

Natural hazards in the Caribbean region

*St Augustine, Trinidad,
11–15 October 1993*

The proceedings of the 1993 Caribbean Conference on Natural Hazards: volcanoes, earthquakes, windstorms, floods, which took place in Trinidad have been published (July 1994).

This 408-page publication is a collection of 35 papers, together with 24 abstracts of conference presentations for which complete manuscripts were not received. The papers cover a relatively broad spectrum of topics, display a good mixture of basic and applied work, and with the exception of windstorms/floods, can be considered as providing a representative sampling of the multidisciplinary and wide-ranging nature of investigations undertaken to improve our understanding of natural hazards and how to mitigate their effects.

The papers are grouped into 10 sections and cover topics in such areas as:

- **seismotectonics and crustal structure** (Grases; Doser & VanDusen; Audemard & Romero; Mendoza & Rodriguez; Shepherd and others; Gomez; Wiggins-Grandison; Franke and others);
- **seismic wave attenuation and site effects on ground motion** (D L Smith and others; Latchman and others; Bungum; Aguilar and others; Drake);
- **seismic hazard** (Ambeh; Shepherd and others; Castano and others; Sully and others);
- **seismic instrumentation/networks** (Prida);
- **volcanic hazards** (Smith & Roobol; Robertson; M S Smith & Shepherd);
- **tropical cyclones** (Ramnanan);
- **seismic codes** (Key; Chin & Pantazopoulou; Paultre & Mitchell);
- **design and analysis of structures** (Key; Wightman and others; Guevara & Fortoul);
- **vulnerability, strengthening and retrofit of structures** (Rosales; Clarke & Sharma; Osborne 1 & 2) and
- **socio-economic issues and public policy** (Suite; Carby; Opadeyi).

The volume significantly adds to the currently small amount of literature available on natural hazards focusing on the Caribbean region and should be useful to anyone involved in research and/or other activities related to natural hazards.

The proceedings may be obtained from:

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Price: US \$60.00 per copy inclusive of packaging and postage. Payment should be by International Money Order, Banker's Draft or Traveller's Cheque in the name 'EARTHQUAKE CONFERENCE'.

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Remineralisation of soils: the use of by-product mineral fines for sustaining agriculture

*Beltsville, Maryland, USA,
22–23 May 1994.*

This first conference in the United States on soil remineralisation with rock fines was held at the US Department of Agriculture (USGA) Headquarters. The conference was organised by the USGA Research Service, the US Bureau of Mines, the National Stone Association and the National Aggregates Association.

Natural stone and aggregate materials and by-products contain a broad spectrum of minerals and trace elements that can be applied to soils. Potential benefits are increased yields and long-term soil fertility that is sustainable and ecologically sound. There is also a potential for pest control, co-utilisation with sewage sludge, or wastewater technologies, bioremediation of soils and other areas of sustainable development. The value of remineralisation has created interest for those concerned with environmental and economic sustainability, especially for agriculture and forestry, creating long-term soil fertility and enhancing the nutritional content of food.

The forum examined the results of remineralisation around the world, prior and current research, and 125 participants explored its future potential with the possibility of forming partnerships that will contribute to future exploration of remineralisation and sustainability. Its effects on soils and plants were examined along with its effects on human nutrition.

Perspectives on soil remineralisation came from the environmental movement that has advocated remineralisation; the aggregate

and stone industries; the USGA, and the US Bureau of Mines, and included speakers from the fields of agriculture, earth science, forestry, nutrition and the environment.

Sessions consisted of:

- an overview and perspectives from the USDA, the US Bureau of Mines, the aggregate and stone industries and the remineralisation movement;
- remineralisation in agriculture and forestry;
- diversity and remineralisation;
- posters and case histories and
- a conference synopsis concluding with a planning task group.

Greg Watson of the Nature Conservancy described the larger global context of the soil remineralisation hypothesis and protecting biodiversity, and ended with a discussion of the role this concept can play in achieving the goals of sustainable agriculture.

Joanna Campe, editor of *Remineralise the Earth*, reported on soil remineralisation around the world. The publication facilitates communication of a pro-active remineralisation movement concerned with the premise that remineralisation is not only the key to restoring soils and forests, but in the larger context, necessary and urgent to reduce levels of carbon dioxide in the atmosphere and stabilise the climate. Research highlights came from agrogeologists and European researchers, the natural stone industry in Germany, Switzerland and Austria. Anecdotal results were reported from the magazine over the last eight years.

The following were among the highlights presented:

- In Europe *four times the timber volume* for pine seedlings remineralised with basalt after 24 years showed improvements for 60 years over the untreated control.
- Men of the Trees in Australia has achieved *five times the growth for some species of tree* and shortened their potting-out time from five months to six weeks.
- Dr Robert Bruck of NSCU has seen greater health and height growth of remineralised trees planted in an acid-rain devastated forest near Asheville, North Carolina.
- In Michigan John Hamaker had *two and a half times the yield of corn* with no irrigation during dry conditions and with a highly increased mineral content shown in tissue analysis.
- A cost benefit analysis shows large savings and healthier plants for banana production in Australia.

Remineralisation revitalizes soils, imitating natural processes and by utilizing materials that are a result of glaciation, volcanic eruptions and alluvial deposits. Remineralization with igneous, metamorphic and sedimentary rocks has been shown to provide a slow natural release of elements and trace minerals, to increase the nutrient