

# NOTES

## EUROPEAN WORKSHOP ON FABRIC QUANTIFICATION

A fabric is mainly defined by the spatial arrangement or pattern of matter on different scales. Amongst several examples in nature, the fabric can be defined by (a) shape and spatial distribution of material domains or pores in a rock (b) the crystallographic preferred orientation of mineral grains (c) the pattern of grain boundary or fracture systems etc. Natural geological or artificial processes can modify a pattern (fabric). As a result, quantification of the pattern can provide insight into the pattern forming processes. Thus, a "European Workshop on Fabric Quantification" was conducted from 9-13<sup>th</sup> October 2006 in the Tectonics and Material Fabrics Section, Technische Universität München (Germany). Professor Dr. Jörn H. Kruhl, Mark Peternell and Axel Gerik were the organizers. A total of 11 geoscientists from Italy, Czech Republic, Poland, Germany, Canada and India participated in the workshop. The author was the participant from India.

During the workshop the importance of "fractal geometry" in quantifying fabric and using fractals as a tool for inferring pattern-forming processes was highlighted. Thus, the workshop started with an introduction to basic concepts of fractal geometry and non-linear processes. This was followed by a presentation of different techniques that can be used to analyse fractals such as box-counting, Cantor-dust, perimeter method etc. The participants were divided into three groups for some of the practical exercises such as measurement of the coastline of Great Britain using the perimeter method, analysis of fractal patterns from experiments using box-counting method and generation of Sierpinski Triangle that required manual measurement of fractal dimension. The participants were also trained in automated methods of calculating fractals using the above

methods with the help of computer programme "Benoit".

The organizers of the workshop have tremendous experience in the application of fractals in geosciences and have contributed to the advancement of this field. They have developed new techniques and programmes for anisotropy analysis. Therefore the participants were introduced to these new methods such as (a) modified Cantor-dust method for quantification of anisotropies of fracture networks, (b) the map-counting method for quantification of pattern inhomogeneties and (c) a combined Cantor-dust and perimeter method for the quantification of grain boundary patterns. Further, case histories were presented to highlight the application of fractal shapes of sutured quartz grain boundaries as geothermometers. The participants were encouraged to analyse their own samples using the different methods that were introduced during the workshop. In this regard, the author presented a lecture entitled "Fabric quantification in the Godhra Granite, Aravalli Mountain Belt (India)".

The workshop ended with a discussion about the various possible applications of fabric quantification in analysis of pattern-forming processes, volcanic materials, porosity and rheology. Further, the need for better automated programmes for applying fractal analysis in geosciences was highlighted. The organizers plan to hold another workshop in the year 2007.

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## SIPE'S FIFTH ASIA PACIFIC REMOTE SENSING SYMPOSIUM IN GOA

The fifth Asia-Pacific Remote Sensing Symposium of the International Society of Optical Engineering (SPIE) was held in Goa from 13-17 November 2006. His Excellency Shri S.C. Jamir, the Governor of Goa, inaugurated the symposium by lighting the ceremonial lamp at the Cardium auditorium of the National Institute of Oceanography at Dona Paula, Goa. This meeting which is held in alternate

years in the Asia-Pacific region, was attended by foreign scientists from sponsoring government agencies of USA and Japan, and scientists from various Indian institutions to explore remote sensing for resource management and disaster warning and mitigation. The event was co-sponsored by Indian agencies such as ISRO, NIO, DST, MoES, etc.

The themes of the symposium were: (1) Remote sensing