.331 ± 0.602
photometric centroid source offset	1.49 ± 1.23	1.21	-1.35 ± 1.25	0.63 ± 1.11

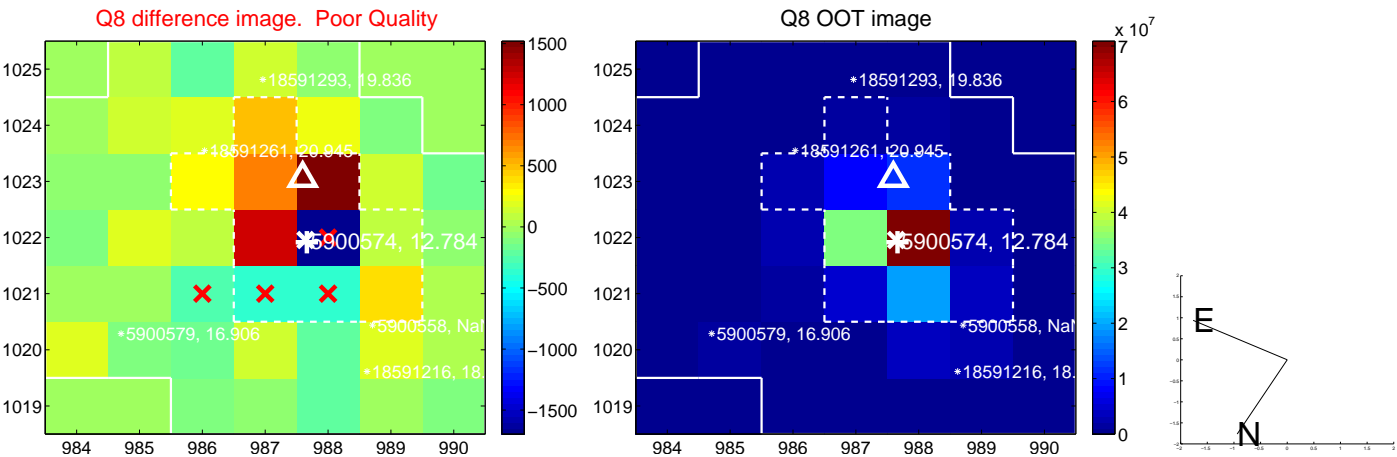
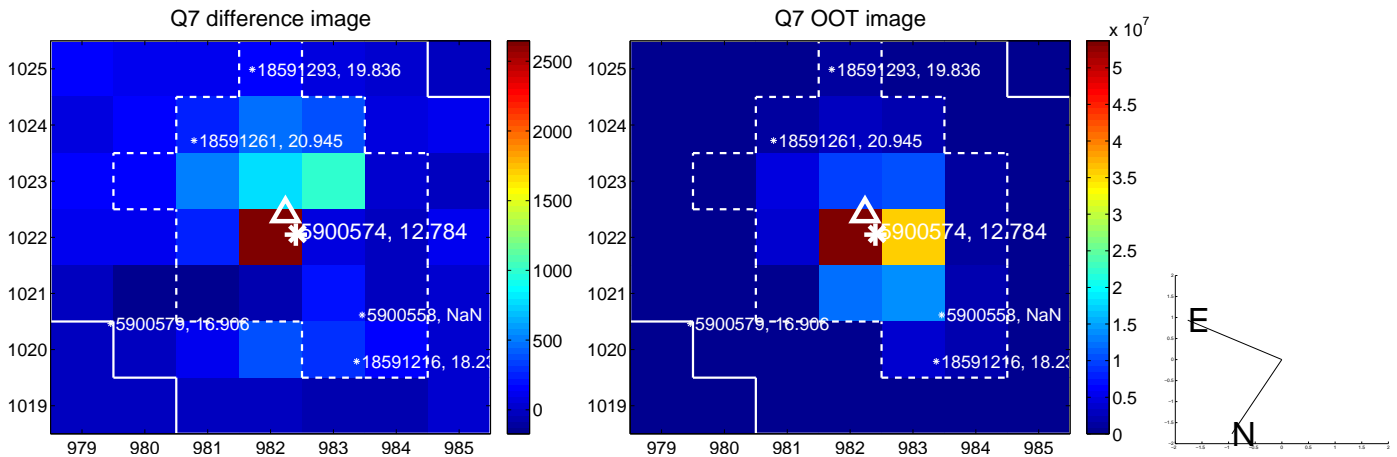
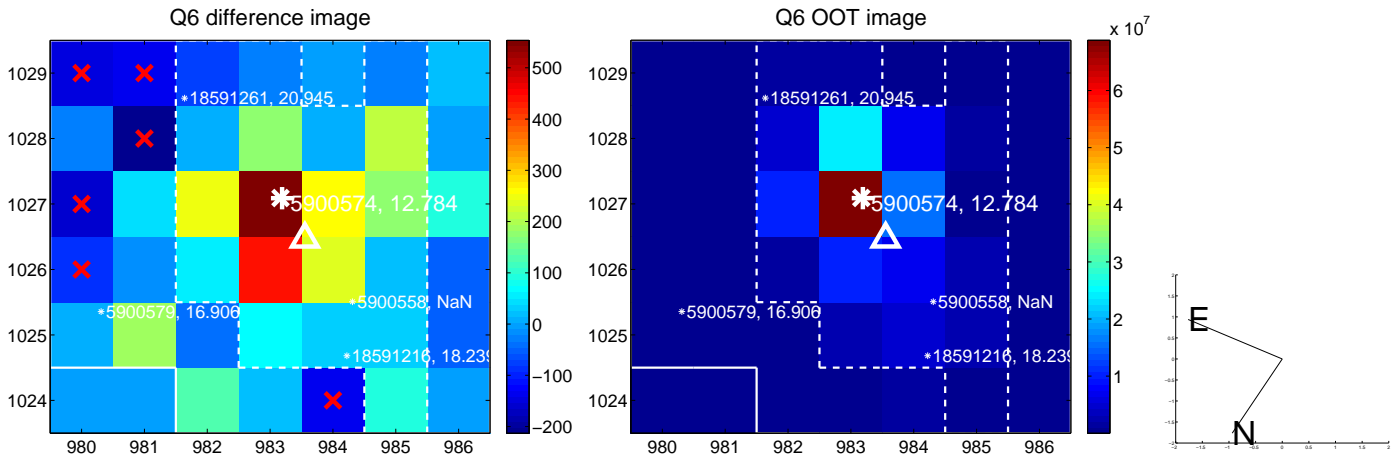
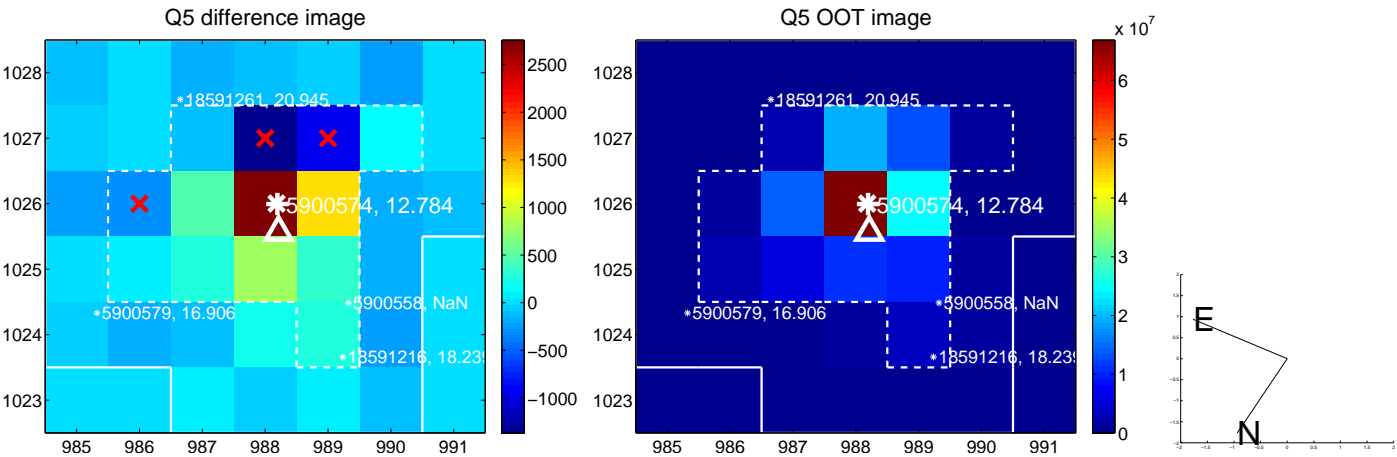


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

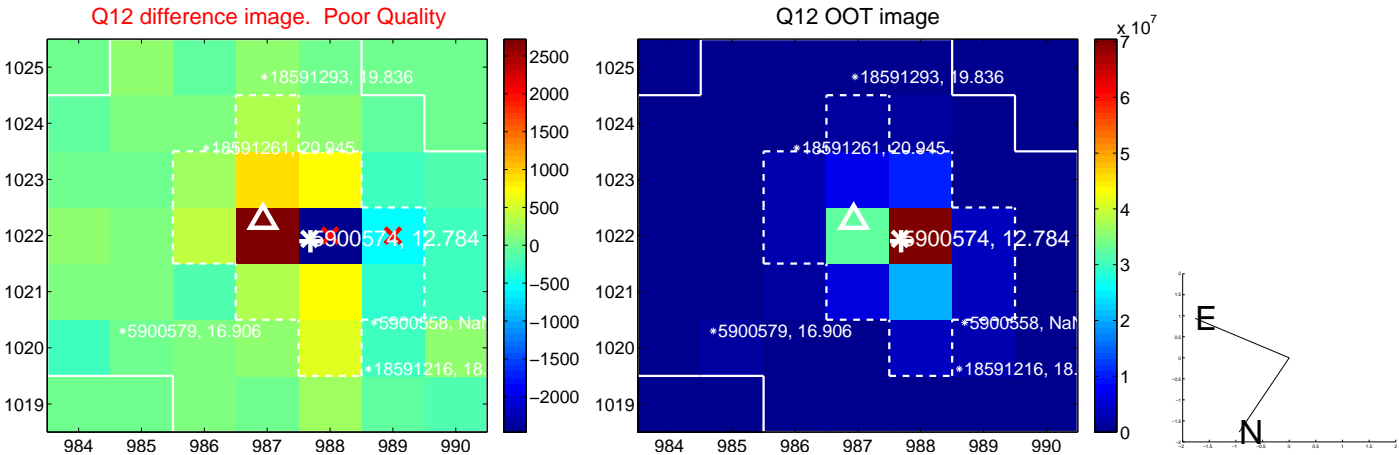
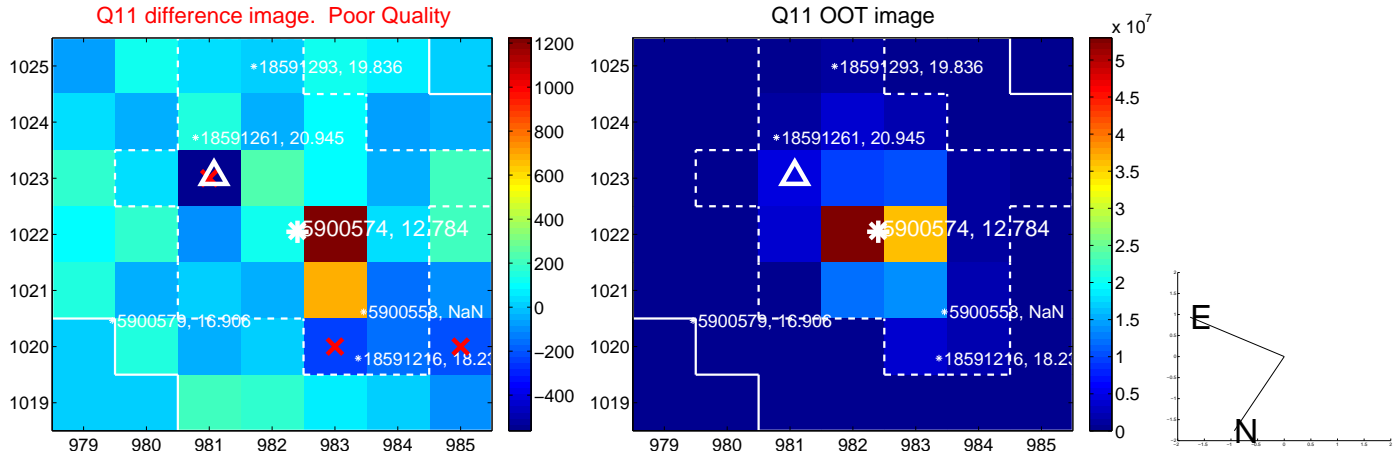
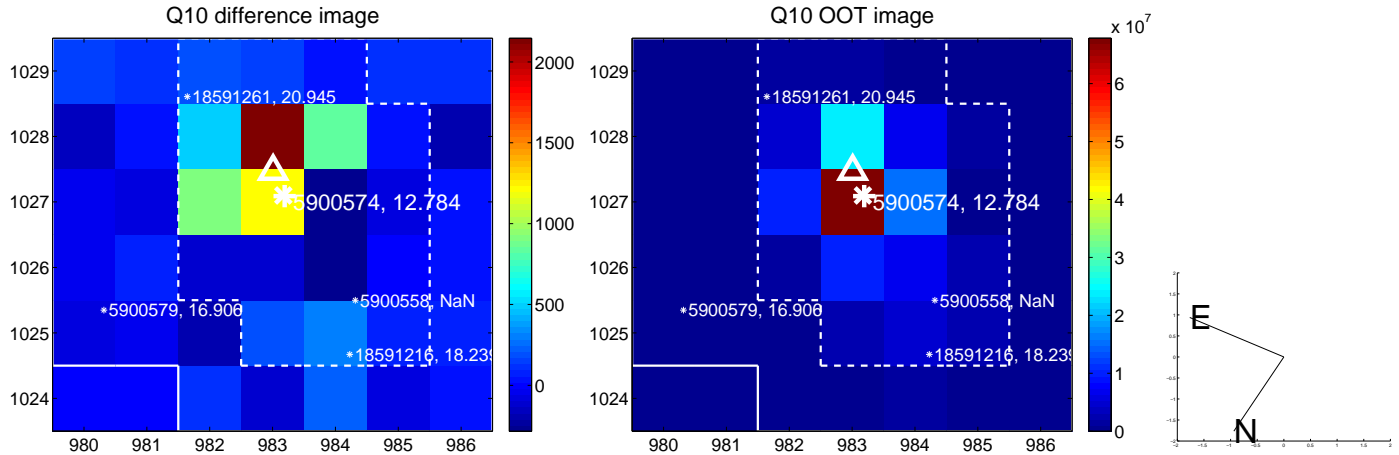
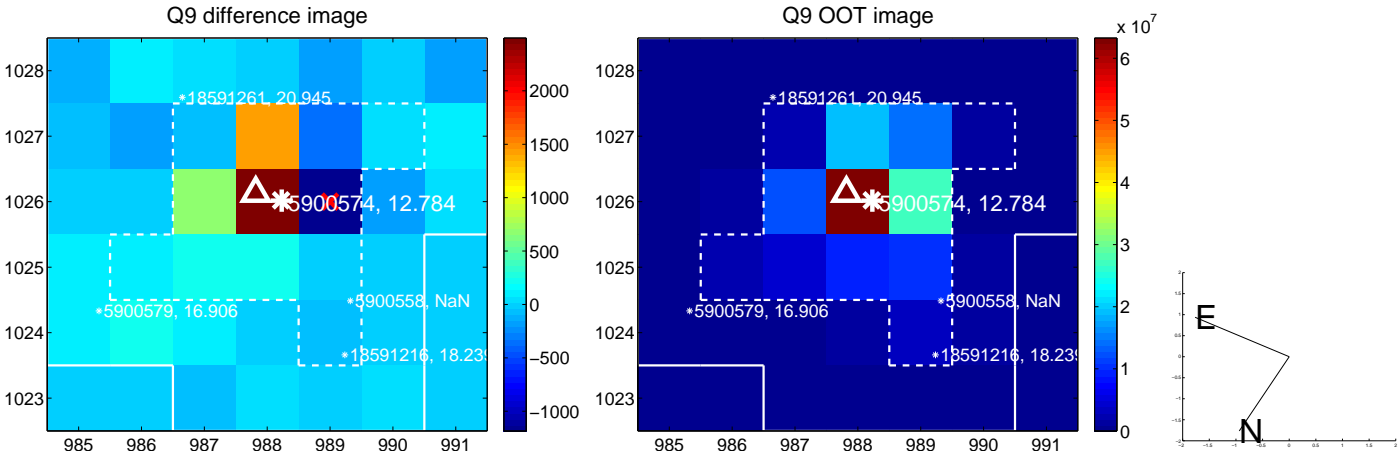
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



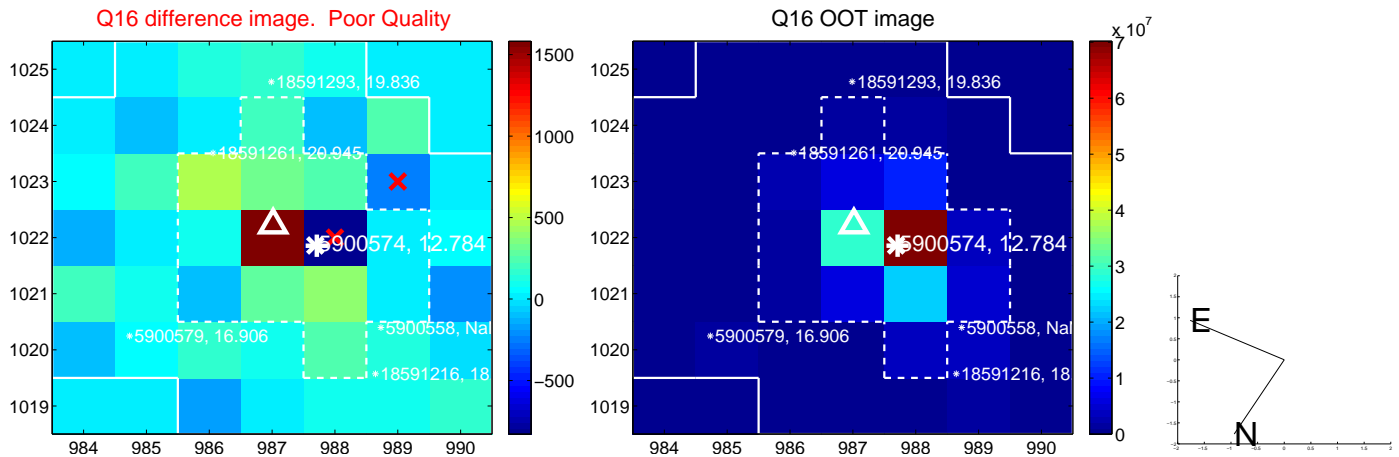
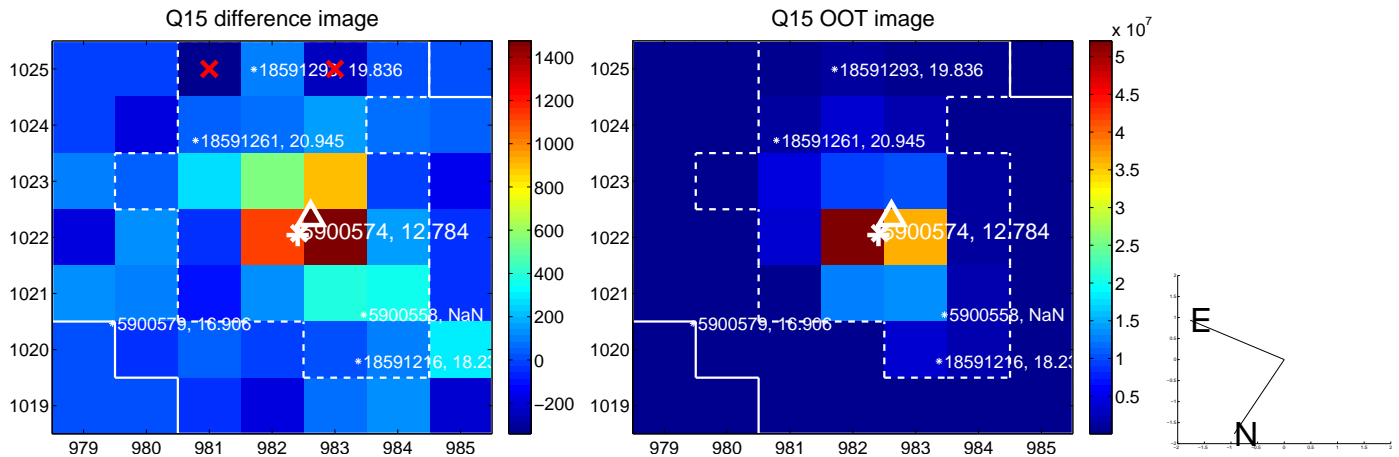
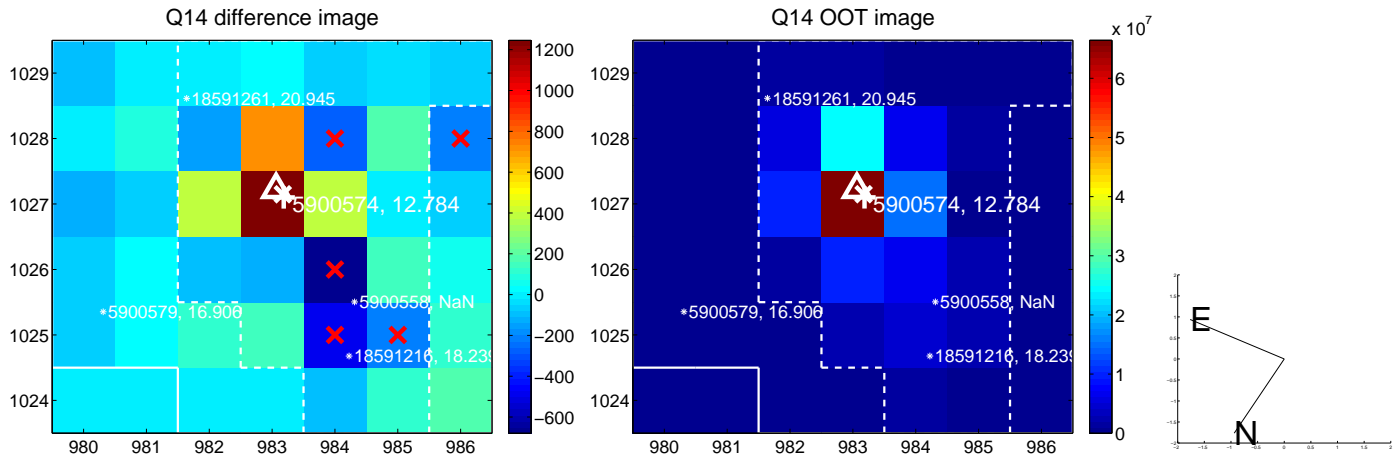
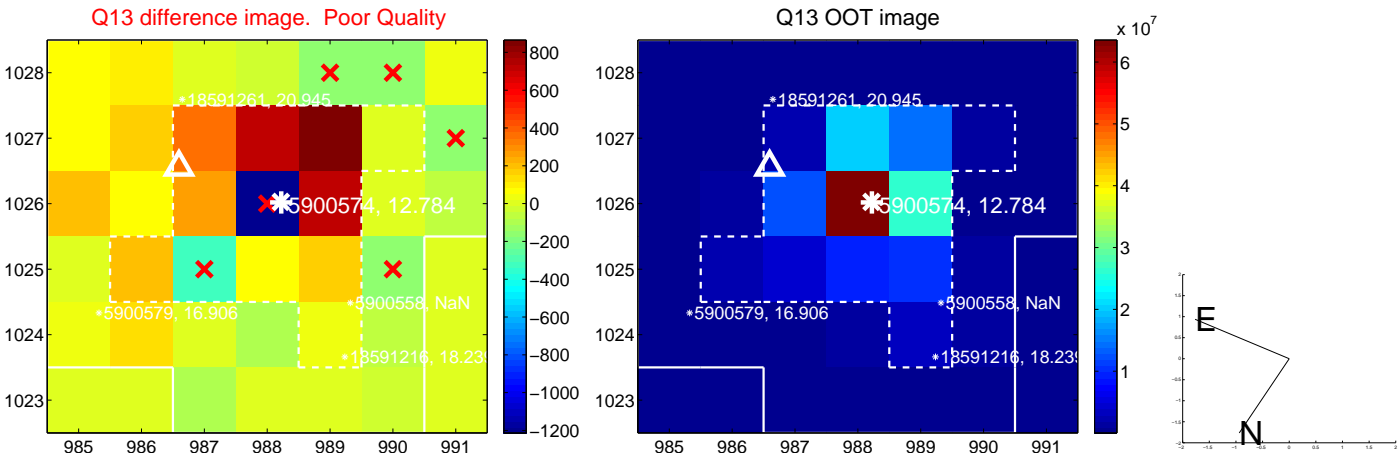
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



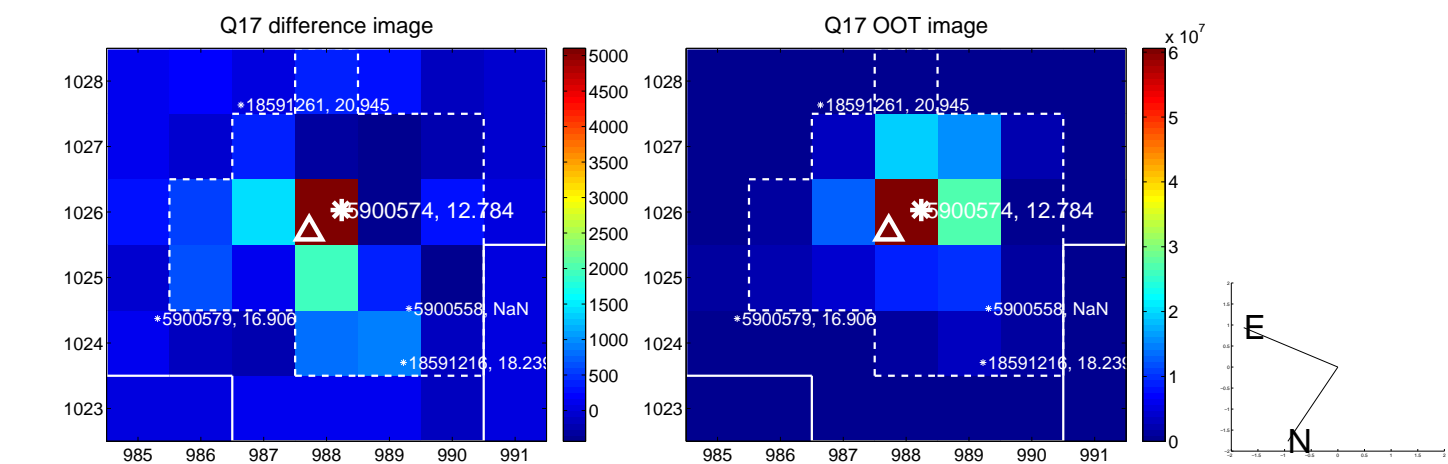
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



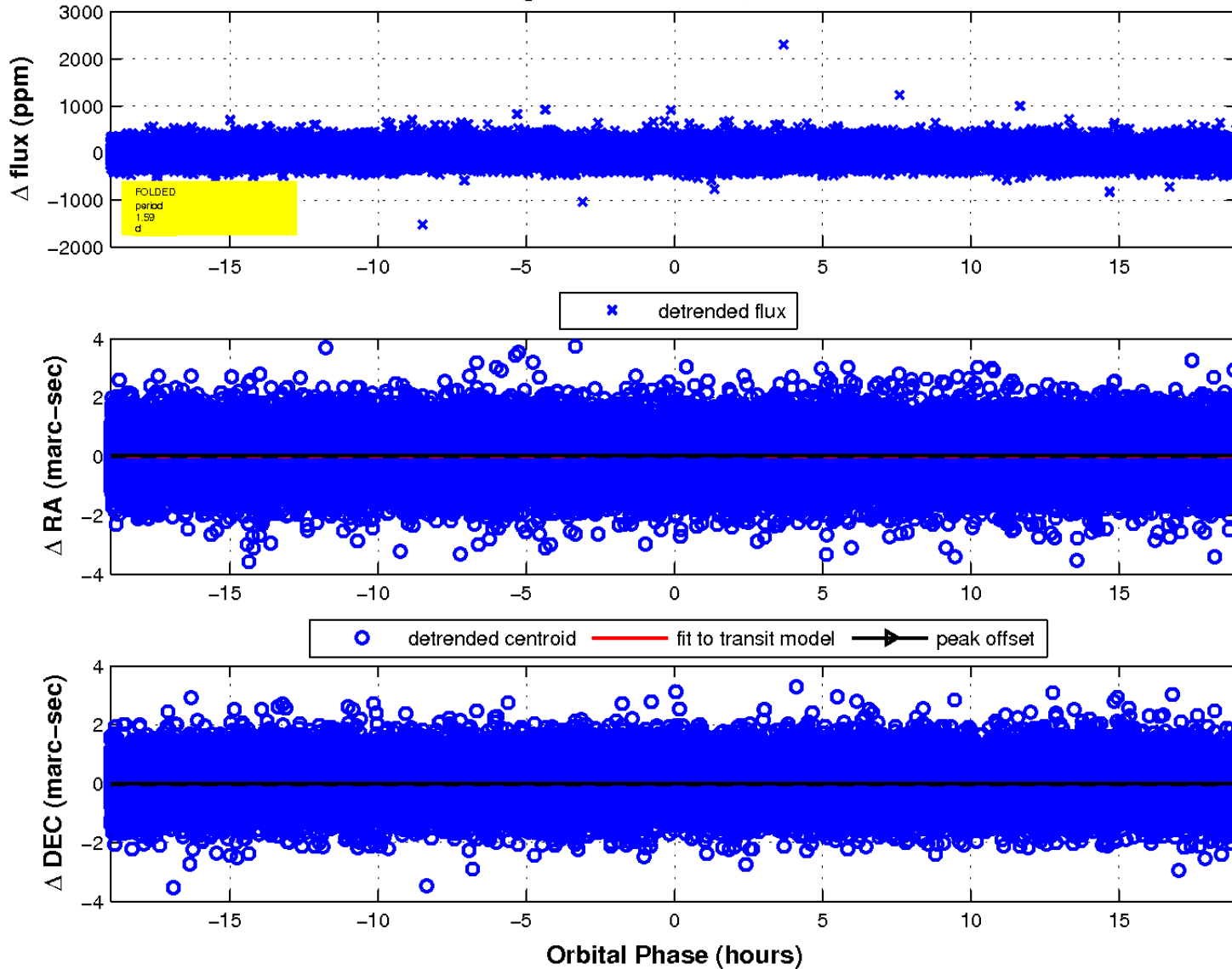
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

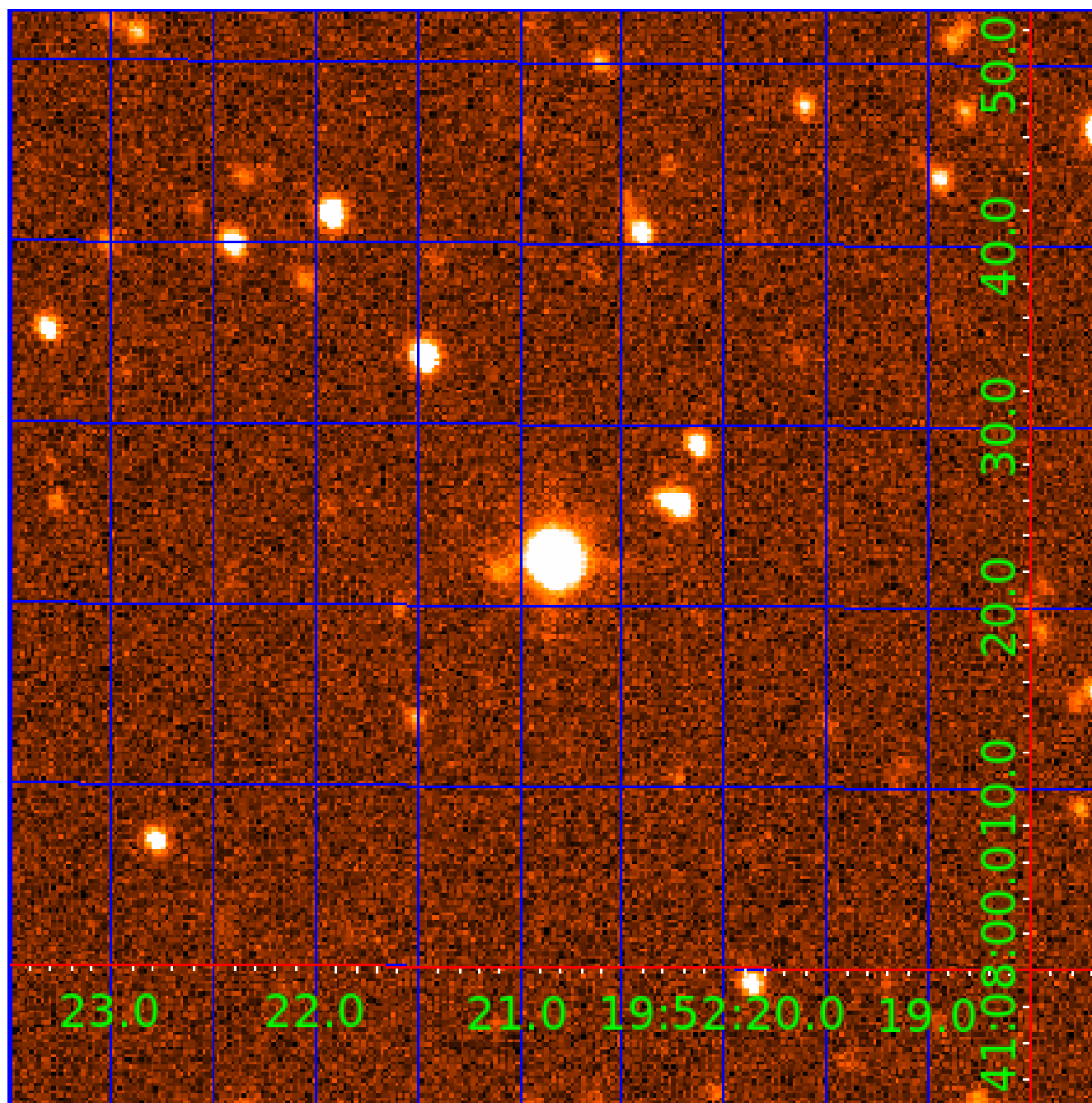


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 005900574

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})
005900574-01	OBS	No	1.585084	132.925152	17.4	6.741	9.9	10.0	11.59	6926	5.16	0.00
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005900574-04	OBS	No	0.533177	131.953594	11.2	4.220	8.4	6.3	11.59	6926	4.19	0.00

