

Case Study

Dam Monitoring
Xiangjiaba Dam
Jinsha River, SW China

GeoSIG
swiss made to measure

In Cooperation With
GeoSIG Partner



歐美大地儀器設備中國有限公司
EARTH PRODUCTS CHINA LIMITED (EPC)
歐美大地科技集團成員 Member of Earth Technologies Group
<http://www.epc.com.hk> <http://www.epccn.com>

Background

The Yangtze River is the longest river in Asia and the third longest river in the world. It is a vital part of life in the area. In order to control flooding downstream and control the flow of the Yangtze River, which facilitates transportation, shipping and irrigation downstream, a large gravity dam was opened in 2012 on the Jinsha River – a tributary of the Yangtze River in Yunnan Province and Sichuan Province, southwest China. The Xiangjiaba Dam replaces fossil fuel-burning power plants to become China's third-biggest hydroelectric power station. The output of the generating station is connected to a ± 800 kV HVDC link, the Xiangjiaba–Shanghai HVDC system, which transmits much of the power to Shanghai in east China, where the economy is booming.

Challenge

The Xiangjiaba Dam is a critical structure that affects many people, and it is built in a seismically active region. The Xianshuihe fault is one of the most active faults in southwest China. So seismic monitoring and structural monitoring are essential aspects for the dam.

Solution

GeoSIG Partner [Earth Products China Limited](#), or EPC, was chosen to equip this vital dam and hydropower station with a system that would provide full seismic and structural monitoring. EPC is a total solution provider in all aspects of civil engineering testing products and is a proven leader in its field. In August 2014, EPC installed 18 units of GMSplus and 18 AC-73 triaxial force balance accelerometers. GMSplus is a self-contained instrument and is equipped with an uninterruptible power-supply, which provides more than 24 hours autonomy. The GMSplus uses an "Intelligent Adaptive Real Time Clock" (IARTC) with self-learning temperature compensation, improving the accuracy of the RTC or TXCO significantly. The IARTC is able to synchronize with GPS or NTP to UTC timing to provide high timing accuracy. Optionally the unit itself can act as an NTP server as well. The instrument's software processes data in real time. If triggered by a seismic event, GMSplus calculates a number of event parameters and reports them to a data centre immediately – just the solution for the Xiangjiaba Dam project.

Another Solution using GeoSIG instruments and a capable Partner demonstrating that quality and reliability can also be cost effective.



The Xiangjiaba Dam, photo courtesy Xinhua News Agency.



The Xiangjiaba Dam is located on the Jinsha River (photo below by ZiCheng Xu) – a tributary of the Yangtze River in Yunnan Province and Sichuan Province, southwest China.



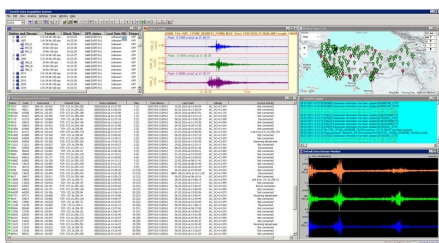
Installation of GMSplus and a triaxial force balance AC-73 accelerometer.



AC-73 accelerometer



CR-6plus central recorder



GeoDAS software

Product links

[CR-6plus central recorder](#)

[AC-73 accelerometer](#)

[GeoDAS software](#)