

CWP Workshop

6 January 2020 Golden, Colorado

Today's Workshop - Rough Schedule

- From 8.30am Coffee and Madagascar Package Introduction
- 9.00-9.15am Introduction (Shragge)
- 9.15-10.15am Using Madagascar on the Command Line (Girard)
- 10.15-10.30am Break (informal)
- 10.30-11.30am Introduction to Python and SConstruct (Shragge)
- 11.30-12.30pm Madagascar+SConstruct (Girard) Exercise I
- 12.30-1.30pm Lunch
- 1.30-2.30pm Seismic Modelling (Girard) Exercise II
- 2.30-3.30pm Adding your own programs (Shragge) Exercise III
- 3.30pm onward Wrap up / Sundowner (by donation)

What is Science?



Science is the systematic enterprise of gathering knowledge about the universe and organizing and condensing that knowledge into testable laws and theories.

What is Science?



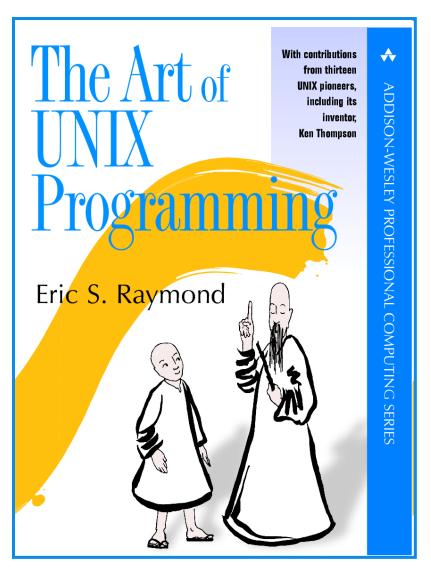
Science is the systematic enterprise of gathering knowledge about the universe and organizing and condensing that knowledge into testable laws and theories. The success and credibility of science are anchored in the willingness of scientists to expose their ideas and results to independent testing and replication by other scientists.

What is Science?



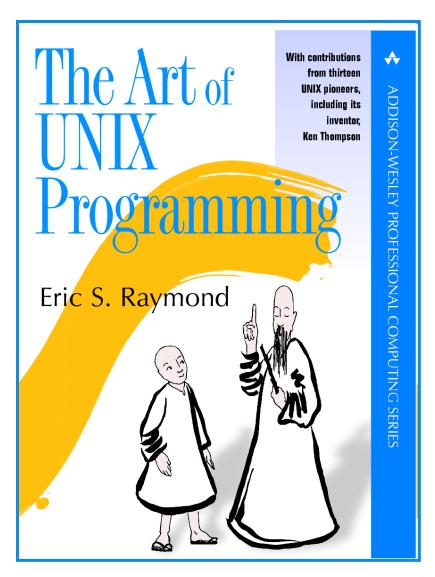
Science is the systematic enterprise of gathering knowledge about the universe and organizing and condensing that knowledge into testable laws and theories. The success and credibility of science are anchored in the willingness of scientists to expose their ideas and results to independent testing and **replication** by other scientists. This requires the complete and open exchange of data, procedures and materials.

Software versus Science



"Abandoning the habit of secrecy in favor of process transparency and peer review was the crucial step by which alchemy became chemistry.

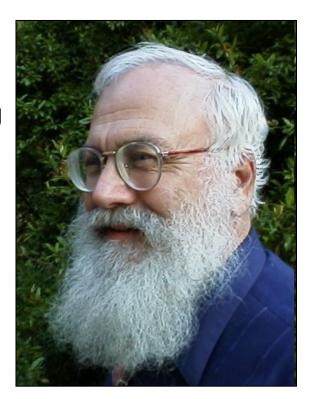
Software versus Science



"Abandoning the habit of secrecy in favor of process transparency and peer review was the crucial step by which alchemy became chemistry. In the same way, it is beginning to appear that open-source development may signal the long-awaited maturation of software development as a discipline." Eric Raymond

Claerbout's Principle

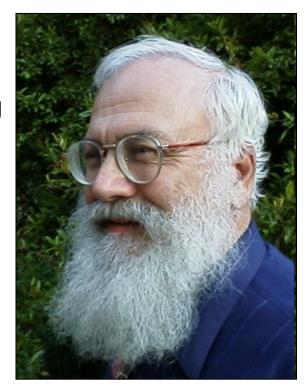
"An article about computational science in a scientific publication is not the scholarship itself, it is merely advertising of the scholarship.



