

KIC 005531657

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})
005531657-01	OBS	No	2.397469	133.249572	20.2	11.564	7.6	7.4	1.44	6995	0.66	2967.23
005531657-02	OBS	No	331.636679	246.831195	497.9	15.000	20.3	-1.0	1.44	6995	3.25	4.15
005531657-03	OBS	No	320.440294	416.990253	413.8	4.402	13.6	10.0	1.44	6995	3.08	4.34
005531657-04	OBS	No	227.209773	313.755743	211.0	10.687	8.1	6.2	1.44	6995	2.29	6.87
005531657-05	OBS	No	170.823154	245.621808	180.2	6.491	7.9	6.5	1.44	6995	2.17	10.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005531657-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
005531657-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
005531657-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005531657-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
005531657-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

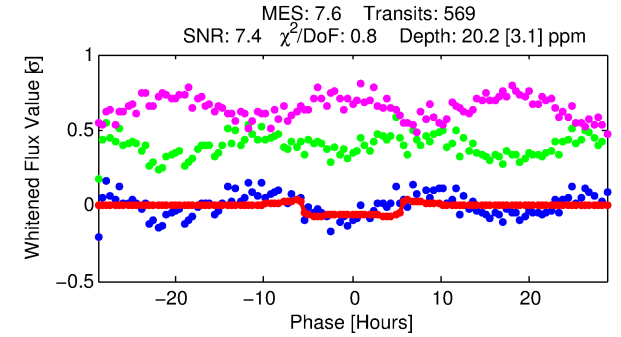
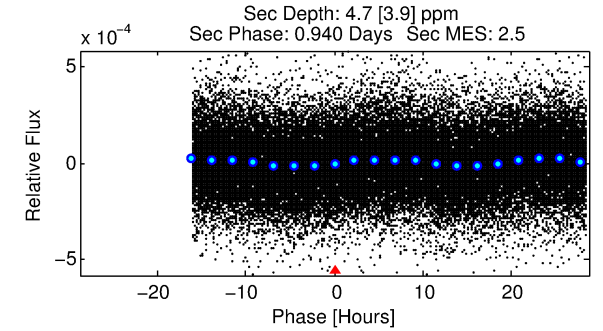
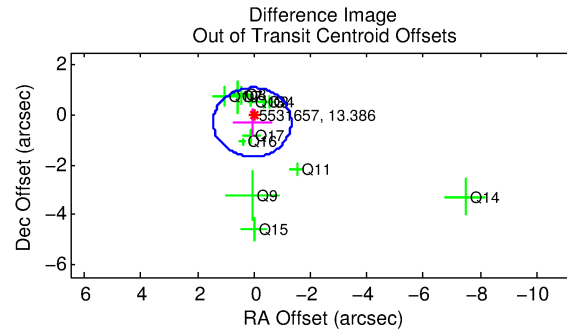
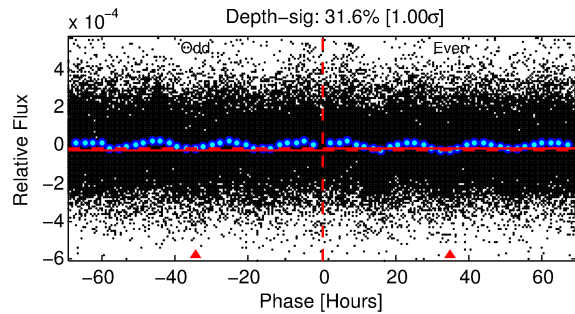
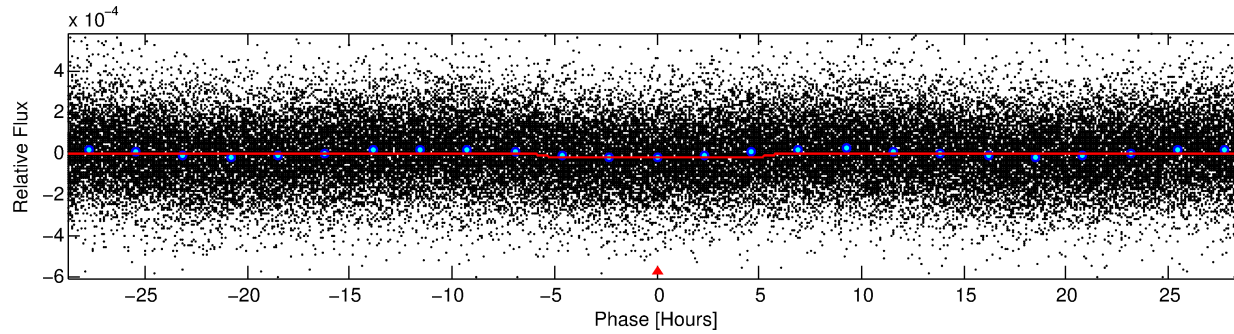
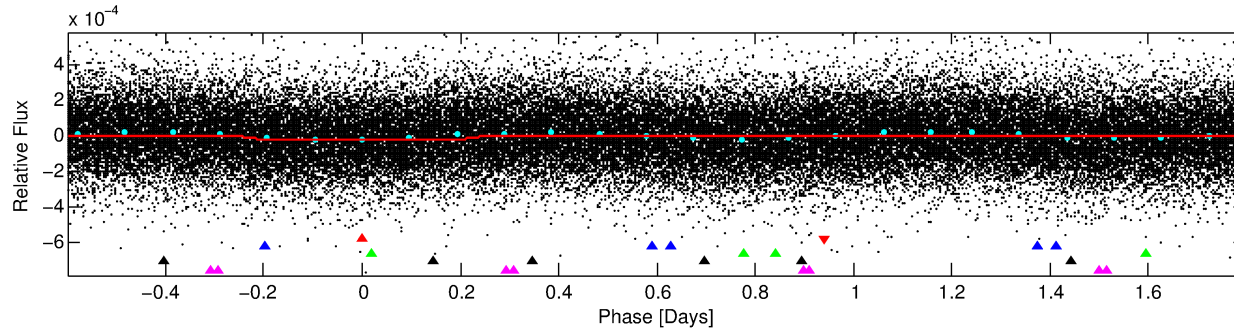
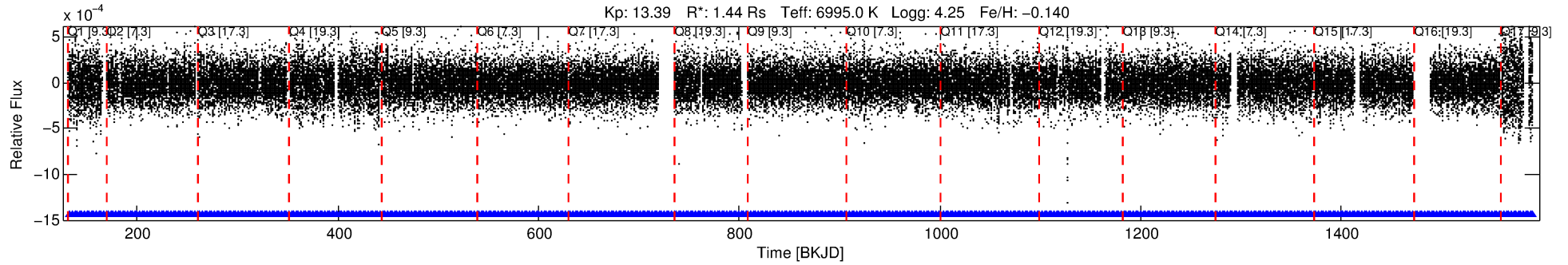
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005531657-01

No Significant Match Found

DV One-Page Summary

KIC: 5531657 Candidate: 1 of 5 Period: 2.397 d



DV Fit Results:

Period = 2.39747 [0.00003] d
Epoch = 133.2496 [0.0076] BKJD
Rp/R* = 0.0042 [0.0039]
a/R* = 1.68 [5.83]
b = 0.18 [28.42]
Seff = 2967.23 [904.58]
Teq = 1882 [143] K
Rp = 0.66 [0.63] Re
a = 0.0388 [0.0070] AU
Ag = 8.91 [18.34] [0.43 σ]
Teffp = 5027 [2574] K [1.22 σ]

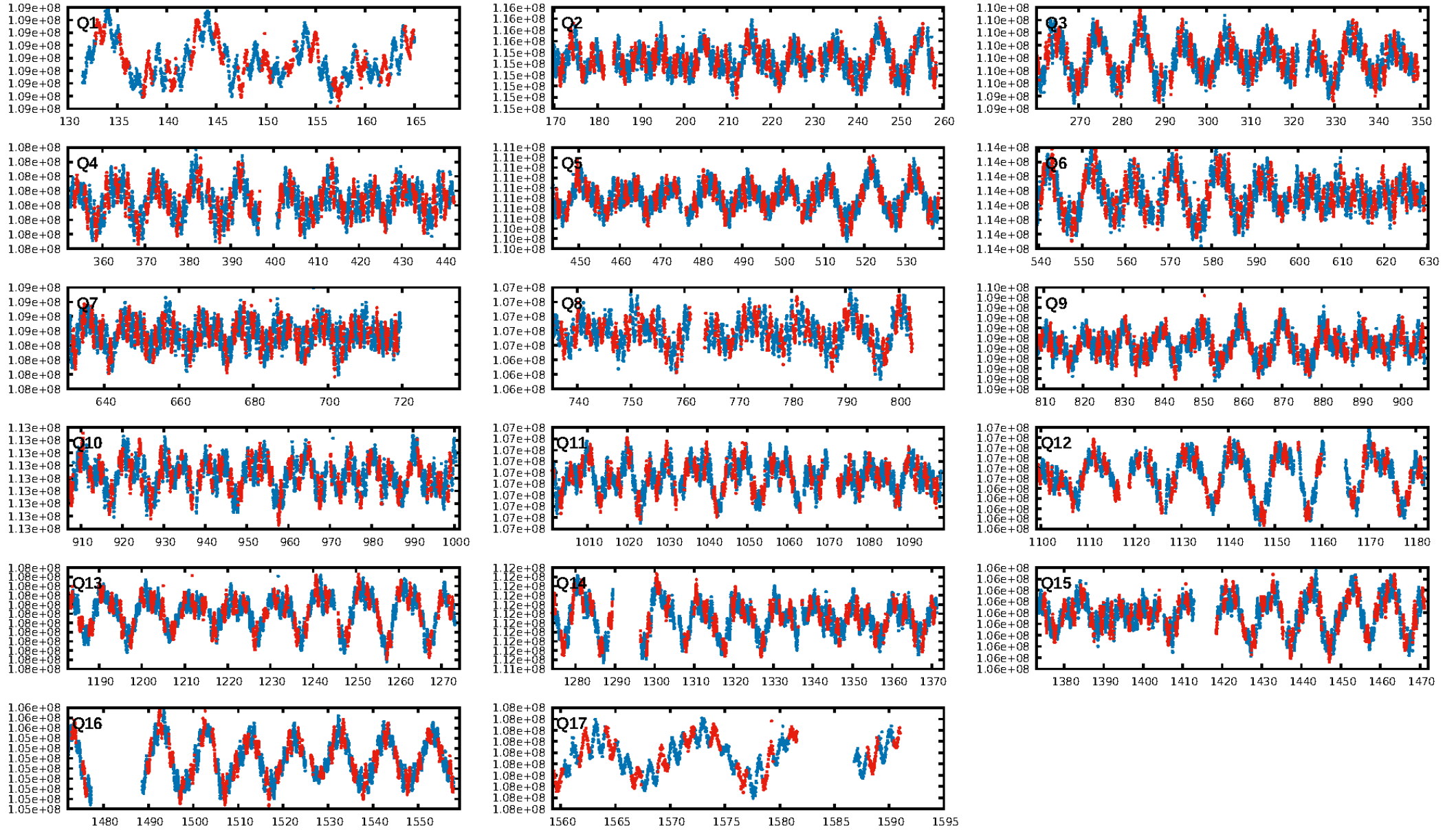
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [304.82 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.63e-10
RollingBand-fgt: 1.00 [543/543]
GhostDiagnostic-chr: 1.503
Centroid-sig: 27.3%
Centroid-so: 0.629 arcsec [0.75 σ]
OotOffset-rm: 0.307 arcsec [0.67 σ]
OotOffset-st: 2/4/3/3 [12]
KicOffset-rm: 0.313 arcsec [0.64 σ]
KicOffset-st: 2/4/3/3 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 1.00 [17/17]

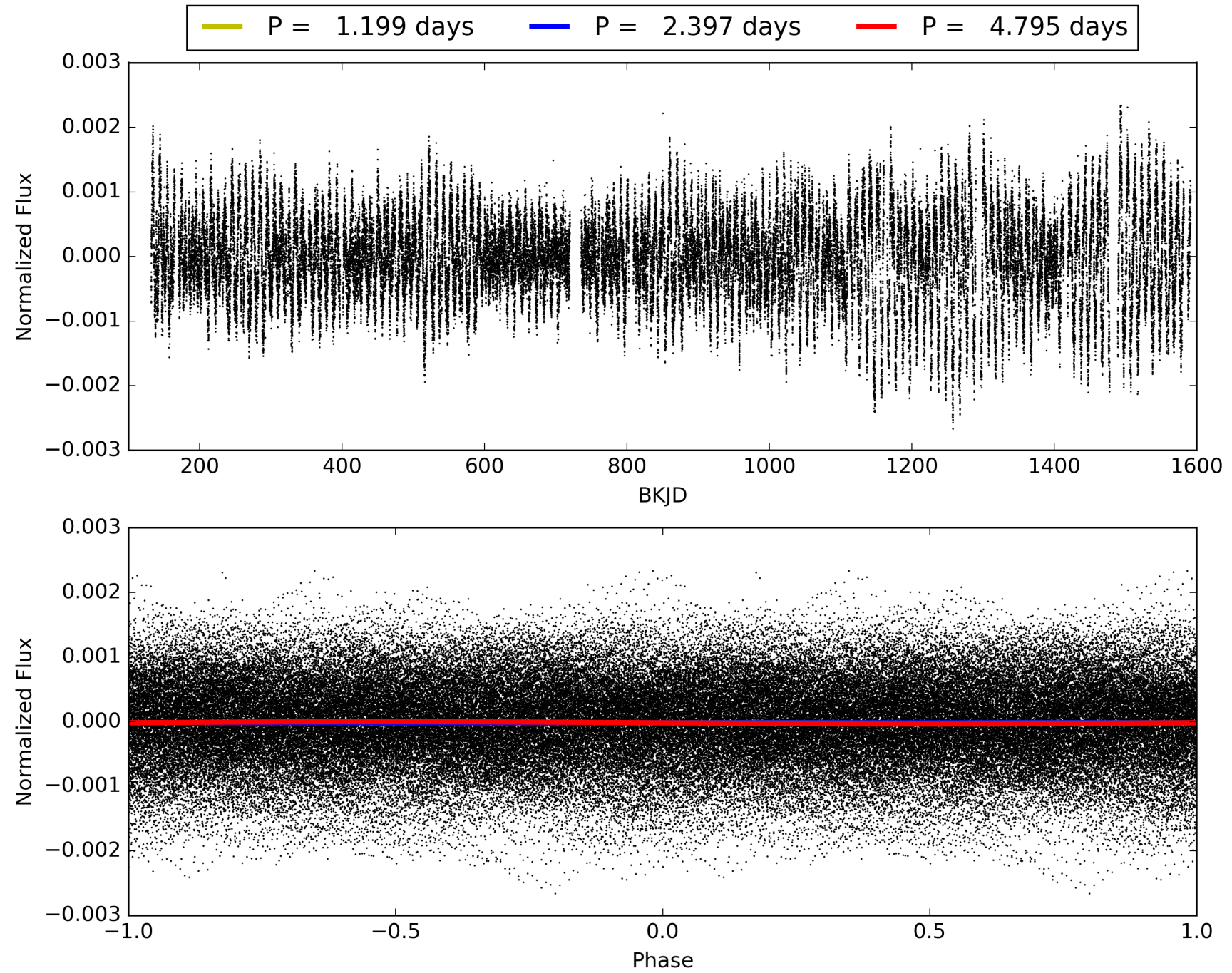
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:36:32 Z

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

TCE 005531657-01, PDC Light Curves

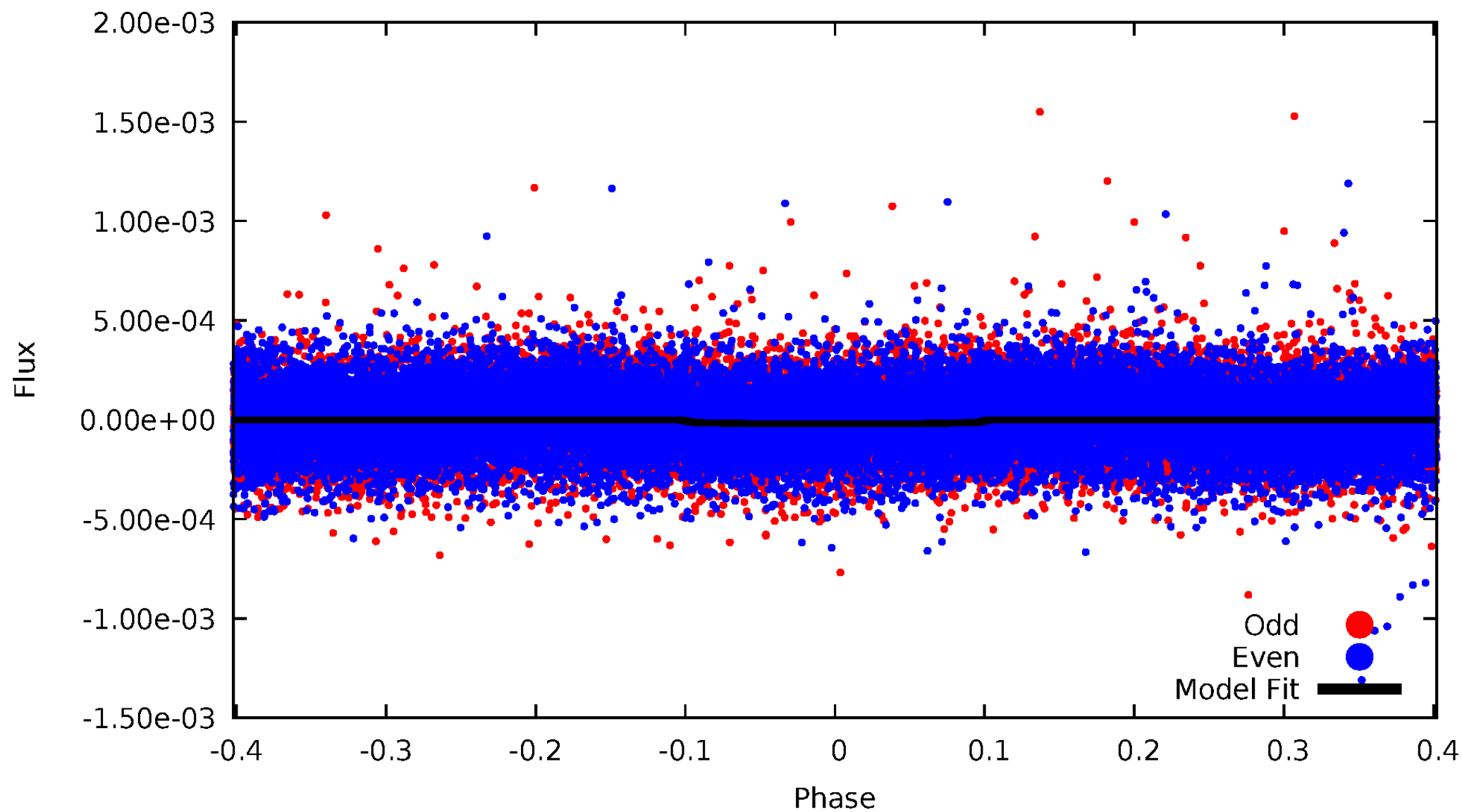


TCE 005531657-01



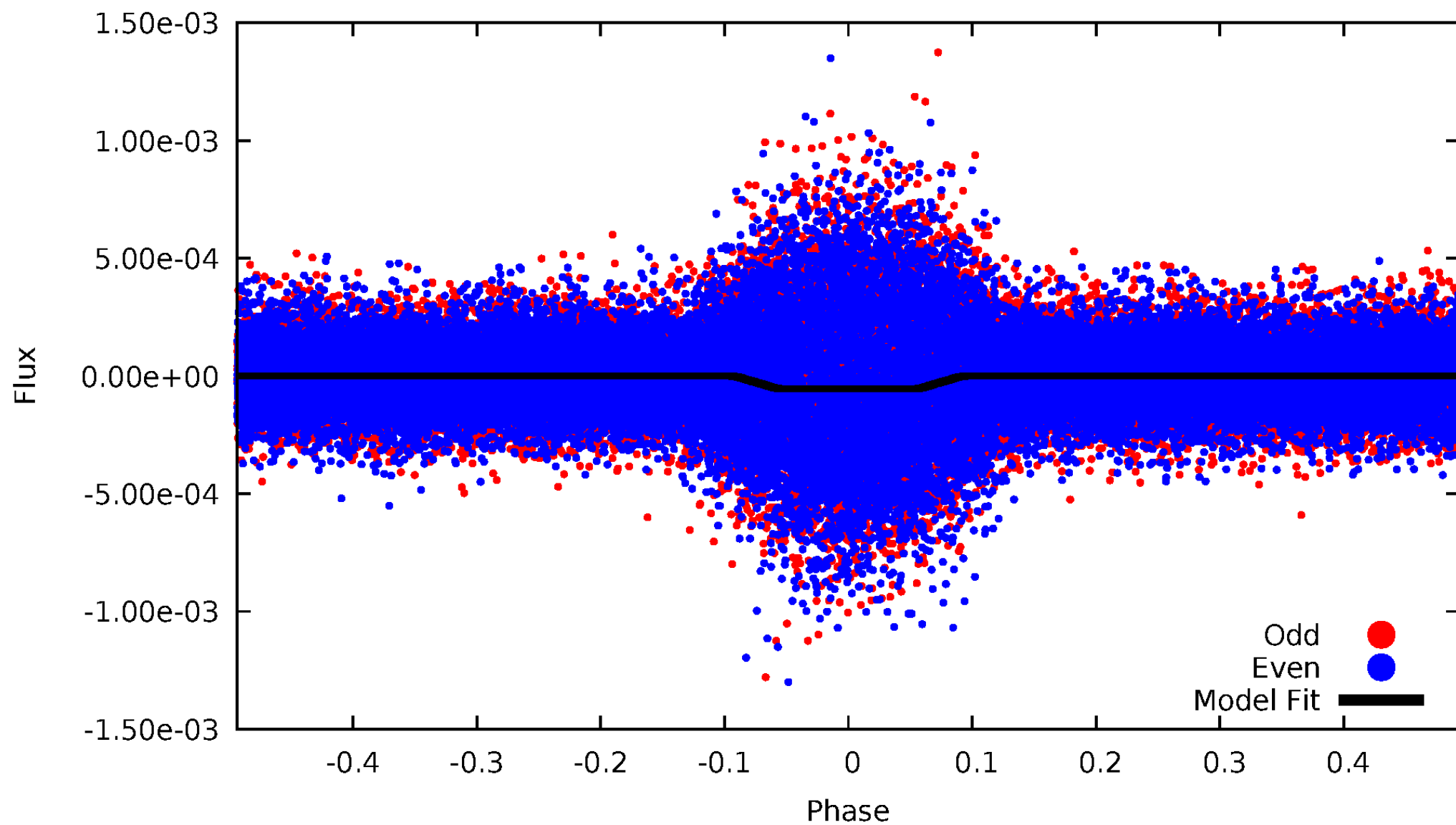
DV Odd/Even

TCE 005531657-01

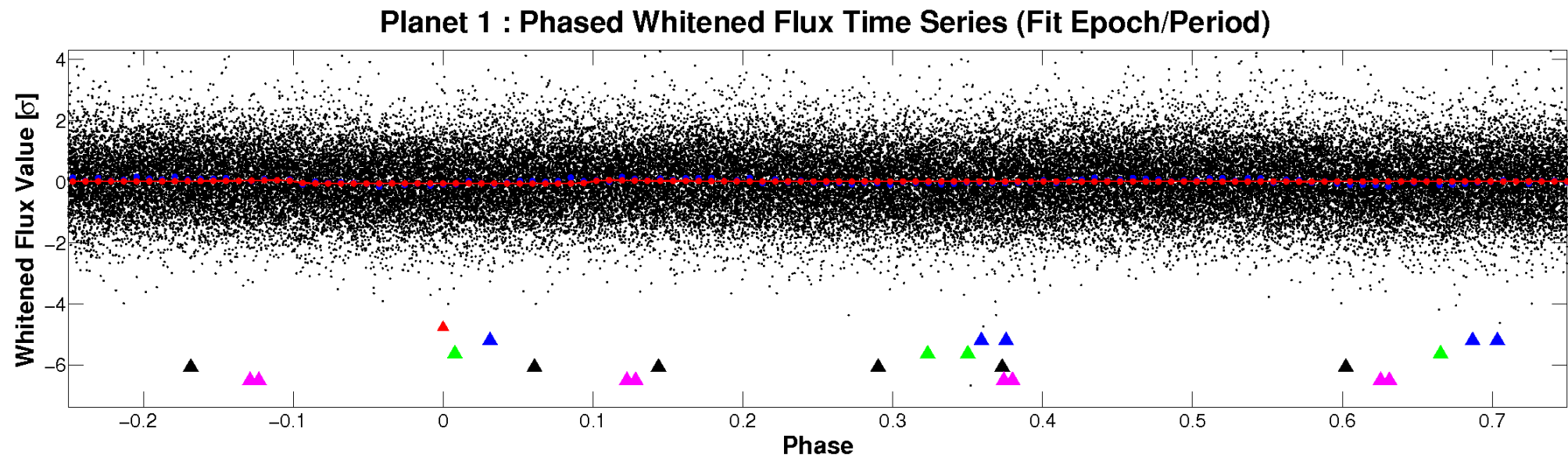
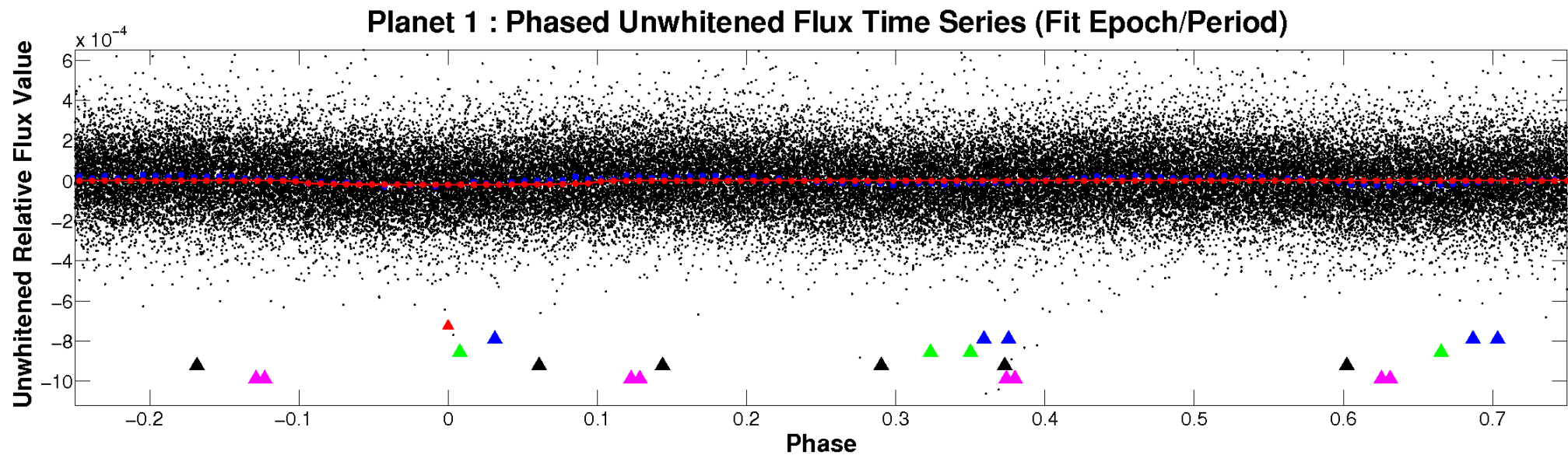


ALT Odd/Even

TCE 005531657-01

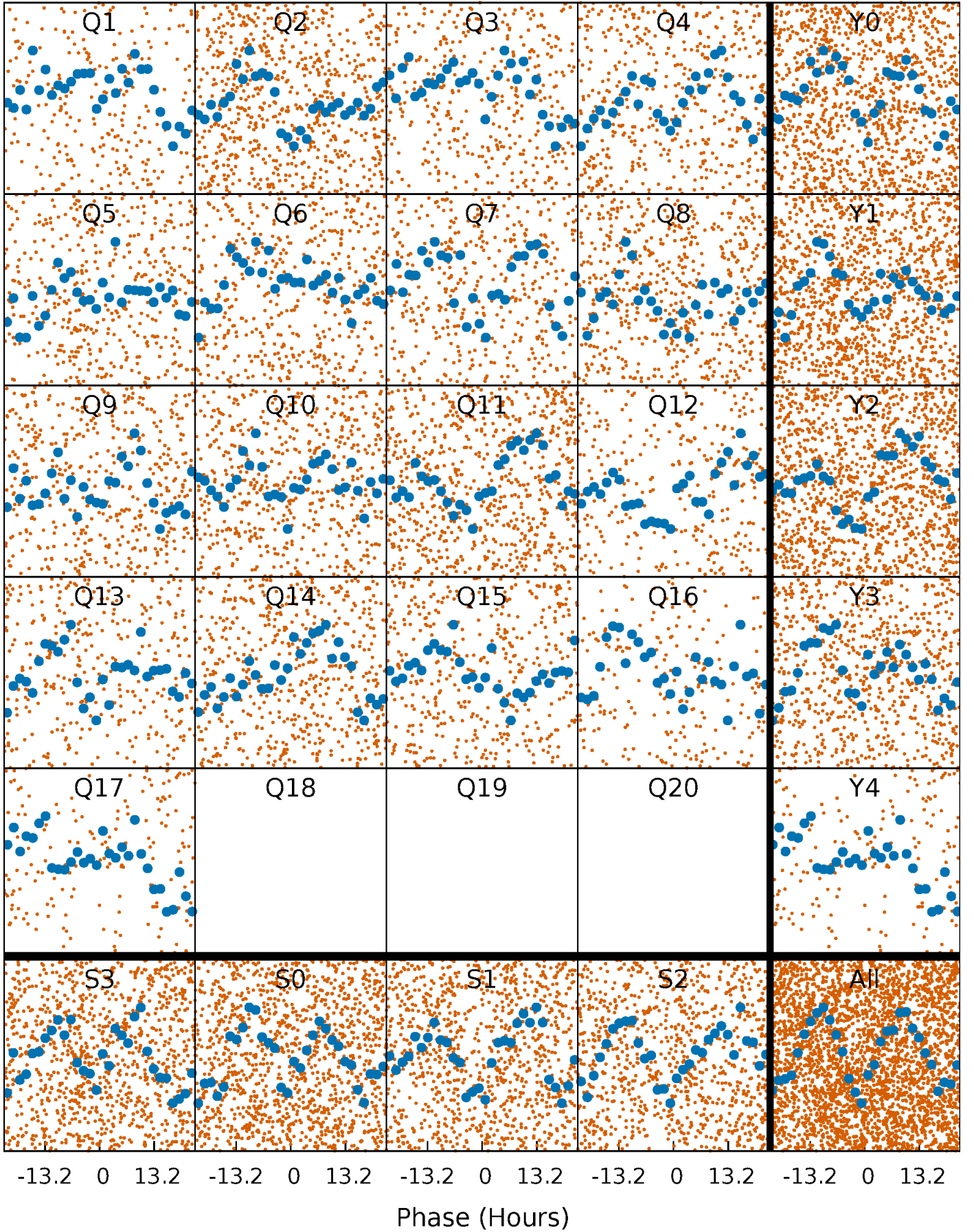


Non-Whitened Vs. Whitened Light Curve



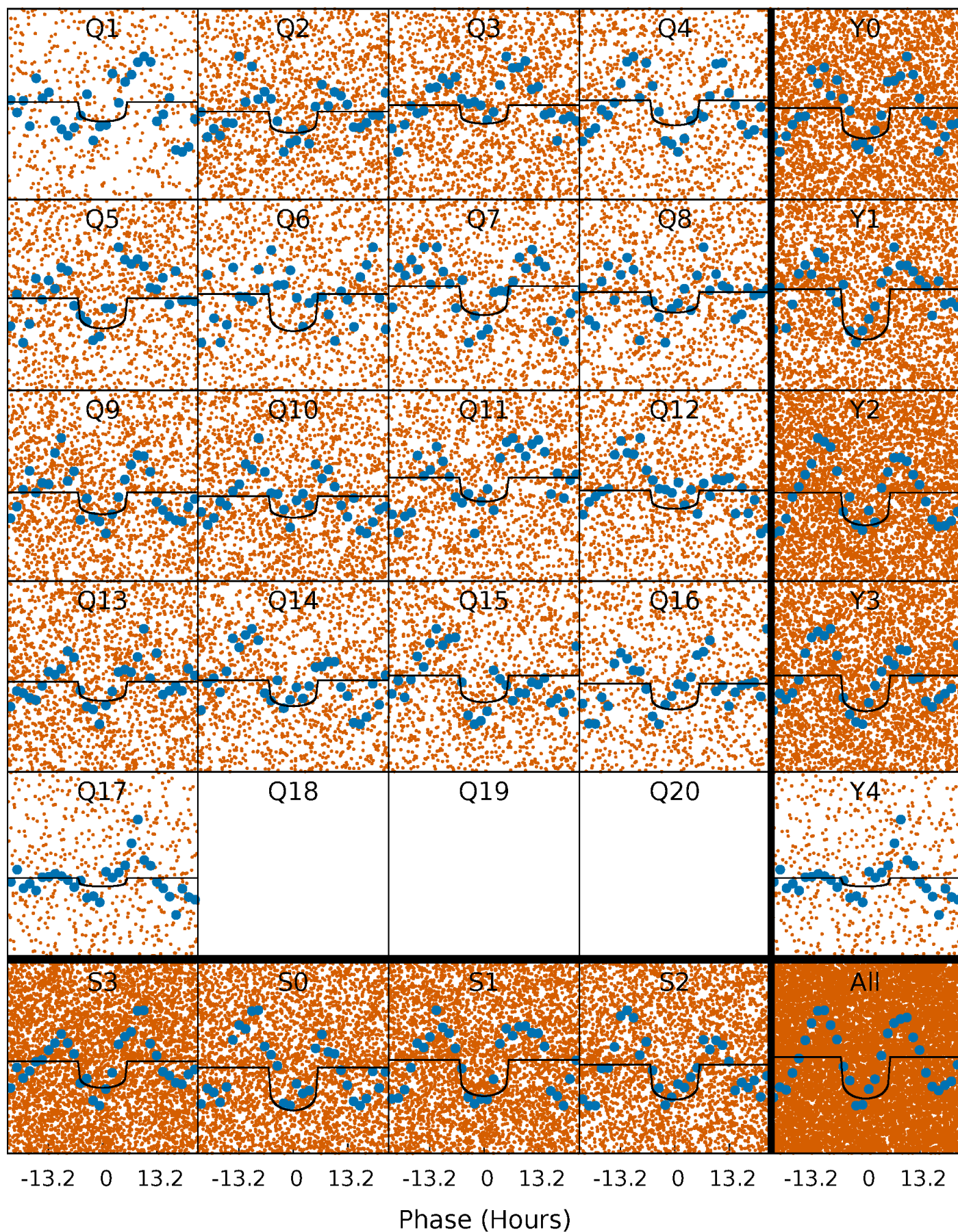
PDC Quarter-Phased Transit Curves

TCE 005531657-01 P= 2.397469 Days $T_0=133.249572$ (BKJD)



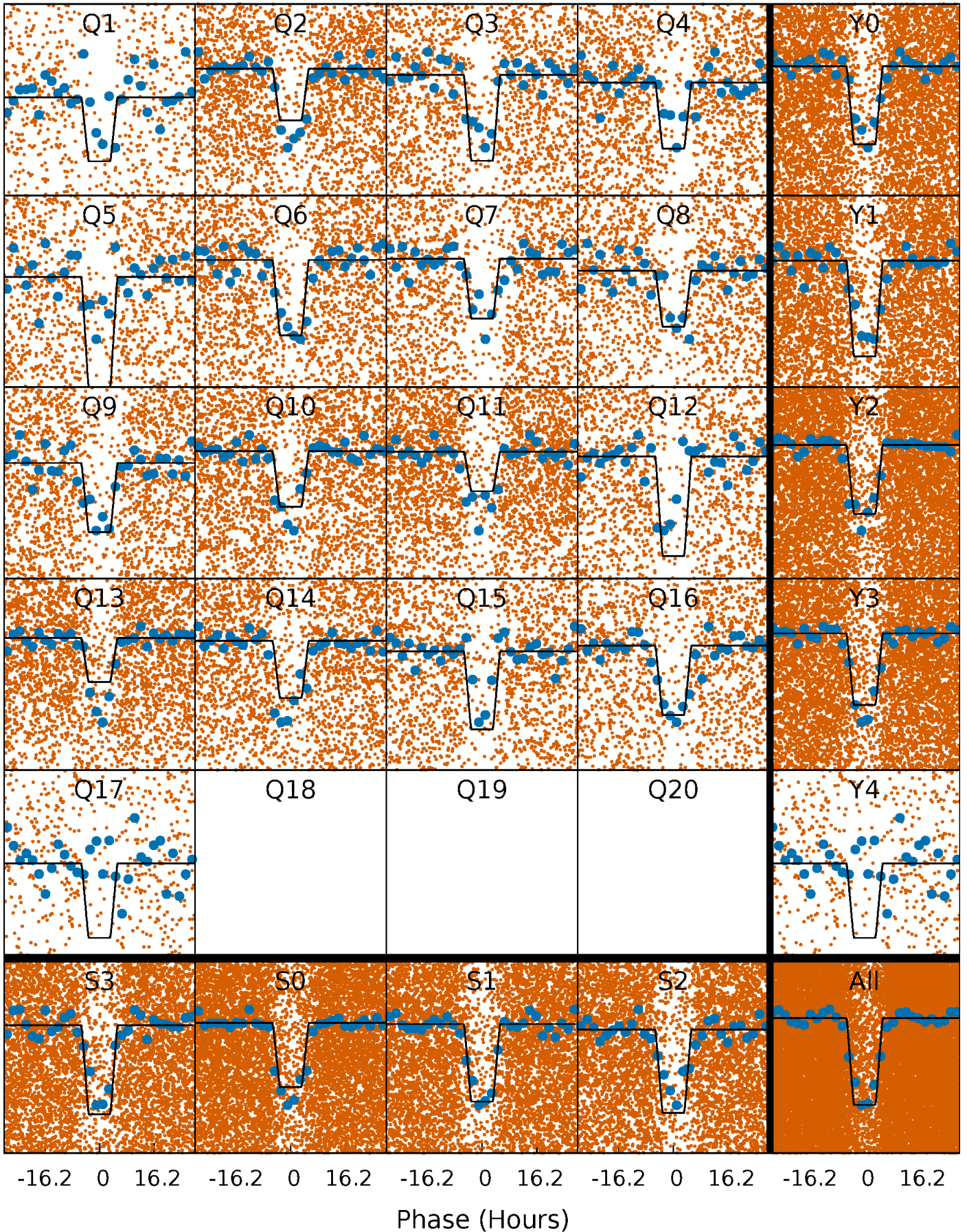
DV Quarter-Phased Transit Curves

TCE 005531657-01 P= 2.397469 Days $T_0=133.249572$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

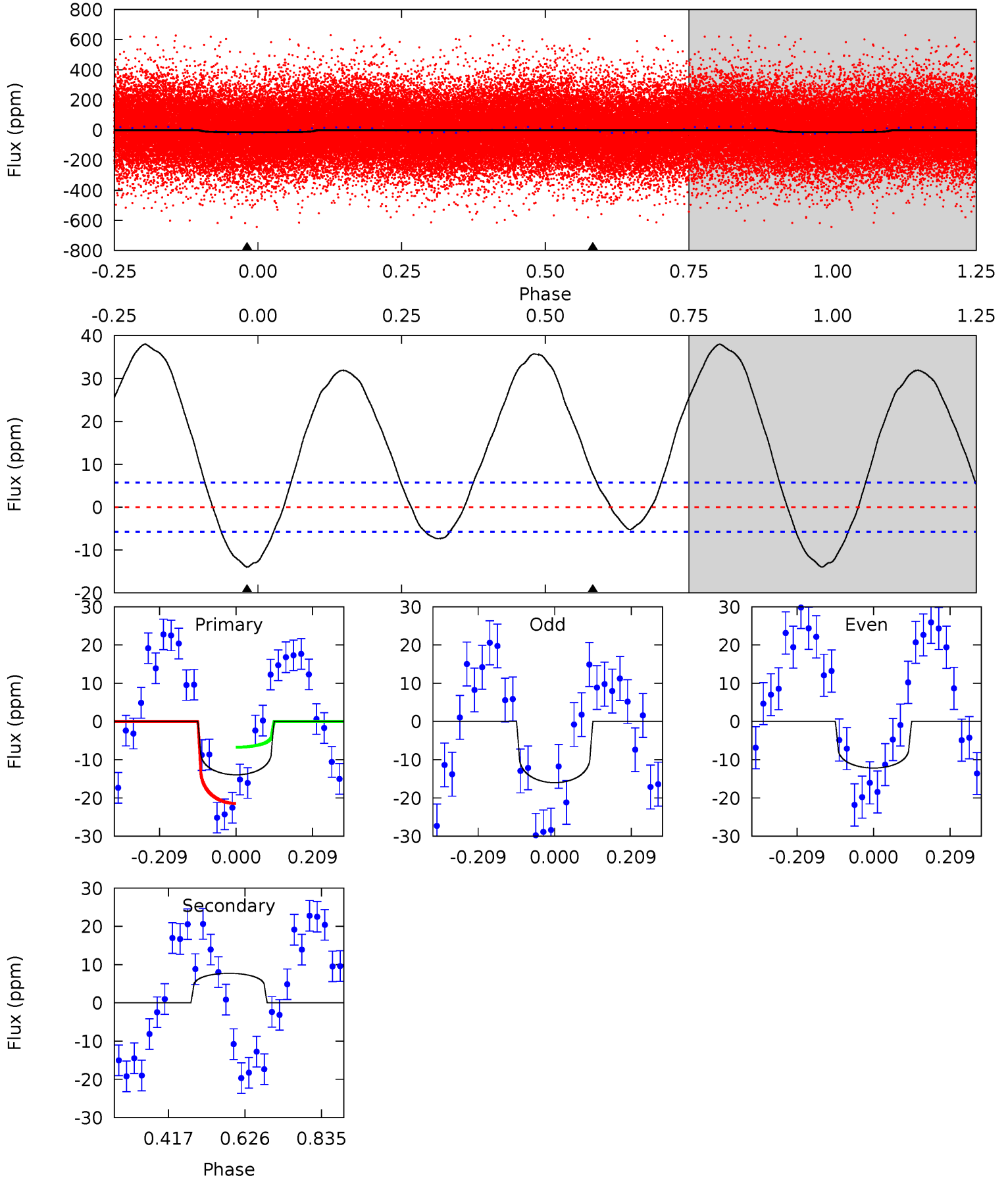
TCE 005531657-01 P= 2.397301 Days $T_0=133.242809$ (BKJD)



DV Model-Shift Uniqueness Test

005531657-01, P = 2.397469 Days, E = 130.852103 Days

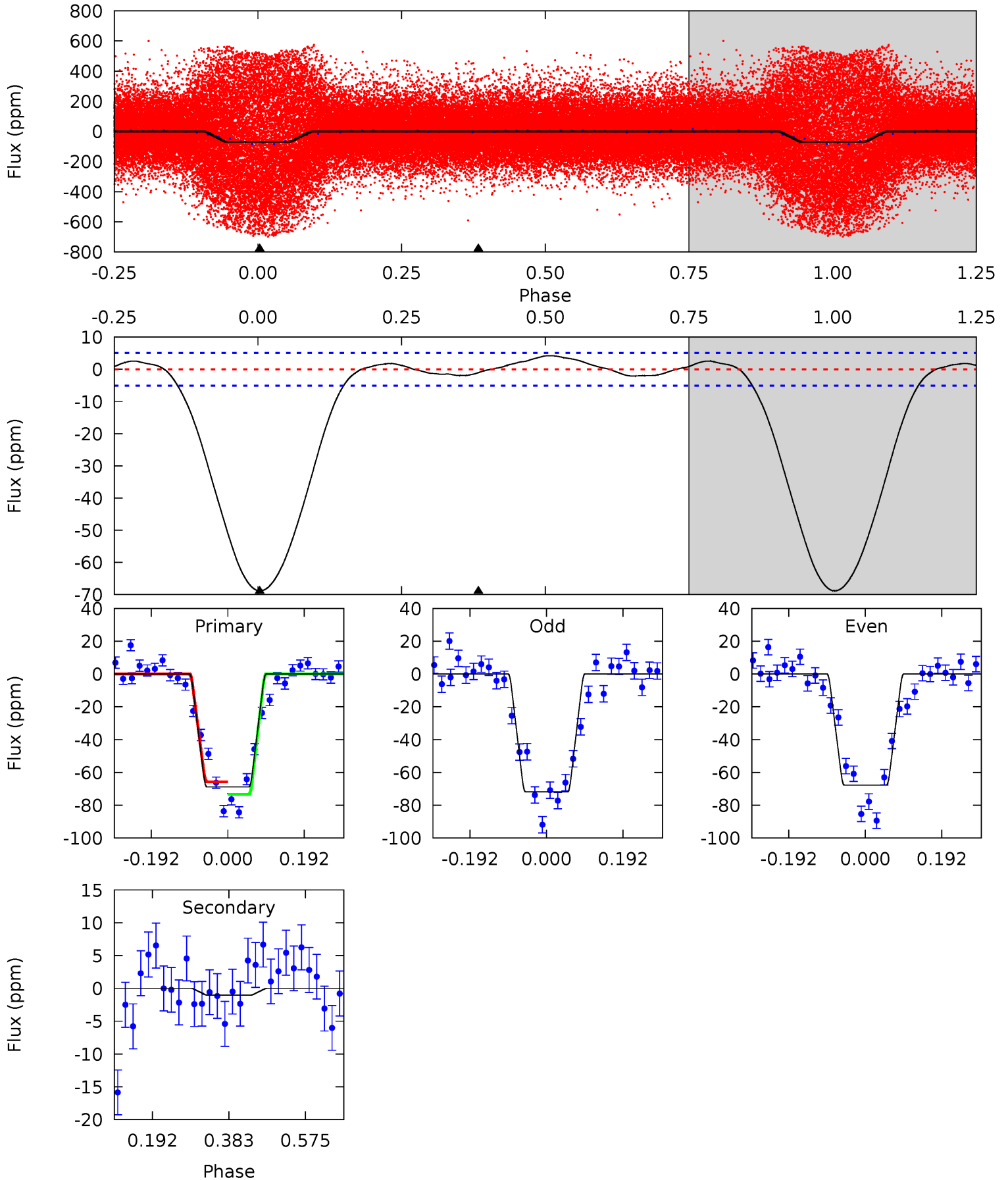
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	-5.97	0	0	4.41	1.26	7.75	10.8	10.8	-5.97	-5.97	1.48	0.71	0.73	5.67



Alt Model-Shift Uniqueness Test

005531657-01, P = 2.397301 Days, E = 130.845508 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
59.9	0.91	0	0	4.43	1.31	1.37	59.9	59.9	0.91	0.91	1.77	0.62	0.06	0



Stellar Parameters For KIC 005531657

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6995^{+192}_{-288}	$4.251^{+0.092}_{-0.138}$	$-0.140^{+0.250}_{-0.350}$	$1.442^{+0.313}_{-0.209}$	$1.361^{+0.150}_{-0.206}$	$0.639^{+0.282}_{-0.272}$
	+3%/-4%	+2%/-3%	+179%/-250%	+22%/-14%	+11%/-15%	+44%/-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 005531657-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	8 ± 1	$0.76^{+0.62}_{-0.50}$	2639^{+156}_{-138}	-5430^{+1159}_{-4438}	$-11.324^{+7.940}_{-86.216}$
Alt.	-1 ± 1	$1.17^{+0.62}_{-0.57}$	2643^{+147}_{-141}	2772^{+1189}_{-5725}	$0.528^{+2.310}_{-0.586}$

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 $A_{obs} \gg 1.0$

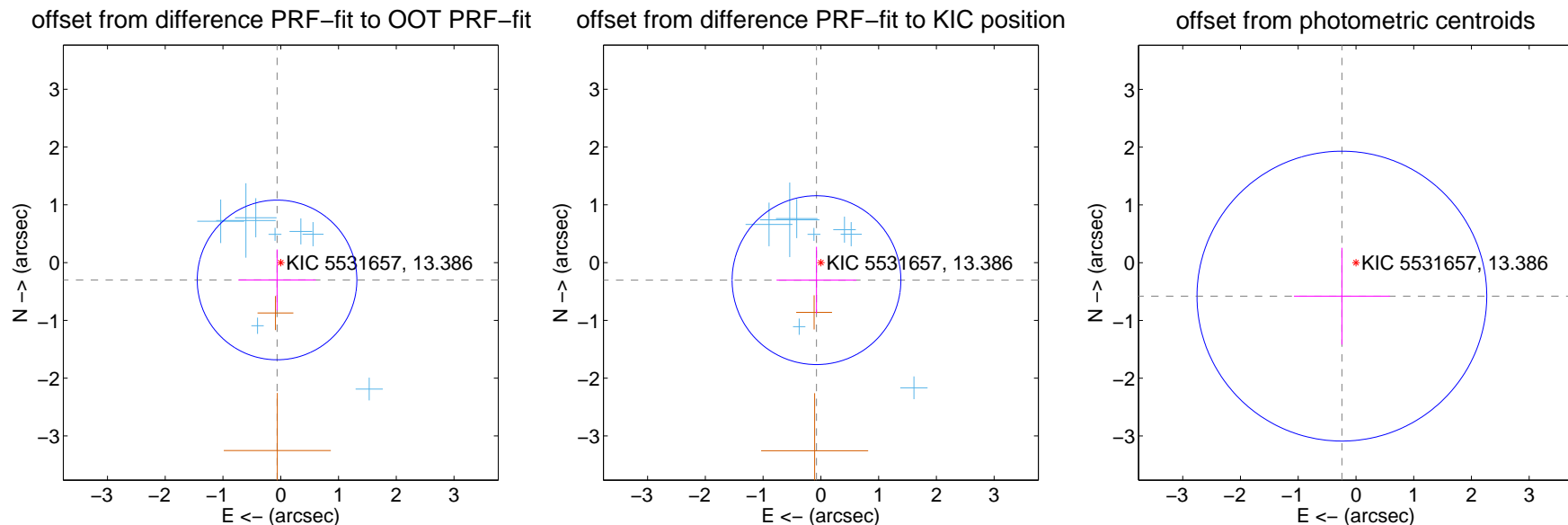
DV Centroid Data

Supplemental centroid analysis for 005531657-01. Kepler magnitude: 13.39. Transit SNR 7.44

