



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكرو فيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
على هذه الأفلام قد أعدت دون أية تغييرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %



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بالرسالة صفحات

لم ترد بالأصل



شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة

FOG FORECASTING AND REMOVING : CASE STUDY

THESIS

Submitted as partial fulfillment

Of the requirements

For the award of

The (M.Sc.) Degree

BY

Khaled El Sayed El Sayed El Helow

(B.Sc., Math. And Diploma in Meteorology)

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We hereby recommend that the thesis prepared under our supervision by Mr.

Khaled El-Sayed El-sayed El-Helow .

Entitled

Fog forecasting and removing study case over Cairo
Airport

Be accepted as fulfilling this part of the requirements for the award of the (M. Sc.) degree.

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Abstract

Abstract

The radiation fog is being now the most occurred weather phenomena in Cairo. It was reported that a number of 300 air flights were diverted from Cairo airport due to heavy fog conditions during 40 days. To improve our understanding to the fog climatology, 20 years of data were analyzed from 1970-1990. The hourly observations were used to calculate the frequency of occurrences of fog and the record length. The observed frequency was found to be mainly dependent upon wind speed, horizontal visibility and relative humidity. The fog index was derived using this data from the above factors and it was found that it could be used in fog forecasting with high accuracy. The fog removing processes were also applied and seeding with some hygroscopic, NO₂ and CO₂ were carried out. The initial results indicates that warm fog can be removed. The present work suggest more work to be carried out in the subject where the primary results seems to be much encouraging.

CHAPTER 1

CHAPTER 1

FOG FORMATION

1.1 Introduction

When the temperature of the open air passes below the dew point, condensation occurs in the form of innumerable water droplets or tiny ice crystals throughout the chilled volume, and thereby produces a fog or a cloud as determined by location- a fog if on the surface, a cloud if only in the mid air. The natural processes by which a given body of the atmosphere may be sufficiently cooled to lose a portion of its water vapor by condensation are:

- [1] Contact with objects colder than it,
- [2] Mixing with colder air
- [3] Radiation
- [4] Expansion

Condensation as a result of contact cooling is well illustrated.

Explained by the deposition of dew- the bedewed objects having been cooled by radiation by the formation of hoarfrost, which course under the same conditions, expect at a lower temperature, as does dew; and by sweating during warm humid weather, of all cold objects. It is further illustrated by the formation of fog, generally light when relatively warm humid air drifts over a snow bank or other cold surface.

The second of the above processes of including condensation-that is the mixing of masses of humid air of different temperatures - is not very effective. Indeed, an accurate calculation, based on the temperature and volume changes and other factors of the problem, shows that while a fog or this process may obtain cloud no