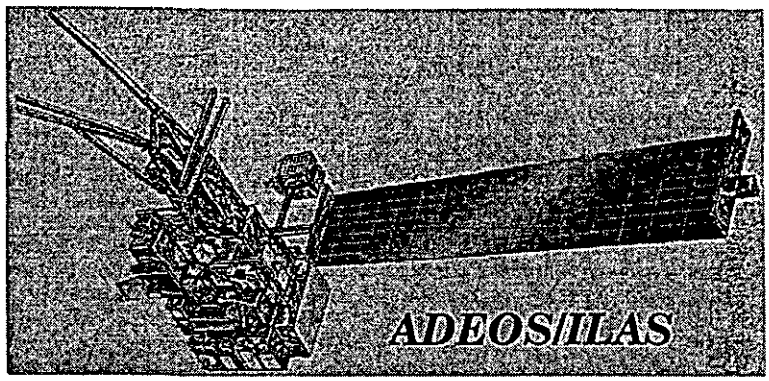
F-105-'97/NIES

ISSN 1341-3651

ILAS Correlative Measurements Plan



Edited by H. Kanzawa
ILAS Validation Experiment Team
ILAS Project

January 1997

NATIONAL INSTITUTE FOR ENVIRONMENTAL STUDIES

Foreword

This document defines the ILAS Correlative Measurements Plan. The term "Correlative Measurements" is adopted following the terminology of UARS (Upper Atmosphere Research Satellite) project. The purposes of the document are as follows:

(1) To assemble all the plans of measurement experiments to be conducted for ILAS validation in one volume to allow the ILAS project members to easily understand the outline of each measurement experiment, such as the team in charge, the time, place, equipment to be used, and brief descriptions

(2) To facilitate the implementation of measurement experiments as the ILAS Project

(3) To use it as the basic archive when conducting validation analyses for ILAS measurements

(4) To put ILAS Correlative Measurements on record to be referred to when the results of measurement experiments will be published and when the ILAS-II validation experiment plan will be drawn up in the future

I wish the document will be helpful for the above-mentioned purposes. Please note that this describes a plan at present: The plan is now evolving, and the result of implementation will not necessarily be the same as the plan.

The plan has been developed through the discussion in meetings of the ILAS Science Team led by Dr. Yasuhiro Sasano of National Institute for Environmental Studies and in meetings of the Committee on ILAS Validation Experiment Planning chaired by Prof. Yutaka Kondo of Nagoya University. Both activities have been supported by the Environment Agency. The effort of Mr. Tatsuro Nishimura of the Japan Weather Association in compiling the document was essential to completing it. Each plan of validation experiment in Appendix A was drafted by the Principal Investigator of each experiment.

Hiroshi Kanzawa
ILAS Validation Experiment Team Leader
National Institute for Environmental Studies

January 1997

CONTENTS

List of Figures

List of and Tables

ABSTRACT

This document presents a plan for correlative measurements with the satellite sensor of ILAS (Improved Limb Atmospheric Spectrometer). It describes especially the concepts of correlative measurements and validation experiments for ILAS, and the present plan of the validation experiments. ILAS, a solar occultation sensor, is on board the ADEOS (Advanced Earth Observing Satellite) spacecraft, and is measuring vertical profiles of ozone and ozone-related species in the high-latitude stratosphere.

1. Introduction

ILAS (Improved Limb Atmospheric Spectrometer) is on board the ADEOS (Advanced Earth Observing Satellite) spacecraft of NASDA (National Space Development Agency of Japan) which was launched in 17 August 1996 with an expected mission lifetime of 3 years. Routine measurements by ILAS started in November 1996. Details of ILAS measurements are given in Section 2.

ILAS, which measures vertical profiles of ozone and ozone-related species in the high-latitude stratosphere, is an Announcement of Opportunity (AO) sensor provided by the Environment Agency of Japan (EA). [Note that an ozone sensor, TOMS (Total Ozone Mapping Spectrometer), is on board ADEOS also as an AO sensor provided by NASA.] The National Institute for Environmental Studies (NIES) of EA supports EA scientifically and is developing the ILAS Data Handling Facility (DHF). The ILAS project is thus promoted cooperatively by EA and NIES. In 1990, the ILAS project established the ILAS Science Team to promote ILAS science. Its members include scientists from Japan and several other countries.

The two main objectives of the ILAS mission are: (a) to monitor stratospheric ozone layer changes, and (b) to provide the scientific community with data for upper atmospheric chemistry and dynamics.

To attain these objectives, the quality of the satellite remote sensing data from ILAS should be evaluated. For the evaluation, validation experiments are planned for comparing their data with ILAS-derived data on ozone and other measured species and physical parameters. The objectives of validation experiments is to acquire an independent data set of sufficient size and quality to validate the accuracy of the ILAS measurements: The measurements by the validation experiments should overlap with the measurement by the ILAS in space and time as much as possible.