

Status of the *in situ* ^{14}C extraction system at CEREGE (Aix-en-Provence, France)

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Widely and routinely used, long-lived cosmogenic nuclides such as ^{10}Be , ^{26}Al and ^{36}Cl are highly useful for studies that aim at better understanding Earth surface. Increasingly brought to light, another nuclide boosts this cosmogenic toolbox to constrain landscape evolution on short timescales: *in situ* cosmogenic ^{14}C , thanks to its relatively short half-life of 5700 years. Moreover, because it is produced in quartz, *in situ* ^{14}C can be coupled with ^{10}Be and ^{26}Al measurements on the same sample. This allows constraining exposure and erosion histories, such as those related to glaciers fluctuations, on time scales up to 25 ka.

There are two main challenges when extracting *in situ* ^{14}C from quartz: 1- the potential contamination with the ubiquitous atmospheric ^{14}C and 2- the complete extraction and collection of all carbon gas species released from the heated quartz grains. Advanced techniques have started to emerge in different countries. Based on a slightly modified version of the extraction line design at ETH Zurich (Hippe et al., Quat. Geochron. 4, 493-500, 2009; Hippe et al., NIMB 294, 81-86, 2013), we implemented the first French *in situ* ^{14}C extraction system at CEREGE. The extracted and purified gaseous CO₂ is not graphitized but directly measured at the AixMICADAS Facility at CEREGE (Bard et al., 2015), with the main advantages that potential contamination during the graphitization is avoided and time is saved.

Here, we present our new *in situ* ^{14}C extraction procedure, line development and performance. Vacuums are as low as 10^{-5} to 10^{-8} mbar, and we are currently in the phase of validating the extraction line set-up, by testing CO₂ yields, blanks and interlaboratory materials. The results of these preliminary tests will be shown.