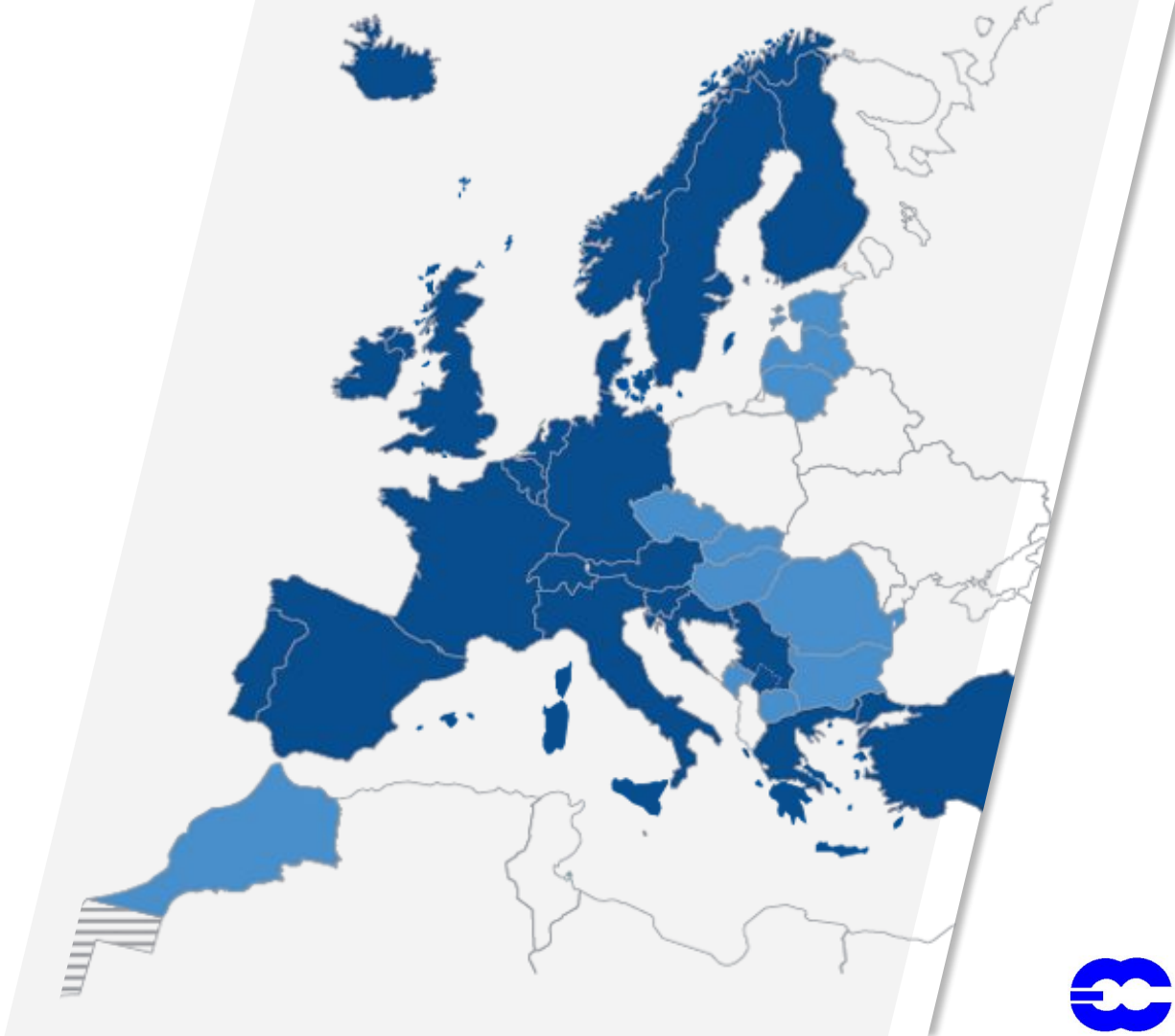
Data Science @ECMWF

Claudia Vitolo

What is ECMWF?

European **C**entre for
Medium-range **W**eather
Forecast

- Research institution
- 24/7 operational service



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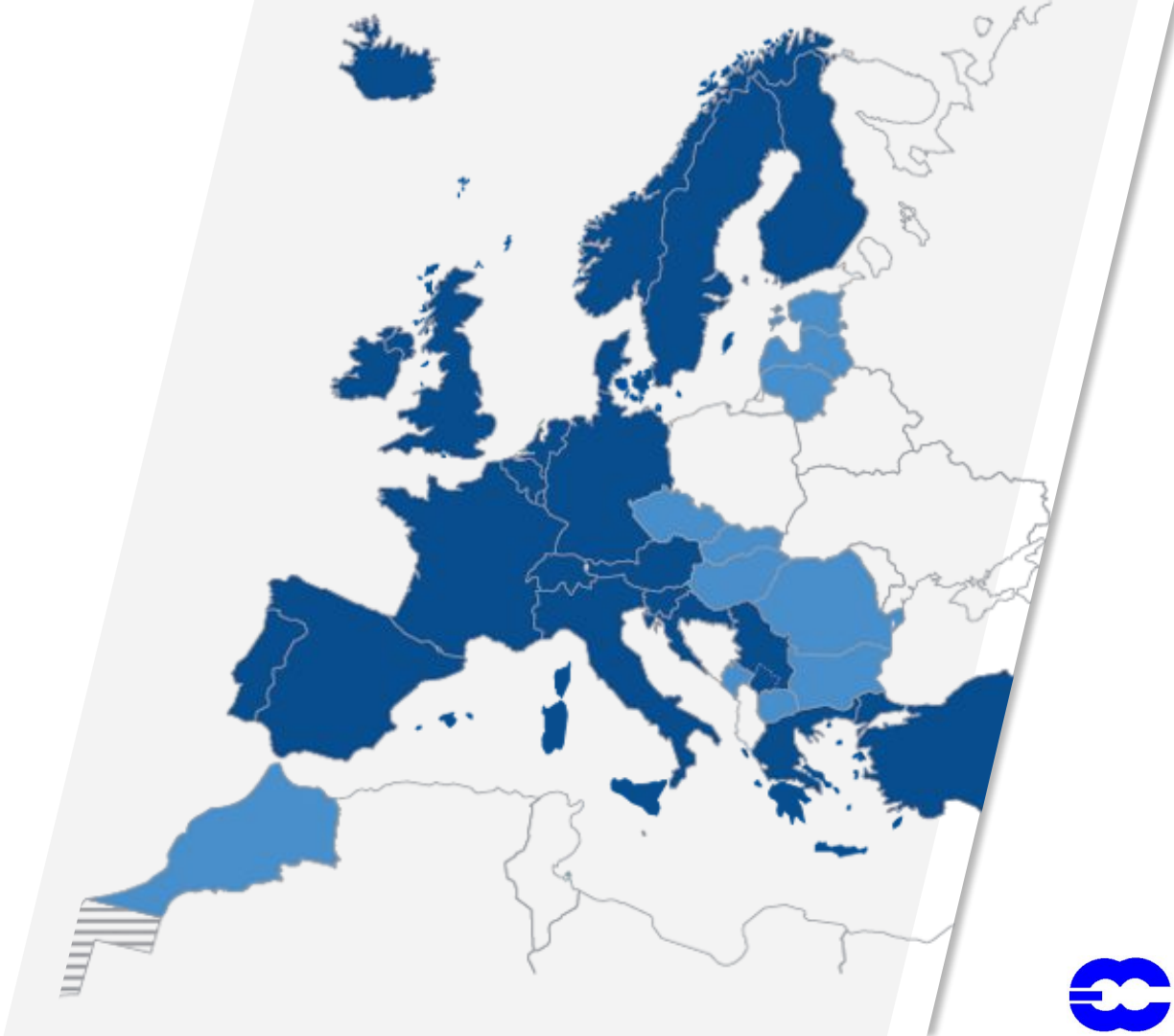
- 22 member states
- 12 cooperating states



