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STRATEGIC PLAN FOR SPACE WEATHER

Strategy Plan for Space Weather Operation in China

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Summary and Purpose of Document

In the context of the discussion on Strategy plan for space weather operation in China, this document outlines the background, basic principles, operation needs, the overall operation objectives, the major developing tasks, and key projects of space weather operation in China from a long term perspective, and also proposes the requirements to ensure implementing the strategy plan of space weather operation. In particular, the recommends are raised in order to meet the needs of the coming decades in China, The benefits of implementing the strategy plan for space weather operation are discussed in summary.

ACTION PROPOSED

The document is provided for information, as background for the discussion on a WMO strategic plan for space weather.

DISCUSSION

1 INTRODUCTION

Space weather operation, as an important part of modern meteorology, refers to the technical activities related to space weather, including space weather monitoring, forecasting/warning, services, research, and infrastructure construction, etc.

Space weather operation targets at enhancing our capability of preventing and mitigating space weather disasters:

- (1) To meet the demands for space weather services in responding to space weather hazards for sustainable development of China, and to make national surveys and assessments on space weather hazards;
- (2) To coordinate inter-departmental strengths, to plan national space weather monitoring layout, and to optimize operational deployment of resources;
- (3) To steer development of the space weather and relevant disciplines, and to promote advances of scientific & technological productivity;
- (4) To increase international recognition of China's role in this field, and to make contribution to peaceful utilization of the space.

2 ACHIEVEMENTS AT NCSW

The national space weather operation system, including monitoring, forecasting and services, has basically been completed after more than ten years of construction and development (Figure 1).



Figure 1: Forecast Portal of National Center for Space Weather

The space weather operation has achieved international and domestic recognition and support. It not only becomes an important force in the national space weather community but also plays an important role on the international cooperation (Figure 2).



Figure 2: Flowchart of Space Weather Operation

3 OBJECTIVES OF STRATEGY PLAN OF SPACE WEATHER OPERATION IN CHINA

- (1) To establish a service-driven, prediction-cored and monitoring-based space weather operation system with international leading standard and specification;
- (2) To form a space weather operation development structure and pattern characterized by multi-level and multi-sector collaboration with the National Center for Space Weather (NCSW) as the main body;
- (3) To enhance the capability of space weather disaster prevention, realizing systemization, standardization and modernization in space weather operation;
- (4) To fulfill the national executive and social management functions of CMA, consolidating the important core position of CMA in the international space weather operation system.

4 BASIC PRINCIPLES OF THE DEVELOPMENT OF SPACE WEATHER

Emphasizing independent-observations and professional services as the breakthrough associated with the national and regional operations and global cooperation in data sharing and resource exchanging, the national authoritative space weather service agency and major international space weather information hub will be constructed after next decade's efforts. Basic Principles for developing the space weather operation should be followed:

- (1) Depending on departmental strengths and advantages and stabilizing space weather operation;
- (2) Coordinating Ground-based and Space-based developments and Optimizing rational and comprehensive operation layout;
- (3) Sharing and exchanging data and resources and bridging research and operation in space weather
- (4) Implementing national operation authorization and strengthening inter-department administration

5 BLUEPRINT OF THE SPACE WEATHER OPERATION IN CHINA

- (1) The application service platform with a decision-making service system, a professional service system, a public service system and a user cultivating mechanism.
- (2) The forecast and warning portal with a forecast theory system, a forecast technology system, a forecast standard system and a space weather forecast service platform.
- (3) The comprehensive monitoring system with an ionosphere-thermosphere monitoring network, two geomagnetic-solar longitude-latitude chains, and FY series of satellites including small space weather satellites.
- (4) The key laboratory of space weather science and application focusing on disastrous space weather mechanism research, new monitoring technologies, space weather forecasting techniques, space weather effects assessment, and space weather service evaluation etc.

See Figure 3.

