

# JASMIN: Super Data Cluster for Environmental Data Analysis

Cristina del Cano Novales, Scientific Computing Department  
Science and Technology Facilities Council - cristina.del-cano-novales@stfc.ac.uk

## WHAT IS JASMIN

The JASMIN facility is a "super-data-cluster" which delivers infrastructure for data analysis. It supports the data analysis requirements of the UK and European climate and earth system modelling community.

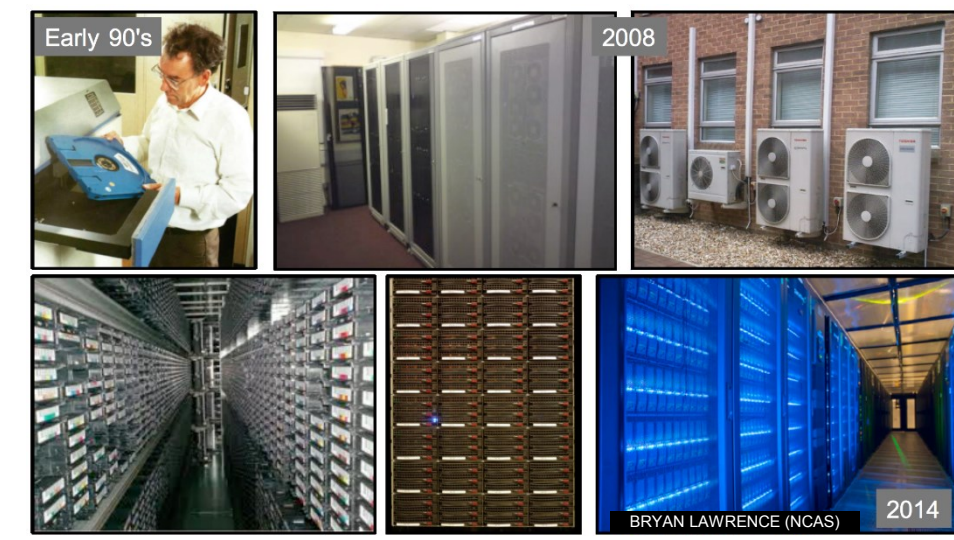
UP TO 2012

CEDA (Centre for Environmental Data Archival)

Supporting environmental science, further environmental data archival practices and develop and deploy new technologies to enhance access to data through curation and facilitation.

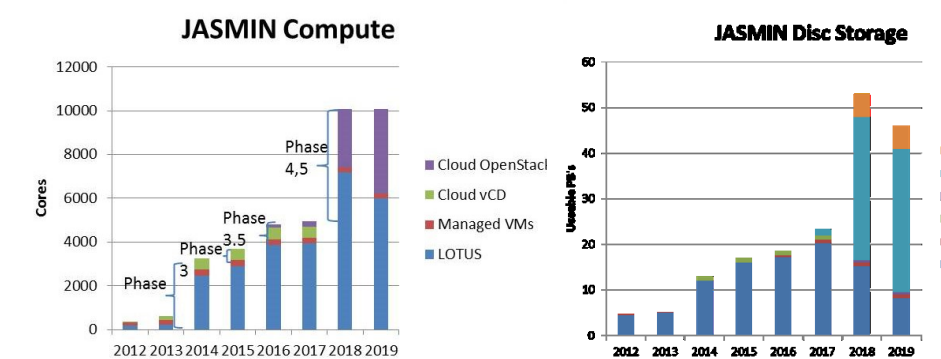
- 1.4PB disk
- 1.3PB tape
- Network attached Storage – 90 servers over 340 storage pools
- 200 physical and virtual computers
- Distributed over 2 machine rooms

**Complex network, no management tools, grown organically over a decade from a simple system**  
**Operational issues**  
**Data too big for users to download**

