

KIC 004939281

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|------|-----------------------------|-----------------|------------------------|------------------------|
| 004939281-01 | OBS | No | 0.530721 | 131.955962 | 38.0 | 1.802 | 8.9 | 10.5 | 4.71 | 11360 | 3.33 | 0.00 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--------------------------------|
| 004939281-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |

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

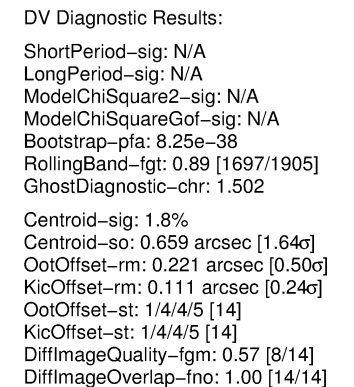
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

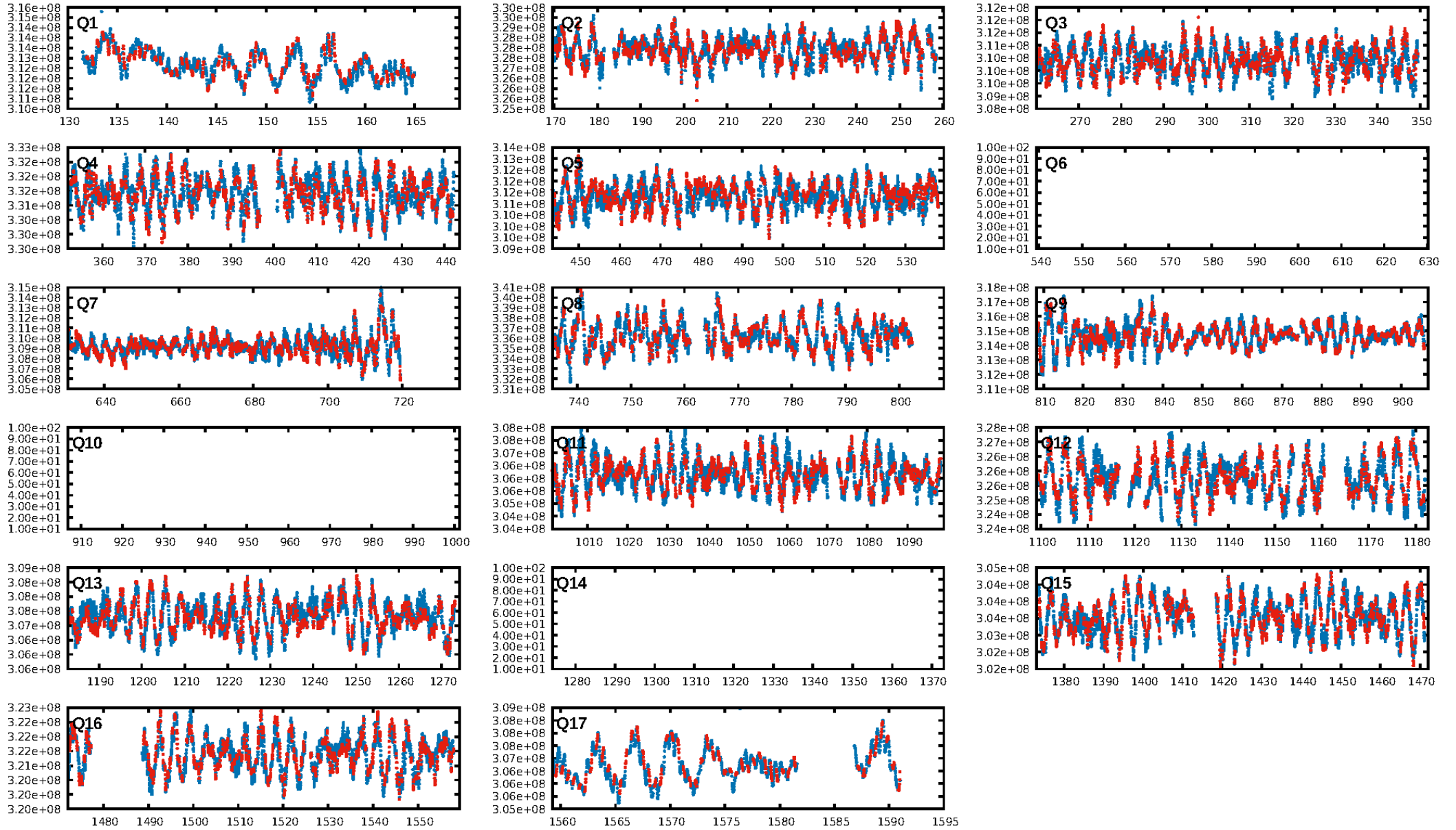
Ephemeris Match Information For 004939281-01

No Significant Match Found

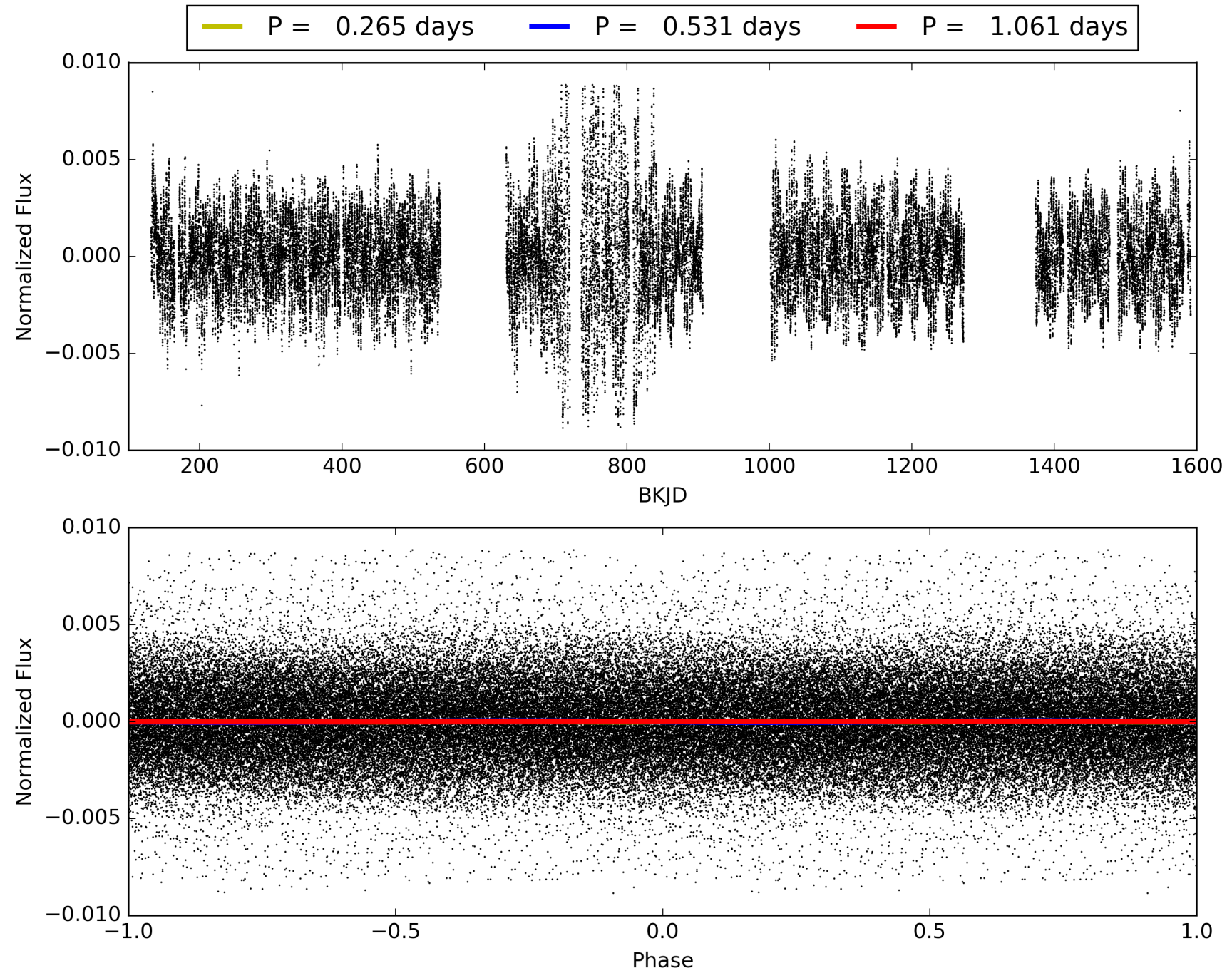
KIC: 4939281 Candidate: 1 of 1 Period: 0.531 d



