First Chew Bahir workshop,
Cologne, 29-30th June 2015

Protocol, Monday June 29th

1. **Introduction**
   Presentations as planned, Frank Schäbitz
2. **ICDP and HSPDP: What has been done so far?**
   Presentations as planned, Frank Schäbitz, Henry Lamb
3. **Age modelling**:
   Presentations by Christopher Bronk-Ramsey, Martin Trauth & Tim Raub
   Open discussion focused on:
   - **Geochronology and Age Modeling** colleagues and workpakages: Christopher Bronk Ramsey (14C Dating, Bayesian Age Modeling), Alan Deino, Christine Lane (Argon Dating and Tephrochronology), Time Raub, Janna Just (Paleomagnetics, Composite Core), Martin Trauth (Frequentist Age Modeling, Tuning), Helen Roberts, Nicole Klasen (OSL Dates)
   - **First Preliminary Age Model:** Correlating the cores to create a composite core is in progress by visual inspection and manual tuning (Tim Raub) and semi-automated tuning (Martin Trauth, Norbert Marwan), together with lithology + MS based tie point definition of the cores (Verena Förster, Raphael Gromig). First results are already available. First paleomagnetic intensity data expected by the end of July (Tim Raub). Very preliminary age model based on these data, based on whole loop sensor data and MSCL logs, tuned to orbital cycles and dust records by the end of September (Tim Raub, Martin Trauth).
   - **Radiocarbon Dating:** Depends on the quality and quantity of suitable material found in the core. No dates on bulk material due to expected low accuracy of such dates. As soon as the material is available dating can be done very quickly (Christopher Bronk Ramsey).
   - **Tephrochronology:** First results expected in two months time (Christine Lane).
   - **Optically Stimulated Luminescence Dating:** First results after six months, characterization of the material etc., in total it could take us two years to have the final results (Helen Roberts, Nicole Klasen).
   - **Argon Dating:** Alan will go through the cores at LacCore, with financial support from Martin's DFG grant, since it is impossible to identify tephra from the high resolution images of the cores. Erik Brown's μXRF data, available some time this summer, could help to detect tephra. Minimum time between sampling and preliminary ages is two months. Final ages in about one year after sampling in the best case.
   - **Training:** Everyone outside of the geochronology and age modelling team needs to be instructed/trained in the use of the age model and its uncertainties. Ages themselves have their uncertainties (precision, accuracy), then we use them to create an age model. Our final age model

will be statistically robust, but depends on the quality of the radiometric dates and the statistical method used to create the model (all).

- **Discussion:** The idea to first calculate an age model only for the uppermost 80 m was rejected by the age modelling team. Better to produce an age model for the complete core right away (all).

4. & 5 How to continue? Discussions in breakout groups (Part 1 & 2)

- **Cooperation in Geophysics:** Marc Seidel reported about the geoelectric studies done by the Cologne group in Dec. 2014. He will complete the results for his PhD in the framework of the CRC-806. Richard Bates and his team will go out for seismic fieldwork at the deep drilling site in Nov. 2015. Results may be available until Jan. 2016. Daniel Melnick will continue his work about the precise altitudinal measuring of the basin and former strand lines and the tectonic setting in order to find out where the sediments are coming from. He already sampled material from former strand terraces to check erosion rates.
- **Cooperation in scanning & geochemical studies: MSCL scanning** will be continued as soon as the machine in LacCore will be ready again. **XRF scans** will start this late summer in Duluth (E. Brown) in 2mm resolution for the upper 80m and in in 5mm resolution for the lower 200m. **TOC data** are urgently needed, not only by Jonathan & Emma, a 32cm resolution will be good. Very possibly this will be done here in Cologne. **XRD data** will be produced in Potsdam.
- **Cooperation in microfossils studies:** So far no **pollen** grains were found in 12 test samples from the uppermost 80m**,** tests will be continued further down (possibly at Henry's lab.). **Diatoms** were identified in some smear slides already; first sample preparation (upper 80m in 32 cm res.) will be done during this summer by Sarah Davies. A first overview of the whole core might be ready by end Sept - mid-Oct and an initial assessment of key species (but not full counts) of all samples obtained so far by Christmas. **Ostracods** might be badly preserved but will be analysed by Finn as in the 40m core from March 2014. Their shells will be used for isotope analysis too (cooperation with Melanie's group). **Phytoliths** are visible in some smear slides and might be analysed in cooperation with Andy Cohen's group in Tucson (to ask for). **Charcoal & black carbon** might be performed in cooperation with the Bonn colleagues of the CRC-806 (E. Lehndorf; to ask for). For **molluscs, shells & fish bones** Annett will take care (Tübingen Uni. with the help of people from Gießen Uni.).
- **Cooperation in stable isotope studies:** Need for TOC data; first results of stable isotope data are already available from the 40m core and are promising (Melanie & Jonathan); Asfa will be in the isotopic team.
- **Cooperation in biomarkers:** Janet denied continuing the biomarker work because of not sufficient organic matter in her test samples from the 40m core. Now Emma Pearson is trying to identify suitable samples in the long core for biomarker analyses.
- **Cooperation in modelling climate and human mobility:** not yet possible, Martin Trauth will coordinate this work when sufficient data from different proxies are available and a reliable age model is produced.

