



Coding from your VLE

EDINA, the University of Edinburgh

EDINA



THE UNIVERSITY
of EDINBURGH

Noteable™



What does Noteable do?

Noteable provides tools and support for lecturers, students and researchers to deliver computational narratives and coded solutions enable built on Jupyter notebooks.

These can be readily created, shared and reused regardless of their level of skill or knowledge.

The image displays two overlapping Jupyter Notebook windows. The background window shows the 'Welcome to Jupyter' page with a warning box and instructions. The foreground window shows a notebook titled 'Exploring the Lorenz System' with the following content:

Exploring the Lorenz System

In this Notebook we explore the [Lorenz system](#) of differential equations:

$$\begin{aligned}\dot{x} &= \sigma(y - x) \\ \dot{y} &= \rho x - y - xz \\ \dot{z} &= -\beta z + xy\end{aligned}$$

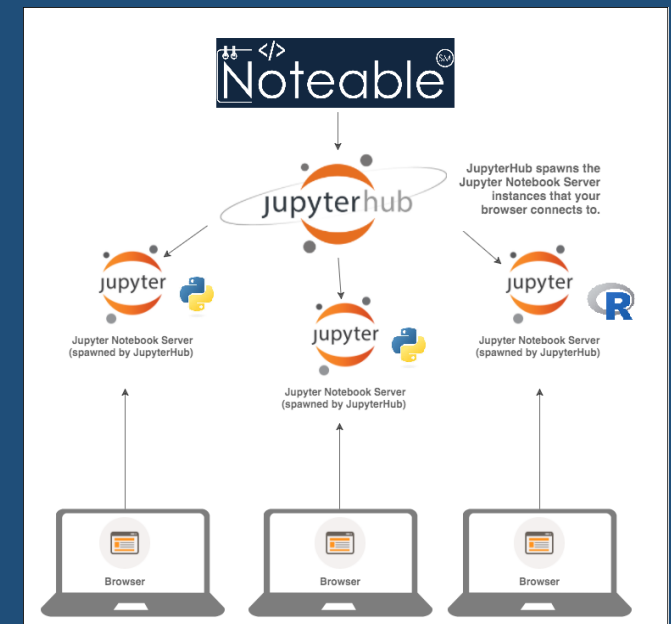
This is one of the classic systems in non-linear differential equations. It exhibits a range of complex behaviors as the parameters (σ, β, ρ) are varied, including what are known as *chaotic solutions*. The system was originally developed as a simplified mathematical model for atmospheric convection in 1963.

In [7]: `interact(Lorenz, N=Fixed(10), angle=(0., 360.), sigma=(0.0, 50.0), beta=(0., 5), rho=(0.0, 50.0))`

The plot shows the Lorenz attractor with sliders for `angle` (308.2), `max_time` (12), `sigma` (10), `beta` (2.6), and `rho` (28).

Noteable access

- ▶ LTI integration with all leading VLEs incl. LEARN
- ▶ Infrastructure for course assignments, file and identity management
- ▶ Landing place for significant and meaningful open-source project contributions incl. JupyterLab, Classic, RStudio
- ▶ Good Data & Digital Literacy – facilitating the bridge



Noteable in application

- ▶ “Computational notebooks can empower guides for introducing methods to new users and can help researchers reach broader audiences interested in learning from, adapting, and remixing their work. Due to their utility and versatility, the ongoing adoption of computational notebooks in urban planning, analytics, and related geo-computation disciplines should continue into the future.”

- *Geoff Boeing, Urban planning and spatial analysis professor at University of Southern California*

- ▶ Jupyter Notebooks are a highly beneficial tool for modern data analysis and for creating reproducible workflows, both for web-based access of large data and its effective manipulation and data visualisation with bokeh or jupyter widgets.

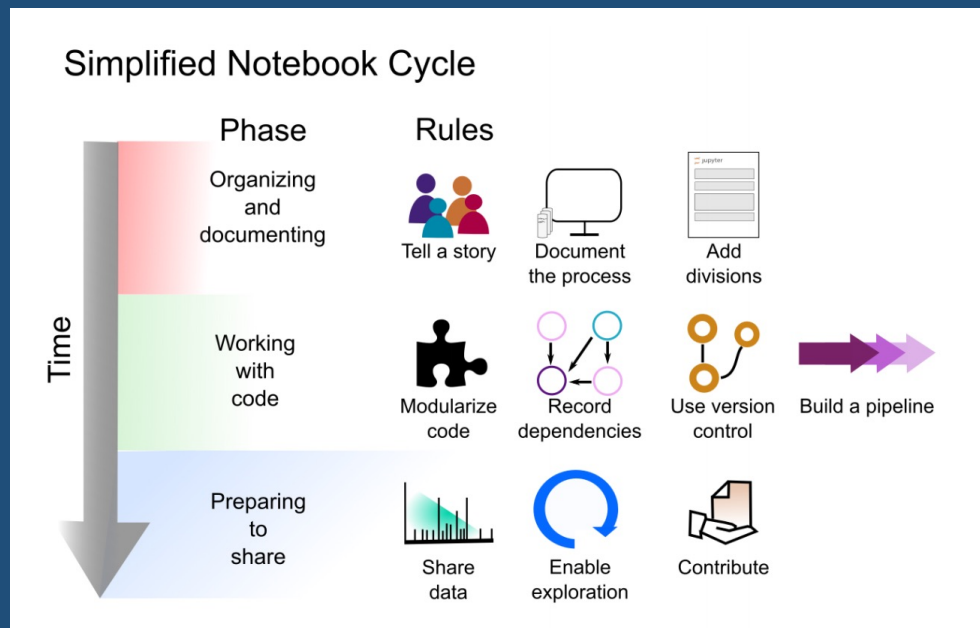
- *Julia Wagemann, Co-Founder, Geospatial Women*

- ▶ Abstract Jupyter Notebooks benefit data analysis in multiple ways since data access, manipulation and (interactive) visualisation can be combined in one workflow and programming environment.

- *Stephan Siemen, Head of Development Section Forecast Department, European Centre for Medium-Range Weather Forecasts*

Noteable for Researchers

- Lower barriers to reproducibility
- Provides the tools for an effective notebook lifecycle



Accessing Noteable for research

- ▶ All course members work in same environments, less set up
- ▶ Able to expand class sizes and be more flexible in where classes held
- ▶ Easiest way to get started with geospatial modeling and analysis with [docker images](#) and example/tutorial [Jupyter notebooks](#)
- ▶ No installation required, access with browser
- ▶ Managed environment with support from the University's centre for digital expertise EDINA
- ▶ Easily switch between containers
- ▶ We extend the Jupyter Notebook platform to enable users to run interactive notebooks on the cloud resource – accessible online through UoE portal
- ▶ Noteable Notebooks are ideal for displaying your workflows



Computational notebooks allow you to create and share live code, equations, visualisations and explanatory text. Noteable is a bespoke cloud-based application that lets students and lecturers run Jupyter notebooks online.