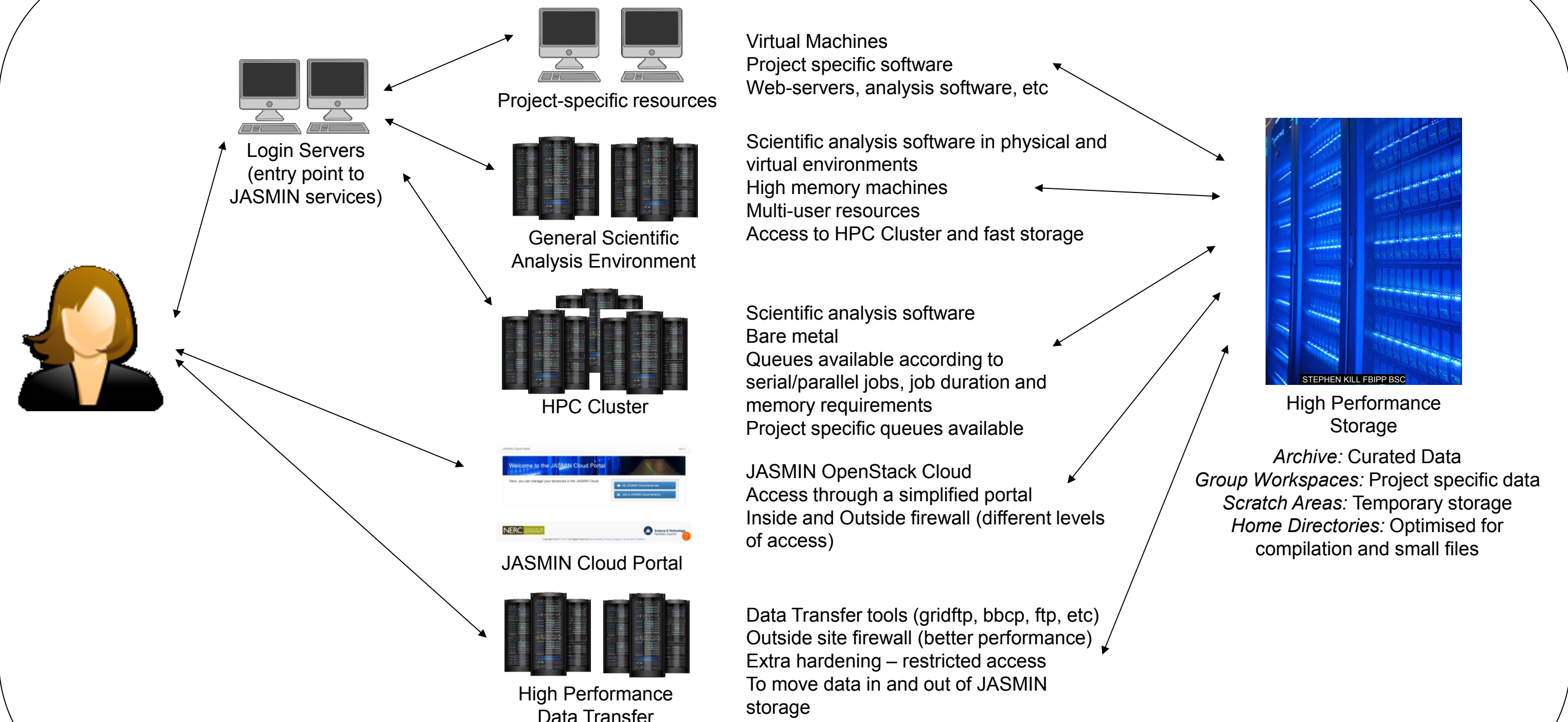


**JASMIN**  
National data analysis service for the climate, earth observation and earth system science community.

