



## **atNorth's Gompute HPC Platform drives crystal clear scalability and sustainability for Canal de Isabel II**

**By implementing the atNorth Gompute HPCaaS Platform, Canal de Isabel II has been able to manage its workloads in a scalable, flexible, and efficient way, ensuring Madrid's leading water company continues to improve the city and quality of life for its residents.**



## Protecting Madrid's water systems

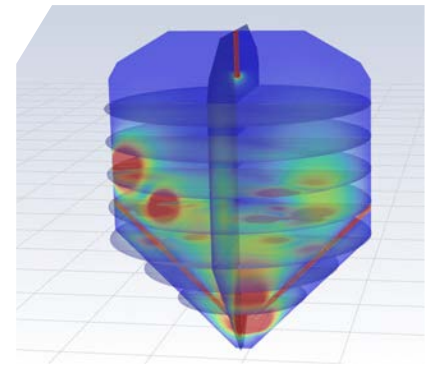
Canal de Isabel II is the oldest and one of the largest public companies in Madrid and plays an essential role in modernizing the city and its surrounding region. Its mission is to manage one of mankind's most prized resources: water, and to improve the quality of life for its residents.

To do this, Canal de Isabel II (Canal) uses 3D data-driven modelling across the entire, integral water cycle – from drinking water and waste water treatment processes, to the drinking water and sewage water networks – to improve water quality, optimize treatment processes and environmental systems, and protect water source quality. These modelling systems are critical to maintaining safe water quality, requiring great depths of compute, processing and storage to run data-intensive modelling and simulations. As its High-Performance Computing (HPC) needs began to increase, Canal set out to find a partner to provide the level of compute necessary to continue to successfully run its complex, high-density Computational Fluid Dynamics (CFD) simulation and 3D computer-aided design (CAD) software.

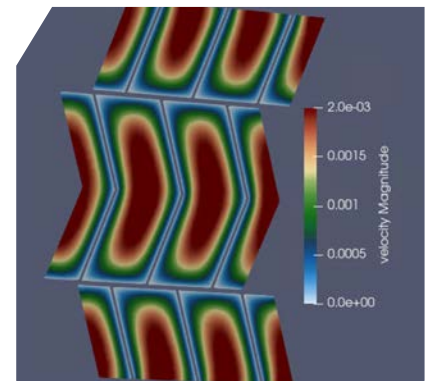
Canal turned to the atNorth Gompute HPCaaS platform to help manage its workloads in a more scalable, flexible way using both on-site and cloud capacity in order to continue to improve its modelling processes. The platform provides Canal access to a private cluster with dedicated computing resources, ensuring consistent performance for its critical applications running on the system. With a private cluster, there are specific nodes for remote pre-post image processing methods, with large memory and graphic cards, plus InfiniBand interconnected nodes for CFD calculations which helps speed up CFD calculations. This system can easily be expanded if there are peaks in workloads.

## Superior service bridges the gap

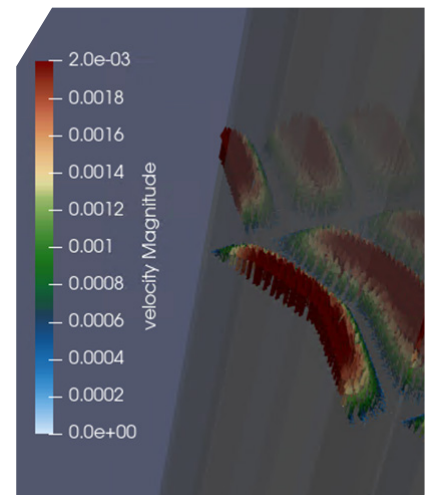
atNorth's Gompute HPCaaS platform delivers high-performance computing, either as a private cloud service with bare-metal compute nodes for HPC applications or as bursting clusters to meet the increasing need for compute that can scale up and down in line with customer workload needs. The platform combines bare-metal compute nodes with high-speed interconnect, ready-to-use, pre-integrated applications, compliance and security peace of mind. This, together with atNorth's unparalleled service and skilled support in HPC systems, has proven invaluable for Canal.



