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EXPERT TEAM ON MARINE CLIMATOLOGY

FIRST SESSION

GDYNIA, POLAND, 7 TO 10 JULY 2004

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ITEM 3.4.2

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REVIEW OF THE OPERATIONS OF THE GLOBAL COLLECTING CENTRES

Report of Responsible Members

(Submitted by Responsible Members)

Summary and Purpose of Document

This document contains reports by Responsible Members (Germany; Hong Kong, China; Japan; the Netherlands; and USA)

ACTION PROPOSED

The Expert Team on Marine Climatology is invited to:

(a) Review the operation/activities of the Responsible Members;

(b) Identify any deficiencies and consider possible further improvements of the data exchange system;

(c) Consider future activities of Responsible Members under the MCSS and make recommendations as appropriate.

Appendices: A. Area of Responsibility and Responsible Members under the MCSS

B. Reports by Responsible Members (Germany; Hong Kong, China; Japan; Netherlands; USA)

DISCUSSION

Introduction

1. The Marine Climatological Summaries Scheme (MCSS) is defined in the Manual on Marine Meteorological Services (WMO-No. 58). International agreement regarding the MCSS are based on resolution 35 (Cg-IV), Recommendation 36 (68-CMM), Recommendation 6 (CMM-VI), Recommendation 15 (CMM-VII), Recommendation 35 (79-CMM), Recommendation 6 (CMM-VIII), Recommendation 12 (CMM-X) and Recommendation 11 (CMM-XI).

2. According to the principles of the MCSS, the oceans and seas are divided into eight areas of responsibility for the purpose of preparing the marine climatological summaries and with a view to continued international cooperation regarding the collection, archiving and exchange of marine data. Members having assumed responsibility for the respective area are shown in Appendix A.

3. Full text for MCSS and Marine Climatology from the Manual on Marine Meteorological Services (WMO-No. 558) and Guide to Marine Meteorological Services (WMO-No. 471) are available in Doc 7.2 to this meeting.

4. Reports from Responsible Members are in Appendix B.

Action proposed

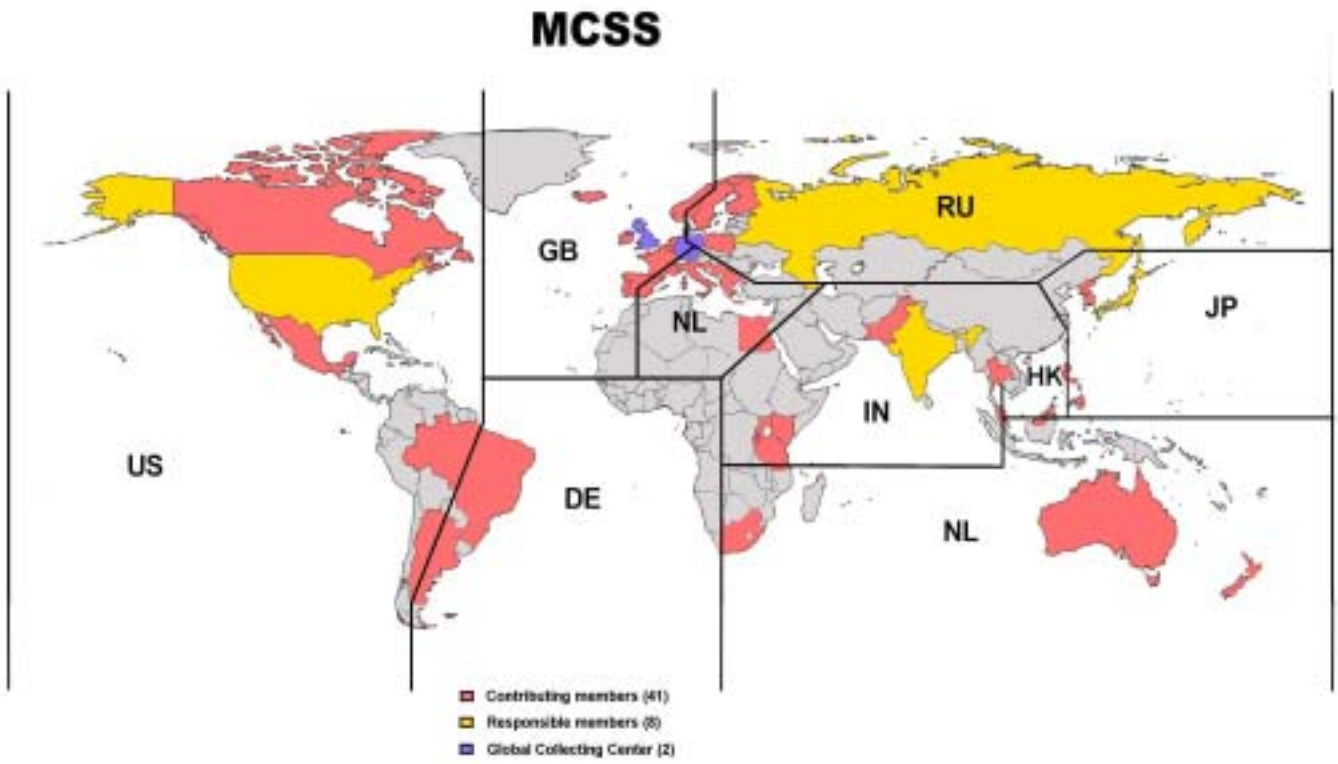
5. The Expert Team on Marine Climatology is invited to review the operation/activities of the Global Collecting Centres and identify any deficiencies and consider possible further improvements of the data exchange system. It is also invited to consider future activities of Responsible Members under the MCSS and make recommendations as appropriate.

