

LONG-RANGE TRANSPORT IN REMOTE REGIONS

Preface

The following 9 papers were among those presented at the Symposium *Long-range transport and distribution of trace substances in remote regions* at the IAMAP/IAPSO Joint Assembly in Honolulu, Hawaii, 5–16 August 1985.

It has become increasingly clear that the concentration of trace substances in the atmosphere is influenced in a profound way by large-scale atmospheric transport processes. This is true even for substances with a relatively short average residence time such as for example aerosol particles, sulfur dioxide and ozone. In situations when the emission/formation of the substances takes place within the planetary boundary layer (PBL) in mid-latitudes, typical transport distances for aerosol particles and sulfur dioxide are several hundreds to a few thousand km. When removal processes are inefficient – little precipitation and low rates of dry deposition – significant transport may extend to several thousand km. Examples include transport of pollutants from industrial regions in the northern hemisphere mid-latitudes to the arctic and transport of fine particle dust from dry regions in the subtropics to remote oceanic regions.

Transport of this kind of substance on hemispheric scales becomes much more efficient if the material is mixed up into the free troposphere where the winds are stronger and most of the removal processes less effective. Therefore, an understanding of exchange between the PBL and the troposphere above is fundamental for a proper evaluation of long-range transport. Some of the papers in this special issue deal with this problem of vertical exchange processes in relation to long-range transport.

The Editors