

### **3<sup>rd</sup> CHRONOS Retreat**

Meeting Minutes

*August 4, 2005*

*Present:* Cinzia Cervato, Doug Fils, Doug Greer, Scott Lidgard, Rich Lane, Brian Huber, Ethan Grossman, Pat Diver, Walt Snyder, Roy Plotnick, Jim Ogg, Mark Leckie, Vladimir Davydov, Tyson Taylor, Josh Reed, Ben Bryan, Brice Lambi, Xiaoyun Tang, Tom Parham

*Note takers:* Brice Lambi and Mark Leckie

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#### **Review / Proposal**

Cinzia gave introductions, reviewed, and outlined proposal.

##### Review

- Walt Snyder's Conflict of Interest with NSF Geosciences
- Mid-June: responded to reviewer questions

##### Proposal

- Dave Lambert at NSF
- 1-yr funding at 50% with comments and concerns recommended by Jeff Ryan
- submit new proposal in February
- core group of developers is highest priority plus involved scientists
- keeping community involved is high priority
- 2 issues: data and web interface, and training users (tutorials)
- focus on user interface
- GSA and AGU are chances to involve community to utilize the CHRONOS interface
- Need education and outreach plan but not invest new funds
- Strategic plan and management structure (in coordination with the Interval Coordinating Committee)
- Funding for consultant (John Latta)
- \$1.15 M with possibilities for supplements

#### **Discussion**

August 4 agenda to focus on IT

Scott Lidgard: from reviews concerning deliverables; there is confusion in the community about what CHRONOS does.

Rich Lane:

- NSF is not spending \$1M+ to "ramp-down" CHRONOS;
- funding is a sign of confidence; linking technologies is beneficial to the community; reviews have been outstanding
- a year to address issues raised by reviewers;
- build the user community;
- web interface not as user-friendly as it should be (needs to be more intuitive);
- not so much about history of CHRONOS but more about where it's going (the vision for CHRONOS needs more attention in the next proposal);
- more fully developed education and outreach plan (not critical for February)

Ethan Grossman: have we advertised CHRONOS deliverables?

Doug F.: we have deliverables, but not as visible as it should be; searches, tools available, services. Our tools need to be brought closer to the front.

Scott Lidgard: need to survey ourselves (i.e. How do I? What do I?); have you tried a "What if I want to...?"

Doug: we want to build tools that serve multiple purposes

Brian:

- CHRONOS tools page: tools should be linked/clickable in addition to the tools by name across the blue bar at the top – it is not at all intuitive;
- how can people submit their data to CHRONOS? CHRONOS used to be a place to put data and now lacks explanation for inputting data

Doug: PaleoStrat needs to be our point of data entry

Pat:

- working on the geochemistry data loader;
- need templates that can be distributed to the community (need to get user data ready to enter)
- need to finish the schema; data entered by end of August

Scott:

- Paleobiology database elected not to use templates, instead line-by-line web-based forms- admittedly painful;
- ocean floor petrology database uses Excel-based templates – very user-friendly

**(each person's comments on the data entry topic are below as discussed from ~9:00 to 9:45)**

Walt:

- problem with Excel templates is capturing metadata; web-based forms are the most vigorous way of data entry; efficiency depends on data; difficult to design templates; legacy data will be a problem/less valuable
- design a system that focuses on the future, not on legacy data; simple ways for data to be entered with high resolution
- users don't care about metadata, Paleostrats web forms accomplish this
- people need web forms and Excel data entry. Excel uploads are coming along fine, web forms are fine
- What is the baseline 'data' that the community needs to submit data to the CHRONOS system? Community doesn't understand the difference between data and metadata. Source of data?
- We need something with 'immediate satisfaction'

Doug F.:

- we will create some metadata schema that will meet the minimum requirement for PaleoStrat database (e.g., Paleo Darwin core?)
- with metadata schema, able to enter (partial) data into PaleoStrat?
- people have data now, we need to address them

Doug G.:

- Information Integrator makes Excel look like relational tables

Pat:

- PaleoStrat has dependencies, keys must be filled manually
- Schema files will simplify data entry; keep details from user, provide up front data fields

Ethan: But we're providing the structure for future data

Scott:

- need an agreed upon method of data entry
- Are there core attributes across databases? Need to advertise what these general metadata should consist of
- need to make a standard, make the community follow

