

# Magneto Scale and Standardization

## Background

### What does magneto mean?

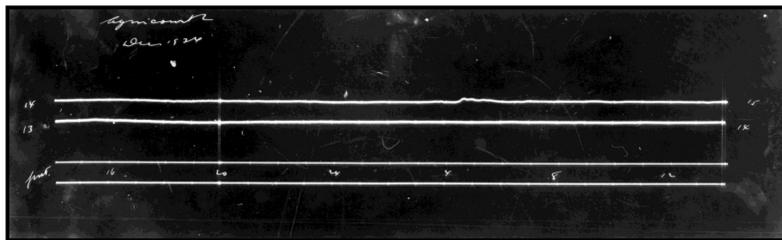
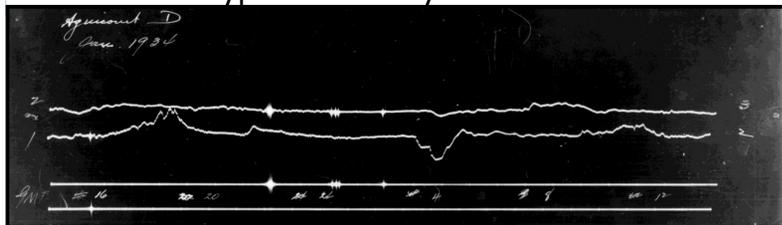
It is in reference to a magnetogram. Magnetograms record the variation in geomagnetic fields. The data files used in my research project comes from the magnetogram records of Ontario which were recorded thank to the National Resource Canada Geomagnetic Laboratory.

## The Data

Given 1603 sample files to work with, understanding their value was important.

The data came in multiple file types; TIF, PNG and RDS, all to be linked to on their own webpages. The files are from two days worth of observations. Each day has three machines (D, H and Z) recording results.

The data has file names which correspond to the data range of they recorded, the machine they are from and the type of file they are.



Examples of tif.png files from the data

## Objective

To produce HTML files to present the data and make it globally accessible.

## Code

```
make_div <- function(in_files, date)
html <- write(x = c(top, "<body>", html_block, "</body>", bottom))

div_blocks <- vector(length = ceiling(n_dec / 3))
for(j in 1:length(div_blocks)) {
  div_blocks[j] <- paste("<div style = 'width:100%; height: 400px;'>",
    paste(divs[(3*(j-1)+1):(3*j)],
      sep = "",
      collapse = ""),
    "</div>")
}

</head>
<body>
<div class='myDiv'><h2>Image for Date: 19340101-19340103 (D)</h2>
<div class='myDiv'><h2>Image for Date: 19340101-19340103 (H)</h2>
<div class='myDiv'><h2>Image for Date: 19340101-19340103 (Z)</h2>
</body>
</body></html>
```

## Algorithms

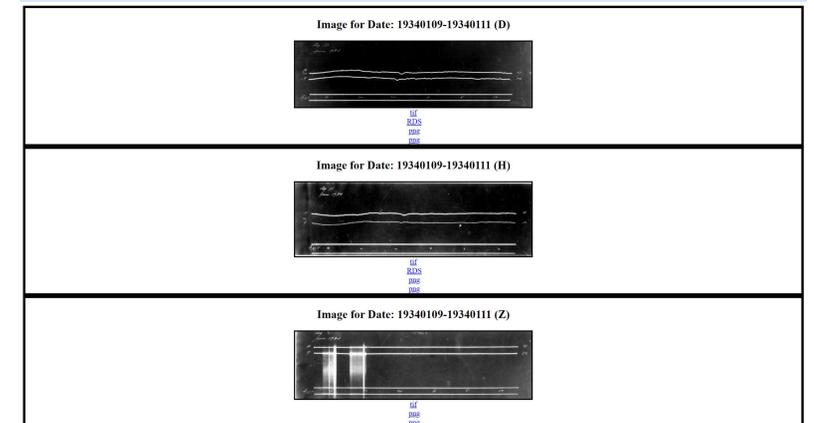
The most important aspects to the algorithms are the way in which the data is subset dependent on which files we need to iterate code through (i.e. by specific dates or by file type). As well as creating div blocks on the webpages for the layout.

## Next Step

After the R files are applied to the entire database and uploaded to the server, the website will be up and running for the data to be freely available.

## HTML Files

The HTML files were created by coding in R. In R the code was able to be subset and put through for loops, with the addition of HTML code in between to create the webpages for the magnetogram data.

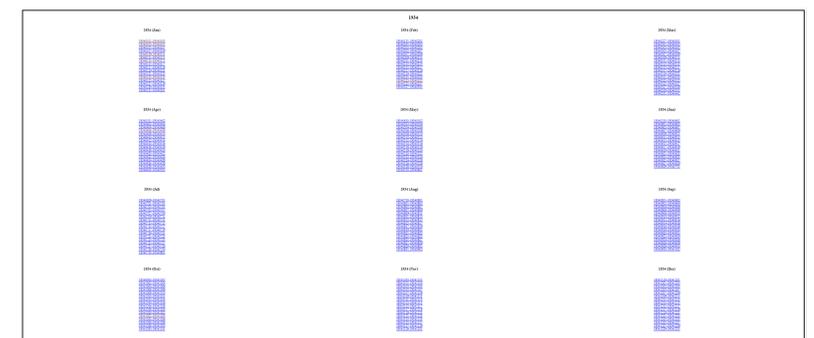


Example of the layout of an HTML files

## Index Webpages

By creating parent webpages, all the data would be able to be found in one spot.

First was a webpage for each year organized into months, then to take those webpages and organize them by decade on a final index page.



Webpage displaying 1934 data files.