

# HSRW Crunchy Cloud

A central challenge in the practical use of data analysis systems by students is the very heterogeneous IT landscape on their computers. A central provision of online-accessible and uniform development environments for software development for data analysis and numerical modeling would mean a considerable improvement in the process, which should also lower the inhibition threshold for use among students and teachers.

The basics of scientific programming in Python and an introduction to data analysis are interdisciplinary cross-sectional skills and are therefore not limited to individual degree programs. The project is therefore divided into two areas: Firstly, a suitable software environment must be created. **JupyterHub** is an existing software solution for this purpose. **JupyterHub** should enable students and lecturers to access their development environment directly in their browser, regardless of the end device. However, operating **JupyterHub** on your own hardware is a challenge. The project therefore aims to create an OER guide for installation. Using selected sample learning modules, this first **JupyterHub** system will be tested for usability, acceptance and performance in practical use in teaching. This is the second part of the project. In addition to the tests in practical use, further colleagues will be trained in-house to familiarize them with the **JupyterHub and Jupyter Notebook** system and thus help them with the design and practical implementation of subject-specific teaching materials.

## General Crunchy Cloud Setup

### JupyterHub Documentation

- [Setup Guide](#)
- [Platform Technologies](#)
- [Step by Step Kubernetes Setup](#)
- [NFS Storage Setup](#)
- [Jupyterhub Introduction](#)
- [Step by Step Jupyterhub Setup](#)
- [Jupyterhub Configuration](#)

## OpenDroneMapSetup

### Misc

To learn the architecture, esp. kubernetes and containerization, we use Raspberry Pi Clusters:

- [PicoCluster Installation](#) (K3s, Ansible, kubectl)
- [Kubernetes on Raspberry Pi](#)

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