

KIC 003229150

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})
003229150-01	OBS	2150.01	18.508452	131.546773	737.3	6.340	22.5	24.2	0.94	5942	4.32	51.40
003229150-02	OBS	2150.02	44.705465	149.629846	444.7	4.836	9.3	10.7	0.94	5942	2.22	15.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003229150-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003229150-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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 003229150-01

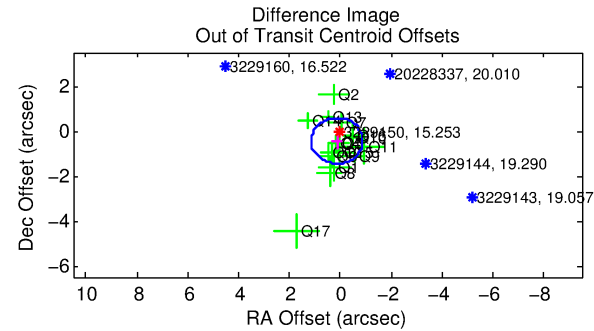
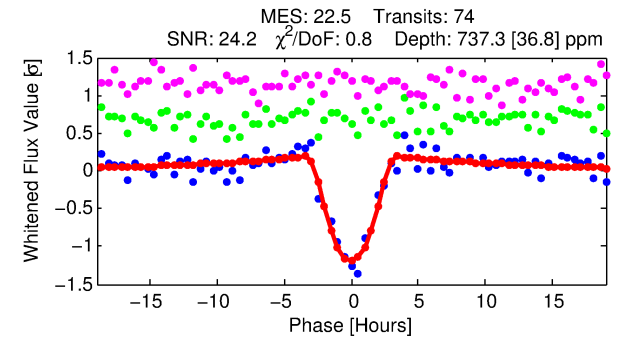
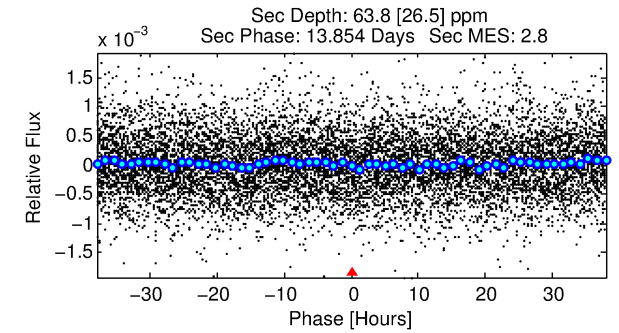
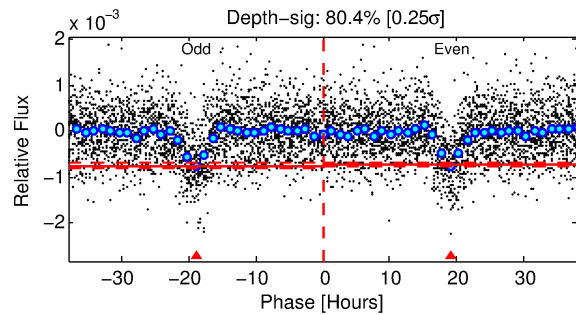
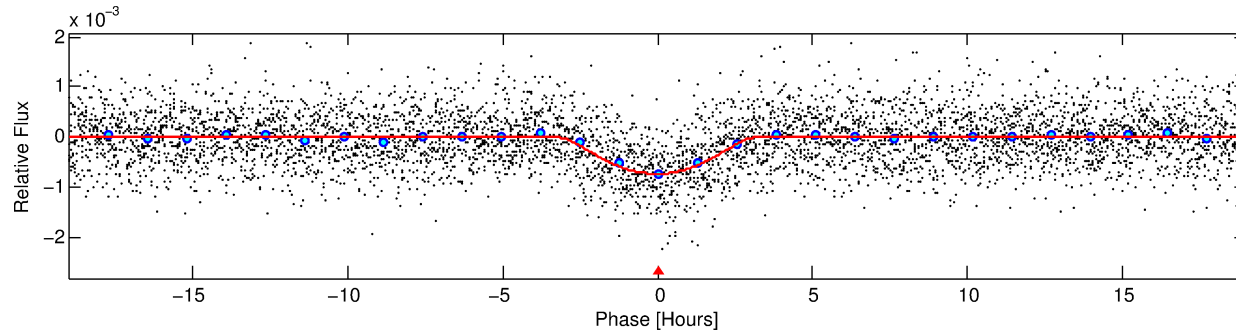
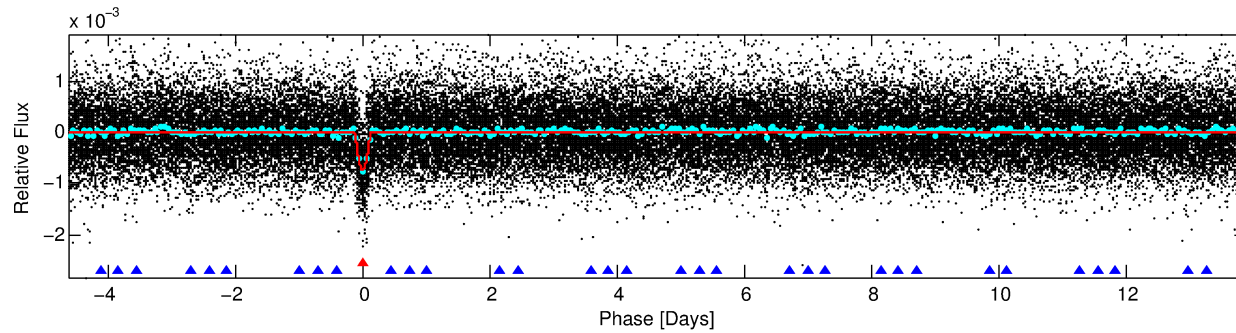
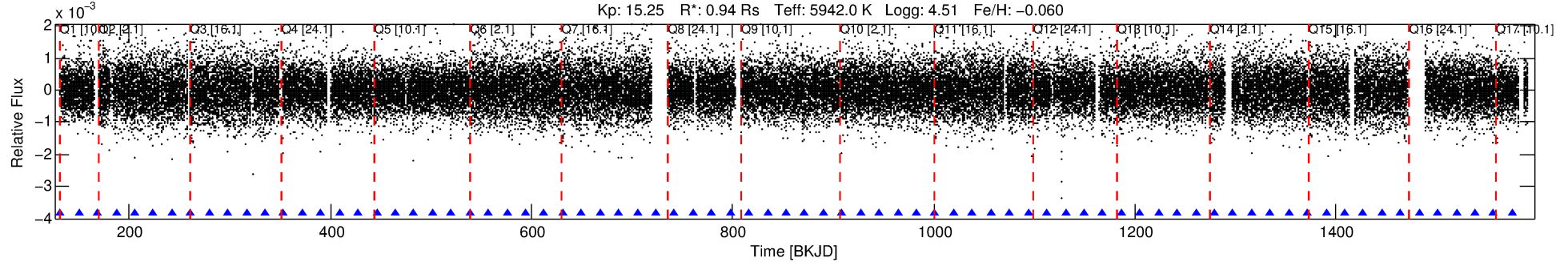
No Significant Match Found

DV One-Page Summary

KIC: 3229150 Candidate: 1 of 2 Period: 18.508 d

KOI: K02150.01 Corr: 0.968

Kp: 15.25 R*: 0.94 Rs Teff: 5942.0 K Logg: 4.51 Fe/H: -0.060



DV Fit Results:

Period = 18.50845 [0.00013] d
Epoch = 131.5468 [0.0056] BKJD
Rp/R* = 0.0422 [0.0338]
a/R* = 7.34 [1.79]
b = 0.99 [0.06]
Seff = 51.40 [20.49]
Teq = 683 [68] K
Rp = 4.32 [3.70] Re
a = 0.1383 [0.0354] AU
Ag = 35.96 [61.06] [0.57σ]
Teffp = 2585 [1073] K [1.77σ]

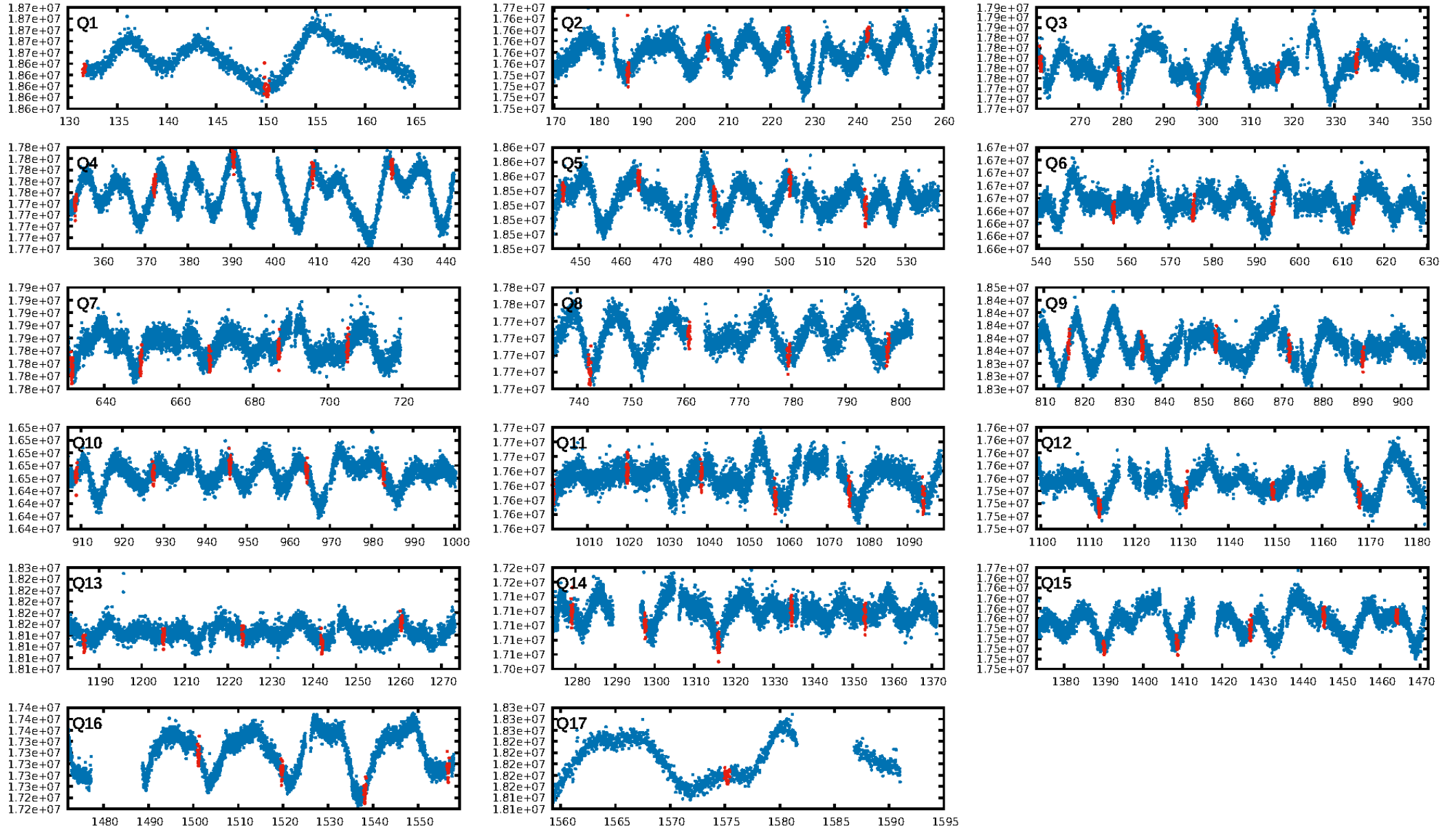
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [78.85σ]
ModelChiSquare2-sig: 86.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.53e-106
RollingBand-fgt: 1.00 [71/71]
GhostDiagnostic-chr: 12.28
Centroid-sig: 5.8%
Centroid-so: 0.594 arcsec [1.24σ]
OotOffset-rm: 0.453 arcsec [1.34σ]
KicOffset-rm: 0.291 arcsec [1.06σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 0.94 [16/17]

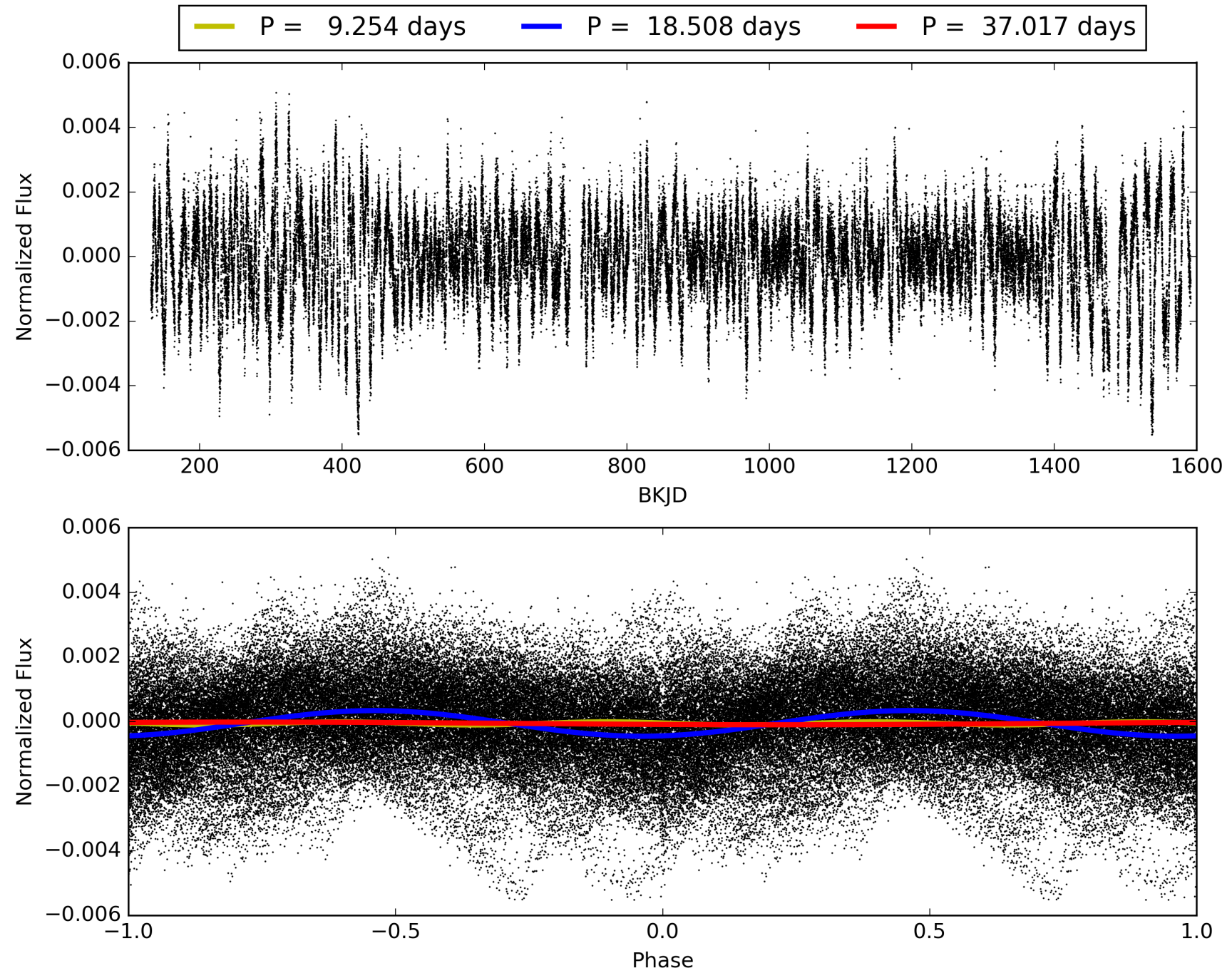
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:10:43 Z