TCE 004939281-01, PDC Light Curves

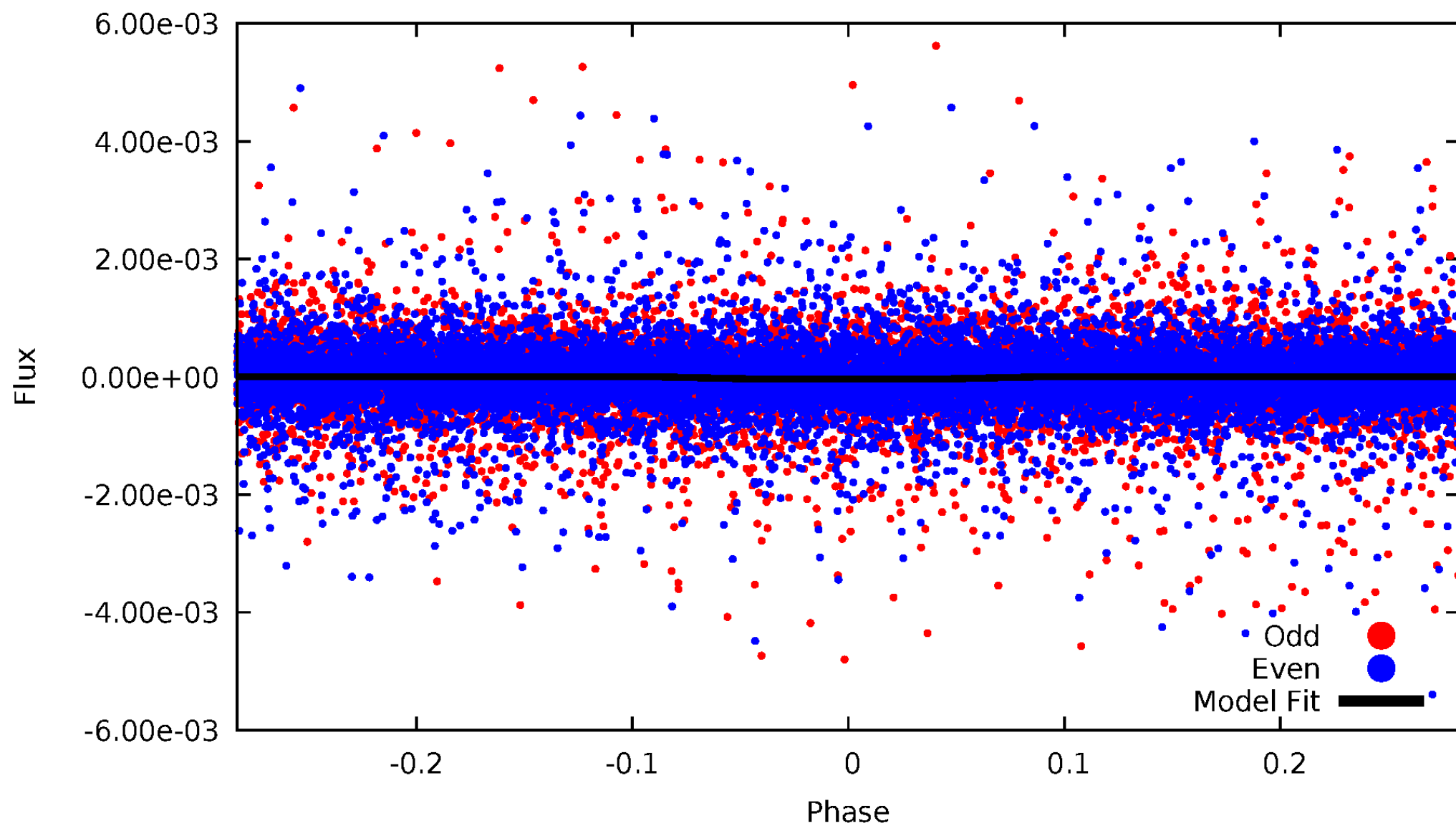


TCE 004939281-01



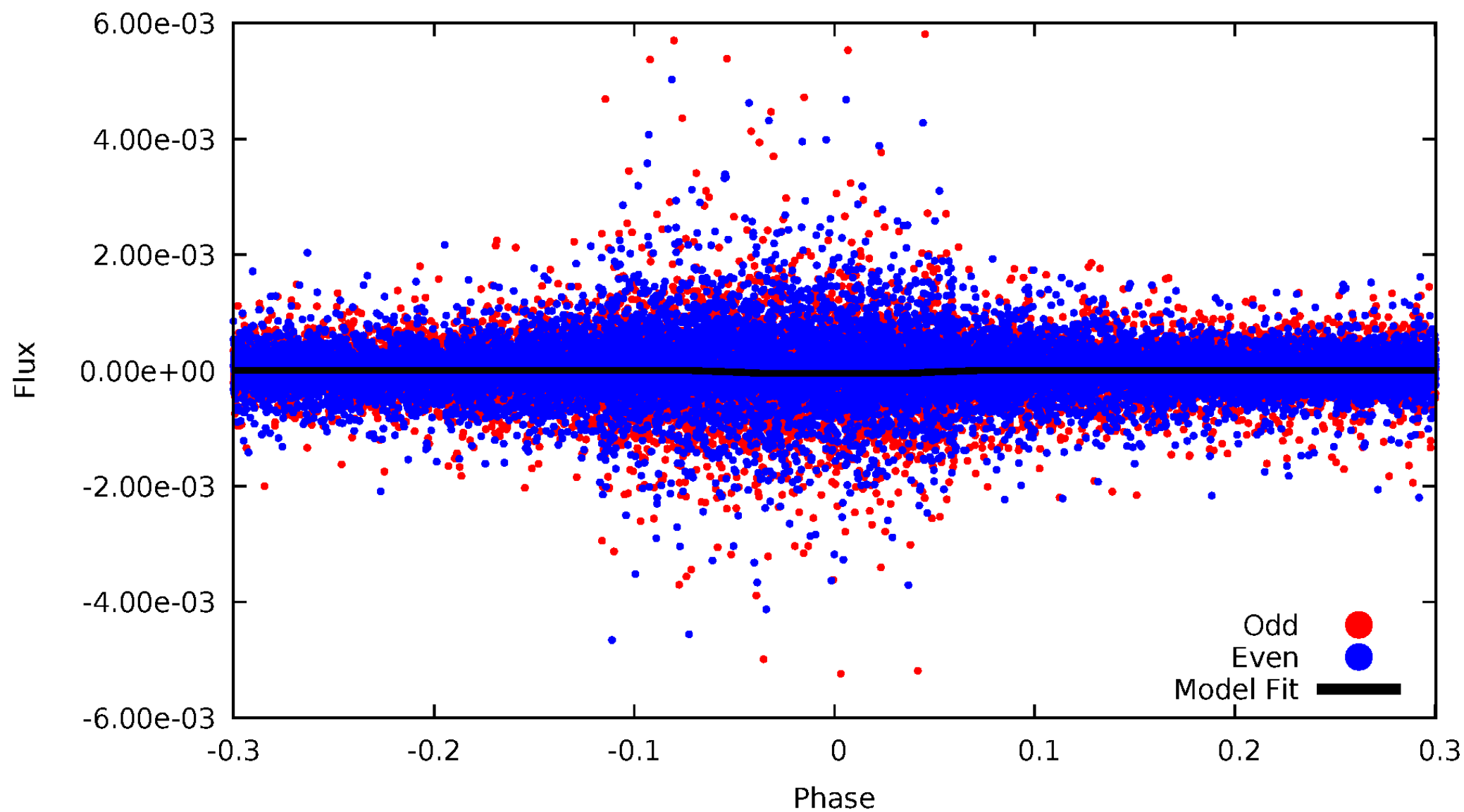
DV Odd/Even

TCE 004939281-01



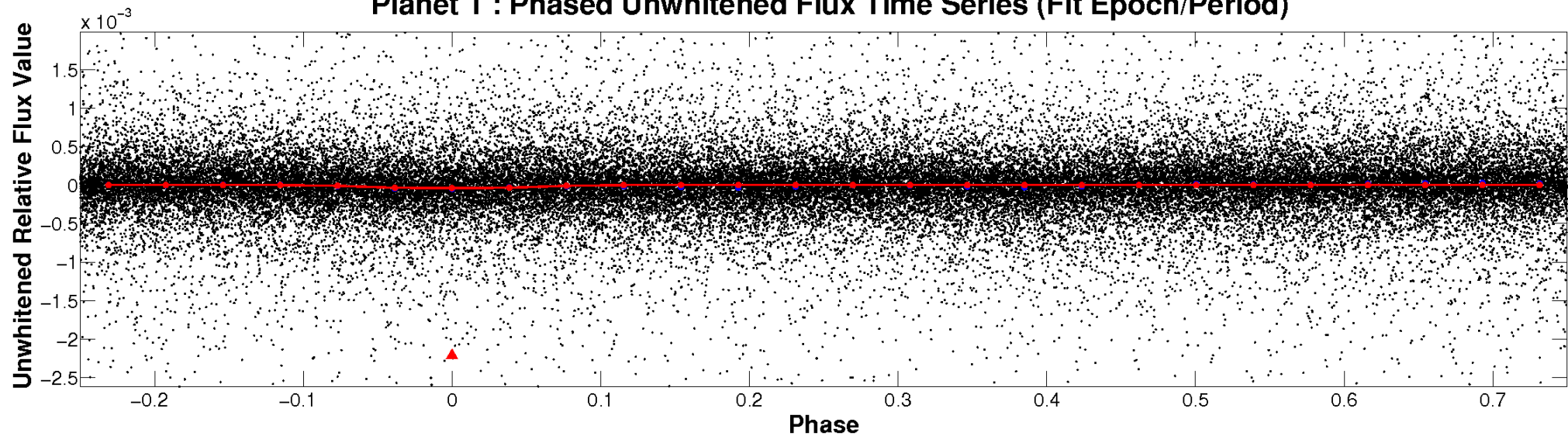
ALT Odd/Even

TCE 004939281-01

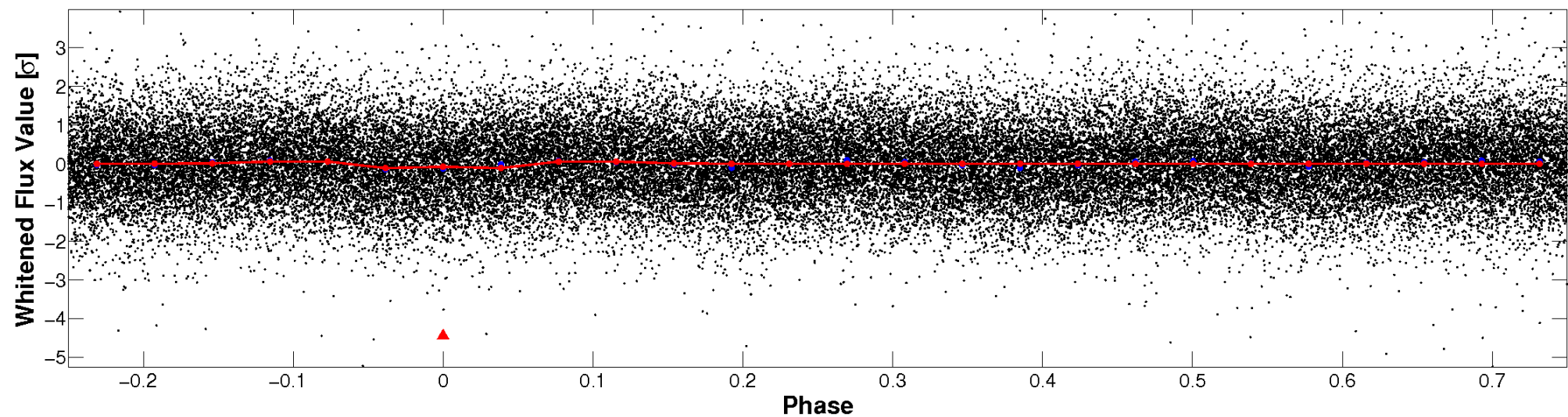


Non-Whitened Vs. Whitened Light Curve

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

