Reliance

Research Lifecycle Management technologies for Earth Science Communities and Copernicus users in EOSC

Climate Change

Collaborative, reproducible and transparent science for seasonal sea-ice forecasting

Digital assets supporting SDG 13: Climate action

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Overview

- Introduction to the use case
- Scenario for the demo
- Demo

Seasonal Arctic sea ice forecasting
SCENARIOS OVERVIEW

Accurate seasonal Arctic sea ice forecasts are used to:

- Better plan, find safer routes and reduce operational costs of navigating in the Arctic;
- Understand and minimise impact on the environment;
- Provide meaningful insight to local communities;
- Engage with ecologists and biodiversity scientists.

Photo by NOAA on Unsplash

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Use case scenario

Alejandro Coca-Castro (The Turing Institute, UK) is an early adopter of the RELIANCE services and created a Research Object showing how to use IceNet to make seasonal sea ice forecasts.

nature communications

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Article | Open Access | Published: 26 August 2021

Seasonal Arctic sea ice forecasting with probabilistic deep learning

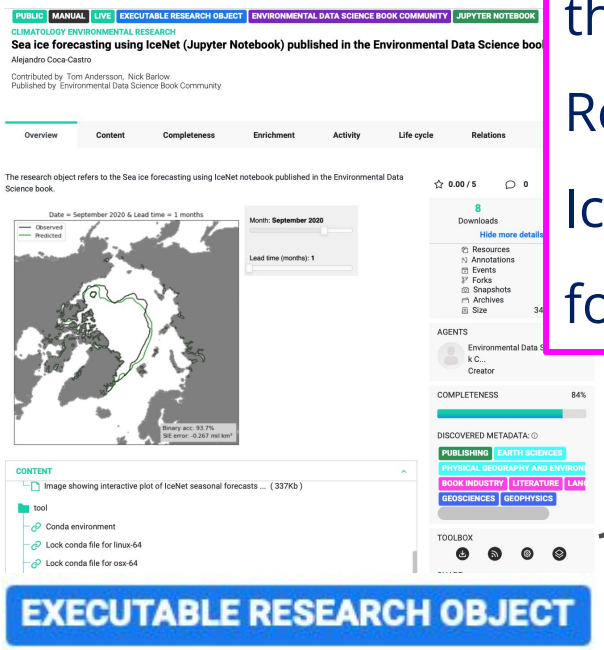
Tom R. Andersson, J. Scott Hosking, María Pérez-Ortiz, Brooks Paige, Andrew Elliott, Chris Russell, Stephen Law, Daniel C. Jones, Jeremy Wilkinson, Tony Phillips, James Byrne, Steffen Tietsche, Beena Balan Sarojini, Eduardo Blanchard-Wrigglesworth, Yevgeny Aksenov, Rod Downie & Emily Shuckburgh

Nature Communications **12**, Article number: 5124 (2021) | Cite this article

18k Accesses | **25** Citations | **328** Altmetric | Metrics

Abstract

Anthropogenic warming has led to an unprecedented year-round reduction in Arctic sea ice extent. This has far-reaching consequences for indigenous and local



jupyter

Find an **Open Access paper** in *Nature Communications* where IceNet, a probabilistic deep learning method, has been developed for seasonal sea ice forecasts: **data and codes are available and can be reused**.

