

An automated system to measure ARM anisotropy, pARM spectra and high resolution AF demagnetization curves

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Sedimentary rocks contain thousands of particles whose size distribution, shape and combined fabric reflect their pre-, syn- and post- diagenetic histories. As rock magnetism is sensitive to grain size, shape and fabric, magnetic methods can be used to better understand how sedimentary rocks form and how they were subsequently affected by strain. A common tool to study rock fabrics is to measure the anisotropy of magnetic susceptibility (AMS). Unfortunately the AMS technique is sensitive to large, multidomain grains and thus may not reflect the fabric of small, remanence carrying grains. For this reason, the anisotropy of anhysteretic remanent magnetization (AARM) and spectra of partial anhysteretic remanent magnetization (pARM) can yield more information than AMS - including the ability to shed light on potential inclination shallowing. However, these remanence-based measurements are laborious, and are rarely applied in routine paleomagnetic investigations. For this reason, we designed a fully automated system using a SQUID magnetometer and a custom-made, movable coil that can measure AARM, pARM and high-resolution AF demagnetization on 100 standard 1" samples at a time. Details about the new system and results will be presented.