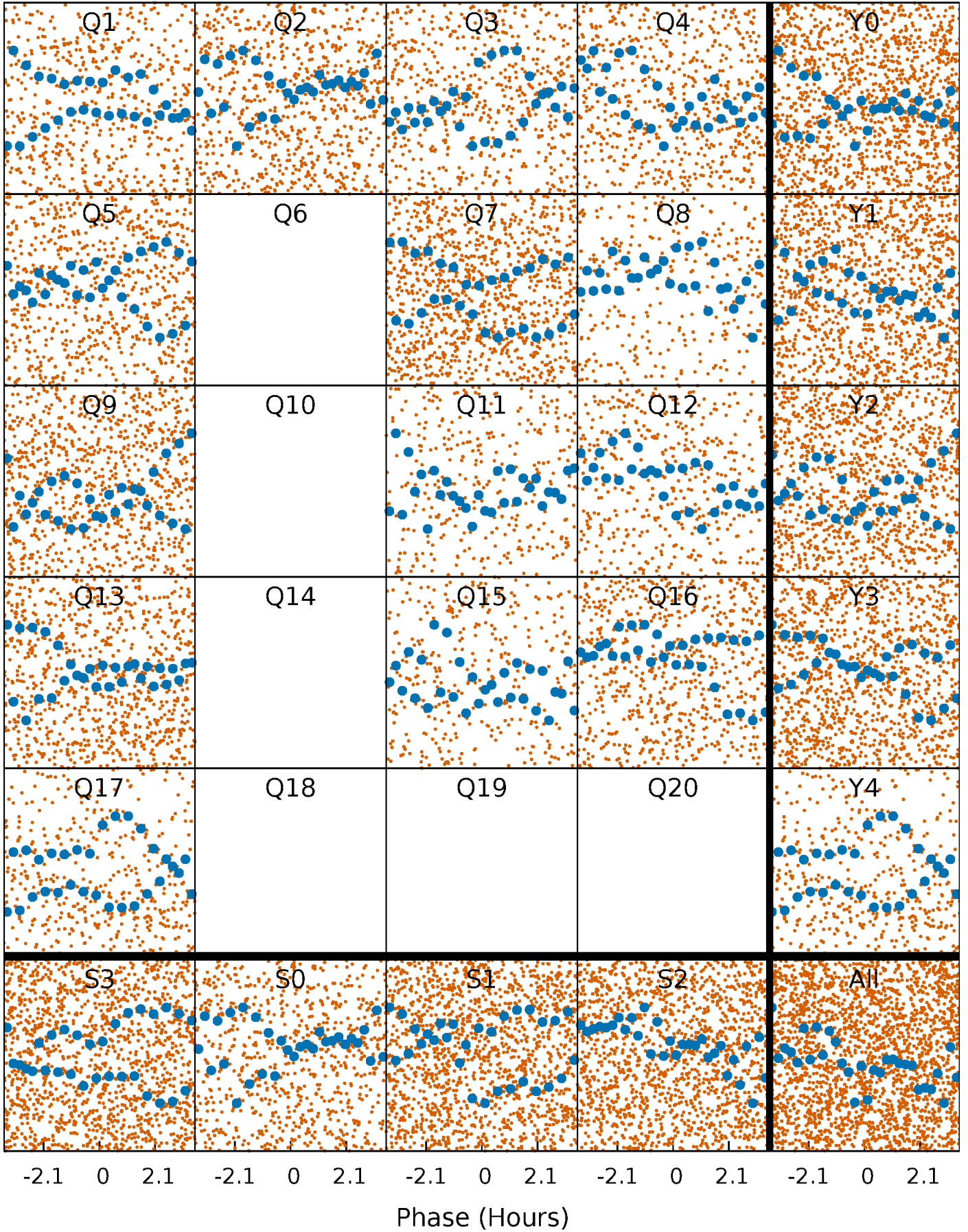


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



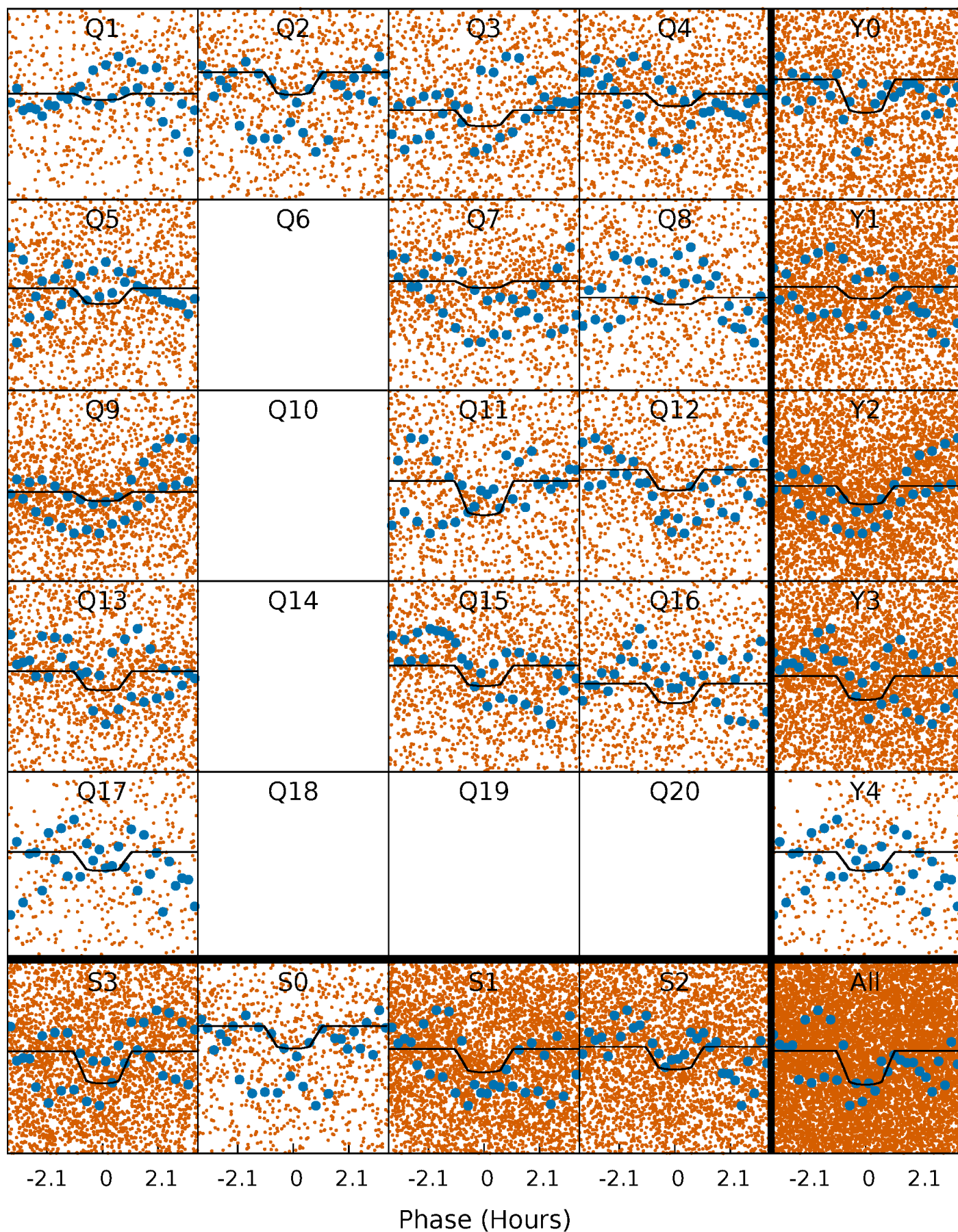
PDC Quarter-Phased Transit Curves

TCE 004939281-01 P= 0.530721 Days $T_0=131.955962$ (BKJD)



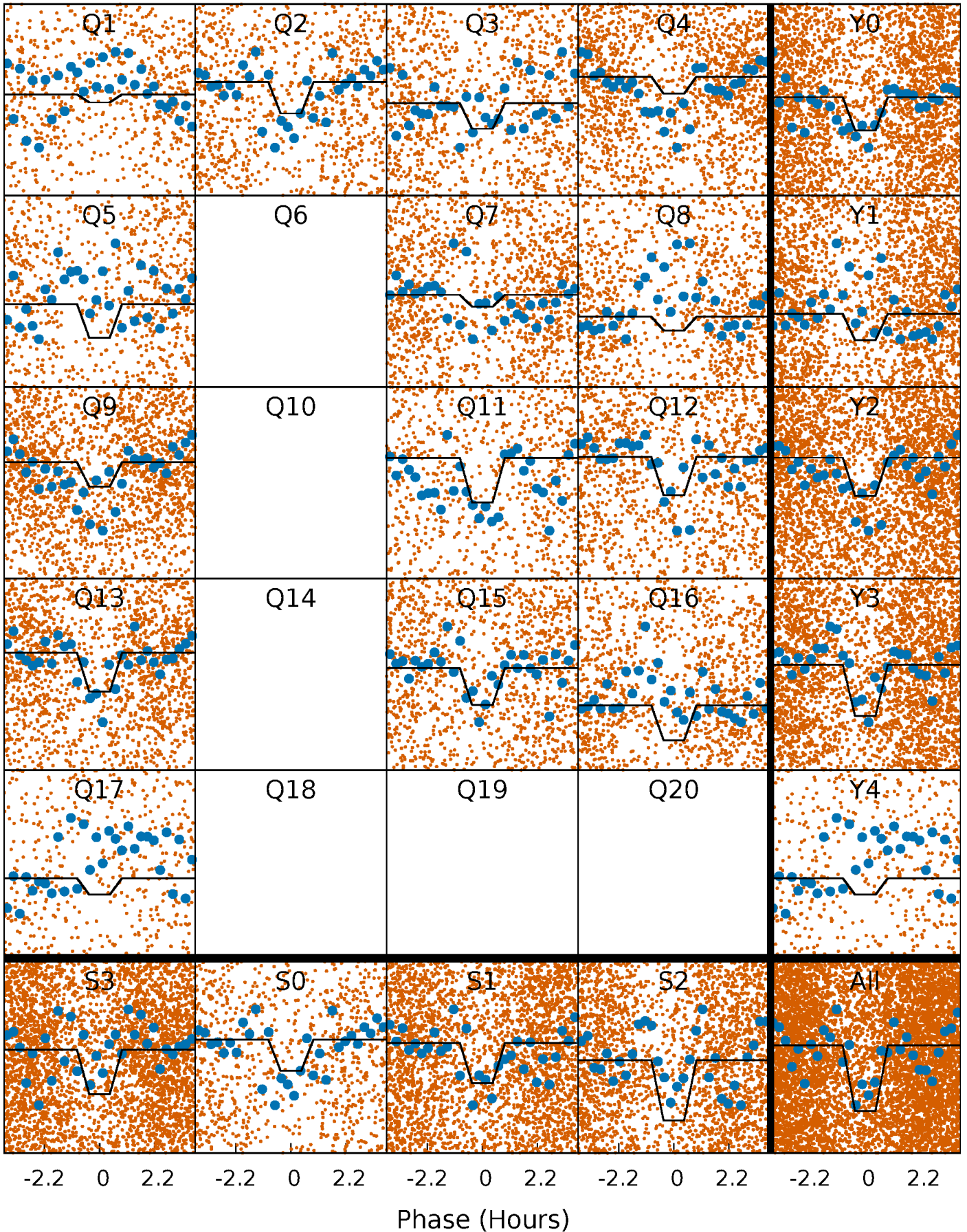
DV Quarter-Phased Transit Curves

TCE 004939281-01 P= 0.530721 Days $T_0=131.955962$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

