

Meteorological Standardization in China

DING Haifang

China Meteorological Administration

Zhong guan cun nan da jie 46, Beijing 100081,P.R.China

Tel:+861068406301,Fax:+861062173223,E-mail:ding_hf@yahoo.com

ABSTRACT

In order to implement the meteorological standardization, China Meteorological Administration (CMA) has set up a division to carry out related duties. From 1998 to now, CMA has made a lot of achievement in this area. this article introduces the standardization system in China and the related work of CMA has finished as well as a brief introduction of the task that ISO/TC146/SC5 performed.

1. Standardization system in China

China standardization is a kind of centralized administrative system combined with respective responsibility of any official departments and civil association. Standardization Administration of the People's Republic of china (SAC) is authorized by the State Council to exercise the administrative functions and carry out centralized administration for standardization in China. While relevant competent administrative departments of the State Council shall be assigned the responsibility of managing the work of standardization within their respective professional sectors. The competent administrative departments for standardization in the provinces autonomous regions and municipalities shall execute unified administration of the work of standardization in their respective administrative regions. The competent administrative departments of the governments of provinces, autonomous regions and municipalities shall administrate the work of standardization within their respective sectors in their respective administrative regions.

The competent administrative agencies on standardization of the city and county governments shall, in accordance with their respective responsibilities specified by relevant governments of provinces, autonomous regions and municipalities, administrate the work of standardization in their respective administrative regions.

There are three subordinate units of SAC. China Association for Standardization (CAS), founded in 1978, is a public society of standardization enjoying a legal status approved by the Ministry of Civil Affairs, which consisting of organizations and individuals engaged in standardization in national wide based on the voluntary participating. The Standards Press of China (SPC), founded in 1963, is the only publication center in China for publishing national standards, professional standards, standard compilation books, scientific and technical books, and other books concerned with standardization, quality control and quality supervision. In order to promote standardization in the relevant research development and management of standards so as to meet the demands of socialist market economic construction, China National Institute of Standardization (CNS) was established on July 13, 1999.

In the P.R.China, there are four levels of standardization system, which are national standard, professional standard, local standard and enterprise standard. National Standards shall be developed for technical requirements need to be unified national wide. Professional Standards may be developed for which no

National Standards are available but unified technical requirements are needed in a certain professional field throughout country. Local Standards may be developed for which neither National Standards nor Professional Standards are available, but unified requirements for safety and hygiene of industrial products are needed within a local area. Enterprise Standards may be developed within an enterprise when National Standards, Professional Standards and Local Standards aren't available. However, an enterprise is encouraged to adopt National Standards, Professional Standards and Local Standards if they are available.

Moreover, national advisory technical documents may be developed for some developing projects, which are required relevant guiding standard documents or have standardization value but can't be developed formal standards or adopt ISO/IEC and other international standards at present.

Chinese Standards are divided into mandatory standards and voluntary standards. Standards concerning protection of human health, personal property and safety and those enforced by laws and administrative regulations are mandatory standards, others are voluntary standards.

SAC is responsible for the standardization of the whole country, and each professional technical committee is responsible for the standardization work of related area. Only in that area, which still has no technical committee organization, government subsidiary Ministry or Administration will do the standardization work. China Meteorological Administration (CMA) is entitled to compose the national standards on behalf of the SAC, to issue meteorological professional with code of Chinese Standards as “QX” and to give guidance to the procedure of local standards.

Usually, each related technical committee carries out the activities of standardization. Now in China there are 263 technical committees. CMA is preparing to set up two technical committees, which specified in meteorological observations and meteorological instruments. CMA has its own standardization organization in the whole business, and will focus its point to lightning protection.

2. Meteorological standardization in CMA

CMA began to carry out the standardization plan in year 1998. As an ordinary duty, it was clarified in the department of observation and telecommunication, division of quality control and technical support. In year 2004, a division related to standardization was set up in the department of policy and regulation.