There are 8 quarters with good PRF difference image offsets

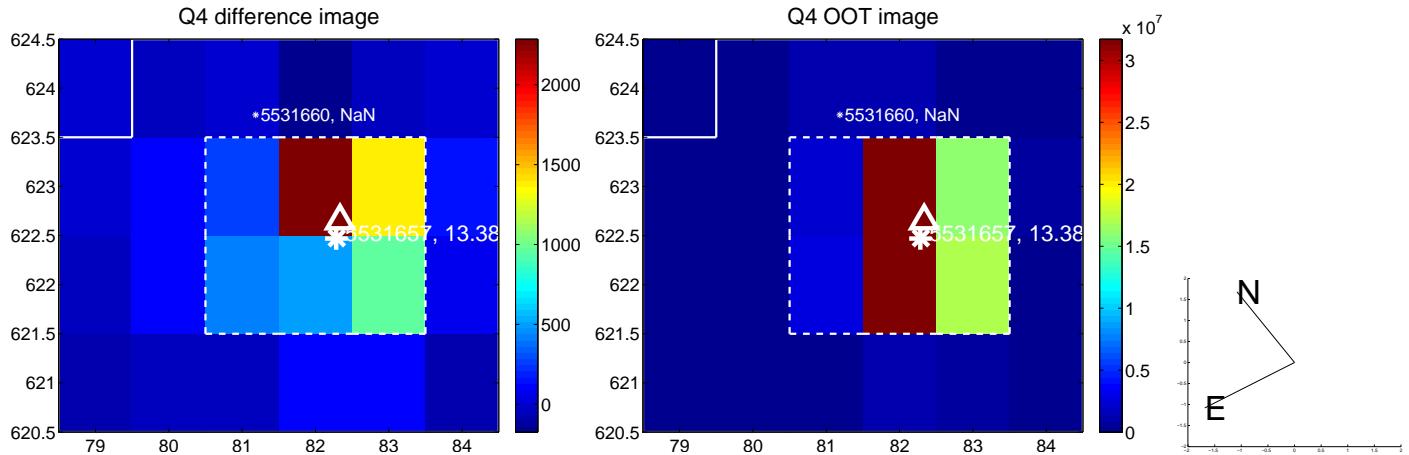
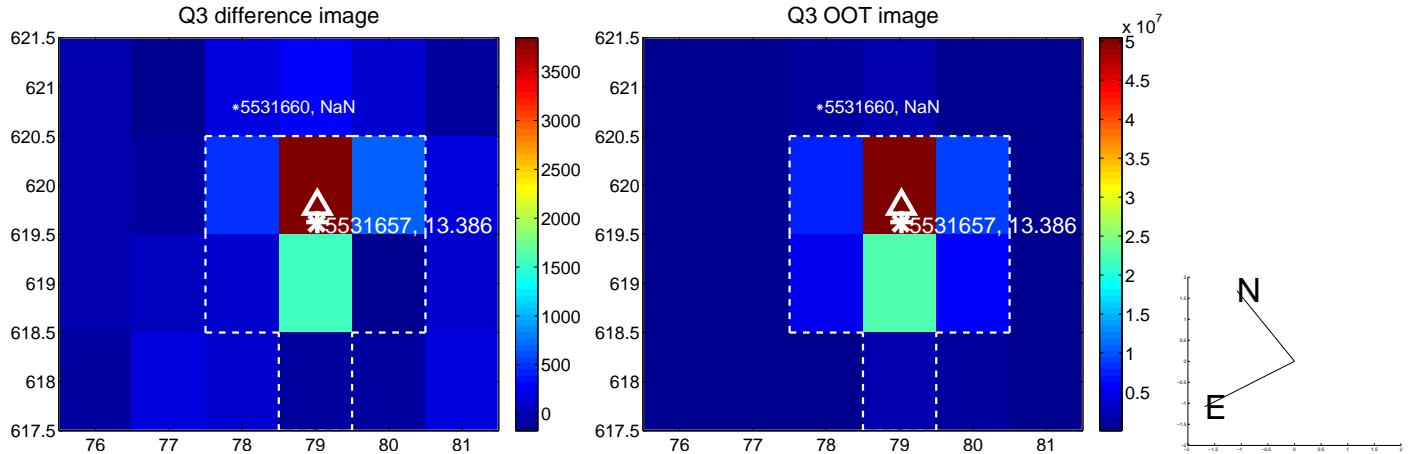
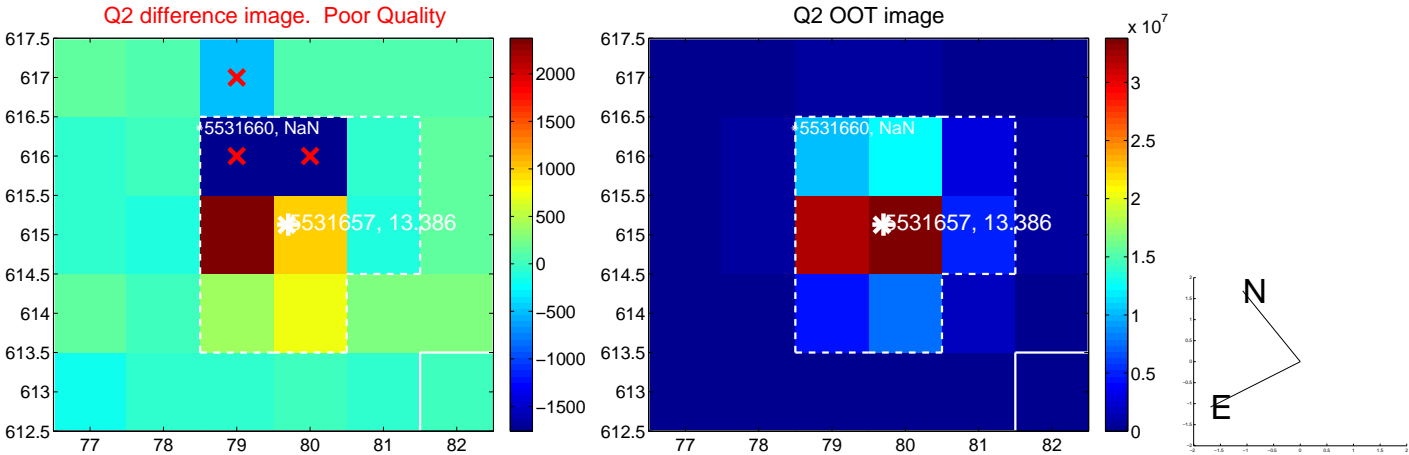
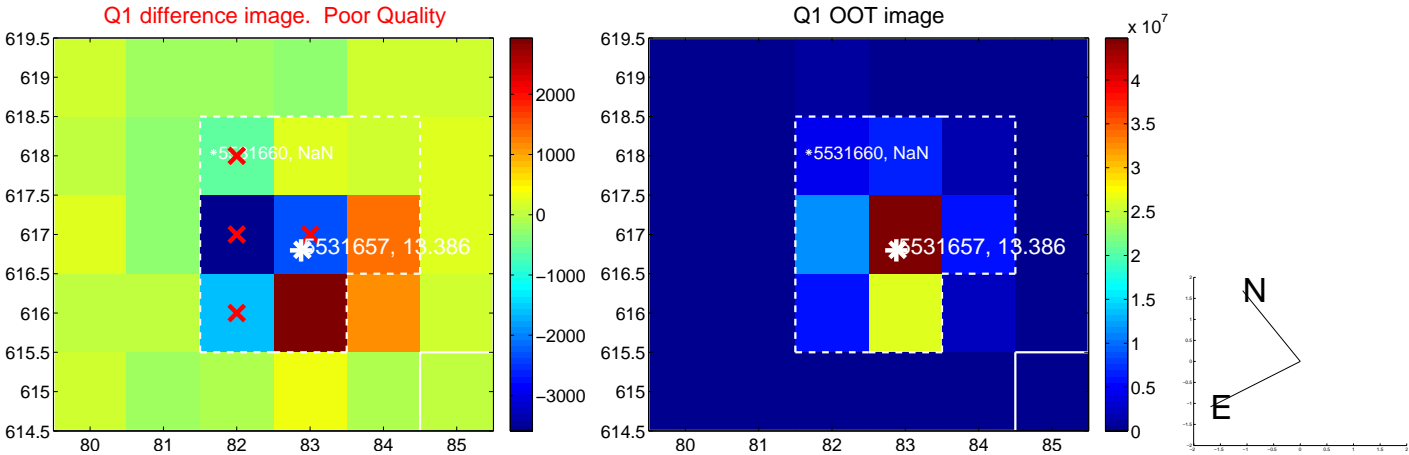
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.307 ± 0.461	0.67	0.064 ± 0.670	-0.300 ± 0.528
PRF-fit source offset from KIC position	0.313 ± 0.487	0.64	0.076 ± 0.691	-0.304 ± 0.578
photometric centroid source offset	0.63 ± 0.84	0.75	0.24 ± 0.83	-0.58 ± 0.84

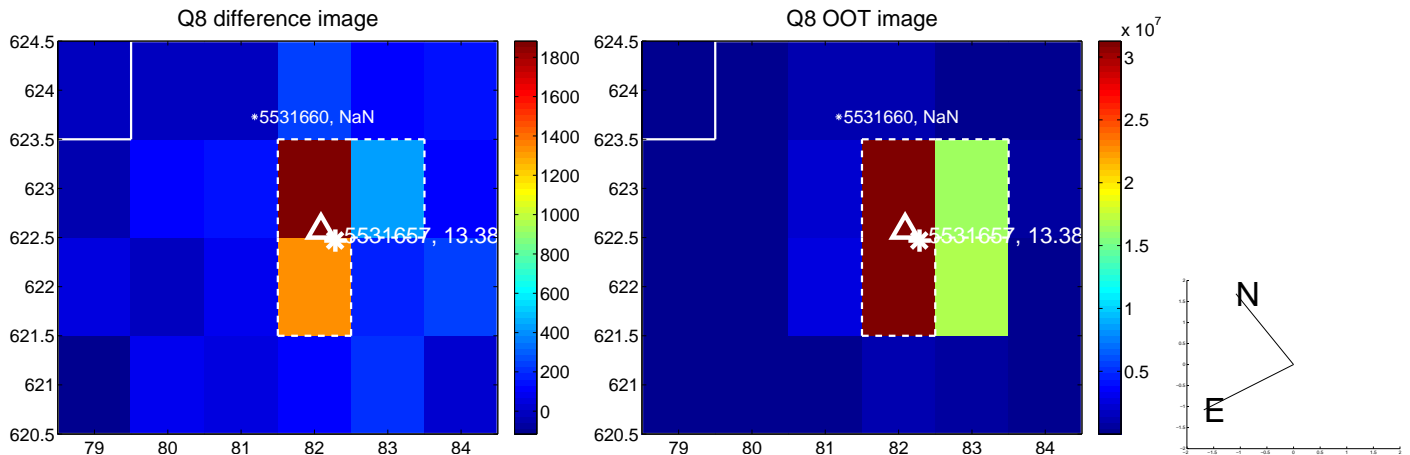
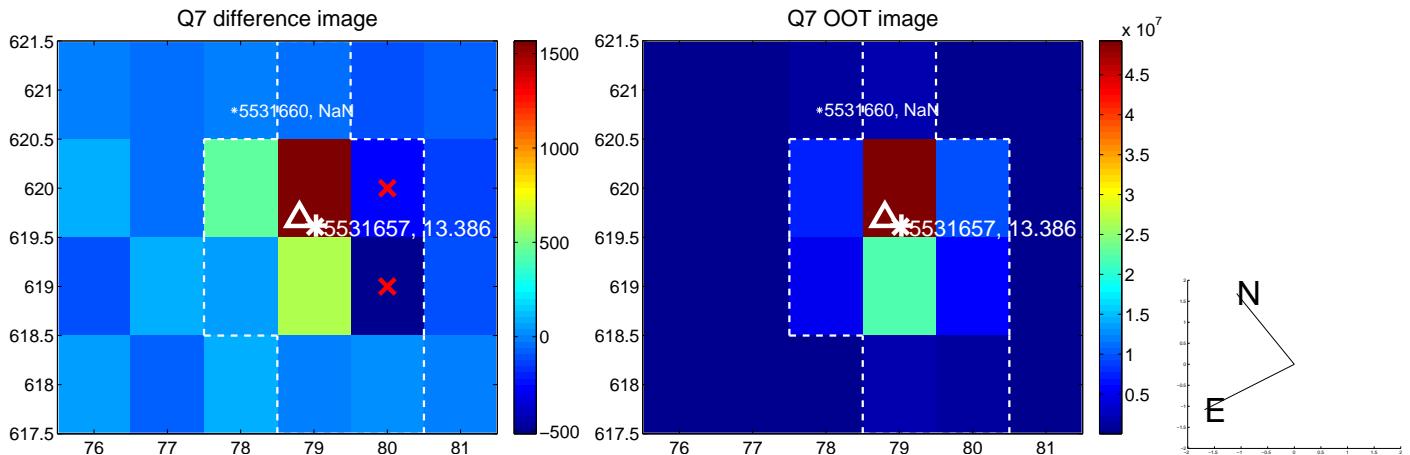
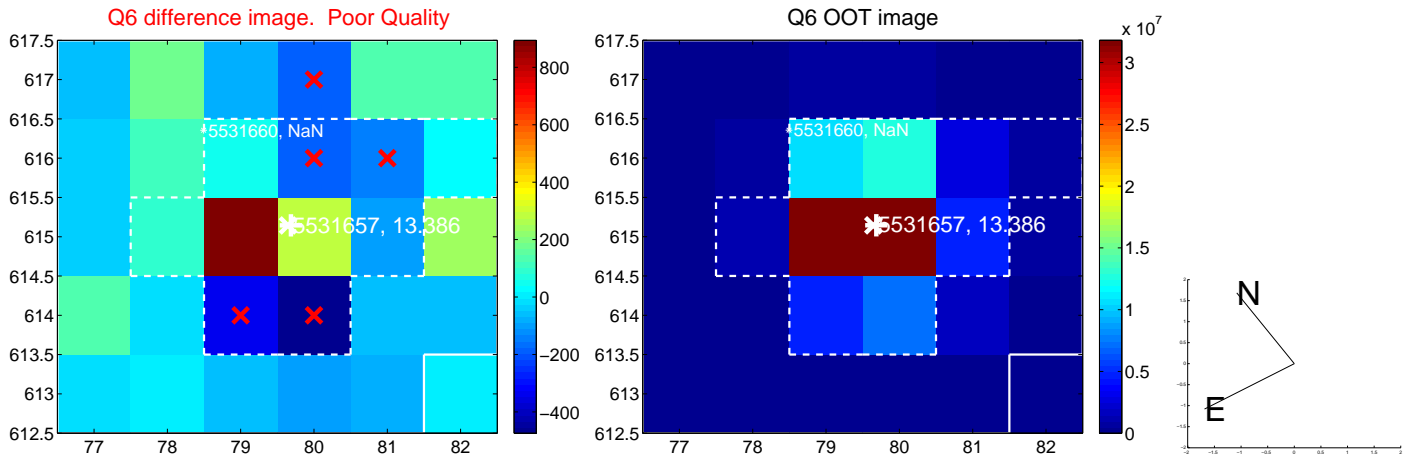
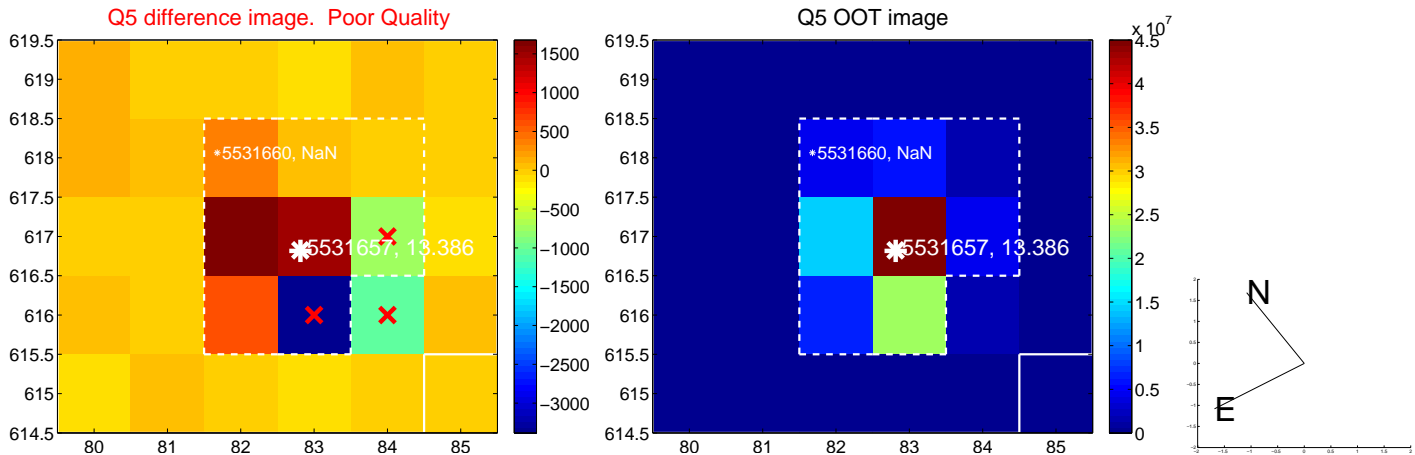


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

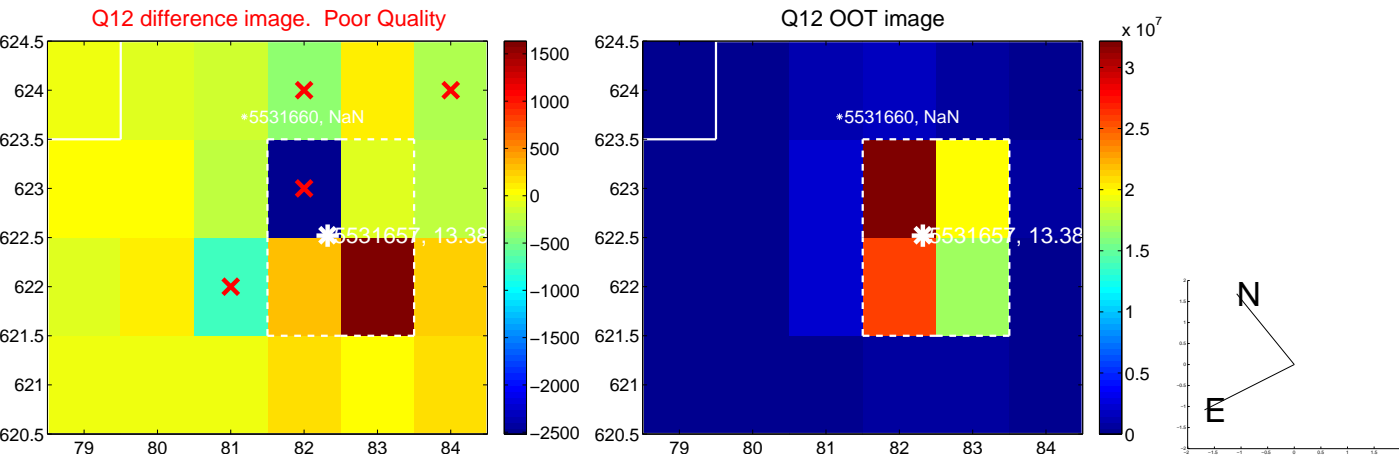
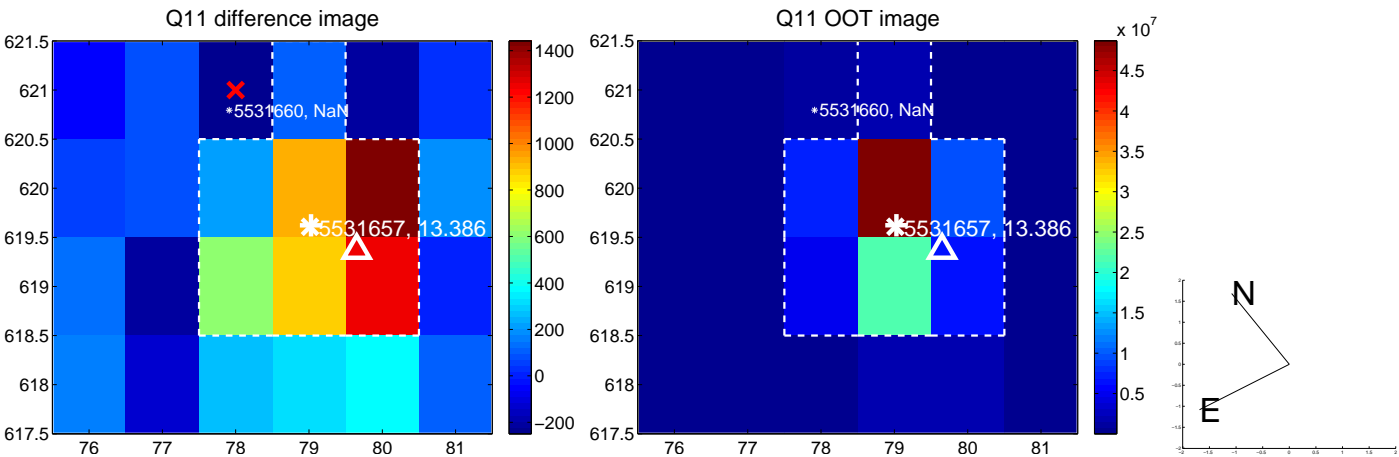
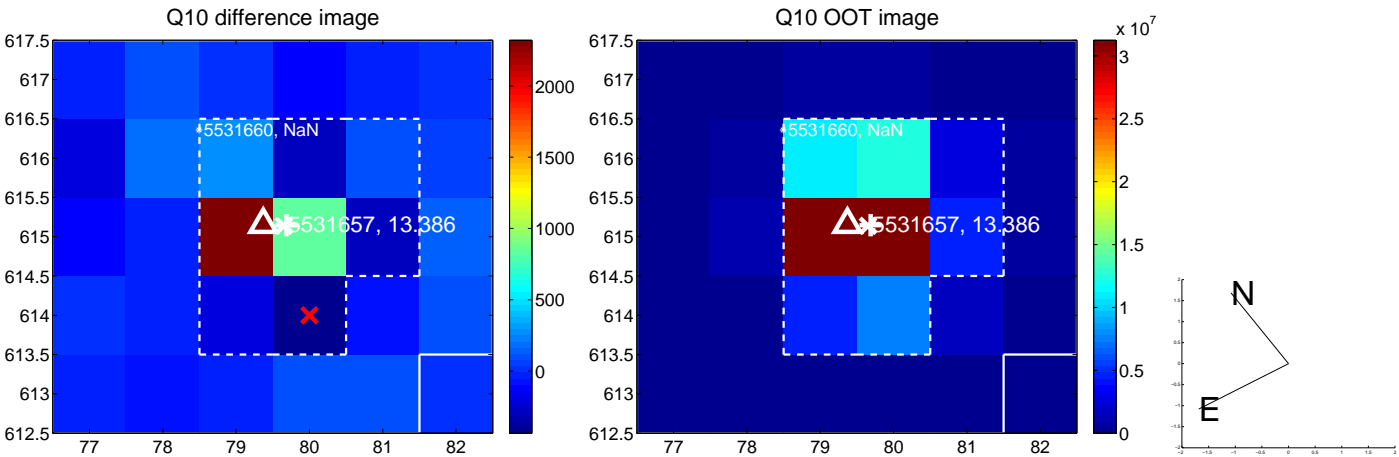
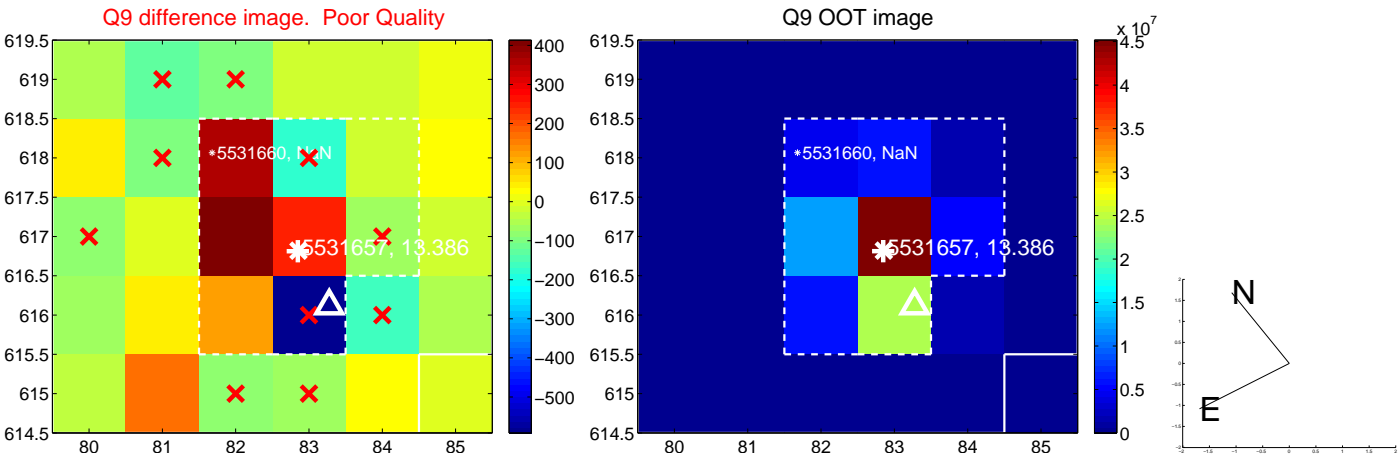
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



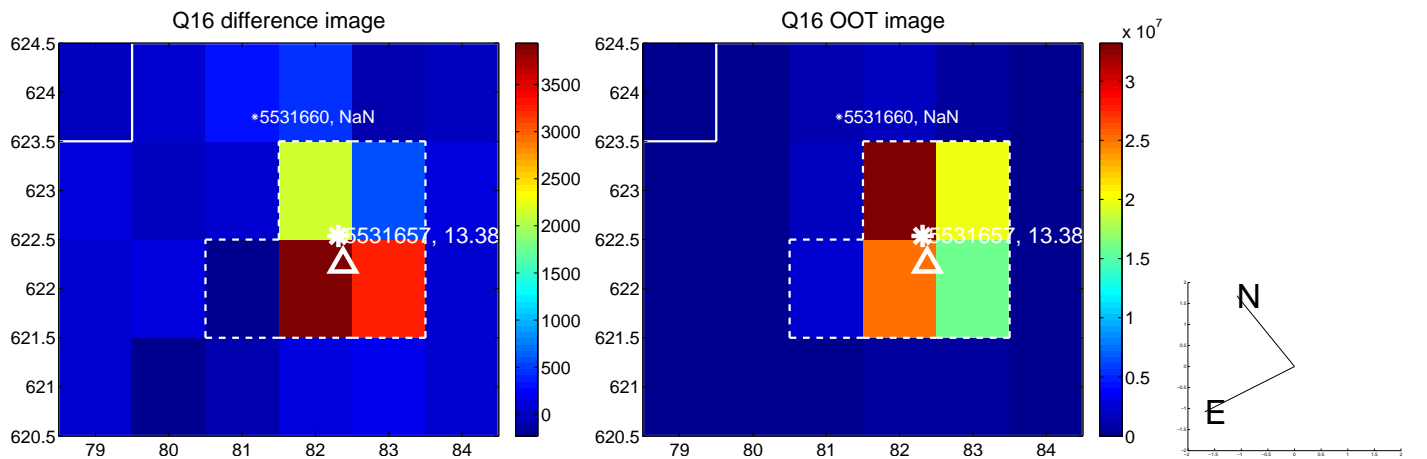
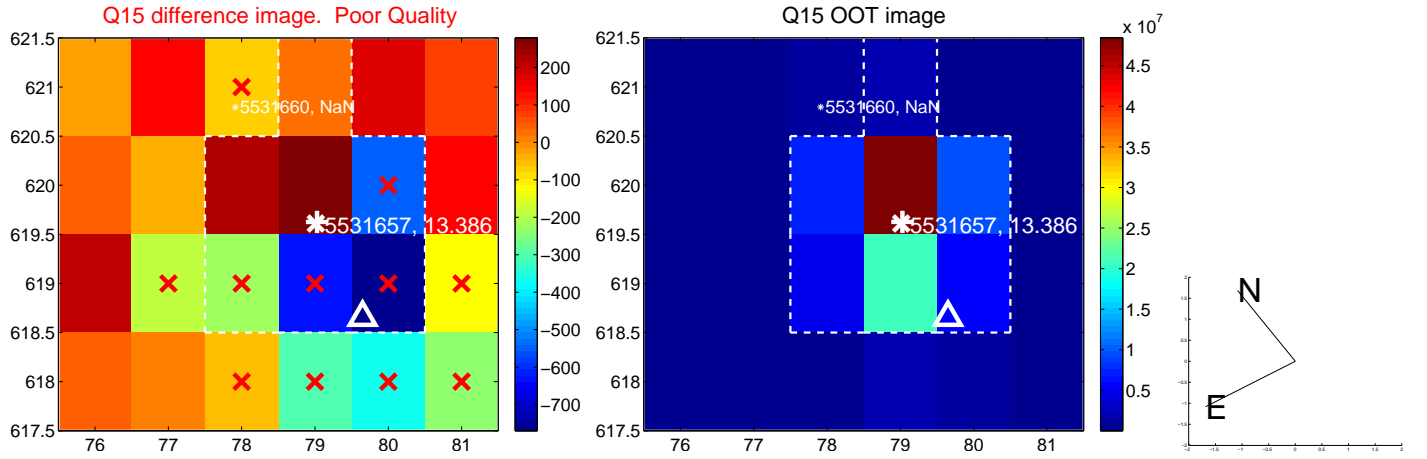
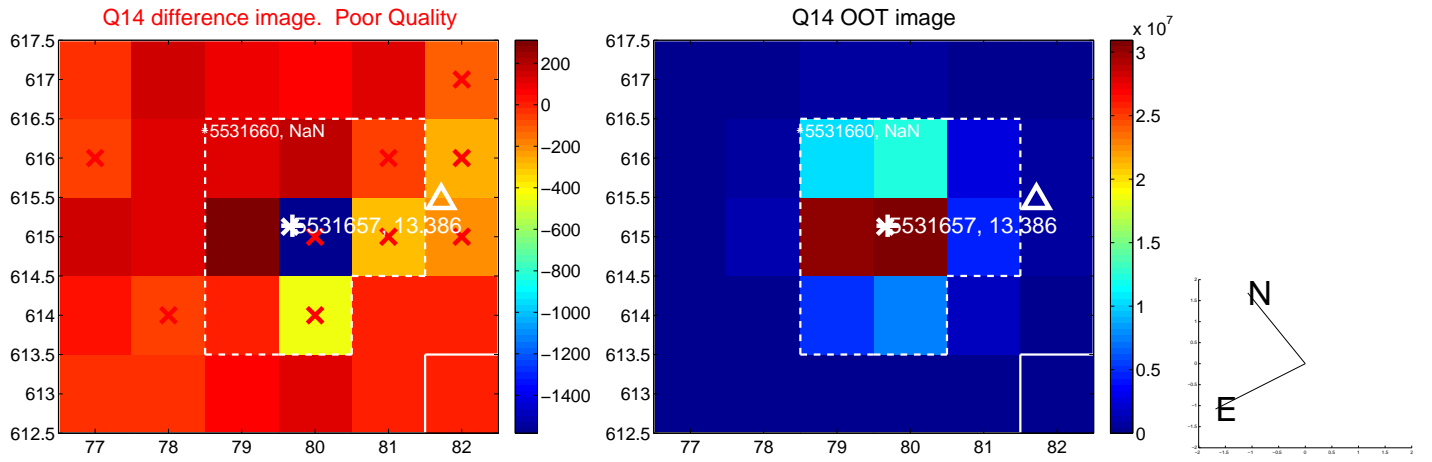
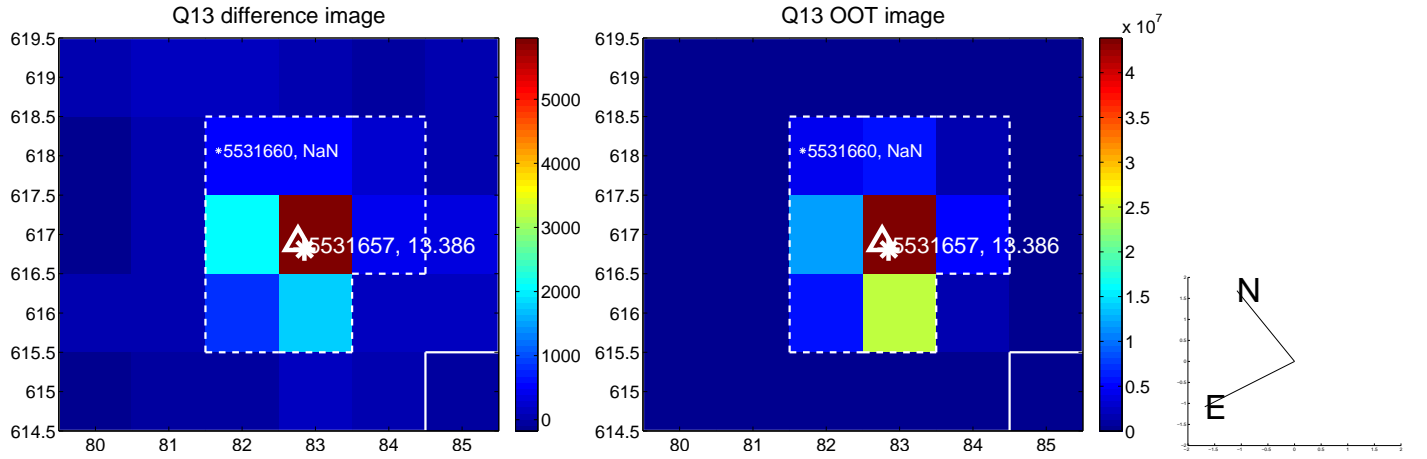
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



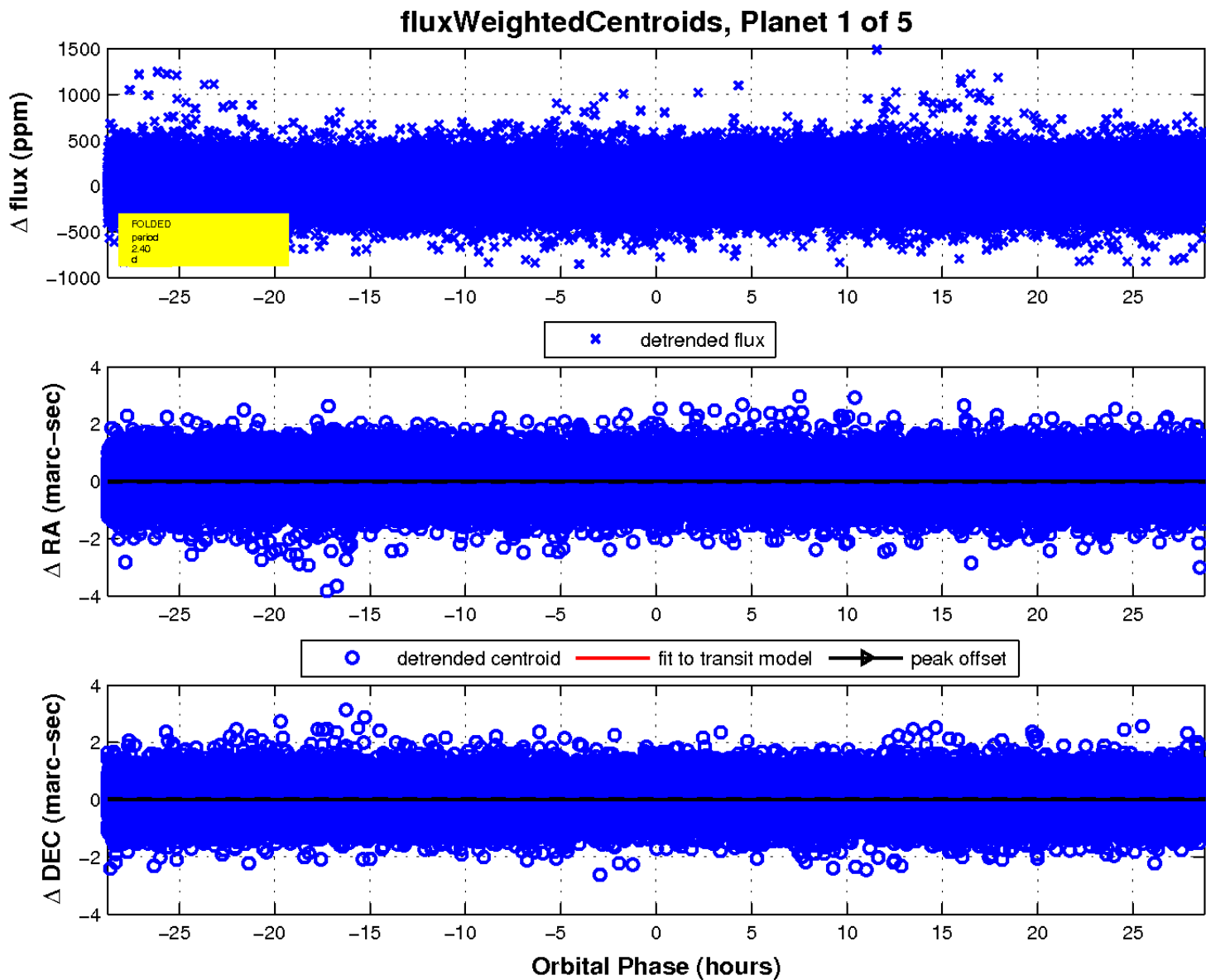
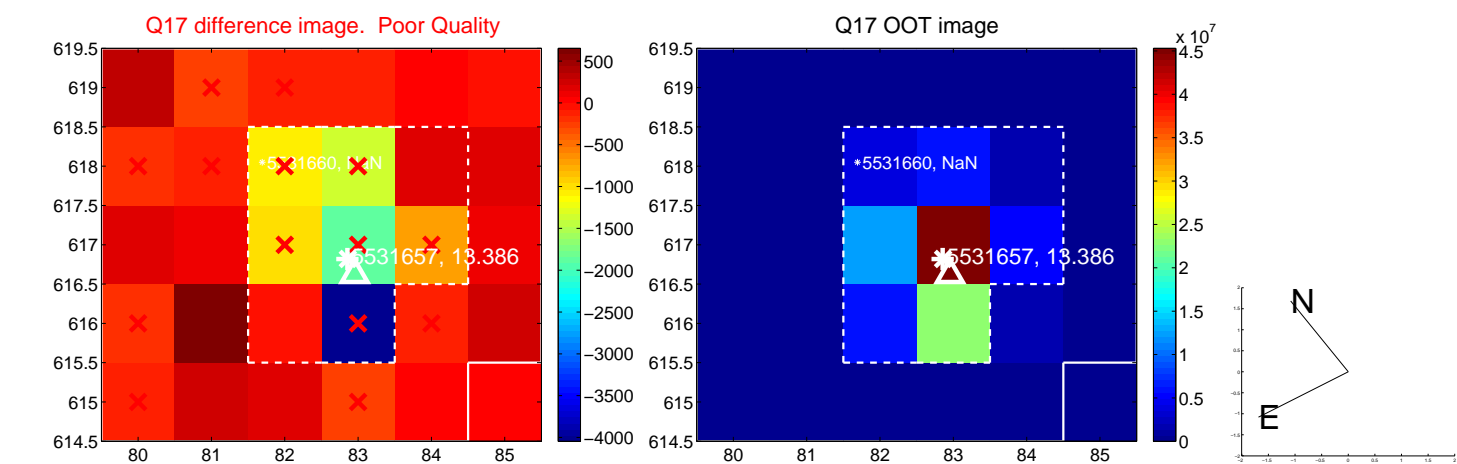
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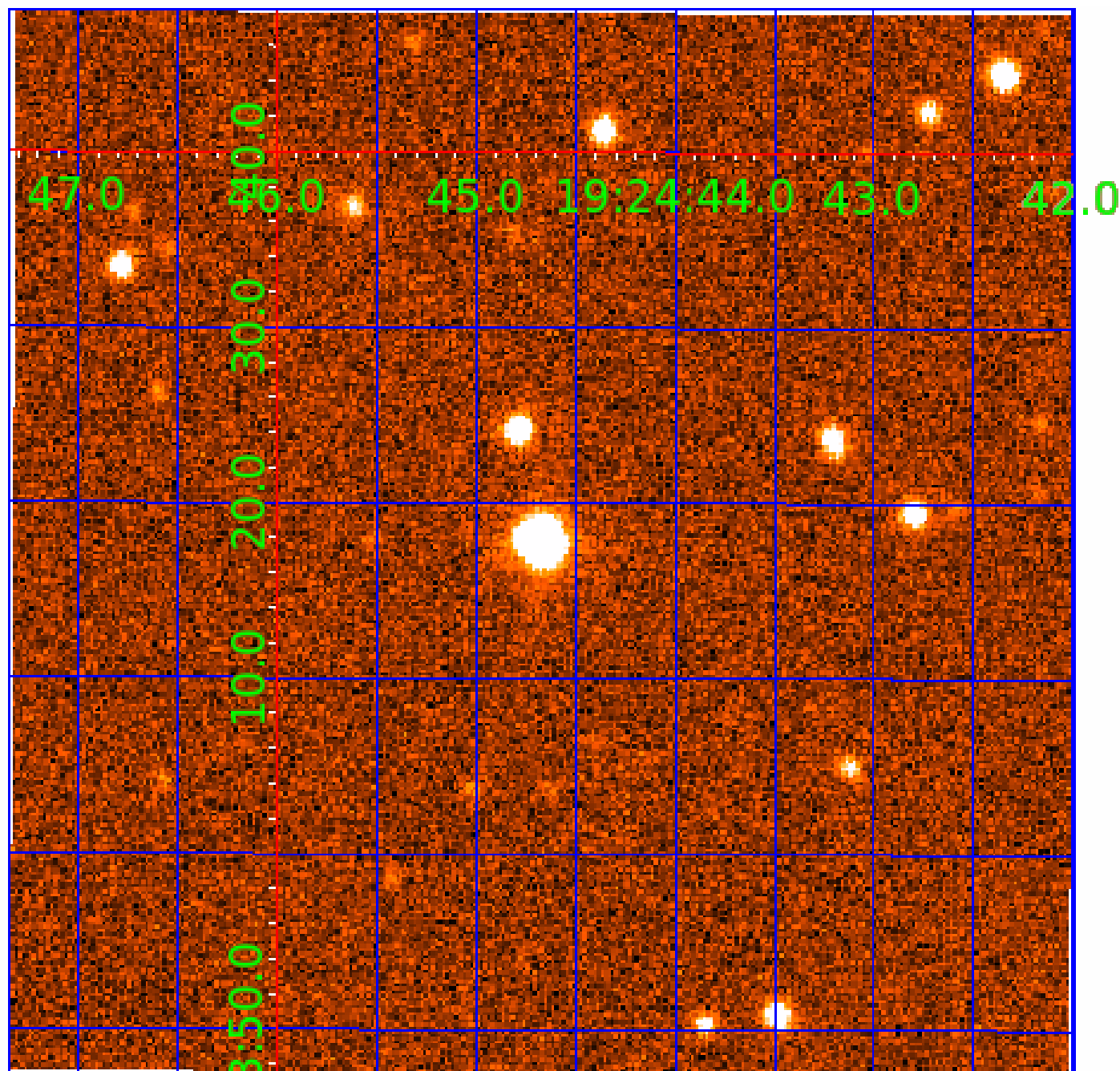


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005531657

Q1-17 DR25 TCE Parameters

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005531657-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
005531657-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

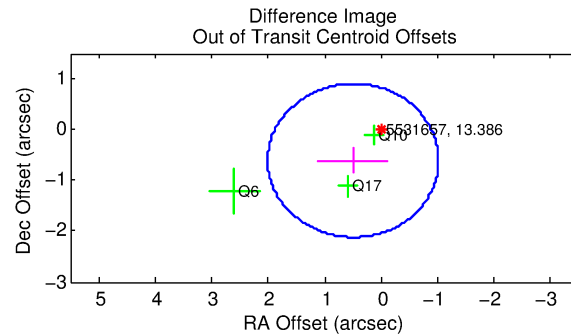
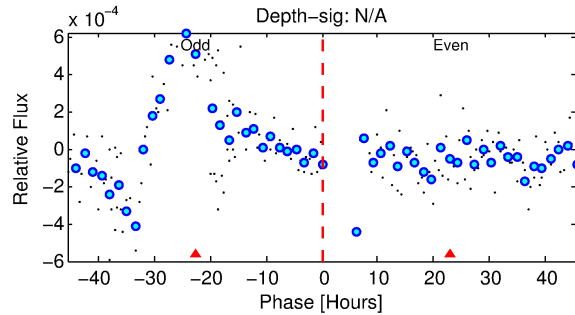
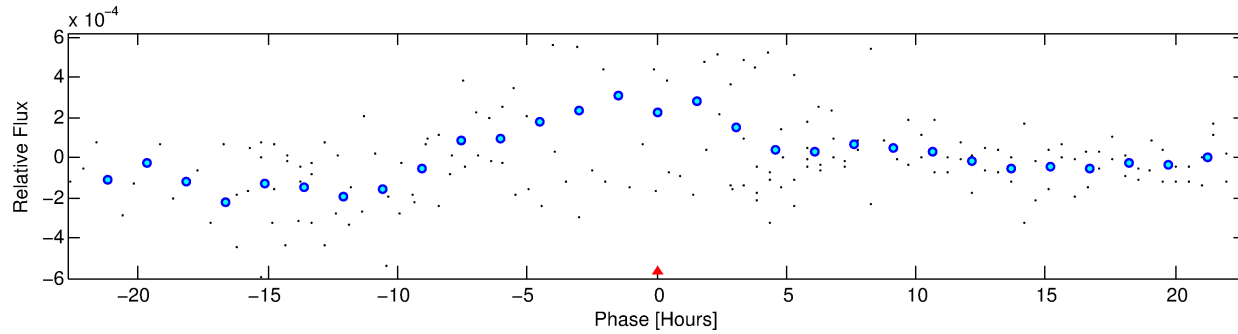
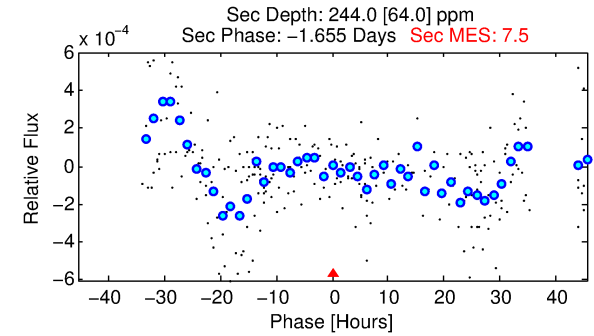
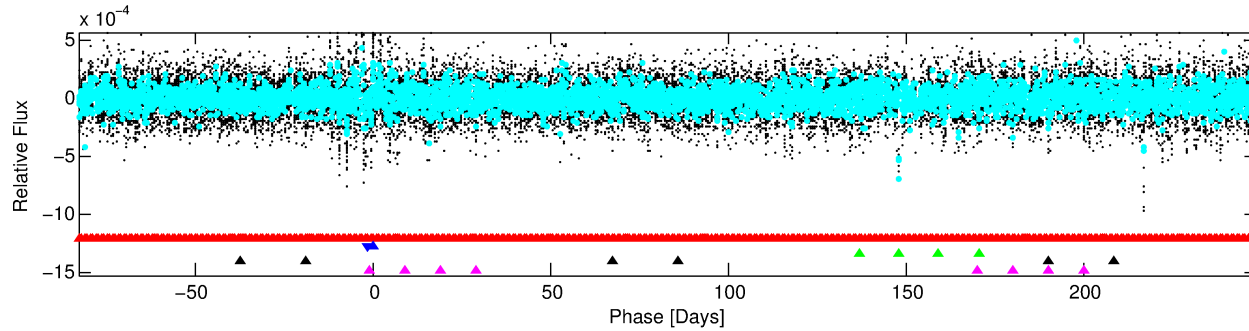
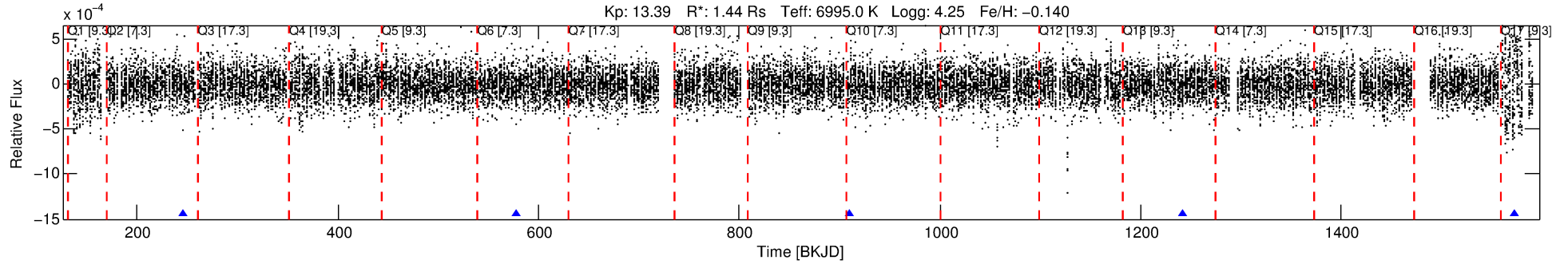
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005531657-02

No Significant Match Found

DV One-Page Summary

KIC: 5531657 Candidate: 2 of 5 Period: 331.637 d



TPS TCE Results:

