

Time Scale			Auen Group (NEUBAUER, 1979)	Pranker Group (NEUBAUER, 1979)	Murau Group (NEUBAUER, 1979)	Althofen Group (SCHÖNLAUB, 1971c)	
DEVONIAN	U	Famennian	15.3			Upper Althofen Formation	
		Frasnian	10.8	Upper Auen Dolomite		Althofen Limestone Breccia ?	
	M	Givetian	6.5				
		Eifelian	5.7		Ursch Dolomite	Reef-debris limestones of Althofen	
	L	Emsian	9.5	Haider Marble			Lower Althofen Limestone
		Pragian	4.2				
		Lochkovian	4.8		Pranker Metaclastics		
	SILURIAN	Pr		2.7	Middle Auen Dolomite	Murau Group	
		Wep- lock	Ludfordian Gorstian	4.2			
			Homerian Sheinwoodian	5.5			
Llandoverly		Telychian					
		Aeronian Rhuddanian	15.5				
ORDOVICIAN	U	Hirnantian	1.9	Lower Auen Dolomite	Schattloch Phyllites		
		Katian	10.2				
	Sandbian	5.1	Golzeck Porphyry				
	M	Darriwilian		Golzeck Formation			

Text-Fig. 3.  
Literature-based subdivision and correlation of the Auen, Pranker, Murau and Althofen groups (Gurktal Nappe).

**Derivation of name:** After a magmatic unit at Mount Golzeck (in the Auen area).

**Synonyms:** Golzeck-Quarzporphyr (NEUBAUER, 1979).

**Lithology:** Quartzporphyry and purple metatuffs.

**Fossils:** -

**Origin, facies:** Following NEUBAUER (1984: p. 56) the Golzeck Porphyry forms the volcanic basement of a submarine swell facies which is represented by the overlying carbonatic development of the Auen Group; magmatic unit.

**Chronostratigraphic age:** Late Ordovician age is concluded by GOSEN et al. (1985: p. 696), as this unit is overlain by meta-rhyolites and carbonates (Lower Auen Dolomite), of which the base of the latter deposits is assigned to the *ordovicicus* Zone (NEUBAUER, 1979: p. 464).

**Biostratigraphy:** -

**Thickness:** Approx. 7 m.

**Lithostratigraphically higher rank unit:** Auen Group (see remarks at Golzeck Formation).

**Lithostratigraphic subdivision:** -

**Underlying unit(s):** Golzeck Formation (conformable contact).

**Overlying unit(s):** Lower Auen Dolomite (conformable contact).

**Lateral unit(s):** Schattloch Phyllites.

**Geographic distribution:** Styria and Carinthia, in the surrounding of Murau, especially south of it near the Styrian/Carinthian states border in the area of Auen (NEUBAUER, 1979: Fig. 1).

**Remarks:** -

**Complementary references:** SCHÖNLAUB (1979, 1992), NEUBAUER & PISTOTNIK (1984).

### Unterer Auen-Dolomit / Lower Auen Dolomite

THOMAS J. SUTTNER

**Validity:** Invalid; the name "Unterer Auen-Dolomit" for this unit was first used by NEUBAUER (1979: p. 464), who mapped and revised the Lower Paleozoic succession of low metamorphic sediments around Murau.

**Type area:** ÖK50-UTM, map sheets 3230 Tamsweg, 4225 Murau (ÖK50-BMN, map sheets 158 Stadl, 159 Murau).

**Type section:** -

**Reference section(s):** Section approx. 100 m north of Haider farmstead located south of Murau in the Auen area (N 47°02'33" / E 14°09'16").

**Derivation of name:** After Auen area (compare locality map of NEUBAUER, 1979: Fig. 1).

**Synonyms:** Dolomitkeile von Laßnitzau [partim] (TURNER, 1956: p. 164).

**Lithology:** Micaceous light pink to greenish marbles, ferruginous dolomite lense, bright and grey dolomite (massive and bedded intervals).