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005900574-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005900574-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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

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

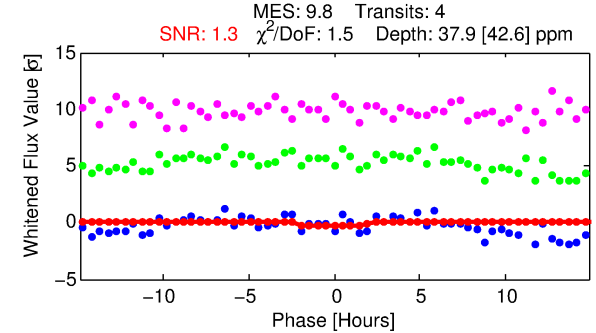
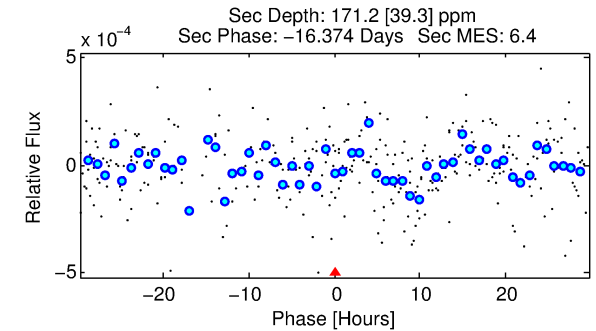
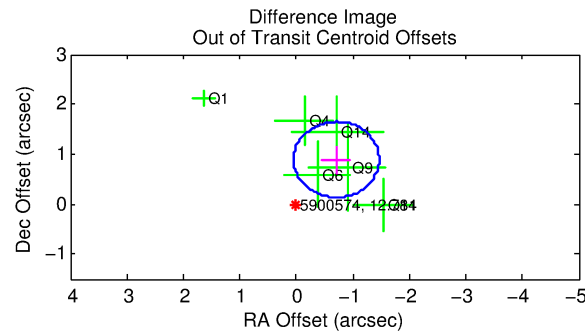
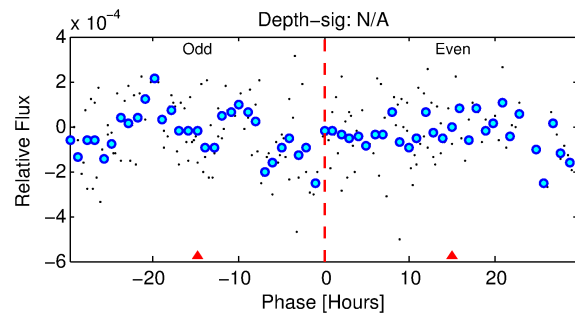
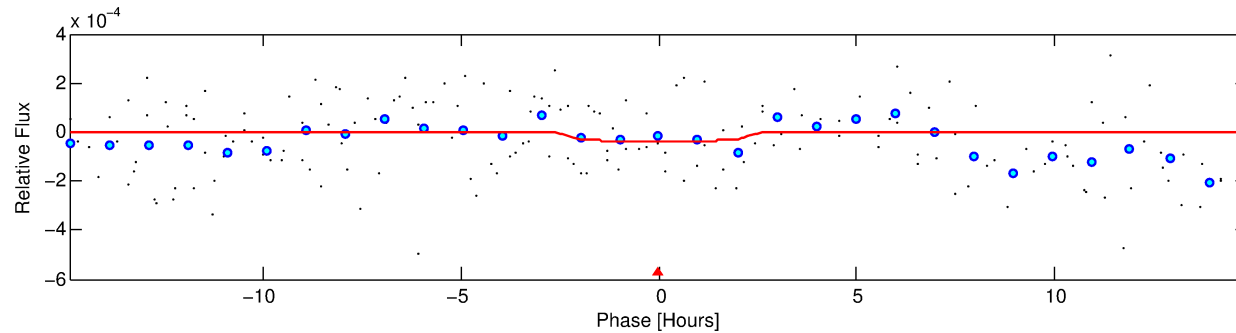
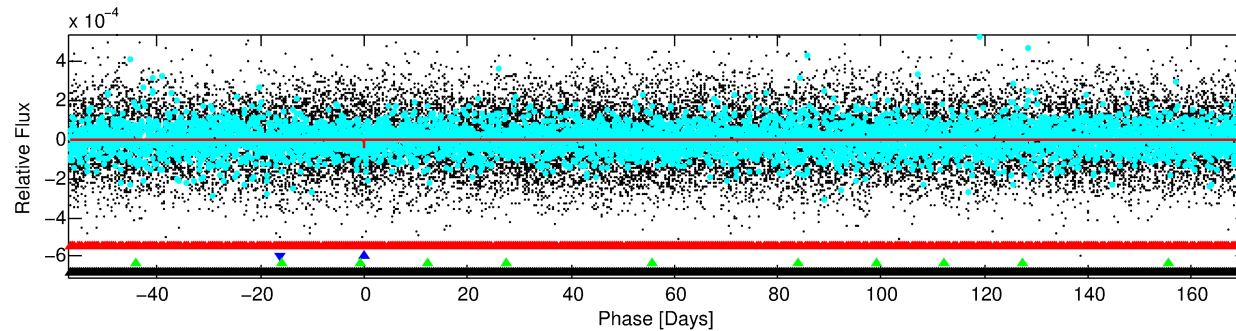
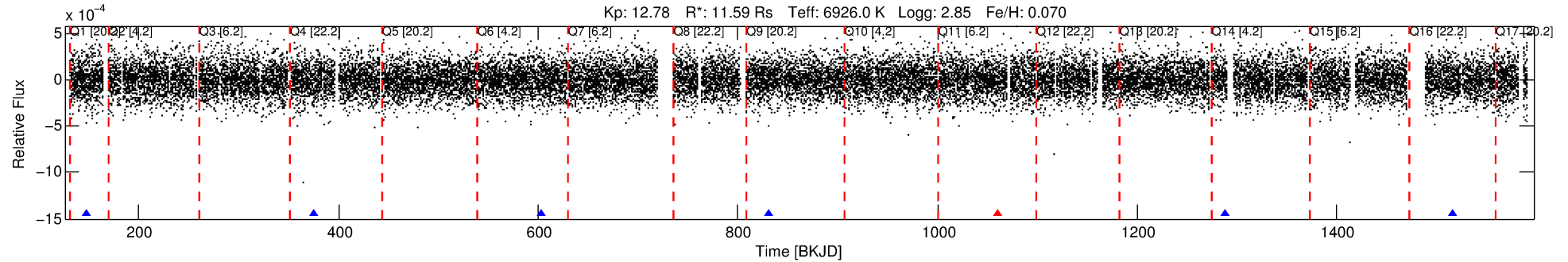
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005900574-02

No Significant Match Found

DV One-Page Summary

KIC: 5900574 Candidate: 2 of 4 Period: 228.054 d



DV Fit Results:

Period = 228.05404 [0.04385] d
Epoch = 147.3903 [0.2239] BKJD
Rp/R* = 0.0070 [0.0163]
a/R* = 114.08 [1726.73]
b = 0.95 [1.49]
Seff = 225.69 [273.89]
Teff = 988 [300] K
Rp = 8.80 [20.98] Re
a = 1.1078 [0.3841] AU
Ag = 1493.87 [7044.41] [0.21σ]
Teffp = 9500 [11458] K [0.74σ]

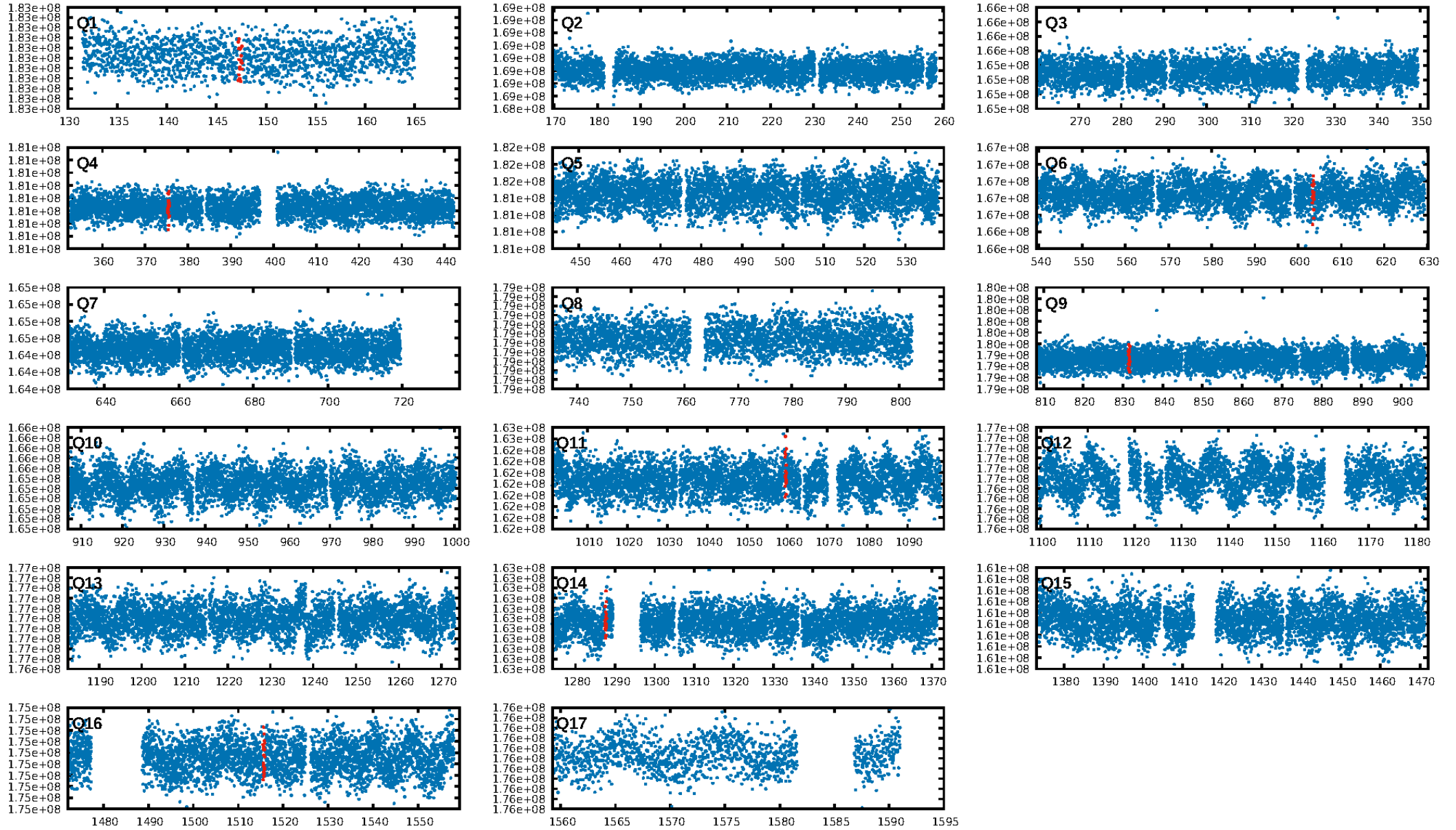
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [382.76σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 39.9%
ModelChiSquareGof-sig: 75.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 0.5452
Centroid-sig: 75.9%
Centroid-so: 2.970 arcsec [0.44σ]
OotOffset-rm: 1.138 arcsec [4.51σ]
KicOffset-rm: 1.996 arcsec [6.36σ]
OotOffset-st: 2/1/1/2 [6]
KicOffset-st: 2/1/1/2 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 0.00 [0/6]

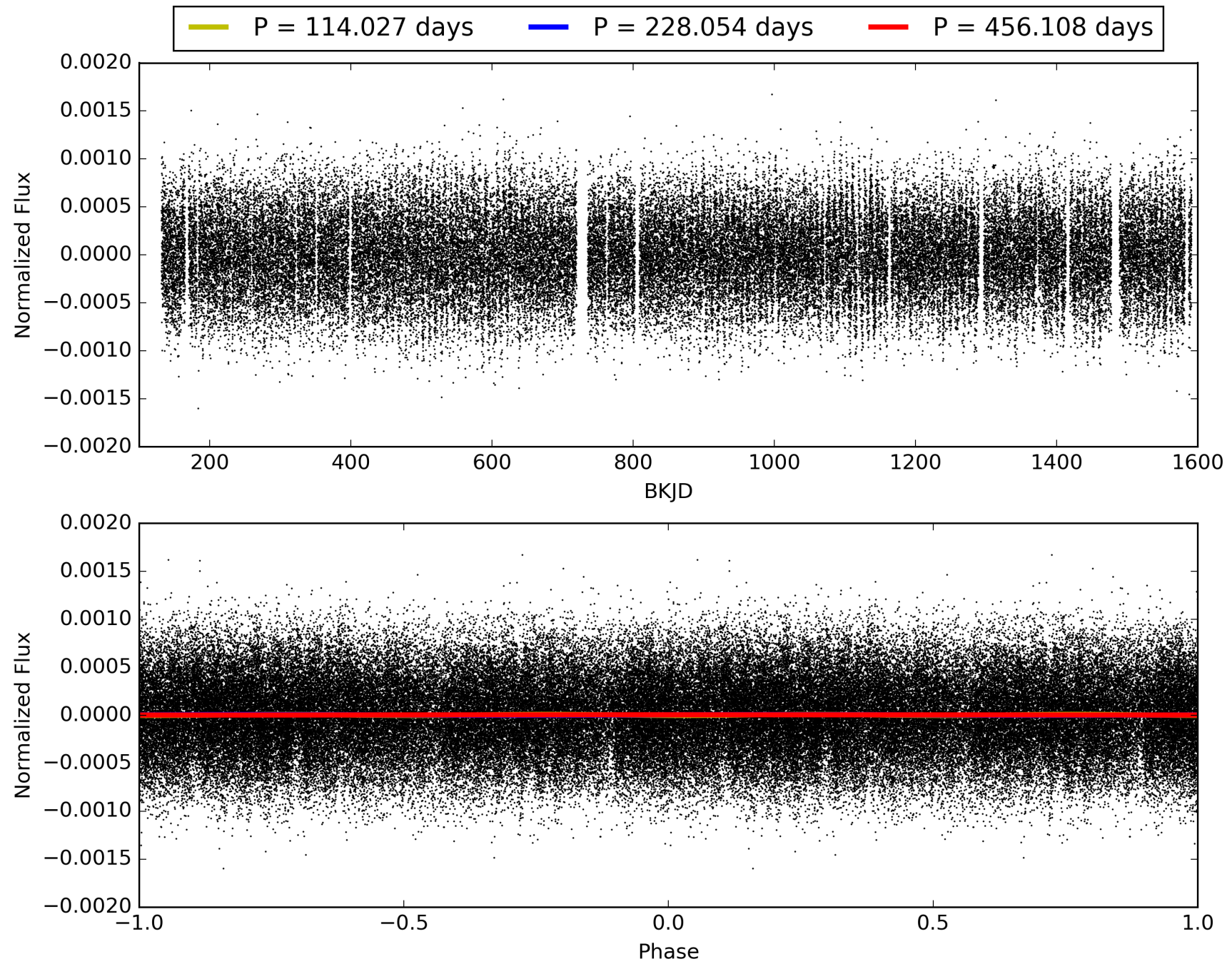
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:27:33 Z

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

TCE 005900574-02, PDC Light Curves

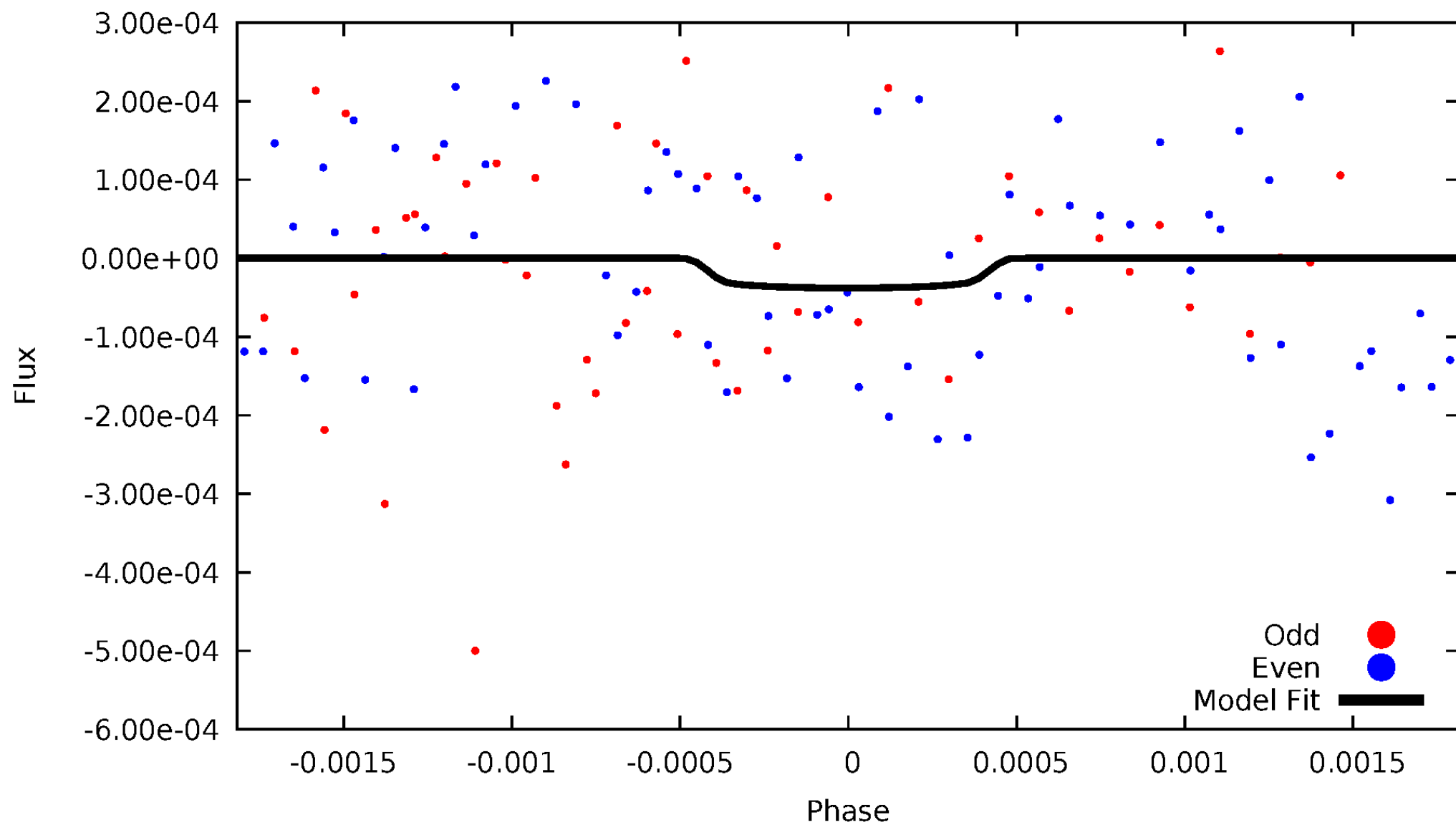


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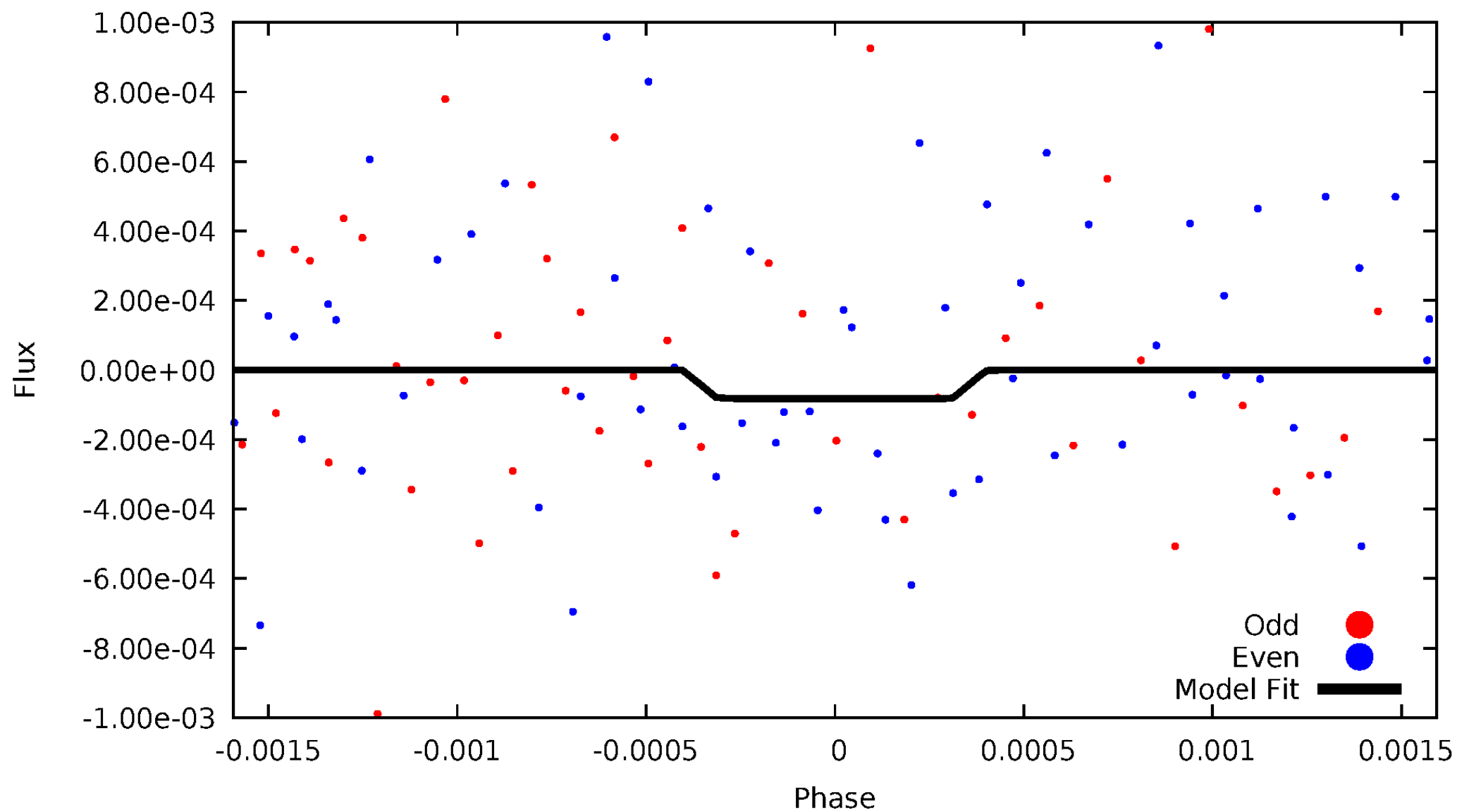
DV Odd/Even

TCE 005900574-02



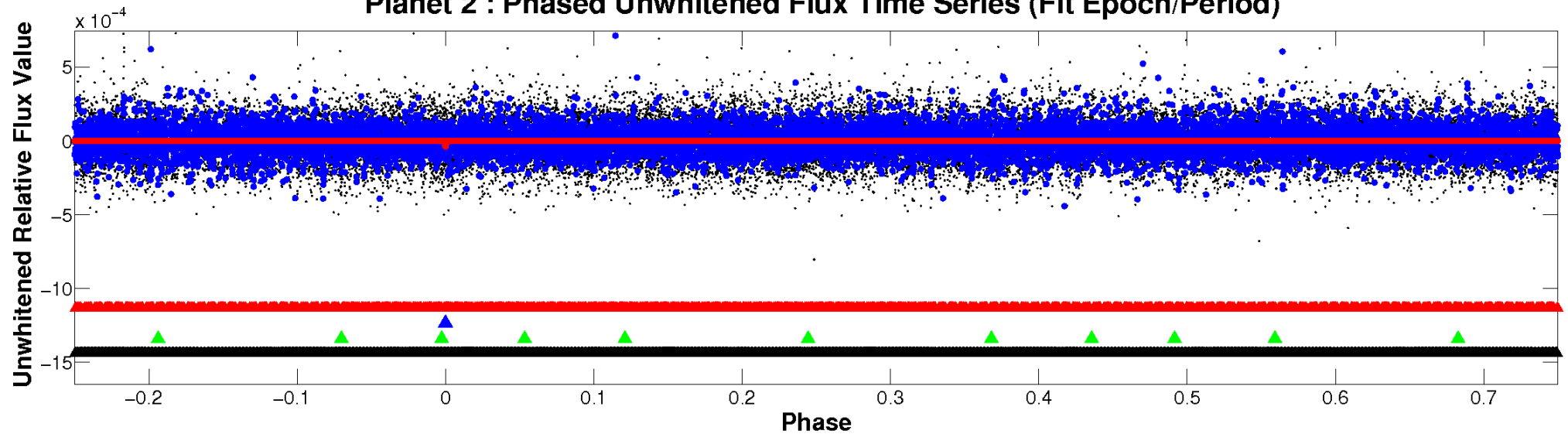
ALT Odd/Even

TCE 005900574-02

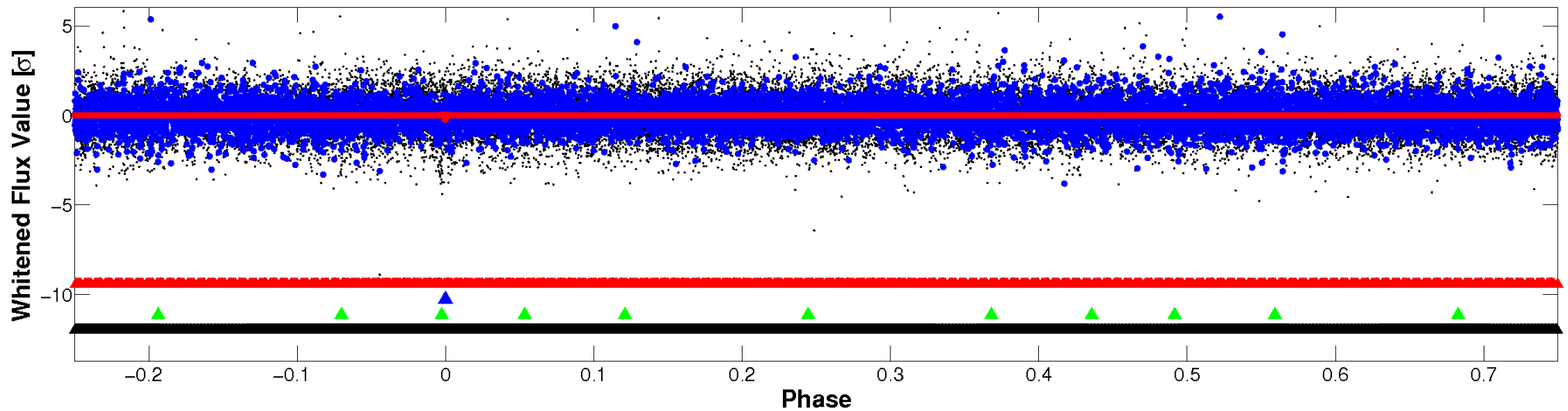


Non-Whitened Vs. Whitened Light Curve

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

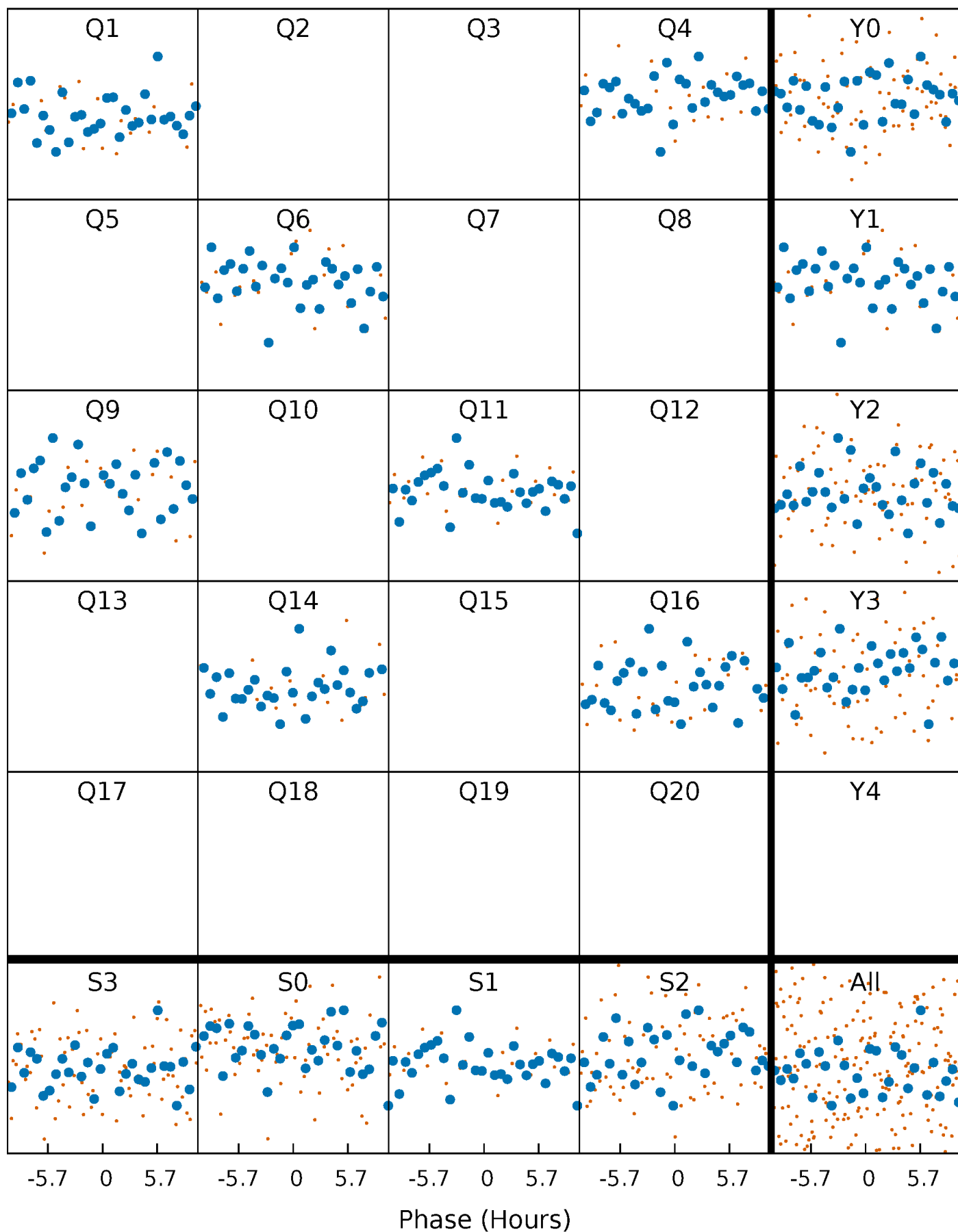


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



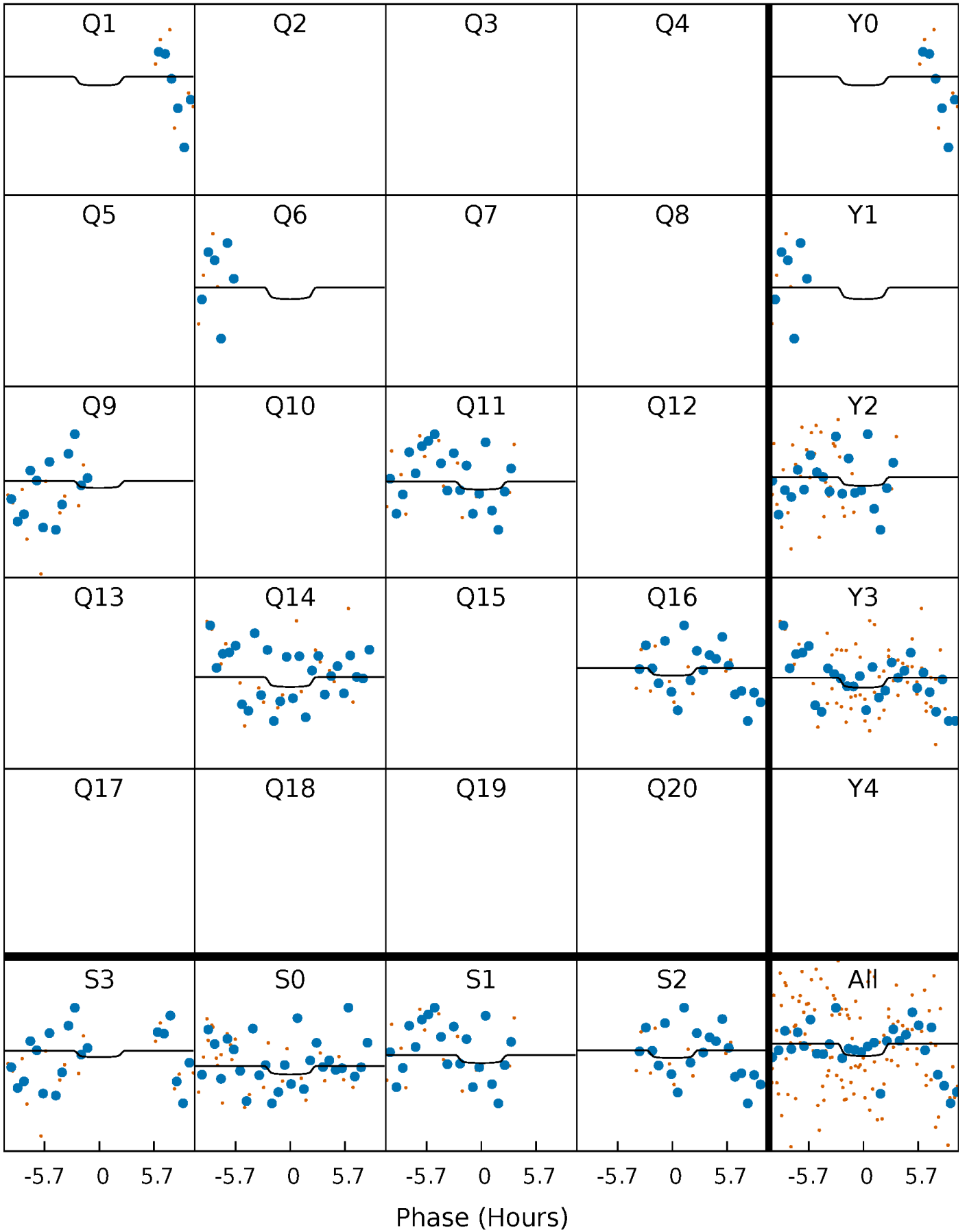
PDC Quarter-Phased Transit Curves

TCE 005900574-02 P=228.054043 Days $T_0=147.390324$ (BKJD)



