Technical Working Party on Automation and Computer Programs   **TWC/36/4**

Thirty-Sixth Session
Hanover, Germany, July 2 to 6, 2018

Original: English
Date: June 18, 2018

METHOD OF CALCULATION OF THE COMBINED-OVER-YEARS UNIFORMITY CRITERION (COYU): AN UPDATE ON PROGRESS

Document prepared by an expert from the United Kingdom

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BACKGROUND

1.   Following recommendations from experts from Denmark and the United Kingdom, it was agreed to undertake improvements to the methodology of COYU.

2.   The Technical Working Party on Automation and Computer Programs (TWC), at its thirty-fifth session, noted progress (see document TWC/35/21 "report", paragraph 81 to 84):

"81.   The TWC considered documents TWP/1/13 and TWC/35/6 "Method of calculation of COYU: practical exercise, probability levels, extrapolation and software" and received a presentation by the United Kingdom, a copy of which is provided in document TWC/35/6 Add.

82.   The TWC considered the report on developments concerning the new method of calculation of COYU, provided by an expert from the United Kingdom and noted that the statistical development of the method had been completed.

83.   The TWC noted the results of the practical exercise and higher probability levels required by the new method to most closely match decisions using the current method for calculation of COYU

- probability levels 0.003 to match 0.001 for current COYU
- probability levels 0.02 to match 0.01 for current COYU

84.   The TWC noted the following areas identified for further improving the software using the new method of calculation of COYU and agreed to invite the expert from the United Kingdom to report on developments at its thirty-sixth session:

- Improve installation with DUST
- Improve error messages
- Ensure that problematic data sets can be dealt with appropriately
- Produce extrapolation flags according to approach agreed by TWC
- Ensure that the algorithm works well for unbalanced data (for cyclic planting)."

PROGRESS SINCE THE THIRTY-FIFTH SESSION OF THE TWC

3.   Since the thirty-fifth session of the TWC, work has concentrated on improving the functionality of the software (in R). In particular, we have:

- Improved the plots showing the relationship between uniformity and level of expression by adding points for candidates;
- Added calculations of the level of extrapolation (method b using degree of inflation) for each candidate;
- Had initial discussions on improving error messages.

NEXT STEPS AND PROPOSALS

4.   Over 2019, we intend to:

- Review error messages;
- Produce a new version of the COYU R package and test this internally;
- Address installation issues with the DUST installation including the new COYU module.

5.   We propose that:

- The new software is sent out for testing by interested experts;
- The United Kingdom draft a replacement section of TGP/8 for COYU.

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