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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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Classification for the intensity of solar soft X-ray flares

太阳软X射线耀斑强度分级

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. The standard proposed by the China Meteorological Administration. This standard by the National Satellite Meteorology and Space Weather Space Weather Monitoring and Warning Committee for Standardization Technical Committee (SAC/TC347/SC3) Centralized. This standard was drafted. National Satellite Meteorological Center (National Space Weather Monitoring and Warning Center). The main drafters of this standard. your music out, Zhaohai Juan, Tian Mao Zong bit country.

Solar Soft X-ray flares accompanied by enhanced electromagnetic radiation and particle acceleration of particles in the ionosphere and space weather environment may cause A great influence. Solar soft X-ray flare monitoring space weather monitoring and early warning has become an important business. In order to quantitatively describe too The degree of strength of the male soft X-ray flare, the standard is formulated. Solar soft X-ray flares strength rating

1 Scope

China's national standard for classifying the intensity of solar soft X-ray flares. It specifies the intensity classification of these flares, and it applies to solar soft X-ray flare monitoring and warning operations. A solar flare is a sudden localised brightening of the solar atmosphere, usually accompanied by enhanced electromagnetic radiation and particle emission; a soft X-ray flare is that event as observed in the soft X-ray band. Its intensity is defined as the peak flux of electromagnetic radiation in the 0.1 to 0.8 nanometre band, measured outside the Earth's atmosphere at a distance of one astronomical unit from the Sun, expressed in joules per square metre per second - equivalently watts per square metre - and denoted FX. The classification is the well-known five-letter scale: class A begins at one hundredth of a microwatt per square metre and each subsequent class - B, C, M and X - starts at ten times the flux of the one below it, with X open-ended at the top. Within each class the flare is given a decimal subdivision, so that a flare is described as, for example, M2.5. This is the classification that space weather alerts are actually issued on, because

the soft X-ray flux is measured continuously by geostationary satellites and reported in near real time, and because its effects are immediate: the X-rays reach the Earth in eight minutes and ionise the dayside upper atmosphere directly, causing shortwave radio fadeout and degrading satellite navigation on the sunlit hemisphere within minutes of the flare. The standard was written to describe that intensity quantitatively for monitoring and warning use. Issued on 3 September 2014 and in force since 1 January 2015.

This standard specifies the soft X-ray solar flares strength rating. This standard applies to the monitoring and early warning service solar soft X-ray flares.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1 Solar flares solarflare Local area solar atmosphere suddenly lightened active phenomena, often accompanied by enhanced electromagnetic radiation and particle emission.

2.2 Soft X-ray solar flares solarsoftX-rayflare Solar flares in soft X-ray band phenomenon occurred.

2.3 Soft X-ray intensity solar flares intensityofsolarsoftX-rayflare In the Earth's atmosphere, the astronomical units from the sun at a solar soft X-ray flares in $1 \times 10^{-10} \text{m} \sim 8 \times 10^{-10} \text{m}$ band Fan Around the peak flow of the electromagnetic radiation.

Note 1. The symbol FX expressed in units of $\text{J}/(\text{m}^2 \cdot \text{s})$.

Note 2. 1 astronomical unit = 149598000km. 3 solar soft X-ray flares strength rating

3.1 solar soft X-ray flare intensity according to traffic volume is divided into A, B, C, M, X five levels, see Table 1. Table 1 solar soft X-ray flare intensity level Intensity level Flow range $\text{J}/(\text{m}^2 \cdot \text{s})$

s) A $1.00 \times 10^{-8} \leq \text{FX} < 1.00 \times 10^{-7}$ B $1.00 \times 10^{-7} \leq \text{FX} < 1.00 \times 10^{-6}$ C $1.00 \times 10^{-6} \leq \text{FX} < 1.00 \times 10^{-5}$ M $1.00 \times 10^{-5} \leq \text{FX} < 1.00 \times 10^{-4}$ X $1.00 \times 10^{-4} \leq \text{FX}$

3.2 A class flares subdivided into 90, from A1.0 [$1.00 \times 10^{-8} \text{J}/(\text{m}^2 \cdot \text{s})$] began, FX for each additional $0.1 \times 10^{-8} \text{J}/(\text{m}^2 \cdot \text{s})$, Yao Spot intensity level increased by 0.1, see Table 2.