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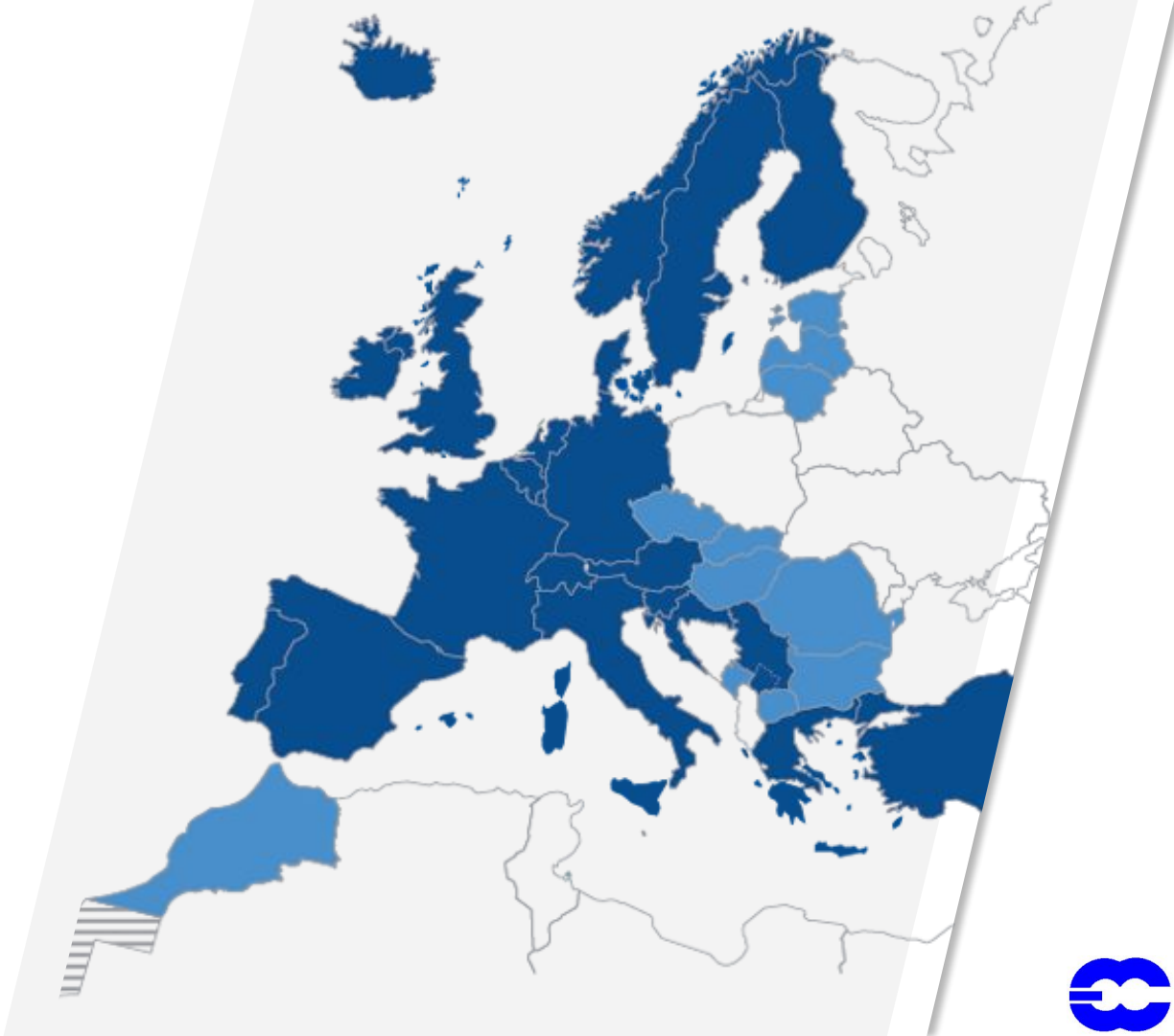
Forecast

- Research institution
- 24/7 operational service
- 22 member states
- 12 cooperating states
- 300 employees from more than 30 countries.