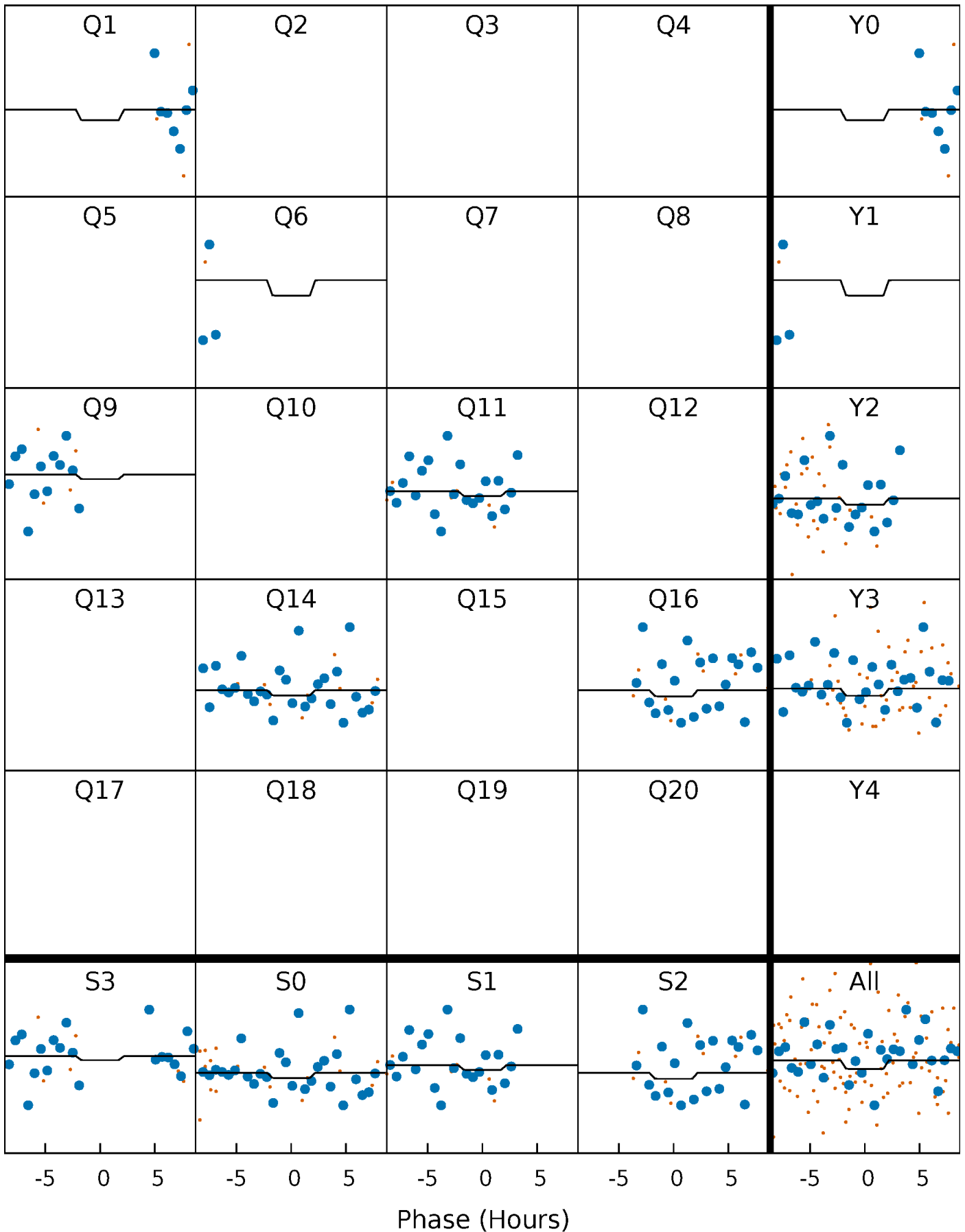
DV Quarter-Phased Transit Curves

TCE 005900574-02 $P=228.054043$ Days $T_0=147.390324$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

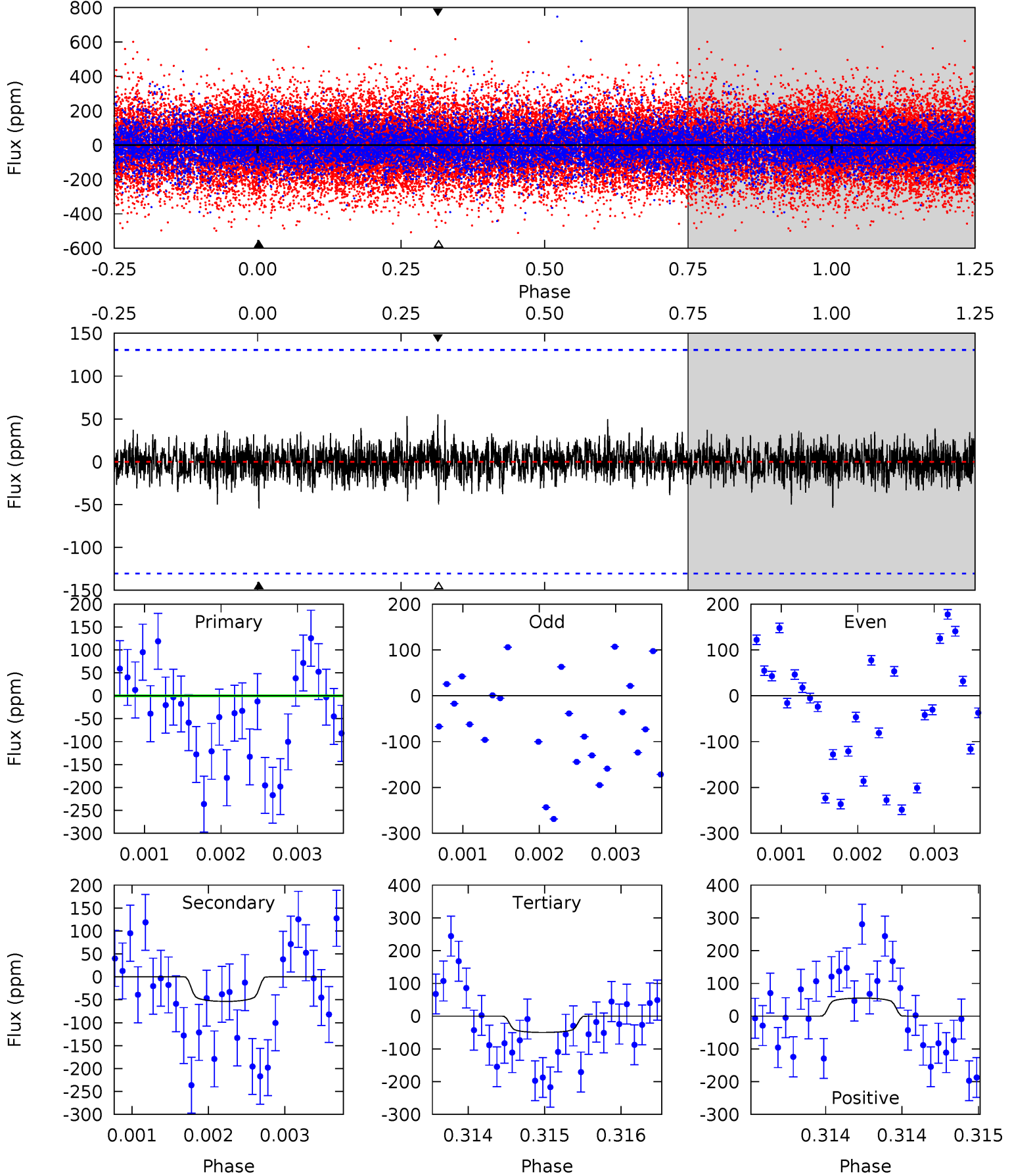
TCE 005900574-02 P=228.045341 Days $T_0=147.439598$ (BKJD)



DV Model-Shift Uniqueness Test

005900574-02, P = 228.054043 Days, E = 147.390324 Days

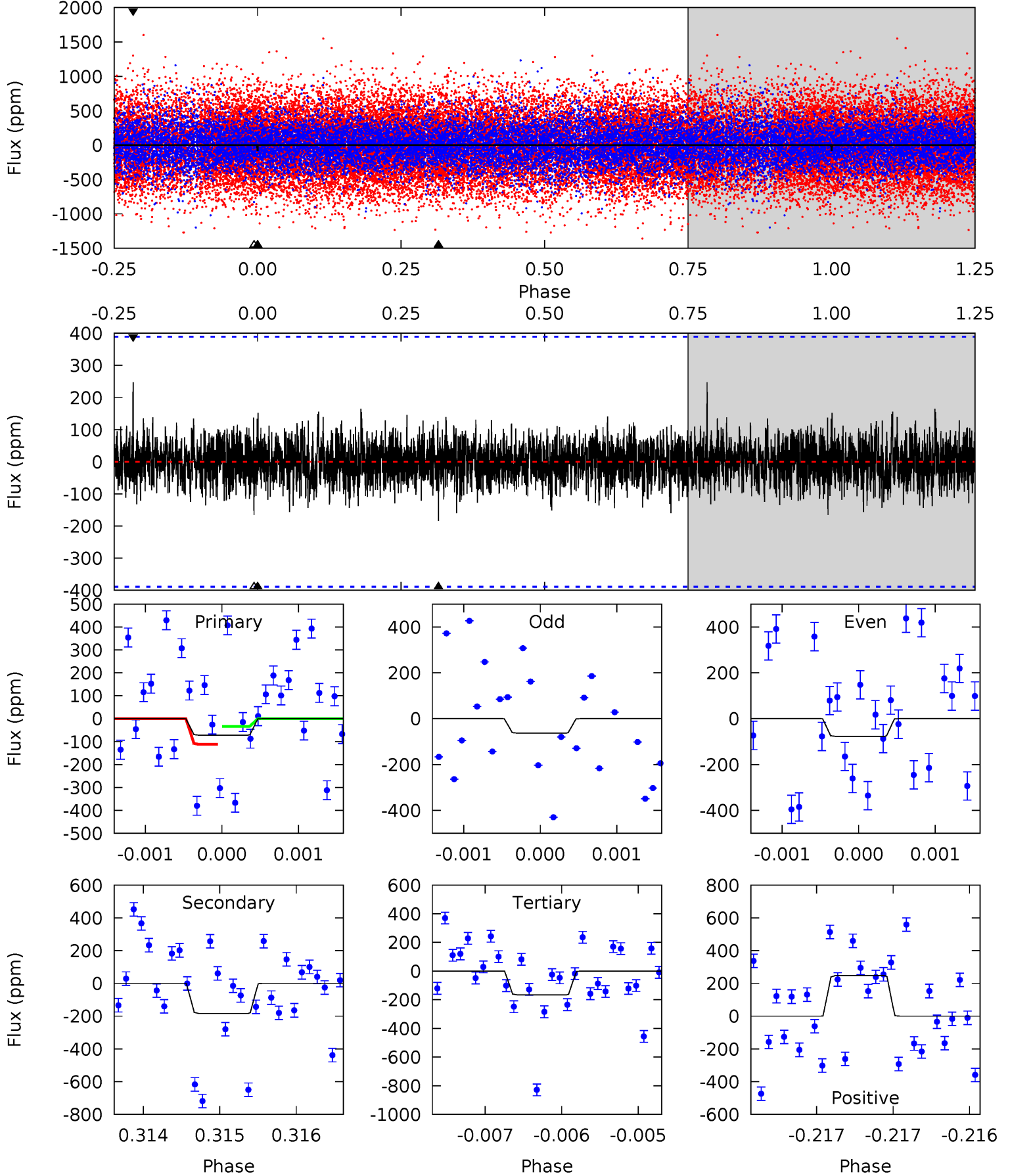
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.81	2.25	2.09	2.31	5.46	3.31	0.54	-0.28	-0.49	0.16	-0.06	0.67	1.20	0.51	0.44



Alt Model-Shift Uniqueness Test

005900574-02, P = 228.045341 Days, E = 147.439598 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.01	2.58	2.33	3.48	5.48	3.33	0.64	-1.32	-2.47	0.26	-0.90	0.10	2.47	0.57	0.55



Stellar Parameters For KIC 005900574

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+484}_{-1939}	$2.852^{+0.236}_{-0.193}$	$0.070^{+0.250}_{-0.500}$	$11.591^{+2.203}_{-5.141}$	$3.479^{+0.106}_{-2.012}$	$0.003^{+0.006}_{-0.001}$
	+7%/-28%	+8%/-7%	+357%/-714%	+19%/-44%	+3%/-58%	+187%/-43%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005900574-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-54±24	$16.91^{+17.58}_{-11.62}$	1331^{+183}_{-338}	4639^{+3760}_{-1287}	108^{+997}_{-84}
Alt.	-184±71	$17.04^{+19.57}_{-11.15}$	1317^{+195}_{-311}	5992^{+6531}_{-1813}	350^{+2693}_{-275}

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 $A_{obs} \gg 1.0$

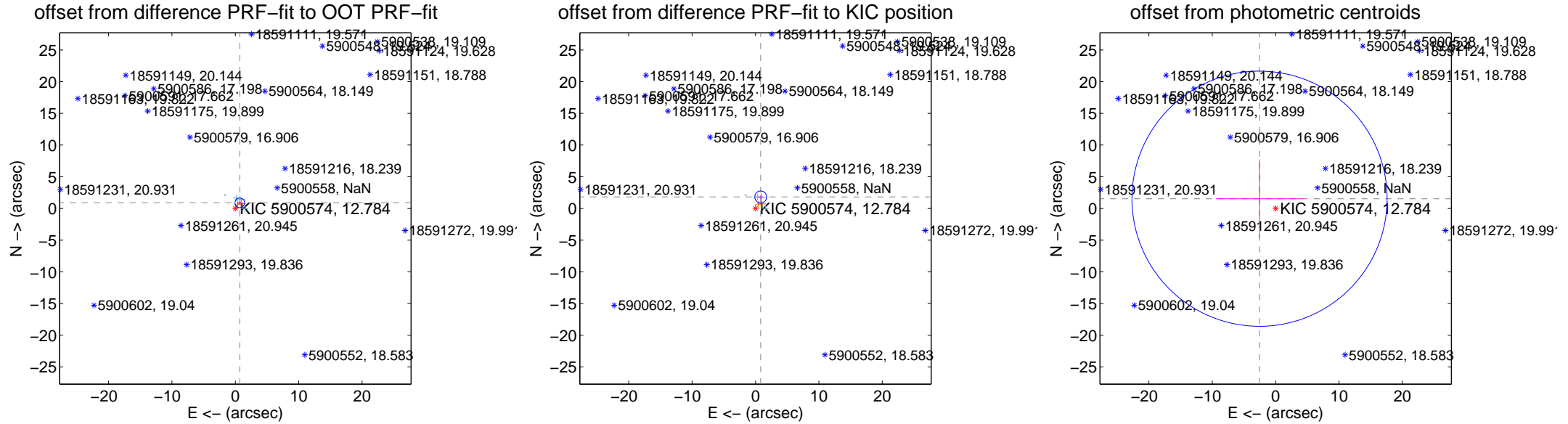
DV Centroid Data

Supplemental centroid analysis for 005900574-02. Kepler magnitude: 12.78. Transit SNR 1.26

There are 4 quarters with good PRF difference image offsets

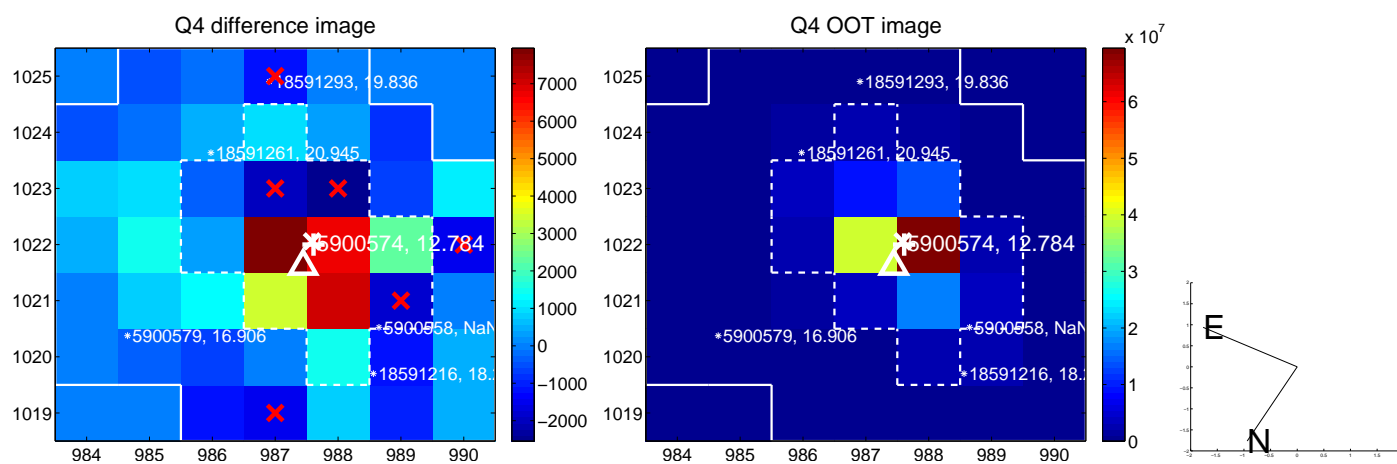
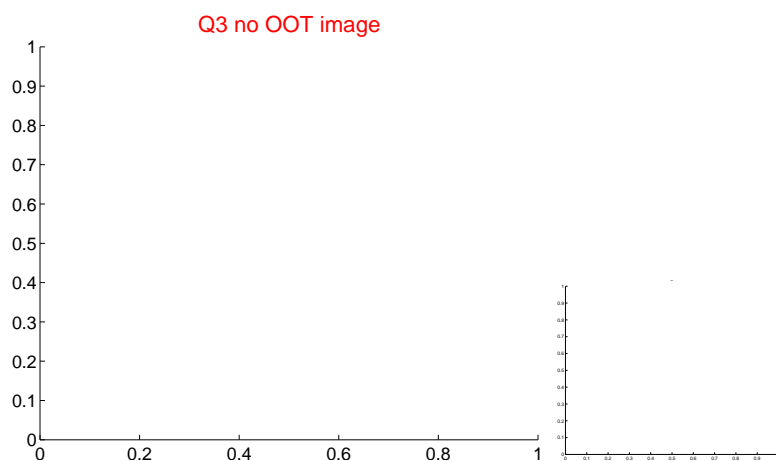
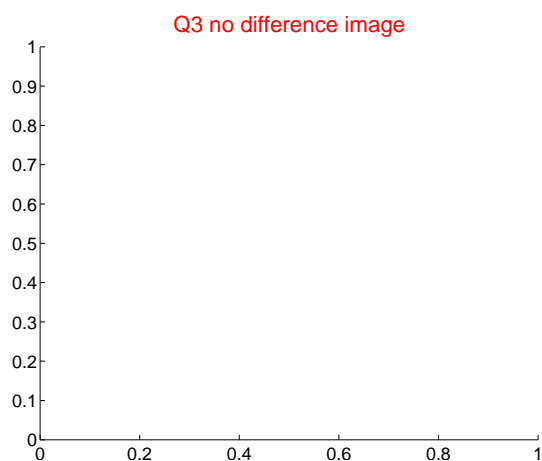
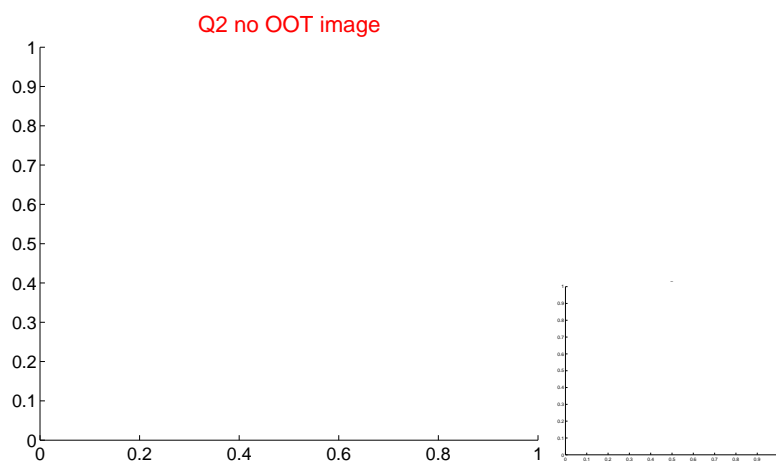
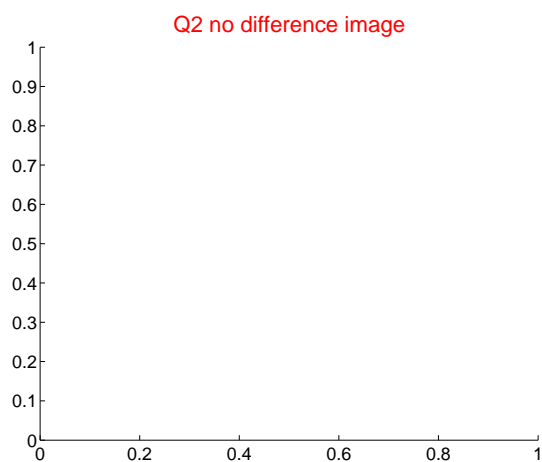
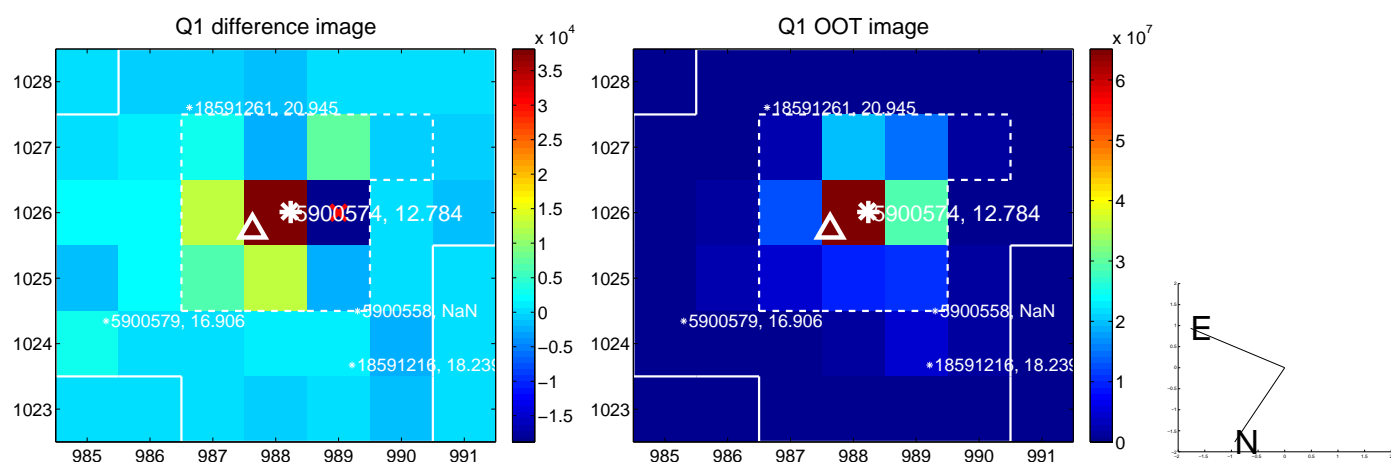
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.138 \pm 0.253	4.51	-0.707 \pm 0.247	0.892 \pm 0.256
PRF-fit source offset from KIC position	1.996 \pm 0.314	6.36	-0.826 \pm 0.265	1.817 \pm 0.323
photometric centroid source offset	2.97 \pm 6.71	0.44	2.54 \pm 6.89	1.53 \pm 6.19

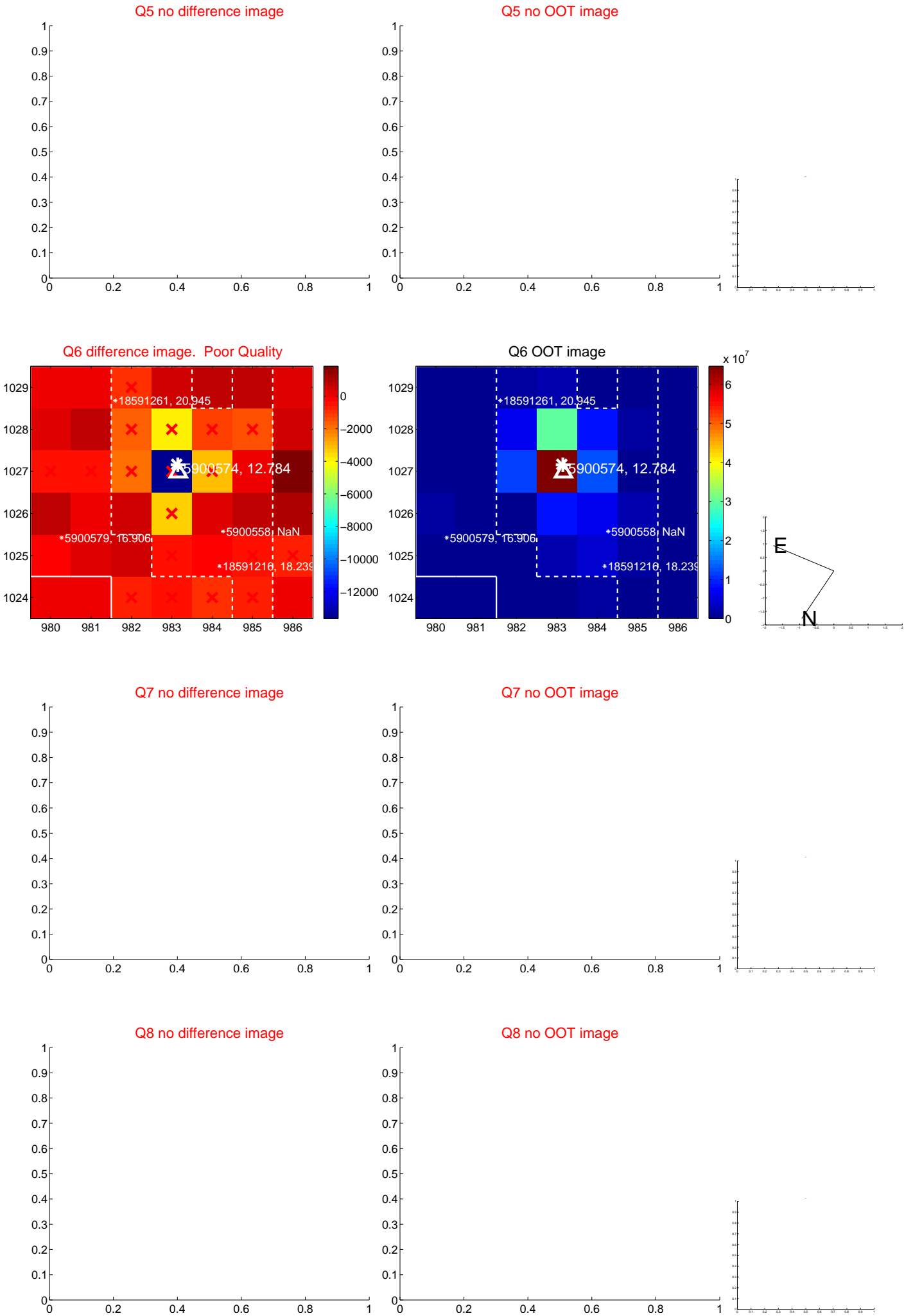


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

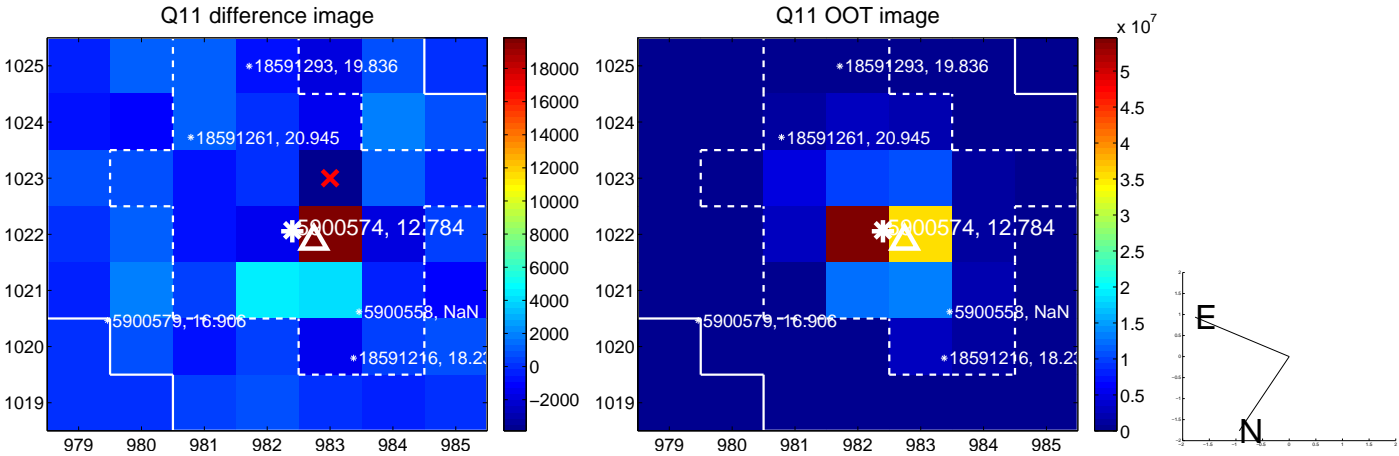
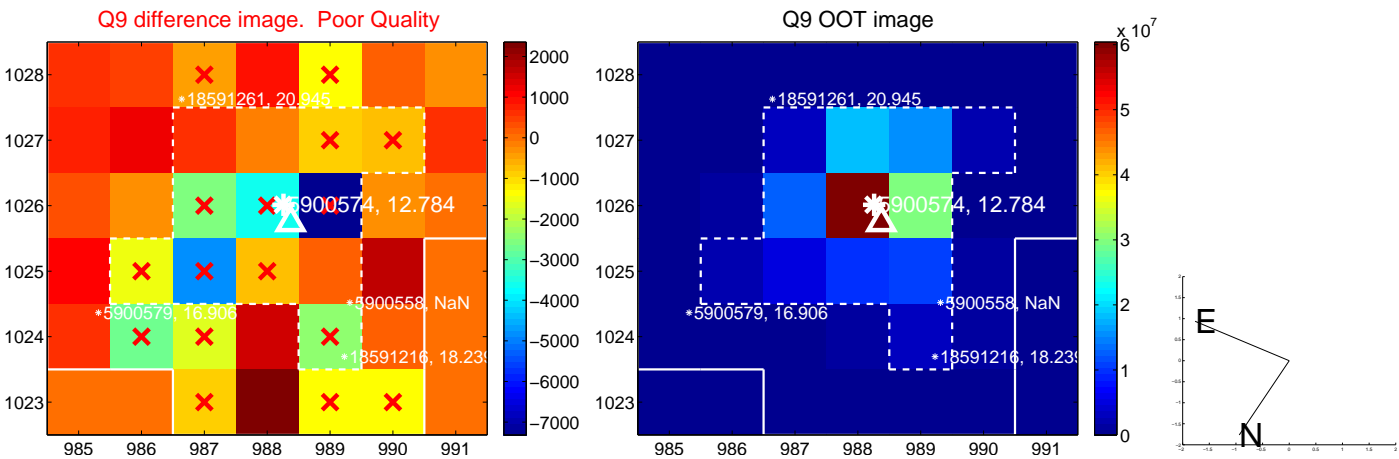
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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.

