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**Soutir Bandyopadhyay\***, Department of Mathematics, 14 E Packer Avenue, Bethlehem, PA 18015. *A Test for Spatial Second Order Stationarity of a Spatial Random Field.*

An important assumption that is often made when analyzing spatial data is that it is at least second order stationary. A large proportion of the spatial literature is based on this assumption. If the assumption is not properly tested and the analysis is performed, the resulting model may be misspecified and the forecasts obtained may be inappropriate. Therefore, it is important to check whether the process is second order stationary. Over the years, various statistical tests have been proposed. The underlying important assumption, on which these tests for stationarity are based, is on a delicate, subjective, choice of segments of the data. This can make the test extremely sensitive to the segment length. In this work we propose a test based on the discrete Fourier transforms, which is based on the entire length of data, thus avoiding a subjective choice of segment length and its associated problems. Unlike most tests for stationarity, which are comparison based, the proposed test is motivated by a property unique to second order stationary spatial data. (Received August 05, 2013)