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

TCE 003229150-01, PDC Light Curves

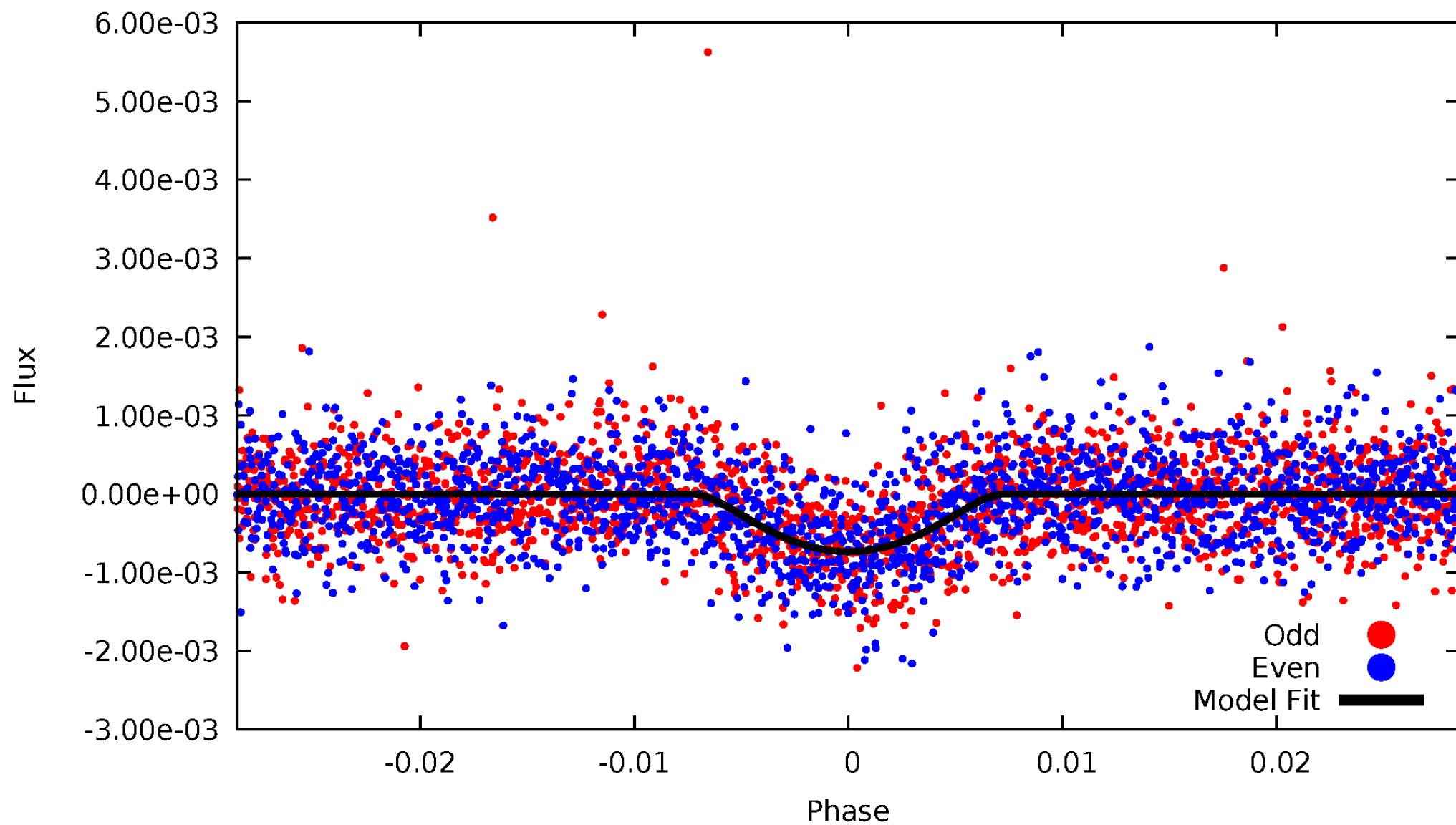


TCE 003229150-01



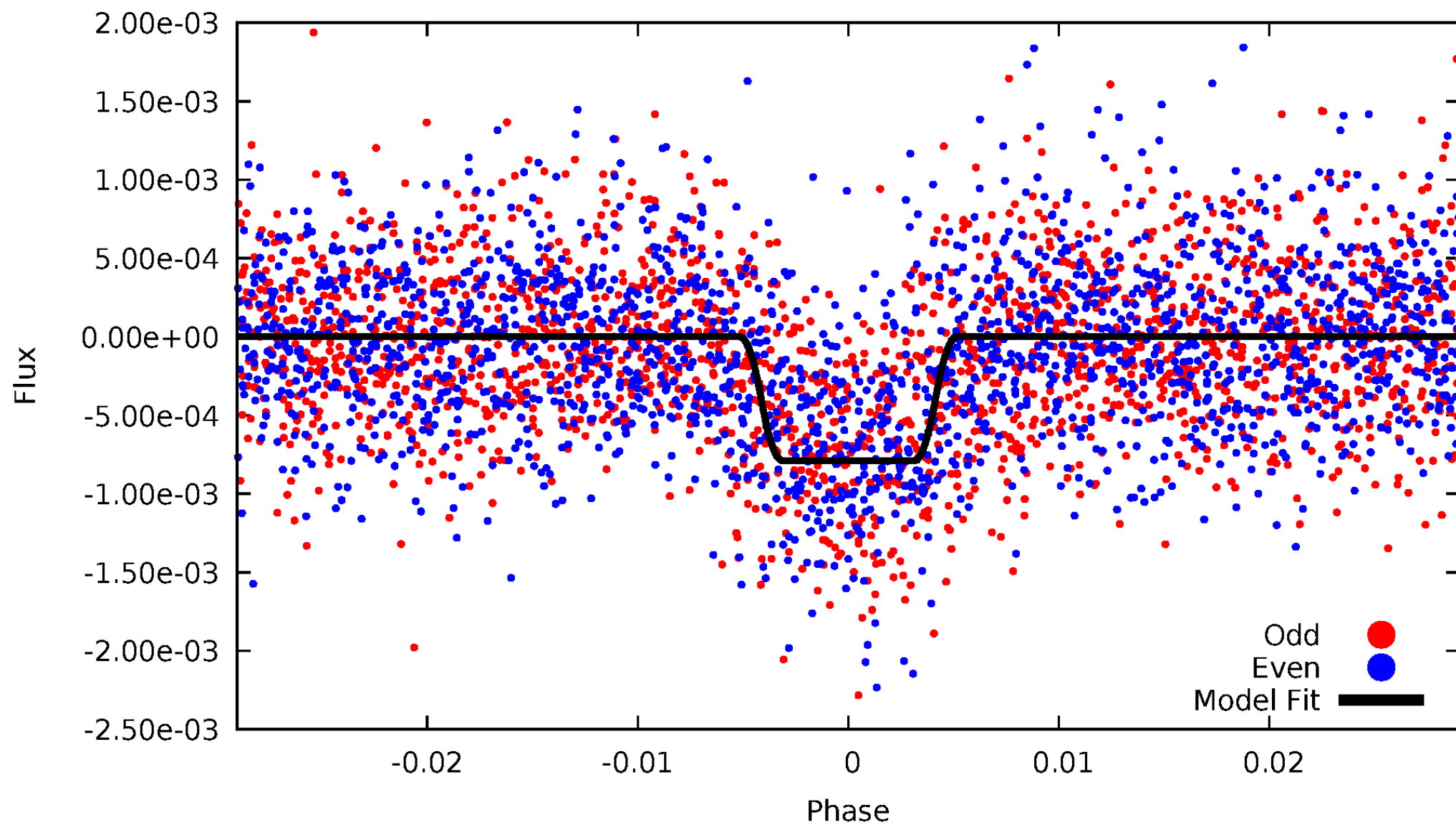
DV Odd/Even

TCE 003229150-01

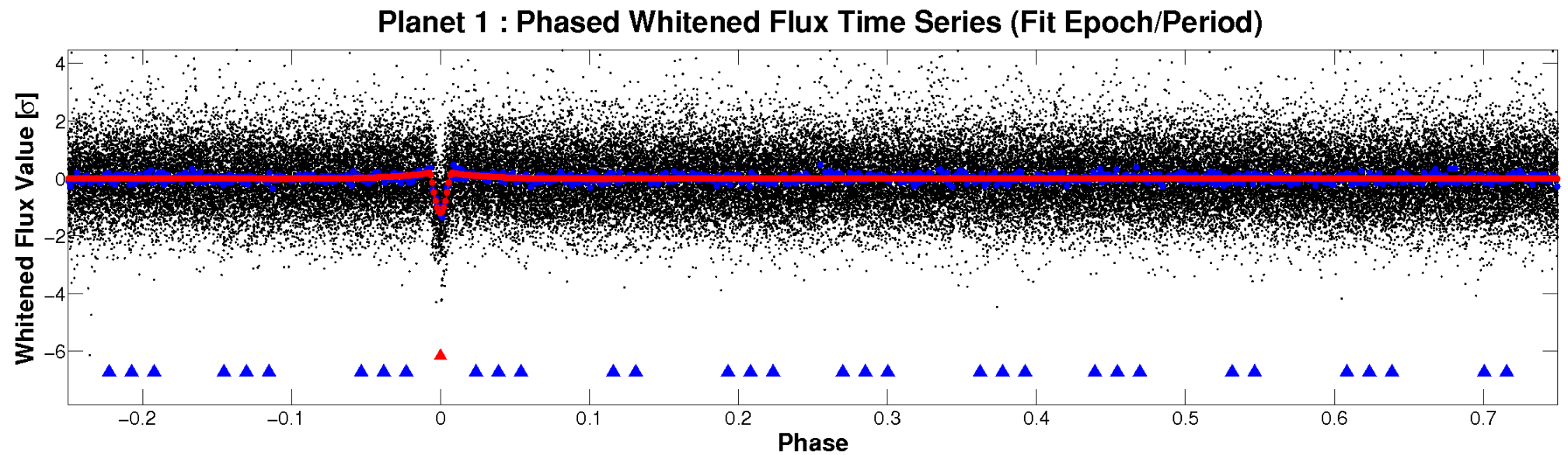
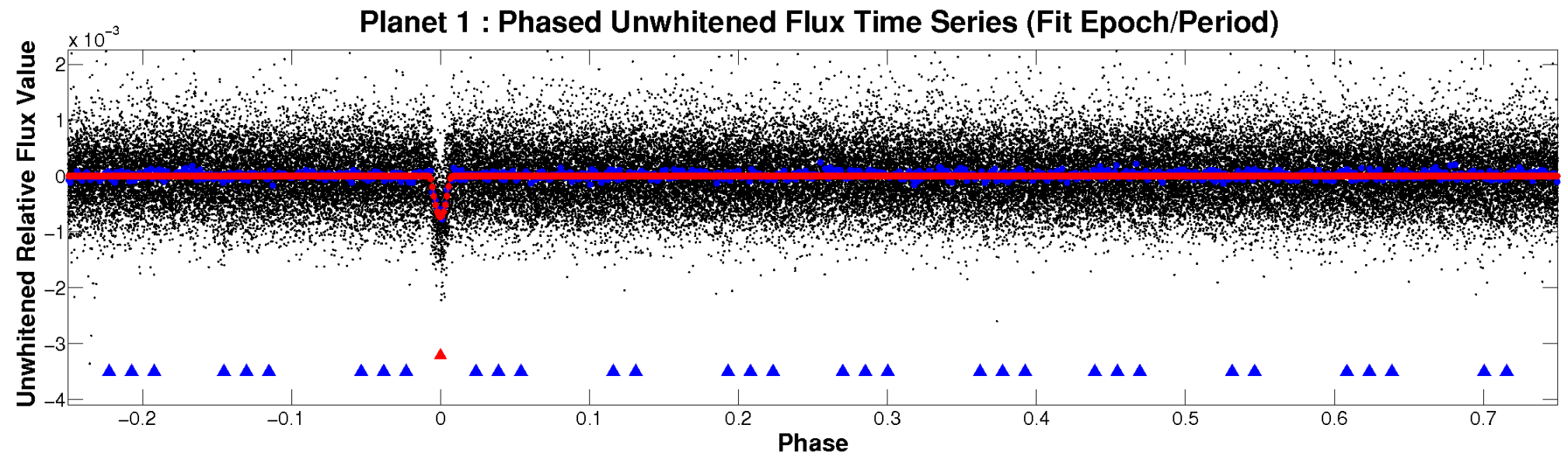


ALT Odd/Even

TCE 003229150-01

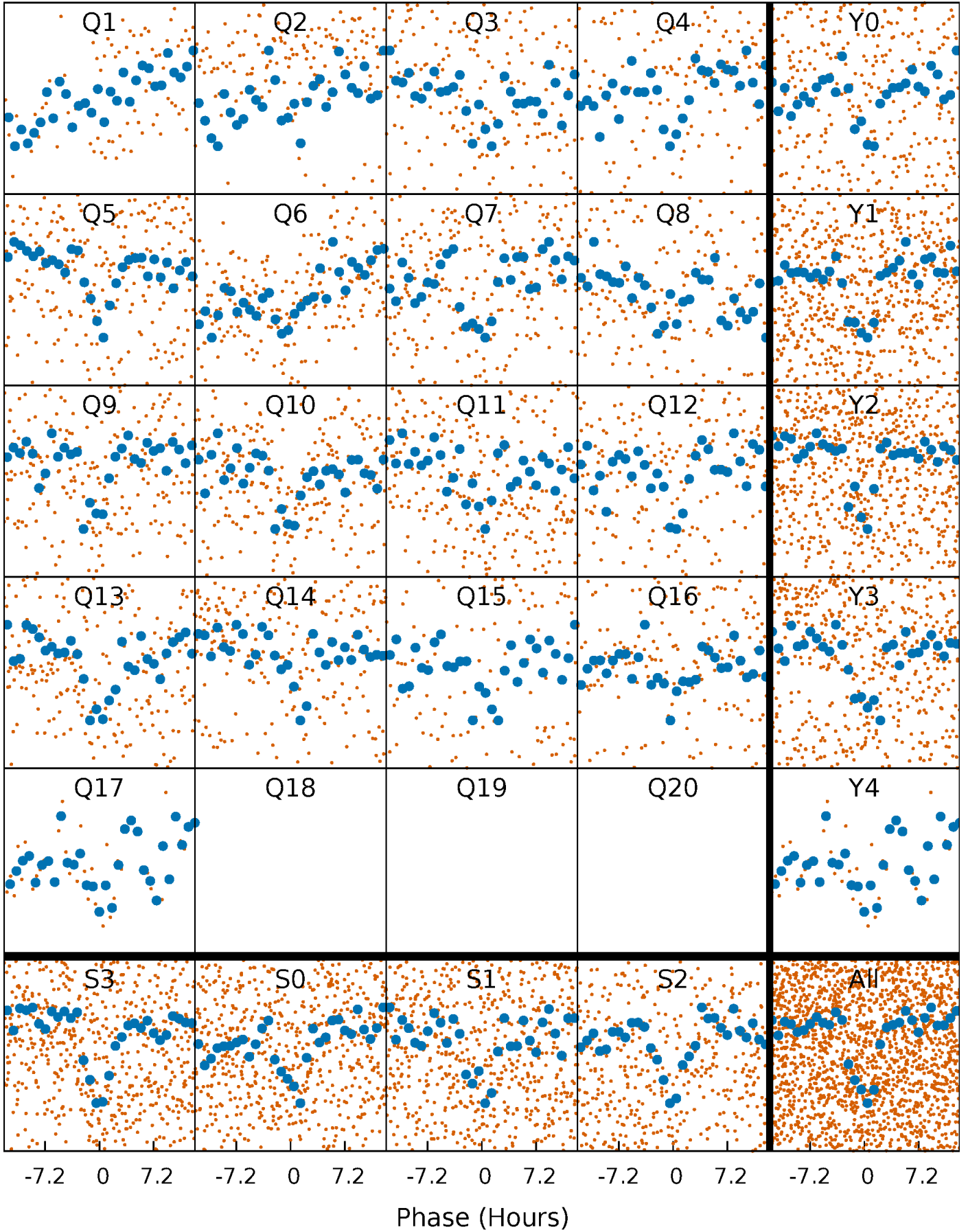


Non-Whitened Vs. Whitened Light Curve



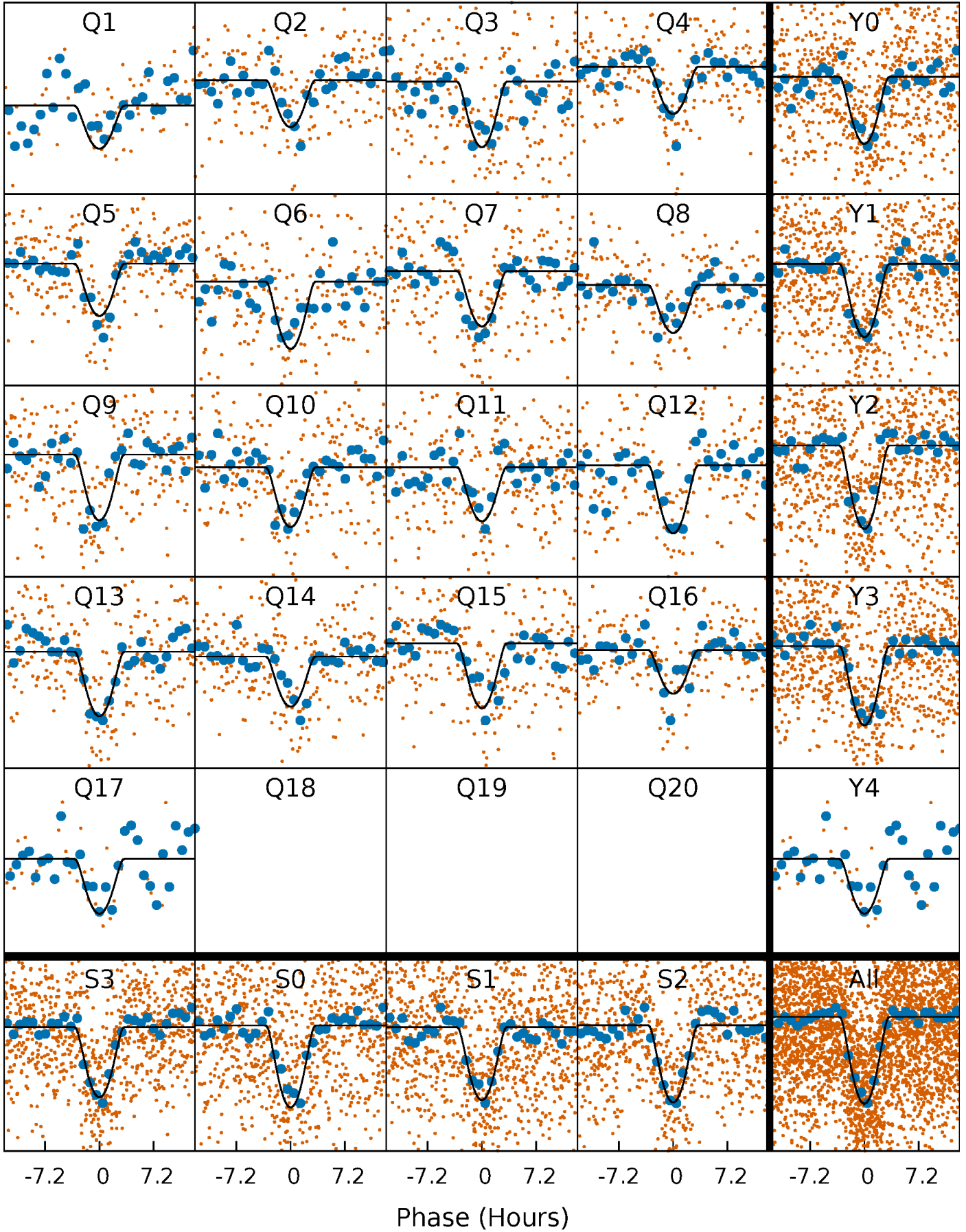
PDC Quarter-Phased Transit Curves

TCE 003229150-01 P= 18.508452 Days $T_0=131.546773$ (BKJD)



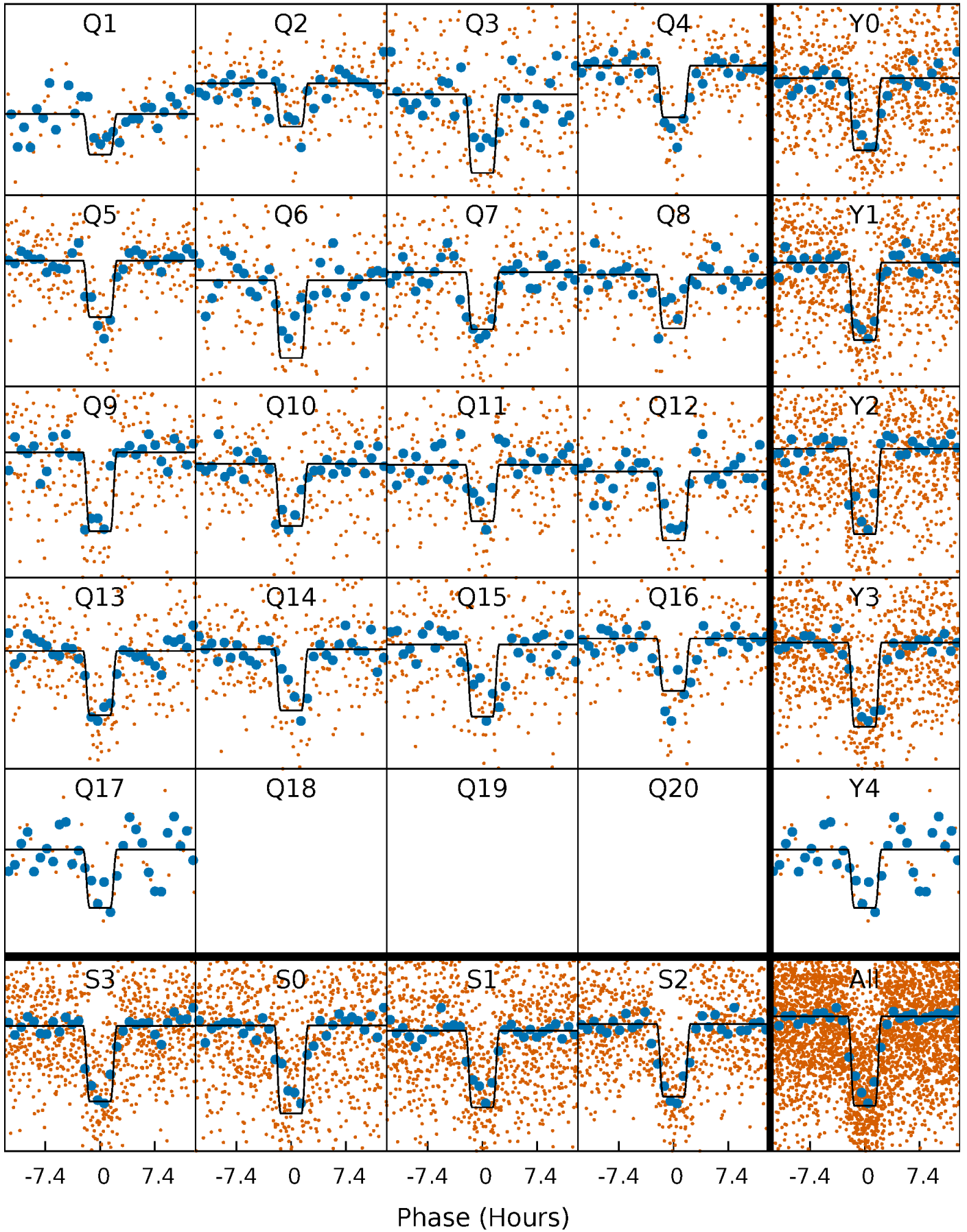
DV Quarter-Phased Transit Curves

TCE 003229150-01 P= 18.508452 Days $T_0=131.546773$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

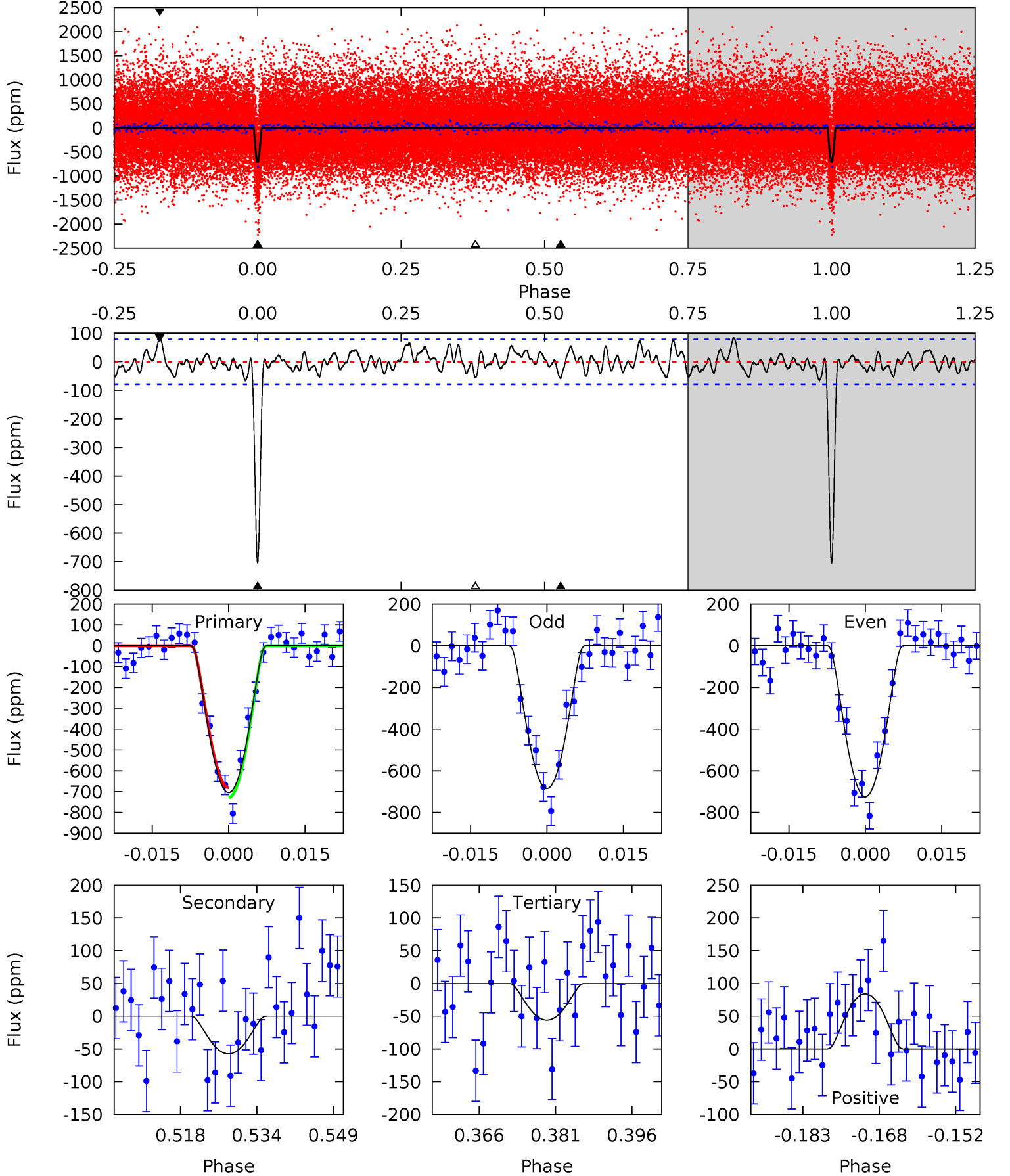
TCE 003229150-01 P= 18.508492 Days $T_0=131.544678$ (BKJD)



