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Eight Years on Since the Upgrade of the Eskdalemuir, UK, Seismic Array: Network Advances and New Observations

The seismic array station located near Eskdalemuir in the UK is part of the auxiliary seismic network of the International Monitoring System (IMS). The station was originally installed in 1962 and has been in operation since then. In 2009, the station was significantly upgraded to modern IMS standards. The upgraded 20 pits of the array house a new broadband sensor (30 s to 50 Hz 3V seismometer, replacing standalone Wilmore Mk2 short-period sensors), a 24-bit digitiser with integrated authentication module, tamper detection switches, UPS, and fibre optic interface. Compared to the existing analogue infrastructure, the new digital fibre network (with buried cables) increases timing accuracy and reduces interference from electrical storms. Eskdalemuir is now one of the most reliable seismic arrays in the world in terms of its data availability due to its robust sensor, power and data infrastructure. Since the upgrade, the array typically functions with close to 100% reliability, with data availability to CTBTO reported as ~99.88%. We show examples of recorded waveforms from the recent nuclear tests in the DPRK recorded at Eskdalemuir. We also present new observations from air-gun signals during regional active-source seismic surveys in the North and Irish Seas.

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