

Inverting for maritime environments using empirical eigenfunction bases from radar imagery

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ABSTRACT

Radar wave front arrival times and spatial energy deposition, associated with propagation through a given marine atmospheric boundary layer, may be described using proper orthogonal modes, and subsequently represented as points on the compact Stiefel manifold. By exploiting the Riemannian structure of Stiefel, interpolation within the cloud of manifold points is possible when solving inverse problems aimed at uncovering *in situ* maritime conditions affecting radar propagation on a given day.