

*Soldiers, missionaries and merchants on the road:
Early meteorological observations carried out by westerners in China*

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EXTENDED ABSTRACT: A large worldwide effort to reconstruct the climates of the past millennia is presently going on in the framework of the “Global Change” issue. One of the data types useful for this study is the historical climate information. China constitutes in this context a highly privileged region, as a large number of historical climate data covering several millennia are there available. Chinese scientists have carefully extracted information from chronicles, official documents, scholar’s writings and local gazetteers. It is noteworthy to compare that information with the information, firstly from non-instrumental and later from instrumental meteorological observations carried out by westerners in China. It will be shown how soldiers, missionaries and scientists from Europe carried out observations in China and how that the information is nowadays most useful in the context of the “Global Change” research.

In the beginning of the 16th century the Portuguese starting from their strongholds in Goa and Malacca reached the borders of the Chinese Empire in Macao and Canton. The first western book entirely dedicated to China and written by the Portuguese Dominican Gaspar da Cruz, printed at Evora, Portugal, in 1569/1570, contains already an interesting description of a “*Tufão*” that is most helpful for the western navigator in the Far-East.

It is without any doubt the Jesuit contribution to meteorological observations in China that is preponderant. Ever since the German Jesuit Adam Schall von Bell called the Flemish Jesuit Ferdinand Verbiest to the Astronomical Bureau in Peking, astronomy, astrometeorology and meteorology were in the forefront. In his letter addressed to Father de Rougemont, Verbiest describes in 1670 the thermoscope he constructed as follows: “*Vers la même date, je lui [the Emperor K’ang-hsi] offris un thermomètre en verre chinois, dit Lieu Li. Une double graduation permet de lire aisément, sur les côtes, les moindres variations de chaleur et de froid*”.

In 1685, two French frigates sailed from Brest for Siam with on board five French Jesuits “*Mathématiciens du Roi*”. They were recommended by King Louis XIV for working at the Astronomical Bureau in Peking in the service of the Chinese Emperor. They founded the French Jesuit Mission in Peking. It is the French Jesuit Mission in Peking that is at the origin of meteorological observations that lasted till the end of the 18th century.

Comparison of instrumental meteorological observations carried out by Father Antoine Gaubil with the Chinese climatic information shows that the hot spell of the summer of 1743 is among the most torrid of the last millennium in Beijing and can be compared to similar events in the last century. Based upon the Chinese and European data, it is hypothesized that the burning summer of the year

is indicative that the hot year may be an integral part of the protracted El Niño sequence 1744-1747.

Meanwhile the Scottish physician and botanist, James Cunningham, while in the service of the British East India Company carried out early instrumental observations at Emüy [Xiamen] and on the island of Chusan around the turn of the 17th – 18th centuries. At Stockholm, a close interaction between the Swedish East India Company and the Swedish Academy of Sciences proved to be fruitful in sciences; indeed besides observations at sea during the journey, a few cases of observations on the mainland are known.

In the 19th century, in the political context of the first Opium-War and the efforts of the French to colonize the area of the Gulf of Tonkin, the French Marine organized in 1840 a campaign in the Indian and Chinese Seas. On board of the frigate “*L’Erisone*” detailed meteorological observations were carried out. Since 1841, regular meteorological observations took place at the Russian Mission in Peking.

Finally, to make the circle round again, the Jesuits founded in 1873 an observatory at Zi-ka-wei near Shanghai where meteorological and seismic observations were carried out. And, in the beginning of the 20th century, the Astronomical Society of China took over the work initiated by their illustrious predecessors several centuries ago.