

ABSTRACTS WITH PROGRAMS



CHARGING INTO THE FUTURE



SESSION 42, T6. Geologic Impacts of the Gulf War

03:30 PM Koch, Magaly

USE OF SATELLITE IMAGES TO MAP THE OIL LAKES IN KUWAIT.
KOCH, Magaly and EL-BAZ, Farouk; Center for Remote Sensing,
Boston University, Boston, MA 02215.

One of the manifestations of the environmental damage caused by the Gulf War in Kuwait in 1991 was the formation of numerous oil lakes which were formed by the incomplete burning of oil released from damaged oil installations. These oil lakes and the accompanying fires represent a potential hazard to the atmosphere, underlying soil and ground water reservoirs. The accurate mapping of these oil lakes is of paramount importance if their environmental effects are to be tracked, since their locations, shapes, sizes and depths are subject to rapid changes. These changes may be caused by evaporation of the hydrocarbons, infiltration of the oil into the ground, migration of the oil along wadis, covering of oil lakes by reactivated sand dunes, and/or pumping of the oil for later use.

Five SPOT panchromatic satellite images of 10 m spatial resolution, acquired on March 1992, were selected for mapping the oil lakes. The images were first enhanced in order to increase the contrast between standing oil and the surrounding oil-saturated sand, then rectified to a planimetric projection and used as a background raster file within a geographic information system from which the oil lakes are directly digitized. The exact number, location and areal coverage of the oil lakes is determined for one point in time. The oil lakes map was then compared to TM images of November 1991 to show the changing spatial pattern of oil pollution in Kuwait. The map produced from SPOT images assists in evaluating the extent and degree of oil contamination in Kuwait and can be used for monitoring subsequent oil-surface changes.



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