ChEESE

Readiness of HPC Extreme-scale Applications

ISC HPC 2024 Workshop
Hamburg, May 16, 2024

Erwan Raffin – CEPP, Eviden

Project funded by EuroHPC under the grant agreement No 101093038.

Consortium Composition

16 **Beneficiary Organisations**
From 8 different countries

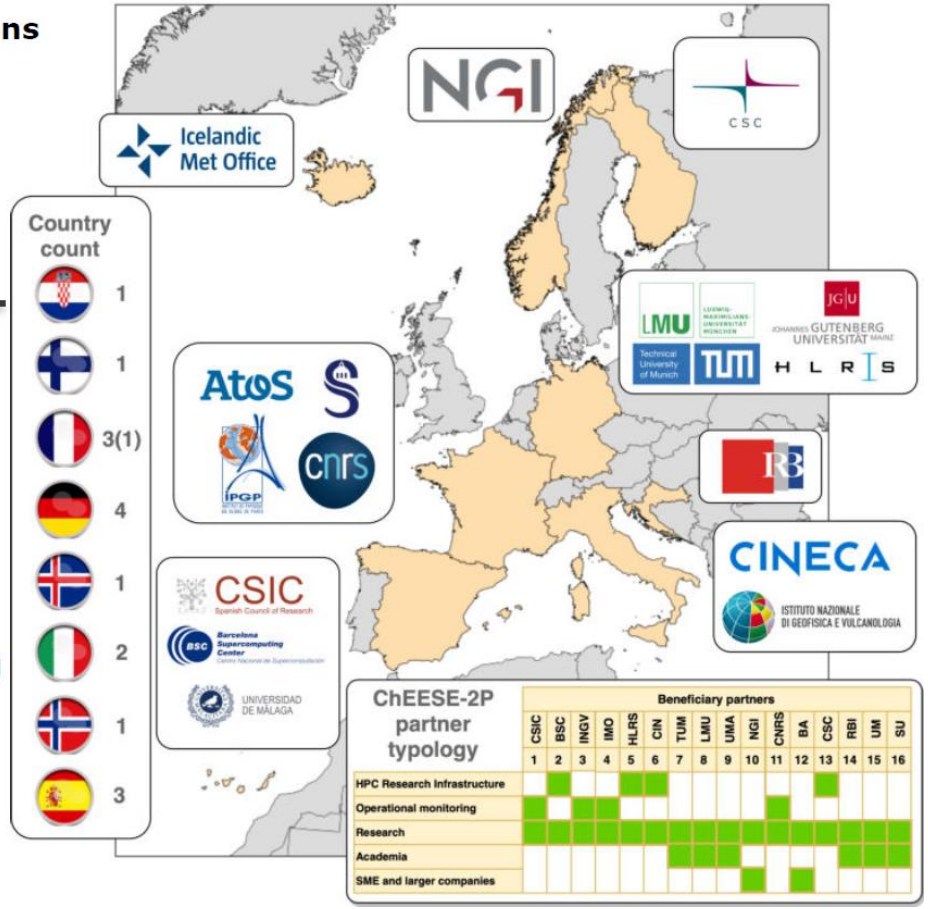
1 **Affiliated Entity**
IPGP (affiliated to CNRS)

4 **HPC tier-0 Centers**
BSC, CIN, HLRS, CSC

2 **Private Companies**
BA, NGI

4 **Operational Monitoring**
CSIC, INGV, IMO, CNRS

6 **Academia**
TUM, LMU, UMA, RBI, UM, SU



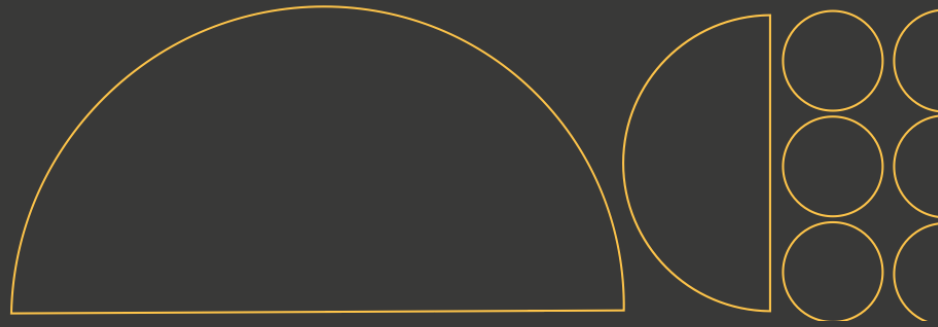
ChEESE

ChEESE Pillar 1: the 11 flagship codes (6 domains of SE)

Area	No	Code	Accelerated	Mini-app
Computational Seismology	1	SeisSol	CUDA, SYCL	yes
	2	SPECFEM3D	CUDA, HIP	yes
	3	ExaHyPE	on-going	no
	4	Tandem	on-going	yes
MHD	5	xSHELLS	CUDA	yes
Tsunami modelling	6	HySEA	CUDA	yes
Volcanology	7	FALL3D	OpenACC	yes
	8	OpenPDAC	on-going	no
Geodynamics	9	LaMEM	on-going	no
	10	pTatin3D	CUDA	yes
Glacier modelling	11	Elmer/ICE	on-going	no

Code preparation activities	
Model physics	New model physics, couplings and forcing terms
Code performance (audit driven)	Code audit(s) and related POP metrics
	GPU porting and fine tuning
	Single heterogeneous node performance
	Multi-node performance
	Algorithmic improvements
	Resilience and fault tolerance
	IO performance
co-desing	Co-design with mini-apps (EUPEX, EUPILOT)

Thank you!



 @cheese-coe

 http://cheese2.eu

 @cheese-coe

 @cheese_coe@techhub.social