Multi-scale evaluations of submarine groundwater discharge

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Abstract Multi-scale evaluations of submarine groundwater discharge (SGD) have been made in Saijo, Ehime Prefecture, Shikoku Island, Japan, by using seepage meters for point scale, $^{222}$Rn tracer for point and coastal scales, and a numerical groundwater model (SEAWAT) for coastal and basin scales. Daily basis temporal changes in SGD are evaluated by continuous seepage meter and $^{222}$Rn mooring measurements, and depend on sea level changes. Spatial evaluations of SGD were also made by $^{222}$Rn along the coast in July 2010 and November 2011. The area with larger $^{222}$Rn concentration during both seasons agreed well with the area with larger SGD calculated by 3D groundwater numerical simulations.

Key words submarine groundwater discharge; coastal zone; radon; numerical groundwater model; seepage meter