

Bischofalm Formation

HANS-PETER SCHÖNLAUB, ANNALISA FERRETTI, CARLO CORRADINI, MARIA G. CORRIGA,
MONICA PONDRELLI & LUCA SIMONETTO

Österreichische Karte 1:50.000

Blatt BMN 197 Kötschach

Blatt BMN 198 Weißbriach

Blatt BMN 199 Hermagor

Carta Topografica d'Italia 1:50.000

Foglio 031 Ampezzo

Foglio 032 Tolmezzo

Foglio 033 Tarvisio

Blatt UTM 3109 Oberdrauburg

Blatt UTM 3110 Kötschach-Mauthen

Blatt UTM 3116 Sonnenalpe Naßfeld

Blatt UTM 3117 Nötsch im Gailtal

Definition

Black siliceous and alum shale, lydite and grayish green argillaceous shale in the middle part.

Description

The Bischofalm Formation consists of monotonous sequences of interbedded radiolarian cherts and alum shales in the lower and upper part of the unit, and with a distinct gray-greenish intermezzo, that has provided graptolites as well.

Fossil content

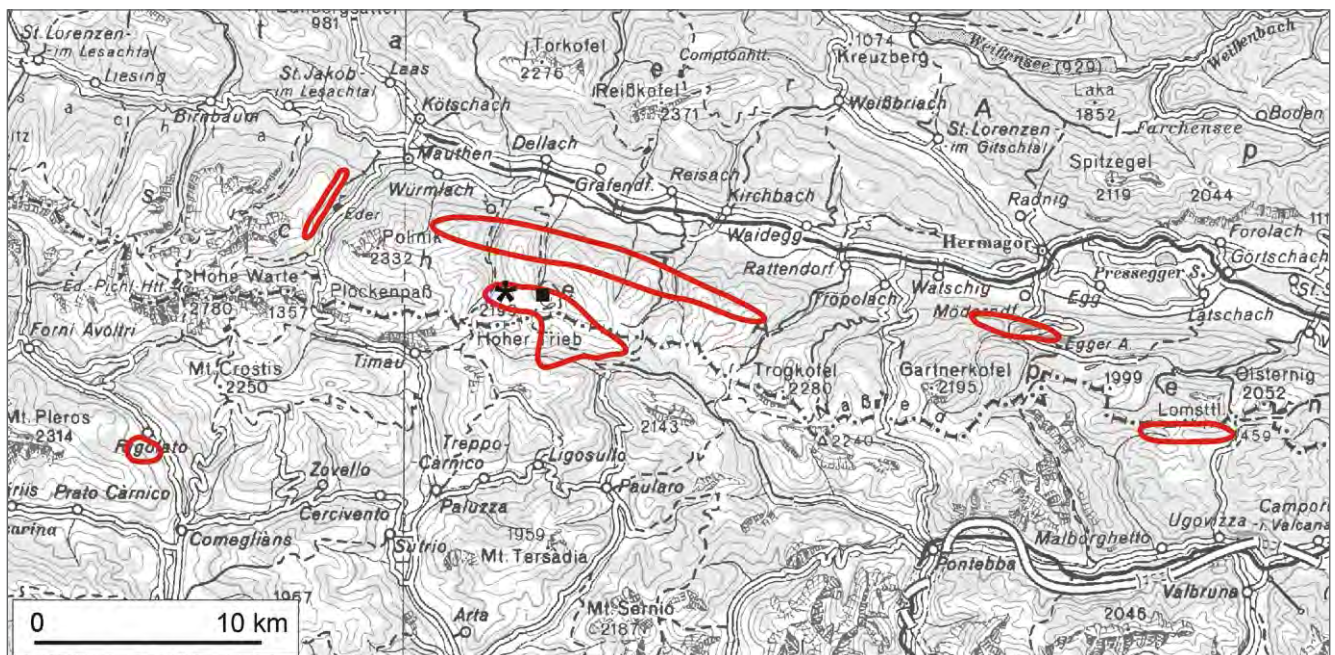
Conodonts, graptolites, radiolarians.

Depositional environment

Deep shelf to basinal euxinic.

Stratotype

Bischofalm “Hauptprofil” of Graptolithengraben Section at altitude 1560 m (FLÜGEL et al., 1977; SCHÖNLAUB, 1985) at coordinates N 46°36'48", E 13°03'38".



Main areal distribution of the Bischofalm Formation with indication of the stratotype (asterisk) and of the reference section (square). Asterisk: Graptolithengraben Section; square: Waterfall Section.



