Comparative analysis of the performance of the information theoretic criteria for model order estimation of InSAR signals corrupted by multiplicative noise

OULDALI Abdelaziz, CHIBANE Farid, DERAFA Laloui

Abstract : In this paper, we study the behaviour of information theoretic criteria in order to select the order of the model of InSAR signals corrupted by multiplicative noise. We compare the performance of these criteria when using the number of degrees of freedom derived in D. Williams (November, 1994) with the performance of these criteria computed in F. Gini and F. Bordoni (2003) when using the number of degree of freedom derived in M. Wax and T. Kailath (April 1985). We show, through numerical simulations, that one of the efficient detection criteria evaluated with the number derived in D. Williams (November, 1994) has the best performance.

Keywords : Model order estimation, information theoretic criteria, multiplicative noise, Multicomponent signals, SAR interferometry, Layover phenomenon