Satellites to track trains and promote rail safety

November 12 2020

Credit: European Space Agency

Trains in Italy will be tracked and controlled via space to ensure they run in a safe, punctual and environmentally friendly way.

The project could see satellite technology become a standard way to run trains across the whole of Europe.

The Italian national railway company, Gruppo FS Italiane, is installing systems that will use satellites to monitor the speed of trains on its lines and automatically control the signals ahead to slow any engine that is going too fast. The satellites will add capacity to the existing trackside radio systems.

The satellites will also monitor the distances between trains to avoid any collisions. The system will be more energy efficient than existing measures and therefore better for the environment.

Trains making the 40-kilometer journey between the Italian cities of Novara in the Piedmont region and Rho in the Lombardy region will be the first to use the system, which was originally conceived in 2012 and has since undergone an extensive test campaign.

The project, called ERSAT, is part of the European Rail Traffic Management System, an EU initiative to integrate the separate national rail networks into a coherent Europe-wide system. Once it has demonstrated its success, it will allow satellite technologies to be certified for use under the scheme. This would increase the efficiency of the system, cutting costs and electricity use, and thereby reducing carbon emissions.

The ERSAT project is being implemented in coordination with the Italian Space Agency, with the support of ESA, and with the contribution of the EU's European Global Navigation Satellite Systems Agency.

Provided by European Space Agency