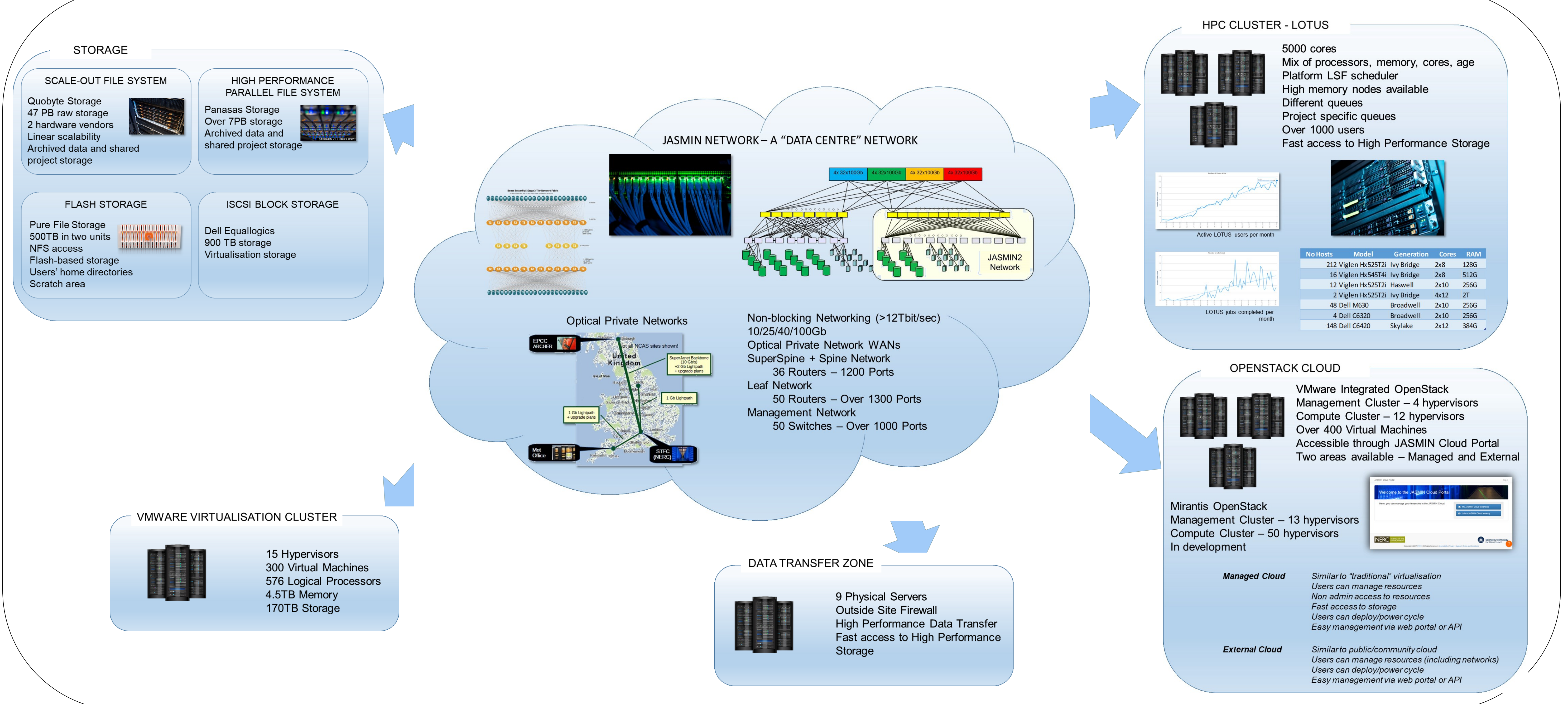
- Reliable data archival
- High performance data access
- Data analysis environment next to the data (no need to download)