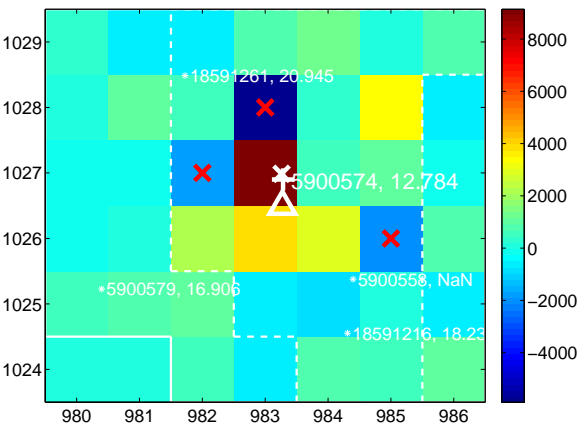
Q13 no difference image



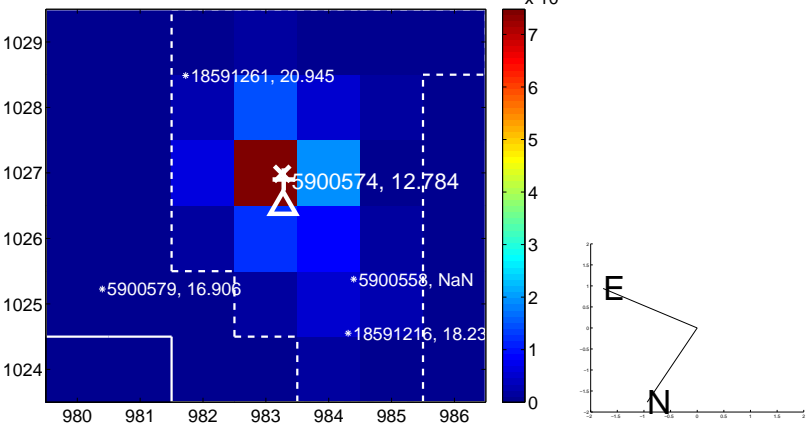
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



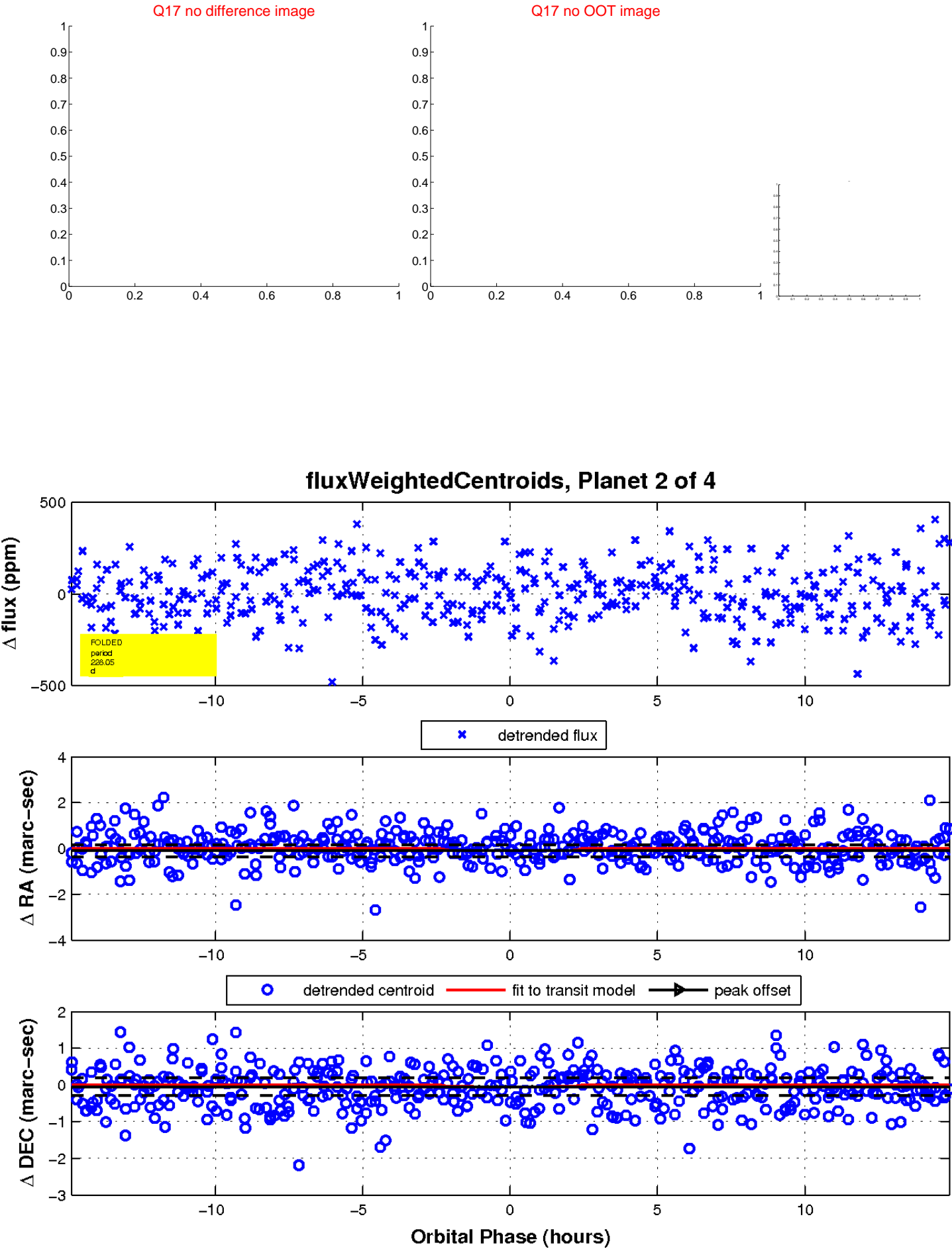
Q16 no difference image



Q16 no OOT image

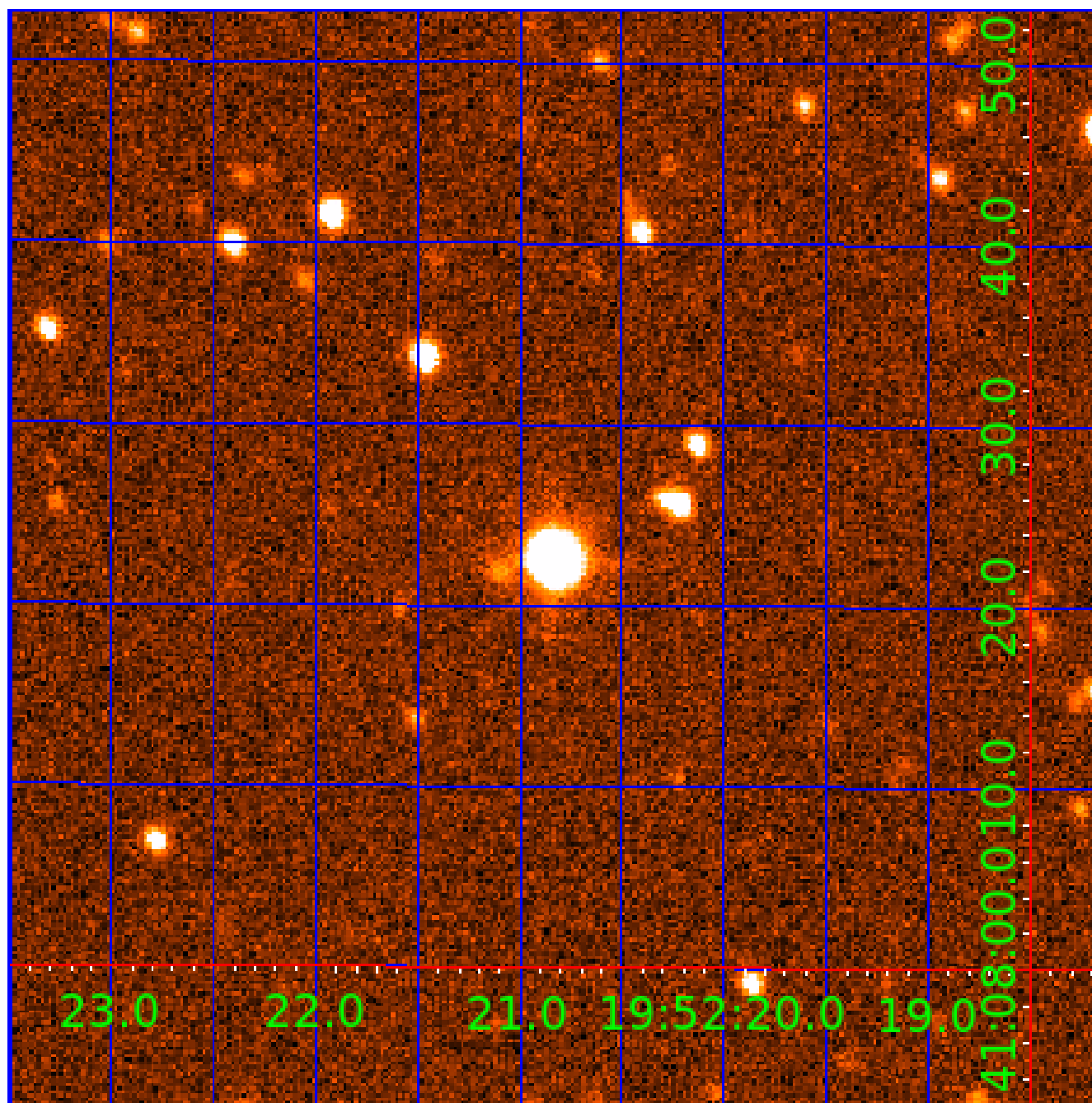


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005900574

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})
005900574-01	OBS	No	1.585084	132.925152	17.4	6.741	9.9	10.0	11.59	6926	5.16	0.00
005900574-02	OBS	No	228.054043	147.390324	37.9	4.971	9.8	1.3	11.59	6926	8.80	225.69
005900574-03	OBS	No	128.113809	246.751033	161.7	3.816	8.9	5.7	11.59	6926	14.87	486.90
005900574-04	OBS	No	0.533177	131.953594	11.2	4.220	8.4	6.3	11.59	6926	4.19	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005900574-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005900574-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005900574-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005900574-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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

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

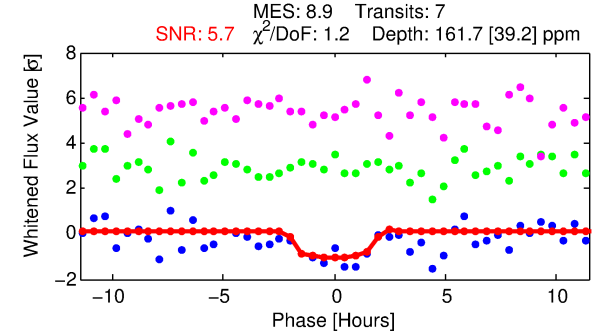
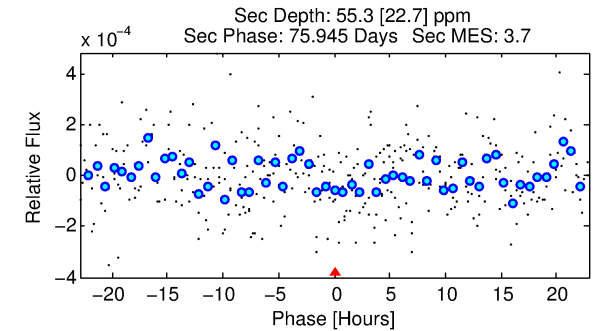
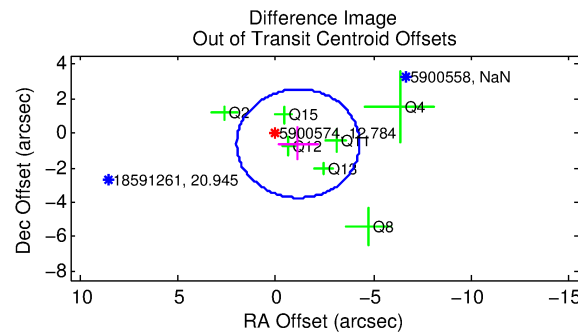
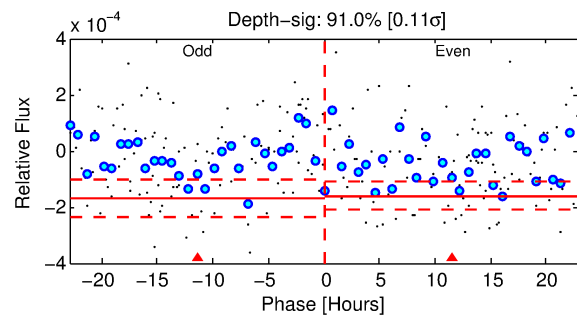
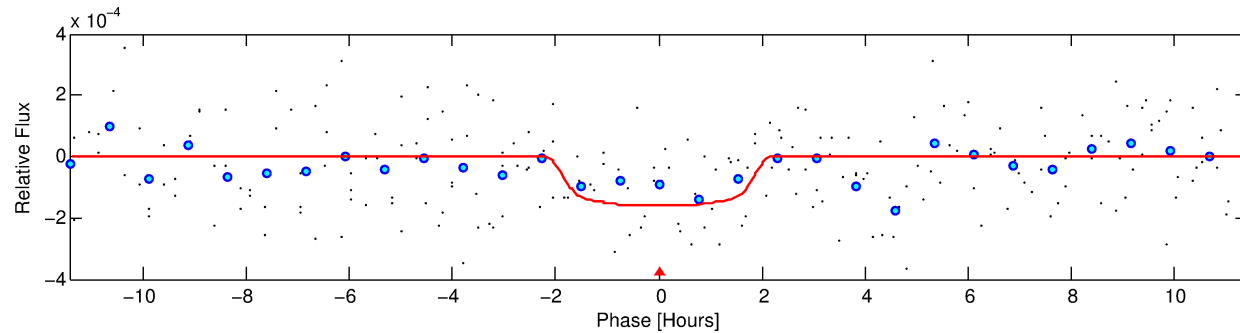
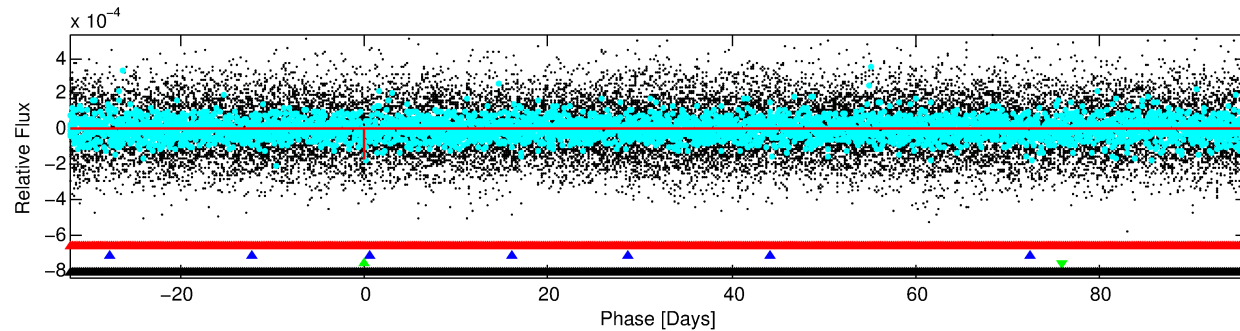
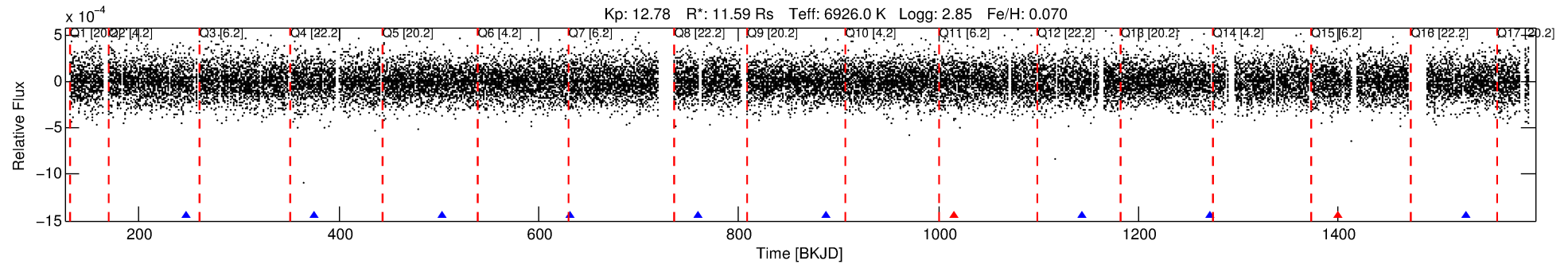
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005900574-03

No Significant Match Found

DV One-Page Summary

KIC: 5900574 Candidate: 3 of 4 Period: 128.114 d



DV Fit Results:

Period = 128.11381 [0.00243] d
Epoch = 246.7510 [0.0142] BKJD
Rp/R* = 0.0118 [0.0159]
a/R* = 255.28 [1776.27]
b = 0.18 [37.30]
Seff = 486.90 [590.88]
Teq = 1198 [363] K
Rp = 14.87 [21.11] Re
a = 0.7542 [0.2615] AU
Ag = 78.20 [216.51] [0.36 σ]
Teffp = 5507 [4061] K [1.06 σ]

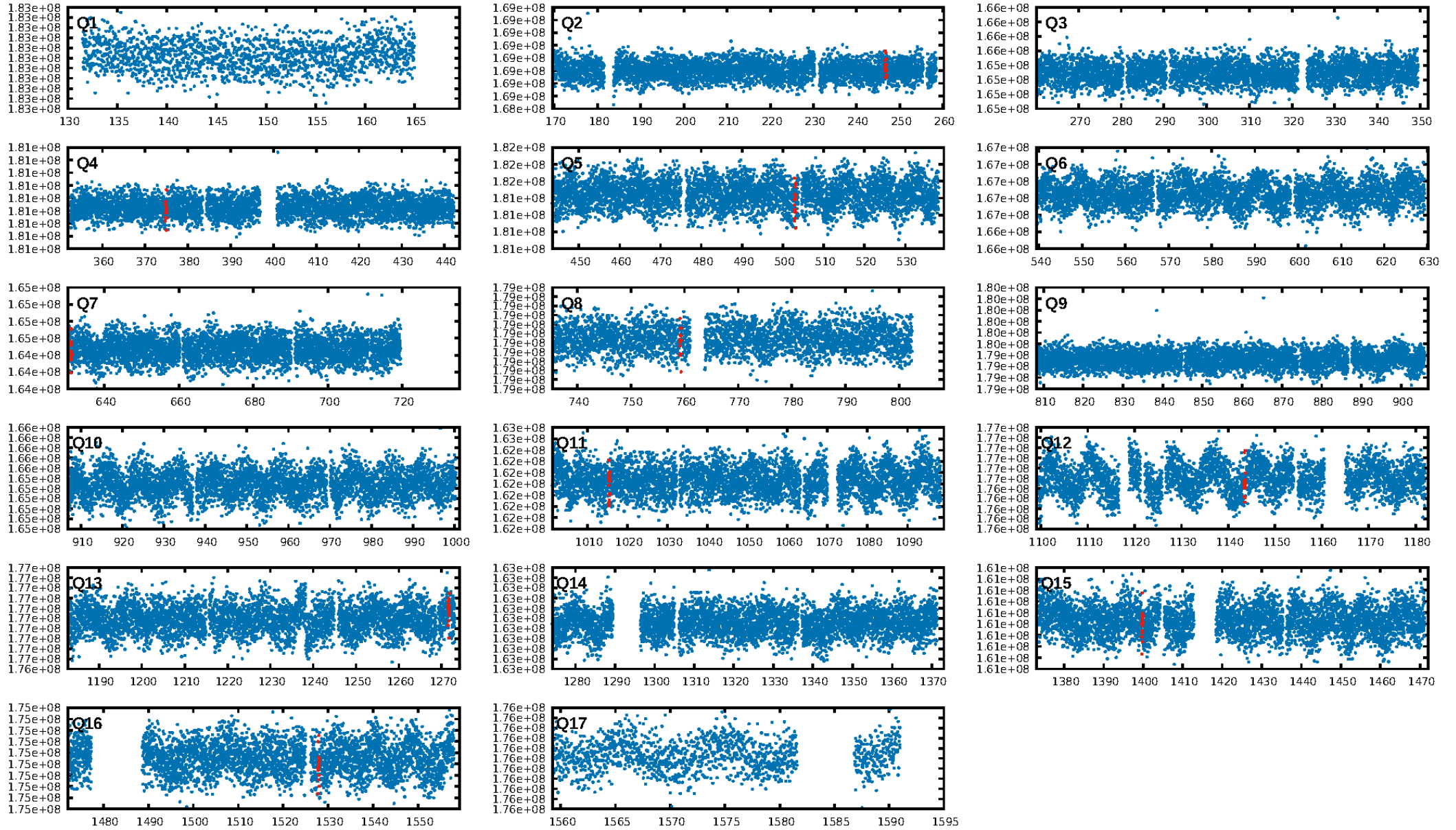
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [392.02 σ]
LongPeriod-sig: 100.0% [382.76 σ]
ModelChiSquare2-sig: 20.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.71 [5/7]
GhostDiagnostic-chr: 2.084
Centroid-sig: 34.9%
Centroid-so: 1.582 arcsec [1.03 σ]
OotOffset-rm: 1.296 arcsec [1.24 σ]
KicOffset-rm: 1.318 arcsec [1.11 σ]
OotOffset-st: 1/2/3/1 [7]
KicOffset-st: 1/2/3/1 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.00 [0/9]

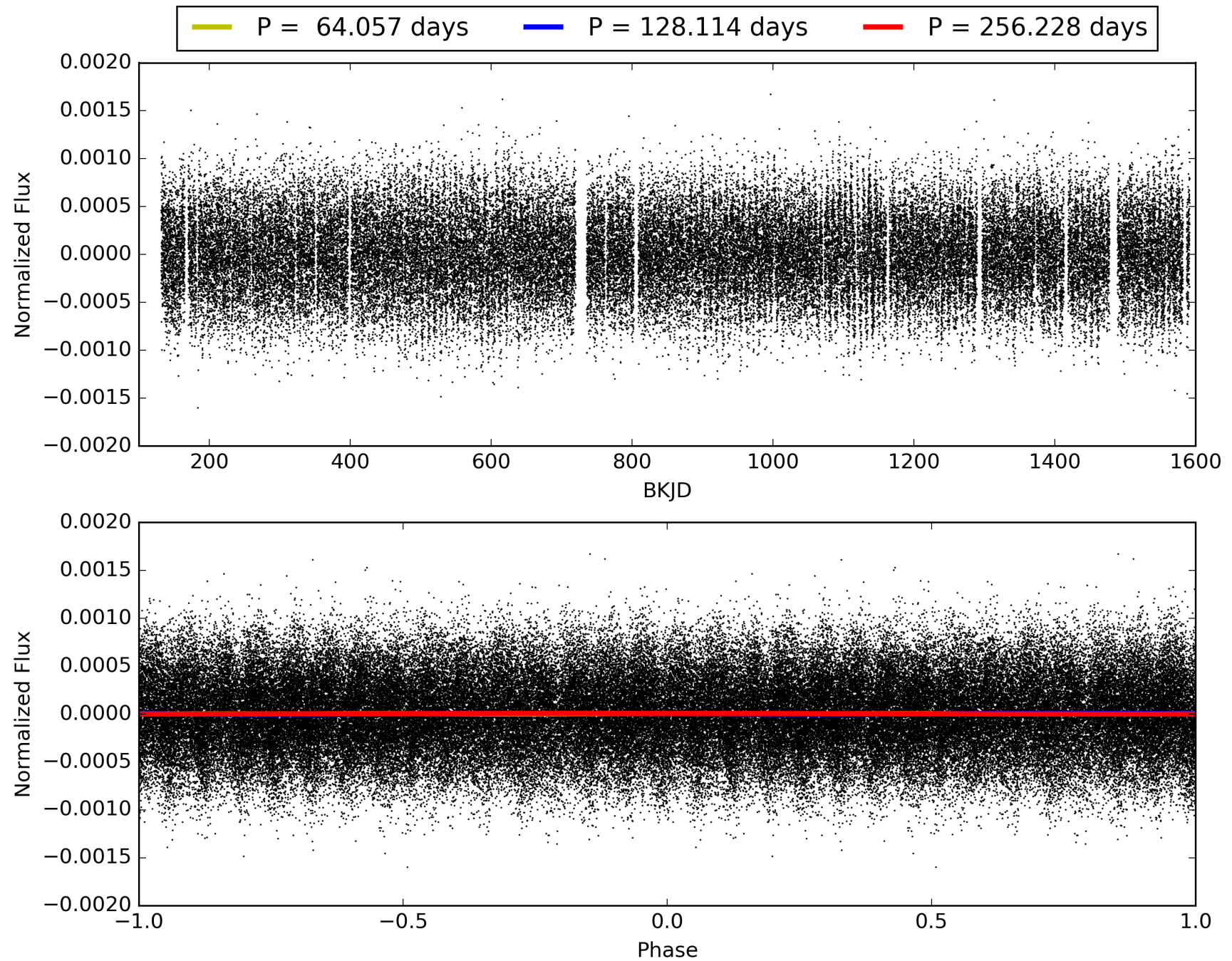
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:27:39 Z

