below. The overlying intra-Permian volcanics, however, are missing in this sequence.

Fossils: No fossils have yet been found in this presumably continental sequence except some reworked conodonts in limestones pebbles of the conglomerates at the base.

Origin, facies: Sedimentologically, the Präbichl Formation represents three fining-upward megasequences with alluvial fan deposits at the base suggesting a braided alluvial channel system and a distal sheet flood facies (KRAINER & STINGL, 1986).

Chronostratigraphic age: Lower Permian (?).

Biostratigraphy: -

Thickness: At the type locality some 160 m, at other locations 50 to 100 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): The transgressive post-Variscan cover unconformably overlies different lithologies ranging from the Carboniferous Eisenerz Formation to Devonian limestones and the Upper Ordovician Blasseneck Porphyry (SCHÖNLAUB, 1982a).

Overlying unit(s): Werfen Formation (Triassic).

Lateral unit(s): -

Geographic distribution: According to KRAINER & STINGL (1986) the transgressive sequence at the base of the Northern Calcareous Alps in Salzburg (Leogang) and Tyrol (Wörgl) displays similar lithologies like the Präbichl Formation of the type area. A direct correlation, however, is not possible due to the lack of volcanics characterizing the intra-Permian volcanic episode and the break in the sequence in the type area obliterating the transition to the Werfen Formation. Similarly, to the east the Präbichl Formation can be recognized as far as the Semmering area although the abundance of basal breccias and conglomerates seems to be replaced by smaller-sized gravel bearing alluvial fan deposits (CORNELIUS, 1936, 1937; CLAR, 1972; SOMMER, 1972).

Remarks: -

Complementary references: -

Kristbergschichten / Kristberg Beds

HANS P. SCHÖNLAUB

Validity: Invalid; the term was introduced by VAN AMEROM et al. (1982: p. 287) for a tripartite clastic sequence which unconformably overlies crystalline rocks of the Silvretta Phyllitgneissic Nappe in the Montafon region of Vorarlberg.

Type area: ÖK50-UTM, map sheet 1230 Bludenz (ÖK50-BMN, map sheet 142 Schruns), Außerkristberg north of Silbertal near Schruns, Vorarlberg (VAN AMEROM et al., 1982).

Type section: Creek between Bartholomäberg and Kristberg ("Profil Kristberg") of VAN AMEROM et al., 1982) (N 47°06'15" / E 09°57'49").

Reference section(s): -

Derivation of name: After locality Kristberg northeast of village Schruns in the Province of Vorarlberg.

Synonyms: -

Lithology: Clastic fluviomarine fining-upward megasequences consisting at the base of poorly sorted conglomerates and breccias with clasts of the underlying basement rocks up to 30 cm diameter, succeeded by an alternation of greyish laminated and partly bioturbated sandstones and bedded and laminated siltstones with intercalations of up to 2 m thick blackish carbonate beds and capped by reddish alluvial fan deposits.

Fossils: Plants in the clastic beds and calcareous algae, ostracods, foraminifers and fish remains in the limestone beds.

Origin, facies: The lithology and fossil content of the whole sequence indicates short lasting marine incursions interrupted by a lacustrine environment favouring vegetation and the formation of caliches and paleosols.

Chronostratigraphic age: Upper Carboniferous (Stephanian) to Lower Permian (?).

Biostratigraphy: *Callipteris* sp. group *conferta, C. flabelliformis*, *Lebachia piniformis*, *L. parvifolia*, *Ernestiodendrum filiciformis*, *Odontopteris* sp. and others.

Thickness: At the type locality some 70 meters.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Crystalline Complex of Silvretta (granite gneisses).

Overlying unit(s): Gröden Formation.

Lateral unit(s): -

Geographic distribution: The Kristberg Formation is restricted to the Province of Vorarlberg and distributed between the Rellstal in the west and the Klostertal in the east extending laterally over some 15 km.

Remarks: -

Complementary references: -

Silbersberg-Formation / Silbersberg Formation

FRANZ NEUBAUER

Validity: Invalid; first nomination by CORNELIUS (1952b: p. 51; "Silbersbergserie") with later descriptions by LESKO (1960), NIEVOLL (1984) and NEUBAUER et al. (1994).

Type area: ÖK50-UTM, map sheet 4212 Mürzzuschlag (ÖK50-BMN, map sheet 105 Neunkirchen), Eastern Greywacke Zone near Gloggnitz, Lower Austria.

Type section: The type locality of the Silbersberg Formation is at the southern slope of the Silbersberg near Gloggnitz (Lower Austria).

Reference section(s): -

Derivation of name: After mount Silbersberg near Gloggnitz (Lower Austria).

