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**Richard C. Bardley** and **Cristina Tone\*** ([cristina.tone@louisville.edu](mailto:cristina.tone@louisville.edu)). *A Central Limit Theorem for Non-stationary Strongly Mixing Random Fields.*

A central limit theorem is introduced for sequences of random fields that satisfy a Lindeberg condition and uniformly satisfy both strong mixing and an upper bound less than 1 on  $\rho'(\cdot, 1)$ , in the absence of stationarity. There is no requirement of either a mixing rate assumption or the existence of moments of order higher than two. The additional assumption of a uniform upper bound less than 1 for  $\rho'(\cdot, 1)$ , cannot simply be deleted altogether from the theorem, even in the case of strict stationarity. For the case  $d = 1$ , that can be seen from any (finite-variance) strictly stationary, strongly mixing counterexample to the CLT such that the rate of growth of the variances of the partial sums is at least linear; see Bradley (1), Theorem 10.25 and Chapters 30-33. Our main theorem extends certain central limit theorems of Peligrad (2) involving “arrays of random sequences”.

(1) Bradley, R.C., *Introduction to Strong Mixing Conditions*, vol. 1, 2, and 3. Kendrick Press, Heber City (Utah) (2007)

(2) Peligrad, M., *On the asymptotic normality of sequences of weak dependent random variables*, J. Theor. Probab. 9, 703-715 (1996). (Received January 05, 2017)