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Present and future of the IRAM 30-meter millimeter telescope.

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Abstract

The IRAM 30-meter millimeter radio telescope is placed at 2850 m above the sea level in the Loma de Dílar, a slope of Pico Veleta in Sierra Nevada, Granada, Southern Spain. The facility has been continuously operating around the clock since its inauguration in 1984. It is still one of the most sensitive and powerful telescopes worldwide in its frequency range. It has been recognised as one of the facilities within the Spanish Map of Singular Scientific and Technical Infrastructures (ICTS). IRAM has undertaken an ambitious project to upgrade the 30-meter to keep it in the research leading edge in the coming years. The planned improvement actions include a new servo control system for the mount and sub-reflector, comprising hardware (motors, amplifiers, sensors etc.) and low-level software components, and upgrades in the primary reflector to improve the thermal behaviour, surface accuracy and gain-elevation curve. The upgrade of the servo system, in advanced progress state, is supported by the Spanish Instituto Geográfico Nacional (IGN) and is co-financed by European Regional Development Fund (ERDF) programme. For the improvement of the primary reflector, different options are being considered, although the most important action being assessed is in-situ re-painting the surface with a high accuracy (50 μm with a tolerance of $\pm 5\,\mu$m peak-to-peak). The on-site upgrade work will start in late February 2023 and will extend for several months (likely until the end of the Summer semester 2023).

My poster is available at https://zenodo.org/record/7047921#.Y78DgOzMKek