

KIC 012157161

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})
012157161-01	OBS	No	0.752180	132.033982	4.3	5.706	7.1	1.0	1.44	6517	0.32	11140.32
012157161-02	OBS	No	4.411724	131.852476	1748.5	1.149	11.2	11.8	1.44	6517	6.09	1053.21
012157161-03	OBS	No	32.339105	141.457169	2197.7	1.256	10.5	12.6	1.44	6517	7.00	73.96
012157161-04	OBS	No	14.873501	135.302008	1706.8	3.546	10.7	10.8	1.44	6517	5.98	208.34
012157161-05	OBS	No	13.448370	132.208327	3114.4	0.831	10.0	12.4	1.44	6517	8.42	238.29
012157161-06	OBS	No	4.800537	135.631280	2396.5	1.044	10.2	13.2	1.44	6517	7.69	941.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012157161-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
012157161-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED

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

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

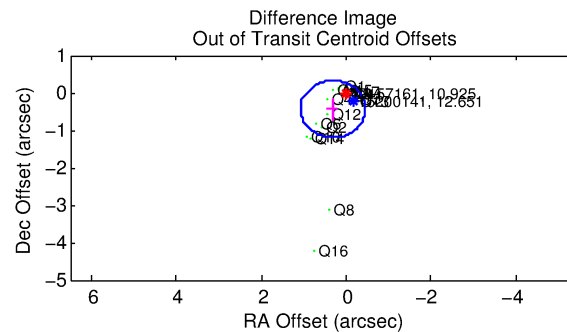
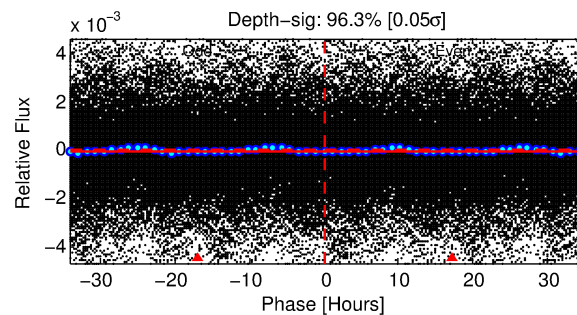
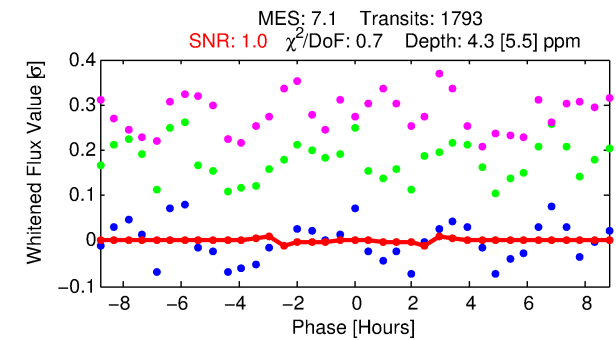
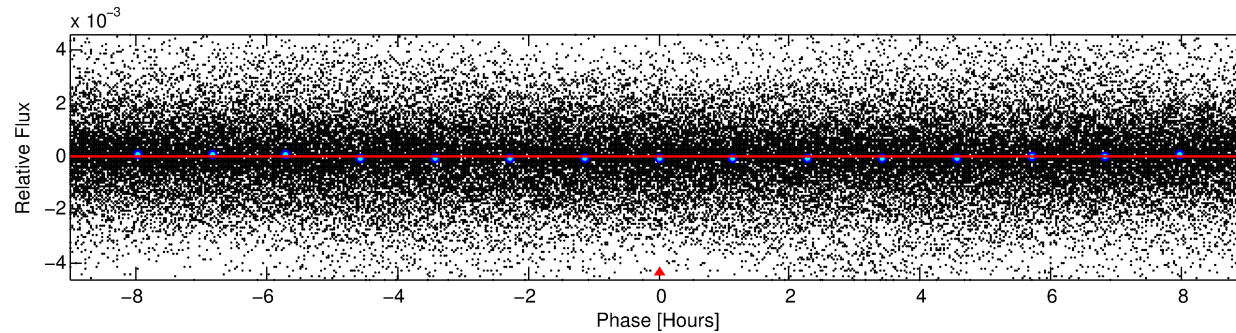
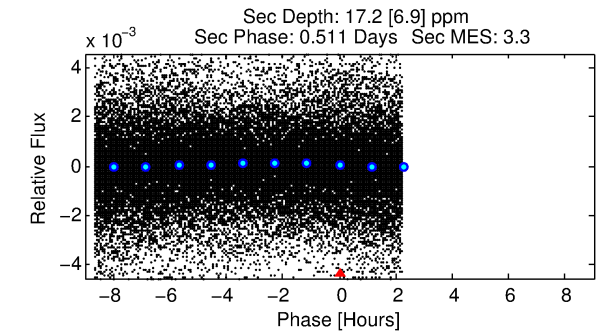
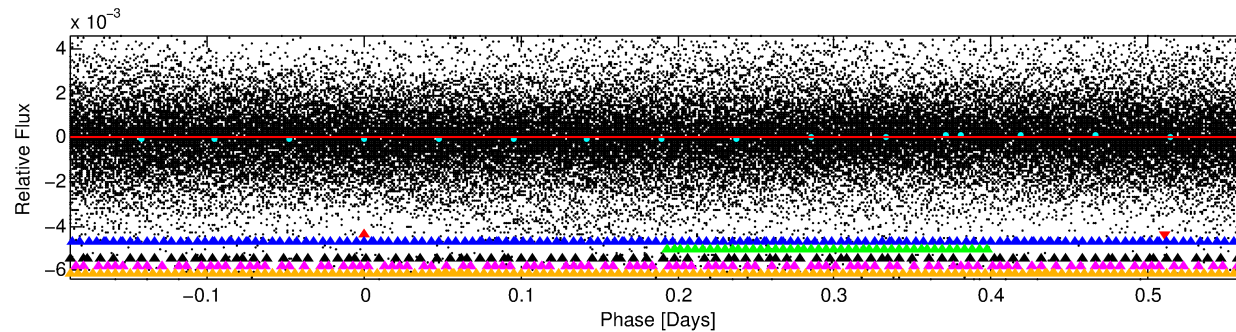
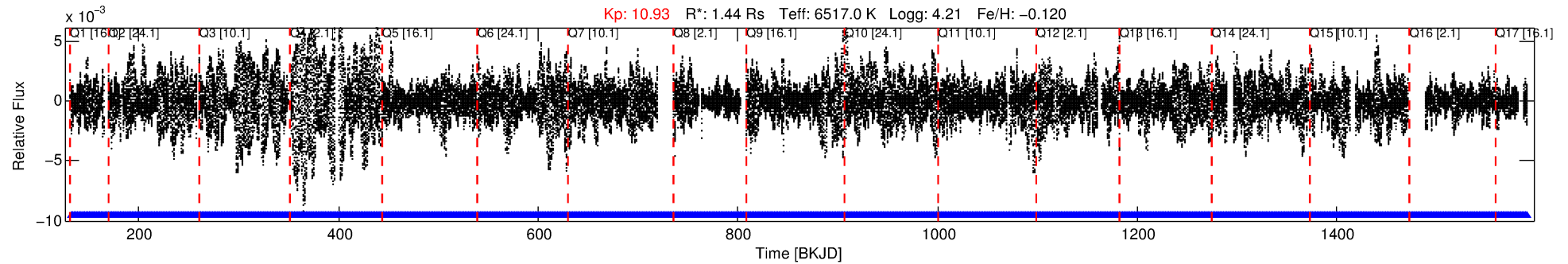
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012157161-01

No Significant Match Found

DV One-Page Summary

KIC: 12157161 Candidate: 1 of 6 Period: 0.752 d



DV Fit Results:

Period = 0.75218 [0.00009] d
Epoch = 132.0340 [0.0096] BKJD
Rp/R* = 0.0020 [0.0017]
a/R* = 1.11 [0.70]
b = 0.70 [2.54]
Seff = 11140.32 [4136.74]
Teq = 2620 [243] K
Rp = 0.32 [0.28] Re
a = 0.0173 [0.0043] AU
Ag = 28.00 [49.13] [0.55σ]
Teffp = 9317 [4014] K [1.67σ]

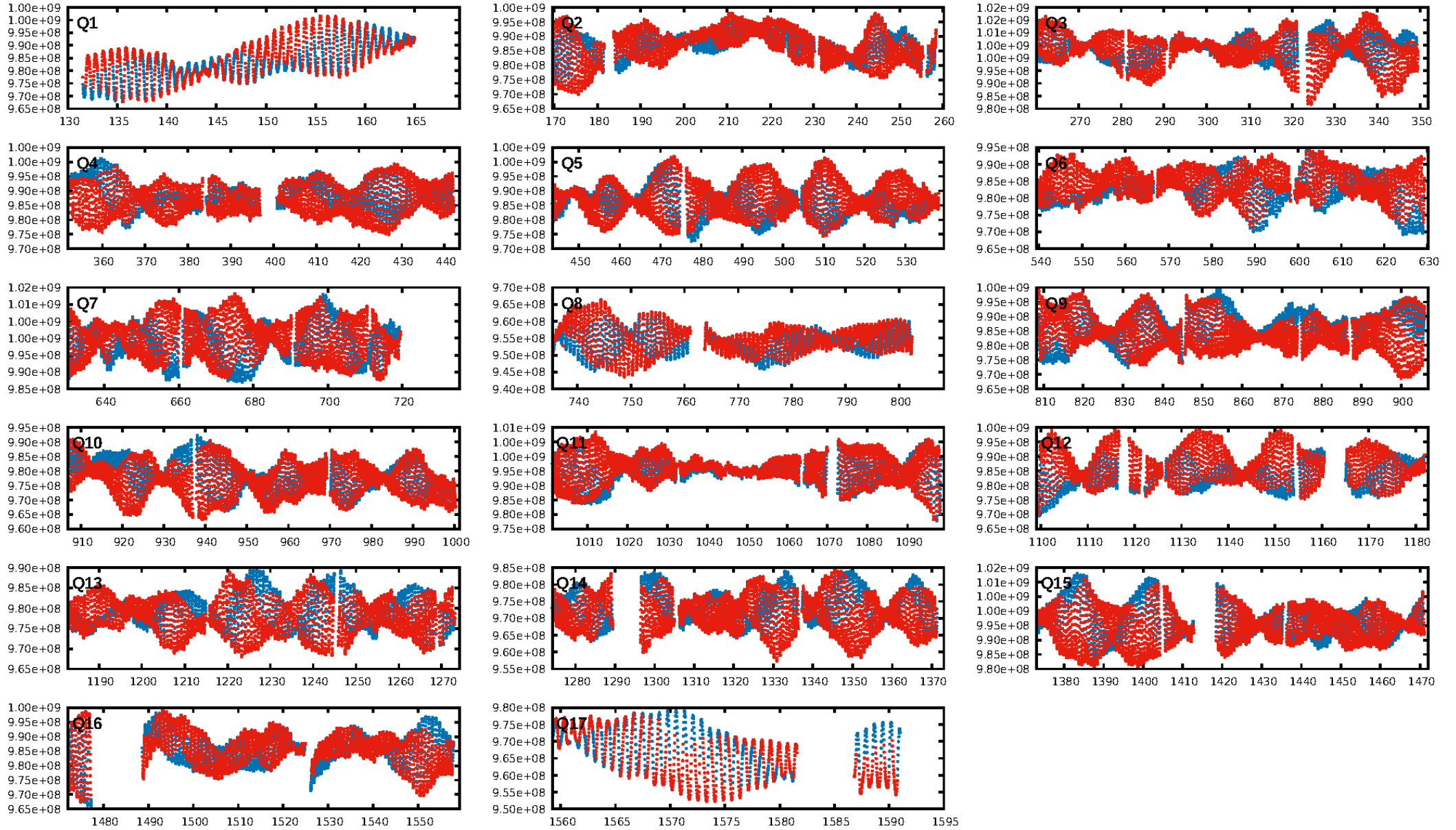
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [15.09σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.31e-09
RollingBand-fgt: 1.00 [1713/1713]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.536 arcsec [2.11σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.541 arcsec [2.18σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 1.00 [17/17]

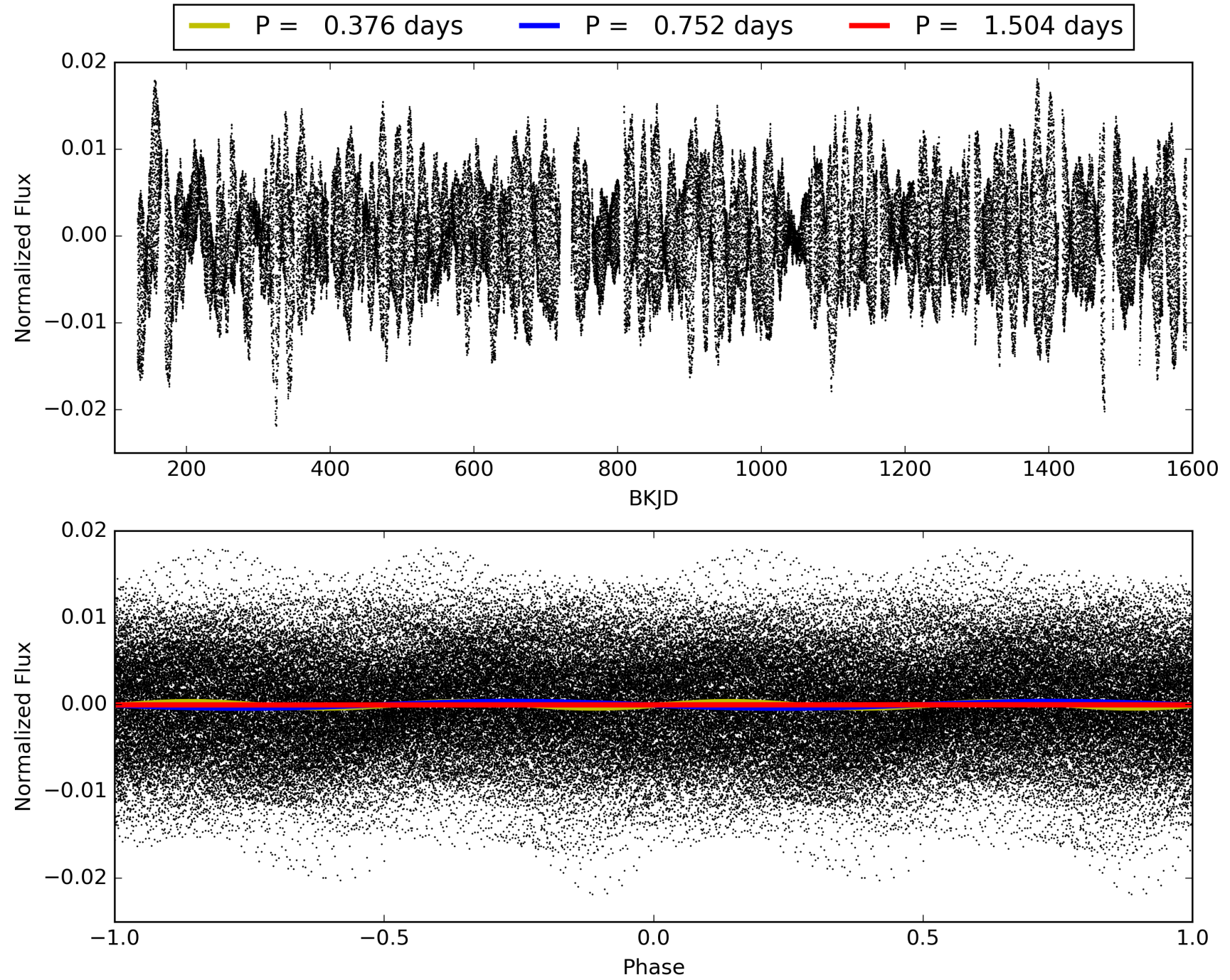
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:39:20 Z

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

TCE 012157161-01, PDC Light Curves

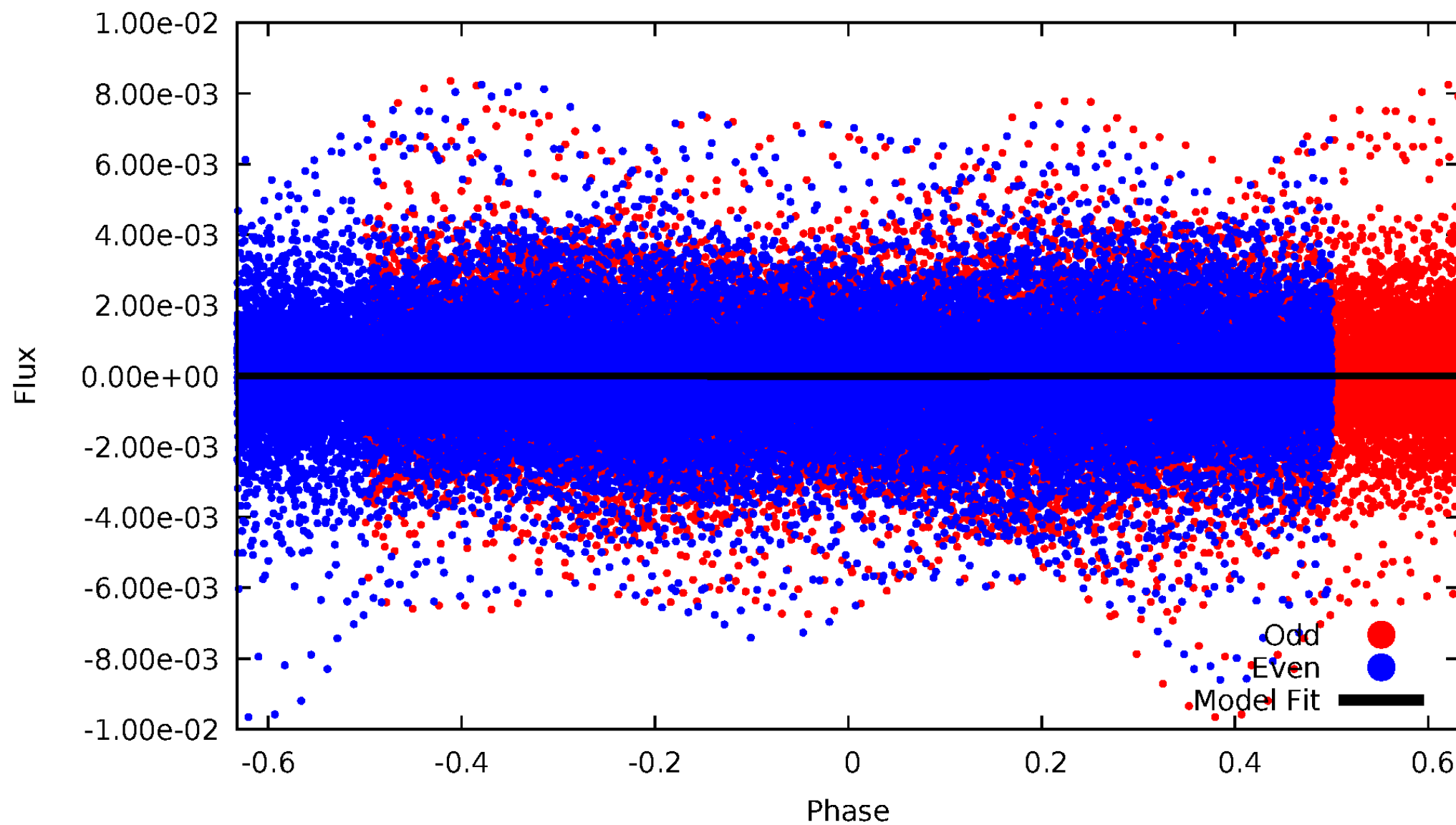


TCE 012157161-01



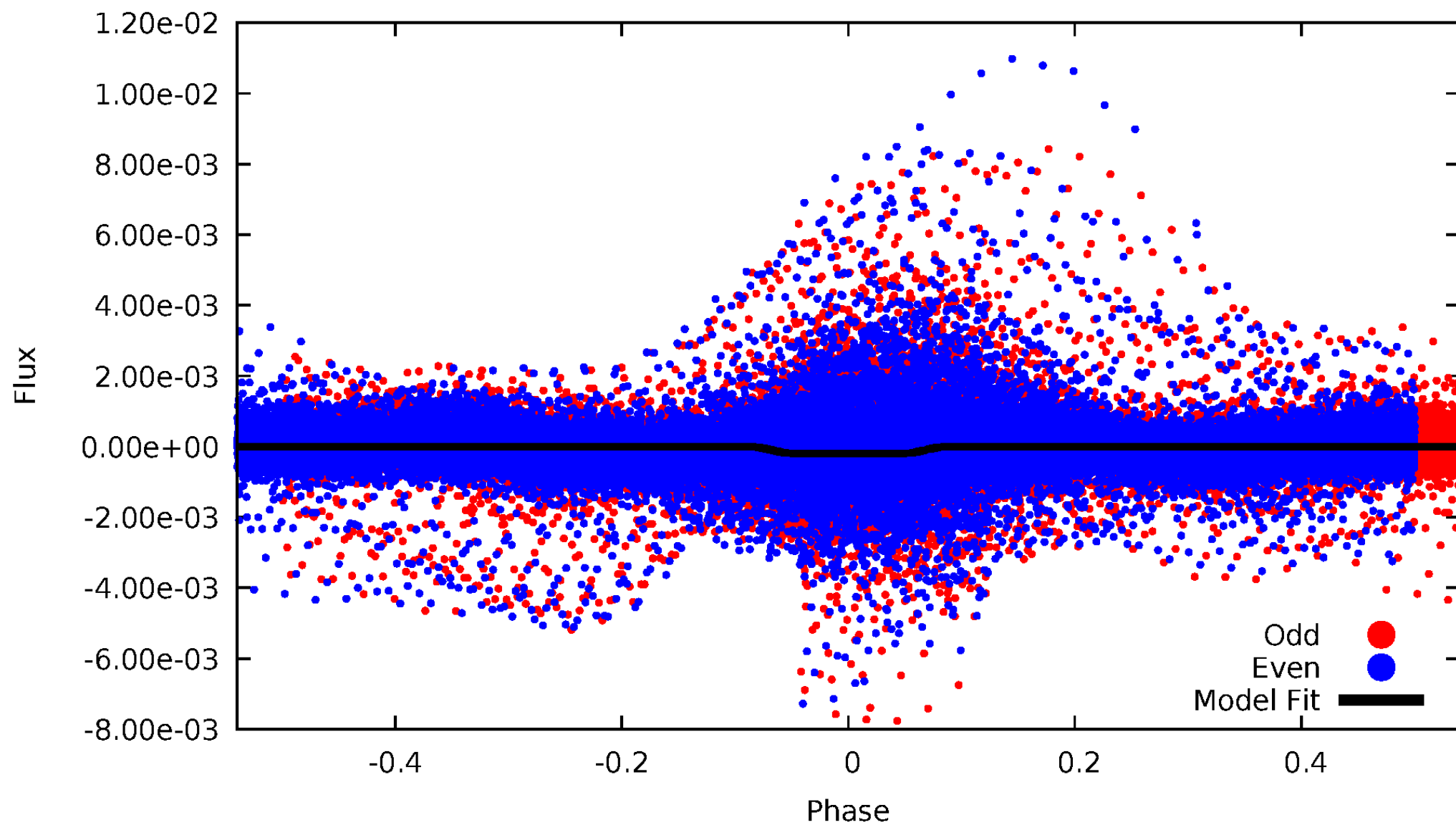
DV Odd/Even

TCE 012157161-01



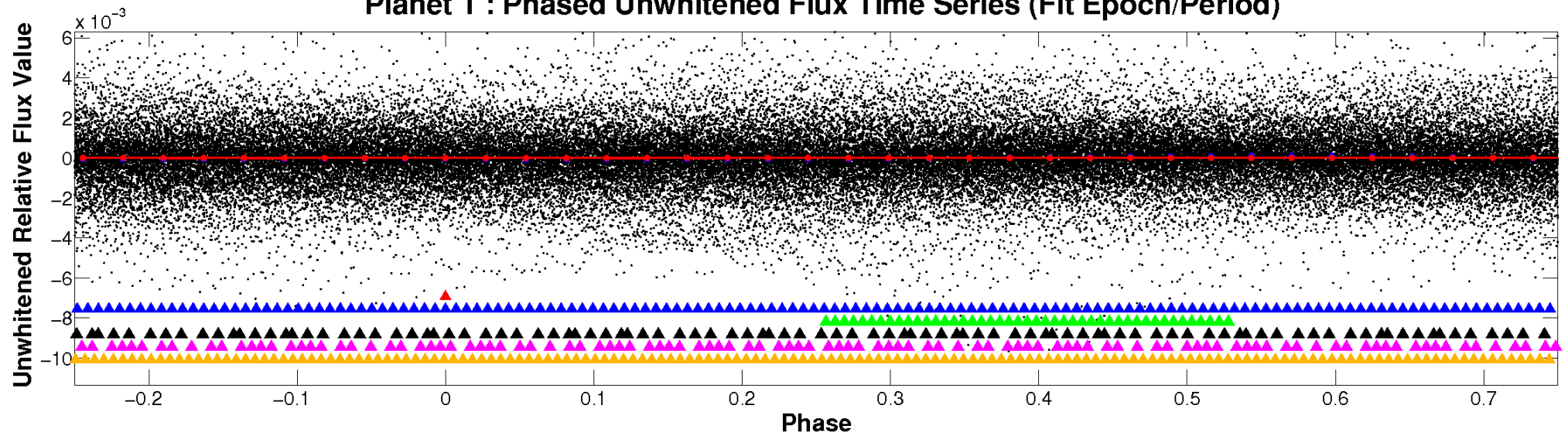
ALT Odd/Even

TCE 012157161-01

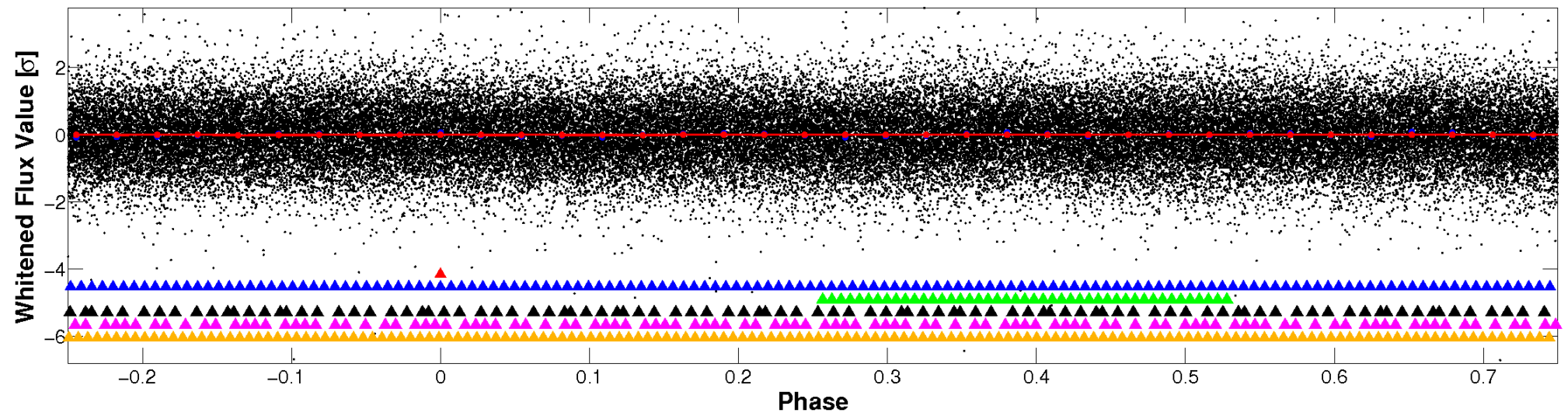


Non-Whitened Vs. Whitened Light Curve

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

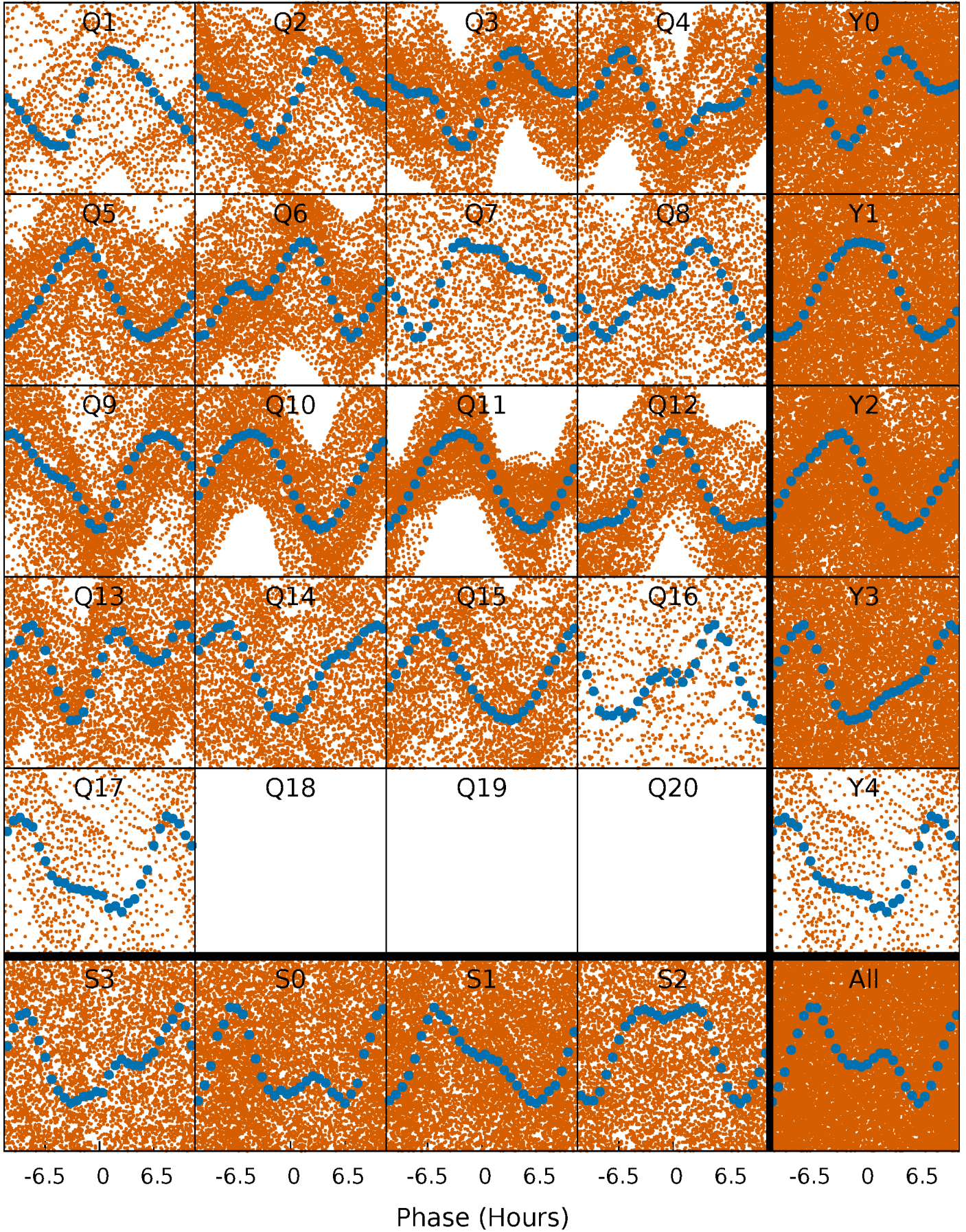


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



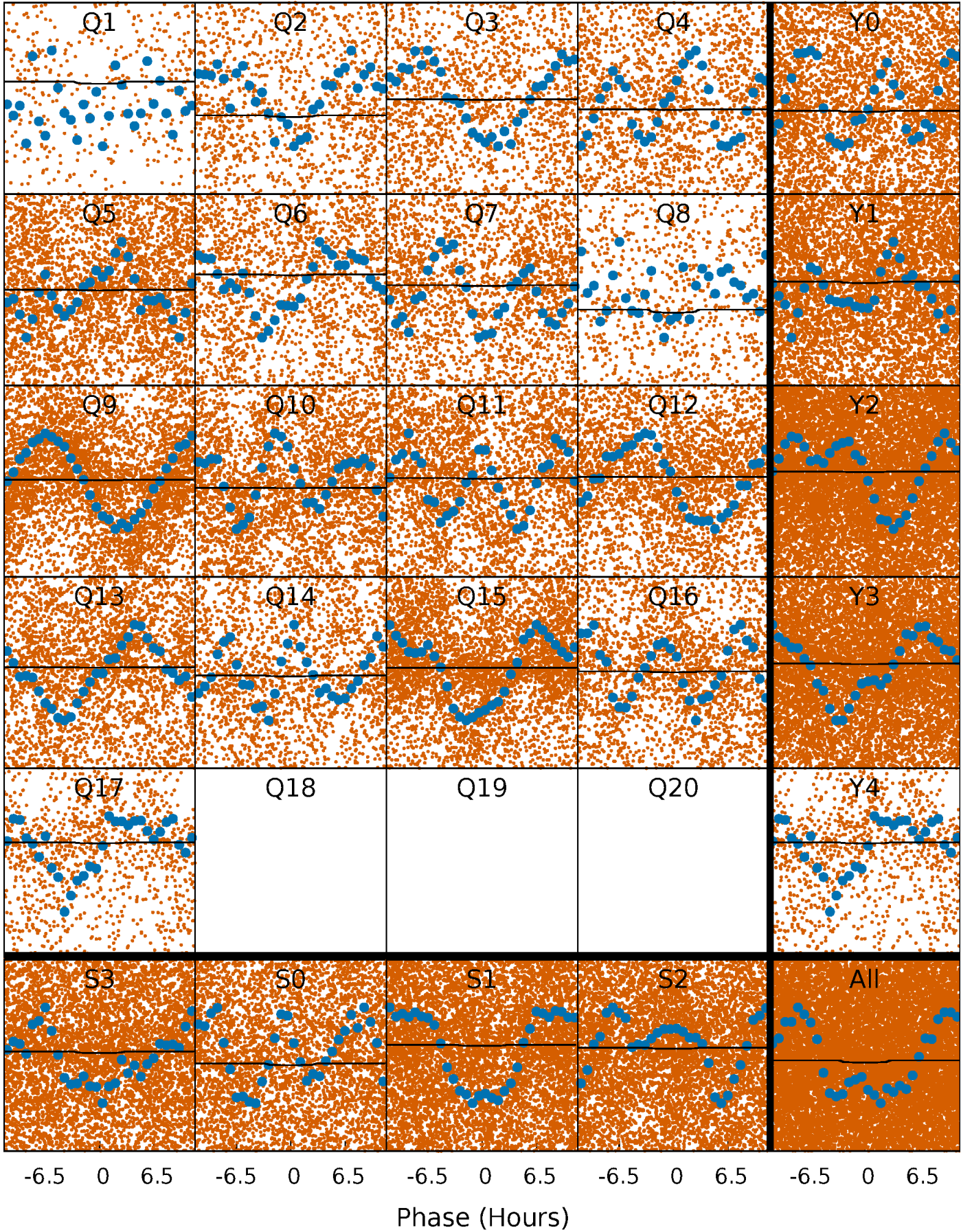
PDC Quarter-Phased Transit Curves

TCE 012157161-01 P= 0.752180 Days $T_0=132.033982$ (BKJD)



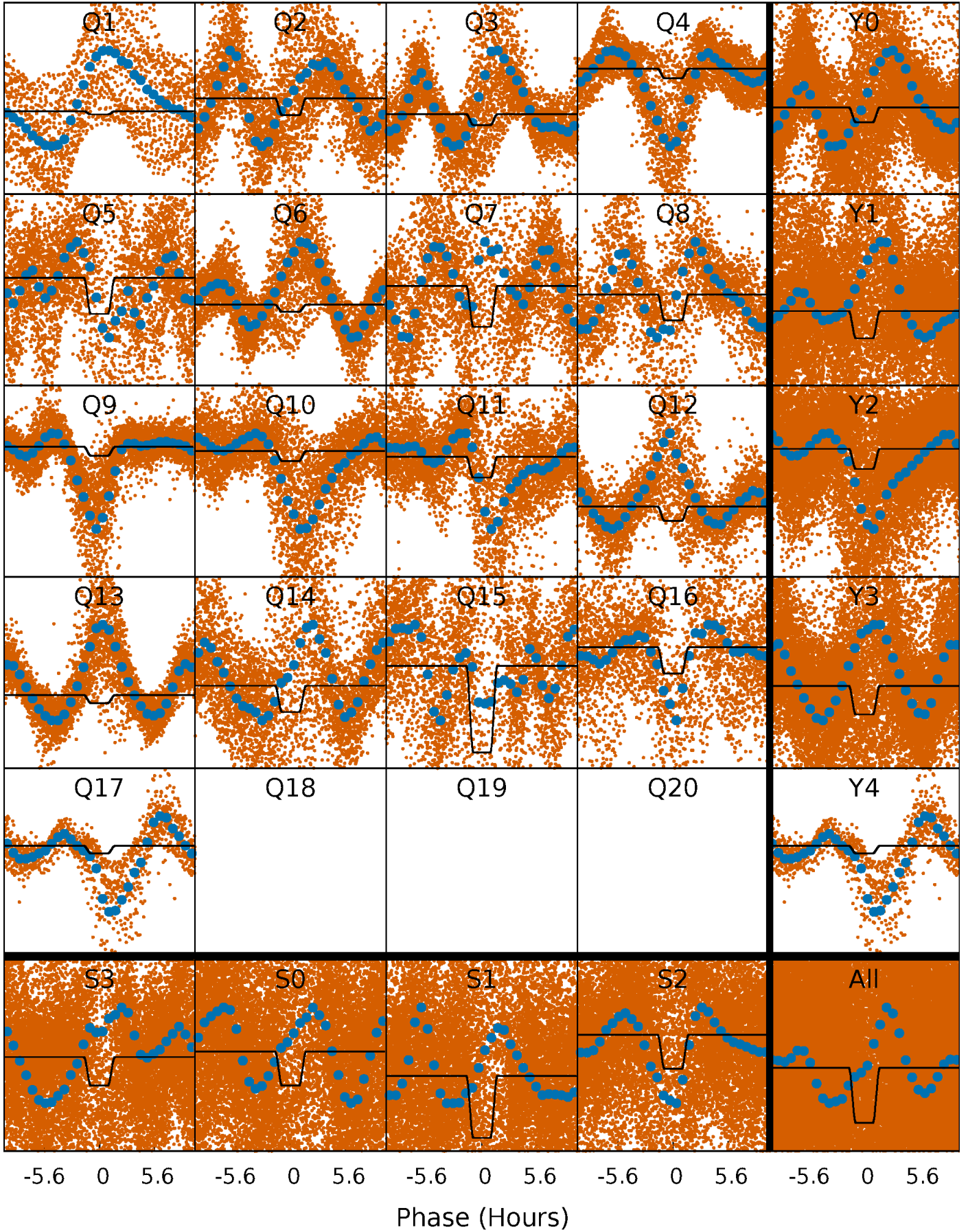
DV Quarter-Phased Transit Curves

TCE 012157161-01 P= 0.752180 Days $T_0=132.033982$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

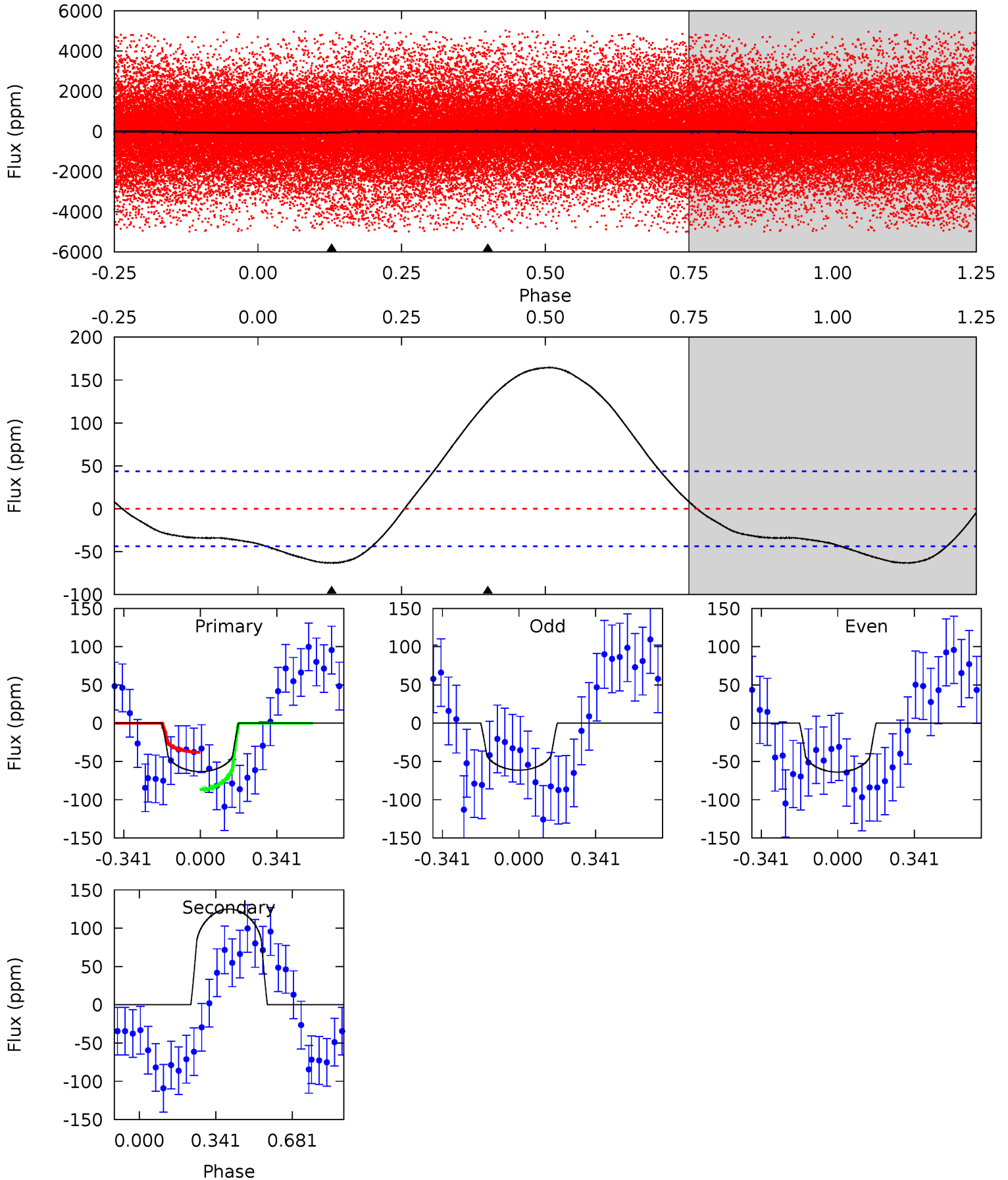
TCE 012157161-01 P= 0.752221 Days $T_0=132.033247$ (BKJD)



DV Model-Shift Uniqueness Test

012157161-01, P = 0.752180 Days, E = 131.281802 Days

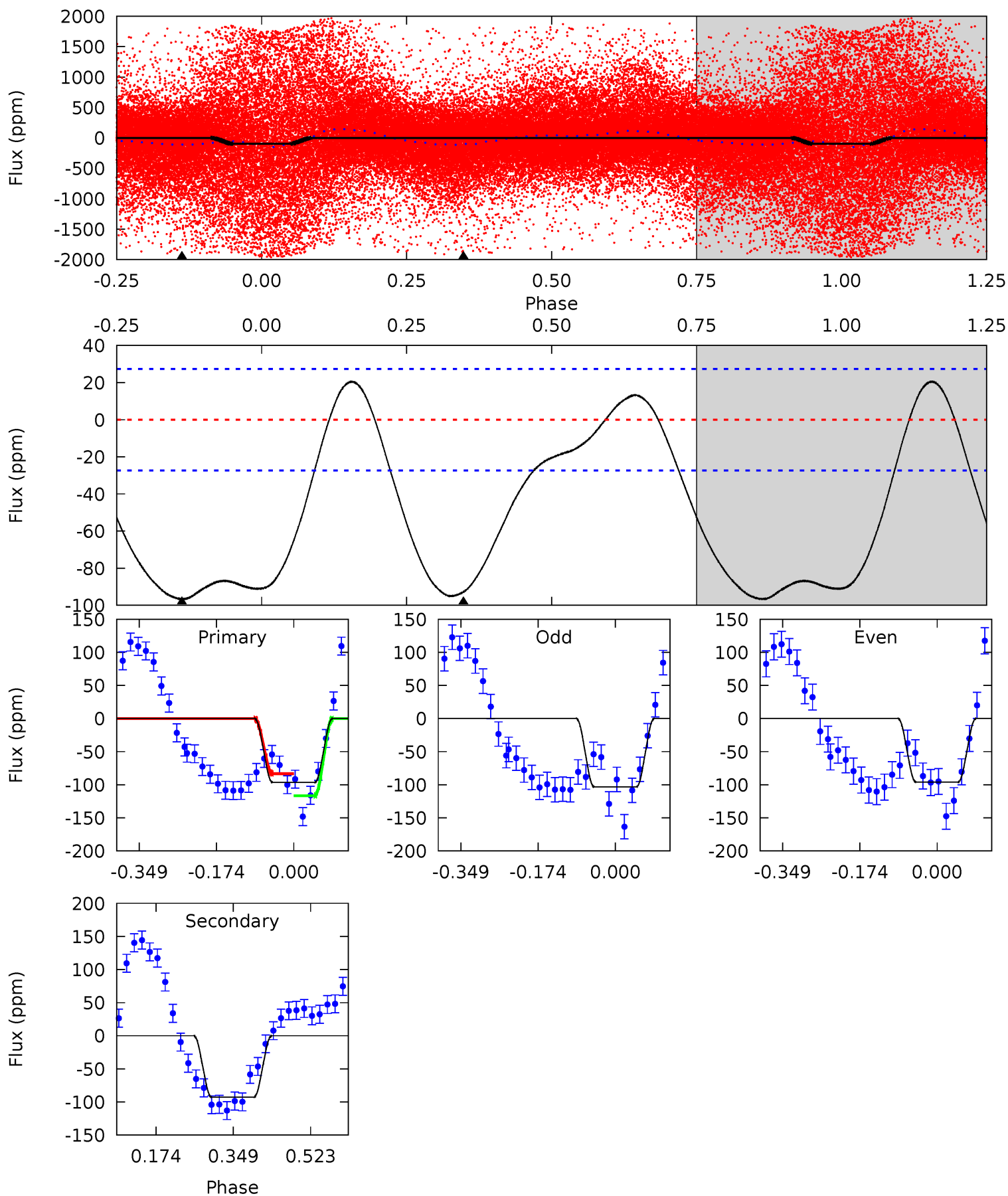
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.24	-12.3	0	0	4.30	0.95	1.58	6.24	6.24	-12.3	-12.3	0.13	1.21	0.72	2.48



Alt Model-Shift Uniqueness Test

012157161-01, P = 0.752221 Days, E = 131.281026 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	15.1	0	0	4.45	1.36	4.01	15.7	15.7	15.1	15.1	0.60	0.03	0.18	3.58



Stellar Parameters For KIC 012157161

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6517^{+146}_{-194}	$4.211^{+0.153}_{-0.187}$	$-0.120^{+0.250}_{-0.300}$	$1.440^{+0.439}_{-0.293}$	$1.234^{+0.188}_{-0.188}$	$0.582^{+0.464}_{-0.299}$
	+2%/-3%	+4%/-4%	+208%/-250%	+30%/-20%	+15%/-15%	+80%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012157161-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	125 ± 10	$0.36^{+0.27}_{-0.21}$	3665^{+263}_{-225}	-22644^{+9358}_{-63740}	$-155.328^{+104.431}_{-736.723}$
Alt.	-93 ± 6	$2.20^{+0.48}_{-0.36}$	3652^{+262}_{-223}	5269^{+398}_{-298}	$3.145^{+1.326}_{-0.972}$

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 $A_{obs} \gg 1.0$

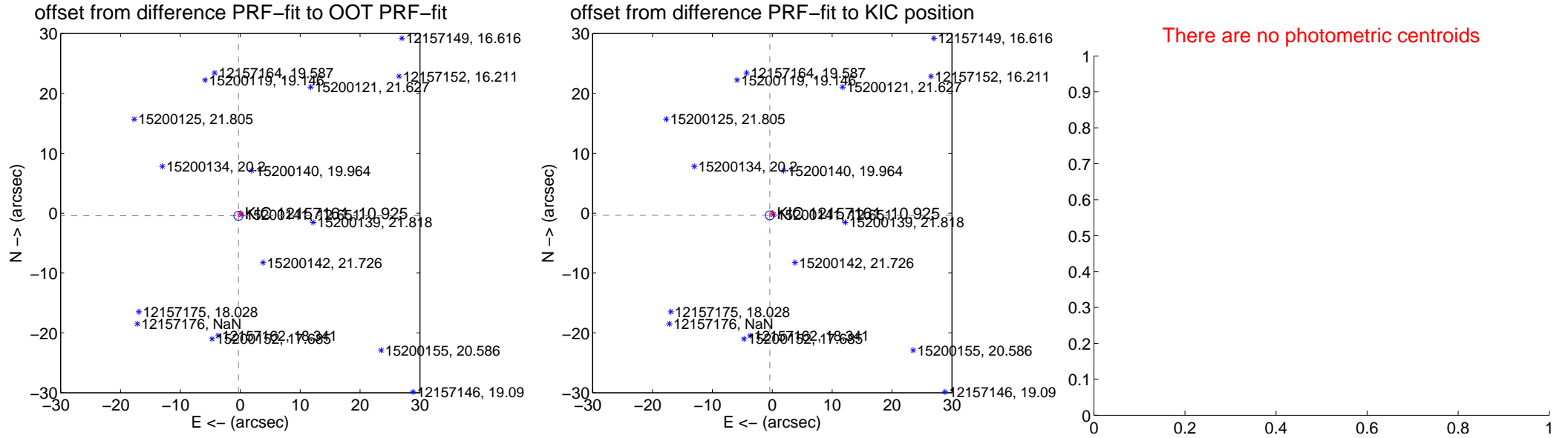
DV Centroid Data

Supplemental centroid analysis for 012157161-01. **Kepler magnitude: 10.93.** Transit SNR 0.96

There are 9 quarters with good PRF difference image offsets

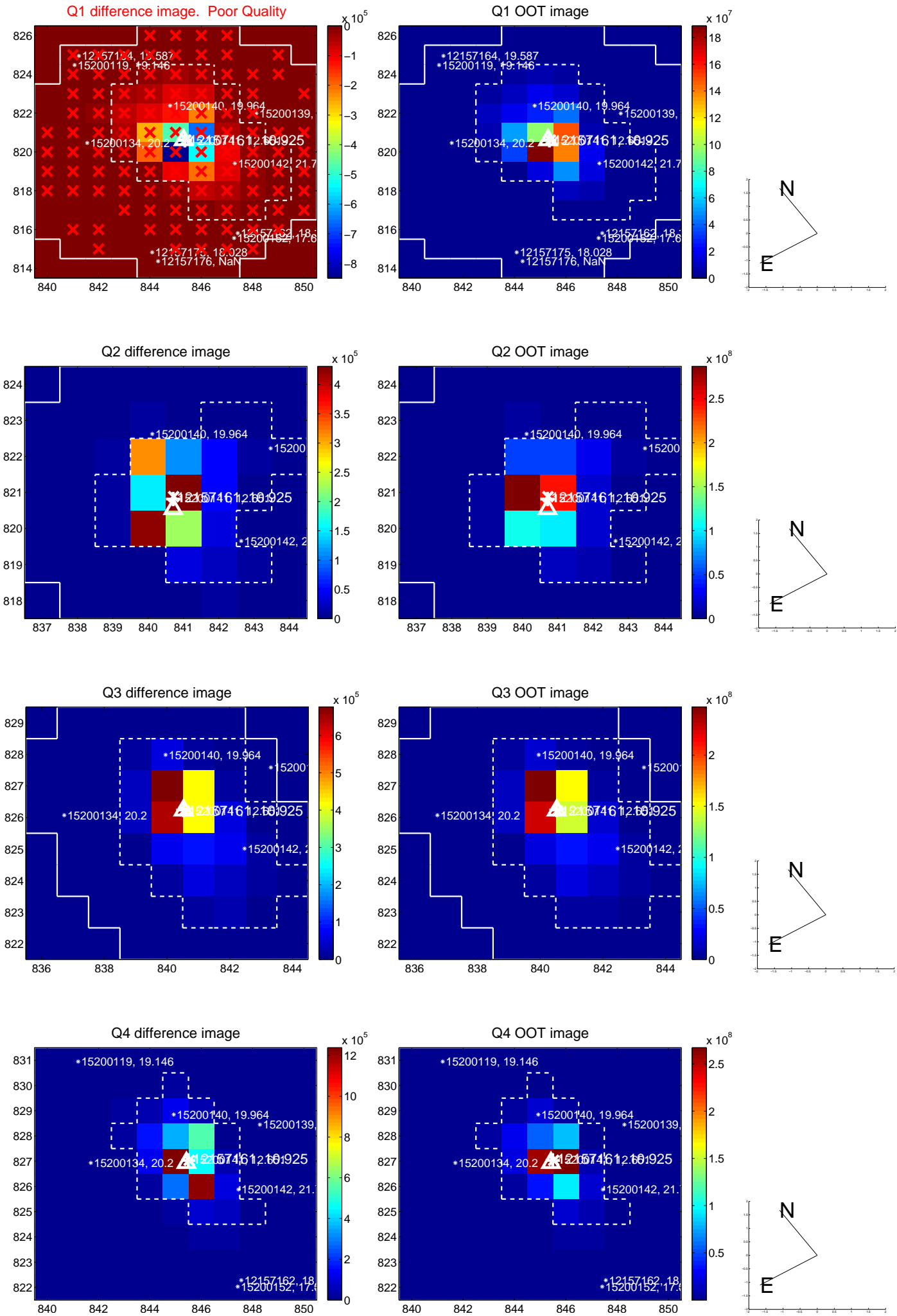
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.536 ± 0.254	2.11	0.309 ± 0.106	-0.437 ± 0.271
PRF-fit source offset from KIC position	0.541 ± 0.248	2.18	0.401 ± 0.116	-0.363 ± 0.291
photometric centroid source offset	—	—	—	—

