

# The CoreWall Project: An Update for 2008

## Core Visualization, Stratigraphic Correlation and Rich Media Distribution

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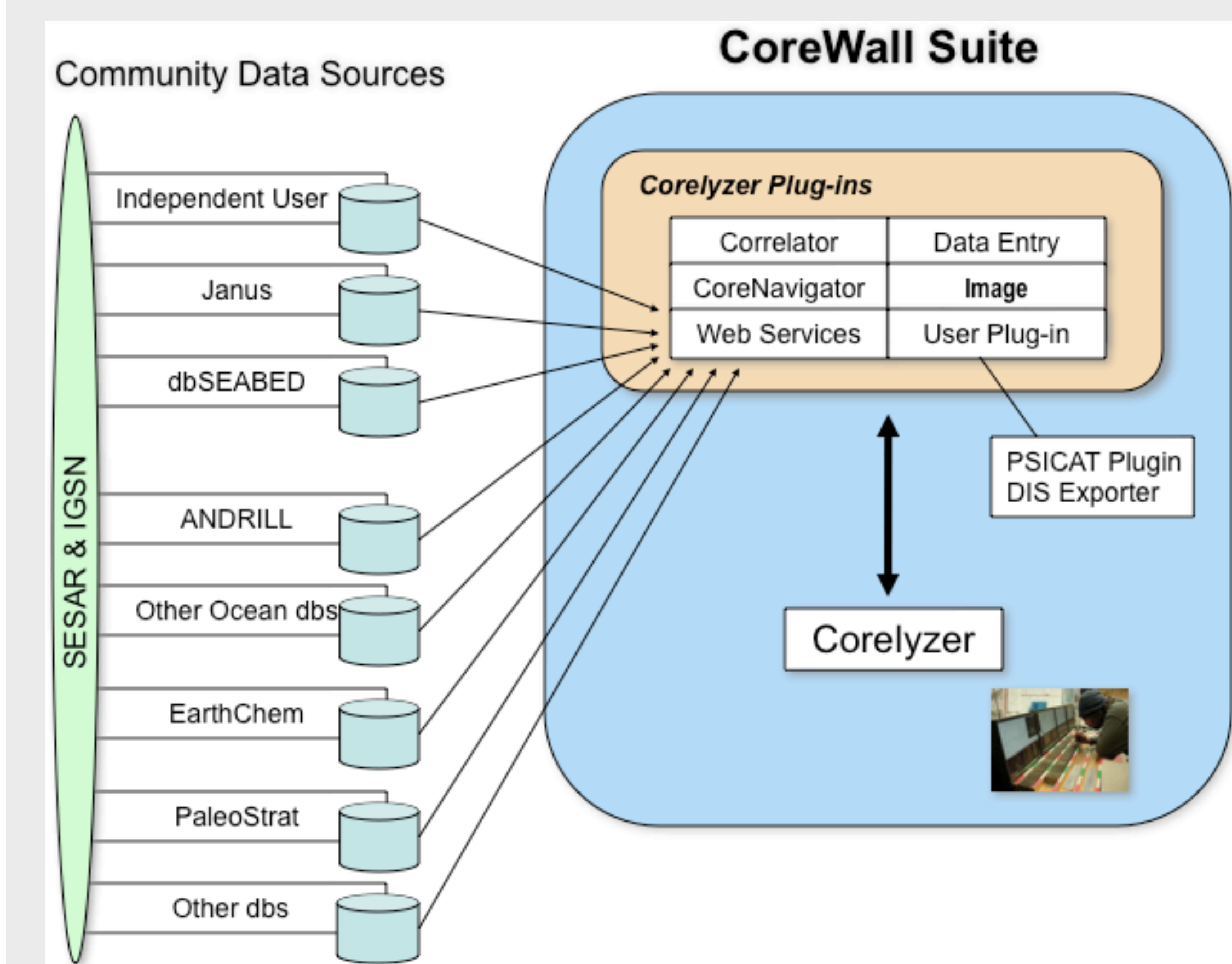


## Introduction

The CoreWall Suite is a National Science Foundation-supported collaborative development for a real-time core description (Corelyzer), stratigraphic correlation (Correlator), and data visualization (CoreNavigator) software to be used by the marine, terrestrial and Antarctic science communities. The overall goal of the CoreWall software development is to bring portable cross-platform tools to the broader drilling and coring communities to expand and enhance data visualization and enhance collaborative integration of multiple datasets.

CoreWall suite provides a set of tools for coring scientists to observe and analyze geological cores through high resolution imagery and physical sensor data. It helps scientists efficiently construct the overall mind map and generate more research ideas while the coring expedition is happening with high-resolution visualization and flexible interactivity. It has been used in various expeditions including individual lake core scientists in National Lacustrine Core Repository Laboratory in University of Minnesota, Earthscope's San Andreas Fault Observatory at Depth (SAFOD), and Antarctica Geological Drilling (ANDRILL).