Claerbout's Principle

"An article about computational science in a scientific publication is not the scholarship itself, it is merely advertising of the scholarship. The actual scholarship is the complete software development environment and the complete set of instructions which generated the figures."

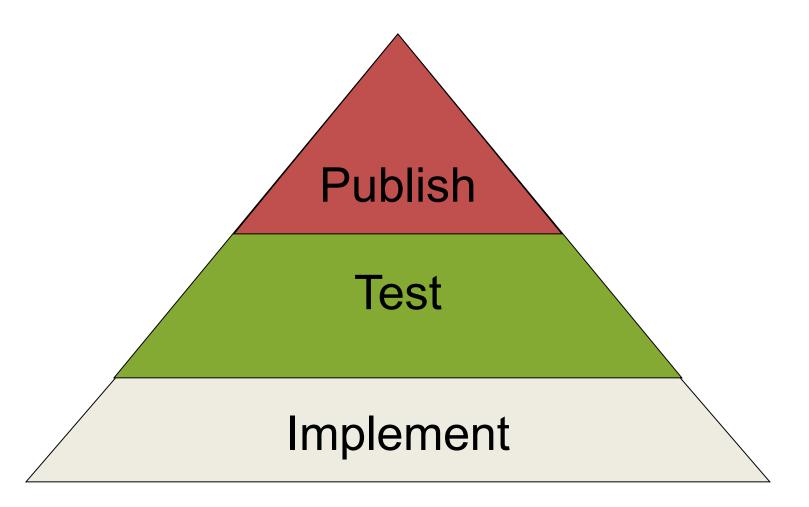
(Buckheit and Donoho, 1995)



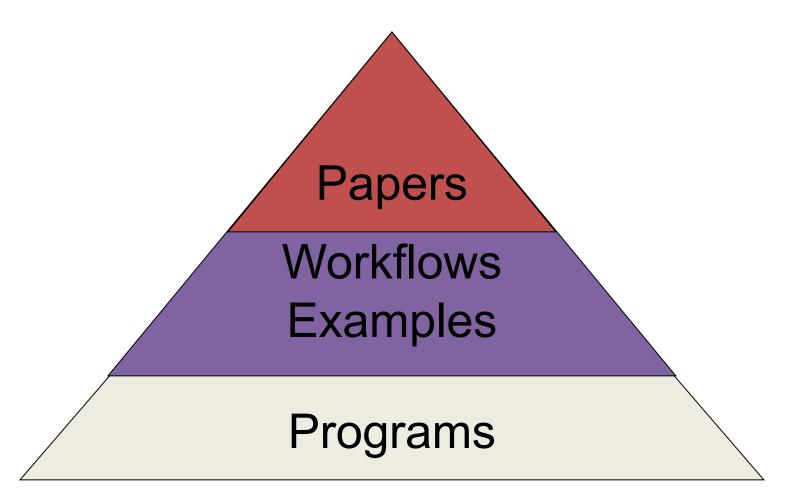
Reproducible Research

"It is a big chore for one researcher to reproduce the analysis and computational results of another [...] I discovered that this problem has a simple technological solution: illustrations (figures)