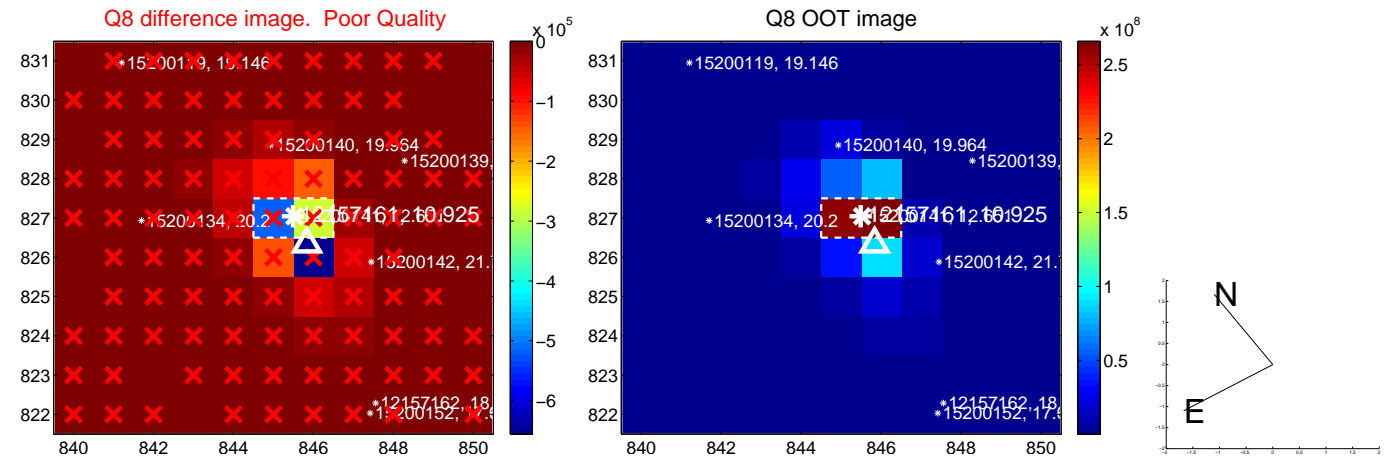
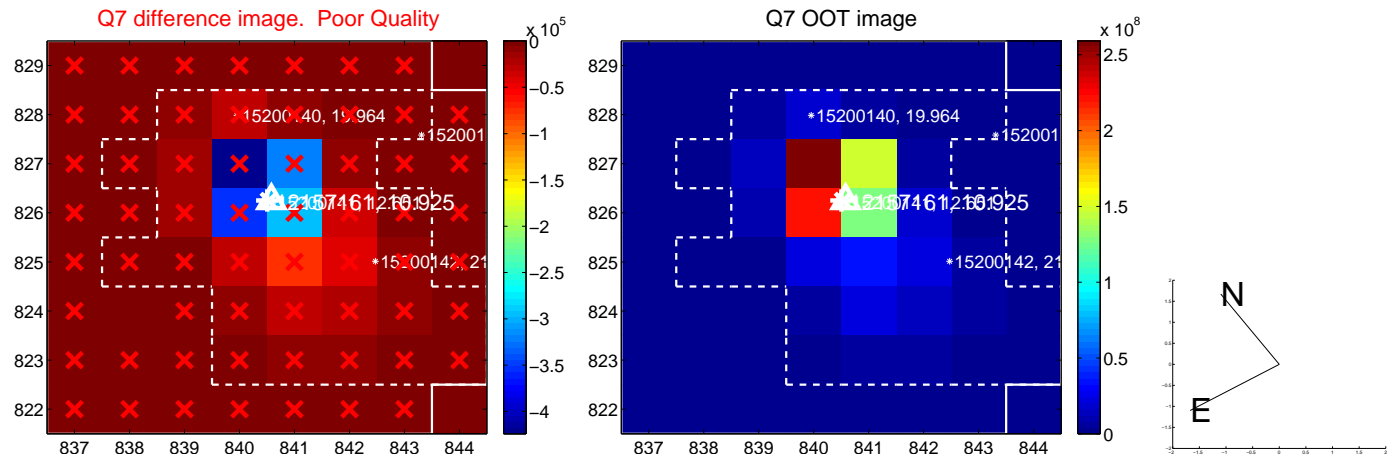
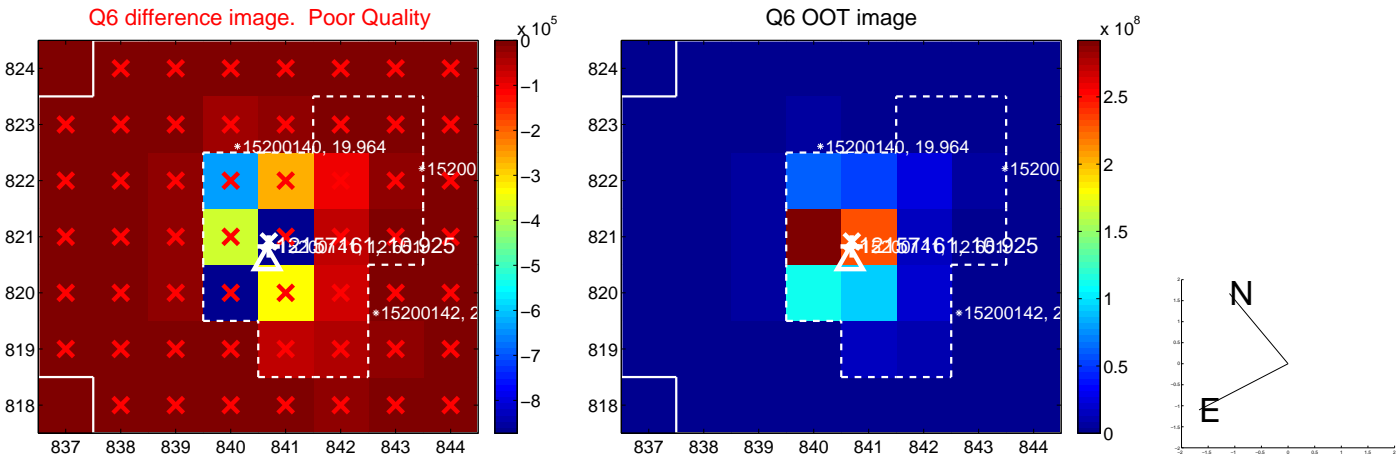
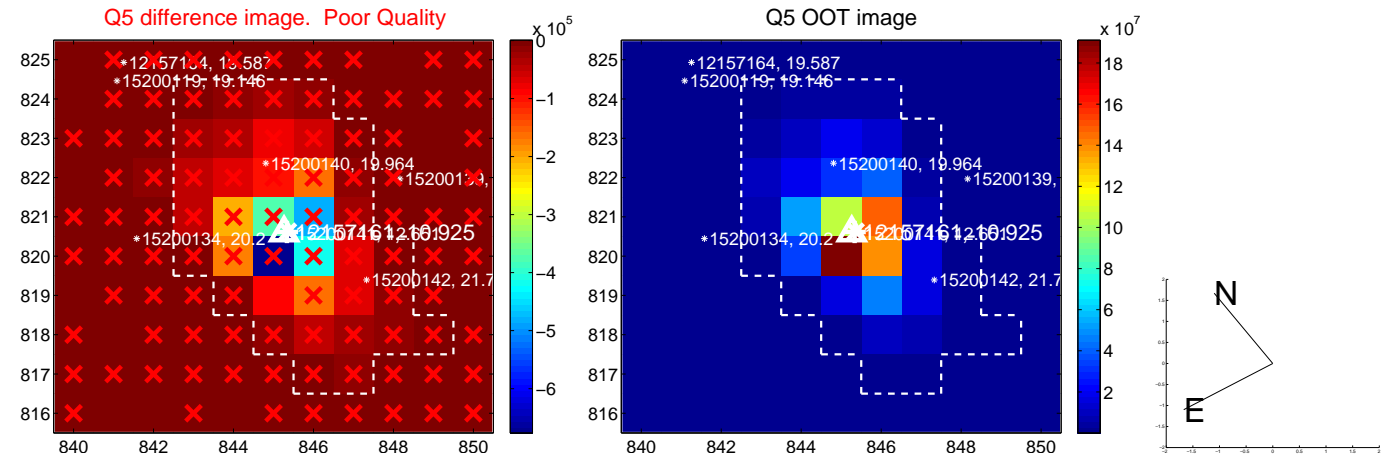


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

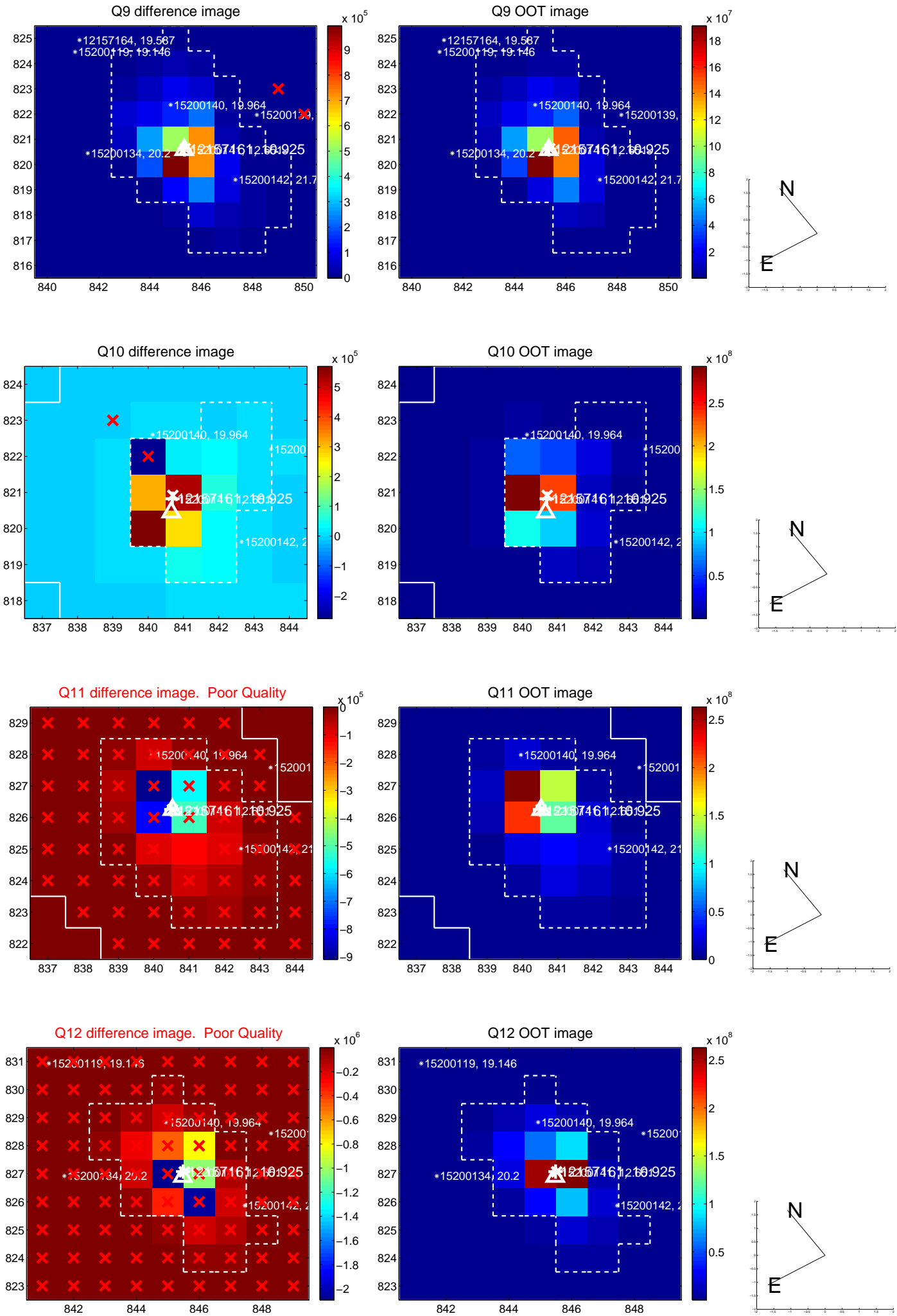
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



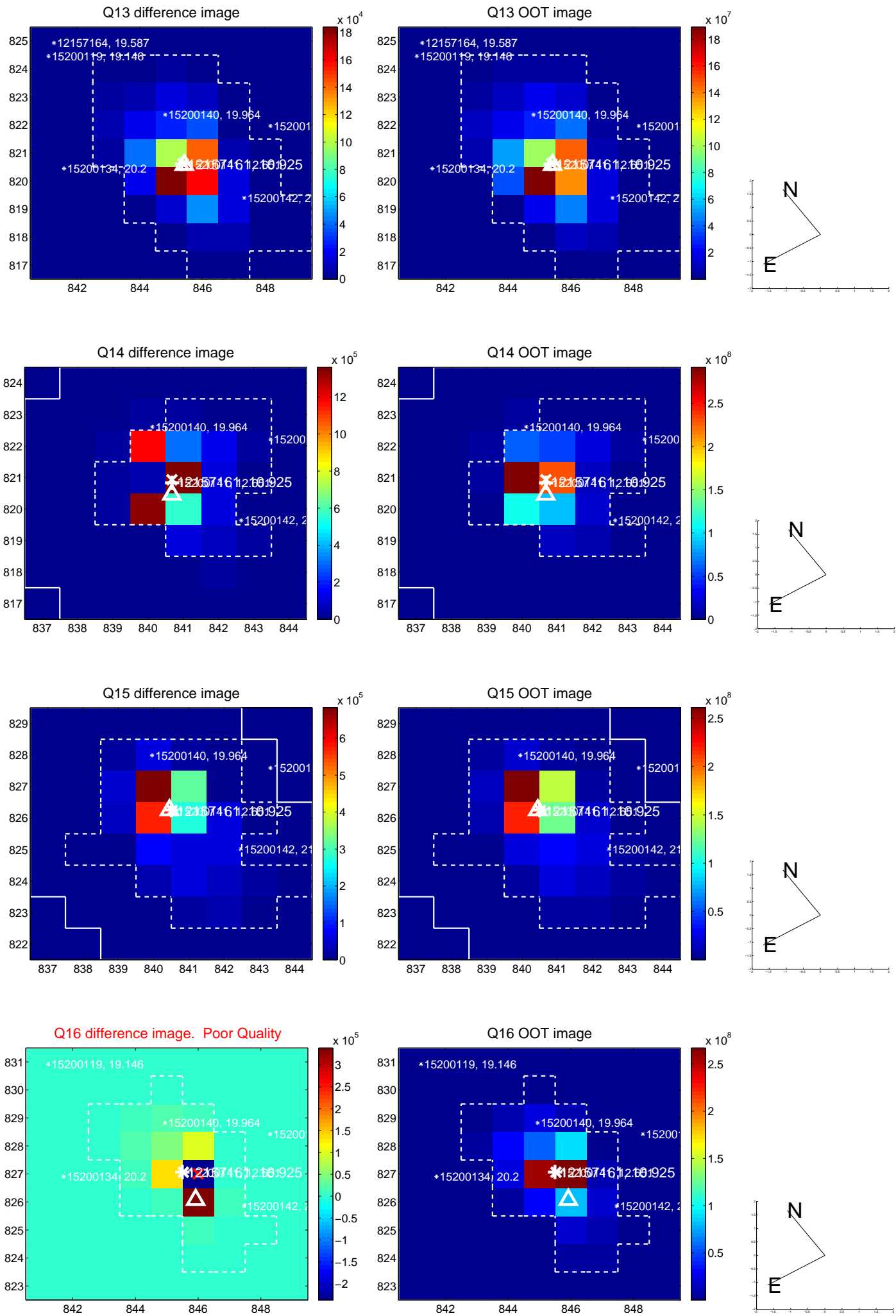
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



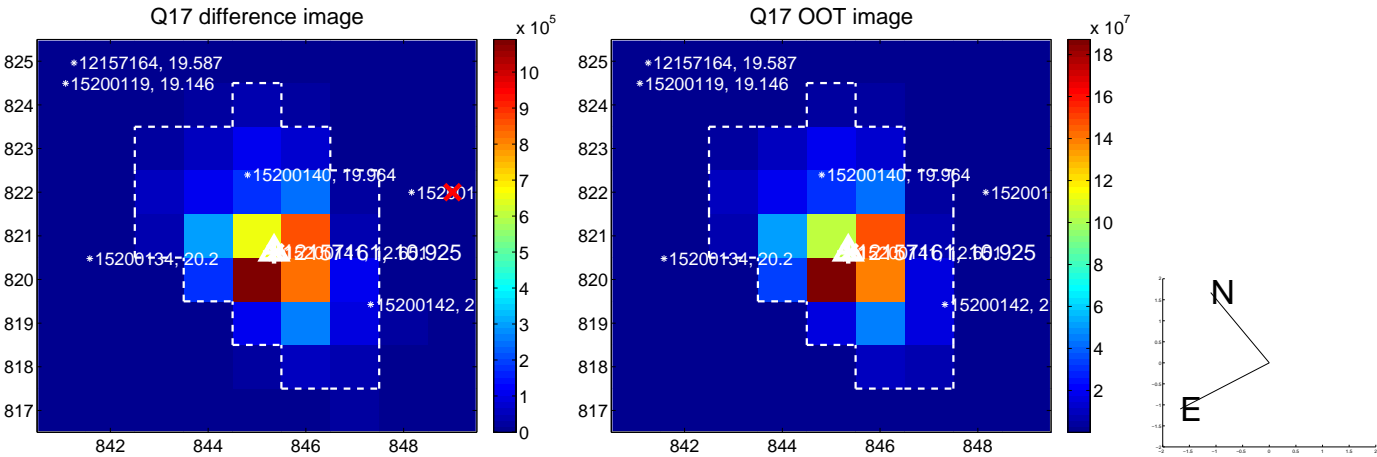
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



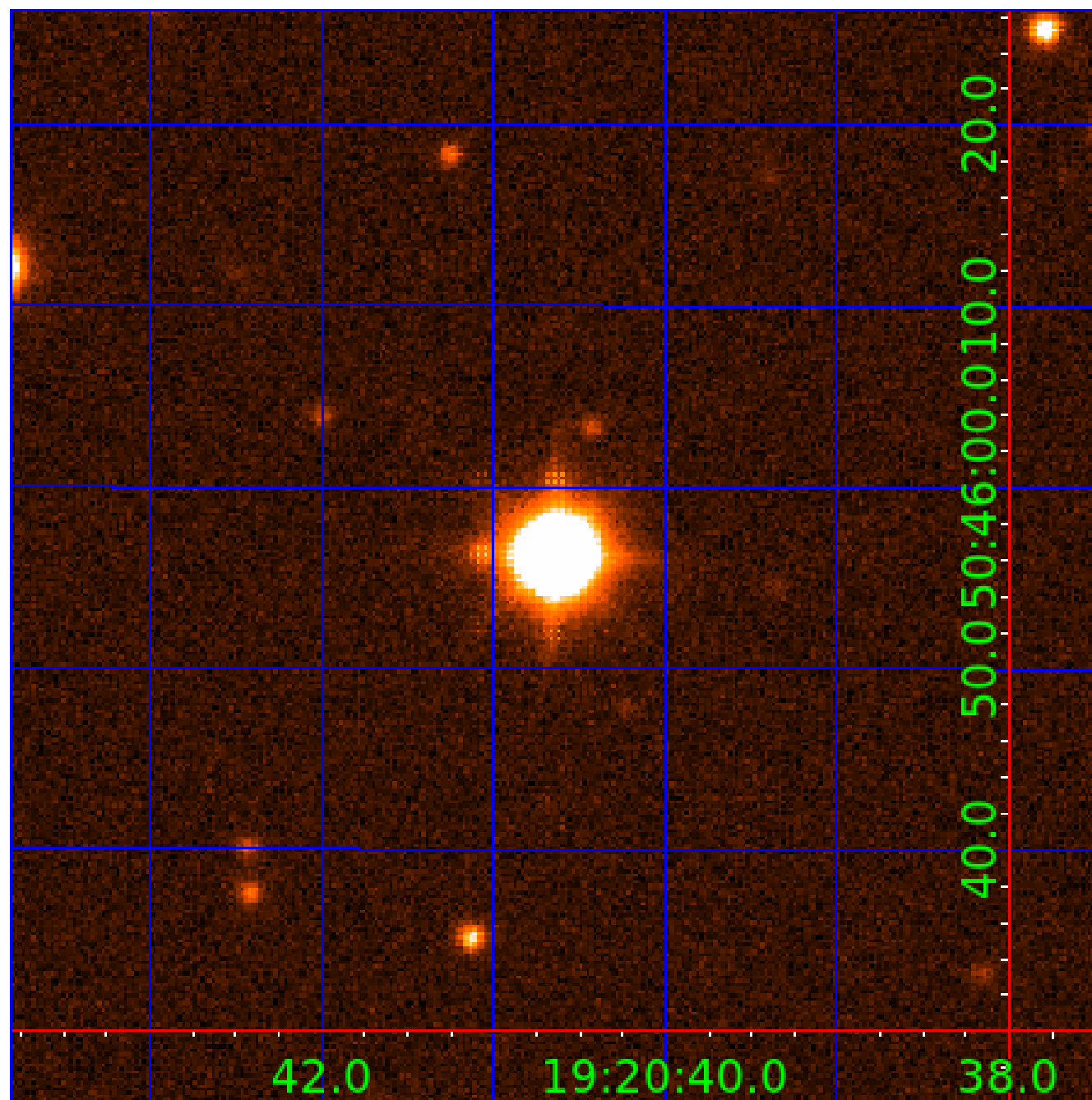
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 012157161

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})
012157161-01	OBS	No	0.752180	132.033982	4.3	5.706	7.1	1.0	1.44	6517	0.32	11140.32
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012157161-06	OBS	No	4.800537	135.631280	2396.5	1.044	10.2	13.2	1.44	6517	7.69	941.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012157161-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
012157161-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED

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

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

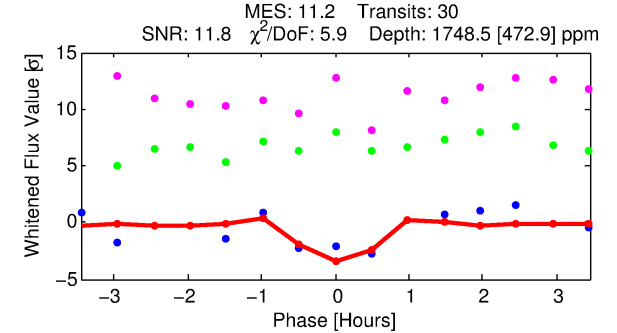
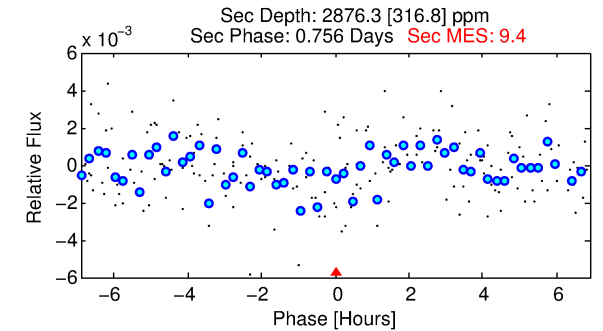
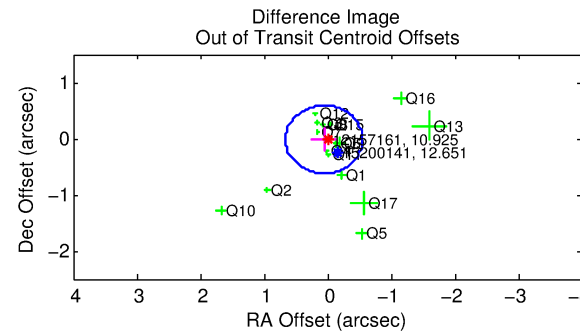
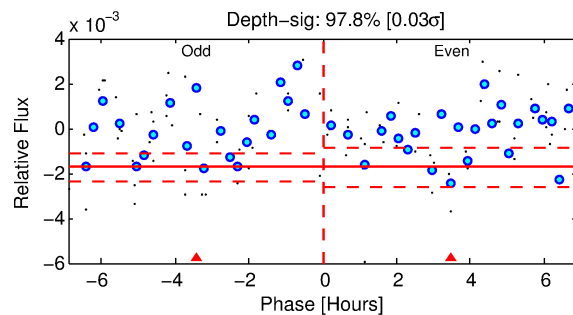
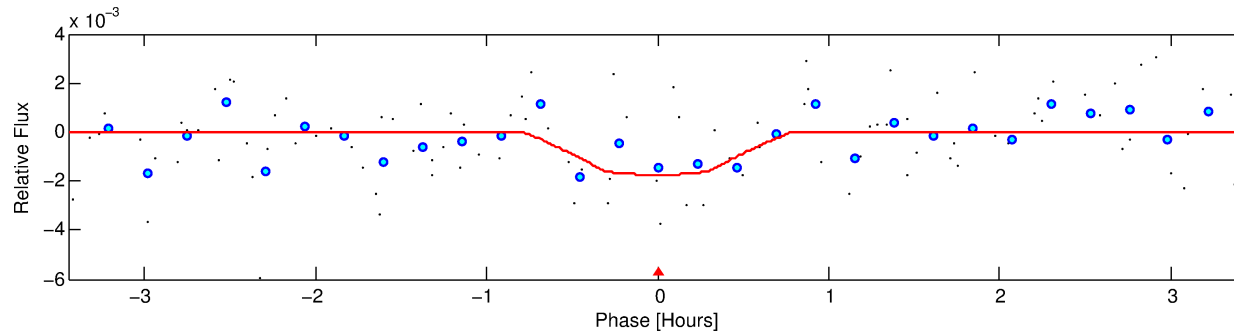
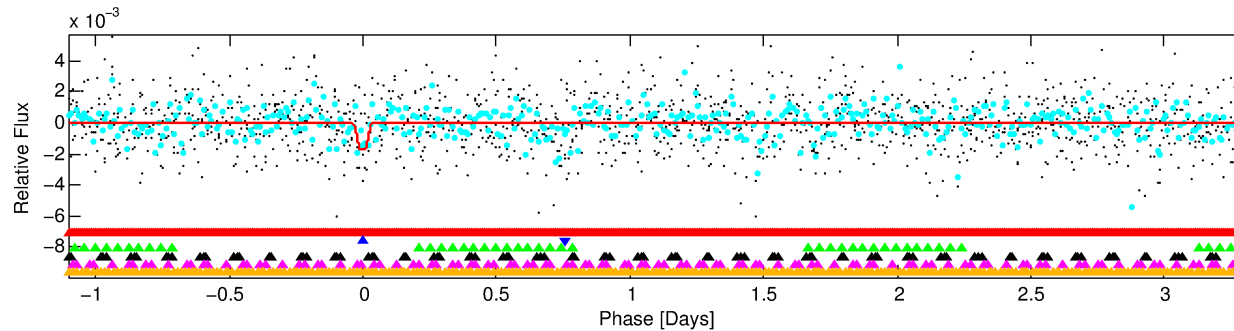
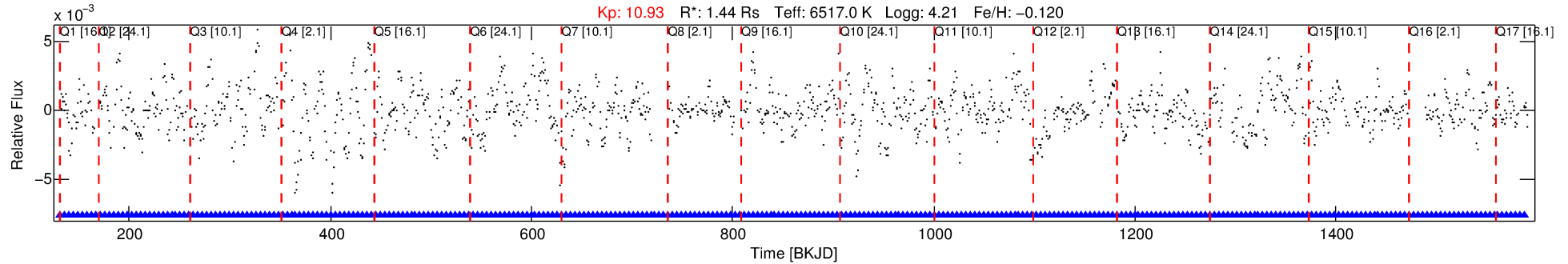
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012157161-02

No Significant Match Found

DV One-Page Summary

KIC: 12157161 Candidate: 2 of 6 Period: 4.412 d



DV Fit Results:

Period = 4.41172 [0.00004] d
Epoch = 131.8525 [0.0059] BKJD
Rp/R* = 0.0388 [0.0711]
a/R* = 30.36 [286.46]
b = 0.09 [100.48]
Seff = 1053.21 [391.09]
Teq = 1453 [135] K
Rp = 6.09 [11.33] Re
a = 0.0564 [0.0140] AU
Ag = 135.60 [500.08] [0.27 σ]
Teff = 7664 [7038] K [0.88 σ]

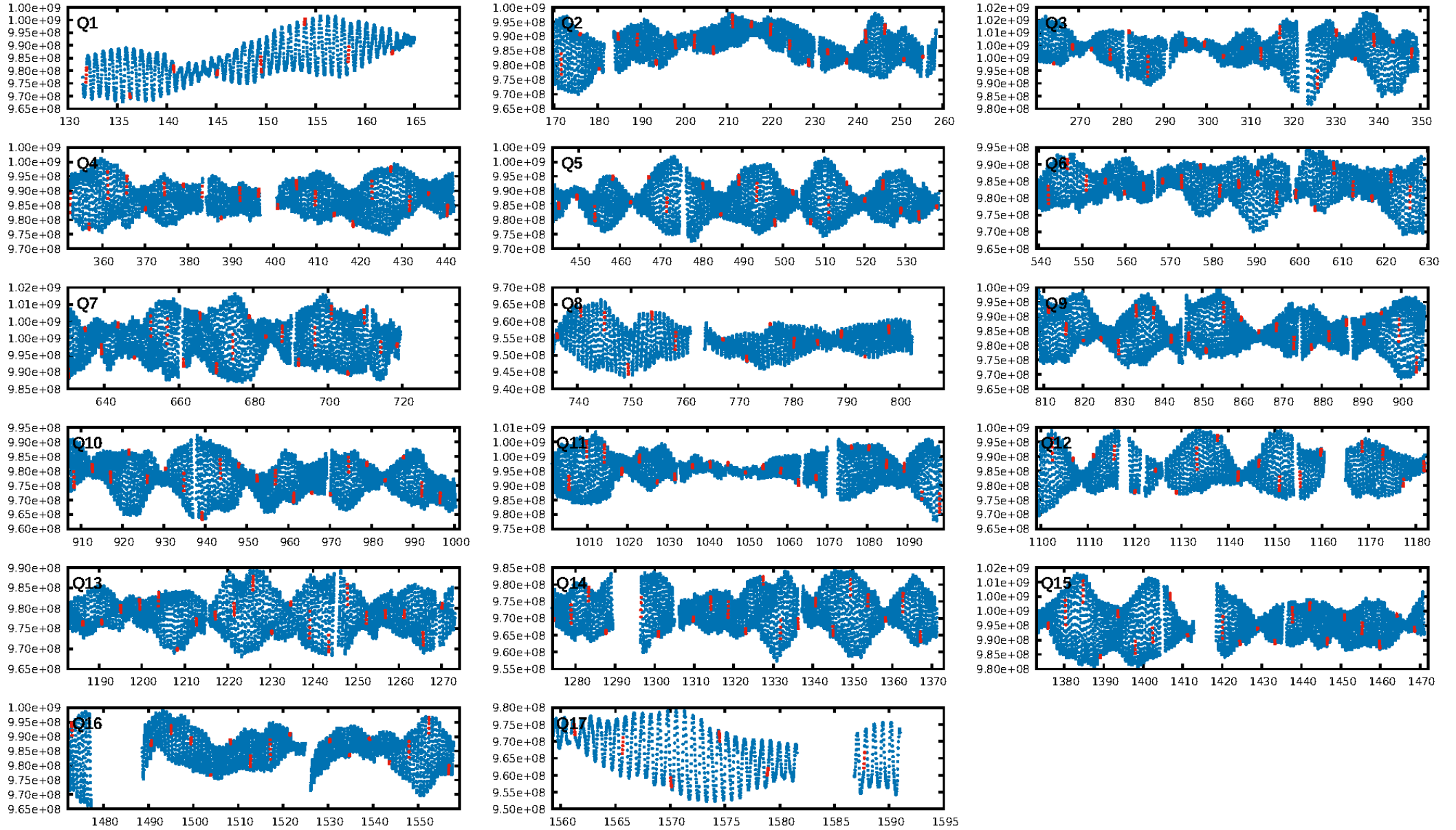
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.09 σ]
LongPeriod-sig: 100.0% [6.01 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 6.2%
Bootstrap-pfa: 2.08e-11
RollingBand-fgt: 1.00 [29/29]
GhostDiagnostic-chr: N/A
Centroid-sig: 52.9%
Centroid-so: 0.169 arcsec [10.19 σ]
OotOffset-rm: 0.059 arcsec [0.29 σ]
KicOffset-rm: 0.149 arcsec [0.90 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.38 [6/16]
DiffImageOverlap-fno: 0.53 [9/17]

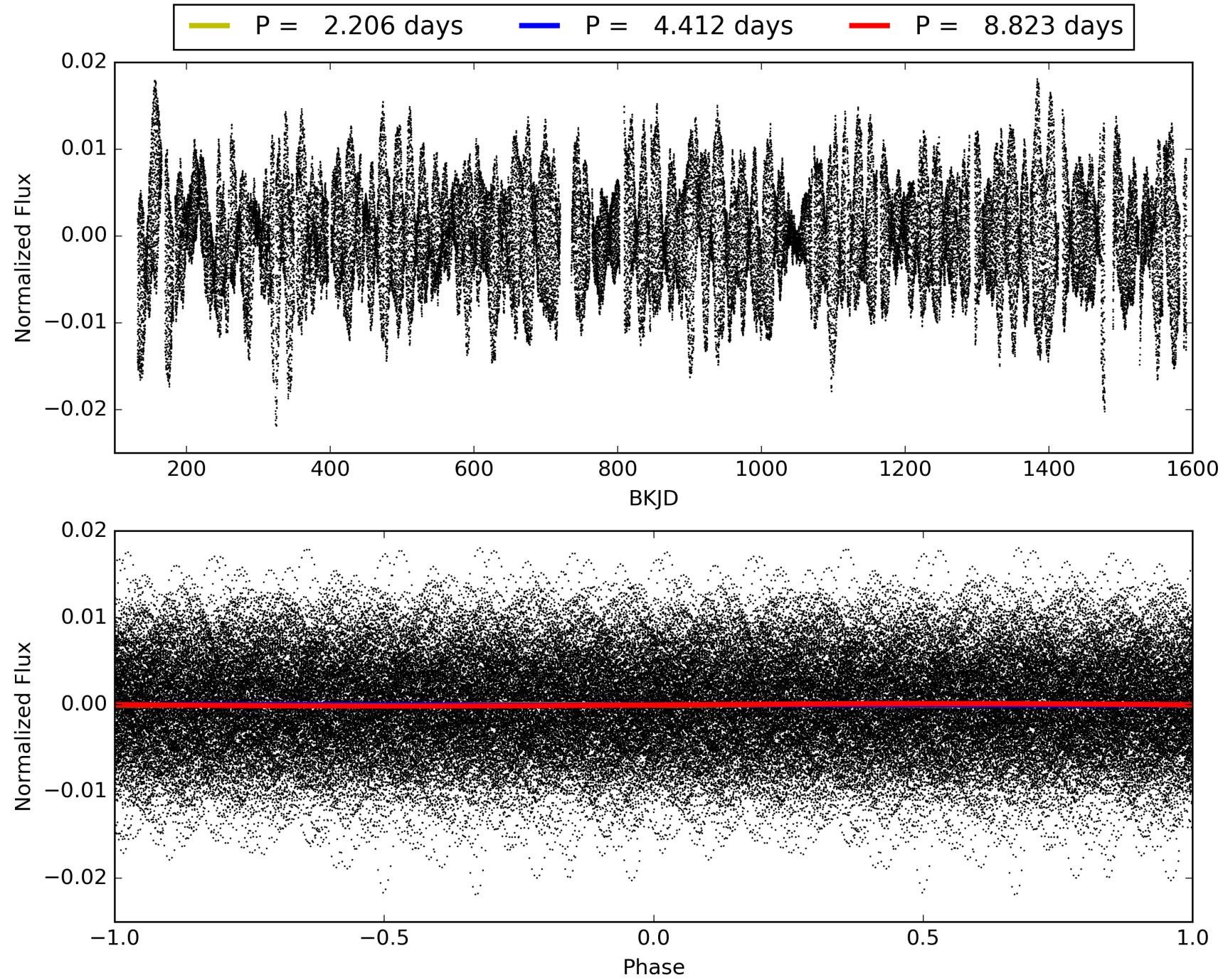
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:39:31 Z

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

TCE 012157161-02, PDC Light Curves

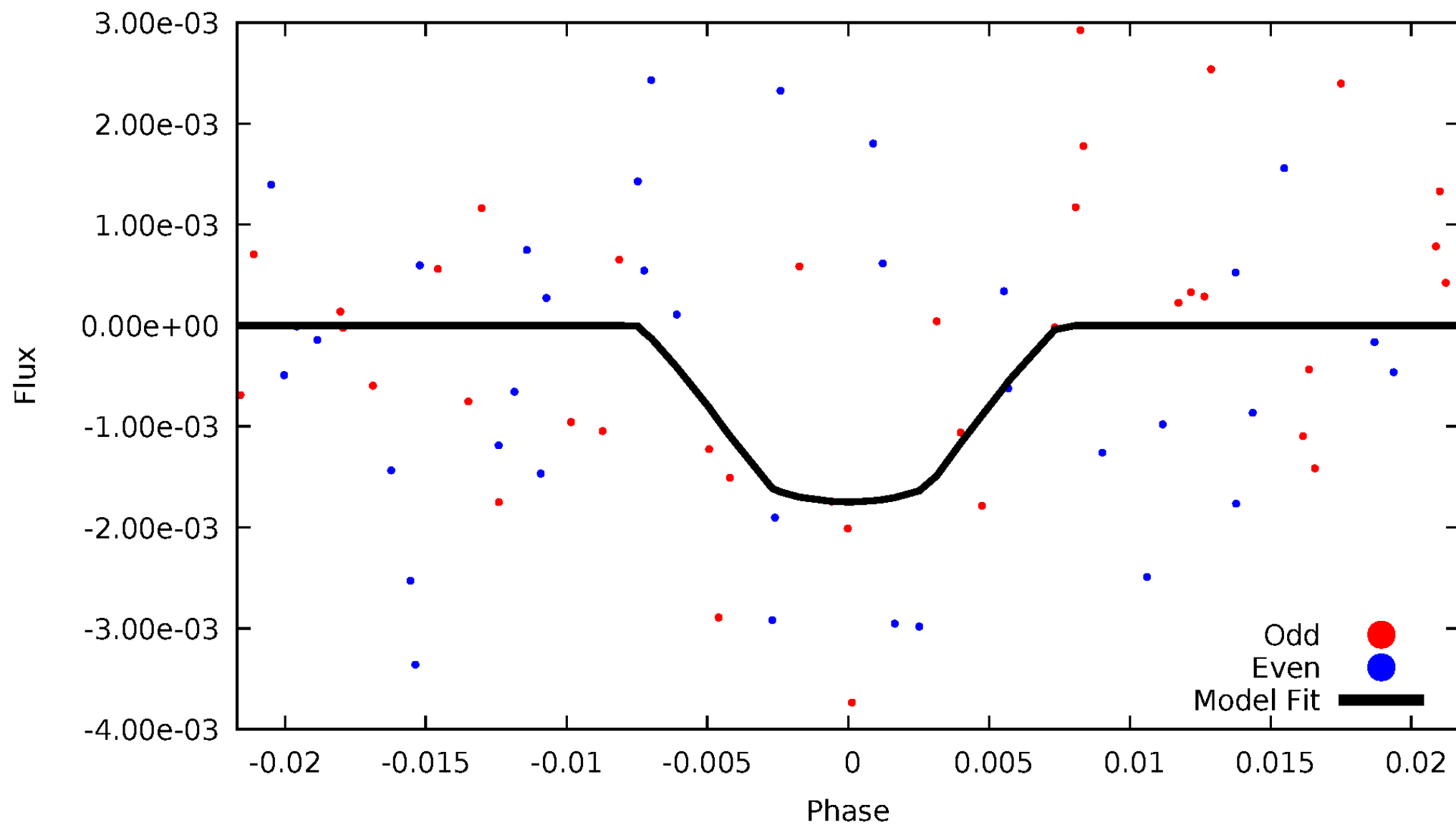


TCE 012157161-02



DV Odd/Even

TCE 012157161-02

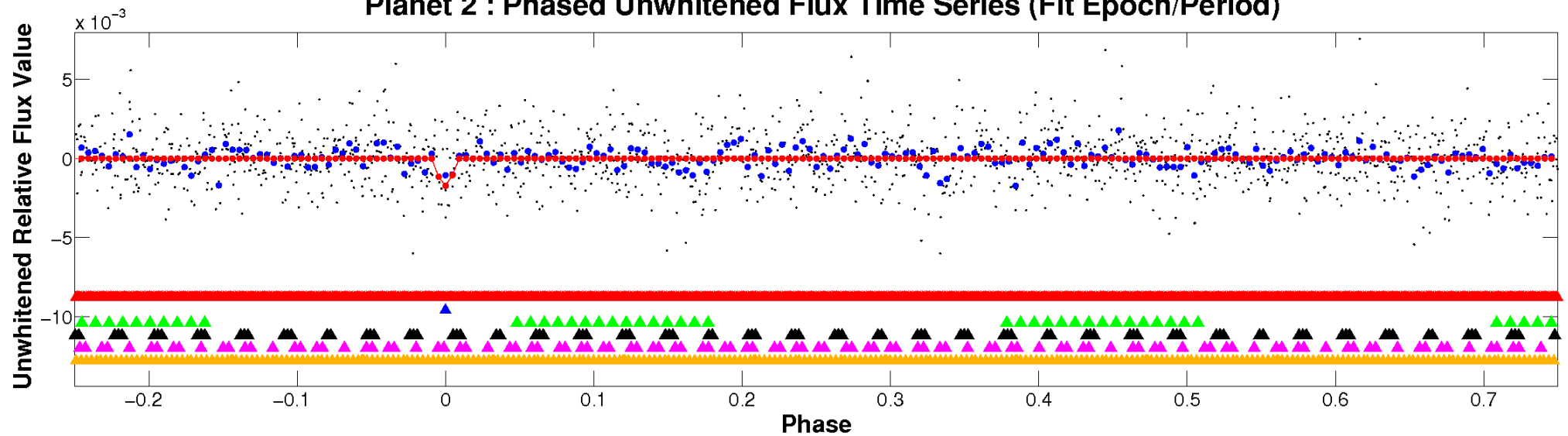


ALT Odd/Even

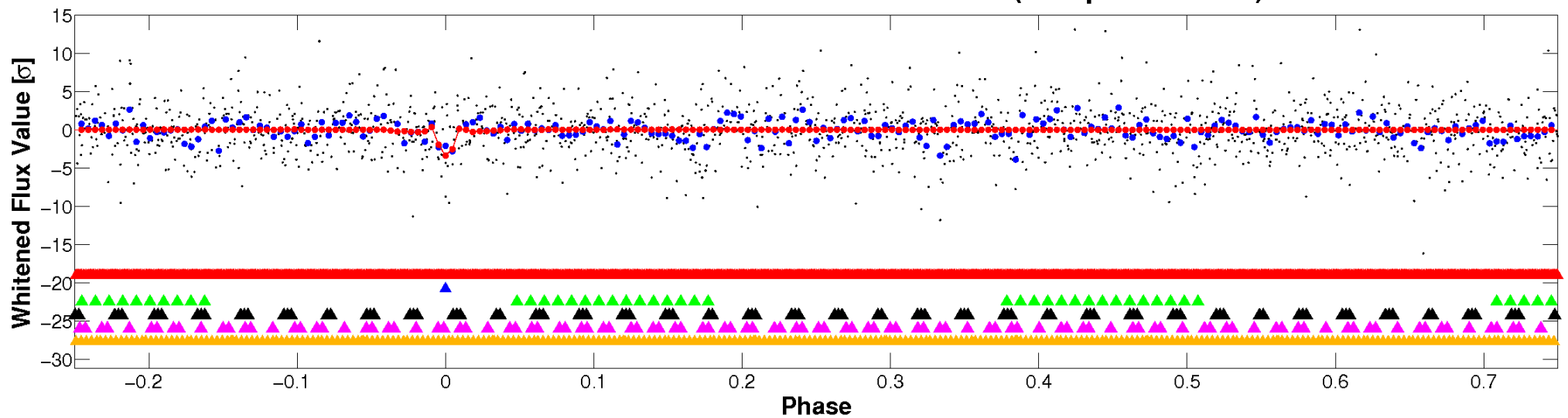
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

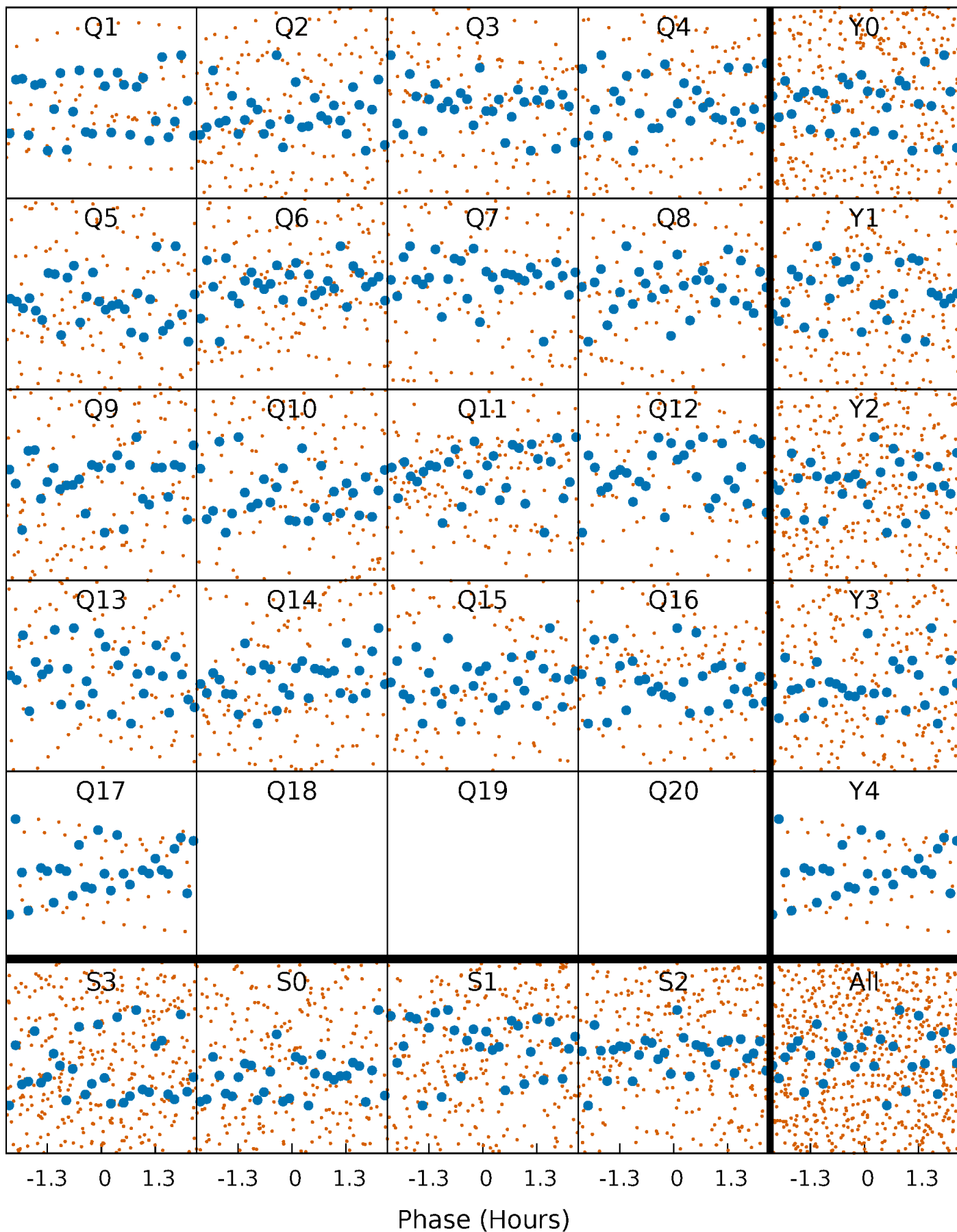


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



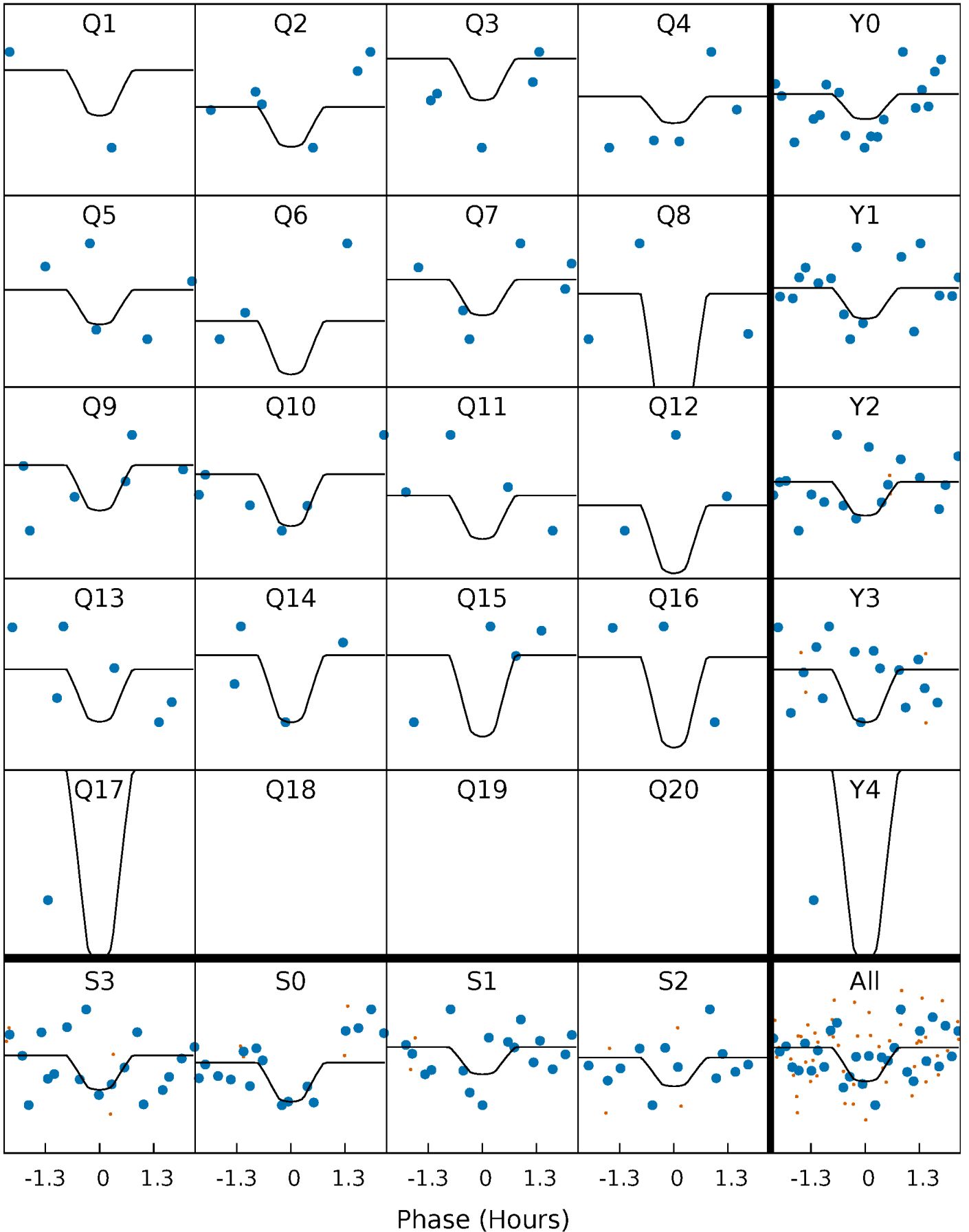
PDC Quarter-Phased Transit Curves

TCE 012157161-02 P= 4.411724 Days $T_0=131.852476$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 012157161-02 P= 4.411724 Days $T_0=131.852476$ (BKJD)