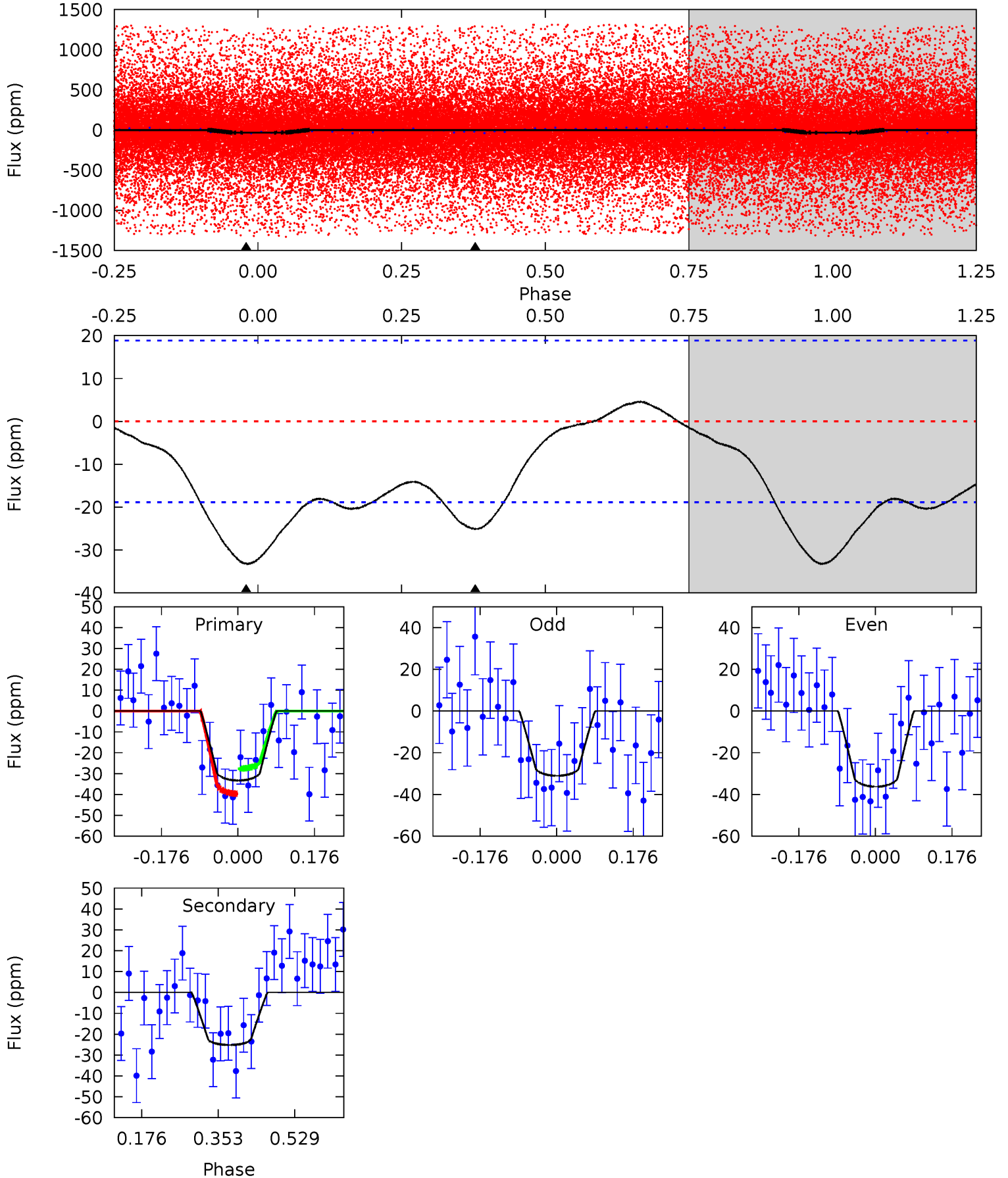
TCE 004939281-01 P= 0.530719 Days $T_0=131.956577$ (BKJD)



DV Model-Shift Uniqueness Test

004939281-01, P = 0.530721 Days, E = 131.425241 Days

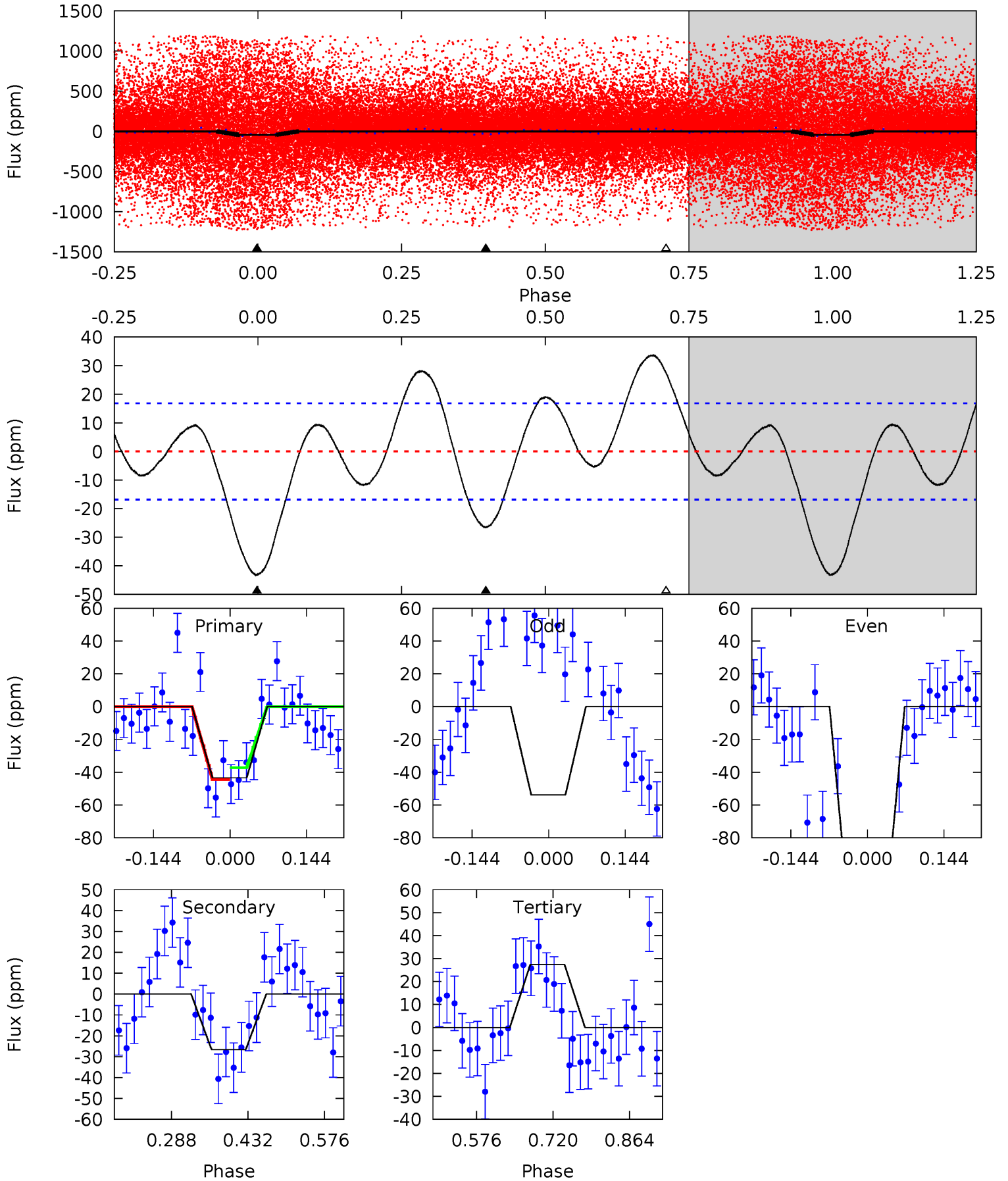
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.85 | 5.94 | 0 | 0 | 4.44 | 1.35 | 1.85 | 7.85 | 7.85 | 5.94 | 5.94 | 0.63 | 1.27 | 0.12 | 1.45 |



Alt Model-Shift Uniqueness Test

004939281-01, P = 0.530719 Days, E = 131.425858 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.6 | 7.09 | -7.32 | 0 | 4.49 | 1.46 | 3.64 | 18.9 | 11.6 | 14.4 | 7.09 | 10.8 | 0.77 | 0.44 | 0.98 |



Stellar Parameters For KIC 004939281

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 11360^{+587}_{-1762} | $3.636^{+0.442}_{-0.078}$ | $0.210^{+0.150}_{-0.200}$ | $4.712^{+0.559}_{-2.236}$ | $3.504^{+0.070}_{-1.012}$ | $0.047^{+0.205}_{-0.012}$ |
| | +5%/-16% | +12%/-2% | +71%/-95% | +12%/-47% | +2%/-29% | +435%/-26% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 004939281-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|-------------------------|------------------------|---------------------------|
| DV | -25 ± 4 | $2.98^{+0.65}_{-0.83}$ | 9995^{+1390}_{-1689} | 7089^{+1844}_{-1765} | $0.577^{+0.457}_{-0.205}$ |
| Alt. | -27 ± 4 | $3.44^{+0.76}_{-0.85}$ | 10081^{+1371}_{-1681} | 6249^{+1696}_{-3225} | $0.461^{+0.357}_{-0.158}$ |

