

# Usage of the Feynman cluster as part of the LHC Grid

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EPP

# Outline

- LHC Computing Grid
- ATLAS at Sussex
- LHC official Physics Data Sets
- Data Model at Sussex
- Running analysis jobs
- How to Improve?
- Conclusions

# The LHC at CERN



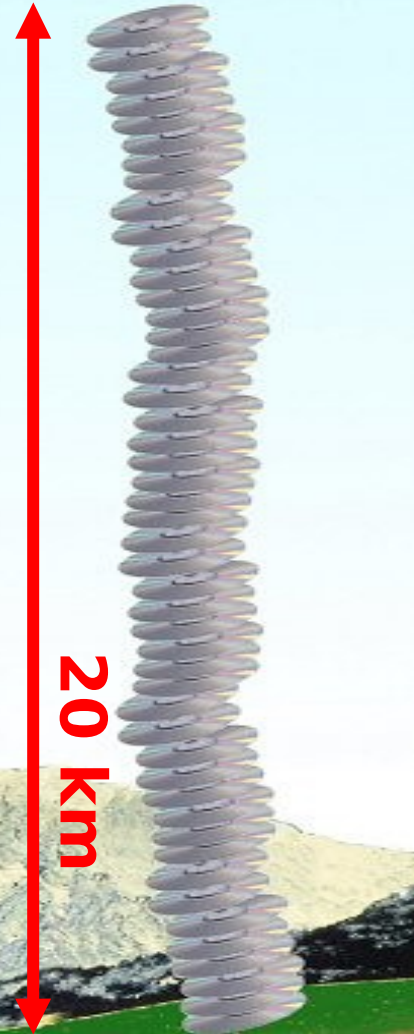


# LHC Data Challenge

Concorde  
(15 Km)

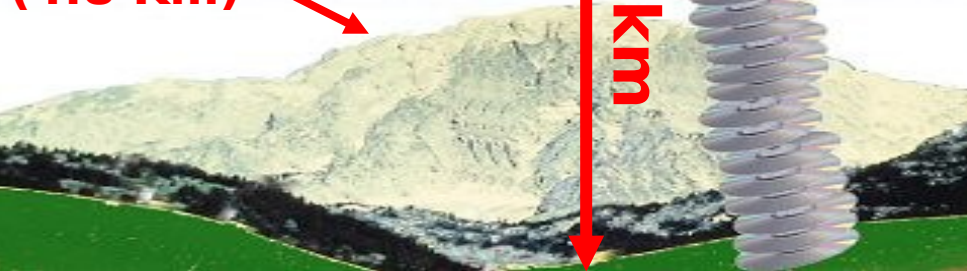


1 year of  
LHC data  
(10 PByte)



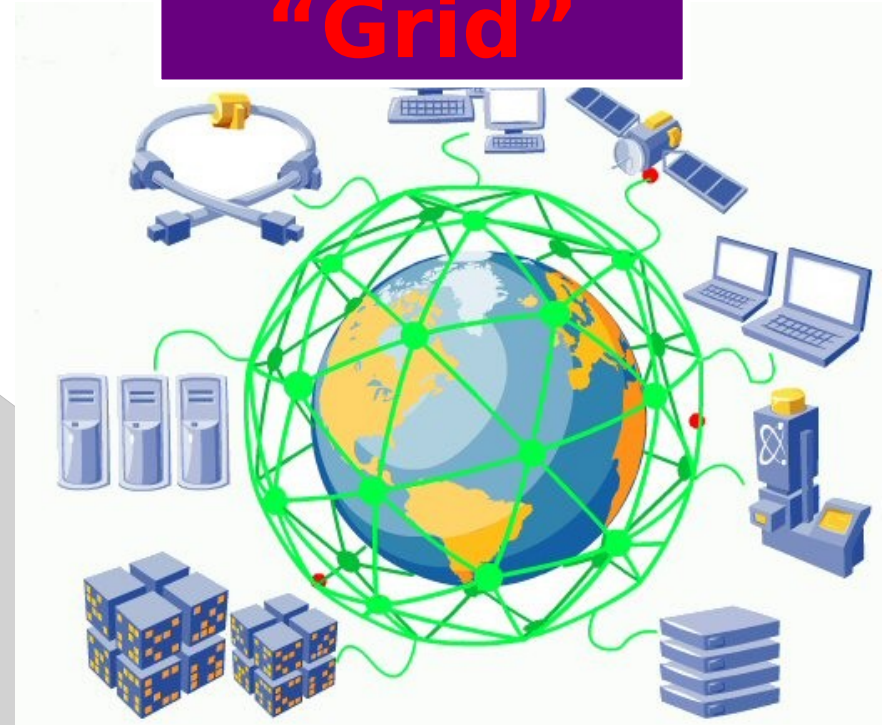
20 km

Mt. Blanc  
(4.8 Km)