What do we do?

Much more than weather predictions...

Global forecasts and NWP science

We produce global scale ensemble-based analyses and predictions from few days up to a year ahead. And we constantly try to improve our model.

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Supercomputing

Improving the skill and detail of ECMWF predictions is a computationally expensive process.

My career path

A mixture of academic and industry experiences

What do I do @ECMWF?

Natural hazard modelling

EU project called ANYWHERE to develop a

Multi-Hazard Early Warning System

to help respond more rapidly to extreme climate and weather events.

Floods and storm surges

Natural hazard modelling

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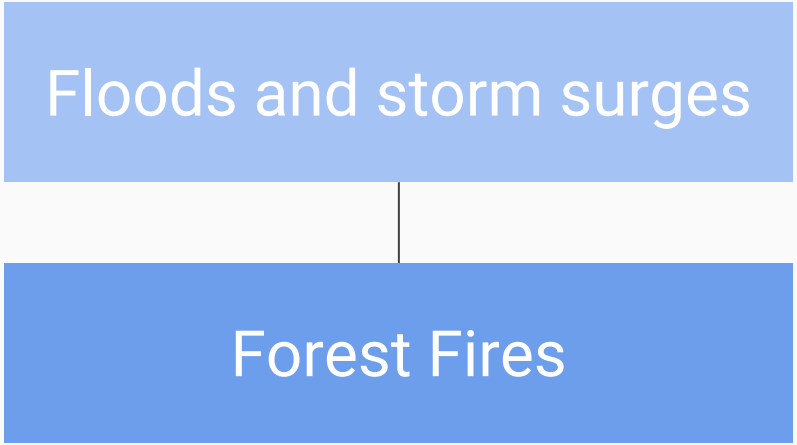

Chile

The worst forest fire in Chile's history – in pictures

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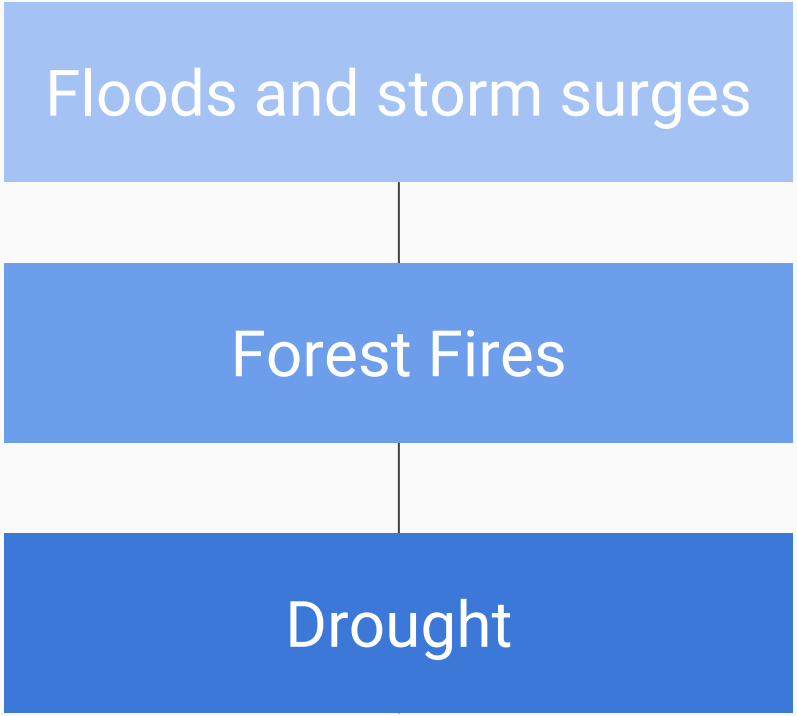

