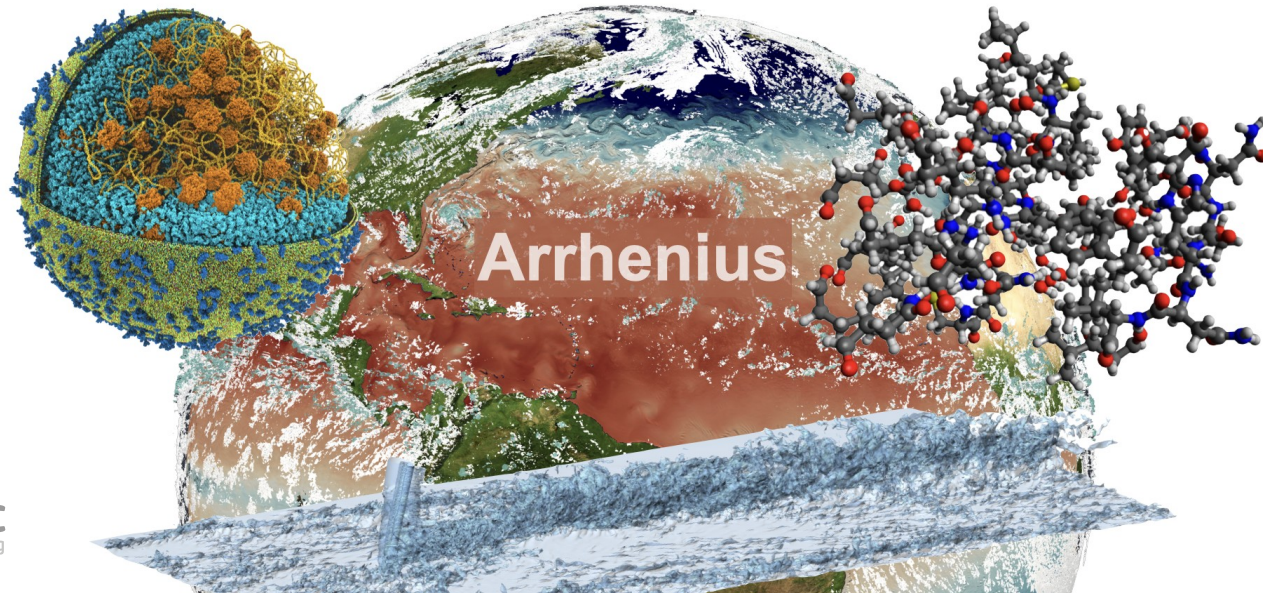


NAISS

National Academic Infrastructure for Supercomputing in Sweden



EuroHPC
Joint Undertaking

Arrhenius, a EuroHPC Midrange System

Named after Carl Axel Arrhenius^(*) (1757 – 1824)

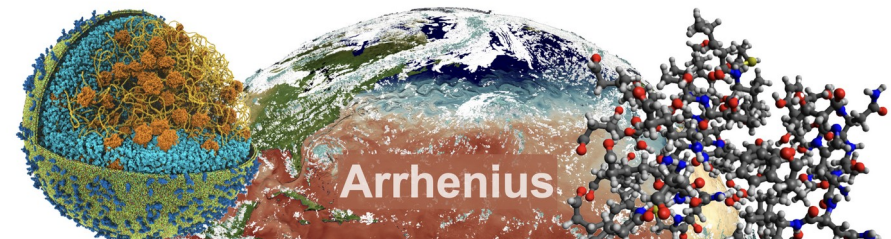
Arrhenius is

- Both Extension and Convergence of Swedish HPC Resources
- Entry point to the emerging exascale systems of EuroHPC JU

Funding (both CAPEX and OPEX) – Host: 65%, EuroHPC JU: 35%

Granting research projects – SUPR: 65%, EuroHPC JU: 35%

(*) Discovered Gadolinite (Ytterbite) 1787.



Arrhenius Services

Arrhenius will deliver services for

- Scientific Simulations
- AI/ML
- Sensitive Data
- Continuous User Services
- Fast Project Storage
- Industry and Public Sector – at full cost

NAISS Services

- Dardel
- Tetralith
- Swedish part of LUMI
- Alvis
- Bianca
- Rackham
- Swedish Science Cloud (SSC)
- SweStore
- WLCG

Berzelius @ Linköping University

- Dedicated for AI/ML
- Funded by Knut and Alice Wallenberg Foundation (KAW) and Linköping University
- Available for Swedish academic research with priority to KAW-funded research

94 NVIDIA DGXes
752 NVIDIA A100 GPUs
1.5 PB NVMe storage
Top500: 5.2 + 4.2 PF/s



EuroHPC JU HPC Systems

Pre-Exascale

- LUMI, Kajani, Finland
- Leonardo, Bologna, Italy
- MareNostrum5, Barcelona, Spain

PetaScale

- Vega, Maribor, Slovenia
- Meluxina, Bissen, Luxembourg
- Karolina, Ostrava, Czech Republic
- Discoverer, Sofia, Bulgaria
- Deucalion, Guimarães, Portugal

ExaScale

- *Jupiter, Jülich, Germany*
- **Jules Verne (GENCI+SURF), CEA, France**

Mid-Range

- *Daedalus, GRNET, Greece*
- **Levente, KIFU, Hungary**
- **CASPIr, Univ of Galway, Ireland**
- **EHPCPL, Cyfronet, Poland**
- **Arrhenius, Linköping, Sweden**

EuroHPC – System – Vendor – Parts – Performance

	Location	Vendor	CPU	GPU	Top500	
					Pflop/s	Rank
Pre Exa-scale						
LUMI	Finland	HPE	AMD	AMD	6.3 + 380	#5
Leonardo	Italy	ATOS	Intel	Nvidia	7.8 + 239	#6
MareNostrum 5	Spain	Lenovo	Intel	Nvidia	40 + 138	#8
Peta-scale						
Vega	Slovenia	ATOS	AMD	Nvidia	3.8 + 3.1	
Meluxina	Luxembourg	ATOS	AMD	Nvidia	2.3 + 10.5	
Karolina	Czech Republic	HPE	AMD	Nvidia	2.8 + 6.7	
Discoverer	Bulgaria	ATOS	AMD	-	4.5	
Deucalion	Portugal	Fujitsu	A64FX	Nvidia		
Exa-scale						
Jupiter	Germany	Eviden+ParTec	SiPearl	Nvidia	> 1000	
(Jules Verne)	France				> 1000	
Mid-range						
Daedalus	Greece					
Levente	Hungary					
CASPIr	Ireland					
EHPCPL	Poland					
Arrhenius	Sweden					

Hosting Arrhenius

- Direct Liquid Cooled
- Installation in Linköping
- A new computer room in Kärnhuset at LiU Campus Valla
 - 3-5 MW
 - Cooling with outside air and district cooling
 - Energy reuse

