

## DATA RESCUE ACTIVITIES IN VIETNAM

*Dr Nguyen Dang Que  
HMS of S.R. Vietnam*

In the S.R. of Vietnam, depending on a lot of urgent reasons works on Data Rescue were started many years ago. In this paper the main activities in Data Rescue will be described.

### Amount of archiving hydrological and meteorological Data in Vietnam

Hydrological and meteorological observations have been started in Vietnam rather early:

- Meteorological observations on surface were started in 1880;
- Hydrological in 1902;
- Upper air in 1957;
- Agrometeorological in 1957;
- Radiation in 1957;
- Marine in 1955.

In addition to the main types above-mentioned observations, many special kinds of others also have been started some tens years ago.

It's common for all of the kinds of observations that their networks had been established for rather long time ago. Depending on the social and economic conditions, the number of observing stations changed very much. Because of it, the series of data on some stations are longer than one hundred years, but on the others - are some tens years only. In general, there is an interruption from 1945 to 1954 due to the war. The average size of the Data rows in Vietnam is about 40-50 years.

As a result, in Vietnam at present huge amounts of hydrometeorological data are archived in a big four-storage building with forty rooms, each room is larger than 20 m<sup>2</sup>.

The biggest problem is that all of the data sent to the Center for archiving are belonged to the paper-type documents. This type of data was not only the main in the past time, but it is now and will be, at least, in a near future.

### The technical conditions for Data archiving in Vietnam

It's obvious that the conditions for archiving the data in Vietnam are very poor. Vietnam is situated in region with tropical monsoon climatic conditions which are terrible unsuitable for paper-document archive. The climate is hot and very humid. The average relative humidity is about 85-90%. In the humid haft-year the relative humidity is close to 100% for a long period of time.

The hot and humid climatic conditions also are the suitable environmental conditions for many kinds of unuseful for paper-document archiving bacteria. Because of that a lot of data were destroyed not only by climatic conditions, but more seriously by some kind of these bacteria.

The places for archiving are rather narrow compared to the amount of the paper type of the data to be archived. This fact does not allow us to put all of the shelves with the paper documents in archiving rooms in the manner suited to the technical criteria of data archiving.

The archiving rooms are not yet supplied suitable equipment for creating comfortable microclimatic conditions for paper document archiving.

Because of above-mentioned situation, the paper documents get deteriorated after 30-35-years of archiving.

The problem with archiving other kinds of hydrometeorological data is the same: microfilms with data can be destroyed after 3-5 years being in that conditions; diskettes or magnetic tapes with the digital data can go out of use after 2-3 months in archiving rooms. Therefore, a lot of microfilms with the data which were done 15 years ago and, in spite of special archiving condition, now completely can not be used any more.

All of these facts are very urgent. They forced us have to find out the suitable methods to rescue the hydrometeorological data being in archiving rooms more than the limit time which mentioned above. It's one of the works HMDC of HMS of Vietnam has to do.

### **Data Rescue activities in Vietnam**

As mentioned above, under poor archiving conditions, all of the types of the data are rather quickly destroyed. Because of that, in the last ten years HMDC has to develop some actions to rescue the data:

1. The first action is to clean all the archiving rooms with the suitable chemical to make sure that are not no more bacteria that can destroy the paper documents for at least the next 1-2 years.
2. All of the data have to be put under regular control. Two times per year, the data have to be checked in detail in order to look for deteriorated documents for subsequent processing.
3. As the amount of deteriorated data gets big every year, the following actions are taken:
  - All of the deteriorated paper documents have to be rewritten completely.
  - Documents, which are not completely destroyed, have to be partly retrieved.
4. All of the diskettes and magnetic tapes with the data have to be duplicated and checked every 2-3 months.
5. In order to reduce the amount of paper documents to be sent to HMDC for archiving in the future, in the last time, HMDC has started a lot of works on computerizing all of the processes to be done at observing stations and as well in the archiving office: processing, transporting, management and archiving of the hydrometeorological data.

Currently, in Vietnam we are carrying out two parallel projects for two types of the data:

The first project is concerns the current data. The same software is installed at the same time on the computers of HMDC in Hanoi and on all computers of all of the local regional centers of Vietnam in order to automate the pre-processing all of the data received from all observing hydro-meteorological stations.

The pre-processed data are sent to HMDC in Hanoi by computer network (LAN) for more detail processing and archiving.

The project is now successful tested. It is hoped that the project will be operationally used in near future.

The second project is prepared to rescue historical data (in paper-type documents). Data from paper documents are key-entered into the computers using software which was developed at HMDC and also using the CLICOM software. All the data entered in the in computers have to go through a called man-computer quality control procedure developed at HMDC. After that all of the data are input into DataEase in the CLICOM software for management.

Due to financial difficulties, the second project now attracted only the data series of 30 years (1971-2000) at 60 meteorological observing stations.

### **Conclusion and Recommendations**

As mentioned in the "Minutes of the Discussions" of visit of Mr Hama Kontongomde from WCDMP/WCP - WMO to Vietnam in April 2000, the HMDC of HMS of Vietnam would like to request WMO to provide:

1. Equipment (Air conditioners, humidity controllers) to maintain the archiving rooms in proper conditions;
2. Equipment for digitizing and computers for archiving of the data.
3. A suitable software for Data management, including the latest English version of CLICOM 3.1 with the commercial software DataEase and Cosort.
4. Training in the use of new technologies and Data management.