

Home

Journals

Abstract Databases

Reference Works

My Alerts

My Profile

Help

WELCOME GUEST USER [info](#)

12 of 16 results list ◀ previous next ▶

European Journal of Agronomy

Volume 18, Issues 3-4, January 2003, Pages 369-372

DOI: 10.1016/S1161-0301(02)00129-6

PII: S1161-0301(02)00129-6

Copyright © 2002 Elsevier Science B.V. All rights reserved.

This Document

▶ **SummaryPlus**

- [Full Text + Links](#)
- [PDF \(278 K\)](#)

Short communication

Actions

- [E-mail Article](#)

IRENE: a software to evaluate model performanceGianni Fila , , [a](#), Gianni Bellocchi , [a](#), Marco Acutis , [b](#), [1](#) and Marcello Donatelli , [a](#)^a Research Institute for Industrial Crops, via di Corticella 133, 40128, Bologna, Italy^b Department of Crop Science, via Celoria 2, 20133, Milan, Italy

Available online 14 December 2002.

Abstract

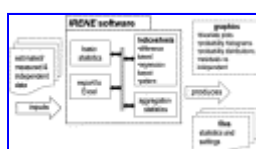
The software **IRENE** (Integrated Resources for Evaluating Numerical Estimates) is a data analysis tool designed to provide easy access to statistical techniques for use in model evaluation. Mostly, non-replicated model estimates (E_i) are compared against non-replicated measurements (M_i). The software also allows comparing individual estimates against replicated measurements (or vice versa) and replicated estimates against replicated measurements. The evaluation of model performance is essentially based on the difference $E_i - M_i$, or on the correlation–regression of E_i vs. M_i (or vice versa). In addition, model evaluation by probability distributions, pattern analysis, or fuzzy-based aggregation statistics is allowed. Graphics are included in most analytical tasks. The results are displayed in separate spreadsheets and can be exported into MS Excel workbooks.

Author Keywords: Model evaluation; Test statistics; Difference measures; Pattern analysis; Fuzzy rules**Article Outline**


1. Introduction
2. Software description
 - 2.1. Summary of analysis capabilities
 - 2.2. Availability and feedback

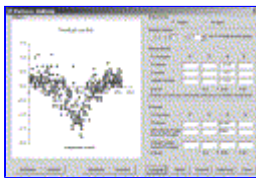
Acknowledgements

References



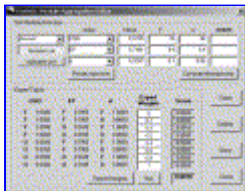
(13K)

Fig. 1. Diagram representing the software 



(49K)

Fig. 2. Screen of pattern indices computation.



(72K)

Fig. 3. Screen of fuzzy-based statistics aggregation editor.

References

- Addiscott and Whitmore, 1987. T.M. Addiscott and A.P. Whitmore , Computer simulation of changes in soil mineral nitrogen and crop nitrogen during autumn, winter and spring. *J. Agric. Sci. (Cambridge)* **109** (1987), pp. 141–157.
- Bellocchi et al., 2002. G. Bellocchi, M. Acutis, M. Fila and M. Donatelli , An indicator of solar radiation model performance based on a fuzzy expert system. *Agron. J.* **94** (2002), pp. 1222–1233.
- Donatelli et al., 2000. Donatelli, M., Acutis, M., Bellocchi, G., 2000. Two statistical indices to quantify patterns of errors produced by models. Proceedings of the Third International Crop Science Conference, 17–22 August, Hamburg, Germany, p. 186.
- Fox, 1981. D.G. Fox , Judging air quality model performance: a summary of the AMS workshop on dispersion models performance. *Bull. Am. Meteorol. Soc.* **62** (1981), pp. 599–609.
- Kobayashi and Salam, 2000. K. Kobayashi and M.U. Salam , Comparing simulated and measured values using mean squared deviation and its components. *Agron. J.* **92** (2000), pp. 345–352.
- Loague and Green, 1991. K. Loague and R.W. Green , Statistical and graphical methods for evaluating solute transport models: overview and application. *J. Contam. Hydrol.* **7** (1991), pp. 51–73.
- Martorana and Bellocchi, 1999. F. Martorana and G. Bellocchi , A review of methodologies to evaluate agroecosystem simulation models. *Ital. J. Agron.* **3** (1999), pp. 19–39.
- Mayer and Butler, 1993. D.G. Mayer and D.G. Butler , Statistical validation. *Ecol. Model.* **68** (1993), pp. 21–32.
- Metselaar, 1999. Metselaar, K., 1999. Auditing predictive models: a case study in crop growth. Thesis Wageningen Agricultural University, Wageningen.
- Power, 1993. M. Power , The predictive validation of ecological and environmental methods. *Ecol. Model.* **68** (1993), pp. 33–50.
- Ricker, 1984. W.E. Ricker , Computation and uses of central trend lines. *Can. J. Zool.* **62** (1984), pp. 1897–1905.
- Sinclair and Seligman, 2000. T.R. Sinclair and N. Seligman , Criteria for publishing papers on crop modeling. *Field Crops Res.* **68** (2000), pp. 165–172. [Abstract](#) | [Full Text + Links](#) | [PDF \(87 K\)](#)
- Smith et al., 1997. P. Smith, J.U. Smith, D.S. Powlson, W.B. McGill, J.R.M. Arah, O.G. Chertov, K. Coleman, U. Franko, S. Frohling, D.S. Jenkinson, L.S. Jensen, R.H. Kelly, H. Klein-Gunnewiek, A.S. Komarov, C. Li, J.A.E. Molina,

T. Mueller, W.J. Parton, J.H.M. Thornley and A.P. Whitmore , A comparison of the performance of nine soil organic matter models using datasets from seven long-term experiments. *Geoderma* **81** (1997), pp. 153–225. [Abstract](#) | [PDF \(2862 K\)](#)

Willmott and Wicks, 1980. C.J. Willmott and D.E. Wicks , An empirical method for the spatial interpolation of monthly precipitation within California. *Phys. Geogr.* **1** (1980), pp. 59–73.

Yang et al., 2000. J. Yang, D.J. Greenwood, D.L. Rowell, G.A. Wadsworth and I.G. Burns , Statistical methods for evaluating a crop nitrogen simulation model, N_ABLE. *Agric. Syst.* **64** (2000), pp. 37–53. [Abstract](#) | [PDF \(268 K\)](#)

¹ Tel.: +39-02-50316577; fax: +39-02-50316575.

European Journal of Agronomy
[Volume 18, Issues 3-4](#), January 2003, Pages 369-372

This Document

- ▶ **SummaryPlus**
- [Full Text + Links](#)
- [PDF \(278 K\)](#)

Actions

- [E-mail Article](#)

12 of 16 [results list](#) ◀ [previous](#) [next](#) ▶

[Home](#) [Journals](#) [Abstract Databases](#) [Reference Works](#) [My Alerts](#) [My Profile](#) [? Help](#)

Send [feedback](#) to ScienceDirect

Software and compilation © 2003 ScienceDirect. All rights reserved.

ScienceDirect® is an Elsevier Science B.V. registered trademark.

Your use of this service is governed by [Terms and Conditions](#). Please review our [Privacy Policy](#) for details on how we protect information that you supply.