

**Final Report  
to  
EuroSpeleo Project FSE**

**from**

**The Second International Conference on Granite Caves**

**in Sweden**

**June 1–7, 2011**

# EuroSpeleo Projects FSE

- *To be filled only in English or French / A remplir seulement en Français ou Anglais*

- *If several activities to be proposed, please fill one form per activity /*

*/ Si vous proposez d'organisez plusieurs rencontres, merci de remplir un formulaire par événement*

- *Form to be sent by email at least 3 months before the beginning of the activity to the :*

*/ Formulaire à renvoyer par email au moins 3 mois avant le début de l'activité au :*

**Bureau FSE - Email : [contact@eurospeleo.org](mailto:contact@eurospeleo.org)**

*Association/Club organising the project / Association/Club organisateur du Projet :*

Swedish Speleological Society (SSF)

*Association/Club website address / Adresse du site web de l'Association/Cub :*

[www.speleo.se](http://www.speleo.se)

*Contact Person Name / Nom de la Personne Contact :*

*trashier of SSF: Ulla Pettersson*

*Address / Adresse :*

*SSF, Box 16013, 72016 Västerås, Sweden*

*Country / Pays : Sweden*

*E-mail : [ulla.pettersson@mdh.se](mailto:ulla.pettersson@mdh.se)*

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*Home / Telephone / Domicile : int.46-8.71711867 (Nils-Axel Mörner)*

*int.46-90.45258 (Rabbe Sjöberg)*

*Work / Telephone / Travail :*

*GSM mobile Number / Numéro de Tel. mobile GSM :*

## **Bank data for payment / Données bancaire pour le paiement :**

*Bank Name & Address of the Bank / Nom et adresse de la banque : Nordea*

SE-10571 Stockholm, Sweden

*Bank account name / Nom du compte bancaire :*

5002-0494

*IBAN : SE4230000000030822073234*

*BIC / SWIFT : SE2530000000018381701708*

## **Activity proposal to organize / Proposition d'organisation d'activité :**

*Type of activity / Type d'activité : Second International Conference on Granite Caves (CGC-2)*

*Theme of the activity / Thème de l'activité : Conference and Field Excursion*

*Dates : From (dd/mm/yyyy) / Du (jj/mm/aaaa) : June 1, 2011*

*To (dd/mm/yyyy) / Au (jj/mm/aaaa) : June 7, 2011*

*Exact Place & Region / Lieu exact & Région : Nynäshamn, Sweden + field excursion*

*Name of the activity / Nom de l'activité : 2nd International Conference on Granite Caves*

Project website address / Adresse du site web du projet :

www.speleo.se

Number of expected participants (range) / Nombre de participants attendus (fourchette) : 20

Number of organising people / Nombre d'organisateurs : 5 in Organising Committee  
Nils-Axel Mörner, Rabbe Sjöberg, Sven Gunvall, Johannes Lundberg, Ulla Pettersson

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## Participants

<i>Country in Europe</i>	<i>participants</i>	<i>name of participant</i>	<i>e-mail</i>
Austria	3	Rudolf Pavuza Petra Cech Christa Pfarr	<a href="mailto:rudolf.pavuza@nhm.wien.ac.at">rudolf.pavuza@nhm.wien.ac.at</a> <a href="mailto:rudolf.pavuza@nhm.wien.ac.at">rudolf.pavuza@nhm.wien.ac.at</a> <a href="mailto:christa.pfarr@nhm-wien.ac.at">christa.pfarr@nhm-wien.ac.at</a>
Finland	3	Aimo Kejonen Arto Lauri Vesa Noroviita	<a href="mailto:aimo.kejonen@gtk.fi">aimo.kejonen@gtk.fi</a> arto.lauri@dnainet.net vesa@styrge.com
Italy	1	Laura Sanna	lsanna@ual.es
the Netherlands	1	Jan Paul G. van der Pas	<a href="mailto:jpgvanderpas@hetnet.nl">jpgvanderpas@hetnet.nl</a>
Spain	3	Juan-Ramon Vidal Romani Marcos Vaqueiro-Rodriguez Marquez Belén	<a href="mailto:xemoncho@udc.es">xemoncho@udc.es</a> <a href="mailto:mvaqueiro@frioya.es">mvaqueiro@frioya.es</a> <a href="mailto:belen.marquez@madrid.org">belen.marquez@madrid.org</a>
Sweden	7	Nils-Axel Mörner Rabbe Sjöberg Sven Gunnvall Johannes Lundberg Christer Westerdal Magnus Ivarsson Therese Sallstedt	morner@pog.nu rabbe.sjöberd@telia.com sven.gunnvall@telia.com johannes.lundberg@nrm.se <a href="mailto:christer.westerdahl@hf.ntnu.no">christer.westerdahl@hf.ntnu.no</a> Magnus.Ivarsson@nrm.se Therese.Sallstedt@nrm.se

