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Structure and Intermittency of Complex Turbulence in Sparse Fractal Flows

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Intermittency in the Atmosphere and the ocean has been modelled with
fractal grids, which are shown to alter the turbulence characteristics compared to the regular grids. Turbulence intensity is enhanced for the same blockage ratio[1].

New developments of Sparce and Intermittent grids (3DSGT) [2, 3], are such that each generation of length scales produces a turbulent wake pattern that interacts in realistic environmental ways so the effective blockage ratio (solidity) is significantly reduced compared to the 2DF flows [4].

Visualisation techniques used in human fluxes based on Kohonen neural networks, are also used to demonstrating the relationship between different reasons, basic interaction [5] and instabilities or forms of conceptual distance. A new method in self-organizing feature maps is presented based on [3, 7]. The method makes use of a system of energy functions, so it minimizes each energy function subject to constraints and shows topologically correct maps when the inherent dimensionality of the input patterns matches that of the network. The energy equations can be used to compute the higher order patterns and intermittency [8, 9].
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