



## Background

The Asahan 1 Hydroelectric Power Plant (also known as PLTA Asahan 1) makes use of the flow of the Asahan River. Starting from Lake Toba in North Sumatra, the Asahan River flows downstream on the west coast of Sumatra and to sea, generating more than 1,000 Megawatts a year. PLTA Asahan 1 is located approximately 130 km SE of Medan city, and it is the first power plant using the exploitation design concept of three power plants in the river sector.

## Challenge

The Indonesian islands of Sumatra and Java lie adjacent to an active subduction zone; the islands and their surrounding areas experience an average of around 320 Mw  $\geq 5.0$  earthquakes a year and 3 events of Mw  $\geq 7.0$  a year, according to Sean J. Hutchings and Walter D. Mooney in their paper, "The Seismicity of Indonesia and Tectonic Implications." Due to the increased seismicity and the populous islands, earthquakes and tsunamis present a risk. In addition to the potential for lost power or landslides, etc, there is an increased risk of flooding from dams due to earthquakes. Therefore, power plants must address strong motion risks along with other risk assessment.

## Solution

Our Partner in Indonesia **Andalan Tunas Mandiri** (<https://ptandalan.com>), has extensive experience in offering structural monitoring solutions, as well as offering engineering oversight throughout all phases of a project. Andalan Tunas Mandiri has instrumented numerous dam and power plant projects since its founding in 2007.

For PLTA Asahan 1, they installed GeoSIG's [GMSplusD](#), 4 x [AC-73D accelerometers](#), [GMS-GPS](#). This involved braving strong winds to climb to the peak of the 58m high surge tank—not for the faint hearted! The installed solution offers reliable and continuous monitoring, providing data based on event detection.

The solution also includes installation of GeoSIG's proprietary software [GeoDAS](#), which monitors the data received from the sensors and sends an alert if exceedances are detected.

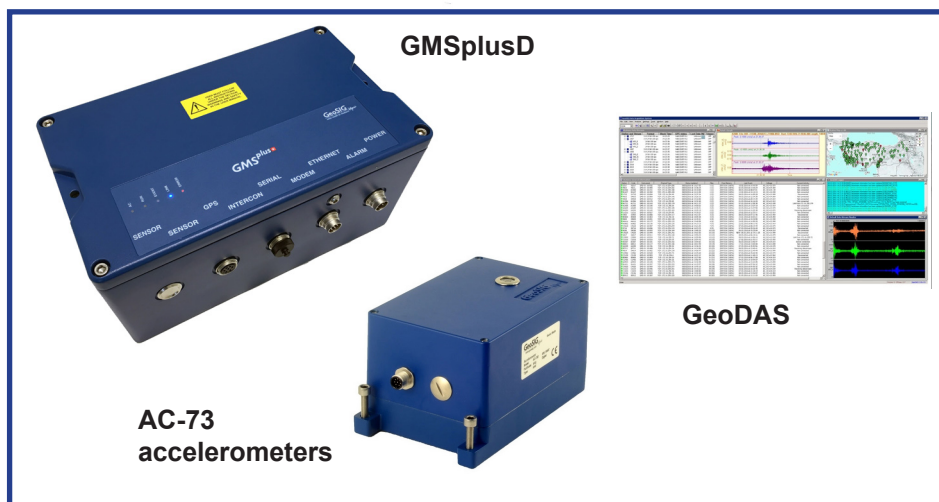
Another solution using GeoSIG instruments and a capable partner showing that quality and reliability can also be cost effective.

## Product links

[GMSplusD](#)

[AC-73 accelerometers](#)

[GeoDAS](#)



Andalan Tunas Mandiri's crew faced high winds while climbing the 58m surge tank.



Engineers had quite a view while installing the cabling for the project.



AC-73 accelerometers sense vibration, and the data is sent to GMSplusD and GeoDAS to determine exceedances.