Bellerophon
A Computational Workflow Environment for Real-time Analysis, Artifact Management, and Regression Testing of Core-Collapse Supernova Simulations

Real-time Data Analysis
- Robustly access and customize 2D color map and line plot animations within seconds
- View animations with VCR-like controls with the Animation Viewer
- Robustly export data, animations, and other artifacts
- Monitor simulation progress and physical time

Simulation Artifact Management
- All data files, metadata, and renderings are tracked in a database
- >110k data files, >850k PNGs, ~850 animations, and >2,200 regression tests
- Metadata includes job id, wall times, user names, dates, etc.

Software Engineering Tasks
- Automated regression test framework
- Check out, compile, and execute latest revision on a supercomputing resource
- Automated “Blame” email with hyperlinked stack trace
- Access and export full test results with the Regression Test Explorer

User Interface Design and Deployment
- Cross-platform, digitally signed Java application
- Web-deliverable installation / automatic updates with Java WebStart
- Dashboard / WYSIWYG UI design
- Intuitive use of icons, text, and color for components

Scientific Workflow Management and Tool Integration
- Generate SVN repository statistics over a custom date and/or revision range
- Monitor real-time status updates of OLCF, NICS, and NERSC resources
- Integration with SVN, Trac, Visit, Grace, and Mailman
- Consolidation of important links for developers/users

Publications

Multi-tier Architecture includes Supercomputing Resources

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Publications

ChimeraSN.org
OAK RIDGE NATIONAL LABORATORY
Eric Lingerfelt: lingerfeltej@ornl.gov
Bronson Messer: bronson@ornl.gov

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