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VOLATILITY OF AEROSOLS IN THE WESTERN EUROPEAN
ENVIRONMENT(U) UNIVERSITY COLL GALWAY (IRELAND)
S G JENNINGS OCT 87 DAJA45-86-C-0051

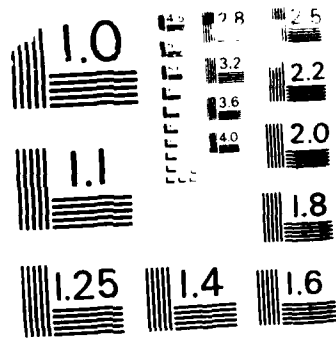
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VOLATILITY OF AEROSOLS IN THE WESTERN EUROPEAN ENVIRONMENT

AD-A190 419

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Galway

CONTRACT NUMBER : DAJA45-86-C-C051

1st Interim Report

January 1987

2nd INTERIM REPT
MAY 87

3RD INTERIM REPT
OCT 87

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VOLATILITY OF AEROSOLS IN THE WESTERN EUROPEAN ENVIRONMENT

The research program will begin with the procurement of the necessary non-expendable equipment outlined in the budget year 1 plan. Work will commence with tested volatility apparatus which is being currently being assembled to be made available on a loan basis from the Atmospheric Sciences Laboratory, White Sands Missile Range, New Mexico.

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2nd Interim Report

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The volatility apparatus to be used in the proposed work is being currently assembled at the Atmospheric Sciences Laboratory, White Sands Missile Range, New Mexico. When the volatility apparatus is constructed and tested it will be shipped to University College Galway. It is then planned to carry out field volatility measurements of the ambient aerosol, primarily for the unmodified maritime air mass and secondly for the partially modified European continental air mass. Continuous measurements for periods up to some weeks spanning all four seasons are planned.

In preparation for these measurements a digital readout facility has been acquired for the IM 146 velocity and direction transmitter to be used for recording wind speed and direction. In addition to a continuous chart recording facility, the wind speed and direction measurement system has been electronically processed to facilitate continuous recording on a microcomputer.

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3rd Interim Report

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In preparation for the proposed field volatility measurements at the field station at Mace Head, Carna situated at a remote site on the West Coast of Ireland, additional work has been performed at Mace Head:

- (i) A 10 m mast housing with the anemometer cups and vane has been erected at the site. The wind speed and direction signals have been connected in an underground channel into the field station building to yield both a chart paper and digital readout display of wind speed and direction. In addition analogue signals have been provided to feed into two of the available analogue channels of the VGER microprocessor system associated with the volatility apparatus.
- (ii) the basic micrometeorological instrumentation has been set up at the field station site : Stevenson screen to give ambient temperature and relative humidity measurements, and rain gauge.
- (iii) A Hi-Vol sampler is regularly operated which yields average aerosol mass loadings ($\mu\text{m m}^{-3}$) of the ambient aerosol.

On the basis of Government Furnished Equipment (GFE) equipment was transferred from the Atmospheric Sciences Laboratory to University College Galway in late October 1987. This included a Particle Measuring System's Active Scattering Probe - ASASP-X probe together with its data acquisition system - DAS-32 which forms an integral part of the volatility apparatus. In addition, a VGER microprocessor system which controls the aerosol volatility apparatus was also transferred.

The next phase of the proposed work will involve setting-up the volatility apparatus firstly in the laboratory for testing and calibration purposes. Then it is planned on taking field measurements at the remote site at Mace Head, west

of Ireland in order to acquire volatility data for selected periods spanning the four seasons. It is also planned to use the Classical Scattering Aerosol Spectrometer Probe - CSASP-100 probe in order to extend the particle size range for volatility measurements.

Dr. R.G. Pinnick from the Atmospheric Sciences Laboratory, at White Sands, New Mexico visited the Principal Investigator in late October during which time he was introduced to the laboratory facilities of the Principal Investigator. He also visited Mace Head Field Research Station where most of the volatility measurements will be made.

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