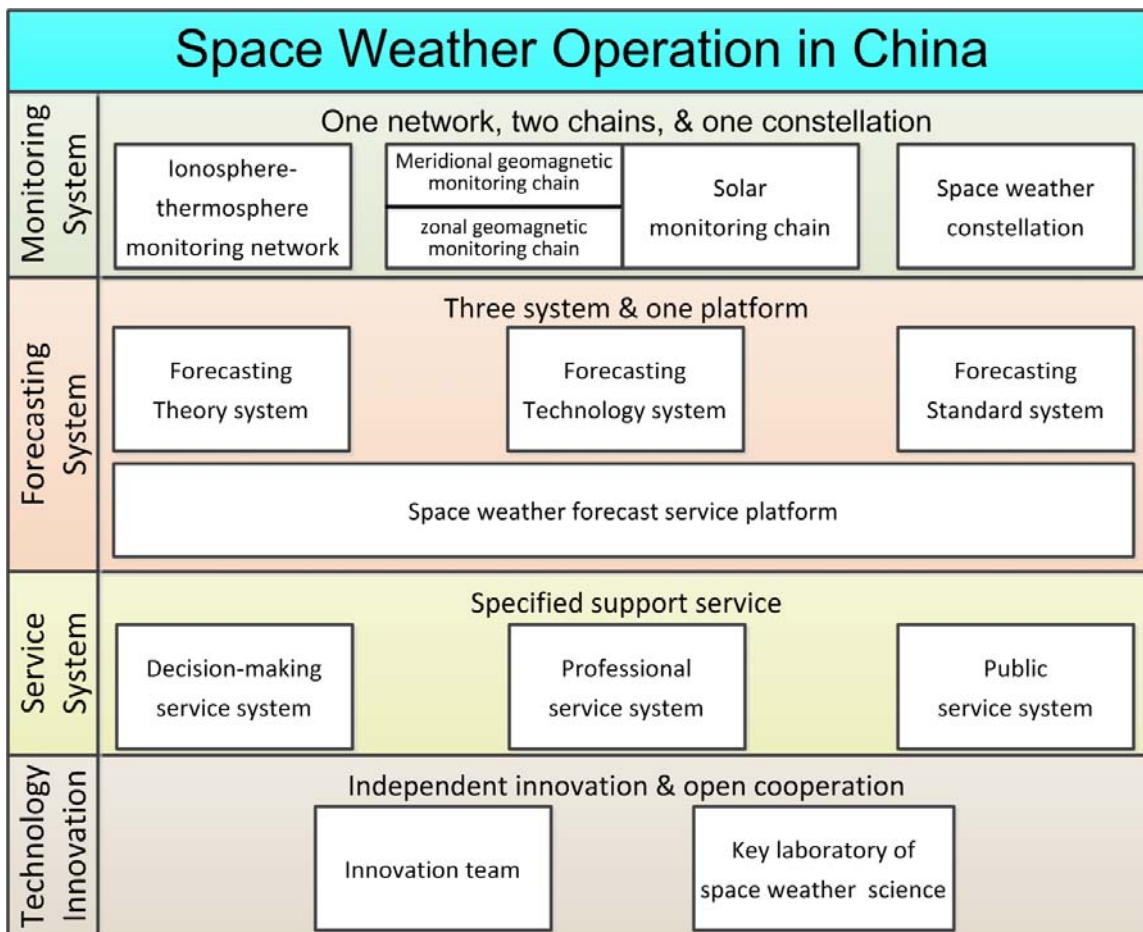


Figure 3: Block-diagram of space weather operation in China

6 SUMMARY: BENEFIT OF THE STRATEGY PLAN

- (1) To accelerate the development of space weather monitoring and warning operation in China,
- (2) To promote the development of space weather forecasting and warning operation in China,
- (3) To improve space weather products and warning services capabilities for different users,
- (4) To enhance global and regional cooperation for awareness of extreme space weather events and public and professional understanding of space weather and its impact.