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

TCE 005900574-03, PDC Light Curves

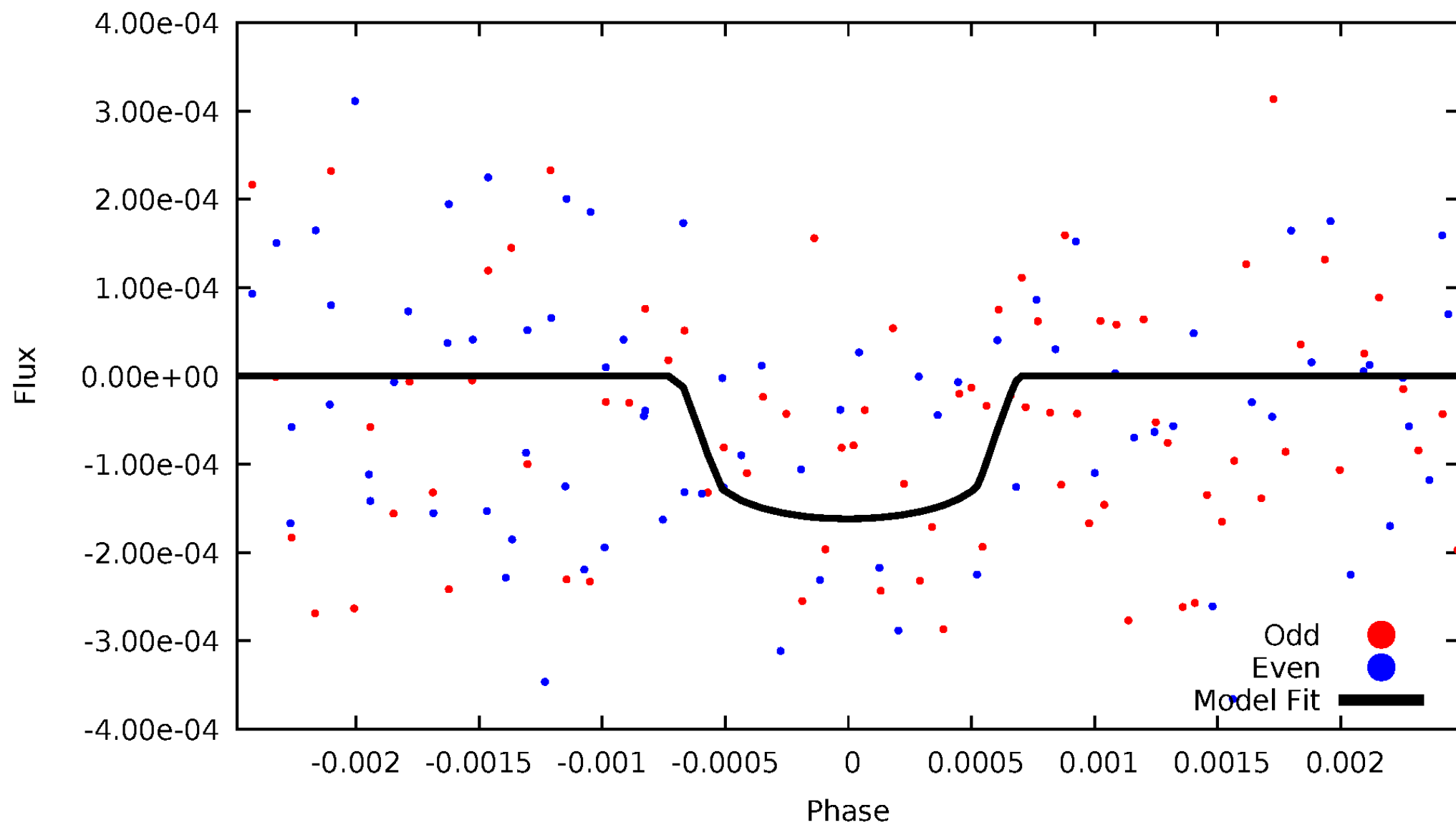


TCE 005900574-03



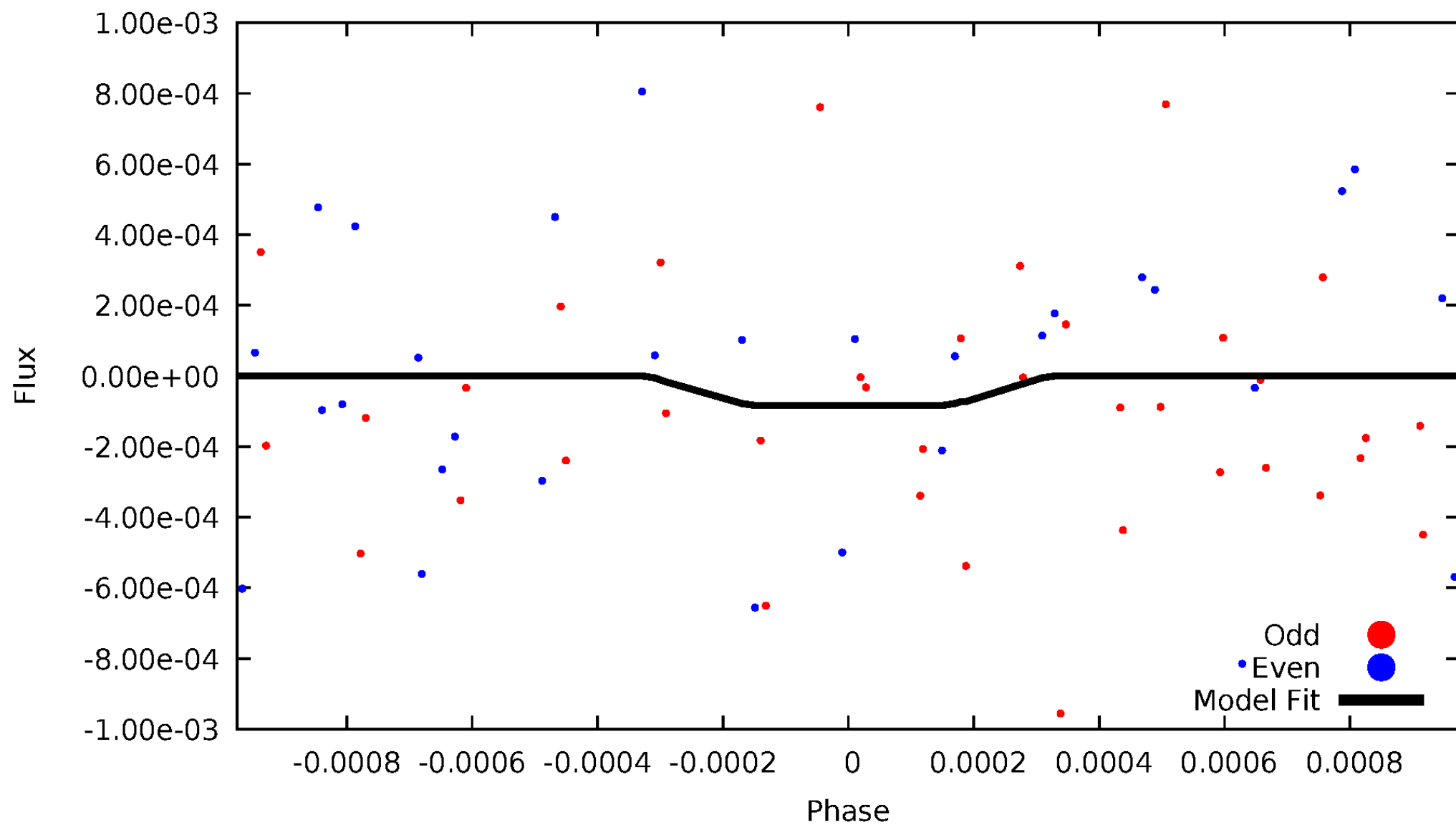
DV Odd/Even

TCE 005900574-03



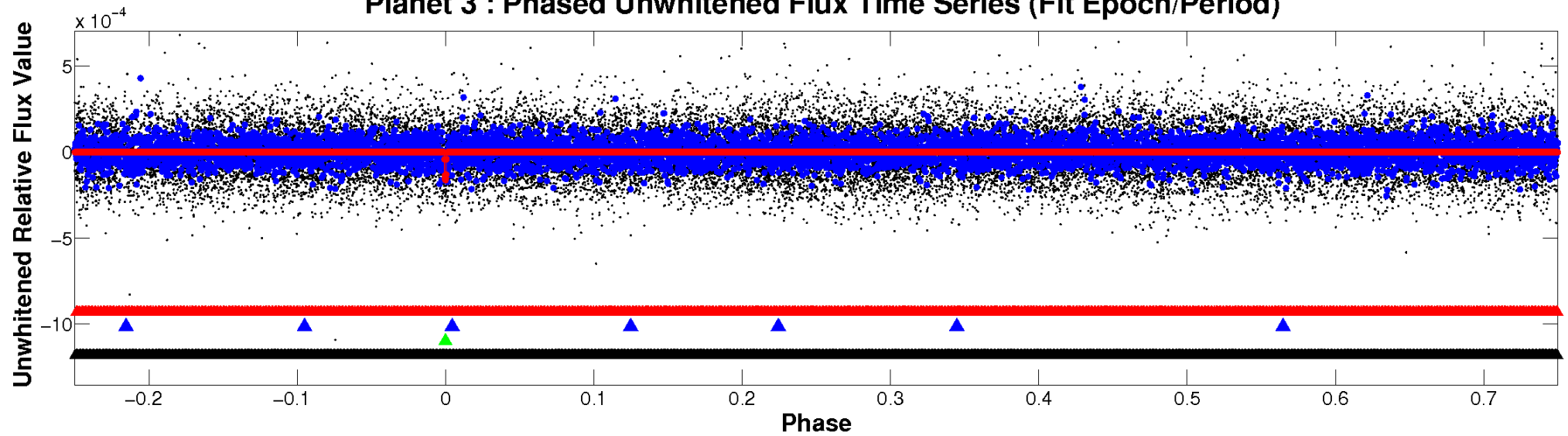
ALT Odd/Even

TCE 005900574-03

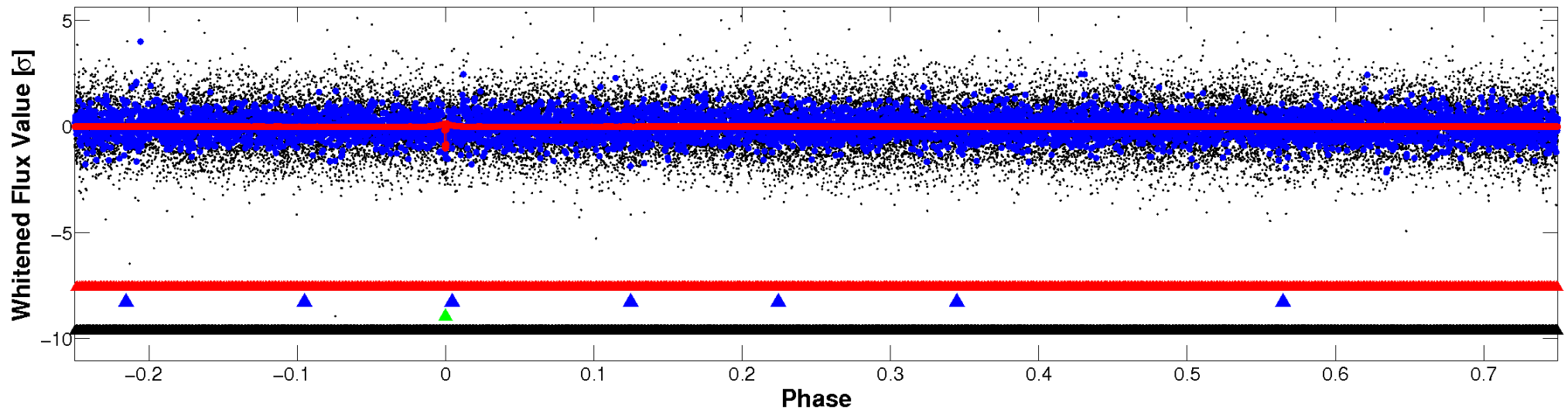


Non-Whitened Vs. Whitened Light Curve

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

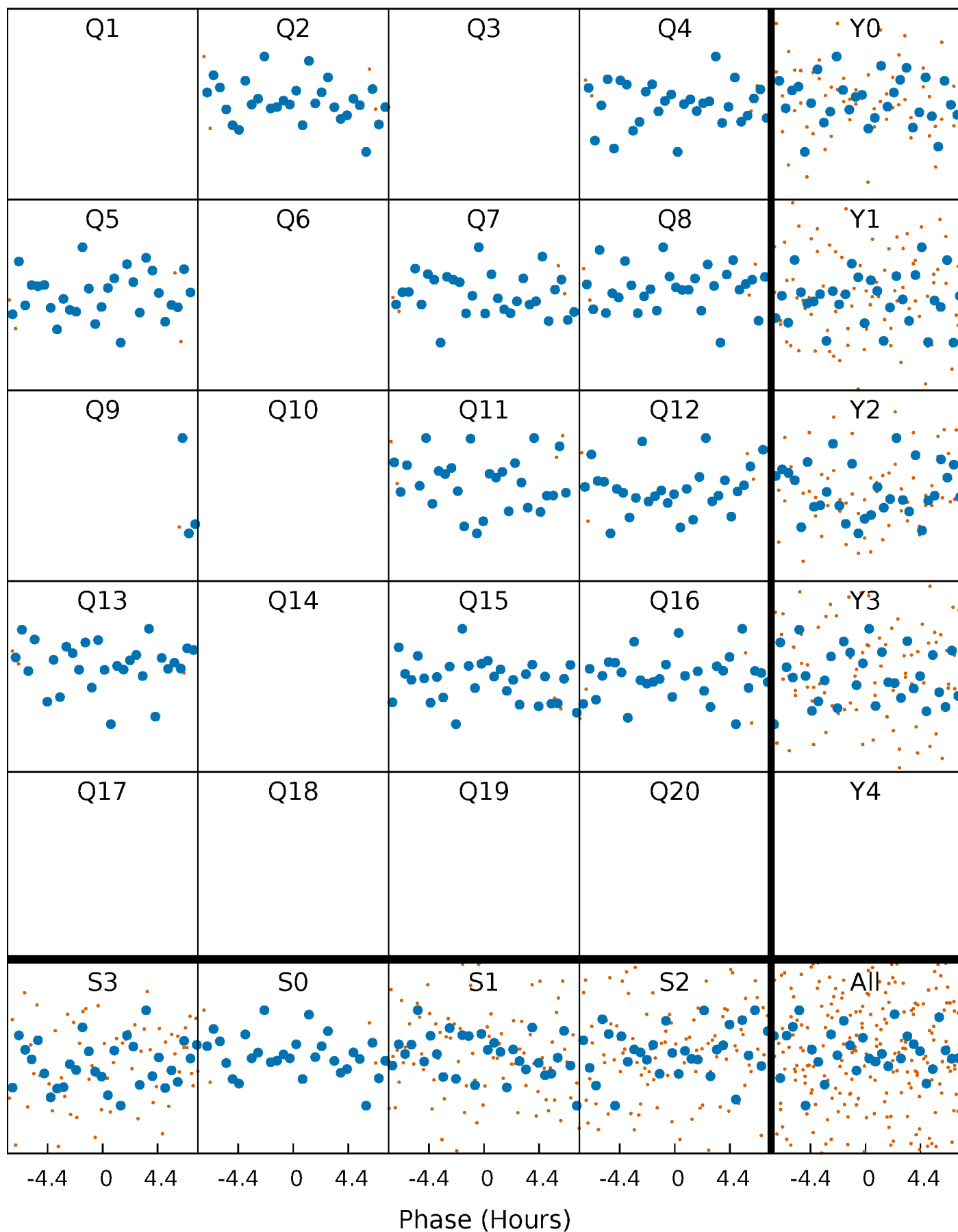


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



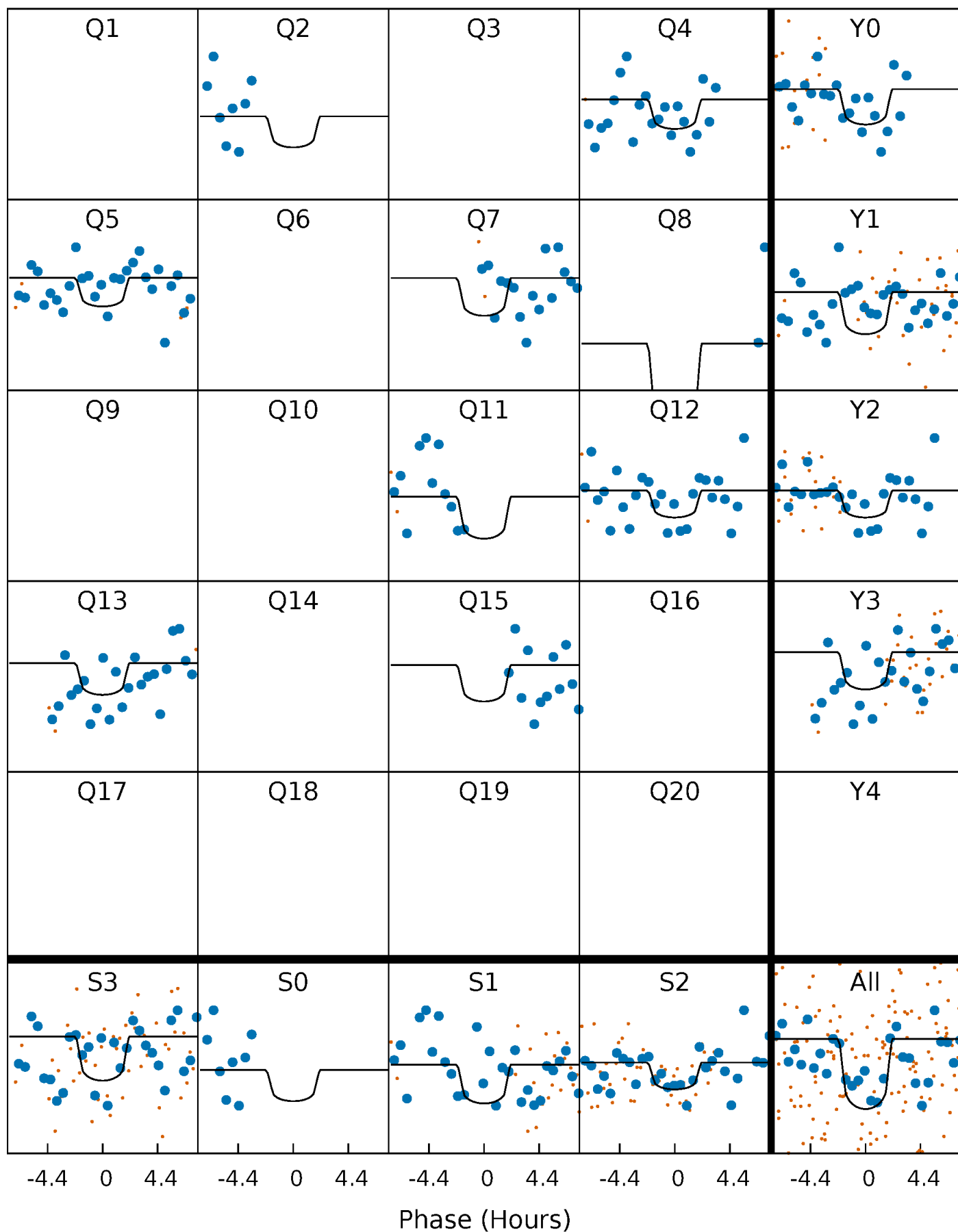
PDC Quarter-Phased Transit Curves

TCE 005900574-03 P=128.113809 Days $T_0=246.751033$ (BKJD)



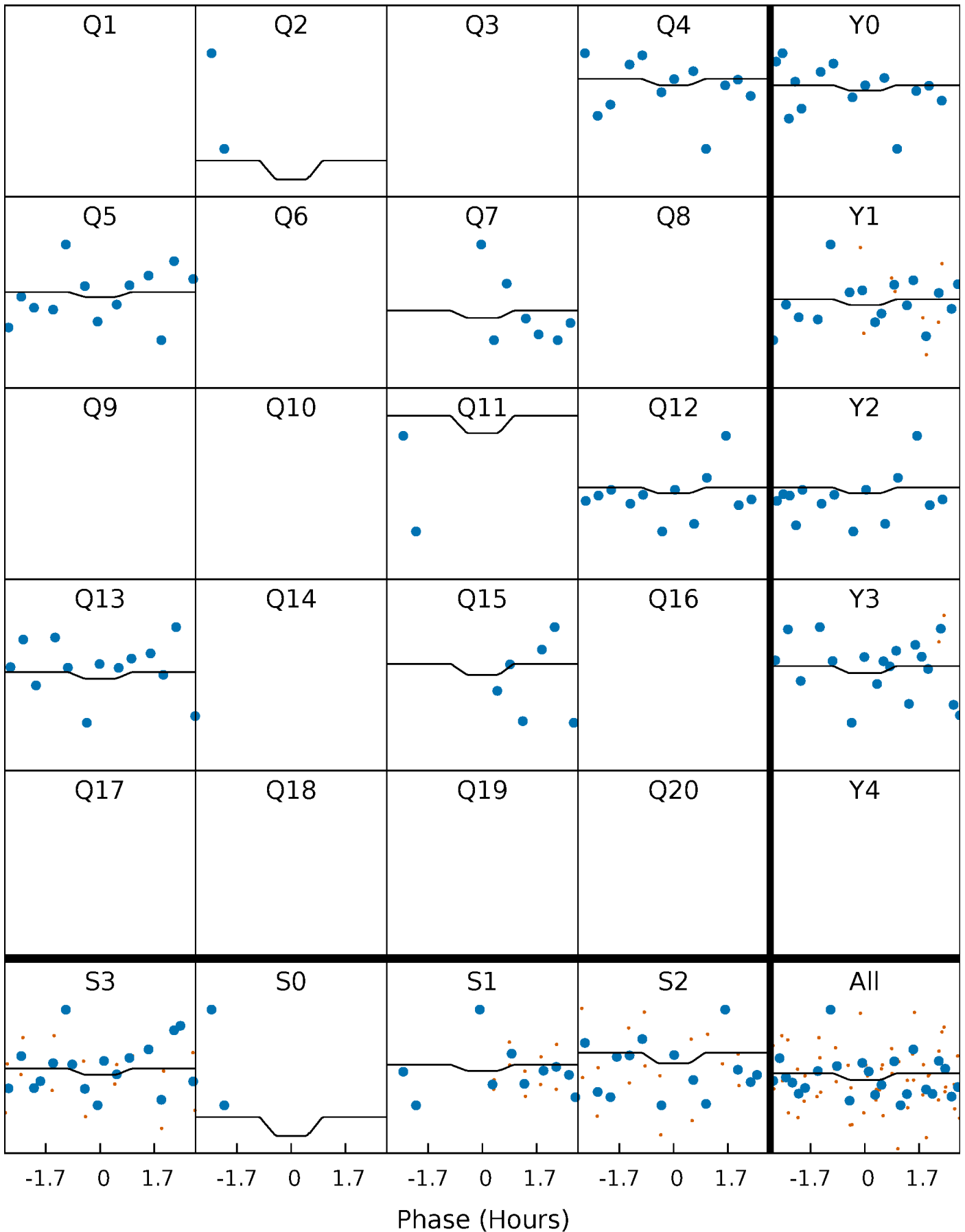
DV Quarter-Phased Transit Curves

TCE 005900574-03 P=128.113809 Days $T_0=246.751033$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

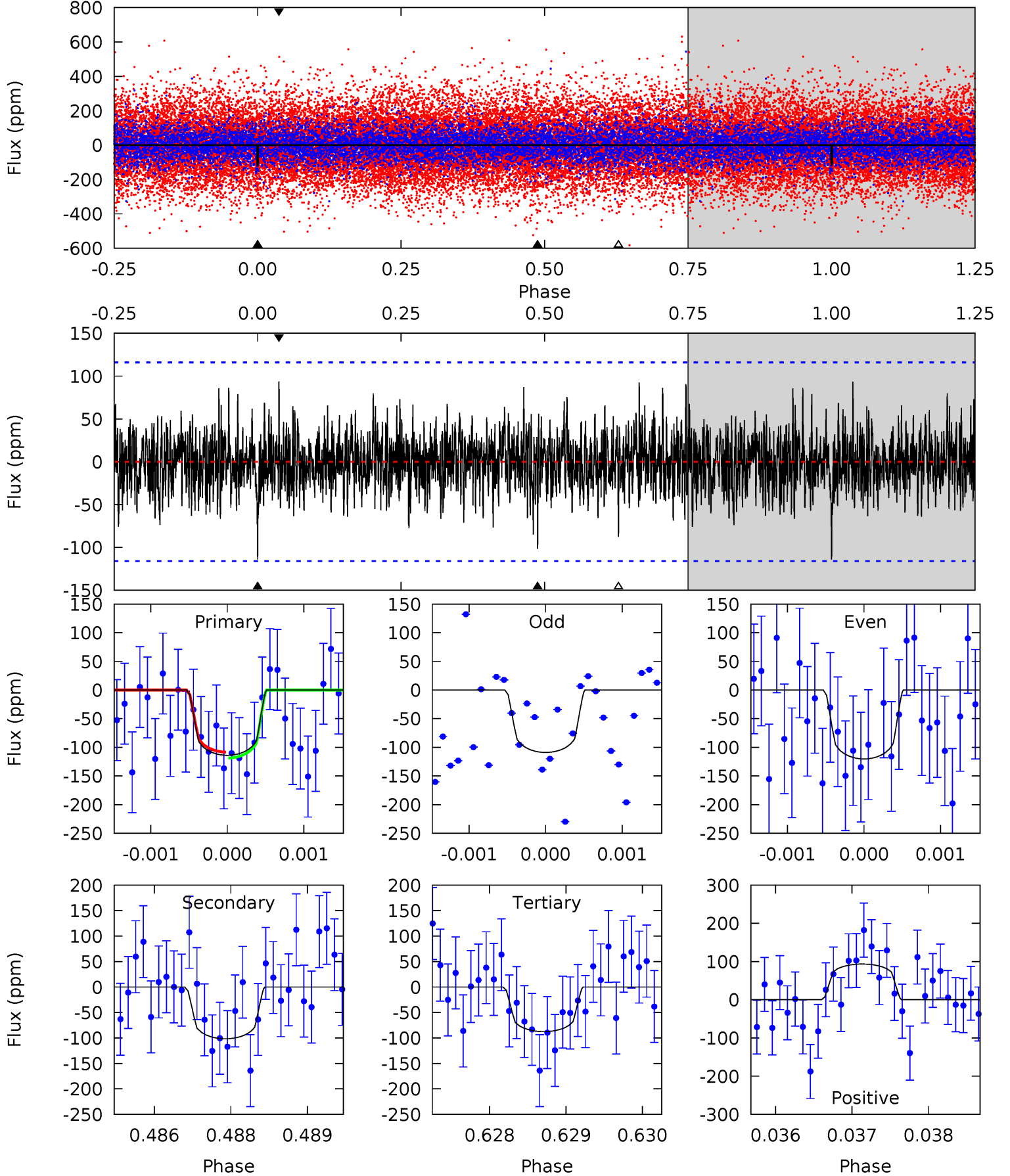
TCE 005900574-03 P=128.125232 Days $T_0=246.704794$ (BKJD)



DV Model-Shift Uniqueness Test

005900574-03, P = 128.113809 Days, E = 118.637224 Days

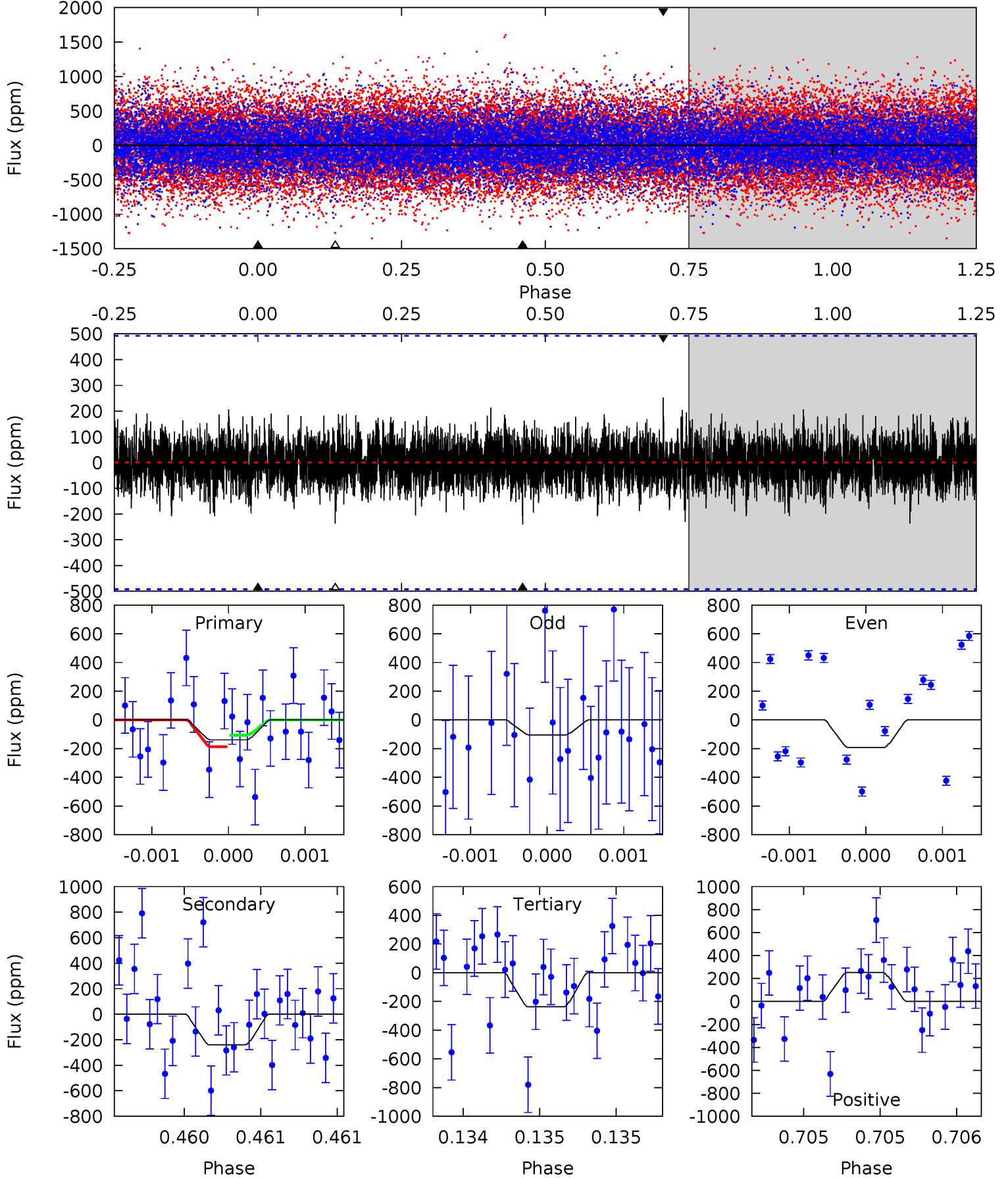
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.30	4.73	4.08	4.35	5.40	3.20	1.22	1.23	0.95	0.65	0.37	0.26	0.81	0.45	0.24



Alt Model-Shift Uniqueness Test

005900574-03, P = 128.125232 Days, E = 118.579562 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.57	2.69	2.66	2.84	5.54	3.43	0.66	-1.10	-1.27	0.03	-0.14	0.46	0.70	0.51	0.44



Stellar Parameters For KIC 005900574

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+484}_{-1939}	$2.852^{+0.236}_{-0.193}$	$0.070^{+0.250}_{-0.500}$	$11.591^{+2.203}_{-5.141}$	$3.479^{+0.106}_{-2.012}$	$0.003^{+0.006}_{-0.001}$
	+7%/-28%	+8%/-7%	+357%/-714%	+19%/-44%	+3%/-58%	+187%/-43%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005900574-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-102±21	$19.08^{+18.80}_{-12.63}$	1587^{+260}_{-417}	4925^{+4068}_{-1213}	79^{+580}_{-60}
Alt.	-240±89	$18.58^{+16.69}_{-12.55}$	1626^{+228}_{-423}	6349^{+6924}_{-1996}	196^{+1679}_{-149}

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 $A_{obs} \gg 1.0$

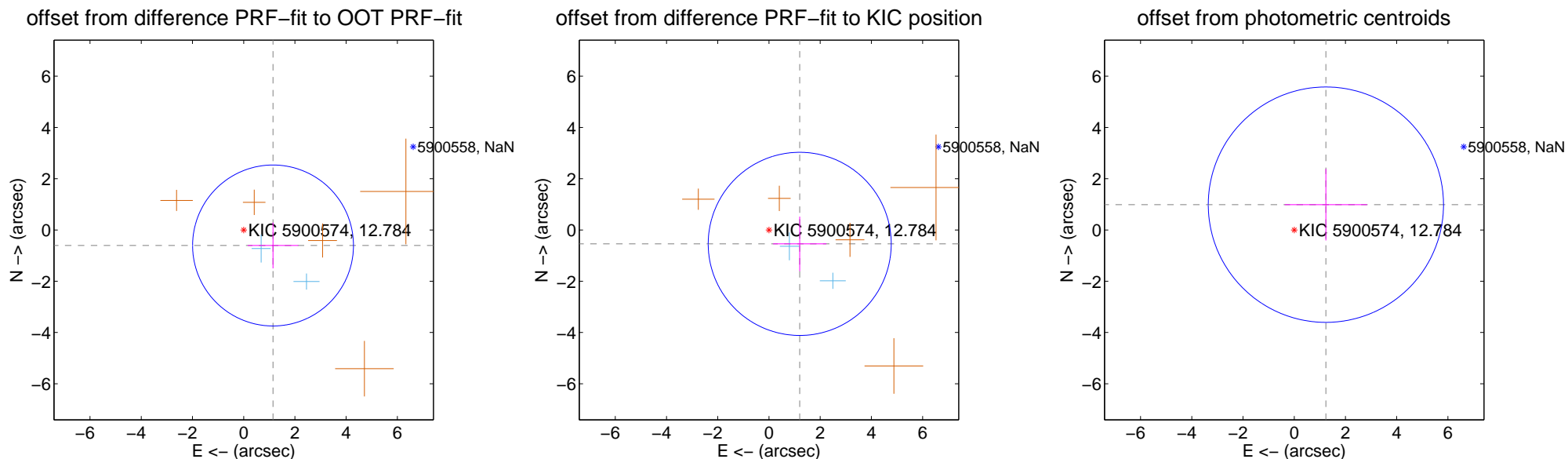
DV Centroid Data

Supplemental centroid analysis for 005900574-03. Kepler magnitude: 12.78. Transit SNR 5.68

There are 2 quarters with good PRF difference image offsets

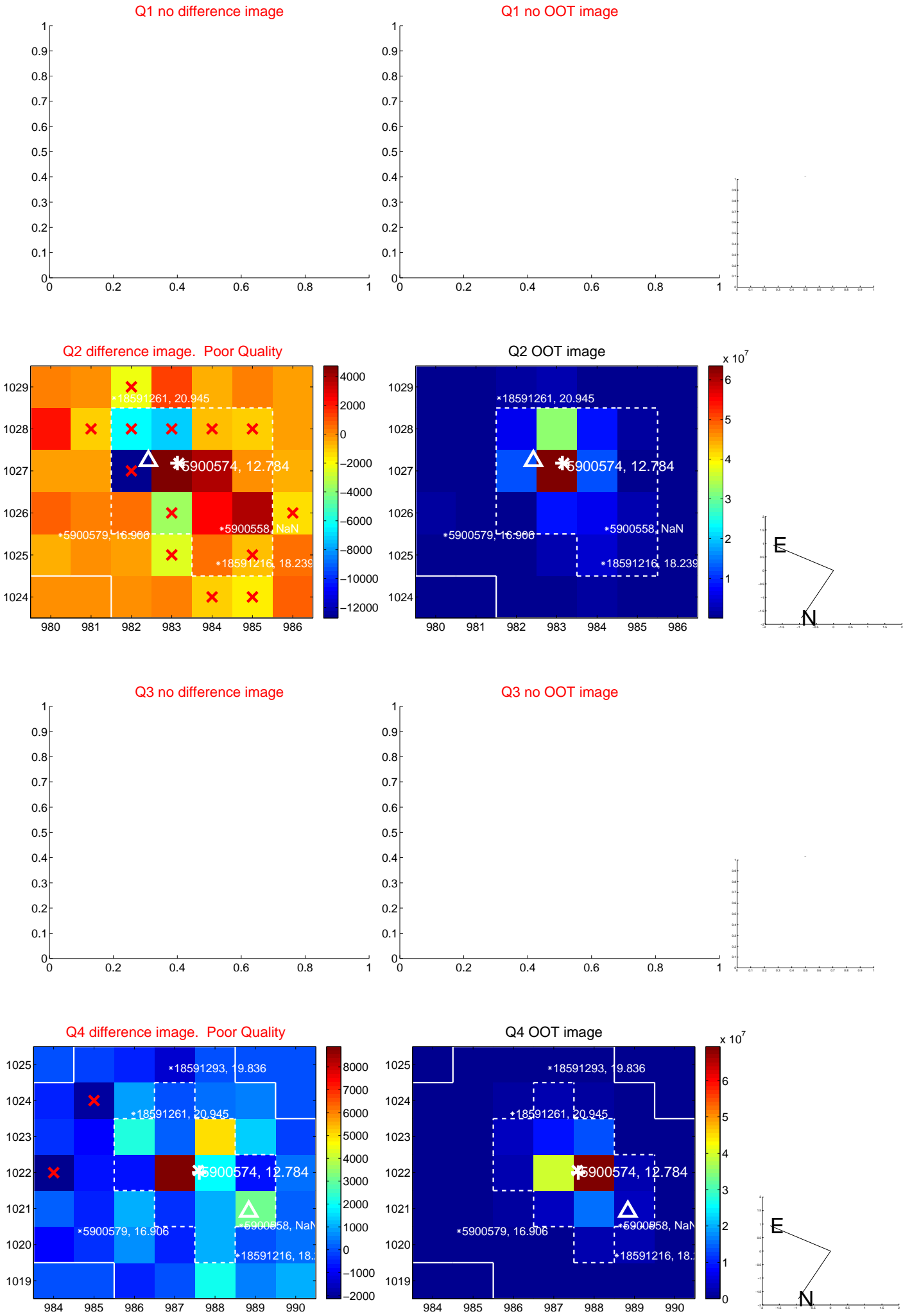
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.296 ± 1.047	1.24	-1.146 ± 0.988	-0.606 ± 0.894
PRF-fit source offset from KIC position	1.318 ± 1.191	1.11	-1.201 ± 1.041	-0.543 ± 1.064
photometric centroid source offset	1.58 ± 1.53	1.03	-1.24 ± 1.61	0.99 ± 1.40

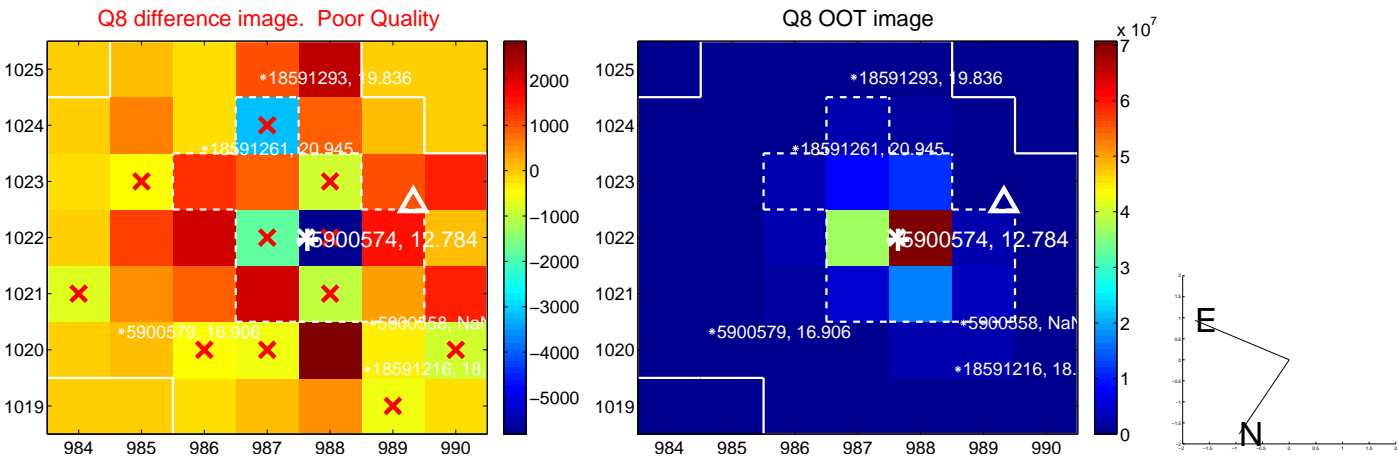
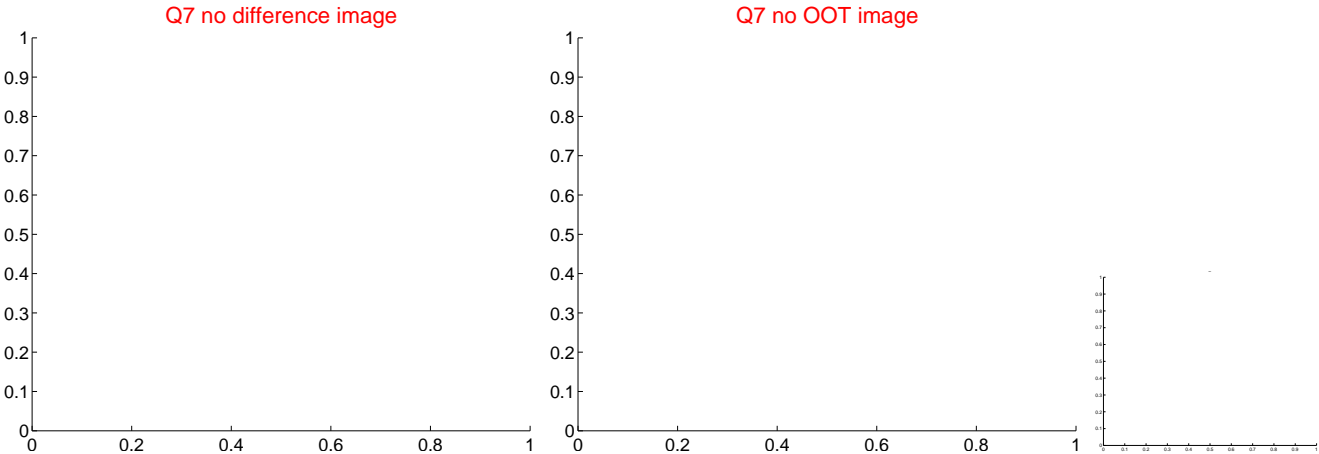
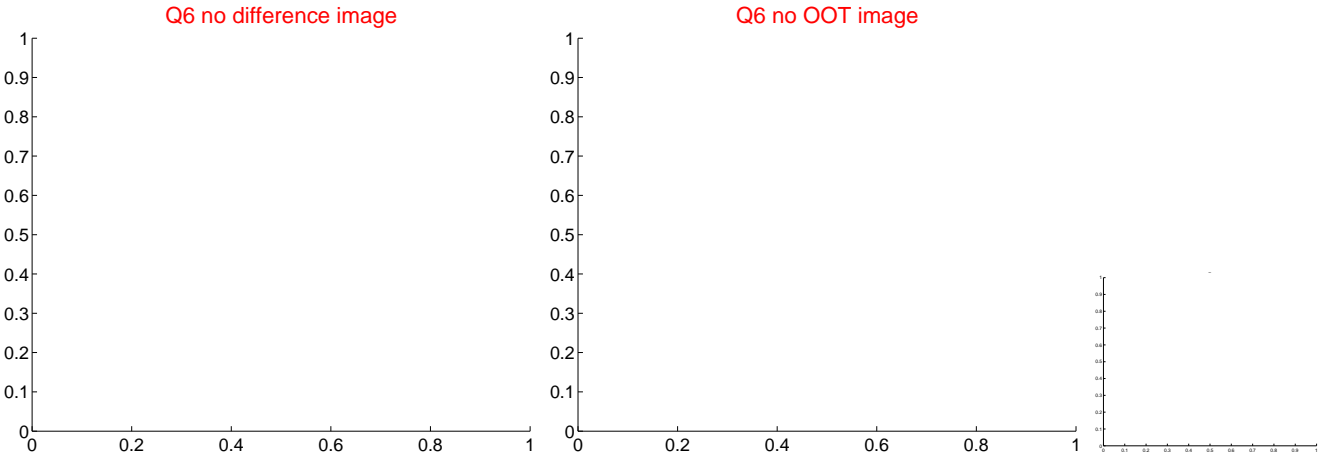
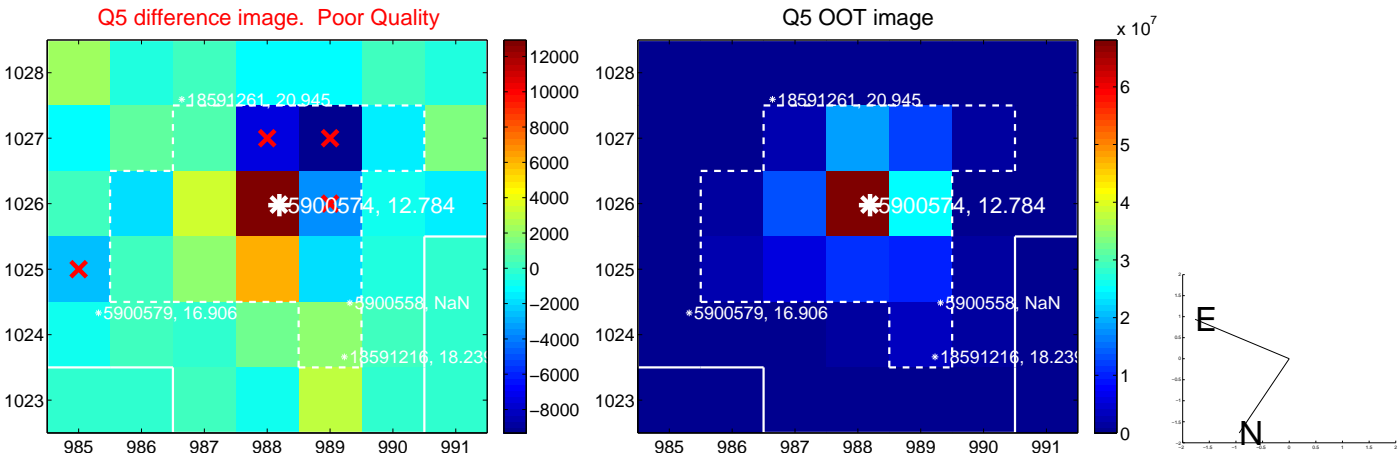


