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# About the SILLA facility

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The Stable-Isotope Laboratory (SILLA) provides state-of-the-art Continuous-Flow Isotope-Ratio Mass Spectrometry (CF-IRMS) for the investigation of environmental, biological and geological samples. The laboratory undertakes commercial and academic research both as a stand-alone consultancy and as a research partner.

## Mass Spectrometry (CF-IRMS)

The stable-isotope facility, commissioned in December 2005, runs 2 continuous-flow Isoprime™ IRMS, one connected to a Eurovector Environmental Analyser with both solid and liquid autosamplers while the other is connected to an Elementar PYRO cube©. This configuration permits the analysis of δ18O and δ2H in liquids and δ13C, δ18O, δ15N, δ34S and δ2H in solid samples using pyrolysis or combustion techniques at temperatures up to 1500°C. The lab also has an GV Multiflow preparation line for the determination of δ13C and δ18O in carbonates, δ18O of water and δ13C of dissolved inorganic carbon in waters.

*GV Isoprime Mass spectrometer with EA and Multiflow preparation lines*

We require approximately 2 ml of water from which multiple repeats can be performed (each analysis typically requires <1 ul for δ2H and 200 ul for δ18O), they should be provided in sealed bottles with little or no head space, contact the lab manager (see below) for precise details. Typically, the determination of carbon and nitrogen in organics or carbon and oxygen in carbonates is undertaken on samples of about 50-200 ug.

The lab also has a dedicated preparation line which includes a Wolf Labs grinding mill for bulk sample homogenisation and a **New Wave Research MicroMill** for the preparation of drilled material from finely laminated speleothems, molluscs, teeth, etc.

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