

ACTIVITIES ON THE 0.6 MV TANDY IN 2011

Beam time and sample statistics

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In 2011, the 0.6 MV AMS system TANDY (Fig. 1) was mainly used for routine measurements of radionuclides spanning a broad mass range.



Fig. 1: The compact 0.6 MV TANDY accelerator.

The major technical modification of the TANDY, besides the installation of a new SF₆ pumping system between accelerator and storage tank, was the complete changeover from Ar to He-stripping (see C. Vockenhuber et al., this annual report, p. 14). This step improved the performance for all radionuclides measured on the TANDY.

The total operating time of the TANDY facility was more than 2000 h. During this time both routine AMS analyses of ¹⁰Be, ⁴¹Ca, ¹²⁹I, and actinides were performed, as well as many test measurements were carried out (i) to find the optimal settings for He stripping, (ii) to improve existing measurement setups, (iii) to establish new radionuclides (e.g. ²³⁷Np), and (iv) to develop and test new instrumentation.

More than 2/3 of the operating time was used for AMS measurements of ¹⁰Be and ⁴¹Ca (Fig. 2). Another 20% was spent for ¹²⁹I and actinide analyses, while about 10% can be allocated to technical developments.

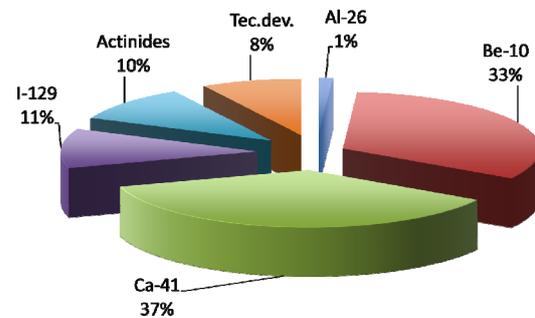


Fig. 2: Relative distribution of the TANDY operation time for the different radionuclides and activities in 2011.

More than 2700 samples were measured in 2011 (Fig. 3) spanning a very wide range of applications. Almost half of all samples were analyzed for ⁴¹Ca in the context of a biomedical study. More than 30 % of all measurements were on ¹⁰Be samples from various geological archives. Finally, 20 % of the samples were analyzed for anthropogenic radionuclides (¹²⁹I, ²³⁶U, and Pu isotopes) in the context of many different projects covering the fields of environmental monitoring, radio-bioassay, or anthropogenic tracer studies.

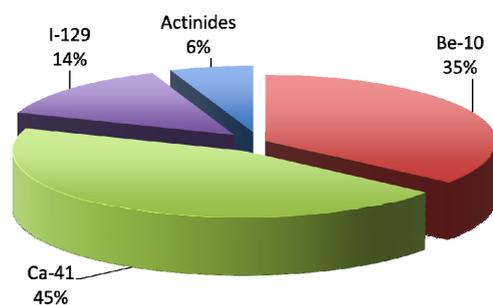


Fig. 3: Relative distribution of the number of samples for the different radionuclides measured in 2011.