

AUTOMATED PRODUCTION of AIR QUALITY FORECASTS with PANGEO, PAPERMILL and KRONTAB

PETER KILLICK | TECHNOLOGIST

@_DPeterK_

TALK MAP

- Introductions
- Air Quality Forecasts
- Technologies
- Automated Production

ABOUT ME

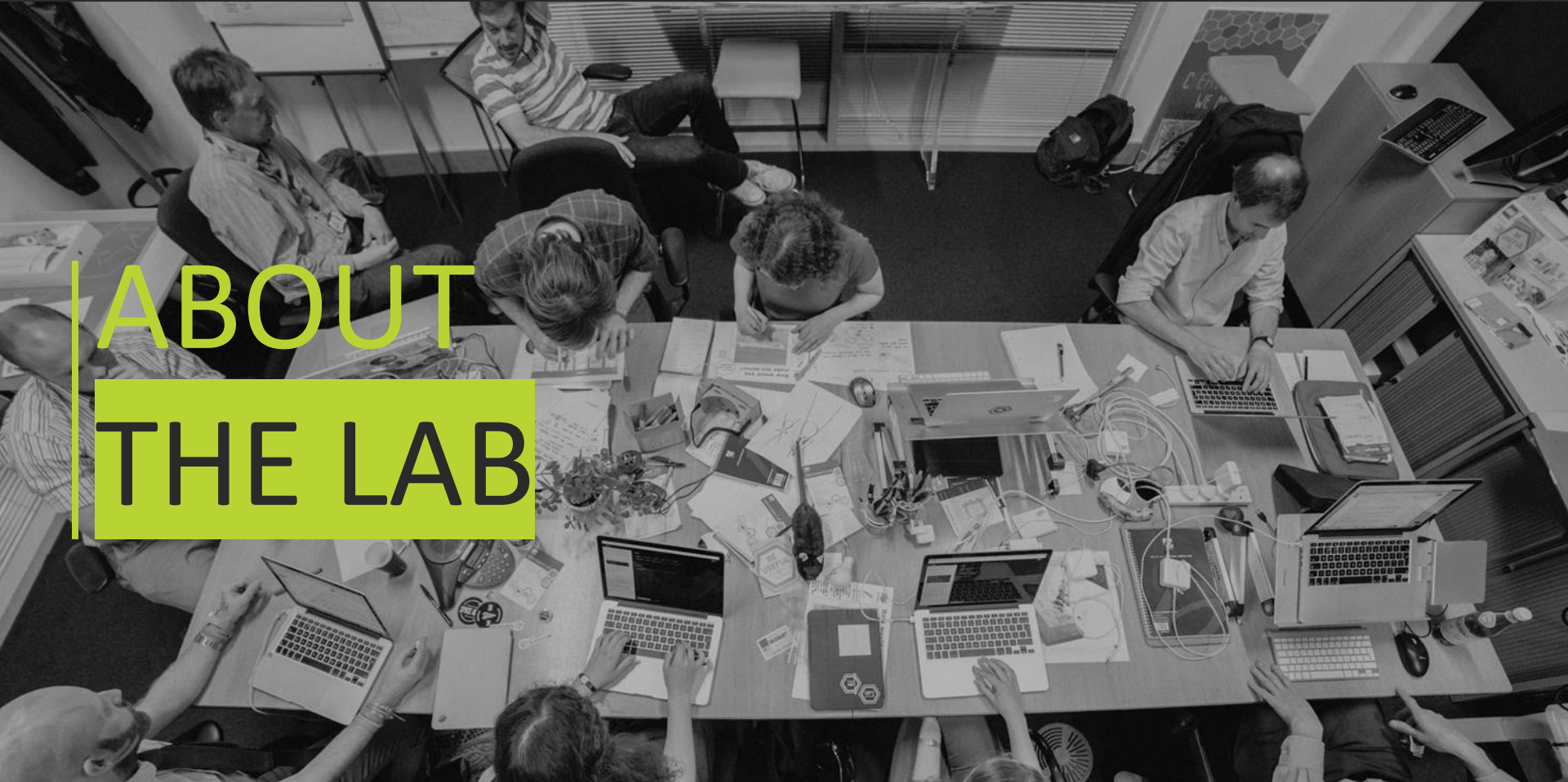




ABOUT

THE MET OFFICE

