

Seekopf Formation

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Österreichische Karte 1:50.000
Blatt BMN 197 Kötschach

Carta Topografica d'Italia 1:50.000
Foglio 018 Passo di Monte Croce Carnico
Foglio 032 Tolmezzo

Blatt UTM 3109 Oberdrauburg

Definition

The unit is bi-partite with well-bedded nodular and lithoclastic limestone to dolostone in the lower part, and peloidal and crinoidal pack-, grain- and rudstones in the upper part.

Description

The formation begins at the transition from red calcarenites to dolostone. The dolomitization has largely erased original sedimentary textures and structures but remains of lithoclasts are visible throughout the unit. Lithoclastic units are interbedded with graded calcarenites and nodular limestones (biomicrites) with trilobites. Above, a megaclast horizon, with lithoclasts of several meters in diameter is present in the type section.

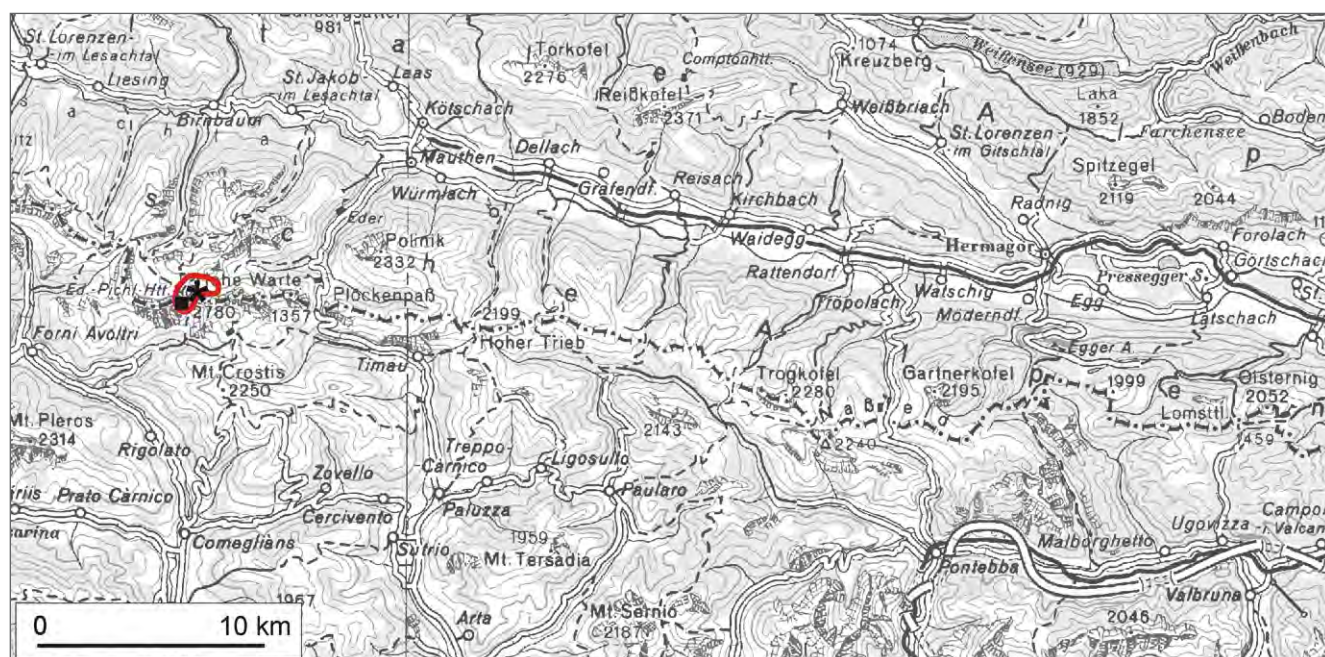
The succeeding crinoidal calcarenites are bedded with oriented crinoids stems and intercalated with massive crinoid-rich grainstones and rudstones.

