

## XRF Core Scanner

The XRF (X-Ray Fluorescence) Core Scanner was originally designed for a quick and non-destructive determination of the geochemical composition of sediments from seas and lakes. The material is acquired using different types of sediment samplers (box, gravity and piston), which are collected in plastic tubes and subsequently split lengthwise. For the best results, it is important to prepare a smooth and flat surface.

The XRF analysis method uses an X-ray source and detector that is placed precisely over the surface of the sample. X-rays produced by the X-ray tube irradiate the sample. The elements present in the sample emit fluorescent X-rays with discrete energies that are characteristic of the elements in the sample material. By measuring these energies, it is possible to determine which elements (major and minor) are present.

The Department of Geosciences owns an Avaatech XRF Core Scanner that is installed in a 20-foot container, which facilitates the movement of the instrument. The instrument is capable of measuring elements from Mg to U, depending on their concentration. Sampling intervals and size of the analyzed area can be varied. The scanner has been upgraded with a motorized Y-axis that allows measurements across cores, a high-efficiency slitting unit, as well as with a u-channel slitting unit. A high-resolution line scan imaging system is part of the instrument (installation of a UV light source is possible).

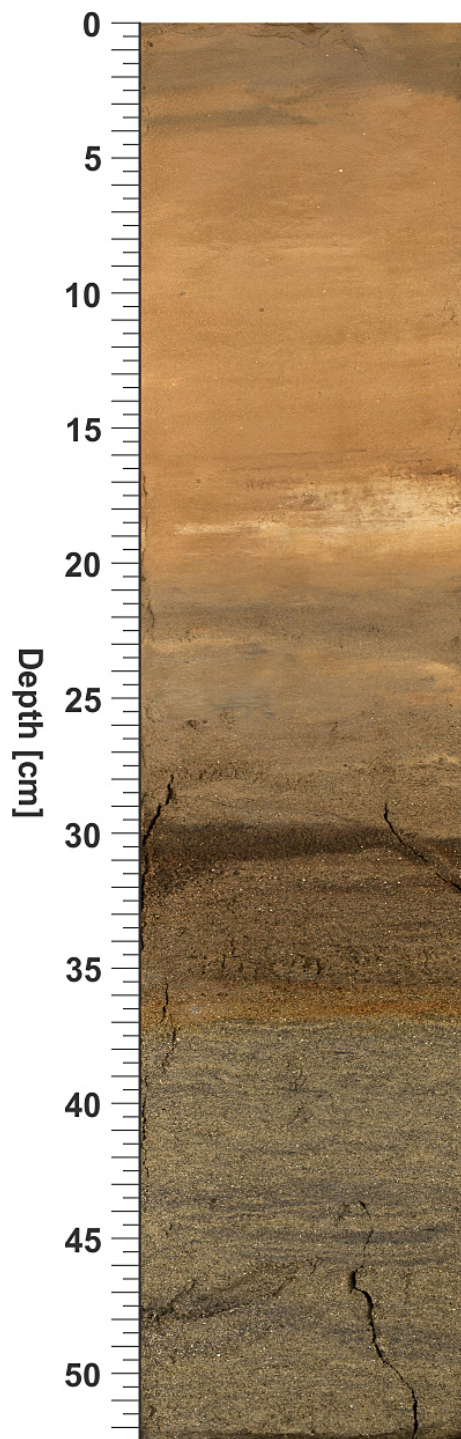




*Inside the XRF container.*



*Close up of Avaatech XRF core scanner.*



*Core sample.*