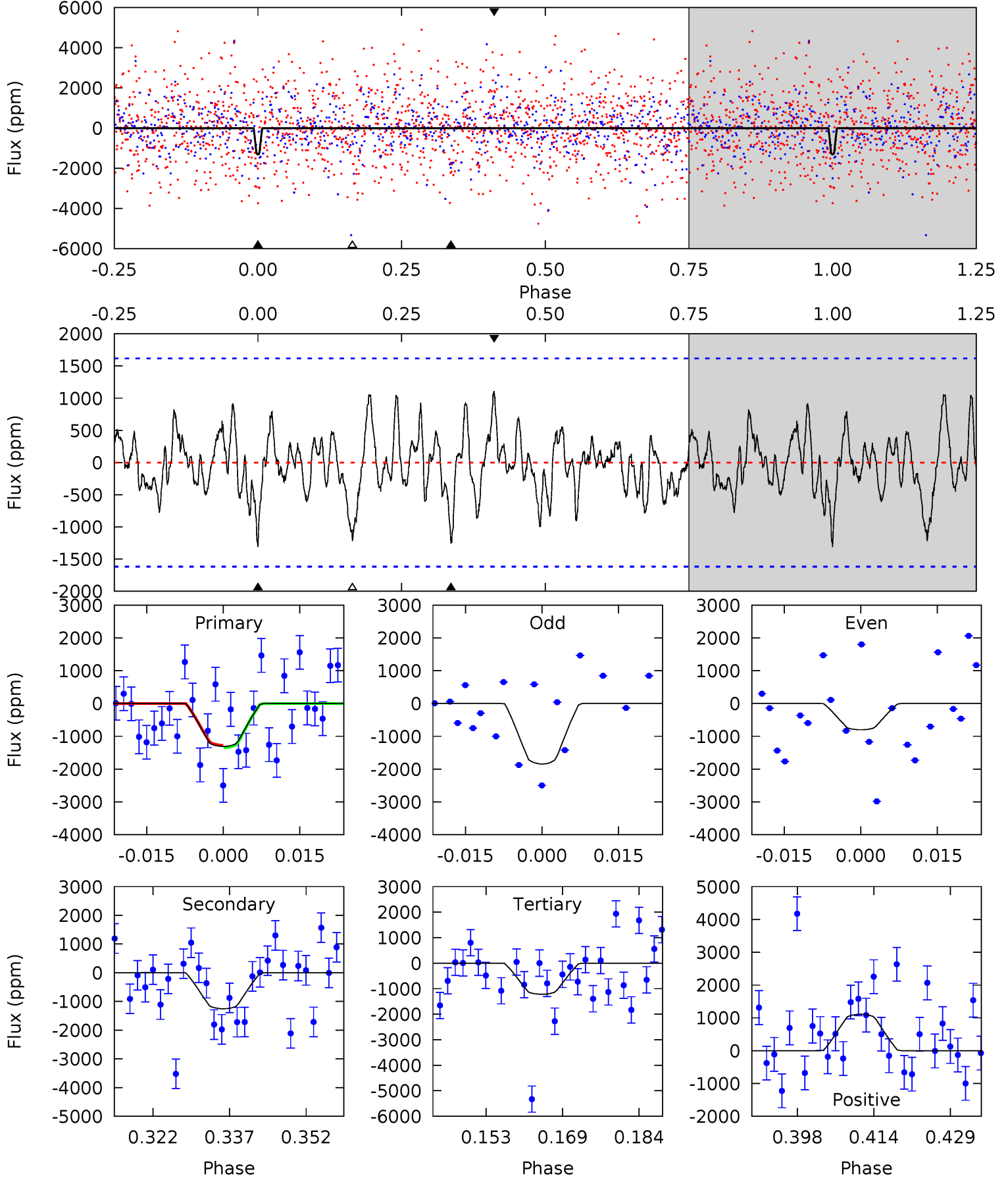


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

012157161-02, P = 4.411724 Days, E = 127.440752 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.00	3.84	3.73	3.40	4.94	2.42	1.23	0.28	0.61	0.11	0.44	1.64	0	0.46	0.11



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 012157161

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6517^{+146}_{-194}	$4.211^{+0.153}_{-0.187}$	$-0.120^{+0.250}_{-0.300}$	$1.440^{+0.439}_{-0.293}$	$1.234^{+0.188}_{-0.188}$	$0.582^{+0.464}_{-0.299}$
	+2%/-3%	+4%/-4%	+208%/-250%	+30%/-20%	+15%/-15%	+80%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012157161-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1255 ± 327	$10.73^{+9.04}_{-6.84}$	2025^{+156}_{-122}	4748^{+3218}_{-982}	18^{+134}_{-13}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

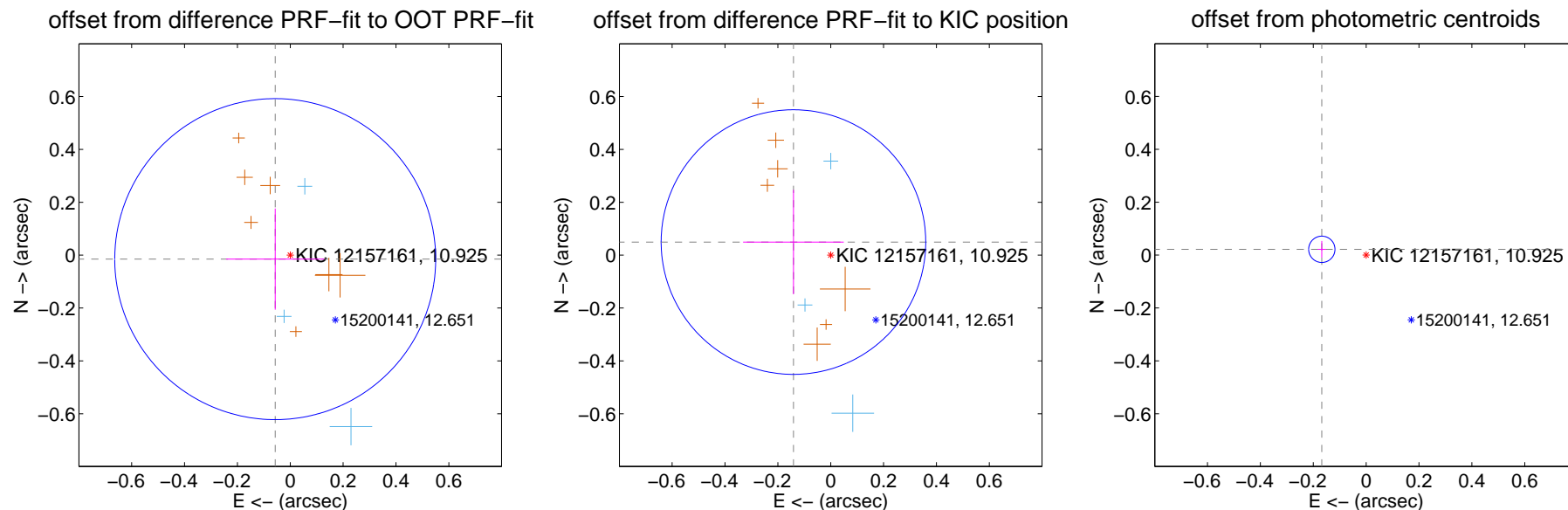
DV Centroid Data

Supplemental centroid analysis for 012157161-02. **Kepler magnitude: 10.93.** Transit SNR 11.80

There are 6 quarters with good PRF difference image offsets

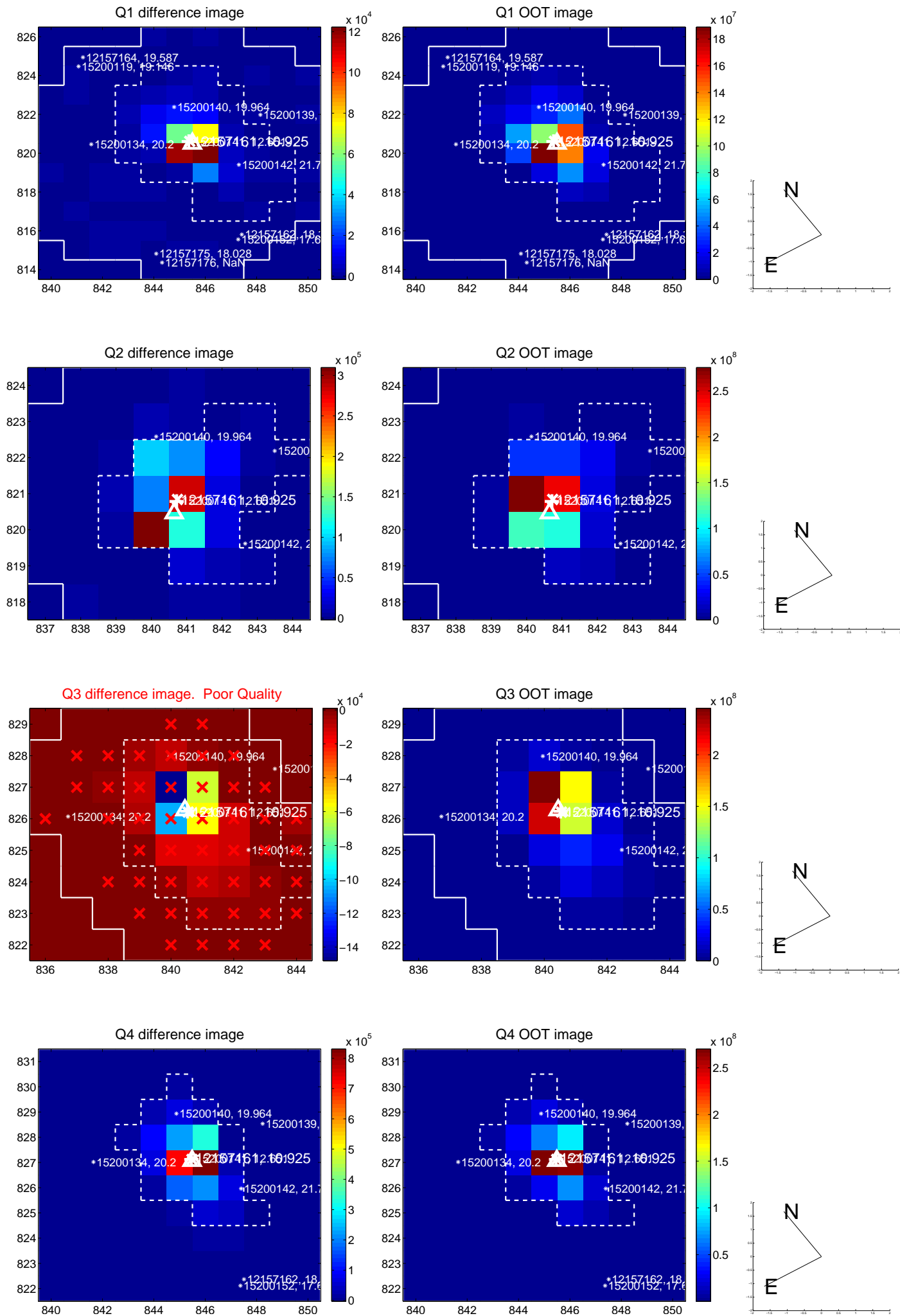
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.059 ± 0.202	0.29	0.057 ± 0.185	-0.015 ± 0.191
PRF-fit source offset from KIC position	0.149 ± 0.167	0.90	0.141 ± 0.190	0.050 ± 0.197
photometric centroid source offset	0.17 ± 0.02	10.19	0.17 ± 0.02	0.02 ± 0.03

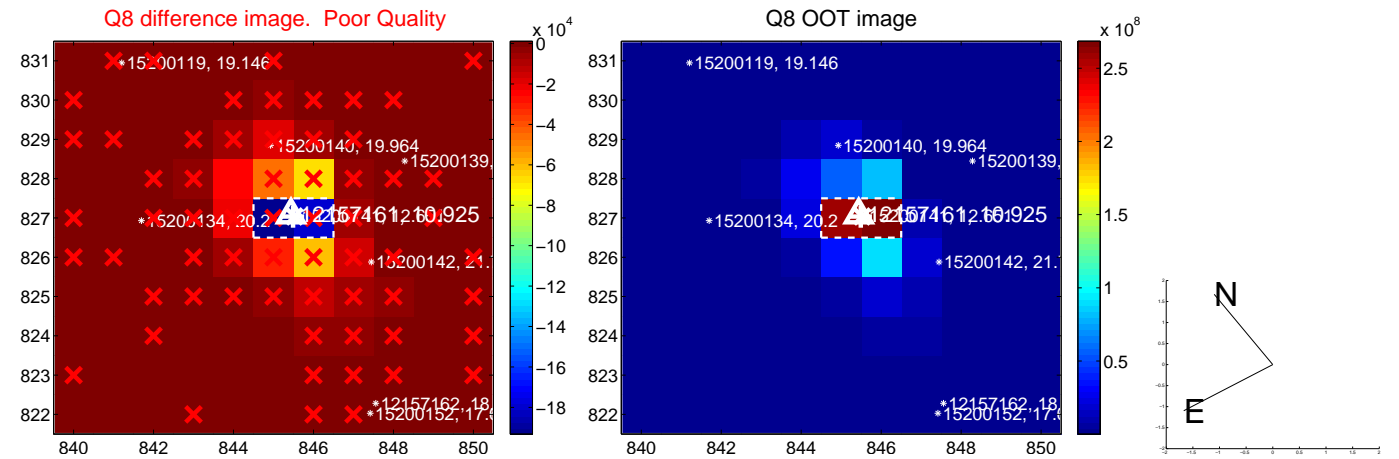
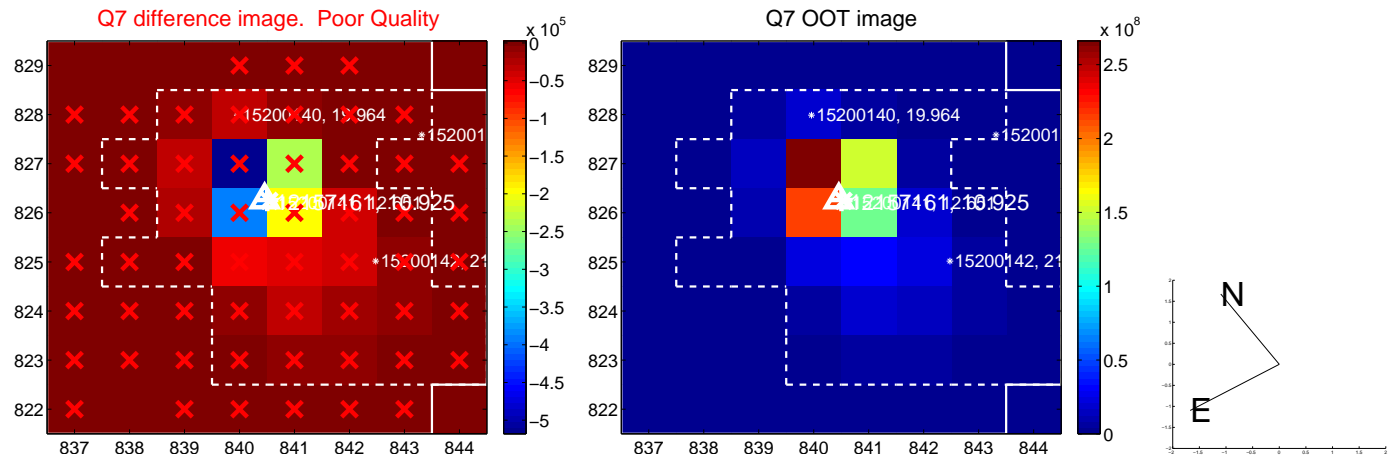
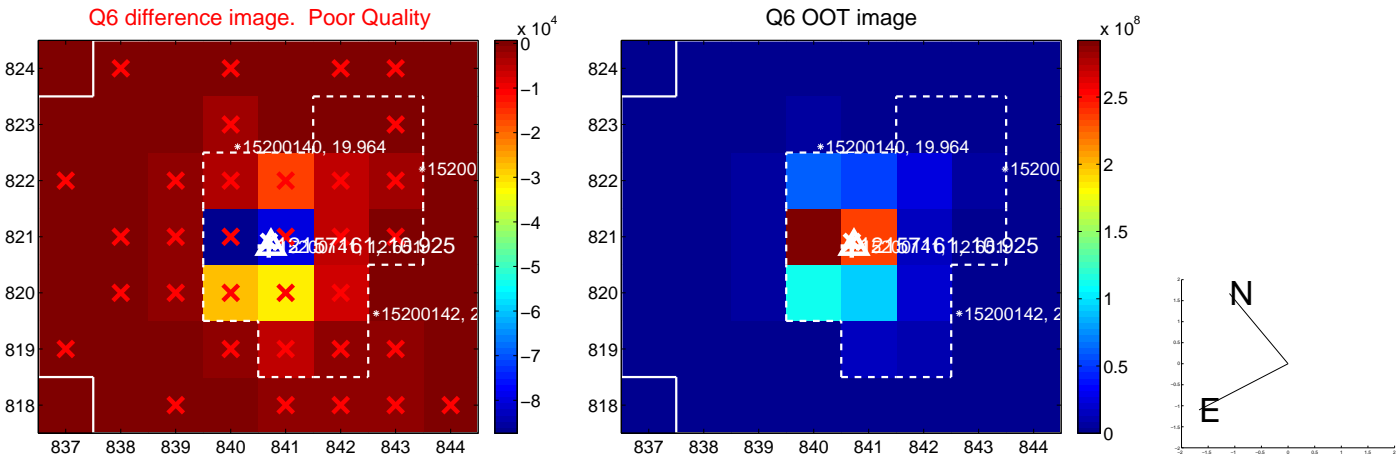
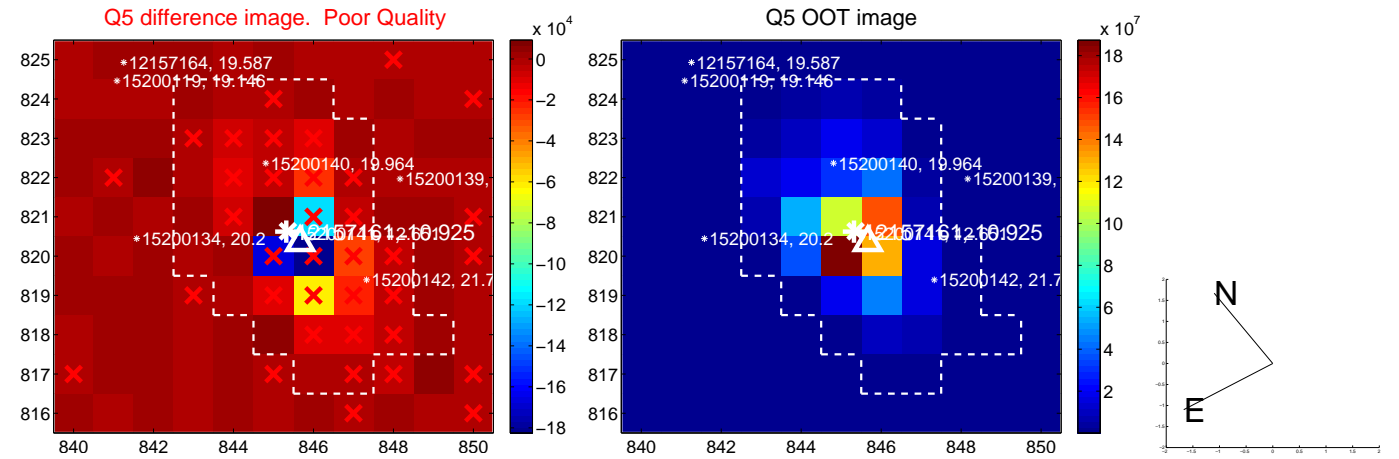


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

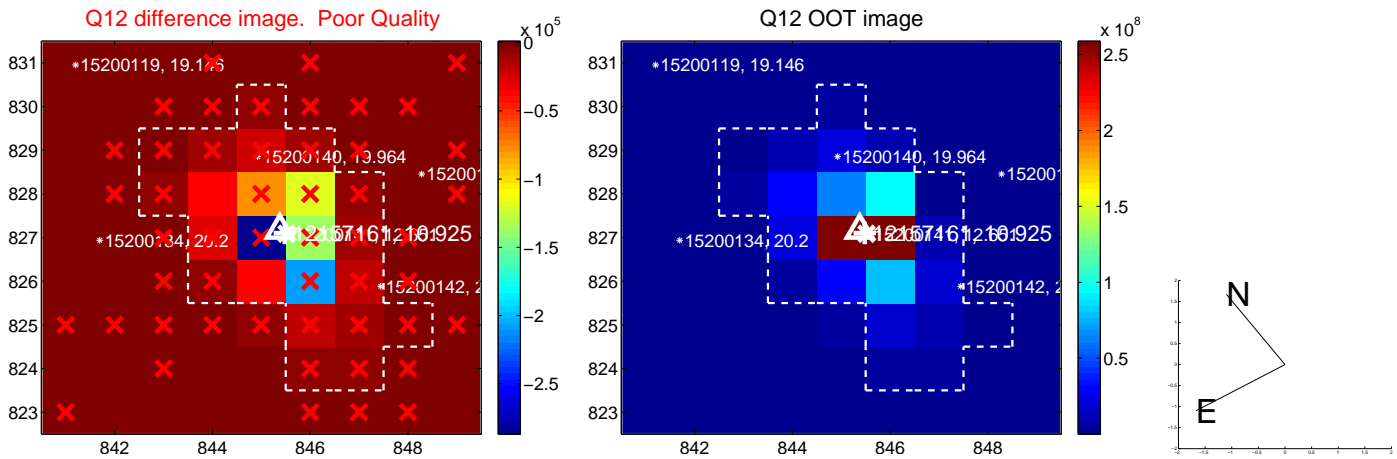
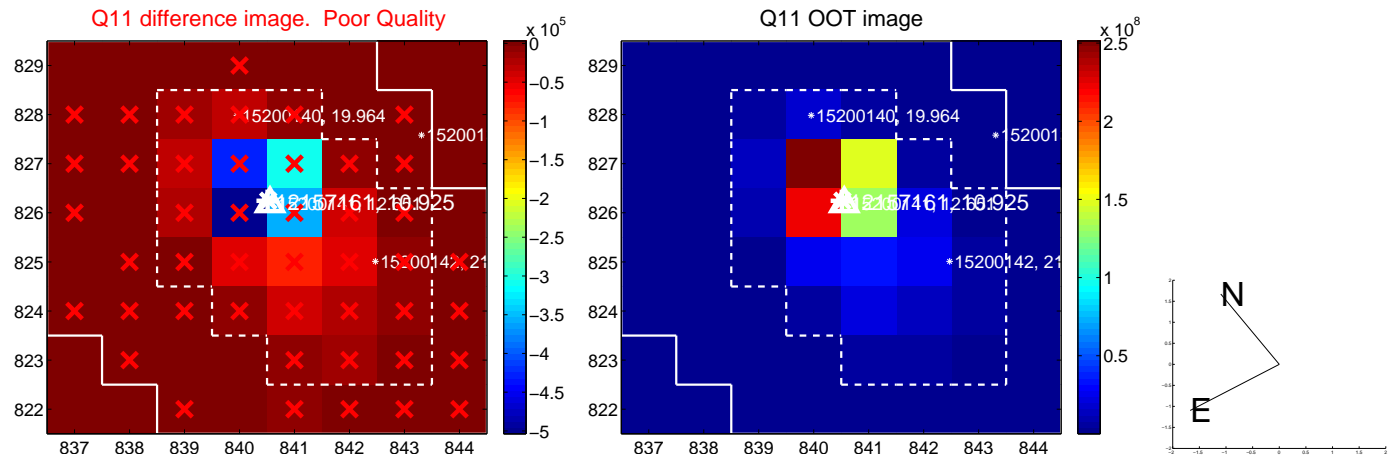
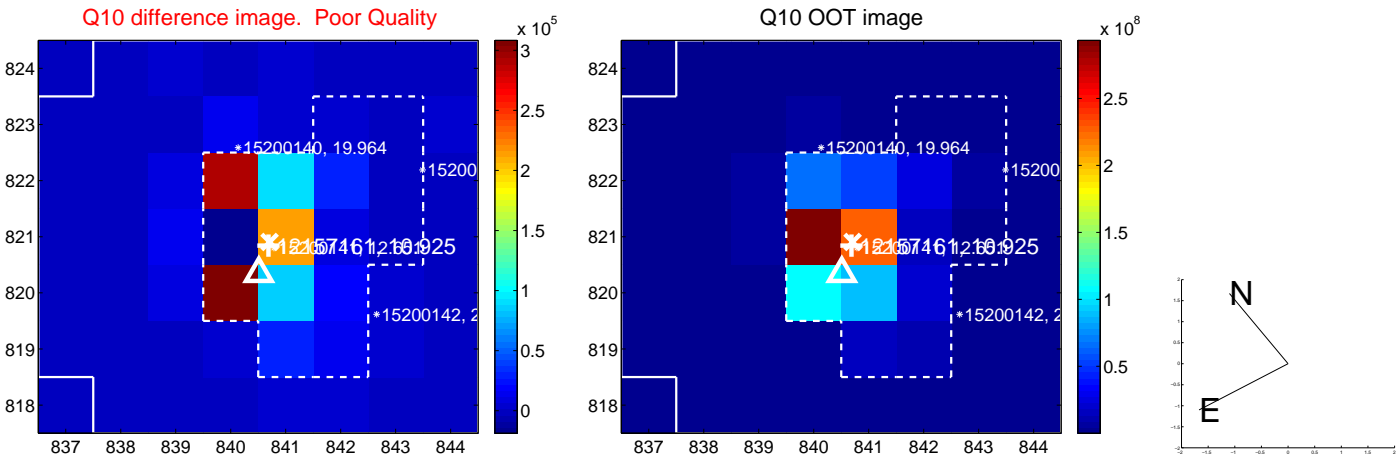
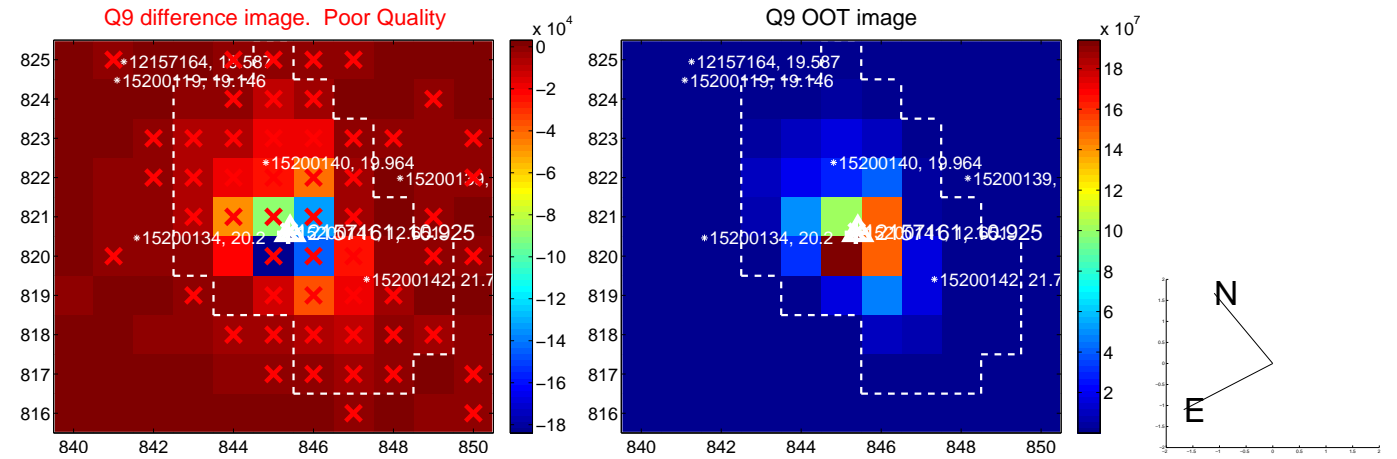
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



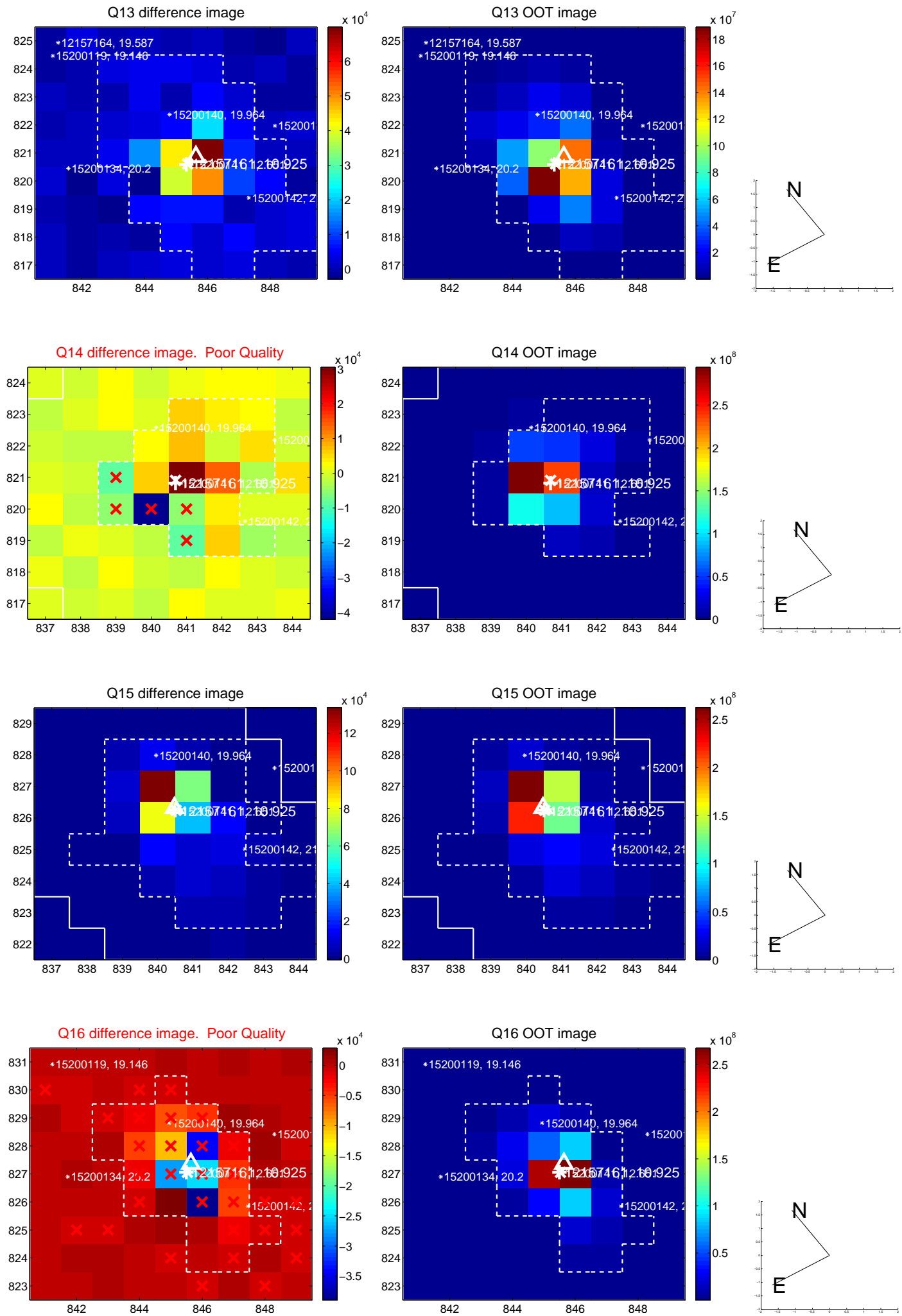
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



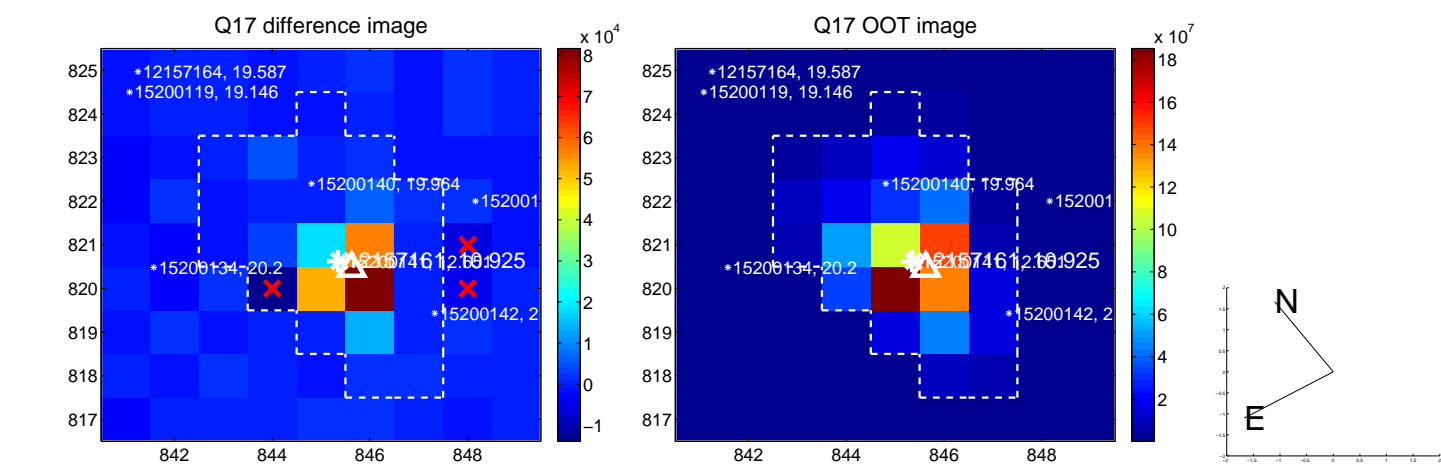
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



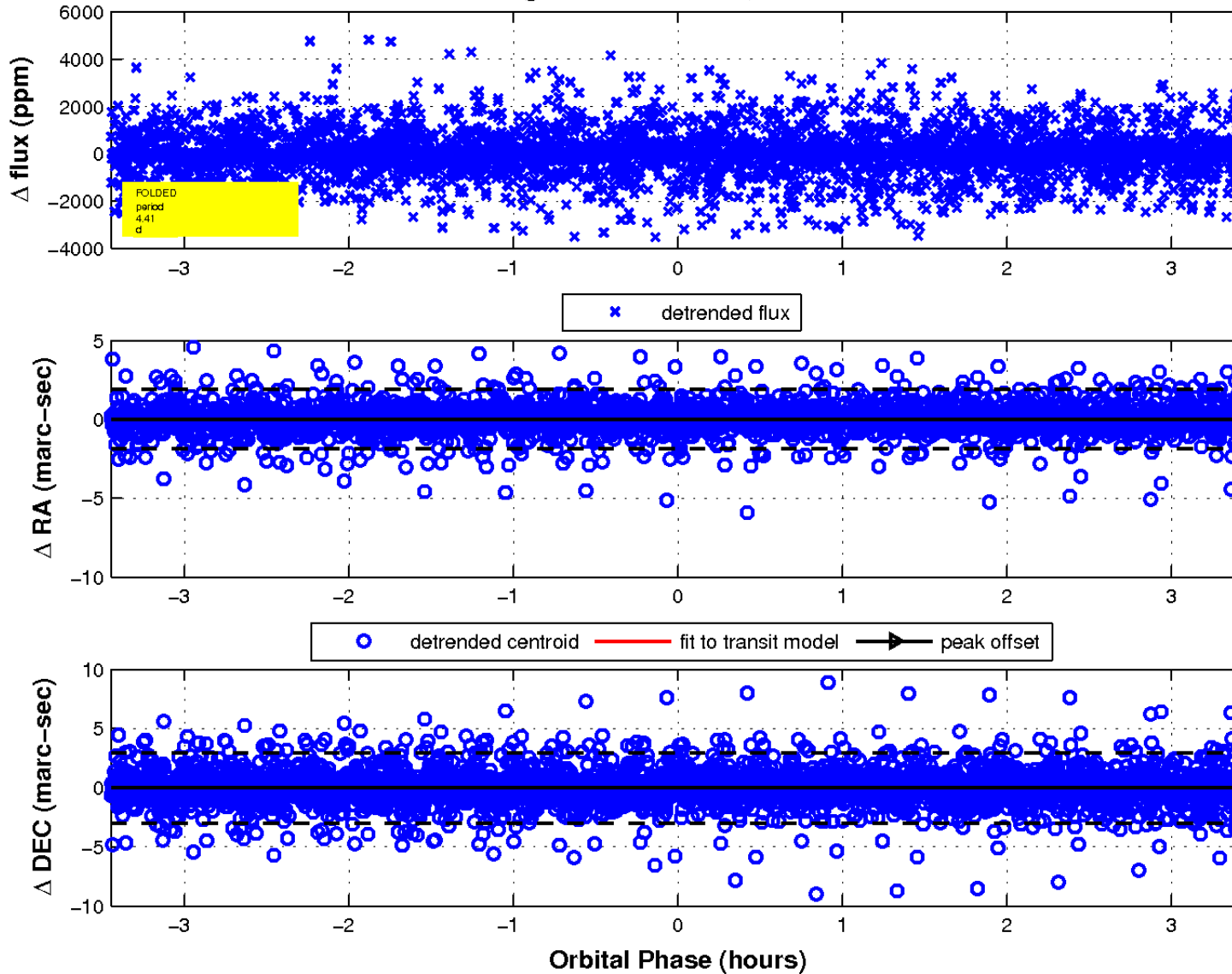
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

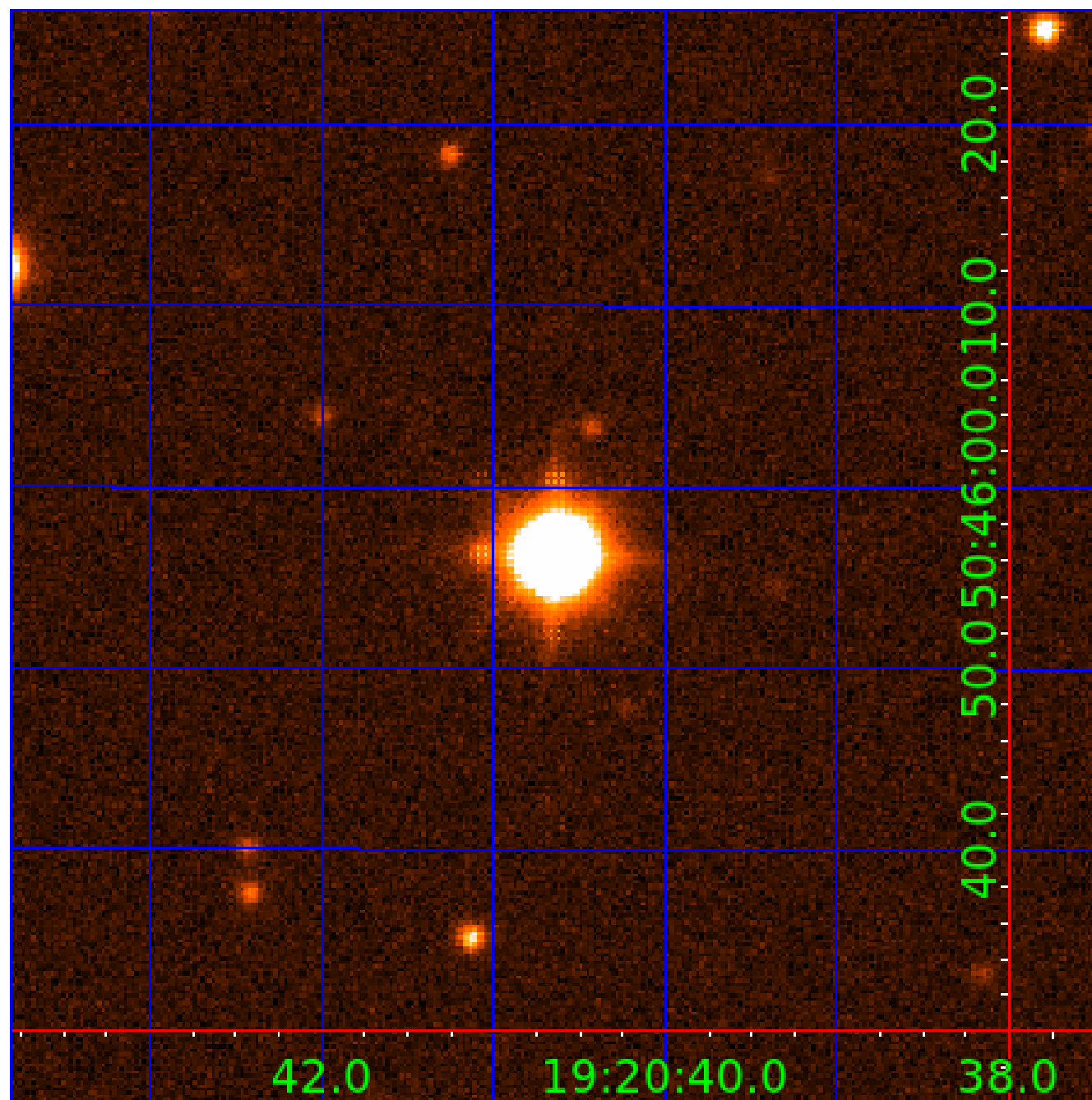


fluxWeightedCentroids, Planet 2 of 6



UKIRT Image

Declination



KIC 012157161

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})
012157161-01	OBS	No	0.752180	132.033982	4.3	5.706	7.1	1.0	1.44	6517	0.32	11140.32
012157161-02	OBS	No	4.411724	131.852476	1748.5	1.149	11.2	11.8	1.44	6517	6.09	1053.21
012157161-03	OBS	No	32.339105	141.457169	2197.7	1.256	10.5	12.6	1.44	6517	7.00	73.96
012157161-04	OBS	No	14.873501	135.302008	1706.8	3.546	10.7	10.8	1.44	6517	5.98	208.34
012157161-05	OBS	No	13.448370	132.208327	3114.4	0.831	10.0	12.4	1.44	6517	8.42	238.29
012157161-06	OBS	No	4.800537	135.631280	2396.5	1.044	10.2	13.2	1.44	6517	7.69	941.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012157161-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
012157161-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED

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

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

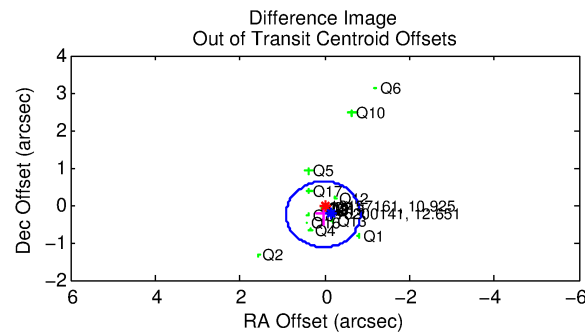
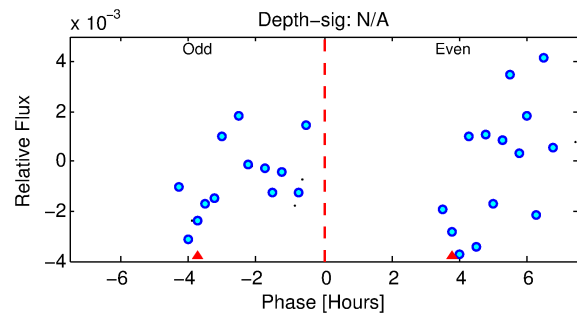
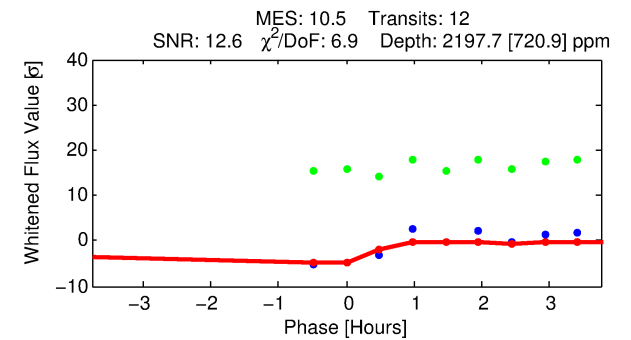
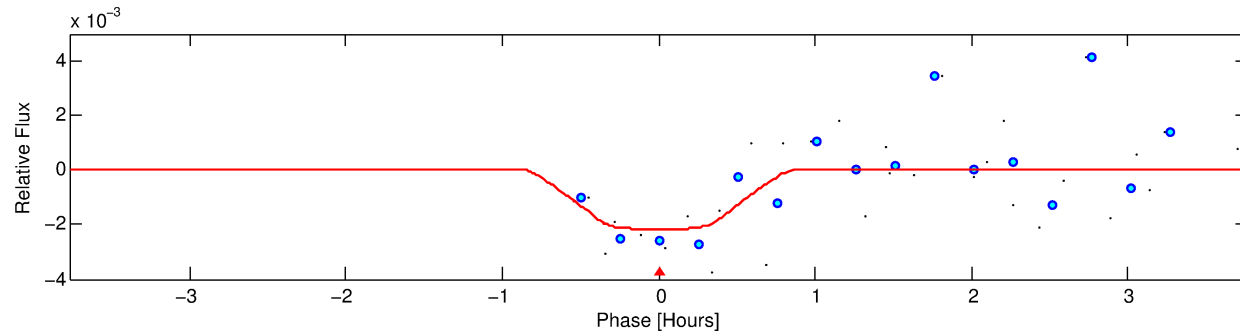
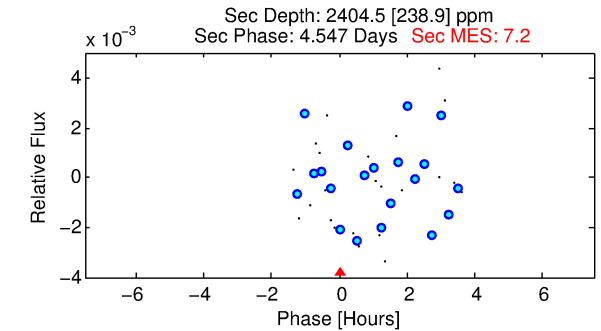
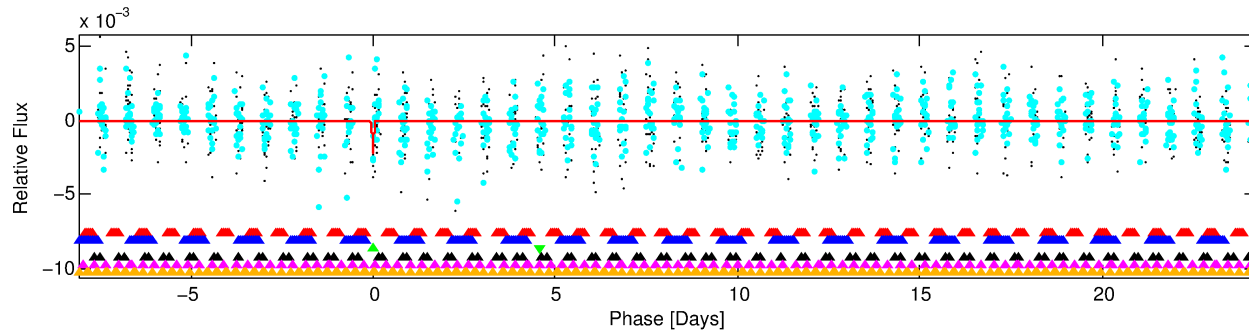
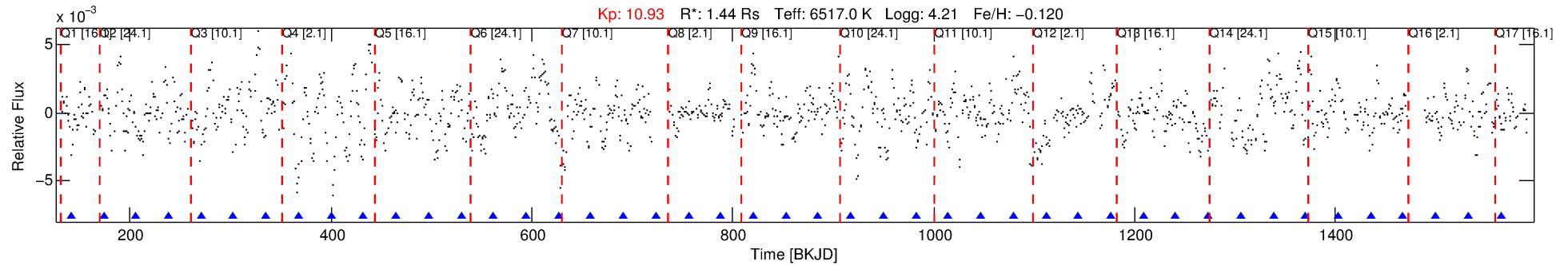
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012157161-03

No Significant Match Found

DV One-Page Summary

KIC: 12157161 Candidate: 3 of 6 Period: 32.339 d



DV Fit Results:

Period = 32.33910 [0.00199] d
Epoch = 141.4572 [0.0115] BKJD
Rp/R* = 0.0445 [0.1342]
a/R* = 182.03 [2836.72]
b = 0.48 [25.00]
Seff = 73.96 [27.47]
Teq = 748 [69] K
Rp = 6.99 [21.19] Re
a = 0.2129 [0.0530] AU
Ag = 1225.07 [7398.74] [0.17] σ
Teffp = 6840 [10312] K [0.59] σ

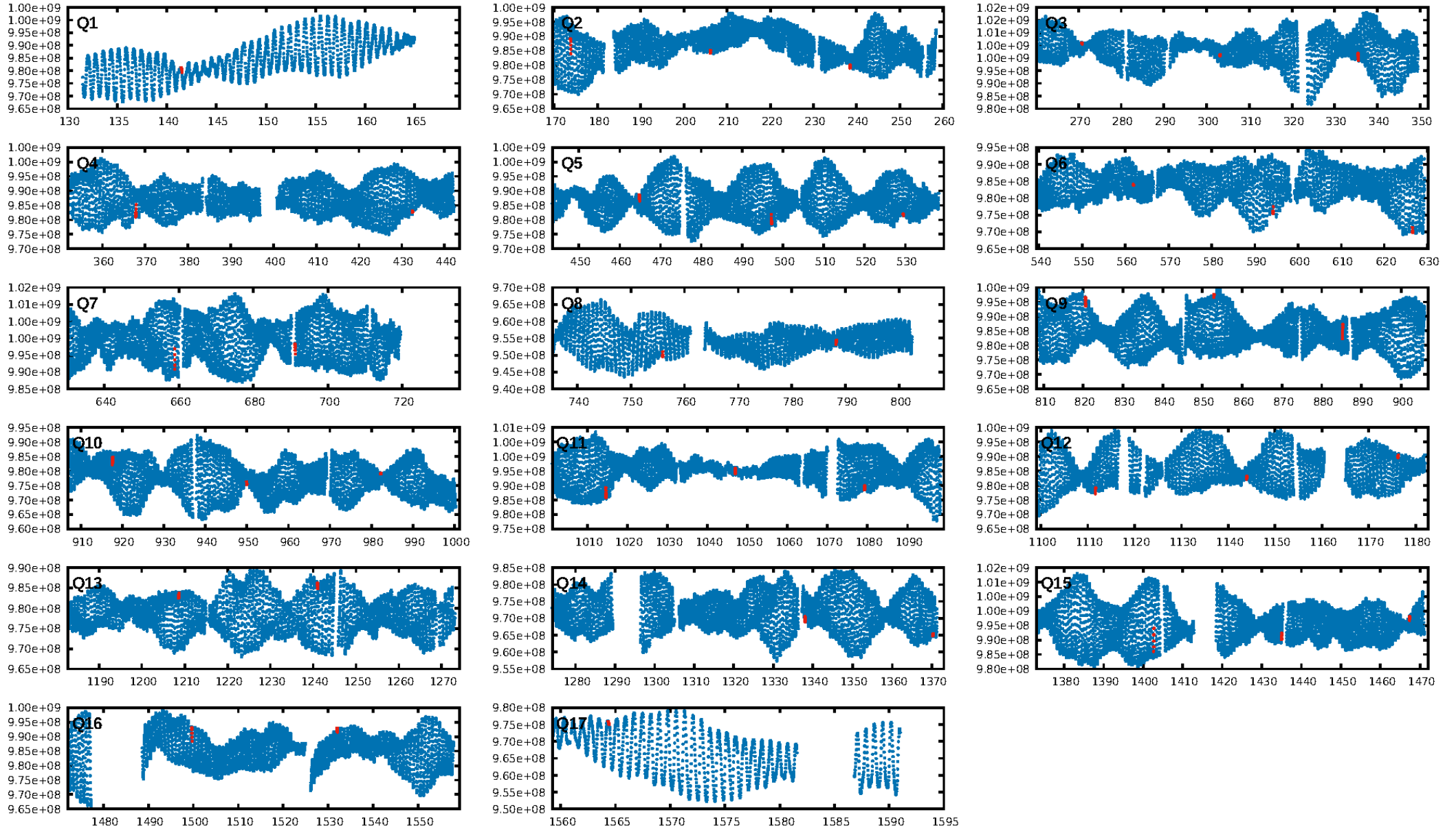
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [111.42 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 31.6%
Bootstrap-pfa: 1.37e-08
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: N/A
Centroid-sig: 31.3%
Centroid-so: 0.227 arcsec [6.72 σ]
OotOffset-rm: 0.249 arcsec [0.85 σ]
KicOffset-rm: 0.225 arcsec [0.87 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.50 [8/16]
DiffImageOverlap-fno: 0.31 [5/16]