Period = 331.63668 d
Epoch = 246.8312 BKJD

DV fit results are unavailable

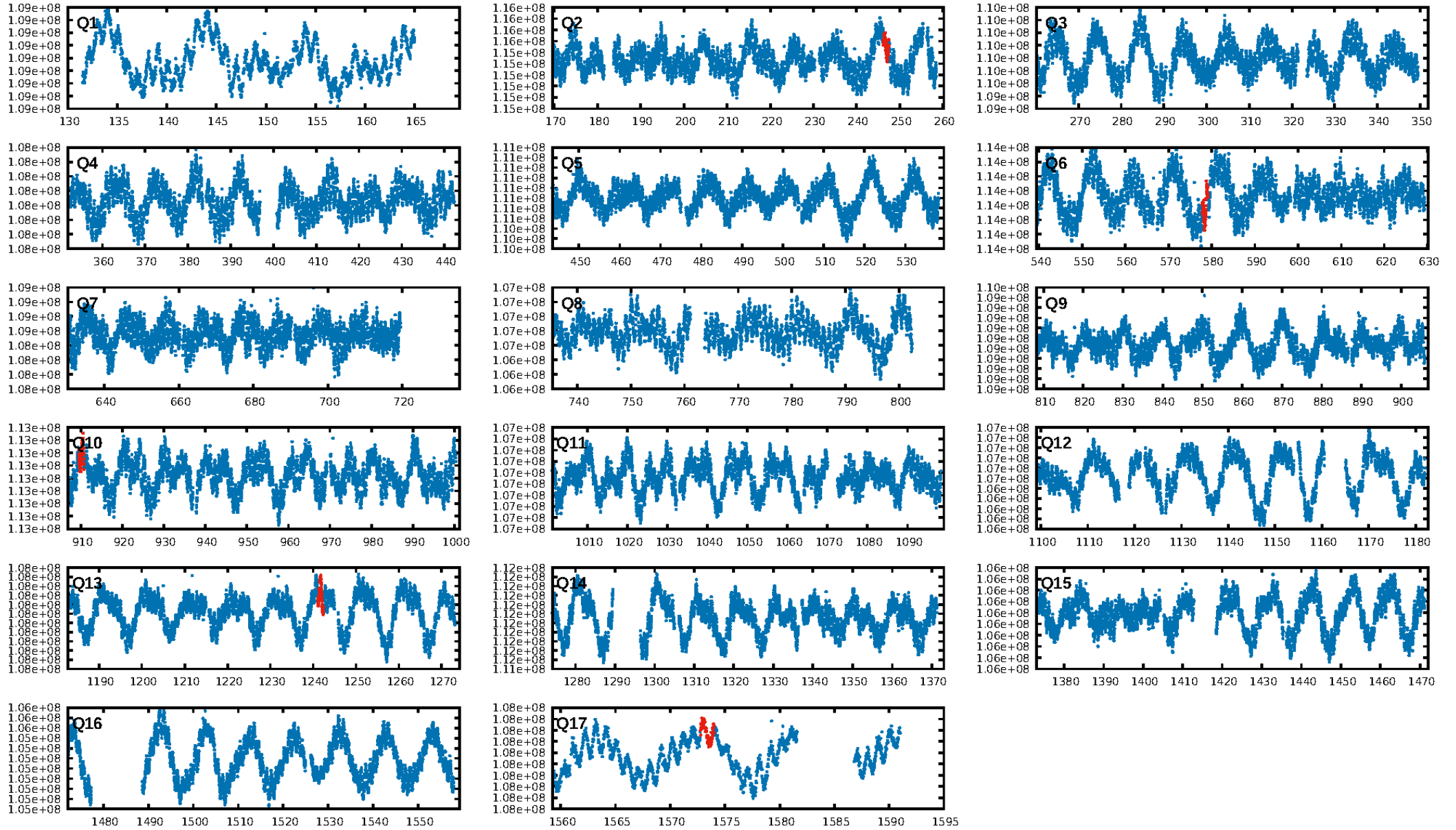
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.19σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.85e-42
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -25.12
Centroid-sig: 72.9%
Centroid-so: 0.252 arcsec [0.71σ]
OotOffset-rm: 0.784 arcsec [1.55σ]
KicOffset-rm: 0.744 arcsec [1.57σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-st: 2/0/0/1 [3]
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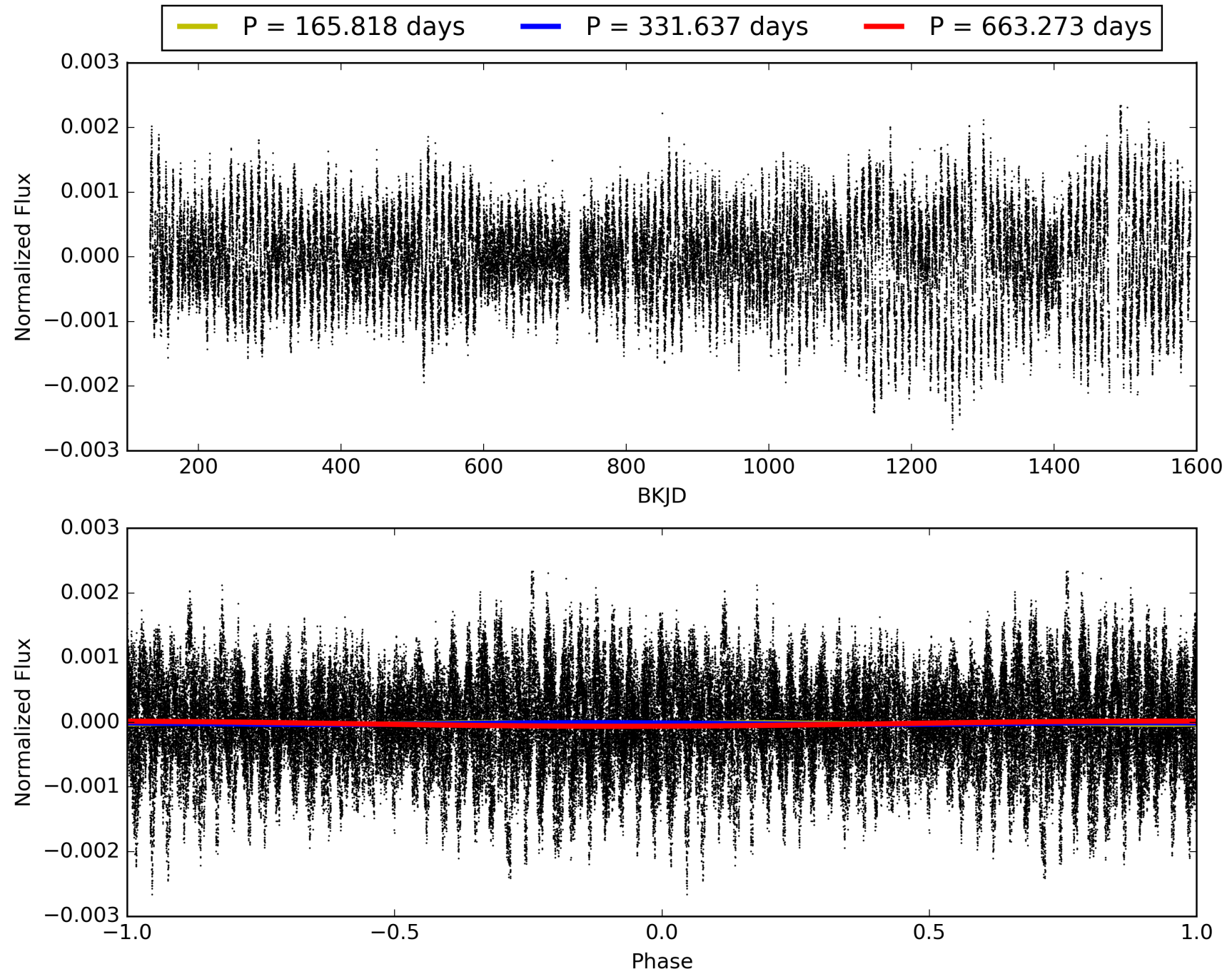
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:36:43 Z

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

TCE 005531657-02, PDC Light Curves

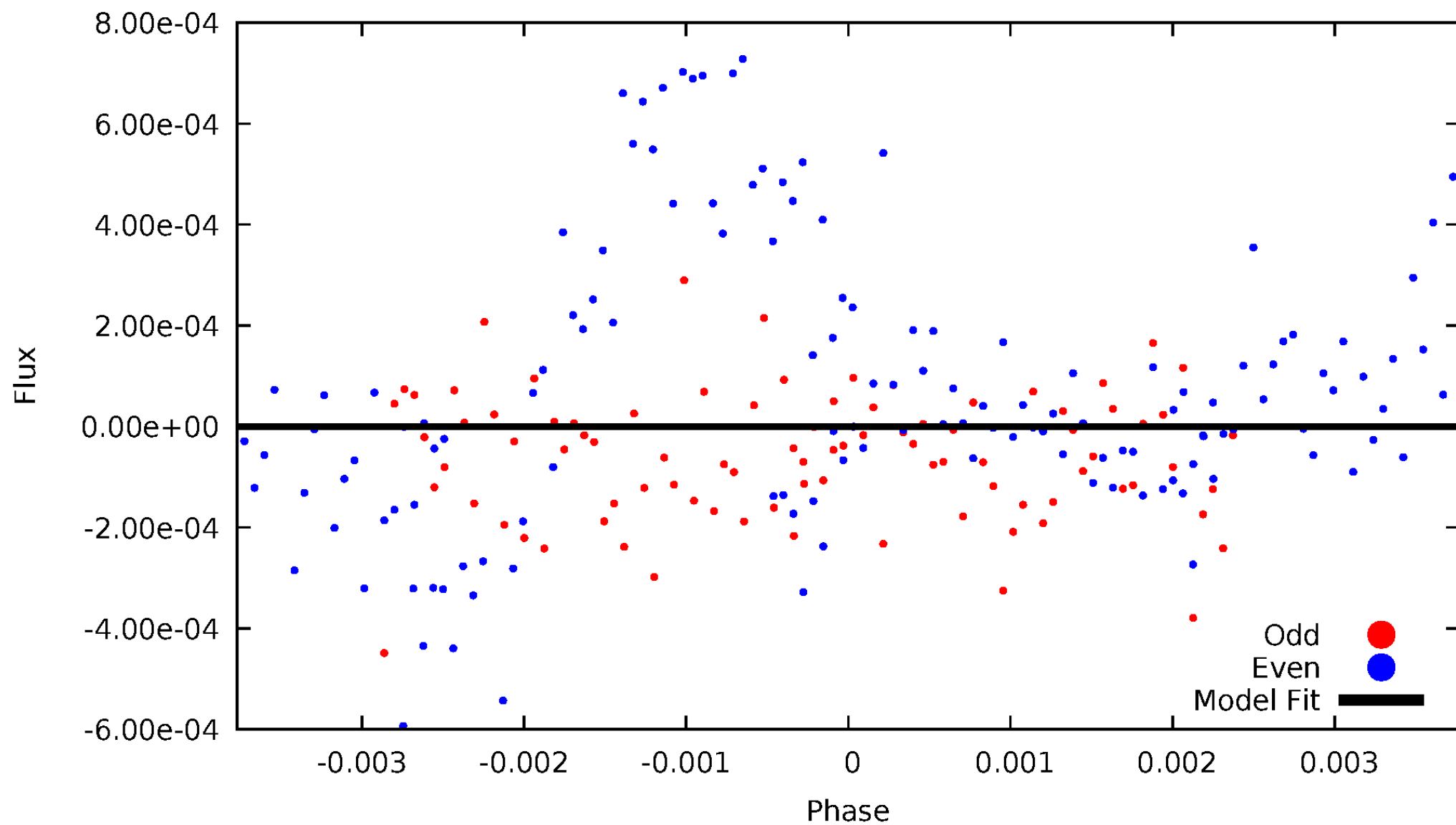


TCE 005531657-02



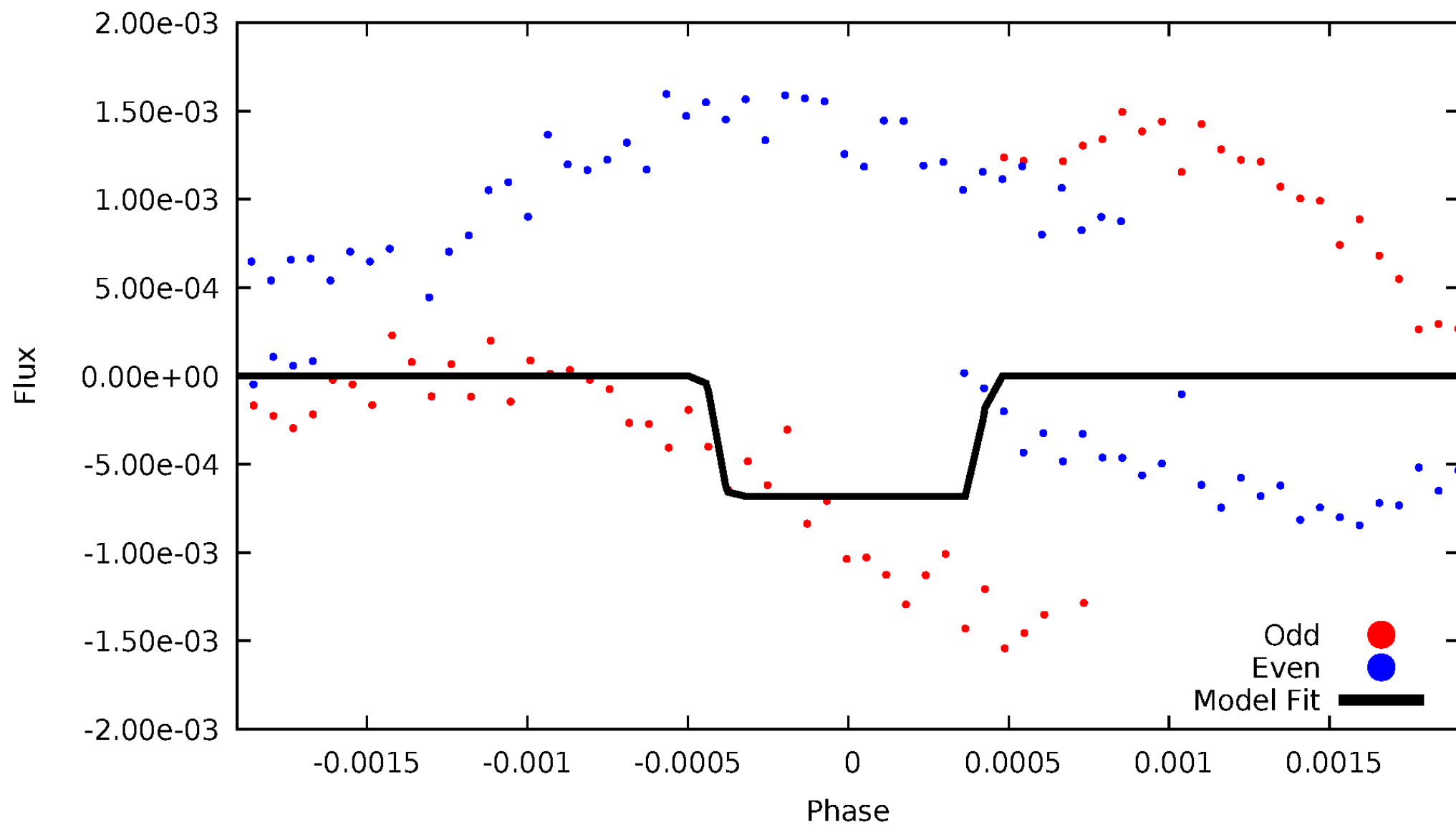
DV Odd/Even

TCE 005531657-02



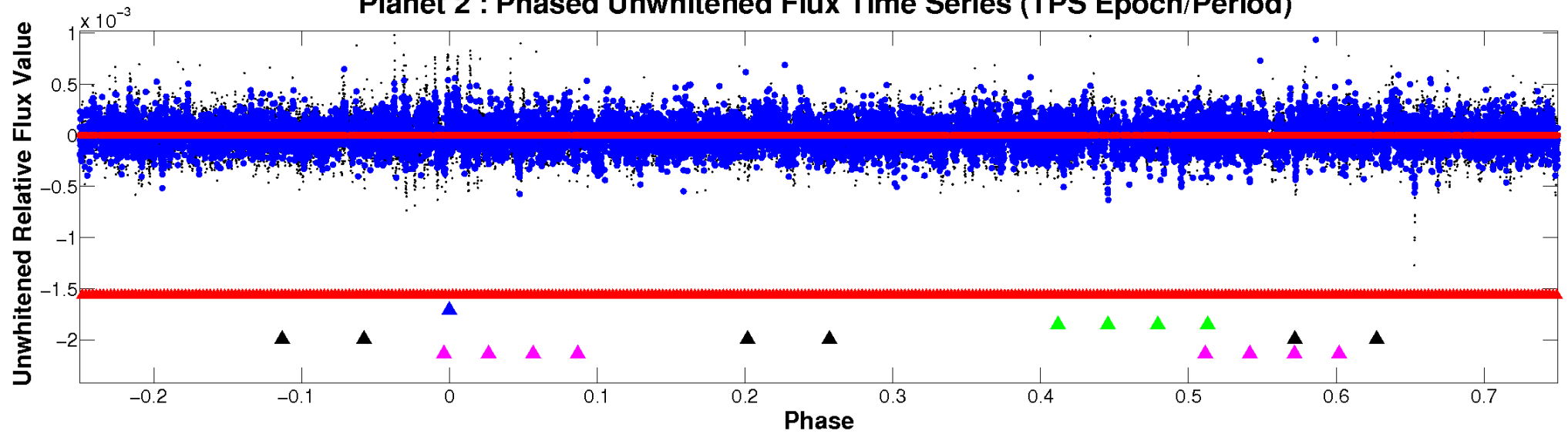
ALT Odd/Even

TCE 005531657-02

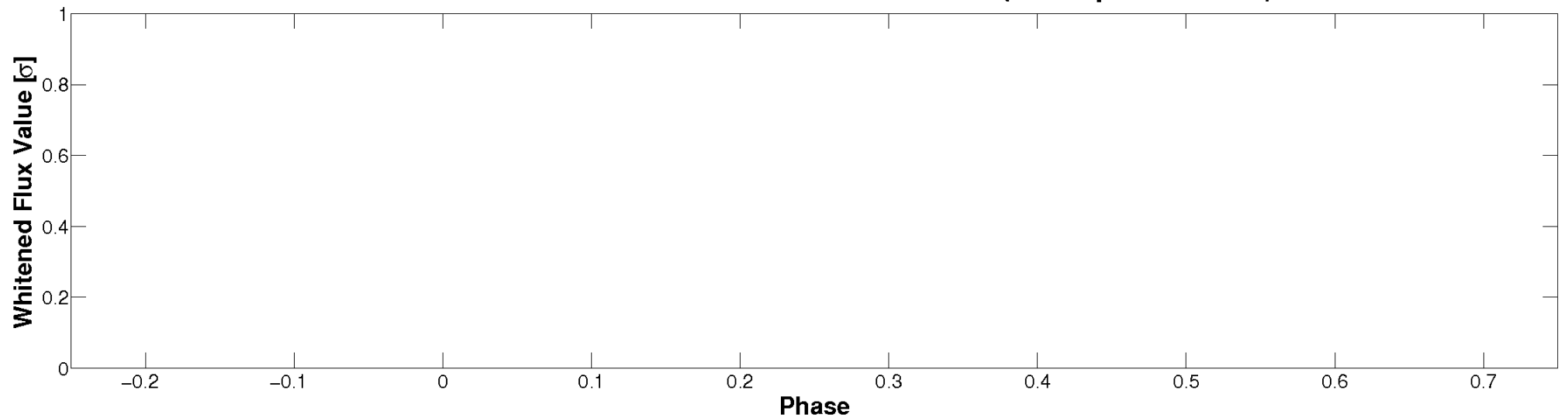


Non-Whitened Vs. Whitened Light Curve

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

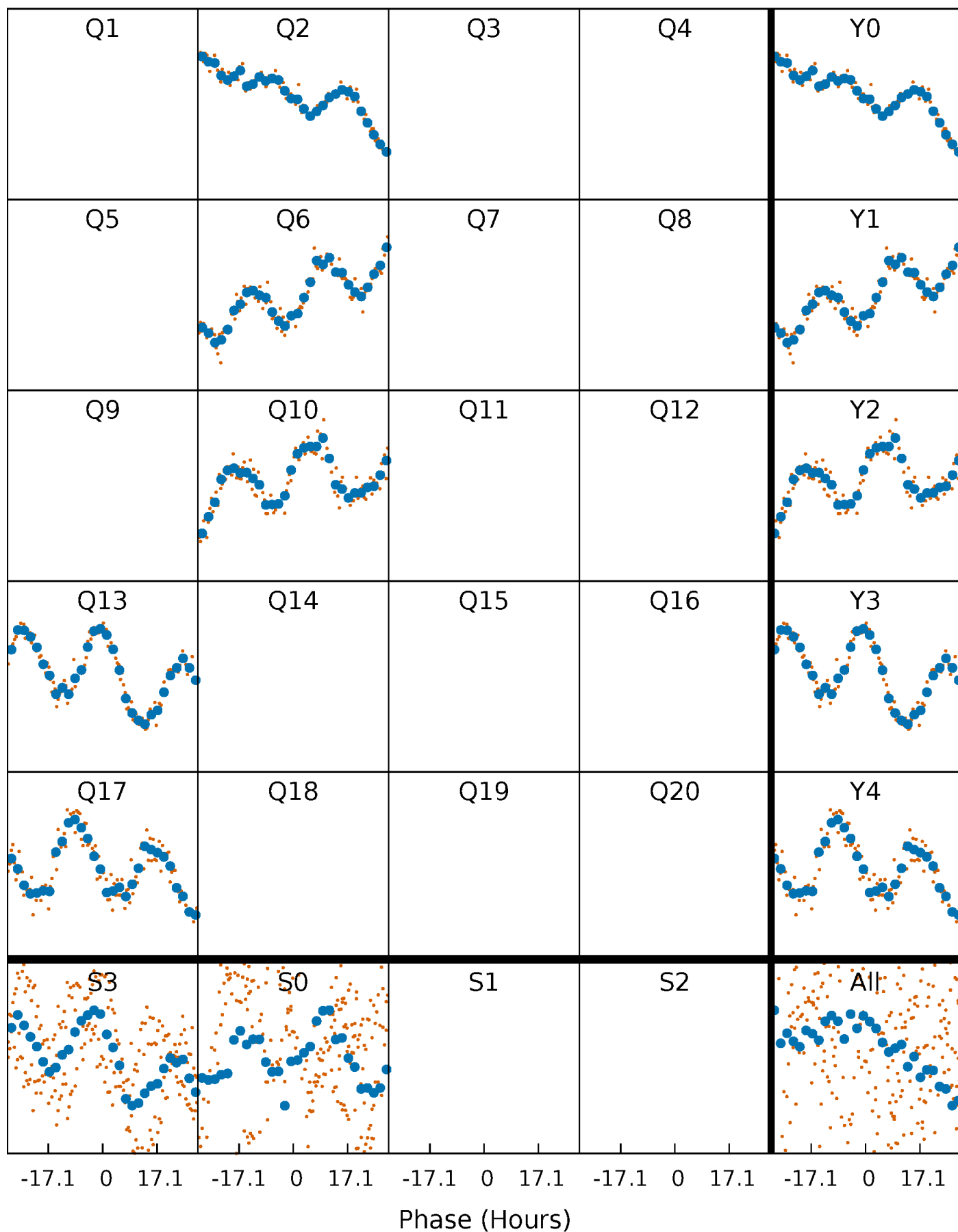


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



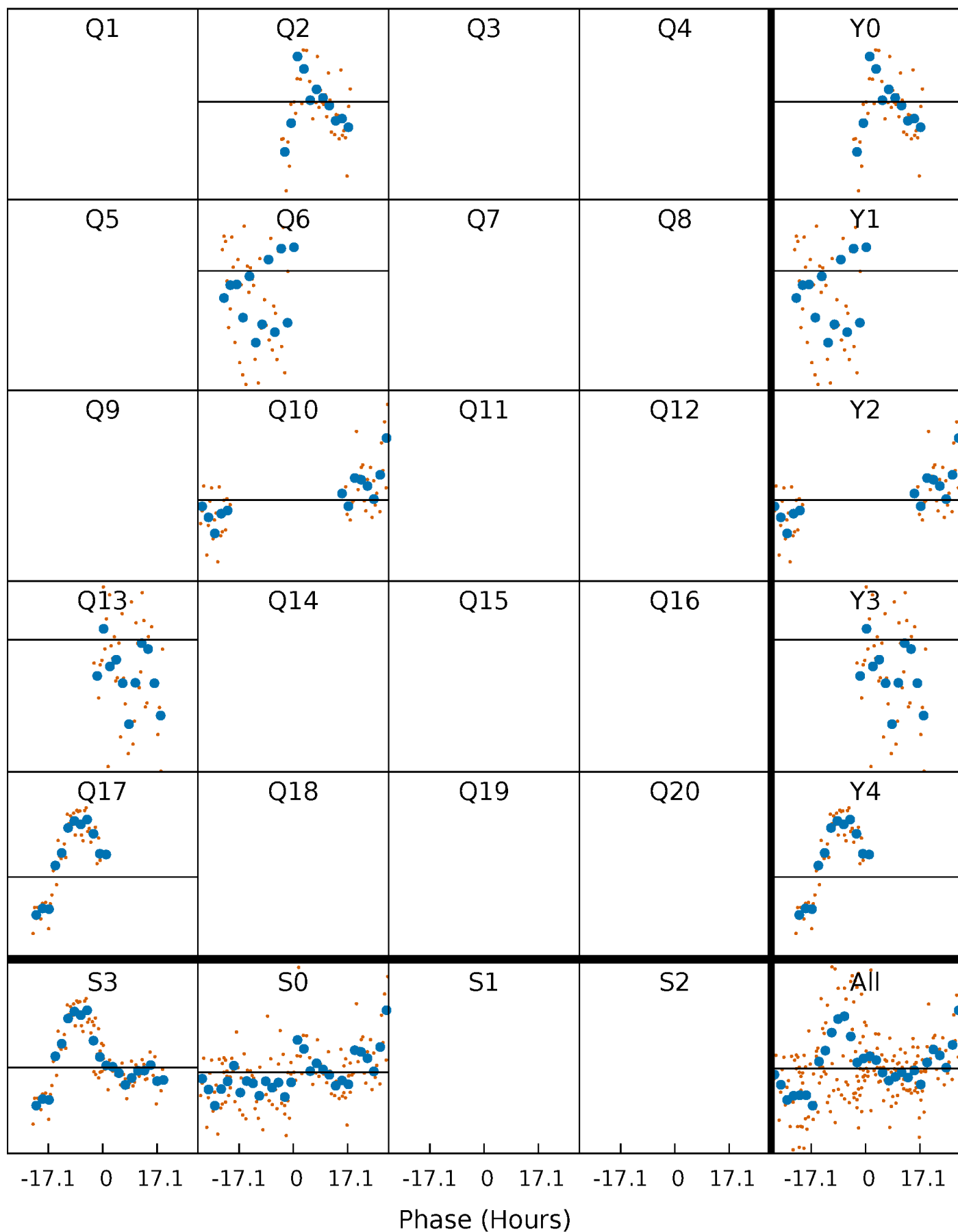
PDC Quarter-Phased Transit Curves

TCE 005531657-02 $P=331.636679$ Days $T_0=246.831195$ (BKJD)



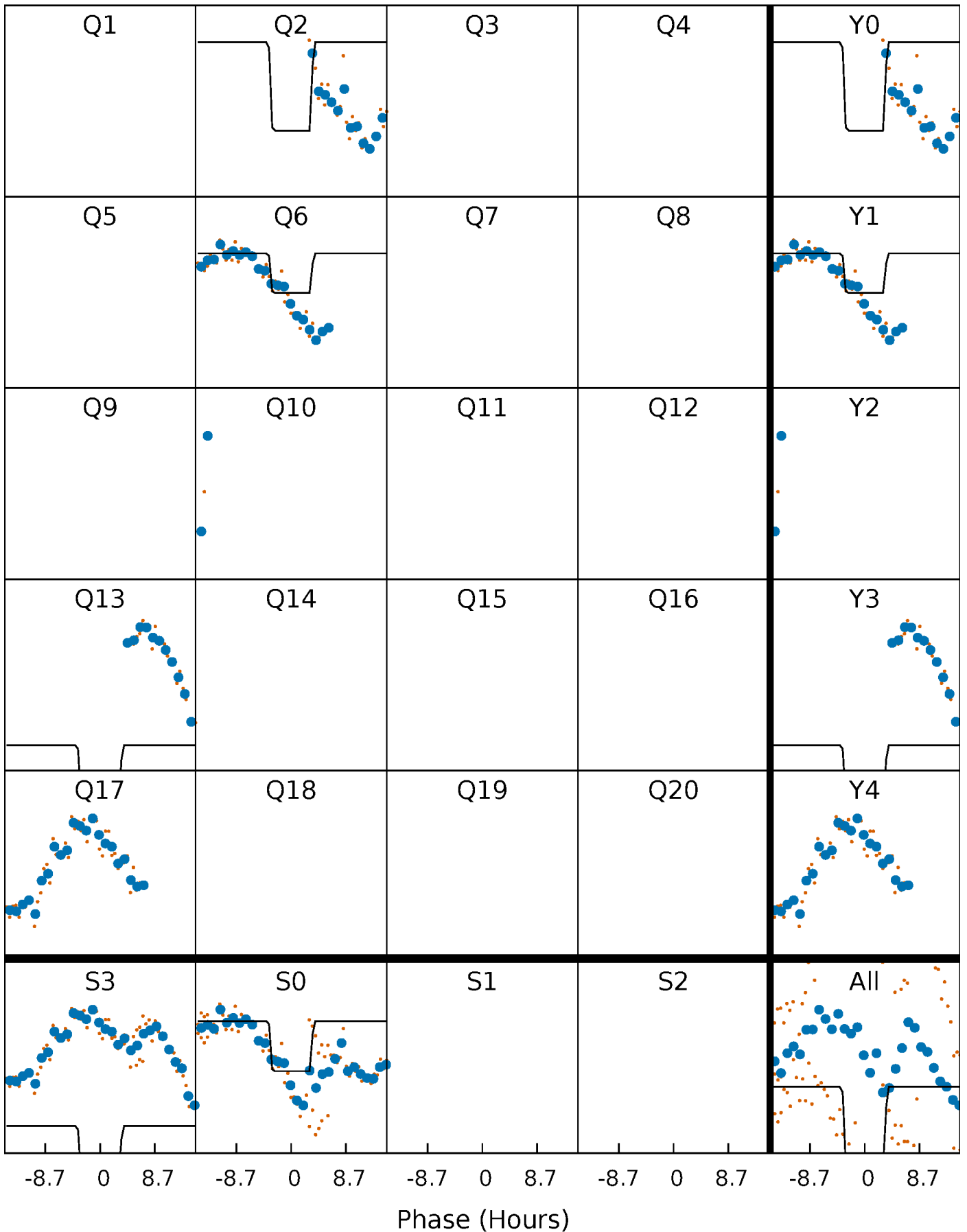
DV Quarter-Phased Transit Curves

TCE 005531657-02 P=331.636679 Days $T_0=246.831195$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

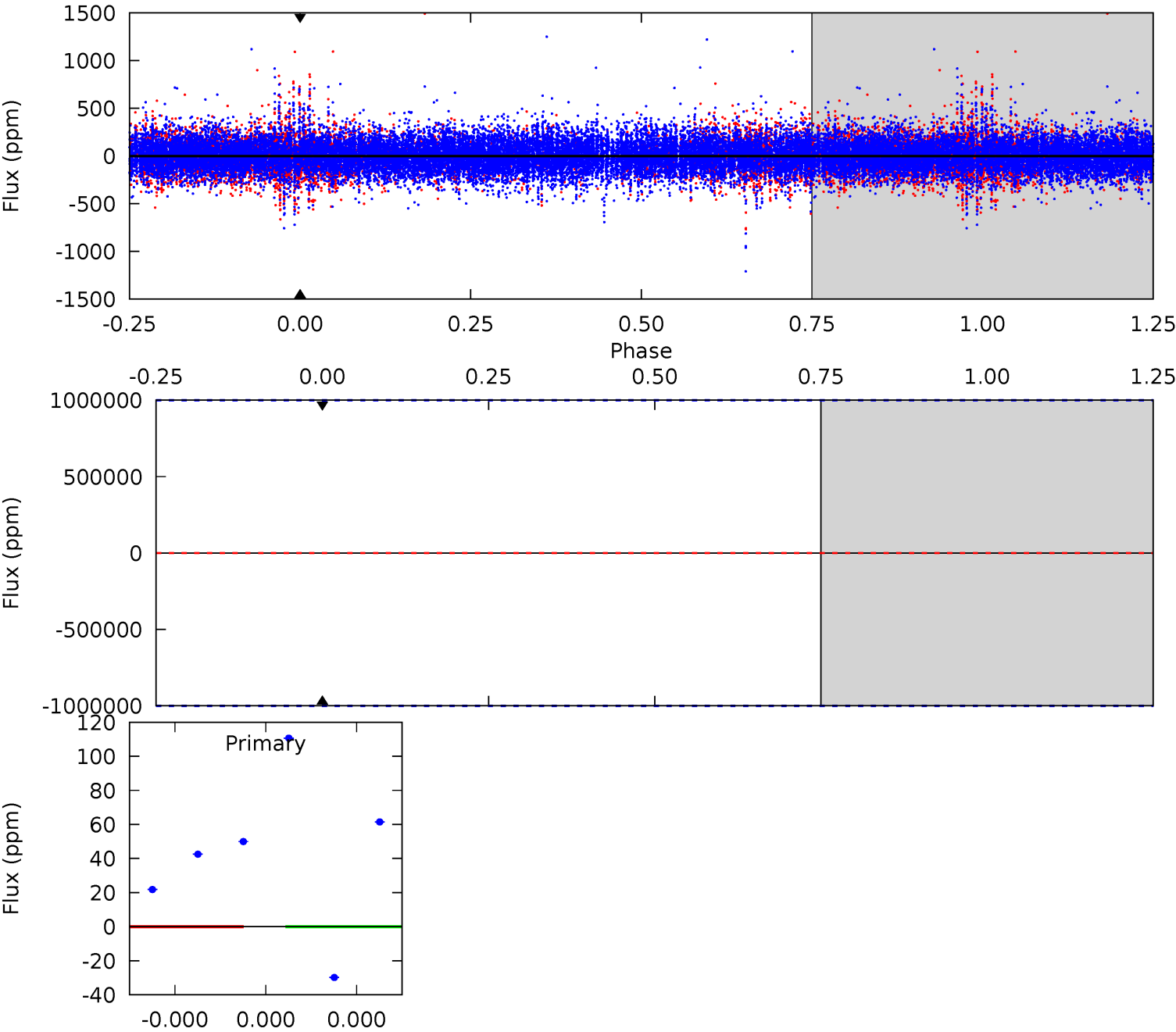
TCE 005531657-02 P=331.636679 Days $T_0=246.558195$ (BKJD)



DV Model-Shift Uniqueness Test

005531657-02, P = 331.636679 Days, E = 246.831195 Days

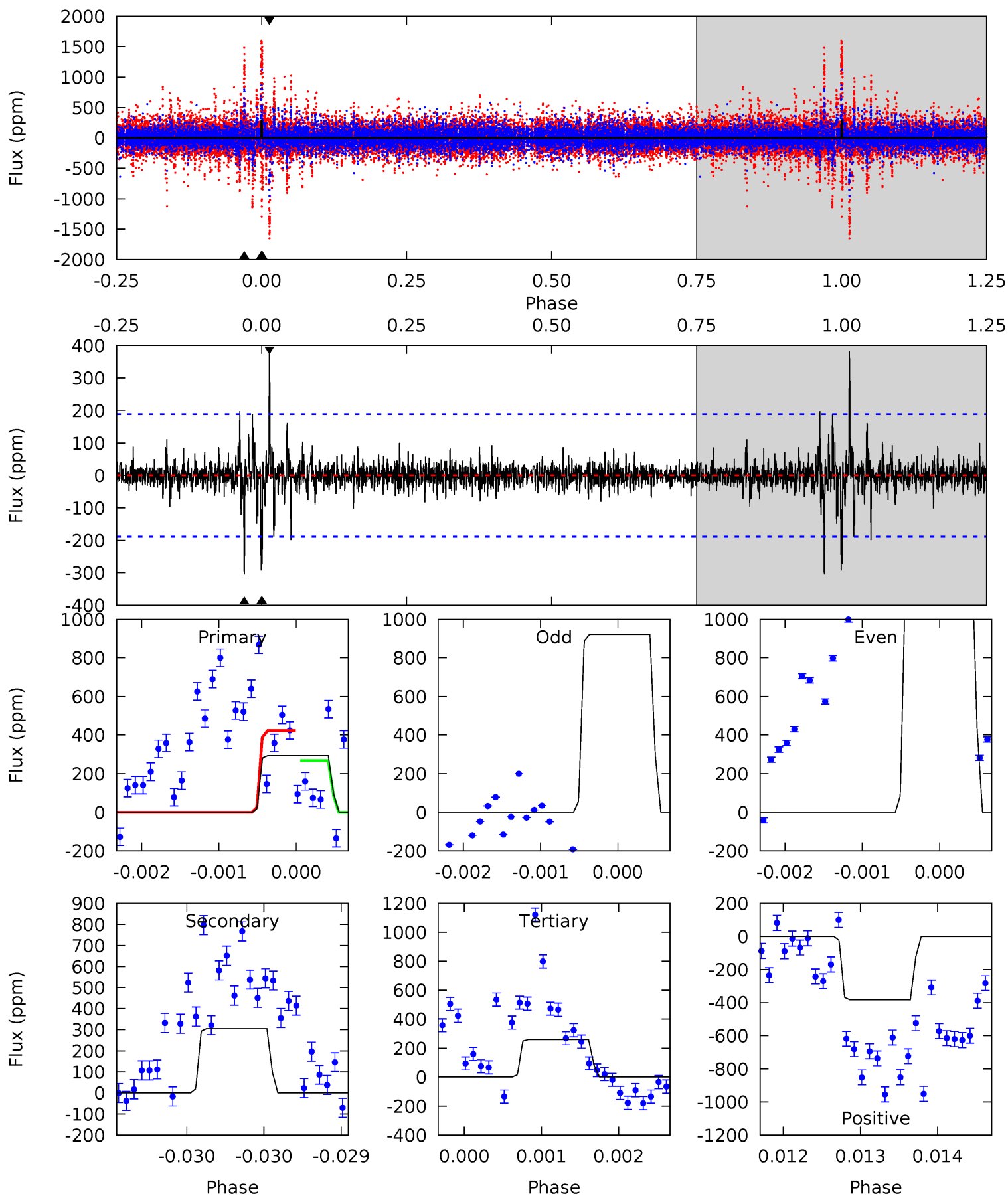
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005531657-02, P = 331.636679 Days, E = 246.558195 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.52	8.87	7.54	11.1	5.48	3.33	1.01	0.98	-2.62	1.33	-2.27	6.64	-33.4	0.56	2.18



Stellar Parameters For KIC 005531657

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6995^{+192}_{-288}	$4.251^{+0.092}_{-0.138}$	$-0.140^{+0.250}_{-0.350}$	$1.442^{+0.313}_{-0.209}$	$1.361^{+0.150}_{-0.206}$	$0.639^{+0.282}_{-0.272}$
	+3%/-4%	+2%/-3%	+179%/-250%	+22%/-14%	+11%/-15%	+44%/-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 005531657-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$11.72^{+13.33}_{-8.21}$	509^{+32}_{-27}	-3726^{+38183}_{-28659}	$-1590.199^{+800571.857}_{-739136.800}$
Alt.	-305 ± 34	$12.28^{+12.51}_{-7.95}$	512^{+26}_{-27}	3720^{+1879}_{-719}	1189^{+8500}_{-900}

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 $A_{obs} \gg 1.0$

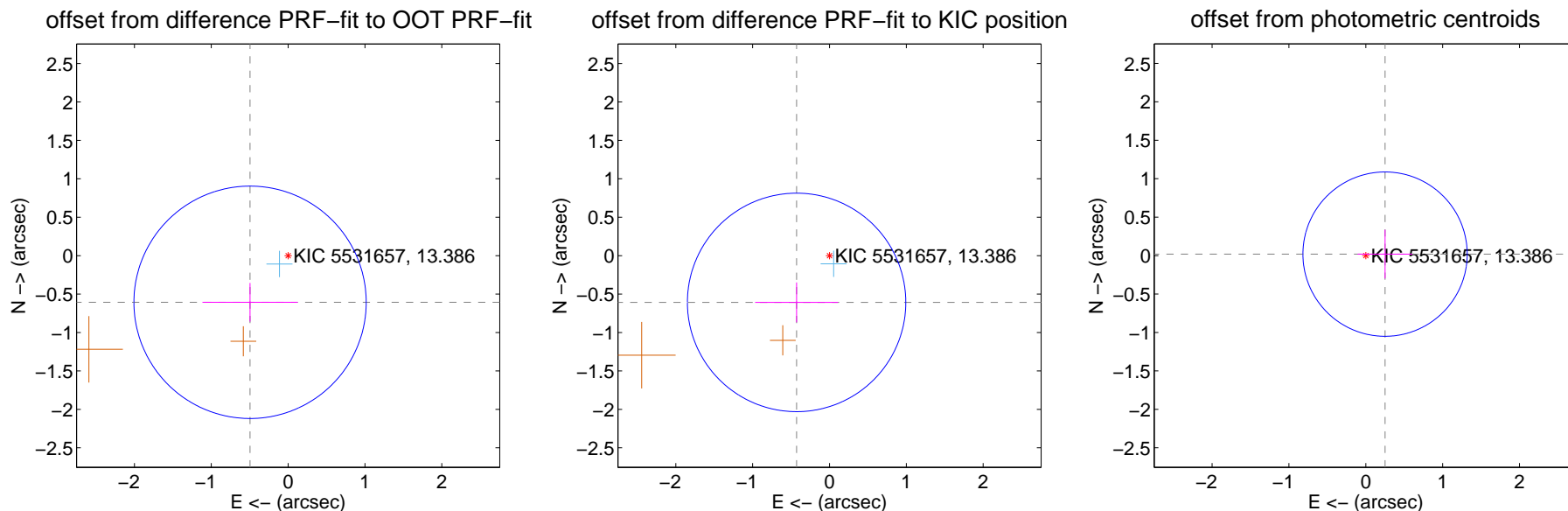
DV Centroid Data

Supplemental centroid analysis for 005531657-02. Kepler magnitude: 13.39. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.784 ± 0.504	1.55	0.496 ± 0.620	-0.607 ± 0.252
PRF-fit source offset from KIC position	0.744 ± 0.474	1.57	0.428 ± 0.540	-0.609 ± 0.260
photometric centroid source offset	0.25 ± 0.36	0.71	-0.25 ± 0.36	0.02 ± 0.32

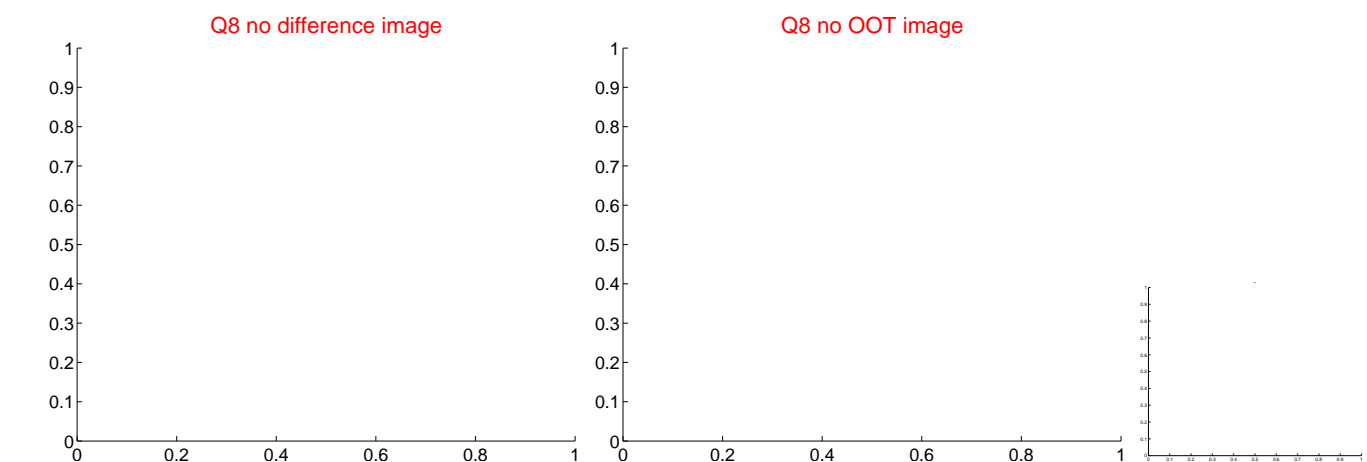
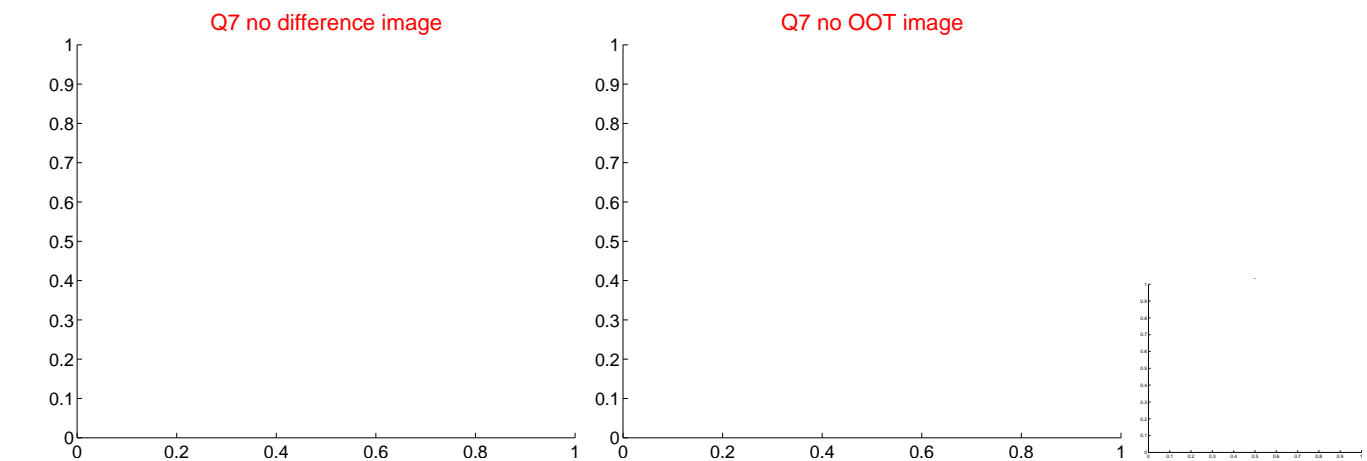
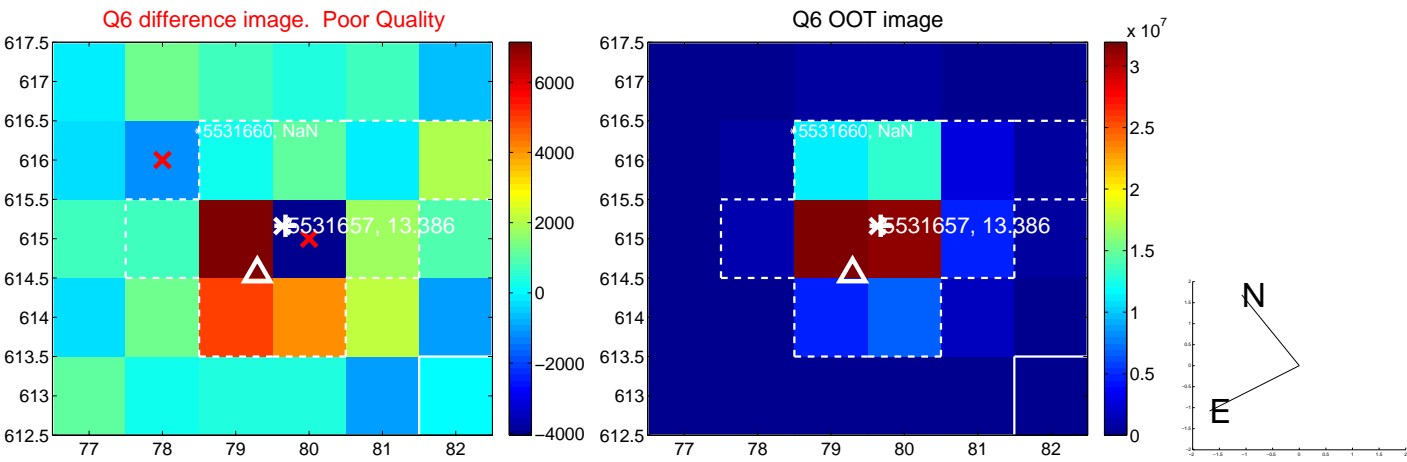
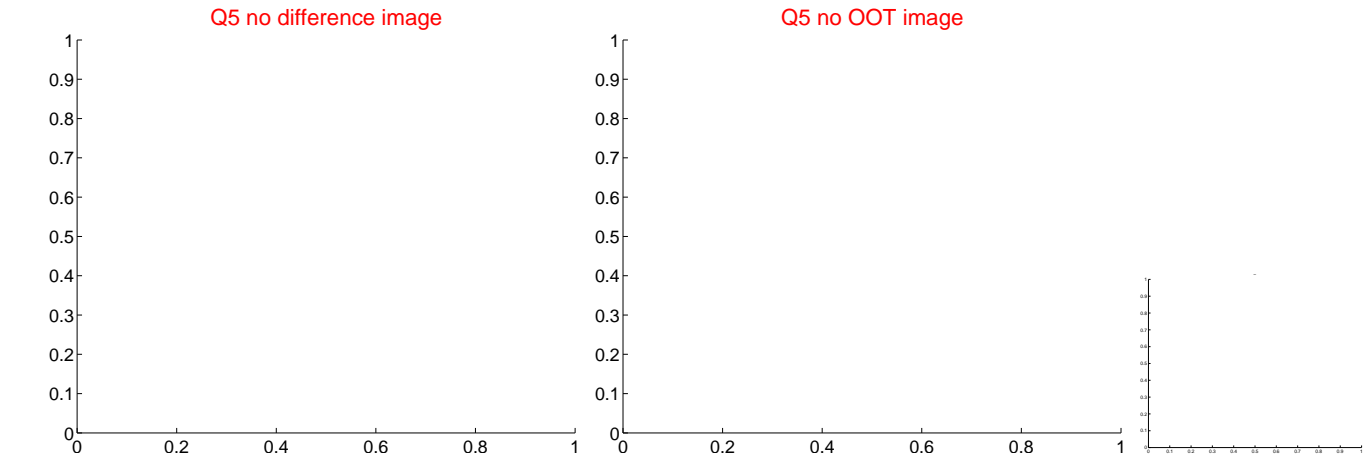