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

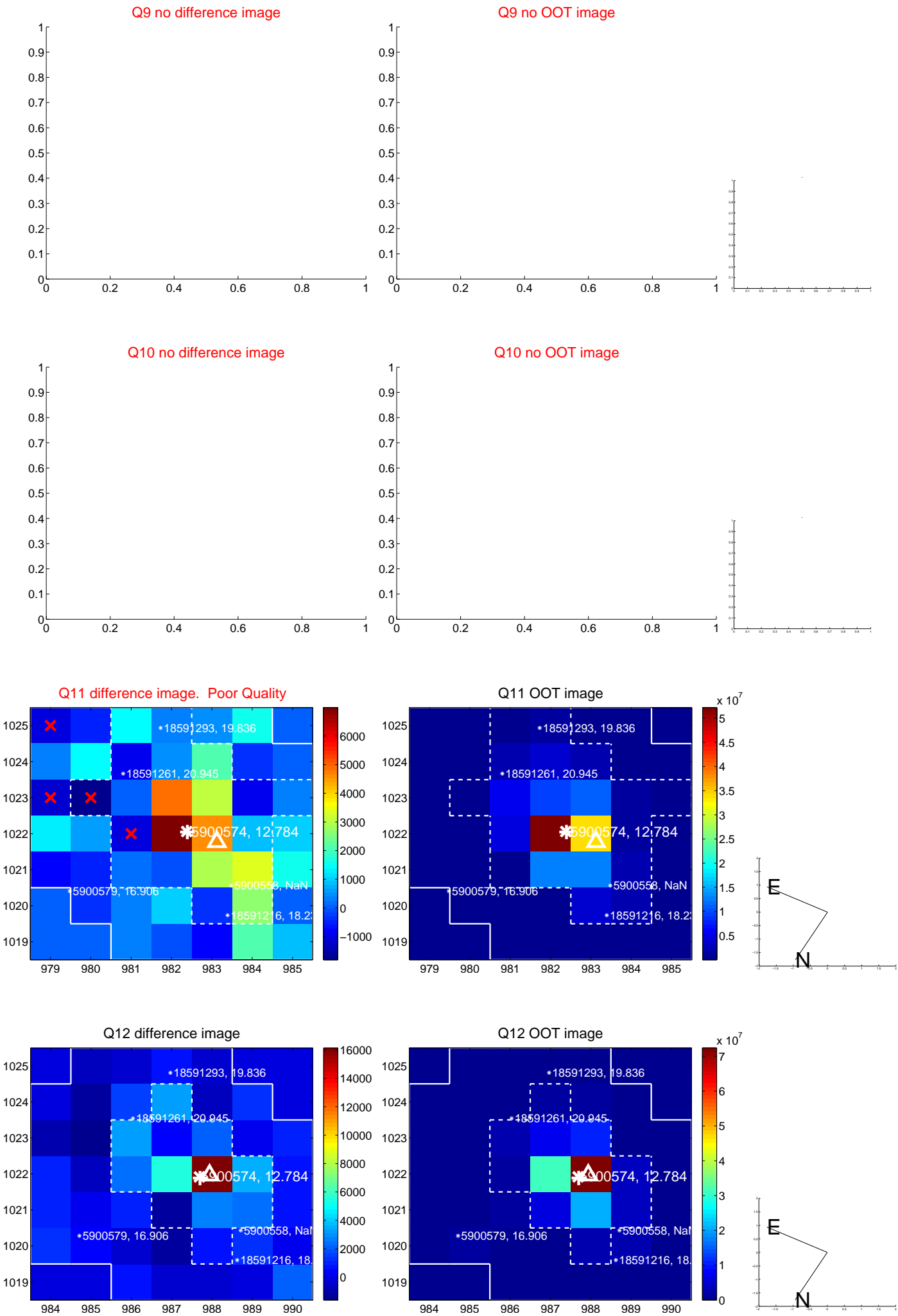
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



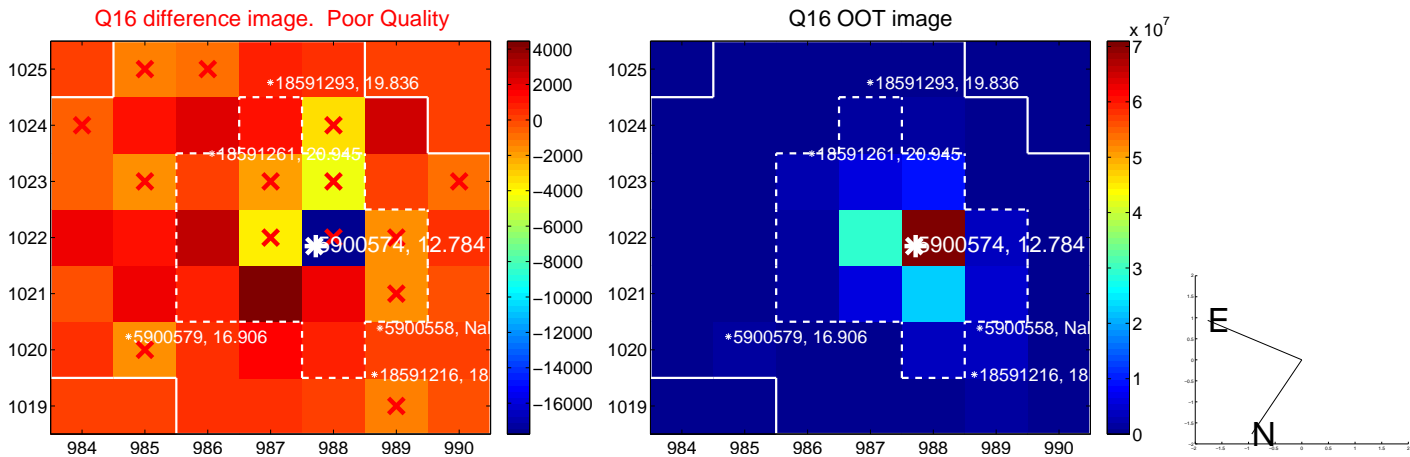
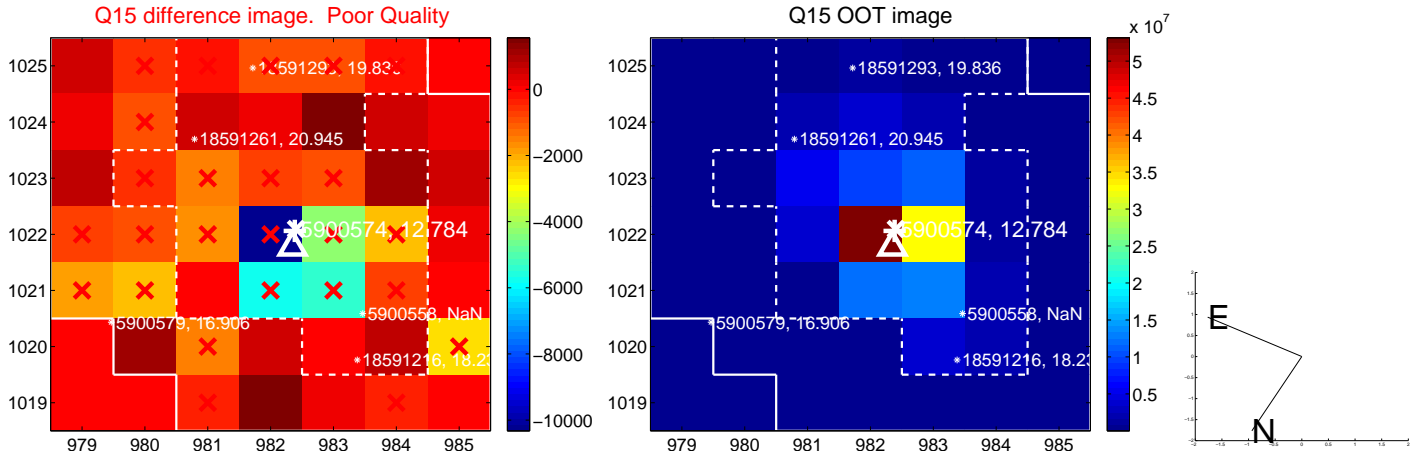
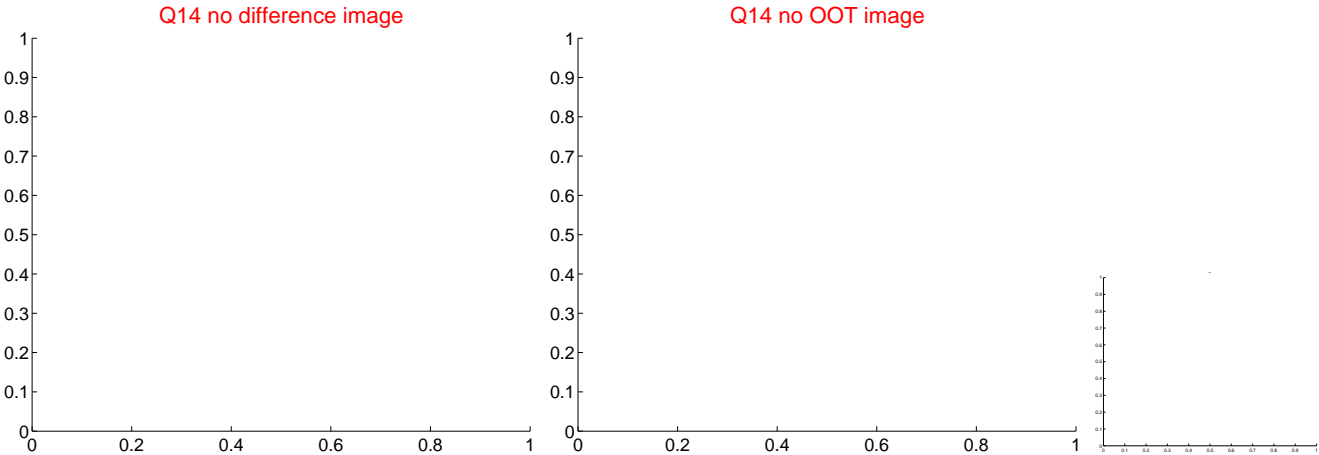
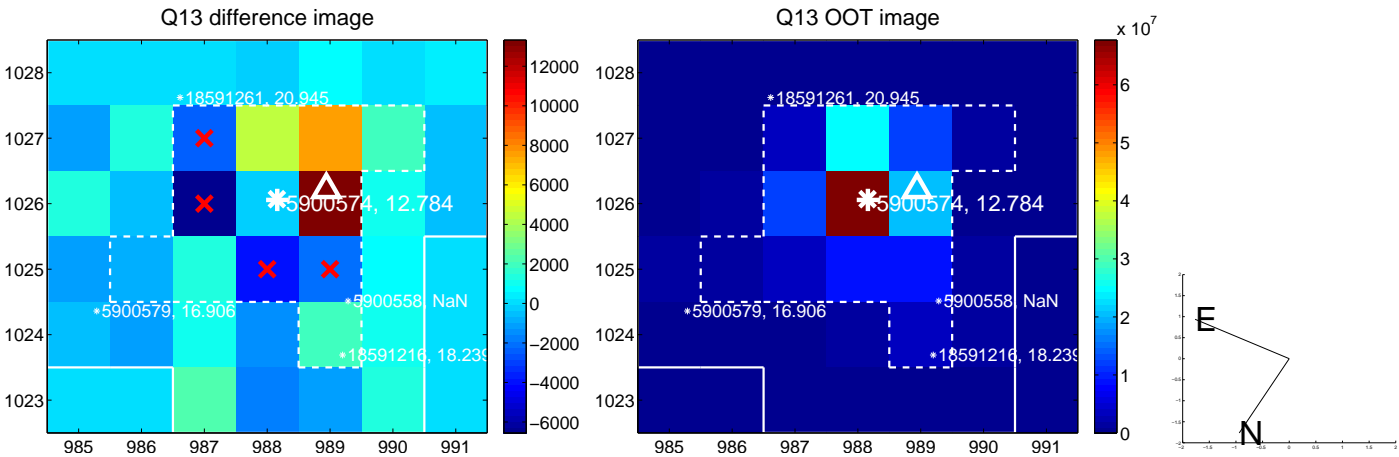
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



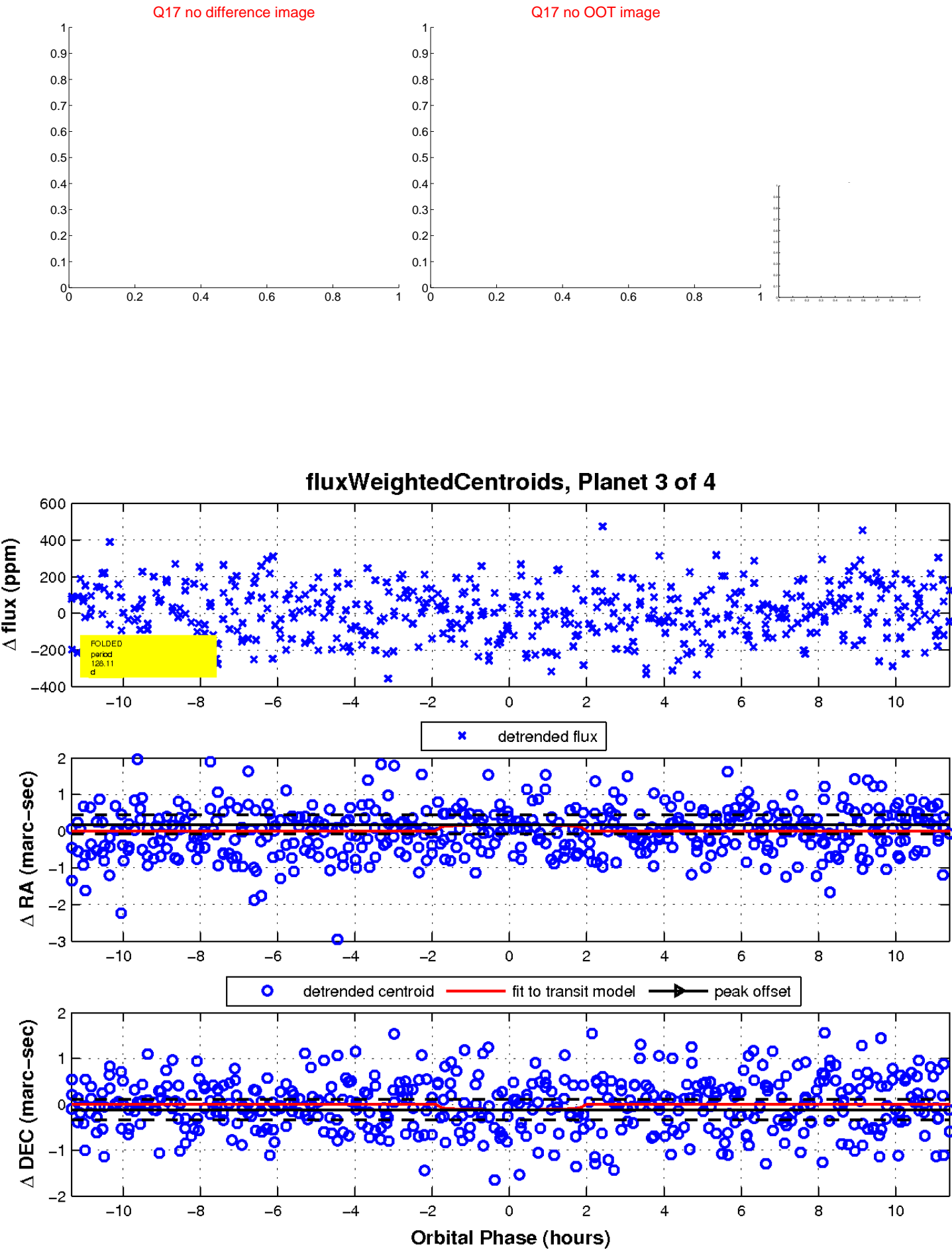
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

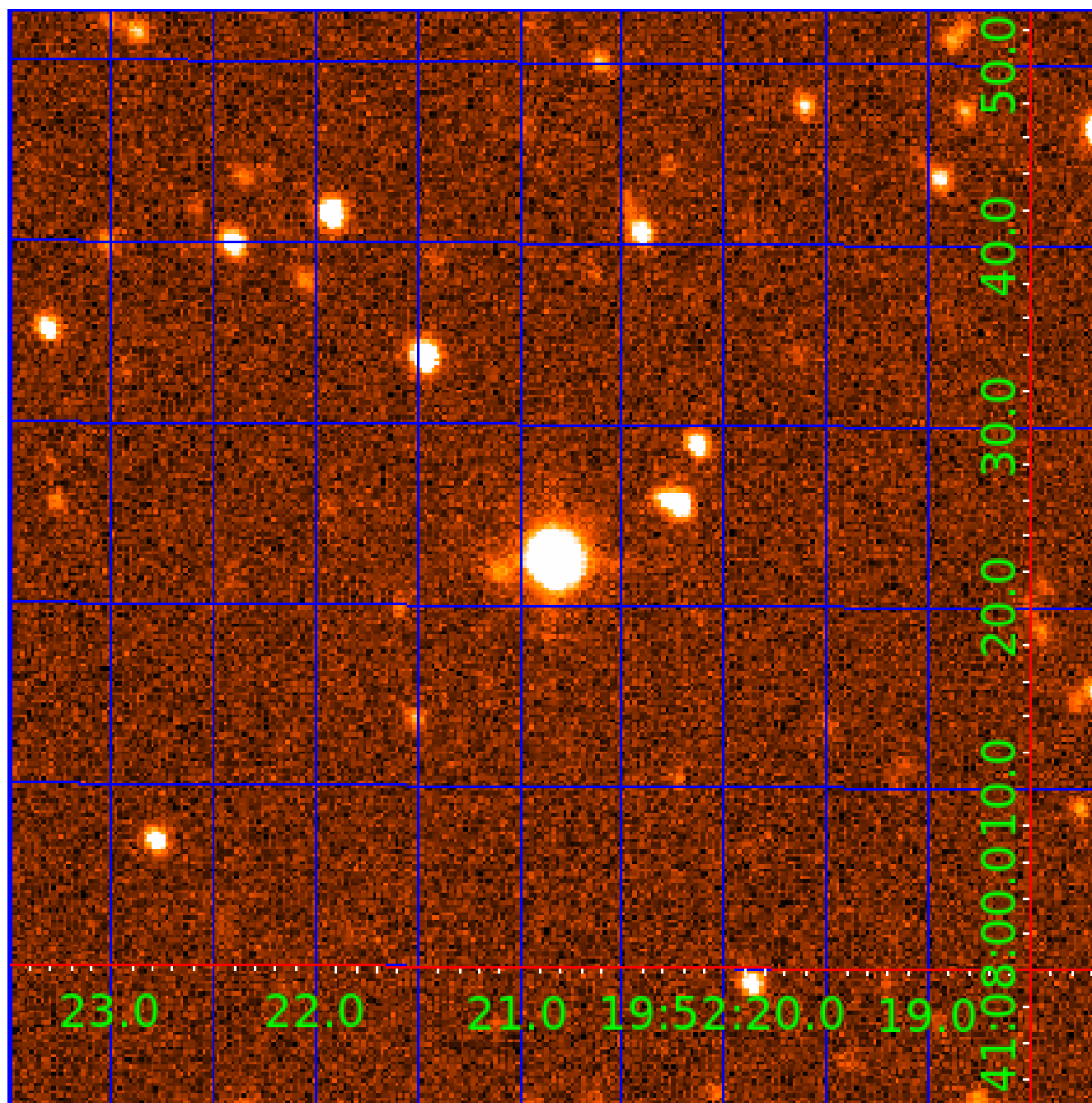


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005900574

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})
005900574-01	OBS	No	1.585084	132.925152	17.4	6.741	9.9	10.0	11.59	6926	5.16	0.00
005900574-02	OBS	No	228.054043	147.390324	37.9	4.971	9.8	1.3	11.59	6926	8.80	225.69
005900574-03	OBS	No	128.113809	246.751033	161.7	3.816	8.9	5.7	11.59	6926	14.87	486.90
005900574-04	OBS	No	0.533177	131.953594	11.2	4.220	8.4	6.3	11.59	6926	4.19	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005900574-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005900574-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005900574-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005900574-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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

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

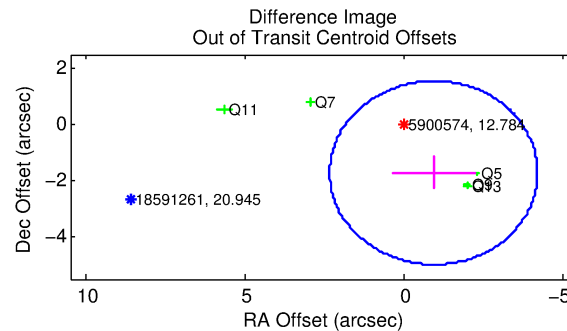
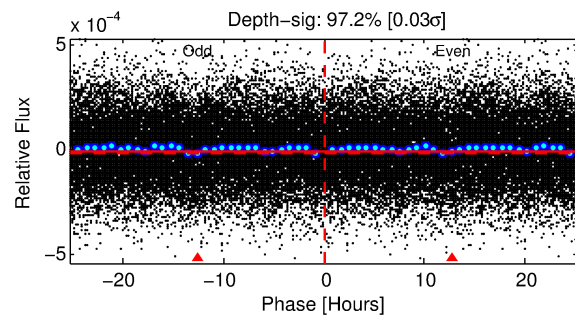
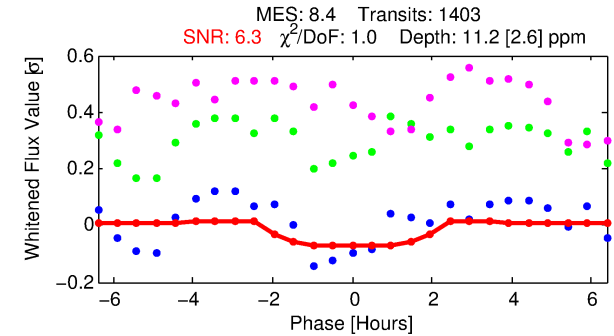
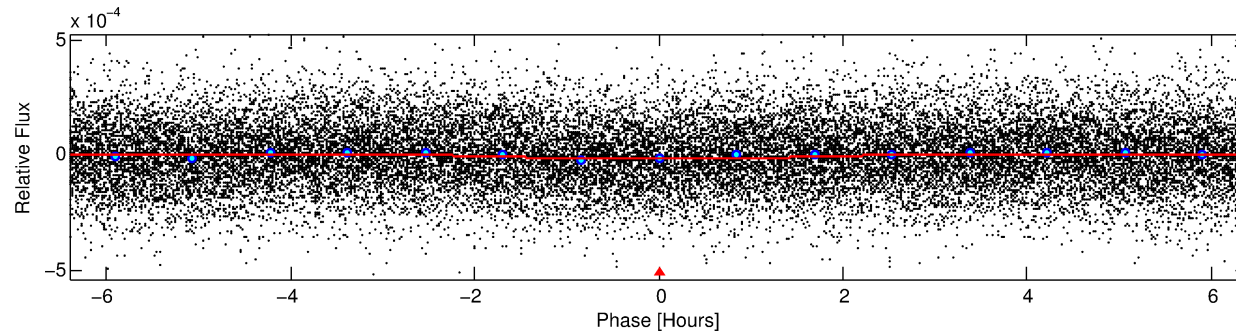
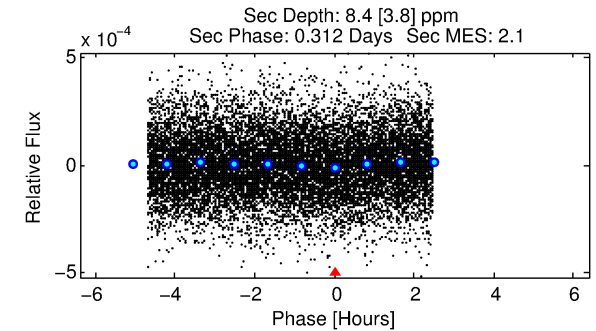
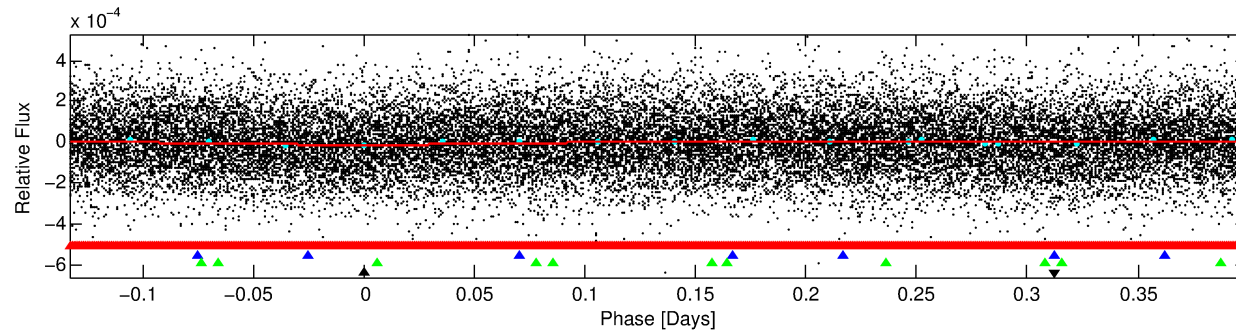
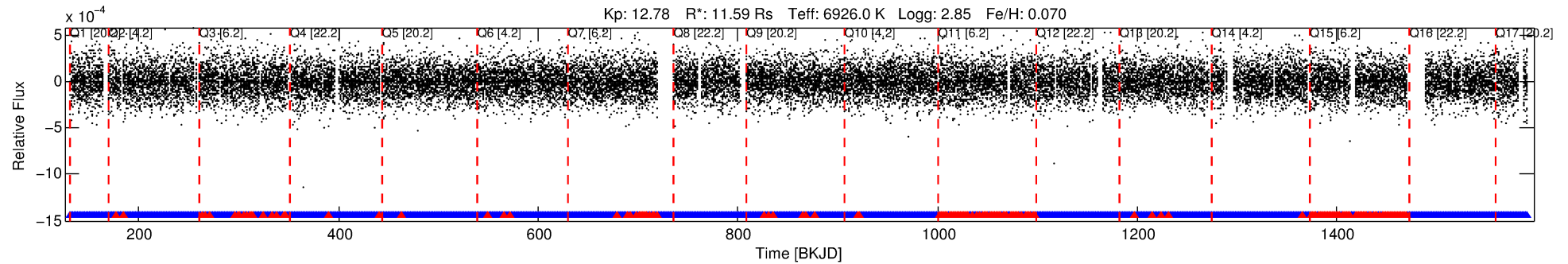
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005900574-04

No Significant Match Found

DV One-Page Summary

KIC: 5900574 Candidate: 4 of 4 Period: 0.533 d



DV Fit Results:

Period = 0.53318 [0.00002] d
Epoch = 131.9536 [0.0072] BKJD
Rp/R* = 0.0033 [0.0033]
a/R* = 1.08 [0.89]
b = 0.74 [3.60]
Seff = N/A
Teq = N/A
Rp = 4.19 [4.57] Re
a = N/A
Ag = N/A
Teffp = N/A

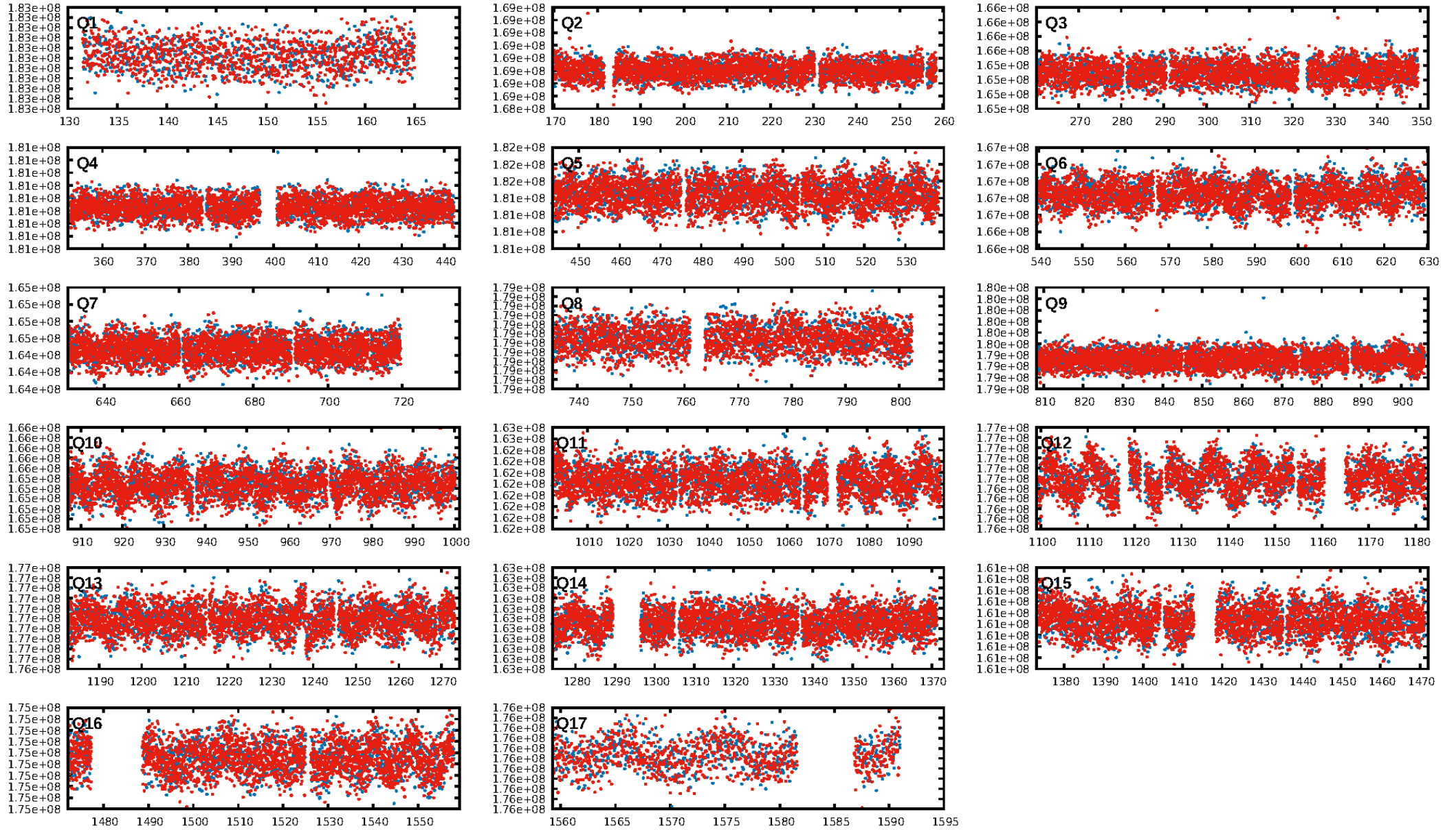
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.8% [3.17σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.85 [1144/1341]
GhostDiagnostic-chr: 1.197
Centroid-sig: 40.2%
Centroid-so: 1.153 arcsec [0.87σ]
OotOffset-rm: 1.954 arcsec [1.79σ]
OotOffset-st: 0.2/0/3 [5]
KicOffset-rm: 1.959 arcsec [1.80σ]
KicOffset-st: 0.2/0/3 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 1.00 [17/17]

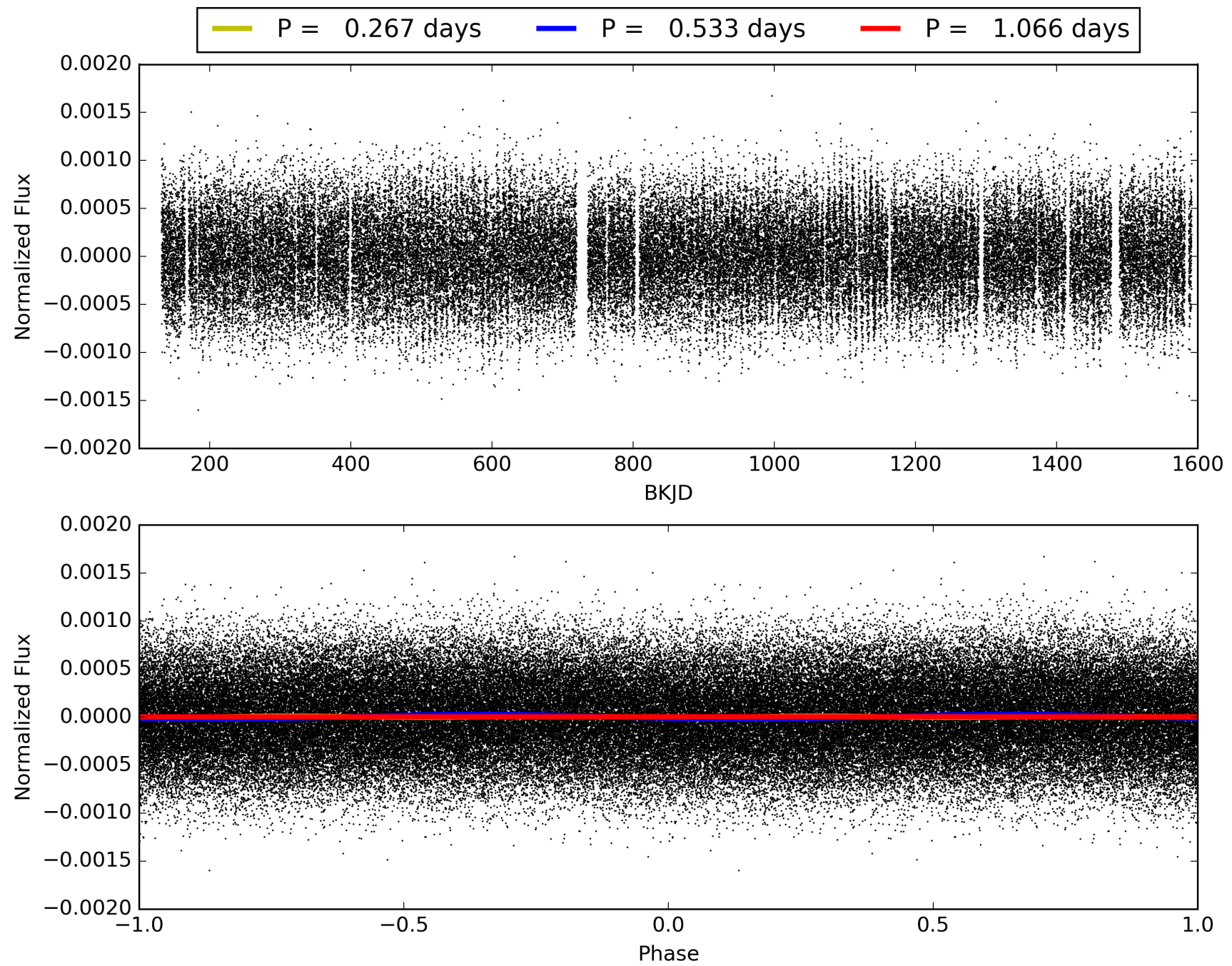
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:27:48 Z

