

The behavior of air in the bedrock fracture due to barometric pressure changes

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To study the effect of entrapped air in the bedrock fissures on runoff generation, field studies were conducted in Mamushi-dani watershed, Shiranui-town, Kumamoto Prefecture. Two, 25 m and 60 m in depth, bore holes were used to study the behavior of entrapped air in the bedrock fractures. The air in shallower bore, 25 m, respond quickly to the barometric pressure changes, but the deeper bore, 60 m, shows marked time lag to the barometric pressure changes. The observation of air flow rate due to barometric pressure changes in both bores enables us to calculate the effective fissures in the bedrock, which is found to be considerably large. The airflow rate by the surface ponding was also monitored, suggesting the possibility of quick runoff generation in this watershed.