**Fossils:** Conodonts.

**Origin, facies:** Shallow marine, neritic unit.

**Chronostratigraphic age:** Katian to Hirnantian (NEUBAUER, 1979).

**Biostratigraphy:** *ordovicicus* conodont zone.

**Thickness:** 6 m.

**Lithostratigraphically higher rank unit:** Auen Group (see remarks at Golzeck Formation).

**Lithostratigraphic subdivision:** -

**Underlying unit(s):** Golzeck Porphyry (conformable contact).

**Overlying unit(s):** Middle Auen Dolomite (unconformable contact).

**Lateral unit(s):** Schattloch Phyllites (conformable contact).

**Geographic distribution:** Styria and Carinthia, in the surrounding of Murau, especially south of it near the Styrian/Carinthian states border in the area of Auen (NEUBAUER, 1979: Fig. 1).

**Remarks:** -

**Complementary references:** THURNER (1958), EBNER et al. (1977), NEUBAUER (1979, 1984), NEUBAUER & PISTOTNIK (1984), SCHÖNLAUB (1992).

### Mittlerer Auen-Dolomit / Middle Auen Dolomite

THOMAS J. SUTTNER

**Validity:** Invalid; the name Mittlerer Auen-Dolomit for this unit was first used by NEUBAUER (1979: p. 464), who mapped and revised the Lower Paleozoic succession of low metamorphic sediments around Murau.

**Type area:** ÖK50-UTM, map sheets 3230 Tamsweg, 4225 Murau (ÖK50-BMN, map sheets 158 Stadl, 159 Murau).

**Type section:** -

**Reference section(s):** Section in the vicinity of Haider farmstead located south of Murau in the Auen area (N 47°02'36" / E 14°09'18").

**Derivation of name:** After Auen area (compare locality map of NEUBAUER, 1979: Fig. 1).

**Synonyms:** Dolomitkeile von Laßnitzau [partim] (THURNER, 1956: p. 164).

**Lithology:** Dark, massive ferruginous dolomite (lower part of the unit); grey dolomites with crinoid stem plates which are overlain by tuffs and metapsammities (upper part of the unit).

**Fossils:** Conodonts, crinoids.

**Origin, facies:** Shallow marine, neritic unit.

**Chronostratigraphic age:** Homeric to ?Lochkovian (see remarks).

**Biostratigraphy:** Following NEUBAUER (1979: Tab. 1, p. 465–466) conodonts referring to the *sagitta*, *ploeckensis*, *siluricus* and *crispa* zones are identified.

**Thickness:** 20 m.

**Lithostratigraphically higher rank unit:** Auen Group (see remarks at Golzeck Formation).

**Lithostratigraphic subdivision:** According to lithology a lower and upper part was discriminated by NEUBAUER (1979).

**Underlying unit(s):** Lower Auen Dolomite (unconformable contact).

**Overlying unit(s):** Haider Marble (Adelsberg Limestone) (conformable contact).

**Lateral unit(s):** ?Schattloch Phyllites; Pranker Metaclastics.

**Geographic distribution:** Styria and Carinthia, in the surrounding of Murau, especially south of it near the Styrian/Carinthian states border in the area of Auen (NEUBAUER, 1979: Fig. 1).

**Remarks:** The age confinement is based on conodont biostratigraphy. The microfossil material was extracted from five samples of sections 2 and 3 near Haider farmstead (NEUBAUER, 1979: Figs. 2, 3). Hence some of these samples yield temporally long ranging conodont taxa, an Early Devonian age for the upper part of the unit cannot be excluded (NEUBAUER, 1979: p. 465–466).

**Complementary references:** THURNER (1958), NEUBAUER (1984), NEUBAUER & PISTOTNIK (1984), SCHÖNLAUB (1992).

### Haider-Marmor (Adelsbergkalk) / Haider Marble (Adelsberg Limestone)

THOMAS J. SUTTNER

**Validity:** Invalid; the name Haider-Marmor for this unit was first used by NEUBAUER (1979: p. 466), who mapped and revised the Lower Paleozoic succession of low metamorphic sediments around Murau.

**Type area:** ÖK50-UTM, map sheets 3230 Tamsweg, 4225 Murau, 4226 Judenburg (ÖK50-BMN, map sheets 158 Stadl, 159 Murau, 160 Neumarkt in der Steiermark).

**Type section:** Dolomitkeile von Laßnitzau [partim] (THURNER, 1956: p. 164).

**Reference section(s):** Section along the forest road approx. 250 m SE of Haider farmstead (compare NEUBAUER, 1979: p. 467) which is located south of Murau in the Auen area (N 47°02'21" / E 14°09'25").