Departmental Seminar

## The "Grid"



29/11/2011



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# ATLAS at Sussex



# SUSY group at Sussex

## **Staff:**

- Antonella de Santo
- Fabrizio Salvatore
- Tina Potter

## **DPhil Students:**

- Anthony Rose
- Stewart Martin-Haugh
- Nicky Santoyo Castillo
- Zara Grout

## **Msc and UG Students:**

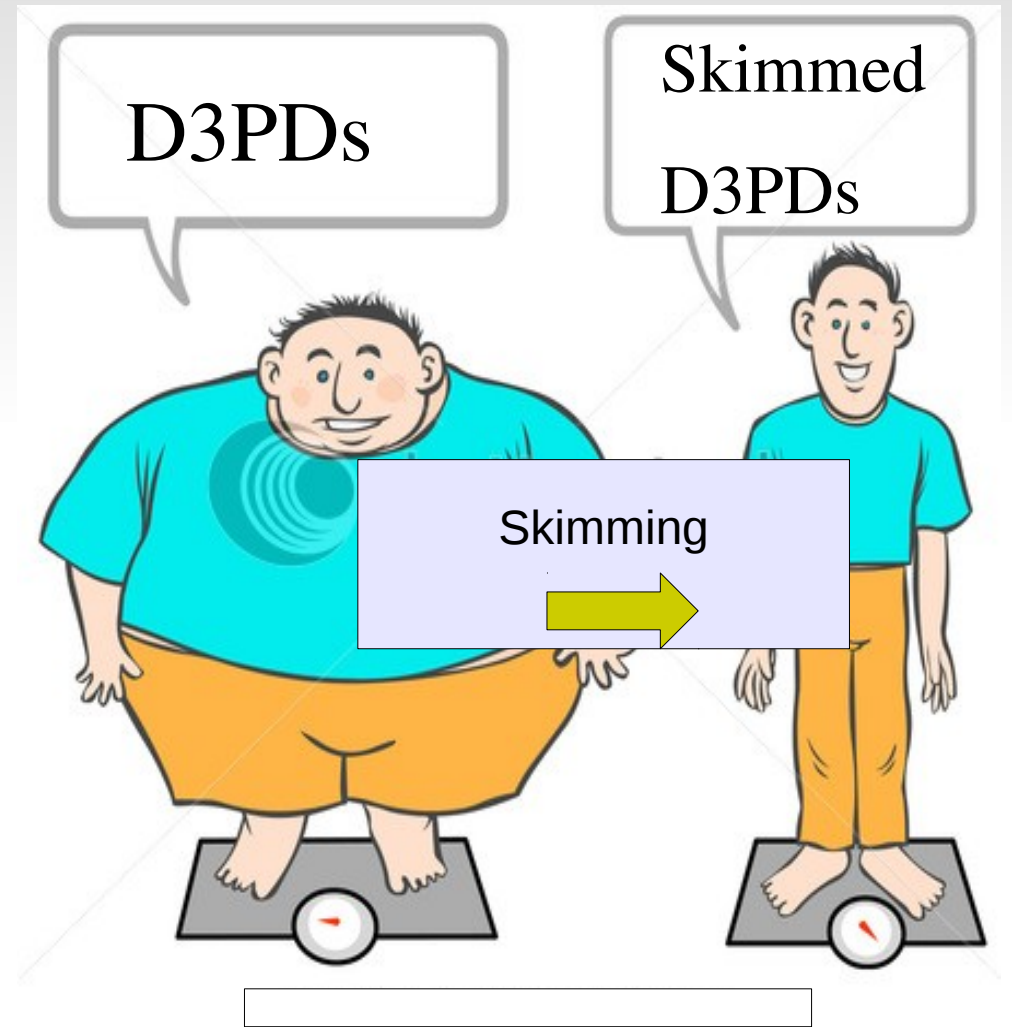
- Eleanor Tubman

# Physics Data Sets D3PDs

For Data and MC  
SUSY samples:

Size: ~56 TB!!

Skimming is needed!



# Data Model at Sussex

After skimming:

Total Size of  
SUSY samples:  
**~17 TB**

Downloading time:  
**2-3 days** (requires  
constant babysitting).





# Analysis Job

- ROOT based
- Runs locally on the farm

Size: 370 GB

Running time: 10-12hrs



# Good enough?





# Ways to Improve

- Book Keeping for past and future productions
- More disk space  
Currently 80 TB ( 76% already used!)
- Local Filtering of the data sets  
Running time would be significantly faster (80%)

# Conclusions

- HPC at Sussex is vital for ATLAS analysis
- Currently using the system at full capacity
- Improvement of the analysis code in the pipeline
- Team up with ITS to upgrade the system and provide more resources for EPP research at Sussex.



Thank you!