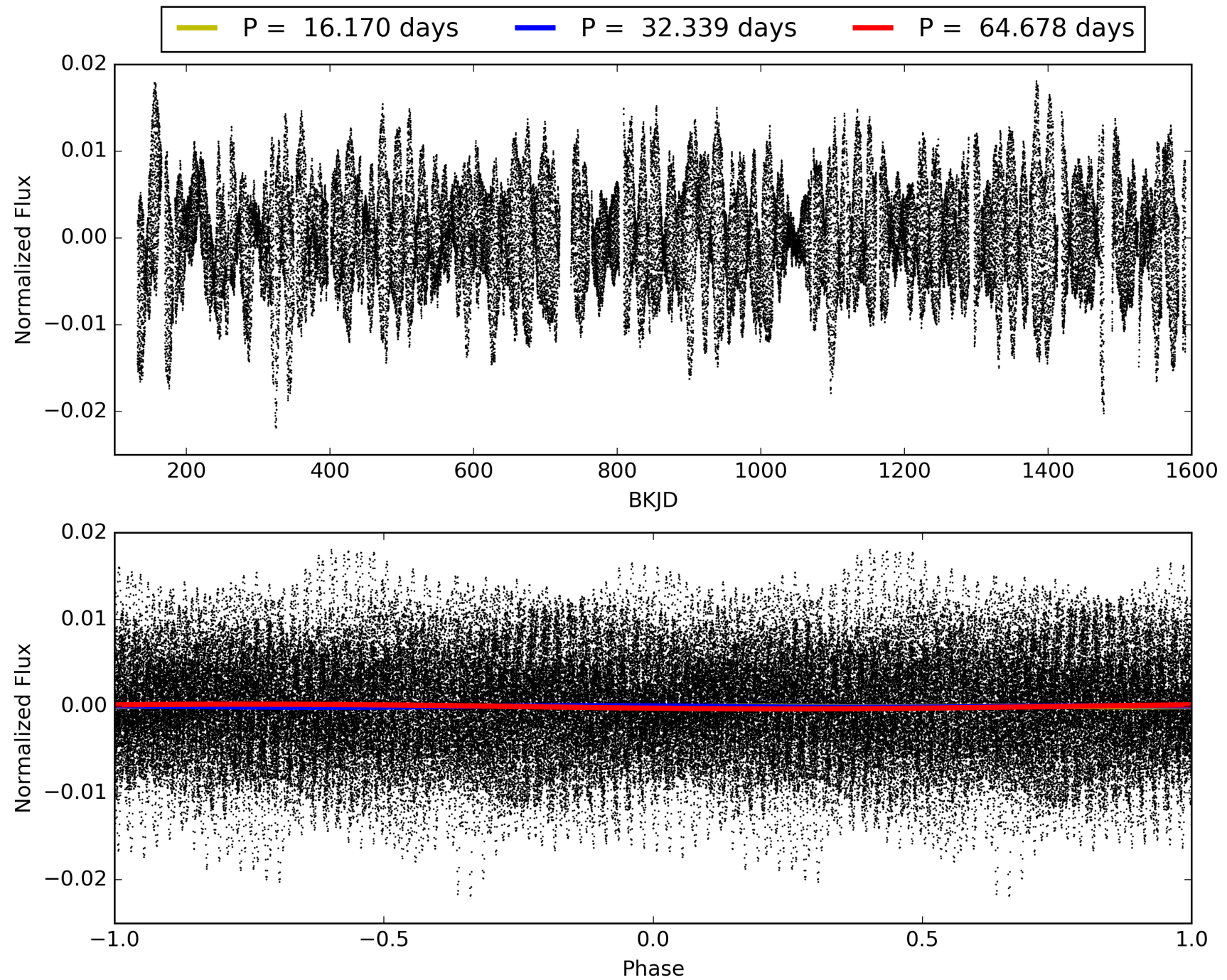
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:39:34 Z

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

TCE 012157161-03, PDC Light Curves

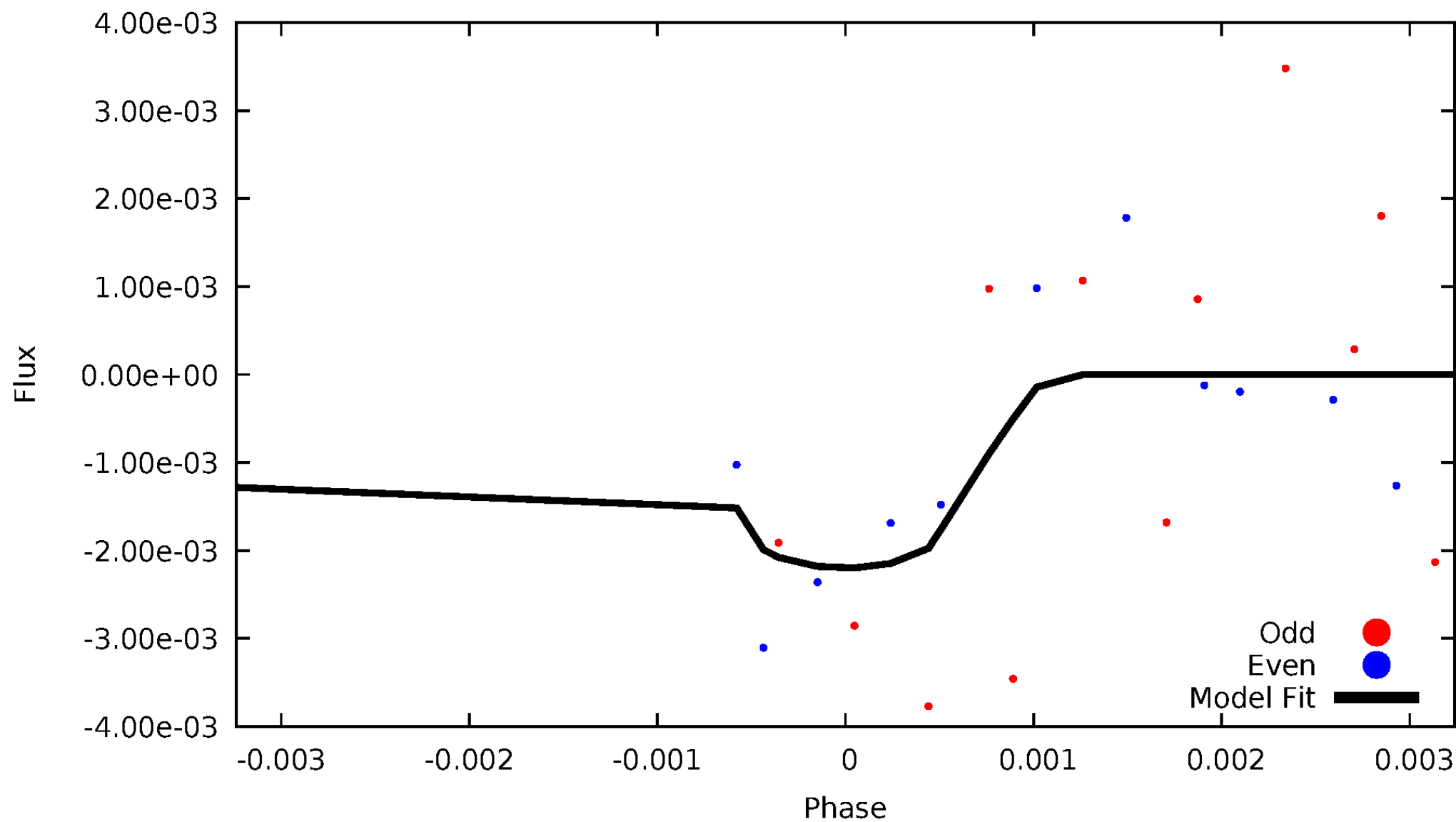


TCE 012157161-03



DV Odd/Even

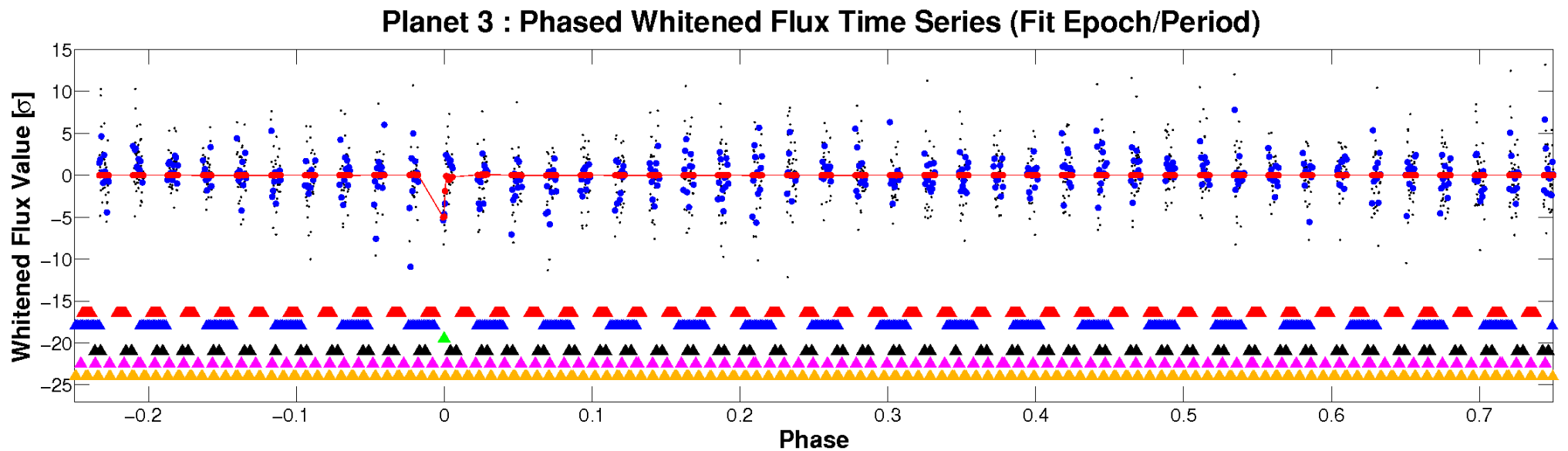
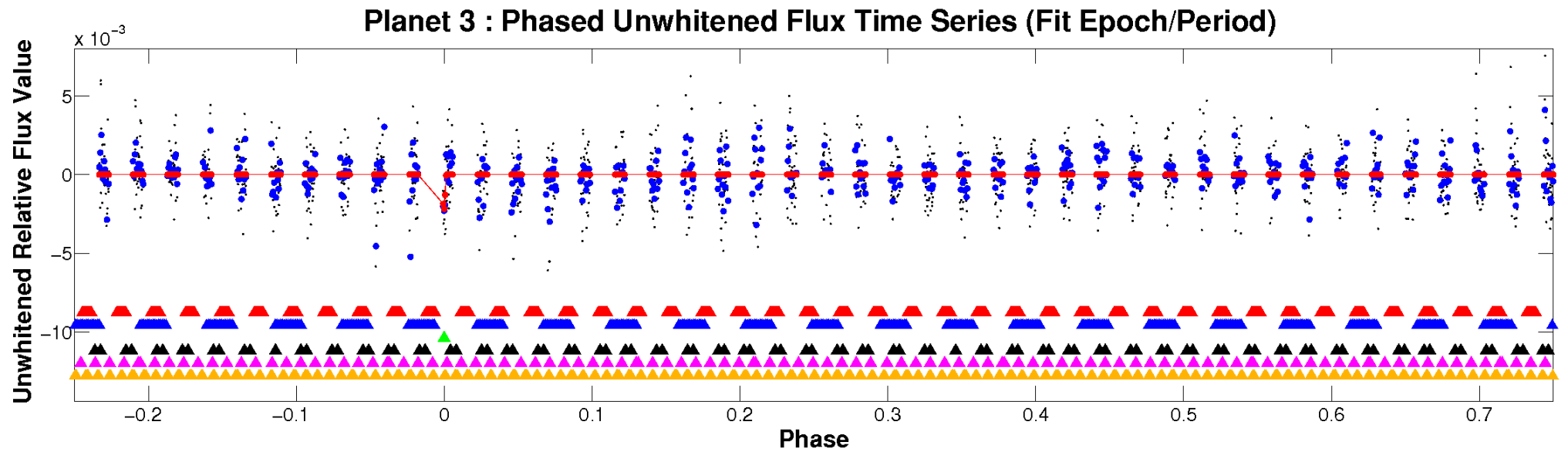
TCE 012157161-03



ALT Odd/Even

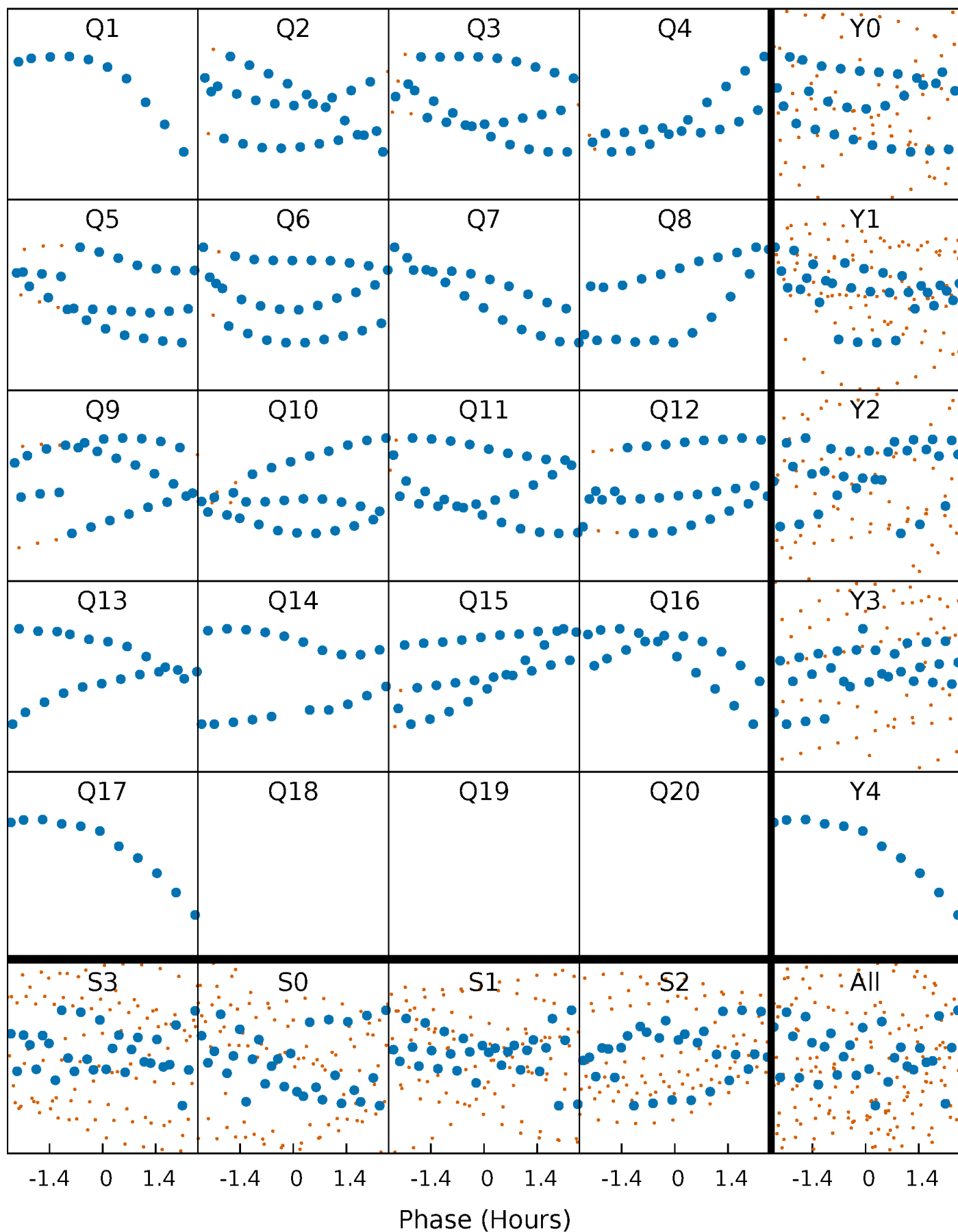
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve



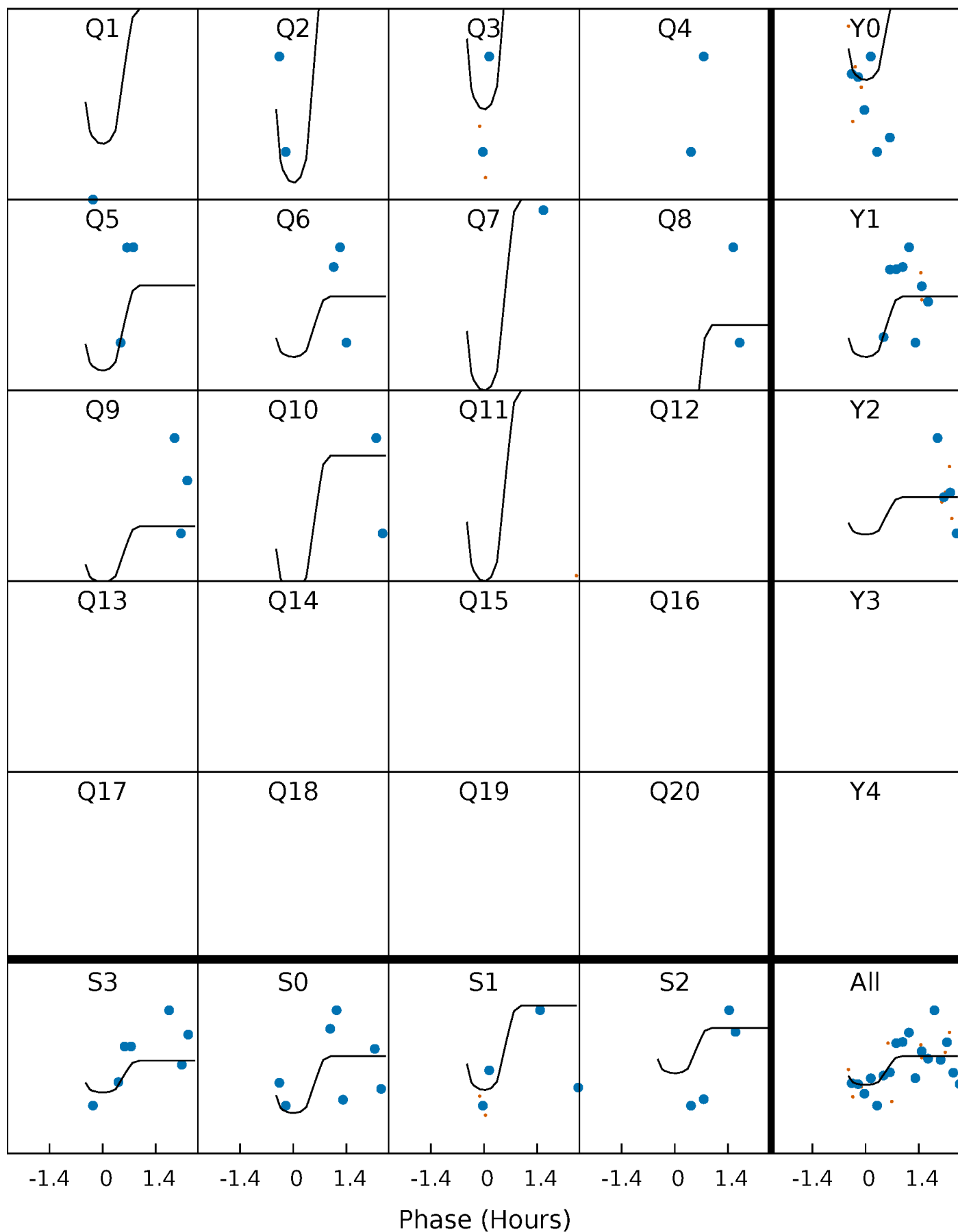
PDC Quarter-Phased Transit Curves

TCE 012157161-03 P= 32.339105 Days $T_0=141.457169$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 012157161-03 P= 32.339105 Days $T_0=141.457169$ (BKJD)

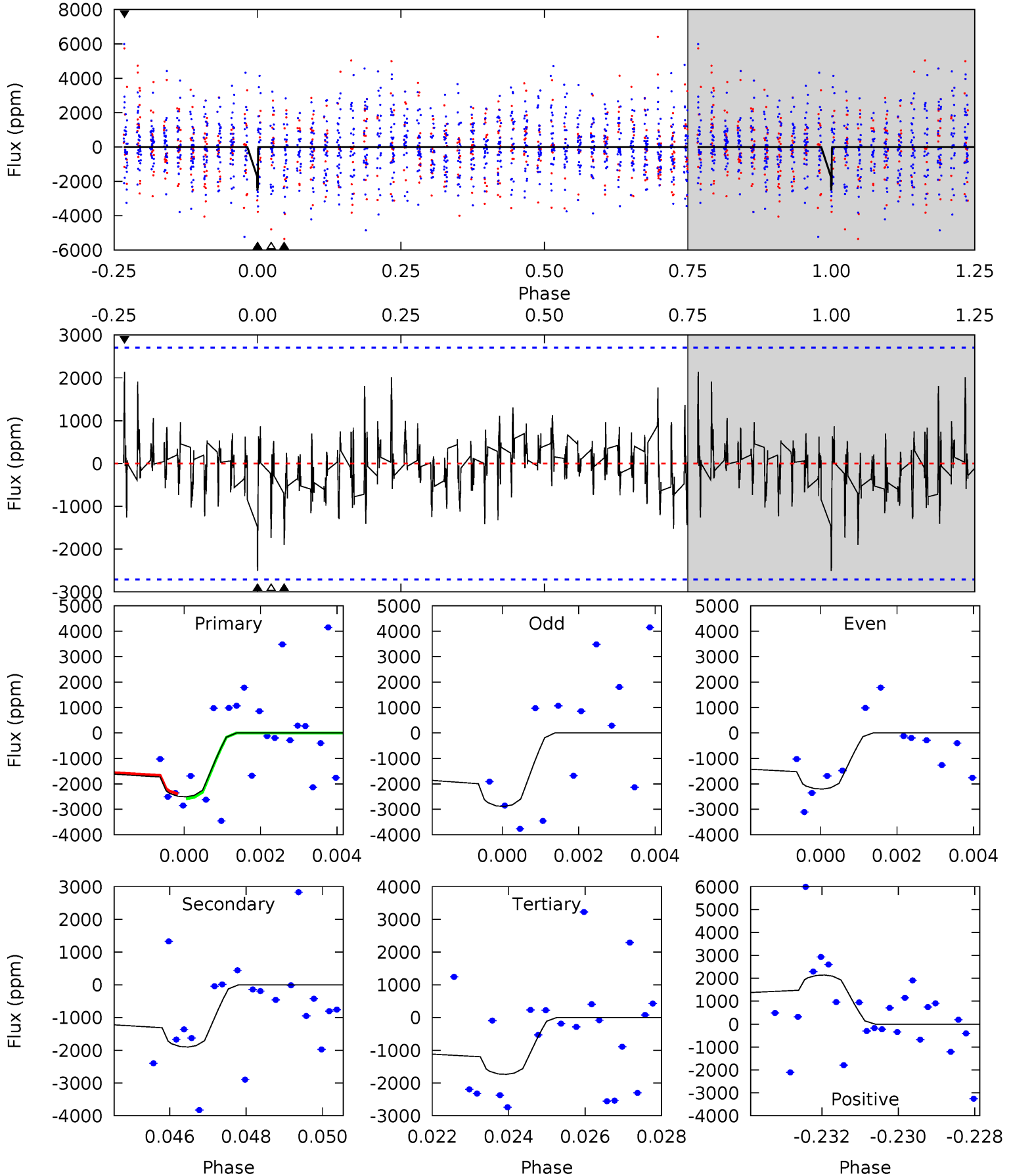


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

012157161-03, P = 32.339105 Days, E = 109.118064 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.94	3.75	3.42	4.22	5.34	3.11	1.12	1.52	0.72	0.33	-0.47	0.68	0	0.46	0.18



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 012157161

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6517^{+146}_{-194}	$4.211^{+0.153}_{-0.187}$	$-0.120^{+0.250}_{-0.300}$	$1.440^{+0.439}_{-0.293}$	$1.234^{+0.188}_{-0.188}$	$0.582^{+0.464}_{-0.299}$
	+2%/-3%	+4%/-4%	+208%/-250%	+30%/-20%	+15%/-15%	+80%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012157161-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1900 ± 507	$16.91^{+19.29}_{-11.50}$	1051^{+77}_{-64}	4320^{+2967}_{-918}	158^{+1260}_{-121}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

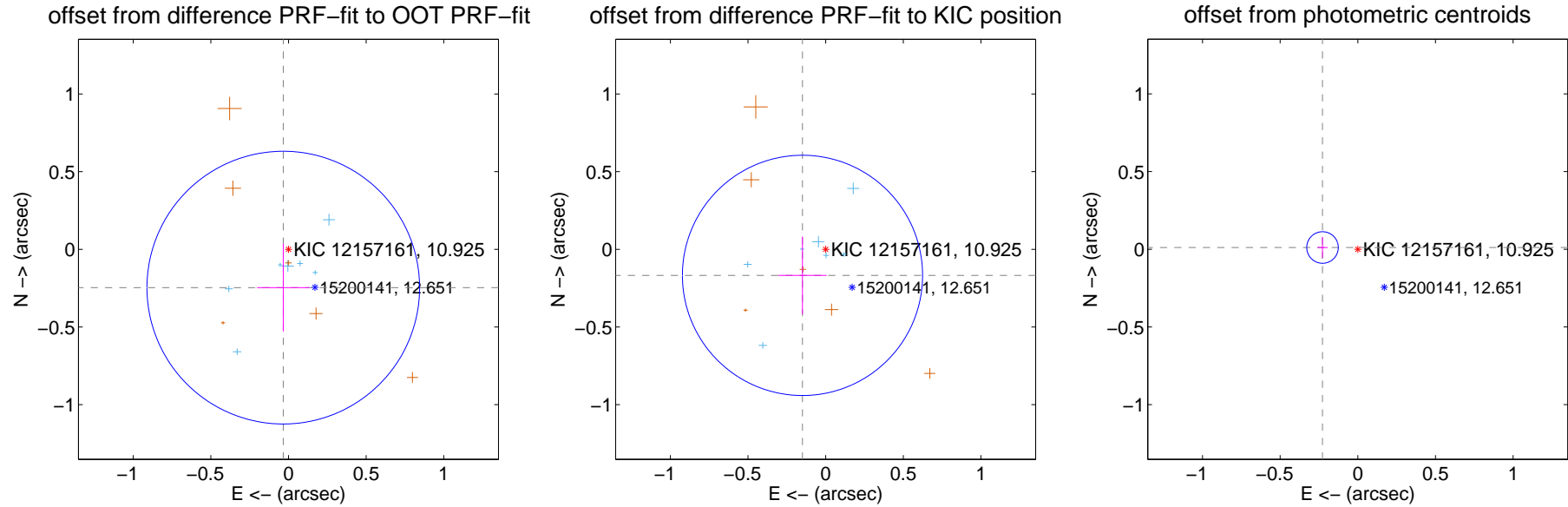
DV Centroid Data

Supplemental centroid analysis for 012157161-03. **Kepler magnitude: 10.93.** Transit SNR 12.60

There are 8 quarters with good PRF difference image offsets

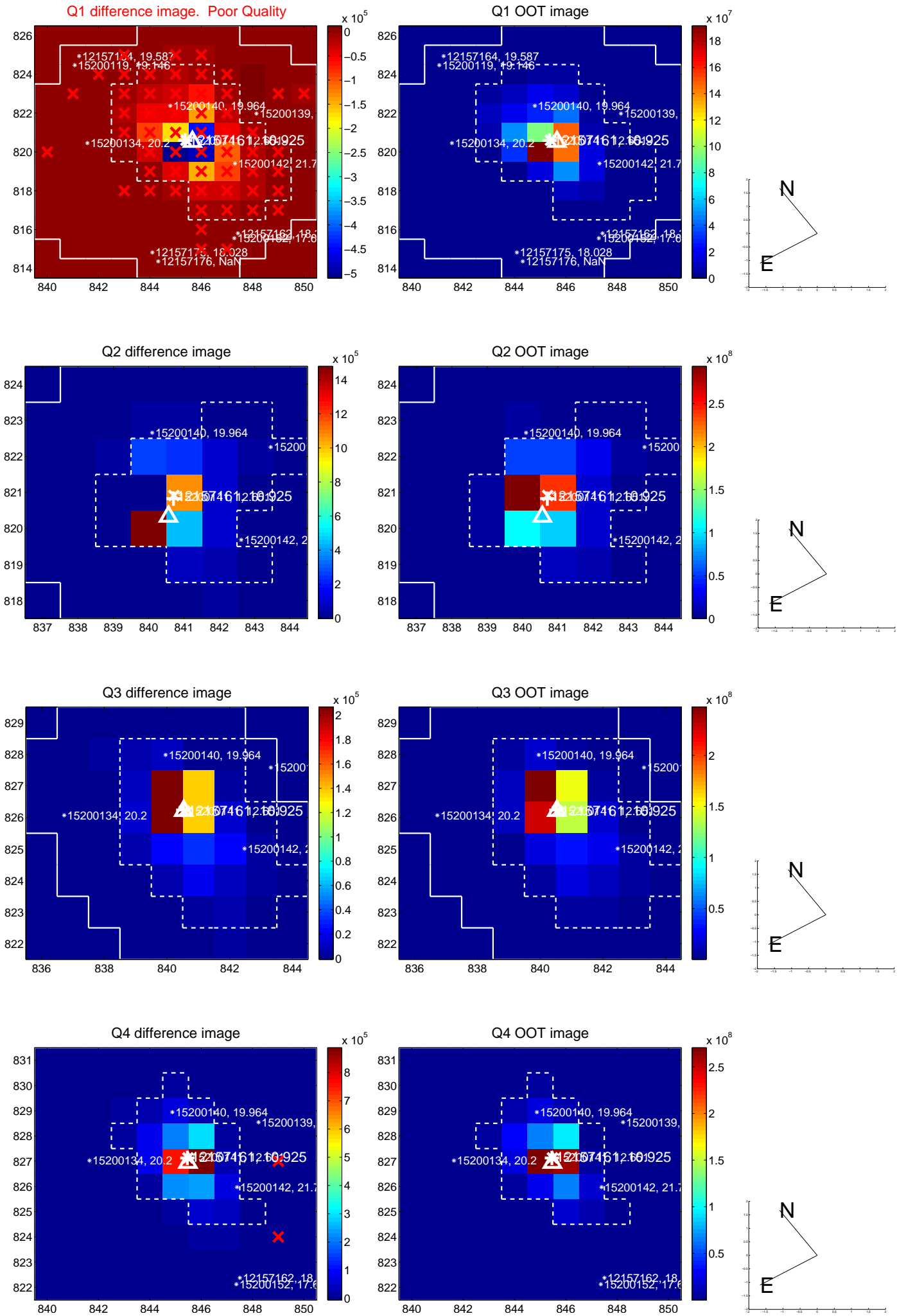
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.249 ± 0.293	0.85	0.034 ± 0.169	-0.247 ± 0.283
PRF-fit source offset from KIC position	0.225 ± 0.258	0.87	0.149 ± 0.156	-0.168 ± 0.250
photometric centroid source offset	0.23 ± 0.03	6.72	0.23 ± 0.03	0.01 ± 0.07

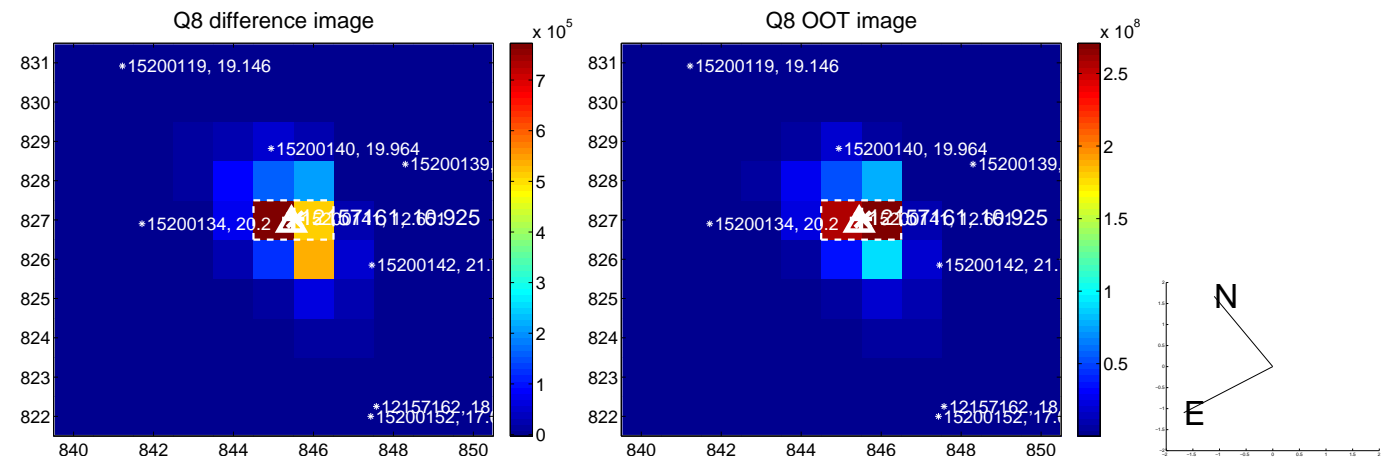
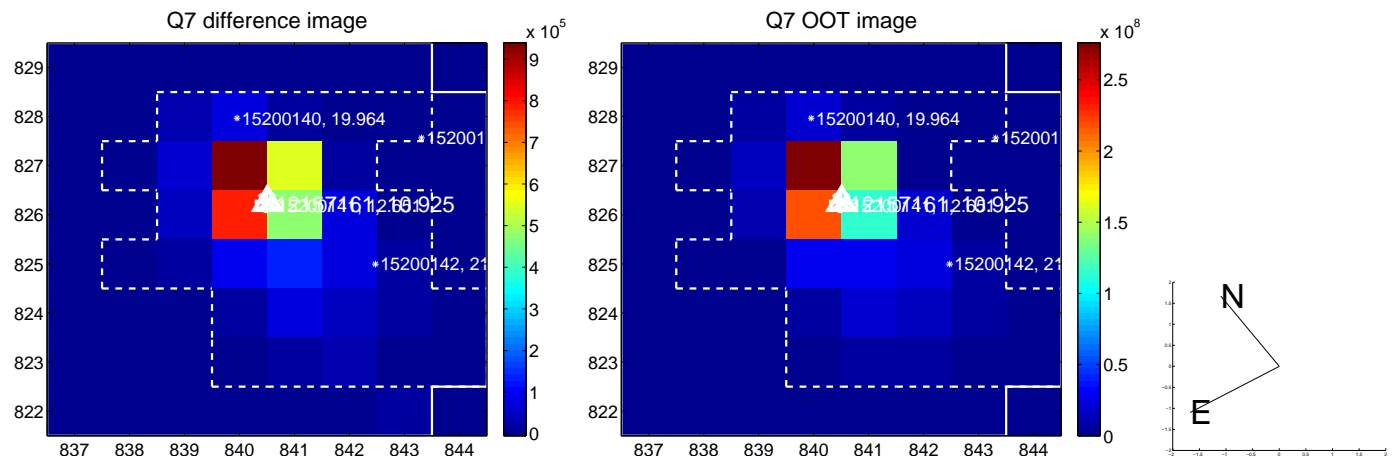
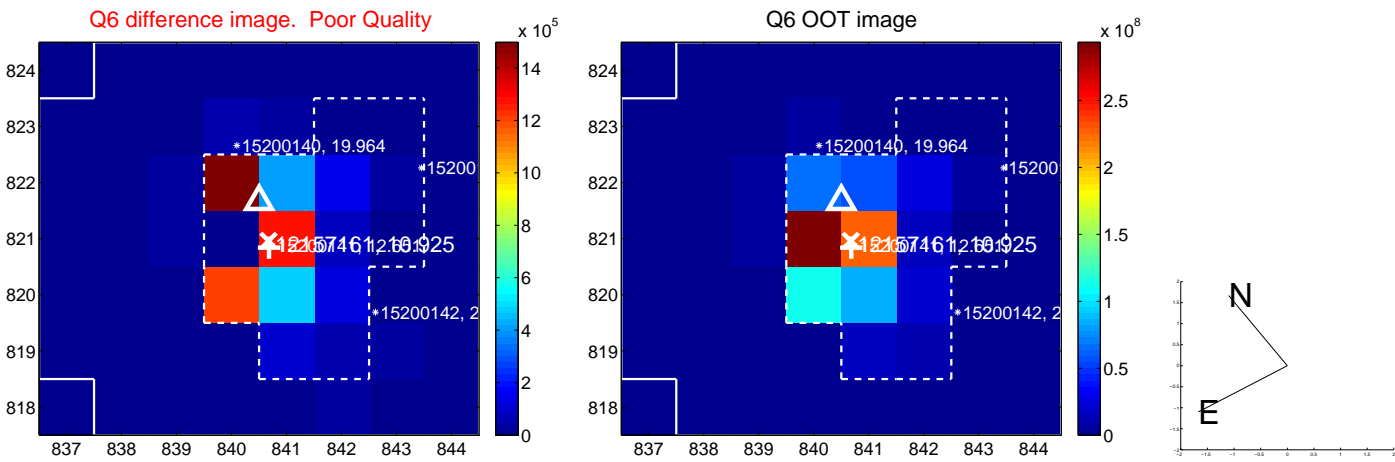
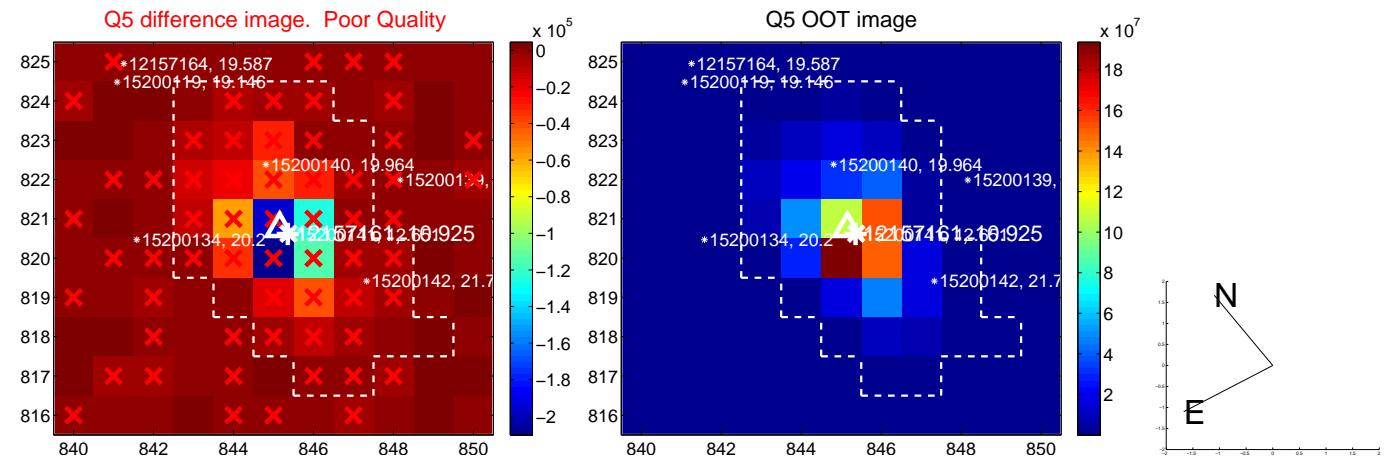


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

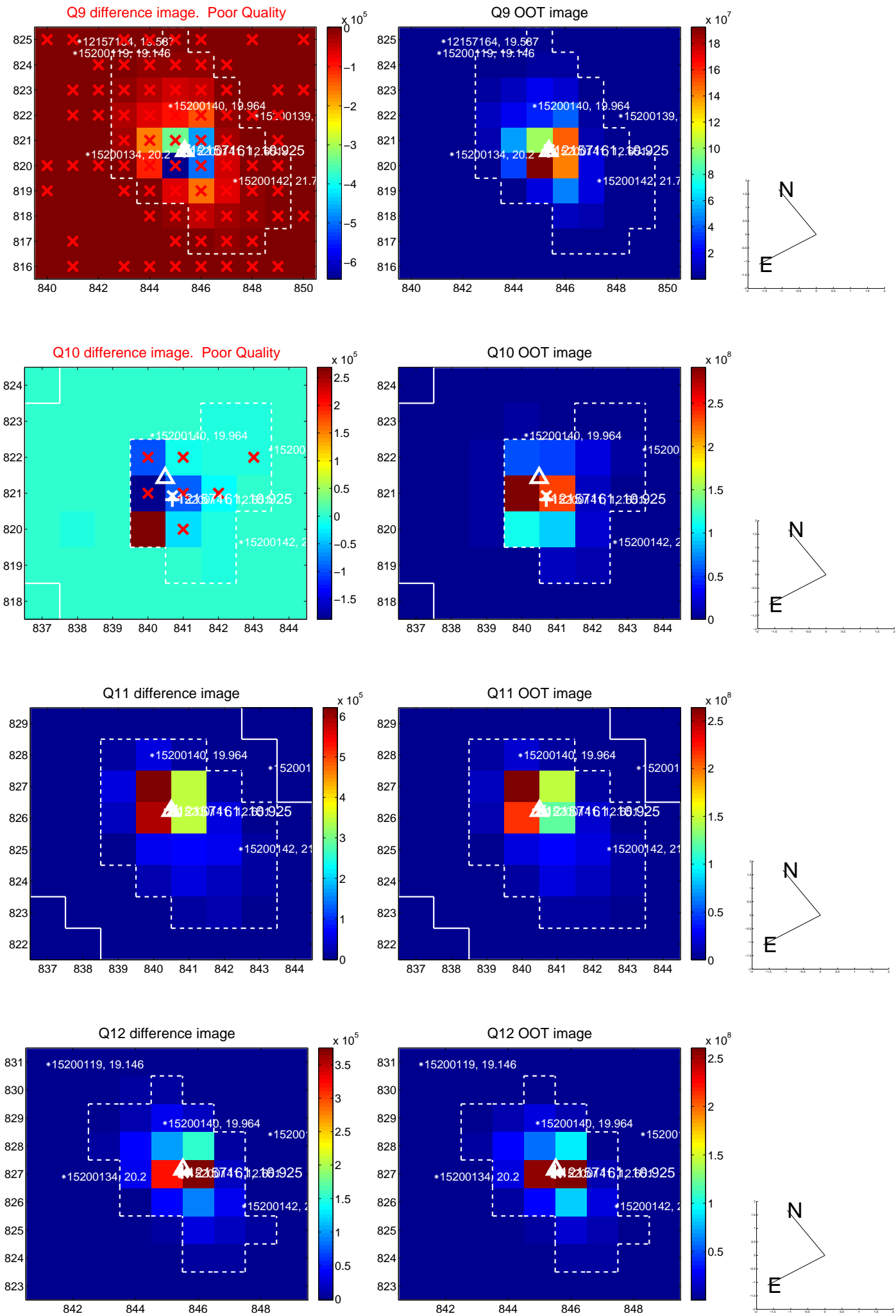
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



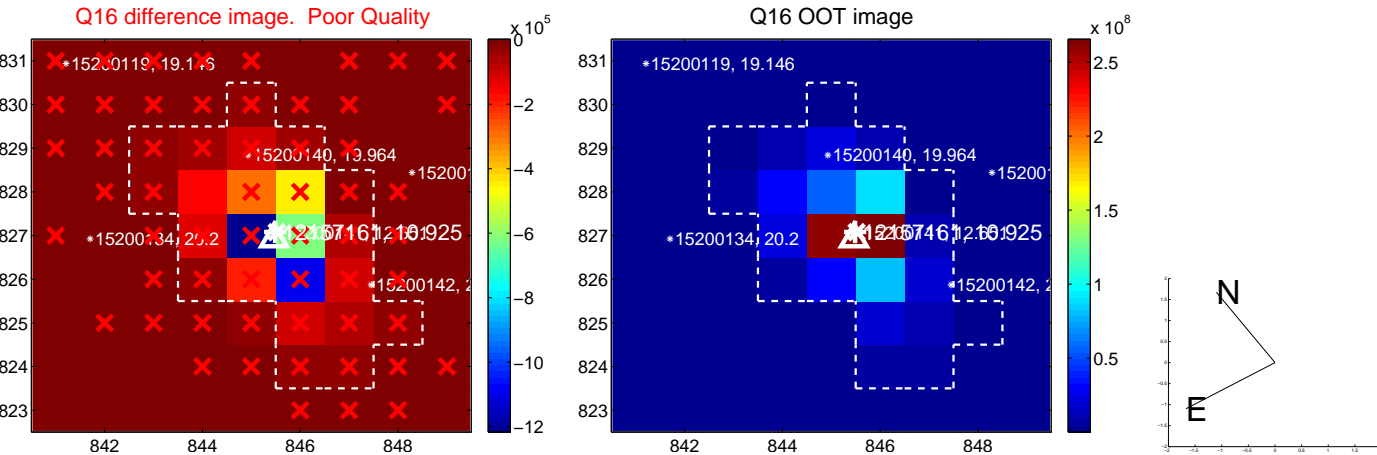
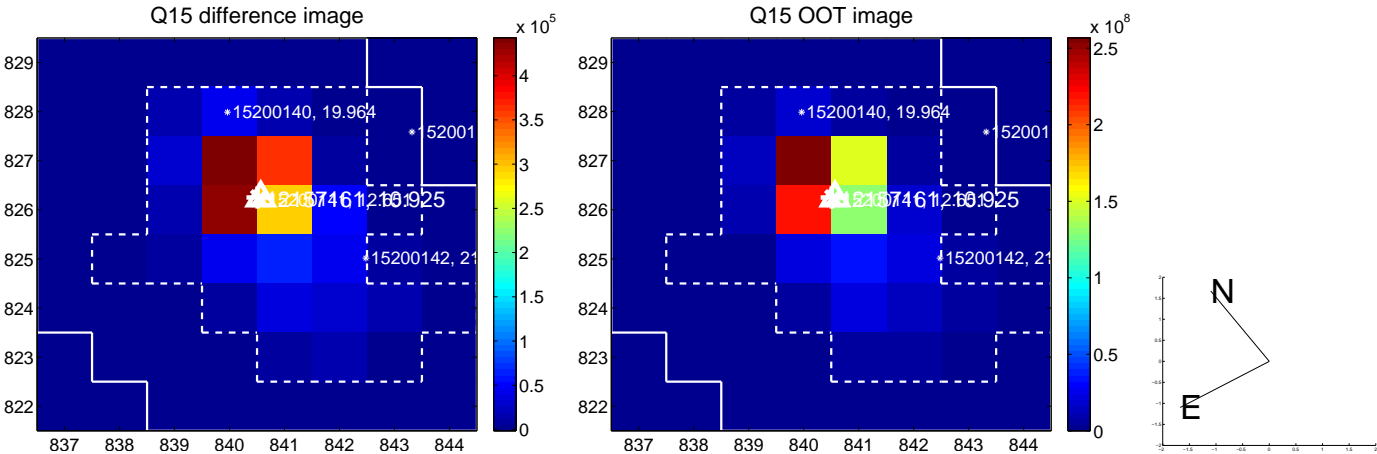
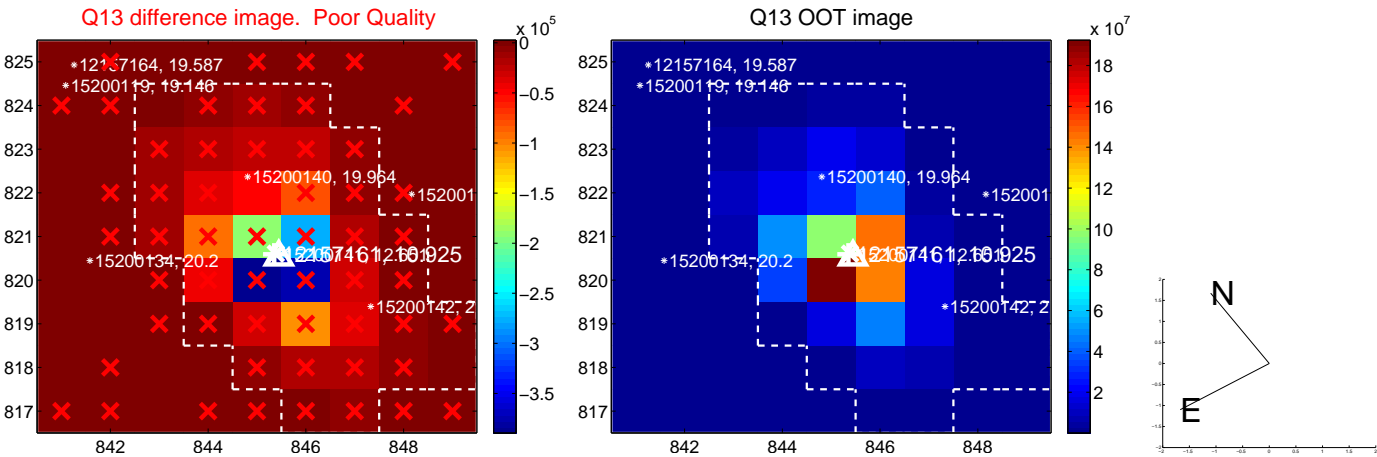
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



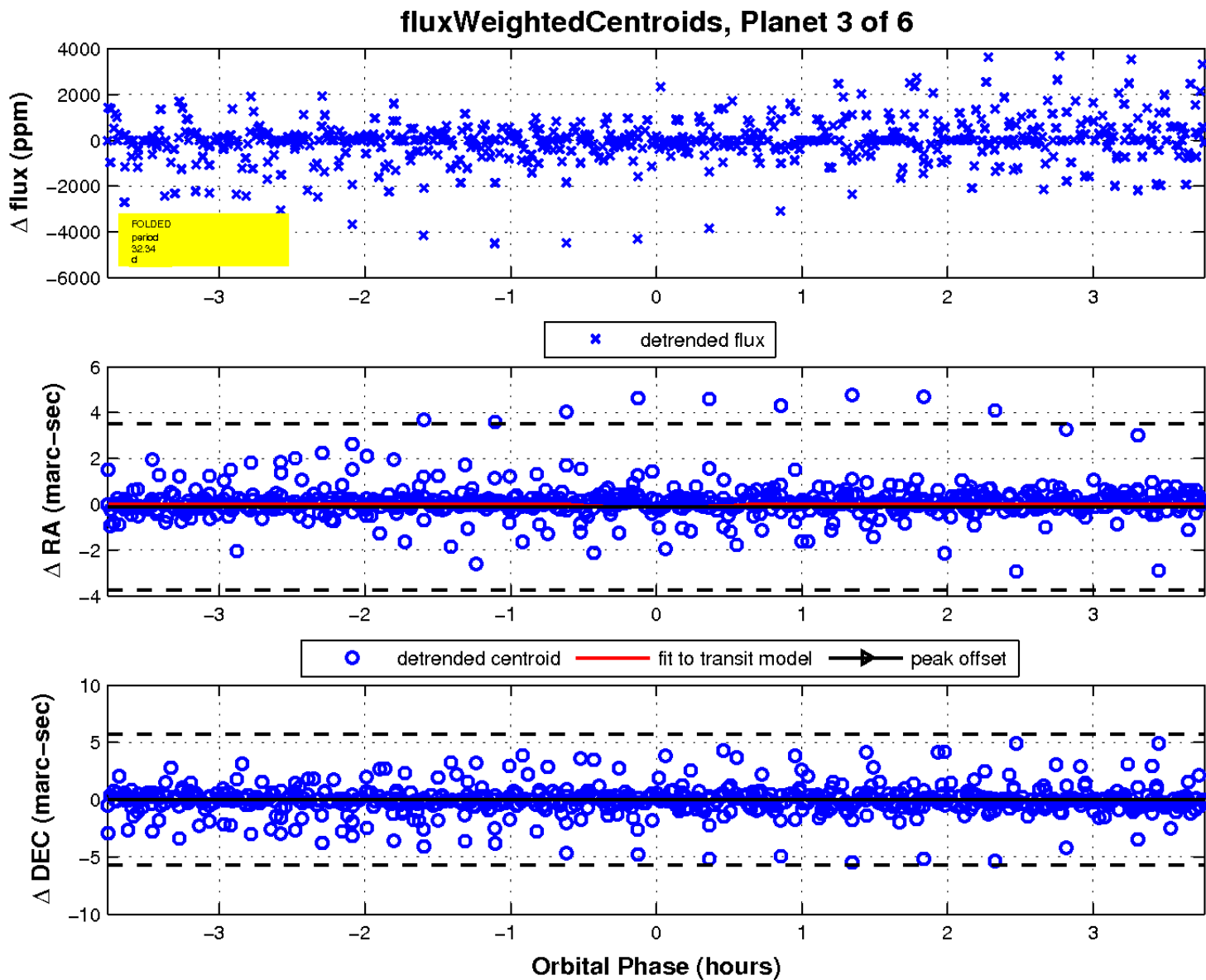
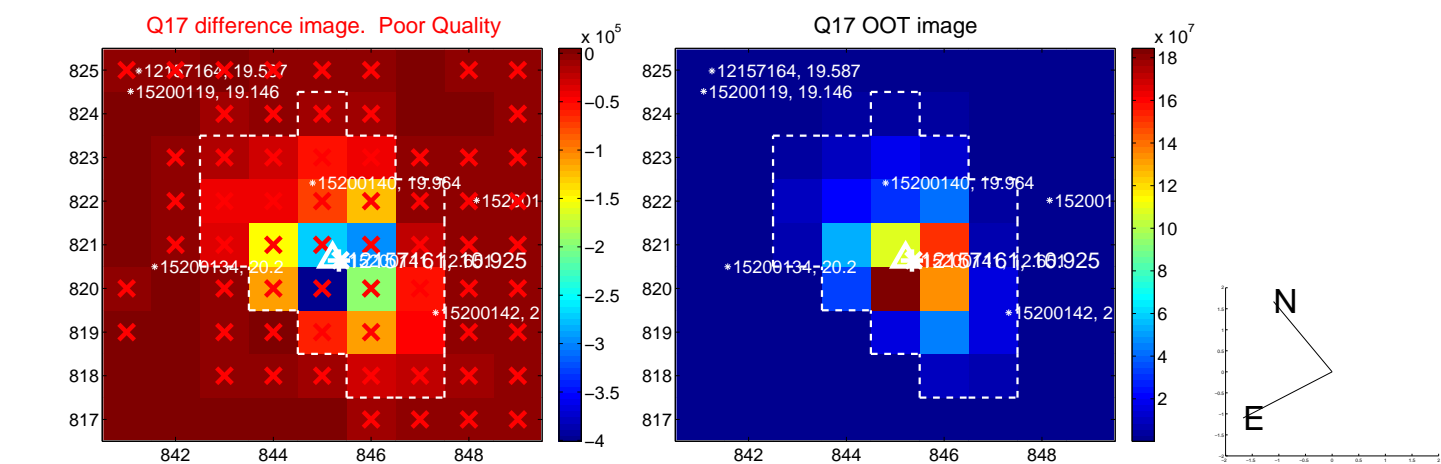
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

