

THE DIGITISATION OF OBSERVATORY MAGNETOGRAMS

ELLEN CLARKE, Simon Flower, Thomas Humphries, Robert McIntosh,
Fergus MacTaggart, Brian McIntyre, Nicola Owenison, Keith Henderson, Elizabeth Mann,
Kenneth MacKenzie, Simon Piper, Louise Wilson and Richard Gillanders

British Geological Survey, Edinburgh, UK

Long running magnetic observatories are extremely important for studies of the Earth's magnetic field. They are used to model and study the core field and its secular variation and are important for studies of the solar driven regular and irregular short-term variations in the geomagnetic field. For investigations into changes to the character of these variations over decades to centuries, data sets of most value are those that can be derived from the longest running series of observatories. Magnetograms exist from UK observatories dating back to 1848, which are archived by the British Geological Survey (BGS). BGS has started a programme to digitise the full set of magnetograms (~256,000) from the date of the earliest records up to 1982, the last year for which definitive observatory results are based on analogue records.

The first objective of the project is to provide a complete backup of the collection as digital images and to make these images available to the scientific community on-line. The second objective is to develop a semi-automated method that can be used to extract digital data from the magnetograms. These data will be of a higher time resolution than that of the previously published values. This paper describes the data management methodology used to capture the magnetogram images including the use of photography. Results for Kew Observatory will be shown. We also discuss on-going development work to extract digital data as accurately as possible and to as high a time resolution as possible. It is envisaged that techniques developed will be applicable to other archives of geophysical data.

Geomagnetism, Magnetograms, Digitisation

Ellen Clarke, British Geological Survey, West Mains Road, Edinburgh EH9 3LA, UK,
tel: +44 131 650 0233, fax: +44 131 650 0265,
e-mail: ecla@bgs.ac.uk