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 $A_{obs} \gg 1.0$

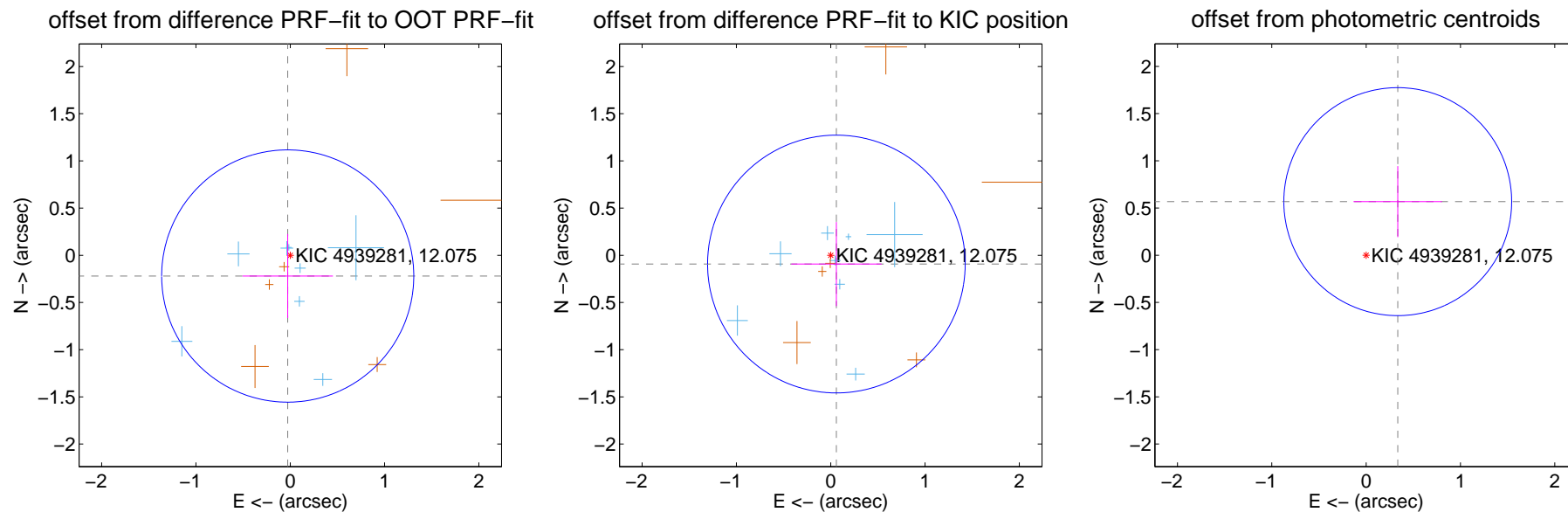
DV Centroid Data

Supplemental centroid analysis for 004939281-01. Kepler magnitude: 12.07. Transit SNR 10.47

There are 8 quarters with good PRF difference image offsets

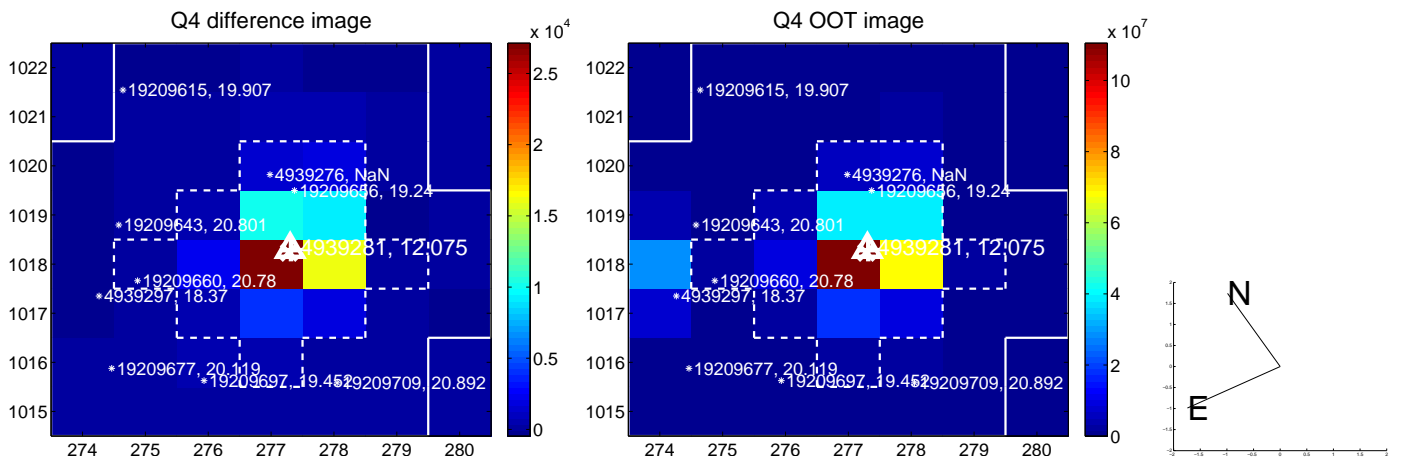
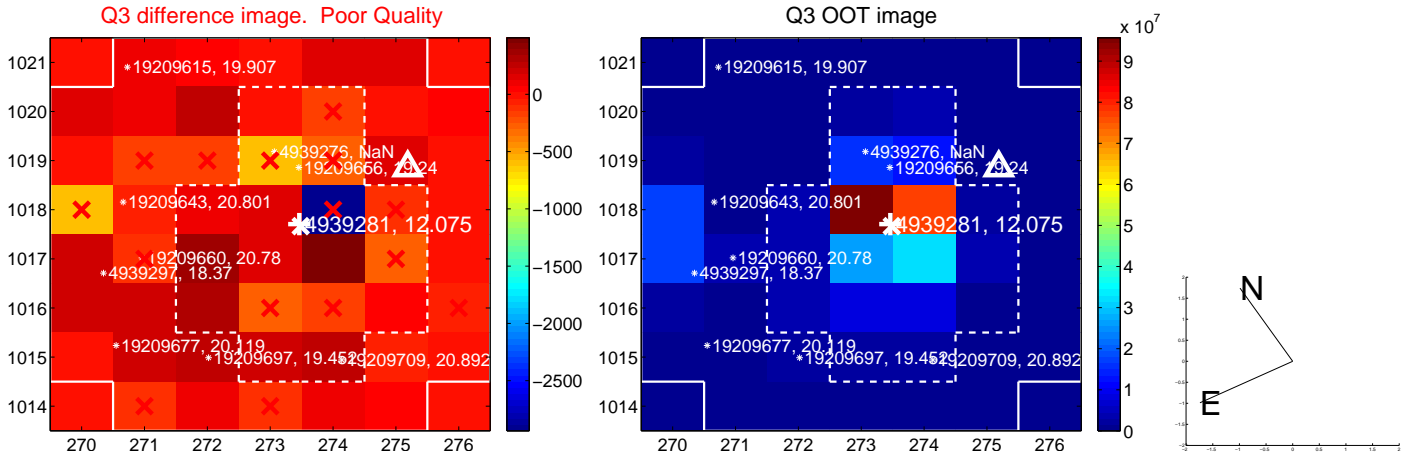
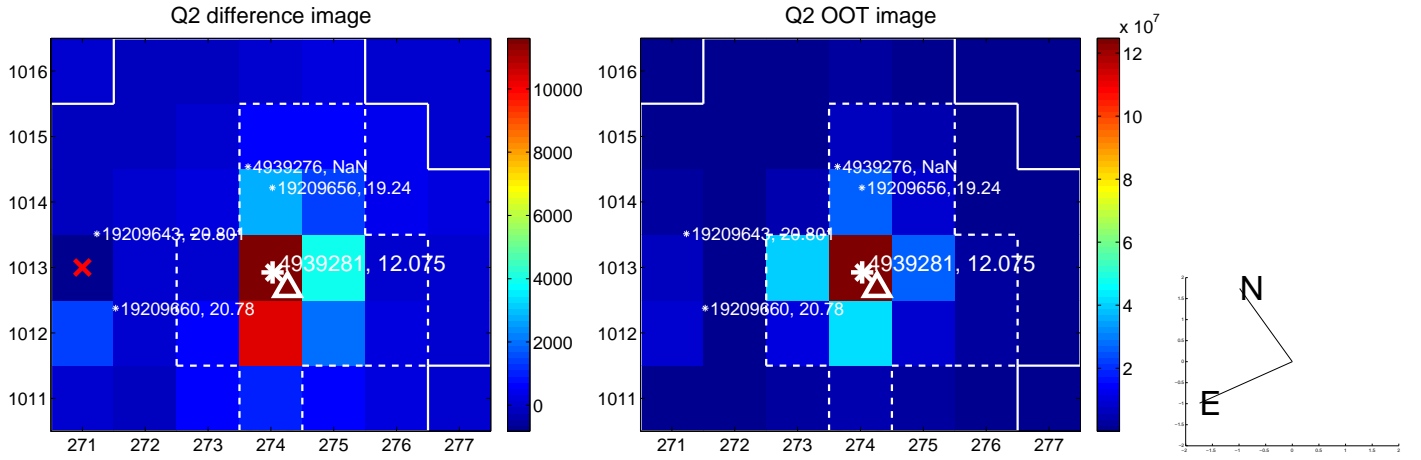
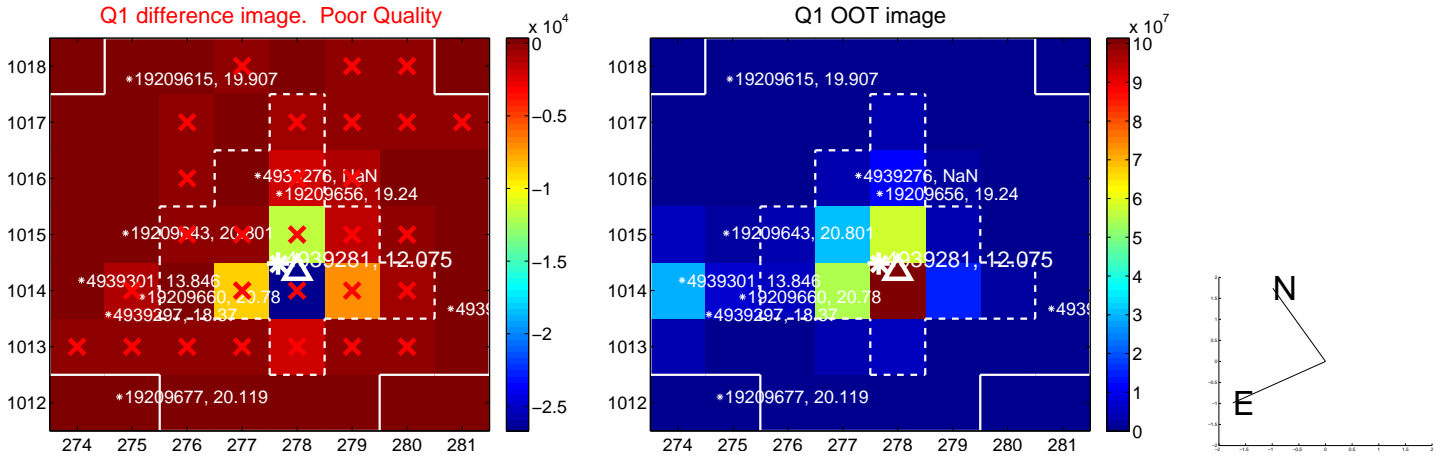
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.221 ± 0.445 | 0.50 | 0.027 ± 0.479 | -0.220 ± 0.445 |
| PRF-fit source offset from KIC position | 0.111 ± 0.455 | 0.24 | -0.060 ± 0.479 | -0.093 ± 0.445 |
| photometric centroid source offset | 0.66 ± 0.40 | 1.64 | -0.34 ± 0.47 | 0.57 ± 0.38 |

