

Continuous monitoring of dissolved gas composition in ground water using a gas separation membrane

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The movement of fluids at active fault and volcanoes is expected to have some effects on ground water systems. If we can observe gas composition dissolved in water by continuous monitoring, we can obtain better understanding of the relationship between ground water and earthquake or volcanic eruption.

We use a silicon rubber hollow-fiber membrane module for separating gas from water. The composition of permeated gas is measured with a quadrupole mass spectrometer (QMS). We examined some basic properties of the membrane, then performed practical observation.

We started continuous monitoring of dissolved gas compositions at Kamakura and Omaezaki by using the membrane modules. We examined these time-series data, in relation to the effect of tidal strain and atmospheric pressure.