

Abstract :

In this paper a filter based on fuzzy logic is proposed to reduce impulse noise from 2D electrical resistivity imaging data. Common types of noise in electrical resistivity data are coherent noise, due to near surface inhomogeneities or electrode effects, random or impulsive noise, resulting from telluric currents, electrode polarization or measurements with low signal-to-noise ratio. The noise detection is based on computing difference between a central sample and its neighbourhood. The detected noisy sample is then removed by a fuzzy based filtering process. Experimental results show the effectiveness of our filter in reducing both coherent and impulsive noise compared to popular median filter. The comparison of the results is based on the Mean-square-error in the inversion process.