Appendices: 2

Area of responsibility and responsible members under the Marine Climatological Summaries Scheme

Eight Responsible Members:

Germany
Hong Kong, China
India
Japan
Netherlands
Russian Federation
United Kingdom
United States



REPORT BY RESPONSIBLE MEMBERS

GERMANY

1. Data management

The German Meteorological Service, DWD, runs one of the two Global Collecting Centres and at the same time acts as the Responsible Member for the South Atlantic Area of Responsibility within the Marine Climatological Summaries Scheme.

After MQC check and exchange of the globally collected ship observations between the two GCCs the completed data sets are forwarded to the Responsible Members on a quarterly basis. Detailed information on these activities is contained in the "Annual Report for 2003 of the Global Collecting Centres (GCCs)" which will be presented under the respective agenda item.

New versions of MQCS and IMMT have been elaborated and will be discussed at ETMC-I. The main reason for the proposed changes is the extension of the content of the ship reports in the context of the VOSClim requirements.

The total number of data sets having been received from the Area of Responsibility of RM Germany in the year 2003 amounts to more than 83,000. Fig.1 gives an overview of the distribution. There are also older reports contained in that number which were made in the years before 2003, but delivered to the GCCs in delayed mode in 2003.

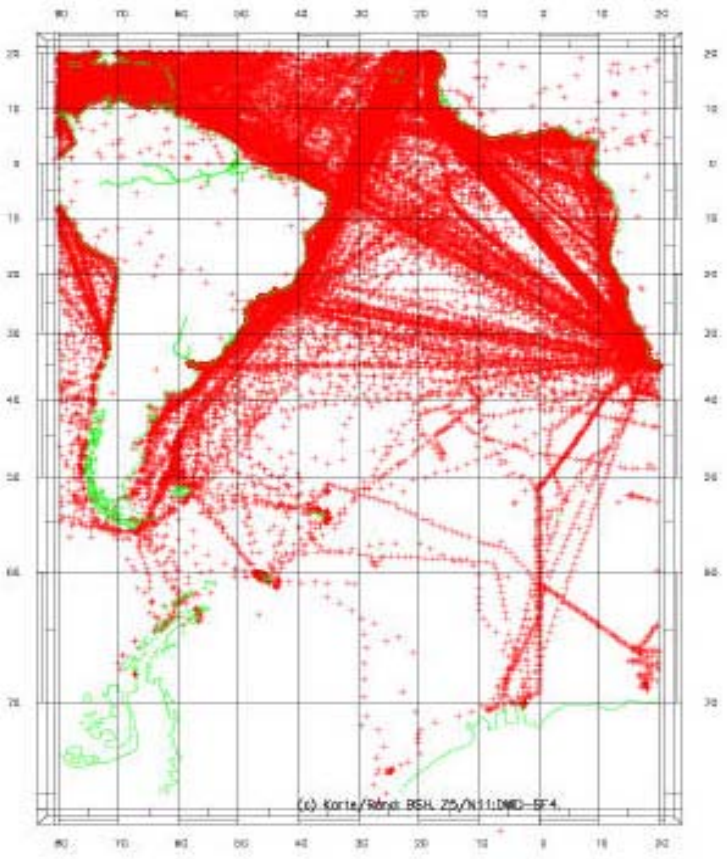


Fig.1 Distribution of observations received by RM Germany from the area South Atlantic during 2003
Period 12 April 1990–17 December 2003

2. Preparation of Summaries

DWD, as MCSS Responsible Member for the South Atlantic, is finalizing the Marine Climatological Summaries for the 10 year period 1991 – 2000.

Due to the fact that a significant amount of the delayed mode data used for the Summaries are available only some years after the end of the period under consideration, the calculations of the climatologies were carried out using also these data.

As the use of these climatological statistics is far more efficient if they are available on electronic media DWD is no longer planning to print the Summaries for 1991 - 2000; but instead to publish them on CD-ROM.

Preliminary examples of the contents will be demonstrated during the ETMC-I meeting. In Fig.2 the number and distribution of the observations available for the preparation of the decadal summaries 1991 - 2000 for the South Atlantic are shown.