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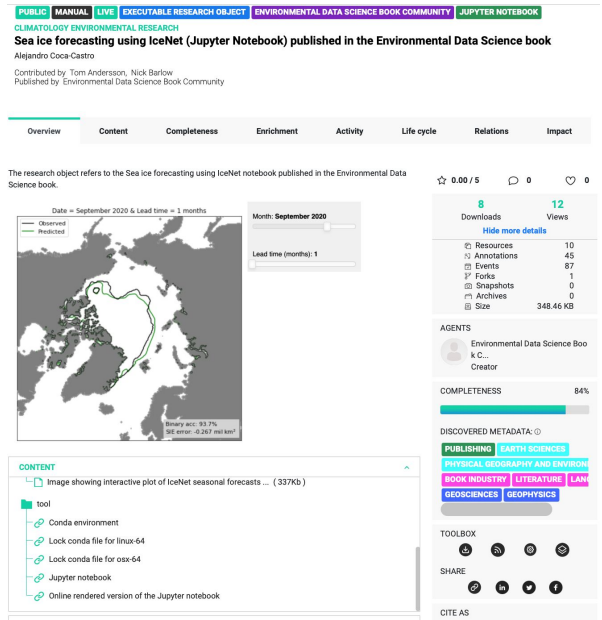
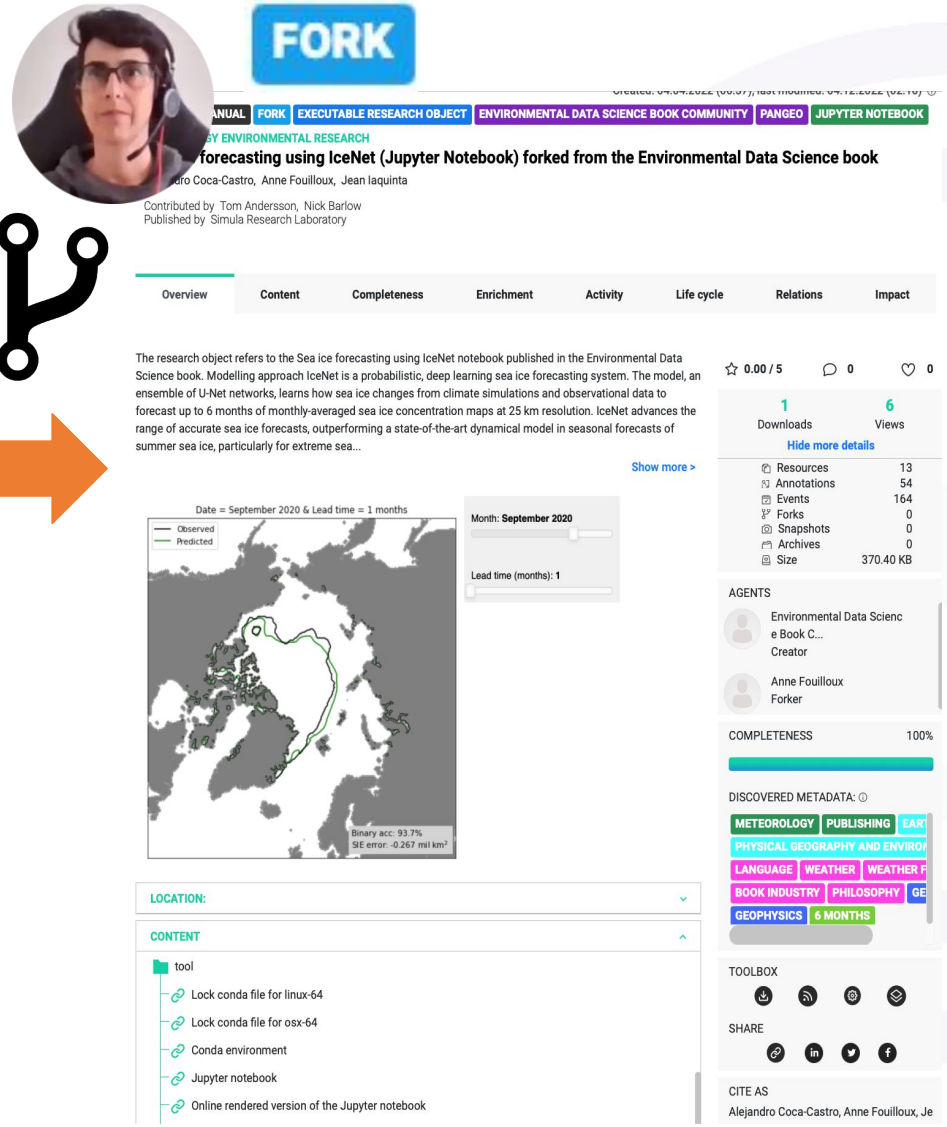
Use case scenario