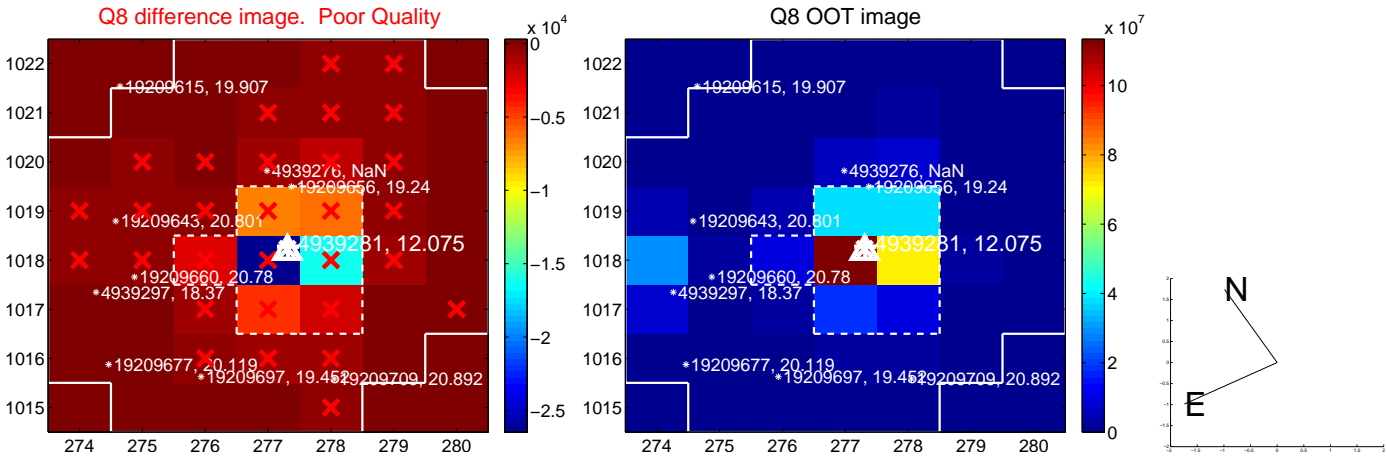
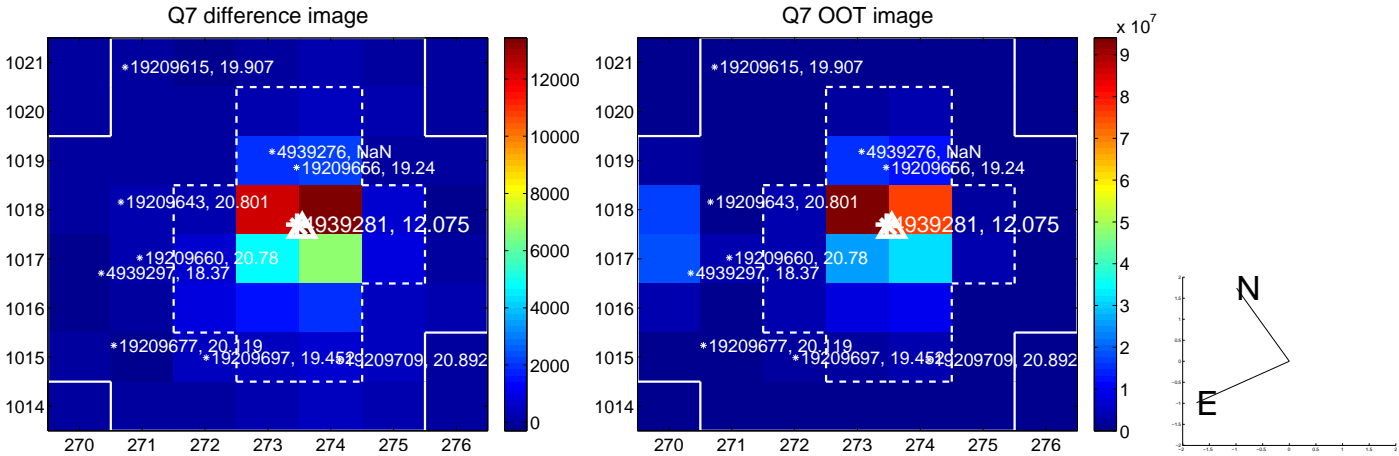
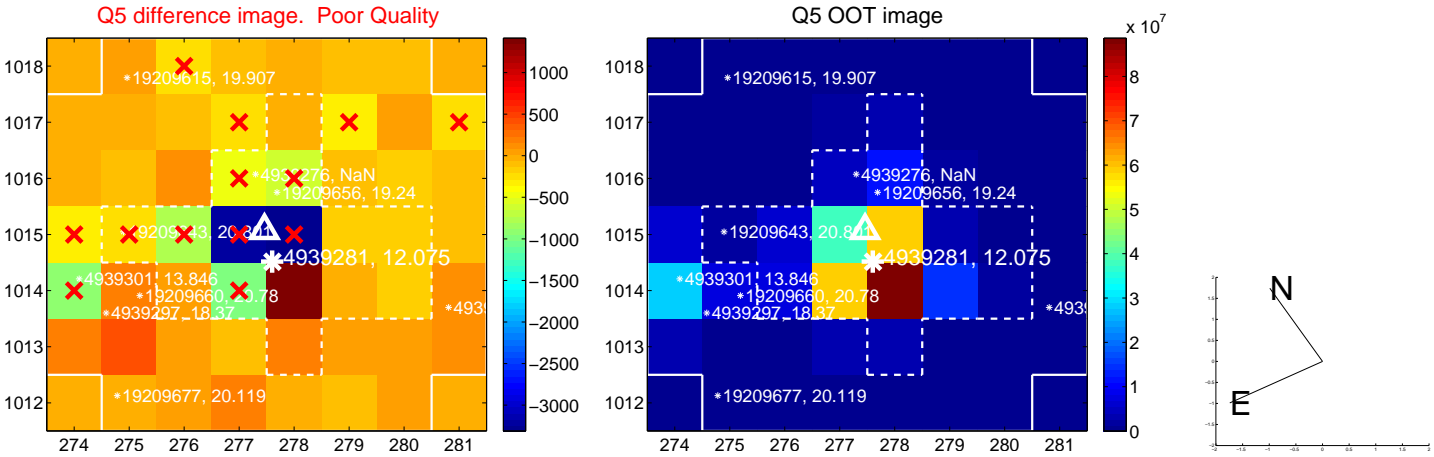


