



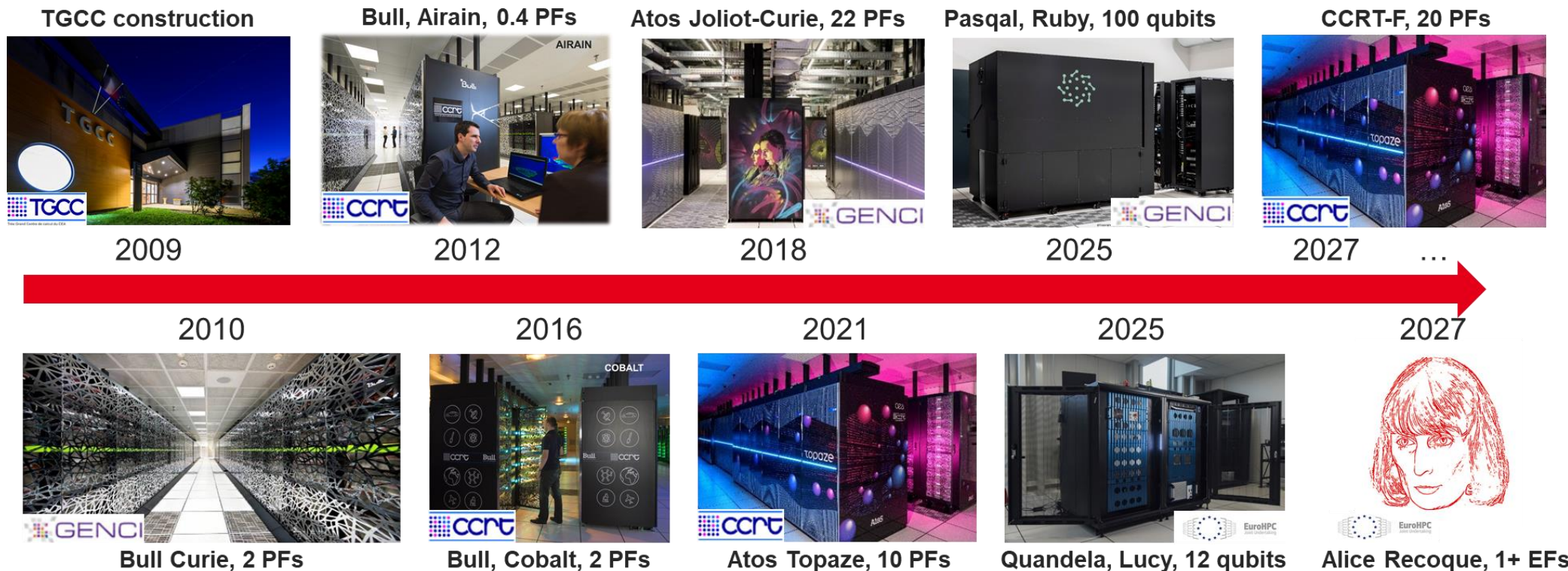
An overview of TGCC

Nicolas Lardjane

Head of TGCC



TGCC: a facility in constant evolution



- A team of ~50 people working to keep the computing centre running, maintain the infrastructures in operational condition, ensure physical and cyber security, manage IT projects, operate the supercomputers, train users, help users port and optimize their code into the TGCC environment. Prepare the future (infrastructure, communities, R&D)

