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OOI Jupyter Hub

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Agenda

- ❖ What is Jupyter Hub?
- ❖ Introduction to OOI JupyterHub
- ❖ Access
- ❖ Demo
- ❖ Discussion on Future
- ❖ Questions



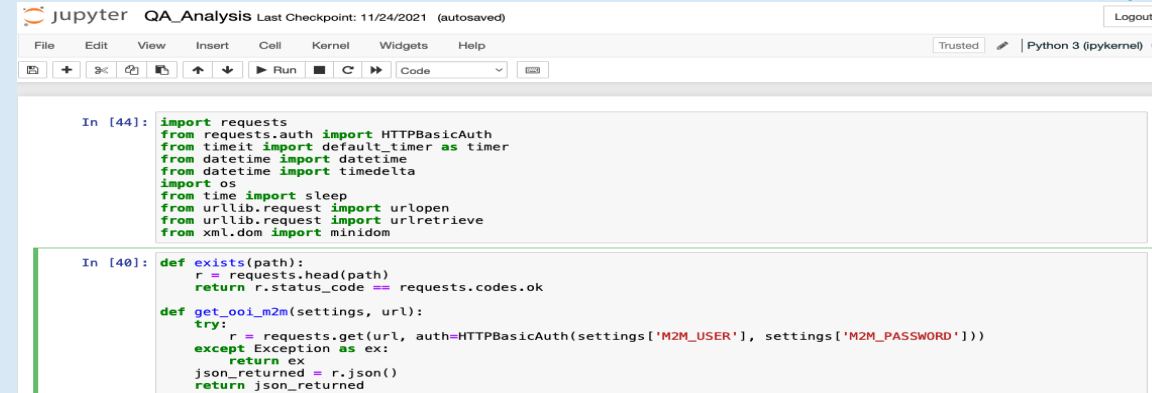
What is Jupyter Hub

JupyterHub is a multi-user platform that allows multiple users to share and collaborate on Jupyter Notebooks. It essentially manages and proxies multiple instances of single-user Jupyter notebook servers, enabling a collaborative environment for data scientists, researchers, and students.



Introduction to OOI Jupyter Hub

- Runs on OOI servers with access to a large number of CPU (some GPU) and Memory creating a private cloud environment.
- Has access to both processed science data and raw data files – eliminating the need to download or move large data files.
- Supports over 40 languages including Python, Java, R, Julia, Matlab, Octave, Scheme, and Scala
- Democratizes data access and processing requirements.
- As OOI continues to collect data, timeseries will continue to grow in size and processing power needs.
- OOI wants to build a community of users and users sharing notebooks and ideas.

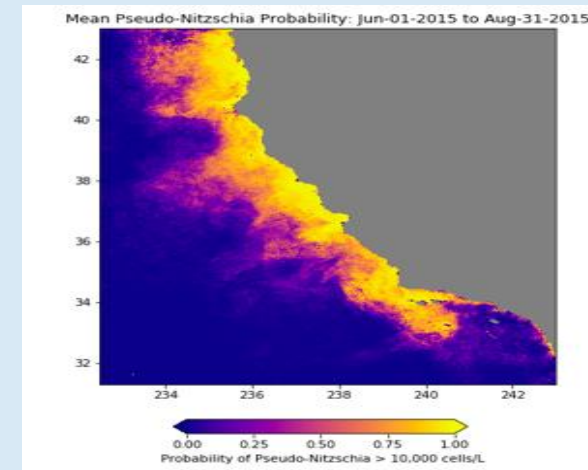


```
jupyter QA_Analysis Last Checkpoint: 11/24/2021 (autosaved)
File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

In [44]: import requests
         from requests.auth import HTTPBasicAuth
         from timeit import default_timer as timer
         from datetime import datetime
         from datetime import timedelta
         import os
         from time import sleep
         from urllib.request import urlopen
         from urllib.request import urlopen
         from urllib.request import urlopen
         from xml.dom import minidom

In [40]: def exists(path):
         r = requests.head(path)
         return r.status_code == requests.codes.ok

         def get_ooi_m2m(settings, url):
         try:
         r = requests.get(url, auth=HTTPBasicAuth(settings['M2M_USER'], settings['M2M_PASSWORD']))
         except Exception as ex:
         return ex
         json_returned = r.json()
         return json_returned
```



