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A simple measurement device for groundwater flow velocity using inkjet-printed drawing paper

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We have developed a single-dot paper disk type groundwater flow current meter (single-dot PDV), which is a measuring device that easily measures the groundwater flow velocity from the traces of dots printed on paper using dye ink as a tracer. Correction coefficient based on numerical calculation for the coefficient for converting the sensor-flow velocity to the Darcy flow velocity. The correction coefficient can be expressed by a linear function of the hydraulic conductivity, and the flow velocity can be calibrated by an arbitrary hydraulic conductivity. The measurement principle of PDV was that the ink on the paper disc elutes from the paper and moves in the permeable sponge. After that, it was clarified that tailing occurred by dyeing the ink on the drawing paper. The ink movement speed and the groundwater flow velocity are proportional, and it has been shown that it is appropriate to measure the groundwater flow velocity by the tailing length.