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NEW EFFECTIVE ESTIMATIONS OF CHEMICAL POLLUTION PROPAGATION IN SOILS & WATER, MODERN SITUATION AND TENDENCIES IN SOME REGIONS OF ISRAEL

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Estimation and monitoring of an ecological situation used by computer modelling, based on mathematic methods is presented. For this purpose we created an ecological programme, that is in contradiction to other given results from vector analysis and can evaluate processes of pollution expansion, its sources, dynamics, directions and ways. The method is based on computation of principal directions, intensities, contrasting of pollution processes development, similarity of directions of concentration of main polluting chemicals, location of points of pollution concentration and correlation of the values with the factor of atmosphere, relief and geology; and basic values of lows of dynamics of component mobility. The method was successfully applied to different regions of Israel. So were estimated the ecological situation for ground water of Ramat Hasharon where we found a large pollution zone between Geya road and Ramat Hasharon and also some local sources of pollution near Ra'anana and Herzlia. For soils of Jerusalem where these were distinct local pollution sources on the south of Ramot district and other sources on the north-east and south of the city. All these results conform with the locality. The chemical composition, ways and intensities of movement from pollution sources and also their tendencies were estimated. As a result we created the maps of ecological situation for water at Ramat Hasharon and for the soils of Jerusalem. This computer programme may be used in ecological and hydrological surveys, in medicine and by private consultants and also as a base for an ecological monitoring system.

APPLICATION OF REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEM TECHNIQUES FOR SELECTION OF URBAN AREA: A CASE HISTORY; MERSIN CITY (TURKEY)

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When planning a new development there can be several objectives. Among these objectives promotion of accessibility to homes and other urban facilities, efficient use of resources, zoning of activities into those with compatible land use, and ensuring that the development is pleasant. A data base has been prepared on the basis of a combination of geological and geomorphological factors as well as Landsat TM data in order to make the ground data available for planners. Remote Sensing and Geographic Information System techniques has been used for the new building construction sites to help apply earth-science information to land-use planning in the north of Mersin. Suitable areas for land-use development scheme are classified as a result of processing of data base within :ERDAS Raster GIS" Geographic Information System.

TEMPORAL FLUCTUATIONS OF RADON ANOMALIES ALONG TECTONIC LINEAMENTS IN ISRAEL

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Temporally varying surface Radon concentrations, up to tens of thousands of pCi/l and unsupported by nearby (local) U or Ra, are observed over extensive areas along some of the major tectonic lineaments in Israel. Two types of structural settings are recognized: a) In the unconsolidated gravel along faults belonging to the Dead Sea Rift (DSR) system - an active transform fault system; b) In jointed synitic rocks along the Ramon fault belonging to the E-W Sinai-Negev Shear Zone which cuts the stable Sinai subplate. The Rn anomaly along the DSR extends some of 20 km^2 along the NW Dead Sea (DS). Geological considerations and the occurrence of Rn bearing springs at this locality and at other locations along the DSR suggest that further anomalies are to be expected along it, at least from the Sea of Galilee to the Arava, south of the DS. Different U and/or Ra sources must be postulated for the two anomaly types. U bearing Senonian phosphorites (tens of meters thick) presumably situated on down-faulted blocks are a possible source in the case of the DSR anomalies. The source of Rn at the Ramon fault anomaly (1-2 km^2) is at a depth of more than 100 meters, in rocks older than Lower Cretaceous. Three years of monitoring of the DS anomaly revealed: 1) a multi-year variation; 2) annual or seasonal variation and 3) short term fluctuations (7-10 days), sometimes exhibiting order of magnitude variations. The latter are possibly connected with tectonic processes (earthquakes) in the nearby sector of the DSR. Half a year of monitoring at the Ramon anomaly did not show the annual/seasonal variation but exhibited intensely varying short term fluctuations. Assuming that the observed fluctuations in the Rn flux are linked to local present day tectonic activity, then corresponding monitoring of Rn at the different sites opens additional possibilities in comparing the stress/strain situation in the DSR versus that in the adjoining stable Sinai subplate.

GEOCHRONOLOGY AND GEOCHEMISTRY OF YOUNG ALKALINE BASALTS FROM KOROGLU (GALATIA) VOLCANIC COMPLEX, NW CENTRAL ANATOLIA, TURKEY

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Alkaline basalts occur as small lava flows capping the rocks of the main eruptive phase of the Koroglu (Galatia) volcanic complex. New Kr-Ar age determinations reveal that they erupted in Late Miocene (9-10 Ma), following a hiatus of volcanic activity in the area. The main eruptive phase is composed predominantly of intermediate to acid volcanics, and minor basalt. Its eruption occurred as late as Early Miocene (20 Ma) and continued until Middle Miocene (196 Ma). The alkaline basalts show rift type geochemical characteristics related to extensional tectonics. Evolved members of the main phase are calkalkaline, mostly of high potassium type, but possess geochemical characteristics not typical of continental margin arc rocks, whereas, the basalt lmembers show alkaline affinities and are similar in trace element geochemistry to the young alkaline basalts. Based on the geochemical, together with the geochronological data the main phase volcanics are also related to post collisional tectonic events. However, the isotopic compositions of the rocks of older (main) and younger phases are dissimilar. The field occurrences reveal that the young basalts are restricted to certain areas which might correspond to some segments of the North Anatolian Fault. On the other hand, the area of the Koroglu volcanic complex is characterised by a depression, filled with sedimentary and contemporaneous volcanic (which correspond to the main phase) rocks of Early-Middle Miocene age. The northern margin of this depression is bordered by the North Anatolian Fault whereas the southern margin is surrounded by a continental sedimentary pile which interfingers with the volcanics. In sumniary, the geochemical, geochronological and field relations collectively suggest a genetic history for the young alkaline basalts different that of the older volcanics. The young basalts might have been generated in local extensional zones which could be attributed to the activity of the North Anatolian Fault.