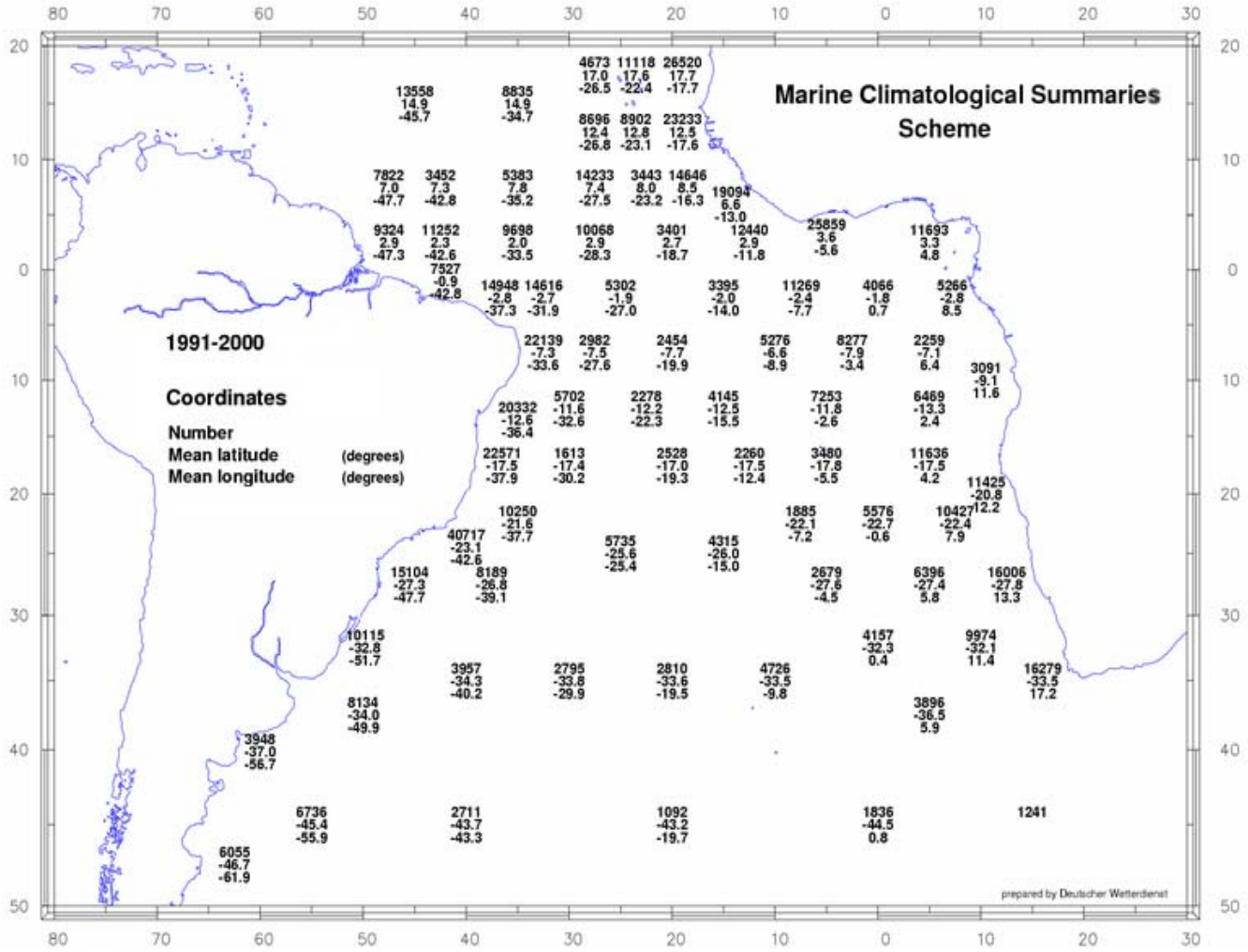


Fig. 2 Number and distribution of observations available for the preparation of the decadal Summaries 1991 – 2000 South Atlantic

3. Discussions on the development of the Marine Climatological Summaries

In May 2004 a working meeting on MCSS issues took place with DWD in Hamburg, attended by the Chairman of ETMC, Professor Miroslaw Mietus, as well as DWD personnel engaged in GCC- and RM-functions, and representatives from the user side.

The purpose was to facilitate an information exchange on requirements and needs concerning marine climatological data and products and look at the possibility to cope with them in the framework of the existing or an extended MCSS.

It showed that it is important for deliberations of this kind to have a good knowledge of the data distribution and the homogeneity in space and time. As regards the application of the information contained in the Summaries an important issue concerns the appropriate presentation. Frequency distributions and percentiles for instance could be of benefit.

Questions relating to MCSS and its development will be discussed under appropriate agenda items at ETMC-I.

HONG KONG, CHINA

Marine Climatological Summaries

1. Since the adoption of Resolution 35 (Cg-IV) of the World Meteorological Organization (WMO) in 1963, the Hong Kong Observatory (HKO) has undertaken the responsibility of collecting marine meteorological data for the area bounded by the equator and latitude 30°N, and longitudes 100°E and 120°E. Annual marine climatological summaries for this area were compiled and published for 1961 to 1990. Decadal marine climatological summaries were compiled and published for 1961-70, 1971-80, and 1981-90. The first summaries was published in 1970. The last one was published in 1995.