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

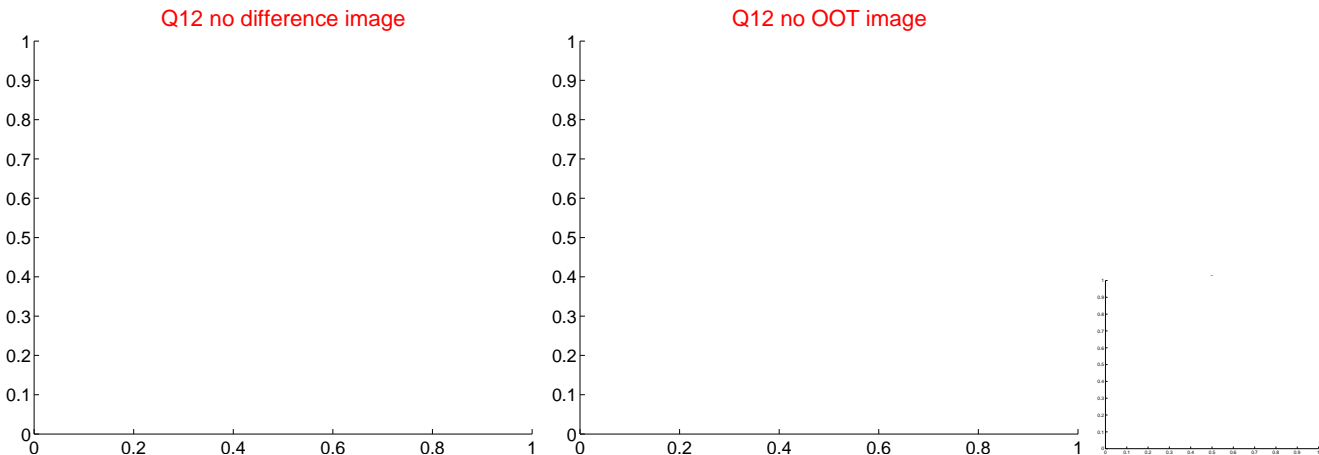
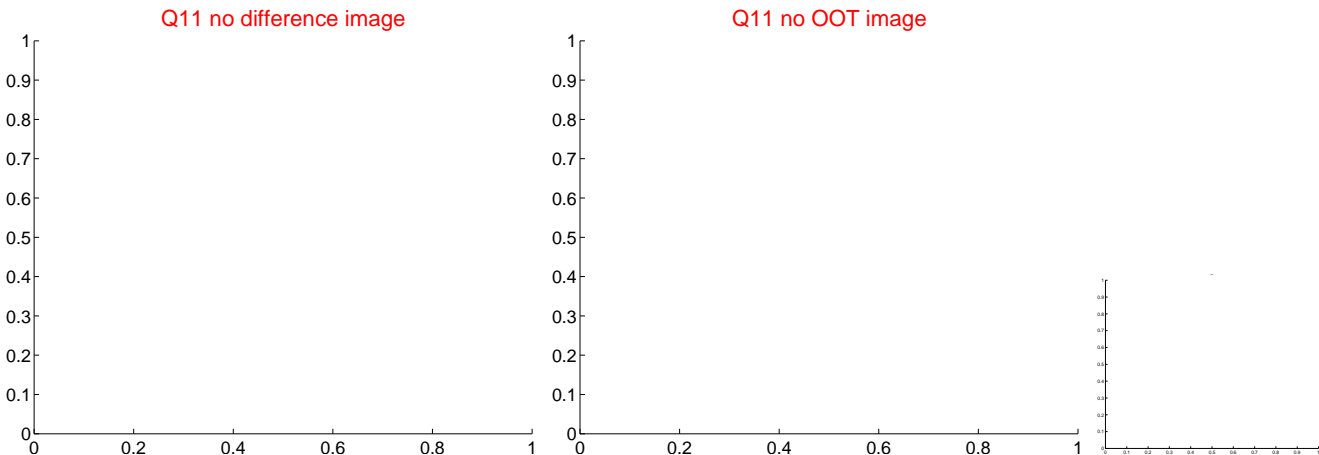
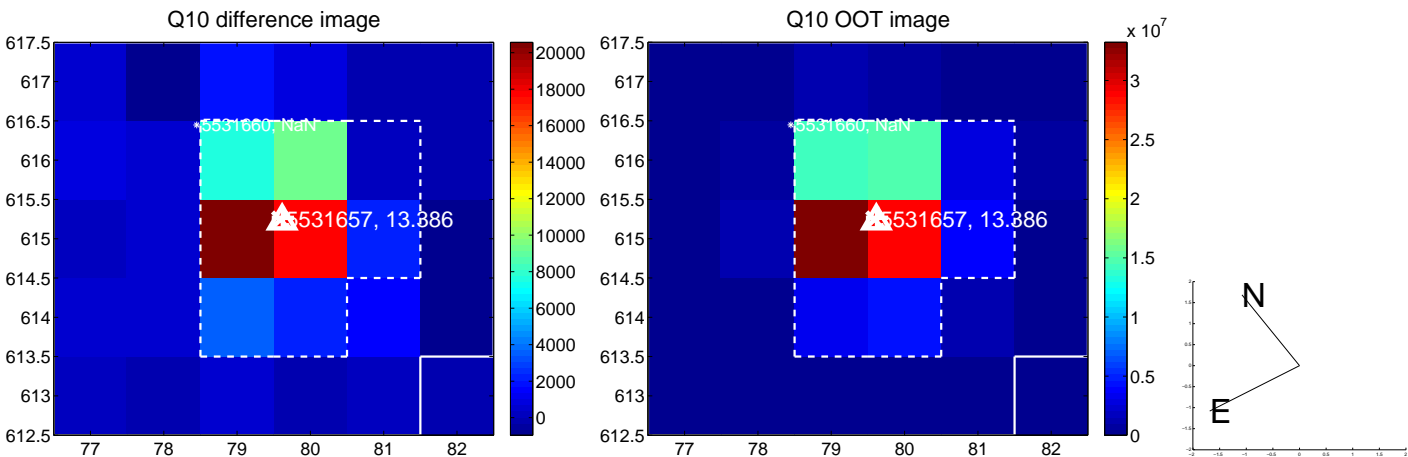
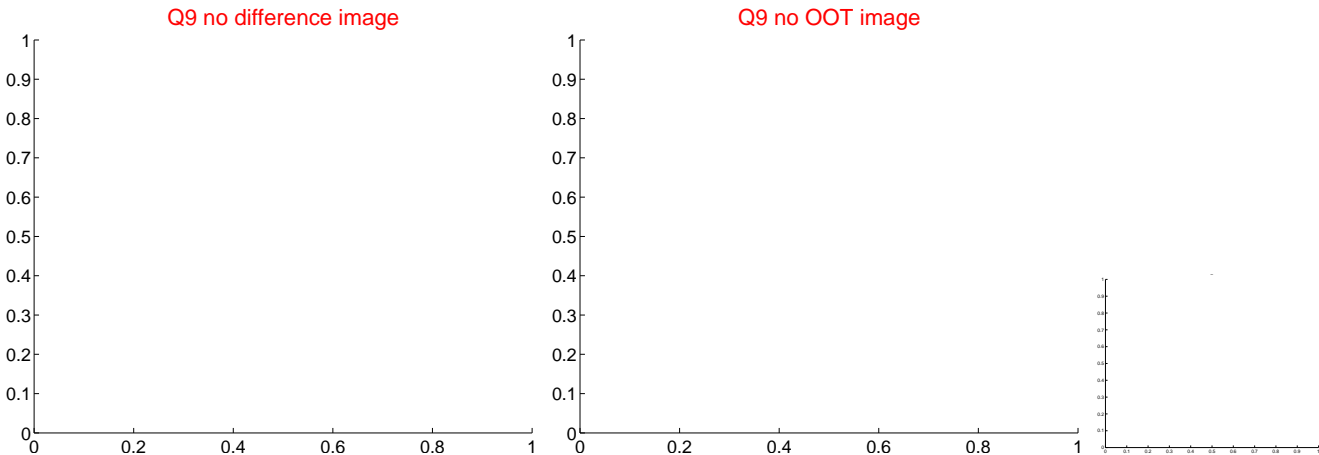
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



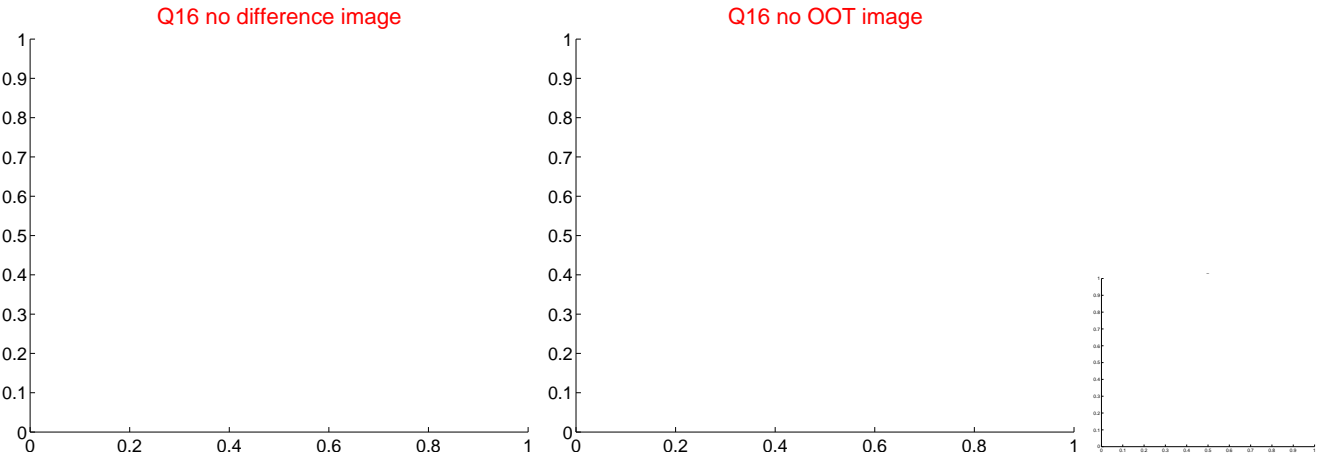
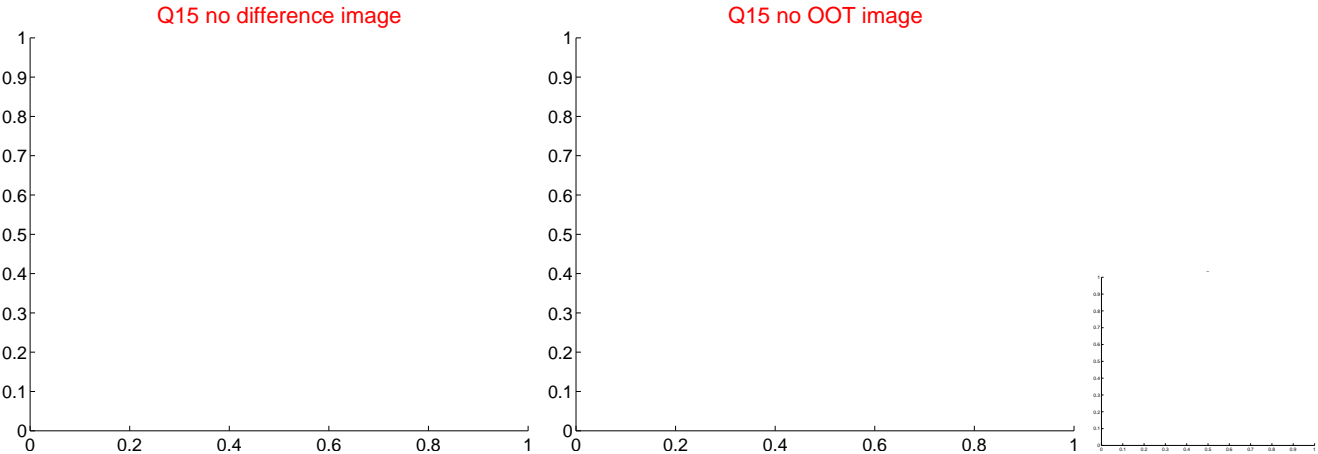
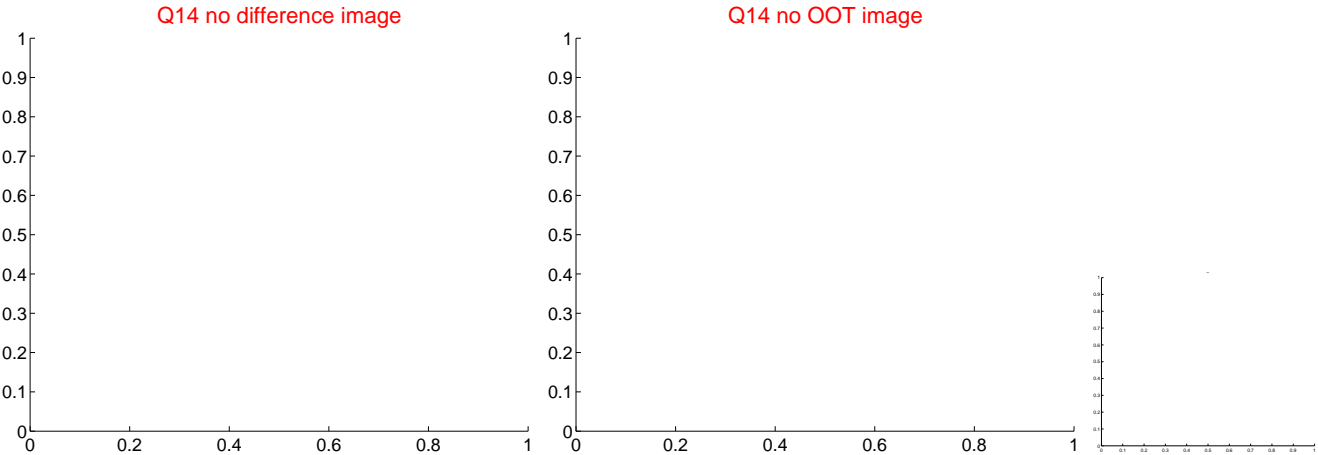
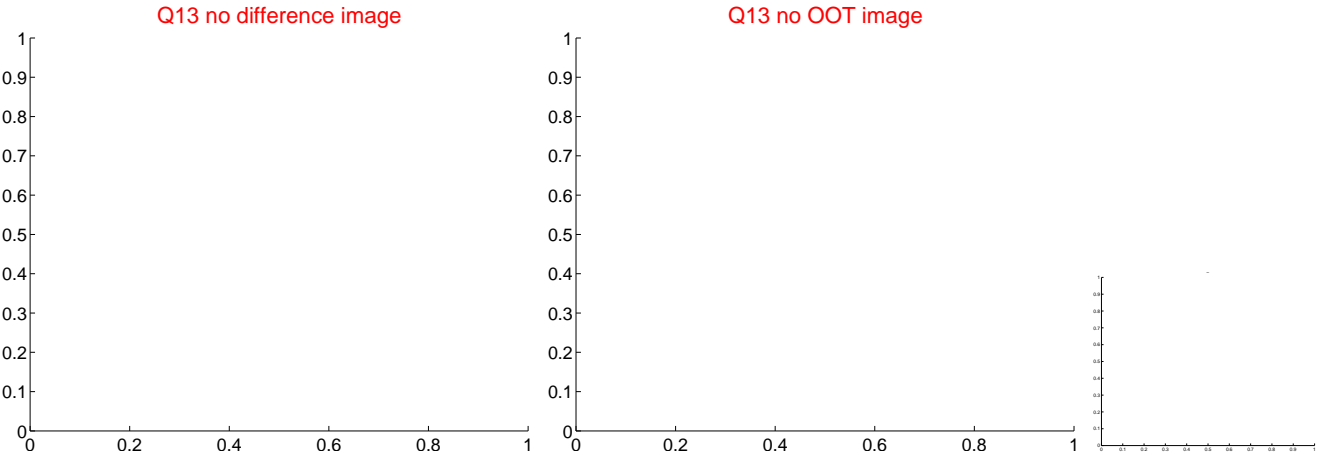
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



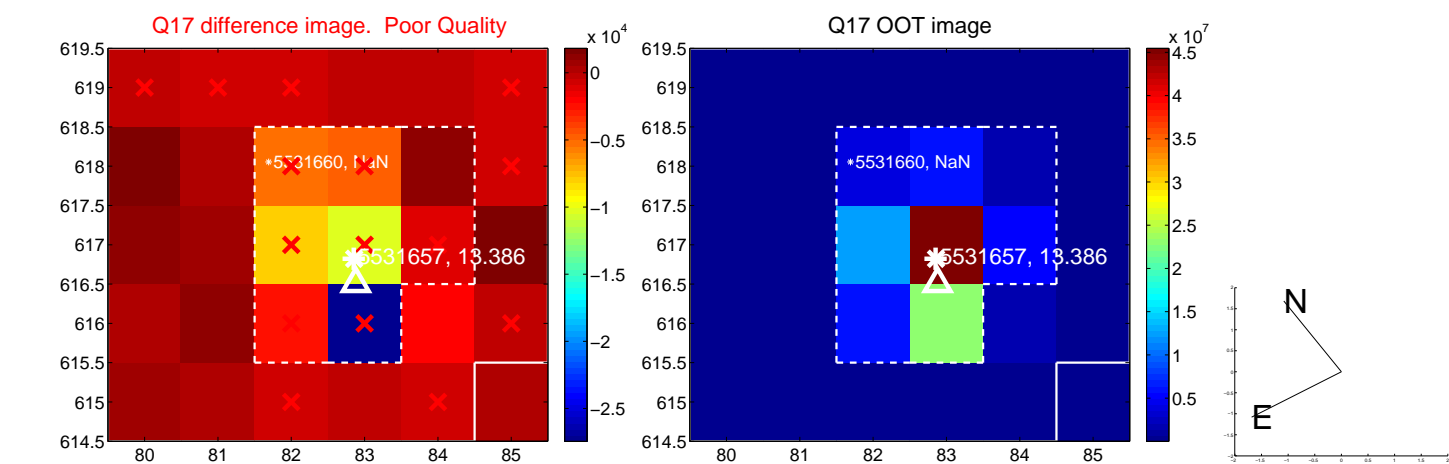
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



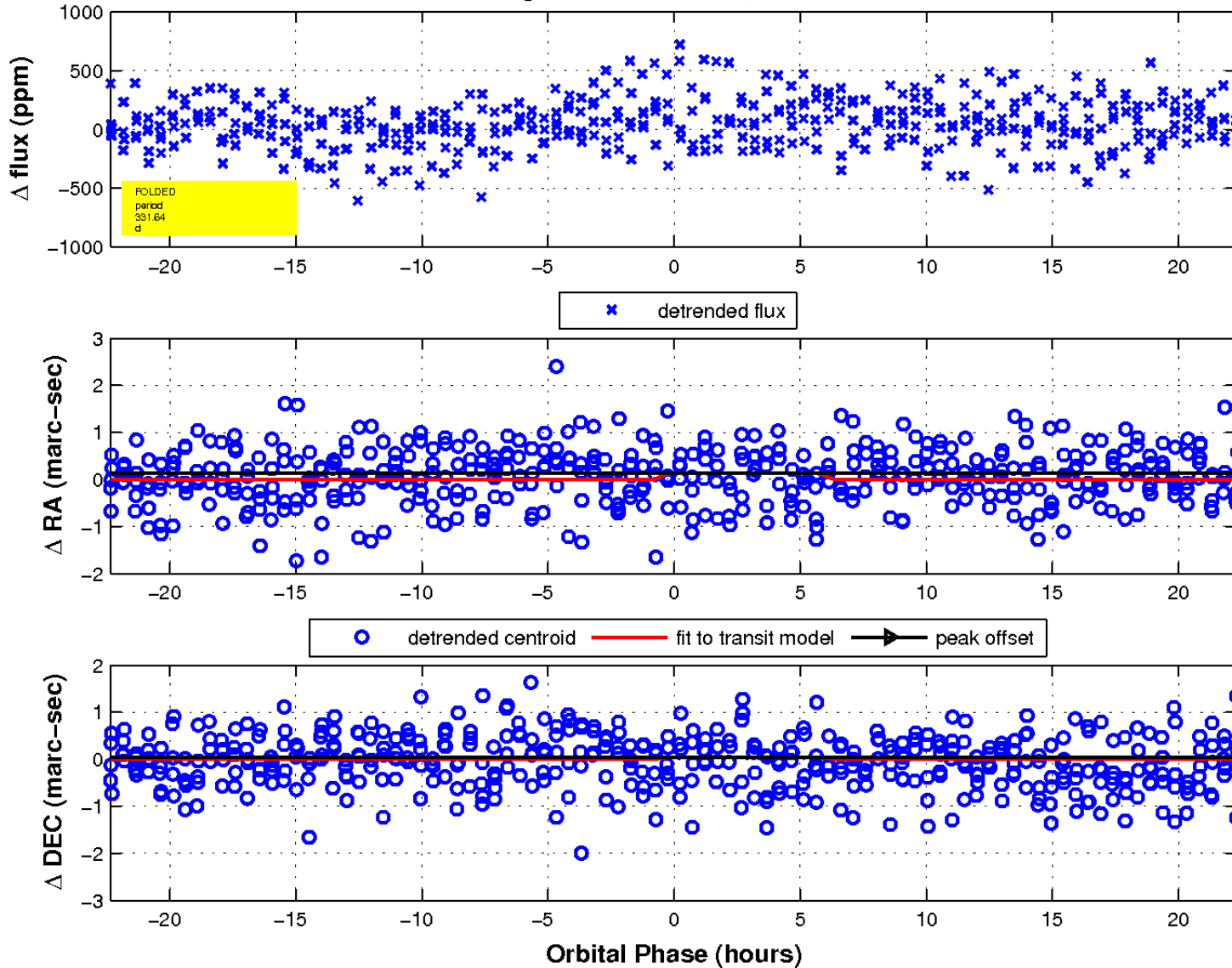
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

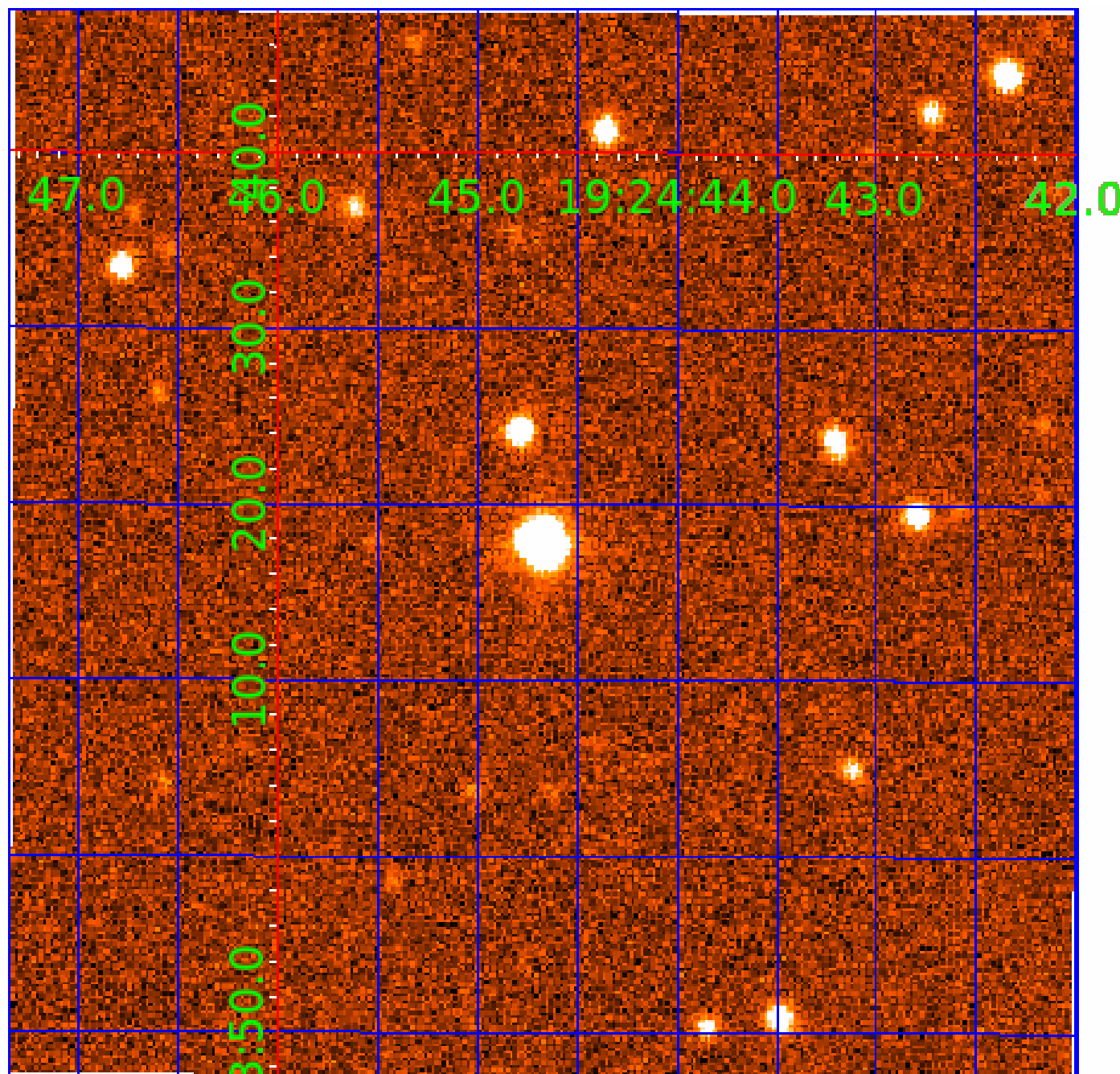


fluxWeightedCentroids, Planet 2 of 5



UKIRT Image

Declination



KIC 005531657

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})
005531657-01	OBS	No	2.397469	133.249572	20.2	11.564	7.6	7.4	1.44	6995	0.66	2967.23
005531657-02	OBS	No	331.636679	246.831195	497.9	15.000	20.3	-1.0	1.44	6995	3.25	4.15
005531657-03	OBS	No	320.440294	416.990253	413.8	4.402	13.6	10.0	1.44	6995	3.08	4.34
005531657-04	OBS	No	227.209773	313.755743	211.0	10.687	8.1	6.2	1.44	6995	2.29	6.87
005531657-05	OBS	No	170.823154	245.621808	180.2	6.491	7.9	6.5	1.44	6995	2.17	10.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005531657-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
005531657-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
005531657-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005531657-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
005531657-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

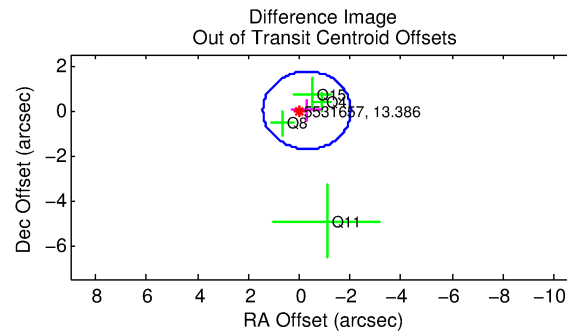
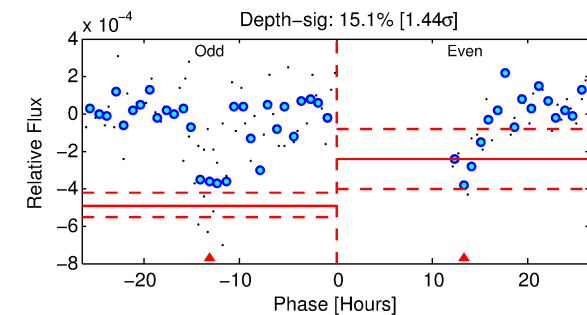
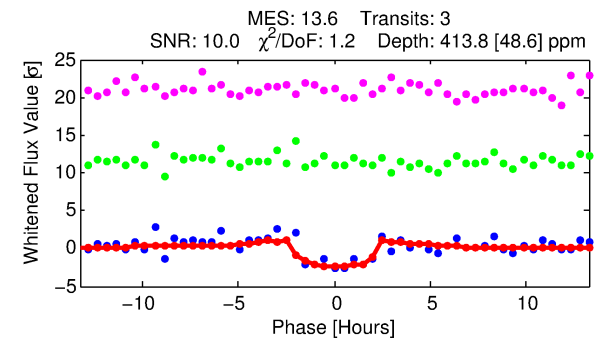
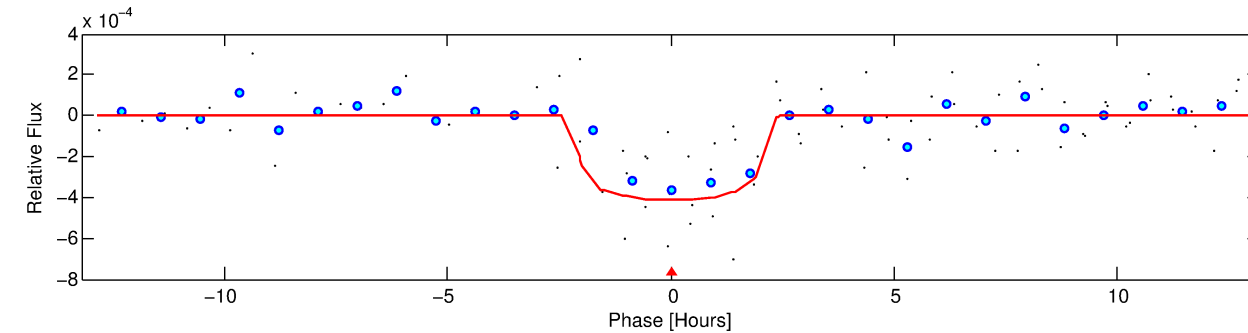
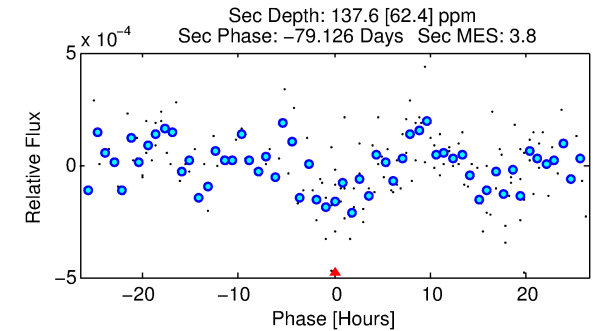
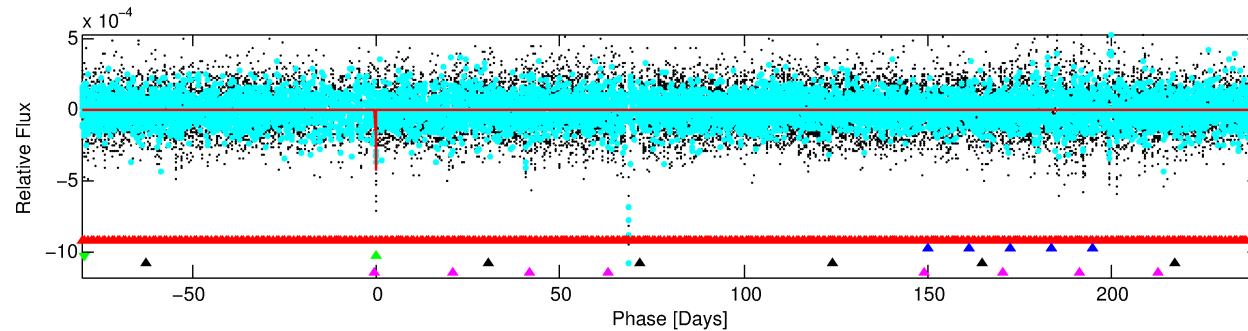
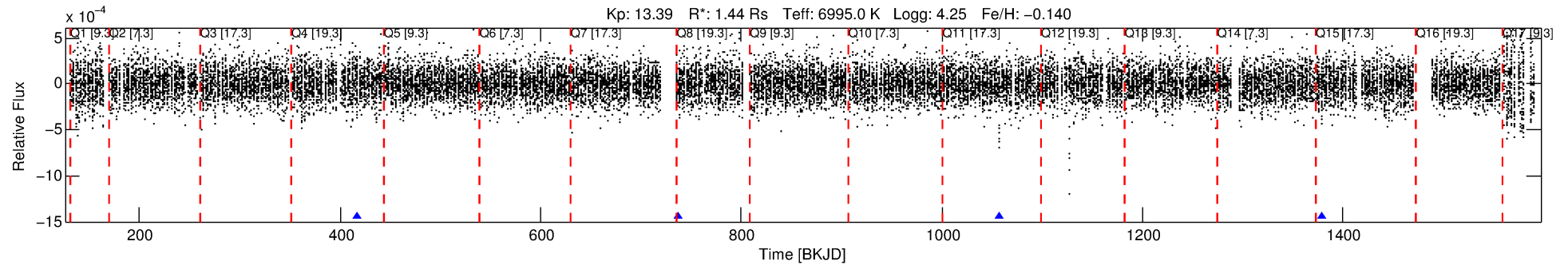
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005531657-03

No Significant Match Found

DV One-Page Summary

KIC: 5531657 Candidate: 3 of 5 Period: 320.440 d



DV Fit Results:

Period = 320.44029 [0.00477] d
Epoch = 416.9903 [0.0099] BKJD
Rp/R* = 0.0196 [0.0237]
a/R* = 457.66 [3201.24]
b = 0.60 [7.50]
Seff = 4.34 [1.32]
Teq = 368 [28] K
Rp = 3.08 [3.79] Re
a = 1.0135 [0.1818] AU
Ag = 8178.16 [20245.95] [0.40σ]
Teffp = 5412 [3339] K [1.51σ]

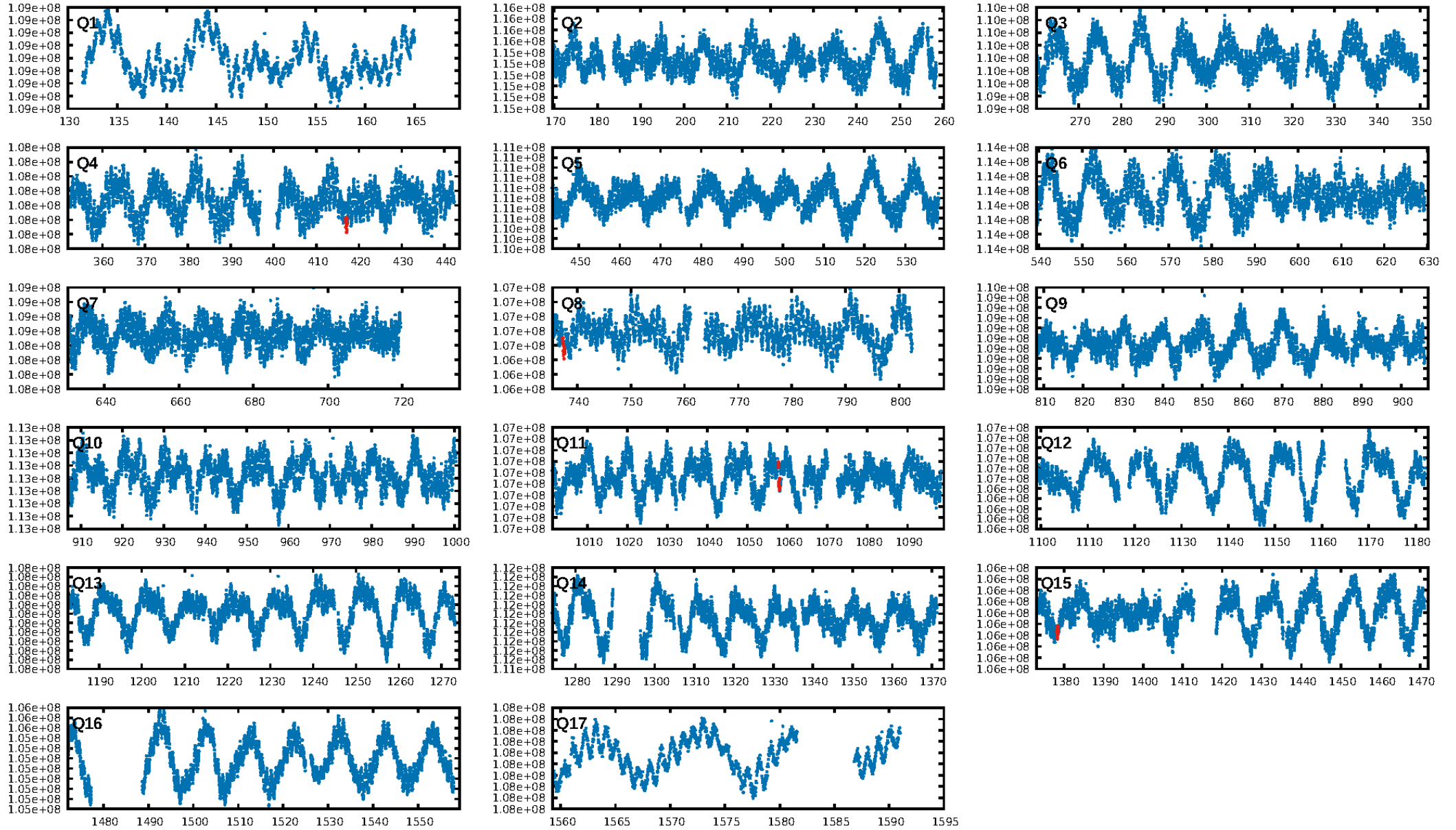
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [193.60σ]
LongPeriod-sig: 100.0% [17.19σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 82.0%
Bootstrap-pfa: 1.06e-24
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.1312
Centroid-sig: 1.4%
Centroid-so: 1.059 arcsec [1.55σ]
OotOffset-rm: 0.302 arcsec [0.52σ]
KicOffset-rm: 0.317 arcsec [0.55σ]
OotOffset-st: 0/2/2/0 [4]
KicOffset-st: 0/2/2/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.75 [3/4]

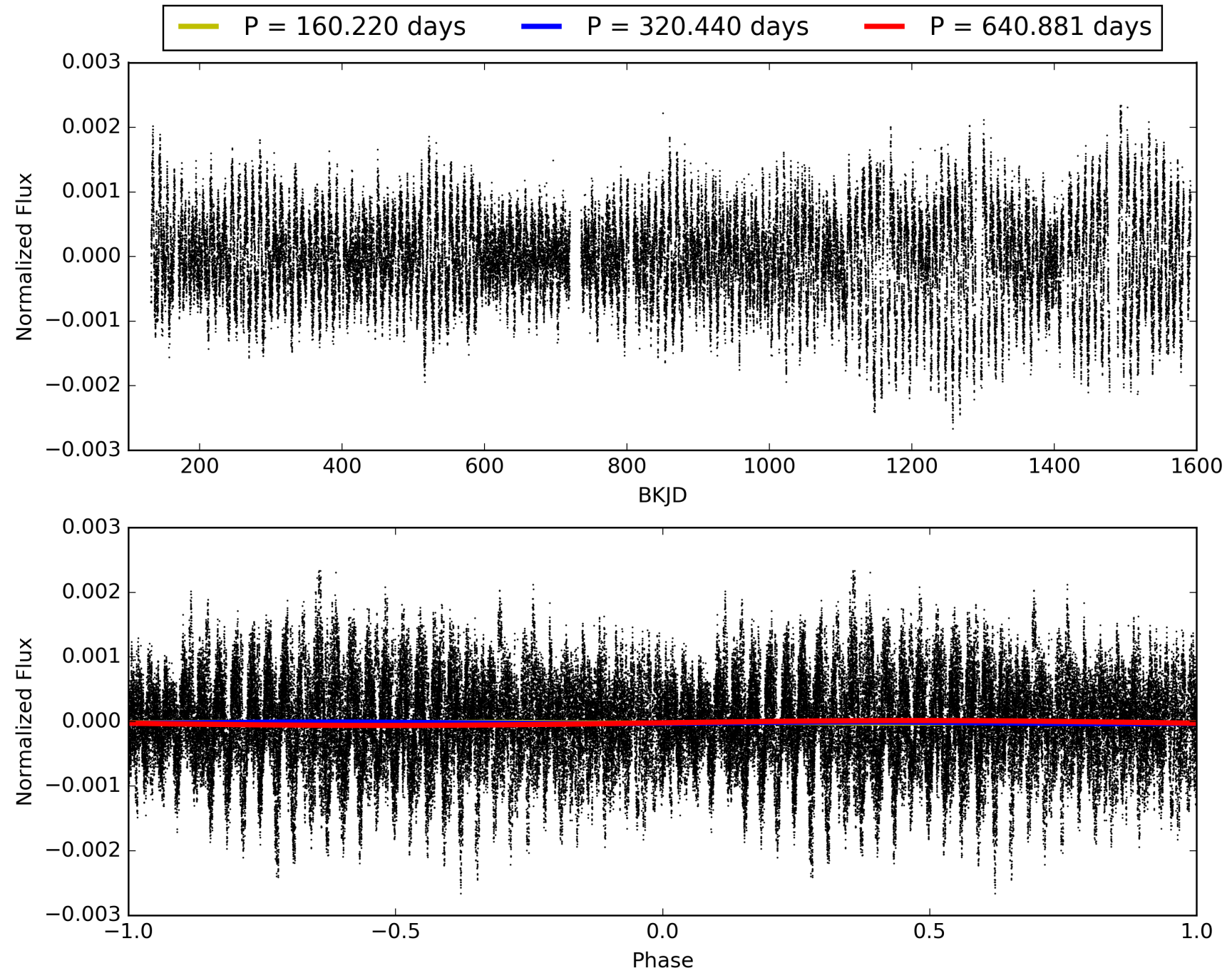
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:36:51 Z