## JASMIN SERVICES

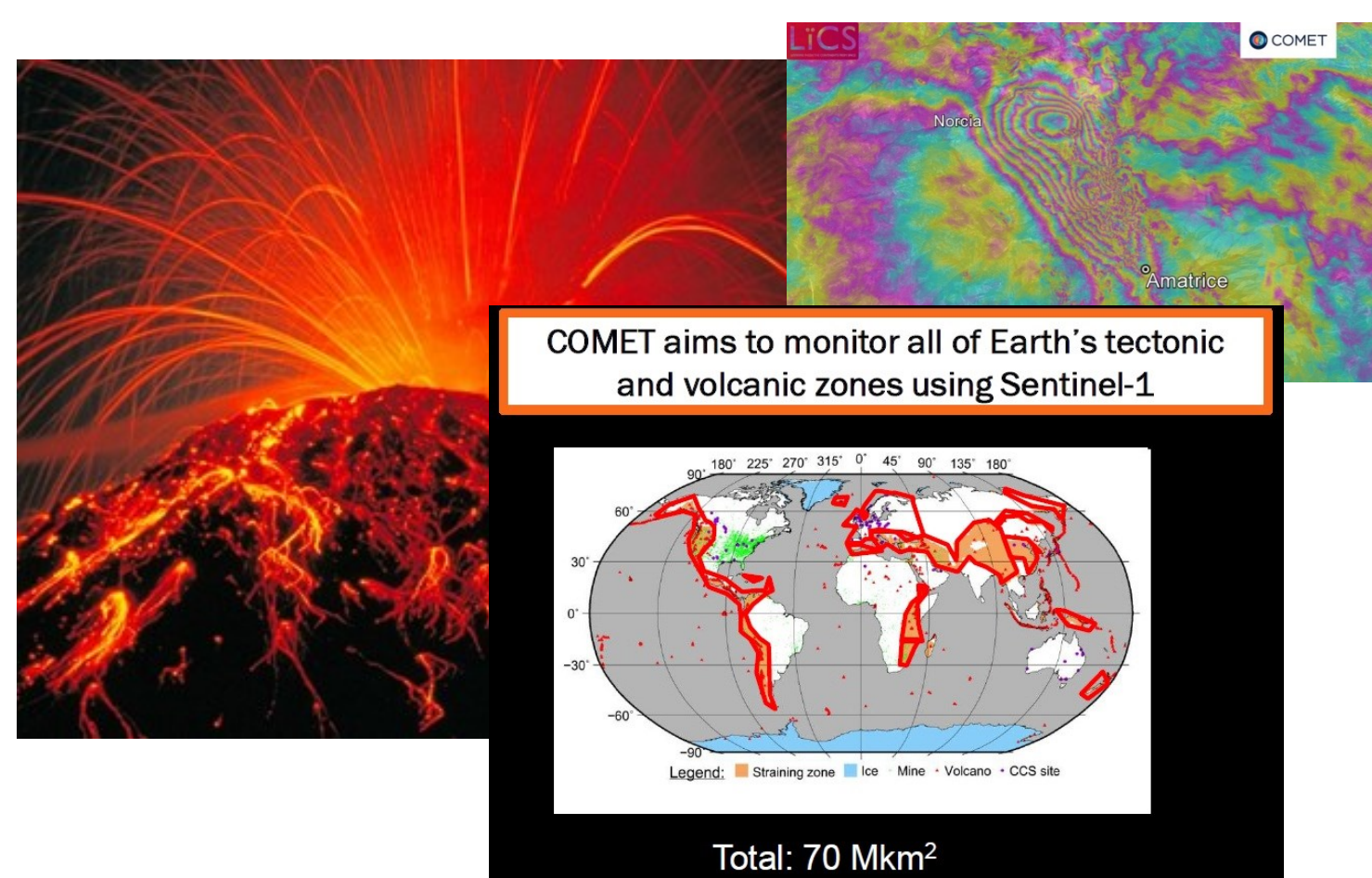


## JASMIN ARCHITECTURE



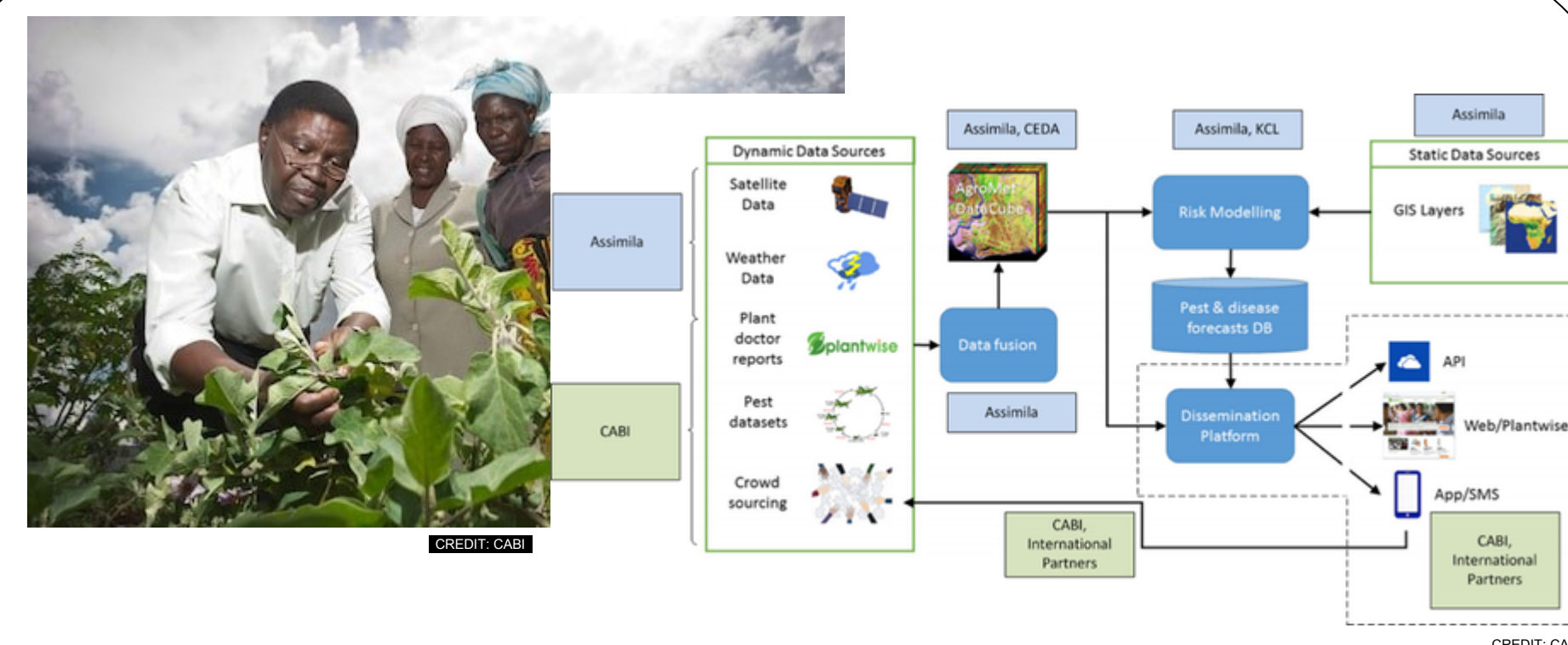
## SCIENCE ON JASMIN

COMET – Monitoring every volcano on Earth from space



COMET (University of Leeds) uses JASMIN to develop a system to monitor every volcano on Earth from space. Satellites can detect changes on the area around a volcano and alert the scientists. The Sentinel satellite data is held in the CEDA Archive – which gives COMET easy access to the curated data and the processing environment.

PRISE – Pest Alert System for African Farmers



PRISE is a collaborative project with many partners that aims to provide a system that can predict crop loss caused by pest outbreaks, using a combination of Earth Observation satellite data and plant-pest life cycle data. PRISE have deployed the Agromet data cube (which puts together weather satellite data with pest models to produce pest risk alerts) on the JASMIN Cloud. METEOSAT data is stored on the high-performance storage and processed in the JASMIN environment.

**Partners**  
- Assimila  
- King's College London  
- Centre for Environmental Data Analysis  