Synonyms: Silbersbergschichten (CORNELIUS, 1952a); Silbersbergkonglomerat (CORNELIUS, 1952a); Silbersbergserie (CORNELIUS, 1952b); Silbersbergschiefer (NIEVOLL, 1984).

Lithology: The Silbersberg Formation mainly comprises quartz-rich greyish-greenish metaconglomerates and quartzphyllites of variable composition ranging from quartz-rich to mica-rich phyllites interlayered with quartz-rich metaconglomerates. The areal extent was mapped by NEUBAUER et al. (1994). All rocks are metamorphosed in lower greenschist facies metamorphic conditions.

Fossils: -

Origin, facies: The rocks of the Silbersberg Formation are considered as terrestrial deposits at the margin of a depositional basin.

Chronostratigraphic age: Although originally considered as Ordovician or older (CORNELIUS, 1952b), the composition and macroscopic appearance remember that of the Permian Alpine Verruccano as already stated by NIEVOLL (1984). This was confirmed by $^{40}Ar/^{39}Ar$ dating of concentrates of detrital white mica which yield an age of 359.6 ± 1.1 Ma implying a depositional age younger than the approximate Devonian/Carboniferous boundary (HANDLER et al., 1997).

Biostratigraphy: -

Thickness: Unknown.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): In nearly all cases a tectonic boundary including a sheared boundary to underyling Paleozoic quartzphyllite.

Overlying unit(s): Tectonic boundary.

Lateral unit(s): -

Geographic distribution: Lower Austria and eastern Styria.

Remarks: -

Complementary references: -

Graschnitz-Formation / Graschnitz Formation

FRANZ NEUBAUER

Validity: Invalid and informal unit; the term Graschnitz Formation was introduced on the ÖK50-UTM, map sheet 4217 Kindberg (ÖK50-BMN, map sheet 134 Passail) (FLÜGEL et al., 1990; erronously named "Graschitz-Formation" in the map's legend). Unfortunately, neither a description of the succession was ever published, nor explanatory notes for the map sheet.

Type area: ÖK50-UTM, map sheet 4217 Kindberg (ÖK50-BMN, map sheet 134 Passail).

Type section: No type section defined. A sort of type section is exposed along a long road cut north of Frauenberg village.

Reference section(s): -

Derivation of name: After the small village Graschnitz near St. Marein im Mürztal.
Remarks: The correct name of the small village in the Mürz Valley SW of St. Marein is Graschnitz and not Graschitz as misprinted in the legend of the map.

Synonyms: -

Lithology: Grey phyllites and other grey metaclastics of the Veitsch Group (not shown on ASC 2004) are overlain by reddish-grey metapsammitic and metapelitic rocks intercalated by quartz-rich metabreccias and acidic metatuffites. All rocks are metamorphosed in lower greenschist facies metamorphic conditions. In general, sand- and gravel-sized clasts display a reddish color. The lower boundary of the Graschnitz Formation is defined by a color change from grey phyllites to grey-reddish metaclastic rocks, which allows an easy separation from the underlying unit.

Fossils: -

Origin, facies: The Graschnitz Formation could be considered as a terrestrial deposit at the margin of a depositional basin.

Chronostratigraphic age: In Central Europe, the color change is commonly assigned to the approximate Carboniferous/Permian boundary, and the red colour is believed typical for Permian successions. A further argument for a possible Early Permian depositional age is the presence of several decimeter- to meter-thick layers of acidic metatuffites near the base of the Graschnitz Fm., which contain abundant volcanic quartz and K-feldspar phenocrysts. These layers are correlated with the Lower Permian Bozen Quartzporphyry.

Biostratigraphy: -

Thickness: Unknown.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Greyish, upper Carboniferous phyllites of a hitherto unnamed part of the Veitsch Group (not shown in the ASC 2004).

Overlying unit(s): Tectonic boundary.

Lateral unit(s): -

Geographic distribution: Veitsch Nappe of the Greywacke Zone in eastern Styria south of the Mürz Valley (ÖK50-BMN, map sheet 134 Passail).

Remarks: -

Complementary references: -

Haselgebirge / Haselgebirge

KARL KRAINER

Validity: Invalid; informal term for multiphase deformed and weakly metamorphosed Permo-Triassic evaporites of the Northern Calcareous Alps (see MEDWENITSCH, 1951; KÜHN, 1962; TOLLMANN, 1976; SPÖTL, 1989).

Type area: Hallstätter Salzberg (Upper Austria), N 47°33'55" / E 13°37'54", ÖK50-UTM, map sheet 3217 Hallstatt (ÖK50-BMN, map sheets 95 Sankt Wolfgang im Salzkammergut, 96 Bad Ischl).