ABOUT THE LAB



AIR QUALITY FORECASTING



Met Office

CRAY

CRAY

CRAY

CRAY

Resilience

Climate

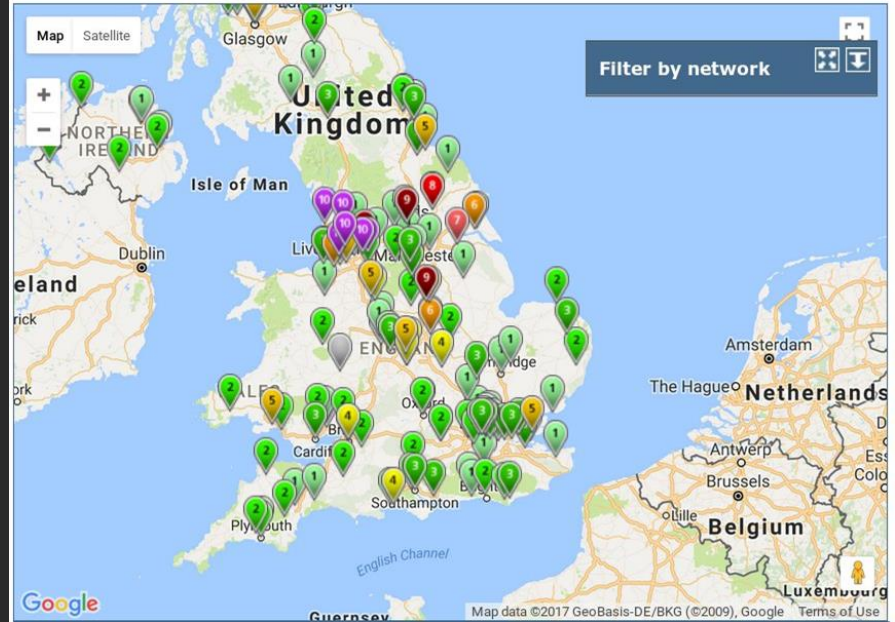
Flood

forecasting



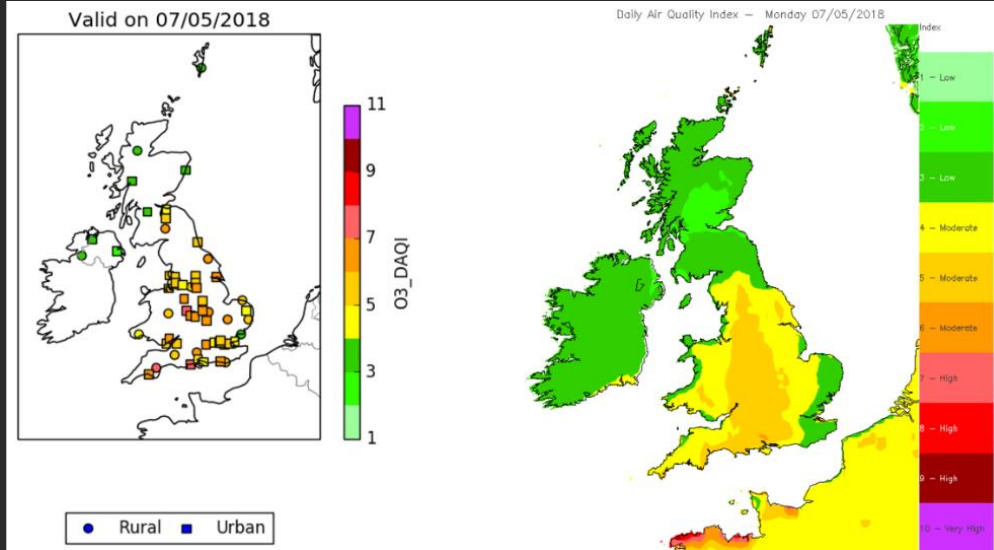
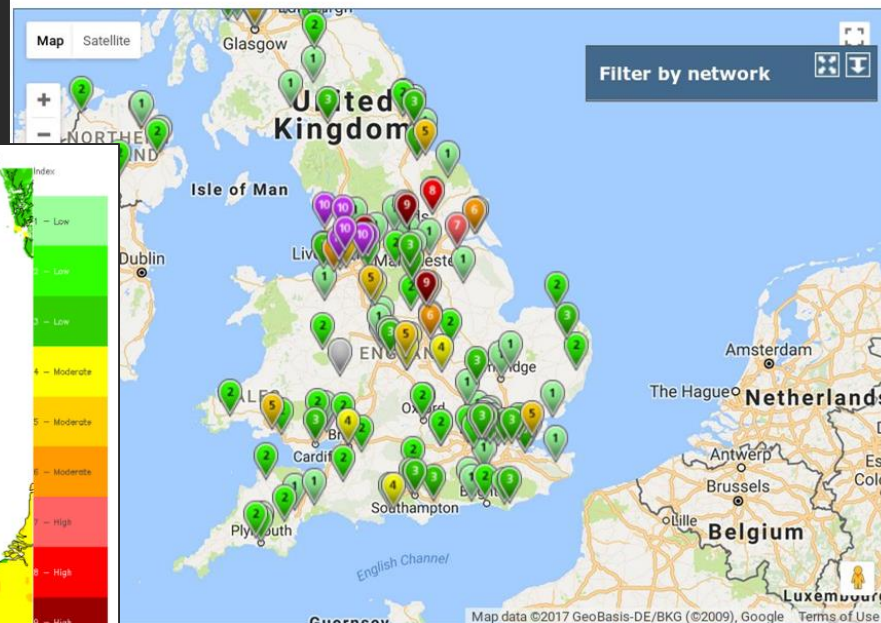
Interactive monitoring networks map

