

Distribution of slab-derived fluid mixed into groundwater system in NE Japan arc

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The Li/Cl ratio of groundwater is proposed as useful indicator for detecting minor amounts of slab-derived saline fluid mixed into groundwater aquifers (Kazahaya et al., 2014). A weak point of the Li/Cl indicator appears in case that slab-derived fluid is mixed into saline groundwater. An extended indicator for detecting slab-derived fluid using Li and halogens is shown to solve complicated mixing groundwater system. We report here the distribution of upwelling of the slab-derived (and magmatic) fluid into groundwater system in NE Japan arc using an extended chemical indicator for groundwater. The areal distribution feature is explained by upwelling model of slab fluid controlled by subduction system.

Keywords: slab-derived fluid, NE Japan arc, groundwater