REPROCESSING OF SATELLITE DATA AND "META-DATA"

Parameters and data which should be contained in "meta-data" to reprocess satellite data are discussed. Parameters and data proposed by EUMETSAT in CGMS XXIX are reviewed and new parameters are examined. The possibility of the reprocess of imageries of GMS and MTSAT series satellites are also presented.

This report requests a discussion about the list of parameters and data which should be included in "meta-data".

REPROCESSING OF SATELLITE DATA AND "META-DATA"

1   INTRODUCTION

In CGMS XXIX, EUM-WP-22 discussed the importance of ancillary information for reprocessing geostationary satellite data in support of climate applications. It presents a short list of possible meta-data.   The meeting acknowledged the importance of meta-data for the reprocessing of satellite data from archives and the current deficiency of systematically archived meta-data.   It called for proposals of CGMS members on the list of parameters and data which should be contained in the meta-data set (Action 29.33).

This document reviews the first proposed list of the parameters and data by EUMETSAT in CGMS XXIX and proposes parameters and data in response to the action agenda.   It also reports the possibility of reprocessing archived satellite data in MSC.

2   PARAMETERS AND DATA REQUIRED IN "META-DATA"

Requirements for geostationary and polar orbital satellite data for climatological tasks are getting increased.   It is required to reanalyse archived satellite data with the best navigation and calibration.   The requirement includes the compatibility of data sets of individual satellites and chronological consistency to evaluate the global energy budget and detect climatological trend globally.

The first proposed list of the parameters and data by EUMETSAT in CGMS XXIX is reviewed from the viewpoint of the requirement.   Comments on the first list are as follows:

Time: An acquisition time of a pixel of a geostationary satellite is defined quite accurately if the start and end times of an image frame and scan direction (north to south or opposite) are obtained.
Position: JMA fully agrees with the proposal of EUMETSAT.
Observation Angles: JMA understands the concept represents spatial representation, and if so, a term of **pixel size** or **spatial resolution** would represent clearer.
Sensor Spectral response: JMA fully agrees with EUMETSAT.
Calibration coefficient and offset: MSC/JMA provides the information on calibration in the form of lookup tables.   JMA prefers this term being "**calibration**" that includes the concept of lookup table.

There is no additional proposal for the parameters and data in "meta-data" from JMA.

3   FEASIBILITY OF REANALYSIS OF SATELLITE DATA IN MSC

The first GMS was launched in the summer of 1977.   It started routine observation on 6 April 1978.   Since then, all data of routine observation have been archived in MSC.   However, the data in the early period before February 1981 are only kept in photo films.   The data after the period is stored in electrical forms.   Archived satellite imagery of GMS series satellites contains originally observed pixel counts.   Some basic information is also included in the data.   Therefore the data

since March 1981 can be feasibly reprocessed.

From GMS to GMS-5

Navigation: Basic information to locate the satellite orbit has been lost. Calculated information of satellite orbit and attitude are included in the archived data. Only the reanalysis of satellite attitude is feasible by landmark analysis. Navigation method of GMS satellite was upgraded in 1987, so older data could have better navigation parameters if reanalysis is conducted.
Calibration: Telemetry data of calibration is included in each archived data. Therefore reprocess of calibration is feasible if an updated calibration technique is developed.

MTSAT 1R and the successors

MSC is considering to archive satellite imagery in such a way that reprocessing is feasible at least the same level as the case of GMS series.