

Impact of deposited volcanic ejecta on groundwater quality

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The volcanic eruption can bring drastic change to groundwater quality. The current study discusses the influence of leachates from volcanic ejecta to groundwater quality. Authors have been observed water environment from 1994 to 2006 at Miyakejima Island, Quaternary basaltic volcanic island, erupted in June 2000. The results of observation exhibited that the change of runoff water was important rather than acid rain derived from volcanic products in respect to impact to groundwater quality. The new volcanic ejecta, which deposited all over the island, includes abundant anhydrite brought drastic increase of sulfate ion in runoff water by leaching. Consequently, the recharge water with high sulfate ion changed groundwater quality sulfate rich since less than one year after the eruption for spring waters (from the data of Sato et al.,2006) and since approximately two years after it for well waters. In addition, the sulfate ion of runoff and well waters increased predominantly at the area covered by mud flow, which was made from the ejecta. The time lag and the breadth in sulfate ion were related to the distance from ground surface to groundwater body. That is, the chemistry of well waters is especially influenced by volcanic ejecta deposited near the wells.