Created by Brittnee Snodgrass
from the Noun Project

The NorESM Land Sites Platform

Land Model Working Group Meeting
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NorESM EMERALD UiO : LATICE

The LSP improves access to site-level CLM-FATES modelling

Who is it for?

- Beginner modellers:
  - Students or researchers without background in numerical modelling
  - Students in land modelling introduction courses
  - Quick start on personal computer, no HPC access needed
- Experienced modellers:
  - Anyone without HPC access (containerisation)
  - Remotely via virtual machine or HPC

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Browser

Documentation and user guide

Graphical User Inferface

jupyter

Panoply

Containers

API tasks

GUI

Jupyter server

Panoply server

GitHub

Software code: NorESM-LSP

Model framework: NorESM, CTSM, FATES

Data

Input data downloaded from web

Model output stored locally

Software ready, paper in review

- Manuscript re-submitted to Global Change Biology January 2023
- Open-access: Code, documentation, and data published on GitHub and Zenodo.
  MIT license.
- Compatible with other infrastructure
  - Docker containers
  - Notebooks similar to NCAR-NEON tools
  - Model updates fairly easy, potential to replace NorESM with CESM

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What’s next?

- Improvements and testing with feedback from the community
- Planned scientific use-cases
- Potentially add new functionalities, e.g. …
  - ensemble runs,
  - model calibration,
  - climate scenarios,
  - integrate existing tools, …