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

TCE 005531657-03, PDC Light Curves

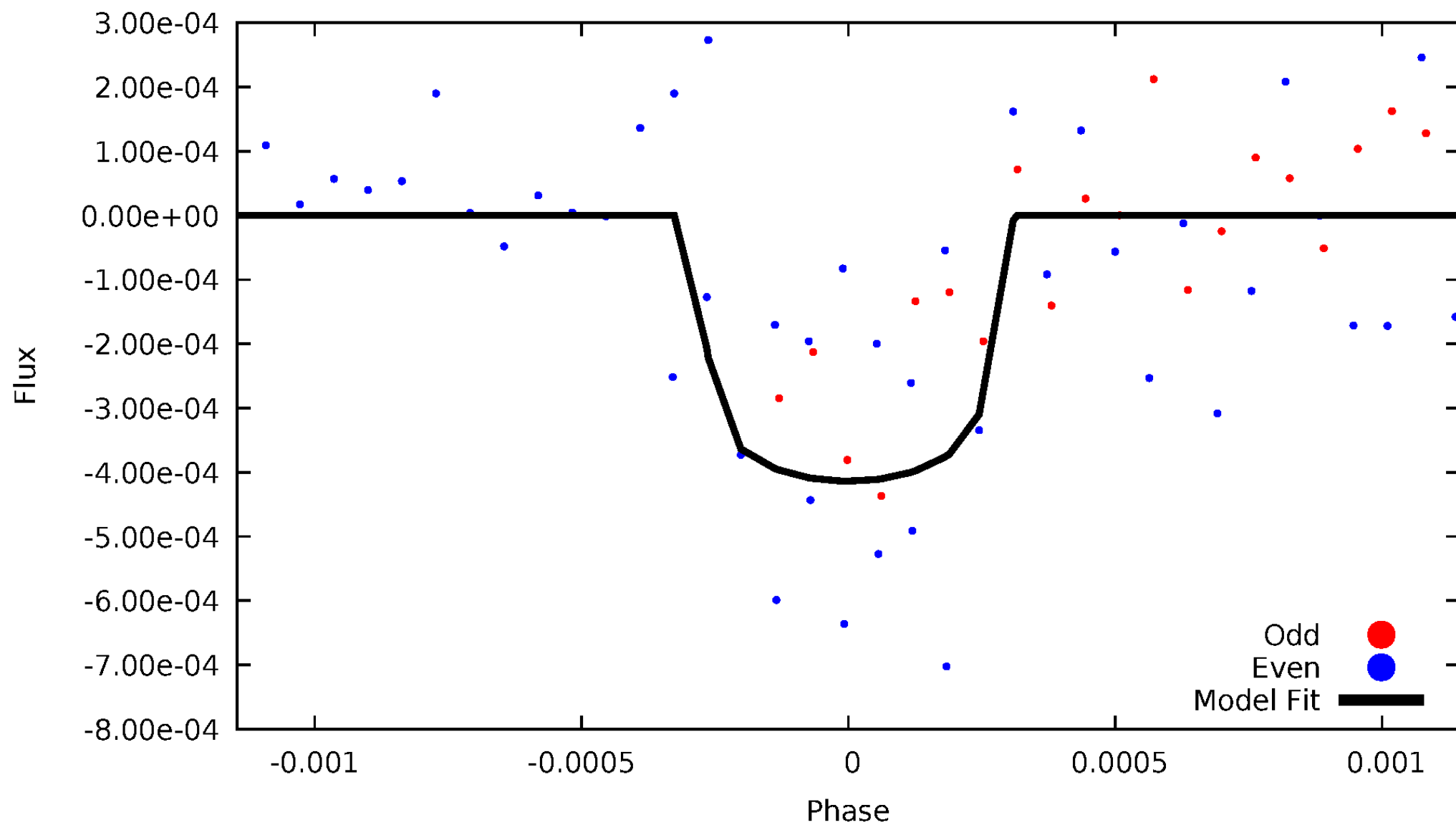


TCE 005531657-03



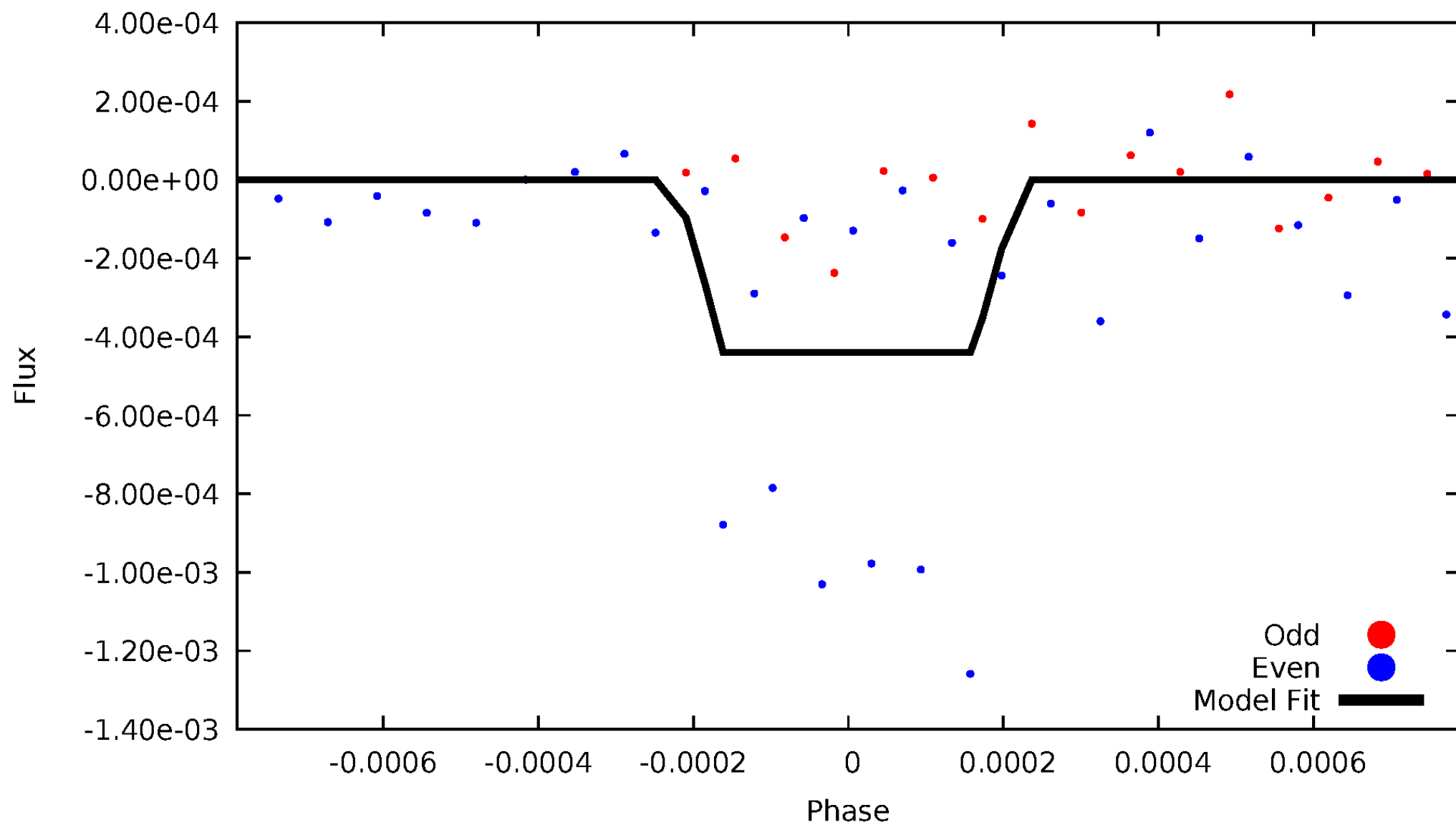
DV Odd/Even

TCE 005531657-03



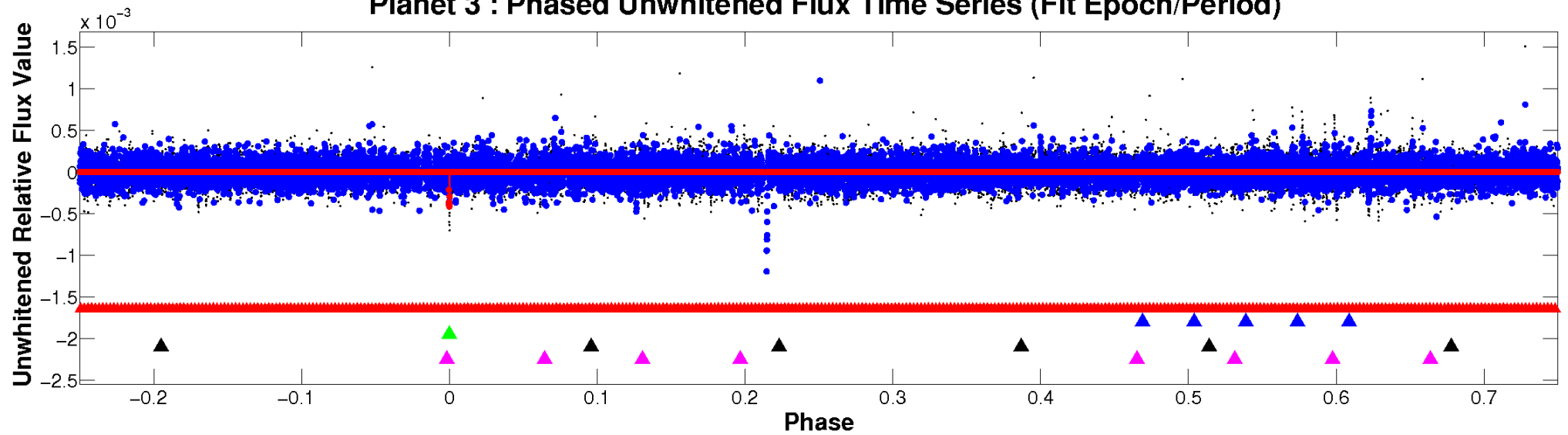
ALT Odd/Even

TCE 005531657-03

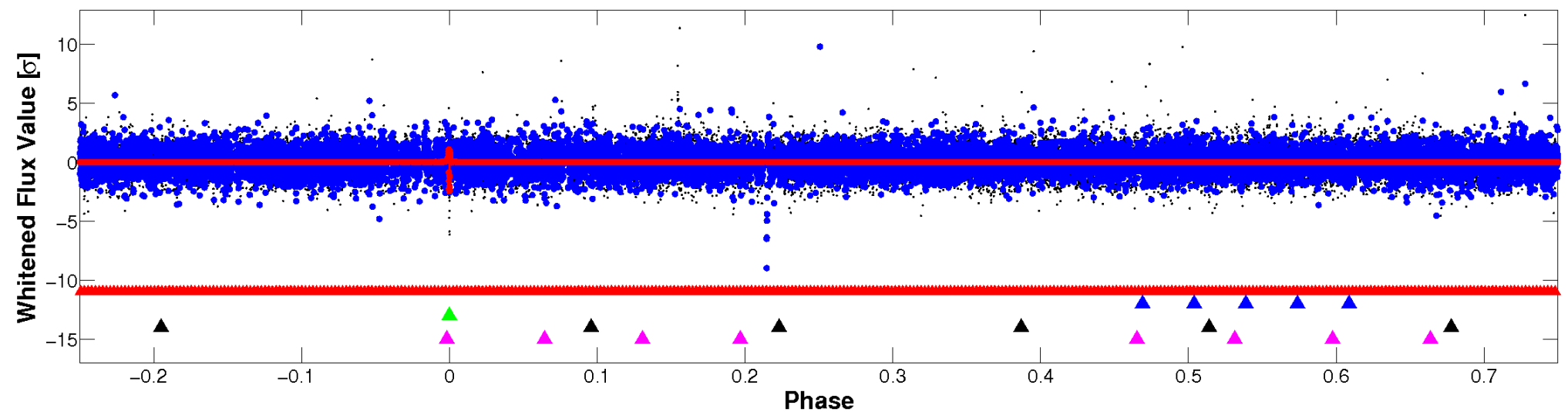


Non-Whitened Vs. Whitened Light Curve

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

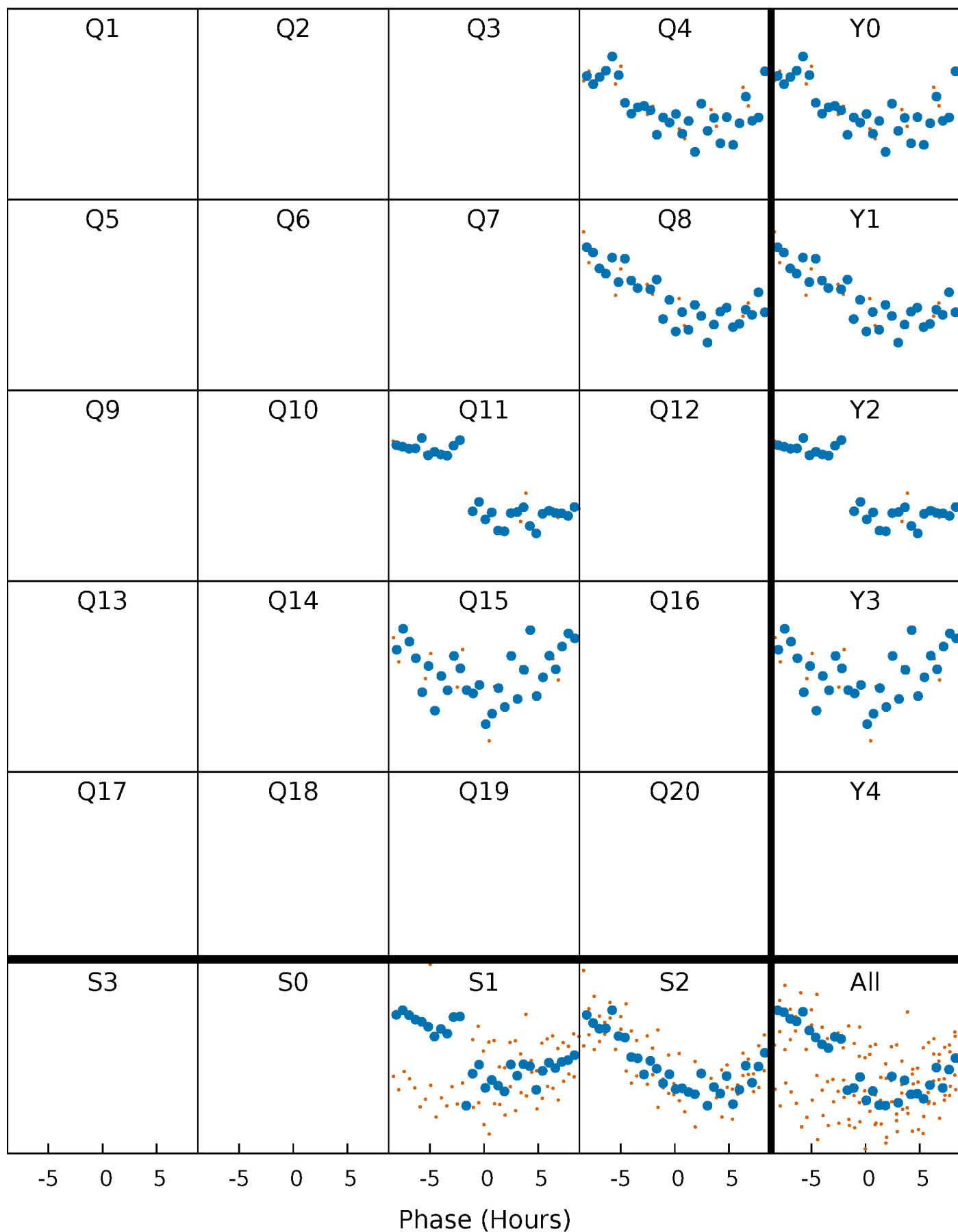


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



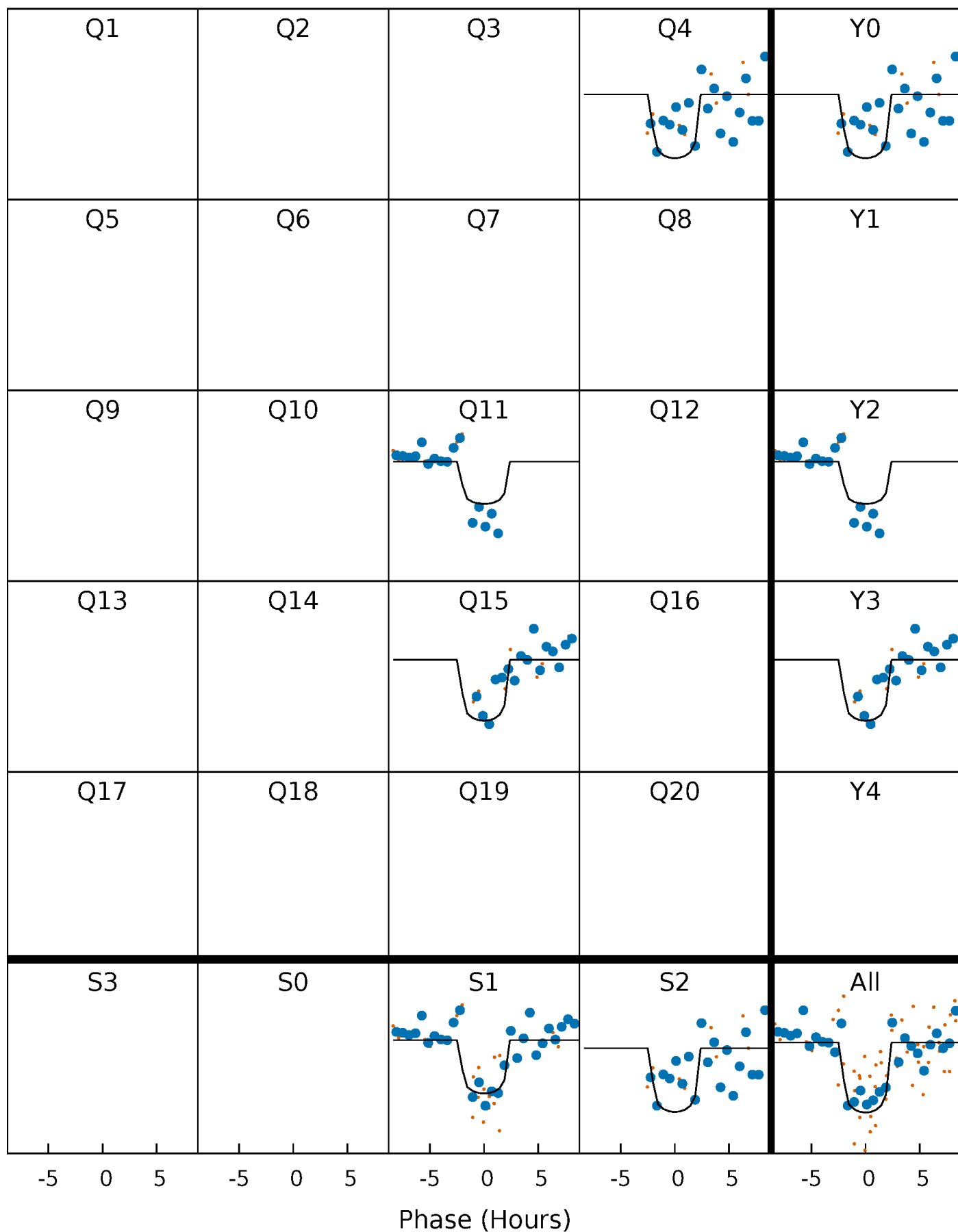
PDC Quarter-Phased Transit Curves

TCE 005531657-03 $P=320.440294$ Days $T_0=416.990253$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 005531657-03 P=320.440294 Days $T_0=416.990253$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

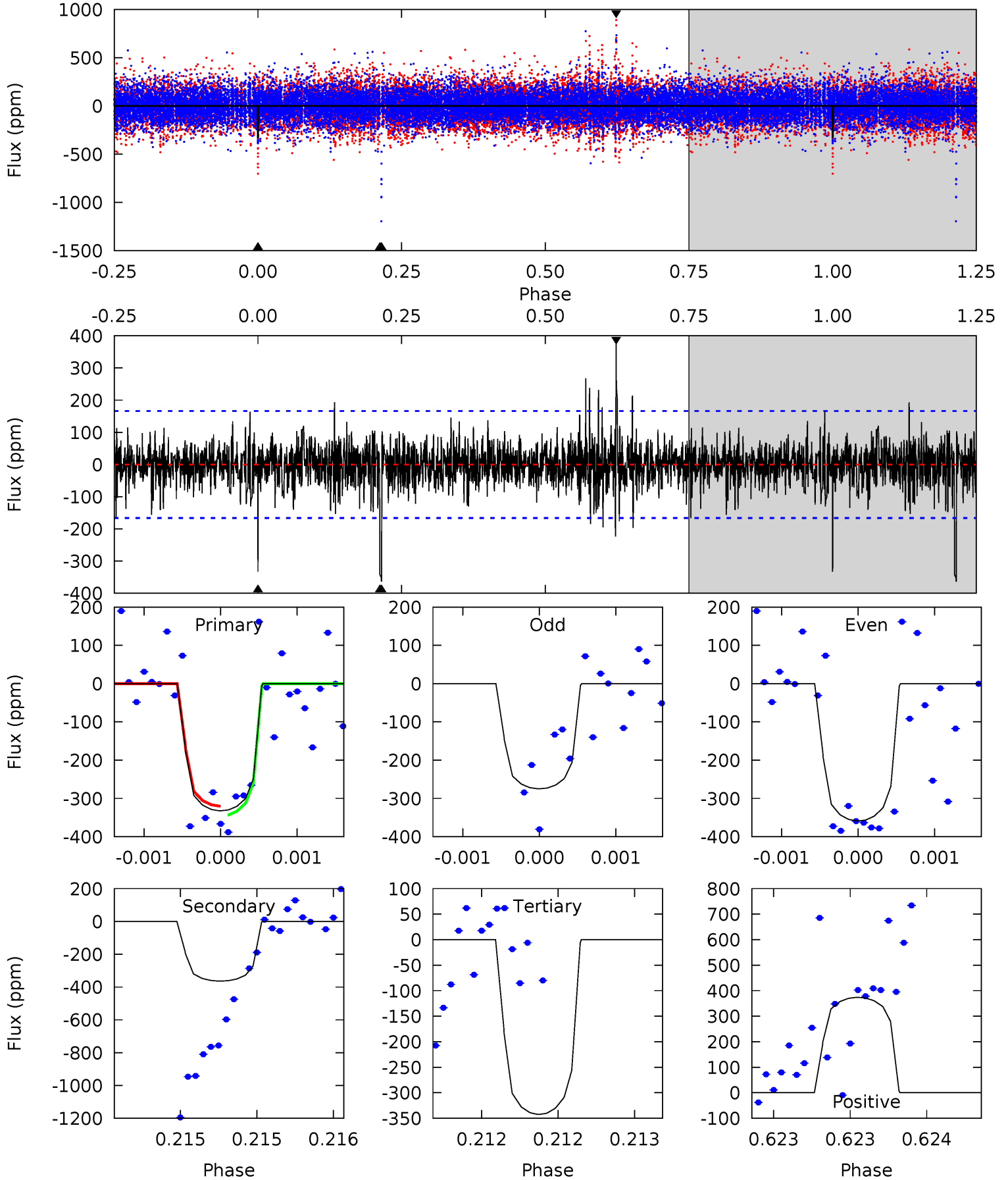
TCE 005531657-03 P=320.457403 Days $T_0=416.964535$ (BKJD)



DV Model-Shift Uniqueness Test

005531657-03, P = 320.440294 Days, E = 96.549959 Days

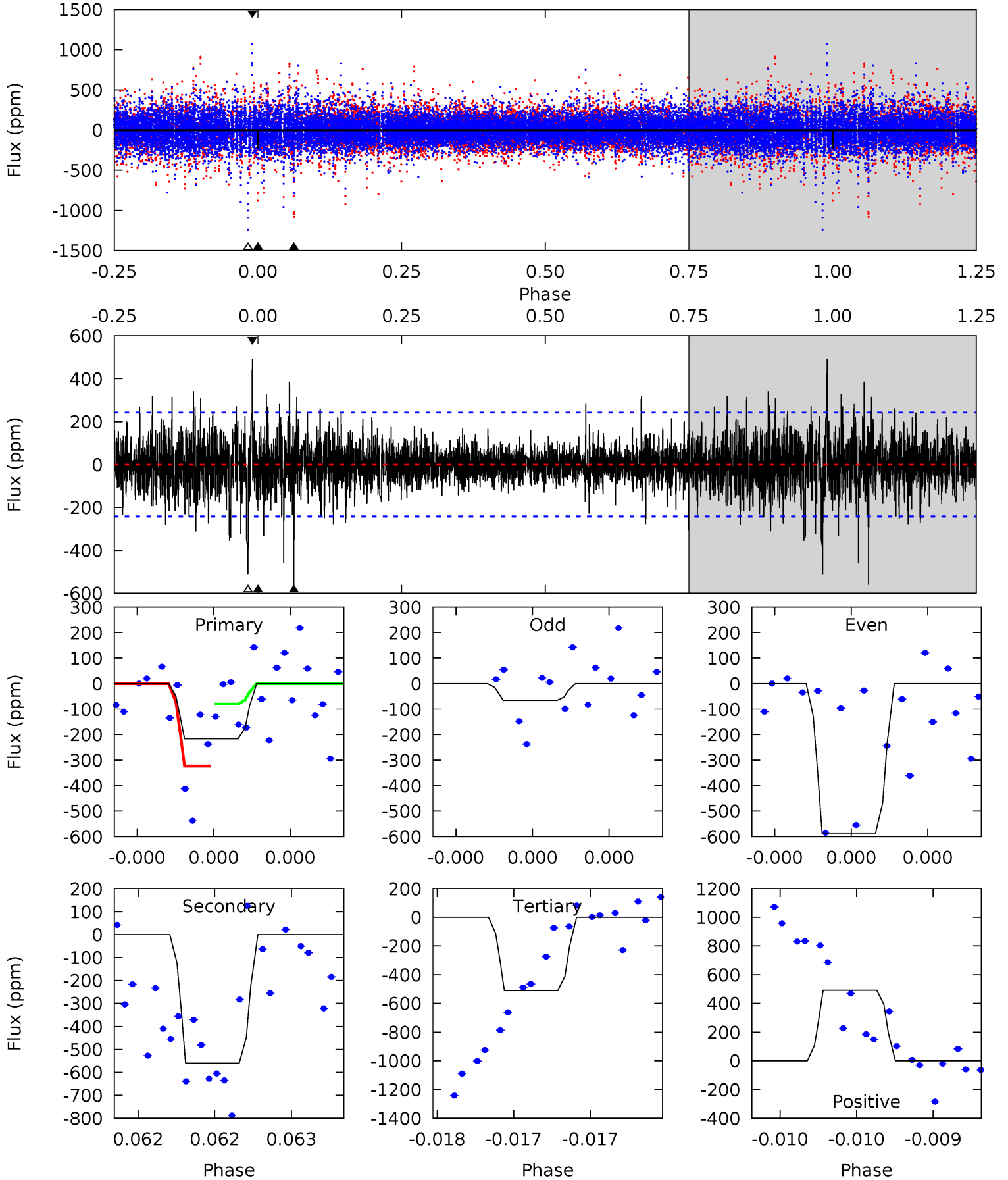
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	12.1	11.4	12.5	5.55	3.44	1.66	-0.34	-1.39	0.72	-0.34	1.33	1.24	0.51	0.39



Alt Model-Shift Uniqueness Test

005531657-03, P = 320.457403 Days, E = 96.507132 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.00	12.9	11.8	11.4	5.60	3.53	1.88	-6.77	-6.39	1.16	1.55	6.27	2.70	0.47	2.82



Stellar Parameters For KIC 005531657

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6995^{+192}_{-288}	$4.251^{+0.092}_{-0.138}$	$-0.140^{+0.250}_{-0.350}$	$1.442^{+0.313}_{-0.209}$	$1.361^{+0.150}_{-0.206}$	$0.639^{+0.282}_{-0.272}$
	+3%/-4%	+2%/-3%	+179%/-250%	+22%/-14%	+11%/-15%	+44%/-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 005531657-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-364 ± 30	$4.00^{+3.26}_{-2.62}$	517^{+30}_{-28}	6029^{+6097}_{-1365}	12725^{+97976}_{-8734}
Alt.	-560 ± 43	$4.18^{+3.54}_{-2.84}$	516^{+29}_{-28}	6558^{+7787}_{-1613}	$18377^{+152344}_{-13107}$

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

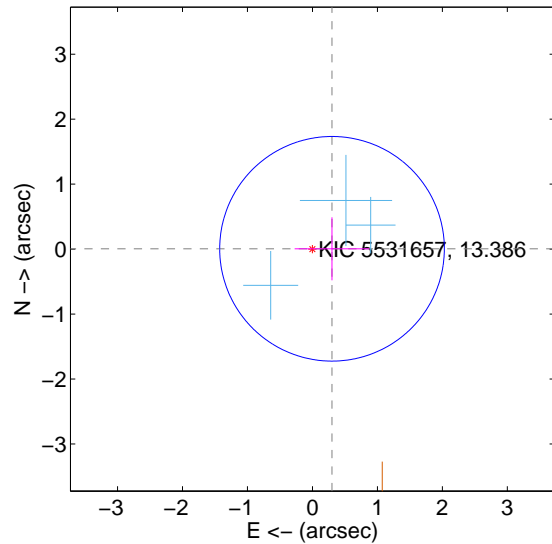
Supplemental centroid analysis for 005531657-03. Kepler magnitude: 13.39. Transit SNR 10.00

There are 3 quarters with good PRF difference image offsets

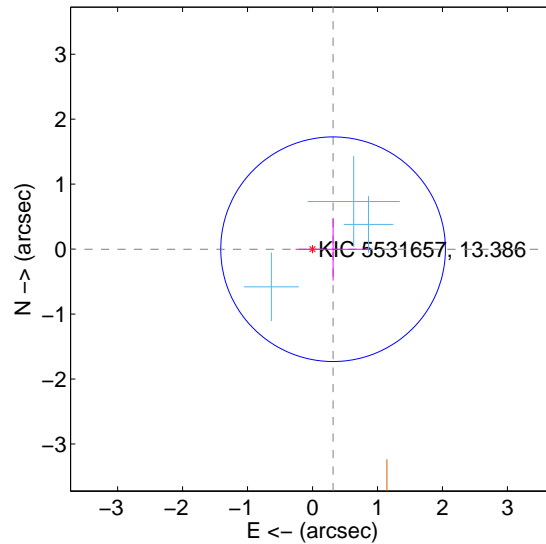
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.302 ± 0.576	0.52	-0.301 ± 0.576	0.005 ± 0.484
PRF-fit source offset from KIC position	0.317 ± 0.576	0.55	-0.317 ± 0.576	-0.002 ± 0.484
photometric centroid source offset	1.06 ± 0.68	1.55	-0.51 ± 0.69	-0.93 ± 0.68

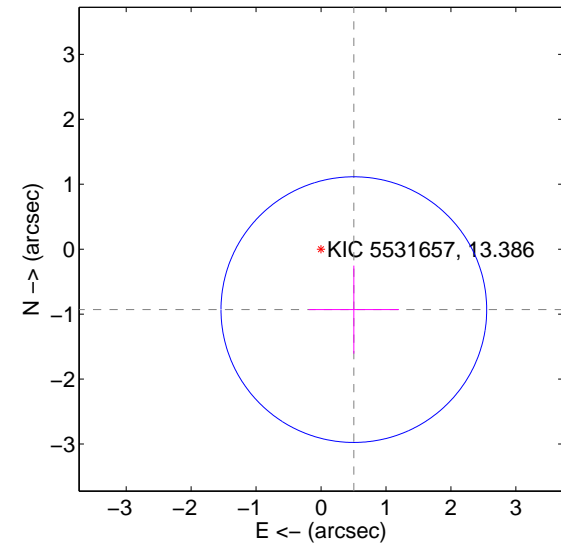
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

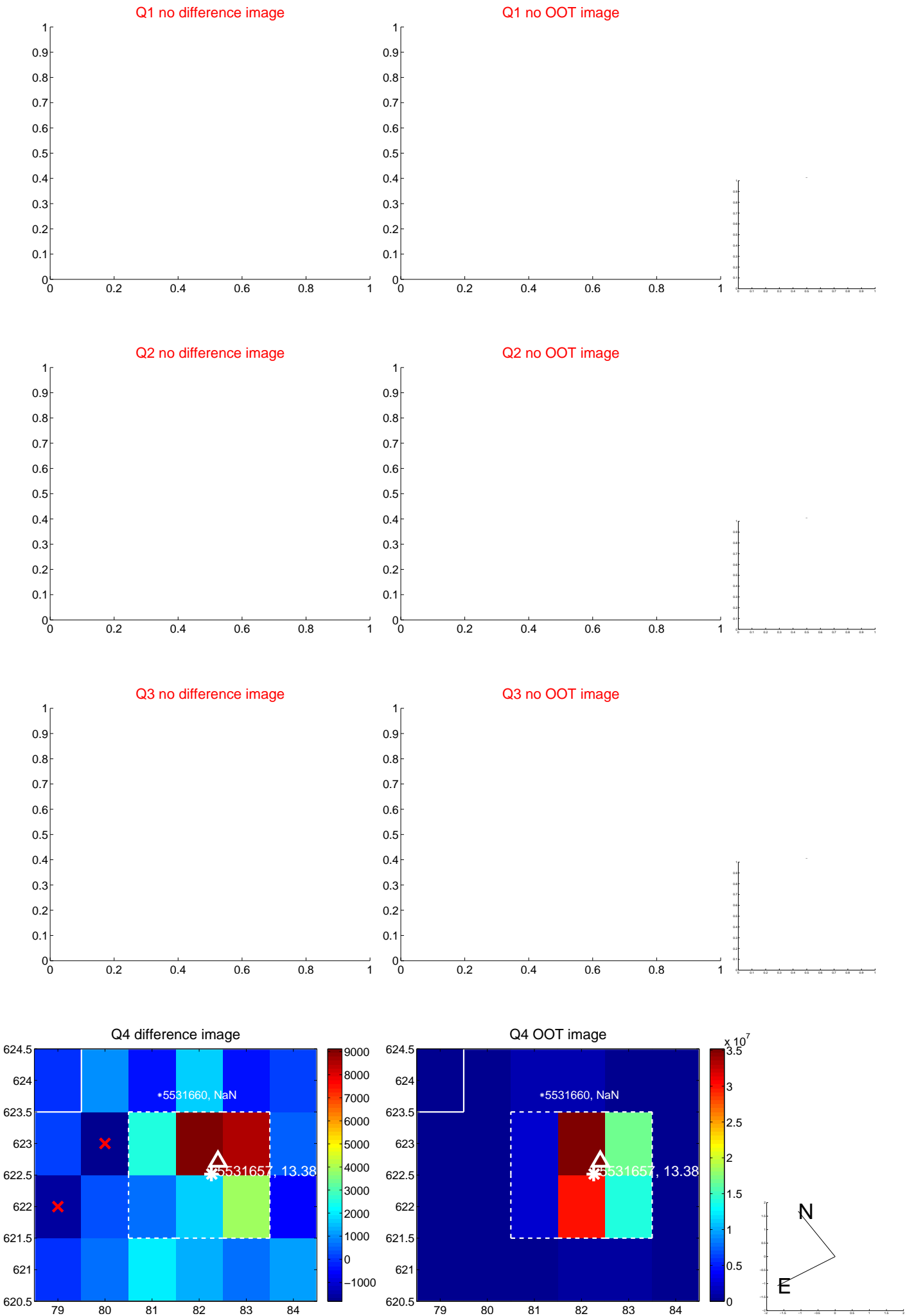


offset from photometric centroids

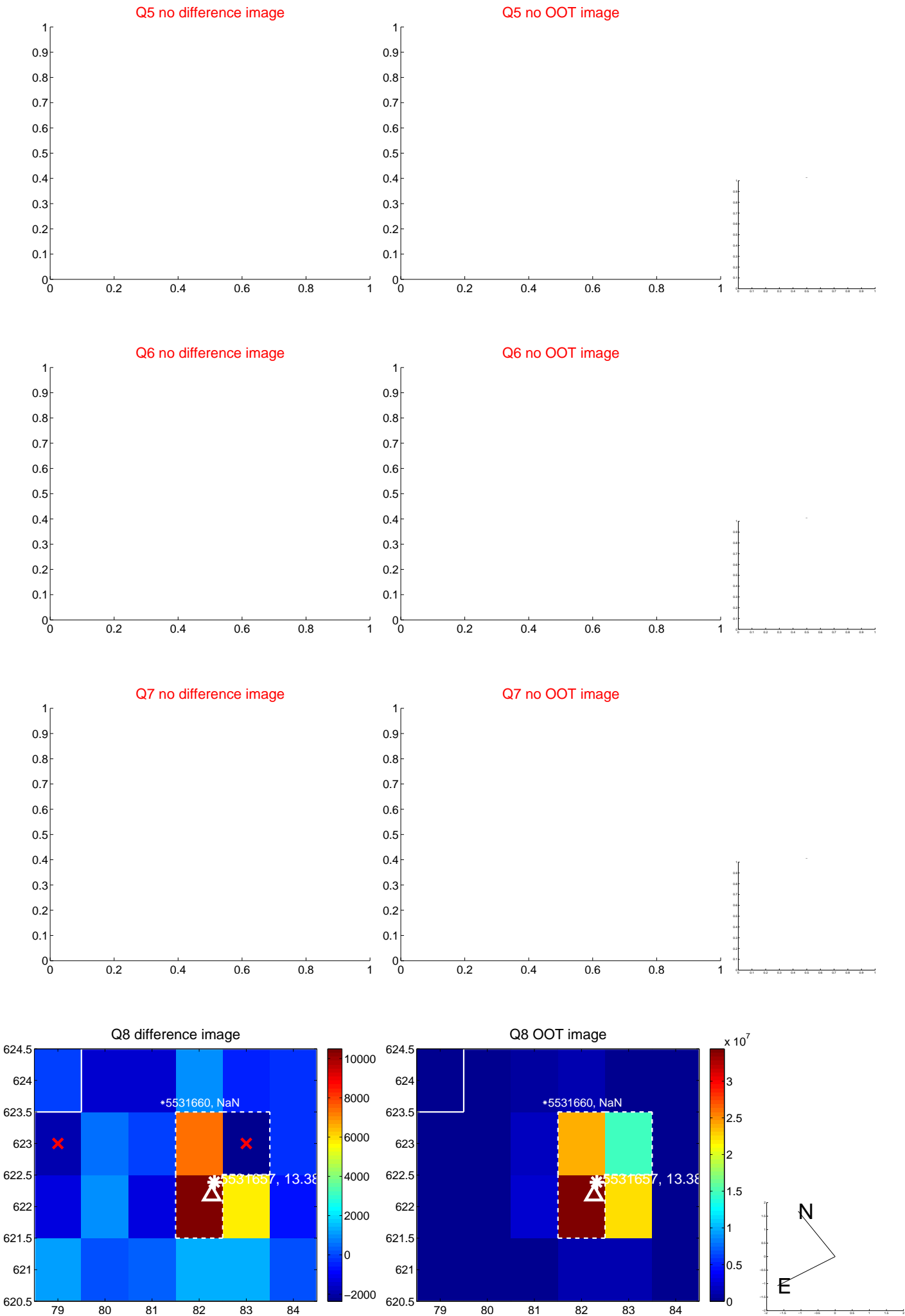


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

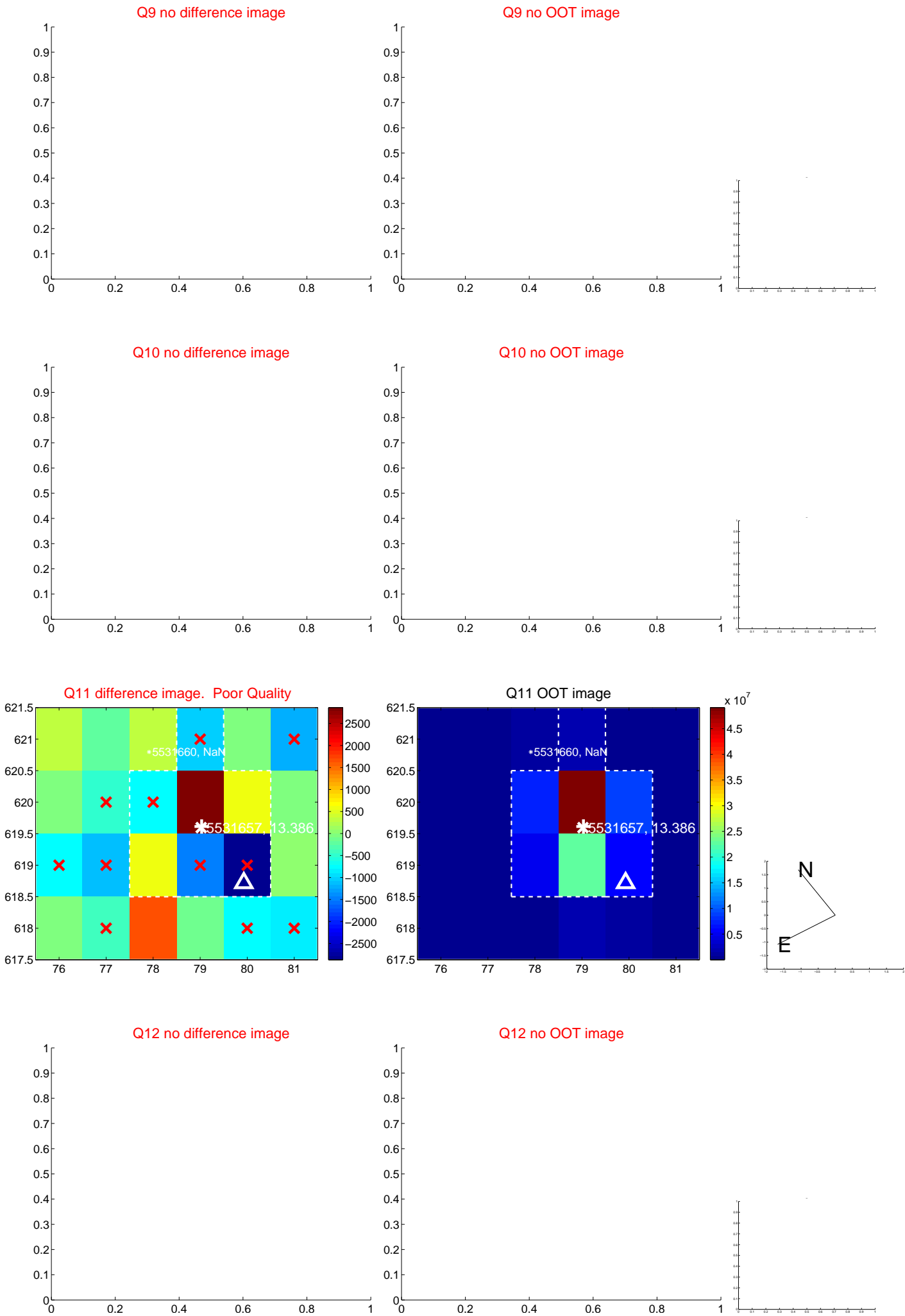
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



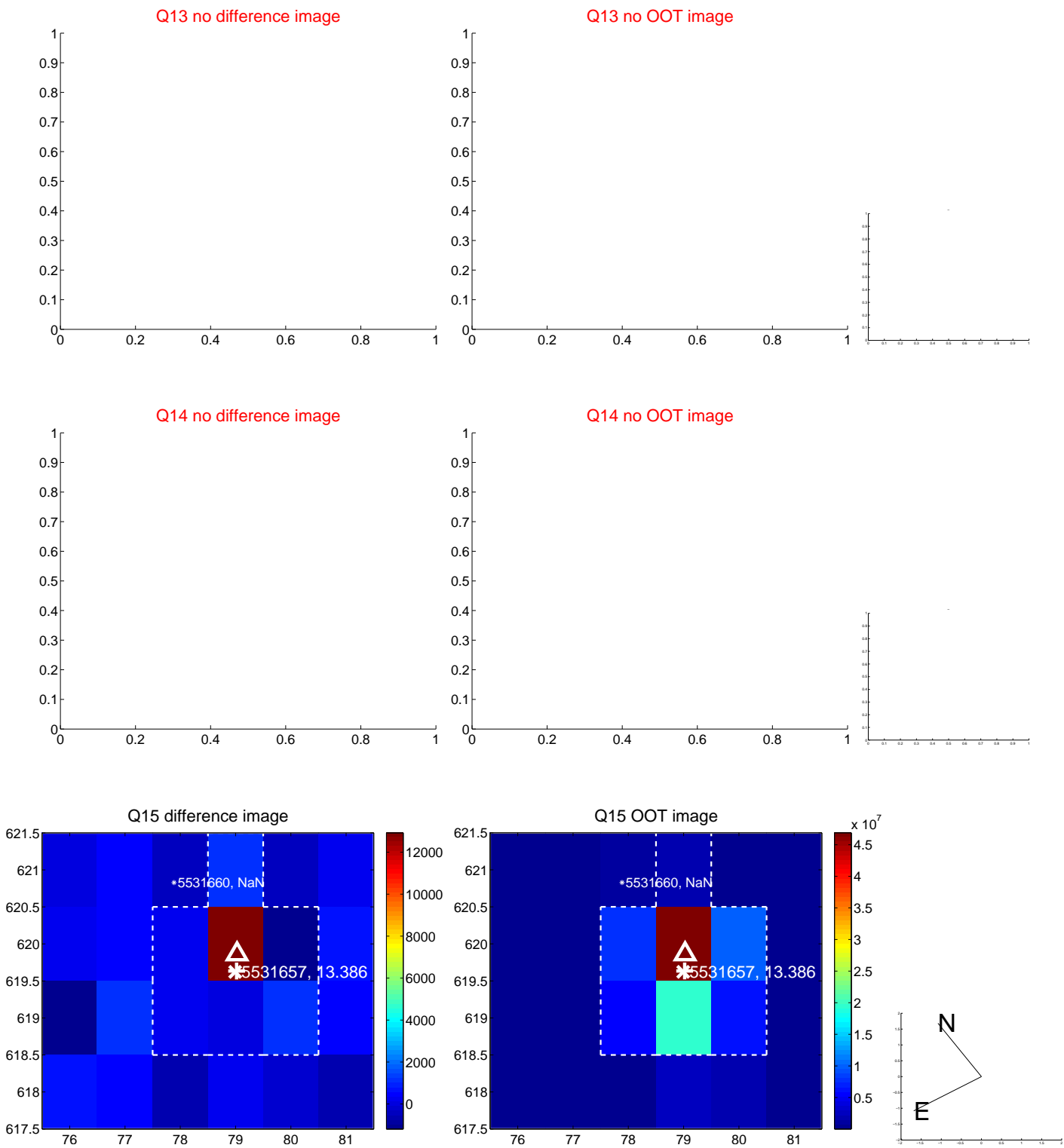
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



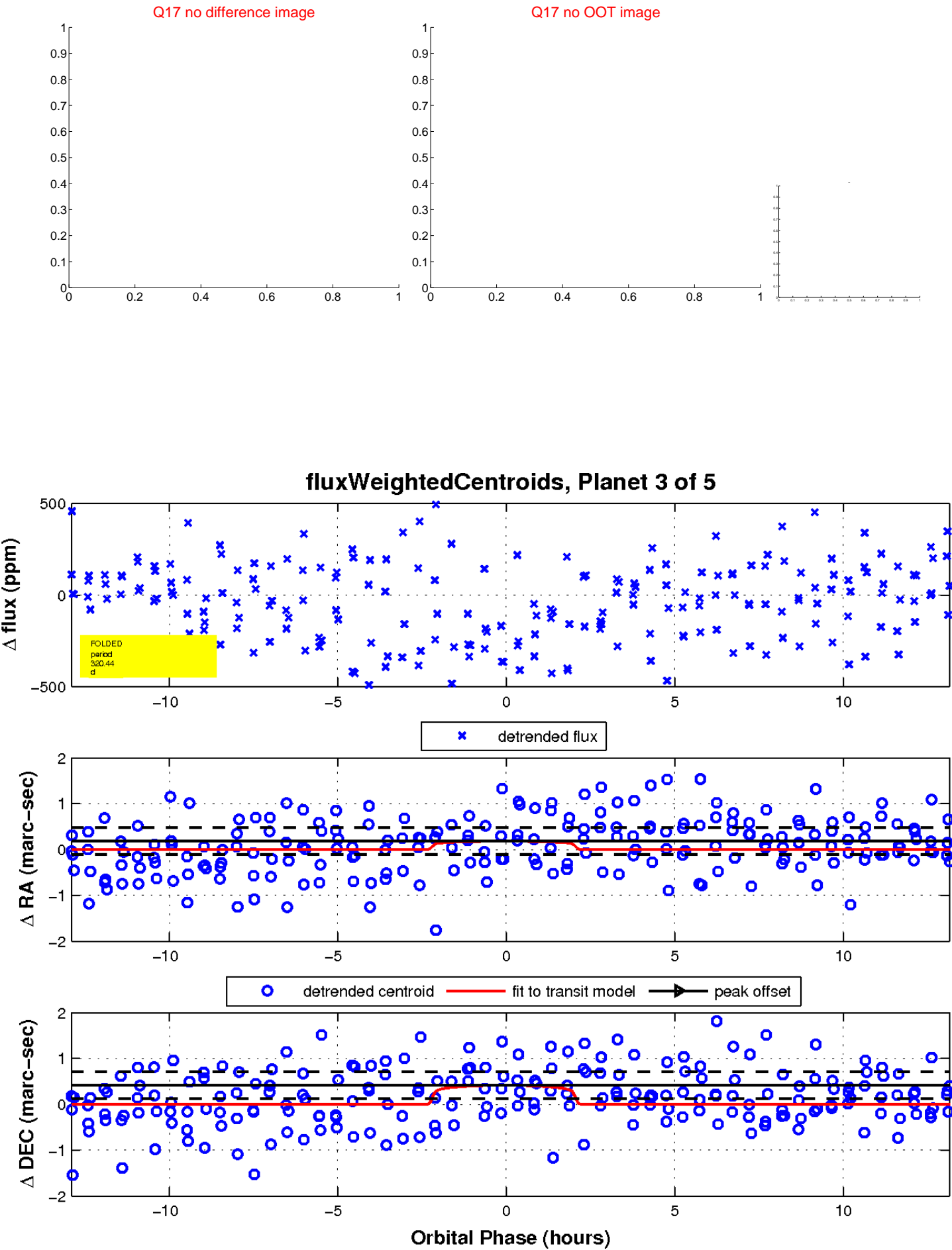
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

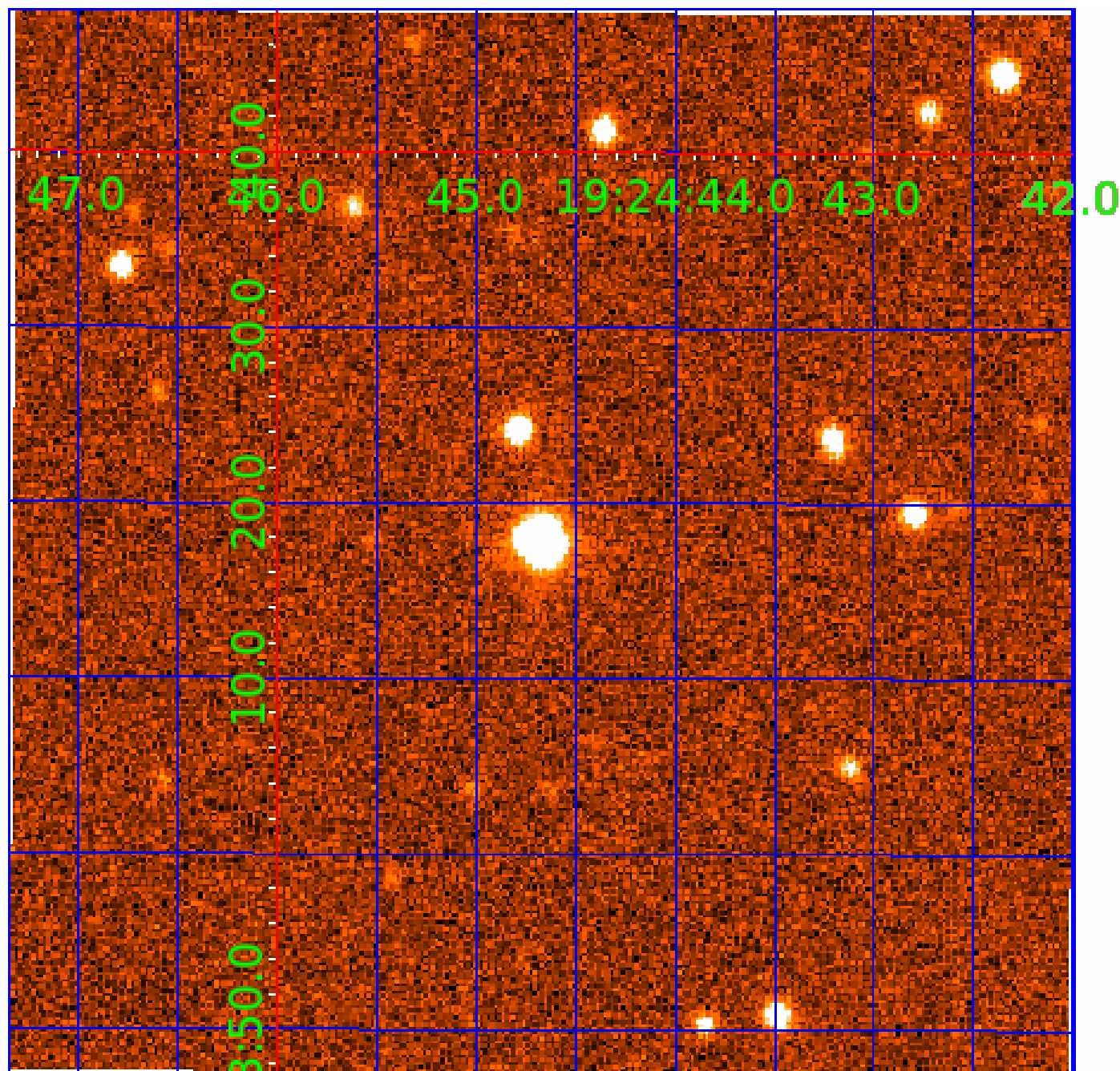


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005531657

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})
005531657-01	OBS	No	2.397469	133.249572	20.2	11.564	7.6	7.4	1.44	6995	0.66	2967.23
005531657-02	OBS	No	331.636679	246.831195	497.9	15.000	20.3	-1.0	1.44	6995	3.25	4.15
005531657-03	OBS	No	320.440294	416.990253	413.8	4.402	13.6	10.0	1.44	6995	3.08	4.34
005531657-04	OBS	No	227.209773	313.755743	211.0	10.687	8.1	6.2	1.44	6995	2.29	6.87
005531657-05	OBS	No	170.823154	245.621808	180.2	6.491	7.9	6.5	1.44	6995	2.17	10.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005531657-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
005531657-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
005531657-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005531657-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
005531657-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

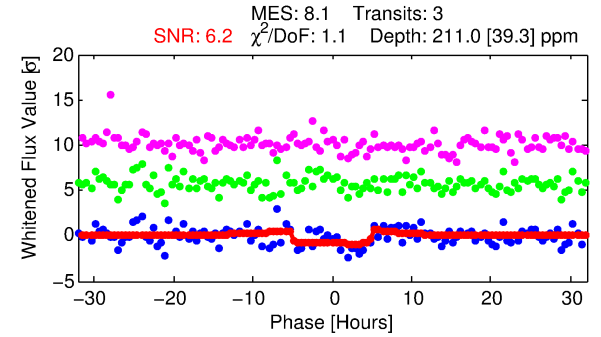
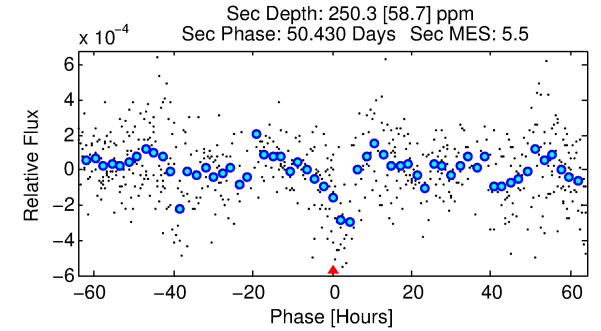
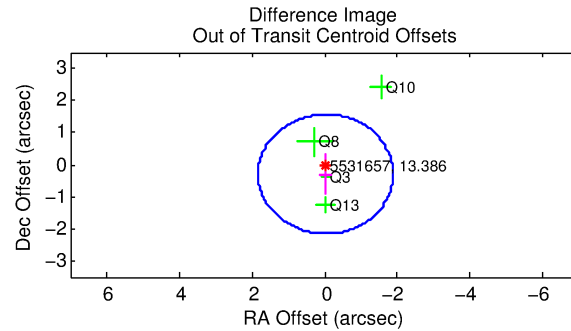
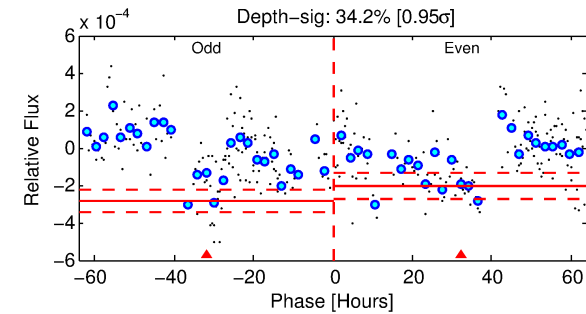
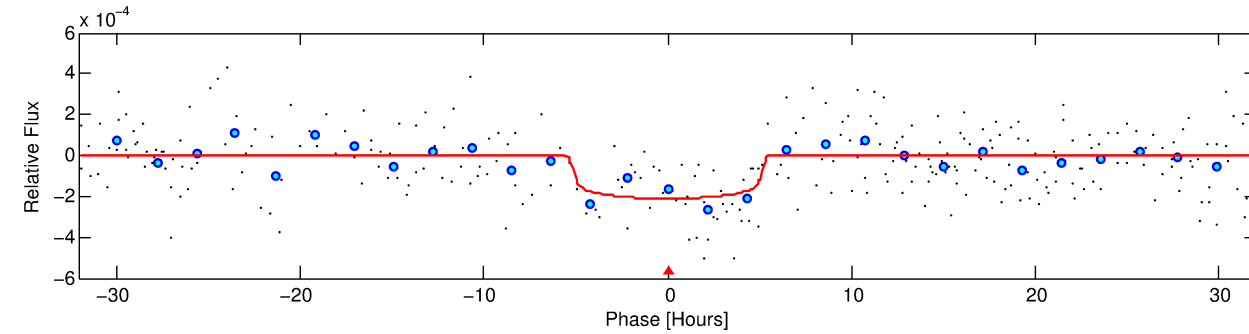
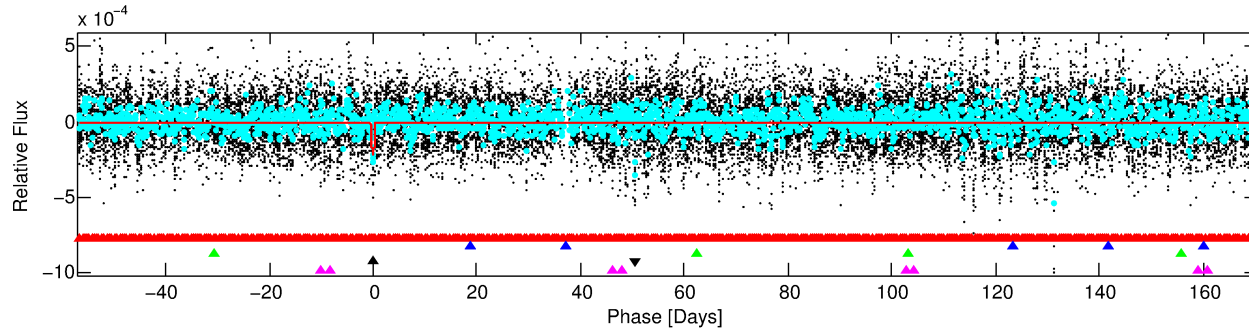
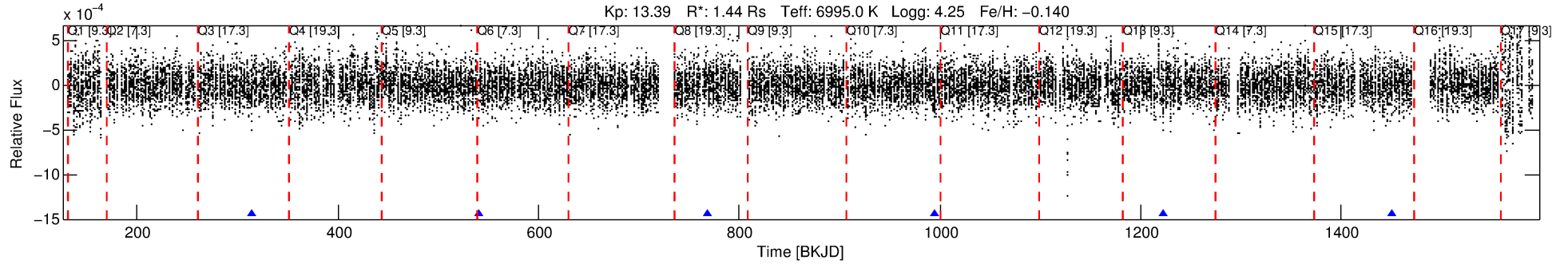
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005531657-04

No Significant Match Found

DV One-Page Summary

KIC: 5531657 Candidate: 4 of 5 Period: 227.210 d



DV Fit Results:

