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### **Web-based Climate Data Collection**

The UK Met Office runs a network of over 250 voluntary climate sites. For many years, observers at these sites reported their observations via a paper form at the end of each month. In more recent years, a spreadsheet version of the form was also introduced, which was also completed at the end of the month.

The paper forms are time-consuming and costly to process and the spreadsheet can suffer from formatting problems and also requires manual processing. With both methods there is also the problem that data cannot be reported until the end of the month so there can be long delays between observations being made and being available to users.

The Observers' Weather Log (OWL) project was undertaken to introduce a web-based data collection system to address these problems.

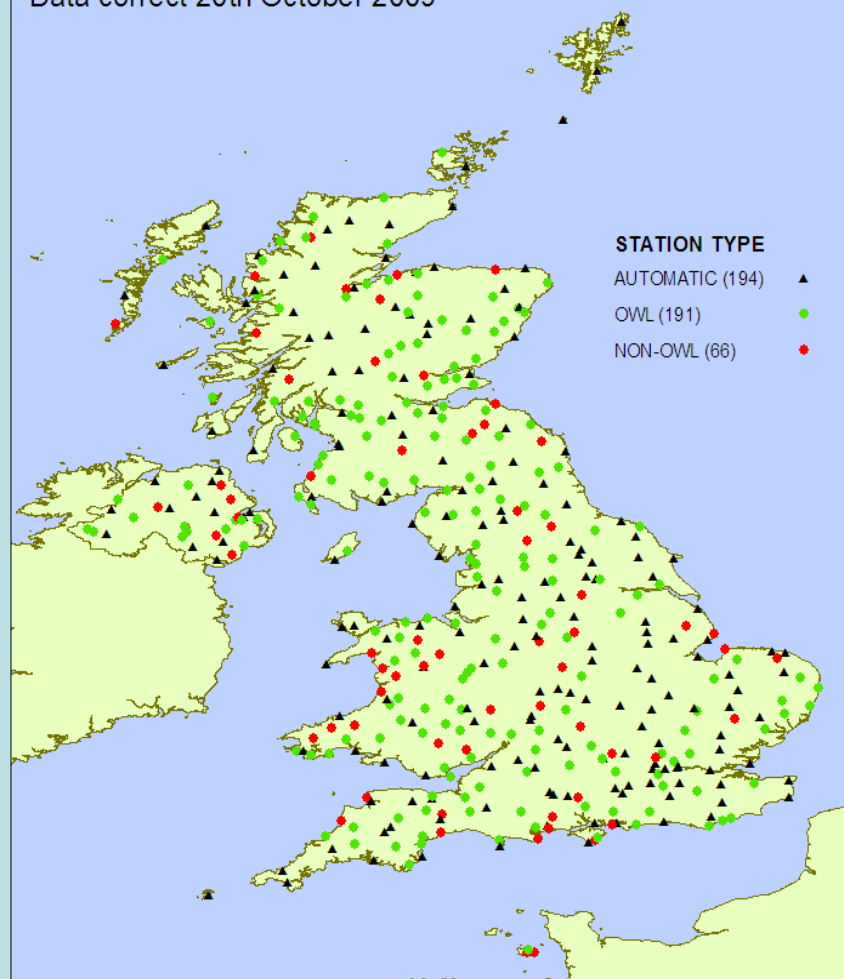
OWL allows observers to report their data on a daily basis via the internet and also allows them to make corrections, if necessary. The observations are stored automatically in the Met Office climate database, meaning that many data are available on the day of observation and very little staff time is involved in the data collection process.

The first OWL sites began reporting in 2007 and now approximately 70% of the voluntary climatological network is using the new system. Since its introduction there has been a huge improvement in observation receipt time: the average delay between an observation being made and being received in the database has been reduced from around 50 to around 10 days.

The poster presentation will show an overview of the system architecture and will also detail the benefits of the new system.

### UK Met Office Climate Network

Data correct 20th October 2009



### UK Climate Network

The UK Met Office runs a network of over 400 climatological sites. This includes a network of automatic sites as well as one of over 250 voluntary manual sites.

