



# KM3NeT DAC21 take-aways

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3<sup>rd</sup> ESCAPE DIOS Workshop



# DAC21 highlights

## 3 KM3NeT Use Cases

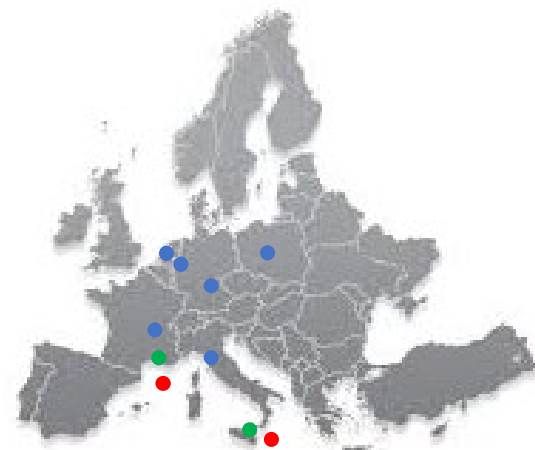
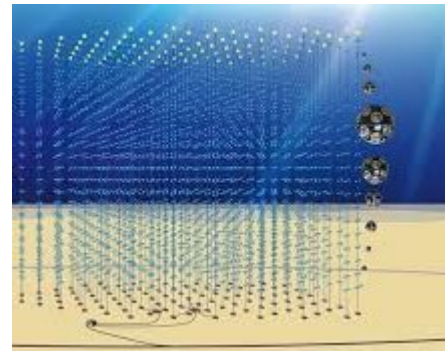
### 1. Nightly ingestion of raw data from the shore station into the data lake

Currently:

- 2 detector sites
  - FR 10% operational
  - IT 5% operational
- data copied to 2 computer centres
- different systems

DIOS:

- shore station storage can be part of data lake
- automatic replication



- detector site
- shore station
- storage



# DAC21 highlights

## 3 KM3NeT Use Cases

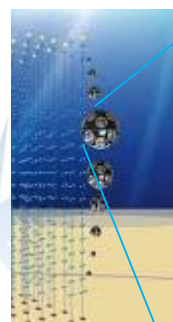
2. Daily download of the raw data from the data lake, data processing, and ingestion of the processed data

Currently:

- Tier-1 data processing in one site
- using iRODS for the data on tape
- no data management system for data on disk

DIOS:

- distributed data
- organization of the data in containers and datasets
- metadata handling



- detector site
- shore station
- storage



# DAC21 highlights

## 3 KM3NeT Use Cases

3. Usage of DLaaS to download data, perform a data conversion and upload the result

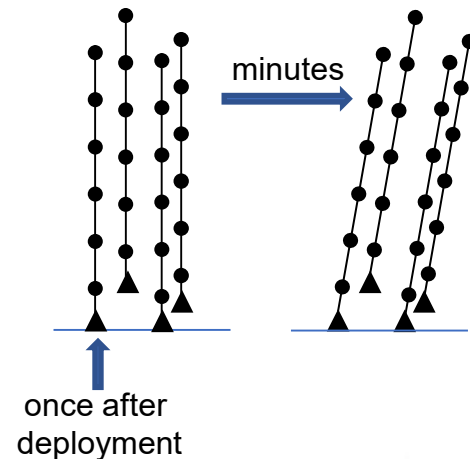
DIOS:

- DLaaS easy to use
- organization of the data in containers and datasets



# Things that have been identified to help KM3NeT on Data Management and Data Access

- Discovered only part of DIOS
- Gained many new insights
  - Will allow for distributed data processing
  - Possibility to define applicability period in metadata
  - Definition of containers and data sets
  - Perform operations on data sets
  - Version management for calibration
  - Integration of the shore station storage elements
  - Easy replication



# KM3NeT plans regarding the technologies exposed in DIOS

- KM3NeT will adopt the data lake and the Rucio data management tool
- At the start of setting up a Rucio server
- Storage elements available
- Support from Rucio and DIOS group
- The KM3NeT infrastructure will have to be managed by KM3NeT



# Identified barriers to adopt the DIOS model, services or tools

- The absence of a computing group
  - Small collaboration compared to accelerator experiments
  - Organized differently than in astronomy
  - Focus on detector construction
- High threshold to get this started



# Is KM3NeT interested in a longer term existence of an ESCAPE or an ESCAPE-*like* infrastructure?

- KM3NeT needs a sustainable solution
  - KM3NeT will operate for the next 10-15 years
  - Data analyses will continue after that for 10 years
- Mainly interested in the expertise
  - From the DIOS group
  - Other research infrastructures that set up their own infrastructure
- ESCAPE-like infrastructure good to have, however
  - KM3NeT can contribute little to the maintenance
  - KM3NeT doesn't have the expertise (yet) to contribute





# Is KM3NeT interested establishing standing collaborations, channels, joint efforts? On which specific topics?

- Exchange of people with DIOS expertise
- Exchange of experience with other ESFRIs who set up their own infrastructure
  - Availability of documentation from ESFRIs
  - KM3NeT usage of Dirac



# Conclusions

- Very positive experience with DIOS
- Minor problems encountered during DAC21
- KM3NeT is adopting the DIOS model
- KM3NeT would like to keep in touch with other ESFRIs and people from DIOS

