

IRAN

INTRODUCTION

The meteorological organization and geophysics institute of the University of Tehran are conducting UV-B and ozone monitoring and research activities in Iran.

Generally, there is continuous cooperation and exchange of information between these centers and other research groups, such as the universities and related research institutes.

Data collection stations operating under the supervision of the above centers are listed below:

Table 1: Currently operating UV and ozone stations in I.R. Iran.

Station Name	Synop Station	Upper Atmosphere Station	Surface Ozone	Vertical Ozone	Total Ozone	Lat.	Long.	Height (m)
Geophysics	Yes	No	Yes	No	Yes	35 ⁰ 44'N	51 ⁰ 33'E	1419
Firoozkooch	Yes	No	Yes	No	No	35 ⁰ 43'N	52 ⁰ 34'E	2986
Esphalan	Yes	Yes	Yes	Yes	Yes	32 ⁰ 47'N	51 ⁰ 72'E	1550

EXISTING ACTIVITIES

Total Ozone Measurement

Esphahan ozone station is identified with an international 336 codes. Total ozone is being measured using Dobson system since January 2000.

Since April 2000, Brewer ozonometric equipment was installed and has been operating at Esphahan station.

This system measures total ozone in vertical column in an area of 1cm² by attracting solar and sky radiation. In addition, the system measures UV-B, SO₂, and NO₂.

Geophysics institute station: since 2000, total ozone is measured using Dobson system 30 minutes (from 8am to 7pm) and the result is compared with the satellite data. The data recorded at the above stations is regularly being reported to the WODC (World Ozone Data Center) and are available through the center's web pages.

Vertical Ozone Measurement

Vertical ozone is being measured using ozonesonde, radiosonde and Balloon twice a month. The vertical ozone data recorded in the stratosphere layer (about 30Km from earth) is transmitted to the ground stations for further processing. The vertical distribution of ozone is calculated by digicora system. That combines data received from both the ozonesond (ECC/6A) and the radiosond and results in final distribution patters of ozone.

Surface Ozone Measurement

In IRAN surface ozone outside urban area is being measured at Firooz-kooch which is an official WMO Global Atmospheric Watch (GAW). Meteorological organization also measure surface ozone in cooperation with geophysics institute of the University of Tehran in Tehran and Esphahan stations.

Upper Atmosphere Research

Esphahan station identified by an OIFM code and measures on a daily basis the upper atmospheric conditions between 11 to 12 GMT every day. This measurement includes vertical pressure, temperature, humidity, wind speed and direction.

In order to study the Upper atmosphere, radiosonde (RS80) and hydrogen balloon (Totex 600gr) are used for data collection. Data recorded by these instruments then is transmitted to the global telecommunication system using a switching system.

