

'Tapping into the vast potential of satellites'

April 12 2013, by Sarah Perrin



José Achache, ESA's EPFL-based ambassador. Credit: Alain Herzog / EPFL

Satellites can be used in many applications, such as identifying micromovements in a dam, managing a fleet of vehicles, and monitoring logging operations in a protected forest or a coffee plantation. Helping Swiss companies and communities make better use of space technology is the mission of José Achache, the European Space Agency's EPFL-based Ambassador.

Space technologies, and above all satellites, have enormous potential in many areas such as logistics, [natural resource](#) exploitation, safety and [environmental protection](#). But these possibilities are poorly known and largely underutilized. To address this shortcoming, the [European Space Agency](#) (ESA) has launched a program called the Integrated Applications Promotion (IAP). José Achache, former director of ESA's [Earth Observation](#) programs and Group on Earth Observations (GEO) in

Geneva, is now the IAP programs' Swiss Ambassador. Based in EPFL's Innovation Square, he also collaborates with EPFL's [Space Center](#).

What is your job?

Our goal is to reach out to companies and communities in order to make them aware of the advantages of space technologies, to encourage them to invest in these applications, and in this way to boost the development of space technologies and expand the range of their usage. The IAP program provides funding to help develop these applications, and we provide assistance in setting them up, both technically and financially. I am responsible for representing the IAP program in Switzerland, and for promoting the applications of [satellite data](#) in three main sectors: telecommunications, Earth observation, and positioning.

Are these sectors particularly promising?

Definitely! A recent study on the potential of geo-spatial services estimated that they will generate \$150-270 billion per year in coming years. And there are even more companies that don't use space technologies even though they have every reason to do so. So there's still a lot to be done.

Do you have examples of the kinds of companies or activities that could benefit?

There was an international maritime transport company that lost track of thousands of containers every year. Using a system that linked telecommunications and GPS, they were able to better monitor shipments and reduced their losses by a factor of a thousand. All companies that produce, buy and transport foods could benefit from space technologies to verify the origin of their imports, monitor

production conditions and assess the efficiency of the negotiation and transportation chains. In the safety sector, I can give the example of an application developed with IAP support that used local and satellite radar to detect birds flying near airports. This service, particularly beneficial for those in charge of nighttime takeoffs, significantly increases safety and reduces the loss of material. Another example: [satellite](#) imaging systems that can reveal subsidence on the order of a millimeter are systematically used to monitor large infrastructures such as dams, bridges and mountain roadways.

Are any public sector groups interested in these technologies?

Yes, many political bodies are interested. Thanks to geolocation, it's possible for countries that don't have land survey data to better identify and manage their territory. For everything related to environmental protection and the development of renewable energy, satellites provide precise and valuable information on the state of crops, forests, soils and seas. The great thing about satellites is that they are global, they operate 24/7, and they're designed to last for at least 40 years. They're a great tool for statistics and for managing Earth-based activities and resources, and it's in everyone's best interests to share these data. It's also a way of providing communications and high-speed Internet access all over the world, in areas without optical fibers or mobile phone reception.

Which sectors are the most promising in Switzerland?

Anything that involves infrastructure monitoring, ski area management, water supply and risks associated with water. There's also agriculture and harvest forecasts, insurance against bad weather and most of all certification and traceability. Finally, I am convinced that air safety, with the advent of pilotless aircraft, will be a huge growth sector for the use

of space technologies. The number of sectors concerned is boundless. We must have faith in the next generation of Serguei Brins and Larry Pages, who will soon be graduating from EPFL!

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