Poster 5

PGIPMS — an integrated Petroleum Geological Information Processing and Modelling System

S. SIVAJI

Department of Geology
University of Malaya
50306 Kuala Lumpur

The Petroleum Geological Information Processing and Modelling System (PGIPMS) is a customized, domain oriented, data and information storage, processing and modelling system in which GIS technology forms the core and is used to integrate spatio-temporal and associate attribute data. The system architecture is conceptualized and the knowledge base is developed based on the maximum integration of different disciplines to understand the complex interactions and relationships of different geological processes through a common, consistent applications interface. The system consists of various modules, components and sub-components and are linked together in a generic framework. The different system modules being developed are: 1) Data Entry Module 2) Data Processing and Analysis Module 3) Modelling Module 4) Decision Support Module 5) Document Management Module and the 6) Data Browser Module.

The complexity of the basin history, structure and the processes associated with hydrocarbon generation and migration demands spatial integration and the synthesis of a number of numerical and descriptive models to better understand the petroleum geology of the basin. To effectively use the analytical and modelling engines of the system, and to extract inherent spatial relationships observed in the geospatial data and information, object-oriented technology is used to model the complex nature of geological processes. Process-specified numerical modelling programmes are embedded in the system using Visual Basic and Pascal programming languages. The System provides multivariate, multileveled knowledge-based analysis for decision making and the integration of multiple data sources obtained from remote sensing techniques.

This paper illustrates the advantages of embedding a quantitative geological modelbase within an integrated software environment, and the extensive application capabilities of the GIS's vector-and raster-based analytical modules in Petroleum Geology, and as well as other related disciplines.

Warta Geologi (Newsletter of the Geological Society of Malaysia), Vol. 22, No. 6, November-December 1996