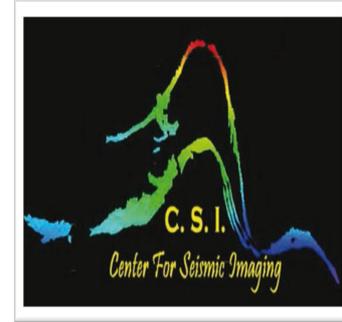




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JAPAN VISIT IN MARCH 2015

Series of UTP– CSI Lecture Tour JAPT

9th March 2015 15:30-17:00

Part 1 : Introduction to Oil and Gas
Part 2 : Hydrocarbon Prediction from Seismic

Presenter

By Dr Deva Ghosh Professor in Geophysics and
Head of Center of Seismic Imaging & Hydrocarbon Prediction



Professor Dr Deva Prasad Ghosh obtained BSc. In Geology and Physics, MSc. in Geophysics both from Banaras Hindu University India and Ph.D. (1970) from Delft University, the Netherlands.

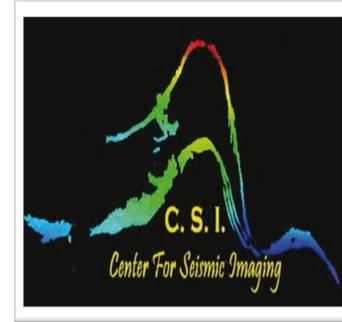
Prof Deva joined PETRONAS in 2000 and was responsible for research, development, and application of geophysical technology worldwide. In 2011, he joined the Universiti Teknologi PETRONAS (UTP) as a Professor in Geophysics and currently responsible as Head of Center of Excellence in Seismic Imaging & Hydrocarbon Prediction (CSI). He is passionate about geophysics, developing local staff, and transfer of technology.

His field of interest is in Seismic Imaging, Seismic Attributes and Hydrocarbon prediction. He is a member of AAPG, SPE, EAGE and SEG He is also SEG and EAGE distinguished Lecturer.



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INTRODUCTION TO OIL AND GAS WITH EMPHASIS IN MALAYSIA



OUTLINE

Global oil & gas industry has a bright future, even in the backdrop of uncertainty and volatility in the market. There is an everlasting need of energy demand in the light of prosperity and industrialism. The current oil demand is around 74 mbbbl/day and more exploration for new reserves increased production needed to sustain the growth. Currently the oil production can easily meet this demand and is somewhat controlled by the group of Oil Producing and Exporting Countries (OPEC). An overproduction caused mainly by non OPEC countries is good depending whether you are a producing country or not. This supply and demand controls the oil prices. The prices have dropped significantly from US\$110/barrel to about US\$50/barrel. This price drop will benefit non-producing countries like Japan and India.

During the last decade we have seen unprecedented growth of wellness, prosperity and industrial growth. The driver of this revolution in prosperity is 'Energy' that sustains our civilization. In spite of the global turmoil, the world energy demand still remains relatively stable. Fossil fuels continue to be the main driver for the energy, while other sources of energy, although promising, is still in the drawing board and is something not economically viable. The rapid pace of economic growth is predicted to require at least 50% more energy than we need today in a span of 25 years.

CONTENTS

Overview of world energy resources.

- Looking into World and Malaysia oil and gas demand and supply.

- Understanding the origin of petroleum and role of geoscience.

- Role of geoscientist, reservoir engineers and technology advancement in petroleum exploration and production (E&P).

- Case study in management style in oil and gas industry in OPEC / non-OPEC / IOC / NOC.





Hydrocarbon Prediction from Seismic

INTRODUCTION

Since the advent of the bright spot DHI technology in the early 80's, in the Gulf of Mexico prospect evaluation and reservoir development using amplitudes, or some form this attribute, is a norm in the oil and gas industry and Petronas is no exception. Most of the experience and rules to circumvent pitfalls were practiced elsewhere and are not always applicable to our situation. In order to better understand these pitfalls, this work documents some of our successes and failures and analyse the pitfalls.

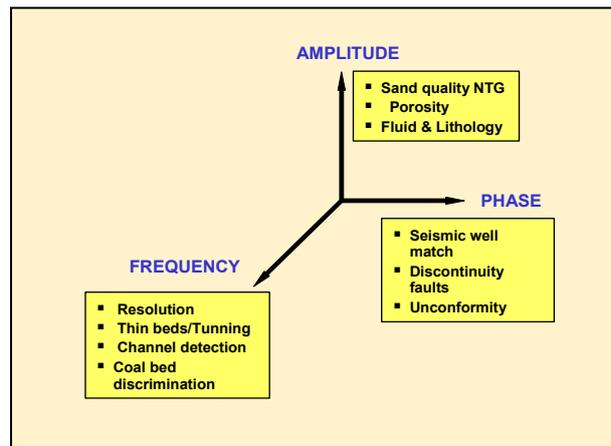
This talk will deal with the interpretation of observed seismic reflections amplitudes in terms of :

- (a) Lithology
- (b) Porefill

A whole review will follow on techniques such as AVO, Inversion and Rock and Fluid properties of Hydrocarbon bearing reservoir. We will learn the meaning and concept of the DHI. (Direct Hydrocarbon Indicators)

CONTENTS

- (I) Factors affecting seismic amplitudes.
- (II) Understand the significance of the amplitudes vs. offsets.
- (III) To distinguish between:
 - I. Lithology and porefill
 - II. Calibrate amplitudes in term of oil, gas and water
 - III. Understand and identify pitfalls leading to false DHI.



THREE VARIABLES DEFINING SEISMIC RESPONSE