2. At its eighth session held in 1981, the WMO Commission for Marine Meteorology (CMM) recommended that marine climatological summaries be prepared in the form of charts instead of tables. The proposal was endorsed by the Executive Committee in 1982. Accordingly, all summaries published after 1982 were presented in chart form following the guidelines given in the Annex to Recommendation 6 of CMM-VIII. These included annual summaries 1971 to 1990 and all the decadal summaries.

3. The data used to prepare the summary charts were obtained from two sources:

(a) weather observations recorded in the meteorological log books of the Voluntary Observing Ships (VOS) of Hong Kong, China;

(b) weather observations made by other ships while in the area of responsibility of Hong Kong, China and sent to HKO by other WMO Members.

Data Exchange with Global Collection Centres

4. Since the establishment of Global Collection Centres (GCC) in 1994, HKO has been exchanging quality checked ship weather observations with GCC every quarter. During the past three years from 2001 to 2003, HKO received 61,322 ship weather observations from GCC and provided 8926 observations to GCC in delayed mode. Since 2003, exchange of data between HKO and GCC has been made via email.

Data Processing

5. Weather observations obtained from the meteorological log books of the VOS were scrutinized to eliminate instrumental, positional and coding errors before digitization. These data together with those received from other WMO Members were checked by an in-house quality control software application for internal consistency. All flagged data were reviewed and corrected as far as possible, and the corrected data were then injected into the data bank for further processing.