DV Model-Shift Uniqueness Test

003229150-01, $P = 18.508452$ Days, $E = 113.038321$ Days

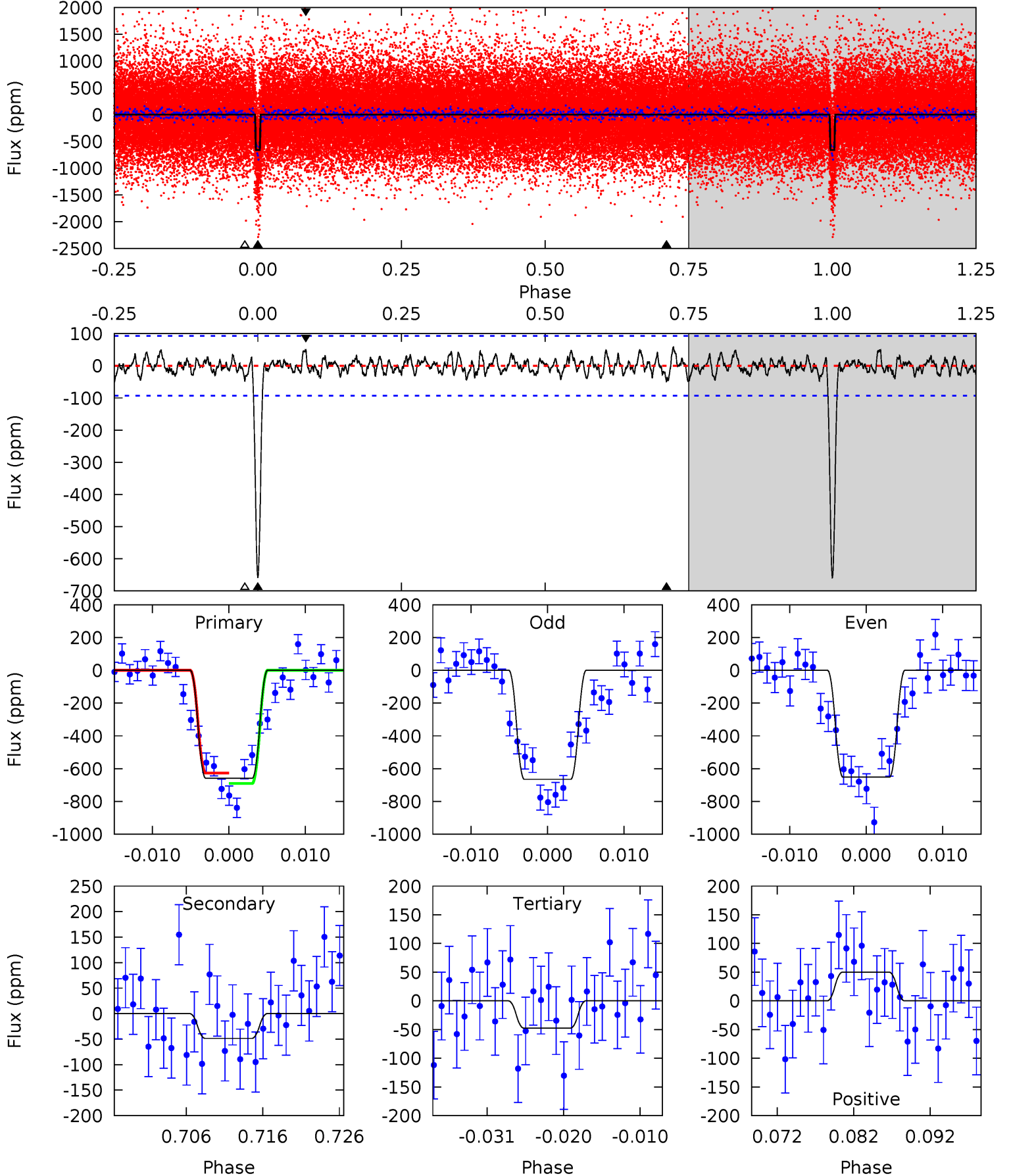
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.4	3.63	3.53	5.29	4.94	2.43	1.76	40.9	39.1	0.10	-1.66	1.24	1.01	0.11	1.47



Alt Model-Shift Uniqueness Test

003229150-01, $P = 18.508492$ Days, $E = 113.036186$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.5	2.62	2.56	2.70	5.02	2.57	1.02	33.0	32.8	0.06	-0.08	0.36	1.00	0.08	1.73



Stellar Parameters For KIC 003229150

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5942^{+176}_{-193}	$4.506^{+0.039}_{-0.208}$	$-0.060^{+0.250}_{-0.300}$	$0.938^{+0.282}_{-0.094}$	$1.028^{+0.127}_{-0.140}$	$1.756^{+0.373}_{-0.951}$
	+3%/-3%	+1%/-5%	+417%/-500%	+30%/-10%	+12%/-14%	+21%/-54%
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 003229150-01 / KOI 2150.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-58 ± 16	$4.98^{+3.27}_{-2.96}$	977^{+64}_{-50}	3049^{+1046}_{-441}	23^{+122}_{-16}
Alt.	-49 ± 19	$3.97^{+3.43}_{-2.47}$	980^{+66}_{-50}	3170^{+1144}_{-529}	30^{+169}_{-22}

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

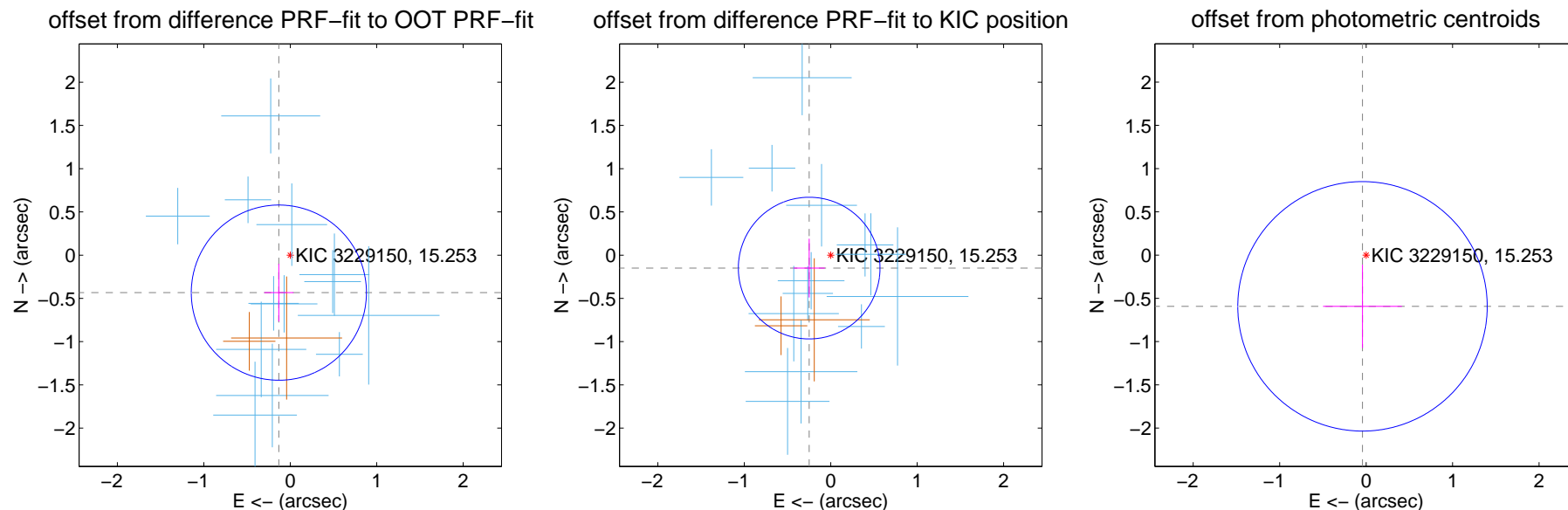
DV Centroid Data

Supplemental centroid analysis for 003229150-01. Kepler magnitude: 15.25. Transit SNR 24.19

There are 13 quarters with good PRF difference image offsets

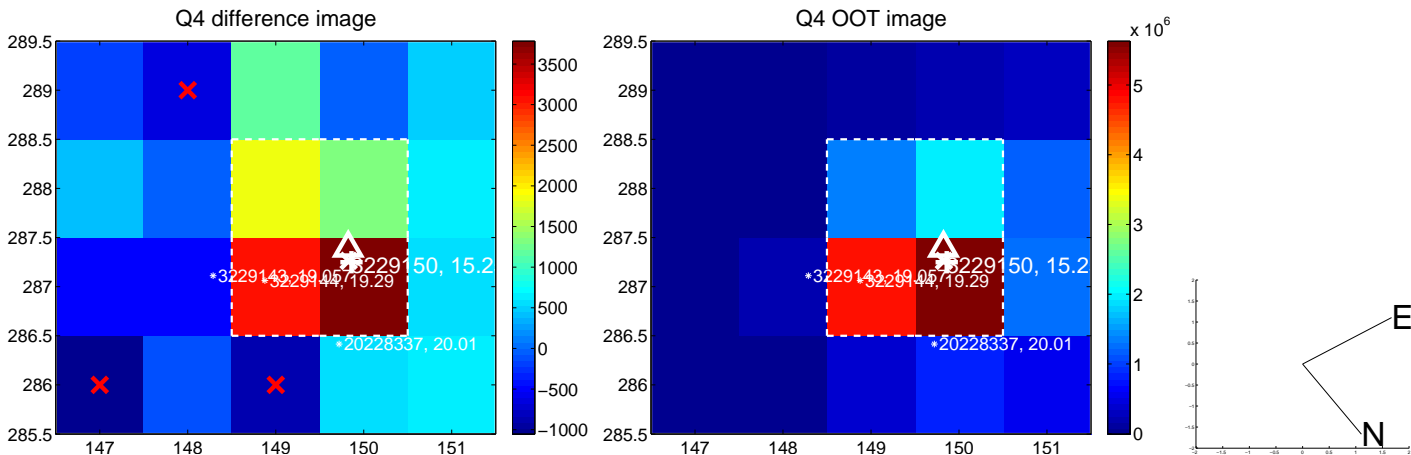
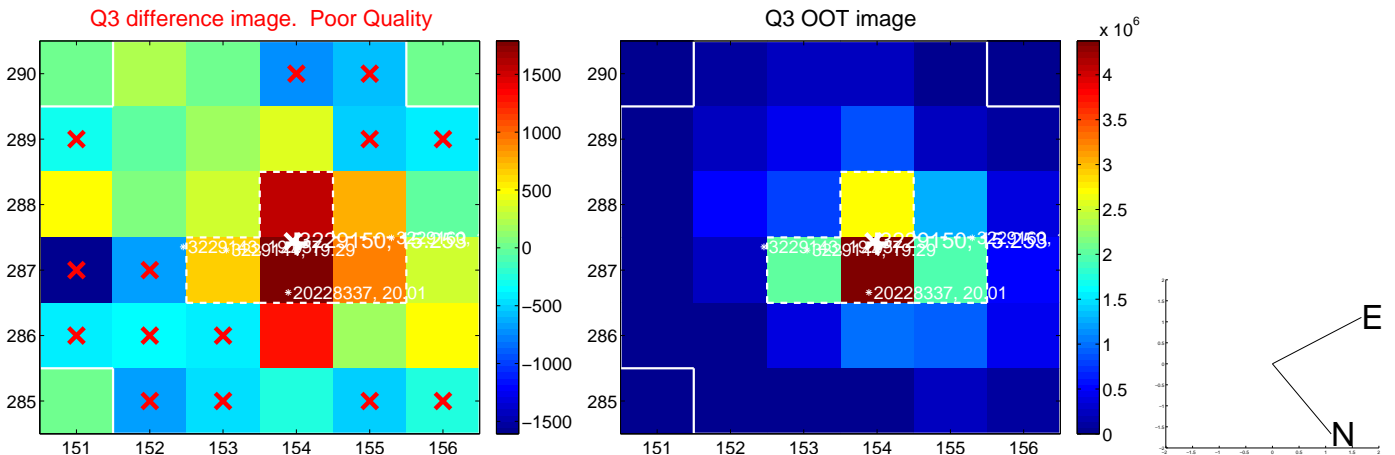
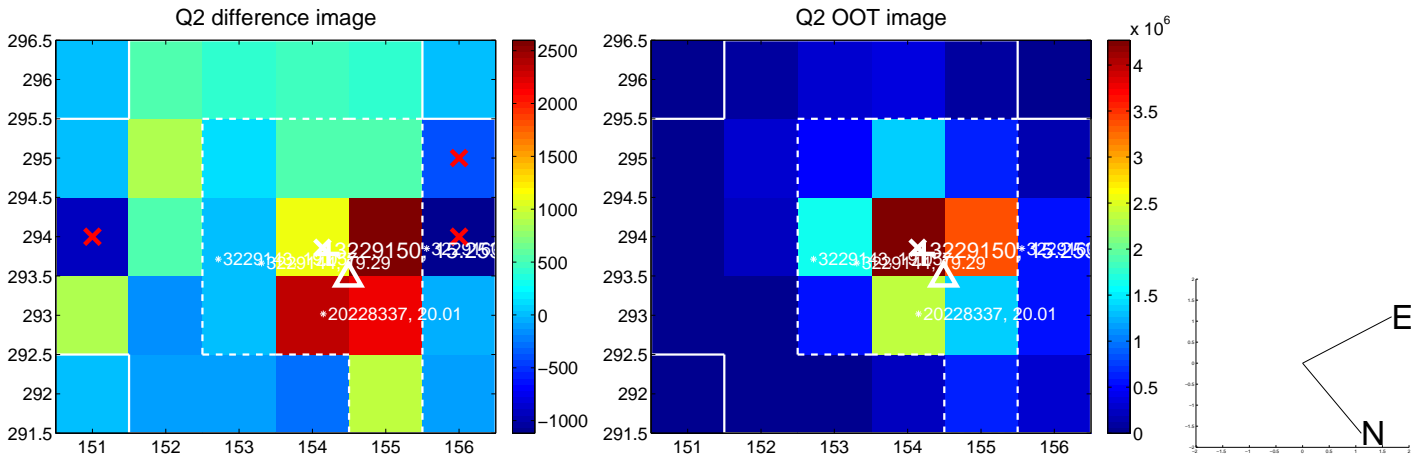
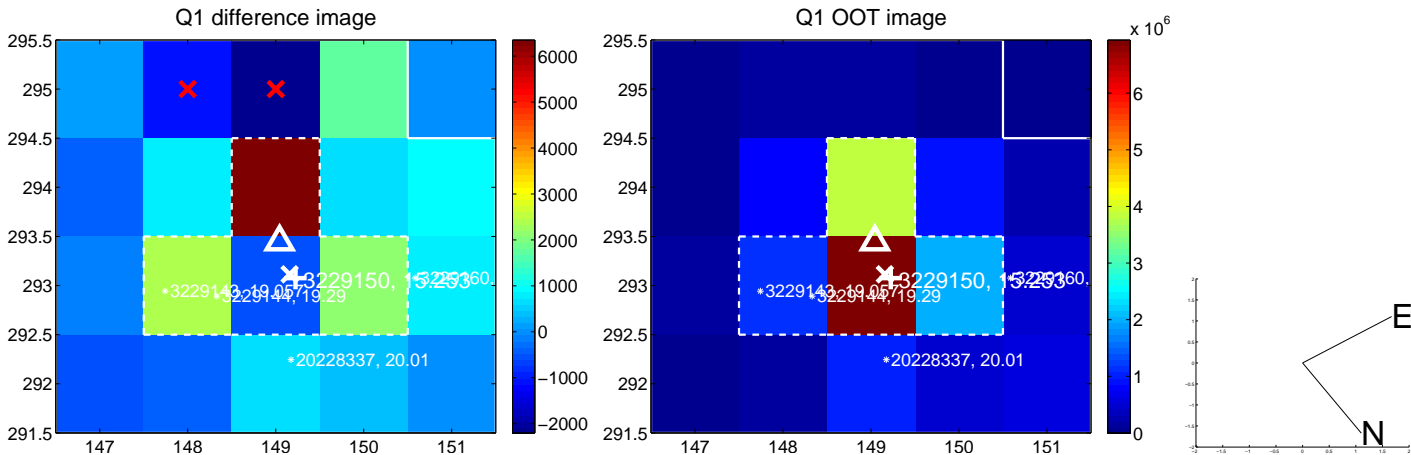
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.453 ± 0.338	1.34	0.132 ± 0.169	-0.433 ± 0.334
PRF-fit source offset from KIC position	0.291 ± 0.273	1.06	0.249 ± 0.182	-0.150 ± 0.340
photometric centroid source offset	0.59 ± 0.48	1.24	0.04 ± 0.46	-0.59 ± 0.48

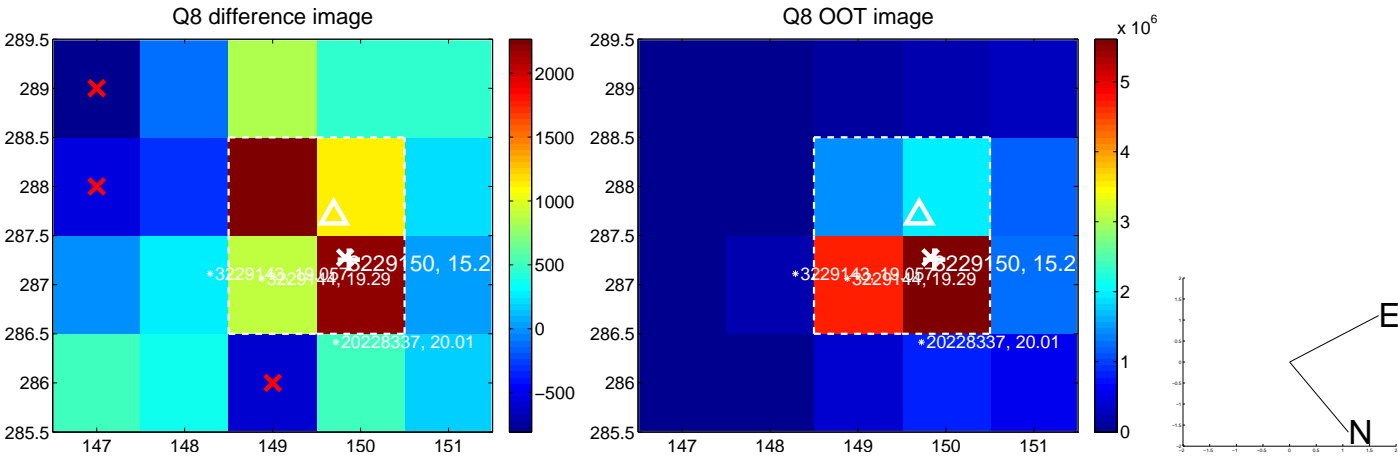
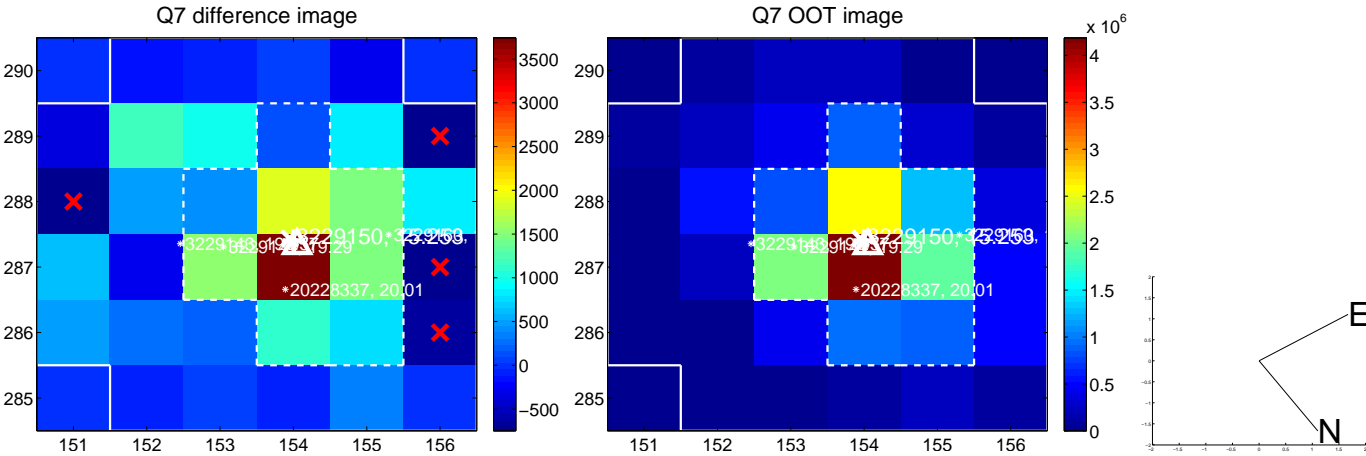
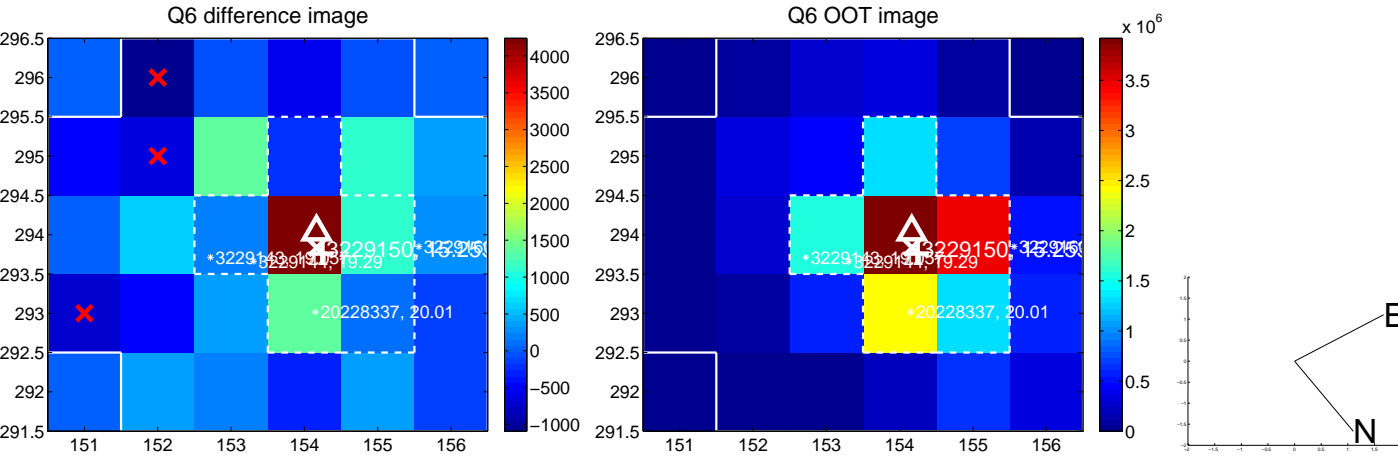
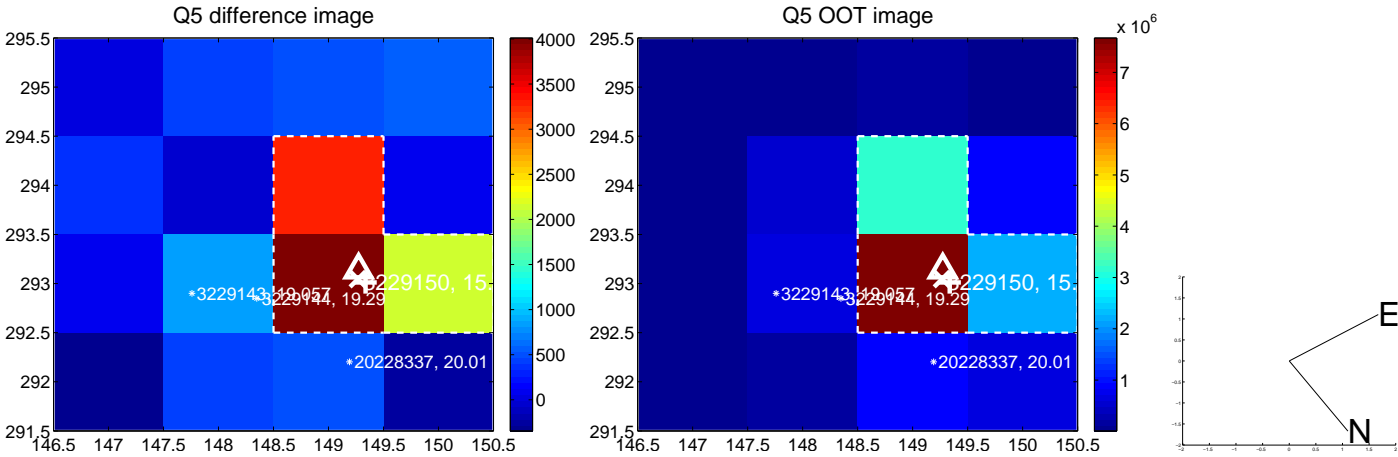