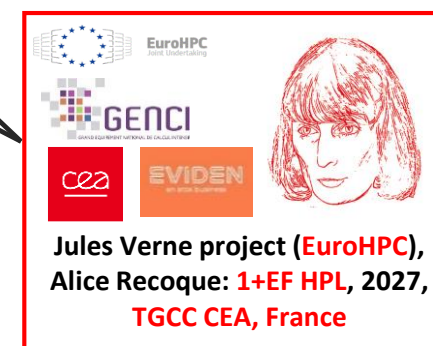
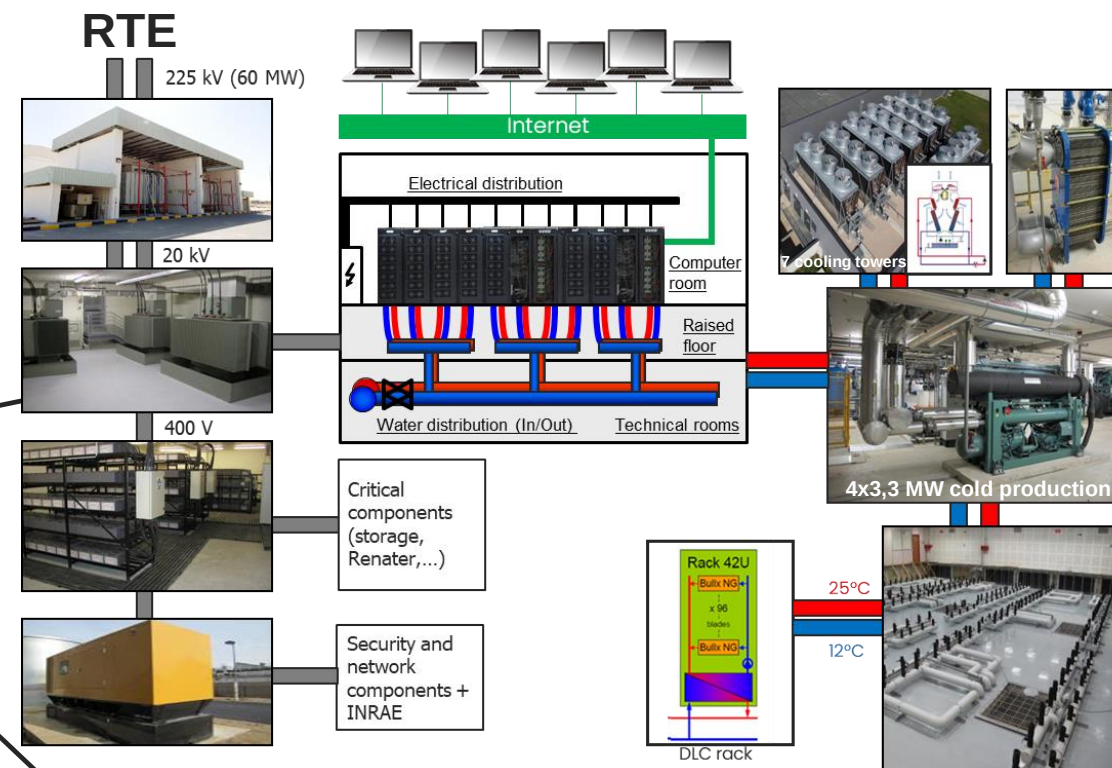
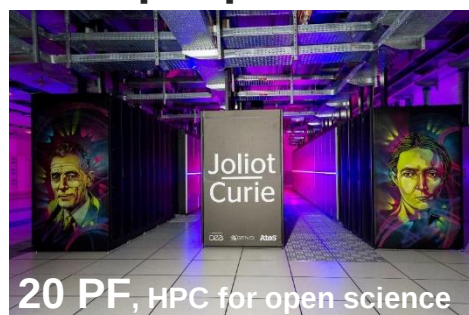
- ~ 2,500 active users



