



Characterization of x-ray ct data for sands

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X-ray CT scanner has been used in the field of engineering as a non-destructive testing method. Especially, studies on geomaterials such as soils, rocks, concrete and others have been successfully conducted. The authors have used X-ray CT scanner successfully since 1996 where an industrial X-ray CT was installed at Kumamoto University, Japan and produced a large number of the results on the material of soils. And previous X-ray CT apparatus was improved in the year of 2005, so that more wide ranges of the usages are expected. Under these circumstances, a series of fundamental studies on the X-ray CT image as the results of CT scanning should be conducted. The objective of this paper is to discuss on the methods of characterization of the CT data for geomaterials. Here, a granular material called “Yamazuna” sand which is a local sand in Japan was used. The influence of all the scanning parameters such as voltage, electric current, image size and scanning mode on the image quality was studied. Some advices were given in order to adjust the scanning conditions the best as possible to the objectives of scanning. Then, a technique using hardware filters for reducing beam hardening which is one of well known artifacts on the CT image was examined. Finally, the method of optimizing the CT data on not only visualization purpose but also its quantitative one for geomaterials was proposed.