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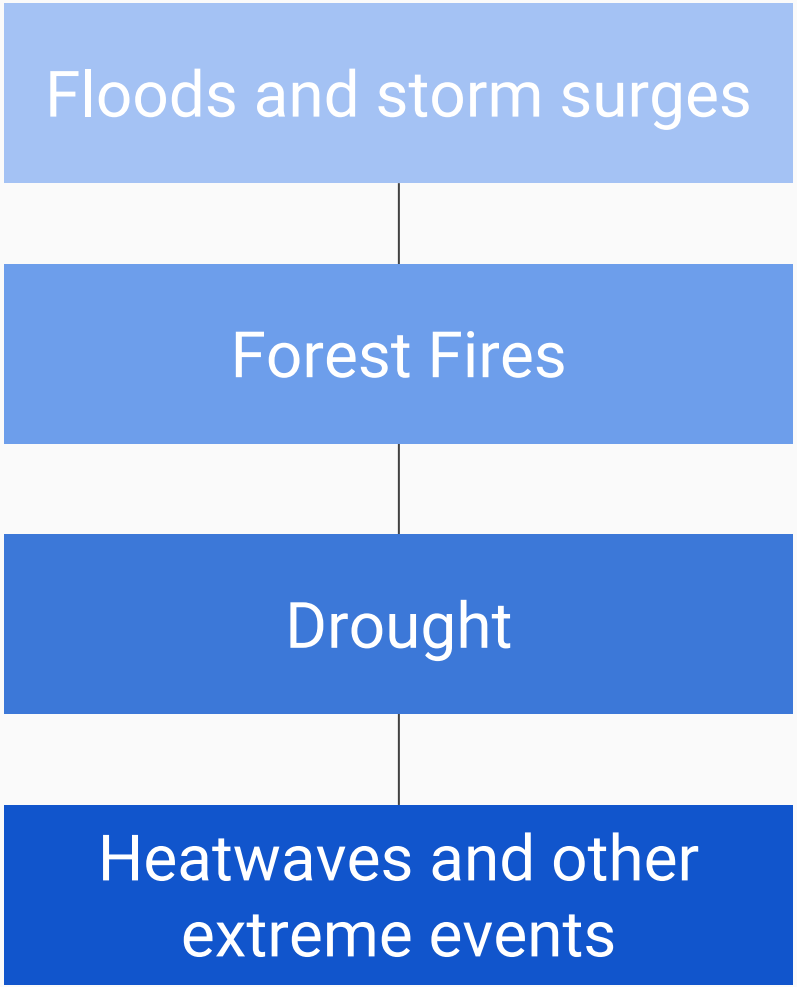


How do I model natural hazards?

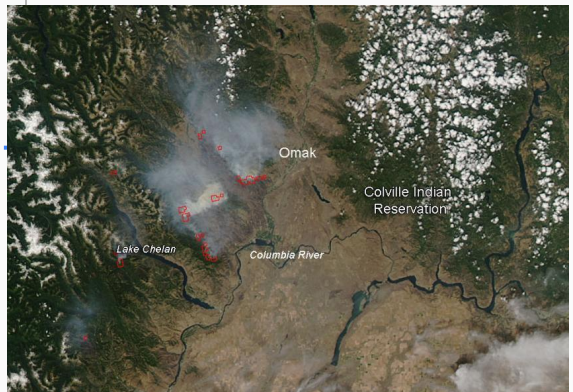
E.g. calibration of fire danger levels to generate risk maps

Step 1

Collect from our databases information on historical distribution of vegetation, meteo&hydro variables

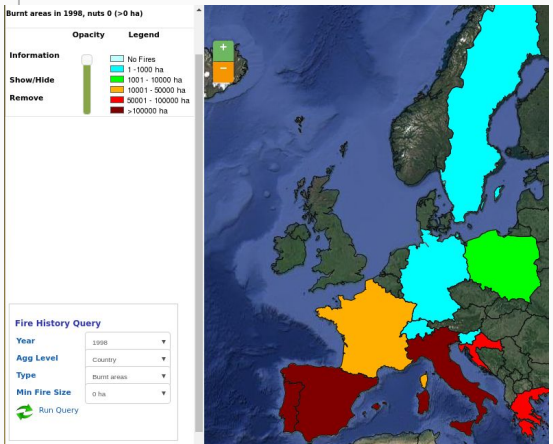
Step 2

Compare them with historical fire observations (from satellites).

