



## Case Study: The Norway Geological Survey Back up Lustre HPC Data with Miria

CLIENT: NGU NORWAY GEOLOGICAL SURVEY  
SECTOR: GEOLOGY

### The Organization

NGU is Norway's Geological Survey that maps Norway's geology. The Survey is attached to the Ministry of Trade, Industry and Fisheries with headquarters in Trondheim, Norway and over 200 employees forming a highly international work environment.

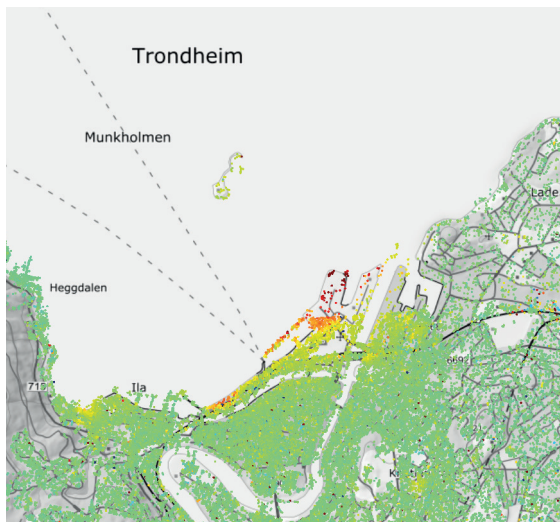
One of NGU's geological mapping projects, **InSAR Norway** is the first free and open, nationwide, web-based mapping service using radar measurements collected from Sentinel-1A and 1B satellites that are part of EU's Copernicus programme for earth observation. Some examples of InSAR mapping: measuring subsidence in urban areas and detecting movement in unstable rock slopes that might endanger habitations.

### Data Management Challenges

NGU recently acquired **Atempo's data management solution, Miria**, to manage the backup and archiving for the satellite image data plus all associated image data points. Each year 100s of TB of data and billions of integrated data points are generated and this data needs to be moved and stored safely and rapidly.

We spoke to John Dehls, a Researcher at NGU about his role managing geological mapping with InSAR Norway and to find out more about NGU's data management requirements and how Atempo Miria fits into their **data-laden workflows**. Also joining us for our virtual conversation: Svein Nilssen, Atempo's HPC partner in Norway, Alpha Systems AS.

John explained how InSAR collects satellite data every night from most of northern Europe via the European Sentinel one radar satellites. The data is free, and openly available from the European Space Agency. The ESA keeps a rolling archive so data can be retrieved again from them.



Geological Imaging of the City of Trondheim in Norway showing very precise subsidence measurements





However, it goes offline after a year or so which means it is much slower to retrieve. In John’s words: *“For us, it’s important to have our own archives so that we can access this data again, because otherwise it could take us several months to download it”*.

## Miria Data Management Platform

Perhaps unsurprisingly, given NGU’s HPC compute requirements and the amount of data generated and accessed, their chosen file system is Lustre. There are frequently hundreds of processes running all accessing the file system at the same time. From a hardware point of view, NGU have exactly what they need: disk, CPU, memory, and tape.

However, the issue they faced was the **necessary throughput to get files on and off tape**. The incumbent file moving solution just couldn’t handle the required data flow speeds. John recounts how the Atempo Miria Data Management platform has made life easier. And faster:

*“Now Miria is in production, we’re able to push data to the tapes and retrieve it far, far faster than we would be able to pull it through again from the original source. For us, it’s like a backup solution – even if we may never need these files again, we know they are present and safe”*.

Tape write speeds are running at maximum throughput – something the prior tools were a long way from achieving. Atempo had guaranteed a maximum of 23 days to push 3 PB of data from disk to tape. In the end only 16 were required: testimony to the efficiency of NGU hardware and file system set up and of course the sheer moving power delivered by Miria!

Svein Nilssen from Atempo partner Alpha System AS who worked closely on the integration of Miria with John at NGU recalls that they were very glad to find Atempo because other solutions tested over time just weren’t efficient enough: *“They were more complex, more costly and, in particular, not so good with Lustre”*.

Speed is one thing and security another. Or put another way – without security, speed is nothing. Miria catalogues file locations, manages metadata and enables a **high level of automation and user security controls**. If the system doesn’t locate a file on disk, it will search the tape catalogue directly. This adds to the overall sense of serenity at NGU regarding data management.

### In Conclusion

Miria’s versatility makes it more than a backup and archiving facilitator. It can in the future be a **viable choice to migrate data to a new NGU Lustre system** or to a third set of disks for example.

John concludes: *“We had a system that wasn’t fulfilling all our needs. Today, we have a system that answers these needs and more [...] I have had nothing but positive experiences so far and wouldn’t hesitate to recommend Miria to other high-volume data users”*.



## ALPHA SYSTEM AS



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