

POLITECNICO DI MILANO
Scuola di Ingegneria Civile, Ambientale e Territoriale



POLO TERRITORIALE DI COMO

Master of Science in
Environmental and Land Planning Engineering

AVO ANALYSIS OF SEISMIC DATA

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**Corso di Laurea Specialistica in
Ingegneria per l'Ambiente e il Territorio**

ANALISI AVO DI DATI SISMICI

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ABSTRACT

The reflection amplitude of seismic waves from an interface between two elastic layers is a complicated function of the properties of the media (compressional velocity, shear velocity and density), and of the incident angle. There is then the possibility of using the amplitude versus offset (AVO) behavior to invert for the elastic properties of the layers.

Many authors have shown that AVO anomalies (bright spots) are often associated to gas accumulation, and this technology has successfully being used to detect hydrocarbon reservoirs for about two decades. This method has achieved remarkable advancement and it is been extensively implemented in oil industry.

In this work we present the AVO fundamentals and processing, then we explore the relation between reflection amplitude and elastic parameters, and finally we produce AVO examples for high porosity gas sands layers.

Keywords: seismic waves, amplitude versus offset (AVO), hydrocarbon reservoirs, reflection amplitude

ACKNOWLEDGEMENT

Our greatest gratitude to God Almighty for his love, grace and blessing that has sustained us throughout this work.

Our gratitude also goes to our parents (Mr. Collins Nyamekye and Mrs. Alice Nyamekye and Comfort Obeng Mensah) and all my friends and loved ones who in diverse ways contributed to the successful completion of this work.

Finally, we would like to acknowledge all our colleague students of the Environmental and Land Planning Engineering, Politecnico Di Milano for their contributions towards this work.