

Recognition of ancient channels and archaeological sites in the Mesopotamian floodplain using satellite imagery and digital topography

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Abstract

The floodplain of the Tigris and Euphrates rivers in southern Mesopotamia is rich in ancient surface features, such as rivers, canals, mounds, roads and buildings. As the area of this floodplain is approximately 80,000 km² and contains thousands of sites and channels, many researchers use remotesensing techniques to trace these features. However, one of the problems with this technique is there are many other surface features which are not related to ancient channels or archaeological sites that can cause confusion. This paper focuses on how ancient channels and settlements can be recognized amongst other natural and human-made surface features, according to their visual characteristics. Satellite images and digital elevation models, including SRTM (Shuttle Radar Topographic Mission), ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer), CORONA and QuickBird data, are examined in this study. Many archaeological sites and ancient channels have been recognized using these types of images. Several aspects of visual interpretation are discussed, including elevation, tone or colour, texture, pattern, shadow, shape, size, and situation. In addition, fieldwork was carried out at several selected locations within the study area; we emphasize the importance of such “groundtruthing”.