subsurface jurassic-gretaceous applied play nology of the sharibix and ghorand-ixwells,nor the western desert,egypt

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Palynological and palynofacies analyses were carried out on ninety-three subsurface cuttings samples from the Jurassic-Cretaceous Masajid, Burg El Arab and Bahariya formations encountered in the Sharib-1 X and Ghoroud-1 X wells, north Western Desert, Egypt.123 palynofloral species belonging to 82 genera are formally described and illustrated from the Sharib-1X well. These consist of 25 genera and 36 species of microspores, 15 genera and 29 species of gymnosperm pollen, 14 genera and 22 species of angiosperm pollen, 6 genera and 6 species of incertae sedis, 1 genus and 4 species of freshwater algae and 21 genera and 26 species of microplankton. Of these, 3 species are new combinations; namely, Equisetosporites brasiliensis, E. ovalis and E. regularis. Two genera and 9 species represent the first record from the Jurassic and Cretaceous of Egypt.Three informal palynozones are proposed for the studied interval of the Sharib-1 X well. They are I- Gleicheniidites -senonicus-Spheripollenites psilatus-Corollina torosa Abundance palynozone (Middle Late Jurassic), II- Elaterocolpites castelaini-Reyrea polymorpha-Afropollis jardinus Assemblage palynozone (late Albian) and III- Afropollis jardinus-Elaterosporites klaszii-Crybelosporites pannuceus Assemblage palynozone (late Albian/early Cenomanian).The data gathered from the theoretically estimated vitrinite reflectance, spore/pollen colouration and visual petrographic kerogen analysis is used to define the source rock potentialities as well as three organic maturation levels. The first one constitutes immature gas-prone source rocks within the upper part of the Kharita Member of the Burg El Arab Formation and the Bahariya Formation in the Sharib-1 X well. The second level includes mature oil-prone source rocks within the upper part of the Masajid Formation and the lower part of the Kharita Member of the Burg El Arab Formation in the Sharib-1 X well. The third phase are mature to overmature gas-prone source rocks within all members of the Burg El Arab Formation and the studied interval of the Bahariya Formation in the Ghoroud-1 X well.The palaeoenvironmental reconstruction of the studied deposits shows that the studied interval in the Sharib-1 X well is characterized by a continuous occurrence of dinoflagellate cysts indicating a marine depositional environment in general. It is evident that there is a marked transition from deltaic (prodelta) to shallow marine (inner shelf) palaeoenvironment based on the defined (POM) groups and the composition of palynomorphs assemblage. In the Ghoroud-1X well, the studied interval was believed to be deposited within the basin margin

under dysoxic-anoxic conditions based on the presence of a high opaque phytoclasts content of the total kerogen assemblage.Warm dry climatic conditions are supposed to have prevailed during the deposition of the Masajid Formation based on the abundance of xerophytic palynomorphs such as Corollina and the absence of bisaccate gymnosperm pollen. The Kharita Member of the Burg El Arab Formation and the Bahariya Formation are believed to be deposited under an arid to semi arid warm climate with local or seasonal humid conditions based on the continuous high abundance of Afropollis associated with diversified Equisetosporites and elaterospores and the occurrence of fern spores associated with Freshwater algae.The Albian-Cenomanian Elaterates Province of Herngreen et al. (1996) was recognized within the retrieved rocks collected from the Burg El Arab and the Bahariya formations, Sharib-IX well.