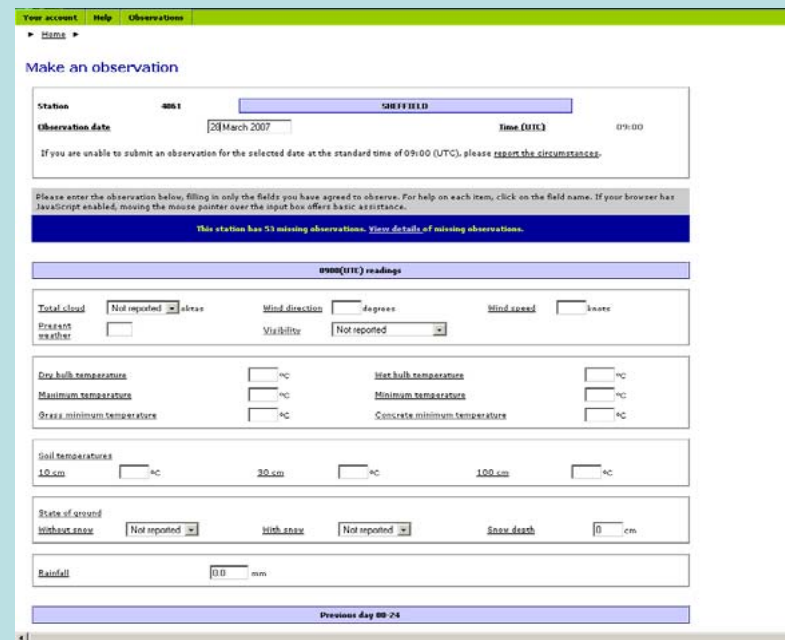
### The need for change

Historically, observers at manual sites reported their observations via a paper form at the end of each month. In more recent years, a spreadsheet version of the form was also introduced - again completed at the end of the month.

Paper forms are both time-consuming and costly to process, involving the need for an external keying contractor. Spreadsheets suffer from formatting issues and also require manual processing. These methods also result in delayed receipt of data into the climate database since observations are returned on a monthly basis and, in the case of paper forms, need to be sent for keying. They are also prone to transcription and/or keying errors which, additionally, leads to data quality issues.

### The solution: Observers' Weather Log

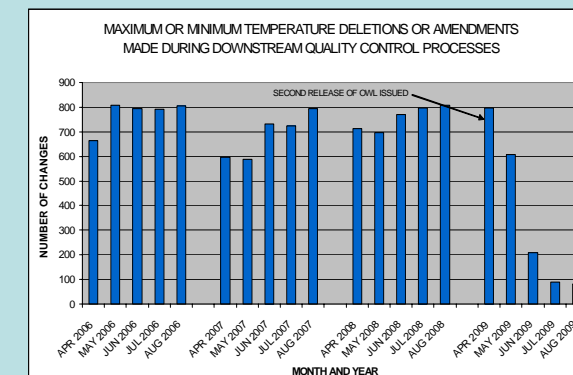
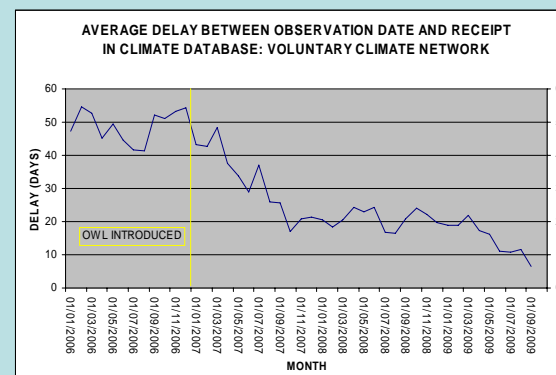
A web-based method for observers to record their daily readings was developed: the Observers' Weather Log - or OWL. Observers access the service via the UK Met Office external website and can enter observations daily, or however often is suitable. The OWL software runs on an OC4J application server which transfers the observational data to the Oracle 10g climate database.




### Benefits

Two key benefits have been realised through the introduction of OWL. One is improved timeliness, with the average time delay between date of observation and date of receipt in the climate database dropping from over 40 days to around 10 over the entire voluntary network. There has also been an improvement in the quality of observations. The second release of OWL software (April 2009) performs a number of range and internal consistency checks when observations are entered and warns the observer if there is a potential problem. This has reduced the number of these errors being flagged in downstream quality control processes. Only the April - August 2009 data are suitable for comparison with previous years' data so far but the early results are extremely promising.

### Timeliness and quality statistics 2006 - present



### Observer feedback

Feedback from observers has been very positive. A recent survey of observers showed that the majority find the system easy to use and only a small minority are having problems with it. The survey also showed that 65% of observers using the OWL system are submitting observations weekly or more frequently.

### Observer feedback survey results - 2009

