**BACKGROUND**

The UK repeat station network consists of 51 absolute sites that are re-occupied with a period of 4-5 years. Measurements are carried out by a single person between the months of May to August during the seven hours spent at the site. Each interval during the seven hours spent at the site. Each piece of survey equipment used for making repeat station measurements from countries around the world. The data are made publicly accessible to their land for the purpose of making repeat station measurements in 2006 and 2007. The authors would like to thank the National Trust and all other land owners for granting access to their land for the purpose of making repeat station measurements in 2006 and 2007.

**MEASUREMENT PROCESS**

Sites are located approximately using a hand-held GPS, programmed with the stored latitude and longitude way points. The precise measurement position is accurately marked by a stone slab buried in the ground. Locating the stone ensures the re-occupation position is within 20 cm. Measurements are made using a Proton Precession Magnetometer (PPM) and a WILD GAK1 Gyro instrument, both of which are traceable to the National Physical Laboratory (NPL). Both survey PPM’s are calibrated prior to repeat station measurement using field measurement session. The instruments are taken to Eskdalemuir Magnetic Observatory (left) for field calibration and as the usage of the data continues to change. Techniques for making repeat station measurements continues to evolve as advances are made in survey instrumentation and as the usage of the data continues to change. Techniques employed in removing the transient external field variations and the format of submitted repeat station data often change from country to country. This poster provides an up to date report on the current status of the UK repeat station programme, the measurement techniques, thematic processing used to reduce the data and some examples of the main applications of the data.

**INSTRUMENTATION**

For all repeat station data, the following equipment at the repeat stations are used:

**Type:** Carl-Zeiss Theo 010A (non-magnetic)

**Type:** Leica GPS System 500

**Type:** WILD GAK1 Gyro Attachment

**Gyroscope:**
- **Type:** WILD GAK1 Gyro Attachment
- **Accuracy at mid-latitudes:** ±0.2°/h
- **Horizontal resolution:** ±0.2°

**Magnetometer:**
- **Type:** Barlininnington Mag-01H
- **Accuracy:** ±0.2°/h
- **Offset Drift:** 0.5°/h

**Proton Precession Magnetometer:**
- **Type:** BGS MKS-18
- **Accuracy:** ±0.2°/h
- **Resolution:** 0.1°

**Processing software:**
- **Type:** 900-Pro-1

**Quick-time values are selected by examining data from the observatories in Western Europe and at the British repeat stations.**

**APPLICATION OF DATA**

Repeat station data are used to service requests for magnetic north data received from the Ordinance Survey (Great Britain’s national mapping agency). This data is published with Ordnance Survey land maps (Figure 3) to allow users of the maps accurate magnetic north readings to be made in the field and by checking this value regularly, the quality of the instrumentation can be assured.

A series of absolute repeat station observations are made with the survey fence-gate/GPR and then with the observatory offsets to check for consistency between the two sets of baseline results.

Both survey PPMs are calibrated prior to repeat station observation using field calibration procedure.

**REFERENCES**


**ACKNOWLEDGEMENTS**

The authors would like to thank the National Trust and all other land owners for granting access to their land for the purpose of making repeat station measurements in 2006 and previous years.

**References**


**www.geomag.bgs.ac.uk/on_line_gifs.html**

**DATA ACCESS**

The BGS Data Centre is responsible for maintaining a global data set of repeat station measurements from countries around the world. The data are made publicly available on-line via the BGS geomagnetic website (below). The repeat station results that are published on the website are maintained in the Project Magnet Format (PMF).