

MAXIMUM COMPOSITE LIKELIHOOD ESTIMATORS FOR A BROWN-RESNICK RANDOM FIELD IN INFILL

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Abstract. Likelihood inference for max-stable random fields is in practice impossible because the finite-dimensional densities are unknown or cannot be computed efficiently. The weighted composite likelihood approach that utilizes lower dimensional marginal likelihoods (typically pairs or triples of sites that are not too distant) is rather favored. We consider the family of spatial Brown-Resnick random fields associated with isotropic fractional Brownian fields. The sites are given by only one realization of a homogeneous Poisson point process restricted to a fixed window and the random field is observed at these sites. We provide asymptotic properties of the composite likelihood estimators of the scale and Hurst parameters of the fractional Brownian fields as the intensity goes to infinity. Two different weighting strategies are used: we exclude either pairs that are not edges of the Delaunay triangulation or triples that are not vertices of triangles.