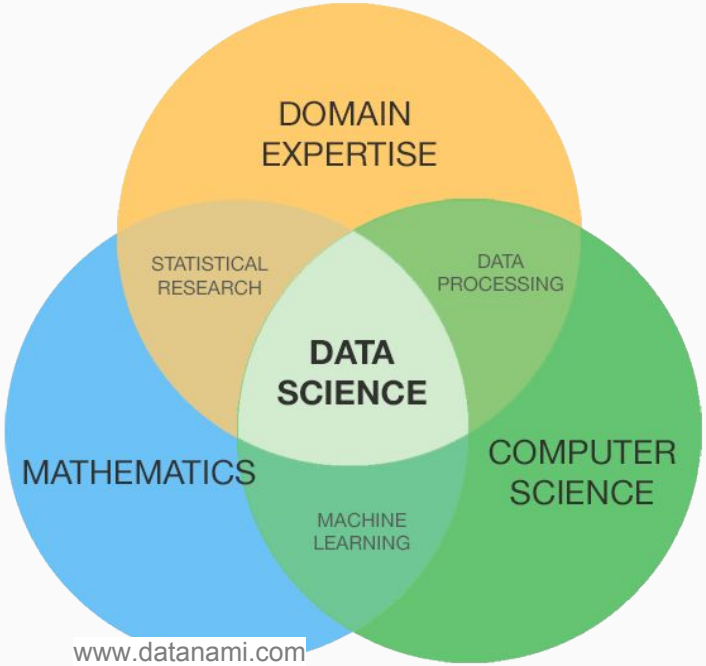


Step 3

Generate fire danger levels and risk maps for damage assessment



Skillset



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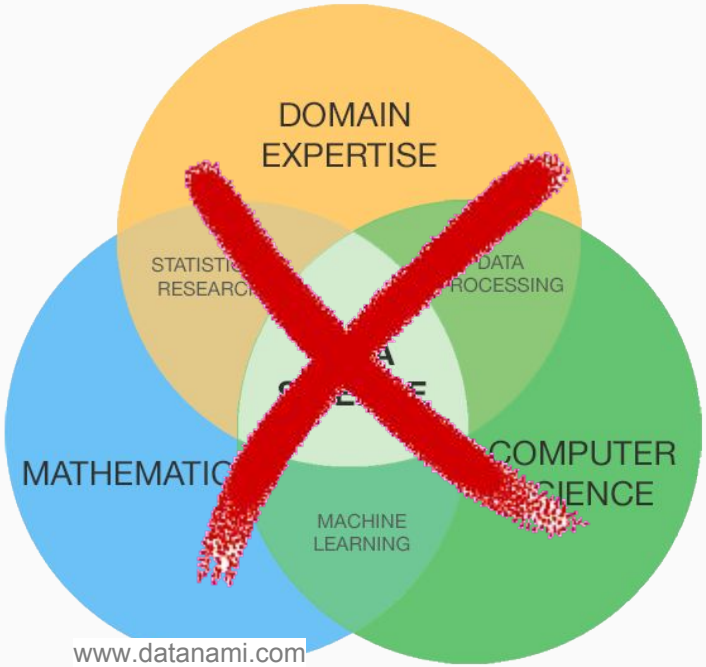

