Cenozoic lithostratigraphic units of Austria (sedimentary successions)

Piller, Werner E.[1]; Friebe, J. Georg[2]; Gross, Martin[3]; Harzhauser, Mathias[4]; van Husen, Dirk[5]; Koukal, Veronika[6]; Krenmayr, Hans-Georg[7]; Krois, Peter[8]; Nebelsick, James H.[9]; Ortner, Hugo[10]; Reitner, Jürgen M.[7]; Roetzel, Reinhard[7]; Rögl, Fred[4]; Rupp, Christian[11]; Stingl, Volkmar[10]; Wagner, Ludwig[12]; Wagreich, Michael[6]

1 Institute for Earth Sciences, University of Graz, Heinrichstraße 26, A-8010 Graz, Austria; 2 inatura – Erlebnis Naturschau Dornbirn; 3 Universalmuseum Joanneum, Studienzentrum Naturkunde, Graz; 4 Natural History Museum Vienna; 5 Rustonstraße 7, A-4810 Gmunden; 6 Department of Geology, University of Vienna; 7 Geological Survey of Austria; 8 OMV Exploration & Production, Vienna; 9 Department of Geoscience, University of Tübingen; 10 Institute of Geology, University of Innsbruck; 11 Robert-Fuchs-Gasse 18, A-1140 Vienna, Austria; 12 Wolfersberggasse 6, A-1140 Vienna, Austria.

The Stratigraphic Chart of Austria 2004 (ASC 2004) has been prepared and published without explanations of the depicted lithostratigraphic units. The original plan was to publish a description of all units shown on the ASC 2004 during the following years. So far, only the lithostratigraphic units of the Paleozoic have been published. Concerning the two other era(them)s – the Mesozoic and Cenozoic – it turned out that after so many years after publication of the ASC 2004 the lithostratigraphic units have considerably changed in number, definition and status compared to the chart. This encouraged a work group of the Austrian Commission on Stratigraphy to compile the lithostratigraphic units of the Cenozoic. The idea of this compilation was not to revise or formalize units but just describe the status quo representing a catalogue of so far described Cenozoic lithostratigraphic units in Austria. The descriptions of the lithostratigraphic units are presented in English and follow a fixed scheme. Only the name of the respective unit is documented first in German followed by the English expression. This was chosen because nearly all units treated here where originally named in German language and are also included in the geological maps in German language. The number and sequence of each description follows the recommendations of Steininger & Piller (1999) and matches those of the published Paleozoic volume (Hubmann et al., 2013). This list for each unit includes the following characteristics: Validity, Type area, Type section, Reference section(s), Derivation of name, Synonyms, Lithology, Fossils, Origin, Facies, Chronostratigraphic age, Biostratigraphy, Thickness, Lithostratigraphically higher rank unit, Lithostratigraphic subdivision, Underlying units, Overlying units, Lateral units, Geographic distribution, Remarks and Complementary references. Remarks may also directly follow the description of each category where necessary. For the locations of Type area, Type section and Reference section(s) international geographical coordinates (latitude, longitude) are provided. The lithostratigraphic units are arranged according to the major tectonic units including Cenozoic sediments and sedimentary rocks in a geographic arrangement from west to east and in stratigraphic order from older to younger. The tectonic units relevant for the Austrian Cenozoic are the Austroalpine Unit, Helvetic Unit, Ultrahelvetic Unit, Rhenodanubian Flysch Unit, North Alpine Foreland Basin, Waschberg Unit, Vienna (and Korneuburg) Basin, Eisenstadt-Sopron Basin, Oberpullendorf Basin, Styrian Basin, Fohnsdorf Basin and Lavanttal Basin. The definition of the tectonic units follows roughly the usual schemes which are applied for the official geological maps of Austria. Quaternary sediments deviate from the geographical-stratigraphic scheme and are summarized in a single unit. They are, so far possible, stratigraphically arranged from older to younger. Most Quaternary units do not meet formal lithostratigraphic requirements but represent a mixture of glacial phenomena linked to their stratigraphic position. Only a few exceptions match formal lithostratigraphic rules. Altogether 342 lithostratigraphic units have been described including 267 Formations or formation level units, 54 Members, 1 Subgroup, 13 Groups and 1 Supergroup.