Type section: No type section defined.

Reference section(s): Poorly exposed on the surface, most studies are based on outcrops in saltmines of Hallstatt (Upper Austria), Hallein (Salzburg) and Hall (Tyrol).

Derivation of name: Old mining term (historical review in SCHAUBERGER, 1986).

Synonyms: Alpines Haselgebirge, Alpine Haselgebirge Formation.

Lithology: The Haselgebirge is a chaotic mélange of shale, siltstone, sandstone, anhydrite, carbonate and rare magmatic rocks embedded in a matrix of clayey halite. The mélange formed during severe tectonization caused by different tectonic processes during Alpine deformation (SPÖTL, 1989). Within undeformed Late Permian successions exposed in saltmines of Hallstatt (Upper Austria), Hallein (Salzburg) and Hall (Tyrol) SPÖTL (1988a, b, 1989) distinguished three lithofacies: (1) red beds and anhydrite, (2) nodular and stratified anhydrites, and (3) bedded halite.

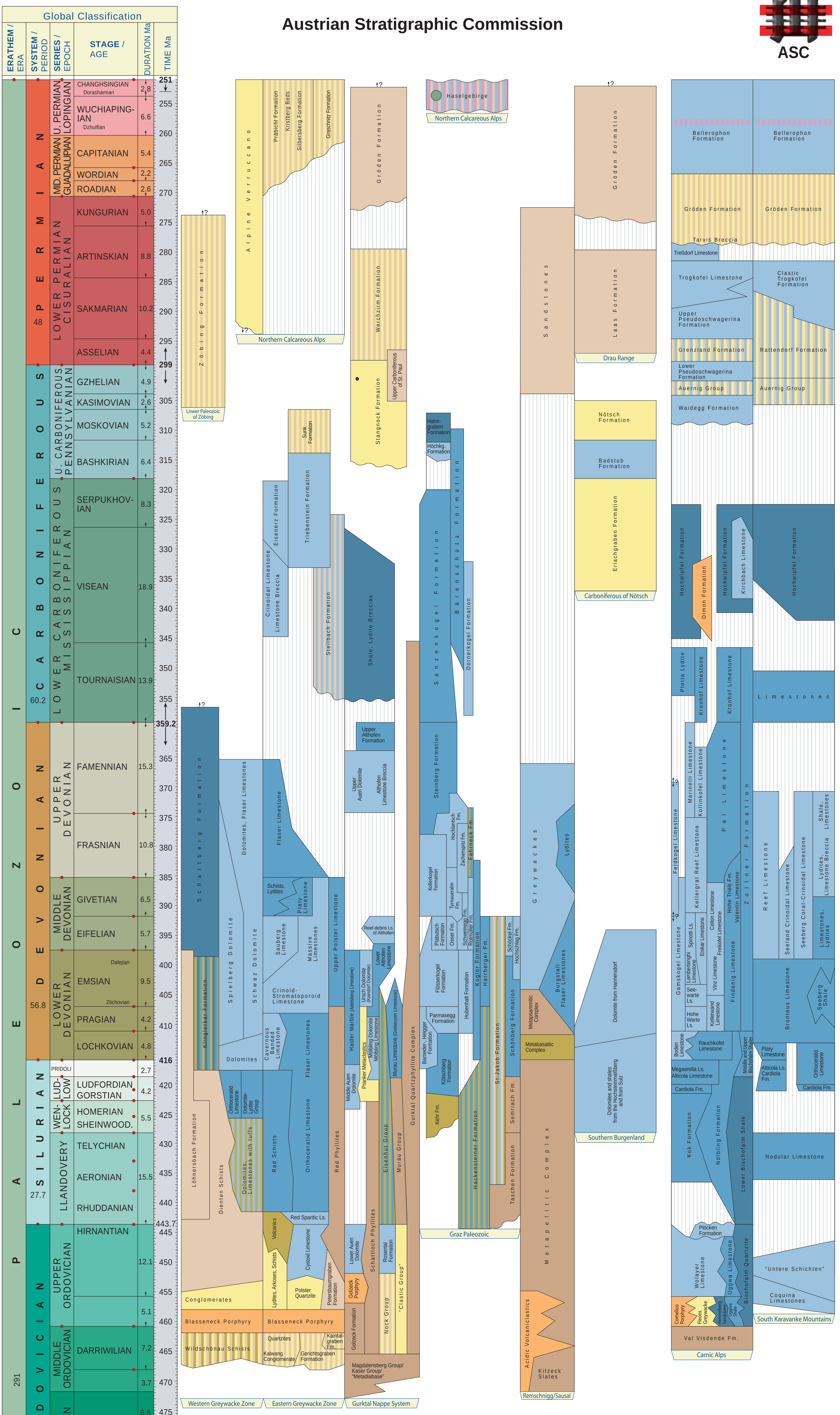
Fossils: Pollen and spores, rare bivalves (KLAUS, 1953, 1963, 1965, 1972; SPÖTL, 1987).

