Laboratoire Microorganismes : Génome et Environnement

Séminaire
LMGE - LPC

Écologie microbienne en milieu océanique profond: effet de la pression hydrostatique

par

Christian Tamburini

Laboratoire de Microbiologie, Biogéochimie et Ecologie Marines
UMR 6117, CNRS - Université de la Méditerranée - Centre d'Océanologie de Marseille

Mardi 28 juin 2010
14H00

Amphi de recherche

Un café sera servi 15 minutes avant

Pressure concerns all organisms living in the world's largest (by volume) habitat: the deep sea. Historically underestimated in terms of its contribution to the Biosphere, the deep sea remains one of the least known and most poorly understood environments on our planet.

Our main goal focuses on the role of prokaryotes on the organic matter mineralization in the dark ocean. We study both deep-sea prokaryotic activities under in situ pressure (and temperature) conditions and the effect of pressure on prokaryotes originating from the surface of the ocean attached-to-particles sinking through the water column.

I will first present our data set obtained in Mediterranean Sea and first results obtained in the North Atlantic Ocean, showing that the effects of hydrostatic pressure on microbial activities indicate that bathypelagic microbial activity is generally higher under in situ pressure conditions than at atmospheric pressures. In contrast, the capacity of attached-to-particles bacteria to degrade organic carbon and ballast material (e.g., opal) decreases with increasing pressure.

In order to have an idea about the actors degrading high molecular weight (HMW) compounds comparatively to low molecular weight compounds face to pressure, we found that Euryarchaea might be the main contributors to HMW DOM mineralization in the deep-sea waters.

Finally, I will present pressure effects on bacterial strain focusing on a piezophilic bioluminescent strain (Photobacterium phosphoreumANT-2200) and with few examples on a hydrocarbonoclastic bacterium (Marinobacter hydrocarbonoclasticus) and on a sulfato-reducing bacterium (Desulfivibrio "piezophilus").