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**WARNING FOR EXTREME SPACE WEATHER EVENTS**  
**How to respond to extreme space weather events: the view from CMA**

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**Summary and Purpose of Document**

This document summarises the progress of CMA and the emergency plan related to the response to extreme space weather forecasting and alerts. Some proposal for international coordination is also addressed.

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The Inter-Programme Coordination Team is invited to know the progress of space weather operation in CMA and to discuss the emergency plan related to the response to extremely space weather forecasting and alerts.

## DISCUSSION

### 1. INTRODUCTION

#### 1.1 Background

China Meteorological Administration (CMA) has acknowledged that space weather monitoring, forecast, and service, as well as the weather and climate, should be an integral part of import guarantee for the further harmonious development of society. The National Center for Space Weather (NCSW), established in 2002 and assigned to the National Satellite Meteorology Centre (NSMC) of CMA, acts as the national center authorized by the National Council, to carry out the space weather operation and provide space weather services. CMA began to provide space weather operational service in 2004, and now has preliminary developed a complete operation system covering space weather monitoring, forecast, and service.

#### 1.2 Recent developments

- (1) A nation-wide network of ground-based observations (20+ stations) has been completed, conducting systematic investigations on the solar photosphere, Chromosphere, and radio burst, the ionospheric electron density profile, scintillation and D-region absorption, as well as the wind and temperature of upper atmosphere.
- (2) On Jun.1 2013, the space weather channel of the [www.weather.com.cn](http://www.weather.com.cn) has been published online. The website provides space weather information for the public and professional.
- (3) The newly launched (Sep.23, 2013) FY-3C polar satellite has carried the space weather sensors including energetic particle monitors and GNSS radio occultation receiver, which provides the atmospheric density profile and the electron density profile.

#### 1.3 Scope of the document

The present document summarises the emergency plan for the space weather events of CMA and proposes some suggestions for the international communication and coordination related to extreme space weather events.

### 2. The NCSW emergency preparedness plan for space weather disaster

The NCSW emergency preparedness plan for space weather disaster prescribes for levels of responses with corresponding entry and exit standards, the operational procedure for consultation, issuing alert, watching and notification.

This emergency preparedness plan provides a practice for the forecaster - how and what to do with the extreme space weather events - but a guidance for users is still missing.

### 3. Proposal for international coordination

What we need to do:

- (1) We need an international emergency response plan, because the space weather spans national boundaries.
- (2) We need specification for space weather forecasting: it is good that every forecaster has its own judgement, but it is bad for users who don't know who is right?
- (3) Space weather is such a young and complicated discipline that the forecasters need operational guidance to summarize the experience of space weather forecast
- (4) Inter-calibration and comparison of the space weather forecasts should be globally performed for defining the space weather scales and standard.