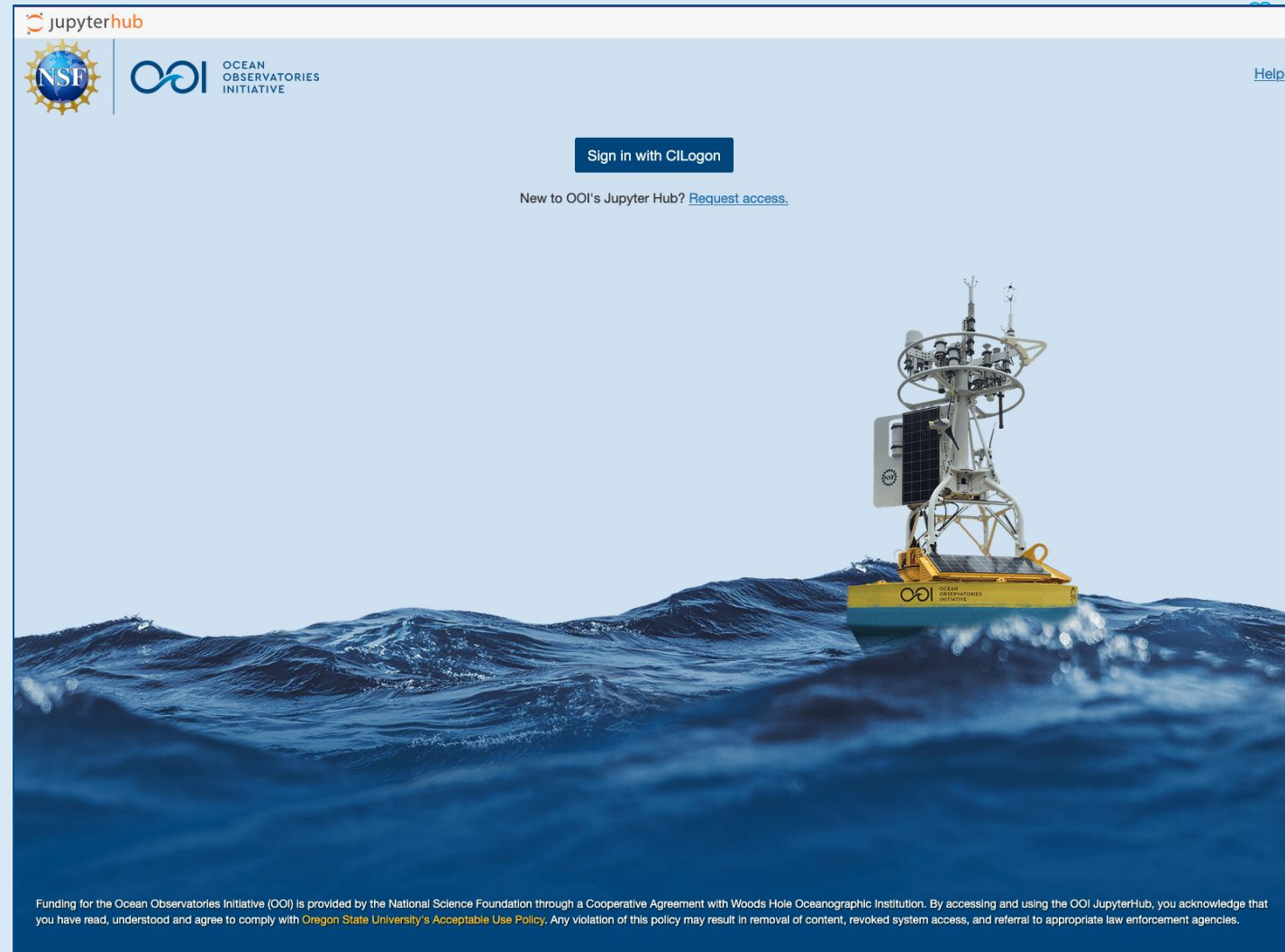
You Tube Jupyter Hub Townhall demo

<https://www.youtube.com/watch?v=tGn9hGdenfw&t=2s>



Access to OOI Jupyter Hub

- New users need to register email address with OOI first at: helpdesk@oceanobservatories.org.
- CILogon Service is in use to allow university Ids. You will first need to register that email.
- Jupyter Hub url is:
<https://jupyter.oceanobservatories.org>



Future of OOI Jupyter Hub Discussion

- What can this environment be used for?
 - Processing very large data sets
 - Prototyping processing ideas
 - Sharing ideas and concepts with other – particularly in a classroom environment
 - ION code replacement for older calculations that can benefit from a new calculation methodology (e.g. FDCHP)
- How do we drive to make users aware of its use?
 - Townhall meetings
 - Conferences
- Is there value in building a shared library of notebooks? If so, what is the best way doing this?
 - GitHub
 - Discourse
 - Oceanobservatories.org
- What do you perceive to be the barriers to entry and how can OOI help ease those?





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Questions?