Period = 227.20977 [0.00710] d
Epoch = 313.7557 [0.0237] BKJD
Rp/R* = 0.0145 [0.0053]
a/R* = 106.82 [221.42]
b = 0.77 [1.07]
Seff = 6.87 [2.09]
Teq = 413 [31] K
Rp = 2.29 [0.97] Re
a = 0.8059 [0.1445] AU
Ag = 17087.19 [13812.33] [1.24 σ]
Teffp = 7297 [1430] K [4.81 σ]

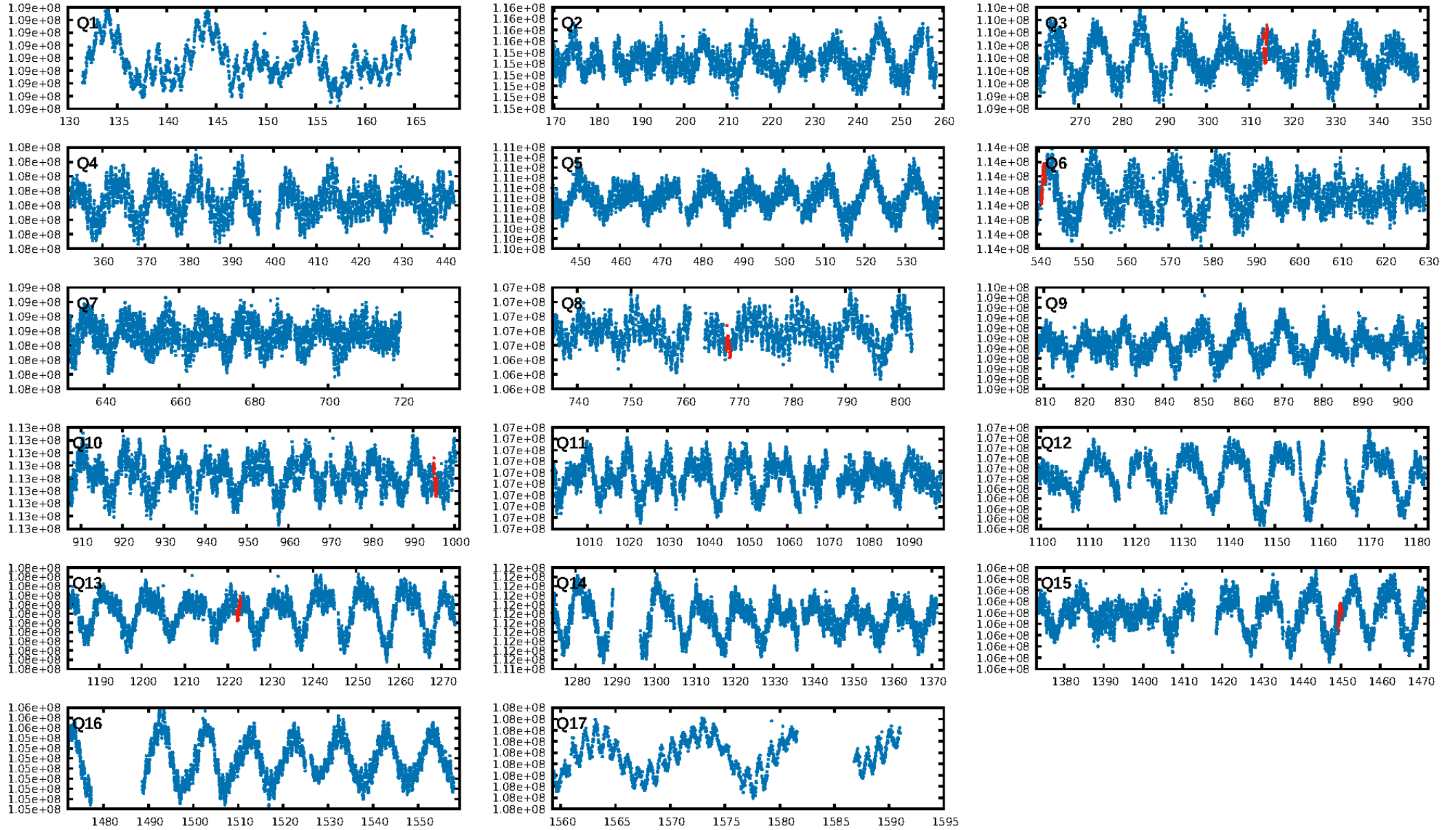
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [108.23 σ]
LongPeriod-sig: 100.0% [193.60 σ]
ModelChiSquare2-sig: 9.9%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 1.23e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.718
Centroid-sig: 1.3%
Centroid-so: 1.393 arcsec [1.67 σ]
OotOffset-rm: 0.297 arcsec [0.48 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-rm: 0.280 arcsec [0.46 σ]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.00 [0/4]

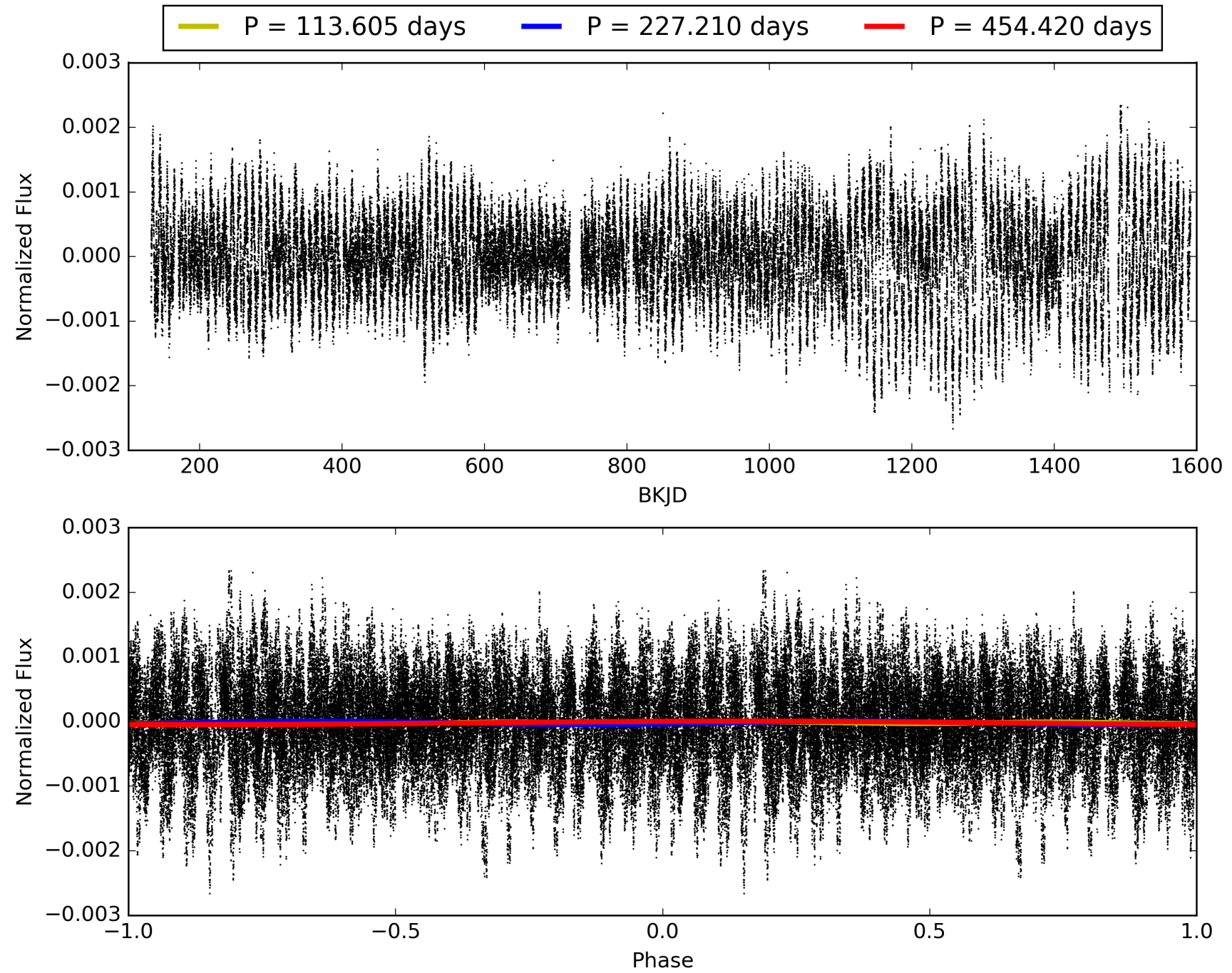
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:36:56 Z

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

TCE 005531657-04, PDC Light Curves

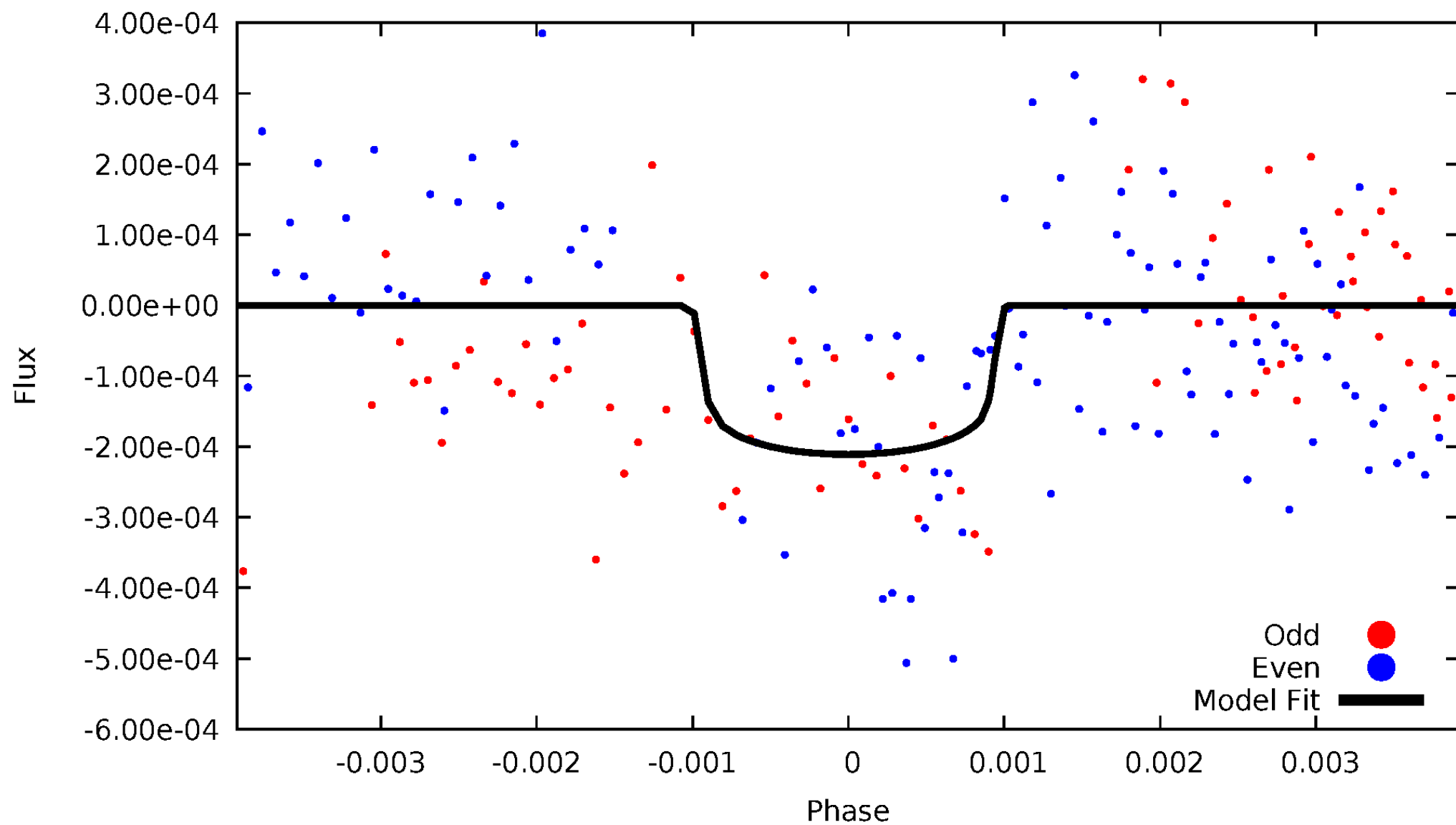


TCE 005531657-04



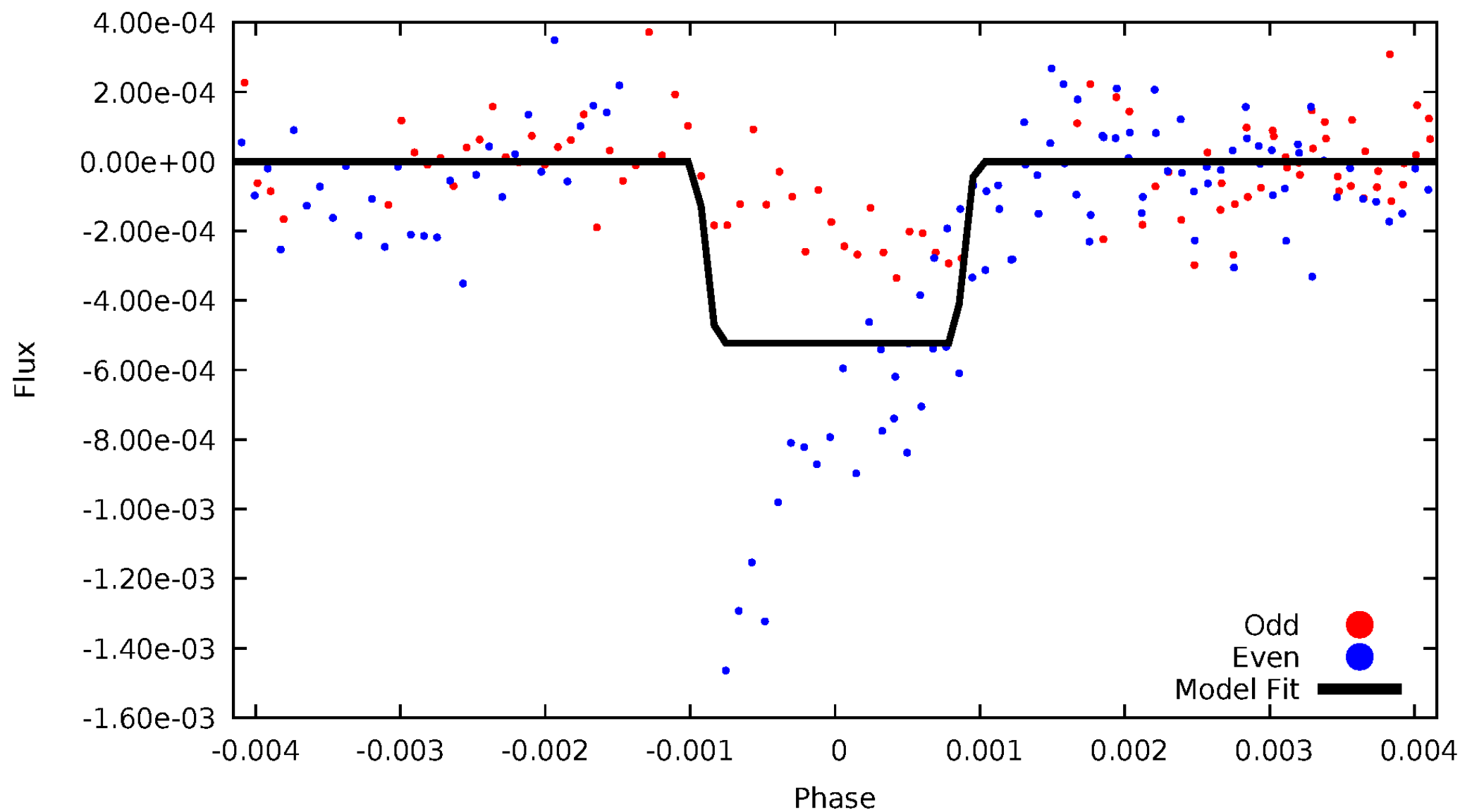
DV Odd/Even

TCE 005531657-04



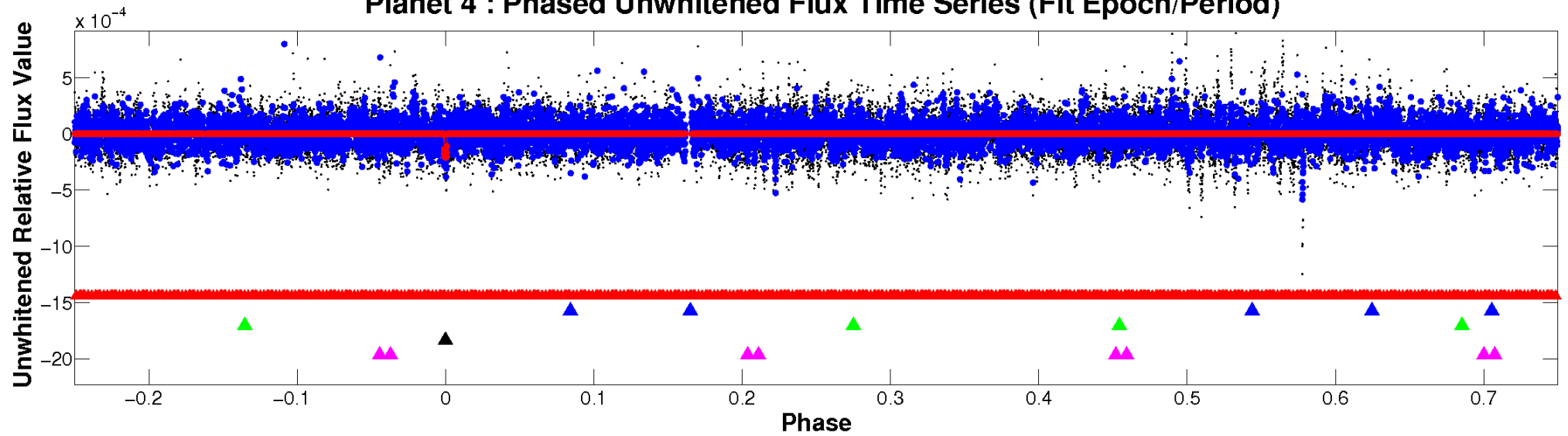
ALT Odd/Even

TCE 005531657-04

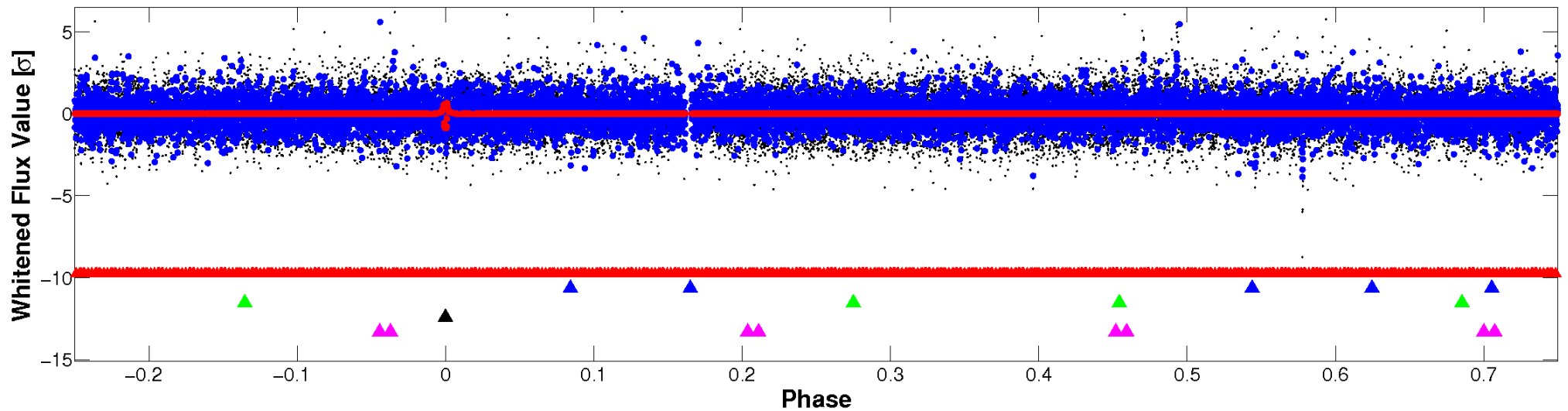


Non-Whitened Vs. Whitened Light Curve

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

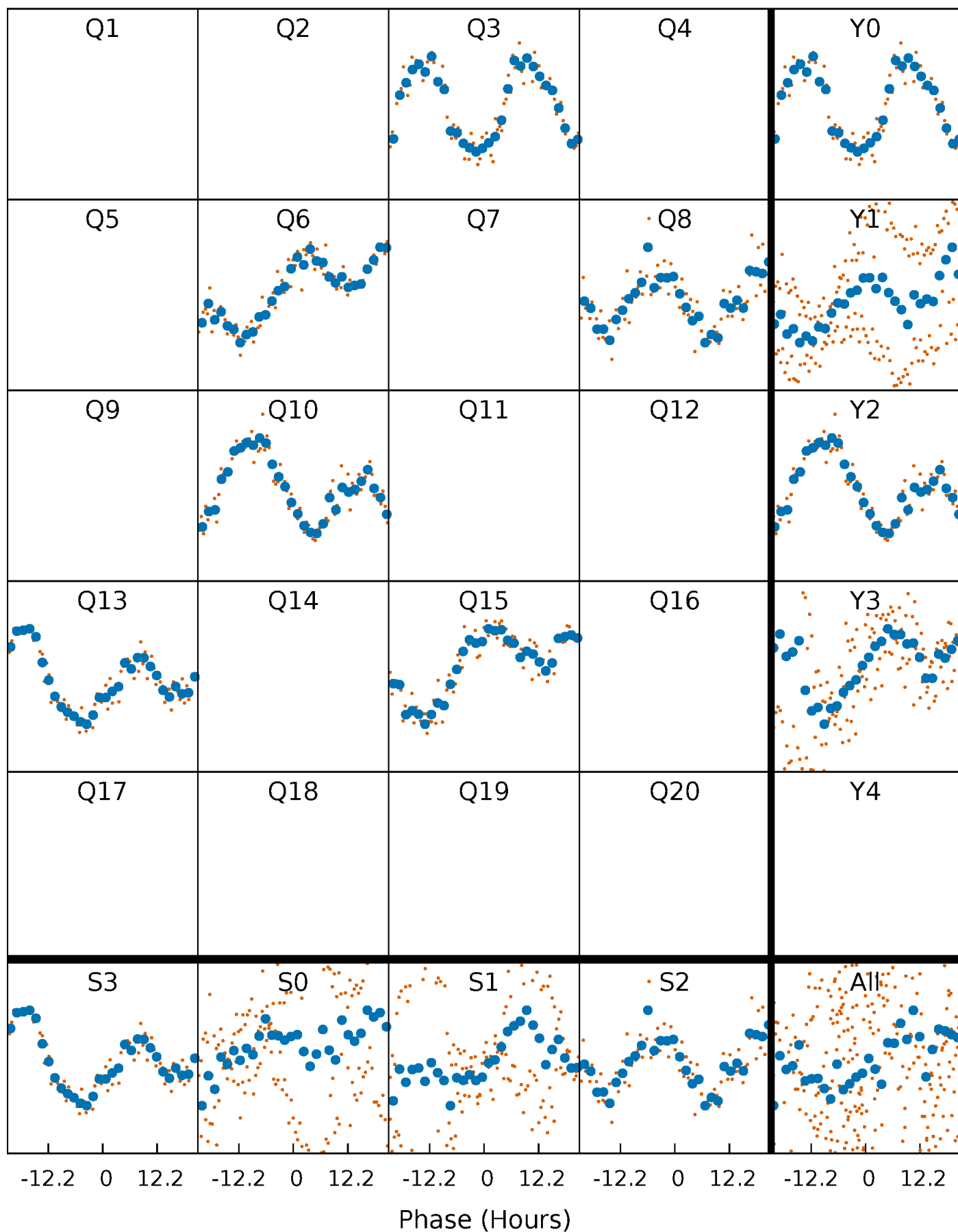


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



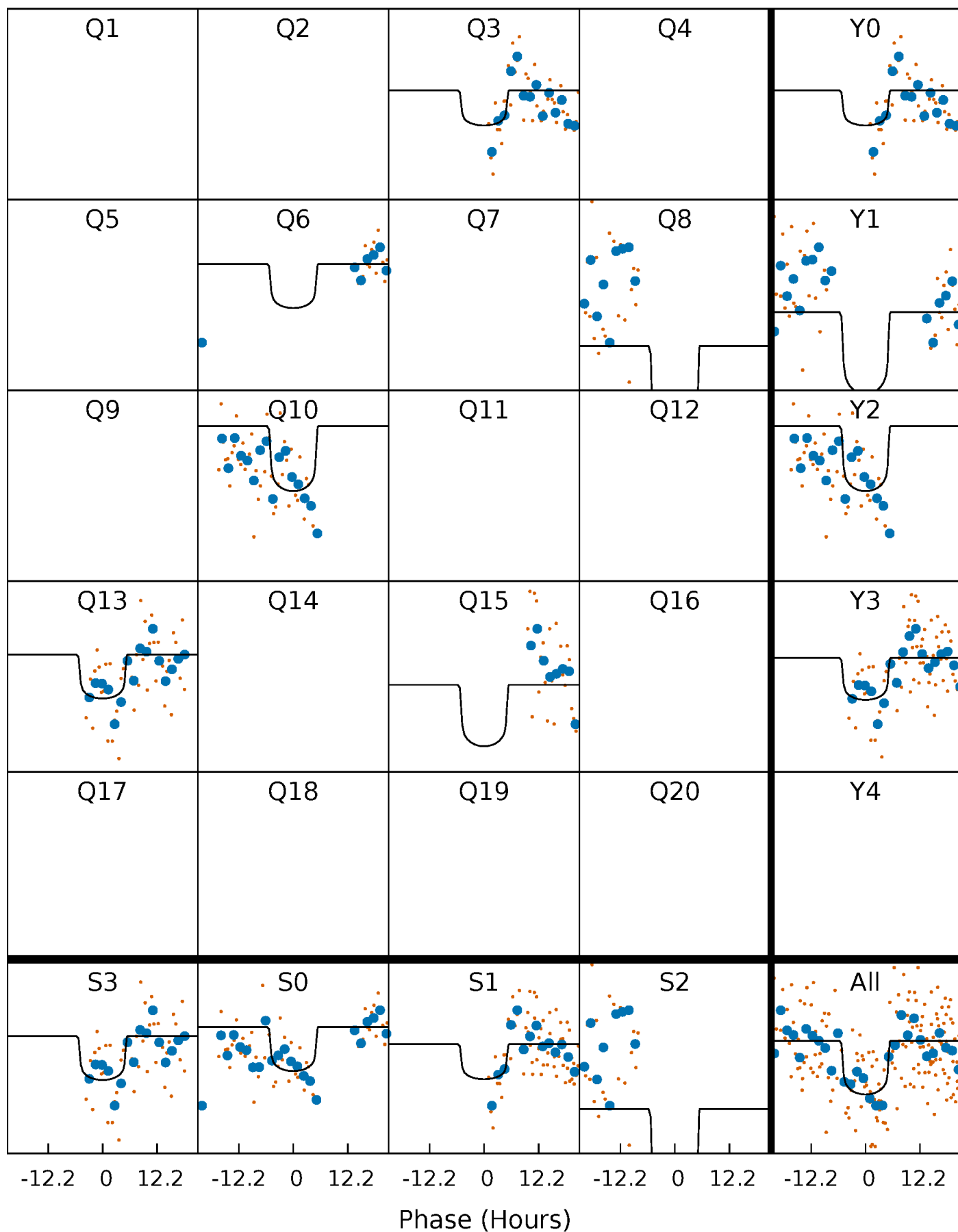
PDC Quarter-Phased Transit Curves

TCE 005531657-04 $P=227.209773$ Days $T_0=313.755743$ (BKJD)



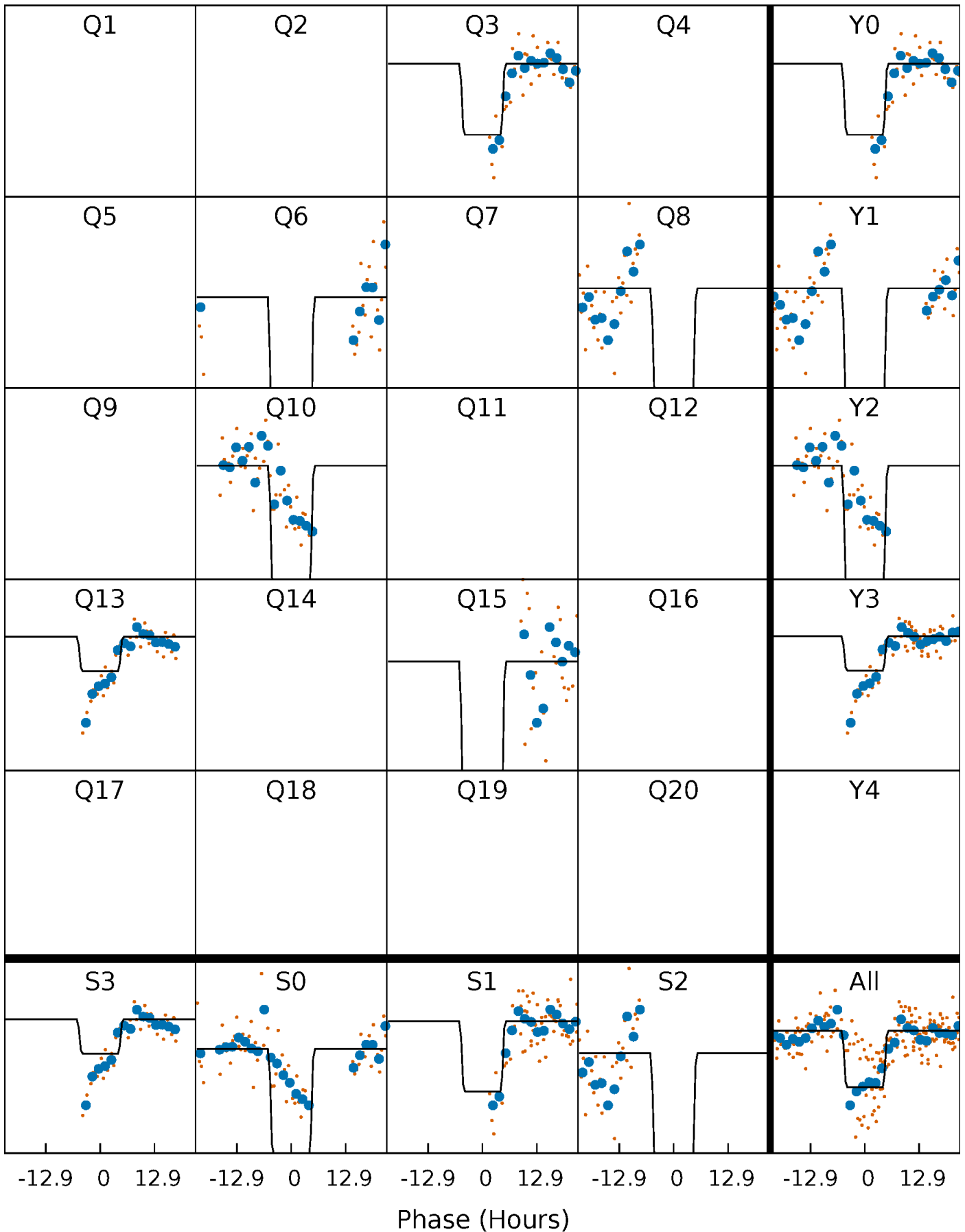
DV Quarter-Phased Transit Curves

TCE 005531657-04 P=227.209773 Days $T_0=313.755743$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

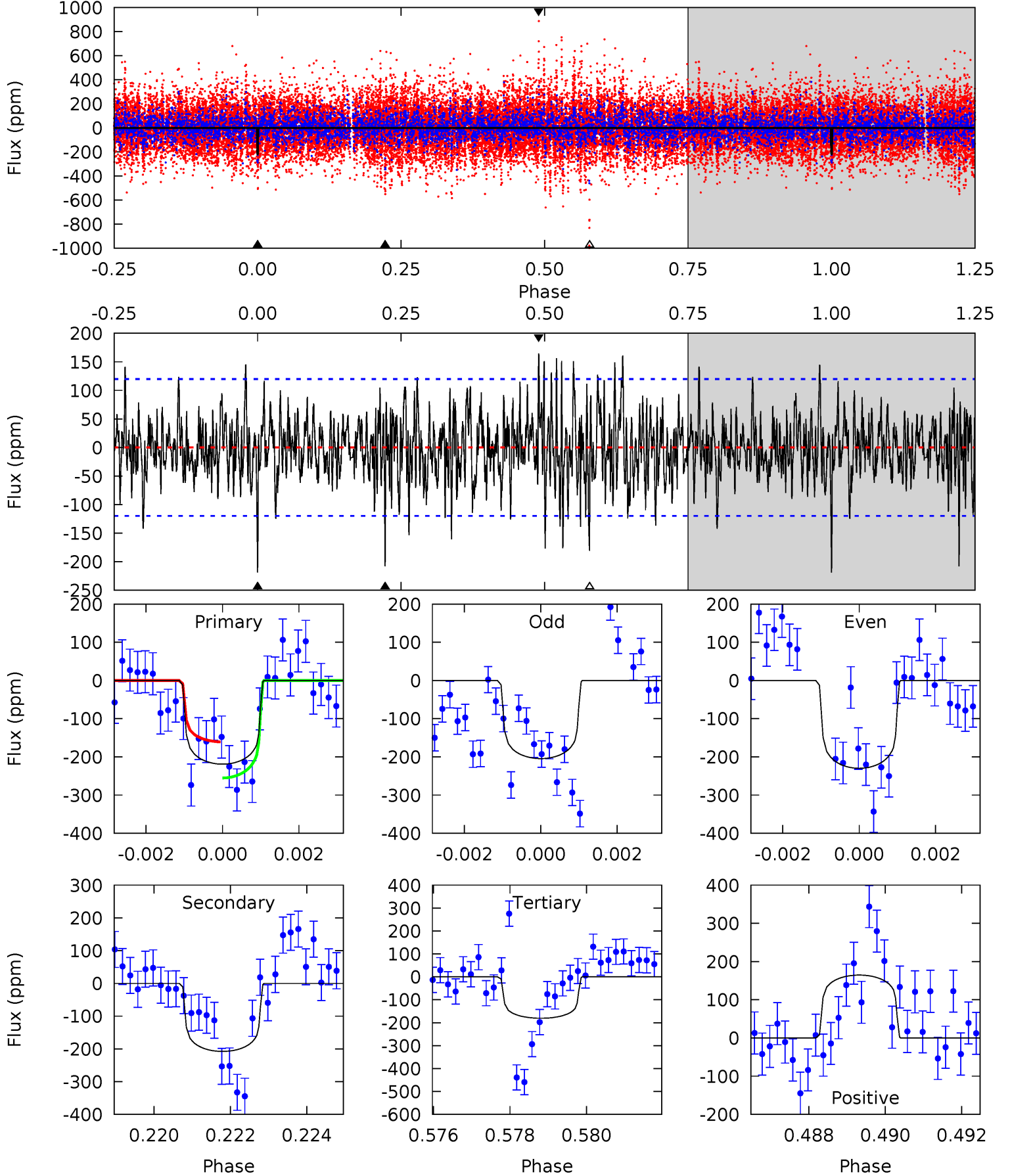
TCE 005531657-04 P=227.221187 Days $T_0=313.727401$ (BKJD)



DV Model-Shift Uniqueness Test

005531657-04, $P = 227.209773$ Days, $E = 86.545970$ Days

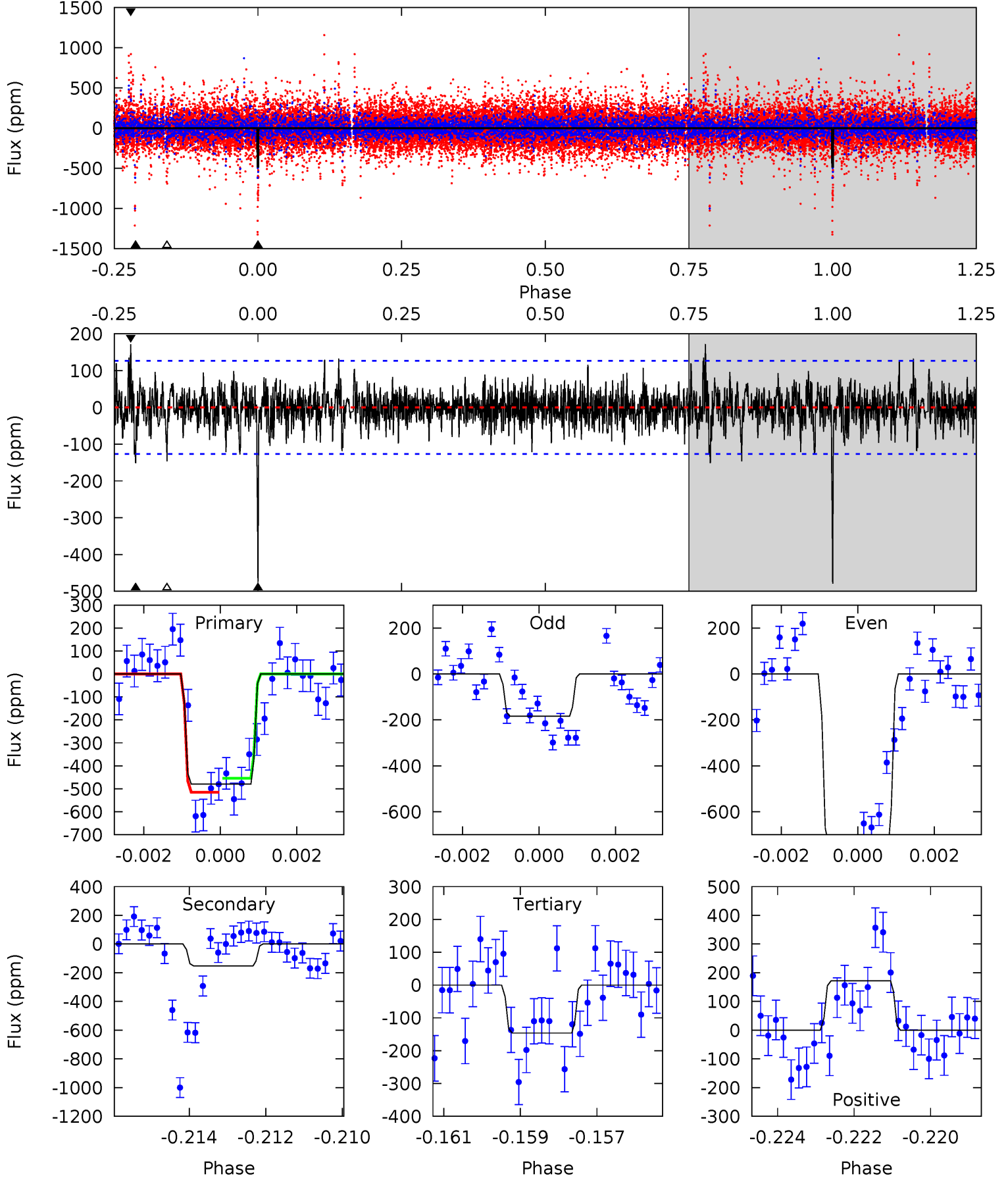
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.76	9.26	8.05	7.34	5.34	3.11	2.28	1.71	2.42	1.20	1.92	0.56	1.08	0.43	2.02



Alt Model-Shift Uniqueness Test

005531657-04, P = 227.221187 Days, E = 86.506214 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	6.39	6.16	7.23	5.33	3.10	1.54	14.0	13.0	0.23	-0.84	11.7	0.86	0.26	1.24



Stellar Parameters For KIC 005531657

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6995^{+192}_{-288}	$4.251^{+0.092}_{-0.138}$	$-0.140^{+0.250}_{-0.350}$	$1.442^{+0.313}_{-0.209}$	$1.361^{+0.150}_{-0.206}$	$0.639^{+0.282}_{-0.272}$
	+3%/-4%	+2%/-3%	+179%/-250%	+22%/-14%	+11%/-15%	+44%/-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 005531657-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-208 ± 22	$2.30^{+0.89}_{-0.86}$	580^{+35}_{-33}	6941^{+2317}_{-1083}	13851^{+19763}_{-6722}
Alt.	-152 ± 24	$3.67^{+0.93}_{-0.92}$	579^{+34}_{-32}	5140^{+712}_{-496}	3943^{+3184}_{-1443}

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

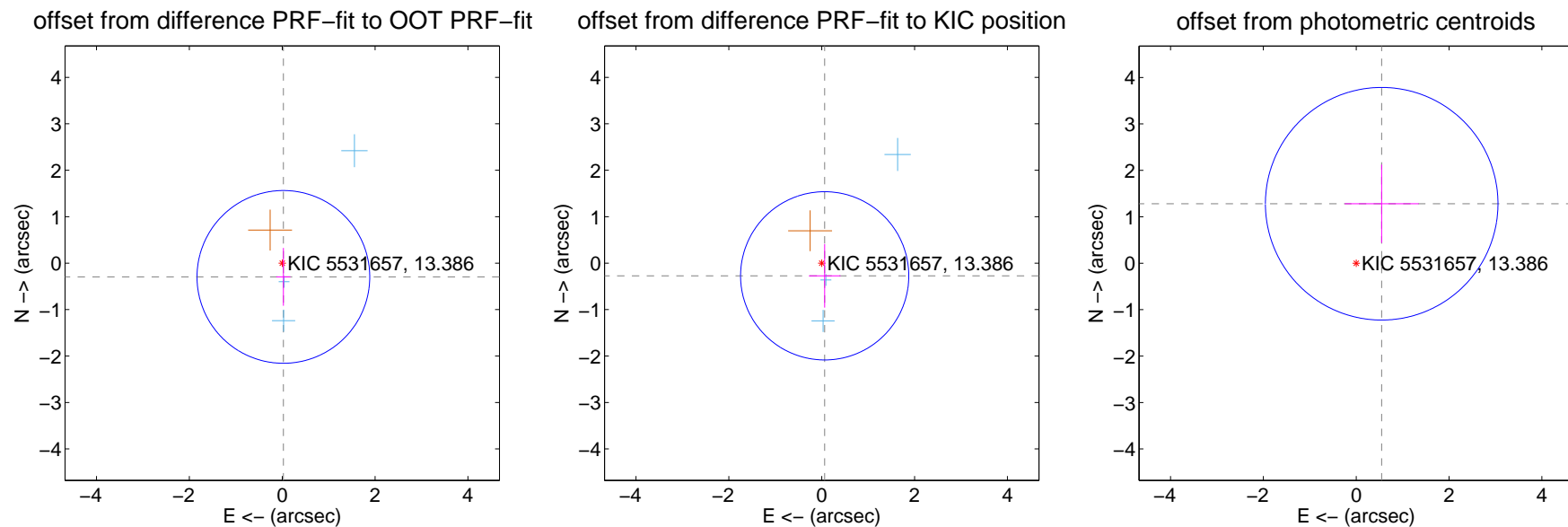
DV Centroid Data

Supplemental centroid analysis for 005531657-04. Kepler magnitude: 13.39. Transit SNR 6.15

There are 3 quarters with good PRF difference image offsets

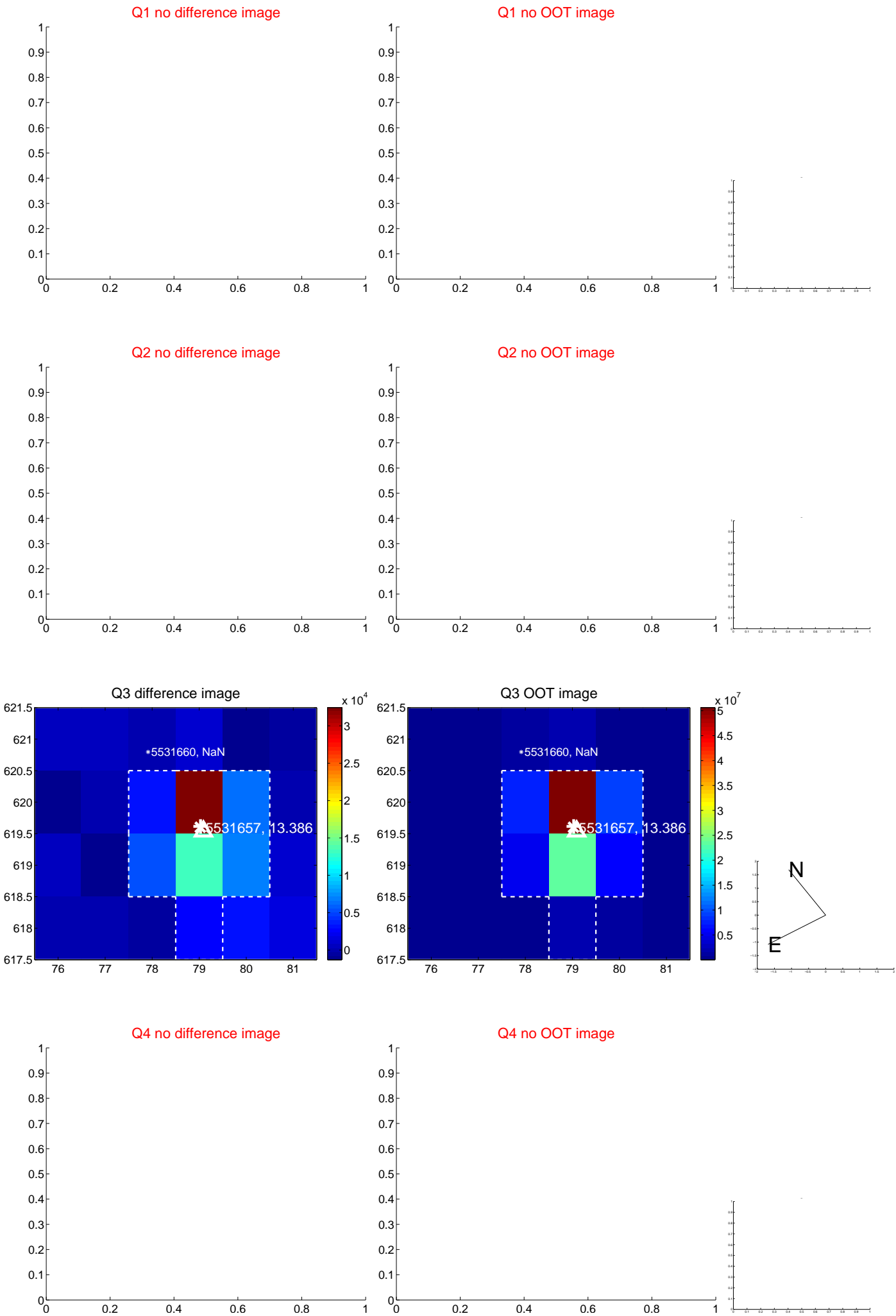
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.297 ± 0.620	0.48	-0.025 ± 0.152	-0.296 ± 0.622
PRF-fit source offset from KIC position	0.280 ± 0.604	0.46	-0.064 ± 0.340	-0.273 ± 0.685
photometric centroid source offset	1.39 ± 0.83	1.67	-0.55 ± 0.80	1.28 ± 0.84