Views of the Graptolithengraben Section. a) lithostratigraphic column of the section (redrawn from FLÜGEL et al., 1977 and SCHÖNLAUB, 1985); b) close view of the Bischofalm Formation exposed in the Graptolithengraben Section (photo H.P. SCHÖNLAUB). Note that the section is reversed.

Reference sections

Waterfall Section (SCHÖNLAUB, 1985; ŠTORCH & SCHÖNLAUB, 2012), east of Zollnersee Hut, at coordinates N 46°36'20", E 13°04'18", exposing the base of the Silurian that is missing in the stratotype.

Type area

Central Carnic Alps.

Main outcrop areas

Bischofalm, area around Lake Zollner, Dellach Alm, area of Rio Cercevesa-Casera Lodin to Meledis, Gugel, Pessendellach near the eastern end of Carnic Alps. Area north of Monte Cocco.

Thickness

Estimated about 60 - 80 m.

Boundaries

Underlying units – Plöcken Formation (conformable, sharp contact).

Overlying units – Zollner Formation (conformable, gradual contact).

Lateral units – Nölbling Formation.

Derivation of name

After the locality of Bischofalm (Austria).



Views of the Bischofalm Formation in the field (photos H.P. SCHÖNLAUB). a) global view of the Waterfall Section; b) close view of a graptolite slab.

Synonymy

Graptoliten-Schiefer: STACHE (1872).
 Gailthaler Schieffer: TARAMELLI (1874).
 Scisti a graptoliti: TARAMELLI (1895a, b).
 Gotlandiano: facies scistosa: GORTANI (1926).
 Siluriano superiore. Scisti neri grafitici o selcioso grafitici: GORTANI & DESIO (1927).
 Calcarei e marne nere alternati, talora con argilliti ai Graptoliti; calcari rossicci o nerastri ad "*Orthoceras*", calcari nodulari: ASSERETO et al. (1968).
 Calcarei chiari a Crinoidi; marne brune e argilliti nere: ASSERETO et al. (1968).
 Lower Graptolitic Shales: FLÜGEL et al. (1977).
 Grey-Green eß Shales: FLÜGEL et al. (1977).
 Upper Graptolitic Shales: FLÜGEL et al. (1977).
 Untere Bischofalm-Schiefer: JAEGER & SCHÖNLAUB (1994).
 Mittlere Bischofalm-Schiefer: JAEGER & SCHÖNLAUB (1994).
 Obere Bischofalm-Schiefer: JAEGER & SCHÖNLAUB (1994).
 Argilliti a graptoliti: VAI et al. (2002).
 Formazione della Bischofalm: VENTURINI (2006).

Chronostratigraphic age

Silurian – Devonian: Rhuddanian to Lochkovian.

Biostratigraphy

Graptolites. – *Akidograptus acuminatus*-*Monograptus hercynicus* zones (FLÜGEL et al., 1977; JAEGER & SCHÖNLAUB, 1980, 1994; SCHÖNLAUB, 1985; ŠTORCH & SCHÖNLAUB, 2012).

Complementary references

Geochemistry. – PASAVA & SCHÖNLAUB (1999).

Isotopes. – WENZEL (1997).

Remarks

Outcrops are often affected by tectonics that prevents in many cases definition of original thickness. Individual outcrops are in tectonic contact with other units.

Several K-bentonites levels were described and discussed by HISTON et al. (2007).

Reflectance on graptolites was performed by RANTITSCH (1992).