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

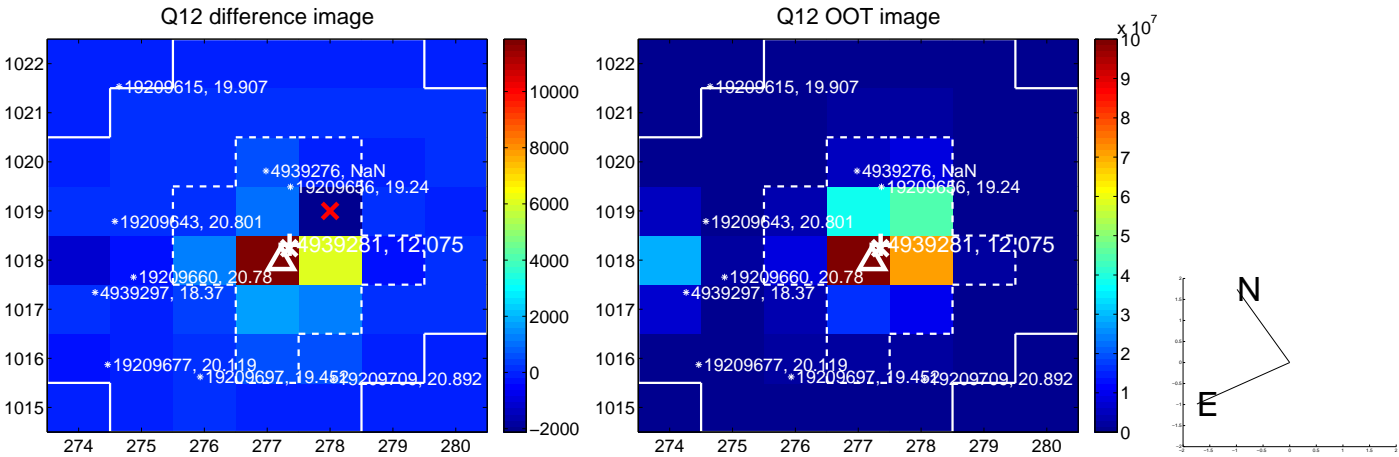
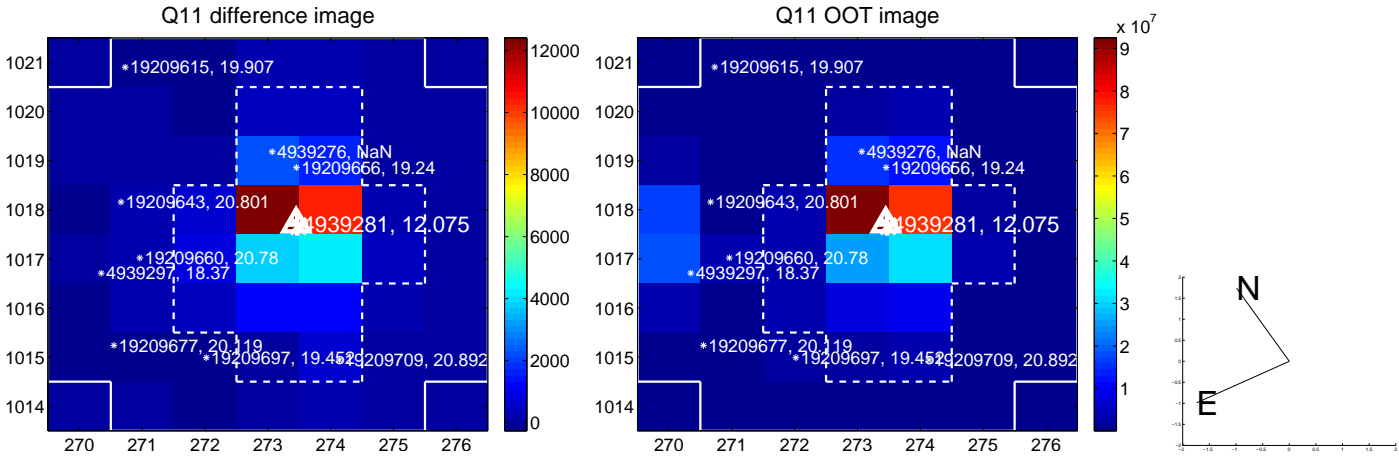
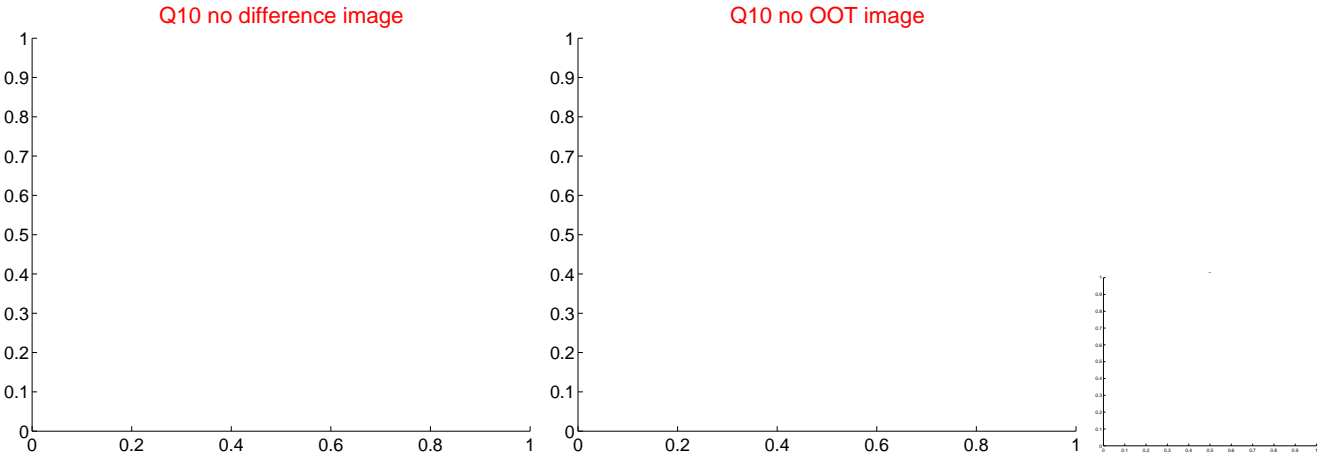
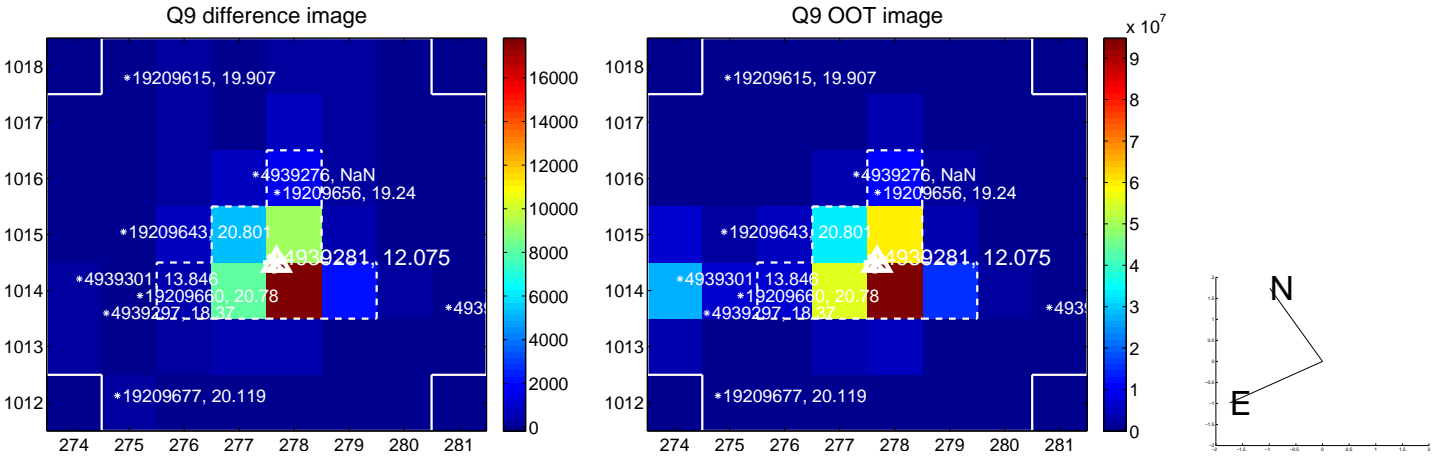
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