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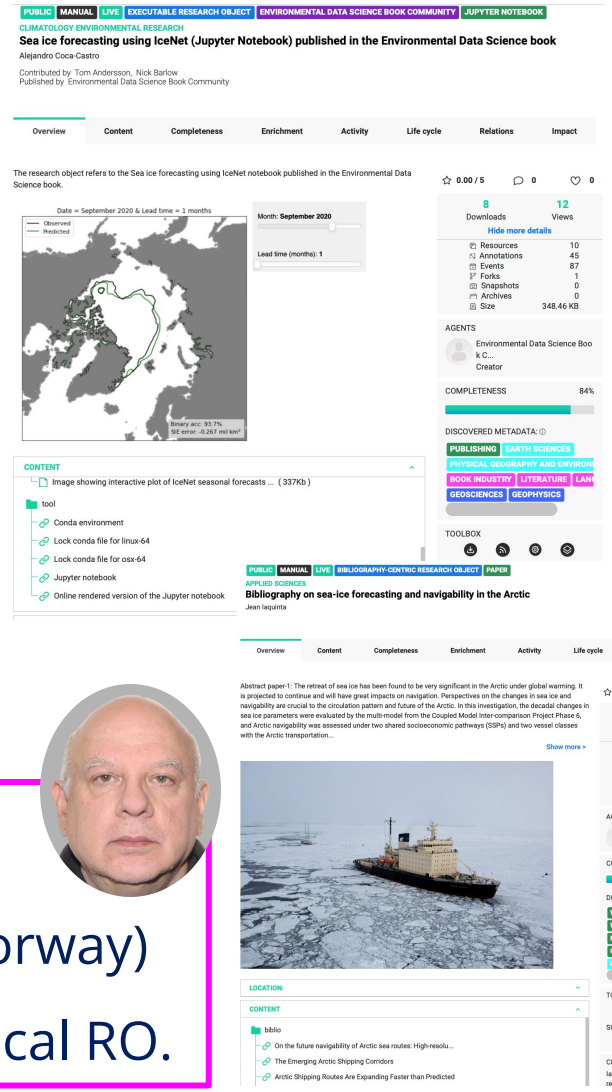
Use case scenario



Jean Iaquinta

(University of Oslo, Norway)

created a bibliographical RO.

Use case scenario

Use EGI Notebook and EGI Datahub to foster collaborative work.

Reusable & Reproducible

Open-source tools

Sharing while doing: RO uses B2DROP to store Jupyter Notebook and results.

PUBLIC MANUAL FORK EXECUTABLE RESEARCH OBJECT ENVIRONMENTAL DATA SCIENCE BOOK COMMUNITY PANGEO JUPYTER NOTEBOOK

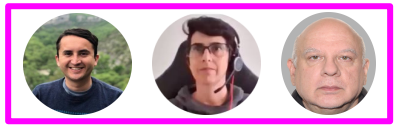
CLIMATOLOGY ENVIRONMENTAL RESEARCH

Sea ice forecasting using IceNet (Jupyter Notebook) forked from the Environmental Data Science book