6. The International Maritime Meteorological Tape-2 (IMMT-2) format was adopted in May 2003 for ship weather observations sent to GCC. Minimum quality control software MQC version 4 distributed by GCC has been used for quality control in HKO since October 2003.

Voluntary Observing Ships

7. The status of the Voluntary Observing Ships fleet of Hong Kong, China is given below:

Category	**Number of ships at 31 Dec 2003**
Selected	41
Supplementary	5

Auxiliary	0
Others	0
Total VOS Fleet	45

Number of VOS vessels recruited in 2003	2
Number of VOS vessels decommissioned in 2003	10
Percentage of the VOS that did not report in Dec 2003 (to nearest whole percent)	44%
Total number of SHIP messages sent on the GTS in 2003	8197 (3758 messages were sent via HKO)

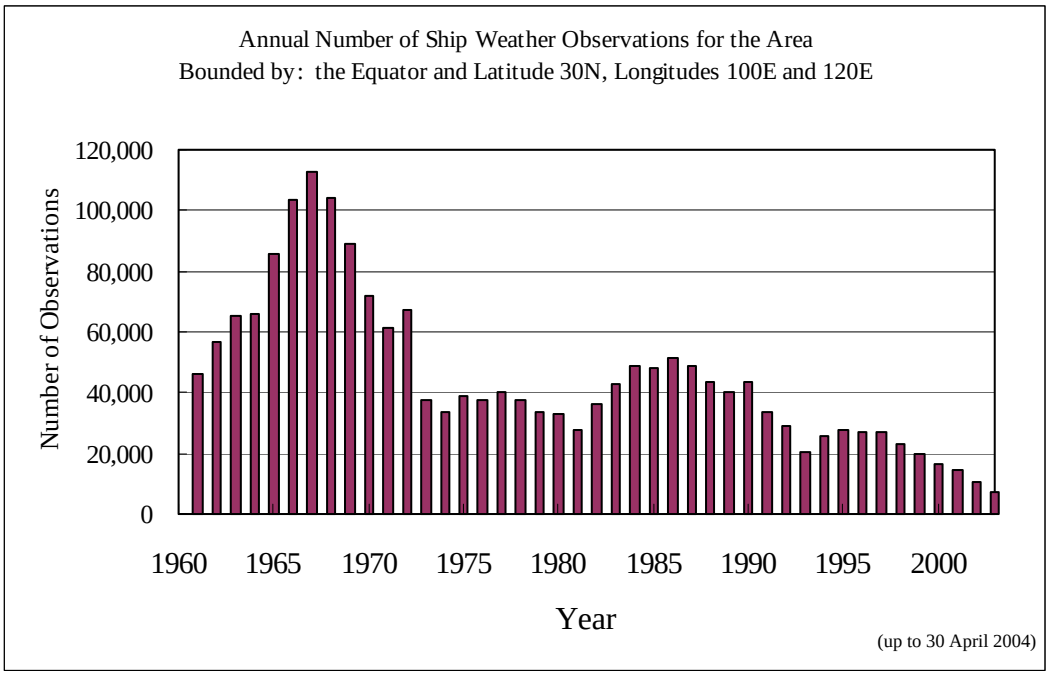
8. HKO publishes a newsletter for VOS of Hong Kong, China annually to keep the VOS fleet and shipping companies informed of the latest developments in Hong Kong marine meteorological services and to foster feedback from ships.

9. Web pages on port meteorological services including VOS information relevant to Hong Kong, China was established in 1998 under the HKO web site. These web pages provide the marine community with information on weather forecasts and warnings, codes for ship weather reports, the VOS scheme and web version of the newsletter. The URL of the web site is:

http://www.hko.gov.hk/wservice/tsheet/pms/index_e.htm

Marine Data Bank

10. HKO currently keeps a data bank of over 1.9 million ship weather observations made within the area of responsibility of Hong Kong, China. Annual distribution of these observations is given in the following figure:



Challenges

11. There is a decline in the number of serving VOS due to difficulties in recruiting new ships. The number of ship weather observations within the area of responsibility of Hong Kong, China has also decreased from about 40,000 a year in the 1980s to about 20,000 a year at the turn of the century. Efforts to recruit new VOS will not be relaxed.

