

Case Study

Structural Monitoring
Second Penang Bridge
Penang, Malaysia

GeoSIG
swiss made to measure

In Cooperation
With
GeoSIG
Partner



Background

The Second Penang Bridge is a 24 km bridge linking Penang Island to Penang in mainland Malaysia. The E28 expressway crosses the dual carriageway toll bridge, which is 30 m above water. It's the second link to Penang Island after Penang Bridge. Construction began in November 2008 and was completed in February 2014, with the opening ceremony on 1 March 2014.

Challenge

The Second Penang Bridge is the longest bridge in Malaysia. Although the Malay Peninsula is located on a stable part of the Eurasian Plate, according to historical records the earthquakes that influence the Malay Peninsula originate from two earthquake faults: Sumatran subduction zone and Sumatran fault. For the safety of bridge users and as protection of such an investment, the firm responsible for the bridge wanted a structural health monitoring system (SHMS). The SHMS is used for disaster control, structural health management and data analysis. There were many considerations before implementation which included: force (wind, earthquake, temperature, vehicles); weather (air temperature, wind, humidity and precipitation); and response (strain, acceleration, cable tension, displacement and tilt).

Solution

Such a high profile project required a company with extensive background in this area. Our Partner in South Korea, [EJtech](#), focuses on top-level civil engineering, measurement, surveying, assessment and instrument sales. They have been successfully implementing solutions for their clients since they were founded in 1994. The SHMS they implemented included instrumentation from GeoSIG: 10 x GMSplus measuring systems with GPS receivers, 2 x CR-6plus modular multichannel recording systems with GPS receivers, 26 x AC-72-HV biaxial force balance accelerometers, 9 x AC-72-H accelerometers, 1 AC-73 accelerometer, and GeoDAS software.

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

Product links

[AC-73 accelerometers](#)

[AC-72 accelerometers](#)

[CR6plus recording systems](#)

[GMSplus measuring systems](#)

[GeoDAS Software](#)



Photo by Marufish

The Second Penang Bridge is a dual carriageway bridge crossed by the E28 expressway. At 24 km, it is Malaysia's longest bridge.



Photo by Cinglee



Map by Tony3

The Second Penang Bridge is the second link to Penang Island.



GMSPlus

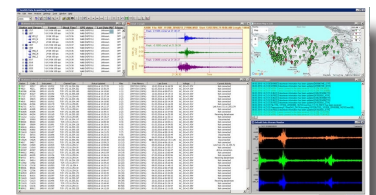


AC-73 accelerometer



CR6plus recording systems

AC-72 accelerometers



GeoDAS software