Brian:

- First experience on CHRONOS website must be a good experience, or people will give up and it will be a lost opportunity
- needs to be so simple it draws people

Roy Plotnick:

- spatial info is also important; map making; GIS or ArcInfo formats to create maps
- legacy data needs to be updated

Tyson: Schema files are not what scientists want

Rich: need to focus on standards, don't need to worry about PaleoStrat

Jim: need entry confirmation

Cinzia:

- Does PaleoStrat know what people want?
- need to focus on what we are doing the next three months

## **Demonstrations**

Walt – PaleoStrat (in place of Christian who was in a car accident on the way to the airport):

- Vladimir, Tyson and Walt: labor of love with much volunteer time
- Issues: data quality, entry, simplicity, flexibility
- Web forms (with pick lists/pull down lists) are the best ways to avoid mistakes, including spelling; standardized lists that are used by other groups or agencies
- Pick lists are static (i.e., users cannot add new items to lists), with the exception of species (users can add species to available lists of taxa)
- Excel templates are a possibility, but the logic of the details is tricky
- Develop databases with cutting edge technology; use web forms as interface
- Cannot take entire schema and make Excel template; templates do not allow for easy checking
- Redo initial page; users need to know: data I/O, search, tutorials
- Data entry tutorial does walk through
- Login only for users entering data and owns that data; anyone can search data and download as Excel doc
- Data types: tree of checked boxes, user chooses the type they want returned
- Searches: quick, map based, form based
- Form based search: uses web based services from Ames; combo boxes to select search criteria – minimizes spelling errors
- Easy – the backend is too complicated
- Searches: can be saved; user can return and modify

- Optional fields: not obvious; lat/long is enough to search; accommodate by allowing degrees and ntm; stored in decimal-degree makes universal
- Tab interface easiest way to navigate; sidebar gives easier navigation
- 24/7 System
- Excel upload: implement
- Customization: cannot for every user; CAN for larger groups
- Comments: user can leave technical or scientific comments
- Data: not necessarily published; associated with name; some legacy data; can add tax data to a pick list; cannot tell if published

Doug Fils – newer things happening at CHRONOS

Josh: Paleo-Strat Interval Construction and Analysis Tool (PSICAT) for Andriil stratigraphic sections; creation of graphic sections

- Capture data from core stratigraphic diagrams
- RCP allows modules to represent data and add functionality
- Graphical editing tool
- Customize views and data display
- Allows people to store data and share with others (DB)
- Core effort to accommodate ANDRILLS's needs
- Updates available to users via auto update
- User can add text and other metadata to a core diagram
- This should be more advanced than Apple Core, more graphical
- When done with ANDRILL's needs can customize for ODP via plugging

(Walt: need to capture legacy data as SVG)

Doug: Core Wall – multi-tile screen, call back into the CHRONOS System to query core data

- 69 services available on the CHRONOS System
- all searches query back into CHRONOS hosted or federated databases
- extensive search capabilities through the CHRONOS portal
- Composite multiple cores
- Working to integrate CHRONOS services and DBs in to corewall
- Beta software
- Could tie into PsiCat
- Add search functionality into cores; can make notes and add other metadata to points on the core

(Core Wall ends; modular: want to choose data source (CHRONOS, ANDRILL, etc.); working on API – Core Wall is not glued to CHRONOS)

TIS

- Web based, uses java applets
- Zoom able – links on the time scale image
- Output in SVG
- Done with WS – no data is stored in the application
- XQE: gives search interface; uses web services and DB to retrieve data; quickly add services and searches; interface is auto generated based on XMC config data; CSV html diversity curve; dynamic – if DB is updated, updates then on next search; needs to be upfront; provides deliverables

Jim Ogg – time scale

- Conversion of Exxon-SEPM (1995) inter-calibration of timescale for the Mesozoic-Cenozoic (~8000 event-age items); for free public distribution

- 1998 without calibration; current Triassic-Present 6000+ event ages plus isotope curve
- Public access concept: user-generated graphics, down-loadable, and scaleable
- Timescale Generator: Java, apache's Batik SVG toolkit; choose stages, scaling; both USGS and UNESCO color codes; resize columns; compact data files (tabs delimited, width, title, color, grouping defaults specified); dynamic popups give extra data associated with points;
- Approximately 200-300 hours of programming
- New version is much faster
- this is available now

