Agenda

Age Models, Chronologies, and Databases Workshop

Belfast, Northern Ireland, 13-16 January 2014

MONDAY, JANUARY 13

8:30-8:40   **Maarten Blaauw** and **Eric Grimm**: Introduction to workshop, goals, etc

8:40-9:10   **Maarten Blaauw**: Introduction to Age Modeling

9:10-9:40   **Eric Grimm**: Geochronology, Relative Chronology, Event Chronology, Dataset Chronologies, and Age Models in Neotoma. A discussion of how the database handles these data and of the problems, with a particular focus on the radiocarbon time scale

9:40-10:00   **Brian Bills**: Leveraging remote data: Application Programming Interface (API) value and opportunities

10:00-10:30 **Coffee break**

10:30-11:20 **Simon Goring**: RNeotoma, particularly in reference to age models

11:20-11:40 **Simon Brewer et al.**: Age models in the European Pollen Database

11:40-12:00 **Jessica Blois**: Age models in the North American Pollen Database

12:00-13:30 **Lunch**

13:30-14:00 **Paula Reimer**: Calibration Curves (everything you wanted to know but were afraid to ask)

14:00-14:20 **Caitlin Buck**: Bayesian radiocarbon calibration

14:20-14:40 **Ron Reimer**: Some database insights gained at the ^{14}Chrono Centre

14:40-15:00 **Maarten Blaauw**: Clam and Bacon, latest updates

15:00-15:40 **Coffee break**

15:40-16:00 **Jack Williams**: EarthCube paleo-RCN, the general issue of database interoperability

16:00-16:15 **Graciela Gil Romera**: Age models for an Iberian Peninsula database

16:15-16:30 **Blas Benito**: Use of Bacon for cross-validation of age-depth models

16:30-16:45 **Vojtěch Abraham** and **Petr Kuneš**: Age models in the Czech Quaternary Pollen Database

16:45-17:00 **Nick McKay**: The Arctic Holocene Transitions database and ChronRater—a simple approach to assessing the accuracy of age models from Holocene sediment cores

TUESDAY, JANUARY 14

Concurrent sessions on the same topic: Participants will divide into breakout groups that will discuss the same topic for 45 minutes. A rapporteur will take notes. Participants will then reconvene in plenary. The rapporteurs will report on the discussion/ recommendations of their groups, and plenary group discussion will ensue.

Concurrent Topic 1: Age models based on radiocarbon dating – problems caused by updates to the radiocarbon calibration curve.

Identify the issues with (1) single radiocarbon ages; (2) summed, pooled, or averaged ages; (3) ages generated with Bayesian calibration; (4) stratigraphic (e.g. tephras) or biostratigraphic ages based on radiocarbon dating; (5) others?

8:30-9:15   Breakout sessions

9:15-10:00   Plenary session

10:00-10:30 **Coffee break**

Concurrent Topic 2: Age models based on radiocarbon dating – strategies for regenerating chronologies from stored chronological data and age-model metadata.

Can a small number of age modeling algorithms accommodate most situations? What are these algorithms? What metadata must be stored to regenerate chronologies?

10:30-11:15 Breakout sessions

11:15-12:00 Plenary session

12:00-13:30 **Lunch**

13:30-17:00 **Excursions**: Visit to the ^{14}CHRONO Centre AMS lab in groups of 10-12 people at a time. For those interested, "black taxi tours" can be organized to visit Belfast's historical trouble sites. Safe now and quite interesting. Other opportunities are the Ulster Museum (nearby and free) or the Titanic museum (taxi ride, entry quite expensive, but a very nice new museum).

17:00-18:45 **Mixer** (with drinks) together with participants of an R workshop given by Stephen Juggins.

18:45-   **Workshop Banquet** at *The Barking Dog*. Local fare (but nice). Food paid for by the workshop. Drinks (beer, wine, Irish whiskey, anything with alcohol) paid by the participants.

WEDNESDAY, JANUARY 15

Concurrent sessions on the same topic (continued):

Concurrent Topic 3. Age models beyond the radiocarbon time scale.

What are the problems? What metadata are necessary for reconstructing pre-radiocarbon age models?

8:30-9:15   Breakout sessions

9:15-10:00   Plenary session

10:00-10:30 **Coffee break**

Concurrent Topic 4. Strategies for reducing the need for ad hoc age models.

Identify the reasons why ad hoc age models are currently necessary. What can be done to accommodate these in general age model algorithms

10:30-11:15 Breakout sessions

11:15-12:00 Plenary session

12:00-13:30 **Lunch**

Concurrent sessions on different topics: Participants will divide into breakout groups that will discuss different topics for 45 minutes. A rapporteur will take notes. Participants will then reconvene in plenary. The rapporteurs will report on the discussion/ recommendations of their groups, and plenary group discussion will ensue.

Concurrent Topic 5A. Rankings of the quality and accuracy of radiocarbon dates and dated materials.

What qualitative ranking schemes have already been established? Can the application of these schemes to chronologies be automated? Is a quantitative scheme possible? Other issues: a priority ranking scheme for various age determinations; developing an algorithm for quantifying error estimates for such age determinations; bone dates.

Concurrent Topic 5B. Linking databases, calibration programs, and age modeling programs.

Web services and R (e.g. RNeotoma); Additional web services needed? Additional software development needed to facilitate this linking? What data need to be made available via web services to generate and reproduce age models? Identify use cases for generating and reproducing age models.

13:30-14:15 Breakout sessions

14:15-15:00 Plenary session

15:00-15:30 **Coffee break**

15:30-17:00 **Plenary wrap-up session**:

- Where is there already consensus?
- What issues require more work/research?
- Who is working on various topics?
- Papers?: – synthesis, state of the field, best practices
- Software development
- Database tools or modifications

THURSDAY, JANUARY 16

Software training course