

IMPROVEMENT OF CAL SYSTEMS IN JMA

The purpose of this document is to report the present status and plans of Computer Aided Learning (CAL) system developed in JMA.

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1. Introduction

A Computer Aided Learning (CAL) system has been developed in the Meteorological Satellite Center (MSC) of JMA since 1994. The CAL system of MSC (MSC-CAL) aims at effective training for meteorologists in the field of satellite imagery applications. It was partially introduced in nephanalysis training classes of JMA in 1997, and proved its usefulness. In 1998, MSC-CAL was fully introduced into nephanalysis training classes. Now it is used in Japan International Cooperation Agency (JICA) training course for foreigners as well as training for domestic meteorologists.

Since the MSC-CAL system runs on personal computers with Windows operating systems, the user can handle it easily. And it comprises various functions for nephanalysis such as brightness adjustment, level conversion, direct readout, measurements on images, making cross sections, animation, overlaying meteorological data, displaying illustrations, hyperlinking, and so on. It has been expanding its field of utilization not only as a training tool but also as one of the systems for monitoring and analyzing meteorological data.

2. Present Status

2.1 Training

MSC-CAL is used in nephanalysis training classes, in which trainees learn cloud type discrimination and cloud pattern recognition, and in training classes of typhoon intensity analysis. In 1997, MSC-CAL was introduced in JICA training course, and it contributed greatly to the improvement of participants' understanding, and moreover to saving the time of trainer's preparations. As these positive impacts were recognized, MSC changed almost all of the training materials for nephanalysis, from conventional image prints to the MSC-CAL based ones.

Since the MSC-CAL module is stored in a CD-ROM, it is easy to bring the module to training classes everywhere. In 1999, the participants of JICA training course in MSC evaluated its effectiveness, and hoped to use it in their own country.

2.2 The Monthly Reports CD-ROM

The "Monthly Report of Meteorological Satellite Center" had been issued on paper. In July 1996, MSC changed the media to a CD-ROM which includes a MSC-CAL browser and enhanced its contents. It became useful and easy to handle.

2.3 Case Study Reports CD-ROM

Since 1998, MSC issues the "Nephanalysis Case Study Reports CD-ROM" annually as the self-learning material for meteorologists in local weather stations. These reports include explanation or interpretation of satellite imagery, as well as meteorological data, weather charts and NWP data, focusing on some significant meteorological phenomena from a point of view of disaster mitigation.

In 2000, MSC issued a special edition of case study reports CD-ROM which especially focused on the aviation meteorology.

2.4 Database for Specific Subjects.

JMA publishes the "Annual Report of the RSMC Tokyo-Typhoon Center", which summarized the activities of RSMC Tokyo. Since 1999, the database CD-ROM that includes satellite images of typhoons is attached as an appendix to the report.

3. Improvement Plans

3.1 Software Development

MSC has been developing and upgrading the MSC-CAL software to improve the nephanalysis training and to reinforce functions to analyze the satellite imagery. Improved functions include overlaying meteorological data such as radar precipitation, NWP data and synoptic reports on satellite images, and making a cross section, displaying subtraction image of some channel data, and editing an article file for describing many kinds of case study data. Thus it has become very easy for trainers to prepare the training materials. MSC would make efforts to upgrade the MSC-CAL software from now on as well.

3.2 LRIT Data Browser for SDUSs

In addition to the satellite imagery, JMA will start disseminating meteorological observation data and NWP products by LRIT with the commencement of MTSAT series operation.

MSC has developed the LRIT browser based on MSC-CAL, which will be provided to national meteorological services which intend to use LRIT. The software is expected to be an effective tool for utilizing the MTSAT LRIT data and product.