● Standardization in meteorological instrument

In order to implementation this work, CMA tried to focus its point connected with the observation work closely. As CMA is putting most of its effort in building the ground-base observation system, especially in promoting the AWS to local observation stations, in order to meet the needs of operational work, CMA produced the first meteorological professional standard of 《Type II Automatic Weather Station》 which is composed by one of major instrument suppliers in China. This standard was issued in 2000, and it has played a very important role in the production of AWS. Every meteorological instrument manufacture that wants his product to be qualified for the requirement of CAM, must obey the specifications listed in the standard. This helps us to improve the quality of the instrument as well as the observation data accuracy. After that CMA issued another six professional standards for meteorological instrument, such as 《HM4 Electric aspirated psychrometer》,《TB1-1 Apparatus for measuring frozen ground deep》,《SL2-1 Precipitation sensor》,《DJM10 Calibration equipment for humidity instrument》, 《EY 3-2A and EY 3-2B thermocouple anemometer》, 《YE1-1 Calibration equipment for pressure instrument》.

● **Standardization in lightning protection**

Lightning disaster is one of the most serious meteorological hazards not only to the human life but also affect real time observation greatly. The observation field is often attack by the lightning and the instrument in the observation field maybe destroyed by the lightning, which result in the loss of data information collection and the damage of the equipment itself. Even some large equipment also encounters this kind of situation and will bring a lot of economic loss to the CMA, such as the next weather radar. CMA installed its first set of next weather radar in Shanghai city, but the radar was destroyed by a lightning accident. Because CMA is planning to building 126 weather radar stations, so it becomes a quite important question confront the regular operational business, how to protection meteorological equipment from lightning disasters. CMA has set up a research program to do the scientific experiment to find most effective way to avoid lightning.

After two years hard work, three professional standards (QX2,QX3,QX4) related to the lightning protection was issued: 《Technical specifications for lightning protection at China new generation weather radar station》, 《Technical specifications for protecting the meteorological information system from lightning electromagnetic impulse》, 《Technical specifications for lightning protection at the meteorological offices(stations)》, which lead to regulate designing of the lightning protection system. Two lightning equipment testing laboratory was build in Beijing and Shanghai separately, and a professional standard 《Surge protective devices-Part 1: Performance requirements and testing methods》 was finished correspondingly. In the meantime, a professional standard of 《Technical specifications for lightning protection at the automatic weather stations》 is going put into power recently.

Except those two area, CMA also noticed that standardization is very important in unify the data format, observation station environment protection.

3. Meteorological standardization in international organization

The purpose of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade. There are three bodies are responsible for the planning, development and adoption of International Standards: ISO (International Organization for Standardization), IEC (International Electrotechnical Committee), ITU (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies of some 140 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

ISOTC146 air quality technical committee has 6 subcommittees (SC), which are SC1/Stationary Source emissions, SC2/Work Place Atmospheres, SC3/Ambient Atmospheres, SC4/General Aspects, SC5 /meteorology and SC6/ Indoor Air.

SC5 is responsible for the elaboration of standards in the field of meteorological measurements and analyses that are focused on air quality programs. The meteorological standards may include identifying: the initial standards being developed are focused on basic surface-based and remote sensing instrument system descriptions and test methods. Further work is planned in standardizing observation systems and analytical methods and models that have general meteorological applications. Other planned work includes promoting standardization of new measurement and analysis techniques.

The Secretary of SC5 is Mr. Paul M. Fransioli and the chairperson is Mr. John S. Irwin, both of them are from the US. Till now, SC5 has published one ISO standards: ISO 16622:2002 Meteorology -- Sonic anemometers / thermometers -- Acceptance test methods for mean wind measurements

There are 9 countries (including Australia, Austria, Canada, France, Germany , Poland, Sweden, United Kingdom) working in the SC5 as participating countries and 11 countries(such as Belgium, China, Finland, India, Ireland, Republic of Korea, Netherlands, Slovakia, South Africa, Turkey, Uganda) as observers.

SC5 has five working groups listed as follow:

- TC 146/SC 5/WG 1 Wind vanes and rotating anemometers
- TC 146/SC 5/WG 2 Sonic anemometers/thermometers
- TC 146/SC 5/WG 3 Test methods for comparing the performance of radiation shields and definitions of important characteristics
- TC 146/SC 5/WG 4 Evaluation methods for atmospheric dispersion models
- TC 146/SC 5/WG 5 Remote atmospheric boundary layer profiling - Test methods for ground based equipment.

Hope WMO could pay more attention to the meteorological standardization, and make this work going further and further.