- Plant Protection & Regulatory Services Directorate (PPRSD), Ghana  
- Kenya Agricultural & Livestock Research Organization (KALRO), Kenya  
- Ministry of Agriculture, Livestock and Fisheries, Kenya  
- Zambia Agriculture Research Institute (ZARI), Zambia

## JASMIN PARTNERS



## REFERENCES

More science use case examples can be found here  
[http://cedadocs.ceda.ac.uk/1350/1/JASMIN\\_Science\\_Case.pdf](http://cedadocs.ceda.ac.uk/1350/1/JASMIN_Science_Case.pdf)

COMET (Centre for Observation and Modelling of Earthquakes, Volcanoes and Tectonics )

<https://comet.nerc.ac.uk/>  
<https://comet.nerc.ac.uk/COMET-LICS-portal/>  
<https://www.bbc.co.uk/news/science-environment-46370601>  
<https://www.telegraph.co.uk/news/2018/12/05/uk-supercomputer-gives-african-farmers-early-warning-pests-blights/>

PRISE (Pest Risk Information Service)

<https://www.cabi.org/projects/project/62774>  
<http://www.ceda.ac.uk/blog/prise-visit-to-rail-space/>  
<https://www.bbc.co.uk/news/science-environment-46370601>  
<https://www.telegraph.co.uk/news/2018/12/05/uk-supercomputer-gives-african-farmers-early-warning-pests-blights/>

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