

Project outside course scope

Accelerating Ocean Modelling

Adressing performance bottlenecks of the ocean modelling framework Veros

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1 Introduction

Currently, many scientists use purely sequential software for ocean modelling, leading to long simulation times and inefficient use of modern hardware. The aim of this project is to tackle this problem by introducing highly parallel code that uses the potential of modern GPU to accelerate the modelling process.

2 Tridiagonal Solver

One of the bottlenecks within veros is solving many tridiagonal matrices....

Trivial Algorithm

Trivial Algorithm - Coalesced

Flat version

Flat version in a single kernel

Precision

Benchmarks

Integration into Veros