

Introduction to Computer for Engineers

Lecture 1 **Introduction to MATLAB**

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MATLAB - HISTORY

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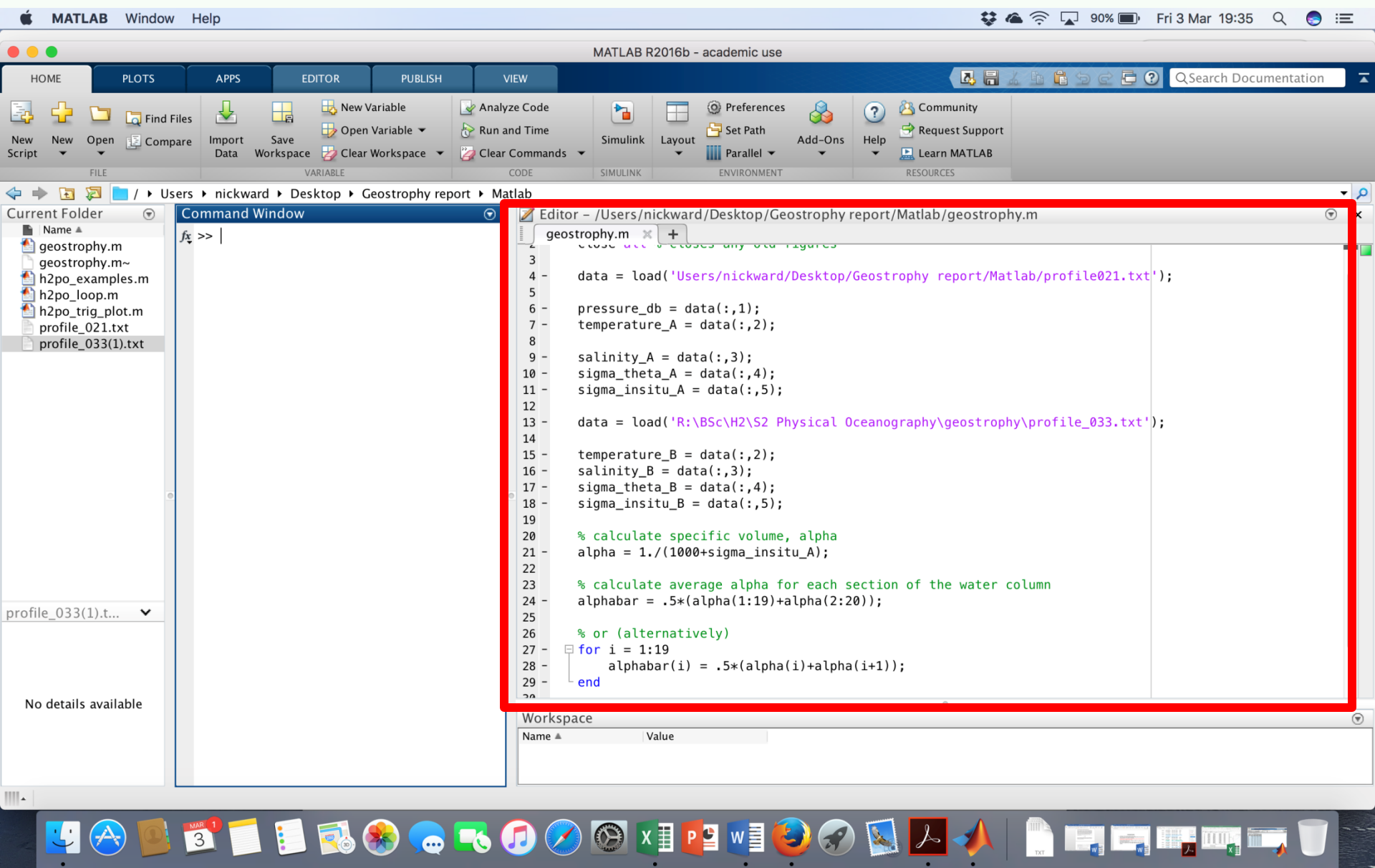
1984 – MATHWORK

Introduction to MATLAB

MATLAB windows

- **Commands window**
- **Current folder window**
- **Workspace window**
- **Editor window**

MATLAB INTERFACE



MATLAB INTERFACE

The screenshot displays the MATLAB R2016b academic use interface on a Mac. The top menu bar includes Apple, MATLAB, Window, and Help. The status bar shows system icons and the date/time: Fri 3 Mar 19:35. The main toolbar is divided into sections: HOME, PLOTS, APPS, EDITOR, PUBLISH, and VIEW. The EDITOR section is active, showing icons for New Script, New, Open, Compare, Import Data, Save Workspace, Open Variable, Clear Workspace, Analyze Code, Run and Time, Clear Commands, Simulink, Layout, Preferences, Set Path, Add-Ons, Help, Community, Request Support, and Learn MATLAB. The current folder is /Users/nickward/Desktop/Geostrophy report/Matlab. The Command Window, highlighted with a red box, shows the prompt `>> |`. The Editor window displays the file `geostrophy.m` with the following code:

```
1 close all; % closes any old figures
2
3
4 data = load('Users/nickward/Desktop/Geostrophy report/Matlab/profile021.txt');
5
6 pressure_db = data(:,1);
7 temperature_A = data(:,2);
8
9 salinity_A = data(:,3);
10 sigma_theta_A = data(:,4);
11 sigma_insitu_A = data(:,5);
12
13 data = load('R:\BSc\H2\S2 Physical Oceanography\geostrophy\profile_033.txt');
14
15 temperature_B = data(:,2);
16 salinity_B = data(:,3);
17 sigma_theta_B = data(:,4);
18 sigma_insitu_B = data(:,5);
19
20 % calculate specific volume, alpha
21 alpha = 1./(1000+sigma_insitu_A);
22
23 % calculate average alpha for each section of the water column
24 alphabar = .5*(alpha(1:19)+alpha(2:20));
25
26 % or (alternatively)
27 for i = 1:19
28     alphabar(i) = .5*(alpha(i)+alpha(i+1));
29 end
```

The Workspace window at the bottom shows a table with columns Name and Value.

Introduction to MATLAB

Folder navigation in MATLAB

Bin/MATLAB folder vs. private folder

Concept of PATH

Introduction to MATLAB

Basic calculation in Command Window

Command history

Workspace

End of Lecture 1