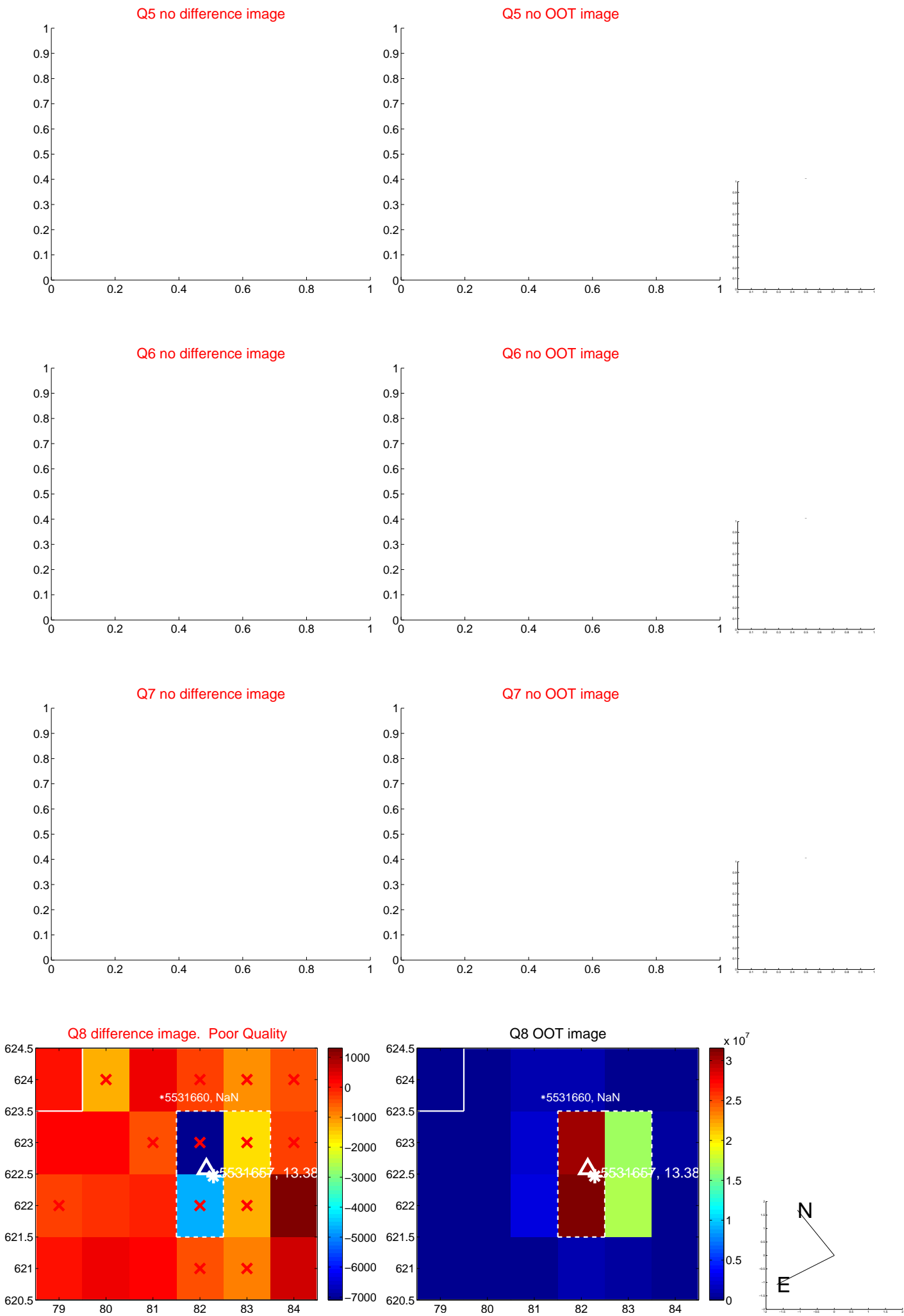


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

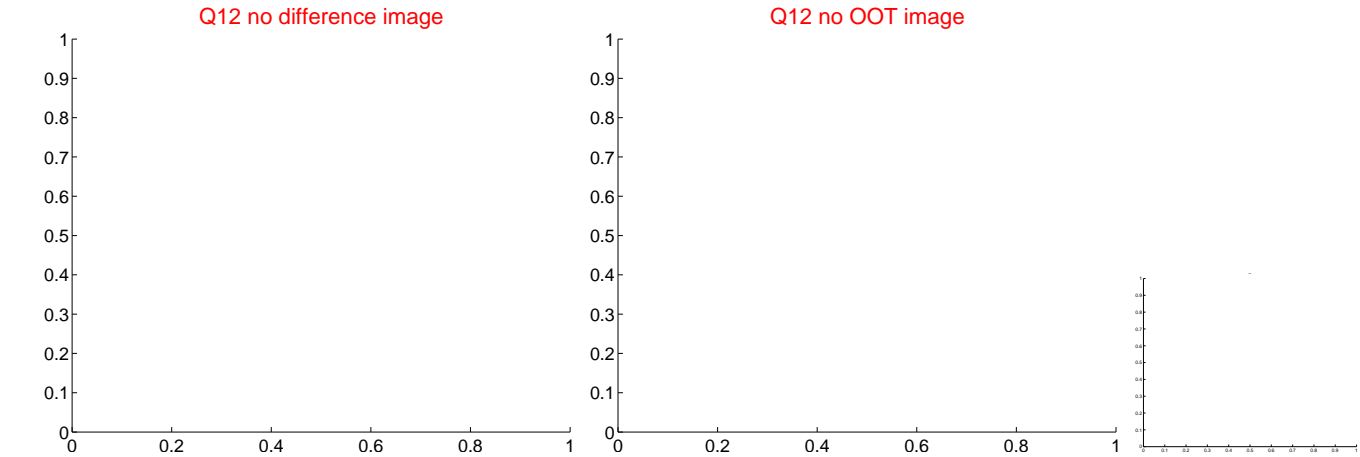
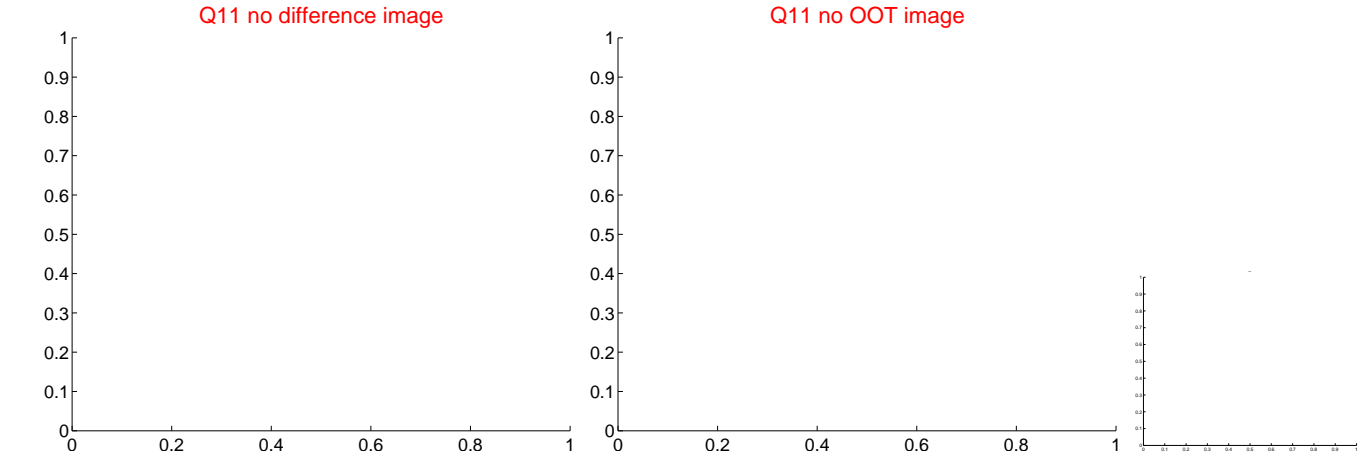
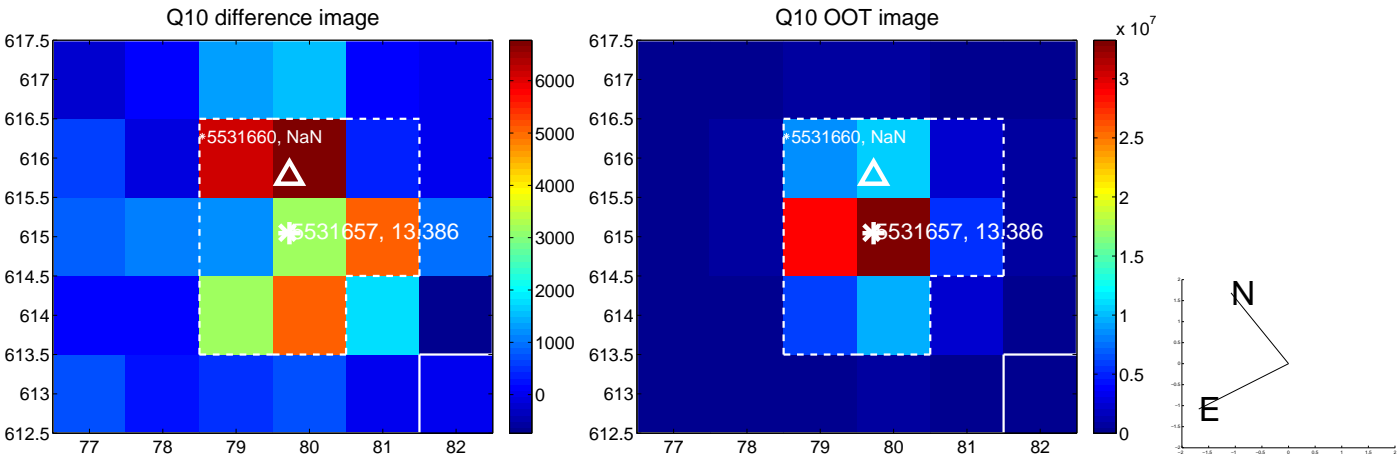
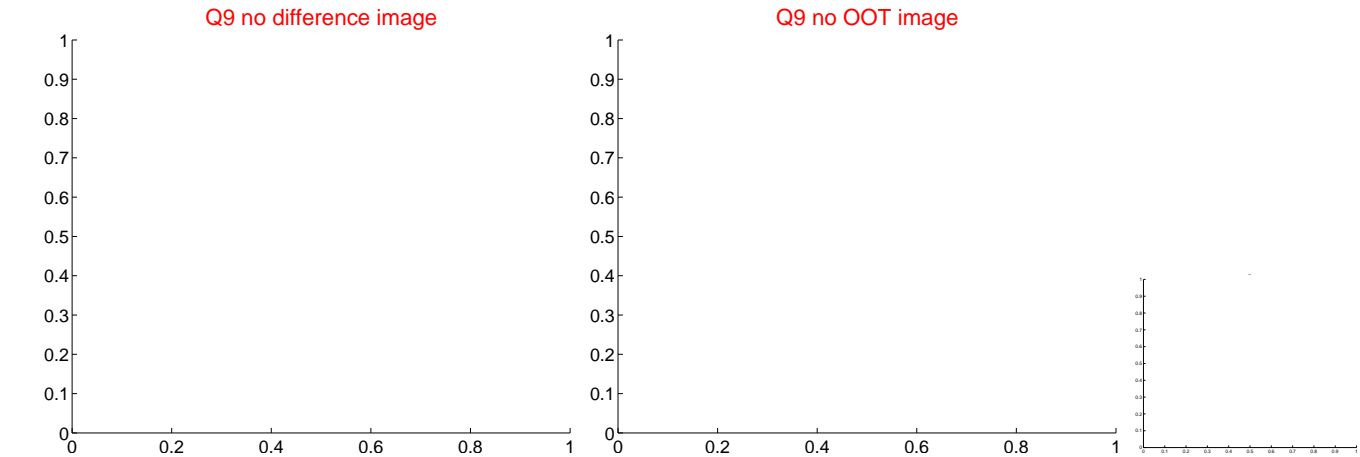
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



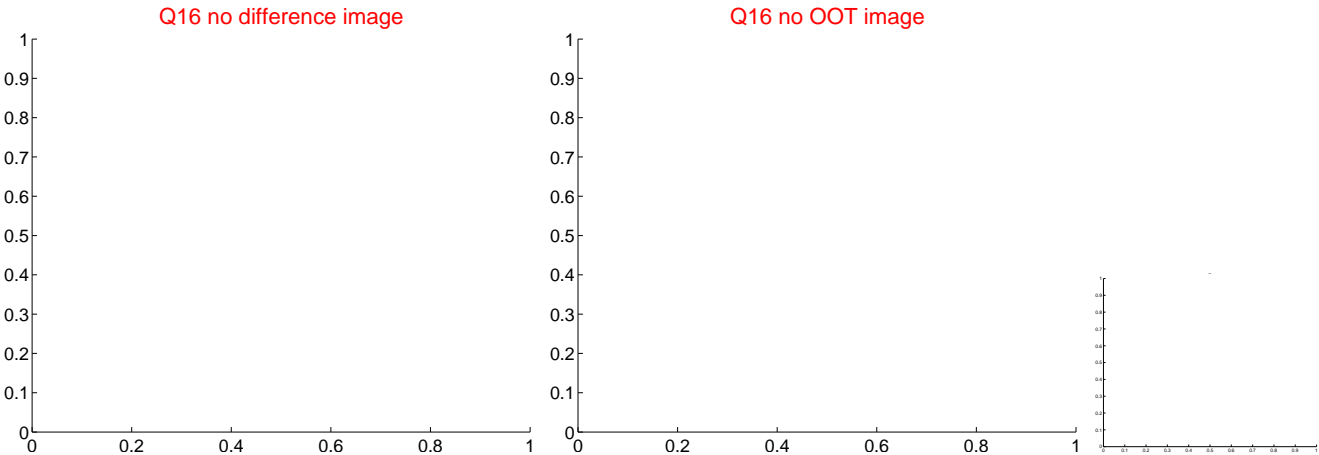
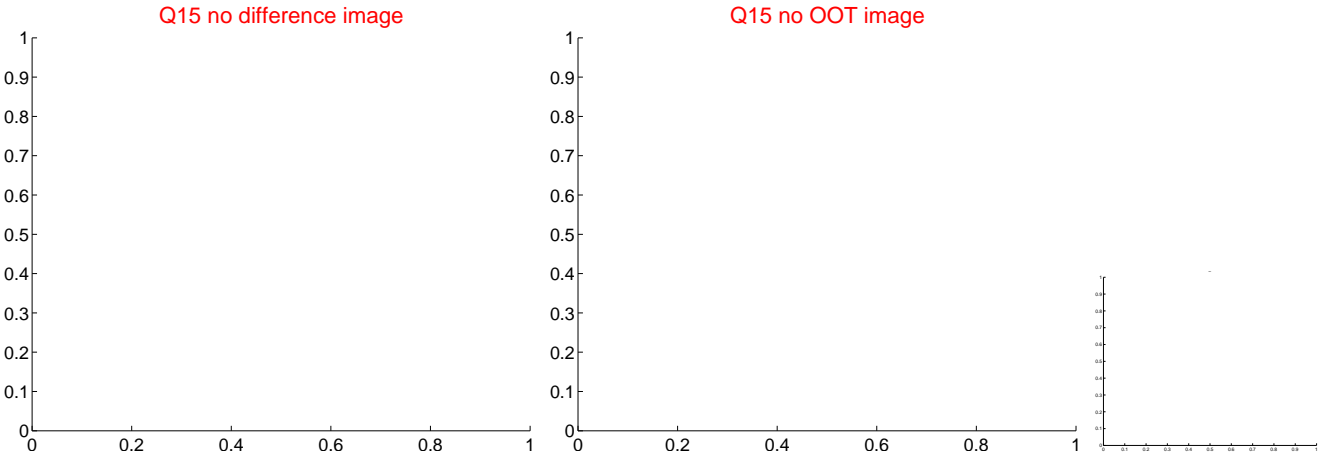
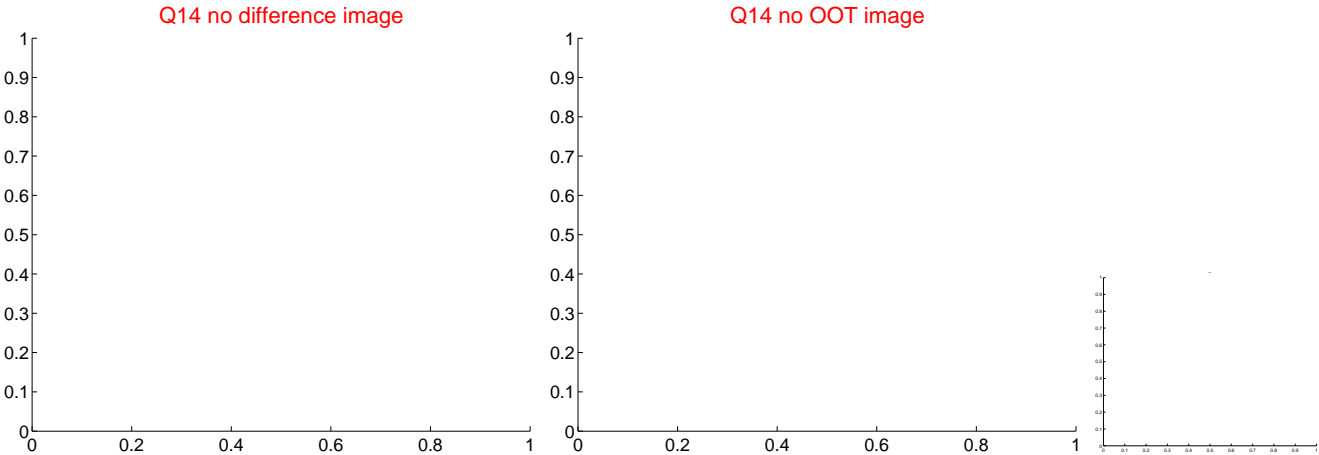
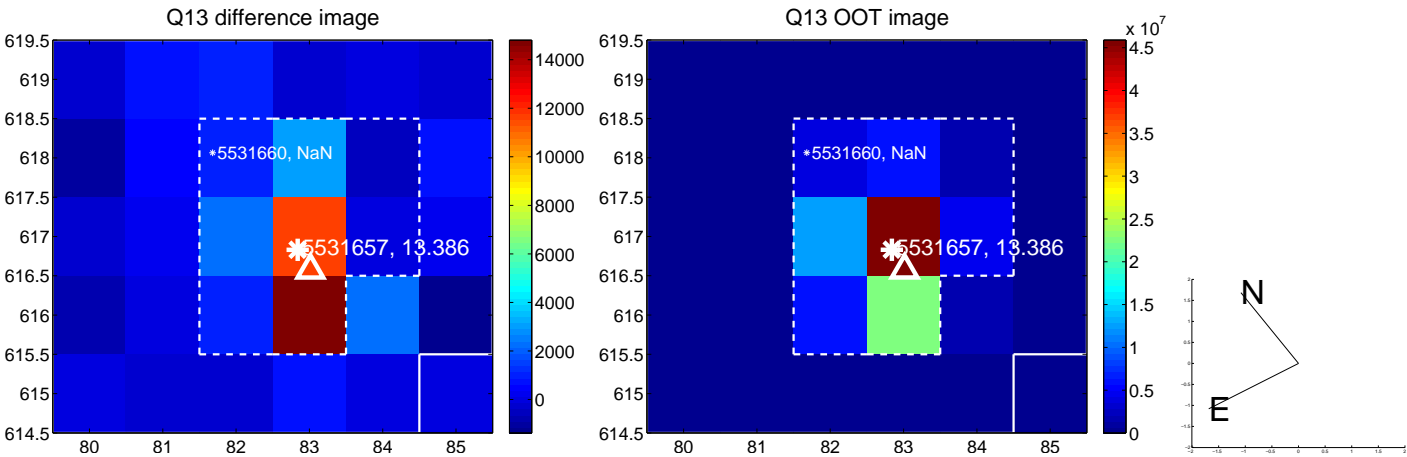
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



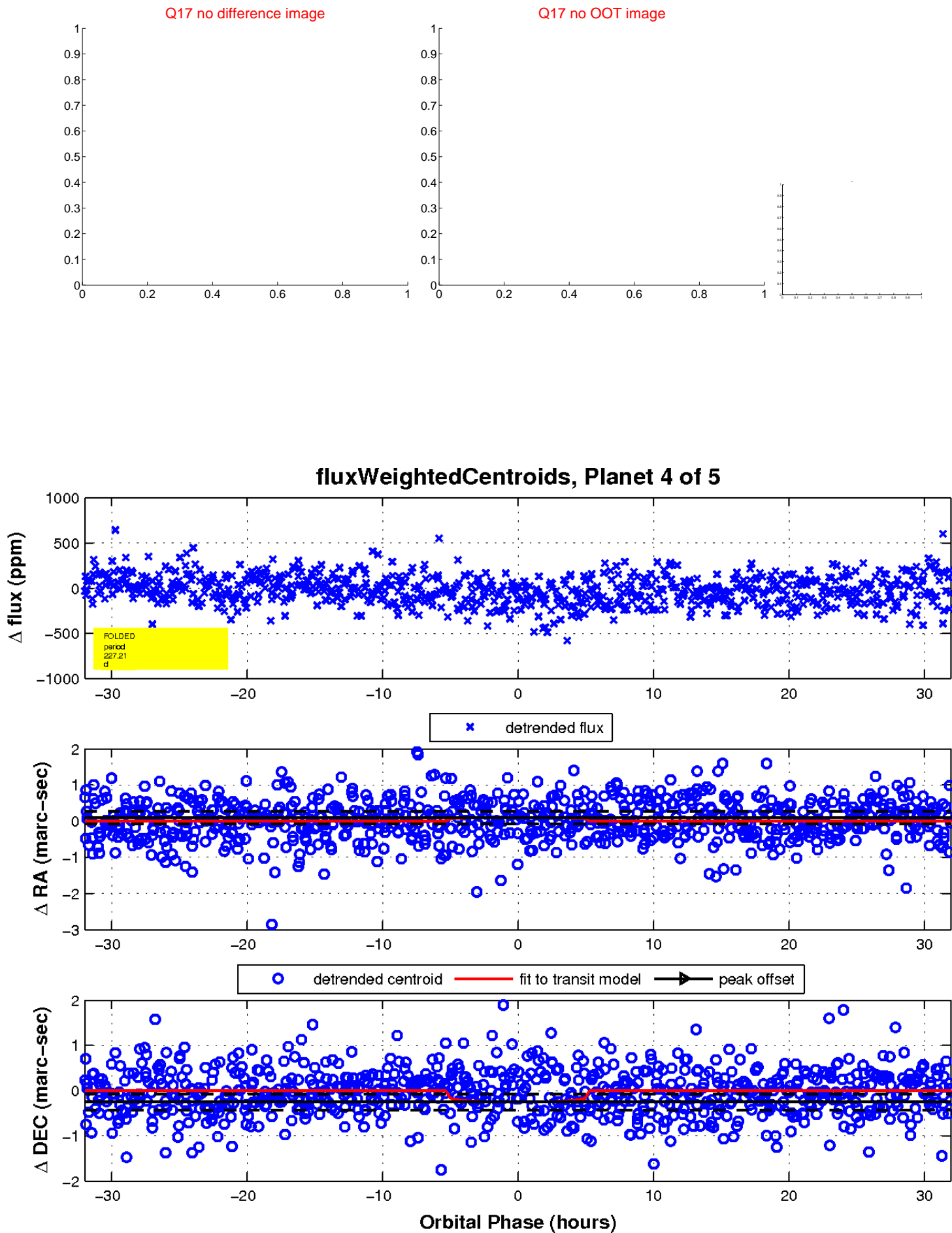
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

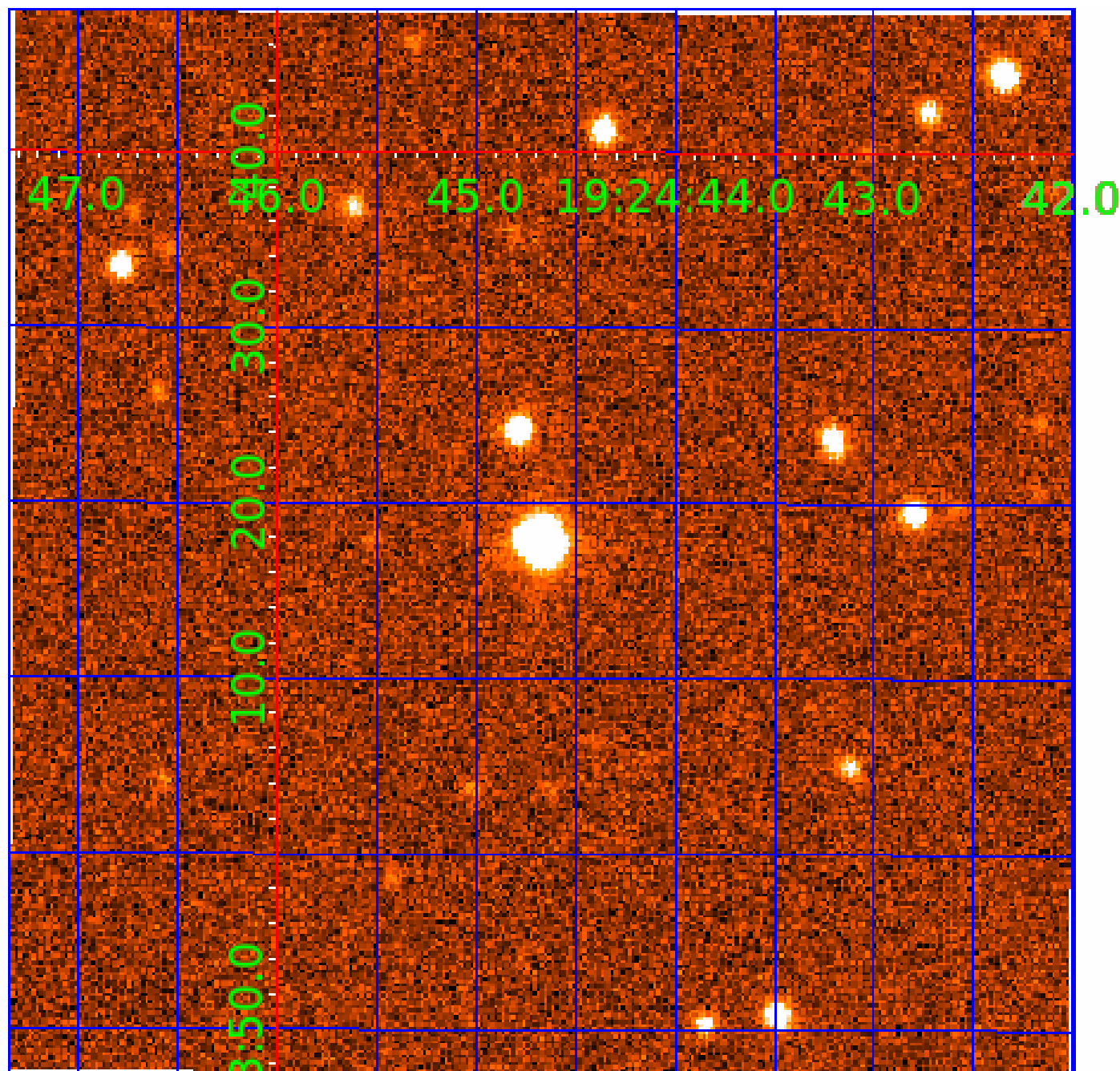


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005531657

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})
005531657-01	OBS	No	2.397469	133.249572	20.2	11.564	7.6	7.4	1.44	6995	0.66	2967.23
005531657-02	OBS	No	331.636679	246.831195	497.9	15.000	20.3	-1.0	1.44	6995	3.25	4.15
005531657-03	OBS	No	320.440294	416.990253	413.8	4.402	13.6	10.0	1.44	6995	3.08	4.34
005531657-04	OBS	No	227.209773	313.755743	211.0	10.687	8.1	6.2	1.44	6995	2.29	6.87
005531657-05	OBS	No	170.823154	245.621808	180.2	6.491	7.9	6.5	1.44	6995	2.17	10.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005531657-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
005531657-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
005531657-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005531657-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
005531657-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

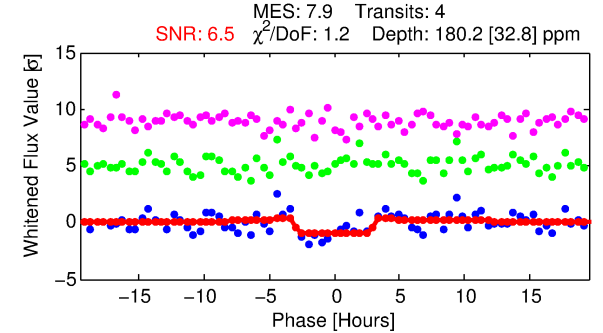
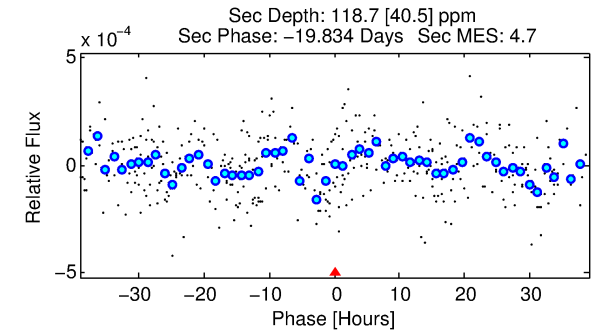
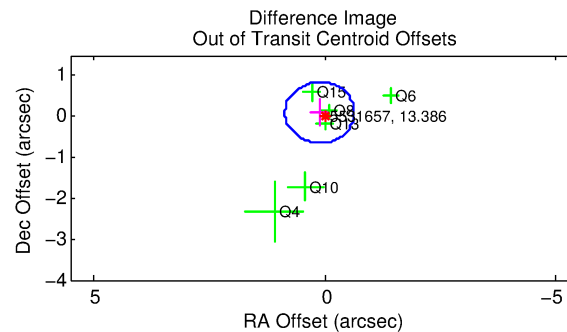
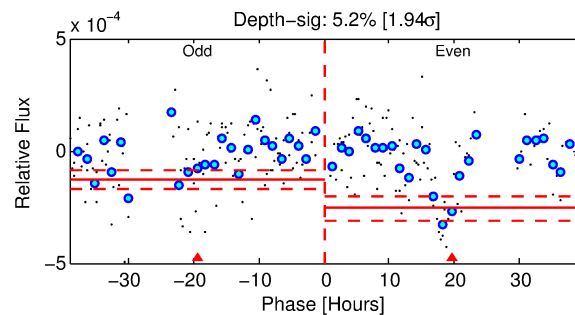
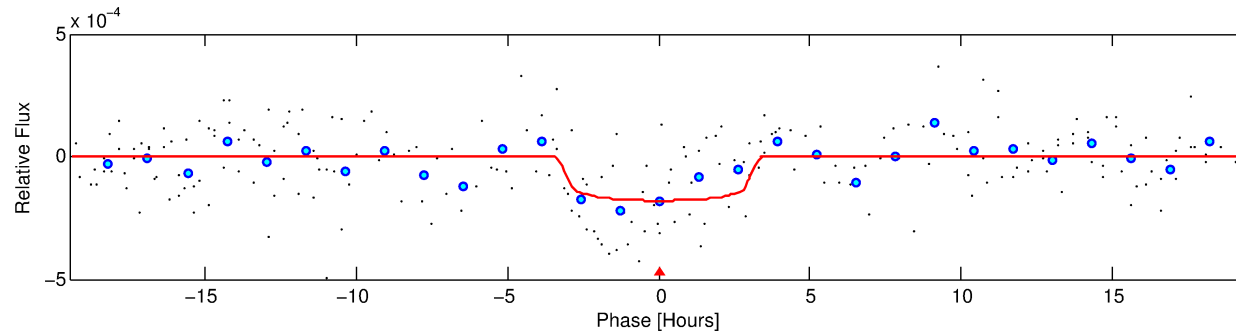
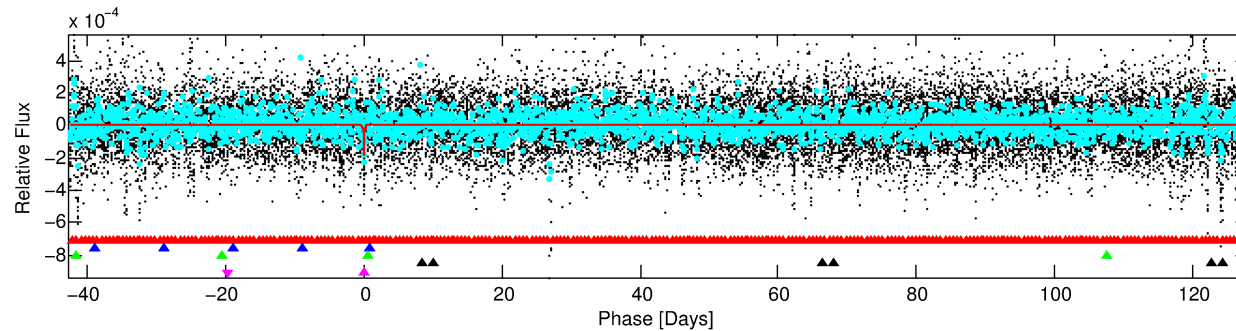
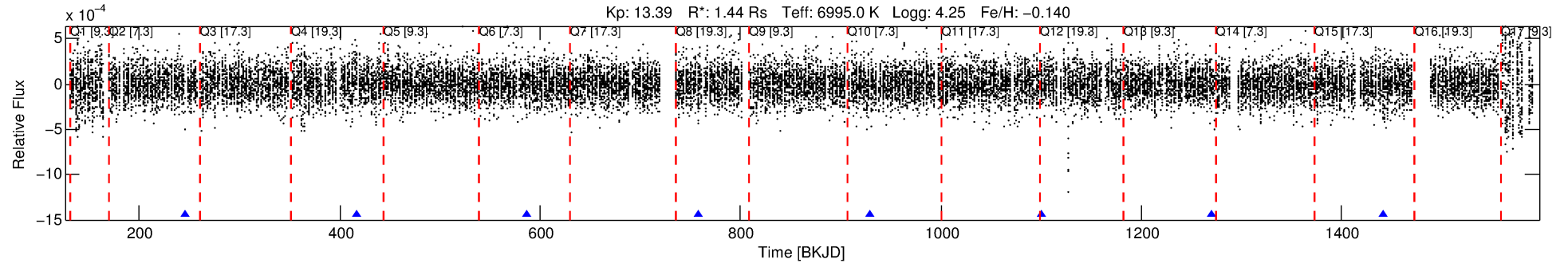
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005531657-05

No Significant Match Found

DV One-Page Summary

KIC: 5531657 Candidate: 5 of 5 Period: 170.823 d



DV Fit Results:

Period = 170.82315 [0.00363] d
Epoch = 245.6218 [0.0189] BKJD
Rp/R* = 0.0138 [0.0052]
a/R* = 113.94 [246.51]
b = 0.84 [0.76]
Seff = 10.05 [3.06]
Teq = 454 [35] K
Rp = 2.17 [0.94] Re
a = 0.6664 [0.1195] AU
Ag = 6152.11 [5331.50] [1.15 σ]
Teffp = 6216 [1312] K [4.39 σ]

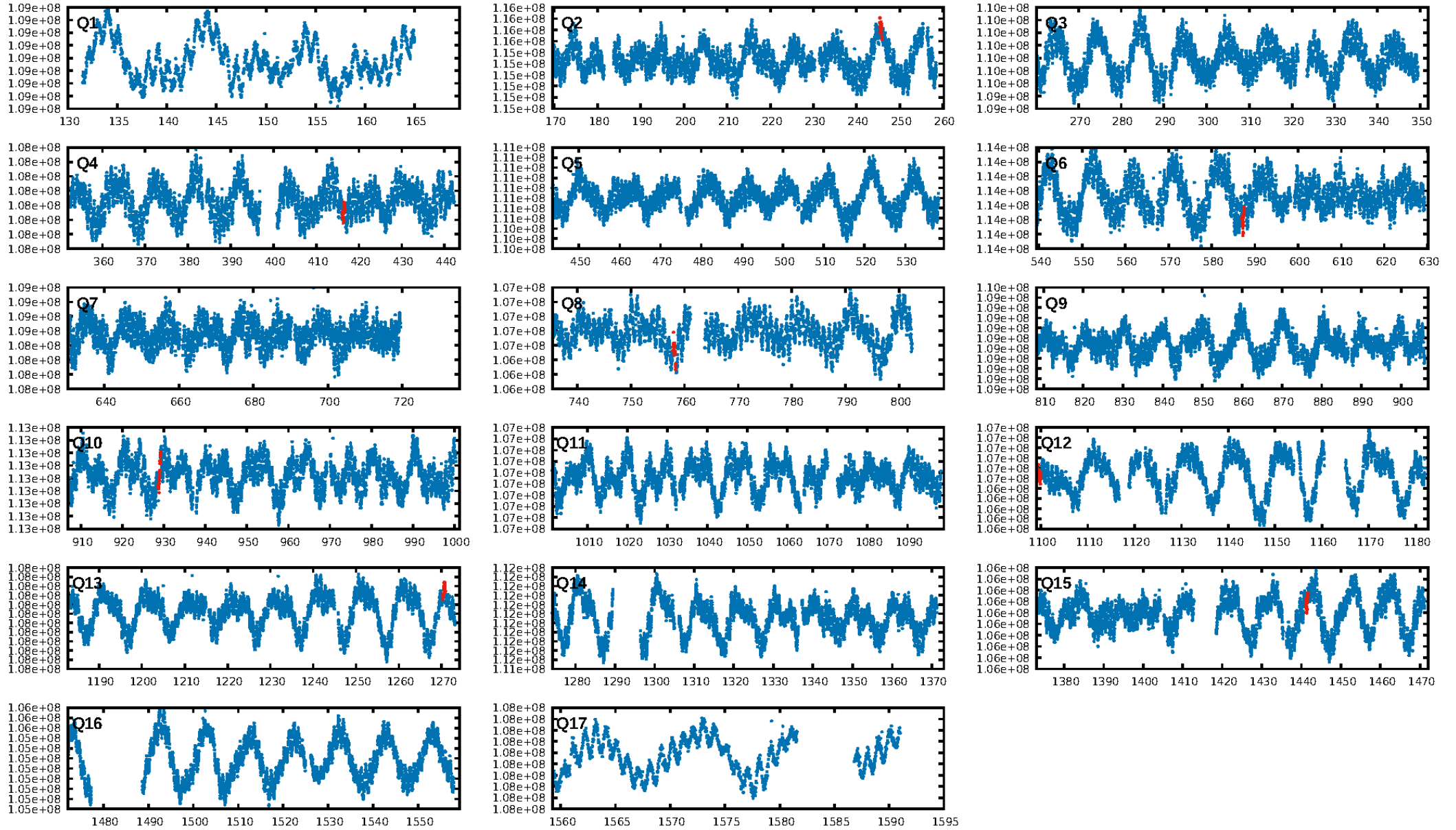
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [304.82 σ]
LongPeriod-sig: 100.0% [108.23 σ]
ModelChiSquare2-sig: 6.7%
ModelChiSquareGof-sig: 48.6%
Bootstrap-pfa: 4.70e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 5.512
Centroid-sig: 58.1%
Centroid-so: 0.440 arcsec [0.44 σ]
OotOffset-rm: 0.146 arcsec [0.59 σ]
OotOffset-st: 2/1/2/1 [6]
KicOffset-rm: 0.123 arcsec [0.51 σ]
KicOffset-st: 2/1/2/1 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.57 [4/7]

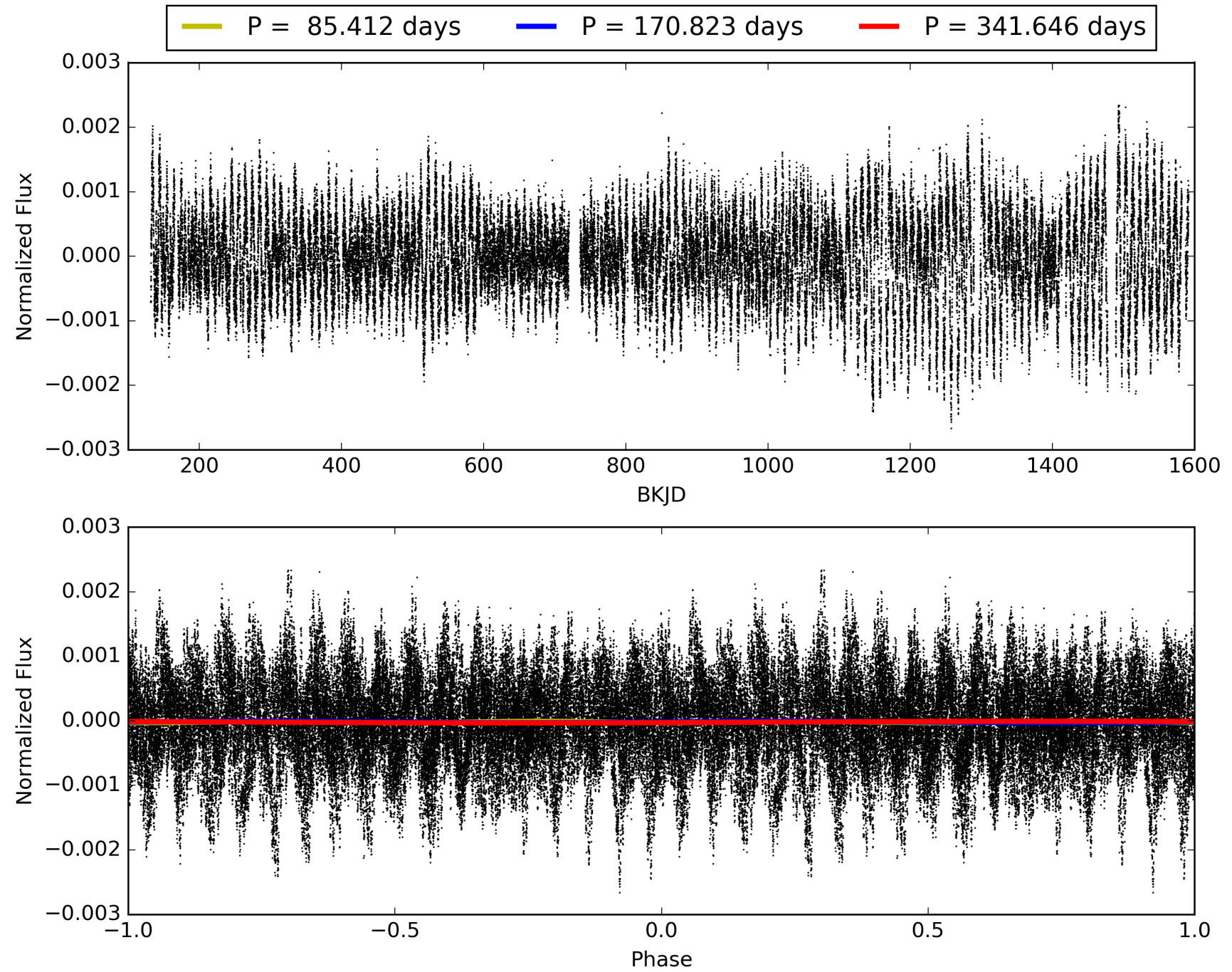
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:37:02 Z