Alejandro Coca-Castro, Anne Fouilloux, Jean Iaquinta

Contributed by Tom Andersson, Nick Barlow

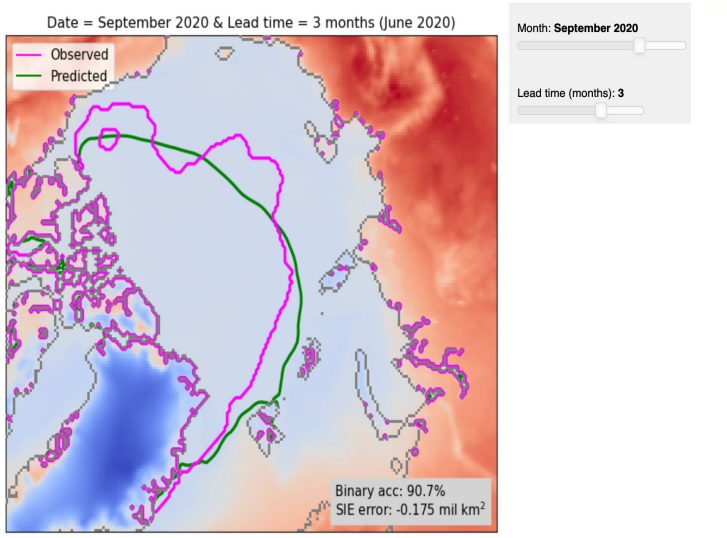
Published by Simula Research Laboratory



Overview | Content | Completeness | Enrichment | Activity | Life cycle | Relations | Impact

The research object refers to the Sea ice forecasting using IceNet notebook published in the Environmental Data Science book. Modelling approach IceNet is a probabilistic, deep learning sea ice forecasting system. The model, an ensemble of U-Net networks, learns how sea ice changes from climate simulations and observational data to forecast up to 6 months of monthly-averaged sea ice concentration maps at 25 km resolution. IceNet advances the range of accurate sea ice forecasts, outperforming a state-of-the-art dynamical model in seasonal forecasts of summer sea ice, particularly for extreme sea...

Show more >



LOCATION:

CONTENT

- tool
- Lock conda file for linux-64
- Lock conda file for osx-64
- Conda environment
- Jupyter notebook
- Online rendered version of the Jupyter notebook

0.00 / 5 | 0 | 0

1 Downloads | 6 Views

Hide more details

Resources	13
Annotations	54
Events	164
Forks	0
Snapshots	0
Archives	0
Size	370.40 KB

AGENTS

Environmental Data Scienc e Book C... Creator

Anne Fouilloux Forker

COMPLETENESS 100%

DISCOVERED METADATA:

METEOROLOGY PUBLISHING EART PHYSICAL GEOGRAPHY AND ENVIRON LANGUAGE WEATHER WEATHER F BOOK INDUSTRY PHILOSOPHY GE GEOPHYSICS 6 MONTHS