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

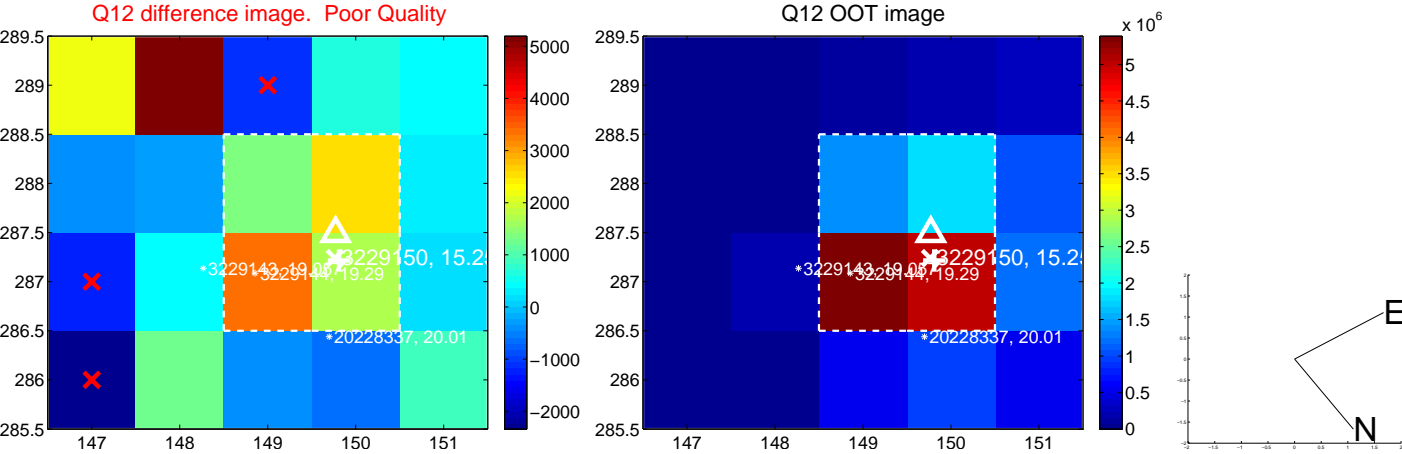
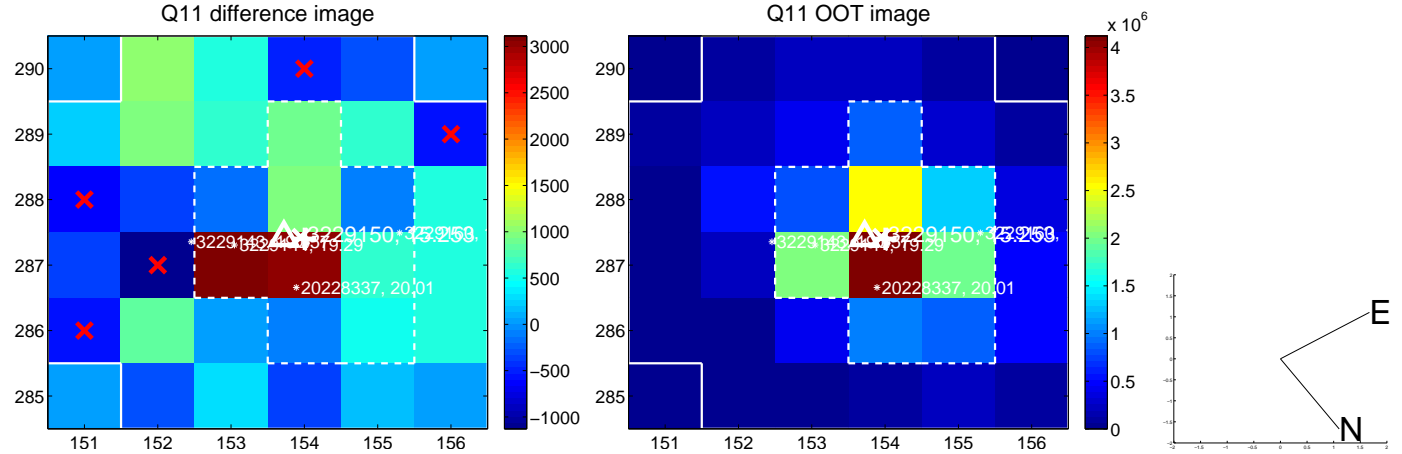
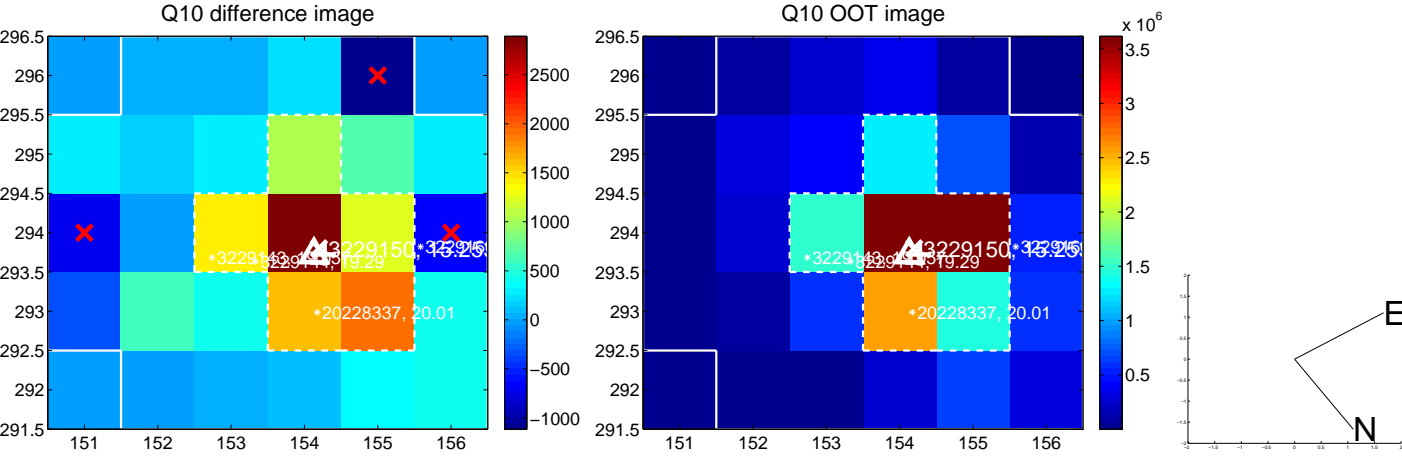
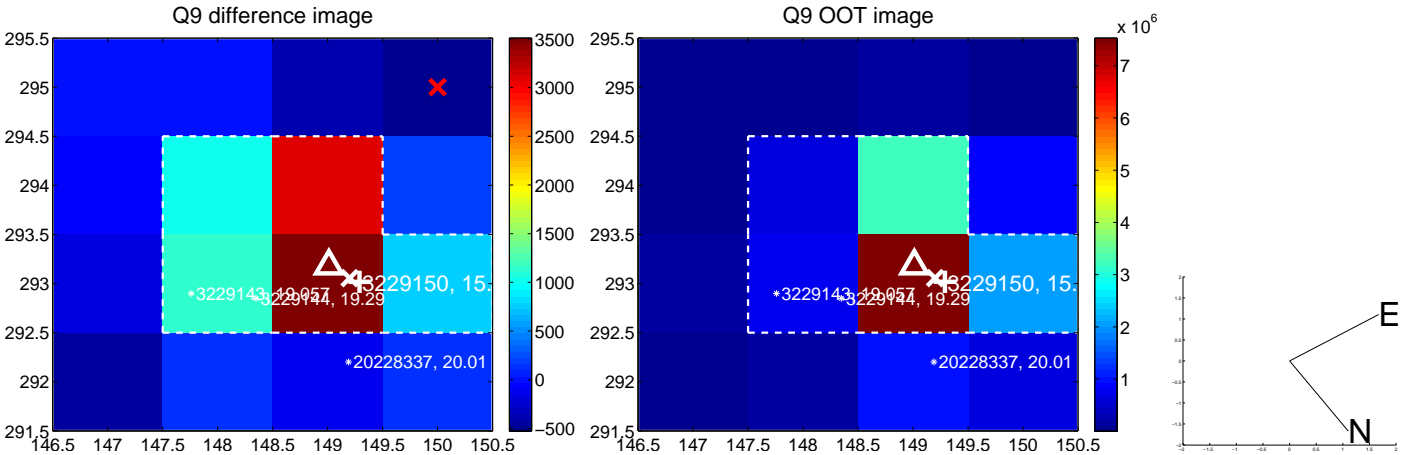
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



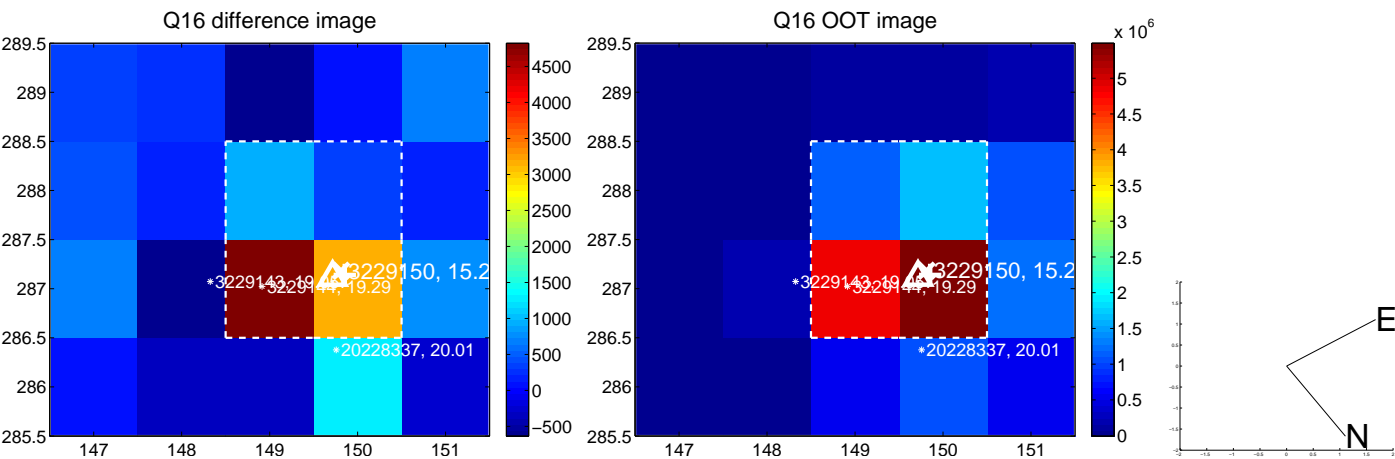
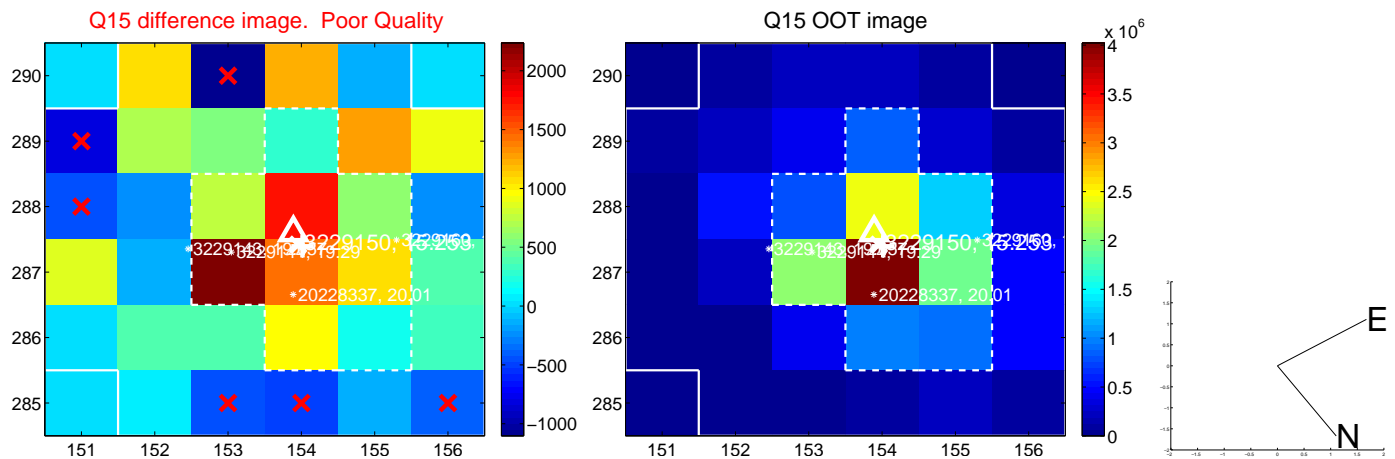
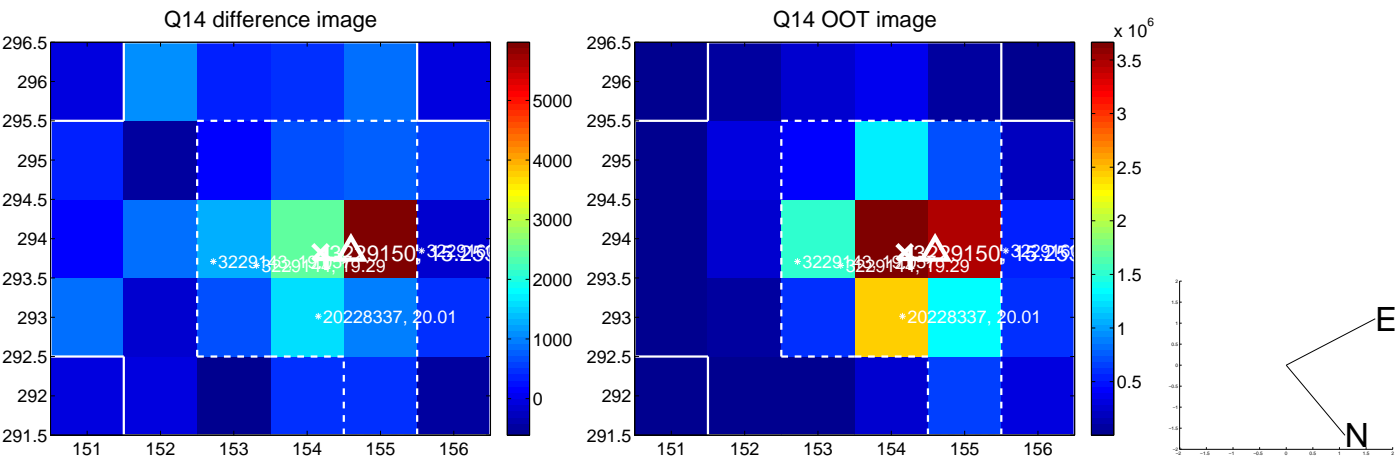
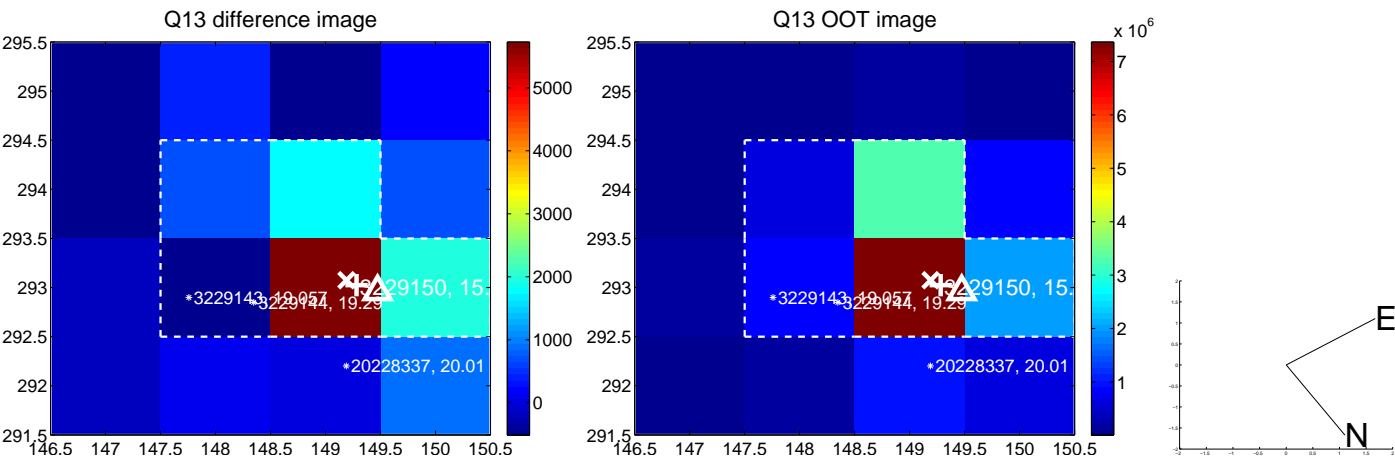
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



