

SMARTSkills 2013 Postgraduate Workshop
Funding Opportunities & Data Access
Marine Institute, Galway, Ireland
24th and 25th October 2013

Artesian wells and group water schemes

A Data Analogue

presented by

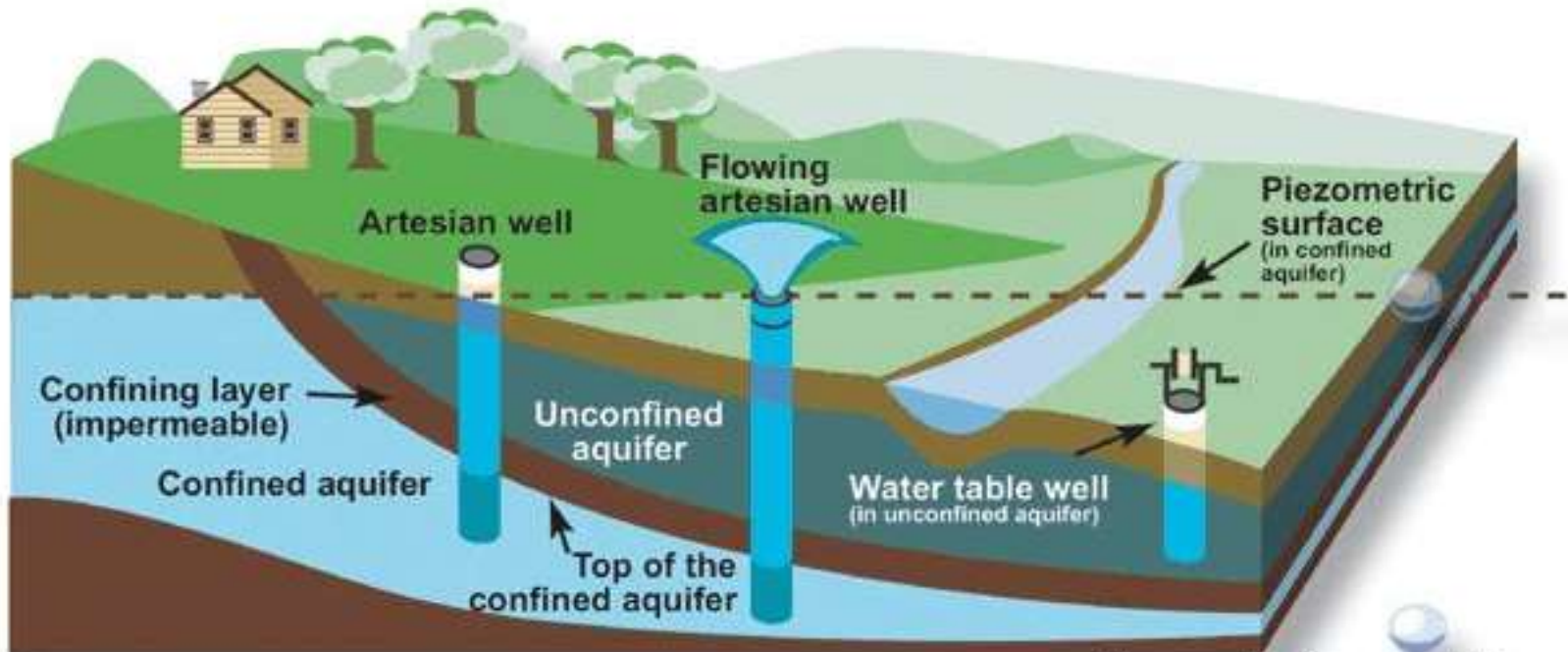
Liam Caffrey, CMRC/Marine Institute



First: some questions – show of hands?

- How many have a qualification in Marine Science?
- How many took software modules during your studies?
- How many can write code, any code?
 - i.e. writing R code counts
- Where do you want to be in 5, 10, 15, 20 years time in terms of working with data?
 - “Working with data”? What does that even mean?

Aquifers and wells



Source: Environment Canada



THINK OF WATER AS DATA

Think of all the things that have to happen to ensure:

Reproducibility

Consistency

Infrastructure

Process

Quality

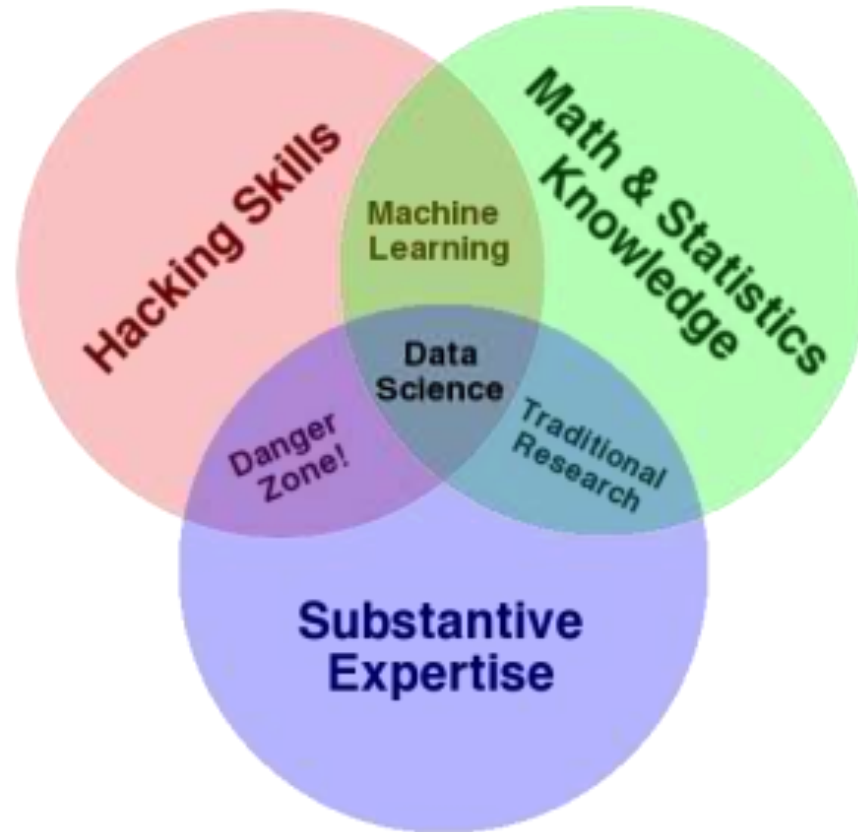
Standards

SMARTskills



What's missing?

Data Science



Source: Drew Conway, The Data Science Venn Diagram

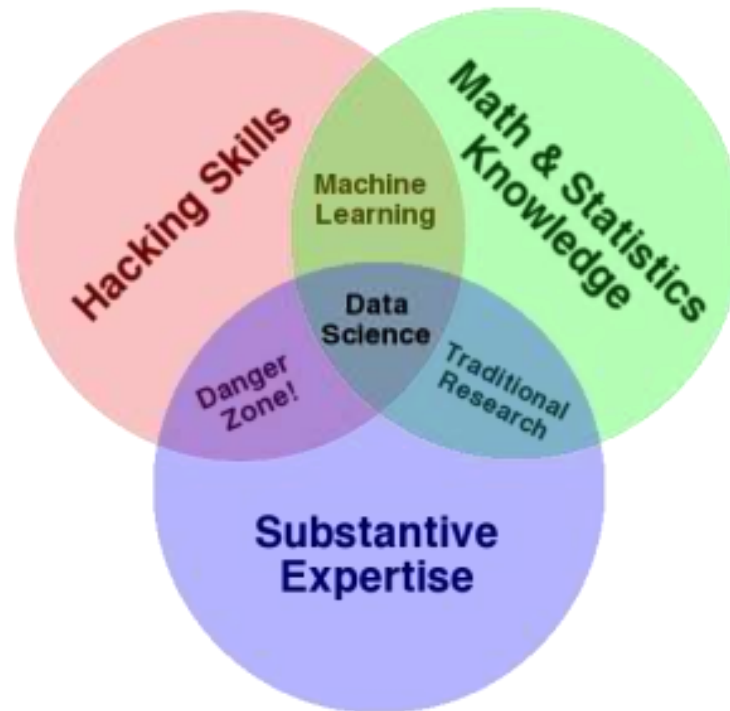
https://s3.amazonaws.com/aws.drewconway.com/viz/venn_diagram/data_science.html

An anecdote

- At the ICES ASC
 - Senior Manager in an EU MS National Institute
 - 2 young scientists

Secret Sauce.

DevOps



DevOps! What's that?

- Development & Operations
 - A culture, attitude, and skillset
 - Ability to manage, develop, deploy **better** systems, at **less cost**, in **less time**, at **lower risk***
 - Originates from lean-startup culture
 - 1 or 2 founders
 - Would map across nicely into the Marine space
- Collaboration
 - Not as disjointed partners in a cumbersome, segmented project
 - Team playing
 - Breaking down barriers
 - Funding model is antagonistic to such a mentality.
- Skills
 - Coding, programming, learning computer languages, scripting
 - Thinking algorithmically/Thinking in systems
 - Making stuff happen
 - Owning it
 - Take baby steps, it's a long road... 5, 10, 15 years

* <http://www.tbray.org/ongoing/When/201x/2010/01/02/Doing-It-Wrong>



Biggest block to progress

- Can't reproduce or repeat
- Can't automate
- Scientist is just a user
- A slave to a process



Your best friend... clickty, clack...

Top 200 words used in Data Scientist job descriptions

accessing act actively advanced **algorithms** alliance **analysis** **analytics** analyze application
apply approach appropriate **area** around background based build **business** campaign candidate
challenging client clinical communication company complex computer consumer create creativity
critical crm **csu** customer da **data** database datasets deep define degree delivering delivery
description **design** **develop** direct discipline **disease** dm drive either **engineering** enjoy
environment establish evaluate excellent expert expertise exploring external extraction familiarity fast-paced **field** focused
franchise functional governance group **hadoop** hbase help highly hive ideas identify impact implement improve
industry **information** innovative **insights** integration interacts **interest** internal internet iq iterative **java**
knowledge language leader leading **learning** level lifetime line links looking **machine** maintain
management **marketing** math mathematics member methods million mining
models motivated multiple mysql nature network objectives obsession online operations opportunity optimal **partners**
people performance personality phd **plus** power practical preferred **problems** processing
product professional profiling programming **projects** prototypes proven provide publishing python
quality quantitative quickly recommendation reduce regression related relationships relevant reporting **research** results
retrieval revenue scalable scale **science** scientific scientist scripting segmentation senior serve **sets** social
software **solutions** solve sources sql standards **statistics** strategic **strategy** structure support
systems targets **team** technical techniques technology test text thinks **tools** translational trees
understand value **various** world years

Source: Gartner on <https://docs.google.com/presentation/d/1sujISQRMs3ZTMQvSQfD5LadP-jowkk7m2JxFqLSr7EE/present#slide=id.i0>



<http://www.youtube.com/watch?v=qYZF6oIZtfc>



GET CODING – MAKE TIME, EVERYDAY



Quaffed, sated, refreshed... Thank you!