

PREFACE

GANE, GaNE, or GAN₂E?

About a decade ago, the UK Natural Environmental Research Council (NERC) brought together a group of scientists to discuss possible 'thematic' programmes on carbon and nitrogen. It soon became apparent that to do both elements in one programme was not possible. Carbon was selected to be the first, and the successful TIGER project was launched. Later, nitrogen was chosen and GANE was borne. Originally the acronym covered Global Atmospheric Nitrogen Emissions, then it was realised that this too was rather ambitious and the atmospheric emphasis was lost. Thus in the scene setting first chapter, GaNE is used to denote Global Nitrogen Enrichment. Somewhere along the way, the NERC office at Swindon introduced GAN₂E into the logo. The inclusion of nitrogen gas, rather than nitrogen in general is misleading, as there was only one small project on nitrogen fixation and a few on denitrification. Indeed, it was never intended that nitrogen fixation should play a major part, which is presumably why I was asked to chair the programme! However, these are minor problems that do not detract from the real work that was carried out under this programme. Projects were selected after peer review, entirely on scientific merit, which may account for the fact that some topics have had greater coverage than others. The outbreak of Foot and Mouth Disease in the UK severely hampered field work for a year in many projects and we are grateful that NERC enabled us to extend some projects to allow for this. We are also grateful that NERC funds were supplemented by DEFRA (the UK Department of the Environment and Rural Affairs) and by SEERAD (the Scottish Executive Environment Rural and Agricultural Department). Representatives of both of these bodies are on the Steering Committee. I thank them and all members of the Steering Committee for their time and hard work in keeping the programme on track.

This volume describes much of the work that was carried out under the GaNE programme. Because of extensions of projects due to Foot and Mouth Disease, some have not yet been fully written up, but even so, there is already a considerable body of work covered here and in international journals. As part of NERC's data policy, data have been lodged with their data centre so that they may eventually be made available to others interested in this important field. There is a great deal of interest in both the nitrogen cycle and in particular how combined nitrogen from anthropogenic activity affects this. There is a world-wide International Nitrogen Initiative and some of the GaNE community are involved in this, so we hope our programme will be of wide benefit. At the global level, it is unfortunate



that another broad gulf between the developed and developing world is that the former has a problem with excess nitrogen and the latter is generally crying out for it.

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