

The main goal of this paper is to show that the fractal analysis based on the continuous wavelet transform is not able to improve lithofacies classification using the self-organizing map (SOM) neural network model from well-logs data. The proposed idea consists to inject many inputs in SOM neural network machines and to choose the best map. These inputs are: data set 1: the five raw well-logs data which are: the gamma ray, density, neutron porosity, photoelectric absorption coefficient and sonic well-log; data set 2: the estimated Hölder exponents using the continuous wavelet transform of the data set 1; data set 3: data set 1 and the three radioactive elements concentrations; data set 4: the estimated Hölder exponents of the data set 1 and the Hölder exponents of the radioactive elements concentrations; data set 5: the estimated Hölder exponents of the data set 1 and the three radioactive elements concentrations logs. Application of the proposed idea at two boreholes located in the Algerian Sahara shows that the Hölder exponents estimated with the continuous wavelet transform as an input of the SOM neural network are not able to give geological details. However, the raw well-logs as an input give more details and precision especially when they are enhanced with the natural gamma ray spectrometry data