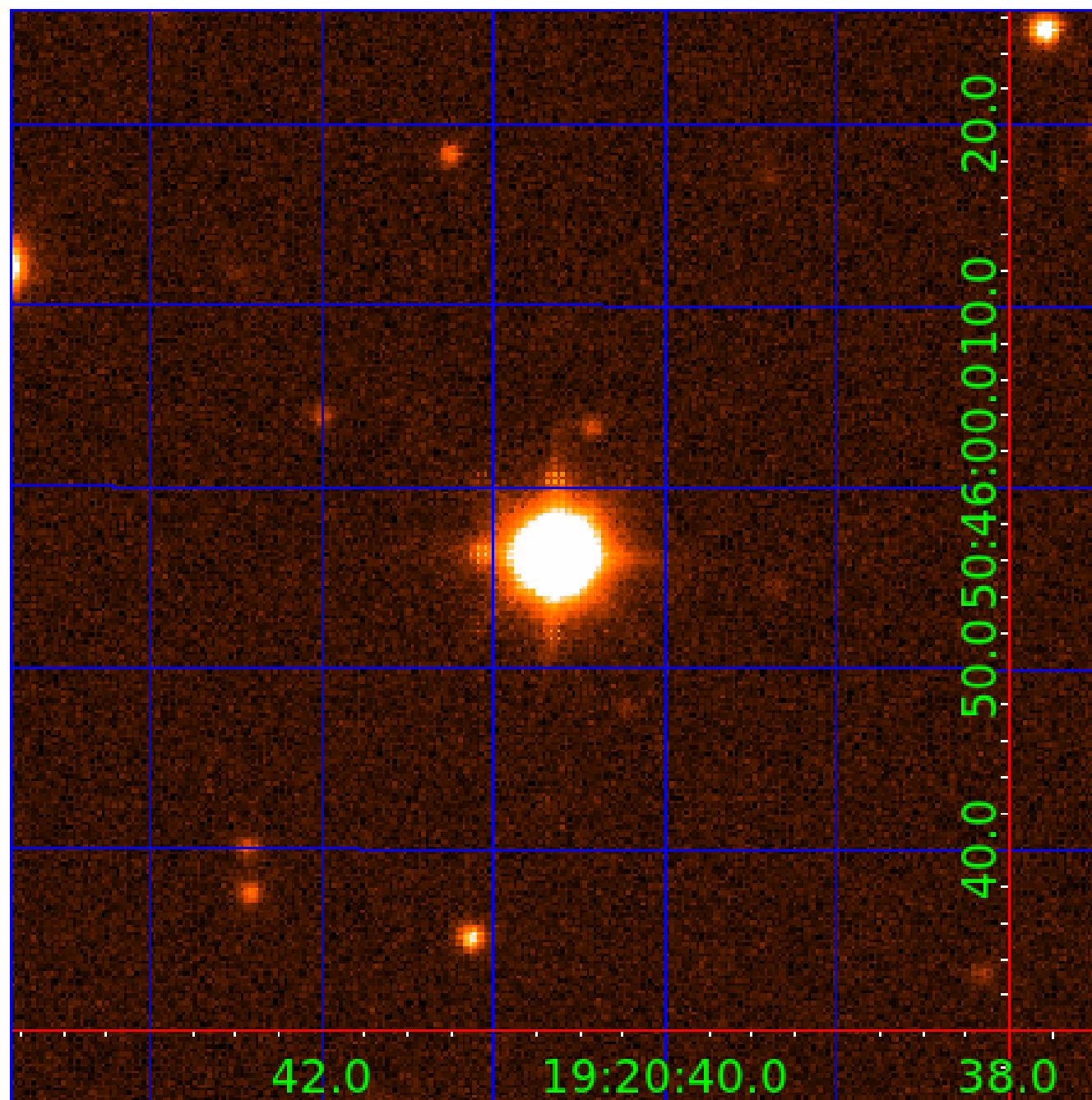


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012157161

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})
012157161-01	OBS	No	0.752180	132.033982	4.3	5.706	7.1	1.0	1.44	6517	0.32	11140.32
012157161-02	OBS	No	4.411724	131.852476	1748.5	1.149	11.2	11.8	1.44	6517	6.09	1053.21
012157161-03	OBS	No	32.339105	141.457169	2197.7	1.256	10.5	12.6	1.44	6517	7.00	73.96
012157161-04	OBS	No	14.873501	135.302008	1706.8	3.546	10.7	10.8	1.44	6517	5.98	208.34
012157161-05	OBS	No	13.448370	132.208327	3114.4	0.831	10.0	12.4	1.44	6517	8.42	238.29
012157161-06	OBS	No	4.800537	135.631280	2396.5	1.044	10.2	13.2	1.44	6517	7.69	941.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012157161-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
012157161-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED

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

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

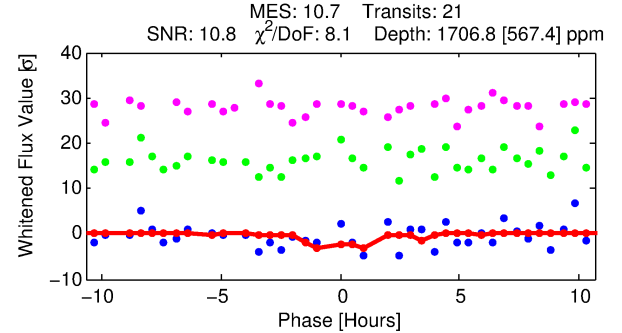
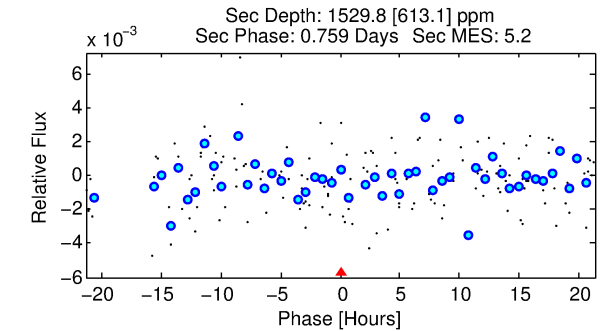
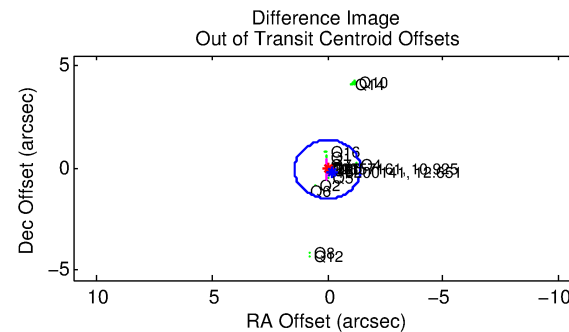
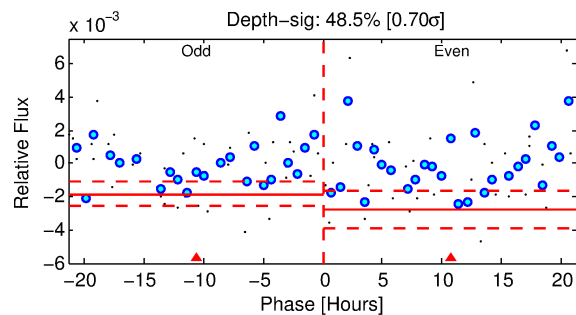
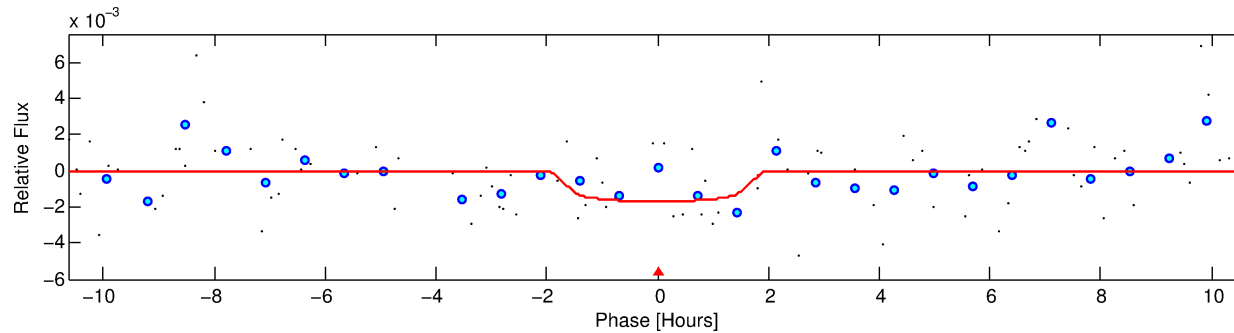
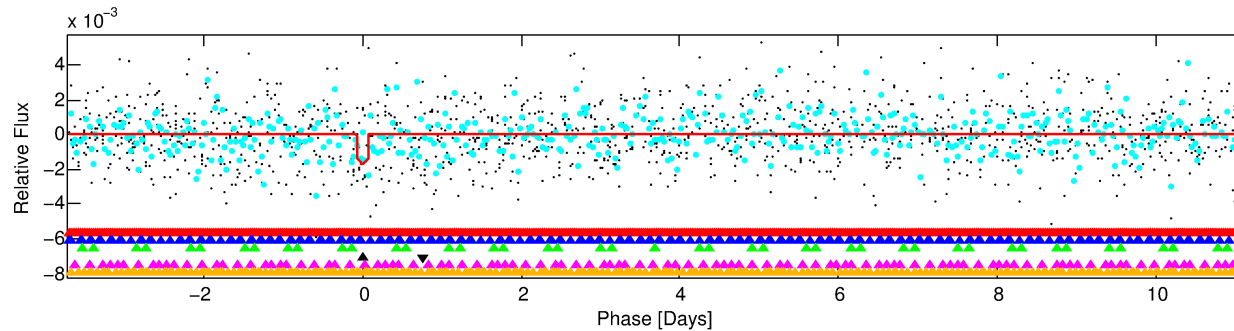
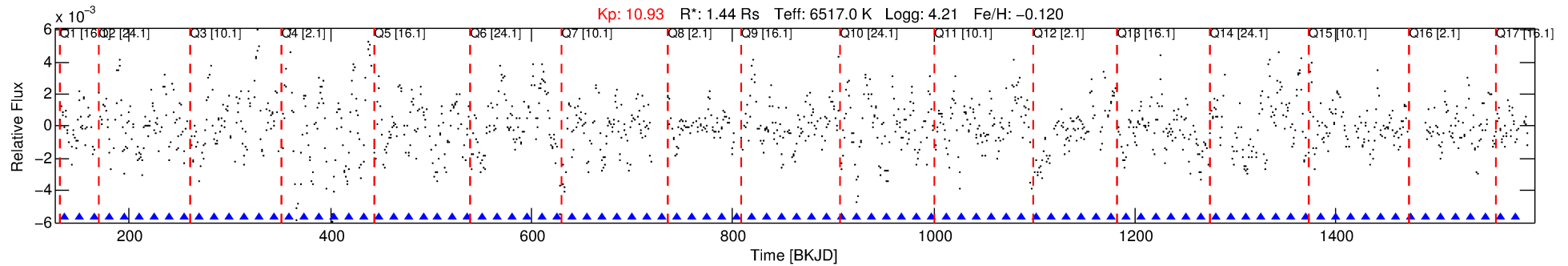
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012157161-04

No Significant Match Found

DV One-Page Summary

KIC: 12157161 Candidate: 4 of 6 Period: 14.874 d



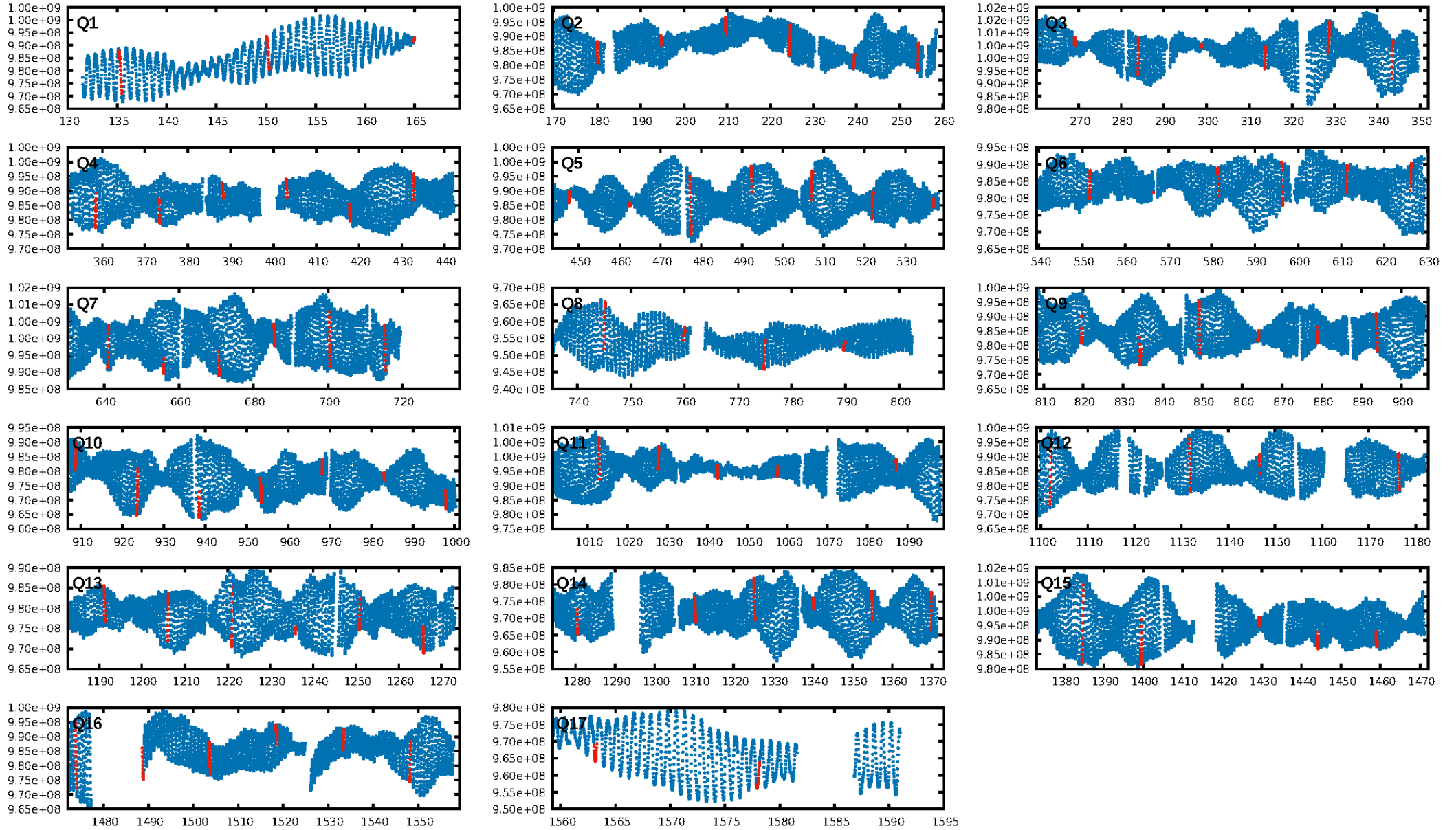
DV Fit Results:

Period = 14.87350 [0.00041] d
Epoch = 135.3020 [0.0274] BKJD
Rp/R* = 0.0381 [0.1422]
a/R* = 33.21 [649.66]
b = 0.06 [338.68]
Seff = 208.34 [77.36]
Teq = 969 [90] K
Rp = 5.98 [22.42] Re
a = 0.1268 [0.0316] AU
Ag = 378.39 [2835.04] [0.13 σ]
Teffp = 6606 [12362] K [0.4 σ]

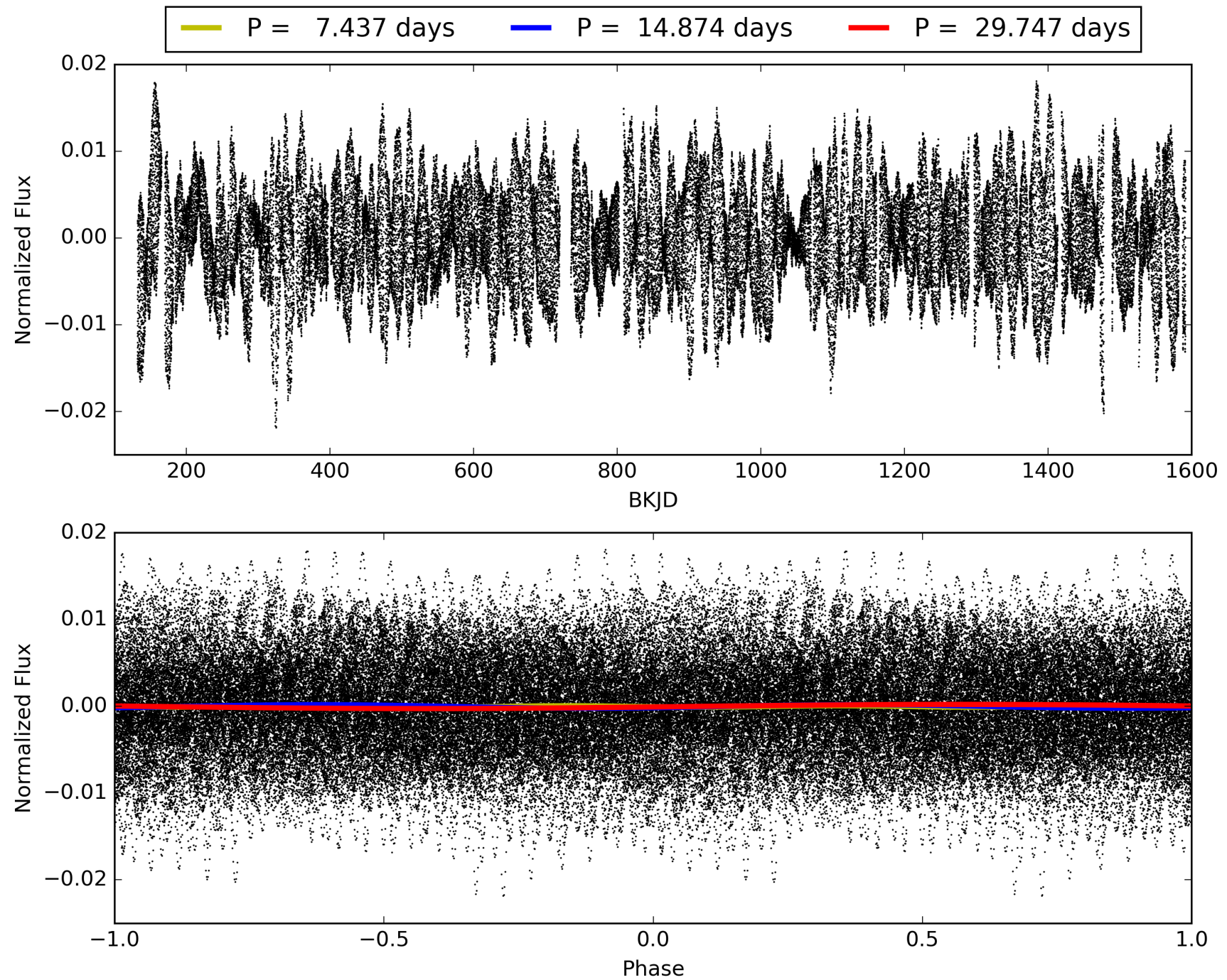
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.39 σ]
LongPeriod-sig: 100.0% [111.42 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.72e-09
RollingBand-fgt: 1.00 [20/20]
GhostDiagnostic-chr: N/A
Centroid-sig: 80.4%
Centroid-so: 0.177 arcsec [8.13 σ]
OotOffset-rm: 0.080 arcsec [0.17 σ]
KicOffset-rm: 0.118 arcsec [0.82 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.29 [5/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 012157161-04, PDC Light Curves

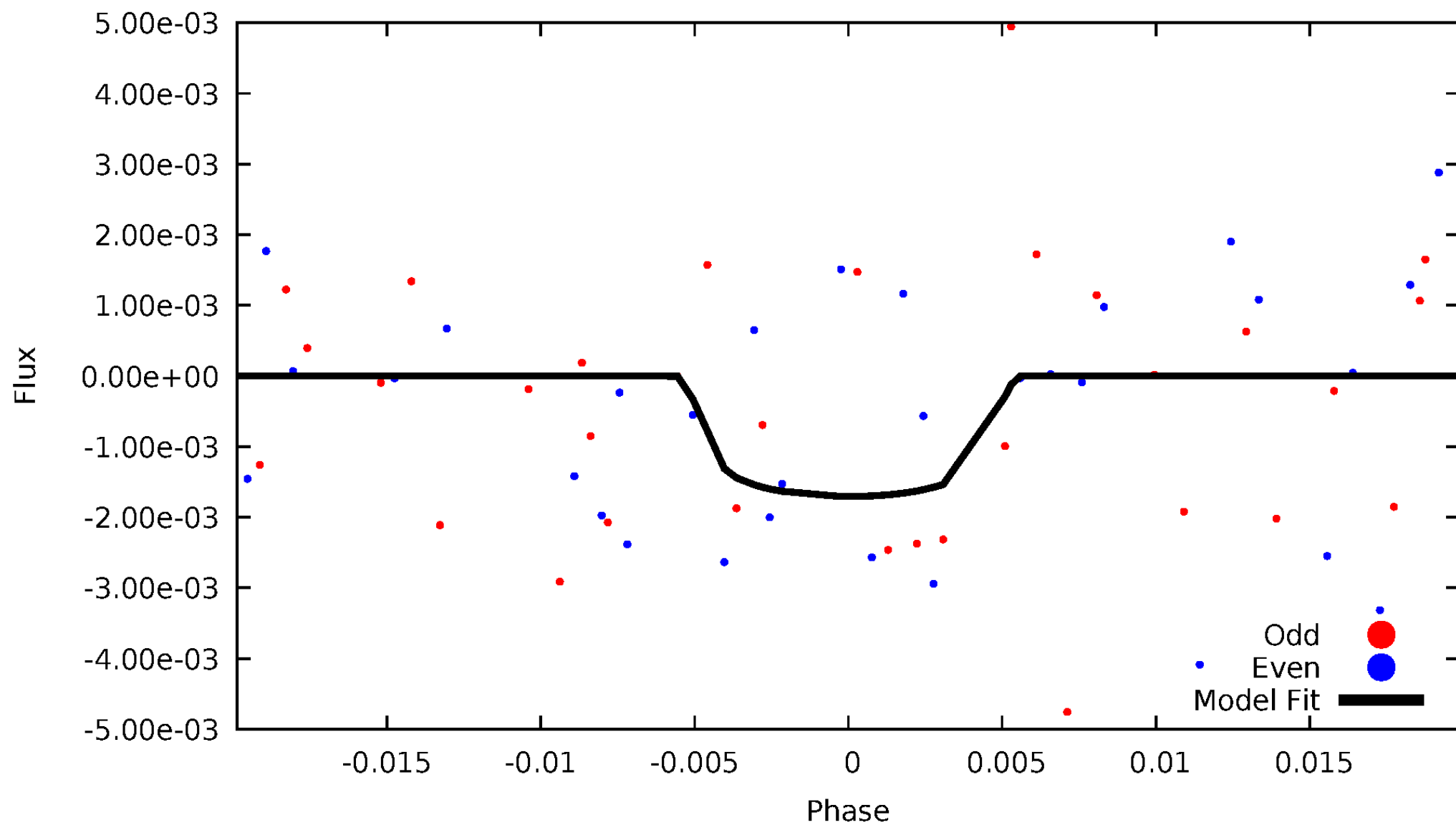


TCE 012157161-04



DV Odd/Even

TCE 012157161-04

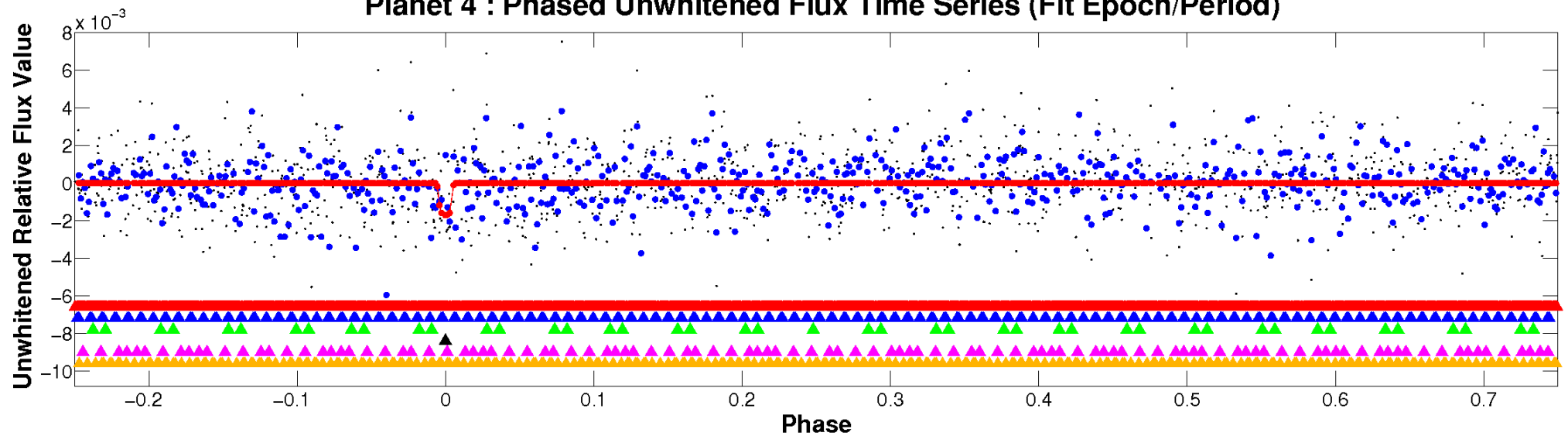


ALT Odd/Even

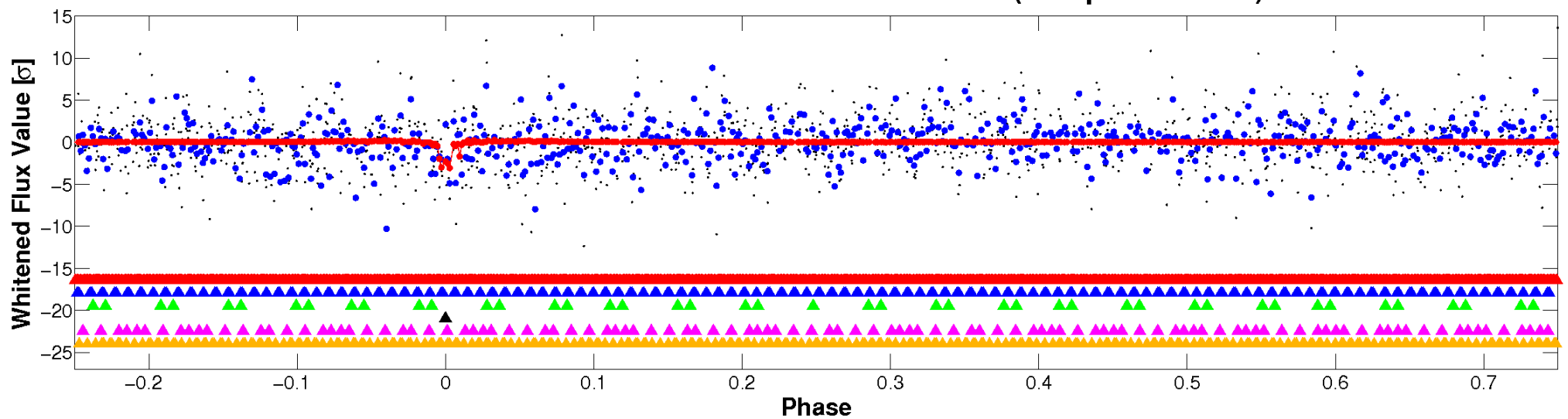
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

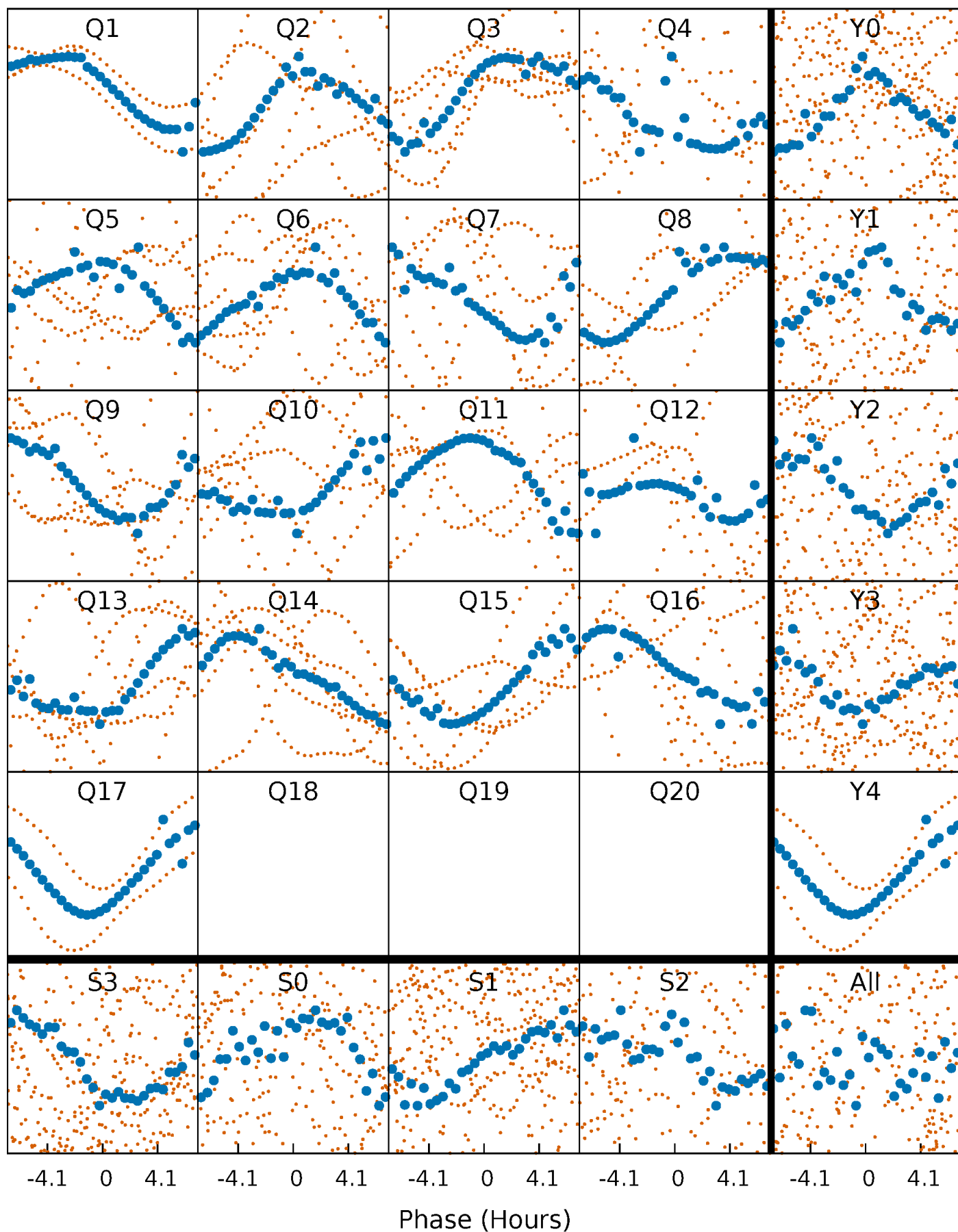


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



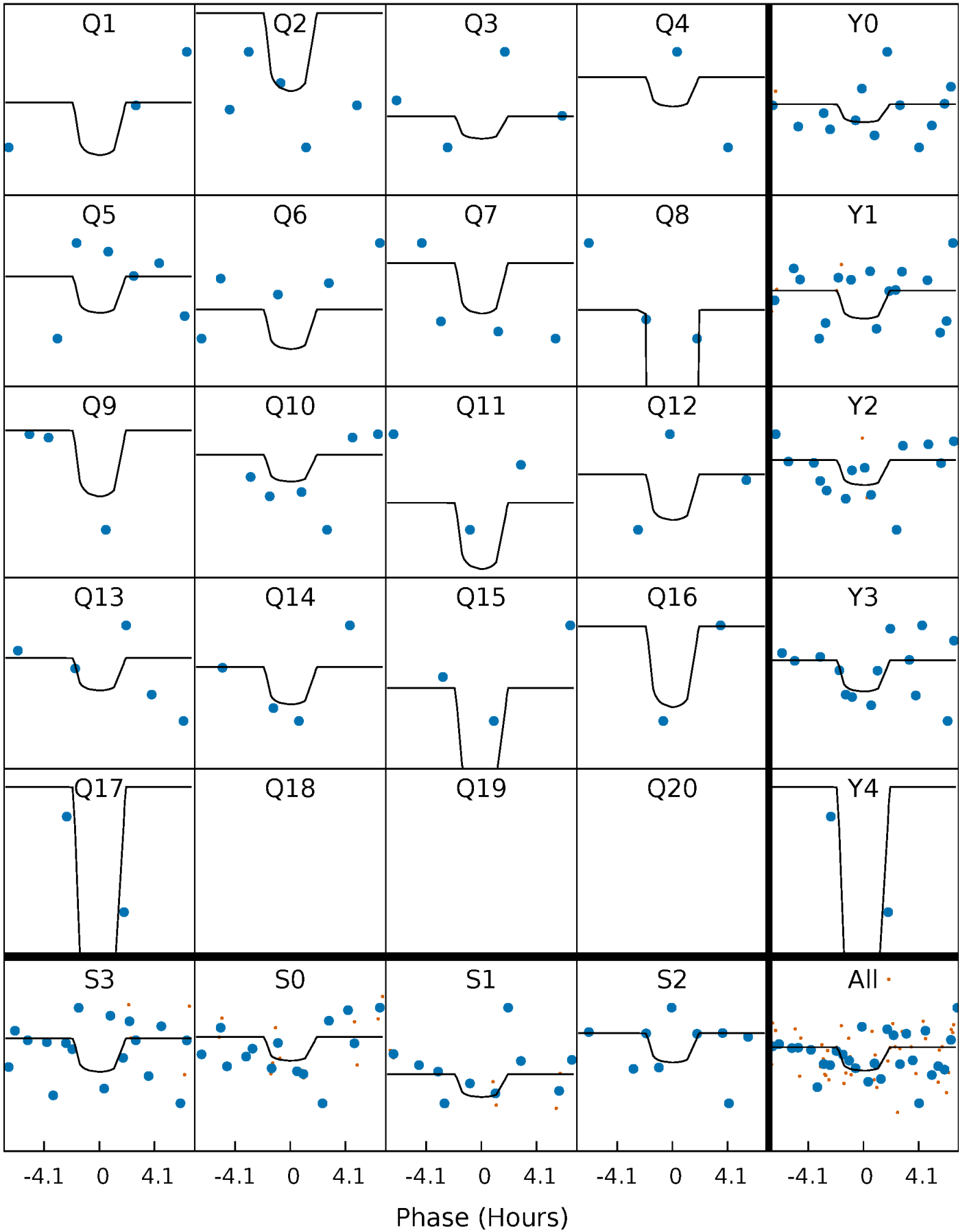
PDC Quarter-Phased Transit Curves

TCE 012157161-04 P= 14.873501 Days $T_0=135.302008$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 012157161-04 P= 14.873501 Days $T_0=135.302008$ (BKJD)

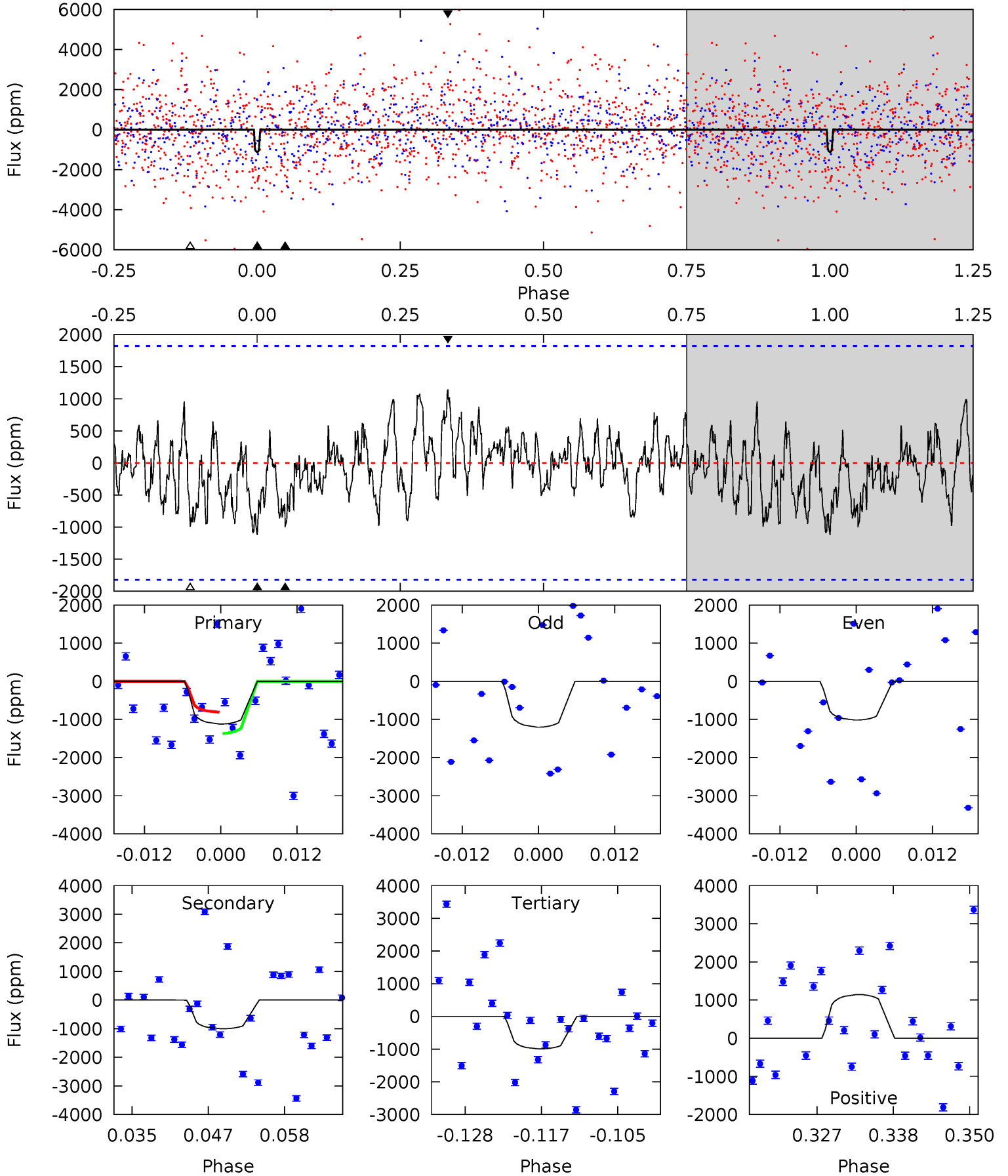


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

012157161-04, P = 14.873501 Days, E = 120.428507 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.07	2.75	2.72	3.14	5.00	2.52	1.10	0.35	-0.07	0.02	-0.39	0.26	0	0.51	0.76



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 012157161

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6517^{+146}_{-194}	$4.211^{+0.153}_{-0.187}$	$-0.120^{+0.250}_{-0.300}$	$1.440^{+0.439}_{-0.293}$	$1.234^{+0.188}_{-0.188}$	$0.582^{+0.464}_{-0.299}$
	+2%/-3%	+4%/-4%	+208%/-250%	+30%/-20%	+15%/-15%	+80%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012157161-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1002 ± 365	$18.22^{+19.08}_{-13.13}$	1359^{+97}_{-84}	3791^{+2575}_{-793}	26^{+287}_{-20}
Alt.	N/A	N/A	N/A	N/A	N/A

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

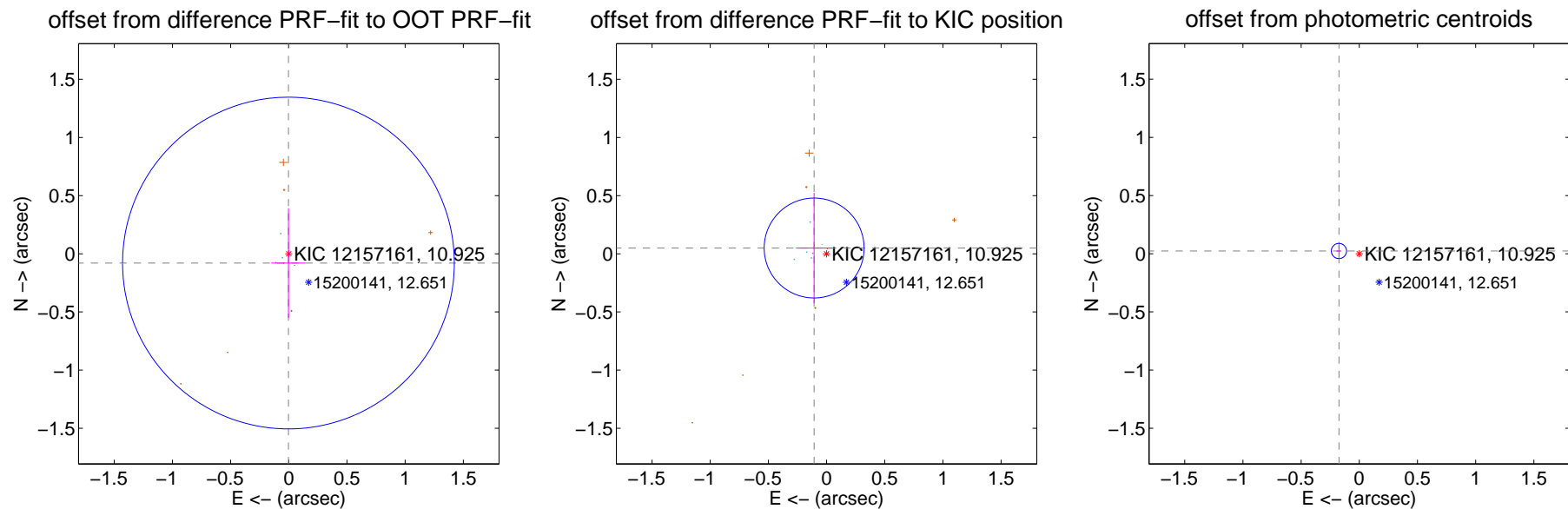
DV Centroid Data

Supplemental centroid analysis for 012157161-04. **Kepler magnitude: 10.93.** Transit SNR 10.78

There are 5 quarters with good PRF difference image offsets

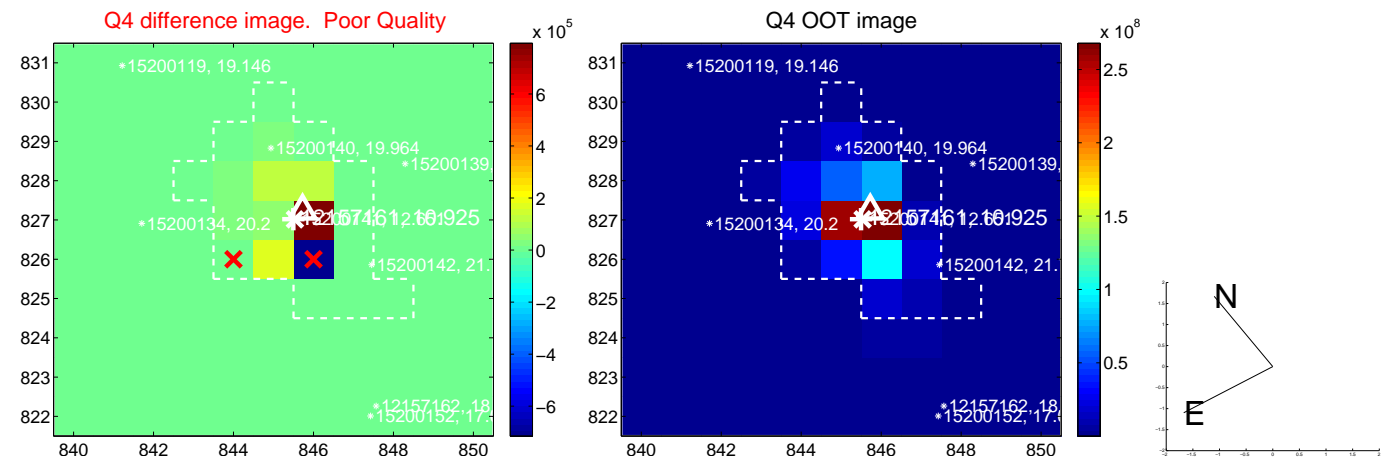
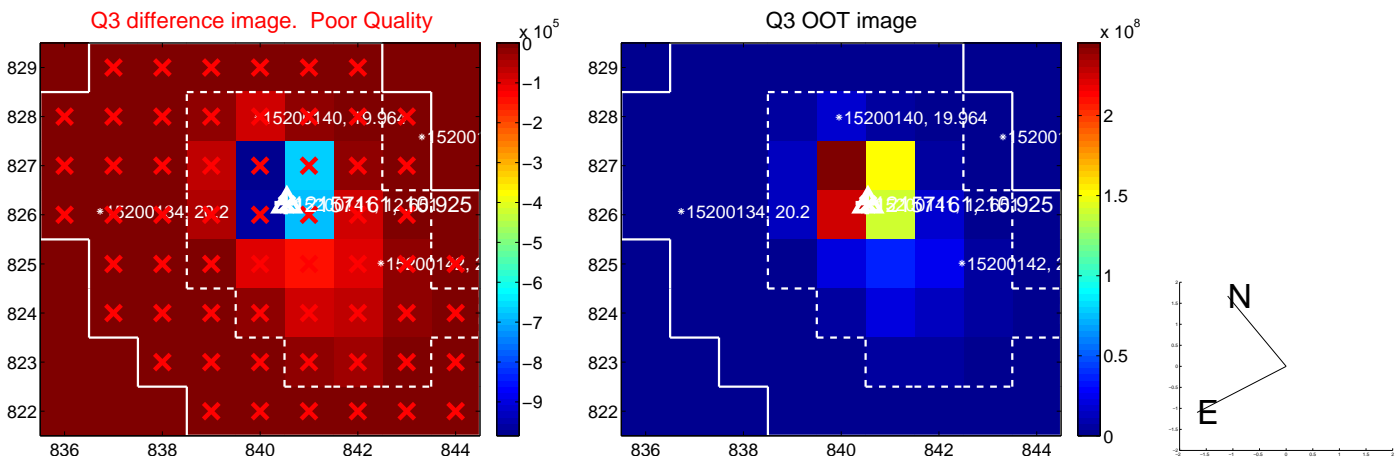
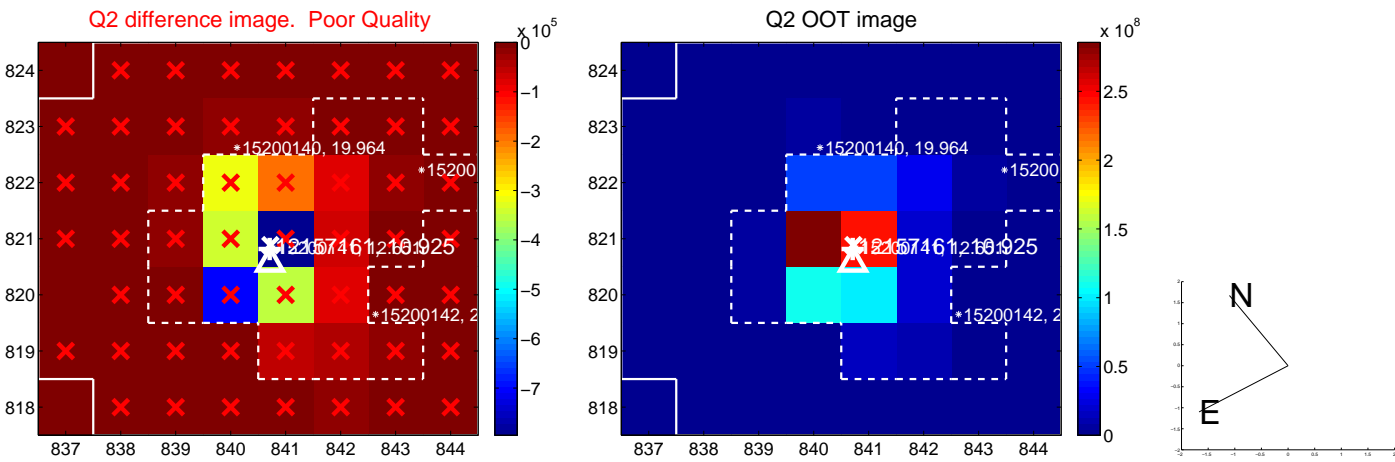
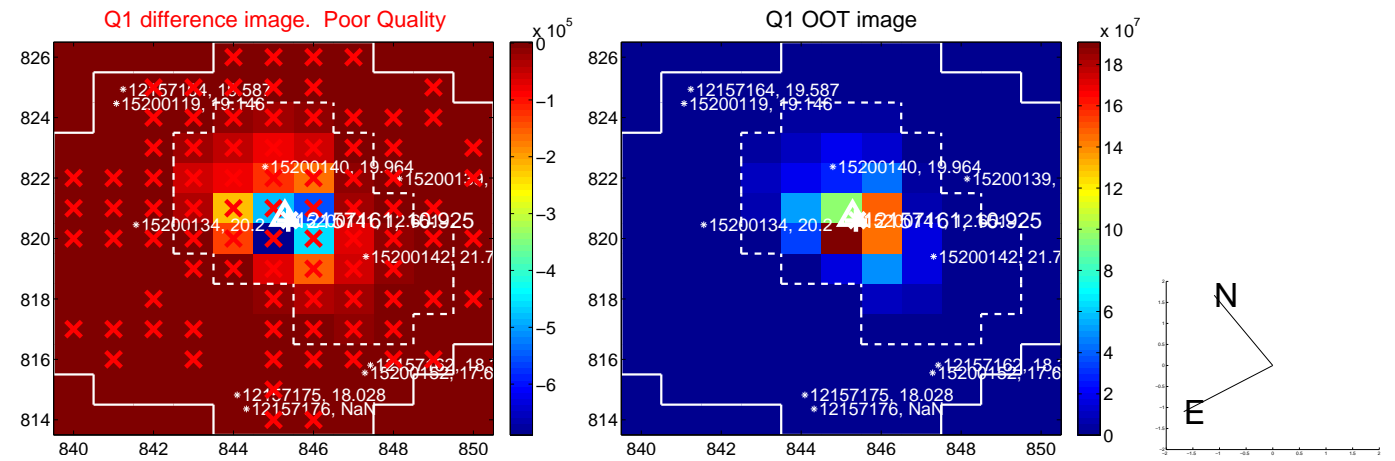
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.080 ± 0.475	0.17	0.003 ± 0.148	-0.080 ± 0.472
PRF-fit source offset from KIC position	0.118 ± 0.143	0.82	0.107 ± 0.156	0.050 ± 0.474
photometric centroid source offset	0.18 ± 0.02	8.13	0.18 ± 0.02	0.02 ± 0.05

