

SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)
Integrated Applications End-to-End Solutions (1)

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INTOGENER: A SERVICE TO IMPROVE HYDROPOWER GENERATION

Abstract

The need of having accurate short and mid-term forecasting of the flow generated from snowmelt in mountain basins is an important component for water management and hydropower activities in several areas at a global scale. Due to the remoteness and difficult access to basins in certain cold weather conditions, where in-situ snow monitoring and meteorological stations are scarce, flow model predictions are not easily implemented.

INTOGENER (INtegration of EO data and GNSS-R signals for ENERgy applications), funded by European Space Agency (ESA) under its ARTES 20 / IAP programme, has focused during its first phase in the case of Chile. There, more than 40 % of the national electricity mix comes from hydroelectricity power plants, being most of them located in the central area of the country. Chile is also one of the markets of ENDESA, the largest utility in South America with headquarters in Madrid (Spain). The company currently uses a statistical model of the region where its power plants are located, based on a limited set of in-situ measurements as well as previous years' meteorological and hydrological information. The accuracy of the outcomes of this model differs up to 60

The INTOGENER service aims to deliver streamflow predictions in specific points of interest of remote mountain areas. It operates a hydrological model based on 1) meteorological data among other physical information that is updated by near-real-time Earth Observation data; 2) In-situ measurements, including GNSS-R instruments for water level monitoring and transferred to the processing centre via satellite. The service adapts the hydrological prediction to terrain operations by providing with the exact information needed by hydropower companies in their day-to-day practices.

ENDESA has expressed its strong support to continue working in the development of INTOGENER, with the aim to be used in other areas where they operate hydropower plants.