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

TCE 005531657-05, PDC Light Curves

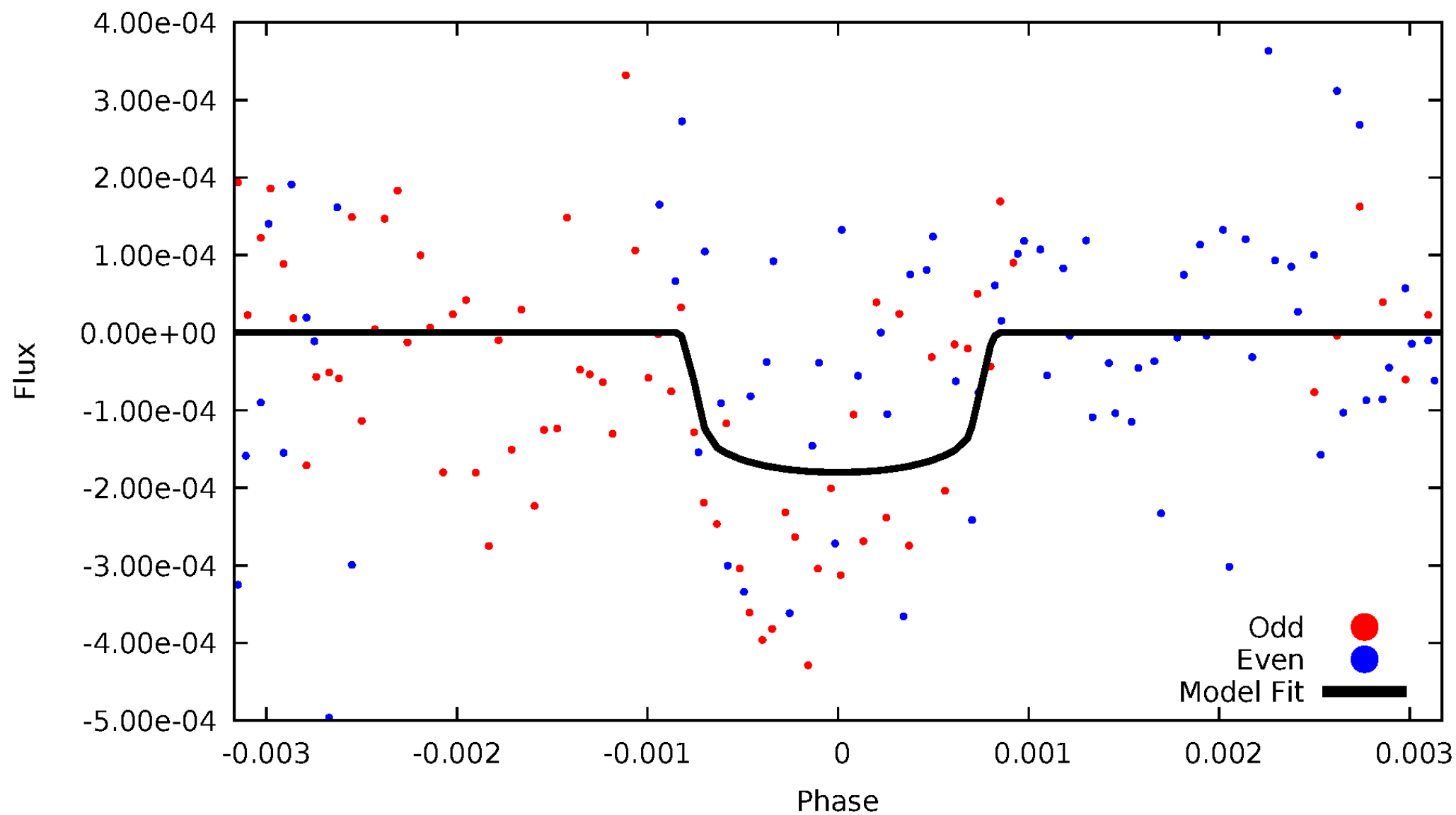


TCE 005531657-05



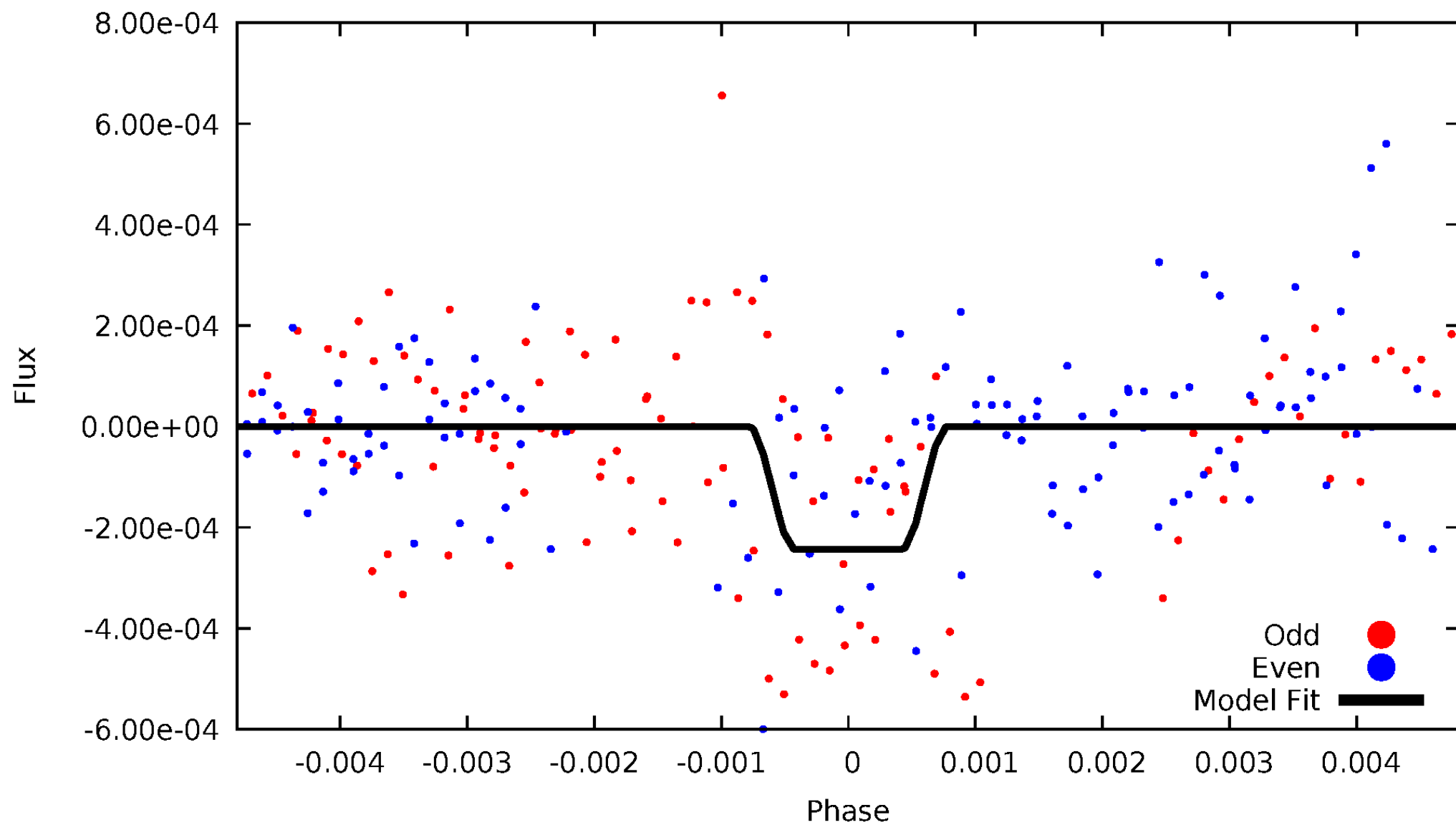
DV Odd/Even

TCE 005531657-05



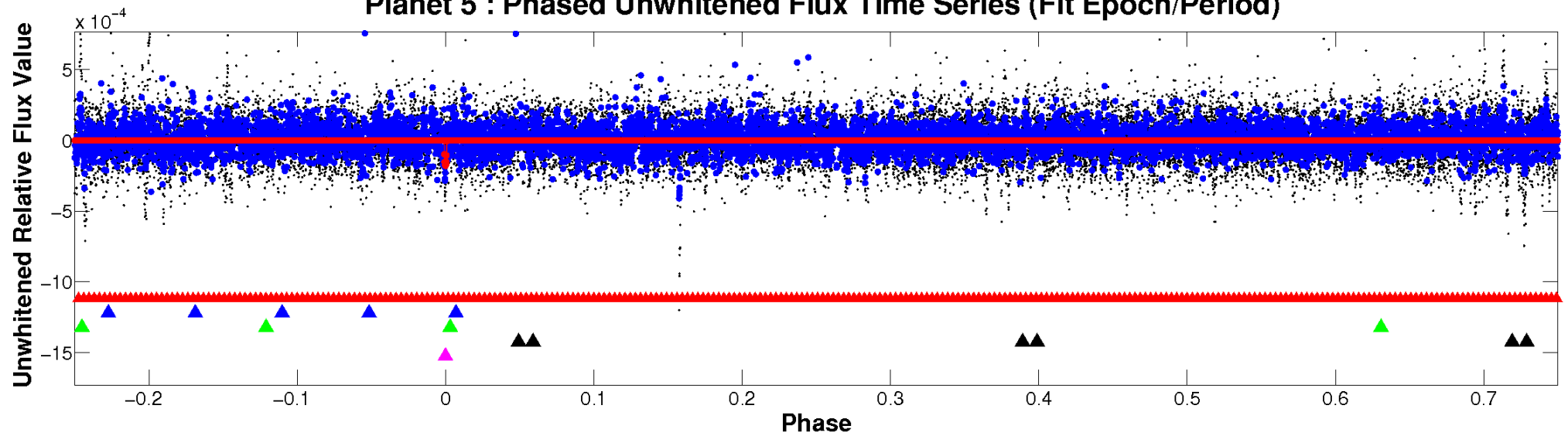
ALT Odd/Even

TCE 005531657-05

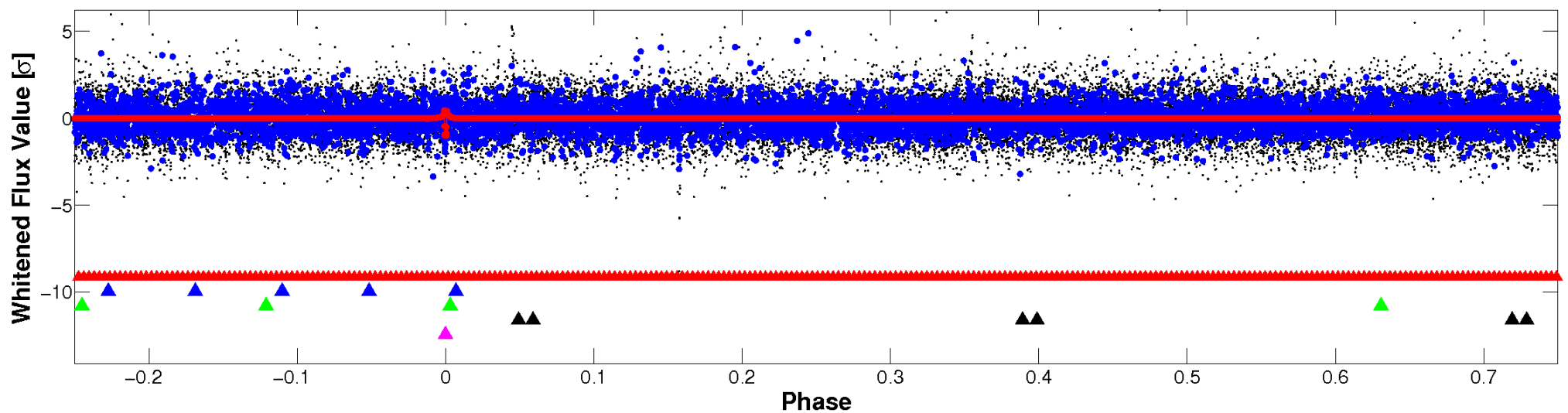


Non-Whitened Vs. Whitened Light Curve

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

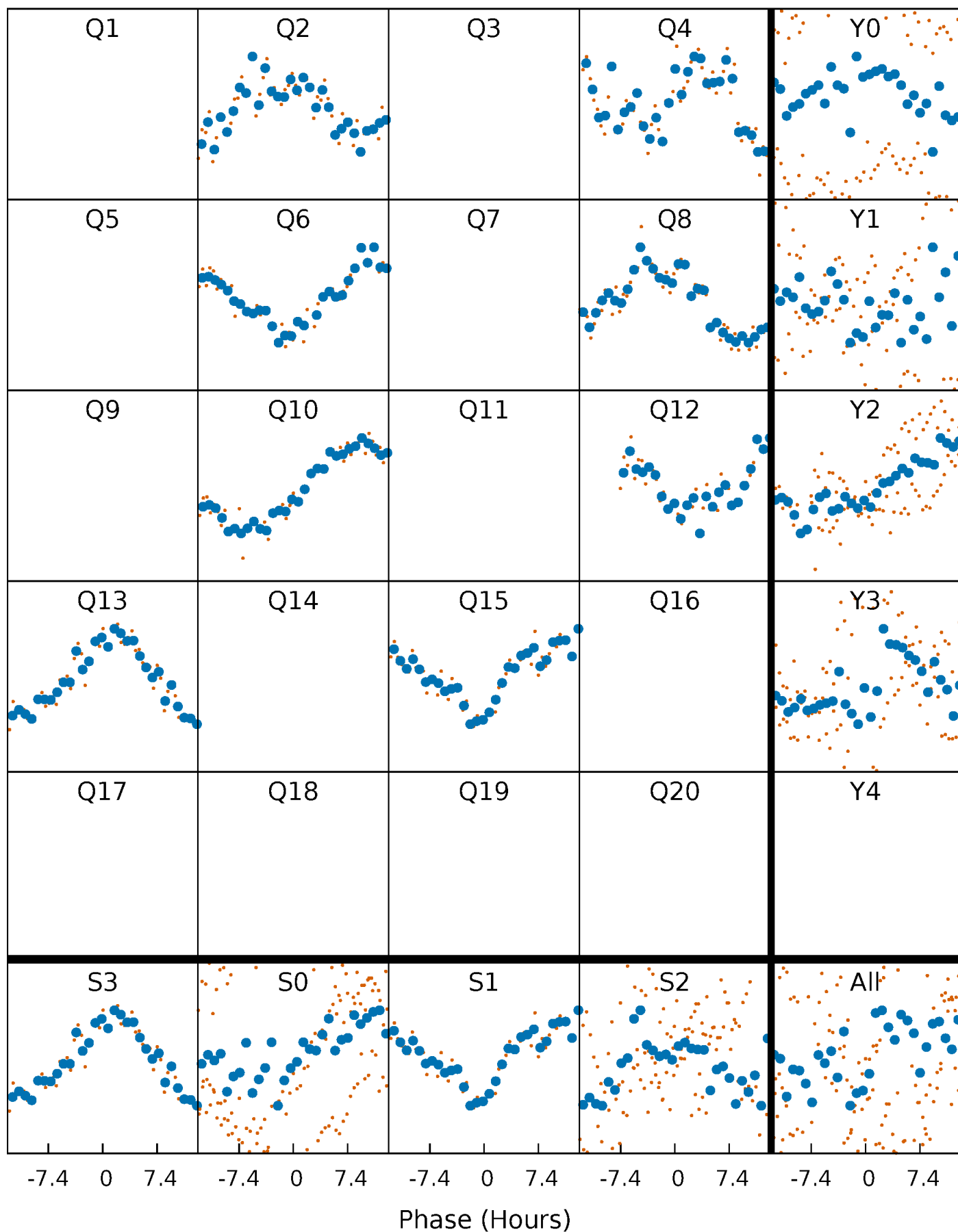


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



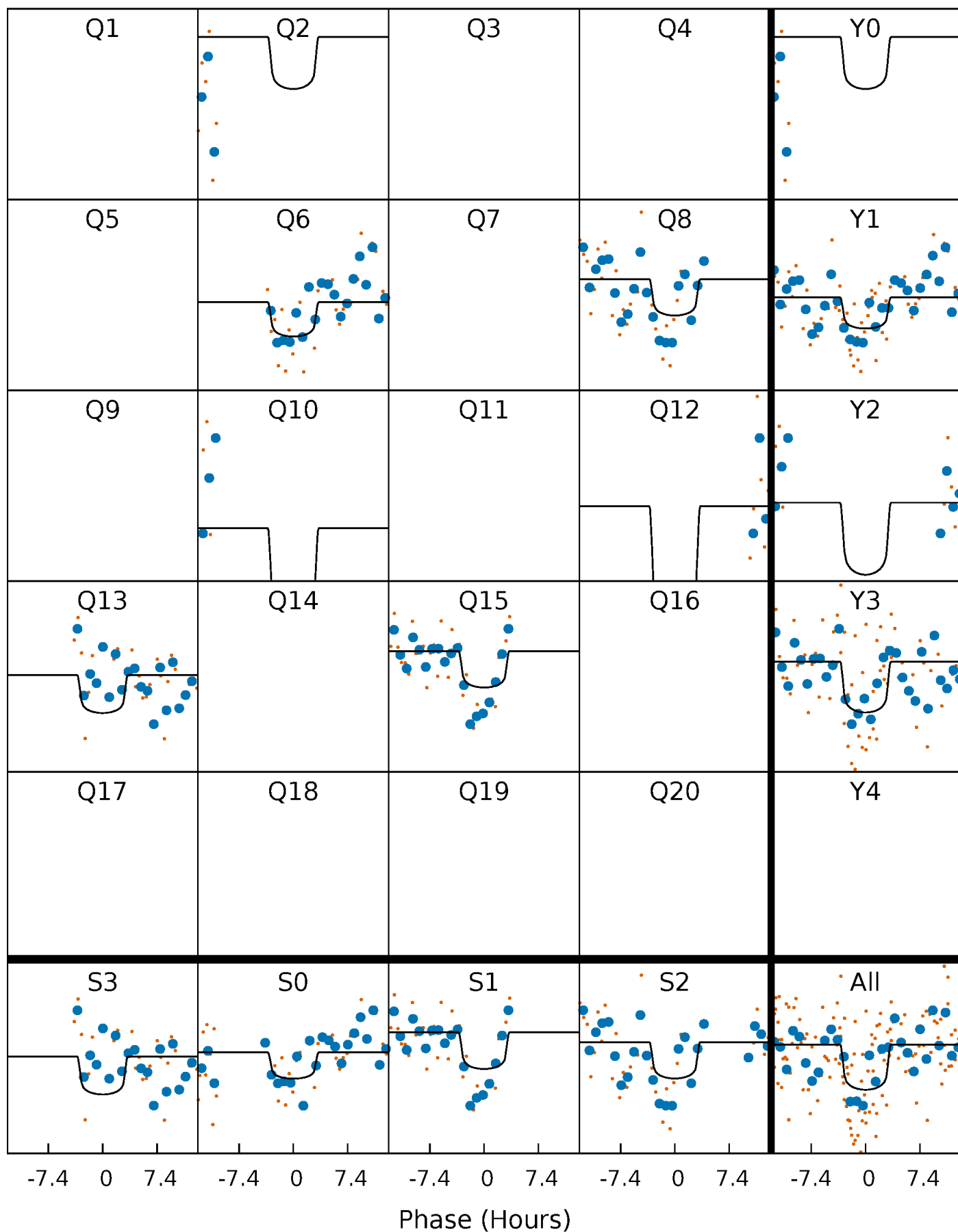
PDC Quarter-Phased Transit Curves

TCE 005531657-05 $P=170.823154$ Days $T_0=245.621808$ (BKJD)



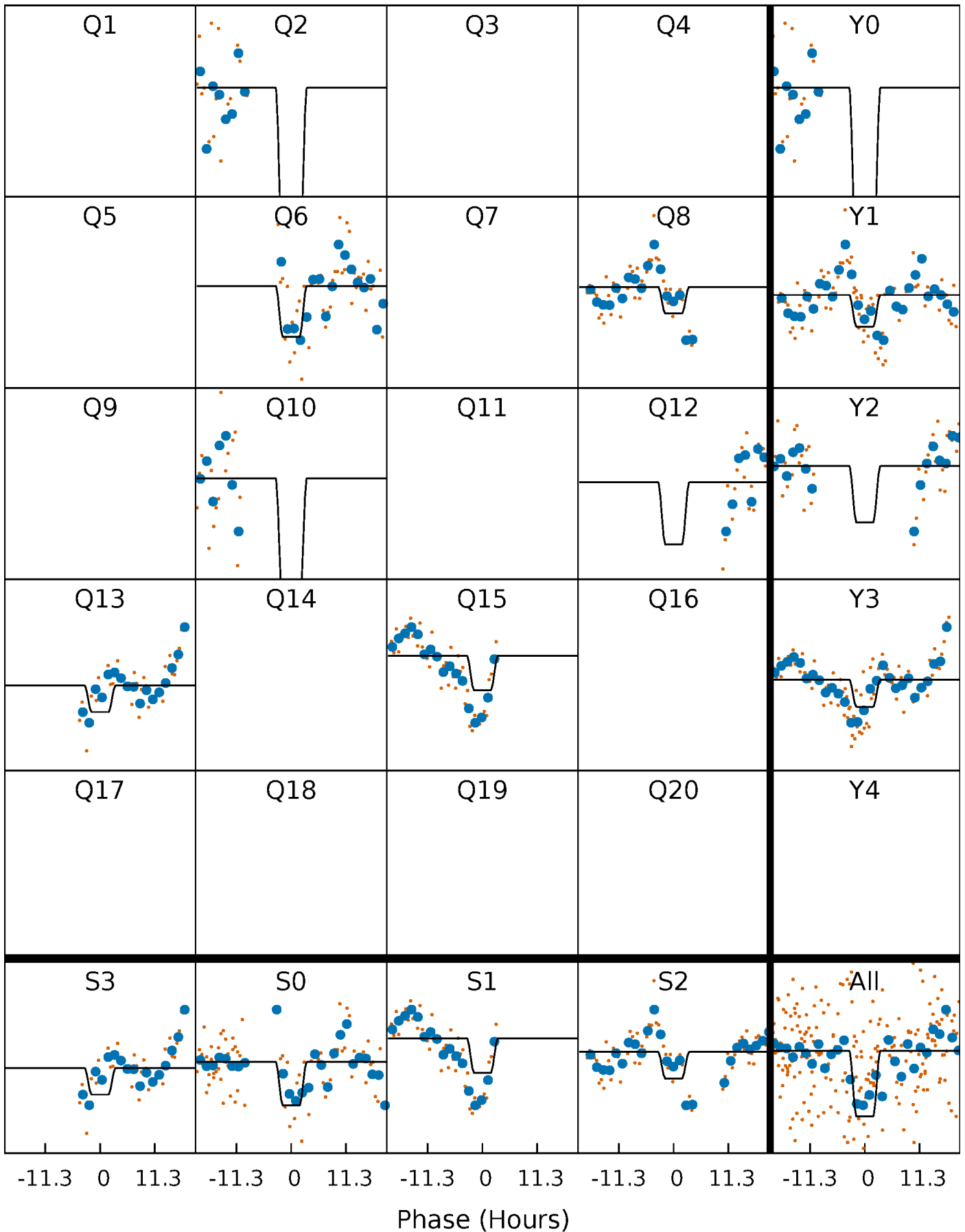
DV Quarter-Phased Transit Curves

TCE 005531657-05 $P=170.823154$ Days $T_0=245.621808$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

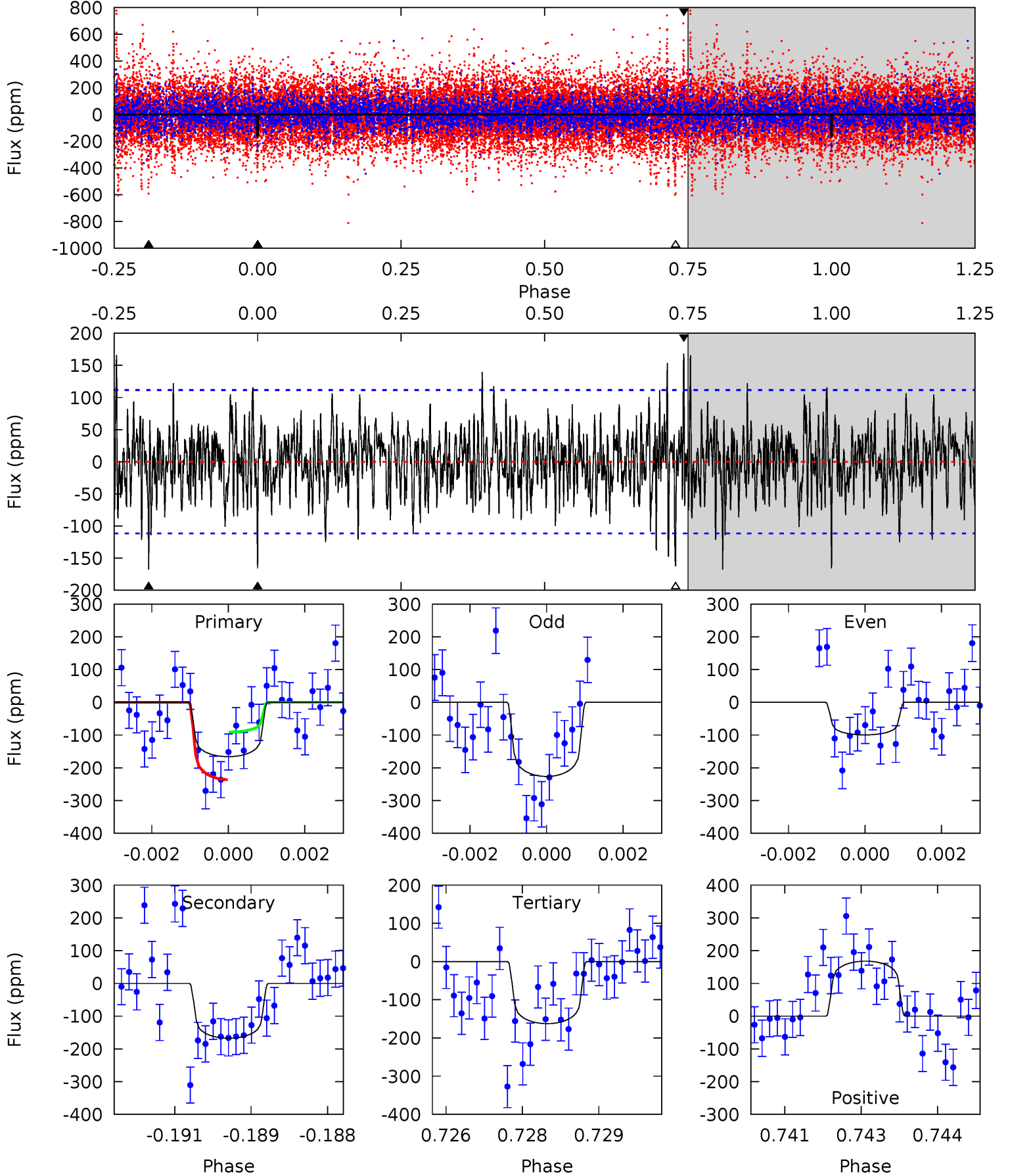
TCE 005531657-05 P=170.835081 Days $T_0=245.565802$ (BKJD)



DV Model-Shift Uniqueness Test

005531657-05, $P = 170.823154$ Days, $E = 74.798654$ Days

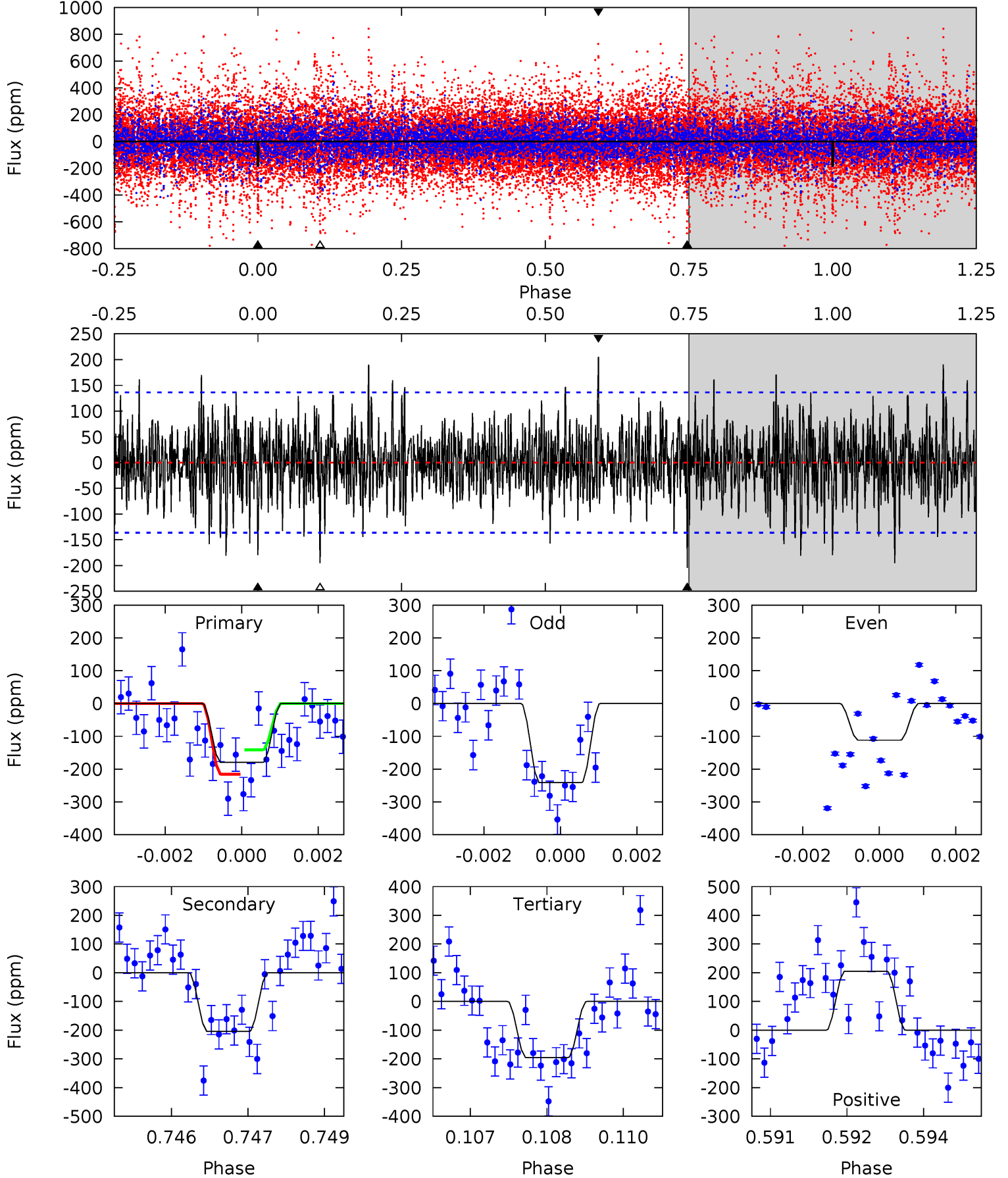
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.98	8.06	7.81	8.07	5.36	3.15	2.00	0.17	-0.09	0.24	-0.02	3.05	0.83	0.50	3.50



Alt Model-Shift Uniqueness Test

005531657-05, $P = 170.835081$ Days, $E = 74.730721$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.09	8.06	7.71	8.11	5.38	3.17	1.92	-0.62	-1.02	0.36	-0.04	2.49	1.36	0.50	1.47



Stellar Parameters For KIC 005531657

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6995^{+192}_{-288}	$4.251^{+0.092}_{-0.138}$	$-0.140^{+0.250}_{-0.350}$	$1.442^{+0.313}_{-0.209}$	$1.361^{+0.150}_{-0.206}$	$0.639^{+0.282}_{-0.272}$
	+3%/-4%	+2%/-3%	+179%/-250%	+22%/-14%	+11%/-15%	+44%/-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 005531657-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-168 ± 21	$2.15^{+0.87}_{-0.80}$	635^{+38}_{-35}	6749^{+2335}_{-1039}	8631^{+13662}_{-4236}
Alt.	-204 ± 25	$2.51^{+0.87}_{-0.87}$	635^{+36}_{-32}	6591^{+1903}_{-915}	7951^{+11186}_{-3665}

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 $A_{obs} \gg 1.0$

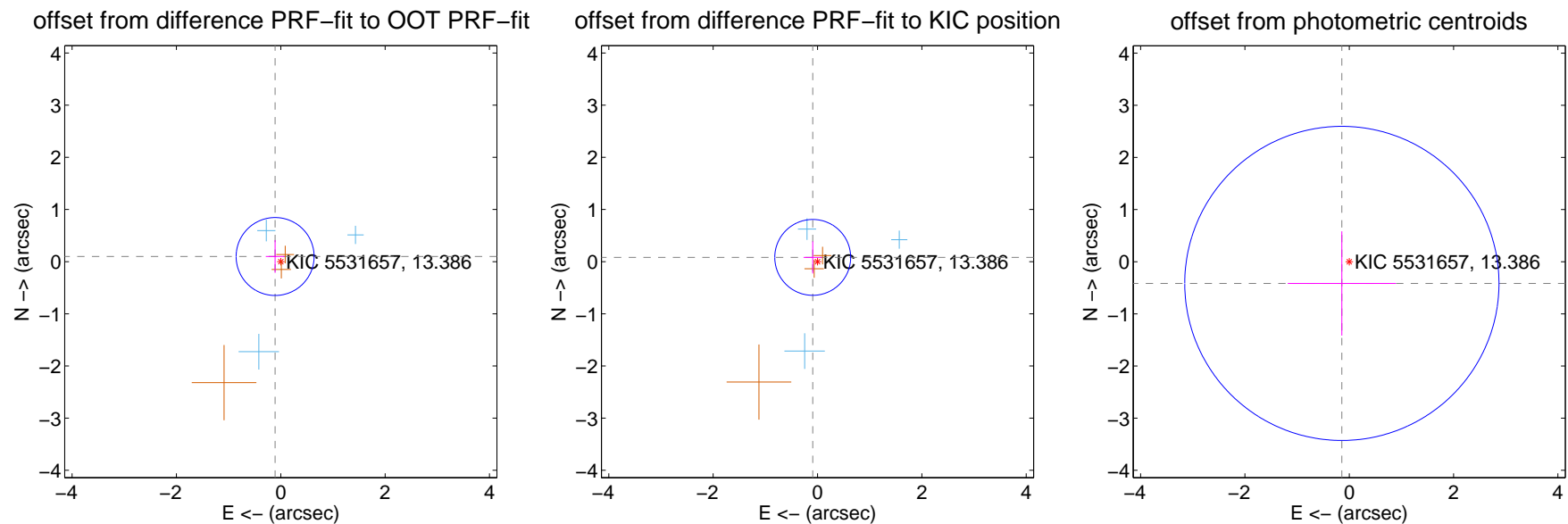
DV Centroid Data

Supplemental centroid analysis for 005531657-05. Kepler magnitude: 13.39. Transit SNR 6.52

There are 3 quarters with good PRF difference image offsets

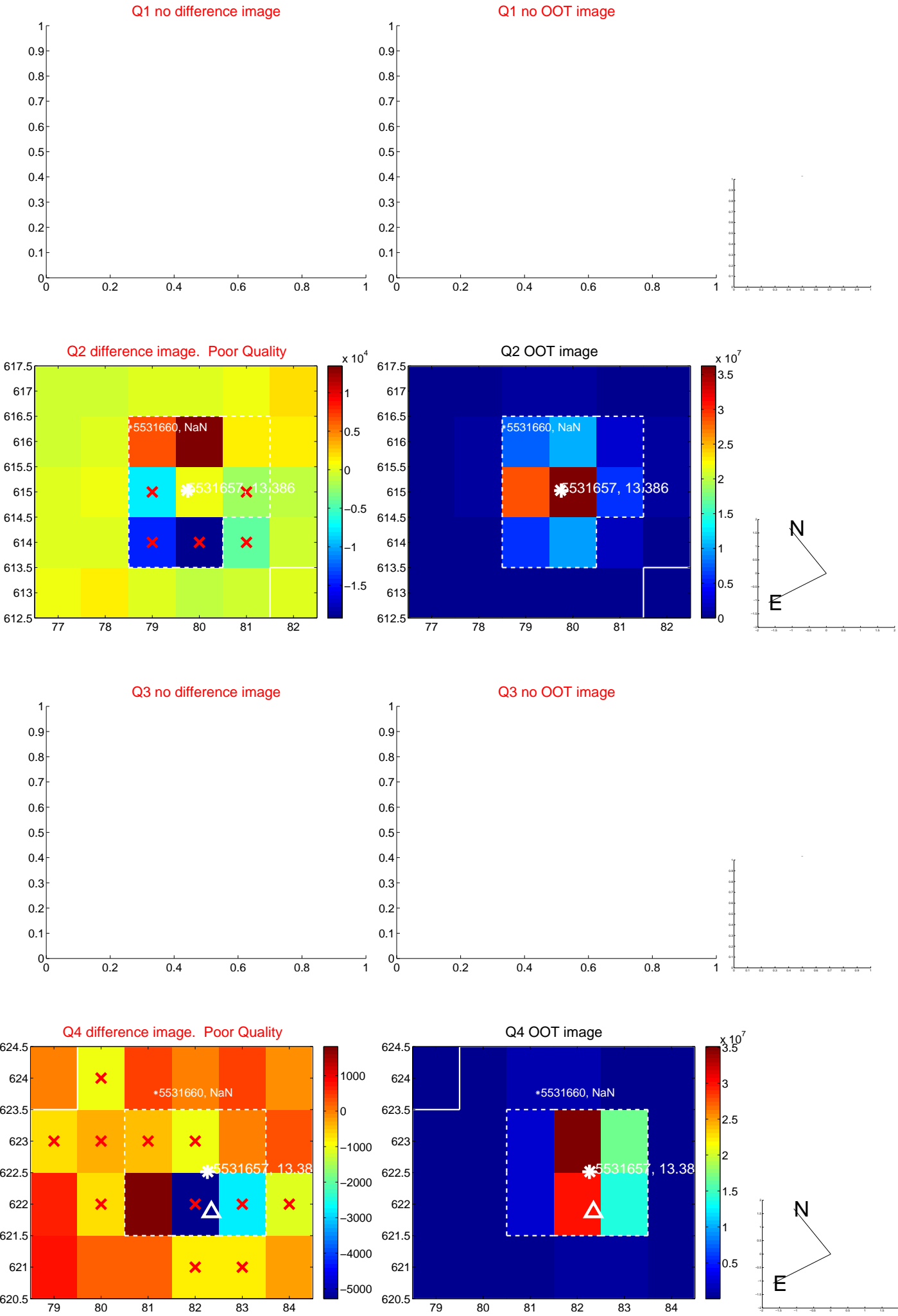
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.146 ± 0.249	0.59	0.108 ± 0.178	0.099 ± 0.314
PRF-fit source offset from KIC position	0.123 ± 0.242	0.51	0.092 ± 0.175	0.082 ± 0.307
photometric centroid source offset	0.44 ± 1.00	0.44	0.14 ± 1.04	-0.42 ± 1.00

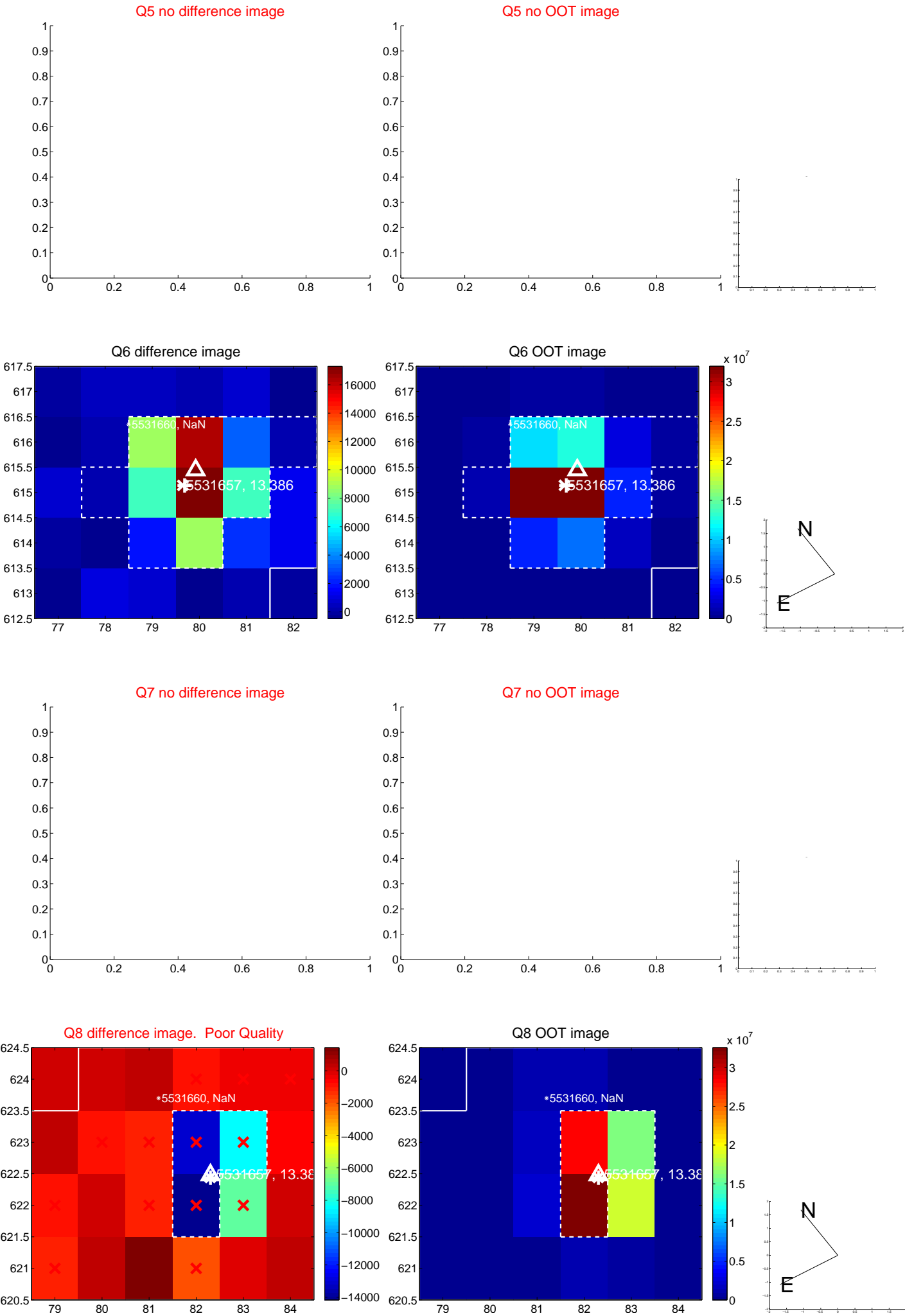


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

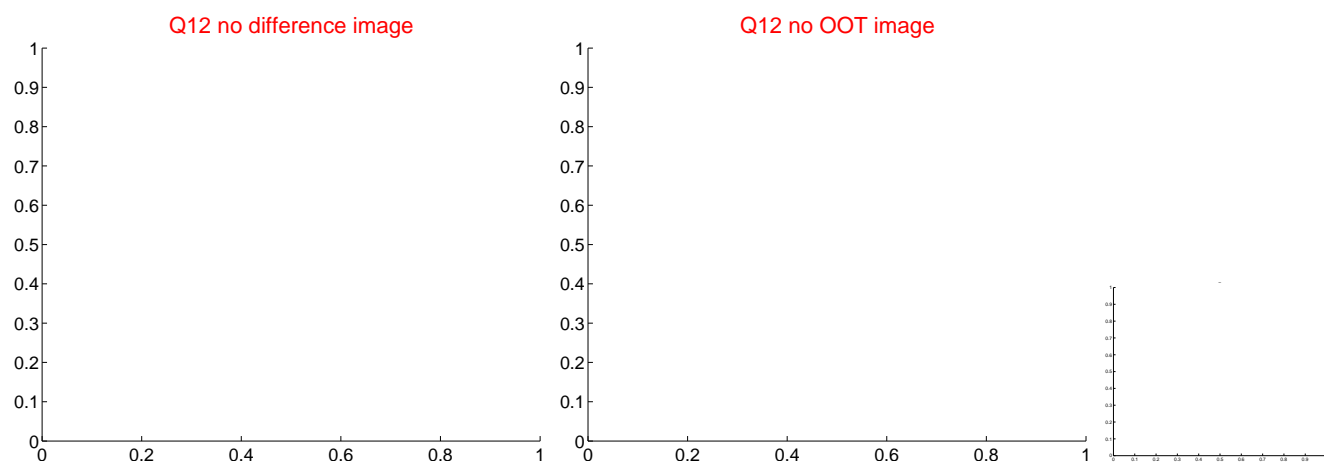
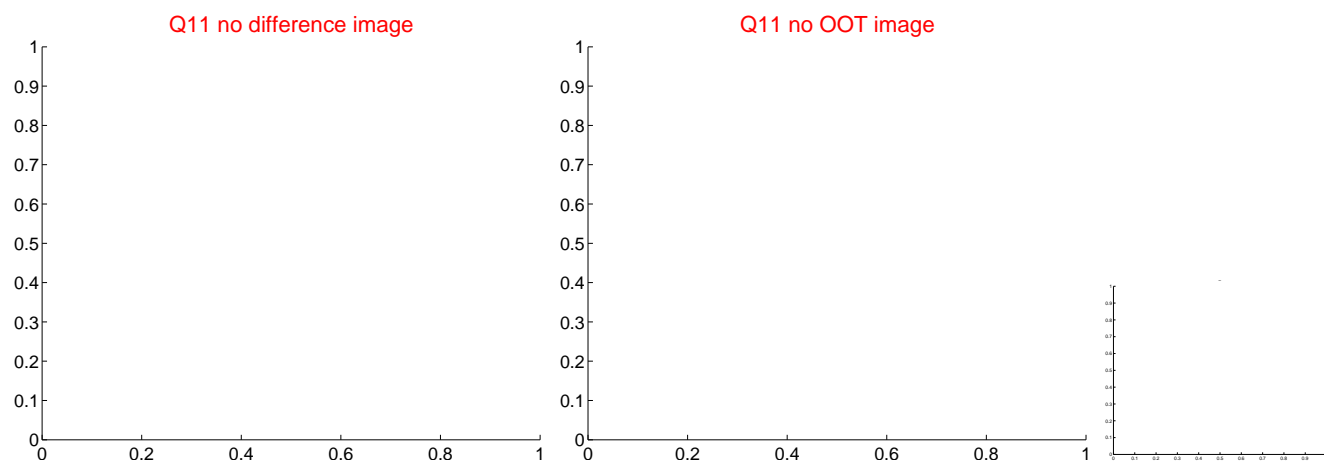
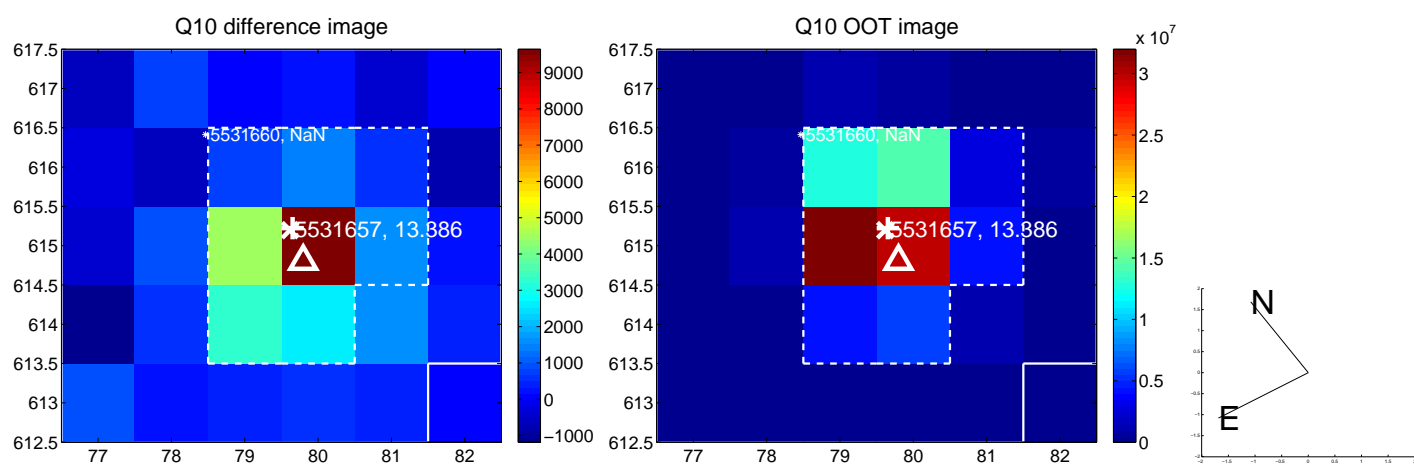
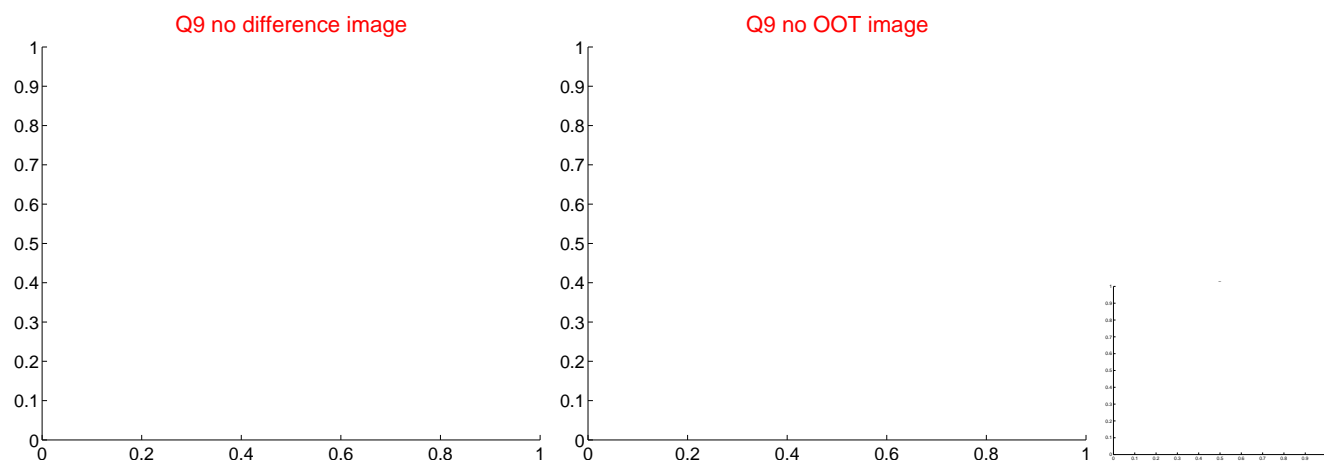
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



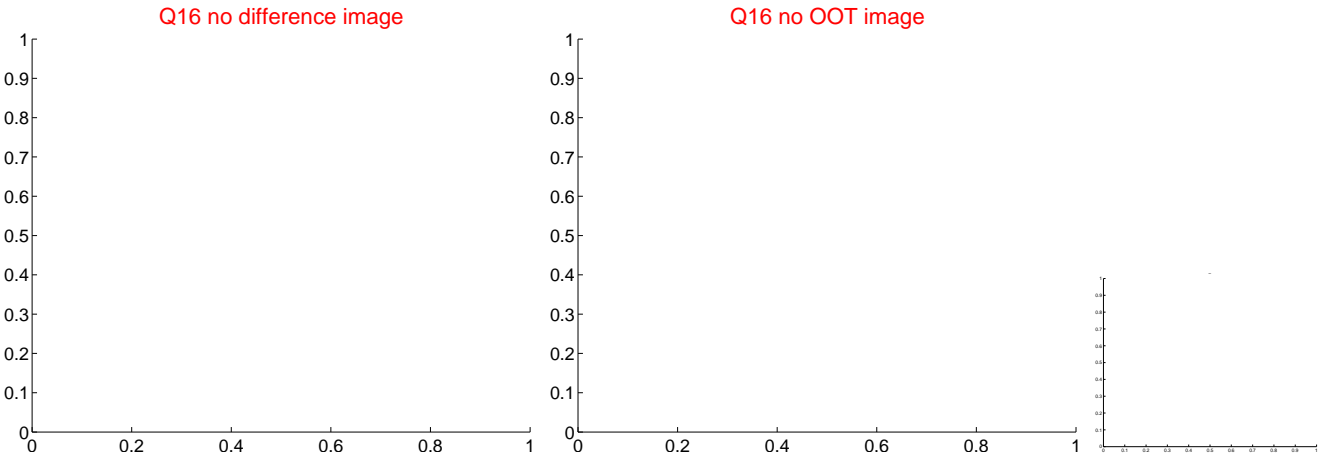
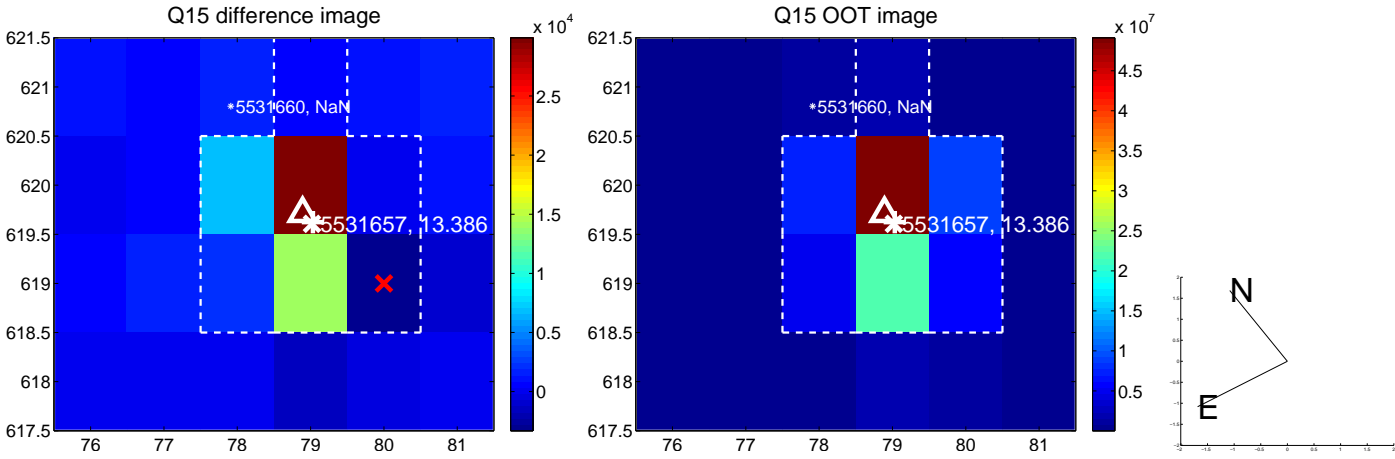
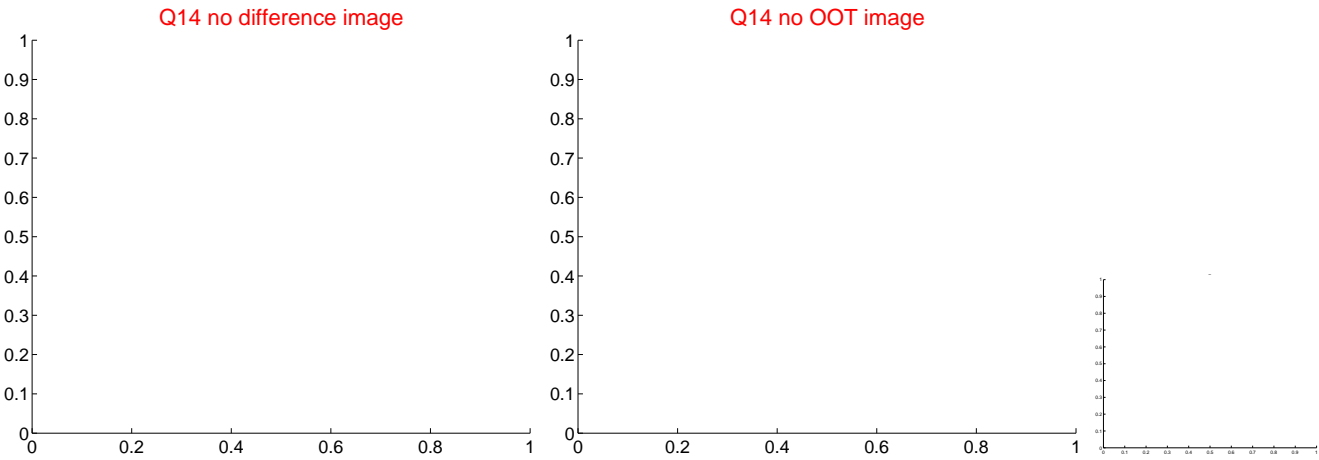
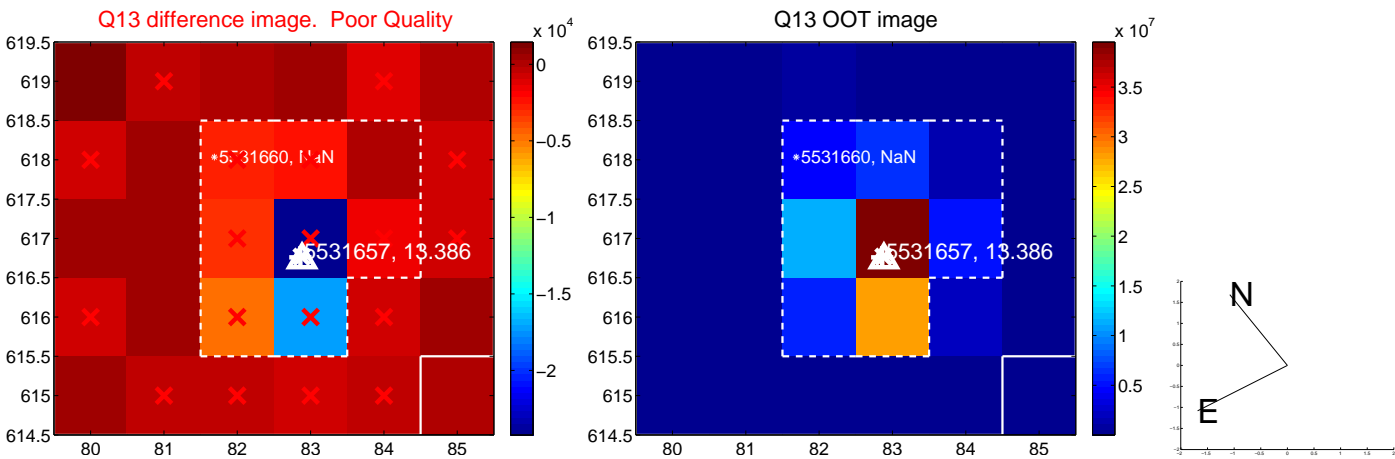
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



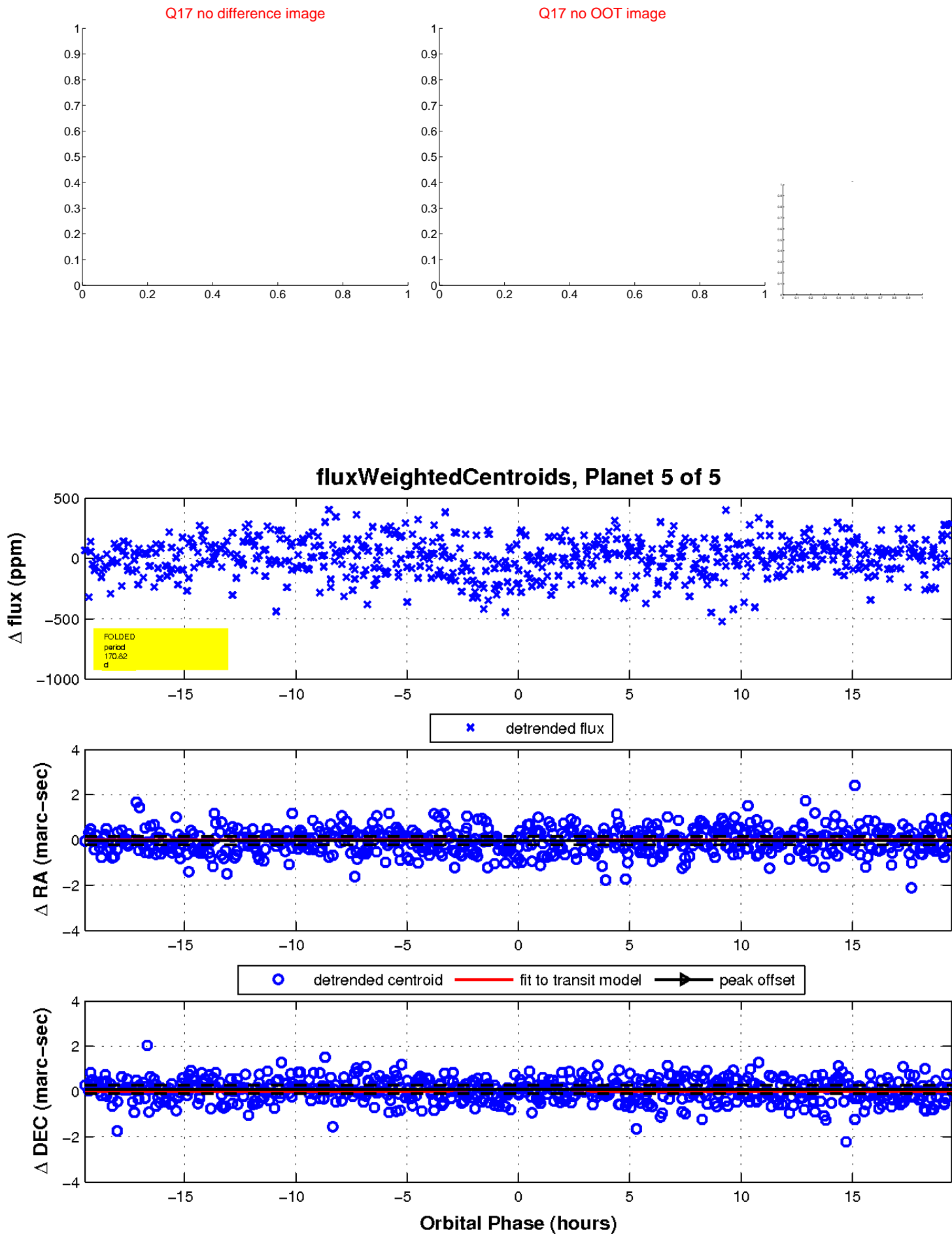
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UKIRT Image

Declination

