

Trend analysis and assessment of water quality and quantity monitoring data in lignite mines of Western Macedonia, Greece

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ABSTRACT

PERSEAS research team in cooperation with Public Power Corporation (PPC–DEH) of Greece, installed, operates and maintains four R.E.MO.S. monitoring telemetric stations (MTS) in the plant of the mines of Kardia and Notio Pedio in Western Macedonia, Greece. Two of the MTS monitor the stagnant surface waters in the bottom-pit of the mines, while the other two monitor ground water in specific well positions. The monitoring parameters are water temperature – T_w , electrical conductivity of water – EC_w , pH, water level – H and discharge – Q . This study is focused on: a) The goodness-of-fit test, of the time series data to the normal distribution, using the Kolmogorov–Smirnov (KS) [1], non-parametric test of hypotheses; b) The assessment of the water quality and quantity monitoring daily data, based on approximately 2.5 years of monitoring period (2007–2009); c) The trend existence for the monitoring parameters, according to the method of the least squares estimator, apart from temperatures which present periodicity; d) The best fitting of a trend line using test statistics and student's distribution. It was found that "R.E.MO.S." network of water quality and quantity parameters in Western Macedonia lignite mines, is operating properly and serious technical problems have been confronted successfully.

Keywords: R.E.MO.S.; Monitoring telemetric station; Water quality assessment; Trend analysis; Lignite mines; DEH; Water management; Western Macedonia; Greece

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