#### Roy Plotnik

- Statistics: Spatial statistics for geologists
- I/O ASCII text files
- Choose data type: binary, quantitative
- After data plot can transform and replot
- Correlation between two data sets
- General package

#### Doug Fils and Doug Greer – services for sciences

- CHRONOS is currently hooked up to 7 databases including Neptune, Janus, PaleoStrat, Paleobiology, TimeScale
- Doug F.: CHRONOS services oriented architecture; services can be structured; 69 services; services have to be used; databases are fundamental (II); use agreed upon standards; URL search; WS of little use to user but syndicates info
- Doug G.: Federated databases – collection of individual DBs; data source can be anything and added easily; create data using metadata from data sources; monitor sources and connectivity; built on DB2/II federated; Chronoplex Architecture (searches updated, WS calls, generate RSS feed)
- Calendar syndication (ical to RSS, multi-ical to RSS)
- RSS integrated to any web page
- Content/searches added to web page
- Enable data movement
- ADP uses XQE for backend queries

#### Issue of usability

- NSF recommends hiring a consultant
- Option: hire someone to guide the design at web site

#### GSA

- 20 x 10 ft booth
- Classes at GSA: sign up; consultant help; advertise on Paleonet; demonstrate growing user community; include students; on-line tutorials; standard course for other departments; campus rep on other campuses; train the trainers (ensure all can train others)
- Model exercises (i.e. chem lab)
- List services more human friendly
- Track most common queries (common questions, questions easily accessible, advertise availability)
- Integrate with GeoWhen
- Video tutorials: show tools / deliverables
- Test course: before GSA go to a university and try to teach tools
- Serialize data as actual files; allow users to reuse this data
- Core capabilities of CHRONOS
- Write editors, request mention of CHRONOS as data archive
- At GSA, people create own time scale
- Complete list of I/O at CHRONOS (give us your data)

Needs Focus:

- Geochem DB, forms finished
- Timescale creator, August 18
- ADP, v 1.02, ready
- PsiCat, beta, GSA
- Geochem / PaleoStrat, beta, Mid September
- Load Excel into PaleoStrat, under level, GSA
- Biostrat?
- Sesar WS, beta, GSA
- Corewall, needs more
- Save searches at RSS/XML, save results remotely through access URL
- Paleostrats clean up, published ? data
- CHRONOS needs a hook (tools, Timescale creator up front draws crowd, submit data that's easy to access)
- Show people how we add value to their data
- Flyers about services; surveys; metadata forms
- Define sequence of events for using systems
- Prioritize

Cinzia: Discussion, recommendations

- Issues of usability of CHRONOS
- Hire a consultant
- Revise website; need to make it more user-friendly
- Need buy-in from community
- User-training at both GSA and AGU (double-size booth)

Roy: What can CHRONOS do for me?

Mark - suggestions for web page and upcoming GSA meeting

- ***What can CHRONOS do for me? We need user buy-in, soon!! Suggested 3-prong approach for the website and upcoming meetings:***
- 1. **Web-based integrated time scale should be the show-case of CHRONOS** (= "the hook"; the possibility of individuals building their own personalized time scales will be a huge appeal). This will encourage individuals to explore the CHRONOS website further. Have people stop by the CHRONOS booth at GSA (and AGU) and build their own customized time scale for their needs. This will generate buy-in and increased visibility for the website.
- 2. We should remind people that NSF now requires all P.I.s to submit their data to a permanent archive; CHRONOS webpage should be a/the user-friendly interface to facilitate this task. **How do I submit data? Where? Format? Can CHRONOS be such a front-line portal?** Compare with the National Climatic Data Center (<http://www.ncdc.noaa.gov/paleo/paleo.html>)
- 3. More prominently **highlight the tools available** through CHRONOS (ADP – Age Depth Plotter, Geochemistry database, PaleoStrat, Paleobiology, CONOP9)

Pat: need to demonstrate utility of Geochemistry Database; geochem data will be in PaleoStrat by September

Brian: encourage researchers with deep-sea data to submit their data (Excel) to CHRONOS; biostratigraphic occurrence data, and other types of data

Cinzia: Mimi Katz has submitted deep-sea benthic foram data as Excel spread sheets

Need different templates for different types of data (e.g., geochem, biostrat, lithostrat, etc.)