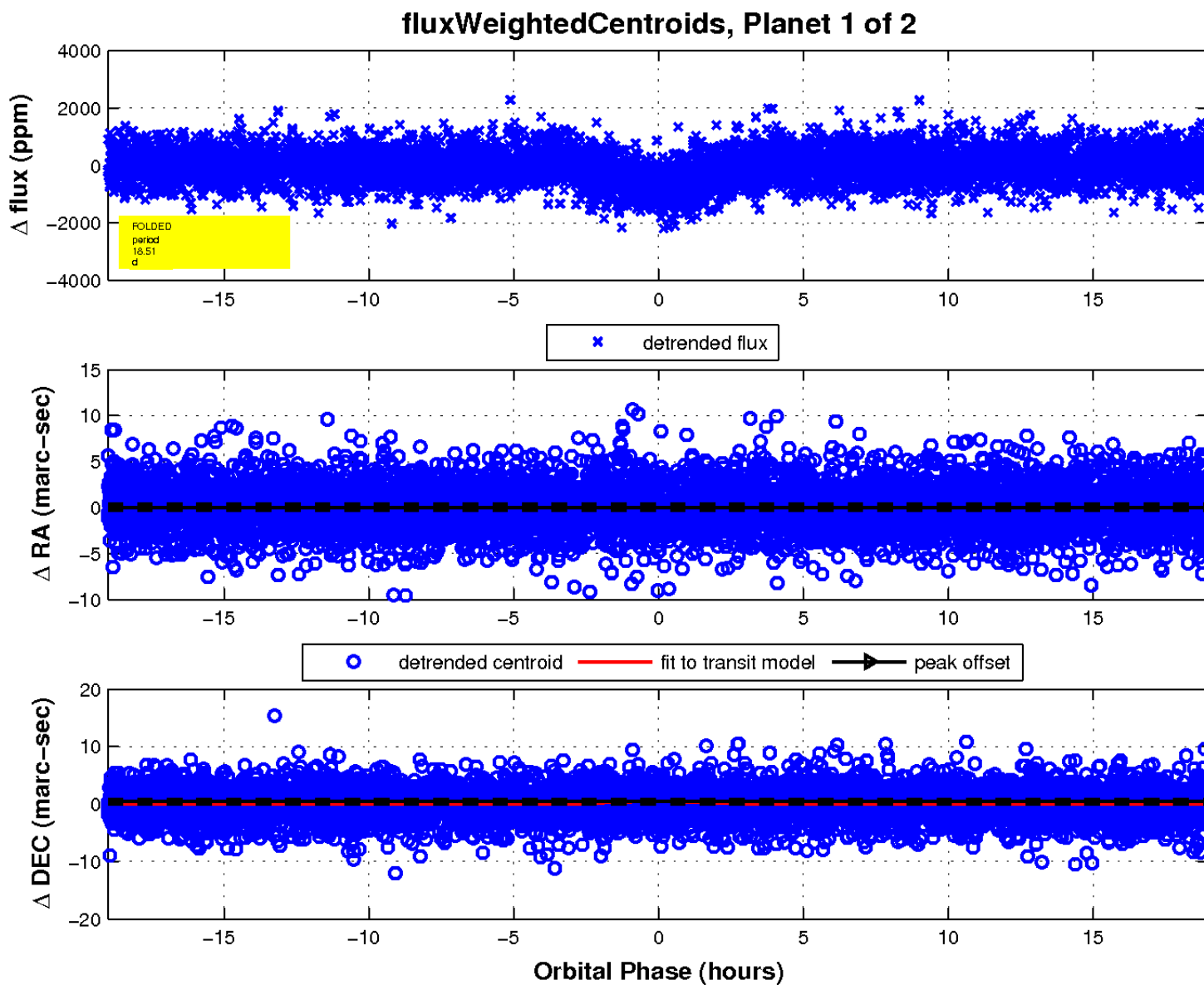
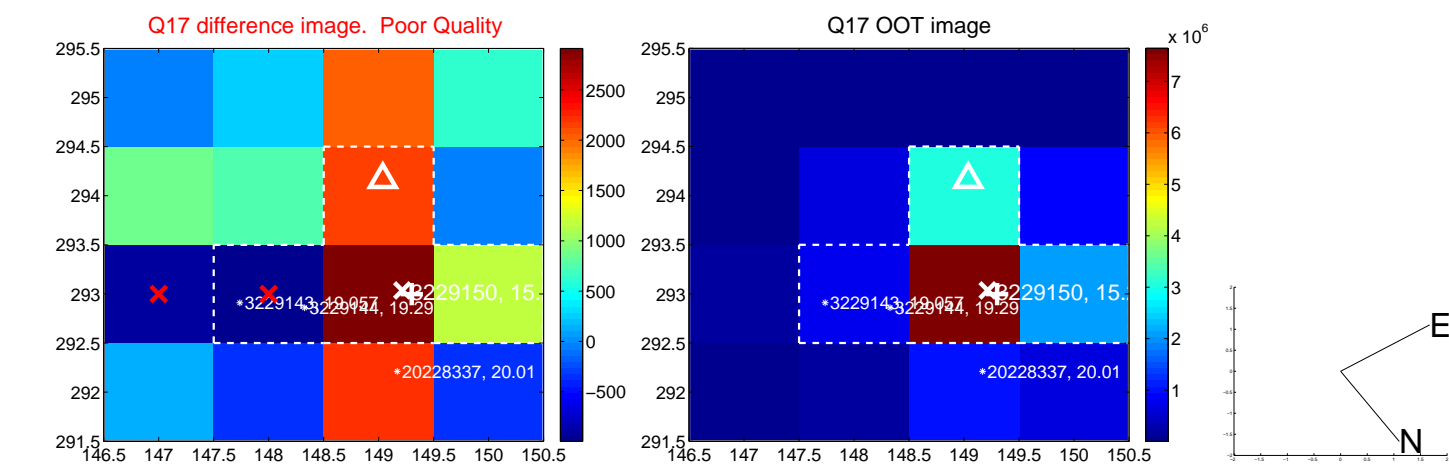
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

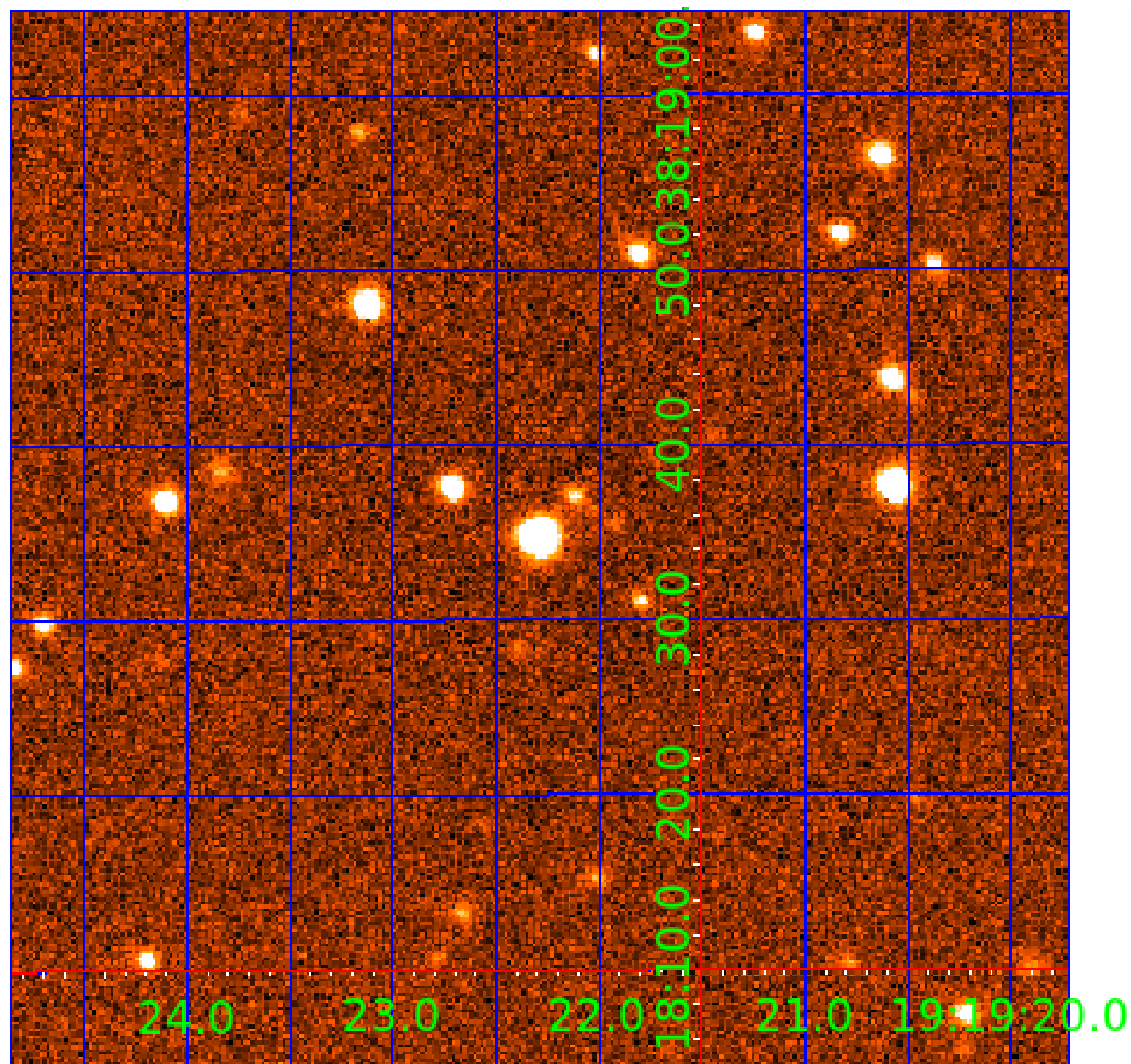


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003229150

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})
003229150-01	OBS	2150.01	18.508452	131.546773	737.3	6.340	22.5	24.2	0.94	5942	4.32	51.40
003229150-02	OBS	2150.02	44.705465	149.629846	444.7	4.836	9.3	10.7	0.94	5942	2.22	15.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003229150-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003229150-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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 003229150-02

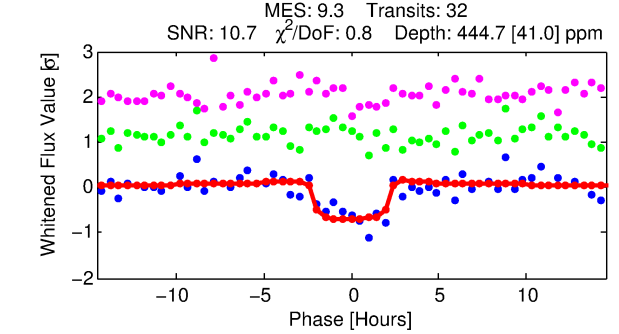
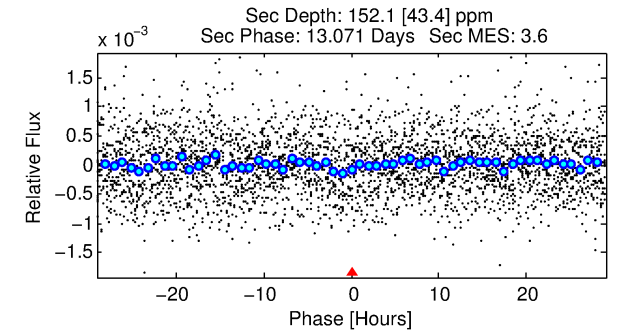
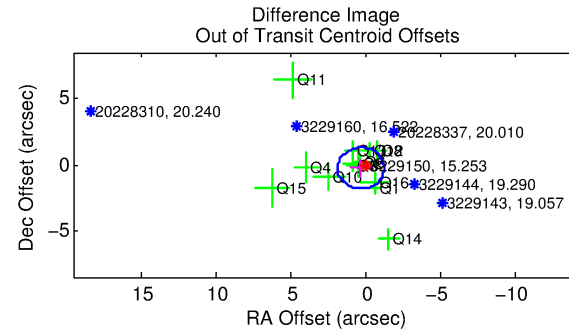
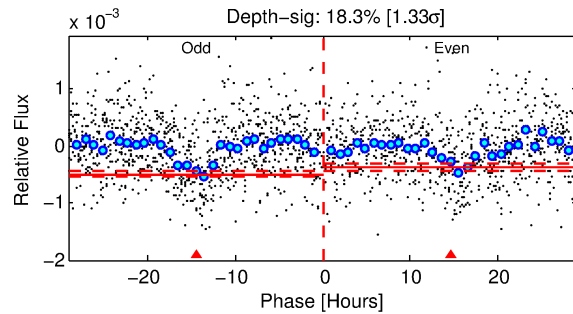
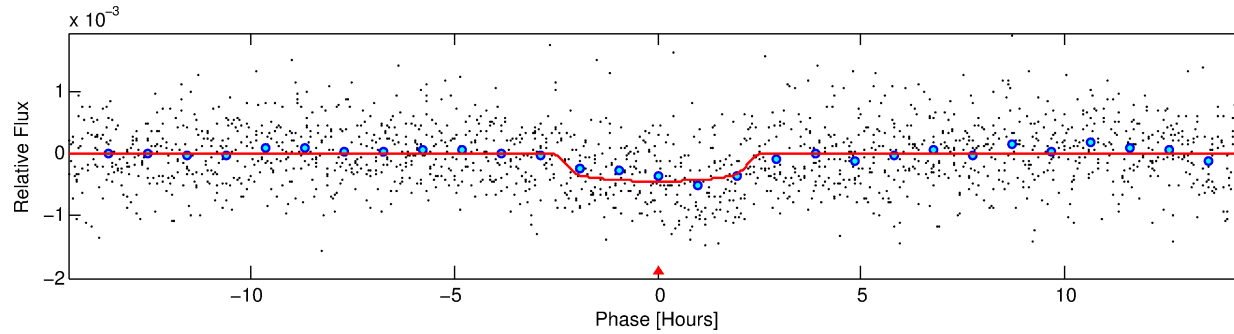
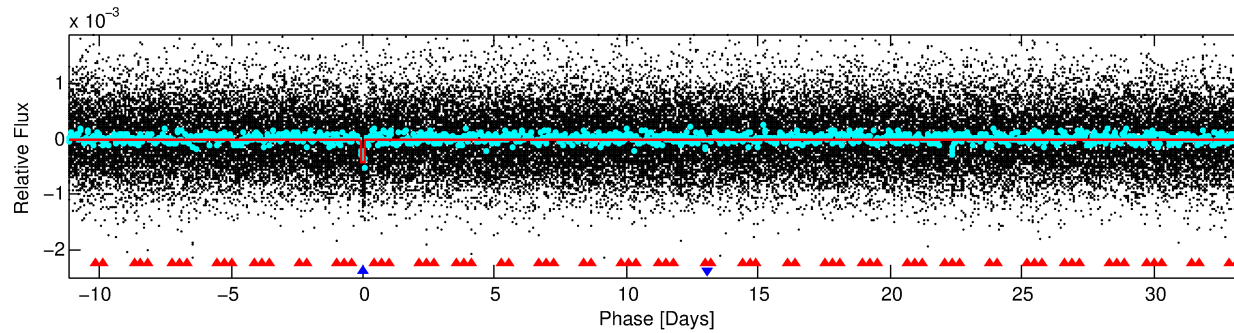
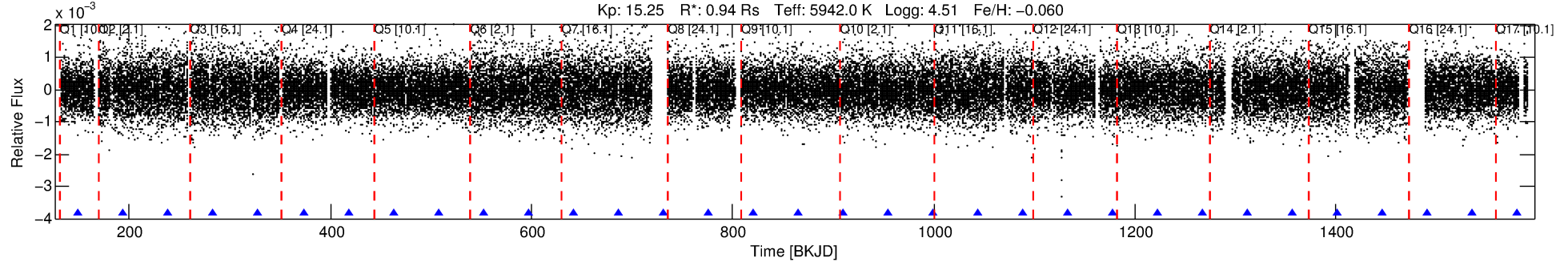
No Significant Match Found

DV One-Page Summary

KIC: 3229150 Candidate: 2 of 2 Period: 44.705 d

KOI: K02150.02 Corr: 0.886

Kp: 15.25 R*: 0.94 Rs Teff: 5942.0 K Logg: 4.51 Fe/H: -0.060



DV Fit Results:

Period = 44.70546 [0.00043] d
Epoch = 149.6298 [0.0082] BKJD
Rp/R* = 0.0217 [0.0082]
a/R* = 42.82 [76.58]
b = 0.82 [0.71]
Seff = 15.86 [6.32]
Teq = 509 [51] K
Rp = 2.22 [1.07] Re
a = 0.2489 [0.0638] AU
Ag = 1054.74 [942.98] [1.12σ]
Teffp = 4484 [920] K [4.31σ]

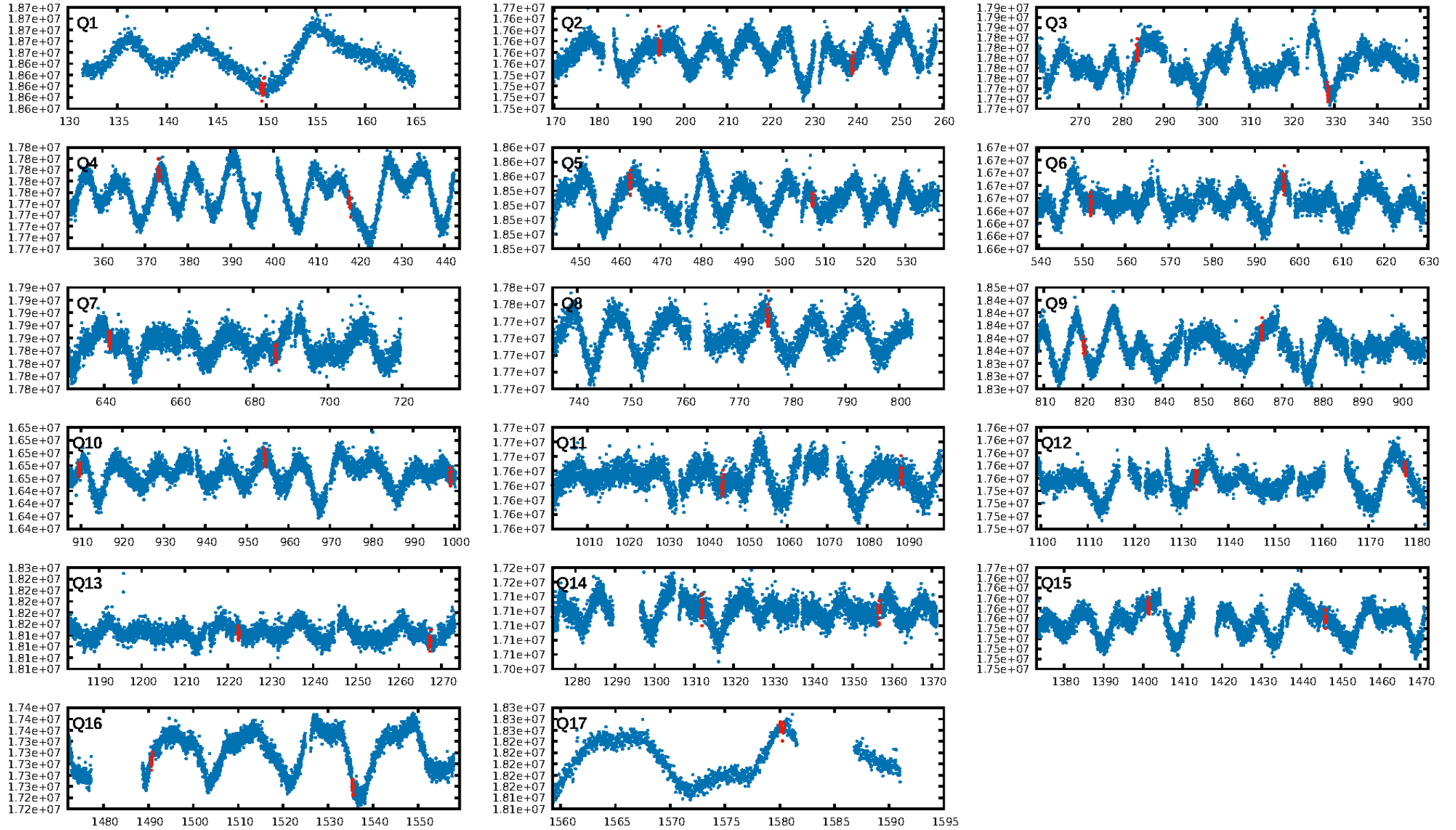
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [78.85σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 22.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.59e-19
RollingBand-fgt: 1.00 [30/30]
GhostDiagnostic-chr: 1.632
Centroid-sig: 24.6%
Centroid-so: 1.208 arcsec [1.18σ]
OotOffset-rm: 0.393 arcsec [0.76σ]
KicOffset-rm: 0.406 arcsec [0.61σ]
OotOffset-st: 4/2/4/3 [13]
KicOffset-st: 4/2/4/3 [13]
DiffImageQuality-fgm: 0.46 [6/13]
DiffImageOverlap-fno: 0.94 [16/17]