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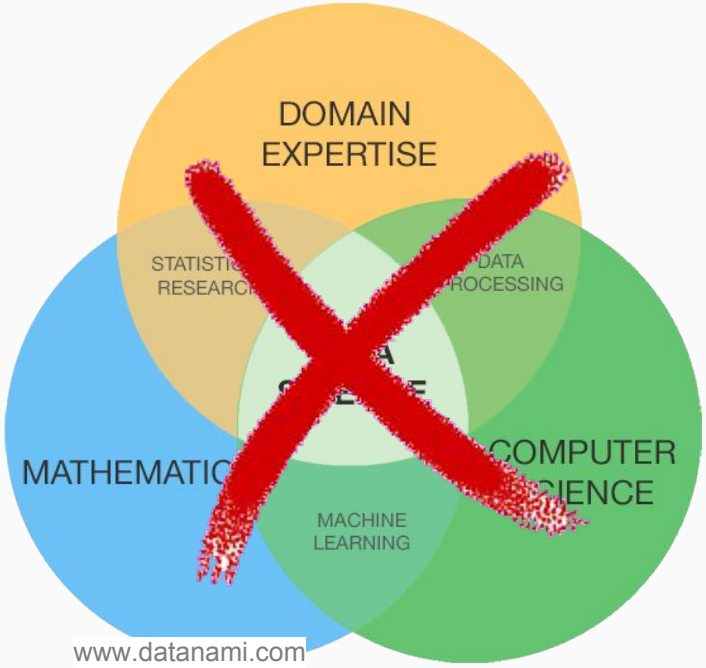
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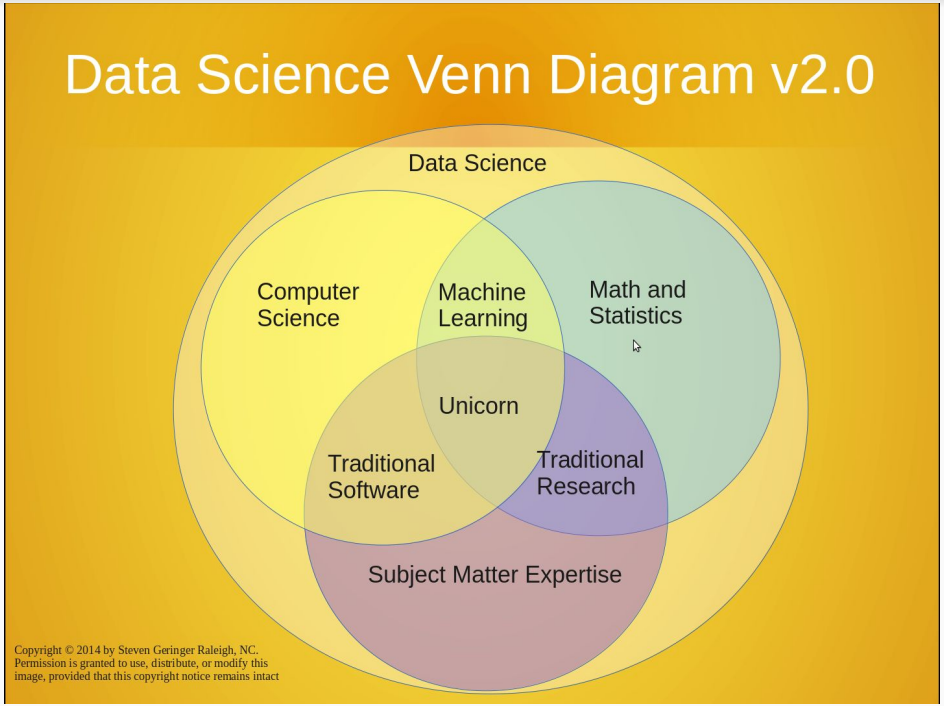
Data Science Venn Diagram v2.0
Data Science
Computer
Science
Machine
Learning
Math and
Statistics
Unicorn
Traditional
Software
Traditional
Research
Subject Matter Expertise
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Skills are important but what you really need is curiosity!

Claudia Vitolo

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