

Philippe Faure) In this document, the authors have mainly concentrated on regions of Quarsensis, Traras Mountains, Rhar Roubane Mountains, Beni Bahdel sub-basin, Nador of Tiaret Mountains, sidi-el-abel Mountains in the Oran high plains and Ksour Mountains. The study deals with morphological description of the populations and their variability. Nine brachiopod zonations have been established and compared with the pyreneen liassic zonations, on the western North-Tethyan realm. The authors have also summarized palaeobiogeographical distribution of recorded Liassic brachiopods in the different regions studied in western Algeria, in Morocco, in the Iberopyrenean and meso-european provinces.

This document may be useful for Indian Palaeontologist/Stratigraphers working on marine Jurassic sediments of Kachchh and Jaisalmer basins of western India particularly on brachiopods for comparison, biostratigraphy and palaeobiogeographic reconstructions. The document includes nicely drawn line diagrams and brachiopod plates. The publication is available in the library of the Geological Society of India for reference purposes.

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### OneGeology: Sharing What We Have

In March 2007, in Brighton, UK, 81 geoscientists from 43 countries and from 53 national and international bodies gathered together to consider whether they would be prepared to collaborate to create a global interoperable geological map dataset.

The participants unanimously agreed the Brighton "Accord" and kicked off "OneGeology", an initiative which now has the support of 65 nations. The Accord asserted that geological map data are essential to advancing science and education in order to better provide solutions to the challenges of mitigating environmental hazards, ensuring the sustainable supply of energy, minerals and water, and addressing the urgent challenge of our changing climate.

In a sentence the OneGeology mission

is to "make web-accessible the best available geological map data worldwide at a scale of about 1:1 million, as a Geological Survey contribution to the International Year of Planet Earth"

The aim is to create dynamic digital geological map data for the world with an initial target scale of 1:1 million, but the project will be pragmatic and accept a range of scales and the best available data.

The geological map data will be made available as a distributed web service, using the latest web map and web feature service approaches. Geological Surveys will dynamically 'serve' the data for their territories to a web portal. The plan is to make it available through dynamic map browsers. The interchange standard GeoSciML will be the technical engine of the project, and, symbiotically, OneGeology will provide the wheels to increase the take up of GeoSciML.

Transfer of know-how is one of the main aims of OneGeology and where nations do not have the technology or experience to deliver web services the more capable nations will assist.

OneGeology will accelerate global introduction of the foundation technologies necessary for dynamic interchange of geoscience data and allow real time access to the latest version of information and knowledge from the geological surveys of the world.

Those of us in geological surveys know geology is relevant to science and society – but in global terms geology risks becoming a marginal science unless we are able to truly share our knowledge.

*British Geological Survey* IAN JACKSON  
(<http://www.OneGeology.org>)  
(source: Geosciences, BRGM, no 6, October 2007)

### Digital Technology for a New Generation of Geological Maps

Mapping methods and concepts have evolved dramatically since the mid-1980's consecutive to the advent of information technologies. Geologists benefit from this revolution at a number of stages.

- When the geological information is

acquired henceforth, it is geo-referenced, formatted and structured during this acquisition phase to allow its total integration downstream in Geographical Information Systems (GIS) and, beyond these, in data banks used for mapping. The pertinence and quality of this information structure is the key to formulating complex interrogations in future within these same databases.

- When cartographic documents are prepared using CAD tools or, lately, GIS software that enables updates in the data banks to be integrated readily.

- When the cartography data stored in the data banks is used they can be made available on demand to geologists or other users of validated and reliable geological reference data specialising in particular themes, such as hydrogeology or risks.

Furthermore, the interoperability of data banks at national, European and international levels is a stake of prime importance for all providers of referenced geological data.

Finally, taking multisource and heterogeneous data into account and using them jointly also represents one of the essential keys to procuring a better understanding of the subsurface in 3D. In this perspective, data banks dedicated to geological mapping and the subsurface must be diversified to incorporate heterogeneous data from such industrial sources as seismic and oil boreholes so as to offer interpreted information of greatly enhanced value.

(source: Geosciences, BRGM, no 6, October 2007)

### Late Quaternary Shallow Sub-surface Stratigraphy of the Ganga Plains

A coordinated multi-disciplinary program in several river basins across the country has been initiated by the Department of Science and Technology on the 'Science of Shallow Sub-surface' (SSS) in 2005. The emphasis of this programme is to study scientific problems regarding the evolutionary history of the mega- and meso-scale landforms of the river plains that require an integration of surface and sub-surface data. One of the thrust areas in this

programme is the Ganga Basin where the evolutionary history of most landforms remains poorly understood because of the general non-availability of sub-surface geological data. The lack of drill cores has been a serious impediment in advancing our understanding of the history of alluvial plain sedimentation. This note is attempted to highlight the major research areas being covered under SSS programme and to invite a greater participation from the research community.

