

The Jurassic sediments of the Jaisalmer Basin exposed on the western part of Indian craton are of enormous importance in view of encouraging hydrocarbon scenario in the recent years. The 'Western Rajasthan Shelf' represents eastern extension of shelf part of the Indus Basin, which tectonically comprises of three sedimentary basins namely: the Jaisalmer Basin, the Bikaner-Nagaur Basin, and the Barmer-Sanchor Basin situated on the west of Aravalli axis.

The present study, which focus on the Jurassic sediments of the Jaisalmer and Baisakhi formations of the Jaisalmer Basin in which sediments deposited from brackish water to marginal marine to fully marine condition, lithologically consisting of claystones, shales, siltstones, sandstones, limestones and marlstones.

The studied outcrops of the Jaisalmer Formation are exposed in scattered manner, whereas those of Baisakhi Formation are exposed on the hill slope in north-eastern part of the Jaisalmer Basin. The present study highlights to reconstruction on the depositional environment and classification of the sediments on the basis of genetic packages using sedimentological, palaeoecological, taphonomic, biostratigraphic and ichnological data. The present study focus on the sequence stratigraphic framework and intrabasinal correlation of the sediments exposed in the north-eastern part of the Jaisalmer Basin.

The intra- and inter-basinal correlation of Jurassic sediments of the Jaisalmer Basin is based on the recognition of marker beds (MB), condensed horizon, sequence boundaries (SB), sequence cycles and temporal and spatial changes in the sedimentary facies.

Chapter 1 consists of general information of the Jaisalmer Basin followed by a broad review of the previous work done on the Jurassic sediments. Demarcation of the study area and the plan of the thesis, tectonic framework and paleogeographic position of Indian Craton have been shown on maps.

Chapter 2 deals with a detail account of the geology of the Jaisalmer Basin carried out by previous workers on the basis of geological investigations.

Chapter 3 deals with description of stratigraphic succession of the thirteen representative sections of the Jaisalmer and Baisakhi formations, which have been investigated in the demarcated area of the present work. The field photographs, which show important features useful in describing the sections have also been included in this chapter along with description. The individual beds have been separated mostly on the basis of colour, sedimentary structures, erosional surfaces, lithology and texture. The stratigraphic successions measured have been graphically represented in the Litho-logs. The description of individual succession also includes lithostratigraphic conclusion and discussion on depositional environment.

Chapter 4 deals with the petrography of the Jaisalmer & Baisakhi formations of the selected specimens of well-cemented beds from the various litho-units of the Jaisalmer and Baisakhi formations observed in the field.

Chapter 5 deals with Systematic Palaeontology of ammonites collected from the “Kuldhar Member” of the Jaisalmer Formation, exposed 1 km west of Kanod on the right hand side of the Kala Dongar temple road. Photographs of identified fossils have also been incorporated along with explanations.

Chapter 6 deals with sequence stratigraphic framework of the Jurassic rocks exposed in the north-eastern part of the Jaisalmer Basin.