

1. Introduction

Human activities have become a major factor that significantly changes the global environment. Mankind has increasingly used land, water, minerals and other natural resources since the beginning of industrialization, and future growth in the population and economy is thought to further enhance the impact upon the Earth. The global climate, biogeochemical processes and natural ecosystems are closely linked with one another, and changes in any one of these systems may affect the others, which could result in consequences detrimental to humans and other living organisms on the Earth. Gaseous and particulate matters produced by man and emitted into the atmosphere have modified the energy balance in the atmosphere and thus affect interactions among the atmosphere, hydrosphere and biosphere. Nevertheless, mankind still does not sufficiently understand the chemical processes of the atmosphere and its relationship with the hydrosphere and biosphere. Most of the uncertainties in the chemical processes of the atmosphere and the oceans arise from the lack of observation data.

The World Meteorological Organization (WMO) started the Global Atmosphere Watch (GAW) programme in 1989 to promote systematic and reliable observation of the global environment, including greenhouse gases (CO₂, CH₄, CFCs, N₂O, etc.) and other related gases (e.g., CO, NO_x and SO₂) in the atmosphere. In October 1990, the WMO established the World Data Centre for Greenhouse Gases (WDCGG) at the Japan Meteorological Agency (JMA) in Tokyo as one of the GAW World Central Facilities to collect, archive and distribute data for greenhouse and related gases in the atmosphere and oceans. In August 2002, the WDCGG took over the role of the Data Centre for surface ozone from the Norwegian Institute for Air Research (NILU) and started to collect data. The WDCGG collects data from a number of observation sites worldwide that are involved in GAW and other scientific monitoring programmes (Appendix: LIST OF OBSERVING STATIONS).

The WDCGG has provided its users with data and other information through its regular publications: *Data Report*, *Data Catalogue*, *Data Summary* and *CD-ROM* (Appendix: LIST OF WMO WDCGG PUBLICATIONS) since its establishment. All the data and information are now available through the WDCGG web site. This aims at improving accessibility to data, information and products, in line with the Strategy of the Implementation of the Global Atmosphere Watch Programme (2001-2007) published in June 2001.

This Strategy also requests the GAW facilities including World Data Centres to build up an analysis capability in cooperation with the scientific research community. In order to meet this request, the WDCGG has strengthened its analytical activities, and enhanced the contents of annual *Data Summary*. Global and integrated analyses to monitor global changes in concentrations of greenhouse gases are being emphasized in the activities of the WDCGG. Furthermore, it is important to revise and improve the contents of *Data Summary* based on comments from data contributors and scientists and then provide scientists and policy makers

with more advanced analytical information. The WDCGG welcomes comments and suggestions concerning the *Data Summary* and other publications. It is expected that the analytical information presented here will not only stimulate the use of data about greenhouse gases and other gases but also lead to deepen the appreciation of value of the GAW programme.

The WDCGG thanks all the data contributors including those involved in the measurement at sites for their efforts to maintain the observation programme and continue providing data.

Mailing address: WMO World Data Centre for Greenhouse Gases (WDCGG)
c/o Japan Meteorological Agency
1-3-4, Otemachi, Chiyoda-ku, Tokyo 100-8122, Japan

E-mail: wdcgg@hq.kishou.go.jp

Telephone: +81-3-3287-3439

Facsimile: +81-3-3211-4640

Web Site: <http://gaw.kishou.go.jp/wdcgg.html>

Note:

The WDCGG requests the data users, when they use any data and information provided by the WDCGG, to acknowledge the contributors (Appendix: LIST OF CONTRIBUTORS) by citing the contributors and the data sources appropriately.