

Introduction of X-Earth Center and its Application of Rock Mechanics

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Fig.1: X-ray CT scanner being operated by X-Earth Center

Geo-mechanics group including rock and soil mechanics group of Kumamoto University are organizing research group "X-Earth Center". The organization introduced industrial and μ -focus X-ray CT scanner systems (Fig.1), and has been operating and applying the systems to the Geo-mechanics field. At the beginning of the presentation, X-Earth Center and its activities are introduced.

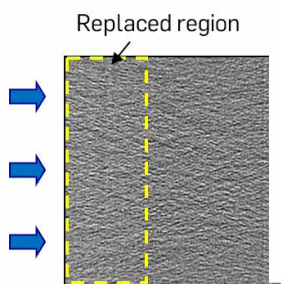


Fig.2: Visualization of CO₂ migration by X-ray CT method

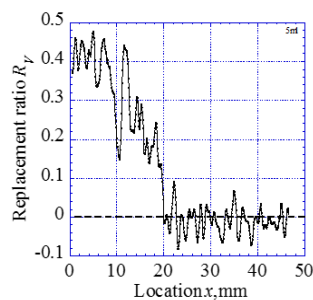


Fig.3: Evaluation of replacement ratio from CT images

Main research field of Prof. Sato is the rock mechanics, and also applying CT system to the analysis of water flow, water saturation process, CO₂ migration process (Fig.2, 3), diffusion phenomena in the porous media and so on. Results of these analyses are mainly introduced in the presentation. He also studies DEM analysis to understand the blockage phenomena in the vertical shaft of open pit mines (Fig.4) and water-vapor flow simulation by finite volume method are also studied. Outlines of these research topics are also introduced.

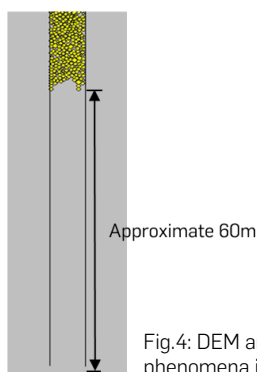


Fig.4: DEM analysis of blockage phenomena in the vertical shaft

Guests are welcome!