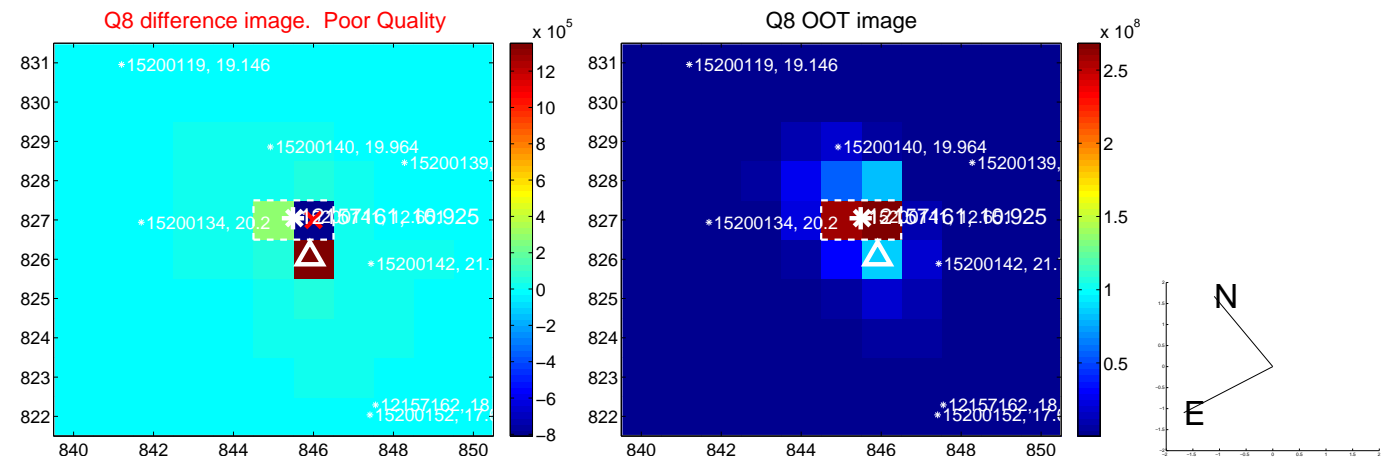
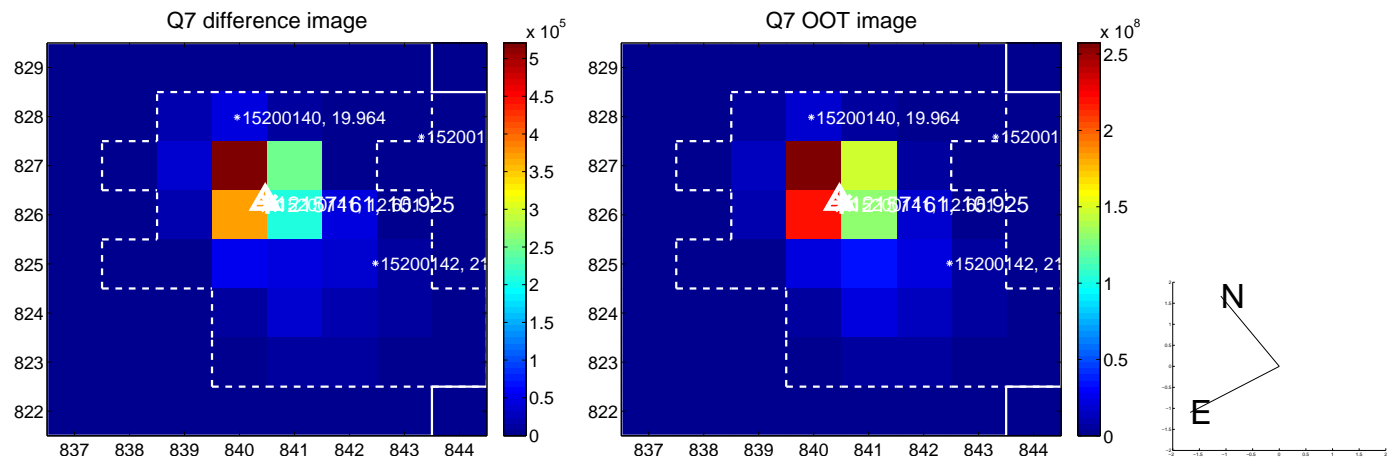
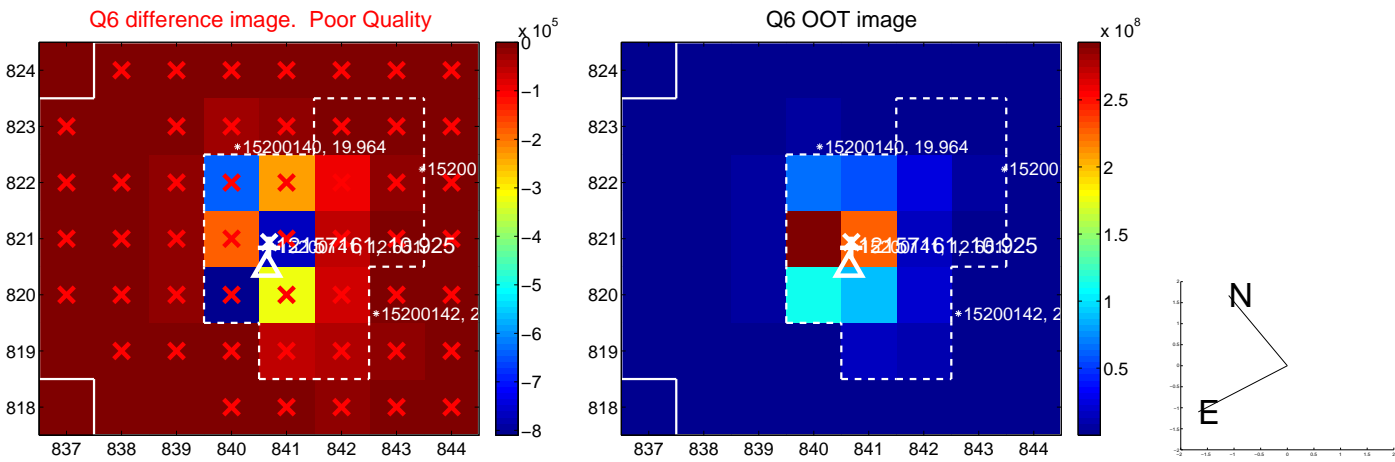
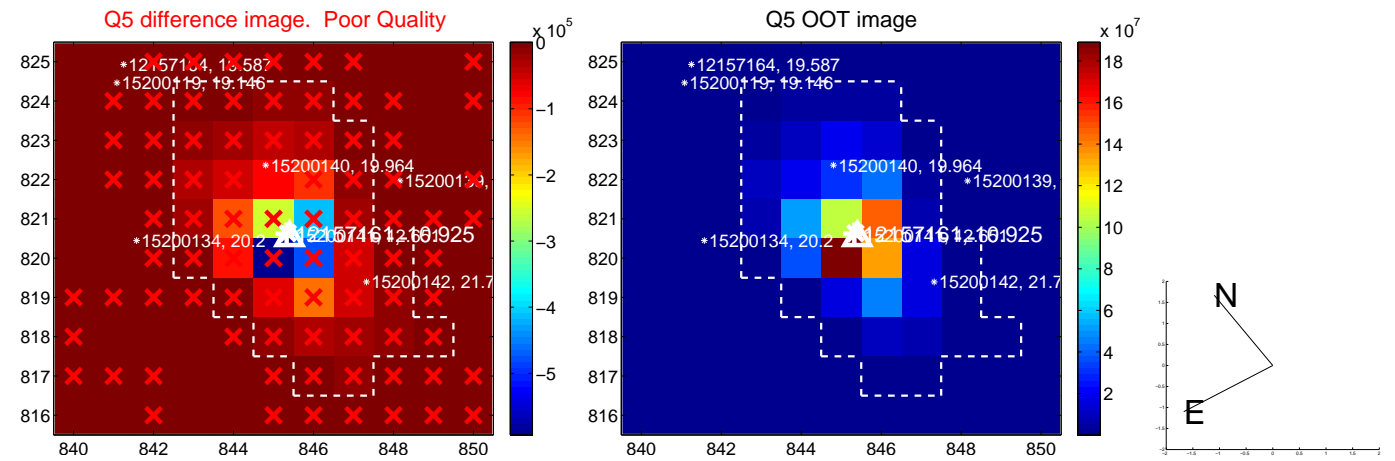


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

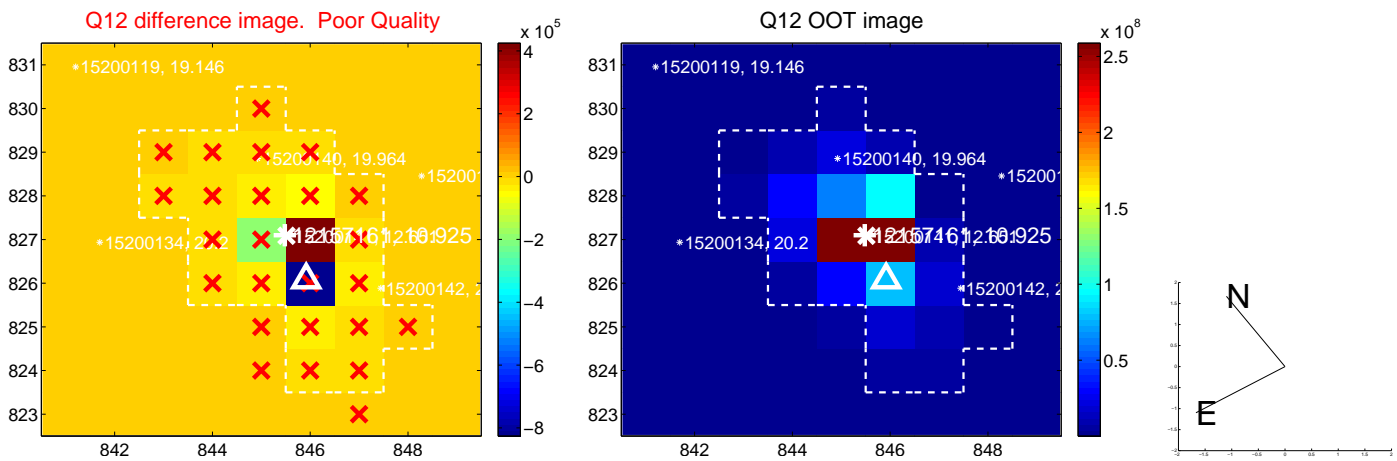
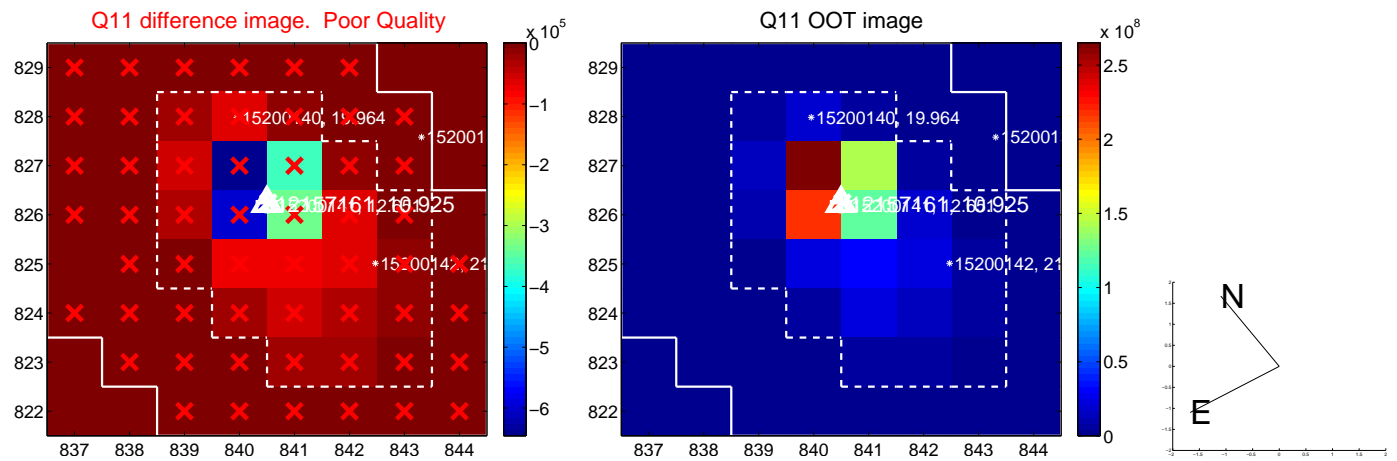
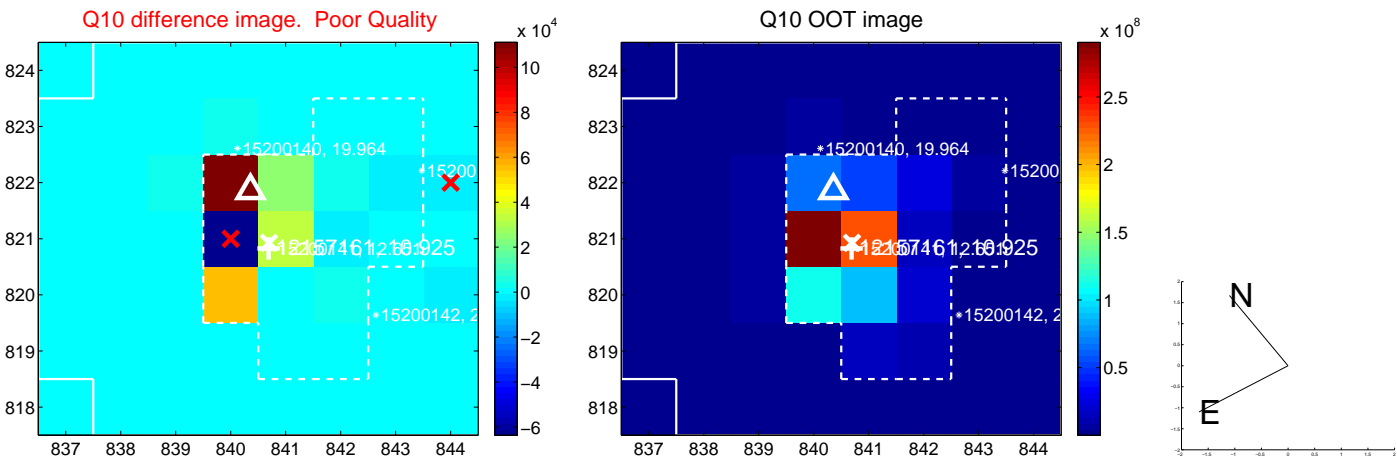
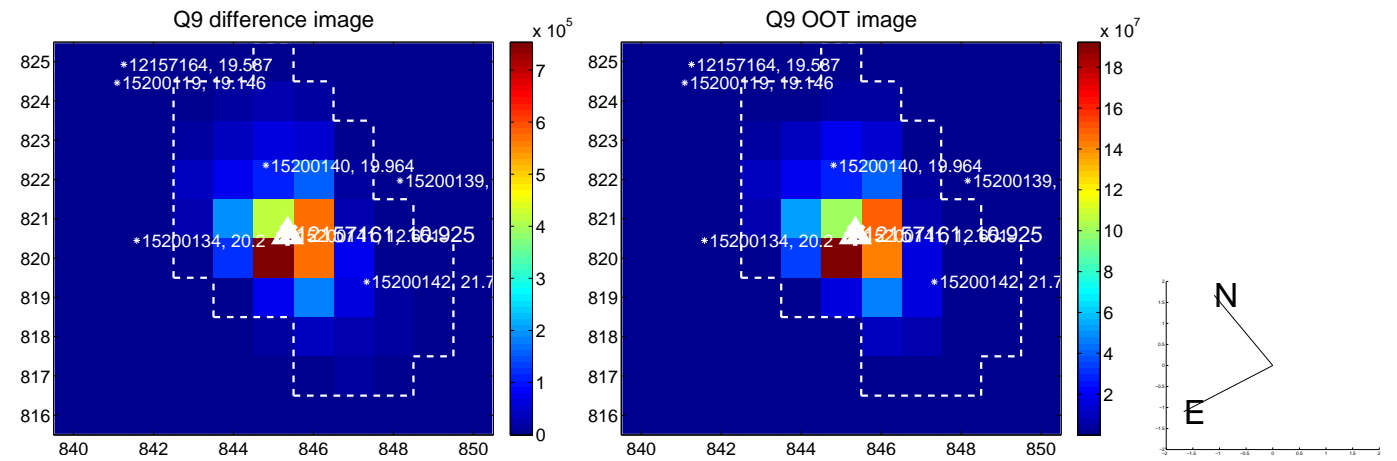
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



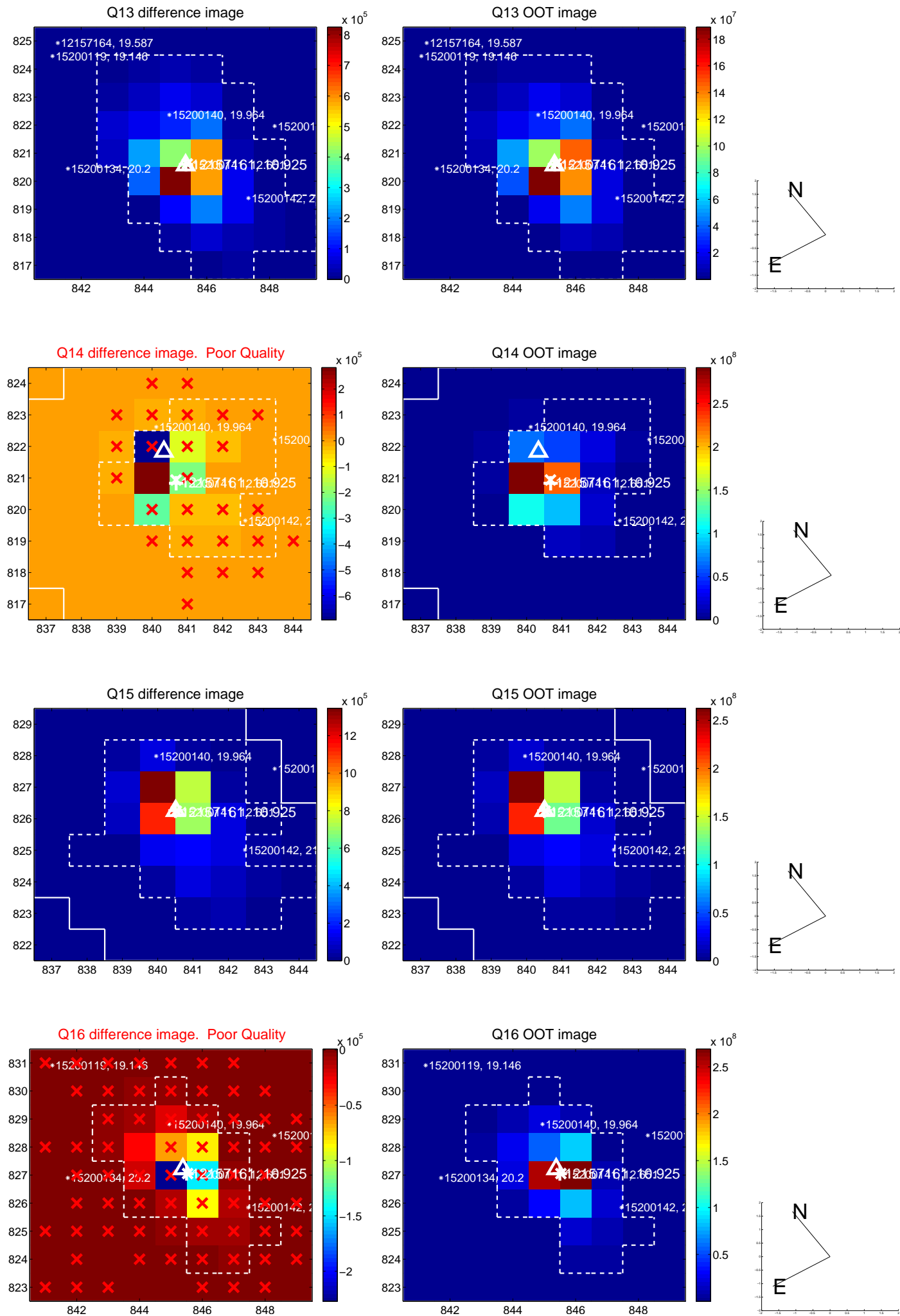
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



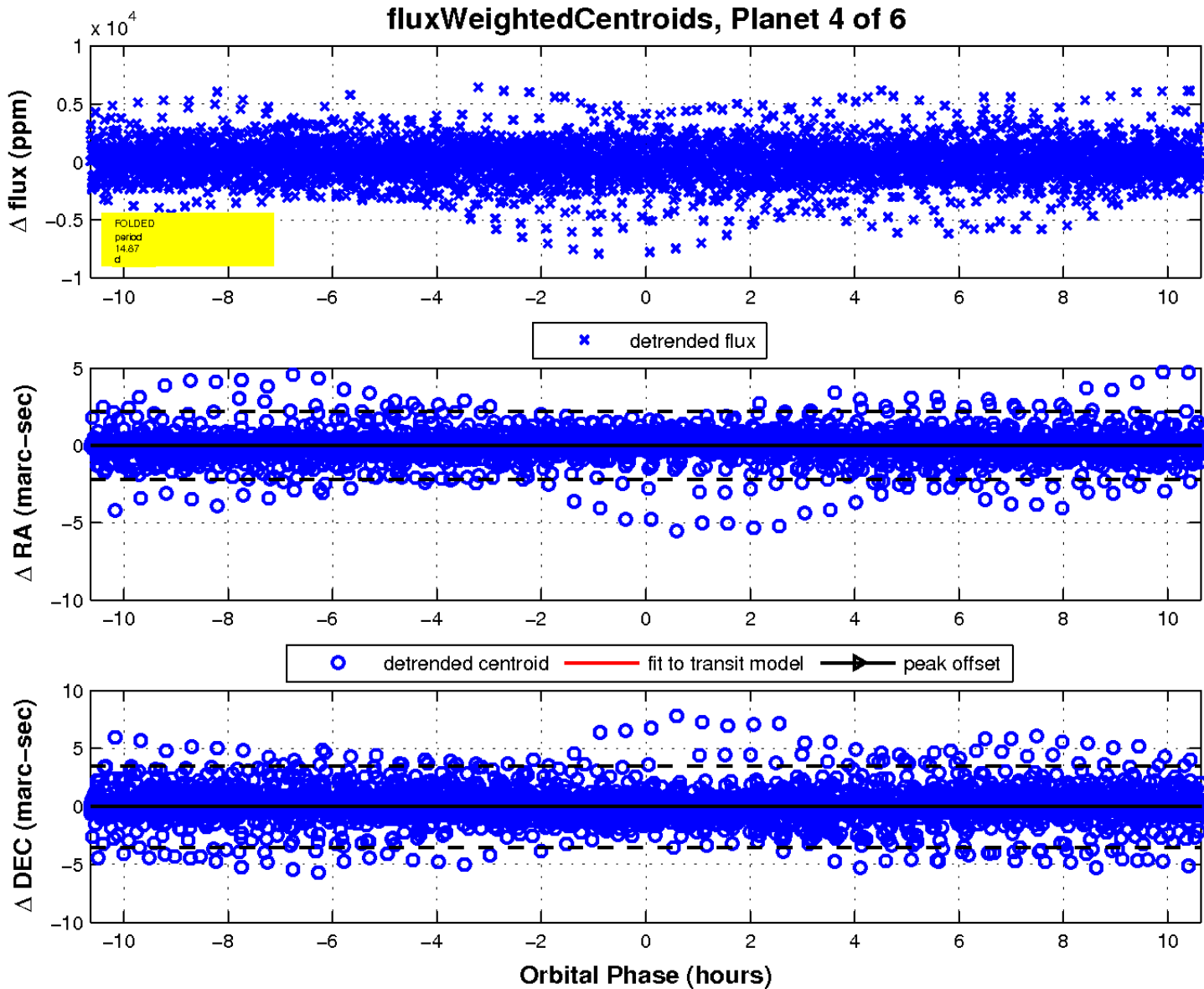
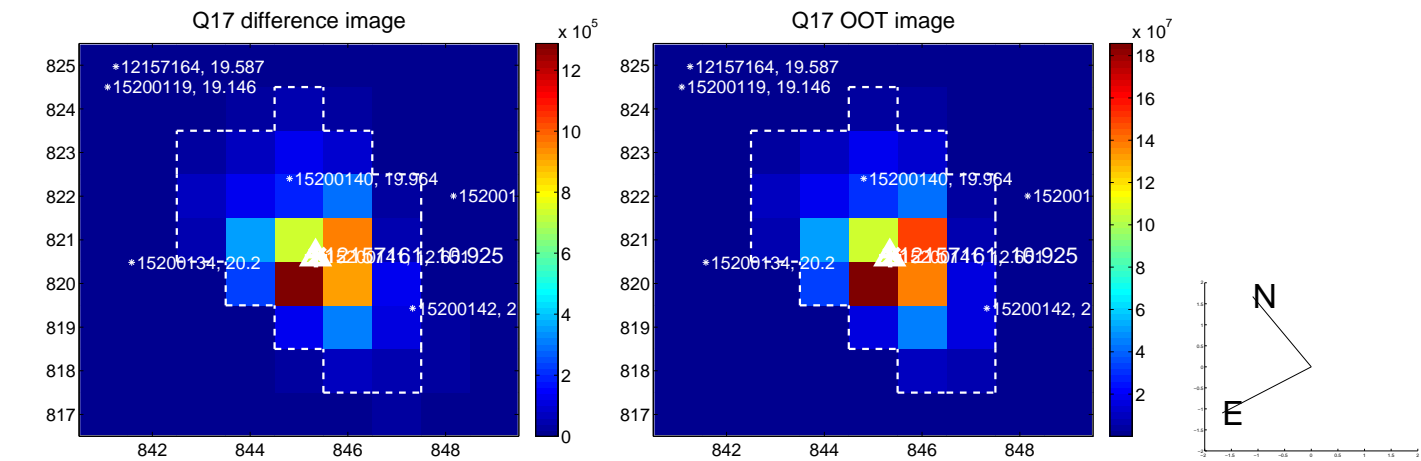
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

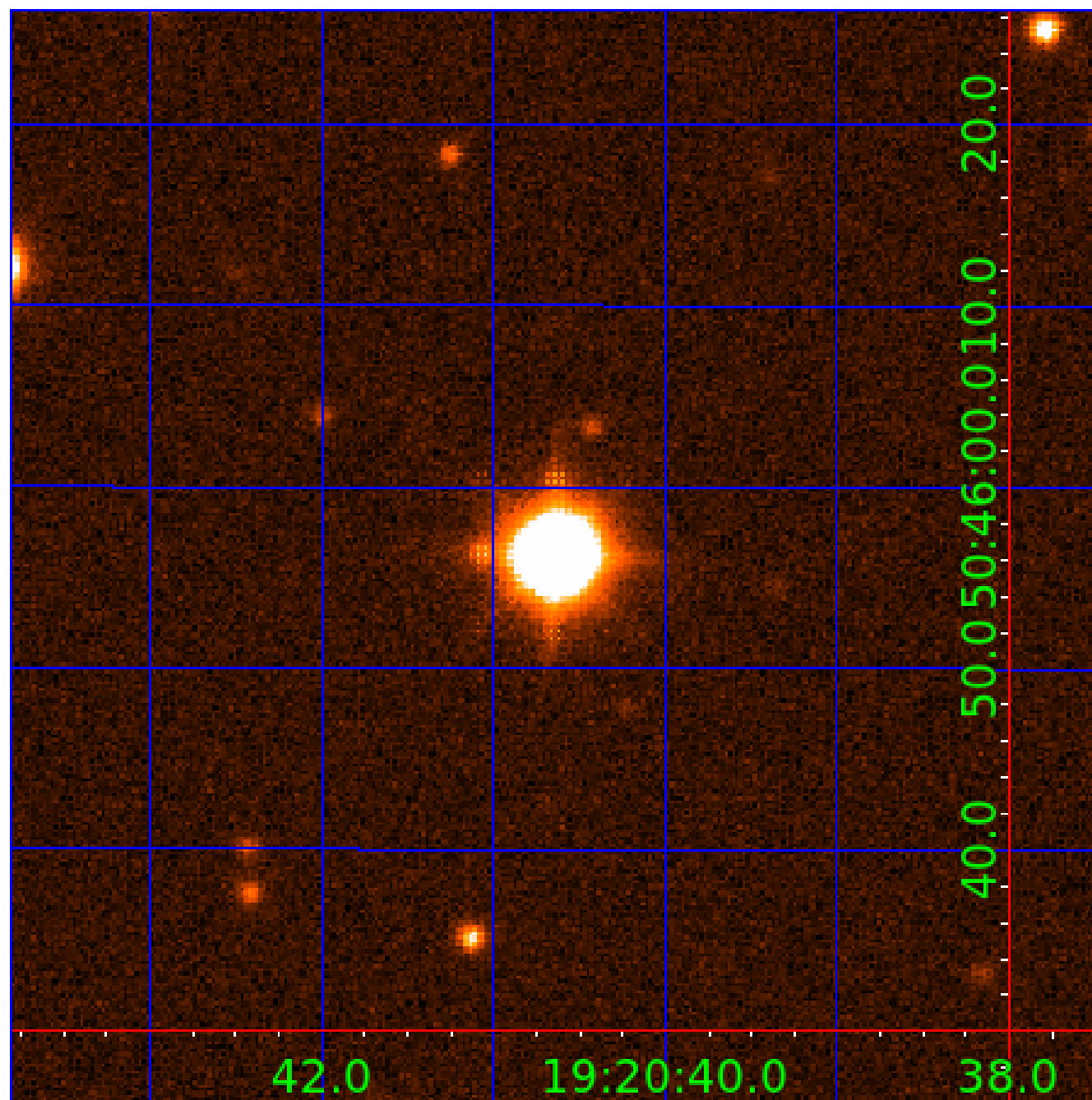


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012157161

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})
012157161-01	OBS	No	0.752180	132.033982	4.3	5.706	7.1	1.0	1.44	6517	0.32	11140.32
012157161-02	OBS	No	4.411724	131.852476	1748.5	1.149	11.2	11.8	1.44	6517	6.09	1053.21
012157161-03	OBS	No	32.339105	141.457169	2197.7	1.256	10.5	12.6	1.44	6517	7.00	73.96
012157161-04	OBS	No	14.873501	135.302008	1706.8	3.546	10.7	10.8	1.44	6517	5.98	208.34
012157161-05	OBS	No	13.448370	132.208327	3114.4	0.831	10.0	12.4	1.44	6517	8.42	238.29
012157161-06	OBS	No	4.800537	135.631280	2396.5	1.044	10.2	13.2	1.44	6517	7.69	941.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012157161-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
012157161-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED

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

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

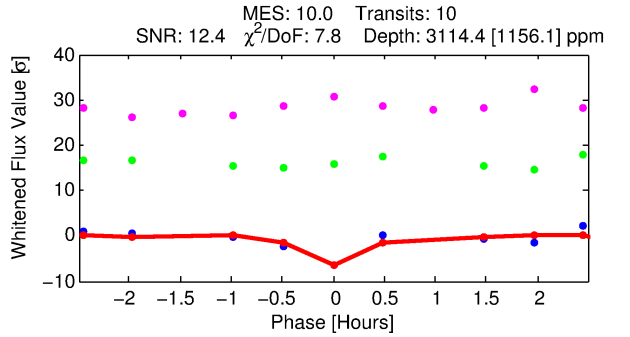
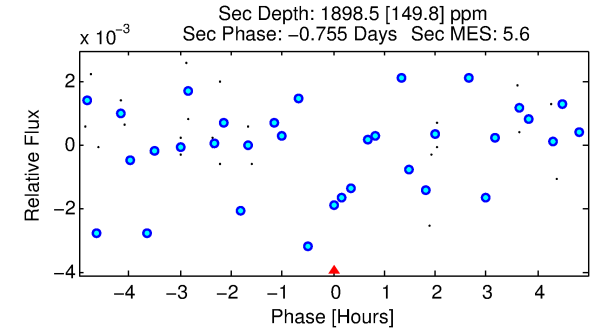
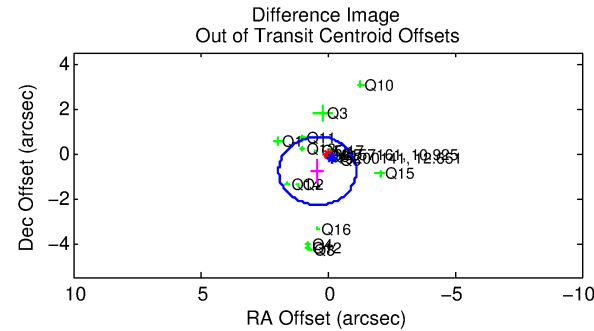
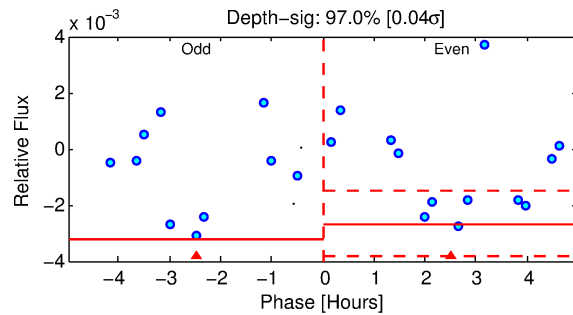
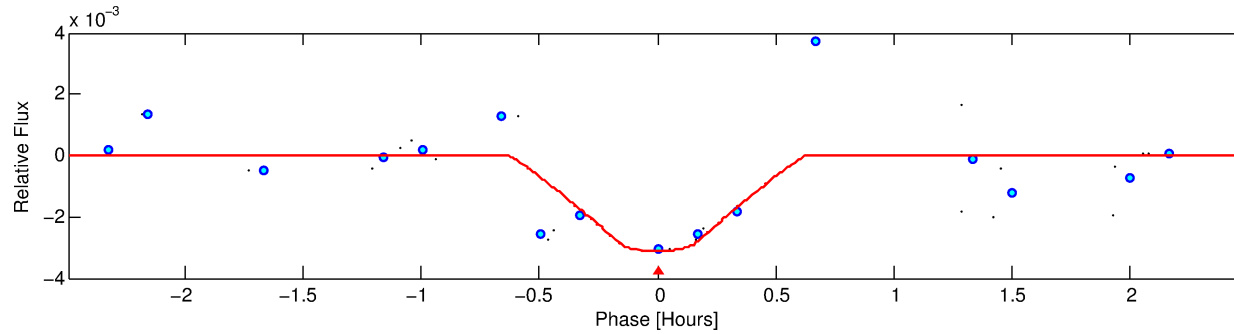
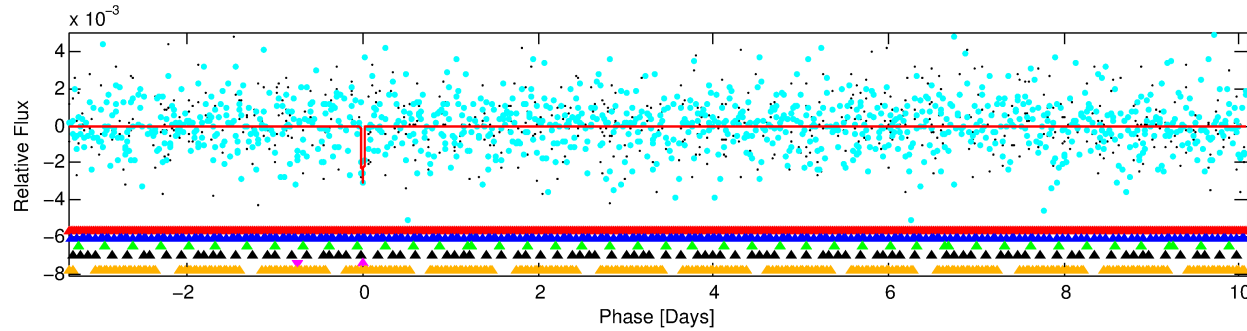
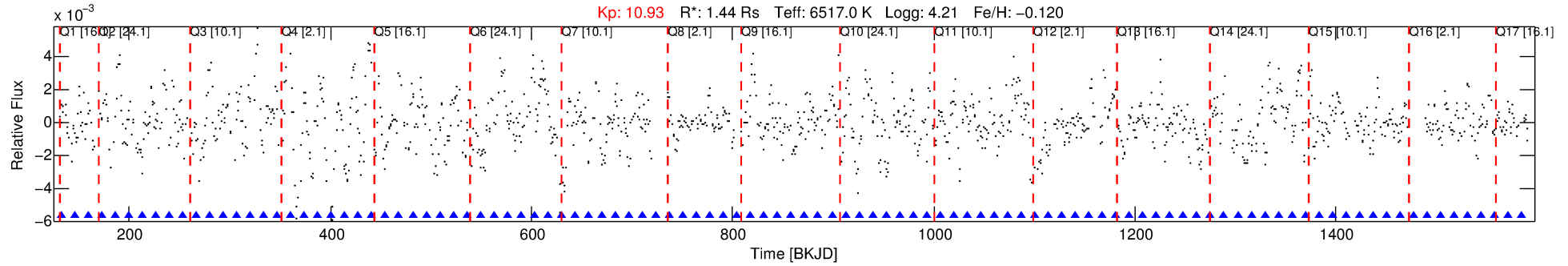
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012157161-05

No Significant Match Found

DV One-Page Summary

KIC: 12157161 Candidate: 5 of 6 Period: 13.448 d



DV Fit Results:

Period = 13.44837 [0.00020] d
Epoch = 132.2083 [0.0141] BKJD
Rp/R* = 0.0536 [0.0982]
a/R* = 114.58 [1173.11]
b = 0.50 [15.08]
Seff = 238.29 [88.48]
Teq = 1002 [93] K
Rp = 8.42 [15.65] Re
a = 0.1186 [0.0295] AU
Ag = 207.40 [764.47] [0.27 σ]
Teffp = 5878 [5395] K [0.90 σ]

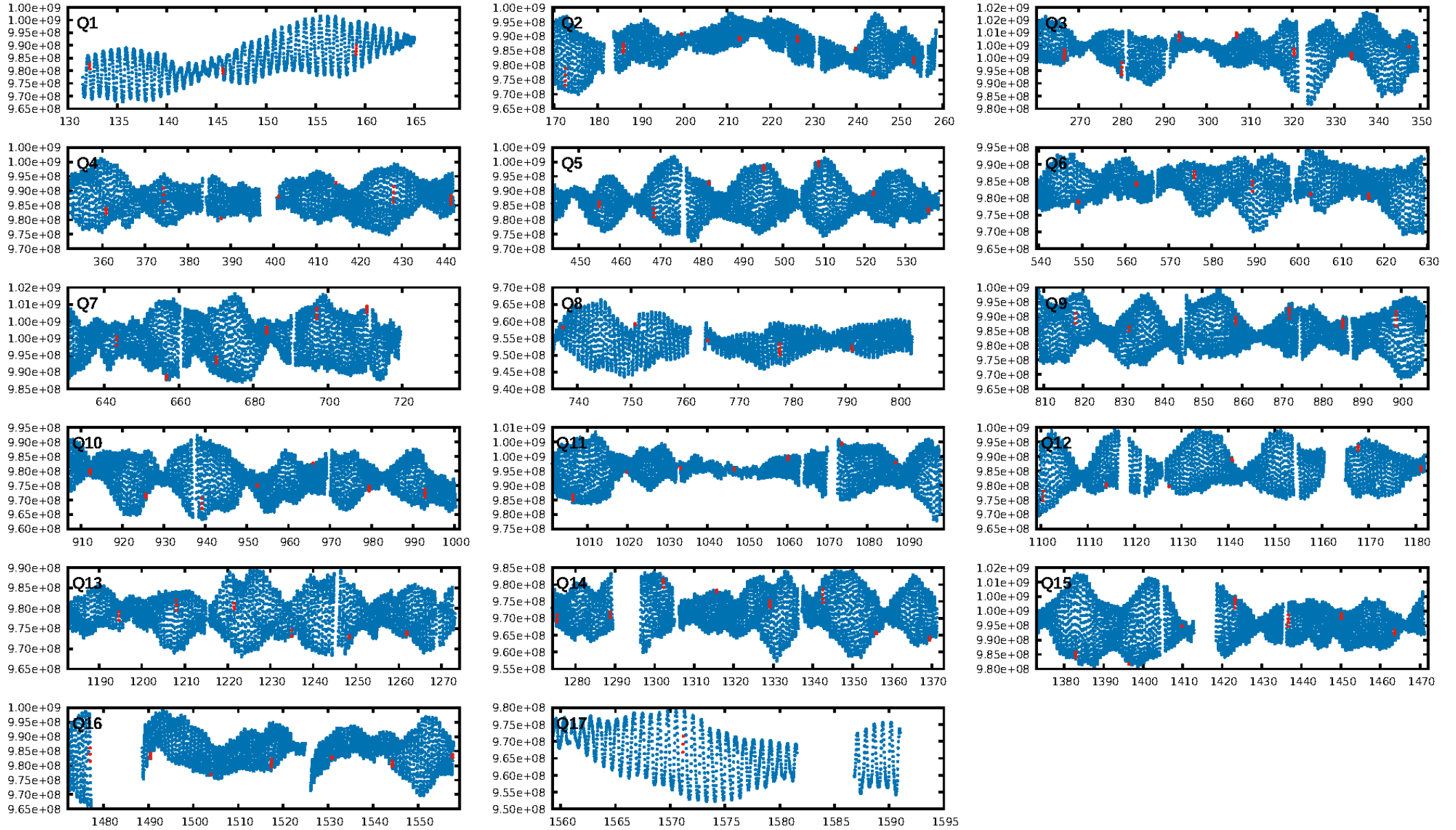
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [155.52 σ]
LongPeriod-sig: 100.0% [9.39 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 39.4%
Bootstrap-pfa: 1.03e-08
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: N/A
Centroid-sig: 90.7%
Centroid-so: 0.182 arcsec [9.50 σ]
OotOffset-rm: 0.873 arcsec [1.72 σ]
KicOffset-rm: 1.014 arcsec [2.30 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.35 [6/17]
DiffImageOverlap-fno: 0.29 [5/17]

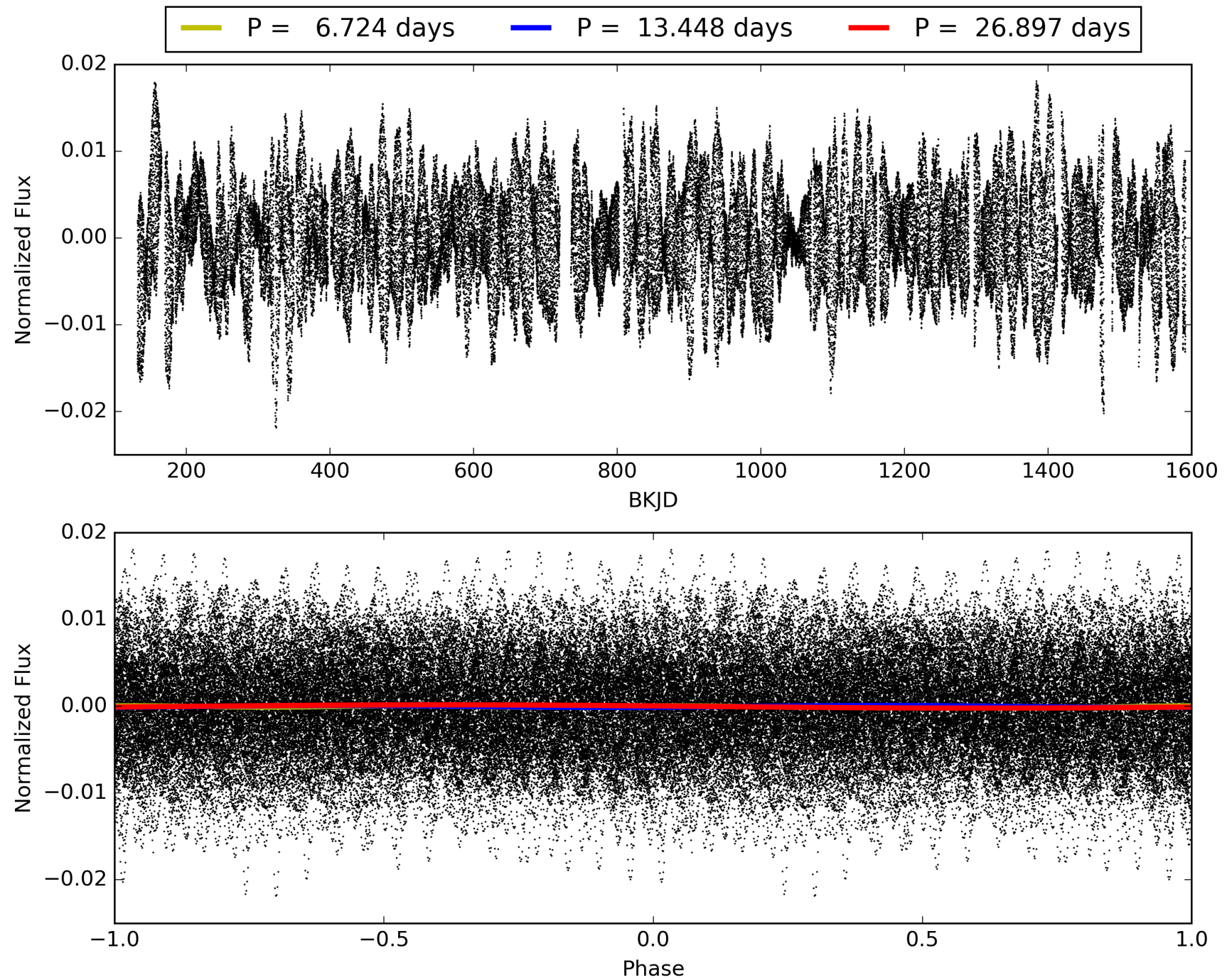
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:39:39 Z

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

TCE 012157161-05, PDC Light Curves

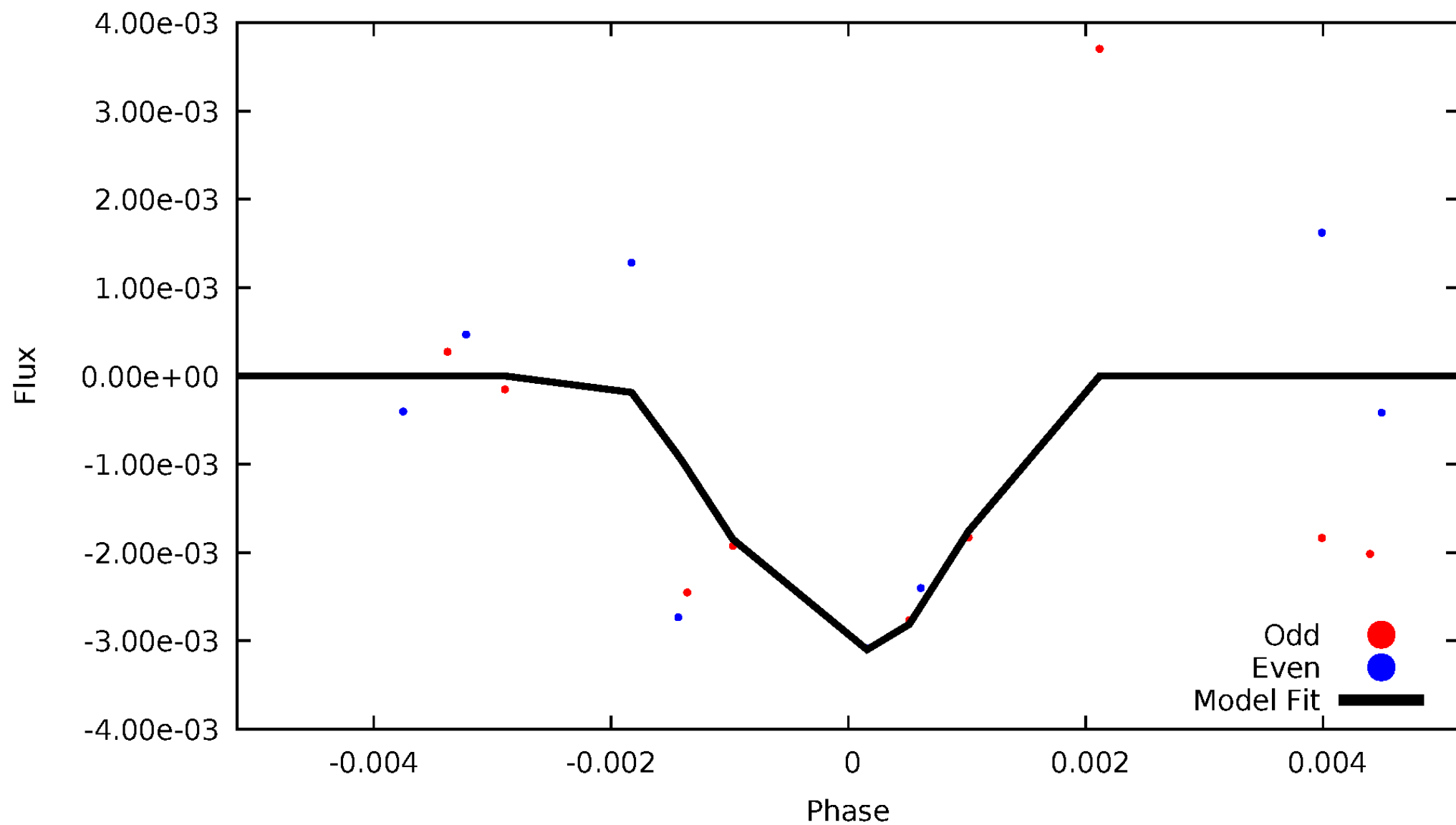


TCE 012157161-05



DV Odd/Even

TCE 012157161-05

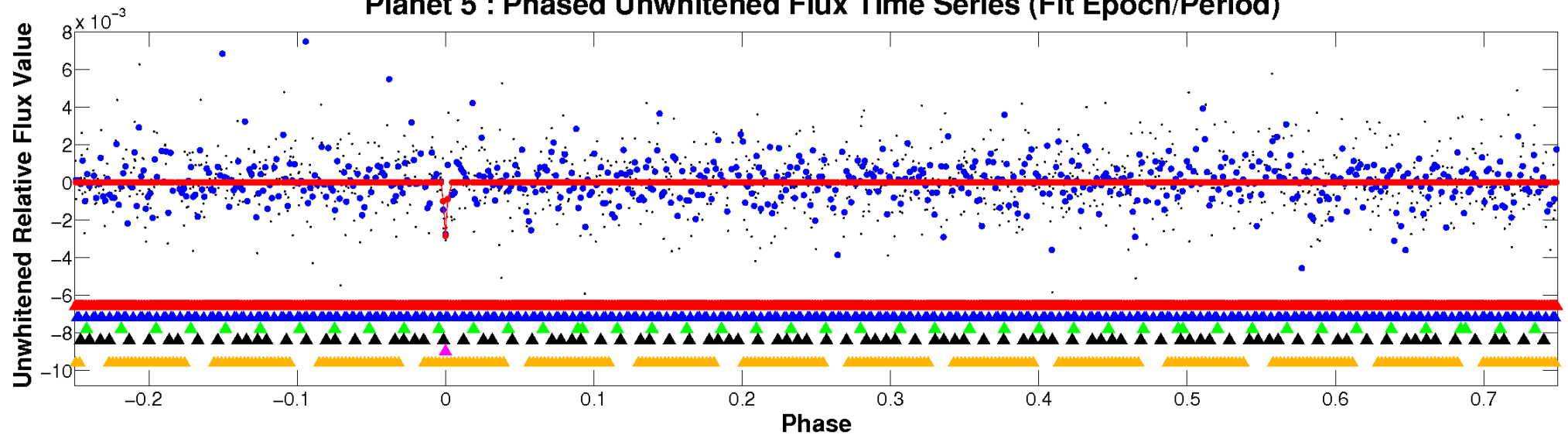


ALT Odd/Even

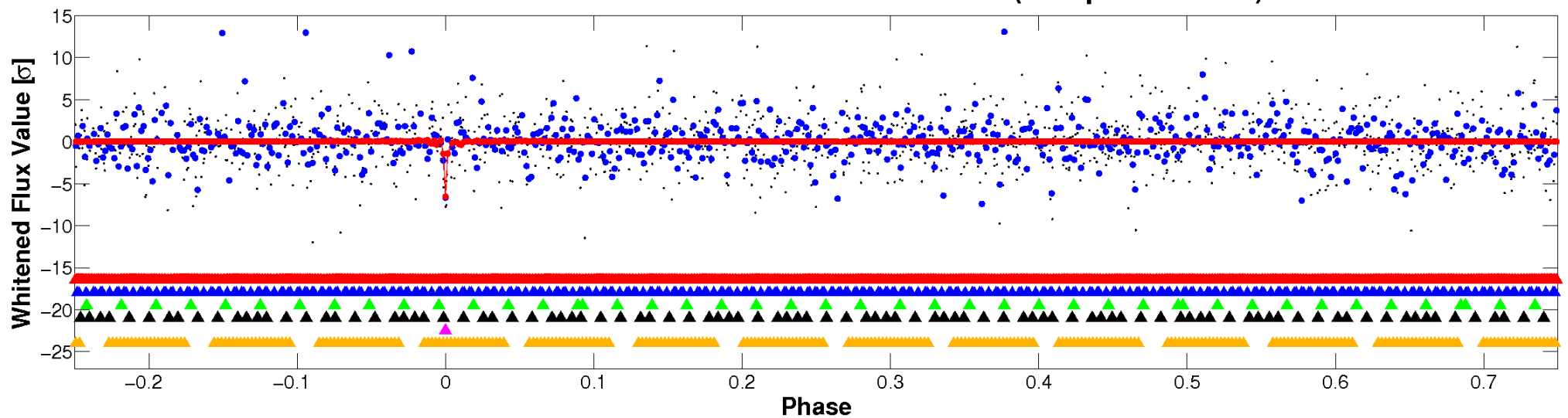
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

