

Short Communication

Trends analysis of fire accidents in the history of China: B.C.221–A.D.1949

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Abstract

In this paper, fire accidents happening from B.C.221 to A.D.1949 in China are analyzed and the changing regularity of high fire occurrence regions (HFOR) is discussed. We have reached some useful conclusions: (1) the changes of HFOR in China follow those of the economic and cultural centers. The more advanced the economy in the province, the more the fire accidents. (2) war is the primary cause for fires in the Chinese history. © 2005 Elsevier Ltd. All rights reserved.

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1. Introduction

Fire is crucial for the development of human society. Fire and fire fighting have become an important part of human civilization. With the rapid development of China's economy, the eastern coastal provinces, particularly Guangdong, Zhejiang and Shandong provinces, have suffered more losses from fire accidents than other provinces in recent years (Zhong & Fan, 2004). When seeing how the high fire frequency regions changed in the remote past of China, we find the result profoundly enlightening for people living in this high-tech era and a peaceful environment. In this paper, we will analyze the fire accidents happening throughout the Chinese history from the Qin Dynasty to the founding of the People's Republic of China (B.C.221–A.D.1949), discuss the changing regularity of HFOR, and make some initial research on its causes.

2. Methods

The historical fire data of China adopted here mainly originates from the fire accident recorded in the

chorography of every region of China as well as the data collected and arranged by the Fire Service Bureau under the Ministry of Public Security (*Compiling Committee of China Fire Dictionary*, 1997). In this paper, other data resources are also used (Zhong & Fan, 2003).

The data of the historical fire accident are counted on the basis of the present prefecture division (province) to make the frequency distribution map of fire accidents of each dynasty. To avoid that one fire was counted twice, the Chinese history were divided into 13 dynasties, namely: Qin Dynasty (221 BC–206 BC), Han Dynasty (206 BC–220 AD), Three Kingdoms Dynasty (220 AD–265 AD), Jin Dynasty (265 AD–420 AD), Nan and Bei Dynasty (420 AD–581 AD), Sui Dynasty (581 AD–618 AD), Tang Dynasty (618 AD–907 AD), Wudai Dynasty (907 AD–960 AD), Song Dynasty (960 AD–1279 AD), Yuan Dynasty (1279 AD–1368 AD), Ming Dynasty (1368 AD–1644 AD), Qing Dynasty (1644 AD–1911 AD), and Minguo (1911 AD–1949 AD). Using the data mentioned above, we get the HFOR distribution of each Chinese dynasty shown in Fig. 1.

3. Results

3.1. The change of high fire occurrence regions in the Chinese history

In the Qin and pre-Qin period, fire mainly occurred in the middle and lower reaches of the Yellow River valley, which

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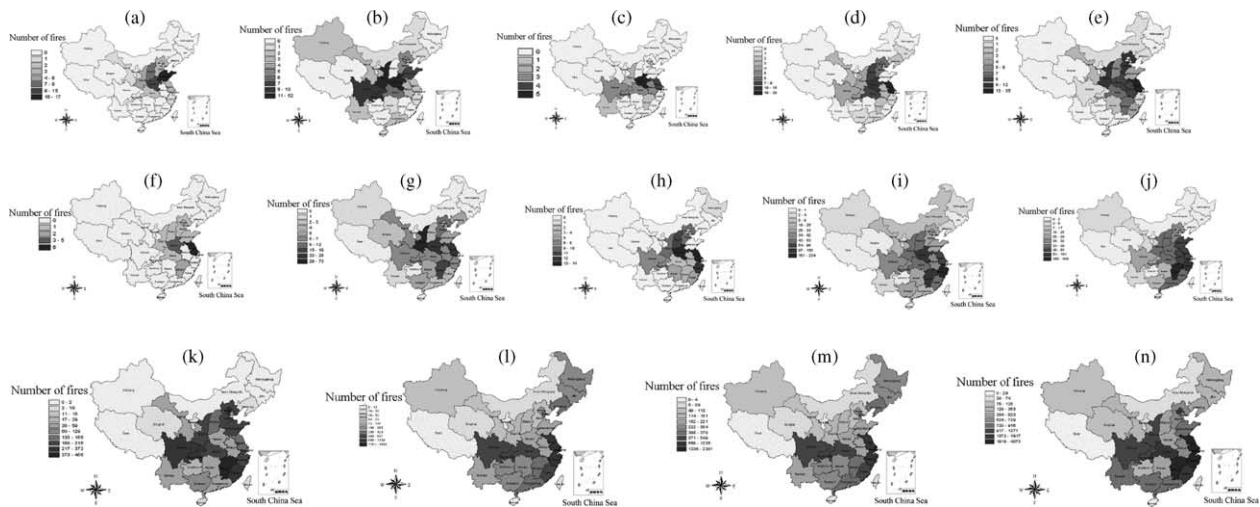


