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Salt Desert and Saline-Alkaline Mixed Dust Storms: An Ignored Issue for Global Climate Change

SONG Huailong

Institute of Oceanology, Chinese Academy of Sciences, Qingdao 266071, China

Salt desert, saline-alkaline dust storm and saline-alkaline mixed dust storm are significant but ignored problems for a long time. After many years of observations and researches, the author believes that salt desert, saline-alkaline dust storm and the saline-alkaline mixed dust storm have played important roles in the evolution of the earth, the ecological environment changes of the earth and the birth and evolution of life, especially the origin of hominids. All the consequences are resulted from their huge quantity and the long time chemical function and influence of their toxicity. The formation of a large area of salt desert and the outbreak of global saline-alkaline mixed dust storms are resulted from climate interaction under certain geotectonic conditions. They occur once every few tens of thousands or hundreds of thousands years in acyclic manner and are easily to be ignored. In this paper, we discussed the salt desert and saline-alkaline mixed dust storm and their possible influence and impact. All the facts suggest that they may play a leading role in the distribution pattern of global desertification, the emergence of hominids and the evolution of life. The concept of sandstorm is also discussed from a different point of view comparing to the traditional understanding, including its concept, classification, cradles (dry saline lakes or salt desert), mechanism and management options. From the year 2003 onwards, research is carried out with the experiment of dry saline lake management. The author introduced a salt-tolerant vanguard plant named *Suaeda salsa* from the coastal wetland and achieved initial success and important progress. In 2011, the experimental area was expanded to an area of 55 square meters.

The initial investigation comes to the following

conclusions: 1) The oldest and the most primitive wilderness of the earth is neither the ice field nor desert, but saline desert. 2) The size, scale and frequency of occurrence of saline desert consisting of salt-sinter or saline desert are much bigger than those of evaporated salt lakes. 3) The final destination of the saline dust coming from the drying up of desiccated seas and lagoons in arid and semi-arid areas are revealed. 4) The earth's atmosphere polluted by high concentration of saline component may influence and restrict the process of life evolution. It is most likely the cause and incentives of the outbreak and extinction of the earth's species. 5) When marine organisms moved onto land, there might need a freshwater environment for transition. It might fill the missing part to the process of biological evolution. 6) The emergence of hominids from Africa (800 ~ 700 million years ago) and the migration of Africa apes might be forced by strong external environmental factors. 7) The desiccation of the ancient Tethys Sea and the Mediterranean Sea might resulted in the formation of the distribution pattern of the world desert. 8) Most of modern Australia storms are saline-alkali (mixed) dust storms. 9) There are saline-alkali (mixed) dust storms on Mars.

Key words: salt desert, saline-alkaline (mixed) dust storms, influence and harm, the pattern of global desertification, global climate change.

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* Corresponding author. E-mail: songhuailong@126.com

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