Evaluation of Petroleum Systems of Ariyalur-Pondicherry Sub-basin (Bhuvangiri area) of Cauvery Basin, India: A Two Dimensional (2-D) Basin Modeling Study.

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The Ariyalur-Pondicherry is one of the producing sub-basins of Cauvery basin mainly producing from Bhuvanagiri field having a moderate reserve base. About 6km of sedimentary thickness ranging in age from the Late Jurassic to Recent lies in the basin. The present study attempts to bring out a systematic evaluation of both active and speculative petroleum systems model for the basin using 1-D & 2-D modeling petromod software of M/S IES/Schlumberger. Geological and geochemical data of few drilled wells lying in the deeper as well as in the flank areas of the sub-basin are used in the present modeling. The identified principal petroleum system is the Andimadam-Bhuvanagiri wherein the Late Jurassic-Barremian shales are the main source and Turonian sands are the main reservoir. This petroleum system has attained the transformation ratio about ~85 % during Oligocene period. Besides, Cenomanian-Turonian and Paleocene (!) petroleum system also contributed towards hydrocarbon generation and accumulation having the transformation ratio of more than 50% for the Cenomanian shale during Recent time. The estimated reserve along the modeled profiles suggests that the basin has upside potential of reserve base. The study also identifies future prospective areas of exploration.