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The new progress of China Array project

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Aiming to better understand the earth's dynamic processes and help to mitigate and respond to earthquake hazards in China, China Earthquake Administration (CEA) had launched China Array project in 2011, which was expected to fulfill the systematic broadband seismic observations covering the whole mainland area of China with an average inter-station spacing from around 30 to 60 km with variations of local tectonic setting and logistics difficulty. The project was run with a multi-stage process and comprised of seven geographic regions based on China tectonics. China Seismic Array Instrument Center was established to provide instrumental and technical support for the project, and its size and scale is keep growing with the advancement of the project. Besides, several professional teams ranging from network operation, instrument maintenance, and seismic data quality control have gradually formed during past several years. Till now, the first two stages covering the north-south seismic zone of China, seismically the most active region, had been finished and the third stage located mainly in eastern part of north china is coming to the end. In the third stage of China Array project, multi-agency collaboration between around 10 different organizations in China was progressively lubricated and intensified, shaping in a more normal and standardized way from early station finding, station servicing to final station removal. In addition, some new techniques are introduced including the use of GPS-based alignment device and new tries of posthole installation method. In Bohai sea area, a land-ocean collaborative observation experiment was completed for the first time in the project, altogether 32 broadband ocean bottom seismographs were deployed with a new special design in response to local marine settings. For most land seismic stations, the real time data transmission based on cellular 3G/4G network are adopted and the seismic data quality are inspected based on a daily basis including metrics of station SOH, data integrity, PDF analysis, etc., some new items are still under developing to be supplemented in the future. With the high quality data produced by this project, scientists can image the deep earth structures in an unprecedented way and thus better understand geo-dynamics and tectonics in China.