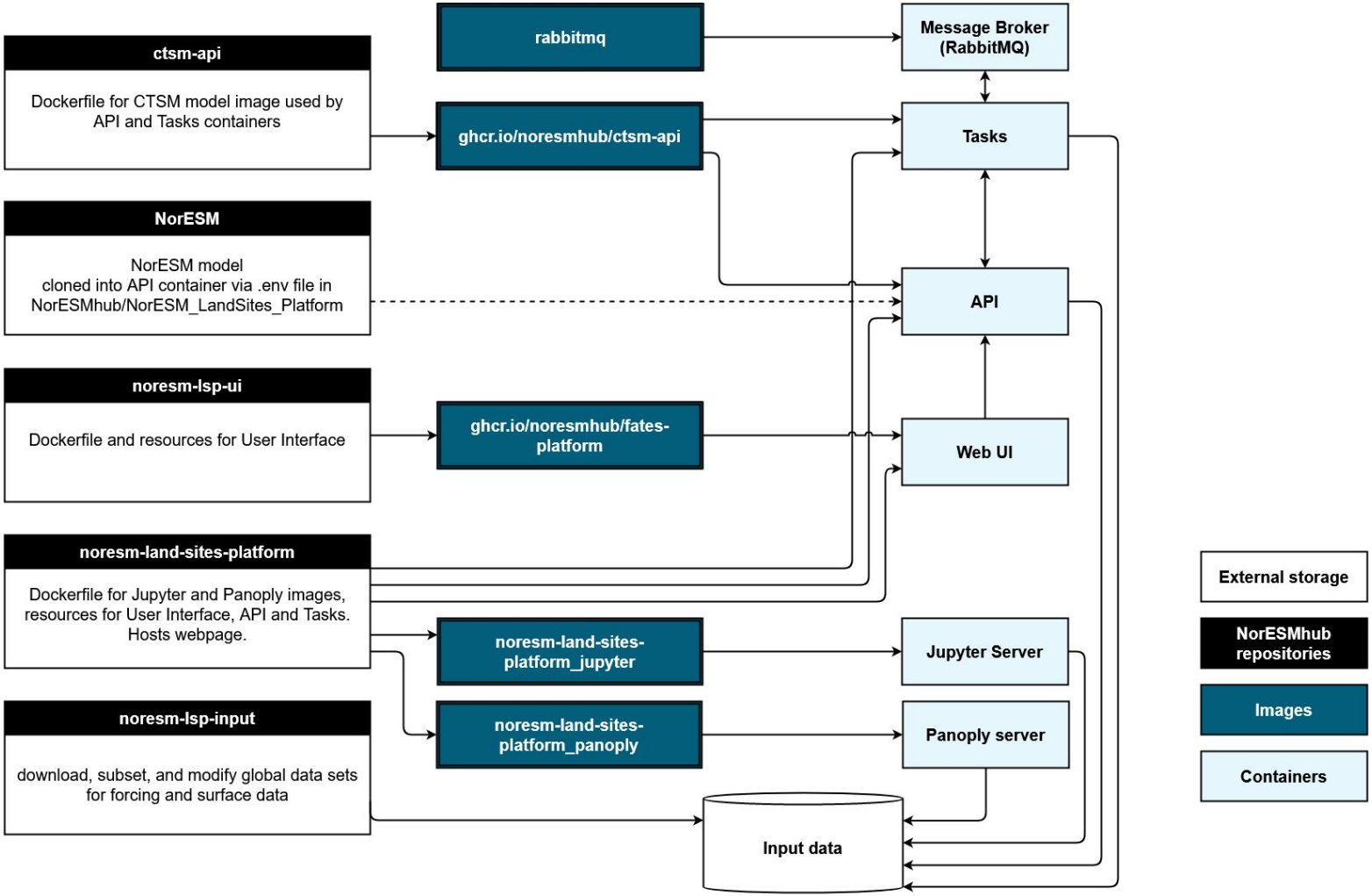
demonstration

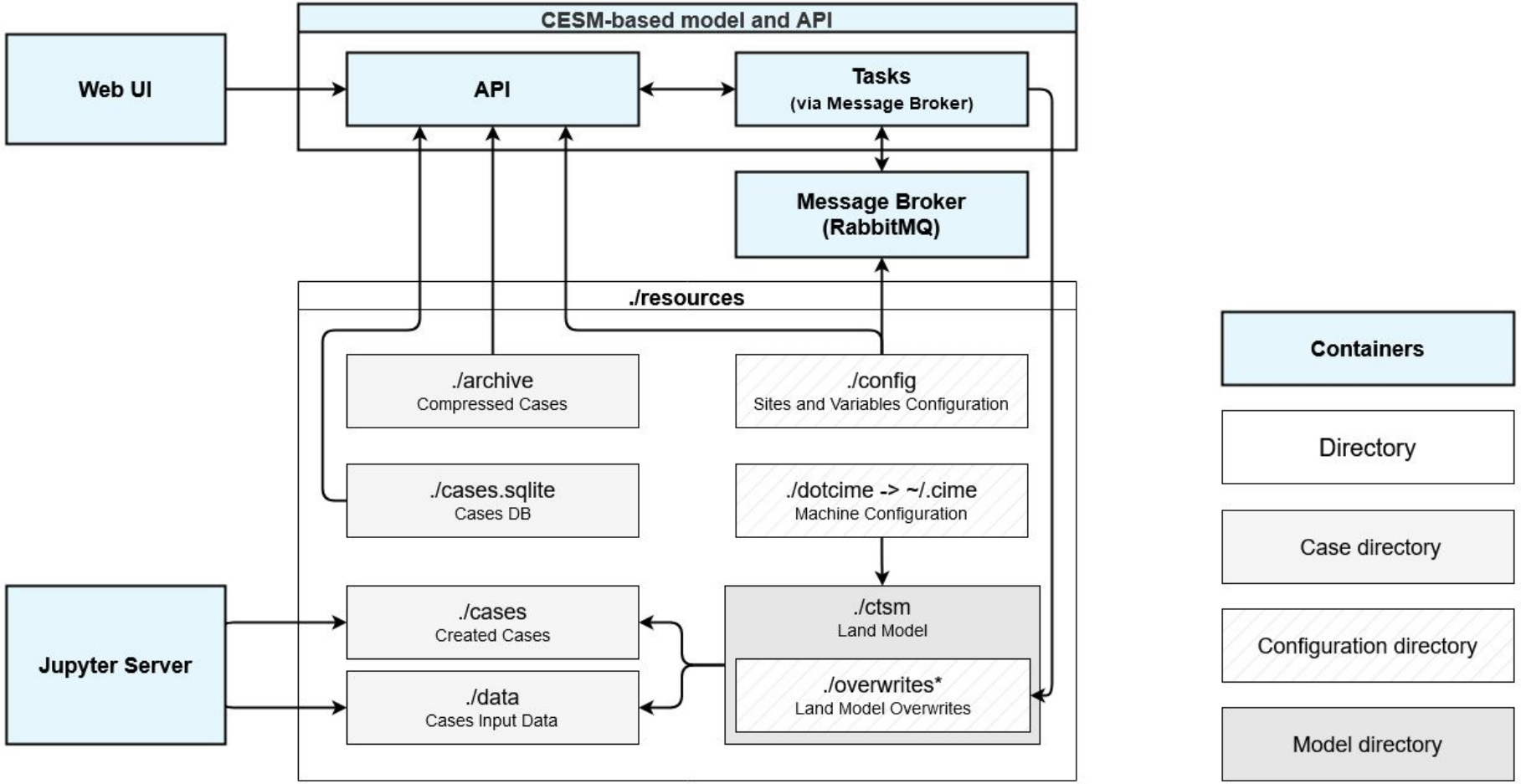
Webpage with user guide and documentation:
https://noresmhub.github.io/noresm-land-sites-platform/

Main repository:

https://github.com/NorESMhub/noresm-land-sites-platform

Bonus slides →


ctsm-api
Dockerfile for CTSM model image used by API and Tasks containers
rabbitmq
Message Broker (RabbitMQ)
ghcr.io/noresmhub/ctsm-api
Tasks
NorESM
NorESM model cloned into API container via .env file in NorESMhub/NorESM_LandSites_Platform
API
noresm-lsp-ui
Dockerfile and resources for User Interface
ghcr.io/noresmhub/fates-platform
Web UI
noresm-land-sites-platform
Dockerfile for Jupyter and Panoply images, resources for User Interface, API and Tasks. Hosts webpage.
noresm-land-sites-platform_jupyter
Jupyter Server
noresm-land-sites-platform_panoply
Panoply server
noresm-lsp-input
download, subset, and modify global data sets for forcing and surface data
Input data
External storage
NorESMhub repositories
Images
Containers


CESM-based model and API
Web UI
API
Tasks
(via Message Broker)
Message Broker
(RabbitMQ)
./resources
./archive
Compressed Cases
./config
Sites and Variables Configuration
./cases.sqlite
Cases DB
./dotcime -> ~/.cime
Machine Configuration
Jupyter Server
./cases
Created Cases
./ctsm
Land Model
./data
Cases Input Data
./overwrites*
Land Model Overwrites
Containers
Directory
Case directory
Configuration directory
Model directory