**Derivation of name:** After the Haider farmstead (Auen area).

**Synonyms:** Karbonatkomplex des Adelsberges (NEUBAUER, 1980a).

**Lithology:** Micaceous yellowish marble (beds 0.5 to 1 m thick), flaser limestone, light grey dolomite, bright grey laminated limestone.

**Fossils:** Conodonts, crinoids.

**Origin, facies:** Marine limestone, pelagic unit.

**Chronostratigraphic age:** Lochkovian to Emsian.

**Biostratigraphy:** Few broken polygnathid conodonts from the upper part of the unit suggest that this unit might have been deposited during the early Middle Devonian (compare NEUBAUER, 1979: p. 467).

**Thickness:** 20 m.

**Lithostratigraphically higher rank unit:** Auen Group (see remarks at Golzeck Formation).

**Lithostratigraphic subdivision:** -

**Underlying unit(s):** Middle Auen Dolomite (conformable contact).

**Overlying unit(s):** Upper Auen Dolomite (unconformable contact).

**Lateral unit(s):** Pranker Metaclastics; Ursch Dolomite (Kaindorf Dolomite).

**Geographic distribution:** Styria and Carinthia, in the surrounding of Murau, especially south of it near the Styrian/Carinthian states border in the area of Auen (NEUBAUER, 1979: Fig. 1).

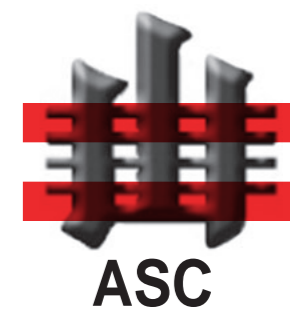
**Remarks:** -

**Complementary references:** THURNER (1958), NEUBAUER (1984), NEUBAUER & PISTOTNIK (1984), SCHÖNLAUB (1992).

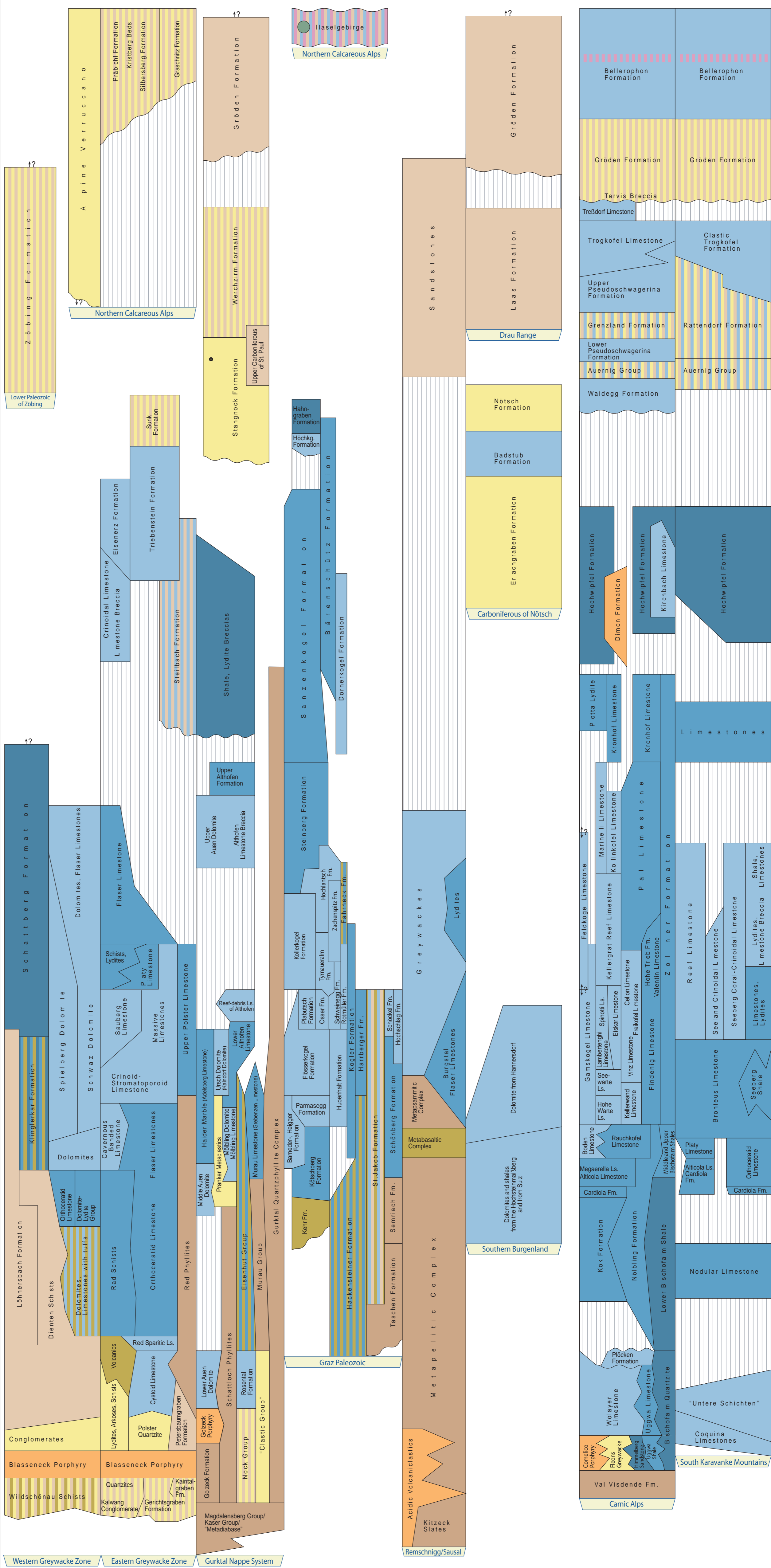
# Austrian Stratigraphic Chart 2004 - Paleozoic