The Ganga Plains constitute one of the world's most extensive alluvial tracts and are home to hundreds of millions of people, mostly dependent on agriculture. They constitute a dynamic fluvial region traversed by big rivers (Ganga-Yamuna) that are sourced in the Himalayan orogen, as well as rivers such as the Betwa, Chambal, Ken, and Son that are sourced in the central Indian Craton. Additionally, many smaller, plains-fed rivers are sourced within the plains. The underlying Ganga Basin contains up to several kilometers of alluvial strata. The Ganga plains are of great significance from an academic standpoint, as they hold important clues regarding the tectonic and climatic factors that governed the interaction between the Himalayan orogen and the Foreland. Understanding the landforms of the Ganga Plains - their origin, development and dynamic imprints - is therefore of critical significance to plan effectively for sustainable development of the region. It is necessary to study the plains to track changes in the alluvial landscape on different time scales - (for example decadal, century, millennial and higher order time scales of  $10^4 - 10^5$  years). For a comprehensive understanding of the plains, multiple approaches must be adopted that combine modern process studies, Holocene environmental change, and alluvial stratigraphic development in the shallow sub-surface (~100 m depth).

The academic interest in the Ganga Basin has been focused along three major lines, (a) sediment discharge budgets, (b) description of the geomorphic and sedimentologic features and (c) geophysical prospecting to describe the subsurface mainly for hydrocarbon exploration. Despite several advances, few issues related to the Ganga Plains research, such as, spatial

homogeneity across vast plains, inland response to fluvial systems to sea level changes, control of alluvial architecture below Ganga Plains have been intensely debated in recent years. There are several questions that need answers, for example, how long has the Ganga River been near its present position, and has it ever inundated the interfluvium to the south? How have the Himalayan and cratonic rivers competed in the geological past to evolve the Ganga plain stratigraphy? Is the modern geomorphic setting of considerable antiquity, or have the major rivers been more mobile in the past and able to migrate more freely? What has been the rate of such migrations and what has been the role of thrusting and deformation along the Himalayan Front to the north? How do variations in monsoonal intensity reflect in the sediment record of valleys and interfluviums? Can distinctive stratigraphic patterns be used to test models of landscape evolution across the vast expanse of the Ganga plains?

Most of these questions require an in-depth analysis of sub-surface stratigraphy which has not been possible so far due to limited exposures across the plains. Systematic drilling in this region has been non-existent except for some cores raised by us supported by earlier research funding from the Department of Science and Technology and other sources. In this context, the initiation of the SSS programme is a very important development. Most projects in the SSS programme plan to use drilling and coring which is an expensive and time-consuming process. It is absolutely essential that the cores collected are logged, preserved, and made available for further studies to the researchers across the country. Therefore, the SSS programme is also supporting a 'National Facility of core archival and analysis' at IIT Kanpur. This facility would archive all the cores raised in the Ganga basin by researchers at IIT Kanpur as well as elsewhere and would develop an inventory of all cores. The major components of this facility are (a) large cold rooms with compartments for sub-zero as well as near zero temperature storage of sediment samples, (b) Drill core scanner for generating continuous records of magnetic susceptibility and natural gamma ray, (c) logging and sedimentology lab,

(d) environmental magnetism lab, and (e) microscopy lab. Attempts would also be made to develop a luminescence lab for dating of sediments in near future. All further developments regarding this facility would be announced through the pages of this journal.

Besides supporting the research at IIT Kanpur, it is hoped that this facility would help the researchers across the country to use the core samples to perform a variety of analysis such as palynology, geochemistry, stable isotopes which are critical for paleoclimate research. The IIT Kanpur would play the role of the nodal agency to coordinate the paleoclimatic research on the Ganga plains and this is an open invitation to all concerned to develop collaborative research in this area. It is also hoped that all funding agencies would support such proposals to foster inter-disciplinary research in the Ganga plains.

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### **Synthesis and Characterization of Technologically Important Phosphates**

The prosperity of human civilization is greatly influenced by mineral resources, technology and the culture since prehistoric period. In fact, one can say that the mineral resources and the technology are two sides of the growth and development of human civilization. In general, the state of development of a nation could be assessed by the quality and quantity of the minerals produced and used by it. As such mineral resources are the backbone of modern technology. But most disconcerting aspects are, the technologically and strategically important natural minerals for the industries are depleting at an alarming rate and added to this, the natural minerals are non-renewable resource unlike agricultural resources. Thus there is a great thrust on geoscientists and material scientists for the synthesis and growth of synthetic counterparts of mineral resources in large scale and hence emerged a new branch of science as 'Crystal Growth'.

There are over three hundred natural phosphate minerals. These minerals are