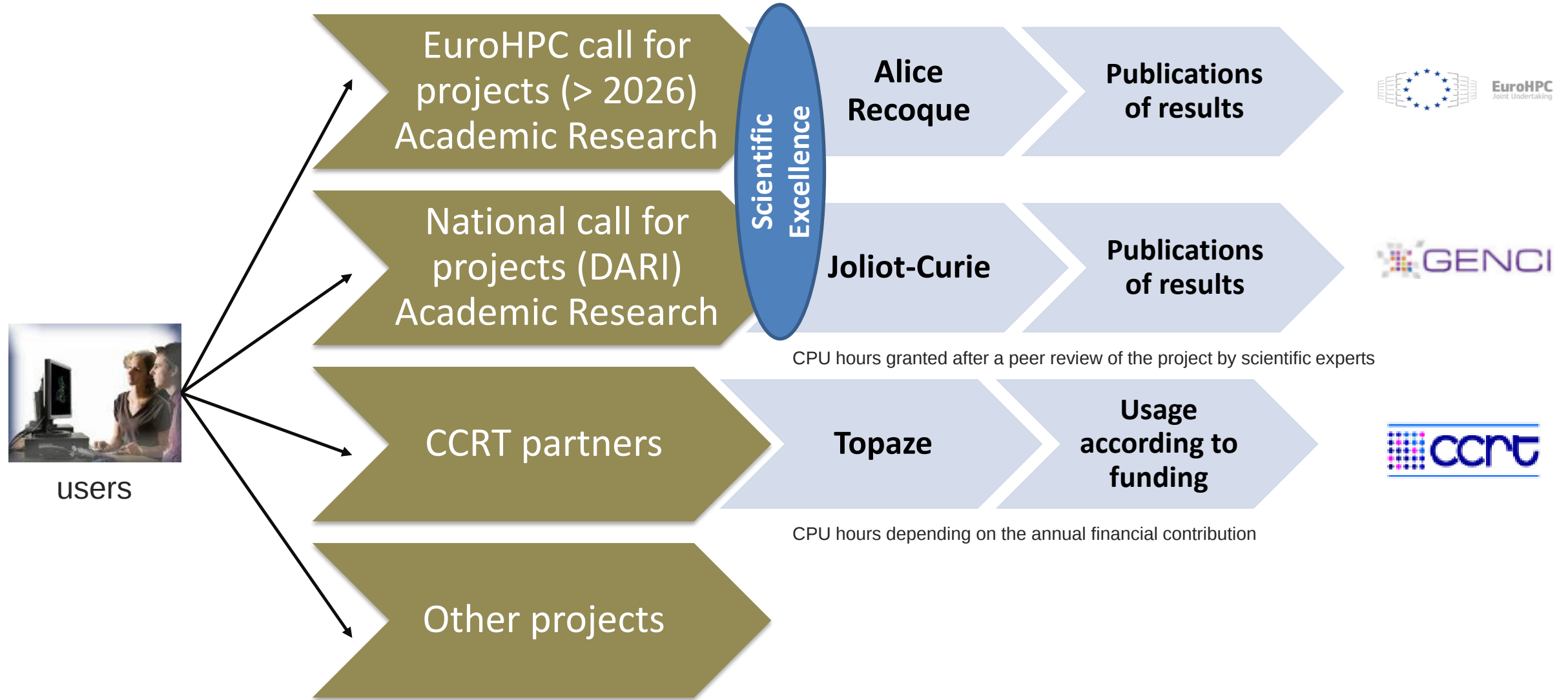
TGCC, a world-class computing centre

➤ Built in 2009 to host and operate large scale supercomputers for HPC and AI

- Computer rooms: 2 x 1300 m², technical zone: 3000 m²
- Electrical power capacity: **12+24 MW**
- DLC capacity: **cold water 10 MW & warm water 20 MW**
- Renater node: **2x100 Gbit/s** and **400 Gbit/s** in 2027
- **~50 people** for maintenance, security (ZRR), operation



Access to TGCC resources





JULES VERNE: THE FRENCH LED EXASCALE CONSORTIUM

Name of the consortium: Jules Verne

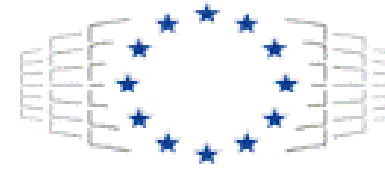
Name of the supercomputer: Alice Recoque

Organization of the Jules Verne consortium

- GENCI *Hosting Entity*
- CEA *Hosting Site*
- SURF (NL) and GRNET (GR) as members of the consortium
- Research institutions (ONERA, IFPEN), French industrial partners

Budget: 559 M€ over 5 years

Call for tender result: Eviden will install Alice Recoque. EuroHPC is the owner of the system



EuroHPC
Joint Undertaking



Hosting Entity selection
June 2023

Call for tender
2024/5

System installation
2026

Exascale system in
production at TGCC
2027

**Tender procedure driven
by EuroHPC with HE**

- Sept. 2024: Exascale call for tender
- H1 2025: Competitive dialogue
- Sept. 2025: Final offers
- Q1 2026: start of the inception programme
- Q2 2026: start of delivery and installation
- Q2 2027: HPL

