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The different Jem-Euso pathfinders

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Jem-Euso is a project to set-up a large fiel of view UV telescope in space to detect HECR. The surface on ground is about 200 000 km^2. The air mass seen by the instrument makes it very good to detect high energy neutrinos. Very luminous atmospheric events will also be studied through special electronics.
The pathfinders are:
- Timmins balloon (CNES), launched in 2014, was able during the 5 hours flight to see UV laser tracks (Rayleigh light) emitted from a helicopter hovering under the ballon at 3000 m.
- SPB (Super Pressure Balloon) has a special envelope for the helium, allowing flights of many months. Its aim is to detect 10^18 eV showers (simulations predict one per night). It will be launched from New-Zealand in July 2017.
- Mini-Euso is a small telescope (its focal surface is 16 x 16 cm^2, same as both balloons), to be installed inside the russian segment of the ISS next to a UV transparent window looking at earth. Its main goal is to measure the light background (above the airglow) which sets the lowest energy for Jem-Euso showers. Otherwise it will study atmospheric phenomena, from lightnings to meteors and space debris. It will be launched in the second half of 2017.
SPB and Mini-Euso detectors are actually being built together at APC in Paris.
- K-Euso is a full telescope, smaller then Jem-Euso, and dedicated to check with the same instrument set on the ISS the Telescope-Array excess in northern atmosphere, and compare it to the AUGER results. It will be launched towards 2020.
All these prototypes are intended to clarify what will be measured by Jem-Euso and to raise the technological readiness level.

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