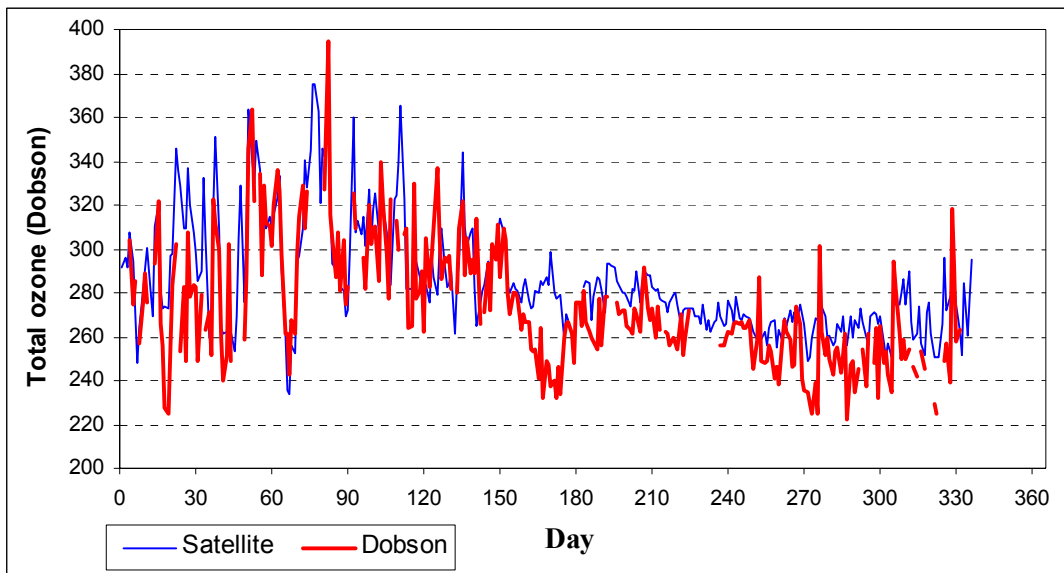


Figure 1: Comparison between Dobson data and satellite data for 2004.

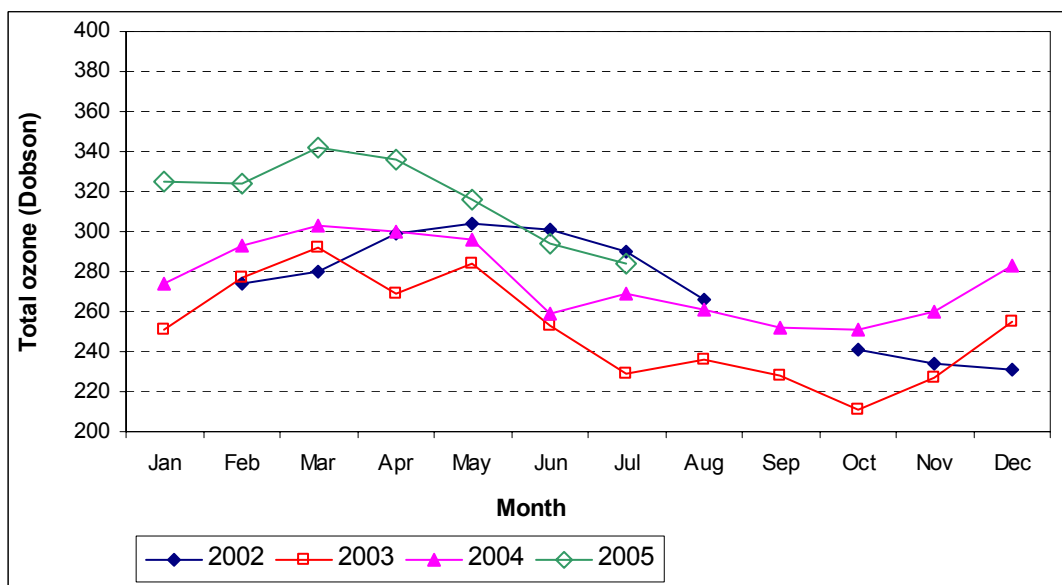


Figure 2: Monthly variations of total ozone for the years 2002 to 2005.

UV-B Measurement

UV-B is being measured at Esphahan station. UV is measured at spectral of 320 - 330 nm including UV-B.

Publication of Data

Total and vertical ozone data in WMO format are being regularly reported to the World Ozone Data Center in Canada (WODC). The data recorded by the stations are also being archived at the related centers.

Calibration

Data recorded by the stations is regularly checked for their validation and consistency. In the case of data inconsistency the equipment are sent to the WMO for calibration. Currently monitoring equipment at Geophysics and Esphahan stations are calibrated and properly are in operation.

However, the Firooz-kooch stations equipment are damaged and have not been in use for about 5 months.

Research Studies

Study of relation between ozone and humidity
Investigation of ozone pollution in the earth (2003)
Effects of meteorological parameters on the ozone pollution
Measurement of ozone layer changes using Dobson and Brewer photo spectrometer data.

Future Plans and Activities

Regular UV monitoring, forecasting, and public information services
Research on environmental impacts of UV increase due to the ozone depletion in different parts of country covering effects of UV radiation on
One. Human and animal health
Two. Terrestrial and aquatic ecosystems
Three. Biogeochemical cycle
Four. Air quality
Five. Materials

REQUIREMENTS

Calibration surface ozone instrument at Firooz-kooch station.
Provide and install equipment for upper atmospheric stations.
Provision of additional filters for the instruments at Esphahan station for upper atmospheric measurement