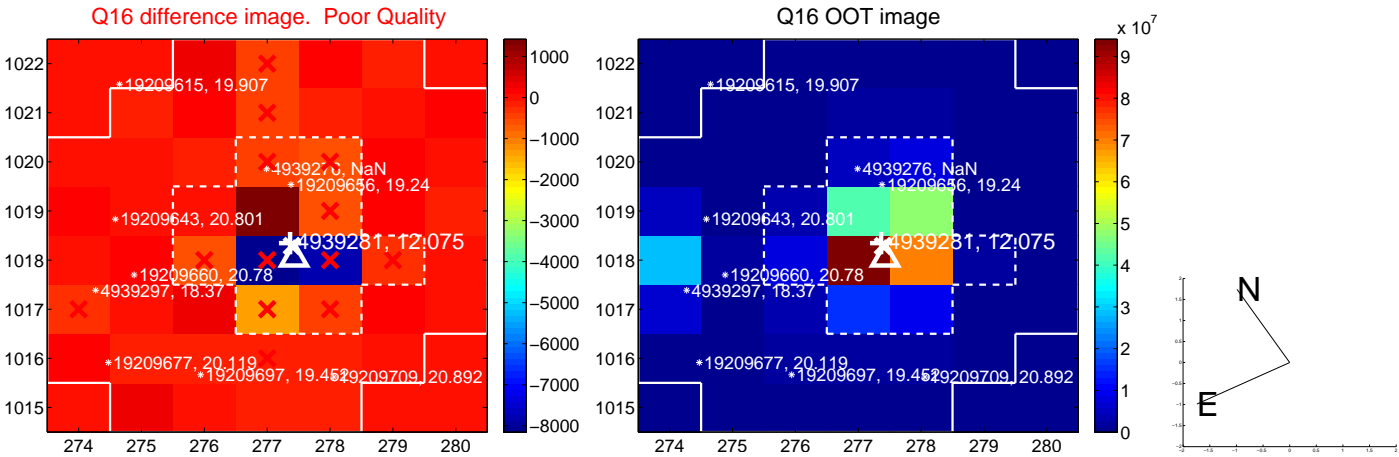
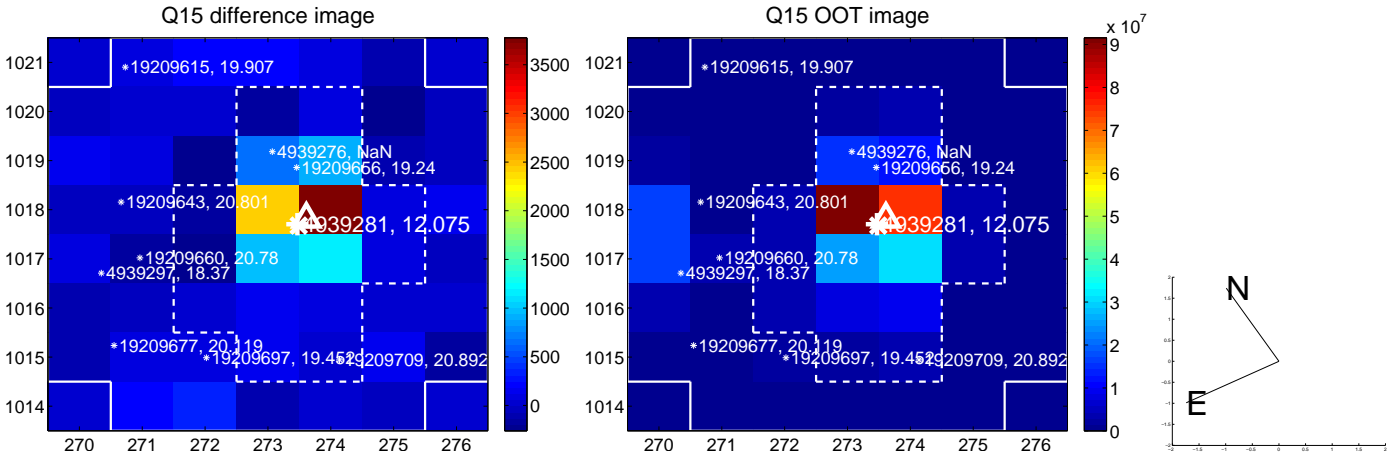
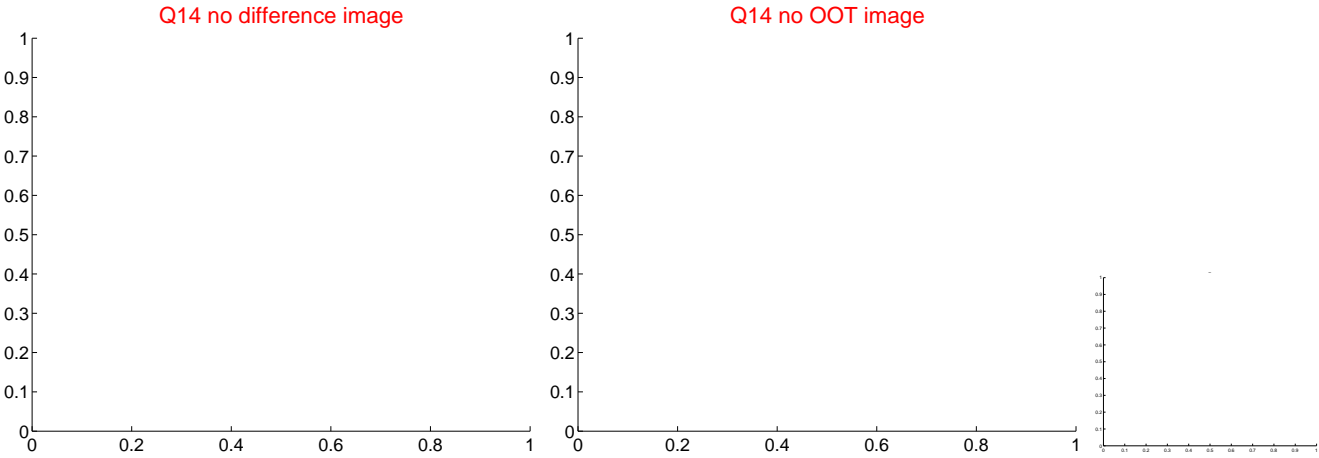
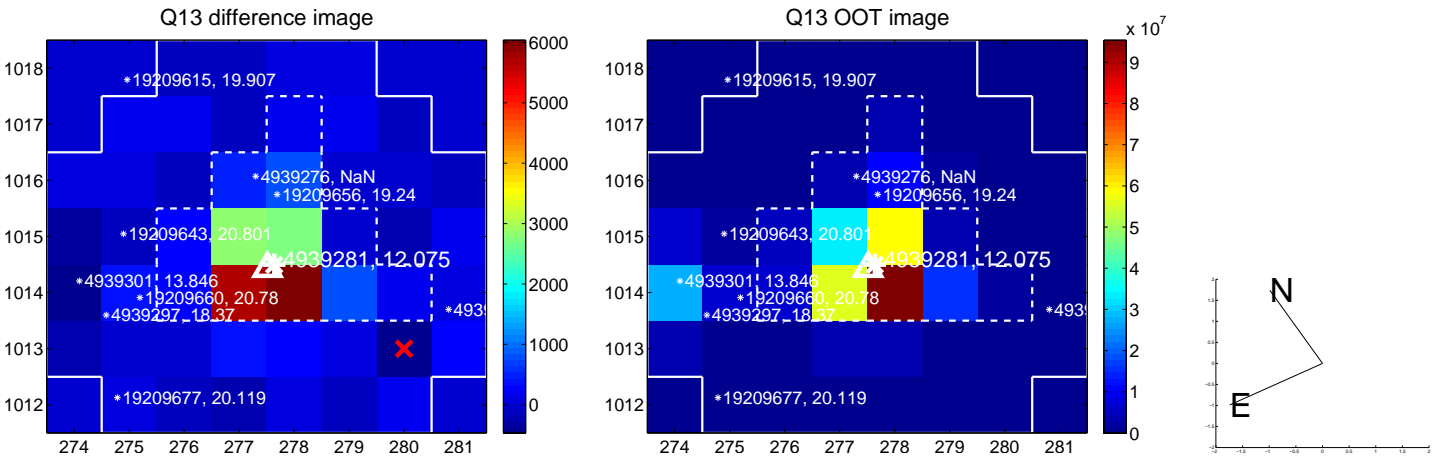
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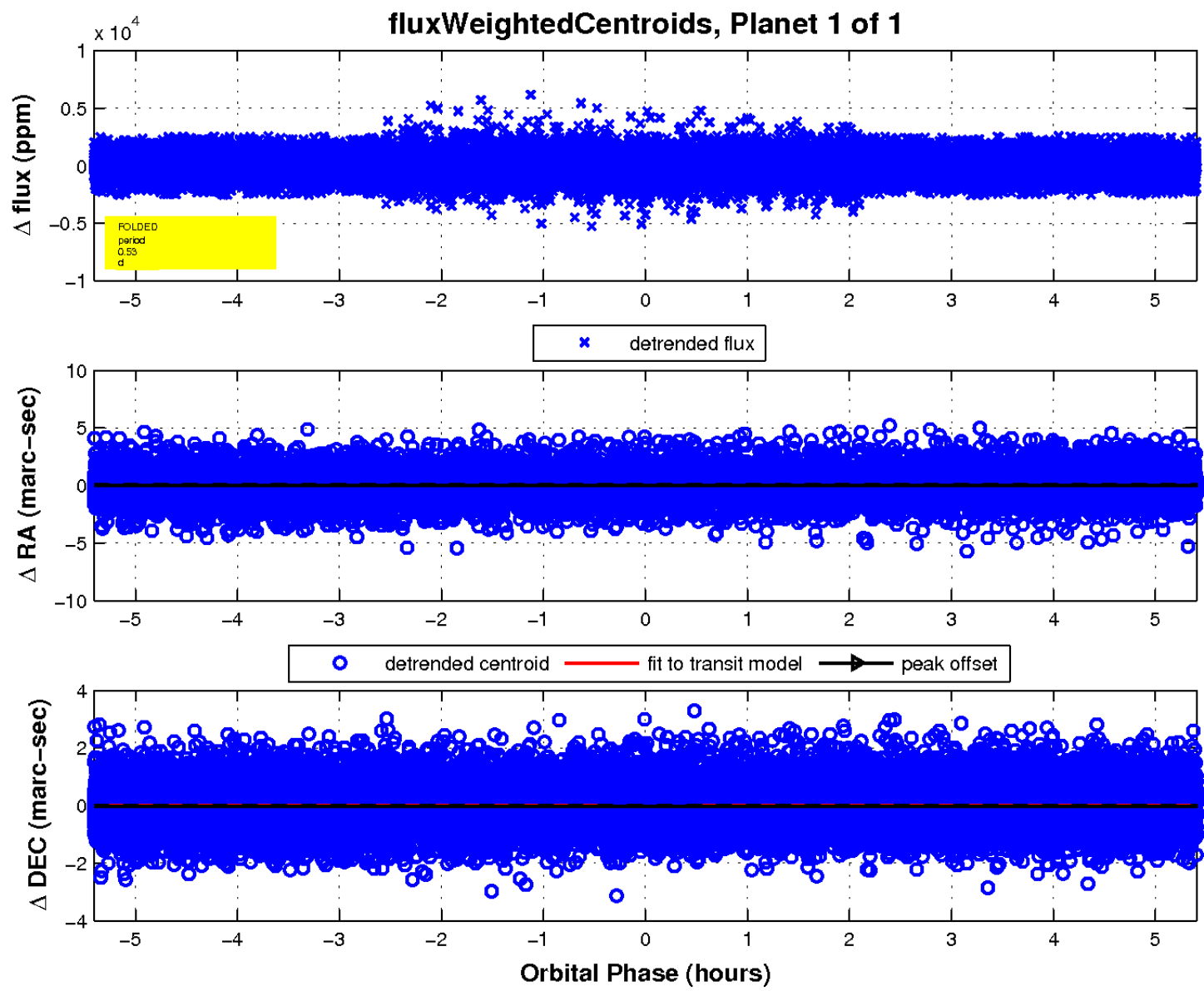
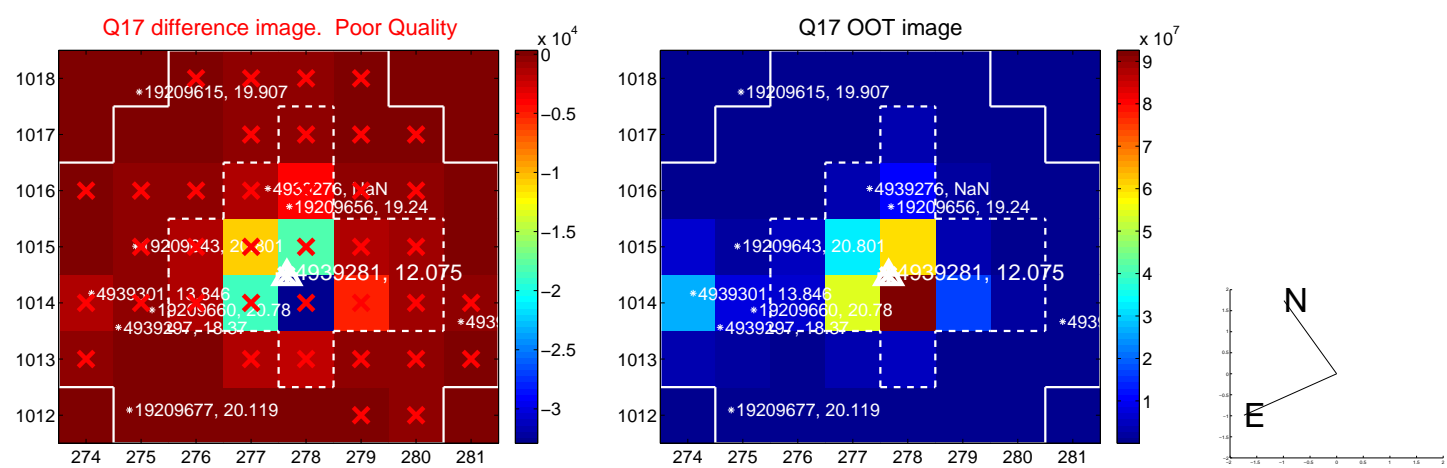
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UKIRT Image

Declination