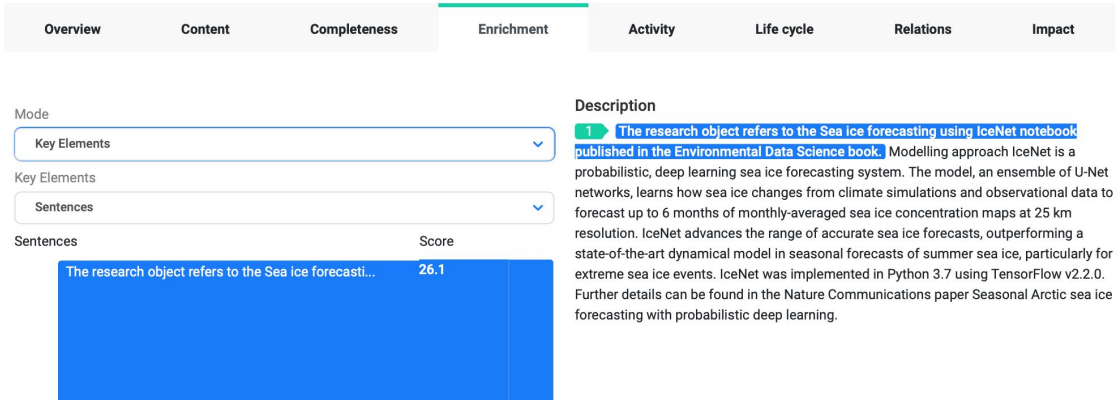
TOOLBOX

SHARE

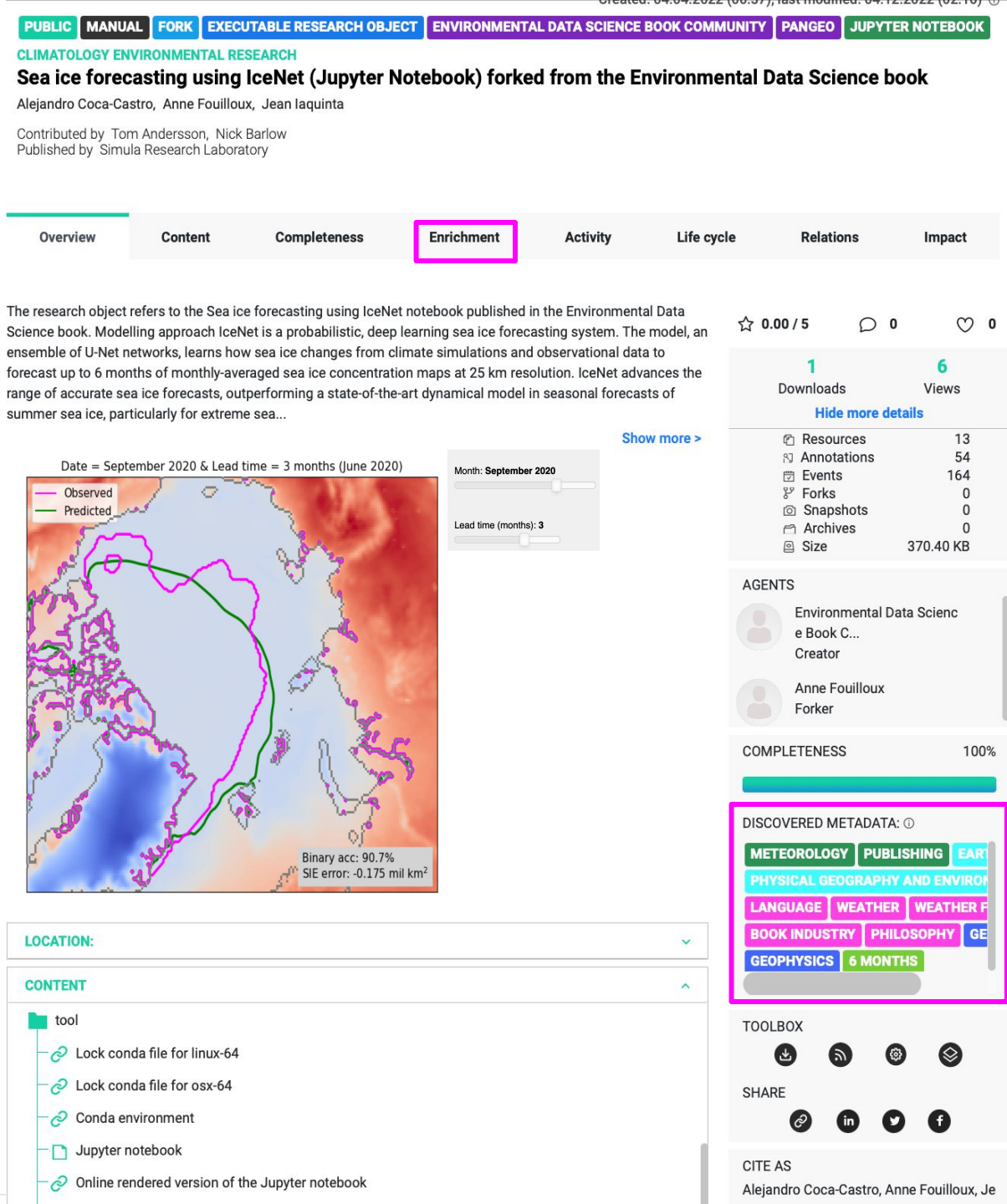
CITE AS

Alejandro Coca-Castro, Anne Fouilloux, Je

Use case scenario



Text mining enrichment service to support inter-disciplinary research and facilitate reuse.



Demo

Video

https://doi.org/10.24424/K98Q-Y763

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What questions do you have?

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DOI:HTTPS://DOI.ORG/10.24424/XNZ3-M908

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