



“Tessella’s strength in science meant we all spoke the same language, which gave us confidence they could rapidly translate our ideas and requirements into a robust and professionally developed application.”

Dr. Victoria Bennett, Earth Observation Data Scientist, CEDA

CEDA and Tessella collaboration brings Earth observation data to life

When CEDA (Centre for Environmental Data Archival) needed a way to enable scientists around the world to visualise and animate its extensive Earth observation dataset and climate simulation models, it called on Tessella’s scientific software and data analysis expertise. The resulting web based service was delivered against tight deadlines to coincide with the launch of the state-of-the-art ISIC (International Space Innovation Centre) at Harwell where the Earth observation data can also be viewed on a large video wall.

Background and Challenge

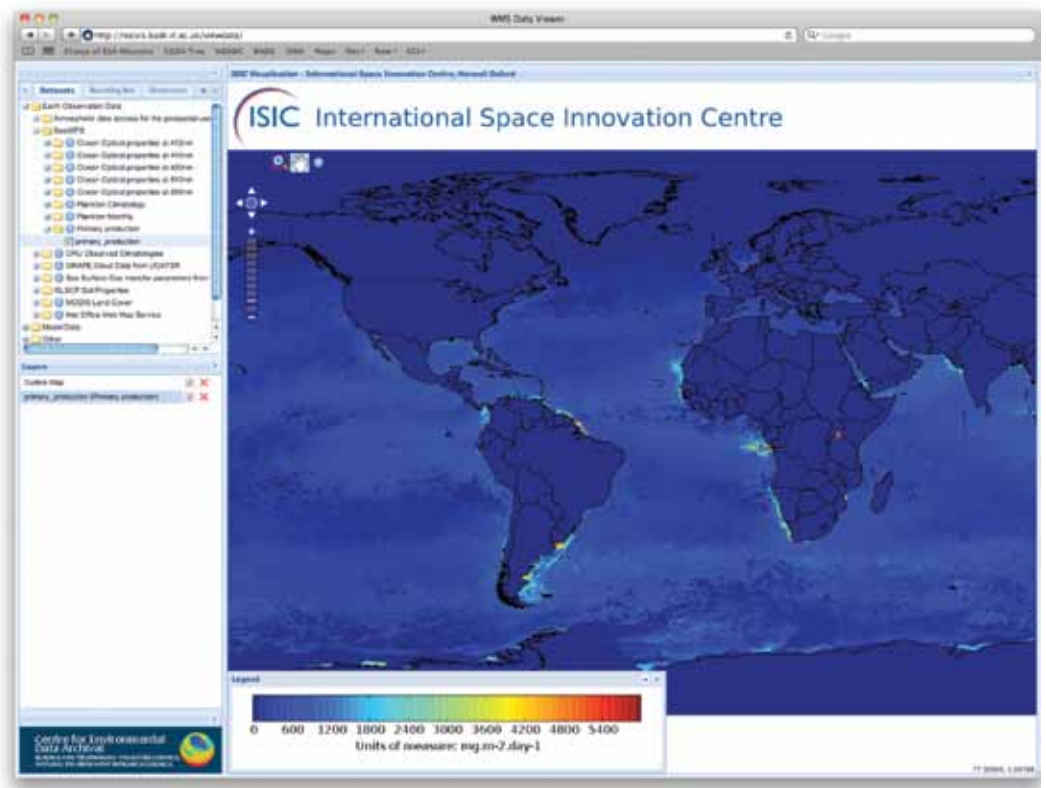
CEDA, based at the STFC (Science and Technology Facilities Council) Rutherford Appleton Laboratory in the United Kingdom, hosts a large number of environmental data archives, including extensive Earth observation and atmospheric data which play an important role in furthering climate related research around the world.

Dr. Victoria Bennett, Earth Observation Data Scientist at CEDA explains: “Our vision is to make our extensive archives accessible to the global scientific community, especially those involved in climate research. We already had a portal application for visualising the data, but it was too slow and not user friendly to open up to the wider global community. More importantly, it lacked certain key functions, such as catalogue information about

the data, animation features to enable scientists to observe changes over days, months or years, and support for output formats like Google Earth, virtual globe applications and large video walls.”

The team decided to co-ordinate the release of the new visualisation service with the opening of the prestigious ISIC (International Space Innovation Centre) on the Harwell Science and Innovation Campus, which was created to draw together a critical mass of space-related activities by linking existing pockets of expertise in UK industry, academia and Government.

Victoria continues: “This gave us a very ambitious deadline, but we wanted to provide scientists and visitors to ISIC with a unique and powerful way of viewing the Earth observation data by displaying it on a large video wall in the ISIC visualisation suite.”



right:
Tessella helped develop tools
to view environmental data as
images on a map

Having set themselves aggressive timescales, Victoria and the team set about selecting a suitable partner to bring their vision to life. Tessella were chosen for their scientific software expertise and track-record of delivering successful projects for other organisations on the Rutherford Appleton site.

Victoria continues: “Tessella’s strength in science meant we all spoke the same language, which gave us confidence they could rapidly translate our ideas and requirements into a robust and professionally developed application.”

Solution & Benefits

Collaborating with the CEDA team, Tessella wrote an initial specification for the visualisation service, which was then iteratively developed to meet the challenging deadline of the ISIC launch.

The Science Visualisation Service for Earth Observation (SVSeo) is a web application (available at <http://isicvis.badc.rl.ac.uk/viewdata/>) that uses an OGC (Open Geospatial Consortium) standard Web Map Service (WMS) to display datasets as maps. Scientists can visually explore large and complex environmental datasets from observations and models, view, step through and zoom into gridded datasets on a map view, export images as figures and create animations. Different views can be easily overlaid, e.g. different parameters in the same data, or different datasets.

The images and animations can also be exported for viewing on the ISIC video wall, on Google Earth, and other viewing software. The visualisation service catalogue currently includes a selection of the Earth observation and atmospheric archives, such as satellite derived products relating to clouds, plankton, air-sea gas exchange and fire, as well as model output, which makes it an ideal environment for climate research. And as planned, the SVSeo can also be used at the ISIC facility in conjunction with a large video wall to create impressive animations on a virtual globe, or multiple, synchronised virtual globes.

Summary & Future

Victoria concludes: "We are delighted with the new visualisation service and the work

that Tessella have done to help us bring our data to life. As well as delivering the new viewing and export functions against aggressive milestones, Tessella were also able to help us significantly speed up the user experience by reengineering parts of the web map data service. We certainly would not have met the ISIC launch date without their extensive scientific software and data analysis expertise."

CEDA plans to add more datasets to the service as new Earth observation data is produced and provided for long-term archiving. Other providers can also make their data available through the service using industry standard formats.

right:
Tessella developers helped develop the framework that allows scientists to display data on the ISIS video wall facility





Requirements

- A fast and user-friendly way of making CEDA's Earth observation archives accessible to the global scientific community, especially those involved in climate related research.
- Robust, professionally developed web based visualisation application that will also support data catalogue information, data animation and output to Google Earth, virtual globes and large video wall.
- A software development partner with an extensive background in science and the visualisation of large datasets.
- Visualisation service available on large video wall in time for the launch of the ISIC facility.

Benefits

- CEDA Earth observation archives now available to the scientific community through a fast, user-friendly visualisation service.
- All new functions and video wall viewer delivered on time ready for opening of the ISIC facility.
- Tessella's expertise also helped to significantly speed up the overall user experience.

For further information on Tessella's solutions and technologies, visit www.tessella.com

Tessella plc 26 The Quadrant, Abingdon Science Park, Abingdon, Oxfordshire OX14 3YS, UK
T: +44 (0)1235 555511 | F: +44 (0)1235 553301 | E: info@tessella.com

Tessella Inc 233 Needham Street, Suite 300, Newton, MA 02464, USA
T: 1 617 454 1220 | E: info@tessella.com

Tessella – successfully delivering IT and consulting services to world leaders in R&D, science and engineering.

For decades, Tessella has been successfully delivering IT and consulting services to world leaders in R&D, science, and engineering. Through the application of scientific methods and rigorous quality procedures, we enable clients in life sciences, energy, the public sector, and consumer industries to achieve a wide range of objectives, including, forecasting floods, developing fusion power, enhancing military sensor capability, improving drug discovery and development efficiency, and reducing risk to health and the environment in the extraction and production of oil and gas. With offices in Europe and North America, global companies rely on Tessella for business critical assignments.

Copyright © Tessella plc 2009, all trademarks acknowledged. Issue: V1.R0.M0 | 18.01.09



www.tessella.com

