

The Effelsberg 100-m Radio Telescope: Current Status and Outlook

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The 100-m radio telescope of the Max-Planck-Institut für Radioastronomie (MPIfR) is a unique European astronomical facility that combines high sensitivity, wide frequency coverage (300 MHz - 95 GHz) and agility with distinct versatility, making the telescope not only a cutting-edge instrument for front-line research but also a testbed for emerging and future technology.

Although more than 50 years old, the telescope is still in perfect condition, as it has been continuously modernized during the past decades. It is heavily involved in various kinds of astronomical research using the telescope as stand-alone instrument („single-dish“) as well as in several VLBI networks.

Currently, two large upgrades are being performed.

The “Effelsberg Direct Digitization” (EDD) is an on-going major improvement of all current and future receivers of the 100-m telescope. Within this project, the astronomical signals are digitized already after the first amplification within the receiver, while the backend systems are realized powerful computer clusters (see the contribution of Barr et al.).

In addition, a project was started to modernize the main axes drives, including the power units and the corresponding control systems.

Here we report on the current status of the telescope and will present some highlight-results gained in the recent past. We will give an outlook on the activities planned for the future, especially on the ongoing upgrades.



Figure 1. The 100-m radio telescope of the MPIfR in Effelsberg (picture by Norbert Tacken).