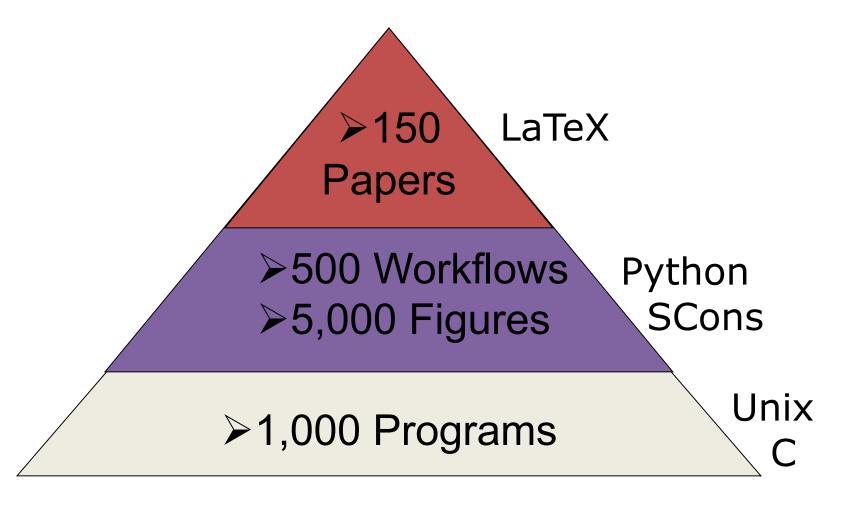
Research Pyramid



Research Pyramid



Research Pyramid





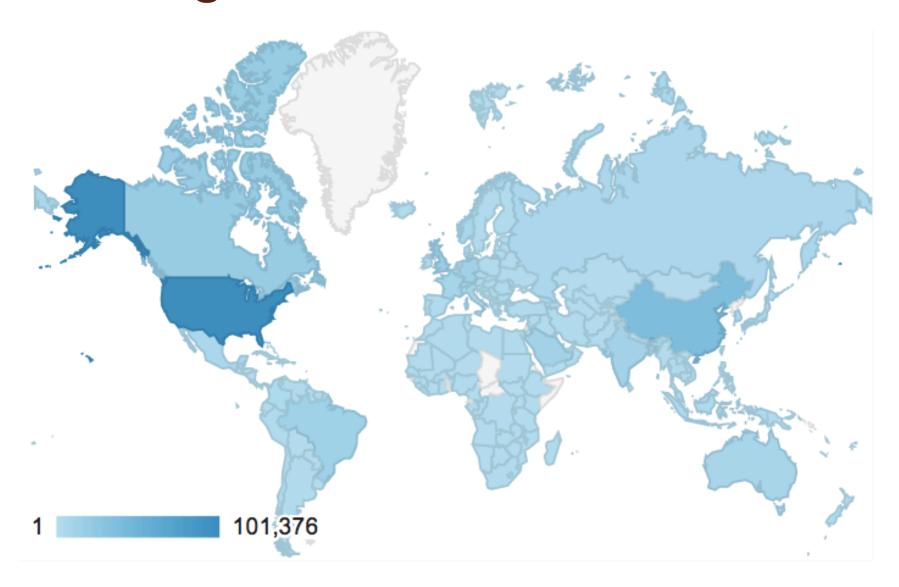
Objectives

- To make computational research efficient
- To make it easy to share computational results
- To promote an open community





Madagascar Website Visits



Contributors

Salah Al-Hadab, Tariq Alkhalifah, Vladimir Bashkardin, Filippo Broggini, Jules Browaeys, Cody Brown, William Burnett, Yihua Cai, Maria Cameron, Lorenzo Casasanta, Yangkang Chen, Zhonghuan Chen, Jiubing Cheng, Luke Decker, Joseph Dellinger, Esteban Diaz, Gang Fang, Sergey Fomel, Jeff Godwin, Gilles Hennenfent, Jie Hou, Jingwei Hu, Yin Huang, Trevor Irons, Jim Jennings, Jun Ji, Long Jin, Parvaneh Karimi, Roman Kazinnik, Alexander Klokov, Siwei Li, Guochang Liu, Yang Liu, Yujin Liu, Xuxin Ma, Douglas McCowan, Henryk Modzelewski, Jack Poulson, James Rickett, Sean Ross-Ross, Colin Russell, Christos Saragiotis, Paul Sava, Karl Schleicher, Reza Shahidi, Jeffrey Shragge, Eduardo Filpo Silva, Xiaolei Song, Yanadet Sripanich, Junzhe Sun, Ioan Vlad, Robin Weiss, Zedong Wu, Jia Yan, Lexing Ying, ...



CWP Workshop

6 January 2020 Golden, Colorado