Use the interactive map below to explore different UK monitoring networks. The map shows the current sites within the network selected. Information about the selected network is shown below the map.



Interactive monitoring networks map

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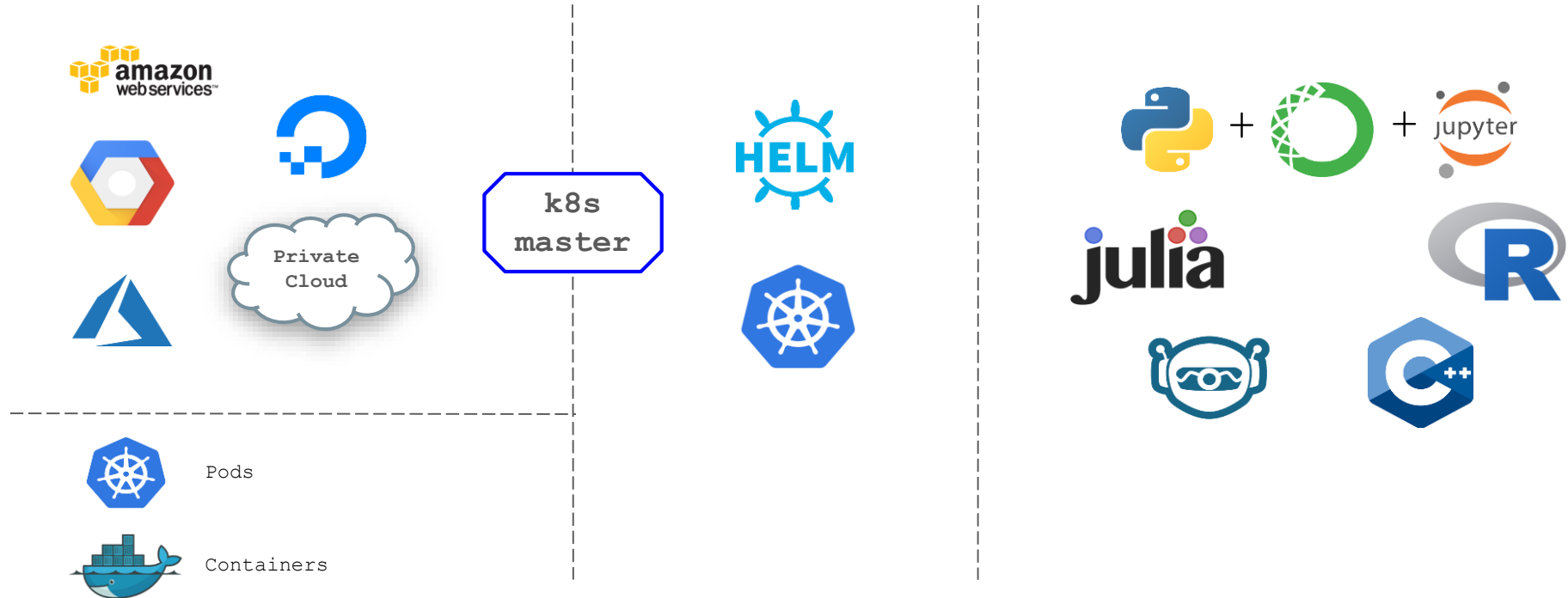