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

TCE 005900574-04, PDC Light Curves

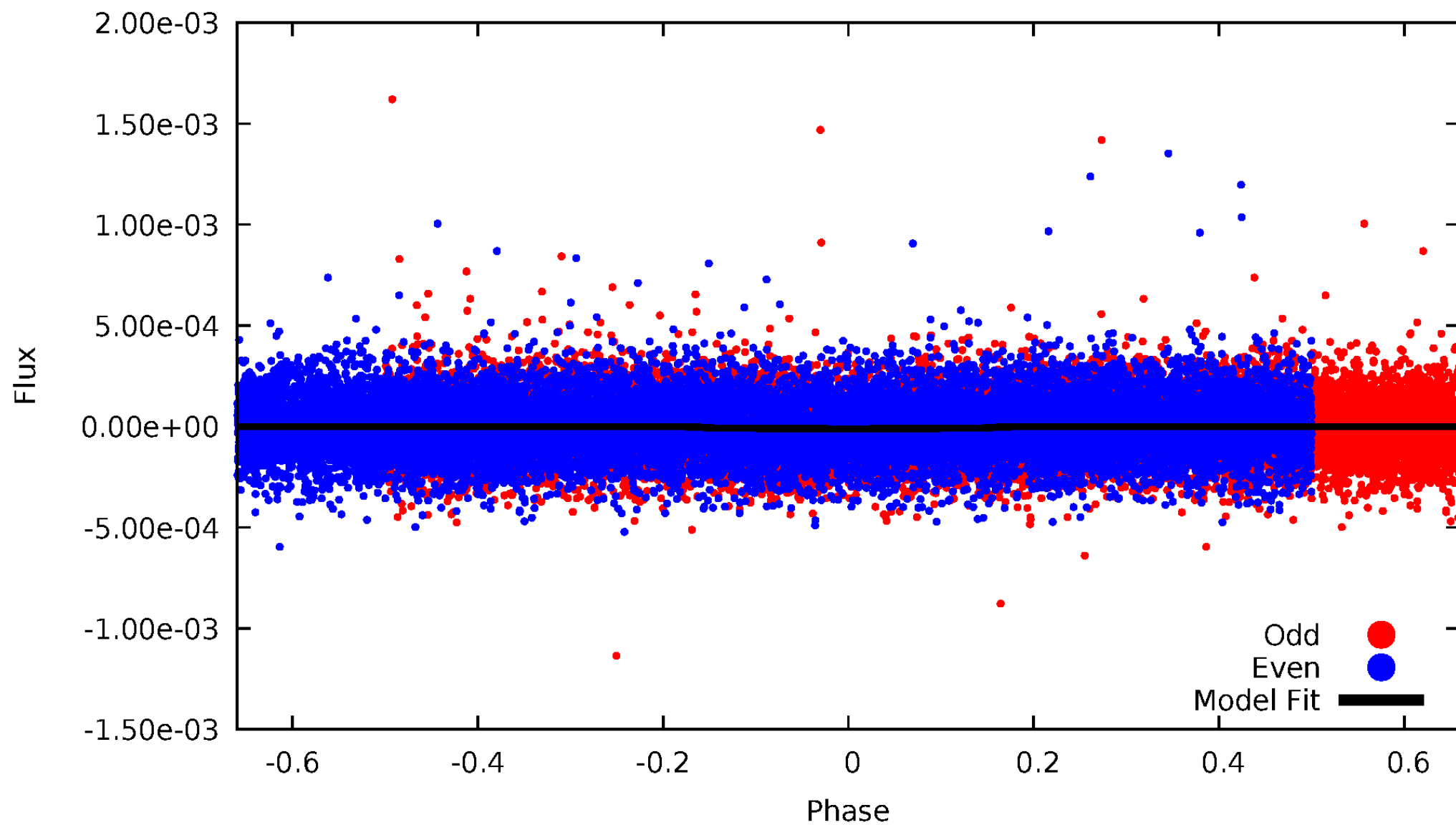


TCE 005900574-04



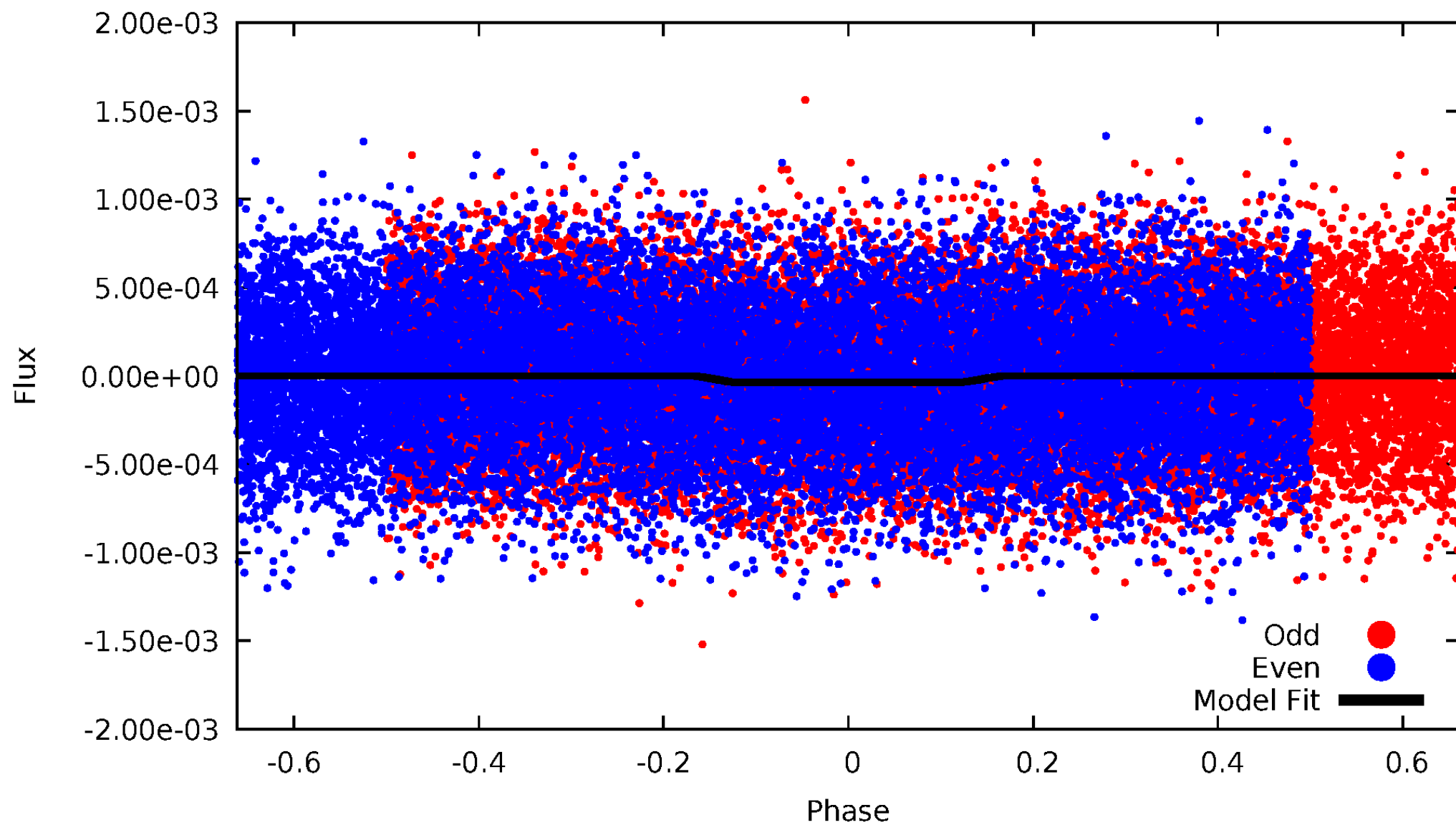
DV Odd/Even

TCE 005900574-04



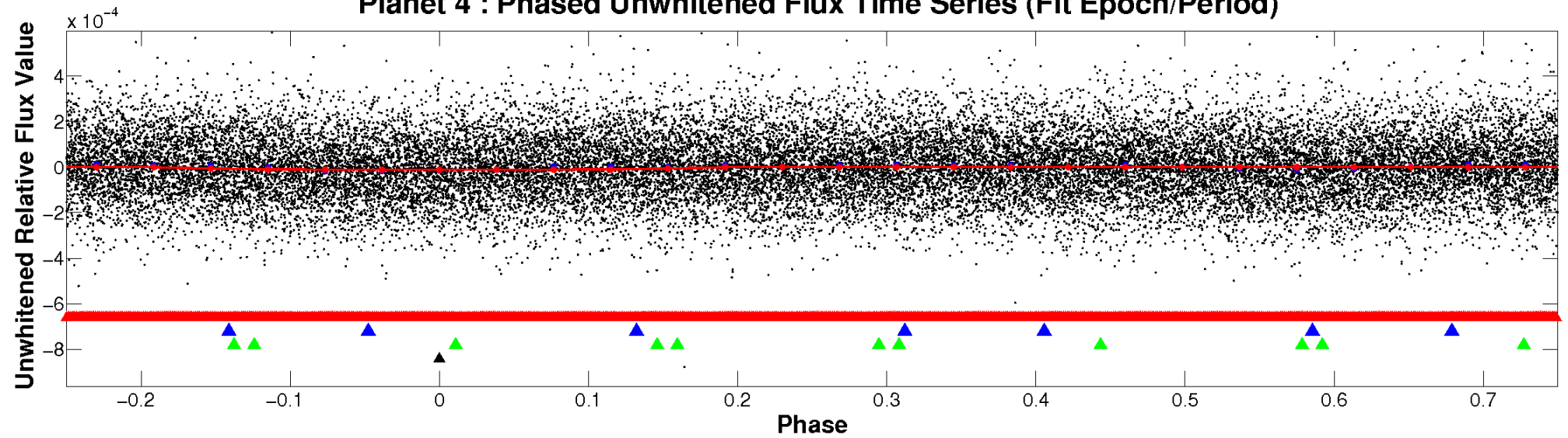
ALT Odd/Even

TCE 005900574-04

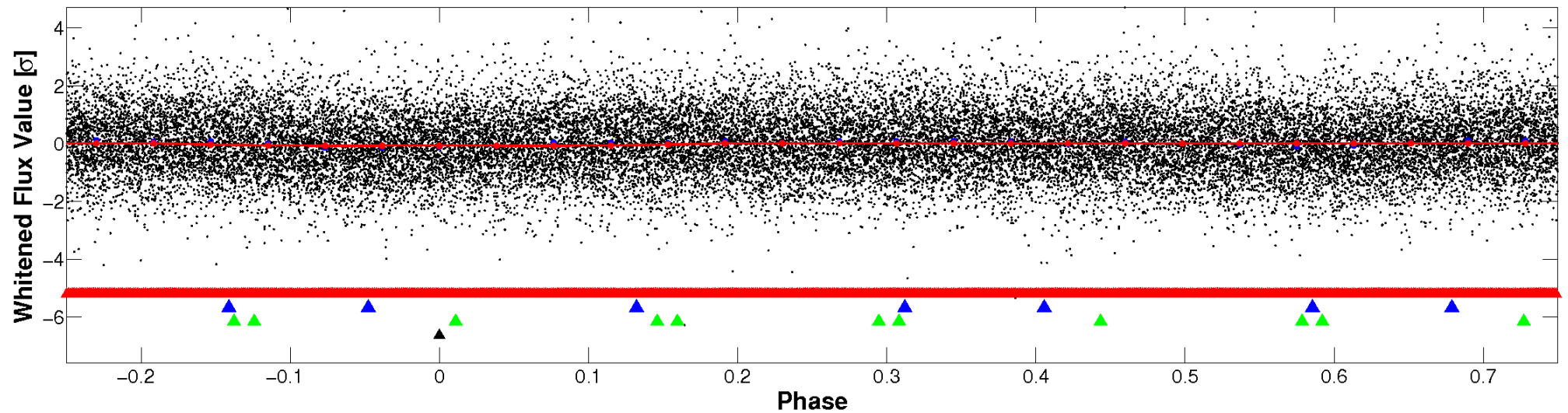


Non-Whitened Vs. Whitened Light Curve

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

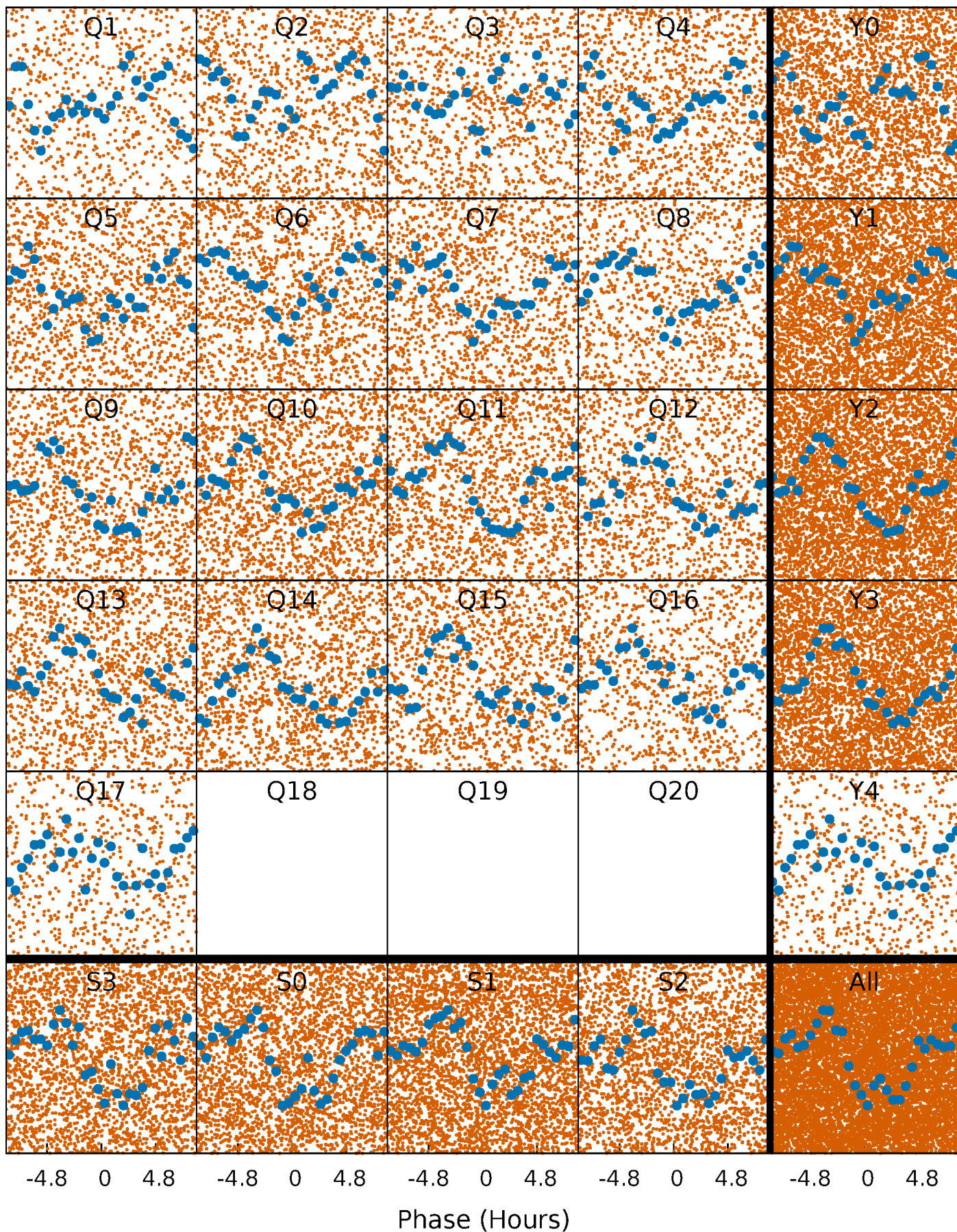


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



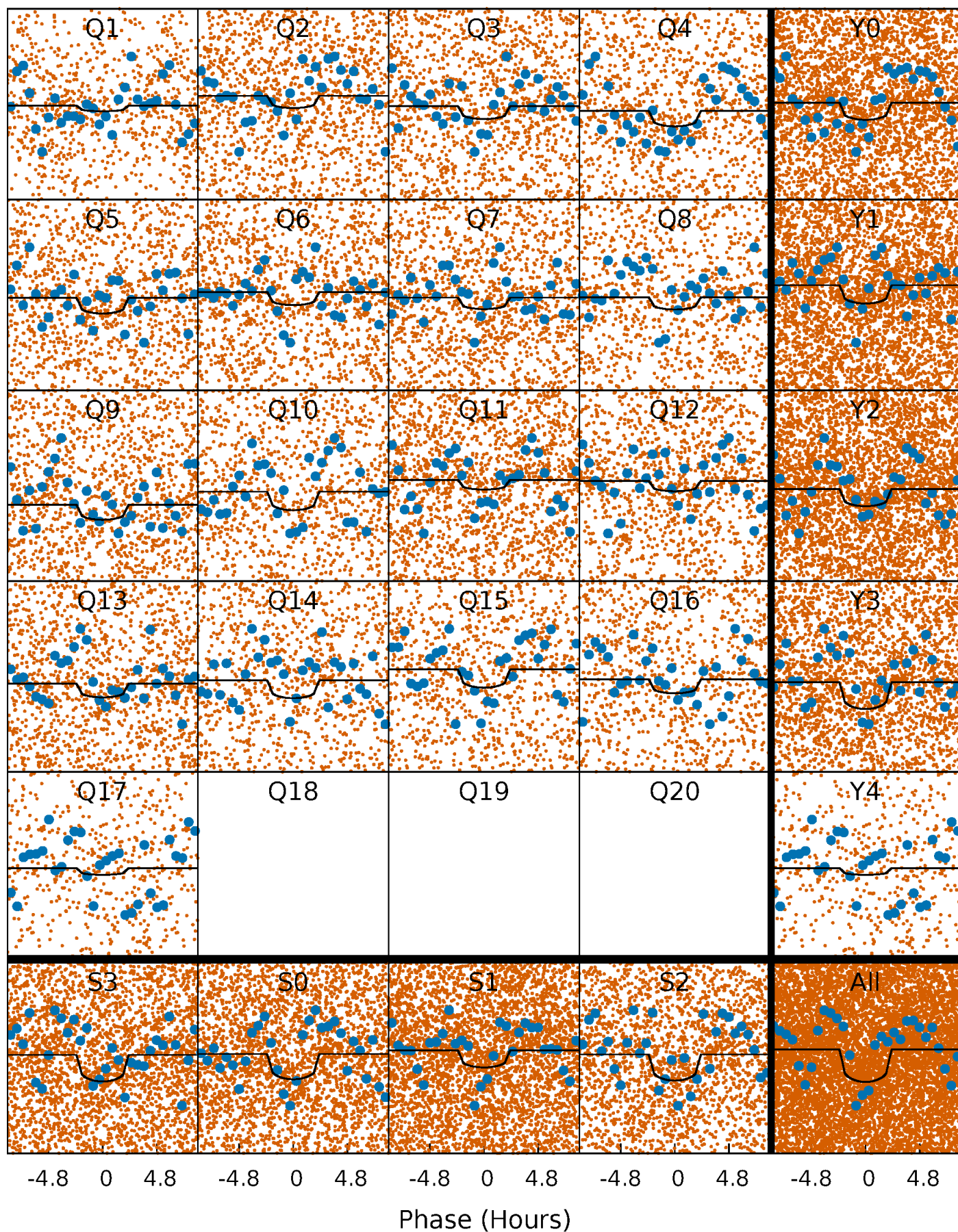
PDC Quarter-Phased Transit Curves

TCE 005900574-04 P= 0.533177 Days $T_0=131.953594$ (BKJD)



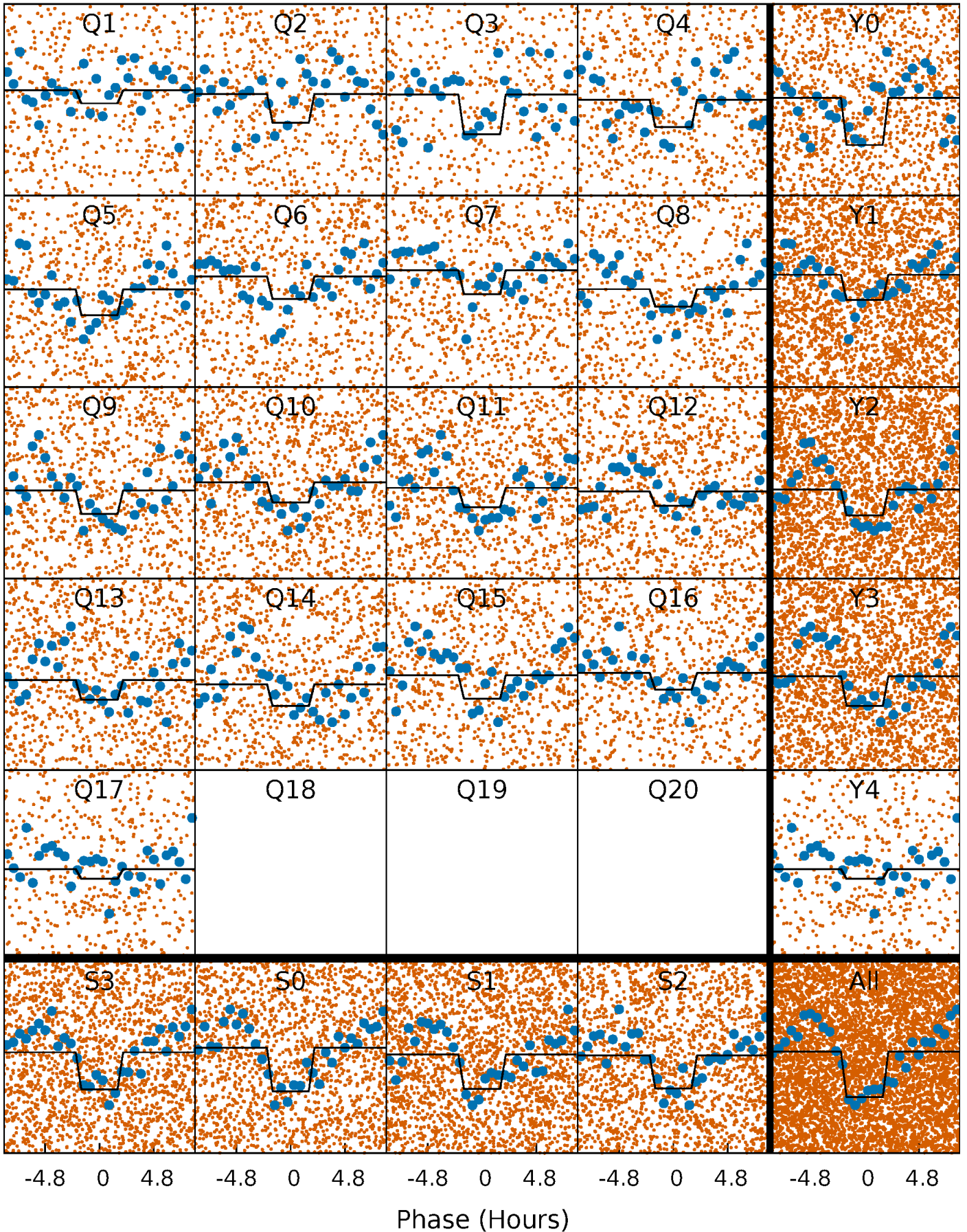
DV Quarter-Phased Transit Curves

TCE 005900574-04 $P = 0.533177$ Days $T_0 = 131.953594$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

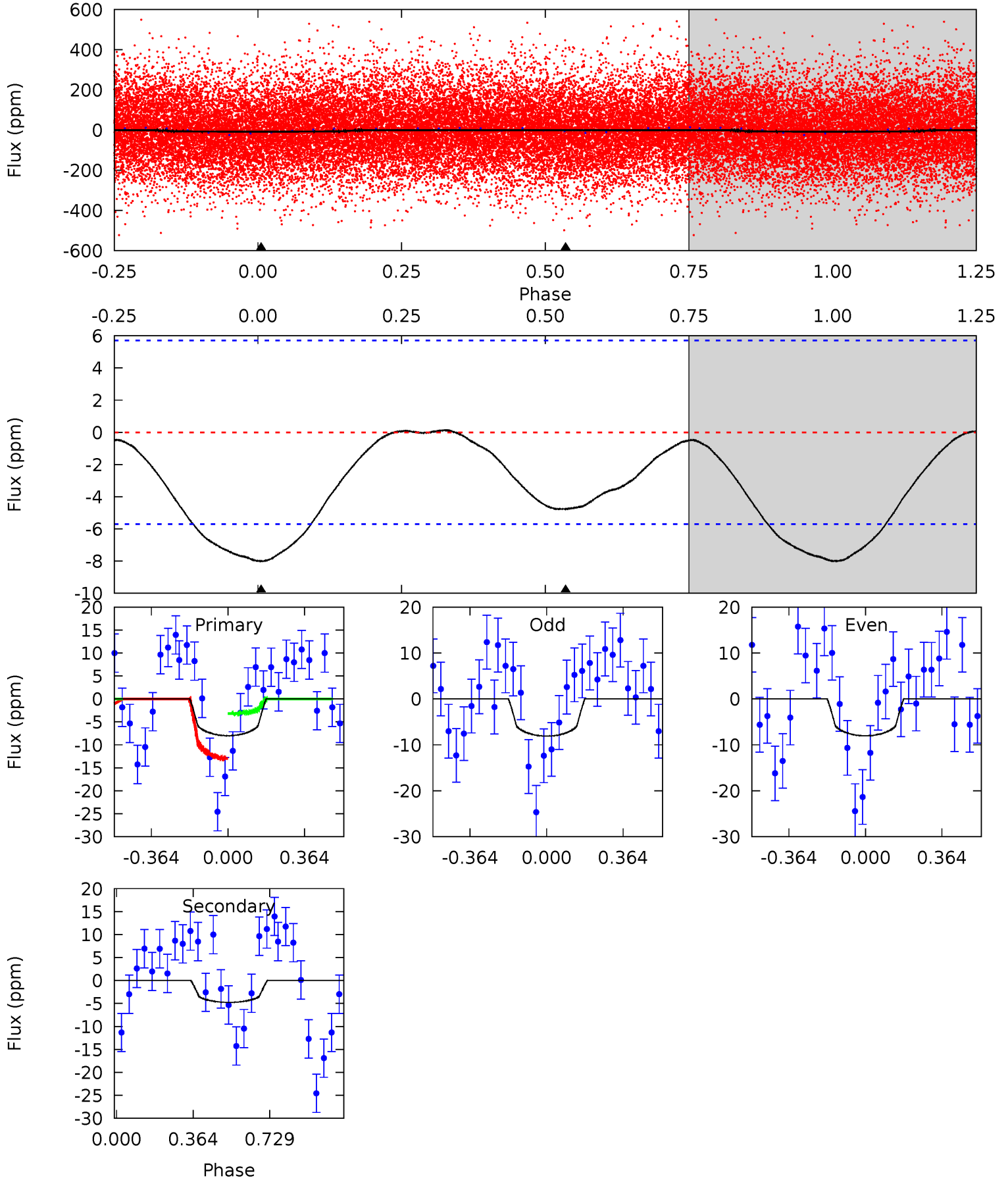
TCE 005900574-04 P= 0.533198 Days $T_0=131.960722$ (BKJD)



DV Model-Shift Uniqueness Test

005900574-04, P = 0.533177 Days, E = 131.420417 Days

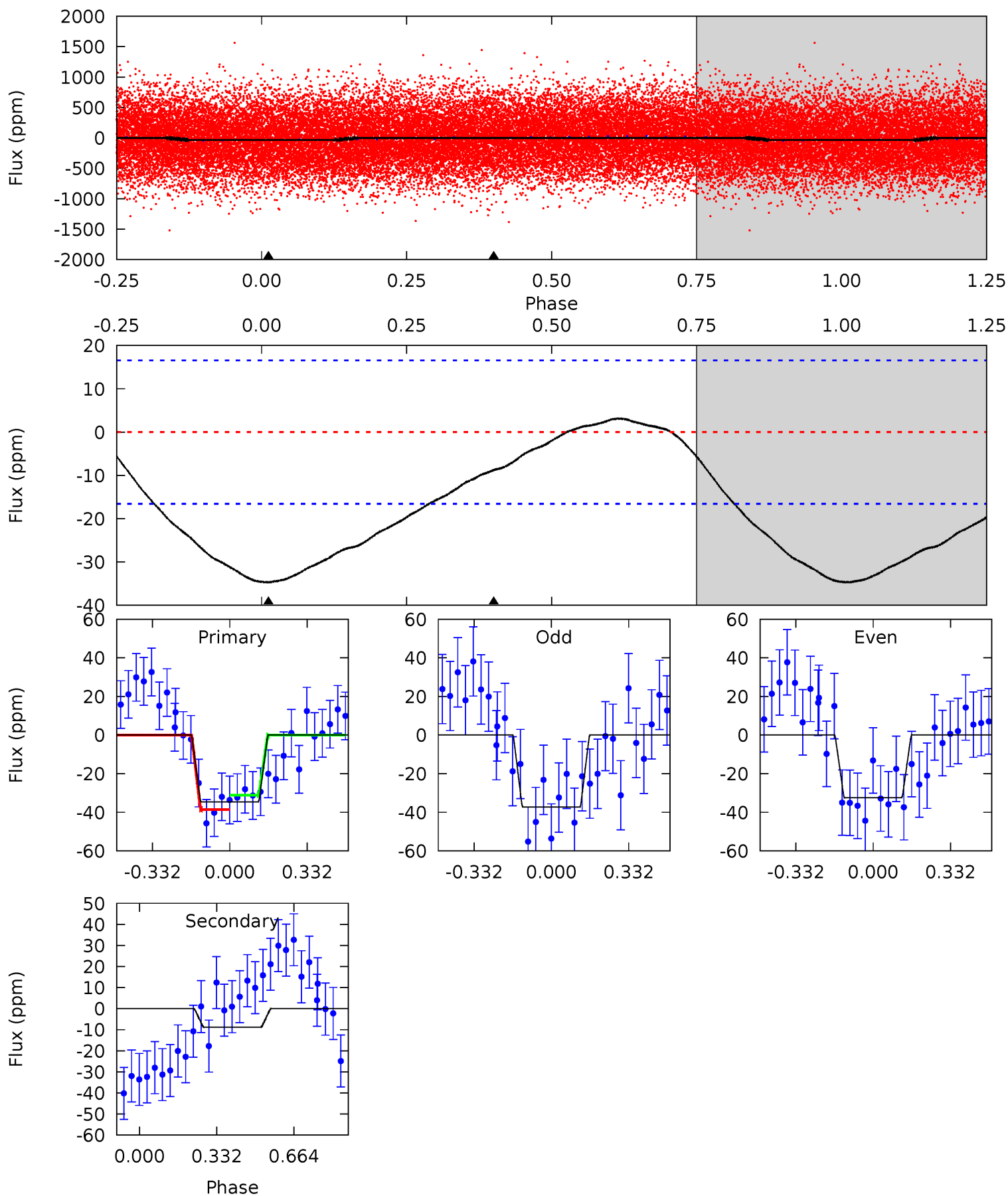
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.02	3.58	0	0	4.29	0.91	0.21	6.02	6.02	3.58	3.58	0.02	0.62	0.02	3.70



Alt Model-Shift Uniqueness Test

005900574-04, P = 0.533198 Days, E = 131.427524 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.01	2.28	0	0	4.31	0.97	0.67	9.01	9.01	2.28	2.28	0.64	0.95	0.08	0.95



Stellar Parameters For KIC 005900574

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+484}_{-1939}	$2.852^{+0.236}_{-0.193}$	$0.070^{+0.250}_{-0.500}$	$11.591^{+2.203}_{-5.141}$	$3.479^{+0.106}_{-2.012}$	$0.003^{+0.006}_{-0.001}$
	+7%/-28%	+8%/-7%	+357%/-714%	+19%/-44%	+3%/-58%	+187%/-43%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005900574-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5 ± 1	$4.90^{+4.23}_{-3.02}$	10091^{+1433}_{-2788}	-7349^{+3849}_{-2306}	$0.037^{+0.197}_{-0.026}$
Alt.	-9 ± 4	$7.34^{+4.58}_{-3.75}$	10109^{+1425}_{-2542}	-7833^{+3171}_{-1889}	$0.030^{+0.092}_{-0.020}$

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

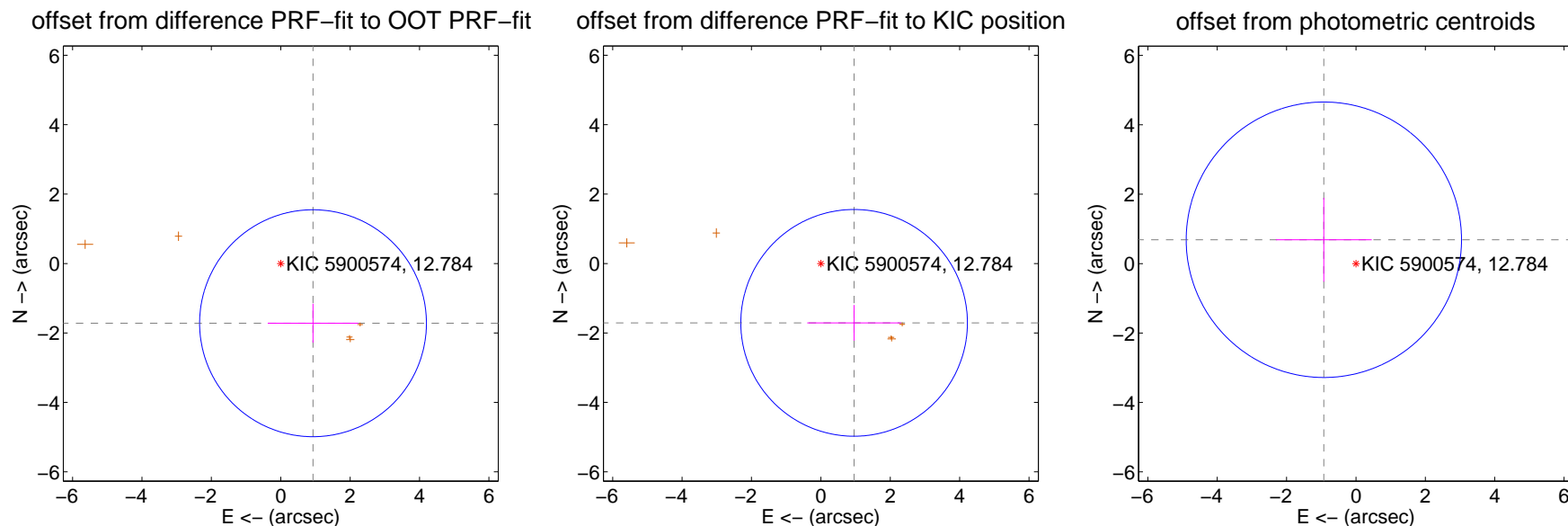
DV Centroid Data

Supplemental centroid analysis for 005900574-04. Kepler magnitude: 12.78. Transit SNR 6.33

