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Muography of volcanic and atmospheric hazards at Sakurajima volcano, Japan

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Sakurajima Muography Observatory (SMO) is a modular infrastructure that is operating with 14 muon tracking systems based on gaseous detectors [1] and scintillators [2]. The SMO is monitoring the mass density changes through the volcanic edifice and in the atmosphere at the Sakurajima volcano, Japan. We discuss the recent observational results. We observed mass changes on the surface regions of the volcanic edifice due to deposition and erosion of volcanic ejecta and by post-eruptive lahars [2,3]. We observed the evolution of magmatic plug beneath the active crater that helped to explain the link between eruption frequency and ground deformation [4]. The SMO captured atmospheric pressure drops caused by tropical cyclones and monitored the passages of different cyclones near Kagoshima [5]. We discuss the ongoing developments and future plans for next generation muography of volcanic and atmospheric hazards.

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