

Deconvolution of pass-through paleomagnetic measurements of whole- and half-round cores for improved magnetostratigraphy

*Hirokuni Oda¹, Chuang Xuan²

1. Research Institute of Geology and Geoinformation, Geological Survey of Japan, AIST, Japan, 2. Ocean and Earth Science, University of Southampton, Southampton, SO14 3ZH, UK

Pass-through superconducting rock magnetometers (SRM) offer rapid and high-precision remanence measurements of continuous samples for paleomagnetism studies. Continuous SRM measurements are smoothed and distorted due to the convolution effect of SRM sensor response. Thus, deconvolution is necessary to restore accurate magnetization from pass-through SRM measurements. Robust deconvolution requires reliable estimate of SRM sensor response. Recent studies (Oda and Xuan, 2014; Xuan and Oda, 2015; Oda et al., 2016) have demonstrated that optimized deconvolution through ABIC minimization using a proper measurement of the SRM sensor response can restore geomagnetic and environmental information, and reveal short “excursion” event that is not recognizable before deconvolution. Here, we present sensor response functions of three SRMs with larger bores onboard *D/V Joides Resolution*, *D/V Chikyu*, and at the Geological Survey of Japan, AIST, as well as the tools and procedures used to measure the SRM sensor response. We also plan to demonstrate the ability to extract information of short “excursion” event associated with a significant magnetization intensity drop.

Keywords: deconvolution, superconducting rock magnetometer, sensor response, IODP