

## AGE: Automated Graphitization Equipment

Automated Graphitization (Photo: Alfred-Wegener-Institut / J.Hefter)

Graphite targets are customarily required for radiocarbon measurements. For this purpose, CO<sub>2</sub>, which can originate from combustion in the [EA >](#) or by hydrolysis in the [CHS >](#), is reduced in a hydrogen atmosphere and in the presence of an iron catalyst. The AGE automates this time-consuming process. The graphitization unit can process seven samples at a time. First, the sample CO<sub>2</sub> is adsorbed on a zeolite trap and thus concentrated. By thermal desorption and the associated gas expansion, the CO<sub>2</sub> enters a reactor pre-filled with iron powder, and is subsequently filled with hydrogen. Each of the seven reactors is then heated by its own individual oven to 580 °C and the CO<sub>2</sub> is reduced to graphite. Up to 21 samples can be graphitized per day.