

Variability recognition by means of a tunable algorithm based on information theory:
application to wind energy

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An algorithm based on data recognition in any sequence has been proposed and successfully applied to different fields [1-4]. It has been named “word length zipper” or wlzip for short. It is based on recognition of meaningful information along any chain of sequential data; specific chains on precise digital places for a numerical basis are recognized by exact or tunable approximate matching. Length of the chains and size of the window within the data bases are among the possible tunable parameters to optimize wlzip. The information content is characterized by two parameters: a) *mutability*, which is the ratio in bytes of the size of the file with the map with respect to the size of the original file; b) *diversity*, which is a measure of the number of different words used by the map file. High values of mutability are reached when a phase transition or period of rapidly changing indicators approaches. Applications have been done to magnetic transitions [1], stock markets [2], pension funds [3], blood pressure variations [4], and current investigation is to anticipate good periods for wind energy generation which is the emphasis of this presentation

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[2] E.E. Vogel E.E., G. Saravia, Eur. J. Phys. B **87** (2014) 8:177.

[3] E.E. Vogel, G. Saravia, J. Astete, J. Díaz, F. Riadi, Physica A **424** (2015) 372.

[4] D.J. Conteras, E.E. Vogel, B. Stockins and G. Saravia, J. Amer. Soc. of Hypertension **10** (2016) 217.