Geophysical Research Abstracts, Vol. 7, 01914, 2005
SRef-ID: 1607-7962/gra/EGU05-A-01914

High-Resolution Climate Proxy Records for the Last 2000 Years from a Speleothem from Savi Cave, Trieste, NE Italy

Shopov Y. (1), Stoykova D. (1), Sauro U. (2), Borsato A. (3), Cucchi F. (4), Forti P. (5), Piccini L. (6)

(1) University Center for Space Research, Faculty of Physics, University of Sofia, 1164 Sofia, Bulgaria, (2) Dipartimento di Geografia, Università di Padova, Via del Santo 26, 35123 Padova, Italy, (3) Museo Tridentino di Scienze Naturali, Via Calepina 14, 38100 Trento, Italy, (4) Dipartimento di Scienze Geologiche, Ambientali e Marine, Universita' di Trieste, Via Weiss, 2, 34127 Trieste, Italy, (5) Dipartimento di Scienze della Terra e Geologico Ambientali, Via Zamboni 67, 40127, Bologna, Italy, (6) Dipartimento di Scienze della Terra, Universita' di Firenze, Via La Pira 4, 50121 Firenze, Italy (YYShopov@phys.uni-sofia.bg/ FAX +359(2) 8512838)

We measured three luminescent records from the sample Savi-1, a stalagmite from the Savi Cave, Trieste. The longest panoramic record (having the lowest resolution from the records) is a proxy of the solar influence on the climatic system and covers last 14430 $\pm$176 years. The step of the record varies from 1.1 to 12.7 years.

First composite record, which consists of 81000 data points, is compiled of 39 overlapping scans. It covers the last 5005.2 $\pm$140 years. The time step of the record varies from 9.9 days to 33.9 days.

The highest resolution record covers last 2028 $\pm$100 years and allows precise determination of growth rate of the stalagmite. It consists of 40106 data points compiled of 16 overlapping scans. Its time step varies from 15.6 days to 19.9 days. We made a reconstruction of the annual growth rate variations for the last 2028 years, which represents annual precipitation for this region.

Stable isotope records from the same sample have a systematic lag of about 500 years relatively to the paleoluminescence record. This suggests that δ^{18}Î record represent

climatic response to the solar forcing (recorded by the luminescent record), while δ^{13}C record represents the ecosystem response to the solar forcing.

Strongest cycle of the annual rainfall in the region of Trieste, Italy is with duration of about 300 years.