NeSI HPC
Anthony Shaw
Mandes Schönherr
Disciplines Supported

- Biology
- Engineering
- Astronomy
- Physics
- Computer Science
- Medical Science
- Earth Science
- Social Science
- Mathematics

Core Services

- High Performance Computing & Analytics
- Consultancy
- Training
- Data Transfer & Share

Our Infrastructure

- Māui
- Mahuika

>136 million CPU core hours available per year
>1.7 petaflops peak performance
>130 GB/s I/O bandwidth
New Zealand eScience Infrastructure
Support
- Expert knowledge in multiple domains

Consultancy
- Analysis, debug and optimization of user applications

Data transfer
- High speed data input/output
- Partnership with Globus (global data management platform)

Training
- Software Carpentry / Data Carpentry
- Intro & advanced HPC training

Hardware and software for compute and analysis
- ~700 compute nodes
- Hundreds of software packages
NeSI systems

Mahuika:
- 8,136 cores
- 108GB mem avail per each
- 226 nodes,
- build of Intel Broadwell CPUs and FDR/EDR Infiniband

Storage:
- 6,177 TB
- IBM Spectrum Scale
- 130 GB/s bandwidth

Māui:
- 18,560 cores
- 96/192GB mem per each 464 nodes
- build of Intel Skylake CPUs and Cray Aries
Reasons to use NeSI HPC systems:

**Compute cores**
Your problem requires more compute power

**Compute memory**
Your problem does not fit in your laptop memory

**Disk space**
Your problem works with data, which do not fit in your local storage

**Computer hours**
Your problem runs too long on your laptop (days/weeks)
Dr Olaf Morgenstern and Dr Erik Behrens (Earth Science)
Deep South Challenge project using NeSI supercomputers for climate modelling, incorporating regional and global scales.

Yoshihiro Kaneko (Seismology)
GNS Science using NeSI supercomputers to recreate earthquake events to better understand their processes and aftermath effects.

Dr Richie Poulton (Psychology)
Using NeSI Data Transfer platform to send MRI scan images from Dunedin Multidisciplinary Health & Development Study Research Unit to a partner laboratory in the United States for analysis.

Dr Andrew Chen (Engineering)
Using NeSI supercomputers for advancing image processing capabilities using computer vision

Dr Kim Handley (Biological Sciences)
Genomics Aotearoa project using NeSI supercomputers to better understand environmental processes on a microbial level

Dr Sarah Masters, Dr Deborah Crittenden, Nathaniel Gunby (Chemistry)
Using NeSI supercomputers to develop new analysis tools for studying molecules’ properties.
Eligible for access

Researcher from
- NIWA
- University of Otago
- University of Auckland
- Manaaki Whenua - Landcare Research

Funded research by
- institutional,
- regional or
- national peer-reviewed grant or contract

Post graduate student research for degree

commercial contracts
If you are interested in gaining access to NeSI HPC resource or have any additional questions, visit support.nesi.org.nz