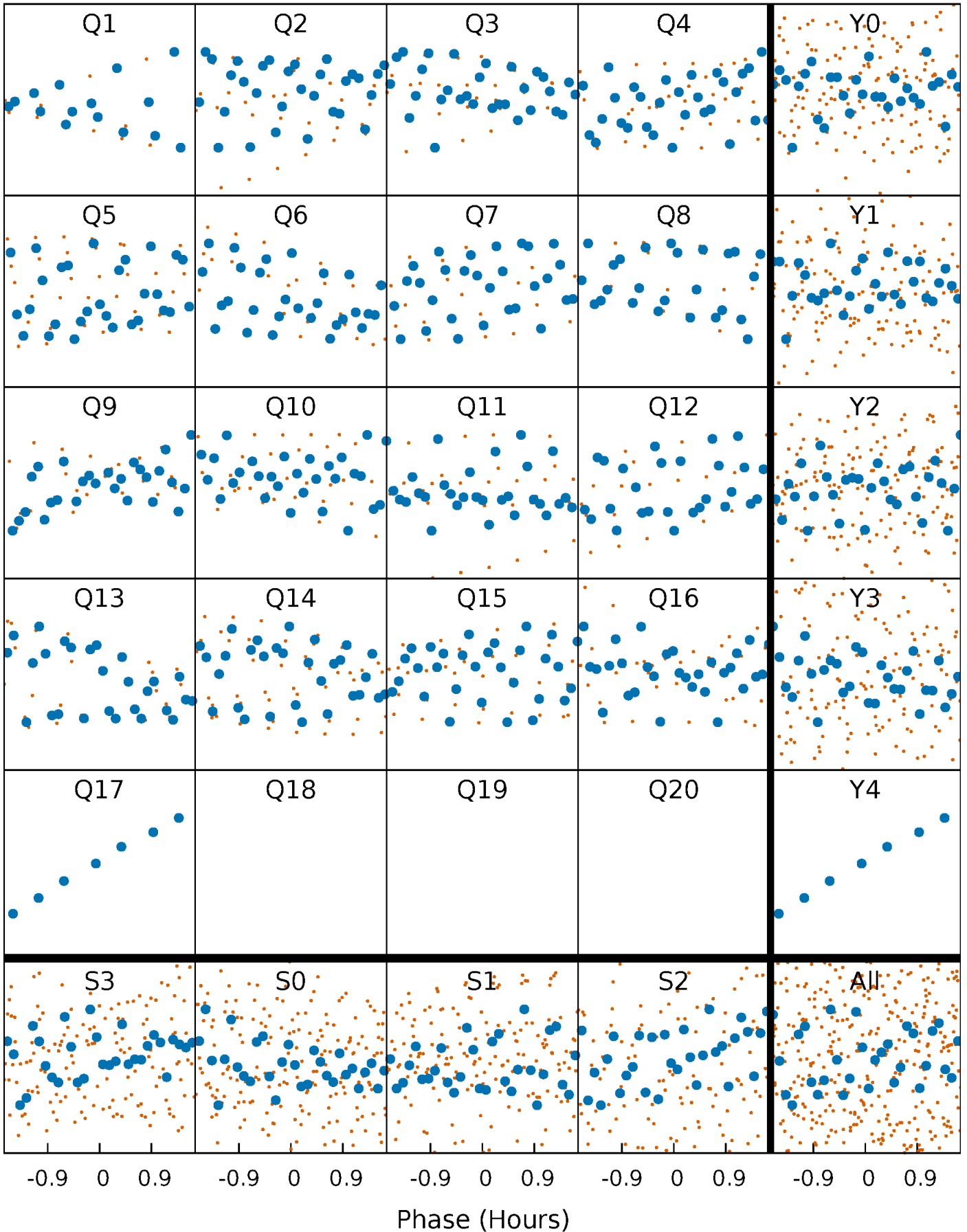


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



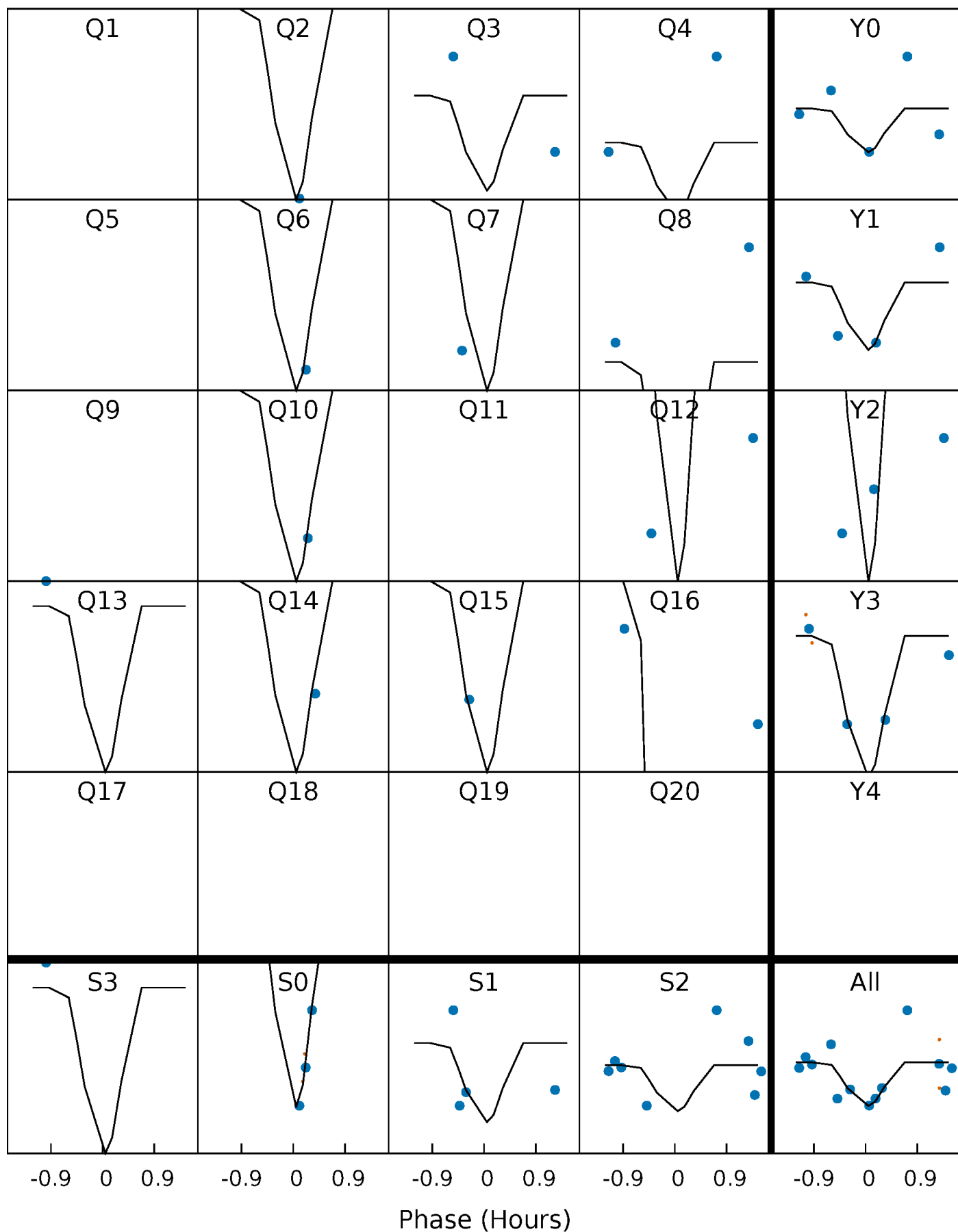
PDC Quarter-Phased Transit Curves

TCE 012157161-05 $P = 13.448370$ Days $T_0 = 132.208327$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 012157161-05 P= 13.448370 Days $T_0=132.208327$ (BKJD)

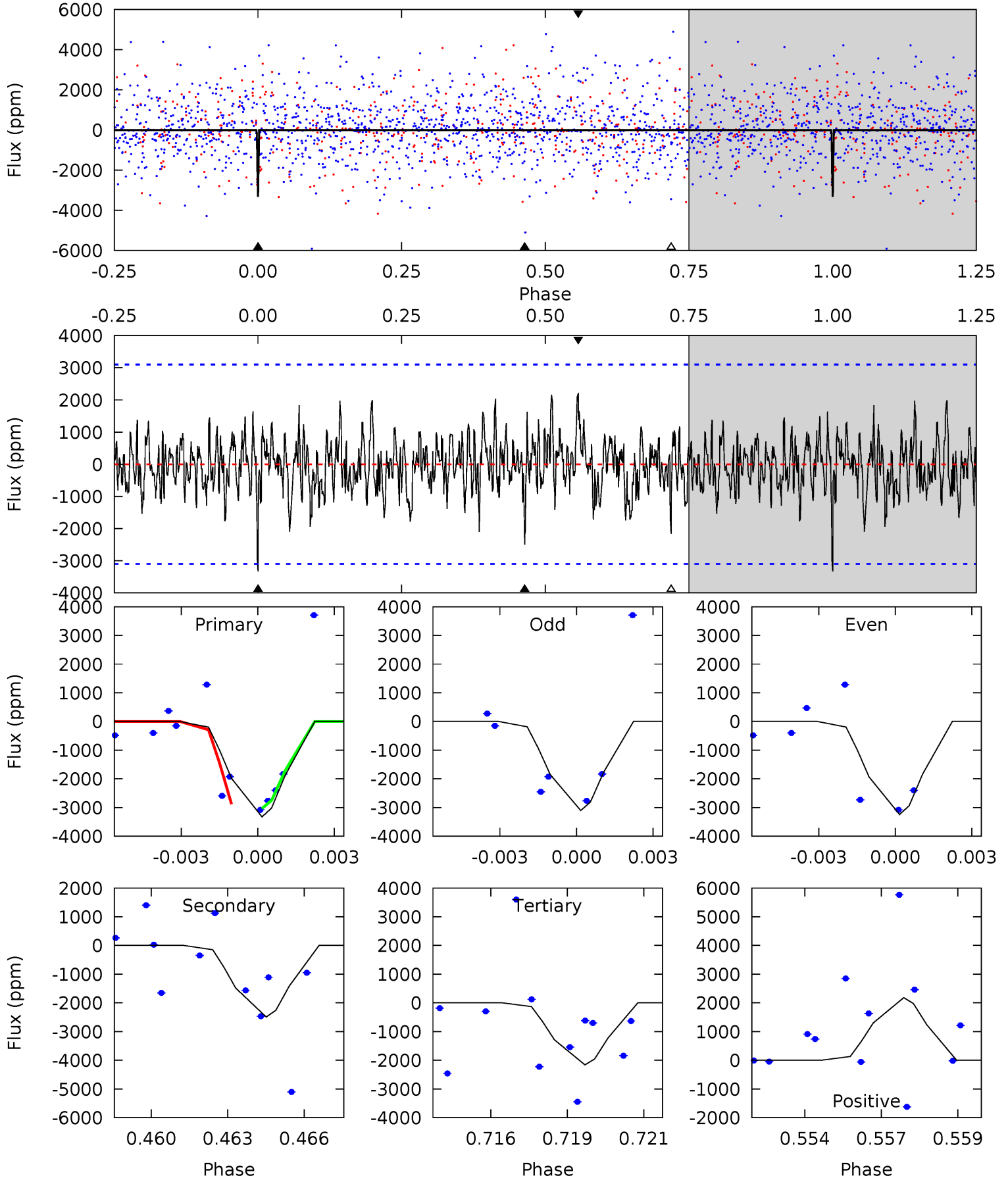


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

012157161-05, P = 13.448370 Days, E = 118.759957 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.65	4.23	3.67	3.70	5.26	2.98	1.20	1.98	1.94	0.56	0.52	0.12	0	0.40	0.13



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 012157161

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6517^{+146}_{-194}	$4.211^{+0.153}_{-0.187}$	$-0.120^{+0.250}_{-0.300}$	$1.440^{+0.439}_{-0.293}$	$1.234^{+0.188}_{-0.188}$	$0.582^{+0.464}_{-0.299}$
	+2%/-3%	+4%/-4%	+208%/-250%	+30%/-20%	+15%/-15%	+80%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012157161-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2491 ± 589	$13.92^{+14.86}_{-9.09}$	1396^{+110}_{-85}	4945^{+3600}_{-1162}	98^{+719}_{-75}
Alt.	N/A	N/A	N/A	N/A	N/A

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

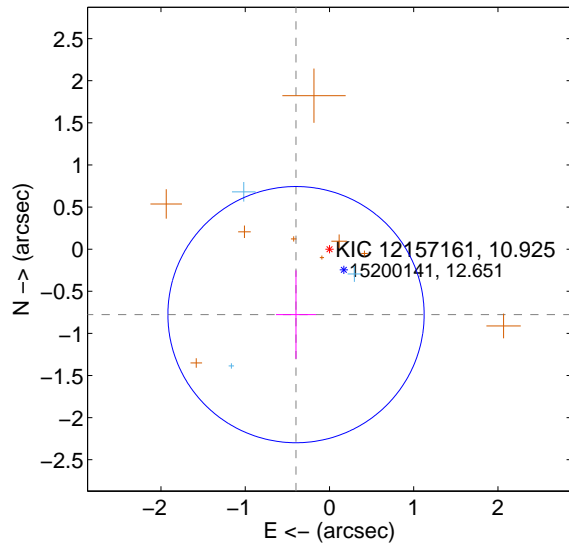
Supplemental centroid analysis for 012157161-05. **Kepler magnitude: 10.93.** Transit SNR 12.43

There are 6 quarters with good PRF difference image offsets

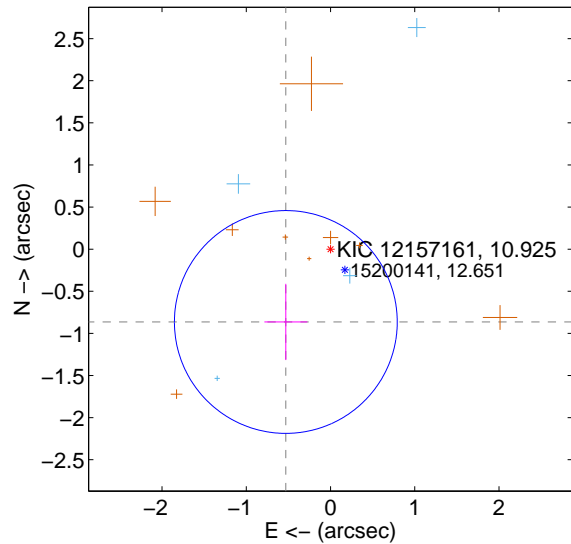
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.873 ± 0.507	1.72	0.397 ± 0.239	-0.777 ± 0.525
PRF-fit source offset from KIC position	1.014 ± 0.441	2.30	0.530 ± 0.255	-0.864 ± 0.453
photometric centroid source offset	0.18 ± 0.02	9.50	0.18 ± 0.02	-0.00 ± 0.04

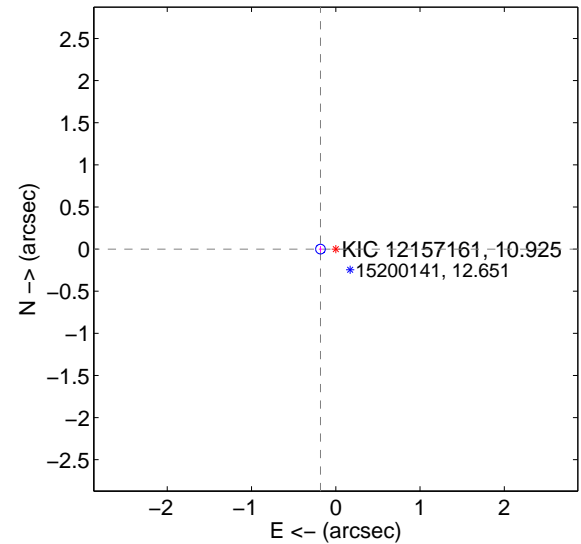
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

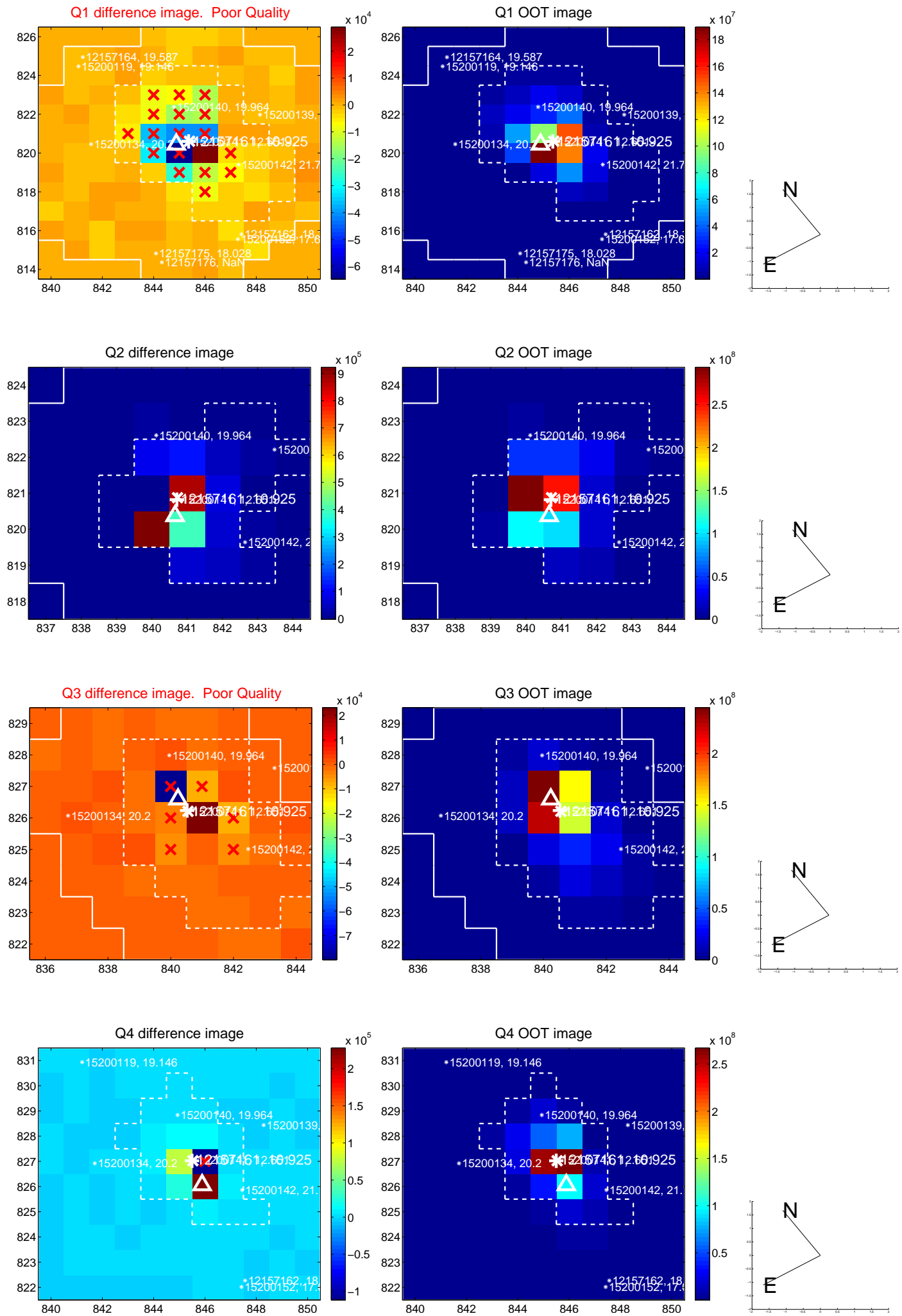


offset from photometric centroids

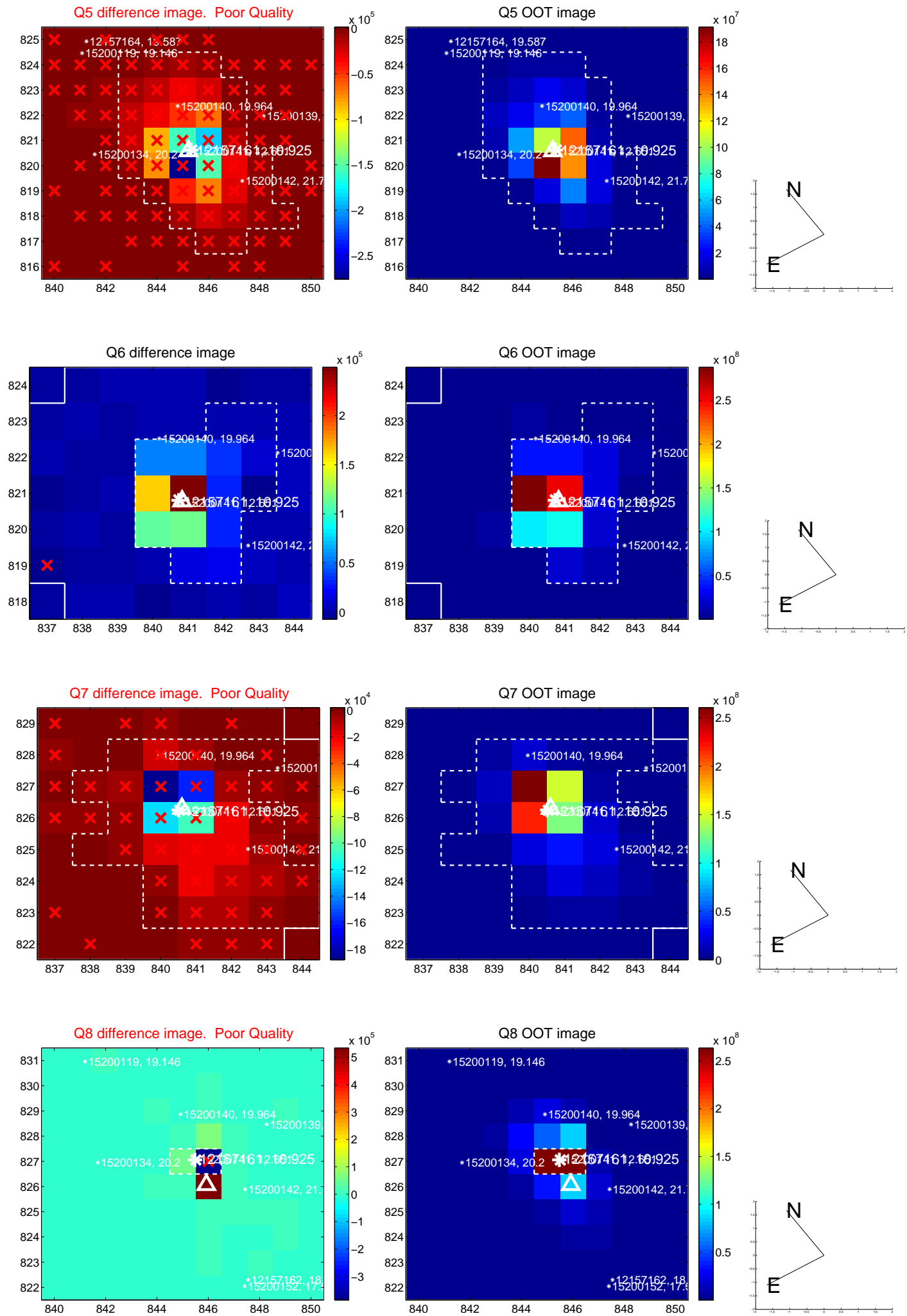


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

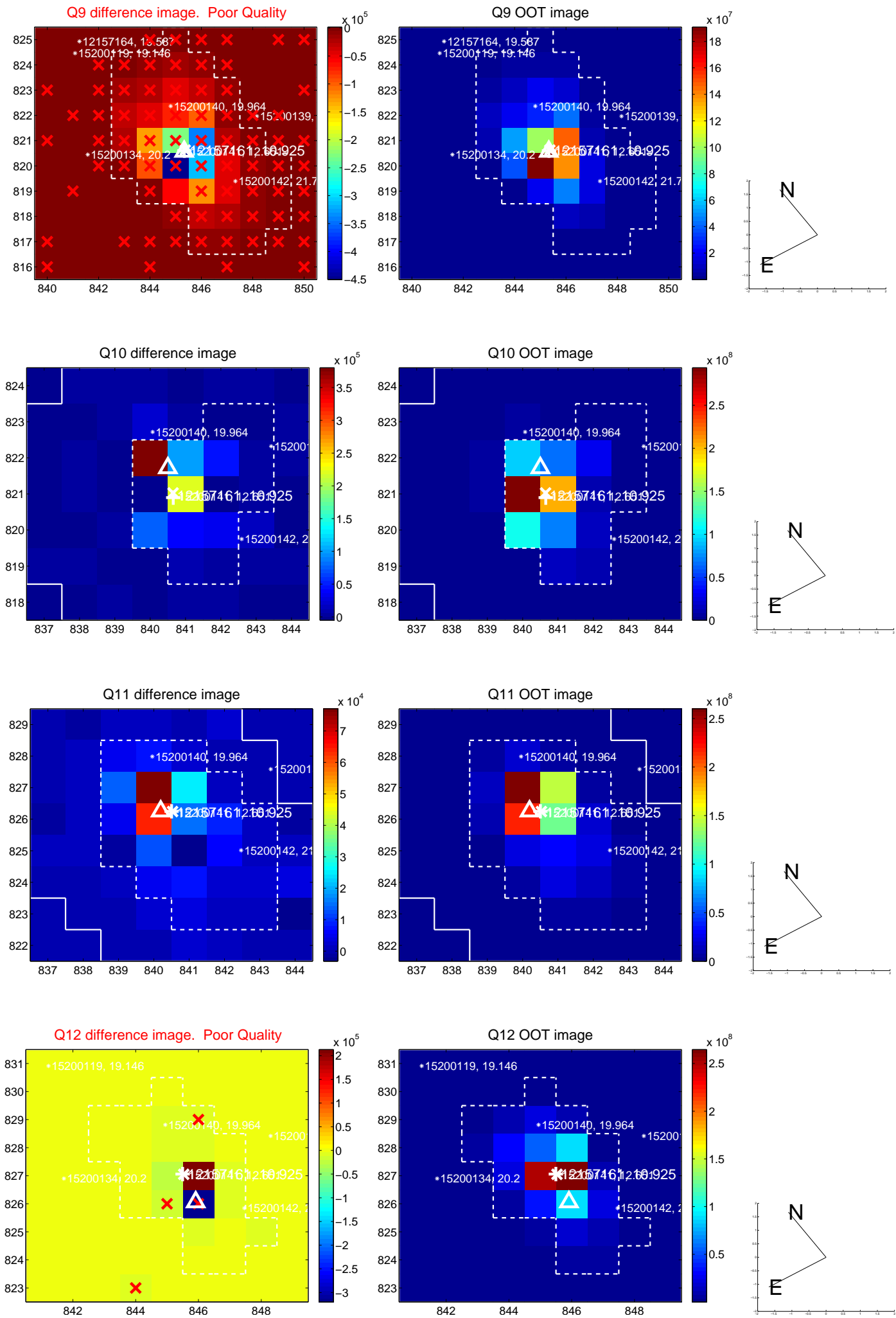
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



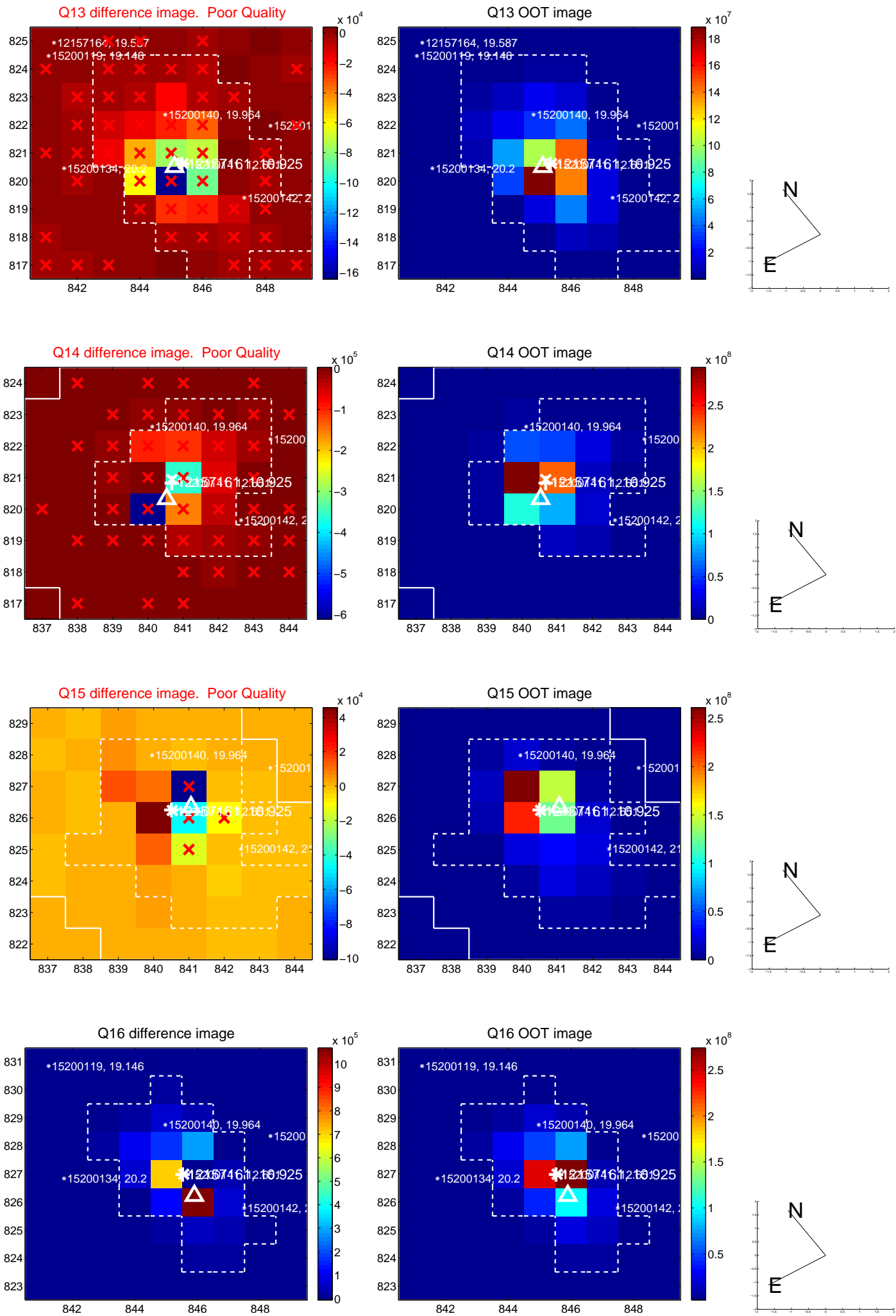
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



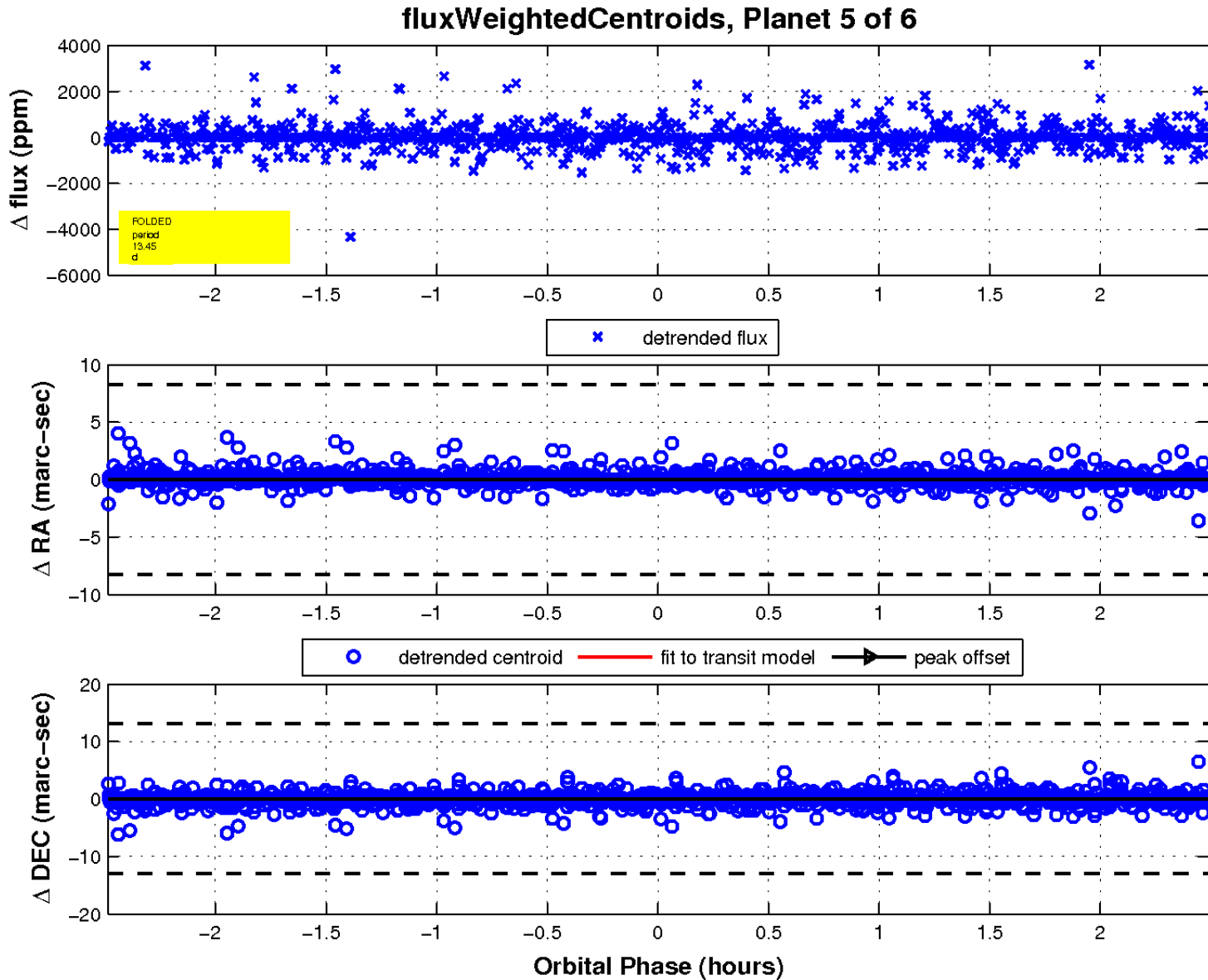
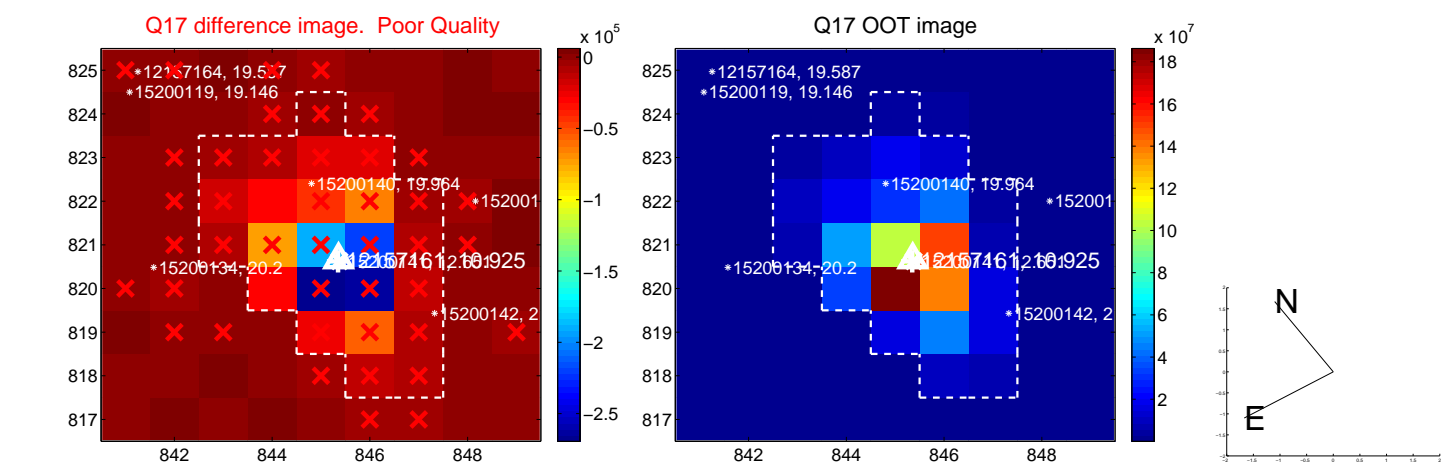
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

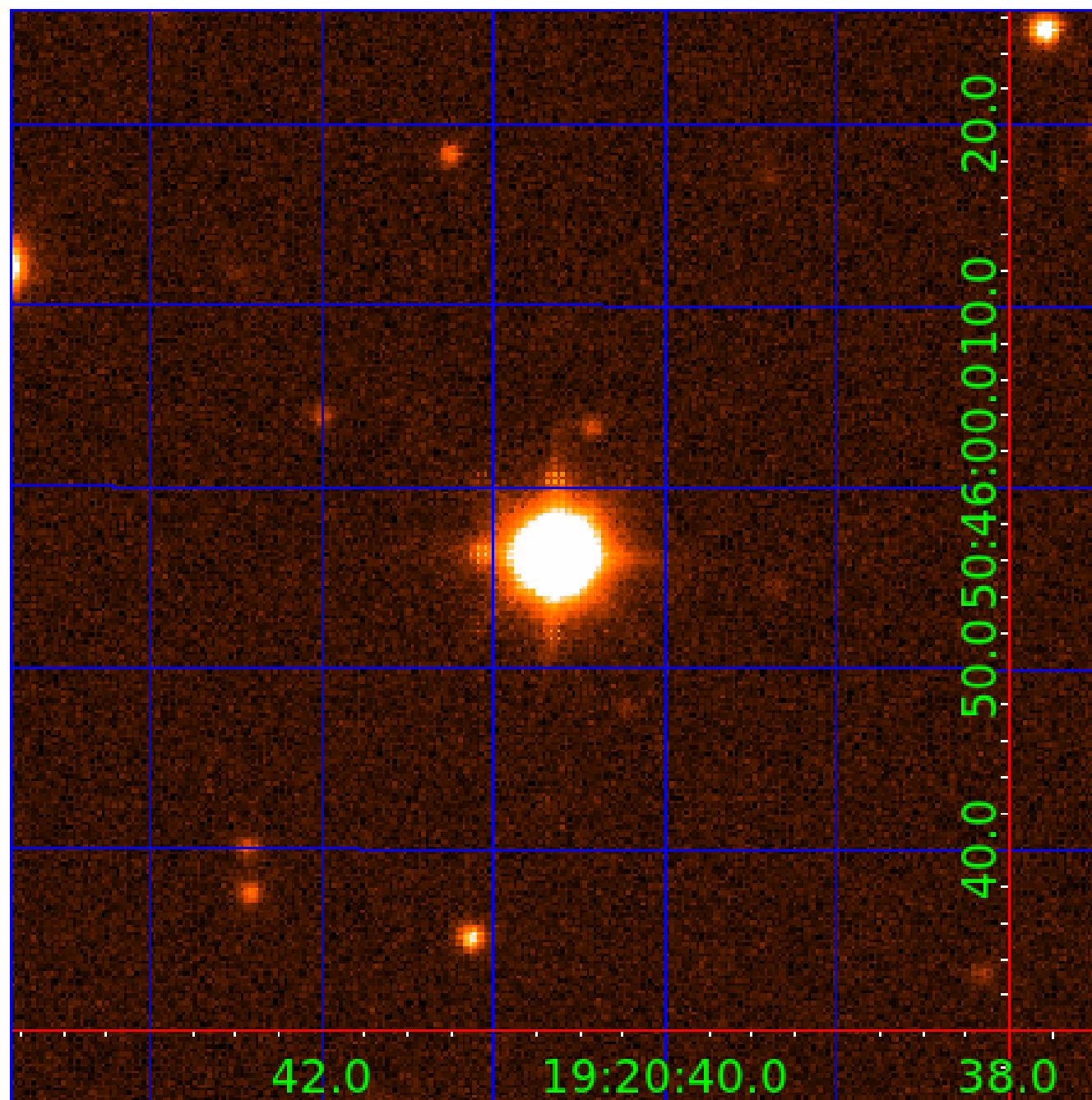


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012157161

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})
012157161-01	OBS	No	0.752180	132.033982	4.3	5.706	7.1	1.0	1.44	6517	0.32	11140.32
012157161-02	OBS	No	4.411724	131.852476	1748.5	1.149	11.2	11.8	1.44	6517	6.09	1053.21
012157161-03	OBS	No	32.339105	141.457169	2197.7	1.256	10.5	12.6	1.44	6517	7.00	73.96
012157161-04	OBS	No	14.873501	135.302008	1706.8	3.546	10.7	10.8	1.44	6517	5.98	208.34
012157161-05	OBS	No	13.448370	132.208327	3114.4	0.831	10.0	12.4	1.44	6517	8.42	238.29
012157161-06	OBS	No	4.800537	135.631280	2396.5	1.044	10.2	13.2	1.44	6517	7.69	941.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012157161-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
012157161-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_TER_DV—CENT_SATURATED
012157161-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
012157161-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED

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

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

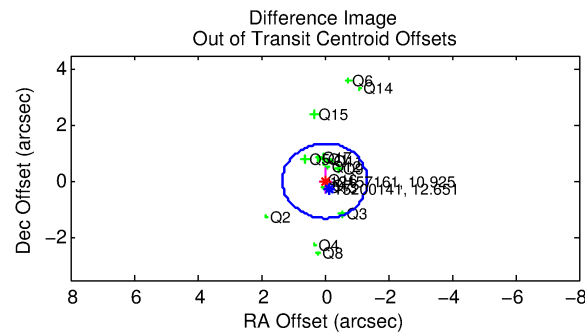
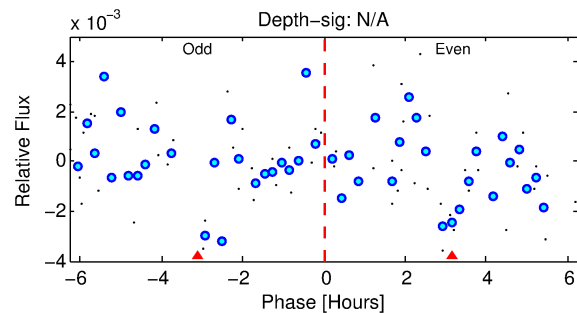
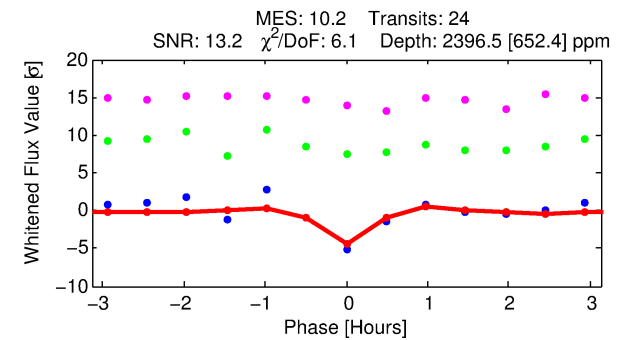
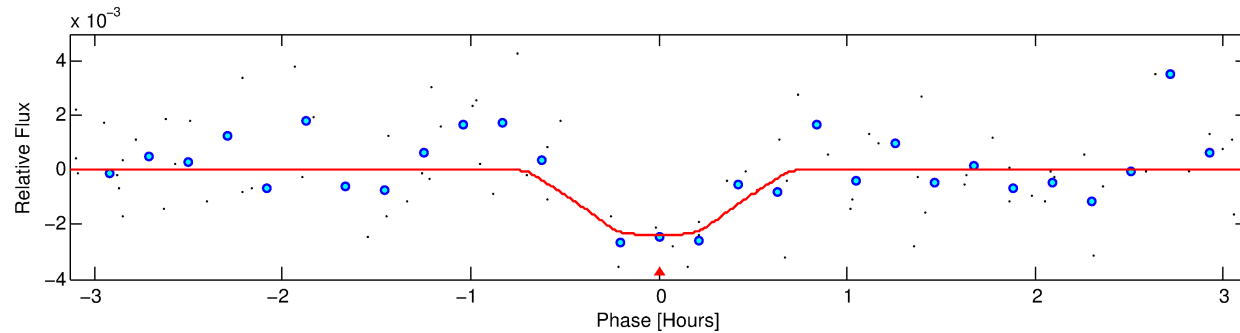
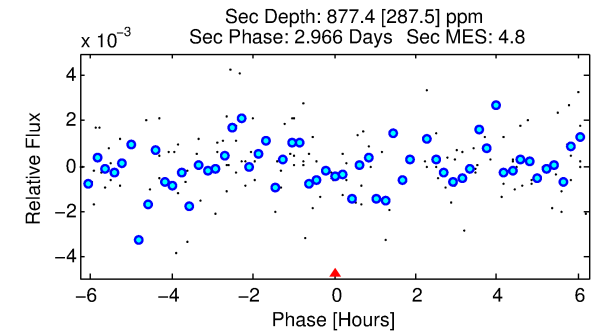
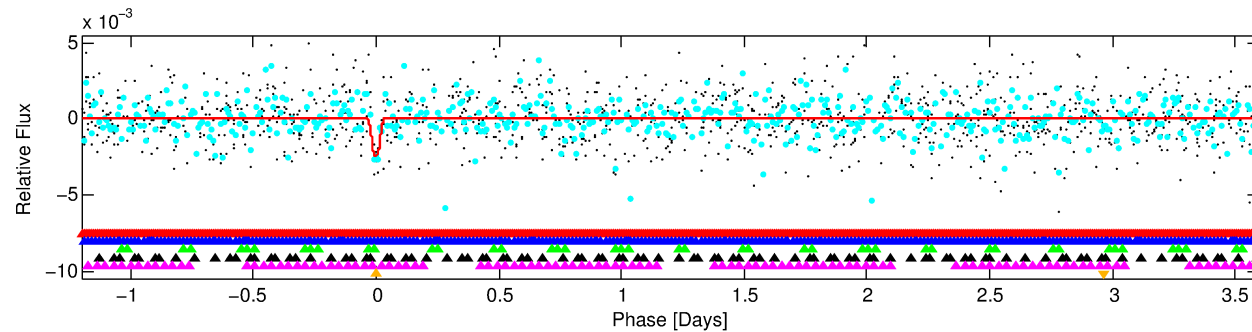
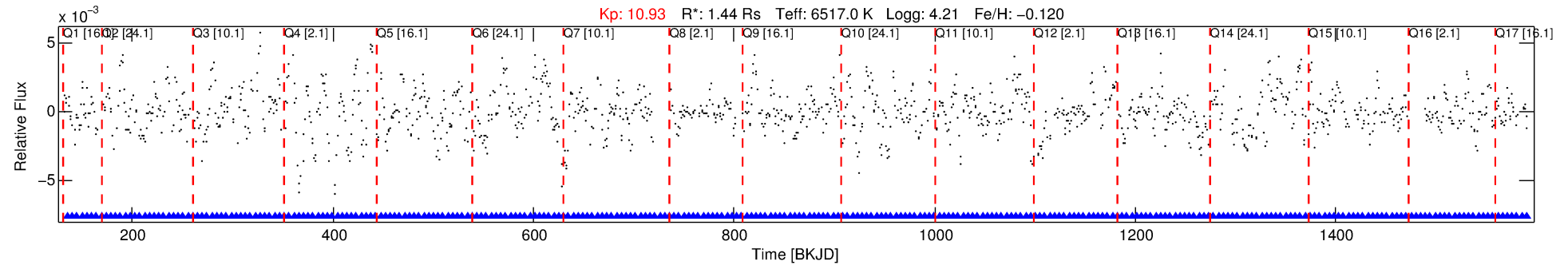
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012157161-06

No Significant Match Found

DV One-Page Summary

KIC: 12157161 Candidate: 6 of 6 Period: 4.801 d



DV Fit Results:

Period = 4.80054 [0.00003] d
Epoch = 135.6313 [0.0046] BKJD
Rp/R* = 0.0489 [0.0591]
a/R* = 26.21 [162.50]
b = 0.74 [3.88]
Seff = 941.04 [349.44]
Teq = 1412 [131] K
Rp = 7.69 [9.57] Re
a = 0.0597 [0.0148] AU
Ag = 29.07 [71.55] [0.39 σ]
Teffp = 5070 [3092] K [1.18 σ]

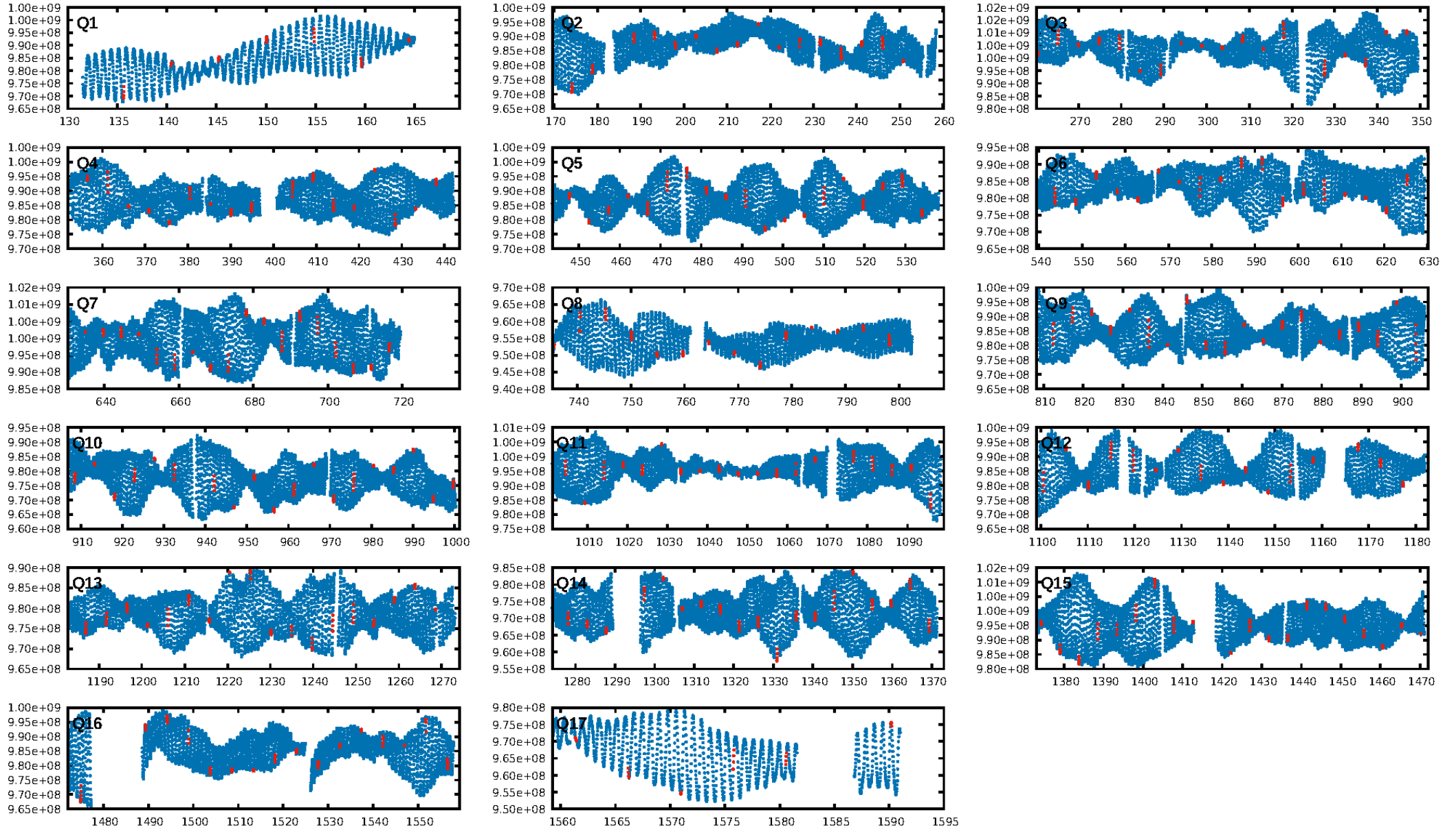
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.01 σ]
LongPeriod-sig: 100.0% [155.52 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 24.0%
Bootstrap-pfa: 8.99e-10
RollingBand-fgt: 1.00 [23/23]
GhostDiagnostic-chr: N/A
Centroid-sig: 8.4%
Centroid-so: 0.186 arcsec [13.85 σ]
OotOffset-rm: 0.033 arcsec [0.07 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-rm: 0.145 arcsec [0.43 σ]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 0.59 [10/17]

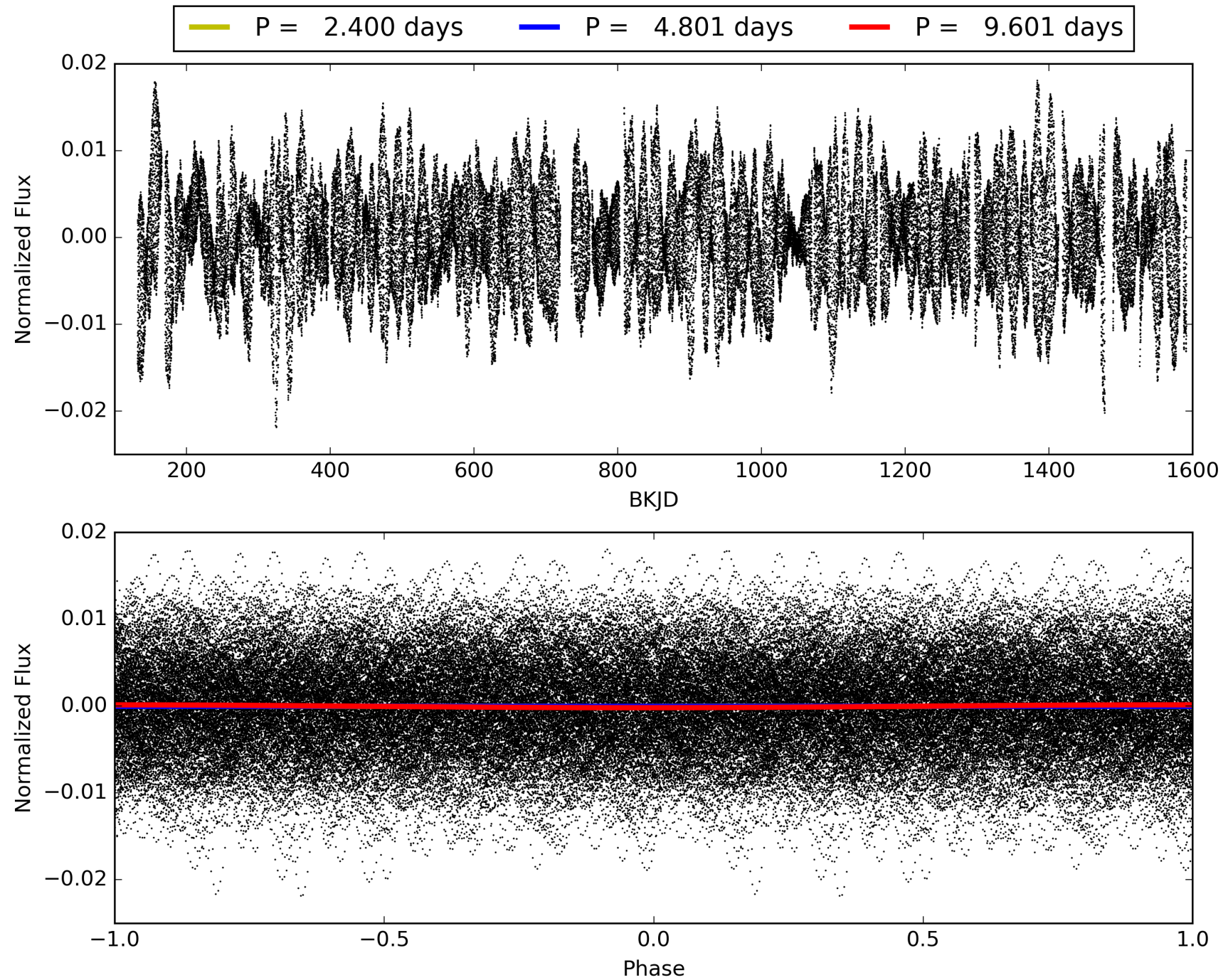
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:39:42 Z

