

Ecology and the Ends of The Earth

By Professor David Hopkins – Royal Agricultural University

The lecture started with two views of our planet, namely the North and South polar regions, that we are less used to seeing than the usual Mercator-type interpretation as viewed looking towards the equator. Professor Hopkins, who is a well-travelled soil scientist, has studied both Arctic and Antarctic regions with the objective of researching their soil ecologies particularly relating to the effects of climate change.

Although most of his field work was undertaken in the Antarctic the effects of climate warming were observed in research projects carried out in the Northern Hemisphere with respect to the release of carbon locked in soils in these regions. Illustrations were also given of the greening of the arctic as observations clearly show that the tree lines are moving northwards.

It was surprising to many of us that the Antarctic Dry Valley region hosts one of the driest, coldest and oldest deserts in the world. Named the “Valley of the Dead” by one of Scott’s expeditionary team this desert region covers some 4,800 square kilometres and hosts a wide range of endolithic photosynthetic bacteria. Dr Hopkins and his research teams were able to discover a number of mosses and lichens surviving under stones and rocks in an area that an earlier US-based team had concluded was completely barren of life.

Studies carried out in this inhospitable region demonstrated a positive correlation between latitude and diversity with greater diversity as ambient temperature increases. Temperature records indicated that although during most months this region endured average temperatures in the order of minus 30 or 40 degrees centigrade in the summer the daytime temperature did occasionally rise marginally above zero and during such periods algal growth surrounding wet areas suddenly bloomed into life.

This interesting talk about little known parts of the Antarctic finished with a fascinating daily time lapse record one particular valley area covering a complete year and demonstrating the apparent increase and decrease in a small partially frozen lake.