



Physical Research Laboratory, Ahmedabad

COLLOQUIUM - 13 – 06

Speaker: Dr. Sanjeev Kumar

Geosciences Division, Physical Research Laboratory, Ahmedabad.

Title: The Nitrogen Paradox

Abstract

Nitrogen is one of the most important elements for the sustenance of life. But as the saying goes, excess of anything is bad. This maxim appears to be particularly true for nitrogen as nutrient source in our ecosystems. In pre-human world, the dominant means by which nitrogen was accessible to living organisms in bio-available form was biological nitrogen fixation, where small number of microorganisms could fix atmospheric nitrogen. However, the script changed after the invention of the Haber-Bosch process (~1913), which enabled us to produce artificial fertilizer on commercial scale. Although this product of the Haber-Bosch process turned out to be the life saver for the ever increasing population of the world, it also led to degradation of the natural ecosystems due to excess nitrogenous nutrients. During this colloquium, this basic paradox of nitrogen and related examples from the aquatic and terrestrial ecosystems will be discussed.

The Speaker

Dr. Sanjeev Kumar completed his M. Tech in Applied Geology from the Indian Institute of Technology (IIT)-Roorkee and obtained his PhD from PRL. Subsequently, he moved to the University of Minnesota, USA as a postdoctoral fellow where he worked on the biogeochemistry of Lake Superior and focussed on the reasons for rising nitrate concentration in the lake. While in North America, he also worked on the nitrogen cycling in forested soils of Atlantic Canada and problem of acidification of North American lakes. Broadly, his research interests lie in understanding the interactions among the physical, chemical and biological processes that control the distributions of climatically and ecologically important elements like carbon and nitrogen. Sanjeev joined PRL in late 2011 as a faculty member in the Geosciences Division.

Wednesday: 06 February, 2013, 16:00 hrs.

K.R. Ramanathan Auditorium, PRL

Tea at 15:30 hrs

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