## CoreWall Architecture



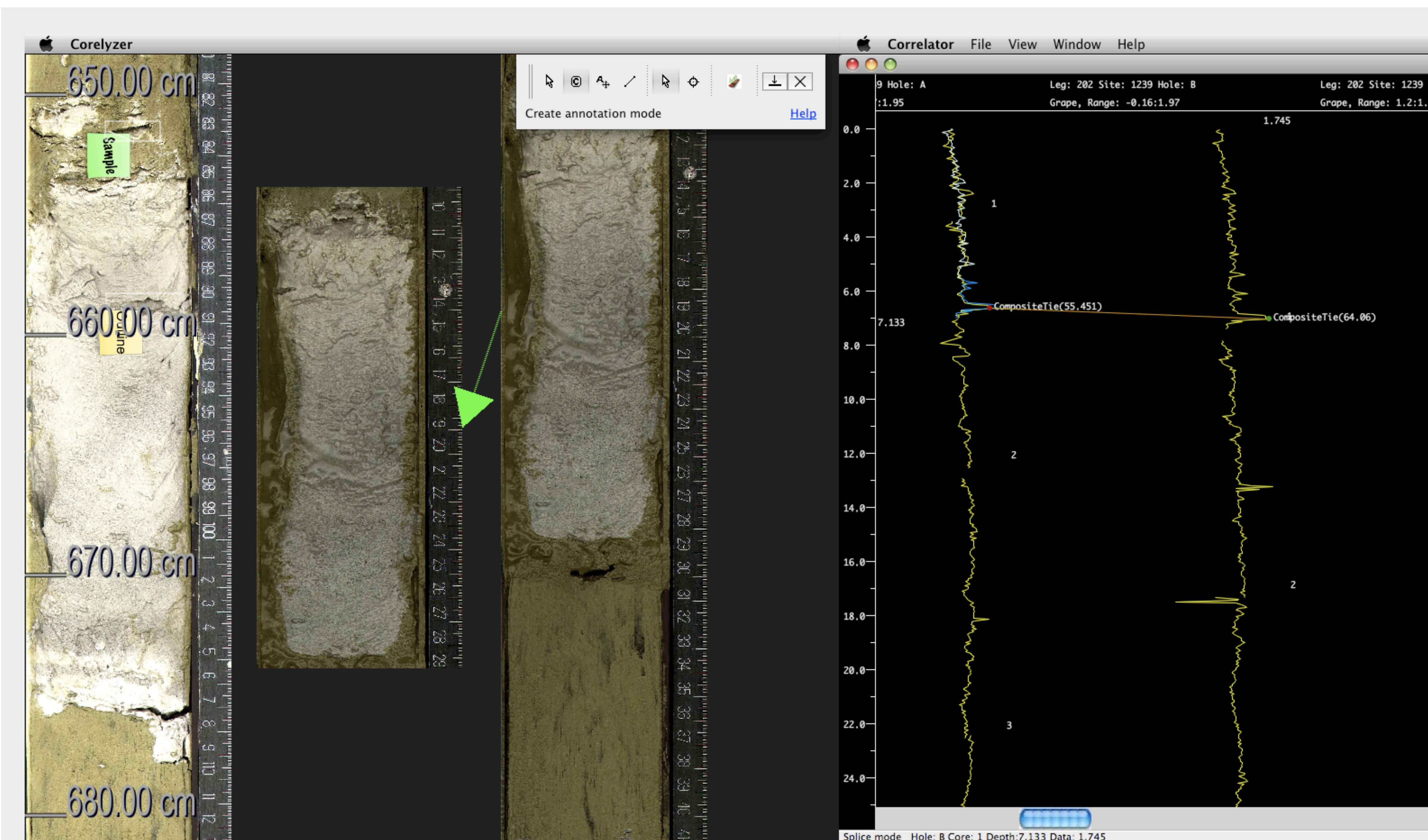
CoreWall ([www.corewall.org](http://www.corewall.org))

ANDRILL: Antarctic Geological Drilling ([www.andrill.org](http://www.andrill.org))

Electronic Visualization Laboratory, University of Illinois at Chicago ([www.evl.uic.edu](http://www.evl.uic.edu))

PSICAT: Paleontological Stratigraphic Interval Construction and Analysis Tool ([www.psicat.org](http://www.psicat.org))

