

Home

Online Library CP

- ▣ Recent Final Revised Papers
- ▣ [Volumes and Issues](#)
- ▣ Special Issues
- ▣ Library Search
- ▣ Title and Author Search

Online Library CPD

Alerts & RSS Feeds

General Information

Submission

Review

Production

Subscription

Comment on a Paper



- ▣ [Volumes and Issues](#)
- ▣ [Contents of Issue 3](#)
- ▣ [Special Issue](#)

Clim. Past, 3, 485-497, 2007

[www.clim-past.net/3/485/2007/](http://www.clim-past.net/3/485/2007/)

© Author(s) 2007. This work is licensed under a Creative Commons License.

## The EDC3 chronology for the EPICA Dome C ice core

F. Parrenin<sup>1</sup>, J.-M. Barnola<sup>1</sup>, J. Beer<sup>2</sup>, T. Blunier<sup>3</sup>, E. Castellano<sup>4</sup>, J. Chappellaz<sup>1</sup>, G. Dreyfus<sup>5</sup>, H. Fischer<sup>6</sup>, S. Fujita<sup>7</sup>, J. Jouzel<sup>5</sup>, K. Kawamura<sup>8</sup>, B. Lemieux-Dudon<sup>1</sup>, L. Loulergue<sup>1</sup>, V. Masson-Delmotte<sup>5</sup>, B. Narcisi<sup>9</sup>, J.-R. Petit<sup>1</sup>, G. Raisbeck<sup>10</sup>, D. Raynaud<sup>1</sup>, U. Ruth<sup>6</sup>, J. Schwander<sup>3</sup>, M. Severi<sup>4</sup>, R. Spahni<sup>3</sup>, J. P. Steffensen<sup>11</sup>, A. Svensson<sup>11</sup>, R. Udisti<sup>4</sup>, C. Waelbroeck<sup>1</sup>, and E. Wolff<sup>12</sup>

<sup>1</sup>Laboratoire de Glaciologie et Géophysique de l'Environnement, CNRS and Joseph Fourier University, Grenoble, France

<sup>2</sup>Department of Surface Waters, EAWAG, Dübendorf, Switzerland

<sup>3</sup>Climate and Environmental Physics, Physics Institute, University of Bern, Bern, Switzerland

<sup>4</sup>Department of Chemistry, University of Florence, Florence, Italy

<sup>5</sup>Laboratoire des Sciences du Climat et de l'Environnement, IPSL/CEA/CNRS/UVSQ, Gif-Sur-Yvette, France

<sup>6</sup>Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, Germany

<sup>7</sup>National Institute of Polar Research, Research Organization of Information and Systems (ROIS), Tokyo, Japan

<sup>8</sup>Center for Atmospheric and Oceanic Studies Graduate School of Science, Tohoku University, Sendai, Japan

<sup>9</sup>ENEA, C. R. Casaccia, Roma, Italy

<sup>10</sup>CSNSM/IN2P3/CNRS, Orsay, France

<sup>11</sup>Niels Bohr Institute, University of Copenhagen, Copenhagen, Denmark

<sup>12</sup>British Antarctic Survey, Cambridge, UK

**Abstract.** The EPICA (European Project for Ice Coring in Antarctica) Dome C drilling in East Antarctica has now been completed to a depth of 3260 m, at only a few meters above bedrock. Here we present the new EDC3 chronology, which is based on the use of 1) a snow accumulation and mechanical flow model, and 2) a set of independent age markers along the core. These are obtained by pattern matching of recorded parameters to either absolutely dated paleoclimatic records, or to insolation variations. We show that this new time scale is in excellent agreement with the Dome Fuji and Vostok ice core time scales back to 100 kyr within 1 kyr. Discrepancies larger than 3 kyr arise during MIS 5.4, 5.5 and 6, which points to anomalies in either snow accumulation or mechanical flow during these time periods. We estimate that EDC3 gives accurate event durations within 20% (2 $\sigma$ ) back to MIS11 and accurate absolute ages with a maximum uncertainty of 6 kyr back to 800 kyr.

- ▣ [Final Revised Paper](#) (PDF, 1169 KB)
- ▣ [Supplement](#) (271 KB)
- ▣ [Discussion Paper](#) (CPD)

Citation: Parrenin, F., Barnola, J.-M., Beer, J., Blunier, T., Castellano, E., Chappellaz, J., Dreyfus, G., Fischer, H., Fujita, S., Jouzel, J., Kawamura, K., Lemieux-Dudon, B., Loulergue, L., Masson-Delmotte, V., Narcisi, B., Petit, J.-R., Raisbeck, G., Raynaud, D., Ruth, U., Schwander, J., Severi, M., Spahni, R., Steffensen, J. P., Svensson, A., Udisti, R., Waelbroeck, C., and Wolff, E.: The EDC3 chronology for the EPICA Dome C ice core, *Clim. Past*,



Search CP

Library Search

Author Search

News

- ▣ [TWO editors of Climate of the Past funded by ERC](#)
- ▣ [Financial Support for Authors](#)
- ▣ [New Service Charges](#)

Recent Papers

01 | CP, 03 Nov 2008:  
Forced and internal modes of variability of the East Asian summer monsoon

02 | CPD, 27 Oct 2008:  
The 8.2 ka cooling event related to extensive melting of the Greenland Ice Sheet

03 | CP, 21 Oct 2008:  
Anticyclonic atmospheric circulation as an analogue for the warm and dry mid-Holocene summer climate in central Scandinavia

04 | CPD, 21 Oct 2008:

