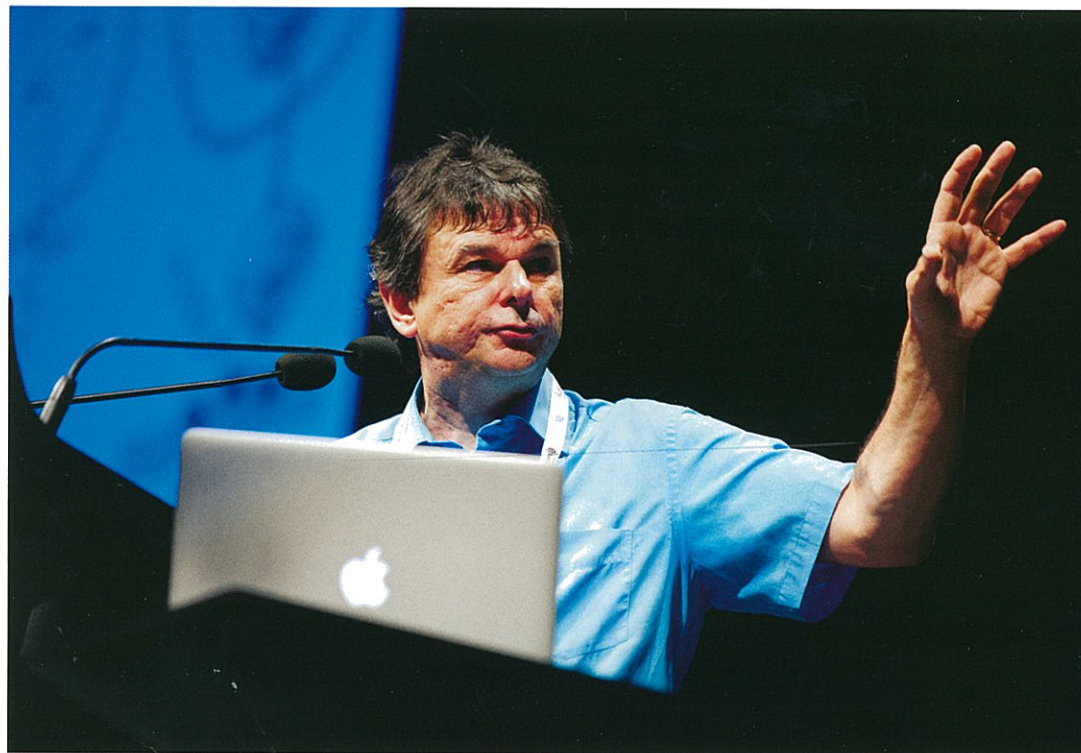


Denis' hard cell: focus on **biomineralisation**

Professor of Biology at the University of Nice-Sophia Antipolis and Scientific Director of the Centre Scientifique de Monaco, Denis Allemand, presented a plenary address yesterday entitled **Coral calcification: From cell physiology to ocean acidification**.

Professor Allemand said biomineralization is a major physiological process leading to the formation of minerals by living organisms (hence called biominerals). Among biomineralization processes, coral calcification is responsible for the largest bioconstruction of the world, the coral reefs.

In addition to a huge ecological role, coral skeletons are used for several purposes ranging from taxonomy, environmental archives or as bioimplants for bone surgery. Recent studies suggest that this major process may be altered by a recently-identified threat, ocean acidification, due to dissolution of CO₂ into the sea.



Denis Allemand

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Optimal use of coral skeletons and understanding the different sensitivity of coral calcification to ocean acidification require perfect knowledge of the mechanisms controlling the formation of coral skeletons, however, if large progresses have been made these last 10 years, a lot of questions are still pending: What is the chemical composition of the extracellular calcifying medium? How ions are supplied to the skeleton? What is the role of intraskeletal organic matrix? How genes regulate the form of the coral skeleton? Why coral are sensitive to a subtle long-term change in ocean pH although they are daily submitted to much larger pH variation?

Professor Allemand answered these and other questions in his presentation using a survey of literature data, as well as the last experimental data acquired within the Centre Scientifique de Monaco using *Stylophora pistillata* as a model organism.

He said coral calcification is a highly-controlled complex process which mechanisms are only beginning to be understood.