POSTER 39

퍼지 집합 기반 유사도 분석 알고리즘을 활용한 변수들의 공간적 연관성 분석

Yadong LIU[1], 김광수[1,2*], Chery H. Porter[3]
[1]서울대학교 식물생산과학부, [2]서울대학교 농업생명과학연구원, [3]플로리다대학교 농업생명공학과

Application of a Fuzzy Set to the Structural Similarity (SSIM) Index for Assessment of Spatial Association between Ecological Variables

Yadong LIU[1], Kwang Soo KIM[1,2*] and Chery H. PORTER[3]
[1]Department of Plant Science, Seoul National University, KOREA,
[2]Research Institute of Agriculture and Life Sciences, Seoul National University, KOREA,
[3]Department of Agricultural and Biological Engineering, University of Florida, USA

The Structural Similarity (SSIM) index developed for image quality assessment provides an approach for spatial comparison. However, it was designed for variables that have the same scale of value, which limits its application. The object of the present study was to develop a generic framework for spatial similarity assessment between ecological variables. The variables were transformed into a range of 0-1 using fuzzy sets, and then examined with the SSIM index. As a case study, the association between solar radiation and temperature was examined using the proposed Fuzzy SSIM index. Comparing to rank correlation coefficients including Spearman's rho and Kendall's tau, the proposed index had a higher sensitivity. The type-2 fuzzy set would be useful for representing the imprecision in ecological data being compared. This suggests that the Fuzzy SSIM index could be used to examine the spatial association between ecological variables.

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* Correspondence to : luxkwang@snu.ac.kr