IMPORTANT TECHNOLOGIES



| PANGEO







EARTH CUBE
TRANSFORMING GEOSCIENCES RESEARCH



**Alfred P. Sloan
FOUNDATION**

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE



Element	84
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W UNIVERSITY of
WASHINGTON

papermill





Parameterize, execute, and
analyze notebooks



[https://secure.travis-ci.org/
nteract/
papermill.svg?branch=master](https://secure.travis-ci.org/nteract/papermill.svg?branch=master)



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Welcome to papermill

<https://travis-ci.org/nteract/papermill.svg?branch=master>  
    

Papermill is a tool for parameterizing and executing Jupyter Notebooks.

Papermill lets you:

- **parameterize** notebooks
- **execute** notebooks

This opens up new opportunities for how notebooks can be used. For example:

- Perhaps you have a financial report that you wish to run with different values on the first or last day of a month or at the beginning or end of the year, **using parameterizers** makes this task easier.
- Do you want to run a notebook and depending on its results, choose a particular notebook to run next? You can now programmatically **execute a workflow** without having to copy and paste from notebook to notebook manually.

Python Version Support

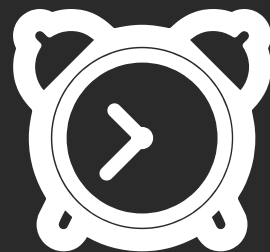
This library will support python 2.7 and 3.5+ until end-of-life for python 2 in 2020. After which python 2 support will halt and only 3.x version will be maintained.

Documentation

These pages guide you through the installation and usage of papermill.

- [Installation](#)
- [Usage](#)
- [Parameterize](#)
- [Execute](#)
- [Store](#)
- [Command Line Interface](#)
- [Extending papermill](#)
- [Troubleshooting](#)

| **krontab**



krontab

build passing release v0.1.6

A crontab replacement for Kubernetes.

Create `CronJob` resources on your Kubernetes cluster in the same way you would on your *nix system. Krontab works by constructing a virtual crontab file from your CronJob resources and communicating changes back to the Kubernetes API. You can create more complex and customised jobs with custom templates and trigger your jobs manually any time from the command line.

Example crontab:

```
$ krontab -l
# template: default
0 1 * * * echo hello # name: test
```

AUTOMATED PRODUCTION



Met Office

CRAY

CRAY

CRAY

CRAY

Resilience

Climate

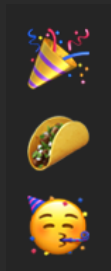
Flood

forecasting

Dataset 1

Dataset 2

Dataset 3



Notebook Title

Plus descriptive heading / introduction content.

In [1]

Load

Out [1]

Descriptive intermediate content.

In [2]

Subset

In [3]

Process and analyse

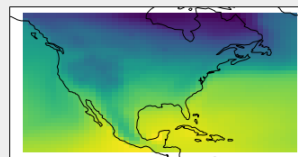
Out [3]

Content explaining results from processing.

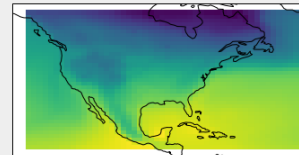
In [4]

Plot

Out [4]



```
0 12 * * * \  
papermill notebook.ipynb
```

**krontab** **In [1]**# *Load***Out [1]****In [2]**# *Subset***In [3]**# *Process and analyse***Out [3]****In [4]**# *Plot***Out [4]**

DEMO
TIME

AUTOMATION

BENEFITS

RECAP

- Introductions
- Air Quality Forecasts
- Technologies
- Automated Production

ANY QUESTIONS?

Anything else? Get in touch:

www.informaticslab.co.uk / [@informatics_lab](https://twitter.com/informatics_lab) / hello@informaticslab.co.uk