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Automatic calcareous nannofossil biostratigraphy using the latest version of SYRACO

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SYRACO (SYstème de Reconnaissance Automatique de COccolithes) is a software that pilots an automatic microscope and a digital camera in order to automatically recognize coccolith species and measure their morphological characteristic based on artificial neural networks. The first version was displayed in 1996 (Dollfus and Beaufort, 1996; 1999) and was scientifically used for the first time in 2001 (Beaufort et al., 2001). SYRACO evolved during the last 20 years in many aspects such as the architecture of the neural networks, the image scanning and pre-treatments. Twenty years ago, SYRACO was dedicated to quaternary paleoceanographic studies, because it was able to recognize morphological classes. With all the developments, it is now able to be used in biostratigraphy as it is able to determine coccolith species. The latest version of SYRACO will be described, and an example of application to a south Pacific core will be given.

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