Fig. 1. Distribution of HFOR in China different dynasty. (a) From pre-Qin to Qin Dynasty; (b) Han Dynasty; (c) Three Kingdoms Dynasty; (d) Jin Dynasty; (e) Nan and Bei Dynasty; (f) Sui Dynasty; (g) Tang Dynasty; (h) Wudai Dynasty; (i) Song Dynasty; (j) Yuan Dynasty; (k) Ming Dynasty; (l) Qing Dynasty; (m) Minguo; (n) From pre-Qin Dynasty to Minguo.

was China's economic, political and cultural center and most populous region at that time. Meanwhile, fire mainly occurred in Shandong, Henan, Shaanxi and Shanxi provinces. This region is the cradle of the Chinese civilization. In this perspective, we can see the close link between civilization and fire.

In the Three Kingdoms Dynasty, Henan province in the Yellow River valley was still the center of high fire occurrence, while Anhui and Jiangsu provinces, south to the Yellow River, climbed to the second and third places for fire occurrences. In the mean time, the Yangtze River valley began to witness frequent fire occurrences. In the Han Dynasty, fire mainly took place in Shaanxi, Henan, Sichuan and Shandong provinces, among which, Shaanxi province scored the largest number of fire cases, followed by Henan province. Therefore, the highest fire occurrence region was still the Yellow River valley during that period.

In the Jin Dynasty and Nan and Bei Dynasty, some areas of the Yangtze River valley began to have HFOR, such as

Jiangsu province. From the Sui and Tang Dynasties, HFOR began to move southward and entered the Yangtze River valley. At that time, a large number of people were relocating themselves from the north to the south. In particular, after the An/Shi Riot (755 AD–763 AD), the economic center shifted southward. With further development in the Wudai and Song Dynasties, the economic center had completely moved to the south by the late Nan Song Dynasty (1127 AD–1279 AD).

In the Yuan and Ming Dynasties, HFOR moved to the middle and lower reaches of the Yangtze River and the southeastern coastal regions. For instance, the highest fire occurrence region in the Ming Dynasty was Jiangxi province, with Fujian province coming the second. In fact, by that time, the most populous region in China had already moved to the south. Starting from the Qing Dynasty, northeastern China began to become one of the most populous regions and fire occurrence there saw a high record, only next to the Yangtze River valley. In the Minguo

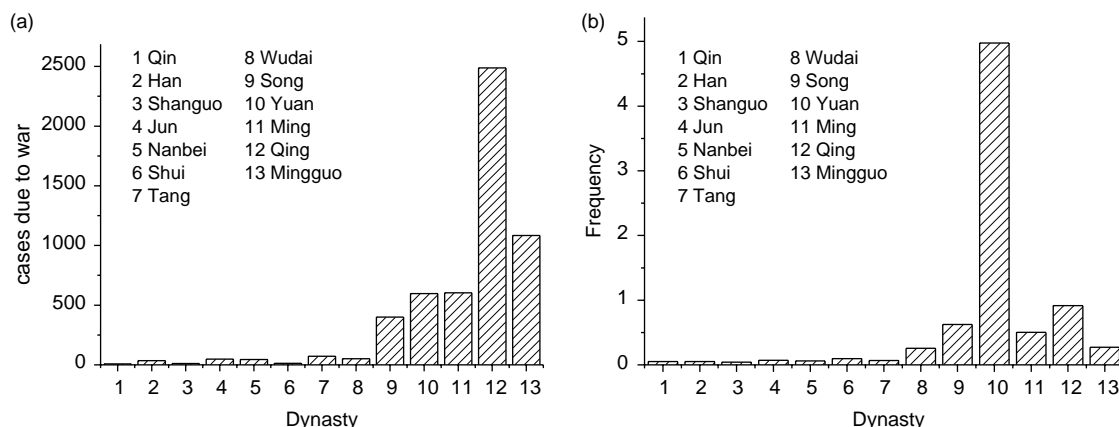


Fig. 2. Fire cases statistics. (a) Fire occurrence caused by war in each dynasty; (b) Fire occurrence caused by each war in Chinese history.

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