References

- ASSERETO, R., DESIO, A., DI COLBERTALDO, D. & PASSERI, L.D. (1968): Note illustrative della Carta Geologica d'Italia alla scala 1-100.000. Foglio 14A Tarvisio. Ministero dell'Industria, del Commercio e dell'Artigianato. Direzione Generale delle Miniere. – Servizio Geologico d'Italia, 1–70, Ercolano.
- FLÜGEL, H.W., JAEGER, H., SCHÖNLAUB, H.P. & VAI, G.B. (1977): Carnic Alps. – In: MAARTINSSON, A. (ed.): The Silurian-Devonian Boundary, International Union of Geological Sciences Series A, **5**, 126–142, Stuttgart.
- GORTANI, M. (1926): Guida geologica del Friuli. Parte generale. – Stabilimento Tipografico Carnia, 64 p., Tolmezzo.
- GORTANI, M. & DESIO, A. (1927): Note illustrative della carta geologica delle Tre Venezie. Foglio "Pontebba". – Ministero dei Lavori Pubblici. Ufficio Idrografico del Regio Magistrato alle Acque. Sezione Geologica, 86 p., Padova.
- HISTON, K., KLEIN, P., SCHÖNLAUB, H.P. & HUFF, W.D. (2007): Lower Paleozoic K-bentonites from the Carnic Alps, Austria. – Mitteilungen der Österreichischen Geologischen Gesellschaft, **100**, 26–42, Wien.
- JAEGER, H. & SCHÖNLAUB, H.P. (1980): Silur und Devon nördlich der Gundersheimer Alm in den Karnischen Alpen (Österreich). – Carinthia II, **170/90**, 403–444, Klagenfurt.
- JAEGER, H. & SCHÖNLAUB, H.P. (1994): "Graptolithengraben" (graptolite gorge) north of Upper Bischofalm. – In: SCHÖNLAUB, H.P. & KREUTZER, L.H. (eds.): Field meeting Eastern + Southern Alps, Austria 1994, Guidebook + Abstracts, Berichte der Geologischen Bundesanstalt, **30**, 97–100, Wien.
- PASAVA, J. & SCHÖNLAUB, H.P. (1999): Stratigraphy, geochemistry and origin of Silurian black graptolitic shales of the Carnic Alps (Austria). – In: LOBITZER, H. & GRECU, P. (eds.): Geologie ohne Grenzen – Festschrift 150 Jahre Geologische Bundesanstalt. – Abhandlungen der Geologischen Bundesanstalt, **56/1**, 317–324, Wien.
- RANTITSCH, G. (1992): Reflexionsmessungen an Graptolithen im Silur und Unterdevon der Karnischen Alpen (Österreich). – Jahrbuch der Geologischen Bundesanstalt, **135**, 299–316, Wien.
- SCHÖNLAUB, H.P. (1985): Das Paläozoikum der Karnischen Alpen. – In: SCHÖNLAUB, H.P. (ed.): Arbeitstagung der Geologischen Bundesanstalt 1985 Kötschach-Mauthen, Gailtal – Geologische Bundesanstalt, 34–52, Wien.
- STACHE, G. (1872): Entdeckung von Graptoliten-Schiefern in den Südalpen. – Verhandlungen der kaiserlich-königlichen Geologischen Reichsanstalt, **1872**, 234–235, Wien.
- ŠTORCH, P. & SCHÖNLAUB, H.P. (2012): Ordovician-Silurian boundary graptolites of the Southern Alps, Austria. – Bulletin of Geosciences, **87/3**, 755–766, Prague.
- TARAMELLI, T. (1874): Stratigrafia della serie paleozoica nelle Alpi Carniche. – Memorie dell'Imperiale Regio Istituto Veneto di Scienze, Lettere ed Arti, **18/1**, 203–218, Venezia.
- TARAMELLI, T. (1895a): Osservazioni stratigrafiche sui terreni paleozoici nel versante italiano delle Alpi Carniche. – Rendiconti della Reale Accademia dei Lincei, s. **5**, 4, 185–193, Roma.
- TARAMELLI, T. (1895b): Osservazioni sul Paleozoico delle Alpi Carniche. – Bollettino della Società Geologica Italiana, **14/2**, 277–280, Roma.
- VAI, G.B., VENTURINI, C., CARULLI, G.B. & ZANFERRARI, A. (eds.) (2002): Alpi e Prealpi Carniche e Giulie (Friuli Venezia Giulia). – Guide Geologiche Regionali della Società Geologica Italiana, **9**, 390 p., Milano.
- VENTURINI, C. (2006): Evoluzione geologica delle Alpi Carniche. – Edizioni del Museo Friulano di Storia Naturale, **48**, 208 p., Udine.
- WENZEL, B. (1997): Isotopenstratigraphische Untersuchungen an silurischen Abfolgen und deren paläozoanographische Interpretation. – Erlanger geologische Abhandlungen, **129**, 1–117, Erlangen.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Abhandlungen der Geologischen Bundesanstalt in Wien](#)

Jahr/Year: 2015

Band/Volume: [69](#)

Autor(en)/Author(s): Schönlaub Hans-Peter, Ferretti Annalisa, Corradini Carlo,
Corriga Maria G., Pondrelli Monica, Simonetto Luca

Artikel/Article: [Bischofalm Formation 65-68](#)