Chapter 5: Enhancing Your Output with ODS

- `ODS` (Output Delivery System) can simply be a way to save high-quality output to different files:

  - RTF files

  - PS (Postscript) files

  - PDF files

  - HTML files (be sure to look at the text's example).

- ODS uses style templates to enhance default formats (for those who want to do EVERYTHING in SAS).

- It is also an effective means to control output printed to the usual **OUTPUT** window (`LISTING` files) or written to SAS data sets.

Why ODS?

- We have already learned a couple menu-driven applications of **ODS**.

    – Selecting `Create HTML...` to save output in **HTML** format in Exercise 6.

    – Right-clicking on on a graphics window and saving it as a **PDF** file.

- The second example is analogous to saving graphics in **R**.

Why ODS?

- While menu-driven options are convenient, they do have shortcomings when:

  - Generating many graphics in a large program.

  - Generating graphics in a `DO` loop–remember the *Monitoring Well* data in **R**?

  - Generating graphics in a `MACRO`.

- We need in-line commands to save output files as well.

Creating an output file

- The basic structure of an **ODS** command can be quite simple:

  ```
  ODS PDF FILE='z:\stat 517\filename.pdf';
  (SAS graphics commands)
  ODS PDF CLOSE;
  ```

- This basic syntax is commonly used for postscript, html, and rtf files as well.

- Note the similarity to the use of the `pdf` and `postscript` functions in **R**.

- In addition to saving `filename.pdf`, an attractive PDF window will open in SAS.

Creating an output file

- We can include multiple PROC's inside the ODS commands and generate multiple graphs.

- An additional precaution: turn off the default output device (and resume it when finished):

```
ODS LISTING CLOSE;
ODS PDF FILE='z:\stat 517\filename.pdf';
(SAS graphics commands)
ODS PDF CLOSE;
ODS LISTING;
```

Example: Broad River stage data

Selecting Output

- SAS PROC's can produce alot of separate pieces of output; some more useful than others.

- We can use ODS SELECT to choose pieces to output.

- ODS TRACE identifies output names for ODS SELECT

- The "trace" is printed in the LOG window–and it is quite cryptic!

- Once you get used to the naming conventions though, it isn't so bad.

```
ODS TRACE ON;
(SAS PROC statements)
RUN;
ODS TRACE OFF;
```

Saving Output

- ODS OUTPUT can save multiple output files

- Remember that these output data sets can look odd...

- ...but judicious use of IF can take care of that.

- ODS OUTPUT can save `name`, `label` and `path` output pieces

```
(SAS PROC statements)
ODS name=your_out_name path=your_out_path;
RUN;
```