Database template – to submit your data to CHRONOS – preliminary list by Mark, not discussed fully by the group, or by a subcommittee as suggested by Walt

- Author, publication, date, etc.
- Location
- Formation
- Age
- Lithology
- Biostratigraphy
- Other stuff

Tools to highlight at GSA:

- Time Scale Creator
- Age Depth Plot
- PSICAT
- Geochemistry Database
- CONOP9
- Data Entry/Submit your data to CHRONOS
- Taxonomic Dictionary
- PaleoStrat Database
- Teaching Geologic Time workshop (use CHRONOS tools to convey these concepts) – end of June 2006? Need wide advertisement to draw in prospective participants. Target audience: middle and high school level deliverables. – Tom, Mark, Roy to organize a draft
- Develop a tool to create biostratigraphic range charts based on input of Excel spreadsheet data; tool will sort taxa by first or last appearance; also graphical output – Josh and Pat
- Interface on CHRONOS for biostrat data entry – Brian, Pat

END of August 4 CHRONOS meeting

### **3<sup>rd</sup> CHRONOS Retreat**

Friday, August 5, 2005

Meeting minutes

#### **Discussion**

Cinzia: Education and outreach

- No funds for education in original proposal; but we have a requirement for education and outreach
- Developed a number of partnerships (PRI – traveling exhibit on geologic time; PaleoPortal out of UC-Berkeley)
- Need an education and outreach plan
- Education advisory board
- Should emphasize what we're doing with graduate students (internships?)
- Need a coherent vision from the P.I. community (what do you want to do, not necessarily how it will be accomplished)
- We bring data (and tools) to the community

Brian: traveling time exhibit; difficulty in explaining the concept of how to explain geologic time is a problem faced by museums; how do we effectively convey the concepts?

Cinzia: Identify patterns of misconception concerning geologic time; geologic time is a very difficult concept to teach.

Brian: this should be the “vision” for CHRONOS; convey the concepts of geologic time; to become a resource for educators

Scott: the metaphors chosen to convey geologic time are difficult and should be tailored to the audience; consider targeting different audiences and build products for these different audiences; downloadable lectures

Rich: kids receive mixed messages all the time, between home, church and school

Roy: DLESE has an abundance of resources; also relative time is an important concept that also needs to be addressed

Rich: concept of stratigraphy; take students out to see rocks

Tom: Target the teachers!

Rich: very little age-appropriate material for middle school kids (based on his wife's experience as a middle school librarian)

Mark: build a sequence of modules that focus on different components of the broader concept (stratigraphic principles, Steno's laws, relative time, fossils, correlation, radiometric dating, paleomag, construction of geologic time scale, chronostratigraphy vs. geochronology) that successively builds to an understanding of geologic time

Ethan: how to use Excel; hands-on training for teachers is very important; exercises

Mark: why not put some money for education money into the budget

Tom: Integrate CHRONOS tools; work with a publisher to design age-appropriate materials for teaching geologic time;

Pat: maybe focus why should students be interested in geologic time? Relevance to daily life

Scott: some of budget for direct advertising? Color mailing to all geologic departments and other organizations

Doug G. – wikipedia is a great resource

Mark: why not have a workshop with K-12 and college teachers and scientists to build a series of modules and exercises

Roy: “cutting-edge” workshops funded by NSF

Brian: geologic time website at Smithsonian (has received high praise) [www.nmnh.si.edu/paleo](http://www.nmnh.si.edu/paleo)  
click on geologic time

Cinzia: people to share their “best practices”

Cinzia – CHRONOS impact on the community

- Put together a strategic plan and management plan
- Hire a consultant to provide input on developing a strategic plan for CHRONOS

Mark: CHRONOS homepage to include:

***What can CHRONOS do for me?***

- Build your own **customized geologic time scale**
- *How can I analyze my data using CHRONOS Tools?*
- **Educational resources** for teaching & learning about Earth history
- *How can I submit data to the CHRONOS System?*

Can't there be just one CHRONOS home page (containing link to CHRONOS Portal)?

Josh: Flash tutorials for tools; feature a different tool each month

Scott: target audiences?

End of August 5 CHRONOS meeting