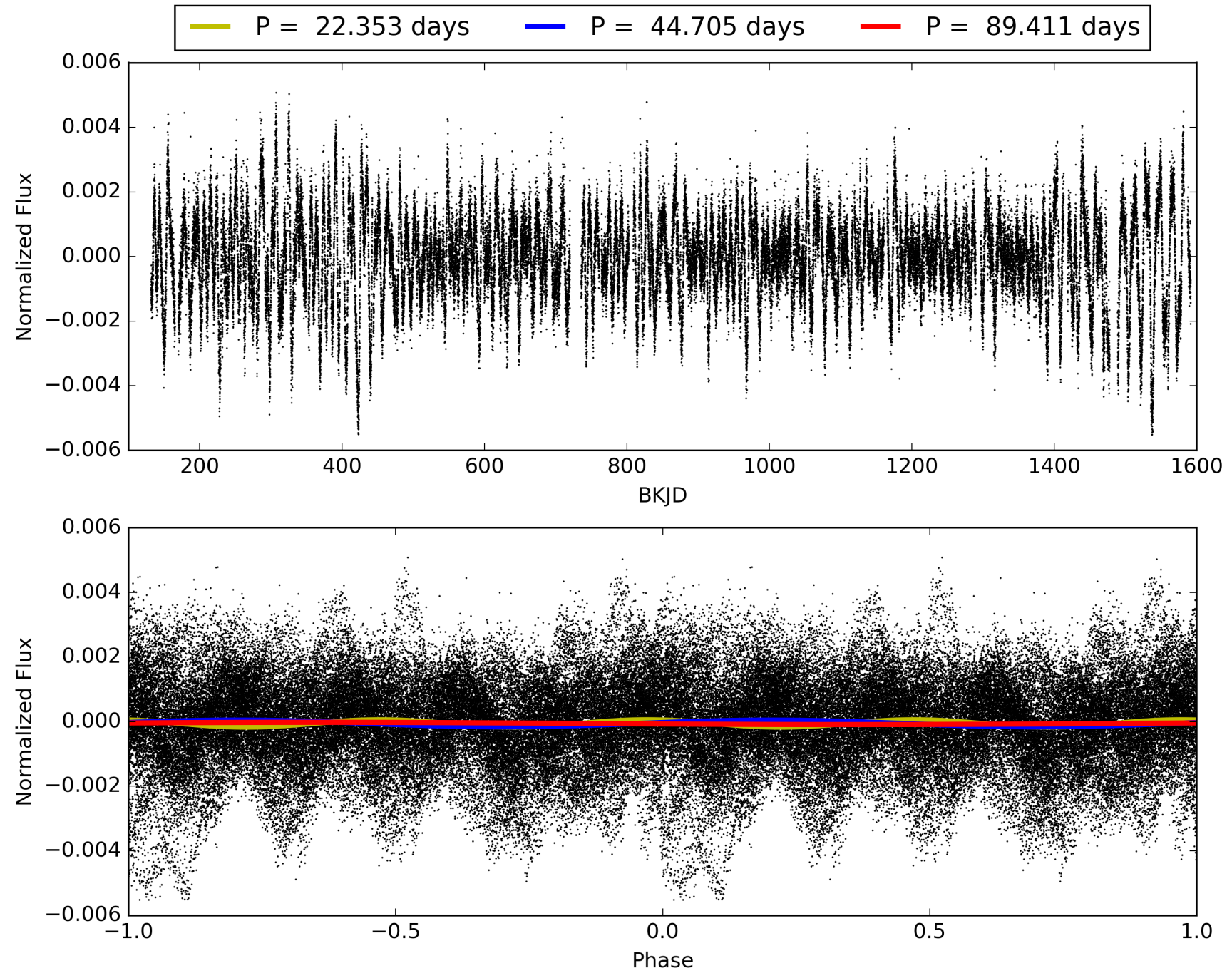
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:10:50 Z

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

TCE 003229150-02, PDC Light Curves

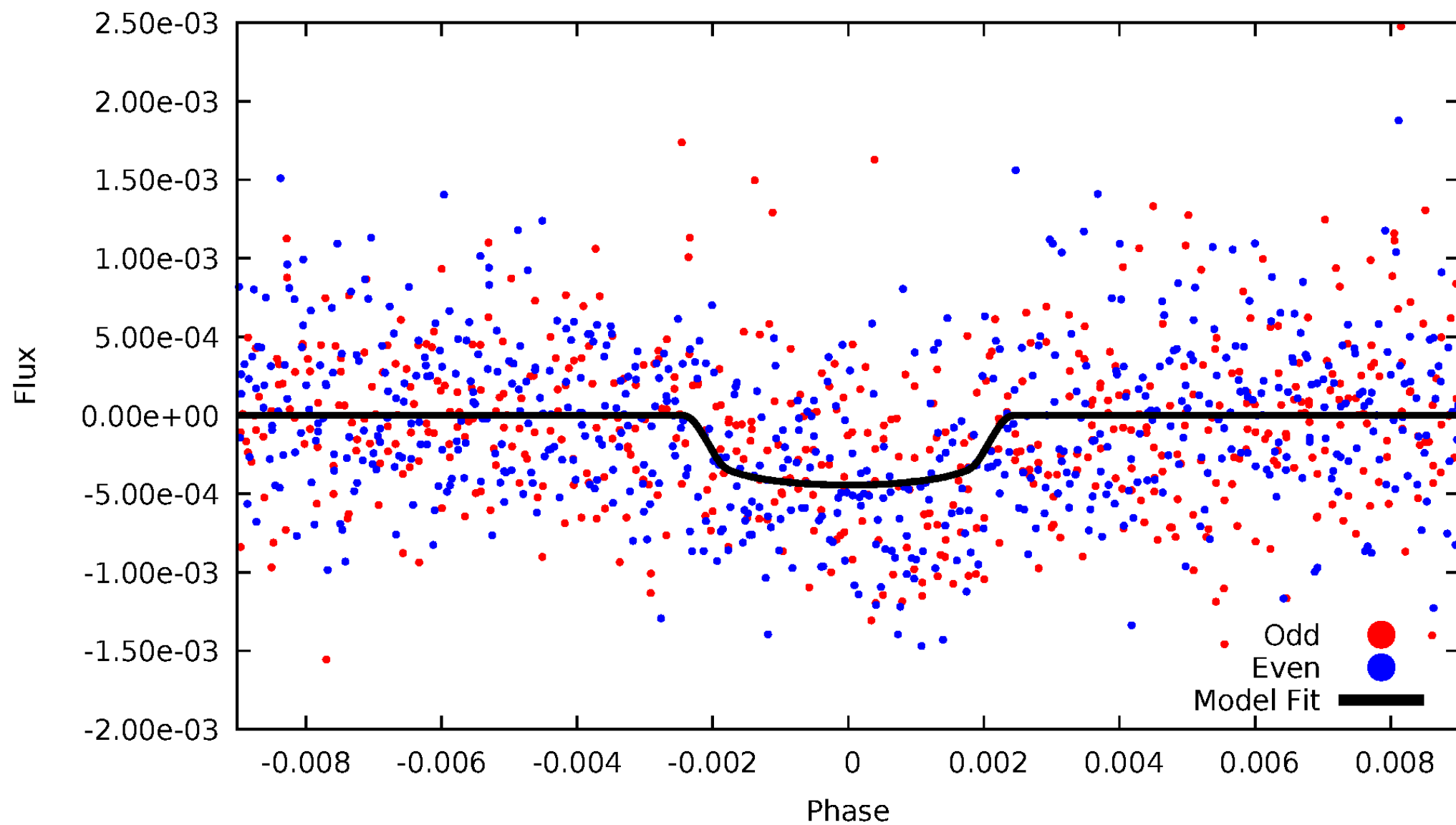


TCE 003229150-02



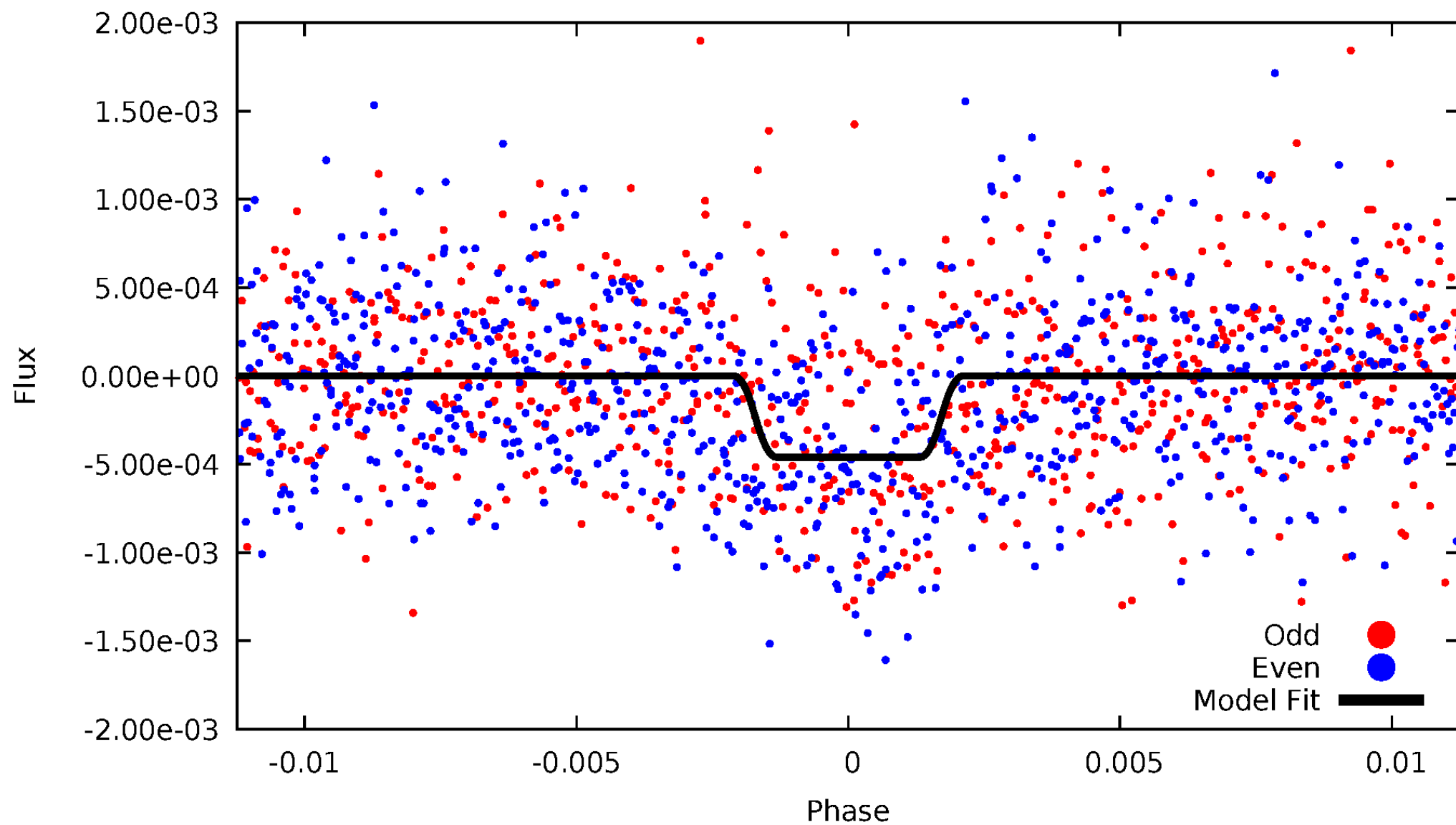
DV Odd/Even

TCE 003229150-02



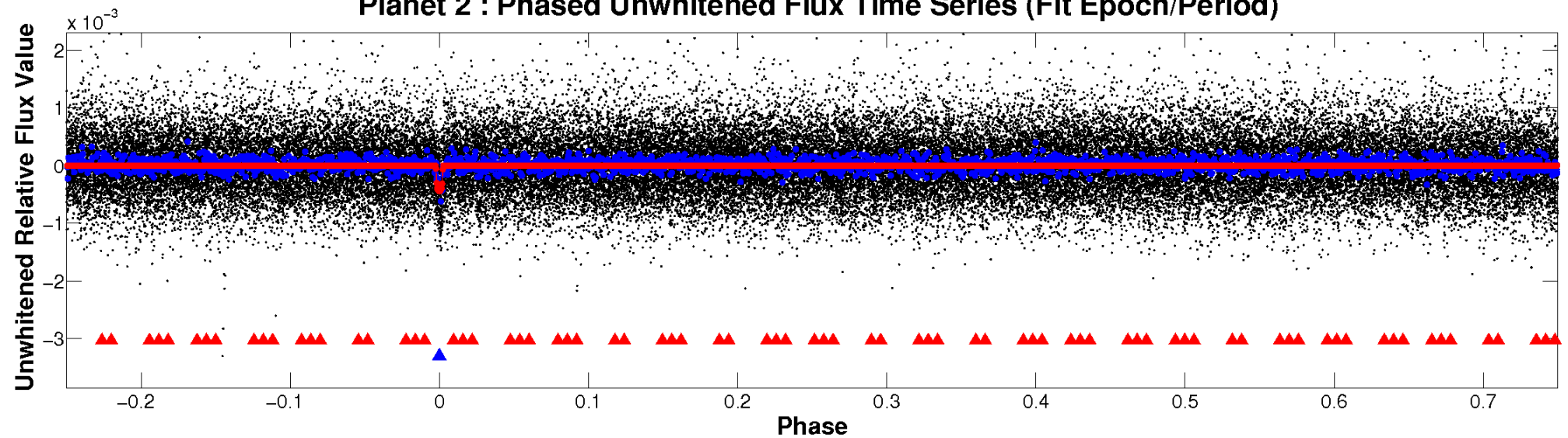
ALT Odd/Even

TCE 003229150-02

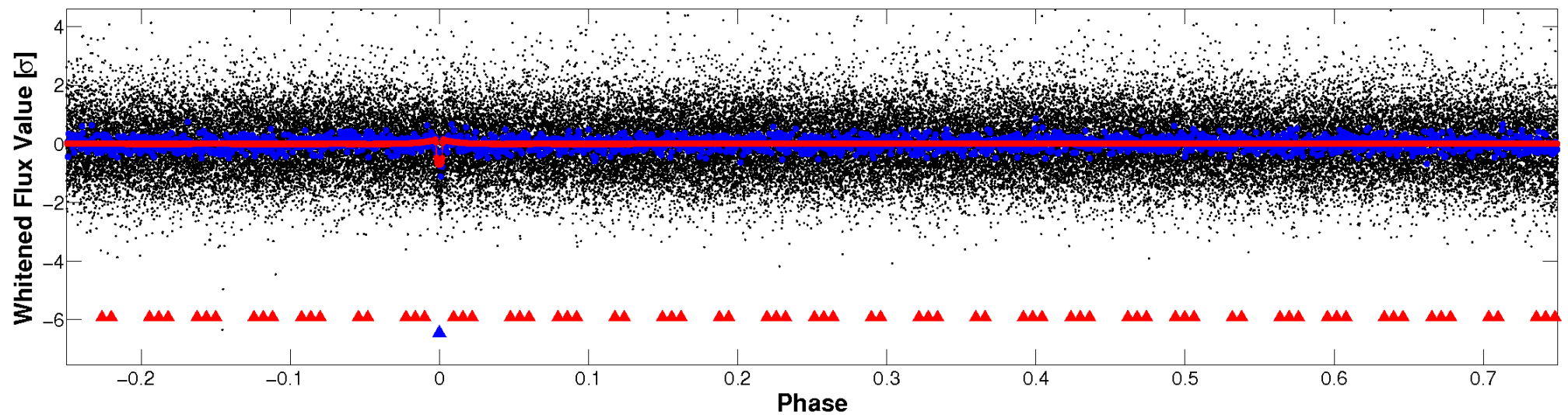


Non-Whitened Vs. Whitened Light Curve

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

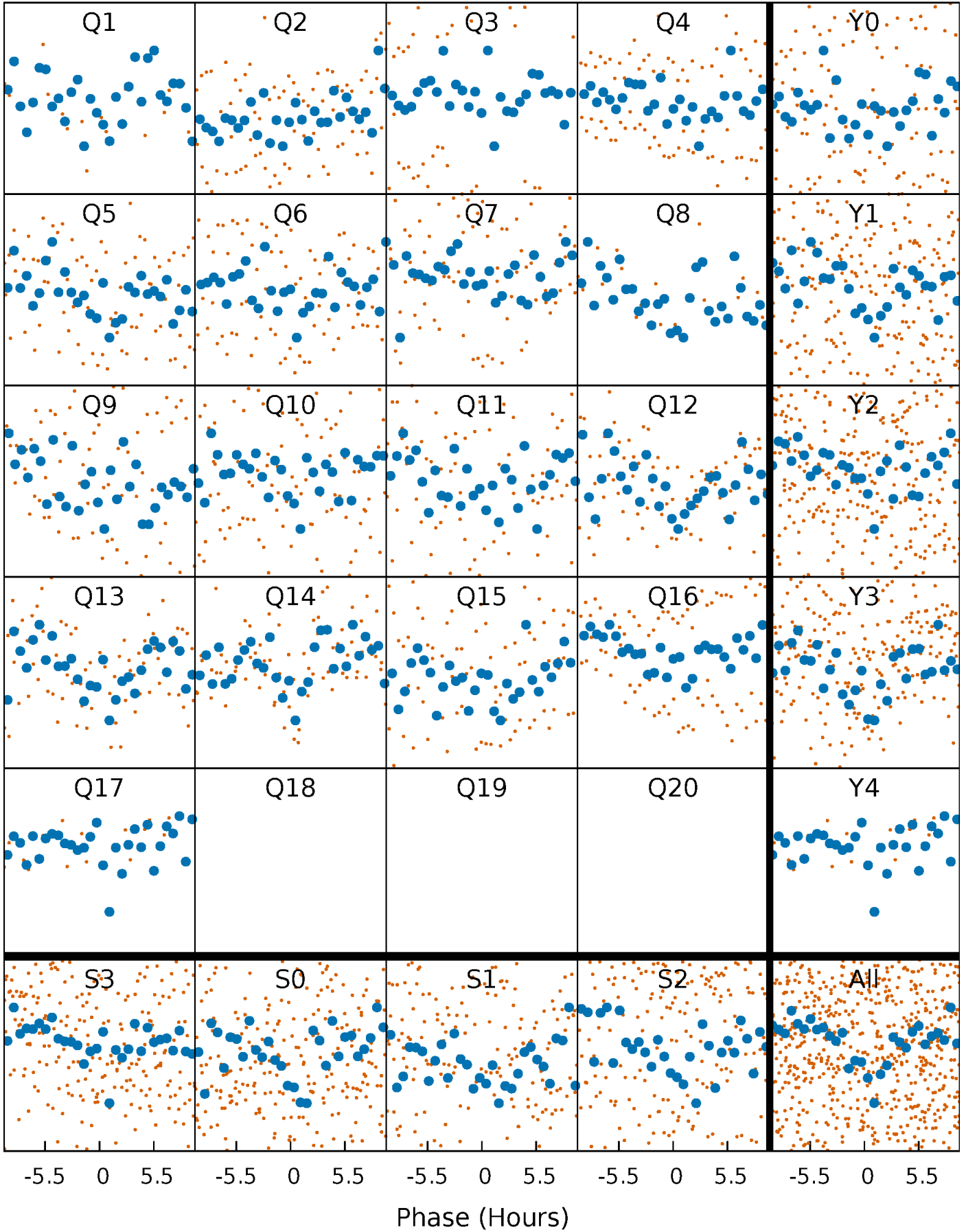


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



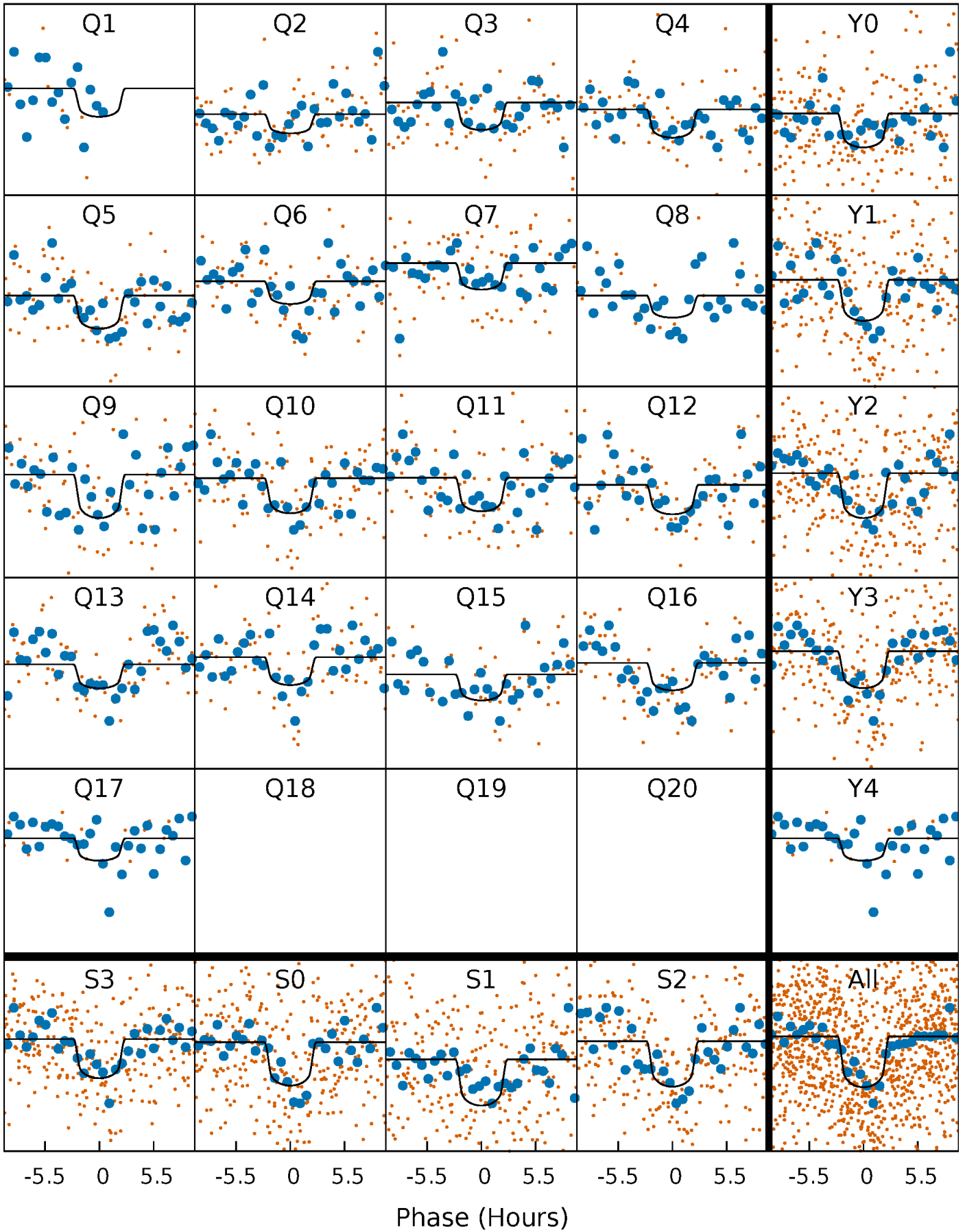
PDC Quarter-Phased Transit Curves

TCE 003229150-02 P= 44.705465 Days $T_0=149.629846$ (BKJD)



