Chinese ecosystem research network: Progress and perspectives

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\textbf{1. Introduction}

Chinese Ecosystem Research Network (CERN) was established in 1988. Over the past 20 years, as one of major component of Global Terrestrial Observing System (GTOS) and International Long-Term Ecological Research (ILTER), CERN has grown to be an important research platform for the sites and partners both at home and abroad, which owe greatly to the data measured and collected on long-term and continuous basis, and also the up-to-date facilities and instruments in the field stations that represent the major ecosystem types in China.

Up to now, CERN has been developed into an innovative scientific and technological facility that integrates monitoring, research and demonstrations. It has become one of the largest national networks in the world that consists of 40 field stations, 5 subcenters and 1 synthesis center, covering almost all typical ecosystems in China: cropland, forest, grassland, desert, marshes, lakes, bays and urban ecosystem. Its unique features are the emphasis on understanding long-term structure and function, patterns and processes of ecosystems, combination of the inter-site comprehensive research or cross-site comparison research and the voluntary site-based exploration, and the data sharing both for domestic institutions and international networks at different levels. This paper provides a brief review of CERN by introducing its developing history, objectives and missions, summarizing its progress with the long-term ecological research in China including monitoring, scientific accomplishments in carbon cycle, ecosystem structure and functions, ecosystem restoration and data management. The paper also describes CERN’s strategic plan to 2020 and its development perspectives in the future with focus on six core thematic areas.