Alice Recoque: Exascale HPC/AI computing

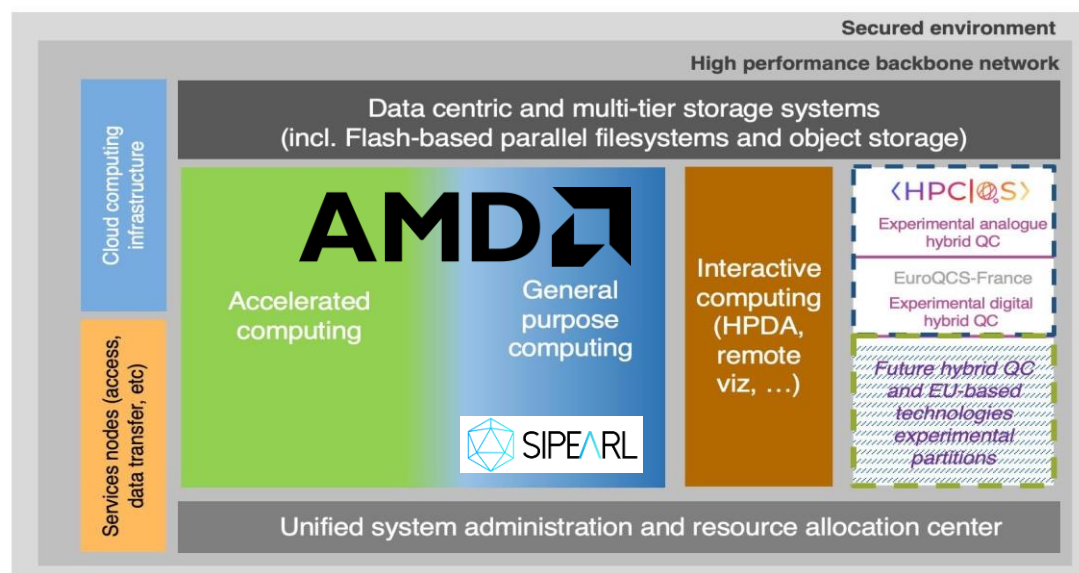


EuroHPC
Joint Undertaking



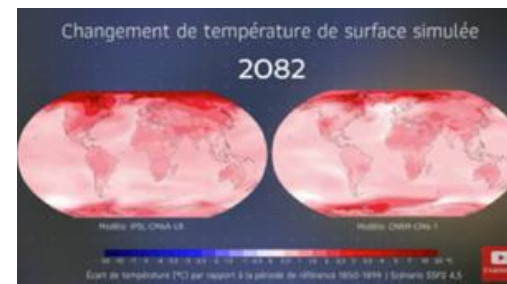
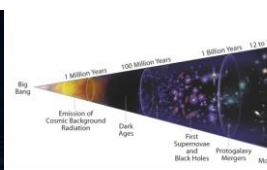
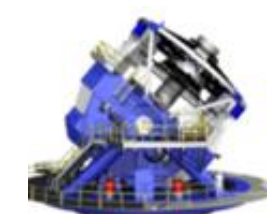
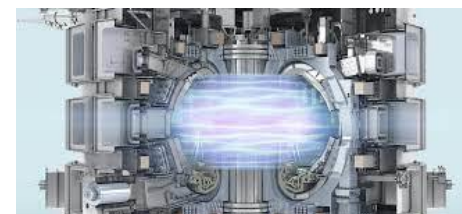
➤ Alice Recoque: 2nd EuroHPC exascale supercomputer in Europe

- ~100 racks HPL performance: 1+ Eflops HPL (GPUs) & ~20 PF CPU < 20 MW
- A system integrating **European hardware / software technologies** in terms of computing, storage, network, infrastructure, middleware, applications...
- Addressing societal and scientific challenges via **AI, large scale numerical simulations** and **massive data analysis and quantum computing**. A system embedded inside the digital continuum.
- **10+ HLST**, + companion projects PEPR NumPEX, CExA-Kokkos, CoEs, nCCs, Minerva, Epicure, AIFF, ...
- **Unified node**: 1 Venice 256c x 4 AMD Mi430x (432GB HBM4@19.6 To/s), 2x400 Gbs BULL BXIv3 / GPU



EVIDEN

- Integration of already funded systems as partition of the high-end supercomputer (not accounted for in the budget proposal)
- Possible additions to the high-end supercomputer during its lifetime (not accounted for in the budget proposal)



Alice Recoque en quelques mots



EuroHPC
Joint Undertaking

GENCI
HPC at the service of knowledge



➤ Solution Eviden XH3500

- **94 racks de calcul pour la partition unifiée (accélérée)**
Adresse à la fois les tâches accélérées et scalaires
1 CPU AMD Venice 256c fortement couplé à
4 **GPUs AMD MI430x (432 Go HBM4 @ 19.6 To/s)**
1 To de mémoire MRDIMM (**4 Go / cœur**)
2 liens 400 Gbs BULL BXIv3 / GPU et 1 lien par CPU
Refroidissement 100% DLC, **faible PUE**
Consommation en production **12 à 15 MW**
- Partition scalaire basée sur technologie ARM européenne
> 100k cœurs SiPEARL Rhea2
- Stockage cible : **30Po flash, 200Po disques, 500Po bandes**
- **34 nœuds de visu et pré/post traitement** avec 2 To de mémoire et 6 avec 4 To de mémoire
- **Partition Cloud** de 18 nœuds (data analytics et inference)
- Pile logicielle reposant sur l'**open source**