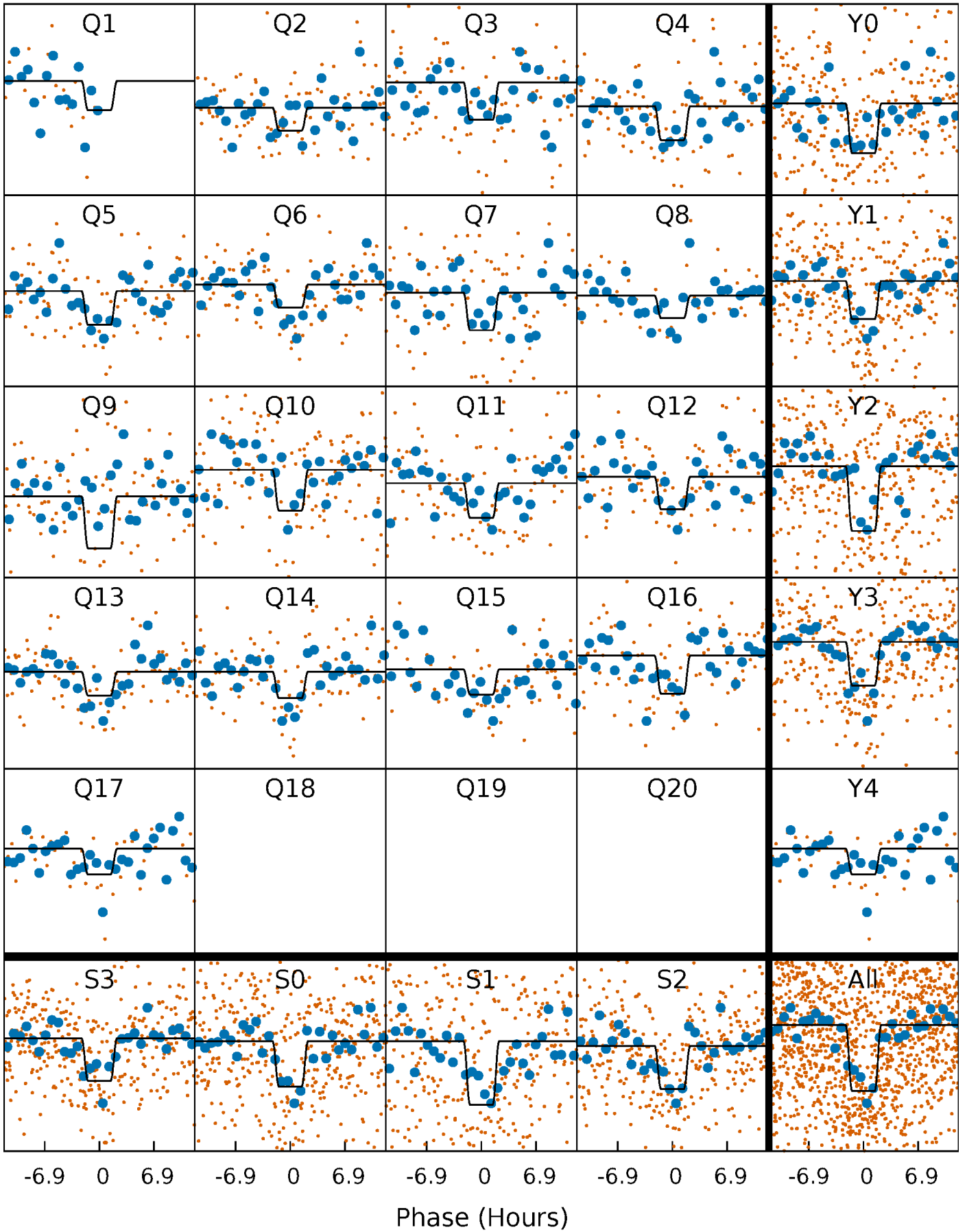
DV Quarter-Phased Transit Curves

TCE 003229150-02 P= 44.705465 Days $T_0=149.629846$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

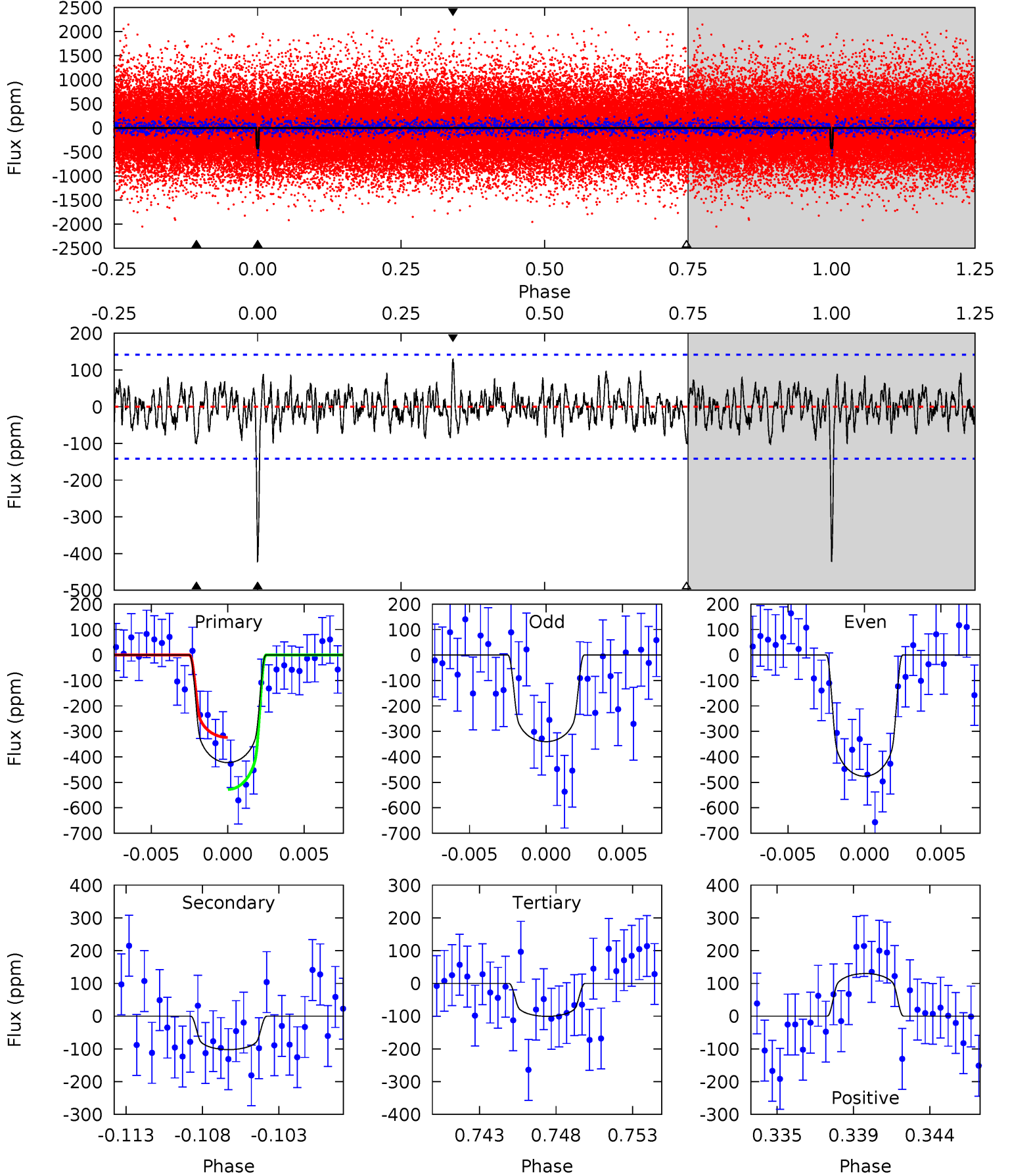
TCE 003229150-02 P= 44.705654 Days $T_0=149.641467$ (BKJD)



DV Model-Shift Uniqueness Test

003229150-02, $P = 44.705465$ Days, $E = 104.924381$ Days

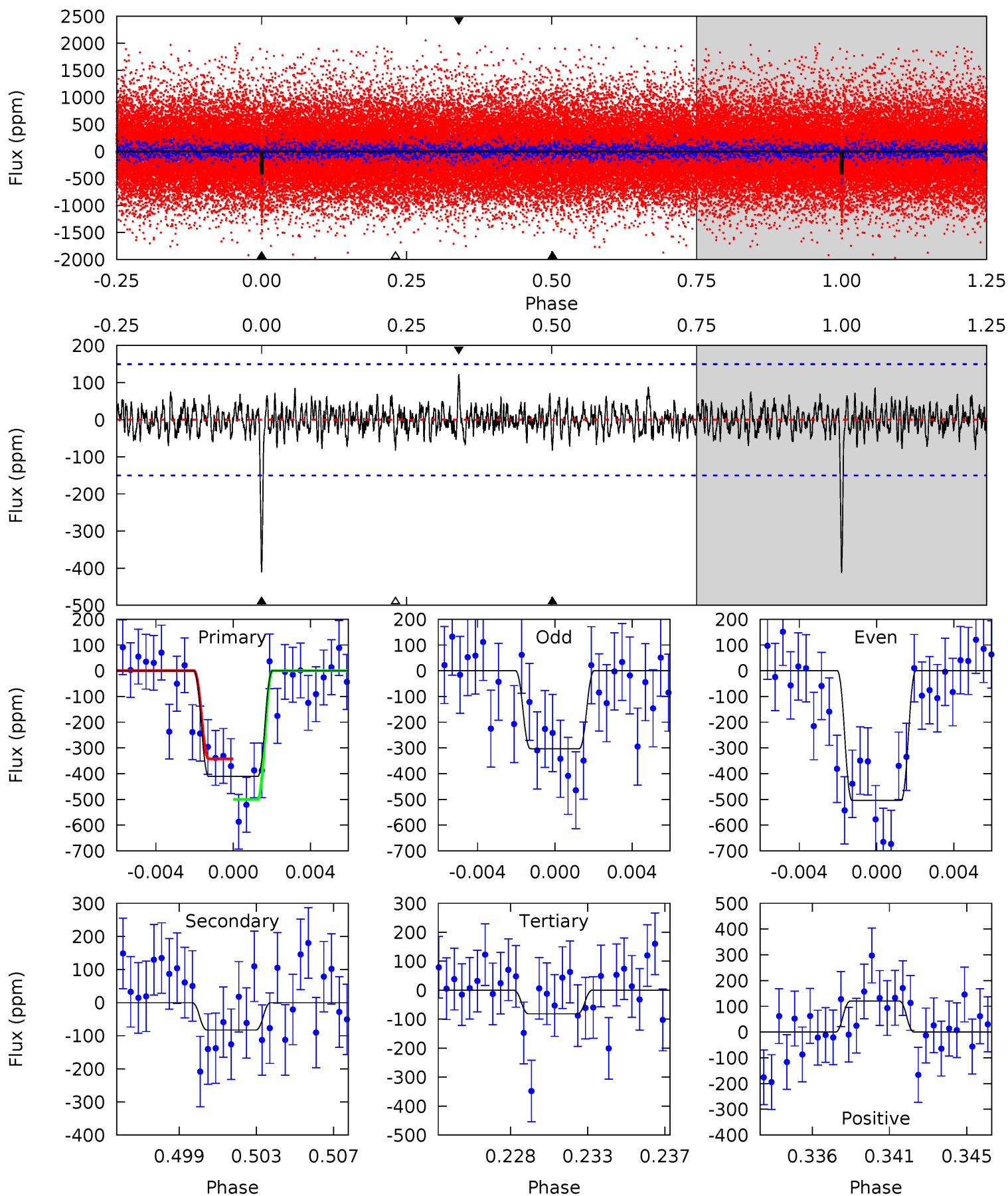
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	3.72	3.66	4.73	5.16	2.81	1.25	11.7	10.7	0.06	-1.01	2.47	0.95	0.24	3.73



Alt Model-Shift Uniqueness Test

003229150-02, P = 44.705654 Days, E = 104.935813 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	2.86	2.83	4.18	5.19	2.87	0.97	11.4	10.1	0.04	-1.32	3.48	0.84	0.23	2.73



Stellar Parameters For KIC 003229150

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5942^{+176}_{-193}	$4.506^{+0.039}_{-0.208}$	$-0.060^{+0.250}_{-0.300}$	$0.938^{+0.282}_{-0.094}$	$1.028^{+0.127}_{-0.140}$	$1.756^{+0.373}_{-0.951}$
	+3%/-3%	+1%/-5%	+417%/-500%	+30%/-10%	+12%/-14%	+21%/-54%
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 003229150-02 / KOI 2150.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-102 ± 27	$2.35^{+0.97}_{-0.90}$	729^{+51}_{-34}	4291^{+892}_{-530}	627^{+976}_{-337}
Alt.	-83 ± 29	$2.32^{+0.98}_{-0.91}$	729^{+52}_{-34}	4128^{+912}_{-566}	488^{+953}_{-277}

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

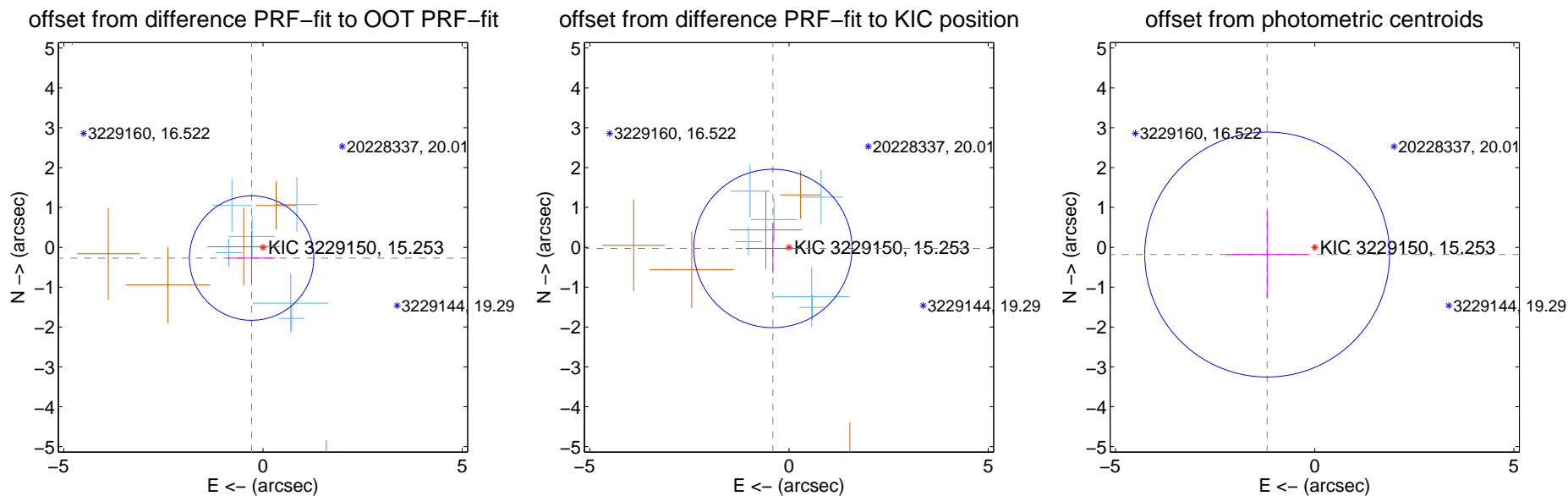
DV Centroid Data

Supplemental centroid analysis for 003229150-02. Kepler magnitude: 15.25. Transit SNR 10.72

There are 6 quarters with good PRF difference image offsets

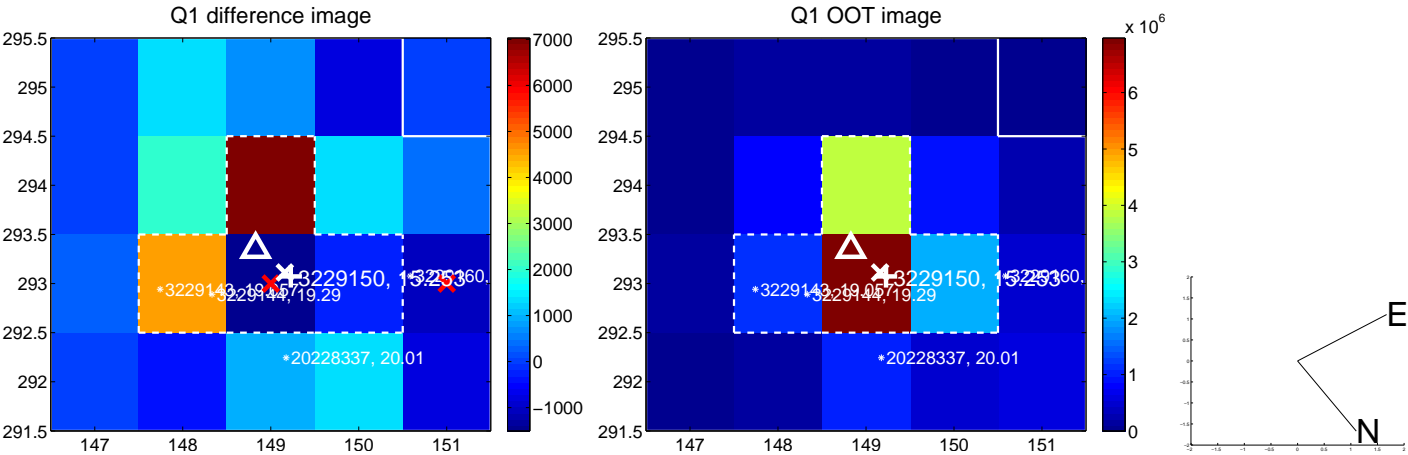
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.393 ± 0.520	0.76	0.286 ± 0.611	-0.270 ± 0.673
PRF-fit source offset from KIC position	0.406 ± 0.662	0.61	0.405 ± 0.679	-0.029 ± 0.627
photometric centroid source offset	1.21 ± 1.02	1.18	1.19 ± 1.02	-0.18 ± 1.08