There are 0 quarters with good PRF difference image offsets

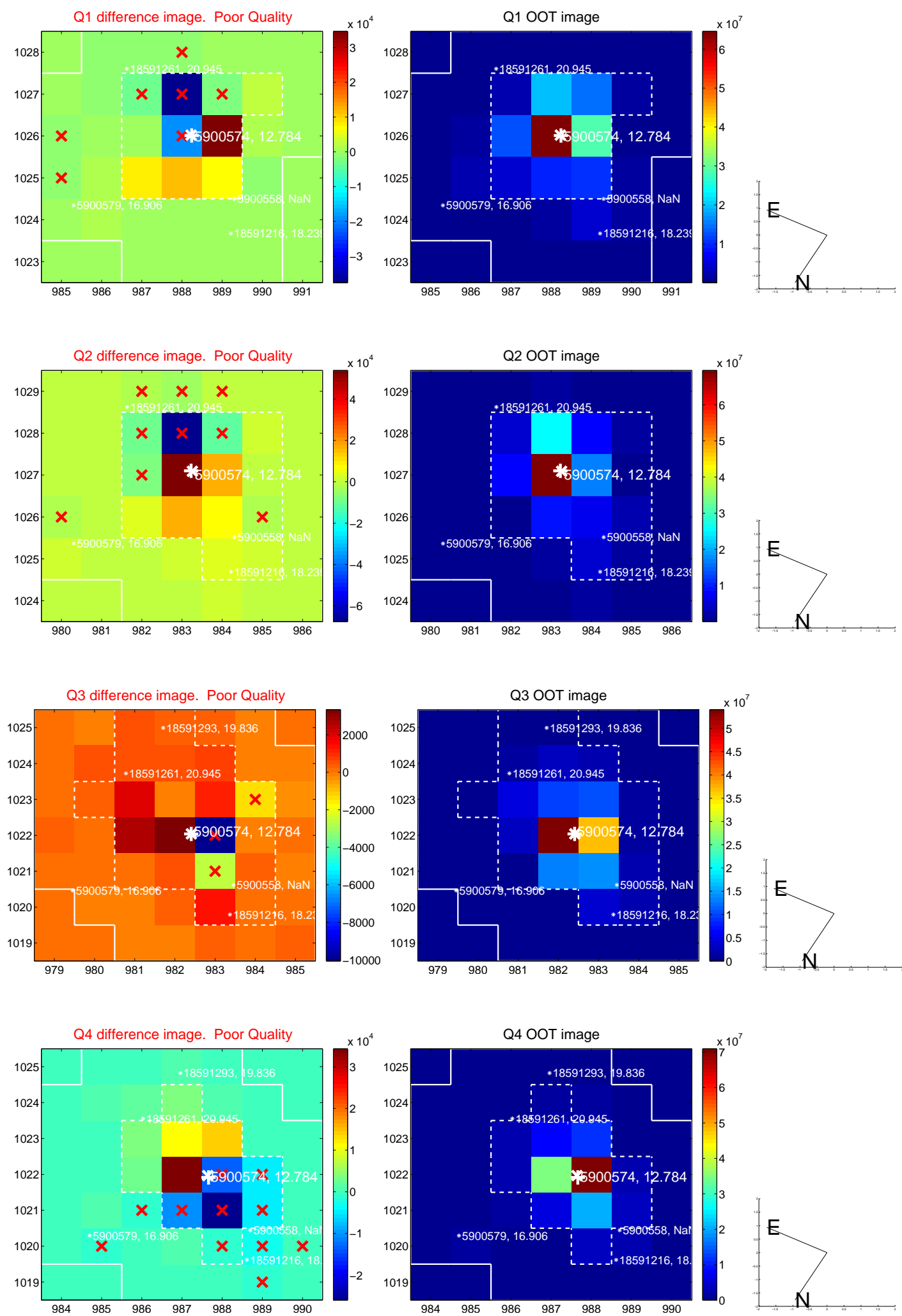
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.954 ± 1.089	1.79	-0.930 ± 1.305	-1.719 ± 0.561
PRF-fit source offset from KIC position	1.959 ± 1.088	1.80	-0.958 ± 1.350	-1.709 ± 0.516
photometric centroid source offset	1.15 ± 1.32	0.87	0.93 ± 1.38	0.69 ± 1.21

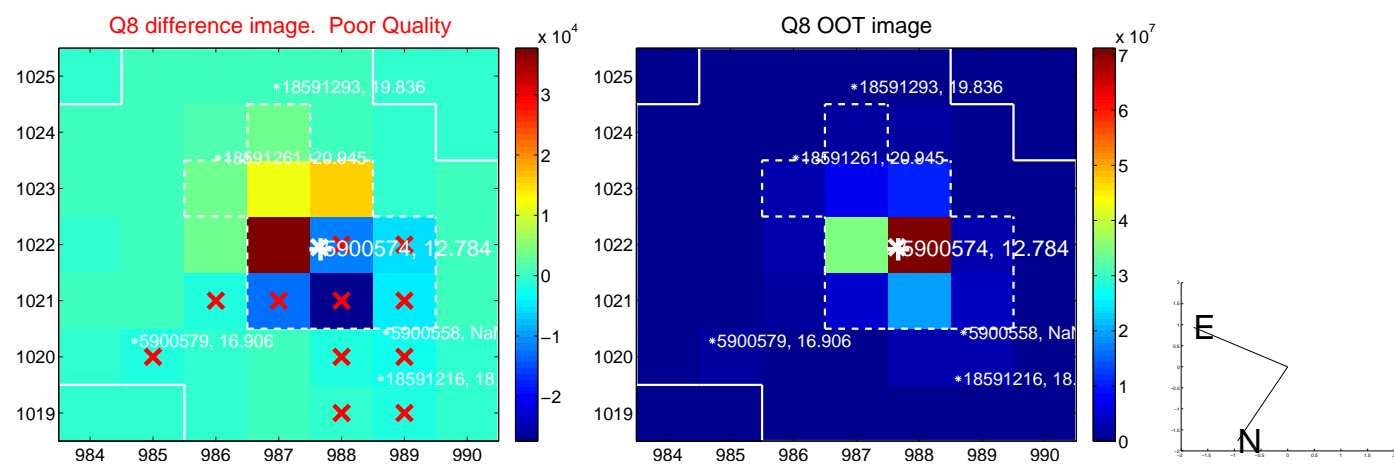
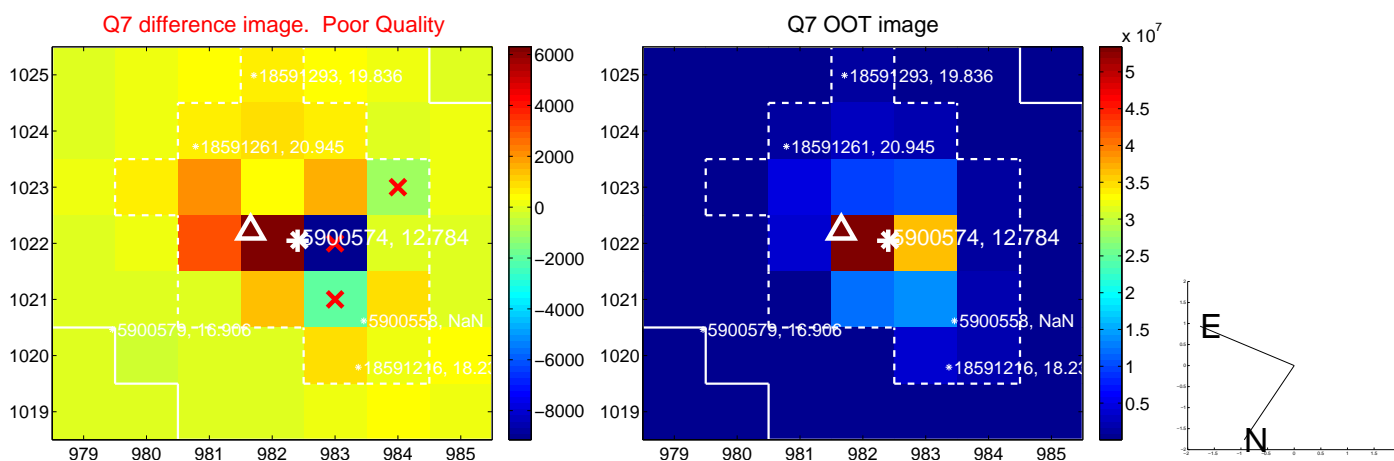
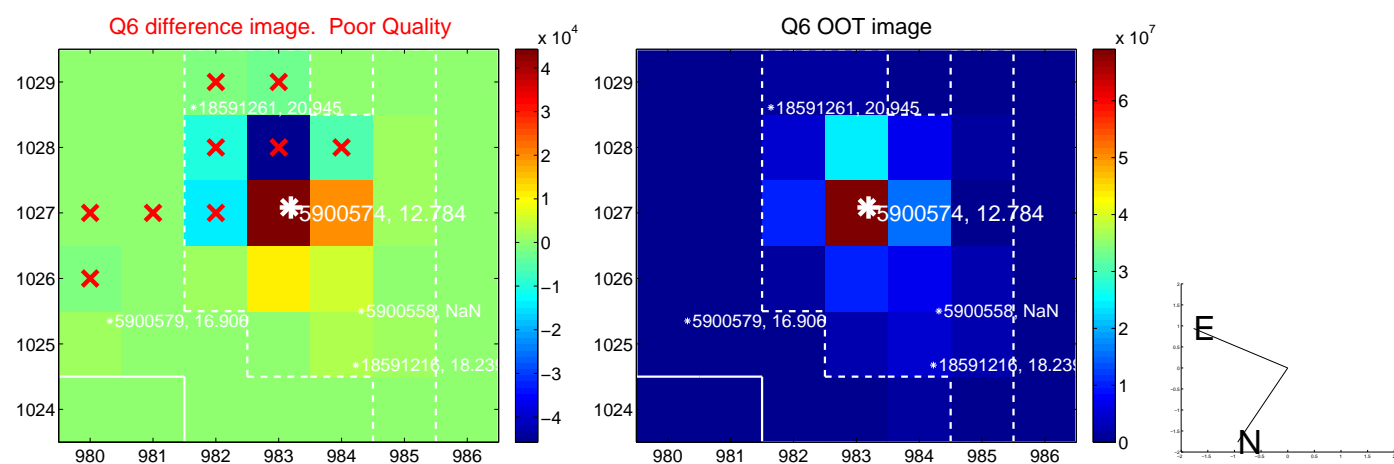
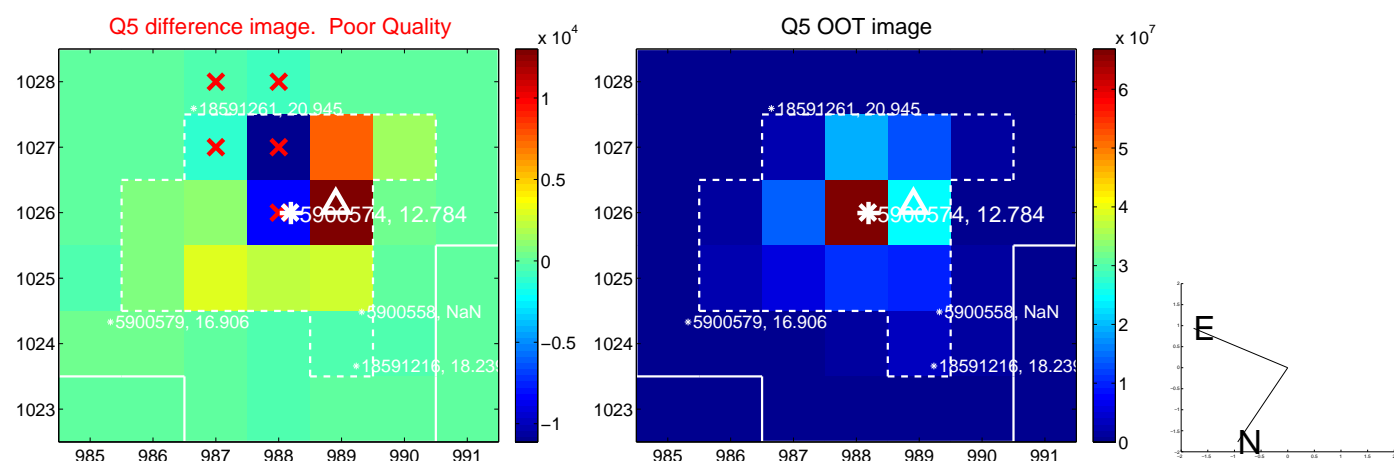


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

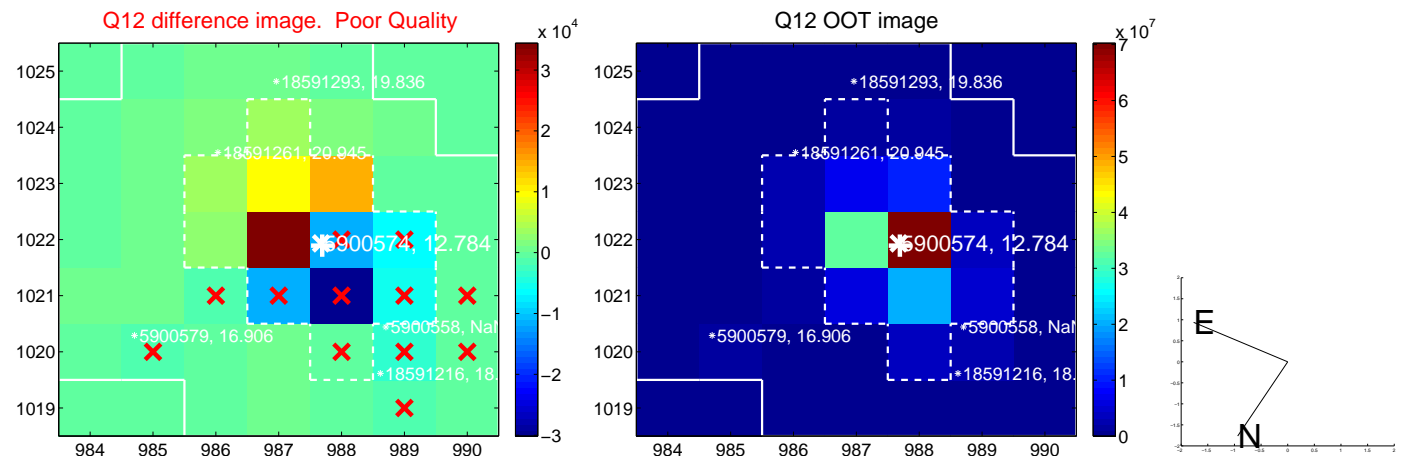
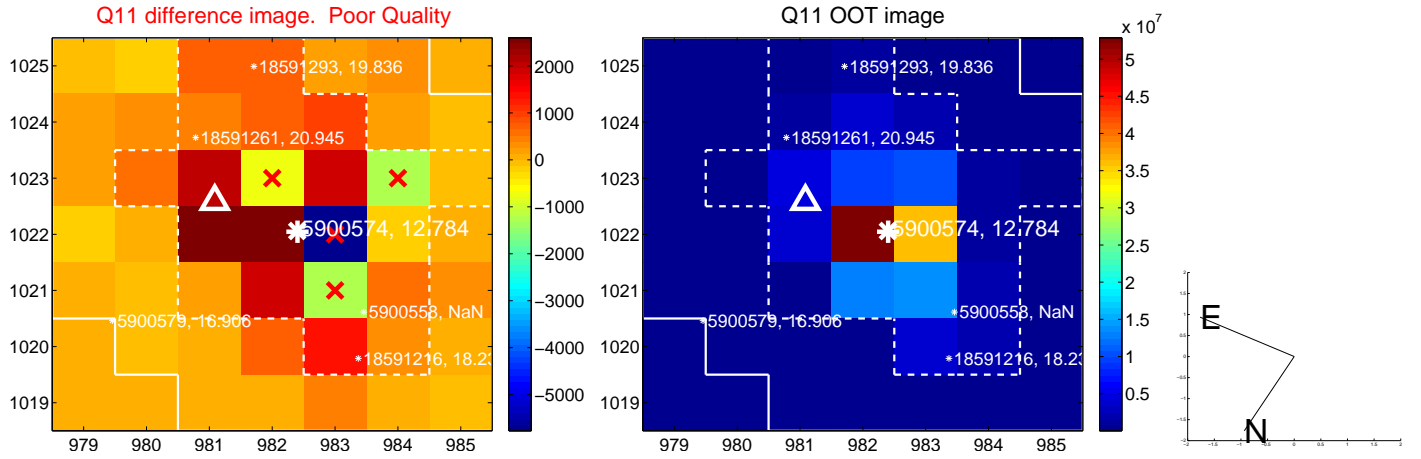
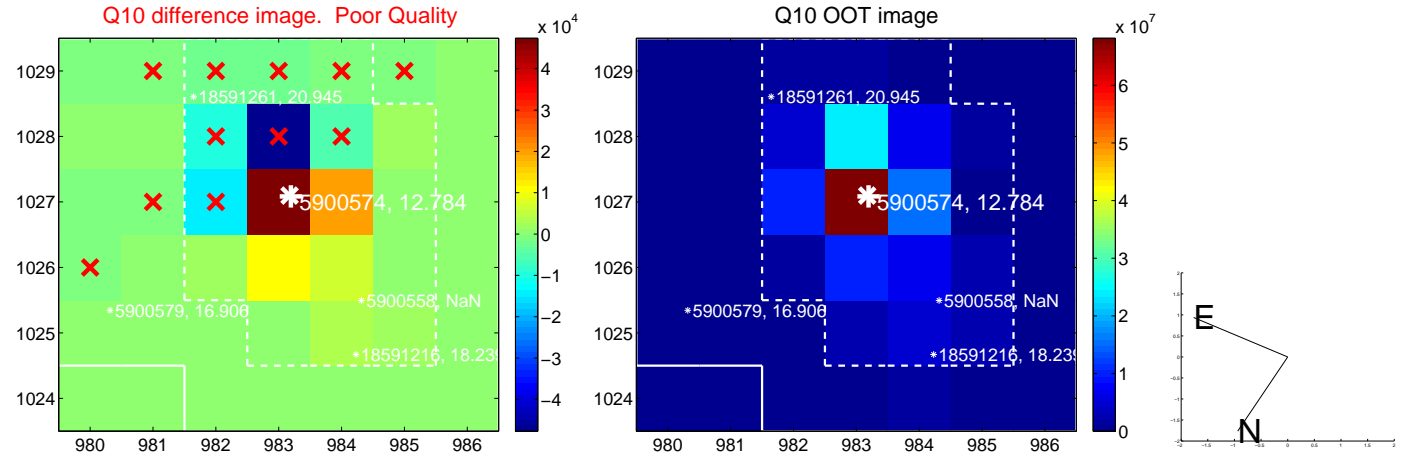
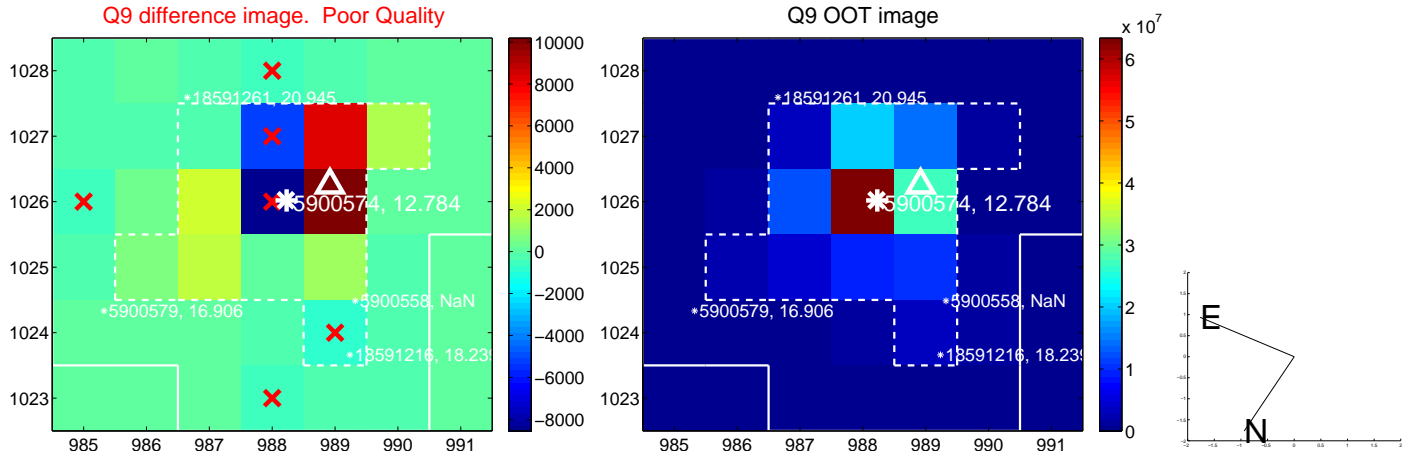
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



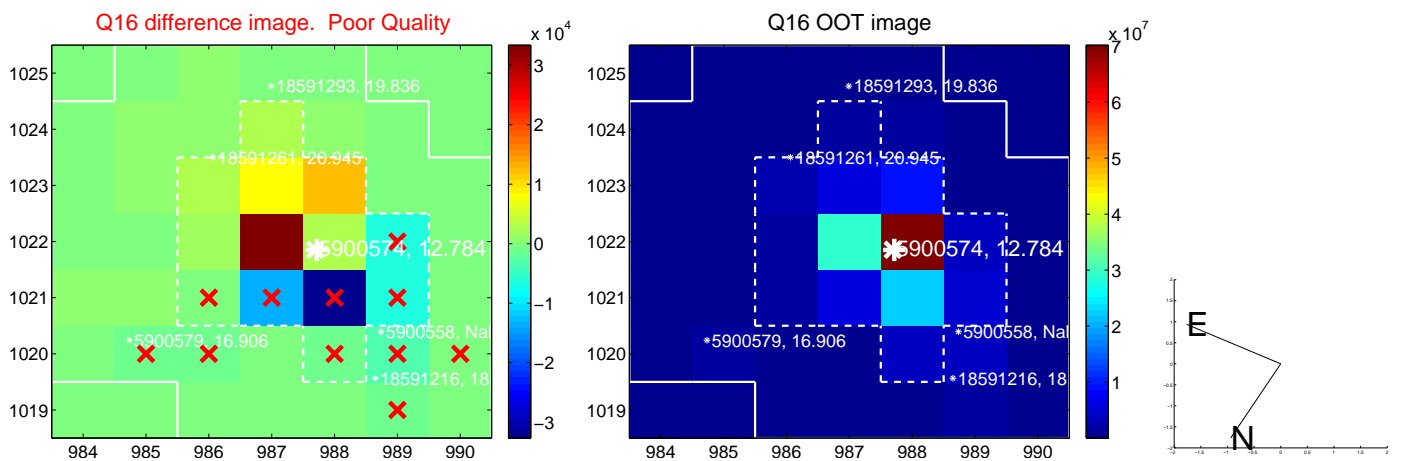
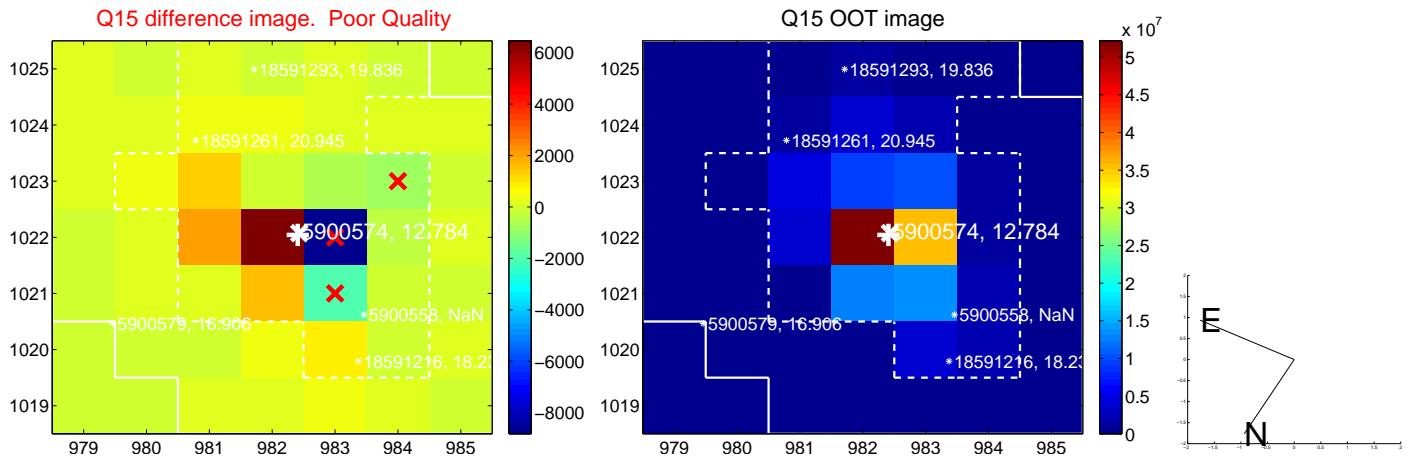
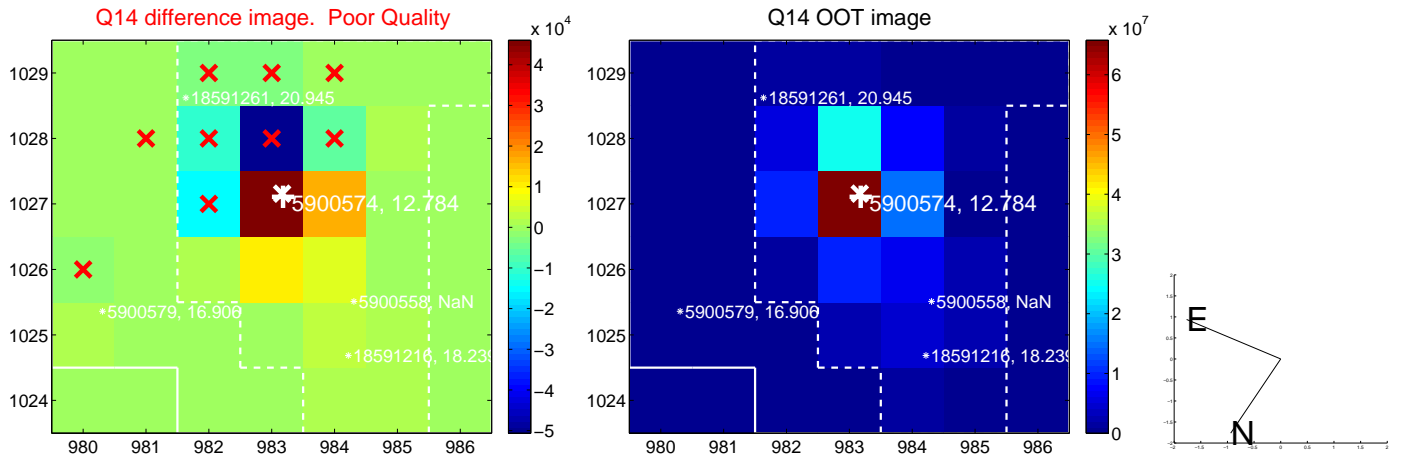
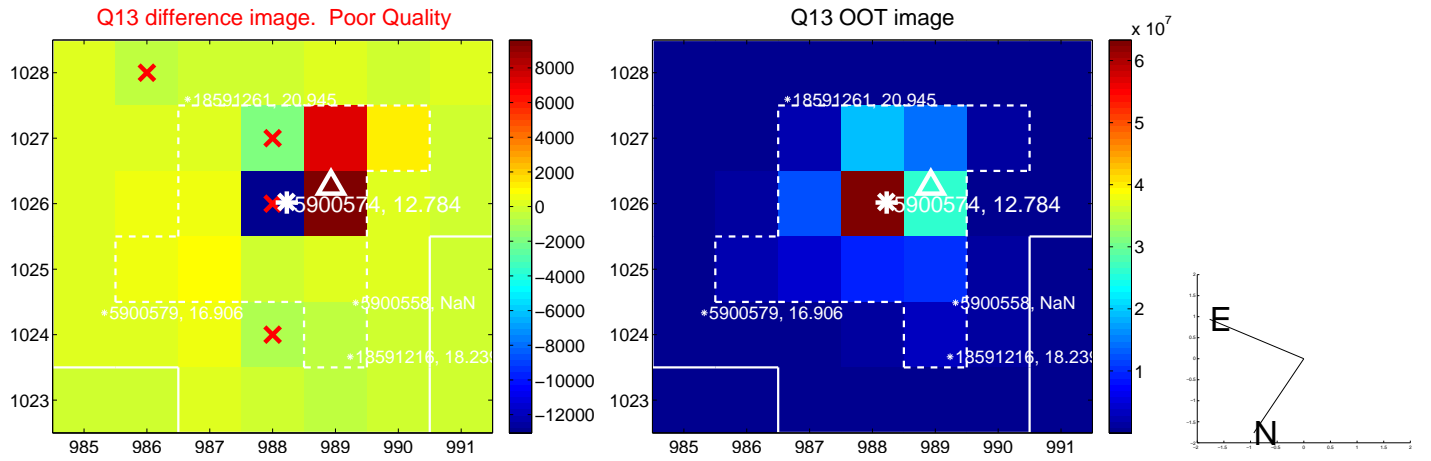
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



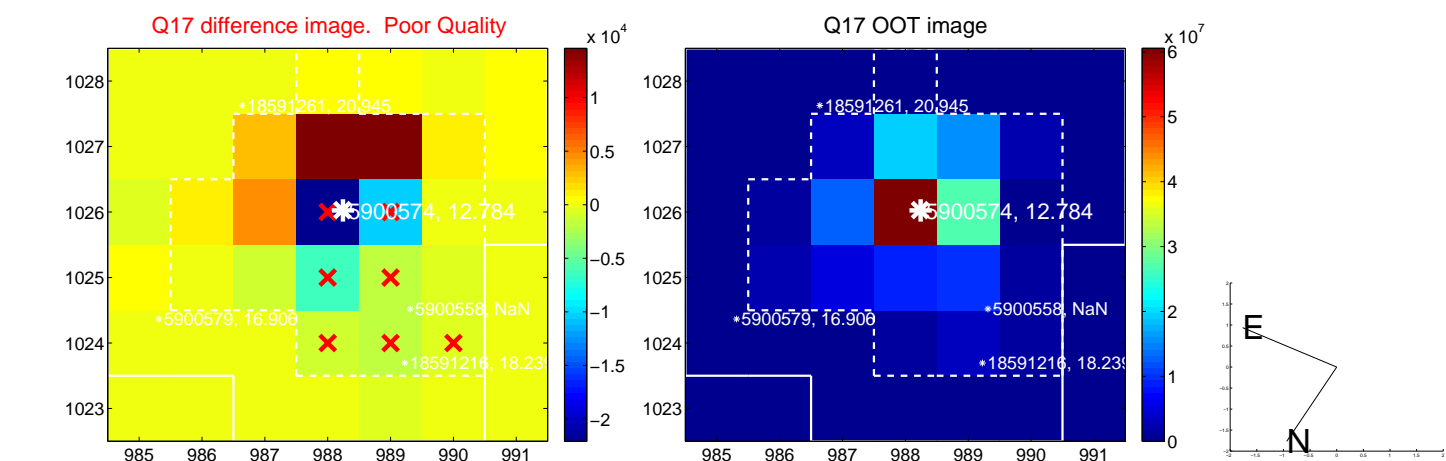
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



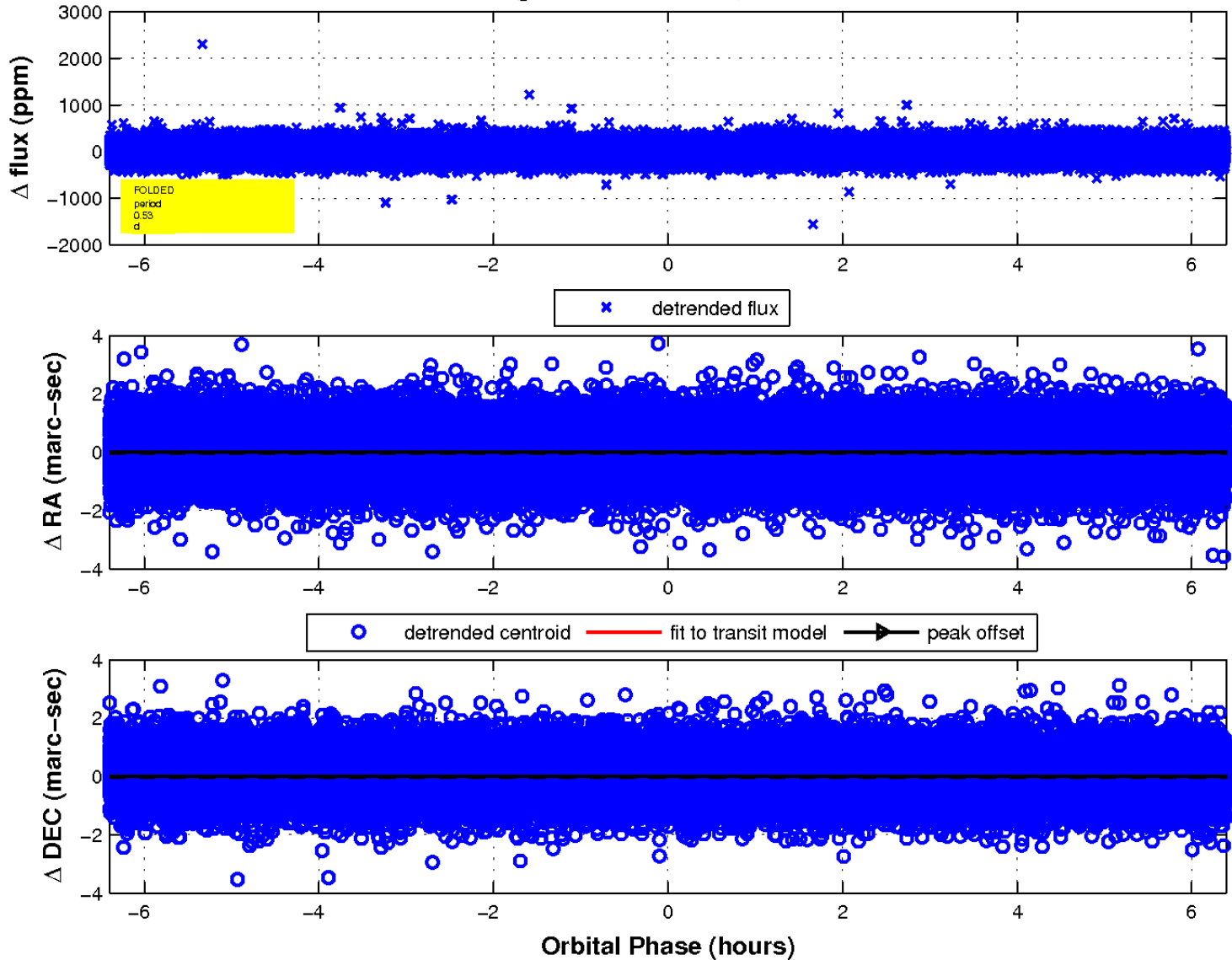
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