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

TCE 012157161-06, PDC Light Curves

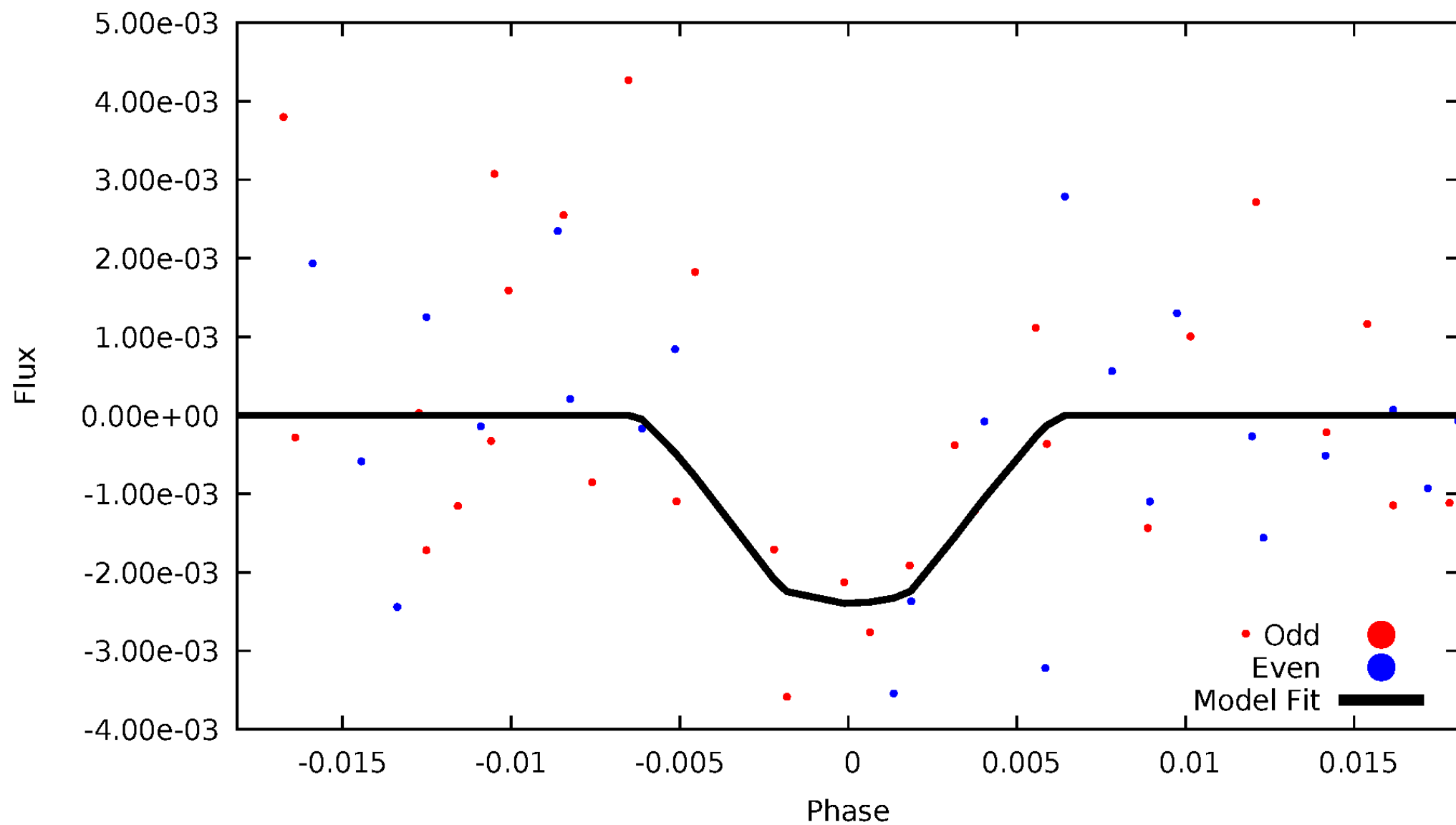


TCE 012157161-06



DV Odd/Even

TCE 012157161-06

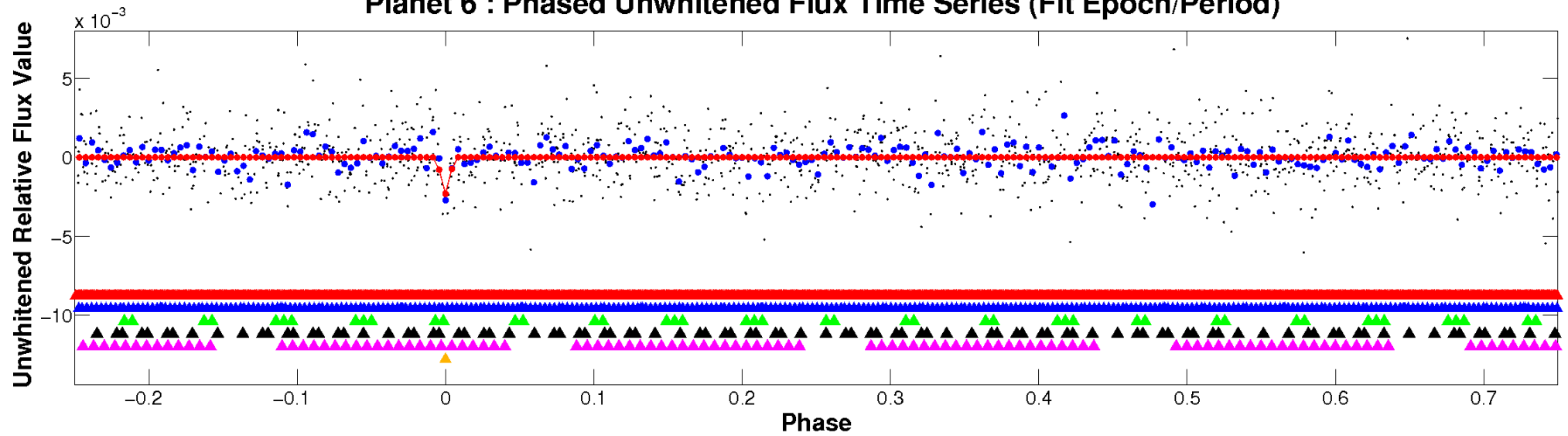


ALT Odd/Even

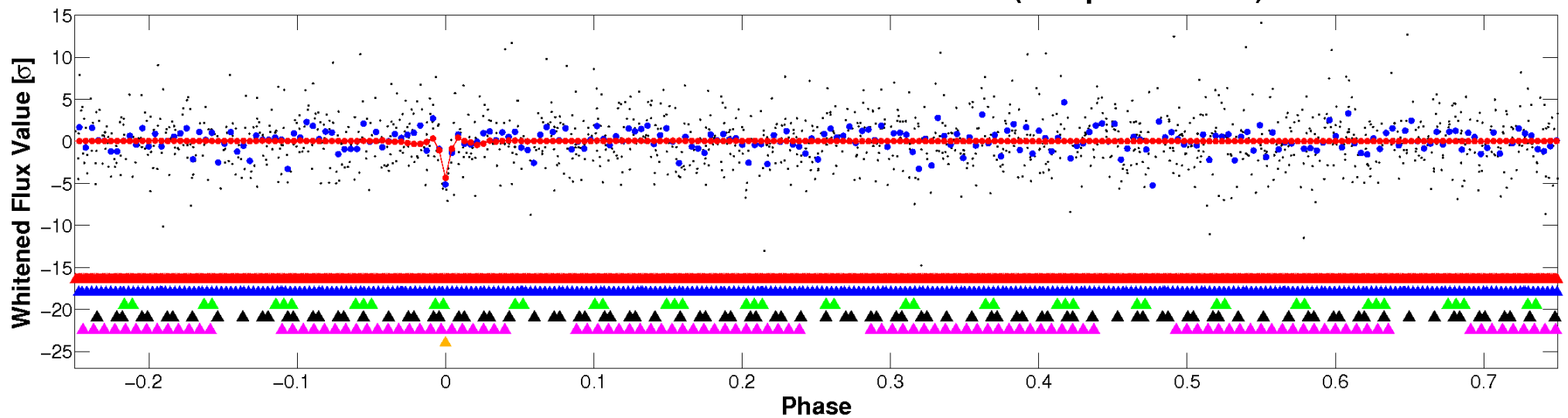
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

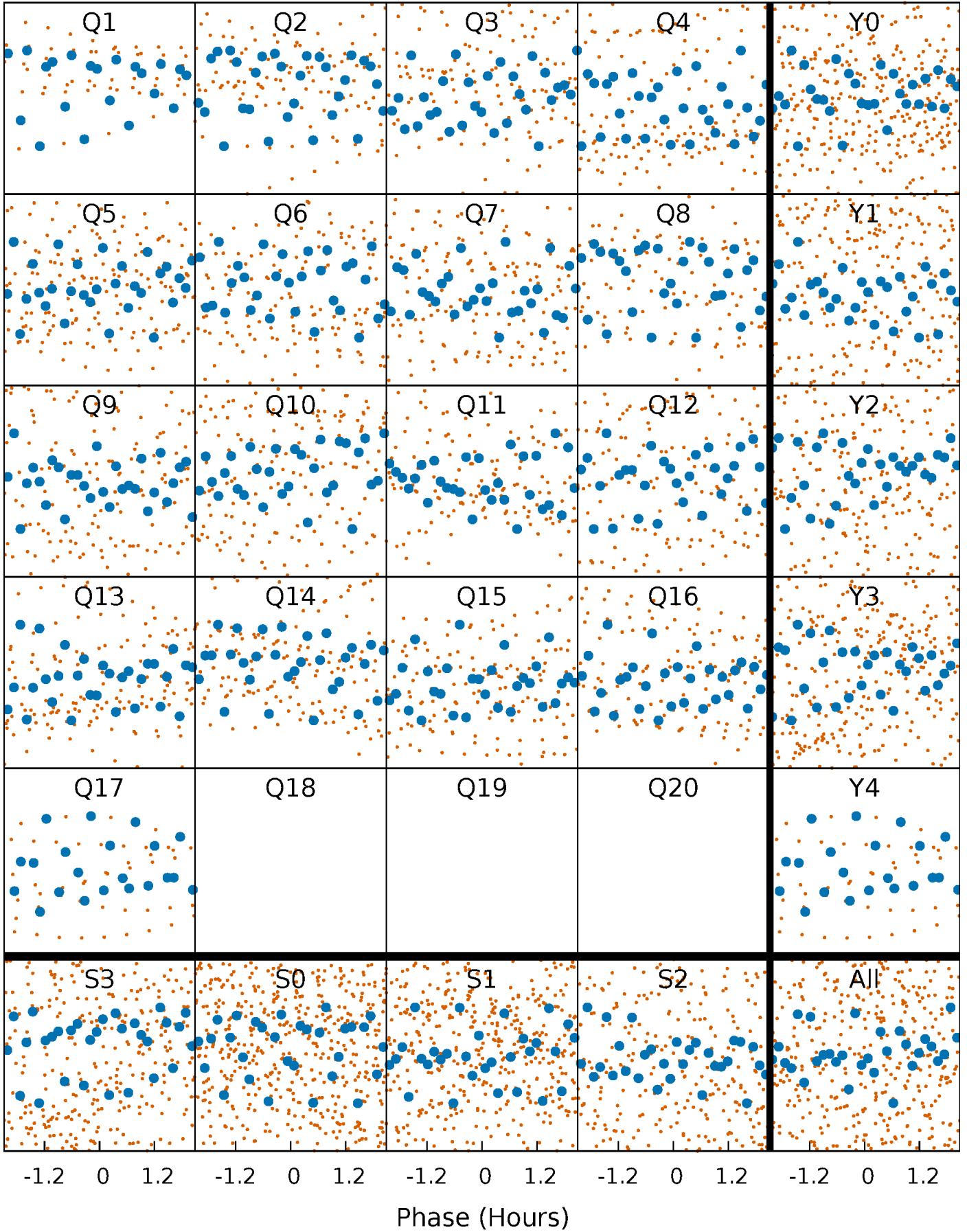


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



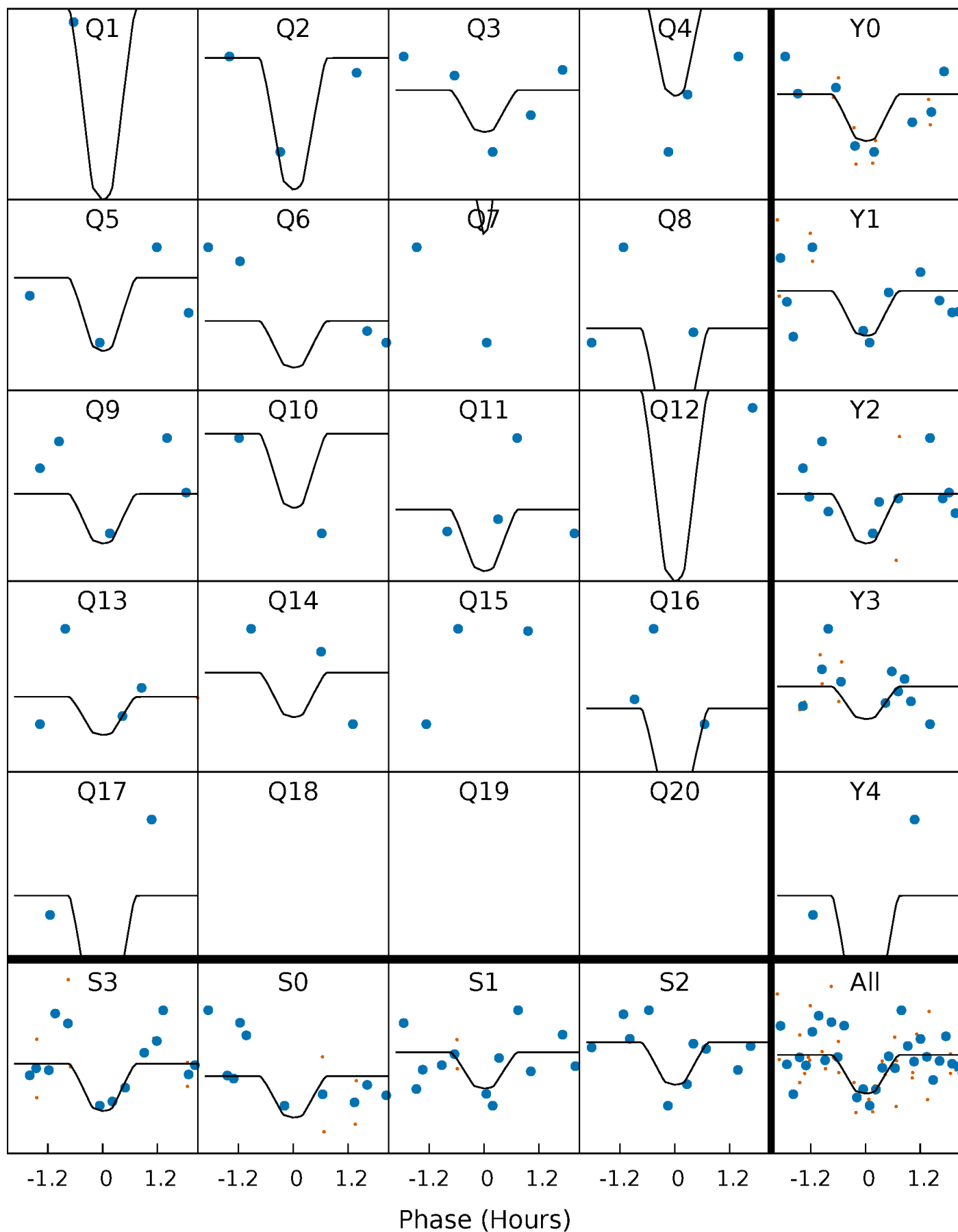
PDC Quarter-Phased Transit Curves

TCE 012157161-06 P= 4.800537 Days $T_0=135.631280$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 012157161-06 P= 4.800537 Days $T_0=135.631280$ (BKJD)

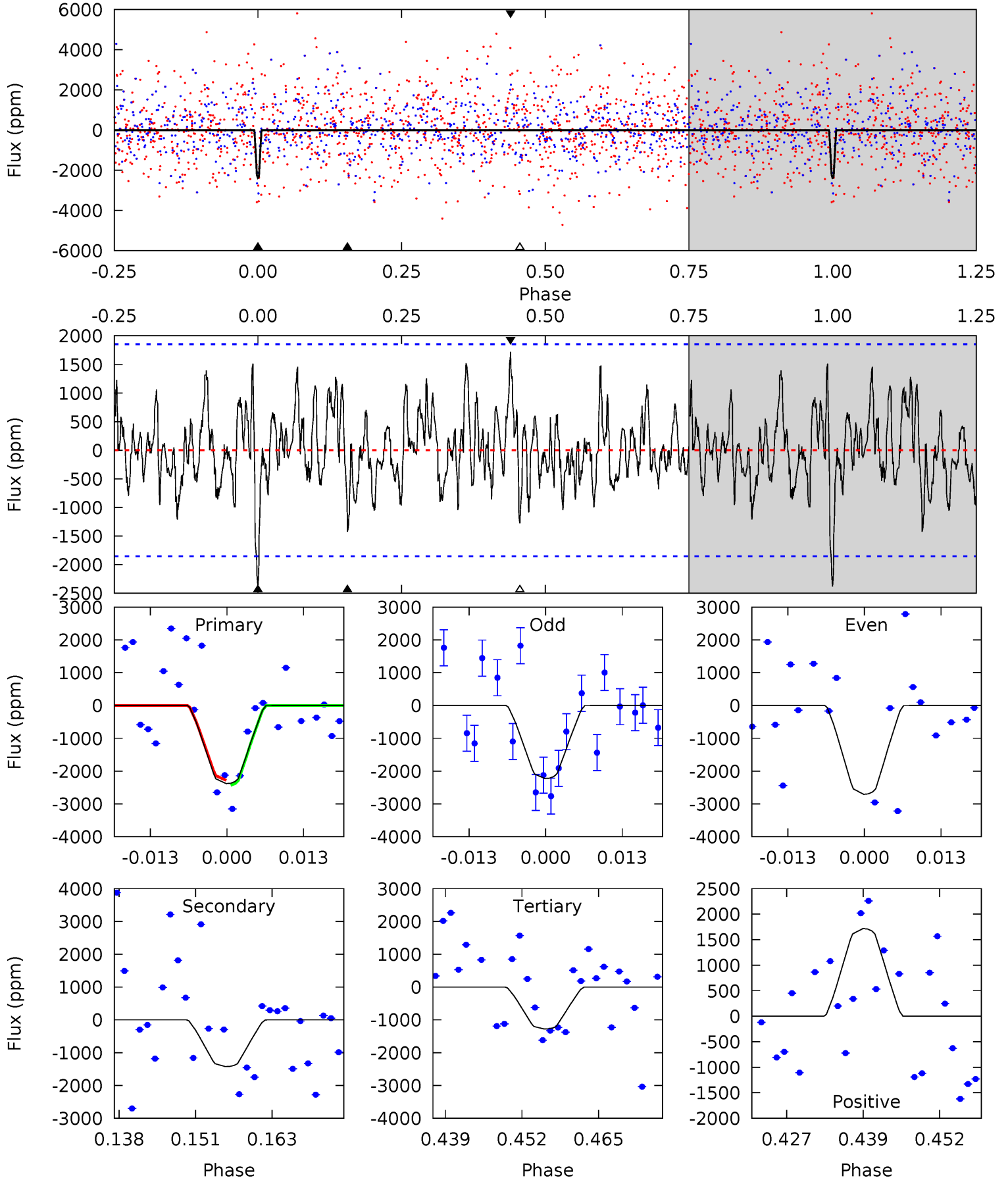


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

012157161-06, P = 4.800537 Days, E = 130.830743 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.41	3.83	3.44	4.62	4.98	2.50	1.44	2.97	1.79	0.39	-0.79	0.64	0	0.42	0.20



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 012157161

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6517^{+146}_{-194}	$4.211^{+0.153}_{-0.187}$	$-0.120^{+0.250}_{-0.300}$	$1.440^{+0.439}_{-0.293}$	$1.234^{+0.188}_{-0.188}$	$0.582^{+0.464}_{-0.299}$
	+2%/-3%	+4%/-4%	+208%/-250%	+30%/-20%	+15%/-15%	+80%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012157161-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1425 ± 372	$9.89^{+8.47}_{-6.35}$	1978^{+133}_{-123}	5070^{+3695}_{-1143}	28^{+186}_{-20}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

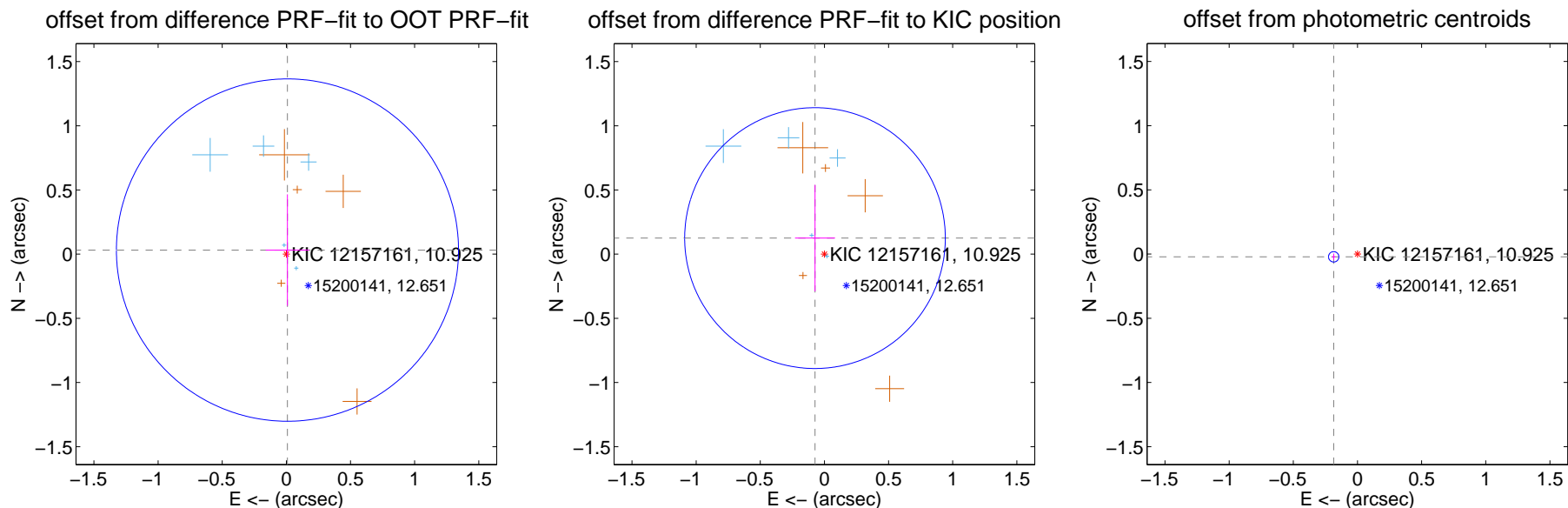
DV Centroid Data

Supplemental centroid analysis for 012157161-06. **Kepler magnitude: 10.93.** Transit SNR 13.16

There are 9 quarters with good PRF difference image offsets

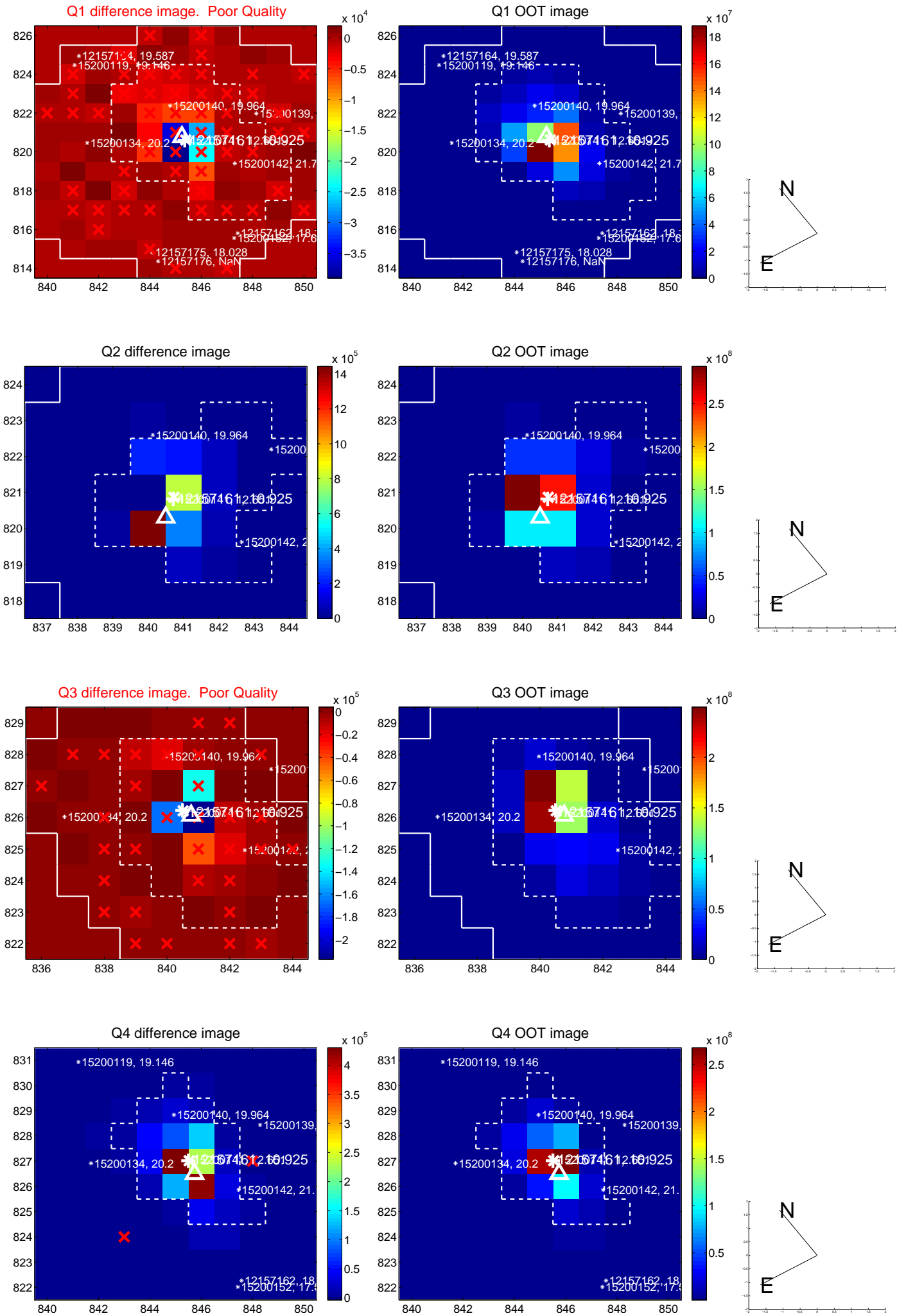
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.033 ± 0.444	0.07	-0.009 ± 0.169	0.032 ± 0.434
PRF-fit source offset from KIC position	0.145 ± 0.339	0.43	0.074 ± 0.156	0.125 ± 0.415
photometric centroid source offset	0.19 ± 0.01	13.85	0.19 ± 0.01	-0.02 ± 0.03

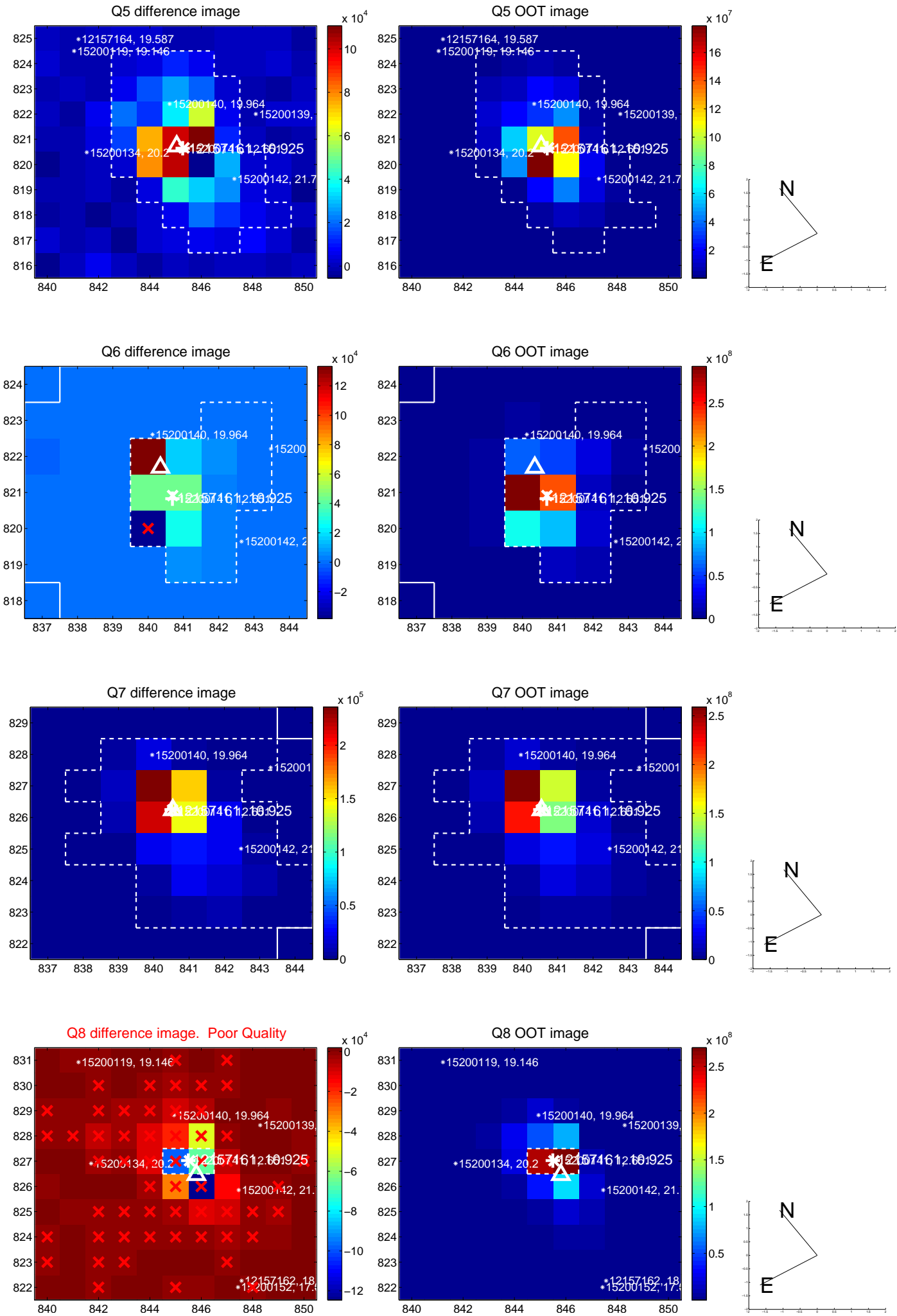


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

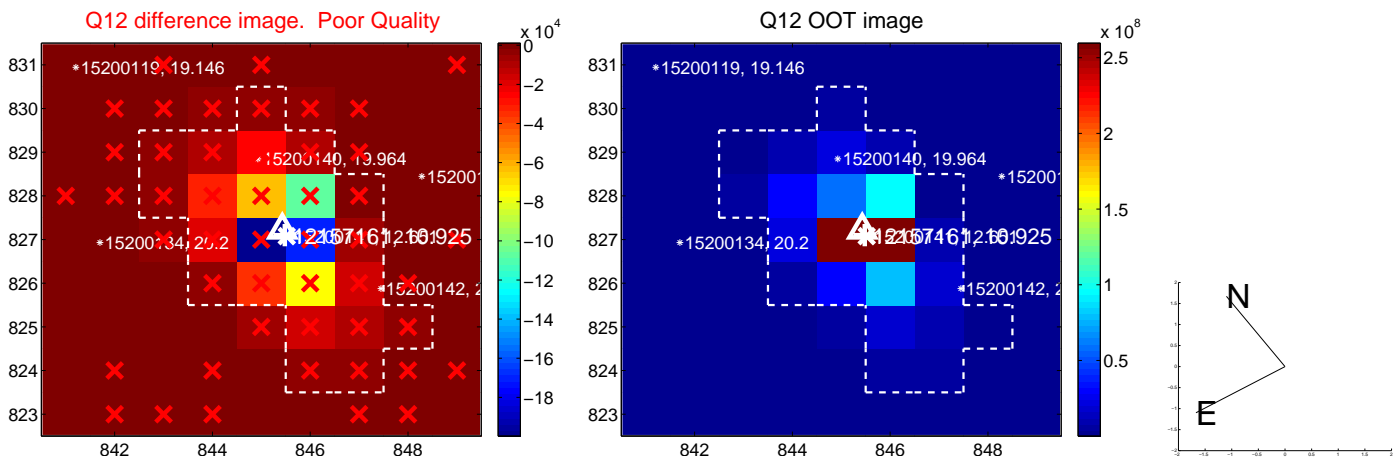
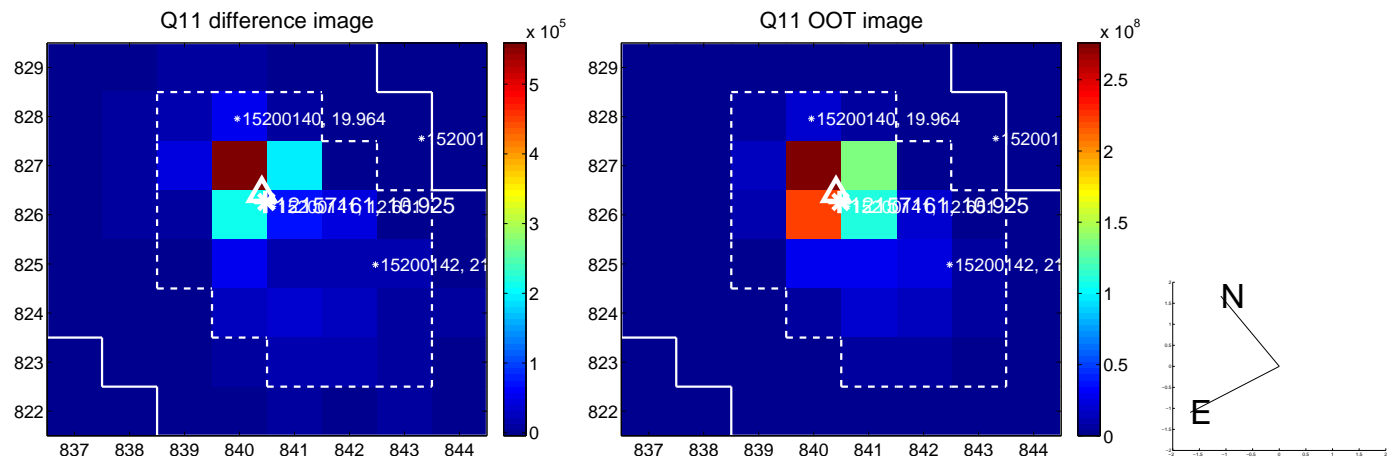
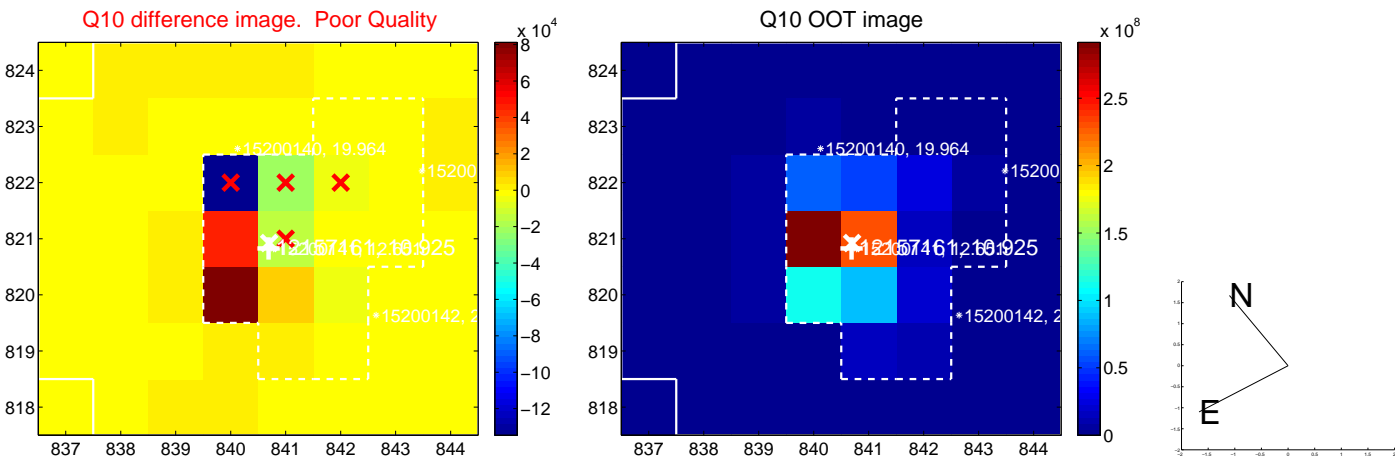
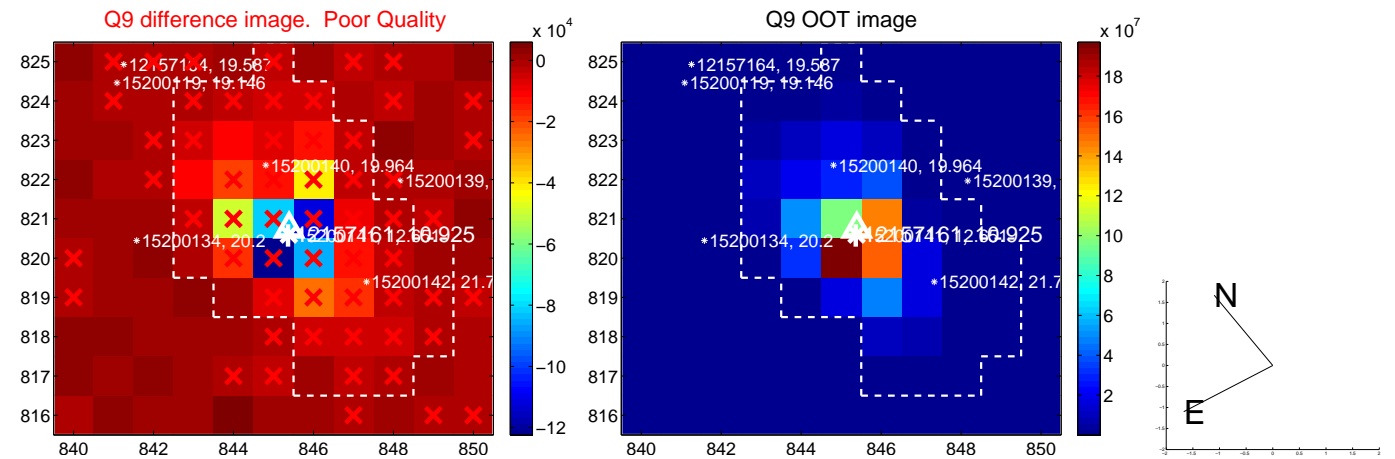
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



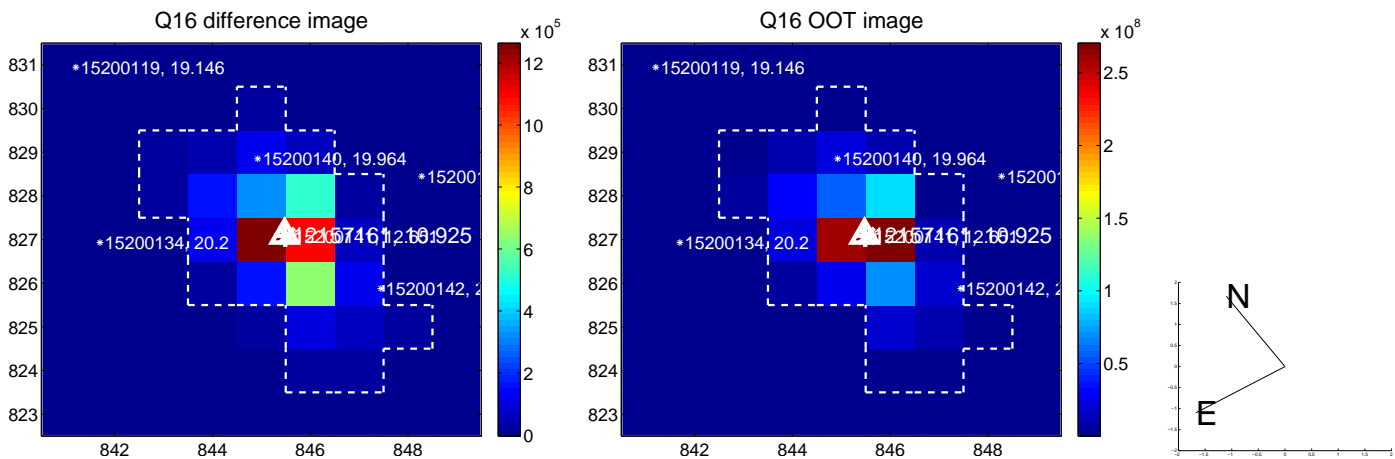
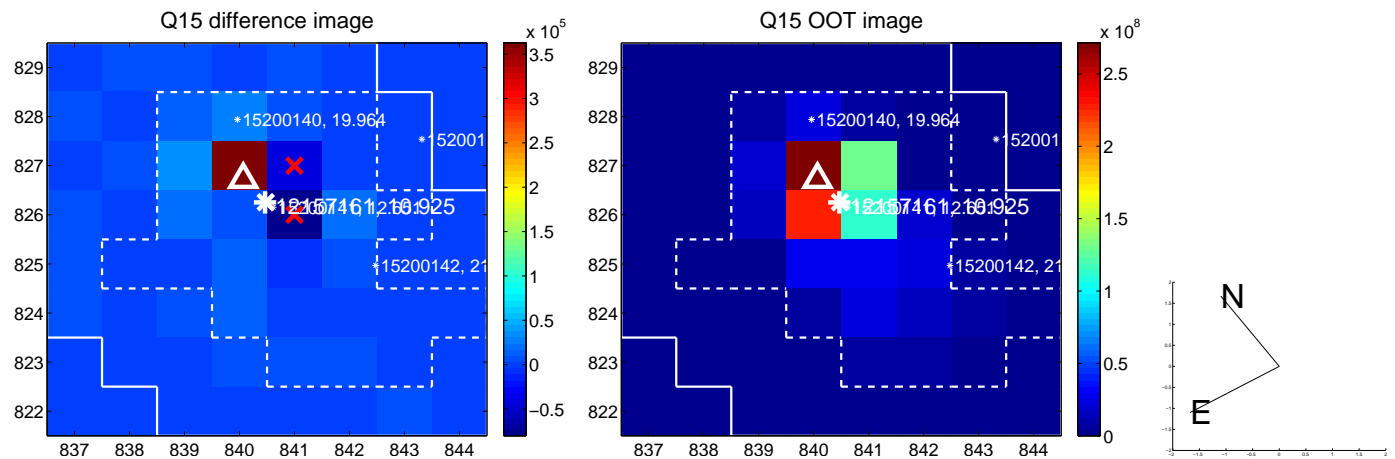
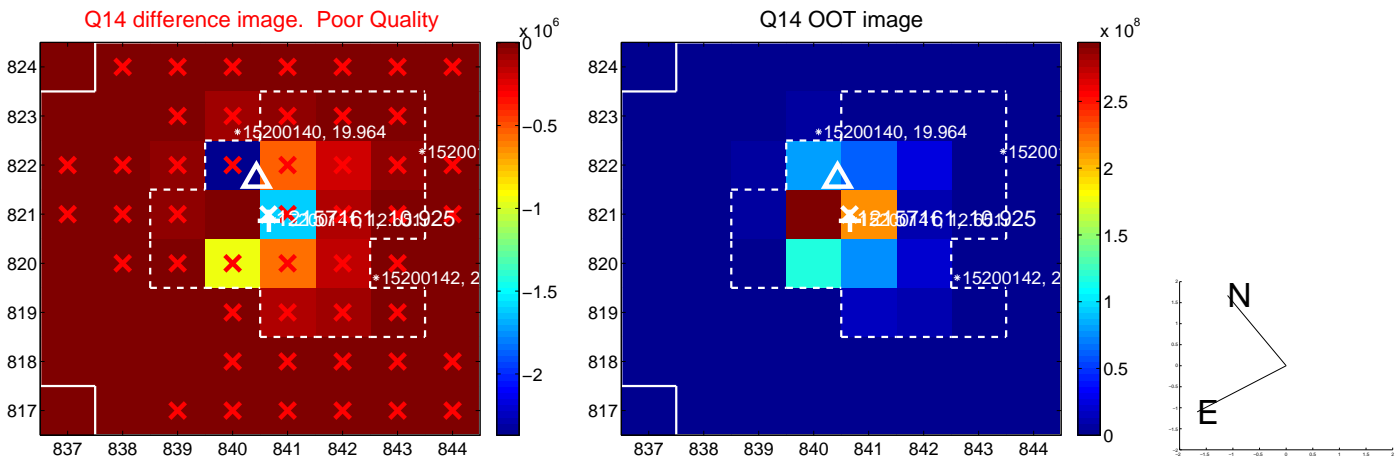
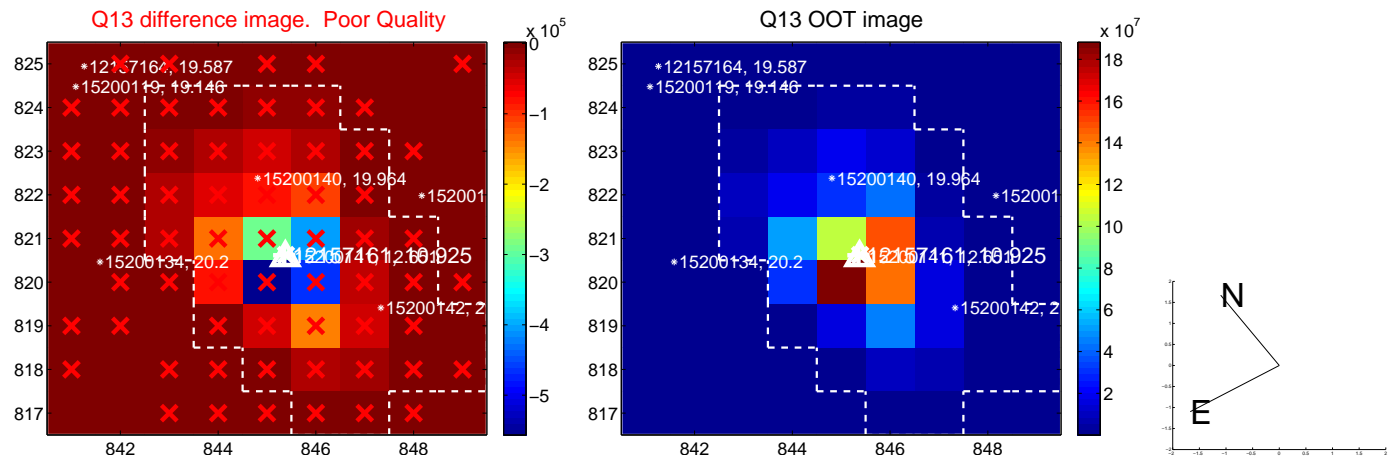
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



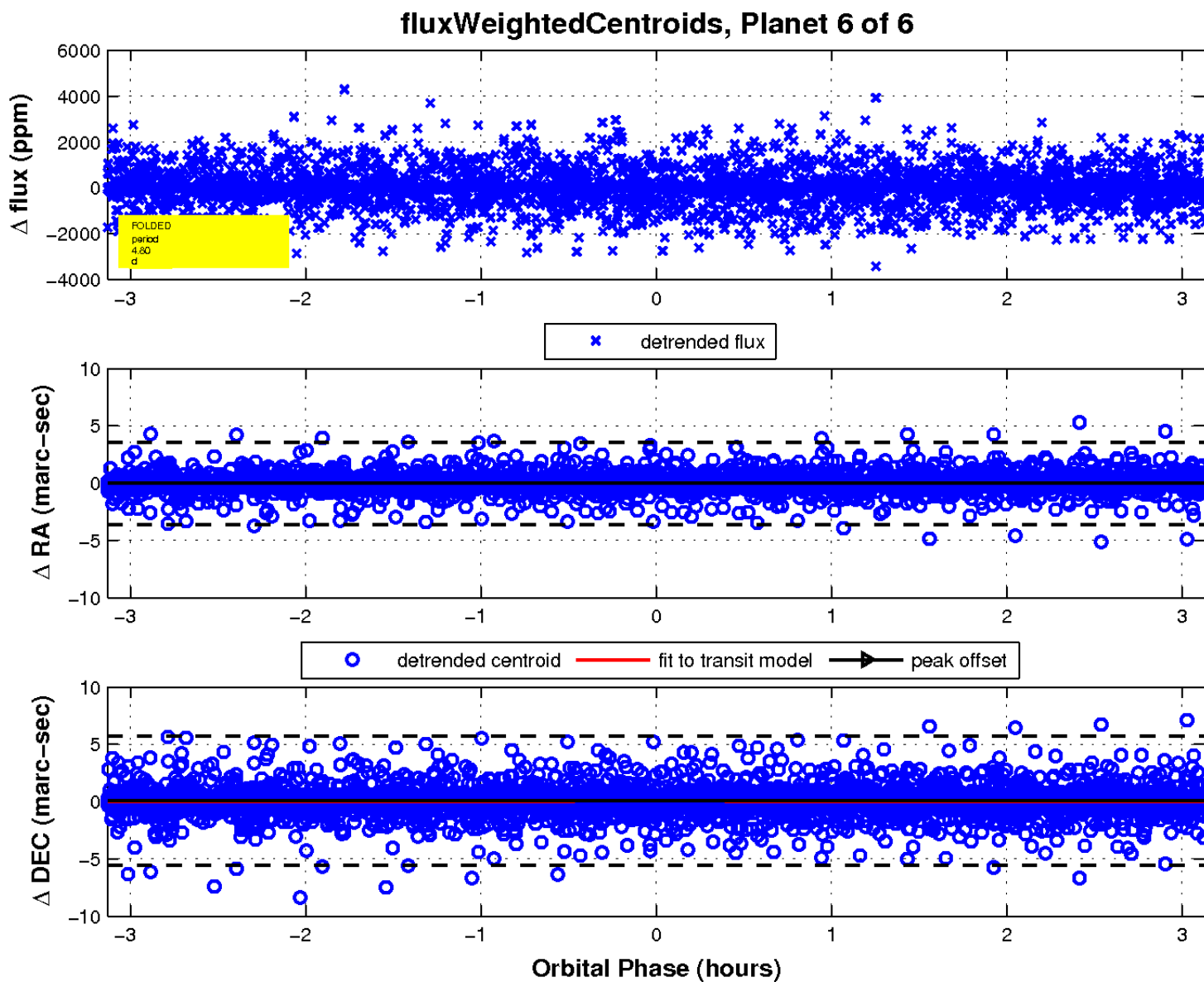
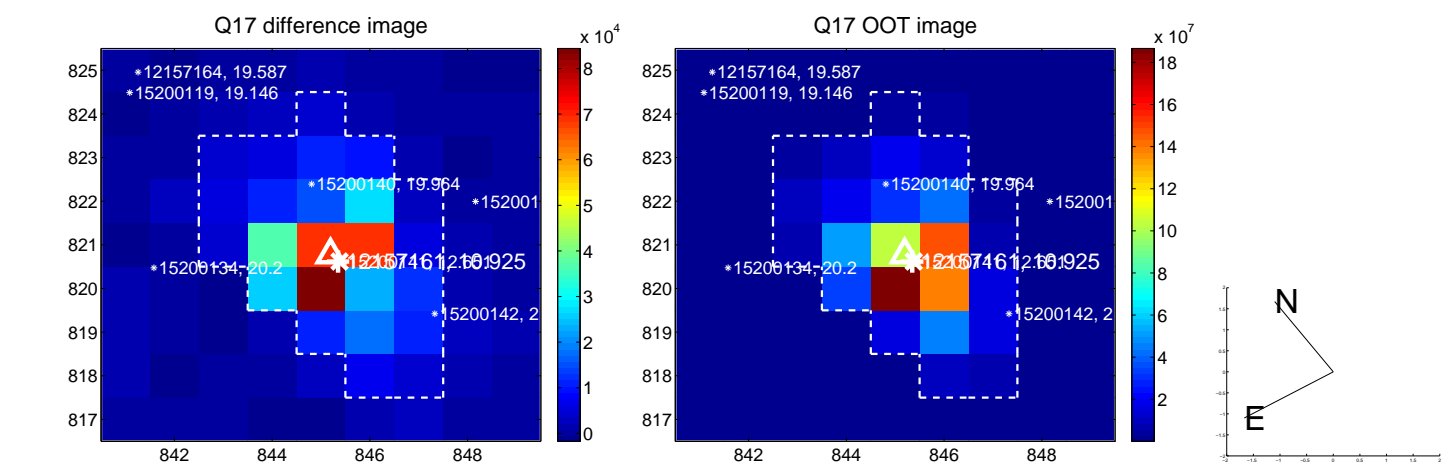
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

