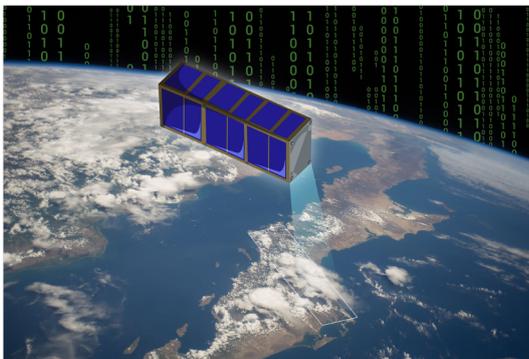


# QlevEr Sat

Earth observation and artificial intelligence

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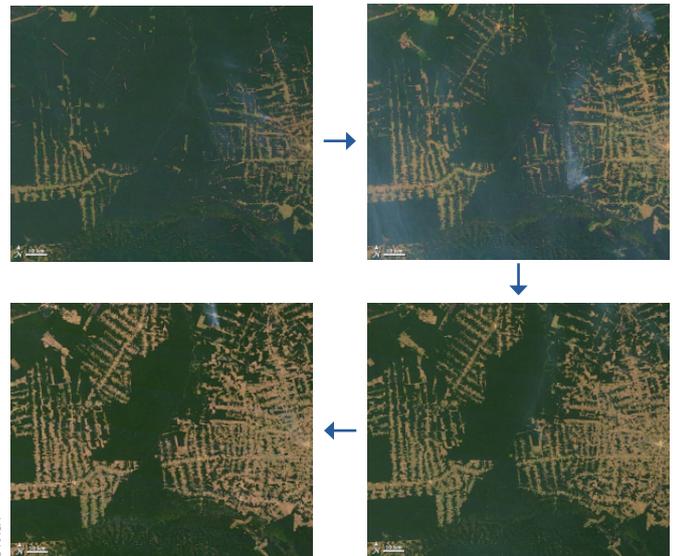
Expected to be launched in 2022, **QlevEr Sat** will be observing the evolution of specific Earth regions and human activities associated with important **societal issues** (deforestation, volcanoes, damages from natural disaster). In order to reduce the volume of data to be sent to the ground, the nanosatellite will pre-analyse the data collected thanks to some embedded AI.



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The project is led by the **CSUG** in collaboration with the AI & Environment chair of the **MIAI Grenoble Alpes** (Multidisciplinary Institute in Artificial Intelligence), it is supported by **Teledyne e2v** and **Air Liquide** is also contributing via a patronage agreement with the Fondation UGA.

QlevEr Sat will embark an innovative Artificial Intelligence (AI) module capable of processing the pictures from space in order to send easy-to-analyse and low volume data back to the Earth. In the long run, one of the objectives could be to improve the warning time in case of major change.



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➔ Deforestation patterns, Amazon rainforest, Brazil, 2000 - 2012

## NewSpace and artificial intelligence

As the radio frequencies get saturated, data downlink to the ground has become a major issue in NewSpace. The challenge lies in interfacing a robust and radiation tolerant adapted processor with a high-performance image sensor, within a small volume with low energy consumption (3 to 6U i.e. 3 to 6L for the entire satellite), in order to acquire and directly analyse the 10m resolution pictures, which is necessary to detect changes in a given area.