

RESISTIVITY MEASUREMENTS AND THE STUDY OF SOIL BEHAVIOUR

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Soils scientists have no truly objective and general way to insure that station measurements of water content can be extended to the whole unit of soil where the station is located.

But the soil resistivity varies in relation to the hydric characteristics of the soil. Here we used resistivity measurements (fig. 3) and their variations (fig. 4) to observe and describe qualitatively the variations with time of the water content of two different soil units (fig. 5). Those units both corresponded to a sandy soil and were situated in the same vineyard. On one of them the vine did not grow well. The results were good enough to explain the growth differences. Measurements made with other methods (neutron probe, tensiometers) confirmed those observations.

It is concluded that under a temperate climat and in non saline soil, the resistivity measurements can be used to describe qualitatively the variations in soil water content. Thus, these measurements could be used to generalize station measurements to large area. Quantitative appreciations should be possible by the way of calibration.

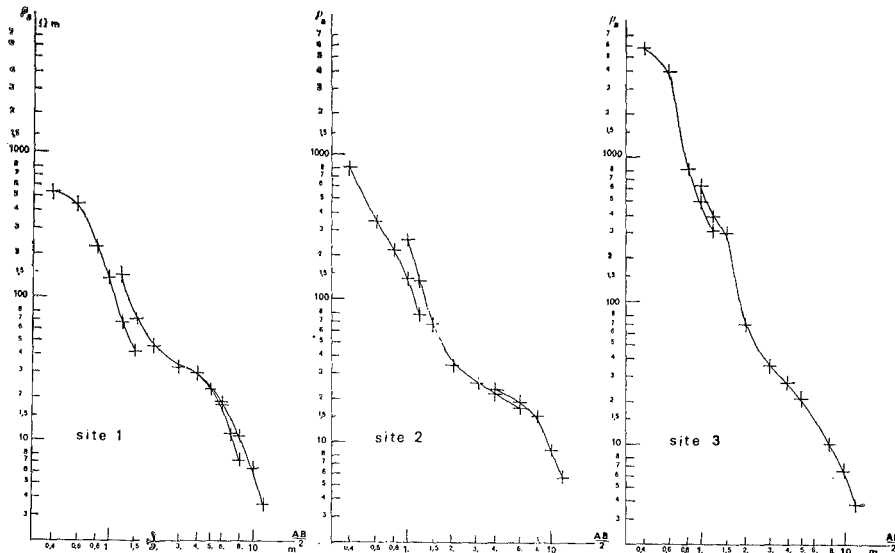


Figure 3 : Domain of Vassal - Electrical soundings.

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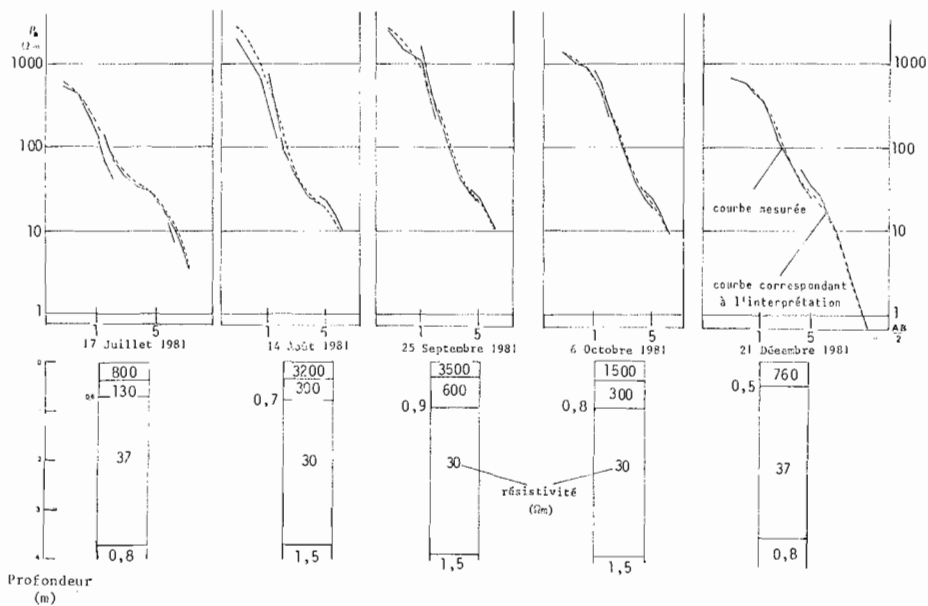


Figure 4 : Example of interpretation of the electrical soundings for the site 1.

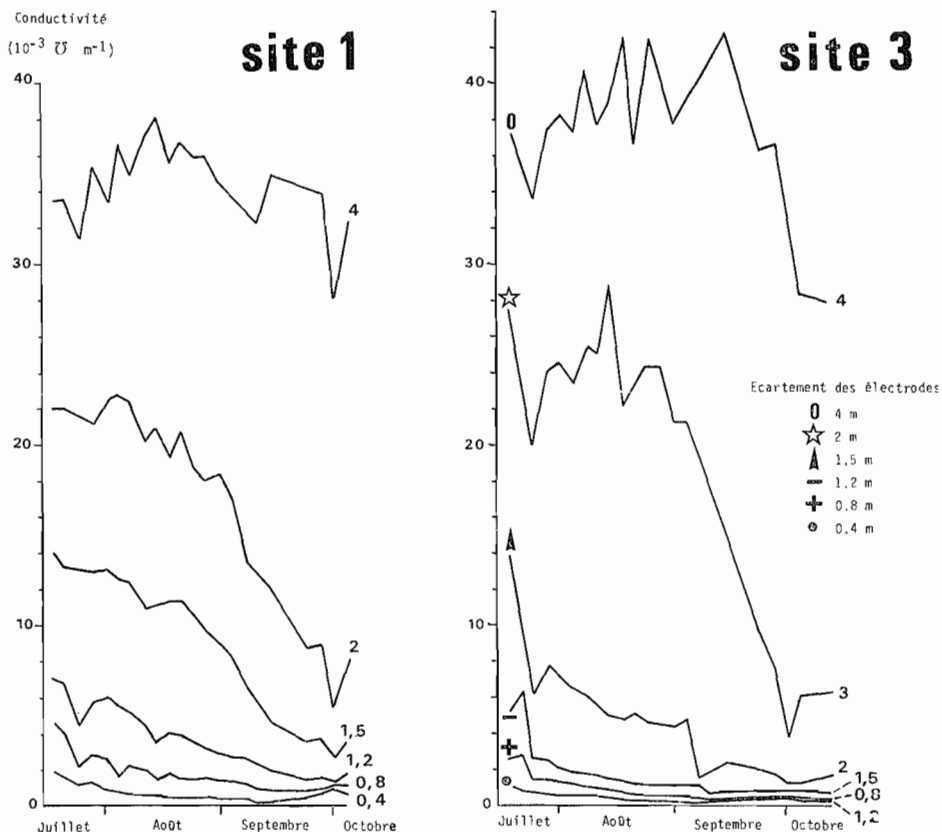


Figure 5 : Variations with time of the electrical conductivity for different space of electrodes.