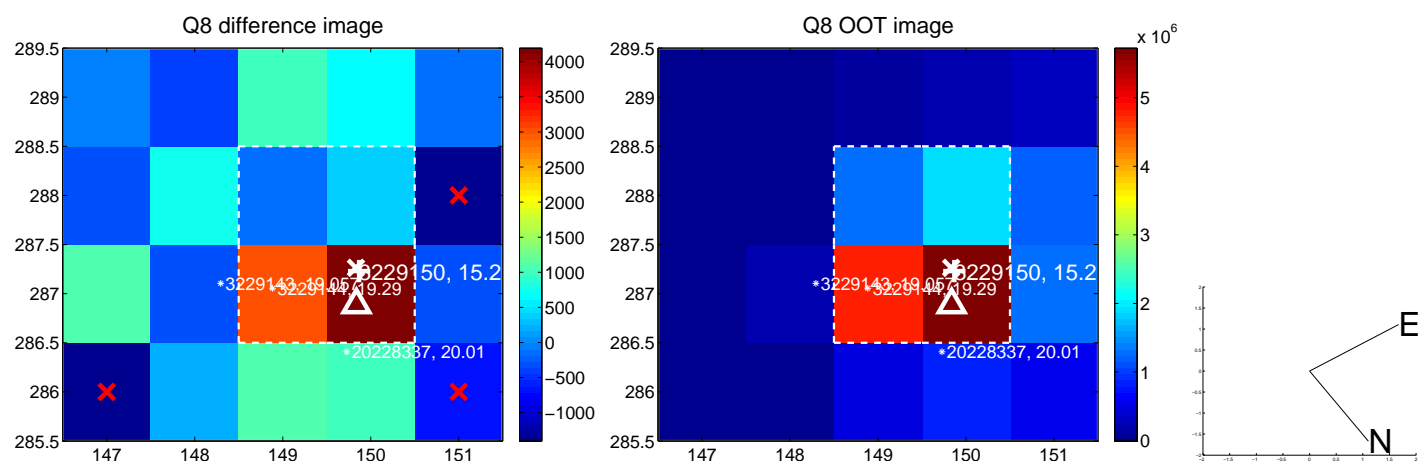
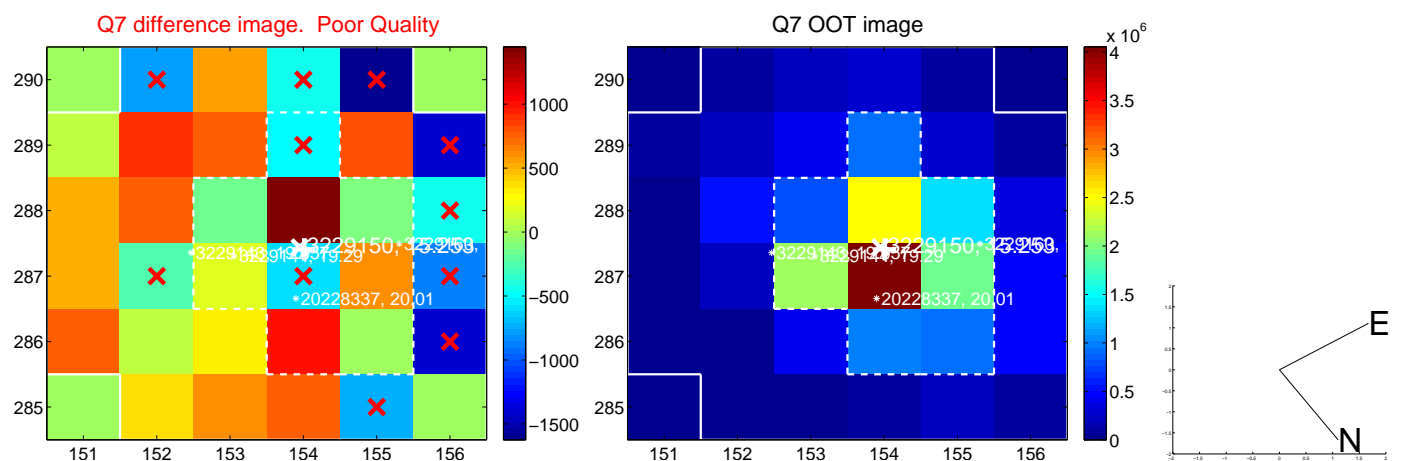
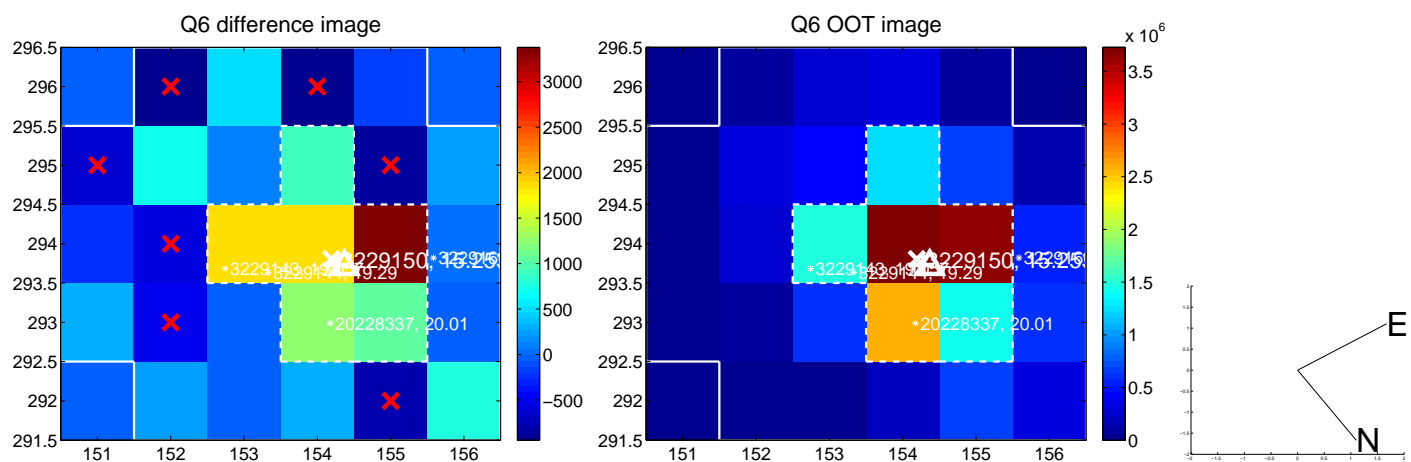
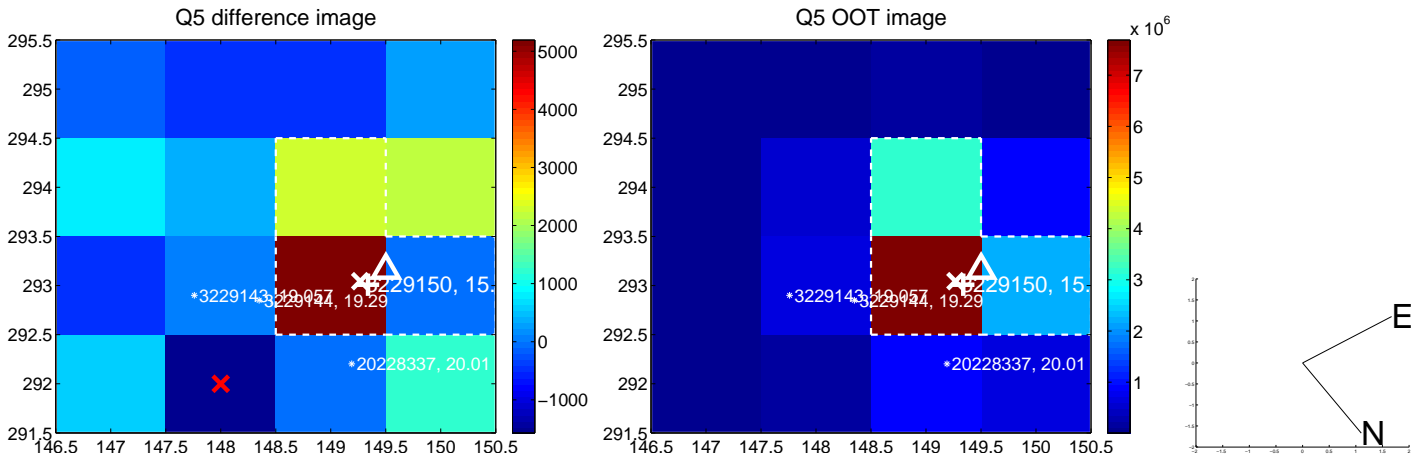


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

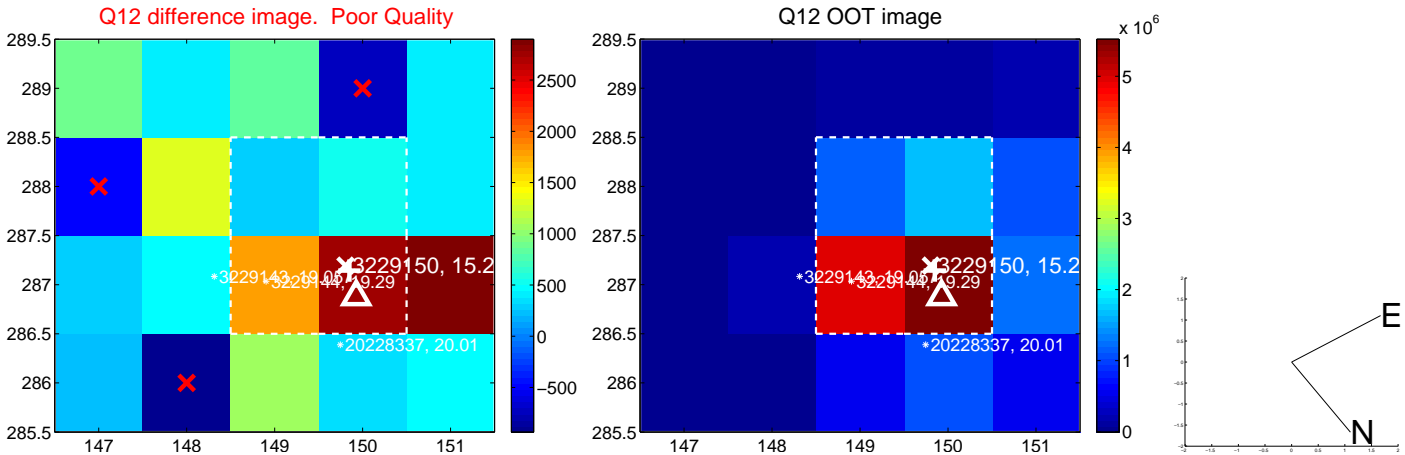
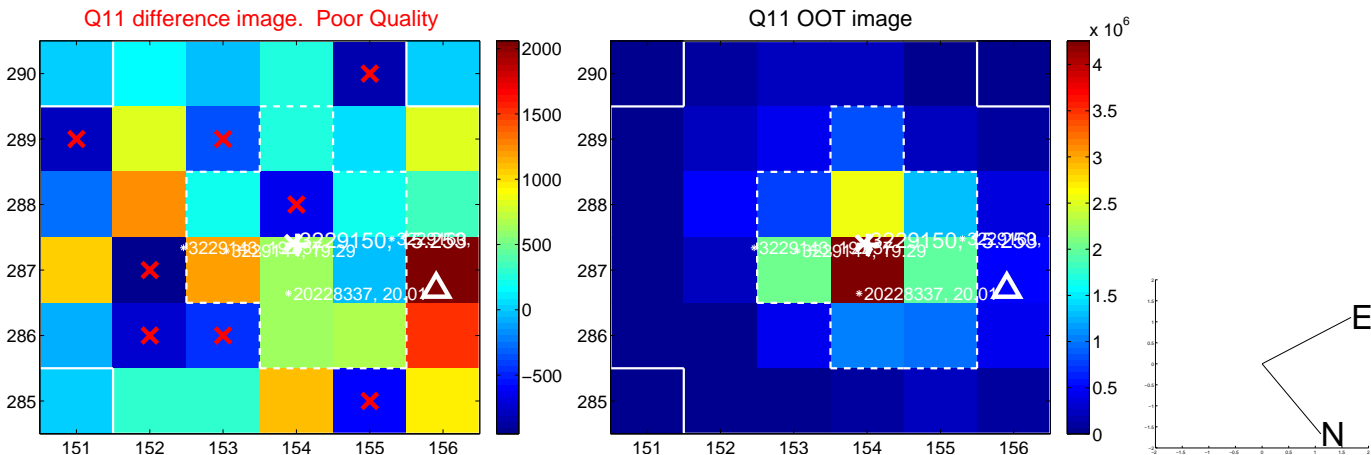
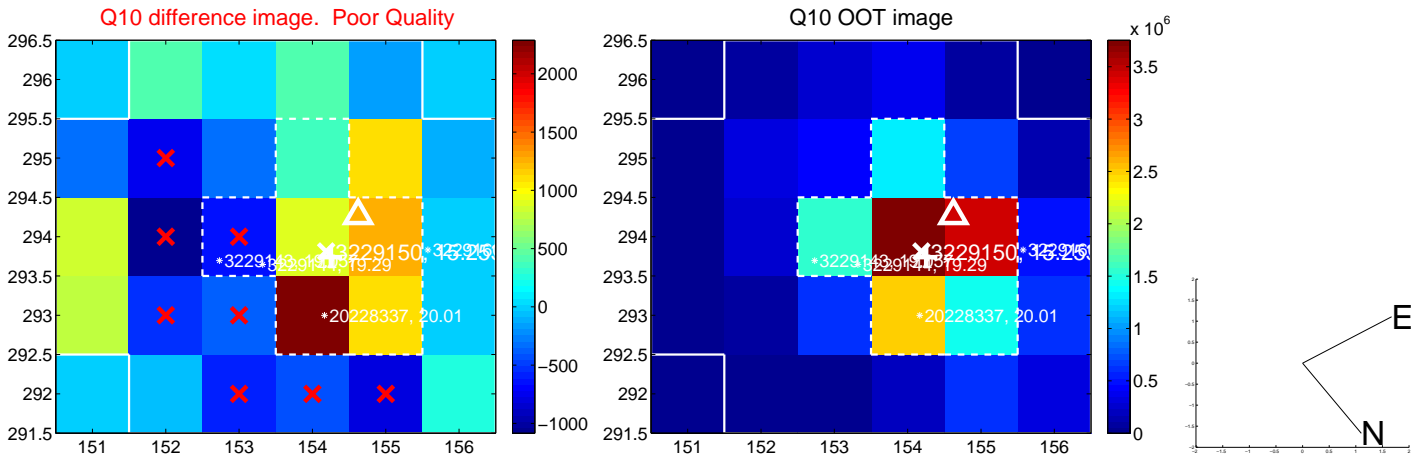
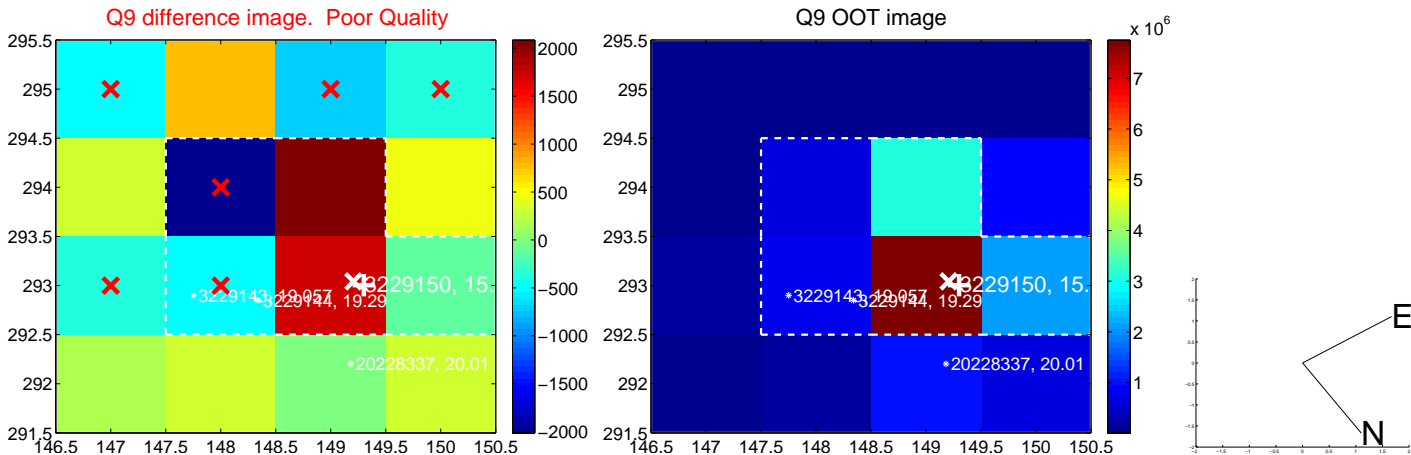
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



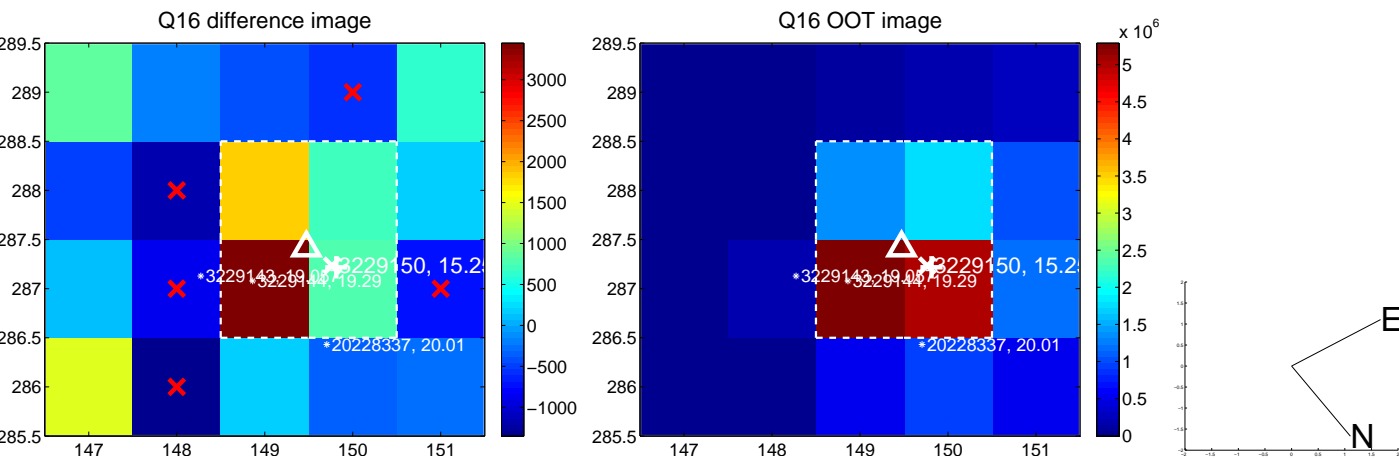
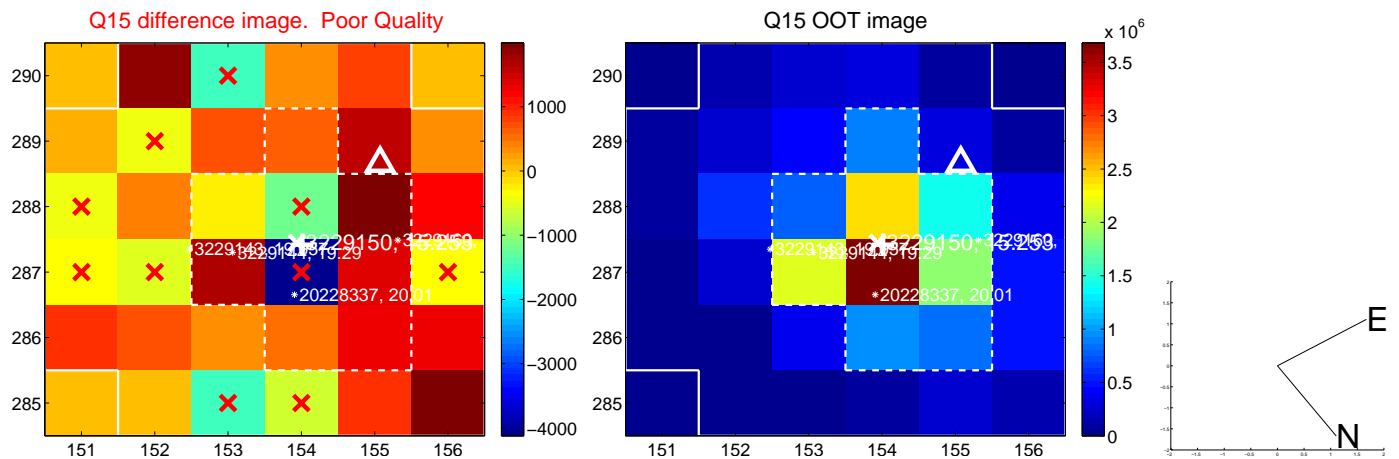
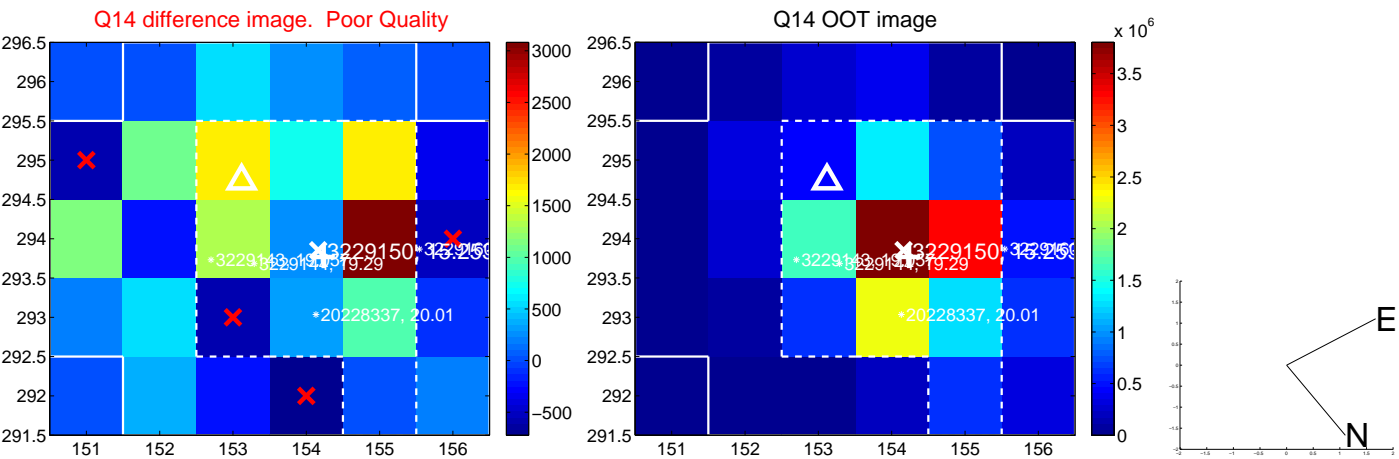
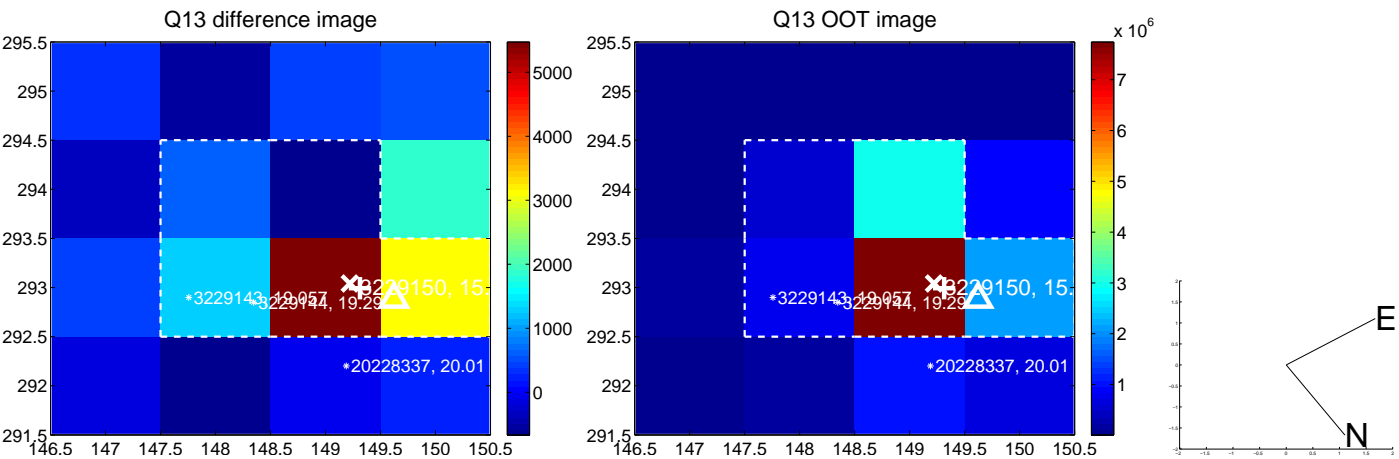
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