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Inscription fees / Prix d'inscription :

conference  
excursion

300  
300

Official languages of the event / Langues officielles de l'événement :

English

Amount of the total project budget / Montant du budget total du projet (euros) :

income:	31.892 SEK	+3.673 Euro
cost of conference	49.811	
cost of excursion	26.798	
additional cost	5.583	
	82.192	-9.467 Euro

in total € **-5.794**

Amount of the financial support requested / Montant de l'aide financière demandée (euros) : 1500 Euro  
or whatever possible as we have a serious budget problem

## *Progress Report*

The conference was composed of two main parts:

### **June 1–3: paper-sessions, discussion and local excursions**

It was attended by 18 persons from 6 countries.

10 scientific papers were presented

the powerpoint files are available on [www.speleo.se](http://www.speleo.se)

The local excursion included 6 main sites

A concluding discussion was held in the field the last day

### **June 4–7: field excursion to Hudiksvall**

It was attended by 12 persons from 5 countries

18 main sites were visited; the famous Boda Cave being the highlight  
several additional stops were made

**Litterature** handed out to the participants

*Program & Abstracts* (15 pp)

*Excursion Guide* (28 pp, in colour)

*Paleoseismology of Sweden - a novel paradigm* (Mörner, 2003)

*Bedrock caves and fractured rock surfaces in Sweden* (Sjöberg, 1994)

Sweden is the area where seismotectonic caves have been defined. Therefore, this was the main theme of the excursion and conference. Recently, we have also been able to describe heavy bedrock deformations with cave-formation as a function of explosive methane gas venting. Two such examples were shown during the excursion. There are also excellent tunnel-caves to be seen. The Boda cave with open subsurface passages with a total length of 2600 m is a famous example of paleoseismic bedrock deformation.

The conference was held at Lövhagens pension located at the sea shore in the close vicinity of the city of Nynäshamn. There are several important cave sites in the vicinity, visited during the local excursion.

A four days excursion followed the main conference. The guide book provides descriptions of all 15 sites visited (plus a number of other points passed on the way). The Boda Cave may stand out as a highlight. The area has become an “eldorado” in paleoseismology with large international excursions in 1999 and 2008.

The granite caves in Sweden have been extensively studied and combined with a whole variety of different criteria of earthquakes in the past; i.e. faults, fractures, liquefaction, sediment disturbance, spreading of turbidites, varve dating and tsunami events.

Speleothems have not been studied and discussed much in Sweden. A first study was presented at the conference. Very active collaborative work was initiated between the Spanish and Swedish groups during the excursion (speleothems were observed and sampled in almost every cave visited).

**A tradition is set:** The 1st conference was held (CGC-1) was held in Spain 2007. The 2nd conference (CGC-2) was now held in Sweden. We hope that a tradition is set and that we can expect CGC-3 in 2015. It is, of course, not limited to Europe; on the contrary – worldwide.

**Publications:** Reviews of the conference and the excursion have been published in *Grottan*, the local newsletter of the Swedish Speleological Society, (2011, no.3, p. 38-45).

**Stockholm, October 6, 2011**

**Nils-Axel Mörner**

**on behalf of the whole Organization Committee**

**Nils-Axel Mörner, Rabbe Sjöberg, Sven Gunnvall, Johannes Lundberg, Ulla Pettersson**

## Summary

The *Second International Conference on Granite Caves* (CGC) was held in Sweden, June 1-7, 2011. It was divided in a 3 days paper conference (with a 1 day local excursion) and a 4 days main excursion. The Swedish Speleological Society (SSF) acted as sponsoring body with Nils-Axel Mörner and Rabbe Sjöberg as the organizers in charge and excursion leaders. The meeting is covered by two publications; *Program & Abstracts for the Main Conference* (15 pp) and *Excursion Guide for the Local and Main Excursions* (28 pp). Both can be ordered from the two organizers or SSF ([www.speleo.se](http://www.speleo.se)).

Granitic caves can be formed by tectonics, by gravity fall and by various types of weathering. In Sweden, most caves seem to have a seismotectonic origin, and they can be correlated with events of liquefaction, sediment deformations, distribution of extensive turbidites (dated by varves as to a single year) and tsunami events. Recently, a number of cave localities have been found and described (e.g. sites 4 and 15 in the guidebook), which are understood in terms of explosive methane venting. The famous Boda Cave (with 2600 m long subsurface passages) is understood in terms of a combination of seismic deformation and methane venting.