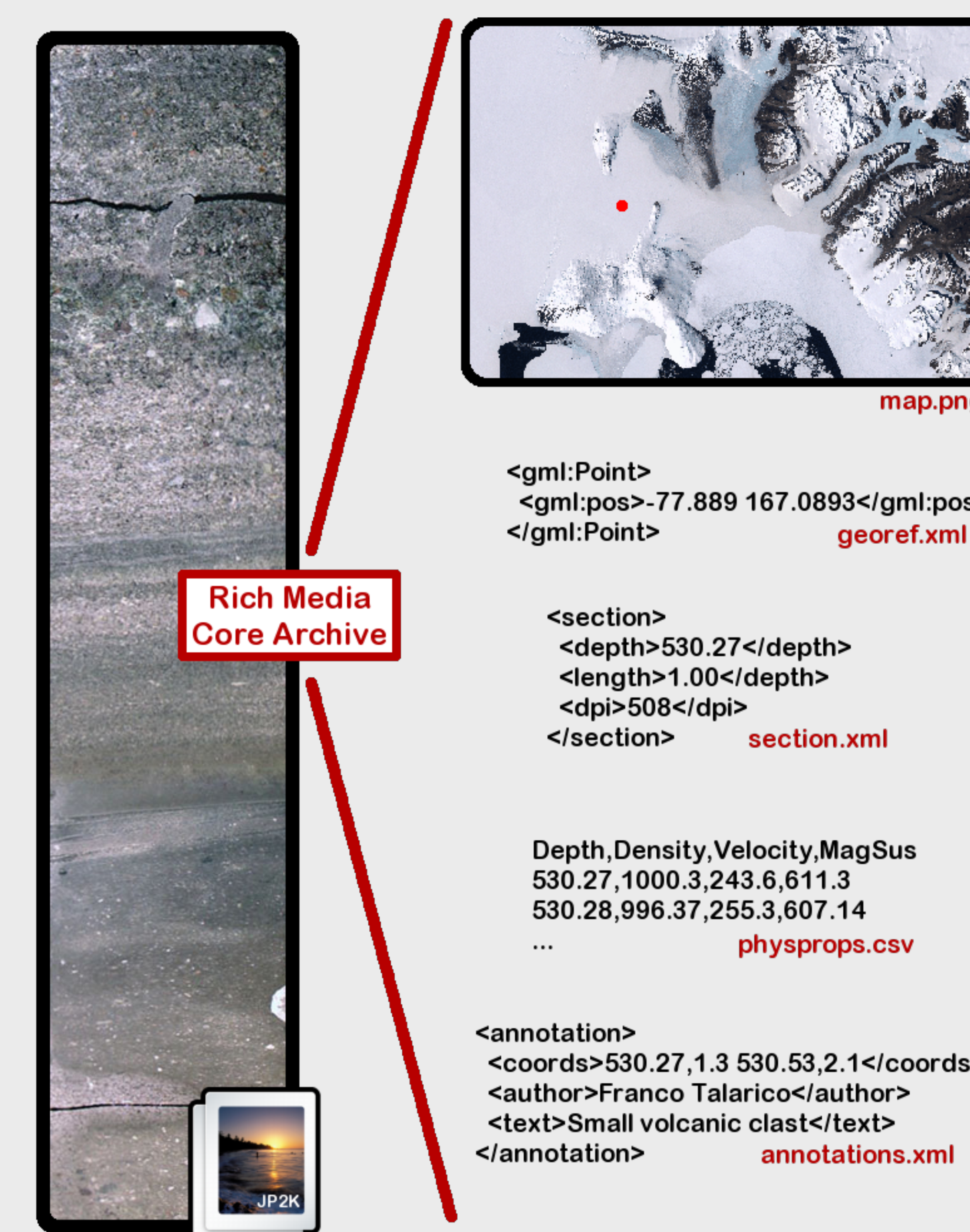
## Enhancements to Visual Stratigraphy Correlation



The function of visual stratigraphy correlation has been further enhanced to allow two pieces of software in the suite, Correlator (which replace SPLICER/SAGAN applications for IODP) and Corelyzer (which is the visualization tool in CoreWall suite), to work side-by-side with both data logs and high-resolution imagery. An imagery-only splice composition function will also be provided for scientists to generate the common splice table output.

In 2008 Corelyzer began working with International Continental Scientific Drilling Project's (ICDP) Drilling Information System (DIS) and Paleontological Stratigraphic Interval Construction and Analysis Tool (PSICAT) to standardize on an interoperable data exchange format. The format is based on XML and allows DIS to expose the collected recovery data to client applications like Corelyzer and PSICAT. Corelyzer will be able to visualize the imagery downloaded from DIS server and export the user generated interpretation annotations back to DIS.