Protocol, Tuesday, June 30th

1. **CRC-806 and outreach**
   Presentations as planned, Jürgen Richter; Julien Ruddock
2. **Future plans, funding requirements, future research proposals & conferences (Part 1 & 2)**
   - In general we agreed in the **rules of good scientific practise**. For PhDs and other young scientists, a paper with these general rules for our CB team are available on request by the main PIs.
   - The **CB steering group** contains (in alphabetical order): **Asfawossen Asrat, Henry Lamb, Frank Schäbitz & Martin Trauth**. No advisory panel will be elected/needed right now.
   - For any question concerning the **preparation of papers, abstracts for conferences and future proposals, the CB steering group** should be informed early enough to coordinate and inform the CB members
   - **Communication** between different CB-labs & colleagues will mainly be done by mail, skype and on our yearly meetings
   - **CB special issue:** different opinions were discussed, decision may be next year
   - In order to estimate sample resolution and extra **money for future proxy analysis** of the deeper part of the long core, Frank will prepare an Excel sheet which requests the needs of additional sampling. That should ideally be done with the service offered by LacCore.
   - **Proposal plans:** New ICDP proposals will be send to ICDP Germany until Aug., 18th 2015. We plan 5 new proposals: (1) Martin Trauth and Frank Schäbitz: "*Understanding of the proxy forming processes*"; (2) Martin Trauth together with Norbert Marwan about "*time series analyses*" and (3) "*genetics*" Ralph Tiedemann with Michael Hofreiter; (4) Annett Junginger, in collaboration with Hubert Vonhof, Amsterdam, on the paleohydrology/Sr isotope hydrochemistry of the Chew Bahir basin,; (5) Finn Viehberg about "*Ostracods*"
   - **Data sharing** will be done via dropbox in the next months. May be later we will also use the HSPDP internet pages/data sharing facilities with code words.
   - **Plans for next publications (so far roughly fixed):**
     Finn Viehberg et al. (2015/16): Results of the 40 m core**;**
     Verena et al. (2016): Scan data (together with TOC) & first version of the age model for the long core;
     Melanie, Jonathan & Finn (2016/17): Stable isotopes (also from ostracodes)
     Annett et al. (2016/17): strontium isotopes
     the rest is not clearly determined yet and depends on the upcoming results
   - Martin Trauth et al., early-mid Pleistocene transition
   - **Participations on conferences/workshops:** Christine at INQUA (July 2015); Jonathan & Finn: GSA in Baltimore (Nov. 2015); may be Frank at AGU (Dec. 2015; poster about CB); Frank, Henry & Martin: HSPDP workshop in Atlanta (Jan. 2016); Melanie, Emma at EGU (Vienna 2016)

- **Next CB-workshop** will take place in **the UK**, Henry will organize it for the **end of June 2016**