



Meteorological Observation ISO 9001 Quality Management System in CMA

Background

ISO standard plays a key role in the data delivery and product services in WMO members. It has been implemented by 117 out of 192 WMO members, over 61% of all (WMO, 2015). China attaches great importance to ISO quality management system, advocating strengthening quality management, building quality certification systems and promoting total quality management.

China Meteorological Administration (CMA) conducted meteorological business quality management based on the existing official documents, regulations, rules, standards and specifications from Chinese government, WMO, different meteorological bureaus and operational departments. However, the traditional quality management methods used in CMA failed to satisfy the needs of international meteorological services due to the lack of systematicness, risk control for critical processes, customer feedback mechanism and international standard guidelines.

In order to improve the quality management level, ISO standard was introduced to CMA, and some institutions of CMA, such as Shanghai Meteorological Service, Shaanxi Meteorological Bureau and Beijing Meteorological Service, have successfully obtained international ISO certificates.

Innovation and Development of Meteorological Observation Business Quality Management in CMA

Based on Plan-Do-Check-Action cycle concept, the ISO 9001 Quality Management System (QMS) with the structure of national, provincial, prefectural and county levels was started in the meteorological observation business of CMA since 2017. It has been applied in the surface, upper-air and space-based integrated meteorological observation system. Initially, the ISO 9001 QMS was carried out only in the Meteorological Observation Center of CMA, the National Satellite Meteorological Center of CMA, Shanghai Meteorological Service, Shaanxi Meteorological Bureau and the CMA Supply and Delivery in Shanghai. So far, it has been expanded across the country and 16 meteorological departments have successfully passed the initial certification examination, being verified by the China Quality Certification Center (CQC) (Fig.1). By the end of 2020, all meteorological departments in China are expected to pass the ISO 9001 certification in meteorological observation area and to put the QMS into full operation.



CMA_0_QMS

ISO 9001



Fig.1 The quality management system certificate of 16 meteorological departments

The CMA Observation QMS is made up of three processes, including Business Process (BP), Support Process (SP) and Management Process (MP). The BP is fundamental and plays the key role in all three processes. The SP provides the necessary standards, specifications, regulations, equipment calibration, access permission and other supports for the BP. The quality policy of CMA Observation QMS is composed of four phrases, including Accurate Detection, High Efficiency Guarantee, Innovative Development and Satisfactory Service.

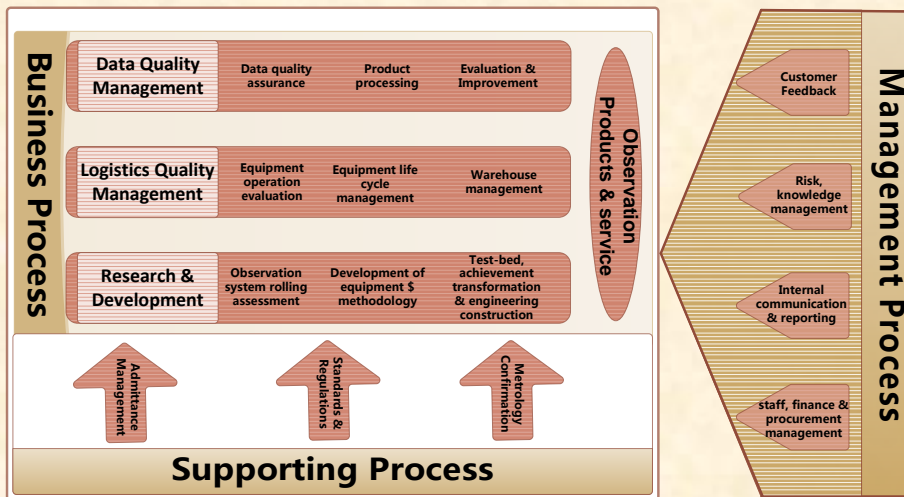


Fig.2 CMA Meteorological Observation Quality Management System Framework

The BP consists of three core business processes, namely, the research and development quality management, the logistics quality management and the data quality management, each of which contains three specific procedures. The BP produces meteorological observation data, real-time products and supplies services to weather forecasters, researchers, public and decision-makers. The SP also includes three specific procedures, i.e., admittance management, standards and regulations management as well as meteorological metrology verification. The specific



procedures of BP and SP are shown in a 3×3 matrix (Fig.2). The MP has the function of management, and consists of customer feedback, risk and knowledge management, internal communication and report, staff and procurement management.

The three processes involve a series of work items and business categories. The work items at the national, provincial, prefectural and county levels may change with the variation of actual business situation of each unit.

What has CMA gained from ISO 9001?

CMA has made great progress in developing meteorological observation quality management system. According to ISO9000 series standards and quality system documents, all the national-, provincial-, prefectural- and county-level stations in CMA have completed the construction and operation of QMS, achieving the closed-loop operation of meteorological observation. This has laid a solid foundation for standardizing the integrated observation service and promoting the high-quality development of meteorological service. In addition, the system construction and operation have met the standard requirements, thus the observation business management efficiency is improved. The observation business process is more systematic and more standardized. The observation business operation is more stable and reliable while the observation data quality is improved and the international sharing is more flexible. Furthermore, CMA has established a high-quality and specialized QM team, and the internal and external auditors are free to exchange their experiences and expertise with the experts from other countries.

What does CMA QMS mean for WMO member countries?

China has made important contributions to global meteorological observation. The quality management system for meteorological observations can help CMA to provide WMO members with high-quality exchange data that meet the international standards. On the other hand, the CMA's achievements and experience in QMS building and operation will be contributed as "China wisdom" and "China solutions" to the construction of quality management system in other WMO member countries.

What will CMA do in the near future?

CMA is committed to complete the certification audit throughout the country in the field of meteorological observation and to conduct the research on the information technology of QMS. Meanwhile, QMS will be implemented in other meteorological areas of CMA.

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