Unearthing historical observations and extending the climate observation record

To understand how our climate is changing we need a clearer view of the past. CSSP China is supporting ACRE China and extending historical climate records by extracting weather observations such as temperature, pressure and wind speed from many historical records, including old ship logbooks found over the last 200+ years, and terrestrial and marine expeditions, voyages and station series.

This newly acquired data is then being fed into large international weather datasets which enable the production of high-resolution, four-dimensional reconstructions of the global climate that estimate what the weather was for every day going back to the 1800s. In 2019 alone, CSSP China rescued and digitised around 82,000 weather observations over China and about 2 million over India, and in conjunction with ACRE Japan and ACRE SE Asia, a further 64,000 weather observations, resulting in improved reconstructions of weather and climate over the region.

For example, there is now a much better understanding of extreme weather events such as super-typhoon Nancy in 1961 which is one of the most intense typhoons on record and led to approximately 200 deaths, hundreds of thousands of people losing their homes and thousands of homes destroyed. An ongoing effort is looking at digitising more weather records in order to make a specific reconstruction of the weather conditions that caused the 1931 flooding of the Yangtze River in China, which is thought to have perhaps killed 3.7 to 4 million people and destroyed 15% of China's wheat and rice crops. This activity is therefore improving our understanding of how the climate is changing over East Asia.