JAPAN

Introduction

Japan is one of the eight Responsible Members for Marine Climatological Summary, whose responsible area is the western North Pacific and its marginal seas. The Japan Meteorological Agency (JMA) has taken charge of it since the beginning of the Marine Climatological Summary Scheme (MCSS). JMA's activities for MCSS in the recent five years are described in this report.

Collection, archiving and exchange of marine data

JMA submitted 307,000 observations to the Global Collecting Centres (GCCs) in 1999-2003. Data submission was made three times a year in the five years. Yearly numbers were 65,857, 59,313, 55,888, 56,119 and 70,065 for 1999, 2000, 2001, 2002 and 2003, respectively. Those observations were collected with paper log sheets, floppy disks and e-mails. In 2003, about 10,000 electronic records were generated by a package of PC software named "OBSJMA" developed by JMA. A new version of "OBSJMA" for windows PC has been distributed to the Japanese Voluntary Observing Ships (VOSs) in September 2002. It was found that the version had small problems on recording some elements. The problems were fixed and a modified version was distributed in May 2004 to the VOSs which have used the software.

The standard Minimum Quality Control (MQC) is applied to all observations with MQC-software provided by GCC before dispatching the data to GCCs. Duplicated records are removed before MQC.

JMA received 4,756,000 observations from GCCs in 1999-2003.

Preparing the marine climatological summaries

JMA published a 30-year climatological summary for 1971-2000 based on the marine observations exchanged within MCSS, GTS reports such as SHIP and DRIFTER/BUOY and the International Comprehensive Ocean-Atmosphere Data Set (ICOADS). The summary was distributed to related organizations in a CD-ROM in May 2003. Preparation and distribution of the decadal summaries for 1991-2000 is under consideration.

Digitization of historical log books

JMA and Japan Weather Association (JWA) carried out a project to digitize a set of historical marine observations known as the Kobe Collection for 1995-2003 with financial support of the Nippon Foundation. The project resulted in the digitized 3.1 million marine observations for 1889-1940. The final edition of data on CD-ROM (2003 edition) was distributed to related organizations in July 2003. The 5.8 million VOS observations of the Kobe Collection, including the 2.7 million observations for 1933-1960 that had been digitized in 1960-1962 and already merged into ICOADS, are now available in electronic form.

Netherlands

Since the last meeting of the predecessor of the ETMC (CMM Subgroup on Marine Climatology) in Asheville - 2000, KNMI has been working to get rid of the backlog of logbooks. These logbooks have been mounting up mainly due to lack of staff and to plans to move the existing data to a relational database (Oracle). Presently the database is being filled with all the available data and at the same time several quality checks are being carried out. This has revealed some problems that concern duplicates.

It appeared that data, received from the GCC, contained duplicates. The duplicates/originals were provided in earlier disseminations. After consulting both GCC in the United Kingdom and Germany, it appeared that no duplicate checks were carried out with the new data on data of the existing database. We are unsure if this is a correct approach.

Table I. Submitted by the Netherlands

Date	**Number of submitted observations**
December 2001	8,971
April 2003	16,826
July 2003	117,788
February 2004	26,307

United States of America

The National Climatic Data Center (NCDC) has continued to ingest, key, quality control, archive and transfer US IMMT ship data to the Global Collection Centre. The archive and data transfer averages 8,186 observations per month, ranging from a low of 2,543 to a high of about 15,355 in the past year. Since 2000, the data have been converted and archived in the TD1129 format then converted back into IMMT format for transfer to the GCC. In 2003, NCDC began archiving US Ship data in the more inclusive ICOADS/IMMA format as well as TD1129. The official NCDC archive is now the ICOADS/IMMA format. These observations have always been available in an offline media. Since FY 2003 all VOSClim observations have been available online in the ICOADS/IMMA format with a new data access tool on the NCDC website, at http://www.ncdc.noaa.gov/vosclim.html. This web site also contains an interactive graphical browser using java tools. By FY 2005 the marine data base should be available online through NCDC's Climate Data Online (CDO) System on the NCDC web site http://hurricane.ncdc.noaa.gov/CDO/cdo.