Velocity profiles at an anaerobic digester



Velocity profile at a middle cross-section. Lamellar settler



Cross-section velocity vector. Lamellar settler

**The atNorth HPC Platform has become a critical component to our work. The atNorth team is extremely knowledgeable. Right from the start, working with them has been incredibly straightforward - from the easy software setup to seamless integration with external systems like Linux. We have been able to speed up our process significantly, meaning we can now develop and run models much more quickly and efficiently than before.**

**Antonio Lastra de la Rubia,**  
Head of Innovation Development Area, Canal de Isabel II



## Insights improve performance

At the onset of this project, there were numerous factors at play that made it hard to set initial KPIs and objectives. Canal had new machines, new software and hardware, all of which were still in the testing phase. Once the software was in place, Canal was able to start drawing better comparisons between the operational running speed of the machines and computational times with cloud computing.

For Canal, using its existing hardware to run a model simulation was no longer an option. It would have resulted in a break in the work model, which in turn would have a detrimental impact on the business, both in terms of cost and performance. It was essential they had the ability to model to understand what was happening at the base level to improve the infrastructure, make new modifications and configuration changes, and gain necessary insights to improve performance.

**In some cases, Canal de Isabel II have seen faster turnaround times per design, simulation and model iterations which have resulted in natural cost savings.**

Overall, the implementation of the atNorth Gcompute HPC Platform has drastically reduced the design time, which has in turn reduced the cost of prototyping and design simulation.

## Mission for a sustainable future

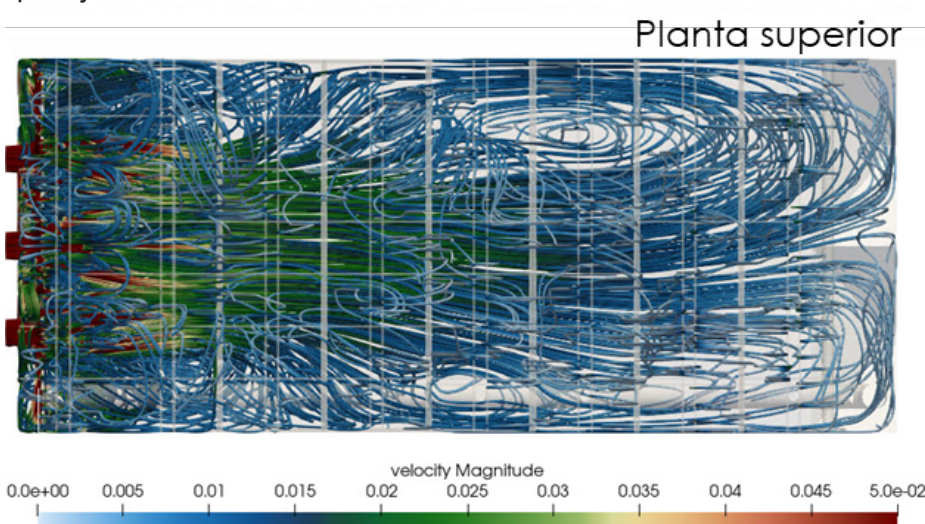
atNorth prides itself on its exceptional data center and infrastructure service and support. With its dedicated engineering team, atNorth's team has been able to provide round the clock, on-hand support to ensure Canal's critical infrastructure operations run seamlessly at all times.

By working closely with the Canal team, atNorth has delivered a cost-effective, sustainable platform to deliver more compute to help the company scale. Increasing workloads in a highly efficient way with performance, sustainable IT, and efficiency at the core.

Canal have been able to improve how they conserve, treat, protect, and manage Madrid's water systems to deliver the best possible water quality for their customers.

**Our platform has given Canal a ready-to-use system with applications pre-installed and tuned, allowing its engineers to focus on their simulation work. By deploying different hardware for different simulation types, we help the Canal team reduce simulation times and optimize licence usage. Adapted to Canal's business needs, our platform is ready to grow in line with their workloads, applications and operations as their simulation requirements may change.**

**Iago Fernandez**  
Cloud Sales Director, atNorth



Streamlines from the inlet coloured by velocity





**We have been impressed with how atNorth’s sustainability values align to our own. Sustainability is inherent in our processes - from water reuse and environmental initiatives that support waste extraction to preventing pollution and decreasing energy usage with our activities. We look forward to continuing to work with the atNorth Gompute team to continue to drive sustainability and efficiencies in our operations.**



**Mónica Ortega Castro**  
Modelling Expert, Canal de Isabel II

**To find out more, get in touch at:**

**atNorth Sales**  
**sales@atnorth.com**  
**+354 539 3282**  
**atnorth.com**

