The Use of Classifiers in Image Analysis of Oil Wells Profiling Process and the Automatic Identification of Events

Authors : Jaqueline Maria Ribeiro Vieira

Abstract : Different strategies and tools are available at the oil and gas industry for detecting and analyzing tension and possible fractures in borehole walls. Most of these techniques are based on manual observation of the captured borehole images. While this strategy may be possible and convenient with small images and few data, it may become difficult and suitable to errors when big databases of images must be treated. While the patterns may differ among the image area, depending on many characteristics (drilling strategy, rock components, rock strength, etc.). Previously we developed and proposed a novel strategy capable of detecting patterns at borehole images that may point to regions that have tension and breakout characteristics, based on segmented images. In this work we propose the inclusion of data-mining classification strategies in order to create a knowledge database of the segmented curves. These classifiers allow that, after some time using and manually pointing parts of borehole images that correspond to tension regions and breakout areas, the system will indicate and suggest automatically new candidate regions, with higher accuracy. We suggest the use of different classifiers methods, in order to achieve different knowledge data set configurations.