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CONDITIONS RELEVANT TO ATMOSPHERIC LOADING OF DUST(U)
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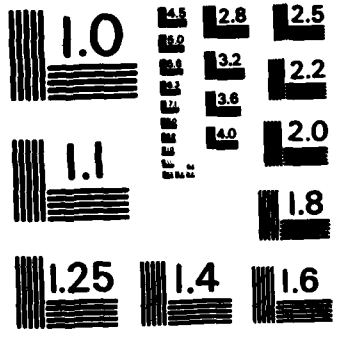
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CONDITIONS RELEVANT TO ATMOSPHERIC LOADING OF DUST

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Contract No. DAJA37-81-C-0894

First Interim Report

September 1981 February 1982

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האוניברסיטה העברית בירושלים

THE HEBREW UNIVERSITY OF JERUSALEM



Dr. Ran Gerson
INSTITUTE OF EARTH SCIENCES
PHYSICAL GEOGRAPHY

המכון למדעי כדור הארץ
גיאוגרפיה פיזית

גבעת רם, ירושלים 91904 GIVAT-RAM, JERUSALEM

Conditions Relevant to Atmospheric Loading of Dust

First Interim Report

During the contract period, until Feb. 1, 1982, the following progress has been made:

- A. Two four-days consultations with WES Environmental Laboratory personnel (Dr. Louis E. Link and Dr. James Mason) have taken place.
- B. A program for the study of dust availability in desert terrains has been outlined, according to the following thematic and factorial subdivisions:
 - (1) The effect of climate. Climatic subdivision into: Extremely arid, arid, mildly arid, semi-arid;
 - (2) Breakdown of desert terrains into undissected plateaus and hilltop flats; hillslopes (upper, middle, lower), exposed bedrock or colluvial; stream channels; alluvial fans (upper, center, toe segments); playas (with their typical zonation); loessial plains and valley bottoms; dune fields (dune and inter-dune areas);
 - (3) Lithological subdivision: Igneous and metamorphic (the more wide-spread rock types (granite, syenite, diorite, quartz porphyry, basalt, gneiss, schist, amphibolite); sedimentary (sandstones, limestones and dolomites, chalks, shales, marls, flints, conglomerates);
 - (4) Subdivision according to age of exposure of terrain facets (see (2) above) -- Late Tertiary; Early, Middle and Upper Pleistocene; Holocene; Recent.
 - (5) Position relative to external source of dust -- Sahara, Arabian Desert.
- C. The Middle East as a whole is being generally studied. Field models for

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(Conditions relevant ... dust, 1st interim report -- continued)

are being studied: Eastern Sinai, the Negev, the Judean Desert, the lower Jordan valley.

D. Several field areas are currently being studied:

- (1) Two areas of igneous, metamorphic and sandstone terrains in the extremely arid southeastern Sinai, both inland and along the coast. They include a playa and a sebkha.
- (2) Plateaus, hillslopes and gravel plains in the arid central Negev (Ramon Erosion Cirque and surrounding areas).
- (3) Holocene alluvial fans along the Dead Sea.
- (4) Recent (historical through present) dust accumulation in the western Negev.

E. Study includes:

- (1) Geomorphic/pedogenic mapping.
- (2) Description of soil profiles, including protective cover.
- (3) Sampling of identified horizons.
- (4) Detailed laboratory analysis -- size, composition.

F. Some 100 soil pits have been described and are being currently analysed in the laboratory.

G. Literature search is in progress. Some 150 articles and chapters in specialized books were listed and are being compiled and studied for a model of regional and local dust availability predictions.

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