A vast continental flood basalt province (the Kalkarindji CFBP) has recently been discovered in northern Australia. The basalts of this Large Igneous Province (LIP) formed at ~510 Ma, close in time to the late Early Cambrian mass extinction. This discovery prompts further investigation. The main objective of the proposed study is to estimate the magnitude and effect of the Kalkarindji CFBP. In order to estimate the magnitude of the eruptions, the full extent of the Kalkarindji CFBP needs to be established. The extensive Table Hill Volcanics (THV), geochemically similar to the Kalkarindji basalts, may be part of the province. To test this hypothesis, the THV will be dated with the Ar/Ar method. It has been suggested that the amounts of volatiles released during the eruption of a LIP could cause climate change. Thus, by investigating the volatile content of the original magma the effect of the Kalkarindji eruption can be estimated. These investigations require careful fieldwork and studies of fluid and melt inclusions. During the outgoing phase of the proposed project, the researcher will be trained by experts in several techniques in order to develop new technical skills. These skills, particularly those related to fluid inclusion studies, will be essential for the melt inclusion studies planned for the return phase. The researcher will benefit greatly from the knowledge and skills gained during the fellowship, resulting in increased chances for securing longer term positions and future funding in the EU. Collaborations established during the fellowship will likely continue in the future, which will be beneficial for both the researcher and the host organisations. The proposed project is multidisciplinary, involving geochemistry, volcanology, paleontology and climatology. This will provide many possible career paths for the researcher. The current proposal addresses questions related to global warming and the greenhouse effect, important issues in European research.
Coordinador
SWEDISH MUSEUM OF NATURAL HISTORY
Frescativägen 40
STOCKHOLM
Sweden

Contacto administrativo: Henrik SKOGBY
Tel.: +46-8-51954043
Fax: +46-8-51954031
Correo electrónico

Participantes
JAMES COOK UNIVERSITY
James Cook Drive
TOWNSVILLE
Australia

Contacto administrativo: Graham SHIELDS
Tel.: +61-747815008
Fax: +61-747251501
Correo electrónico

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