Fossil content

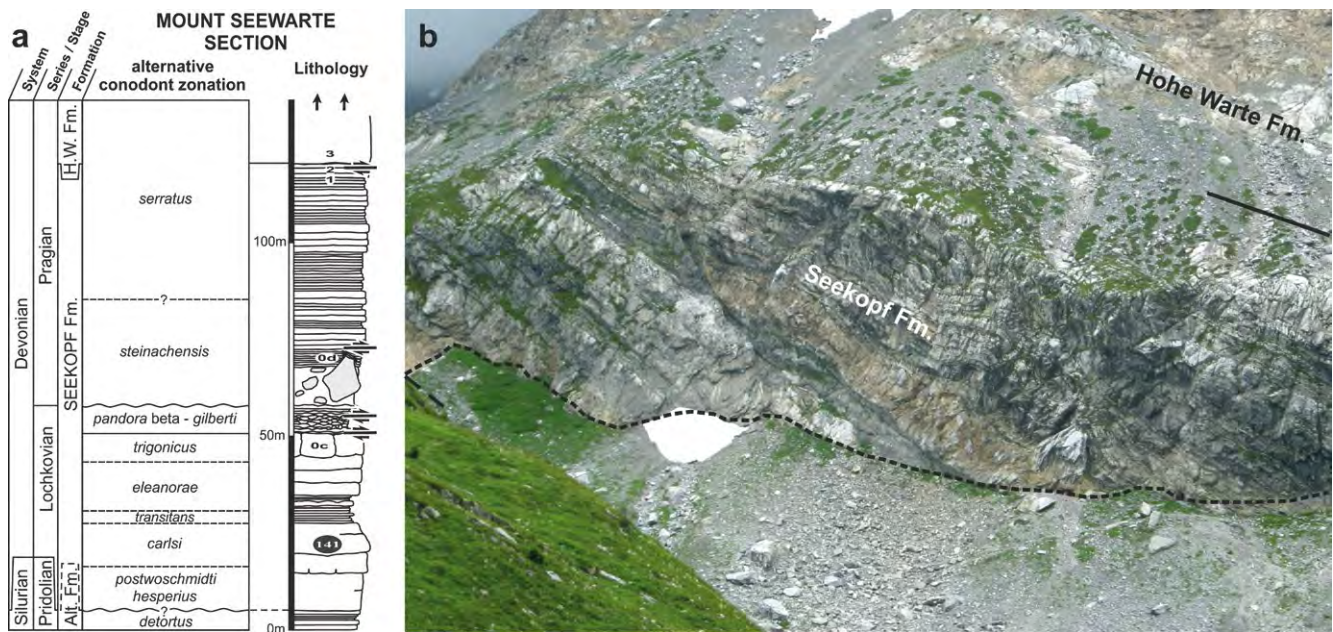
Brachiopods, calcimicrobes, conodonts, crinoids, dactyloconarids, gastropods, ostracods, sponge spicules, trilobites.

Depositional environment

The Seekopf Formation appears to be a shallowing upward succession grading from more carbonate slope sedimentation to shelf ramp sedimentation. The megaclast horizon is most likely a gravity-induced debris flow deposit. Graded beds and lithoclastic horizons are suggestive of turbidite deposits. The crinoidal graded calcarenites and massive calcarenites and -rudites could be shelf edge or ramp deposits influenced by storms (tempestites).



Areas of outcrop of the Seekopf Formation with indication of the stratotype (asterisk) and reference section (square).



The Seewarte Section. a) log of the type section from SUTTNER (2007) with upgraded biostratigraphy; b) panoramic view of the Seekopf Formation along the NW footwall of Mt. Seewarte (photo T.J. SUTTNER).

Stratotype

Seewarte Section (BANDEL, 1972; SUTTNER, 2007), located at the base of Mt. Seewarte, near Lake Wolayer at coordinates N 46°36'44.5", E 12°52'21.4".

Reference sections

Rifugio Lambertenghi Fontana III section (CORRADINI & CORRIGA, 2010), along the path from Rifugio Lambertenghi-Romanin to Mt. Capolago at coordinates N 46°36'22.4", E 12°52'05.4", where the base of the unit is exposed.

Type area

Central Carnic Alps.

Main outcrop areas

The Seekopf Formation crops out at Lake Wolayer and forms the base of shallow water successions at Mt. Polinik, Gamskofel and others.

Thickness

About 115 m (BANDEL, 1972; SUTTNER, 2007).

Boundaries

Underlying unit – Alticola Formation (conformable, gradual contact).

Overlying unit – Hohe Warte Formation (conformable, sharp contact).

Lateral units – Alticola Formation, Rauchkofel Formation.

Derivation of name

After Mt. Seekopf (= Capolago).

Synonymy

Zone der *Rynchonella Megaera*: FRECH (1894).
Orizzonte a *Rynchonella Megaera* Barr.: GORTANI (1913).
Rhynchonella megaera-Schichten: GAERTNER (1931).
ey Dolomit: GAERTNER (1931).
Calcari a *Rhynchonella megaera*: DAL PIAZ & TREVISAN (1956).
Calcari nerastri a Brachiopodi e Crinoidi, calcari nodulari: BRAGA et al. (1971).
Einheit 0a-0g: BANDEL (1969).
crinoidal limestones: VAI in FLÜGEL et al. (1977).
Rauchkofel-Kalk: SCHÖNLAUB (1985).
neritischer Rauchkofel-Kalk: KREUTZER (1992).
Strati a *megaerella*: VAI et al. (2002).