(sedimentary successions)

Austrian Stratigraphic Commission



ERA	SYSTEM / PERIOD / SERIES / EPOCH	STAGE / AGE	DURATION Ma	Global Classification					
				ERATHM / ERA	SYSTEM / PERIOD / SERIES / EPOCH				
PALEOZOIC	PERMIAN	CHANGHSINGIAN / Dorashanian	251	PERMIAN	MID PERMIAN / GUADALUPIAN				
		WUCHIAPINGIAN / Dufallian	255						
		CAPITANIAN	260						
		WORDIAN	265						
		ROADIAN	270						
		PERMIAN	LOWER PERMIAN / CISURALIAN			KUNGURIAN	275		
						ARTINSKIAN	280		
						SAKMARIAN	285		
						ASSELIAN	290		
		PERMIAN	UPPER PERMIAN / CARBONIFEROUS			GZHELIAN	295	PERMIAN	LOWER PERMIAN / CISURALIAN
KASIMOVIAN	300								
MOSKOVIAN	305								
BASHKIRIAN	310								
PERMIAN	UPPER PERMIAN / CARBONIFEROUS			SERPUKHOVIAN	315				
				VISEAN	320				
					325				
PERMIAN	LOWER PERMIAN / MISSISSIPPIAN			TOURNAISIAN	330	PERMIAN	LOWER PERMIAN / MISSISSIPPIAN		
				335					
				340					
		345							
		350							
		355							
		359.2							
		365							
		370							
		375							
PERMIAN	UPPER DEVONIAN	FAMENNIAN	380	PERMIAN	UPPER DEVONIAN				
		FRASNIAN	385						
		GIVETIAN	390						
		EIFELIAN	395						
		DEVONIAN	LOWER DEVONIAN			EMSIAN	400		
						405			
		PRAGIAN	410						
		LOCHKOVIAN	415						
		PERMIAN	LOWER DEVONIAN			LUDFORDIAN	420	PERMIAN	LOWER DEVONIAN
						GORSTIAN	425		
HOMERIAN	430								
SHEINWOOD	435								
TELYCHIAN	440								
AERONIAN	443.7								
RHUDDANIAN	445								
HIRNANTIAN	447								
PERMIAN	UPPER ORDOVICIAN			450	PERMIAN	UPPER ORDOVICIAN			
				455					
		460							
		465							
		470							
		475							
		480							
		485							
		488.3							
		490							
PERMIAN	UPPER CAMBRIAN	495	PERMIAN	UPPER CAMBRIAN					
		500							
		505							
		510							
		515							
		520							
		525							
		530							
		535							
		540							
PERMIAN	LOWER CAMBRIAN	542	PERMIAN	LOWER CAMBRIAN					
		545							
		550							
		555							
		560							
		565							
		570							
		575							
		580							
		585							



- 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

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