

Purpose of the visit (from project proposal)

- 1) Finish a paper about the exact timing of the last geomagnetic reversal, the Matuyama/Brunhes Boundary. Personal communication will make manuscript preparation much more time-efficient.
- 2) Quantify error estimates of eccentricity/precession interference pattern in the geological record. Aim is to finish developing and test a new technique for gaining information on phase relations between insolation changes and terrestrial response from eccentricity/precession interference. For this purpose error estimations are essential, which will be discussed during the visit.

Description of the work carried out during the visit

During the stay at Roskilde University, Michael Storey, Tiffany Rivera and me have discussed the intercalibration (combination of Ar/Ar ages with orbital tuning) of Neogene ash layers, specifically from the Pacific region. We discussed the outline of a manuscript, discussed the results from the different age determination techniques and started drafting figures for a manuscript.

We discussed the application of statistical methods, particular error estimation and propagation, to estimate eccentricity from geological records. We progressed on a manuscript about “determining phase relations of proxy data using the eccentricity-precession pattern”.

Description of the main results obtained

Results are a clear idea of statistical methods to estimate eccentricity from geological records, and a much progressed manuscript on “determining phase relations of proxy data using the eccentricity-precession pattern”.

Further, personal communication was necessary to obtain a clear idea of how to interpret results from intercalibration of Ar/Ar and orbital tuning. We achieved an outline in which way we intend to discuss and interpret our intercalibration results.

Future collaboration with host institution

Our collaboration will continue at least until publication of the results. Further cooperation on (intercalibration?) projects are possible.

Projected publications/articles resulting or to result from your grant

We intend to submit manuscripts on

- 1) Determining phase relations of proxy data using the eccentricity-precession pattern
- 2) intercalibration of the Ar/Ar and orbital tuning dating methods, possibly including the use of U/Pb ages.