
SHORT COMMUNICATIONS

**MONSOONAL MICROTREMORS AT
KOTTULI, CALICUT**
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FREQUENT microtremors accompanied by rumbling noises have become part of the monsoonal phenomena since 1984 at Kottuli, Calicut (11°17'25" N, 75°55'25" E). Though this is a new experience for the present population, historical reports indicate that such features were not uncommon. Even the name of this village means, 'the sound of the strike'. Almost all of these vibrations took place in July or August (1858, 1959 and 1964). Microseismic observations indicate the shallow origin of these tremors.

The absence of reactivatable faults and reservoirs in the proximity increases the complexities in determining the causes of the tremors. In the case of the tremors of 1 July 1984, which started at 3.47 p.m. along with landslides in the Western Ghats, the relation between the microtremors and the landslides was fixed as genetically simultaneous. The tremor recorded at Kottuli was responsible for the landslide at Meppadi. Photogeological studies indicate the presence of major lineaments trending NW-SE and ENE-WSW, confluencing at Kottuli. This confluence isolates a northern block, which moves over the remaining block to release the confined pressure. The movement is made possible by the water trapped in the lineamental zone. This water system, and its continuation throughout, help transmission of the confined pressure and its release. All the earlier tremors in the Malabar area occurred in July or August, and since confined water is the prime reason for the tremors, the microtremors stop when the monsoon rains are over.

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1. Tilak, N. B. G., *Geology and Geomorphology of Kerala*, GSI special publication, No. 5, 1981.

**SULPHIDE MINERALIZATION AROUND
AMBADUNGAR, BARODA DISTRICT,
GUJARAT**
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SULPHIDE mineralization around Ambadungar (Survey of India Toposheet No. 46 K/1; 22°1' N: 74°4' E) is being reported for the first time. The Ambadungar alkali-carbonatite complex is well known for its fluorite mineralization^{1,2}. The proved reserves of fluorite are now close to being exhausted. The purpose of this note is to present the results of the study of the ore-minerals. The stratigraphic succession in Ambadungar complex may be summarized as:

Alluvium	Recent to sub-Recent
Alkaline-carbonatite complex	Eocene and later (37.5 ± 2.5 Myr) ³
----- Non-conformity -----	
Deccan traps	Late Cretaceous to Eocene/Oligocene (65 to 50 Myr) ^{4, 5}
----- Minor unconformity -----	
Bagh beds	Cretaceous
----- Major unconformity -----	
Granite gneiss forming basement	Dharwarian ⁶

The sulphide mineralization is associated with carbonatites at a deeper level in a tunnel opening about 40 m below the present working bench.

Polished ore sections have been studied following standard texts on determinative aspects^{7,8}. Identified ore species include galena, pyrite, sphalerite and chalcopryrite, while the gangue minerals are fluorite, calcite, quartz and dolomite. Galena shows intergrowth texture with the fluorite. Triangular cracks are filled with sphalerite and pyrite. The large grain size and associated fluorite suggest undisturbed crystal growth in large cavities (figure 1). Cleavage is quite distinct in pyrite and harder than the chalcopryrite and sphalerite (figure 2).