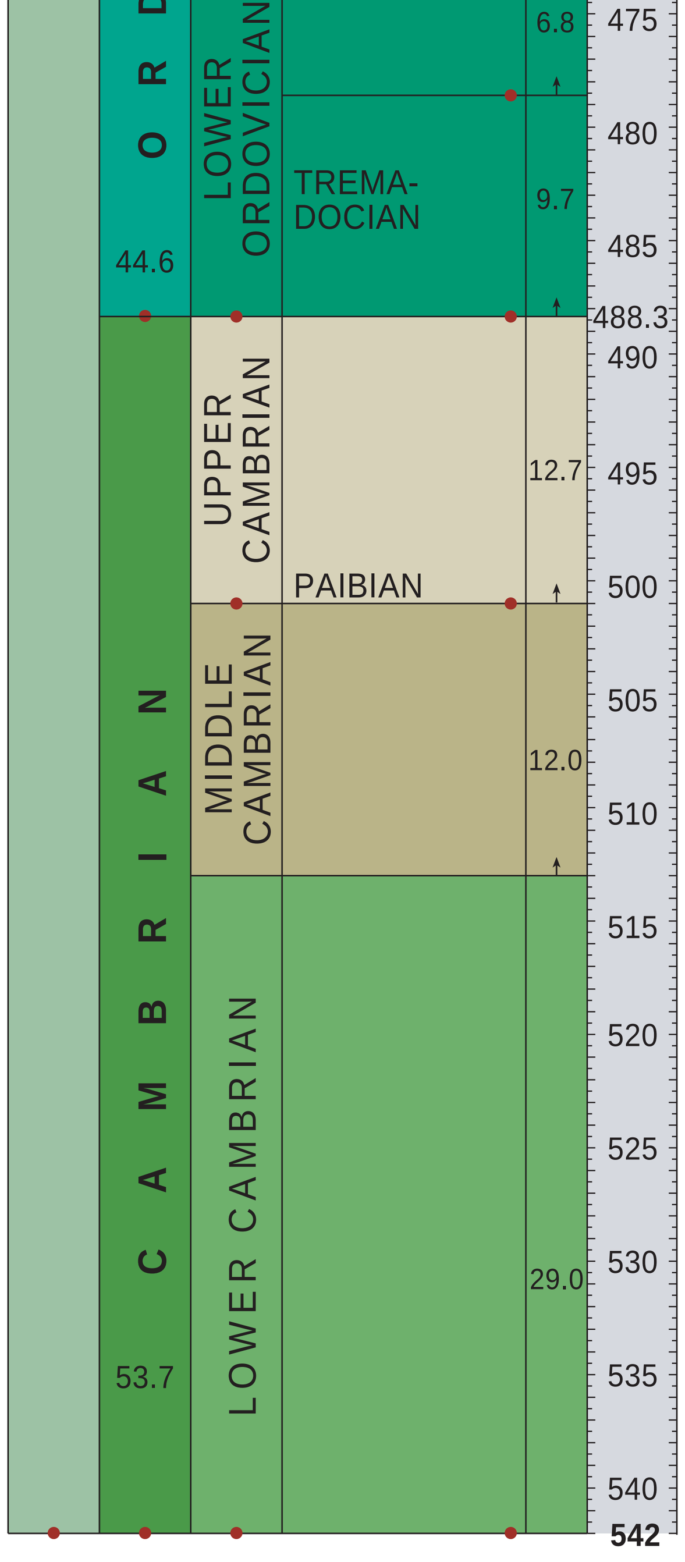
Austrian Stratigraphic Chart 2004 - Paleozoic

(sedimentary successions)

Austrian Stratigraphic Commission

ASC





Legend

- pelagic, offshore, siliciclastic
- pelagic, nearshore, calcareous
- shallow marin, neritic
- terrestrial-continental, coarse clastic
- terrestrial-continental, fine clastic
- evaporite (chloride, sulphate)
- rhyolite, dacite
- (basaltic) andesite, trachyandesite
- basalt
- phyllite
- mixed-facies (in corresponding colors)

- • coal (may include several seams)
- ? position/age doubtful/controversial
- | equal units
- \ older unit left \ younger unit right
- hiatus
- unconformity
- • GSSP
- Fm. Formation
- Ls. Limestone

Cutout and English adaptation of the "Die Stratigraphische Tabelle von Österreich 2004": Geological Survey of Austria

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