## Rich Media Core Archive

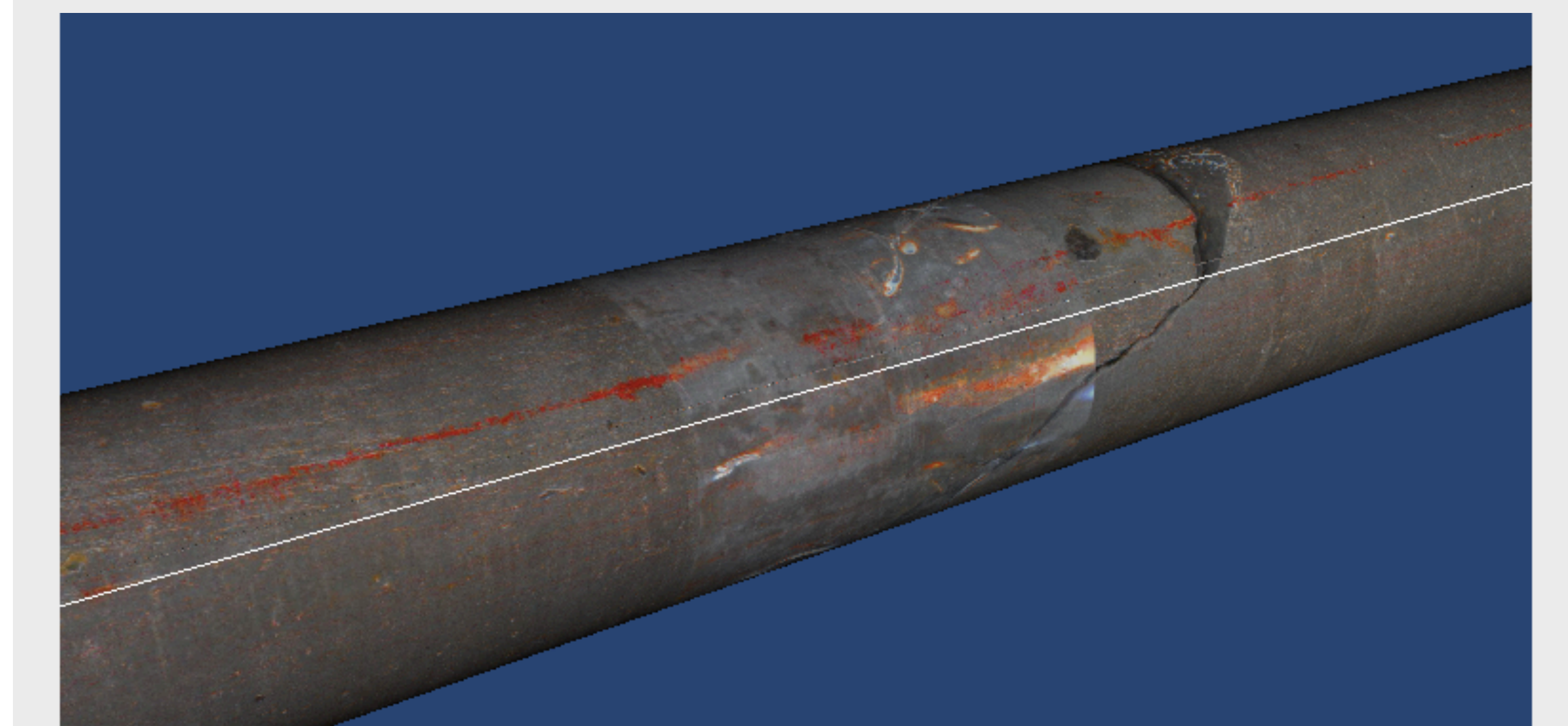


LacCore: U.S. National Lacustrine Core Repository at the University of Minnesota ([www.laccore.org](http://www.laccore.org))

Drilling Information System, International Continental Scientific Drilling Program ([www.icdp-online.org](http://www.icdp-online.org))

## 3D Whole Core Visualization

A three-dimensional whole round core viewer prototype was developed to support structural observation of 360 degree view of cylindrical core. This prototype program uses OpenGL for 3D rendering and works under both Microsoft Windows and Apple Mac OS X. It allows users to select a high-resolution whole round core image and wrap the image around a cylinder. The user can manipulate the texture-mapped cylindrical "virtual core" in 3D space.



We will also be working on "Rich Media Core Archive" for core data distribution with management flexibility. The JPEG 2000 format provides both feature-preserving high compression ratio encoding and advanced features like multi-resolution and multi-tile imagery delivery. With the ability to embed XML data files, we can include not only geospatial metadata but also geometry features, data logs and interpretations into a self-contained JPEG 2000 core section archive file. We hope it will be useful to both scientists and educators in the classroom environment.

## Acknowledgements

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