Chronostratigraphic age

Silurian – Devonian: Pridoli to early Pragian.

Biostratigraphy

Conodonts. – Lower *O. elegans detortus* Zone (CORRADINI & CORRIGA, 2010) to *P. serratus* Zone (SUTTNER, 2007).

Complementary references

Isotope Geochemistry. – SUTTNER (2007); CORRADINI & CORRIGA (2010).



View of the Seekopf Formation (type section) in the field. a) lithoclastic layers (photo H.P. SCHÖNLAUB); b) the megaclast horizon with boulders of up to 9 meters (photo T.J. SUTTNER); c) well-bedded, dark gray crinoidal limestones showing a thickening upward cyclicity (photo T.J. SUTTNER); d) view on equivalent beds from the base of the formation at the RLF III section (photo C. CORRADINI).

Remarks

The lower boundary of the Seekopf Formation with the Alticola Formation is gradual and therefore drawn at different biostratigraphic position in different sections. However, the Alticola Formation exposed under the Seekopf Formation does not show the typical lithological character of Alticola Formation, but resembles an equivalent deposited under more shallow marine conditions.

The conspicuous megaclast horizon, which marks the base of the Pragian is only known from the type section at the base of Mt. Seewarte. However, there might be an equivalent horizon at the eastern slope of Mt. Cellon in the here occurring upper part of the Rauckofel Formation.

The partition of the unit into a lower shale and dolostone-rich and an upper limestone-dominated unit is characteristic for this formation.

References

- BANDEL, K. (1969): Feinstratigraphische und biofazielle Untersuchungen unterdevonischer Kalke am Fuß der Seewarte (Wolayer See: zentrale Karnische Alpen). – *Jahrbuch der Geologischen Bundesanstalt*, **112**, 197–234, Wien.
- BANDEL, K. (1972): Palökologie und Paläogeographie im Devon und Unterkarbon der zentralen Karnischen Alpen. – *Palaeontographica Abteilung A*, **141/1–4**, 1–117, Stuttgart.
- BRAGA, G.P., CARLONI, G.C., COLANTONI, P., CORSI, M., CREMONINI, P., FRASCARI, F., LOCATELLI, D., MONESI, A., PISA, G., SASSI, F.P., SELLI, R., VAI, G.B. & ZIRPOLI, G. (1971): Note illustrative della Carta geologica d'Italia. Foglio 4c-13 M. Cavallino-Ampezzo. – Ministero dell'Industria, del Commercio e dell'Artigianato, Direzione Generale delle Miniere, Servizio Geologico d'Italia, 108 p., Roma.
- CORRADINI, C. & CORRIGA, M.G. (2010): Silurian and lowermost Devonian conodonts from the Passo Volaja area (Carnic Alps, Italy). – *Bolletino della Società Paleontologica Italiana*, **49/3**, 237–253, Modena.
- DAL PIAZ, G. & TREVISAN, L. (eds.) (1956): *Lexique stratigraphique international, Europa: Italia*. – Centre Nationale de la Recherche Scientifique, **1/2**, 186 p., Paris.
- 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.
- FRECH, F. (1894): Die Karnischen Alpen. Ein Beitrag zur vergleichenden Gebirgs-Tektonik. – *Abhandlungen der Naturforschenden Gesellschaft zu Halle*, **18**, 1–514, Halle.
- GAERTNER, H.R. von (1931): Geologie der Zentralkarnischen Alpen. – *Denkschrift der Österreichischen Akademie der Wissenschaften, mathematisch-naturwissenschaftliche Klasse, Abteilung 1*, **102**, 113–199, Wien.
- GORTANI, M. (1913): La serie devoniana della giogaia del Coglians (Alpi Carniche). – *Bollettino del Regio Comitato Geologico d'Italia*, **43/3–4**, 235–280, Roma.
- KREUTZER, L.H. (1992): Palinspastische Entzerrung und Neugliederung des Devons in den Zentralkarnischen Alpen aufgrund von neuen Untersuchungen. – *Jahrbuch der Geologischen Bundesanstalt*, **135/1**, 261–272, 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.
- SUTTNER, T.J. (2007): Conodont Stratigraphy, Facies-Related Distribution Patterns and Stable Isotopes (Carbon and Oxygen) of the Uppermost Silurian to Lower Devonian Seewarte Section (Carnic Alps, Carinthia, Austria). – *Abhandlungen der Geologischen Bundesanstalt*, **59**, 1–111, Wien.
- 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.

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